

**August 2006**
**No. OC340  
REVISED EDITION-A**

# TECHNICAL & SERVICE MANUAL

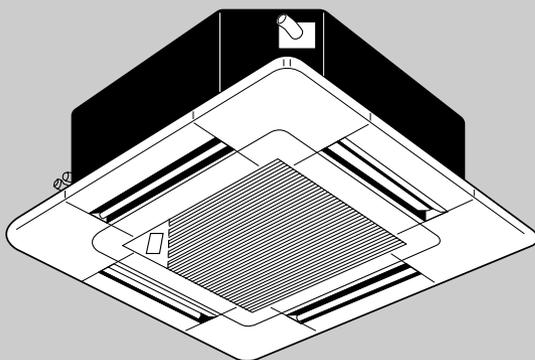
## **CITY MULTI Series Ceiling Cassettes R410A / R22**

[Models] **PLFY-P12NAMU-E**  
**PLFY-P15NAMU-E**  
**PLFY-P18NAMU-E**  
**PLFY-P24NAMU-E**  
**PLFY-P30NAMU-E**  
**PLFY-P36NAMU-E**

Revision:  
 • RoHS PARTS LIST is added.  
 • Some descriptions have been modified.

• Please void OC340.

NOTE:  
 • This manual describes only service data of the indoor units.  
 • RoHS compliant products have <G> mark on the spec name plate.  
 • For servicing of RoHS compliant products, refer to the RoHS PARTS LIST.



INDOOR UNIT

## CONTENTS

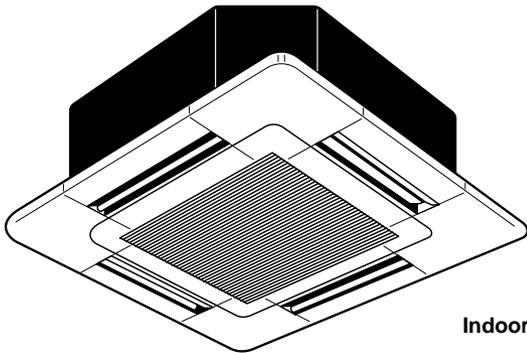
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# CITY MULTI

# 1

# FEATURES



Indoor Unit

## Models

PLFY-P12NAMU-E  
PLFY-P15NAMU-E  
PLFY-P18NAMU-E  
PLFY-P24NAMU-E  
PLFY-P30NAMU-E  
PLFY-P36NAMU-E

## Cooling capacity / Heating capacity

12,000 / 13,500 Btu/h  
15,000 / 17,000 Btu/h  
18,000 / 20,000 Btu/h  
24,000 / 27,000 Btu/h  
30,000 / 34,000 Btu/h  
36,000 / 40,000 Btu/h

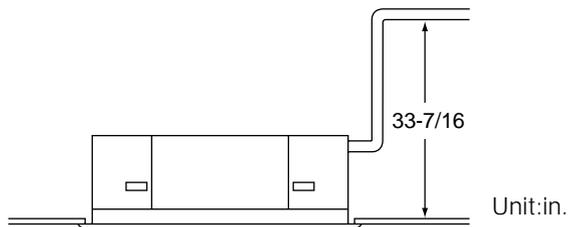
### 1. SPACE-SAVING CENTRALLY LOCATED CEILING RECESSED INSTALLATION

### 2. 4-WAY AIR FLOW SYSTEM

This series allows you to select from 2, 3, and 4 way air flow directions according to your requirement. As a result, you get superb flexibility in choosing a configuration that gives you maximum cooling/heating efficiency in a neat and unobstructive installation.

### 3. DRAIN PUMP FOR EASY PIPE CONNECTION (DRAIN LIFT-UP MECHANISM)

This mechanism, with its capacity to raise drain water 33-7/16 inch above the ceiling line, is convenient for removing water and avoiding piping contact with beams, etc.



### 4. FRESH AIR INTAKE AND BRANCH DUCTING ARE AVAILABLE (on-site work)

### 5. HIGH RELIABILITY AND EASY SERVICING.

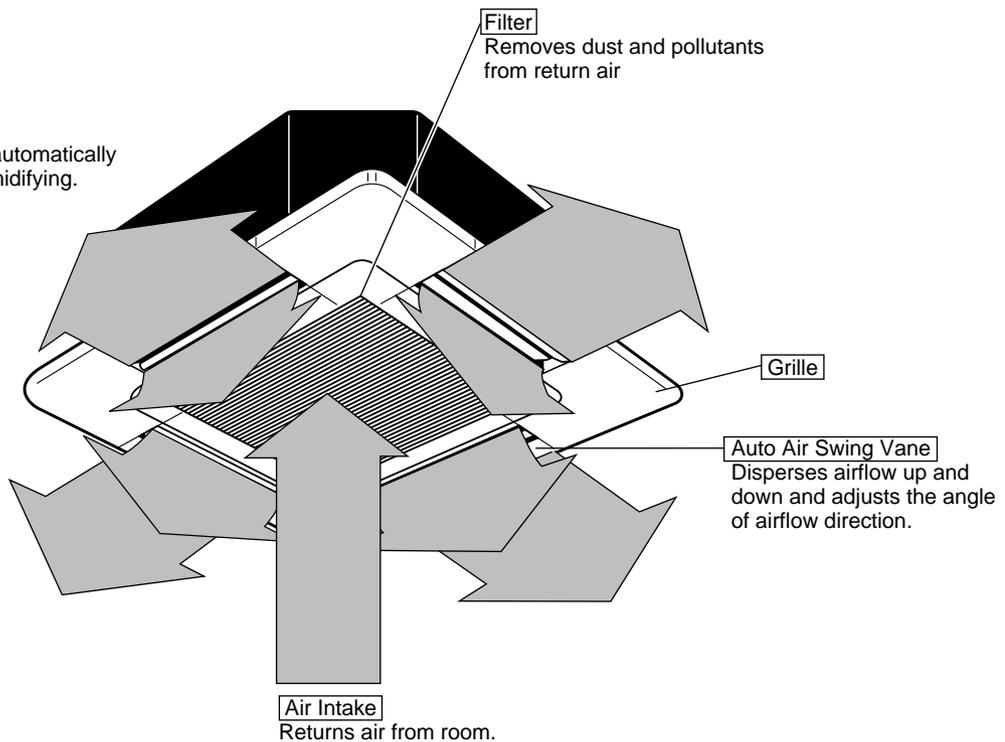
## 2

# PART NAMES AND FUNCTIONS

### ● Indoor (Main) Unit

#### Horizontal Air Outlet

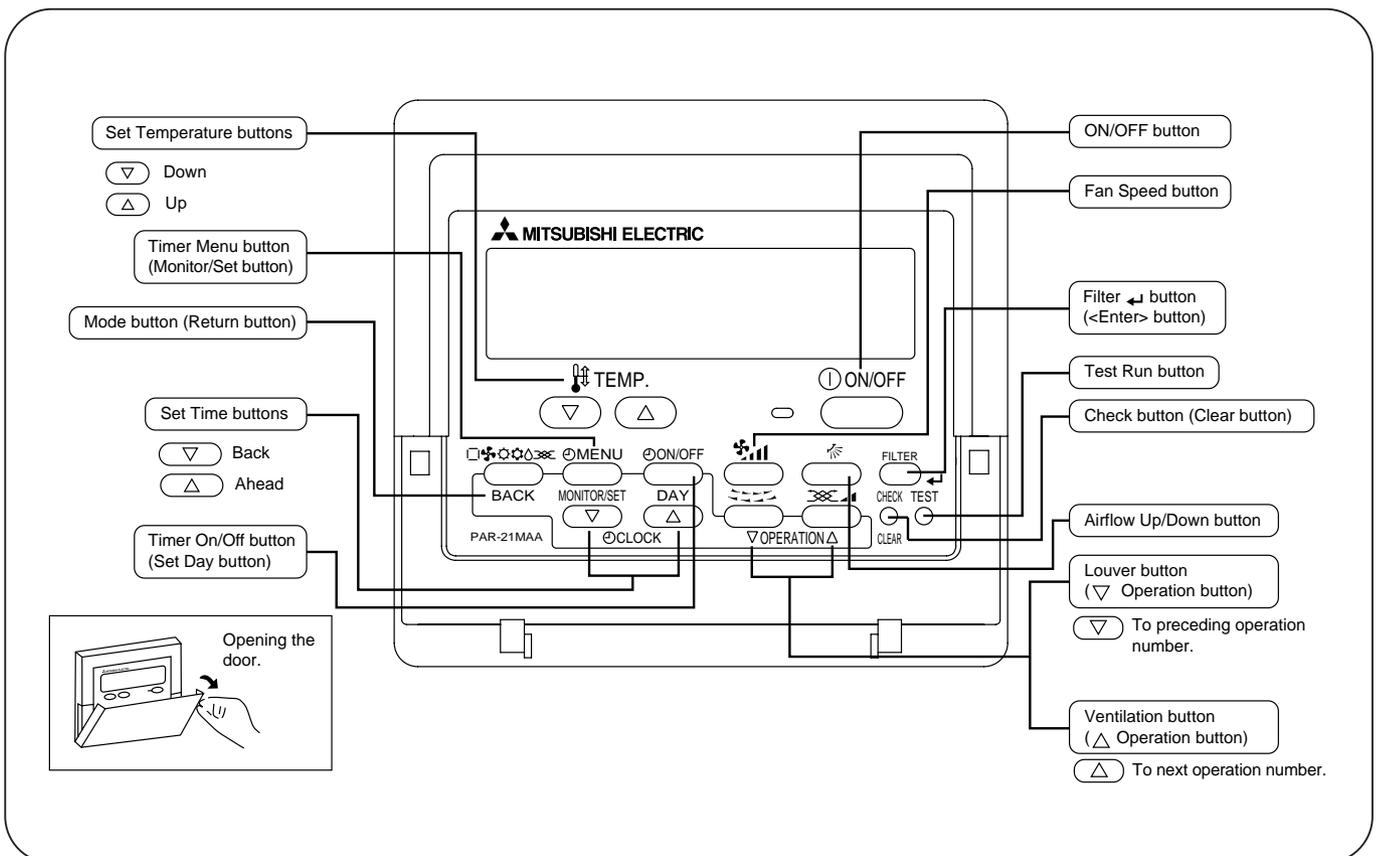
Sets airflow horizontal automatically during cooling or dehumidifying.



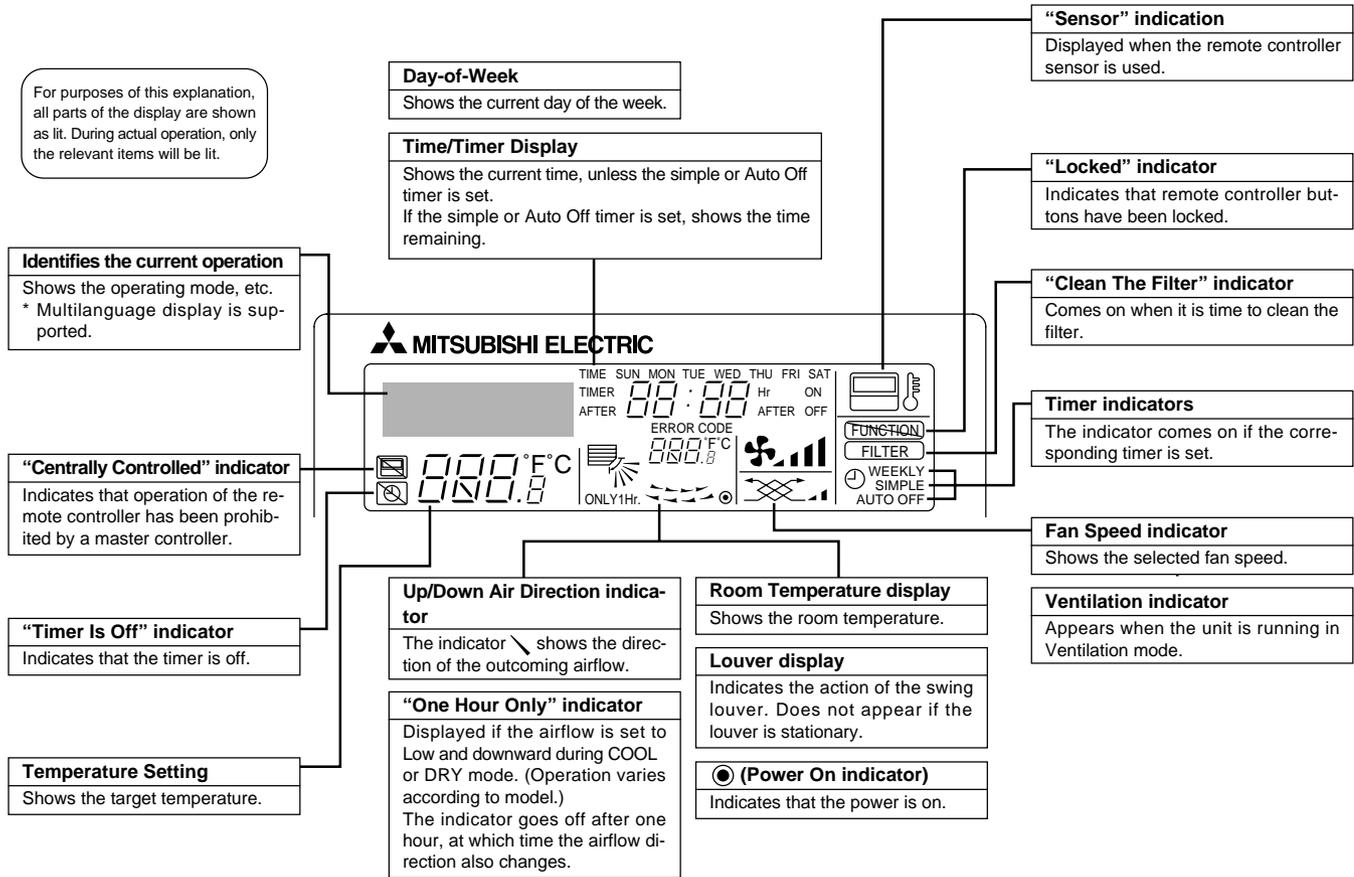
### ● Remote controller

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

### ● Operation buttons



## ● Display



## Caution

- Only the Power on indicator lights when the unit is stopped and power supplied to the unit.
- If you press a button for a feature that is not installed at the indoor unit, the remote controller will display the “Not Available” message.  
If you are using the remote controller to drive multiple indoor units, this message will appear only if the feature is not present at every unit connected.
- When power is turned ON for the first time, it is normal that “PLEASE WAIT” is displayed on the room temperature indication (For max. 2minutes). Please wait until this “PLEASE WAIT” indication disappears then start the operation.

# 3

# SPECIFICATIONS

## 3-1. SPECIFICATIONS

Item		PLFY-P12NAMU-E	PLFY-P15NAMU-E	PLFY-P18NAMU-E	PLFY-P24NAMU-E	PLFY-P30NAMU-E	PLFY-P36NAMU-E		
Power	V•Hz	Single phase 208/230V 60Hz							
Cooling capacity	Btu/h	12,000	15,000	18,000	24,000	30,000	36,000		
Heating capacity	Btu/h	13,500	17,000	20,000	27,000	34,000	40,000		
Electric characteristic	Input	Cooling	kW	0.14	0.14	0.14	0.14	0.27	0.27
		Heating	kW	0.14	0.14	0.14	0.14	0.27	0.27
	Current	Cooling	A	0.68	0.68	0.68	0.68	1.30	1.30
		Heating	A	0.68	0.68	0.68	0.68	1.30	1.30
Exterior (munsell symbol)	—	Unit : Galvanized sheets with gray heat insulation Grills : ABS resin Munsell<0.70Y 8.59/0.97>							
Dimensions	Height	in	10-3/16<1-3/16>			11-3/4<1-3/16>			
	Width	in	33-1/16<37-3/8>						
	Depth	in	33-1/16<37-3/8>						
Heat exchanger	—	Cross fin							
Fan	Fan X No	—	Turbo fan X 1						
	Air flow ※3	DRY	CFM	390-420-460-490	420-460-490-570	490-530-570-640	530-570-640-710	710-810-920-990	780-880-990-1060
		WET	CFM	350-380-410-440	380-410-470-530	470-500-530-600	500-530-600-670	670-770-870-930	730-830-930-1000
	External static pressure	Pa	0						
Fan motor output	kW	0.070			0.110				
Insulator	—	Polyethylene sheet							
Air filter	—	PP honey comb fabric							
Pipe dimensions	Gas side	in	1/2"	1/2" / 5/8"(Compatible)	5/8"		5/8" / 3/4"(Compatible)		
	Liquid side	in	1/4"	1/4" / 3/8"(Compatible)	3/8"				
Unit drain pipe size	in	PVC with O.D.1-1/4"							
Noise level ※3	dB	24-27-28-30	27-28-30-32	27-28-31-33	28-30-33-34	34-36-40-41	37-40-43-44		
Product weight	lb	49<11>		53<11>		66<11>			

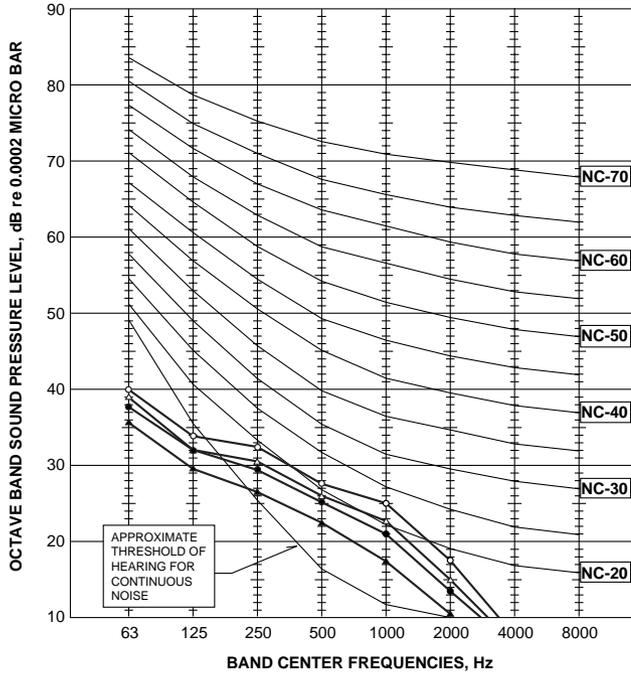
- Note 1. Rating conditions  
 Cooling : Indoor : D.B. 80°F W.B. 67°F  
                   outdoor : D.B. 95°F W.B. 75°F  
 Heating : Indoor : D.B. 70°F  
                   outdoor : D.B. 47°F W.B. 43°F

- Note 2. The number indicated in < > is just for the grille.  
 ※ 3. Air flow and the noise level are indicated as Low - Medium2 - Medium1 - High.

### 3-2. NOISE CRITERION CURVES

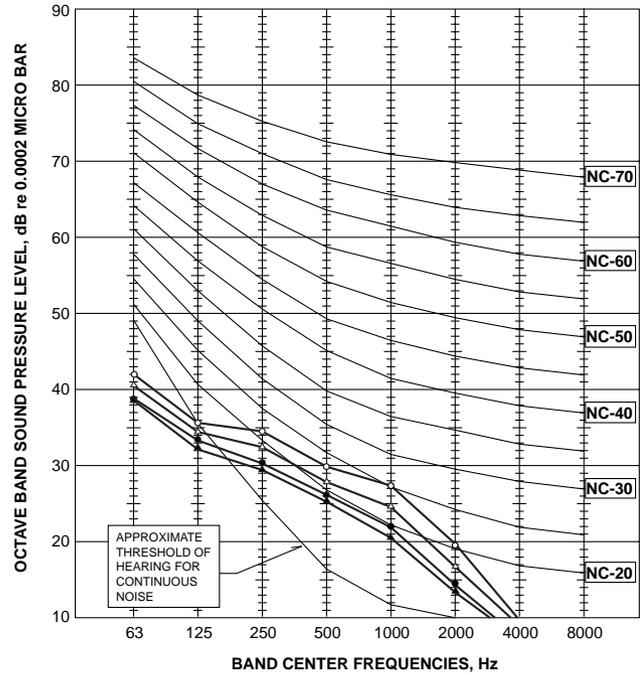
**PLFY-P12NAMU-E**

NOTCH	SPL(dB)	LINE
High	30	○—○
Medium1	28	△—△
Medium2	27	●—●
Low	24	▲—▲



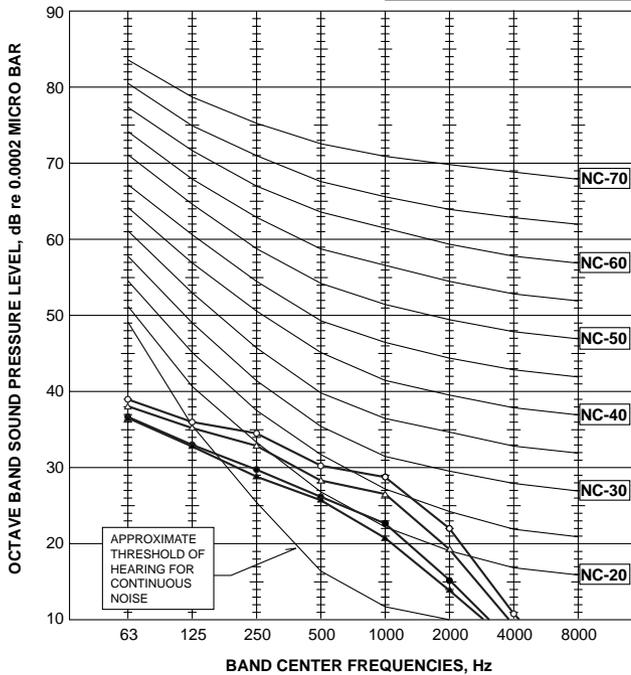
**PLFY-P15NAMU-E**

NOTCH	SPL(dB)	LINE
High	32	○—○
Medium1	30	△—△
Medium2	28	●—●
Low	27	▲—▲



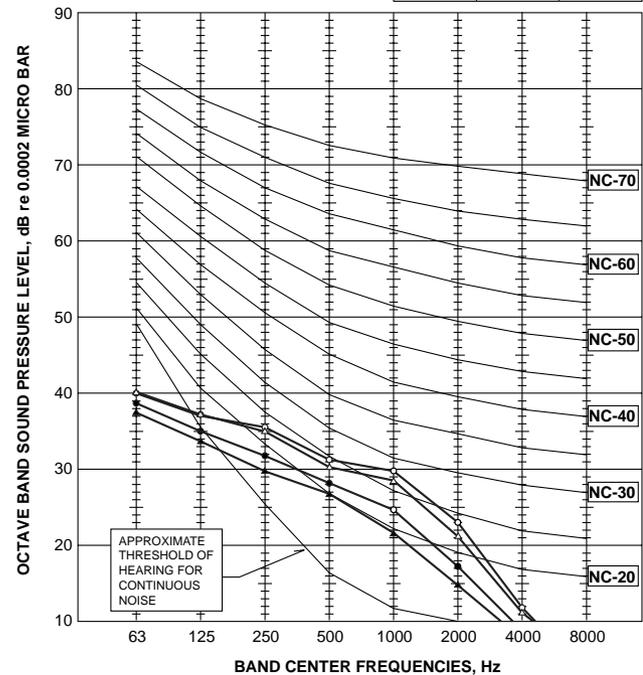
**PLFY-P18NAMU-E**

NOTCH	SPL(dB)	LINE
High	33	○—○
Medium1	31	△—△
Medium2	28	●—●
Low	27	▲—▲



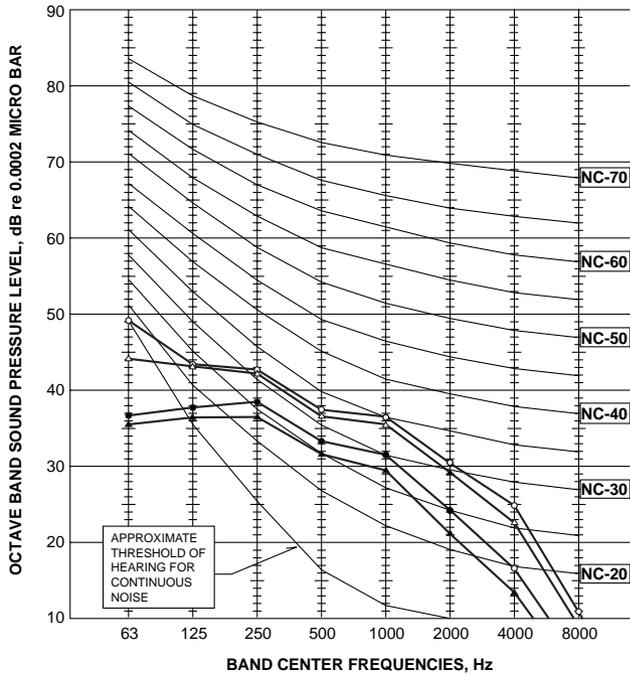
**PLFY-P24NAMU-E**

NOTCH	SPL(dB)	LINE
High	34	○—○
Medium1	33	△—△
Medium2	30	●—●
Low	28	▲—▲



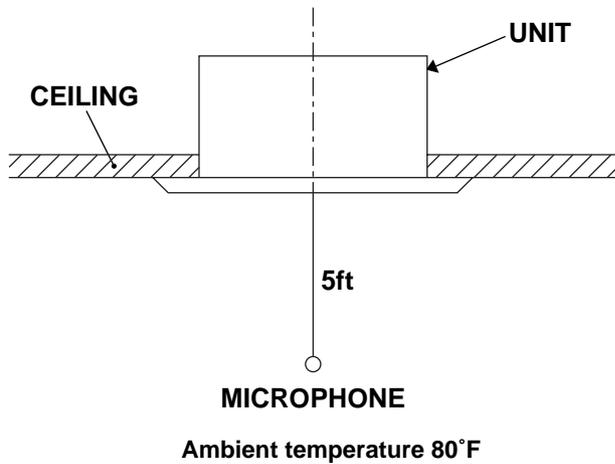
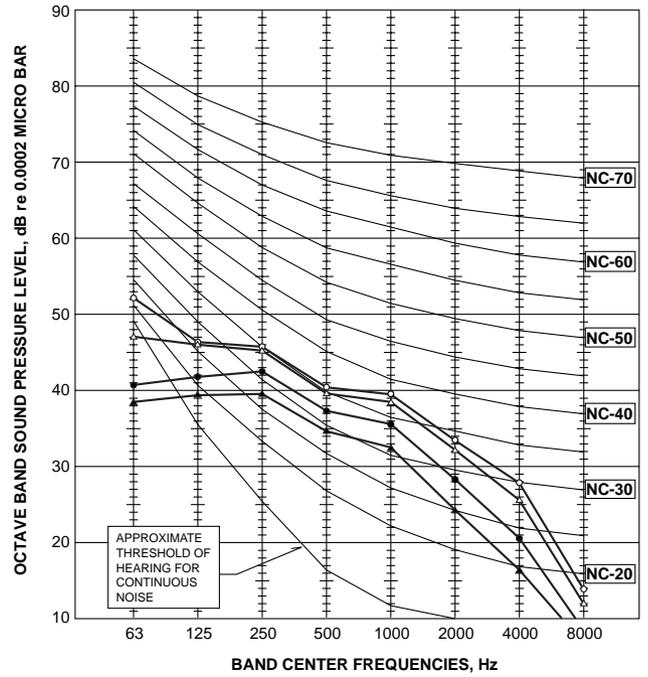
### PLFY-P30NAMU-E

NOTCH	SPL(dB)	LINE
High	41	○—○
Medium1	40	△—△
Medium2	36	●—●
Low	34	▲—▲



### PLFY-P36NAMU-E

NOTCH	SPL(dB)	LINE
High	44	○—○
Medium1	43	△—△
Medium2	40	●—●
Low	37	▲—▲



### 3-3. ELECTRICAL PARTS SPECIFICATIONS

Model	Symbol	PLFY-P12NAMU-E	PLFY-P15NAMU-E	PLFY-P18NAMU-E	PLFY-P24NAMU-E	PLFY-P30NAMU-E	PLFY-P36NAMU-E
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					
Fan motor (with inner-thermostat)	MF	6-pole OUTPUT 70W D17D6P70MS				6-pole OUTPUT 110W D176P110MS	
		Inner-thermostat OPEN 266°F ± 9°F					
Fan motor capacitor	C	3.0μF X 440V				7.0μF X 440V	
Vane motor	MV	MSBPC20M13 DC12V 300Ω/phase					
Drain-up mechanism	DP	PLD-12220ME-2 INPUT 12/10.8W 24 ℓ /Hr					
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				DC12V Stepping motor drive port dimension φ5.2 (0~2000pulse) EDM-80YGME	
Electric heater (Condensation proof)	H2	240V 21.8W					
Power supply terminal block	TB2	(L1, L2, GR) 330V 30A					
Transmission terminal block	TB5	(M1, M2, S) 250V 20A					
MA remote controller terminal block	TB15	(1, 2) 250V 10A					

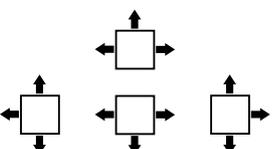
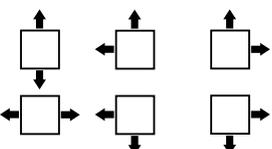
## 4 4-WAY AIR FLOW SYSTEM

### 4-1. PLACEMENT OF THE AIR OUTLETS

- For this grille, the blowout direction comes in 11 patterns.

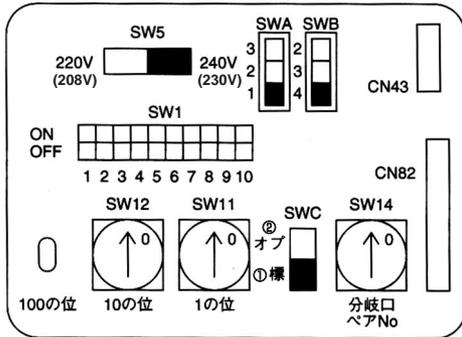
Also, by setting the dip switches (SWA and SWB) on the address board to the appropriate settings, you can adjust the air flow and speed. Select the settings from Table according to the location in which you want to install the unit.

- Decide on the pattern of the airflow direction.

<Table 1>	4-direction	3-direction	2-direction
Blowout direction pattern	<b>Pattern 1</b> Factory setting 	<b>Pattern 4</b> One air outlet fully closed 	<b>Pattern 6</b> Two air outlet fully closed 

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

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



PLFY-P12, P15, P18NAMU-E (Unit : feet)

SWA \ SWB		①	②	③
		Standard	High ceiling ①	High ceiling ②
4	4 direction	8.9	9.8	11.5
3	3 direction	9.8	10.8	11.5
2	2 direction	10.8	11.5	—

PLFY-P24, P30, P36NAMU-E (Unit : feet)

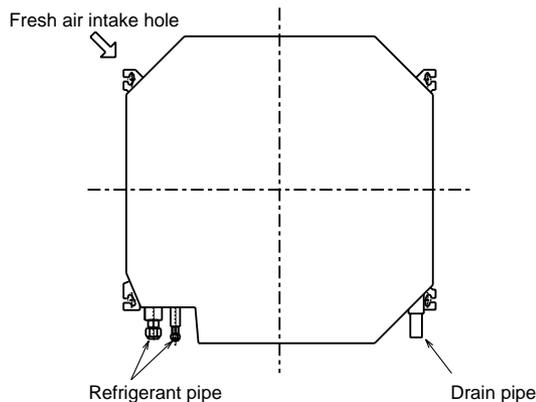
SWA \ SWB		①	②	③
		Standard	High ceiling ①	High ceiling ②
4	4 direction	10.5	11.8	13.8
3	3 direction	11.8	13.1	13.8
2	2 direction	13.1	13.8	—

## 4-2. FRESH AIR INTAKE (INSTALLATION OF SITE)

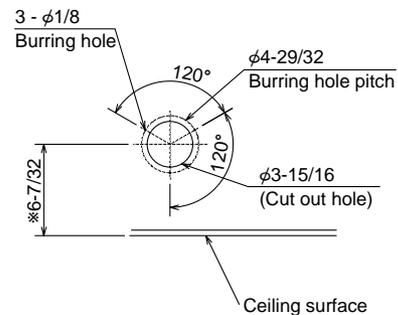
- At the time of installation, use the duct holes (cutout) located at the positions shown in following diagram, as and when required.

Note :

Be sure to add 5/16 inch to the dimensions in the diagram that are marked with a “※” if installing a multi function casement (Option)



Fresh air intake hole diagram (Unit : inch)



## 4-3. INTERLOCKING OPERATION METHOD WITH DUCT FAN (BOOSTER FAN)

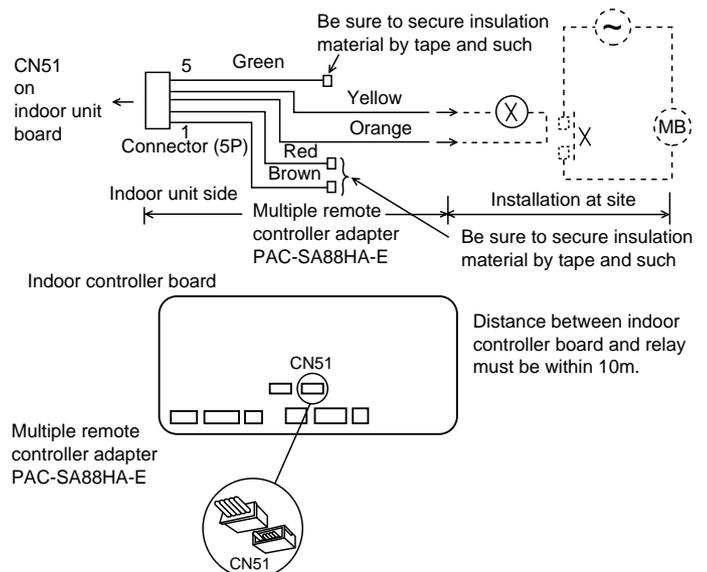
- Whenever the indoor unit is operating, the duct fan also operates.

- (1) Connect the optional multiple remote controller adapter (PAC-SA88HA-E) to the connector CN51 on the indoor controller board.
- (2) Drive the relay after connecting the 12V DC relay between the Yellow and Orange connector lines.

(※) Use a relay under 1W.

MB: Electromagnetic switch power relay for duct fan.

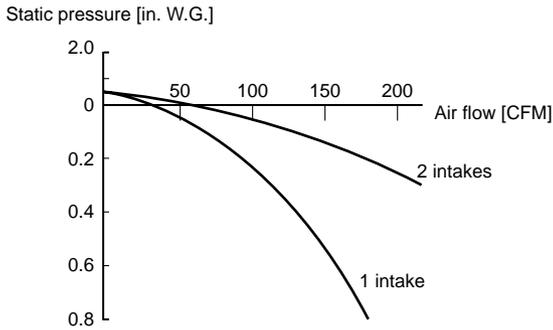
X: Auxiliary relay (12V DC LY-1F)



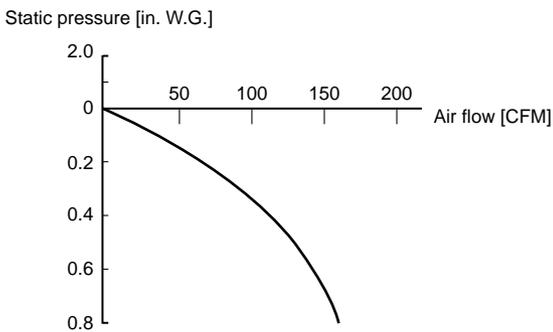
## 4-4. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

### 1 PLFY-P12 /P15 /P18 /P24NAMU-E

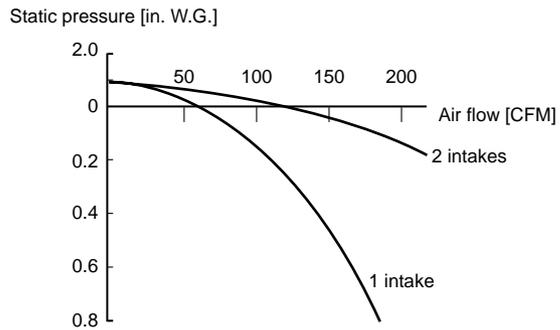
#### Multifunction casement + Standard filter



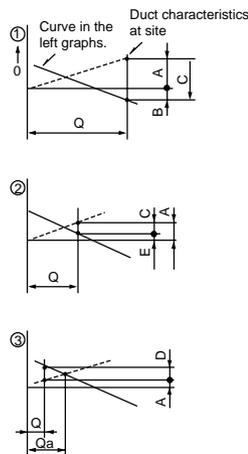
#### Taking air into the unit



#### Multifunction casement + High efficiency filter



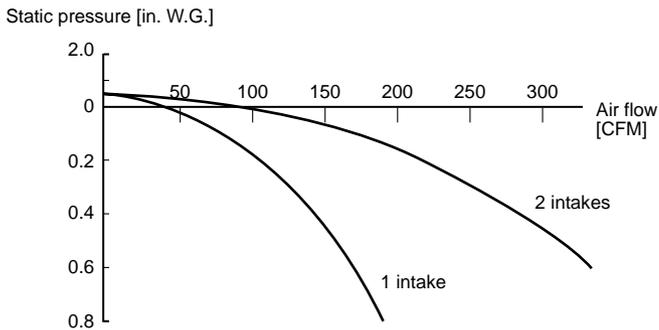
#### How to read curves



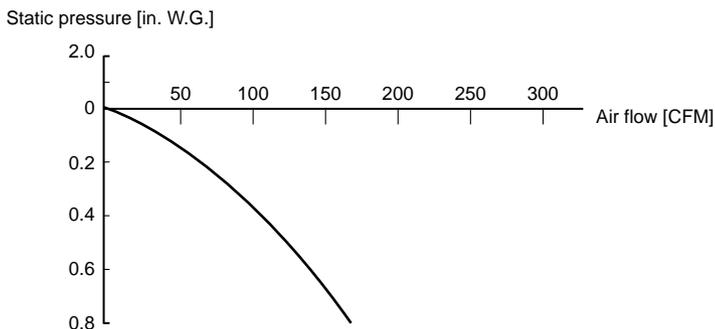
- Q...Planned amount of fresh air intake <CFM>
- A...Static pressure loss of fresh air intake duct system with air flow amount Q <in.W.G.>
- B...Forced static pressure at air conditioner inlet with air flow amount Q <in.W.G.>
- C...Static pressure of booster fan with air flow amount Q <in.W.G.>
- D...Static 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 with out D <CFM>

### 2 PLFY-P30 /P36NAMU-E

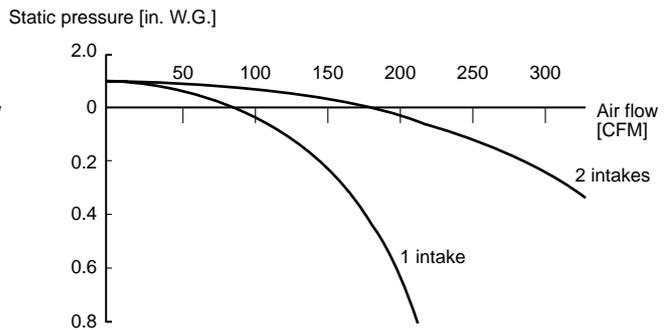
#### Multifunction casement + Standard filter



#### Taking air into the unit



#### Multifunction casement + High efficiency filter

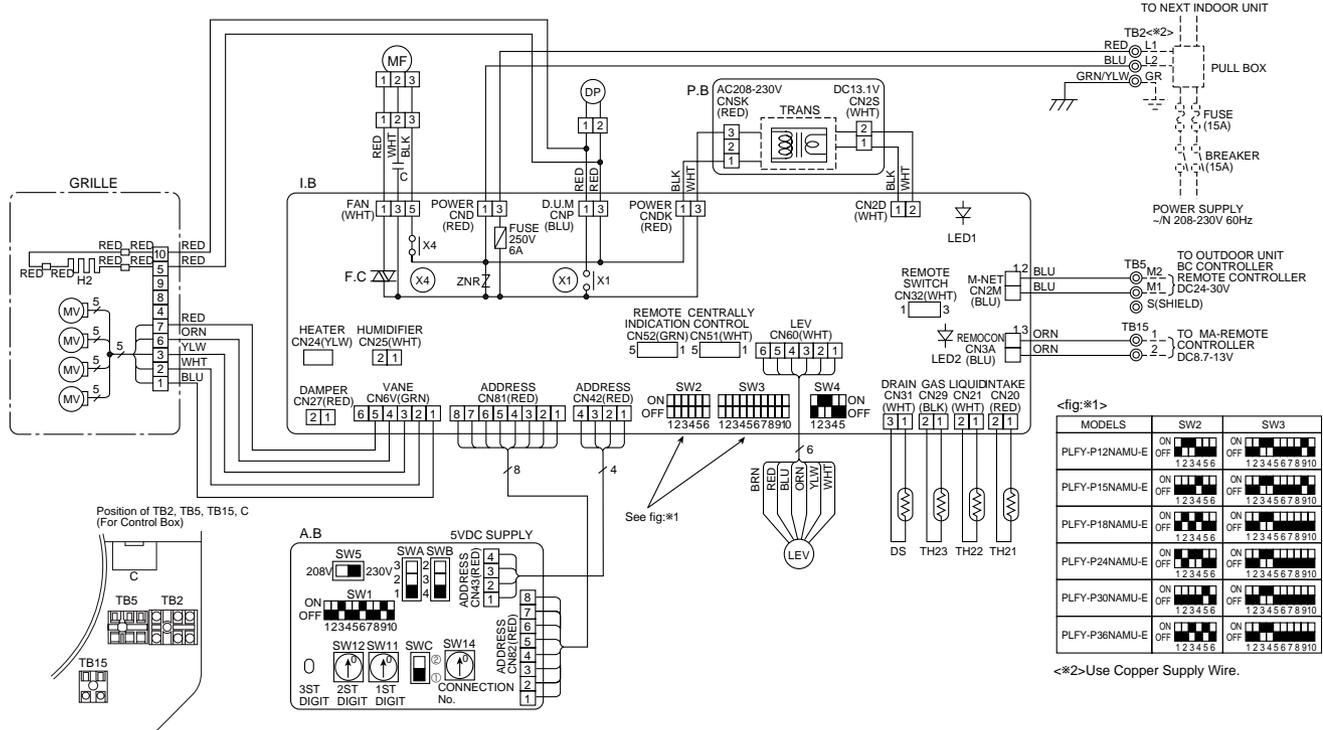




# 6

# WIRING DIAGRAM

PLFY-P12NAMU-E    PLYF-P24NAMU-E  
 PLYF-P15NAMU-E    PLYF-P30NAMU-E  
 PLYF-P18NAMU-E    PLYF-P36NAMU-E



<fig:\*1>

MODELS	SW2	SW3
PLFY-P12NAMU-E	ON OFF 123456	ON OFF 12345678910
PLFY-P15NAMU-E	ON OFF 123456	ON OFF 12345678910
PLFY-P18NAMU-E	ON OFF 123456	ON OFF 12345678910
PLFY-P24NAMU-E	ON OFF 123456	ON OFF 12345678910
PLFY-P30NAMU-E	ON OFF 123456	ON OFF 12345678910
PLFY-P36NAMU-E	ON OFF 123456	ON OFF 12345678910

<#2>Use Copper Supply Wire.

### 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 /SW3 dip switches differs in the capacity for the detail, refer to the fig : \*1.
- Please set the switch SW5 according to the power supply voltage. Set SW5 to 230V side when the power supply is 230 volts. When the power supply is 208 volts, set SW5 to 208V side.

### 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

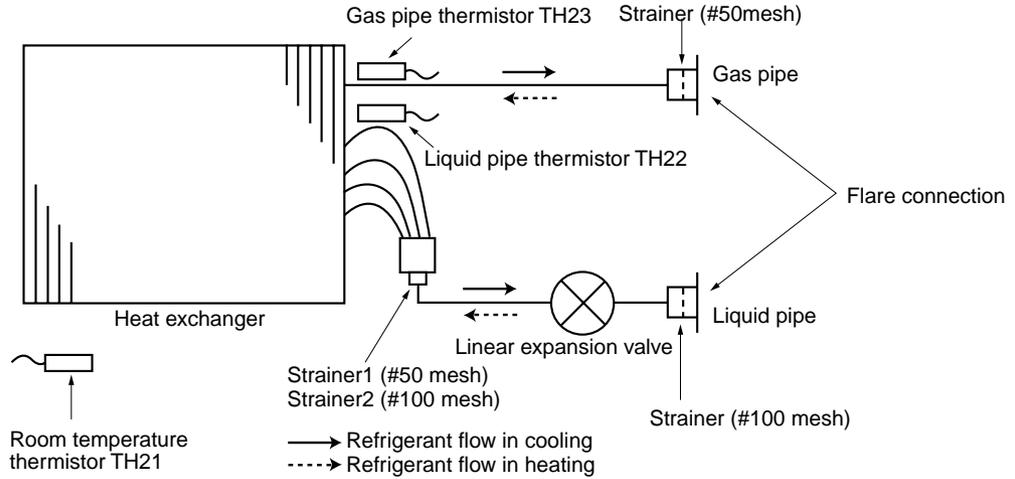
### [ LEGEND ]

SYMBOL	NAME	SYMBOL	NAME
A. B	CIRCUIT BOARD (ADDRESS)	P. B	INDOOR POWER BOARD
SW1	SWITCH MODE SELECTION	C	CAPACITOR (FAN MOTOR)
SW5	VOLTAGE SELECTION	DP	DRAIN WATER LIFTING-UP MACHINE
SW11	ADDRESS SETTING 1ST DIGIT	DS	DRAIN SENSOR
SW12	ADDRESS SETTING 2ND DIGIT	H2	DEW PREVENTION HEATER
SW14	CONNECTION No.	LEV	LINEAR EXPANSION VALVE
SWA	CEILING HEIGHT SELECTOR	MF	FAN MOTOR (WITH INNER THERMOSTAT)
SWB	DISCHARGE OUTLET NUMBER SELECTOR	MV	VANE MOTOR
SWC	OPTION SELECTOR	TB2	TERMINAL POWER SUPPLY
I. B	INDOOR CONTROLLER BOARD	TB5	BLOCK TRANSMISSION
CN24	CONNECTOR HEATER	TB15	MA-REMOTE CONTROLLER
CN25	HUMIDIFIER	TH21	THERMISTOR ROOM TEMP. DETECTION (32°F/15kΩ, 77°F/5.4kΩ.)
CN27	DAMPER	TH22	PIPE TEMP. DETECTION/LIQUID (32°F/15kΩ, 77°F/5.4kΩ.)
CN32	REMOTE SWITCH	TH23	PIPE TEMP. DETECTION/GAS (32°F/15kΩ, 77°F/5.4kΩ.)
CN51	CENTRALLY CONTROL		
CN52	REMOTE INDICATION		
F. C	FAN PHASE CONTROL		
FUSE	FUSE (6A/250V)		
SW2	SWITCH CAPACITY CODE		
SW3	MODE SELECTION		
SW4	MODEL SELECTION		
X1	AUX. RELAY DRAIN PUMP/DEW PREVENTION HEATER		
X4	FAN MOTOR		
ZNR	VARIATOR		

# 7

# REFRIGERANT SYSTEM DIAGRAM

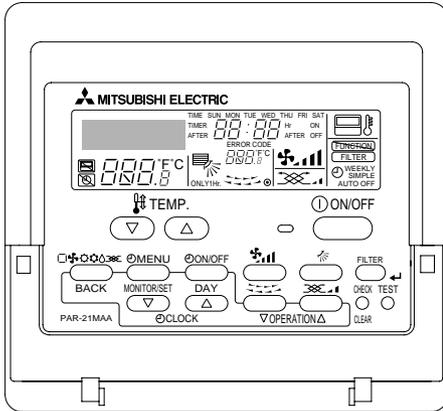
**PLFY-P12NAMU-E**    **PLFY-P24NAMU-E**  
**PLFY-P15NAMU-E**    **PLFY-P30NAMU-E**  
**PLFY-P18NAMU-E**    **PLFY-P36NAMU-E**



Service Ref.	PLFY-P12/ P15NAMU-E	PLFY-P18NAMU-E	PLFY-P24/ P30NAMU-E	PLFY-P36NAMU-E
Item				
Gas pipe	1/2"	1/2" / 5/8" (Compatible)	5/8"	5/8" / 3/4"(Compatible)
Liquid pipe	1/4"	1/4" / 3/8" (Compatible)	3/8"	3/8"

## INDOOR UNIT CONTROL

## 8-1. COOL OPERATION



## &lt;How to operate&gt;

- 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  $\nabla$  or  $\Delta$  button is pressed one time Cooling 67 to 87°F.

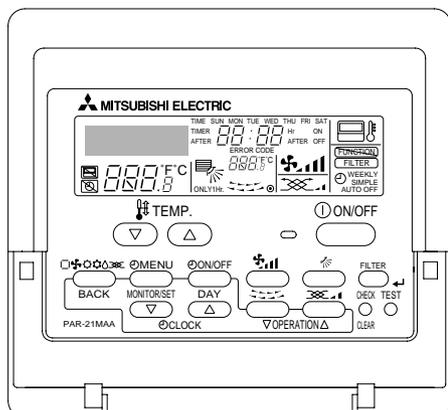
Control modes	Control details	Remarks				
1. Thermoregulating function	1-1. Thermoregulating function (Function to prevent restarting for 3 minutes) <ul style="list-style-type: none"> <li>• Room temperature <math>\geq</math> desired temperature + 2°F ...Thermo ON</li> <li>• Room temperature <math>\leq</math> desired temperature ...Thermo OFF</li> </ul>					
	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 thermo 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. <ol style="list-style-type: none"> <li>① Liquid pipe temp. (TH22) turn 50°F or above.</li> <li>② The condition of the thermo OFF has become complete by thermoregulating, etc.</li> <li>③ The operation modes became mode other than COOL.</li> <li>④ The operation stopped.</li> </ol>					
2. Fan	By the remote controller setting (switch of 4 speeds) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Type</td> <td>Fan speed notch</td> </tr> <tr> <td>4 speeds type</td> <td>[Low], [Med2], [Med1], [High]</td> </tr> </table>	Type	Fan speed notch	4 speeds type	[Low], [Med2], [Med1], [High]	
Type	Fan speed notch					
4 speeds type	[Low], [Med2], [Med1], [High]					

To be continued on the next page.

From the preceding page.

Control modes	Control details	Remarks
<p>3. Drain pump</p>	<p>3-1. Drain pump control</p> <ul style="list-style-type: none"> <li>•Always drain pump ON during the COOL and DRY mode operation. (Regardless of the thermo ON/ OFF)</li> <li>•When the operation mode has changed from the COOL or DRY to the others (including Stop), OFF the control after the drain pump ON for 3 minutes.</li> </ul> <p><b>Drain sensor function</b></p> <ul style="list-style-type: none"> <li>• Energize drain sensor at a fixed voltage for a fixed duration. After energizing, compare the drain sensor's temperature to the one before energizing, and judge whether the sensor is in the air or in the water.</li> </ul> <p><b>Basic control system</b></p> <ul style="list-style-type: none"> <li>• While drain pump is turned on, repeat the following control system and judge whether the sensor is in the air or in the water.</li> </ul> <p>Timing of energizing drain sensor</p> <p>ON OFF</p> <p>Stand by for a minute    30 sec.    Stand by for a minute    30 sec.    .....Repeat</p> <p>Detect the temperature before energizing (T<sub>0</sub>)</p> <p>Detect the temperature after energizing (T<sub>1</sub>)</p> <p>Judge whether the sensor is in the air or in the water.</p> <ul style="list-style-type: none"> <li>•Drain sensor temperature rise (<math>\Delta t</math>)</li> <li>•Temperature of drain sensor before current is applied (T<sub>0</sub>)</li> <li>•Temperature of drain sensor after current is applied (T<sub>1</sub>)</li> </ul> <p>[ <math>\Delta t = T_1 - T_0</math> ]</p>	<p>*1 Drain sensor Indoor control p.c. board CN31</p>
<p>4. Vane (up/ down vane change)</p>	<p>(1) Initial setting : Start at COOL mode and horizontal vane.</p> <p>(2) Vane position : Horizontal → Downward A → Downward B → Downward C → Swing</p> <p>(3) Restriction of the downward vane setting When setting the downward vane A, B or C in [Med1], [Med2] or [Low] of the fan speed notch, the vane changes to horizontal position after 1 hour have passed.</p>	<p>*1 "SET FOR 1 HOUR" appears on the wired remote controller.</p>

## 8-2. DRY OPERATION



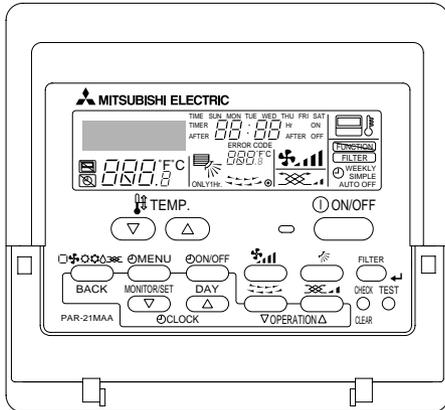
### <How to operate>

- 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  $\nabla$  or  $\Delta$  button is pressed one time. Dry 67 to 87°F.

Control modes	Control details	Remarks																															
1. Thermo regulating function	<p>1-1. Thermo regulating function (Function to prevent restarting for 3 minutes) Setting the Dry thermo by the thermo regulating signal and the room temperature (TH1). Dry thermo ON Room temperature <math>\geq</math> desired temperature + 2°F Dry thermo OFF Room temperature <math>\leq</math> desired temperature</p> <table border="1"> <thead> <tr> <th rowspan="2">Room temperature</th> <th colspan="2">3 min. passed since starting operation</th> <th rowspan="2">Dry thermo ON time (min)</th> <th rowspan="2">Dry thermo OFF time (min)</th> </tr> <tr> <th>Thermo regulating signal</th> <th>Room temperature (T1)</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Over 64°F</td> <td rowspan="4">ON</td> <td>T1 <math>\geq</math> 83°F</td> <td>9</td> <td>3</td> </tr> <tr> <td>83°F &gt; T1 <math>\geq</math> 79°F</td> <td>7</td> <td>3</td> </tr> <tr> <td>79°F &gt; T1 <math>\geq</math> 75°F</td> <td>5</td> <td>3</td> </tr> <tr> <td>75°F &gt; T1</td> <td>3</td> <td>3</td> </tr> <tr> <td></td> <td>OFF</td> <td>Unconditional</td> <td>3</td> <td>10</td> </tr> <tr> <td>Less than 64°F</td> <td colspan="4">Dry thermo OFF</td> </tr> </tbody> </table>	Room temperature	3 min. passed since starting operation		Dry thermo ON time (min)	Dry thermo OFF time (min)	Thermo regulating signal	Room temperature (T1)	Over 64°F	ON	T1 $\geq$ 83°F	9	3	83°F > T1 $\geq$ 79°F	7	3	79°F > T1 $\geq$ 75°F	5	3	75°F > T1	3	3		OFF	Unconditional	3	10	Less than 64°F	Dry thermo OFF				
	Room temperature		3 min. passed since starting operation				Dry thermo ON time (min)	Dry thermo OFF time (min)																									
Thermo regulating signal		Room temperature (T1)																															
Over 64°F	ON	T1 $\geq$ 83°F	9	3																													
		83°F > T1 $\geq$ 79°F	7	3																													
		79°F > T1 $\geq$ 75°F	5	3																													
		75°F > T1	3	3																													
	OFF	Unconditional	3	10																													
Less than 64°F	Dry thermo OFF																																
	<p>1-2. Frozen prevention control No control function</p>																																
2. Fan	<p>Indoor fan operation controlled depends on the compressor conditions.</p> <table border="1"> <thead> <tr> <th>Dry thermo</th> <th>Fan speed notch</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>[Low]</td> </tr> <tr> <td>OFF</td> <td>Stop</td> </tr> </tbody> </table> <p>Note: Remote controller setting is not acceptable.</p>	Dry thermo	Fan speed notch	ON	[Low]	OFF	Stop																										
Dry thermo	Fan speed notch																																
ON	[Low]																																
OFF	Stop																																
3. Drain pump	Same control as COOL operation																																
4. Vane (up/ down vane change)	Same control as COOL operation																																

## 8-3. FAN OPERATION

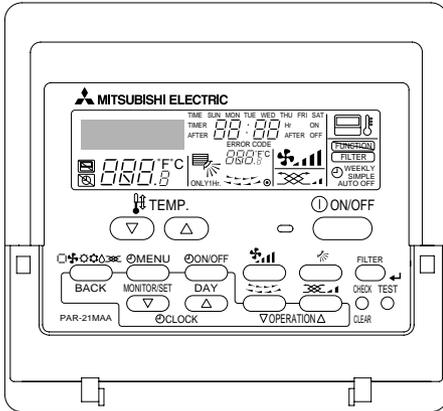


### <How to operate>

- ① Press POWER ON/OFF button.
- ② Press the operation MODE button to display FAN.

Control modes	Control details	Remarks				
1. Fan	<p>Set by remote controller.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Fan speed notch</th> </tr> </thead> <tbody> <tr> <td>4 speeds type</td> <td>[Low], [Med2], [Med1], [High]</td> </tr> </tbody> </table>	Type	Fan speed notch	4 speeds type	[Low], [Med2], [Med1], [High]	
Type	Fan speed notch					
4 speeds type	[Low], [Med2], [Med1], [High]					
2. Drain pump	<p>2-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions is met:</p> <ol style="list-style-type: none"> <li>① ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (FAN).</li> <li>② ON for 6 minutes after the drain sensor is determined to be submerged using the liquid level detection method given below.</li> <li>③ ON for 6 minutes after indoor piping (liquid piping) temperature – indoor intake temperature <math>\leq -18^{\circ}\text{F}</math>, 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.)</li> </ol> <p>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 met:</p> <ol style="list-style-type: none"> <li>① Drain pump is ON.</li> <li>② Indoor piping (liquid piping) temperature – indoor intake temperature <math>\leq -18^{\circ}\text{F}</math></li> <li>③ Indoor piping (liquid piping) temperature or indoor intake temperature is at the short or open level temperature.</li> <li>④ Every hour after the drain pump has been switched from ON to OFF.</li> </ol>					
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 one time. Heating 63 to 83°F.

### <Display in HEAT operation>

#### [DEFROST]

The [DEFROST] symbol is only displayed during the defrost operation.

#### [STANDBY]

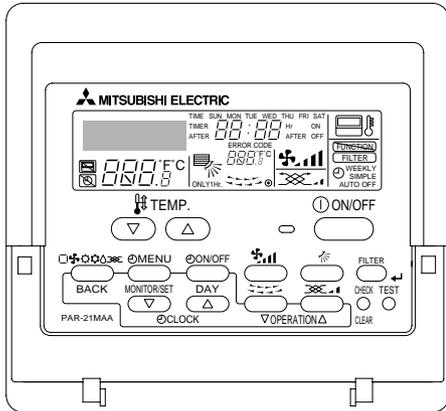
The [STANDBY] symbol is only displayed from the time the heating operation starts until the heated air begins to blow.

Control modes	Control details	Remarks
1. Thermoregulating function	<p>1-1. Thermoregulating function (Function to prevent restarting for 3 minutes)</p> <ul style="list-style-type: none"> <li>• Room temperature <math>\leq</math> desired temperature -2°F ...Thermo ON</li> <li>• Room temperature <math>\geq</math> desired temperature ...Thermo OFF</li> </ul>	
2. Fan	<p>Controlled by the remote controller (4-speed) Give priority to under-mentioned controlled mode</p> <p>2-1. Hot adjuster mode 2-2. Preheating exclusion mode 2-3. Thermo OFF mode (When the compressor off by the thermoregulating) 2-4. Cool air prevention mode (Defrosting mode) 2-5. Capacity increasing mode</p>	
	<p>2-1. Hot adjuster mode</p> <p>The fan controller becomes the hot adjuster mode for the following conditions.</p> <ol style="list-style-type: none"> <li>① When starting the HEAT operation</li> <li>② When the thermoregulating function changes from OFF to ON.</li> <li>③ When release the HEAT defrosting operation</li> </ol> <p>Hot adjuster mode *1</p> <p>A: HOT adjuster mode start B: 5 min have passed since the condition A or the indoor liquid pipe temperature turned 95°F or more C: 2 min have passed since the condition A (Terminating the hot adjuster mode)</p>	<p>*1 "STAND BY" will be displayed during the hot adjuster mode.</p>
	<p>2-2. Preheating exclusion mode</p> <p>When the condition changes the auxiliary heater ON to OFF (thermoregulating or operation stop, etc), the indoor fan operates in [Low] mode for 1 minute.</p>	<p>*1 This control is same for the model without auxiliary heater.</p>

To be continued on the next page.



## 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  $\nabla$  or  $\Delta$  button is pressed one time. Automatic 67 to 83°F.

“AUTO” works to change by itself the operation mode either to cooling or heating to the room temperature.

Control modes	Control details	Remarks
1. Initial value of operation mode	HEAT mode for room temperature < Desired temperature COOL mode for room temperature $\geq$ Desired temperature	
2. Mode change	(1) HEAT mode $\rightarrow$ COOL mode Room temperature $\geq$ Desired temperature + 3°F. or 3 min. has passed (2) COOL mode $\rightarrow$ HEAT mode Room temperature $\leq$ Desired temperature - 3°F. or 3 min. has passed	
3. COOL mode	Same control as cool operation	
4. HEAT mode	Same control as heat operation	

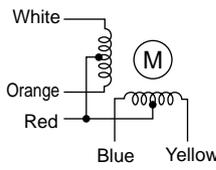
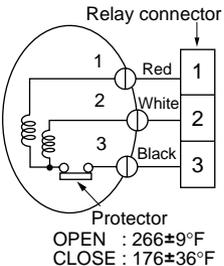
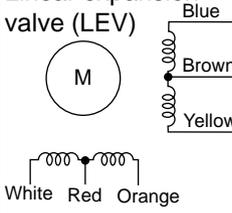
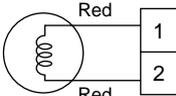
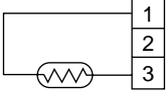
## 8-6. WHEN UNIT IS STOPPED CONTROL MODE

Control modes	Control details	Remarks
1. Drain pump	<p>1-1. Drain pump control</p> <p>The drain pump turns ON for the specified amount of time when any of the following conditions is met (regardless of whether the compressor is ON or OFF)</p> <ol style="list-style-type: none"> <li>① ON for 3 minutes after the operation mode is switched from COOL or DRY to another operation mode (HEAT mode).</li> <li>② ON for 6 minutes after the drain sensor is determined to be submerged using the liquid level detection method given below.</li> <li>③ ON for 6 minutes after indoor piping (liquid piping) temperature – indoor intake temperature <math>\leq</math> 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.)</li> </ol>	
	<p>1-2. Liquid level detection method</p> <p>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 met:</p> <ol style="list-style-type: none"> <li>① Drain pump is ON.</li> <li>② Indoor piping (liquid piping) temperature – indoor intake temperature <math>\leq</math> 14°F (except during defrosting)</li> <li>③ Indoor piping (liquid piping) temperature or indoor intake temperature is at the short or open level temperature.</li> <li>④ Every hour after the drain pump has been switched from ON to OFF.</li> </ol>	

# 9

# TROUBLE SHOOTING

## 9-1. HOW TO CHECK THE PARTS

Parts name	Check points																
Room temperature thermistor (TH21) Liquid pipe thermistor (TH22) Gas pipe thermistor (TH23)	Disconnect the connector then measure the resistance using a tester. (Surrounding temperature 50°F~86°F) <table border="1" style="margin-left: 20px;"> <tr> <td>Normal</td> <td>Abnormal</td> </tr> <tr> <td>4.3kΩ~9.6kΩ</td> <td>Open or short</td> </tr> </table> (Refer to the next page for a detail.)	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 using a tester. (Surrounding temperature 68°F~86°F) <table border="1" style="margin-left: 20px;"> <tr> <th>Connector</th> <th>Normal</th> <th>Abnormal</th> </tr> <tr> <td>Red — Yellow</td> <td rowspan="4" style="text-align: center; vertical-align: middle;">300Ω</td> <td rowspan="4" style="text-align: center; vertical-align: middle;">Open or short</td> </tr> <tr> <td>Red — Blue</td> </tr> <tr> <td>Red — Orange</td> </tr> <tr> <td>Red — White</td> </tr> </table>	Connector	Normal	Abnormal	Red — Yellow	300Ω	Open or short	Red — Blue	Red — Orange	Red — White							
Connector	Normal	Abnormal															
Red — Yellow	300Ω	Open or short															
Red — Blue																	
Red — Orange																	
Red — White																	
Fan motor (MF) 	Measure the resistance between the terminals using a tester. <table border="1" style="margin-left: 20px;"> <tr> <th rowspan="2">Motor terminal or Relay connector</th> <th colspan="2">Normal</th> <th rowspan="2">Abnormal</th> </tr> <tr> <th colspan="2">PLFY-P•NAMU-E</th> </tr> <tr> <td></td> <td>12/ 15/ 18/ 24</td> <td>30/ 36</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">Open or short</td> </tr> <tr> <td>Red-Black</td> <td>87.2Ω</td> <td>32.6Ω</td> </tr> <tr> <td>White-Black</td> <td>104.1Ω</td> <td>40.7Ω</td> </tr> </table>	Motor terminal or Relay connector	Normal		Abnormal	PLFY-P•NAMU-E			12/ 15/ 18/ 24	30/ 36	Open or short	Red-Black	87.2Ω	32.6Ω	White-Black	104.1Ω	40.7Ω
Motor terminal or Relay connector	Normal		Abnormal														
	PLFY-P•NAMU-E																
	12/ 15/ 18/ 24	30/ 36	Open or short														
Red-Black	87.2Ω	32.6Ω															
White-Black	104.1Ω	40.7Ω															
Linear expansion valve (LEV) 	Disconnect the connector then measure the resistance valve using a tester. <table border="1" style="margin-left: 20px;"> <tr> <th colspan="4">Normal</th> <th rowspan="2">Abnormal</th> </tr> <tr> <td>White-Red</td> <td>Yellow-Brown</td> <td>Orange-Red</td> <td>Blue-Brown</td> </tr> <tr> <td colspan="4" style="text-align: center;">150Ω ±10%</td> <td style="text-align: center; vertical-align: middle;">Open or short</td> </tr> </table> (Refer to the next page for a detail.)	Normal				Abnormal	White-Red	Yellow-Brown	Orange-Red	Blue-Brown	150Ω ±10%				Open or short		
Normal				Abnormal													
White-Red	Yellow-Brown	Orange-Red	Blue-Brown														
150Ω ±10%				Open or short													
Drain pump (DP) 	Measure the resistance between the terminals using a tester. (Surrounding temperature 68°F~86°F) <table border="1" style="margin-left: 20px;"> <tr> <td>Normal</td> <td>Abnormal</td> </tr> <tr> <td>319Ω</td> <td>Open or short</td> </tr> </table>	Normal	Abnormal	319Ω	Open or short												
Normal	Abnormal																
319Ω	Open or short																
Drain sensor (DS) 	Measure the resistance after 3 minutes have passed since the power supply was intercepted. (Surrounding temperature 50°F~140°F) <table border="1" style="margin-left: 20px;"> <tr> <td>Normal</td> <td>Abnormal</td> </tr> <tr> <td>0.6kΩ~6.0kΩ</td> <td>Open or short</td> </tr> </table> (Refer to the next page for a detail.)	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  $B = 3480k\Omega \pm 2\%$

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

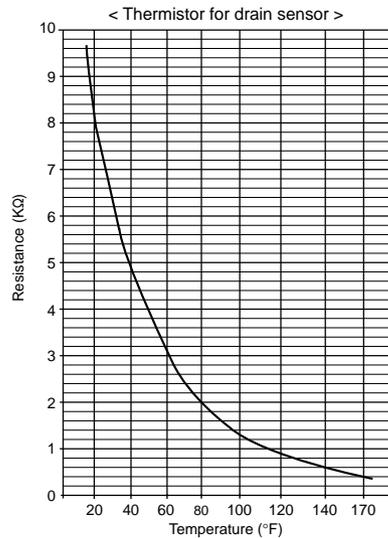
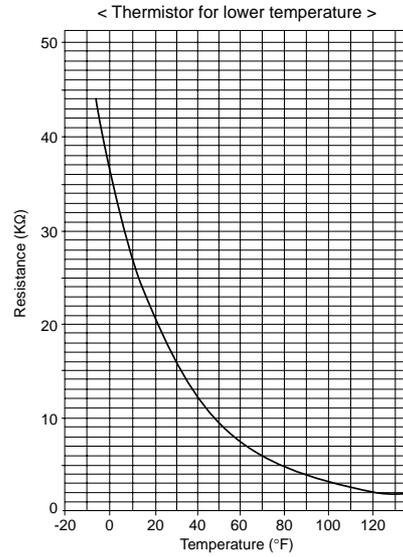
30°F	15.8kΩ
50°F	9.6kΩ
70°F	6.0kΩ
80°F	4.8kΩ
90°F	3.9kΩ
100°F	3.2kΩ

Thermistor for drain sensor

Thermistor  $R_0 = 6.0k\Omega \pm 5\%$   
 Fixed number of  $B = 3390k\Omega \pm 2\%$

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

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

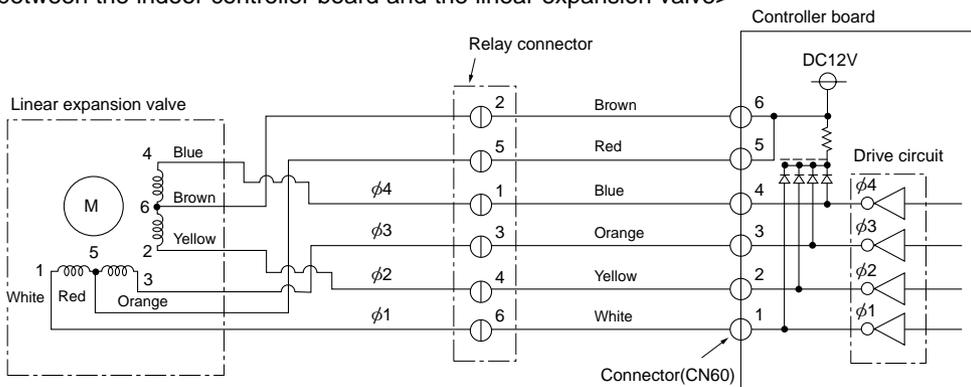


Linear expansion valve

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>

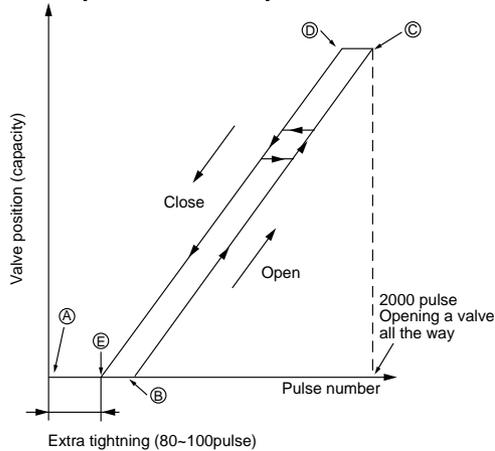
Output (Phase)	Output			
	1	2	3	4
$\phi 1$	ON	OFF	OFF	ON
$\phi 2$	ON	ON	OFF	OFF
$\phi 3$	OFF	ON	ON	OFF
$\phi 4$	OFF	OFF	ON	ON

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

The output pulse shifts in above order.

- \* 1. When linear expansion valve operation stops, all output phase become OFF.
- 2. At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrates.

### ② Linear expansion valve operation



- \* When the switch is turned on, 2200 pulse closing valve signal will be send till it goes to ④ point in order to define the valve position.

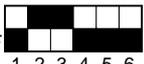
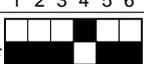
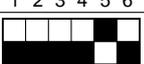
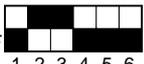
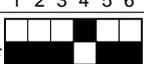
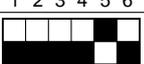
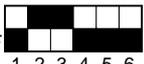
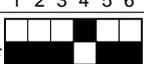
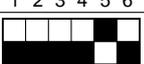
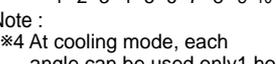
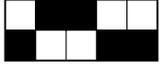
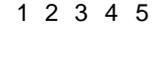
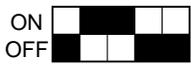
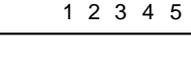
When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valve : however, when the pulse number moves from ④ to ③ or when the valve is locked, more noise can be heard than normal situation.

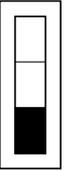
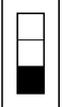
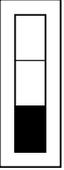
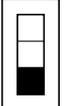
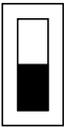
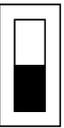
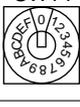
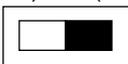
- \* Noise can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

### 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 turn 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 vale.
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) using a tester. It is normal if the resistance is in the range of $150\Omega \pm 10\%$ .	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 thermistor is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure.	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

## 9-2. FUNCTION OF DIP SWITCH

Switch	Pole	Function	Operation by switch		Remarks														
			ON	OFF															
SW1 Mode Selection	1	Thermistor <intake temperature detection> position	Built-in remote controller	Indoor unit	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Address board</div>  <At delivery> ON  OFF  1 2 3 4 5 6 7 8 9 10  Note : ※1 Fan operation at Heating mode. ※2 Heater thermo ON is operating. ※3 SW 1-7=OFF, SW 1-8=ON → Setting air flow. SW 1-7=ON, SW 1-8=ON → Indoor fan stop.														
	2	Filter clogging detection	Provided	Not provided															
	3	Filter cleaning	2,500hr	100hr															
	4	Fresh air intake	Effective	Not effective															
	5	Remote indication switching	Thermostat ON signal indication	Fan output indication															
	6	Humidifier control	Always operated while the heat in ON ※1	Operated depends on the condition ※2															
	7	Air flow set in case of Heat thermostat OFF	Low ※3	Extra low ※3															
	8		Setting air flow ※3	Depends on SW1-7															
	9	Auto restart function	Effective	Not effective															
	10	Power ON/OFF	Effective	Not effective															
SW2 Capacity code setting	1~6	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>MODELS</th> <th>SW 2</th> <th>MODELS</th> <th>SW 2</th> </tr> </thead> <tbody> <tr> <td>PLFY-P12NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> <td>PLFY-P24NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> </tr> <tr> <td>PLFY-P15NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> <td>PLFY-P30NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> </tr> <tr> <td>PLFY-P18NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> <td>PLFY-P36NAMU-E</td> <td>ON  OFF  1 2 3 4 5 6</td> </tr> </tbody> </table>	MODELS	SW 2	MODELS	SW 2	PLFY-P12NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P24NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P15NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P30NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P18NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P36NAMU-E	ON  OFF  1 2 3 4 5 6	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Indoor controller board</div>  Set while the unit is off.  <At delivery>  Set for each capacity.
		MODELS	SW 2	MODELS	SW 2														
		PLFY-P12NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P24NAMU-E	ON  OFF  1 2 3 4 5 6														
		PLFY-P15NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P30NAMU-E	ON  OFF  1 2 3 4 5 6														
PLFY-P18NAMU-E	ON  OFF  1 2 3 4 5 6	PLFY-P36NAMU-E	ON  OFF  1 2 3 4 5 6																
1	Heat pump / Cooling only	Cooling only	Heat pump	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Indoor controller board</div> Set while the unit is off. <At delivery> ON  OFF  1 2 3 4 5 6 7 8 9 10  Note : ※4 At cooling mode, each angle can be used only 1 hour. ※5 SW3-2 setting Only for PLFY-NAM, SW is used to change whether the humidifier functions or not. (Fixed the louver function less.) ※6 SW3-9 setting PLFY-P12NAMU-E = ON P15NAMU-E = ON P18NAMU-E = OFF P24NAMU-E = OFF P30NAMU-E = OFF P36NAMU-E = OFF															
2	Louver / humidifier ※5	Available	Not available																
3	Vane	Available	Not available																
4	Vane swing function	Available	Not available																
5	Vane horizontal angle	Second setting	First setting																
6	Vane cooling limit angle setting ※4	Horizontal angle	Down B, C																
7	Indoor linear expansion valve opening	Effective	Not effective																
8	Heat 4degrees up	Not effective	Effective																
9	Superheat setting temperature ※6	5degrees	2degrees																
10	Sub cool setting temperature	15degrees	10degrees																
SW4 Unit Selection	1~5	ON  OFF  1 2 3 4 5	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Indoor controller board</div> Set while the unit is off. <At delivery> ON  OFF  1 2 3 4 5																

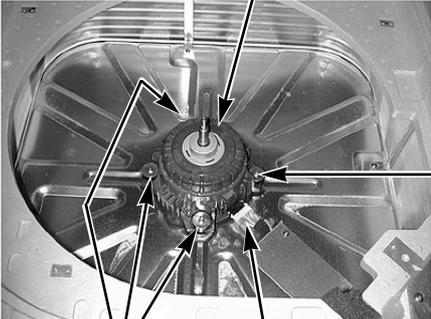
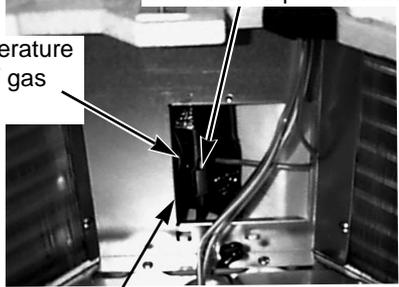
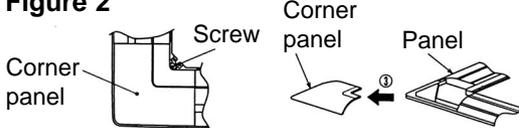
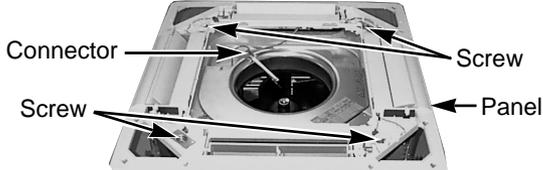
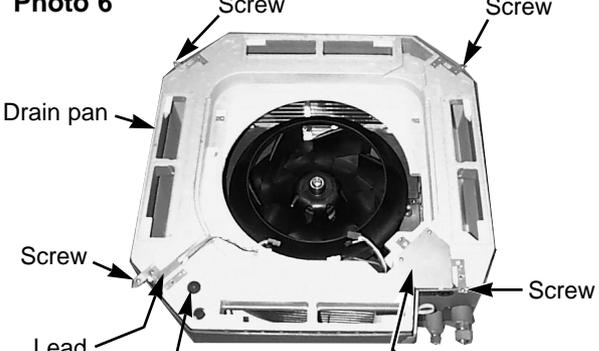
Switch	Pole	Operation by switch		Remarks																												
SWA Ceiling height selector	1~3	(High ceiling <sup>②</sup> ) 3 (High ceiling <sup>①</sup> ) 2 (Standard) 1 	* Ceiling height can be changed depends on SWB setting. PLFY-P12, P15, P18, P24NAMU-E (Unit : feet) <table border="1" data-bbox="651 470 1158 683"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">SWA</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <th rowspan="2">SWB</th> <th></th> <th>Standard</th> <th>High ceiling<sup>①</sup></th> <th>High ceiling<sup>②</sup></th> </tr> </thead> <tbody> <tr> <td>4</td> <td>4 direction</td> <td>8.9</td> <td>9.8</td> <td>11.5</td> </tr> <tr> <td>3</td> <td>3 direction</td> <td>9.8</td> <td>10.8</td> <td>11.5</td> </tr> <tr> <td>2</td> <td>2 direction</td> <td>10.8</td> <td>11.5</td> <td>—</td> </tr> </tbody> </table>			SWA			1	2	3	SWB		Standard	High ceiling <sup>①</sup>	High ceiling <sup>②</sup>	4	4 direction	8.9	9.8	11.5	3	3 direction	9.8	10.8	11.5	2	2 direction	10.8	11.5	—	Address board <At delivery> 
		SWA																														
		1	2	3																												
SWB		Standard	High ceiling <sup>①</sup>	High ceiling <sup>②</sup>																												
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3	3 direction	9.8	10.8	11.5																												
2	2 direction	10.8	11.5	—																												
SWB Discharge outlet number selector	3	(2 direction) 2 (3 direction) 3 (4 direction) 4 	PLFY-P30, P36NAMU-E (Unit : feet) <table border="1" data-bbox="651 753 1158 966"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">SWA</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <th rowspan="2">SWB</th> <th></th> <th>Standard</th> <th>High ceiling<sup>①</sup></th> <th>High ceiling<sup>②</sup></th> </tr> </thead> <tbody> <tr> <td>4</td> <td>4 direction</td> <td>10.5</td> <td>11.8</td> <td>13.8</td> </tr> <tr> <td>3</td> <td>3 direction</td> <td>11.8</td> <td>13.1</td> <td>13.8</td> </tr> <tr> <td>2</td> <td>2 direction</td> <td>13.1</td> <td>13.8</td> <td>—</td> </tr> </tbody> </table>			SWA			1	2	3	SWB		Standard	High ceiling <sup>①</sup>	High ceiling <sup>②</sup>	4	4 direction	10.5	11.8	13.8	3	3 direction	11.8	13.1	13.8	2	2 direction	13.1	13.8	—	Address board <At delivery> 
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2	2 direction	13.1	13.8	—																												
SWC Option selector	2	Option Standard 	When attach the optional high performance filter elements (multi function casement) to the unit, be sure to attach it to the option side in order to prevent the airflow reducing.	Address board <At delivery> Option Standard 																												
SW11 1st digit address setting SW12 2nd digit address setting	Rotary switch	 	Address setting should be done when M-NET Remote controller is being used.	Address board Address can be set while the unit is stopped. <At delivery>  																												
SW14 Connection No. setting	Rotary switch		This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.	Address board <At delivery> 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 <At delivery> 220V (208V)      240V (230V) 																												

PLFY-P12NAMU-E    PLYF-P24NAMU-E  
 PLYF-P15NAMU-E    PLYF-P30NAMU-E  
 PLYF-P18NAMU-E    PLYF-P36NAMU-E

Be careful on removing heavy parts.

OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
<p><b>1. Removing the air intake grille</b></p> <p>(1) Slide the knob of air intake grille to the direction of the arrow ① to open the air intake grille.</p> <p>(2) Remove the string hook from the panel to prevent the grille from dropping.</p> <p>(3) Slide the shaft in the hinge to the direction of the arrow② and remove the air intake grille.</p>	<p><b>Figure 1</b></p> <p>Air intake grille knob      Grille</p>
<p><b>2. Removing the room temperature thermistor</b></p> <p>(1) Remove the screw(X1) in the room temperature thermistor holder to remove the holder and the room temperature thermistor.</p> <p>(2) Remove the 1 screw from the bell mouth, and unscrew the another 2 screws (fixed to the oval hole which has different diameter) to remove the bell mouth.</p> <p>(3) Hold the holder claw, and remove the room temperature thermistor and holder.</p> <p>(4) Disconnect the connector (red) in the indoor control board.</p>	<p><b>Photo 1</b></p> <p>Bell mouth      Screws      Room temperature thermistor      Air intake grille</p>
<p><b>3. Removing the electrical box</b></p> <p>(1) Disconnect the lead wire of the vane motor from the clamp, and disconnect the white connector (10P).</p> <p>(2) Remove the room temperature thermistor with the holder.</p> <p>(3) Remove the bell mouth.(See photo 1)</p> <p>(4) Disconnect the relay connector in the electrical box.              Red (3P) for fan motor power supply              White (2P) for pipe temperature detection / liquid thermistor              Black (2P) for pipe temperature detection / gas thermistor              Blue (2P) for drain pump              White (3P) for drain sensor</p> <p>(5) Remove the 3 screws from the electrical box, loosen another 2 screws to remove the box.</p> <p>&lt;Electrical parts in the electrical box&gt;              Indoor controller board              power supply board              Terminal block (Power supply)              Terminal block (Transmission)              Terminal block (MA remote controller)              Capacitor              Address board</p>	<p><b>Photo 2</b></p> <p>Electrical box      Turbo fan      Nut      Capacitor      Power supply board      Address board      Connector      Indoor controller board      Terminal block</p>



OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
<p><b>4. Remove the fan motor</b></p> <ol style="list-style-type: none"> <li>(1) Remove the bell mouth.(See photo 1)</li> <li>(2) Remove the electrical box.(See photo 2)</li> <li>(3) Remove the turbo fan nut, washer and radiation cap(P100, P125).</li> <li>(4) Pull out the turbo fan.</li> <li>(5) Disconnect the connector of the fan motor lead wire.</li> <li>(6) Remove the 4 nuts of the fan motor.</li> </ol>	<p><b>Photo 3</b></p>  <p>Fan motor</p> <p>Nut</p> <p>Connector</p>
<p><b>5. Removing the pipe temperature detection / liquid thermistor and the pipe temperature detection / gas thermistor</b></p> <ol style="list-style-type: none"> <li>(1) Remove the bell mouth.(See photo 1)</li> <li>(2) Remove the electrical box.(See photo 2)</li> <li>(3) Remove the turbo fan.</li> <li>(4) Remove the screw of the service panel.</li> <li>(5) Remove the service panel.</li> <li>(6) Remove the pipe temperature detection / liquid thermistor and the pipe temperature detection / gas thermistor which is inserted into the holder installed to the thin copper pipe.</li> <li>(7) Disconnect the each 2-pin white(liquid) and black(gas) connector.</li> </ol>	<p><b>Photo 4</b></p>  <p>Pipe temperature detection / liquid thermistor</p> <p>Pipe temperature detection / gas thermistor</p> <p>Service entrance</p>
<p><b>6. Removing the panel</b></p> <ol style="list-style-type: none"> <li>(1) Remove the air intake grille.(See figure 1)</li> </ol> <p><b>Corner panel (See figure 2)</b></p> <ol style="list-style-type: none"> <li>(1) Remove the screw of the corner.</li> <li>(2) Slide the corner panel to the direction of the arrow③, and remove the corner panel.</li> </ol> <p><b>Panel (See photo 6)</b></p> <ol style="list-style-type: none"> <li>(1) Disconnect the connector that connects with the unit.</li> <li>(2) Remove the 2 screws from the panel and loose another 2 screws, which fixed to the oval hole, have different diameter.</li> <li>(3) Rotate the panel a little to remove the screws.(Slide the panel so that the screw comes to a large diameter of the oval hole, which has two different diameters.)</li> </ol>	<p><b>Figure 2</b></p>  <p>Screw</p> <p>Corner panel</p> <p>Panel</p> <p><b>Photo 5</b></p>  <p>Connector</p> <p>Screw</p> <p>Panel</p>
<p><b>7. Removing the drain pan</b></p> <ol style="list-style-type: none"> <li>(1) Remove the panel. (See photo 5)</li> <li>(2) Remove the drain plug (Larger one), drain the remaining water in the drain pan.</li> <li>(3) Remove the corner cover. (2 screws)</li> <li>(4) Remove the bell mouth (See photo 1)</li> <li>(5) Remove the electrical box. (See photo 2)</li> <li>(6) Remove the lead wire holder. (1 screw)</li> <li>(7) Remove the 4 screws and pull out the drain pan.</li> </ol> <p>※ Pull out the left and right of the pan gradually. Be careful not to crack or damage the pan.</p>	<p><b>Photo 6</b></p>  <p>Screw</p> <p>Screw</p> <p>Drain pan</p> <p>Screw</p> <p>Lead wire holder</p> <p>Drain plug(Larger one)</p> <p>Corner cover</p>

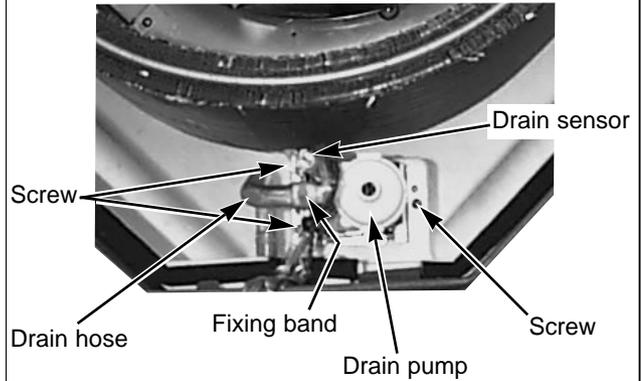
## OPERATING PROCEDURE

## PHOTOS&ILLUSTRATIONS

### 8. Removing the drain pump and drain sensor

- (1) Remove the panel. (See photo 5)
- (2) Remove the bell mouth. (See photo 1)
- (3) Remove the electrical box. (See photo 2)
- (4) Remove the drain pan. (See photo 6)
- (5) Remove the 3 screws of the drain pump.
- (6) Cut the drain hose band, pull out the drain hose from the drain pump.
- (7) Pull out the drain pump.
- (8) Remove the drain sensor and the holder.

Photo 7



### 9. Removing the heat exchanger

- (1) Remove the panel. (See photo 5)
- (2) Remove the bell mouth. (See photo 1)
- (3) Remove the electrical box. (See photo 2)
- (4) Remove the drain pan. (See photo 6)
- (5) Remove the turbo fan. (See photo 3)
- (6) Remove the 3 screws of the piping cover, and pull out piping cover.
- (7) Remove the 4 screws of the outer wall cover, and pull out the outer wall cover.
- (8) Remove the screw of the coil support.
- (9) Remove the 2 screws of the coil.
- (10) Pull out the heat exchanger.

Photo 8

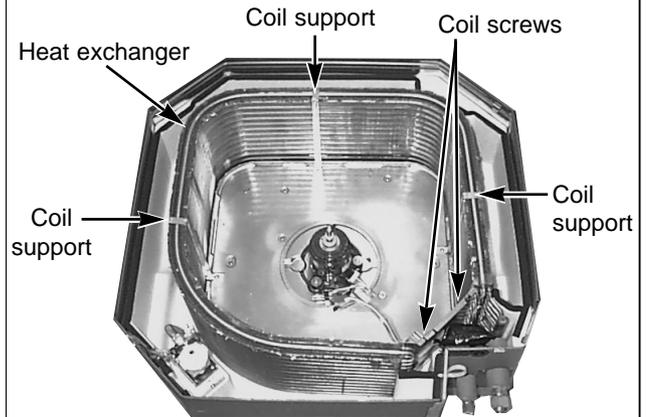
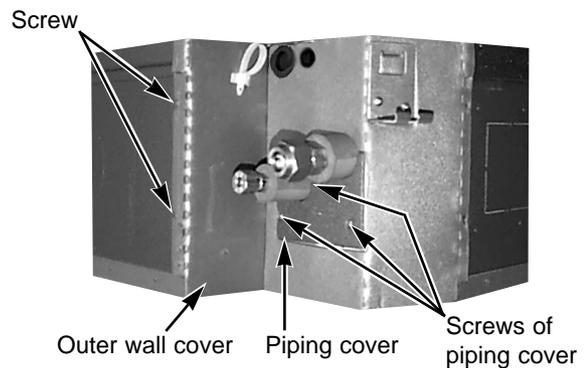
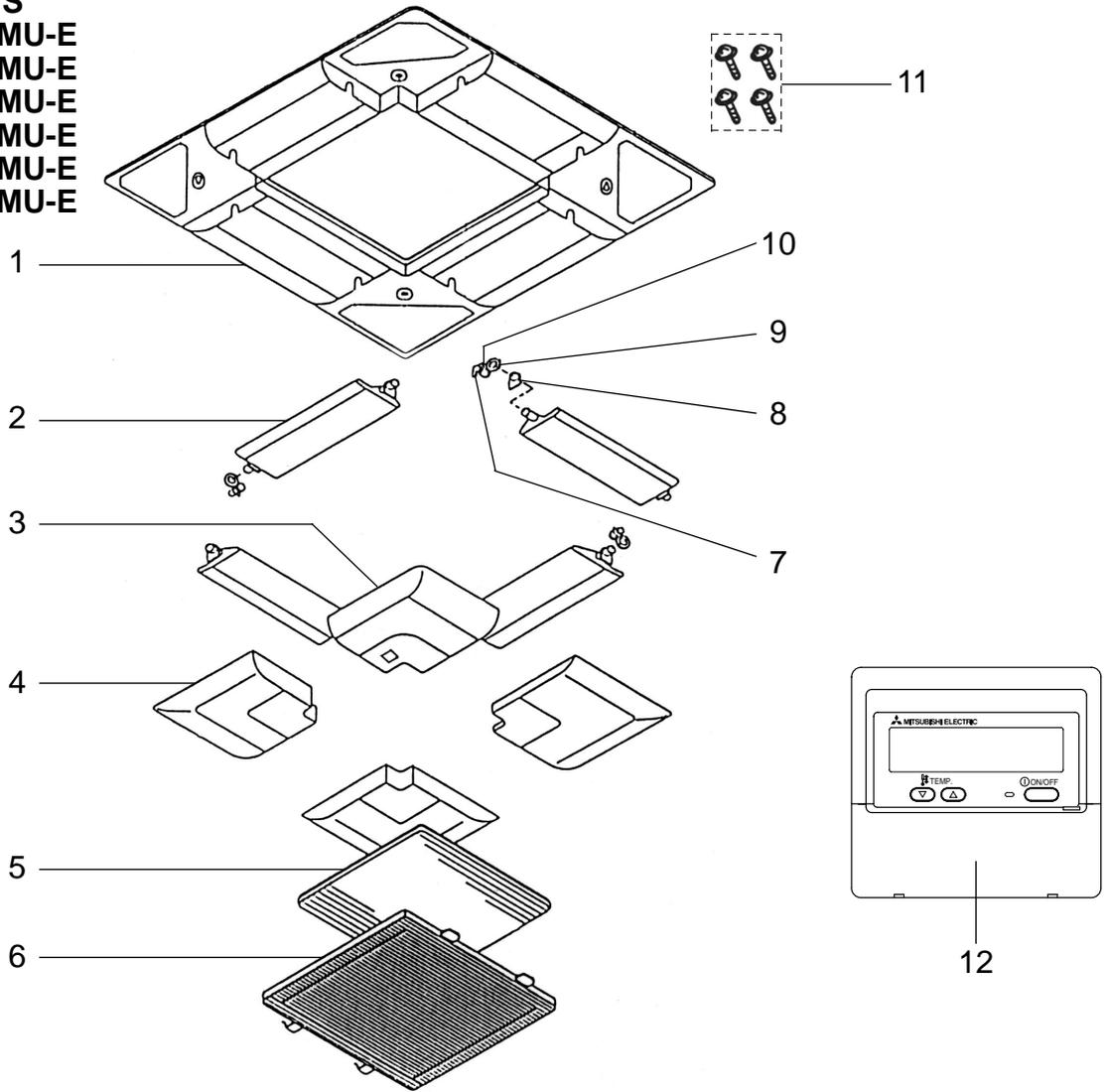


Photo 9



**PANEL PARTS**  
 PLFY-P12NAMU-E  
 PLFY-P15NAMU-E  
 PLFY-P18NAMU-E  
 PLFY-P24NAMU-E  
 PLFY-P30NAMU-E  
 PLFY-P36NAMU-E

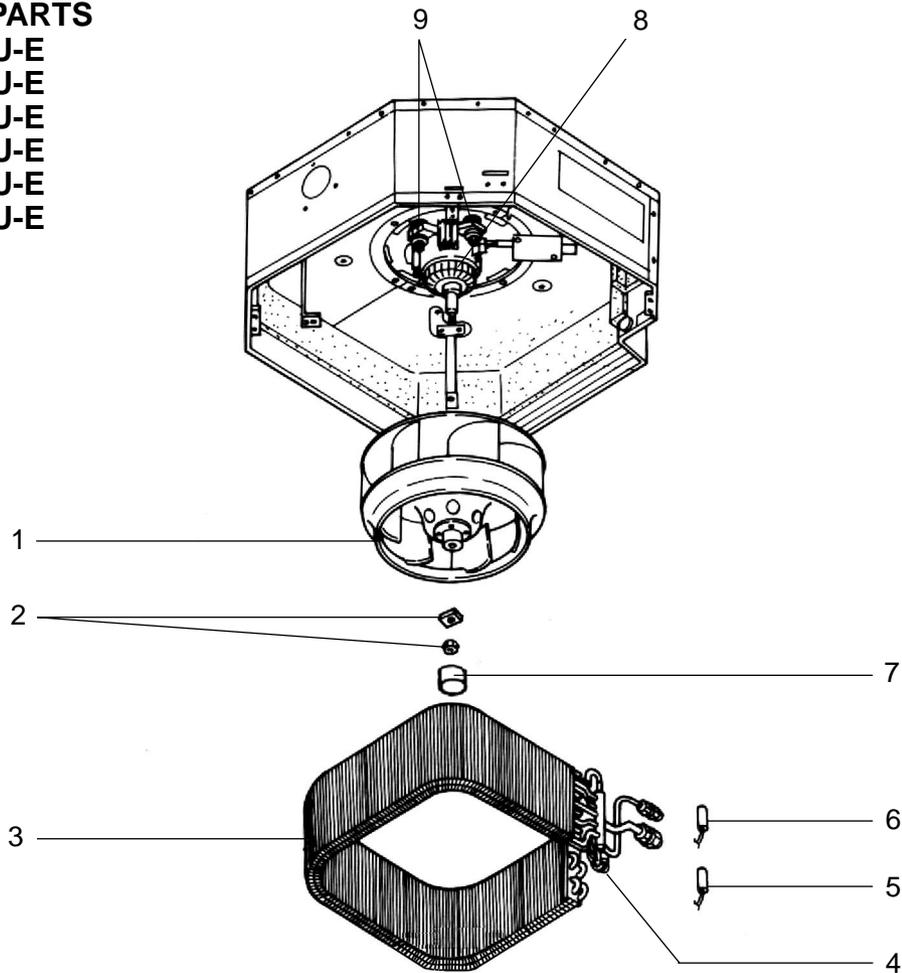


No.	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PLFY-P 12/ 15/ 18/ 24/ 30/ 36 NAMU-E				Unit	Amount
1	T7W E12 003	AIR OUTLET GRILLE	PLP-40AAU	1					
2	T7W E05 002	GUIDE VANE		4					
3	T7W E01 638	CORNER PANEL		1					
4	R01 E03 638	CORNER PANEL		3					
5	R01 E00 500	L.L.FILTER		1					
6	R01 E00 691	GRILLE ASSY		1					
7	R01 E00 223	STEPPING MOTOR		4		MV			
8	R01 E00 063	VANE BUSH		8					
9	R01 E00 040	GEAR (VANE)		4					
10	R01 E01 040	GEAR (MOTOR)		4					
11	T7W E00 673	SCREW ASSY		1					
12	—	REMOTE CONTROLLER	PAR-21MAA	1		R.B			

This REMOTE CONTROLLER is made by AIR-CONDITIONING & REFRIGERATION SYSTEMS WORKS, MITSUBISHI ELECTRIC CORPORATION.

## FUNCTIONAL PARTS

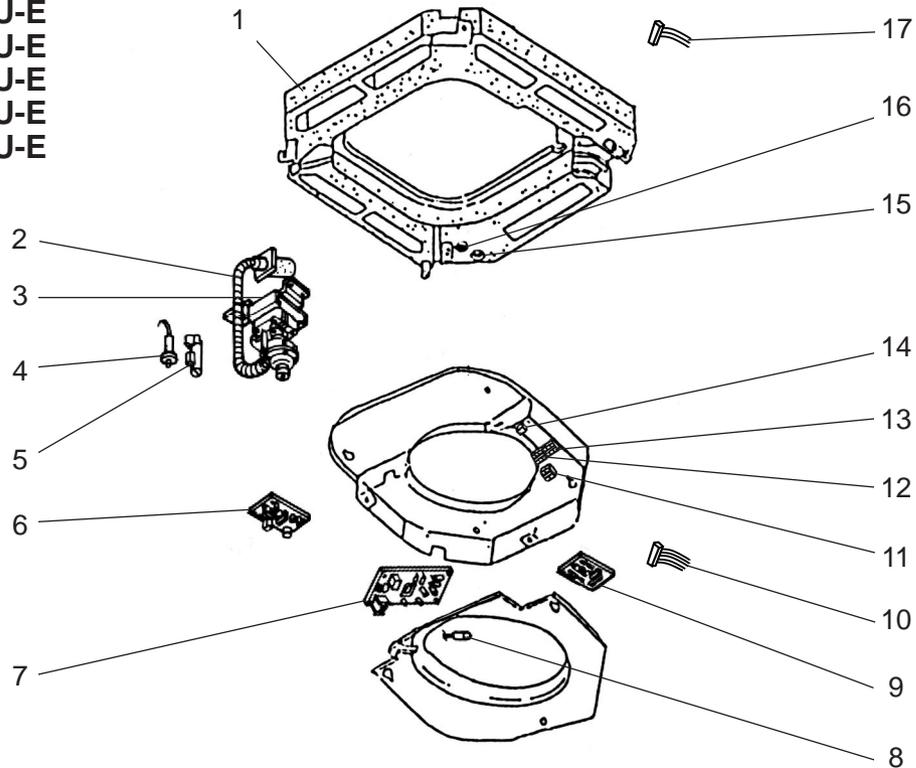
PLFY-P12NAMU-E  
 PLY-P15NAMU-E  
 PLY-P18NAMU-E  
 PLY-P24NAMU-E  
 PLY-P30NAMU-E  
 PLY-P36NAMU-E



No.	Part No.	Part Name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PLFY-P · NAMU-E									Unit	Amount
				12	15	18	24	30	36					
1	R01 E10 114	TURBO FAN		1	1	1	1							
	R01 E11 114	TURBO FAN						1	1					
2	R01 08K 097	SPL WASHER		1	1	1	1	1	1					
3	T7W K16 480	HEAT EXCHANGER		1										
	T7W K17 480	HEAT EXCHANGER			1									
	T7W K18 480	HEAT EXCHANGER				1								
	T7W K19 480	HEAT EXCHANGER					1							
	T7W K20 480	HEAT EXCHANGER						1	1					
4	R01 E56 401	LINEAR EXPANSION VALVE		1	1	1	1			LEV				
	R01 E57 401	LINEAR EXPANSION VALVE						1	1	LEV				
5	T7W E06 202	PIPE TEMPERATURE THERMISTOR	GAS	1	1	1	1	1	1	TH23				
6	R01 E00 202	PIPE TEMPERATURE THERMISTOR	LIQUID	1	1	1	1	1	1	TH22				
7	R01 E00 122	MOTOR CAP		1	1	1	1	1	1					
8	T7W E12 762	FAN MOTOR	(D17D6P70MS)	1	1	1	1			MF				
	T7W E08 762	FAN MOTOR	(D176P110MS)					1	1	MF				
9	R01 A41 105	RUBBER MOUNT		4	4	4	4	4	4					

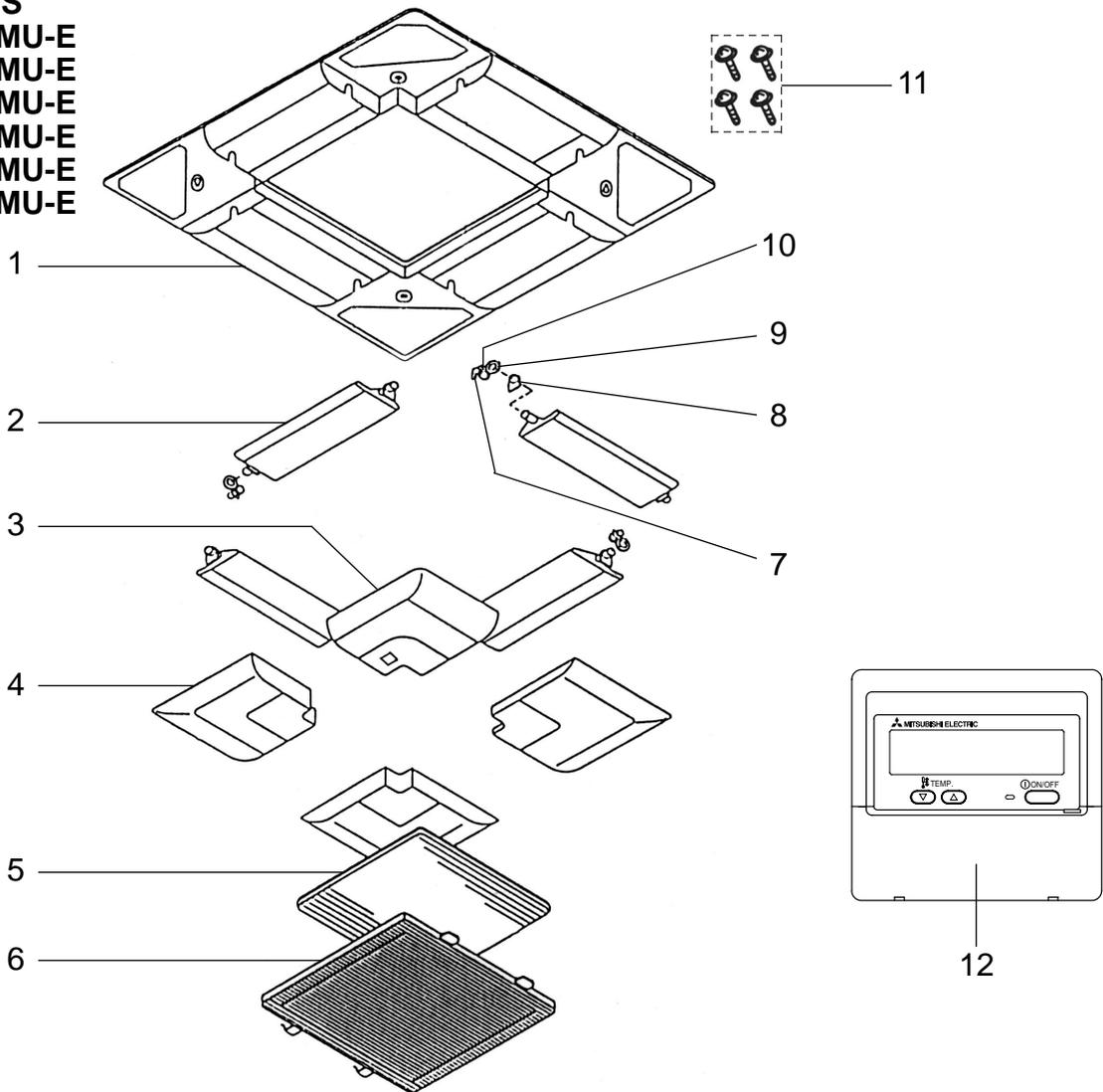
## FUNCTIONAL PARTS

PLFY-P12NAMU-E  
 PLFY-P15NAMU-E  
 PLFY-P18NAMU-E  
 PLFY-P24NAMU-E  
 PLFY-P30NAMU-E  
 PLFY-P36NAMU-E



No.	Part No.	Part Name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
				PLFY-P · NAMU-E									Unit	Amount
				12	15	18	24	30	36					
1	T7W E09 529	DRAIN PAN		1	1									
	T7W E06 529	DRAIN PAN				1	1							
	T7W E07 529	DRAIN PAN					1	1						
2	T7W E00 527	DRAIN HOSE		1	1	1	1	1	1					
3	T7W E06 355	DRAIN PUMP		1	1	1	1	1	1		DP			
4	R01 E00 266	DRAIN SENSOR		1	1	1	1	1	1		DS			
5	R01 31K 241	SENSOR HOLDER		1	1	1	1	1	1					
6	R01 E02 313	POWER BOARD		1	1	1	1	1	1		P.B			
7	T7W E42 310	CONTROLLER BOARD		1	1	1	1	1	1		I.B			
8	R01 E58 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH21			
9	T7W E00 294	ADDRESS BOARD		1	1	1	1	1	1		A.B			
10	T7W E00 304	ADDRESS CABLE		1	1	1	1	1	1					
11	R01 556 246	TERMINAL BLOCK	2P(1,2)	1	1	1	1	1	1		TB15			
12	T7W E17 716	TERMINAL BLOCK	3P(M1,M2,S)	1	1	1	1	1	1		TB5			
13	T7W E11 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1	1	1	1	1		TB2			
14	T7W E10 255	CAPACITOR	3.0µF 440V	1	1	1	1				C			
	T7W E02 255	CAPACITOR	7.0µF 440V					1	1		C			
15	R01 A41 524	DRAIN PLUG		1	1	1	1	1	1					
16	R01 A48 524	DRAIN PLUG		1	1	1	1	1	1					
17	T7W E01 304	LEAD ASSY (F/M)		1	1	1	1	1	1					

PANEL PARTS  
 PLFY-P12NAMU-E  
 PLFY-P15NAMU-E  
 PLFY-P18NAMU-E  
 PLFY-P24NAMU-E  
 PLFY-P30NAMU-E  
 PLFY-P36NAMU-E

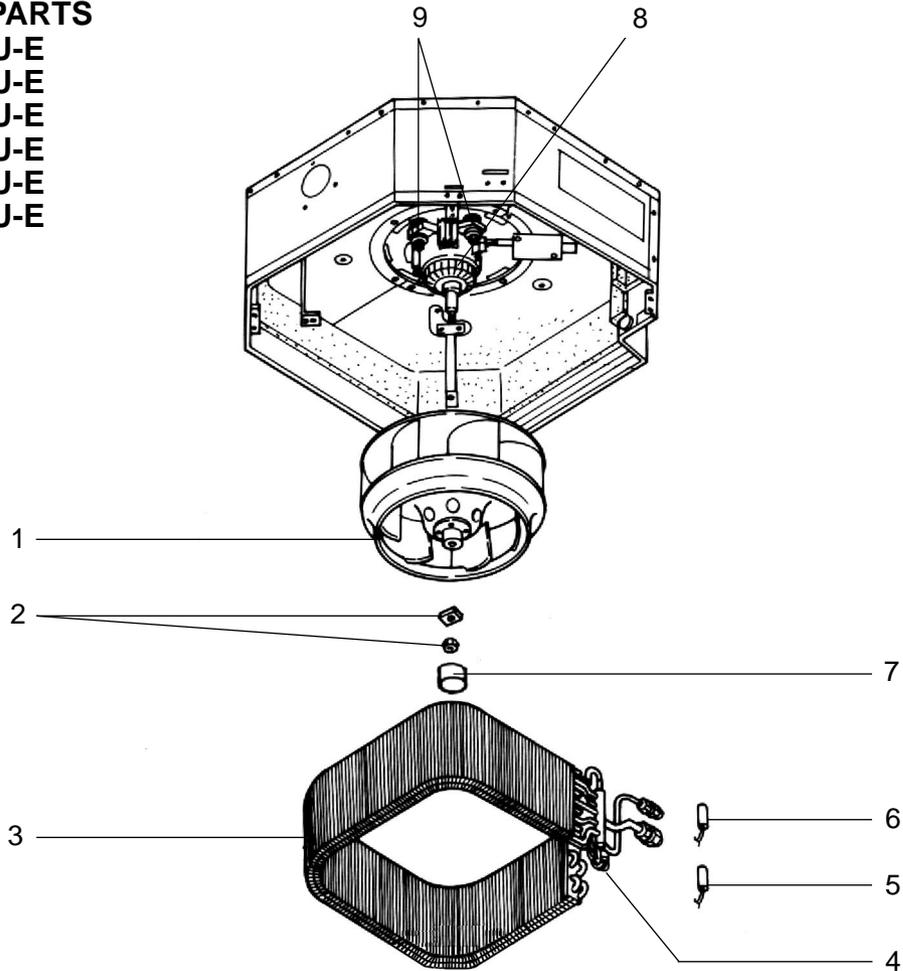


No.	RoHS	Part No.	Part Name	Specification	Q'ty/set				Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
					PLFY-P	12/	15/	18/				24/	30/
					NAMU-E								
1	G	T7W E18 003	AIR OUTLET GRILLE	PLP-40AAU	1								
2	G	T7W E09 002	GUIDE VANE		4								
3	G	T7W E02 638	CORNER PANEL		1								
4	G	R01 E14 638	CORNER PANEL		3								
5	G	R01 E13 500	L.L.FILTER		1								
6	G	R01 E44 691	GRILLE ASSY		1								
7	G	R01 E17 223	STEPPING MOTOR		4				MV				
8	G	R01 E02 063	VANE BUSH		8								
9	G	R01 E03 040	GEAR (VANE)		4								
10	G	R01 E04 040	GEAR (MOTOR)		4								
11	G	T7W E01 673	SCREW ASSY		1								
12	G	—	REMOTE CONTROLLER	PAR-21MAA	1				R.B				

This REMOTE CONTROLLER is made by AIR-CONDITIONING & REFRIGERATION SYSTEMS WORKS, MITSUBISHI ELECTRIC CORPORATION.

## FUNCTIONAL PARTS

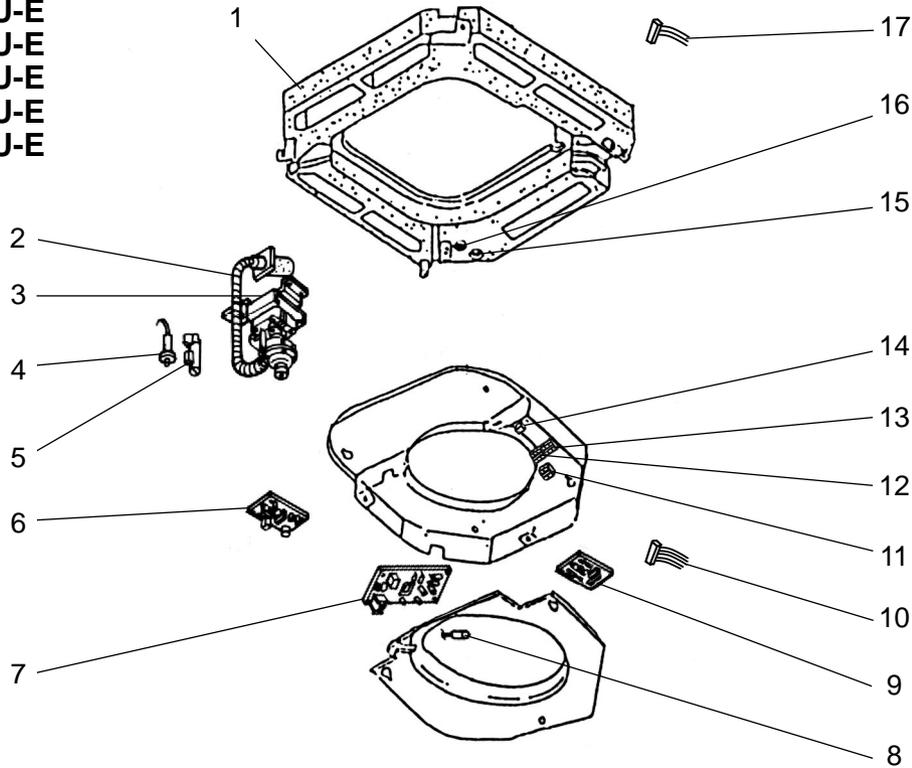
PLFY-P12NAMU-E  
 PLFY-P15NAMU-E  
 PLFY-P18NAMU-E  
 PLFY-P24NAMU-E  
 PLFY-P30NAMU-E  
 PLFY-P36NAMU-E



No.	RoHS	Part No.	Part Name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
					PLFY-P · NAMU-E									Unit	Amount
					12	15	18	24	30	36					
1	G	R01 E28 114	TURBO FAN		1	1	1	1							
	G	R01 E29 114	TURBO FAN					1	1						
2	G	R01 09K 097	SPL WASHER		1	1	1	1	1	1					
3	G	T7W H10 480	HEAT EXCHANGER		1										
	G	T7W H11 480	HEAT EXCHANGER			1									
	G	T7W H12 480	HEAT EXCHANGER				1								
	G	T7W H13 480	HEAT EXCHANGER					1							
	G	T7W K32 480	HEAT EXCHANGER						1	1					
4	G	R01 H07 401	LINEAR EXPANSION VALVE		1	1	1	1			LEV				
	G	R01 E88 401	LINEAR EXPANSION VALVE						1	1	LEV				
5	G	R01 H11 202	PIPE TEMPERATURE THERMISTOR	GAS	1	1	1	1	1	1	TH23				
6	G	R01 H05 202	PIPE TEMPERATURE THERMISTOR	LIQUID	1	1	1	1	1	1	TH22				
7	G	R01 E03 122	MOTOR CAP		1	1	1	1	1	1					
8	G	T7W E27 762	FAN MOTOR	(D17D6P70MS)	1	1	1	1			MF				
	G	T7W E28 762	FAN MOTOR	(D176P110MS)					1	1	MF				
9	G	R01 A51 105	RUBBER MOUNT		4	4	4	4	4	4					

## FUNCTIONAL PARTS

PLFY-P12NAMU-E  
 PLY-P15NAMU-E  
 PLY-P18NAMU-E  
 PLY-P24NAMU-E  
 PLY-P30NAMU-E  
 PLY-P36NAMU-E



No.	ROHS	Part No.	Part Name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom- mended Q'ty	Price	
					PLFY-P · NAMU-E									Unit	Amount
					12	15	18	24	30	36					
1	G	T7W E26 529	DRAIN PAN		1	1									
	G	T7W E27 529	DRAIN PAN				1	1							
	G	T7W E28 529	DRAIN PAN						1	1					
2	G	T7W E02 527	DRAIN HOSE		1	1	1	1	1	1					
3	G	T7W E13 355	DRAIN PUMP		1	1	1	1	1	1		DP			
4	G	R01 E10 266	DRAIN SENSOR		1	1	1	1	1	1		DS			
5	G	R01 32K 241	SENSOR HOLDER		1	1	1	1	1	1					
6	G	R01 E38 313	POWER BOARD		1	1	1	1	1	1		P.B			
7	G	T7W E57 310	CONTROLLER BOARD		1	1	1	1	1	1		I.B			
8	G	R01 H12 202	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH21			
9	G	T7W E01 294	ADDRESS BOARD		1	1	1	1	1	1		A.B			
10	G	T7W E04 304	ADDRESS CABLE		1	1	1	1	1	1					
11	G	R01 E21 246	TERMINAL BLOCK	2P(1,2)	1	1	1	1	1	1		TB15			
12	G	R01 E27 246	TERMINAL BLOCK	3P(M1,M2,S)	1	1	1	1	1	1		TB5			
13	G	T7W E41 716	TERMINAL BLOCK	3P(L1,L2,GR)	1	1	1	1	1	1		TB2			
14	G	T7W E15 255	CAPACITOR	3.0 $\mu$ F 440V	1	1	1	1				C			
	G	T7W E14 255	CAPACITOR	7.0 $\mu$ F 440V					1	1		C			
15	G	R01 A01 524	DRAIN PLUG		1	1	1	1	1	1					
16	G	R01 A00 524	DRAIN PLUG		1	1	1	1	1	1					
17	G	T7W E05 304	LEAD ASSY (F/M)		1	1	1	1	1	1					

**13****OPTIONAL PARTS****13-1. MULTI FUNCTION CASEMENT**

Part No.	PAC-SG03TM-E
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**13-2. AIR OUTLET SHUTTER PLATE (20 SETS)**

Part No.	PAC-SG06SP-E
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**13-3. HIGH EFFICIENCY FILTER ELEMENT (PAC-SG03TM-E IS REQUIRED)**

Part No.	PAC-SG01KF
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# CITY MULTI

 **MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE : TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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