MITSUBISHI ELECTRIC

Changes for the Better

Air-Conditioners For Building Application

2021

R410A

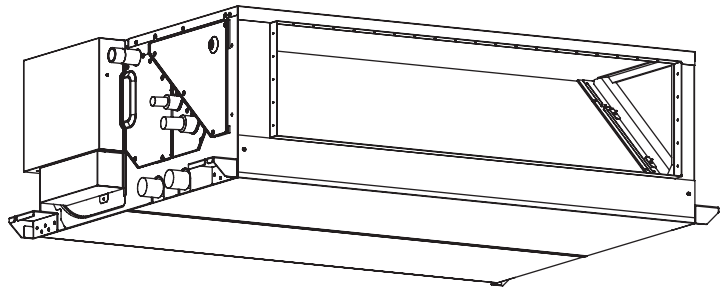
TECHNICAL & SERVICE MANUAL

Series PEFY Ceiling Concealed

Model name

<Indoor unit>

PEFY-P-NMHU-E2



INDOOR UNIT

2nd edition

CITY MULTI

CONTENTS

SAFETY PRECAUTIONS

1. Before installation and electric work

- **Before installing the unit, make sure you read all the "Safety precautions".**
- **The "Safety precautions" provide very important points regarding safety. Make sure you follow them.**
- **This equipment may cause the adverse effect on the same supply system.**
- **Please report to or take consent by the supply authority before connection to the system.**

Symbols used in the text

⚠ Warning:

Describes precautions that should be observed to prevent danger of injury or death to the user.

⚠ Caution:

Describes precautions that should be observed to prevent damage to the unit.

Symbols used in the illustrations

⃠ : Indicates an action that must be avoided.

❗ : Indicates that important instructions must be followed.

⏚ : Indicates a part which must be grounded.

⚠ : Indicates that caution should be taken with rotating parts. (This symbol is displayed on the main unit label.) <Color: Yellow>

⚠ : Beware of electric shock (This symbol is displayed on the main unit label.) <Color: Yellow>

⚠ Warning:

Carefully read the labels affixed to the main unit.

⚠ Warning:

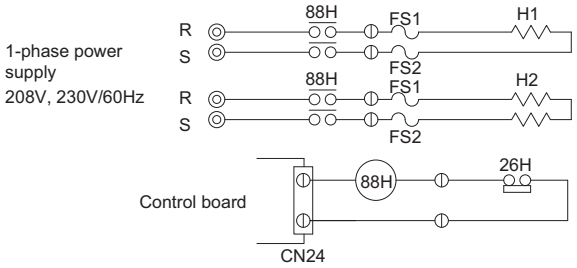
- **Ask the dealer or an authorized technician to install the air conditioner.**
  - Improper installation by the user may result in water leakage, electric shock, or fire.
- **Install the air unit at a place that can withstand its weight.**
  - Inadequate strength may cause the unit to fall down, resulting in injuries.
- **Use the specified cables for wiring. Make the connections securely so that the outside force of the cable is not applied to the terminals.**
  - Inadequate connection and fastening may generate heat and cause a fire.
- **Prepare for typhoons and other strong winds and earthquakes and install the unit at the specified place.**
  - Improper installation may cause the unit to topple and result in injury.
- **Always use an air cleaner, humidifier, electric heater, and other accessories specified by Mitsubishi Electric.**
  - Ask an authorized technician to install the accessories. Improper installation by the user may result in water leakage, electric shock, or fire.
- **Never repair the unit. If the air conditioner must be repaired, consult the dealer.**
  - If the unit is repaired improperly, water leakage, electric shock, or fire may result.
- **Do not touch the heat exchanger fins.**
  - Improper handling may result in injury.
- **If refrigerant gas leaks during installation work, ventilate the room.**
  - If the refrigerant gas comes into contact with a flame, poisonous gases will be released.
- **Install the air conditioner according to this Installation Manual.**
  - If the unit is installed improperly, water leakage, electric shock, or fire may result.
- **Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard" and "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.**
  - If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.
- **Keep the electric parts away from water (washing water etc.).**
  - It might result in electric shock, catching fire or smoke.
- **Securely install the cover of control box and the panel.**
  - If the cover and panel are not installed properly, dust or water may enter the outdoor unit and fire or electric shock may result.
- **When installing and moving the air conditioner to another site, do not charge the it with a refrigerant different from the refrigerant specified on the unit.**
  - If a different refrigerant or air is mixed with the original refrigerant, the refrigerant cycle may malfunction and the unit may be damaged.
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant should leak.**
  - Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.
- **When moving and reinstalling the air conditioner, consult the dealer or an authorized technician.**
  - If the air conditioner is installed improperly, water leakage, electric shock, or fire may result.
- **After completing installation work, make sure that refrigerant gas is not leaking.**
  - If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.
- **Do not reconstruct or change the settings of the protection devices.**
  - If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.
- **To dispose of this product, consult your dealer.**
- **Do not use a leak detection additive.**

⚠ Warning:

- **Note the following when building a heater in the air conditioning system.**
  - Leave enough space between units for proper ventilation so that the indoor unit temperature does not exceed 40°C when windless.
  - Keep the heater clean, and take appropriate measures so that the indoor unit does not suck in the dust particles that accumulate on the heater.
  - Use the optional heater cable (PAC-YU24HT) to perform an interlocked operation with indoor units.
  - Do not build a heater inside the indoor unit.

Recommended circuit

Wiring diagram



FS1, 2 ----- Thermal fuse
H1, H2 ----- Heater
26H --------- Overheat protection thermostat
88H --------- Electromagnetic contactor

2. Precautions for devices that use R410A refrigerant

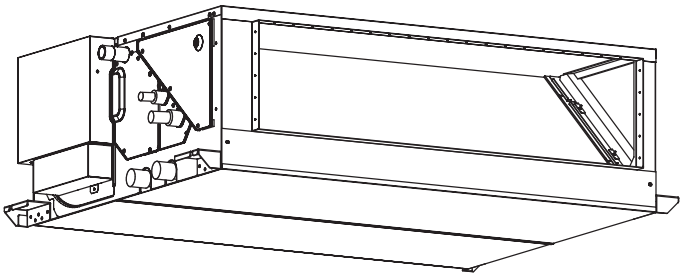
⚠ Caution:

- **Do not use the existing refrigerant piping.**
  - The old refrigerant and refrigerator oil in the existing piping contains a large amount of chlorine which may cause the refrigerator oil of the new unit to deteriorate.
- **Use refrigerant piping made of C1220 (Cu-DHP) phosphorus deoxidized copper as specified in the *JIS H3300 "Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.**
  - Contaminants on the inside of the refrigerant piping may cause the refrigerant residual oil to deteriorate.

  * JIS: Japanese Industrial Standard
- **Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Store elbows and other joints in a plastic bag.)**
  - If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.
- **Use ester oil, ether oil or alkylbenzene (small amount) as the refrigerator oil to coat flares and flange connections.**
  - The refrigerator oil will degrade if it is mixed with a large amount of mineral oil.
- **Use liquid refrigerant to fill the system.**
  - If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.
- **Do not use a refrigerant other than R410A.**
  - If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the refrigerator oil to deteriorate.
- **Use a vacuum pump with a reverse flow check valve.**
  - The vacuum pump oil may flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate.
- **Do not use the following tools that are used with conventional refrigerants.**
  (Gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, refrigerant recovery equipment)
  - If the conventional refrigerant and refrigerator oil are mixed in the R410A, the refrigerant may deteriorated.
  - If water is mixed in the R410A, the refrigerator oil may deteriorate.
  - Since R410A does not contain any chlorine, gas leak detectors for conventional refrigerants will not react to it.
- **Do not use a charging cylinder.**
  - Using a charging cylinder may cause the refrigerant to deteriorate.
- **Be especially careful when managing the tools.**
  - If dust, dirt, or water gets in the refrigerant cycle, the refrigerant may deteriorate.

1. FEATURES

[Series PEFY] Ceiling Concealed

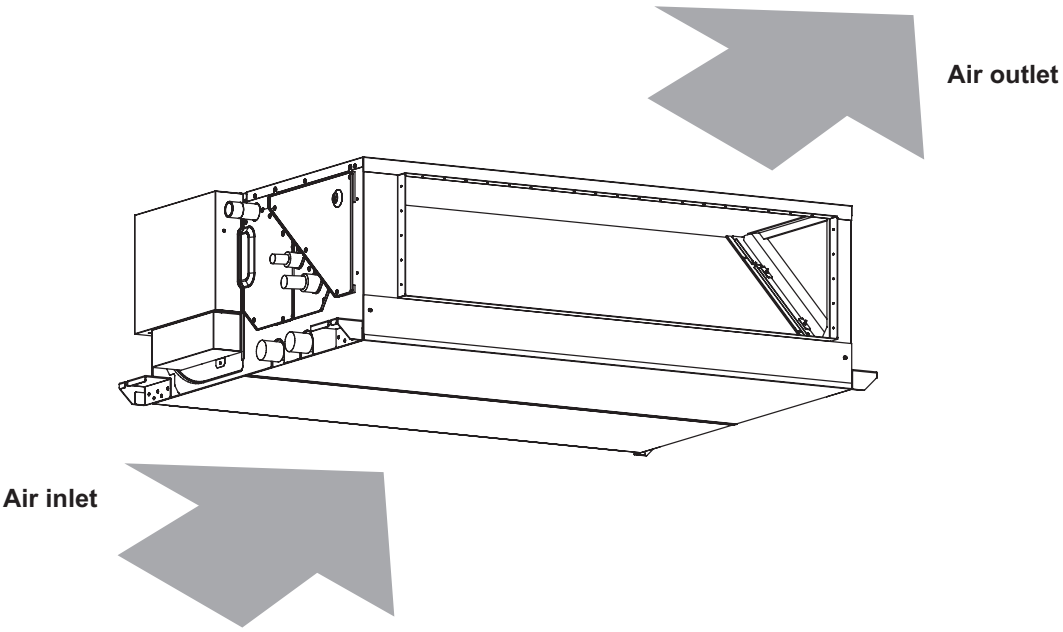


Indoor unit

Models	Cooling capacity/Heating capacity	
	kW	BTU / h
PEFY-P15NMHU-E2	4.4 / 5.0	15000 / 17000
PEFY-P18NMHU-E2	5.3 / 5.9	18000 / 20000
PEFY-P24NMHU-E2	7.0 / 7.9	24000 / 27000
PEFY-P27NMHU-E2	7.9 / 8.8	27000 / 30000
PEFY-P30NMHU-E2	8.8 / 10.0	30000 / 34000
PEFY-P36NMHU-E2	10.6 / 11.7	36000 / 40000
PEFY-P48NMHU-E2	14.1 / 15.8	48000 / 54000
PEFY-P54NMHU-E2	15.8 / 17.6	54000 / 60000

2. PART NAMES AND FUNCTIONS

2-1. Indoor (Main) Unit

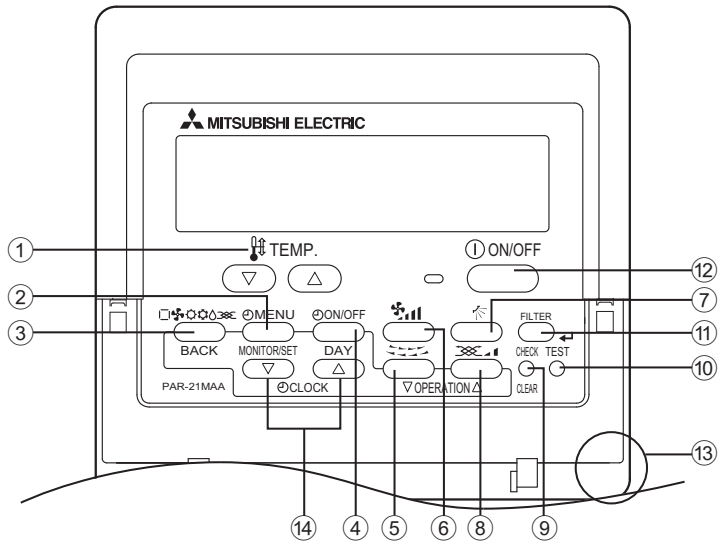


2-2. Remote controller

■ PAR-21MAA

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

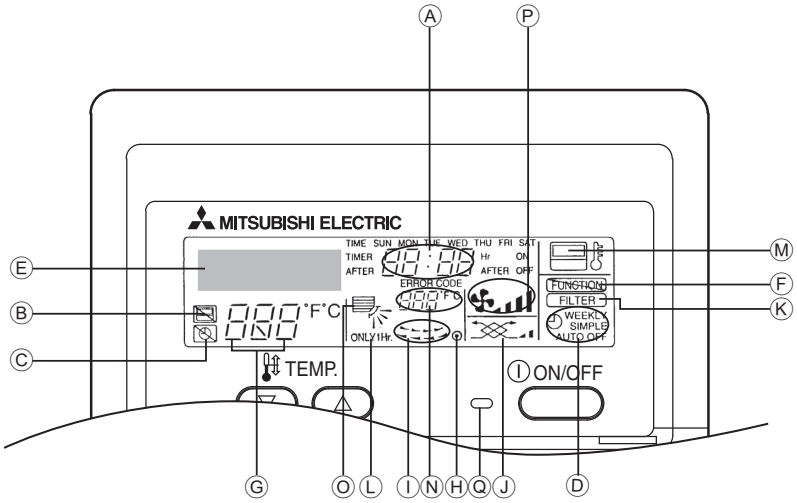
<1> Operation buttons



①	**[Set Temperature]** Button	⑤	**[Louver]** Button **[Operation]** Button	⑩	**[Test run]** Button
②	**[Timer Menu]** Button **[Monitor/Set]** Button	⑥	**[Fan Speed]** Button	⑪	**[Filter]** Button **[↵]** Button
③	**[Mode]** Button **[Return]** Button	⑦	**[Airflow Up/Down]** Button	⑫	**[ON/OFF]** Button
④	**[Timer On/Off]** Button **[Set Day]** Button	⑧	**[Ventilation]** Button **[Operation]** Button	⑬	Position of built-in room temperature
		⑨	**[Check/Clear]** Button	⑭	**[Set Time]** Button

- Never expose the remote controller to direct sunlight. Doing so can result in the erroneous measurement of room temperature.
- Never place any obstacle around the lower right-hand section of the remote controller. Doing so can result in the erroneous measurement of room temperature.

<2> Display



- Ⓐ Current time/Timer
- Ⓑ Centralized control
- Ⓒ Timer OFF
- Ⓓ Timer indicator
- Ⓔ Operation mode: COOL, DRY, AUTO, FAN, HEAT
- Ⓕ “Locked” indicator
- Ⓖ Set temperature
- Ⓗ Power ON
- Ⓘ Louver
- Ⓙ Ventilation
- Ⓚ Filter sign
- Ⓛ Set effective for 1 hr.
- Ⓜ Sensor position
- Ⓝ Room temperature
- Ⓞ Airflow
- Ⓟ Fan speed

3. SPECIFICATION

3-1. Specification

■ PEFY-P-NMHU-E2

Item \ Model				PEFY-P15NMHU-E2	PEFY-P18NMHU-E2	PEFY-P24NMHU-E2	PEFY-P27NMHU-E2	PEFY-P30NMHU-E2
Power sourse				208/230V, 60Hz				
Capacity *1	Cooling	kW		4.4	5.3	7.0	7.9	8.8
		BTU/h		15000	18000	24000	27000	30000
	Heating	kW		5.0	5.9	7.9	8.8	10.0
		BTU/h		17000	20000	27000	30000	34000
Dimension	Height	mm		380				
		in		15				
	Width	mm		745			1030	
		in		29-6/16			40-9/16	
	Depth	mm		900				
		in		35-7/16				
Net weight		kg		44		45	56	
		lb		98		100	124	
FAN	Airflow rate (Low-High)		m^3/min	10.0-14.0	10.0-14.0	13.5-19.0	15.5-22.0	18.0-25.0
			cfm	353-494	353-494	477-671	547-777	636-883
	External static pressure *3	Pa	208V	(100, 250)				
			230V	(150), 250				
Noise level (Low-High) *2		dB(A)		39-45	39-45	40-46	38-44	38-44

■ PEFY-P-NMHU-E2

Item \ Model				PEFY-P36NMHU-E2	PEFY-P48NMHU-E2	PEFY-P54NMHU-E2
Power sourse				208/230V, 60Hz		
Capacity *1	Cooling	kW		10.6	14.1	15.8
		BTU/h		36000	48000	54000
	Heating	kW		11.7	15.8	17.6
		BTU/h		40000	54000	60000
Dimension	Height	mm		380		
		in		15		
	Width	mm		1195		
		in		47-1/16		
	Depth	mm		900		
		in		35-7/16		
Net weight		kg		69		71
		lb		153		157
FAN	Airflow rate (Low-High)		m^3/min	26.5-38.0	26.5-38.0	28.0-40.0
			cfm	936-1342	936-1342	989-1412
	External static pressure *3	Pa	208V	(100, 250)		
			230V	(150), 250		
Noise level (Low-High) *2		dB(A)		40-46	40-46	41-47

Notes: *1 Cooling/Heating capacity indicates the maximum value at operation under the following condition.
Cooling: Indoor: 26.7 °C [80 °F] DB/19.4 °C [67 °F] WB Outdoor: 35 °C [95 °F] DB
Heating: Indoor: 21.1 °C [70 °F] DB Outdoor: 8.3 °C [47 °F] DB/6.1 °C [43 °F] WB
*2 The operating noise is the data that was obtained in an anechoic room.
*3 Factory settings: Power supply voltage 230 V
External static pressure 250 Pa

3-2. Electrical parts specifications

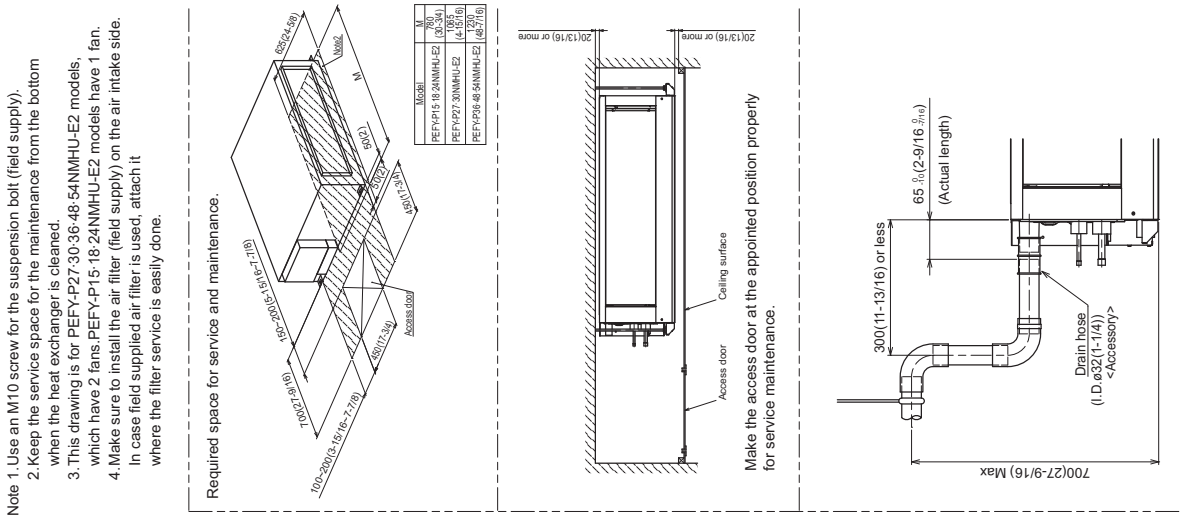
Model / Parts name	Symbol	PEFY-P15 NMHU-E2	PEFY-P18 NMHU-E2	PEFY-P24 NMHU-E2	PEFY-P27 NMHU-E2	PEFY-P30 NMHU-E2	PEFY-P36 NMHU-E2	PEFY-P48 NMHU-E2	PEFY-P54 NMHU-E2
Tranrsformer	T	(Primary) 50/60Hz 220-240V (Secondry) (23.5V 0.9A)							
Room temperature thermistor	TH21	Resistance 0°C [32°F]/15kΩ, 10°C [50°F]/9.6kΩ, 20°C [68°F]/6.3kΩ, 25°C [77°F]/5.4kΩ, 30°C [86°F]/4.3kΩ, 40°C [104°F]/3.0kΩ							
Liquid pipe thermistor	TH22	Resistance 0°C [32°F]/15kΩ, 10°C [50°F]/9.6kΩ, 20°C [68°F]/6.3kΩ, 25°C [77°F]/5.4kΩ, 30°C [86°F]/4.3kΩ, 40°C [104°F]/3.0kΩ							
Gas pipe thermistor	TH23	Resistance 0°C [32°F]/15kΩ, 10°C [50°F]/9.6kΩ, 20°C [68°F]/6.3kΩ, 25°C [77°F]/5.4kΩ, 30°C [86°F]/4.3kΩ, 40°C [104°F]/3.0kΩ							
Fuse (Indoor controller board)	FUSE	250V 6.3A							
Fan motor (with Innerthermostat)	MF1, 2	4-pole Output130W NC-45VMS	4-pole Output130W NC-45VMS	4-pole Output180W NC-71VMS	4-pole Output190W NC-90VMS-W	4-pole Output190W NC-90VMS-W	4-pole Output400W NC-112VMS-W	4-pole Output400W NC-112VMS-W	4-pole Output400W NC-112VMS-W
Innerthermostat (Fan motor)		OFF 135ºC ±5ºC ON 86ºC ±15ºC							
Fan motor capacitor	C1	4μF×440V	4μF×440V	5μF×440V	8μF×440V	10μF×440V	11μF×440V	11μF×440V	11μF×440V
Linear expansion valve	LEV	DC12V Stepping motor drive port dimension ø 3.2 (0~1800pulse <at R410A outdoor unit> 0~2000pulse <at the other outdoor unit>)			DC12V Stepping motor drive port dimension ø 5.2 (0~1800pulse <at R410A outdoor unit> 0~2000pulse <at the other outdoor unit>)				DC12V Stepping motor drive port dimension ø 6.4 (0~1800pulse <at R410A outdoor unit> 0~2000pulse <at the other outdoor unit>)
Power supply terminal bed	TB2	(L1, L2, G) 250V 20A							
Transmission terminal bed	TB5	(M1, M2, S) 250V 20A							
	TB15	(1, 2) 250V 15A							
Drain pump	DP	Disconnect the connector, and measure the resistance using a tester. (Ambient temp.: 20ºC)							
Drain sensor	DS	0°C/6.0kΩ,10°C/3.9kΩ 20°C/2.6kΩ,25°C/2.2kΩ 30°C/1.8kΩ,40°C/1.3kΩ							

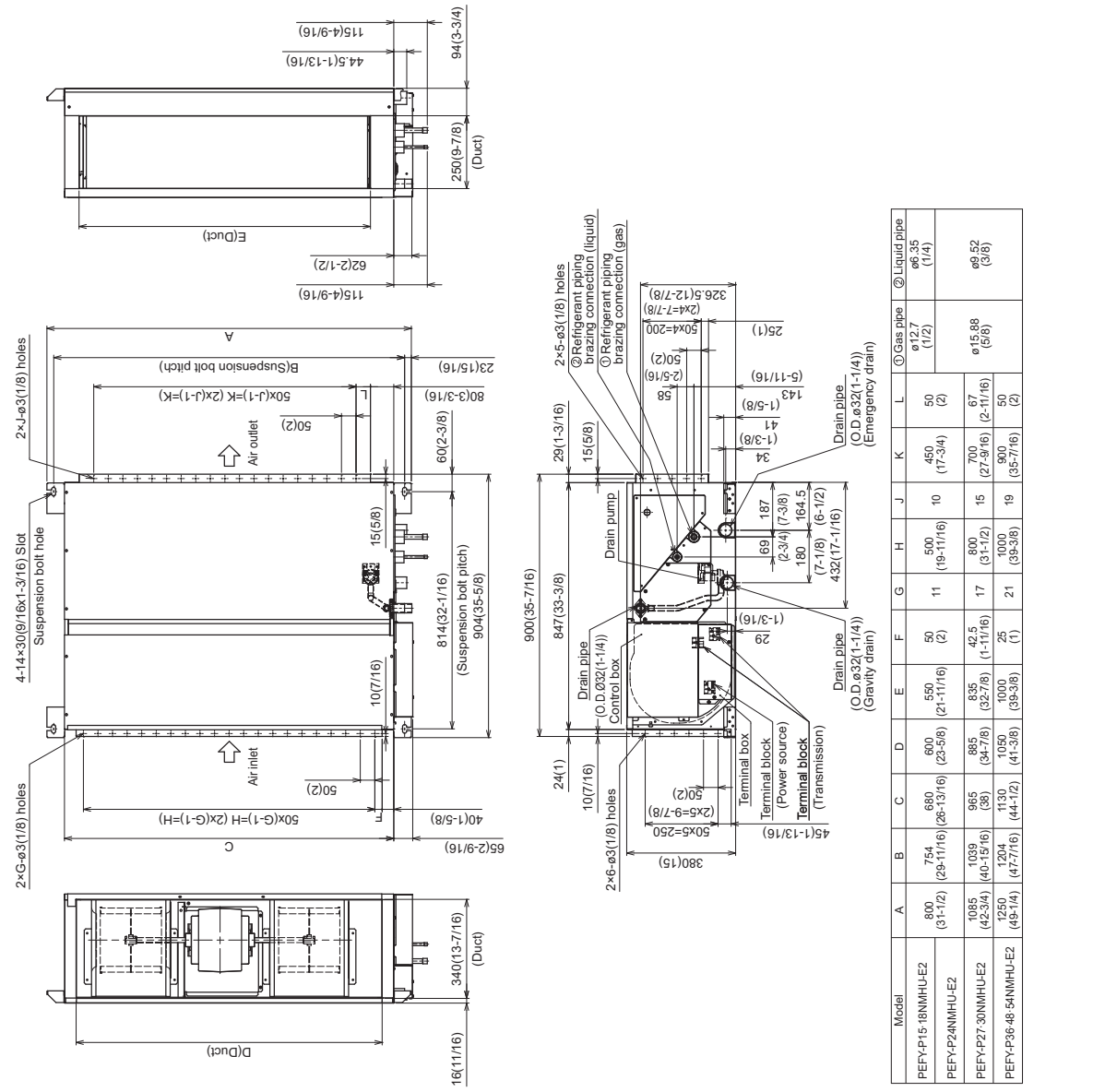
Normal	Abnormal
399Ω	Open or short circuit

4. OUTLINES AND DIMENSIONS

■ PEFY-P15·18·24·27·30·36·48·54NMHU-E2

Unit :mm(in.)

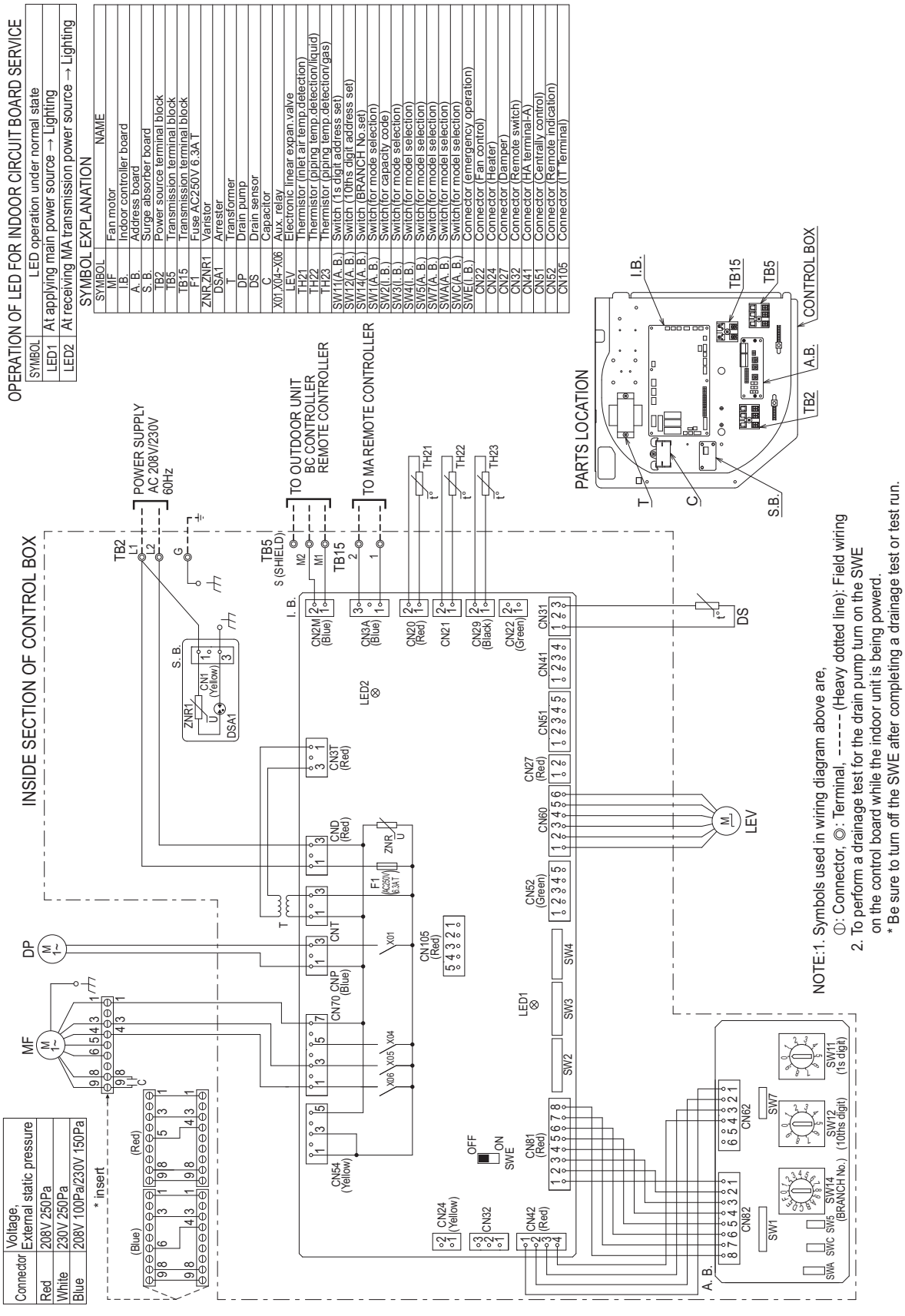




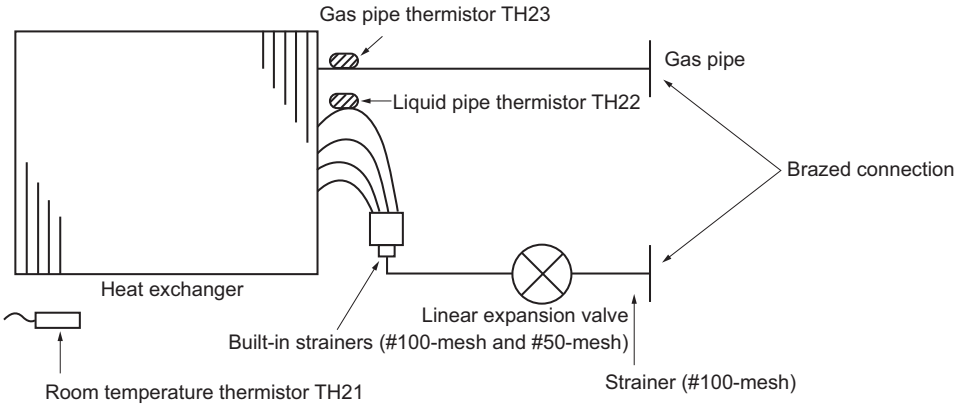
Model	A	B	C	D	E	F	G	H	J	K	L	①Gas pipe	②Liquid pipe
PEFY-P15·18NMHU-E2	800 (31-1/2)	754 (29-11/16)	680 (26-13/16)	800 (29-5/8)	550 (21-11/16)	50 (2)	11	500 (19-11/16)	10	450 (17-3/4)	50 (2)	ø12.7 (1/2)	ø6.35 (1/4)
PEFY-P24NMHU-E2												ø15.88 (5/8)	ø9.52 (3/8)
PEFY-P27·30NMHU-E2	1085 (42-3/4)	1039 (40-15/16)	965 (38)	885 (34-7/8)	835 (32-7/8)	42.5 (1-11/16)	17	800 (31-1/2)	15	700 (27-9/16)	67 (2-11/16)		
PEFY-P36·48·54NMHU-E2	1250 (49-1/4)	1204 (47-7/16)	1130 (44-1/2)	1050 (41-3/8)	1000 (39-3/8)	25 (1)	21	1000 (39-3/8)	19	900 (35-7/16)	50 (2)		

5. WIRING DIAGRAM

■ PEFY-P15·18·24·27·30·36·48·54NMHU-E2



6. REFRIGERANT SYSTEM DIAGRAM



mm <in.>

Item \ Capacity	PEFY-P15,18NMHU-E2	PEFY-P24,27,30NMHU-E2	PEFY-P36,48,54NMHU-E2
Gas pipe	ø 12.7 (1/2)	ø 15.88 (5/8)	
Liquid pipe	ø 6.35 (1/4)	ø 9.52 (3/8)	

7. TROUBLESHOOTING

7-1. How to check the parts

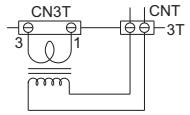
Room temperature thermistor (TH21) / Liquid pipe thermistor (TH22) / Gas pipe thermistor (TH23)

Disconnect the connector, then measure the resistance using a tester.
(Sorrounding temperature 10°C~30°C [50°F~86°F])

Normal	Abnormal
4.3kΩ~9.6kΩ	Open or short

(Refer to the <Thermistor characteristic graph>)

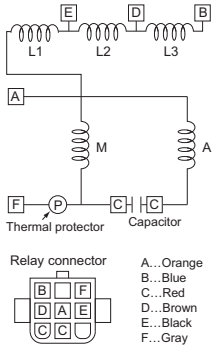
Transformer



Disconnect the connector and measure the resistance using a tester.

	Normal	Abnormal
CNT(1)-(3)	App.15Ω	Open or short
CN3T(1)-(3)	App.4Ω	

Fan motor PEFY-P15~54

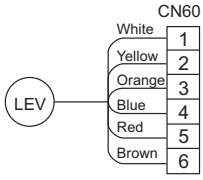


Measure the resistance between the terminals using a tester. (at 20°C [68°F])

Unit :Ω

Motor terminal or Relay connector	Normal				Abnormal
	PEFY-P15,18	PEFY-P24	PEFY-P27,30	PEFY-P36,48,54	
M	30.9	24.6	24.0	6.26	Open or short
A	46.9	34.7	29.1	8.19	
L1	4.08	2.81	2.94	0.740	
L2	8.95	4.03	3.56	0.741	
L3	7.77	6.06	4.35	2.07	

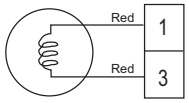
Linear expansion valve



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

Normal				Abnormal
(1)-(5) White-Red	(2)-(6) Yellow-Brown	(3)-(5) Orange-Red	(4)-(6) Blue-Brown	Open or short
200Ω ±10%				

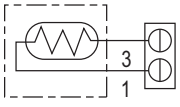
Drain Pump (Drain water lift up kit)



Disconnect the connector then measure the resistance valve using a tester.
(Sorrounding temperature 20°C~30°C [68°F~86°F])

Normal	Abnormal
399Ω	Open or short

Drain sensor (Drain water lift up kit)

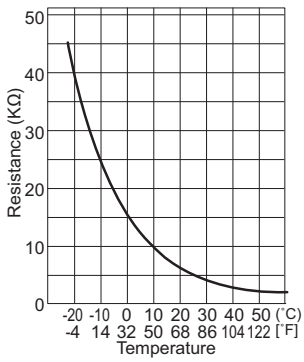


Measure the resistance between the terminals using a tester.
(Refer to the <Thermistor characteristic graph>)

0°C/6.0kΩ, 10°C/3.9kΩ
20°C/2.6kΩ, 25°C/2.2kΩ
30°C/1.8kΩ, 40°C/1.3kΩ

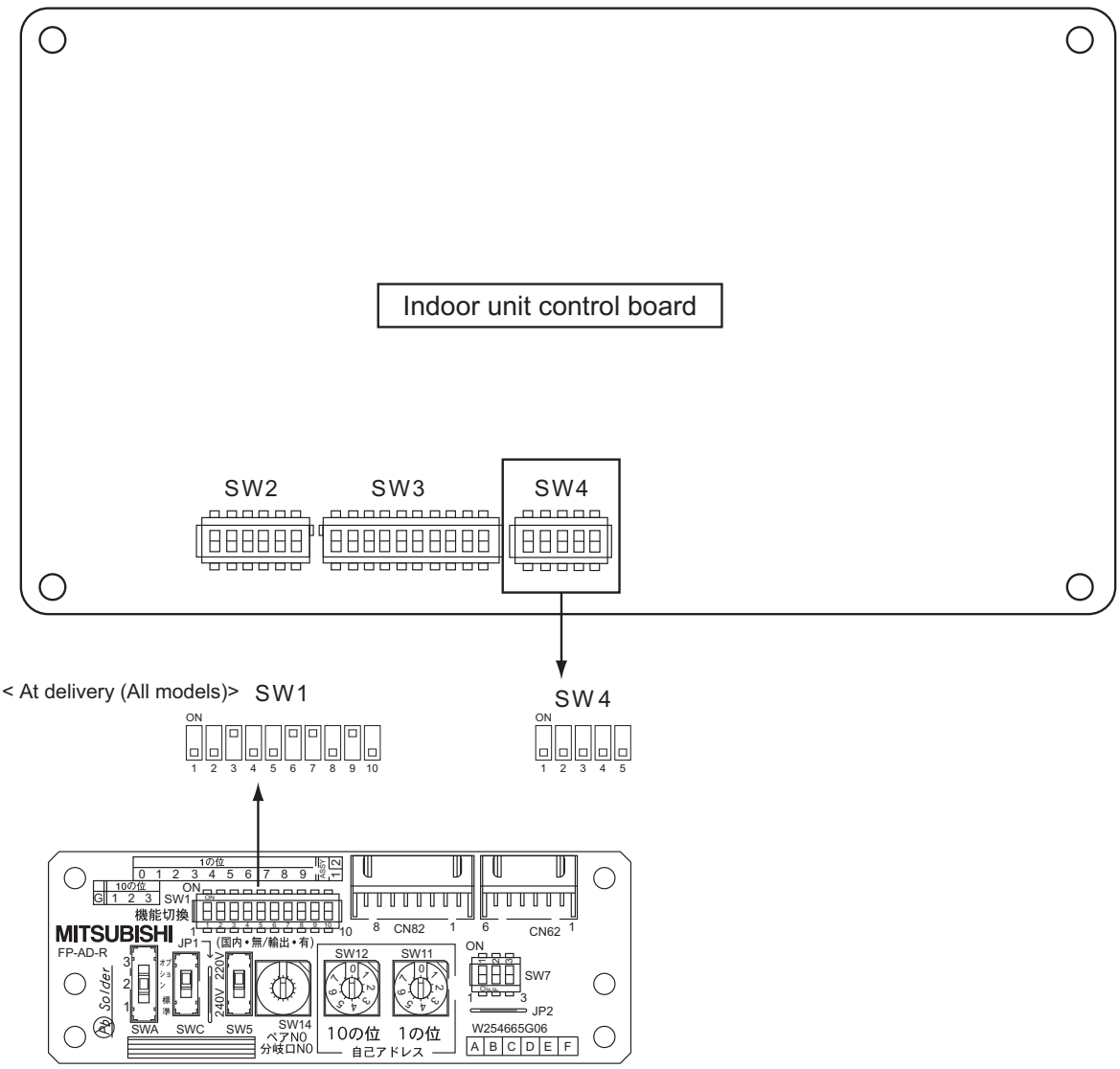
<Thermistor characteristic graph>
Room temperature thermistor (TH21)
Liquid pipe thermistor (TH22)
Gas pipe temperature thermistor (TH23)
Drain sensor (DS)
Thermistor R_0=15kΩ ± 3%
Fixed number of B=3480kΩ ± 2%
$Rt=15\exp\{3480\,(\frac{1}{273+t}-\frac{1}{273})\}$

0°C 32°F 15kΩ
10°C 50°F 9.6kΩ
20°C 68°F 6.3kΩ
25°C 77°F 5.2kΩ
30°C 86°F 4.3kΩ
40°C 104°F 3.0kΩ



7-2. Setting of address switch

Make sure that power source is turning off.



<1> In case using M-NET remote controller, address is set by rotary switches. (SW11,SW12)

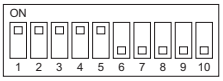
* It is not necessary setting address in case of using unit remote controller.

Indoor unit do not run without address setting in field.

<2> Indoor unit address setting rule is different by each field work.
Refer to install manual of outdoor unit , operate the address setting.

<3> Setting the address is combination of SW11 (1st digit address setting) and SW12 (2nd digit address setting).

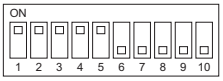
Address “3” setting is composed SW11 “3” and SW12 “0”.
Address “25” setting is composed SW11 “5” and SW12 “2”.



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

7-3. Setting of Dip-switch (at delivery)

Models	Dip-SW							
	SW1	SW2	SW3	SW4	SW5	SW7	SWA	SWC
PEFY-P15 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P18 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P24 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P27 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P30 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P36 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P48 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard
PEFY-P54 NMHU-E2	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 7 8 9 10	ON 1 2 3 4 5	220V 240V	ON 1 2 3	1	Standard



The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

The figure at left shows that the switch is set to 1.

7-4. Attention for test run

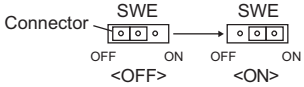
▶Check that the drain-up mechanism is working properly, that no water is leaking from pipe connections, and that the fan is operating.

- For new installation, check the above items before completing ceiling work.

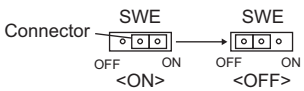
(1) Remove the cover from the water supply inlet on the indoor unit pipe.

(2) Insert the end of the pump or the tank into the drain pump. (Water may leak if it is not inserted properly.) Then, fill the water supply pump from a water supply tank.

(3) Perform a test run in the Cooling mode, or connect the connector to the ON-side of the SWE on the indoor unit control board.
(The drain pump and the fan will be forced into operation without being started from the remote controller.)



(4) Check for normal operation, stop the test run, and shut off the main power. Disconnect the connector that is connected to the ON-side of SWE, if applicable. Connect it to the OFF-side, and then replace the cover to the water supply inlet as it was.

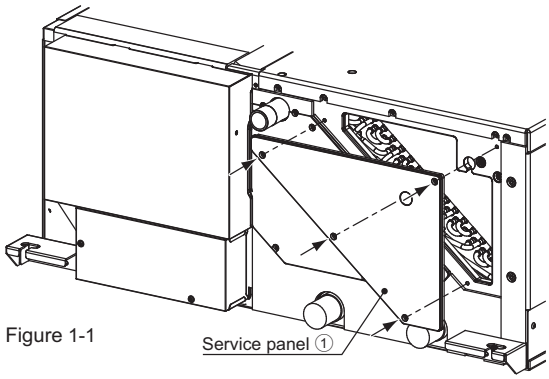
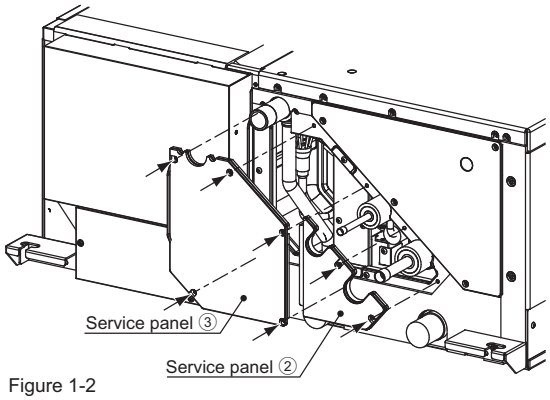


7-5. Function the LED of the indoor unit service board

Symbol	LED operation under normal state
LED1	At applying main power source → Lighting
LED2	At receiving MA transmission power source → Lighting

8. DISASSEMBLY PROCEDURE

8-1. Service panel

Procedures	Explanatory figure
1. Removing the service panel ① (Figure 1-1) (1) Remove the four service panel ① mounting screws. 2. Removing the service panels ② and ③ (Figure 1-2) (1) Remove the five service panel ③ mounting screws. (2) Remove the two service panel ② mounting screws.	 Figure 1-1  Figure 1-2

8-2. Control box

Procedures	Explanatory figure

1. Removing the control cover (Figure 2-1)
   (1) Remove the two control box cover mounting screws.
   (2) Remove the two terminal block cover mounting screws.

* The above procedures will allow for the following services to be performed.

①Operation and checking of the following switches on the address board of the control board	
Rotary switch SW11,12	Address setting
Rotary switch SW14	Port setting
Dip switch SW1	Function setting 1
Dip switch SW2	Capacity setting
Dip switch SW3	Function setting 2
Dip switch SW4	Function setting
Dip switch SW7	Function setting
Jumper pin SWE	Test run
Dip switch SWA,SWC	Option setting
②Checking of the wiring connections to the control box (see below) and the field-installed wiring	
Power wire	(Field-connected)
Indoor-outdoor transmission line	(Field-connected)
Remote controller wiring	(Field-connected)
LEV wiring	(Factory-connected)
Drain pump wiring	(Factory-connected)
Drain sensor wiring	(Factory-connected)
Fan motor wiring	(Factory-connected)
Indoor temperature thermistor wiring	(Factory-connected)
Liquid pipe temperature thermistor wiring	(Factory-connected)
Gas pipe temperature thermistor wiring	(Factory-connected)
③Replacement of control board	
④Replacement of address board	
⑤Replacement of DSA board	
⑥Replacement of capacitor	
⑦Replacement of power supply transformer	
⑧Replacement of fuse	

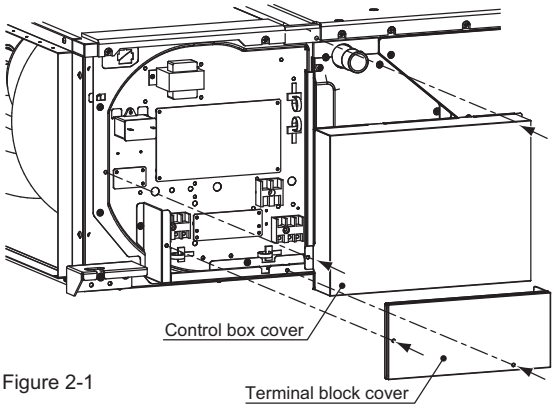


Figure 2-1

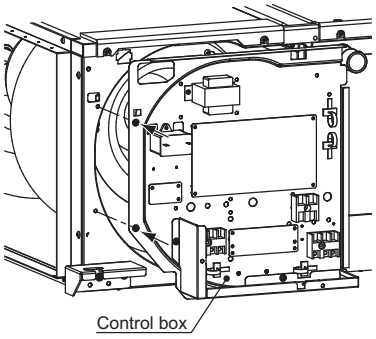
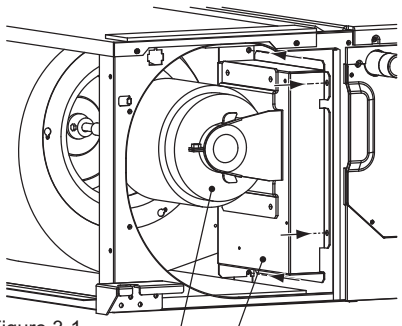
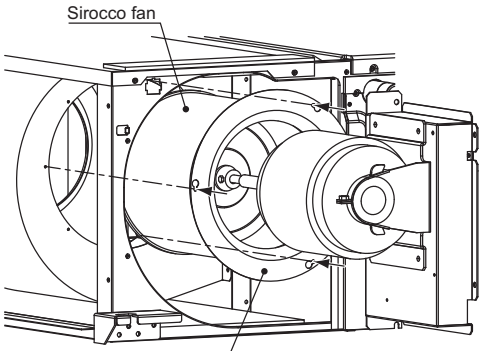
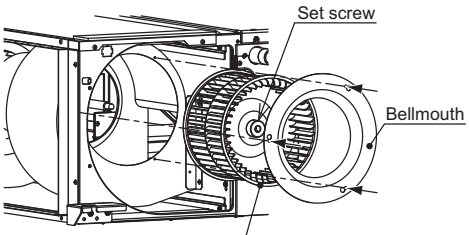
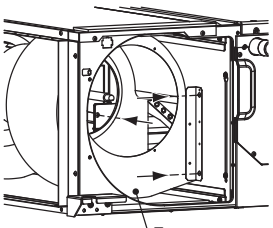
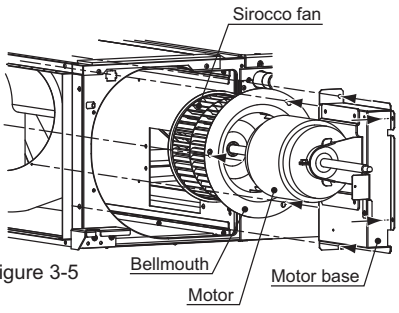


Figure 2-2

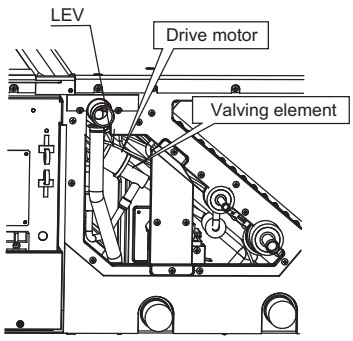
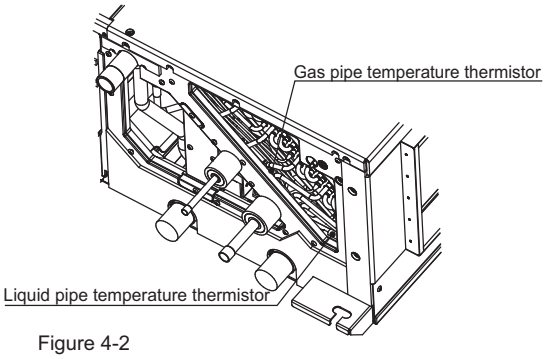
Procedures	Explanatory figure
2. Removing the control box (Figure 2-2) (1) Disconnect the wiring from the control board and the relay connectors. (2) Remove the two control box mounting screws.	

LEV1 wiring	CN60•6P•White
Fan motor wiring	Relay connector• 9P•White
Indoor temperature thermistor wiring	CN20•2P•Red
Liquid pipe temperature thermistor wiring	CN21•2P•White
Gas pipe temperature thermistor wiring	CN29•2P•Black
Drain pump wiring	Relay connector• 3P•White
Drain sensor wiring	CN31•3P•White

8-3. Fan

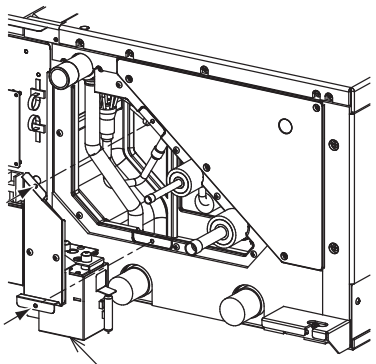
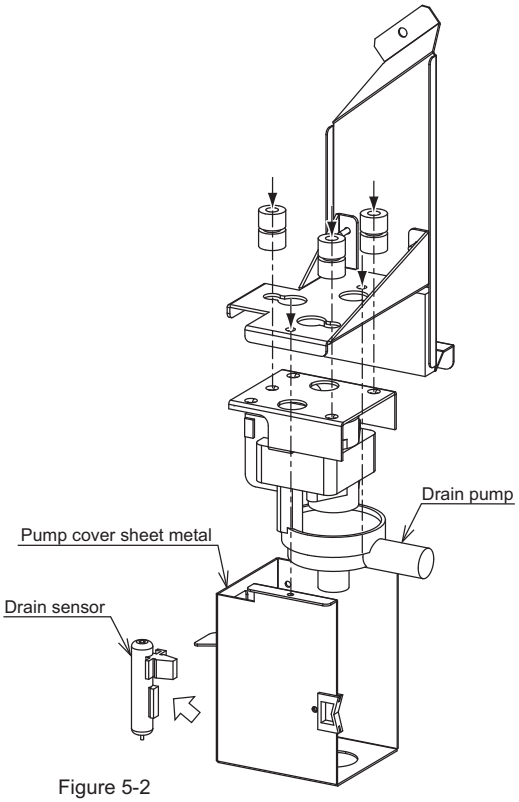
Procedures	Explanatory figure
1. Remove the control box and its cover according to the procedures detailed in section 8-2. Control box (page18). 2. Removing the fan P45-71 models (Figures 3-1 and 3-2) (1) Remove the four motor base mounting screws. (2) Loosen the three bellmouth mounting screws, and remove the bellmouth. (3) Pull out the fan along the guide rail. ***Use caution not to pinch the wiring.** ***Motor is heavy. Use caution to avoid injuries.** P80-160 models (Figures 3-3, 3-4, and 3-5) (1) Loosen the three front bellmouth mounting screws, and remove the bellmouth. (2) Loosen the sirocco fan set screws, and remove the sirocco fan. (3) Remove the three front fan case mounting screws. (4) Remove the four motor base mounting screws. (5) Loosen the three back bellmouth, and remove the bellmouth. (6) Pull out the fan along the guide rail. ***Use caution not to pinch the wiring.** ***Motor is heavy. Use caution to avoid injuries.**	 Figure 3-1  Figure 3-2  Figure 3-3  Figure 3-4  Figure 3-5

8-4. LEV•Pipe thermistor

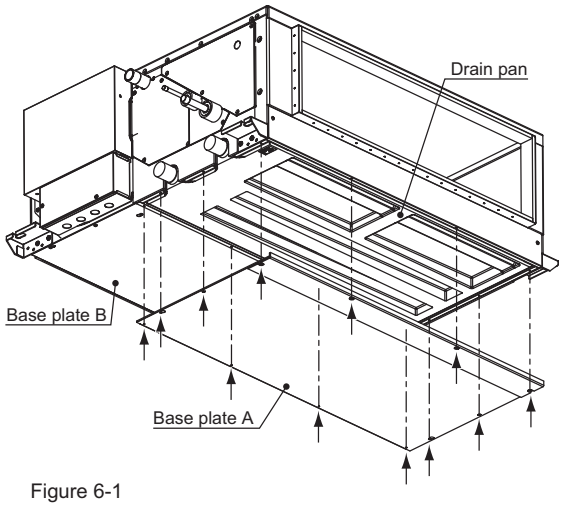
Procedures	Explanatory figure
1. Remove the service panel according to the procedures detailed in section 8-1. Service panel (page17). 2. Remove the control box cover according to the procedures detailed in section 8-2. Control box (page18). 3. Removing the LEV (Figure 4-1) (1) Disconnect connector CN60 from the control board. (2) Remove the drive motor using two spanners. (3) To remove the valving element, first take the first four steps in section 8-7. Heat exchanger (page24) to remove the plastic cover. Be sure to protect the surrounding parts, such as insulation and wiring, from flame. 4. Removing the pipe thermistor (Figure 4-2) (1) Disconnect connectors CN21 and CN29 from the control board. (2) Take the pipe thermistor out of the holder.	 Figure 4-1  Figure 4-2 Thermistor position list

	P45 model	P50 model	P71 model	P80 model	P90 model	P112 model	P140 model	P160 model
Liquid pipe temperature thermistor	4th path			7th path		8th path		5th path
Gas pipe temperature thermistor	3rd path			4.5th path		3rd path	7th path	4th path

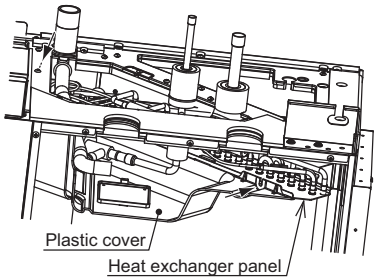
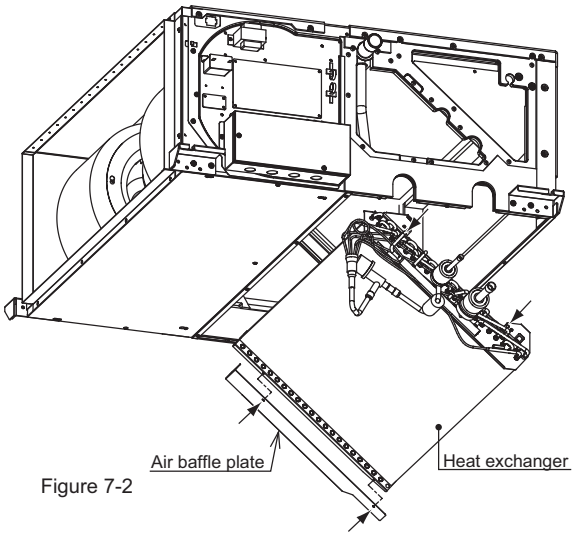
8-5. Drain pump•Drain sensor

Procedures	Explanatory figure
1. Remove the service panels ② and ③ according to the procedures detailed in section 8-1. Service panel (page17). 2. Remove the control box cover according to the procedures detailed in section 8-2. Control box (page18). 3. Disconnect the drain pump relay connector (CN31: white) from the control board. 4. Removing the drain pump assembly (Figure 5-1) (1) Remove the two drain pump mounting screws. 5. Removing the drain pump and drain sensor (Figure 5-2) (1) Remove the two drain pump cover sheet metal mounting screws. (2) Remove the three drain pump mounting screws. (3) Pull the drain sensor out of the drain pump cover sheet metal.	 Figure 5-1  Figure 5-2

8-6. Drain pan

Procedures	Explanatory figure
1. Remove the cap from the service panel ③, and check the drain pan for water. Drain water from the drain port if there is any. ***Protect the surroundings with a plastic sheet before draining water.** 2. Removing the drain pan (Figure 6-1) (1) Remove the 12 mounting screws from base plate A. (2) Pull down the drain pan. Loosening the mounting screw on base plate B will make it easy to remove base plate A. ***Pull out the drain pan by pulling a little in all directions. Drain pan is made of styrofoam. Handle the drain pan carefully so as not to break it.**	 Figure 6-1

8-7. Heat exchanger

Procedures	Explanatory figure
1. Remove the LEV and pipe sensor wiring according to the procedures detailed in section 8-4. LEV•Pipe thermistor (page21). 2. Remove the drain pump according to the procedures detailed in section 8-5. Drain pump•Drain sensor (page22). 3. Remove the drain pan according to the procedures detailed in section 8-6. Drain pan (page23). 4. Removing the plastic cover (Figure 7-1) (1) Remove the plastic cover mounting screw from the outside of the unit, and another mounting screw from inside the unit. (2) Unhook the plastic cover from the heat exchanger panel. 5. Removing the heat exchanger (Figure 7-2) (1) Remove the two air baffle plate mounting screws. (2) Remove the four heat exchanger mounting screws, and lower the heat exchanger.	 Figure 7-1  Figure 7-2

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