Changes for the Better

MITSUBISHI ELECTRIC

Air-Conditioners For Building Application

2003

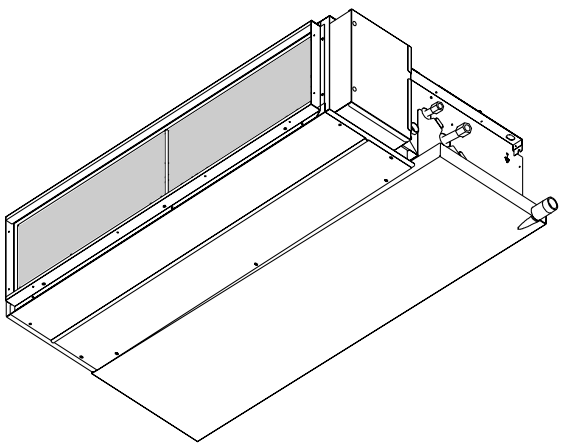
TECHNICAL & SERVICE MANUAL

Series PEFY Ceiling Concealed

<Indoor unit>

Models

PEFY-P20VMM-A,PEFY-P71VMM-A
PEFY-P25VMM-A,PEFY-P80VMM-A
PEFY-P32VMM-A,PEFY-P100VMM-A
PEFY-P40VMM-A,PEFY-P125VMM-A
PEFY-P50VMM-A,PEFY-P140VMM-A
PEFY-P63VMM-A



INDOOR UNIT

CONTENTS

CITY MULTI

For use with R407C & R22

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 not be applicable to EN61000-3-2: 1995 and EN61000-3-3: 1995.**
- **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.
- **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 (R407C or R22) 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.

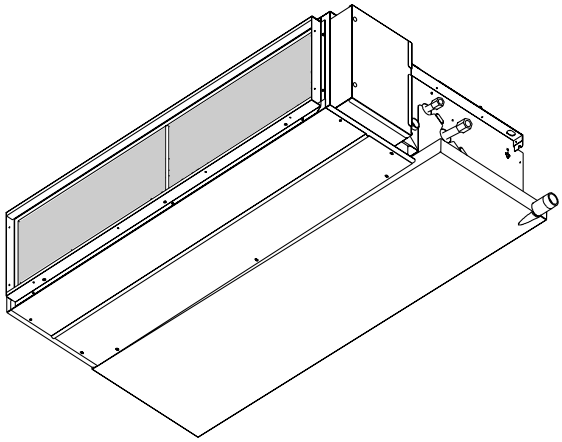
2. Precautions for devices that use R407C refrigerant

⚠ 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 phosphorus deoxidized copper. 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.
- **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 R407C.**
  - 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 R407C, the refrigerant may deteriorated.
  - If water is mixed in the R407C, the refrigerator oil may deteriorate.
  - Since R407C 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



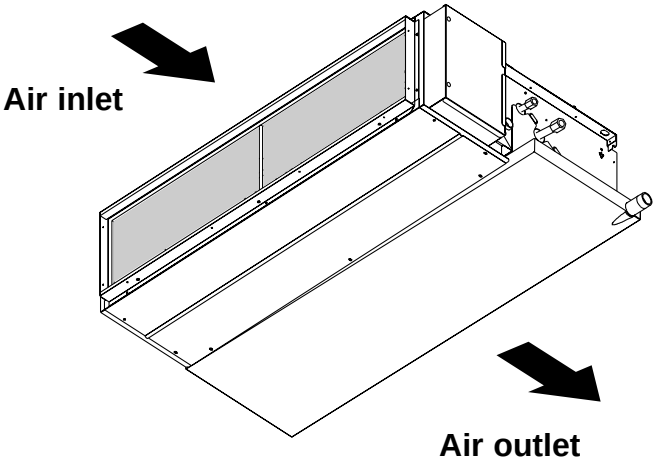
Indoor unit

Models	Cooling capacity/Heating capacity
	kW
PEFY-P20VMM-A	2.2/ 2.5
PEFY-P25VMM-A	2.8/ 3.2
PEFY-P32VMM-A	3.6/ 4.0
PEFY-P40VMM-A	4.5/ 5.0
PEFY-P50VMM-A	5.6/ 6.3
PEFY-P63VMM-A	7.1/ 8.0
PEFY-P71VMM-A	8.0/9.0
PEFY-P80VMM-A	9.0/ 10.0
PEFY-P100VMM-A	11.2/ 12.5
PEFY-P125VMM-A	14.0/ 16.0
PEFY-P140VMM-A	16.0/18.0

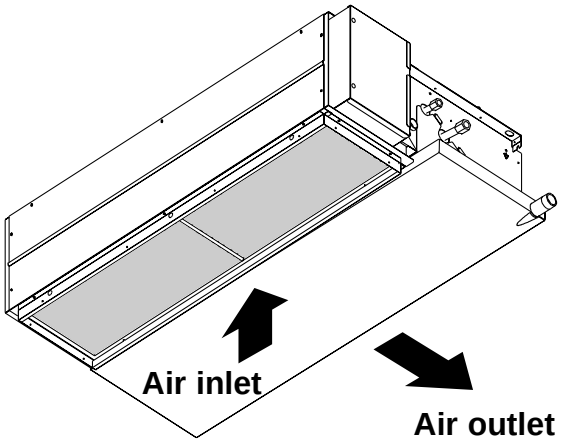
2 PART NAMES AND FUNCTIONS

● **Indoor (Main) Unit**

[In case of rear inlet]



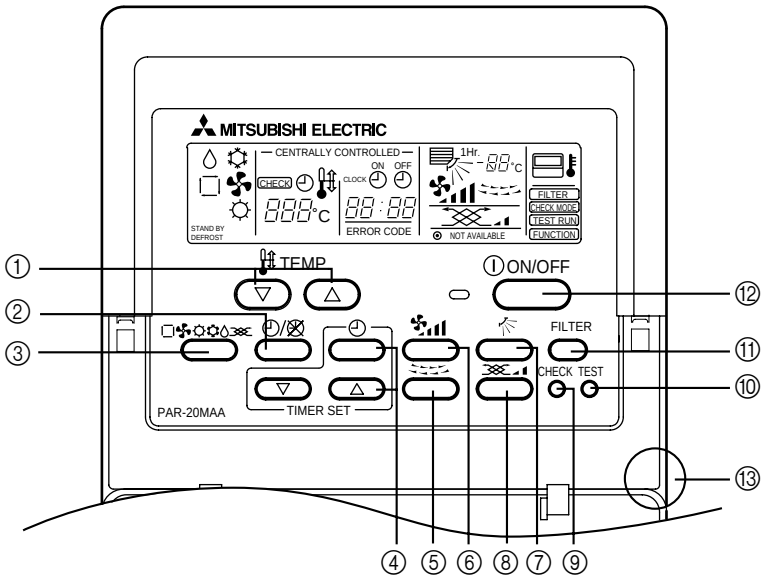
[In case of bottom inlet]



● **Remote controller** **[PAR-20MAA]**

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

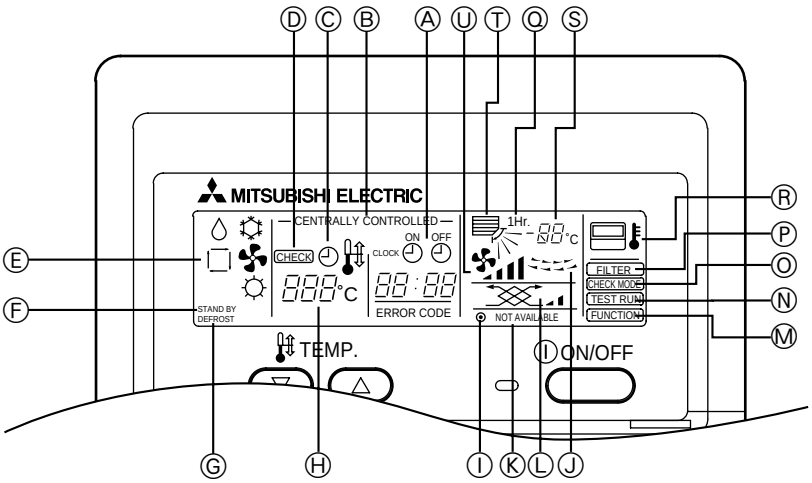
● **Operation buttons**



① [Room temperature adjustment] Button
② [Timer/continuous] Button
③ [Selecting operation] Button
④ [Time selection] Button
[Time-setting] Button
⑤ [Louver] Button
⑥ [Fan speed adjustment] Button
⑦ [Up/down airflow direction] Button
⑧ [Ventilation] Button
⑨ [Checking/built-in] Button
⑩ [Test run] Button
⑪ [Filter] Button
⑫ [ON/OFF] Button
⑬ Position of built-in room temperature

•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.

● Display



(A) Current time/Timer
(B) Centralized control
(C) Timer ON
(D) Abnormality occurs
(E) Operation mode: COOL, DRY, AUTO, FAN, HEAT
(F) Preparing for Heating mode
(G) Defrost mode
(H) Set temperature
(I) Power ON
(J) Louver
(K) Not available function
(L) Ventilation
(M) Function setting mode
(N) Test run mode
(O) Error check mode
(P) Filter sign
(Q) Set effective for 1 hr.
(R) Sensor position
(S) Room temperature
(T) Airflow
(U) Fan speed

3 SPECIFICATION

3-1. Specification

Item		Model	PEFY-P20 VMM-A	PEFY-P25 VMM-A	PEFY-P32 VMM-A	PEFY-P40 VMM-A	PEFY-P50 VMM-A	PEFY-P63 VMM-A	
Power source	Voltage	~/N V	220-240						
	Frequency	Hz	50						
Cooling capacity		kW	2.2	2.8	3.6	4.5	5.6	7.1	Note:1
Heating capacity		kW	2.5	3.2	4.0	5.0	6.3	8.0	Note:1
Power consumption	Cooling	kW	0.15		0.17	0.19	0.20	0.22	
	Heating	kW	0.15		0.17	0.19	0.20	0.22	
Current	Cooling	A	0.73		0.81	0.92	0.98	1.07	
	Heating	A	0.73		0.81	0.92	0.98	1.07	
External finish			Galvanized steel plate						
Dimension	Height	mm	295						
	Width	mm	815			935		1,175	
	Depth	mm	700						
Net weight		kg	27			33		42	
Heat exchanger			Cross fin(Alminium plate fin and copper tube)						
Fan	Type		Sirocco fanX1			Sirocco fanX2			
	Airflow rate (Low-[Middle]-High)	m^3/min	6.0-7.2-8.5		7.5-9.0-10.5	10.0-12.0-14.0	12.0-14.5-17.0	13.5-16.2-19.0	
	External static pressure	Pa	30/50/100						Note:2
Motor	Type		Single phase induction motor						
	Output	kW	0.075					0.078	
Air filter			P.P. honeycomb						
Refrigerant pipe dimension	Gas(Flare)	mm	ø12.7				ø15.88		
	Liquid(Flare)	mm	ø6.35				ø9.52		
Drain pipe dimension			R1(External thread)						
Noise level (Low-[Middle]-High)		dB	27-30-32		28-32-35	31-34-37	31-35-38	31-35-38	

Item		Model	PEFY-P71 VMM-A	PEFY-P80 VMM-A	PEFY-P100 VMM-A	PEFY-P125 VMM-A	PEFY-P140 VMM-A	
Power source	Voltage	~/N V	220-240					
	Frequency	Hz	50					
Cooling capacity		kW	8.0	9.0	11.2	14.0	16.0	Note:1
Heating capacity		kW	9.0	10.0	12.5	16.0	18.0	Note:1
Power consumption	Cooling	kW	0.25	0.25	0.29	0.40	0.42	
	Heating	kW	0.25	0.25	0.29	0.40	0.42	
Current	Cooling	A	1.15		1.34	1.90	1.95	
	Heating	A	1.15		1.34	1.90	1.95	
External finish			Galvanized steel plate					
Dimension	Height	mm	295		325			
	Width	mm	1,175		1,415		1,715	
	Depth	mm	700		740			
Net weight		kg	42		62	65	70	
Heat exchanger			Cross fin(Alminium plate fin and copper tube)					
Fan	Type		Sirocco fanX2					
	Airflow rate (Low-[Middle]-High)	m^3/min	14.5-18.0-21.0		23.0-33.0	28.0-40.0	29.5-42.0	
	External static pressure	Pa	30/50/100		50/130			Note:2
Motor	Type		Single phase induction motor					
	Output	kW	0.078		0.200	0.280		
Air filter			P.P. honeycomb					
Refrigerant pipe dimension	Gas(Flare)	mm	ø15.88		ø19.05			
	Liquid(Flare)	mm	ø9.52					
Drain pipe dimension			R1(External thread)					
Noise level(Low-[Middle]-High)		dB	32-36-39		40-44	42-45		

Note: 1.Cooling / Heating capacity indicates the maximum value at operation under the following condition.

Cooling :Indoor 27°CDB/19.0°CWB
:Outdoor 35°CDB

Heating :Indoor 20°C
:Outdoor 7°CDB/6°CWB

2.The external static pressure is set to 50 Pa at factory shipment.

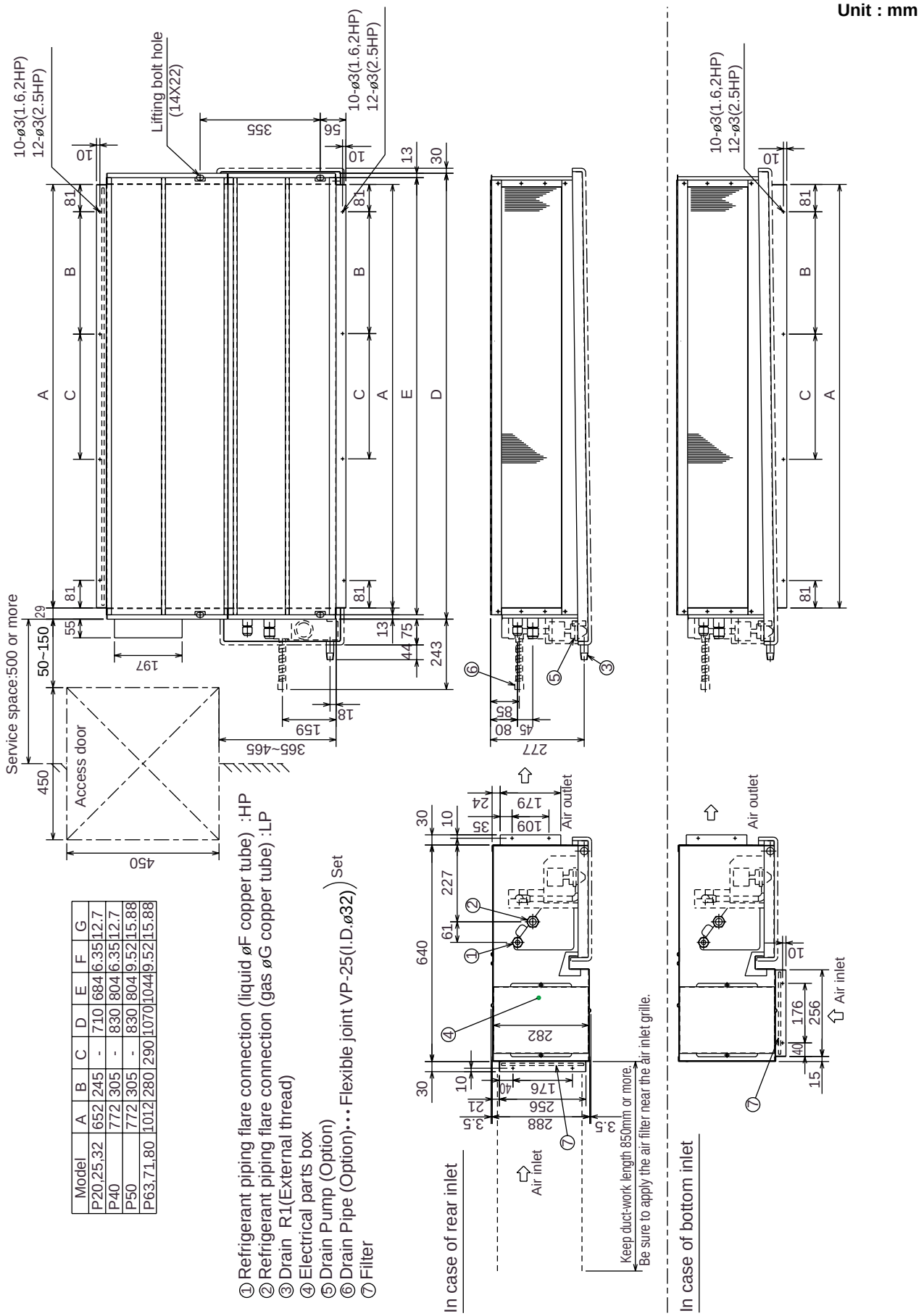
3-2. Electrical parts specifications

Parts name \ Model	Symbol	PEFY-P20 VMM-A	PEFY-P25 VMM-A	PEFY-P32 VMM-A	PEFY-P40 VMM-A	PEFY-P50 VMM-A	PEFY-P63 VMM-A	PEFY-P71 VMM-A	PEFY-P80 VMM-A	PEFY-P100 VMM-A	PEFY-P125 VMM-A	PEFY-P140 VMM-A
Transformer	T	(Primary) 50/60Hz 220-240V (Secondry) (18.4V 1.7A)										
Room temperature thermistor	TH21	Resistance 0˚C/15kΩ ,10˚C/9.6kΩ ,20˚C/6.3kΩ ,25˚C/5.4kΩ ,30˚C/4.3kΩ ,40˚C/3.0kΩ										
Liquid pipe thermistor	TH22	Resistance 0˚C/15kΩ ,10˚C/9.6kΩ ,20˚C/6.3kΩ ,25˚C/5.4kΩ ,30˚C/4.3kΩ ,40˚C/3.0kΩ										
Gas pipe thermistor	TH23	Resistance 0˚C/15kΩ ,10˚C/9.6kΩ ,20˚C/6.3kΩ ,25˚C/5.4kΩ ,30˚C/4.3kΩ ,40˚C/3.0kΩ										
Fuse (Indoor con-troller board)	FUSE	250V 6.3A										
Fan motor (with Inner-thermostat)	MF1,2	4-pole Output 75W D104P75MW			4-pole Output 75W D104P85MW		4-pole Output 78W D10CP95MW			4-pole Output 200W NS-100VM-1	4-pole Output 280W NS-125VM-1	
Inner-thermostat (Fan motor)		OFF 130˚C ±5 ON 90˚C ±20										
Fan motor capacitor	C1	6.0μF X 440V			6.0μF X 440V		6.0μF X 440V			8.0μF X 440V		
Linear expansion valve	LEV	DC12V Stepping motor drive port dimension ø3.2 (0~2000pulse) EDM-402MD							DC12V Stepping motor drive port dimension ø5.2 (0~2000pulse) EDM-804MD			DC12V Stepping motor drive port dimension ø6.4 (0~2000pulse) EDM-1004MD
Power supply terminal bed	TB2	(L,N,⏚) 330V 30A										
Transmission terminal bed	TB5 TB15	(M1,M2,S) (1,2) 300V 10A										

4 OUTLINES AND DIMENSIONS

Indoor Unit PEFY-P20•25•32•40•50•63•71•80VMM-A

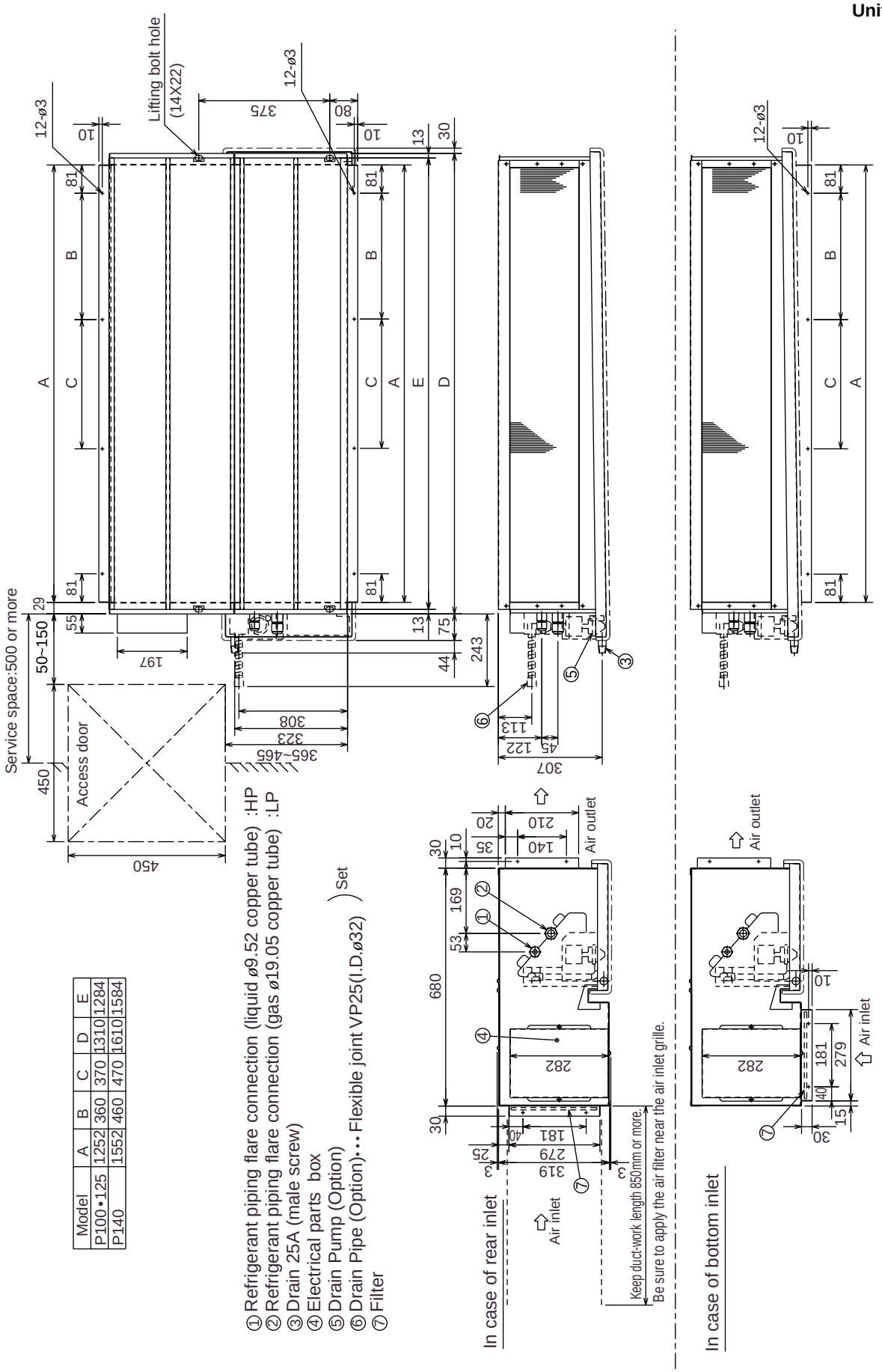
Unit : mm



Model	A	B	C	D	E	F	G
P20,25,32	652	245	-	710	684	6.35	12.7
P40	772	305	-	830	804	6.35	12.7
P50	772	305	-	830	804	9.52	15.88
P63,71,80	1012	280	290	1070	1044	9.52	15.88

Indoor Unit PEFY-P100•125•140VMM-A

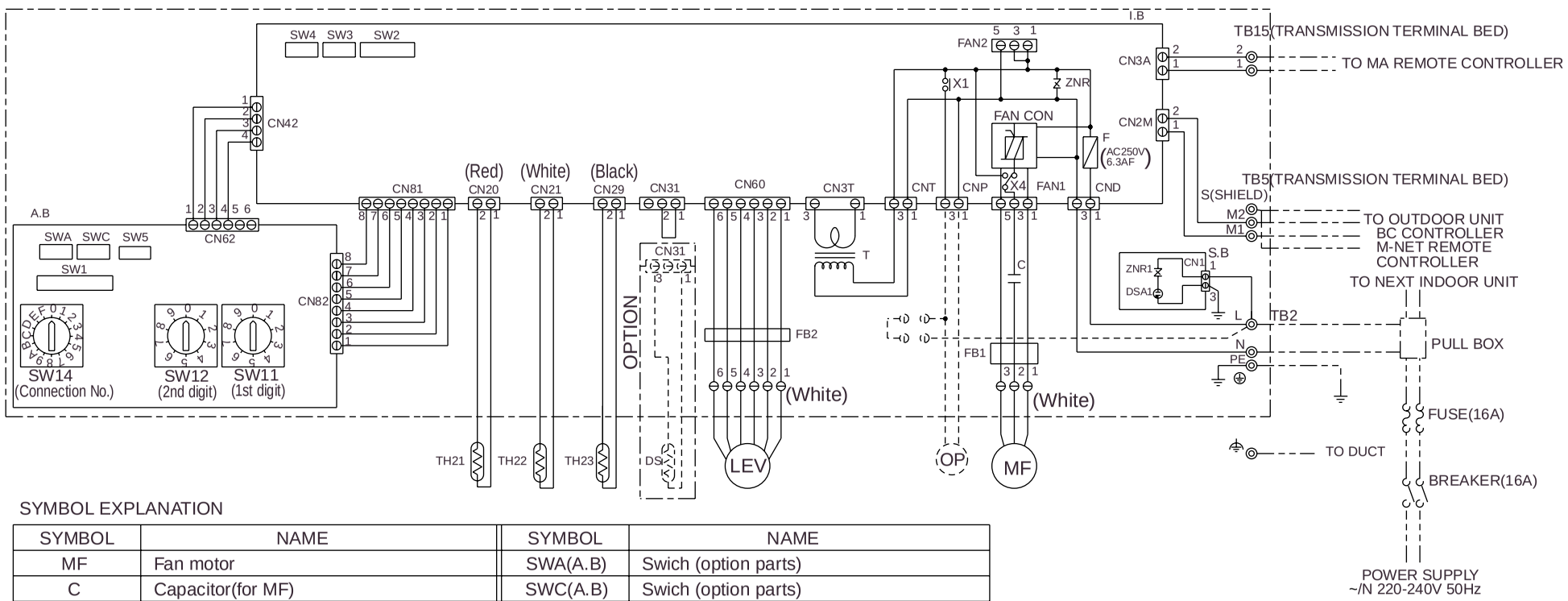
Unit : mm



Model	A	B	C	D	E
P100•125	1252	360	370	1310	1284
P140	1552	460	470	1610	1584

Indoor Unit PEFY-P20•25•32•40•50•63•71•80VMM-A

INSIDE SECTION OF CONTROL BOX



SYMBOL EXPLANATION

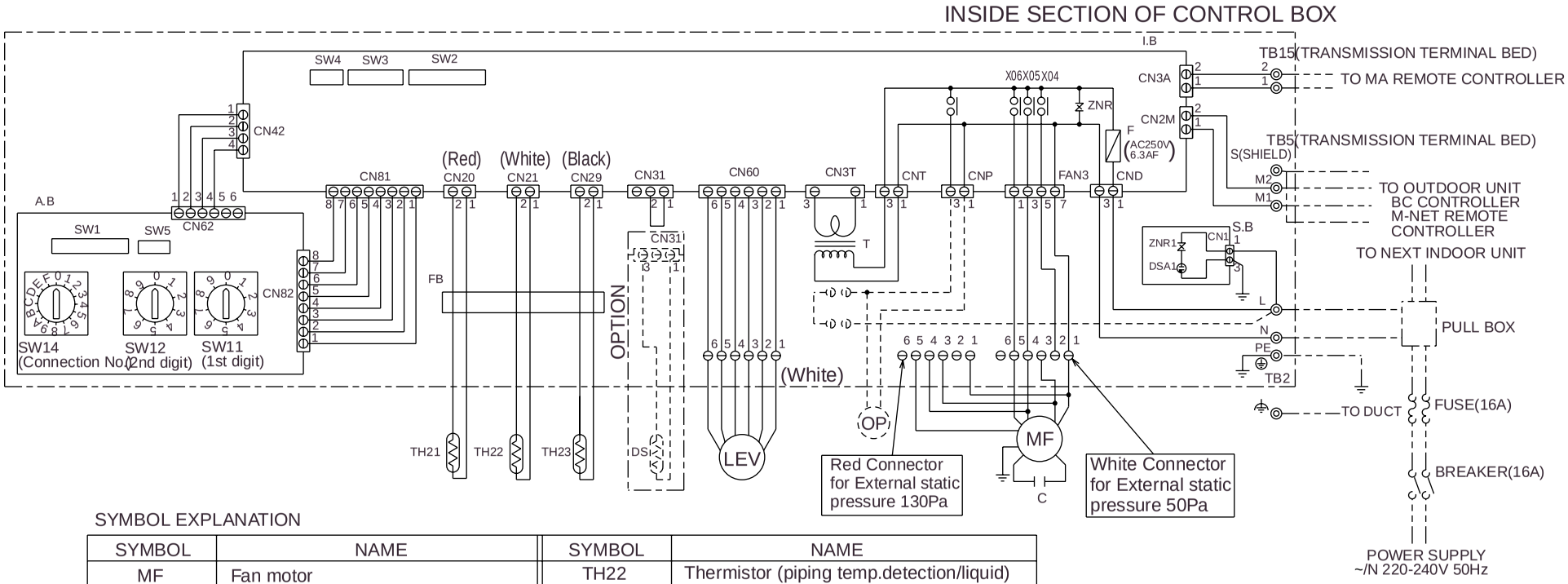
SYMBOL	NAME	SYMBOL	NAME
MF	Fan motor	SWA(A.B)	Swich (option parts)
C	Capacitor(for MF)	SWC(A.B)	Swich (option parts)
I.B	Indoor controller board	SW11(A.B)	Switch (1st digit address set)
A.B	Address board	SW12(A.B)	Switch (2nd digit address set)
TB2	Power source terminal bed	SW14(A.B)	Switch (connection No.set)
TB5	Transmission terminal bed	SW1(A.B)	Switch(for mode selection)
TB15	Transmission terminal bed	SW2(I.B)	Switch(for capacity code)
F	Fuse AC250V 6.3AF	SW3(I.B)	Switch(for mode selection)
T	Transformer	SW4(I.B)	Switch(for model selection)
LEV	Electronic linear expan. valve	SW5(A.B)	Switch(for voltage selection)
TH21	Thermistor (inlet temp.detection)	FB1,2	Ferrite core
TH22	Thermistor (piping temp.detection/liquid)	S.B	Surge absorber board
TH23	Thermistor (piping temp.detection/gas)	DP	Drain pump
		DS	Drain sensor

NOTE;1.TB2,TB5 shown in dotted line are field work.

2.Mark ◎ indicates terminal bed, ⊖ connector, ⊖ board insertion connector or fastening connector of control board.

*Capacitor
MODELS 20/25/32/40/50/63/71/80 6μF

Indoor Unit PEFY-P100•125•140VMM-A



SYMBOL EXPLANATION

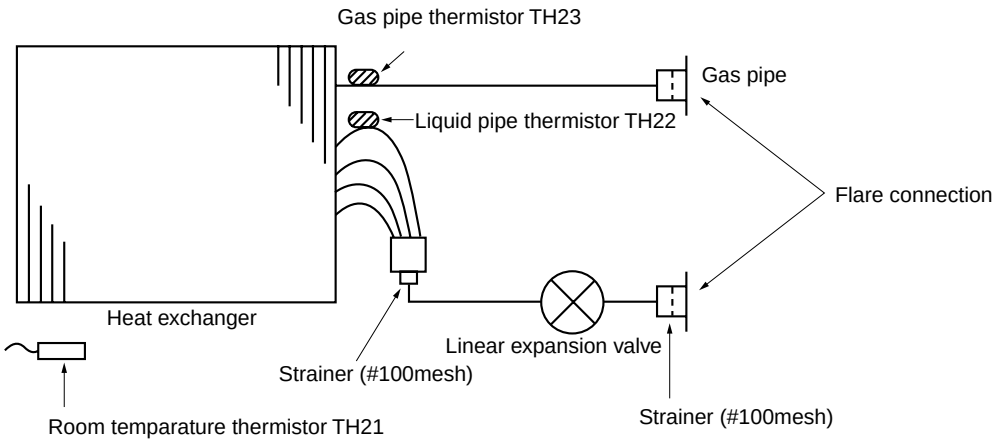
SYMBOL	NAME	SYMBOL	NAME
MF	Fan motor	TH22	Thermistor (piping temp.detection/liquid)
C	Capacitor(for MF)	TH23	Thermistor (piping temp.detection/gas)
I.B	Indoor controller board	SW11(A.B)	Switch (1st digit address set)
A.B	Address board	SW12(A.B)	Switch (2nd digit address set)
TB2	Power source terminal bed	SW14(A.B)	Switch (connection No.set)
TB5	Transmission terminal bed	SW1(A.B)	Switch(for mode selection)
TB15	Transmission terminal bed	SW2(I.B)	Switch(for capacity code)
F	Fuse AC250V 6.3AF	SW3(I.B)	Switch(for mode selection)
T	Transformer	SW4(I.B)	Switch(for model selection)
LEV	Electronic linear expan. valve	SW5(A.B)	Switch(for voltage selection)
S.B	Surge absorber board	X04~06	Aux.relay
FB	Ferrite core	DP	Drain pump
TH21	Thermistor (inlet temp.detection)	DS	Drain sensor

NOTE;1.TB2,TB5 shown in dotted line are field work.

2.Mark ◎ indicates terminal bed, ⊖ connector, ⊖ board insertion connector or fastening connector of control board.

*Capacitor
MODELS 100/125/140 8 F

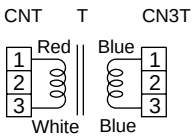
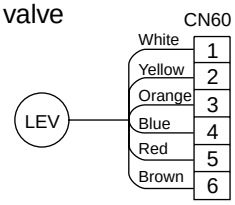
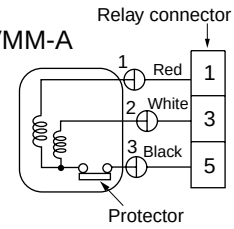
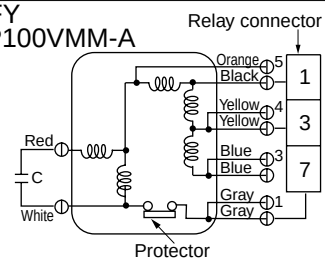
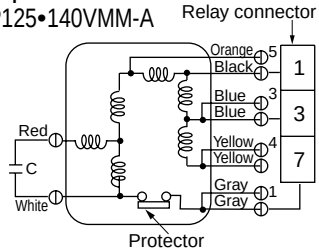
6 REFRIGERANT SYSTEM DIAGRAM



Capacity / Item	PEFY-P20,25,32,40VMM-A	PEFY-P50,63,71,80VMM-A	PEFY-P100,125,140VMM-A
Gas pipe	ø12.7<1/2F>	ø15.88<5/8F>	ø19.05<3/4F>
Liquid pipe	ø6.35<1/4F>	ø9.52<3/8F>	ø9.52<3/8F>

7 TROUBLE SHOOTING

7-1. How to check the parts

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temparature thermistor (TH21)
Liquid pipe thermistor (TH22)
Gas pipe thermistor (TH23)</td><td>Disconnect the connector, then measure the resistance using a tester.
(Sorrounding temperature 10°C~30°C)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Open or short</td></tr></table>(Refer to the thermistor)</td></tr>
<tr><td>Trans
 
</td><td>Disconnect the connector and measure the resistance using a tester.
<table><tr><th></th><th>Normal</th><th>Abnormal</th></tr><tr><td>CNT(1)-(3)</td><td>App.45Ω</td><td rowspan="2">Open or short</td></tr><tr><td>CN3T(1)-(3)</td><td>App.1Ω</td></tr></table></td></tr>
<tr><td>Linear expansion valve
 
</td><td>Disconnect the connector then measure the resistance valve using a tester.
Refer to the next page for a detail.
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>(1)-(5)
White-Red</td><td>(2)-(6)
Yellow-Blown</td><td>(3)-(5)
Orange-Red</td><td>(4)-(6)
Blue-Brown</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">150Ω ±10%</td></tr></table></td></tr>
<tr><td>Fan motor
PEFY
- P20~80VMM-A
 
</td><td>Measure the resistance between the terminals using a tester. (at 20˚C)
<table><tr><th>Motor terminal
or
Relay connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red-Black</td><td>43.1Ω</td><td rowspan="2">Open or short</td></tr><tr><td>White-Black</td><td>53.6Ω</td></tr></table></td></tr>
<tr><td>PEFY
- P100VMM-A
 
</td><td>Measure the resistance between the terminals using a tester. (at 20˚C)
<table><tr><th>Motor terminal
or
Relay connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Orange-Gray</td><td>26.7Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Black-Gray</td><td>32.5Ω</td></tr><tr><td>Yellow-Gray</td><td>37.9Ω</td></tr><tr><td>Blue-Gray</td><td>42.4Ω</td></tr></table></td></tr>
<tr><td>PEFY
- P125•140VMM-A
 
</td><td>Measure the resistance between the terminals using a tester. (at 20˚C)
<table><tr><th>Motor terminal
or
Relay connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Orange-Gray</td><td>11.6Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Black-Gray</td><td>13.6Ω</td></tr><tr><td>Blue-Gray</td><td>15.4Ω</td></tr><tr><td>Yellow-Gray</td><td>18.1Ω</td></tr></table></td></tr>
</table>

<Thermistor Characteristic graph>

Thermistor for lower temperature

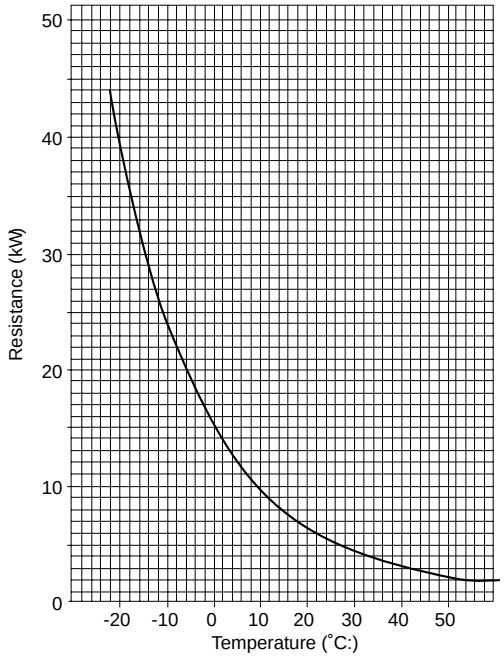
Room temparature thermistor(TH21)
Liquid pipe thermistor(TH22)
Gas pipe temparature thermistor(TH23)
Drain sensor(DS)

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

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

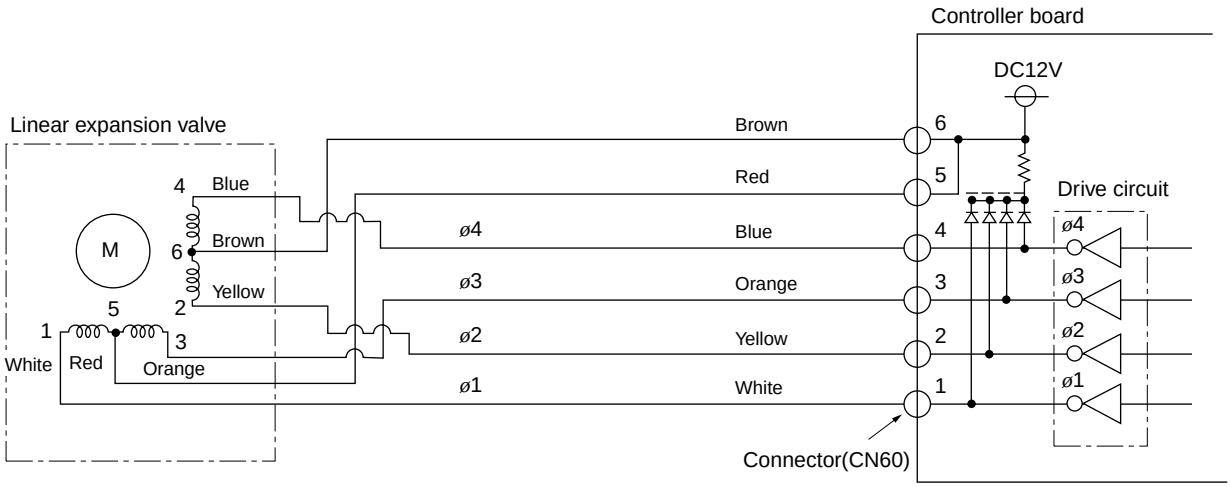
0˚C	15kW
10˚C	9.6kW
20˚C	6.3kW
25˚C	5.2kW
30˚C	4.3kW
40˚C	3.0kW

< Thermistor for lower temperature >



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>



<Output pulse signal and the valve operation>

Output (Phase)	Output			
	1	2	3	4
ø1	ON	OFF	OFF	ON
ø2	ON	ON	OFF	OFF
ø3	OFF	ON	ON	OFF
ø4	OFF	OFF	ON	ON

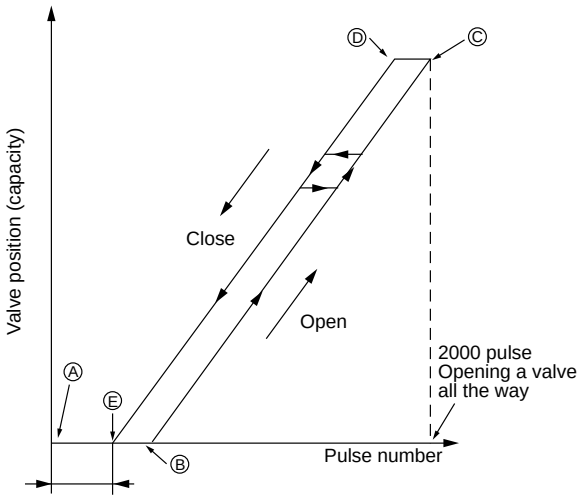
Closing a valve : 1 → 2 → 3 → 4 → 1
Opening a valve : 4 → 3 → 2 → 1 → 4

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 vibrate.

② Linear expansion valve operation

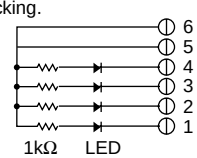
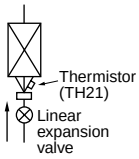


✻ When the switch is turned on, 2200 pulse closing valve signal will be send till it goes to Ⓐ point in order to define the valve position.

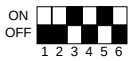
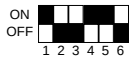
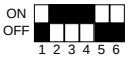
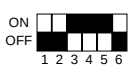
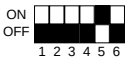
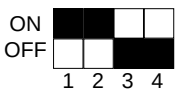
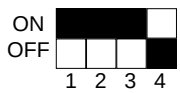
When the valve operates correctly, there is no noise or vibration occurring from the linear expansion valve : however, when the pulse number moves from Ⓔ to Ⓐ or when the valve is locked, more noise can be heard than normal situation.

✻ Noise can be detected by placing the ear against a screw driver handle while touching the screw driver to the linear expansion valve.

③ Trouble shooting

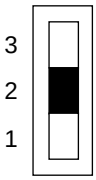
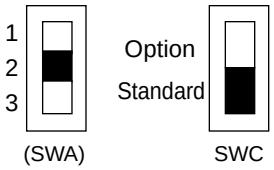
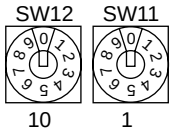
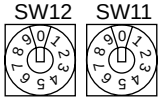
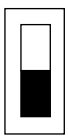
Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor.	Disconnect the connector on the controller board, then connect LED for checking.  Pulse signal will be sent out for 10 seconds as soon as the main switch is turn on. If there is LED with lights on or lights off, it 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 150Ω ± 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 refrigeration 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.

7-2. FUNCTION OF DIP-SWITCH

<table>
<tr><th rowspan="2">Switch</th><th rowspan="2">Pole</th><th rowspan="2">Function</th><th colspan="2">Operation by switch</th><th rowspan="2">Remarks</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="10">SW1
Mode
Selection</td><td>1</td><td>Thermistor<Intake temperature detection>position</td><td>Built-in remote controller</td><td>Indoor unit</td><td rowspan="10">Address board</td></tr>
<tr><td>2</td><td>Filter clogging detection</td><td>Provided</td><td>Not provided</td></tr>
<tr><td>3</td><td>Filter life</td><td>2,500hr</td><td>100hr</td></tr>
<tr><td>4</td><td>Air intake</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>5</td><td>Remote indication switching</td><td>Thermostat ON signal indication</td><td>Fan output indication</td></tr>
<tr><td>6</td><td>Humidifier control</td><td>Operational while the heat is ON</td><td>Operational, depending on the condition</td></tr>
<tr><td>7</td><td>Air flow st</td><td>Low</td><td>Extra low</td></tr>
<tr><td>8</td><td>Heat thermostat OFF</td><td>Setting air flow</td><td>Reset to SW1-7</td></tr>
<tr><td>9</td><td>Auto reset function</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>10</td><td>Power ON/OFF</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>SW2
Capacity
code
setting</td><td>1~6</td><td colspan="3"><table><tr><th>MODELS</th><th>SW2</th><th>MODELS</th><th>SW2</th><th>MODELS</th><th>SW2</th></tr><tr><td>PEFY-P20VMM-A</td><td>  </td><td>PEFY-P50VMM-A</td><td>  </td><td>PEFY-P100VMM-A</td><td>  </td></tr><tr><td>PEFY-P25VMM-A</td><td>  </td><td>PEFY-P63VMM-A</td><td>  </td><td>PEFY-P125VMM-A</td><td>  </td></tr><tr><td>PEFY-P32VMM-A</td><td>  </td><td>PEFY-P71VMM-A</td><td>  </td><td>PEFY-P140VMM-A</td><td>  </td></tr><tr><td>PEFY-P40VMM-A</td><td>  </td><td>PEFY-P80VMM-A</td><td>  </td><td></td><td></td></tr></table></td><td>Indoor controller board
Set while the unit is off.
<At delivery>
Set for each capacity.</td></tr>
<tr><td rowspan="10">SW3
Function
Selection</td><td>1</td><td>Heat pump/Cool only</td><td>Cooling only</td><td>Heat pump</td><td rowspan="10">Indoor controller board
Set while the unit is off.</td></tr>
<tr><td>2</td><td>Louver</td><td>Available</td><td>Not available</td></tr>
<tr><td>3</td><td>Vane</td><td>Available</td><td>Not available</td></tr>
<tr><td>4</td><td>Vane swing function</td><td>Available</td><td>Not available</td></tr>
<tr><td>5</td><td>Vane horizontal angle</td><td>Second setting</td><td>First setting</td></tr>
<tr><td>6</td><td>Vane cooling limit angle setting</td><td>Horizontal angle</td><td>Down blow</td></tr>
<tr><td>7</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>8</td><td>Heating 4deg up</td><td>Not effective</td><td>Effective</td></tr>
<tr><td>9</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>10</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>SW4
Unit
Selection</td><td>1~4</td><td colspan="3">P20~P80
 
P100~P140
 
<At delivery></td><td>Indoor controller board
Set while the unit is off.</td></tr>
</table>

Note :The DipSW setting is effective during unit stopping (remote controller OFF) for SW1,2,3 and 4 commonly and the power source is not required to reset.

:When both SW1-7 and SW1-8 are being set to ON, the fan stops at the heating thermostat OFF.

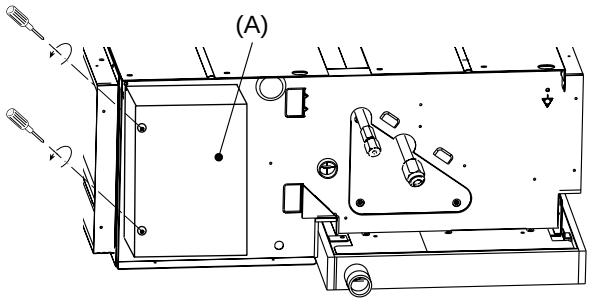
Switch	Pole	Operation by switch	Remarks
SWA Option Note:1	1~3	Factory setting is for use under an external static pressure of 50Pa, no switch operation is needed when using under the standard condition.  3 100Pa 2 50Pa 1 30Pa *This switch is for only P20~P80 type.	Address board
SWC Option Note:1	2	 1 2 3 Option Standard (SWA) SWC	Address board
SW11 1st digit address setting SW12 2nd degit address setting Note:2	Rotary switch	 SW12 SW11 10 1 Address setting should be done when network remote controller (PAR-F25MA) is being used.	Address board Address can be set while the unit is stopped. <At delivery> SW12 SW11 
SW14 Connection No. setting Note:2	Rotary switch	 SW14 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 Note:2	2	 220V 240V If the unit is used in the 230V or 240V range, set the voltage to 240V. If the unit is being used in a 220V area, set the voltage to 220V.	Address board

Note 1:The DipSW setting is effective always after powering (remote controller ON) for SWA and SWC.
2:The DipSW setting is effective during unit stopping (remote controller OFF) for SW11,12,14 and 5

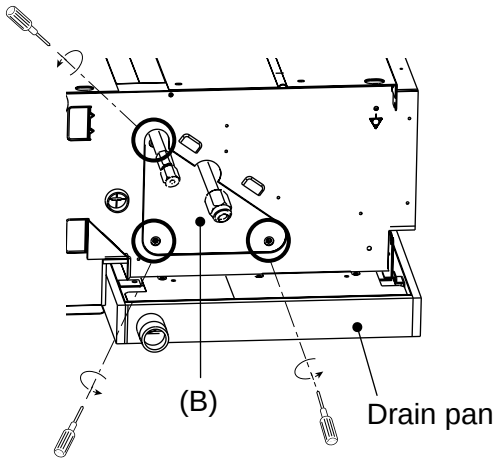
8 DISASSEMBLY PROCEDURE

8-1. CONTROL BOX

Be careful on removing heavy parts.

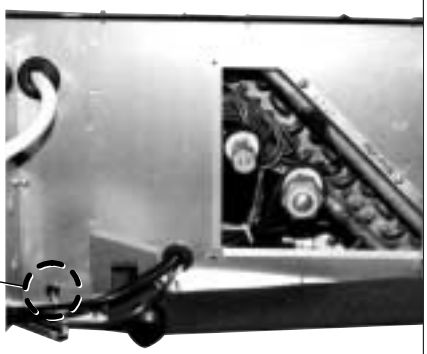
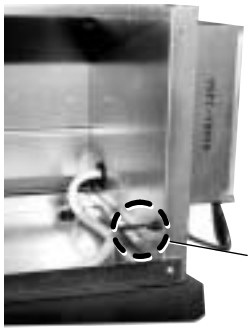
OPERATING PROCEDURE	PHOTOS
1.Removing the control box cover (1) Remove the covers two fixing screws (A) and remove the cover.	**fig.1**  **fig.2** 

8-2. THERMISTOR (Liquid piping temperature detection)

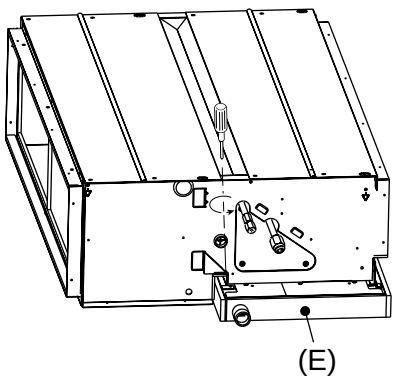
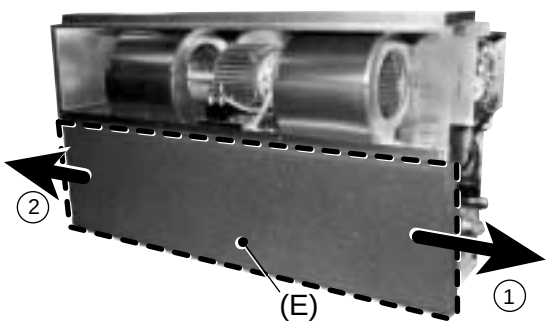
OPERATING PROCEDURE	PHOTOS
1.Removing the pipe fixing cover (1) Remove the covers three fixing screws (B) and remove the cover. **2.Removing the thermistor** (1) Remove the thermistor from the thermistor holder which is installed on the copper tube.	**fig.1** 

8-3. THERMISTOR (Intake air temperature detection)

Be careful on removing heavy parts.

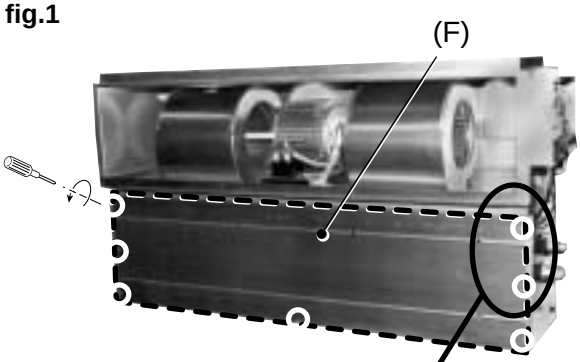
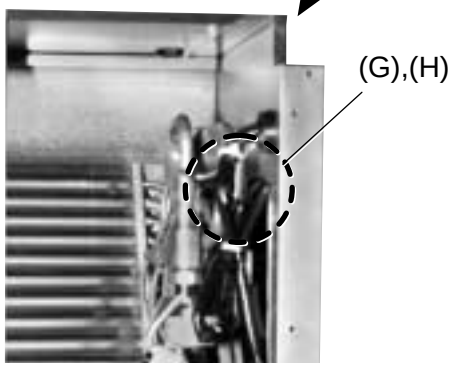
OPERATING PROCEDURE	PHOTOS
1.Removing the thermistor and thermistor holder (1) Pull out the thermistor holder (C) and thermistor (D).	**fig.1**   **fig.2** view from the opposite side.

8-4. DRAINPAN

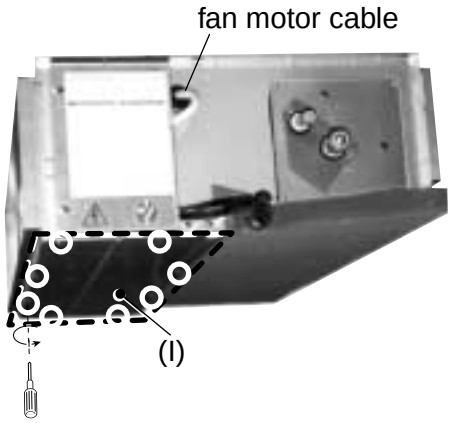
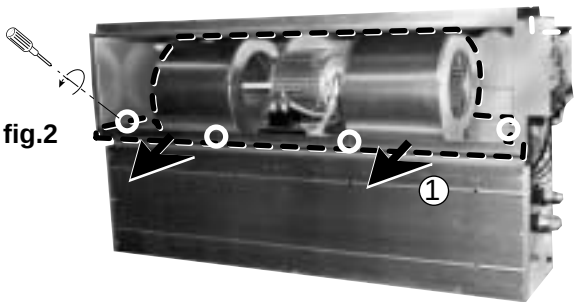
OPERATING PROCEDURE	PHOTOS
1.Removing the drainpan (1) Remove the drainpan (E) fixing screw. (2) Slide the drainpan in the direction of the arrow① and remove in the direction of the arrow②. Note: The bottom plate can remain in position during this procedure.	**fig.1**  **fig.2** 

8-5. THERMISTOR (GAS piping temperature detection)

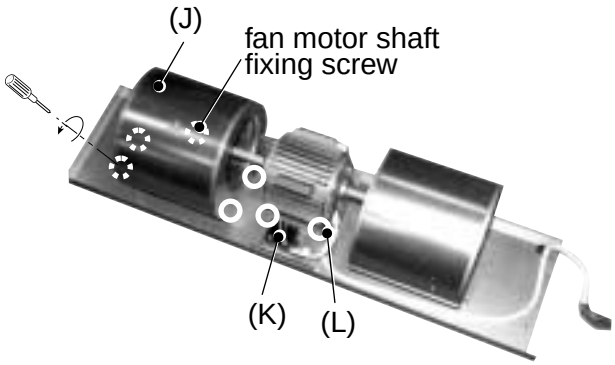
Be careful on removing heavy parts.

OPERATING PROCEDURE	PHOTOS
1.Remove the drainpan with procedure 8-4. **2.Removing the bottom plate 2** (1) Remove the fixing screws (seven) of the bottom plate 2 (F) and remove plate. fig.1. **3.Removing the thermistor** (1) Remove the thermistor (G) from the thermistor holder (H) which is installed on the copper tube. Note: The bottom plate can remain in position during this procedure.	**fig.1**  **fig.2** 

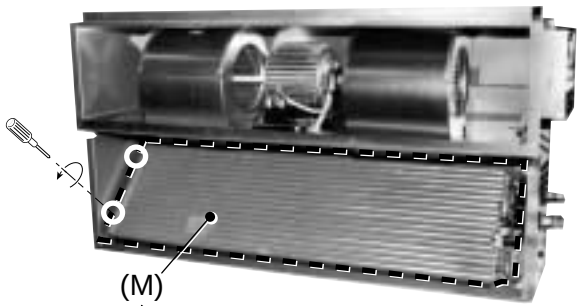
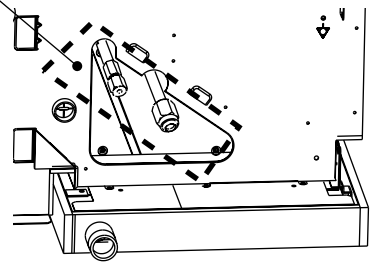
8-6. FAN and FAN MOTOR

OPERATING PROCEDURE	PHOTOS
1.Removing the bottom plate 1 (L) (1) Remove the fixing screws (eight) of the bottom plate 1 (I) and remove plate. **2.Sliding the fan section** (1) Remove the fan motor cable connector in control box. (2) Remove the fixing screws (four) of the fan base plate. (3) Slide the fan section in direction of the arrow① Note: The drain pan can remain in position during this procedure.	**fig.1**  **fig.2** 

Be careful on removing heavy parts.

OPERATING PROCEDURE	PHOTOS
3.Removing the fan casing and sirocco fan (1) Remove the fan casing fixing screws (four for each fan). (2) Remove the fan motor shaft fixing screw (one for each fan) and remove the fan casing and sirocco fan. **3.Removing the fan motor** (1) Remove the capacitor cable (K). (2) Remove the motor clamps (L) two clamps secure the motor on each side (over the rubber bushing).	**fig.3** 

8-7. HEAT EXCHANGER

OPERATING PROCEDURE	PHOTOS
1.Remove the drainpan with procedure 8-4 **2.Remove the bottom plate 2 with procedure 8-5** **3.Removing Heat exchanger** (1) Remove the fixing screws (four) of the heat exchanger (M) and remove the heat exchanger.	**fig.1**  **fig.2** 

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: 2-2-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

Issued in March 2003 MEE01K044-C
Printed in Japan

New publication effective March 2003.
Specifications subject to change without notice.