Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PMUP AIR CONDITIONERS

2003

No. OC251
REVISED EDITION-A

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted R407C / R22

<Indoor unit>
[Model names]

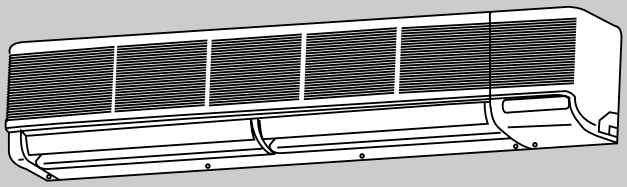
[Service Ref.]

PKFY-P63VFM-A

PKFY-P63VFM-A
PKFY-P63VFM-A1
PKFY-P63VFM-A2

PKFY-P100VFM-A

PKFY-P100VFM-A
PKFY-P100VFM-A1
PKFY-P100VFM-A2



Indoor unit

- PKFY-P63VFM-A1, PKFY-P100VFM-A1, PKFY-P63VFM-A2 and PKFY-P100VFM-A2 are added in REVISED EDITION-A.
- Please void OC251,OC270.

CONTENTS

1 TECHNICAL CHANGES

·PKFY-P63VFM-A → PKFY-P63VFM-A1
·PKFY-P100VFM-A → PKFY-P100VFM-A1
(CHANGE POINTS)

Change of the service parts.

Refer to 10.PARTS LIST for details.

1. DRAIN PAN shape has changed.

2. NOSE shape has changed.

3. BOX ASSEMBLY shape has changed.

·PKFY-P63VFM-A1 → PKFY-P63VFM-A2
·PKFY-P100VFM-A1 → PKFY-P100VFM-A2
(CHANGE POINTS)

1. DEW PREVENTION HEATER has been added.

Refer to 6.WIRING DIAGRAM for details.

2. BOX ASSEMBLY has changed due to the addition of DEW PREVENTION HEATER.

Refer to 10.PARTS LIST for details.

3. The contents of SPECIFICATIONS have changed.

Due to the addition of DEW PREVENTION HEATER, the values of Input and Current on Electric characteristic have changed.

Refer to 4.SPECIFICATIONS for details.

4. Optional DRAIN-UP MACHINE (PAC-SE89DMA-E) cannot be installed in the unit.

2 SAFETY PRECAUTION

Cautions for using with the outdoor unit which adopts R407C refrigerant.

· **Do not use the existing refrigerant piping.**
-The old refrigerant and lubricant in the existing piping contains a large amount of chlorine which may cause the lubricant deterioration of the new unit.

· **Use "low residual oil piping".**
-If there is a large amount of residual oil (hydraulic oil, etc.) inside the piping and joints, deterioration of the lubricant will result.

· **Store the piping to be used during installation indoors with keep both ends sealed until just before brazing. (Store elbows and other joints in a plastic bag.)**
-If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.

· **Use ESTR , ETHER or HAB as the lubricant to coat flares and flange connection parts.**

Use liquid refrigerant to seal the system.
-If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.

· **Do not use a refrigerant other than R407C.**
-If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the lubricant deterioration.

· **Use a vacuum pump with a reverse flow check valve.**
-The vacuum pump oil may flow back into the refrigerant cycle and cause the lubricant deterioration.

[1] Service tools

Use the below service tools as exclusive tools for R407C refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	·Only for R407C.
		·Use the existing fitting SPECIFICATIONS. (UNF7/16)
		·Use high-tension side pressure of 3.43MPa·G or over.
②	Charge hose	·Only for R407C.
		·Use pressure performance of 5.10MPa·G or over.
③	Electronic scale	
④	Gas leak detector	·Use the detector for R134a or R407C.
⑤	Adapter for reverse flow check.	·Attach on vacuum pump.
⑥	Refrigerant charge base.	
⑦	Refrigerant cylinder.	·For R407C ·Top of cylinder (Brown) ·Cylinder with syphon
⑧	Refrigerant recovery equipment.	

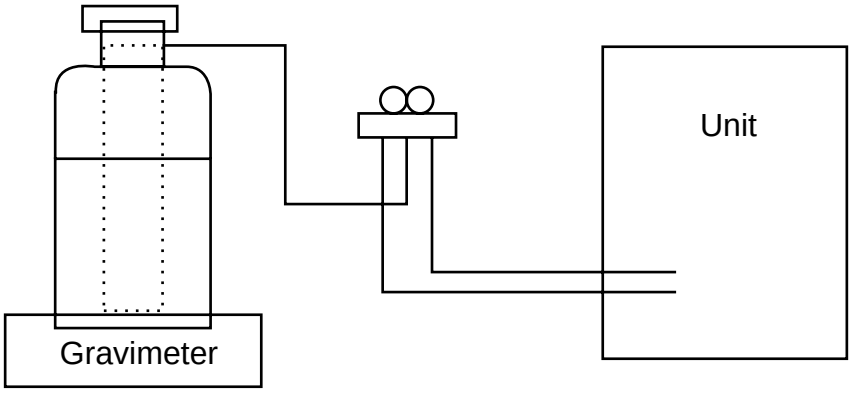
[2] Notice on repair service

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

[3] Refrigerant recharging

(1) Refrigerant recharging process

①Direct charging from the cylinder.
·R407C cylinder are available on the market has a syphon pipe.
·Leave the syphon pipe cylinder standing and recharge it.
(By liquid refrigerant)



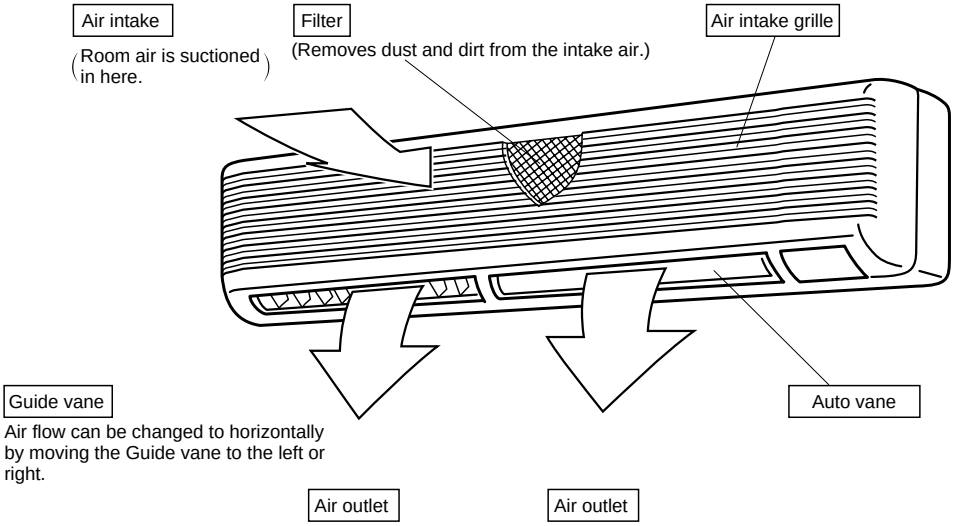
(2) Recharge in refrigerant leakage case

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

3 PART NAMES AND FUNCTIONS

● **Indoor Unit**

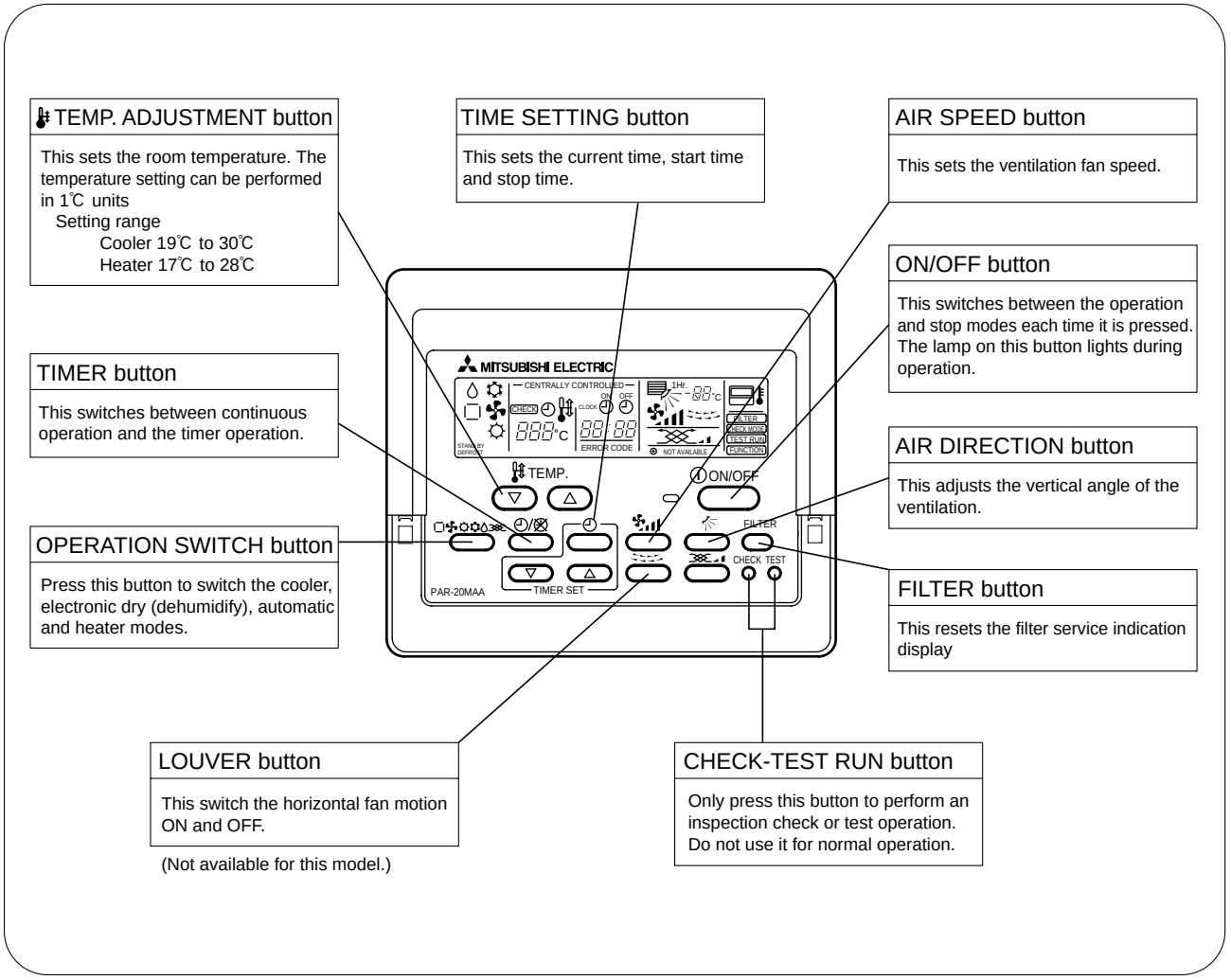
PKFY-P63VFM-A PKFY-P63VFM-A$_1$ PKFY-P63VFM-A$_2$
PKFY-P100VFM-A PKFY-P100VFM-A$_1$ PKFY-P100VFM-A$_2$



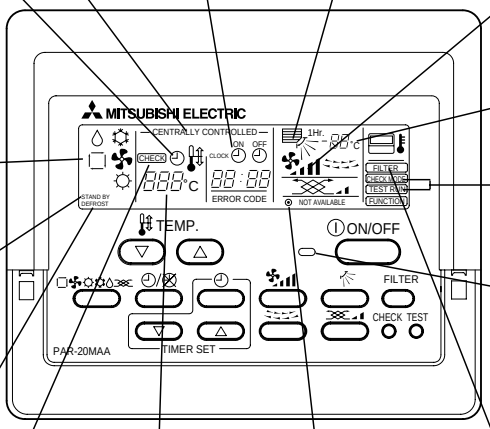
● **Remote controller [PAR-20MAA]**

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

● **Operation buttons**



● Display



CENTRALLY CONTROLLED display

This indicates when the unit is controlled by optional features such as central control type remote controller.

CLOCK display

The current time , start time and stop time can be displayed in ten second intervals by pressing the time switch button. The start time or stop time is always displayed during the timer operation.

In this display example on the bottom left, a condition where all display lamps light is shown for explanation purposes although this differs from actual operation.

AIR DIRECTION display

This displays the air direction.

TIMER display

This indicates when the continuous operation and time operation modes are set.
It also display the time for the timer operation at the same time as when it is set.

AIR SPEED display

The selected fan speed is displayed.

ROOM TEMPERATURE display

The temperature of the suction air is displayed during operation. The display range is 8°C to 39°C. The display flashes 8°C when the actual temperature is less than 8°C and flashes 39°C when the actual temperature is greater than 39°C.

OPERATION MODE display

This indicates the operation mode.

STANDBY display

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

Operation lamp

This lamp lights during operation, goes off when the unit stops and flashes when a malfunction occurs.

CHECK MODE / TEST RUN display

This display lights in the check mode or when a test operation is performed.

DEFROST display

This indicates when the defrost operation is performed.

FILTER display

This lamp lights when the filter need to be cleaned.

CHECK display

This indicates when a malfunction has occurred in the unit which should be checked.

SET TEMPERATURE display

This displays the selected setting temperature.

POWER display

This lamp lights when electricity is supplied to the unit.

Caution

- Only the Power display lights when the unit is stopped and power supplied to the unit.
- When the central control remote control unit, which is sold separately, is used the ON-OFF button, operation switch button and TEMP. adjustment button do not operate.
- “NOT AVAILABLE” is displayed when the Air speed button are pressed.This indicates that this room unit is not equipped with the fan direction adjustment function and the louver function.
- When power is turned ON for the first time, it is normal that “H0” is displayed on the room temperature indication (For max. 2minutes). Please wait until this “H0” indication disappear then start the operation.

4 SPECIFICATIONS

4-1. Specification

Item			Unit	PKFY-P63VFM-A PKFY-P63VFM-A$_1$	PKFY-P63VFM-A$_2$	PKFY-P100VFM-A PKFY-P100VFM-A$_1$	PKFY-P100VFM-A$_2$
Power source			ϕ,V,Hz	Single phase, 220-230-240V, 50Hz / 220V, 60Hz			
Cooling capacity			kW	7.1		11.2	
Heating capacity			kW	8.0		12.5	
Electric characteristic	Input	Cooling	kW	0.09 - 0.09 - 0.09	0.11 - 0.12 - 0.12	0.11 - 0.11 - 0.11	0.13 - 0.14 - 0.14
		Heating	kW	0.09 - 0.09 - 0.09	0.11 - 0.12 - 0.12	0.11 - 0.11 - 0.11	0.13 - 0.14 - 0.14
	Current	Cooling	A	0.43 - 0.43 - 0.43	0.54 - 0.55 - 0.55	0.52 - 0.52 - 0.52	0.63 - 0.64 - 0.64
		Heating	A	0.43 - 0.43 - 0.43	0.54 - 0.55 - 0.55	0.52 - 0.52 - 0.52	0.63 - 0.64 - 0.64
Exterior <munsell symbol>			—	Plastic , white : <3.4Y 7.7/0.8>			
Dimensions		Height	mm	340		340	
		Width	mm	1,400		1,680	
		Depth	mm	235		235	
Heat exchanger			—	Cross fin(Aluminum plate fin and copper tube)			
Fan	Type × No.		—	Lineflow fan × 2			
	Air flow High - Low		m^3/min	20 - 15		28 - 22	
	External static pressure		Pa	0			
	Fan motor output		kW	0.04		0.07	
Insulator			—	Polyethylene sheet			
Air filter			—	PP Honeycomb fabric			
Pipe dimensions		Gas side	ϕmm(in.)	15.88(5/8")		19.05(3/4")	
		Liquid side	ϕmm(in.)	9.52(3/8")		9.52(3/8")	
Unit drain pipe dimension			ϕmm	O.D. 20 <PVC pipe VP-20 connectable>			
Noise level High - Low			dB	45 - 39		46 - 41	
Product weight			kg	24		28	

Note : Rating conditions (JIS B8616)

Cooling : Indoor D.B. 27°C W.B. 19.0°C
Outdoor D.B. 35°C W.B. 24°C
Heating : Indoor D.B. 20°C
Outdoor D.B. 7°C W.B. 6°C

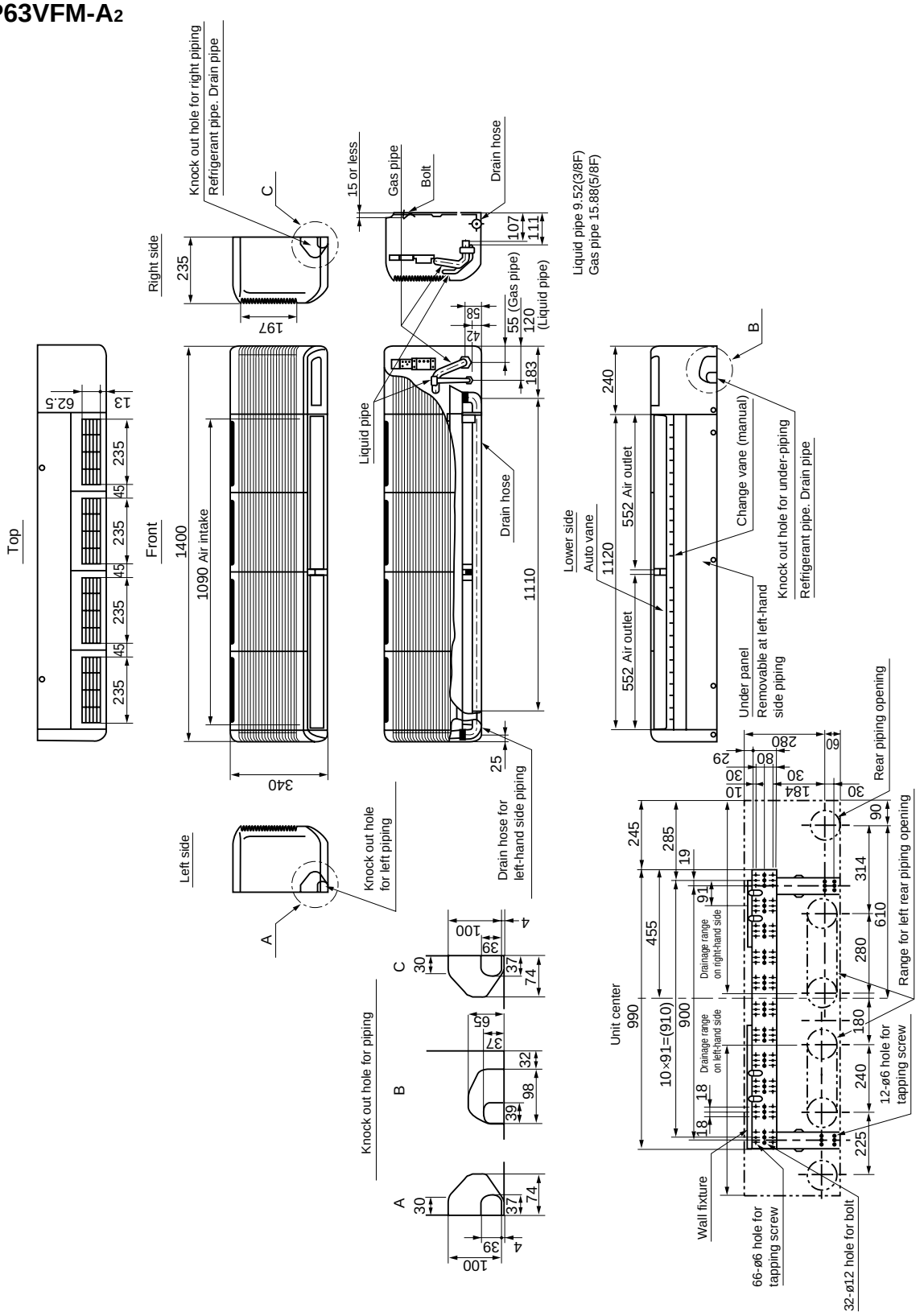
4-2. Electrical parts specifications

Service Ref. / Parts name	Symbol	PKFY-P63VFM-A PKFY-P63VFM-A1 PKFY-P63VFM-A2	PKFY-P100VFM-A PKFY-P100VFM-A1 PKFY-P100VFM-A2
Room temperature thermistor	TH21	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.2kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Liquid pipe temperature thermistor	TH22	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.2kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Gas pipe temperature thermistor	TH23	Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.2kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ	
Fuse (Indoor controller board)	FUSE	250V 6.3A	
Fan motor (with inner-thermostat)	MF	D094P40MS 220-230-240V / 50Hz, 220V / 60Hz 4pole Output 40w	D10A4P70MS 220-230-240V / 50Hz , 220V / 60Hz 4pole Output 70w
		Inner-thermostat OFF 130±5℃	
Fan motor capacitor	C1	2.0μF 440V	3.0μF 440V
Vane motor	MV	MP 35 EA DC12V	
Linear expansion valve	LEV	DC12V Stepping motor drive Port dimension φ3.2 (0 ~ 2,000pulse)	DC12V Stepping motor drive Port dimension φ5.2 (0 ~ 2,000pulse)
Power supply terminal block	TB2	(L, N, ⏚) 330V 30A	
Transmission terminal block	TB5	(M1, M2, S) 250V 20A	
MA remote controller terminal block	TB15	(1,2) 250V 10A	
Dew prevention heater	H2	28.8w / 240V	

5 OUTLINES AND DIMENSIONS

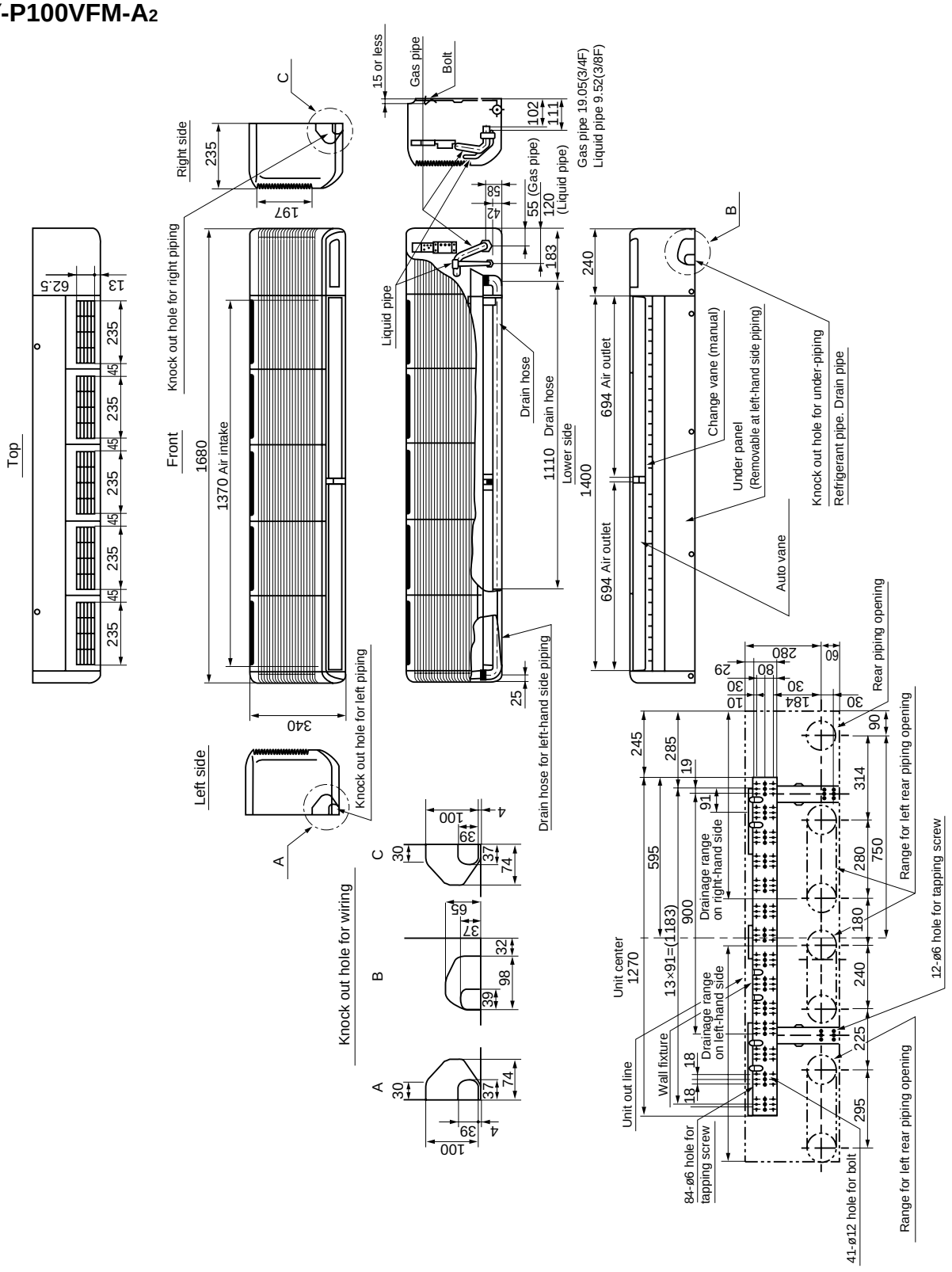
PKFY-P63VFM-A
PKFY-P63VFM-A1
PKFY-P63VFM-A2

Unit : mm



PKFY-P100VFM-A
PKFY-P100VFM-A1
PKFY-P100VFM-A2

Unit : mm



6 WIRING DIAGRAM

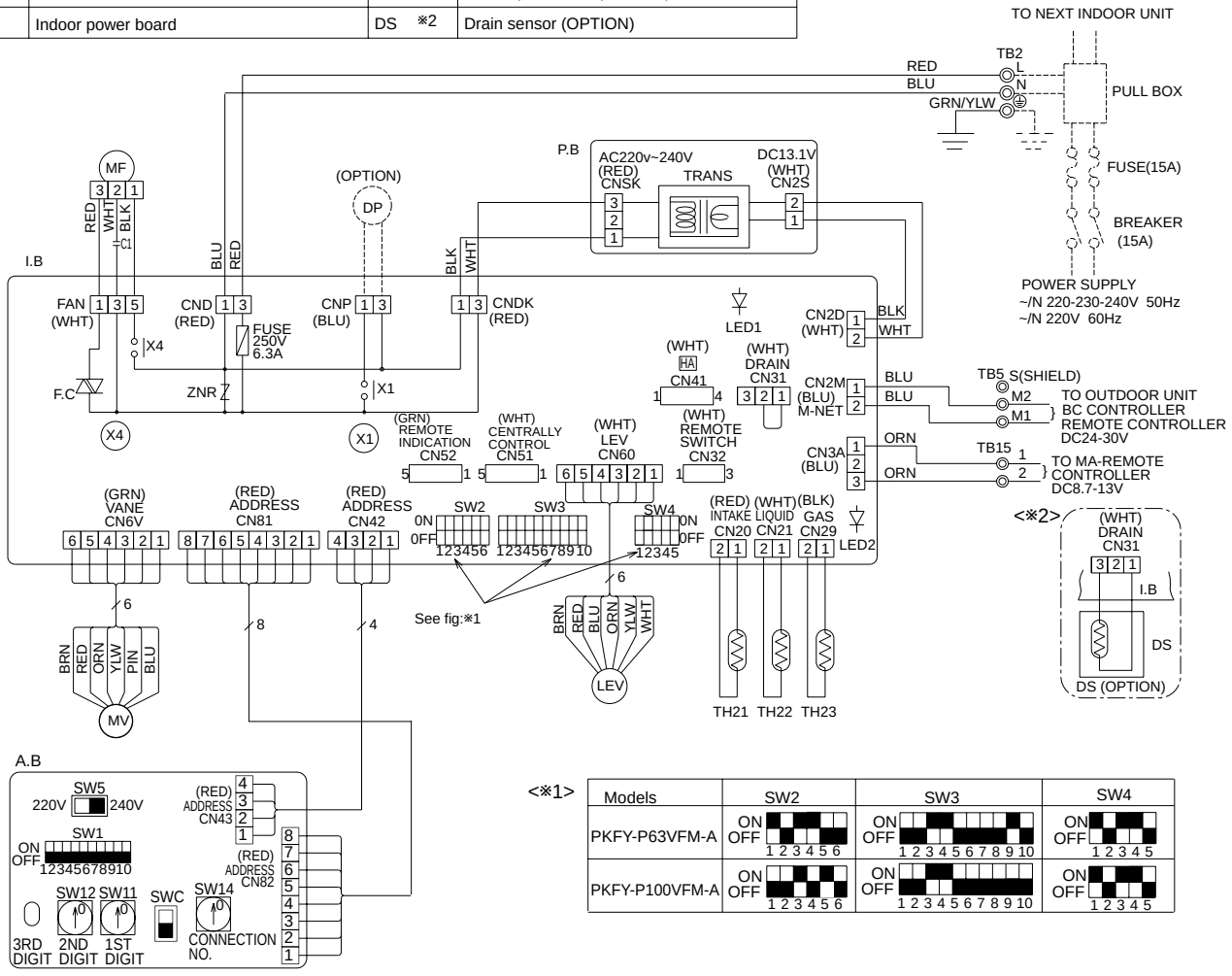
PKFY-P63VFM-A PKFY-P100VFM-A
PKFY-P63VFM-A1 PKFY-P100VFM-A1

Symbol		Name		Symbol	Name	
I.B		Indoor controller board		C1	Capacitor (fan motor)	
	CN32	Connector	Remote switch	LEV	Linear expansion valve	
	CN41		HA terminal-A	MF	Fan motor (with inner thermo)	
	CN51		Centrally control	MV	Vane motor	
	CN52		Remote indication	TH21	Thermistor	Room temperature ,detection
	CNP		Drain-up machine			(0°C/15kΩ,25°C/5.4kΩ)
	F.C	Fan phase control		TH22		Pipe temperature, detection/Liquid
	FUSE	FUSE (6.3A)				(0°c/15kΩ,25°c/5.4kΩ)
	SW2	Switch	Capacity code	TH23		Pipe temperature, detection/Gas
	SW3		Mode selection			(0°c/15kΩ,25°c/5.4kΩ)
	SW4		Model selection	TB2	Terminal	Power supply
	X1	Aux.Relay	Drain-up machine	TB5	block	Transmission
	X4		Fan motor	TB15		MA-remote controller
	ZNR	Varistor		DP	Drain-up machine (OPTION)	
P.B		Indoor power board		DS ※2	Drain sensor (OPTION)	

Symbol		Name	
A.B		Circuit board	
	SW1	Switch	Mode selection
	SW5		Voltage selection
	SW11		Address setting 1st digit
	SW12		Address setting 2nd digit
	SW14		Connection No.
	SWC	Option selector	

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply(Indoor unit:220-240V) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit



<※1>

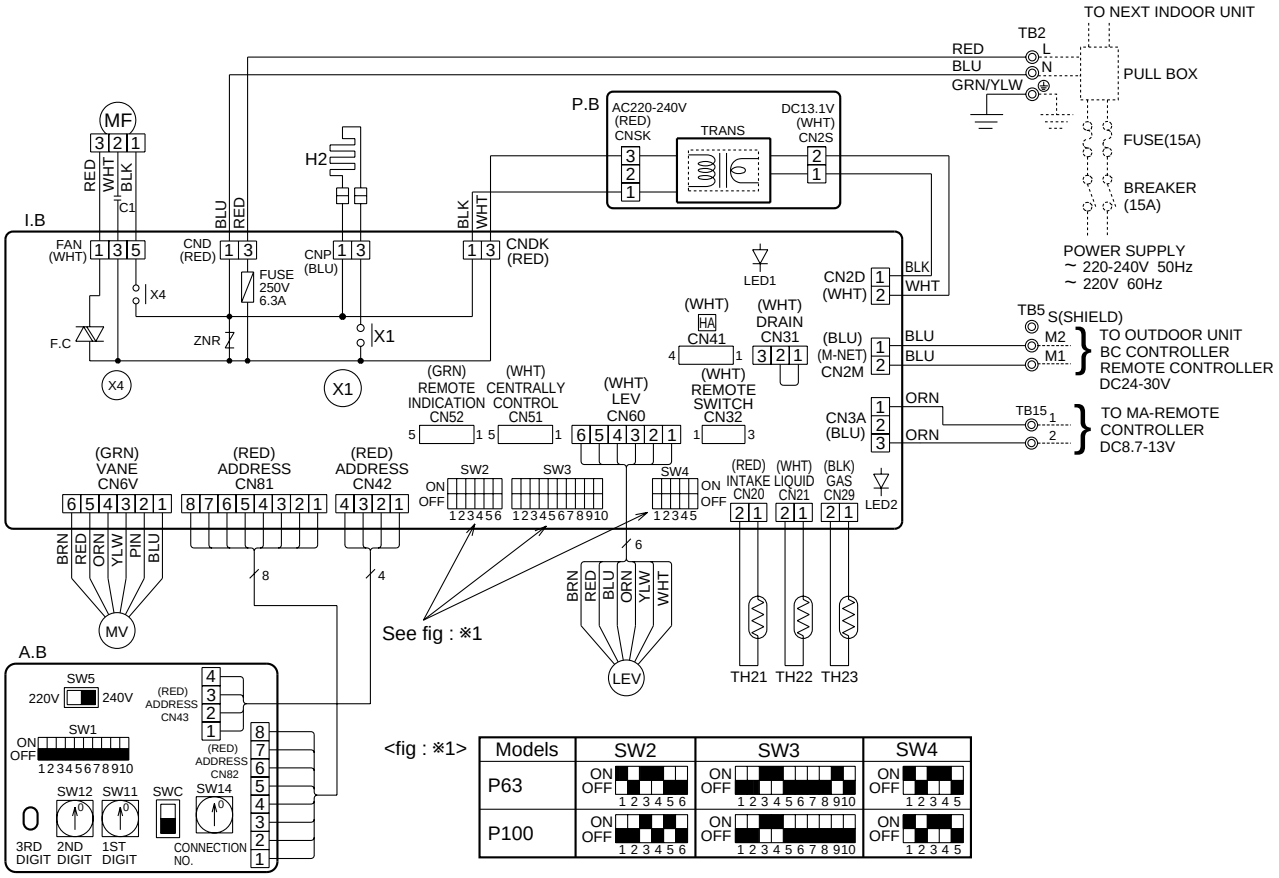
Models	SW2	SW3	SW4
PKFY-P63VFM-A	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10	ON OFF 1 2 3 4 5
PKFY-P100VFM-A	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10	ON OFF 1 2 3 4 5

Note

1. At servicing for outdoor unit,always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller,please connect to TB15.
   (Remote controller wire is non-polar.)
3. In case of using M-NET,please connect to TB5.(Transmission line is non-polar.)
4. Symbol[S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram above are, ◎ :terminal block, □□□ :connector.
6. The setting of the SW2 dip switches differs in the capacity.
   For the detail,refer to the fig:※1.
7. Please set the switch SW5 according to the power supply voltage.
   Set SW5 to 240V side when the power supply is 230 and 240 volts.
   When the power supply is 220 volts,set SW5 to 220V side.

PKFY-P63VFM-A2 PKFY-P100VFM-A2

Symbol	Name		Symbol	Name		Symbol	Name	
I.B	Indoor controller board		C1	Capacitor (fan motor)		TH23	Thermistor	Pipe temp.detection/Gas (0°C/15kΩ,25°C/5.4kΩ)
CN32	Connector	Remote switch	LEV	Linear expansion valve				
CN41		HA terminal-A	MF	Fan motor (with inner thermo)		A.B	Circuit board	
CN51		Centrally control	MV	Vane motor		SW1	Switch	Mode selection
CN52		Remote indication	P.B	Indoor power board		SW5		Voltage selection
F.C	Fan phase control		TB2	Terminal block	Power supply	SW11		Address setting 1st digit
FUSE	Fuse (6.3A)		TB5		Transmission	SW12		Address setting 2nd digit
SW2	Switch	Capacity code	TB15		MA-Remote Controller	SW14		Connection No.
SW3		Mode selection	TH21	Thermistor	Room temp.detection (0°C/15kΩ,25°C/5.4kΩ)	SWC		Option selector
SW4		Model selection				I.B CNP	Connector	D.Heater
X4	Aux.Relay (Fan motor)		TH22		Pipe temp.detection/Liquid (0°C/15kΩ,25°C/5.4kΩ)	X1	Aux. Relay (D.Heater)	
ZNR	Varistor					H2	Dew prevention heater	



<fig : ※1>

Models	SW2	SW3	SW4
P63	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10	ON OFF 1 2 3 4 5
P100	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3 4 5 6 7 8 9 10	ON OFF 1 2 3 4 5

Note

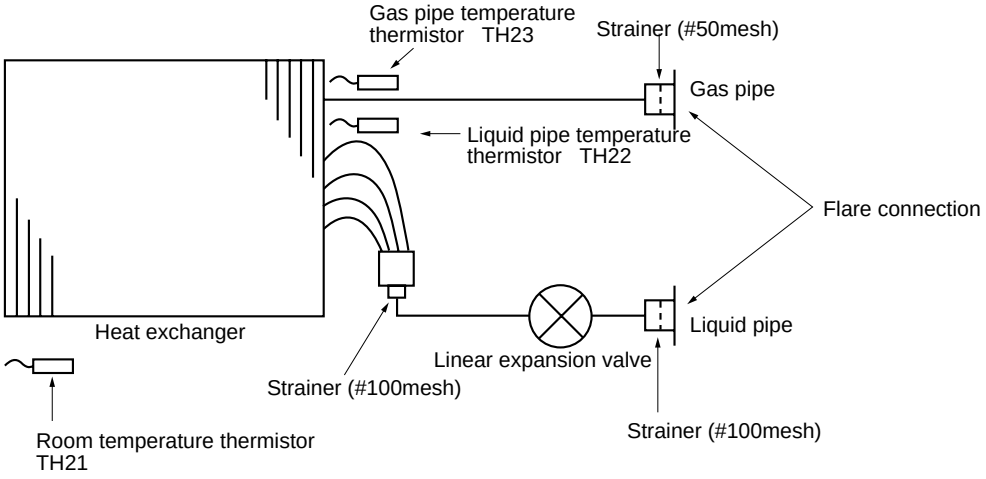
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15.
   (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5.
   (Transmisson line is non-polar.)
4. Symbol[S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram above are, ◎:terminal block, □□□ :connecter.
6. The setting of the SW2 dip switches differs in the capacity for the detail, refer to the fig : ※1.
7. Please set the switch SW5 according to the power supply voltage.
   Set SW5 to 240V side when the power supply is 230 and 240 volts.
   When the power supply is 220 volts, set SW5 to 220V side.

LED on indoor board for service

Mark	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit : 220-240V) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

7 REFRIGERANT SYSTEM DIAGRAM

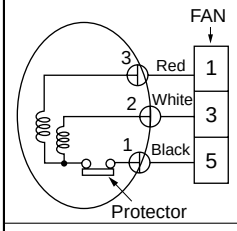
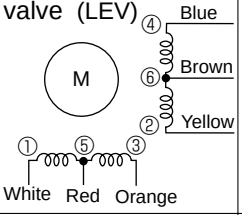
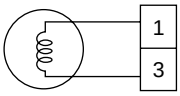
PKFY-P63VFM-A PKFY-P63VFM-A$_1$ PKFY-P63VFM-A$_2$
PKFY-P100VFM-A PKFY-P100VFM-A$_1$ PKFY-P100VFM-A$_2$

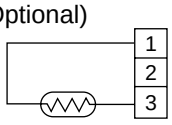


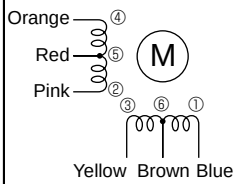
Item \ Capacity	PKFY-P63VFM-A PKFY-P63VFM-A$_1$ PKFY-P63VFM-A$_2$	PKFY-P100VFM-A PKFY-P100VFM-A$_1$ PKFY-P100VFM-A$_2$
Gas pipe	ϕ15.88 (5/8")	ϕ19.05 (3/4")
Liquid pipe	ϕ9.52 (5/8")	ϕ9.52 (3/8")

8 TROUBLE SHOOTING

8-1. How to check PKFY-P63VFM-A PKFY-P63VFM-A$_1$ PKFY-P63VFM-A$_2$ PKFY-P100VFM-A PKFY-P100VFM-A$_1$ PKFY-P100VFM-A$_2$

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temperature thermistor (TH21)
Liquid pipe temperature thermistor (TH22)
Gas pipe temperature thermistor (TH23)</td><td>Disconnect the connector then measure the resistance using a tester.
(Surrounding temperature 10℃~30℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Open or short</td></tr></table>(Refer to the next page for a detail.)</td></tr>
<tr><td>Fan motor (MF)
 
</td><td>Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)
<table><tr><th rowspan="2">Motor terminal or Relay connector</th><th colspan="2">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>PKFY-P63VFM-A</th><th>PKFY-P100VFM-A</th></tr><tr><td>Red-Black</td><td>99.5Ω ±10%</td><td>62.6Ω ±10%</td><td rowspan="2">Open or short</td></tr><tr><td>White-Black</td><td>103.5Ω ±10%</td><td>74.0Ω ±10%</td></tr></table></td></tr>
<tr><td>Linear expansion valve (LEV)
 
</td><td>Disconnect the connector then measure the resistance valve using a tester.
(Surrounding temperature 20℃)
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>(1)-(5)
White-Red</td><td>(2)-(6)
Yellow-Brown</td><td>(3)-(5)
Orange-Red</td><td>(4)-(6)
Blue-Brown</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">150kΩ ±10%</td></tr></table>(Refer to the next page for a detail.)</td></tr>
<tr><td>Drain-up machine (DP) (Optional)
 

Only
PKFY-P63VFM-A
PKFY-P63VFM-A$_1$
PKFY-P100VFM-A
PKFY-P100VFM-A$_1$</td><td>Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃~30℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>56Ω~96Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Drain sensor (DS) (Optional)
 

Only
PKFY-P63VFM-A
PKFY-P63VFM-A$_1$
PKFY-P100VFM-A
PKFY-P100VFM-A$_1$</td><td>Measure the resistance after 3 minutes have passed since the power supply was intercepted.
(Surrounding temperature 0℃~60℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>0.6kΩ~6.0kΩ</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃~30℃)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Brown — Yellow</td><td rowspan="4">186~214Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Brown — Blue</td></tr><tr><td>Red — Orange</td></tr><tr><td>Red — Pink</td></tr></table></td></tr>
<tr><td>Dew prevention heater (H2)</td><td>Disconnect the connector then measure the resistance using a tester.
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>2kΩ ±5%</td><td>Open or short</td></tr></table></td></tr>
</table>

<Thermistor Characteristic graph>

Thermistor for lower temperature

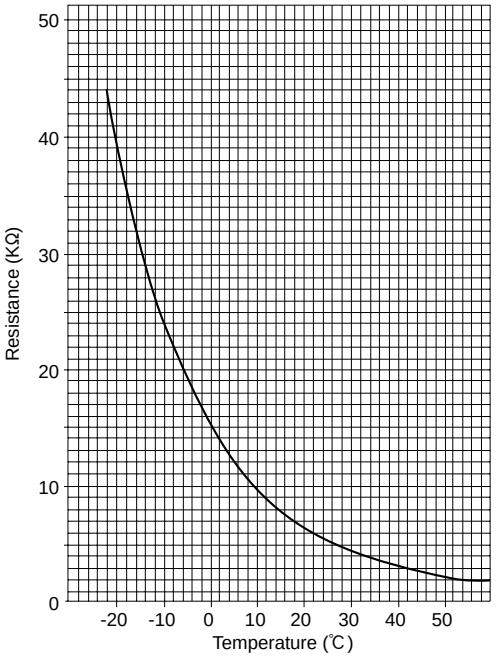
Room temperature thermistor(TH21)
Liquid pipe temperature thermistor (TH22)
Gas pipe temperature thermistor (TH23)

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

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

0℃	15kΩ
10℃	9.6kΩ
20℃	6.3kΩ
25℃	5.2kΩ
30℃	4.3kΩ
40℃	3.0kΩ

< Thermistor for lower temperature >

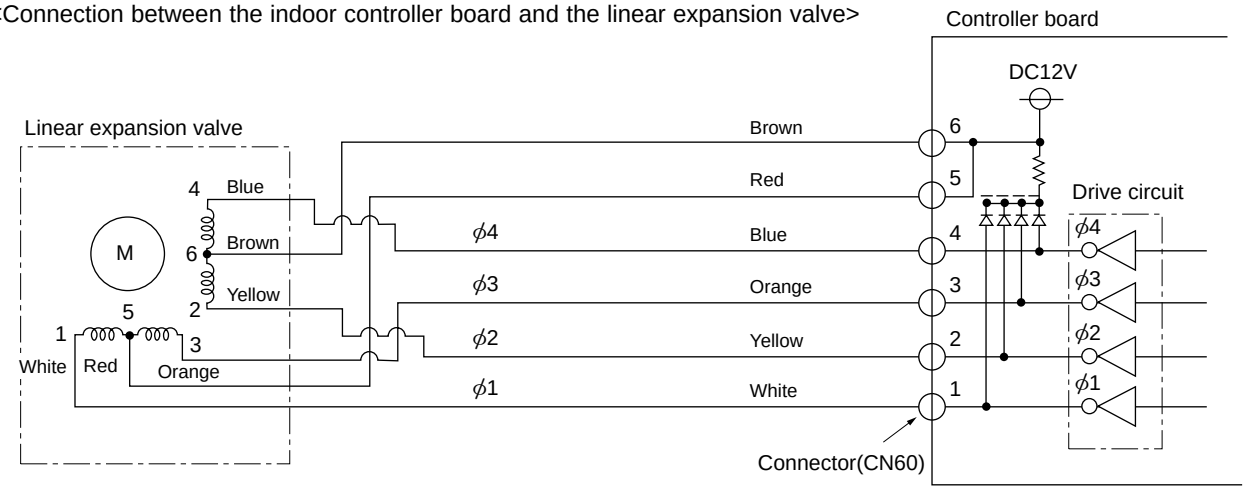


Linear expansion valve

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>

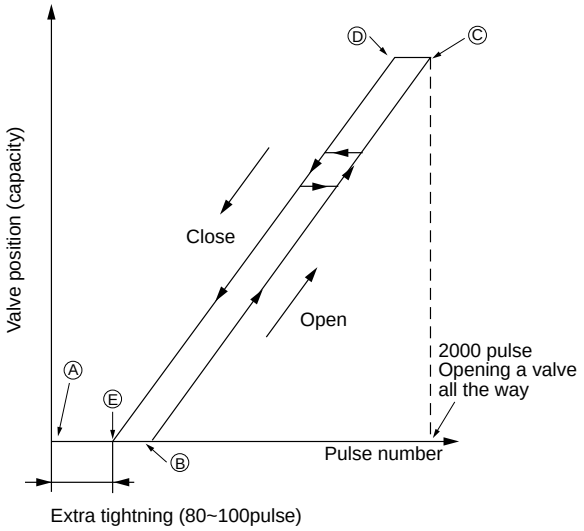
Output (Phase)	Output			
	1	2	3	4
ϕ1	ON	OFF	OFF	ON
ϕ2	ON	ON	OFF	OFF
ϕ3	OFF	ON	ON	OFF
ϕ4	OFF	OFF	ON	ON

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

The output pulse shifts in above order.

✵ 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 locks and vibrates.

② Linear expansion valve operation

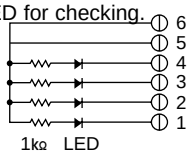
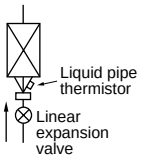


✵ When the switch is turned on, 2200 pulse closing valve signal will be send till it goes toⒶ point in order to define the valve position.

When the valve move smoothly, 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.

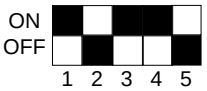
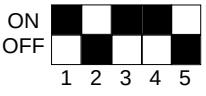
✵ Noise can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

③ Trouble shooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro processor.	Disconnect the connector on the controller board, then connect LED for checking.  Pulse signal will be sent out for 10 seconds as soon as the main switch is turned on. If there is LED with lights on or lights off, it means the operation circuit is abnormal.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make ticking noise when motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.	Exchange the linear expansion 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 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.

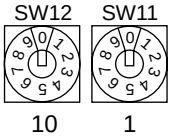
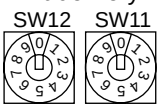
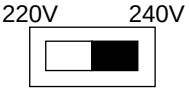
8-2. FUNCTION OF DIP SWITCH

PKFY-P63VFM-A PKFY-P63VFM-A$_1$ PKFY-P63VFM-A$_2$
PKFY-P100VFM-A PKFY-P100VFM-A$_1$ PKFY-P100VFM-A$_2$

Switch	Pole	Function	Operation by switch		Remarks
			ON	OFF	
SW1 Mode Selection	1	Thermistor<Intake temperature detection>position	Built-in remote controller	Indoor unit	Address board <At delivery> 
	2	Filter clogging detection	Provided	Not provided	
	3	Filter cleaning sign	2500hr	100hr	
	4	Air intake	Effective	Not effective	
	5	Remote indication switching	Thermostat ON signal indication	Fan output indication	
	6	Humidifier control	Always operated while the heating mode ※1	Operated depends on the condition ※2	
	7	Air flow set in case of	Fix to LOW ※3	Fix to EXTRA LOW ※3	
	8	Heat thermostat OFF	Depends on setting remote controller ※3	Depends on SW1-7	
	9	Auto restart	Effective	Not effective	
	10	Power source ON/OFF	Effective	Not effective	
SW2 Capacity code setting	1~6	MODELS: PKFY-P63VFM-A — SW2:  MODELS: PKFY-P100VFM-A — SW2: 			Indoor controller board Set while the unit is off. <At delivery> Set for each capacity.
SW3 Function Selection	1	Heat pump/Cooling only	Cooling only model	Heat pump model	Indoor controller board Set while the unit is off. <At delivery> 
	2	Louver	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	Heater 4degrees up	Not effective	Effective	
	9	Target Superheat setting ※5	9degrees	6degrees	
	10	Target Sub cool setting	15degrees	10degrees	
SW4 Unit Selection	1~5				Indoor controller board Set while the unit is off. <At delivery> 

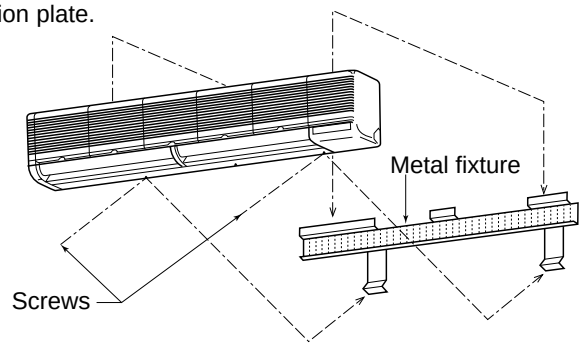
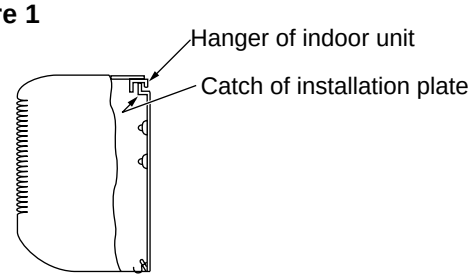
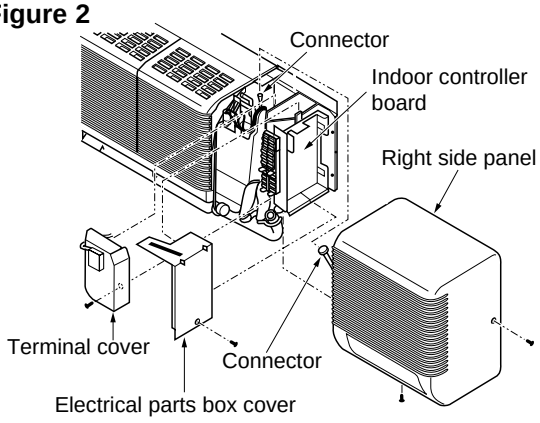
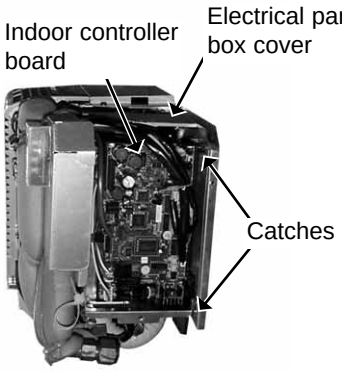
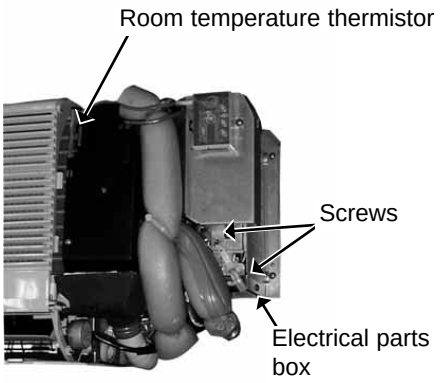
NOTE:
※1 At Heating mode, fan operating.
※2 At Heating mode, operating heat thermostat ON.
※3 SW1-7=OFF, SW1-8=ON →Setting air flow.
SW1-7=ON, SW1-8=ON →Indoor fan stop.

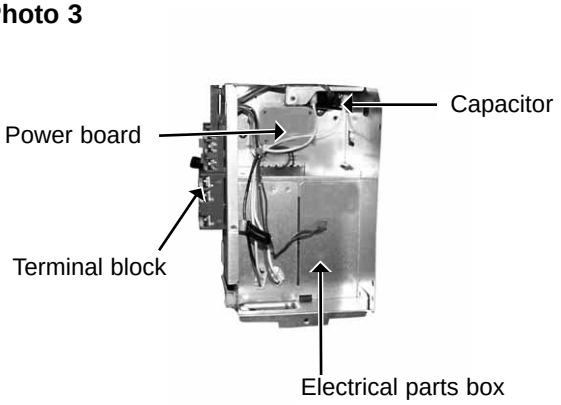
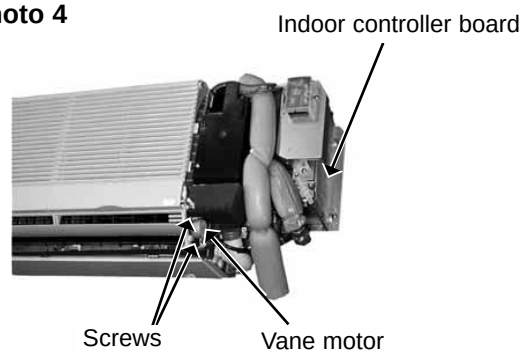
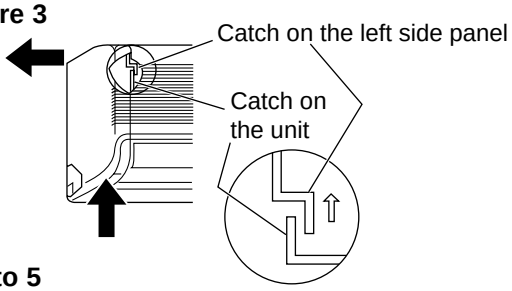
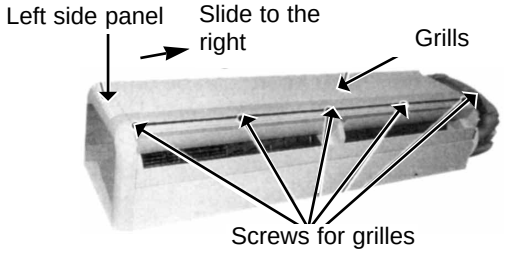
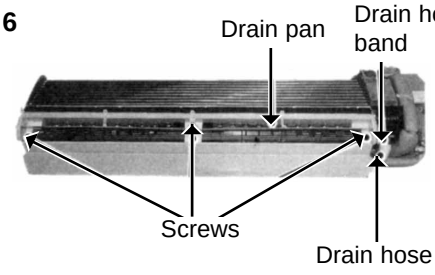
NOTE:
※4 At cooling mode, each angle can be used only 1 hour.
※5 sw3-9 setting
PKFY-P63VFM-A = ON
PKFY-P100VFM-A = OFF

Switch	Pole	Operation by switch	Remarks
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> 
SW5 Voltage Selection	2	 If the unit is used at the 230V or 240V area, set the voltage to 240V. If the unit is used at the 220V, set the voltage to 220V.	Address board <At delivery> 

9 DISASSEMBLY PROCEDURE

PKFY-P63VFM-A, PKFY-P63VFM-A$_1$, PKFY-P63VFM-A$_2$

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the lower side of the indoor unit from the installation plate (1) Remove the 2 screws. Hang the indoor unit hangers to the catches on the installation plate. 	**Figure 1** 
2. Removing the right side panel (1) Remove the 2 screws of the right side panel:one on the bottom and the other on the upper right-hand side. (2) Disconnect the connector from the adapter case. (3) Sliding the right side panel to the right, pull it out toward you.	**Figure 2** 
3. Removing the indoor controller board (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the cover. (3) Disconnect the connectors on the indoor controller board. (4) To unhook the catches on the right-hand side of the indoor controller board, pull the left-hand side toward you and lift up the cover to the right. Then the indoor controller board can be removed.	**Photo 1** 
4. Removing the electrical parts box (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover and controller cover, and remove each the cover. (3) Disconnect the vane motor, the linear expansion valve, the room temperature thermistor, the liquid pipe temperature thermistor and the gas pipe temperature thermistor connector on the indoor controller board. (4) Remove the 2 screws of the electrical parts box. (5) Disconnect the connector of the fan motor lead wire.(Fan motor side) (6) Remove the electrical parts box.	**Photo 2** 

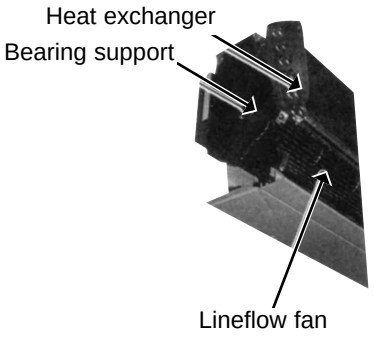
OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
(7) Remove the indoor controller board case. Then the Power board and the capacitor can be serviced.	**Photo 3** 
5. Removing the vane motor (1) Remove the right side panel. (2) Remove the screw of the electrical parts box cover, and remove the terminal cover. (3) Remove the 2 screws of the vane motor, and remove the motor from the shaft. (4) Disconnect the vane motor connector on the indoor controller board.	**Photo 4** 
6. Removing the intake grilles (1) Remove the right side panel. (2) To remove the left side panel, remove the screw on the bottom and the screw on the upper left-hand side. (See Figure 3.) 1. Press up this side of the left side panel to unhook the catch on the panel from the catch on the unit. 2. Slide the left side panel to the left to remove the panel. Note: Fix the unit to the metal fixture securely (3) Remove the air filters. (4) Hold and press the center cover to remove. (5) Remove the screws of the grilles. (6) Pull the lower side of the grille toward you and slide the upper to the right to remove the grilles.	**Figure 3**  **Photo 5** 
7. Removing the drain pan (1) Remove the left and right side panels. (2) Remove the grilles. (3) Remove the electrical parts box cover. (4) Loosen the drain hose band to remove. (5) Remove the 3 screws of the drain pan, and slide the drain pan toward you to remove.	**Photo 6** 

OPERATING PROCEDURE

8. Removing the lineflow fan and the fan motor

(1) Remove the left and right side panels.
(2) Remove the grilles.
(3) Remove the electrical parts box.
(4) Remove the drain pan.
(5) Loosen the screw that fixes the lineflow fan to the fan motor. (See Photo 7.)
(6) Remove the 4 screws of the motor fixture, and remove the fan motor and the motor fixture at a time (See Photo 8.)
(7) Remove the screws of the left and right motor supports, and remove the motor supports and the fan motor. (See Photo 9.)
(8) Remove the screw of the center support, and remove the support. (See Photo 10.)
(9) Remove the 2 screws on the left and right sides of the heat exchanger, and pull the bearing support toward you. (See Photo 11.)
(10) Pull the left-hand side of the heat exchanger toward you, and remove the lineflow fan.

Photo 11



PHOTOS

Photo 7

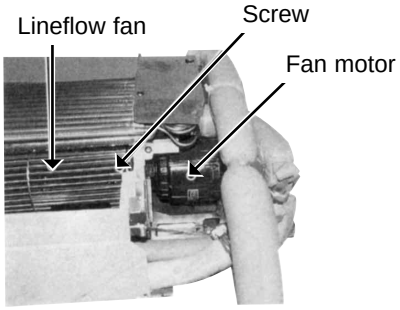


Photo 8

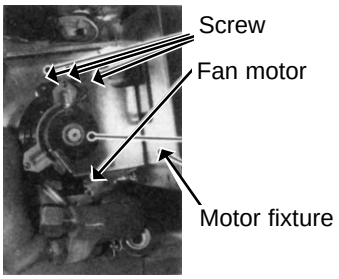


Photo 9

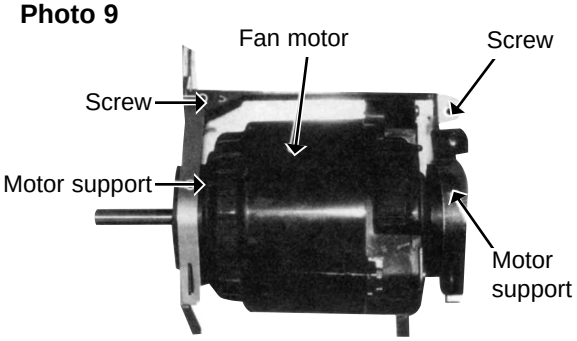
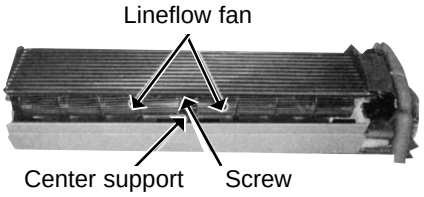
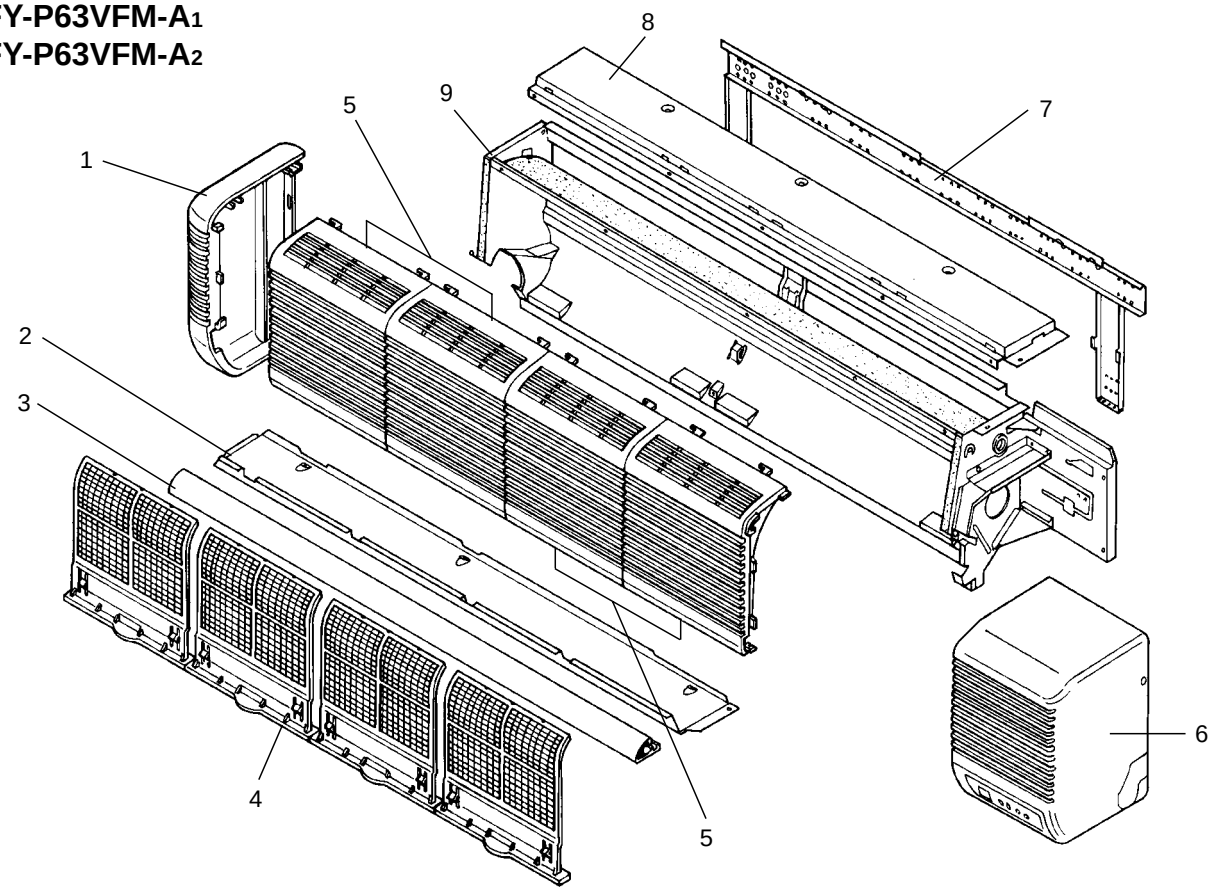


Photo 10



10 PARTS LIST

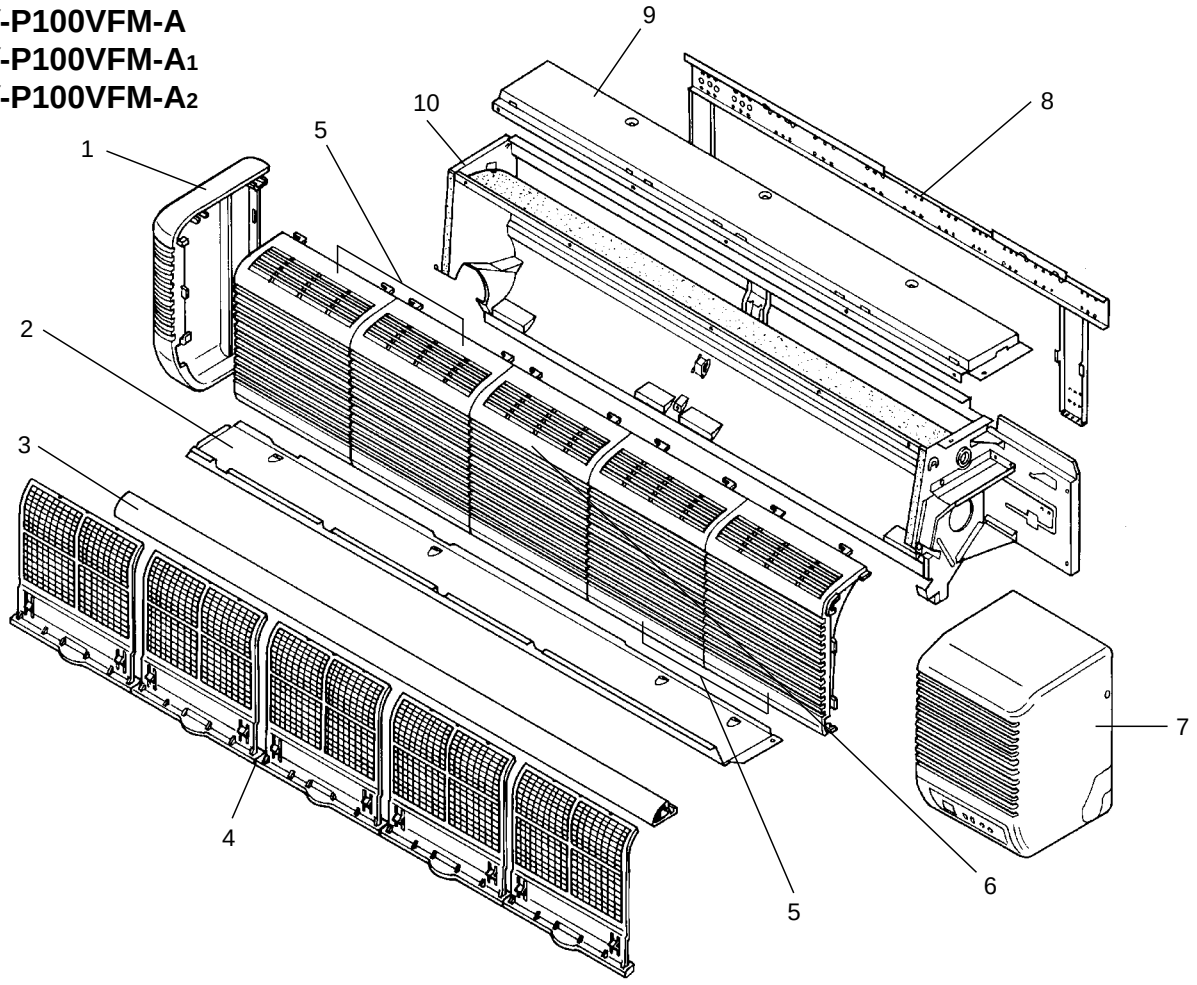
STRUCTURAL PARTS
PKFY-P63VFM-A
PKFY-P63VFM-A$_1$
PKFY-P63VFM-A$_2$



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

No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P63						Unit	Amount
				VFM-A	VFM-A$_1$	VFM-A$_2$					
1	R01 12G 662	LEFT SIDE PANEL		1	1	1					
2	R01 E01 812	UNDER PLATE		1	1	1					
3	R01 12G 811	NOSE		1							
	R01 E00 811	NOSE			1	1					
4	R01 A17 500	AIR FILTER		4	4	4					
5	R01 12G 691	INTAKE GRILLE		2	2	2					
6	R01 12G 661	RIGHT SIDE PANEL		1	1	1					
7	R01 12G 808	BACK PLATE		1	1	1					
8	R01 E01 641	TOP PLATE		1	1	1					
9	—	BOX ASSEMBLY		1			(BG00A593GN1)				
	—	BOX ASSEMBLY			1		(RG00A734G37)				
	—	BOX ASSEMBLY				1	(RG00A734GG3)				
(10)	R01 12G 523	DRAIN SOCKET		1	1	1					

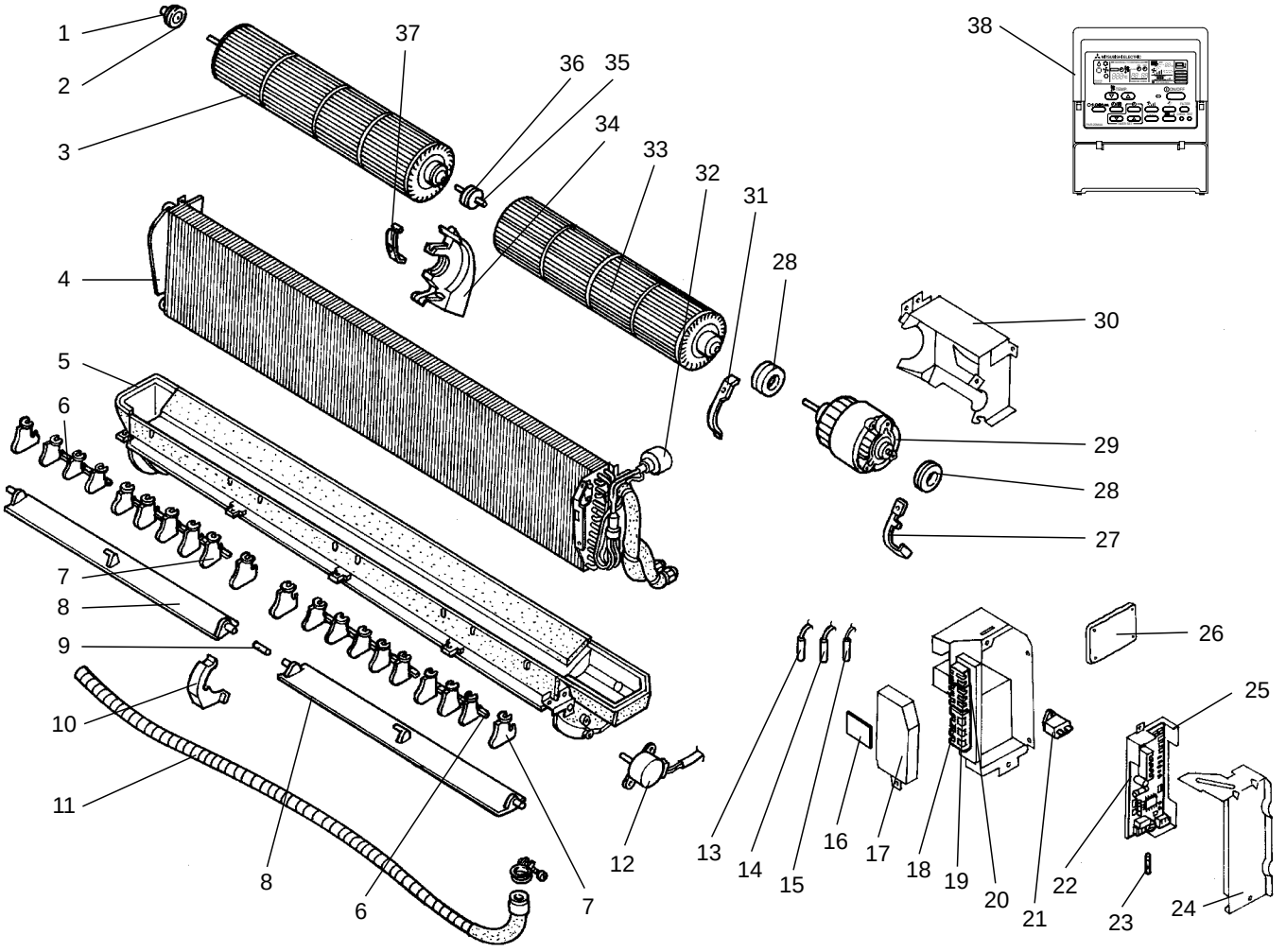
STRUCTURAL PARTS
PKFY-P100VFM-A
PKFY-P100VFM-A1
PKFY-P100VFM-A2



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

No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P100						Unit	Amount
				VFM-A	VFM-A1	VFM-A2					
1	R01 12G 662	LEFT SIDE PANEL		1	1	1					
2	R01 E00 812	UNDER PLATE		1	1	1					
3	R01 16G 811	NOSE		1							
	R01 E01 811	NOSE			1	1					
4	R01 A17 500	AIR FILTER		5	5	5					
5	R01 12G 691	INTAKE GRILLE		2	2	2					
6	R01 16G 692	INTAKE GRILLE		1	1	1					
7	R01 12G 661	RIGHT SIDE PANEL		1	1	1					
8	R01 16G 808	BACK PLATE		1	1	1					
9	R01 E00 641	TOP PLATE		1	1	1					
10	—	BOX ASSEMBLY		1			(BG00A593GN2)				
	—	BOX ASSEMBLY			1		(RG00A734G38)				
	—	BOX ASSEMBLY				1	(RG00A734GG4)				
(11)	R01 12G 523	DRAIN SOCKET		1	1	1					

ELECTRICAL PARTS
PKFY-P63VFM-A
PKFY-P63VFM-A$_1$
PKFY-P63VFM-A$_2$

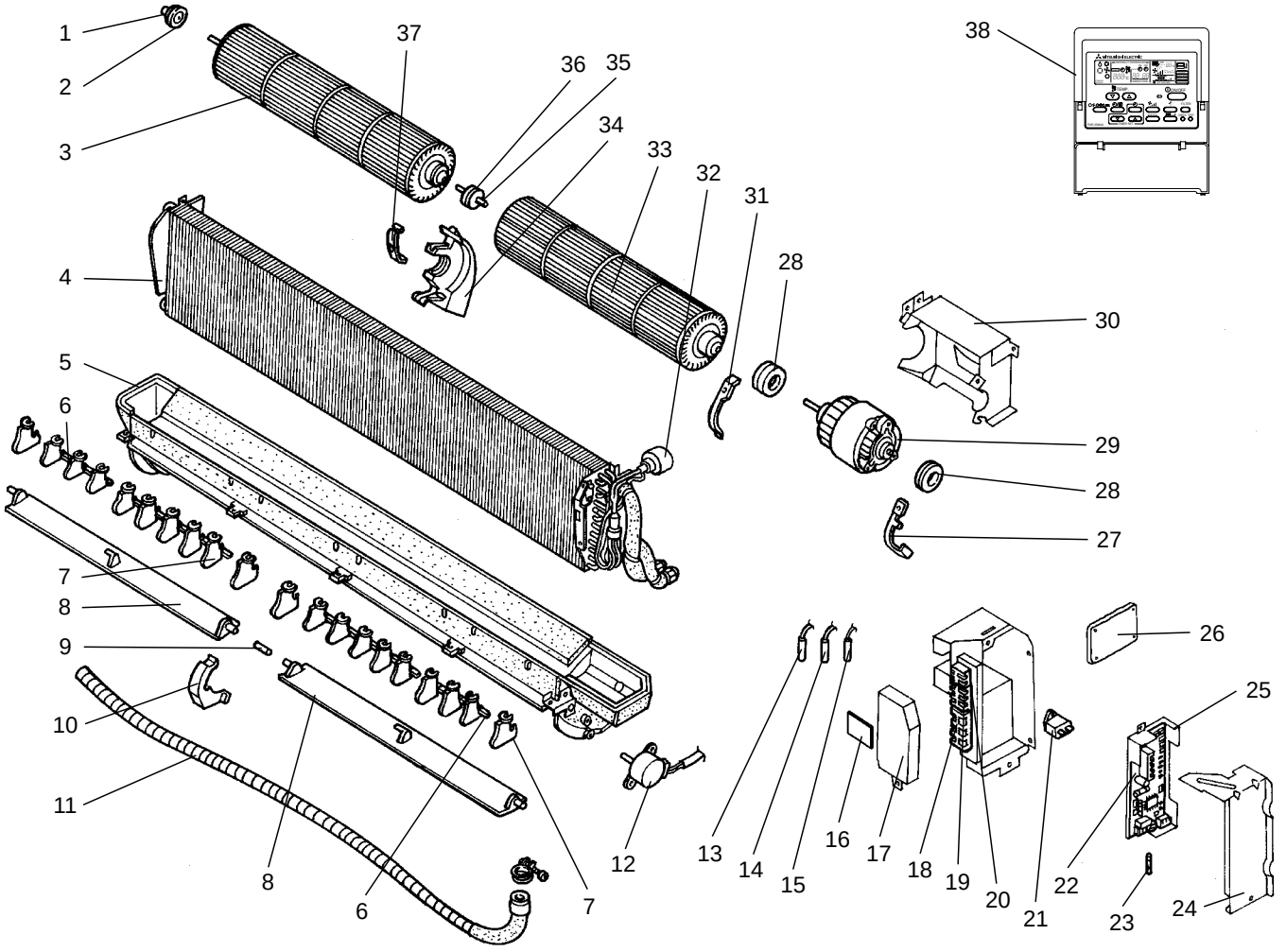


No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P63						Unit	Amount
				VFM-A	VFM-A$_1$	VFM-A$_2$					
1	R01 Z61 102	BEARING MOUNT		1	1	1					
2	R01 005 103	SLEEVE BEARING		1	1	1					
3	R01 13G 114	LEFT LINEFLOW FAN		1	1	1					
4	T7W E81 480	HEAT EXCHANGER		1	1	1					
5	T7W E10 529	DRAIN PAN		1							
	T7W E13 529	DRAIN PAN			1	1					
6	—	ARM		3	3	3	(BG25H301H02)				
7	—	GUIDE VANE		16	16	16	(BG25J821H01)				
	—	GUIDE VANE (WITH HANDELE)		4	4	4	(BG25J821H02)				
8	R01 12G 002	AUTO VANE		2	2	2					
9	R01 12G 063	JOINT SHAFT		1	1	1					
10	R01 12G 621	CENTER COVER		1	1	1					
11	R01 KV5 527	DRAIN HOSE		1	1	1					

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

No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P63						Unit	Amount
				VFM-A	VFM-A1	VFM-A2					
12	T7W E03 223	VANE MOTOR		1	1	1		MV			
13	R01 E32 202	GAS PIPE THERMISTOR		1	1	1		TH23			
14	T7W E12 202	ROOM TEMPERATURE THERMISTOR		1	1	1		TH21			
15	R01 E02 202	LIQUID PIPE THERMISTOR		1	1	1		TH22			
16	T7W B01 294	ADDRESS BOARD		1	1	1		A.B			
17	—	TERMINAL COVER		1	1	1	(BG02J608G01)				
18	T7W A14 716	TERMINAL BLOCK	3P(L,N,⏚)	1	1	1		TB2			
19	T7W E00 716	TERMINAL BLOCK	3P(M1,M2,S)	1	1	1		TB5			
20	T7W 512 716	TERMINAL BLOCK	2P(1,2)	1	1	1		TB15			
21	R01 588 255	FAN MOTOR CAPACITOR	2.0μF 440V	1	1	1		C1			
22	T7W E22 310	INDOOR CONTROLLER BOARD		1	1	1		I.B			
23	T7W 520 239	FUSE	250V 6.3A	2	2	2		FUSE			
24	—	CONTROLLER COVER		1	1	1	(BG02A648G02)				
25	—	CONTROLLER CASE		1	1	1	(BG25J080H02)				
26	R01 E02 313	POWER BOARD		1	1	1		P.B			
27	—	MOTOR BAND		1	1	1	(BG02H065H01)				
28	R01 12G 105	RUBBER MOUNT		2	2	2					
29	R01 12G 220	FAN MOTOR	D094P40MS	1	1	1		MF			
30	—	MOTOR LEG		1	1	1	(BG02A534H16)				
31	—	MOTOR BAND		1	1	1	(BG02H178H01)				
32	R01 E27 401	LINEAR EXPANSION VALVE		1	1	1		LEV			
33	R01 13G 115	RIGHT LINE FLOW FAN		1	1	1					
34	—	CENTER SUPPORT		1	1	1	(BG00R259G08)				
35	R01 12G 103	SLEEVE BEARING		1	1	1					
36	R01 KV5 102	BEARING MOUNT		1	1	1					
37	—	BEARING BAND		1	1	1	(BG02L462H02)				
38	—	REMOTE CONTROLLER	PAR-20MAA	1	1	1		R.B			
㊴	R01 05A 304	ADDRESS CABLE		1	1	1					

ELECTRICAL PARTS
PKFY-P100VFM-A
PKFY-P100VFM-A1
PKFY-P100VFM-A2



No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P100						Unit	Amount
				VFM-A	VFM-A1	VFM-A2					
1	R01 Z61 102	BEARING MOUNT		1	1	1					
2	R01 005 103	SLEEVE BEARING		1	1	1					
3	R01 17G 114	LEFT LINEFLOW FAN		1	1	1					
4	T7W E82 480	HEAT EXCHANGER		1	1	1					
5	T7W E11 529	DRAIN PAN		1							
	T7W E14 529	DRAIN PAN			1	1					
6	—	ARM		4	4	4	(BG25H301H02)				
7	—	GUIDE VANE		22	22	22	(BG25J821H01)				
	—	GUIDE VANE (WITH HANDELE)		4	4	4	(BG25J821H02)				
8	R01 16G 002	AUTO VANE		2	2	2					
9	R01 12G 063	JOINT SHAFT		1	1	1					
10	R01 12G 621	CENTER COVER		1	1	1					
11	R01 KV5 527	DRAIN HOSE		1	1	1					

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

No.	Part No.	Part Name	Specification	Q'ty / set			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty	Price	
				PKFY-P100						Unit	Amount
				VFM-A	VFM-A1	VFM-A2					
12	T7W E03 223	VANE MOTOR		1	1	1		MV			
13	R01 E32 202	GAS PIPE THERMISTOR		1	1	1		TH23			
14	T7W E12 202	ROOM TEMPERATURE THERMISTOR		1	1	1		TH21			
15	R01 E02 202	LIQUID PIPE THERMISTOR		1	1	1		TH22			
16	T7W B01 294	ADDRESS BOARD		1	1	1		A.B			
17	—	TERMINAL COVER		1	1	1	(BG02J608G01)				
18	T7W A14 716	TERMINAL BLOCK	3P(L,N,⏚)	1	1	1		TB2			
19	T7W E00 716	TERMINAL BLOCK	3P(M1,M2,S)	1	1	1		TB5			
20	T7W 512 716	TERMINAL BLOCK	2P(1,2)	1	1	1		TB15			
21	R01 576 255	FAN MOTOR CAPACITOR	3.0μF 440V	1	1	1		C1			
22	T7W E22 310	INDOOR CONTROLLER BOARD		1	1	1		I.B			
23	T7W 520 239	FUSE	250V 6.3A	2	2	2		FUSE			
24	—	CONTROLLER COVER		1	1	1	(BG02A648G02)				
25	—	CONTROLLER CASE		1	1	1	(BG25J080H02)				
26	R01 E02 313	POWER BOARD		1	1	1		P.B			
27	—	MOTOR BAND		1	1	1	(BG02H065H01)				
28	R01 16G 105	RUBBER MOUNT		2	2	2					
29	T7W 571 762	FAN MOTOR	D10A4P70MS	1	1	1		MF			
30	—	MOTOR LEG		1	1	1	(RG02A534H17)				
31	—	MOTOR BAND		1	1	1	(BG02H178H01)				
32	T7W E09 401	LINEAR EXPANSION VALVE		1	1	1		LEV			
33	R01 17G 115	RIGHT LINE FLOW FAN		1	1	1					
34	—	CENTER SUPPORT		1	1	1	(BG00R259G08)				
35	R01 12G 103	SLEEVE BEARING		1	1	1					
36	R01 KV5 102	BEARING MOUNT		1	1	1					
37	—	BEARING BAND		1	1	1	(BG02L462H02)				
38	—	REMOTE CONTROLLER	PAR-20MAA	1	1	1		R.B			
㊴	R01 05A 304	ADDRESS CABLE		1	1	1					

11 OPTIONAL PARTS

DRAIN-UP MACHINE

Only
PKFY-P63VFM-A PKFY-P63VFM-A$_1$
PKFY-P100VFM-A PKFY-P100VFM-A$_1$

Part No.	PAC-SE89DMA-E

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Distriduted in Mar. 2003 No. OC251 REVISED EDITION-A PDF 716
Distriduted in Mar. 2001 No. OC251 475
Made in Japan

New publication, effective Mar. 2003
Specifications subject to change without notice