MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

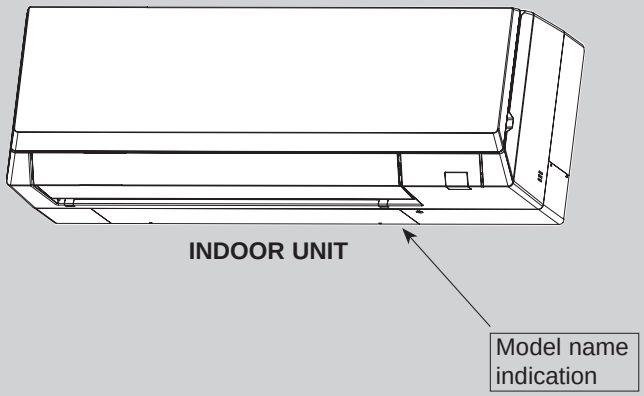
April 2019

No. OCH710

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted R410A

Indoor unit [Model Name]	[Service Ref.]
PKFY-P10VLM-E	PKFY-P10VLM-E.TH
PKFY-P10VLM-ET	PKFY-P10VLM-ET.TH
PKFY-P15VLM-E	PKFY-P15VLM-E.TH
PKFY-P15VLM-DA	PKFY-P15VLM-DA.TH
PKFY-P15VLM-TH	PKFY-P15VLM-TH.TH
PKFY-P15VLM-ET	PKFY-P15VLM-ET.TH
PKFY-P20VLM-E	PKFY-P20VLM-E.TH
PKFY-P20VLM-DA	PKFY-P20VLM-DA.TH
PKFY-P20VLM-TH	PKFY-P20VLM-TH.TH
PKFY-P20VLM-ET	PKFY-P20VLM-ET.TH
PKFY-P25VLM-E	PKFY-P25VLM-E.TH
PKFY-P25VLM-DA	PKFY-P25VLM-DA.TH
PKFY-P25VLM-TH	PKFY-P25VLM-TH.TH
PKFY-P25VLM-ET	PKFY-P25VLM-ET.TH
PKFY-P32VLM-E	PKFY-P32VLM-E.TH
PKFY-P32VLM-DA	PKFY-P32VLM-DA.TH
PKFY-P32VLM-TH	PKFY-P32VLM-TH.TH
PKFY-P32VLM-ET	PKFY-P32VLM-ET.TH
PKFY-P40VLM-E	PKFY-P40VLM-E.TH
PKFY-P40VLM-DA	PKFY-P40VLM-DA.TH
PKFY-P40VLM-TH	PKFY-P40VLM-TH.TH
PKFY-P40VLM-ET	PKFY-P40VLM-ET.TH
PKFY-P50VLM-E	PKFY-P50VLM-E.TH
PKFY-P50VLM-DA	PKFY-P50VLM-DA.TH
PKFY-P50VLM-TH	PKFY-P50VLM-TH.TH
PKFY-P50VLM-ET	PKFY-P50VLM-ET.TH



CONTENTS

CITY MULTI

1 SAFETY PRECAUTION

Cautions for units utilizing refrigerant R410A

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 indoors, and both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22, etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil, etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil, etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Handle tools with care.

If dirt, dust or moisture enters into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Use the specified refrigerant only.

Never use any refrigerant other than that specified.
Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of.
Correct refrigerant is specified in the manuals and on the spec labels provided with our products.
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

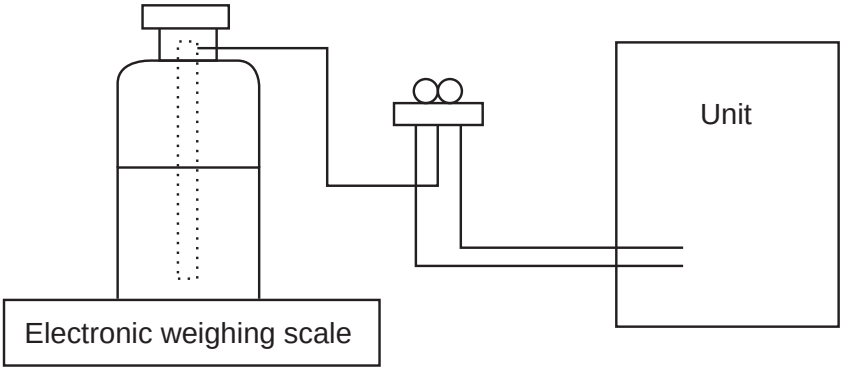
[1] Cautions for service

(1) Perform service after collecting the refrigerant left in the unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

(1) Check that cylinder for R410A on the market is syphon type.
(2) Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



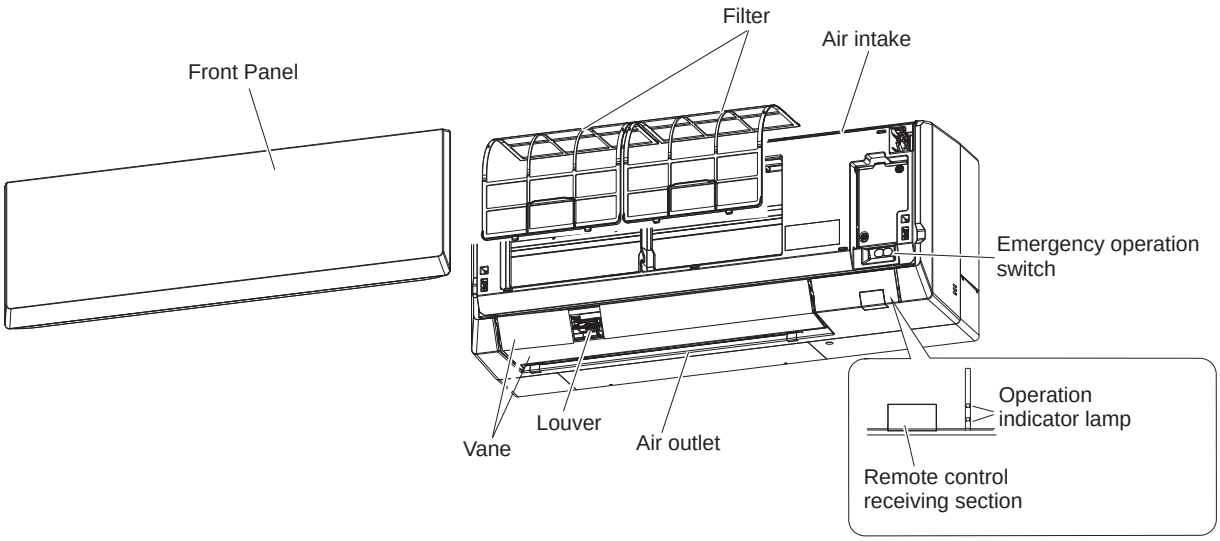
[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

No.	Tool name	Specifications
①	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications. (UNF1/2)
		· Use high-tension side pressure of 5.3 MPa·G or over.
②	Charge hose	· Only for R410A
		· Use pressure performance of 5.09 MPa·G or over.
③	Electronic weighing scale	—
④	Gas leak detector	· Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	· Attach on vacuum pump.
⑥	Refrigerant charge base	—
⑦	Refrigerant cylinder	· Only for R410A Top of cylinder (Pink) Cylinder with syphon
⑧	Refrigerant recovery equipment	—

2 PARTS NAMES AND FUNCTIONS

2-1. Indoor unit



2-2. Wired Remote Controller <PAR-40MAA> <PAR-21MAA>

Wired remote controller function

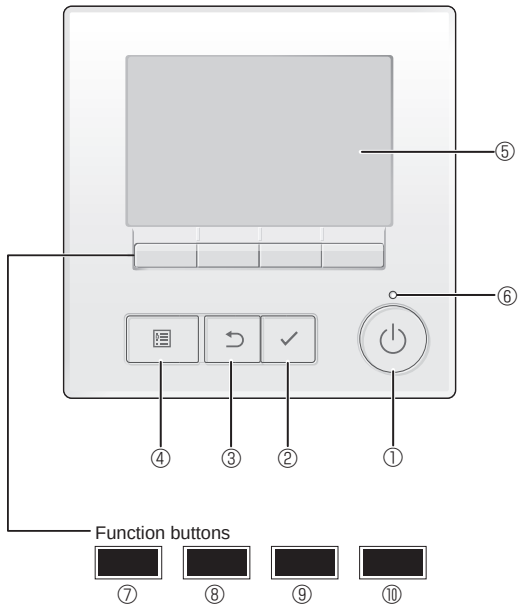
The functions which can be used are restricted according to each model.

○ : Supported ✕ : Unsupported

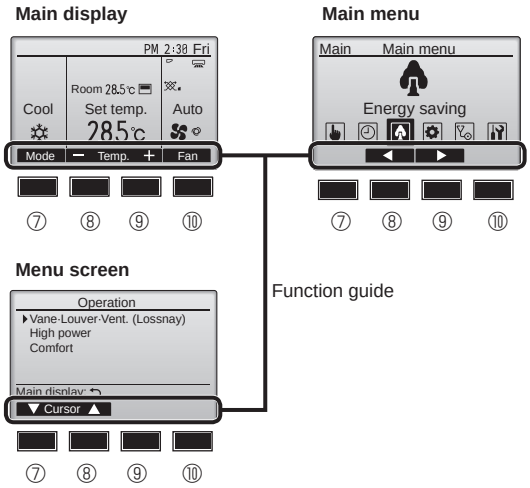
	Function	PAR-40MAA		PAR-21MAA
		Slim	CITY MULTI	
Body	Product size H × W × D (mm)	120 × 120 × 14.5		120 × 130 × 19
	LCD	Full Dot LCD		Partial Dot LCD
	Backlight	○		✕
Energy saving	Energy saving operation schedule	○	✕	✕
	Automatic return to the preset temperature	○		✕
Restriction	Setting the temperature range restriction	○		○
Function*	Operation lock function	○		○
	Weekly timer	○		✕
	ON/OFF timer	○		○
	High Power	○	✕	✕
	Manual vane angle	○		○

*Some functions may not be available depending on model types.

Controller interface



The functions of the function buttons change depending on the screen.
Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.
When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT] button

Press to save the setting.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

Operation settings will appear.

When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

⑥ ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

⑦ Function button [F1]

Main display: Press to change the operation mode.

Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.

Main menu: Press to move the cursor left.

Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.

Main menu: Press to move the cursor right.

Menu screen: The button function varies with the screen.

⑩ Function button [F4]

Main display: Press to change the fan speed.

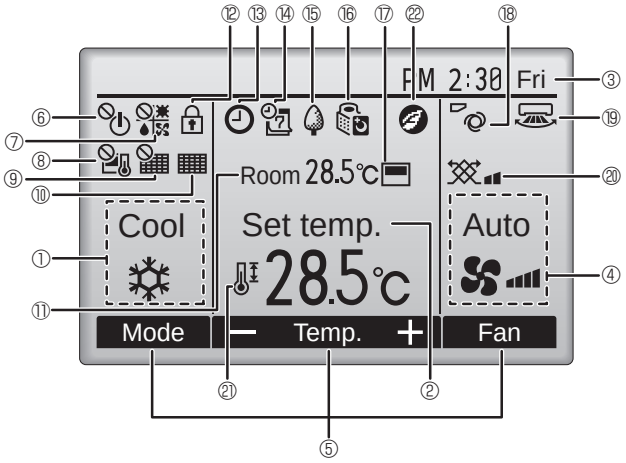
Menu screen: The button function varies with the screen.

Display

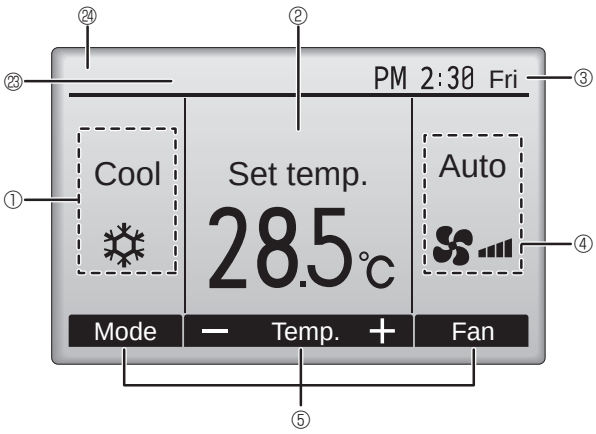
The main display can be displayed in two different modes: “Full” and “Basic”. The factory setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

* All icons are displayed for explanation.



<Basic mode>



① Operation mode

② Preset temperature

③ Clock

Current time appears here.

④ Fan speed

⑤ Button function guide

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the preset temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

⑪ Room temperature

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer, Night setback, or Auto-off timer function is enabled.

appears when the timer is disabled by the centralized control system.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode. (This indication is not available for CITY MULTI models.)

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Indicates the vane setting.

⑲

Indicates the louver setting.

⑳

Indicates the ventilation setting.

㉑

Appears when the preset temperature range is restricted.

㉒

Appears when an energy-saving operation is performed using a “3D i-See sensor” function. (not available)

㉓ Centrally controlled

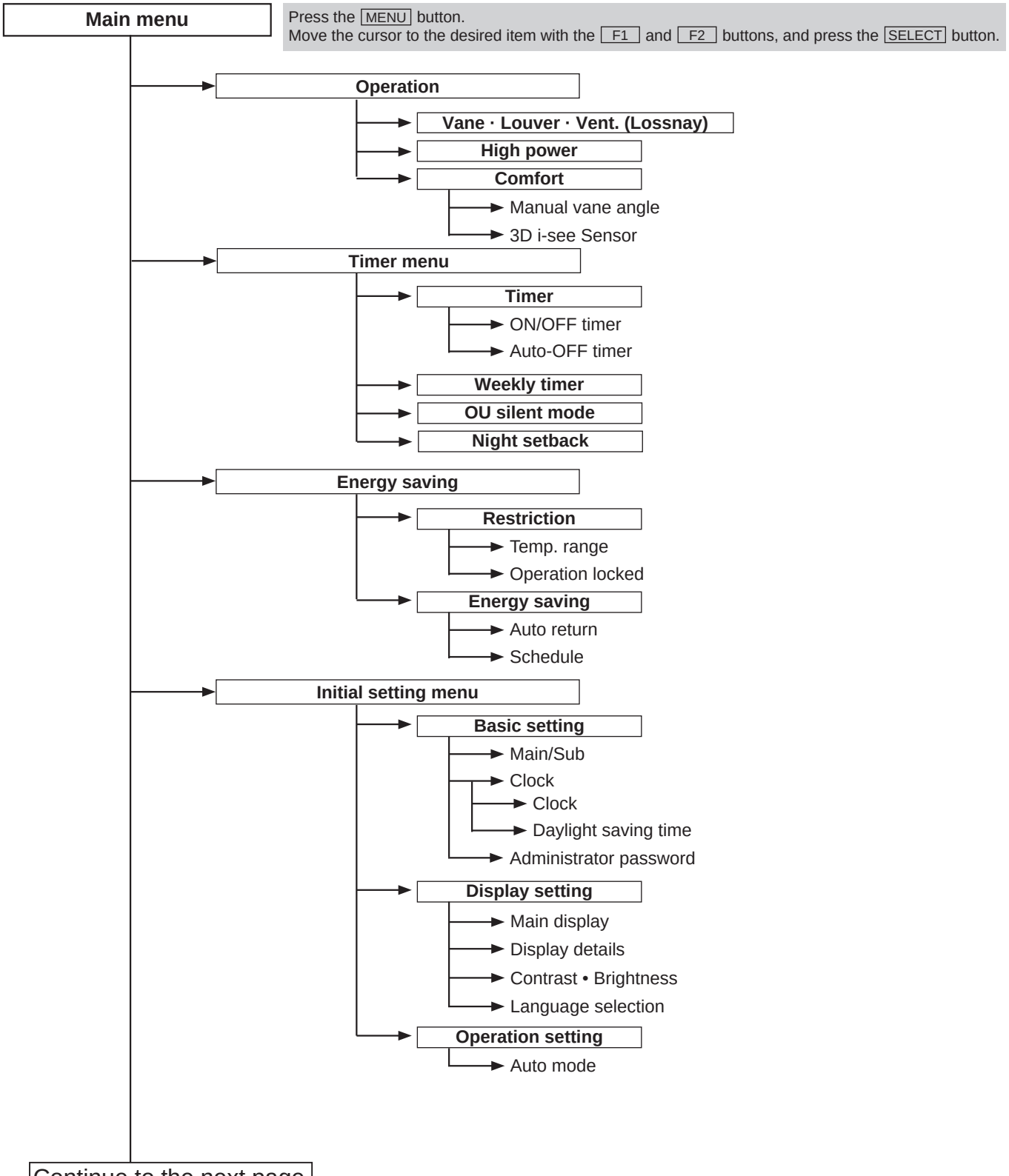
Appears for a certain period of time when a centrally-controlled item is operated.

㉔ Preliminary error display

An error code appears during the preliminary error.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Main menu. (Refer to Page 10.)

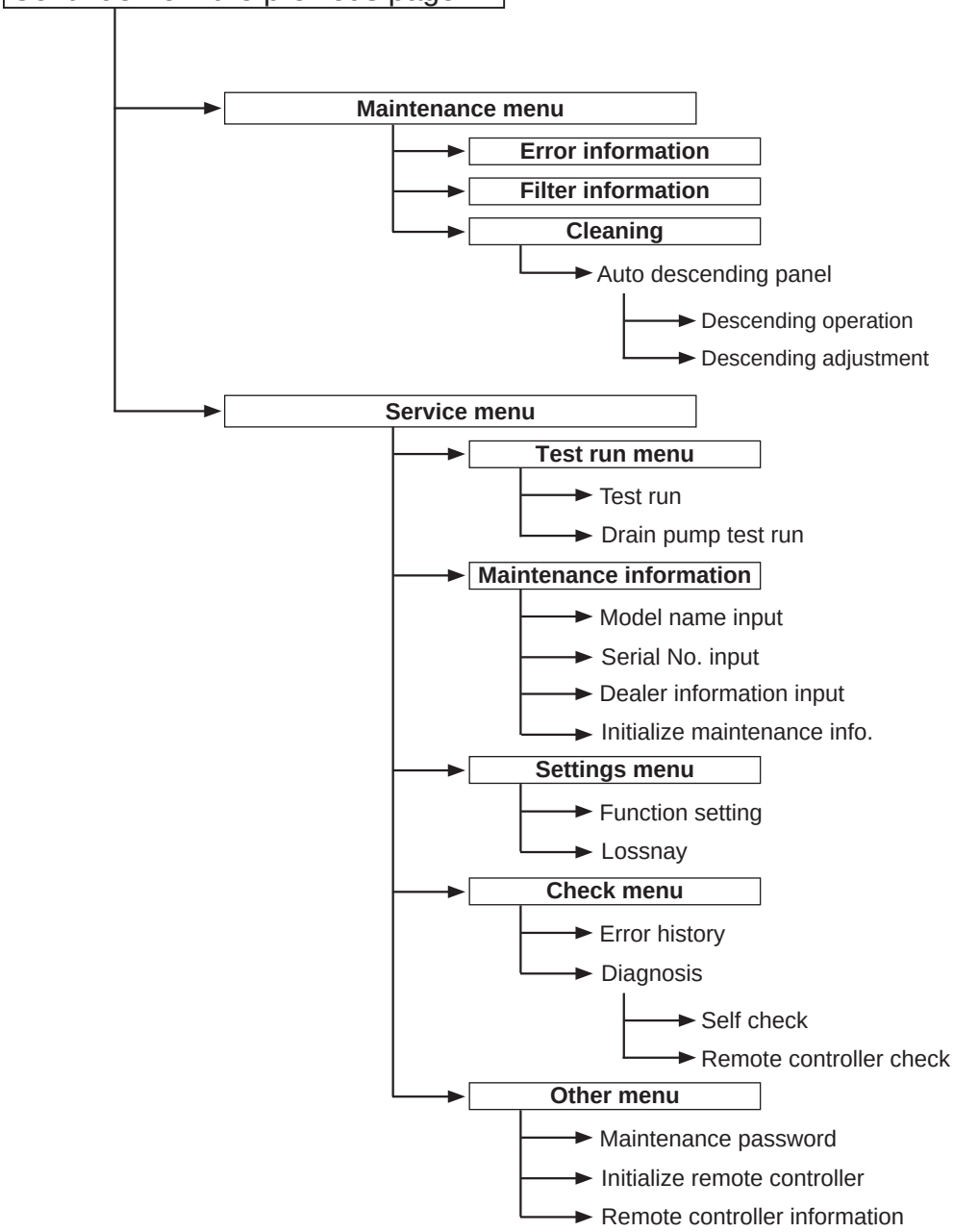
Menu structure



Continue to the next page.

Not all functions are available on all models of indoor units.

Continue from the previous page.



Not all functions are available on all models of indoor units.

Main menu list

Main menu	Setting and display items		Setting details
Operation	**Vane · Louver · Vent. (Lossnay)**		**Use to set the vane angle.** • Select a desired vane setting from 5 different settings. **Use to turn ON/OFF the louver.** • Select a desired setting from "ON" and "OFF." **Use to set the amount of ventilation.** • Select a desired setting from "Off," "Low," and "High."
	High power		**Use to reach the comfortable room temperature quickly.** • Units can be operated in the High-power mode for up to 30 minutes.
	Comfort	**Manual vane angle**	**Use to fix each vane angle.**
		3D i-see Sensor	**Use to set the following functions for 3D i-see Sensor.** • Air distribution • Energy saving option • Seasonal airflow
Timer	**Timer**	**ON/OFF timer *1**	**Use to set the operation ON/OFF times.** • Time can be set in 5-minute increments.
		Auto-Off timer	**Use to set the Auto-Off time.** • Time can be set to a value from 30 to 240 in 10-minute increments.
	Weekly timer *1, *2		**Use to set the weekly operation ON/OFF times.** • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)
	OU silent mode *1		**Use to set the time periods in which priority is given to quiet operation of outdoor units over temperature control. Set the Start/Stop times for each day of the week.** •Select the desired silent level from "Normal," "Middle," and "Quiet."
	Night setback *1		**Use to make Night setback settings.** • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.
Energy saving	**Restriction**	**Temp. range *2**	**Use to restrict the preset temperature range.** • Different temperature ranges can be set for different operation modes.
		Operation lock	**Use to lock selected functions.** • The locked functions cannot be operated.
	Energy saving	**Auto return *2**	**Use to get the units to operate at the preset temperature after performing energy saving operation for a specified time period.** • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.)
		Schedule *1	**Set the start/stop times to operate the units in the energy saving mode for each day of the week, and set the energy saving rate.** • Up to 4 energy saving operation patterns can be set for each day. • Time can be set in 5-minute increments. • Energy saving rate can be set to a value from 0% or 50 to 90% in 10% increments.

***1** Clock setting is required.
***2** 33.8°F (1°C) increments.

Main menu	Setting and display items		Setting details
Initial setting	**Basic setting**	**Main/Sub**	**When connecting 2 remote controllers, one of them needs to be designated as a sub controller.**
		Clock	**Use to set the current time.**
		Daylight saving time	**Set the daylight saving time.**
		Administrator password	**The administrator password is required to make the settings for the following items.** • Timer setting • Energy saving setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back
	Display setting	**Main display**	**Use to switch between "Full" and "Basic" modes for the Main display.** • The initial setting is "Full."
		Black and white inversion setting	**Use to invert the colors of the display, turning white background to black and black characters to white.**
		Display details	**Make the settings for the remote controller related items as necessary.** **Clock:** The initial settings are "Yes" and "24h" format. **Temperature:** Set either Celsius (°C) or Fahrenheit (°F). **Room temp. :** Set Show or Hide. **Auto mode:** Set the Auto mode display or Only Auto display.
		Contrast • Brightness	**Use to adjust screen contrast and brightness.**
		Language selection	**Use to select the desired language.**
	Operation setting	**Auto mode**	**Whether or not to use the Auto mode can be selected by using the button. This setting is valid only when indoor units with the Auto mode function are connected.**
Maintenance	**Error information**		**Use to check error information when an error occurs.** • Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.)
	Filter information		**Use to check the filter status.** • The filter sign can be reset.
	Cleaning	**Auto descending panel**	**Use to lift and lower the auto descending panel (Optional parts).**
Service	**Test run**		**Select "Test run" from the Service menu to bring up the Test run menu.** • Test run • Drain pump test run
	Input maintenance		**Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen.** **The following settings can be made from the Maintenance Information screen.** • Model name input • Serial No. input • Dealer information input • Initialize maintenance info.
	Settings	**Function setting**	**Make the settings for the indoor unit functions via the remote controller as necessary.**
		LOSSNAY setting	**This setting is required only when the operation of CITY MULTI units is interlocked with LOSSNAY units.**
	Check	**Error history**	Display the error history and execute "delete error history".
		Diagnosis	**Self check:** Error history of each unit can be checked via the remote controller. **Remote controller check:** When the remote controller does not work properly, use the remote controller checking function to troubleshoot the problem.
	Other	**Maintenance password**	**Use to change the maintenance password.**
		Initialize remote controller	**Use to initialize the remote controller to the factory shipment status.**
		remote controller information	**Use to display the remote controller model name, software version, and serial number.**

WIRED REMOTE CONTROLLER <PAR-21MAA>

Display Section

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

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

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

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

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

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

Timer indicators
The indicator comes on if the corresponding timer is set.

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

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

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

Temperature Setting
Shows the target temperature.

Fan Speed indicator
Shows the selected fan speed.

Ventilation indicator
Appears when the unit is running in Ventilation mode.

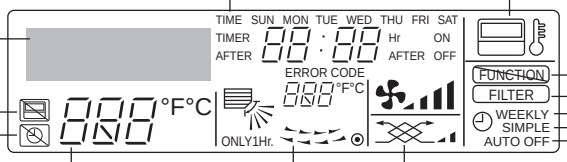
Up/Down Air Direction indicator
The indicator ＼ shows the direction of the outcoming airflow.

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

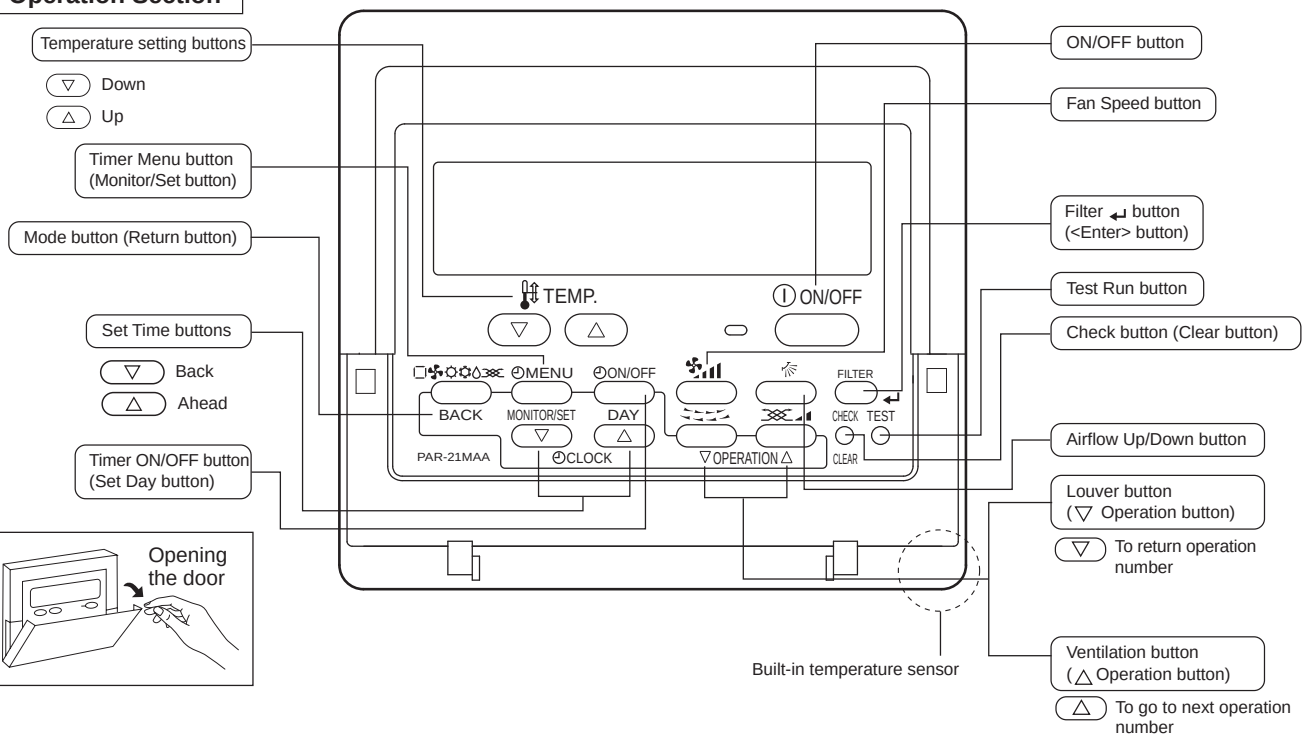
Room Temperature display
Shows the room temperature. The room temperature display range is 8–39℃. The display blinks if the temperature is less than 8℃ or 39℃ or more.

Louver display
Indicates the action of the swing louver. Does not appear if the louver is not running.

◉ (Power On indicator)
Indicates that the power is on.



Operation Section

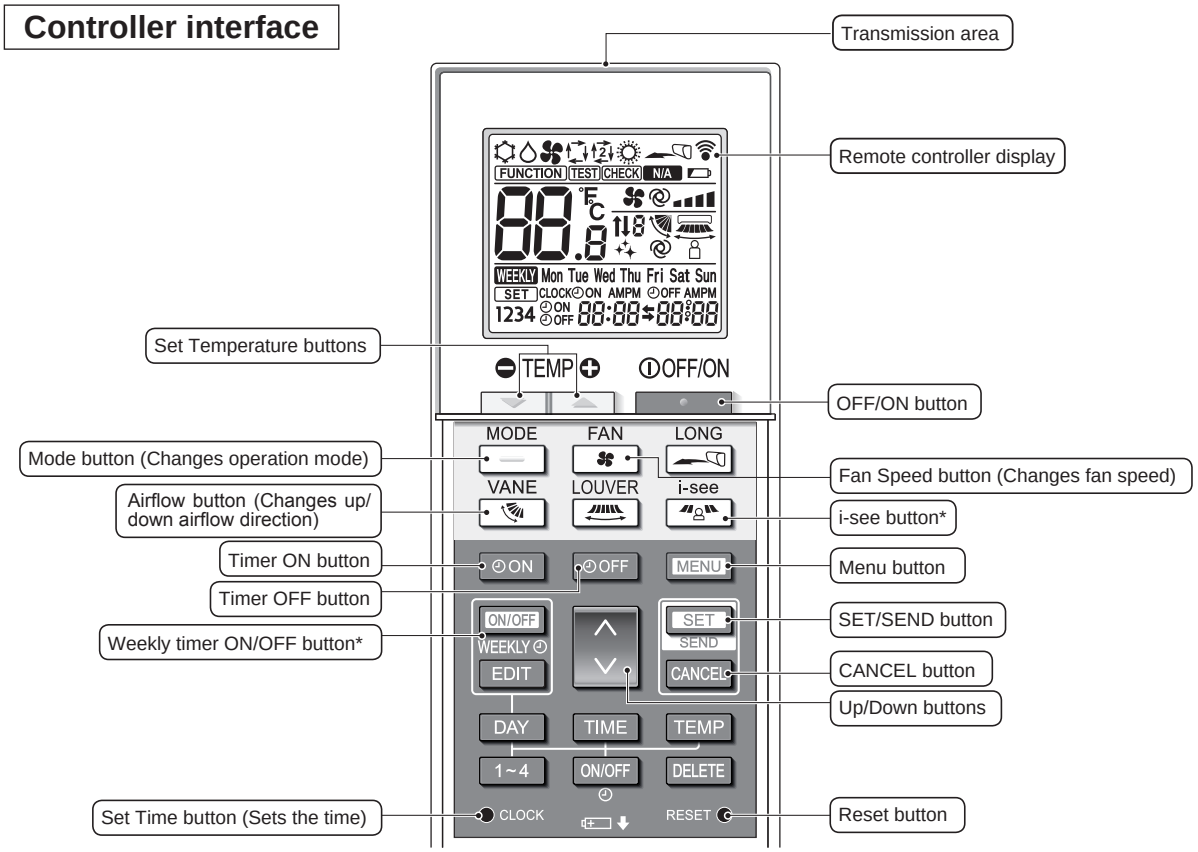


Note:

- "PLEASE WAIT" message
  This message is displayed for approximately 3 minutes when power is supplied to the indoor unit or when the unit is recovering from a power failure.
- "NOT AVAILABLE" message
  This message is displayed if an invalid button is pressed (to operate a function that the indoor unit does not have).
  If a single remote controller is used to operate multiple indoor units simultaneously that are different types, this message will not be displayed as far as any of the indoor units is equipped with the function.

2-3. Wireless remote controller

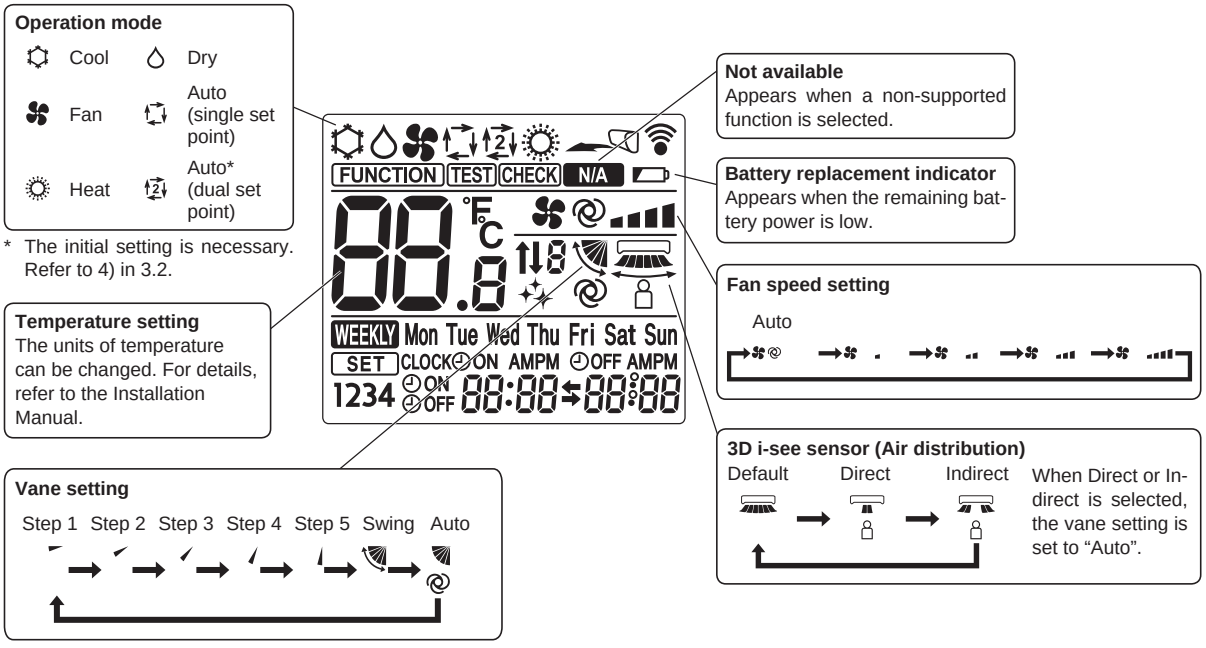
Controller interface



Note:

*** This button is enabled or disabled depending on the model of the indoor unit.**

Display



3 SPECIFICATION

3-1. SPECIFICATIONS

Model			PKFY-P10VLM-E PKFY-P10VLM-ET	PKFY-P15VLM-E PKFY-P15VLM-TH PKFY-P15VLM-ET	PKFY-P20VLM-E PKFY-P20VLM-TH PKFY-P20VLM-ET	PKFY-P25VLM-E PKFY-P25VLM-TH PKFY-P25VLM-ET
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz			
Cooling capacity *1		kW	1.2	1.7	2.2	2.8
(Nominal) *1		kcal/h	1000	1500	1900	2400
*1		BTU/h	4100	5800	7500	9600
	Power input	kW	0.02	0.02	0.02	0.03
	Current input	A	0.20	0.20	0.20	0.25
Heating capacity *2		kW	1.4	1.9	2.5	3.2
(Nominal) *2		kcal/h	1200	1600	2200	2800
*2		BTU/h	4800	6500	8500	10900
	Power input	kW	0.01	0.01	0.01	0.02
	Current input	A	0.15	0.15	0.15	0.20
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)			
External dimension H x W x D		mm	299 × 773 × 237			
		inch	11-25/32 x 30-7/16 x 9-11/32			
Net weight		kg (lb)	11(25)			
Heat exchanger			Cross fin (Aluminum fin and copper tube)			
Fan	Type x Quantity		Line flow fan x 1			
	External static press	Pa (mmH2O)	0(0)			
	Motor type		DC motor			
	Motor output	kW	0.03			
	Driving mechanism		Direct driven			
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	3.3-3.5-3.8-4.2	4.0-4.2-4.4-4.7	4.0-4.4-4.9-5.4	4.0-4.6-5.4-6.7
		L/s	55-58-63-70	67-70-73-78	67-73-82-90	67-77-90-112
		cfm	117-124-134-148	141-148-155-166	141-155-173-191	141-162-191-237
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	22-24-26-28	22-24-26-28	22-26-29-31	22-27-31-35
Insulation material			Polyethylene sheet			
Air filter			PP Honeycomb			
Protection device			Fuse			
Refrigerant control device			LEV			
Connectable outdoor unit			R410A CITY MULTI			
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)			
	Gas	mm (in)	ϕ12.7 (ϕ1/2)			
Field drain pipe size		mm (in)	I.D.16 (5/8)			
Standard attachment			Installation Manual, Instruction Book			
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E			
	EXTERNAL LEV BOX		PAC-SK17LE-E	PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min × 35.31
lb = kg/0.4536
Note: Above specification data is subject to rounding variation.

Model			PKFY-P32VLM-E PKFY-P32VLM-ET PKFY-P32VLM-TH	PKFY-P40VLM-E PKFY-P40VLM-ET PKFY-P40VLM-TH	PKFY-P50VLM-E PKFY-P50VLM-ET PKFY-P50VLM-TH
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz		
Cooling capacity *1		kW	3.6	4.5	5.6
(Nominal) *1		kcal/h	3100	3900	4800
*1		BTU/h	12300	15400	19100
	Power input	kW	0.04	0.04	0.05
	Current input	A	0.35	0.35	0.45
Heating capacity *2		kW	4.0	5.0	6.3
(Nominal) *2		kcal/h	3400	4300	5400
*2		BTU/h	13600	17100	21500
	Power input	kW	0.03	0.03	0.04
	Current input	A	0.30	0.30	0.40
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)		
External dimension H x W x D		mm	299 × 773 × 237	299 x 898 x 237	
		inch	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32	
Net weight		kg (lb)	11(25)	13(29)	
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
Fan	Type x Quantity		Line flow fan x 1		
	External static press	Pa (mmH2O)	0(0)		
	Motor type		DC motor		
	Motor output	kW	0.03		
	Driving mechanism		Direct driven		
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	4.3-5.4-6.9-8.4	6.3-7.4-8.6-10.0	6.8-8.3-10.2-12.4
		L/s	72-90-115-140	105-123-143-167	113-138-170-207
		cfm	152-191-244-297	222-261-304-353	240-293-360-438
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24-31-37-41	29-34-37-40	31-36-41-46
Insulation material			Polyethylene sheet		
Air filter			PP Honeycomb		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R410A CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)		
	Gas	mm (in)	ϕ12.7 (ϕ1/2)		
Field drain pipe size		mm (in)	I.D.16 (5/8)		
Standard attachment			Installation Manual, Instruction Book		
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E		
	EXTERNAL LEV BOX		PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.		

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

Model			PKFY-P15VLM-DA	PKFY-P20VLM-DA	PKFY-P25VLM-DA
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz		
Cooling capacity	*1	kW	1.7	2.2	2.8
(Nominal)	*1	kcal/h	1500	1900	2400
	*1	BTU/h	5800	7500	9600
	Power input	kW	0.02	0.02	0.03
	Current input	A	0.20	0.20	0.25
Heating capacity	*2	kW	1.9	2.5	3.2
(Nominal)	*2	kcal/h	1600	2200	2800
	*2	BTU/h	6500	8500	10900
	Power input	kW	0.01	0.01	0.02
	Current input	A	0.15	0.15	0.20
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)		
External dimension H x W x D		mm	299 × 773 × 237		
		inch	11-25/32 x 30-7/16 x 9-11/32		
Net weight		kg (lb)	11(25)		
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
Fan	Type x Quantity		Line flow fan x 1		
	External static press	Pa (mmH2O)	0(0)		
	Motor type		DC motor		
	Motor output	kW	0.03		
	Driving mechanism		Direct driven		
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	4.0 - 4.4 - 4.8 - 5.3	4.0 - 4.6 - 5.2 - 5.9	4.0 - 4.6 - 5.4 - 6.7
		L/s	67-73-80-88	67-77-87-98	67-77-90-112
		cfm	141-155-169-187	141-162-184-208	141-162-191-237
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	22-26-28-30	22-27-30-33	22-27-31-35
Insulation material			Polyethylene sheet		
Air filter			PP Honeycomb		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R410A CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)		
	Gas	mm (in)	ϕ12.7 (ϕ1/2)		
Field drain pipe size		mm (in)	I.D.16 (5/8)		
Standard attachment			Installation Manual, Instruction Book		
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E		
	EXTERNAL LEV BOX		PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.		

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

Unit converter

kcal/h = kW × 860
Btu/h = kW × 3,412
cfm = m^3/min × 35.31
lb = kg/0.4536
Note: Above specification data is subject to rounding variation.

Model			PKFY-P32VLM-DA	PKFY-P40VLM-DA	PKFY-P50VLM-DA
Power source			1-phase 220-240 V 50 Hz, 1-phase 220-230 V 60 Hz		
Cooling capacity	*1	kW	3.6	4.5	5.6
(Nominal)	*1	kcal/h	3100	3900	4800
	*1	BTU/h	12300	15400	19100
	Power input	kW	0.05	0.05	0.05
	Current input	A	0.45	0.45	0.45
Heating capacity	*2	kW	4.0	5.0	6.3
(Nominal)	*2	kcal/h	3400	4300	5400
	*2	BTU/h	13600	17100	21500
	Power input	kW	0.04	0.04	0.04
	Current input	A	0.40	0.40	0.40
External finish(Munsell No.)			Plastic (0.7PB 9.2/0.4)		
External dimension H x W x D		mm	299 × 773 × 237	299 x 898 x 237	
		inch	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32	
Net weight		kg (lb)	11(25)	13(29)	
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
Fan	Type x Quantity		Line flow fan x 1		
	External static press	Pa (mmH2O)	0(0)		
	Motor type		DC motor		
	Motor output	kW	0.03		
	Driving mechanism		Direct driven		
	Airflow rate (Low-Mid2 -Mid1-High)	m^3/min	4.3 - 5.9 - 8.0 - 10.4	6.3 - 7.7 - 9.5 - 11.5	6.8-8.3-10.2-12.4
		L/s	72-98-133-173	105-128-158-192	113-138-170-207
		cfm	152-208-282-367	222-272-335-406	240-293-360-438
Noise level (Low-Mid2-Mid1-High) (measured in anechoic room)		dB <A>	24-33-41-48	29-35-40-44	31-36-41-46
Insulation material			Polyethylene sheet		
Air filter			PP Honeycomb		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R410A CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in)	ϕ6.35 (ϕ1/4)		
	Gas	mm (in)	ϕ12.7 (ϕ1/2)		
Field drain pipe size		mm (in)	I.D.16 (5/8)		
Standard attachment			Installation Manual, Instruction Book		
Optional parts	DRAIN PUMP KIT		PAC-SK01DM-E		
	EXTERNAL LEV BOX		PAC-SG95LE-E		
Remark			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.		

Notes:
*1.Nominal cooling conditions (subject to JIS B8615-1)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B. (95°FD.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)
*2.Nominal heating conditions (subject to JIS B8615-1)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft), Level difference: 0 m (0 ft)

3-2. ELECTRICAL PARTS SPECIFICATIONS

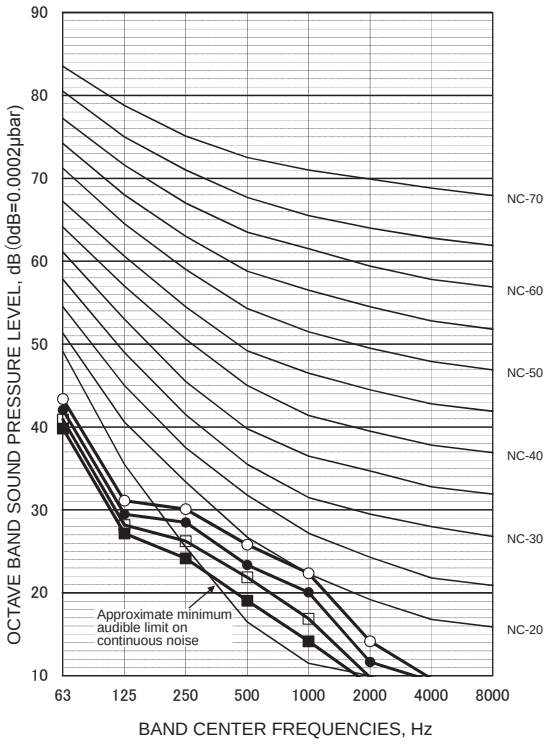
Service ref. / Parts name	Symbol	PKFY-P10VLM-(E/ET).TH PKFY-P15VLM-(E/ET/DA/TH).TH PKFY-P20VLM-(E/ET/DA/TH).TH PKFY-P25VLM-(E/ET/DA/TH).TH PKFY-P32VLM-(E/ET/DA/TH).TH PKFY-P40VLM-(E/ET/DA/TH).TH PKFY-P50VLM-(E/ET/DA/TH).TH
Room temperature detection thermistor	TH21	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ
Pipe temperature detection thermistor/liquid	TH22	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ
Pipe temperature detection thermistor/gas	TH23	Resistance 0℃/15kΩ, 10℃/9.6kΩ, 20℃/6.3kΩ, 25℃/5.4kΩ, 30℃/4.3kΩ, 40℃/3.0kΩ
Fuse (Indoor controller board)	FUSE	T3.15AL250V
Fan motor (with thermal fuse)	MF	8 X 30W / RC0J30-QD
Vane motor (Upper)	MV1	MSFBC20 DC12V
Vane motor (Lower)	MV2	NSEK302 DC12V
Linear expansion valve	LEV	DC12V Stepping motor drive Port ϕ2.4(P10), ϕ2.63(P15/20/25/32/40/50) (0-2000pulse)
Power supply terminal block	TB2	(L, N, ⏚) Rated to 250V 20A *
Transmission terminal block	TB5	(M1, M2, S) Rated to 250V 20A *
MA-Remote controller terminal block	TB15	(1, 2) Rated to 250V 10A *

* Refer to WIRING DIAGRAM for the supplied voltage.

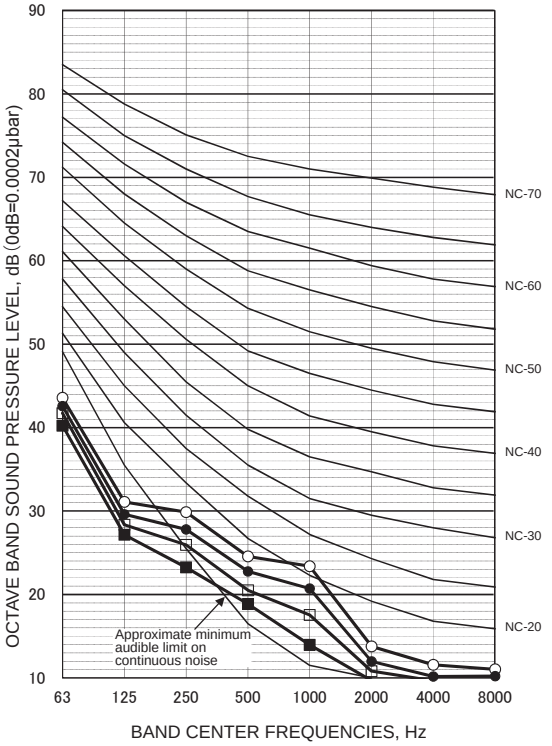
4 NOISE CRITERION CURVES

NOISE CRITERION CURVES

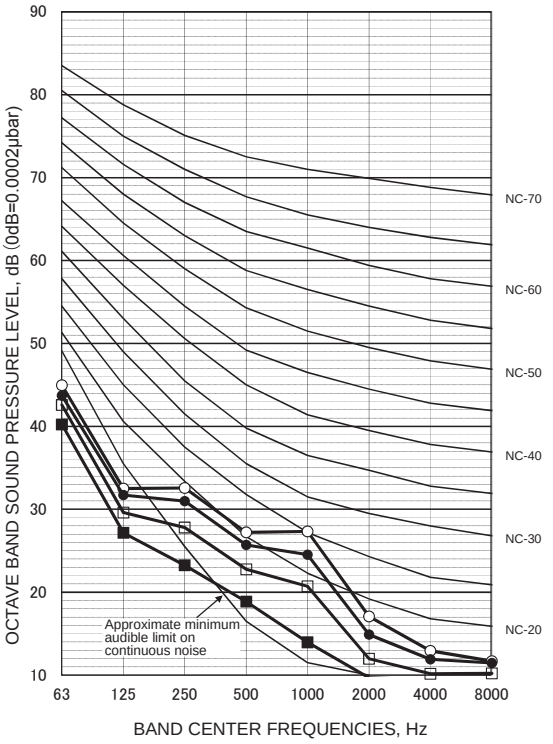
PKFY-P10VLM-(E/ET)



PKFY-P15VLM-(E/ET/TH)



PKFY-P20VLM-(E/ET/TH)



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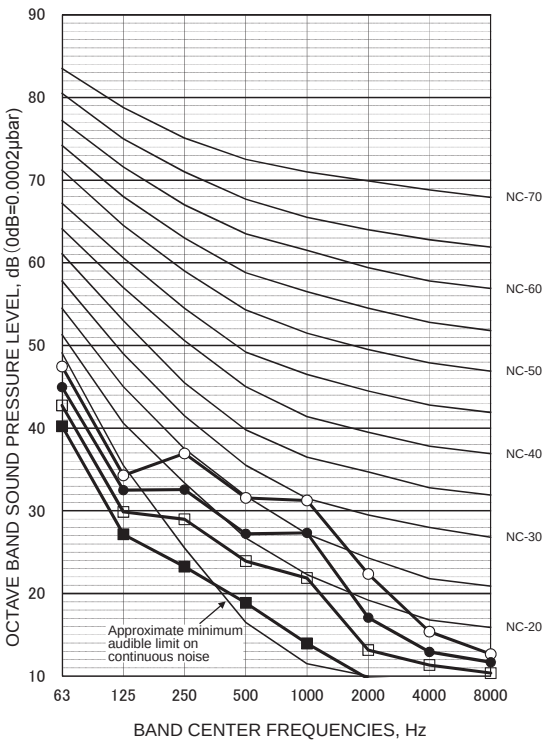
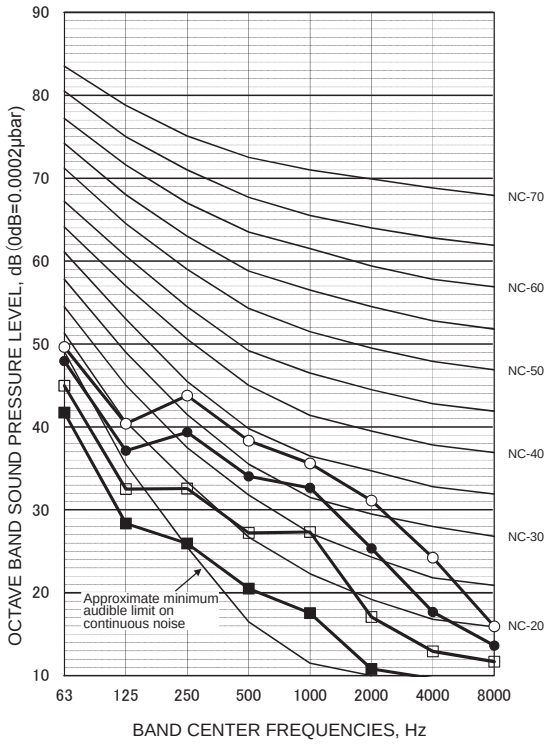
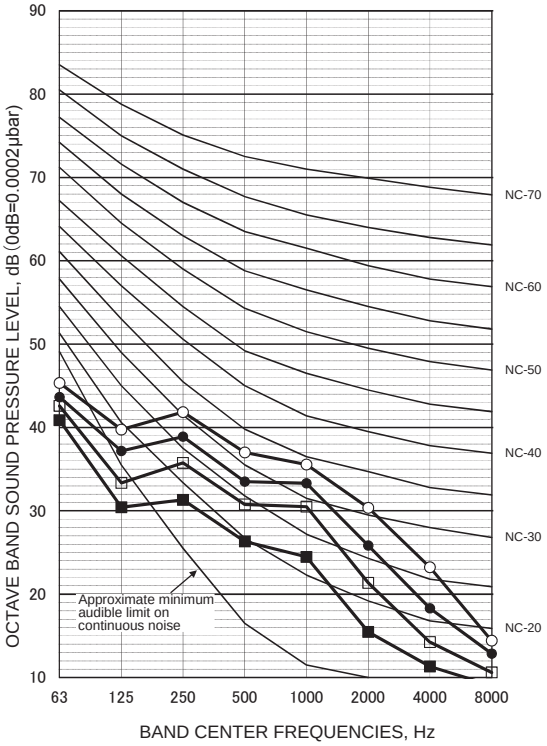


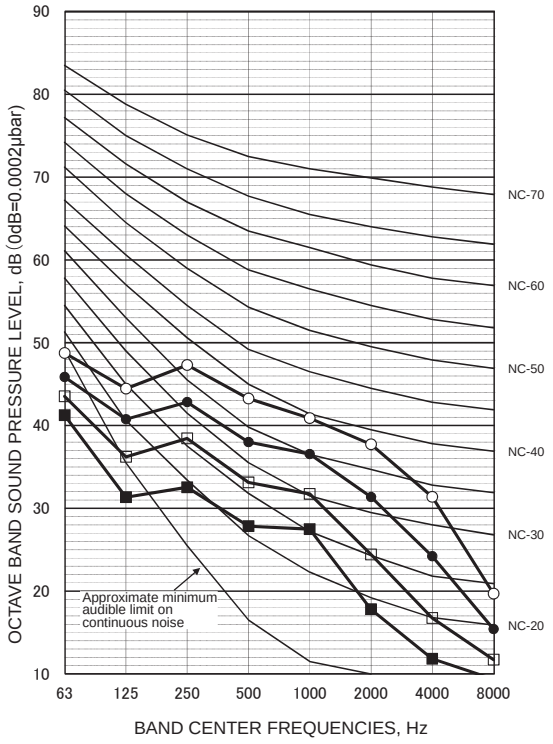
PKFY-P32VLM-(E/ET/TH)



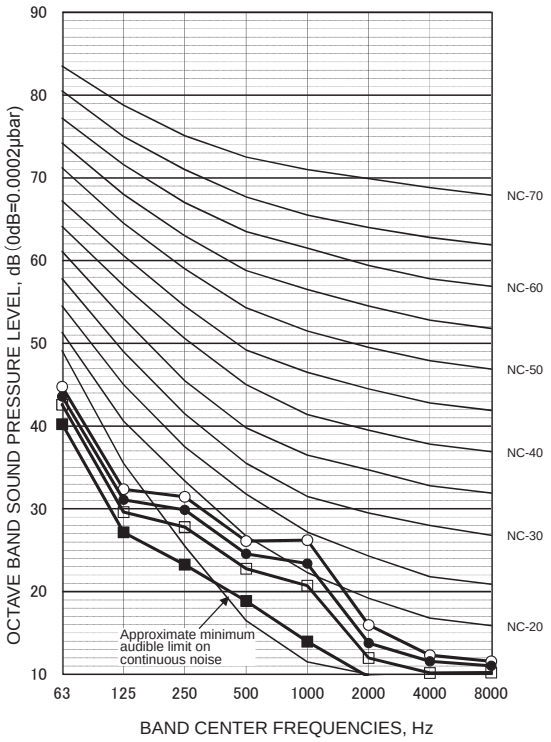
PKFY-P40VLM-(E/ET/TH)



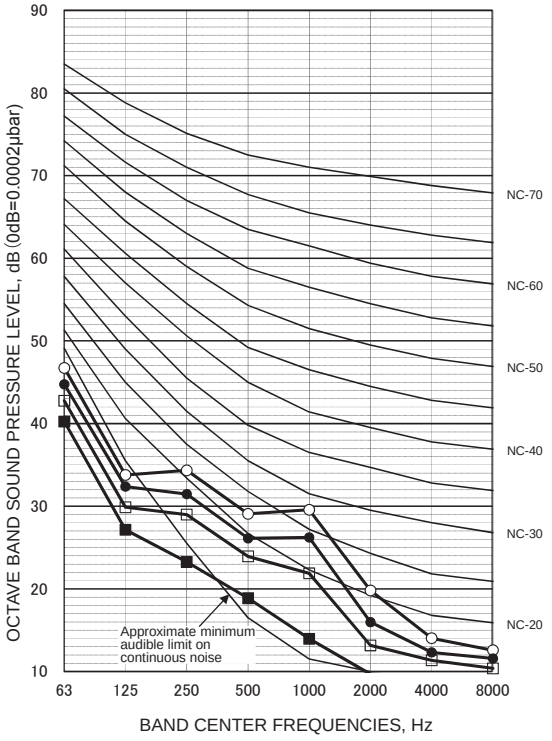
PKFY-P50VLM-(E/ET/TH)



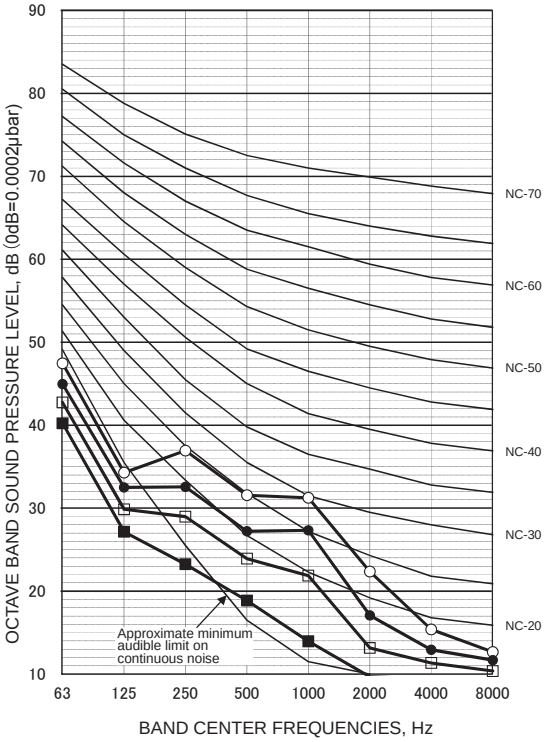
PKFY-P15VLM-DA



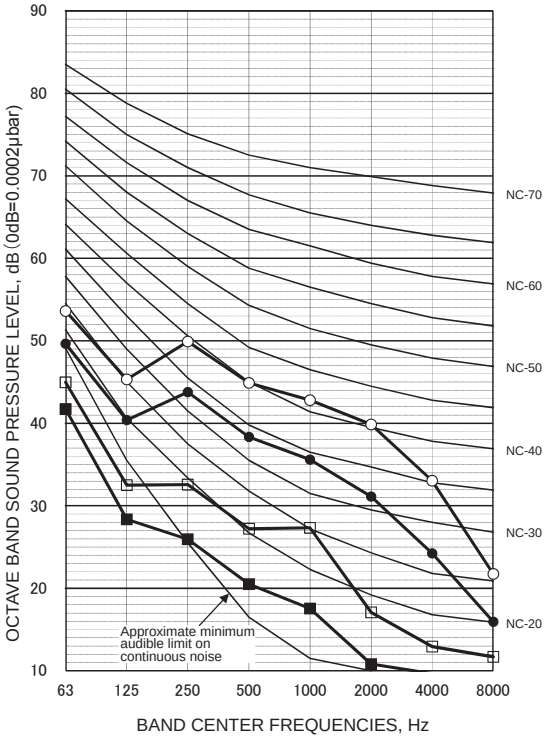
PKFY-P20VLM-DA



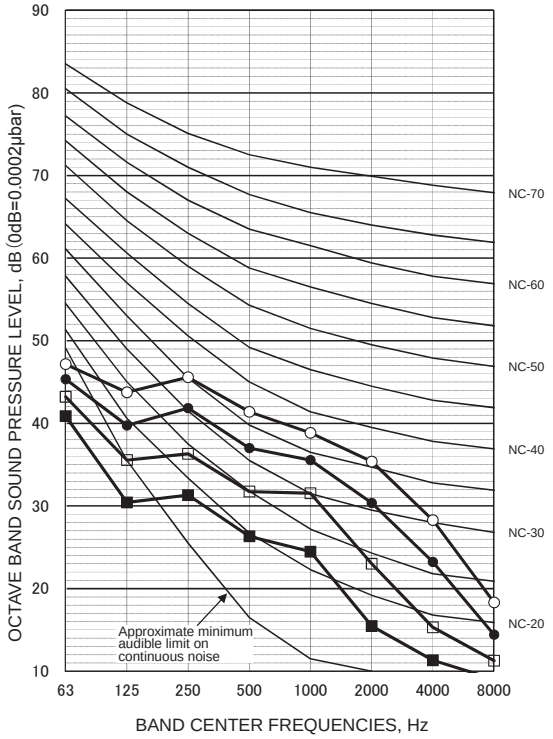
PKFY-P25VLM-DA



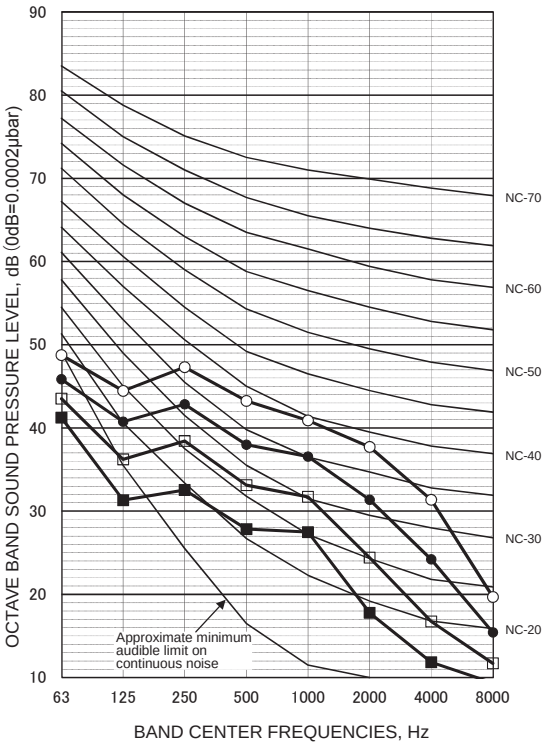
PKFY-P32VLM-DA



PKFY-P40VLM-DA



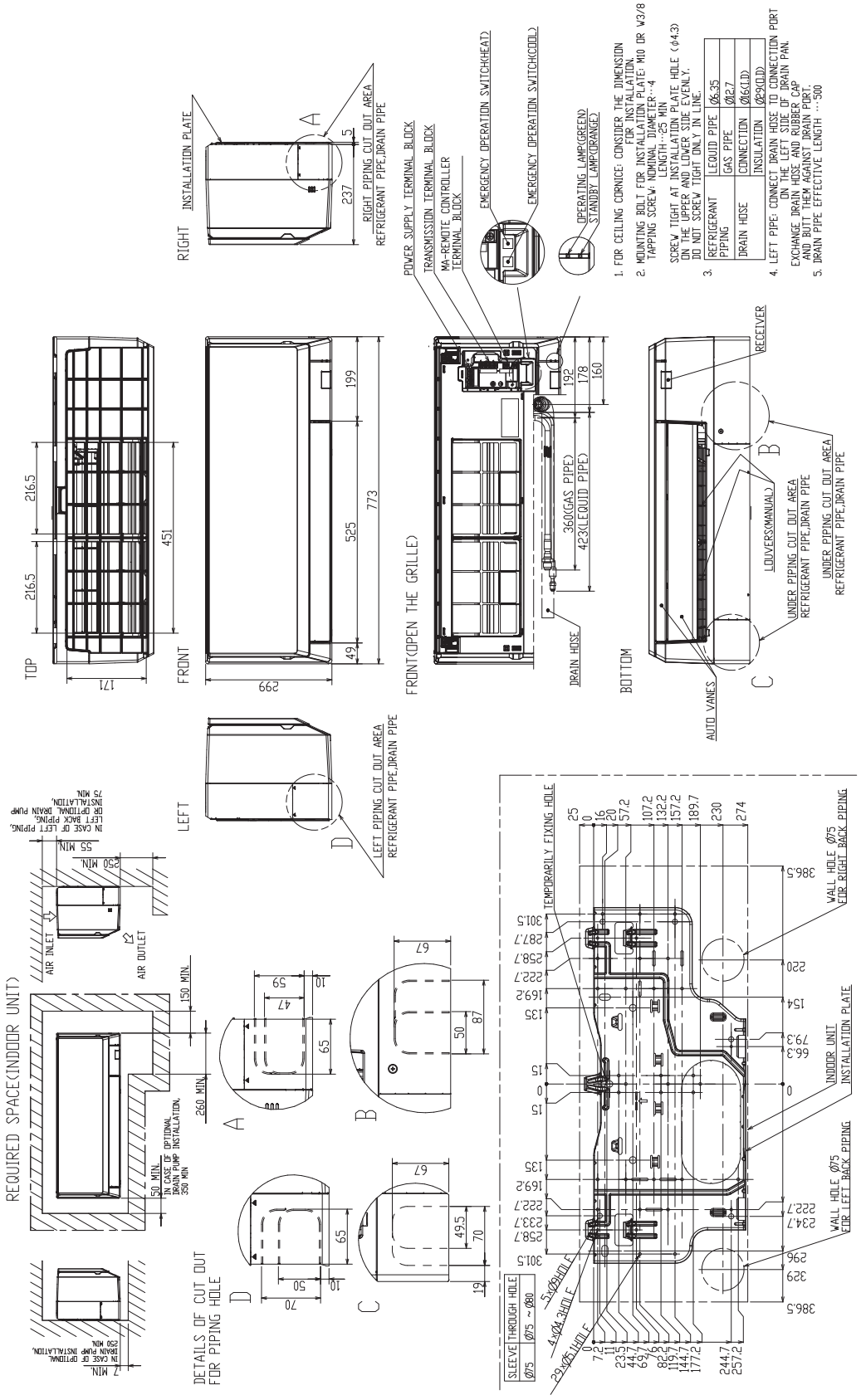
PKFY-P50VLM-DA



5 OUTLINES AND DIMENSIONS

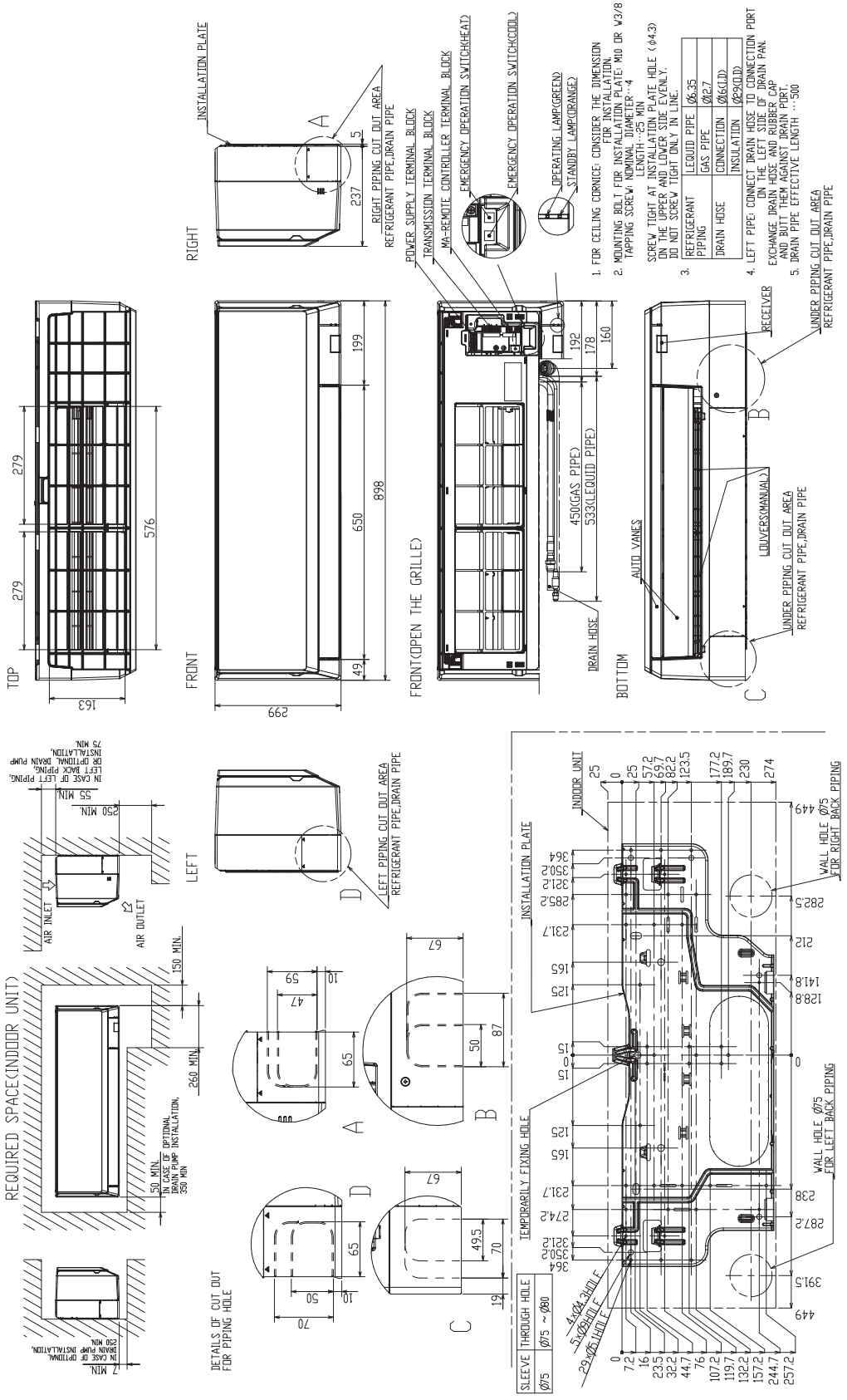
PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH

Unit: mm



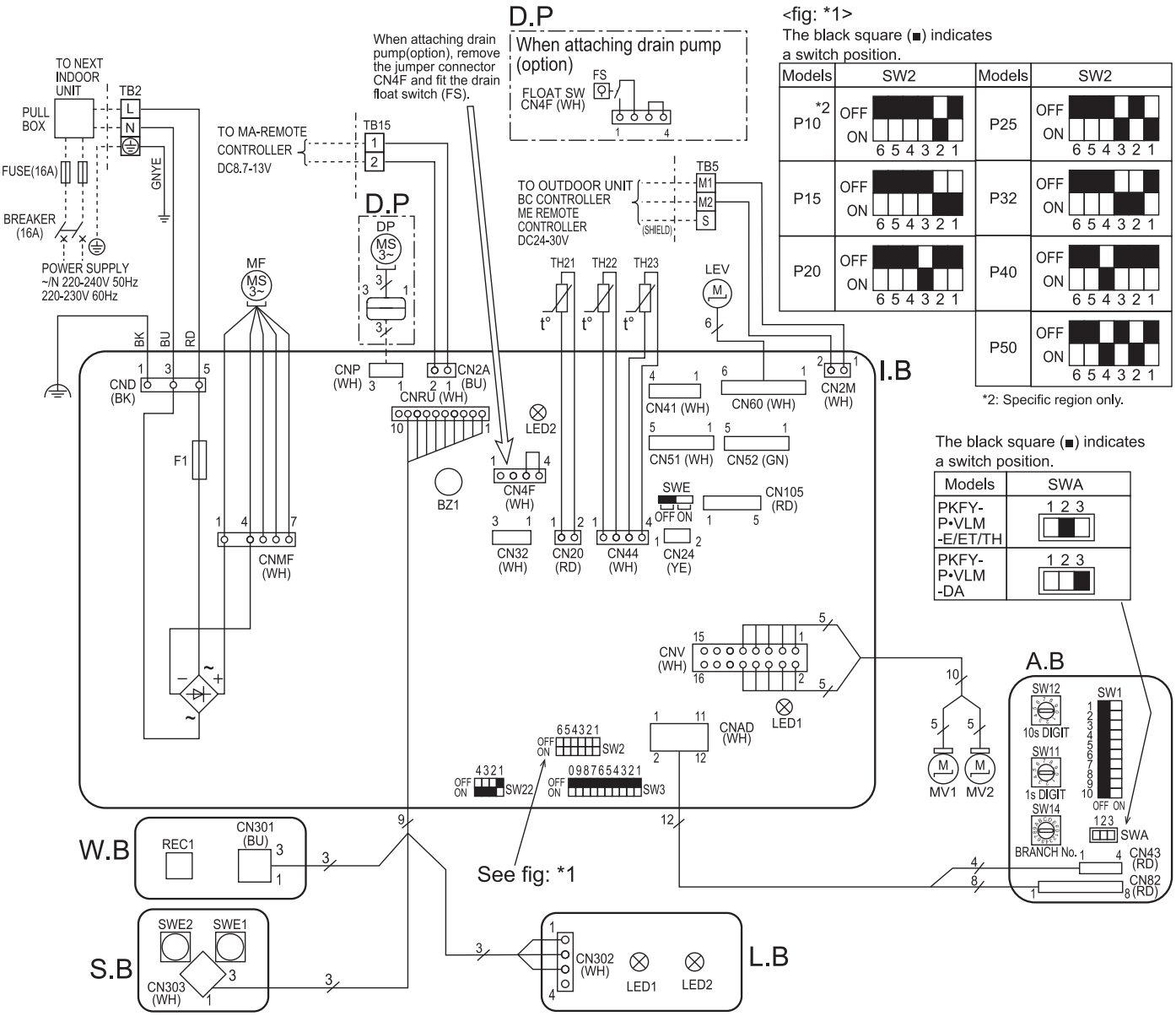
PKFY-P40VLM-(E/ET/DA/TH).TH **PKFY-P50VLM-(E/ET/DA/TH).TH**

Unit: mm



6 WIRING DIAGRAM

PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH



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

Models	SW2	Models	SW2
*2 P10	OFF / ON 6 5 4 3 2 1	P25	OFF / ON 6 5 4 3 2 1
P15	OFF / ON 6 5 4 3 2 1	P32	OFF / ON 6 5 4 3 2 1
P20	OFF / ON 6 5 4 3 2 1	P40	OFF / ON 6 5 4 3 2 1
		P50	OFF / ON 6 5 4 3 2 1

*2: Specific region only.

The black square (■) indicates a switch position.

Models	SWA
PKFY-P•VLM-E/ET/TH	1 2 3
PKFY-P•VLM-DA	1 2 3

SYMBOL	NAME		SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD		TH21	THERMISTOR	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN32	CONNECTOR	REMOTE SWITCH	TH22		PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
CN51		CENTRALLY CONTROL	TH23		PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
CN52		REMOTE INDICATION			
CN105		IT TERMINAL			
BZ1	BUZZER				
F1	FUSE (T3.15AL250V)		A,B	ADDRESS BOARD	
LED1	POWER SUPPLY (I.B)		SWA	SWITCH	REGION SELECTION
LED2	POWER SUPPLY (MA-REMOTE CONTROLLER)		SW1		MODE SELECTION
SW2	SWITCH	CAPACITY CODE	SW11		ADDRESS SETTING 1s DIGIT
SW3		MODE SELECTION	SW12		ADDRESS SETTING 10s DIGIT
SW22		PAIR NO. SETTING	SW14		BRANCH No.
SWE		FAN•DRAIN PUMP (TEST MODE)	S.B	SWITCH BOARD	
LEV	LINEAR EXPANSION VALVE		SWE1	EMERGENCY OPERATION(HEAT)	
MF	FAN MOTOR		SWE2	EMERGENCY OPERATION(COOL)	
MV1	VANE MOTOR (UPPER)		W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
MV2	VANE MOTOR (LOWER)		REC1	RECEIVING UNIT	
TB2	TERMINAL BLOCK	POWER SUPPLY	L.B	LED BOARD	
TB5		TRANSMISSION	LED1	LED(OPERATING INDICATOR:GREEN)	
TB15		MA-REMOTE CONTROLLER	LED2	LED(STANDBY FOR HEATING : ORANGE)	
			D.P	DRAIN PUMP KIT (OPTION)	
			FS	DRAIN FLOAT SWITCH	
			DP	DRAIN PUMP	

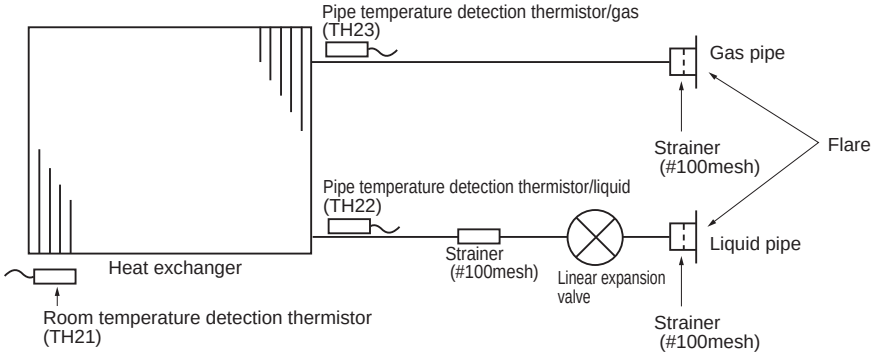
NOTES:
1. At servicing for outdoor unit,always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S]of TB5 is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

LED on indoor controller board for service

Symbol	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-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH



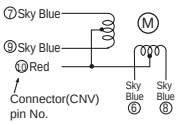
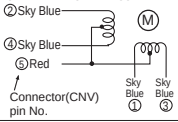
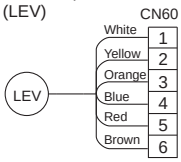
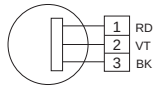
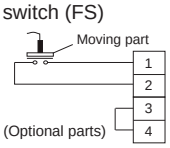
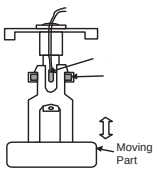
Unit: mm (inch)

Gas pipe	ϕ12.7 (1/2")
Liquid pipe	ϕ6.35 (1/4")

8 TROUBLESHOOTING

8-1. HOW TO CHECK THE PARTS

PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temperature detection thermistor (TH21)
Pipe temperature detection thermistor/liquid (TH22)
Pipe temperature detection thermistor/gas (TH23)</td><td>Disconnect the connector then measure the resistance with a tester.
(At the ambient temperature 10 to 30℃)
<table><tr><th>Normal</th></tr><tr><td>4.3 to 9.6kΩ</td></tr></table>Refer to “8-1-1. Thermistor”.</td></tr>
<tr><td>Vane motor (MV1)
  </td><td>Measure the resistance between the terminals with a tester. (At the ambient temperature 25℃)
<table><tr><th colspan="4">Normal</th></tr><tr><td>⑩-⑨
Red-Sky Blue</td><td>⑩-⑧
Red-Sky Blue</td><td>⑩-⑦
Red-Sky Blue</td><td>⑩-⑥
Red-Sky Blue</td></tr><tr><td colspan="4">300 Ω±7%</td></tr></table></td></tr>
<tr><td>Vane motor (Lower (MV2))
  </td><td>Measure the resistance between the terminals with a tester. (At the ambient temperature 25℃)
<table><tr><th colspan="4">Normal</th></tr><tr><td>⑤-④
Red-Sky Blue</td><td>⑤-③
Red-Sky Blue</td><td>⑤-②
Red-Sky Blue</td><td>⑤-①
Red-Sky Blue</td></tr><tr><td colspan="4">300±26.3 Ω</td></tr></table></td></tr>
<tr><td>Fan motor (MF)</td><td>Refer to “8-1-3. DC Fan motor (fan motor/indoor controller board)</td></tr>
<tr><td>Linear expansion valve (LEV)
  </td><td>Disconnect the connector then measure the resistance valve with a tester. (Coil temperature 20℃)
<table><tr><th colspan="4">Normal</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></tr><tr><td colspan="4">200 Ω±10%</td></tr></table></td></tr>
<tr><td>Drain pump (DP)
 
(Optional parts)</td><td>① Check if the drain float switch works properly.
② Check if the drain pump works and drains water properly in cooling operation.
③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.
Note: The drain pump for this model is driven by the internal DC motor, so it is not possible to measure the resistance between the terminals.
Normal
Red–Black: Input 13 V DC → The pump motor starts to rotate.</td></tr>
<tr><td>Drain float switch (FS)
  </td><td>Measure the resistance between the terminals with a tester.
<table><tr><th>State of moving part</th><th>Normal</th><th>Abnormal</th><th>Drain float switch connector terminal</th></tr><tr><td>UP</td><td>Short</td><td>Other than short</td><td>①(+) – ②(-)</td></tr><tr><td>DOWN</td><td>Open</td><td>Other than open</td><td>①(+) – ②(-)</td></tr><tr><td>–</td><td>Short</td><td>Other than short</td><td>③(+) – ④(-)</td></tr></table>  </td></tr>
</table>

8-1-1. Thermistor

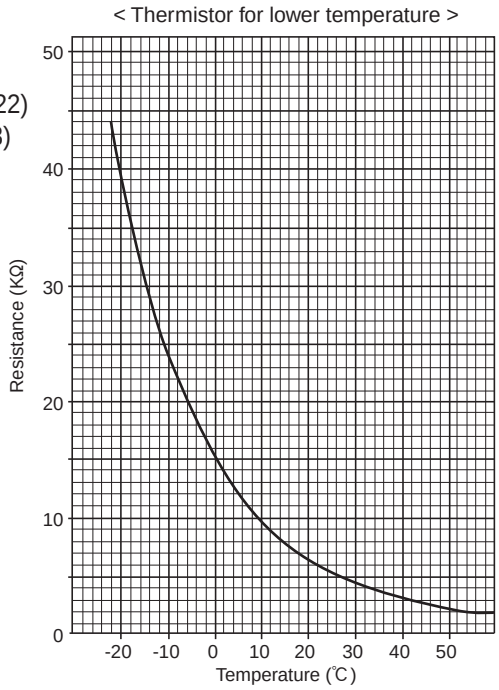
<Thermistor characteristic graph>

Thermistor for lower temperature	Room temperature detection thermistor (TH21) Pipe temperature detection thermistor/liquid (TH22) Pipe temperature detection thermistor/gas (TH23)

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

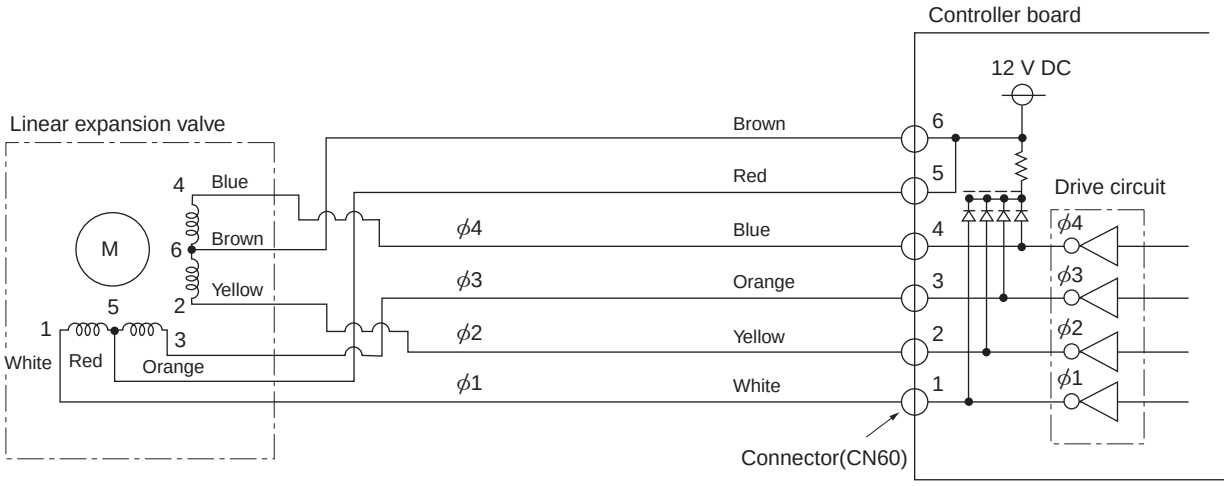
$$Rt=15\exp\{3480(\frac{1}{273+t}-\frac{1}{273})\}$$

0℃	15 kΩ
10℃	9.6 kΩ
20℃	6.3 kΩ
25℃	5.4 kΩ
30℃	4.3 kΩ
40℃	3.0 kΩ



8-1-2. Linear expansion valve

① **Operation summary of the linear expansion valve**
• Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the indoor controller board.
• Valve position can be changed in proportion to the number of pulse signal.
<Connection between the indoor controller board and the linear expansion valve>



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

8-1-3. DC Fan motor (fan motor/indoor controller board)

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

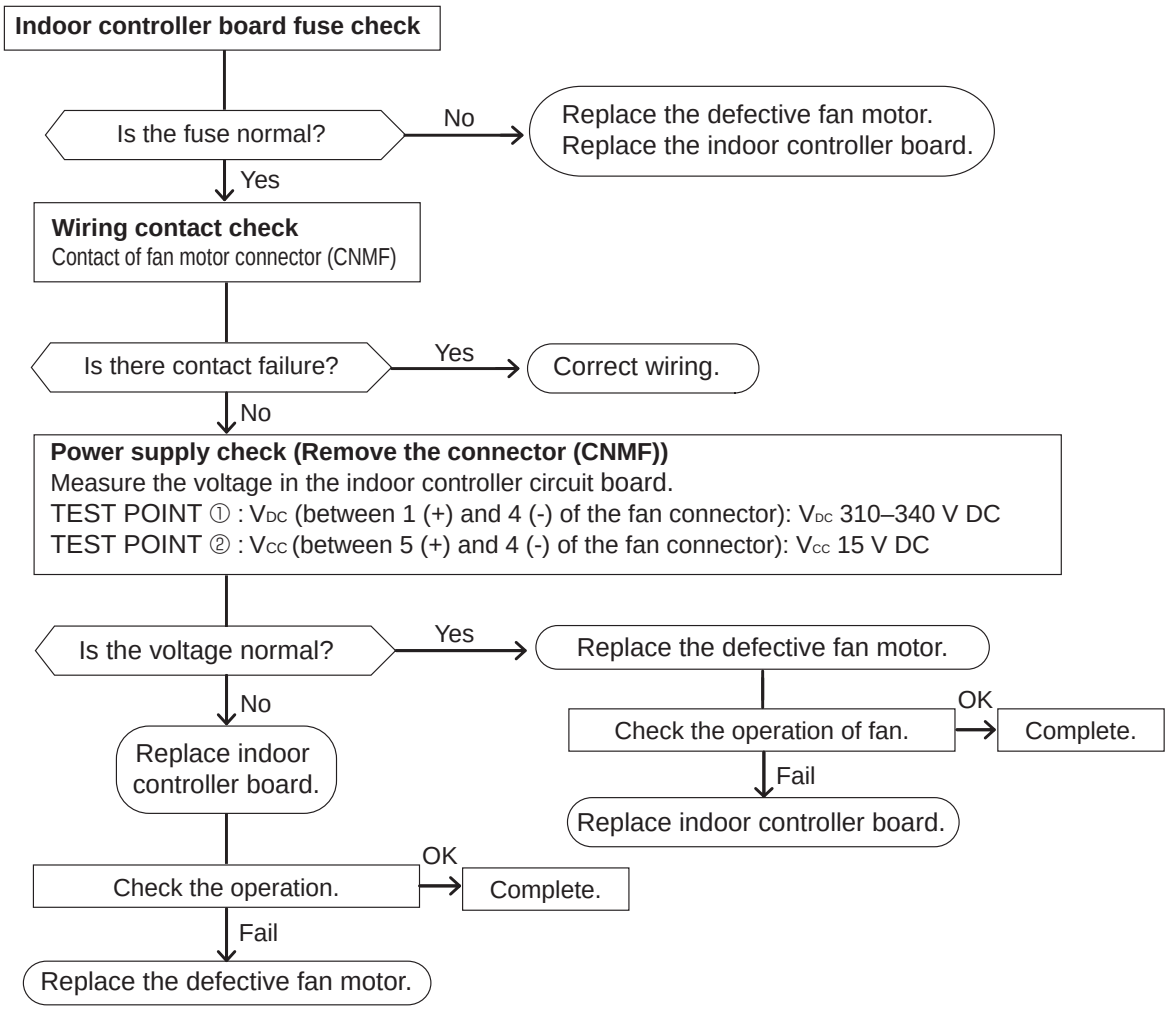
① Notes

· High voltage is applied to the connector (CNMF) for the fan motor. Pay attention to the service.

· Do not pull out the connecter (CNMF) for the motor with the power supply on.
(It causes trouble of the indoor controller board and fan motor.)

② Self check

Conditions : The indoor fan cannot rotate.



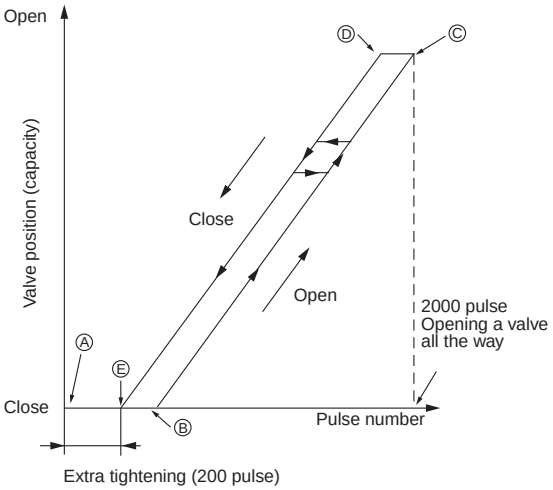
<Output pulse signal and the valve operation>

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

The output pulse shifts in below order.
Closing a valve : 1 → 2 → 3 → 4 → 1
Opening a valve : 4 → 3 → 2 → 1 → 4

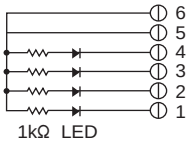
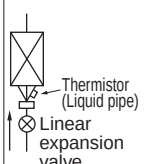
- When linear expansion valve operation stops, all output phase become OFF.
- At phase interruption or when phase does not shift in order, motor does not rotate smoothly and motor will lock and vibrate.

② Linear expansion valve operation



- When the power is turned on, 2200 pulse closing valve signal will be sent till it goes to point Ⓐ in order to define the valve position.
- When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valves : however, when the pulse number moves from Ⓔ to Ⓐ or when the valve is locked, more noise can be heard than in a normal situation.
- Noise can be detected by placing the ear against the screw driver handle while putting the screw driver tip to the linear expansion valve.

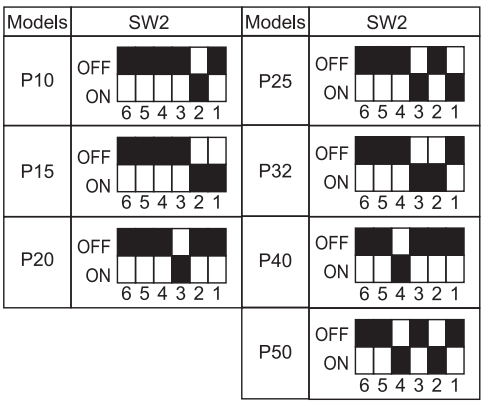
③ Troubleshooting

Symptom	Check points	Countermeasures
Operation circuit failure of the micro-processor	Disconnect the connector on the controller board, then connect LED for checking.  When power is turned on, pulse signals will output for 10 seconds. There must be some defects in the operation circuit if the LED does not light while the signals are output or keeps lighting even after the signals stop.	Exchange the indoor controller board at drive circuit failure.
Linear expansion valve mechanism is locked.	Motor will idle and make a ticking noise when the motor is operated while the linear expansion valve is locked. This ticking sound is the sign of the abnormality.	Exchange the linear expansion valve.
Short or breakage of the motor coil of the linear expansion valve	Measure the resistance between each coil (white-red, yellow-brown, orange-red, blue-brown) using a tester. It is normal if the resistance is in the range of 200 Ω ±10%.	Exchange the linear expansion valve.
Valve does not close completely.	To check the linear expansion valve, operate the indoor unit in fan mode and at the same time operate other indoor units in cooling mode, then check the pipe temperature <liquid pipe temperature> of the indoor unit by the outdoor multi controller board operation monitor. During fan operation, linear expansion valve is closed completely and if there is any leaking, detecting temperature of the thermistor will go lower. If the detected temperature is much lower than the temperature indicated in the remote controller, it means the valve is not closed all the way.  Linear expansion valve It is not necessary to exchange the linear expansion valve, if the leakage is small and not affecting normal operation.	If large amount of refrigerant is leaked, exchange the linear expansion valve.
Wrong connection of the connector or contact failure	Check the color of lead wire and missing terminal of the connector.	Disconnect the connector at the controller board, then check the continuity.

8-2. FUNCTION OF DIP SWITCH

PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

The black square (■) indicates a switch position.

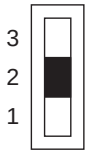
Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW1 Mode Selection	1	Thermistor <Intake temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	Address board <Initial setting> ON / OFF 1 2 3 4 5 6 7 8 9 10 *1 The model is not capable of fresh air intake. *2 Refer to <Table A> below.
	2	Filter clogging	Provided	Not provided		
	3	Filter sign indication	2,500 hr	100 hr		
	4	Air intake*1	Not effective	Not effective		
	5	Remote indication switching	Thermo-ON signal indication	Fan output indication		
	6	Humidifier control	Fan operation at Heating mode	Thermo-ON operation at heating mode		
	7	Air flow set in case of heat thermo-OFF	Low*2	Extra low*2		
	8		Setting air flow*1	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	10	Power ON/OFF	Effective	Not effective		
SW2 Capacity code setting	1–4				Before power supply ON	Indoor controller board <Initial setting> Set for each capacity.
SW3 Function Selection	1	Heat pump/Cool only	Cooling only	Heat pump	Under suspension	Indoor controller board <Initial setting> ON / OFF 1 2 3 4 5 6 7 8 9 0
	2	—	—	—		
	3	—	—	—		
	4	—	—	—		
	5	—	—	—		
	6	—	—	—		
	7	Changing the opening of linear expansion valve	Effective	Not effective		
	8	Heating 4 degree up	Not effective	Effective		
	9	—	—	—		
	10	—	—	—		

<Table A>

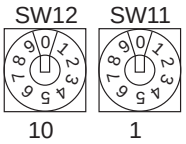
SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting air flow
ON	ON	stop

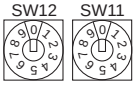
Continue to the next page

The black square (■) indicates a switch position.

<table>
<tr><th>Switch</th><th>Pole</th><th>Function</th><th>Effective timing</th><th>Remarks</th></tr>
<tr><td>SWA
(Fan speed)</td><td>1~3</td><td> 

Fan speed can be changed depending on SWA setting.
<table>
<tr><th></th><th>Setting</th></tr>
<tr><td>PKFY-P**VLM-(E/ET/TH)</td><td>2</td></tr>
<tr><td>PKFY-P**VLM-DA</td><td>3</td></tr>
</table></td><td>Under operation or suspension</td><td>Address board
<Initial setting>
It follows as the left table.</td></tr>
<tr><td>SW11
1s digit address setting

SW12
10s digit address setting</td><td>Rotary switch</td><td> 

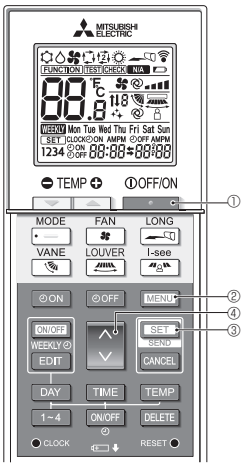
Address setting should be done when M-NET remote controller is being used.</td><td rowspan="2">Before power supply ON</td><td>Address board
<Initial setting>
 
</td></tr>
<tr><td>SW14
Connection No. setting</td><td>Rotary switch</td><td> 

This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.</td><td>Address board
<Initial setting>
 
</td></tr>
<tr><td>SW22
Function selection</td><td>Jumper</td><td>
<table>
<tr><th></th><th>Function</th><th>ON</th><th>OFF</th></tr>
<tr><td>1</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>2</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>3</td><td>Pair No. of wireless remote controller</td><td rowspan="2">Depends on SW22-3, 22-4</td><td></td></tr>
<tr><td>4</td><td>Pair No. of wireless remote controller</td><td></td></tr>
</table>
• To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary.
●Pair No. setting is available with the 4 patterns (Setting patterns A to D).

• You may not set it when operating it by one remote controller. Setting for indoor unit.

Wireless remote controller pair number:
●Setting operation (Fig. 1 Ⓐ)
1. Press the [ ] button ① to stop the air conditioner.
2. Press the [MENU] button ②.
3. Check that function No."1" is displayed, and then press the [SET] button ③. The Screen display setting screen will be displayed. (Fig. 2.)

●Pair No. changing operation (Fig. 2 Ⓑ)
1. Press the [ ] button ④.
2. Each time the [ ] button ④ is pressed, the pair No.0–3 changes.
3. Press the [SET] button ③ to check the setting.
4. Press the [MENU] button ②.

<table>
<tr><th colspan="2">Indoor unit SW22</th><th rowspan="2">Pair No. of wireless remote controller</th><th></th></tr>
<tr><th>SW22-3</th><th>SW22-4</th><th></th></tr>
<tr><td>ON</td><td>ON</td><td>0</td><td>Initial setting</td></tr>
<tr><td>OFF</td><td>ON</td><td>1</td><td>—</td></tr>
<tr><td>ON</td><td>OFF</td><td>2</td><td>—</td></tr>
<tr><td>OFF</td><td>OFF</td><td>3–9</td><td>—</td></tr>
</table></td><td>Under operation or suspension</td><td><Initial setting>
 

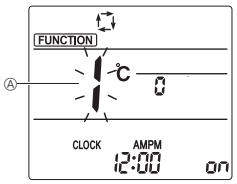


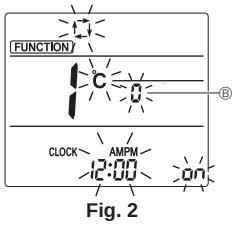
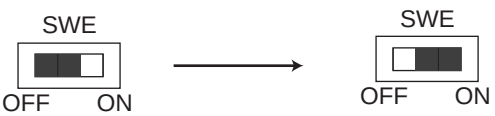
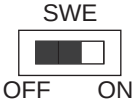
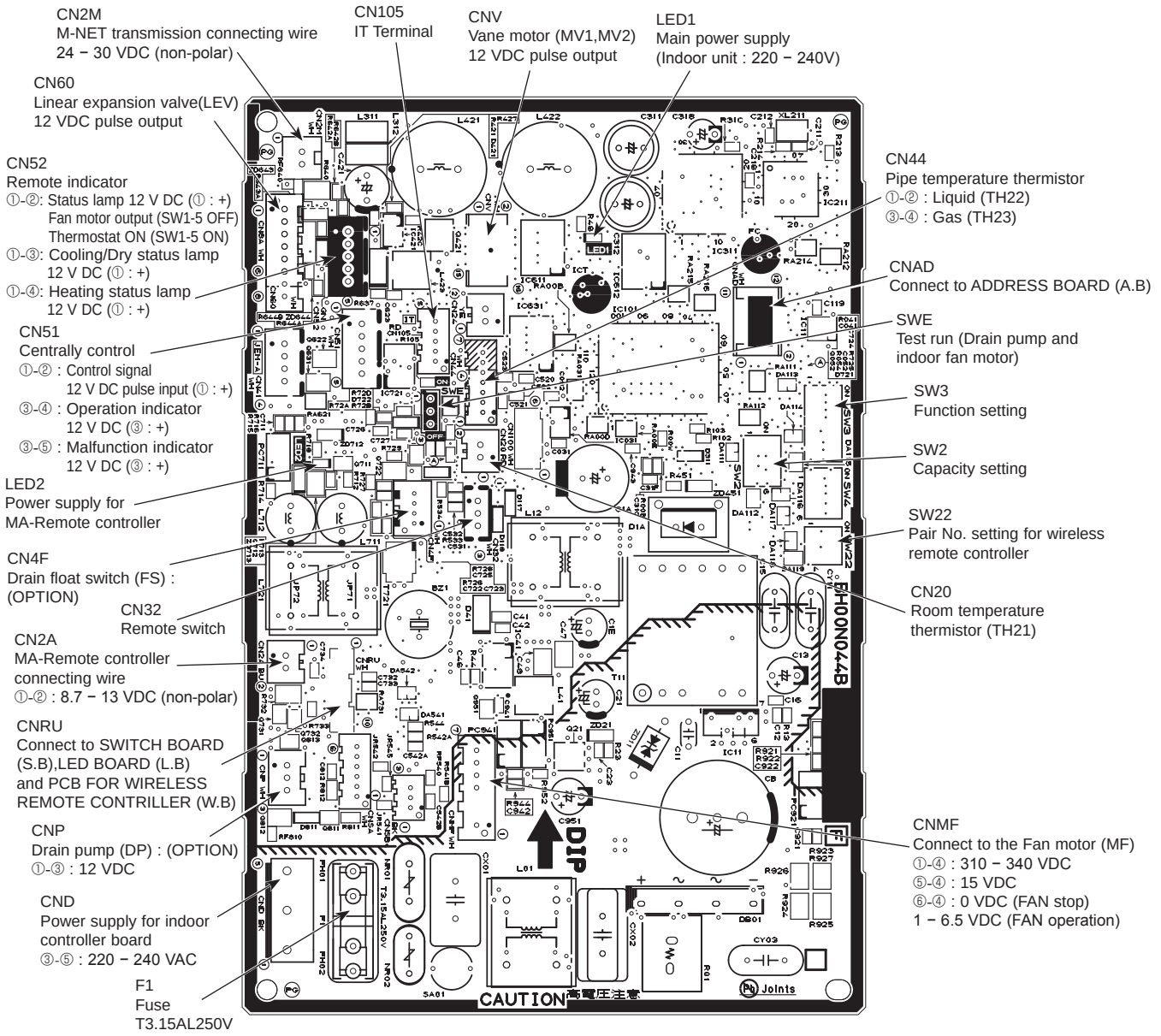
Fig. 1
 

Fig. 2</td></tr>
<tr><td>SWE
Test run for Drain pump</td><td>Connector</td><td>Drain pump and fan are activated simultaneously after the connector SWE is set to ON and turn on the power.
 

The connector SWE is set to OFF after test run.</td><td>Under operation</td><td><Initial setting>
 
</td></tr>
</table>

8-3. TEST POINT DIAGRAM
8-3-1. Indoor controller board (I.B)

PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

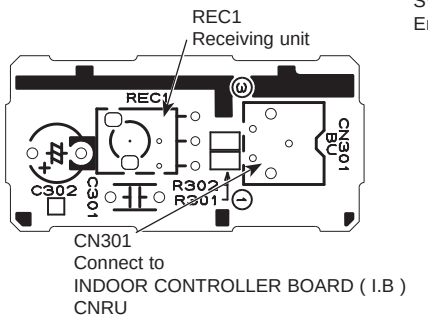


Note: The voltage range of 12 V DC in this page is between 11.5 to 13.7 V DC.

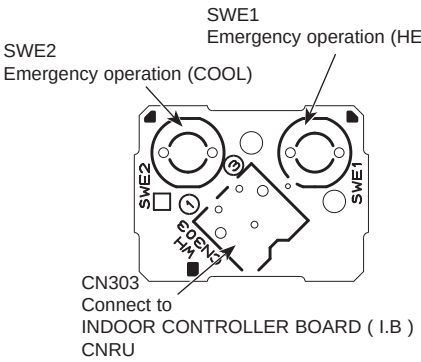
8-3-2. PCB FOR WIRELESS REMOTE CONTROLLER (W.B), SWITCH BOARD (S.B) and LED BOARD (L.B)

PKFY-P10VLM-(E/ET).TH **PKFY-P15VLM-(E/ET/DA/TH).TH**
PKFY-P20VLM-(E/ET/DA/TH).TH **PKFY-P25VLM-(E/ET/DA/TH).TH**
PKFY-P32VLM-(E/ET/DA/TH).TH **PKFY-P40VLM-(E/ET/DA/TH).TH**
PKFY-P50VLM-(E/ET/DA/TH).TH

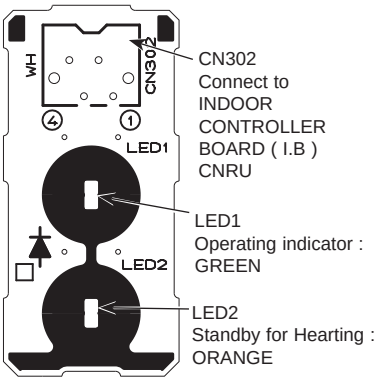
PCB FOR WIRELESS REMOTE CONTROLLER (W.B)



SWITCH BOARD (S.B)

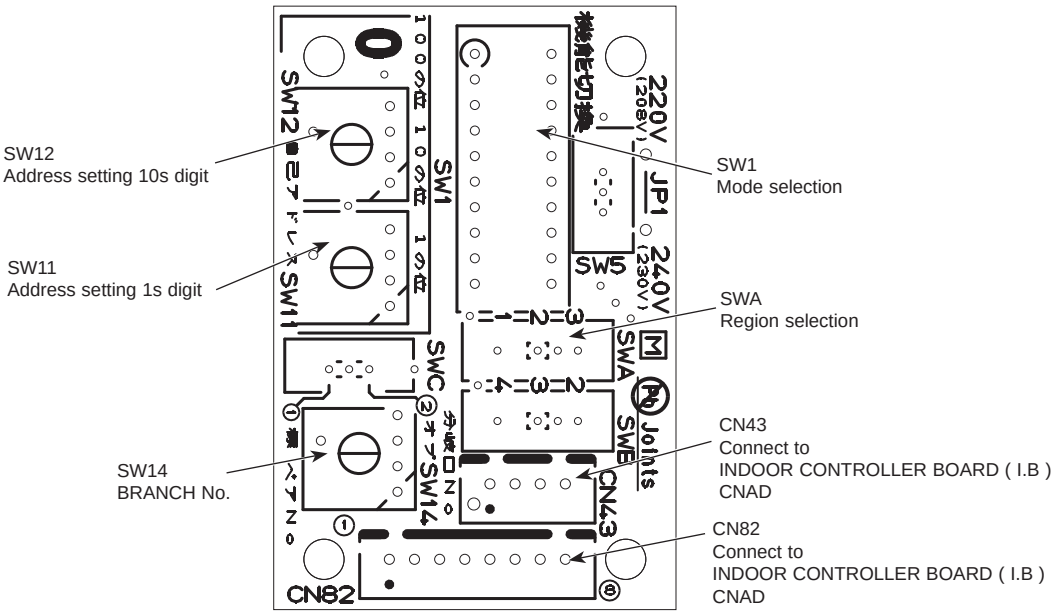


LED BOARD (L.B)



8-3-3. Address board (A.B)

PKFY-P10VLM-(E/ET).TH **PKFY-P15VLM-(E/ET/DA/TH).TH**
PKFY-P20VLM-(E/ET/DA/TH).TH **PKFY-P25VLM-(E/ET/DA/TH).TH**
PKFY-P32VLM-(E/ET/DA/TH).TH **PKFY-P40VLM-(E/ET/DA/TH).TH**
PKFY-P50VLM-(E/ET/DA/TH).TH



9 DISASSEMBLY PROCEDURE

PKFY-P10VLM-(E/ET).TH
PKFY-P15VLM-(E/ET/DA/TH).TH
PKFY-P20VLM-(E/ET/DA/TH).TH
PKFY-P25VLM-(E/ET/DA/TH).TH
PKFY-P32VLM-(E/ET/DA/TH).TH
PKFY-P40VLM-(E/ET/DA/TH).TH
PKFY-P50VLM-(E/ET/DA/TH).TH

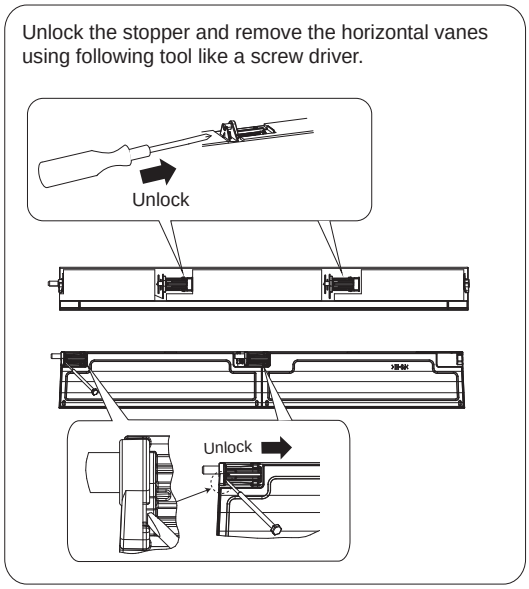
NOTE: Turn OFF the power supply before assembly.

Be careful when removing heavy parts.

OPERATION PROCEDURE

1. REMOVING THE PANEL

(1) Insert the driver to the hole at VANE LOWER shaft and slide the VANE LOWER shaft (2 places each). Push VANE UPPER shaft with the driver.
(2) Pull the VANE LOWER and VANE UPPER from unit.
(3) Remove 2 screw caps of the front panel. Remove 2 screws. (See Photo 1)
(4) Hold the lower part of both ends of the front panel and pull it slightly toward you, and then remove the front panel by pushing it upward.
(5) Remove the screw of the corner box. (See Photo 1)
Remove the corner box.



2. REMOVING THE ELECTRICAL BOX

(1) Remove the panel and the corner box. (Refer procedure to 1)
(2) Remove the front and side electrical box covers (each 2 screw).
(3) Remove the transmission wiring of TB5, the power supply wiring of TB2 and the wiring of MA-remote controller (TB15).
(4) Disconnect the connectors on the indoor controller board.
(5) Disconnect the connector for ground wire.
(6) Remove the screw on lower side of the electrical box. (See Photo 3)
(7) Push up the upper fixture catch to remove the box, then remove it from the box fixture.

PHOTOS/FIGURES

Photo 1

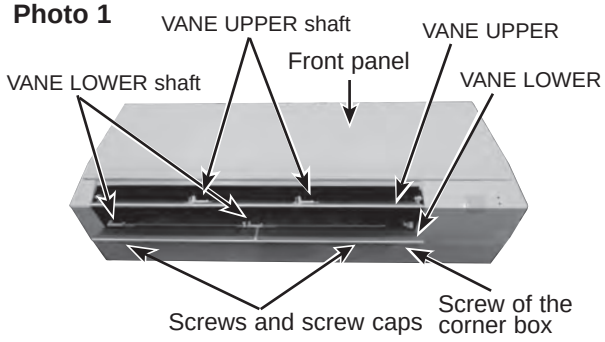


Photo 2

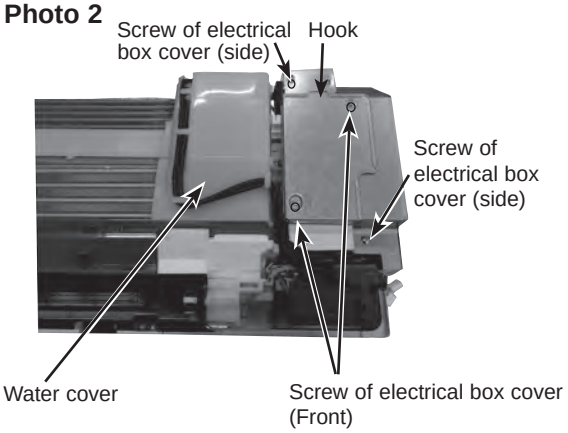
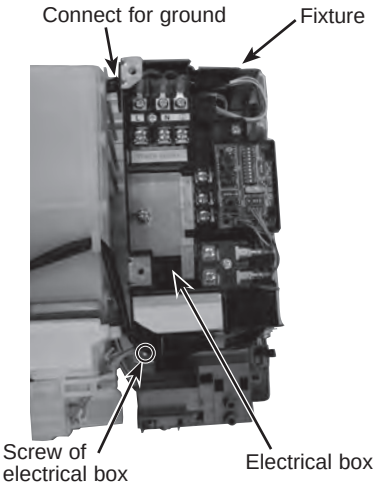


Photo 3



OPERATION PROCEDURE

3. REMOVING THE ADDRESS BOARD, THE INDOOR CONTROLLER BOARD, THE WIRELESS CONTROLLER BOARD, LED BOARD

(1) Remove the panel and the corner box. (Refer to procedure 1)
(2) Remove the front and side electrical box covers (each 2 screw).
(3) Disconnect the connectors of address board.
(4) Disconnect the connectors on the indoor controller board. (See Photo 4)
(5) Remove the switch board holder and open the cover.
(6) Pull out the indoor controller board toward you then remove the indoor controller board and switch board. (See Photo 4)
(7) Remove the holder of wireless remote controller board and LED board.
(8) Disconnect the connector of wireless remote controller board and LED board.
(9) Remove the wireless remote controller board and LED board from the holder.

4. REMOVING THE NOZZLE ASSEMBLY (with VANE and VANE MOTOR) AND DRAIN HOSE

(1) Remove the panel and corner box. (Refer to procedure 1)
(2) Remove the electrical box covers. (Refer to procedure 2)
(3) Disconnect the vane motor connector (CNV) on the indoor controller board.
(4) Push fixture and pull out the drain hose from the nozzle assembly, and remove nozzle assembly. (See Photo 6)

5. REMOVING THE VANE MOTOR

(1) Remove the nozzle assembly. (Refer to procedure 4)
(2) Remove 2 screws of the vane motor unit cover, and pull out the vane motor unit.
(3) Remove screw of the vane motor (LOWER).
(4) Remove the vane motor (LOWER) from the vane motor unit cover.
(5) Disconnect the connector (white) from the vane motor. (LOWER)
(6) Remove 2 screw of the vane motor (UPPER).
(7) Remove the vane motor (UPPER) from the vane motor unit cover.
(8) Disconnect the connector (blue) from the vane motor (UPPER).

PHOTOS/FIGURES

Photo 4

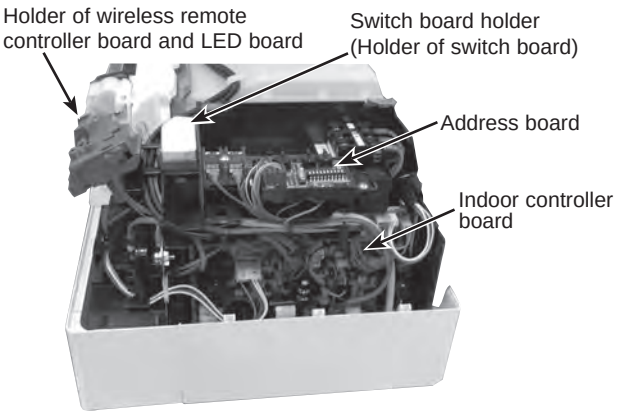


Photo 5 (see the bottom)

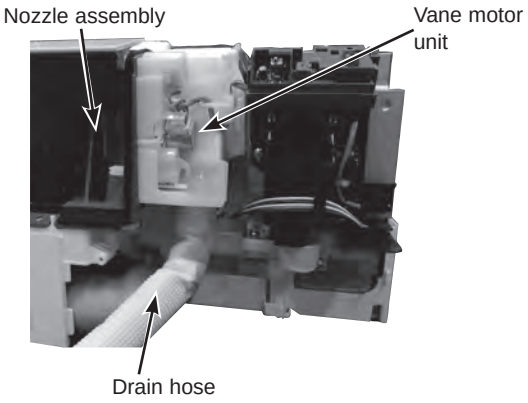


Photo 6

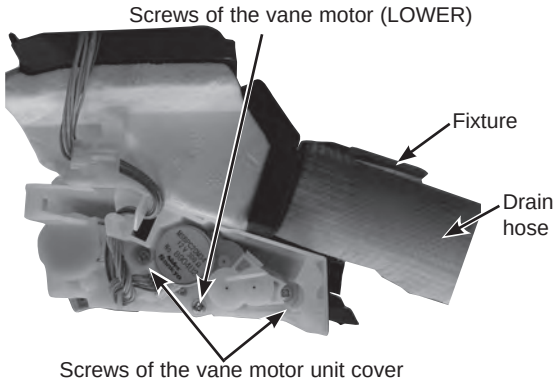
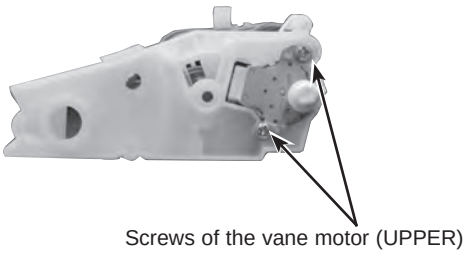
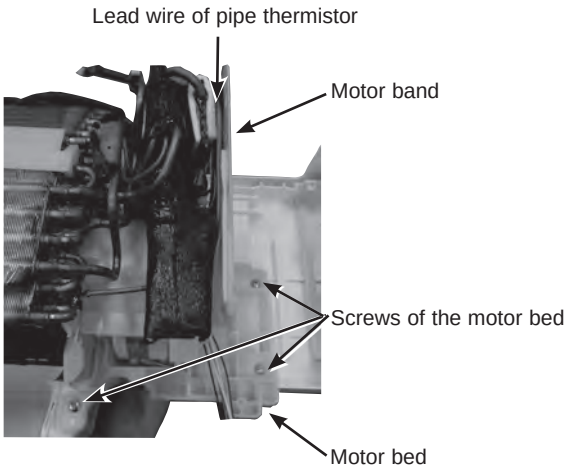
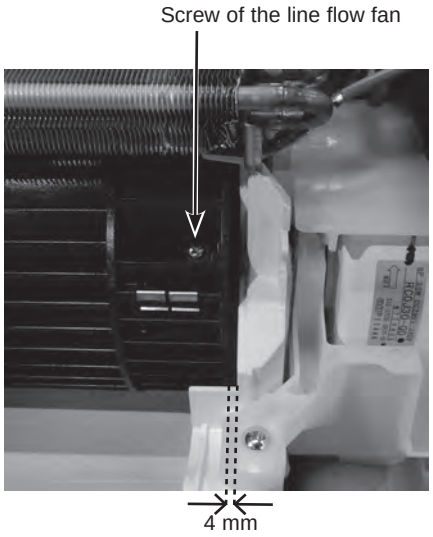
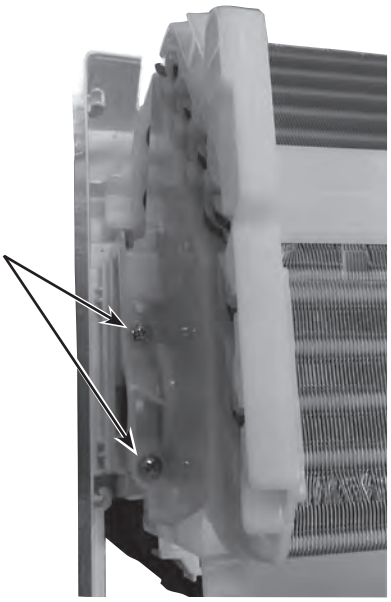
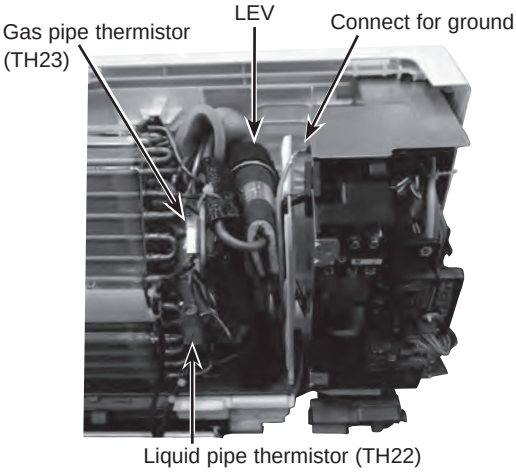
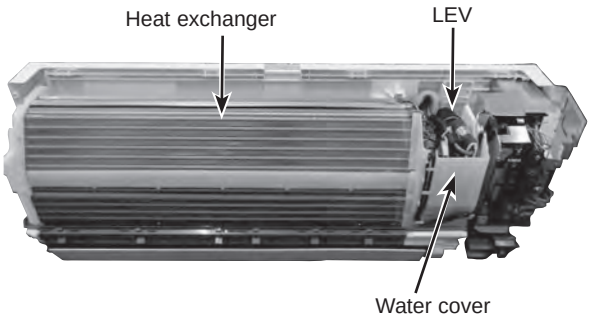
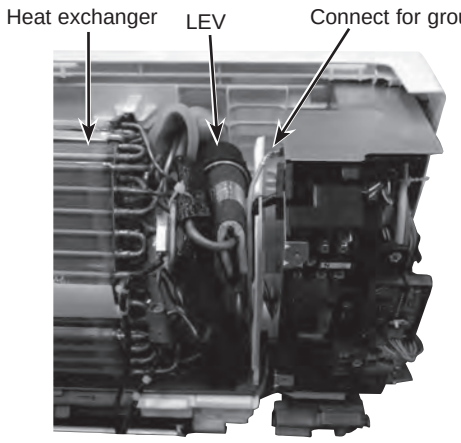
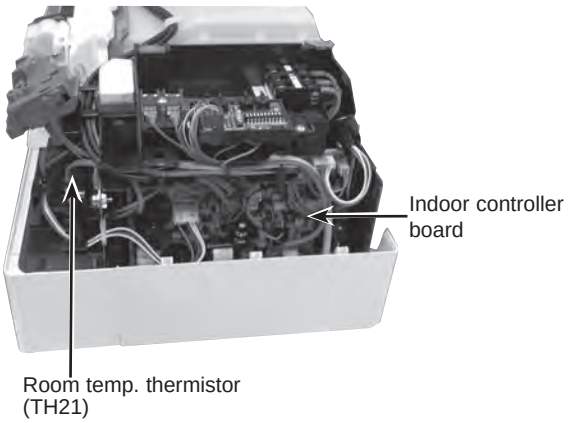


Photo 7



OPERATION PROCEDURE	PHOTOS/FIGURES
6. REMOVING THE INDOOR FAN MOTOR AND THE LINE FLOW FAN (1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the electrical box (Refer to procedure 2) and the nozzle assembly (Refer to procedure 4). (3) Remove the water cover. (See Photo 2) (4) Loosen the screw fixing the line flow fan. (See Photo 9) (5) Remove 3 screws fixing the motor bed. (See Photo 8) (6) Remove the motor bed together with fan motor and motor band. (7) Release the 2 hooks of the motor band. Remove the motor band. Pull out the indoor fan motor. (8) Remove 2 screws fixing the left side of the heat exchanger. (See Photo 10) (9) Lift the heat exchanger, and pull out the line flow fan to the lower-left. * When attaching the line flow fan, screw the line flow fan so 4mm gap is provided between the right end of the line flow fan and the right wall of the air passage of the box. (Photo 9)	**Photo 8**  **Photo 9** 
Photo 10  	
7. REMOVING THE LIQUID PIPE THERMISTOR AND GAS PIPE THERMISTOR (1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the electrical box covers. (Refer to procedure 2) (3) Remove the water cover. (See Photo 2) (4) Remove the liquid pipe thermistor and gas pipe thermistors. (5) Disconnect the connector (CN44) on the indoor controller board. (TH22 and TH23/CN44)	**Photo 11** 

OPERATION PROCEDURE	PHOTOS/FIGURES
8. REMOVING THE HEAT EXCHANGER AND LEV (1) Remove the panel and the corner box (Refer to procedure 1). (2) Remove the electrical box (Refer to procedure 3) and the nozzle assembly (Refer to procedure 4). (3) Remove the water cover. (4) Remove the pipe thermistors. (Refer to procedure 7). (5) Disconnect the connector (CN60) on the indoor controller board. (6) Remove the motor bed together with fan motor and motor band (Refer to procedure 6). (7) Remove 2 screws fixing the left side of the heat exchanger. (See Photo 10) (8) Remove the heat exchanger with LEV.	**Photo 12**  **Photo 13** 
9. REMOVING THE ROOM TEMPERATURE THERMISTOR (1) Remove the panel and corner box. (Refer to procedure 1) (2) Remove the electrical box covers. (Refer to procedure 2) (3) Remove the room temperature thermistor. (4) Disconnect the connector (CN20) on the indoor controller board.	**Photo 14** 

MITSUBISHI ELECTRIC CORPORATION

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

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