MITSUBISHI ELECTRIC

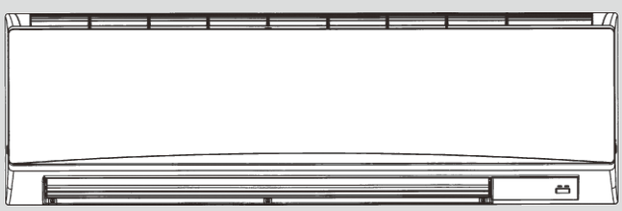
SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

July 2023
No. TCH121

TECHNICAL & SERVICE MANUAL

Series PKFY Wall Mounted

Indoor unit [Model Name]	[Service Ref.]
PKFY-WL18NKMU-E	PKFY-WL18NKMU-E.TH
PKFY-WL24NKMU-E	PKFY-WL24NKMU-E.TH
PKFY-WL30NKMU-E	PKFY-WL30NKMU-E.TH



INDOOR UNIT

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PARTS CATALOG (TCB121)

CITY MULTI

1 SAFETY PRECAUTION

Read before installation and performing electrical work

- ♦Thoroughly read the following safety precautions prior to installation.
- ♦Observe these safety precautions for your safety.
- ♦This equipment may have adverse effects on the equipment on the same power supply system.
- ♦Contact the local power authority before connecting to the system.

Symbol explanations

⚠ WARNING
This symbol indicates that failure to follow the instructions exactly as stated poses the risk of serious injury or death.

⚠ CAUTION
This symbol indicates that failure to follow the instructions exactly as stated poses the risk of serious injury or damage to the unit.

⃠	Indicates an action that must be avoided.
❗	Indicates important instructions.
⏚	Indicates a parts that requires grounding.
⚠	Indicates that caution must be taken with rotating parts. (This symbol is on the main unit label.) <Color: Yellow>
⚠	Indicates that the parts that are marked with this symbol pose a risk of electric shock. (This symbol is on the main unit label.) <Color: Yellow>

⚠ WARNING
Carefully read the labels affixed to the main unit.

⚠ WARNING

♦Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit. It may also be in violation of applicable laws. MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.

♦Ask your dealer or a qualified technician to install the unit.
- Improper installation by the user may result in water leakage, electric shock, or fire.

♦Properly install the unit on a surface that can withstand its weight.
- Unit installed on an unstable surface may fall and cause injury.

♦Only use specified cables. Securely connect each cable so that the terminals do not carry the weight of the cable.
- Improperly connected cables may produce heat and start a fire.

♦Take appropriate safety measures against wind gusts and earthquakes to prevent the unit from toppling over.
- Improper installation may cause the unit to topple over and cause injury or damage to the unit.

♦Only use accessories (i.e., air cleaners, humidifiers, electric heaters) recommended by Mitsubishi Electric.

♦Do not make any modifications or alterations to the unit. Consult your dealer for repair.
- Improper repair may result in water leakage, electric shock, or fire.

♦Do not touch the heat exchanger fins with bare hands.
- The fins are sharp and pose a risk of cuts.

♦Properly install the unit according to the instructions in the Installation Manual.
- Improper installation may result in water leakage, electric shock, or fire.

♦Have all electrical work performed by an authorized electrician accord-ing to the local regulations and the instructions in this manual. Use a dedicated circuit.
- Insufficient power supply capacity or improper installation of the unit may re-sult in malfunctions of the unit, electric shock, or fire.

♦Keep electrical parts away from water.
- Wet electrical parts pose a risk of electric shock, smoke, or fire.

♦Securely attach the control box cover.
- If the cover is not installed properly, dust or water may infiltrate and pose a risk of electric shock, smoke, or fire.

♦Only use the type of refrigerant that is indicated on the unit when installing or relocating the unit.
- Infiltration of any other types of refrigerant or air into the unit may adversely affect the refrigerant cycle and may cause the pipes to burst or explode.

♦Consult your dealer or a qualified technician when moving or reinstalling the unit.
- Improper installation may result in water leakage, electric shock, or fire.

♦After completing the service work, check for a refrigerant leak.
- If leaked refrigerant is exposed to a heat source, such as a fan heater, stove, or electric grill, toxic gases will be generated.

♦Do not try to defeat the safety features of the unit.
- Forced operation of the pressure switch or the temperature switch by defeating the safety features for these devices, or the use of accessories other than the ones that are recommended by Mitsubishi Electric may result in smoke, fire, or explosion.

♦Consult your dealer for proper disposal method.

♦Do not use a leak detection additive.

Precautions for handling units for use with water

⚠ CAUTION

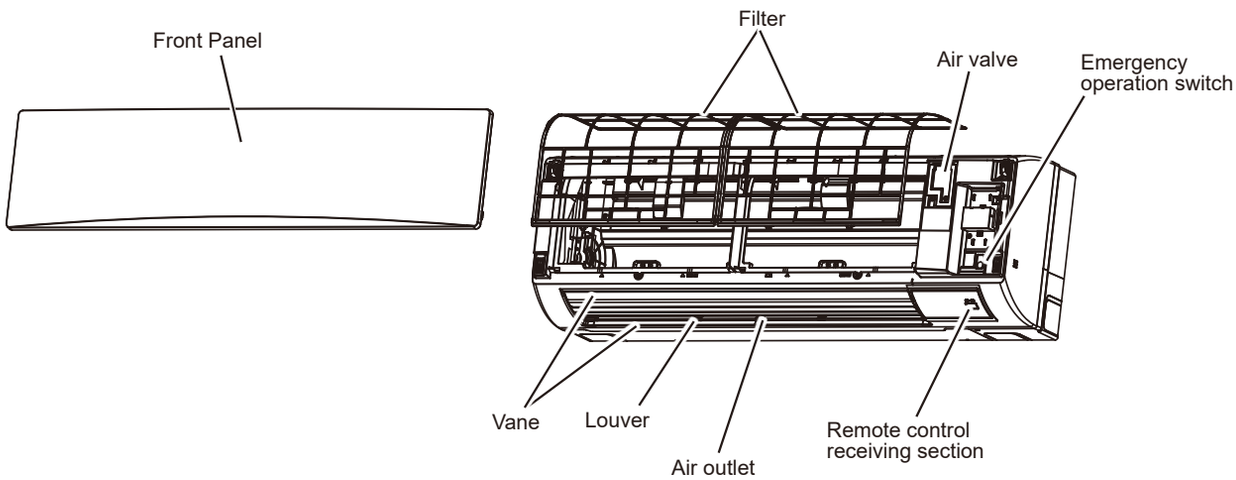
♦Do not use the existing water piping.
- Store the piping materials indoors, and keep both ends of the pipes sealed until immediately before installation. Keep the joints wrapped in plastic bags. If dust or dirt enters the water circuit, it may damage the heat exchanger and cause water leakage.

♦Only use water.
- Only use clean water as a refrigerant. The use of water outside the specification may damage the refrigerant circuit.

♦Install the unit so that external force is not applied to the water pipes.

2 PARTS NAMES AND FUNCTIONS

2-1. Indoor unit



2-2. Wired Remote Controller <PAR-41MAA>

Wired remote controller function

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

○: Supported ×: Unsupported

	Function		PAR-41MAA	
			Slim	CITY MULTI
Body	Product size H × W × D	(mm)	120 × 120 × 14.5	
		(inch)	4-3/4 × 4-3/4 × 9/16	
	LCD		Full 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.

Refer to "10-1. REMOTE CONTROLLER FUNCTIONS" for details.

3 SPECIFICATION

3-1. SPECIFICATIONS

Model				PKFY-WL18NKMU-E.TH	PKFY-WL24NKMU-E.TH	PKFY-WL30NKMU-E.TH
Power source				1-phase 208/230 V 60Hz		
Cooling capacity		*1	BTU/h	18,000	24,000	30,000
		*1	kW	5.3	7.0	8.8
	Power input		kW	0.04	0.05	0.07
	Current input		A	0.46	0.56	0.76
Heating capacity		*2	BTU/h	20,000	27,000	34,000
		*2	kW	5.9	7.9	10.0
	Power input		kW	0.04	0.05	0.07
	Current input		A	0.40	0.50	0.70
External finish				Plastic, MUCSELL (1.0Y 9.2/0.2)		
External dimension H × W × D			inch	14-3/8 × 346-1/16 × 11-5/8		
			mm	365 × 1170 × 295		
Net weight			lbs (kg)	44 (20)		
Heat exchanger				Cross fin (Aluminum fin and copper tube)		
	Water volume		L	2.0		
FAN	Type × Quantity			Line flow fan × 1		
	External static press.		in.WG	0		
			Pa	0		
	Motor type			DC motor		
	Motor output		kW	0.069		
	Driving mechanism			Direct-driven		
	Airflow rate (Low-High)		cfm	636 - 706	636 - 777	636 - 918
			m³/min	18 - 20	18 - 22	18 - 26
			L/s	300 - 333	300 - 367	300 - 433
Sound pressure level (measured in anechoic room) (Low-High)			dB <A>	39 - 42	39 - 45	39 - 49
Insulation material				Polyethylene		
Air filter				PP honeycomb		
Protection device				Fuse		
Refrigerant control device				—		
Connectable HBC controller				CMB-WP-NU-AA, CMB-WP-NU-AB		
Water piping diameter *3,*4	Connection size	Inlet	mm O.D.	22		
		Outlet	mm O.D.	22		
	Field pipe size	Inlet	mm I.D.	20	30	
		Outlet	mm I.D.	20	30	
Field drain pipe size			inch (mm)	O.D. 5/8 (16)		
standard attachment	Document			Installation Manual, Instruction Book		
	Accessory			Mount board, Screw, Felt tape, L-shape connection pipe, I-shape connection pipe, Insulation, Tie band		
Optional parts	Drain pump			PAC-SK19DM-E		
	External heater adapter			PAC-YU25HT		
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. Norminal cooling conditions
   Indoor: 80°FD.B./67°FW.B. (26.7°D.B./19.4°CW.B.), Outdoor: 95°FD.B. (35°CD.B.)
   Pipe length: 25 ft. (7.6 m), Level difference: 0 ft. (0 m)
2. Norminal heating conditions
   Indoor: 70°FD.B. (21.1°C.B.), Outdoor: 47°FD.B./43°FW.B. (8.3°CD.B./6.1°CW.B.)
   Pipe length: 25 ft. (7.6 m), Level difference: 0 ft. (0 m)
3. Be sure to install a valve on the water inlet/outlet.
4. Install a strainer (40 mesh or more) on the pipe next to the valve to remove the foreign matters.

Unit converter
Btu/h = kW × 3,412 cfm = m³/min × 35.31 lb = kg/0.4536 *Above specification data is subject to rounding variation.

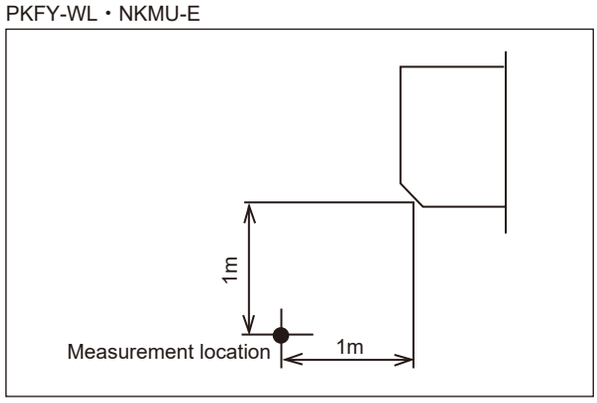
3-2. ELECTRICAL PARTS SPECIFICATIONS

Parts name \ Service Ref.	Symbol	PKFY-WL18NKMU-E.TH PKFY-WL24NKMU-E.TH PKFY-WL30NKMU-E.TH
Room temperature detection thermistor	TH21	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ
Pipe temperature detection thermistor/Inlet	TH22	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ
Pipe temperature detection thermistor/Outlet	TH23	Resistance 30°F/15.8 kΩ, 50°F/9.6 kΩ, 70°F/6.0 kΩ, 80°F/4.8 kΩ, 90°F/3.9 kΩ, 100°F/3.2 kΩ
Fuse (Indoor controller board)	FUSE	T3.15AL250V
Fan motor (with thermal fuse)	MF	8 X 69W / RC0J56-AM
Vane motor (upper)	MV	MSBPC20 DC12V
Power supply terminal block	TB2	(L1, L2) 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.

3-3. SOUND PRESSURE LEVEL

PKFY-WL・NKMU-E



* Measured in anechoic room.

Sound pressure level at anechoic room: Low-High

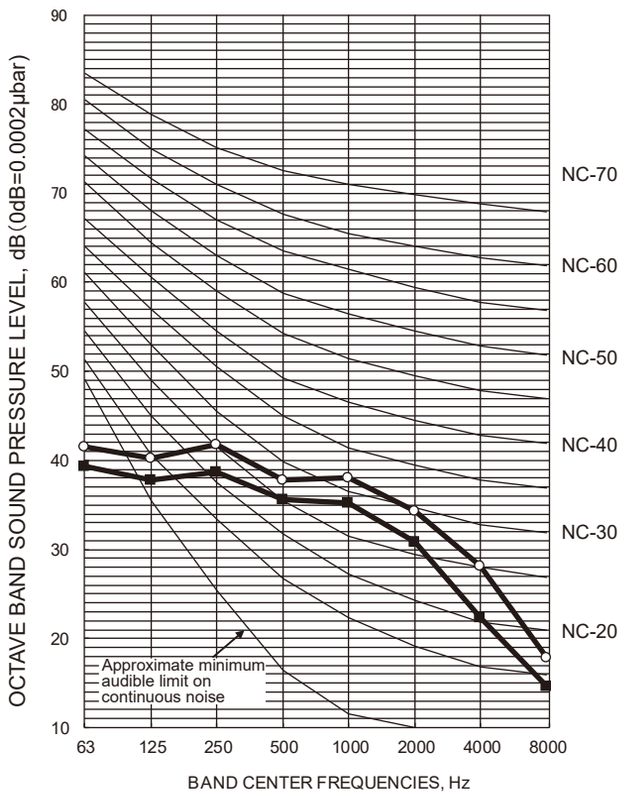
Service Ref.	Sound pressure level dB (A)
PKFY-WL18NKMU-E.TH	39-42
PKFY-WL24NKMU-E.TH	39-45
PKFY-WL30NKMU-E.TH	39-49

4 NOISE CRITERION CURVES

NOISE CRITERION CURVES

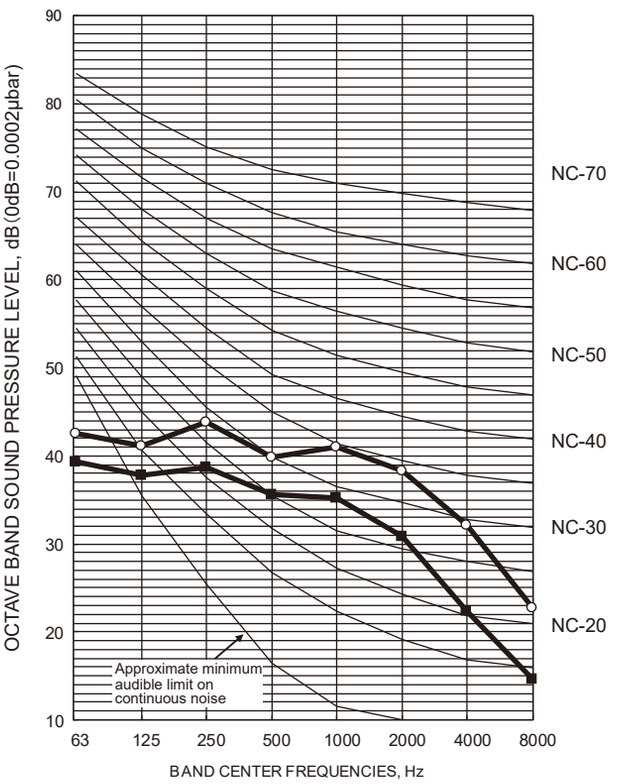
PKFY-WL18NKMU-E.TH

FAN	SPL(dB)	LINE
High	42	
Low	39	



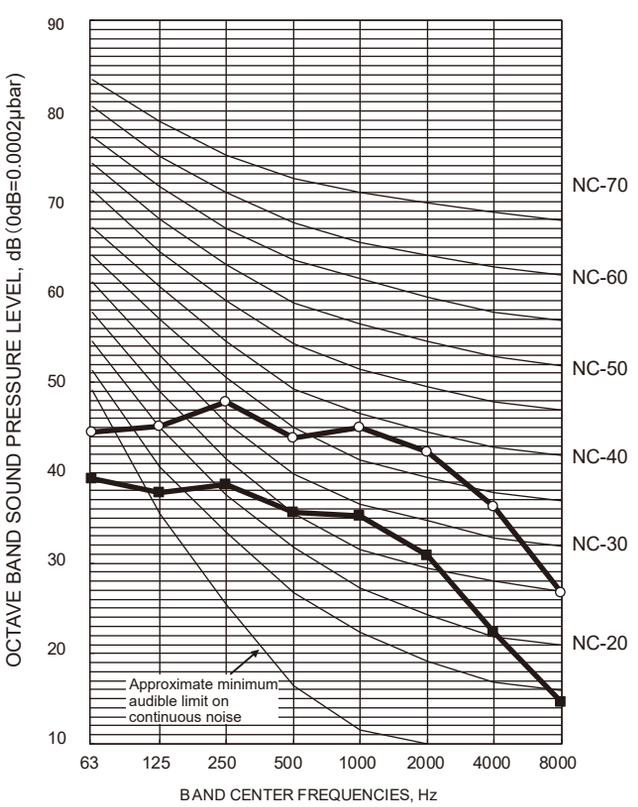
PKFY-WL24NKMU-E.TH

FAN	SPL(dB)	LINE
High	45	
Low	39	



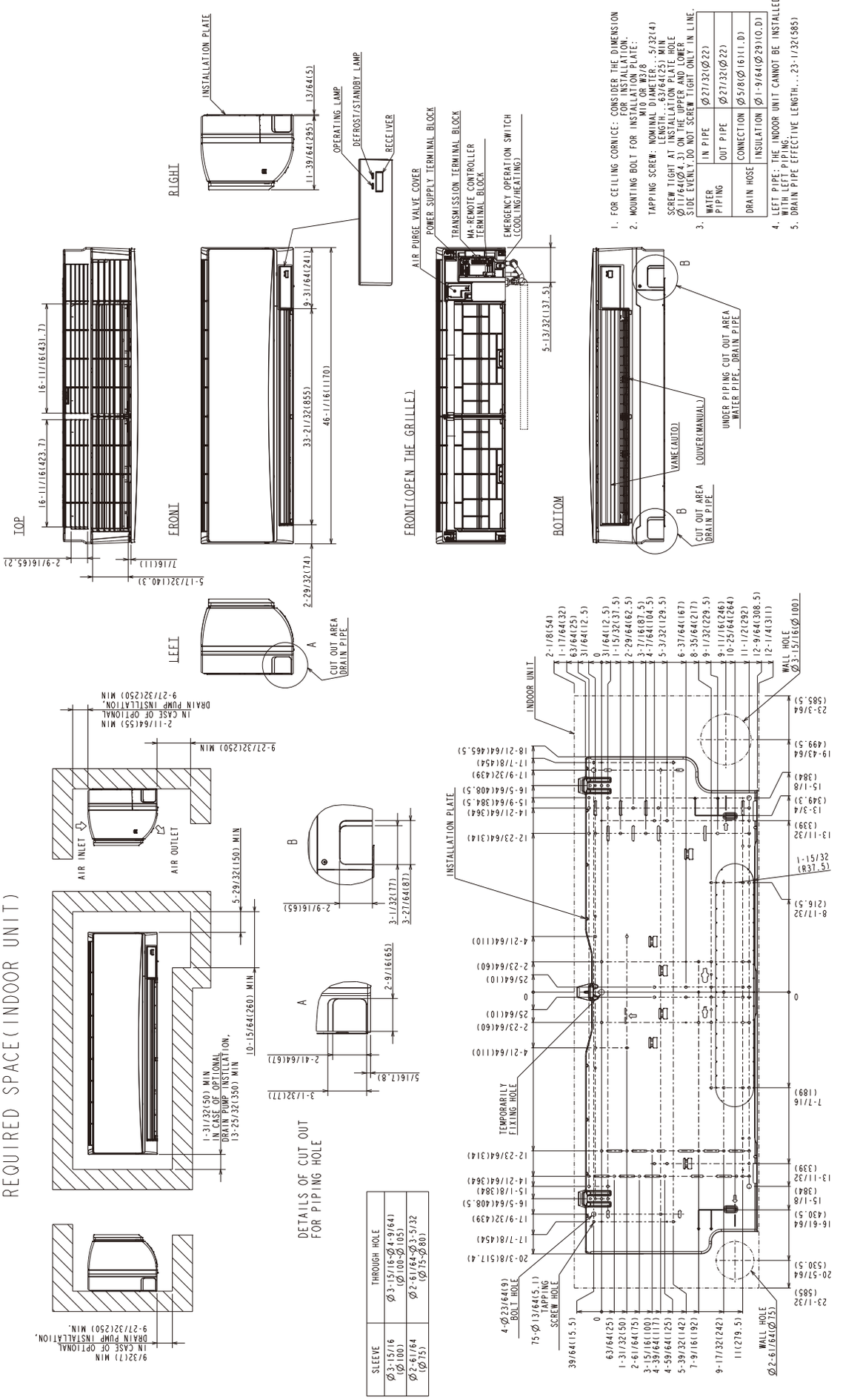
PKFY-WL30NKMU-E.TH

FAN	SPL(dB)	LINE
High	49	
Low	39	



5 OUTLINES AND DIMENSIONS

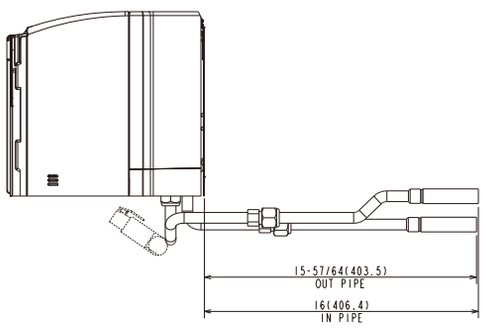
Unit: Inch(mm)

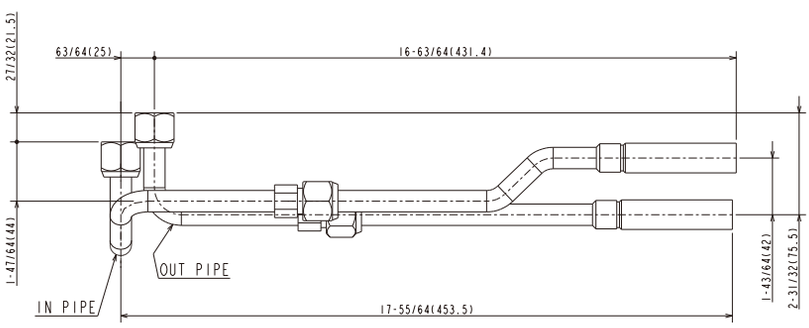


SLEEVE	THROUGH HOLE
Ø3-15/16 (Ø100)	Ø3-15/16~Ø4-9/64 (Ø100~Ø105)
Ø2-61/64 (Ø75)	Ø2-61/64~Ø3-5/32 (Ø75~Ø80)

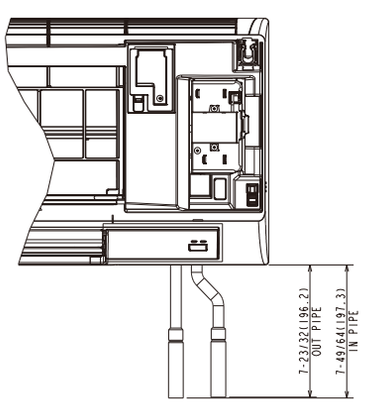
DETAILS OF WATER PIPE

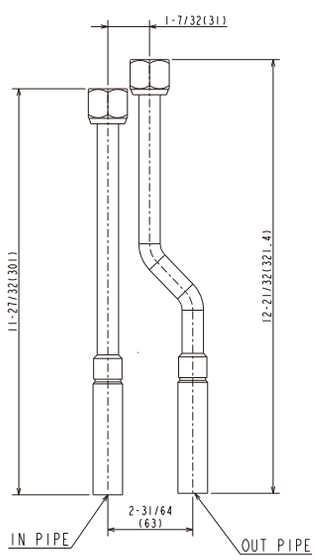
RIGHT(FOR RIGHT REAR PIPING)



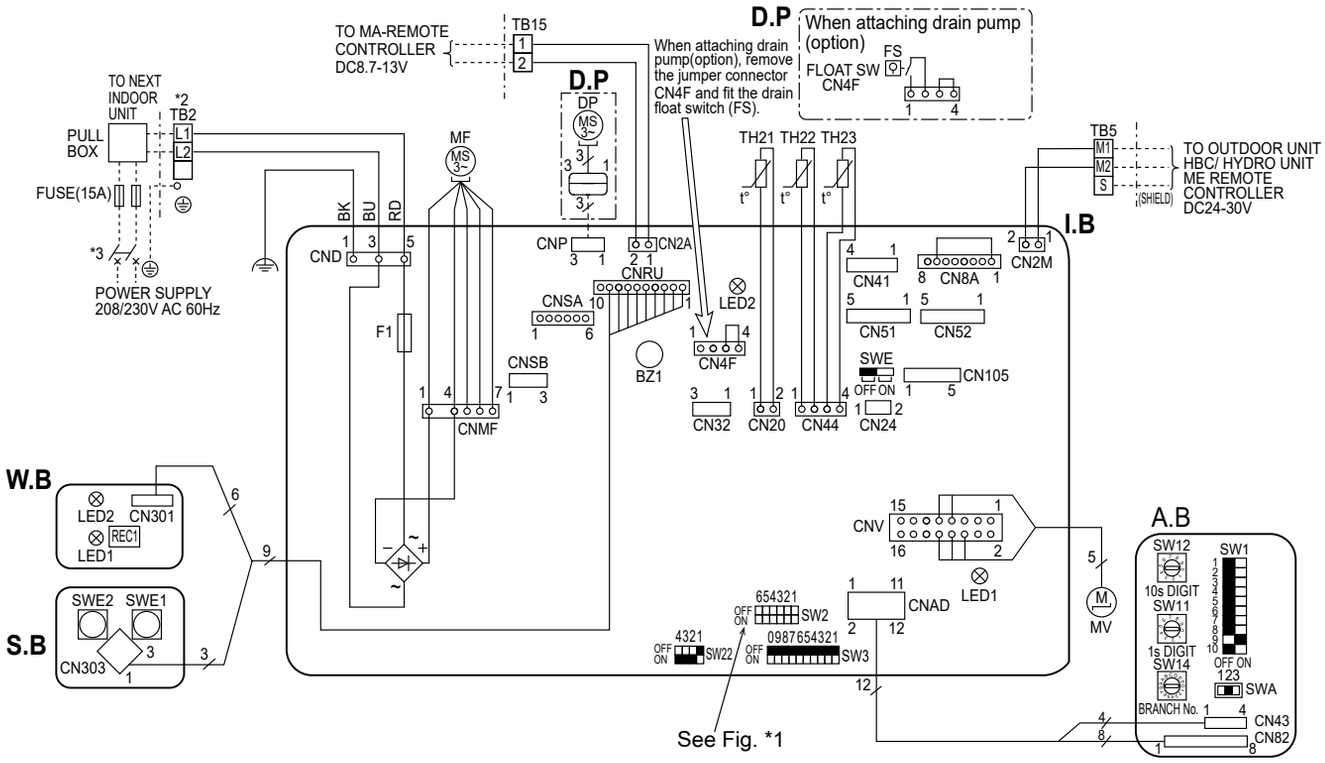


FRONT(FOR RIGHT BOTTOM PIPING)





6 WIRING DIAGRAM



[LEGEND]

SYMBOL	NAME		SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD		TH21	THERMISTOR	ROOM TEMP. DETECTION (32°F/15kΩ, 77°F/5.4kΩ)
CN24	CONNECTOR	EXTERNAL HEATER			
CN32		REMOTE SWITCH	TH22		PIPE TEMP. DETECTION / INLET WATER (32°F/15kΩ, 77°F/5.4kΩ)
CN51		CENTRALLY CONTROL			
CN52		REMOTE INDICATION	TH23		PIPE TEMP. DETECTION / OUTLET WATER (32°F/15kΩ, 77°F/5.4kΩ)
CN105		IT TERMINAL			
BZ1	BUZZER		A.B	ADDRESS BOARD	
F1	FUSE (T3.15AL250V)		SW1	SWITCH	MODE SELECTION
LED1	POWER SUPPLY (I.B)		SW11		ADDRESS SETTING 1s DIGIT
LED2	POWER SUPPLY (MA-REMOTE CONTROLLER)		SW12		ADDRESS SETTING 10s DIGIT
SW2	SWITCH	CAPACITY CODE	SW14		BRANCH No.
SW3		MODE SELECTION	S.B	SWITCH BOARD	
SW22		PAIR NO. SETTING	SWE1	EMERGENCY OPERATION(HEAT)	
SWE		FAN•DRAIN PUMP (TEST MODE)	SWE2	EMERGENCY OPERATION(COOL)	
MF	FAN MOTOR		W.B	PCB FOR WIRELESS REMOTE CONTROLLER	
MV	VANE MOTOR		LED1	LED(OPERATION INDICATOR:GREEN)	
TB2	TERMINAL BLOCK	POWER SUPPLY	LED2	LED(PREPARATION FOR HEATING : ORANGE)	
TB5		TRANSMISSION	REC1	RECEIVING UNIT	
TB15		MA-REMOTE CONTROLLER	D.P	DRAIN PUMP KIT (OPTION)	
			FS	DRAIN FLOAT SWITCH	
			DP	DRAIN PUMP	

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

Models	SW2
WL18	OFF ON 654321
WL24	OFF ON 654321
WL30	OFF ON 654321

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, ○ ○ ○ , ▭ :connector.
6. The setting of the SW2 dip switches differs in the capacity. For the detail, refer to the Fig.*1.

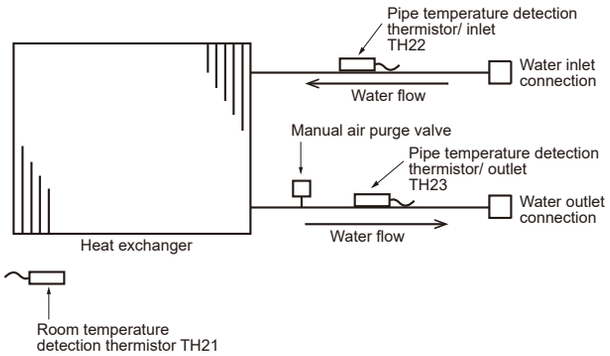
LED on indoor controller board for service

Symbol	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit:208/230V) Power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

*2 Use copper supply wires.
Utilisez des fils d'alimentation en cuivre.

*3 A disconnect should be required by local code.
Se procurer un sectionneur conforme aux réglementations Locales.

7 REFRIGERANT SYSTEM DIAGRAM

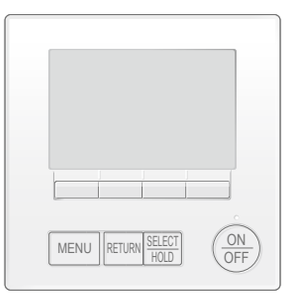


Unit: inch(mm)

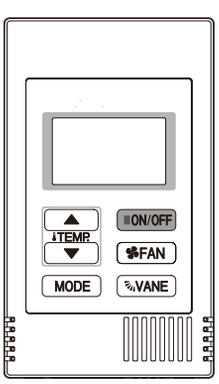
Item \ Model	PKFY-WL18/24/30NKMU-E.TH
Water inlet	7/8 (22)
Water outlet	7/8 (22)

8 MICROPROCESSOR CONTROL

INDOOR UNIT CONTROL
8-1. COOL OPERATION



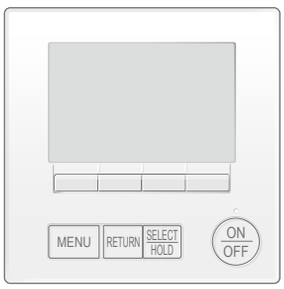
<How to operate>
① Press ON/OFF button.
② Press [F1] button to display COOL.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.



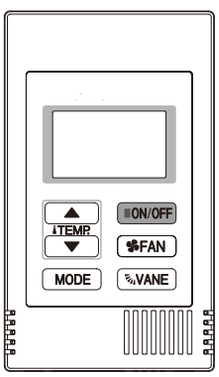
<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display COOL.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Cooling 67 to 87°F

Control Mode	Control Details	Remarks
1. Temperature adjustment function	1-1. Determining temperature adjustment function (Function to prevent restarting for 3 minutes) • Room temperature ≧ Set temperature + 2°F ⋯Thermo-ON • Room temperature ≦ Set temperature ⋯Thermo-OFF 1-2. Anti-freeze control ■ Condition to detect When the pipe temperature detection thermistor/liquid (TH22) detects 32°F or less in 16 minutes from thermo-ON, the anti-freeze control initiates, and the unit enters to the thermo-OFF. ■ Condition to release The timer which prevents reactivating is set for 3 minutes, and anti-freeze control is cancelled when any one of the following conditions has been satisfied: ① Pipe temperature detection thermistor/liquid (TH22) reaches 50°F or above. ② The condition of thermo-OFF has been completed by the thermostat. ③ The operation has changed to a mode other than COOLING.	• The ON/OFF commands by the indoor unit thermostatic control are not an ON/OFF commands to the compressor but an open/close commands to the linear expansion valve. (The compressor stops only when the thermostatic control for all the indoor units connected to the same outdoor unit turns OFF.)
2. Fan	By the remote controller setting (switch of 4 speeds+Auto) Type: 4 speeds + Auto type — Fan speed notch: Auto → ↔ When [Auto] is set, fan speed is changed depending on the value of: ΔT = Room temperature − Set temperature High / Med2 / Med1 / Low 1.8°F 3.15°F 5.4°F ⊿T	
3. Drain pump	3-1. Drain pump control • The drain pump will always run when the unit is in COOL or DRYING mode. (Regardless of the thermo ON/OFF) • Whenever the operation is changed over to the other modes (including Stop), the drain pump will stop pumping after approximately 3 minutes. **Float switch control** • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water: Detected that the float switch is ON for 15 seconds. In the air: Detected that the float switch is OFF for 15 seconds Float SW ON / OFF 15 s 15 s 15 s 1 min 30 s 1 min 30 s In the water In the air In the water Error postponement Drain pump abnormal	
4. Vane (up/down vane change)	(1) The initial vane setting for COOL mode will be the horizontal position. (2) Vane position: Horizontal →Downward A →Downward B →Downward C→Downward D→Swing→Auto (3) Restriction of the downward vane setting If the vane position is set to Downward A/B/C/D in [Med1], [Med2], or [Low], the vane will return to the horizontal position after 1 hour has passed.	• "1h" appears on the wired remote controller.

8-2. DRYING OPERATION



<How to operate>
① Press ON/OFF button.
② Press [F1] button to display DRYING.
③ Press [F2] [F3] button to set the set temperature.



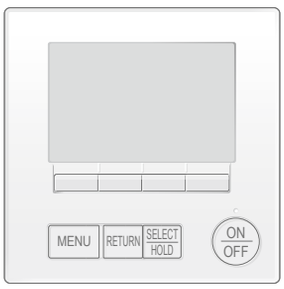
<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display DRYING.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Dry 67 to 87°F

<table>
<tr><th>Control Mode</th><th>Control Details</th><th>Remarks</th></tr>
<tr><td>1. Temperature adjustment function</td><td>1-1. Determining temperature adjustment function
(Function to prevent restarting for 3 minutes)
Setting the Dry thermo by the thermostat signal and the room temperature (TH21).
Dry thermo-ON Room temperature ≧ Set temperature + 2°F
Dry thermo-OFF Room temperature ≦ Set temperature

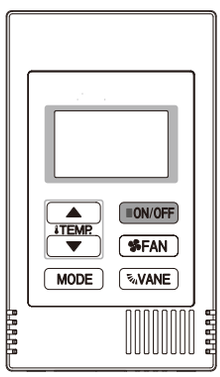
<table>
<tr><th rowspan="2">Room temperature</th><th colspan="2">3 minutes passed since starting operation</th><th rowspan="2">Dry thermo-ON time (min)</th><th rowspan="2">Dry thermo-OFF time (min)</th></tr>
<tr><th>Thermostat signal</th><th>Room temperature (T1)</th></tr>
<tr><td rowspan="5">Over 64°F</td><td rowspan="4">ON</td><td>T1 ≧ 83°F</td><td>9</td><td>3</td></tr>
<tr><td>83°F > T1 ≧ 79°F</td><td>7</td><td>3</td></tr>
<tr><td>79°F > T1 ≧ 75°F</td><td>5</td><td>3</td></tr>
<tr><td>75°F > T1</td><td>3</td><td>3</td></tr>
<tr><td>OFF</td><td>Unconditional</td><td>3</td><td>10</td></tr>
<tr><td>Below 64°F</td><td colspan="3">Dry thermo OFF</td></tr>
</table>

1-2. Anti-freeze control
No control function</td><td></td></tr>
<tr><td>2. Fan</td><td>Indoor fan operation controlled depends on the compressor conditions.
<table>
<tr><th>Dry thermo</th><th colspan="2">Fan speed notch</th></tr>
<tr><td>ON</td><td colspan="2">[Low]</td></tr>
<tr><td>OFF</td><td>Excluding the following</td><td>Stop</td></tr>
<tr><td></td><td>Room temp. < 64°F</td><td>[Low]</td></tr>
</table>
Note: Fan speed change is not allowed during DRYING operation.</td><td></td></tr>
<tr><td>3. Drain pump</td><td>Operates as it would in COOL operation.</td><td></td></tr>
<tr><td>4. Vane (up/down vane change)</td><td>Settings are the same in DRYING operation as they are in COOL operation.</td><td></td></tr>
</table>

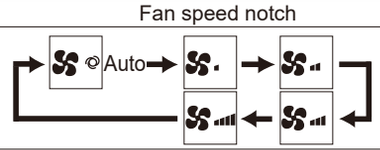
8-3. FAN OPERATION



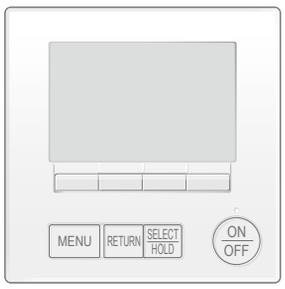
<How to operate>
① Press ON/OFF button.
② Press [F1] button to display FAN.



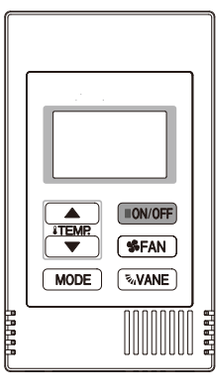
<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display FAN.

Control Mode	Control Details	Remarks
1. Temperature adjustment function	Set by remote controller. Type: 4 speeds + Auto type Fan speed notch:  When [Auto] is set, fan speed becomes [Low].	
2. Drain pump	2-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied: ① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN). ② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.	
	2-2. Float switch control • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water : Detected that the float switch is ON for 15 seconds. In the air : Detected that the float switch is OFF for 15 seconds.	• Operates as it would in COOL operation.
3. Vane (up/down vane change)	Same as the control performed during the COOL operation, but with no restriction on the vane's downward blow setting	

8-4. HEAT OPERATION



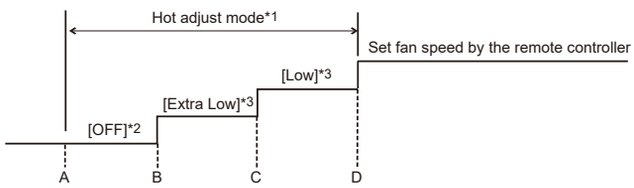
<How to operate>
① Press ON/OFF button.
② Press [F1] button to display HEAT.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.



<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display HEAT.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Heating 63 to 83°F

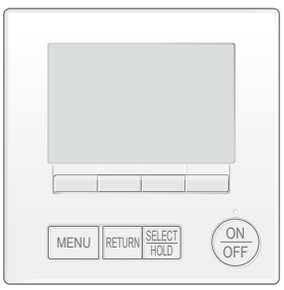
Control Mode	Control Details	Remarks
1. Temperature adjustment function	1-1. Determining temperature adjustment function (Function to prevent restarting for 3 minutes) • Room temperature ≦ Set temperature −2°F ⋯Thermo-ON • Room temperature ≧ Set temperature ⋯Thermo-OFF	
2. Fan	By the remote controller setting (switch of 4 speeds+Auto) Type: 4 speeds + Auto type Fan speed notch: Auto → → → → → → → → When [Auto] is set, fan speed is changed depending on the value of: ΔT = Set temperature − Room temperature Give priority to under-mentioned controlled mode 2-1. Hot adjust mode 2-2. Residual heat exclusion mode 2-3. Thermo-OFF mode (When the compressor off by the temperature adjustment function) 2-4. Cool air prevention mode (Defrosting mode)	

Continue to the next page.

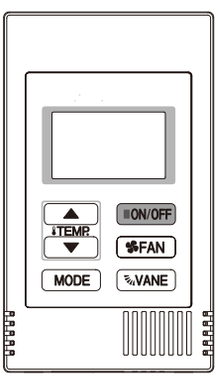
<table>
<tr><th>Control Mode</th><th>Control Details</th><th>Remarks</th></tr>
<tr><td></td><td>2-1. Hot adjust mode
The fan controller becomes the hot adjuster mode for the following conditions.
① When starting the HEAT operation
② When the temperature adjustment function changes from OFF to ON.
③ When release the HEAT defrosting operation


A: Hot adjust mode starts.
B: 5 minutes have passed since the condition A or the indoor liquid pipe temperature reached 86°F or more.
C: 5 minutes have passed since the condition A or the indoor liquid pipe temperature reached 95°F or more.
D: 2minutes have passed since the condition C.
(Terminating the hot adjust mode)
<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">DIP SW 1-8</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="2">DIP SW 1-7</td><td>ON</td><td>B to C [Extra Low]
C to D [Low]</td><td>B to C [Low]
C to D [Low]</td></tr>
<tr><td>OFF</td><td>B to C [Setting airflow]
C to D [Setting airflow]</td><td>B to C [Extra Low]
C to D [Low]
Note: Initial setting</td></tr>
</table></td><td>*1 "Heat Standby" will be displayed during the hot adjust mode.
*2 The step change of A to B will not be performed at the first thermo-ON mode since the HEAT operation has started.
*3 The fan speed varies according to the setting of DIP SW1-7 and 1-8 as shown in the table below.</td></tr>
<tr><td></td><td>2-2. Residual heat exclusion mode
When the condition changes the auxiliary heater ON to OFF (temperature adjustment function, or operation stop, etc.), the indoor fan operates in [Low] mode for 1 minute.</td><td>• This control is same for the model without auxiliary heater.</td></tr>
<tr><td></td><td>2-3. Thermo-OFF mode
When the temperature adjustment function changes to OFF, the indoor fan operates in [Extra low].</td><td></td></tr>
<tr><td></td><td>2-4. Heat defrosting mode
The indoor fan stops.</td><td></td></tr>
<tr><td>3. Drain pump</td><td>3-1. Drain pump control
The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied:
① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN).
② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.</td><td></td></tr>
<tr><td></td><td>3-2. Float switch control
• Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF.
In the water: Detected that the float switch is ON for 15 seconds.
In the air : Detected that the float switch is OFF for 15 seconds.</td><td>• Operates as it would in COOL operation.</td></tr>
<tr><td>4. Vane control (Up/down vane change)</td><td>(1) Initial setting: OFF → HEAT⋯[last setting]
When the last setting is [Swing] ⋯ [Downward D]
When changing the mode from exception of HEAT to HEAT operation
⋯[Downward D]
(2) Vane position:
Horizontal →Downward A →Downward B →Downward C→Downward D→Swing→Auto
(3) Restriction of vane position
①The vane is horizontally fixed for the following modes.
(The control by the remote controller is temporally invalidated and control by the unit.)
• Thermo-OFF
• Hot adjust [Extra low] mode
• Heat defrost mode</td><td></td></tr>
</table>

8-5. AUTO OPERATION [AUTOMATIC COOL/HEAT CHANGE OVER OPERATION]



<How to operate>
① Press ON/OFF button.
② Press [F1] button to display AUTO.
③ Press [F2] [F3] button to set the set temperature.
NOTE: The settable temperature range varies with the model of outdoor units and remote controller.



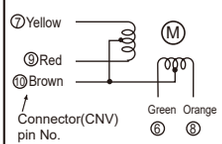
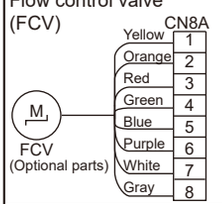
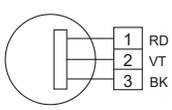
<How to operate>
① Press POWER ON/OFF button.
② Press the operation MODE button to display AUTO.
③ Press the TEMP. button to set the set temperature.
NOTE: The set temperature changes 1°F when the ▽ or △ button is pressed one time. Automatic 67 to 83°F

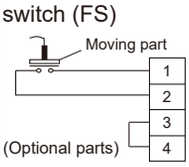
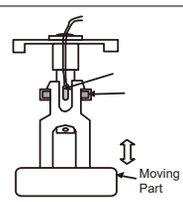
Control Mode	Control Details	Remarks
1. Initial value of operation mode	HEAT mode for room temperature < Set temperature COOL mode for room temperature ≧ Set temperature	
2. Mode change	(1) HEAT mode → COOL mode Room temperature ≧ Set temperature + 3°F or 3 minutes have passed. (2) COOL mode → HEAT mode Room temperature ≦ Set temperature − 3°F or 3 minutes have passed.	
3. COOL mode	Operates as it would in COOL operation.	
4. HEAT mode	Operates as it would in HEAT operation.	

8-6. WHEN UNIT IS STOPPED CONTROL MODE

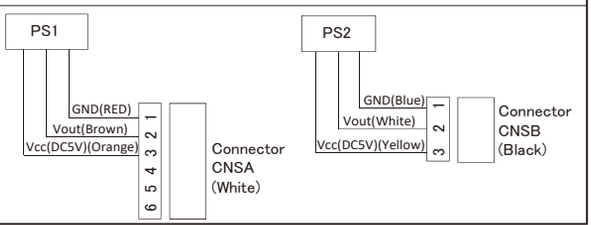
Control Mode	Control Details	Remarks
1. Drain pump	1-1. Drain pump control The drain pump turns ON for the specified amount of time when any of the following conditions has been satisfied: ① ON for 3 minutes after the operation mode is switched from COOL or DRYING to another operation mode (FAN). ② ON for 6 minutes after the float switch is submerged in the water when the float switch control judges the sensor is in the water.	
	1-2. Float switch control • Float switch control judges whether the sensor is in the air or in the water by turning the float switch ON/OFF. In the water : Detected that the float switch is ON for 15 seconds. In the air : Detected that the float switch is OFF for 15 seconds.	• Operates as it would in COOL operation.

9 TROUBLESHOOTING

<table>
<tr><th>Parts name</th><th>Checkpoints</th></tr>
<tr><td>Room temperature detection thermistor (TH21)
Pipe temperature detection thermistor/inlet (TH22)
Pipe temperature detection thermistor/outlet (TH23)</td><td>Disconnect the connector then measure the resistance with a multimeter.
(At the ambient temperature 50 to 86°F)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3 to 9.6 kΩ</td><td>Open or short</td></tr></table>Refer to “9-1-1. Thermistor”.</td></tr>
<tr><td>Vane motor (MV)

</td><td>Measure the resistance between the terminals with a multimeter. (At the ambient temperature 77°F)
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>⑩ - ⑨
Brown-Red</td><td>⑩ - ⑧
Brown-Orange</td><td>⑩ - ⑦
Brown-Yellow</td><td>⑩ - ⑥
Brown-Green</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">300 Ω ±7%</td></tr></table></td></tr>
<tr><td>Fan motor (MF)</td><td>Refer to “9-1-3. DC Fan motor (fan motor/indoor controller board)</td></tr>
<tr><td>Flow control valve (FCV)

</td><td>Disconnect the connector then measure the resistance between terminals with a multimeter.
Refer to the next page for details.
<table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>1-5
Yellow-Blue</td><td>2-5
Orange-Blue</td><td>3-5
Red-Blue</td><td>4-5
Green-Blue</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">55 Ω ±5.6 Ω (at 77°F)</td></tr></table></td></tr>
<tr><td>Drain pump (DP)


(Optional parts)</td><td>①Check if the drain float switch works properly.
②Check if the drain pump works and drains water properly in cooling operation.
③If 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 VDC → The pump motor starts to rotate.</td></tr>
<tr><td>Drain float switch (FS)

</td><td>Measure the resistance between the terminals with a multimeter.
<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>

Parts name	Checkpoints
Pressure sensor (Optional parts)	▪ Pressure sensor (inner water) PS1 ▪ Pressure sensor (outlet water) PS2 1. Check that the pressure sensor is connected. 2. Check the pressure sensor wiring for breakage. Pressure 0-1.0 MPa [145 psi] Vout 0.5-4.5 V 0.392 V/ 0.098 MPa [14 psi] Pressure [MPa] = 0.25 × Vout [V] - 0.125 Pressure [psi] = (0.25 × Vout [V] - 0.125) × 145

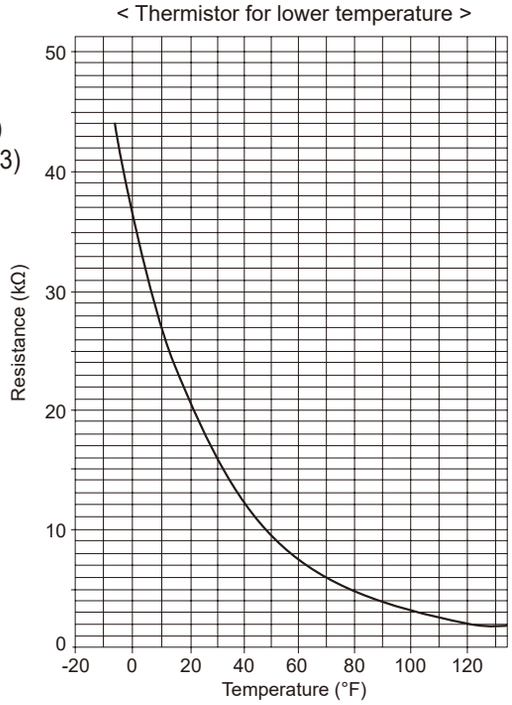


9-1-1. Thermistor

<Thermistor characteristic graph>

Thermistors for lower temperature	Room temperature detection thermistor (TH21) Pipe temperature detection thermistor/Inlet (TH22) Pipe temperature detection thermistor/Outlet (TH23)

< Thermistor for lower temperature >



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

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

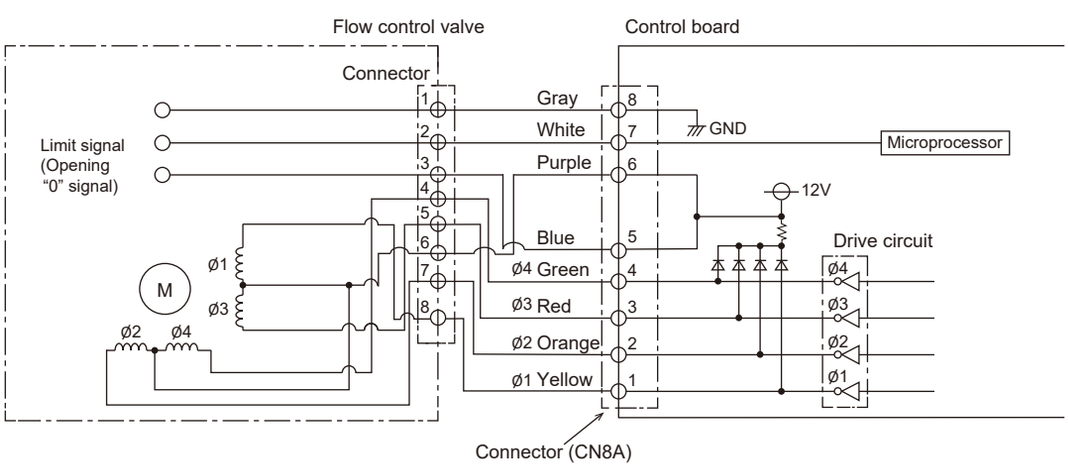
30°F 15.8kΩ
50°F 9.6kΩ
70°F 6.0kΩ
80°F 4.8kΩ
90°F 3.9kΩ
100°F 3.2kΩ

9-1-2. Flow control valve (FCV)

① **Summary of flow control valve (FCV) operation**

• The FCV is operated by a stepping motor, which operates by receiving a pulse signal from the indoor control board.
• The FCV position changes in response to the pulse signal.

Indoor control board and FCV connection

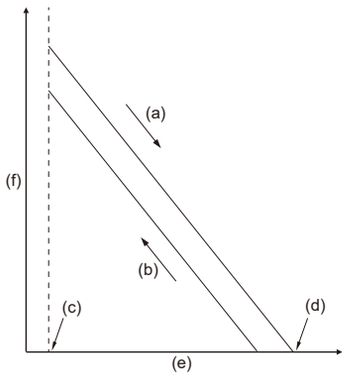


Pulse signal output and valve operation

Output (phase) number	Output status			
	1	2	3	4
ø1	OFF	ON	ON	OFF
ø2	ON	ON	OFF	OFF
ø3	ON	OFF	OFF	ON
ø4	OFF	OFF	ON	ON

The output pulse changes in the following order:
When the valve closes 1 -> 2 -> 3 -> 4 -> 1
When the valve opens 4 -> 3 -> 2 -> 1 -> 4

② **FCV operation**



(a) Close
(b) Open
(c) Fully open valve (85 pulses)
(d) Fully close valve (770 pulses)
(e) No. of pulses
(f) Valve opening degree

9-1-3. DC Fan motor (fan motor/indoor controller board)

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

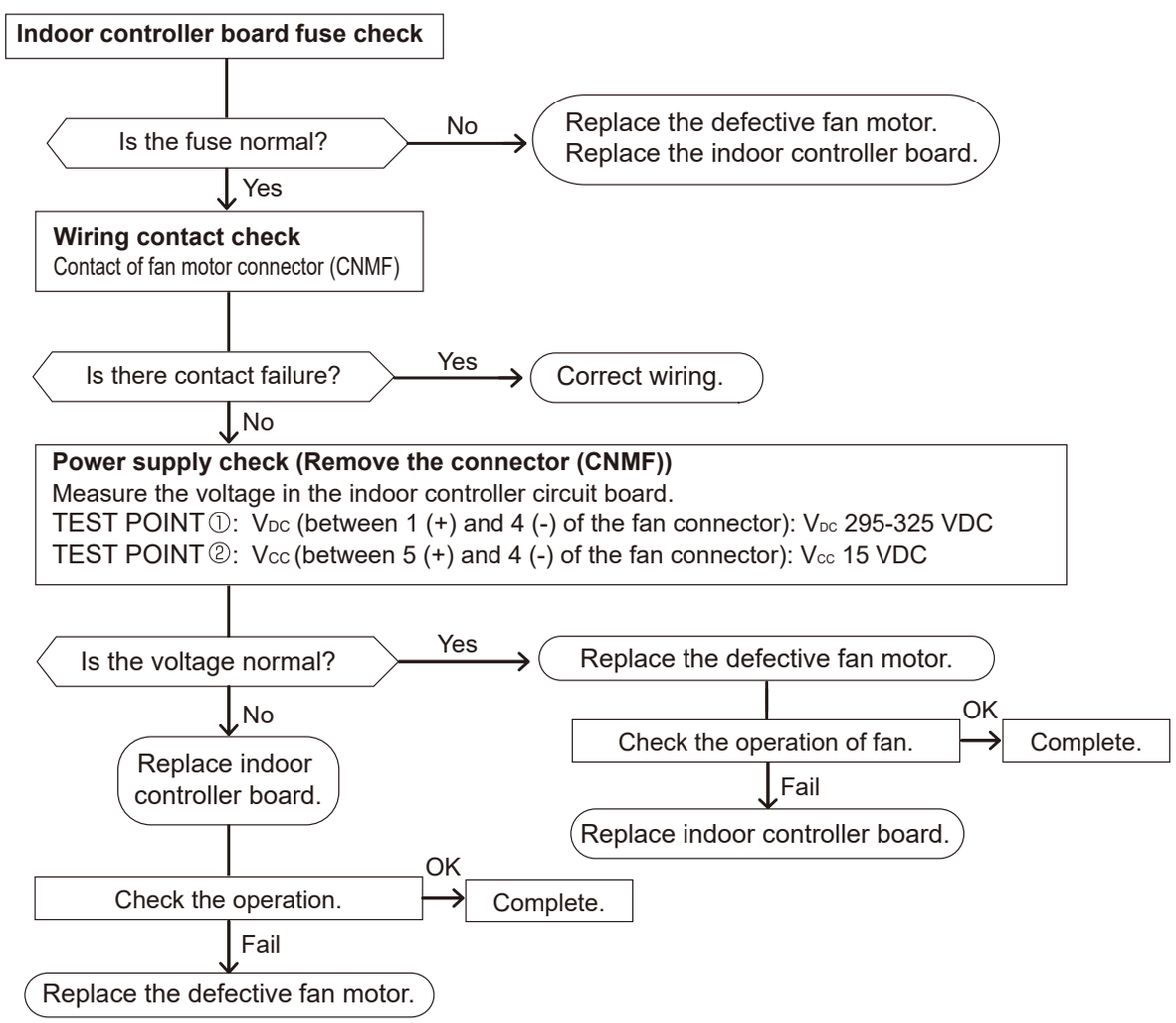
① Notes

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

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

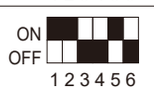
② Self check

Conditions : The indoor fan cannot rotate.



9-2. FUNCTION OF DIP SWITCH

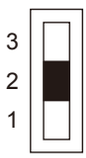
<table>
<tr><th rowspan="2">Switch</th><th rowspan="2">Pole</th><th rowspan="2">Function</th><th colspan="2">Operation by switch</th><th rowspan="2">Effective timing</th><th rowspan="2">Remarks</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="10">SW1
Mode selection</td><td>1</td><td>Thermistor<Room temperature> position</td><td>Built-in remote controller</td><td>Indoor unit</td><td rowspan="10">Under suspension</td><td rowspan="10">Address board
<Initial setting>


NOTE:
※1
<table><tr><td>SW1-7</td><td>SW1-8</td><td>Fan speed</td></tr><tr><td>OFF</td><td>OFF</td><td>Extra low</td></tr><tr><td>ON</td><td>OFF</td><td>Low</td></tr><tr><td>OFF</td><td>ON</td><td>Setting air flow</td></tr><tr><td>ON</td><td>ON</td><td>Stop</td></tr></table>
※2 It is impossible to intake the fresh air.</td></tr>
<tr><td>2</td><td>Filter clogging detection</td><td>Provide</td><td>Not provide</td></tr>
<tr><td>3</td><td>Filter cleaning sign</td><td>2,500 hr</td><td>100 hr</td></tr>
<tr><td>4</td><td>Fresh air intake ※2</td><td>Not effective</td><td>Not effective</td></tr>
<tr><td>5</td><td>Switching remote controller display</td><td>Thermo ON signal indication</td><td>Fan output indication</td></tr>
<tr><td>6</td><td>Humidifier control</td><td>Fan operation at Heating mode</td><td>Thermo ON operation at heating mode</td></tr>
<tr><td>7</td><td rowspan="2">Air flow set in case of heat thermo OFF</td><td>Low ※1</td><td>Extra low ※1</td></tr>
<tr><td>8</td><td>Setting air flow ※1</td><td>Depends on SW1-7</td></tr>
<tr><td>9</td><td>Auto restart function</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>10</td><td>Power ON/OFF by breaker</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>SW2
Capacity code switch</td><td>1~6</td><td colspan="3"><table><tr><th>Models</th><th>SW2</th></tr><tr><td>WL18</td><td>
</td></tr><tr><td>WL24</td><td>
</td></tr><tr><td>WL30</td><td>
</td></tr></table></td><td>Before power supply ON</td><td>Indoor controller board</td></tr>
<tr><td rowspan="8">SW3
Function selection</td><td>1</td><td>Heat pump/Cool only</td><td>Cooling only</td><td>Heat pump</td><td rowspan="8">Under suspension</td><td rowspan="8">Indoor controller board
<Initial setting>

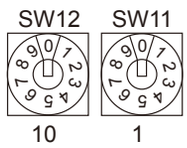

※1 Second setting is same as first setting.
※2 Please do not use SW3-7,8 as trouble might be caused by the usage condition.</td></tr>
<tr><td>2</td><td>Not used</td><td>—</td><td>—</td></tr>
<tr><td>3</td><td>Not used</td><td>—</td><td>—</td></tr>
<tr><td>4</td><td>Vane horizontal angle</td><td>Second setting ※1</td><td>First setting</td></tr>
<tr><td>5</td><td>Changing the opening of linear expansion valve during thermo OFF</td><td>Effective</td><td>Not effective</td></tr>
<tr><td>6</td><td>Heating 4 degree up</td><td>Not effective</td><td>Effective</td></tr>
<tr><td>7</td><td>Target superheat setting ※2</td><td>—</td><td>—</td></tr>
<tr><td>8</td><td>Target subcool ※2</td><td>—</td><td>—</td></tr>
<tr><td>SW4
Model selection</td><td>1~4</td><td colspan="3">In case of replacing the indoor controller board, make sure to set the switch to the initial setting, which is shown below.

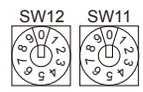
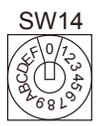
</td><td>Before power supply ON</td><td>Indoor controller board</td></tr>
</table>

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-WL**NKMU-E</td><td>2</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>

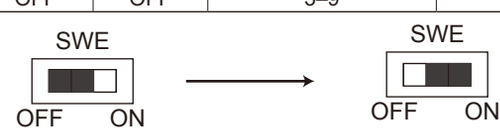
This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.</td><td>Address board
<Initial setting>

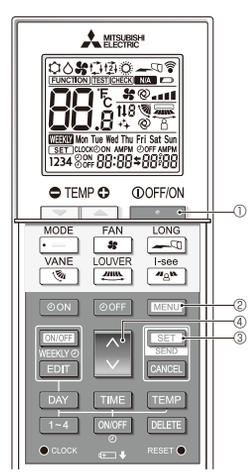
</td></tr>
<tr><td>SW22
Function selection</td><td>3, 4</td><td>
<table>
<tr><th></th><th>Function</th><th>ON</th><th>OFF</th></tr>
<tr><td>1</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>2</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>3</td><td>Pair No. of wireless remote controller</td><td rowspan="2">Depends 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.

• Pair No. setting is not set necessarily 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 rowspan="2"></th></tr>
<tr><th>SW22-3</th><th>SW22-4</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>


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


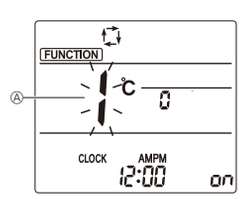


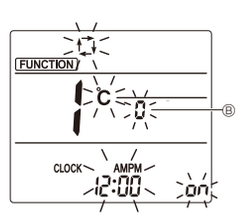
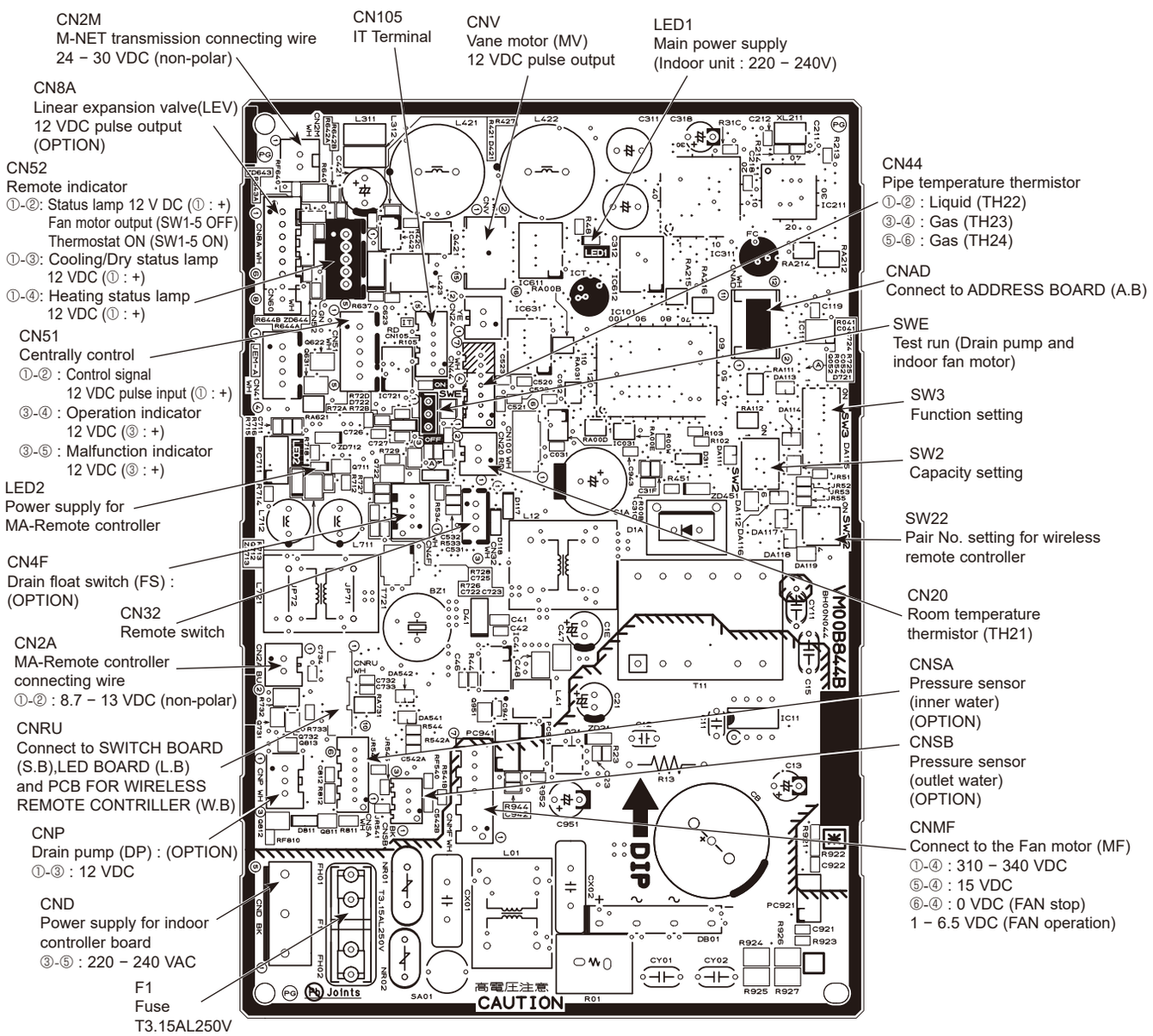
Fig. 1


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.</td><td>Under operation</td><td><Initial setting>

</td></tr>
</table>

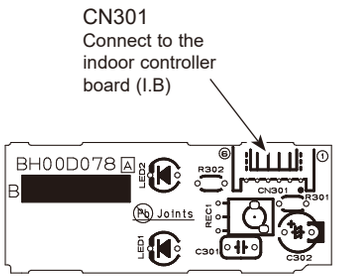
9-3. TEST POINT DIAGRAM

9-3-1. Indoor controller board (I.B)

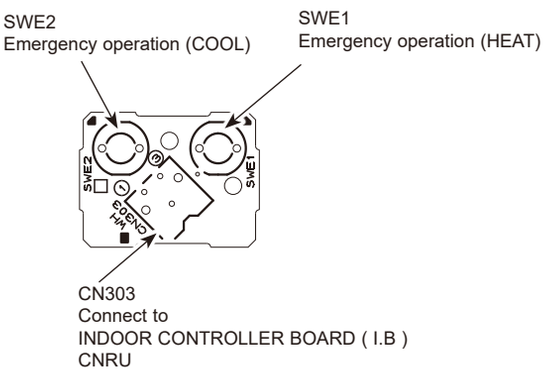


Note: The voltage range of 12 VDC in this page is between 11.5 to 13.7 VDC.

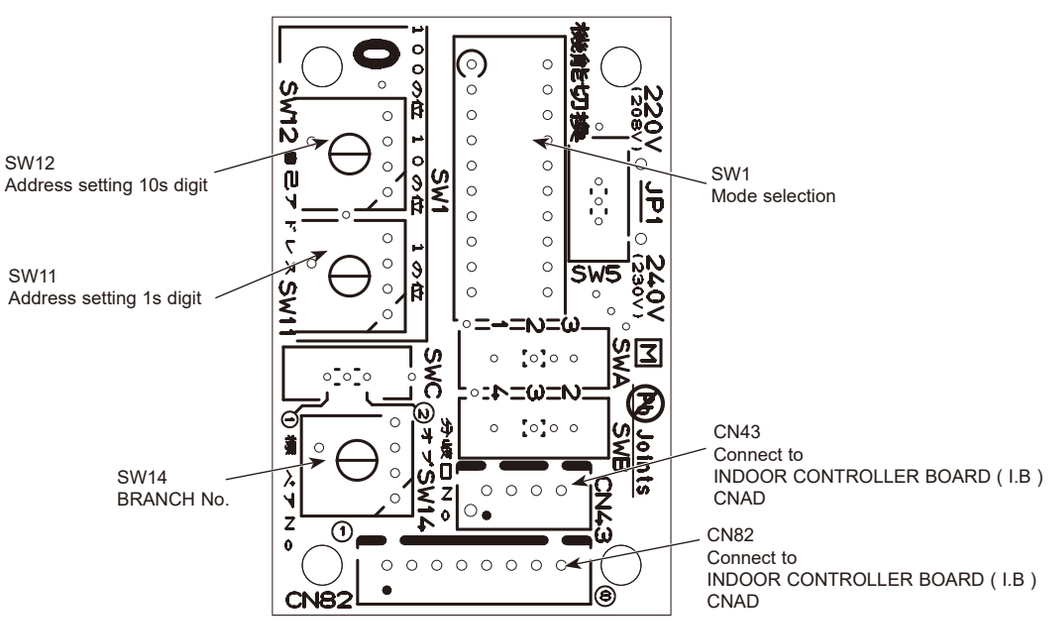
9-3-2. PCB FOR WIRELESS REMOTE CONTROLLER (W.B)



9-3-3. SWITCH BOARD (S.B)



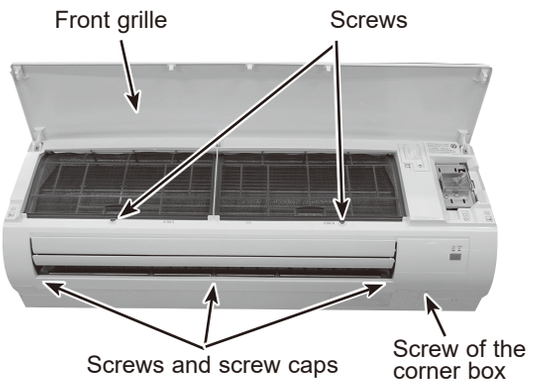
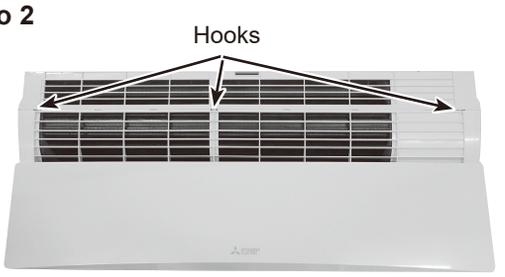
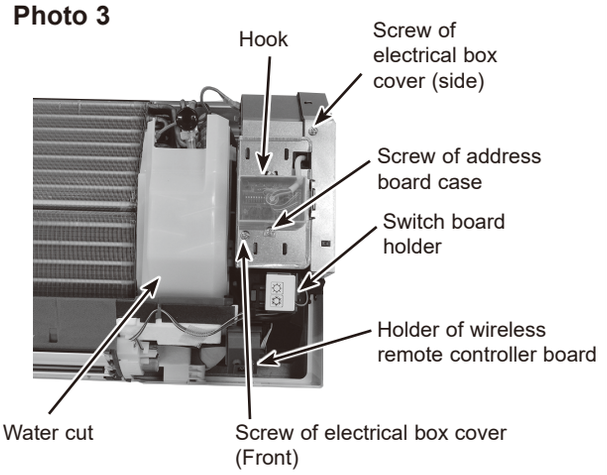
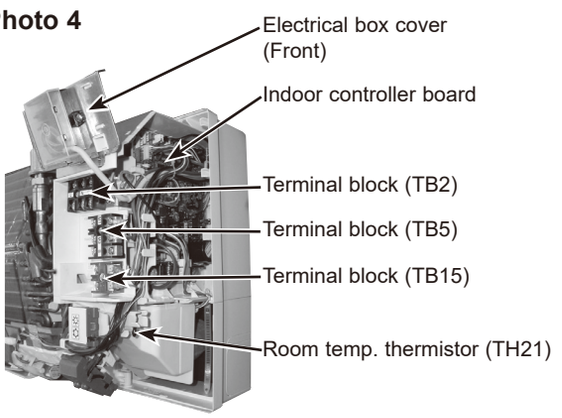
9-3-4. Address board (A.B)

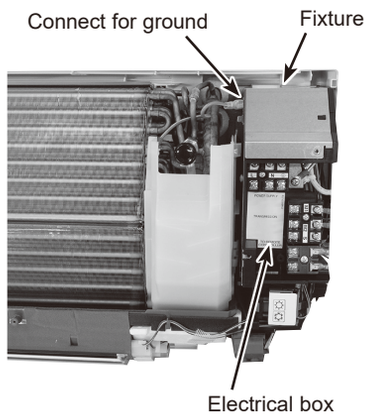
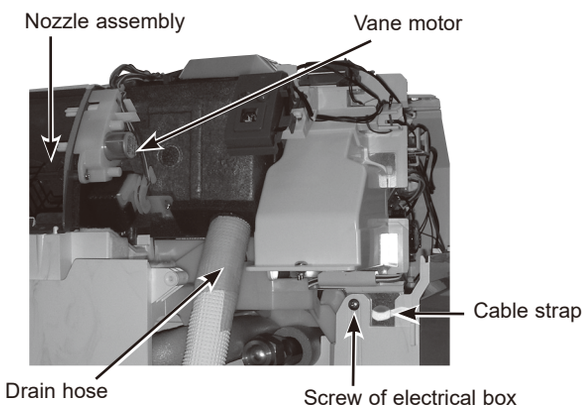
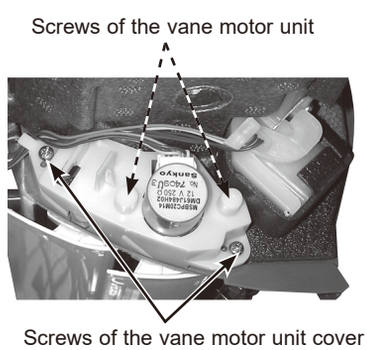


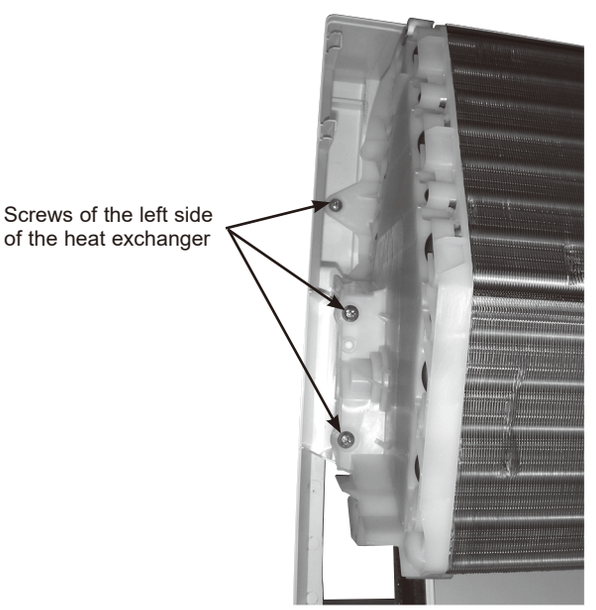
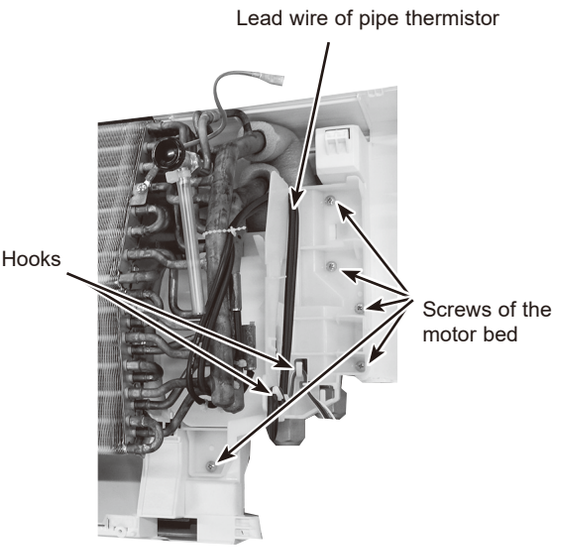
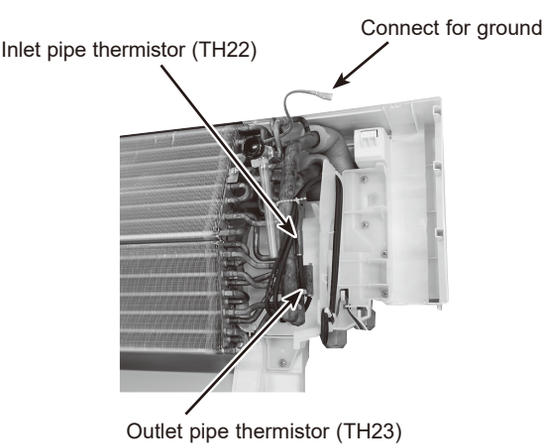
10 DISASSEMBLY PROCEDURE

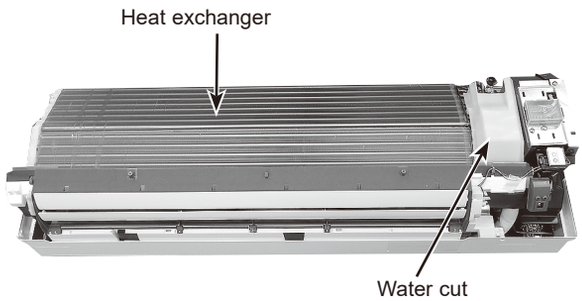
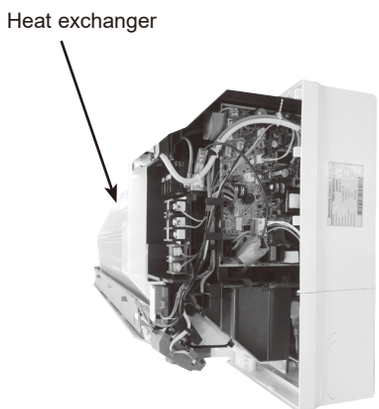
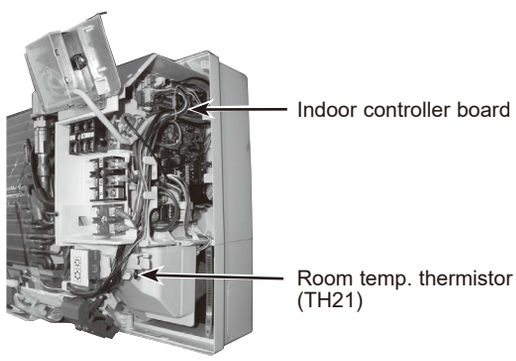
——→ : Indicates the visible parts in the photos/figures.
--------→ : Indicates the invisible parts in the photos/figures.

NOTE: Turn OFF the power supply before disassembly.
Be careful when removing heavy parts.

OPERATION PROCEDURE	PHOTOS/FIGURES
1. REMOVING THE PANEL (1) Press and unlock the knobs on both sides of the front grille and lift the front grille until it is level. Pull the hinges forward to remove the front grille. (See Photo 1) (2) Remove 3 screw caps of the panel. Remove 5 screws. (See Photo 1) (3) Unfix 3 hooks. (See Photo 2) (4) Hold the lower part of both ends of the panel and pull it slightly toward you, and then remove the panel by pushing it upward. (5) Remove the screw of the corner box. (See Photo 1) Remove the corner box.	**Photo 1**  **Photo 2** 
2. REMOVING THE ADDRESS BOARD, THE INDOOR CONTROLLER BOARD, THE WIRELESS CONTROLLER BOARD (1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the screw and hook of address board case. (See Photo 2) (3) Disconnect the connectors of address board. (4) Remove the front and side electrical box covers (each 1 screw). (5) Disconnect the connectors on the indoor controller board. (See Photo 4) (6) Remove the switch board holder and open the cover. (7) Pull out the indoor controller board toward you then remove the indoor controller board and switch board. (See Photo 3) (8) Remove the holder of wireless remote controller board. (9) Disconnect the connector of wireless remote controller board and remove the wireless remote controller board from the holder.	**Photo 3**  **Photo 4** 

OPERATION PROCEDURE	PHOTOS/FIGURES
3. REMOVING THE ELECTRICAL BOX (1) Remove the panel and the corner box. (Refer procedure to 1) (2) Remove the screw and hook of address board case. (3) Remove the front and side electrical box covers (each 1 screw). (4) Remove the transmission wiring of TB5, the power supply wiring of TB2 and the wiring of MA-remote controller (TB15). (5) Disconnect the connectors on the indoor controller board. (6) Disconnect the connector for ground wire. (7) Remove the screw on lower side of the electrical box. (See Photo 5) (8) Push up the upper fixture catch to remove the box, then remove it from the box fixture.	**Photo 5** 
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) Pull out the drain hose from the nozzle assembly, and remove nozzle assembly. (See Photo 6)	**Photo 6** (see the bottom) 
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 2 screws of the vane motor unit. (4) Remove the vane motor from the vane motor unit. (5) Disconnect the connector from the vane motor.	**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 cut. (See Photo 3) (4) Remove the screw fixing the line flow fan. (See Photo 9) (5) Remove 5 screws fixing the motor bed. (See Photo 8) (6) Remove the screw fixing motor band. (See Photo 8) (7) Remove the motor bed together with fan motor and motor band. (8) Remove 3 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. **Photo 10**  	**Photo 8**  **Photo 9** 
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 cut. (See Photo 3) (4) Remove the inlet pipe thermistor and outlet pipe thermistor. (5) Disconnect the connector (CN44) on the indoor controller board. (TH22 and TH23/CN44) (6) Remove the air purge valve.	**Photo 11** 

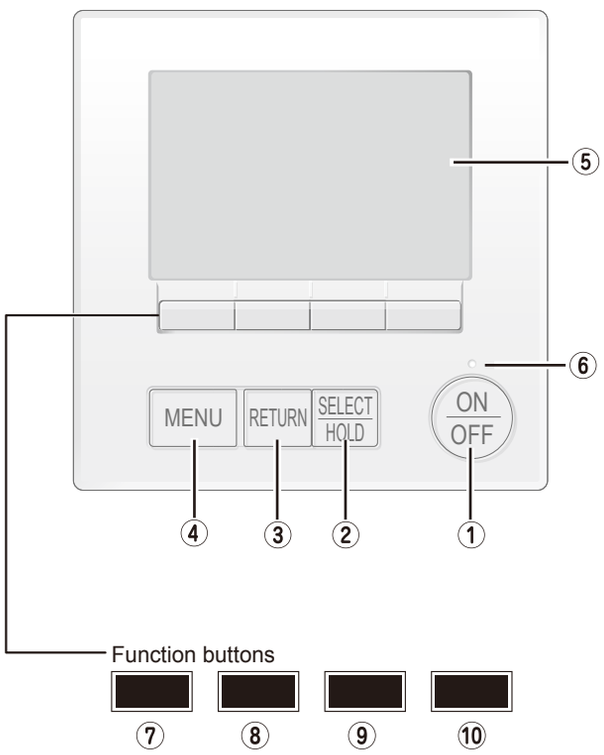
OPERATION PROCEDURE	PHOTOS/FIGURES
8. REMOVING THE HEAT EXCHANGER AND LEV (1) Remove the panel and the corner box. (Refer to procedure 1) (2) Remove the electrical box (Refer to procedure 3) and the nozzle assembly (Refer to procedure 4). (3) Remove the water cut. (4) Remove the pipe thermistors (Refer to 7.). (5) Disconnect the connector for ground wire. (6) Remove 3 screws fixing the left side of the heat exchanger. (See Photo 10) (7) Remove the heat exchanger.	**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** 

11 REMOTE CONTROLLER

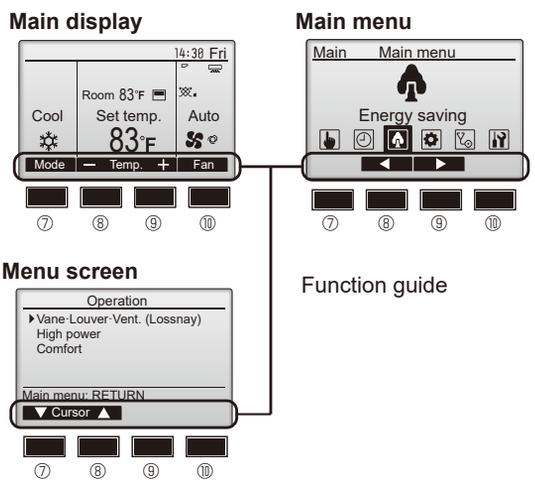
11-1. REMOTE CONTROLLER FUNCTIONS

<PAR-41MAA>

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/HOLD] button

Press to save the setting.
When the Main menu is displayed, pressing this button will enable/disable the HOLD function.

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]

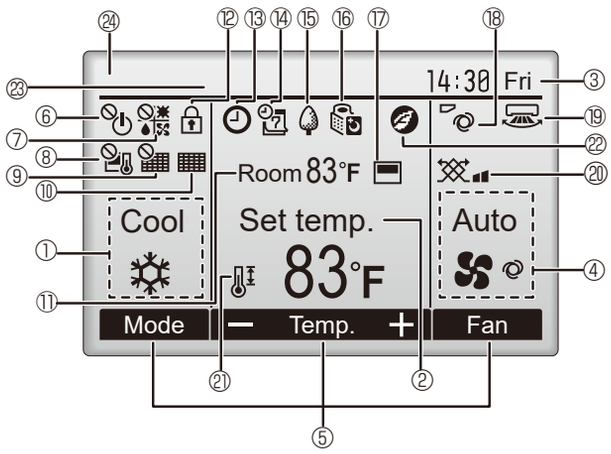
Main display: Press to change the fan speed.
Menu screen: The button function varies with the screen.

Display

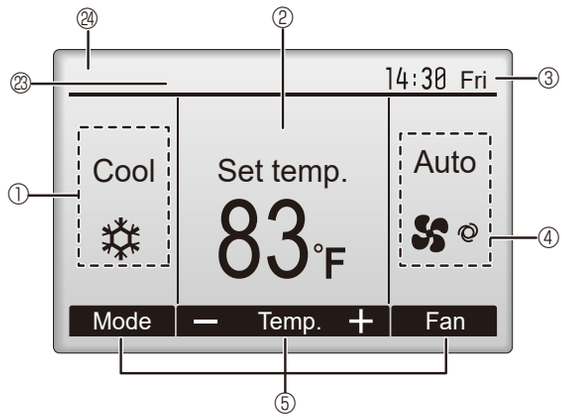
The main display can be displayed in two different modes: “Full” and “Basic”. The initial setting is “Full”. To switch to the “Basic” mode, change the setting on the Main display setting. (Refer to operation manual included with remote controller.)

<Full mode>

All icons are displayed for explanation.



<Basic mode>



① Operation mode

② Preset temperature

③ Clock

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

⑫

Appears when the buttons are locked.

⑬

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

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

appears when the HOLD function is enable.

⑭

Appears when the Weekly timer is enabled.

⑮

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

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (1).

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.

㉓ Centrally controlled

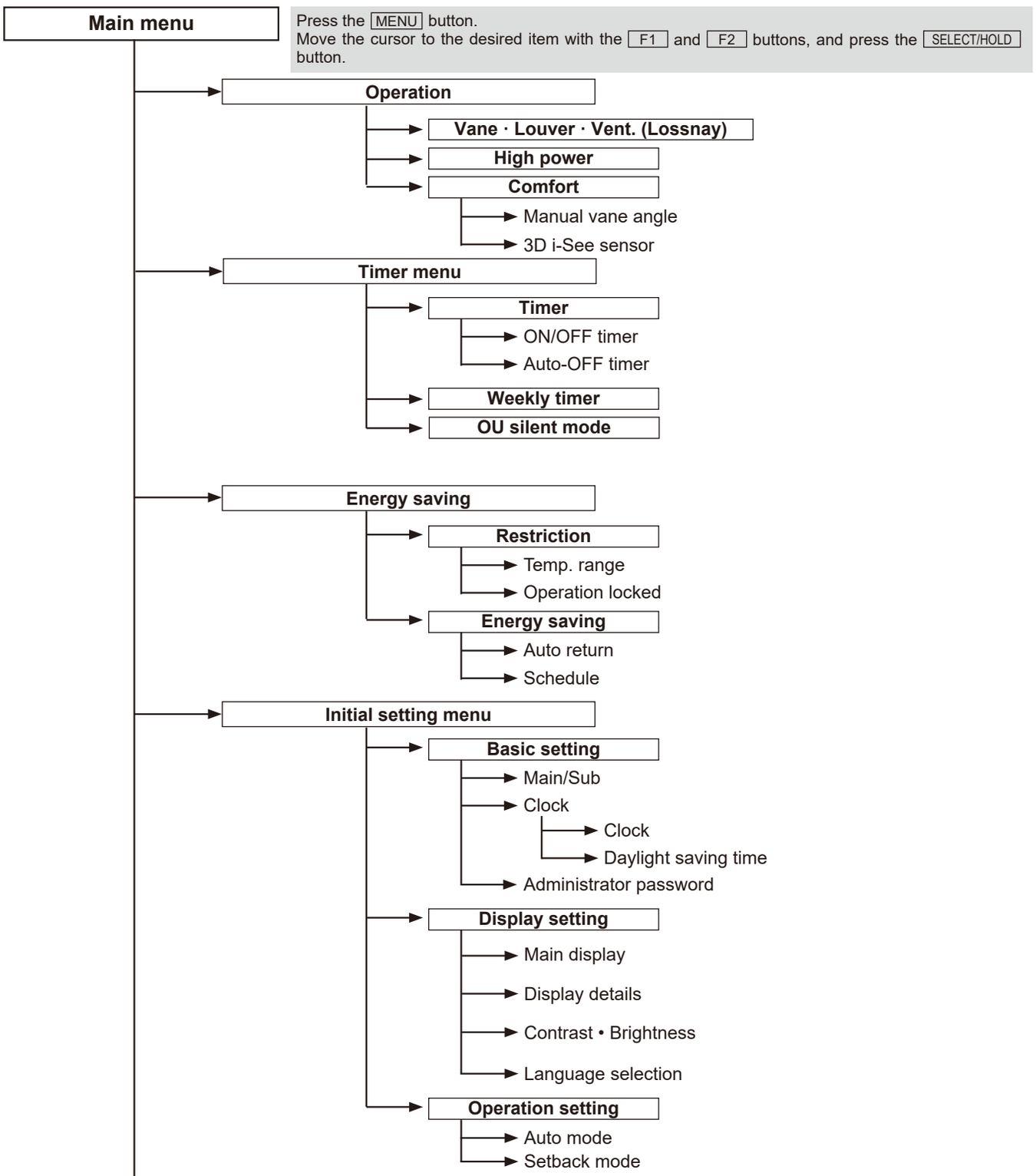
Appears for a certain period of time when a centrally-controlled item is operated.

㉔ Preliminary error display

A check code appears during the preliminary error.

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

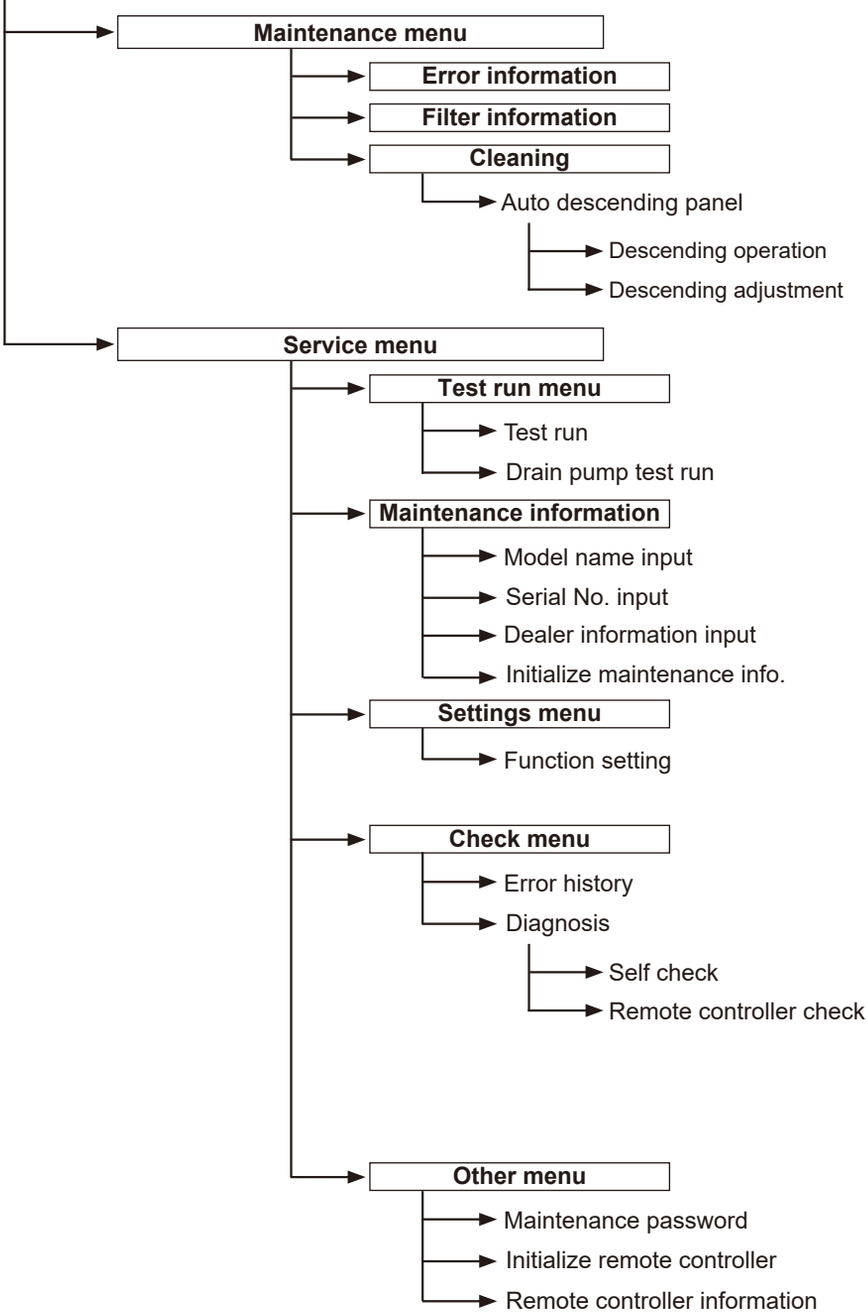
Menu structure



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."
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.

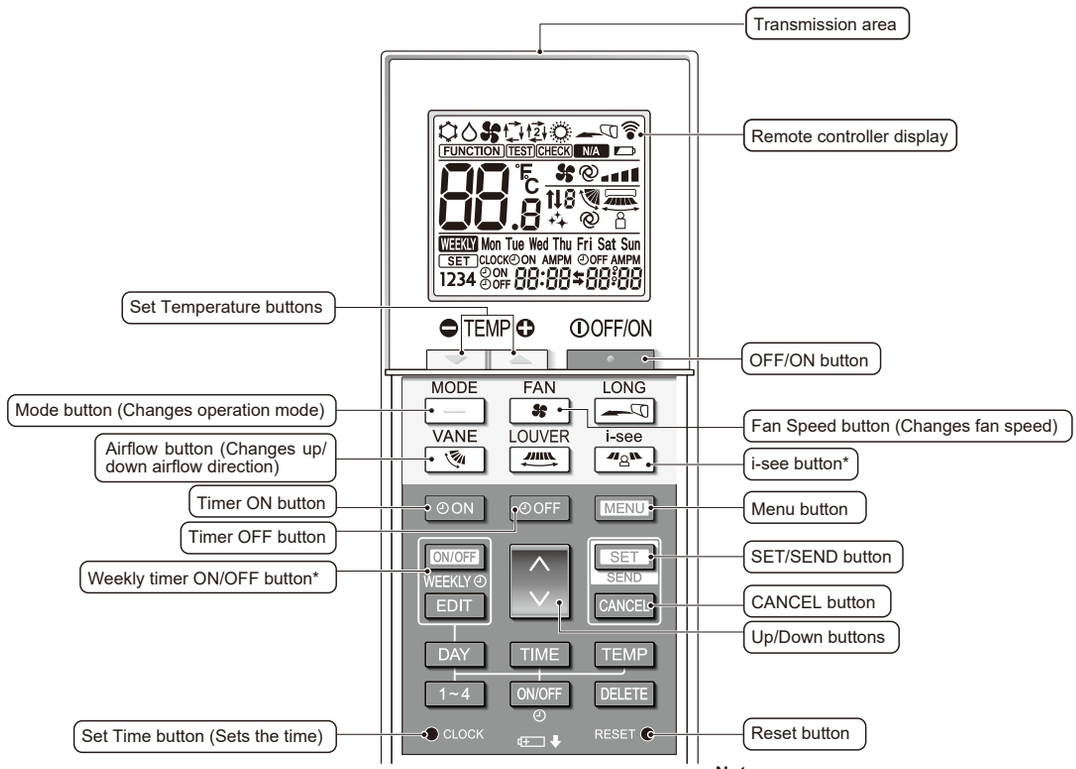
*1 Clock setting is required.

*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."
		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.**
		Setback mode	**Whether or not to use the Setback mode can be selected by using the button. This setting is valid only when indoor units with the Setback 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.**

<PAR-SL101A-E>

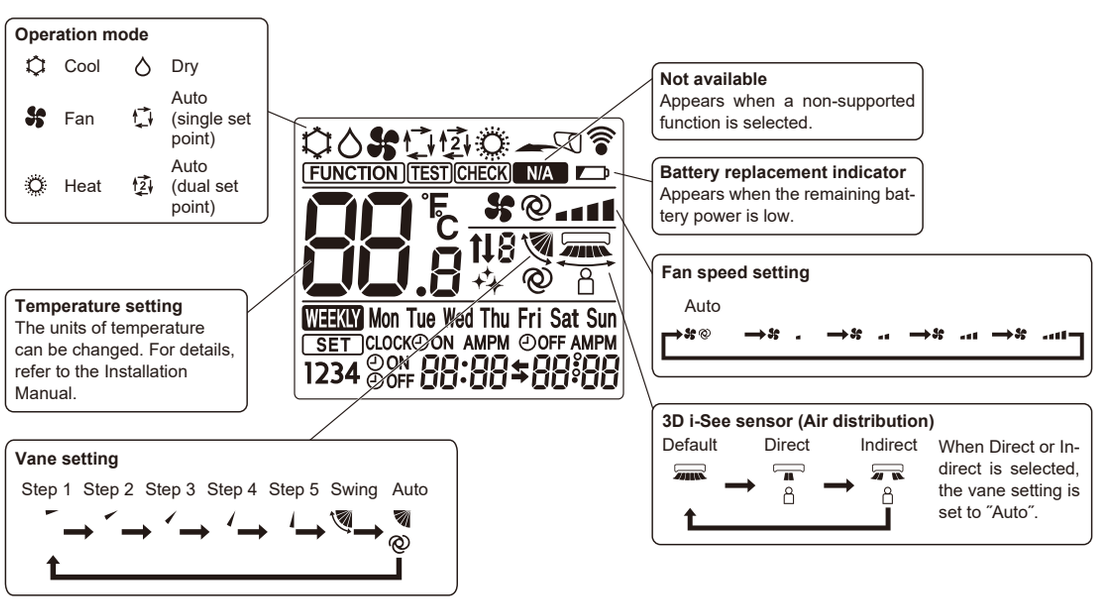
Controller interface



Note:

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

Display

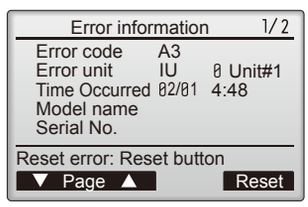


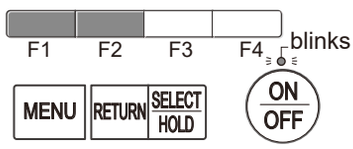
11-2. ERROR INFORMATION

When an error occurs, the following screen will appear.
Check the error status, stop the operation, and consult your dealer.

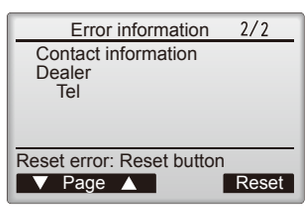
1. Check code, error unit, refrigerant address, model name, and serial number will appear.
   The model name and serial number will appear only if the information has been registered.

   Press the F1 or F2 button to go to the next page.





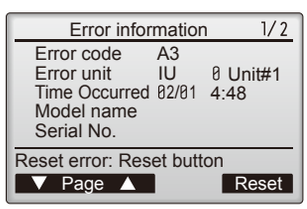
Contact information (dealer's phone number) will appear if the information has been registered.

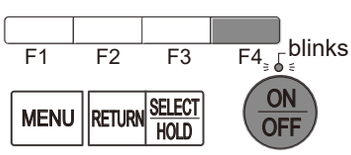


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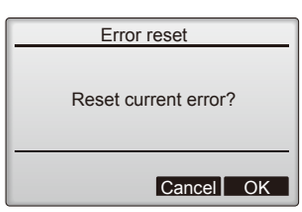
2. Press the F4 button or the [ON/OFF] button to reset the error that is occurring.

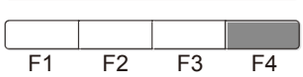
Errors cannot be reset while the ON/OFF operation is prohibited.

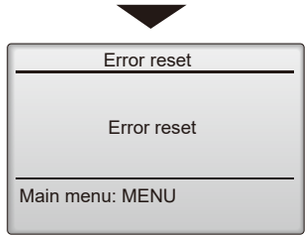




Select "OK" with the F4 button.



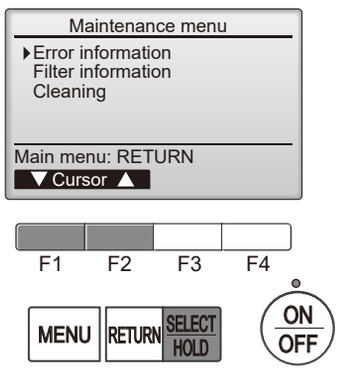




Navigating through the screens
• To go back to the Service menu ..... [MENU] button

• Checking the error information

While no errors are occurring, page 2/2 of the error information can be viewed by selecting "Error information" from the Maintenance menu.
Errors cannot be reset from this screen.

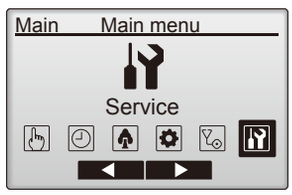


11-3. SERVICE MENU

Maintenance password is required

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.

   *At the main display, the menu button and select "Service" to make the maintenance setting.



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2. When the Service menu is selected, a window will appear asking for the password.

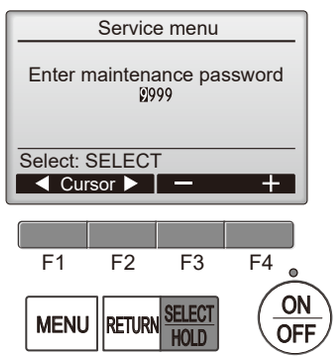
   To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button.

   ▼

   Set each number (0 through 9) with the F3 or F4 button.

   ▼

   Then, press the [SELECT/HOLD] button.



Note: The initial maintenance password is "9999". Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.

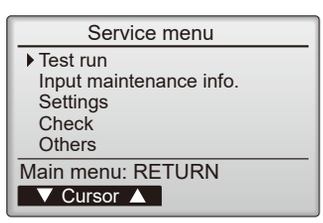
: If you forget your maintenance password, you can initialize the password to the default password "9999" by pressing and holding the F1 button for 10 seconds on the maintenance password setting screen.

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3. If the password matches, the Service menu will appear.

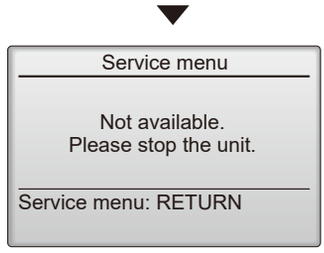
   The type of menu that appears depends on the connected indoor units' type.

Note: Air conditioning units may need to be stopped to make only at "Settings". There may be some settings that cannot be made when the system is centrally controlled.



▼

A screen will appear that indicates the setting has been saved.

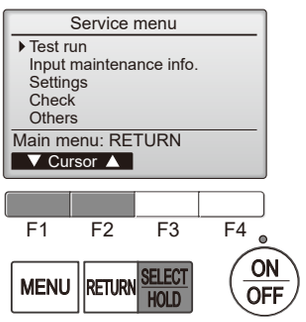


Navigating through the screens
- To go back to the Service menu ..... [MENU] button
- To return to the previous screen..... [RETURN] button

11-4. TEST RUN

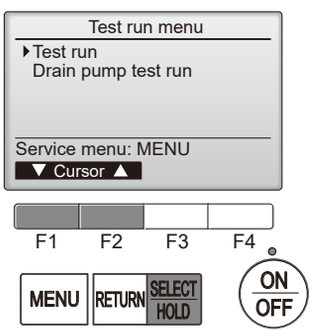
11-4-1. PAR-41MAA

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.



Select "Test run" with the F1 or F2 button, and press the [SELECT/HOLD] button.

2. Select "Test run" with the F1 or F2 button, and press the [SELECT/HOLD] button.



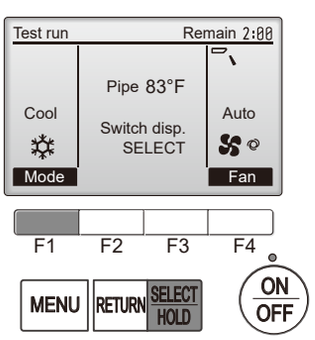
Test run operation

Press the F1 button to go through the operation modes in the order of "Cool and Heat".

Cool mode: Check the cold air blows out.
Heat mode: Check the heat blows out.

Check the operation of the outdoor unit's fan.

Press the [SELECT/HOLD] button and open the Vane setting screen.



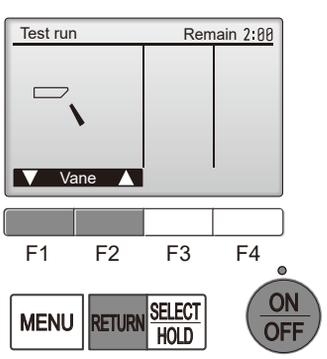
Auto vane check

Check the auto vane with the F1 F2 buttons.

Press the [RETURN] button to return to "Test run operation".

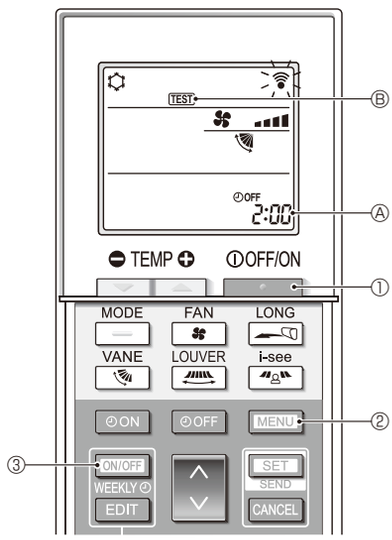
Press the [ON/OFF] button.

When the test run is completed, the "Test run menu" screen will appear.
The test run will automatically stop after 2 hours.
*The function is available only for the model with vanes.



11-4-2. PAR-SL101A-E

1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - [CHECK] comes on and the unit enters the service mode.
3. Press the [MENU] button ②.
   - [TEST] Ⓑ comes on and the unit enters the test run mode.
4. Press the following buttons to start the test run.
   - [—]: Switch the operation mode between cooling and heating and start the test run.
   - [ ]: Switch the fan speed and start the test run.
   - [ ]: Switch the airflow direction and start the test run.
   - [ ]: Switch the louver and start the test run.
   - [SET]: Start the test run.
5. Stop the test run.
   - Press the [ ] button ① to stop the test run.
   - After 2 hours, the stop signal is transmitted.



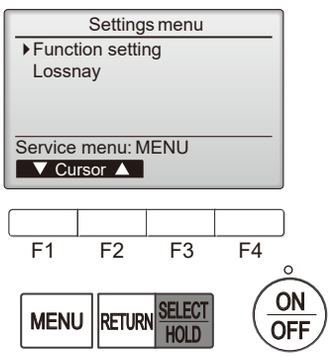
11-5. FUNCTION SETTING

11-5-1. PAR-41MAA

1. Select ″Service″ from the Main menu, and press the [SELECT/HOLD] button.

   Select ″Setting″ from the Service menu, and press the [SELECT/HOLD] button.

   Select ″Function setting″, and press the [SELECT/HOLD] button.

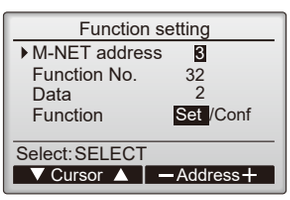


2. The Function setting screen will appear.
   Press the F1 or F2 button to move the cursor to one of the following: M-NET address, function setting number, or setting value. Then, press the F3 or F4 button to change the settings to the desired settings.

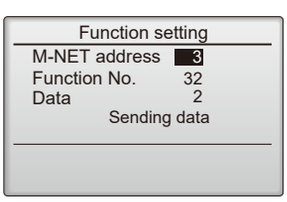
   Once the settings have been completed, press the [SELECT/HOLD] button.

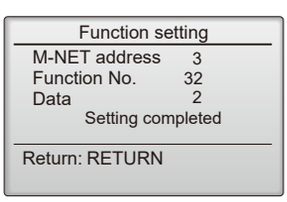
   A screen will appear indicating that the settings information is being sent.
   To check the current settings of a given unit, enter the setting for its M-NET address and function setting number, select Conf for the Function, and press the [SELECT/HOLD] button.

   A screen will appear indicating that the settings are being searched for.
   When the search is done, the current settings will appear.



   When the settings information has been sent, a screen will appear indicating its completion.
   To make additional settings, press the [RETURN] button to return to the screen shown in the above step. Set the function numbers for other indoor units by following the same steps.





Note:
- Refer to the indoor unit Installation Manual for information about the factory settings of indoor units, function setting numbers, and setting values.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

11-5-2. PAR-SL101A-E

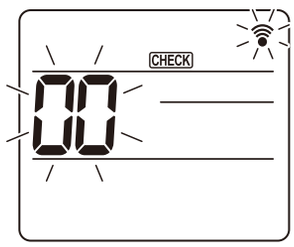


Fig. 1

1. Going to the function select mode
   Press the MENU button between of 5 seconds.
   (Start this operation from the status of remote controller display turned off.)
   [CHECK] is lit and "00" blinks. (Fig. 1)
   Press the ▲▼ button to set the "50".
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

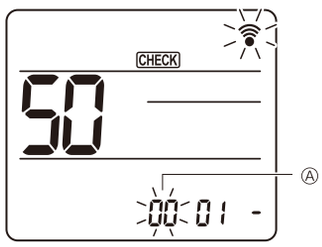


Fig. 2

2. Setting the unit number
   Press the ▲▼ button to set unit number Ⓐ. (Fig. 2)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

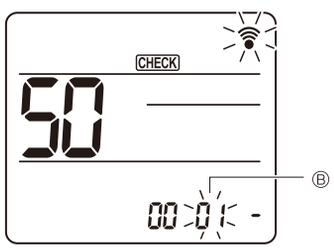


Fig. 3

3. Select a mode
   Press the ▲▼ button to set Mode number Ⓑ. (Fig. 3)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
   Current setting number: 1=1 beep (1 second)
   2=2 beep (1 second each)
   3=3 beep (1 second each)

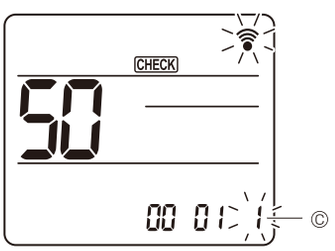


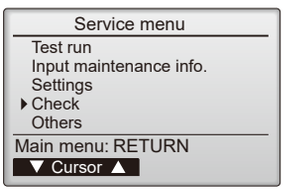
Fig. 4

4. Selecting the setting number
   Use the ▲▼ button to change the Setting number Ⓒ. (Fig. 4)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.
5. To select multiple functions continuously
   Repeat select ③ and ④ to change multiple function settings continuously.
6. Complete function selection
   Direct the wireless remote controller toward the sensor of the indoor unit and press the ⏻OFF/ON button.

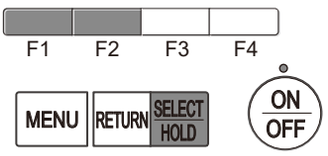
Note: Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

11-6. ERROR HISTORY

1. Select ″Service″ from the Main menu, and press the [SELECT/HOLD] button.

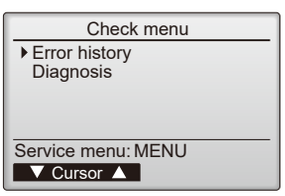


Select ″Check″ with the F1 or F2 button, and press the [SELECT/HOLD] button.



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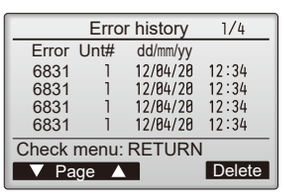
2. Select ″Error history″ with the F1 or F2 button, and press the [SELECT/HOLD] button.

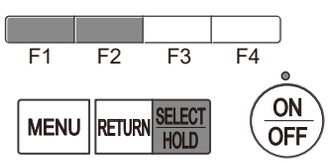


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3. 16 error history records will appear.

4 records are shown per page, and the top record on the first page indicates the latest error record.

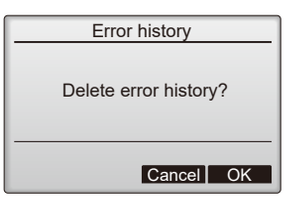




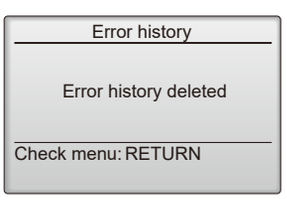
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4. <u>Deleting the error history</u>

To delete the error history, press the F4 button (Delete) on the screen that shows error history.
A confirmation screen will appear asking if you want to delete the error history.



Press the F4 button (OK) to delete the history.



″Error history deleted″ will appear on the screen.

Press the [RETURN] button to go back to the Check menu screen.

11-7. SELF-DIAGNOSIS

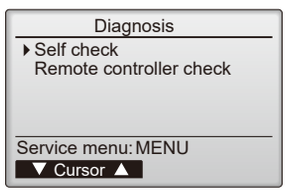
11-7-1. PAR-41MAA

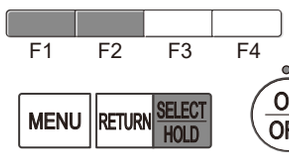
1. Select ″Service″ from the Main menu,
   and press the [SELECT/HOLD] button.

   Select ″Check″ from the Service menu,
   and press the [SELECT/HOLD] button.

   Select ″Diagnosis″ from the Check menu,
   and press the [SELECT/HOLD] button.

   Select ″Self check″ with the F1 or F2 button,
   and press the [SELECT/HOLD] button.



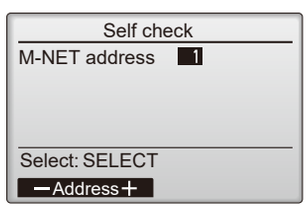


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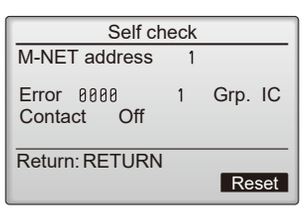
2. Select “Self check” from the Diagnosis menu, and press the [SELECT/HOLD] button to view the Self check screen.

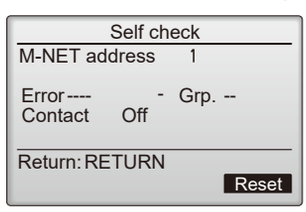
   With the F1 or F2 button, enter the M-NET address, and press the [SELECT/HOLD] button.

   Check code, unit number, attribute, and indoor unit demand signal ON/OFF status at the contact will appear. “-” will appear if no error history is available.



When there is no error history

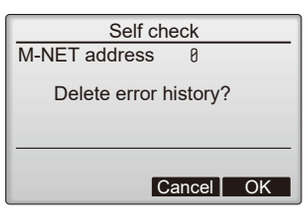


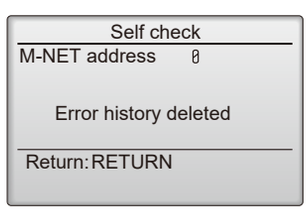


3. <u>Resetting the error history</u>

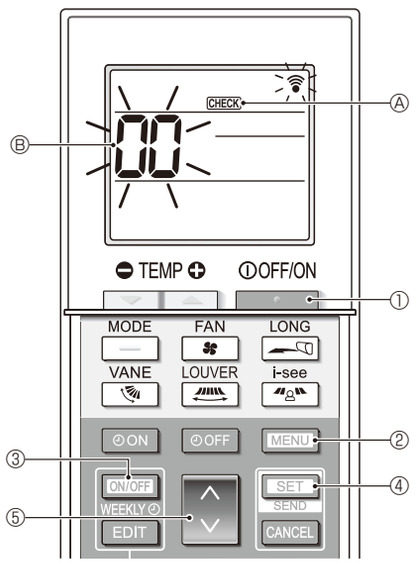
   Press the F4 button (Reset) on the screen that shows the error history. A confirmation screen will appear asking if you want to delete the error history.

   Press the F4 button (OK) to delete the error history. If deletion fails, “Request rejected” will appear, and “Unit not exist” will appear if indoor units that are correspond to the entered address are not found.





11-7-2. PAR-SL101A-E



1. Press the [ ] button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the [ON/OFF WEEKLY] button ③ to disable it (WEEKLY is off).
2. Press the [MENU] button ② for 5 seconds.
   - CHECK Ⓐ comes on and the unit enters the self-check mode.
3. Press the [▲▼] button ⑤ to select the refrigerant address (M-NET address) Ⓑ of the indoor unit for which you want to perform the self-check.
4. Press the [SET] button ④.
   - If an error is detected, the check code is indicated by the number of beeps from the indoor unit and the number of blinks of the OPERATION INDICATOR lamp.
5. Press the [ ] button ①.
   - CHECK Ⓐ and the refrigerant address (M-NET address) Ⓑ go off and the self-check is completed.

11-8. REMOTE CONTROLLER CHECK

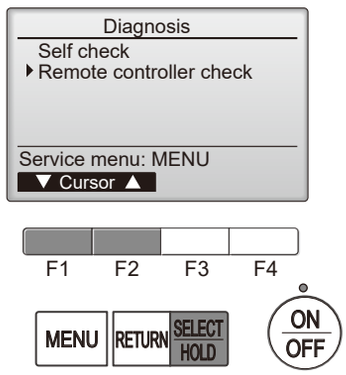
If operations cannot be completed with the remote controller, diagnose the remote controller with this function.

1. Select "Service" from the Main menu, and press the [SELECT/HOLD] button.

   Select "Check" from the Service menu, and press the [SELECT/HOLD] button.

   Select "Diagnosis" from the Check menu, and press the [SELECT/HOLD] button.

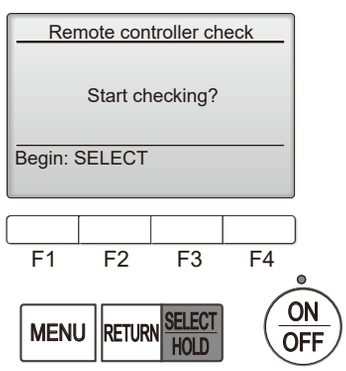
   Select "Remote controller check" with the F1 or F2 button, and press the [SELECT/HOLD] button.



2. Select "Remote controller check" from the Diagnosis menu, and press the [SELECT/HOLD] button to start the remote controller check and see the check results.

   To cancel the remote controller check and exit the "Remote controller check" menu screen, press the [MENU] or the [RETURN] button.

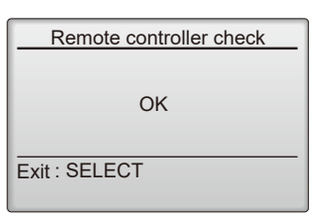
   The remote controller will not reboot itself.



3. OK: No problems are found with the remote controller. Check other parts for problems.
   E3, 6832: There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.
   NG (ALL0, ALL1): Send-receive circuit fault. The remote controller needs replacing.
   ERC: The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

   If the [SELECT/HOLD] button is pressed after the remote controller check results are displayed, remote controller check will end, and the remote controller will automatically reboot itself.

Remote controller check results screen



Check the remote controller display and see if anything is displayed (including lines). Nothing will appear on the remote controller display if the correct voltage (8.5–12 VDC) is not supplied to the remote controller. If this is the case, check the remote controller wiring and indoor units.

CITY MULTI

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