MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

December 2020

No. OCH717
REVISED EDITION-A

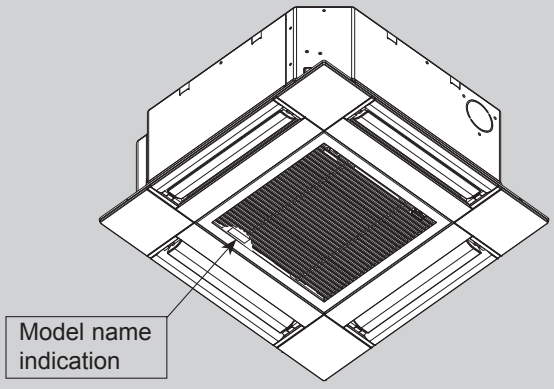
TECHNICAL & SERVICE MANUAL

Series PLFY Ceiling Cassettes

Indoor unit [Model Name]	[Service Ref.]
PLFY-WL10VFM-E	PLFY-WL10VFM-E.TH
PLFY-WL15VFM-E	PLFY-WL15VFM-E.TH
PLFY-WL20VFM-E	PLFY-WL20VFM-E.TH
PLFY-WL25VFM-E	PLFY-WL25VFM-E.TH
PLFY-WL32VFM-E	PLFY-WL32VFM-E.TH
PLFY-WL40VFM-E	PLFY-WL40VFM-E.TH

Notes:
- PLFY-WL40VFM-E.TH has been added.
- Some descriptions have been modified in REVISED EDITION-A.

OCH717 is void.



INDOOR UNIT

CONTENTS

1. SAFETY PRECAUTION 2
2. PARTS NAMES AND FUNCTIONS 3
3. SPECIFICATIONS 4
4. 4-WAY AIRFLOW SYSTEM 7
5. OUTLINES AND DIMENSIONS 9
6. WIRING DIAGRAM 10
7. REFRIGERANT SYSTEM DIAGRAM 11
8. TROUBLESHOOTING 12
9. DISASSEMBLY PROCEDURE 19
10. REMOTE CONTROLLER 23

PARTS CATALOG (OCB717)

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.**

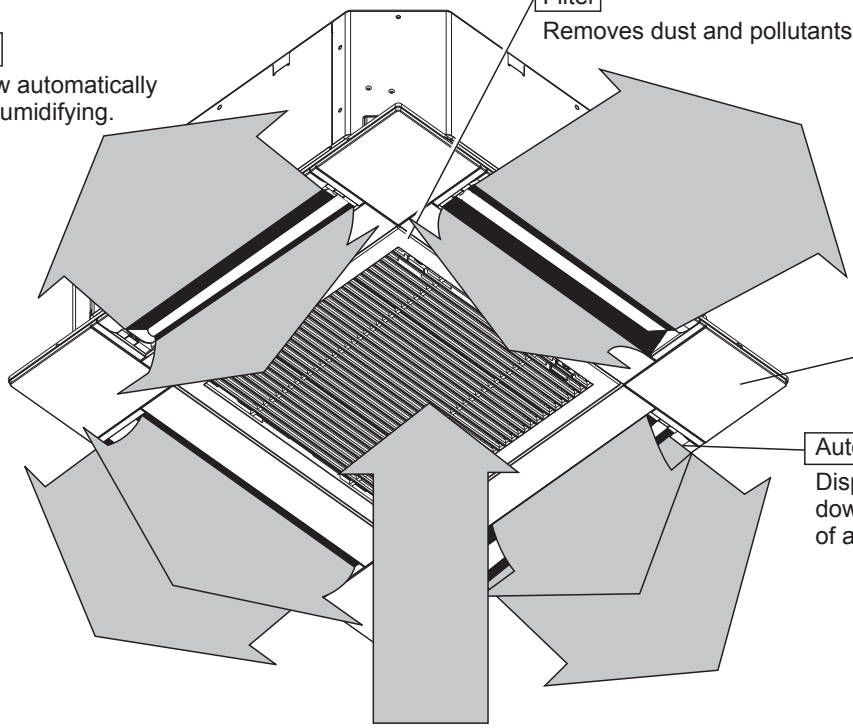
Precautions for handling units for use with water

⚠ 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-40MAA>

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

○ : Supported ✕ : Unsupported

	Function	PAR-40MAA	
		Slim	CITY MULTI
Body	Product size H × W × D (mm)	120 × 120 × 14.5	
	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 SPECIFICATIONS

3-1. SPECIFICATIONS

Service Ref.			PLFY-WL					
			10VFM-E.TH	15VFM-E.TH	20VFM-E.TH	25VFM-E.TH	32VFM-E.TH	40VFM-E.TH
Power source			single phase, 220-240 V, 50 Hz / 220 V, 60 Hz					
Cooling capacity *1		kW	1.2	1.7	2.2	2.8	3.6	4.5
	Power input	kW	0.02	0.02	0.02	0.03	0.04	0.05
	Current input	A	0.23	0.24	0.26	0.29	0.38	0.46
Heating capacity *2		kW	1.4	1.9	2.5	3.2	4.0	5.0
	Power input	kW	0.02	0.02	0.02	0.03	0.04	0.05
	Current input	A	0.17	0.18	0.20	0.23	0.32	0.40
External finish			Galvanized steel sheet					
External dimension H × W × D		mm	208 × 570 × 570					
Net weight		kg	13	13	14	14	14	14
Decoration panel	model		SLP-2FA(L)(E)					
	External finish		Munsell 1.0Y 9.2/0.2					
	Dimension H × W × D	mm	10 × 625 × 625					
	Net weight	kg	3					
Heat exchanger			Cross fin (Aluminum fin and copper tube)					
Fan	Type		Turbo fan × 1					
	External pressure		0 Pa (0 mmH_2O)					
	Motor type		DC motor					
	Motor output	kW	0.05					
	Driving mechanism		Direct driven					
	Airflow rate	m³/min	6.0-6.5-7.0	6.0-7.0-8.0	6.5-7.0-8.0	6.5-7.5-9.0	6.5-9.0-12.0	6.5-11.5-13.0
Sound pressure level (Low-Mid-High) (measured in anechoic room)		dB <A>	25-26-27	25-26-29	27-29-31	27-30-34	27-33-41	27-40-43
Insulation material			PS					
Air filter			PP honeycomb fabric (long life type)					
Protection device			Fuse					
Connectable outdoor unit			HYBRID CITY MULTI/CMB-WM-V-AA, CMB-WM-V-AB/CMH-WM-V-A					
Water pipe dimensions	Water inlet	mm I.D.	20					
	Water outlet	mm I.D.	20					
Field drain pipe size		mm (in)	O.D. 32 (1-1/4") (PVC pipe VP-25 connectable)					
Standard attachment			Installation manual, Instruction book					
Remark	Optional parts		Decoration panel : SLP-2FA, SLP-2FAE, SLP-2FAL, SLP-2FALE, SLP-2FALM, or SLP-2FALME Note: PLFY-VFM series should be used together with decoration panel.					
	Valve kit		PAC-SK04VK-E (WL10 to 50 available)					
			PAC-SK35VK-E (WL10 to 125 available)					
	Lead wire		PAC-SK40LW-E					
	Attachment plate		PAC-SK39AP-E					
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.					

	*1 Nominal cooling condition	*2 Nominal heating condition
Indoor :	27˚CDB/19˚CWB (81˚FDB/66˚FWB)	20˚CDB (68˚FDB)
Outdoor :	35˚CDB (95˚FDB)	7˚CDB/6˚CWB (45˚FDB/43˚FWB)
Pipe length :	7.5 m (24-9/16 ft)	7.5 m (24-9/16 ft)
Level difference :	0 m (0 ft)	0 m (0 ft)

Notes:
1. Nominal conditions *1 and *2 are subject to JIS B8615-1.
2. Due to continuing improvement, above specification may be subject to change without notice.

Unit converter
kcal= kW × 860
BTU/h =kW × 3,412
cfm = m³/min × 35.31
lb = kg/0.4536

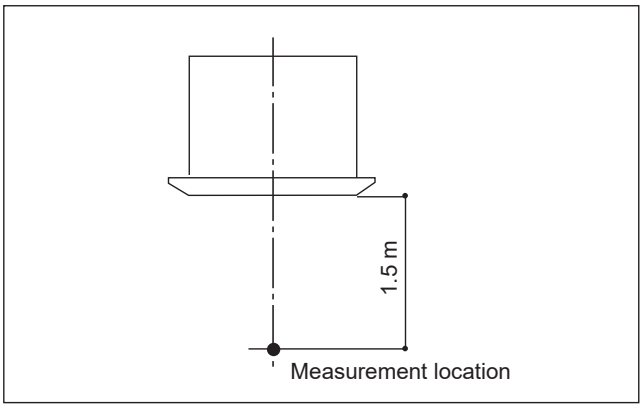
3-2. ELECTRICAL PARTS SPECIFICATIONS

Parts name \ Service ref.	Symbol	PLFY-WL					
		10VFM-E.TH	15VFM-E.TH	20VFM-E.TH	25VFM-E.TH	32VFM-E.TH	40VFM-E.TH
Thermistor (Room temperature detection)	TH21	Resistance 0℃/15 Ω, 10℃/9.6 Ω, 20℃/6.3 Ω, 25℃/5.4 Ω, 30℃/4.3 Ω, 40℃/3.0 Ω					
Thermistor (Pipe temperature detection/inlet)	TH22	Resistance 0℃/15 Ω, 10℃/9.6 Ω, 20℃/6.3 Ω, 25℃/5.4 Ω, 30℃/4.3 Ω, 40℃/3.0 Ω					
Thermistor (Pipe temperature detection/outlet)	TH23	Resistance 0℃/15 Ω, 10℃/9.6 Ω, 20℃/6.3 Ω, 25℃/5.4 Ω, 30℃/4.3 Ω, 40℃/3.0 Ω					
Fuse (Indoor controller board)	FUSE	250 V 6.3 A					
Fan motor	MF	OUTPUT 50 W					
Vane motor	MV	MSBPC20M32 (green label)/MSBPC20M33 (blue label) DC12 V 300 Ω/phase					
Drain pump	DP	PMD-12D13ME INPUT 3 W (DC 13 V) 24 ℓ /Hr					
Drain float switch	FS	Open/short detection					
Power supply terminal block	TB2	(L, N) Rated to 330 V 30 A*					
Transmission terminal block	TB5	(M1, M2, S) Rated to 250 V 20 A*					
MA remote controller terminal block	TB15	(1, 2) Rated to 250 V 10 A*					

* Refer to WIRING DIAGRAM for the supplied voltage.

3-3. SOUND PRESSURE LEVEL

PLFY-WL·VFM-E



Note: Measured in anechoic room.

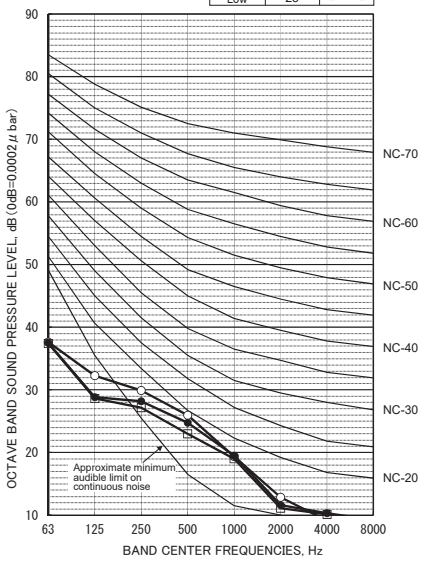
Sound pressure level at anechoic room : Low-Mid-High

Service Ref.	Sound pressure level dB (A)
PLFY-WL10VFM-E.TH	25-26-27
PLFY-WL15VFM-E.TH	25-26-29
PLFY-WL20VFM-E.TH	27-29-31
PLFY-WL25VFM-E.TH	27-30-34
PLFY-WL32VFM-E.TH	27-33-41
PLFY-WL40VFM-E.TH	27-40-43

3-4. NOISE CRITERION CURVES

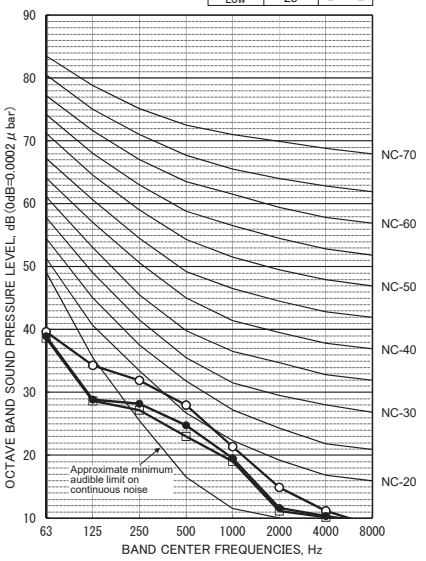
PLFY-WL10VFM-E.TH

FAN	SPL(dB)	LINE
High	27	○—○
Medium	26	●—●
Low	25	□—□



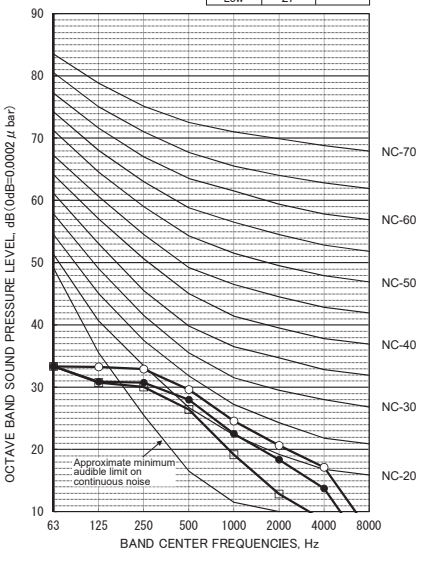
PLFY-WL15VFM-E.TH

FAN	SPL(dB)	LINE
High	29	○—○
Medium	26	●—●
Low	25	□—□



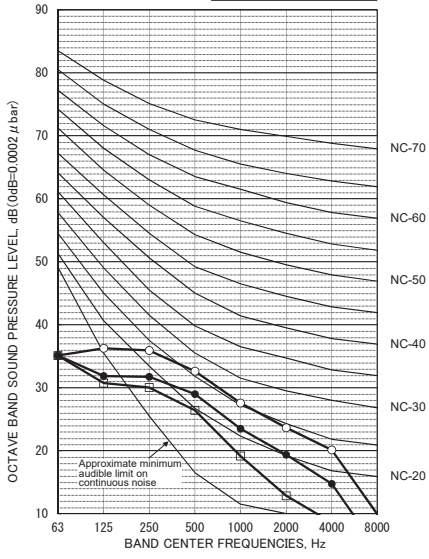
PLFY-WL20VFM-E.TH

FAN	SPL(dB)	LINE
High	31	○—○
Medium	29	●—●
Low	27	□—□



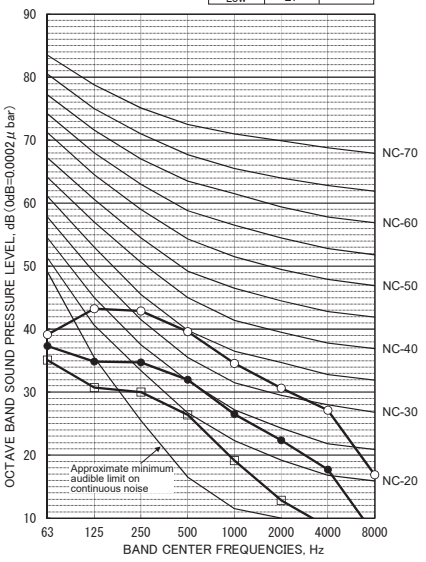
PLFY-WL25VFM-E.TH

FAN	SPL(dB)	LINE
High	34	○—○
Medium	30	●—●
Low	27	□—□



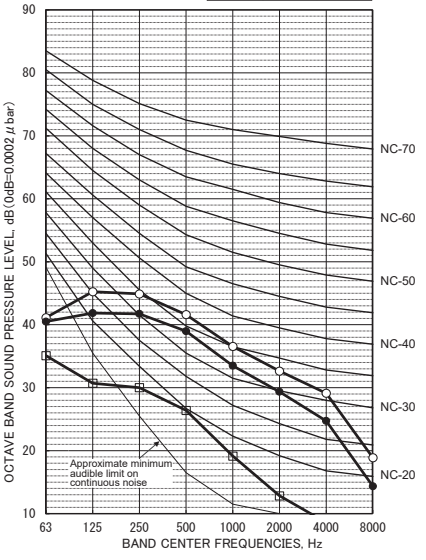
PLFY-WL32VFM-E.TH

FAN	SPL(dB)	LINE
High	41	○—○
Medium	33	●—●
Low	27	□—□



PLFY-WL40VFM-E.TH

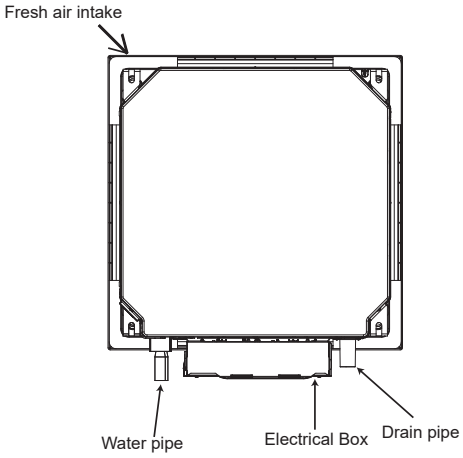
FAN	SPL(dB)	LINE
High	43	○—○
Medium	40	●—●
Low	27	□—□



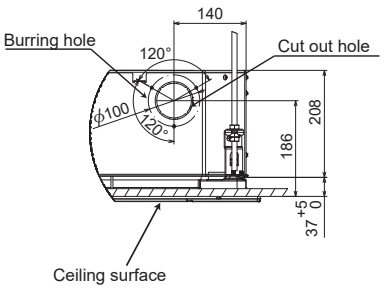
4 4-WAY AIRFLOW SYSTEM

4-1. FRESH AIR INTAKE (Location for installation)

At the time of installation, use the duct holes (cut out) located at the positions shown in following diagram, as and when required.

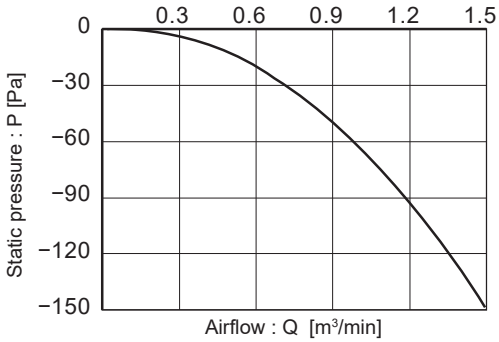


Detail drawing of fresh air intake



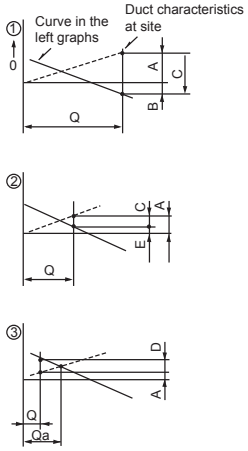
4-2. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

Taking air into the unit



NOTE: Fresh air intake amount should be 10% or less of whole air amount to prevent dew dripping.

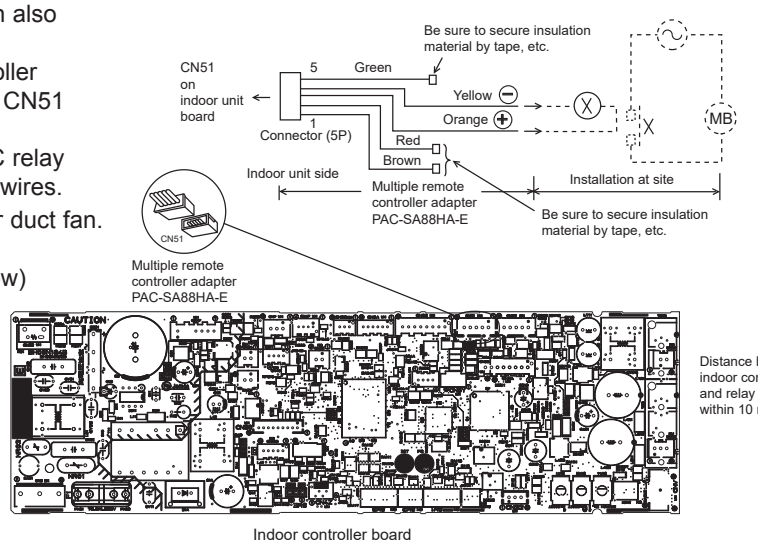
How to read curves



Q···Designed amount of fresh air intake <m³/min>
A···Static pressure loss of fresh air intake duct system with airflow amount Q <Pa>
B···Forced static pressure at air conditioner inlet with airflow amount Q <Pa>
C···Static pressure of booster fan with airflow amount Q <Pa>
D···Static pressure loss increase amount of fresh air intake duct system for airflow amount Q <Pa>
E···Static pressure of indoor unit with airflow amount Q <Pa>
Qa···Estimated amount of fresh air intake without D <m³/min>

4-3. OPERATION IN CONJUNCTION WITH DUCT FAN (Booster fan)

- Whenever the indoor unit operates, the duct fan also operates.
  (1) Connect the optional multiple remote controller adapter (PAC-SA88HA-E) to the connector CN51 on the indoor controller board.
  (2) Drive the relay after connecting the 12 VDC relay between the Yellow and Orange connector wires.
  MB: Electromagnetic switch power relay for duct fan.
  X: Auxiliary relay
  (For 12 VDC, coil rating: 1.0 W or below)

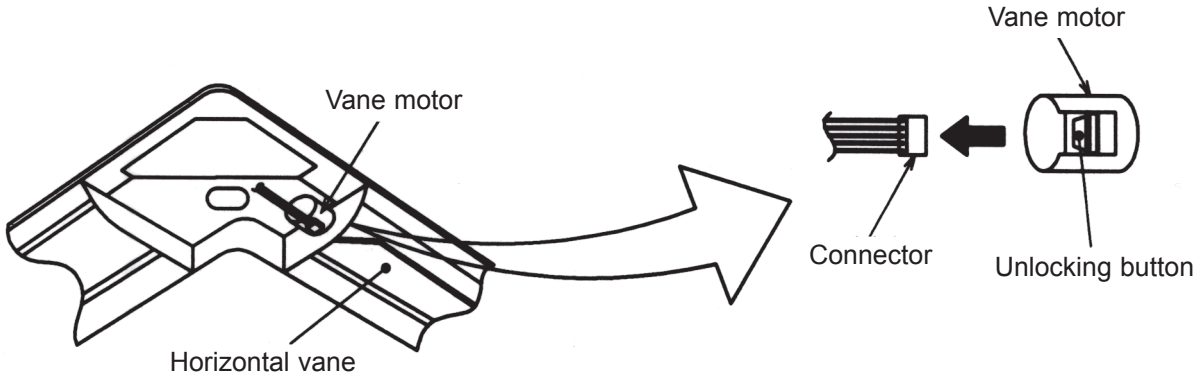


4-4. FIXING HORIZONTAL VANE

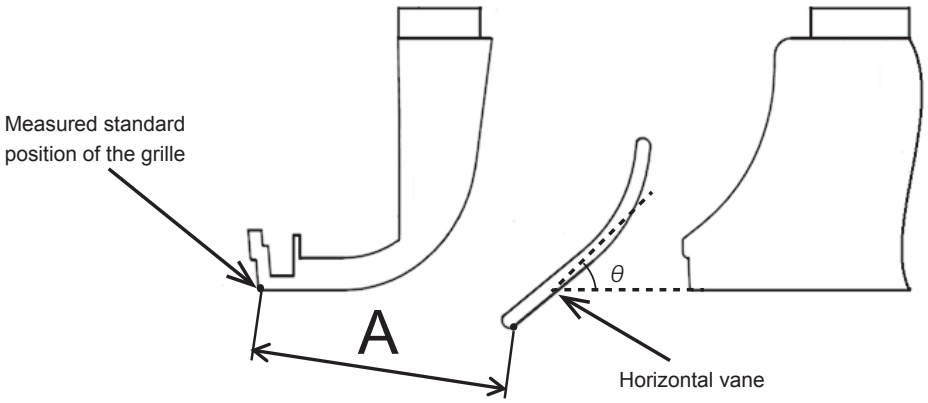
Horizontal vane of each air outlet can be fixed according to the environment where it is installed.

Setting procedures

1) Turn off a main power supply (Turn off a breaker).
2) Disconnect the vane motor connector of the direction of the arrow with pressing the unlocking button as shown in figure below.
   Insulate the disconnected connector with the plastic tape.



3) Set the vertical vane of the air outlet by hand slowly within the range in the table below.



<Set range>

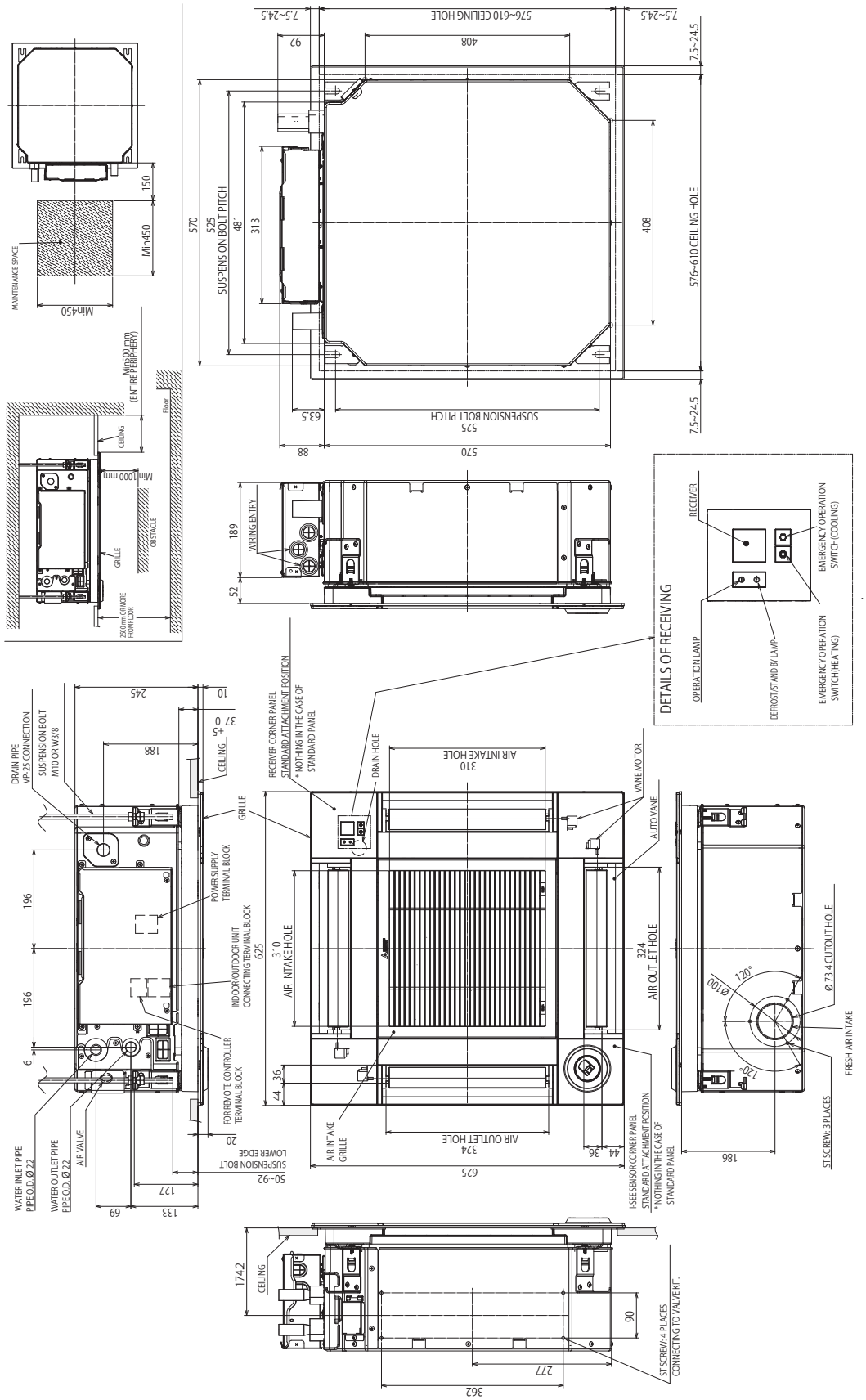
Standard of horizontal position	Angle θ = 21° (Horizontal)	Angle θ = 24°	Angle θ = 39°	Angle θ = 42°	Angle θ = 45° (Downward)
Dimension A (mm)	39	41	47	48	49

Note: Dimension between 39 mm and 49 mm can be arbitrarily set.

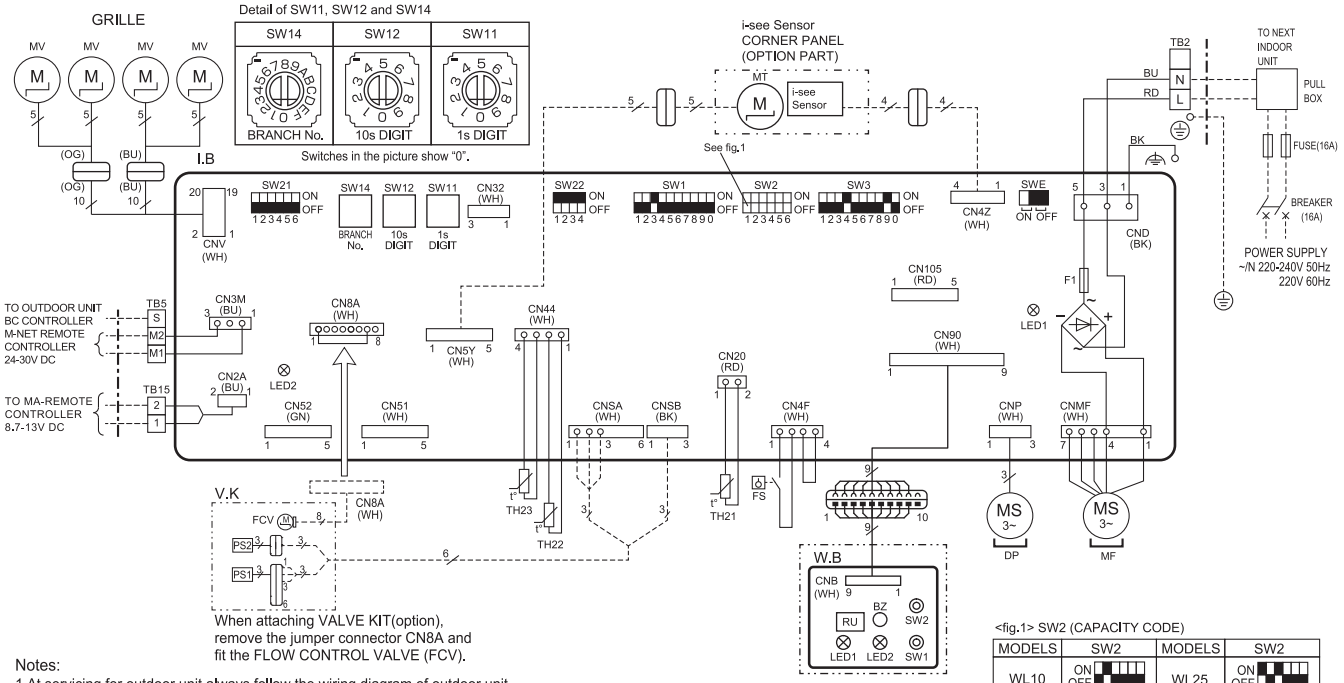
Caution	Do not set the dimension out of the range.
⚠	Erroneous setting could cause dew drips or malfunction of unit.

5 OUTLINES AND DIMENSIONS

Unit: mm



6 WIRING DIAGRAM



When attaching VALVE KIT(option), remove the jumper connector CN8A and fit the FLOW CONTROL VALVE (FCV).

<fig.1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2
WL10	ON OFF 123456	WL25	ON OFF 123456
WL15	ON OFF 123456	WL32	ON OFF 123456
WL20	ON OFF 123456	WL40	ON OFF 123456

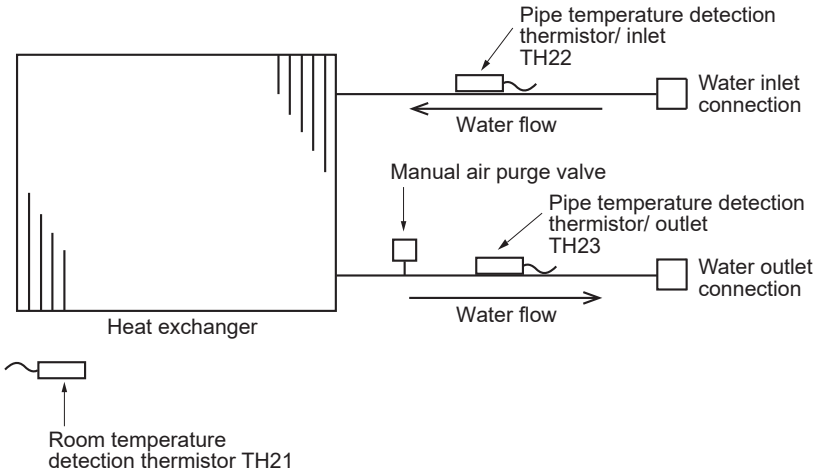
Notes:

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 ME-Remote controller, 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 differs in the capacity. For the detail, refer to the fig.1.
7.Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
8.■ is the switch position.

[LEGEND]

SYMBOL	NAME	
I.B	INDOOR CONTROLLER BOARD	
CN32	REMOTE SWITCH	
CN51	CENTRALLY CONTROL	
CN52	REMOTE INDICATION	
CN105	IT TERMINAL	
F1	FUSE(T6.3AL 250V)	
LED1	POWER SUPPLY (I.B)	
LED2	POWER SUPPLY (MA-REMOTE CONTROLLER)	
SW1	MODE SELECTION	
SW2	CAPACITY CODE	
SW3	MODE SELECTION	
SW11	ADDRESS SETTING 1s DIGIT	
SW12	ADDRESS SETTING 10s DIGIT	
SW14	BRANCH No.	
SW21	CEILING HEIGHT SELECTOR	
SW22	PAIR NO. SETTING	
SWE	DRAIN PUMP(TEST MODE)	
DP	DRAIN PUMP	
MF	FAN MOTOR	
MV	VANE MOTOR	
FS	FLOAT SWITCH	
TB2	TERMINAL BLOCK	POWER SUPPLY
TB5		TRANSMISSION
TB15		MA-REMOTE CONTROLLER
TH21	ROOM TEMP. THERMISTOR	
TH22	PIPE TEMP. THERMISTOR (INLET)	
TH23	PIPE TEMP. THERMISTOR (OUTLET)	
OPTION PART		
W.B	WIRELESS REMOTE CONTROLLER BOARD	
BZ	BUZZER	
LED1	OPERATION (GREEN)	
LED2	STAND BY (ORANGE)	
RU	RECEIVING UNIT	
SW1	EMERGENCY OPERATION(HEAT)	
SW2	EMERGENCY OPERATION(COOL)	
MT	i-see Sensor MOTOR	
V.K	VALVE KIT	
PS1	PRESSURE SENSOR 1 (INLET)	
PS2	PRESSURE SENSOR 2 (OUTLET)	
FCV	FLOW CONTROL VALVE	

7 REFRIGERANT SYSTEM DIAGRAM

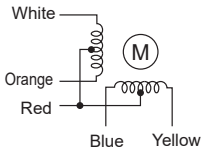
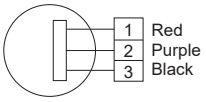
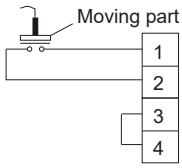
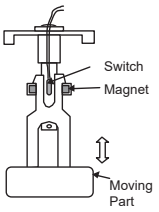
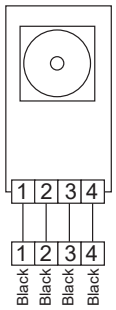


WATER PIPE CONNECTION SIZE

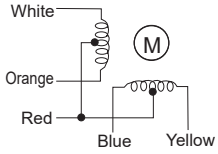
Item \ Service Ref.	PLFY-WL10/15/20/25/32/40VFM-E.TH
Water outlet	Min. I.D. 20 [mm]
Water inlet	Min. I.D. 20 [mm]

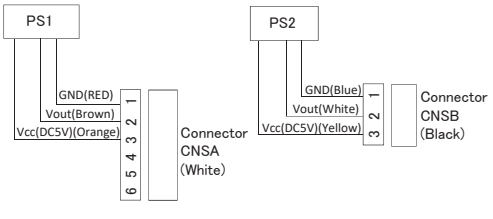
8 TROUBLESHOOTING

8-1. HOW TO CHECK THE PARTS

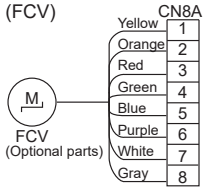
<table>
<tr><th>Parts name</th><th>Checkpoints</th></tr>
<tr><td>Thermistor (TH21)
(Room temperature detection)
Thermistor (TH22)
(Pipe temperature detection/inlet)
Thermistor (TH23)
(Pipe temperature detection/outlet)</td><td>Disconnect the connector then measure the resistance with a multimeter.
(At the ambient temperature 10 to 30℃)
Refer to “8-1-1. Thermistor Characteristic Graph”.</td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals with a multimeter.
(At the ambient temperature 20 to 30℃)
<table>
<tr><th colspan="4">Normal</th><th>Abnormal</th></tr>
<tr><td>Red–Yellow</td><td>Red–Blue</td><td>Red–Orange</td><td>Red–White</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 “8-1-4. DC Fan motor (fan motor/indoor controller board)”.</td></tr>
<tr><td>Drain pump (DP)
 
</td><td>① Check if the drain float switch works properly.
② Check if the drain pump works and drains water properly in cooling operation.
③ If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.
Note: The drain pump for this model is driven by the internal DC motor, so it is not possible to measure the resistance between the terminals.
Normal
Red–Black: Input 13 VDC → The fan starts to rotate.
Purple–Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.</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></tr>
<tr><td>UP</td><td>Short</td><td>Other than short</td></tr>
<tr><td>DOWN</td><td>Open</td><td>Other than open</td></tr>
</table>

</td></tr>
<tr><td>i-see Sensor *
 
</td><td>Turn the power ON while the i-see Sensor connector is connected to the CN4Z on indoor controller board. A communication between the indoor controller board and i-see Sensor board is made to detect the connection.

Normal: When the operation starts, the motor for i-see Sensor is driven to rotate the i-see Sensor.
Abnormal: The motor for i-see Sensor is not driven when the operation starts.

Note: The voltage between the terminals cannot be measured accurately since it is pulse output.</td></tr>
<tr><td>i-see Sensor motor *
 
</td><td>Measure the resistance between the terminals with a multimeter.
(At the ambient temperature 20 to 30°C)
<table>
<tr><th colspan="4">Normal</th><th>Abnormal</th></tr>
<tr><td>Red–Yellow</td><td>Red–Blue</td><td>Red–Orange</td><td>Red–White</td><td rowspan="2">Open or short</td></tr>
<tr><td colspan="4">250 Ω ± 7%</td></tr>
</table></td></tr>
<tr><td>Pressure sensor
(Optional parts)</td><td>▪ 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
 
</td></tr>
</table>

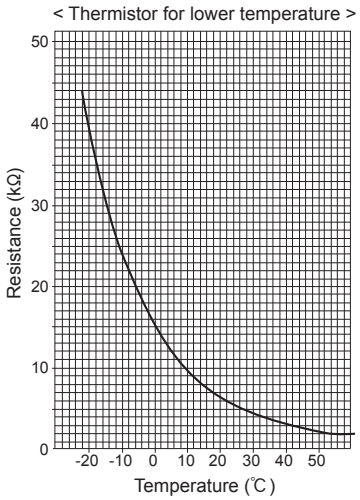
* i-see Sensor is available with optional “i-see Sensor corner panel” (SLP-2FAE, SLP-2FALE, and SLP-2FALME).

Parts name	Checkpoints
Flow control valve (FCV) 	Disconnect the connector then measure the resistance between terminals with a multimeter. Refer to "8-1-2. Flow control valve". <table><tr><th colspan="4">Normal</th><th>Abnormal</th></tr><tr><td>1-5 Purple-Brown</td><td>2-5 Orange-Brown</td><td>3-5 Blue-Brown</td><td>4-5 Green-Brown</td><td rowspan="2">Open or short</td></tr><tr><td colspan="4">55 Ω ± 5.6 Ω (at 25℃)</td></tr></table>

8-1-1. Thermistor Characteristic Graph

Thermistors for lower temperature

Thermistor (TH21)
(Room temperature detection)
Thermistor (TH22)
(Pipe temperature detection/ inlet)
Thermistor (TH23)
(Pipe temperature detection/ outlet)



Thermistor R_0=15 kΩ ± 3%
Fixed number of B=3480 ± 1%

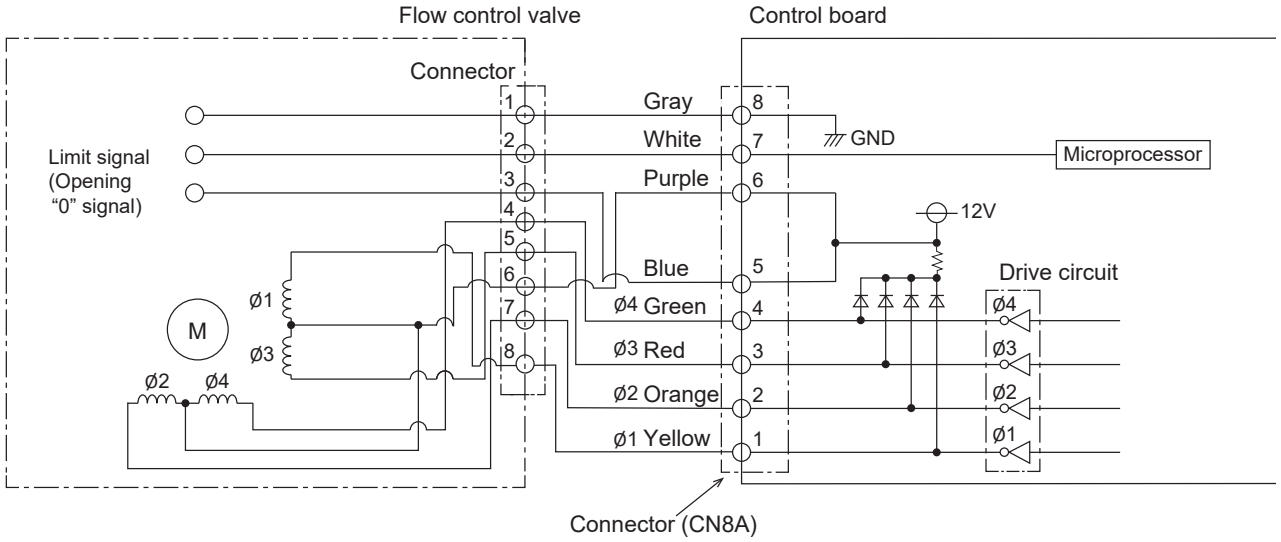
$$Rt=15\exp\{3480(\frac{1}{273+t}-\frac{1}{273})\}$$

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

8-1-2. Flow control valve

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.

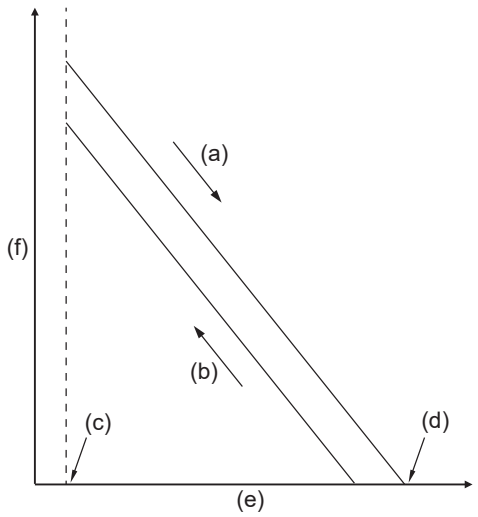


Pulse signal output and valve operation

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

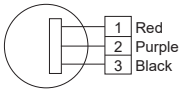
The output pulse changes in the following order:
When the valve closes 1 -> 2 -> 3 -> 4 -> 1
When the valve opens 4 -> 3 -> 2 -> 1 -> 4

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

8-1-3. Drain pump



1. Check if the drain float switch works properly.
2. Check if the drain pump works and drains water properly in cooling operation.
3. If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.

Note: The drain pump for this model is driven by the internal DC motor, so it is not possible to measure the resistance between the terminals.

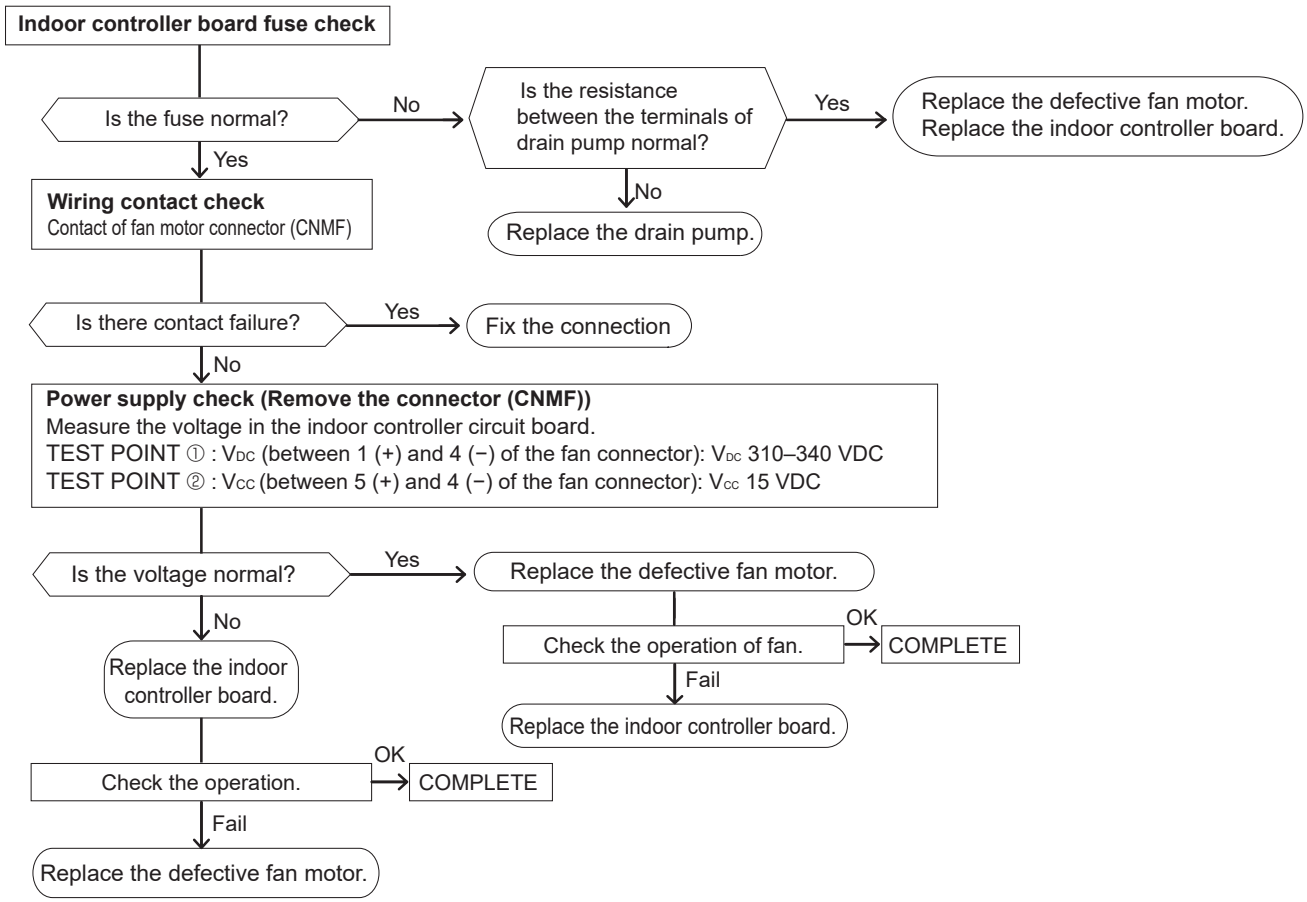
Normal
Red–Black: Input 13 VDC → The fan starts to rotate.
Purple–Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.

8-1-4. 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 turn around.



8-2. FUNCTION OF DIP SWITCH

Switch	Pole	Function	Operation by switch		Effective timing	Remarks
			ON	OFF		
SW1 Function Selection	1	Thermistor <Room temperature detection> position	Built-in remote controller	Indoor unit	Under suspension	Indoor controller board <Initial setting> ON / OFF 1 2 3 4 5 6 7 8 9 0
	2	Filter clogging detection	Provided	Not provided		
	3	Filter cleaning	2,500h	100h		
	4	Fresh air intake	Effective	Not effective		
	5	Remote indication switching	Thermo ON signal indication	Fan output indication		
	6	—	—	—		
	7	Airflow set in the case of Heat thermo OFF	Low *1	Extra low *1		
	8		Setting airflow *1	Depends on SW1-7		
	9	Auto restart function	Effective	Not effective		
	0	Power ON/OFF	Effective	Not effective		
SW2 Capacity code setting	1–6	Capacity / SW 2 WL10 / WL20 / WL32 WL15 / WL25 / WL40 ON / OFF 1 2 3 4 5 6 (1 2 3 4 5 for WL40)			Before power supply ON	Indoor controller board <Initial setting> Set for each capacity.
SW3 Function setting	1	Heat pump/Cooling only	Cooling only	Heat pump	Under suspension	Indoor controller board <Initial setting> Set for each capacity. ON / OFF 1 2 3 4 5 6 7 8 9 0
	2	—	—	—		
	3	—	—	—		
	4	Setting i-see Sensor installation position	Setting pattern ③	Setting pattern ①		
	5	Vane horizontal angle	Second setting	First setting		
	6	—	—	—		
	7	—	—	—		
	8	Heat 4 degrees up	Not effective	Effective		
	9	—	—	—		
	0	—	—	—		
SW11 1s digit address setting SW12 10s digit address setting	Rotary switch	SW12 SW11 10 1	Address setting should be done when M-NET remote controller is being used.		Before power supply ON	Indoor controller board <Initial setting> SW12 SW11 This figure means "0".
SW14 Connection No. setting	Rotary switch	SW14	This is the switch to be used when the indoor unit is operated with R2 series outdoor unit as a set.			Indoor controller board <Initial setting> SW14 This figure means "0".

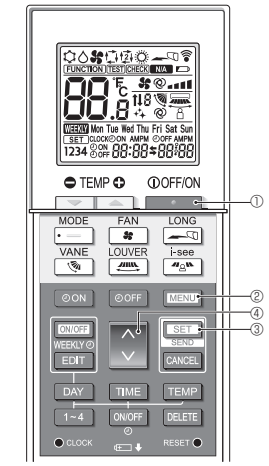
*1 Refer to the <Table A> below.

<Table A>

SW1-7	SW1-8	
OFF	OFF	Extra low
ON	OFF	Low
OFF	ON	Setting airflow
ON	ON	stop

Continue to the next page

<table>
<tr><th>Switch</th><th>Pole</th><th>Function</th><th colspan="2">Operation by switch
ON | OFF</th><th>Effective timing</th><th>Remarks</th></tr>
<tr><td rowspan="7">SW21
Function selection</td><td>1
2</td><td>Setting ceiling height</td><td colspan="2">Depends on SW21-1, SW21-2</td><td rowspan="6">Under operation or suspension</td><td rowspan="6"><Initial setting>

</td></tr>
<tr><td>3</td><td>—</td><td colspan="2">—</td></tr>
<tr><td>4</td><td>—</td><td colspan="2">—</td></tr>
<tr><td>5</td><td>—</td><td colspan="2">—</td></tr>
<tr><td>6</td><td>—</td><td colspan="2">—</td></tr>
<tr><td colspan="5"><table><tr><th></th><th>SW21-1</th><th>SW21-2</th><th>Height</th></tr><tr><td>Silent</td><td>—</td><td>ON</td><td>2.5 m</td></tr><tr><td>Standard</td><td>OFF</td><td>OFF</td><td>2.7 m (default setting)</td></tr><tr><td>High</td><td>ON</td><td>OFF</td><td>3.0 m</td></tr></table></td></tr>
<tr><td>SW22
Function selection</td><td>Jumper</td><td colspan="2"><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 colspan="2" rowspan="2">Depends on SW22-3, 22-4</td></tr><tr><td>4</td><td>Pair No. of wireless remote controller</td></tr></table>• To operate each indoor unit by each remote controller when installed 2 indoor units or more are near, Pair No. setting is necessary.
●Pair No. setting is available with the 4 patterns (Setting patterns A to D).
●Make setting for J41, J42 of indoor controller board and the Pair No. of wireless remote controller.
• Pair No. setting is not set necessarily when operating it by one remote controller. Setting for indoor unit
●Cut jumper wire J41, J42 on the indoor controller board according to the table below.
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 [^ v] button ④.
2. Each time the [^ v] button ④ is pressed, the pair No.0–3 changes.
3. Press the [SET] button ③ to check the setting.
4. Press the [MENU] button ②.
<table><tr><th colspan="2">Indoor unit SW22</th><th rowspan="2">Pair No. of wireless remote controller</th><th></th></tr><tr><th>SW22-3</th><th>SW22-4</th><th></th></tr><tr><td>ON</td><td>ON</td><td>0</td><td>Initial setting</td></tr><tr><td>OFF</td><td>ON</td><td>1</td><td>—</td></tr><tr><td>ON</td><td>OFF</td><td>2</td><td>—</td></tr><tr><td>OFF</td><td>OFF</td><td>3–9</td><td>—</td></tr></table></td><td>Under operation or suspension</td><td><Initial setting>
 

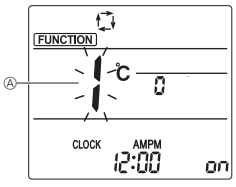
 

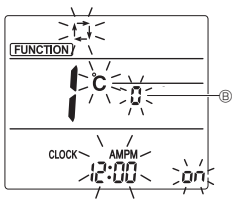
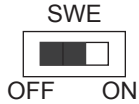
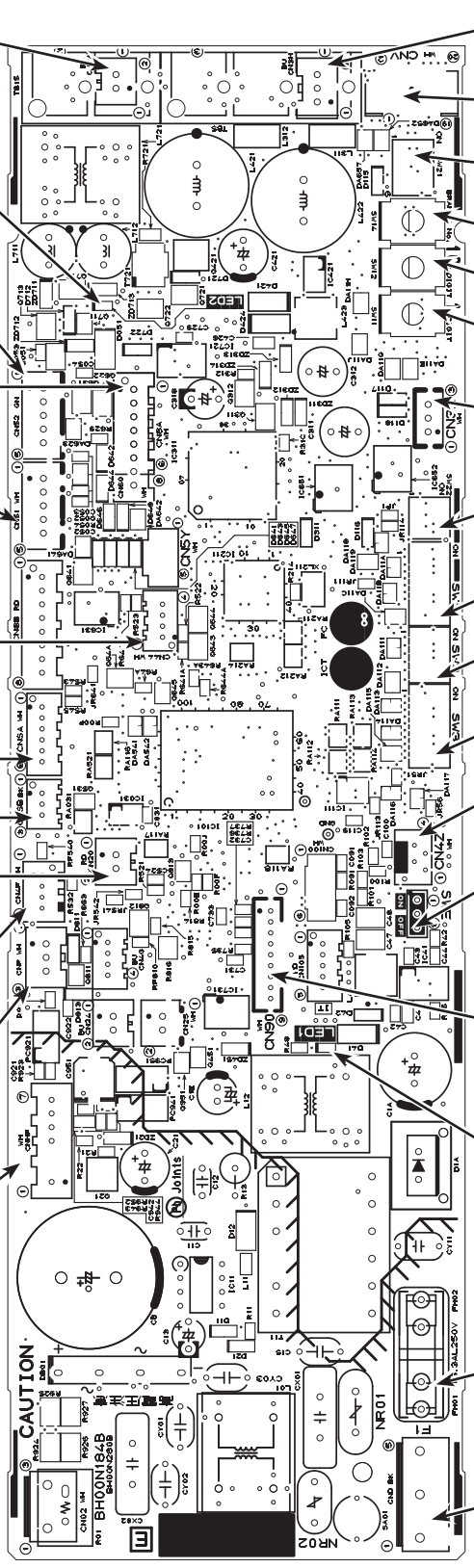
Fig. 1
 

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

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

8-3. TEST POINT DIAGRAM
Indoor controller board



CN2A
MA-Remote controller
①–② :8.7-13 VDC (non-polar)

LED2
Power supply
(Wired remote controller)

CN52
Remote indicator
①–② : Status lamp
12 VDC (①: +)
③–④ : Cooling/Dry status lamp
12 VDC (①: +)
③–⑤ : Heating status lamp
12 VDC (①: +)

CN8A
Flow control valve

CN51
Centrally control
①–② : Control signal
12 VDC pulse input (①: +)
③–④ : Operation indicator
12 VDC (③: +)
③–⑤ : Malfunction indicator
12 VDC (③: +)

CN44
Pipe temperature thermistor
①–② : Inlet (TH22)
③–④ : Outlet (TH23)

CNSA
Pressure sensor (inlet water)

CNSB
Pressure sensor (outlet water)

CN20
Room temperature thermistor (TH21)

CN4F
Drain float switch (FS)

CNP
Drain pump (DP)
①–③ : 12 VDC

CNMF
Fan motor (MF)
①–④ : 310–340 VDC
⑤–④ : 15 VDC

CN3M
M-NET transmission connecting wire
24-30 VDC (non polar)

CNV
Vane motor (MV)
12 V pulse output

SW21
Number of air outlets and height of the ceiling

SW14
Branch No.

SW12
Address setting 10s digit

SW11
Address setting 1s digit

CN32
Remote switch

SW22
Pair No.setting for wireless remote controller

SW1
Function setting

SW2
Capacity setting

SW3
Function setting

CN4Z
i-see Sensor (Sensor)

SWE
Jumper switch
(Emergency operation)

CN90
Connect to the wireless remote controller board (CNB)

Main power supply
(Indoor unit: 220-240 V)

F1
FUSE
(6.3 A/250 V)

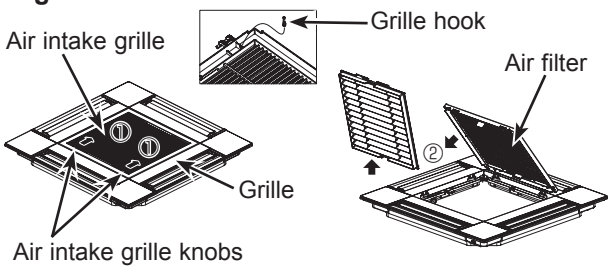
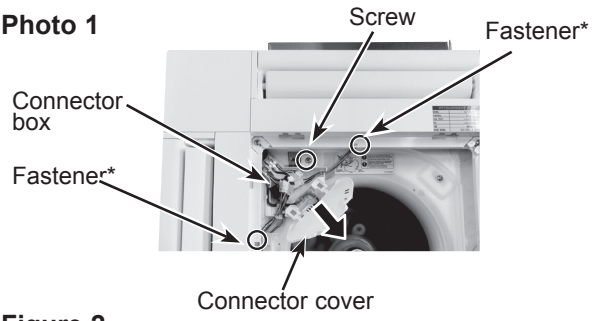
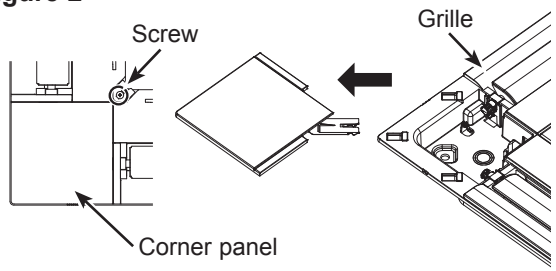
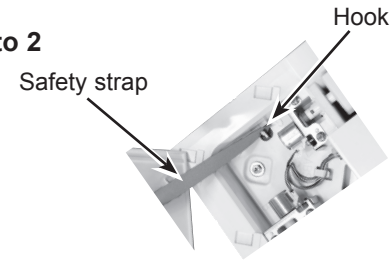
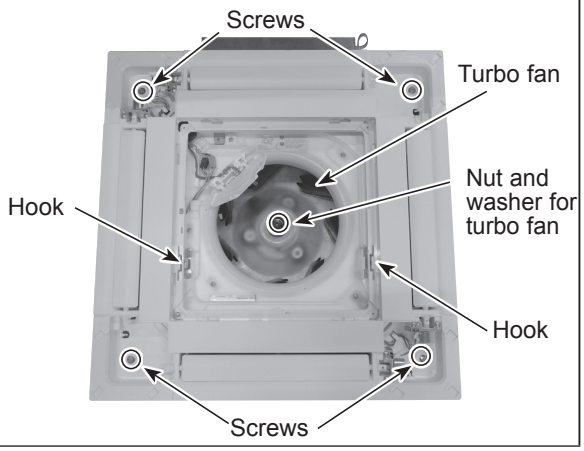
CND
Power supply for indoor controller board
③–⑤ : 220-240 VAC

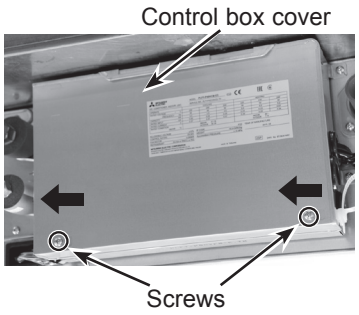
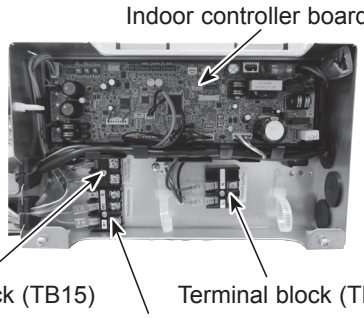
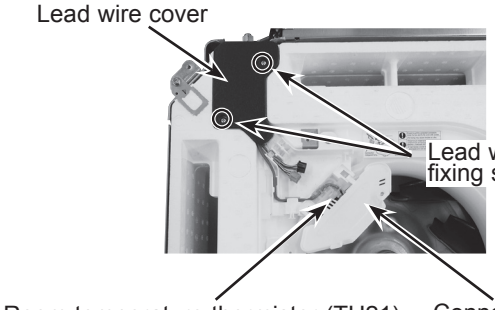
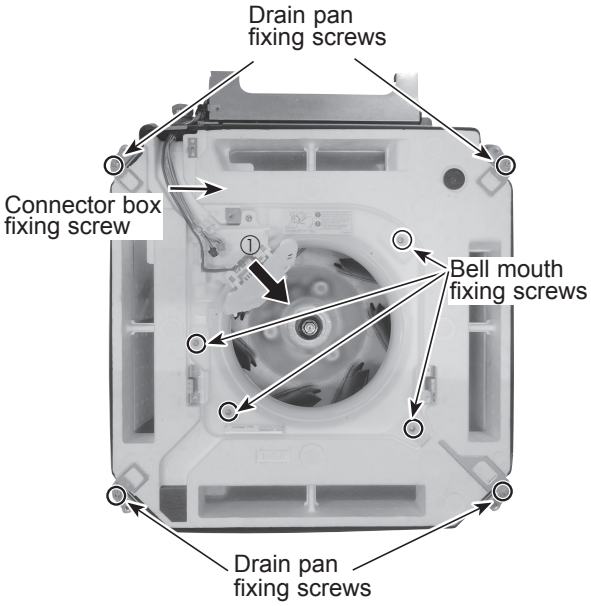
Note: The voltage range of 12 VDC in this page is between 11.5 to 13.7 VDC.

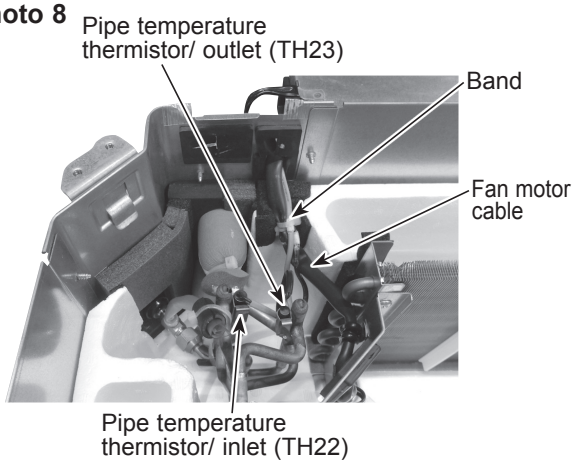
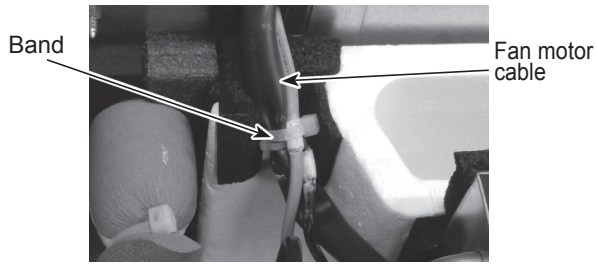
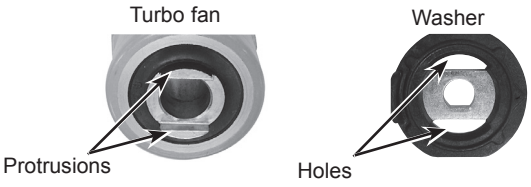
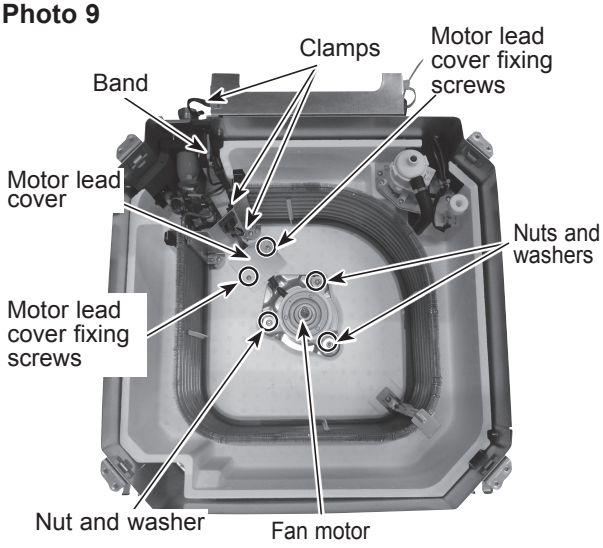
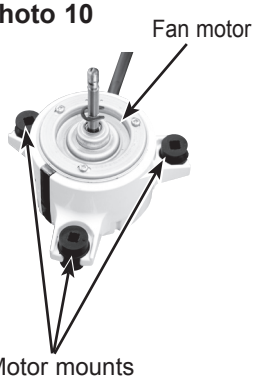
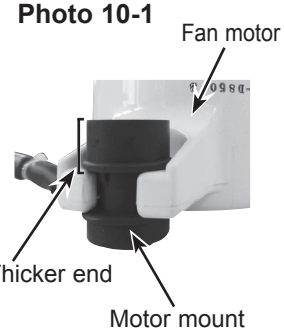
9 DISASSEMBLY PROCEDURE

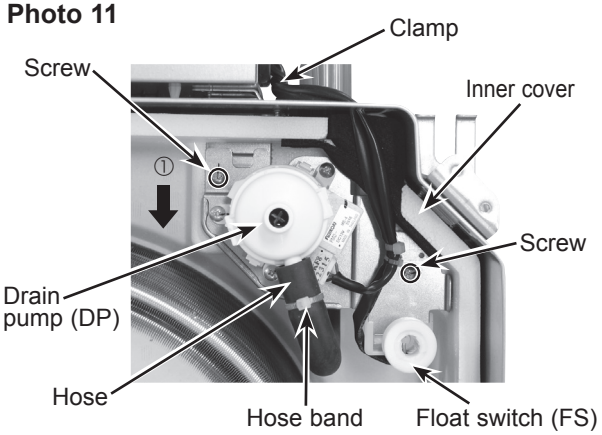
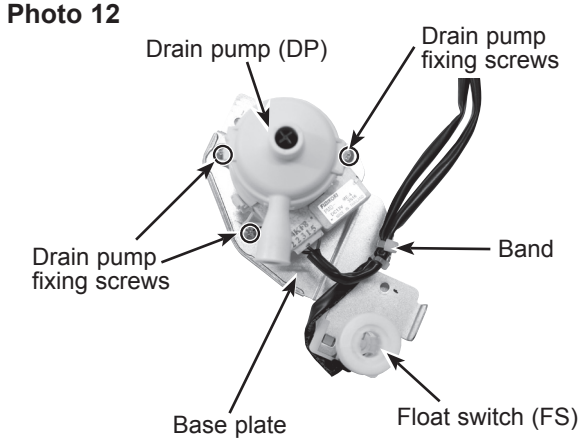
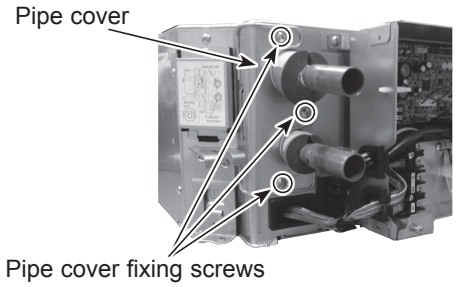
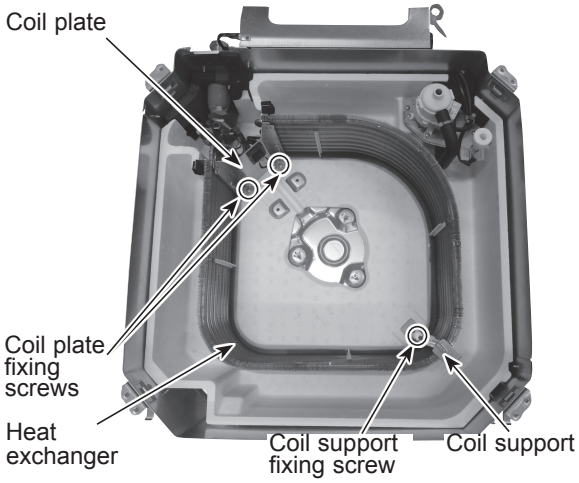
→ : Indicates the visible parts in the photos/figures.

Be careful when removing heavy parts.

OPERATING PROCEDURE	PHOTOS/ FIGURES
1. Removing the air intake grille and air filter (1) Slide the knob of air intake grille to the direction of the arrow ① to open the air intake grille. (2) Remove the grille hook from the panel to prevent the grille from dropping. (3) Slide the hinge of the intake grille to the direction of the arrow ② and remove the air filter.	**Figure 1** 
2. Removing the panel (1) Remove the air intake grille. (Refer to procedure 1) **Connector box (See Photo 1)** (2) Remove the screw of the connector cover. (3) Slide the connector cover to the direction of the arrow to open the cover. (4) Disconnect all the connectors, then pull out the connectors that are coming from panel side from the connector box. **Corner panel (See Figure 2 and Photo 2)** (5) Loosen the screw from the corner of the corner panel. (6) Slide the corner panel as indicated by the arrow. (7) Remove the safety strap from the hook, then remove the corner panel from the panel. (The safety strap is not equipped for the signal receiver panel and i-see Sensor corner panel.) (8) Remove the fastener (*), then remove the corner panel. **Panel (See Photo 3)** (9) Remove the 4 screws. (10) Unlatch the 2 hooks. * Fastener is only for the signal receiver and i-see Sensor corner panel.	**Photo 1**  **Figure 2**  **Photo 2**  **Photo 3** 

OPERATING PROCEDURE	PHOTOS/ FIGURES
3. Removing the electrical parts (1) Loosen the 2 screws on the control box cover. (2) Slide the control box cover as indicated by the arrow to remove. <Electrical parts in the control box> • Indoor controller board (I.B) • Terminal block (TB2) • Terminal block (TB5) • Terminal block (TB15)	**Photo 4**  **Photo 5** 
4. Removing the room temperature thermistor (TH21) (1) Remove the panel. (Refer to procedure **2**) **Room temperature thermistor (TH21) (See Photo 6)** (2) Remove the 2 lead wire cover fixing screws. (See Photo 6) (3) Open the lead wire cover, then remove the connector cover from the connector box. (4) Remove the band that fixes the room temperature thermistor (TH21) to the connector box. (5) Remove the room temperature thermistor (TH21) from the connector box. (6) Remove the connector (CN20) from the indoor controller board, and disconnect the room temperature thermistor (TH21). Note: When fixing the thermistor, make sure to fix it to the connector box using a band.	**Photo 6** 
5. Removing the drain pan (1) Remove the panel. (Refer to procedure **2**) (2) Remove the room temperature thermistor (TH21). (Refer to procedure **4**) **Connector box (See Photo 7)** (3) Remove the connector box fixing screw. (4) Slide the connector box as indicated by the arrow ①, then remove the claw from bell mouth. **Bell mouth (See Photo 7)** (5) Remove the 4 bell mouth fixing screws, then remove the bell mouth. **Drain pan (See Photo 7)** (6) Remove the 4 drain pan fixing screws, then remove the drain pan.	**Photo 7** 

OPERATING PROCEDURE	PHOTOS/ FIGURES
6. Removing the pipe temperature thermistor/ inlet (TH22) and pipe temperature thermistor/ outlet (TH23) (1) Remove the panel. (Refer to procedure **2**) (2) Remove the room temperature thermistor (TH21). (Refer to procedure **4**) (3) Remove the drain pan. (Refer to procedure **5**) **Pipe temperature thermistor/ inlet (TH22) and pipe temperature thermistor/ outlet (TH23) (See Photo 8)** (4) Remove the control box cover. (Refer to procedure **3**) (5) Disconnect the thermistor connectors from the CN44 on the indoor controller board. (6) Cut the band fixing the thermistor connectors to the fan motor cable. (7) Remove the thermistors from the holders on heat exchanger. Note: When re-attaching the thermistor connectors to the fan motor cable, make sure to put the fixed band into the groove. (See Photo 8-1)	**Photo 8**  **Photo 8-1** 
7. Removing the fan motor (MF) (1) Remove the panel. (Refer to procedure **2**) (2) Remove the room temperature thermistor (TH21). (Refer to procedure **4**) (3) Remove the drain pan. (Refer to procedure **5**) **Turbo fan (See Photo 3)** (4) Remove the nut and washer from the turbo fan. (5) Remove the turbo fan from the motor shaft. Notes: • When assembling, make sure that the protrusions on the turbo fan fit into the holes on the washer. • Tightening torque for the nut: 4.5 ± 0.5 N▪m  **Fan motor (See Photo 9)** (6) Remove the control box cover. (Refer to procedure **3**) (7) Disconnect the fan motor cable from the CNMF on the indoor controller board. (8) Remove the 2 motor lead cover fixing screws, then remove the motor lead cover. (9) Loosen the 3 clamps fixing the fan motor cable. (10) Cut the band. (11) Remove the 3 nuts and washers, then remove the fan motor. (12) Remove the 3 motor mounts. Notes: 1. When re-attaching the motor mount, make sure that the thicker end faces the motor shaft. (See Photo 10-1) 2. When re-attaching the turbo fan, make sure that the tightening torque for nuts is 5 N·m or lower.	**Photo 9**  **Photo 10**  **Photo 10-1** 

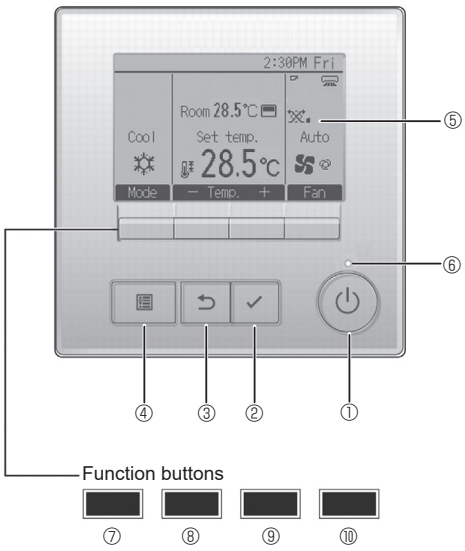
OPERATING PROCEDURE	PHOTOS/ FIGURES
8. Removing the drain pump (DP) and float switch (FS) (1) Remove the panel. (Refer to procedure **2**) (2) Remove the room temperature thermistor (TH21). (Refer to procedure **4**) (3) Remove the control box cover. (Refer to procedure **3**) (4) Remove the drain pan. (Refer to procedure **5**) **Drain pump (See Photo 11 and 12)** (5) Disconnect the drain pump connector from the CNP and float switch connector from CN4F on the indoor controller board. (6) Loosen the clamp fixing the connectors on the side of the control box. (7) Cut the hose band and release the hose. (8) Remove the 2 screws fixing the drain pump and float switch to the inner cover. (9) Slide the base plate of the drain pump and float switch as indicated by the arrow ① to remove. (10) Cut the band. (See Photo 12) (11) Remove the 3 drain pump fixing screws, then remove the drain pump. (See Photo 12) Notes: 1. When re-attaching the drain pump, make sure to use a band to fix the connector to the base plate. 2. Do not give a shock to the float switch. Otherwise it can cause damage or malfunction.	**Photo 11**  **Photo 12** 
9. Removing the heat exchanger (1) Remove the panel. (Refer to procedure **2**) (2) Remove the room temperature thermistor (TH21). (Refer to procedure **4**) (3) Remove the drain pan. (Refer to procedure **5**) (4) Remove the turbo fan and fan motor. (Refer to procedure **7**) **Heat exchanger (See Photo 13 and 14)** (5) Remove the 3 pipe cover fixing screws to remove the pipe cover. (6) Remove the 2 coil plate fixing screws. (7) Remove the coil support fixing screw, then remove the coil support. (8) Remove the heat exchanger.	**Photo 13**  **Photo 14** 

10 REMOTE CONTROLLER

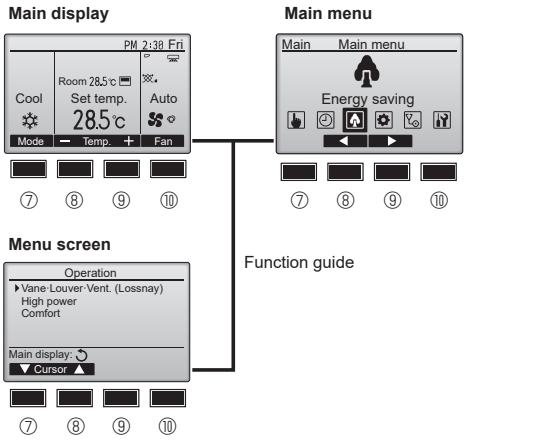
10-1. REMOTE CONTROLLER FUNCTIONS

<PAR-40MAA>

Controller interface



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



① [ON/OFF] button

Press to turn ON/OFF the indoor unit.

② [SELECT] button

Press to save the setting.

③ [RETURN] button

Press to return to the previous screen.

④ [MENU] button

Press to bring up the Main menu.

⑤ Backlit LCD

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

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

⑥ ON/OFF lamp

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

⑦ Function button [F1]

Main display: Press to change the operation mode.
Menu screen: The button function varies with the screen.

⑧ Function button [F2]

Main display: Press to decrease temperature.
Main menu: Press to move the cursor left.
Menu screen: The button function varies with the screen.

⑨ Function button [F3]

Main display: Press to increase temperature.
Main menu: Press to move the cursor right.
Menu screen: The button function varies with the screen.

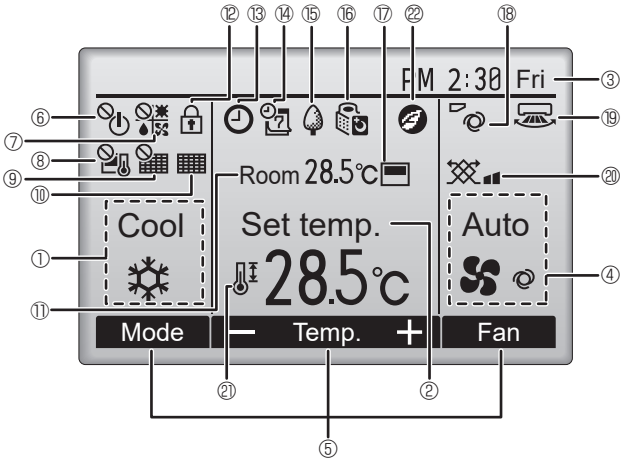
⑩ Function button [F4]

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

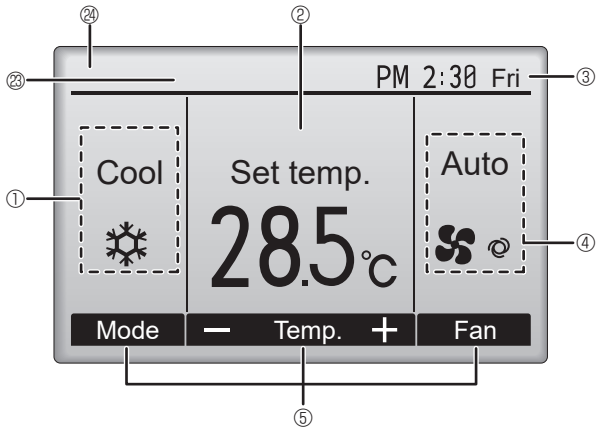
Display

The main display can be displayed in two different modes: ″Full″ and ″Basic″. The 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, Night setback, or Auto-off timer function is enabled.

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

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy 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 (⑪).

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

⑱

Indicates the vane setting.

⑲

Indicates the louver setting.

⑳

Indicates the ventilation setting.

㉑

Appears when the preset temperature range is restricted.

㉒

Appears when an energy saving operation is performed using a ″3D i-see Sensor″ function.

㉓ Centrally controlled

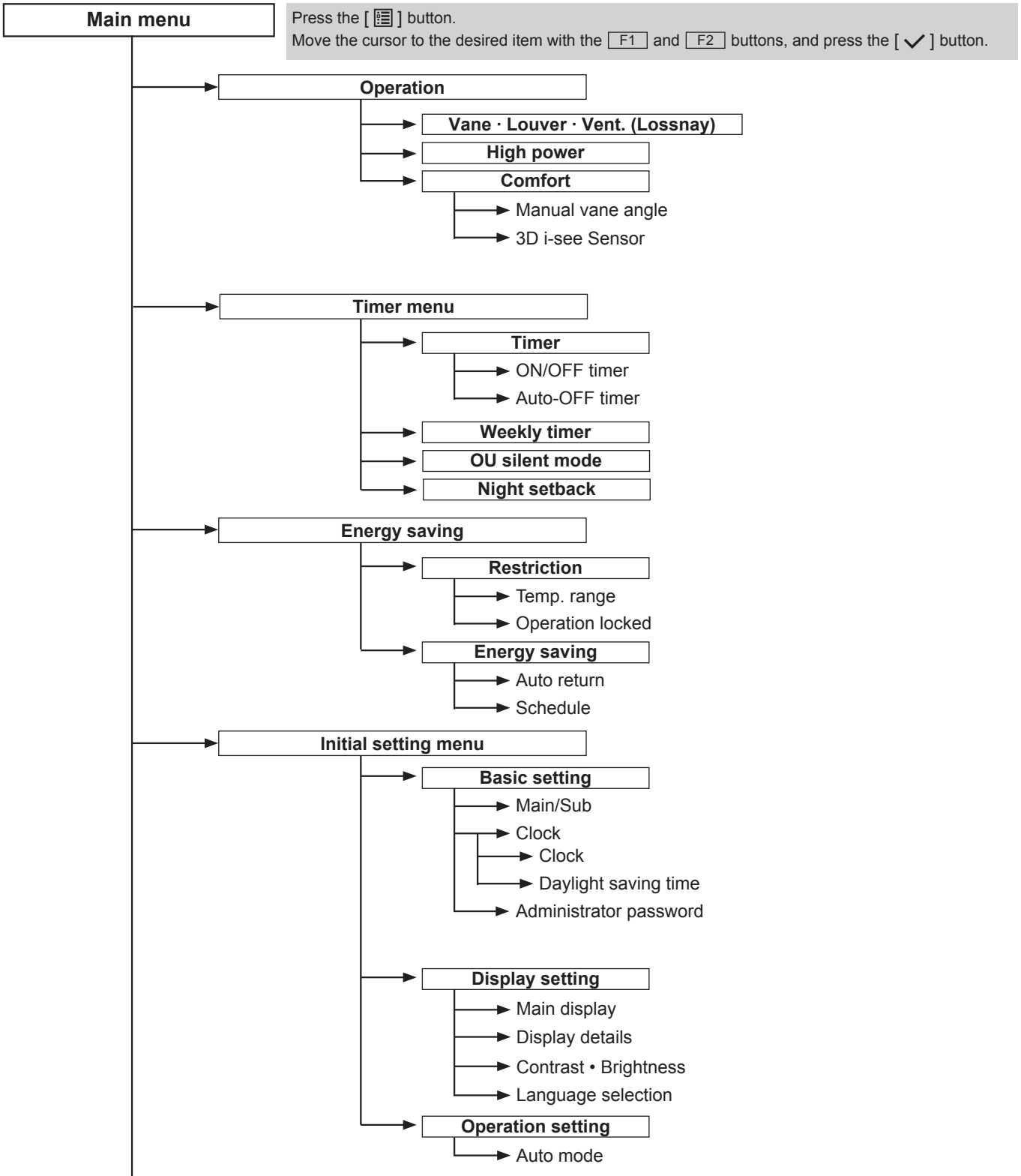
Appears for a certain period of time when a centrally-controlled item is operated.

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.

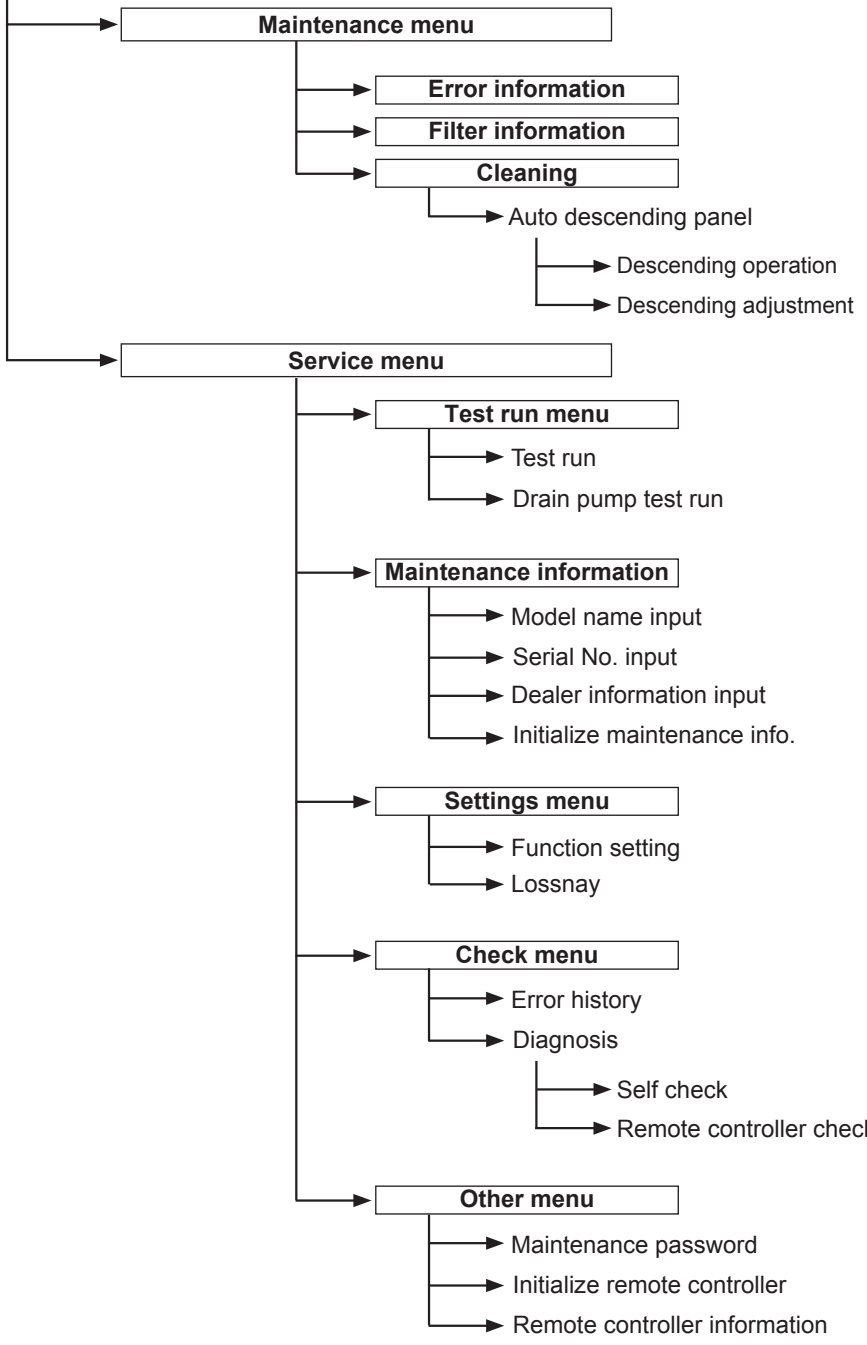
Menu structure



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

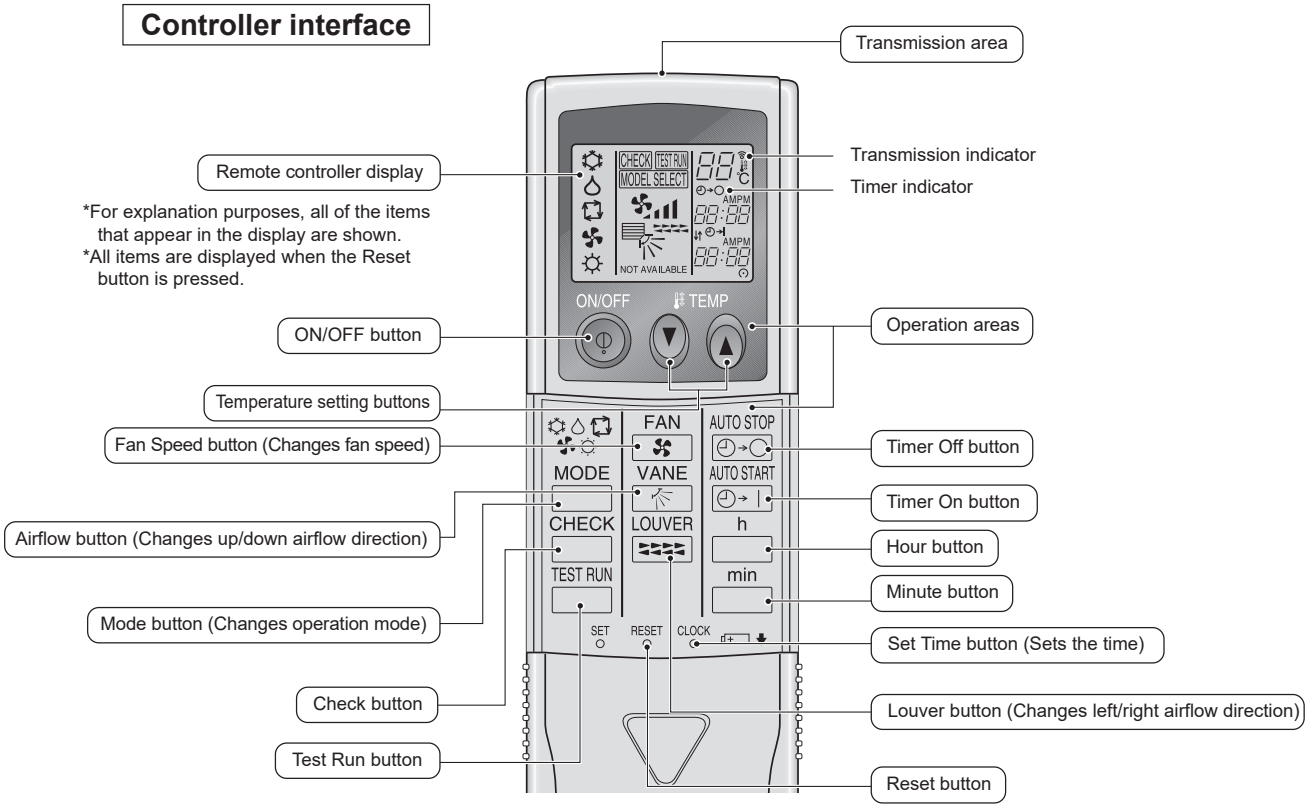
Main menu	Setting and display items		Setting details
Operation	**Vane · Louver · Vent. (Lossnay)**		**Use to set the vane angle.** • Select a desired vane setting from 5 different settings. **Use to turn ON/OFF the louver.** • Select a desired setting from ″ON″ and ″OFF.″ **Use to set the amount of ventilation.**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

*1 Clock setting is required.
*2 1°C increments.
*3 This function can only be set when certain outdoor units are connected.

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, and use to change the background colors of the display to black.**
		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 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 Auto mode can be selected by using the button.** **This setting is valid only when indoor units with Auto mode function are connected.**
Maintenance	**Error information**		**Use to check error information when an error occurs.** • Check code, error source, refrigerant address, model name, manufacturing number, contact information (dealer's phone number) can be displayed. (The model name, 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 info.		**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.
	Others	**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-SL97A-E>

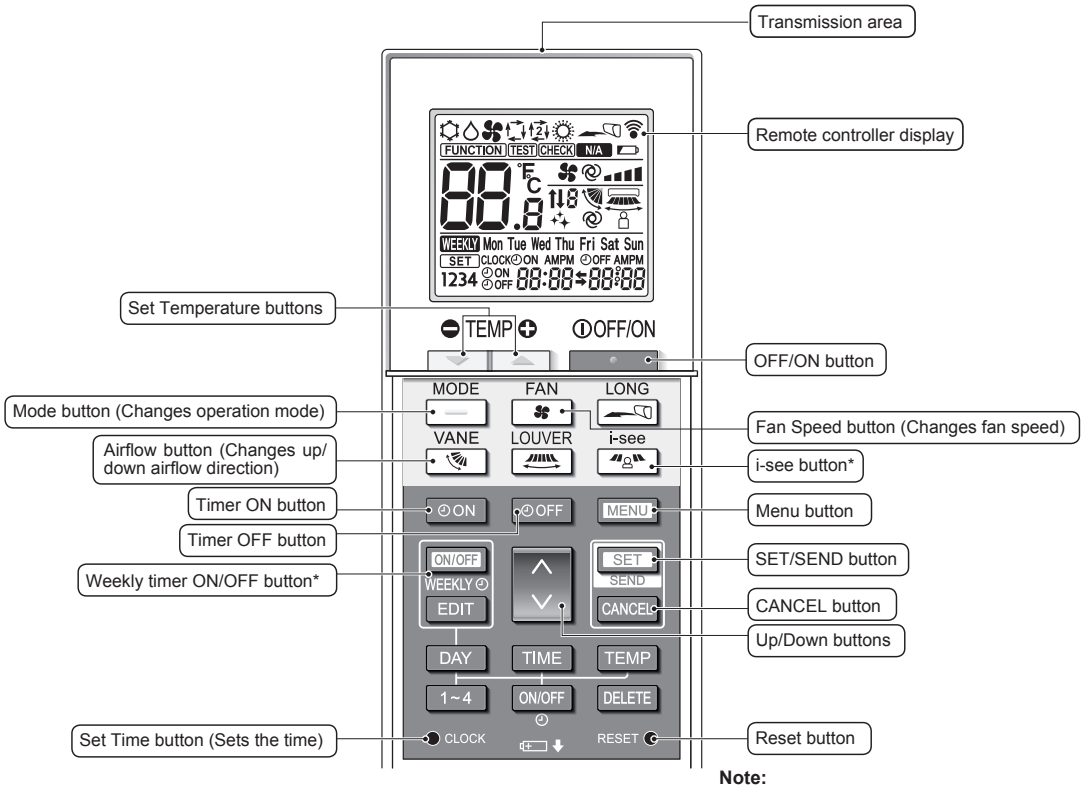
Controller interface



- When using the wireless remote controller, point it towards the receiver on the indoor unit.
- If the remote controller is operated within approximately two minutes after power is supplied to the indoor unit, the indoor unit may beep twice as the unit is performing the initial automatic check.
- The indoor unit beeps to confirm that the signal transmitted from the remote controller has been received. Signals can be received up to approximately 7 meters in a direct line from the indoor unit in an area 45 to the left and right of the unit. However, illumination such as fluorescent lights and strong light can affect the ability of the indoor unit to receive signals.
- If the operation lamp near the receiver on the indoor unit is blinking, the unit needs to be inspected. Consult your dealer for service.
- Handle the remote controller carefully! Do not drop the remote controller or subject it to strong shocks. In addition, do not get the remote controller wet or leave it in a location with high humidity.
- To avoid misplacing the remote controller, install the holder included with the remote controller on a wall and be sure to always place the remote controller in the holder after use.

<PAR-SL100A-E>

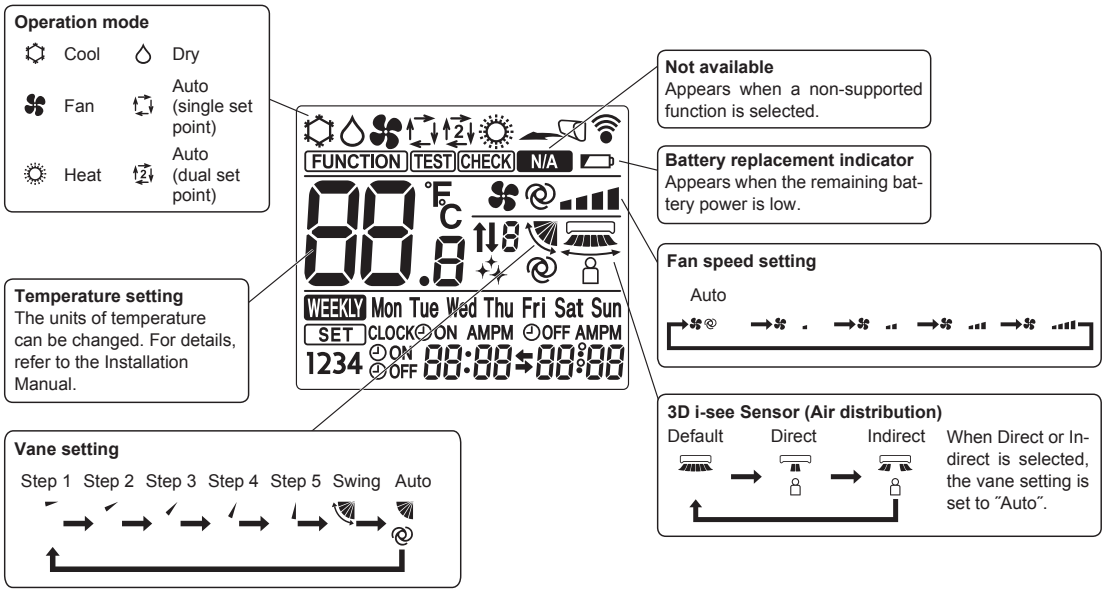
Controller interface



Note:

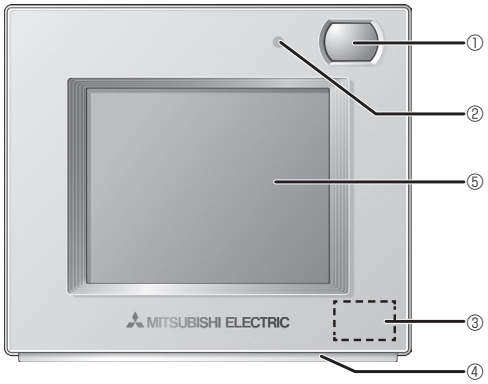
* **This button is enabled or disabled depending on the model of the indoor unit.**

Display



<PAR-U02MEDA>

Controller interface



① Occupancy Sensor

The occupancy sensor detects vacancy for energy saving control.

② Brightness Sensor

The brightness sensor detects the brightness of the room for energy saving control.

③ Temperature & Humidity Sensor

The sensor detects the room temperature and the relative humidity.

④ LED Indicator

The LED indicator indicates the operation status in different colors. The LED indicator lights up during normal operation, lights off when units are stopped, and blinks when an error occurs.

⑤ Touch panel & Backlit LCD

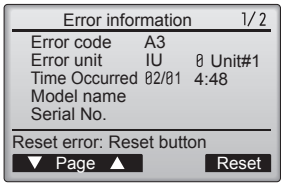
The touch panel shows the operation settings screen. When the backlight is off, touching the panel turns the backlight on, and it will stay lit for a predetermined period of time.

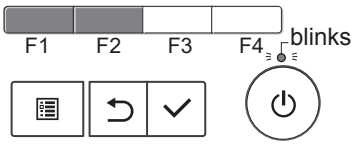
10-2. ERROR INFORMATION

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

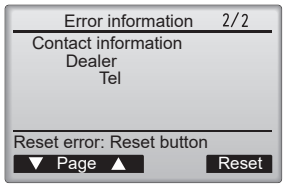
1. Check code, error unit, refrigerant address, date and time of occurrence, model name, and serial number will appear.
   The model name and serial number will appear only if the information have been registered.

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



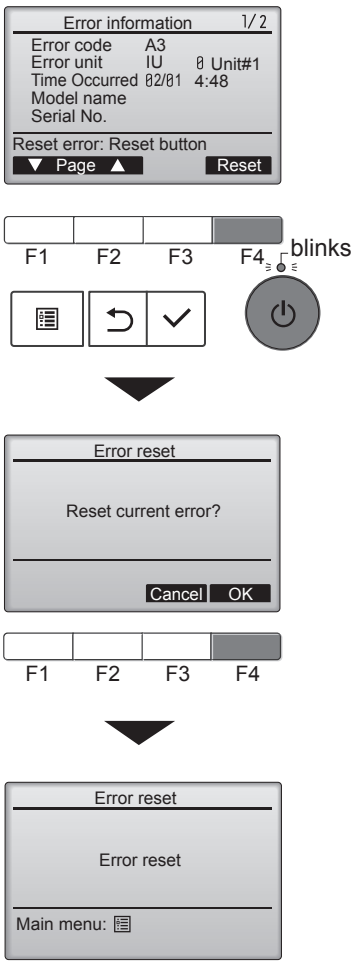


Contact information (dealer's phone number) will appear if the information has been registered.



2. Press the F4 button or the ⏻ button to reset the error that is occurring.

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

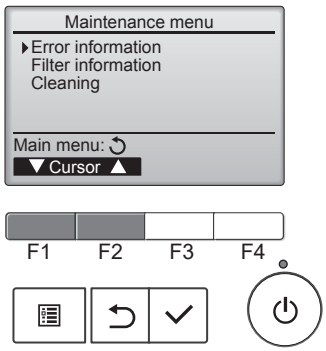


Select ″OK″ with the F4 button.

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

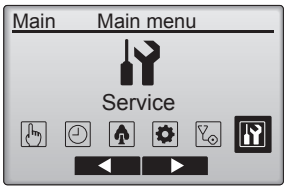


10-3. SERVICE MENU

Maintenance password is required

1. Select ″Service″ from the Main menu, and press the [✓] button.

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



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

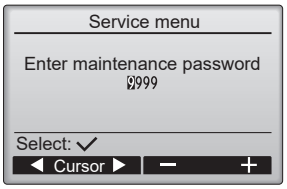
   To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button.

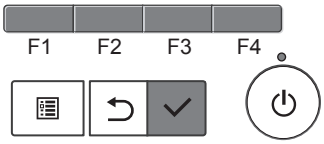
   ▼

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

   ▼

   Then, press the [✓] button.



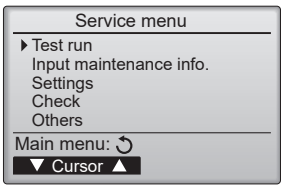


Note: The initial maintenance password is ″9999″. Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it.

: 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.

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.

▼

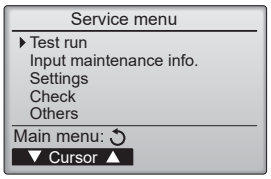
A screen will appear that indicates the setting has been saved.

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

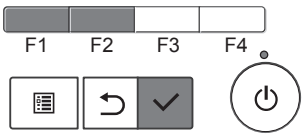
10-4. TEST RUN

10-4-1. PAR-40MAA

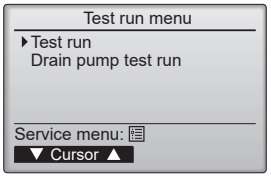
1. Select ″Service″ from the Main menu, and press the [✓] button.

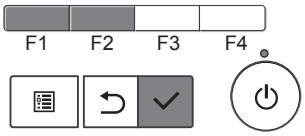


Select ″Test run″ with the F1 or F2 button, and press the [✓] button.



2. Select ″Test run″ with the F1 or F2 button, and press the [✓] button.





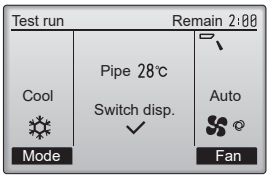
Test run operation

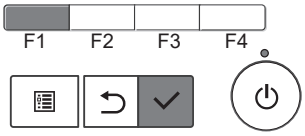
Press the F1 button to go through the operation modes in the order of ″Cool and Heat″.

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 [✓] button and open the Vane setting screen.





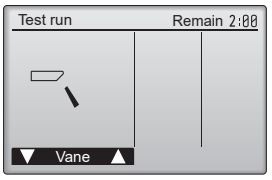
Auto vane check

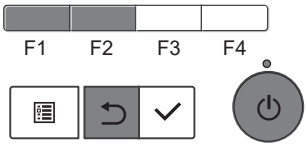
Check the auto vane with the F1 F2 buttons.

Press the [↺] button to return to ″Test run operation″.

Press the ⏻ button.

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





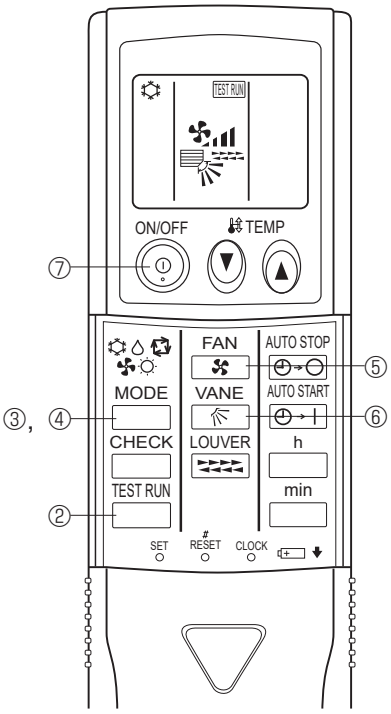
10-4-2. PAR-SL97A-E

Measure an impedance between the power supply terminal block on the outdoor unit and ground with a 500V Megger and check that it is equal to or greater than 1.0MΩ.

1. Turn on the main power to the unit.
2. Press the TEST RUN button twice continuously.
   (Start this operation from the status of remote controller display turned off.)
   A TEST RUN and current operation mode are displayed.
3. Press the MODE (☼♢♣☼⊏) button to activate COOL☼ mode, then check whether cool air blows out from the unit.
4. Press the MODE (☼♢♣☼⊏) button to activate HEAT☼ mode, then check whether warm air blows out from the unit.
5. Press the FAN button and check whether strong air blows out from the unit.
6. Press the VANE button and check whether the auto vane operates properly.
7. Press the ON/OFF button to stop the test run.

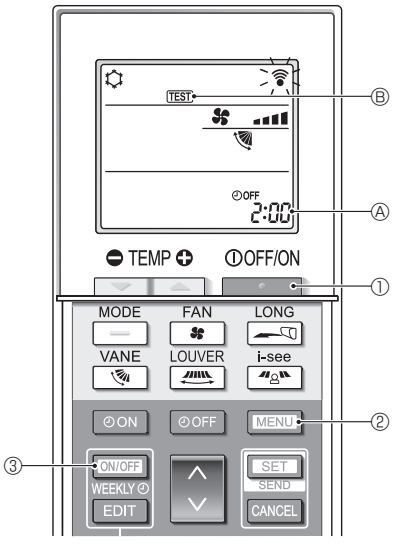
Note:

- **Point the remote controller towards the indoor unit receiver while following steps** 2 **to** 7**.**
- **It is not possible to run in FAN, DRY or AUTO mode.**

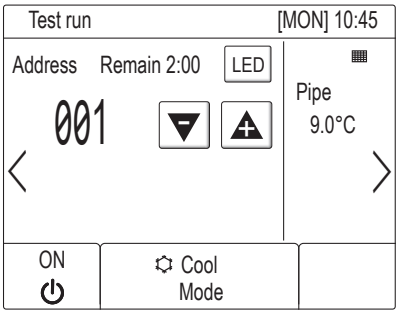


10-4-3. PAR-SL100A-E

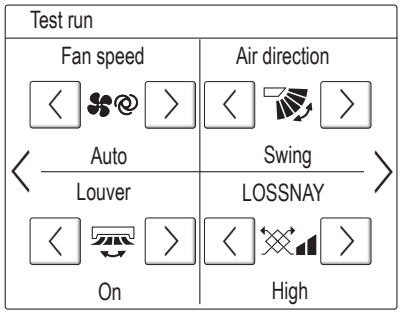
1. Press the ON/OFF button ① to stop the air conditioner.
   - If the weekly timer is enabled (WEEKLY is on), press the ON/OFF WEEKLY button ③ to disable it (WEEKLY is off).
2. Press the MENU button ② for 5 seconds.
   - CHECK comes on and the unit enters the service mode.
3. Press the MENU button ②.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



10-4-4. PAR-U02MEDA



[Test run screen]



[Indoor unit setting screen]

(a) Read the section about Test run in the indoor unit Installation Manual before performing a test run.

(b) During the test run, indoor units will be forced to operate in the Thermo-ON status.
Except the set temperature, normal operation functions are accessible during test run.

(c) By selecting the address of another indoor unit, the liquid pipe temperature of the selected unit can be monitored.

(d) The test run will automatically end in two hours.

* When AHC is controlled from the controller
To monitor the operating status of AHC, touch the [<] button on the [Test run] screen and access the [General equipment] screen.
To set the humidity setting for the humidifier (when one is connected to the AHC), touch the [>] button on the [Indoor unit setting] screen.

10-5. FUNCTION SETTING

10-5-1. PAR-40MAA

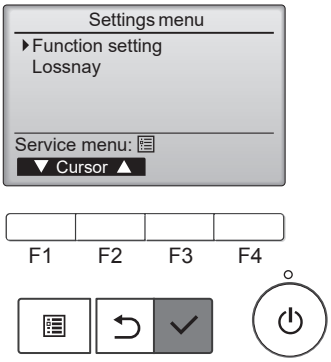
1. Select ″Service″ from the Main menu, and press the [✓] button.

   ▼

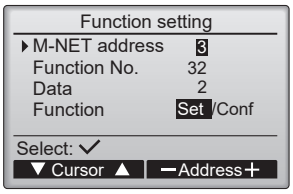
   Select ″Setting″ from the Service menu, and press the [✓] button.

   ▼

   Select ″Function setting″, and press the [✓] 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.



   ▼

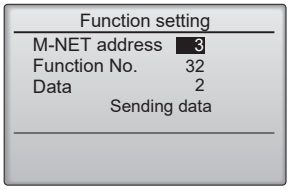
   Once the settings have been completed, press the [✓] button.

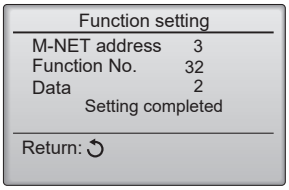
   A screen will appear indicating that the settings information is being sent.
   To check the current settings of a given unit, enter the setting for its M-NET address and function setting number, select Conf for the Function, and press the [✓] button.

   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 [↺] button to return to the screen shown in the above step. Set the function numbers for other indoor units by following the same steps.



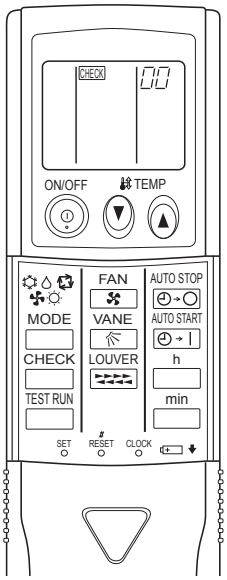


Note:
- Refer to the indoor unit Installation Manual for information about the initial settings of indoor units, function setting numbers, and setting values.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.

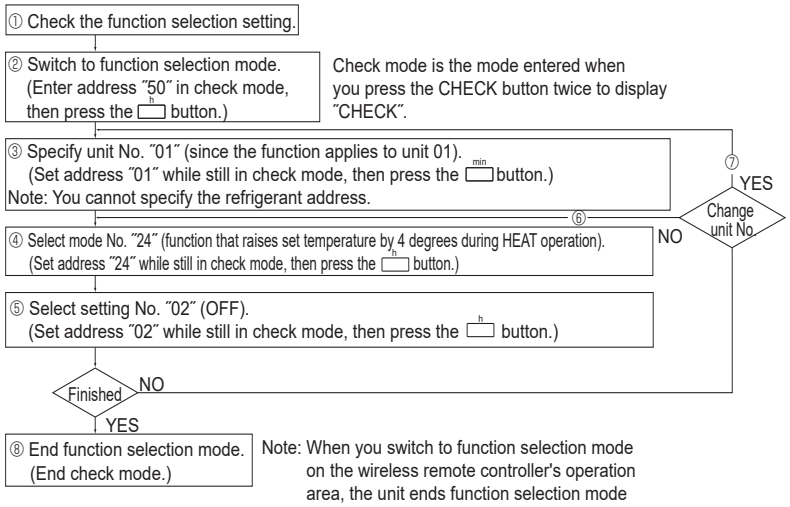
10-5-2. PAR-SL97A-E

Functions can be selected with the wireless remote controller. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.

[Flow of function selection procedure]



The flow of the function selection procedure is shown below. This example shows how to turn off the function that raises the set temperature by 4 degrees during HEAT operation. (Mode 24: 2)
The procedure is given after the flow chart.



[Operating instructions]

1. Check the function settings.
2. Press the CHECK button twice continuously. → (CHECK) is lit and ″00″ blinks.
   Press the TEMP ▼ button once to set ″50″. Direct the wireless remote controller toward the receiver of the indoor unit and press the h button.
3. Set the unit number.
   Press the TEMP ▲ ▼ button to set the unit number. (Press ″01″ to specify the indoor unit whose unit number is 01.)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the min button.

   By setting unit number with the min button, specified indoor unit starts performing fan operation.
   Detect which unit is assigned to which number using this function. If unit number is set to AL, all the indoor units in same refrigerant system start performing fan operation simultaneously.

   Notes:
   1. If a unit number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the unit number setting.
   2. If the signal was not received by the sensor, you will not hear a beep or a ″double beep″ may be heard. Reenter the unit number setting.
4. Select a mode.
   Press the TEMP ▲ ▼ button to set a mode. Press ″24″ to turn on the function that raises the set temperature by 4 degrees during heat operation. Direct the wireless remote controller toward the sensor of the indoor unit and press the h button.
   → The sensor-operation indicator will blink and beeps will be heard to indicate the current setting number.
   Current setting number: 1 = 1 beep (1 second)
   2 = 2 beeps (1 second each)
   3 = 3 beeps (1 second each)

   Notes:
   1. If a mode number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the mode number.
   2. If the signal was not received by the sensor, you will not hear a beep or a ″double beep″ may be heard. Reenter the mode number.
5. Select the setting number.
   Press the TEMP ▲ ▼ button to select the setting number. (02: Not available)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the h button.
   → The sensor-operation indicator will blink and beeps will be heard to indicate the setting number.
   Setting number: 1 = 2 beeps (0.4 seconds each)
   2 = 2 beeps (0.4 seconds each, repeated twice)
   3 = 2 beeps (0.4 seconds each, repeated 3 times)

   Notes:
   1. If a setting number that cannot be recognized by the unit is entered, the setting will turn back to the original setting.
   2. If the signal was not received by the sensor, you will not hear a beep or a ″double beep″ may be heard. Reenter the setting number.
6. Repeat steps ④ and ⑤ to make an additional setting without changing unit number.
7. Repeat steps ③ to ⑤ to change unit number and make function settings on it.
8. Complete the function settings
   Press ◎ button.

Do not use the wireless remote controller for 30 seconds after completing the function setting.

10-5-3. PAR-SL100A-E

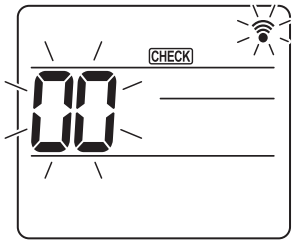


Fig. 10-1

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. 10-1)
   Press the ^ button to set the ″50″.
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

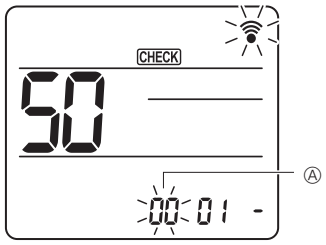


Fig. 10-2

2. Setting the unit number
   Press the ^ button to set unit number Ⓐ. (Fig. 10-2)
   Direct the wireless remote controller toward the receiver of the indoor unit and press the SET button.

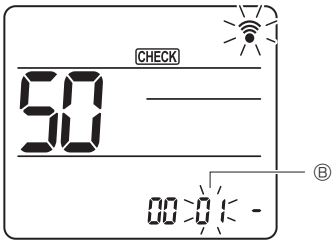


Fig. 10-3

3. Select a mode
   Press the ^ button to set Mode number Ⓑ. (Fig. 10-3)
   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)

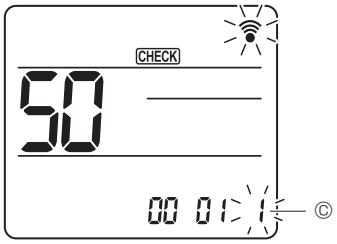


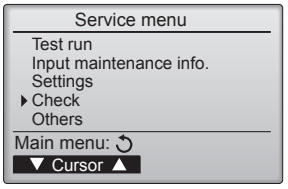
Fig. 10-4

4. Selecting the setting number
   Use the ^ button to change the Setting number Ⓒ. (Fig. 10-4)
   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.

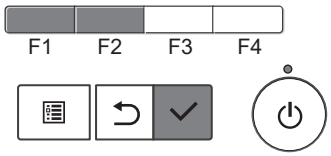
Note:
Make the above settings on Indoor units as necessary.
- **Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.**

10-6. ERROR HISTORY

1. Select ″Service″ from the Main menu, and press the [✓] button.

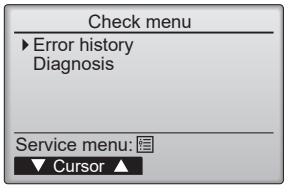


Select ″Check″ with the F1 or F2 button, and press the [✓] button.



---

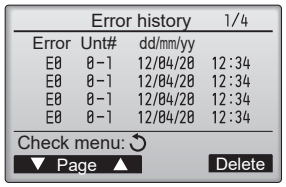
2. Select ″Error history″ with the F1 or F2 button, and press the [✓] button.

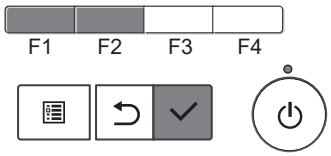


---

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.



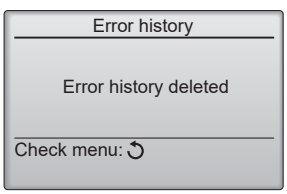


---

4. Deleting the error history

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 [↩] button to go back to the Check menu screen.

10-7. SELF-DIAGNOSIS

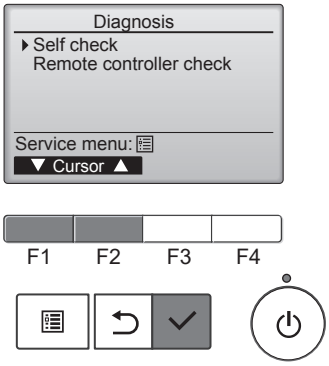
10-7-1. PAR-40MAA

1. Select ″Service″ from the Main menu,
and press the [✓] button.

Select ″Check″ from the Service menu,
and press the [✓] button.

Select ″Diagnosis″ from the Check menu,
and press the [✓] button.

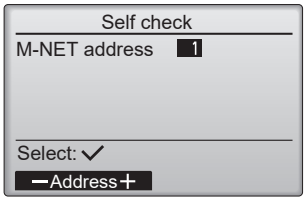
Select ″Self check″ with the F1 or F2 button,
and press the [✓] button.



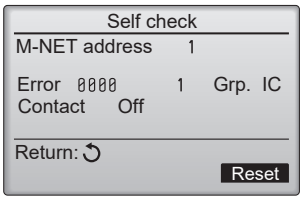
2. Select “Self check” from the Diagnosis menu, and press the [✓] button to view the Self check screen.

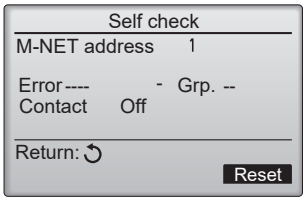
With the F1 or F2 button, enter the M-NET address, and press the [✓] button.

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

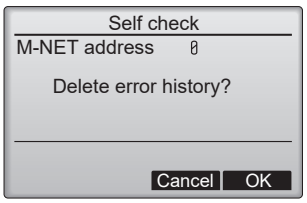


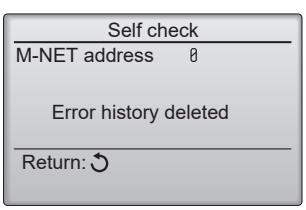


3. <u>Resetting the error history</u>

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.

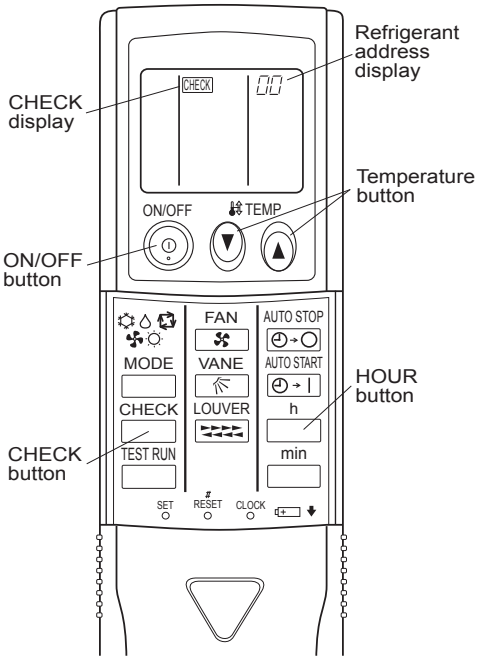




10-7-2. PAR-SL97A-E

When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>



[Procedure]

1. Press the CHECK button twice.
   - ″CHECK″ lights, and refrigerant address ″00″ blinks.
   - Check that the remote controller's display has stopped before continuing.

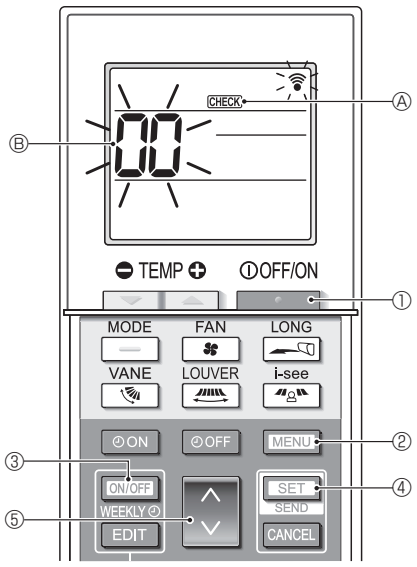
2. Press the TEMP ▼ ▲ buttons.
   - Select the refrigerant address of the indoor unit for the self-diagnosis.

   Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)

3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
   - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light blinks, and the check code is output. (It takes 3 seconds at most for check code to appear.)

4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
   - The check mode is cancelled.

10-7-3. PAR-SL100A-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.

10-8. 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 [✓] button.

   ▼

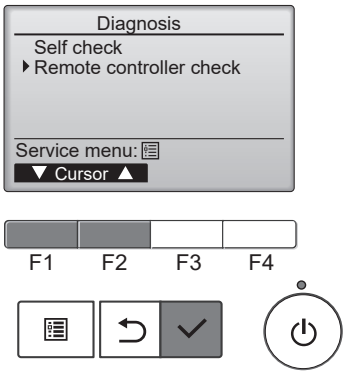
   Select ″Check″ from the Service menu,
   and press the [✓] button.

   ▼

   Select ″Diagnosis″ from the Check menu,
   and press the [✓] button.

   ▼

   Select ″Remote controller check″ with the F1 or F2 button,
   and press the [✓] button.



---

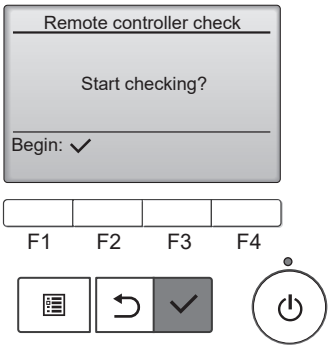
2. Select ″Remote controller check″ from the Diagnosis menu, and press the [✓] button to start the remote controller check and see the check results.

   ▼

   To cancel the remote controller check and exit the ″Remote controller check″ menu screen, press the [☰] or the [↺] button.

   ▼

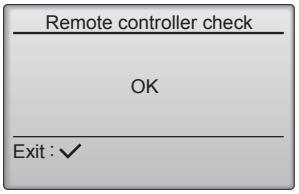
   The remote controller will not reboot itself.



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.

Remote controller check results screen



▼

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

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.

10-9. SPECIAL FUNCTION OPERATION SETTING

<PAR-U02MEDA>

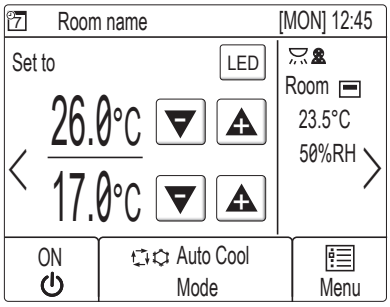
*M-NET remote controller cannot be connected with a refrigerant system which includes branch box.

It is necessary to perform “group settings” and “Interlocked LOSSNAY” at making group settings of different refrigerant systems (multiple outdoor unit).

(A) Group settings: Enter the indoor unit controlled by the remote controller, check the content of entries, and clear entries, etc.

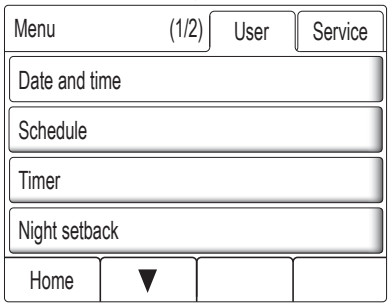
(B) Interlocked LOSSNAY: Used to set the linked operation of a Lossnay unit.

How to display the setup screen



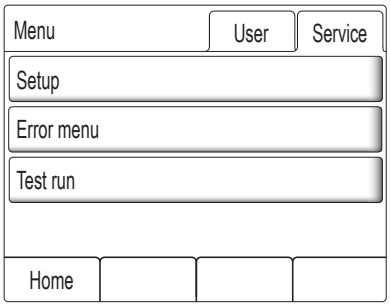
• HOME screen

Touch the [MENU] button.



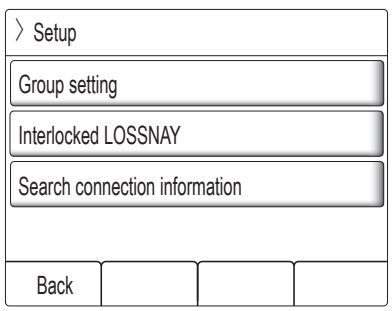
• Menu (User) screen

Touch the [Service] button.



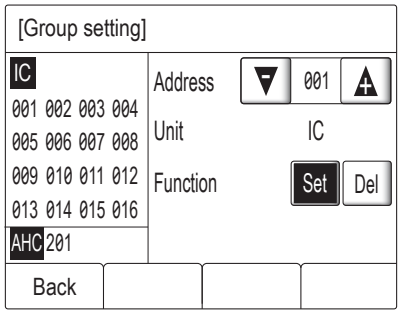
• Menu (Service) screen

Touch the [Setup] button.
Setup screen will appear.



(a) Group setting

Use this screen to register the indoor units and the AHC to be controlled from the controller.

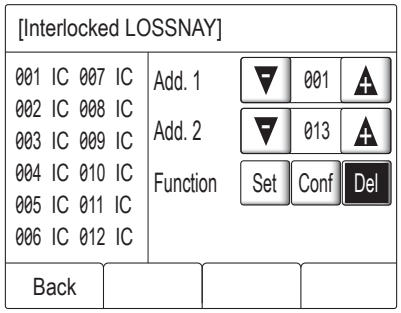


1. Select an indoor unit or an AHC address in the [Address] field.
   The number of units that can be registered.
   Indoor unit: 16 units maximum
   AHC: 1 unit maximum
   * AHC cannot be controlled from the controller unless indoor units are registered with the system.

2. Touch the [Set] button to register the address, and [Del] to delete the address.
   • Successful address registration/deletion:
   The registered address(es) will appear on the left side of the screen.
   Deleted address will not appear on the screen.
   • Error:
   "Request denied." or "Is not to be connected" will appear.

(b) Interlocked LOSSNAY

Use this function to interlock the operation of indoor units and LOSSNAY units.



1. To register LOSSNAY units
   Select the indoor unit address in the Add. 1 section.
   Select the interlocked LOSSNAY address in the Add. 2 section.
   Touch the [Set] button to save the setting.

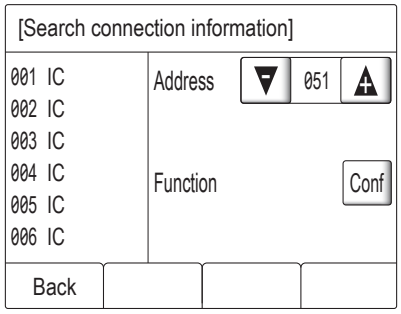
2. To search for an interlocked setting
   Touch the [Conf] button to display in the left column the addresses of the units that are interlocked with the unit whose address was set in the Add. 1 section.

3. To delete the interlock settings
   After taking Step 2 above, select the address to be deleted in the Add. 2 section, and then touch the [Del] button.

When the setting or deletion is successfully completed, “Completed” will appear below [Function] field on the screen.
If setting or deletion fails, “Request denied” will appear below [Function] field on the screen.

(c) Search connection information

Use this screen to specify a unit and search for the controllers that are connected to the unit.



1. Select an address in the [Address] field.

2. Touch the [Conf] button to search for the interlocked units.
   The results will appear in the left column. (When multiple units are found, the addresses that do not fit on the first page will appear on the successive pages.)
   • Search error:
   "Request denied." will appear.

After completing the settings, touch the [Back] button on the [Setup] screen. The message “Collecting the information from the air conditioner.” will appear, and then the screen will jump to the HOME screen. This signals the completion of the setup process. Access the Service Menu from the HOME screen to make the settings for other items as necessary.

CITY MULTI

MITSUBISHI ELECTRIC CORPORATION

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

©Copyright 2019 MITSUBISHI ELECTRIC CORPORATION
Issued: Dec. 2020 No. OCH717 REVISED EDITION-A
Published in Oct. 2019 No. OCH717
Made in Japan

Specifications are subject to change without notice.