

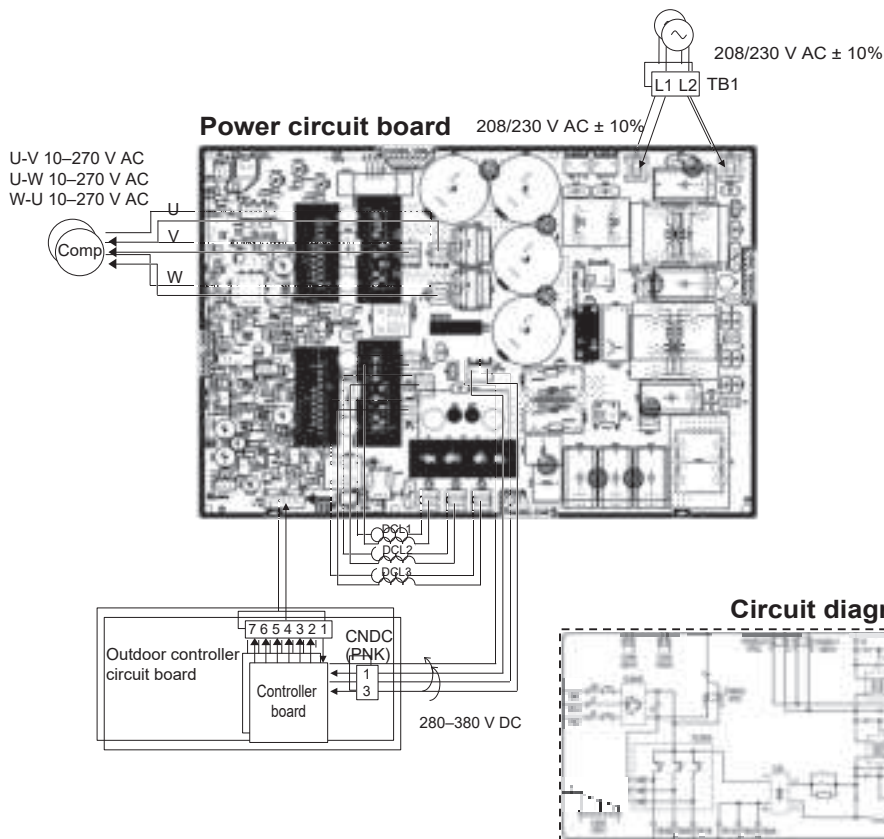
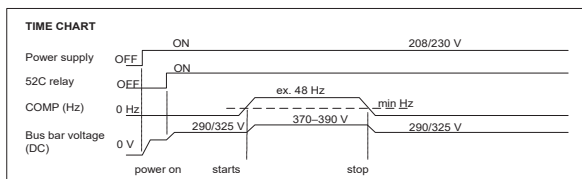
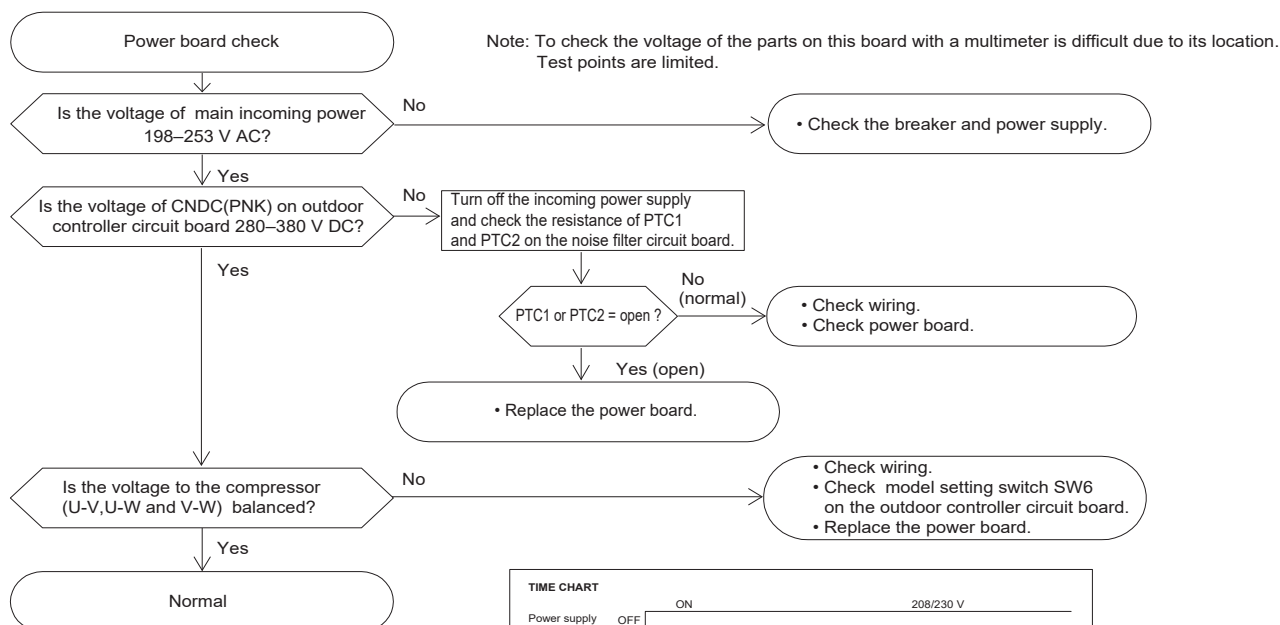
10-6-4. Check method of power circuit board

PUZ-A36NKA7
PUZ-A36NKA7-BS

PUZ-A42NKA7
PUZ-A42NKA7-BS

PUY-A36NKA7
PUY-A36NKA7-BS

PUY-A42NKA7
PUY-A42NKA7-BS



10-6-5. Check method of DC fan motor (fan motor/outdoor controller circuit board)

① Notes

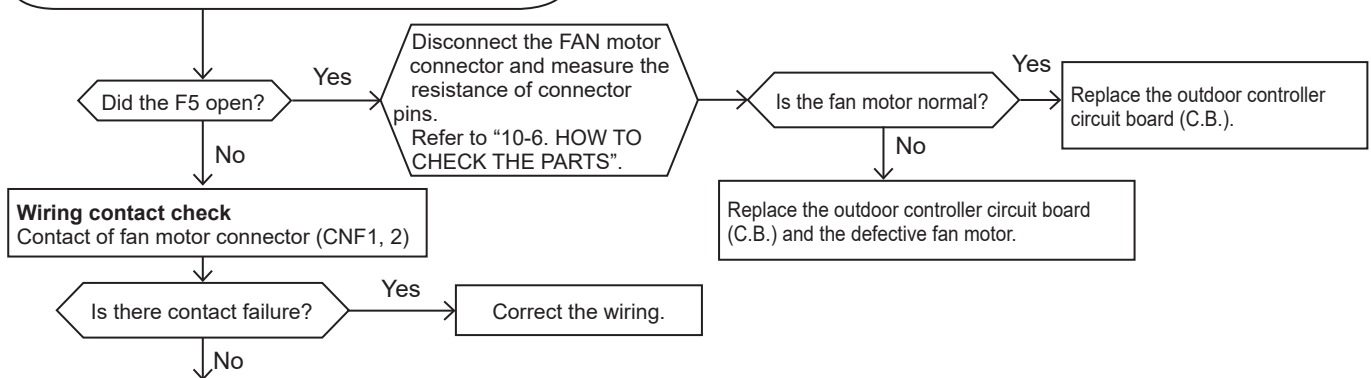
- High voltage is applied to the connector (CNF1, 2) for the fan motor. Pay attention to the service.
- Do not pull out the connector (CNF1, 2) for the motor with the power supply on.
(It causes trouble of the outdoor multi controller circuit board and fan motor.)

② Self check

Symptom: The outdoor fan cannot rotate.

Fuse check

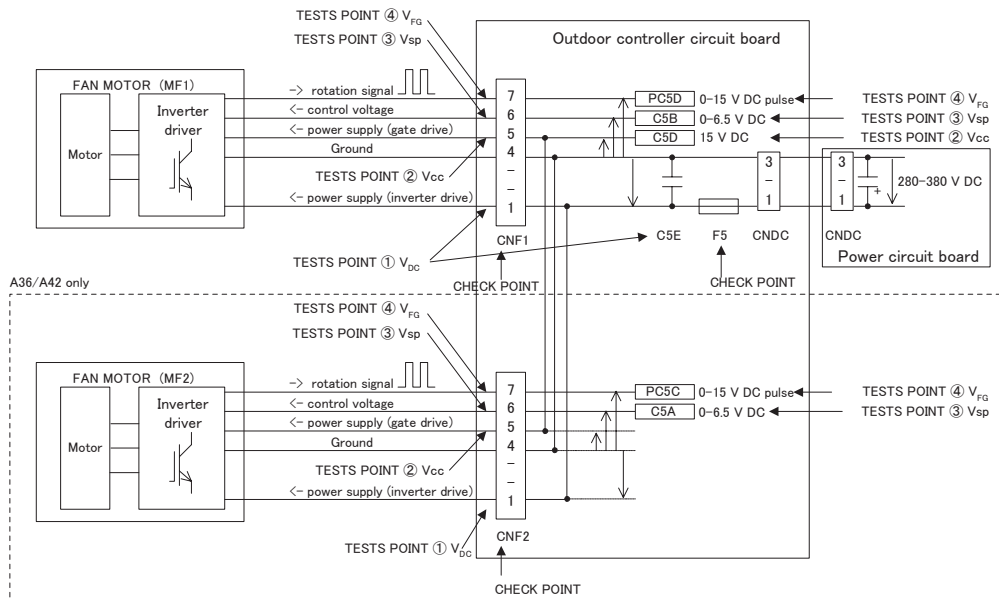
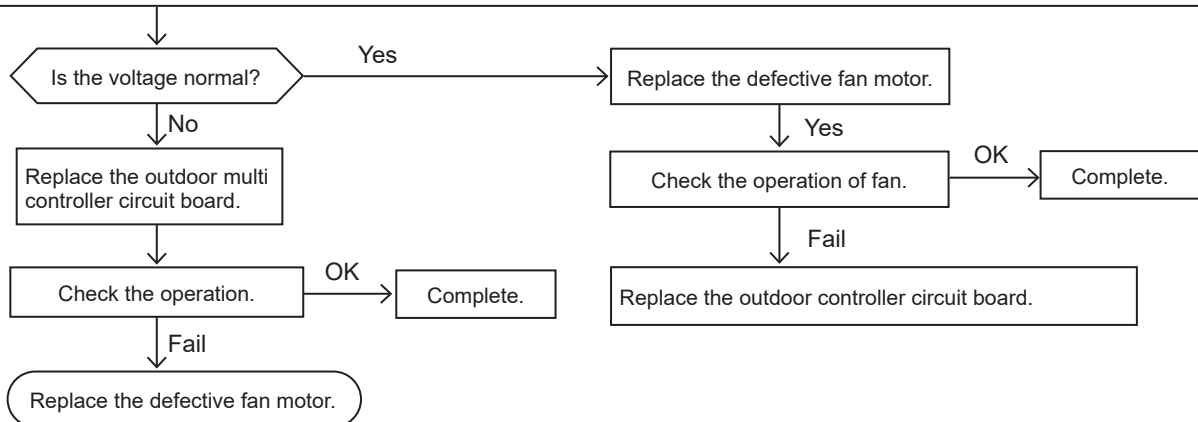
Check the fuse (F5) on outdoor controller circuit board.



Power supply check (Remove the connector (CNF1, 2))

Measure the voltage in the outdoor controller circuit board.

TEST POINT 1: V_{DC} (between 1 (+) and 4 (-) of the fan connector): 280~340 VDC (when PFC stops), 380 VDC (when PFC is operating) TEST POINT 2: V_{CC} (between 5 (+) and 4 (-) of the fan connector): V_{CC} 15 VDC



- The inverter control P.C. board is built in the fan motor of this outdoor unit.
- When F5 that is on controller board is opened, change the fan motor and outdoor controller board at the same time (F5 is impossible to change).
- It is abnormal when the abnormality is detected from either both fan motors or only one side.

10-7. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

- Thermistor <Liquid> (TH3)
- Thermistor <2-phase pipe> (TH6)
- Thermistor <Ambient> (TH7)
- Thermistor <Suction> (TH32)

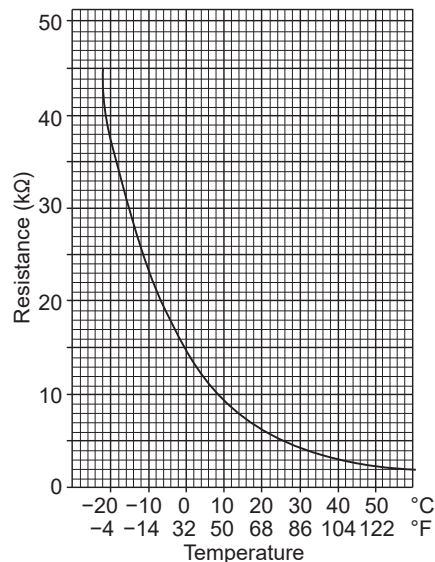
Thermistor R0 = 15 kΩ ± 3%

B constant = 3480 ± 1%

$$t (^{\circ}\text{C}): R_t = 15 \exp\left\{3480\left(\frac{1}{273+t} - \frac{1}{273}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 15 \exp\left\{3480\left(\frac{1}{273+(T-32)/1.8} - \frac{1}{273}\right)\right\}$$

32°F [0°C]	15 kΩ	86°F [30°C]	4.3 kΩ
50°F [10°C]	9.6 kΩ	104°F [40°C]	3.0 kΩ
68°F [20°C]	6.3 kΩ		
77°F [25°C]	5.2 kΩ		



Medium temperature thermistor

- Thermistor <Heat sink> (TH8)

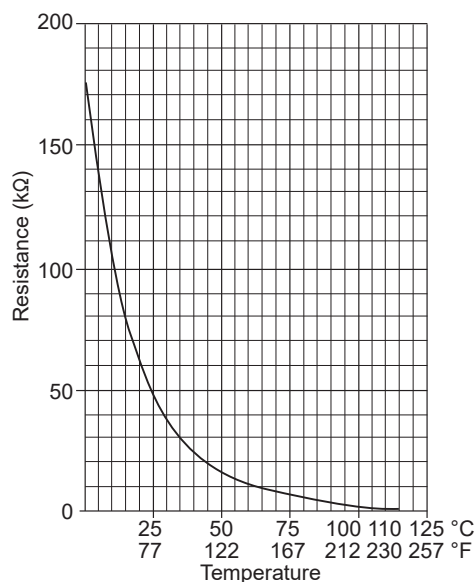
Thermistor R50 = 17 kΩ ± 2%

B constant = 4150 ± 3%

$$t (^{\circ}\text{C}): R_t = 17 \exp\left\{4150\left(\frac{1}{273+t} - \frac{1}{323}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 17 \exp\left\{4150\left(\frac{1}{273+(T-32)/1.8} - \frac{1}{323}\right)\right\}$$

32°F [0°C]	180 kΩ
77°F [25°C]	50 kΩ
122°F [50°C]	17 kΩ
158°F [70°C]	8 kΩ
194°F [90°C]	4 kΩ



High temperature thermistor

- Thermistor <Comp. surface> (TH33)
- Thermistor <Discharge> (TH4)

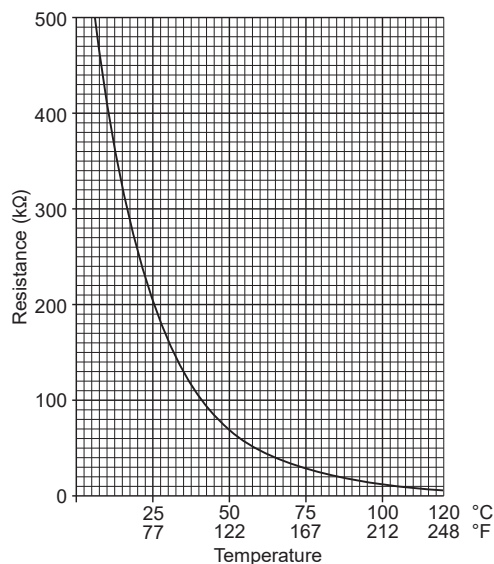
Thermistor R120 = 7.465 kΩ ± 2%

B constant = 4057 ± 2%

$$t (^{\circ}\text{C}): R_t = 7.465 \exp\left\{4057\left(\frac{1}{273+t} - \frac{1}{393}\right)\right\}$$

$$T (^{\circ}\text{F}): R_T = 7.465 \exp\left\{4057\left(\frac{1}{273+(T-32)/1.8} - \frac{1}{393}\right)\right\}$$

68°F [20°C]	250 kΩ	158°F [70°C]	34 kΩ
86°F [30°C]	160 kΩ	176°F [80°C]	24 kΩ
104°F [40°C]	104 kΩ	194°F [90°C]	17.5 kΩ
122°F [50°C]	70 kΩ	212°F [100°C]	13.0 kΩ
140°F [60°C]	48 kΩ	230°F [110°C]	9.8 kΩ

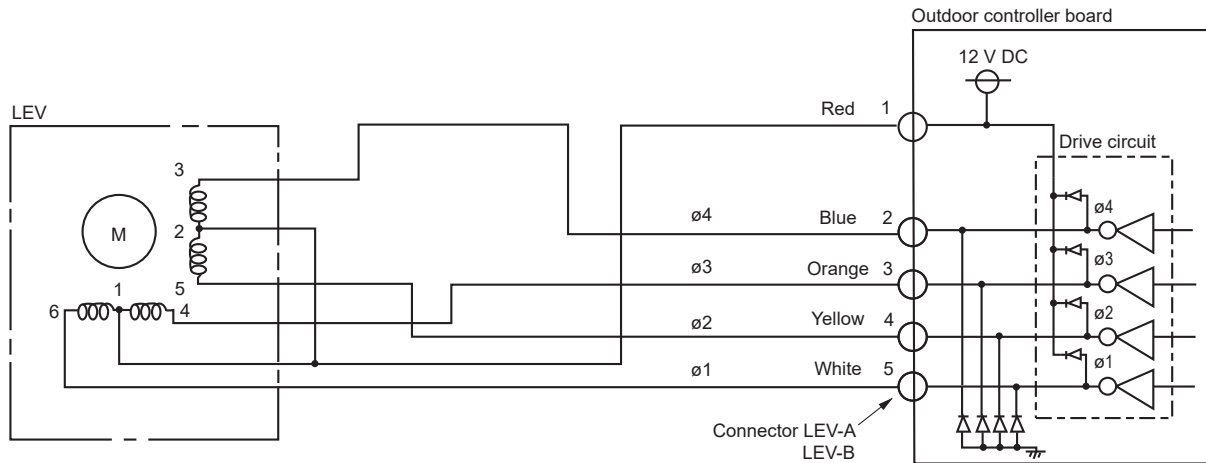


Linear expansion valve (A12, 18, 24, 30)

(1) Operation summary of the linear expansion valve

- Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the outdoor controller board.
- Valve position can be changed in proportion to the number of pulse signal.

<Connection between the outdoor controller board and the linear expansion valve>



<Output pulse signal and the valve operation>

Output (Phase)	Output							
	1	2	3	4	5	6	7	8
ø1	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
ø2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
ø3	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
ø4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

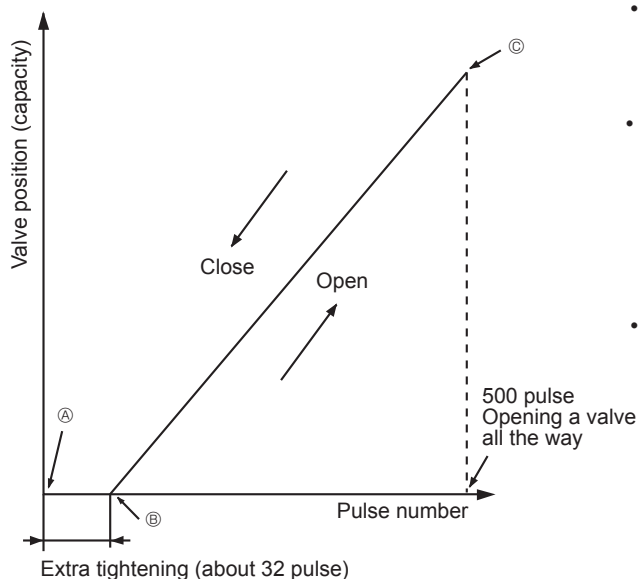
The output pulse shifts in the following order.

Opening a valve: 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

Closing a valve: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

- When linear expansion valve operation stops, all output phases become OFF.

(2) Linear expansion valve operation



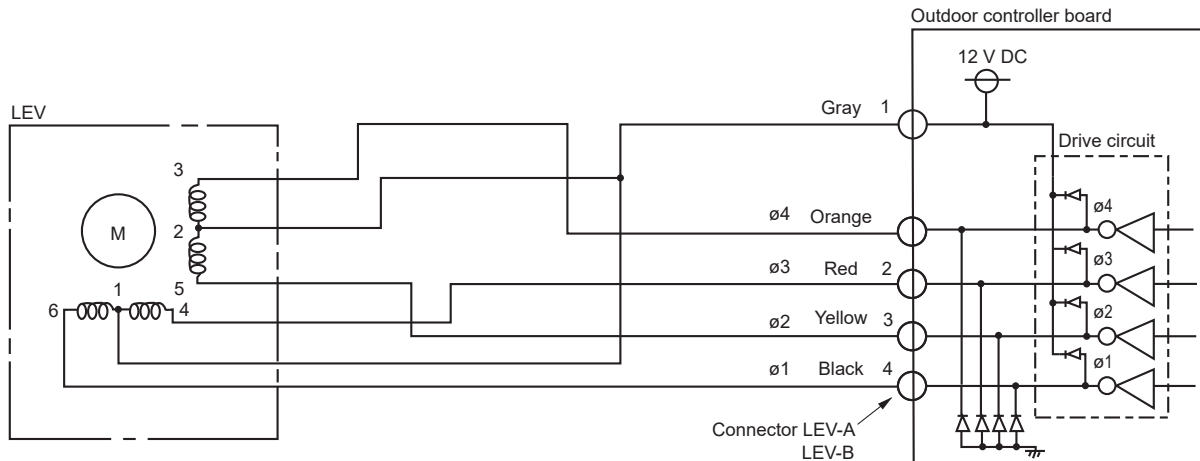
- When the power is turned on, 700 pulse closing valve signal will be sent till it goes to ① point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valve; however, when the pulse number moves from ② to ① or when the valve is locked, sound can be heard than normal situation. No sound is heard when the pulse number moves from ② to ① in case coil is burn out or motor is locked by open-phase.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

Linear expansion valve (A36, 42)

(1) Operation summary of the linear expansion valve

- Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the outdoor controller board.
- Valve position can be changed in proportion to the number of pulse signal.

<Connection between the outdoor controller board and the linear expansion valve>



<Output pulse signal and the valve operation>

Output (Phase)	Output							
	1	2	3	4	5	6	7	8
ø1	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
ø2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
ø3	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
ø4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

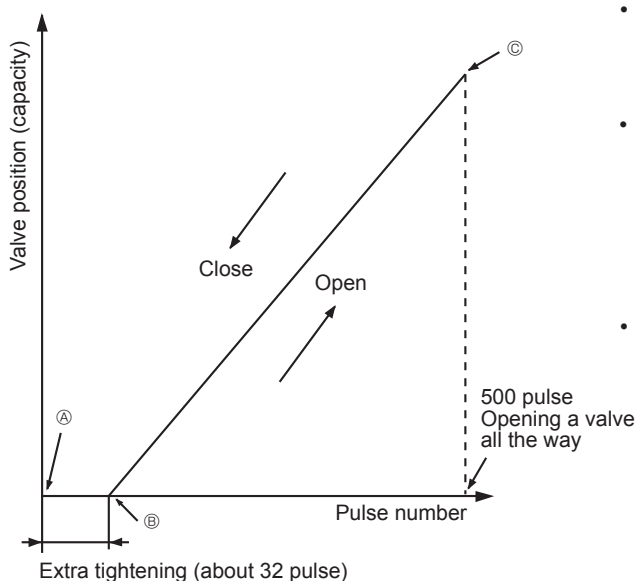
The output pulse shifts in the following order.

Opening a valve: 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

Closing a valve: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

- When linear expansion valve operation stops, all output phases become OFF.

(2) Linear expansion valve operation

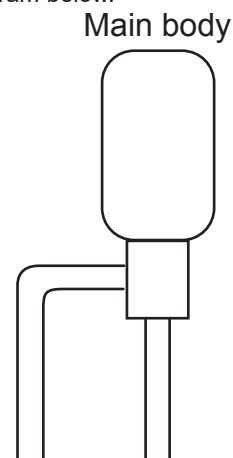
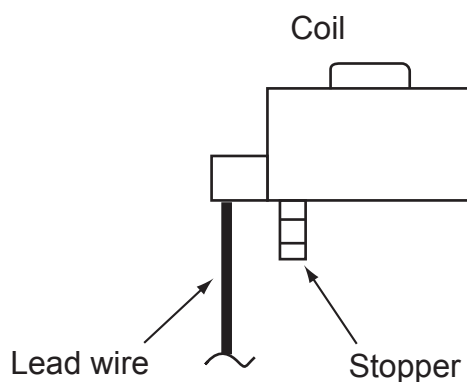


- When the power is turned on, 700 pulse closing valve signal will be sent till it goes to A point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)
- When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valve; however, when the pulse number moves from B to A or when the valve is locked, sound can be heard than normal situation. No sound is heard when the pulse number moves from B to A in case coil is burn out or motor is locked by open-phase.
- Sound can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

(3) How to attach and detach the coil of linear expansion valve (A12, 18, 24, 30)

<Composition>

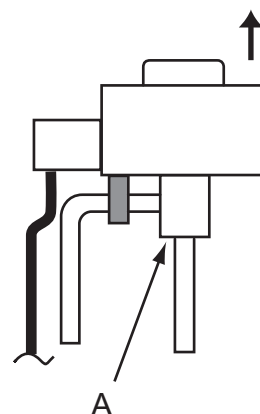
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward.

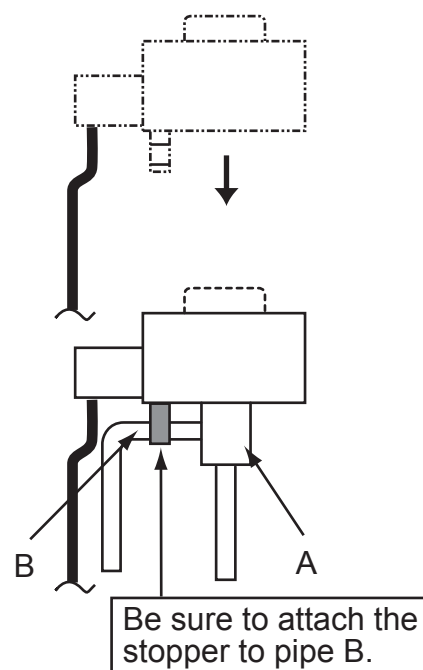
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to stress.



<How to attach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to pipe B. (At this time, be careful that stress is not added to lead wire and main body is not wound by lead wire.) If the stopper is not firmly attached to pipe B, coil may be detached from the main body and that can cause defective operation of linear expansion valve.

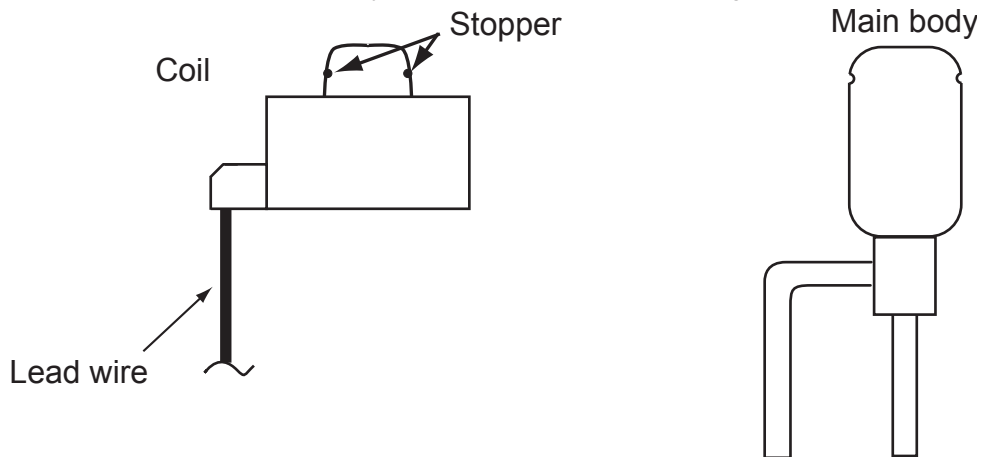
To prevent piping stress, be sure to attach the coil holding the main body of linear expansion valve firmly. Otherwise pipe may break.



(4) How to attach and detach the coil of linear expansion valve (A36, 42)

<Composition>

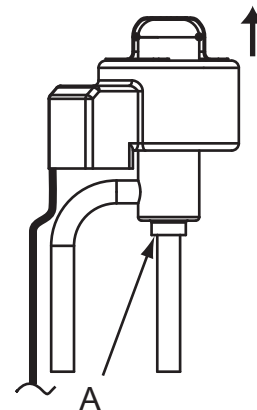
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward.

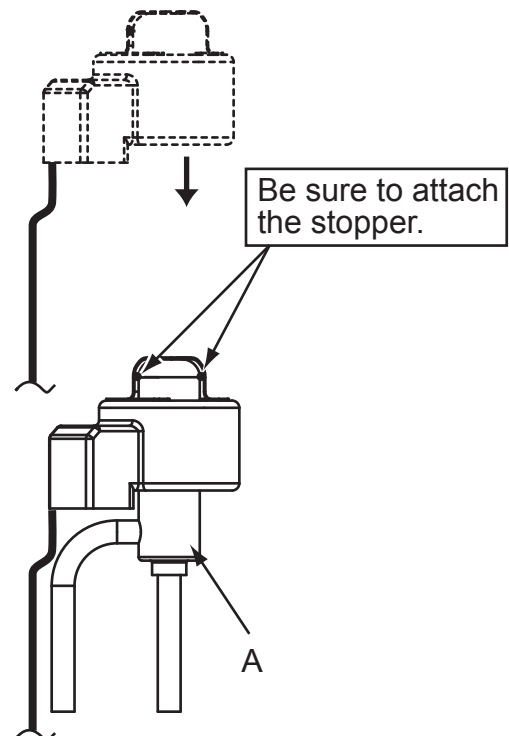
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to stress.



<How to attach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to main body. (At this time, be careful that stress is not added to lead wire and main body is not wound by lead wire.) If the stopper is not firmly attached to main body, coil may be detached from the main body and that can cause defective operation of linear expansion valve.

To prevent piping stress, be sure to attach the coil holding the main body of linear expansion valve firmly. Otherwise pipe may break.



10-8. EMERGENCY OPERATION

- (1) When the check codes shown below are displayed on outdoor unit or microprocessor for wired remote controller or indoor unit has a failure, but no other problems are found, emergency operation will be available by setting the emergency operation switch (SWE) to ON and short-circuiting the connector (CN31) on outdoor controller board.

When following abnormalities occur, emergency operation will be available.

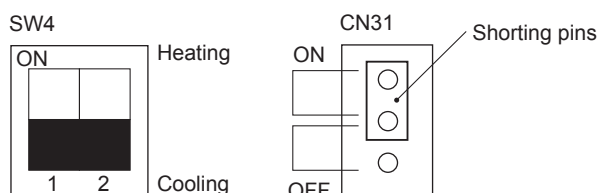
Check code	Inspected content
U4	Open/short of pipe thermistor (TH3/TH6)
E8	Indoor/outdoor unit communication error •Signal receiving error (Outdoor unit)
E9	Indoor/outdoor unit communication error •Transmitting error (Indoor unit)
E0-7	Communication error other than outdoor unit
Ed	Communication error between outdoor controller board and M-NET board (Serial communication error)

(2) Check the following items and cautions for emergency operation

- ① Make sure that there is no abnormality in outdoor unit other than the above abnormalities. (Emergency operation will not be available when check codes other than the above are indicated.)
- ② For emergency operation, it is necessary to set the emergency operation switch (SWE) on indoor controller board. Refer to the electrical wiring diagram of indoor unit for how to set the indoor unit.)
- ③ During emergency operation, the air-conditioner will continuously be operated by supplying power and stopping it: It cannot be turned on or off by remote control, and temperature control is not possible.
- ④ Do not perform emergency heating operation for an extended period of time: If the outdoor unit starts defrosting during this period, cold air will blow out from the indoor unit.
- ⑤ Do not perform emergency cooling operation for more than 10 hours: Neglecting this could result in freezing the heat exchanger in indoor unit.

(3) Emergency operation procedure

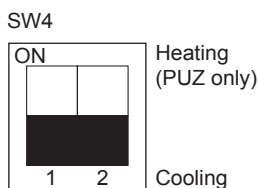
- ① Turn the main power supply off.
- ② Turn on the emergency operation switch (SWE) on indoor controller board.
- ③ Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to ON.
- ④ Use SW4-2 on outdoor controller board to set the operation mode (cooling or heating). (SW4-1 is not used.)
- ⑤ Turning the main power supply on will start the emergency operation.



(4) Releasing emergency operation

- ① Turn the main power supply off.
- ② Set the emergency operation switch (SWE) on indoor controller board to OFF.
- ③ Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to OFF.
- ④ Set SW4-2 on outdoor controller board as shown in the right.

Note: If shorting pins are not set on emergency operation connector (CN31), the setting remains OFF.



(5) Operation data during emergency operation

During emergency operation, no communication is performed with the indoor unit, so the data items needed for operation are set to the following values:

Operation data	Operation mode		Remarks
	COOL	HEAT	
Intake temperature (TH1)	81°F [27°C]	69°F [20.5°C]	
Indoor fluid pipe temperature (TH2)	41°F [5°C]	113°F [45°C]	
Indoor 2-phase pipe temperature (TH5)	41°F [5°C]	122°F [50°C]	
Set temperature	77°F [25°C]	72°F [22°C]	
Outdoor liquid pipe temperature (TH3)	113°F [45°C]	41°F [5°C]	*1
Outdoor 2-phase pipe temperature (TH6)	122°F [50°C]	41°F [5°C]	*1
Outdoor air temperature (TH7)	95°F [35°C]	45°F [7°C]	*1
Outdoor suction (TH32)	41°F [5°C]	41°F [5°C]	*2
Temperature difference code (intake temperature–set temperature) (ΔT_j)	5	5	
Discharge super heat (SHd)	54°F [30°C]	54°F [30°C]	*2
Sub-cool (SC)	9°F [5°C]	9°F [5°C]	*2

*1 If the thermistor temperature data is normal (not open/short), that data is loaded into the control as valid data.

When the unit enters emergency operation and TH values are mismatched, set the thermistors to open/short.

And the unit runs emergency operation with the values listed above.

*2 If one thermistor is set to open/short, the values of SHd/SC will be different from the list above.

[Example] When liquid temperature thermistor (TH3) has an open or short circuit.

Thermistor	COOL	HEAT
TH3	113°F [45°C]	41°F [5°C]
TH6	Ta	Tb
	Regard normal figure as effective data.	
TH4	Tc	Td
	Regard normal figure as effective data.	
TH5	41°F [5°C]	122°F [50°C]
TH2	41°F [5°C]	113°F [45°C]
TH33	Regard normal figure as effective data.	

Discharge superheat (SHd)

Cooling = TH4–TH6 = Tc–Ta

Heating = TH4–TH5 = Td–122°F [50°C]

Degree of subcooling (SC)

Cooling = TH6–TH3 = Ta–113°F [45°C]

Heating = TH5–TH2 = 50°C–45°C = 5°C

or

= 122°F–113°F = 9°F

10-9. TEST POINT DIAGRAM Outdoor controller circuit board PUZ-A12NKA7 PUZ-A18NKA7 PUY-A12NKA7 PUY-A18NKA7 PUZ-A12NKA7-BS PUZ-A18NKA7-BS PUY-A12NKA7-BS PUY-A18NKA7-BS

Note: PUZ-A12//18NKA checks solder side.

Brief Check of POWER MODULE

If they are short-circuited, it means that they are broken.
Measure the resistance in the following points (connectors, etc.).

1. Check of Diode (DS1, DS2)

$\boxed{P} - \boxed{L1}$, $\boxed{P} - \boxed{N1}$, $\boxed{N} - \boxed{L1}$, $\boxed{N} - \boxed{N1}$

2. Check of Q1

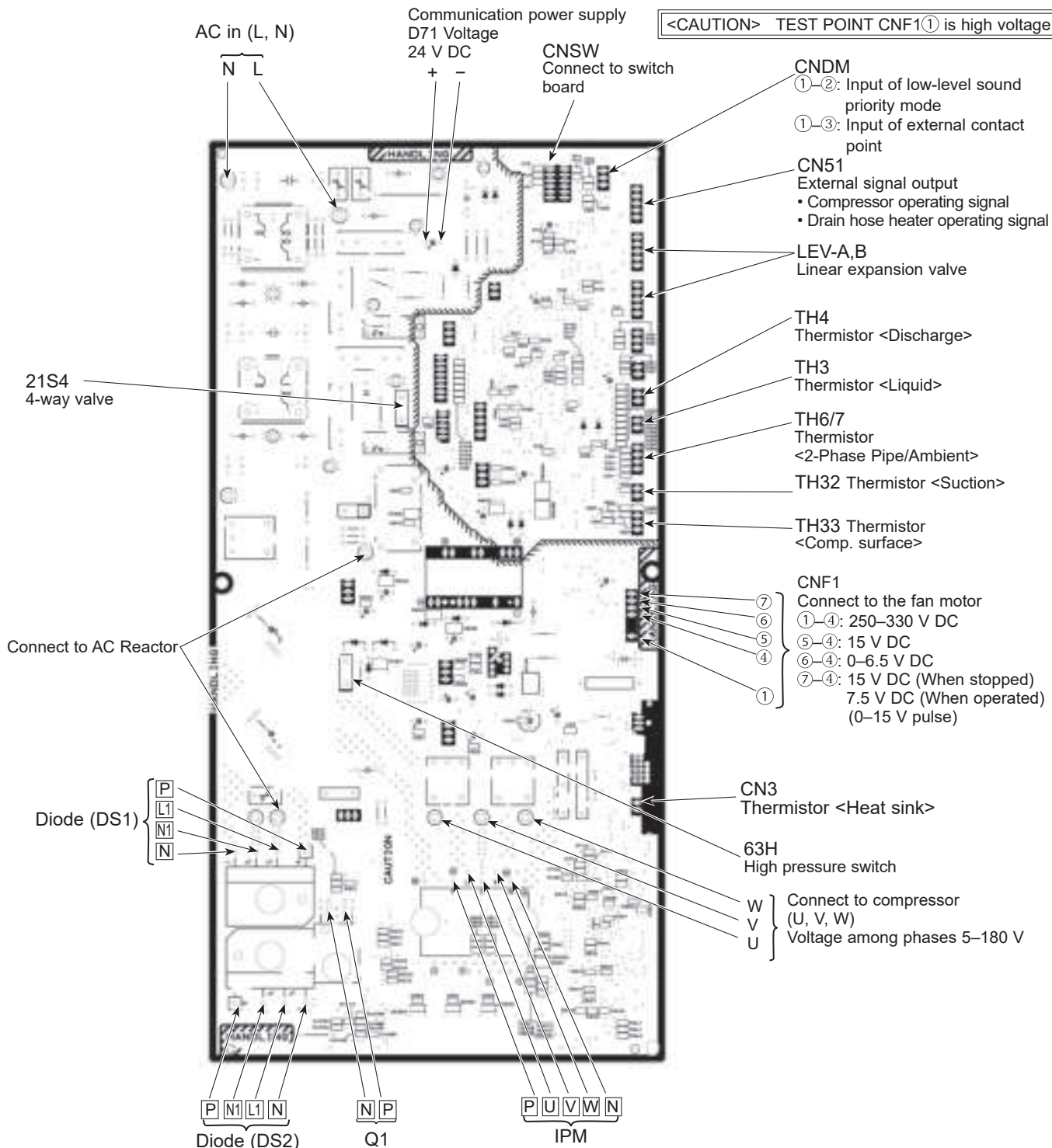
$\boxed{P} - \boxed{N}$

3. Check of IPM

$\boxed{P} - \boxed{N}$, $\boxed{P} - \boxed{U}$, $\boxed{P} - \boxed{V}$, $\boxed{P} - \boxed{W}$, $\boxed{N} - \boxed{U}$, $\boxed{N} - \boxed{V}$, $\boxed{N} - \boxed{W}$

P-N keeps being short-circuited until the smoothing condenser is charged by a multimeter.

Note: The marks, $\boxed{P}$, $\boxed{N}$, $\boxed{L}$, $\boxed{L1}$, $\boxed{N1}$, $\boxed{U}$, $\boxed{V}$ and $\boxed{W}$ shown in the diagram are not actually printed on the board.



Switch board

PUZ-A12NKA7

PUZ-A12NKA7-BS

PUZ-A18NKA7

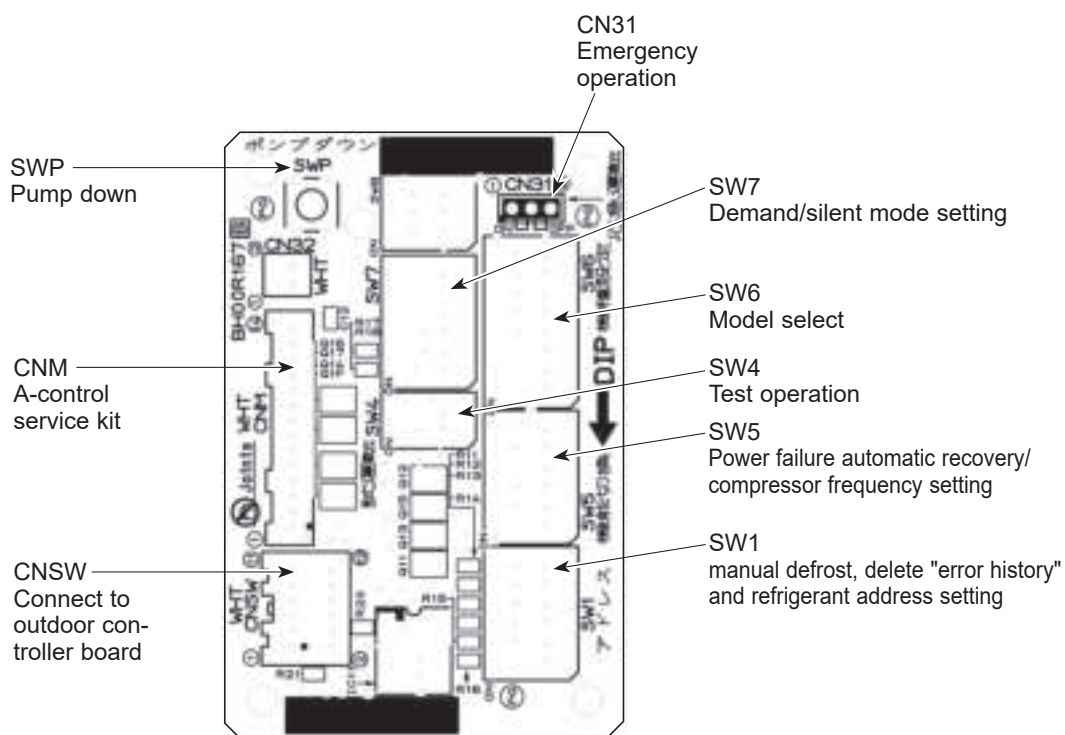
PUZ-A18NKA7-BS

PUY-A12NKA7

PUY-A12NKA7-BS

PUY-A18NKA7

PUY-A18NKA7-BS



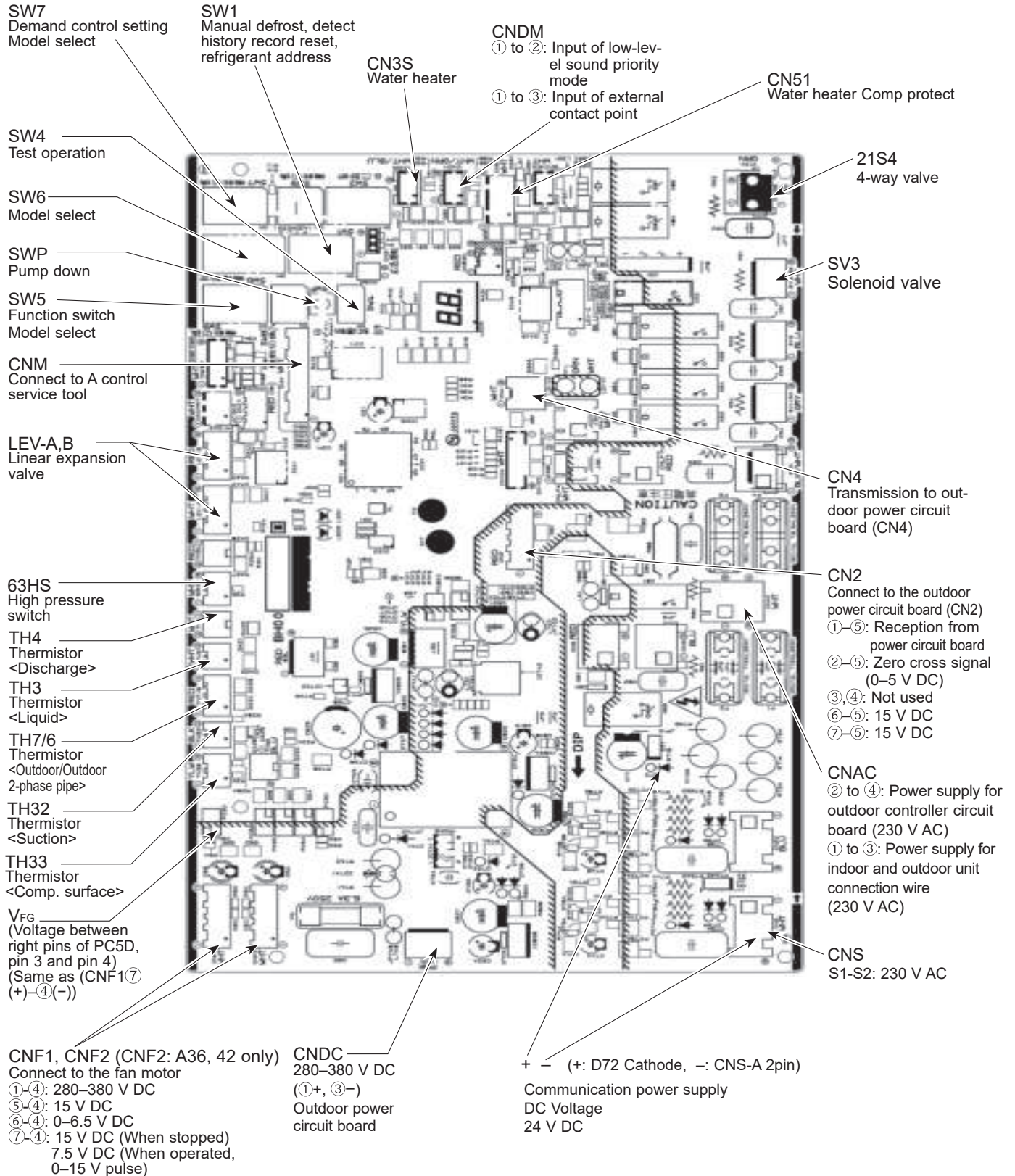
Outdoor controller circuit board

PUZ-A24NHA7
PUZ-A24NHA7-BS
PUY-A24NHA7
PUY-A24NHA7-BS

PUZ-A30NHA7
PUZ-A30NHA7-BS
PUY-A30NHA7
PUY-A30NHA7-BS

PUZ-A36NKA7
PUZ-A36NKA7-BS
PUY-A36NKA7
PUY-A36NKA7-BS

PUZ-A42NKA7
PUZ-A42NKA7-BS
PUY-A42NKA7
PUY-A42NKA7-BS



Outdoor power circuit board

PUZ-A24NHA7

PUZ-A30NHA7

PUZ-A24NHA7-BS

PUZ-A30NHA7-BS

PUY-A24NHA7

PUY-A30NHA7

PUY-A24NHA7-BS

PUY-A30NHA7-BS

Brief Check of POWER MODULE

If they are short-circuited, it means that they are broken.
Measure the resistance in the following points (connectors, etc.).

1. Check POWER MODULE

① Check of DIODE circuit

R - P1 S - P1 R - N1 S - N1

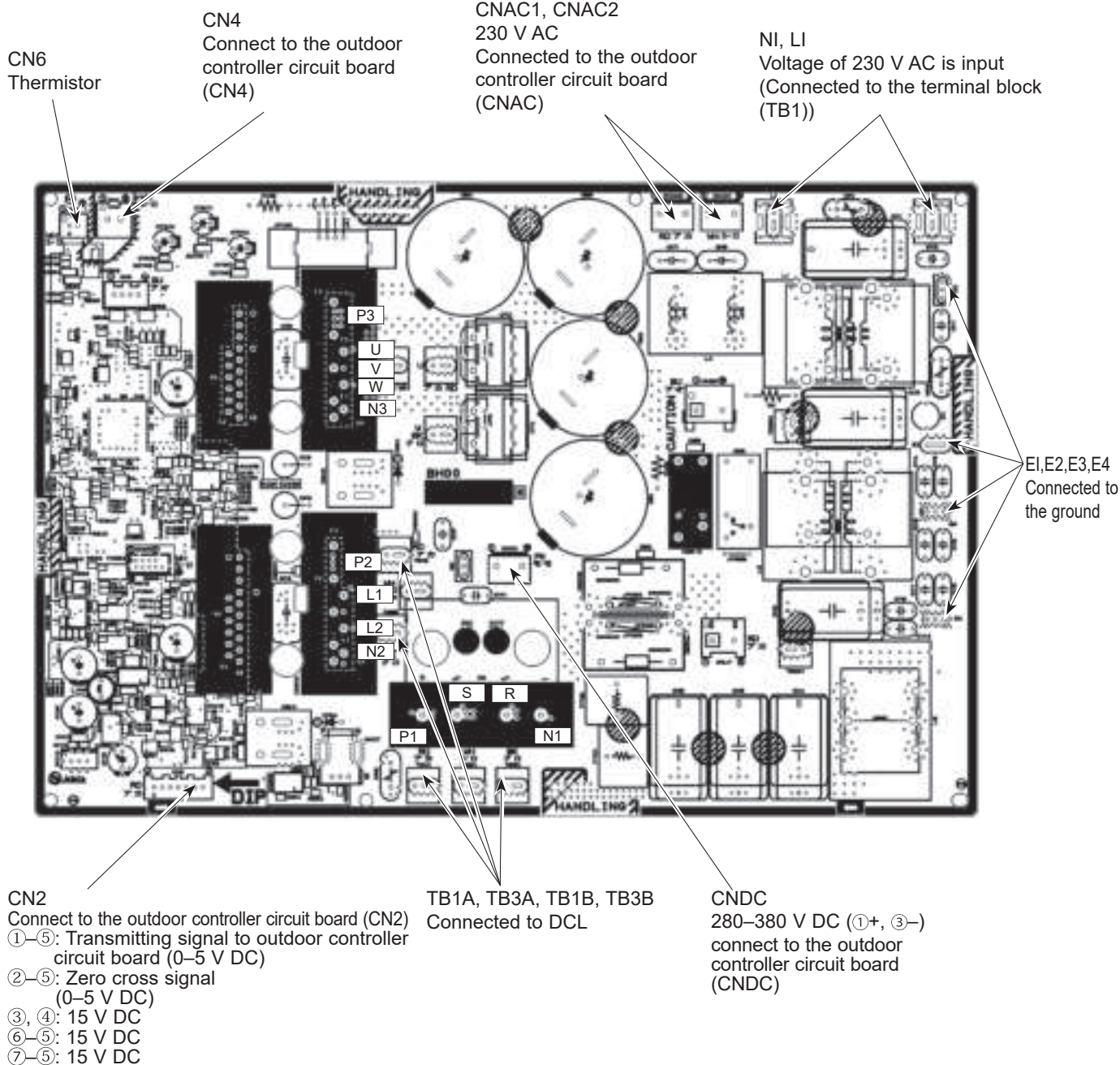
② Check of IGBT circuit

P2 - L1 P2 - L2 N2 - L1 N2 - L2

③ Check of INVERTER circuit

P3 - U, P3 - V, P3 - W, N3 - U, N3 - V, N3 - W

Note: The marks R, S, L1, L2, P1, N1, U, V and W show in the diagram are not actually printed on the board.



Outdoor power circuit board

PUZ-A36NKA7

PUZ-A42NKA7

PUZ-A36NKA7-BS

PUZ-A42NKA7-BS

PUY-A36NKA7

PUY-A42NKA7

PUY-A36NKA7-BS

PUY-A42NKA7-BS

Brief Check of POWER MODULE

If they are short-circuited, it means that they are broken.

Measure the resistance in the following points (connectors, etc.).

1. Check POWER MODULE

① Check of DIODE circuit

R - P1 S - P1 R - N1 S - N1

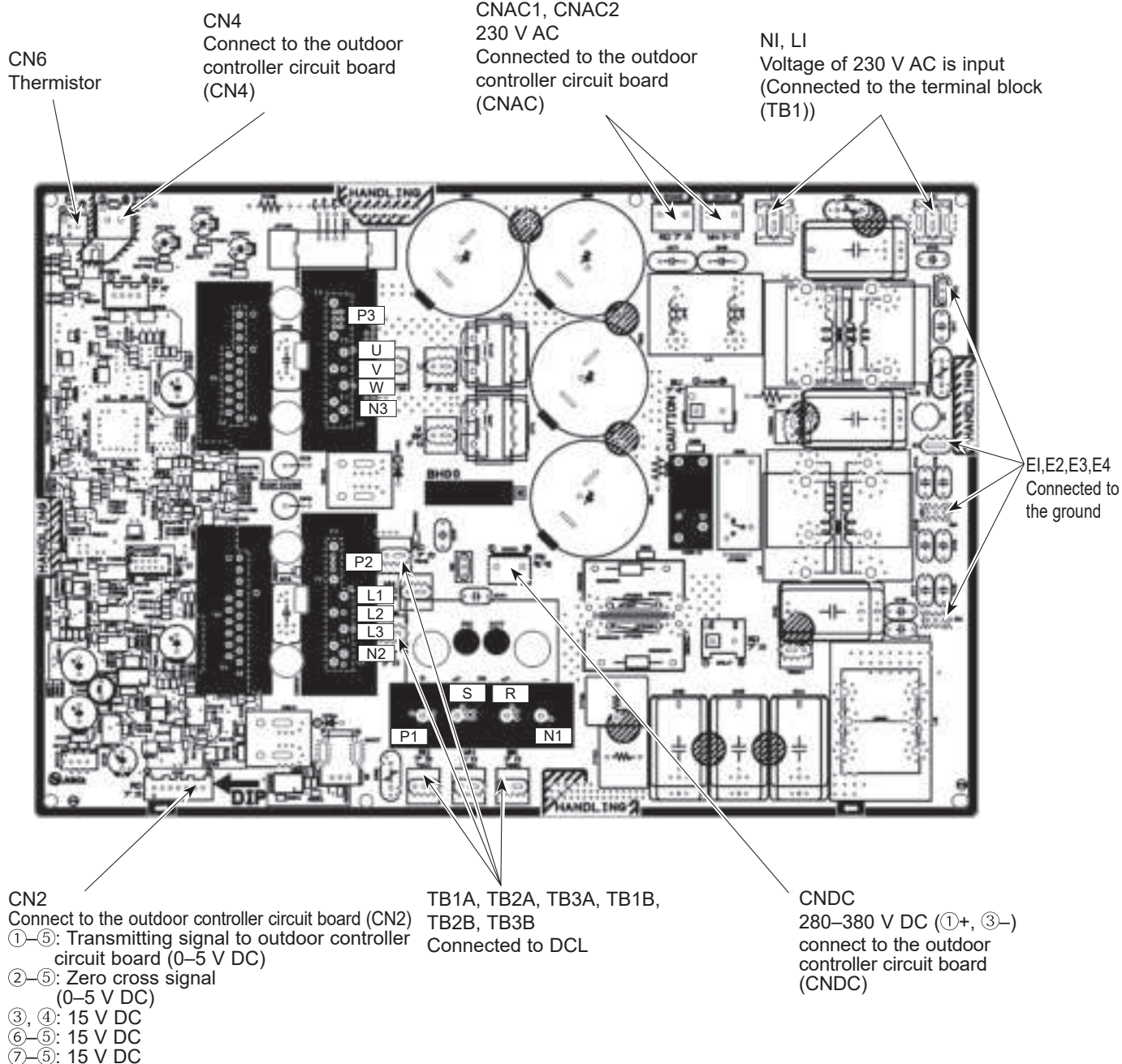
② Check of IGBT circuit

P2 - L1 P2 - L2 P2 - L3 N2 - L1 N2 - L2 N2 - L3

③ Check of INVERTER circuit

P3 - U, P3 - V, P3 - W, N3 - U, N3 - V, N3 - W

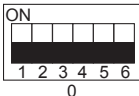
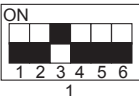
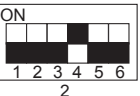
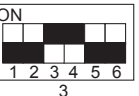
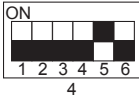
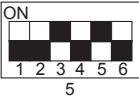
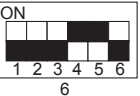
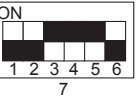
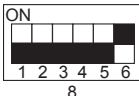
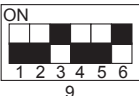
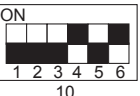
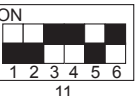
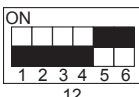
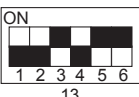
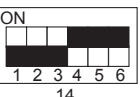
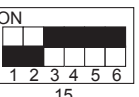
Note: The marks R, S, L1, L2, L3, P1, N1, U, V and W show in the diagram are not actually printed on the board.



10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

The black square (■) indicates a switch position.

Type of switch	Switch	No.	Function	Action by the switch operation		Effective timing		
				ON	OFF			
DIP switch	SW1	1	Manual defrost *1	Start	Normal	When compressor is operating in heating operation. *1		
		2	Abnormal history clear	Clear	Normal	Off or operating		
		3	Refrigerant address setting					When power supply ON
		4						
		5						
		6						
		SW4	1	Test run	Operating	OFF	Under suspension	
			2	Test run mode setting	Heating	Cooling		
		SW8	1	No function	—	—	—	
	2		No function	—	—	—		
	3		No function	—	—	—		
	Push switch	SWP		Pump down	Start	Normal	Under suspension	

*1 Manual defrost should be done as follows.

① Change the DIP SW1-1 on the outdoor controller board from OFF to ON.

② Manual defrost will start by the above operation 1 if all these conditions written below are satisfied.

· Heat mode setting

· 10 minutes have passed since compressor started operating or previous manual defrost is finished.

· Pipe temperature is less than or equal to 46°F [8°C].

Manual defrost will finish if certain conditions are satisfied.

Manual defrost can be done if above conditions are satisfied when DIP SW1-1 is changed from OFF to ON.

After DIP SW1-1 is changed from OFF to ON, there is no problem if DIP SW1-1 is left ON or changed to OFF again. This depends on the service conditions.

Continue to the next page.

Type of Switch	Switch	No.	Function	Action by the switch operation		Effective timing																																											
				ON	OFF																																												
DIP switch	SW5	1	No function	—	—	—																																											
		2	Power failure automatic recovery *2	Auto recovery	No auto recovery	When power supply ON																																											
		3,4,6	No function	—	—	—																																											
	SW7 *4	1	Mode select *3	Demand function	Low noise mode	Always																																											
		2	No function	—	—	—																																											
		3	Max Hz setting (cooling)	Max Hz (cooling) × 0.8	Normal	Always																																											
		4	Max Hz setting (heating)	Max Hz (heating) × 0.8	Normal	Always																																											
		5	No function	—	—	—																																											
		6	Defrost setting	For high humidity	Normal	Always																																											
		SW9	1	No function	—	—	—																																										
	2		Function switch	Valid	Normal	Always																																											
	3,4		No function	—	—	—																																											
	SW6	1	No function																																														
		2																																															
		3																																															
		4	Model select	<table><tr><th>MODEL</th><th>SW6</th><th>SW5-5, 6 *5</th><th>MODEL</th><th>SW6</th><th>SW5-5, 6 *5</th></tr><tr><td>PUZ-A12NKA7</td><td></td><td></td><td>PUZ-A30NHA7</td><td></td><td></td></tr><tr><td>PUY-A12NKA7</td><td></td><td></td><td>PUY-A30NHA7</td><td></td><td></td></tr><tr><td>PUZ-A18NKA7</td><td></td><td></td><td>PUZ-A36NKA7</td><td></td><td></td></tr><tr><td>PUY-A18NKA7</td><td></td><td></td><td>PUY-A36NKA7</td><td></td><td></td></tr><tr><td>PUZ-A24NHA7</td><td></td><td></td><td>PUZ-A42NKA7</td><td></td><td></td></tr><tr><td>PUY-A24NHA7</td><td></td><td></td><td>PUY-A42NKA7</td><td></td><td></td></tr></table>				MODEL	SW6	SW5-5, 6 *5	MODEL	SW6	SW5-5, 6 *5	PUZ-A12NKA7			PUZ-A30NHA7			PUY-A12NKA7			PUY-A30NHA7			PUZ-A18NKA7			PUZ-A36NKA7			PUY-A18NKA7			PUY-A36NKA7			PUZ-A24NHA7			PUZ-A42NKA7			PUY-A24NHA7			PUY-A42NKA7		
		MODEL		SW6	SW5-5, 6 *5	MODEL	SW6	SW5-5, 6 *5																																									
		PUZ-A12NKA7				PUZ-A30NHA7																																											
		PUY-A12NKA7				PUY-A30NHA7																																											
		PUZ-A18NKA7				PUZ-A36NKA7																																											
PUY-A18NKA7					PUY-A36NKA7																																												
PUZ-A24NHA7				PUZ-A42NKA7																																													
PUY-A24NHA7			PUY-A42NKA7																																														
SW5	5	The black square (■) indicates a switch position.																																															

*2 Power failure automatic recovery can be set by either remote controller or this DIP SW. If one of them is set to ON, Auto recovery activates. Please set Auto recovery basically by remote controller because not all units have DIP SW. Please refer to the indoor unit installation manual.

*3 SW7-1 is setting change over of Demand/Low noise. It is effective only in the case of external input. (Local wiring is necessary. Refer to the next page: Special function)

*4 Please do not use SW7-3 to 6 usually. Trouble might be caused by the usage condition.

*5 SW6-1 to 3, SW5-1 to 4, 6: Function switch

(2) Function of connector

Type	Connector	Function	Action by open/ short operation		Effective timing
			Short	Open	
Connector	CN31	Emergency operation	Start	Normal	When power supply ON

(3) Special function

Low-level noise priority mode / Demand control function (Field wiring)

The low-level noise priority mode and the demand control function are available by connection of a commercially available timer or ON-OFF contactor to the CNDM connector (an optional demand control input).

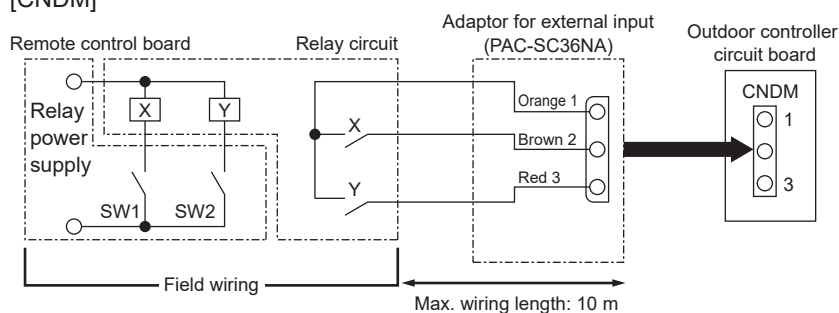
- In the low-level noise priority mode, the outdoor unit operation noise decreases by approx. 3 to 4 dB compared to usual
- The demand control function decreases the power consumption by 0 to 100% compared to usual.

Notes:

1. The performance may decrease depending on the outdoor temperature or other conditions.
2. To protect the unit from failure, it may not enter to the low-level noise priority mode during cooling operation and at high ambient temperature.

Wiring example

[CNDM]



SW1: Refer to the table below.

SW2: Refer to the table below.

X, Y: Relay (Contact rating: 15 V DC 0.1 A or more
Min. applied load: 5 V DC 1 mA or less)

- 1) Wire a circuit as shown above using an adaptor for external input (PAC-SC36NA).
- 2) Use SW7-1 on the outdoor controller circuit board to select the low-level noise priority mode or the demand control function.
- 3) In the demand control function, set the maximum power consumption (power rating ratio) by combination of two switch settings as shown in the table below.

	Outdoor controller circuit board SW7-1	SW1	SW 2	Function
Low level sound priority mode	OFF	ON	—	Low level sound priority mode activated
Demand control function	ON	OFF	OFF	100% (Normal)
		ON	OFF	75%
		ON	ON	50%
		OFF	ON	0% (Stop)

<Display function of inspection for outdoor unit>

The blinking patterns of both LED1 (green) and LED2 (red) indicate the types of abnormality when it occurs. Types of abnormality can be indicated in details by connecting an optional part 'A-Control Service Tool (PAC-SK52ST)' to connector CNM on outdoor controller board.

[Display]

(1) Normal condition

Unit condition	Outdoor controller board		A-Control Service Tool	
	LED1 (Green)	LED2 (Red)	Check code	Indication of the display
When the power is turned on	Lit	Lit	— ⇄ —	Alternately blinking display
When unit stops	Lit	Not lit	00, etc.	Operation mode
When compressor is warming up	Lit	Not lit	08, etc.	
When unit operates	Lit	Lit	C5, H7 etc.	

(2) Abnormal condition

Indication		Error			
Outdoor controller board		Contents	Check code*1	Inspection method	Detailed reference page
LED (Green)	LED2 (Red)				
1 blinking	2 blinking	Connector (63H) is open.	F5	① Check if connector (63H) on the outdoor controller board is not disconnected. ② Check continuity of pressure switch (63H) by multimeter.	P.32
	4 blinking	Abnormality of indoor controller board	Fb	① Replace indoor controller board.	*2
2 blinking	1 blinking	Miswiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)	—	① Check if indoor/outdoor connecting wire is connected correctly. ② Check if 4 or more indoor units are connected to outdoor unit. ③ Check if noise entered into indoor/outdoor connecting wire or power supply. ④ Re-check error by turning off power, and on again.	P.32 (EA)
		Miswiring of indoor/outdoor unit connecting wire (reversed wiring or disconnection)	—		P.32 (Eb)
		Startup time over	—		P.32 (EC)
	2 blinking	Indoor/outdoor unit communication error signal receiving error) is detected by indoor unit.	E6	① Check if indoor/outdoor connecting wire is connected correctly. ② Check if noise entered into indoor/outdoor connecting wire or power supply. ③ Check if noise entered into indoor/outdoor controller board. ④ Re-check error by turning off power, and on again.	*2
		Indoor/outdoor unit communication error (transmitting error) is detected by indoor unit.	E7		*2
		Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit.	—		P.37 (E8)
		Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit.	—		P.38 (E9)
	3 blinking	Remote controller signal receiving error is detected by remote controller.	E0	① Check if connecting wire of indoor unit or remote controller is connected correctly. ② Check if noise entered into transmission wire of remote controller. ③ Re-check error by turning off power, and on again.	P.37
		Remote controller transmitting error is detected by remote controller.	E3		P.37
		Remote controller signal receiving error is detected by indoor unit.	E4		P.37
		Remote controller transmitting error is detected by indoor unit.	E5		P.37
	4 blinking	Check code is not defined.	EF	① Check if remote controller is MA remote controller(PAR-21MAA). ② Check if noise entered into transmission wire of remote controller. ③ Check if noise entered into indoor/outdoor connecting wire. ④ Re-check error by turning off power, and on again.	P.38
		Abnormal refrigerant circuit	PL	① Be sure to replace the 4-way valve. ② Check refrigerant pipes for disconnection or leakage. ③ After the recovery of refrigerant, vacuum dry the whole refrigerant circuit. ④ Refer to "10-6. HOW TO CHECK THE PARTS". ⑤ Check refrigerant circuit for operation.	P.39
		Float switch connector open (FS)	P4	① Check if connector (CN4F) on indoor controller board is not disconnected. ② Measure resistance value among terminals on drain pump using a multimeter. ③ Check if drain pump works. ④ Check drain function.	*2

*1 Check code displayed on remote controller

*2 Refer to the indoor unit service manual.

Continue to the next page.

Indication		Error			Detailed reference page
Outdoor controller board		Contents	Check code*1	Inspection method	
LED (Green)	LED2 (Red)				
2 blinking	5 blinking	Serial communication error <Communication between outdoor controller board and outdoor power board> <Communication between outdoor controller board and M-NET P.C. board>	Ed	① Check if connector (CN4) on outdoor controller board and outdoor power board is not disconnected. ② Check if there is poor connection of connector on outdoor controller board(CNMNT and CNVMNT). ③ Check M-NET communication signal.	P.38
		Communication error of M-NET system	A0–A8		P.39–P.41
3 blinking	1 blinking	Abnormality of shell thermistor (TH32) and discharging temperature (TH4)	U2	① Check if stop valves are open. ② Check if connectors (TH4, TH33, LEV-A, and LEV-B) on outdoor controller board are not disconnected. ③ Check if unit is filled with specified amount of refrigerant. ④ Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a multimeter.	P.33
		Abnormality of superheat due to low discharge temperature	U7		
	2 blinking	Abnormal high pressure (High pressure switch 63H operated.)	U1	① Check if indoor/outdoor units have a short cycle on their air ducts. ② Check if connector (63H) on outdoor controller board is not disconnected. ③ Check if heat exchanger and filter is not dirty. ④ Measure resistance values among terminals on linear expansion valve using a multimeter.	P.33
		Abnormal low pressure (Low pressure switch 63L worked.)	UL		
	3 blinking	Abnormality of outdoor fan motor rotational speed	U8	① Check the outdoor fan motor. ② Check if connector (TH3) (T _{63HS}) on outdoor controller board is disconnected.	P.34
		Protection from overheat operation(TH3)(T _{63HS})	Ud		
	4 blinking	Compressor overcurrent breaking (Startup locked)	UF	① Check if stop valves are open. ② Check looseness, disconnection, and reversed connection of compressor wiring. ③ Measure resistance values among terminals on compressor using a multimeter ④ Check if outdoor unit has a short cycle on its air duct.	P.36
		Compressor overcurrent breaking	UP		P.36
		Abnormality of current sensor (P.B.)	UH		P.36
		Abnormality of power module	U6		P.34
	5 blinking	Open/short of discharge thermistor (TH4)	U3	① Check if connectors (TH3, TH4, TH6, TH7 and TH32) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. ② Measure resistance value of outdoor thermistors	P.34
		Open/short of outdoor thermistors (TH3, TH6, TH7, TH8, and TH33)	U4		P.34
	6 blinking	Abnormality of Heat sink temperature	U5	① Check if indoor/outdoor units have a short cycle on their air ducts. ② Measure resistance value of outdoor Heat sink thermistor(TH8).	P.34
	7 blinking	Abnormality of voltage	U9	① Check looseness, disconnection, and reversed connection of compressor wiring. ② Measure resistance value among terminals on compressor using a multimeter. ③ Check the continuity of contactor (52C). ④ Check if power supply voltage decreases. ⑤ Check the wiring of CN52C. ⑥ Check the wiring of CNAF.	P.35
4 blinking	1 blinking	Abnormality of room temperature thermistor (TH1)	P1	① Check if connectors (CN20, CN21, CN29, and CN44) on indoor controller board are not disconnected. ② Measure resistance value of indoor thermistors.	*2
		Abnormality of pipe temperature thermistor/Liquid (TH2)	P2		*2
		Abnormality of pipe temperature thermistor/Condenser-Evaporator (TH5)	P9		*2
	2 blinking	Abnormality of drain sensor (DS)	P4	① Check if connector (CN31) on indoor controller board is not disconnected. ② Measure resistance value of indoor thermistors. ③ Measure resistance value among terminals on drain pump using a multimeter. ④ Check if drain pump works. ⑤ Check drain function.	*2
		Indoor drain overflow protection	P5		*2
	3 blinking	Freezing (cooling)/overheating (heating) protection	P6	① Check if indoor unit has a short cycle on its air duct. ② Check if heat exchanger and filter is not dirty. ③ Measure resistance value on indoor and outdoor fan motors. ④ Check if the inside of refrigerant piping is not clogged.	*2
	4 blinking	Abnormality of pipe temperature	P8	① Check if indoor thermistors (TH2 and TH5) are not disconnected from holder. ② Check if stop valve is open. ③ Check reversed connection of extension pipe. (on plural units connection) ④ Check if indoor/outdoor connecting wire is connected correctly. (on plural units connection)	*2
5 blinking	Inndoor fan motor trouble	Pb	① Check the winding of an indoor unit fan motor.	*2	
—	—	Abnormality of remote controller board	E1 E2	① Replace remote controller.	P.37

*1 Check code displayed on remote controller

*2 Refer to the indoor unit service manual.

<Outdoor unit operation monitor function>

[When optional part 'A-Control Service Tool (PAC-SK52ST)' is connected to outdoor controller board (CNM)]

Digital indicator LED1 displays 2 digit number or code to inform operation condition and the meaning of check code by controlling DIP SW2 on 'A-Control Service Tool'.

Operation indicator SW2: Indicator change of self diagnosis

The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
			

<Digital indicator LED1 working details>

(Be sure that 1 to 6 in the SW2 are set to OFF.)

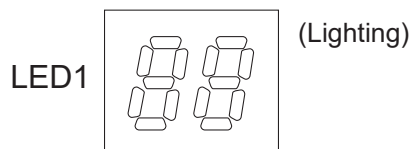
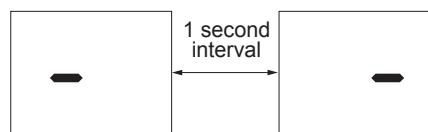
(1) Display when the power supply ON.

When the power supply ON, blinking displays by turns.

Wait for 4 minutes at the longest.

(2) When the display lights. (Normal operation)

① Operation mode display



SW2



(Initial setting)

The tens digit: Operation mode

Display	Operation Model
O	OFF/FAN
C	COOLING/DRY
H	HEATING
d	DEFROSTING

The ones digit: Relay output

Display	Warming-up Compressor	Compressor	4-way valve	Solenoid valve
0	—	—	—	—
1	—	—	—	ON
2	—	—	ON	—
3	—	—	ON	ON
4	—	ON	—	—
5	—	ON	—	ON
6	—	ON	ON	—
7	—	ON	ON	ON
8	ON	—	—	—
A	ON	—	ON	—

② Display during error postponement

Postponement code is displayed when compressor stops due to the work of protection device.

Postponement code is displayed while error is being postponed.

(3) When the display blinks

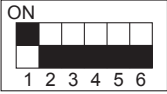
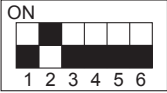
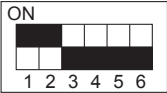
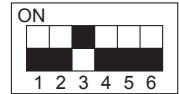
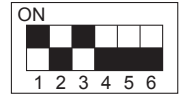
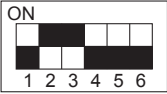
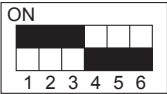
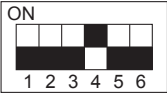
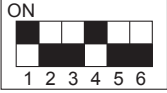
Inspection code is displayed when compressor stops due to the work of protection devices.

Display	Inspection unit
0	Outdoor unit
1	Indoor unit 1
2	Indoor unit 2

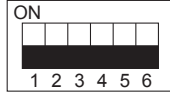
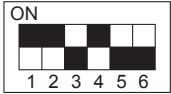
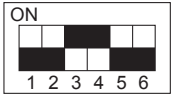
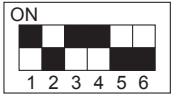
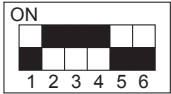
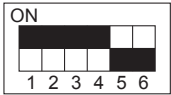
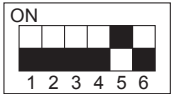
Display	Contents to be inspected (During operation)
U1	Abnormal high pressure (63H worked)
U2	Abnormal high discharge temperature, shortage of refrigerant
U3	Open/short circuit of comp. surface thermistor (TH33)
U4	Open/short of outdoor unit thermistors (TH3, TH6, TH7, TH8, and TH32)
U5	Abnormal temperature of heat sink
U6	Abnormality of power module
U8	Abnormality in outdoor fan motor.
UF	Compressor overcurrent interruption (When Comp. locked)
UH	Current sensor error
UL	Abnormal low pressure
UP	Compressor overcurrent interruption
P1-P8	Abnormality of indoor units
A0-A7	Communication error of M-NET system

Display	Contents to be inspected (When power is turned on)
F3	63L connector(red) is open.
F5	63H connector(yellow) is open.
F9	2 connectors (63H) are open.
E8	Indoor/outdoor communication error (Signal receiving error) (Outdoor unit)
E9	Indoor/outdoor communication error (Transmitting error) (Outdoor unit)
EA	Miswiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)
Eb	Miswiring of indoor/outdoor unit connecting wire(reversed wiring or disconnection)
EC	Startup time over
E0-E7	Communication error except for outdoor unit

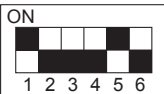
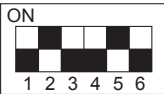
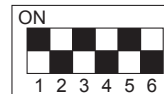
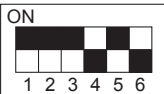
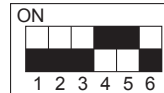
The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
	Pipe temperature/Liquid (TH3) -58 to 194	-58 to 194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, “-” and temperature are displayed by turns.) (Example) When -10°F; 0.5 s 0.5 s 2 s -□ → 10 → □□	°F [°C]
	Discharge temperature (TH4) -4 to 422	-4 to 422 [-20 to 217°C] (When the discharge thermistor detects 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°F; 0.5 s 0.5 s 2 s □1 → 05 → □□	°F [°C]
	Output step of outdoor FAN 0 to 10	0 to 10	Step
	The number of ON/OFF times of compressor 0 to 9999	0 to 9999 (When the number of times is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 42500 times (425 × 100 times); 0.5 s 0.5 s 2 s □4 → 25 → □□	100 times
	Compressor integrating operation times 0 to 9999	0 to 9999 (When it is 100 hours or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 2450 hours (245 × 10 hours); 0.5 s 0.5 s 2 s □2 → 45 → □□	10 hours
	Compressor operating current 0 to 50	0 to 50 Note: Omit the figures after the decimal fractions.	A
	Compressor operating frequency 0 to 9999	0 to 9999 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 s 0.5 s 2 s 12 → 50 → □□	Hz
	LEV-A opening pulse 0 to 480	0 to 480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150 pulse; 0.5 s 0.5 s 2 s □1 → 50 → □□	Pulse
	Error postponement code history (1) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in the case of no postponement.	Code display

The black square (■) indicates a switch position.

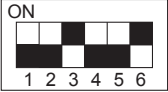
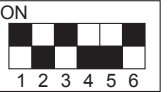
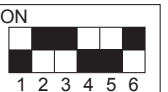
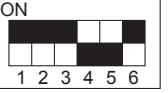
SW2 setting	Display detail	Explanation for display	Unit
	Operation mode on error occurring	Operation mode of when operation stops due to error is displayed by setting SW2 as below. (SW2) 	Code display
	Pipe temperature/Liquid (TH3) on error occurring -58 to 194	-58 to 194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, “-” and temperature are displayed by turns.) (Example) When -15°F; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
	Discharge temperature (TH4) on error occurring -4 to 422	-4 to 422 [-20 to 217°C] (When the temperature is 100°F or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130°F; 0.5 s 0.5 s 2 s □1 → 30 → □□	°F [°C]
	Compressor operating current on error occurring 0 to 50	Compressor operating current on error occurring 0 to 50	A
	Error history (1) (latest) Alternate display of abnormal unit number and code	When no error history, “ 0 ” and “ - - ” are displayed by turns.	Code display
	Error history (2) Alternate display of error unit number and code	When no error history, “ 0 ” and “ - - ” are displayed by turns.	Code display
	Thermostat ON time 0 to 999	0 to 999 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 245 minutes; 0.5 s 0.5 s 2 s □2 → 45 → □□	Minute
	Test run elapsed time 0 to 120	0 to 120 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105 minutes; 0.5 s 0.5 s 2 s □1 → 05 → □□	

The black square (■) indicates a switch position.

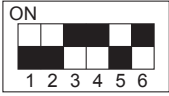
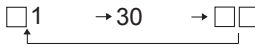
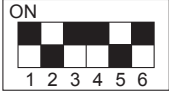
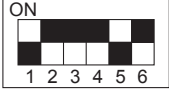
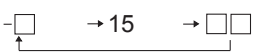
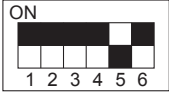
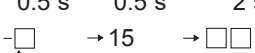
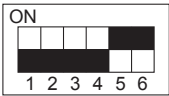
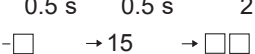
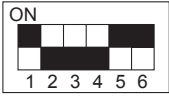
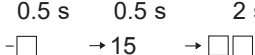
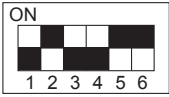
SW2 setting	Display detail	Explanation for display	Unit																
	The number of connected indoor units	0 to 3 (The number of connected indoor units are displayed.)	Unit																
	Capacity setting display	Displayed as an outdoor capacity code <table><tr><th>Capacity</th><th>Code</th><th>Capacity</th><th>Code</th></tr><tr><td>A12N</td><td>9</td><td>A30N</td><td>14</td></tr><tr><td>A18N</td><td>10</td><td>A36N</td><td>20</td></tr><tr><td>A24N</td><td>11</td><td>A42N</td><td>25</td></tr></table>	Capacity	Code	Capacity	Code	A12N	9	A30N	14	A18N	10	A36N	20	A24N	11	A42N	25	Code display
Capacity	Code	Capacity	Code																
A12N	9	A30N	14																
A18N	10	A36N	20																
A24N	11	A42N	25																
	Outdoor unit setting information	- The tens digit (Total display for applied setting) <table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>H·P/Cooling only</td><td>0: H·P 1: Cooling only</td></tr><tr><td>Single phase/3 phase</td><td>0: Single phase 2: 3 phase</td></tr></table> - The ones digit <table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>Defrosting switch</td><td>0: Normal 1: For high humidity</td></tr></table> (Example) When heat pump, 3 phase and defrosting (normal) are set up, “20” is displayed.	Setting details	Display details	H·P/Cooling only	0: H·P 1: Cooling only	Single phase/3 phase	0: Single phase 2: 3 phase	Setting details	Display details	Defrosting switch	0: Normal 1: For high humidity	Code display						
Setting details	Display details																		
H·P/Cooling only	0: H·P 1: Cooling only																		
Single phase/3 phase	0: Single phase 2: 3 phase																		
Setting details	Display details																		
Defrosting switch	0: Normal 1: For high humidity																		
	Indoor pipe temperature/Liquid (TH2(1)) Indoor 1 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.)	°F [°C]																
	Indoor pipe temperature/Cond./Eva. (TH5(1)) Indoor 1 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.)	°F [°C]																
	Indoor pipe temperature/Liquid (TH2(2)) Indoor 2 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.)	°F [°C]																
	Indoor pipe temperature/Cond./Eva. (TH5(2)) Indoor 2 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.)	°F [°C]																
	Indoor room temperature (TH1) 46 to 102	Indoor room temperature (TH1) 46 to 102	°F [°C]																

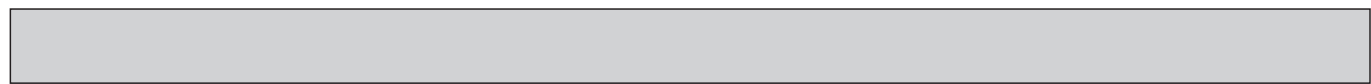
79

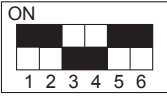
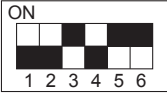
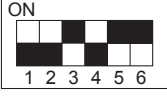
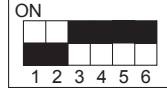
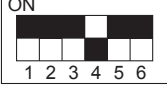
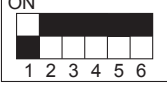
The black square (■) indicates a switch position.

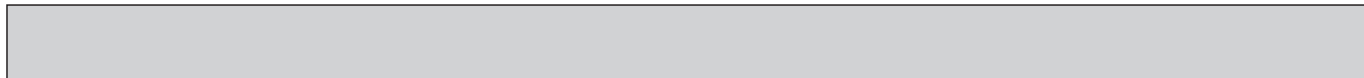
SW2 setting	Display detail	Explanation for display	Unit
	DC bus voltage 180 to 500	180 to 500 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.)	V
	Capacity save 0 to 100 When air conditioner is connected to M-NET and capacity save mode is demanded, a value from "0" to "100" is displayed. [When there is no setting of capacity save, "100" is displayed.]	0 to 100 (When the capacity is 100%, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 100%; 0.5 s 0.5 s 2 s □1 → 00 → □□ ↑	%
	Error postponement code history (2) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in the case of no postponement.	Code display
	Error postponement code history (3) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in the case of no postponement.	Code display
	Check code history (3) (Oldest) Alternate display of abnormal unit number and code.	When no error history, "0" and "—" are displayed by turns.	Code display
	Error thermistor display [When there is no error thermistor, "—" is displayed.]	3: Outdoor pipe temperature/Liquid (TH3) 6: Outdoor pipe temperature/2-phase (TH6) 7: Outdoor ambient temperature (TH7) 8: Outdoor heat sink (TH8)	Code display
	Operation frequency on error occurring 0 to 255	0 to 255 (When it is 100 Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125 Hz; 0.5 s 0.5 s 2 s □1 → 25 → □□ ↑	Hz
	Fan step on error occurring 0 to 10	0 to 10	Step

The black square (■) indicates a switch position.

SW2 setting	Display detail	Explanation for display	Unit
	LEV-A opening pulse on error occurring 0 to 480	0 to 480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130 pulse; 0.5 s 0.5 s 2 s 	Pulse
	Indoor room temperature (TH1) on error occurring 46 to 102	46 to 102 [8 to 39°C]	°F [°C]
	Indoor pipe temperature/Liquid (TH2) on error occurring -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.) (Example) When -15°F; 0.5 s 0.5 s 2 s 	°F [°C]
	Indoor pipe temperature/Cond./Eva. (TH5) on error occurring -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.) (Example) When -15°F; 0.5 s 0.5 s 2 s 	°F [°C]
	Outdoor pipe temperature/2-phase (TH6) on error occurring -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.) (Example) When -15°F; 0.5 s 0.5 s 2 s 	°F [°C]
	Outdoor outside temperature (TH7) on error occurring -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.) (Example) When -15°F; 0.5 s 0.5 s 2 s 	°F [°C]
	Outdoor heat sink temperature (TH8) on error occurring -40 to 327	-40 to 327 [-40 to 164°C] (When the temperature is 0°F or less, “-” and temperature are displayed by turns.) (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°F [°C]



SW2 setting	Display detail	Explanation for display	Unit
	Discharge superheat on error occurring SHd 32 to 360 [Cooling = TH4-TH6 Heating = TH4-TH5]	32 to 360 [0 to 182°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°F; 0.5 s 0.5 s 2 s □1 → 50 → □□	°F [°C]
	Sub cool on error occurring. SC 32 to 266 [Cooling = TH6-TH3 Heating = TH5-TH2]	32 to 266 [0 to 130°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°F; 0.5 s 0.5 s 2 s □1 → 15 → □□	°F [°C]
	Thermostat-on time until error stops 0 to 999	0 to 999 (When it is 100 minutes or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 s 0.5 s 2 s □4 → 15 → □□	Minute
	Pipe temperature/Suction (TH32) -58 to 194	-58 to 194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, “-” and temperature are displayed by turns.) (Example) When -10°F; 0.5 s 0.5 s 2 s -□ → 10 → □□	°F [°C]
	Indoor pipe temperature/Liquid (TH2 (3)) Indoor 3 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°C or less, “-” and temperature are displayed by turns.)	°F [°C]
	Indoor pipe temperature/Cond./Eva. (TH5 (3)) Indoor 3 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) When there is no indoor unit, “00” is displayed.	°F [°C]
	Indoor pipe temperature/Liquid (TH2 (4)) Indoor 4 -38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°C or less, “-” and temperature are displayed by turns.)	°F [°C]



SW2 setting	Display detail	Explanation for display	Unit																
ON 123456	Controlling status of compressor operating frequency	The following code will be a help to know the operating status of unit. •The tens digit <table><tr><th>Display</th><th>Compressor operating frequency control</th></tr><tr><td>1</td><td>Primary current control</td></tr><tr><td>2</td><td>Secondary current control</td></tr></table> •The ones digit (In this digit, the total number of activated control is displayed.) <table><tr><th>Display</th><th>Compressor operating frequency control</th></tr><tr><td>1</td><td>Preventive control for excessive temperature rise of discharge temperature</td></tr><tr><td>2</td><td>Preventive control for excessive temperature rise of condensing temperature</td></tr><tr><td>4</td><td>Frost prevention control</td></tr><tr><td>8</td><td>Preventive control for excessive temperature rise of heatsink</td></tr></table> (Example) The following controls are activated. • Primary current control • Preventive control for excessive temperature rise of condensing temperature • Preventive control for excessive temperature rise of heatsink LED 1A	Display	Compressor operating frequency control	1	Primary current control	2	Secondary current control	Display	Compressor operating frequency control	1	Preventive control for excessive temperature rise of discharge temperature	2	Preventive control for excessive temperature rise of condensing temperature	4	Frost prevention control	8	Preventive control for excessive temperature rise of heatsink	Code display
Display	Compressor operating frequency control																		
1	Primary current control																		
2	Secondary current control																		
Display	Compressor operating frequency control																		
1	Preventive control for excessive temperature rise of discharge temperature																		
2	Preventive control for excessive temperature rise of condensing temperature																		
4	Frost prevention control																		
8	Preventive control for excessive temperature rise of heatsink																		
ON 123456	Comp. surface temperature (TH33) -4 to 422	-4 to 422 [-20 to 217°C] (When the comp. surface thermistor detects 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°C; 0.5 s 0.5 s 2 s 1 → 05 →	°F [°C]																

11-1. SMOOTH MAINTENANCE

Maintenance data, such as the indoor/outdoor unit's heat exchanger temperature and compressor operation current can be displayed with "Smooth maintenance".

This cannot be executed during test operation.

Depending on the combination with the outdoor unit, this may not be supported by some models.

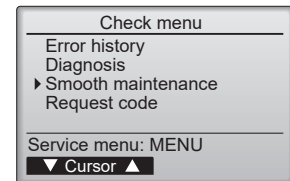
- ① Select "Service" from the Main menu, and press the [SELECT] button.



Select "Check" with the [F1] or [F2] button, and press the [SELECT] button.



Select "Smooth maintenance" with the [F1] or [F2] button, and press the [SELECT] button.



- ② Set each item.

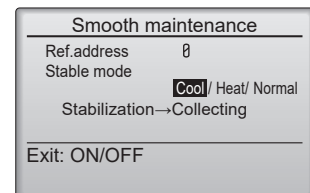
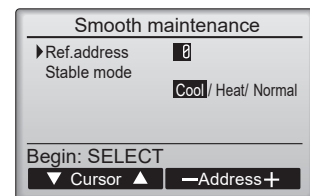
Select the item to be changed with the [F1] or [F2] button.

Select the required setting with the [F3] or [F4] button.

- <Ref.address> setting [0] – [15]
- <Stable mode> setting [Cool] / [Heat] / [Normal]

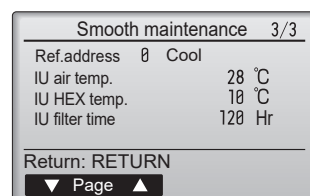
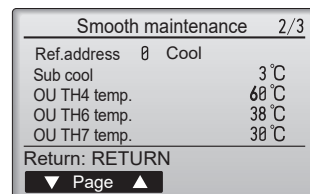
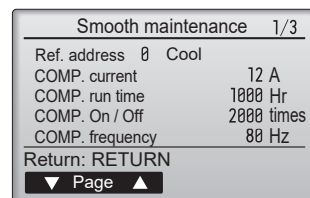
Press the [SELECT] button, Fixed operation will start.

Note: Stable mode will take approx. 20 minutes.



- ③ The operation data will appear.

The Compressor-Accumulated operating (COMP. run) time is 10-hour unit, and the Compressor-Number of operation times (COMP. ON/OFF) is a 100-time unit (fractions discarded).



Navigating through the screens

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

11-2.GUIDE FOR OPERATION CONDITION

Checkpoints

Enter the temperature differences between ⑤, ④, ⑦ and ⑧ into the graph given below.

Operation state is determined according to the plotted areas on the graph.

For data measurements, set the fan speed to "Hi" before activating maintenance mode.

Inspection item				Result				
Power supply	Loose connection	Terminal block	Breaker	Good		Retightened		
			Outdoor Unit	Good		Retightened		
			Indoor Unit	Good		Retightened		
			(Insulation resistance)				MΩ	
			(Voltage)				V	
Compressor			① Accumulated operating time				Time	
			② Number of ON/OFF times				Times	
			③ Current				A	
Outdoor Unit	Temperature		④ Refrigerant/heat exchanger temperature		COOL	°F	HEAT	°F
			⑤ Refrigerant/discharge temperature		COOL	°F	HEAT	°F
			⑥ Air/outside air temperature		COOL	°F	HEAT	°F
			(Air/discharge temperature)		COOL	°F	HEAT	°F
	Cleanliness		Appearance		Good		Cleaning required	
			Heat exchanger		Good		Cleaning required	
			Sound/vibration		None		Present	
Indoor Unit	Temperature		⑦ Air/intake air temperature		COOL	°F	HEAT	°F
			(Air/discharge temperature)		COOL	°F	HEAT	°F
			⑧ Refrigerant/heat exchanger temperature		COOL	°F	HEAT	°F
			⑨ Filter operating time*				Time	
	Cleanliness		Decorative panel		Good		Cleaning required	
			Filter		Good		Cleaning required	
			Fan		Good		Cleaning required	
			Heat exchanger		Good		Cleaning required	
		Sound/vibration		None		Present		

Classification	Item	Result	
Cool	Inspection	Is "000" displayed stably in Display ⑩ on the remote controller?	Stable Unstable
	Temperature difference	(⑤ Discharge temperature) – (④ Outdoor heat exchanger temperature)	°F
		(⑦ Indoor intake air temperature) – (⑧ Indoor heat exchanger temperature)	°F
Heat	Inspection	Is "000" displayed stably in Display ⑩ on the remote controller?	Stable Unstable
	Temperature difference	(⑤ Discharge temperature) – (⑧ Indoor heat exchanger temperature)	°F
		(⑥ Indoor heat exchanger temperature) – (⑦ Indoor intake air temperature)	°F

Notes:

1. Fixed Hz operation may not be possible under the following temperature ranges.

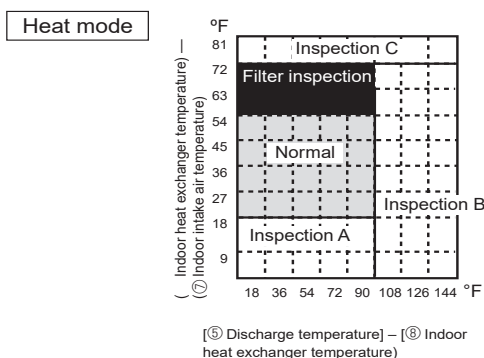
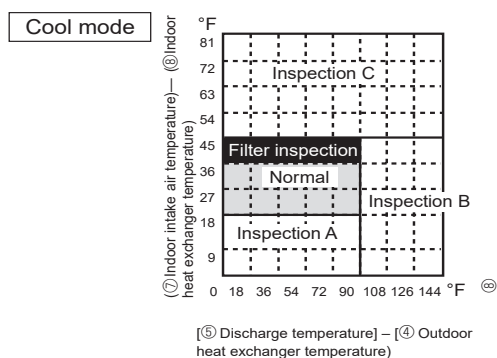
A) In cool mode, outdoor intake air temperature is 104°F or higher or indoor intake air temperature is 73°F or lower.

B) In heat mode, outdoor intake air temperature is 68 °F or higher or indoor intake air temperature is 77 °F or lower.

2. If the air conditioner is operated at a temperature range other than the ones above but operation is not stabilized after 30 minutes or more have elapsed, carry out inspection.

3. In heat mode, the operation state may vary due to frost forming on the outdoor heat exchanger.

* The filter operating time is the time that has elapsed since the filter was reset.



Result

Area	Check item	Judgment	
		Cool	Heat
Normal	Normal operation state		
Filter inspection	Filter may be clogged.*		
Inspection A	Performance has dropped. Detailed inspection is necessary.		
Inspection B	Refrigerant amount is dropping.		
Inspection C	Filter or indoor heat exchanger may be clogged.		

Note: The above judgment is just guide based on Japanese standard conditions. It may be changed depending on the indoor and outdoor temperature.

* It may be judged as "filter inspection" due to the outdoor and indoor temperature, even though it is not clogged.

12-1. UNIT FUNCTION SETTING BY THE REMOTE CONTROLLER

Each function can be set as necessary using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

(1) Functions available when setting the unit number to 00 (Select 00 referring to ④ setting the indoor unit number.)

<Table 1> Function selections

Function	Settings	Mode No. Wired remote controller (RF thermistor)	Setting No.	● : Initial setting (when sent from the factory)	Remarks
Power failure automatic recovery	Not available	01	1		The setting is applied to all the units in the same refrigerant system.
	Available		2	●	
Indoor temperature detection	Average data from each indoor unit	02	1	●	
	Data from the indoor unit with remote controllers		2		
	Data from main remote controller		3		
LOSSNAY connectivity	Not supported	03	1	●	
	Supported (indoor unit dose not intake outdoor air through LOSSNAY)		2		
	Supported (indoor unit intakes outdoor air through LOSSNAY)		3		
Power supply voltage	230V	04	1	●	
	208V		2		
Frost prevention temperature	2°C [36°F] (Normal)	15	1	●	
	3°C [37°F]		2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1		
	When the fan operates, the humidifier also operates.		2	●	
Change of defrosting control	Standard	17	1	●	
	For high humidity		2		

Meaning of "Function setting"

Mode02: indoor temperature detecting

No.	Indoor temperature(ta)=		OUTDOOR	INDOOR A	INDOOR B	REMOTE (MAIN) C	REMOTE (SUB) D
No1.	Average data of the sensor on all the indoor units	Initial setting	ta=(A+B)/2	ta=(A+B)/2	ta=A	ta=A	
No2.	Data of the sensor on the indoor unit that connected with remote controller	Initial setting	ta=A	ta=B	ta=A	ta=A	
No3.	Data of the sensor on main remote controller	Initial setting	ta=C	ta=C	ta=C	ta=C	

(2) Functions available when setting the unit number to 01–02 or AL (07 in the case of wireless remote controller).

Refer to the service manual that comes with each indoor unit.

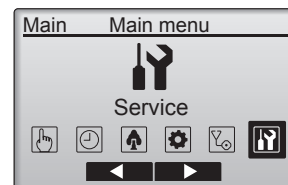
12-1-1. Selecting functions using the wired remote controller <PAR-4xMAA ("x" represents 0 or later)>

<Service menu>

Maintenance password is required

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

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

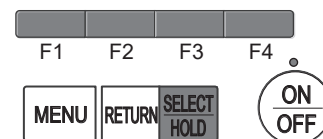
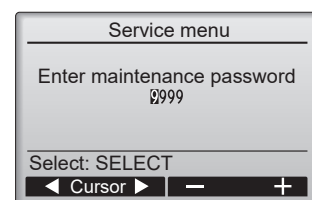


- ② When the Service menu is selected, a window will appear asking for the password.

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 [SELECT] 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 (PAR-4xMAA) or [F1] and [F2] buttons simultaneously for 3 seconds (PAR-3xMAA) on the maintenance password setting screen.

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

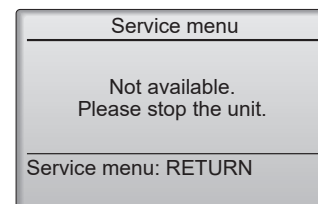
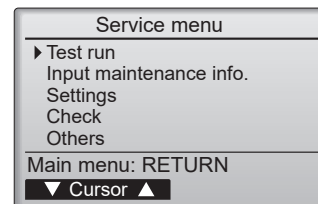
The type of menu that appears depends on the connected indoor units' type.

Note: Air conditioning units may need to be stopped to make certain settings. There may be some settings that cannot be made when the system is centrally controlled. (As for PAR-4xMAA, the units need to be stopped only at "Settings".)

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

Navigating through the screens

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

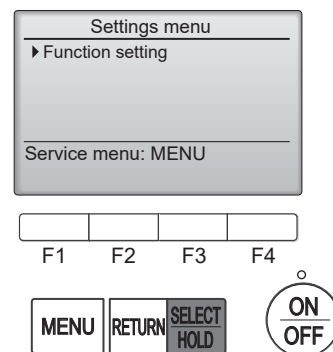


<Function setting>

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

Select "Setting" from the Service menu, and press the [SELECT] button.

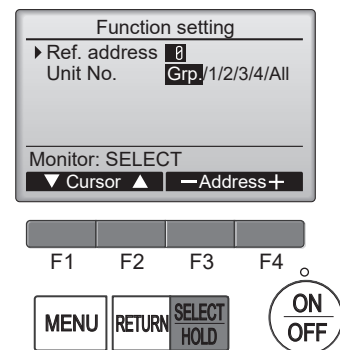
Select "Function setting", and press the [SELECT] button.



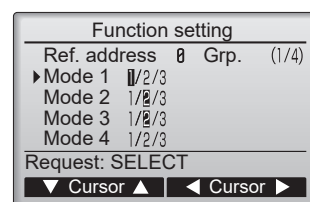
- ② Set the indoor unit refrigerant addresses and unit numbers with the [F1] through [F4] buttons, and then press the [SELECT] button to confirm the current setting.

Note: Checking the indoor unit No.

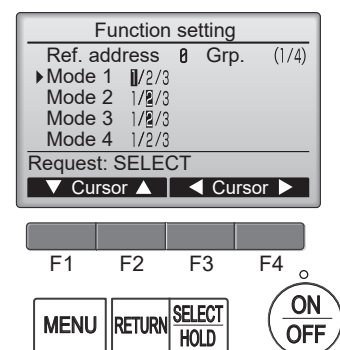
When the [SELECT] button is pressed, the target indoor unit will start fan operation. If the unit is common or when running all units, all indoor units for the selected refrigerant address will start fan operation.



- ③ When data collection from the indoor units is completed, the current settings appears highlighted. Non-highlighted items indicate that no function settings are made. Screen appearance varies depending on the "Unit No." setting.



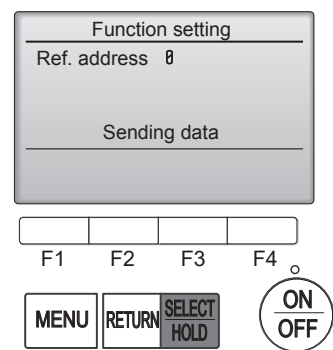
- ④ Use the [F1] or [F2] button to move the cursor to select the mode number, and change the setting number with the [F3] or [F4] button.



- ⑤ When the settings are completed, press the [SELECT] button to send the setting data from the remote controller to the indoor units. When the transmission is successfully completed, the screen will return to the Function setting screen.

Note: • Make the above settings only on Mr. Slim units as necessary.

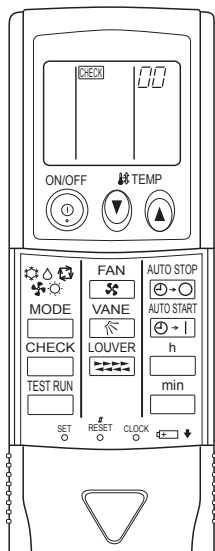
- The above function settings are not available for the CITY MULTI units.
- Table 1 summarizes the setting options for each mode number. Refer to the indoor unit Installation Manual for the detailed information about initial settings, mode numbers, and setting numbers for the indoor units.
- Be sure to write down the settings for all functions if any of the initial settings has been changed after the completion of installation work.



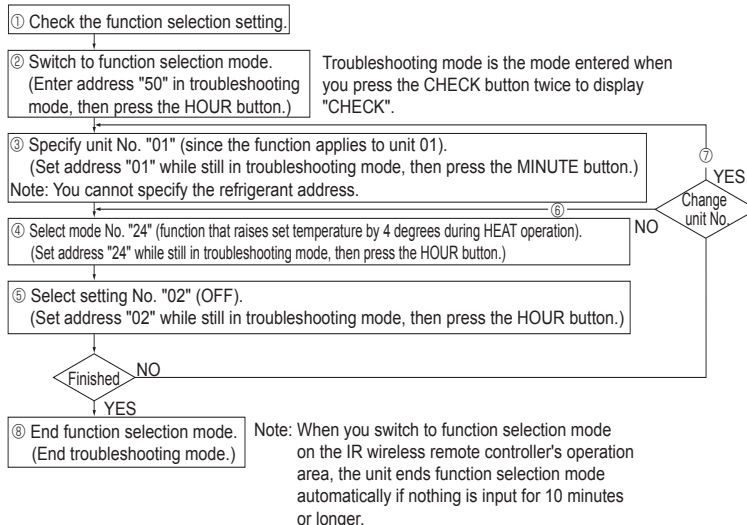
12-1-2. Selecting functions using the IR wireless remote controller (Type C)

Functions can be selected with the IR wireless remote controller. Function selection using IR wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the IR 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. The procedure is given after the flow chart.



[Operating instructions]

① Check the function settings.

Press the button twice continuously. → is lit and "00" blinks.

Press the TEMP button once to set "50". Direct the IR wireless remote controller toward the receiver of the indoor unit and press the 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 IR wireless remote controller toward the receiver of the indoor unit and press the button.

(By setting unit number with the 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 ping sound" 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 IR wireless remote controller toward the sensor of the indoor unit and press the button.

→ The sensor-operation indicator will blink and beeps will be heard to indicate the current setting number.

Current setting number: 1 = 1 beep (one second)
2 = 2 beeps (one second each)
3 = 3 beeps (one 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 ping sound" 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 IR wireless remote controller toward the receiver of the indoor unit and press the 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 ping sound" 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

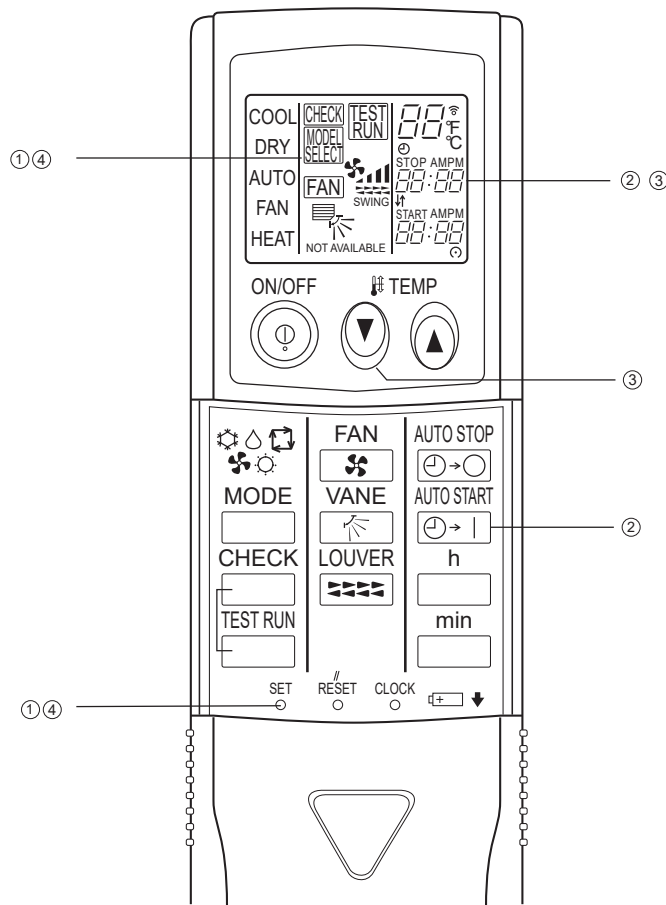
Press button.

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

12-2. Function selection of IR wireless remote controller

TEMPERATURE DISPLAY °C/°F SETTING (Change of temp mode from °F to °C)

- ① Press the set button with something sharp at the end. **MODEL SELECT** blinks.
- ② Press the  button. "°F" blinks.
- ③ Press the  button. "°C" blinks.
- ④ Press the set button with something sharp at the end. **MODEL SELECT** is lighted for 3 seconds, then turned off.



13-1. HOW TO "MONITOR THE OPERATION DATA"

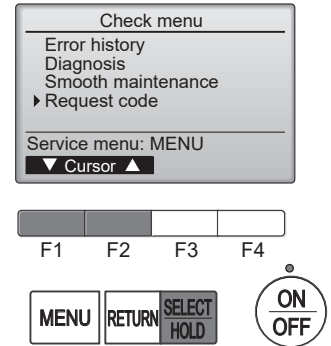
13-1-1. PAR-4xMAA ("x" represents 0 or later)

Details on the operation data including each thermistor temperature and error history can be confirmed with the remote controller.

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

Select "Check" with the **F1** or **F2** button, and press the [SELECT] button.

Select "Request code" with the **F1** or **F2** button, and press the [SELECT] button.



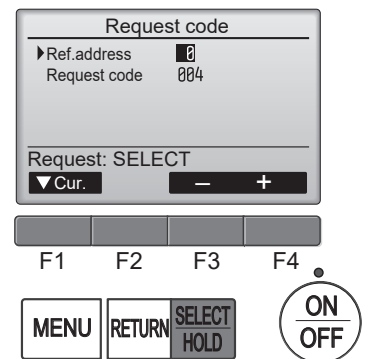
- ② Set the Refrigerant address and Request code.

Select the item to be changed with the **F1** or **F2** button.

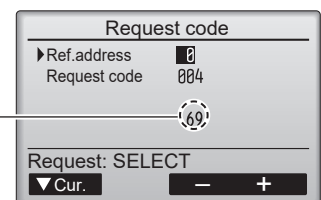
Select the required setting with the **F3** or **F4** button.

- <Ref.address>setting [0] – [15]
- <Request code>setting

Press the [SELECT] button, Data will be collected and displayed.



Request code: 004
Discharge temperature: 69°C

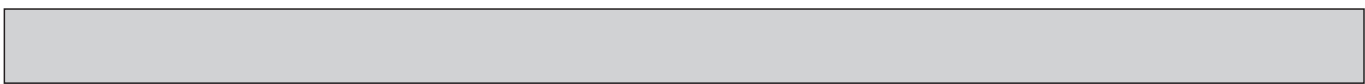


13-2. REQUEST CODE LIST

Certain indoor/outdoor combinations do not have the request code function; therefore, no request codes are displayed.

Request code	Request content	Description (Display range)	Unit	Remarks
0	Operation state	Refer to 13-2-1. Detail Contents in Request Code.	—	
1	Compressor-Operating current (rms)	0–50	A	
2	Compressor-Accumulated operating time	0–9999	10 hours	
3	Compressor-Number of operation times	0–9999	100 times	
4	Discharge temperature (TH4)	37–327	°F	
5	Outdoor unit - Liquid pipe 1 temperature (TH3)	–58–194	°F	
6	Outdoor unit - Liquid pipe 2 temperature	–40–194	°F	
7	Outdoor unit-2-phase pipe temperature (TH6)	–58–190	°F	
8	Suction temperature (TH32)	–58–194	°F	
9	Outdoor unit-Outside air temperature (TH7)	–58–190	°F	
10	Outdoor unit-Heatsink temperature (TH8)	–40–327	°F	
11				
12	Discharge super heat (SHd)	0–327	°F	
13	Sub-cool (SC)	0–234	°F	
14				
15				
16	Compressor-Operating frequency	0–255	Hz	
17	Compressor-Target operating frequency	0–255	Hz	
18	Outdoor unit-Fan output step	0–10	Step	
19	Outdoor unit-Fan 1 speed (Only for air conditioners with DC fan motor)	0–9999	rpm	
20	Outdoor unit-Fan 2 speed (Only for air conditioners with DC fan motor)	0–9999	rpm	"0" is displayed if the air conditioner is a single-fan type.
21				
22	LEV (A) opening	0–500	Pulses	
23	LEV (B) opening	0–500	Pulses	
24				
25	Primary current	0–50	A	
26	DC bus voltage	180–370	V	
27				
28				
29	Number of connected indoor units	0–4	Units	
30	Indoor unit-Setting temperature	62–86	°F	
31	Indoor unit-Intake air temperature <Measured by thermostat>	46–102	°F	
32	Indoor unit-Intake air temperature (Unit No. 1) <Heat mode-4-degree correction>	46–102	°F	"0" is displayed if the target unit is not present.
33	Indoor unit-Intake air temperature (Unit No. 2) <Heat mode-4-degree correction>	46–102	°F	↑
34	Indoor unit-Intake air temperature (Unit No. 3) <Heat mode-4-degree correction>	46–102	°F	↑
35	Indoor unit-Intake air temperature (Unit No. 4) <Heat mode-4-degree correction>	46–102	°F	↑
36				
37	Indoor unit - Liquid pipe temperature (Unit No. 1)	–38–190	°F	"0" is displayed if the target unit is not present.
38	Indoor unit - Liquid pipe temperature (Unit No. 2)	–38–190	°F	↑
39	Indoor unit - Liquid pipe temperature (Unit No. 3)	–38–190	°F	↑
40	Indoor unit - Liquid pipe temperature (Unit No. 4)	–38–190	°F	↑
41				
42	Indoor unit-Cond./Eva. pipe temperature (Unit No. 1)	–38–190	°F	"0" is displayed if the target unit is not present.
43	Indoor unit-Cond./Eva. pipe temperature (Unit No. 2)	–38–190	°F	↑
44	Indoor unit-Cond./Eva. pipe temperature (Unit No. 3)	–38–190	°F	↑
45	Indoor unit-Cond./Eva. pipe temperature (Unit No. 4)	–38–190	°F	↑
46				
47				
48	Thermo ON operating time	0–999	Minutes	
49	Test run elapsed time	0–120	Minutes	← Not possible to activate maintenance mode during the test run.

Request code	Request content	Description (Display range)	Unit	Remarks
50	Indoor unit-Control state	Refer to 13-2-1.Detail Contents in Request Code.	—	
51	Outdoor unit-Control state	Refer to 13-2-1.Detail Contents in Request Code.	—	
52	Compressor-Frequency control state	Refer to 13-2-1.Detail Contents in Request Code.	—	
53	Outdoor unit-Fan control state	Refer to 13-2-1.Detail Contents in Request Code.	—	
54	Actuator output state	Refer to 13-2-1.Detail Contents in Request Code.	—	
55	Error content (U9)	Refer to 13-2-1.Detail Contents in Request Code.	—	
56				
57				
58				
59				
60	Signal transmission demand capacity	0–255	%	
61	Contact demand capacity	Refer to 13-2-1.Detail Contents in Request Code.	—	
62	External input state (silent mode, etc.)	Refer to 13-2-1.Detail Contents in Request Code.	—	
63				
64				
65				
66				
67				
68				
69				
70	Outdoor unit-Capacity setting display	Refer to 13-2-1.Detail Contents in Request Code.	—	
71	Outdoor unit-Setting information	Refer to 13-2-1.Detail Contents in Request Code.	—	
72				
73			—	
74			—	
75				
76			—	
77			—	
78			—	
79			—	
80			—	
81			—	
82			—	
83				
84	M-NET adapter connection (presence/absence)	"0000": Not connected "0001": Connected	—	
85				
86				
87				
88				
89	Display of execution of replace/wash operation	"0000": Not washed "0001": Washed	—	
90	Outdoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
91	Outdoor unit-Microprocessor version information (sub No.)	Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000"	—	
92				
93				
94				
95				
96				
97				
98				
99				
100	Outdoor unit - Error postponement history 1 (latest)	Displays postponement code. (" - - " is displayed if no postponement code is present)	Code	
101	Outdoor unit - Error postponement history 2 (previous)	Displays postponement code. (" - - " is displayed if no postponement code is present)	Code	
102	Outdoor unit - Error postponement history 3 (last but one)	Displays postponement code. (" - - " is displayed if no postponement code is present)	Code	

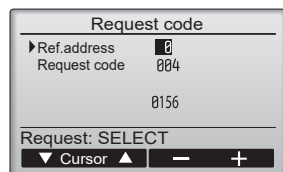


Request code	Request content	Description (Display range)	Unit	Remarks
103	Error history 1 (latest)	Displays error history. ("--" is displayed if no history is present.)	Code	
104	Error history 2 (second to last)	Displays error history. ("--" is displayed if no history is present.)	Code	
105	Error history 3 (third to last)	Displays error history. ("--" is displayed if no history is present.)	Code	
106	Abnormal thermistor display (TH3/TH6/TH7/TH8)	3 : TH3 6 : TH6 7 : TH7 8 : TH8 0 : No thermistor error	Sensor number	
107	Operation mode at time of error	Displayed in the same way as request code "0".	—	
108	Compressor-Operating current at time of error	0–50	A	
109	Compressor-Accumulated operating time at time of error	0–9999	10 hours	
110	Compressor-Number of operation times at time of error	0–9999	100 times	
111	Discharge temperature at time of error	37–327	°F	
112	Outdoor unit - Liquid pipe 1 temperature (TH3) at time of error	–40–194	°F	
113	Outdoor unit - Liquid pipe 2 temperature at time of error	–40–194	°F	
114	Outdoor unit-2-phase pipe temperature (TH6) at time of error	–38–194	°F	
115				
116	Outdoor unit-Outside air temperature (TH7) at time of error	–38–194	°F	
117	Outdoor unit-Heatsink temperature (TH8) at time of error	–40–327	°F	
118	Discharge super heat (SHd) at time of error	0–327	°F	
119	Sub-cool (SC) at time of error	0–234	°F	
120	Compressor-Operating frequency at time of error	0–255	Hz	
121	Outdoor unit at time of error • Fan output step	0–10	Step	
122	Outdoor unit at time of error • Fan 1 speed (Only for air conditioners with DC fan)	0–9999	rpm	
123	Outdoor unit at time of error • Fan 2 speed (Only for air conditioners with DC fan)	0–9999	rpm	"0" is displayed if the air conditioner is a single-fan type.
124				
125	LEV (A) opening at time of error	0–500	Pulses	
126	LEV (B) opening at time of error	0–500	Pulses	
127				
128				
129				
130	Thermo ON time until operation stops due to error	0–999	Minutes	
131				
132	Indoor - Liquid pipe temperature at time of error	–38–190	°F	Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad).
133	Indoor-Cond./Eva. pipe temperature at time of error	–38–190	°F	Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad).
134	Indoor at time of error • Intake air temperature <Thermostat judge temperature>	–38–190	°F	
135				
136				
137				
138				
139				
140				
~				
146				
147				
148				
149				
150	Indoor-Actual intake air temperature	–38–190	°F	
151	Indoor - Liquid pipe temperature	–38–190	°F	
152	Indoor-Cond./Eva. pipe temperature	–38–190	°F	



Request code	Request content	Description (Display range)	Unit	Remarks
153				
154	Indoor-Fan operating time (After filter is reset)	0-9999	1 hour	
155	Indoor-Total operating time (Fan motor ON time)	0-9999	10 hours	
156				
157	Indoor fan output value (Sj value)	0-255 Fan control data	—	For indoor fan phase control
158	Indoor fan output value (Pulsation ON/OFF)	"00 *** **** indicates fan control data.	—	For indoor fan pulsation control
159	Indoor fan output value (duty value)	"00 *** **** indicates fan control data.	—	For indoor DC brushless motor control
160				
161				
162				
163	Indoor unit-Capacity setting information	Refer to 13-2-1 Detail Contents in Request Code.	—	
164	Indoor unit-SW3 information	Undefined	—	
165	Wireless pair No. (indoor control board side) setting	Refer to 13-2-1 Detail Contents in Request Code.	—	
166	Indoor unit-SW5 information	Undefined	—	
167				
~				
189				
190	Indoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
191	Indoor unit-Microprocessor version information (sub No.)	Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000"	—	
192				

13-2-1. Detail Contents in Request Code



[Example) Request code "004"
Discharge temperature 156°F
Refrigerant address "00"]

[Operation state] (Request code "0")

Data display

Relay output state

Operation mode

Operation mode

Display	Operation mode
0	STOP • FAN
C	COOL • DRY
H	HEAT
d	DEFROST

Relay output state

Display	Power currently supplied to compressor	Compressor	4-way valve	Solenoid valve
0	—	—	—	—
1				ON
2			ON	
3			ON	ON
4		ON		
5		ON		ON
6		ON	ON	
7		ON	ON	ON
8	ON			
A	ON		ON	

[Indoor unit – Control state] (Request code : "50 ")

Data display

Unit No. 4 state

Unit No. 3 state

Unit No. 2 state

Unit No. 1 state

Display	State
0	Normal
1	Preparing for heat operation.
2	—
3	—
4	Heater is ON.
5	Anti-freeze protection is ON.
6	Overheat protection is ON.
7	Requesting compressor to turn OFF.
F	There are no corresponding units.

[Outdoor unit – Control state] (Request code "51")

Data display	State
0 0 0 0	Normal
0 0 0 1	Preparing for heat operation.
0 0 0 2	Defrost

[Compressor – Frequency control state] (Request code "52")

Data display

Frequency control state ②

Frequency control state ①

Frequency control state ①

Display	Current limit control
0	No current limit
1	Primary current limit control is ON.
2	Secondary current limit control is ON.

Frequency control state ②

Display	Discharge temperature overheat prevention	Condensation temperature overheat prevention	Anti-freeze protection control	Heat sink temperature overheat prevention
0				
1	Controlled			
2		Controlled		
3	Controlled	Controlled		
4			Controlled	
5	Controlled		Controlled	
6		Controlled	Controlled	
7	Controlled	Controlled	Controlled	
8				Controlled
9	Controlled			Controlled
A		Controlled		Controlled
b	Controlled	Controlled		Controlled
C			Controlled	Controlled
d	Controlled		Controlled	Controlled
E		Controlled	Controlled	Controlled
F	Controlled	Controlled	Controlled	Controlled

[Fan control state] (Request code : "53")

Data display 0 0 * *

Fan step correction value by heatsink temperature overhear prevention control

Fan step correction value by cool condensation temperature overhear prevention control

Display	Correction value
- (minus)	- 1
0	0
1	+1
2	+2

[Actuator output state] (Request code : "54")

Data display 0 0 * *

Actuator output state ①

Actuator output state ②

Actuator output state ①

Display	SV1	Four-way valve	Compressor	Compressor is warming up
0				
1	ON			
2		ON		
3	ON	ON		
4			ON	
5	ON		ON	
6		ON	ON	
7	ON	ON	ON	
8				ON
9	ON			ON
A		ON		ON
b	ON	ON		ON
C			ON	ON
d	ON		ON	ON
E		ON	ON	ON
F	ON	ON	ON	ON

Actuator output state ②

Display	52C	SV2	SS
0			
1	ON		
2		ON	
3	ON	ON	
4			ON
5	ON		ON
6		ON	ON
7	ON	ON	ON

[Error content (U9)] (Request code : "55")

Data display 0 0 * *

Error content ①

Error content ②

Error content ①

● : Detected

Display	Overvoltage error	Undervoltage error	L1-phase open error	Power synchronizing signal error
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
b	●	●		●
C			●	●
d	●		●	●
E		●	●	●
F	●	●	●	●

Error content ②

● : Detected

Display	Converter Fo error	PAM error
0		
1	●	
2		●
3	●	●

[Contact demand capacity] (Request code : "61")

Data display

0	0	0	*
---	---	---	---

 Setting content

Setting content

Display	Setting value	Setting	
		SW7-1	SW7-2
0	0%		
1	50%	ON	
2	75%		ON
3	100%	ON	ON

[External input state] (Request code : "62")

Data display

0	0	0	*
---	---	---	---

 Input state

Input state

● : Input present

Display	Contact demand input	Silent mode input	Spare 1 input	Spare 2 input
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
b	●	●		●
C			●	●
d	●		●	●
E		●	●	●
F	●	●	●	●

[Outdoor unit – Capacity setting display] (Request code : "70")

Data display	Capacity
9	12
10	18
11	24
14	30
20	36
25	42

[Outdoor unit – Setting information] (Request code : "71")

Data display

0	0	*	*
---	---	---	---

 Setting information ①
Setting information ②

Setting information①

Display	Defrost mode
0	Standard
1	For high humidity

Setting information②

Display	Single-/3-phase	Heat pump/cooling only
0	Single-phase	Heat pump
1		Cooling only
2	3-phase	Heat pump
3		Cooling only

[Indoor unit – Capacity setting information] (Request code : 163)

Data display

0	0	*	*
---	---	---	---

See the table on the right.

Display	Capacity setting state	Display	Capacity setting state
00		10	42
01		11	
02		12	
03		13	
04		14	
05		15	
06	12	16	
07		17	
08		18	
09	18	19	
0A		1A	
0b	24	1b	
0C		1C	
0d	30	1d	
0E		1E	
0F	36	1F	

[Wireless pair No. (indoor control board side) setting] (Request code : 165)

Data display

0	0	*	*
---	---	---	---

See the table on the right.

Display	Pair No. setting state
00	No. 0
01	No. 1 J41 disconnected
02	No. 2 J42 disconnected
03	No. 3 J41, J42 disconnected

PUZ-A12NKA7
PUZ-A12NKA7-BS

PUZ-A18NKA7
PUZ-A18NKA7-BS

PUY-A12NKA7
PUY-A12NKA7-BS

PUY-A18NKA7
PUY-A18NKA7-BS
PHOTO: PUZ-A12NKA7

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

OPERATING PROCEDURE

1. Removing the top panel, service panel, front panel, back panel, and grille

- (1) Remove the top panel fixing screws (4 × 10), one from the right and two from the left side, and detach the top panel.
- (2) Remove 2 service panel fixing screws (4 × 10) and detach the service panel by pulling it downward. (See Photo 2)
- (3) Remove the front panel fixing screws (4 × 10), 3 from the front, 2 from the right and 2 from the left side, and detach the front panel.
- (4) Remove the back panel fixing screws (4 × 10), 5 from the right and 2 from the rear side, and detach the back panel.
- (5) Remove 2 grille fixing screws (4 × 10) and detach the grille.

PHOTOS/FIGURES

Photo 1

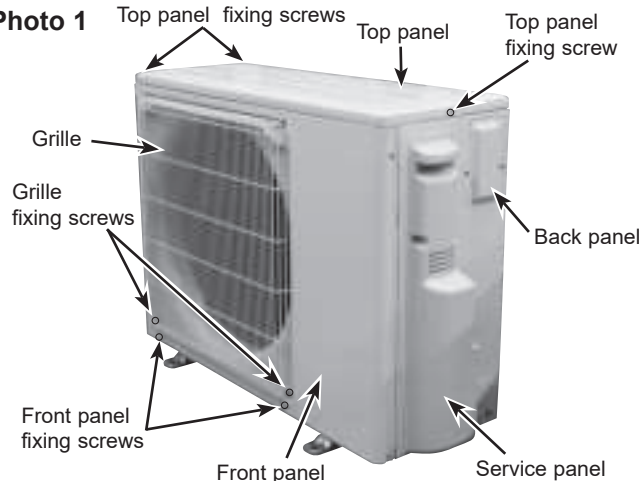
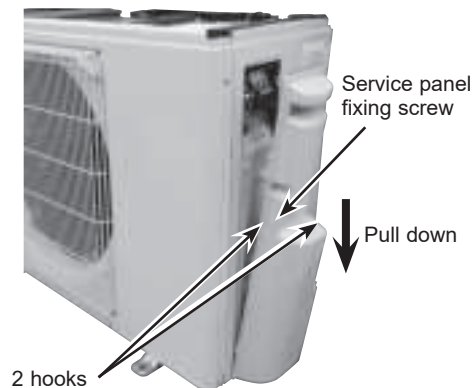


Photo 2



2. Removing the fan motor

- (1) Remove the top panel. (See Photo 1)
- (2) Remove the front panel. (See Photo 1)
- (3) Remove 1 nut (M6, left-screw) and detach the propeller.
- (4) Disconnect the connector CNF1 on the controller circuit board in the electrical parts box.
- (5) Loosen the clamp for the lead wire in the motor support.
- (6) Remove 4 fan motor fixing screws (5 × 20) and detach the fan motor. (See Photo 4)

Photo 3

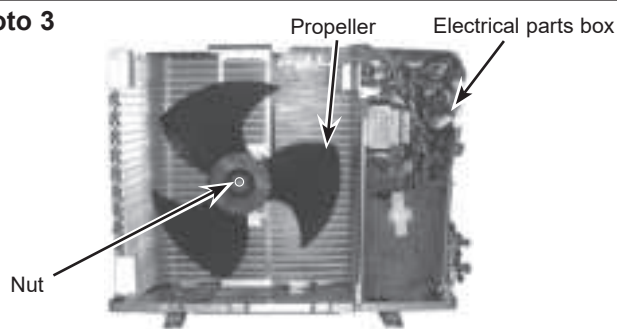
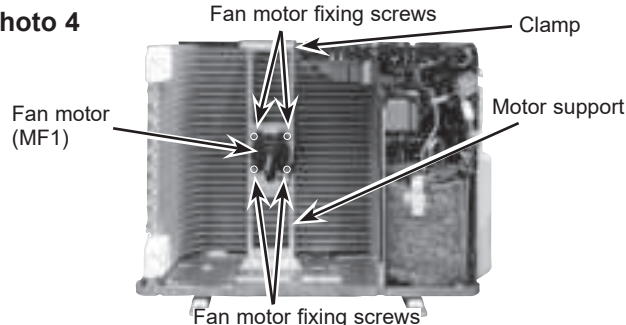
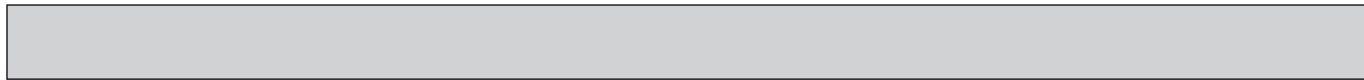
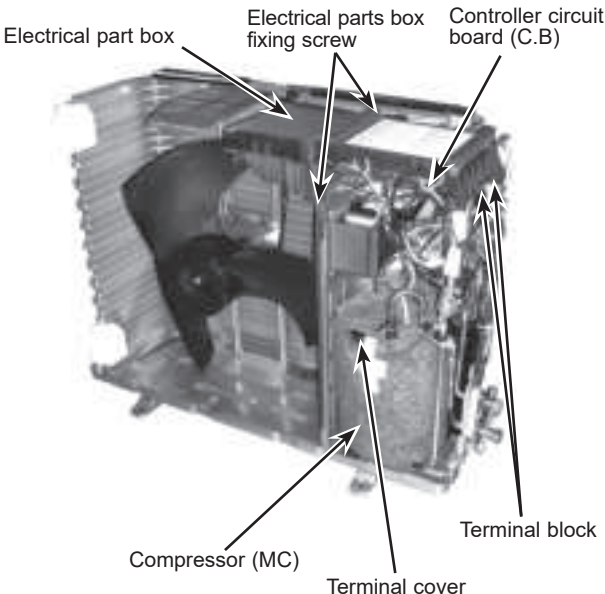
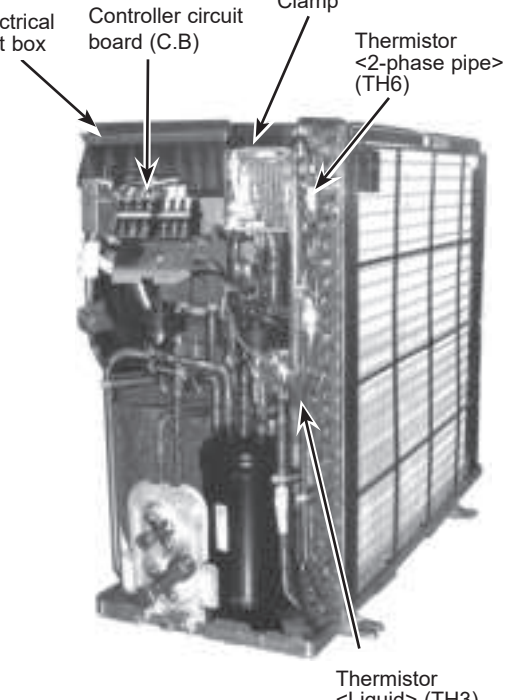


Photo 4





OPERATING PROCEDURE	PHOTOS/FIGURES
3. Removing the electrical parts box (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Disconnect the indoor/outdoor connecting wire from terminal block. (6) Disconnect the connector CNF1, LEV-A and LEV-B on the controller circuit board. <Symbols on the board> • CNF1 : Fan motor • LEV-A, LEV-B : LEV (7) Disconnect the pipe-side connections of the following parts. • 4-way valve (21S4) • Thermistor <Liquid> (TH3) • Thermistor <Comp. surface> (TH33) • Thermistor <Discharge> (TH4) • Thermistor <2-phase pipe, Ambient> (TH6/7) • Thermistor <Suction> (TH32) • High pressure switch (63H) (8) Remove the terminal cover and disconnect the compressor lead wire. (9) Remove the electrical parts box fixing screws, 1 from the front, and 1 from the top side, and detach the electrical parts box by pulling it upward.	Photo 5 
4. Removing the thermistor <2-phase pipe> (TH6) and thermistor <Liquid> (TH3) (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel fixing screws, 5 from the right and 2 from the rear side, and detach the back panel. (See Photo 1) (5) Disconnect the connector TH3 (white) or TH6/7 (red) on the controller circuit board in the electrical parts box. (6) Loosen the clamp for the lead wire in the rear of the electrical parts box. (7) Pull out the thermistor <Liquid> (TH3), and thermistor <2-phase pipe> (TH6) from the sensor holder. Note: Replace the thermistor <2-phase pipe> (TH6) and the thermistor <Ambient> (TH7) together since they are combined. Refer to procedure No. 5. to remove the thermistor <Ambient> (TH7).	Photo 6 

OPERATING PROCEDURE

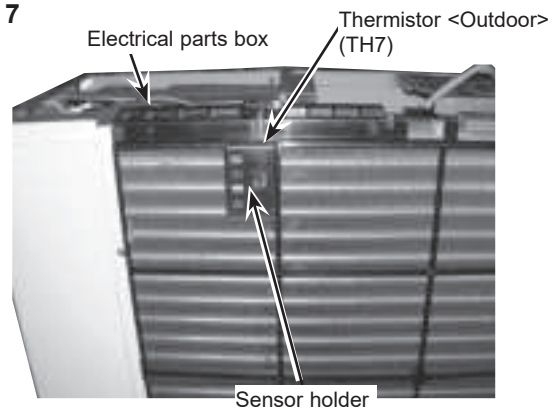
5. Removing the thermistor <Ambient> (TH7)

- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box.
- (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 6)
- (5) Pull out the thermistor <Ambient> (TH7) from the sensor holder.

Note: When replacing thermistor <Ambient> (TH7), replace it together with thermistor <2-phase pipe> (TH6), since they are combined together. Refer to procedure No.4. to remove thermistor <2-phase pipe>.

PHOTOS/FIGURES

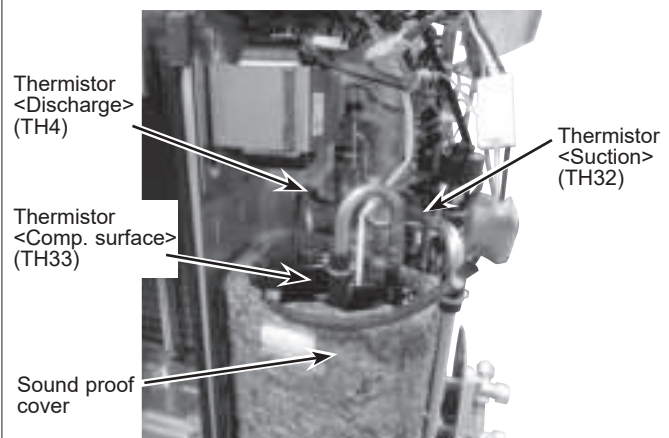
Photo 7



6. Removing the thermistor <Discharge> (TH4), thermistor <Suction> (TH32), and thermistor <Comp. surface> (TH33)

- (1) Remove the service panel. (See Photo 2)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the front panel. (See Photo 1)
- (4) Remove the back panel. (See Photo 1)
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Remove the sound proof cover from the compressor. [Thermistor <Discharge> (TH4)]
- (7) Pull out the thermistor <Discharge> (TH4) from the sensor holder. (See Photo 8)
- [Thermistor <Suction> (TH32)]
- (7) Pull out the thermistor <Suction> (TH32) from the sensor holder. (See Photo 8)
- [Thermistor <Comp. surface> (TH33)]
- (7) Pull out the thermistor <Comp. surface> (TH33) from the sensor holder. (See Photo 8)

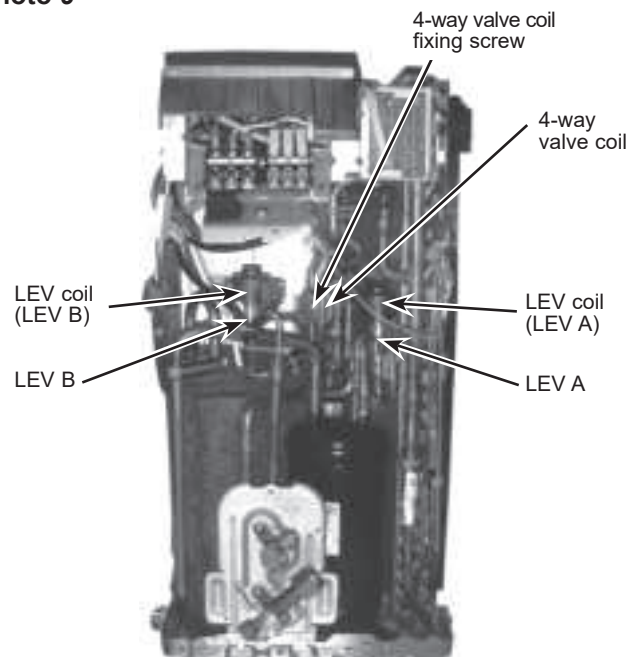
Photo 8

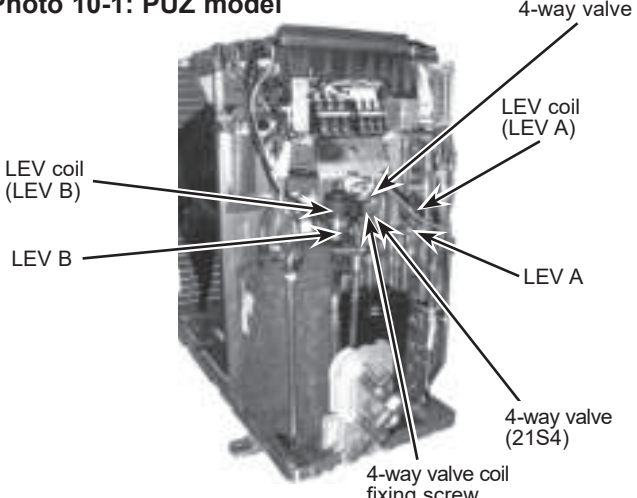
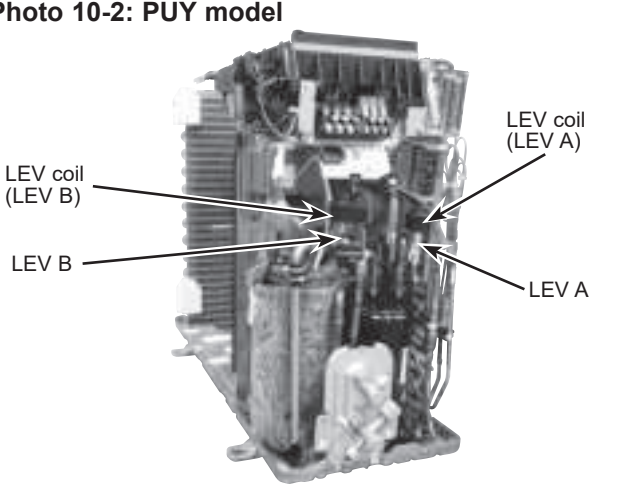
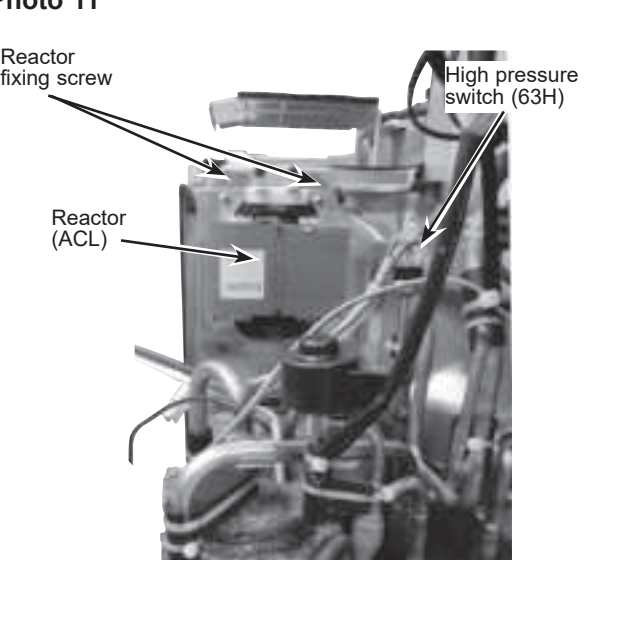


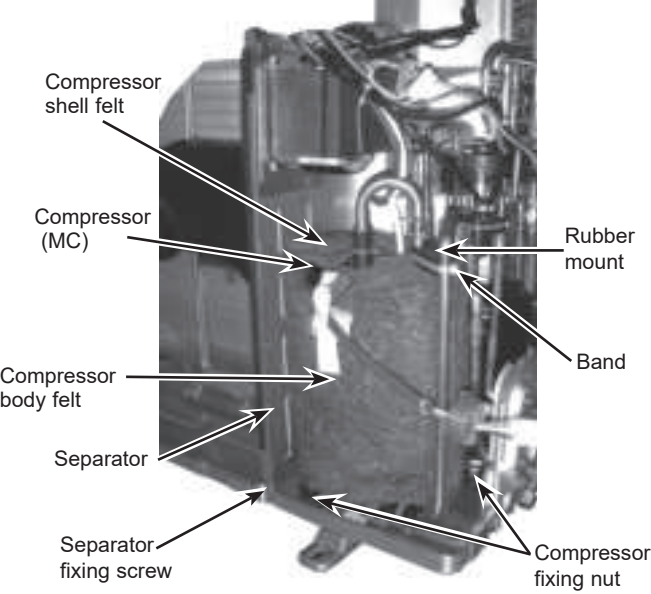
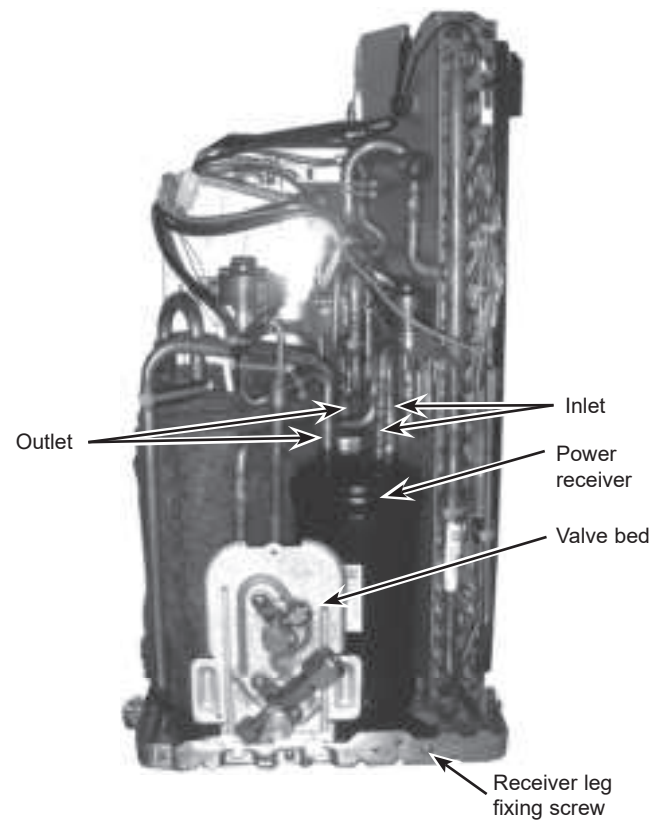
7. Removing the 4-way valve coil (21S4) and LEV coil (LEV(A), LEV(B))

- (1) Remove the service panel. (See Photo 2)
 - (2) Remove the top panel. (See Photo 1)
 - (3) Remove the front panel. (See Photo 1)
 - (4) Remove the back panel. (See Photo 1)
 - (5) Remove the electrical parts box. (See Photo 5)
- [Removing the 4-way valve (21S4)]
- (6) Remove 1 4-way valve fixing screw (M4 × 6).
 - (7) Remove the 4-way valve by sliding the coil to the right.
- [Removing the LEV coil (LEV (A), LEV (B))]
- (6) Remove the LEV coil by sliding the coil upward.

Photo 9



OPERATING PROCEDURE	PHOTOS/FIGURES
8. Removing the 4-way valve (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Remove the 4-way valve (See Photo 9) (7) Recover refrigerant. (8) Remove the welded part of 4-way valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the back panel. Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.	Photo 10-1: PUZ model  Labels in Photo 10-1: 4-way valve, LEV coil (LEV A), LEV coil (LEV B), LEV B, LEV A, 4-way valve (21S4), 4-way valve coil fixing screw.
9. Removing LEV (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Remove the LEV coil. (See Photo 9) (7) Recover refrigerant. (8) Remove the welded part of LEV. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the back panel. Note 3: When installing the LEV, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.	Photo 10-2: PUY model  Labels in Photo 10-2: LEV coil (LEV B), LEV B, LEV coil (LEV A), LEV A.
10. Removing the high pressure switch (63H) (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Pull out the lead wire of high pressure switch. (7) Recover refrigerant. (8) Remove the welded part of high pressure switch. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the back panel. Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.	Photo 11  Labels in Photo 11: Reactor fixing screw, Reactor (ACL), High pressure switch (63H).
11. Removing the reactor (ACL) (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove 2 reactor fixing screws (4 × 10) and remove the reactor. Note: The reactor is attached to the rear of the electrical parts box.	

OPERATING PROCEDURE	PHOTOS/FIGURES
12. Removing the compressor (MC) (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Remove the thermistor <Discharge> (TH4) and thermistor <Comp. surface> (TH33). (See Photo 8) (7) Remove 3 separator fixing screws (4 × 10) and remove the separator. (8) Remove the compressor body felt and compressor shell felt. (9) Cutting the band and remove the rubber mount. (10) Recover refrigerant. (11) Remove 3 compressor fixing nuts by using a spanner or a adjustable wrench. (12) Remove the welded pipe of compressor inlet and outlet. Note: Recover refrigerant without spreading it in the air.	Photo 12 
13. Removing the power receiver (1) Remove the service panel. (See Photo 2) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove the electrical parts box. (See Photo 5) (6) Recover refrigerant. (7) Remove 4 welded pipes of power receiver inlet and outlet. (8) Remove 2 receiver leg fixing screws (4 × 10). (9) Remove the power receiver together with the receiver leg. Note: Recover refrigerant without spreading it in the air.	Photo 13 

PUZ-A24NHA7
PUZ-A24NHA7-BS

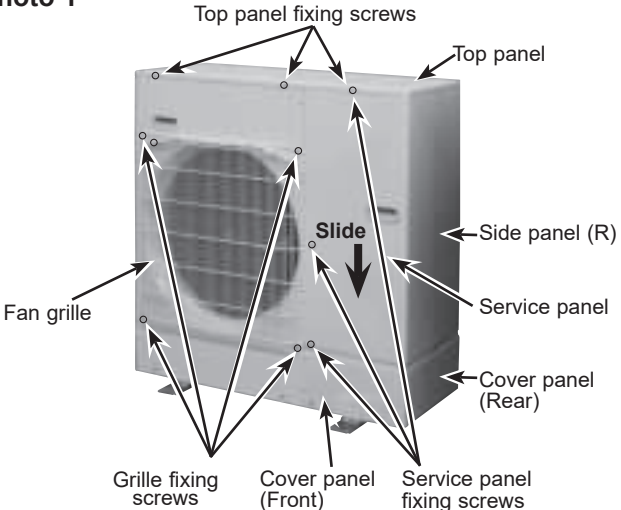
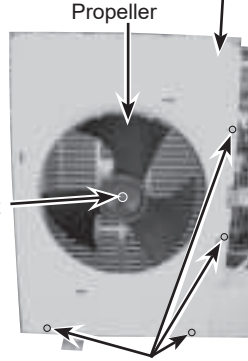
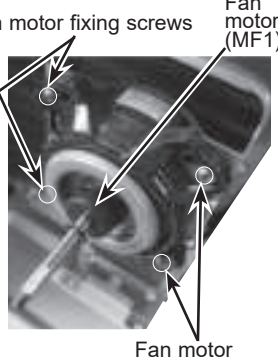
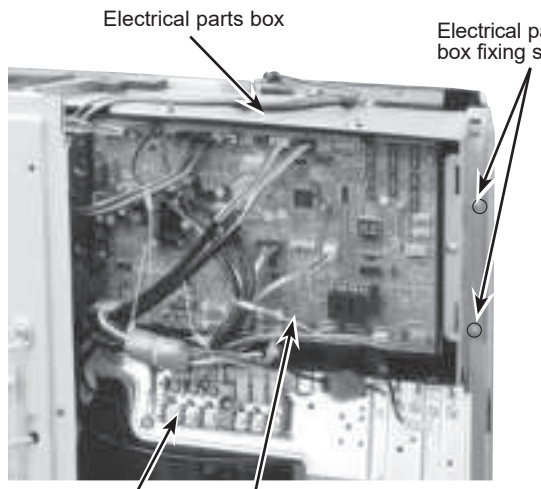
PUZ-A30NHA7
PUZ-A30NHA7-BS

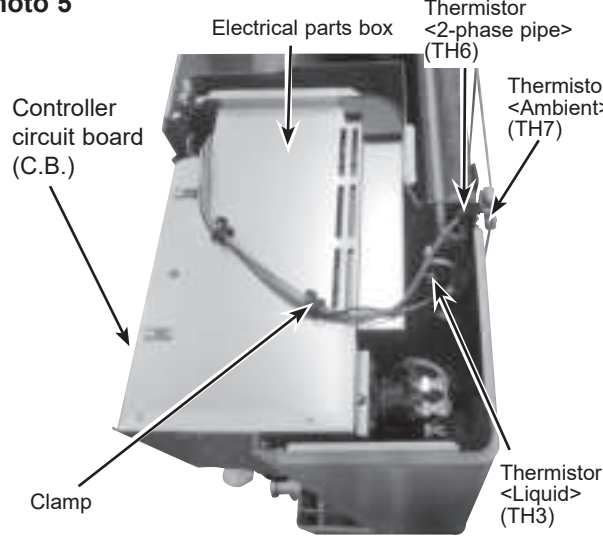
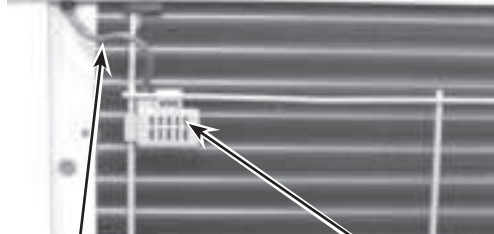
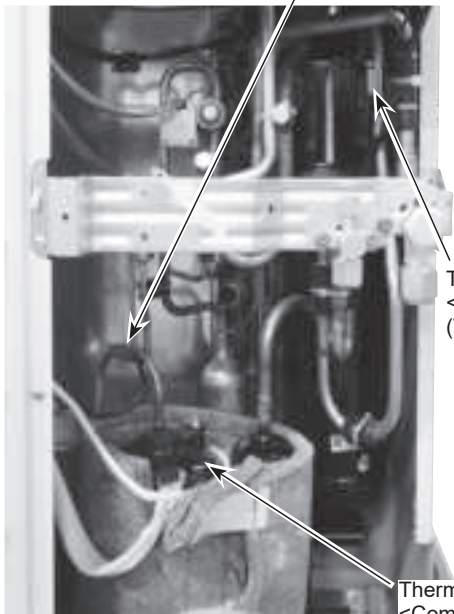
PUY-A24NHA7
PUY-A24NHA7-BS

PUY-A30NHA7
PUY-A30NHA7-BS

PHOTO: PUZ-A24NHA7

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

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 12) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 12) of the top panel and remove it.	Photo 1 
2. Removing the fan motor (MF1) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove 4 fan grille fixing screws (5 × 12) to detach the fan grille. (See Photo 1) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See Photo 2) (5) Disconnect the connector CNF1 on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 20) to detach the fan motor. (See Photo 3)	Photo 2  Photo 3 
3. Removing the electrical parts box (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Disconnect the connector CNF1, LEV-A and LEV-B on the controller circuit board. <Symbols on the board> • CNF1 : Fan motor • LEV-A, LEV-B : LEV (5) Disconnect the pipe-side connections of the following parts. • Thermistor <Liquid> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <2-phase pipe, Ambient> (TH7/6) • Thermistor <Heat sink> (TH8) • High pressure switch (63H) • 4-way valve coil (21S4) • Thermistor <Suction> (TH32) • Thermistor <Comp. surface> (TH33) (6) Remove the terminal cover and disconnect the compressor lead wire. (7) Remove an electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	Photo 4 

OPERATING PROCEDURE	PHOTOS/FIGURES
4. Removing the thermistor <Liquid> (TH3) and thermistor <2-phase pipe> (TH6) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Disconnect the connector TH7/6 (red) and TH3 (white) on the controller circuit board in the electrical parts box. (4) Loosen the 2 clamps for the lead wires on the top of the electrical parts box. (5) Pull out the thermistor <2-phase pipe> (TH6) and the thermistor <Liquid> (TH3) from each sensor holders. Note: When replacing thermistor <2-phase pipe> (TH6), replace it together with thermistor <Ambient> (TH7), since they are combined together. Refer to procedure No.5 below to remove thermistor <Ambient>.	Photo 5  Electrical parts box Thermistor <2-phase pipe> (TH6) Thermistor <Ambient> (TH7) Controller circuit board (C.B.) Clamp Thermistor <Liquid> (TH3)
5. Removing the thermistor <Ambient> (TH7) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Disconnect the connector TH7/6 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 5) (5) Pull out the thermistor <Ambient> (TH7) from the sensor holder. Note: When replacing thermistor <Ambient> (TH7), replace it together with thermistor <2-phase pipe> (TH6), since they are combined together. Refer to procedure No.4 above to remove thermistor <2-phase pipe>.	Photo 6  Lead wire of thermistor <Ambient> (TH7) Sensor holder
6. Removing the thermistor <Discharge> (TH4) and thermistor <Comp. surface> (TH33) (1) Remove the service panel. (See Photo 1) (2) Disconnect the connectors, TH4 (white) and TH33 (yellow), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 5) (4) Pull out the thermistor <Discharge> (TH4) from the sensor holder. [Removing the thermistor<Comp. surface> (TH33)] (5) Remove the compressor cover (upper) and pull out the thermistor <Comp. surface> (TH33) from the holder of the compressor shell.	Photo 7  Thermistor <Discharge> (TH4) Thermistor <Suction> (TH32) Thermistor <Comp.Surface> (TH33)
7. Removing the thermistor <Suction> (TH32) (1) Remove the service panel. (See Photo 1) (2) Disconnect the connectors TH32 (black) on the controller circuit board in the electrical parts box. (3) Disconnect the lead wires from the wire clip on the outdoor controller board in the electrical parts box. (4) Loosen the clamp for the lead wire in the electrical parts box. (See Photo 5) (5) Pull out the thermistor <Suction> (TH32) from the sensor holder.	

OPERATING PROCEDURE

8. Removing the 4-way valve coil (21S4), LEV coil (LEV(A), LEV(B))

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- [Removing the 4-way valve coil]**
- (4) Remove 4-way valve coil fixing screw (M4 × 6).
- (5) Remove the 4-way valve coil by sliding the coil toward you.
- (6) Disconnect the connector 21S4 (green) on the controller board in the electrical parts box.

[Removing the LEV coil]

- (4) Remove the LEV coil by sliding the coil upward.
- (5) Disconnect the connectors, LEV A (white) and LEV B (red), on the controller circuit board in the electrical parts box.

9. Removing the 4-way valve

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (5) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (6) Remove the 4-way valve coil. (See Photo 8)
- (7) Recover refrigerant.
- (8) Remove the welded part of 4-way valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.

10. Removing the LEV

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 4)
- (4) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
- (5) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (6) Remove the LEV.
- (7) Recover refrigerant.
- (8) Remove the welded part of linear expansion valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the LEV, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.

PHOTOS/FIGURES

Photo 8

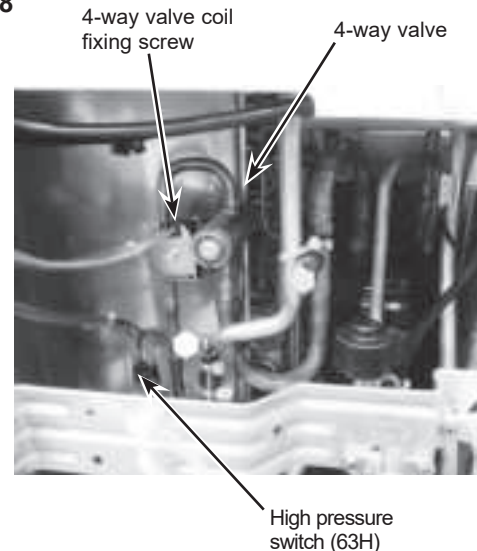
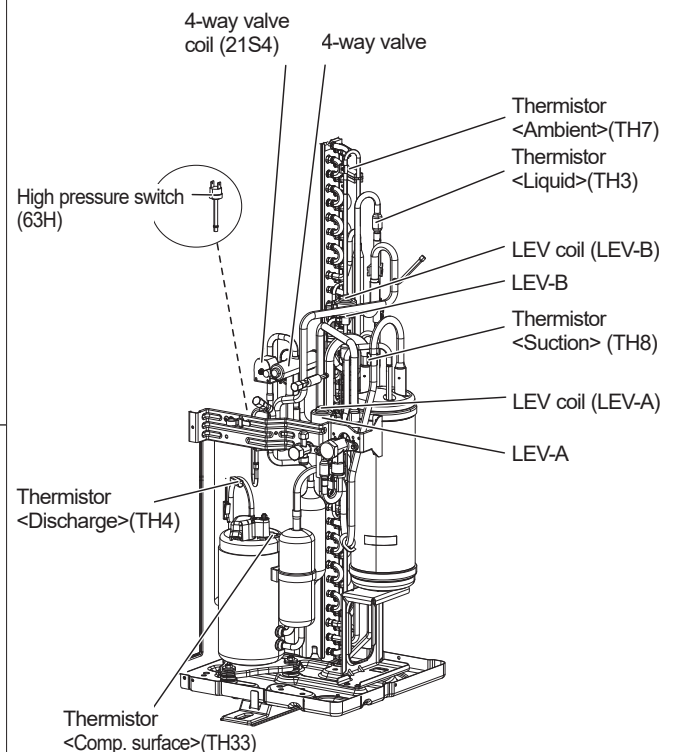
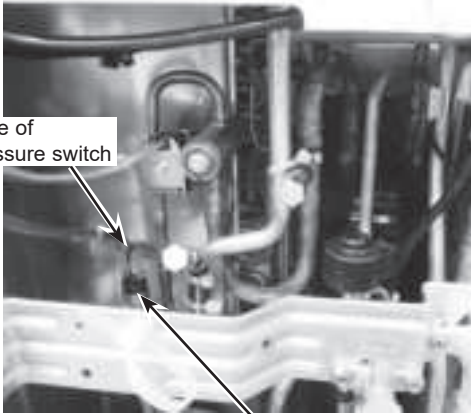
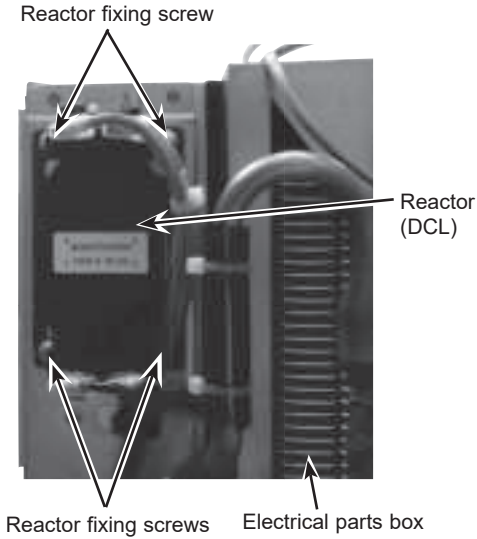
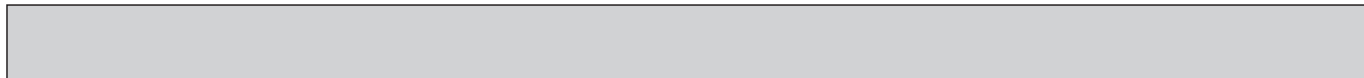
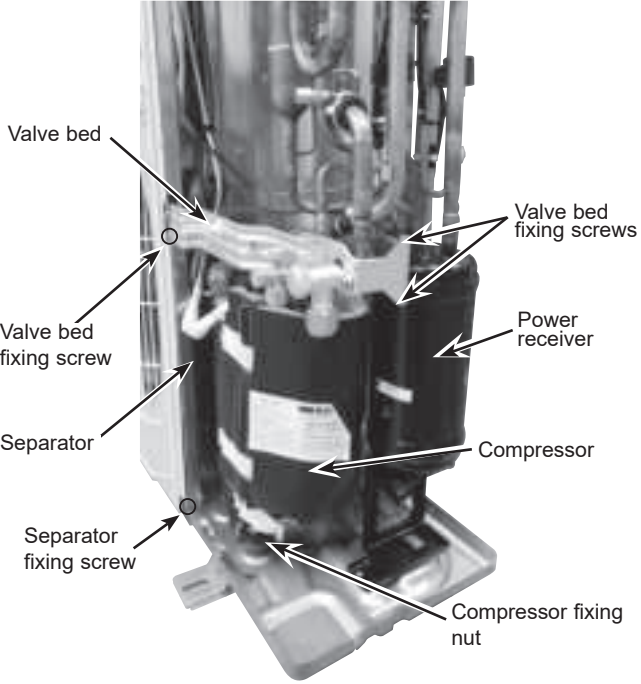
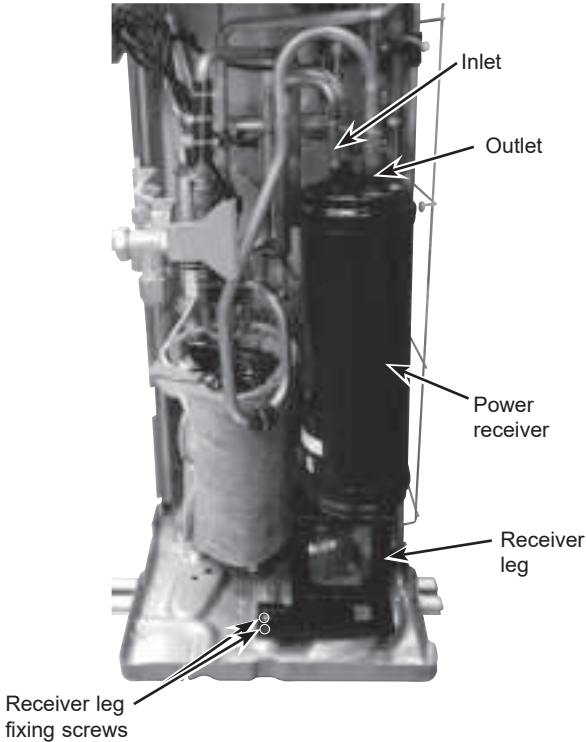


Figure 1



OPERATING PROCEDURE	PHOTOS/FIGURES
11. Removing the high pressure switch (63H) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the electrical parts box. (See Photo 4) (4) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel. (5) Pull out the lead wire of high pressure switch. (6) Recover refrigerant. (7) Remove the welded part of high pressure switch. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.	Photo 9 
12. Removing the reactor (DCL) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the electrical parts box. (See Photo 4) (4) Remove the reactor fixing screws (4 places, 4 × 10) Note: The reactor is attached to the rear of the electrical parts box.	Photo10 



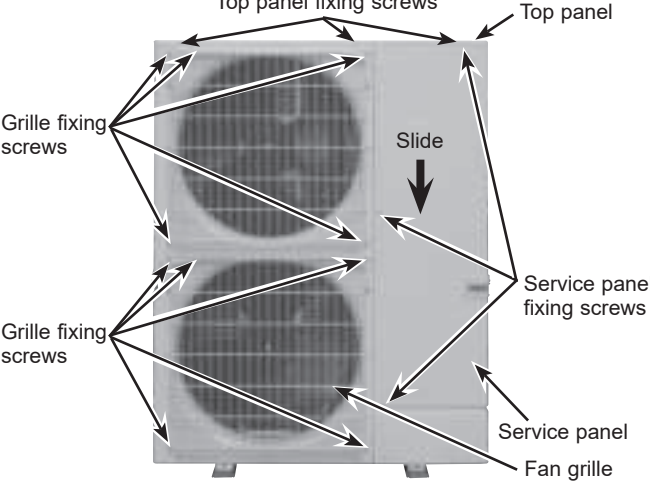
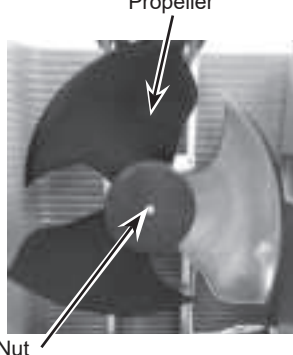
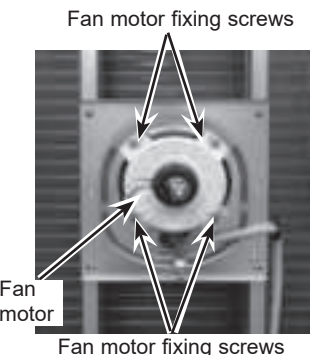
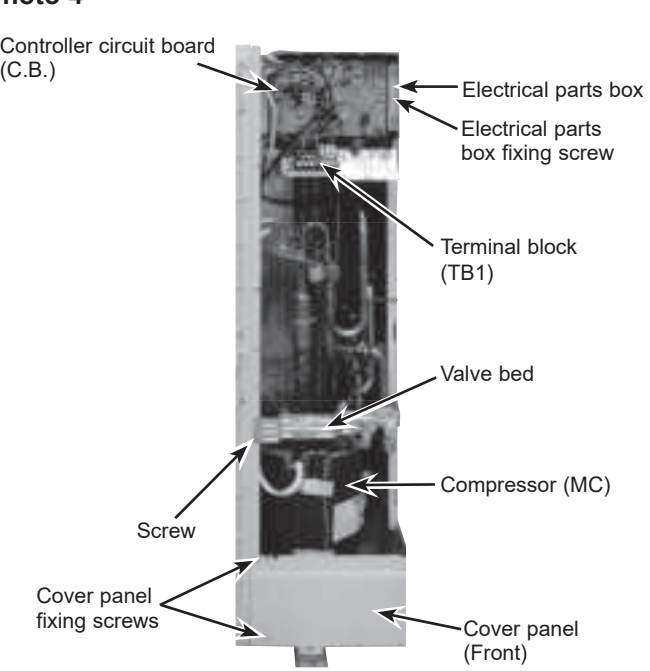
OPERATING PROCEDURE	PHOTOS/FIGURES
13. Removing the compressor (MC) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 1) (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel. (5) Remove the electrical parts box. (See Photo 4) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit then remove the right side panel. (8) Remove 2 separator fixing screws (4 × 10) and remove the separator. (9) Recover refrigerant. (10) Remove the 3 points of the compressor fixing nut using a spanner or a adjustable wrench. (11) Remove the welded pipe of compressor inlet and outlet then remove the compressor. Note: Recover refrigerant without spreading it in the air.	Photo 11 
14. Removing the power receiver (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 1) (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel. (5) Remove the electrical parts box. (See Photo 4) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) then remove the valve bed. (7) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit then remove the right side panel. (8) Recover refrigerant. (9) Remove 4 welded pipes of power receiver inlet and outlet. (10) Remove 2 receiver leg fixing screws (4 × 10). Note: Recover refrigerant without spreading it in the air.	Photo 12 

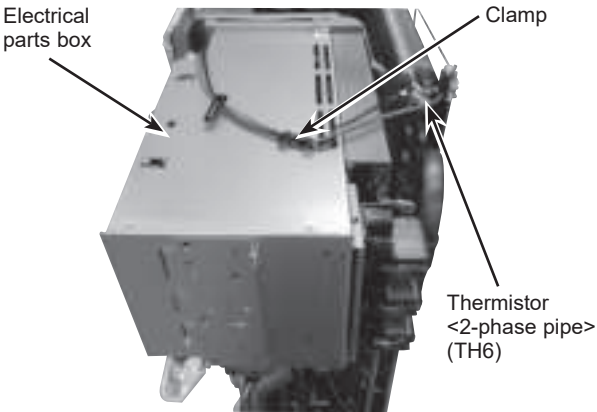
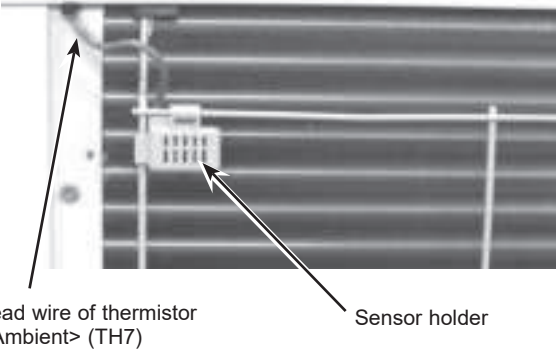
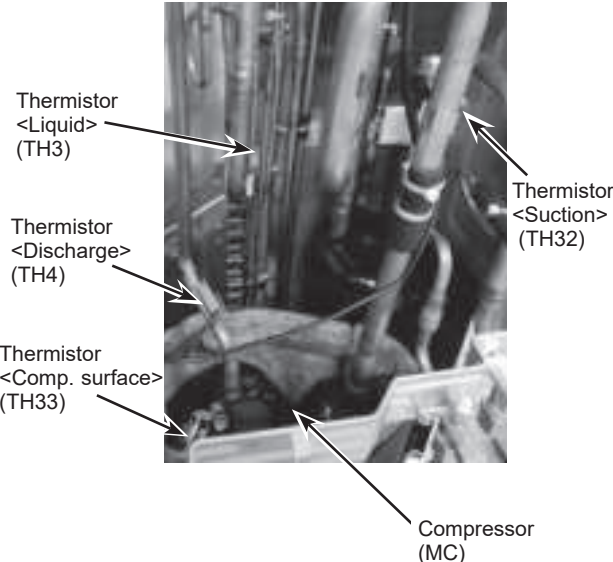
PUZ-A36NKA7**PUZ-A42NKA7****PUY-A36NKA7****PUY-A42NKA7****PUZ-A36NKA7-BS****PUZ-A42NKA7-BS****PUY-A36NKA7-BS****PUY-A42NKA7-BS**

—————> : Indicates the visible parts in the photos/figures.

-----> : Indicates the invisible parts in the photos/figures.

PHOTO: PUZ-A36NKA7

OPERATING PROCEDURE	PHOTOS/FIGURES
1. Removing the service panel, top panel, ice guard, and propeller (1) Remove 3 service panel fixing screws (5 × 12) and slide the hook on the right downward to remove the service panel. (See Photo 1) (2) Remove screws (3 for front, 3 for rear/5 × 12) of the top panel and remove it. (See Photo 1) (3) Remove 4 grille fixing screws (5 × 12) from each grille and remove it. (See Photo 1) (4) Pull down the ice guard and remove it. (5) Remove a nut (for right handed screw of M6) to detach the propeller. (See Photo 2)	Photo 1 
2. Removing the fan motor (MF1, MF2) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove 5 fan grille fixing screws (5 × 12) to detach the front panel and the fan grille together. (See Photo 1) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See Photo 2) (5) Disconnect the connectors, CNF1, CNF2 (white) on the controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See Photo 3) (7) When attaching the fan motor, make sure to route the cable through the hook below the fan motor and fix firmly with the clamp.	Photo 2  Photo 3 
3. Removing the electrical parts box (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor <Liquid>, thermistor <2-phase pipe>, thermistor <Ambient>, high pressure switch, 4-way valve coil. Then remove a screw (4 × 8) from the valve bed to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (CNF1, CNF2) • Linear expansion valve (LEV-A, B) • Thermistor <Liquid> (TH3) • Thermistor <Comp. surface> (TH33) • Thermistor <2-phase pipe, Ambient> (TH6/7) • Thermistor <Suction> (TH32) • High pressure switch (63H) • 4-way valve coil (21S4) (5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove an electrical parts box fixing screw (2 for front /4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	Photo 4 

OPERATING PROCEDURE	PHOTOS/FIGURES
4. Removing the thermistor <2-phase pipe> (TH6) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <2-phase pipe> (TH6) from the sensor holder. Note: In the case of replacing thermistor <2-phase pipe> (TH6), replace it together with thermistor <Ambient> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Ambient>.	Photo 5 
5. Removing the thermistor <Ambient> (TH7) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 5) (5) Pull out the thermistor <Ambient> (TH7) from the sensor holder. Note: In the case of replacing thermistor <Ambient> (TH7), replace it together with thermistor <2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <2-phase pipe>.	Photo 6 
6. Removing the thermistor <Liquid> (TH3), thermistor <Discharge> (TH4), thermistor <Comp. surface> (TH33), and thermistor <Suction> (TH32) (1) Remove the service panel. (See Photo 1) (2) Disconnect the connectors, TH3 (white), TH32 (black), TH4 (white), and TH33 (yellow), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 5) (4) Pull out the thermistor <Liquid> (TH3), thermistor <Comp. surface> (TH33) and thermistor <Suction> (TH32) from the sensor holder.	Photo 7 

OPERATING PROCEDURE

7. Removing the 4-way valve coil (21S4) and linear expansion valve coil (LEV-A, B)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)

[Removing the 4-way valve coil]

- (3) Remove 4-way valve coil fixing screw (M4 × 6).
- (4) Remove the 4-way valve coil by sliding the coil toward you.
- (5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box.

[Removing the linear expansion valve coil]

- (3) Remove the linear expansion valve coil by sliding the coil upward.
- (4) Disconnect the connectors, LEV-A (white) and LEV-B (red), on the controller circuit board in the electrical parts box.

8. Removing the 4-way valve

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove 3 valve bed fixing screws (4 × 10), 4 ball valve and stop valve fixing screws (5 × 16), then remove the valve bed.
- (4) Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (5) Remove the 4-way valve coil. (See Photo 8)
- (6) Recover refrigerant.
- (7) Remove the welded part of 4-way valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized.

9. Removing linear expansion valve

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove 3 valve bed fixing screws (4 × 10), 4 ball valve and stop valve fixing screws (5 × 16), then remove the valve bed.
- (4) Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (5) Remove the linear expansion valve. (See Photo 8)
- (6) Recover refrigerant.
- (7) Remove the welded part of linear expansion valve.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized.

PHOTOS/FIGURES

Photo 8-1: PUZ model

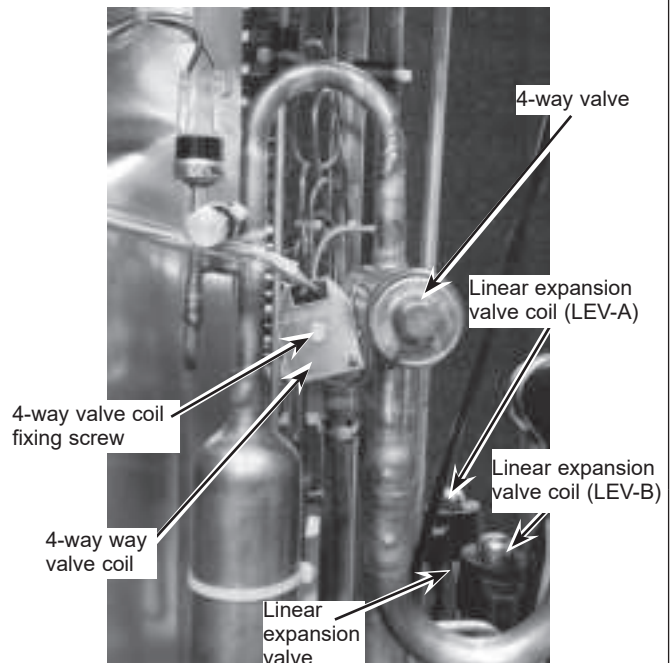
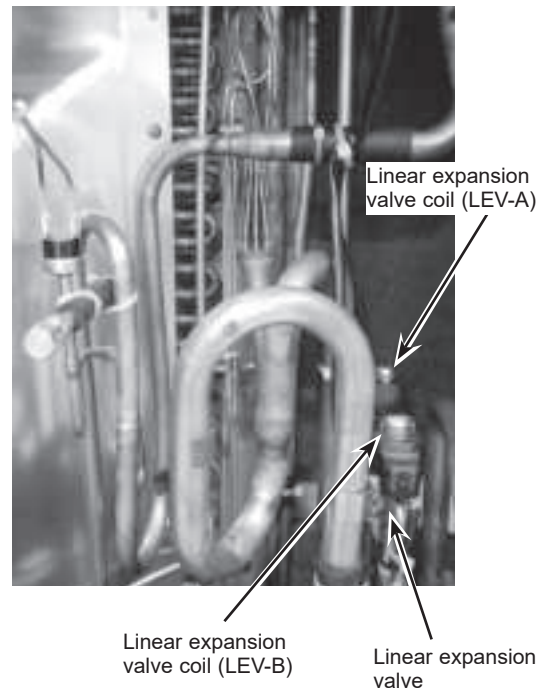


Photo 8-2: PUY model



OPERATING PROCEDURE

10. Removing the high pressure switch (63H)

- (1) Remove the service panel. (See photo 1)
- (2) Remove the top panel. (See photo 1)
- (3) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel.
- (4) Pull out the lead wire of high pressure switch.
- (5) Recover refrigerant.
- (6) Remove the welded part of high pressure switch.

Note 1: Recover refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (210°F or more), then braze the pipes so that the inside of pipes are not oxidized.

PHOTOS/FIGURES

Photo 9-1: PUZ model

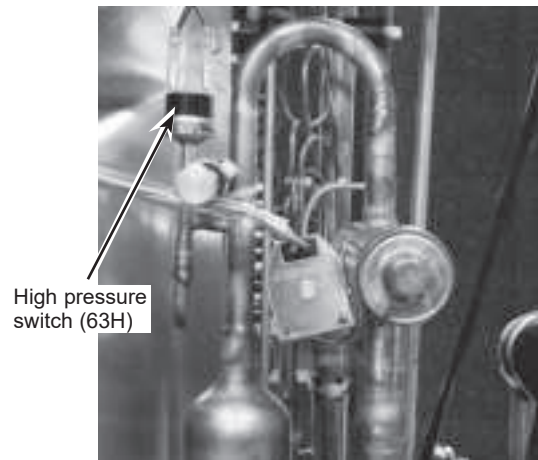
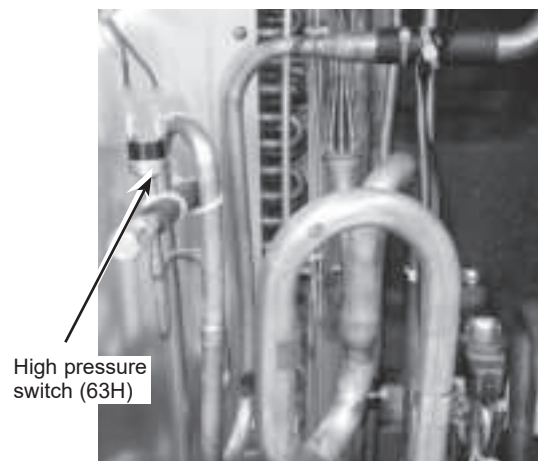


Photo 9-2: PUY model



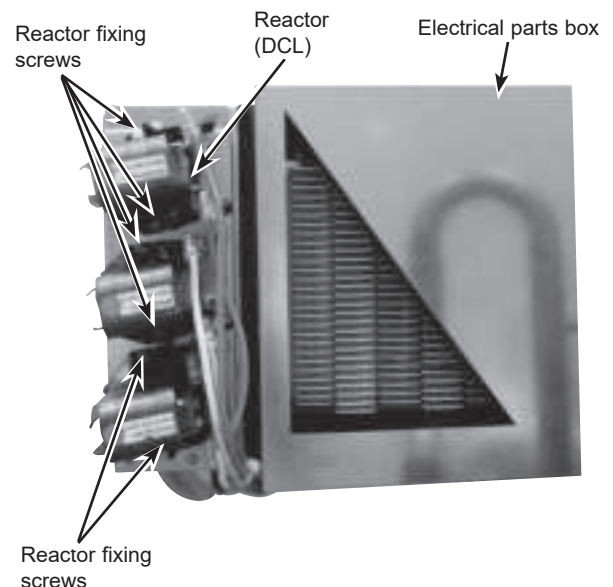
11. Removing the reactor (DCL)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove the electrical parts box. (See Photo 5)
- <Removing the reactor>
- (4) Remove the reactor fixing screws (6 places, 4 × 10) and remove the reactor.

Note 1: The reactor is attached to the rear of the electrical parts box.

Note 2: The 3 pieces of reactors to be replaced must have the same color of sticker. (Green, Orange, or Blue)

Photo 10



OPERATING PROCEDURE

12. Removing the compressor (MC)

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove 1 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 4)
- (4) Remove 4 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Remove 3 valve bed fixing screws (2 × 12), 4 ball valve and stop valve fixing screws (5 × 16), then remove the valve bed.
- (7) Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel.
- (8) Remove 3 separator fixing screws (4 × 10) and remove the separator.
- (9) Recover refrigerant.
- (10) Remove the 3 points of the compressor fixing nut using spanner or adjustable wrench.
- (11) Remove the welded pipe of the compressor inlet and outlet and then remove the compressor.

Note: Recover refrigerant without spreading it in the air.

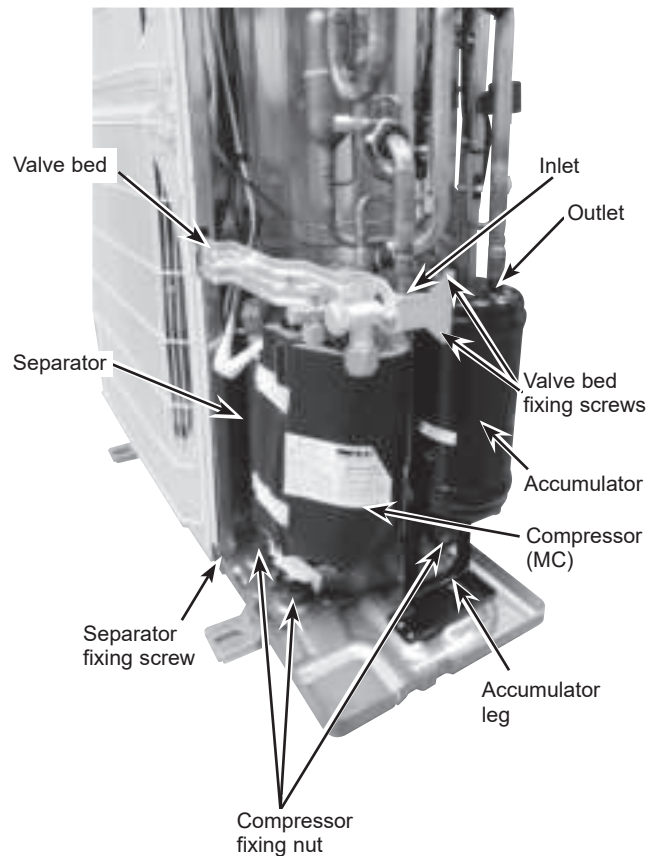
13. Removing the power receiver

- (1) Remove the service panel. (See Photo 1)
- (2) Remove the top panel. (See Photo 1)
- (3) Remove 2 front cover panel fixing screws (5 × 12) and remove the front cover panel. (See Photo 4)
- (4) Remove 2 back cover panel fixing screws (5 × 12) and remove the back cover panel.
- (5) Remove the electrical parts box. (See Photo 5)
- (6) Remove 3 valve bed fixing screws (4 × 10), 4 ball valve and stop valve fixing screws (5 × 16), then remove the valve bed.
- (7) Remove the right side panel fixing screws (4 for the rear, 1 on the right/5 × 12) and then remove the right side panel. (See Photo 1)
- (8) Remove 3 separator fixing screws (5 × 12) Recover refrigerant.
- (9) Remove 2 welded pipes of accumulator inlet and outlet.
- (10) Remove 2 accumulator leg fixing screws (4 × 10).

Note: Recover refrigerant without spreading it in the air.

PHOTOS/FIGURES

Photo 11



Mr. SLIM

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Issued: Jan. 2023 No. OCH636 REVISED EDITION-E

Issued: May 2021 No. OCH636 REVISED EDITION-D

Issued: Nov. 2020 No. OCH636 REVISED EDITION-C

Issued: Sep. 2019 No. OCH636 REVISED EDITION-B

Issued: Feb. 2017 No. OCH636 REVISED EDITION-A

Published: Oct. 2016 No. OCH636

Made in Japan

Specifications are subject to change without notice.