Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS
SPLIT-TYPE, AIR CONDITIONERS

June 2007

No. OC370
REVISED EDITION-B

SERVICE MANUAL

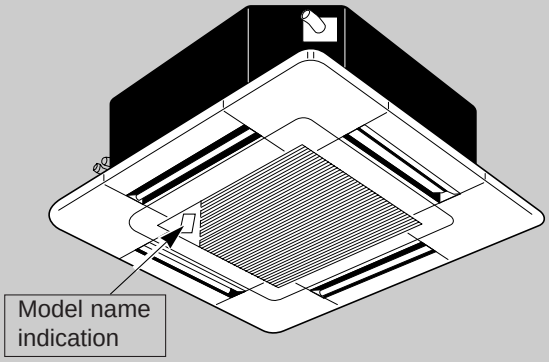
Series PLA Ceiling Cassettes R410A

Indoor unit [Model names]	[Service Ref.]	
PLA-A12AA	PLA-A12AA	PLA-A12AA1
PLA-A18AA	PLA-A18AA	PLA-A18AA1
PLA-A24AA	PLA-A24AA	PLA-A24AA1
PLA-A30AA	PLA-A30AA	PLA-A30AA1
PLA-A36AA	PLA-A36AA	PLA-A36AA1
PLA-A42AA	PLA-A42AA	PLA-A42AA1

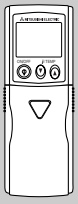
Revision:
- WIRING DIAGRAM has been changed in REVISED EDITION-B.
- Some descriptions have been modified.

- Please void OC370 REVISED EDITION-A.

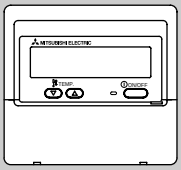
NOTE:
- This manual describes only service data of the indoor units.
- RoHS compliant products have <G> mark on the spec name plate.
- For servicing RoHS compliant products, refer to the RoHS PARTS LIST.



INDOOR UNIT



WIRELESS REMOTE CONTROLLER



WIRED REMOTE CONTROLLER

CONTENTS

33223

Mr.SLIM™

1 TECHNICAL CHANGES

PLA-A12AA → PLA-A12AA$_1$
PLA-A18AA → PLA-A18AA$_1$
PLA-A24AA → PLA-A24AA$_1$
PLA-A30AA → PLA-A30AA$_1$
PLA-A36AA → PLA-A36AA$_1$
PLA-A42AA → PLA-A42AA$_1$

• Indoor controller board has been changed.

2 REFERENCE MANUAL

2-1. OUTDOOR UNIT SERVICE MANUAL

Service Ref.	Service Manual No.
PUZ-A18/24/30/36/42NHA PUZ-A18/24/30/36/42NHA-BS PUY-A12/18/24/30/36/42NHA$_{(1)}$ PUY-A12/18/24/30/36/42NHA$_{(1)}$-BS	OC367

2-2. TECHNICAL DATA BOOK

Series (Outdoor unit)	Manual No.
PUZ-A·NHA(-BS) PUY-A·NHA(-BS)	OCS04

3 SAFETY PRECAUTION

3-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminals, all supply circuits must be disconnected.

3-2. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilising refrigerant R410A

Use new refrigerant pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.
In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

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

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

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

Charge refrigerant from liquid phase of gas cylinder.

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

Do not use refrigerant other than R410A.

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

Use a vacuum pump with a reverse flow check valve.

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

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

The following tools are necessary to use R410A refrigerant.

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

Keep the tools with care.

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

Do not use a charging cylinder.

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

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

[1] Cautions for service

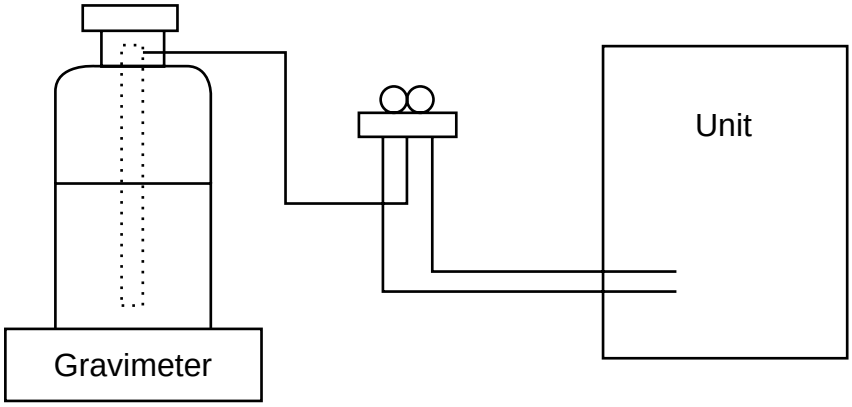
(1) Perform service after collecting the refrigerant left in the unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) When performing service, install a filter drier simultaneously.
Be sure to use a filter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

[2] Additional refrigerant charge

When charging directly from cylinder

· Check that cylinder for R410A on the market is syphon type.

· Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



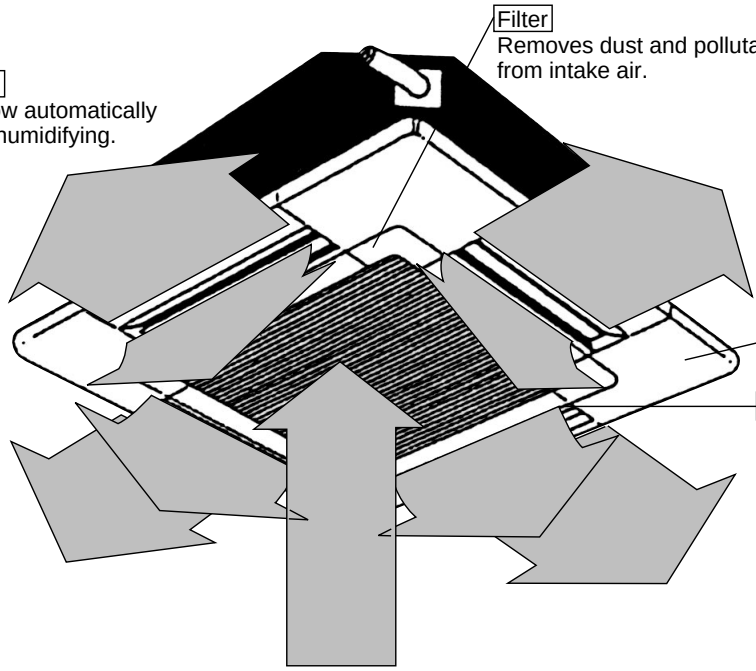
[3] Service tools

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

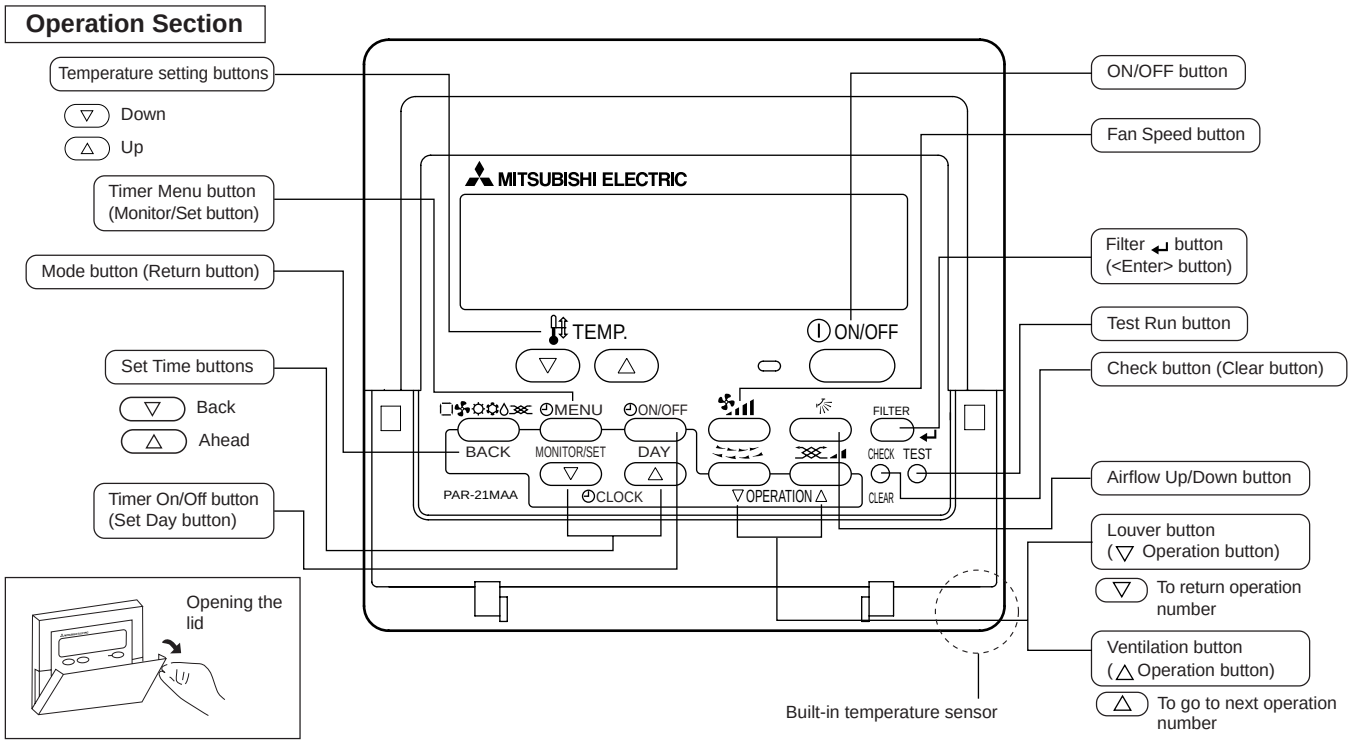
No.		Specifications
①	Gauge manifold	·Only for R410A
		·Use the existing fitting specifications. (UNF1/2)
		·Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	·Only for R410A
		·Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	——
④	Gas leak detector	·Use the detector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

4 PART NAMES AND FUNCTIONS

● Indoor Unit



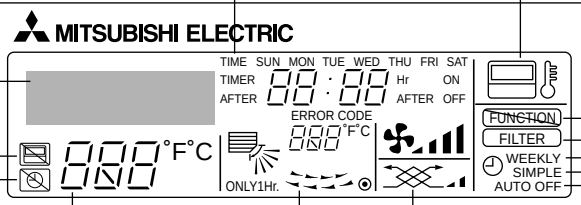
● Wired remote controller



● Wired remote controller

Display Section

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



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

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

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

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

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

Temperature Setting
Shows the target temperature.

Up/Down Air Direction indicator
Shows the direction of the outcoming airflow.

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

Room Temperature display
Shows the room temperature. The room temperature display range is 46–102˚F. The display blinks if the temperature is less than 46˚F or 102˚F or more.

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

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

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

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

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

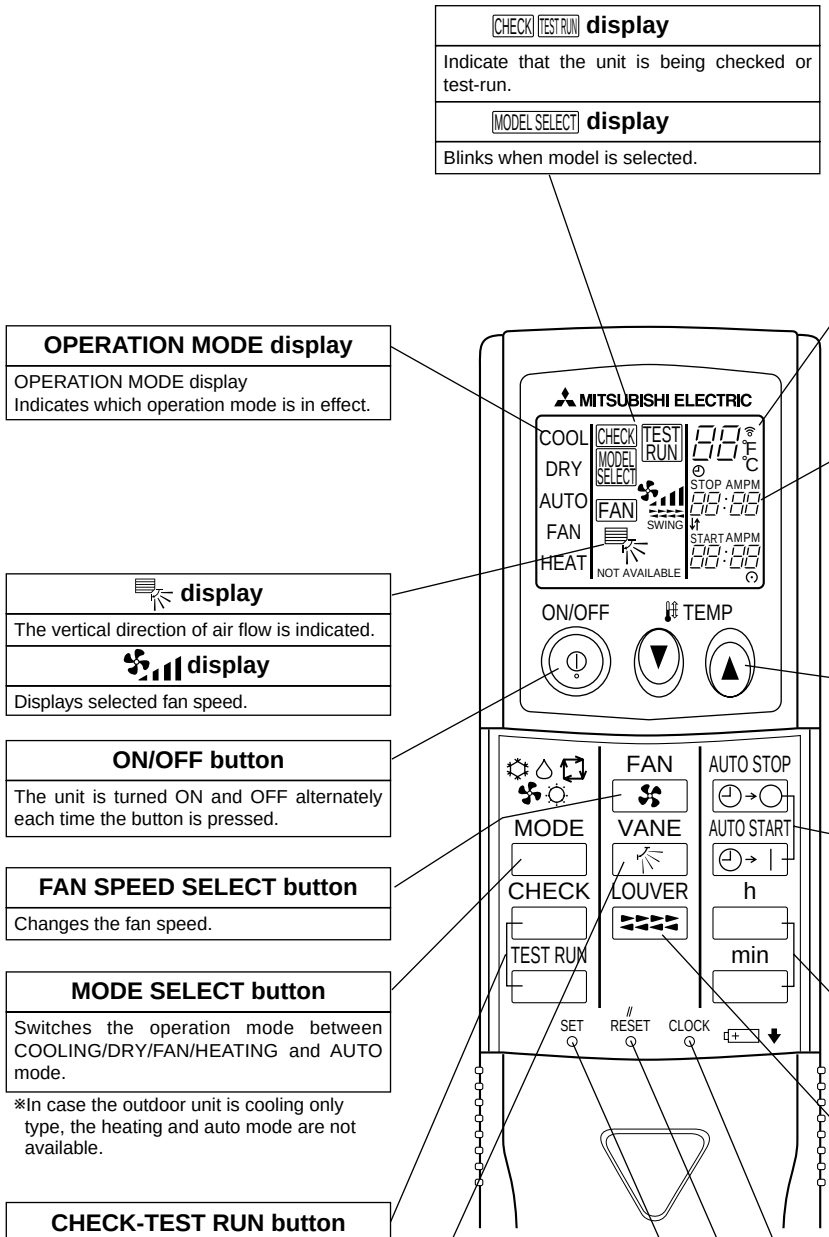
Timer indicators
The indicator comes on if the corresponding timer is set.

Fan Speed indicator
Shows the selected fan speed.

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

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

● Wireless remote controller



CHECK TEST RUN display

Indicate that the unit is being checked or test-run.

MODEL SELECT display

Blinks when model is selected.

display

Lights up while the signal is transmitted to the indoor unit when the button is pressed.

Temperature setting display

indicates the desired temperature setting which is set.

OPERATION MODE display

OPERATION MODE display
Indicates which operation mode is in effect.

CLOCK display

Displays the current time.

TIMER display

Displays when in timer operation or when setting timer.

" ↓ " " ↑ " display

Displays the order of timer operation.

" ⏲→| " " ⏲→○ " display

Displays whether timer is on or off.

display

The vertical direction of air flow is indicated.

display

Displays selected fan speed.

button

Sets any desired room temperature.

ON/OFF button

The unit is turned ON and OFF alternately each time the button is pressed.

TIMER CONTROL buttons

AUTO STOP (OFF timer): when this switch is set, the air conditioner will be automatically stopped at the preset time.
AUTO START (ON timer): when this switch is set, the air conditioner will be automatically started at the preset time.

FAN SPEED SELECT button

Changes the fan speed.

"h" and "min" buttons

Buttons used to set the "hour and minute" of the current time and timer settings.

MODE SELECT button

Switches the operation mode between COOLING/DRY/FAN/HEATING and AUTO mode.

※In case the outdoor unit is cooling only type, the heating and auto mode are not available.

LOUVER button

Changes left / right airflow direction.

(Not available for this model.)

CHECK-TEST RUN button

Performs an inspection check or test operation.
Do not use it for normal operation.

CLOCK button

RESET button

SET button

VANE CONTROL button

Changes the air flow direction.

5 SPECIFICATIONS

INDOOR UNIT	**Service Ref.**				**PLA-A12AA/ PLA-A12AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	1
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.070
		Fan motor		F.L.A.	0.79
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 11-12-13-14(390-420-460-490)
					Wet: 10-11-12-13(350-380-420-450)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	27-28-29-31
	Field drain pipe O.D.			mm(in.)	32 (1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL: 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 258 (10-3/16) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 22 (49) PANEL: 5 (11)

INDOOR UNIT	**Service Ref.**				**PLA-A18AA/ PLA-A18AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	1
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.070
		Fan motor		F.L.A.	0.79
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 15-16-18-20(530-570-640-710)
					Wet:14-15-17-19(490-530-600-670)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	28-30-32-34
	Field drain pipe O.D.			mm(in.)	32 (1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL: 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 258 (10-3/16) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 24 (53) PANEL: 5 (11)

INDOOR UNIT	**Service Ref.**				**PLA-A24AA/ PLA-A24AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	1
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.070
		Fan motor		F.L.A.	0.79
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 15-16-18-20(530-570-640-710)
					Wet: 14-15-17-19(490-530-600-670)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	28-30-32-34
	Field drain pipe O.D.			mm(in.)	32(1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL: 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 258 (10-3/16) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 24 (53) PANEL: 5 (11)

INDOOR UNIT	**Service Ref.**				**PLA-A30AA/ PLA-A30AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	1
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.070
		Fan motor		F.L.A.	0.79
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 15-16-18-20(530-570-640-710)
					Wet: 14-15-17-19(490-530-600-670)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	28-30-32-34
	Field drain pipe O.D.			mm(in.)	32(1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL: 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 258 (10-3/16) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 24 (53) PANEL: 5 (11)

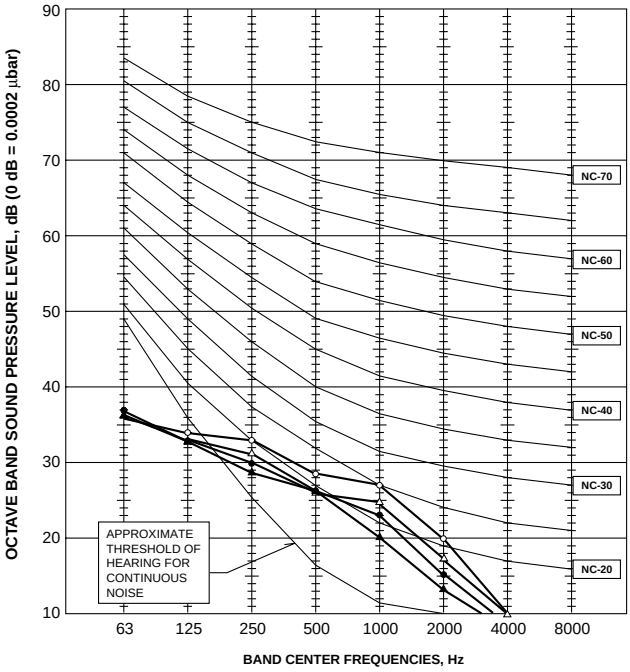
INDOOR UNIT	**Service Ref.**				**PLA-A36AA/ PLA-A36AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	2
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.110
		Fan motor		F.L.A.	1.25
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 20-23-26-28(710-810-920-990)
					Wet: 19-22-25-27(670-770-880-950)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	33-36-39-41
	Field drain pipe O.D.			mm(in.)	32(1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 298 (11-3/4) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 30 (66) PANEL : 5 (11)

INDOOR UNIT	**Service Ref.**				**PLA-A42AA/ PLA-A42AA1**
	Power supply (phase, cycle, voltage)				Single phase,60Hz, 208/230V
		Max. Fuse Size		A	15
		Min. Circuit Ampacity		A	2
	External finish (Panel)				Munsell 0.70Y 8.59/0.97
	Heat exchanger				Plate fin coil
	Fan	Fan (drive) × No.			Turbo fan (direct) × 1
		Fan motor output		kW	0.110
		Fan motor		F.L.A.	1.25
		Airflow (Low-Medium2-Medium1-High)		m³/min(CFM)	Dry: 20-23-26-28(710-810-920-990)
					Wet: 19-22-25-27(670-770-880-950)
		External static pressure		Pa(mmAq)	0(direct blow)
	Booster heater			kW	–
	Operation control & Thermostat				Remote controller & built-in
	Noise level (Low-Medium2-Medium1-High)			dB	33-36-39-41
	Field drain pipe O.D.			mm(in.)	32(1-1/4)
	Dimensions		W	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			D	mm(in.)	UNIT : 840 (33-1/16) PANEL : 950 (37-3/8)
			H	mm(in.)	UNIT : 298 (11-3/4) PANEL : 30 (1-3/16)
	Weight			kg(lbs)	UNIT : 30 (66) PANEL : 5 (11)

6 NOISE CRITERION CURVES

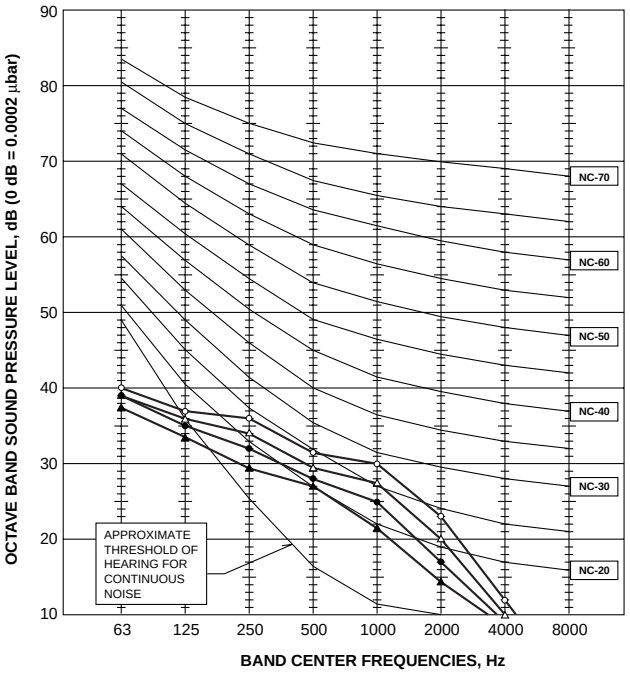
PLA-A12AA
PLA-A12AA$_1$

NOTCH	SPL(dB)	LINE
High	31	
Medium1	29	
Medium2	28	
Low	27	



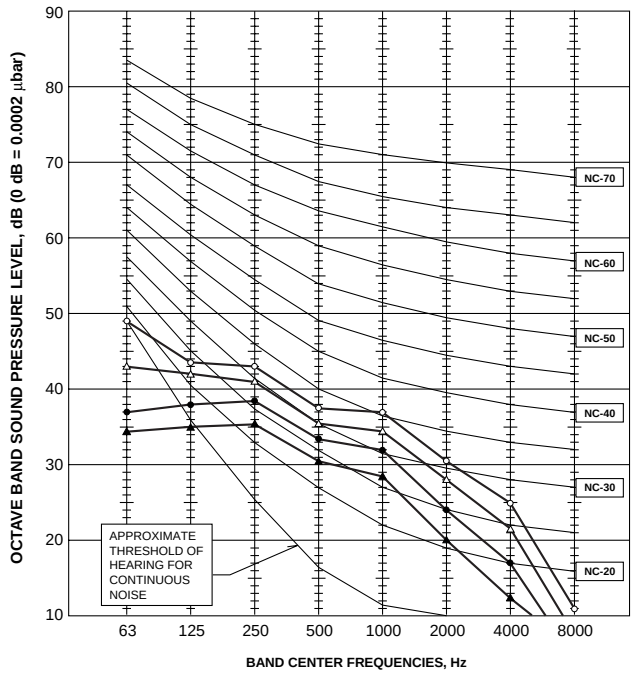
PLA-A18AA PLA-A18AA$_1$
PLA-A24AA PLA-A24AA$_1$
PLA-A30AA PLA-A30AA$_1$

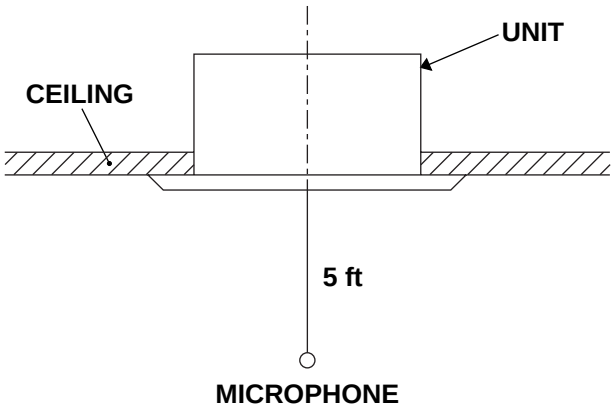
NOTCH	SPL(dB)	LINE
High	34	
Medium1	32	
Medium2	30	
Low	28	



PLA-A36AA
PLA-A42AA
PLA-A36AA$_1$
PLA-A42AA$_1$

NOTCH	SPL(dB)	LINE
High	41	
Medium1	39	
Medium2	36	
Low	33	



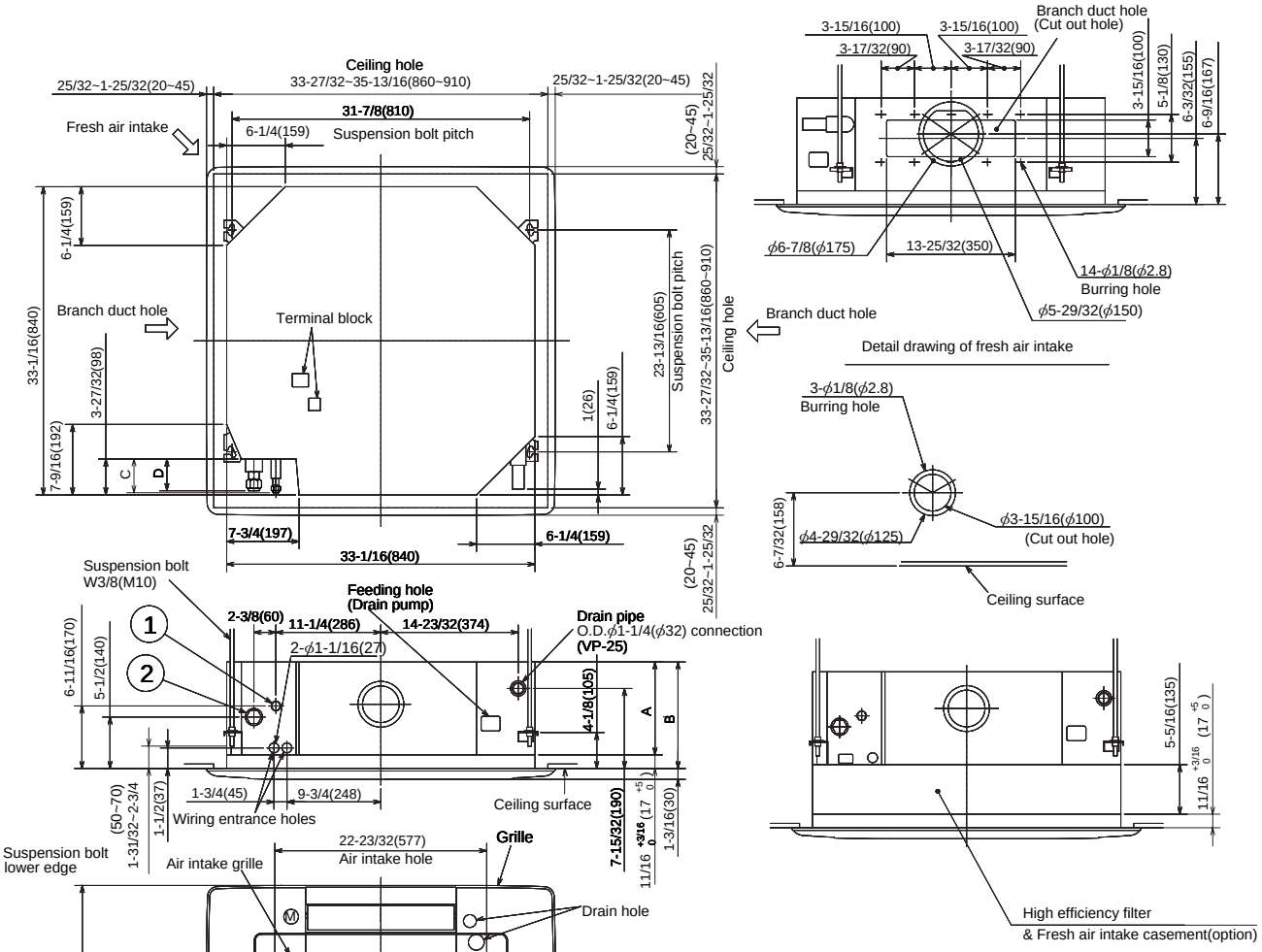


7 OUTLINES AND DIMENSIONS

INDOOR UNIT

PLA-A12AA PLA-A18AA PLA-A24AA PLA-A12AA1 PLA-A18AA1 PLA-A24AA1
PLA-A30AA PLA-A36AA PLA-A42AA PLA-A30AA1 PLA-A36AA1 PLA-A42AA1

Unit : inch(mm)



Unit : inch(mm)

Models	A	B	C	D
PLA-A12/18/24/30AA(1)	9-1/2 (241)	10-3/16 (258)	3-1/2 (89)	3-5/32 (80)
PLA-A36AA(1)	11-1/16 (281)	11-3/4 (298)		
PLA-A42AA(1)				3-5/16 (84)

MODEL	12/18	24/30/36/42
① Liquid pipe	1/4F	3/8F
② Gas pipe	1/2F	5/8F

8 WIRING DIAGRAM

PLA-A12AA PLA-A18AA PLA-A24AA PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA$_1$ PLA-A18AA$_1$ PLA-A24AA$_1$ PLA-A30AA$_1$ PLA-A36AA$_1$ PLA-A42AA$_1$

[LEGEND]

SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
P.B	INDOOR POWER BOARD	C	CAPACITOR<FAN MOTOR>	W.B	WIRELESS REMOTE CONTROLLER BOARD
I.B	INDOOR CONTROLLER BOARD	DP	DRAIN-UP MACHINE	BZ	BUZZER
BCR	FAN CONTROL ELEMENT	DS	DRAIN SENSOR	LED1	LED<RUN INDICATOR >
CN2L	CONNECTOR<LOSSNAY>	H2	DEW PREVENTION HEATER	LED2	LED<HOT ADJUST>
CN32	CONNECTOR<REMOTE SWITCH>	MF	FAN MOTOR	RU	RECEIVING UNIT
CN41	CONNECTOR<HA TERMINAL-A>	MV	VANE MOTOR	SW1	SWITCH<HEATING ON/OFF>
CN51	CONNECTOR<CENTRALLY CONTROL>	R.B	WIRED REMOTE CONTROLLER BOARD	SW2	SWITCH<COOLING ON/OFF>
FUSE	FUSE (6.3A/250V)	TB4	TERMINAL BLOCK<INDOOR/OUTDOOR CONNECTING LINE>		
LED1	POWER SUPPLY<I.B>				
LED2	POWER SUPPLY<R.B>	TB5,TB6	TERMINAL BLOCK<REMOTE CONTROLLER TRANSMISSION LINE >		
LED3	TRANSMISSION<INDOOR-OUTDOOR>				
SW1	SWITCH <MODEL SELECTION>※See Table 1.	TH1	ROOM TEMP.THERMISTOR <32°F/15kΩ, 77°F/5.2kΩ DETECT>		
SW2	SWITCH <CAPACITY CODE>※See Table 2.				
SWE	SWITCH<EMERGENCY OPERATION>	TH2	PIPE TEMP.THERMISTOR/LIQUID <32°F/15kΩ, 77°F/5.2kΩ DETECT>		
X1	RELAY<DRAIN PUMP>				
X4	RELAY<FAN MOTOR>	TH5	COND./EVA.TEMP.THERMISTOR <32°F/15kΩ, 77°F/5.2kΩ DETECT>		
ZNR	VARISTOR				

Please set the voltage using the remote controller.
For the setting method, please refer to the indoor unit Installation Manual.

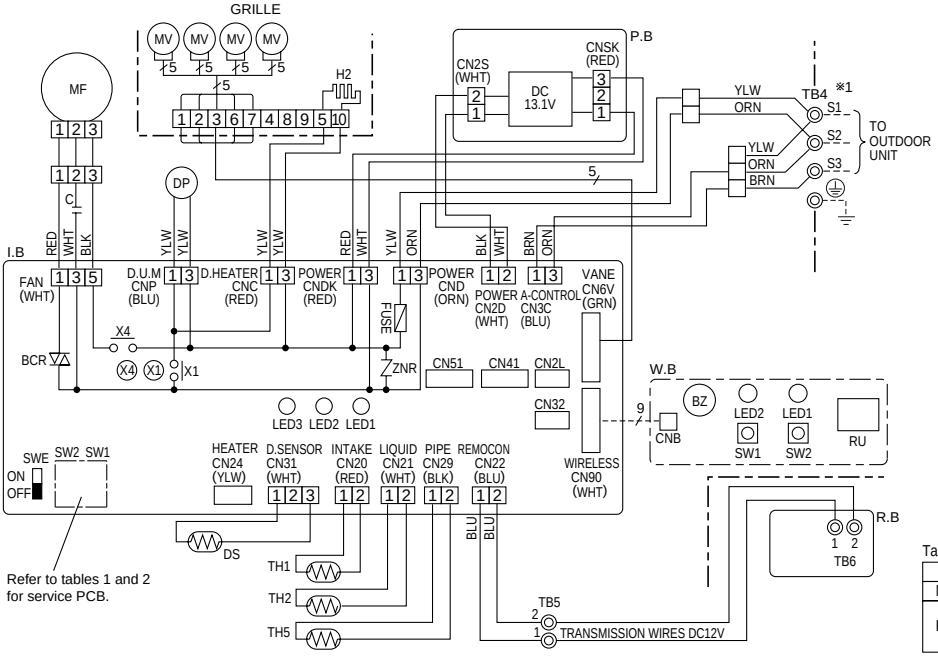


Table 1

SW1	
MODELS	Service board
PLA-A,AA	1 2 3 4 5 ON OFF

Table 2

SW2			
MODELS	Service board	MODELS	Service board
PLA-A12AA	1 2 3 4 5 ON OFF	PLA-A30AA	1 2 3 4 5 ON OFF
PLA-A18AA	1 2 3 4 5 ON OFF	PLA-A36AA	1 2 3 4 5 ON OFF
PLA-A24AA	1 2 3 4 5 ON OFF	PLA-A42AA	1 2 3 4 5 ON OFF

NOTES:
1. Symbols used in wiring diagram above are, □□□: Connector, ◎: Terminal (block).
2. Indoor and outdoor connecting wires have polarities, make sure to match terminal numbers (S1, S2, S3) for correct wirings.
3. Since the outdoor side electric wiring may change, be sure to check the outdoor unit electric wiring diagram for servicing.
4. This diagram shows the wiring of Indoor and Outdoor connecting wires (specification of 230V), adopting superimposed system of power and signal.

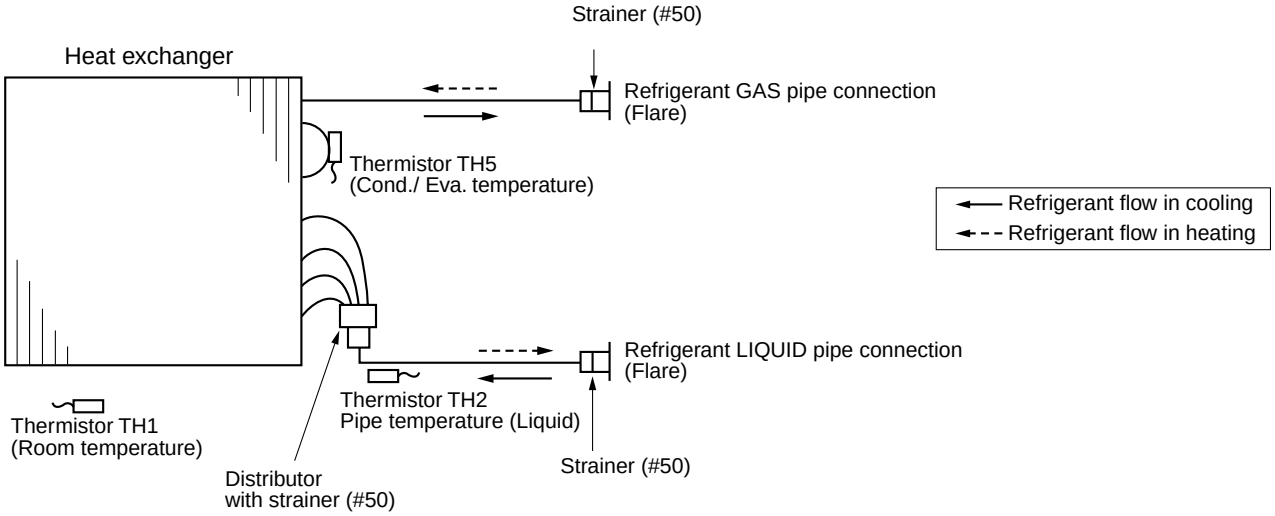
※1. Use copper supply wires.

[Self-diagnosis]
1. For details on how to operate self-diagnosis with the wireless remote control, refer to the technical manuals etc.
2. For the wired remote control : When you quickly press twice the CHECK switch on the remote control, the unit begins self-diagnosis, and Check Codes generated in the past appear on the display. For check Codes and Symptoms refer to the table below.

Check code	Symptom	Check code	Symptom
P1	Abnormality of room temperature thermistor(TH1)	E0-E5	Abnormality of the signal transmission between remote controller and indoor unit
P2	Abnormality of pipe temperature thermistor / Liquid(TH2)		
P4	Abnormality of drain sensor(DS)	E6-EF	Abnormality of the signal transmission between indoor unit and outdoor unit
P5	Malfunction of drain-up machine	Fb	Abnormality of indoor controller board
P6	Freezing / overheating protection is working.	U*, F*	Abnormality in outdoor unit. Refer to outdoor unit wiring diagram.
P8	Abnormality of pipe temperature	———	No trouble generated in the past
P9	Abnormality of pipe temperature thermistor / Cond. / Eva.(TH5)	FFFF	No corresponding unit

9 REFRIGERANT SYSTEM DIAGRAM

PLA-A12AA PLA-A18AA PLA-A24AA PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA$_1$ PLA-A18AA$_1$ PLA-A24AA$_1$ PLA-A30AA$_1$ PLA-A36AA$_1$ PLA-A42AA$_1$



10 TROUBLESHOOTING

10-1. TROUBLESHOOTING

<Error code display by self-diagnosis and actions to be taken for service (summary)>

Present and past error codes are logged and displayed on the wired remote controller or controller board of outdoor unit. Actions to be taken for service and the inferior phenomenon reoccurrence at field are summarized in the table below. Check the contents below before investigating details.

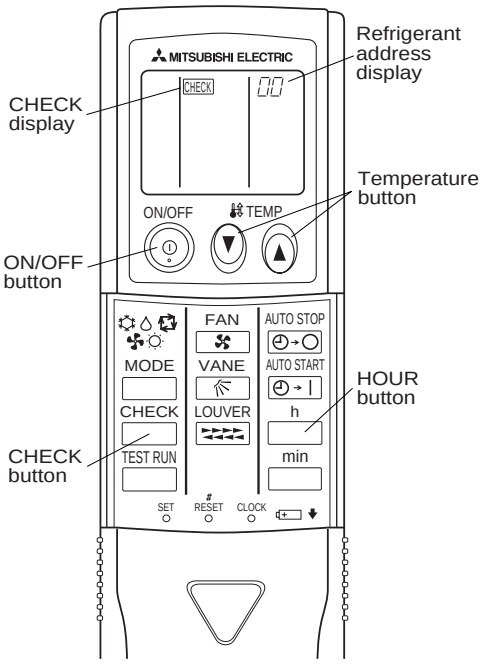
Unit conditions at service	Error code	Actions to be taken for service (summary)
The inferior phenomenon is reoccurring.	Displayed	Judge what is wrong and take a corrective action according to “SELF-DIAGNOSIS ACTION TABLE” (10-3).
	Not displayed	Identify the cause of the inferior phenomenon and take a corrective action according to “TROUBLESHOOTING BY INFERIOR PHENOMENA ” (10-4).
The inferior phenomenon is not reoccurring.	Logged	①Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise and etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the inferior phenomenon occurred, and wiring related. ②Reset error code logs and restart the unit after finishing service. ③There is no abnormality in electrical components, controller boards, and remote controller.
	Not logged	①Recheck the abnormal symptom. ②Identify the cause of the inferior phenomenon and take a corrective action according to “TROUBLESHOOTING BY INFERIOR PHENOMENA ” (10-4). ③Continue to operate unit for the time being if the cause is not ascertained. ④There is no abnormality in electrical components, controller boards, remote controller etc.

10-2. MALFUNCTION-DIAGNOSIS METHOD BY REMOTE CONTROLLER

<In case of trouble during operation>

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

<Malfunction-diagnosis method at maintenance service>



[Procedure]

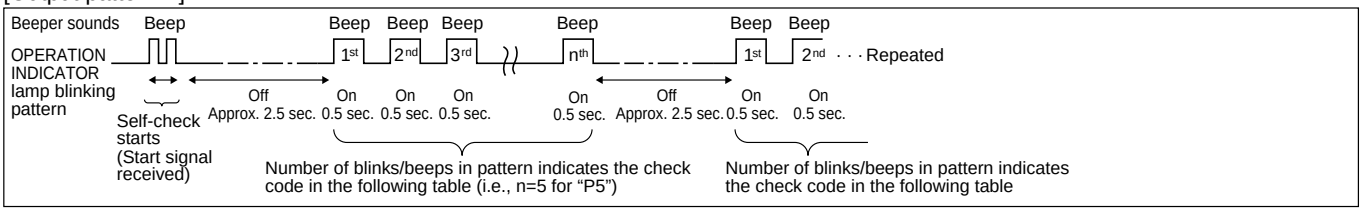
1. Press the CHECK button twice.
   - "CHECK" lights, and refrigerant address "00" blinks.
   - Check that the remote controller's display has stopped before continuing.
2. Press the temperature buttons.
   - Select the refrigerant address of the indoor unit for the self-diagnosis.

   Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)
3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
   - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light flashes, and the error code is output.
     (It takes 3 seconds at most for error code to appear.)
4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
   - The check mode is cancelled.

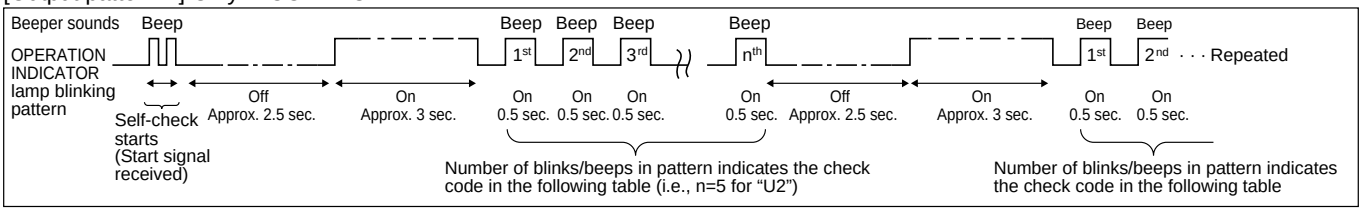
To be continued to the next page.

• Refer to the following tables for details on the check codes.

[Output pattern A]



[Output pattern B] Only A-CONTROL



[Output pattern A] Errors detected by indoor unit

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	① Check code		
1	P1	Intake sensor error	———
2	P2	Pipe (TH2) sensor error	
	P9	Pipe (TH5) sensor error	
3	E6,E7	Indoor/outdoor unit communication error	
4	P4	Drain sensor error	
5	P5	Drain pump error	
	PA	Forced compressor stop	
6	P6	Freezing/Overheating protection operation	
7	EE	Communication error between indoor and outdoor units	
8	P8	Pipe temperature error	
9	E4, E5	Remote controller signal receiving error	
10	–	–	
11	–	–	
12	Fb	Indoor unit control system error (memory error, etc.)	
–	E0, E3	Remote controller transmission error	
–	E1, E2	Remote controller control board error	

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

Wireless remote controller	Wired remote controller	Symptom	Remark
Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	① Check code		
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	As for outdoor unit, refer to outdoor unit's service manual. For details, check the LED display of the outdoor controller board.
2	UP	Compressor overcurrent interruption	
3	U3,U4	Open/short of outdoor unit thermistors	
4	UF	Compressor overcurrent interruption (When compressor locked)	
5	U2	Abnormal high discharging temperature/49C worked/ insufficient refrigerant	
6	U1,Ud	Abnormal high pressure (63H worked)/Overheating protection operation	
7	U5	Abnormal temperature of heatsink	
8	U8	Outdoor unit fan protection stop	
9	U6	Compressor overcurrent interruption/Abnormal of power module	
10	U7	Abnormality of superheat due to low discharge temperature	
11	U9,UH	Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error	
12	–	–	
13	–	–	
14	Others	Other errors (Refer to the technical manual for the outdoor unit.)	

*1 If the beeper does not sound again after the initial 2 beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

*2 If the beeper sounds 3 times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial 2 beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

• On wireless remote controller
The continuous buzzer sounds from receiving section of indoor unit.
Blink of operation lamp
• On wired remote controller
①Check code displayed in the LCD.

• If the unit cannot be operated properly after the test run has been performed, refer to the following table to find out the cause.

Symptom			Cause
Wired remote controller		LED 1, 2 (PCB in outdoor unit)	
PLEASE WAIT	For about 2 minutes after power-on	After LED 1, 2 are lighted, LED 2 is turned off, then only LED 1 is lighted. (Correct operation)	•For about 2 minutes after power-on,operation of the remote controller is not possible due to system start-up. (Correct operation)
PLEASE WAIT → Error code	Subsequent to about 2 minutes after power-on	Only LED 1 is lighted. → LED 1, 2 blink.	•Connector for the outdoor unit's protection device is not connected. •Reverse or open phase wiring for the outdoor unit's power terminal block (L1, L2, GR)
Display messages do not appear even when operation switch is turned ON (operation lamp does not light up).		Only LED 1 is lighted. → LED 1 blinks twice, LED 2 blinks once.	•Incorrect wiring between indoor and outdoor units (incorrect polarity of S1, S2, S3) •Remote controller wire short

On the wireless remote controller with condition above, following phenomena take place.
• No signals from the remote controller can be received.
• Operation lamp is blinking.
• The buzzer makes a short ping sound.

Note:
Operation is not possible for about 30 seconds after cancellation of function selection. (Correct operation)

For description of each LED (LED1, 2, 3) provided on the indoor controller, refer to the following table.

LED1 (power for microcomputer)	Indicates whether control power is supplied. Make sure that this LED is always lit.
LED2 (power for remote controller)	Indicates whether power is supplied to the remote controller. This LED lights only in the case of the indoor unit which is connected to the outdoor unit refrigerant address "0".
LED3 (communication between indoor and outdoor units)	Indicates state of communication between the indoor and outdoor units. Make sure that this LED is always blinking.

10-3. SELF-DIAGNOSIS ACTION TABLE

Note: Refer to the manual of outdoor unit for the details of display such as F, U, and other E.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P1	**Room temperature thermistor (TH1)** ① The unit is in 3-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating operation. Short: 90℃(194˚F) or more Open: -40℃(-40˚F) or less	① Defective thermistor characteristics ② Contact failure of connector (CN20) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective indoor controller board	①–③ Check resistance value of thermistor. 0℃ (32˚F)·····15.0kΩ 10℃(50˚F)·····9.6kΩ 20℃(68˚F)·····6.3kΩ 30℃(86˚F)·····4.3kΩ 40℃(104˚F)·····3.0kΩ If you put force on (draw or bend) the lead wire with measuring resistance value of thermistor breaking of wire or contact failure can be detected. ② Check contact failure of connector (CN20) on the indoor controller board. Refer to 10-7. Turn the power on again and check restart after inserting connector again. ④ Check room temperature display on remote controller. Replace indoor controller board if there is abnormal difference with actual room temperature. Turn the power off, and on again to operate after check.
P2	**Pipe temperature thermistor/Liquid (TH2)** ① The unit is in 3-minute resume prevention mode if short/open of thermistor is detected. Abnormal if the unit does not reset normally after 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating (except defrosting) operation. Short: 90℃(194˚F) or more Open: -40℃(-40˚F) or less	① Defective thermistor characteristics ② Contact failure of connector (CN21) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Defective refrigerant circuit is causing thermistor temperature of 90℃(194˚F) or more or -40℃(-40˚F) or less. ⑤ Defective indoor controller board	①–③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN21) on the indoor controller board. Refer to 10-7. Turn the power on and check restart after inserting connector again. ④ Check pipe <liquid> temperature with remote controller in test run mode. If pipe <liquid> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defect. ⑤ Check pipe <liquid> temperature with remote controller in test run mode. If there is extreme difference with actual pipe <liquid> temperature, replace indoor controller board. Turn the power off, and on again to operate after check.
P4	**Drain sensor (DS)** ① Suspensive abnormality, if short/open of thermistor is detected for 30 seconds continuously. Turn off compressor and indoor fan. ② Short/open is detected for 30 seconds continuously during suspensive abnormality. (The unit returns to normal operation, if it has been reset normally.) ③ Detect the following condition. • During cooling and drying operation • In case that pipe <liquid> temperature - room temperature <-10deg (Except defrosting) • When pipe <liquid> temperature or room temperature is short/open temperature. • During drain pump operation	① Defective thermistor characteristics ② Contact failure of connector (CN31) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of drain sensor wiring ④ Defective indoor controller board	①–③ Check resistance value of thermistor. 0℃ (32˚F)·····6.0kΩ 10℃(50˚F)·····3.9kΩ 20℃(68˚F)·····2.6kΩ 30℃(86˚F)·····1.8kΩ 40℃(104˚F)·····1.3kΩ ② Check contact failure of connector (CN31) on the indoor controller board. Refer to 10-7. Turn the power on again and check restart after inserting connector again. ④ Replace indoor controller board if drain pump operates with the line of drain sensor connector CN31-① and ② is short-circuited, and abnormality reappears. Turn the power off, and on again to operate after check.
P5	**Malfunction of drain pump (DP)** ① Suspensive abnormality, if thermistor of drain sensor heats itself and temperature rises slightly. Turn off compressor and indoor fan. ② Drain pump is abnormal if the condition above is detected during suspensive abnormality. ③ Constantly detected during drain pump operation.	① Malfunction of drain pump ② Defective drain Clogged drain pump Clogged drain pipe ③ Attached drop of water at the drain sensor • Drops of drain trickles from lead wire. • Clogged filter is causing wave of drain. ④ Defective indoor controller board	① Check if drain pump works. ② Check drain function. ③ Check the setting of lead wire of drain sensor and check clogs of the filter. ④ Replace indoor controller board if drain pump operates with the line of drain sensor connector CN31-① and ② is short-circuited and abnormality reappears. Refer to 10-7. Turn the power off, and on again to operate after check.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P6	**Freezing/overheating protection is working** ① Freezing protection (Cooling mode) The unit is in 6-minute resume prevention mode if pipe <liquid or condenser/evaporator> temperature stays under -15℃(5˚F) for 3 minutes, 3 minutes after the compressor started. Abnormal if it stays under -15℃(5˚F) for 3 minutes again within 16 minutes after 6-minute resume prevention mode. ② Overheating protection (Heating mode) The units is in 6-minute resume prevention mode if pipe <condenser / evaporator> temperature is detected as over 70℃(158˚F) after the compressor started. Abnormal if the temperature of over 70℃(158˚F) is detected again within 10 minutes after 6-minute resume prevention mode.	(Cooling or drying mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Low-load (low temperature) operation out of the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective. ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs) (Heating mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Overload (high temperature) operation beyond the tolerance range ④ Defective indoor fan motor • Fan motor is defective. • Indoor controller board is defective. ⑤ Defective outdoor fan control ⑥ Overcharge of refrigerant ⑦ Defective refrigerant circuit (clogs) ⑧ Bypass circuit of outdoor unit is defective.	(Cooling or drying mode) ① Check clogs of the filter. ② Remove shields. ④ Measure the resistance of fan motor's winding. Measure the output voltage of fan's connector (FAN) on the indoor controller board. ※The indoor controller board should be normal when voltage of AC 208/230V is detected while fan motor is connected. Refer to 10-7. ⑤ Check outdoor fan motor. ⑥⑦ Check operating condition of refrigerant circuit. (Heating mode) ① Check clogs of the filter. ② Remove shields. ④ Measure the resistance of fan motor's winding. Measure the output voltage of fan's connector (FAN) on the indoor controller board. ※The indoor controller board should be normal when voltage of AC 208/230V is detected while fan motor is connected. Refer to 10-7. ⑤ Check outdoor fan motor. ⑥~⑧Check operating condition of refrigerant circuit.
P8	**Pipe temperature** <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes after compressor start and 6 minutes after the liquid or condenser/evaporator pipe is out of cooling range. Note 1) It takes at least 9 minutes to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range:-3 deg C[-5.4deg F]≦(TH-TH1) TH: Lower temperature between liquid pipe temperature (TH2) and condenser/evaporator temperature (TH5) TH1: Intake temperature <Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes. Note 3) It takes at least 27 minutes to detect abnormality. Note 4) It excludes the period of defrosting (Detection restarts when defrosting mode is over) Heating range:3 deg C[5.4deg F]≦(TH5-TH1)	① Slight temperature difference between indoor room temperature and pipe <liquid or condenser / evaporator> temperature thermistor • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser / evaporator> thermistor • Defective refrigerant circuit ② Converse connection of extension pipe (on plural units connection) ③ Converse wiring of indoor/outdoor unit connecting wire (on plural units connection) ④ Defective detection of indoor room temperature and pipe <condenser / evaporator> temperature thermistor ⑤ Stop valve is not opened completely.	①~④ Check pipe <liquid or condenser / evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser / evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows. (Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool(PAC-SK52ST)'.) ②③Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.

Error Code	Abnormal point and detection method	Cause	Countermeasure
P9	**Pipe temperature thermistor / Condenser-Evaporator (TH5)** ① The unit is in 3-minute resume protection mode if short/open of thermistor is detected. Abnormal if the unit does not get back to normal within 3 minutes. (The unit returns to normal operation, if it has been reset normally.) ② Constantly detected during cooling, drying, and heating operation (except defrosting) Short: 90℃(194˚F) or more Open: -40℃(-40˚F) or less	① Defective thermistor characteristics ② Contact failure of connector (CN29) on the indoor controller board (Insert failure) ③ Breaking of wire or contact failure of thermistor wiring ④ Temperature of thermistor is 90℃(194˚F) or more or -40℃(-40˚F) or less caused by defective refrigerant circuit. ⑤ Defective indoor controller board	①–③ Check resistance value of thermistor. For characteristics, refer to (P1) above. ② Check contact failure of connector (CN29) on the indoor controller board. Refer to 10-7. Turn the power on and check restart after inserting connector again. ④ Operate in test run mode and check pipe <condenser / evaporator> temperature with outdoor controller circuit board. If pipe <condenser / evaporator> temperature is extremely low (in cooling mode) or high (in heating mode), refrigerant circuit may have defect. ⑤ Operate in test run mode and check pipe <condenser / evaporator> temperature with outdoor control circuit board. If there is exclusive difference with actual pipe <condenser / evaporator> temperature replace indoor controller board. There is no abnormality if none of above comes within the unit. Turn the power off and on again to operate. (In case of checking pipe temperature with outdoor controller circuit board, be sure to connect A-control service tool (PAC-SK52ST).)
E0 or E4	**Remote controller transmission error(E0)/signal receiving error(E4)** ① Abnormal if main or sub remote controller cannot receive any transmission normally from indoor unit of refrigerant address “0” for 3 minutes. (Error code : E0) ② Abnormal if sub-remote controller could not receive for any signal for 2 minutes. (Error code: E0) ① Abnormal if indoor controller board can not receive any data from remote controller board or normally from other indoor controller board for 3 minutes. (Error code: E4) ② Indoor controller board cannot receive any signal from remote controller for 2 minutes. (Error code: E4)	① Contact failure at transmission wire of remote controller ② All remote controllers are set as “sub” remote controller. In this case, E0 is displayed on remote controller, and E4 is displayed at LED (LED1, LED2) on the outdoor controller circuit board. ③ Miswiring of remote controller ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board of refrigerant address “0” ⑥ Noise has entered into the transmission wire of remote controller.	① Check disconnection or looseness of indoor unit or transmission wire of remote controller. ② Set one of the remote controllers “main” if there is no problem with the action above. ③ Check wiring of remote controller. • Total wiring length: max. 500m (Do not use cable × 3 or more) • The number of connecting indoor units: max. 16 units • The number of connecting remote controller: max. 2 units When the above-mentioned problem ①~③ are not seen. ④ Diagnose remote controllers. a) When “RC OK” is displayed, remote controllers have no problem. Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board. b) When “RC NG” is displayed, replace remote controller. c) When “RC E3” is displayed, d) When “ERC 00-06” is displayed, [c),d)→Noise may be causing abnormality.] ∗ If the unit is not normal after replacing indoor controller board in group control, the indoor controller board of address “0” may be abnormal.
E3 or E5	**Remote controller transmission error(E3)/signal receiving error(E5)** ① Abnormal if remote controller could not find blank of transmission path for 6 seconds and could not transmit. (Error code: E3) ② Remote controller receives transmitted data at the same time, compares the data, and when detecting it, judges different data to be abnormal 30 continuous times. (Error code: E3) ① Abnormal if indoor controller board could not find blank of transmission path. (Error code: E5) ② Indoor controller board receives transmitted data at the same time, compares the data,and when detecting it, judges different data to be abnormal 30 continuous times. (Error code: E5)	① 2 remote controller are set as “main.” (In case of 2 remote controllers) ② Remote controller is connected with 2 indoor units or more. ③ Repetition of refrigerant address ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Noise has entered into transmission wire of remote controller.	① Set a remote controller to main, and the other to sub. ② Remote controller is connected with only 1 indoor unit. ③ The address changes to a separate setting. ④~⑥ Diagnose remote controller. a) When “RC OK” is displayed, remote controllers have no problem. Turn the power off, and on again to check. When becoming abnormal again, replace indoor controller board. b)When “RC NG” is displayed, replace remote controller. c)When “RC E3” or “ERC 00-66” is displayed, noise may be causing abnormality.

Error Code	Abnormal point and detection method	Cause	Countermeasure
E6	**Indoor/outdoor unit communication error (Signal receiving error)** ① Abnormal if indoor controller board cannot receive any signal normally for 6 minutes after turning the power on. ② Abnormal if indoor controller board cannot receive any signal normally for 3 minutes. ③ Consider the unit as abnormal under the following condition: When 2 or more indoor units are connected to 1 outdoor unit, indoor controller board cannot receive a signal for 3 minutes from outdoor controller circuit board, a signal which allows outdoor controller circuit board to transmit signals.	① Contact failure, short circuit or, miswiring (converse wiring) of indoor/outdoor unit connecting wire ② Defective transmitting receiving circuit of indoor controller board ③ Defective transmitting receiving circuit of indoor controller board ④ Noise has entered into indoor/ outdoor unit connecting wire.	∗ Check LED display on the outdoor control circuit board. (Connect A-control service tool, PAC-SK52ST.) Refer to EA-EC item if LED displays EA-EC. ① Check disconnection or looseness of indoor/ outdoor unit connecting wire of indoor unit or outdoor unit. Check all the units in case of twin indoor unit system. ②-④ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board or outdoor controller circuit board. ∗ Other indoor controller board may have defect in case of twin indoor unit system.
E7	**Indoor/outdoor unit communication error (Transmitting error)** Abnormal if "1" receiving is detected 30 times continuously though indoor controller board has transmitted "0".	① Defective transmitting receiving circuit of indoor controller board ② Noise has entered into power supply. ③ Noise has entered into outdoor control wire.	①-③ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board.
Fb	**Indoor controller board** Abnormal if data cannot be normally read from the nonvolatile memory of the indoor controller board.	① Defective indoor controller board	① Replace indoor controller board.
E1 or E2	**Remote controller control board** ① Abnormal if data cannot be normally read from the nonvolatile memory of the remote controller control board. (Error code: E1) ② Abnormal if the clock function of remote controller cannot be normally operated. (Error code: E2)	① Defective remote controller	① Replace remote controller.
PA (2502) (2500)	**Forced compressor stop (due to water leakage abnormality)** ① When the intake temperature subtracted with liquid pipe temperature is less than -10℃(14˚F), drain sensor detects whether it is soaked in the water or not at the interval of 90 seconds. (Drain pump will start operating when the drain sensor detects to be soaked in the water.) ② The unit has a water leakage abnormality when the following conditions, a and b, are satisfied while the above-mentioned detection is performed. a) The drain sensor detects to be soaked in the water 10 times in a row. b) The intake temperature subtracted with liquid pipe temperature is detected to be less than -10℃(14˚F) for a total of 30 minutes. (When the drain sensor detects to be NOT soaked in the water, the detection record of a and b will be cleared.) ③ The drain sensor detection is performed in operations other than cooling. (When the unit stops operating, during heating or fan operation, when the unit stops because of some abnormality) *Once the water leakage abnormality is detected, abnormality state will not be released until the main power is reset.	① Drain pump trouble ② Drain defective · Drain pump clogging · Drain pipe clogging ③ Open circuit of drain sensor side heater ④ Contact failure of drain sensor connector ⑤ Dew condensation on drain sensor · Drain water trickles along lead wire. · Drain water waving due to filter clogging ⑥ Extension piping connection difference at twin system ⑦ Miswiring of indoor/ outdoor connecting at twin system ⑧ Room temperature thermistor / liquid pipe temperature thermistor detection is defective.	① Check the drain pump. ② Please confirm whether water can be drained. ③ Confirm the resistance of the drain sensor. ④ Check the connector contact failure. ⑤ Check the drain sensor leadwire mounted. Check the filter clogging. ⑥ Check the piping connection. ⑦ Check the indoor/ outdoor connecting wires. ⑧ Check the room temperature display of remote controller. Check the indoor liquid pipe temperature display of outdoor controller board.

10-4. TROUBLESHOOTING BY INFERIOR PHENOMENA

Note: Refer to the manual of outdoor unit for the detail of remote controller.

Phenomena	Cause	Countermeasure
(1)LED2 on indoor controller board is off.	• When LED1 on indoor controller board is also off.	
	① Power supply of rated voltage is not supplied to outdoor unit.	① Check the voltage of outdoor power supply terminal block (L1,L2). • When AC 208/230V is not detected, check the power wiring to outdoor unit and the breaker. • When AC 208/230V is detected, check ② (below).
	② Defective outdoor controller circuit board	② Check the voltage between outdoor terminal block S1 and S2. • When AC 208/230V is not detected. —Check the fuse on outdoor controller circuit board. —Check the wiring connection. • When AC 208/230V is detected, check ③ (below).
	③ Power supply of 208/230V is not supplied to indoor unit.	③ Check the voltage between indoor terminal block S1 and S2. • When AC 208/230V is not detected, check indoor/outdoor unit connecting wire for miswiring. • When AC 208/230V is detected, check ④ (below).
	④ Defective indoor power board	④ Check voltage output from CN2S on indoor power board (DC13.1V). Refer to 10-7-1. • When no voltage is output, check the wiring connection. • When output voltage is between DC12.5V and DC13.7V, check ⑤ (below).
	⑤ Defective indoor controller board	⑤ Check the wiring connection between indoor controller board and indoor power board. Check the fuse on indoor controller board. If no problems are found, indoor controller board is defective.
	(For the separate indoor/outdoor unit power supply system)	
	① Power supply of 208/230V AC is not supplied to indoor unit.	① Check the voltage of indoor power supply terminal block (L1,L2). • When AC208/230V is not detected, check the power supply wiring. • When AC208/230V is detected, check ② (below).
	② The connectors of the optional replacement kit are not used.	② Check that there is no problem in the method of connecting the connectors. • When there are problems in the method of connecting the connectors, connect the connector correctly referring to installation manual of an optional kit. • When there is no problem in the method of connecting the connectors, check ③ (below).
	③ Defective indoor controller board	③ Check voltage output from CNDK on indoor controller board. • When AC208/230V is not detected. —Check the fuse on indoor controller board. —Check the wiring connection between indoor power supply terminal block and CND on indoor controller board. • When AC208/230V is detected, check ④ (below).
	④ Defective indoor power board	④ Check voltage output from CN2S on indoor power board. • When no voltage output, check the wiring connection between CNDK on indoor controller board and CNSK on indoor power board. If no problem are found, indoor power board is defective. • When DC12.5~13.7V is detected, check the wiring connection between CN2S on indoor power board and CN2D on indoor power board. If no problem are found, indoor controller board is defective.

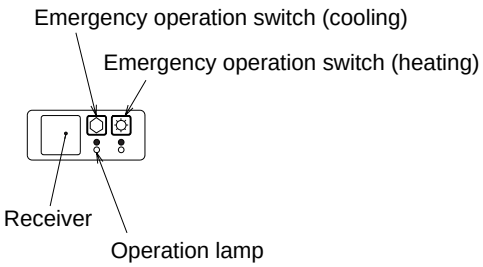
Note: Refer to the manual of outdoor unit for the detail of remote controller.

Phenomena	Cause	Countermeasure
(1)LED2 on indoor controller board is off.	• When LED1 on indoor controller board is lit. ① Mis-setting of refrigerant address for outdoor unit (There is no unit corresponding to refrigerant address “0”.)	① Check the setting of refrigerant address for outdoor unit. Set the refrigerant address to “0”. (For grouping control system under which 2 or more outdoor units are connected, set one of the units to “0”.) Set refrigerant address using SW1 (3-6) on outdoor controller circuit board.
(2)LED2 on indoor controller board is blinking.	• When LED1 on indoor controller board is also blinking. Connection failure of indoor/outdoor unit connecting wire	Check indoor/outdoor unit connecting wire for connection failure.
	• When LED1 is lit. ① Miswiring of remote controller wires Under twin indoor unit system, 2 indoor units are wired together. ② Refrigerant address for outdoor unit is wrong or not set. Under grouping control system, there are some units whose refrigerant address is 0. ③ Shortcut of remote controller wires ④ Defective remote controller	① Check the connection of remote controller wires in case of twin indoor unit system. When 2 indoor units are wired in one refrigerant system, connect remote controller wires to one of those units. ② Check the setting of refrigerant address in case of grouping control system. If there are some units whose refrigerant addresses are 0 in one group, set one of the units to 0 using SW1 (3-6) on outdoor controller circuit board. ③④ Remove remote controller wires and check LED2 on indoor controller board. • When LED2 is blinking, check the shortcut of remote controller wires. • When LED2 is lit, connect remote controller wires again and: if LED2 is blinking, remote controller is defective; if LED2 is lit, connection failure of remote controller terminal block etc. has returned to normal.
(3)Upward/downward vane performance failure	① The vane is not downward during defrosting and heat preparation and when the thermostat is OFF in HEAT mode. (Working of COOL protection function) ② Vane motor does not rotate. • Defective vane motor • Breaking of wire or connection failure of connector ③ Upward/downward vane does not work. • The vane is set to fixed position.	① Normal operation (The vane is set to horizontal regardless of remote control.) ② Check ② (left). • Check the vane motor. (Refer to “How to check the parts”.) • Check for breaking of wire or connection failure of connector. ③ Normal operation (Each connector on vane motor side is disconnected.)
(4)Receiver for wireless remote controller	① Weak batteries of wireless remote controller ② Contact failure of connector (CNB) on wireless remote controller board (Insert failure) ③ Contact failure of connector (CN90) on indoor controller board (Insert failure) ④ Contact failure of connector between wireless remote controller board and indoor controller board	① Replace batteries of wireless remote controller. ②~④ Check contact failure of each connector. If no problems are found of connector, replace indoor controller board. When the same trouble occurs even if indoor controller board is replaced, replace wireless remote controller board.

10-5. EMERGENCY OPERATION

10-5-1. When wireless remote controller has troubles or its battery is exhausted

1. Emergency operation is available in such a case using emergency operation switch equipped on the grille.
2. To start operation
   • Cooling Operation·····Press (Cooling) switch.
   • Heating Operation·····Press (Heating) switch.
   ※When the unit starts operating, the operation lamp is lit.



※Emergency operation will be performed as follows.

Mode	Cooling	Heating
Set temperature	24℃, 75°F	24℃, 75°F
Fan speed	High	High
Airflow direction	Horizontal (30deg)	Downward (70deg)

3. To stop operation
   • Press either emergency operation switch (cooling/heating).

10-5-2. When wired remote controller or indoor unit microcomputer has troubles

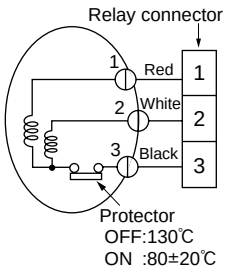
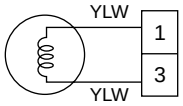
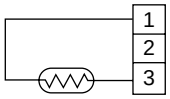
1. If other defects are not found when trouble occurs, emergency operation starts as the indoor controller board switch (SWE) is set to ON.
   During the emergency operation, the indoor unit is as follows;
   (1) Indoor fan high speed operation (2) Drain pump operation

2. For emergency operation of cooling or heating
   When emergency operation for COOL or HEAT, setting of the switch (SWE) in the indoor controller board and outdoor unit emergency operation are necessary.

3. Check items and notices as the emergency operation
   (1) Emergency operation cannot be used as follows;
      • When the outdoor unit is something wrong.
      • When the indoor fan is something wrong.
      • When drain overflow protection operation is detected during self-diagnosis. (Error code : P5)
   (2) Emergency operation will be serial operation by the power supply ON/OFF.
      ON/OFF or temperature, etc. adjustment is not operated by the remote controller.
   (3) Do not operate for a long time as cold air is blown when the outdoor unit starts defrosting operation during heat emergency operation.
   (4) Cool emergency operation must be within 10 hours. Otherwise, heat exchanger of indoor unit may get frosted.
   (5) After completing the emergency operation, return the switch setting, etc. in former state.
   (6) Since vane does not work at emergency operation, position the vane slowly by hand.

10-6. HOW TO CHECK THE PARTS

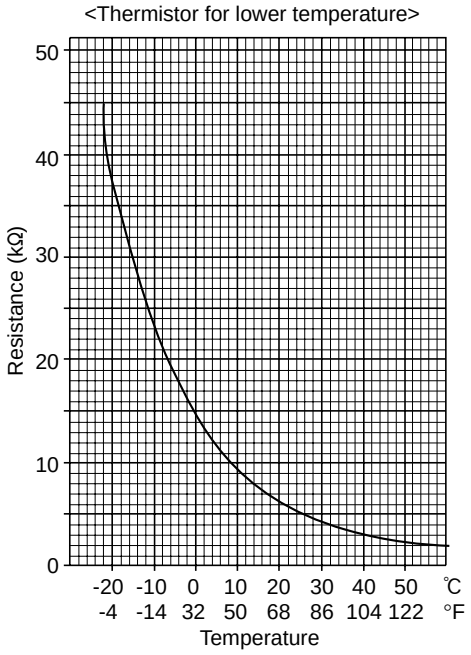
PLA-A12AA PLA-A18AA PLA-A24AA PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA$_1$ PLA-A18AA$_1$ PLA-A24AA$_1$ PLA-A30AA$_1$ PLA-A36AA$_1$ PLA-A42AA$_1$

<table>
<tr><th>Parts name</th><th>Check points</th></tr>
<tr><td>Room temperature thermistor (TH1)
Pipe temperature thermistor/liquid(TH2)
Condenser/Evaporator temperature thermistor (TH5)</td><td>Disconnect the connector then measure the resistance using a tester.
(At the ambient temperature 10℃(50˚F)~30℃(86˚F))
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Open or short</td></tr></table>(Refer to the thermistor characteristic graph.)</td></tr>
<tr><td>Vane motor (MV)</td><td>Measure the resistance between the terminals using a tester.
(At the ambient temperature20℃(68˚F))
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>15kΩ</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Fan motor (MF)
 
</td><td>Measure the resistance between the terminals using a tester.
(Winding temperature 20℃(68˚F))
<table><tr><th rowspan="2">Motor terminal
or
Relay connector</th><th colspan="2">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th>PLA-A12/18/24/30AA
PLA-A12/18/24/30AA$_1$</th><th>PLA-A36/42AA
PLA-A36/42AA$_1$</th></tr><tr><td>Red-Black</td><td>87.2Ω</td><td>32.6Ω</td><td rowspan="2">Open or short</td></tr><tr><td>White-Black</td><td>104.1Ω</td><td>40.7Ω</td></tr></table></td></tr>
<tr><td>Drain pump (DP)
 
</td><td>Measure the resistance between the terminals using a tester.
(Winding temperature 20℃(68˚F))
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>319Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Drain sensor (DS)
 
</td><td>Measure the resistance between the terminals using a tester.
Measure the resistance after 3 minutes have passed since the power supply was intercepted.
(At the ambient temperature 0℃(32˚F)~60℃(140˚F))
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>0.6kΩ~6.0kΩ</td><td>Open or short</td></tr></table>(Refer to the thermistor characteristic graph.)</td></tr>
</table>

<Thermistor Characteristic graph>

Thermistor for lower temperature

Room temperature thermistor(TH1)
Pipe temperature thermistor/liquid(TH2)
Condenser/evaporator temperature thermistor(TH5)



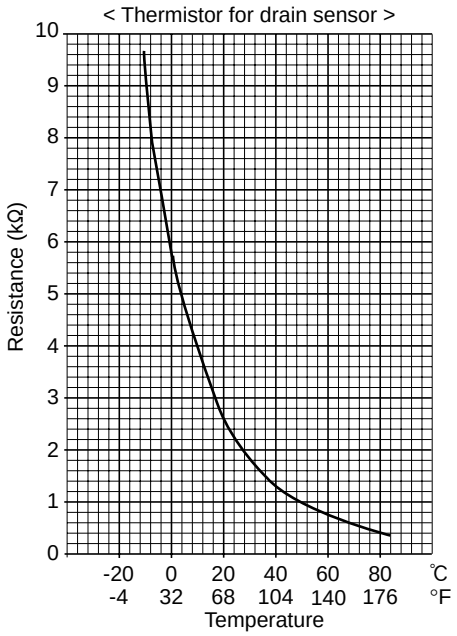
Thermistor R_0=15kΩ ± 3%
Fixed number of B=3480 ± 2%

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

$T(°F): Rt = 15\exp\{3480(\frac{1}{273+\frac{T-32}{1.8}} - \frac{1}{273})\}$

0℃ (32°F)	15kΩ
10℃ (50°F)	9.6kΩ
20℃ (68°F)	6.3kΩ
25℃ (77°F)	5.4kΩ
30℃ (86°F)	4.3kΩ
40℃ (104°F)	3.0kΩ

Thermistor for drain sensor



Thermistor R_0=6.0kΩ ±5%
Fixed number of B=3390 ±2%

$t(℃): Rt = 6\exp\{3390(\frac{1}{273+t} - \frac{1}{273})\}$

$T(°F): Rt = 6\exp\{3390(\frac{1}{273+\frac{T-32}{1.8}} - \frac{1}{273})\}$

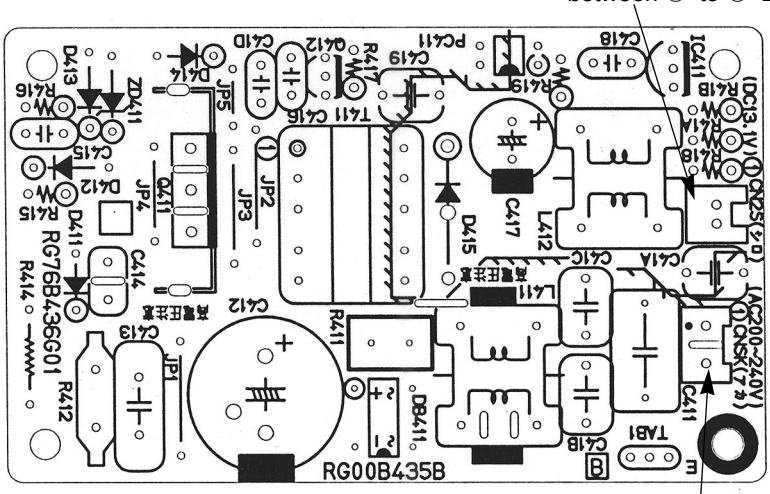
0℃ (32°F)	6.0kΩ
10℃ (50°F)	3.9kΩ
20℃ (68°F)	2.6kΩ
25℃ (77°F)	2.2kΩ
30℃ (86°F)	1.8kΩ
40℃ (104°F)	1.3kΩ
60℃ (140°F)	0.6kΩ

10-7.TEST POINT DIAGRAM

10-7-1. Power board

PLA-A12AA PLA-A18AA PLA-A24AA
PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA$_1$ PLA-A18AA$_1$ PLA-A24AA$_1$
PLA-A30AA$_1$ PLA-A36AA$_1$ PLA-A42AA$_1$

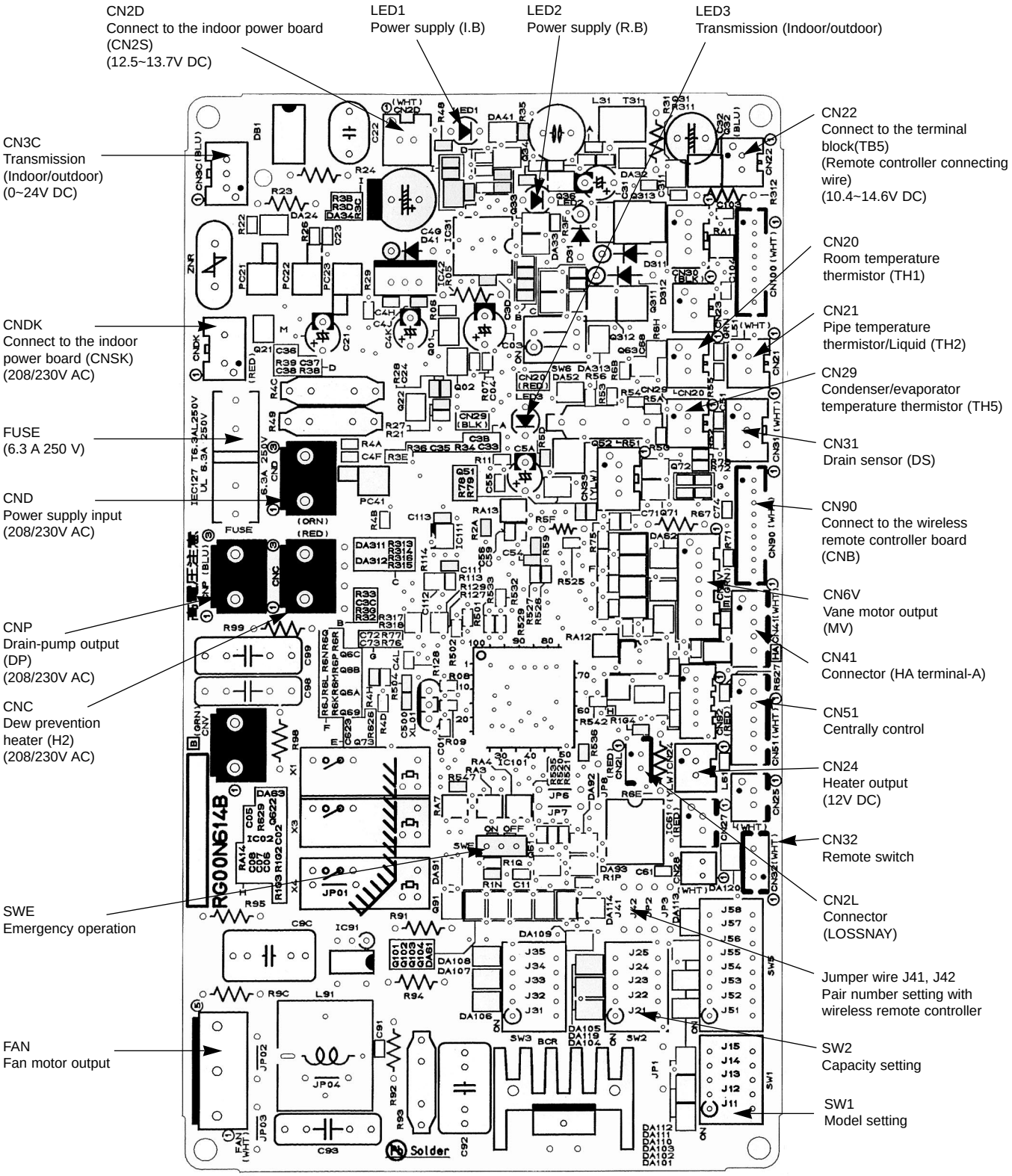
CN2S
Connect to the indoor controller board (CN2D)
between ① to ③ 12.6-13.7V DC (Pin① (+))



CNSK
Connect to the indoor controller board
(CNDK)
between ① to ③ 208/230V AC

10-7-2. Indoor controller board

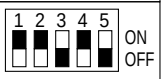
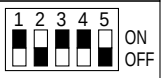
PLA-A12AA PLA-A18AA PLA-A24AA PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA1 PLA-A18AA1 PLA-A24AA1 PLA-A30AA1 PLA-A36AA1 PLA-A42AA1



10-8. FUNCTIONS OF DIP SWITCH AND JUMPER WIRE

Each function is controlled by the dip switch and the jumper wire on control P.C. board.
SW1 and SW2 are equipped only for service parts.
Model setting and capacity setting are memorized in the nonvolatile memory of the control P.C. board of the unit.

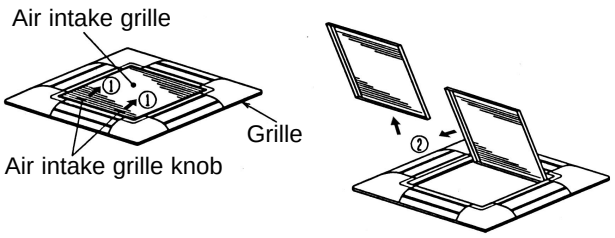
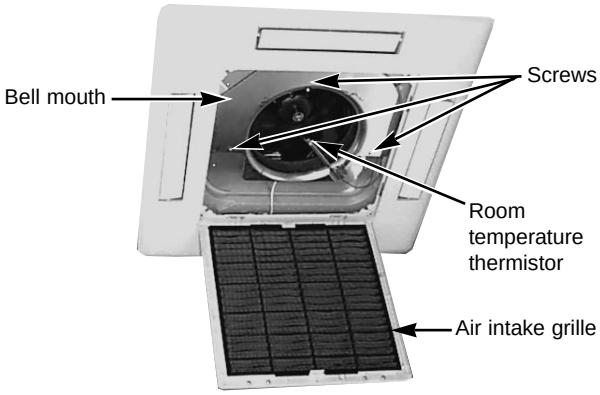
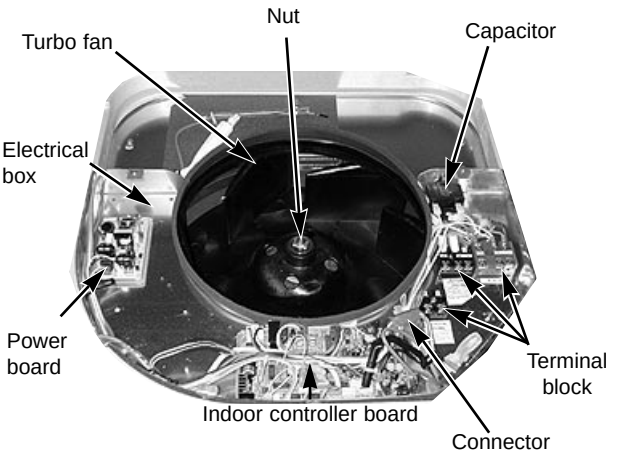
(Marks in the table below) Jumper wire (○ : Short × : Open)

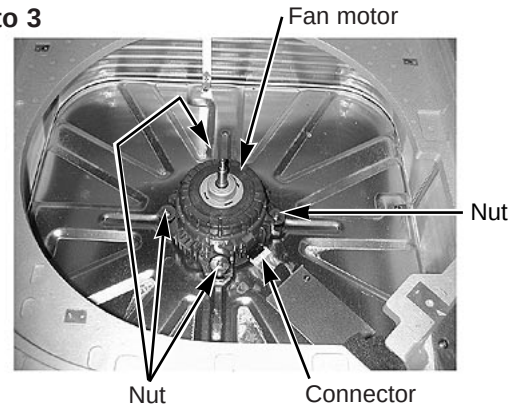
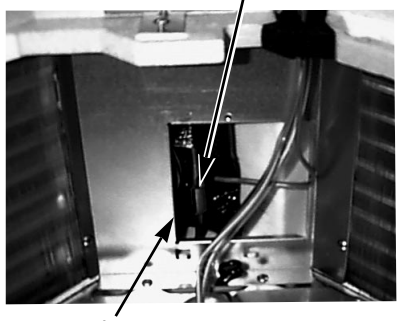
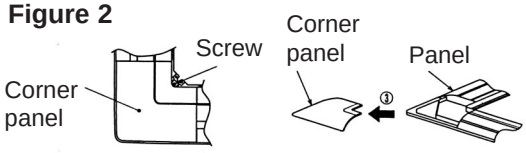
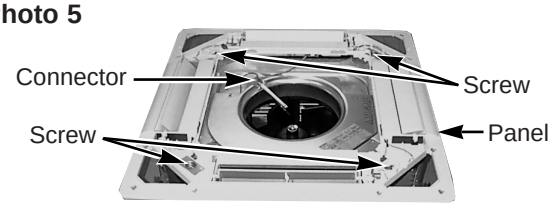
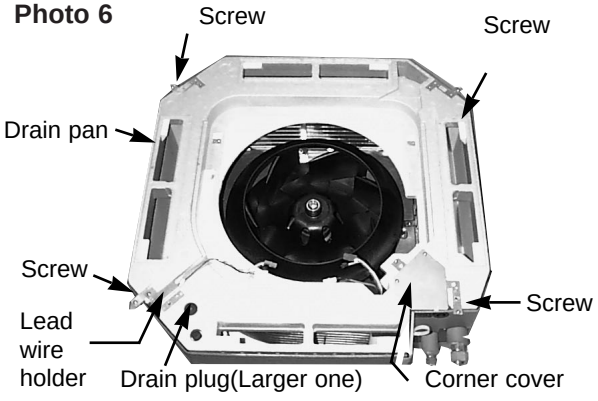
<table>
<tr><th>Jumper wire</th><th>Functions</th><th>Setting by the dip switch and jumper wire</th><th>Remarks</th></tr>
<tr><td>SW1</td><td>Model settings</td><td>
<table>
<tr><th>MODELS</th><th>Service board</th></tr>
<tr><td>PLA-A·AA
PLA-A·AA1</td><td> 
</td></tr>
</table>
</td><td></td></tr>
<tr><td>SW2</td><td>Capacity settings</td><td>
<table>
<tr><th>MODELS</th><th>Service board</th></tr>
<tr><td>PLA-A12AA
PLA-A12AA1</td><td> 
</td></tr>
<tr><td>PLA-A18AA
PLA-A18AA1</td><td> 
</td></tr>
<tr><td>PLA-A24AA
PLA-A24AA1</td><td> 
</td></tr>
<tr><td>PLA-A30AA
PLA-A30AA1</td><td> 
</td></tr>
<tr><td>PLA-A36AA
PLA-A36AA1</td><td> 
</td></tr>
<tr><td>PLA-A42AA
PLA-A42AA1</td><td> 
</td></tr>
</table>
</td><td></td></tr>
<tr><td>J41
J42</td><td>Pair number setting with wireless remote controller</td><td>
<table>
<tr><th rowspan="2">Wireless remote controller setting</th><th colspan="2">Control PCB setting</th></tr>
<tr><th>J41</th><th>J42</th></tr>
<tr><td>0</td><td>○</td><td>○</td></tr>
<tr><td>1</td><td>×</td><td>○</td></tr>
<tr><td>2</td><td>○</td><td>×</td></tr>
<tr><td>3 ~ 9</td><td>×</td><td>×</td></tr>
</table>
</td><td><Initial setting>
Wireless remote controller: 0
Control PCB: ○ (for both J41 and J42)
4 pair number settings are supported.
The pair number settings of the wireless remote controller and indoor control PCB (J41/J42) are given in the table on the left.
('×' in the table indicates the jumper wire is disconnected.)</td></tr>
<tr><td>JP1</td><td>Unit type setting</td><td>
<table>
<tr><th>Model</th><th>JP1</th></tr>
<tr><td>Without TH5</td><td>○</td></tr>
<tr><td>With TH5</td><td>×</td></tr>
</table>
</td><td>There is no jumper (JP1) because these models have the cond./eva. temperature thermistor (TH5).</td></tr>
<tr><td>JP3</td><td>Indoor controller board type setting</td><td>
<table>
<tr><th>Indoor controller board type</th><th>JP3</th></tr>
<tr><td>For product</td><td>×</td></tr>
<tr><td>Service parts</td><td>○</td></tr>
</table>
</td><td></td></tr>
</table>

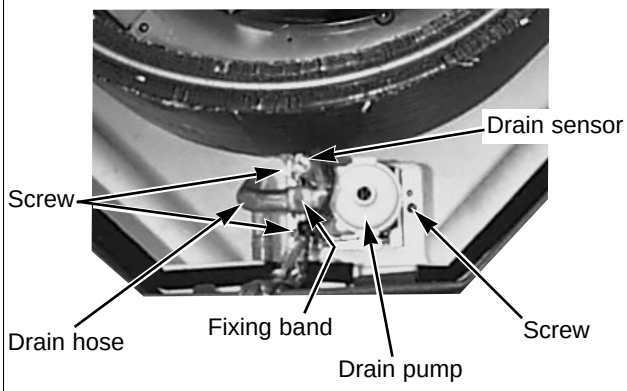
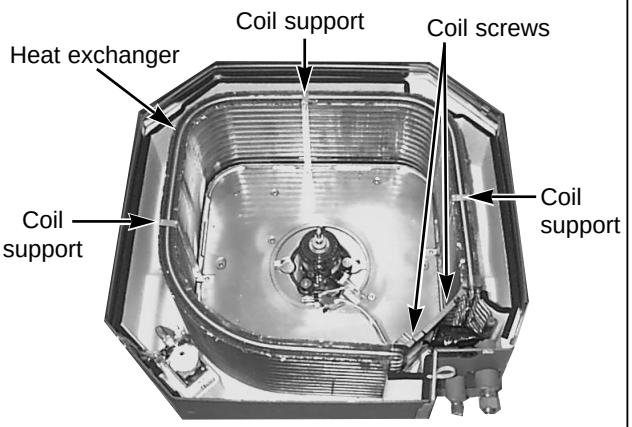
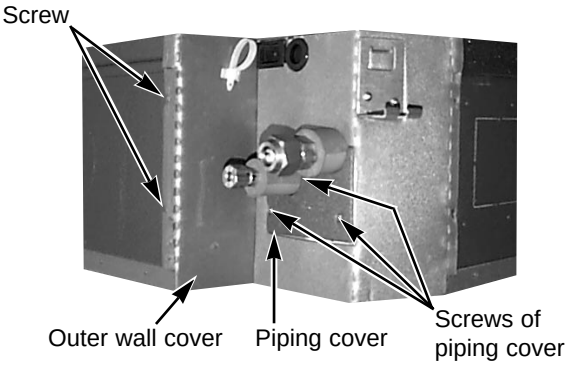
11 DISASSEMBLY PROCEDURE

PLA-A12AA PLA-A18AA PLA-A24AA PLA-A30AA PLA-A36AA PLA-A42AA
PLA-A12AA$_1$ PLA-A18AA$_1$ PLA-A24AA$_1$ PLA-A30AA$_1$ PLA-A36AA$_1$ PLA-A42AA$_1$

Be careful on removing heavy parts.

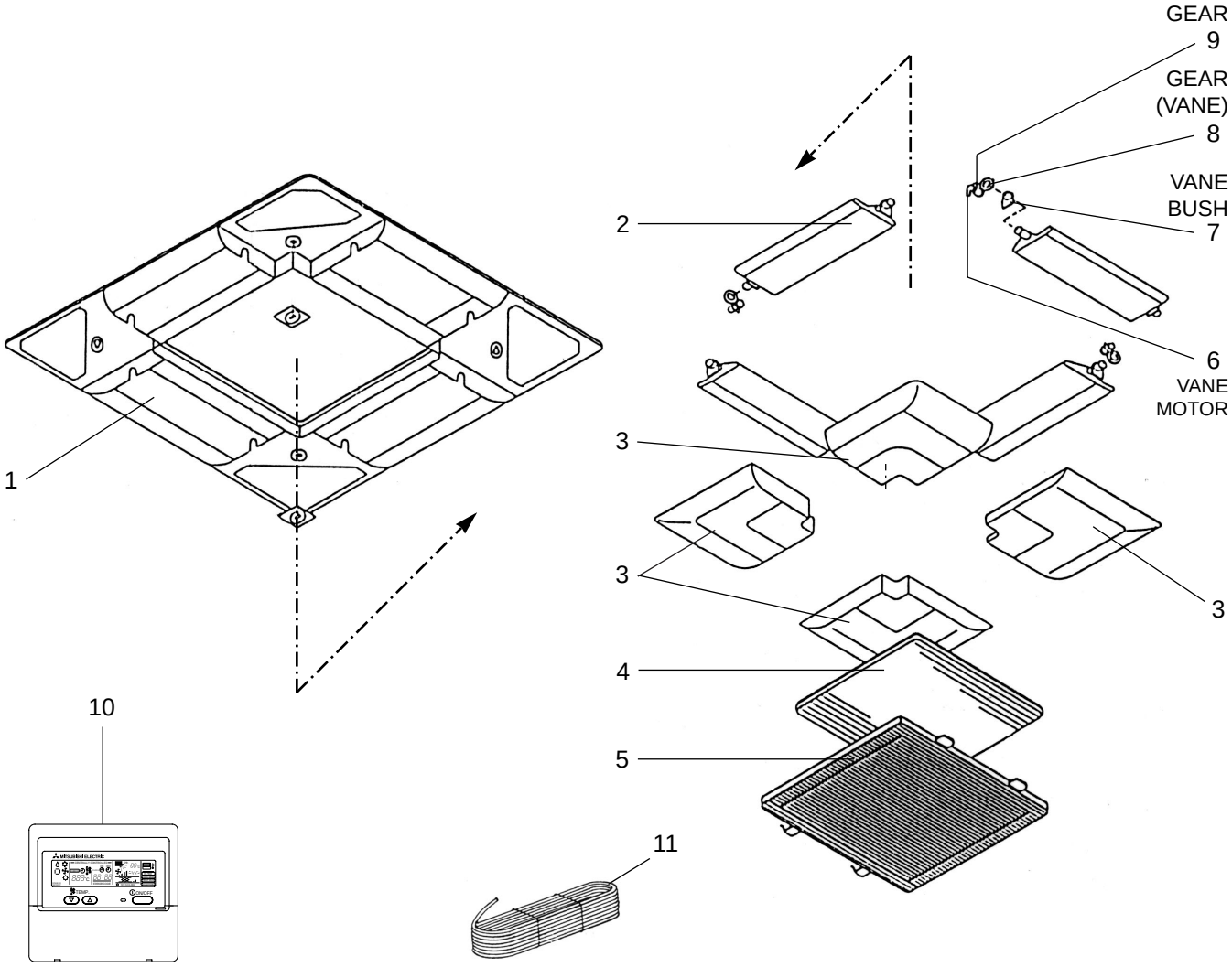
OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
1. Removing the air intake grille (1) Slide the knob of air intake grille to the direction of the arrow ① to open the air intake grille. (2) Remove the string hook from the panel to prevent the grille from dropping. (3) Slide the shaft in the hinge to the direction of the arrow② and remove the air intake grille.	**Figure 1** 
2. Removing the room temperature thermistor (1) Remove the screw(✕1) in the room temperature thermistor holder to remove the holder and the room temperature thermistor. (2) Remove the 1 screw from the bell mouth, and unscrew the other 2 screws (fix to the oval hole which has a different diameter) to remove the bell mouth. (3) Hold the holder claw, and remove the room temperature thermistor and holder. (4) Disconnect the connector (CN20:red) on the indoor control board.	**Photo 1** 
3. Removing the electrical box (1) Disconnect the lead wire of the vane motor from the clamp, and disconnect the white connector (10P). (2) Remove the room temperature thermistor with the holder. (3) Remove the bell mouth.(See photo 1) (4) Disconnect the relay connector in the electrical box. Red (3P) for fan motor Disconnect the connector on the indoor controller board. White (2P) for pipe temperature detecting thermistor Blue (3P) for drain pump White (3P) for drain sensor (5) Remove the 3 screws from the electrical box, loosen another 2 screws to remove the box. <Electrical parts in the electrical box> Indoor controller board Power board Terminal block Capacitor	**Photo 2** 

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
4. Removing the fan motor (1) Remove the bell mouth.(See photo 1) (2) Remove the electrical box.(See photo 2) (3) Remove the turbo fan nut. (4) Pull out the turbo fan. (5) Disconnect the connector of the fan motor lead wire. (6) Remove the 4 nuts of the fan motor.	**Photo 3** 
5. Removing the pipe temperature thermistor and condenser evaporator temperature thermistor (1) Remove the bell mouth.(See photo 1) (2) Remove the electrical box.(See photo 2) (3) Remove the turbo fan. (4) Remove the screw of the service panel. (5) Remove the service panel. (6) Remove the pipe temperature thermistor which is inserted into the holder installed to the thin copper pipe. (7) Disconnect the 2-pin white connector.(CN21) **[Condenser/ evaporator temperature thermistor]** (8) Remove the drain pan. (See Photo 6) (9) Remove the thermistor which is installed into the holder to the indoor coil. (10) Disconnect the 2-pin black connector. (CN29)	**Photo 4** 
6. Removing the panel (1) Remove the air intake grille.(See figure 1) **Corner panel (See figure 2)** (1) Remove the corner screw. (2) Slide the corner panel to the direction of the arrow③, and remove the corner panel. **Panel (See photo 5)** (1) Disconnect the connector that connects with the unit. (2) Remove the 2 screws from the panel and loosen another 2 screws, which fix to the oval holes, have different diameters. (3) Rotate the panel a little to remove the screws.	**Figure 2**  **Photo 5** 
7. Removing the drain pan (1) Remove the panel. (See photo 5) (2) Remove the drain plug (Larger one), drain the remaining water in the drain pan. (3) Remove the corner cover. (2 screws) (4) Remove the bell mouth (See photo 1) (5) Remove the electrical box. (See photo 2) (6) Remove the lead wire holder. (1 screw) (7) Remove the 4 screws and pull out the drain pan. ※ Pull out the left and right of the pan gradually. Be careful not to crack or damage the pan.	**Photo 6** 

OPERATING PROCEDURE	PHOTOS & ILLUSTRATIONS
8. Removing the drain pump and drain sensor (1) Remove the panel. (See photo 5) (2) Remove the bell mouth. (See photo 1) (3) Remove the electrical box. (See photo 2) (4) Remove the drain pan. (See photo 6) (5) Remove the 3 screws of the drain pump. (6) Cut the drain hose band, pull out the drain hose from the drain pump. (7) Pull out the drain pump. (8) Remove the drain sensor and the holder.	**Photo 7** 
9. Removing the heat exchanger (1) Remove the panel. (See photo 5) (2) Remove the bell mouth. (See photo 1) (3) Remove the electrical box. (See photo 2) (4) Remove the drain pan. (See photo 6) (5) Remove the turbo fan. (See photo 3) (6) Remove the 3 screws of the piping cover, and pull out piping cover. (7) Remove the 4 screws of the outer wall cover, and pull out the outer wall cover. (8) Remove the screw of the coil support. (9) Remove the 2 screws of the coil. (10) Pull out the heat exchanger.	**Photo 8**  **Photo 9** 

12 PARTS LIST (non-RoHS compliant)

PANEL PARTS
PLA-A12AA PLA-A18AA PLA-A24AA
PLA-A30AA PLA-A36AA PLA-A42AA

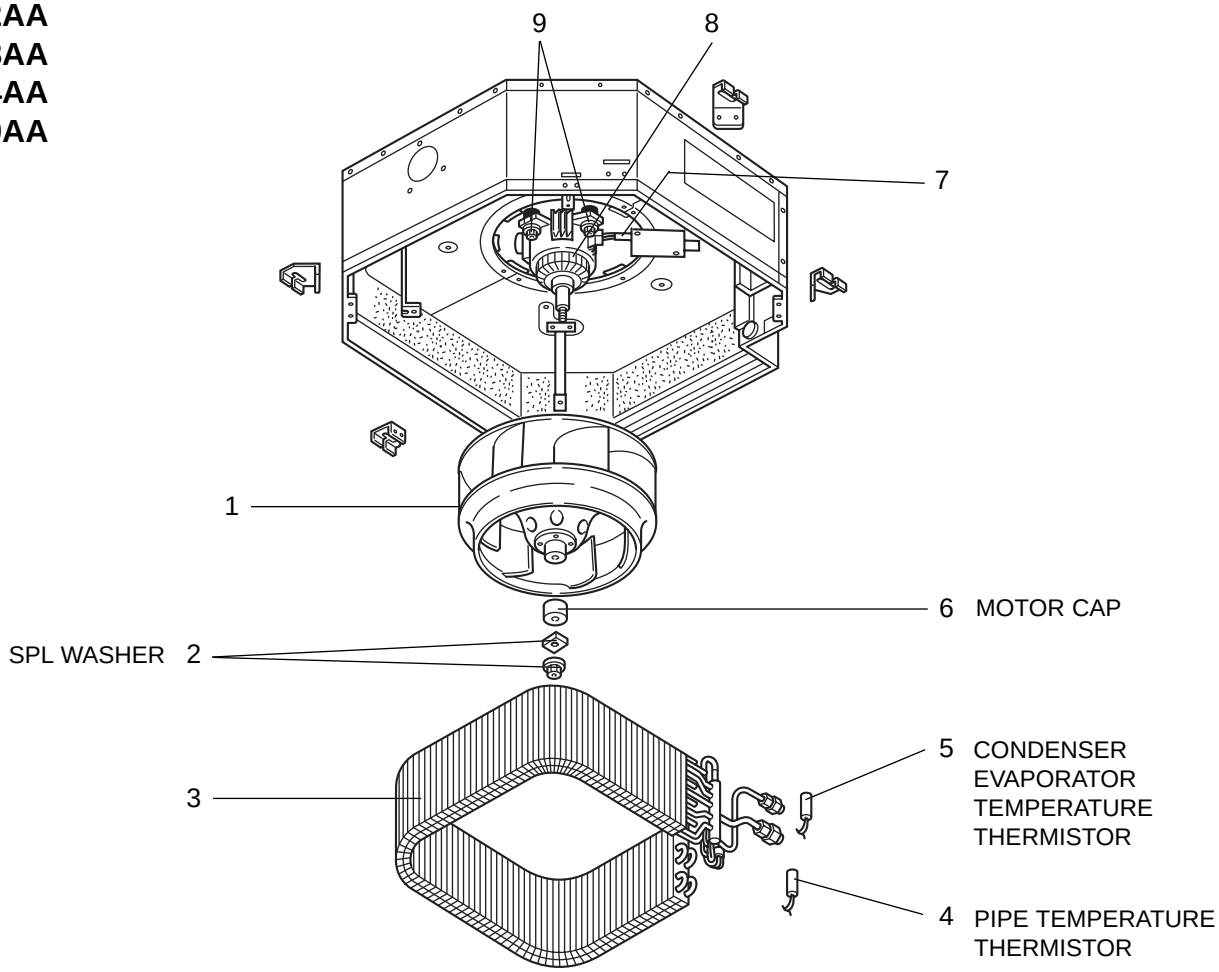


Part number that is circled is not shown in the figure.

No.	Parts No.	Parts Name	Specification	Q'ty / set PLA-A12/18/24 /30/36/42AA	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	T7W E13 003	AIR OUTLET GRILLE		1	Including H2		
2	T7W E05 002	VANE		4			
3	R01 E03 638	CORNER PANEL		4			
4	R01 E00 500	L.L FILTER		1			
5	R01 E00 691	GRILLE ASSY		1			
6	R01 E00 223	VANE MOTOR		4		MV	
7	R01 E00 063	VANE BUSH		8			
8	R01 E00 040	GEAR (VANE)		4			
9	R01 E01 040	GEAR		4			
10	T7W E10 713	REMOTE CONTROLLER		1		R.B	
11	T7W E01 305	CABLE ASSY		1			
⑫	R01 E00 673	SCREW ASSY		1			

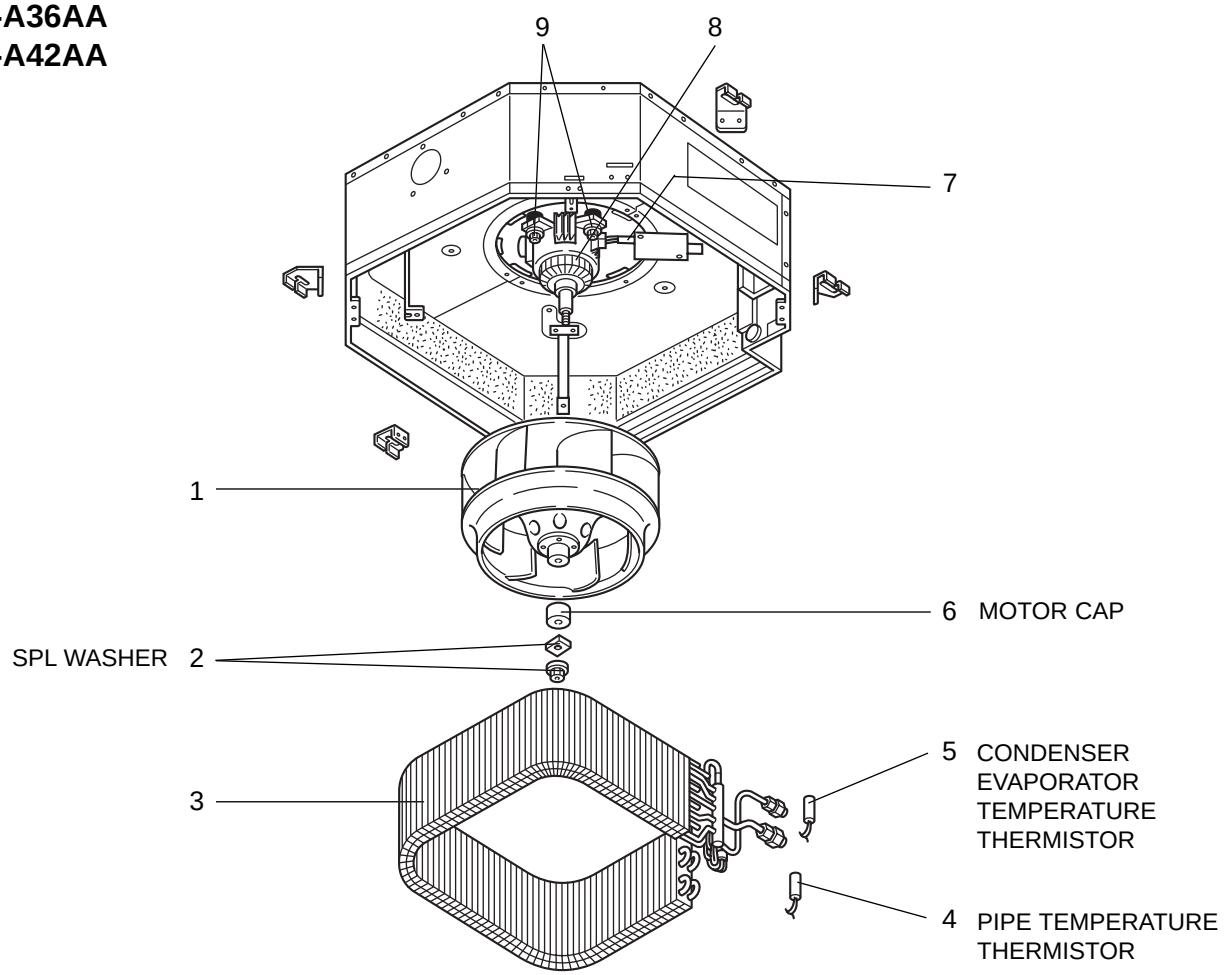
FUNCTIONAL AND STRUCTURAL PARTS

PLA-A12AA
PLA-A18AA
PLA-A24AA
PLA-A30AA



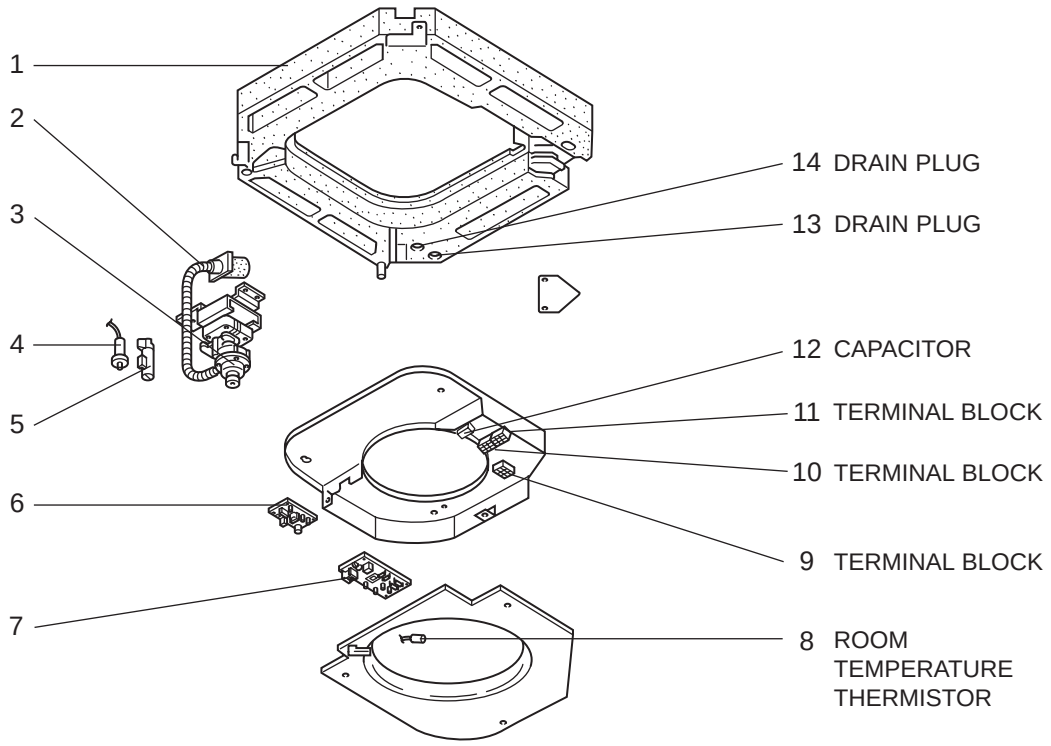
No.	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
				12	18	24, 30			
1	R01 E28 114	TURBO FAN		1	1	1			
2	R01 08K 097	SPL WASHER		1	1	1			
3	T7W H20 480	HEAT EXCHANGER		1					
	T7W H34 480	HEAT EXCHANGER			1				
	T7W H21 480	HEAT EXCHANGER				1			
4	T7W E06 202	PIPE TEMPERATURE THERMISTOR		1	1	1		TH2	
5	R01 E32 202	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1	1	1		TH5	
6	R01 E00 122	MOTOR CAP		1	1	1			
7	T7W E01 304	LEAD ASSY(F/M)		1	1	1			
8	T7W E12 762	FAN MOTOR	D17D6P70MS	1	1	1		MF	
9	R01 A41 105	RUBBER MOUNT		4	4	4			

FUNCTIONAL AND STRUCTURAL PARTS
PLA-A36AA
PLA-A42AA



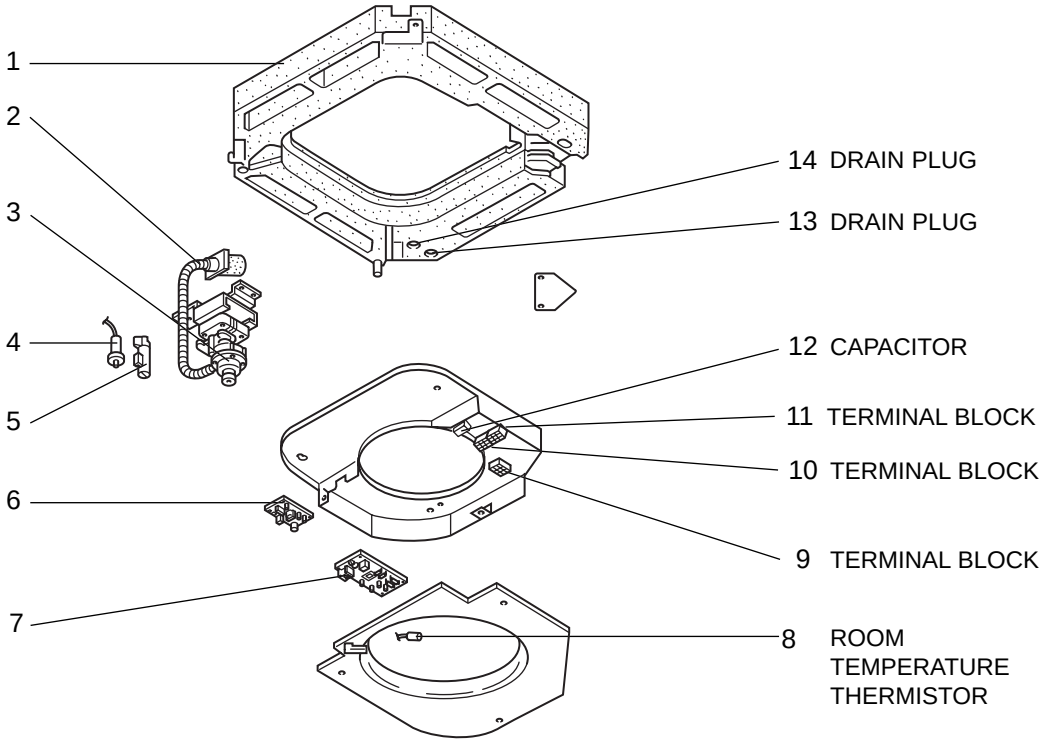
No.	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA 36, 42	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	T7W E02 114	TURBO FAN		1			
2	R01 08K 097	SPL WASHER		1			
3	T7W H22 480	HEAT EXCHANGER		1			
4	T7W E06 202	PIPE TEMPERATURE THERMISTOR		1		TH2	
5	R01 E32 202	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1		TH5	
6	R01 E00 122	MOTOR CAP		1			
7	T7W E01 304	LEAD ASSY(F/M)		1			
8	T7W E08 762	FAN MOTOR	D17CP110MS	1		MF	
9	R01 A41 105	RUBBER MOUNT		4			

FUNCTIONAL AND STRUCTURAL PARTS
PLA-A12AA
PLA-A18AA
PLA-A24AA
PLA-A30AA



No.	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA 12, 18, 24, 30	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	T7W E09 529	DRAIN PAN		1			
2	T7W E00 527	DRAIN HOSE		1			
3	T7W E12 355	DRAIN PUMP		1		DP	
4	R01 E00 266	DRAIN SENSOR		1		DS	
5	R01 31K 241	SENSOR HOLDER		1			
6	T7W E24 313	INDOOR POWER BOARD		1		P.B	
7	T7W E46 310	INDOOR CONTROLLER BOARD		1		I.B	
8	R01 E00 202	ROOM TEMPERATURE THERMISTOR		1		TH1	
9	R01 556 246	TERMINAL BLOCK	2P (1, 2)	1		TB5	
10	R01 E13 246	TERMINAL BLOCK	3P (S1, S2, S3)	1		TB4	
11	T7W E11 716	TERMINAL BLOCK	3P (L1, L2, GR)	1		TB2	
12	T7W E10 255	CAPACITOR	3.0μF 440V	1		C	
13	R01 A41 524	DRAIN PLUG		1			
14	R01 A48 524	DRAIN PLUG		1			

FUNCTIONAL AND STRUCTURAL PARTS
PLA-A36AA
PLA-A42AA

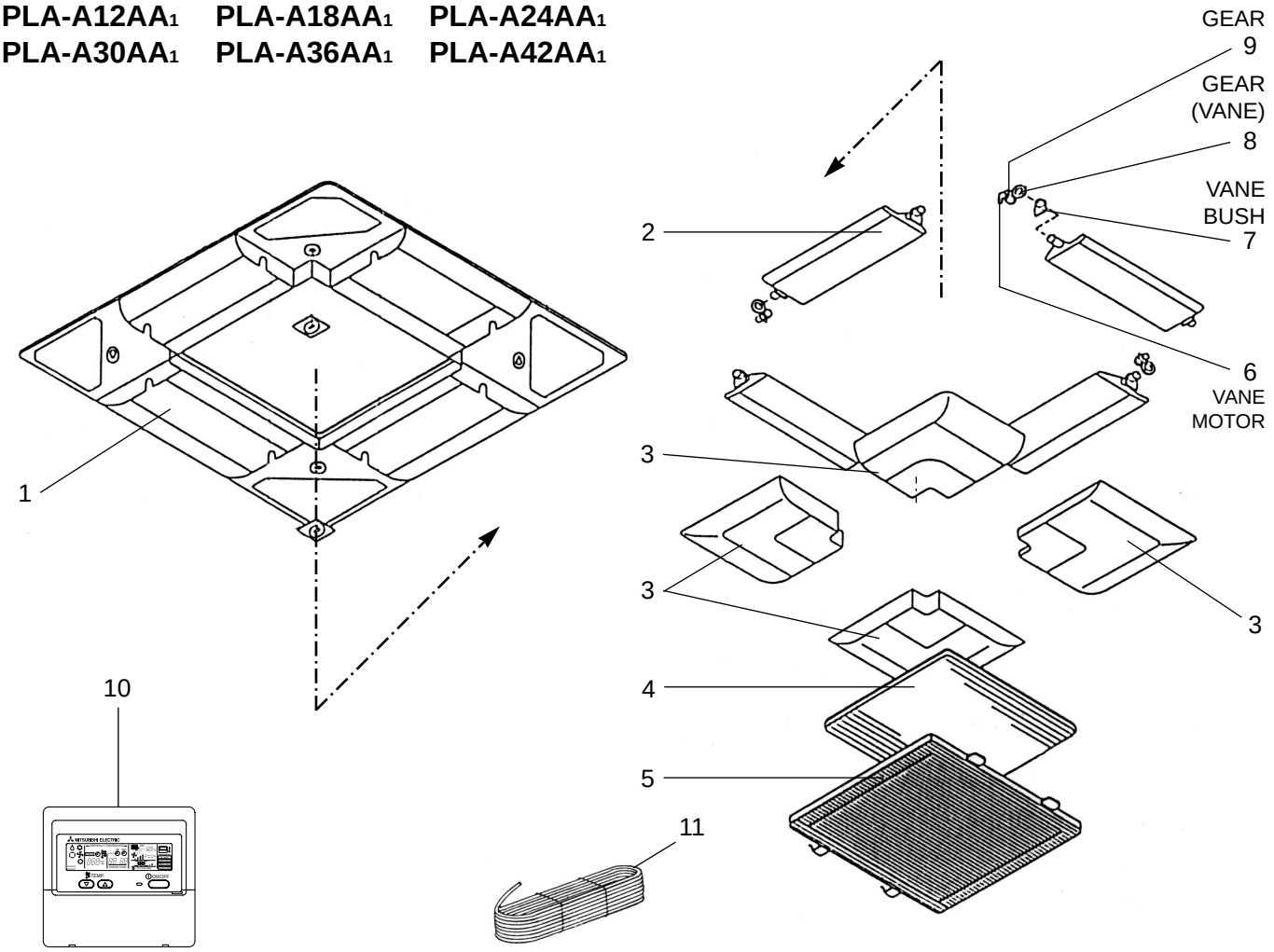


No.	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA 36, 42	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	T7W E07 529	DRAIN PAN		1			
2	T7W E00 527	DRAIN HOSE		1			
3	T7W E12 355	DRAIN PUMP		1		DP	
4	R01 E00 266	DRAIN SENSOR		1		DS	
5	R01 31K 241	SENSOR HOLDER		1			
6	T7W E24 313	INDOOR POWER BOARD		1		P.B	
7	T7W E46 310	INDOOR CONTROLLER BOARD		1		I.B	
8	R01 E00 202	ROOM TEMPERATURE THERMISTOR		1		TH1	
9	R01 556 246	TERMINAL BLOCK	2P (1, 2)	1		TB5	
10	R01 E13 246	TERMINAL BLOCK	3P (S1,S2, S3)	1		TB4	
11	T7W E11 716	TERMINAL BLOCK	3P (L1,L2, GR)	1		TB2	
12	R01 E03 255	CAPACITOR	7.0μF 440V	1		C	
13	R01 A41 524	DRAIN PLUG		1			
14	R01 A48 524	DRAIN PLUG		1			

13 RoHS PARTS LIST

PANEL PARTS

PLA-A12AA1 PLA-A18AA1 PLA-A24AA1
PLA-A30AA1 PLA-A36AA1 PLA-A42AA1

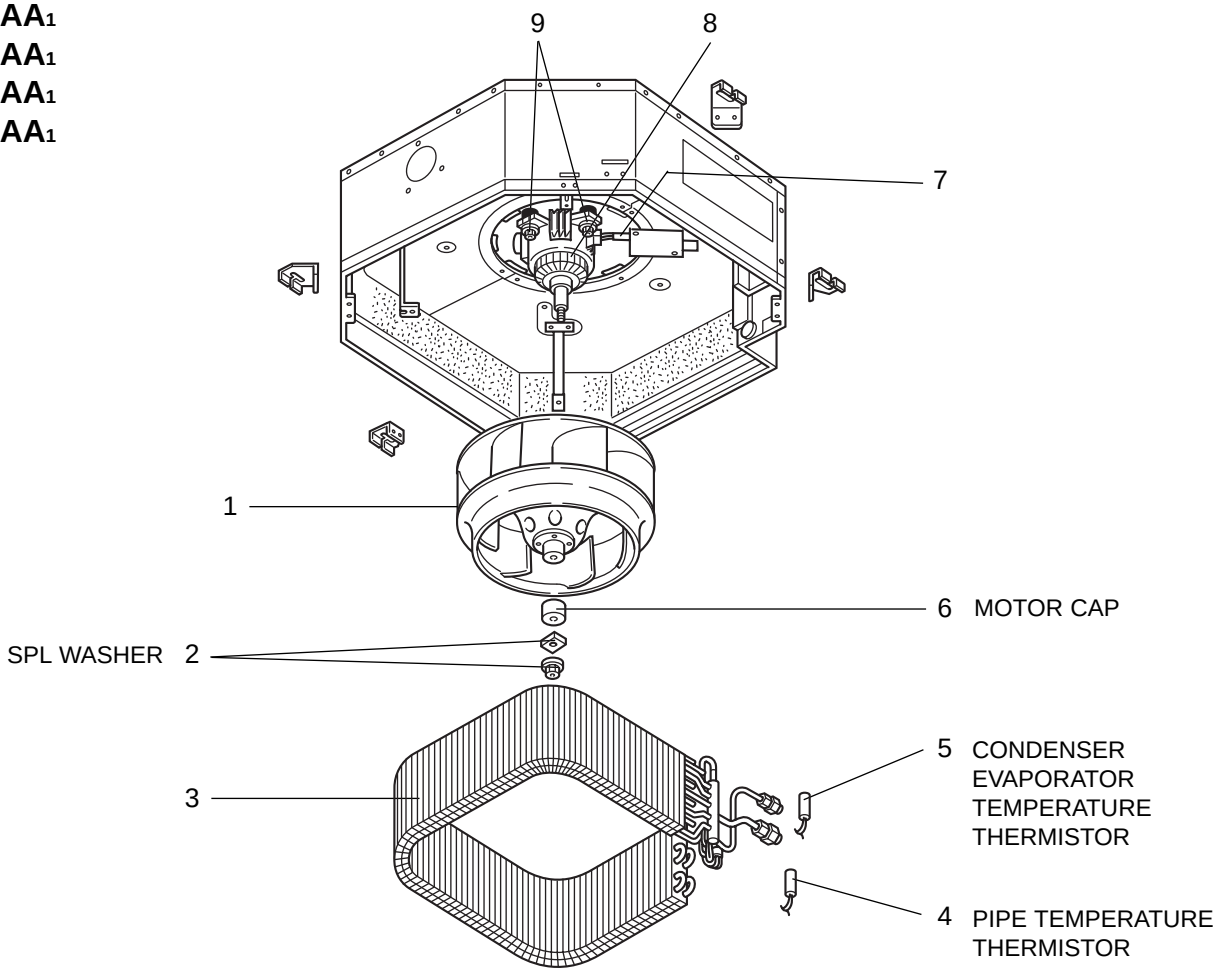


Part number that is circled is not shown in the figure.

No.	RoHS	Parts No.	Parts Name	Specification	Q'ty / set PLA-A12/18/24 /30/36/42AA1	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	G	T7W E19 003	AIR OUTLET GRILLE		1	Including H2		
2	G	T7W E09 002	VANE		4			
3	G	R01 E14 638	CORNER PANEL		4			
4	G	R01 E13 500	L.L FILTER		1			
5	G	R01 E44 691	GRILLE ASSY		1			
6	G	R01 E17 223	VANE MOTOR		4		MV	
7	G	R01 E02 063	VANE BUSH		8			
8	G	R01 E03 040	GEAR (VANE)		4			
9	G	R01 E04 040	GEAR		4			
10	G	T7W E14 713	REMOTE CONTROLLER		1		R.B	
11	G	T7W E04 305	CABLE ASSY		1			
(12)	G	R01 E02 673	SCREW ASSY		1			

FUNCTIONAL AND STRUCTURAL PARTS

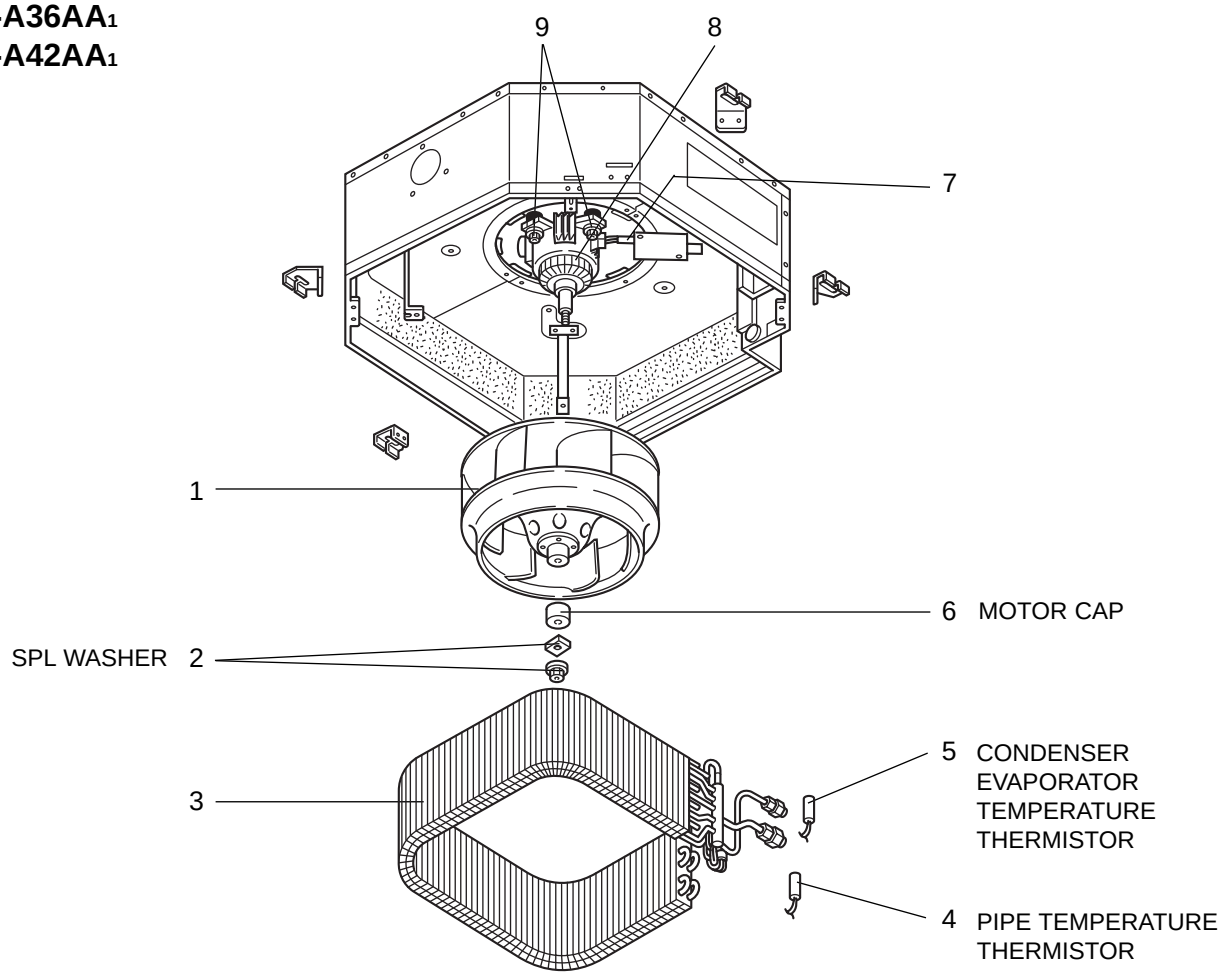
PLA-A12AA1
PLA-A18AA1
PLA-A24AA1
PLA-A30AA1



No.	RoHS	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA1			Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
					12	18	24, 30			
1	G	R01 E28 114	TURBO FAN		1	1	1			
2	G	R01 09K 097	SPL WASHER		1	1	1			
3	G	T7W H20 480	HEAT EXCHANGER		1					
	G	T7W H34 480	HEAT EXCHANGER			1				
	G	T7W H21 480	HEAT EXCHANGER				1			
4	G	R01 H05 202	PIPE TEMPERATURE THERMISTOR		1	1	1		TH2	
5	G	R01 H15 202	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1	1	1		TH5	
6	G	R01 E03 122	MOTOR CAP		1	1	1			
7	G	T7W E05 304	LEAD ASSY (F/M)		1	1	1			
8	G	T7W E27 762	FAN MOTOR	D17D6P70MS	1	1	1		MF	
9	G	R01 A51 105	RUBBER MOUNT		4	4	4			

FUNCTIONAL AND STRUCTURAL PARTS

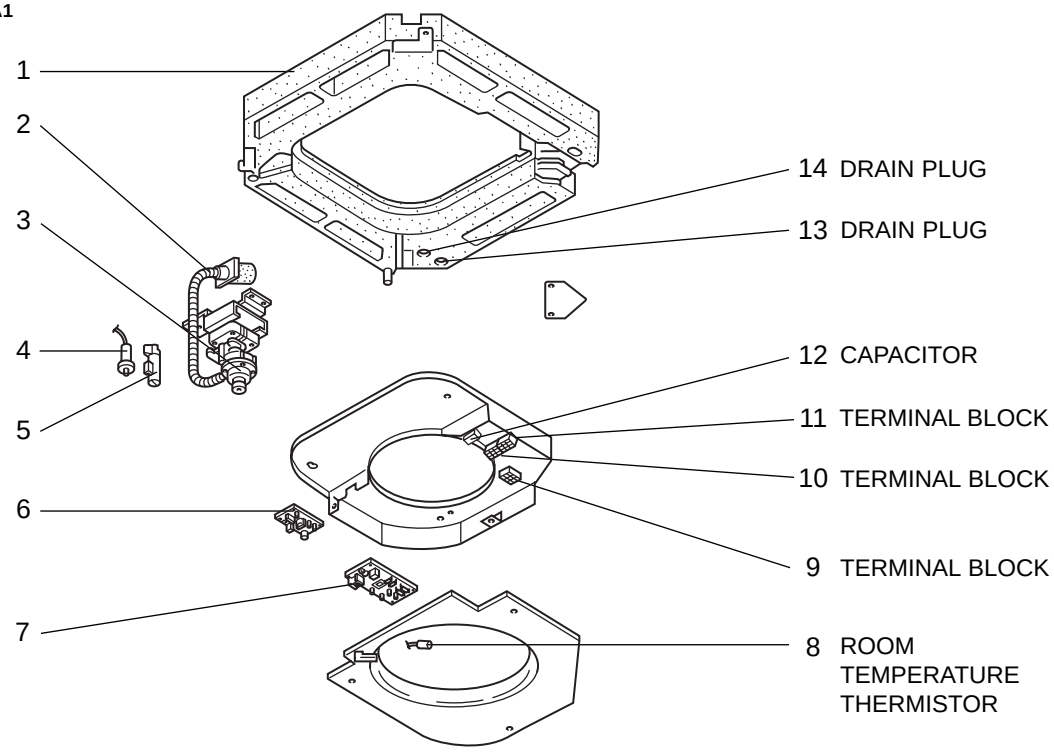
PLA-A36AA$_1$
PLA-A42AA$_1$



No.	RoHS	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA$_1$ 36, 42	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	G	R01 E29 114	TURBO FAN		1			
2	G	R01 09K 097	SPL WASHER		1			
3	G	T7W H22 480	HEAT EXCHANGER		1			
4	G	R01 H05 202	PIPE TEMPERATURE THERMISTOR		1		TH2	
5	G	R01 H15 202	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1		TH5	
6	G	R01 E03 122	MOTOR CAP		1			
7	G	T7W E05 304	LEAD ASSY(F/M)		1			
8	G	T7W E28 762	FAN MOTOR	D17CP110MS	1		MF	
9	G	R01 A51 105	RUBBER MOUNT		4			

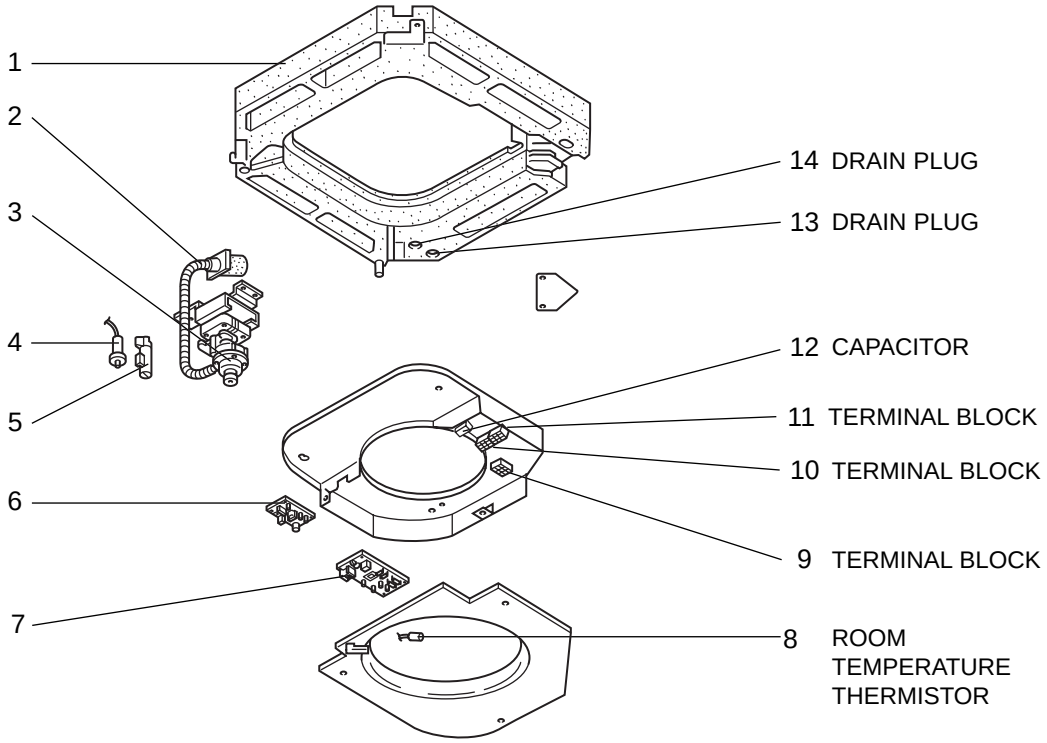
FUNCTIONAL AND STRUCTURAL PARTS

PLA-A12AA1
PLA-A18AA1
PLA-A24AA1
PLA-A30AA1



No.	RoHS	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA1 12, 18, 24, 30	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	G	T7W E26 529	DRAIN PAN		1			
2	G	T7W E02 527	DRAIN HOSE		1			
3	G	T7W E12 355	DRAIN PUMP		1		DP	
4	G	R01 E10 266	DRAIN SENSOR		1		DS	
5	G	R01 32K 241	SENSOR HOLDER		1			
6	G	T7W E35 313	INDOOR POWER BOARD		1		P.B	
7	G	T7W E56 310	INDOOR CONTROLLER BOARD		1		I.B	
8	G	R01 H12 202	ROOM TEMPERATURE THERMISTOR		1		TH1	
9	G	R01 E21 246	TERMINAL BLOCK	2P (1, 2)	1		TB5	
10	G	R01 E18 246	TERMINAL BLOCK	3P (S1, S2, S3)	1		TB4	
11	G	T7W E41 716	TERMINAL BLOCK	3P (L1, L2, GR)	1		TB2	
12	G	T7W E15 255	CAPACITOR	3.0μF 440V	1		C	
13	G	R01 A00 524	DRAIN PLUG		1			
14	G	R01 A01 524	DRAIN PLUG		1			

FUNCTIONAL AND STRUCTURAL PARTS
PLA-A36AA1
PLA-A42AA1



No.	RoHS	Parts No.	Parts Name	Specification	Q'ty / set PLA-A·AA1 36, 42	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
1	G	T7W E28 529	DRAIN PAN		1			
2	G	T7W E02 527	DRAIN HOSE		1			
3	G	T7W E12 355	DRAIN PUMP		1		DP	
4	G	R01 E10 266	DRAIN SENSOR		1		DS	
5	G	R01 32K 241	SENSOR HOLDER		1			
6	G	T7W E35 313	INDOOR POWER BOARD		1		P.B	
7	G	T7W E56 310	INDOOR CONTROLLER BOARD		1		I.B	
8	G	R01 H12 202	ROOM TEMPERATURE THERMISTOR		1		TH1	
9	G	R01 E21 246	TERMINAL BLOCK	2P (1, 2)	1		TB5	
10	G	R01 E18 246	TERMINAL BLOCK	3P (S1,S2, S3)	1		TB4	
11	G	T7W E41 716	TERMINAL BLOCK	3P (L1,L2, GR)	1		TB2	
12	G	R01 E14 255	CAPACITOR	7.0μF 440V	1		C	
13	G	R01 A00 524	DRAIN PLUG		1			
14	G	R01 A01 524	DRAIN PLUG		1			

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