Changes for the Better

MITSUBISHI ELECTRIC

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

July 2007
No. OC320
REVISED EDITION-B

TECHNICAL & SERVICE MANUAL

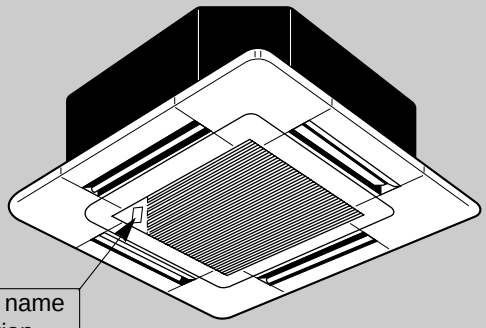
Series SLZ Ceiling Cassettes R410A

Indoor unit [Model names]	[Service Ref.]
SLZ-KA25VA	SLZ-KA25VA.TH
	SLZ-KA25VA$_1$.TH
SLZ-KA35VA	SLZ-KA35VA.TH
	SLZ-KA35VA$_1$.TH
SLZ-KA50VA	SLZ-KA50VA.TH
	SLZ-KA50VA$_1$.TH
SLZ-KA25VAL	SLZ-KA25VAL.TH
	SLZ-KA25VAL$_1$.TH
SLZ-KA35VAL	SLZ-KA35VAL.TH
	SLZ-KA35VAL$_1$.TH
SLZ-KA50VAL	SLZ-KA50VAL.TH
	SLZ-KA50VAL$_1$.TH

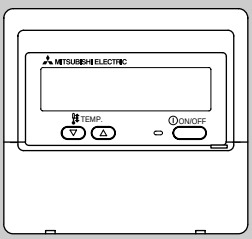
Revision:
- SLZ-KA25/35/50VA(L)$_1$.TH are added in REVISED EDITION-B.
- Some descriptions have been modified.

•Please void OC320 REVISED EDITION-A.

Note:
- This manual describes only service data of the indoor units. When servicing outdoor units, please refer to the service manual No.OC322 or OC323 together with this manual.
- RoHS compliant products have <G> mark on the spec name plate.
- For servicing RoHS compliant products, refer to the RoHS Parts List.



INDOOR UNIT



SLZ-KA25,35,50VAL.TH
SLZ-KA25,35,50VAL$_1$.TH

SLZ-KA25,35,50VA.TH
SLZ-KA25,35,50VA$_1$.TH

REMOTE CONTROLLER

CONTENTS

Mr.SLIM™

1 TECHNICAL CHANGES

SLZ-KA25VAL.TH → SLZ-KA25VAL$_1$.TH
SLZ-KA35VAL.TH → SLZ-KA35VAL$_1$.TH
SLZ-KA50VAL.TH → SLZ-KA50VAL$_1$.TH
SLZ-KA25VA.TH → SLZ-KA25VA$_1$.TH
SLZ-KA35VA.TH → SLZ-KA35VA$_1$.TH
SLZ-KA50VA.TH → SLZ-KA50VA$_1$.TH

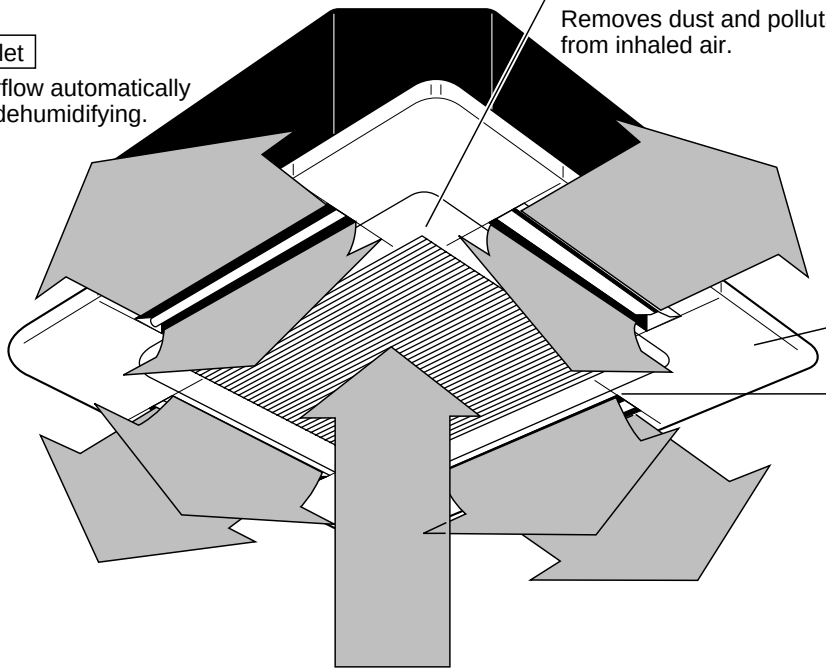
• PANEL has been changed.

SLP-2AL	→	SLP-2ALW
SLP-2AA	→	SLP-2AAW
(White : 0.70Y 8.59/0.97)	→	(Pure white : 6.4Y 8.9/0.4)

2 PART NAMES AND FUNCTIONS

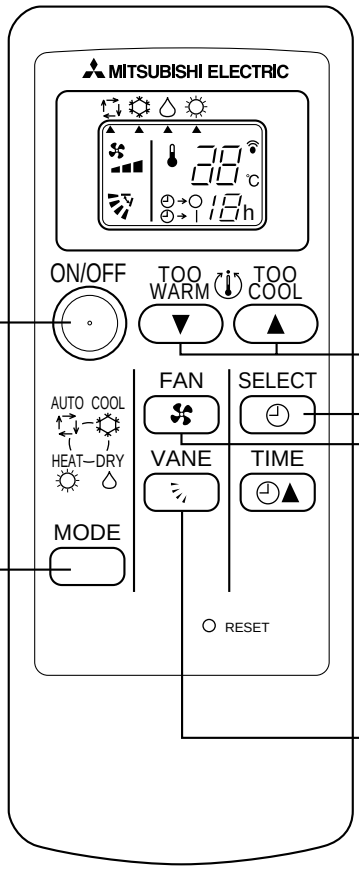
Indoor Unit

SLZ-KA25VAL.TH **SLZ-KA25VA.TH** **SLZ-KA25VAL1.TH** **SLZ-KA25VA1.TH**
SLZ-KA35VAL.TH **SLZ-KA35VA.TH** **SLZ-KA35VAL1.TH** **SLZ-KA35VA1.TH**
SLZ-KA50VAL.TH **SLZ-KA50VA.TH** **SLZ-KA50VAL1.TH** **SLZ-KA50VA1.TH**



Wireless remote comtroller

SLZ-KA25VAL.TH
SLZ-KA35VAL.TH
SLZ-KA50VAL.TH
SLZ-KA25VAL1.TH
SLZ-KA35VAL1.TH
SLZ-KA50VAL1.TH



ON / OFF button
To start and to stop operation.

TEMPERATURE SETTING button
To set any desired room temperature.

TIMER SELECT button
To set time to start or stop unit operation.

FAN SPEED button
To set fan speed to Low, Medium or High.

MODE SELECT button
To change the operation mode; Auto, Cooling , Heating and Drying . (SLZ)

VANE CONTROL button
To change the airflow direction.

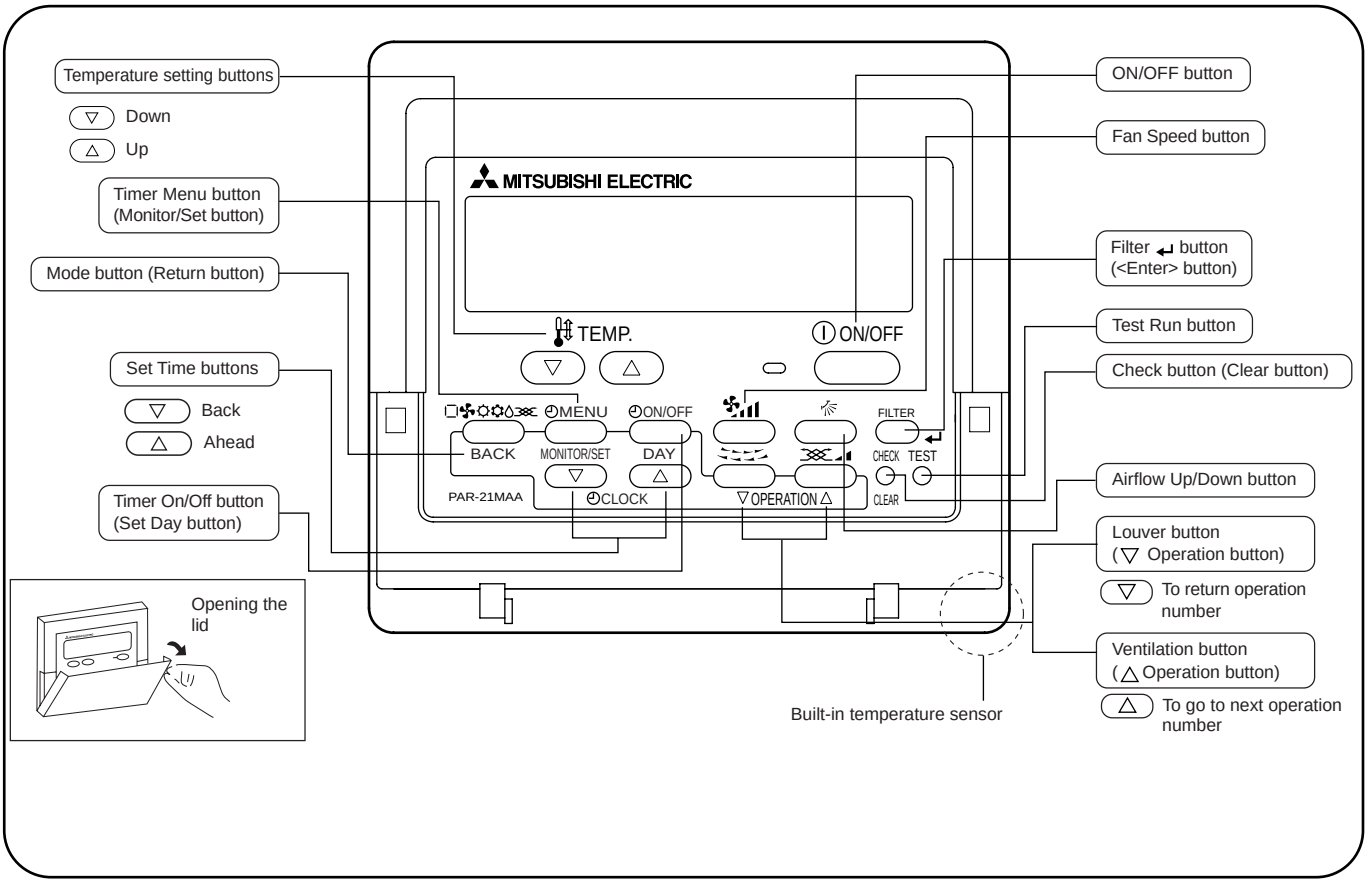
Attention:

• Avoid pushing buttons with fingernails and other sharp objects. Sharp objects may damage remote controller.

● Wired remote controller

Once the controllers are set, the same operation mode can be repeated by simply pressing the ON/OFF button.

SLZ-KA25VA.TH SLZ-KA25VA1.TH
SLZ-KA35VA.TH SLZ-KA35VA1.TH
SLZ-KA50VA.TH SLZ-KA50VA1.TH



● 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.

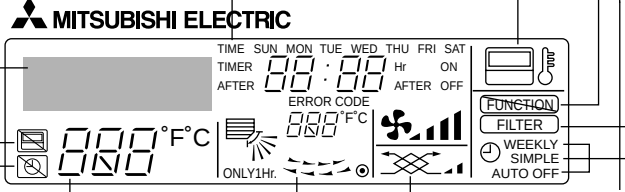
Time/Timer Display
Shows the current time, unless the simple or Auto Off timer is set.
If the simple or Auto Off timer is set, the time to be switched off is shown.

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, when the airflow direction also changes.

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

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

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

"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.

3 SPECIFICATIONS

Indoor service ref.			SLZ-KA25VAL(1).TH SLZ-KA25VA(1).TH		SLZ-KA35VAL(1).TH SLZ-KA35VA(1).TH		SLZ-KA50VAL(1).TH SLZ-KA50VA(1).TH	
Function			Cooling	Heating	Cooling	Heating	Cooling	Heating
Power supply			Single phase 230V, 50Hz		Single phase 230V, 50Hz		Single phase 230V, 50Hz	
Capacity	Air flow (High/Medium/Low)	m³ /h	600/540/480		660/540/480		660/540/480	
Electrical data	Power outlet	A	10		10		20	
	Running current ✻1	A	0.35		0.40		0.65	
	Power input Rated frequency	W	75		85		85	
	Dew prevention heater	(kW)	0.014		0.014		0.014	
	Power factor ✻1	%	90	93	94	94	97	97
	Fan motor current ✻1	A	0.19		0.26		0.27	
Fan motor	Model		PK6V15-LD		PK6V20-LL		PK6V20-LM	
	Winding resistance (at 26℃)	Ω	WHT-BLK : 407 BLK-BLU : 86 BLU-YLW : 30 BRN-RED : 165		WHT-BLK : 393 BLK-BLU : 164 BLU-YLW : 47 BRN-RED : 319		WHT-BLK : 325 BLK-BLU : 143 BLU-YLW : 47 BRN-RED : 309	
Dimensions	Width	mm(in)	UNIT : 570(22-7/16) PANEL : 650(25-9/16)					
	Height	mm(in)	UNIT : 208(8-3/16) PANEL : 20(13/16)					
	Depth	mm(in)	UNIT : 570(22-7/16) PANEL : 650(25-9/16)					
Weight		kg	UNIT : 16.5 PANEL : 3					
Special remarks	Air direction		4		4		4	
	Sound level(High/Medium/Low)	dB(A)	37/31/28		38/33/29		39/34/30	
	Fan speed(High/Medium/Low)	rpm	650/530/480		690/570/510		710/590/530	
	Fan speed regulator		3		3		3	
	Thermistor TH1(at25℃)	kΩ	10		10		10	
	Thermistor TH2(at25℃)	kΩ	10		10		10	
	Thermistor TH5(at25℃)	kΩ	10		10		10	

NOTE : Test conditions are based on ISO 5151.
Cooling : Indoor D.B. 27℃ W.B. 19℃
Outdoor D.B. 35℃ W.B. 24℃
Heating : Indoor D.B. 20℃ W.B. 15℃
Outdoor D.B. 7℃ W.B. 6℃
Refrigerant piping length (one way): 5m
✻1 Measured under rated operating frequency

Specifications and rating conditions of main electric parts

INDOOR UNIT

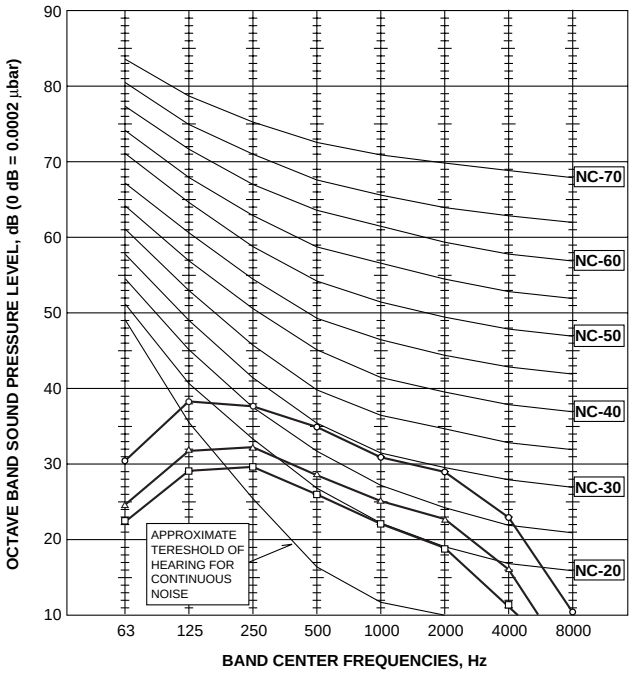
Item \ Service ref.		SLZ-KA25VAL(1).TH SLZ-KA35VAL(1).TH SLZ-KA50VAL(1).TH SLZ-KA25VA(1).TH SLZ-KA35VA(1).TH SLZ-KA50VA(1).TH
Indoor fan capacitor	(C1)	1.5μF 440V
Fuse	(FUSE)	250V 6.3A
Vane motor	(MV)	MSBPC20 12V 250Ω
Terminal block	(TB)	TO OUTDOOR UNIT : 3P TO WIRED REMOTE CONTROLLER : 2P (SLZ-KA25/35/50VA)
Indoor fan motor thermal fuse		141℃±3℃
Cord Heater	(H2)	240V AC 15W

NOISE CRITERION CURVES

<50Hz>

SLZ-KA25VAL.TH
SLZ-KA25VA.TH
SLZ-KA25VAL$_1$.TH
SLZ-KA25VA$_1$.TH

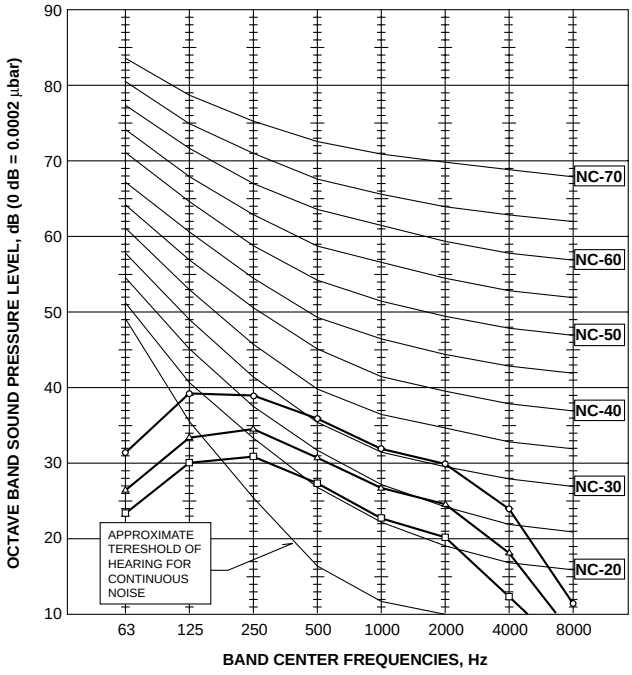
NOTCH	SPL(dB)	LINE
High	37	○—○
Medium	31	△—△
Low	28	□—□



<50Hz>

SLZ-KA35VAL.TH
SLZ-KA35VA.TH
SLZ-KA35VAL$_1$.TH
SLZ-KA35VA$_1$.TH

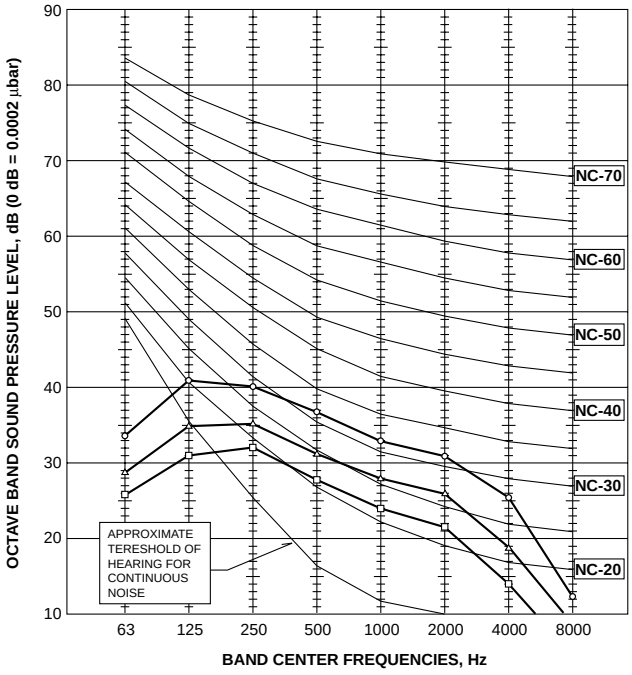
NOTCH	SPL(dB)	LINE
High	38	○—○
Medium	33	△—△
Low	29	□—□

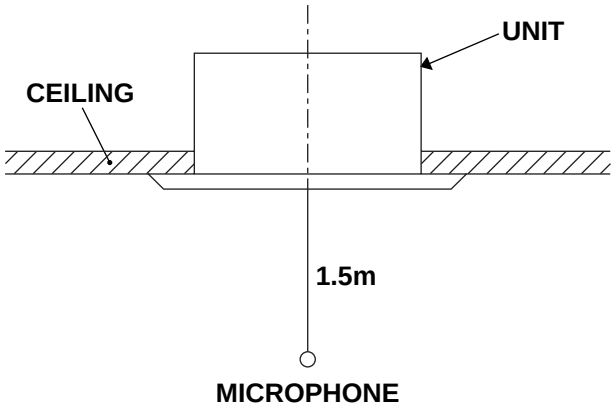


<50Hz>

SLZ-KA50VAL.TH
SLZ-KA50VA.TH
SLZ-KA50VAL$_1$.TH
SLZ-KA50VA$_1$.TH

NOTCH	SPL(dB)	LINE
High	39	○—○
Medium	34	△—△
Low	30	□—□





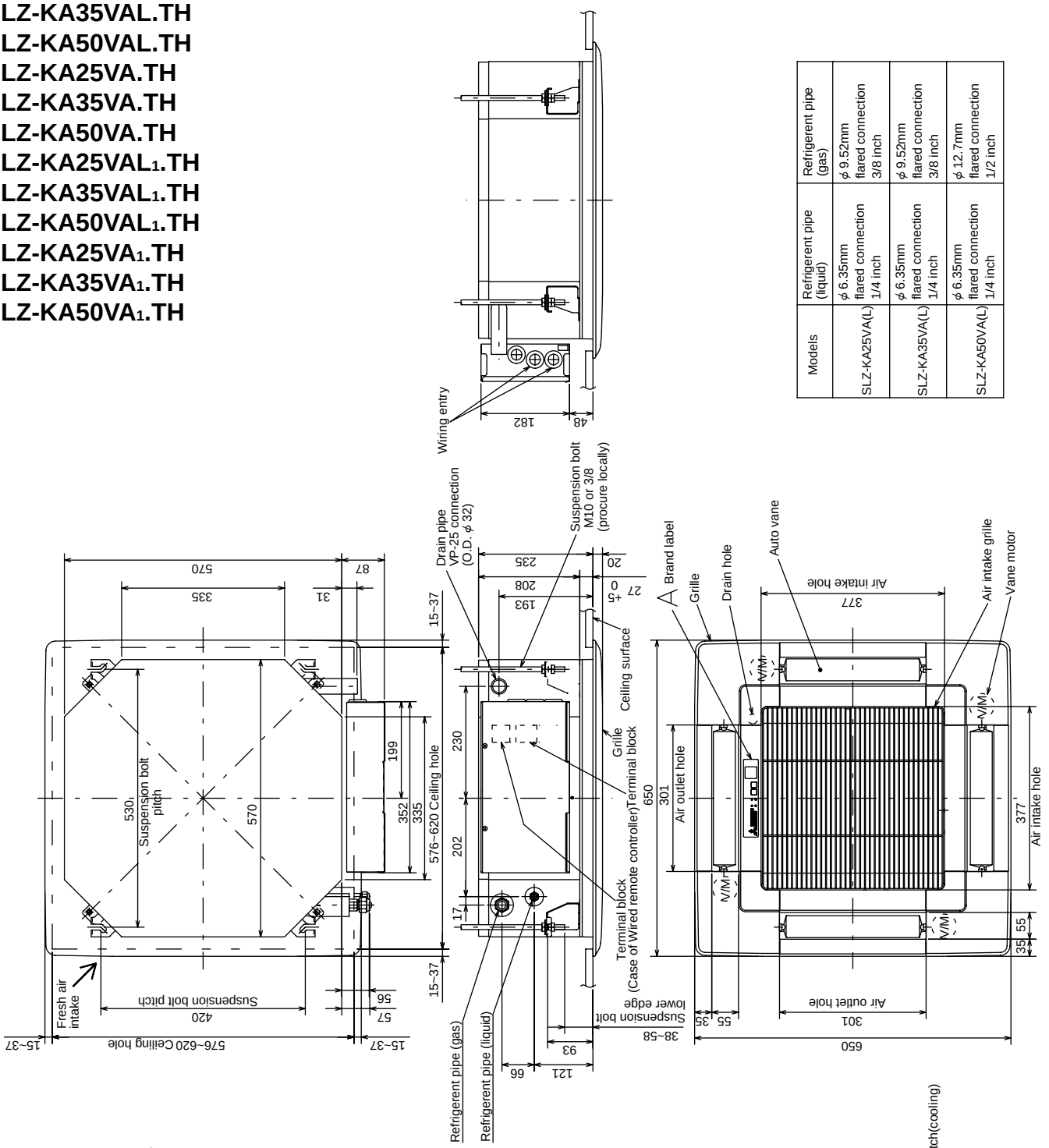
NOTE: The sound level is measured in an anechoic room where echoes are few, when compressor stops. The sound may be bigger than the indicated level in actual use due to surrounding echoes. The sound level can be higher by about 2 dB than the indicated level during cooling and heating operation.

4 OUTLINES AND DIMENSIONS

SLZ-KA25VAL.TH
SLZ-KA35VAL.TH
SLZ-KA50VAL.TH
SLZ-KA25VA.TH
SLZ-KA35VA.TH
SLZ-KA50VA.TH
SLZ-KA25VAL$_1$.TH
SLZ-KA35VAL$_1$.TH
SLZ-KA50VAL$_1$.TH
SLZ-KA25VA$_1$.TH
SLZ-KA35VA$_1$.TH
SLZ-KA50VA$_1$.TH

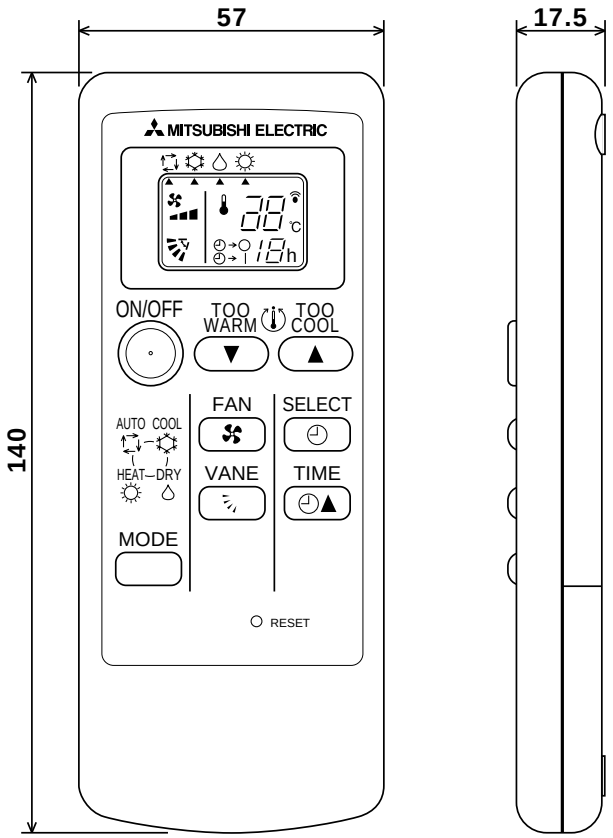
Unit : mm

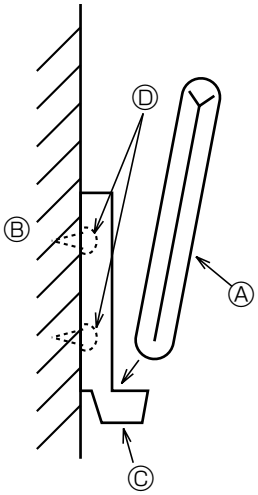
Models	Refrigerent pipe (liquid)	Refrigerent pipe (gas)
SLZ-KA25VA(L)	ϕ 6.35mm flared connection 1/4 inch	ϕ 9.52mm flared connection 3/8 inch
SLZ-KA35VA(L)	ϕ 6.35mm flared connection 1/4 inch	ϕ 9.52mm flared connection 3/8 inch
SLZ-KA50VA(L)	ϕ 6.35mm flared connection 1/4 inch	ϕ 12.7mm flared connection 1/2 inch



WIRELESS REMOTE CONTROLLER

Unit : mm





Installation area

- Area in which the remote controller is not exposed to direct sunshine
- Area in which there is no heating source nearby
- Area in which the remote controller is not exposed to cold (or hot) winds
- Area in which the remote controller can be operated easily
- Area in which the remote controller is beyond the reach of children

Installation method

① Attach the remote controller holder to the desired location using 2 tapping screws.

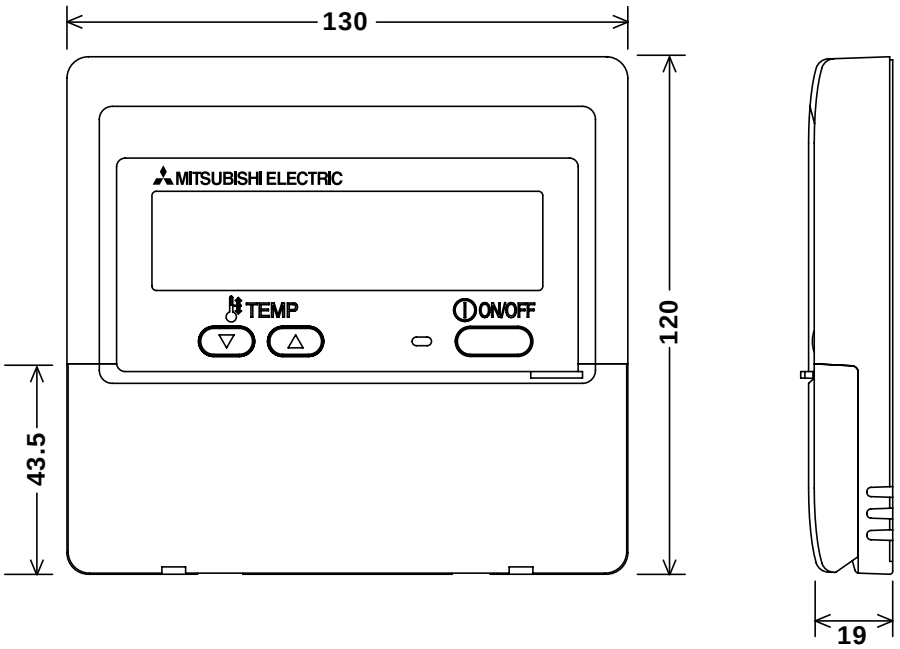
② Insert the lower end of the controller into the holder.

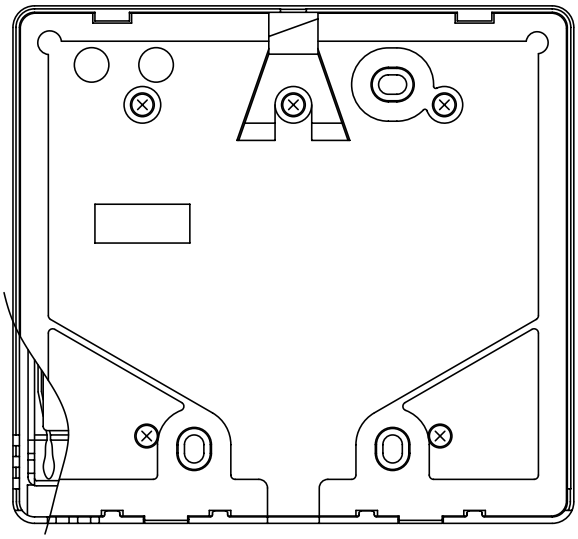
Ⓐ Wireless remote controller (Accessory)
Ⓑ Wall
Ⓒ Remote controller holder (Accessory)
Ⓓ Fixing screw (Accessory)

- The signal can travel up to approximately 7 meters (in a straight line) within 45 degrees to both right and left of the center line of the receiver.
  In addition, the signal may not be received if there is interference of light of fluorescent lights or strong sunlight.

WIRED REMOTE CONTROLLER

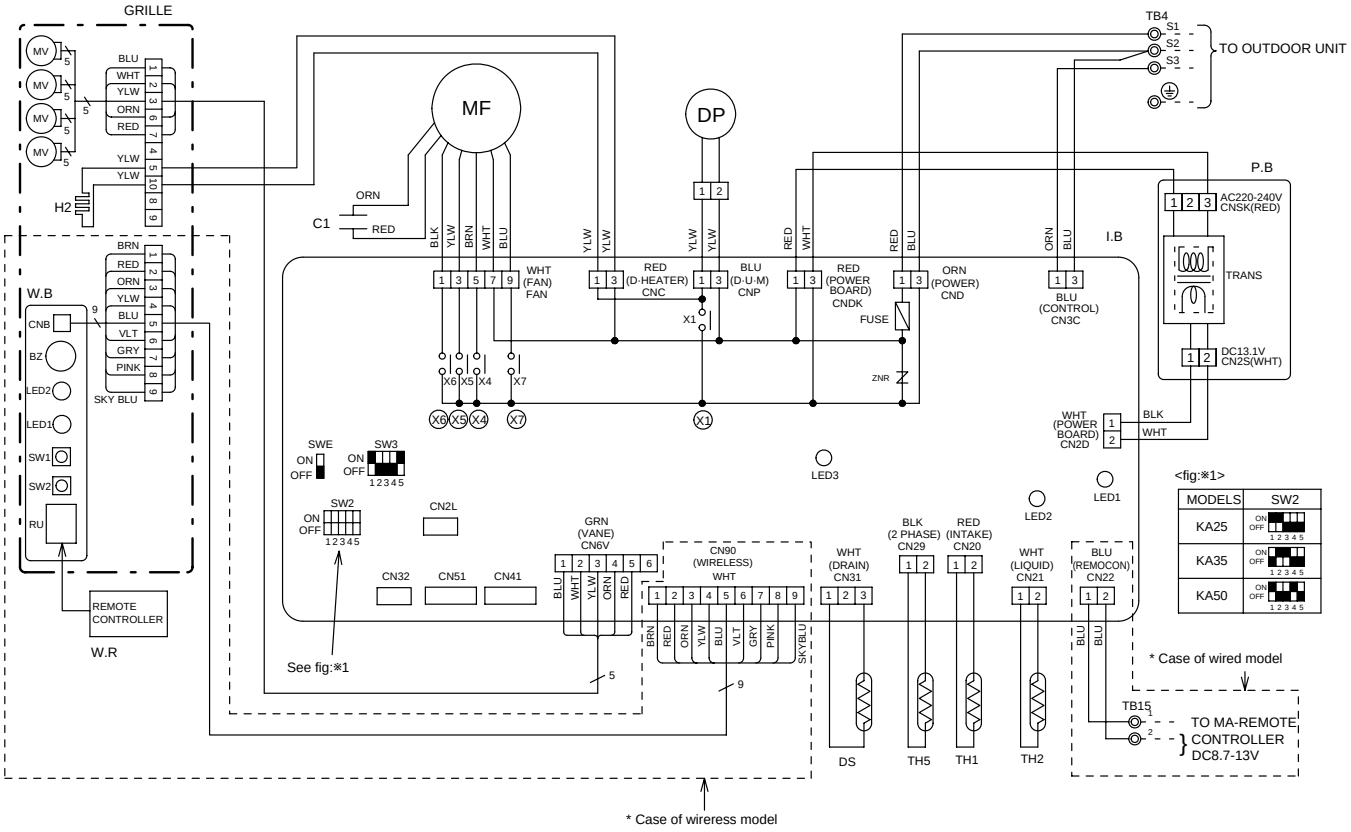
Unit : mm





5 WIRING DIAGRAM

SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL$_1$.TH SLZ-KA25VA$_1$.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL$_1$.TH SLZ-KA35VA$_1$.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL$_1$.TH SLZ-KA50VA$_1$.TH



[LEGEND]

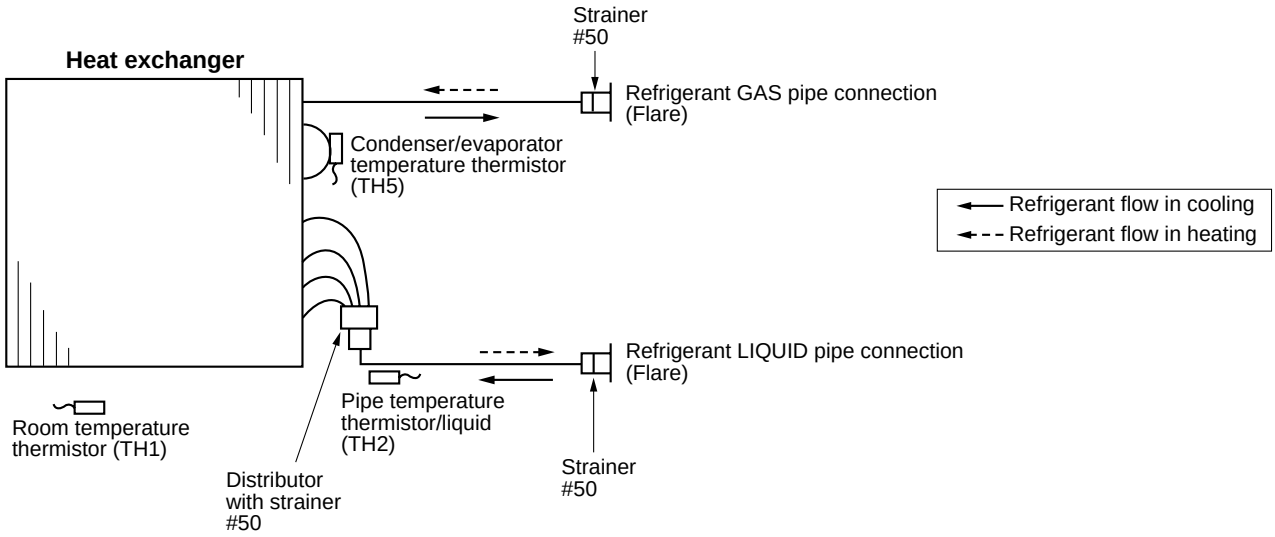
SYMBOL		NAME	SYMBOL		NAME
P.B		INDOOR POWER BOARD	W.B		WIRELESS REMOTE CONTROLLER BOARD
I.B		INDOOR CONTROLLER BOARD		RU	RECEIVING UNIT
	CN2L	CONNECTOR(LOSSNAY)		BZ	BUZZER
	CN32	CONNECTOR(REMOTE SWITCH)		LED1	LED(RUN INDICATOR)
	CN41	CONNECTOR(HA TERMINAL-A)		LED2	LED(HOT ADJUST)
	CN51	CENTRALLY CONTROL		SW1	SWITCH(HEATING ON/OFF)
	FUSE	FUSE(T6.3AL250V)		SW2	SWITCH(COOLING ON/OFF)
	LED1	POWER SUPPLY(I.B)		C1	CAPACITOR(FAN MOTOR)
	LED2	POWER SUPPLY(I.B)		DP	DRAIN PUMP
	LED3	TRANSMISSION(INDOOR-OUTDOOR)		DS	DRAIN SENSOR
	SW2	SWITCH(CAPACITY CODE)		H2	DEW PREVENTION HEATER
	SW3	SWITCH(MODE SELECTION)		MF	FAN MOTOR
	SWE	SWITCH(EMERGENCY OPERATION)		MV	VANE MOTOR
	X1	DRAIN PUMP/DEW PREVENTION HEATER		TB4	TERMINAL BLOCK(INDOOR/OUTDOOR CONNECTING LINE)
	X4	RELAY(FAN MOTOR LL)		TB15	TERMINAL BLOCK(REMOTE CONTROLLER TRANSMISSION LINE)
	X5	RELAY(FAN MOTOR Lo)		TH1	ROOM TEMP.THERMISTOR (0°C/15kΩ, 25°C/5.4kΩ DETECT)
	X6	RELAY(FAN MOTOR Hi)		TH2	PIPE TEMP.THERMISTOR/LIQUID (0°C/15kΩ, 25°C/5.4kΩ DETECT)
	X7	RELAY(FAN MOTOR Me)		TH5	COND./EVA.TEMP.THERMISTOR (0°C/15kΩ, 25°C/5.4kΩ DETECT)
	ZNR	VARISTOR			

NOTES : 1. Since the outdoor side electric wiring may change, be sure to check the outdoor unit electric wiring for servicing.
2. Indoor and outdoor connecting wires have polarities, make sure to match terminal numbers(S1,S2,S3) for correct wiring.
3. Symbols used in wiring diagram above are, □□□: Connector, ◎ : Terminal (block).

※ For details on how to operate self-diagnosis, refer to the technical manuals etc.

6 REFRIGERANT SYSTEM DIAGRAM

SLZ-KA25VAL.TH **SLZ-KA25VA.TH** **SLZ-KA25VAL$_1$.TH** **SLZ-KA25VA$_1$.TH**
SLZ-KA35VAL.TH **SLZ-KA35VA.TH** **SLZ-KA35VAL$_1$.TH** **SLZ-KA35VA$_1$.TH**
SLZ-KA50VAL.TH **SLZ-KA50VA.TH** **SLZ-KA50VAL$_1$.TH** **SLZ-KA50VA$_1$.TH**



7 TROUBLESHOOTING

7-1. CAUTIONS ON TROUBLESHOOTING

(1) Before troubleshooting, check the followings:

①Check the power supply voltage.

②Check that the indoor/outdoor connecting wire is correct.

(2) Take care of the followings during servicing.

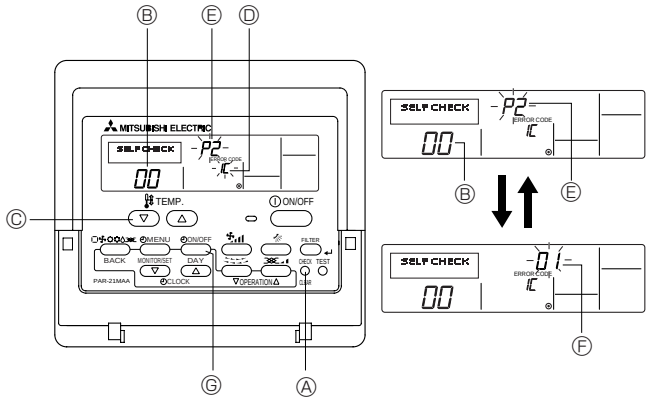
① Before servicing the air conditioner, be sure to turn off the remote controller first to stop the main unit, and then turn off the breaker.

② When removing the indoor controller board, hold the edge of the board with care NOT to apply stress on the components.

③ When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.

7-2. SELF-CHECK

7-2-1. Wired remote controller



① Turn on the power.

② Press the [CHECK] button twice.

③ Set address with [TEMP] button if system control is used.

④ Press the [ON/OFF] button to stop the self-check.

Ⓐ CHECK button

Ⓑ Address

Ⓒ TEMP. button

Ⓓ IC : Indoor unit
OC: Outdoor unit

Ⓔ Check code (– – – – : No trouble generated in the past.
F F F F : No corresponding unit.)

Ⓕ Unit No.

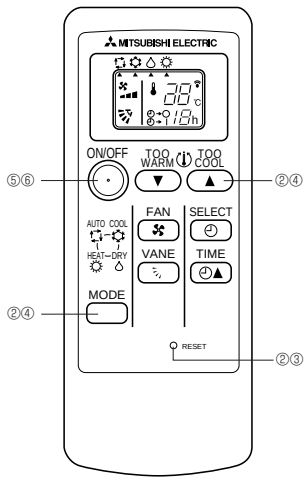
Ⓖ Timer ON/OFF button

<To delete check code>

① Display the error code on the self-check result display screen.

② The address for self-check will blink when the Ⓖ ◴ ON/OFF button is pressed twice within 3 seconds.

7-2-2. Wireless remote controller



[Procedure]

① Turn ON the power.

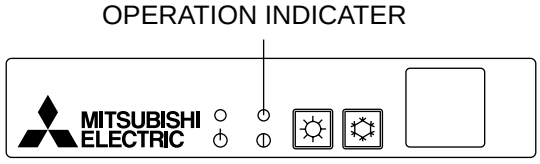
② While pressing both the MODE SELECT button and TOO COOL button on the remote controller at the same time, press the RESET button.

③ Firstly, release the RESET button.

④ And release the other 2 buttons since all LCD in operation display section of the remote controller is displayed after 3 seconds.

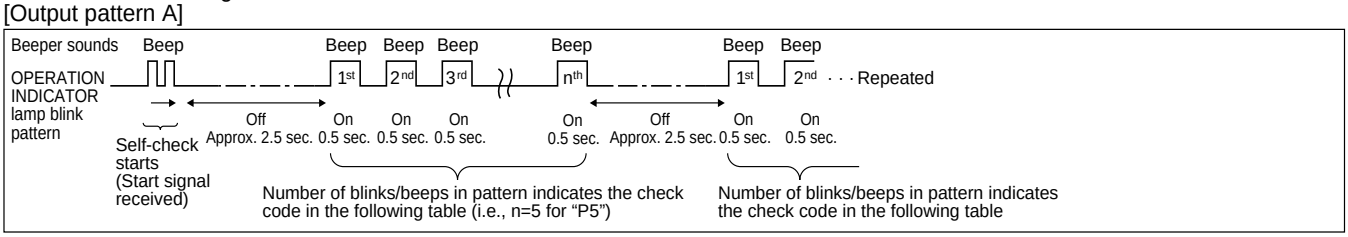
⑤ Transmit the signal of remote controller, pressing ON/ OFF button on the remote controller.
(The above procedure allows OPERATION INDICATOR lamp to indicate the failure-mode.)

⑥ Transmit the signal of remote controller, pressing ON/ OFF button to stop the self-check.

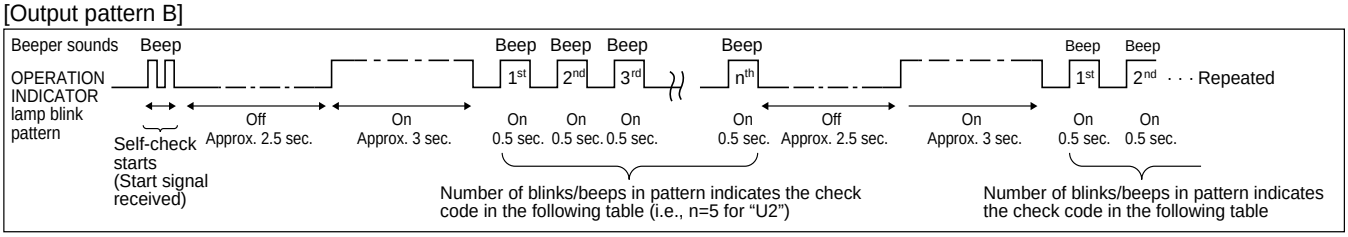


• Refer to the following tables for details on the check codes.

[Output pattern A]



[Output pattern B]



[Output pattern A] Errors detected by indoor unit

Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller ① Check code	Symptom	Remark
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	
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 Beeper sounds/OPERATION INDICATOR lamp blinks (Number of times)	Wired remote controller ① Check code	Symptom	Remark
1	E9	Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)	For details, check the LED display of the outdoor controller board. As for outdoor unit, refer to service manual OC322 or OC323.
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.

continued to the next page.

• On wireless remote controller
②The continuous buzzer sounds from receiving section of indoor unit.
③Blink of operation lamp
• On wired remote controller
①Check code displayed on the LCD.

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

Symptom		Cause
Wired remote controller		
PLEASE WAIT	For about 2 minutes after power-on	•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	•Connector for the outdoor unit's protection device is not connected. •Reverse or open phase wiring for the outdoor unit's power terminal block
No messages appear even when operation switch is turned ON (operation lamp does not light up).		•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.

7-3. 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℃ or more Open: -40℃ 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℃ ····15.0kΩ 10℃ ·····9.6kΩ 20℃ ·····6.3kΩ 30℃ ·····4.3kΩ 40℃ ·····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 7-5. Turn the power back on 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 checking.
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℃ or more Open: -40℃ 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℃ or more or -40℃ 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 7-5. 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 checking.
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℃ ·····6.0kΩ 10℃ ·····3.9kΩ 20℃ ·····2.6kΩ 30℃ ·····1.8kΩ 40℃ ·····1.3kΩ ② Check contact failure of connector (CN31) on the indoor controller board. Refer to 7-5. Turn the power back on 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 checking.
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 pomp 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 7-5. Turn the power off, and on again to operate after checking.

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℃ for 3 minutes after the compressor started. Abnormal if it stays under -15℃ 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℃ after the compressor started. Abnormal if the temperature of over 70℃ 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 (clogging) (Heating mode) ① Clogged filter (reduced airflow) ② Short cycle of air path ③ Overload (high 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 (clogging) ⑧ Bypass circuit of outdoor unit is defective.	(Cooling or drying mode) ① Check clogging 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 220~240V is detected while fan motor is connected. Refer to 7-5. 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 220~240V is detected while fan motor is connected. Refer to 7-5. 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 min. to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range : -3 deg ≧ (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 ≦ (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.	①~④Check 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℃ or more Open: -40℃ 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℃ or more or -40℃ 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 7-5. 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 extreme 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 cannot receive normally any data from remote controller board or 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 cablex 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 of 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, 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 controllers 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 one 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 abnormal under the following condition: When 2 or more indoor units are connected to one 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.	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℃, 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℃ 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, triple, quadruple system ⑦ Miswiring of indoor/ outdoor connecting at twin, triple, quadruple system ⑧ Room temperature thermistor / liquid pipe temperature thermistor detection is defective.	①Check the drain pump. Performance ②Please check whether water can be drained. ③Check the resistance of the drain sensor side heater. ④Check the connector contact failure. ⑤ Check the drain sensor leadwire mounted. Check the filter clogging. ⑥Check the piping connection. ⑦Check the indoor/ outdoor connecting wires. ⑧Check the room temperature display of remote controller. Check the indoor liquid pipe temperature display of outdoor controller board.

7-4. TROUBLESHOOTING BY INFERIOR PHENOMENA

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

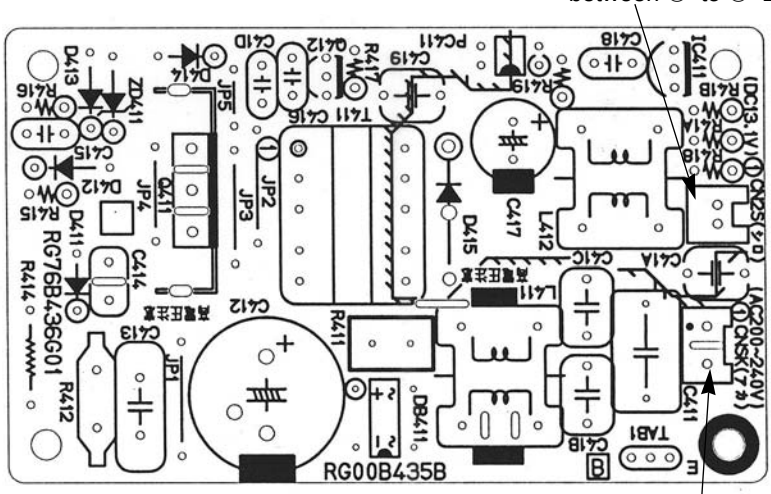
Phenomena	Cause	Countermeasure
(1)LED2 on indoor controller board is off.	• When LED1 on indoor controller board is also off.	
	① Power supply of rated voltage is not supplied to outdoor unit.	① Check the voltage of outdoor power supply terminal block (L, N) or (L_3, N). • When AC 220~240V is not detected, check the power wiring to outdoor unit and the breaker. • When AC 220~240V is detected, check ② (below).
	② Defective outdoor controller circuit board	② Check the voltage between outdoor terminal block S1 and S2. • When AC 220~240V is not detected, —check the fuse on outdoor controller circuit board. —check the wiring connection. • When AC 220~240V is detected, check ③ (below).
	③ Power supply of 220~240V is not supplied to indoor unit.	③ Check the voltage between indoor terminal block S1 and S2. • When AC 220~240V is not detected, check indoor/outdoor unit connecting wire for miswiring. • When AC 220~240V is detected, check ④ (below).
	④ Defective indoor power board	④ Check voltage output from CN2S on indoor power board (DC13.1V). Refer to 7-5. • 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.
	• 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 or more indoor units	① Check the connection of remote cotroller wires in case of twin triple indoor unit system. When 2 or more indoor units are wired in one refrigerant system, connect remote controller wires to one of those units.
	② Refrigerant address for outdoor unit is wrong or not set. Under grouping control system, there are some units whose refrigerant address is 0.	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.
	③ Short-cut of remote controller wires ④ Defective remote controller	③④ Remove remote controller wires and check LED2 on indoor controller board. • When LED2 is blinking, check the short-cut 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.

7-5. TEST POINT DIAGRAM

7-5-1. Indoor power board

SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL1.TH SLZ-KA25VA1.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL1.TH SLZ-KA35VA1.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL1.TH SLZ-KA50VA1.TH

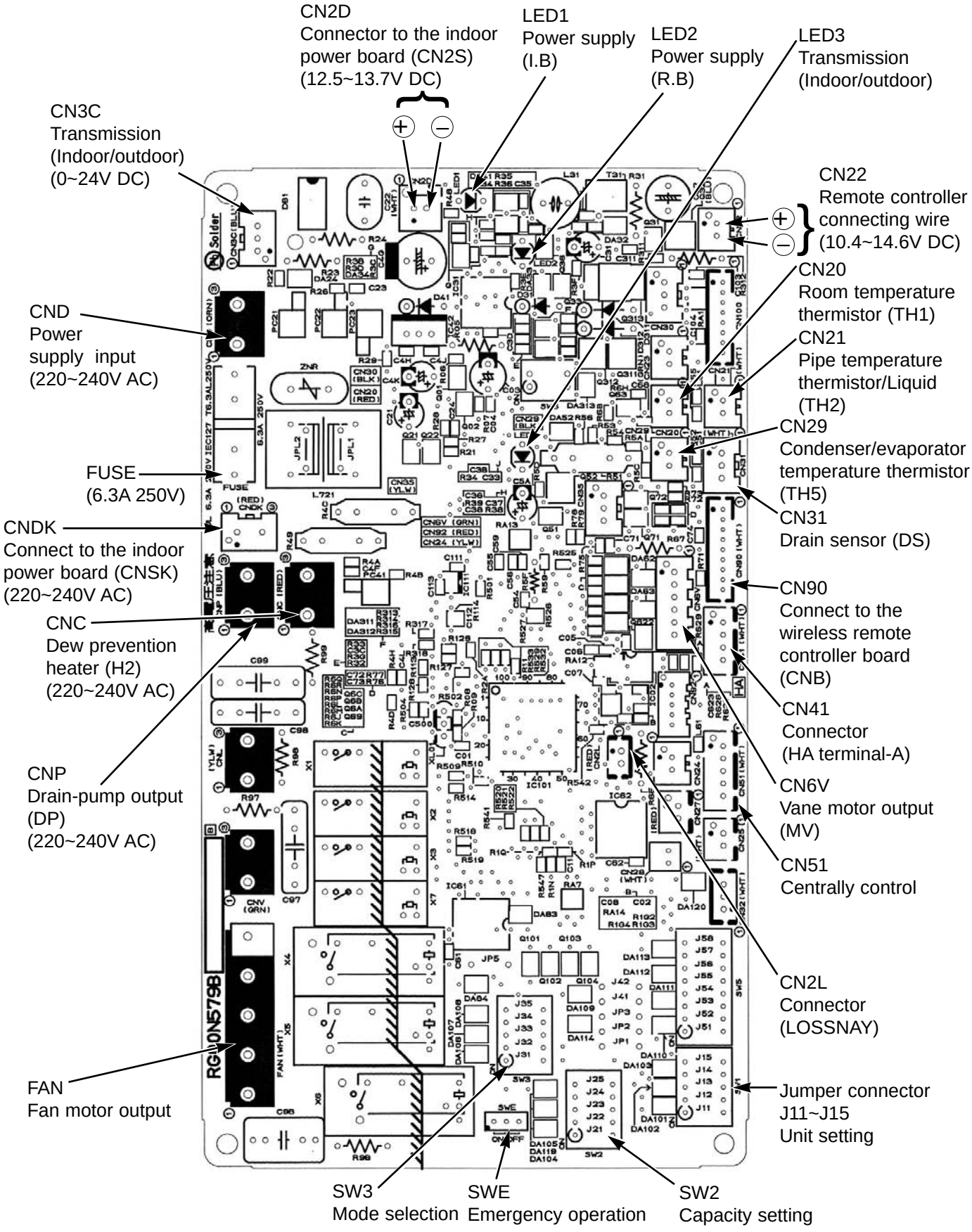
CN2S
Connect to the indoor controller board (CN2D)
between ① to ③ 12.6-13.7V DC (Pin① (+))



CNSK
Connect to the indoor controller board (CNDK)
between ① to ③ 220-240V AC

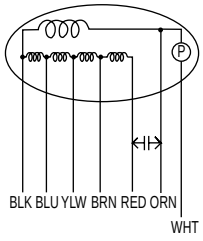
7-5-2. Indoor controller board

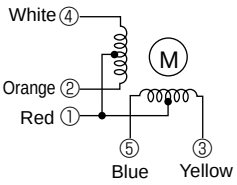
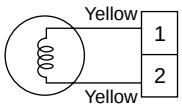
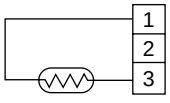
SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL1.TH SLZ-KA25VA1.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL1.TH SLZ-KA35VA1.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL1.TH SLZ-KA50VA1.TH



7-6. TROUBLE CRITERION OF MAIN PARTS

SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL$_1$.TH SLZ-KA25VA$_1$.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL$_1$.TH SLZ-KA35VA$_1$.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL$_1$.TH SLZ-KA50VA$_1$.TH

<table>
<tr><th>Part name</th><th>Check method and criterion</th></tr>
<tr><td>Room temperature thermistor (TH1)
Pipe temperature thermistor/liquid (TH2)
Condenser/evaporator temperature thermistor (TH5)</td><td>Measure the resistance with a tester.
(Part temperature 10°C ~ 30°C)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>4.3kΩ~9.6kΩ</td><td>Opened or short-circuited</td></tr></table></td></tr>
<tr><td>Indoor fan motor (MF)
 

Ⓟ : Thermal fuse 141 ± 3˚C</td><td>Measure the resistance between the terminals with a tester.
(Coil wiring temperature 10°C ~ 30°C)
<table><tr><th></th><th colspan="3">Normal</th><th rowspan="2">Abnormal</th></tr><tr><th></th><th>KA25VA(L)</th><th>KA35VA(L)</th><th>KA50VA(L)</th></tr><tr><td>WHT-BLK</td><td>386~428Ω</td><td>373~413Ω</td><td>308~341Ω</td><td rowspan="4">Opened or short-circuited</td></tr><tr><td>BLK-BLU</td><td>81~91Ω</td><td>155~172Ω</td><td>135~151Ω</td></tr><tr><td>BLU-YLW</td><td>28~32Ω</td><td>44~49Ω</td><td>44~49Ω</td></tr><tr><td>BRN-RED</td><td>157~174Ω</td><td>302~335Ω</td><td>293~324Ω</td></tr></table></td></tr>
<tr><td>Vane motor (MV)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature 20℃~30℃)
<table><tr><th>Connector</th><th>Normal</th><th>Abnormal</th></tr><tr><td>Red — Yellow</td><td rowspan="4">300Ω</td><td rowspan="4">Open or short</td></tr><tr><td>Red — Blue</td></tr><tr><td>Red — Orange</td></tr><tr><td>Red — White</td></tr></table></td></tr>
<tr><td>Drain pump (DP)
 
</td><td>Measure the resistance between the terminals with a tester.
(At the ambient temperature 20℃~30℃)
<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>290Ω</td><td>Open or short</td></tr></table></td></tr>
<tr><td>Drain sensor (DS)
 
</td><td>Measure the resistance between the terminals with a tester.
Measure the resistance after 3 minutes have passed since the power supply was intercepted.
(At the ambient temperature 0℃~60℃)
<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 next page for a detail.)</td></tr>
</table>

<Thermistor Characteristic graph>

Thermistor for lower temperature

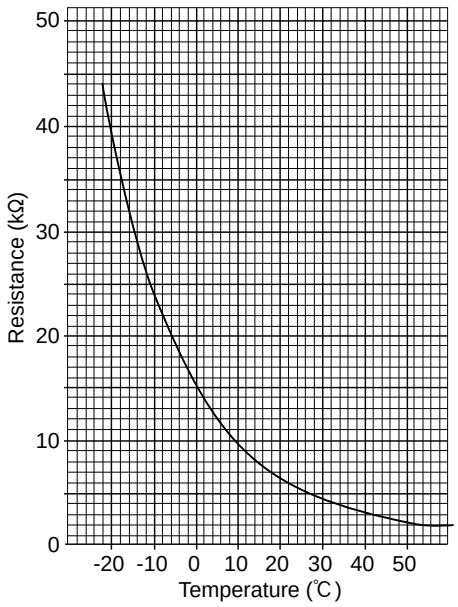
- •Room temperature thermistor (TH1)
- •Pipe temperature thermistor/liquid (TH2)
- •Condenser/evaporator temperature thermistor (TH5)

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

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

0℃	15kΩ
10℃	9.6kΩ
20℃	6.3kΩ
25℃	5.2kΩ
30℃	4.3kΩ
40℃	3.0kΩ

< Thermistor for lower temperature >



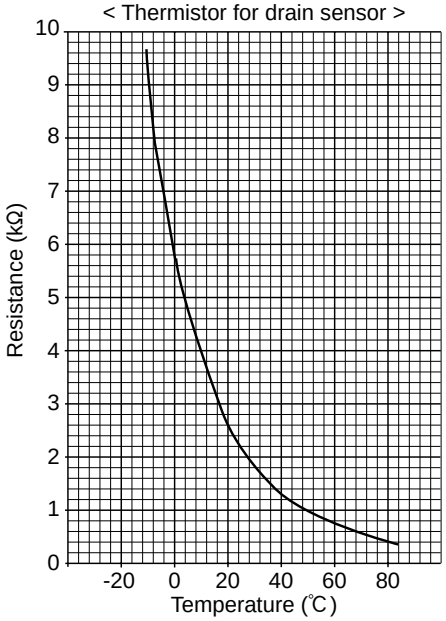
Thermistor for drain sensor

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

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

0℃	6.0kΩ
10℃	3.9kΩ
20℃	2.6kΩ
25℃	2.2kΩ
30℃	1.8kΩ
40℃	1.3kΩ
60℃	0.6kΩ

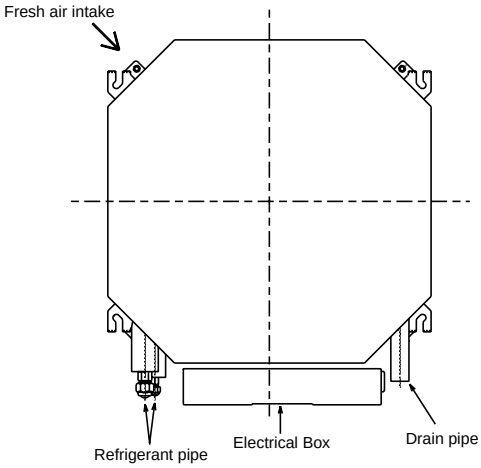
< Thermistor for drain sensor >



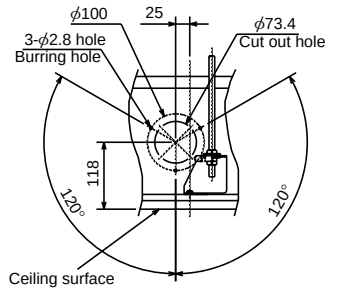
8 4-WAY AIR FLOW SYSTEM

8-1. FRESH AIR INTAKE (LOCATION FOR INSTALLATION)

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



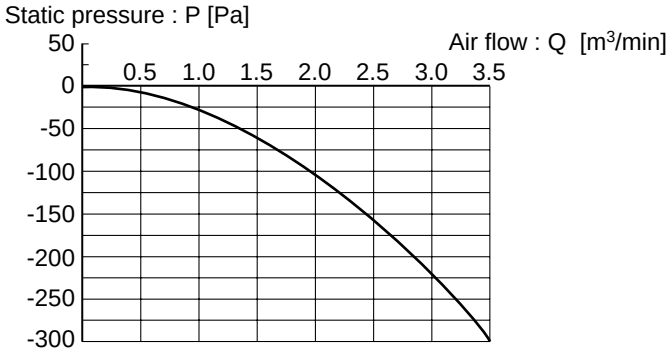
Detail drawing of fresh air intake



8-2. FRESH AIR INTAKE AMOUNT & STATIC PRESSURE CHARACTERISTICS

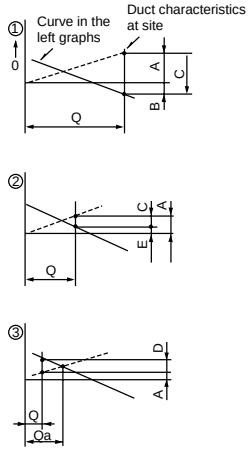
SLZ-KA25VAL(1).TH SLZ-KA25VA(1).TH
SLZ-KA35VAL(1).TH SLZ-KA35VA(1).TH
SLZ-KA50VAL(1).TH SLZ-KA50VA(1).TH

Taking air into the unit



NOTE: Fresh air intake amount should be 20% or less of whole air amount to prevent dew dripping.

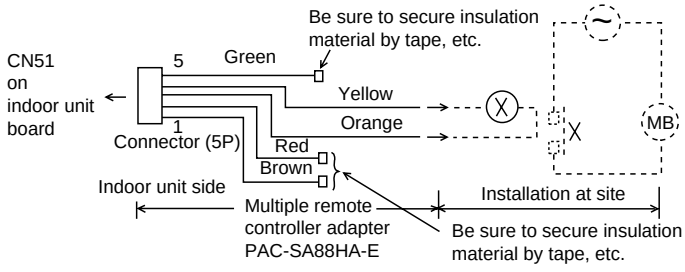
How to read curves

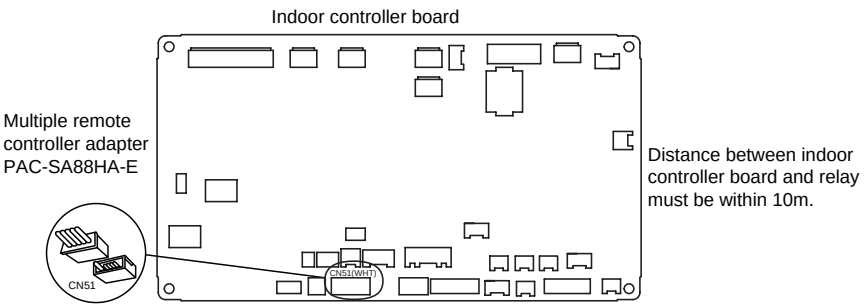


Q···Designed amount of fresh air intake <m³/min>
A···Static pressure loss of fresh air intake duct system with air flow amount Q <Pa>
B···Forced static pressure at air conditioner inlet with air flow amount Q <Pa>
C···Static pressure of booster fan with air flow amount Q <Pa>
D···Static pressure loss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

8-3. OPERATION IN CONJUNCTION WITH DUCT FAN (BOOSTER FAN)

●Whenever the indoor unit operates, the duct fan operates.
(1)Connect the optional multiple remote controller adapter(PAC-SA88HA-E) to the connector CN51 on the indoor controller board.
(2)Drive the relay after connecting the 12V DC relay between the Yellow and Orange connector wires.
Use a relay of 1W or smaller.
MB: Electromagnetic switch power relay for duct fan.
X: Auxiliary relay (12V DC LY-1F)



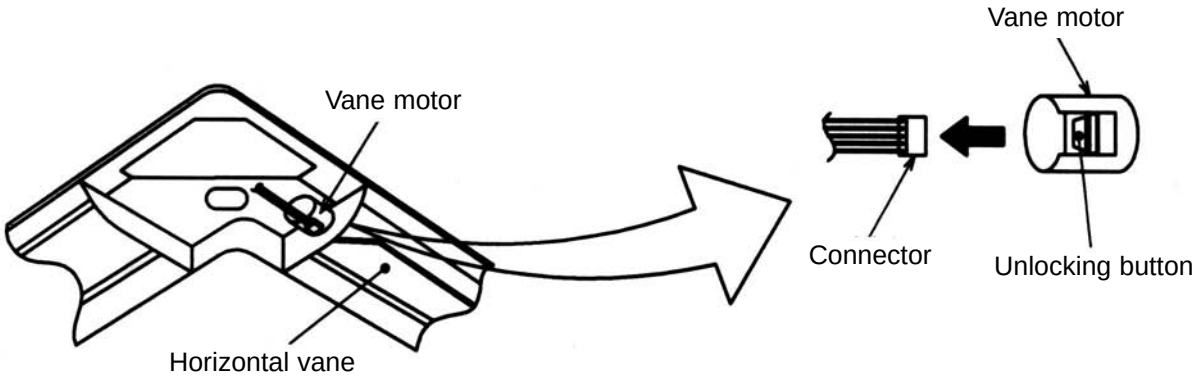


8-4. FIXING HORIZONTAL VANE

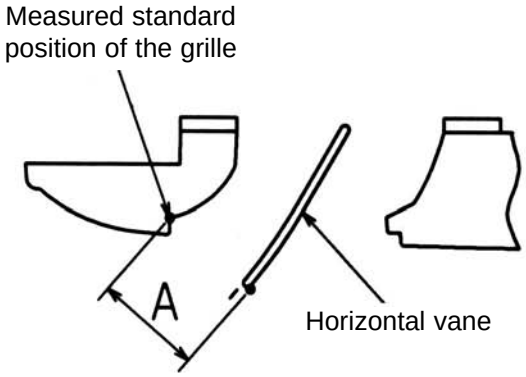
Horizontal vane of each air outlet can be fixed according to the environment where it is installed.

Setting procedure

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



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



<Set range>

Standard of horizontal position	Level 30° (Min.)	Downward 45°	Downward 55°	Downward 70° (Max.)
Dimension A (mm)	21	25	28	30

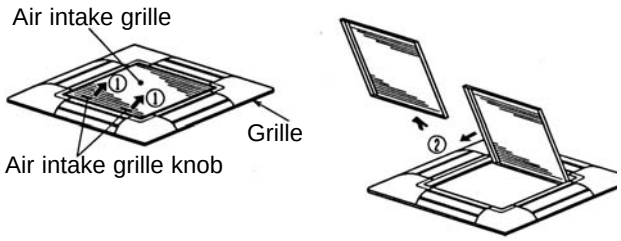
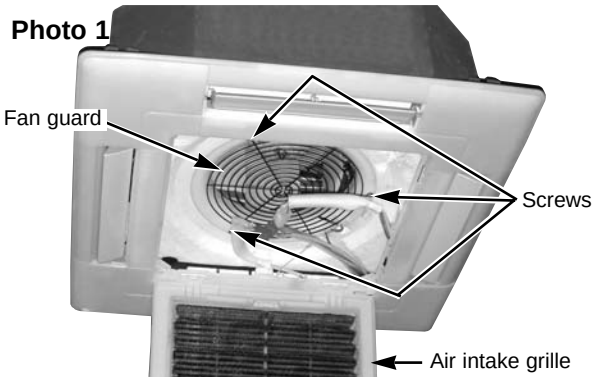
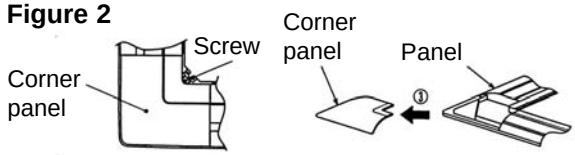
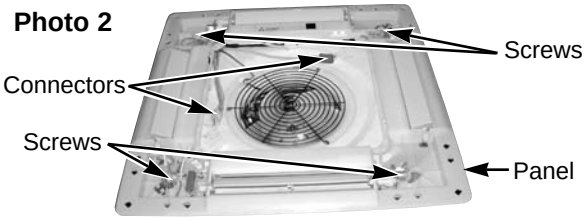
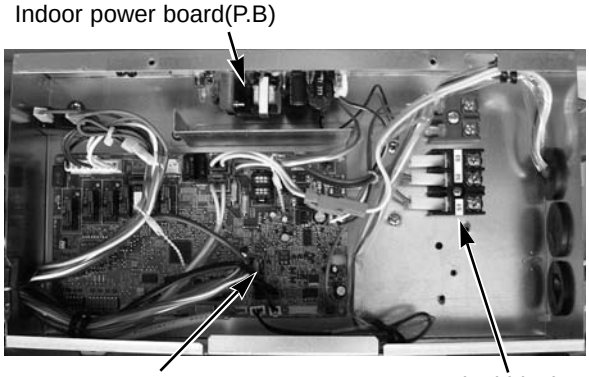
※ Dimension between 21 mm and 30 mm can be arbitrarily set.

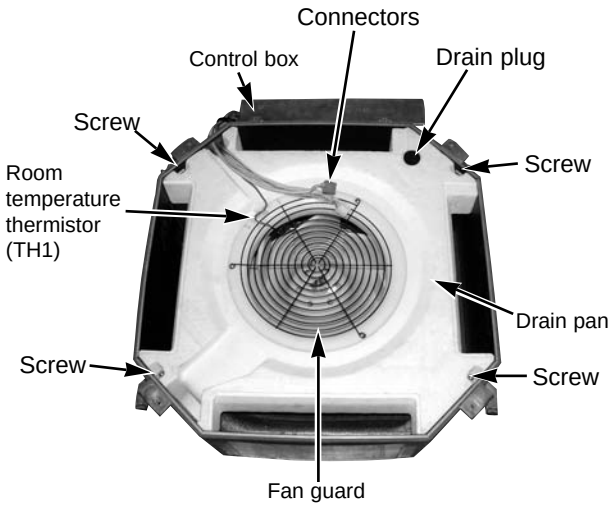
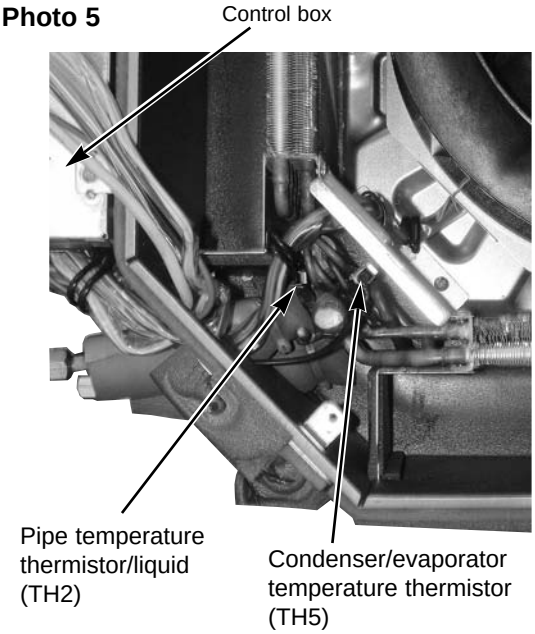
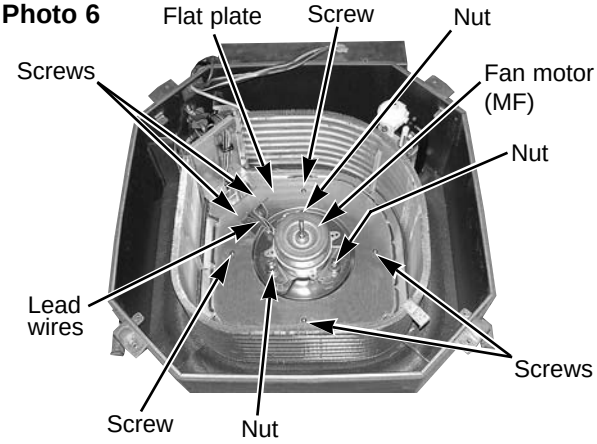
Caution	Do not set the dimension out of the range.
⚠	Erroneous setting could cause dew drips, smudge on ceiling or malfunction of unit.

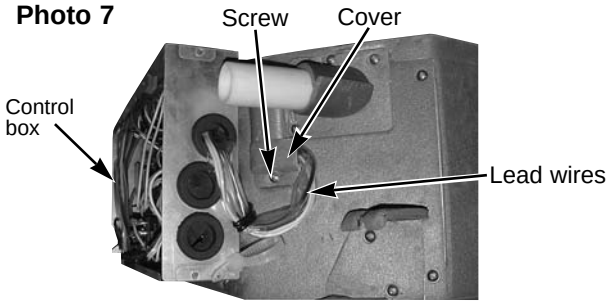
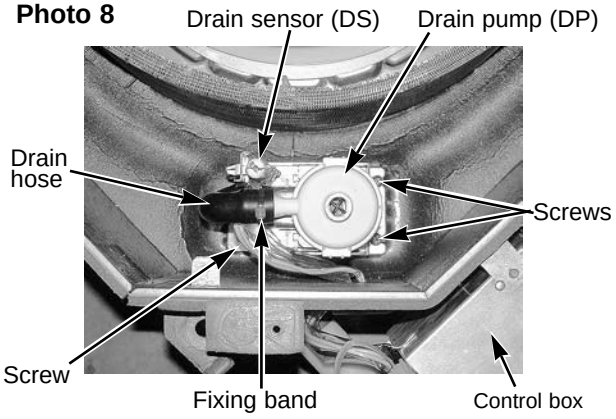
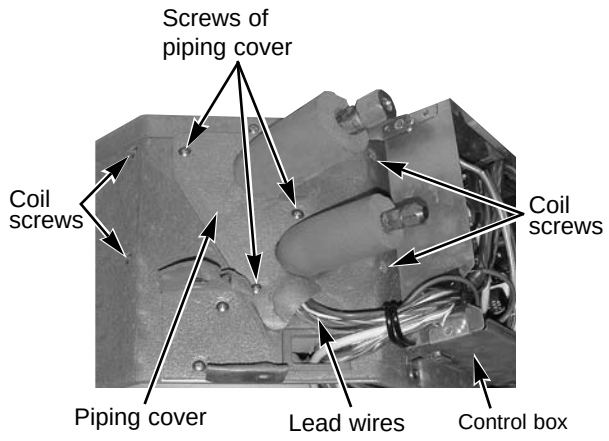
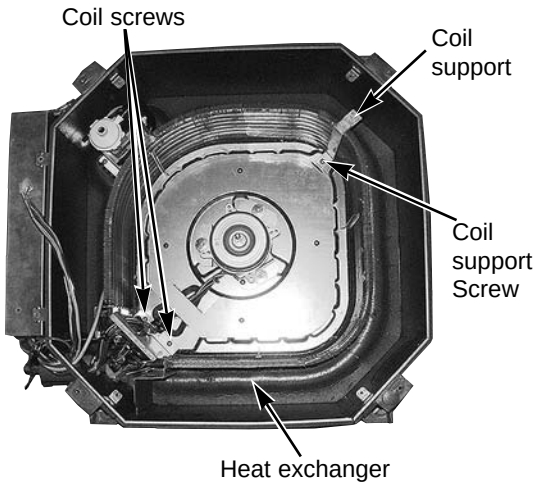
9 DISASSEMBLY PROCEDURE

SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL1.TH SLZ-KA25VA1.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL1.TH SLZ-KA35VA1.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL1.TH SLZ-KA50VA1.TH

Be careful on removing heavy parts.

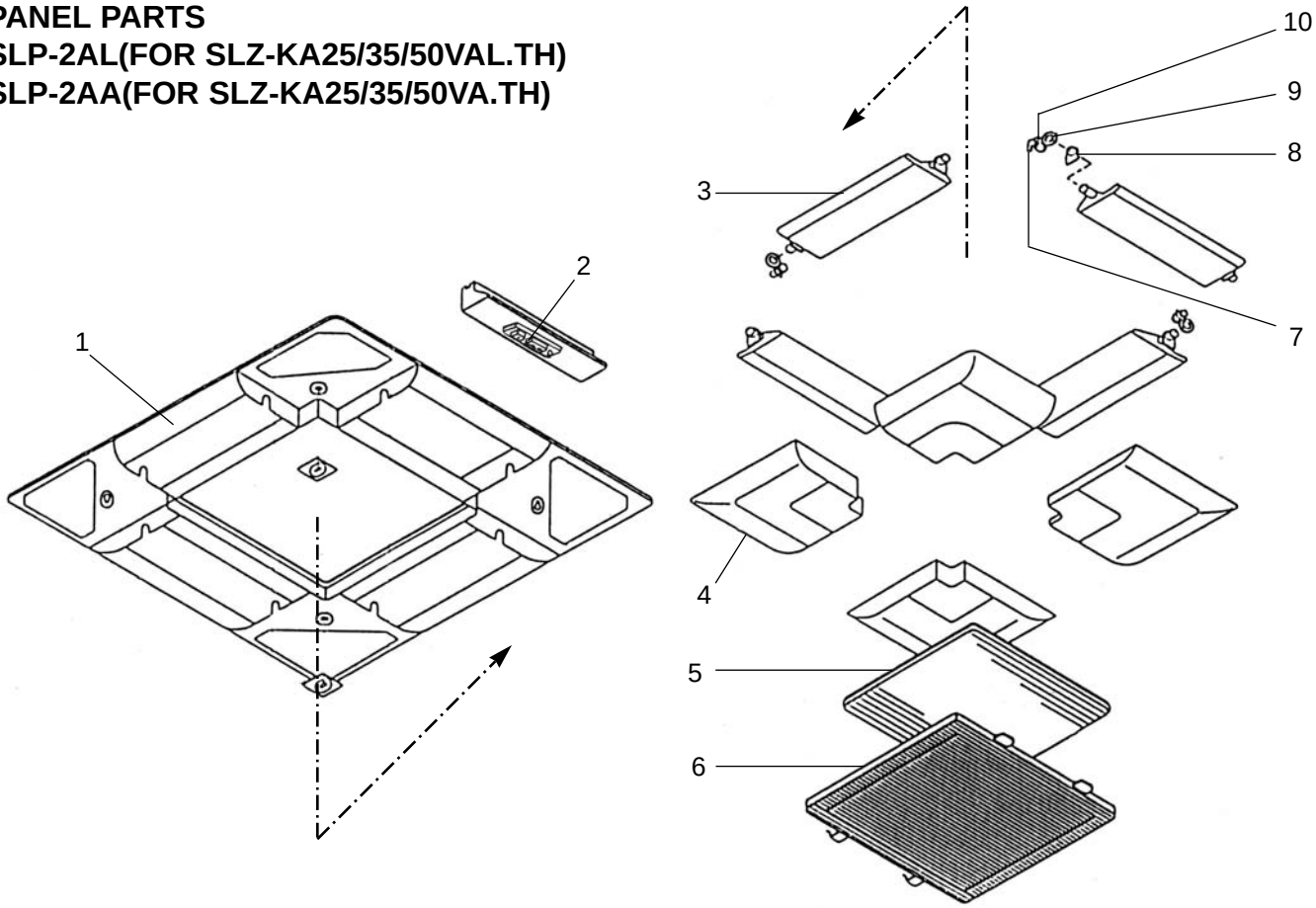
OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
1. Removing the air intake grille (1) Slide the knob of air intake grille to the direction of the arrow ① to open the air intake grille. (2) Remove the string hook from the panel to prevent the grille from dropping. (3) Slide the hinge of the intake grille to the direction of the arrow ② and remove the air intake grille.	**Figure 1** 
2. Removing the fan guard (1) Open the air intake grille. (2) Remove the 3 screws of fan guard.	**Photo 1** 
3. Removing the panel (1) Remove the air intake grille. (Refer to **1**) **Corner panel (See figure 2)** (1) Remove the screw of the corner. (2) Slide the corner panel to the direction of the arrow ③, and remove the corner panel. **Panel (See photo 2)** (1) Disconnect the connector that connects with the unit. (2) Remove the 2 screws from the panel and loose another 2 screws, which are fixed to the oval hole, have different diameter. (3) Rotate the panel a little to remove the screws.(Slide the panel so that the screw comes to a larger diameter of the oval hole, which has 2 different diameters.)	**Figure 2**  **Photo 2** 
4. Removing the electrical parts (1) Remove the 2 screws and the control box cover. <Electrical parts in the control box> • Indoor controller board (I.B) • Terminal block (TB4) • Indoor power board (P.B)	**Photo 3** 

OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
5. Removing the room temperature thermistor (TH1) (1) Remove the panel. (Refer to **3**) (2) Pull out the room temperature thermistor from the drain pan. (3) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (4) Remove the connector (CN20) from the indoor controller board, and disconnect the room temperature thermistor.	**Photo 4** 
6. Removing the drain pan (1) Remove the panel. (Refer to **3**) (2) Remove the room temperature thermistor and the 2 lead wires held with fastener; wireless controller board relay connector (9P red) and panel relay connector (10P white). (3) Remove the 4 screws fixed to the drain pan, and remove the drain pan. (4) Remove the fan guard. (Refer to **2**)	
7. Removing the pipe temperature thermistor/liquid (TH2) and condenser/evaporator temperature thermistor (TH5) (1) Remove the panel. (Refer to **3**) (2) Remove the drain pan. (Refer to **6**) (3) Disconnect the indoor coil thermistor from the holder. (4) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See photo 9) (5) Remove the 2 screws fixed to the control box cover, and remove the control box cover. **Pipe temperature thermistor/liquid (TH2)** (6) Remove the connector (CN21) from the indoor controller board, and disconnect the pipe temperature thermistor/liquid. **Condenser/evaporator temperature thermistor (TH5)** (6) Remove the connector (CN29) from the indoor controller board, and disconnect the condenser/evaporator temperature thermistor.	**Photo 5** 
8. Removing the fan motor (MF) (1) Remove the panel. (Refer to **3**) (2) Remove the drain pan. (Refer to **6**) (3) Remove the nut and the washer from the turbo fan, and remove the turbo fan. (4) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (5) Disconnect the connectors of the (fan 1) and the (fan 2) from the indoor controller board. (6) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See photo 9) (7) Remove the 6 screws fixed to the flat plate, and remove the flat plate. (8) Disconnect the lead wires to the direction of the fan motor, and remove the 3 nuts of the fan motor.	**Photo 6** 

OPERATING PROCEDURE	PHOTOS&ILLUSTRATIONS
9. Removing the drain pump (DP) and drain sensor (DS) (1) Remove the panel. (Refer to **3**) (2) Remove the drain pan. (Refer to **6**) (3) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (4) Remove the connectors of the (CNP) and the (CN31) from the indoor controller board. (5) Remove the 1 screw fixed to the cover, and remove the cover. (6) Disconnect the lead wires to the direction of the drain pump.(See photo 7) (7) Remove the 3 screws of the drain pump. (8) Cut the drain hose band, pull out the drain hose from the drain pump. (9) Pull out the drain pump. (10) Remove the drain sensor and the holder.	**Photo 7**  **Photo 8** 
10. Removing the heat exchanger (1) Remove the panel. (Refer to **3**) (2) Remove the drain pan. (Refer to **6**) (3) Remove the nut and the washer from the turbo fan, and remove the turbo fan. (4) Remove the 2 screws fixed to the control box cover, and remove the control box cover. (5) Disconnect the connector of the (fan) from the indoor controller board. (6) Remove the 3 screws fixed to the piping cover, and remove the piping cover. (See photo 9) (7) Remove the pipe temperature thermistor/liquid and condenser/evaporator temperature thermistor. (Refer to **7**) (8) Disconnect the lead wires to the direction of the fan motor. (9) Remove the 1 coil support screw, the 2 inside coil screws (See photo 10), and the 4 outside coil screws (See photo 9) from the heat exchanger, and remove the heat exchanger.	**Photo 9**  **Photo 10** 

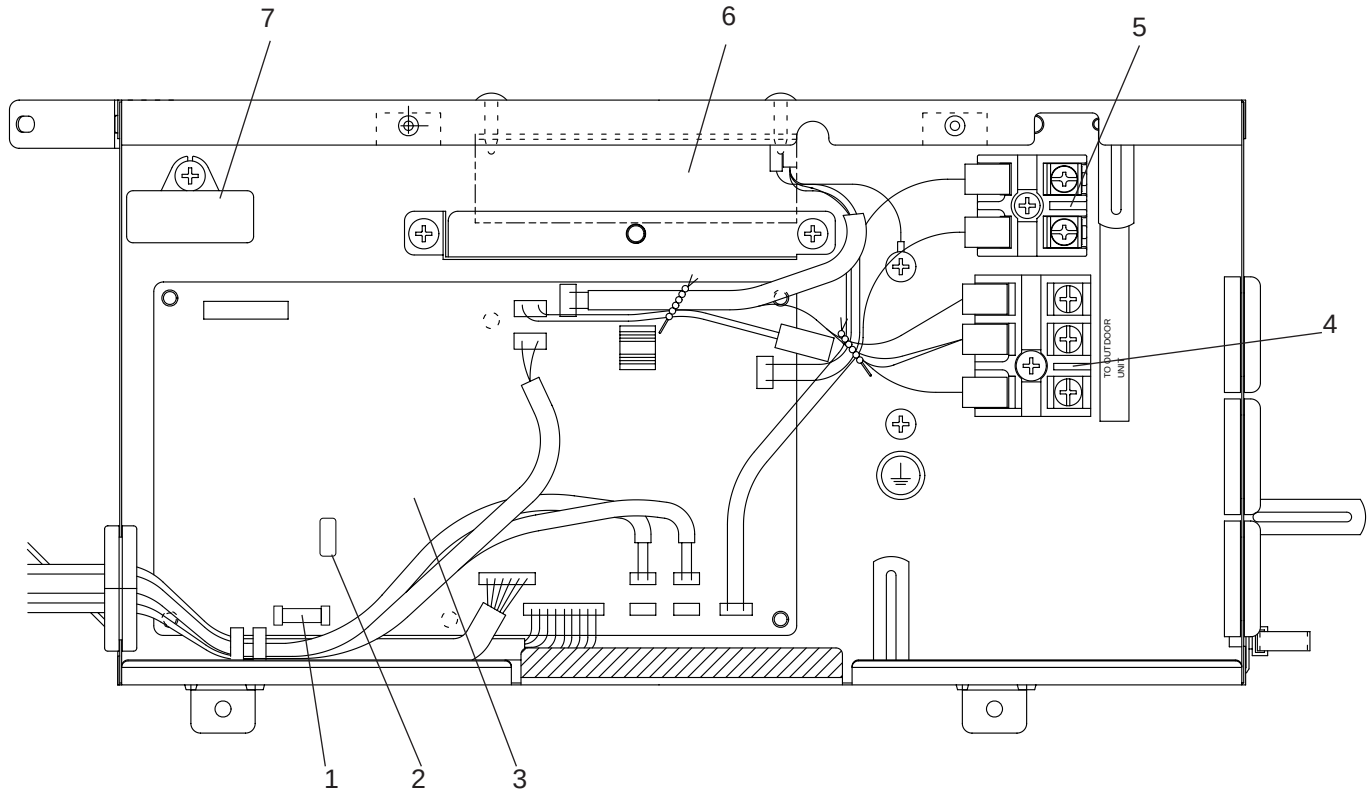
10 PARTS LIST (Non RoHS compliant)

PANEL PARTS
SLP-2AL(FOR SLZ-KA25/35/50VAL.TH)
SLP-2AA(FOR SLZ-KA25/35/50VA.TH)



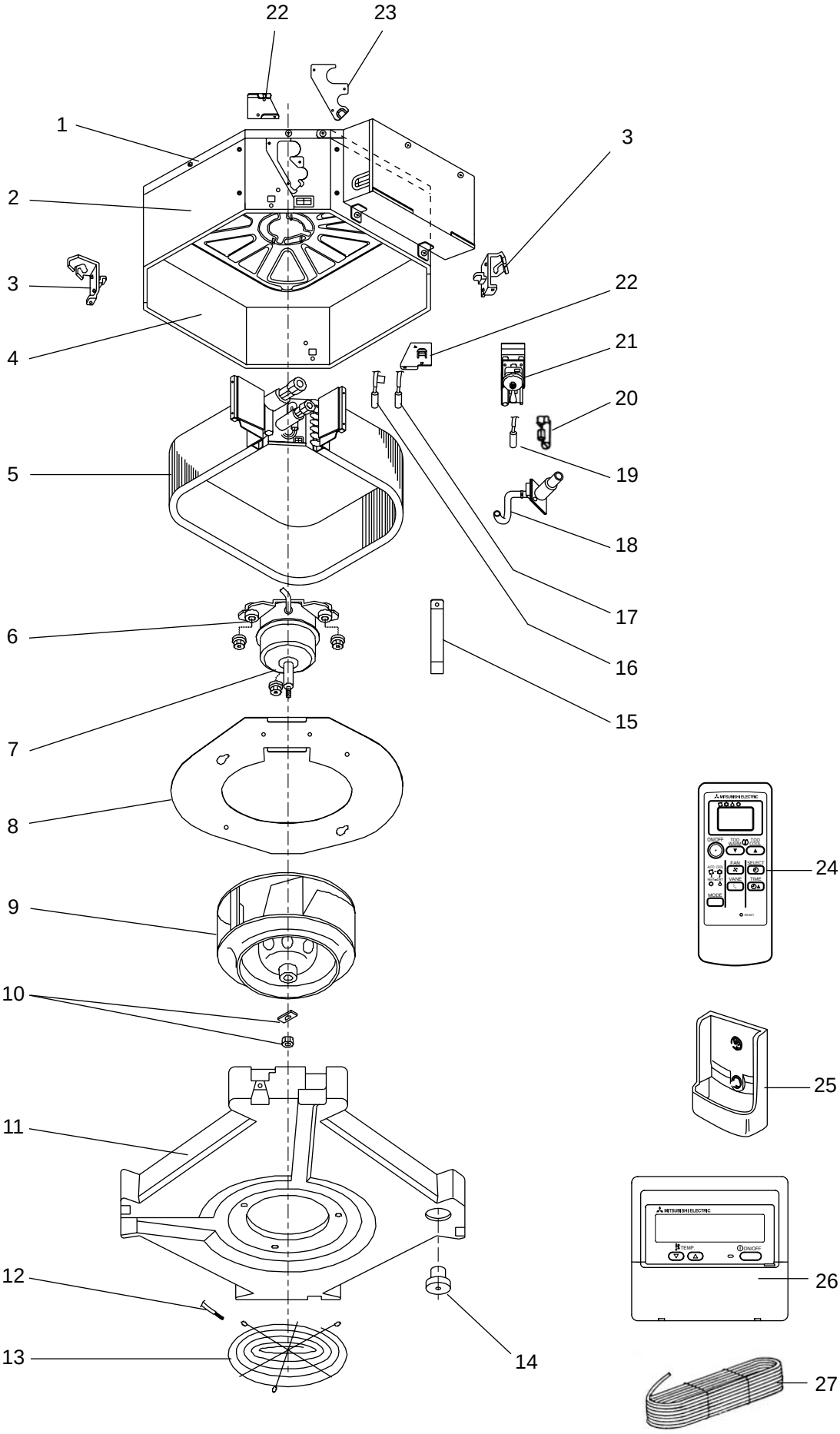
No.	Parts No.	Parts name	Specification	Q'ty/set		Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
				SLP-2AL	SLP-2AA			
1	E07 103 003	AIR OUTLET GRILLE		1				
	E07 158 003	AIR OUTLET GRILLE			1			
2	E07 103 317	WIRELSS REMOTE CONTROL BOARD		1			W.B	
3	E07 103 037	AUTO VANE		4	4			
4	E07 103 975	CORNER PANEL		4	4			
5	E07 103 100	AIR FILTER		1	1			
6	E07 103 010	INTAKE GRILLE		1	1			
7	E07 103 303	VANE MOTOR		4	4		MV	
8	E07 103 044	VANE BUSH		8	8			
9	E07 103 031	GEAR (V)		4	4			
10	E07 103 032	GEAR (M)		4	4			

ELECTRICAL PARTS
SLZ-KA25VAL.TH SLZ-KA25VA.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH



No.	Parts No.	Parts name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
				SLZ-KA								
				25	35	50	25	35	50			
				VAL.TH			VA.TH					
1	E07 006 382	FUSE	250V 6.3A	1	1	1	1	1	1		FUSE	
2	E02 661 385	VARISTOR		1	1	1	1	1	1		ZNR	
3	E07 162 447	INDOOR CONTROLLER BOARD		1			1				I.B	
	E07 164 447	INDOOR CONTROLLER BOARD			1			1			I.B	
	E07 166 447	INDOOR CONTROLLER BOARD				1			1		I.B	
4	E07 162 375	TERMINAL BLOCK	3P(S1,S2,S3)	1	1	1	1	1	1		TB4	
5	E07 156 375	TERMINAL BLOCK	2P(1,2)				1	1	1		TB15	
6	E07 154 440	INDOOR POWER BOARD		1	1	1	1	1	1		P.B	
7	E02 095 350	INDOOR FAN CAPACITOR	1.5μF/ 440VAC	1	1	1	1	1	1		C1	

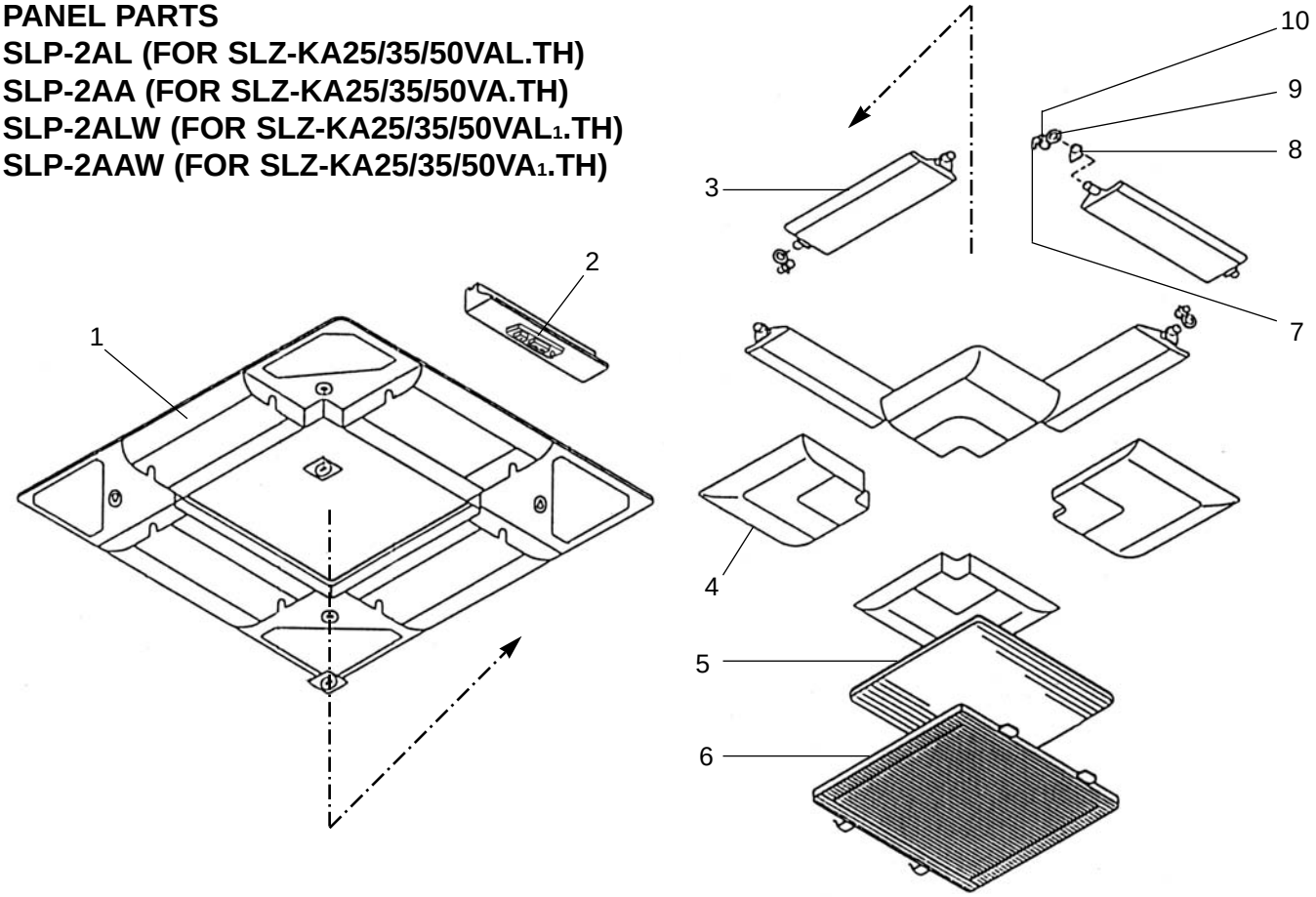
FUNCTIONAL PARTS
SLZ-KA25VAL.TH
SLZ-KA35VAL.TH
SLZ-KA50VAL.TH
SLZ-KA25VA.TH
SLZ-KA35VA.TH
SLZ-KA50VA.TH



No.	Parts No.	Parts name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
				SLZ-KA								
				25	35	50	25	35	50			
				VAL.TH			VA.TH					
1	E07 104 290	BASE		1	1	1	1	1	1			
2	E07 104 124	DRUM-1		1	1	1	1	1	1			
3	E07 104 808	LEG-1		2	2	2	2	2	2			
4	E07 105 124	DRUM-2		1	1	1	1	1	1			
5	E07 140 620	INDOOR HEAT EXCHANGER		1			1					
	E07 141 620	INDOOR HEAT EXCHANGER			1			1				
	E07 142 620	INDOOR HEAT EXCHANGER				1			1			
6	E07 104 105	MOTOR MOUNT		3	3	3	3	3	3	3PCS/SET		
7	E07 162 300	INDOOR FAN MOTOR	PK6V15-LD	1			1				MF	
	E07 164 300	INDOOR FAN MOTOR	PK6V20-LL		1			1			MF	
	E07 166 300	INDOOR FAN MOTOR	PK6V20-LM			1			1		MF	
8	E07 104 816	FLAT PLATE		1	1	1	1	1	1			
9	E07 104 502	TURBO FAN		1	1	1	1	1	1			
10	E07 104 097	SPL WASHER		1	1	1	1	1	1			
11	E07 104 700	DRAIN PAN		1	1	1	1	1	1			
12	E07 154 308	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH1	
13	E07 104 520	FAN GUARD		1	1	1	1	1	1			
14	E07 104 524	DRAIN PLUG		1	1	1	1	1	1			
15	E07 104 648	COIL SUPPORT		1	1	1	1	1	1			
16	E07 154 309	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH5	
17	E07 154 307	PIPE TEMPERATURE THERMISTOR / LIQUID		1	1	1	1	1	1		TH2	
18	E07 104 702	DRAIN HOSE		1	1	1	1	1	1			
19	E07 104 266	DRAIN SENSOR		1	1	1	1	1	1		DS	
20	E07 104 241	SENSOR HOLDER		1	1	1	1	1	1			
21	E07 104 355	DRAIN PUMP		1	1	1	1	1	1		DP	
22	E07 104 809	LEG-2		2	2	2	2	2	2			
23	E07 154 006	COVER (DRUM)		1	1	1	1	1	1			
24	E07 140 426	WIRELESS REMOTE CONTROLLER		1	1	1					W.R	
25	E02 527 083	REMOTE CONTROLLER HOLDER		1	1	1						
26	E07 159 426	REMOTE CONTROLLER					1	1	1			
27	E07 018 089	REMOTE CONTROLLER CABLE					1	1	1			

11 RoHS PARTS LIST

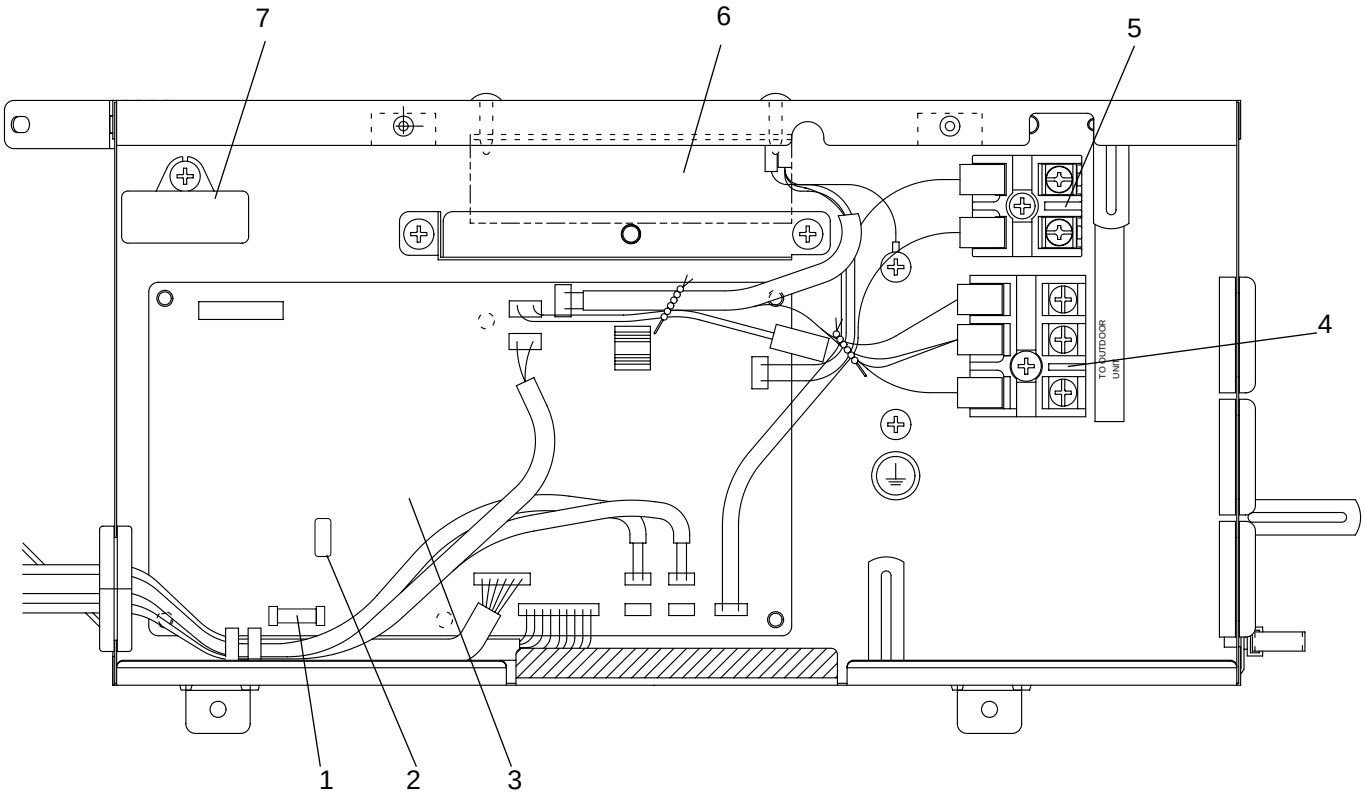
PANEL PARTS
SLP-2AL (FOR SLZ-KA25/35/50VAL.TH)
SLP-2AA (FOR SLZ-KA25/35/50VA.TH)
SLP-2ALW (FOR SLZ-KA25/35/50VAL$_1$.TH)
SLP-2AAW (FOR SLZ-KA25/35/50VA$_1$.TH)



No.	RoHS	Parts No.	Parts name	Specification	Q'ty/set SLP-2				Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
					AL	AA	ALW	AAW			
1	G	E17 103 003	AIR OUTLET GRILLE		1						
	G	E17 158 003	AIR OUTLET GRILLE			1					
	G	E17 423 003	AIR OUTLET GRILLE				1				
	G	E17 424 003	AIR OUTLET GRILLE					1			
2	G	E17 103 317	WIRELSS REMOTE CONTROL BOARD		1		1			W.B	
3	G	E17 103 037	AUTO VANE		4	4					
	G	E17 423 037	AUTO VANE				4	4			
4	G	E17 103 975	CORNER PANEL		4	4					
	G	E17 423 975	CORNER PANEL				4	4			
5	G	E17 103 100	AIR FILTER		1	1	1	1			
6	G	E17 103 010	INTAKE GRILLE		1	1					
	G	E17 423 010	INTAKE GRILLE				1	1			
7	G	E17 103 303	VANE MOTOR		4	4	4	4		MV	
8	G	E17 103 044	VANE BUSH		8	8	8	8			
9	G	E17 103 031	GEAR (V)		4	4	4	4			
10	G	E17 103 032	GEAR (M)		4	4	4	4			

ELECTRICAL PARTS

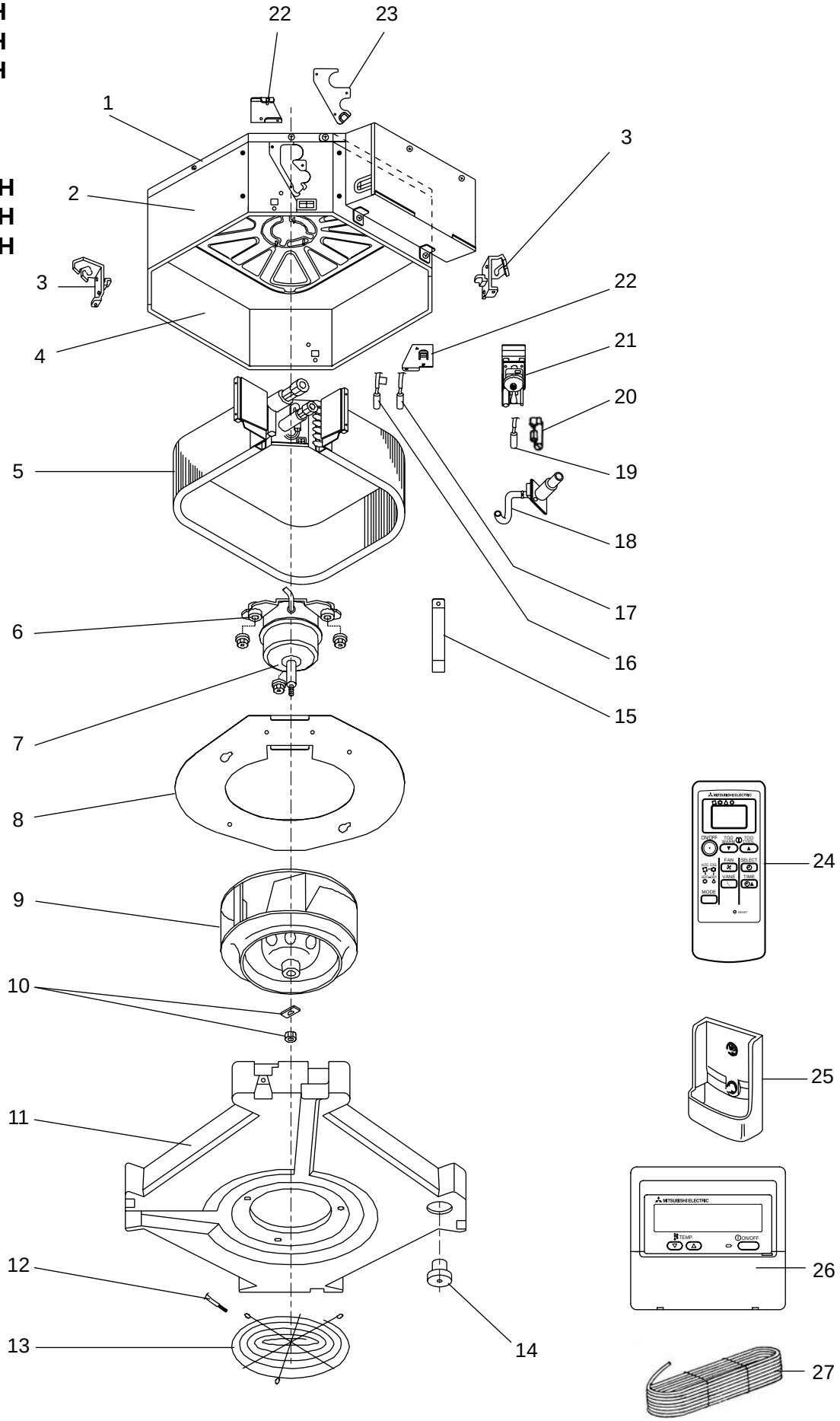
SLZ-KA25VAL.TH SLZ-KA25VA.TH SLZ-KA25VAL$_1$.TH SLZ-KA25VA$_1$.TH
SLZ-KA35VAL.TH SLZ-KA35VA.TH SLZ-KA35VAL$_1$.TH SLZ-KA35VA$_1$.TH
SLZ-KA50VAL.TH SLZ-KA50VA.TH SLZ-KA50VAL$_1$.TH SLZ-KA50VA$_1$.TH



No.	RoHS	Parts No.	Parts name	Specification	Q'ty/set SLZ-KA 25	35	50	25	35	50	Remarks (Drawing No.)	Wiring Diagram Symbol	Recommended Q'ty
					VAL(1).TH			VA(1).TH					
1	G	E17 006 382	FUSE	250V 6.3A	1	1	1	1	1	1		FUSE	
2	G	E12 661 385	VARISTOR		1	1	1	1	1	1		ZNR	
3	G	E17 162 447	INDOOR CONTROLLER BOARD		1			1				I.B	
	G	E17 164 447	INDOOR CONTROLLER BOARD			1			1			I.B	
	G	E17 166 447	INDOOR CONTROLLER BOARD				1			1		I.B	
4	G	E17 162 375	TERMINAL BLOCK	3P(S1,S2,S3)	1	1	1	1	1	1		TB4	
5	G	E17 156 375	TERMINAL BLOCK	2P(1,2)				1	1	1		TB15	
6	G	E17 154 440	INDOOR POWER BOARD		1	1	1	1	1	1		P.B	
7	G	E12 095 350	INDOOR FAN CAPACITOR	1.5μF/ 440VAC	1	1	1	1	1	1		C1	

FUNCTIONAL PARTS

SLZ-KA25VAL.TH
SLZ-KA35VAL.TH
SLZ-KA50VAL.TH
SLZ-KA25VA.TH
SLZ-KA35VA.TH
SLZ-KA50VA.TH
SLZ-KA25VAL$_1$.TH
SLZ-KA35VAL$_1$.TH
SLZ-KA50VAL$_1$.TH
SLZ-KA25VA$_1$.TH
SLZ-KA35VA$_1$.TH
SLZ-KA50VA$_1$.TH



No.	RoHS	Parts No.	Parts name	Specification	Q'ty/set						Remarks (Drawing No.)	Wiring Diagram Symbol	Recom-mended Q'ty
					SLZ-KA								
					25	35	50	25	35	50			
					VAL(1).TH			VA(1).TH					
1	G	E17 104 290	BASE		1	1	1	1	1	1			
2	G	E17 104 124	DRUM-1		1	1	1	1	1	1			
3	G	E17 104 808	LEG-1		2	2	2	2	2	2			
4	G	E17 105 124	DRUM-2		1	1	1	1	1	1			
5	G	E17 140 620	INDOOR HEAT EXCHANGER		1			1					
	G	E17 141 620	INDOOR HEAT EXCHANGER			1			1				
	G	E17 142 620	INDOOR HEAT EXCHANGER				1			1			
6	G	E17 104 105	MOTOR MOUNT		3	3	3	3	3	3	3PCS/SET		
7	G	E17 162 300	INDOOR FAN MOTOR	PK6V15-LD	1			1				MF	
	G	E17 164 300	INDOOR FAN MOTOR	PK6V20-LL		1			1			MF	
	G	E17 166 300	INDOOR FAN MOTOR	PK6V20-LM			1			1		MF	
8	G	E17 104 816	FLAT PLATE		1	1	1	1	1	1			
9	G	E17 104 502	TURBO FAN		1	1	1	1	1	1			
10	G	E17 104 097	SPL WASHER		1	1	1	1	1	1			
11	G	E17 104 700	DRAIN PAN		1	1	1	1	1	1			
12	G	E17 154 308	ROOM TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH1	
13	G	E17 104 520	FAN GUARD		1	1	1	1	1	1			
14	G	E17 104 524	DRAIN PLUG		1	1	1	1	1	1			
15	G	E17 104 648	COIL SUPPORT		1	1	1	1	1	1			
16	G	E17 154 309	CONDENSER / EVAPORATOR TEMPERATURE THERMISTOR		1	1	1	1	1	1		TH5	
17	G	E17 154 307	PIPE TEMPERATURE THERMISTOR / LIQUID		1	1	1	1	1	1		TH2	
18	G	E17 104 702	DRAIN HOSE		1	1	1	1	1	1			
19	G	E17 104 266	DRAIN SENSOR		1	1	1	1	1	1		DS	
20	G	E17 104 241	SENSOR HOLDER		1	1	1	1	1	1			
21	G	E17 104 355	DRAIN PUMP		1	1	1	1	1	1		DP	
22	G	E17 104 809	LEG-2		2	2	2	2	2	2			
23	G	E17 154 006	COVER (DRUM)		1	1	1	1	1	1			
24	G	E17 140 426	WIRELESS REMOTE CONTROLLER		1	1	1					W.R	
25	G	E12 527 083	REMOTE CONTROLLER HOLDER		1	1	1						
26	G	E17 159 426	REMOTE CONTROLLER					1	1	1			
27	G	E17 018 089	REMOTE CONTROLLER CABLE					1	1	1			

Mr.SLIM™

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