SAMSUNG

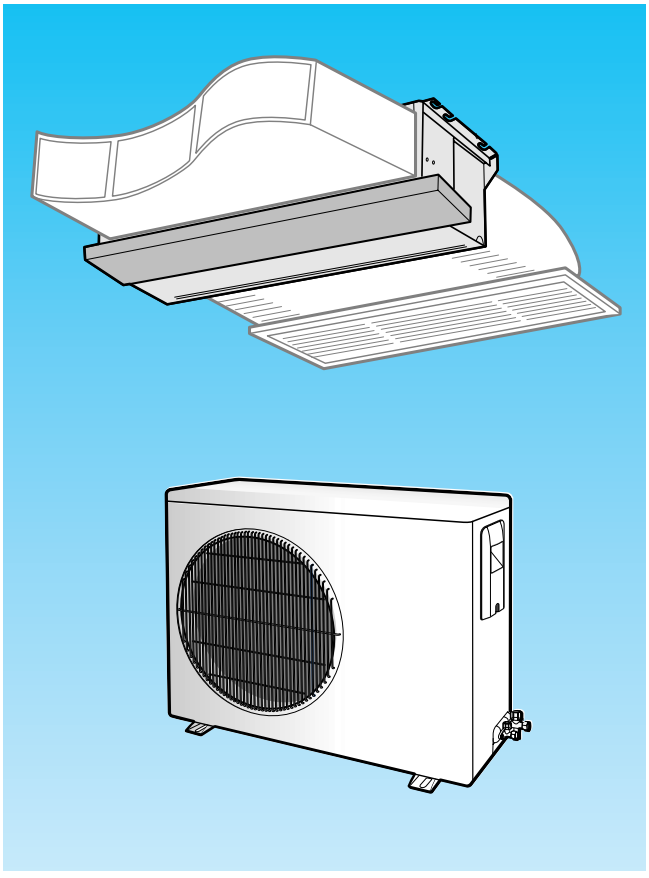
DUCT TYPE AIR CONDITIONER

(Cool and Heat)

TYPE	INDOOR UNIT	OUTDOOR UNIT
ADH1800E	IDH1800E	UBH1800E
ADH2400E	IDH2400E	UBH2400E
ADH3200E	IDH3200E	UDH3200E
DH18ZA1(A2)	DH18ZA1(A2)	DH18ZAX
DH24ZA1(A2)	DH24ZA1(A2)	DH24ZAX
DH32ZA1(A2)	DH32ZA1(A2)	DH32ZAX

SERVICE Manual

AIR CONDITIONER



CONTENTS

1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use them. Using defective tools or test equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance. Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

11. Be sure that the installed conditions are satisfactory and correct according to the specifications.

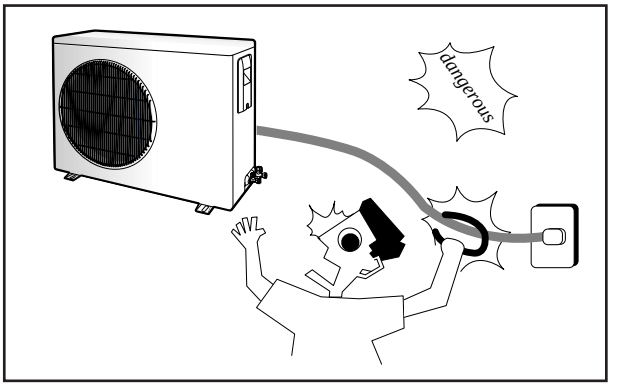


Fig. 1-1 Avoid Dangerous Contact

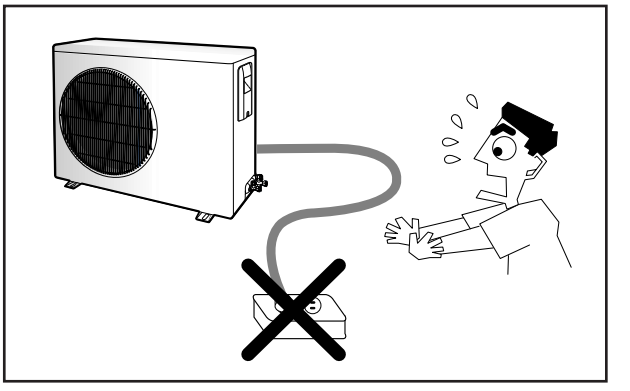


Fig. 1-2 No Tapping and No Extension Cords

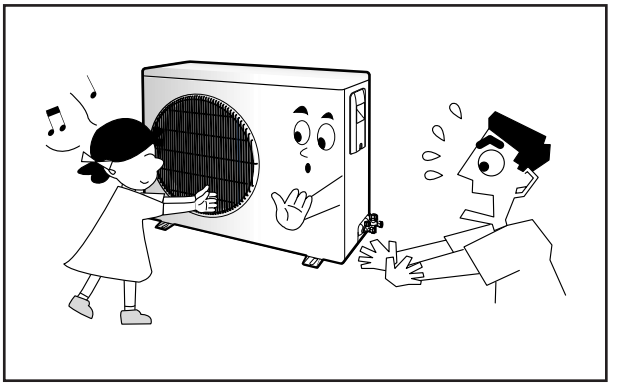


Fig. 1-3 No Kids Nearby!

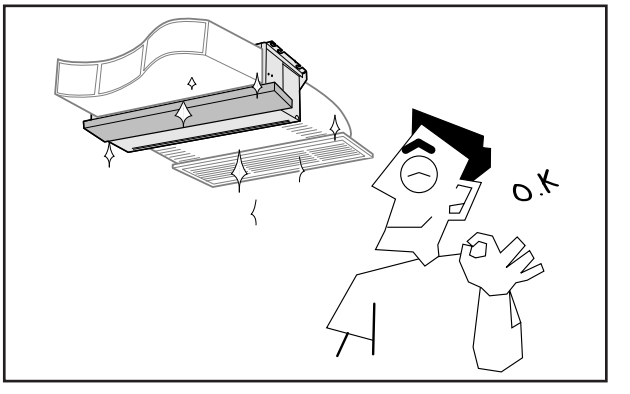


Fig. 1-4 Clean the Unit

MEMO

2. Product Specifications

2-1 Table of Specifications (Duct Type)

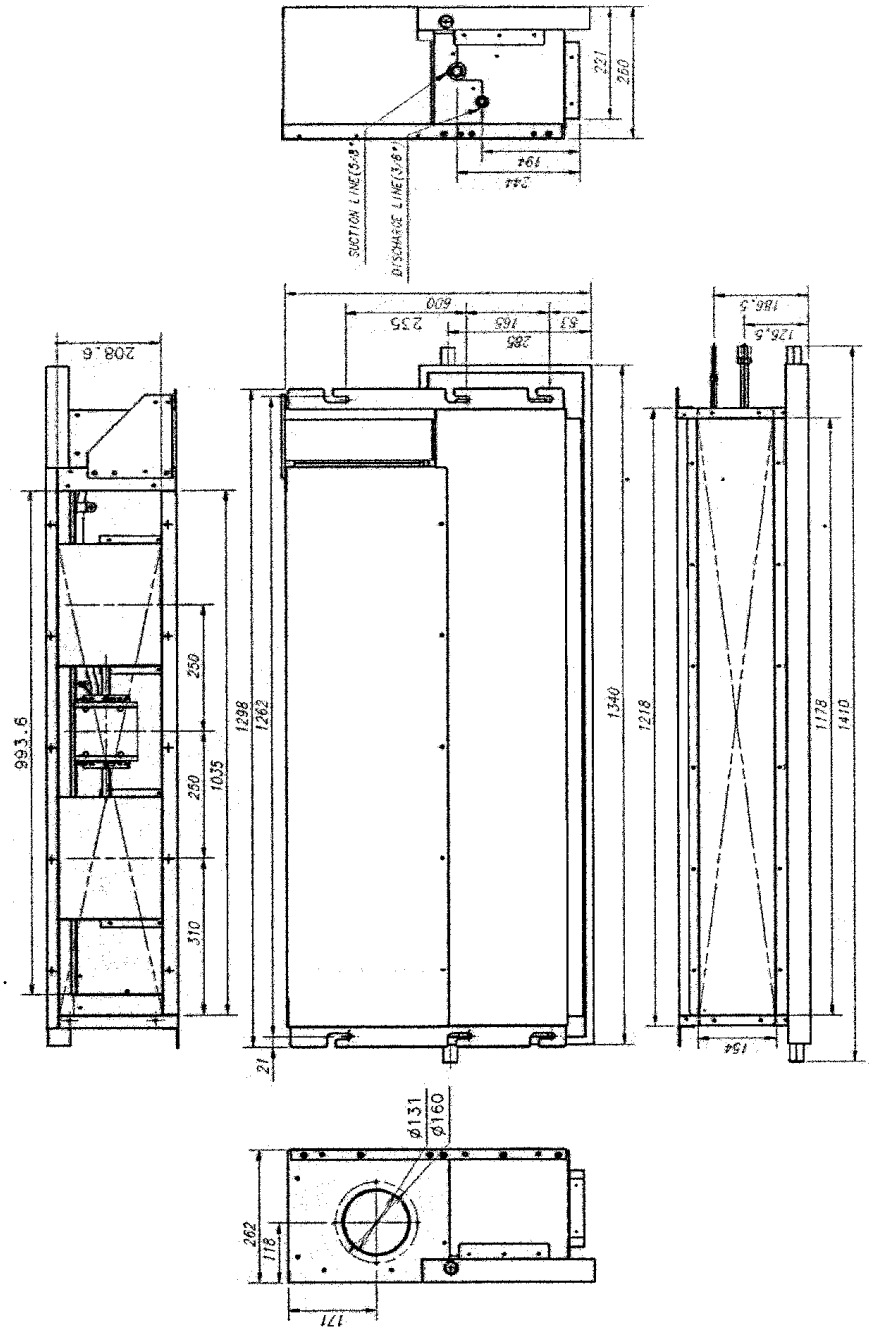
MODEL	INDOOR UNIT			IDH1800E/DH18ZA1(A2)	IDH2400E/DH24ZA1(A2)	IDH3200E/DH32ZA1(A2)
	OUTDOOR UNIT			UBH1800E/DH18ZAX	UBH2400E/DH24ZAX	UDH3200E/DH32ZAX
Capacity	Cooling		But/h	17,400	23,000	32,000
			W	5,100	6,700	9,350
	Heating		Btu/h	18,400	24,500	34,900
			W	5,400	7,200	10,200
Power supply				220-240~ 50Hz		
Power input	Cooling		kW	1.75	2.30	3.50
	Heating		kW	1.65	2.40	3.60
Running current	Cooling		A	7.8	10.5	16.0
	Heating		A	7.3	11.0	16.5
Starting current			A	50.0	50.0	60.0
			A			
EER	Cooling		W/W	2.8	2.7	2.5
	Heating		W/W	2.9	2.8	2.7
Indoor unit	Fan speed	H.H	r.p.m.	900	1,080	1,300
		Hi	r.p.m.	800	980	1,200
		Med	r.p.m.	750	930	1,150
		Low	r.p.m.	700	880	1,100
	Air circulation	H.H	m^3/min	17	20	24.0
		Hi	m^3/min	15	18	22
		Med	m^3/min	14	16	21
		Low	m^3/min	13	15	20
	Noise Level (Sound pressure)	Hi	dB(A)	42	43	53
		Med	dB(A)	41	42	52
		Low	dB(A)	40	41	51
	Heat exchanger	type		D-fin coil	D-fin coil	wave fin coil
		rowxstagesxfin pitch		2x10x1.7(1100)	2x10x1.7(1100)	3x8x1.4(1100)
	Fan	type		Sirocco	Sirocco	Sirocco
		motor output	W	70	100	170
	Dimensions	H	mm	260	260	260
		W	mm	1,340	1,340	1,340
		D	mm	600	600	600
	Weight	kg	Net/Gross	41/57	41/57	43/59
Outdoor unit	Fan speed	Hi	r.p.m.	1,000	750	900
		Low	r.p.m.	650	400	550
	Air circulation (Hi)		m3/min	35	45	50
	Sound pressure level		dB(A)	55	56	62

MODEL	INDOOR UNIT			IDH1800E/DH18ZA1(A2)	IDH2400E/DH24ZA1(A2)	IDH3200E/DH32ZA1(A2)
	OUTDOOR UNIT			UBH1800E/DH18ZAX	UBH2400E/DH24ZAX	UDH3200E/DH32ZAX
Outdoor Unit	Fan	type		propeller	propeller	propeller
		motor output	W	35	60	115
	Compressor	type		scroll	scroll	scroll
		model		ZR22K3-PFJ	ZR28K3-PFJ	ZR42K3-PFJ
		motor output	kW	1.37	1.74	2.61
		protection		Internal	Internal	Internal
	Heat exchanger	type		wave fin coil	D fin coil	wave fin coil
		rowxstagesxfin pitch		2x24x1.7(824)	2x24x1.7(896)	2x30x1.7(886)
		face area	m^2	0.494	0.583	0.665
	Refrigerant	control		Capillary	Capillary	Capillary
		(R22)charge	g	2,000	2,400	2,500
	Dimensions	(HXWXD)	mm	620x787x320	638x880x310	790x880x310
	Weight	kg	Net/Gross	63/68	67/72	77/83
Condition	Indoor unit	Cool(DB/WB)	˚C	27/19	27/19	27/19
		Heat(DB/WB)	˚C	20/15	20/15	20/15
	Outdoor unit	Cool(DB/WB)	˚C	35/24	35/24	35/24
		Heat(DB/WD)	˚C	7/6	7/6	7/6
Piping	Pipe O.D. size	Liquid	mm(inch)	9.52(3/8")	9.52(3/8")	9.52(3/8")
		Gas	mm(inch)	15.88(5/8")	15.88(5/8")	15.88(5/8")
	Connection method			Flare	Flare	Flare
	Between	Height	m	Max. 15	Max. 15	Max. 15
		Pipe length	m	Max. 30	Max. 30	Max. 30

2-2 Dimensions

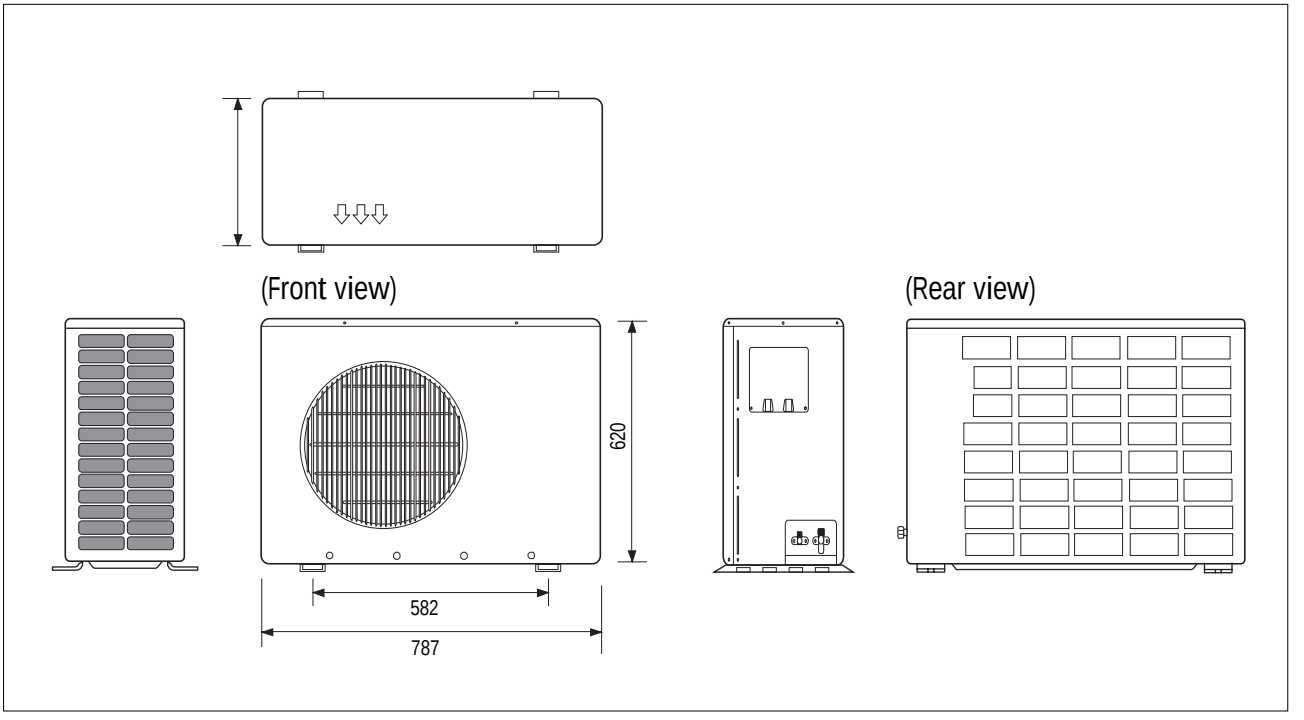
2-2-1 Indoor unit

Indoor Unit Dimensions (ADH1800E / 2400E / 3200E)
(DH18ZA1(A2) / DH24ZA1(A2) / DH32ZA1(A2)

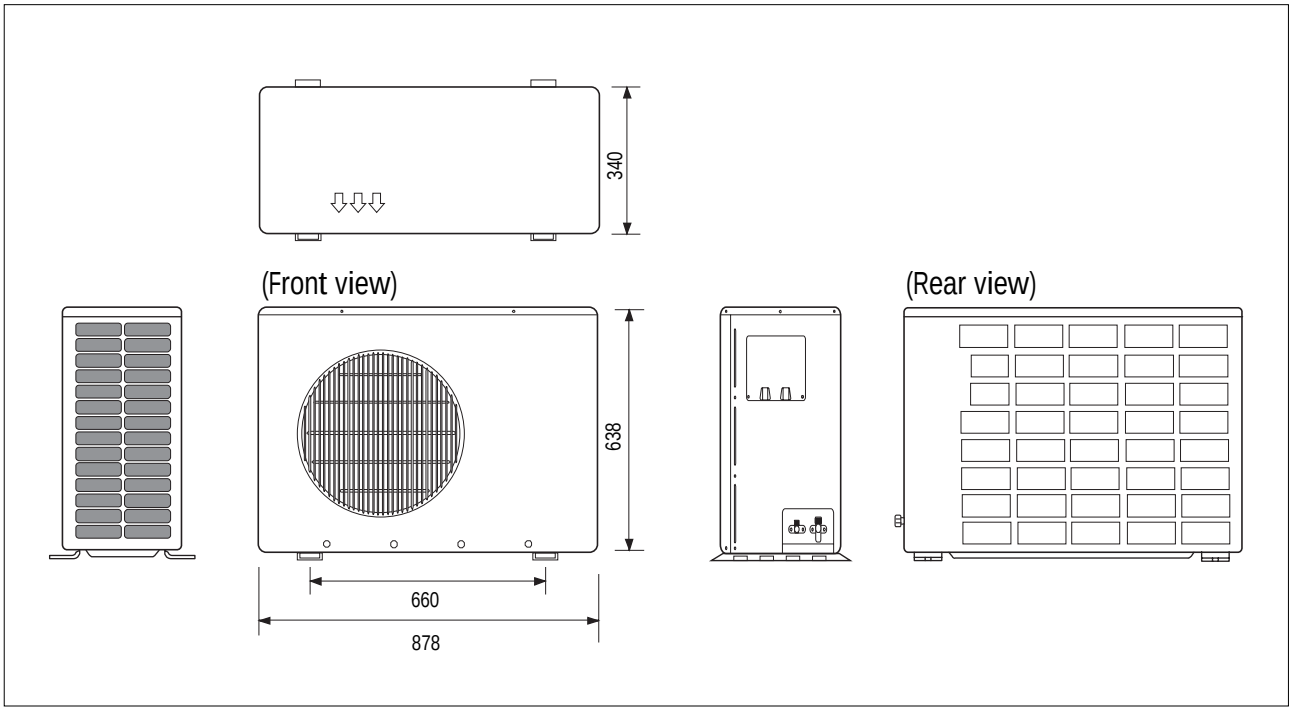


2-2-2 Outdoor Unit

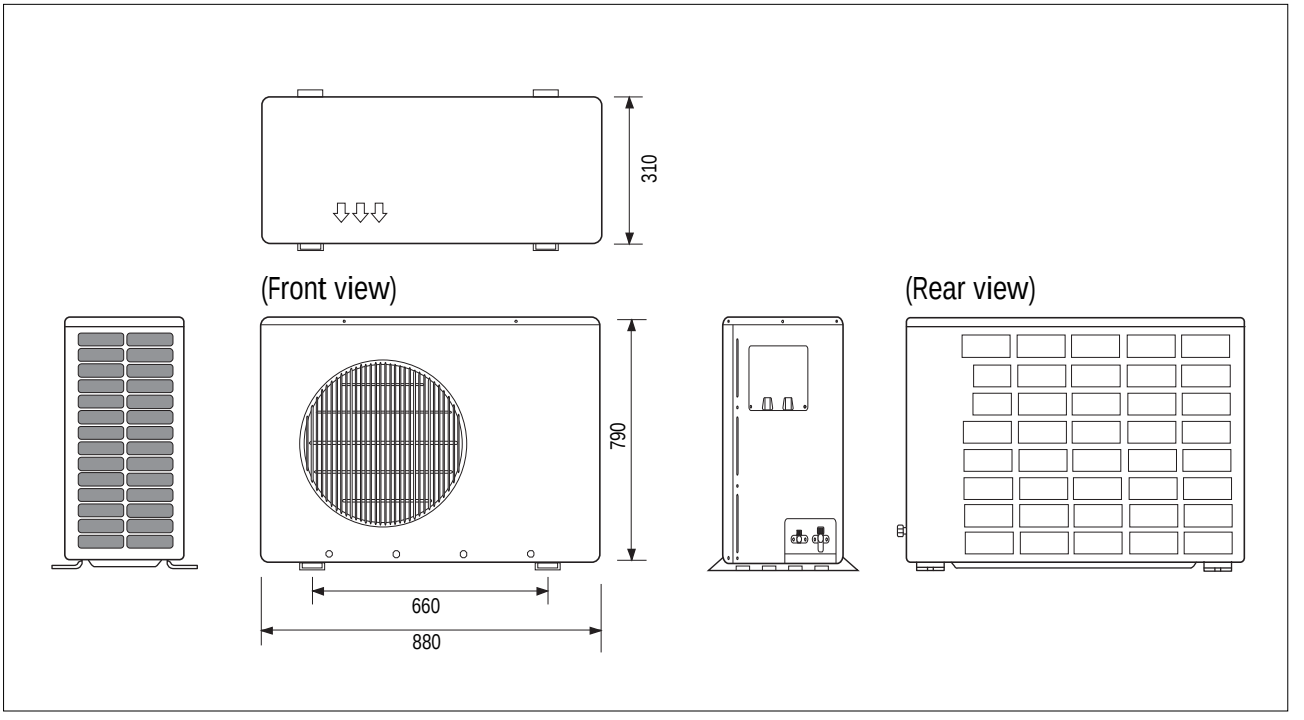
(a) 18K BTU



(b) 24K BTU



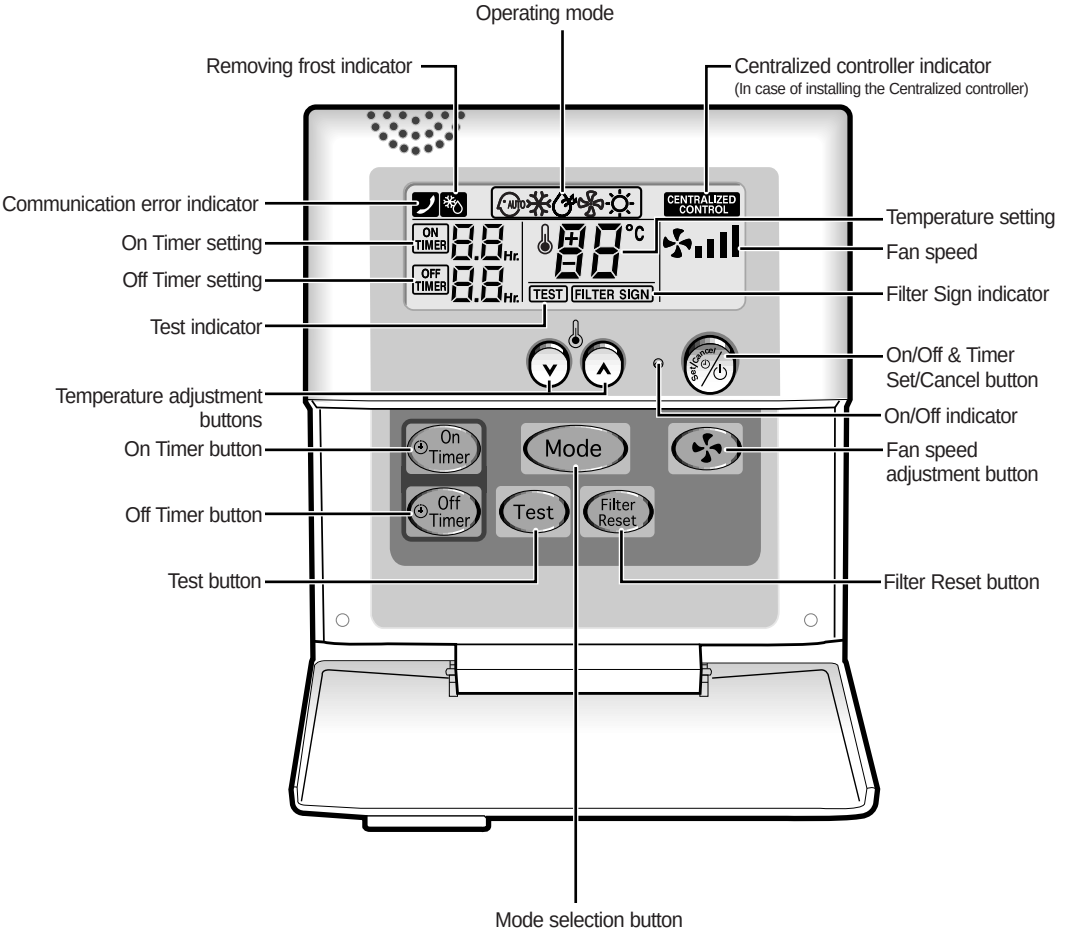
(c) 32K BTU



• Wired Remote Controller - Buttons and Display

The wired remote controller is an optional accessory.

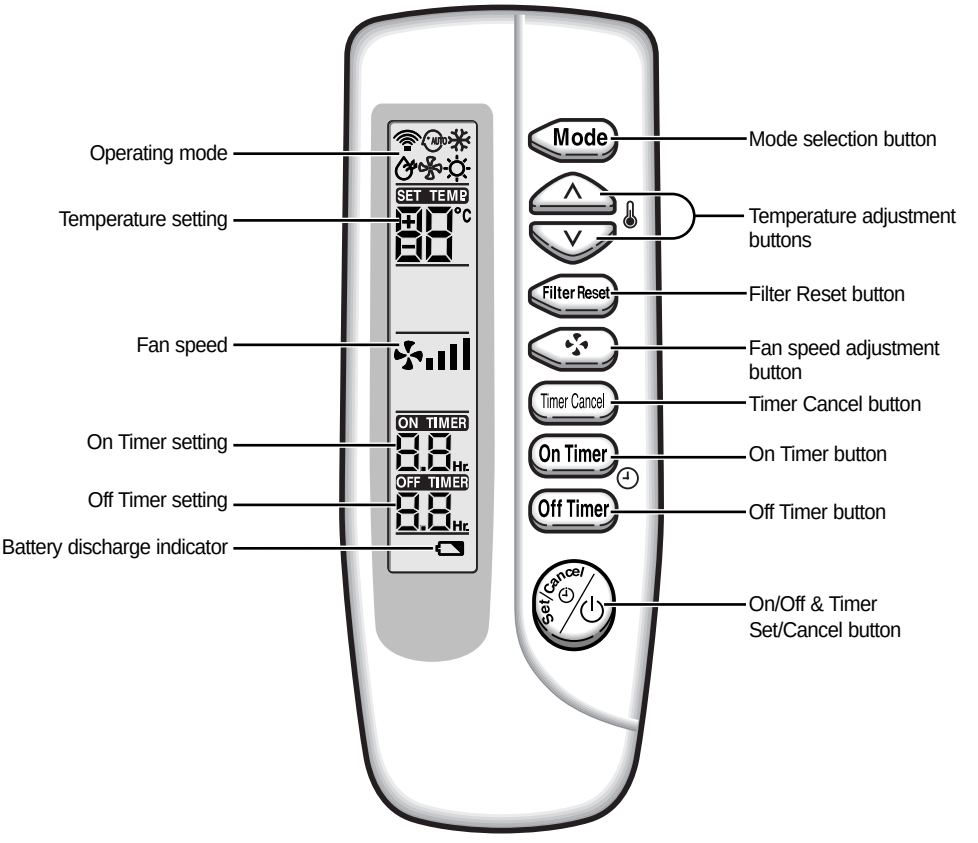
The wired remote controller is installed on the wall.



Note : - Test button is for your installation specialist. You must NOT press it.
- After cleaning the air filter, press the filter reset button, if the filter has been installed. Then the wired remote controller will display the FILTER SIGN indicator when the time to clean the air filter; refer to page 30.

• Wireless Remote Controller-Buttons and Display

The wireless remote controller is an optional accessory.

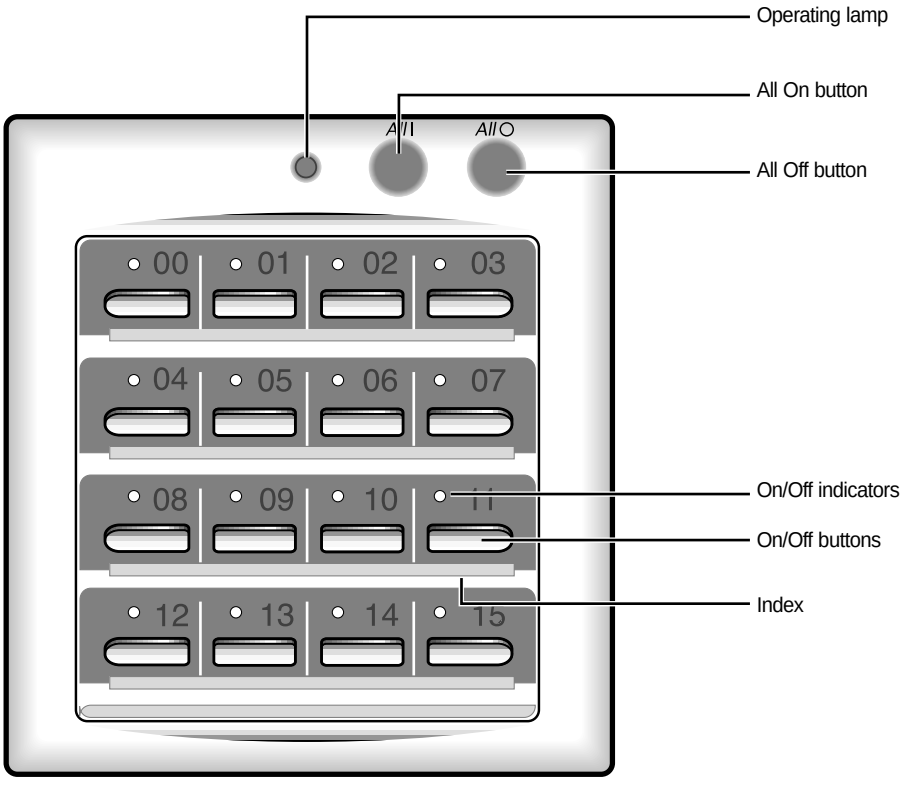


Note : After cleaning the air filter, press the filter reset button, if the filter has been installed.

• Centralized Controller

The centralized controller is an optional accessory.

The centralized controller is installed on the wall

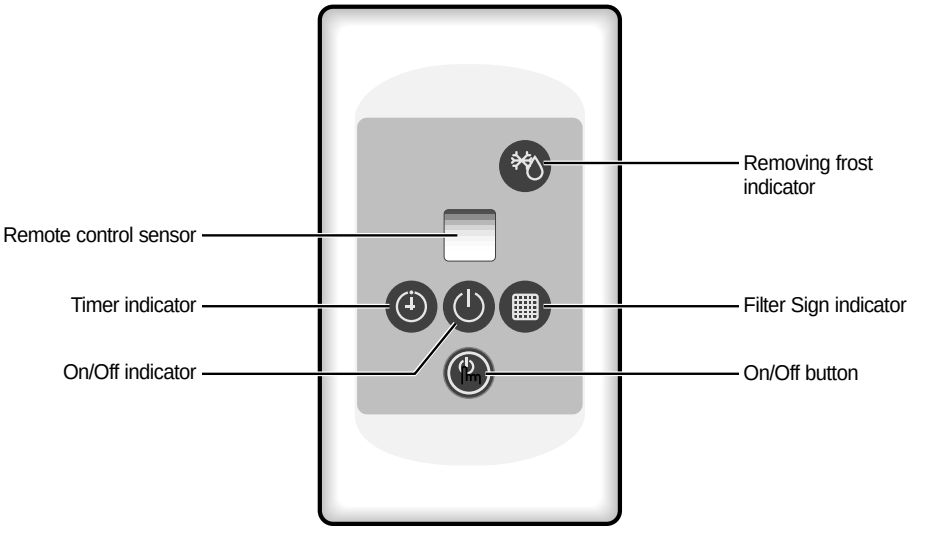


Note : Operating lamp comes on when at least one air conditioner connected to the centralized controller is operating.

3. Operating Instructions

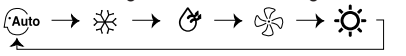
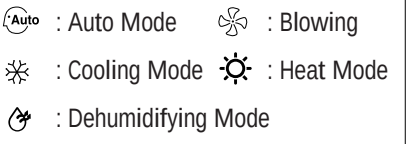
3-1 Display on the wall

The receiver & display unit is installed on the wall.

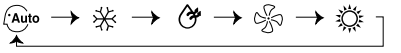
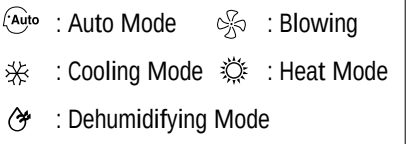


3-2 Name & Functions in Remote Control

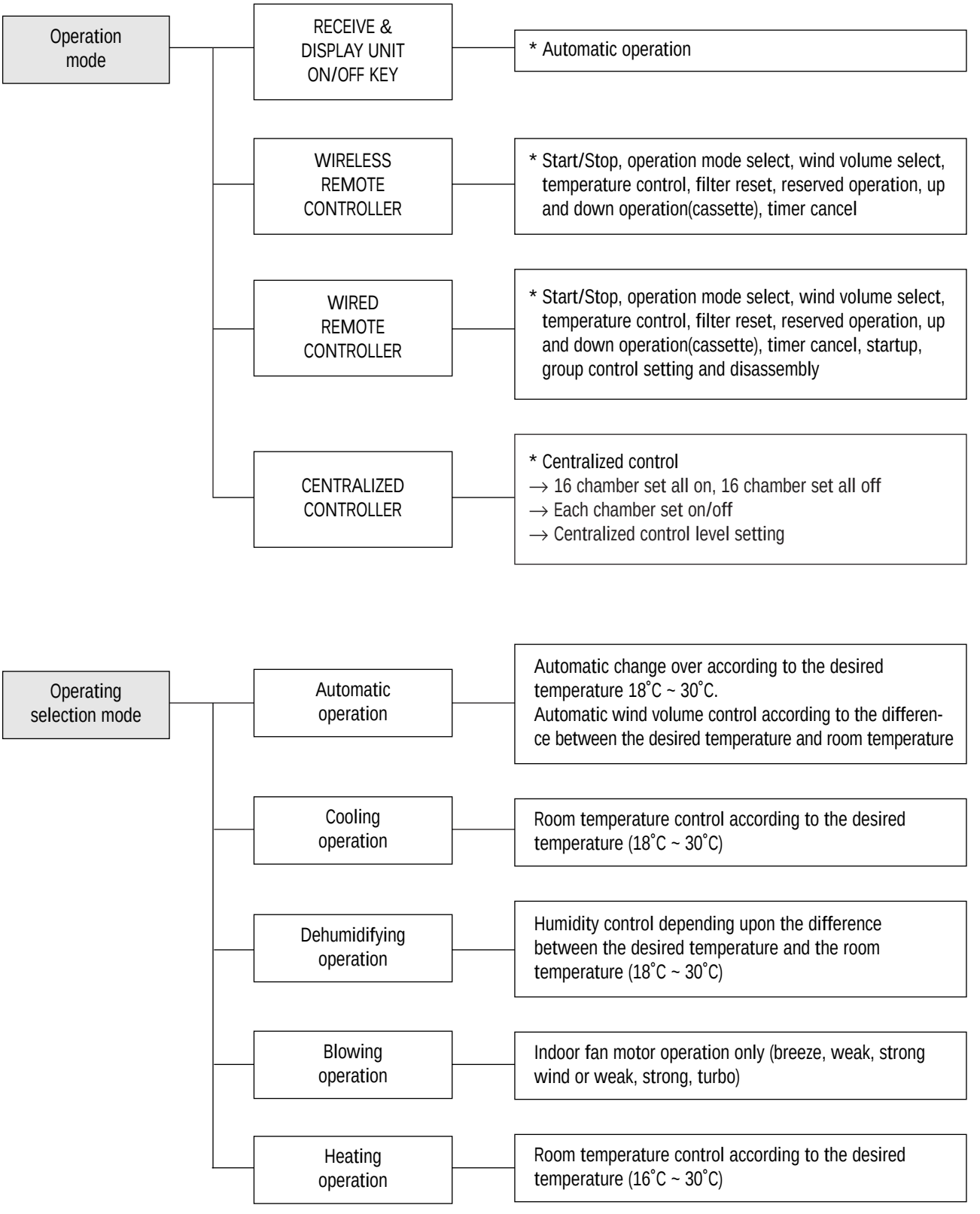
3-2-1 Wired Remote Controller-Buttons

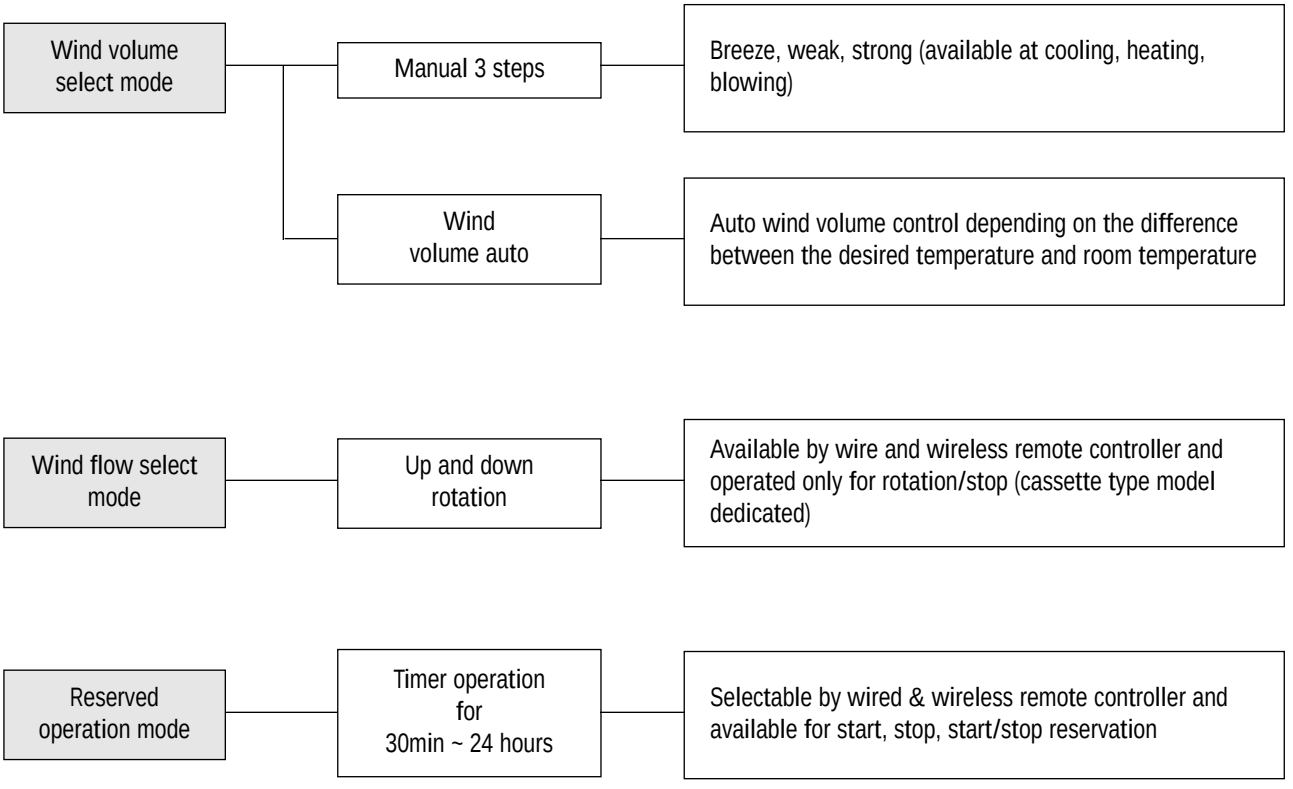
NO	NAMED OF KEY	FUNCTION OF KEY
1		Power On/Off button to start and stop airconditioner or timer set up
2	 (UP)	Temp. up button. To increase the temperatute by the pressing the temperature button
	 (DOWN)	Temp. down button. To decrease the temperature by the pressing the temperature button
3		Each time you press this button Mode is changed in the following order  
4		To complete the installation, checks and tests to ensure that the air conditioner is operating correctly.
		When the **FILTER SIGN** indicator appeard on the remoconscreen, cleaning the air conditioner filter. After that, press the this button.
5		Each time you press this button, FAN SPEED is changed in the following order. 
7		The ON Timer enables you to **switch on** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the On Time, press the (Set/Cancel) button.
8		The Off Timer enables you to **switch off** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the On Time, press the (Set/Cancel) button.

3-2-2 Wireless Remote Controller

NO	NAMED OF KEY	FUNCTION OF KEY
1		Power On/Off button to start and stop airconditioner or timer set up
2	 (UP)	Temp. up button. To increase the temperatute by the pressing the temperature button
	 (DOWN)	Temp. down button. To decrease the temperature by the pressing the temperature button
3		Each time you press this button Mode is changed in the following order  
4		When the **FILTER SIGN** indicator appeard on the remoconscreen, cleaning the air conditioner filter. After that, press the this button.
5		Each time you press this button, FAN SPEED is changed in the following order. 
6		To cancel the on Timer.
7		The ON Timer enables you to **switch on** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the On Time, press the (Set/Cancel) button.
8		The Off Timer enables you to **switch off** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the On Time, press the (Set/Cancel) button.

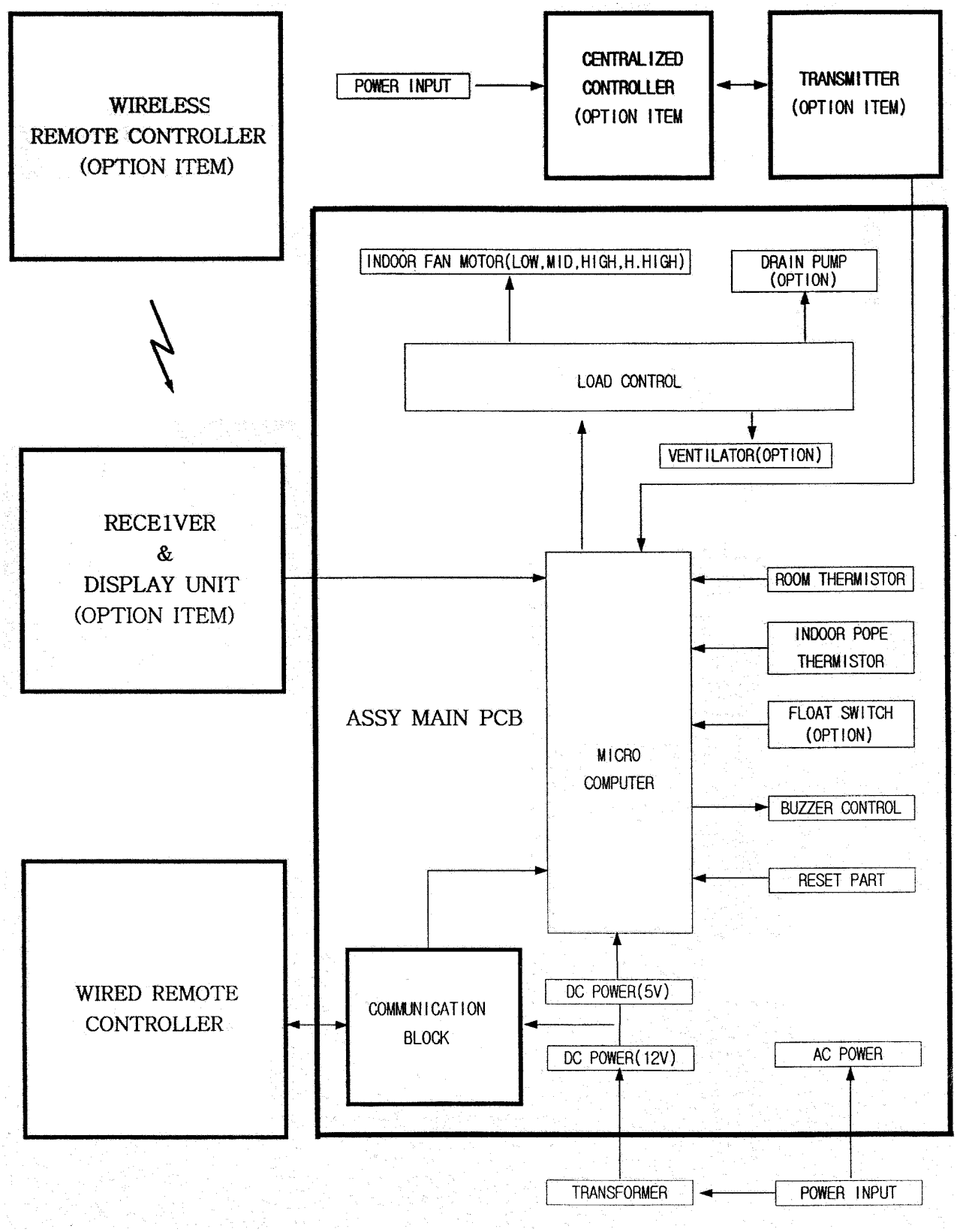
3-3 Control system diagram



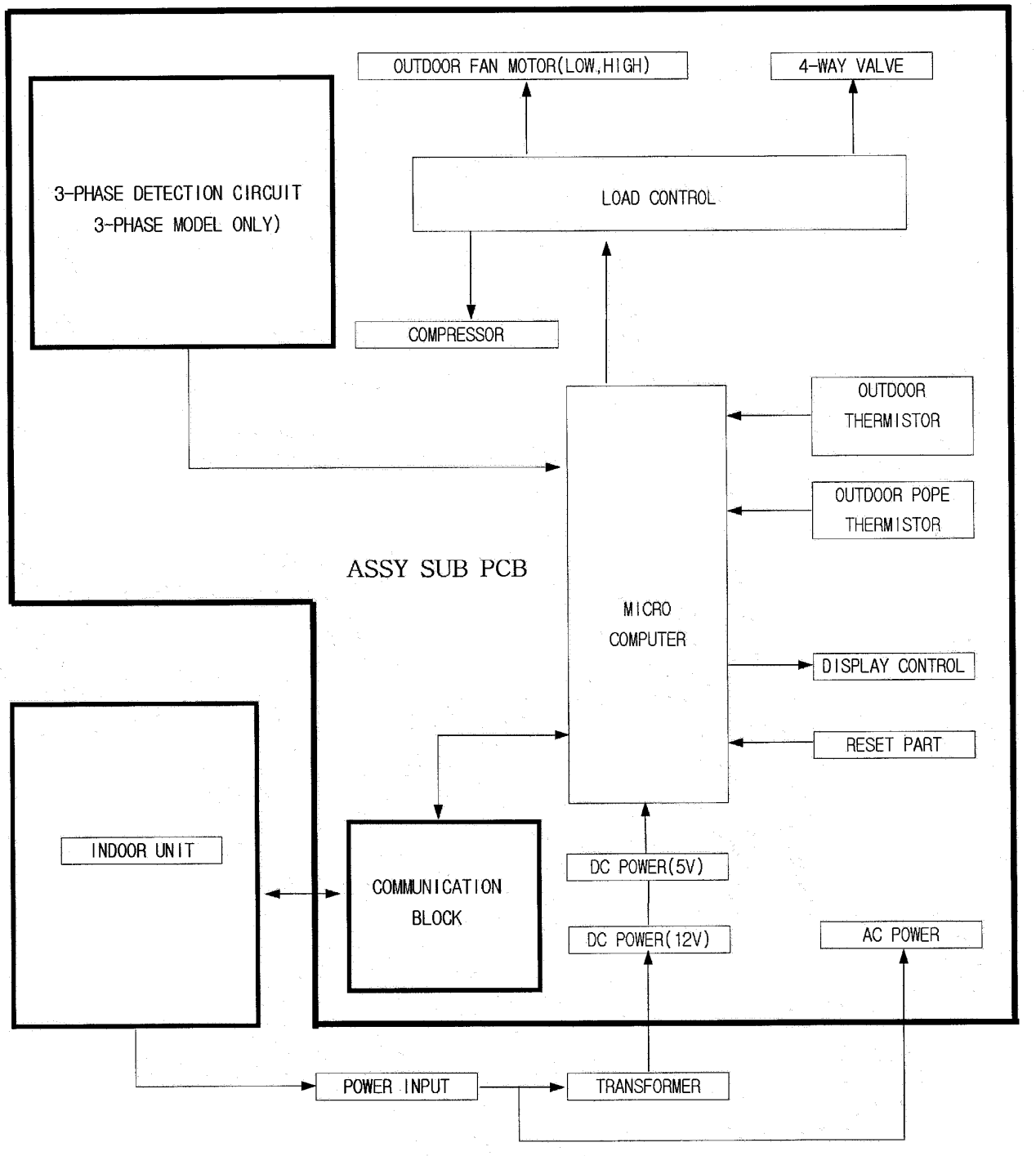

Wind volume select mode
Manual 3 steps
Breeze, weak, strong (available at cooling, heating, blowing)
Wind volume auto
Auto wind volume control depending on the difference between the desired temperature and room temperature
Wind flow select mode
Up and down rotation
Available by wire and wireless remote controller and operated only for rotation/stop (cassette type model dedicated)
Reserved operation mode
Timer operation for 30min ~ 24 hours
Selectable by wired & wireless remote controller and available for start, stop, start/stop reservation

3-4 Micro Computer Block Diagram

3-4-1 Indoor Unit



3-4-2 Outdoor Unit

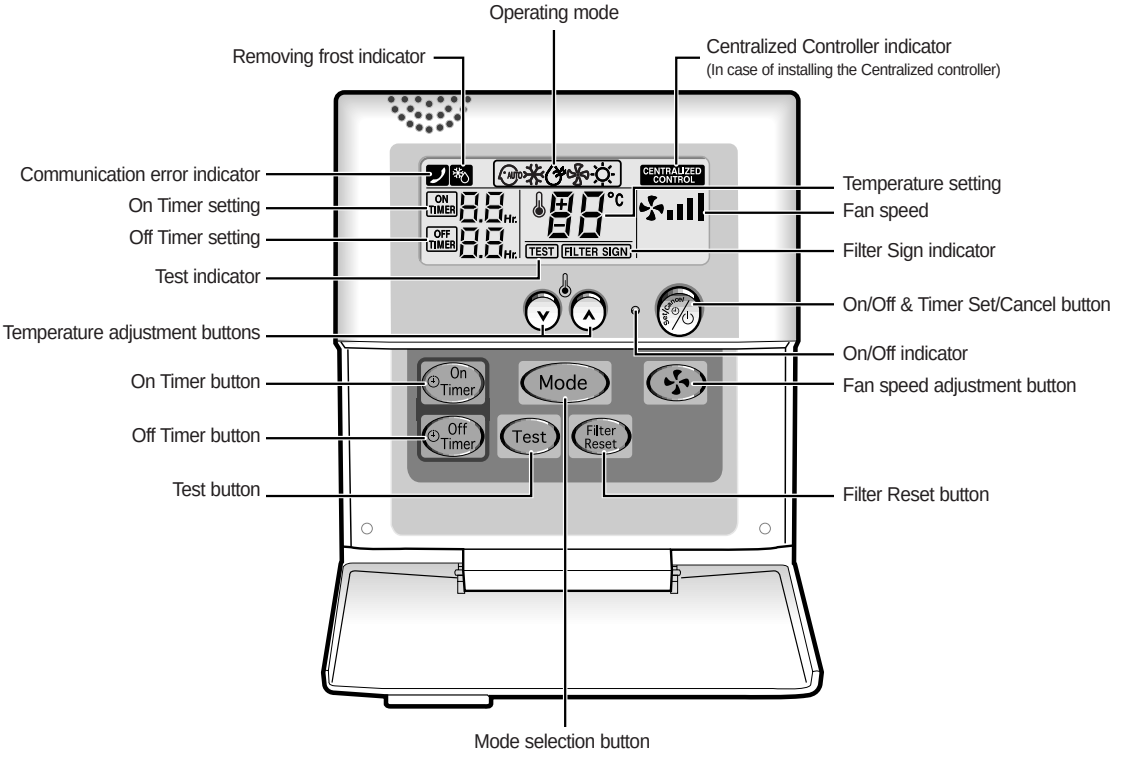


MEMO

4. Installation

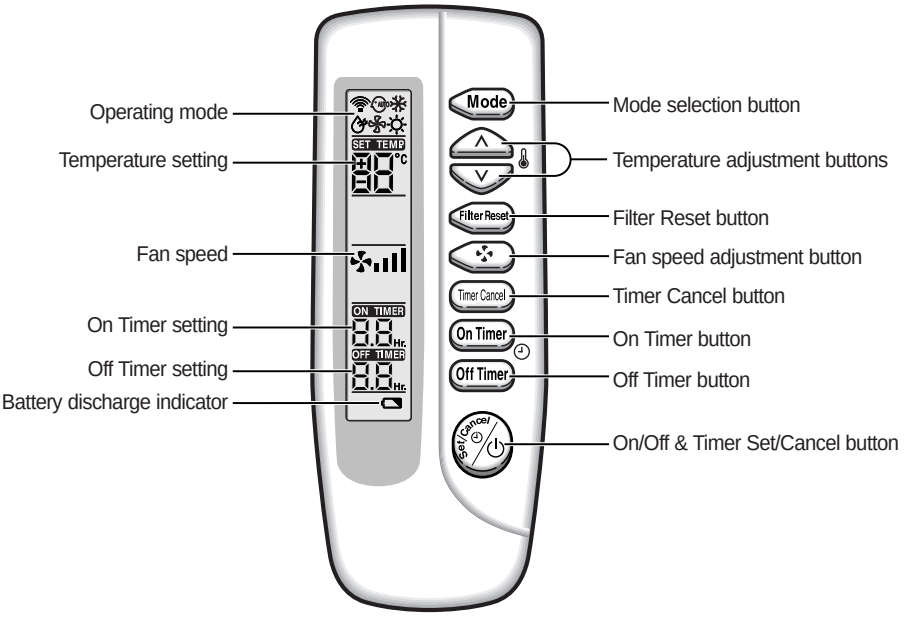
4-1 Operation of the Remote Controller (Wired/Wireless receiving board)

4-1-1 Name and function of each part for the wired remote controller



BUTTON NAME	FUNCTION
On/OFF & Timer Set/Cancle	• Start and stop of operation - To toggle the operation On and Off. • When making the reservation - The reservation time can be set or canceled when pushing the Timer Set/ Cancel button after adjusting the reservation time with On Timer or Off Timer.
Temperature adujustment (▲, ▼)	• To increase (▲) or decrease (▼) the desired temperature. • One cycle or continuous operation is available.
On Timer	• To increase the On reservation time • One cycle or continuous operation is available.
Off Timer	• To increase the Off reservation time • One cycle or continuous operation is available.
Test	• Pressing the key for more than 3 seconds with the SET off starts the initial operation (forced cooling operation for 3 minutes).
Mode Selection	• To rotate in the order of AUTO → Cooling → Dehumidifying → Blowing → heating.
Filter Reset	• When the filter sign display starts to show the replacement time of filter of indoor unit, pressing the key after cleaning the filter resets the filter sign.
Fan Speed	• The wind mode to rotate in the order of wind select button, Breeze → Weak → Strong → Wind auto → Breeze.

4-1-2 Name and function of each part for the wireless remote controller



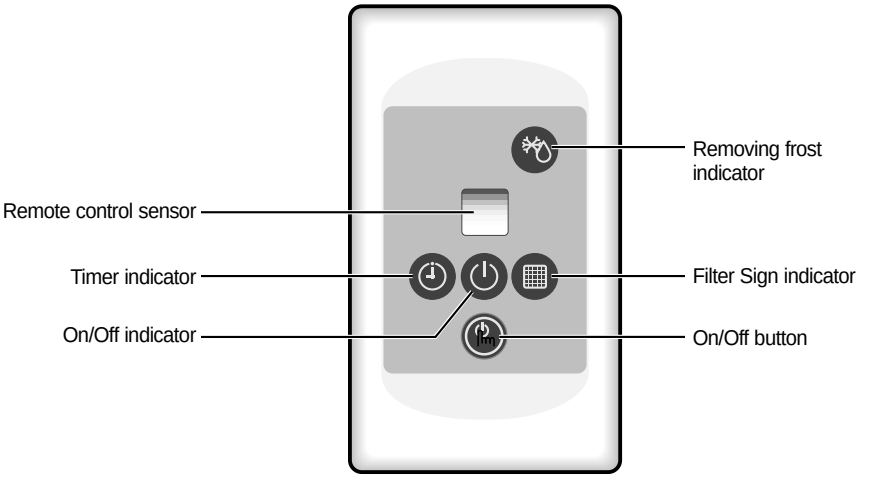
BUTTON NAME	FUNCTION
On/OFF & Timer Set/Cancle	• Start and stop of operation - To toggle the operation On and Off. • When making the reservation - The reservation time can be set or canceled when pushing the Timer Set/ Cancel button after adjusting the reservation time with On Timer or Off Timer.
Temperature adujustment (▲, ▼)	• To increase (▲) or decrease (▼) the desired temperature. • One cycle or continuous operation is available.
On Timer	• To increase the On reservation time • One cycle or continuous operation is available.
Off Timer	• To increase the Off reservation time • One cycle or continuous operation is available.
Timer Cancle (DUCT)	• To cancel the reservation setting (In case of Duct model). • To swing the top and bottom louver (in case of Cassette model).
Mode	• To rotate in the order of Auto → Cooling → Dehumidifying → Blowing → Heating
Filter Reset	• When the filter sign display starts to show the replacement time of filter of indoor unit, pressing the key after cleaning the filter resets the filter sign.
Fan Speed( )	• The wind mode to rotate in the order of wind select button, Breeze → Weak → Strong → Wind auto → Breeze.

There is no test key separately assigned to the wireless remote controller.

<When doing the test operation with wireless remote controller...>

1. Remove both batteries from the wireless remote controller.
2. At the state of simultaneous pressing of On Timer key and Off Timer key, insert the batteries in the wireless remote controller.
3. When the wireless remote controller is on the TEST MODE, press On/Off key to make the SET for the Test operation.

4-1-3 The Indicators on the Receive & Display Unit



4-1-4 Opeartion specification of wireless receiving board

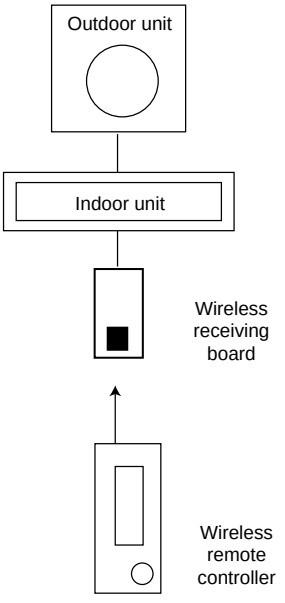
PART NAME	SOURCE & OPERATION SPEC.	REMARK
DEFROST LAMP	RED, lamp on during defrost operation	in ERROR DISPLAY : flickering
FILTER SIGN LAMP	Green, display during filter cleaning	in ERROR DISPLAY : filickering
TIMER LAMP	Green, lamp when setting the reserve operation	in ERROR DISPLAY : flickering
ON-OFF LAMT	Red, lamp during operation on	in ERRO DISPLAY : flickerning
ON-OFF BUTTON	On/Off toggle operation	Operated only for automatic mode operation

4-1-5 Wireless receiving board and outdoor unit PCB display specification when error occurs

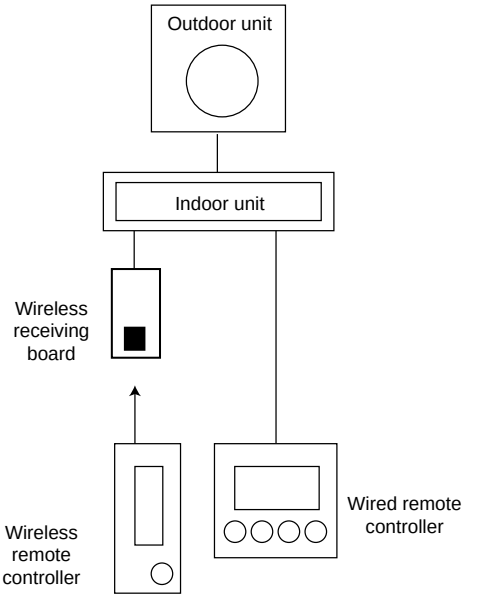
ERROR MODE (OUTDOOR DISPLAY)	CONTENTS OF ERROR	WIRELESS RECEIVING BOARD DISPLAY (INDOOR UNIT)	REMARK
E1	Abnormal on indoor temperature sensor (4.9[V] and higher, 0.5[V] and lower	Reservation LED flickering (1Hz period)	Restored when the indoor temperature sensor is normal
E5	Abnormal on indoor pipe temperature sensor (4.9[V] and higher, 0.5[V] and lower	Operation LED and reservation LED flickering (1Hz period)	Restored when the indoor pipe temperature sensor is normal
E6	Abnormal on outdoor temperature sensor (4.9[V] and higher, 0.5[V] and lower	Operation LED and filter LED flickering (1Hz period)	Restored when the outdoor temperature sensor is normal
E9	Float switch detection	Reservation LED and filter LED alternating flickering (1Hz period)	Float switch detection
EA	Indoor ↔ outdoor communication defect	Reservation LED and filter LED flickering (1Hz period)	Re-detecting by operating off signal after restoring
EC	Indoor unit ↔ wired remote controller communication defect	Operation LED and reservation LED alternating flickering (1Hz period)	
Ed	Abnormal on outdoor pipe temperature sensor (4.9[V] and higher, 0.5[V] and lower	Filter LED flickering (1Hz period)	Restored when outdoor pipe temperature sensor is normal

4-1-6 Example of remote controller control

1 chamber wireless wireless remote controller single operation and 1 chamber wireless remote controller + wired remote controller combination control



Example of 1 chamber single operation (wireless remote controller)



Example of 1 chamber single operation (wireless + wired remote controller)

* In case of 1 chamber single operation (wireless remote controller+wired remote controller), both setting of wired remote controller to MASTER/SLAVE is available.

<Setting of wired remote controller to MASTER MODE >

1. Put off the power.
2. For the combined use of wireless remote controller and wireless remote controller, put on the option switch(DS01)4 of wired remote controller.
3. Putting off the option switch 4 of wired remote controller disables the control by wireless remote controller.
4. Put on the power.

✻ After resetting the option in the wired remote controller, be sure to put the power on again so that the set option can be applied.

4-1-7 PCB option and switch(DS01) setting of wired remote controller

DIP SWITCH NO	OPTION ITEM	SW ON	SW OFF	DEFAULT
1	Basic specification	-	-	Fixed to OFF
2	Indoor unit control	Group control	Indoor unit 1 chamber control	OFF
3	Basic specification	-	-	Fixed to OFF
4	Combined use of wireless remote controller	Able to operate of wired remote controller (SLAVE MODE)	Disable to operate the wireless remote controller (MASTER MODE)	OFF

4-1-8 Function comparison of wired remote controller vs wireless remote controller

In case of control for the wired remote controller and wireless remote controller installed individually, almost similar functions are performed, and in case of combined use of wired and wireless remote controllers, Enalbe / Disable can be set at the wired remote controller for the wireless remote controller but the 16 chambers operation can be done only from wired remote controller.

PART NAME	WIRED REMOTE CONTROLLER	Wireless REMOTE CONTROLLER
Operation ON/OFF	ON/OFF available	ON/OFF available
Wind flow setting	Up and down control available (Cassette model)	Up and down control available (Cassette model)
Wind volume setting	Breeze/Mild/Strong adjustment available	Breeze/Mild/Strong adjustment available
Group operation	16 chamber group operation available	16 chamber group function not available
Test operation	Test operation by test button	Available by combination of button during the power reset without test button
Operation mode setting	Settable of auto/cooling/ dehumidifying/blowing/heating	Settable of auto/cooling/ dehumidifying/blowing/heating
Reservation function	Start/stop/start-stop reservation available	Start/stop/start-stop reservation available
Timer cancel	Timer cancel button provided (Duct model)	No timer cancel button
Temperature setting	Cooling : 18˚C ~ 30˚C Heating : 16˚C ~ 30 ˚C settable	Cooling : 18°C ~30°C Heating : 16°C ~30°C settable
Filter reset	Filter reset button provided	Filter reset button proviced
Centralized control display	Displayed as centralized control	No function
Self-diagnosis among the group control	To display while scanning the installed set during reset	No function
Error display	Displayed as 2 digit segment	No function
Master/slave setting	Master/slave settable by PCB option switch	No function

4-1-9 Option and dip switch(SW2) setting of ass'y main in PCB

DIP SWITCH	OPTION ITEM	SW ON	SW OFF	DEFAULT
1	VENTILATOR FAN	Not installed	Not installed	-
2	DRAIN PUMP	Installed	Installed	-
3	FLOAT SWITCH	Installed	Not installed	-
4	FILTER CLEANING PERIOD	1000 Hr	2000 Hr	-
5	INDOOR FAN MOTOR SPEED	NORMAL SPEED	HIGH SPEED	-

4-2 Control of the Remote Controller

4-2-1 Chamber Group Control(Wireless remote controller + Wired remote controller system)

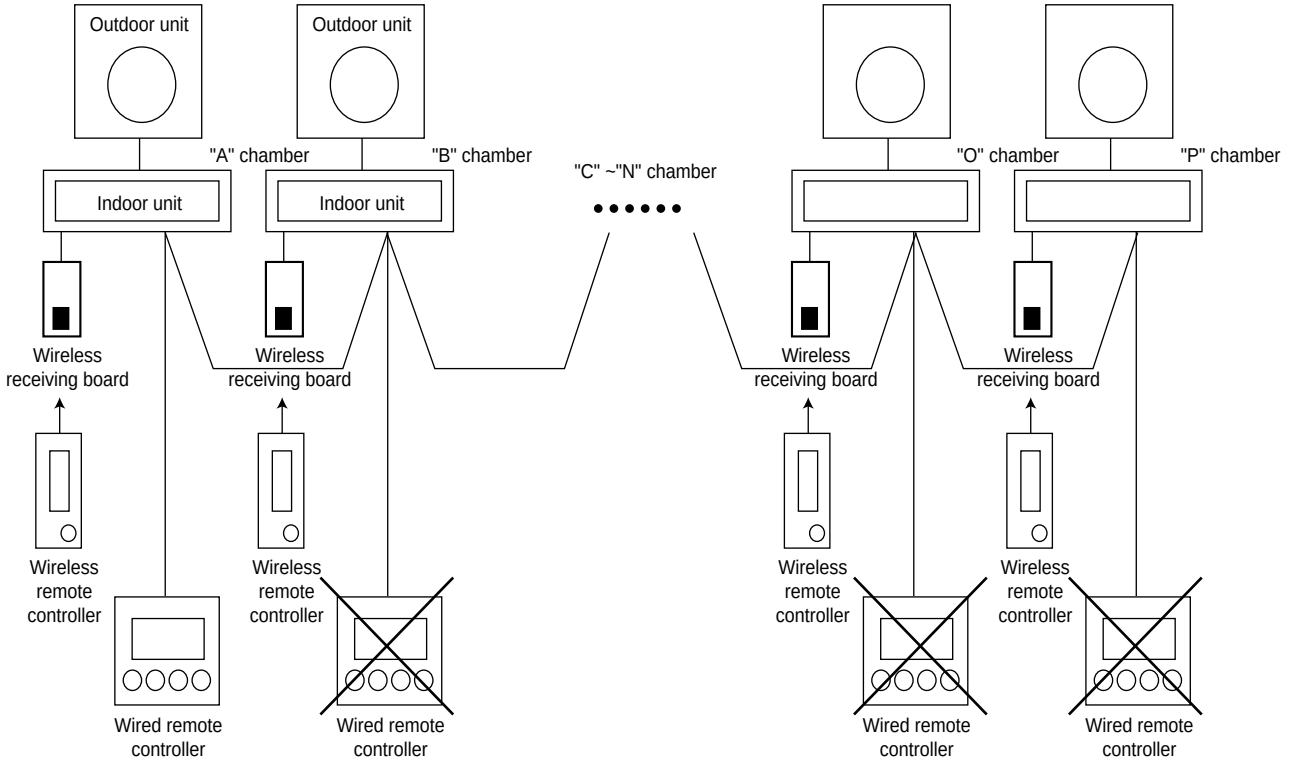


Figure. 16 Chamber Group Control (Wireless remote controller + wired remote controller) System

- The 16 chamber remote controller operation by wired remote controller can be simultaneously performed all for 16 chambers through setting the 16 chambers to one group through one wired remote controller.
- While operated in Group, the control by wireless remote controller installed in all chambers (“A” ~ “F”) is disabled except the wired remote controller installed in the “A” chamber and the simultaneous use with the option item, the centralized controller is also disabled.

4-2-2 The group operation of 16 chambers and operation method by wired remote controller

1. Setting of indoor unit Main PCB

- Put off all of set power installed in each room.
- Remove the centralized controller if any is used already.
- Remove CN20 connector and wire of main PCB of Indoor unit except the one installed in “A” with reference of the figure.
- Connect the communicating line from “A” chamber to “F” chamber.(R1<->R1, R3<->R3)
- Connect the “R1”, “R2” and “R3” of indoor terminal board installed to the “R1”,”R2”,”R3” of wired remote controller, respectively.
- Adjust the address of digital switch of indoor unit PCB in “A” chamber to “0”.

Adjust the address of digital switch of indoor unit PCB in “B” chamber to “1”. In such a way, adjust the address of digital switch up to chamber “F”.

• Put on the set power installed in each chamber.

Caution :

- During the connection, connect the “R1” of indoor unit terminal board installed in each chamber with “R1”.
- During the connection, connect the “R3” of indoor unit terminal board installed in each chamber with “R3”.
- Do not connect the terminal R2 of indoor unit terminal board from “B” to “F” chamber except A” chamber.
- The option item, centralized controller shall be removed since the simultaneous use with wired remote controller is disable during the group control.
- Adjust the address of indoor unit digital switch installed in each chamber so that it might not be duplicated.

2. Setting of wired remote controller

• Put off the set power where the wired remote controller is installed.
• Put on the option switch SW(DS01)2 of wired remote controller.
• Put on the set power where the wired remote controller is installed.

Caution :

- The option can be applied when the power is put again after resetting the option of wired remote controller. Be sure to keep the set power on/off after option setting.

4-2-3 Operation method of wired remote controller

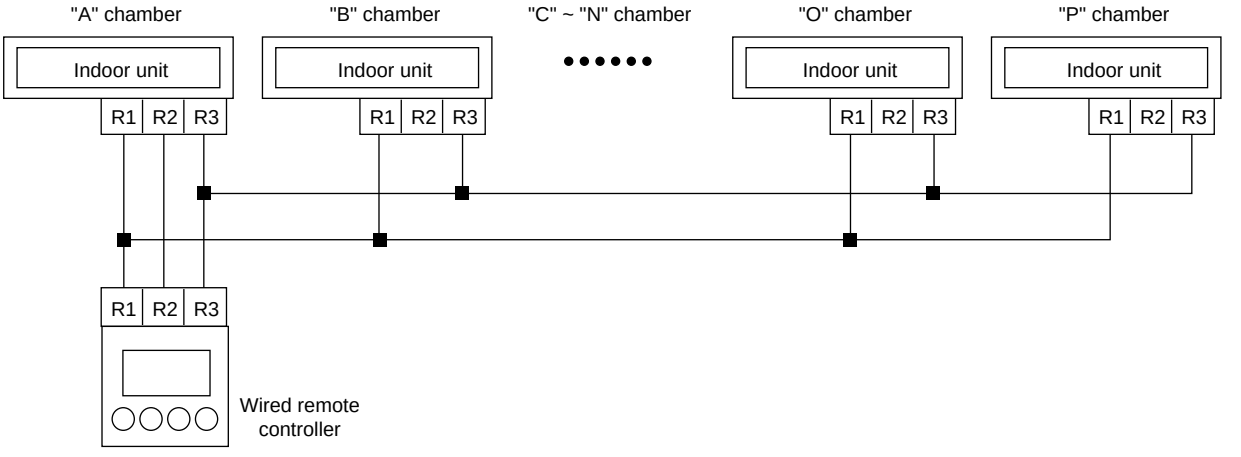
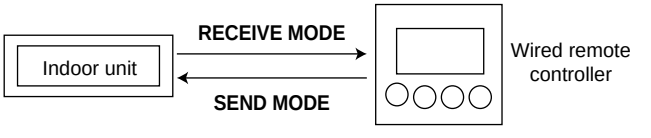


Figure. 16 Chamber Group Control (Wireless remote controller + wired remote controller) Connection Diagram

- Press the ON / OFF button of wired remote controller to be on.
  At the time, the set installed from A chamber to F chamber is getting on in order with the interval of 2 seconds.
- Select the operation ofauto / cooling / dehumidi-fying / blowing / heating by pressing MODE BUTTON.
- Select breeze / mild / strong wind by pressing the wind volume button.
- Adjust the temperature set button to set the desired temperature.

✻ For reference

- The communication between wired remote controller and indoor unit is made through the synchronization with the output signal of zero cross detect circuit, and when 50Hz power is used, it has the 50bps transmission speed and when it has 60Hz power it has 60bps transmission speed. The transmission data between the wired remote controller and indoor unit is shown as in the figure.



Since the communication data between wired remote controller and indoor unit is consisting of total 10Byte, 2 seconds are required when using 50Hz power.

- For the communicating time with 16 chambers during the normal operation, 32 seconds are required and for the time with 16 chamber during the reservation operation, 64 seconds are required due to the increase of communicating data.

4-2-4 Startup method by wired remote controller

Startup in case of the "A" chamber single operation

- Put on the set power.
- Adjust the address of digital switch of indoor unit PCB to "0".
- Put ON the option switch(DS01) N02 of wired remote controller PCB.
- Put on the set power.
- Press the test button of wired remote controller for more than 3 seconds.
- The set is operated for 3 minute by the forced cooling operation and the set is off after 3 minute.
- The error occurring during the test operation is displayed on the wired remote controller windows and it shall be referred to the following table.

Error Code	Meaning	Checking Area
01	Indoor unit room thermistor error	• Indoor unit thermistor available or not and disconnected • Indoor unit PCB
05	Indoor unit pipe thermistor error	• Indoor unit pipe thermistor • Indoor unit PCB
06	Outdoor unit thermistor error	• Outdoor unit thermistor • Outdoor unit PCB
09	Float switch open error	• Drain pump, float switch • Drain system • Dip SW2 of indoor unit main PCB (If the drain pump is not installed, SW2 and SW4 shall be at the Off position.)
0A	Indoor unit ↔ outdoor unit communicating error	• Indoor unit ↔ outdoor unit communicating error • Indoor unit ↔ outdoor unit communicating cable • Indoor unit PCB, Outdoor unit PCB
0C	Wired remote controller ↔ indoor unit communication error	• Wired remote controller ↔ indoor unit communication cable • Indoor unit main PCB
0D	Outdoor unit pipe thermistor error	• Outdoor unit pipe thermistor • Outdoor unit PCB

Caution :

- Unless the address of digital switch of indoor unit PCB is set to "0" in case of "A" chamber single operation, the control by the wired remote controller is disabled.
- The power of SET shall be put on again after the resetting of wired remote controller option so that the the set option can be applied. Be sure to keep the power on/off of SET before and after the setting.
- The first digit of error code displayed during the single operation and group operation may be different. The first digit(MSB) stands for the address of the set where the error occurs. Since it is the single operation, the address of SET is "0".

Startup of group operation

- Put off the power of SET.
- Adjust the addresses of digital switch of indoor unit PCB to “0”~”15”, respectively.
- Put on the option switch SW2 of wired remote controller PCB.
- Put on the power of SET.
- On the wired remote controller display, the digits “00” → “11” → “22” → are displayed up to “FF”. After “FF” display, the wired remote controller is automatically set to the preserved operation status of indoor unit of chamber “A”.
- If the current SET of chamber “A” is ON, put the set off by pressing the ON / OFF button.

Only at the SET off of chamber “A”, the TEST mode is enabled.

- Press the TEST BUTTON of wired remote controller for more than 3 seconds.
- If the SET is operating for 3 minutes through forced cooling operation, the SET is off after 2 minutes.
- The Error occurring in the TEST operation displays in the wired remote controller display window and is referred to the following table.

Error Code	Meaning	Checking Area
*1	Indoor unit room thermistor error	• Indoor unit thermistor exist or not disconnected • Indoor unit PCB
*5	Indoor pipe thermistor error	• Indoor unit pipe thermistor • Indoor unit PCB
*6	Outdoor unit thermistor error	• Outdoor unit thermistor • Outdoor unit PCB
*9	Float switch open error	• Drain pump, float switch • Drain system • Dip SW2 of indoor unit main PCB (If drain pump is not installed, SW2 and SW4 shall be at OFF position.)
*A	Indoor unit ↔ outdoor unit communication error	• Indoor unit ↔ Outdoor unit communication cable • Indoor unit PCB, outdoor unit PCB
*C	Wired remote controller ↔ indoor unit communication error	• Wired remote controller ↔ indoor unit communication cable • Indoor unit main PCB
*D	Outdoor unit pipe thermistor error	• Outdoor unit pipe thermistor • Outdoor unit PCB

Caution :

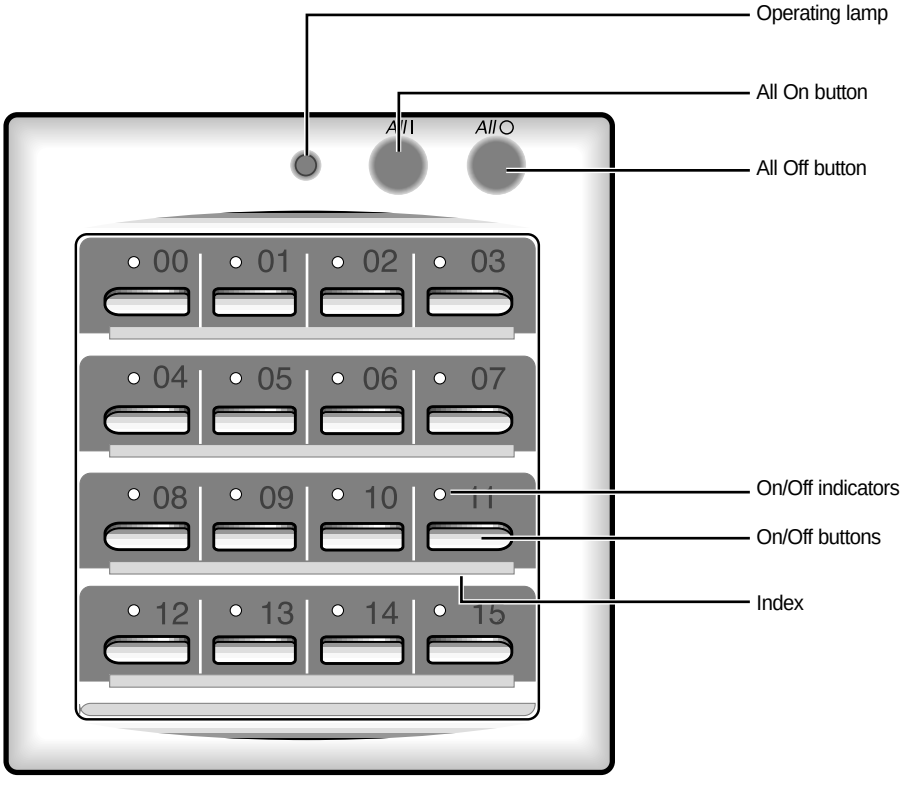
- Test operation is disabled when the chamber “A” is on after initialization of wired remote controller.
- The communication time between wired remote controller and indoor unit is required for 2 seconds. If any one of set is ON, be sure to put it off by pressing the ON/OFF button and start the TEST operation after 35 seconds at minimum.(The communication time with all chambers : 16 x 2 seconds = 32seconds)
- For the reservation operation, the communication time between all 16 chambers is required for 64 seconds due to the increase of communication data.
- The first digit (MSB) of error code displayed during the group operation stands for the address of SET where the error occurs.

4-3 Centralized Controller

4-3-1 Appearance and characteristics of Centralized Controller

The centralized controller is installed on the wall.

The centralized controller is an optional accessory.



NOTE : Operating lamp comes on when at least one air conditioner connected to the centralized controller is operating.

- Since the centralized controller has the relay equipment, the option mounted on the indoor unit, the On / Off can be set for 16 chambers through the modem communication.
- Linkage of wired remote controller to wired remote controller is available by 3 kinds of level.
- The maximum extended distance of 1 Km is possible through modem communication. (the relay equipment is installed at the option item, indoor unit)
- The connection by non-polarity method is easy.

BUTTON NAME	FUNCTION
ALL1	• To put on all 16 chambers' set.
ALL0	• To put off all 16 chambers' set.
"01" ~ "16"	• To put on/off set assigned with the number.

4-3-2 Example of the centralized control system configuration

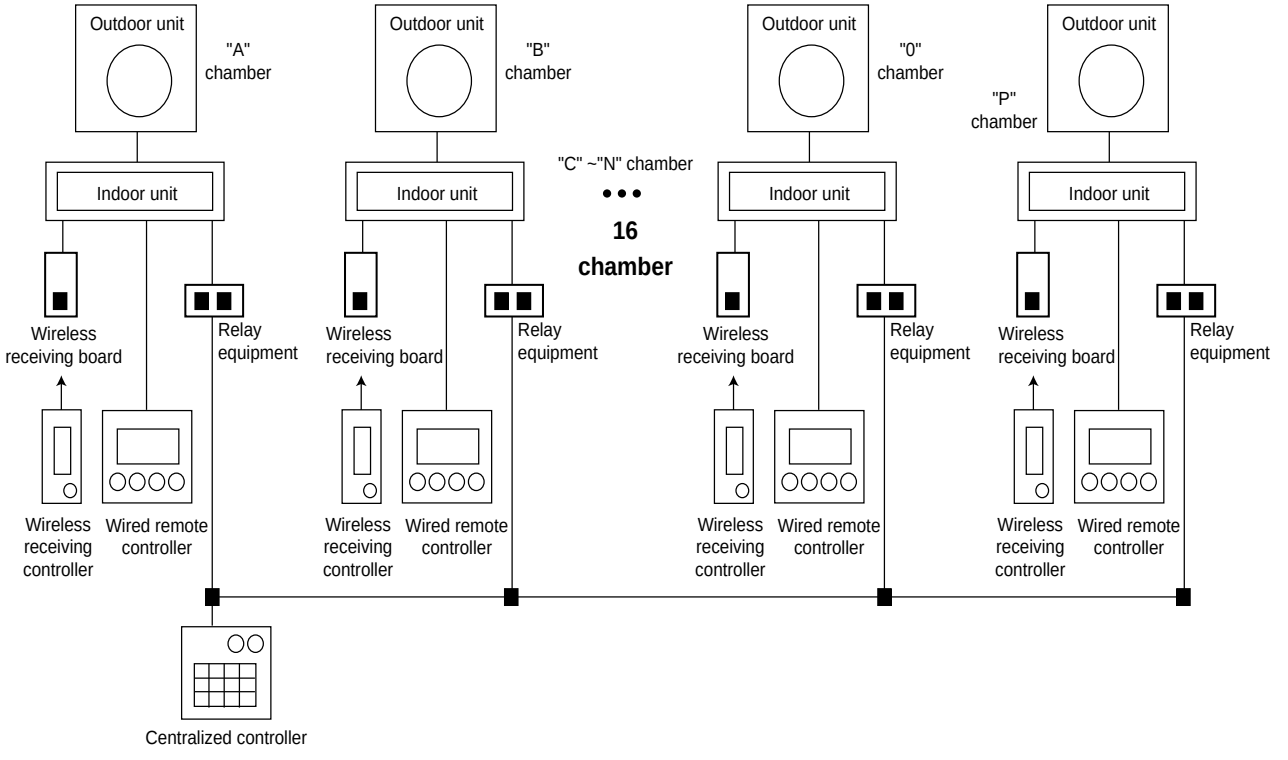
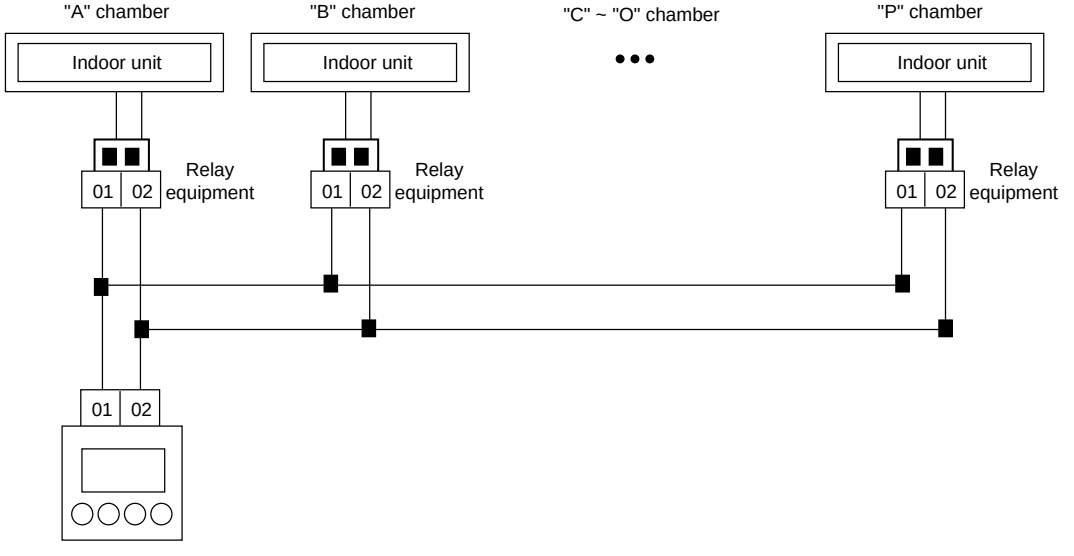


Figure. 16 Chambers Centralized Control (wireless remote controller + wired remote controller + centralized controller) System

4-3-3 Chambers Cnetralized Control System Connection Diagram



4-3-4 Centralized control operation method

1. Setting of indoor unit
   - Put off the set to be installed.
   - Put off the power of the centralized controller.
   - Mount the transmitter, the option item on the indoor unit set terminal board.
   - Adjust the address of digital switch of transmitter mounted. (Adjust the address of transmitter mounted in chamber “A” to “0” and “B” to “1”... continue the adjustment up to “F” to “F”)
   - Connect the terminals O1 and O2 of the terminal board mounted on the centralized controller to the O1 and O2 of the terminal board installed in chamber “A”.
   - If the wired remote controller is installed, be sure to put off the SW2(DS01) of PCB option switch.
   - Remove the centralized controllers installed at chamber “B” to chamber “F” if any except the A chamber.
   - Adjust the address of digital switch of indoor unit PCB to “0”.
   - Connect O1 and 02 of terminal board installed in chamber A to O1 and 02 of terminal board installed in chamber B.
   - Continue to connect O1 and 02 of terminal board mounted on indoor unit in chamber B ~ F to O1 and O2 of terminal board of centralized controller(recommended).

2. Setting at centralized control side
   - Adjust the applicable level of centralized controller with the reference of the table.

3. When the setting is finished at indoor unit and centralized controller,
   - Put on the power of installation completed set of each chamber.
   - Put on the power of centralized controller.

DIP SWITCH	SW1	SW2	SW3	SW4	REMARK
LEVEL 0	OFF	OFF	OFF	OFF	Set operation according to the final controlled one among the centralized controller, wire, and wireless
LEVEL 1	OFF	OFF	OFF	ON	When centralized controller OFF : disable to control wired and wireless When centralized controller ON : enable to control wired and wireless
LEVEL 2	OFF	OFF	ON	ON	Enable to control only in the centralized controller Disable to control the wired and wireless remote controller

Error Code	Meaning	Checking Area
LED flickering	Communication error between indoor unit and centralized controller	Transmitter, indoor unit, centralized controller

Caution :

- The communication between centralized controller and transmitter is modem method and there is no polarity but connect “O1” terminal to “O1” terminal and “O2” terminal to “O2”terminal.
- The address of transmitter mounted on each indoor unit shall not be duplicated.
- After the resetting of operation level of centralized controller, it is not necessary to reset the power differently from that of wired remote controller. In other words, the operation level can be reset even during the operation if required.

4-3-5 Operation specification of wireless and wired remote controller while using the centralized controller.

Wired remote controller / Centralized controller	**MASTER** Wired remote controller has the priority of control over the wireless.	**SLAVE** Wired remote controller has not the priority of control over the wireless.
LEVEL 0	**A area** : to be operated be the final input of centralized controller and wired remote controller, and the wireless remote controller does not work even through installed.	**D area** : to be operated by the final input of centralized controller, wired remote controller and wireless remote controller.
LEVEL 1	**B area** : The wired remote controller operates only when the centralized controller is on but the wireless remote.	**E area** : the wired and wireless remote controller operate only when the centralized controller in on.
LEVEL 2	**C area** : only the centralized controller operates but the wired and wireless remote controller do not work.	**F area** : only the centralized controller operates but the wired and wireless remote controller do not work.

4-4 Selecting Area for Installation

Select an area for installation that is suitable to the customer's needs.

4-4-1 Indoor Unit

1. Make sure that you install the indoor unit in an area providing good ventilation. It must not be blocked by an obstacle affecting the airflow near the air inlet or the air outlet.

2. Make sure that you install the indoor unit in an area allowing good air handling and endurance of vibration of the indoor unit.

3. Make sure that you install the indoor unit in an area where there is no source of heat or vapor nearby or direct sunlight.

4. Make sure that you install the indoor unit in an area from which hot or cool air will spread evenly in the room.

5. Make sure that you install the indoor unit in an area that provides easy pipe connection with the outdoor unit, and easy drainage for condensed water.

6. The ceiling should not be inclined by more than 2 degrees.

7. The distance between the indoor unit and the outdoor unit should not be longer than 30m. (recommended distance between two units is 5m.). and the height difference between the indoor unit and the outdoor unit should be less than 15m.

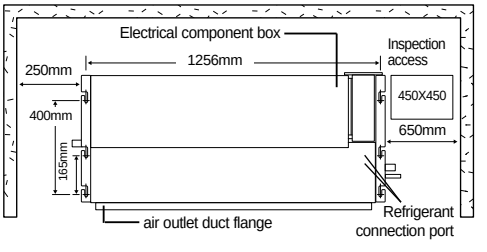
8. There should be enough space around the indoor unit to provide easy installation and service.

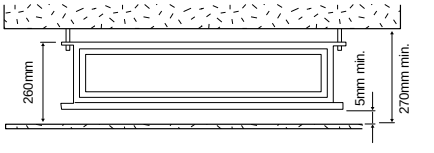
10. Please use the given accessories to install the indoor unit. (set of slings)

    - Check that the installed location is strong enough to hang the indoor unit on.

    - The distances of the following should be limited:
      The lengths of refrigerant tube 30 m.
      The height difference between indoor and outdoor unit should be less than 15 m.

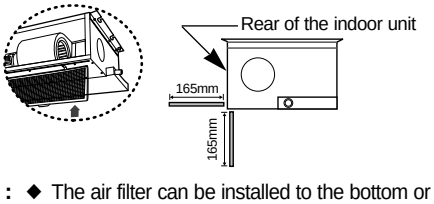
Space requirement when installing the indoor unit





You must have 5mm or more space between the ceiling and the bottom of indoor unit. Otherwise, the noice from the vibration of indoor unit may bother the user.

Space requirement when installing the air filter



Note : ◆ The air filter can be installed to the bottom or rear of the indoor unit.

4-4-2 Outdoor unit

1. Make sure that you install the outdoor unit in an area not exposed to the rain or direct sunlight. (Install a separate sunblind if exposed to direct sunlight.)

2. Make sure that you install the outdoor unit in an area, not amplifying noise or vibration, especially to avoid disturbing neighbours. (Fix the unit firmly if it is mounted on a high place.)

3. Make sure that you install the outdoor unit in an area providing good ventilation and which is not dusty. It must not be blocked by any obstacle affecting the airflow near the air inlet and the air outlet.

4. Make sure that you install the outdoor unit in an area free from animals or plants.

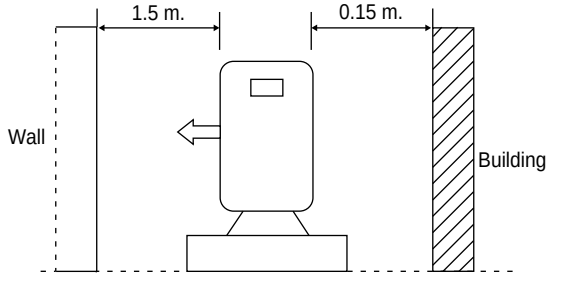
5. Make sure that you install the outdoor unit in an area not blocking the traffic.

6. Make sure that you install the outdoor unit in area easy to drain condensed water.

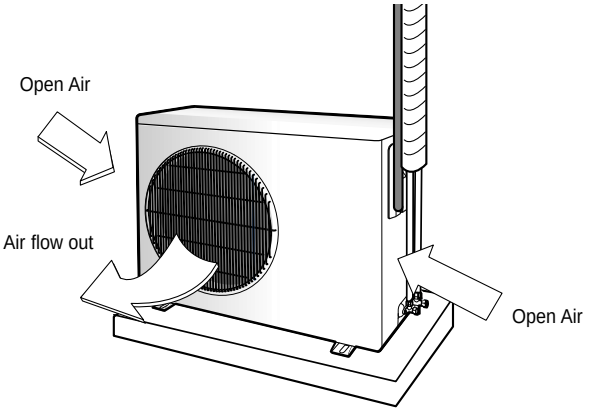
7. If installed on a desk, it should not be installed in a direction that puts open airflow is against airflow from the outdoor unit. It will make the air conditioner malfunction.

8. Do not let hot air flow into the outdoor unit because the air conditioner will malfunction. The hot air may come from other near-by the outdoor unit or heating equipment or itself.

9. If install the outdoor unit directly against the wall, the minimum distance between the outdoor unit and the wall should be 1.5 m.

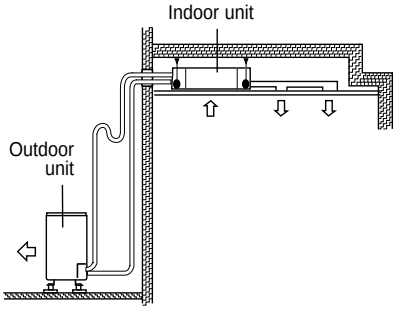


10. If you install the outdoor unit in a location that has open airflow, you should install the outdoor unit in a direction that airflow out from the outdoor unit is perpendicular to the open air flow direction.

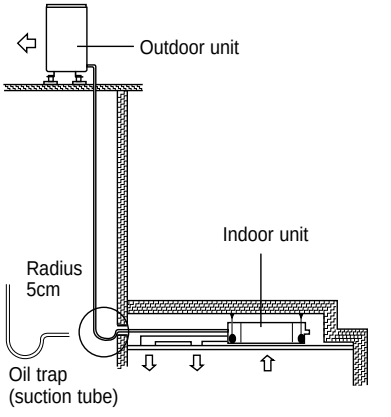


11. Install the oil trap according to the installation condition. (see the figure)

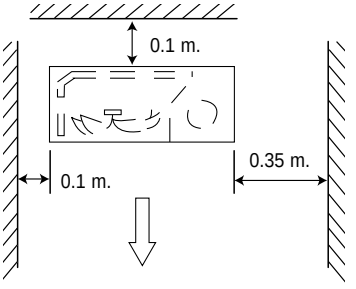
a. When the indoor unit is above the outdoor unit



b. When the outdoor unit is above the indoor unit



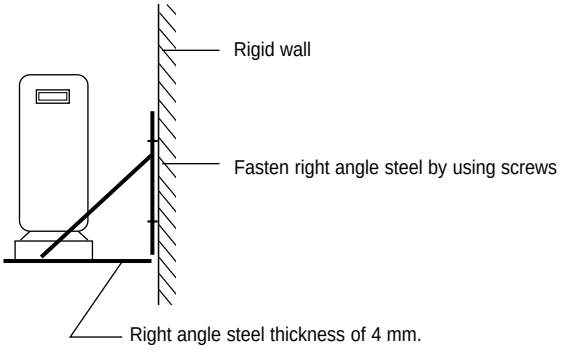
12. You should leave spacing around the outdoor unit at least according to the figure for easy installation, service and ventilation.



13. Install the outdoor unit on a rigid base.

14. Fasten the outdoor unit to the base by using bolts or nuts.

15. In case of hanging the outdoor unit, you should hang it on a rigid wall area and use right angle steel thickness of 4 mm. as a holder.



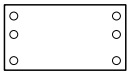
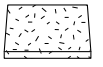
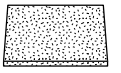
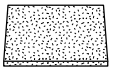
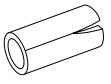
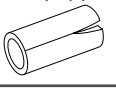
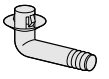
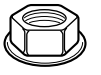
Caution :

It is harmful to the air conditioner if it is used in the following environments: greasy areas (including near machines), salty areas such as coast areas, areas where sulfuric gas is present such as hot spring areas, large variance in electricity voltage such as in a factory. Contact your dealer for advice.

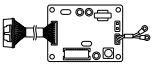
4-4-3. Air Conditioner and Accessories

The following accessories are supplied with the air conditioner. The quantities are indicated in parantheses.

Basic Accessories

Owner's Instructions(1) 	Installation Manual(1) 	Pattern Sheet(1) 	Insulation Drain B(1) 	Insulation Drain A(1) 	Insulation Cover Pipe(2) 
Insulation outlet(1) Insulation inlet(1) 	Insulation Drain Pipe(1) 	Cable-Tie(4) 	Drain Plug(1) 	Nut(12) 	M4 X 12 Tapped Screw(4) 

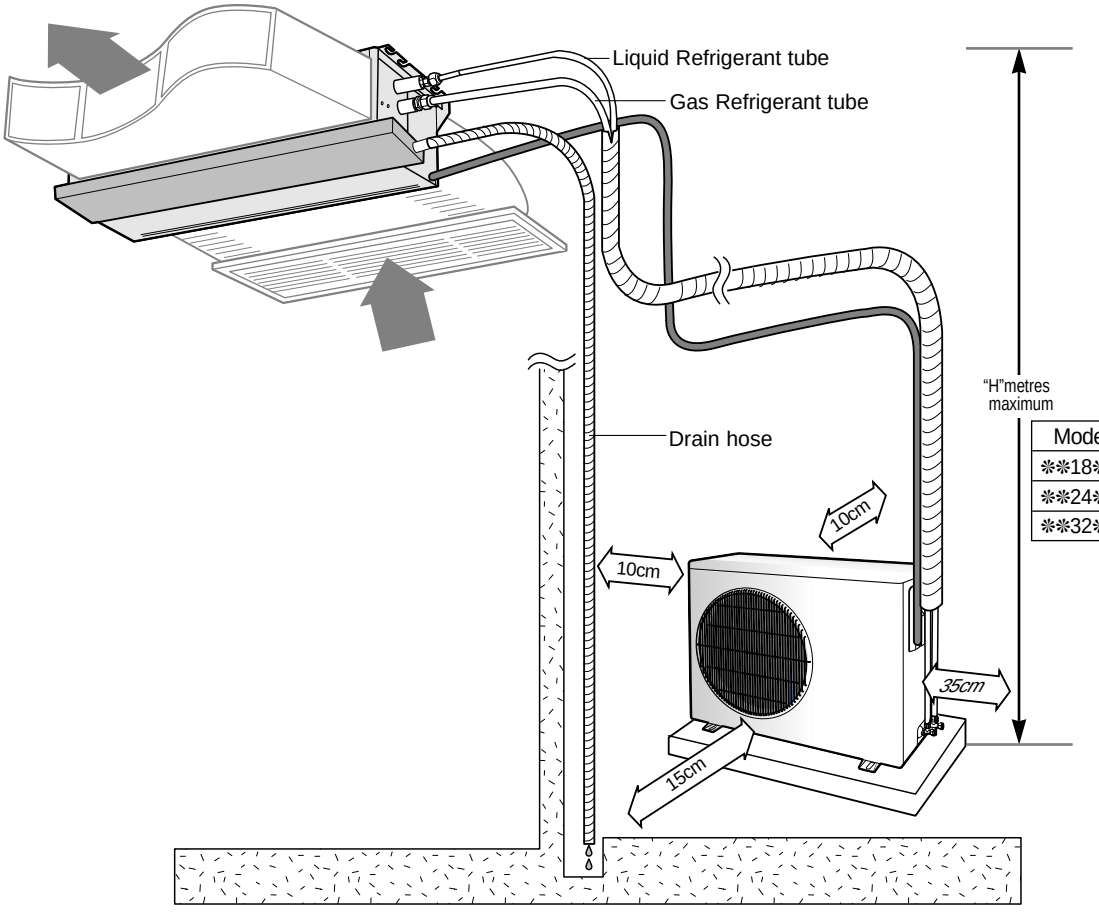
Optional Accessories

Wired Remote Controller(1) KR-H50110 	Cable-Tie(2)	Cable Clamp(5) 	M4 X 16 Tapped Screw(7) 
Wireless Remote Controller(1) KR-H40100 	Battery(2) 	M4 X 16 Tapped Screw(2) 	Remote Controller Holder(1) 
Receiver & Display Unit(1) KRE-H2000 	Cable-Tie(2) 	Cable Clamp(5) 	M4 X 16 Tapped Screw(7) 
Centralized Controller(1) KR-H60110 	Cable-Tie(2) 	Cable Clamp(5) 	M4 X 16 Tapped Screw(7) 
Transmitter(1) KT-A00 	Spacer Support(4) 	Cable-Tie(2)	
Drain Pump and Float Switch(1) KDP-075S0 	M4 X 12 Tapped Screw(4)	Cable-Tie(2) 	Cable Clamp(2) 
Air Filter(1) KF-D0B0 			

Wire Kit KWE-A110  Length : 10m

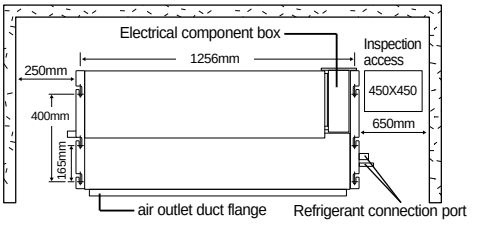
Note : Refrigeration pipes and their insulating materials, power cables are not supplied.

Respect the clearances and maximum lengths indicated in the diagram below when installing the unit.



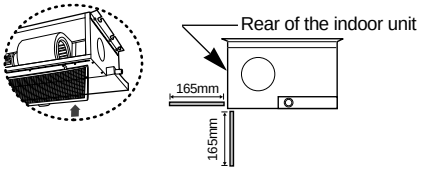
Model	L	H
❊❊18❊❊	30	15
❊❊24❊❊	30	15
❊❊32❊❊	30	15

Space requirement when installing the indoor unit



You must have 5mm or more space between the ceiling and the bottom of indoor unit. Otherwise, the noice from the vibration of indoor unit may bother the user.

Space requirement when installing the air filter



Note : • The air filter can be installed to the bottom or rear of the indoor unit.

4-4-4. Deciding on Where to Install the Air Conditioner

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General

Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- Combustible gases
- Saline air
- Machine oil
- Sulphide gas
- Special environmental conditions

If you must install the unit in such conditions, first consult your dealer.

Indoor Unit

- There must be no obstacles near the air inlet and outlet.
- Choose a space of ceiling that enables the pipes and cables to be easily connected to the outdoor unit and the recommended length of 20 metres to be respected ("L" metres maximum-"L" indicated in the diagram on the page opposite). Proper drain hose passage should also be considered.
- Install the indoor unit on a ceiling that can support its weight.
- Maintain sufficient clearance around the indoor unit, as indicated in the diagram on the page opposite.
- Make sure that the water dripping from the drain hose runs away correctly and safely.

Outdoor Unit

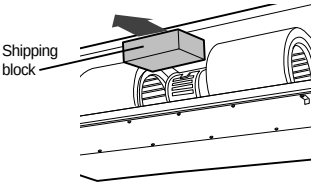
- The outdoor unit must NEVER be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- Choose a location that is dry and sunny, but not exposed to direct sunlight or strong winds.
- Do not block any passageways or thoroughfares.
- Choose a location where the noise of the air conditioner when running and the discharged air do not disturb any neighbours.
- Choose a position that enables the pipes and cables to be easily connected to the indoor unit. Recommended length between indoor and outdoor unit is 20 metres.("L" metres maximum)
- Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.
- Position the outdoor unit so that the air flow is directed towards the open area.
- Maintain sufficient clearance around the outdoor unit, as indicated in the diagram on the page opposite.
- If the outdoor unit is installed at a height, ensure that its base is firmly fixed in position; the maximum height difference between indoor and outdoor unit is "H" metres("H" indicated in the diagram on the page opposite.).
- Make sure that the water dripping from the drain hose runs away correctly and safely.

Caution :

- You have just purchased a duct-type air conditioner and it has to be installed by your installation specialist.
- This device must be installed according to the national electrical rules.

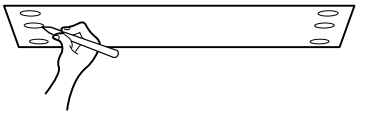
4-4-5. Indoor Unit Installation

1. Carefully remove the indoor unit from the packing case and pull out the shipping block on the motor of the unit.

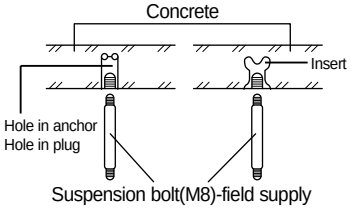


2. Place the pattern sheet on the ceiling at the spot where you want to install the indoor unit.

Note : • Since the diagram is made of paper, it may shrink or stretch slightly due to temperature or humidity. For this reason, before drilling the holes maintain the correct dimensions between the markings.

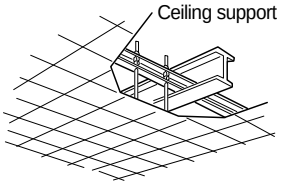


3. Insert bolt anchors. Use existing ceiling supports or construct a suitable support as shown in figure.



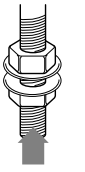
4. Install the suspension bolts depending on the ceiling type.

IMPORTANT : Ensure that the ceiling is strong enough to support the weight of the indoor unit.
Before hanging the unit, test the strength of each attached suspension bolt.



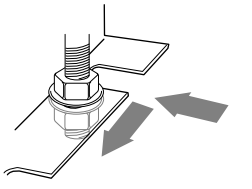
5. Screw eight nuts to the suspension bolts making space for hanging the indoor unit.

IMPORTANT : You must install the suspension bolts more than four when installing the indoor unit.



6. Hang the indoor unit to the suspension bolts between two nuts.

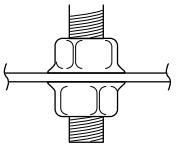
Note : • Tubing must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.



7. Screw the nuts to suspend the unit.

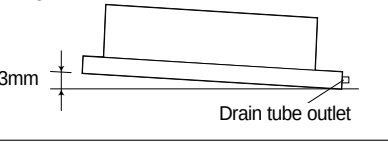
8. Adjust level of the unit by using measurement plate for all 4 sides.

Note : • For proper drainage of condensate, give a slightly slant to the left or right side of the unit which will be connected with the drain hose. But if you would like to install a drain pump, make the base pan be level with the ceiling.



For proper drainage of condensate, give a 3mm slant to the left or right side of the unit which will be connected with the drain hose, as shown in the figure. Make a tilt when you wish to install the drain pump, too.

When the drain hose is installed to the right.



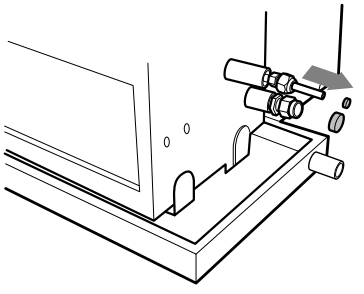
4-4-6. Purging the Unit

On delivery, the indoor unit is loaded with an inert nitrogen gas.
All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as follows.

Unscrew the caps at the end of each pipe.

Result: All inert gas escapes from the indoor unit.

Note : To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the caps completely until you are ready to connect the piping.

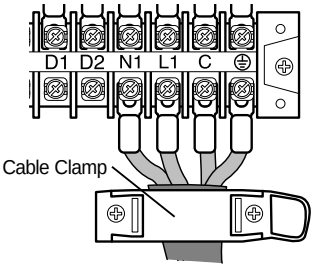


4-4-7. Connecting the Connection Cord

The indoor unit is powered from the outdoor unit via the connection cord.

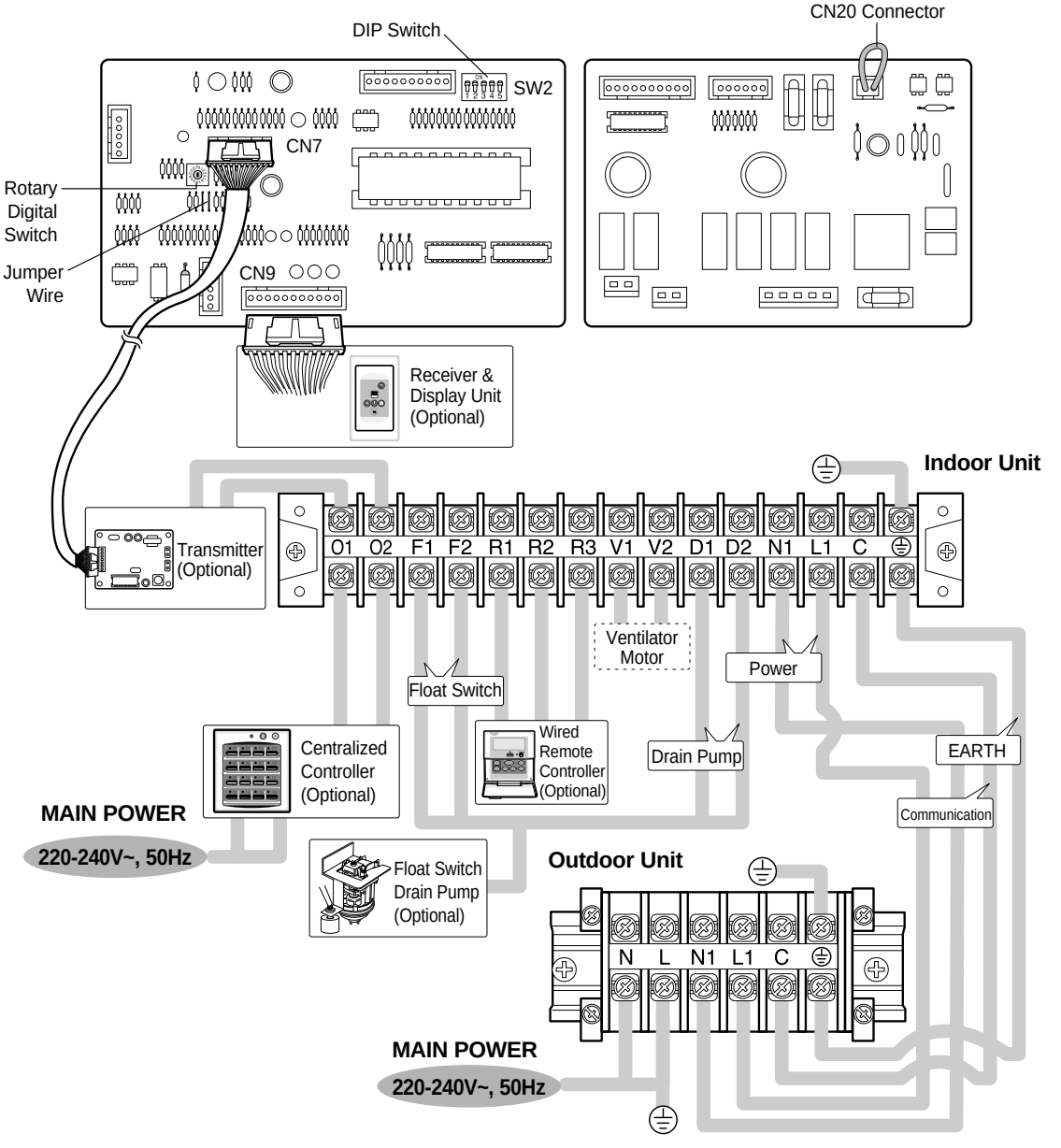
1. Remove the screw on the electrical component box and remove the cover plate.
2. Route the connection cord through the side of the indoor unit and connect the cable to terminals.

   Note : When connecting the cables, you must pass them through the cable clamp to fix them securely.



3. Route the other end of the cable to the outdoor unit through the ceiling & the hole on the wall.
4. Reassemble the electrical component box cover, carefully tightening the screw.
5. For further details on how to plug the other end of the connection cord into the outdoor unit.

Wiring Diagram



Cable Specifications

The following electrical characteristics must be respected.

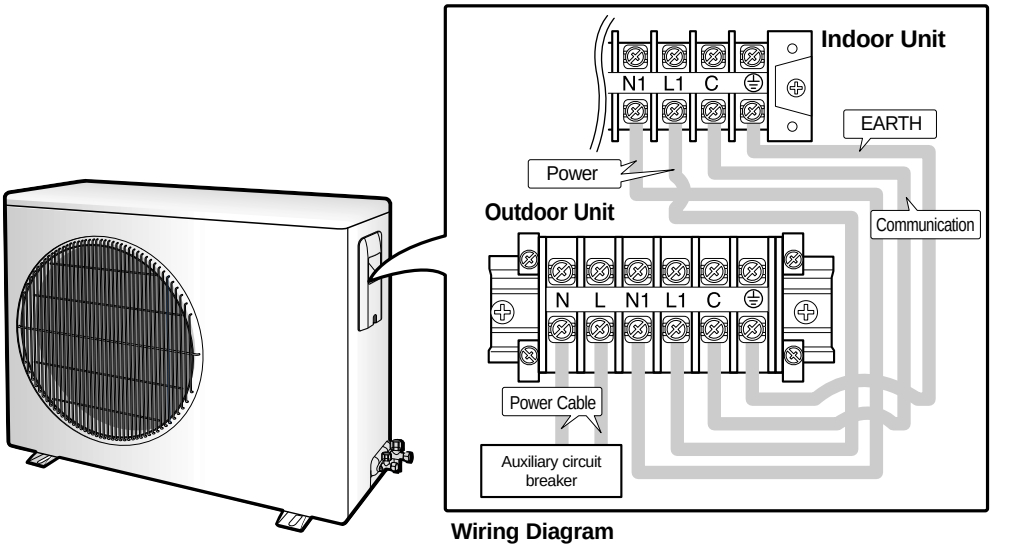
MODEL		ADH1800E/ADH2400E DH18ZA1(A2)/DH24ZA1(A2)	ADH3200E DH32ZA1(A2)	Note
Power		1Ø, 220V-240V~, 50Hz		The power cables are not supplied with the air conditioner. The user should purchase them separately.
Sub switch		30A		
Fuse		30A		
Min. size of electric Wires from/to the indoor/outdoor unit		H07RN-F, 4G, 1.0mm^2	H07RN-F, 4G, 1.0mm^2	
Size of electric input wires	20m or less	H07RN-F, 3G, 2.5mm^2	H07RN-F, 3G, 4.0mm^2	
	50m or less	H07RN-F, 3G, 4.0mm^2	H07RN-F, 3G, 6.0mm^2	

4-4-8. Connecting the Cables to the Outdoor Unit

Two electric cables must be connected to the outdoor unit.

- The connection cord connecting the indoor unit to the outdoor unit
- The power cable connecting the auxiliary circuit breaker to the outdoor unit

1. Remove the terminal board cover on the side of the outdoor unit.
2. Connect the connection cord(N1, L1, C, ⏚) and power cable(N, L) to terminals as shown in the diagram.
3. Connect the power cable to the auxiliary circuit breaker.
   An all pole disconnection from the power supply must be incorporated in the fixed wiring(≥3mm)
4. Replace the terminal board cover, carefully tightening the screw.



Wiring Diagram

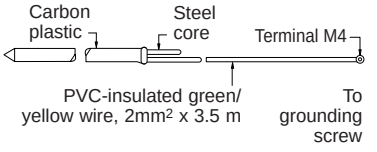
Caution :

Keep the power cable and the connection cord in a steel pipe to protect them against liquids, outside impacts and so on.

4-4-9. Checking Correct Grounding

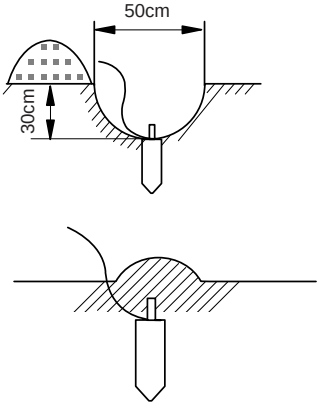
If the power distribution circuit does not have an earth or the ground does not comply with specifications, an grounding electrode must be installed.
The corresponding accessories are NOT supplied with the air conditioner.

1. Select an grounding electrode that complies with the specifications given in the illustration.



2. Determine a suitable location for the grounding electrode:
   - In damp hard soil rather than loose sandy or gravel soil that has a higher grounding resistance
   - Away from underground structures or facilities, such as gas pipes, water pipes, telephone lines and underground cables
   - At least two metres away from a lightening conductor grounding electrode and its cable

   Note : The grounding wire for the telephone line cannot be used to ground the air conditioner.



3. Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.

4. Install a green / yellow coloured grounding wire (Ø1.6 mm, section 2 mm^2 or greater):
   - If the grounding wire is too short, connect an extension lead, in a mechanical way and wrapping it with insulating tape (do not bury the connection)
   - Secure the grounding wire in position with staples

   Note : If the grounding electrode is installed in an area of heavy traffic, its wire must be connected securely.

5. Carefully check the installation, by measuring the grounding resistance with a ground resistance tester. If the resistance is above required level, drive the electrode deeper into the ground or increase the number of grounding electrodes.

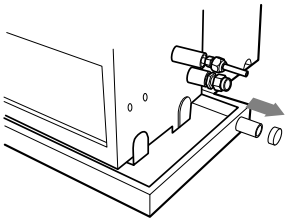
6. Connect the grounding wire to the electrical component box inside of the outdoor unit.

4-4-10. Drain Hose Installation

Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside. The drain hose can be installed to the right or left side of the base pan.

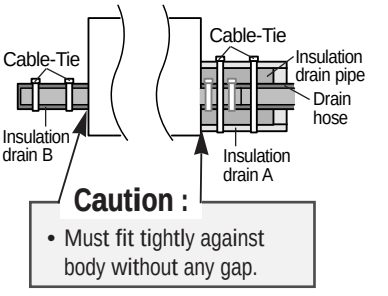
1. Remove the rubber cap located on the side of the base pan depending on the situation.

2. Install the drain hose so that its length can be as short as possible.
   Internal diameter of the drain hose should be the same or slightly bigger than the external diameter.



Note : • Give a slightly slant to the drain hose for proper drainage of condensate.
• Secure the drain hose with the cable-tie not to be separated from the unit.

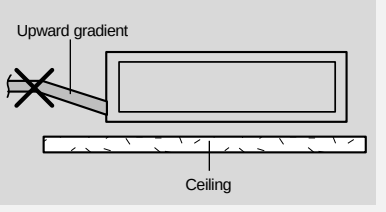
3. Wrap the drain hose with the insulation drain pipe, the insulation drain A as shown in figure and secure them. And wrap the other drain tube outlet with the insulation drain B provided.



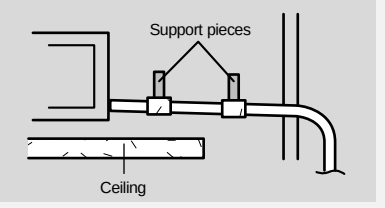
Caution :

When not installing the drain pump

Do not give the hose and upward gradient after the connection port.
This will cause water to flow backwards when the unit is stopped, resulting in water leaks.

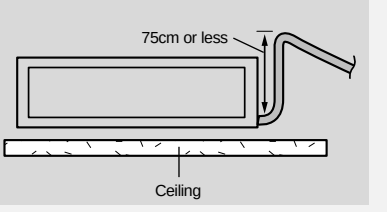


Do not apply force to the piping on the unit side when connecting the drain hose. The hose should not be allowed to hang loose from its connection to the unit. Fasten the hose to a wall, frame or other support as close to the unit as possible.



When installing the drain pump

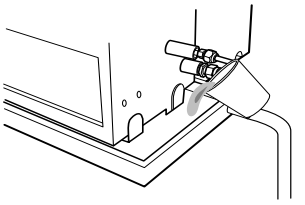
If it is necessary to increase the height of the drain hose somewhat, the portion directly after 75cm. If it is raised higher than 75cm, there can be water leaks.



Testing the drainage

Prepare a little water about 5 liter.

1. Pour water into the base pan in the indoor unit as shown in figure.

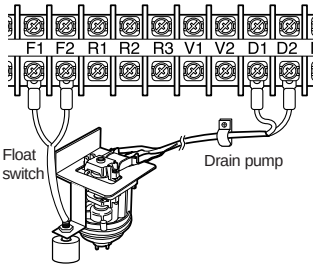


2. Confirm that the water flows out through the drain hose.

4-4-11. Drain Pump Installation (Optional)

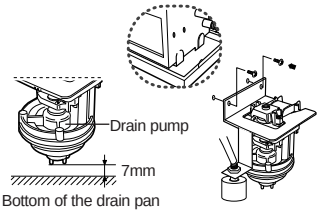
Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside. The drain hose can be installed to the right or left side of the base pan.

1. Connect the cable to the electrical component box as shown in figure.



2. Screw the drain pump to the side of the indoor unit with two screws.

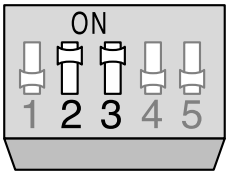
Note : When installing the drain pump, leave a 7mm space between the bottom of the drain pan and the drain pump.



3. Adjust the DIP switch(SW2) on the main PCB according to the table below.

Switch No.	Switch Position
2	ON
3	ON

Note : Check below if the drain pump has been installed.
1 The base pan must be level with the ceiling.
2 Wrap the drain tube outlet on the right and left side of the indoor unit with an insulating materials.



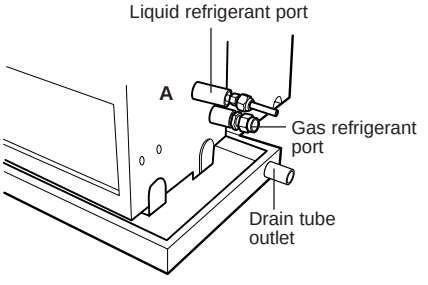
4-4-12. Connecting the Indoor Unit Assembly Piping

There are two refrigerant pipes of differing diameters:

- ◆ A smaller one(9.52mm, 3/8") for the liquid refrigerant
- ◆ A larger one(15.88mm, 5/8") for the gas refrigerant
- ◆ The thickness of tube should not less than 1.0mm.
- ◆ The inside of copper tube must be clean & has no dust.

The connection procedure for the refrigerant pipes varies according to the exit position of the pipes from the indoor unit, as seen when facing the indoor in the "A" side.

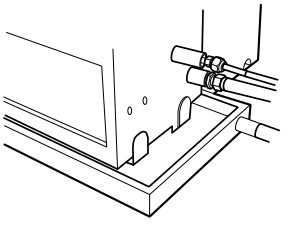
- ◆ Liquid refrigerant port
- ◆ Gas refrigerant port
- ◆ Drain hose tube outlet



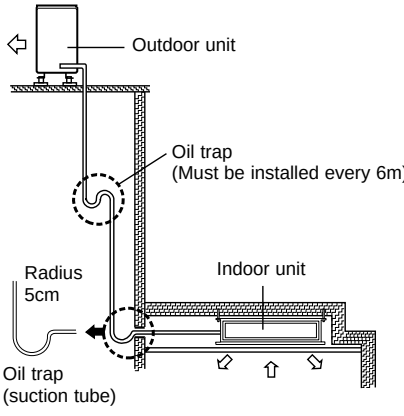
1. Remove the protection caps on the pipes and connect the assembly pipes to each pipe, tightening the nuts, first manually and then with a wrench, a spaner applying the following torque.

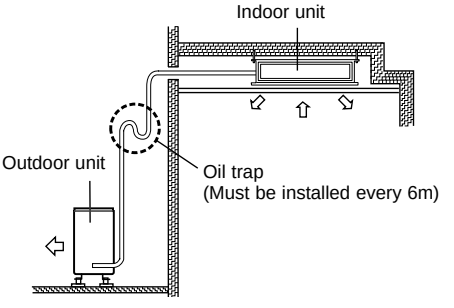
Outer Diameter	Torque (kgf•cm)
9.52 mm (3/8")	300
15.88 mm (5/8")	750

Note : If the pipes must be shortened.



2. Must use insulator which is thick enough to cover the refrigerant tube to protect the condensate water on the outside of pipe falling onto the floor and the efficiency of the unit will be better.





3. Cut off any excess foam insulation.

4. Be sure that there must be no crack or wave on the bended area.

5. It would be necessary to double the insulation thickness to prevent condensation even on the insulator when if the installed area is warm and humid.

6. Shape an oil trap as shown in figure the oil trap must be formed every level difference of 6m.

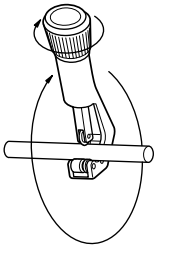
7. For further details on connecting up to the outdoor unit and purging the refrigerant circuit.

Note : The pipes will be insulated and fixed permanantly into position once the whole installation has been tested for gas leaks.

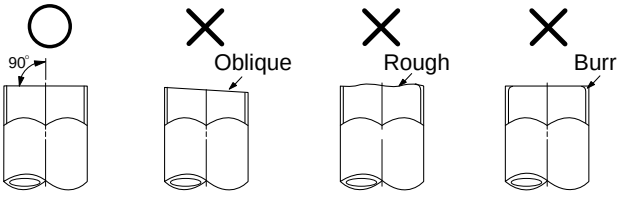
4-4-13. Cutting/Flaring the Pipes

Connect the pipe within 50m and cutting pieces will not be gone into the pipe as being clean to pipe section.

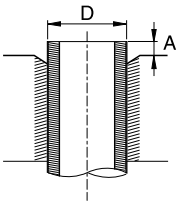
1. Make sure that you have the required tools available (pipe cutter, reamer, flaring tool and pipe holder).



2. If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.



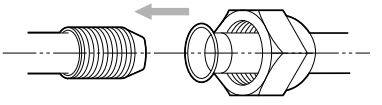
3. To prevent any gas from leaking out, remove all burrs at the cut edge of the pipe, using a reamer.



4. Slide a flare nut on to the pipe and modify the flare.

Outer Diameter(D)	Depth(A)
9.52 mm (3/8")	1.8 mm
15.88 mm (5/8")	2.2 mm

5. Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.



6. Align the pipes and tighten the flare nuts first manually and then with a wrench, applying the following torque.

Outer Diameter(D)	Torque (kgf•cm)
9.52 mm (3/8")	300
15.88 mm (5/8")	750

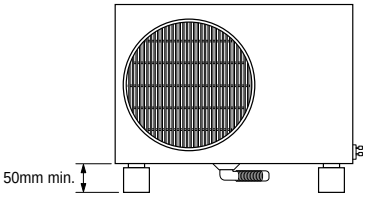
7. For further details on how to connect up to the outdoor unit and purge the circuit.

Caution :
In case of welding the pipe, you must weld with nitrogen gas blowing.

4-4-14. Connecting the Cables to the Outdoor Unit

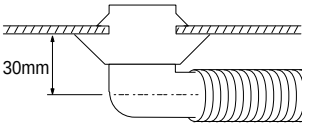
When using the air conditioner in the heating mode, ice may accumulate. During de-icing, the condensed water must be drained off safely. Consequently, you must install a drain hose on the outdoor unit, following the instructions below.

1. Make space more than 50mm between the bottom of the outdoor unit and the ground for installation of the drain hose, as shown in figure.



4-4-15. Inserting the drain plug

1. Insert the drain plug into the hole on the underside of the outdoor unit.



2. Connect the drain hose to the drain plug [Drain hose:ID(18mm), Drain plugPOD(18mm)].

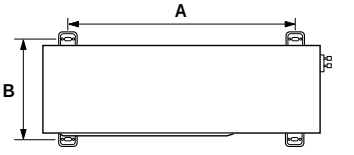
3. Ensure that the drained water runs off correctly and safely.

4-4-16. Fixing the Unit in Position

The outdoor unit must be installed on a rigid and stable base to avoid any increase in the noise level and vibration, particularly if the outdoor unit is to be installed close to a neighbour. If it is to be installed in a location exposed to strong winds or at a height, the unit must be fixed to an appropriate support (wall or ground).

1. Position the outdoor unit so that the air flow is directed towards the outside.

2. Attach the outdoor unit to the appropriate support using anchor bolts.

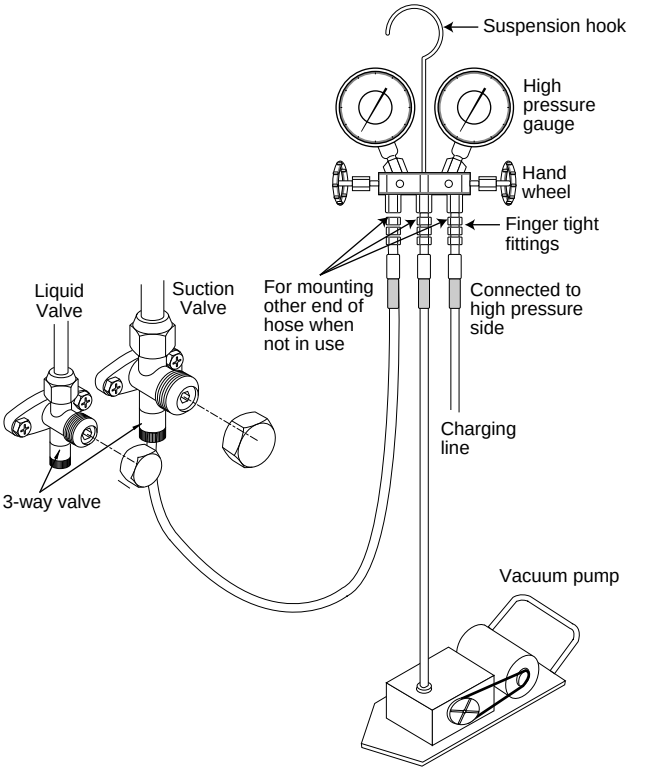


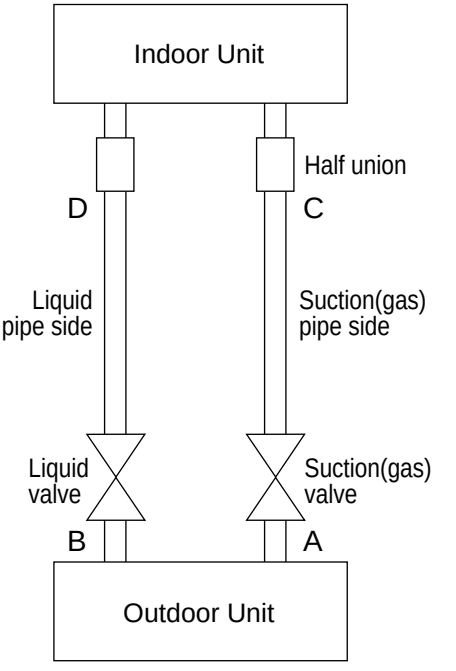
Capacity	A	B
UBH1800E, DH18ZAX	582mm	340mm
UBH2400E/UDH3200E DH24ZAX/DH32ZAX	660mm	340mm

3. If the outdoor unit is exposed to strong winds, install shield plates around the outdoor unit, so that the fan can operate correctly.

• Use the vacuum pump to remove N2 gas or air inside the indoor unit and pipes.

1. Tighten all pipe connections (A, B, C, D) to prevent any leakage.
2. Check that the suction and liquid valves are turned off clockwise to close the outdoor unit.
3. Remove the cap on the opposite side of the Suction tube connection (A) and connect a hose from the pressure guage of which other end is connected to the vacuum pump.
4. Operate the vacuum pump enough until the pressure guage indicates “0”.
5. Disconnect the hose from the suction valve cafully not to break the vacuum.
6. Turn on the suction and liquid valves counterclockwise to open the outdoor unit to the indoor unit.
7. Check the leakage on the connections. (A, B, C, D)
8. Check each valve for leakage.





4-4-17 Refrigerant Refill Procedure

1. Refrigerant Refill

• Refill the air-conditioner with refrigerant when the refrigerant has leaked during the installing or using

1. Turn the suction valve clockwise to close, connect the pressure gauge(low pressure side) to the service valve, and open the suction valve again.

↓

2. Connect the tank to refill with Refrigerant

↓

3. Set the unit to cool operation mode.

↓

4. Check the pressure indicated by the pressure gauge(low pressure side).
   *Standard pressure should be 4.5~5.5kg/cm^2 in a regular, operation mode.

↓

5. Open the refrigerant tank and fill with refrigerant until the rated pressure is reached.
   *It is recommended not to pour the refrigerant in too quickly, but gradually while operating a pressure valve.

↓

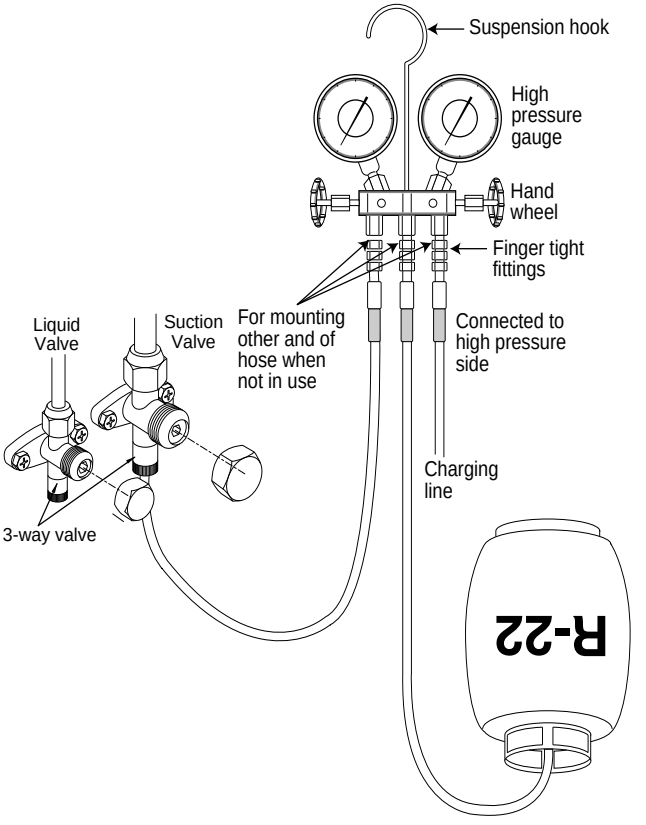
6. Stop operation of the air conditioner.

↓

7. Close the suction valve, disconnect the pressure gauge, and open the suction valve again.

↓

8. Close the cap of each valve.



2. Refrigerant Adjustment (Supplement)

Adding Refrigerant

Refrigerant must be added if the piping measures more than 5 metres in length (maximum of "A" metres). The quantity of additional refrigerant is variable according to the installation situation. Thus, make sure the outdoor unit situation before adding refrigerant. This operation can only be performed by a qualified refrigeration specialist.

☛	If you have used...	Then...
	More than 5 metres of the pipes	"B"g of refrigerant (R-22) must be added for each extra metre.
	Less than 5 metres of piping	The purge time is normal.

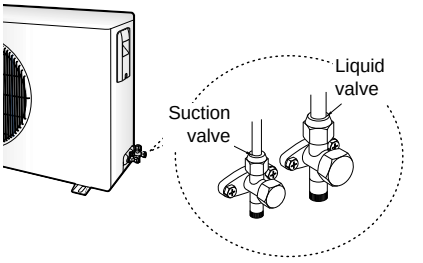
Type	A	B	
		a	b
ADH1800E/DH18ZA1(A2)	30	50	40
ADH2400E/DH24ZA1(A2)	30	50	40
ADH3200E/DH32ZA1(A2)	30	55	55

For details about the installation situation(a or b)

• Refer to 4-16 page

4-4-18 "Pump down" Procedure

• 'Pump down' shall be carried out when an evaporator replaced or when the unit is relocated in another area.



1. Remove the caps from the liquid valve and the suction valve.
2. Turn the suction valve clockwise to close and connect a pressure gauge(low pressure side) to the service valve, and open the suction valve again.
3. Set the unit to cool operation mode. (Check if the compressor is operating.)
4. Turn the liquid valve clockwise to close.
5. When the pressure gauge indicates "0" turn the suction valve clockwise to close.
6. Stop operation of the air conditioner.
7. Close the cap of each valve.

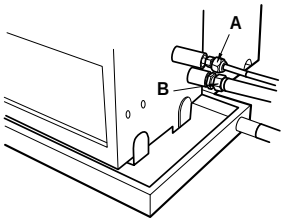
Relocation of the Air Conditioner

• Refer to this procedure when the unit is relocated.

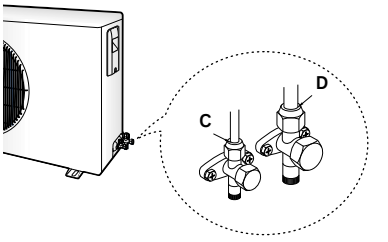
1. Carry out the pump down procedure (refer to the details of 'pump down').
2. Remove the power cord.
3. Disconnect the assembly cable from the indoor and outdoor units.
4. Remove the flare nut connecting the indoor unit and the pipe.
5. Disconnect the pipe connected to the outdoor unit. At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to prevent foreign material from entering.
6. Make sure you do not bend the connection pipes in the middle and store together with the cables.
7. Move the indoor and outdoor units to a new location.
8. Remove the mounting plate for the indoor unit and move it to a new location.

4-4-19. Performing Leak Tests

Before completing the installation (insulation of the hose and piping), you must check that there are no gas leaks.



To check for gas leaks on the...	Then, using a leak detector, check the...
Indoor unit	Flare nuts at the end of sections A and B.
Outdoor unit	Valves on sections C and D.



4-4-20. Insulation

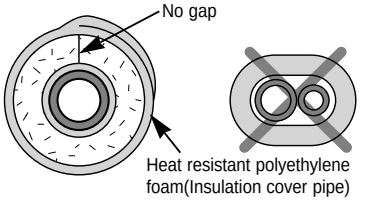
Once you have checked that there are no leaks in the system, you can insulate the piping and hose.

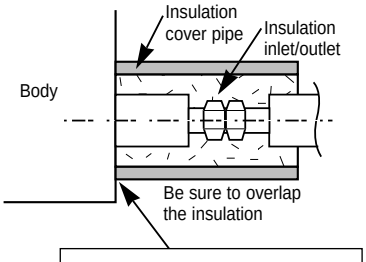
1. To avoid condensation problems, place **heat-resistant polyethylene foam** separately around each refrigerant pipe.

   Note : • Always make the seam of pipes face upwards.

2. Wind insulating tape around the pipes.

3. Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.

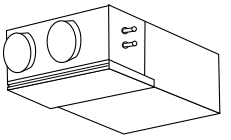
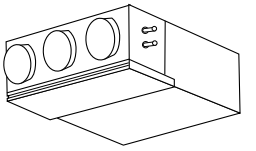
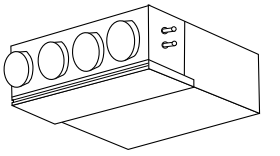




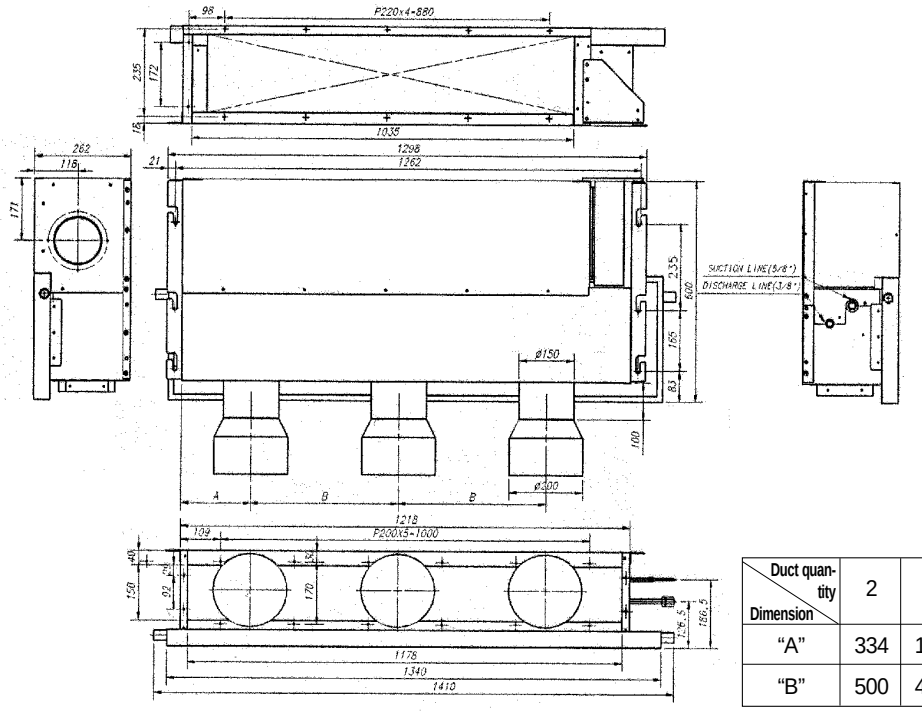
Caution :
Must fit tightly against body without any gap.

Connection outlet as per the capacity

- Be sure to connect the round type duct according to our spec.
- When connecting the round type duct, duct shall be used with the rubber material if possible.(When using A/C and metal families, it cause the noise).
- The outside of the connection side of round type duct shall be insulated. If not insulated, the condensate may leak from the duct.

	ADH1800E, DH18ZA1(A2)	ADH1800E, DH18ZA1(A2) ADH2400E, DH24ZA1(A2) ADH3200E, DH32ZA1(A2)	ADH3200E, DH32ZA1(A2)
			
Duct Connection hole	2	3	4
Duct diameter	ø150 ~ ø200		
Shape dimension(mm) (W x H x D)	1340 x 260 x 600	1340 x 260 x 600	1340 x 260 x 600

example) ADH1800E, DH18ZA1(A2), ADH2400E, DH24ZA1(A2), ADH3200E, DH32ZA1(A2)



(Unit : mm)

Duct quantity / Dimension	2	3	4	Remark
"A"	334	189	134	
"B"	500	400	300	

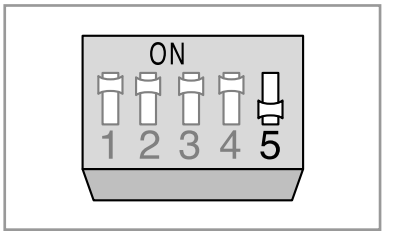
4-4-21. Increasing Fan Speed

If external static pressure is too great(due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem can be solved by increasing the fan speed using the following procedure.

1. Remove the screw on the electrical component box and remove the cover plate.

2. Adjust the DIP switch(SW2) on the main PCB to the "OFF" position.

Switch No.	Switch Position	Function
5	ON	Normal speed
	OFF	High speed



3. Re-install the cover plate and join the removed screw.

How to Read Diagram

1. The vertical axis is the external static pressure(mmAq) while the horizontal axis represents the AIR FLOW(m^3/min).

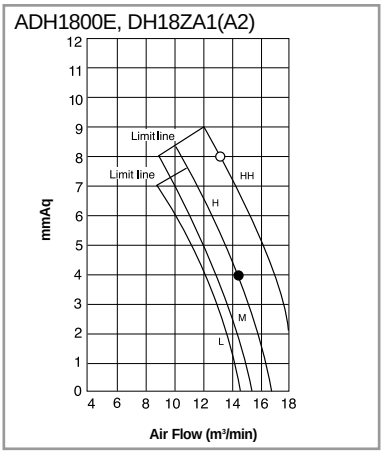
2. The characteristic curves for 'HH', 'H', 'Med', and 'Low' fan speed controller are shown.

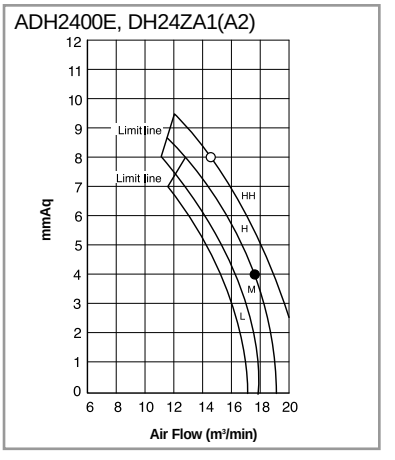
3. The nameplate values are shown based on the 'H' air flow.

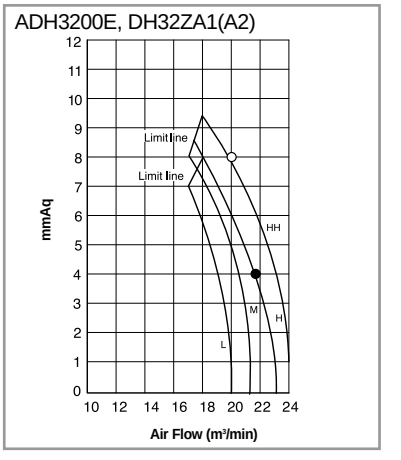
4. In case of model ADH2400E/DH24ZA1(A2), the air flow is 17.4(m^3/min), while the external static pressure is 4mmAq at 'H' position.

5. If external static pressure is too great, the air flow volume may drop too low as explained above.

Note : HH : DIP Switch OFF position(High speed) H : At shipment(Normal speed)





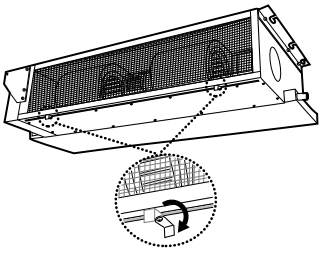


4-4-22. Cleaning Your Air Conditioner

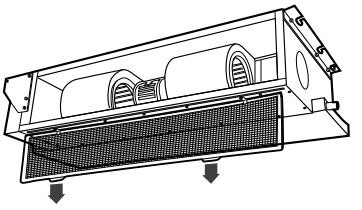
To get the best possible use out of your air conditioner, you must clean it regularly to remove the dust that accumulates on the air filter.
The air filter is an optional accessory.

IMPORTANT : Before cleaning your air conditioner, ensure that you have switched off the electric circuit breaker used for the unit.

1. Turn the levers to the right or left not to prevent pulling out the air filter.



2. Pull out the air filter depending on your installation.



* The location of the air filter may differ from this figure depending on your installation.

3. Remove all dust on air filter with a vacuum cleaner or a brush. In case of serious dust accumulation, put the air filter in warm detergent water and shake it vertically.

4. Dry the air filter.

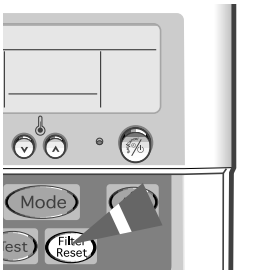
5. When you have finished, insert the filter into the unit.

6. Return the levers.

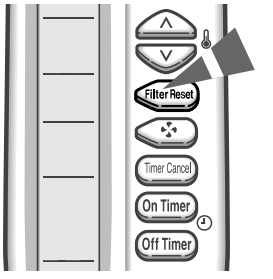
7. Clean the outdoor unit with a vacuum cleaner or a brush once a month.

Note : After cleaning the air conditioner, press the Filter Reset button.

Wired Remote Controller



Wireless Remote Controller



4-4-23. Temperature and Humidity Ranges

The following table indicates the temperature and humidity ranges, within which the air conditioner can be used.

If the air conditioner is used at...	Then...
High temperature	The automatic protection feature may be triggered and the air conditioner stopped.
Low temperature	A water leakage or some other malfunction may happen if the heat exchanger freezes.
High humidity levels	Water may condense on and drip from the surface of the indoor unit if it is used for a long periods.

Mode	Outdoor Temperature	Indoor Temperature	Indoor Humidity
Heating	-5°C to 21°C approx.	15°C to 27°C approx.	-
Cooling	-5°C to 43°C approx.	21°C to 32°C approx.	80% or less
Drying	21°C to 43°C approx.	21°C to 32°C approx.	-

✳ **If the heating operation is used at below 0°C(outdoor temperature) then, does not a full capacity.**
If the cooling operation is used at over 33°C(indoor temperature) then, does not a full capacity.

4-4-24. Sloving Common Porblems

Before contacting the after-sales service, perform the following simple checks. They may save your time and expense of an unnecessary call.

Problem	Explanation/Solution
The air conditioner does not operate at all	◆ Check that the breaker used for the air conditioner is switched on.
Wired Remote Controller The air conditioner does not operate with the remote controller	◆ is displayed on the wired remote controller. In this case, turn the air conditioner off and contact your dealer.
Wired Remote Controller When turning on/off the air conditioner, it is not turned On/Off immediately.	◆ In case of using the wired remote controller for a group, the air conditioners connected to the remote controller are turned on/off in order. Thus, it takes some time(up to 32 seconds).
Wireless Remote Controller The air conditioner does not operate with the remote controller	◆ Check that there are no obstacles between you and the remote control sensor. ◆ Check the wireless remote controller batteries (Refer to page 11). ◆ Check that you are close enough to the remote control sensor. (seven metres/ yards or less).
Wireless Remote Controller No beep is heard when you press (ON/OFF) on the remote controller	◆ Check that you are pointing the remote controller at the remote control sensor of the receiver & display unit. ◆ Replace the remote controller batteries if necessary.
The air conditioner does not cool or heat	◆ Check that the correct operating mode has been selected. ◆ The room temperature may be too low or too high. ◆ Dust may be blocking the air filter guard; refer to page 30 for cleaning instructions. ◆ Check that there is no obstacle in front of the outdoor unit.
When heating, the required room temperature is never reached and the air conditioner frequently stops	◆ Check that the required temperature has been set correctly. ◆ Increase the fan speed.

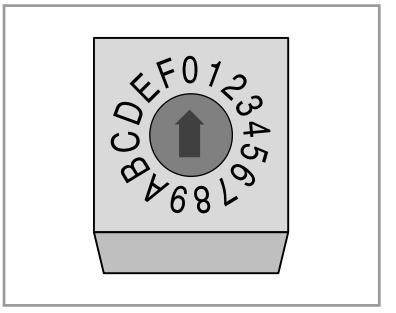
4-4-25. Setting Up Option Switches

IMPORTANT : Before setting up the option switches, always make sure that you have turned off the main power.

Main PCB in the Indoor Unit

Rotary Digital Switch(SW1)

A user can operate up to sixteen air conditioners by using the wired remote controller. Before controlling more than one air conditioner, you should connect the air conditioner each other. And you must assign addresses to the air conditioners. For further details on connecting air conditioners.
If the user would like to controller only one air conditioner, make sure that the arrow is at “0” position.



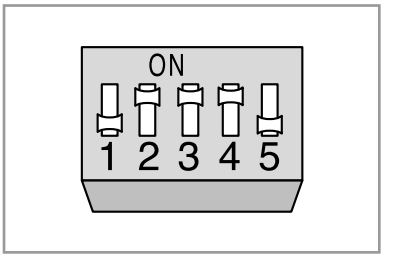
Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen

DIP Switch(SW2)

Adjust the switch to the desired position referring to the table below.

Switch No.	Option Item	Switch Position		Note
		ON	OFF	
1	Ventilator Fan	Not installed	Installed	Not supplied
2	Drain Pump	Installed	Not installed	Optionally supplied
3	Float Switch	Installed	Not installed	
4	Filter Cleaning Cycle	1,000 hours	2,000 hours	
5	Indoor Fan Motor Speed	Normal	High speed	



Caution :

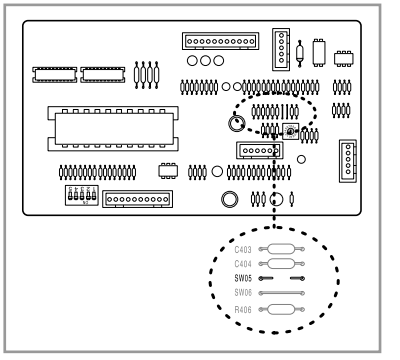
- If you do not adjust the switch when not installing the drain pump, "\9" error will occurs. If this happens, adjust the No.2 and No.3 switches to the "OFF" position.

4-4-26. Setting Up Option Switches (Cont.)

Jumper Wire(SW05)

You can adjust the setting temperature for heating. Cut off the SW05, depending on the situation.

Option Item	Situation of the Switch	Note
Setting temperature +2°C	Short	Preset Position
Setting temperature +5°C	Open	



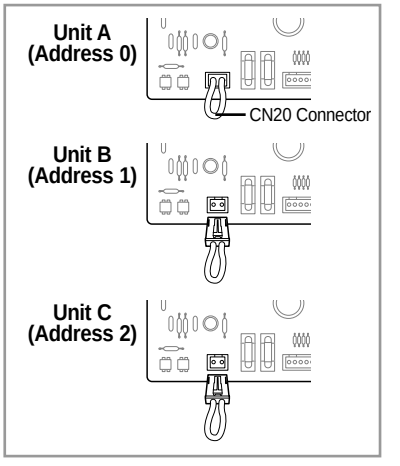
Sub PCB in the Indoor Unit

CN20 Connector

Remove the CN20 connector in the sub PCB, if necessary, referring to the table below. (This procedure is needed only when the user would like to control a group by using the wired remote controller.)

Address	Situation of the CN20 Connector
0	Connected
1 - F	Removed

Note : ◆ Up to 16 air conditioners can be controlled with one wired remote controller.
◆ If the user does not want to control a group, do not remove the CN20 Connector.

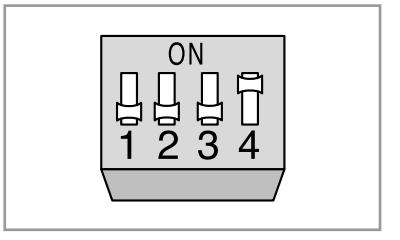


Sub PCB in the Indoor Unit

Dip Switch(DS01)

Adjust the DIP switch No.2 and/or No.4 to the desired position referring to the table below. You must not adjust the switch 1 and 3. They should be in "OFF" position at all times.

Switch No.	Option Item	Switch Position	
		ON	OFF
2	Number of air conditioner(s) controlled by the wired remote controller	Group controlling	One indoor unit controlling
4	Using wireless remote controller	Can be used	Cannot be used

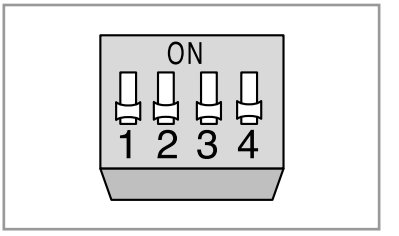


Centralized Controller

DIP Switch(DS01)

Adjust the DIP switch to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.



Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.

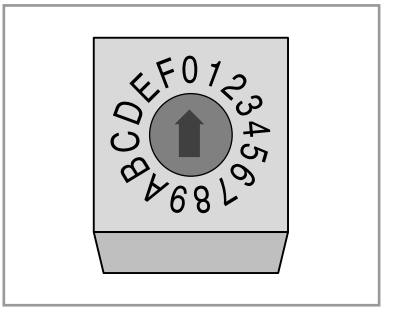
Transmitter

Rotary Digital Switch(DS01)

A user can turn on/off up to sixteen air conditioners by using the centralized controller. To use the controller, you must assign addresses to the air conditioners. For further details on connecting air conditioners.
If the user would like to controller only one air conditioner, make sure that the arrow is at "0" position.

Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen



Original Position of Option Switches

The option switches are preset by the manufacturer. Refer to the table below, if necessary.

Option Place	Component No.	State
Main PCB in the indoor unit	Rotary Digital Switch(SW1)	0
	DIP Switch(SW2)	ON
	Jumper Wire(SW05)	SHORT
Sub PCB in the indoor unit	CN20 Connector	Connected
Wired Remote Controller	DIP Switch(DS01)	OFF
Centralized Controller	DIP Switch(DS01)	OFF
Transmitter	Rotary Digital Switch(DS01)	0

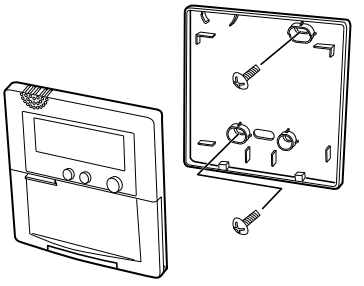
Note : Before setting up the options, always make sure that you have switched off the main power.
After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

4-4-27. Wired Remote Controller Installation (Optional)

Accessories

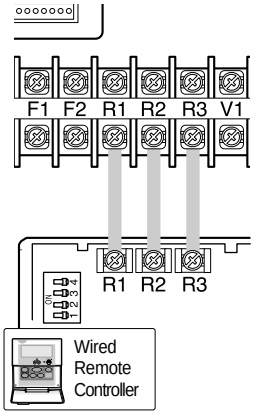
Wired Remote Controller(1) KR-H50210	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
			

1. Disassemble the wired remote controller by using two grooves on the top of it.



2. Secure the rear cover of the wired remote controller on the wall with two screws.

3. Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals on the electrical component box each.



Caution :

- Do Not keep the wired remote controller cables with a 220V cable because the remote controller cables have low voltage.
- Do Not input 220V power to the R1, R2 and R3 in the wired remote controller.

Note : Cable Specifications

Cable type	Double-insulation, 3G
Size of cables	0.3mm^2~0.75mm^2
Max. length of electric wires from the indoor unit to the wired remote controller	100m

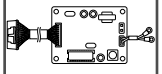
4. Reassemble the wired remote controller.

Caution :

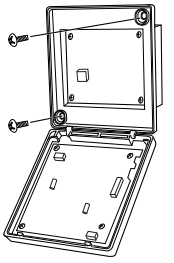
- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

4-4-28. Centralized Controller Installation (Optional)

Accessories

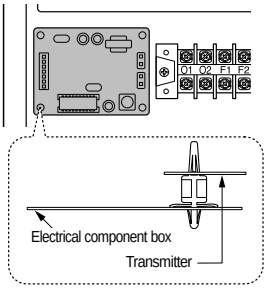
Centralized Controller(1) KR-H60110 	Cable-Tie(2) 	Cable Clamp(5) 	M4 X 16 Tapped Screw(7) 
Transmitter(1) KT-A00 	Spacer Support(4) 	Cable-Tie(2) 	

1. Open the centralized controller cover by using two grooves on the top of it.

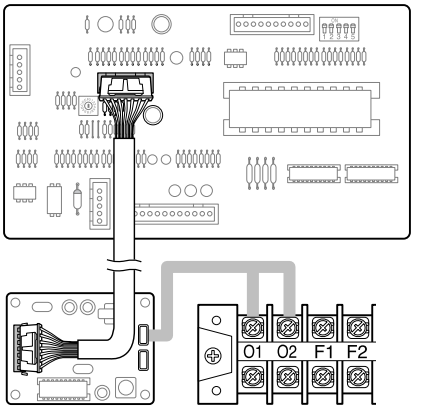


2. Secure the rear cover of the centralized controller on the wall with two screws.

3. Secure the transmitter with four spacer supports into the electrical component box.



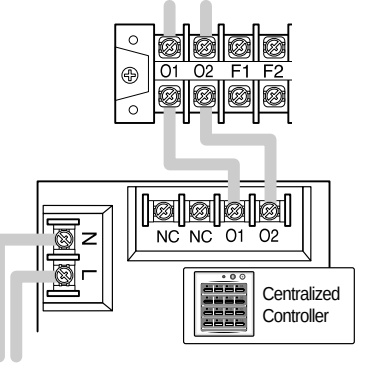
4. Connect the cable from the PCB and to the transmitter.
   And connect another cable from the O1, O2 terminals and to the transmitter as shown in figure.



5. Connect the O1 and O2 terminals of the centralized controller to the O1 and O2 terminals on the electrical component box as shown in figure.

Note : Cable Specifications

Cable type	Double-insulation, 2G(Shield Cable)
Size of cables	0.75mm²~1.25mm²
Max. length of electric wires from the indoor unit to the centralized controller	1km



6. Connect the power cables.

Note : Cable Specifications

Cable type	Double-insulation, 2G
Size of cables	0.75mm²~1.25mm²

7. Reassemble the centralized controller.

Caution :

- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

4-4-29. Wireless Remote Controller Installation (Optional)

Accessories

Wireless Remote Controller(1) KR-H40100 	Battery(2) 	M4 X 16 Tapped Screw(2) 	Remote Controller Holder(1) 
Receiver & Display Unit(1) KRE-H2000 	Cable-Tie(2) 	Cable Clamp(5) 	M4 X 16 Tapped Screw(7) 
Wire Kit KWE-A110  Length : 10m			

1. Remove the receiver & display unit cover by using the tab on the bottom of it.
2. Open the receiver & display unit.
3. Connect the end of the connector wire to the receiver & display unit and connect the other end of the wire to the electrical component box as shown in figure.

Caution :

- Do NOT keep the receiver & display unit cables with a 220V cable because the remote controller cables have low voltage.

4. Close the receiver & display unit.
5. Secure the receiver & display unit on the wall with two screws.
6. Reassemble the receiver & display unit cover.

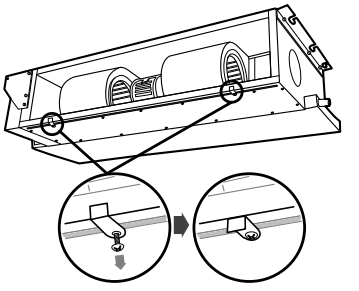
Caution :

- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.

4-4-30. Air Filter Installation (Optional)

The air filter can be installed to the bottom or rear of the indoor unit depending the situation.

1. Remove two screws securing on the levers under the bottom of the indoor unit.



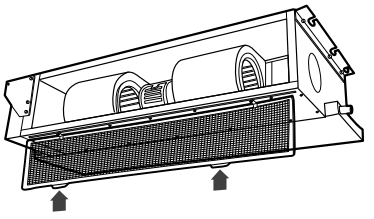
2. Reassemble the levers making the other side face the indoor unit as shown in figure.
3. Turn the levers not to prevent inserting the air filter.

4. Insert the air filter into the indoor unit depending on the situation.

Note: When installing to the bottom of the unit...

- Before inserting the air filter, remove the cover on the bottom of the unit removing the screws.
- Reinstall the cover on the rear of the unit after turning it 180°.

Installing to the rear

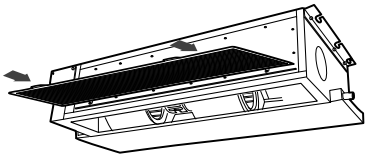


5. Turn the levers to the original position to fix the air filter securely.

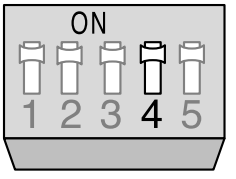
Note : Setting Up Filter Cleaning Cycle

- Adjust the DIP switch(SW2) in the main PCB to the desired position referring the table below.

Installing to the bottom



Switch No.	Switch Position	Filter Cleaning Cycle
4	ON	1,000 hours
	OFF	2,000 hours



Caution :

- The optional kits must be installed by an installation specialist.
- Before installing the optional kits, ensure that you have turned off the main power.
- The optional air filter has to be cleaned only by an authorized person or service agent.

4-4-31. Controlling a Group

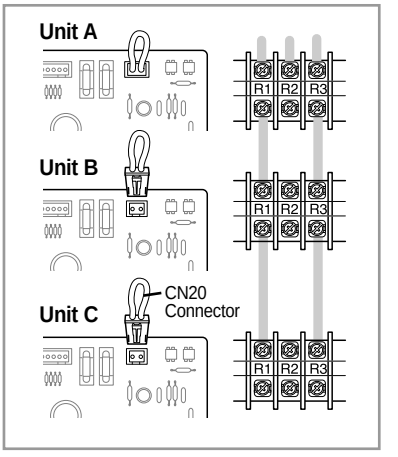
* You should adjust the option switches in the electrical component box or on the PCB of the wired remote controller.
*** Before setting up the option switches, always make sure that you have turned off the main power.**
* After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

With Wired Remote Controller

A user can operate up to sixteen air conditioners by using the wired remote controller In this case, the air conditioner can be controlled by only one wired remote controller connected to the indoor unit and cannot be controlled by the others.

1. Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals in any indoor unit "A" each.

2. Connect the R1 and R3 terminals in the indoor unit "A" to the R1 and R3 terminals in another indoor unit "B".



Caution :

When connecting the cables, you must keep these :
- The R1 terminals must be connected to the R1s.
- The R3 terminals must be connected to the R3s.
- Do not connect the R2 terminals to anywhere.
  If you connect R2 terminals, the PCB will be damaged.

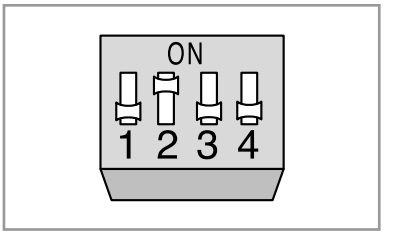
3. Connect the R1 and R3 terminals of "B" to any indoor unit "C" and connect the others as the same way.

4. Remove the CN20 connectors on the sub PCBs except the unit connected with remote controller(Adress "0").

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen

5. Remove the CN20 connectors on the sub PCBs except the unit connected with remote controller(Adress "0").

6. Adjust the DIP switch No. 2 in the wired remote controller to "ON" position.



Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.

With Centralized Controller

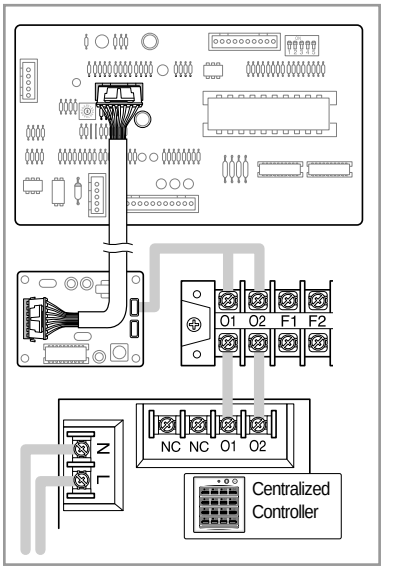
A user can turn on/off up to sixteen air conditioners by using the centralized controller.
In this case, the user can turn on/off all air conditioners or a specific air conditioner connected with the centralized controller. And each air conditioner can be controlled by its own remote controller(s) depending on the setting.

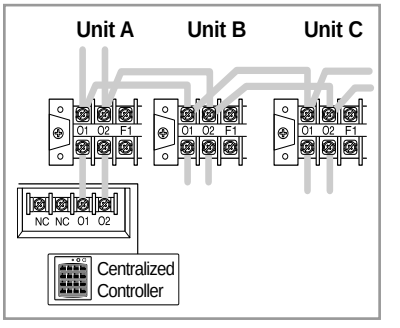
1. Connect the O1 and O2 terminals in the centralized controller to the O1 and O2 terminals in the indoor unit “A”.
2. Connect the O1 and O2 terminals in the indoor unit “A” to the O1 and O2 terminals in another indoor unit “B”.
3. Connect the O1 and O2 terminals of “B” to any indoor unit “C” and connect the others as the same way.
4. Adjust the DIP switch(DS01) in the centralized controller to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.

5. Adjust the rotary digital switch on the transmitter to the desired position referring to the table on page 4-40.

Note : You cannot install the centralized controller when the wired remote controller for a group has already been installed.





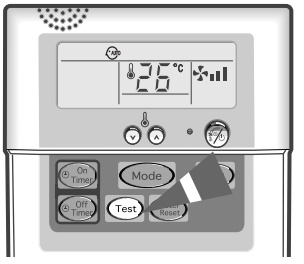
4-4-32. Checking and Testing Operations

To complete the installation, perform the following checks and tests to ensure that the air conditioner is operating correctly.
Review all the following elements in the installation:

- **Piping connection tightness to detect any gas leakages**
- **Connecting wiring**
- **Heat-resistant insulation of the piping**
- **Drainage**
- **Earthing wire connection**
- **Correct operations(follow the steps below)**

Wired Remote Controller

1. Supply the power and switch on the air conditioner.



2. Press Test button more than 3 seconds without selecting any mode.
   Result: The air conditioner runs in COOL mode for 3 minutes.

   Note : If the error code is displayed, fix the error referring to page 4-50.
   And supply the power, restart testing.

3. Check that user's option(s) and the outdoor unit operate properly.

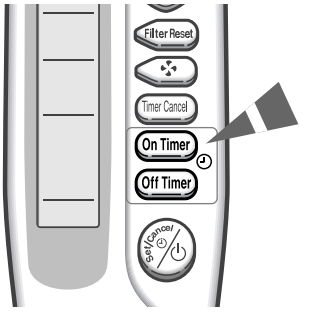
   Note : Do not attempt to select the operating mode or to adjust the temperature. It may switch the outdoor unit off.

4. The air conditioner will switch it off automatically after 3 minutes.

Note : If the air conditioner does not work because of switching off the thermistor sensor caused by the room temperature, you can operate the air conditioner by using Test button.

Wireless Remote Controller

1. Supply the power and switch on the air conditioner.



2. Remove the remote controller batteries.

3. Insert the batteries pressing the On Timer and Off Timer buttons at the same time.

4. Stop pressing the buttons after inserting the batteries.

5. Press the (ON / OFF) button.
   Result: The air conditioner runs in COOL mode for 3 minutes.

   Note : If the error code is displayed, fix the error referring to page 4-3.
   And supply the power, restart testing.

6. Check that user's option(s) and the outdoor unit operate properly.

   Note : Do not attempt to select the operating mode or to adjust the temperature. It may switch the outdoor unit off.

7. The air conditioner will switch it off automatically after 3 minutes.

4-4-33. Troubleshooting

Wired Remote Controller

If the error occurs, ◪ and the error code are displayed on the wired remote controller.
The error code blinks for 5 seconds and it disappears. If you would like to see the error code after disappearing it, press the Test button.

Meaning of Error Code
The error code is composed of two-digit figures or letters. The first means (∗) an indoor unit address and the second means an error code.

Error Code	Meaning	Checking area
∗ 1	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
∗ 5	Indoor unit pipe sensor error	◆ Indoor unit pipe sensor ◆ PCB of the indoor unit
∗ 6	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
∗ 9	Float switch error	◆ Drain pump, Float switch ◆ Drain system ◆ DIP switch(SW2) of the indoor unit (The No.2 and No.4 switches must be at “ON” postion.)
∗ A	A Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
∗ C	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
∗ D	Outdoor pipe sensor error	◆ Outdoor pipe sensor ◆ PCB of the outdoor unit

Example : “39” means the address “3” indoor unit has a trouble with a float switch.

Wireless Remote Controller

If the error occurs, the indicators on the receiver & display unit displays the error.

Meaning of Error Code

Indicators			Meaning	Checking area
Timer	Operating	Filter		
◗	○	○	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
▲	▲	○	Indoor unit pipe sensor error	◆ Indoor unit pipe sensor ◆ PCB of the indoor unit
○	▲	▲	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
■	○	■	Float switch error	◆ Drain pump, Float switch ◆ Drain system
▲	○	▲	Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
■	■	○	Wireless remote controller communication error	◆ Wireless remote controller cables, Wireless remote controller ◆ Main/Sub PCB of the indoor unit
○	○	◗	Outdoor pipe sensor error	◆ Outdoor pipe sensor ◆ PCB of the outdoor unit

○ : OFF ◗ : Blinking ▲▲ : Blinking at once ■■ : Blinking alternately

4-4-34. Expaining Operations to the Owner

Before leaving the premises on which you have installed the air conditioner, you should explain the following operations to the owner, making reference to the appropriate pages in the owner's instruction booklet.

1. How to start and stop the air conditioner.

2. How to select the operating mode and adjust the temperature and fan settings.

3. How to set the timers.

4. How to remove and clean the air filter, if installed.

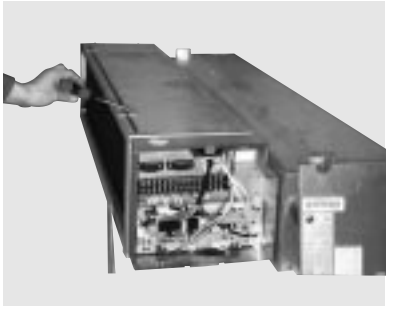
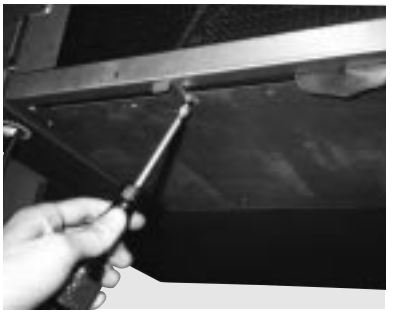
Once the owner is happy with the basic operations, hand over the owner's instruction booklet and this installation manual for storage in a handy and safe place.

MEMO

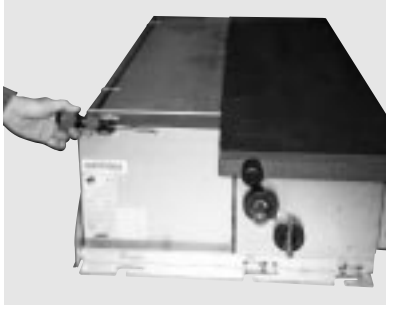
5. Disassembly and Reassembly

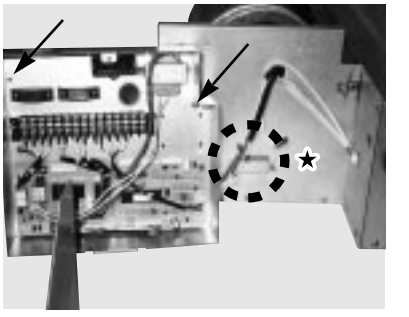
Stop operation of the air conditioner and remove the power cord before repairing the unit.

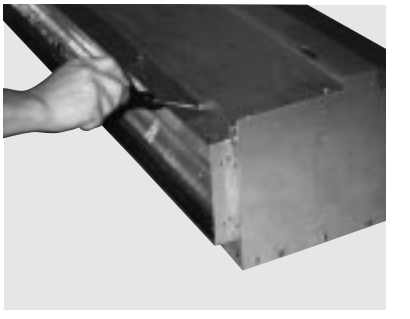
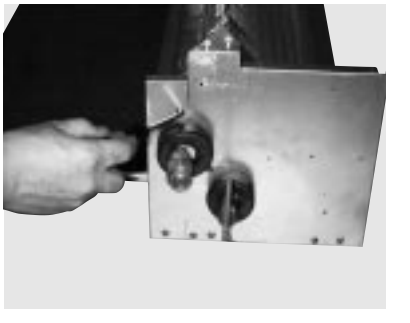
Indoor Unit

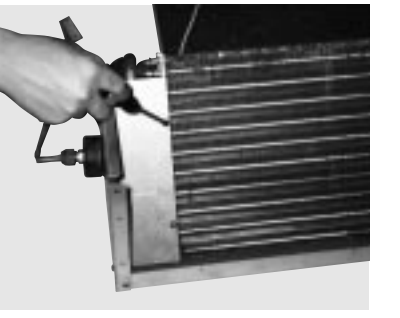
No.	Part name	Procedures	Picture
①	Filter-pre	① Disassemble two screws of indication part and then assemble the direction of two plate-handle places by use of screw as shown in ②.	
		② Turn the plate handle by hand when removing the filter-pre.	
		③ When pulling the filter-pre handle, the filter-pre can be assembled. ❊ Be sure to remove the cushion on the ★ marked part after initial installation. (It cause the damage of noise).	
②	Ass'y-blower, DUCT	❊ Work is possible after disassembly of no.① prefilter. ① After disassembling nine places indicating screws, separate Ass'y cover bottom.	

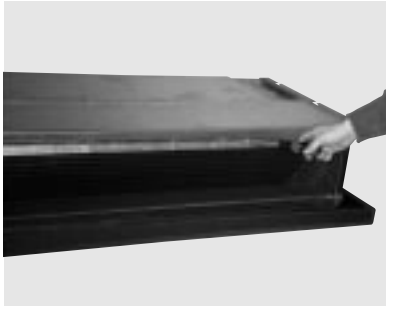
No.	Part name	Procedures	Picture
		② Disassemble 6 indicating screws.	
			
		③ Separate the sensor holder from the Ass'y fan case.	
		④ Separate from Ass'y control IN the capacitor connection wire between the motor-fan in and housing connector. ❇ It is possible under the working status of ③ at the time.	

No.	Part name	Procedures	Picture
		⑤ Separate the Ass'y blower and duct from the set.	
③	Ass'y-control in	① After disassembling one indicating screw, separate the cover-control.	
			
		② Separate the motor-fan in and sensor connector connected to PCB.	

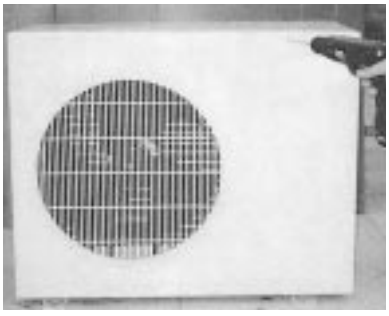
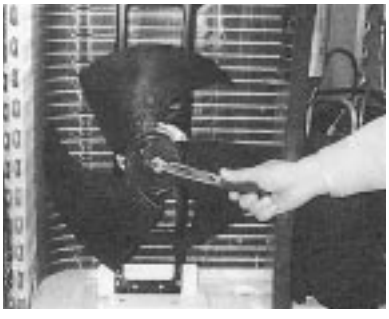
No.	Part name	Procedures	Picture
		③ Disassemble two indicating screws (arrow mark).	
		④ Hold the Ass'y control In by hand to lift up a little and then release the status of hanging on the hangign slot.	
④	Ass'y-Drain pan	① Disassemble 4 indicating screws to separate Ass'y drain pan. (two screws each at left and right side)	 

No.	Part name	Procedures	Picture
⑤	Ass'y-EVAP	❇ Work is possible when disassembling the ass'y drain pan. ① Disassemble 8 indicating screws (4 each at left and right side).	
		② Disassemble 6 indicating screws.	
		③ Disassemble 5 indicating screws. ❇ It is possible at the status of No.3 Ass'y control In disassembly at the time.	
		④ After disassembling 4 indicating screws.	

No.	Part name	Procedures	Picture
		⑤ Pull the cabinet-side RH, BH by hand to disassemble.	
		⑥ Seperate 4 indicating screws (2 each at left and right side).	
		⑦ Seperate it from the set if the ass'y-evap pull up.	
⑥	Ass'y-holder outlet	• When connecting canvas to the discharge side ① Disassemble 4 indicating screws (two each at left and right side).	

No.	Part name	Procedures	Picture
		② Disassemble 12 indicating screws (6 each at upper and lower side). ❇ After connecting canvas to the disassembled Ass'y holder outlet(②), attach the Ass'y holder outlet to the set in the reverse order.	

Outdoor Unit

No.	Part name	Procedures	Picture
①	Cabinet	1) Turn off the unit and remove the power cable 2) Remove the top cover. 3) Remove the control box cover. 4) Unplug the ass'y cable. 5) Remove the cabi-side. 6) Remove the cabi-front. * When you assemble the parts, check if the each parts and electric connectors are fixed firmly.	
②	Fan Motor & Propeller Fan	1) Do Procedure 1 above. 2) Remove the nut flange. (Turn to the right to remove as it is a left turned screw) 3) Disassemble the propeller fan.	

6. Trouble Shooting

■ Trouble shooting by outdoor unit error code

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
E1	Indoor unit room thermistor error	EC01
E5	Indoor unit pipe thermistor error	EC02
E6	Outdoor unit thermistor error	EC03
E9	Float switch open error	EC04
EA	Communication error between indoor unit and outdoor unit	EC05
EC	Communication error between wired remote controller and indoor unit	EC06
ED	Outdoor unit pipe thermistor error	EC07

■ Trouble shooting by indoor unit receive board

ERROR CODE	ERROR CODE	REFERENCE PART
Reservation LED flickering(1Hz period)	Indoor temperature sensor abnormal	EC01
Operation LED and reservation LED flickering (1Hz period)	Indoor pipe temperature sensor abnormal	EC02
Operation LED and filter LED flickering (1Hz period)	Outdoor temperature sensor abnormal	EC03
Reservation LED filter LED alternating flickering (1Hz period)	Float switch open abnormal	EC04
Reservation LED and filter LED flickering (1Hz period)	Indoor and outdoor communication abnormal	EC05
Operation LED and reservation LED alternating flickering (1Hz period)	Wired remote controller communication abnormal	EC06
Filter LED flickering (1Hz period)	Outdoor pipe temperature sensor abnormal	EC07

■ Trouble shooting by outdoor unit error code

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
*1	Indoor unit room thermistor error	EC01
*5	Indoor unit pipe thermistor error	EC02
*6	Outdoor unit thermistor error	EC03
*9	Float switch open error	EC04
*A	Communication error between indoor unit and outdoor unit	EC05
*C	Communication error between wired remote controller and indoor unit	EC06
*D	Outdoor unit pipe thermistor error	EC07

✻ The asterisk mark " * " + "ERROR" CODE of wired remote controller stands for the set number.
ex) ERROR CODE "39" is the FLOAT SWITCH OPEN ERROR of SET no.3.

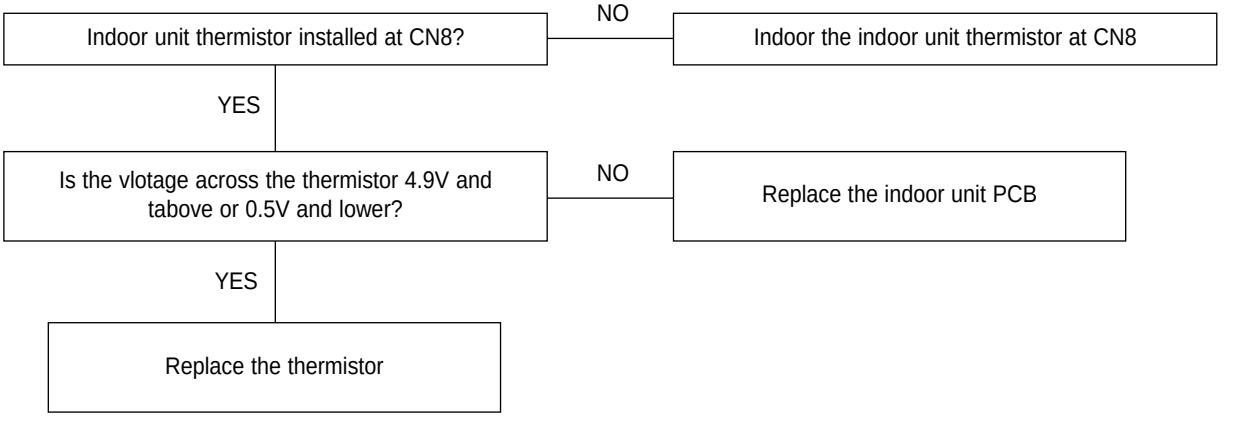
■ Trouble shooting by outdoor unit error cond

ERROR CODE	ERROR DESCRIPTION	REFERENCE PART
LED flickering	Communication error between indoor unit and centralized controller	EC19

■ EC01 : Trouble on the thermistor related part of indoor unit.

- EC01 : Trouble on the room thermistor related part of indoor unit.
  - E1 of outdoor unit PCB 7-segment
  - Reservation lamp of wireless receiving board is flickering with 1 Hz.
  - Action items when "*1" displays on the wired remote controller.

Check point :
- Defect of indoor unit
- Indoor unit thermistor defect

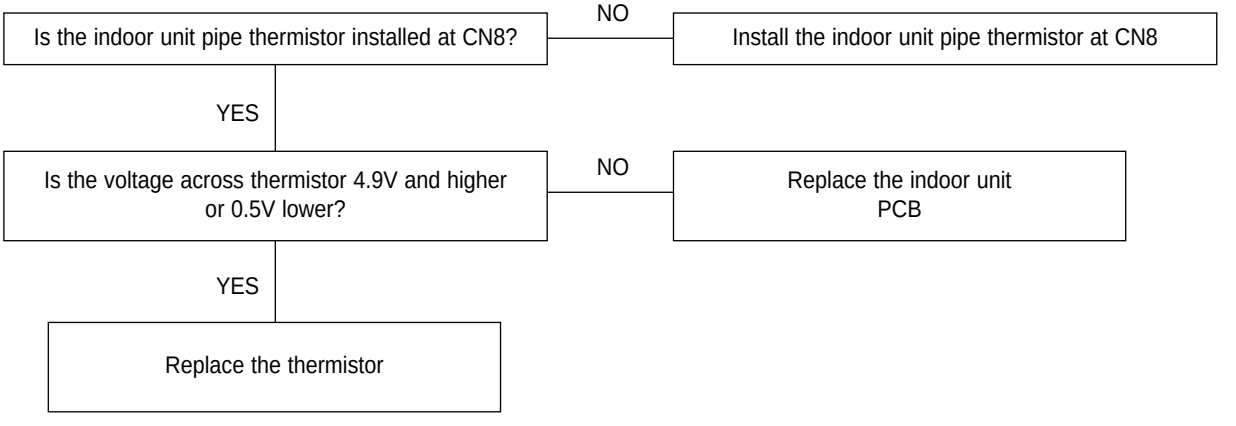


✻ "*" stands for the indoor unit address.

■ EC02 : Trouble on the pipe thermistor related part of indoor unit.

- E5 of outdoor unit PCB 7-segment.
- Reservation lamp of wireless receiving board is flickering with 1 Hz.
- Action items when "*5" displays on the wired remote controller.

Check point :
- Indoor unit PCB defect
- Indoor unit pipe thermistor defect

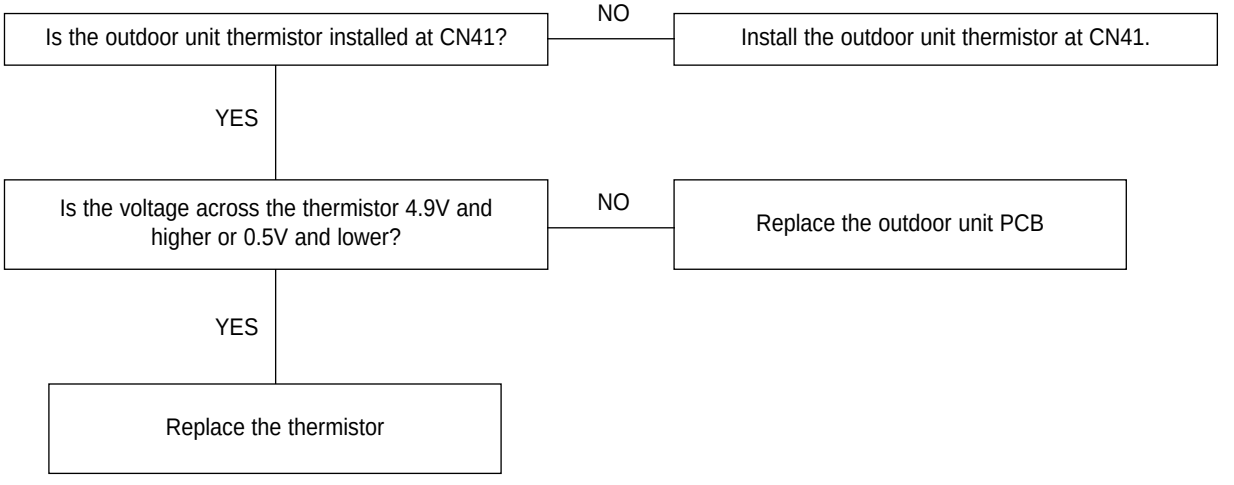


■ EC03 : When the trouble is found on the part related to the outdoor unit thermistor.

- E6 of outdoor unit PCB 7-segment
- Operation lamp and filter lamp of wireless receiving board are flickering with 1Hz.
- Action items when “*6” displays on the wired remote controller.

Check point :

- Defect of indoor unit
- Indoor unit thermistor defect



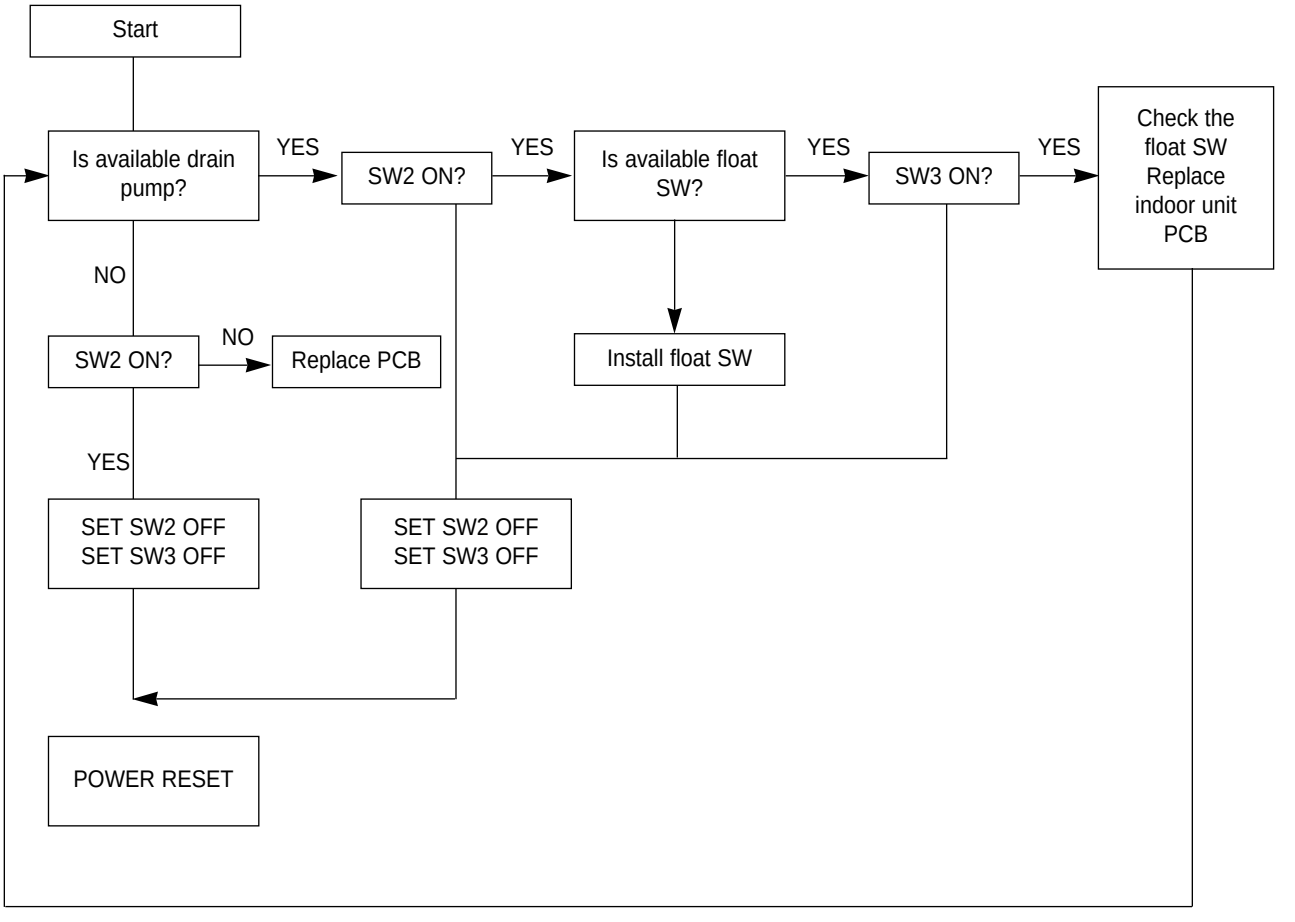
✻ “*” stands for the indoor unit address.

■ EC04 : When the trouble is found on the drain pump and float switch installed on the indoor unit.

EC01 : Trouble on the thermistor related part of indoor unit.
- E9 of 7-segment of outdoor unit PCB
- Reservation lamp of wireless receiving board and filter lamp are flickering with 1 Hz.
- Action item when “*9” displays on the wireless remote controller.

Check point :

- Indoor unit defect
- Drain pump, float switch defect



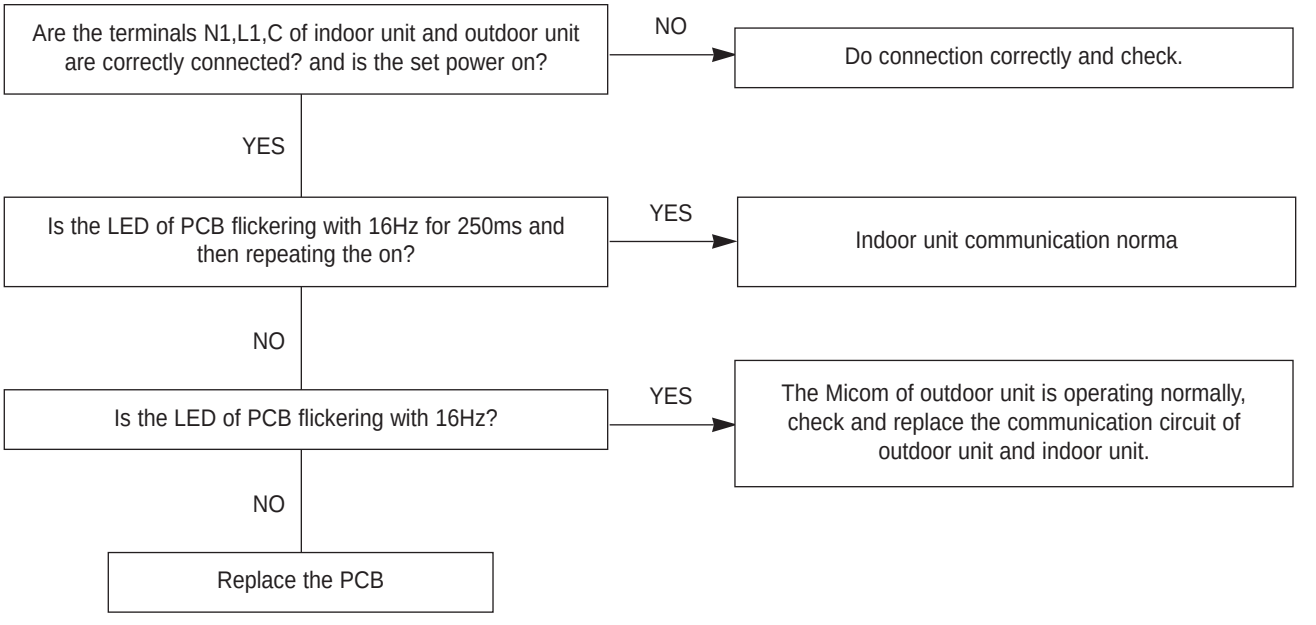
✻ “*” stands for the indoor unit address.

■ EC05 : When the trouble is found in the communication related part between indoor unit and outdoor unit.

- EA of 7-segment of outdoor unit PCB.
- Reservation lamp and filter lamp of wireless receiving board is flickering with 1 Hz.
- Action item when "*A" displays on the wired remote controller.

Check point :

- Indoor unit ↔ outdoor unit mis-connection
- Indoor unit PCB defect
- Outdoor unit PCB defect



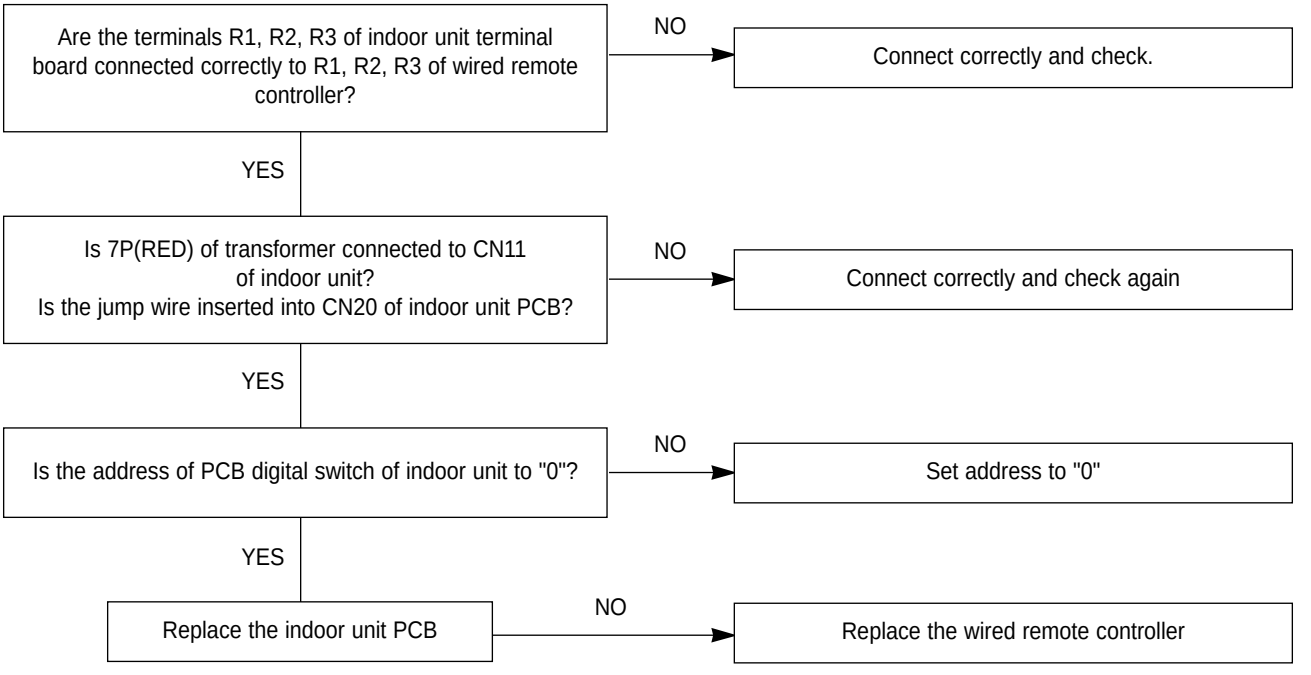
✻ "*" stands for the indoor unit address.

■ EC06 : When the trouble is found in the communication related part between indoor unit and wired remote controller. (during single operation, not group control)

- EC of 7-segment of outdoor unit PCB.
- Wireless receiving board lamp and reservation lamp is flickering with 1Hz.
- Action item when “C” displays on the wired remote controller.

Check point :

- Short circuit or mis-connection of the communication line between indoor unit and wireless remote controller
- Indoor unit PCB defect
- Wired remote controller PCB defect



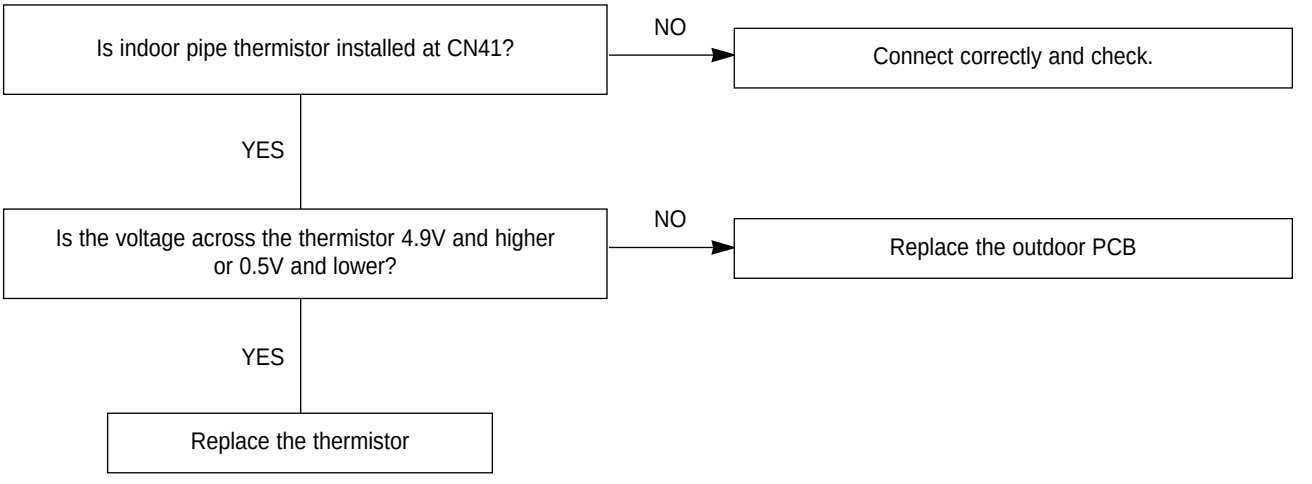
✻ “0” stands for the indoor unit address.

■ EC07 : When the trouble is found in the communication related part between outdoor unit pipe thermistor.

- ED of 7-segment of outdoor unit PCB.
- Reservation lamp and filter lamp of wireless receiving board is flickering with 1Hz.
- Action item when “D” displays on the wired remote controller.

Check point :

- Indoor unit pipe thermistor available or not
- Indoor unit PCB defect

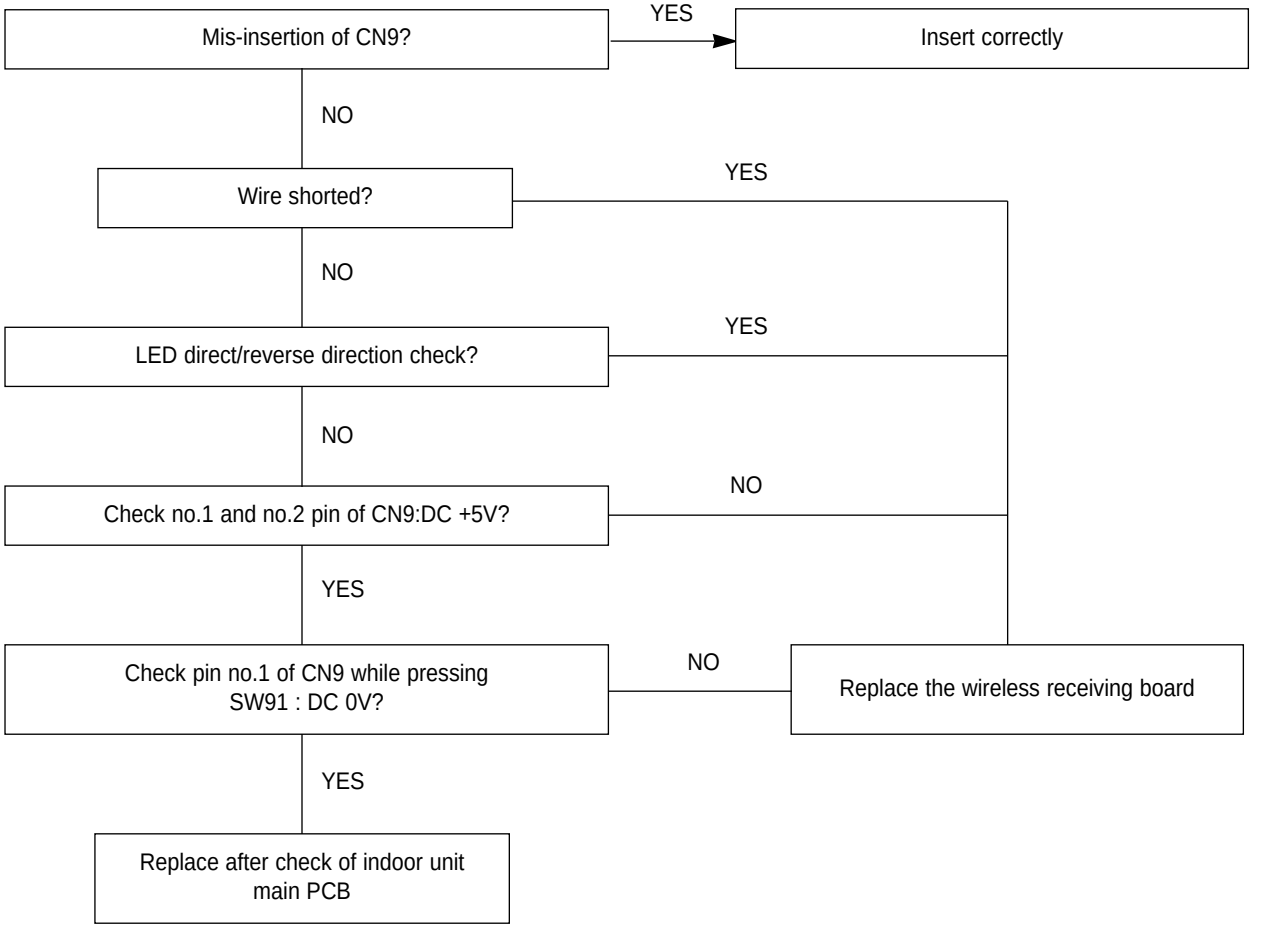


✻ “*” stands for the indoor unit address.

■ EC08 : When the trouble is found on the part related to the wireless receiving board of the indoor unit.

Check point :

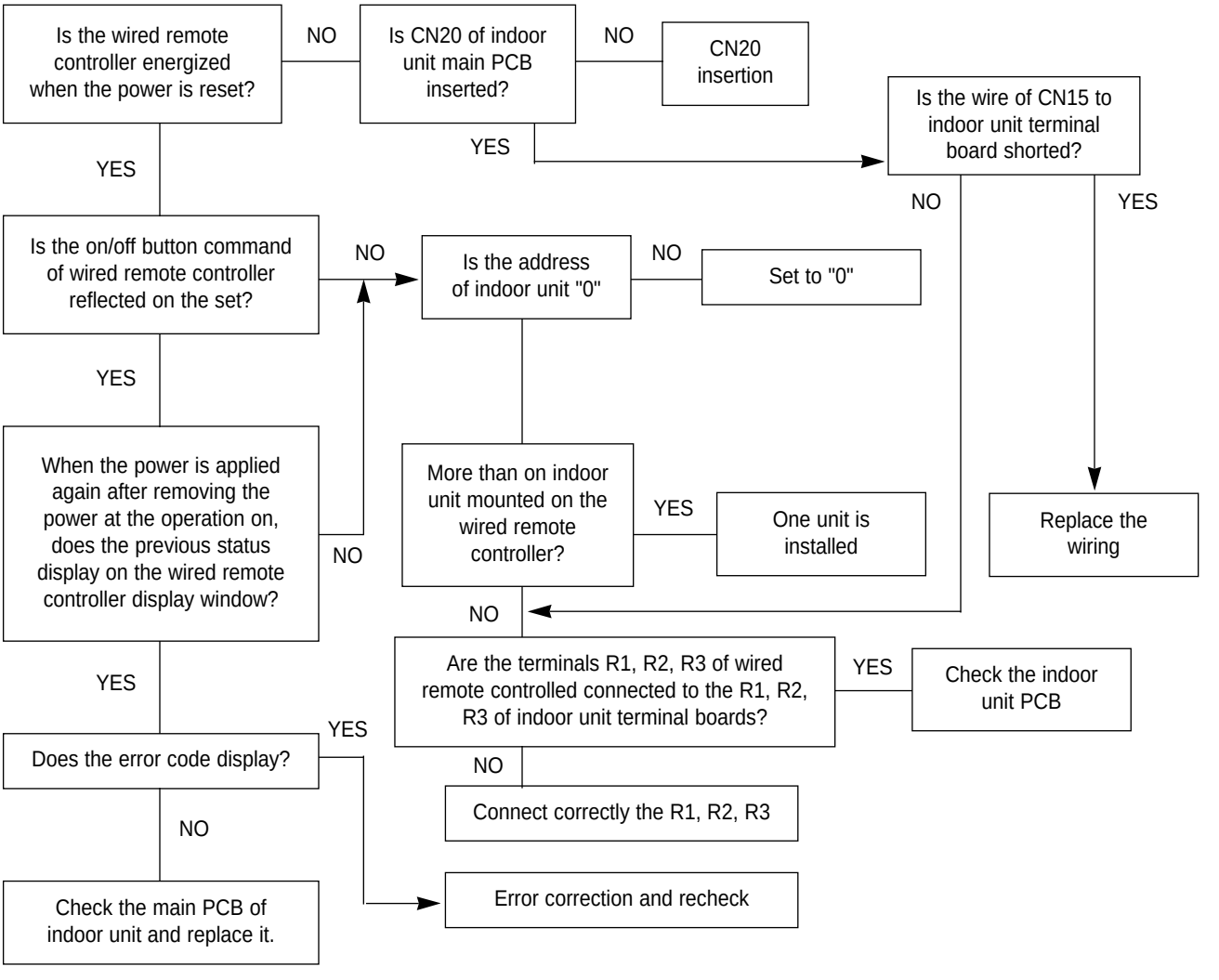
- Defect of wireless remote controller PCB
- Defect of wireless remote controller receiving board PCB
- Indoor unit PCB defect



■ EC09 : When the trouble is found on the part related to the wired remote controller. (single operation)

Chec point :

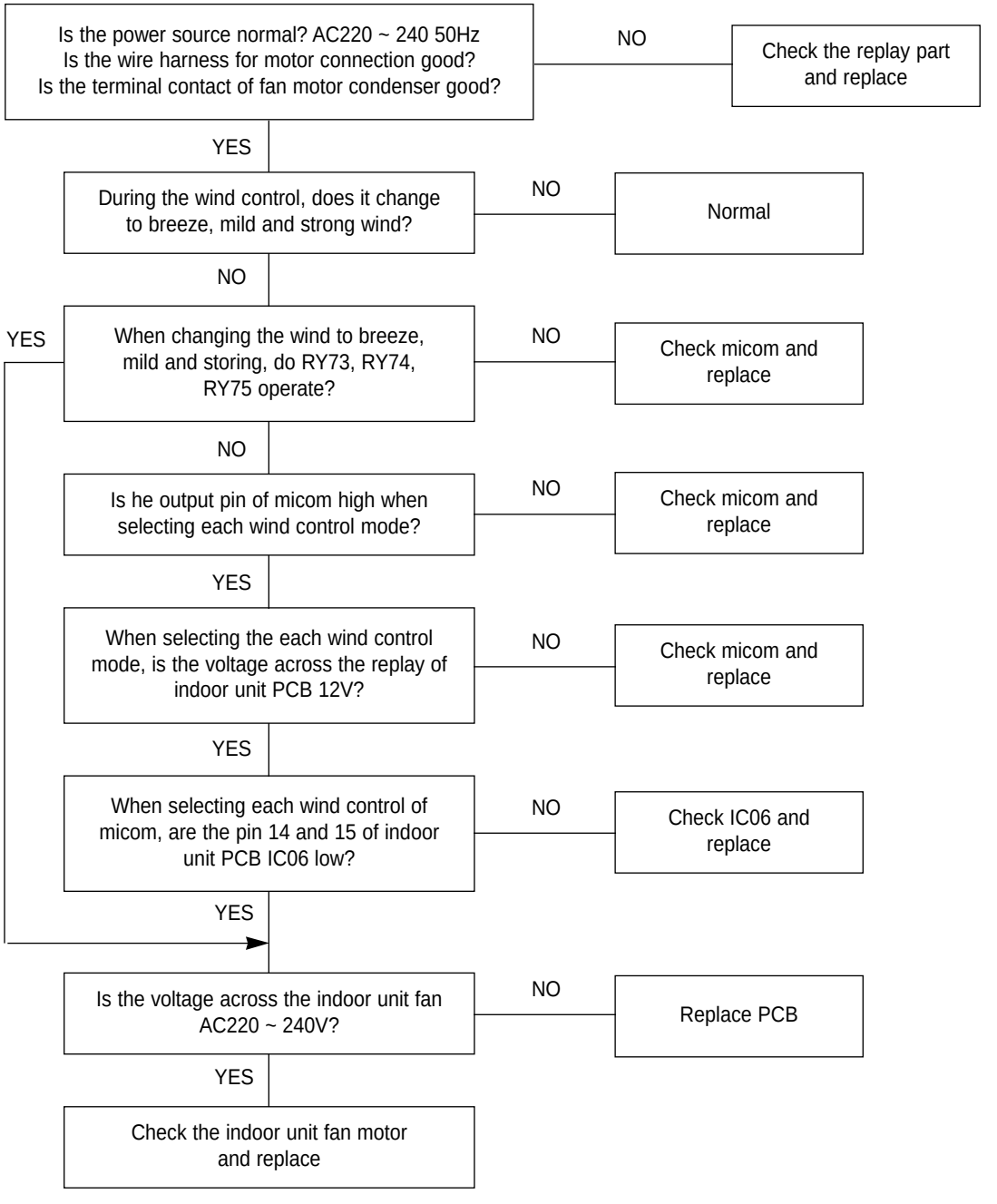
- Defect of communication line between indoor unit and wired remote controller.
- Output of indoor unit Micom
- Defect of wired remote controller PCB
- Indoor unit PCB defect



■ EC10 : When the trouble is found on the part related to the fan motor of indoor unit.

Chec point :

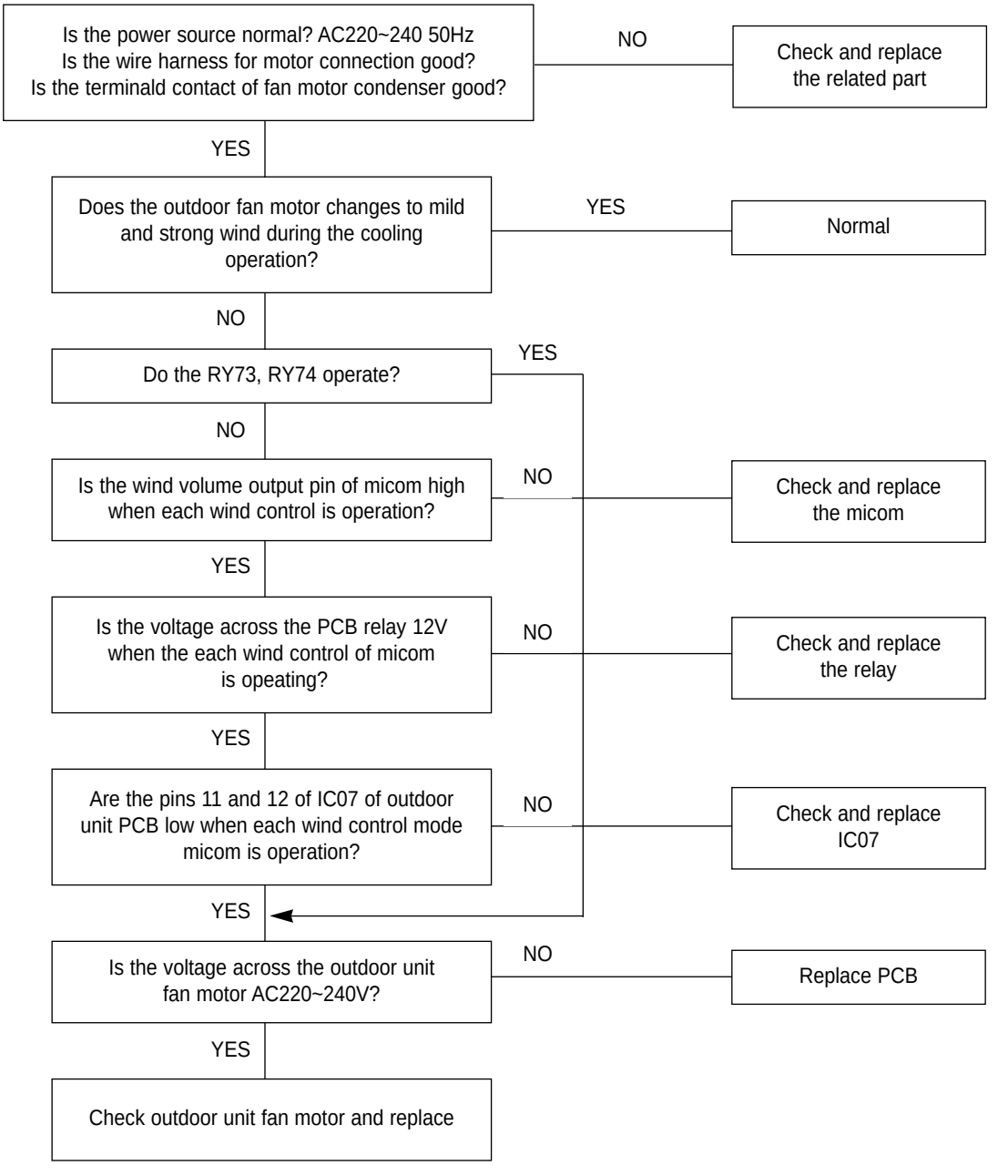
- Defect of PCB relay of indoor unit.
- Output of indoor unit Micom
- Indoor fan motor defect
- Defect of PCB IC06 of indoor unit



■ EC11 : When the trouble is found on the part related to the fan motor of outdoor unit.

Check point :

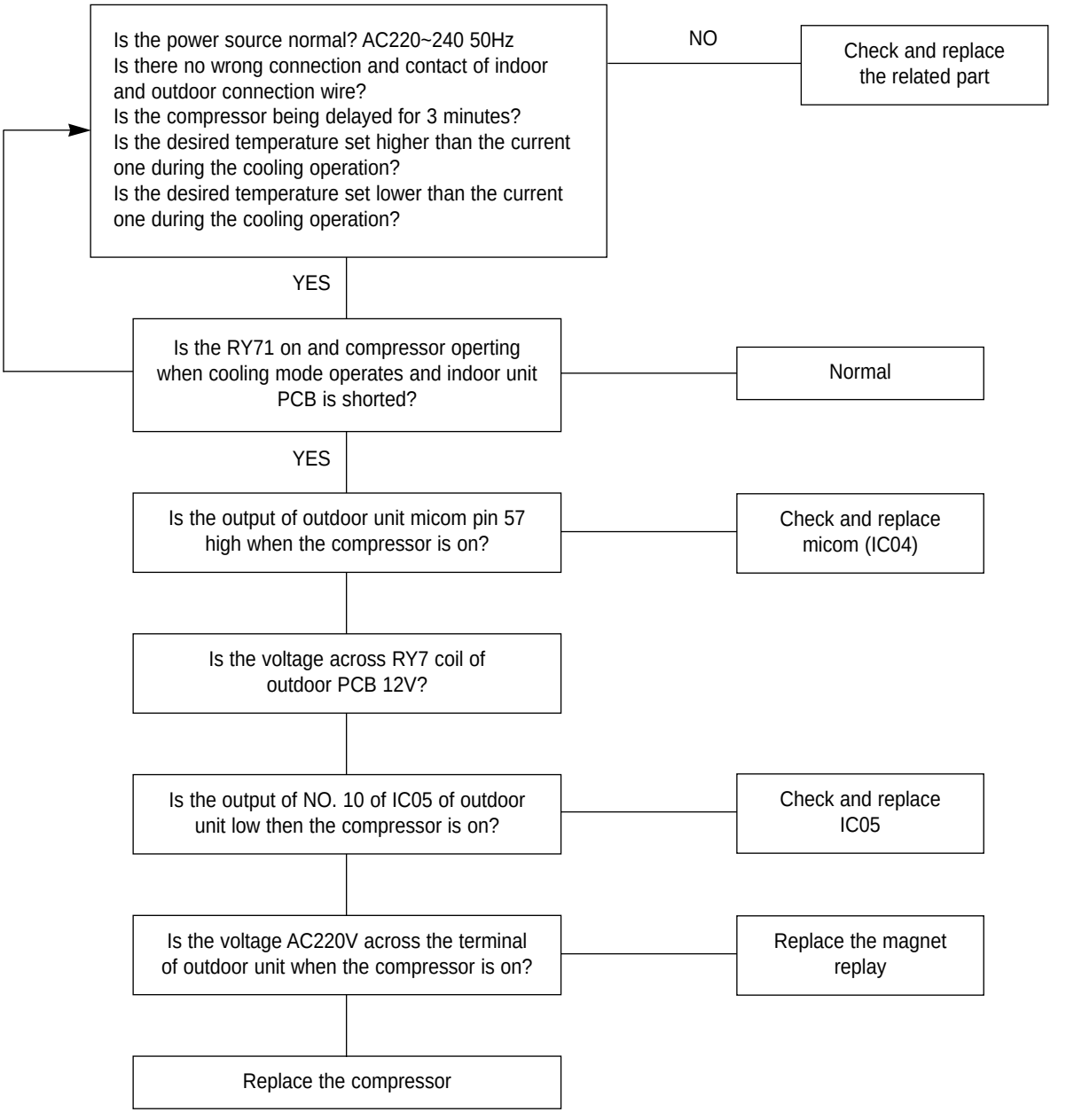
- Outdoor unit PCB relay defect
- Output of outdoor unit micom
- Outdoor unit fan motor defect
- Defect of IC07 of outdoor unit PCB



■ EC12 : When the trouble is found on the part related to comp of outdoor unit.

Check point :

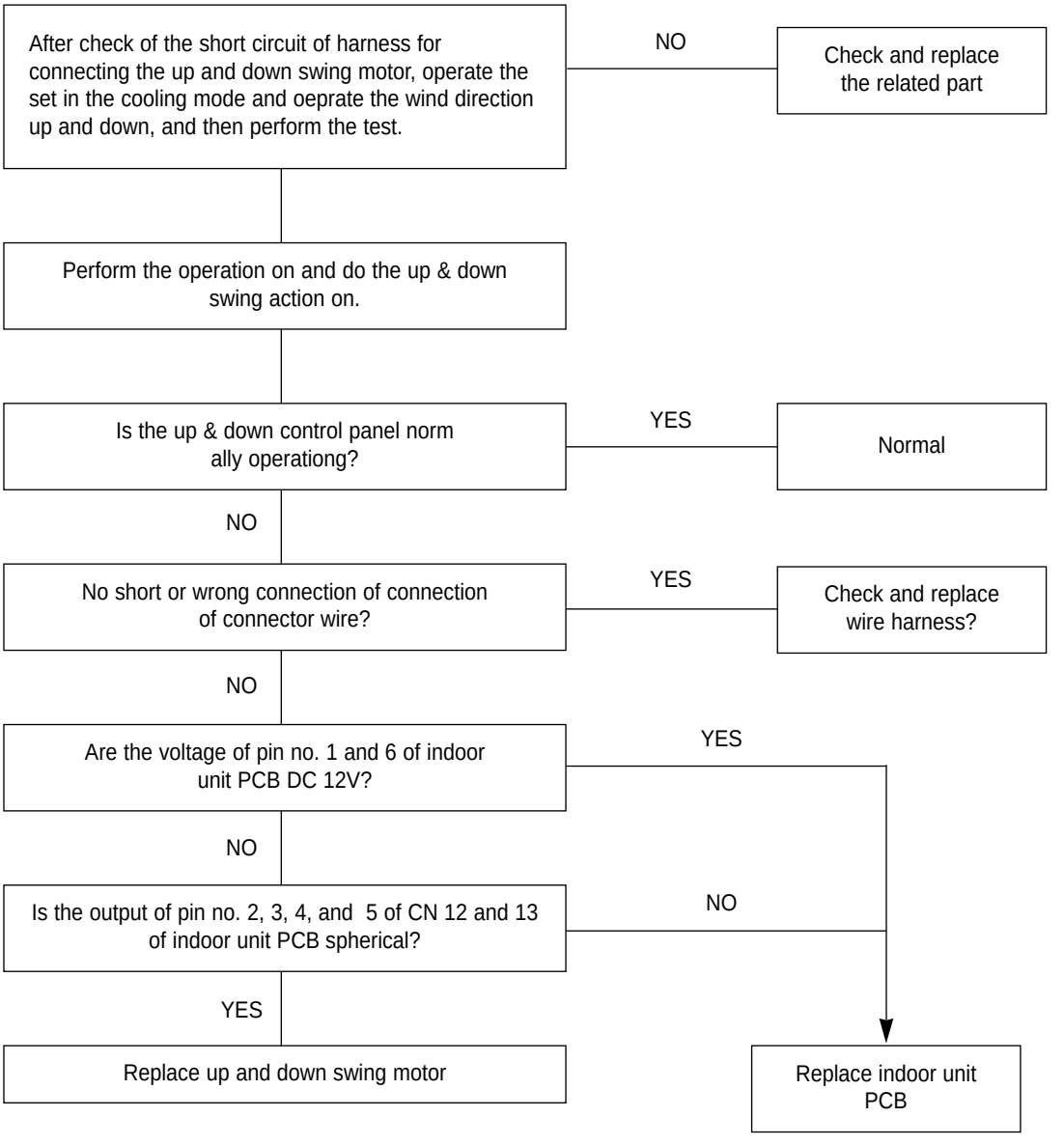
- Indoor unit PCB relay defect
- Output of indoor unit micom
- Comp defect
- Magnet switch defect



■ EC13 : When the trouble is found on the part related to the up & down swing motor of indoor unit (cassette model)

Check point :

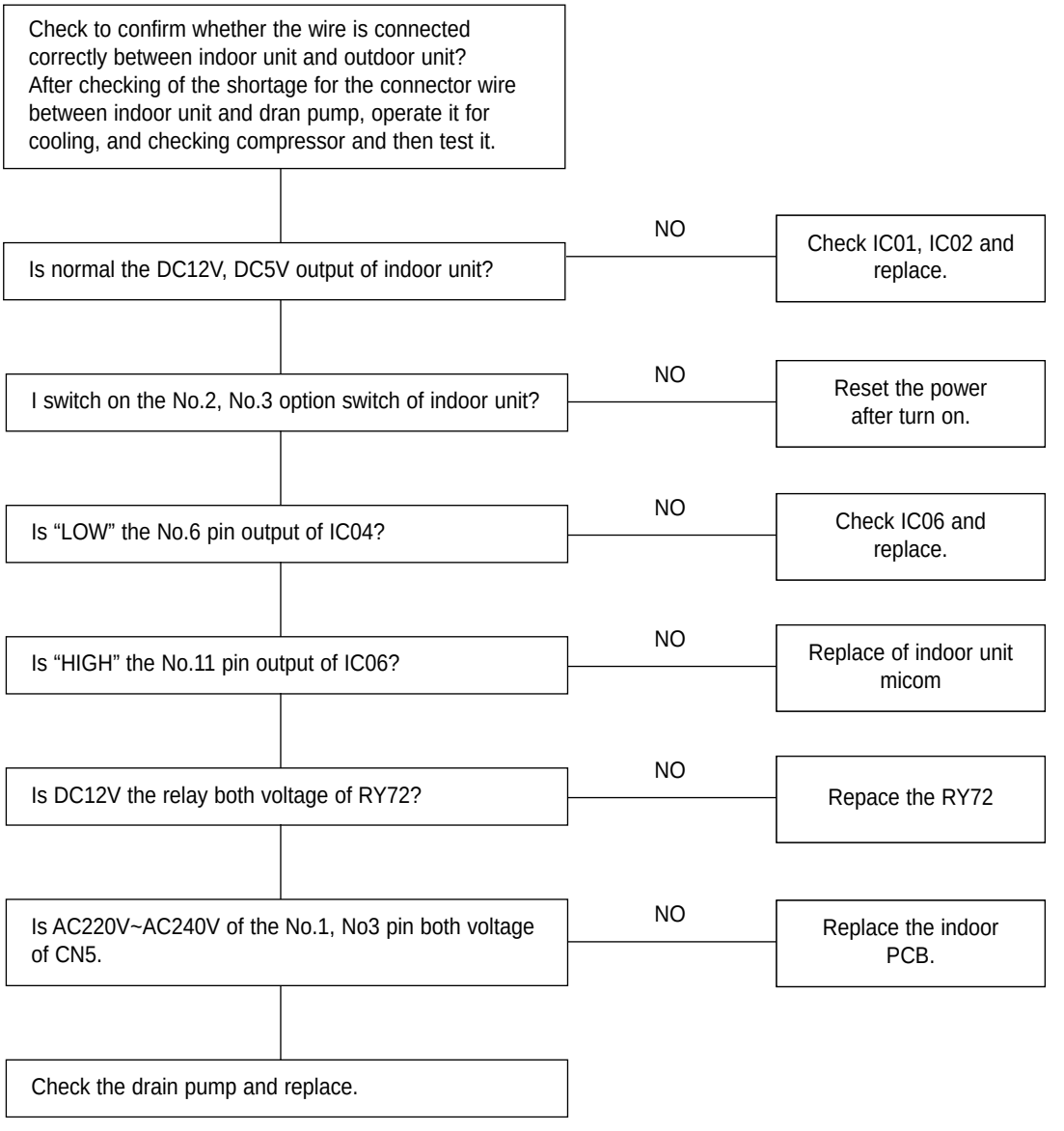
- Wire short between indoor unit PCB up & down swing motor connector or bad contact.
- Output of indoor unit micom
- Defect of up and down swing motor



■ EC14 : When the trouble is found on the part related to drain pump of indoor unit.

Check point :

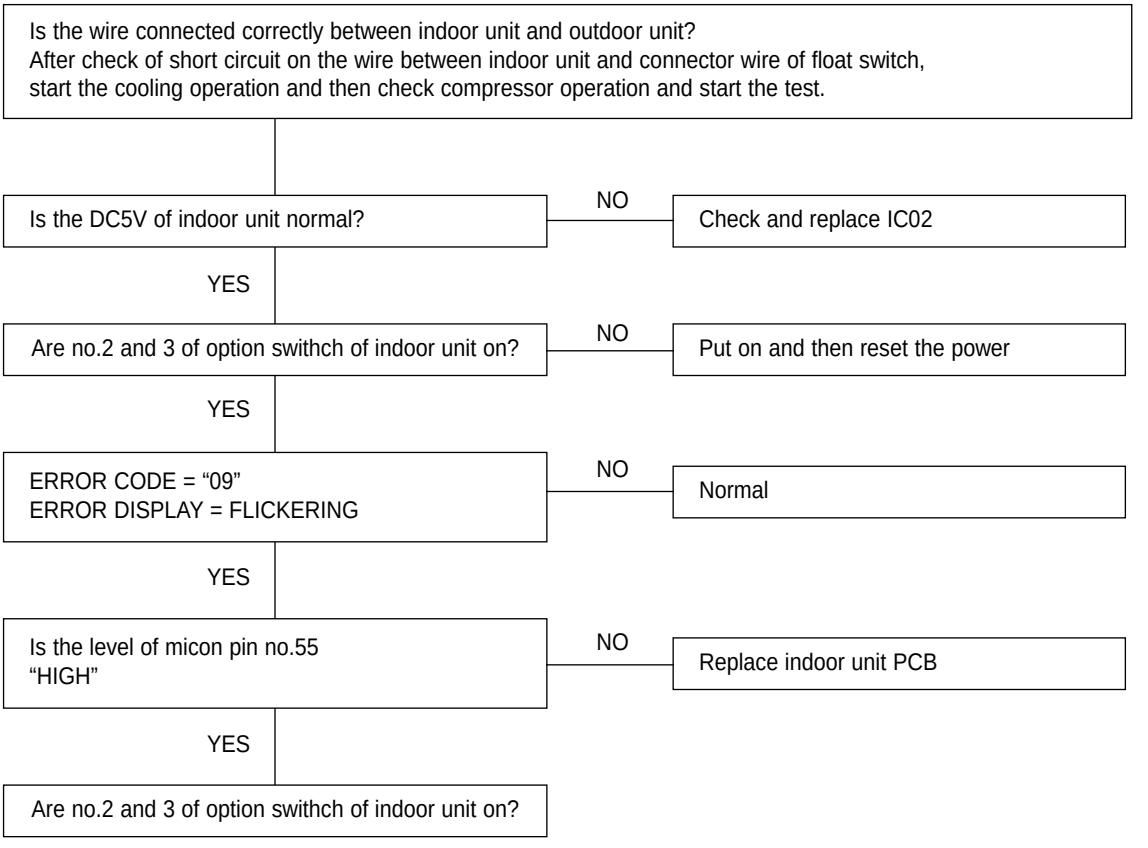
- Indoor unit PCB ↔ Drain pump connector wire, indoor unit Micom No.6 Pin output, IC06 No.6 Pin output.
- Drain pump, RY72, DC12V power, AC220~240V 50Hz power, indoor unit option switch.



■ EC15 : When the trouble is found on the part related to float switch of indoor unit.

Check point :

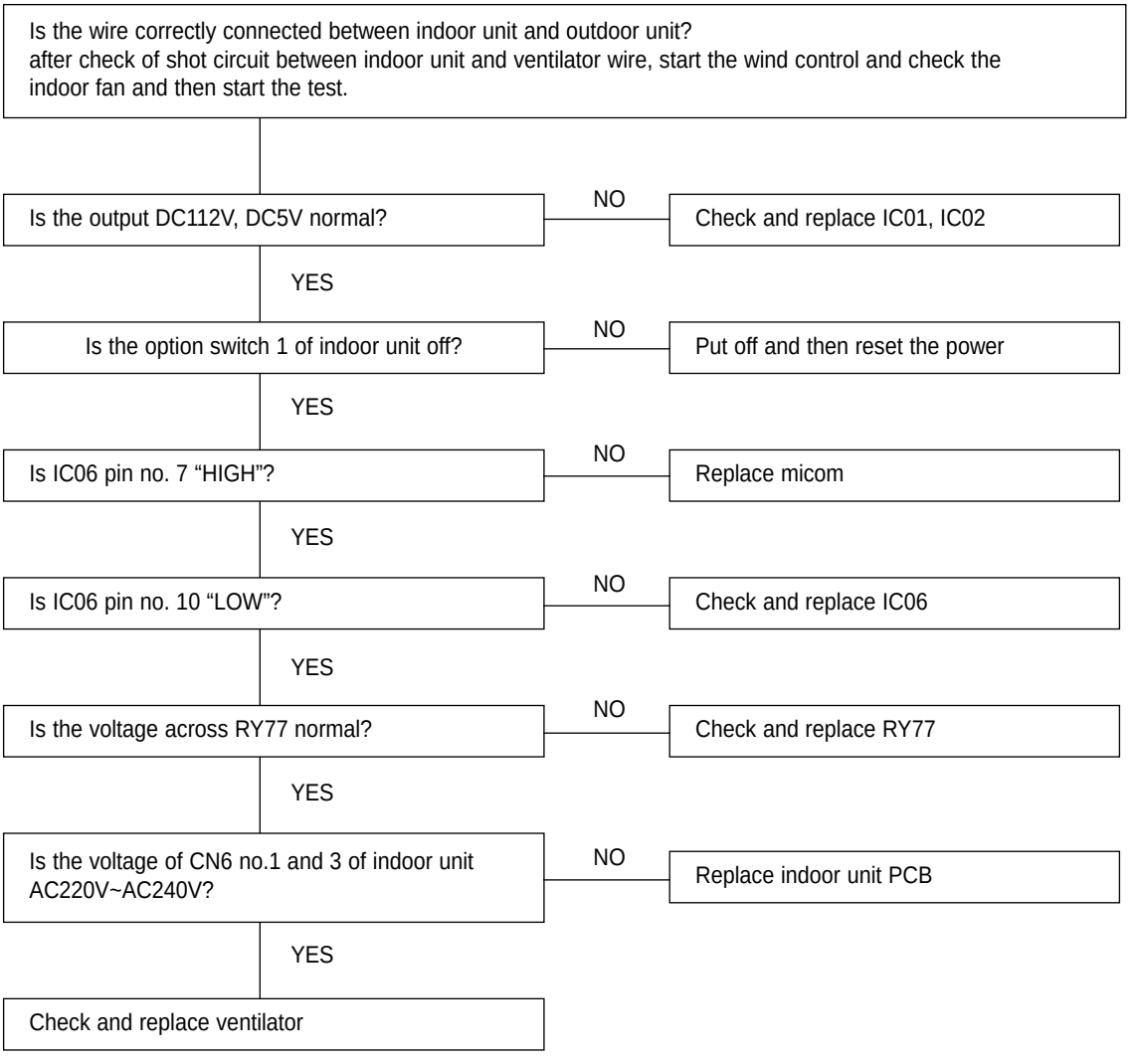
- Indoor unit PCB ↔ float switch connector wire, voltage level of indoor unit micom pin no. 55
- Float switch, DC5V power, indoor unit option switch



■ EC16 : When the trouble is found on the part related to ventilator of indoor unit.

Check point :

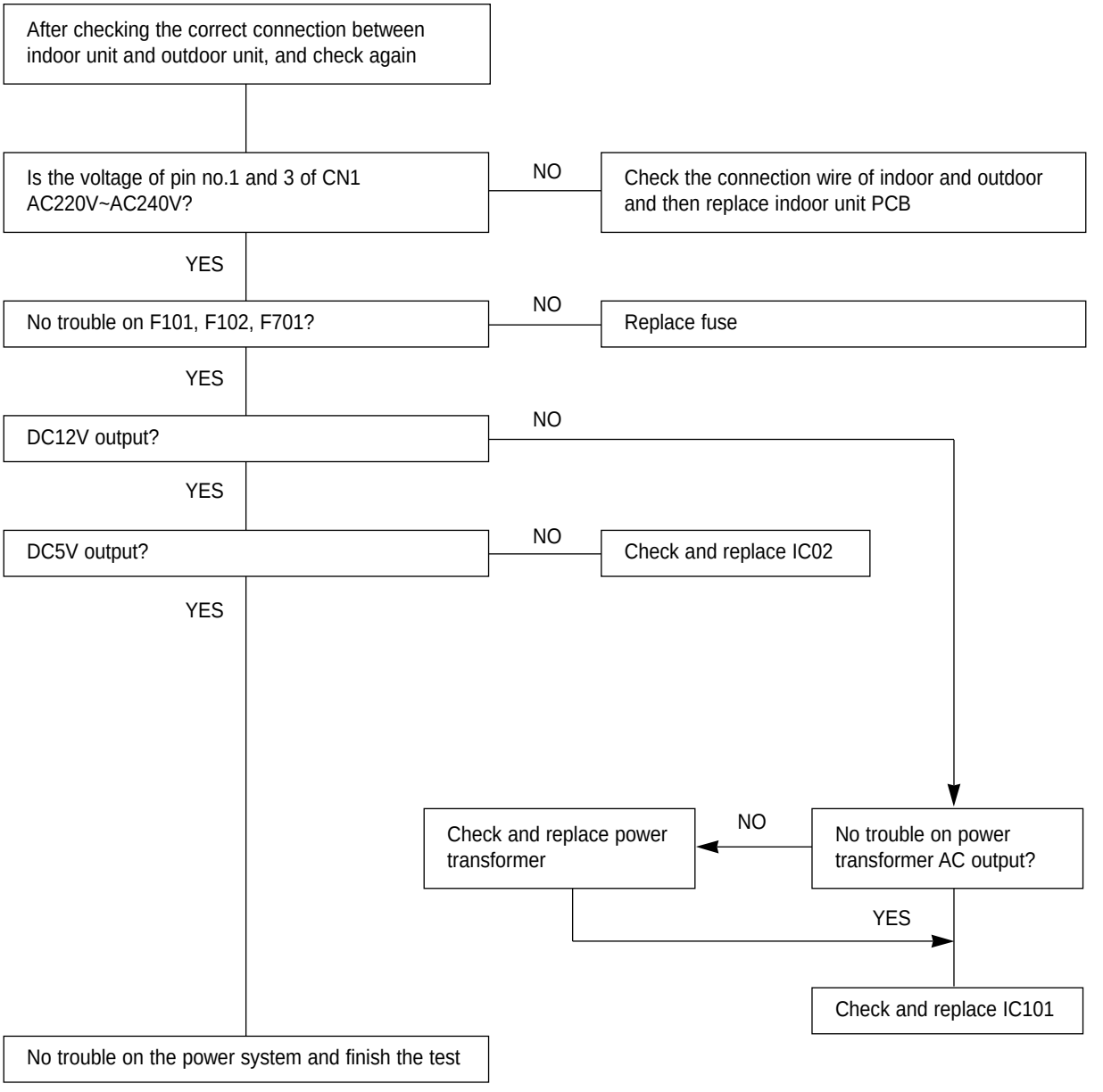
- Indoor unit PCB ↔ ventilator connector wire, output voltage of indoor unit micom pin No. 5
- Ventilator, DC 12V power, DC5V power, indoor unit option switch.



■ EC17 : When the trouble is found on the part related to power system of indoor unit.

Check point :

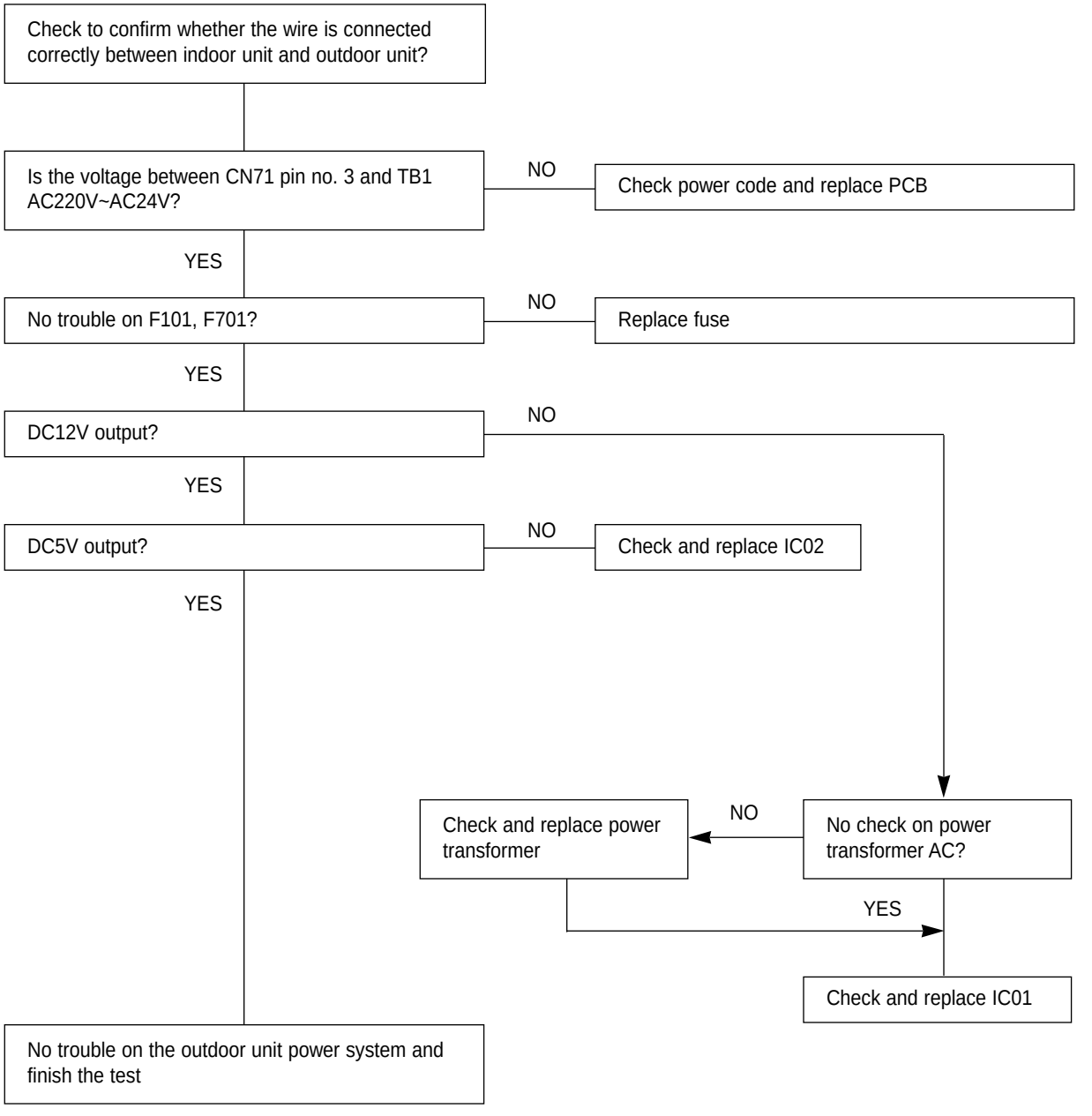
- Indoor unit AC220V~AC240V input voltage, DC12V output, DC5V output, output voltage of pin no.2 and 3 of CN15.
- Power transformer, F101, F102, F701



■ EC18 : When the trouble is found on the part related to power system of output unit.

Check point :

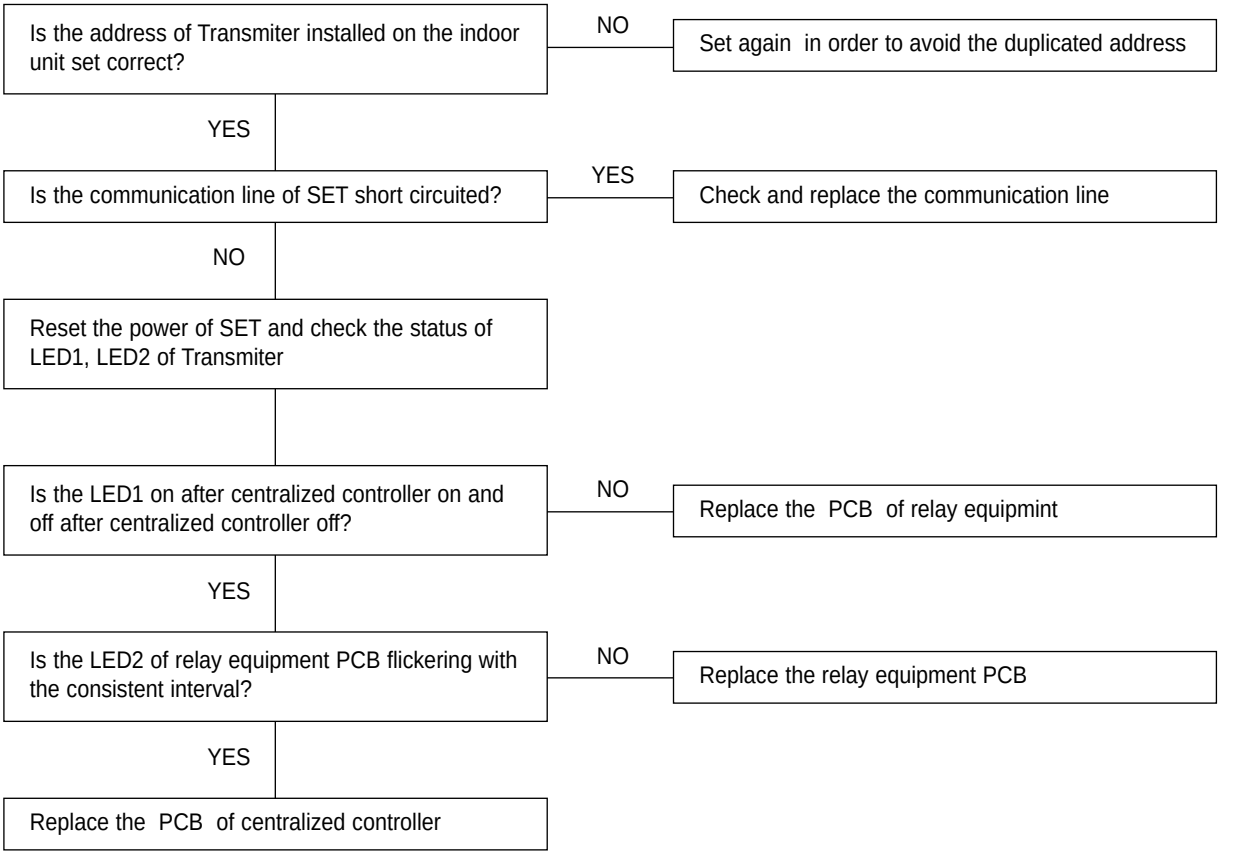
- Outdoor unit AC220V~AC240V input power, DC12V output, DC5V output
- Power transformer, F101, F701



■ EC19 : When the centralized controller lamp is flickering. (during centralized control)

Check point :

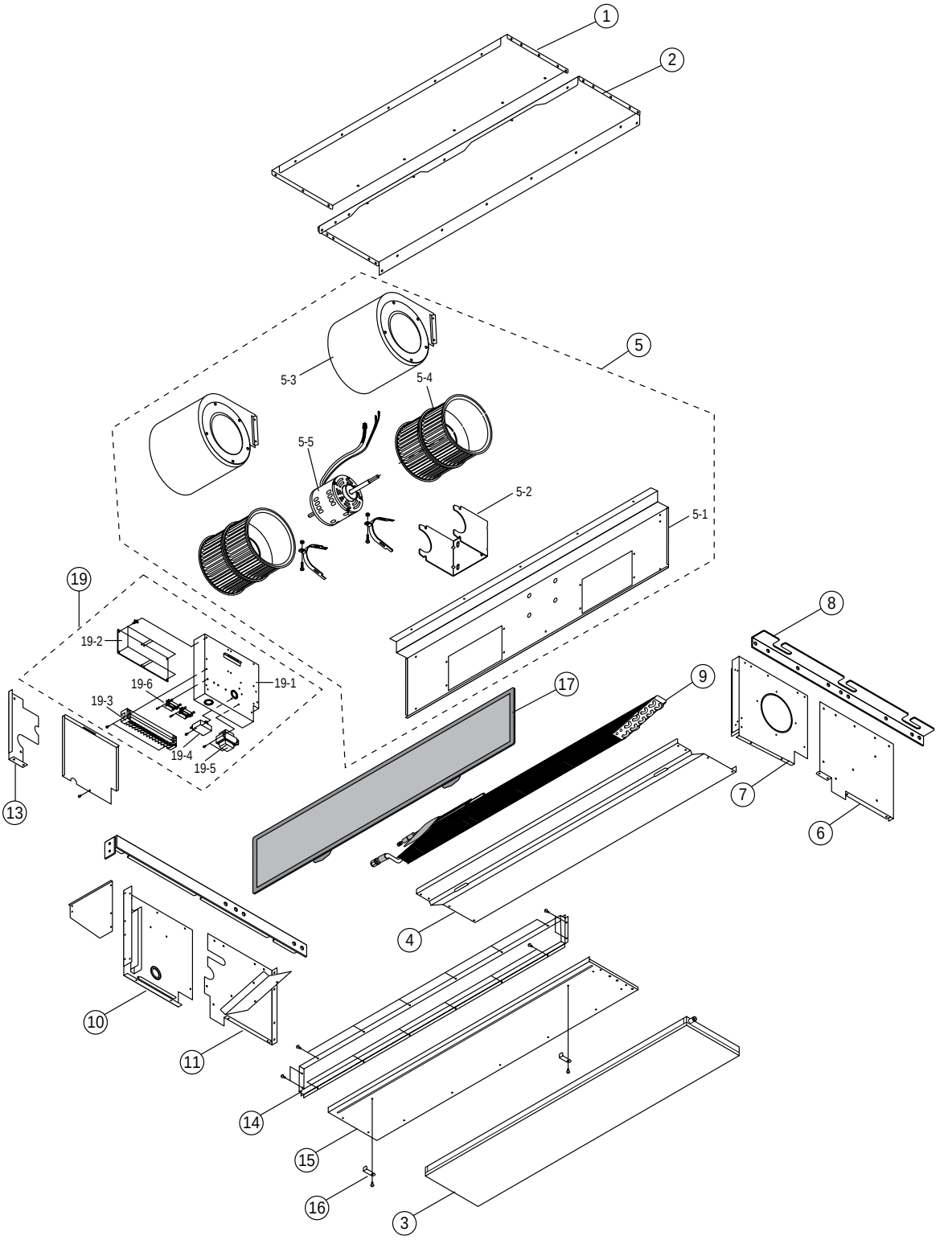
- Defect on the address assignment for the relay equipment connected with centralized controller.
- Defect on centralized controller PCB
- Defect on the indoor unit PCB



MEMO

7. Exploded Views and Part LIst

7-1 Indoor Unit

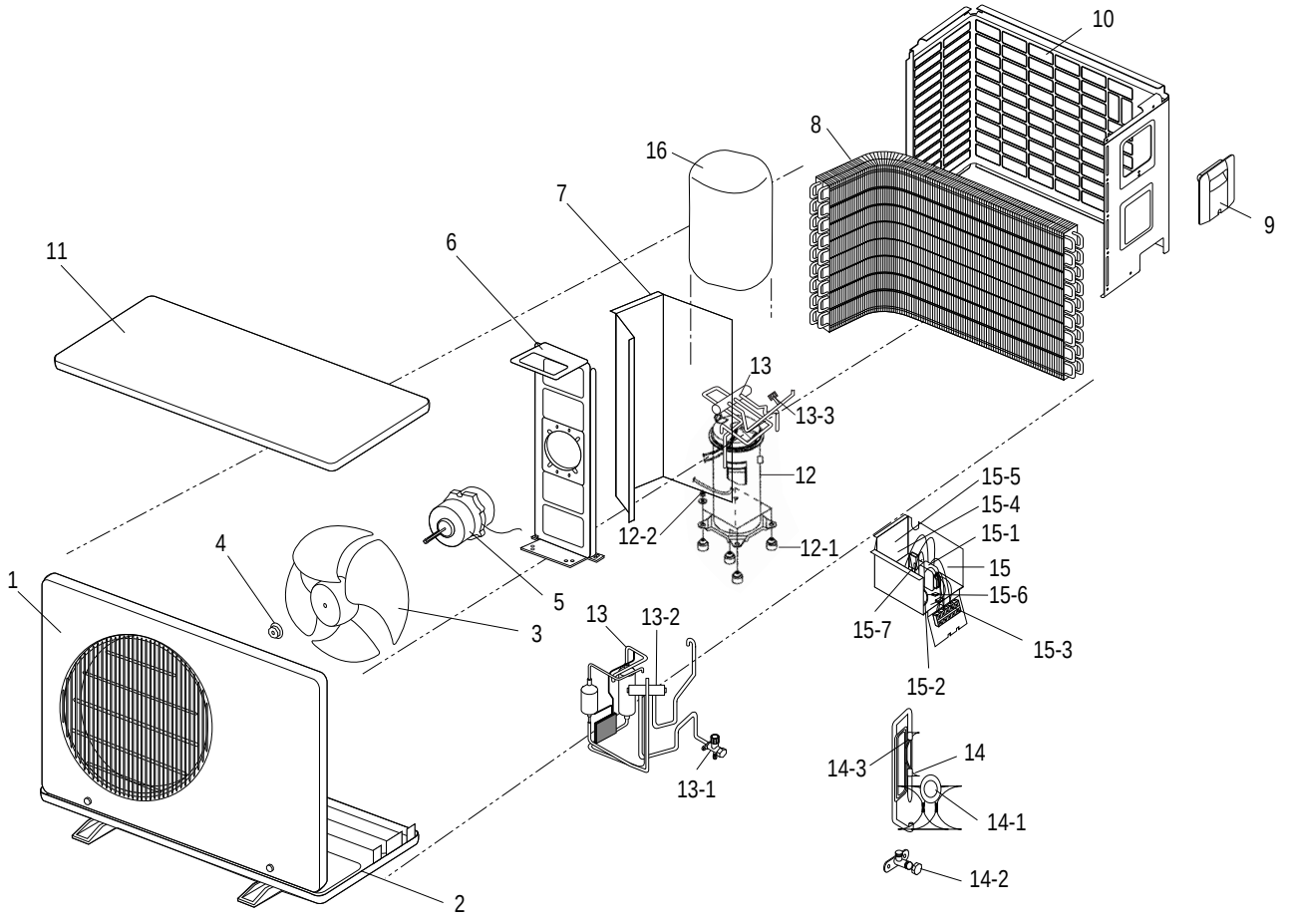


■ Indoor Unit Parts list

NO	CODE NO	Description	Specification	IDH1800E DH18ZA1(A2)	IDH2400E DH24ZA1(A2)	IDH3200E DH32ZA1(A2)
1	DB63 - 00076A	COVER-TOP	SGCC-M T0.8	1	1	1
2	DB63 - 00074A	COVER-CASE DUCT	SGCC-M T0.8	1	1	1
3	DB94 - 00022A	ASS'Y-DRAIN PAN	ASS'Y, BLK	1	1	1
4	DB61 - 00099A	CASE-BOTTOM	SGCC-M T0.8	1	1	-
	DB61 - 00236A	CASE-BOTTOM		-	-	1
	DB61 - 00237A	CASE-BOTTOM, B		-	-	1
5	DB94 - 00023A	ASS'Y-BLOWER, DUCT	ADH2400E	1	1	-
	DB94 - 00051A	ASS'Y-BLOWER, DUCT	ADH3200E	-	-	1
5-1	DB64 - 00071A	PANEL-DUCT MOTOR	SGCC-M T1.2	1	1	1
5-2	DB61 - 00155A	BRACKET-MOUNT MOTOR	SGCC-M T2.0	1	1	1
5-3	DB90 - 00121A	ASS'Y-CASE, FAN	ADH2400E	2	2	2
5-4	DB67 - 00046A	BLOWER	ASS'Y, SGCC-M, ¢175	2	2	2
5-5	DB31 - 00025A	MOTOR-FAN, IN	OSME-1504 SAC	1	1	-
	DB31 - 00025C	MOTOR-FAN, IN	OSME-1004 SAC	-	-	1
6	DB90 - 00117A	ASS'Y-CABI, LF	ASS'Y	1	1	-
	DB90 - 00159A	ASS'Y-CABI, SIDE, LF	ADH3200E, DUCT	-	-	1
7	DB90 - 00119A	ASS'Y-CABI, INLET, LF	ASS'Y	1	1	1
8	DB70 - 00026A	PLATE-HANGER, LF	SGCC-M T02.0	1	1	1
9	DB96 - 00182A	ASS'Y-EVAP	ADH1800E	1	-	-
	DB96 - 00174A	ASS'Y-EVAP	ADH2400E	-	1	-
	DB96 - 00183A	ASS'Y-EVAP	ADH3200E	-	-	1
10	DB90 - 00120A	ASS'Y-CABI, INLET, RH	ASS'Y	1	1	1
11	DB90 - 00118A	ASS'Y-CABI, SIDE, RH	ASS'Y	1	1	-
	DB90 - 00158A	ASS'Y CABI, SIDE, RH	ADH3200E, ASS'Y	-	-	1
12	DB70 - 00027A	PLATE-HANGER, RH	SGCC-M T2.0	1	1	1
13	DB64 - 00121A	CABINET-SIDE, RH, B	SGCC-M T0.8	1	1	-
	DB64 - 00183A	CABINET-SIDE, RH, B	SGCC-M T0.8	-	-	1
14	DB90 - 00113A	ASS'Y-HOLER OUTLET	ASS'Y	1	1	1
15	DB90 - 00114A	ASS'Y-COVER, BOTTOM	ASS'Y	1	1	1
16	DB71 - 00019A	PLATE-HANDLE	SGCC-M, T1.2	2	2	2
17	DB74 - 00006A	FILTER-PRE	PE, 36X40	1	1	1
18	DB63 - 00080A	COVER-CONTROL	SGCC-M T0.8	1	1	1
19	DB93 - 00249F	ASS'Y-CONTROL, IN	ADH1800E, ASS'Y	1	-	-
	DB93 - 00249G	ASS'Y-CONTROL, IN	ADH2400E, ASS'Y	-	1	-
	DB93 - 00249H	ASS'Y-CONTROL, IN	ADH3200E, ASS'Y	-	-	1
19-1	DB90 - 00116A	ASS'Y-CASE, CONTROL	ASS'Y	1	1	1
19-2	PD - DH2400 - 00	ASS'Y-PCB, PARTS	ADH2400E	1	1	-
	PD - DH3200 - 00	ASS'Y-PCB, PARTS	ADH3200E	-	-	1
19-3	DB65 - 00029C	TERMINAL BOARD, 15P	250V, 20A, 15P	1	1	1
19-4	2301 - 001370	CAPACITOR	450V/2.5UF	1	-	-
	2301 - 001368	CAPACITOR	450V/5.0UF	-	1	-
	2301 - 001367	CAPACITOR	450V/6.0UF	-	-	1
19-5	DB26 - 00002A	TRANS-POWER	250V, 50Hz, AC14V	1	1	1
19-6	DB61 - 40291B	HOLDER-WIRE	PP, T2.0, BLK	2	2	2

7-2 Outdoor Unit

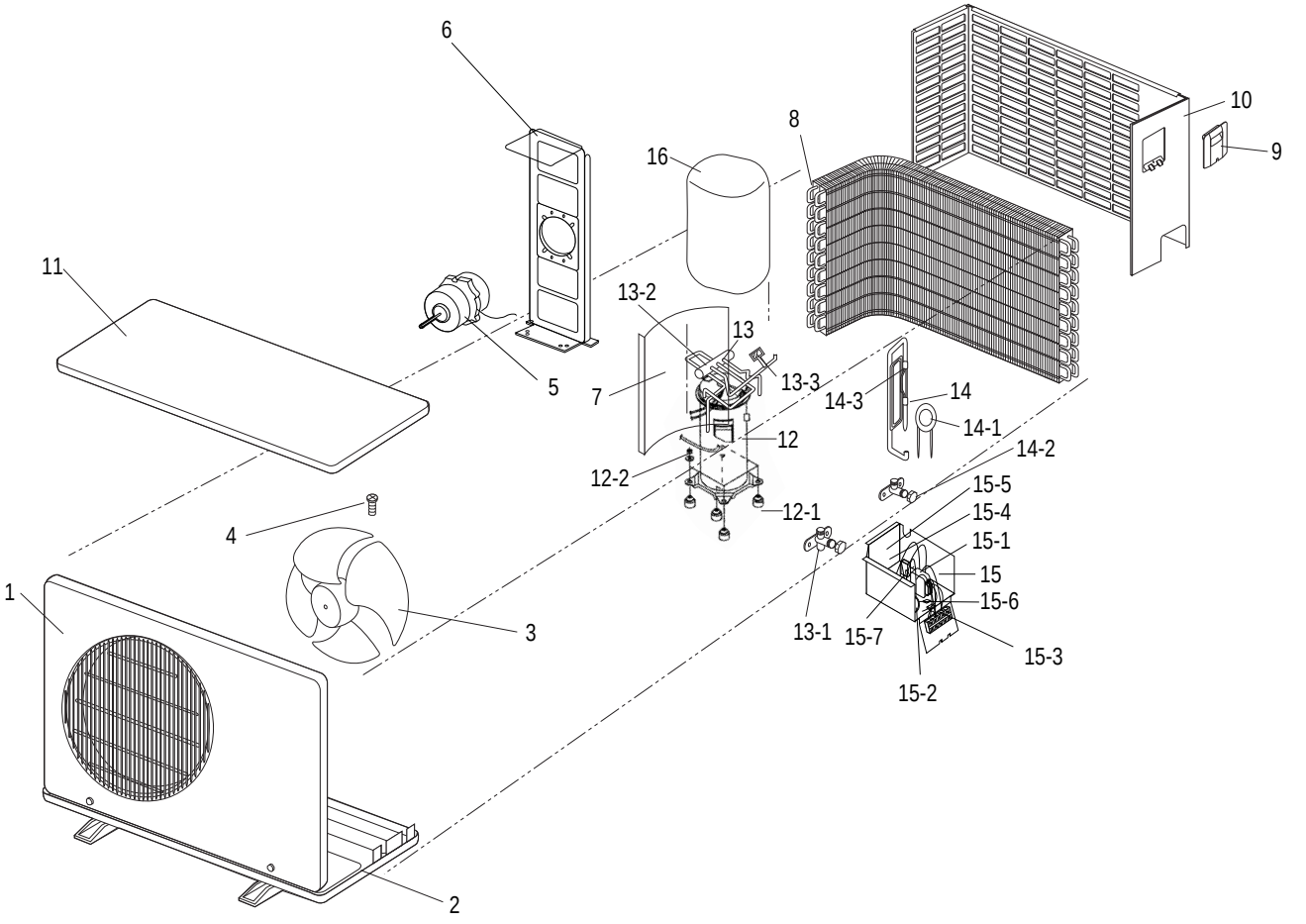
7-2-1 18K



■ Outdoor Unit Parts list (18K)

NO	CODE NO	Description	Specification	Q'TY	Remark
1	DB90-10673C	ASS'Y-CABI, FRONT	AP-4350/5350	1	
2	DB90-20160E	ASS'Y-BASE, OUT	UBH1800E	1	
3	DB67-50063A	FAN-PROPELLER	AS+G/F20%, D405	1	
4	DB60-30020A	NUT-FLANGE	M6, FEFZY, LF	1	
5	DB31-00056A	MOTOR-FAN	ASS030AVEA	1	
6	DB61-20008C	BASE-MOTOR	SGCC-M, T=1.2	1	
7	DB94-50034B	ASS'Y-PARTITION	ASH-1807ER ADD, SEAL	1	
8	DB96-00184A	ASS'Y-CONDENSER	2X24 WAVE 1.7	1	
9	DB90-40176B	ASS'Y-COVER CONTROL	ABS	1	
10	DB90-10671G	ASS'Y-CABI, BACK	AP-4350	1	
11	DB90-00074B	ASS'Y-CABI-UP	M-18	1	
12	DB95-10057N	ASS'Y-COMP	ZR22K3-PFJ	1	
12-1	DB73-10023A	GROMMET COMP	EPDM, T41, BLK	4	
12-2	DB60-30028A	NUT-WASHER	HEX, 2C, M8, ZPC	4	
13	DB96-00189A	ASS'Y-TUBE 4WAY V/V	ADH1800E, 5/8"	1	
13-1	DB62-40055F	VALVE-SERVICE 5/8	5/8"	1	
13-2	DB62-40036A	VALVE-4WAY	ASS'Y	1	
13-3	DB34-00004A	SWITCH-PRESSURE	ASS'Y	1	
14	DB96-00190A	ASS'Y-TUBE, CHECK, V/V	ADH1800E(3/8")	1	
14-1	DB62-00218A	TUBE-CAPILLARY CHECK	C1220T-0, ID2.0X500	1	
14-2	DB62-00287A	VALVE-SERVICE, 3/8	3/8"	1	
14-3	DB62-40105D	VALVE-CHECK	CHV0201	1	
15	DB93-00252E	ASS'Y-CONTROL BOX	UDH1800E	1	
15-1	DB34-90057C	SWITCH-MAGENT	45CG20ALB	1	
15-2	2501-001214	CAPACITOR	40UF/400V, COMP	1	
15-3	DB65-40022G	TERMINAL-BLOCK	6P, 600V, 35A	1	
15-4	PD-DH2400-S0	ASS'Y-PCB PART	ASS'Y	1	
15-5	DB61-00152A	CASE-PCB, OUT	T2.5, ABS, BLK	1	
15-6	DB26-10070A	TRANS-POWER	DC17, AC230	1	
15-7	2301-001370	CAPACITOR MOTOR	2.5μF, EAF45255	1	
16	DB72-00122A	CLOTH-SOUND, COMP	T12, W800, L350	1	

• 24K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15-6
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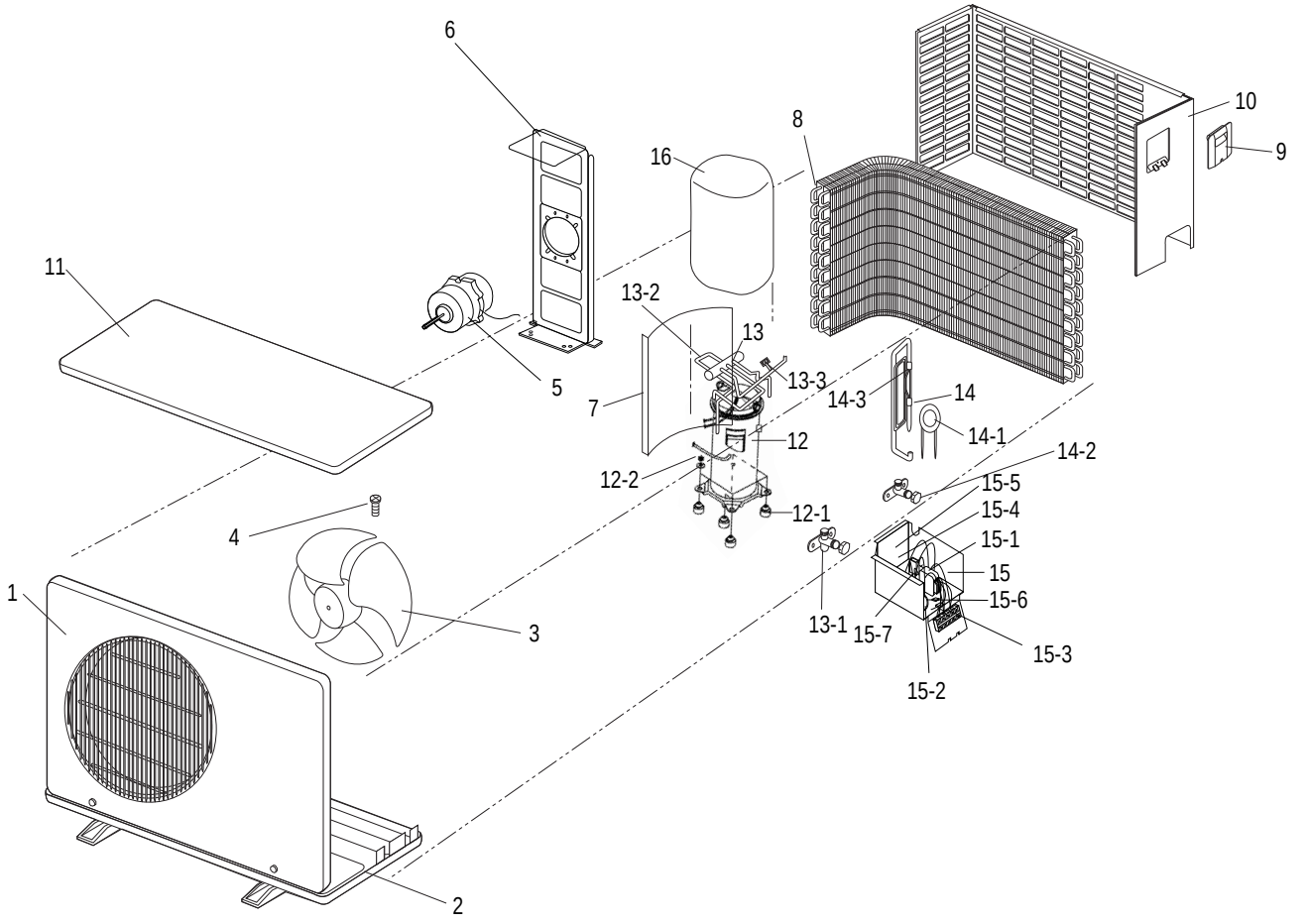
13-1
15-7
15-3
15-2
2

■ Outdoor Unit Parts list (24K)

NO	CODE NO	Description	Specification	Q'TY	Remark
1	DB90 - 10634L	ASS'Y-CABI, FRONT	ASH-3500	1	
2	DB90 - 20157L	ASS'Y-BASE, OUT	AP-7650	1	
3	DB67 - 50074A	FAN-PROPELLER	AS-1569	1	
4	-	BOLT-SPECIAL	M6	1	
5	DB31 - 00027A	MOTOR-FAN	OSME-806SRC	1	
6	DB95 - 20147A	ASS'Y-MOTOR, B/K	AS-1569, ASSY	1	
7	DB94 - 50039C	ASS'Y-PARTITION	ASM-3500A	1	
8	DB96 - 00180A	ASS'Y-CONDENSER	2X24, D-5, 1.7mm	1	
9	DB90 - 40176B	ASS'Y-COVER CONTROL	AS-126/1210	1	
10	DB64 - 60160C	CABINET-SIDE	SECC-P, SC-90073T	1	
11	DB90 - 10616D	ASS'Y-CABI, UP	ADH2400E, ASS'Y	1	
12	DB95 - 10057G	ASS'Y-COMP, SCROLL	ZR28K3-PFJ	1	
12-1	DB73 - 10023A	GROMMET COMP	EPDM, T41, BLK	4	
12-2	DB60 - 30028A	NUT-WASHER	HEX, 2C, M8, ZPC	4	
13	DB96 - 00177A	ASS'Y-TUBE 4WAY V/V	ADH2400E, 5/8"	1	
13-1	DB62 - 40055F	VALVE-SERVICE	5/8"	1	
13-2	DB62 - 40036A	VALVE-4WAY	ASS'Y	1	
13-3	DB34 - 00004A	SWITCH-PRESSURE	ASS'Y	1	
14	DB96 - 00178A	ASS'Y-TUBE, CHECK, V/V	ADH2400E, 3/8"	1	
14-1	DB62 - 00217A	TUBE-CAPILLARY CHECK	C1220T-0, ID2.0X700	1	
14-2	DB62 - 40011G	VALVE-SERVICE	3/8"	1	
14-3	DB62 - 40105D	VALVE-CHECK	CHV0201	1	
15	DB93 - 00250G	ASS'Y-CONTROL BOX	ADH2400E, ASS'Y	1	
15-1	DB34 - 90057C	SWITCH-MAGENT	45CG20ALB	1	
15-2	2501 - 001215	C-OIL	45µF/400V	1	
15-3	DB65 - 40022G	TERMINAL-BLOCK	6P, 600V, 35A	1	
15-4	PD - DH2400 - S0	ASS'Y-PCB PART	ASS'Y	1	
15-5	DB61 - 00152A	CASE-PCB, OUT	T2.5, ABS, BLK	1	
15-6	DB26 - 10070A	TRANS-POWER	DC17, AC230	1	
15-7	2301 - 001369	CAPACITOR MOTOR	3µF, EAF45305	1	
16	DB72 - 00122A	CLOTH-SOUND, COMP	T12, W800, L350	1	

• 32K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■ Outdoor Unit Parts list (32K)

NO	CODE NO	Description	Specification	Q'TY	Remark
1	DB90 - 00035E	ASS'Y-CABI, OUT	AP-3707BR	1	
2	DB90 - 20157L	ASS'Y-BASE, OUT	AP-7650	1	
3	DB67 - 50067A	FAN-PROPELLER	AS+G/F20%, D495, 4BLABD	1	
4	-	BOLT-SPECIAL	M6	1	
5	DB31 - 00058A	MOTOR-FAN	ASS130AVEC	1	
6	DB61 - 20093A	BASE MOTOR	SGCC-M, T1.6	1	
7	DB94 - 50021D	ASS'Y-PARTITION	KFH28PV2	1	
8	DB96 - 00185A	ASS'Y-CONDENSER	2X30, WAVE1.7	1	
9	DB90 - 40176B	ASS'Y-COVER CONTROL	ABS	1	
10	DB64 - 10672C	ASS'Y-CABI, BACK	AP-7650	1	
11	DB90 - 10616D	ASS'Y-CABI, UPP	KRH24SV1	1	
12	DB95 - 10057K	ASS'Y-COMP-SCROLL	ZR42K3-PFJ	1	
12-1	DB73 - 10023A	GROMMET COMP	EPDM, T41, BLK	4	
12-2	DB60 - 30028A	NUT-WASHER	HEX, 2C, M8, ZPC	4	
13	DB96 - 00192A	ASS'Y-TUBE 4WAY V/V	ADH3200E	1	
13-1	DB62 - 40055F	VALVE-SERVICE 5/8	5/8"	1	
13-2	DB62 - 40023A	VALVE-4WAY	ASS'Y	1	
13-3	DB34 - 00004A	SWITCH-PRESSURE	ASS'Y	1	
14	DB96 - 00191A	ASS'Y-TUBE, CHECK, V/V	ADH3200E	1	
14-1	DB62 - 00218A	TUBE-CAPILLARY CHECK	C1220T-0, ID2.0X500	1	
14-2	DB62 - 40011G	VALVE-SERVICE, 3/8	3/8"	1	
14-3	DB62 - 40105D	VALVE-CHECK	CHV0201	1	
15	DB93 - 00253C	ASS'Y-CONTROL BOX	ADH3200E	1	
15-1	3501 - 001168	RELAY-POWER	45DG20ALB	1	
15-2	2501 - 001213	CAPACITOR	30µF/400V	2	
15-3	DB65 - 40022G	TERMINAL-BLOCK 6P	6P, 600V, 35A	1	
15-4	PD - DH3200 - S0	ASS'Y-PCB PART	ASS'Y	1	
15-5	DB61 - 00152A	CASE-PCB, OUT	T2.5, ABS, BLK	1	
15-6	DB26 - 10070A	TRANS-POWER	DC17, AC230	1	
15-7	2301 - 001367	CAPACITOR	450V/6.0µF	1	
16	DB72 - 00159A	INSULATION-COMP-SOUND	T12, 355, 525	1	

MEMO

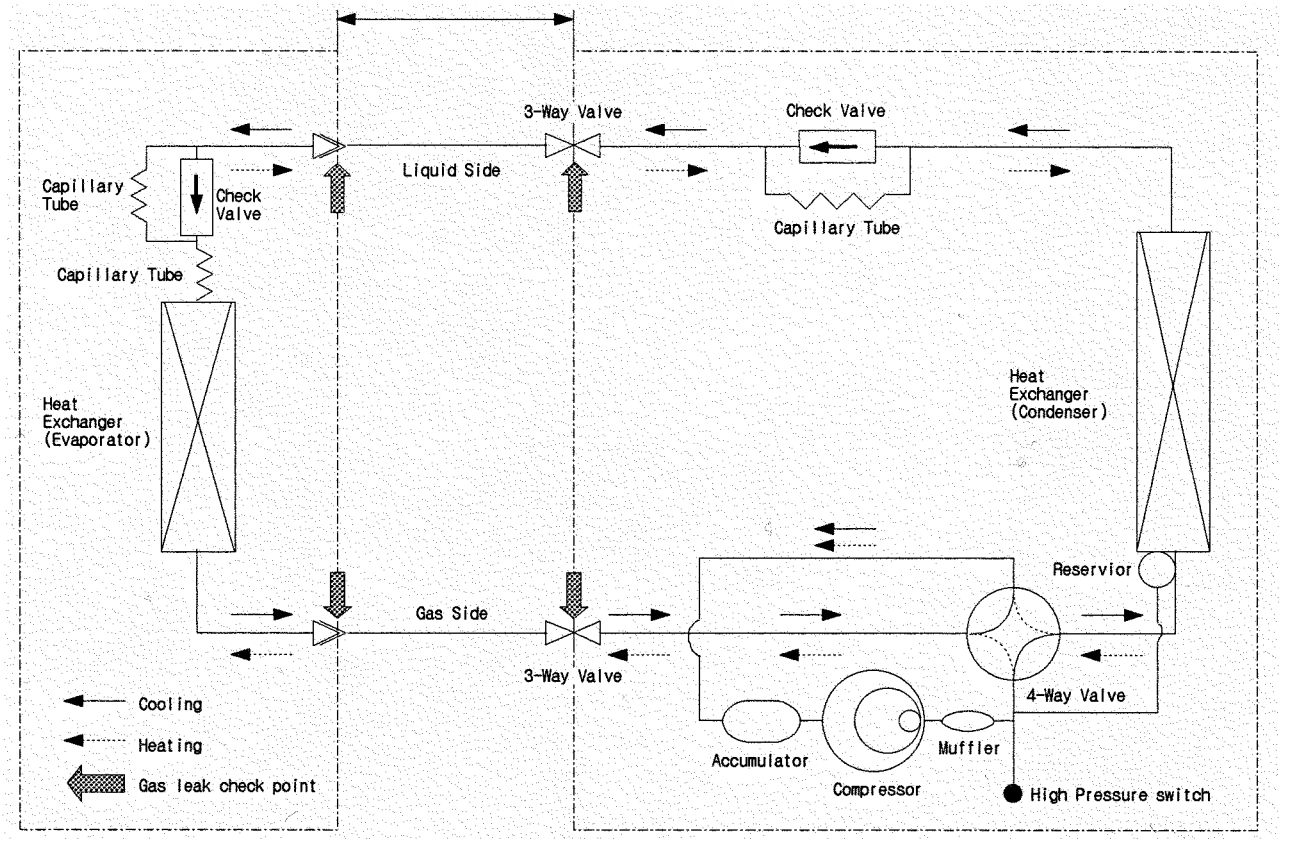
8. Block Diagrams

8-1 Refrigerating Cycle Block Diagram

Model : ADH1800E, DH18ZA1(A2)

Indoor Unit **Outdoor Unit**

*Allowable pipe length : Max. 30m
*Allowable drop distance : Max. 15m

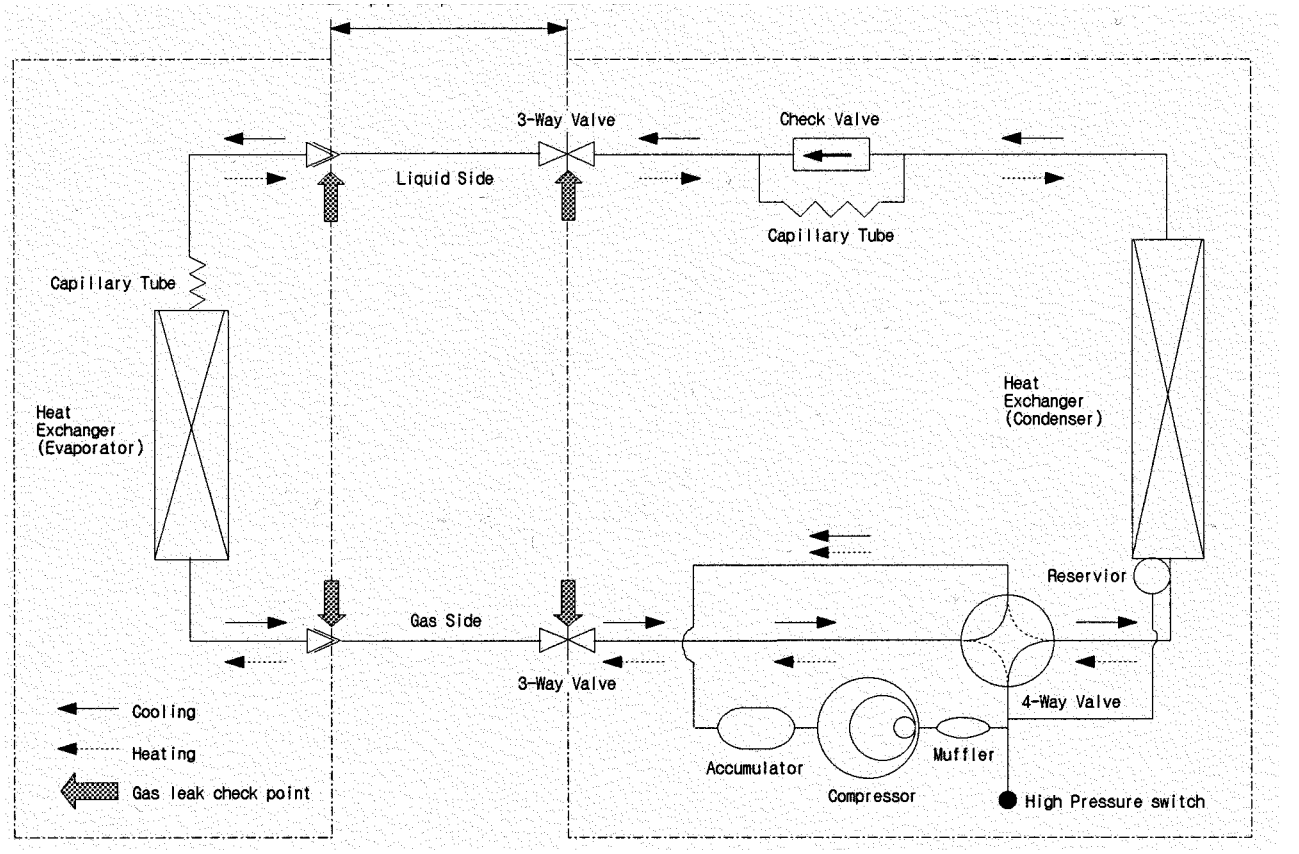


*Amount of refilling per extension length of 1m;
When extending the pipe length by more than 5m , 40gr(50gr: Outdoor Unit is higher than Indoor Unit) of R-22 refrigerant should be refilled per extension length of 1m.

• Model : ADH2400E, DH24ZA1(A2)

Indoor Unit **Outdoor Unit**

*Allowable pipe length : Max. 30m
*Allowable drop distance : Max. 15m

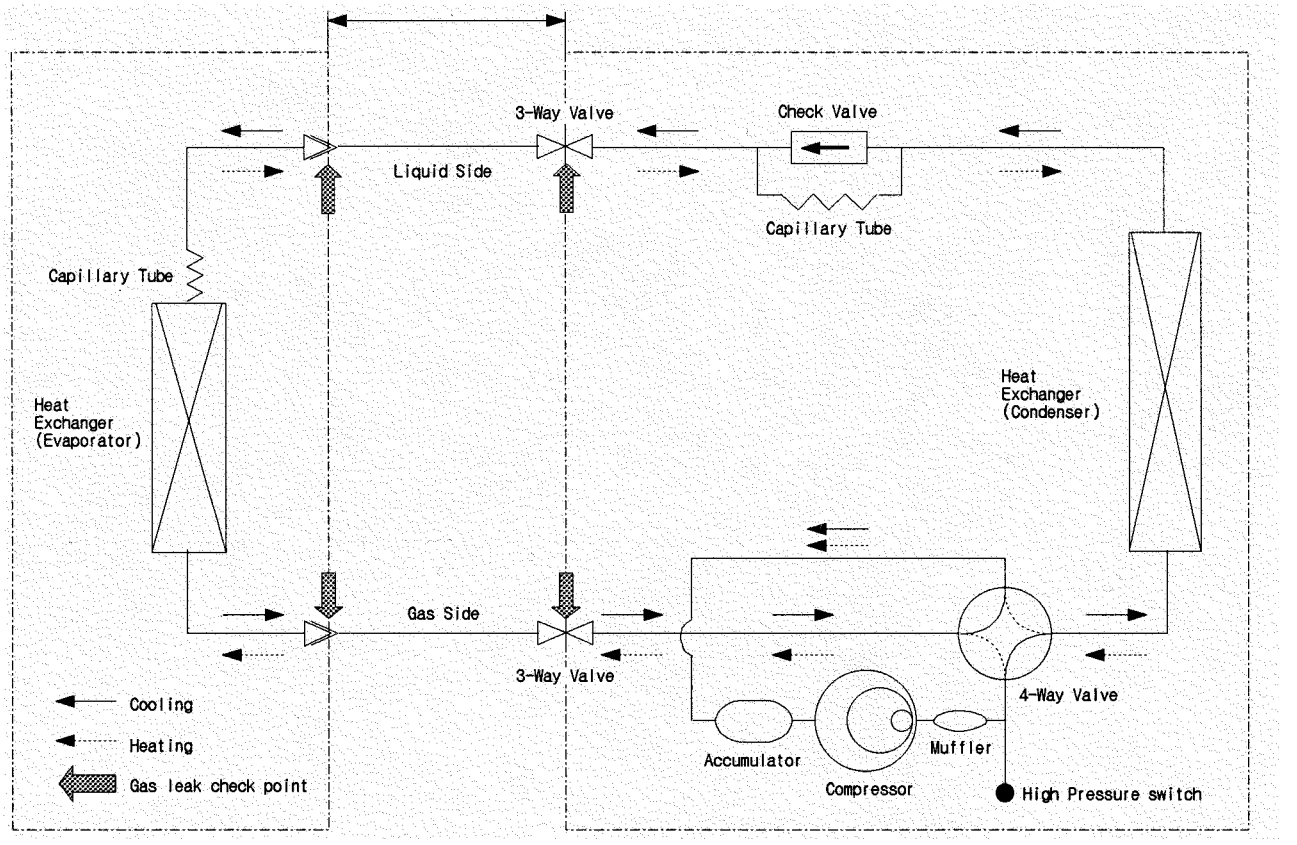


*Amount of refilling per extension length of 1m;
When extending the pipe length by more than 5m, 40gr(50gr: Outdoor Unit is higher than Indoor Unit) of R-22 refrigerant should be refilled per extension length of 1m.

• Model : ADH3200E, DH32ZA1(A2)

Indoor Unit **Outdoor Unit**

*Allowable pipe length : Max. 30m
*Allowable drop distance : Max. 15m



*Amount of refilling per extension length of 1m;
When extending the pipe length by more than 5m, 55gr(55gr: Outdoor Unit is higher than Indoor Unit) of R-22 refrigerant should be refilled per extension length of 1m.

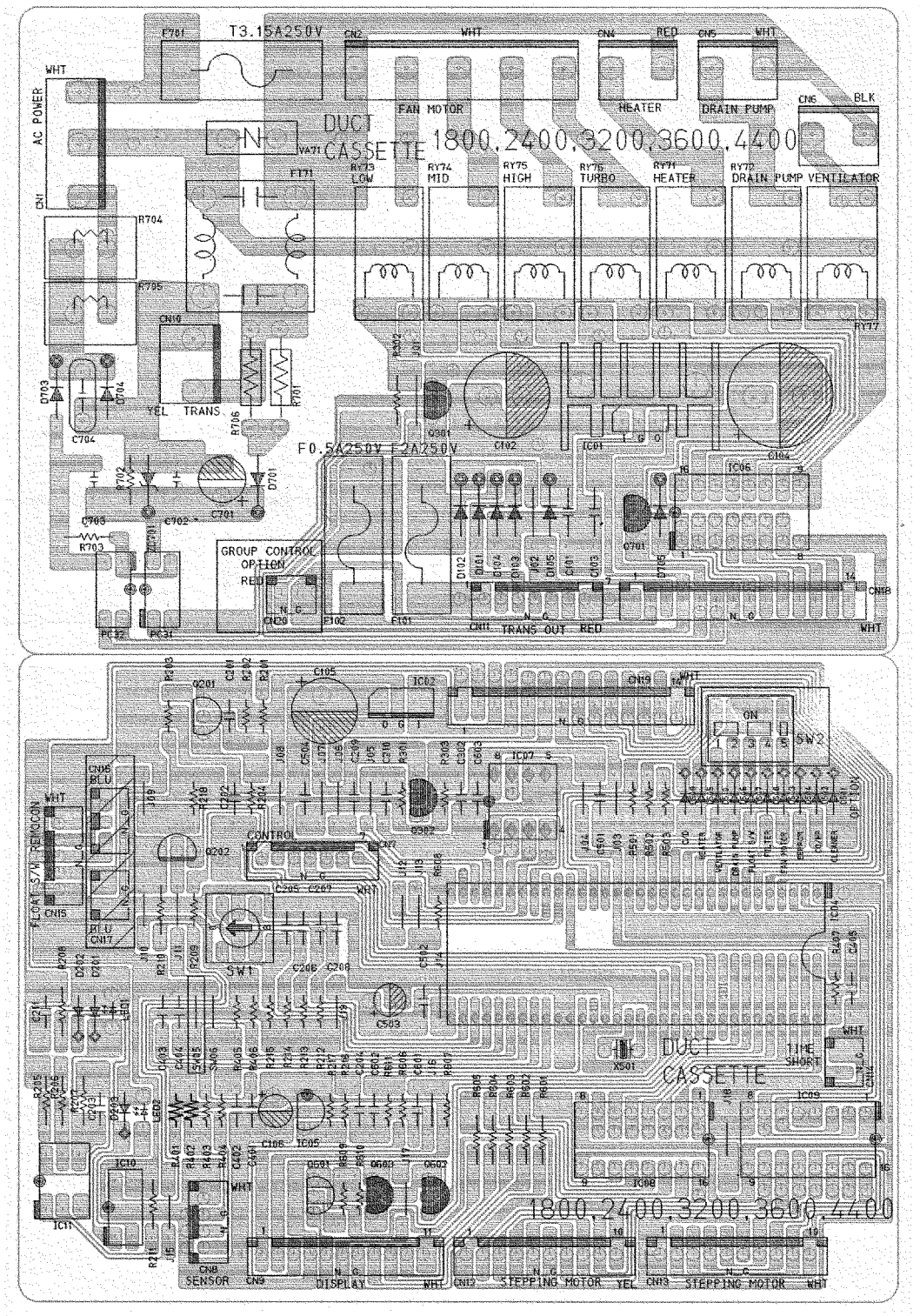
8-2 THERMISTOR

THERMISTOR MODEL : 103AT			
THMPERATURE [˚C]	THERMISTOR [Kohm]	THMPERATURE [˚C]	THERMISTOR [Kohm]
70	2.229		
69	2.296	29	8.622
68	2.365	28	8.944
67	2.437	27	9.281
66	2.512	26	9.632
65	2.589	25	10
64	2.669	24	10.380
63	2.752	23	10.780
62	2.838	22	11.200
61	2.928	21	11.630
60	3.021	20	12.090
59	3.116	19	12.560
58	3.216	18	13.060
57	3.319	17	13.570
56	3.426	16	14.120
55	3.537	15	14.680
54	3.652	14	15.280
53	3.772	13	15.900
52	3.897	12	16.550
51	4.026	11	17.240
50	4.161	10	17.960
49	4.300	9	18.700
48	4.444	8	19.480
47	4.594	7	20.290
46	4.749	6	21.150
45	4.912	5	22.050
44	5.080	4	22.990
43	5.256	3	23.990
42	5.439	2	25.030
41	5.630	1	26.130
40	5.828	0	27.280
39	6.033	-1	28.470
38	6.246	-2	29.720
37	6.468	-3	31.040
36	6.699	-4	32.430
35	6.941	-5	33.890
34	7.192	-6	35.430
33	7.455	-7	37.050
32	7.729	-8	38.760
31	8.015	-9	40.560
30	8.313		

9. PCB Diagrams

9-1 Main PCB

9-1-1 Indoor Unit (18K/24K)

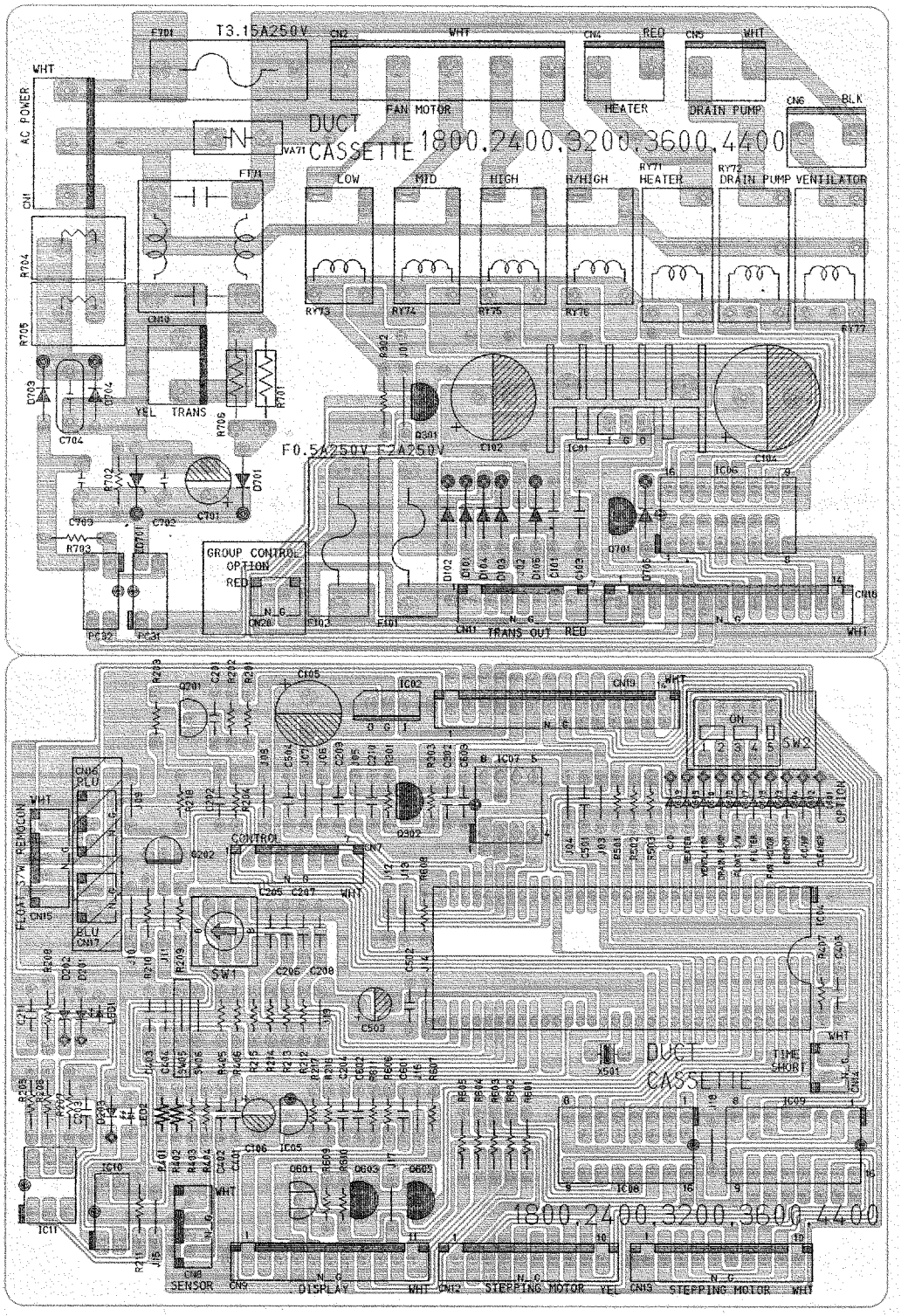


■ Indoor Part List (PCB CODE : PD-DH2400-00)

Mark	Parts Name	Specification
J01, J02, J04 - J19,SW05,SW05	JUMP WIRE	PI 0.6 SN T 52MM
IC04	IC-MCU	UPD780032
IC06,IC08	IC-LINEAR	KA2657
IC07	IC-EEPROM	93LC56B-I/P
IC05	IC-RESET	KA7533
PC31,PC32,IC10	PHOTO-COUPLER	PC817
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
IC11	PHOTO-THYRISTOR	S12MD1V
X501	CERAMIC-RESONATOR	4MHz CST4MTW TC
D101 - D105,D701,D703,D704,D705	DIODE-RECTIFIER	1N4007
ZD701	DIODE-ZENER	ZD24
C/D,HEATER, VENTLATOR,DRAIN PUMP	DIODE-SWITCHING	1N4148M,100V
FLOAT S/W,FILTER,FAN MOTOR,EEPROM	"	"
CLEANER,D201-D203	"	"
CN18,CN19	CONNECTOR-HEADER	SMW250-14-WHT
CN9	CONNECTOR-HEADER	SMW250-11-WHT
CN11	CONNECTOR-HEADER	SMW250-07-RED
CN8	CONNECTOR-HEADER	SMW250-04-WHT
CN14	CONNECTOR-HEADER	SMW250-02-WHT
CN7	CONNECTOR-HEADER	SMW250-07-WHT
CN20	CONNECTOR-HEADER	SMW250-02-RED
CN15	CONNECTOR-HEADER	SMW250-05-WHT
CN5	CONNECTOR HEADER	YW396-03AV-WHT
CN2	CONNECTOR HEADER	YW396-09AV-WHT
CN10	CONNECTOR HEADER	YW396-03AV-YEL
CN1	CONNECTOR HEADER	YW396-05AV-WHT
CN6	CONNECTOR HEADER	YW396-03AV-BLK
Q601	TR-SMALL	A708,NPN
Q201	TR-SMALL	KSC945,NPN
Q301,Q701,Q302,Q602,Q603	TR-DIGITAL	KSR1002
Q202	TR-DIGITAL	KSR2002
LED1	LED-LAMP	RED
LED2	LED-LAMP	GREEN
C702,C703	C-FILM	DISK,4.7NF
C602	C-CERAMIC	AXIAL,4.7NF(472)
C101,C103,C105,C209,C210,C501,C302,C603	C-CERAMIC	AXIAL,100NF(104)
C205-C208,C402-C404,C502,C204,C405	-	-
C202,C203	C-CERAMIC	AXIAL,10NF(103)
C704	C-FILM	DISK,10NF(103)
C601	C-CERAMIC	AXIAL,101
C211	C-CERAMIC	AXIAL,1NF(102)
C102	C-AL	1000uF/35V
C104	C-AL	2200uF/25V
C105	C-AL	470uF/25V
C106	C-AL	1uF/16V
C503,C701	C-AL	100uF/16V
R201,R218,R501-R503,R608,R405,R406,R215	R-CARBON	10K-J 1/8W

Mark	Parts Name	Specification
R212-R214,R607,R610,R407	-	-
R302	R-CARBON	1K-J 1/4W
R203,R204,R301,R217,R216,R609	R-CARBON	1K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R209	R-CARBON	12K-J 1/8W
R207	R-CARBON	27K-J 1/4W
R210,R208	R-CARBON	2.4K-J 1/4W
R211	R-CARBON	330-J 1/4W
R601-R605	R-CARBON	330-J 1/2W
R403,R404,R606	R-CARBON	330-J 1/8W
R401, R402	R-METAL	6.8K-F 1/8W
R611	R-CARBON	100K-J 1/8W
R205, R205	R-CARBON	10-J 1/4W
R703	R-CARBON	4.7K-J 1/4W
R706, 701	R-CARBON	100K-J 2W
R702	R-CARBON	100K-J 1/4W
R704, R705	R-CELENT	10K-J 5W
RY72 ~ RY77	RELAY-MANIATURE	JQ1A-12V
F701	FUSE	T3.15A 250V
HOLDER	HOLDER	FH-51H 7.5A
F101	FUSE	F2A250V
HOLDER	HOLDER	FH-51M 7.5A
F102	FUSE	F0.5A 250
HOLDER	HOLDER	FH-51M 7.5A
FT71	NOISE FILTER	HP1-P16
VA71	VARISTOR	1NR14D471

• **Indoor Unit (32K)**

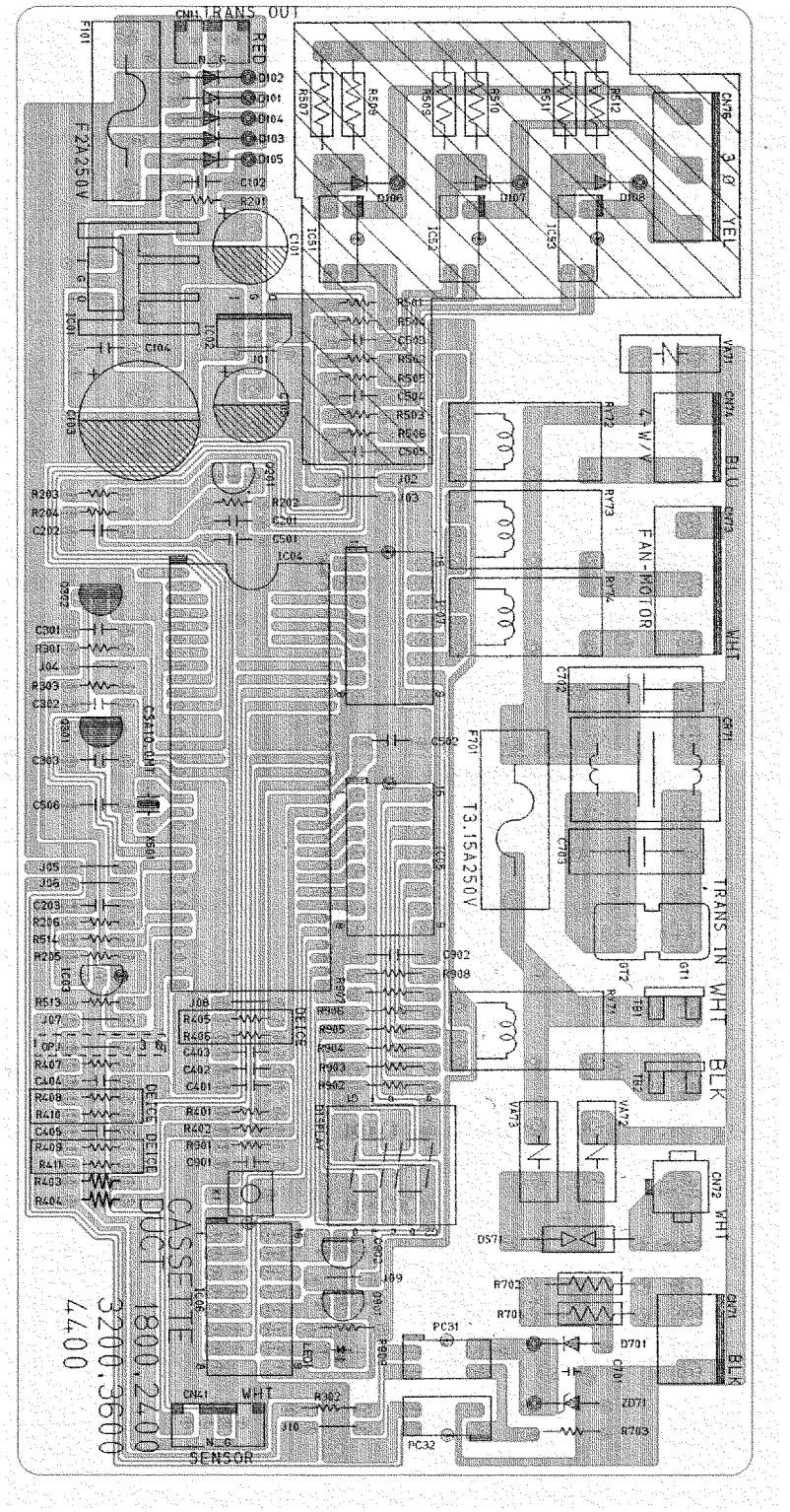


■ Indoor Part List (PCB CODE : PD-DH-3200-00)

Mark	Parts Name	Specification
J01, J02, J04 - J19,SW05,SW05	JUMP WIRE	PI 0.6 SN T 52MM
IC04	IC-MCU	UPD780032
IC06,IC08	IC-LINEAR	KA2657
IC07	IC-EEPROM	93LC56B-I/P
IC05	IC-RESET	KA7533
PC31,PC32,IC10	PHOTO-COUPLER	PC817
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
IC11	PHOTO-THYRISTOR	S12MD1V
X501	CERAMIC-RESONATOR	4MHz CST4MTW TC
D101 - D105,D701,D703,D704,D705	DIODE-RECTIFIER	1N4007
ZD701	DIODE-ZENER	ZD24
C/D,HEATER,VENTLATOR,DRAIN PUMP	DIODE-SWITCHING	1N4148M,100V
FLOAT S/W,FILTER,FAN MOTOR, EEPROM	"	"
CLEANER,D201-D203	"	"
CN18,CN19	CONNECTOR-HEADER	SMW250-14-WHT
CN9	CONNECTOR-HEADER	SMW250-11-WHT
CN11	CONNECTOR-HEADER	SMW250-07-RED
CN8	CONNECTOR-HEADER	SMW250-04-WHT
CN14	CONNECTOR-HEADER	SMW250-02-WHT
CN7	CONNECTOR-HEADER	SMW250-07-WHT
CN20	CONNECTOR-HEADER	SMW250-02-RED
CN15	CONNECTOR-HEADER	SMW250-05-WHT
CN5	CONNECTOR HEADER	YW396-03AV-WHT
CN2	CONNECTOR HEADER	YW396-09AV-WHT
CN10	CONNECTOR HEADER	YW396-03AV-YEL
CN1	CONNECTOR HEADER	YW396-05AV-WHT
CN6	CONNECTOR HEADER	YW396-03AV-BLK
Q601	TR-SMALL	A708,NPN
Q201	TR-SMALL	KSC945,NPN
Q301,Q701,Q302,Q602,Q603	TR-DIGITAL	KSR1002
Q202	TR-DIGITAL	KSR2002
LED1	LED-LAMP	RED
LED2	LED-LAMP	GREEN
C702,C703	C-FILM	DISK,4.7NF
C602	C-CERAMIC	AXIAL,4.7NF(472)
C101,C103,C105,C209,C210,C501,C302,C603	C-CERAMIC	AXIAL,100NF(104)
C205-C208,C402-C404,C502,C204,C405	-	-
C202,C203	C-CERAMIC	AXIAL,10NF(103)
C704	C-FILM	DISK,10NF(103)
C601	C-CERAMIC	AXIAL,101
C211	C-CERAMIC	AXIAL,1NF(102)
C102	C-AL	1000uF/35V
C104	C-AL	2200uF/25V
C105	C-AL	470uF/25V
C106	C-AL	1uF/16V
C503,C701	C-AL	100uF/16V
R201,R218,R501-R503,R608,R405,R406,R215	R-CARBON	10K-J 1/8W

Mark	Parts Name	Specification
R212-R214,R607,R610,R407	-	-
R302	R-CARBON	1K-J 1/4W
R203,R204,R301,R217,R216,R609	R-CARBON	1K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R209	R-CARBON	12K-J 1/8W
R207	R-CARBON	27K-J 1/4W
R210,R208	R-CARBON	2.4K-J 1/4W
R211	R-CARBON	330-J 1/4W
R601-R605	R-CARBON	330-J 1/2W
R403,R404,R606	R-CARBON	330-J 1/8W
R401, R402	R-METAL	6.8K-F 1/8W
R611	R-CARBON	100K-J 1/8W
R205, R205	R-CARBON	10-J 1/4W
R703	R-CARBON	4.7K-J 1/4W
R706, 701	R-CARBON	100K-J 2W
R702	R-CARBON	100K-J 1/4W
R704, R705	R-CELENT	10K-J 5W
RY72 ~ RY77	RELAY-MINIATURE	CS11-12SH
F701	FUSE	T3.15A 250V
HOLDER	HOLDER	FH-51H 7.5A
F101	FUSE	F2A250V
HOLDER	HOLDER	FH-51M 7.5A
F102	FUSE	F0.5A 250
HOLDER	HOLDER	FH-51M 7.5A
FT71	NOISE FILTER	HP1-P16
VA71	VARISTOR	1NR14D471

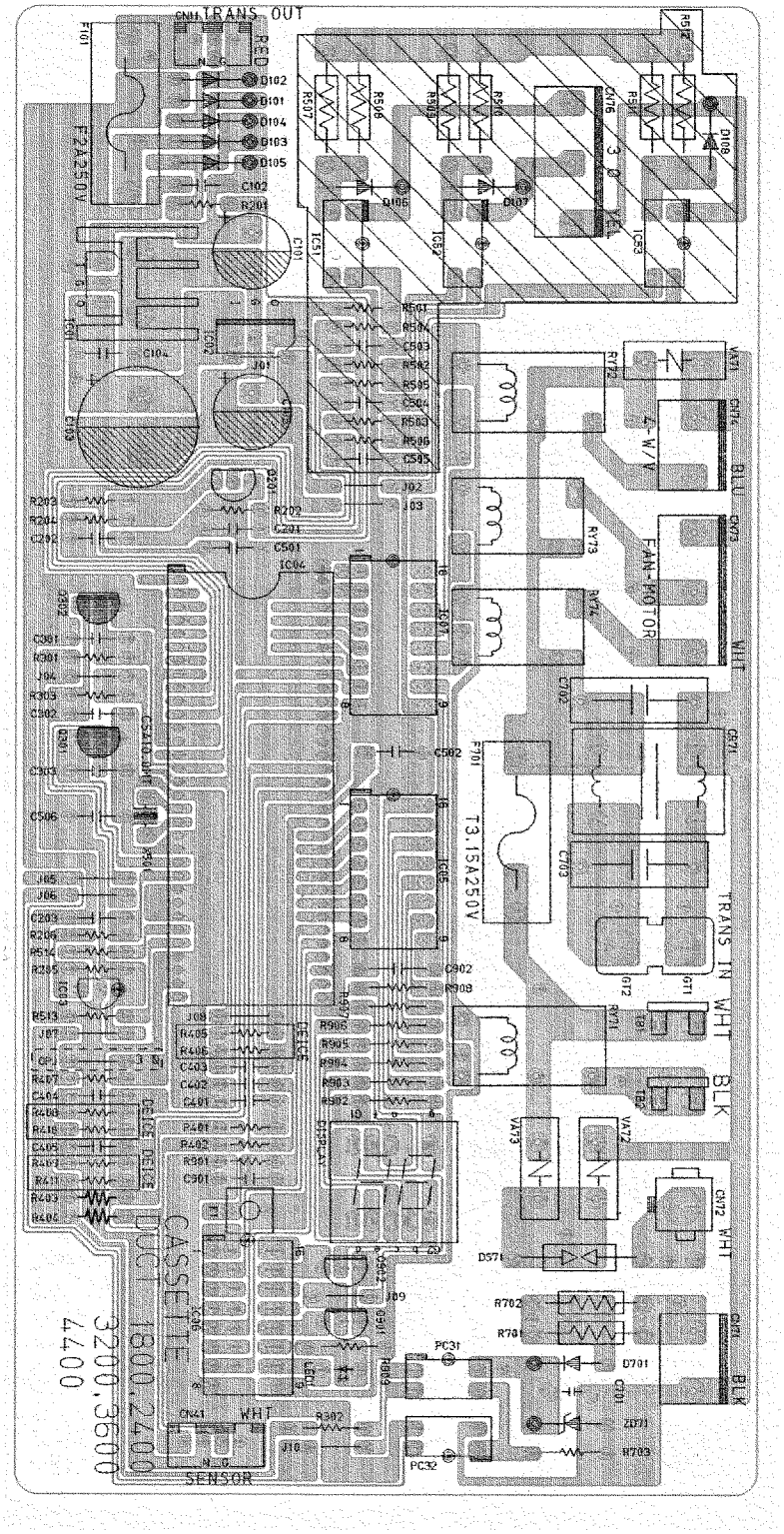
9-1-2 Outdoor Unit (18K/24K)



■ Outdoor Part List (PCB CODE : PD-DH2400-S0)

Mark	Parts Name	Specification
J01-J03,J05-J10,OPJ	JUMP WIRE	PI 0.6 SN T 52MM
IC4	IC-MCU	KS88C46
IC05-IC07	IC-LINEAR	KA2657
PC31,PC32	PHOTO-COUPLER	PC817
IC03	IC-RESET	KA7533
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
X501	CERAMIC-RESONATOR	10MHz
D101-D105,D701	DIODE-RECTIFIER	1N4007
ZD71	DIODE-ZENER	ZD30
Q301,Q302	TR-DIGITAL	KSR1002
Q901,Q902	TR-DIGITAL	KSR2002
Q201	TR-SIGNAL	C945Y
LED1	LED-LAMP	RED
C701	C-FILM	DISK,4.7NF
C702,C703	C-X2	X-CAP,100NF(X2)
C502,C902,C201,C501,C104	C-CERAMIC	AXIAL,100NF(104)
C401-C403,C901,C202,C303	-	-
C506,C203,C404,C405,C102	-	-
C302	C-CERAMIC	AXIAL,1NF(102)
C101	C-AL	1000uF/35V
C103	C-AL	2200uF/25V
C105	C-AL	470uF/25V
R201,R901,R514,R513,R407	R-CARBON	10K-J 1/8W
R409	-	-
R405,R203,R204,R206,R205, R411	R-CARBON	1K-J 1/8W
R410	-	-
R406,R408, R409	R-CARBON	3.9K-J 1/8W
R703	R-CARBON	4.7K-J 1/4W
R301	R-CARBON	620-J 1/8W
R302	R-CARBON	470 1/4W
R902-R909	R-CARBON	470 1/2W
R303	R-CARBON	12K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R401,R402	R-CARBON	330-J 1/8W
R403,R404	R-METAL	18K-F 1/8W
R701,R702	R-CARBON	5.6K 2W
RY71-RY74	RELAY-MINIATURE	JQ1a-12V
F101	FUSE	FST,250V,2A
F701	FUSE	FST,250V,3.15A
-	FUSE HOLDER	FH-51H 7.5A
-	HEAT SINK	A6063,L30LW23.5
CR71	COIL	L4460
VA71	VARISTOR	470V,4500A
CN73	CONNECTOR HEADER	YW396-05AV-WHT
CN71	CONNECTOR HEADER	YW396-03AV-BLK
CN74	CONNECTOR HEADER	YW396-03AV-BLU
CN41	CONNECTOR HEADER	SMW250-04-WHT
CN11	CONNECTOR HEADER	SMW250-03-RED
CN72	CONNECTOR HEADER	YDW236-01-WHT
GT1,GT2	GT PIN	GTP
TB1,TB2	TERMINAL	1P,TAB
K1	SWITCH	TACT
DISPLAY	7-SEG	2-DIGIT
DS71	DISCHARGER	MP-332MA

• **Outdoor Unit (32K)**



■ Outdoor Part List (PCB CODE : PD-DH3200-S1)

Mark	Parts Name	Specification
J01-J03,J05-J10,OPJ	JUMP WIRE	PI 0.6 SN T 52MM
IC4	IC-MCU	KS88C46
IC05-IC07	IC-LINEAR	KA2657
PC31,PC32	PHOTO-COUPLER	PC817
IC03	IC-RESET	KA7533
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
X501	CERAMIC-RESONATOR	10MHz
D101-D105,D701	DIODE-RECTIFIER	1N4007
ZD71	DIODE-ZENER	ZD30
Q301,Q302	TR-DIGITAL	KSR1002
Q901,Q902	TR-DIGITAL	KSR2002
Q201	TR-SIGNAL	C945Y
LED1	LED-LAMP	RED
C701	C-FILM	DISK,4.7NF
C702,C703	C-X2	X-CAP,100NF(X2)
C502,C902,C201,C501,C104	C-CERAMIC	AXIAL,100NF(104)
C401-C403,C901,C202,C303	-	-
C506,C203,C404,C405,C102	-	-
C302	C-CERAMIC	AXIAL,1NF(102)
C101	C-AL	1000uF/35V
C103	C-AL	2200uF/25V
C105	C-AL	470uF/25V
R201,R901,R514,R513,R407	R-CARBON	10K-J 1/8W
R409	-	-
R405,R203,R204,R206,R205,R411	R-CARBON	1K-J 1/8W
R410	-	-
R406,R408,R409	R-CARBON	3.9K-J 1/8W
R703	R-CARBON	4.7K-J 1/4W
R301	R-CARBON	620-J 1/8W
R302	R-CARBON	470 1/4W
R902-R909	R-CARBON	470 1/2W
R303	R-CARBON	12K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R401,R402	R-CARBON	330-J 1/8W
R403,R404	R-METAL	18K-F 1/8W
R701,R702	R-CARBON	5.6K 2W
RY71,RY74	RELAY-MINIATURE	JQ1a-12V
RY72,RY73	RELAY-MINIATURE	CS11-12SH
F101	FUSE	FST,250V,2A
F701	FUSE	FST,250V,3.15A
-	FUSE HOLDER	FH-51H 7.5A
-	HEAT SINK	A6063,L30LW23.5
CR71	COIL	L4460
VA71	VARISTOR	470V,4500A
CN73	CONNECTOR HEADER	YW396-05AV-WHT
CN71	CONNECTOR HEADER	YW396-03AV-BLK
CN74	CONNECTOR HEADER	YW396-03AV-BLU
CN41	CONNECTOR HEADER	SMW250-04-WHT
CN11	CONNECTOR HEADER	SMW250-03-RED
CN72	CONNECTOR HEADER	YDW236-01-WHT
GT1,GT2	GT PIN	GTP
TB1,TB2	TERMINAL	1P,TAB
K1	SWITCH	TACT
DISPLAY	7-SEG	2-DIGIT
DS71	DISCHARGER	MP-332MA

■ Outdoor Part List (PCB CODE : PD-DH3200-S0, Duct)

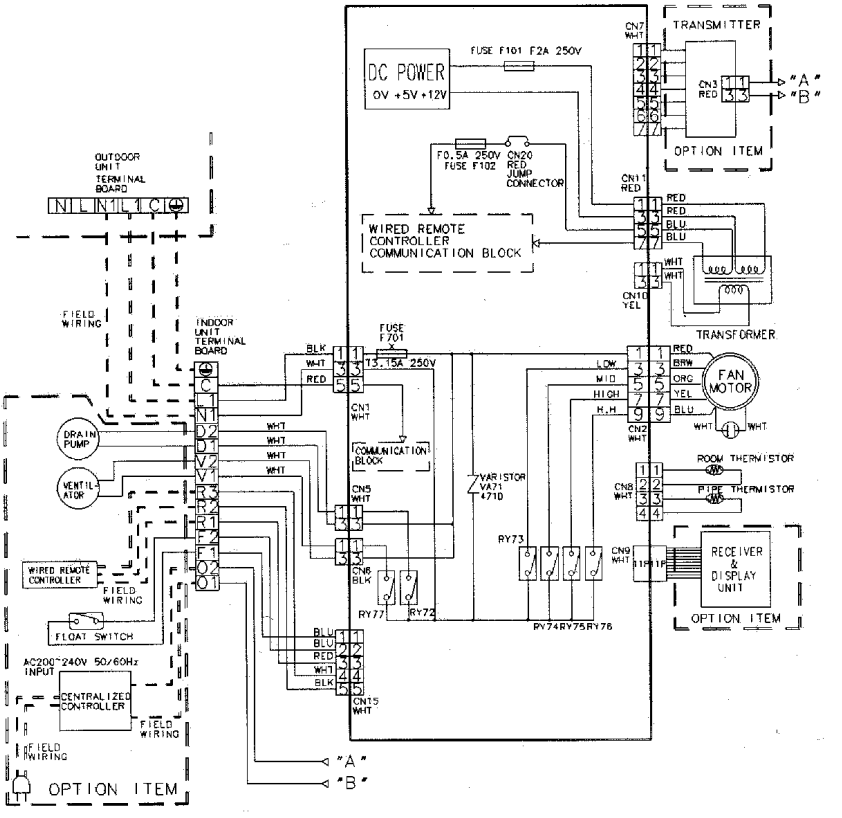
Mark	Parts Name	Specification
J01-J03,J05-J10,OPJ	JUMP WIRE	PI 0.6 SN T 52MM
IC4	IC-MCU	KS88C46
IC05-IC07	IC-LINEAR	KA2657
PC31,PC32, IC51~IC53	PHOTO-COUPLER	PC817
IC03	IC-RESET	KA7533
IC02	IC-VOLTAGE-REG	KA7805
IC01	IC-VOLTAGE-REG	KA7812
X501	CERAMIC-RESONATOR	10MHz
D101-D108,D701	DIODE-RECTIFIER	1N4007
ZD71	DIODE-ZENER	ZD30
Q301,Q302	TR-DIGITAL	KSR1002
Q901,Q902	TR-DIGITAL	KSR2002
Q201	TR-SIGNAL	C945Y
LED1	LED-LAMP	RED
C701	C-FILM	DISK,4.7NF
C702,C703	C-X2	X-CAP,100NF(X2)
C502,C902,C201,C501,C104	C-CERAMIC	AXIAL,100NF(104)
C401-C403,C901,C202,C303	-	-
C506,C203,C404,C405,C102,C503~C505	-	-
C302	C-CERAMIC	AXIAL,1NF(102)
C101	C-AL	1000uF/35V
C103	C-AL	2200uF/25V
C105	C-AL	470uF/25V
R201,R901,R514,R513,R407	R-CARBON	10K-J 1/8W
R409	-	-
R405,R203,R204,R206,R205,R411	R-CARBON	1K-J 1/8W
R410,R405,R408,R409	-	-
R411,R410,R406	R-CARBON	3.9K-J 1/8W
R703	R-CARBON	4.7K-J 1/4W
R301	R-CARBON	620-J 1/8W
R302	R-CARBON	470 1/4W
R902-R909	R-CARBON	470 1/2W
R303	R-CARBON	12K-J 1/8W
R501~R503	R-CARBON	27K-J 1/8W
R202	R-CARBON	3.3K-J 1/8W
R401,R402,R504~R506	R-CARBON	330-J 1/8W
R403,R404	R-METAL	18K-F 1/8W
R701,R702	R-CARBON	5.6K 2W
RY71,RY74	RELAY-MINIATURE	JQ1a-12V
RY72,RY73	RELAY-MANIATURE	CS11-12SH
CN76	CONNECTOR HEADER	YW396-05AV-YEL
F101	FUSE	FST,250V,2A
F701	FUSE	FST,250V,3.15A
-	FUSE HOLDER	FH-51H 7.5A
-	HEAT SINK	A6063,L30LW23.5
CR71	COIL	L4460
VA71	VARISTOR	470V,4500A
CN73	CONNECTOR HEADER	YW396-05AV-WHT
CN71	CONNECTOR HEADER	YW396-03AV-BLK
CN74	CONNECTOR HEADER	YW396-03AV-BLU
CN41	CONNECTOR HEADER	SMW250-04-WHT
CN11	CONNECTOR HEADER	SMW250-03-RED
CN72	CONNECTOR HEADER	YDW236-01-WHT
RY72,RY73	RELAY-MANIATURE	CS11-12SH
GT1,GT2	GT PIN	GTP
TB1,TB2	TERMINAL	1P,TAB
K1	SWITCH	TACT
DISPLAY	7-SEG	2-DIGIT
DS71	DISCHARGER	MP-332MA

MEMO

10. Wiring Diagrams

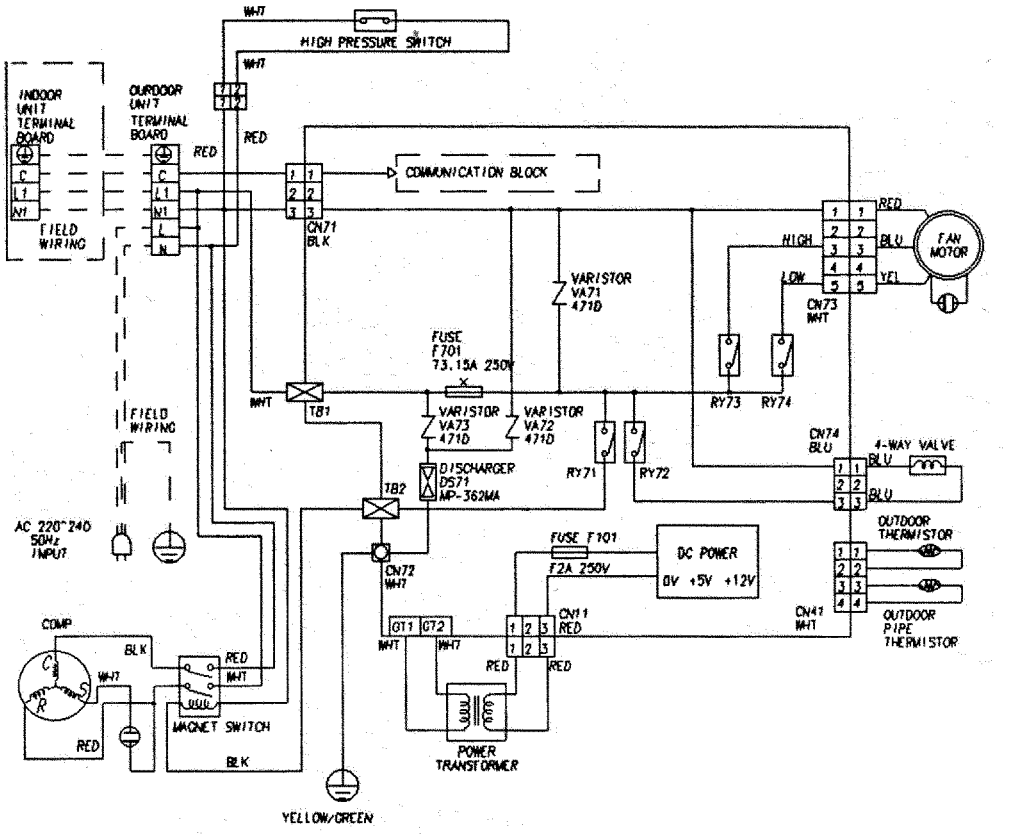
10-1 Indoor Unit

DUCT TYPE AIRCONDTIONER



CODE NO : DB68-00865A

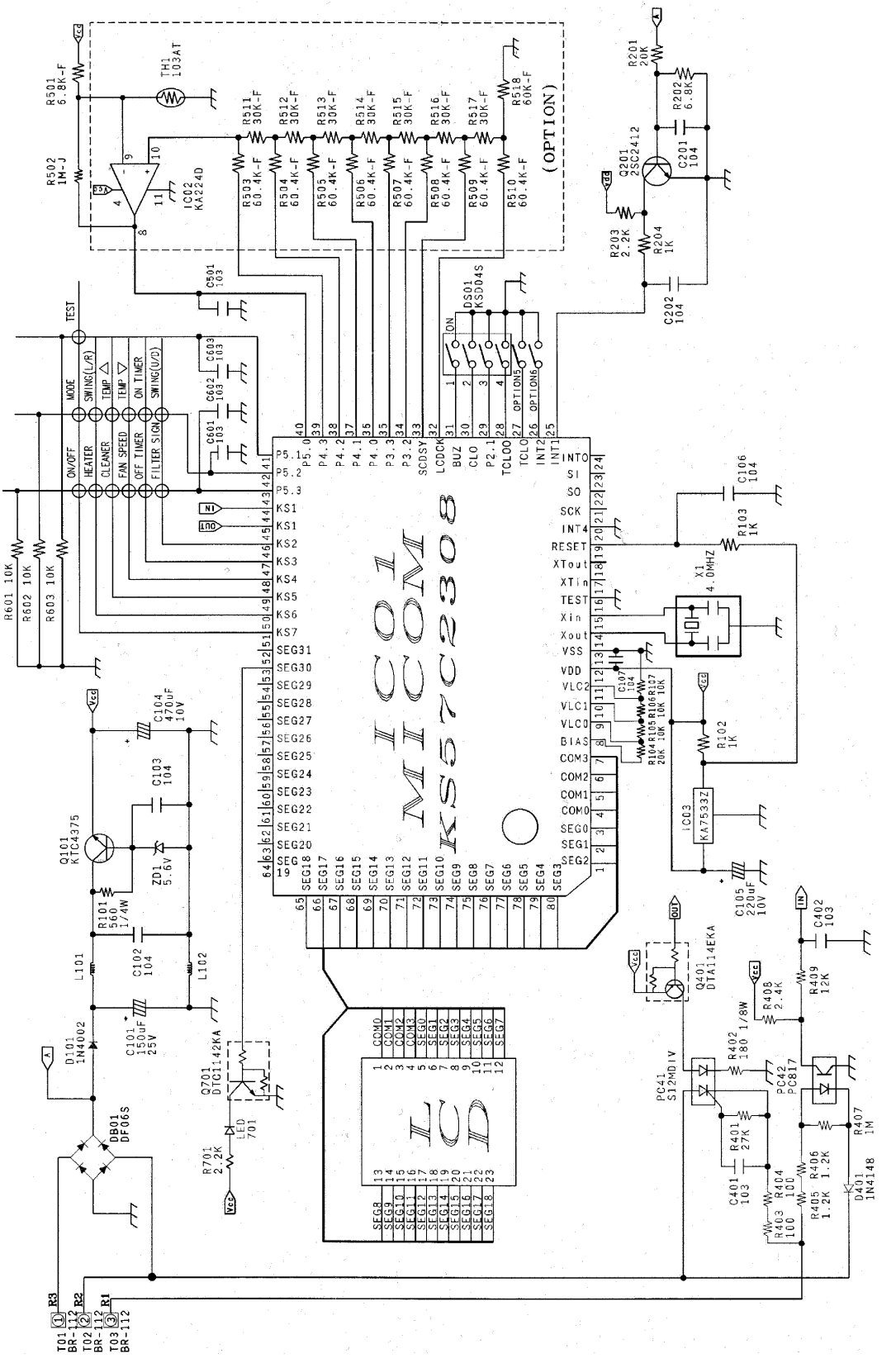
BUILT-IN AIRCONDITIONER



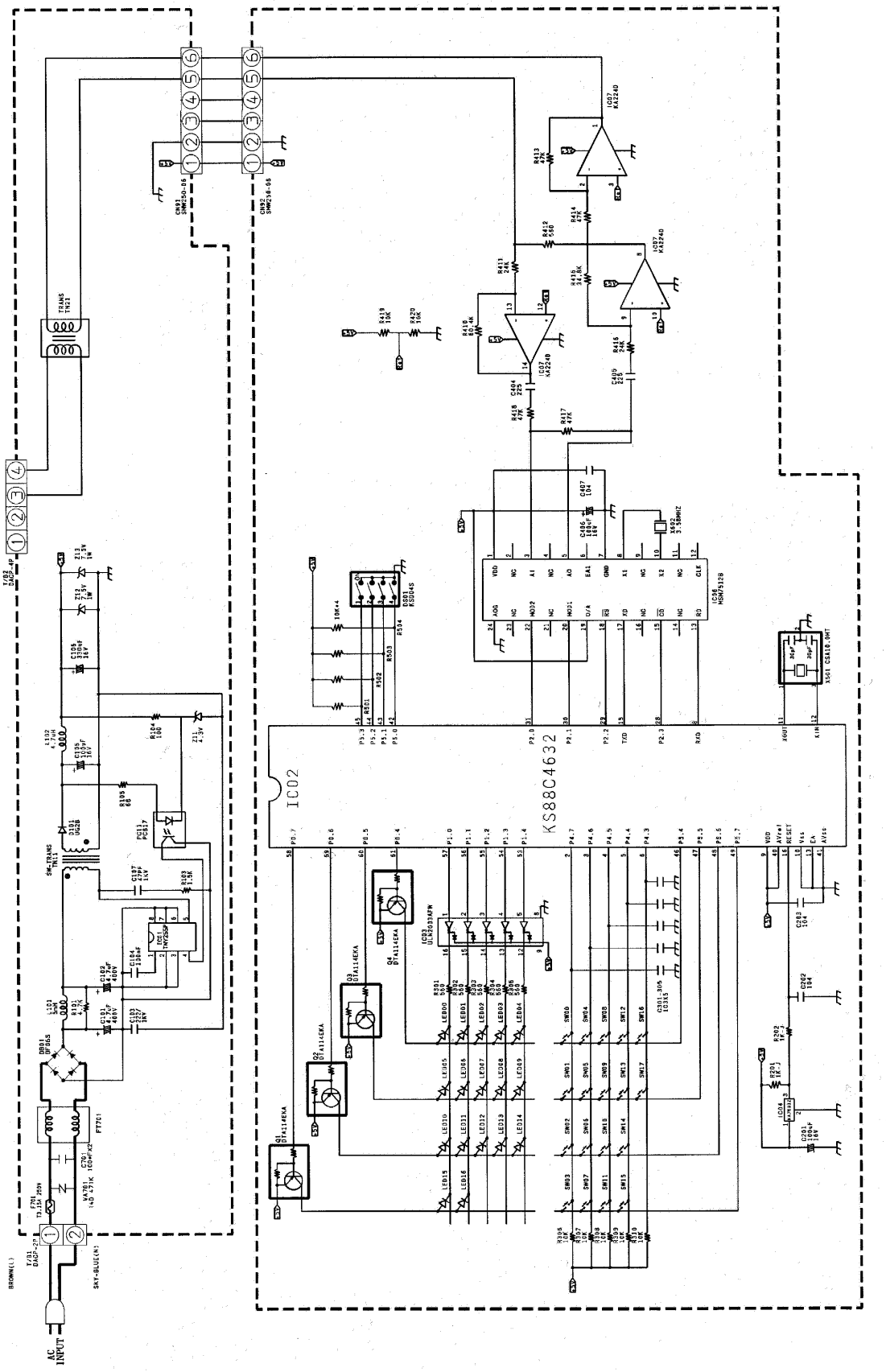
CODE NO : DB68-00866A

11. Schematic Diagrams

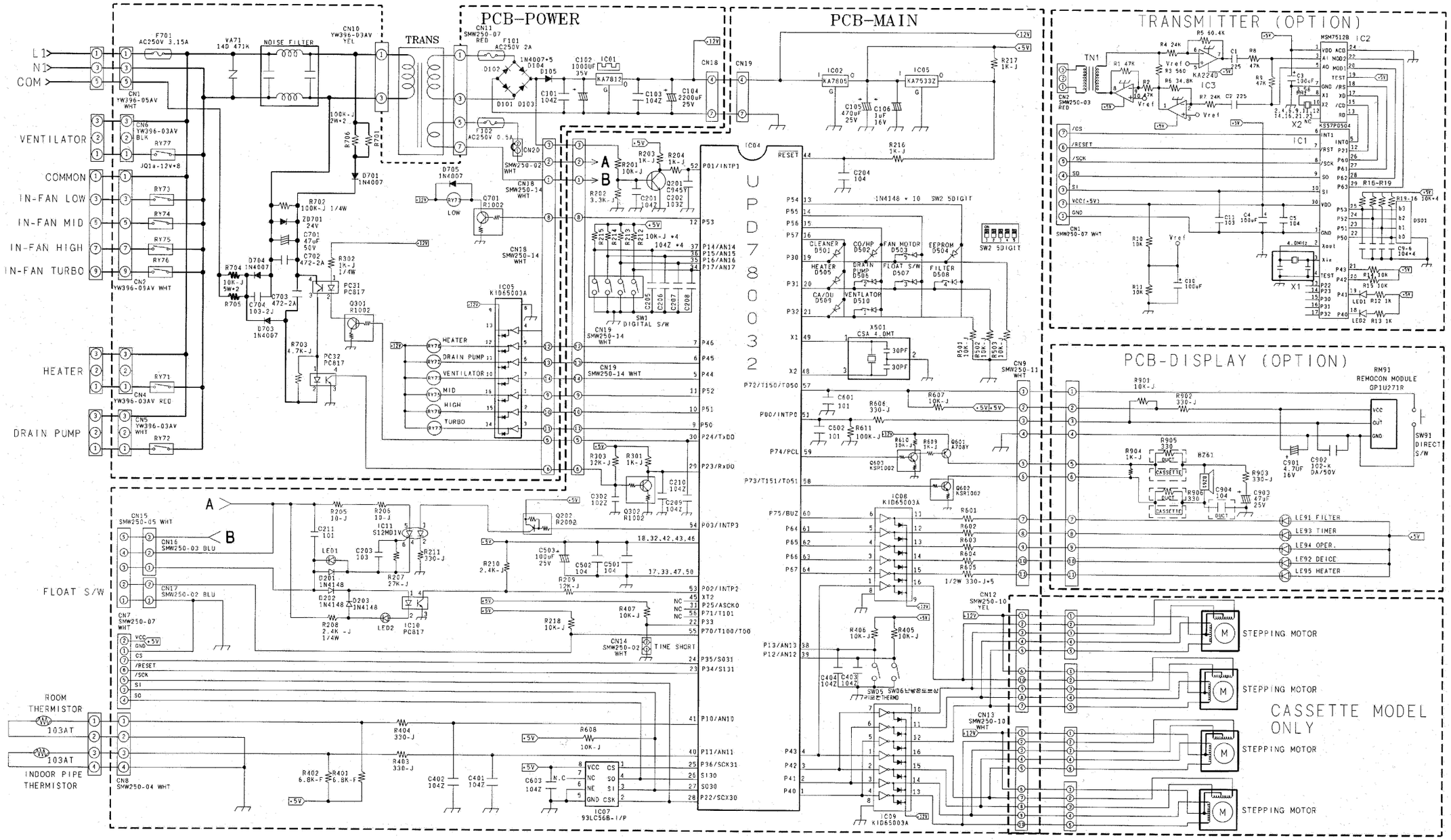
11-1 Wired Remote Controller



11-2. Centralized Controller

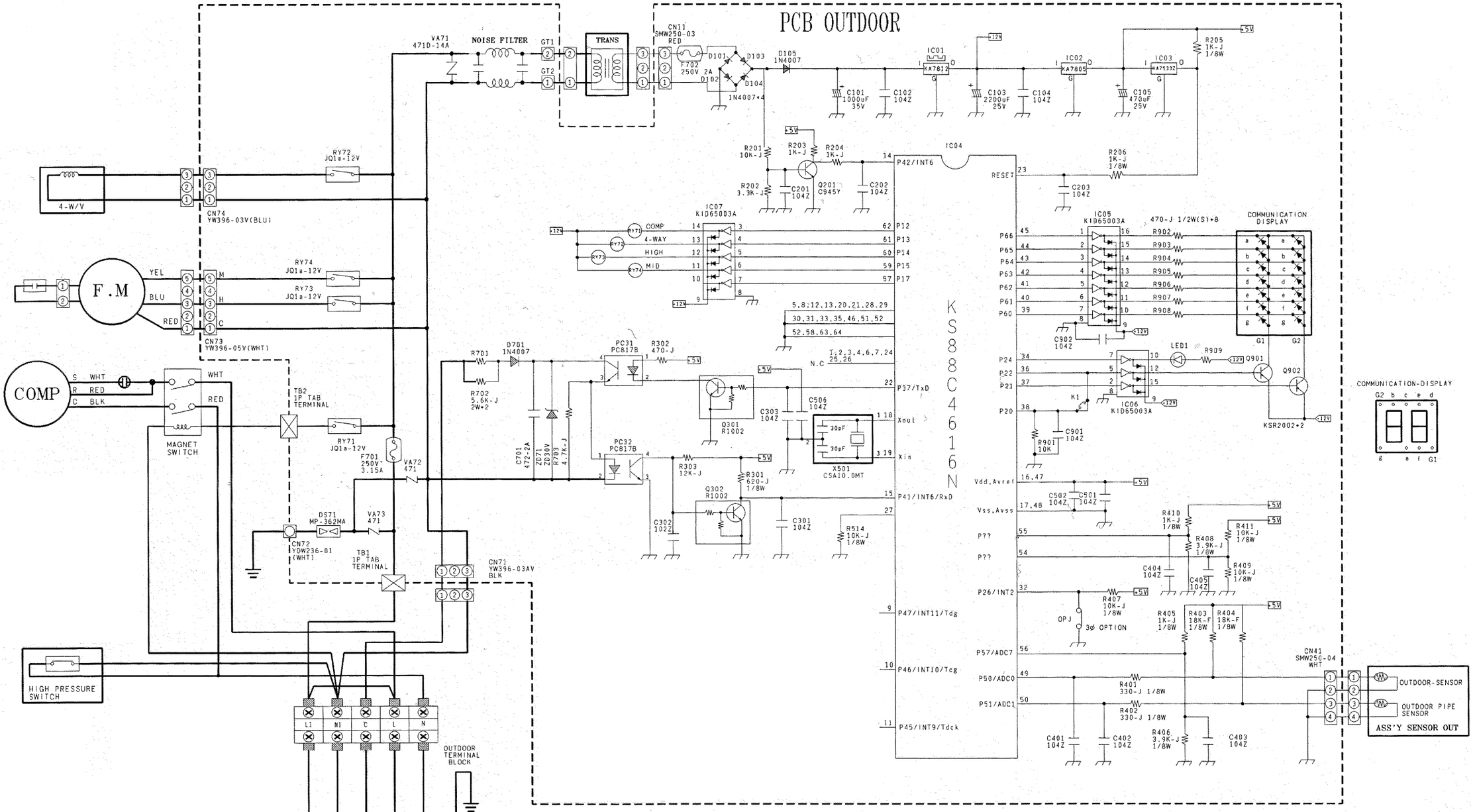


11-3. Indoor Unit (ADH1800E, ADH2400E, ADH3200E)



	OPTION SW2	SW ON	SW OFF
1	VENTILATOR	×	○
2	DRAIN PUMP	○	×
3	FLOAT SW	○	×
4	FILTER	2000HR	1000HR
5	FAN MOTOR RPM	L/M/H	M/H/T

11-4. Outdoor Unit (ADH1800E, ADH2400E, ADH3200E)



NO	MODEL	R405	R406	R408	R409	R410	R411
1	AXH1800X	1K	3.9K	3.9K	3.9K	1K	1K
2	AXH2400X	1K	3.9K	3.9K	3.9K	1K	1K
3	AXH3200X	1K	3.9K	1K	1K	3.9K	3.9K

UPDATE LOG SHEET				
Application date	**Page**	**Part#**	**Note(Cause & Solution)**	**S/Bulletin#**

Use this page to keep any special servicing information.(Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service bulletin

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