LG

Inverter

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Room Air Conditioner

SERVICE MANUAL

MODEL : LS-J0762YL(AC)
LS-L1262YL(AC)
LS-Q096BUL(DC)
LS-R126CUL(DC)
LS-L12632L(AC)

CAUTION

- BEFORE SERVICING THE UNIT, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
- ONLY FOR AUTHORIZED SERVICE PERSONNEL.

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Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (Thermistor)
- Pipe temperature sensor. (Thermistor)

Room temperature control

- Maintain the room temperature in accordance with the Setting Temp.

Starting the Current Control

- Indoor fan is delayed for 5 sec at the starting.

Time Delay Safety Control

- Restarting is for approx. 2 minutes.

Indoor Fan Speed Control

- Super High, High, Med, Low

Operation indication Lamps (LED)

 --- Lights up in operation

 --- Lights up in Sleep Mode

 --- Lights up in Timer Mode

 --- Lights up in Preheat Mode (for Heating Model)

PLASMA --- Lights up in Plasma Air Clean Mode

Soft Dry Operation Mode

- Intermittent Operation of fan at low speed or off.

Sleep Mode Auto Control

- The fan is switched to low(Cooling), low(Heating) speed.
- The unit will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.

Natural Air Control by CHAOS Logic

- The fan is switched to intermittent or irregular operation
- The fan speed is automatically switched from high to low speed.

Airflow Direction Control

- The louver can be set at the desired position or swing up and down automatically.

PLASMA

- The function will be operated while in any operation mode with selecting the function.
- The function is to be stopped while it is operating with selecting the function.

Defrost(Deice) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.

Hot-start Control (Heating)

- The indoor fan stops until the evaporator pipe temperature will be reached at 34°C.

Outdoor Unit

Power relay control

- If power is on, it will operate to chage capacitor on controller and power relay will operate after about 2~5sec.

Stand by control at low temp.

- If outdoor temp. is below 0°C, preheater is operating for 1~5min.
- At the initial, It will be operated compressor after 1min. for preheating.

Active power filter control(PSC)

- The active power filter is designed to correct power factor(cos θ) and to regulate DC link voltage.
- It will be operated PFC circuit when the compressor freq. is over 30Hz and wattage is over 450 watt.

Comp. Freq. control

- The final operating freq. of comp. is set the lowest freq. that limited outdoor temp., discharge pipe temp., heat-sink temp., target freq., owing to CT.

Overheatng. Protection(Power module)

- When the temp. of power module increases to 85°C, controller decreases Freq. of Comp.

Freq. speed control(up/down speed)

- It will be changed the drive freq. of comp. according to temp. of indoor and outdoor.

V/F control

- It will be changed the drive voltage of comp. according to operating frequency.

Total current control (over current protection)

DC peak current control

4 way valve control

- It is only operated in the heating operation mode except defrosting operation.

Outdoor fan motor control

- High speed
  - Although fan motor speed is middle, it will change high speed in case of below AC193V, over 45°C of outdoor temp., and over fc, fh of comp. Freq.
- Middle speed
  - Nomal mode
- Low speed
  - Although fan motor speed is middle, it will change Low speed in case of over AC 270V, over 21°C (Heating Mode) of outdoor temp. below 24°C (Cooling Mode) of outdoor temp.

Discharge pipe temp. control

Remote Control

Operation ON/OFF

Operation Mode Selection

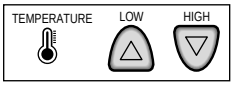
Cooling Operation Mode.(❄) Auto Operation Mode.(▲)
Healthy Dehumidification Operation Mode.(♢) Heating Operation Mode.(☼)

Fan Speed Selection

Room, Temperature Display

: (High:39°C ◄——► Low:11°C)

Temperature Setting



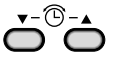
Cooling — Down to 18°C / Up to 30°C

Heating — Down to 16°C / Up to 30°C

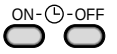
JET COOL

PLASMA(Optional)

Setting the Time or Timer



Timer Selection



: OFF, ON, OFF ◄——► ON

Timer Setting

Timer Cancel

: Cancel Sleep Mode, Timer ON or Timer OFF

Sleep Operation

: 1, 2, 3, 4, 5, 6, 7, Off Timer

Airflow Direction Control

Power Save Cooling Button

: Used to set Preheat mode.

Horizontal Airflow Direction Control Button(Optional)

Reset

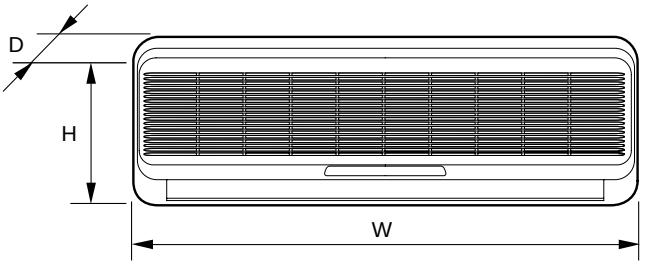
Product Specifications (Cooling & Heating)

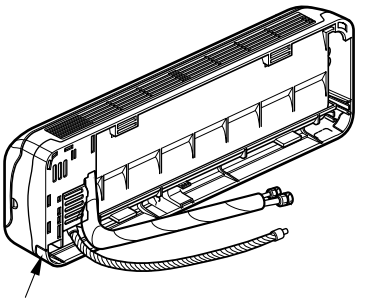
Item \ Model Name		Unit	7K Series(AC)	12K Series(AC)	9K Series(DC)	12K Series(DC)
			at 230V			
Cooling Capacity		Btu/h	7,000(4,700-8,300)	12,000(6,500-13,200)	9,000(3,700-9,700)	12,000(3,750-13,700)
Heating Capacity			9,000(5,000-10,000)	14,400(6,500-15,900)	11,250(1,750-12,500)	14,400(2,450-15,900)
Moisture Removal		l/h	1			
Power Source		Ø, V, Hz	1Ø, 220-240V, 50Hz			
Air Circulation	Indoor	m^3/min	5.6	9	7.2	9
	Outdoor		25	31	31	31
Noise Level	Indoor	dB (A)±3	33	36	36	39
	Outdoor		48	49	49	49
Input	Cooling	W	770	1,330	879	1,050
	Heating		920	1,580	1,125	1,440
Running Current	Cooling	A	3.5	5.9	4	4.5
	Heating		4.1	7	5	6.5
Motor Output	Indoor	W	7.5	8.7	8.4	14.4
	Outdoor		35.8	29	29	29
Dimensions (W x H x D)	Indoor	mm	802*262*165	888*287*170	824*260*165	900*285*156
	Outdoor		575*525*260	770*540*245	770*540*245	770*540*245
Net. Weight	Indoor	kg	7	9.5	7	9.5
	Outdoor		27	38	34	38
Refrigerant (R22)		g	580(R22)	950(R22)	620(R410A)	950(R410A)
Airflow Direction Control (Up & Down)			Up & Down	Up & Down	Up & Down	Up & Down, Right & Left
Remocon Type			L.C.D Wireless			
Service Valve	Liquid	inch(mm)	1/4(6.35)			
	Gas		3/8(9.52)	1/2(12.7)	3/8(9.52)	3/8(9.52)
Sleeping Operation			O			
Drain Hose			O			
Connecting Cable		mm^2	1	1.5	1	1.5
Power Cord		mm^2	1	1.5	1	1.5

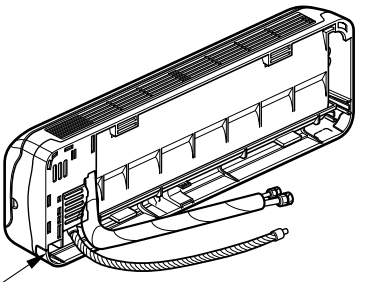
Dimensions

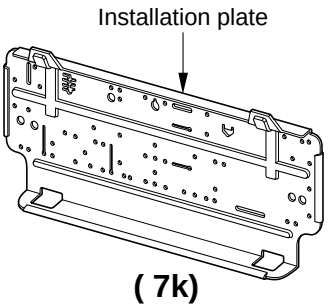
(1) Indoor Unit

(7k, 12k)









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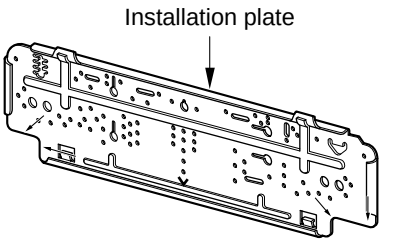

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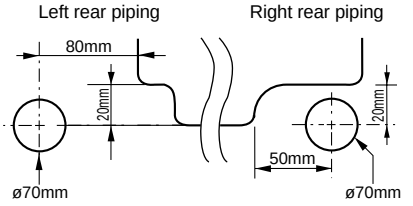

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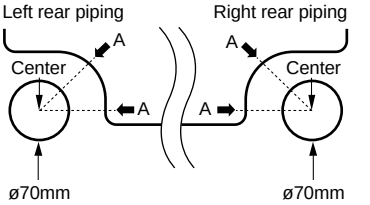
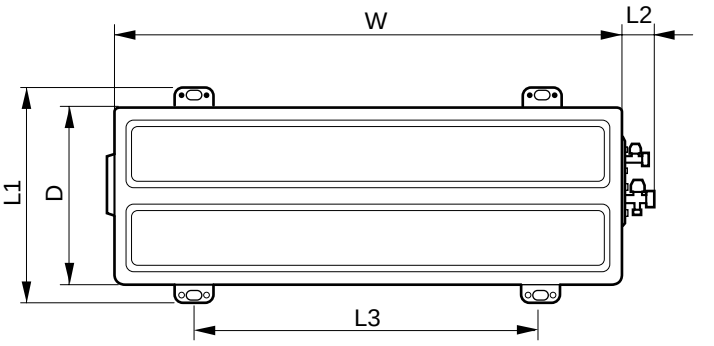
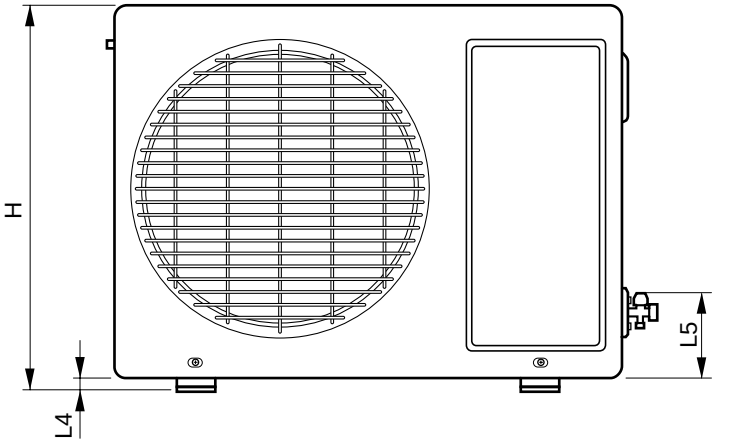


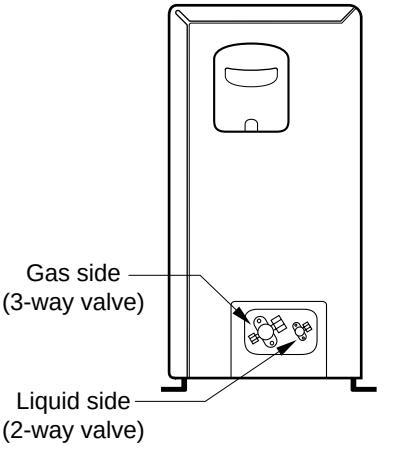
(12k)

DIM / MODEL Unit		7k Btu Series(AC)	12k Btu Series(AC)	9k Btu Series(DC)	12k Btu Series(DC)
W	mm	820	888	824	900
H	mm	262	287	260	285
D	mm	165	170	165	156

(2) Outdoor Unit

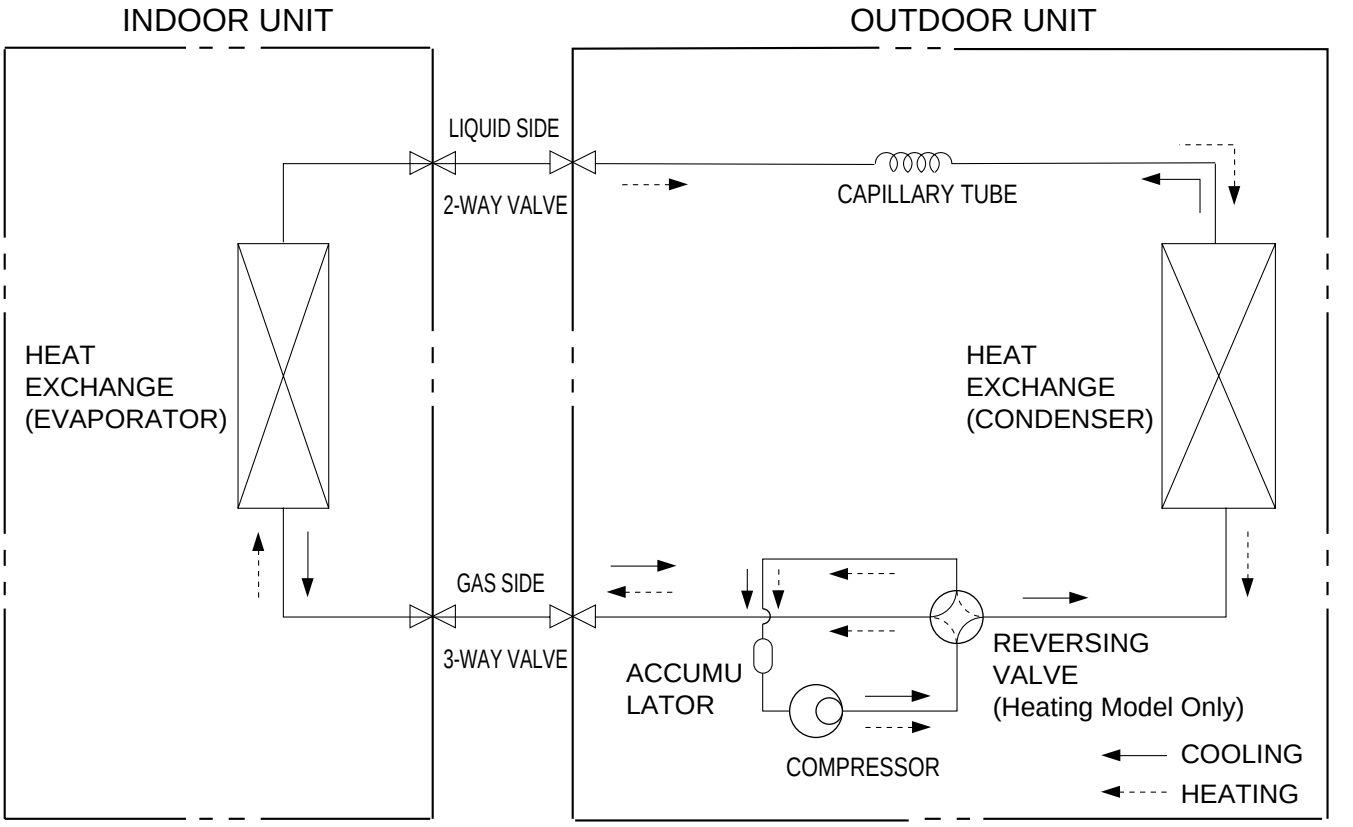






DIM	MODEL / unit	7K Btu Series(AC)	12K Btu Series(AC)	9K Btu Series(DC)	12K Btu Series(DC)
W	mm	564	770	770	770
H	mm	525	540	540	540
D	mm	265	245	245	245
L1	mm	294	287	287	287
L2	mm	66	64	64	64
L3	mm	374	518	518	518
L4	mm	17	10	10	10
L5	mm	270	100	100	100

Refrigeration Cycle Diagram

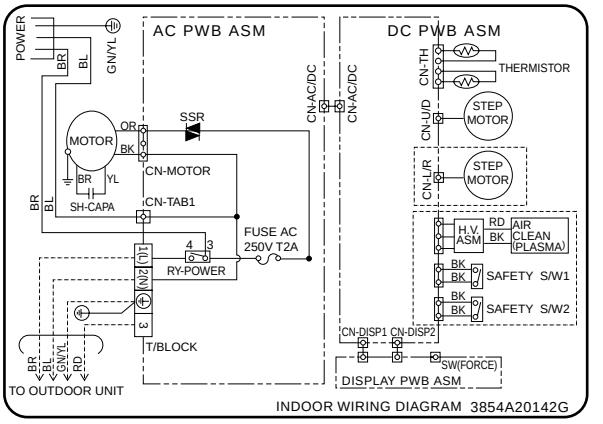


MODEL	Pipe size(Diameter:Ø)		MAX. Piping length (m)	Max Elevation (m)
	Gas(inch)	Liquid(inch)		
7k Btu Series(AC)	3/8"	1/4"	15	7
12k Btu Series(AC)	1/2"	1/4"	15	7
9k Btu Series(AC)	3/8"	1/4"	15	7
12k Btu Series(AC)	3/8"	1/4"	15	7

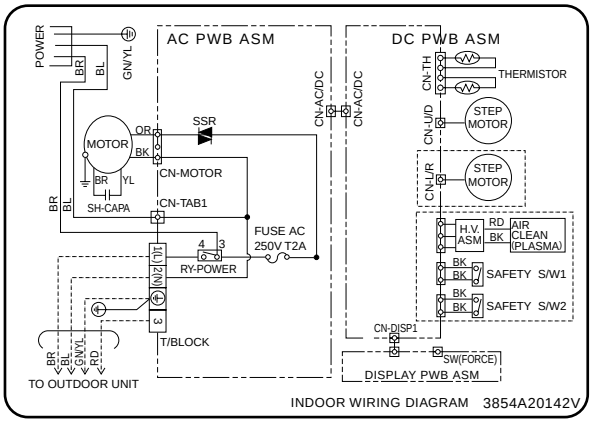
Wiring Diagram

(1) Indoor Unit

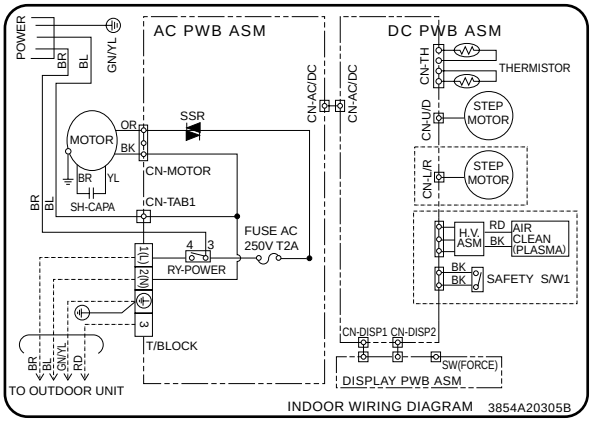
Model: LS-_YL/UL Series



Model: LS-_NM/NN Series

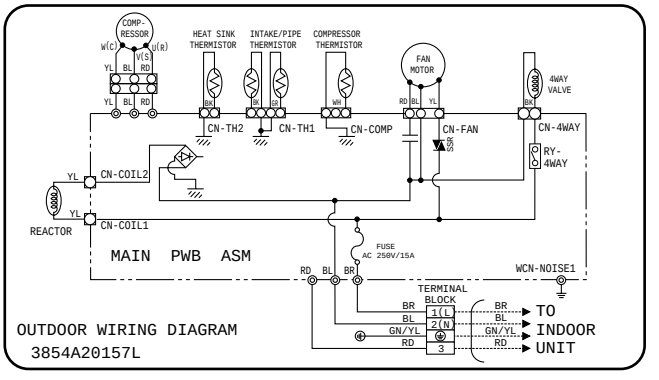


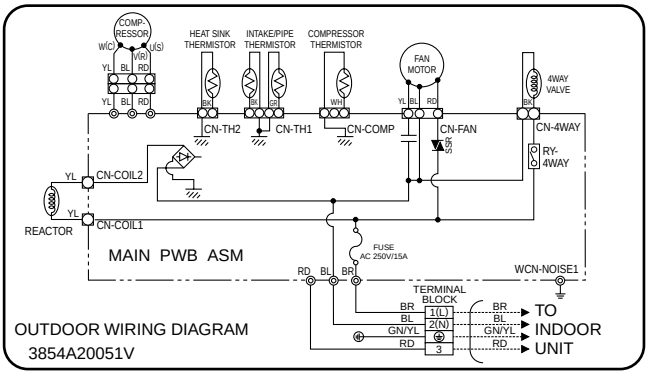
Model: LS-L12632L



(2) Outdoor Unit

Model: LS-L12632L





Operation Details

1. LED display of indoor unit

■ LS-_YL/UL Series

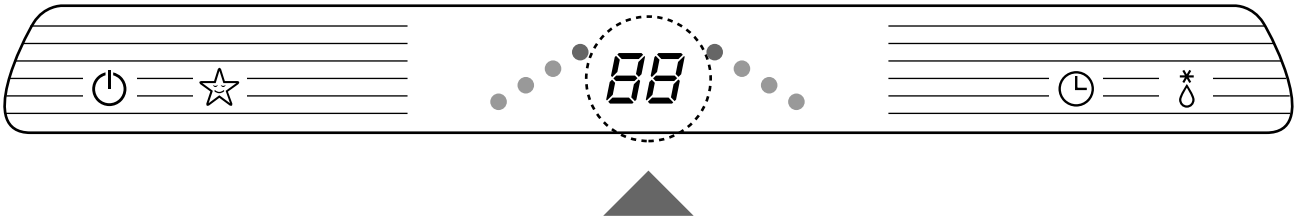
Operation Indicator
- On while in appliance operation, off while in appliance pause.
- Blinking(3sec off/0.5sec on) according to Error Code as long as the system malfunctions.

Sleep Timer Indicator
- On while in sleep timer mode, off when sleep timer cancel or appliance operation pause.

Timer Indicator
- On while in timer mode(on/off), off when timer mode is completed or canceled.

Preheat Indicator
- Off except when hot start during heating mode operation or while in defrost control.

Setting Temp.
- Cooling/heating/dehumidification mode : setting temperature from remote control
- Fuzzy operation mode : fuzzy key data(5sec on) ➔ AI



Operation indicator	Cooling heating dehumidification	A.I operation mode						Jet (Cool, Heat)	Energy save in cooling mode	Test operation
		Standard	Too hot	Hot	Comfortable	Cold	Too cold			
Shape of display	Setting temp.	A1	-2	-1	0	1	2	Po	Eo	Lo

■ LS-_NM/NN Series

Operation Indicator
- On while in appliance operation, off while in appliance pause.
- Flashing while in disconnection or short in Thermistor. (3 sec off/0.5 sec on)

Power Saving Indicator
- On while in power saving cold mode, off when power saving cold cancel.

Timer Indicator
- On while in timer mode(on/off) and sleep timer mode (on), off when timer mode is completed or canceled.

Preheat Indicator
- Off except when hot start during heating mode operation or while in defrost control.

■ How to operate the power display (LS-_YL/UL Series)

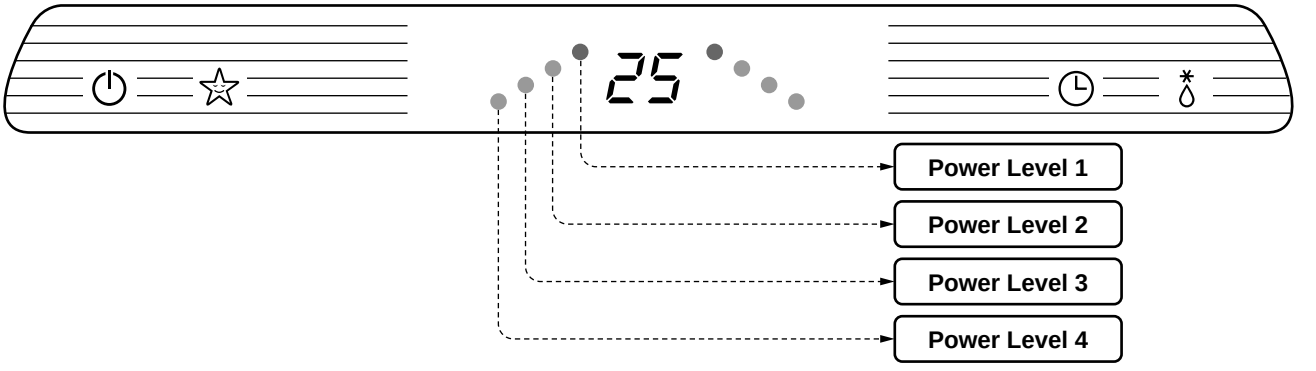
- It must be displayed the power level that will be operating frequency of compressor.
- It indicates power levels that compressor operating frequency is controlled to depend on indoor and outdoor conditions.
- It is displayed as below.

❒ Heat mode operation

- Power level 1: below Step 2 of COMP. operating frequency
- Power level 2: below Step 4 of COMP. operating frequency
- Power level 3: Equal Step 5 of COMP. operating frequency
- Power level 4: below Step 7 of COMP. operating frequency

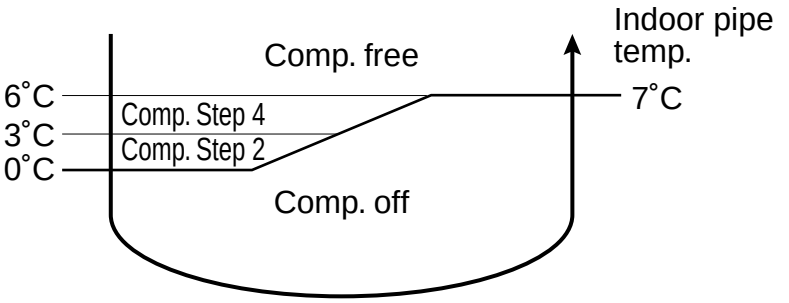
❒ Operation mode except heat mode operation

- Power level 1: below Step 2 of COMP. operating frequency
- Power level 2: below Step 4 of COMP. operating frequency
- Power level 3: Equal Step 5 of COMP. operating frequency
- Power level 4: below Step 7 of COMP. operating frequency



2. Protection of the evaporator pipe from frosting

- If the indoor pipe temperaure is below 0°C in 7 min. after the compressor operates without pause while in cooling cycle operation mode,
  ➔ compressor, outdoor fan are turned off.
- When indoor pipe temp. is 7°C or higher after 2 min pause of compressor
  ➔ compressor, outdoor fan is turned on according to the condition of the room temperature.



3. Protection of the indoor fan from droplet formation (Enclosure sweat and condensed disposal test)

- **Control condition :** The system operates standard operation without this condition as follows.
  ① Setting temperature <25°C
  ② Indoor fan speed ≤ low speed
  ③ Outdoor temperature < 30°C

- **Control method**
  In operation for 5~20 minutes in ①, ②, ③ conditions, return to the previous COMP STEP after operation for 5~40 minutes at the COMP STEP 3.

4. Cooling mode operation

- Operating frequency of compressor depend on the difference of the temperature.
  (= intake air Temp.- Compressor off Temp.
- Compressor off temp.= setting temp. –0.5°C
  on temp. = setting temp. +0.5°C
- If compressor operates at some operating frequency, the operating frequency of compressor cannot be changed within 30 seconds.

- Condition of compressor turned off
  - When intake air temperature stay at the temperature between setting temp. –0.5°C and setting temp. –1.0°C for 3 minutes continuously.
  - When intake air temperature reaches below the temperature of setting temp. –1.0°C.

- Compressor 2 minutes delay
  - The compressor can restart minimum 2 minutes later after compressor off.

[The operating freq. step of comp.]

Temp. differences	Comp. Operating frequency
over 3.0°C	Step 7
over 2.5°C	Step 6
2.0~2.49°C	Step 5
1.5~1.99°C	Step 4
1.0~1.49°C	Step 3
0.5~0.99°C	Step 2
0.0~0.49°C	Step 1

[The targeting operating freq. of comp. each model]

Model	Comp. Operating frequency						
	Step 1	Step 2	Step 3	Step 4	Step 5(Fr)	Step 6	Step 7
7K Series(AC)	35	41	45	56	64	68	78
12K Series(AC)	30	40	45	55	61	67	72
9K Series(DC)	15	22	32	40	51	54	58
12K Series(DC)	15	28	40	53	66	71	76

5. Healthy Dehumidification mode operation

• When the dehumidification operation is set by the remote controller the intake air temperature is detected and the setting temp. is automatically set according to the intake air temperature.

Intake air Temp.	Setting Temp.
32°C ≤ intake air temp.	25°C
26°C ≤ intake air temp. < 32°C	25°C
24°C ≤ intake air temp.< 26°C	intake air temp. -1°C
18°C < intake air temp. < 24°C	intake air temp. -0.5°C
intake air temp. ≤ 18°C	18°C

• When intake air temp reaches above the temp of setting +1.0°C, condition of compressor same as cooling mode operation.
• When intake air temperature reaches bolow the temp of setting –1.0°C, compressor operate step1~step3 and indoor fan speed repeatly operate low or stop.

6. Heating mode operation

- Operating frequency of compressor depend on the difference of the temperature (= compressor off temp. - intake air temp.)
- Compressor off temp. = setting temp.+3.0°C
  on temp. = setting temp.
- If compressor operates at some operation frequency, the operating frequency of compressor cannot be changed within 30 seconds.
- Condition of compressor turned off
  - When intake air temperature reaches +3°C above the setting temperature.
- Condition of indoor fan turned off
  - While in compressor on:indoor pipe temp. < 30°C
- While in defrost control, between the indoor and outdoor fans are turned off.
- Compressor 2minutes delay
  - After compressor off, the compressor can restart minimum 2 minutes later.

[The operating freq. step of comp]

Temp. differences	Comp. Operating frequency
over 3.0°C	Step 7
2.5~3.0°C	Step 6
2.0~2.49°C	Step 5
1.5~1.99°C	Step 4
1.0~1.49°C	Step 3
0.5~0.99°C	Step 2
0.0~0.49°C	Step 1

[The targeting operating freq. of comp. each model]

Model	Comp. Operating frequency						
	Step 1	Step 2	Step 3	Step 4	Step 5(Fr)	Step 6	Step 7
7K Series(AC)	35	48	56	68	80	85	90
12K Series(AC)	35	43	55	65	74	80	86
9K Series(DC)	15	25	40	52	63	66	70
12K Series(DC)	15	28	40	53	66	71	76

7. Fuzzy mode operation

- When any of operation mode is not selected like the moment of the power on or when the unit turned off, the operation mode is selected.
- When determining the operation mode, the compressor, outdoor fan are off and only the indoor fan is operated for 15~20 seconds, then an operation mode is selected according to.

Basis of determining operating mode

Outdoor temp.	Operating Mode
over 24°C	Cooling
21~24°C	Healthy Dehumidification
18~21°C	intake air temp. ≥ 25°C …Dehumidification intake air temp. < 25°C … Heating
below 18°C	Heating

7.1 Fuzzy operation for cooling

- According to the setting temperature selected by Fuzzy rule, the operating frequency of compressor is determined like cooling mode operation.
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temperature at that time.
- When the Fuzzy key(=setting temp. key) is input after the initial setting temperature is selected, the Fuzzy key value and intake air temperature at that time are compared to select the setting temperature automatically according to the fuzzy rule.
- While in Fuzzy operation, the air flow speed of the indoor fan is automatically operated by Fuzzy logic.

	Intake air temp.	Setting temp.	Fan speed
at beginning	over 26°C	25°C	Fuzzy airflow
	18~26°C	intake air temp. -0.5°C	
	below 18°C	18°C	
during opertion	18~30°C	Fuzzy rule	
	below 18°C	18°C Fuzzy rule	
	over 30°C	30°C Fuzzy rule	

7.2 Fuzzy operation for Heating

- According to the setting temperature selected by Fuzzy rule, the operating frequency of compressor is determined like heating mode operation.
- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temperature at that time.
- When the Fuzzy key(=setting temp. key) is input after the initial setting temperature is selected, the Fuzzy key value and intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically operated by Fuzzy logic.

	Intake Air temp.	**Setting temp.**	**Fan speed**
at beginning	over 20°C	intake air temp. +0.5°C	Fuzzy airflow
	below -20°C	20°C	
during opertion	16~30°C	Fuzzy rule	
	below 16°C	16°C Fuzzy rule	
	over 30°C	30°C Fuzzy rule	

7.3 Fuzzy operation for dehumidification

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temperature at that time.
- According to the setting temperature selected by Fuzzy rule, the operating frequency of compressor is determined like dehumidefication mode operation.

	Intake Air temp.	**Setting temp.**	**Fan speed**
at beginning	over 26°C	25°C	Fuzzy airflow
	18~26°C	intake air temp. -0.5°C	
	below 18°C	18°C	
during operation	18~30°C	Fuzzy rule	
	below 18°C	18°C Fuzzy rule	
	over 30°C	30°C Fuzzy rule	

8. Jet cool mode operation

- While in heating mode or Fuzzy operation, the Jet Cool key cannot be input. When it is input while in the other mode operation(cooling, dehumidification, ventilation), the Jet Cool mode is operated.
- In the Jet Cool mode, the indoor fan is operated super-high speed for 30 min. at cooling mode operation.
- In the Jet Cool mode, the room temperature is controlled to the setting temperature, 18°C.
- When the sleep timer mode input while the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vane is reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

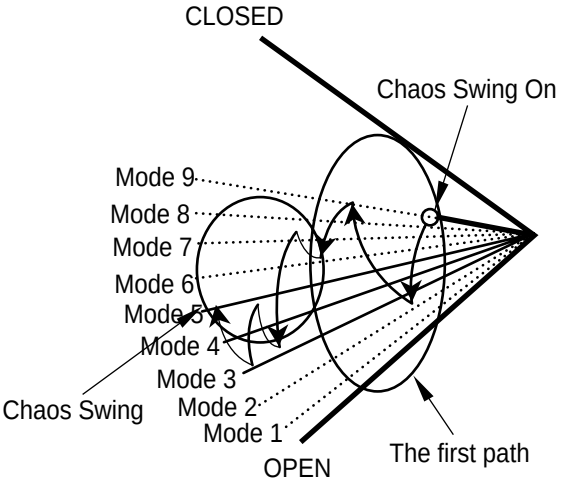
9. Jet heat mode operation

- While in cooling mode or Fuzzy operation, the Jet Heat key cannot be input. When it is input while in the Heating mode operation (dehumidification), the Jet Heat mode is operated.
- In the Jet Heat mode, the indoor fan is operated super-high speed for 60 min. at Heating mode operation.
- In the Jet Heat mode, the room temperature is controlled to the setting temperature, 30°C.
- When the sleep timer mode input while the Jet Heat mode operation, the Jet Heat mode has the priority.
- When the Jet Heat key is input, the upper/lower vane is reset to those of the initial Jet heating mode and then operated in order that the air outflow could reach under flow.

10. Swing mode

10.1 Chaos swing mode

- By the Chaos swing key input, the upper/lower vane automatically operates with the Chaos swing or it is fixed to the desired direction.

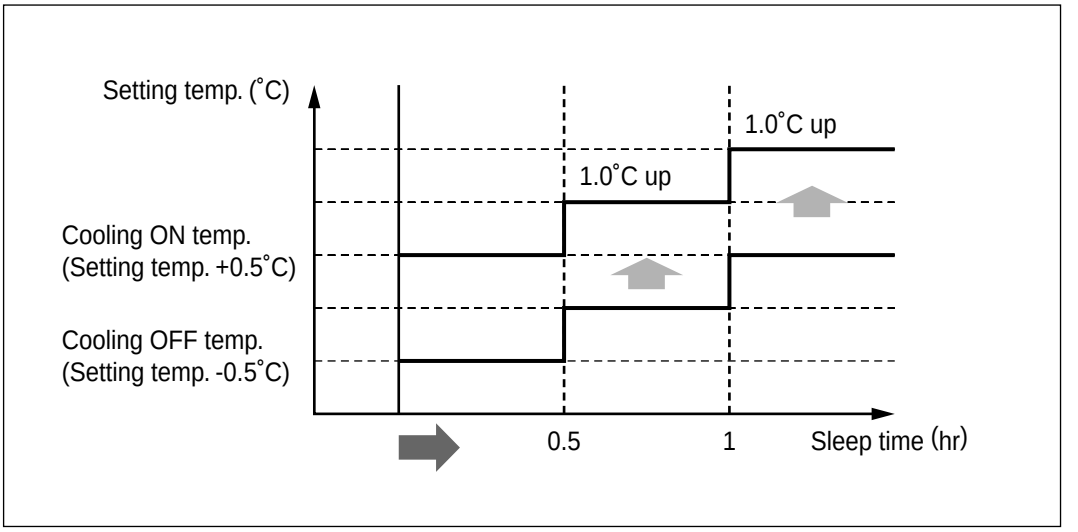


11. Sleep timer operation

- When the sleep time is reached after [1,2,3,4,5,6,7hr] is input by the remote control during the operation, the operation of the appliance stops.
- When the appliance is on pause, the sleep timer mode cannot be input.

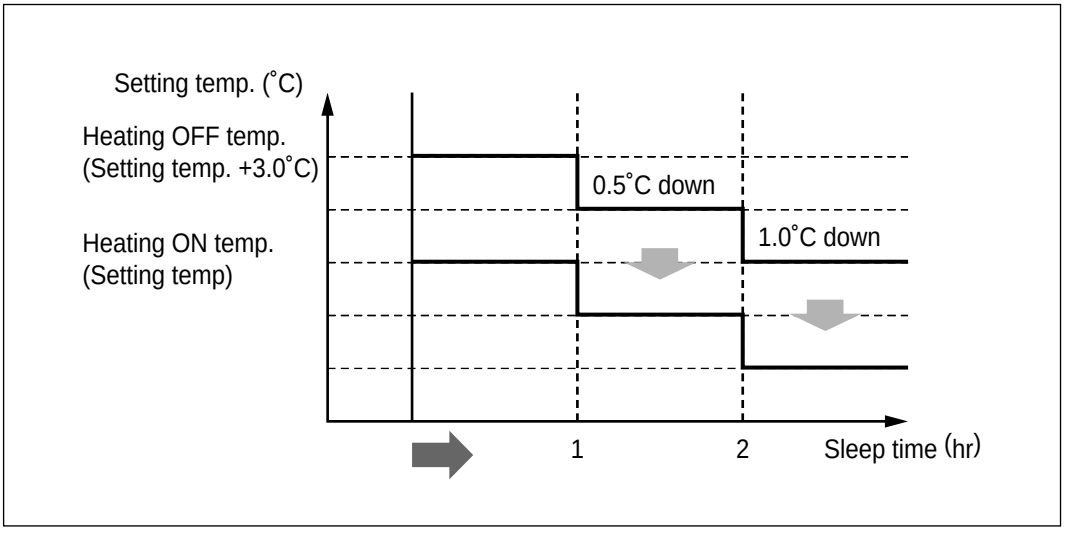
11.1 Sleep timer operation for cooling cycle

- While in cooling mode operation, 30 min. later since the start of the sleep timer, the setting temperature increase by 1°C. After another 30min. elapse, it increases by 1°C again.



11.2 Sleep timer operation for heating cycle

- While in heating mode operation, 60 min. later since the start of the sleep timer, the setting temperature decrease by 1°C. After another 60min. elapse, it decreases by 1°C again.



12. Auto restarting operation

- When the power is restarted after a sudden power failure while in appliance operation, the mode before the power failure is kept on the memory and the appliance automatically operates in the mode on the memory.
- Operation mode that is kept on the memory
  - State of operation ON/OFF
  - Operation mode/setting temp./selected airflow speed
  - Sleep timer mode/remaining time of sleep timer
  - Chaos Swing

13. Forced operation

- To operate the appliance by force in case that the remote control is lost, the forced operation selection switch is on the main unit of the appliance to operate the appliance in the standard conditions.
- The operation condition is set according to the outdoor temp. and intake air temperature as follows.

Outdoor temp.	Operating Mode	Setting temp.	Setting speed of indoor fan
over 24°C	Cooling	22°C	High speed
21~24°C	Healthy Dehumidification	23°C	
18~21°C	Intake air temp. ≥ 25°C ➔ Dehumidification	23°C	
	Intake air temp. < 25°C ➔ Heating	24°C	
below 18°C	Heating	24°C	

❋ The unit select before operating mode in 3 hours.

14. Trial Operation

- Press the Tact Switch for compulsory operation of the main body for 3 seconds in order to operate in the trial operation mode.
  - Operation mode: Cold
  - Indoor pan: Strong wind
  - COMP frequency: Step 5
  - COMP compulsorily operates for about 18 minutes irrespective of indoor temperature.

15. Power relay control

- Power relay turns on 1 second later after the power is input to the outdoor unit.
- Control sequence : power on ➔ PTC operating ➔ power relay on

16. Protection from total current control

■ CT1 control

- If the operating current reaches I1, the operating frequency of the compressor decrease.
- After decreasing the operating frequency by 1step, if operating current is below I1 for 60 seconds continuously, the operating frequency of compressor increase by 1step.

■ CT2 control

- If the operating current of the appliance reaches I2, the compressor stop instantly and 2 minutes later the compressor restart again.
- If CT2 occurs 5 times within 1hour, the appliance turn off and display ERROR CODE 7.

Control table

※ I1:Current of operating frequency down
I2: Current of compressor cut off

Condition \ Model		7K Btu Series(AC)		12K Btu Series(AC)		7K Btu Series(DC)		12K Btu Series(DC)	
Operating mode		Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
below 38°C (outdoor temp.)	I1	5A	6A	7.5A	5.5A	5.5A	7.5A	7.5A	9.5A
	I2	8.5A		12A		10A		12A	
over 38°C (outdoor temp.)	I1	5.5A	6.5A	8A	10A	6A	8A	8A	10A
	I2	8.5A		12A		10A		12A	

cf. I1 is set the lowest level between intial value and in case dectection of dc paeak current.

17. Protection from DC Peak Current

■ DC Peak Current Error by a fault signal of IPM

- If the operating current of IPM reaches 35A ±3A, the compressor stop instantly.
- If DC PEAK occurs 5 times within 1 hour, the appliance turns off and display ERROR CODE 6.

■ DC Peak Current Error by the compressor lock

- If the DC LINK voltage below DC 140V occurs 5 times within 1 hour while the compressor is operating, the appliance turns off and display ERROR CODE 6.

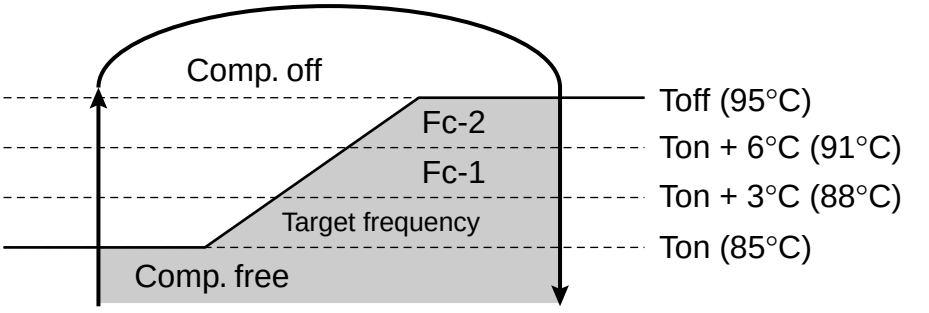
■ DC Peak Current Error by the Outdoor Fan Lock

- If it's 5 times within 1 hour in case of the temperature of outdoor pipe TH is over 65°C while the compressor is operating, the appliance turns off and display ERROR CODE 6.

18. Portection from overheating of power module

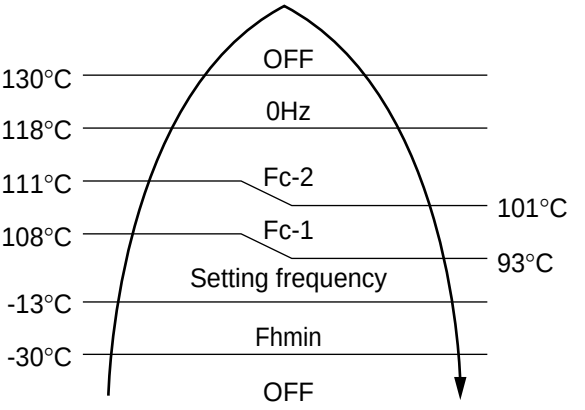
- If the temperature of the heat sink TH. reaches over Toff, the Compressor stop instantly.
- It will be limited the compressor operating frequency according to the heat sink TH.(refer to below FIG.)
- It will be blink 4 times, when the thermistor is open or short, also the temperature is over Toff.

[The control graph from heat–sink TH]



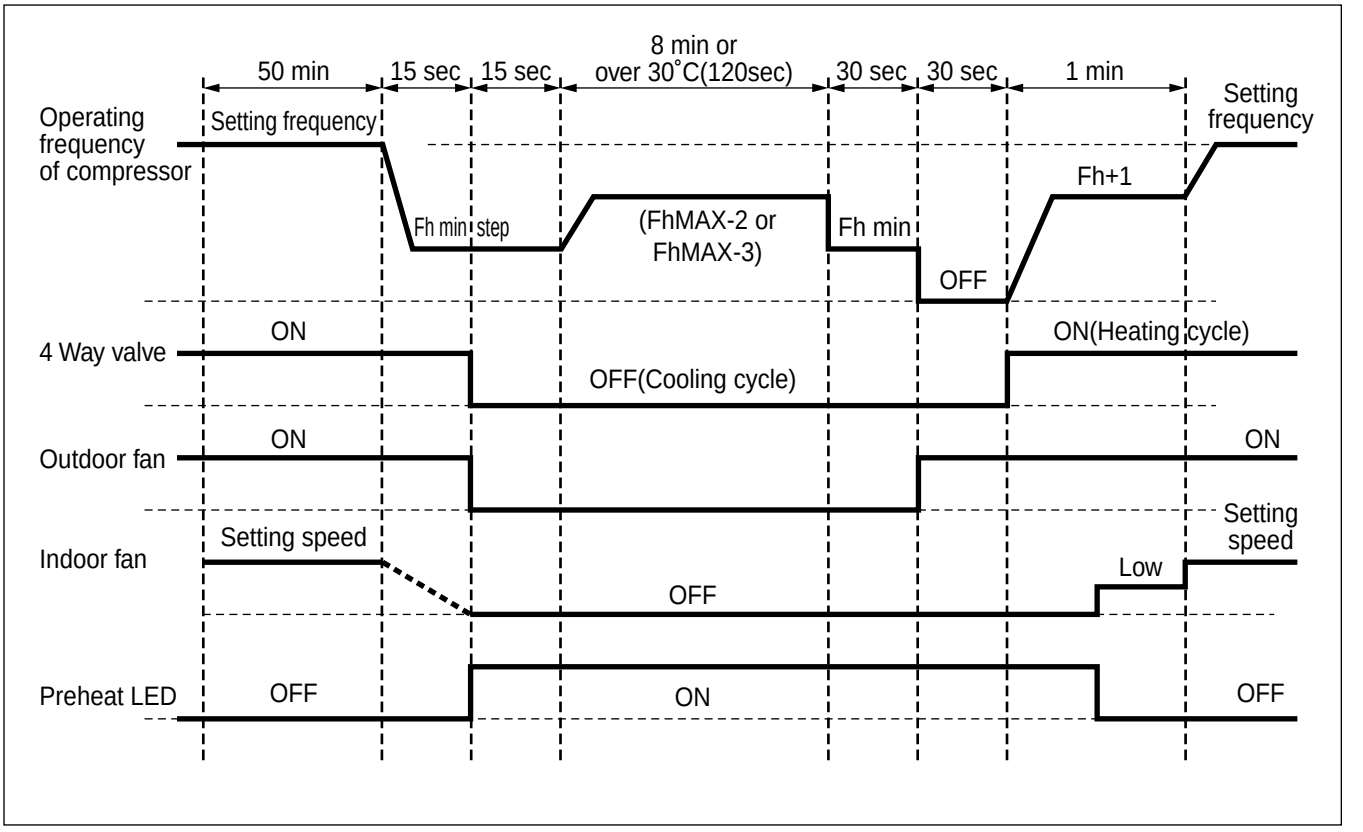
19. Portection from overheating of compressor

- If the temperature of the discharge pipe of compressor reaches over 130°C or below -30°C the compressor stop instantly.
- It will be limited the compressor operating frequency according to the compressor dome TH.(Refer to below Fig.)
- Temperature range by COMP SPEC varies by 10°C.



20 . Defrosting control

- While in heating mode operation in order to protect the evaporator pipe of the outdoor unit from freezing, reversed to cooling cycle to defrost the evaporator pipe of the outdoor unit.
- Defrosting control is available 50 minutes later since heating cycle started and the pipe temperature of outdoor unit reaches below -6°C.



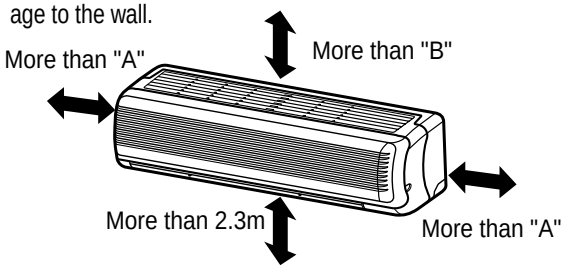
Installation

1. Installation of indoor, Outdoor unit

1) Select the best location

1. Indoor unit

- Do not have any heat or steam near the unit.
- Select a place where there are no obstacles in front of the unit.
- Make sure that condensation drainage can be conveniently routed away.
  Do not install near a doorway.
- Ensure that the space around the left and right of the unit is more than "A". The unit should be installed as high on the wall as possible, allowing a minimum of "B" from ceiling.
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.



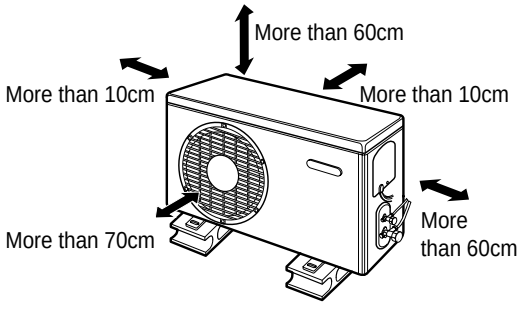
⚠ CAUTION

Install the indoor unit on the wall where the height from the floors more than 2.3 meters.

Grade	Clearance(cm)	
	A	B
7k~18k	10	5

2. Outdoor unit

- If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Ensure that the space around the back and sides is more than 10cm. The front of the unit should have more than 70cm of space.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.

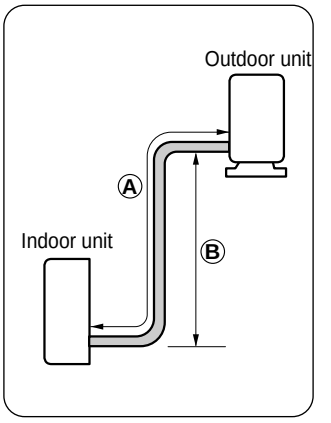


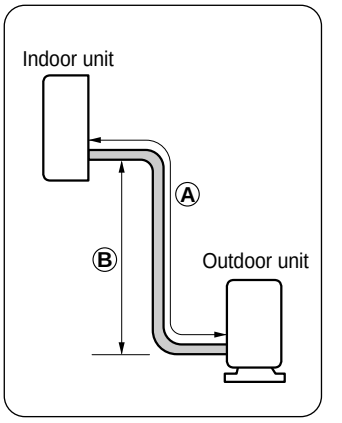
3. Rooftop Installations:

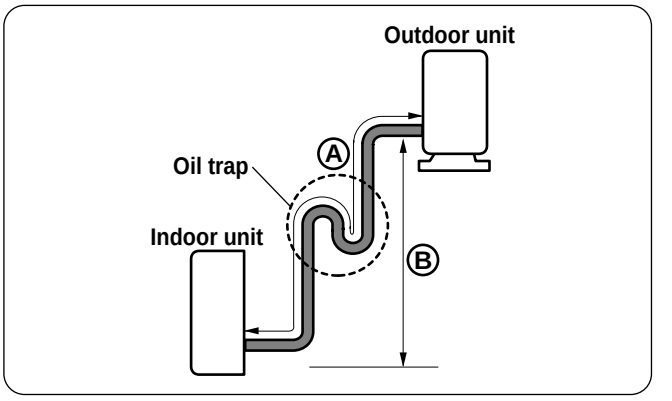
- If the outdoor unit is installed on a roof structure, be sure to level the unit. Ensure the roof structure and anchoring method are adequate for the unit location.
- Consult local codes regarding rooftop mounting.

2) Piping length and elevation

Capacity (Btu/h)	Pipe Size		Standard Length (m)	Max. Elevation B (m)	Max. Length A (m)	Additional Refrigerant (g/m)
	GAS	LIQUID				
7K, 9K(AC)	3/8(Ø9.52)	3/8(Ø9.52)	4 or 7.5	7	15	20
12K, 18k(AC)	1/2(Ø12.7)	3/8(Ø9.52)	5 or 7.5	7	15	20
9K, 12K(DC)	3/8(Ø9.52)	3/8(Ø9.52)	6 or 7.5	7	15	20







If case more than 5m

⚠ CAUTION

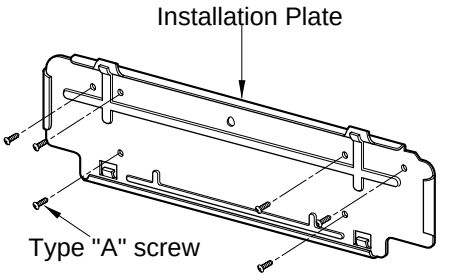
- Capacity is based on standard length and maximum allowance length is on the basis of reliability.
- Oil trap should be installed every 5~7 meters.

3) How to fix installation plate

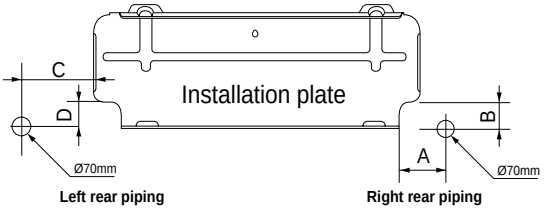
The wall you select should be strong and solid enough to prevent vibration

1. Mount the installation plate on the wall with 6 type "A" screws. If mounting the unit on a concrete wall, use anchor bolts.

■ Mount the installation plate horizontally by aligning the centerline using a level.



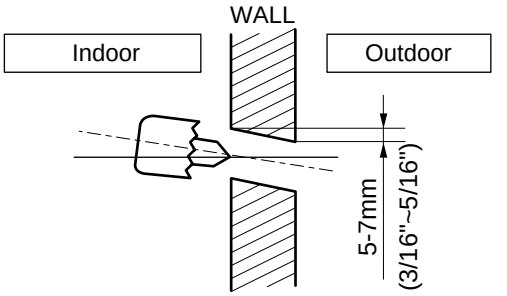
2. Measure the wall and mark the centerline. It is also important to use caution concerning the location of the installation plate-routing of the wiring to power outlets is through the walls typically. Drilling the hole through the wall for piping connections must be done safely.



CHASSIS (Grade)	Distance (mm)			
	A	B	C	D
7k, 9k	50	20	80	20
12k, 18k	45	40	80	20

4) Drill a hole in the wall

■ Drill the piping hole with a ø70mm hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.



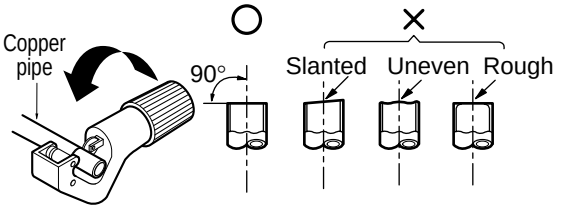
2. Flaring work and connection of piping

1) Flaring work

Main cause for gas leakage is due to defect in flaring Main cause for refrigerant leakage is due to defect in the flaring work. Carry out correct flaring work using the following procedure.

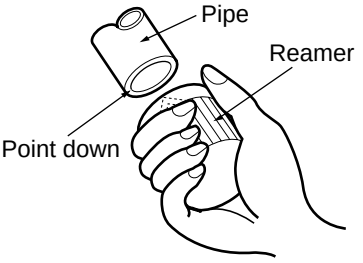
1. Cut the pipes and the cable.

- ■ Use the piping kit accessory or pipes purchased locally.
- ■ Measure the distance between the indoor and the outdoor unit.
- ■ Cut the pipes a little longer than the measured distance.
- ■ Cut the cable 1.5m longer than the pipe length.



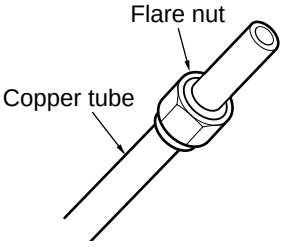
2. Burrs removal

- ■ Completely remove all burrs from the cut cross section of pipe/tube.
- ■ Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid drop-



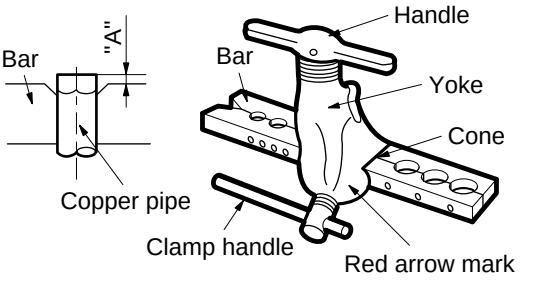
3. Putting nut on

- ■ Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.



4. Flaring work

- ■ Firmly hold copper pipe in a die in the dimension shown in the table above.

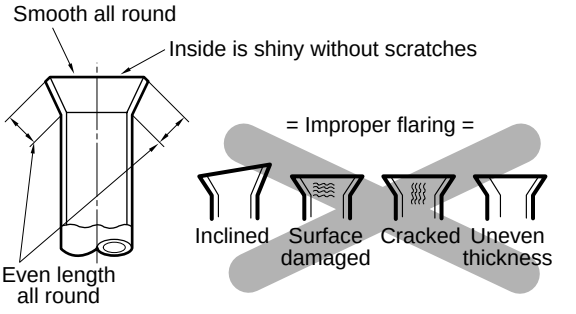


- ■ Carry out flaring work using flaring tool as shown below.

Outside diameter		A
mm	inch	mm
Ø6.35	1/4	0~0.5
Ø9.52	3/8	0~0.5
Ø12.7	1/2	0~0.5

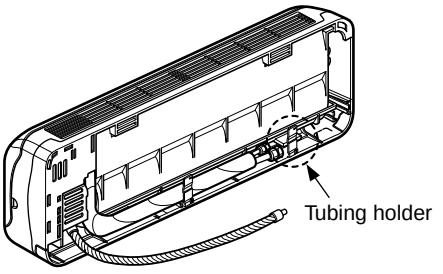
5. Check

- ■ Compare the flared work with figure below.
- ■ If flare is noted to be defective, cut off the flared section and re-flare it.



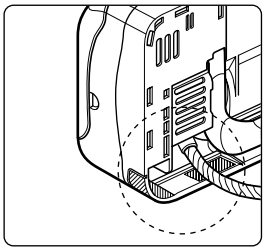
2) Connection of piping --Indoor

■ Preparing the indoor unit's piping and drain hose for installation through the wall.
■ Remove the plastic tubing retainer(see illustration below) and pull the tubing and drain hose away from chassis.
■ Replace the plastic tubing holder in the original position.(Optional)



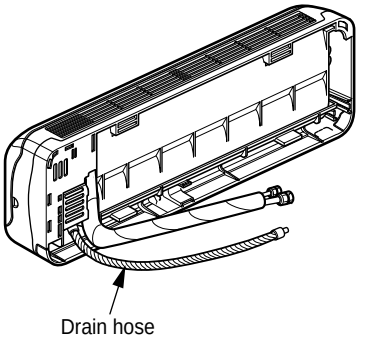
⚠ CAUTION

When install, make sure that the remaining parts must be removed clearly so as not to damage the piping and drain hose, especially power cord and connecting cable.



For right rear piping

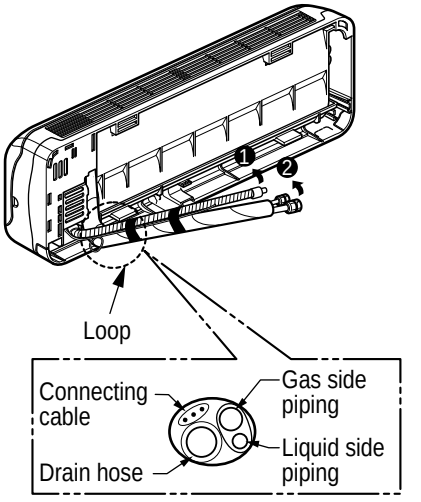
1. Route the indoor tubing and the drain hose in the direction of rear right.



2. Insert the connecting cable into the indoor unit from the outdoor unit through the piping hole.

■ Do not connect the cable to the indoor unit.
■ Make a small loop with the cable for easy connection later.

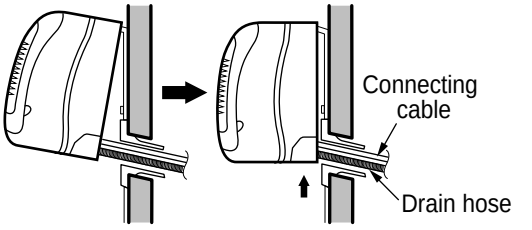
3. Tape the tubing, drain hose, and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.



NOTE: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.
*Foamed polyethylene or equivalent is recommended.

4. Indoor unit installation

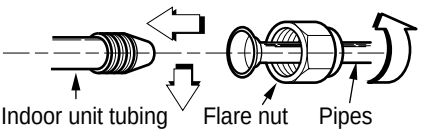
■ Hook the indoor unit onto the upper portion of the installation plate.(Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.) Ensure that the hooks are properly seated on the installation plate by moving it left and right.



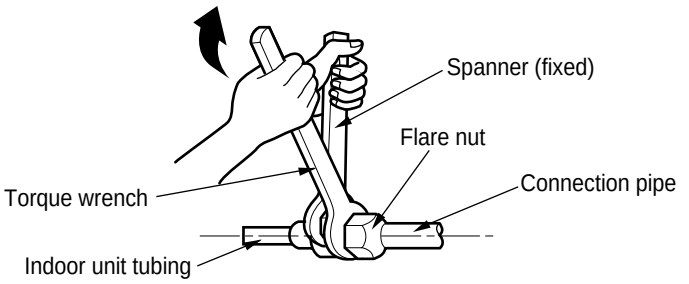
Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots(clicking sound).

5. Connecting the pipings to the indoor unit and drain hose to drain pipe.

■ Align the center of the pipes and sufficiently tighten the flare nut by hand.

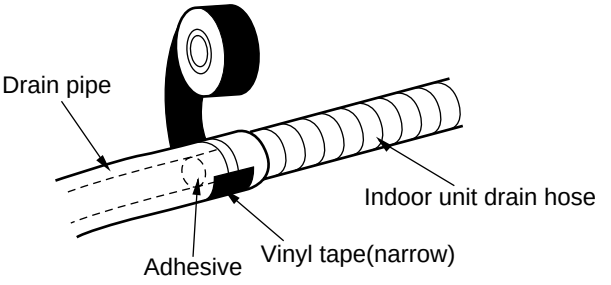


■ Tighten the flare nut with a wrench.



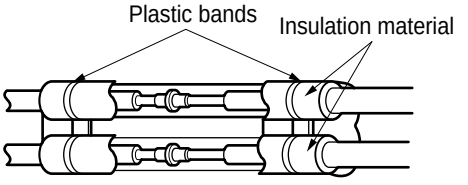
Outside diameter		Torque
mm	inch	kg·m
Ø6.35	1/4	1.8
Ø9.52	3/8	4.2
Ø12.7	1/2	5.5

■ When extending the drain hose at the indoor unit, install the drain pipe.

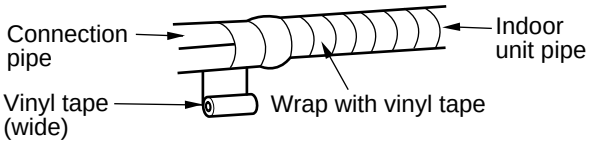


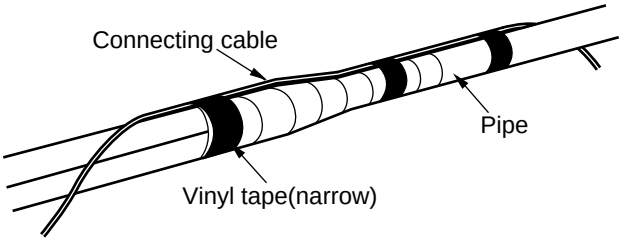
6. Wrap the insulation material around the connecting portion.

■ Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.

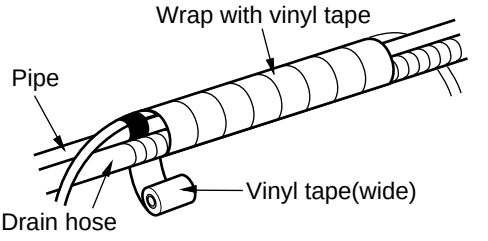


■ Wrap the area which accommodates the rear piping housing section with vinyl tape.



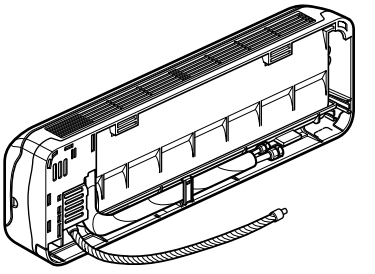


■ Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.

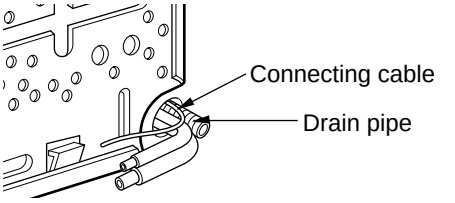


For right rear piping

1. Route the indoor tubing and the drain hose to the required piping hole position.



2. Insert the piping, drain hose and the connecting cable into the piping hole.



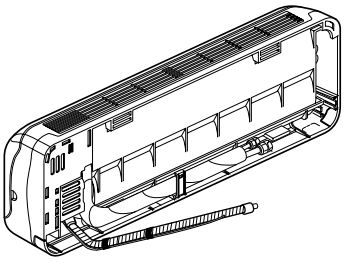
3. Insert the connecting cable into the indoor unit.

■ Don't connect the cable to the indoor unit.

■ Make a small loop with the cable for easy connection later.

4. Tape the drain hose and the connecting cable.

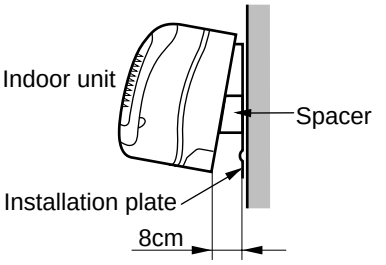
■ Connecting cable



5. Indoor unit installation

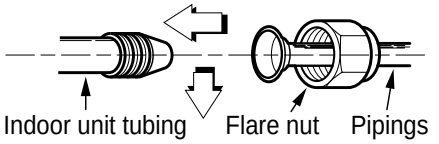
■ Hang the indoor unit from the hooks at the top of the installation plate.

■ Insert the spacer etc. between the indoor unit and the installation plate and separate the bottom of the indoor unit from the wall.

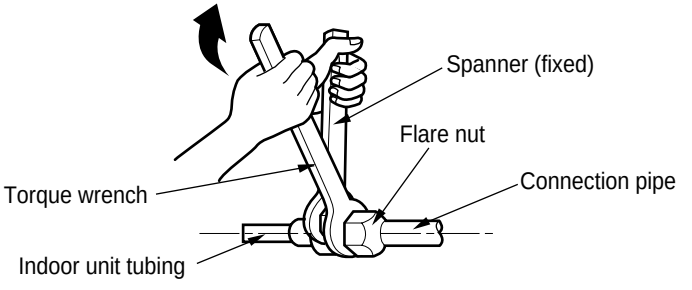


6. Connecting the pipings to the indoor unit and the drain hose to drain pipe.

■ Align the center of the pipings and sufficiently tighten the flare nut by hand.

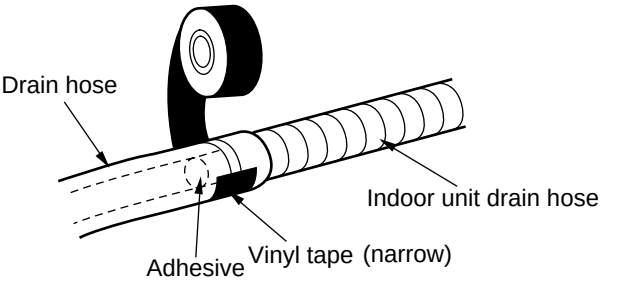


■ Tighten the flare nut with a wrench.



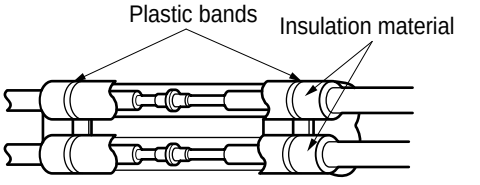
Outside diameter		Torque
mm	inch	kg·m
Ø6.35	1/4	1.8
Ø9.52	3/8	4.2
Ø12.7	1/2	5.5

■ When extending the drain hose at the indoor unit, install the drain pipe.

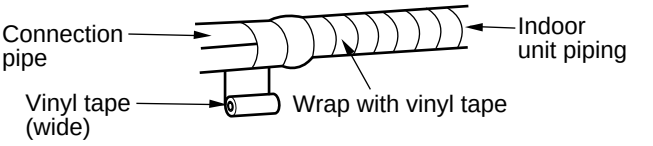


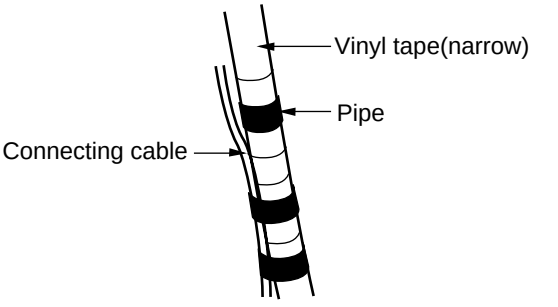
7. Wrap the insulation material around the connecting portion.

■ Overlap the connection pipe heat insulation and the indoor unit pipe heat insulation material. Bind them together with vinyl tape so that there is no gap.

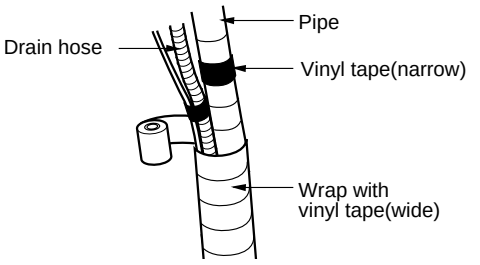


■ Wrap the area which accommodates the rear piping housing section with vinyl tape.

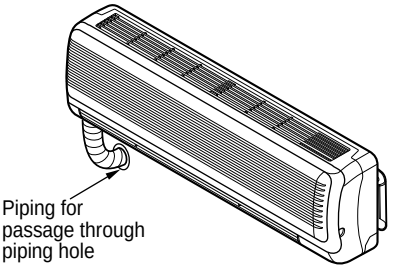




■ Bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

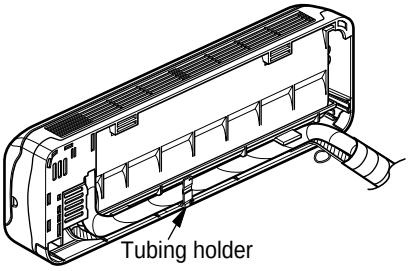


8. Reroute the pipings and the drain hose across the back of the chassis.



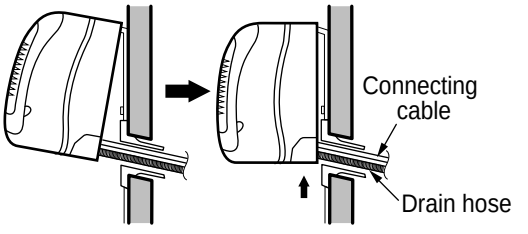
9. Set the pipings and the drain hose to the back of the chassis with the tubing holder.

■ Hook the edge of tubing holder to tap on chassis and push the bottom of tubing holder to be engaged at the bottom of chassis.



10. Indoor unit installation

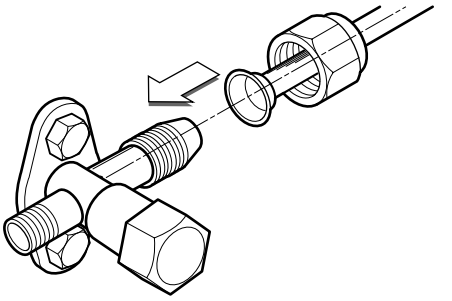
■ Remove the spacer.
■ Ensure that the hooks are properly seated on the installation plate by moving it left and right.



Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots(clicking sound).

3) Connection of the pipes-Outdoor

1. Align the center of the pipings and sufficiently tighten the flare nut by hand.

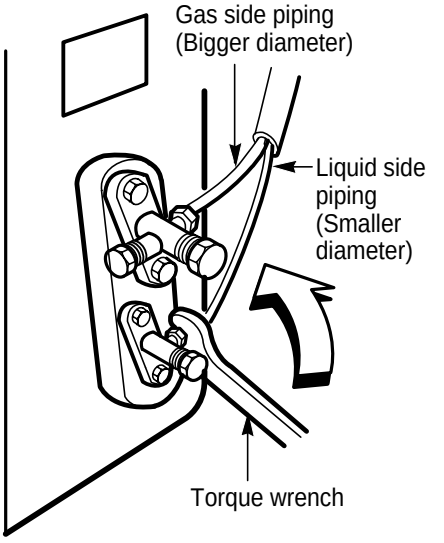


2. Finally, tighten the flare nut with torque wrench until the wrench clicks.

■ When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

Outside diameter		Torque
mm	inch	kg·m
Ø6.35	1/4	1.8
Ø9.52	3/8	4.2
Ø12.7	1/2	5.5

Outdoor unit



3. Connecting the Cable Between Indoor Unit and Outdoor Unit

1) Connect the cable to the Indoor unit.

■ ***Connect the cable to the indoor unit by connecting the wires to the terminals on the control board individually according to the outdoor unit connection.*** (Ensure that the color of the wires of the outdoor unit and the terminal No. are the same as those of the indoor unit.)
The earth wire should be longer than the common wires.
The above circuit diagram is subject to change without notice.
When installing, refer to the circuit diagram on the control box inside Indoor Uint.

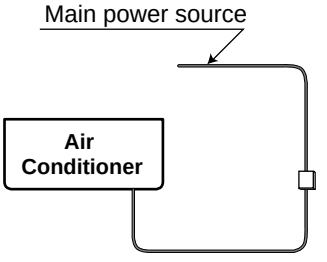
- When installing, refer to the circuit diagram on the Control Box of Indoor Unit.
- When installing, refer to the wiring diagram on the Control Cover Inside Outdoor Unit.

⚠ CAUTION

- The above circuit diagram is subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

⚠ CAUTION

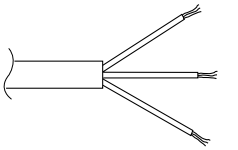
If a power plug is not to be used, provide a circuit breaker between power source and the unit as shown below.



Circuit Breaker
Use a circuit breaker or time delay fuse.

⚠ CAUTION

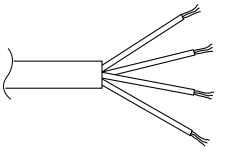
The power cord connected to the Indoor unit should be complied with the following specifications
(Type H05VV-F approved by HAR or SAA).



(mm²)

NORMAL CROSS -SECTIONAL AREA	Grade		
	7k, 9k	12k	18k
	1.0	1.5	2.5

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications
(Type H07RN-F approved by HAR or SAA).



(mm²)

NORMAL CROSS -SECTIONAL AREA	Grade		
	7k, 9k	12k	18k
	1.0	1.5	2.5

2) Connect the cable to the outdoor unit

1. Remove the control cover from the unit by loosening the screw.
Connect the wires to the terminals on the control board individually.

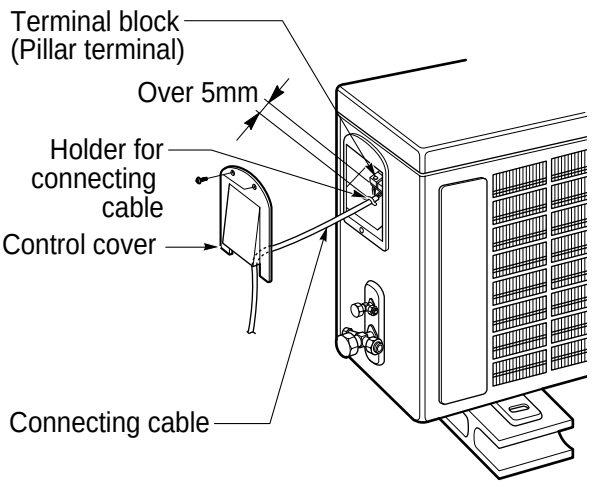
2. Secure the cable onto the control board with the cord clamp.

3. Refix the control cover to the original position with the screw.

4. Use a recognized circuit breaker "A"
between the power source and the unit.
A disconnecting device to adequately disconnect all supply lines must be fitted.

Circuit Breaker (A)	Grade
	7K, 12K
	16

Outdoor Unit



⚠ CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

1) Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.

2) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)

3) Specification of power source.

4) Confirm that electrical capacity is sufficient.

5) See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.

6) Confirm that the cable thickness is as specified in the power source specification.
(Particularly note the relation between cable length and thickness. (Refer to page 32))

7) Always install an earth leakage circuit breaker in a wet or moist area.

8) The following would be caused by voltage drop.
- Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.

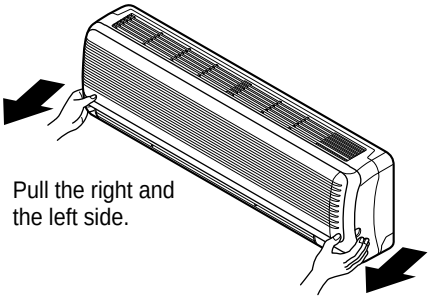
9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

4. Checking the Drainage and Forming the Pipings

1) Checking the drainage

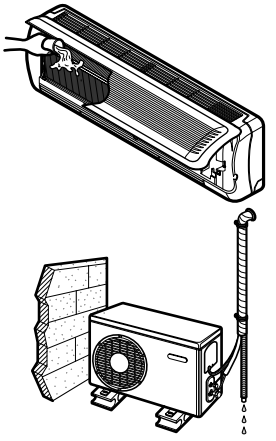
1. To remove the front panel from the indoor unit.

- ■ Set the air direction louvers up-and-down to the position(horizontally) by hand.
- ■ Remove the securing screws that retain the front panel. Pull the lower left and right sides of the grille toward you and lift it off.



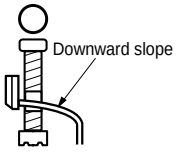
2. To check the drainage.

- ■ Pour a glass of water on the evaporator.
- ■ Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.

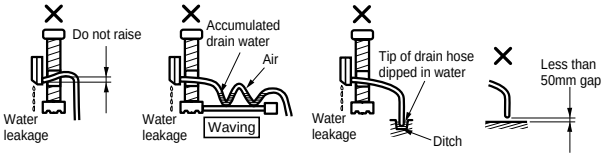


3. Drain piping

- ■ The drain hose should point downward for easy drain flow.



- ■ Do not make drain piping.



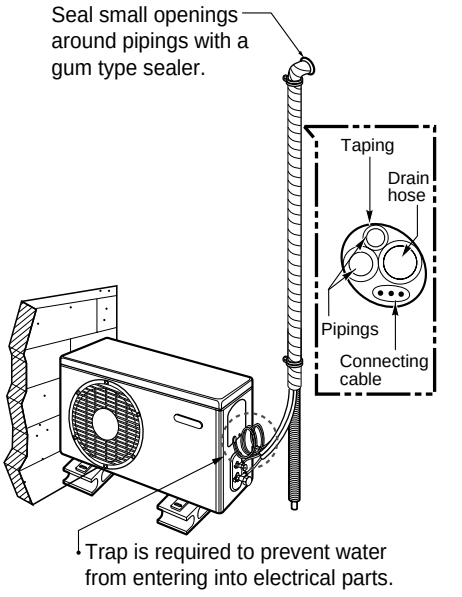
2) Form the piping

1. Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tapes.

- ■ If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

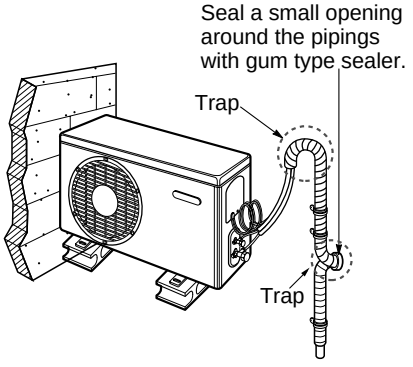
2. In cases where the outdoor unit is installed below the indoor unit perform the following.

- ■ Tape the piping, drain hose and connecting cable from down to up.
- ■ Secure the tapped piping along the exterior wall using saddle or equivalent.



3. In cases where the Outdoor unit is installed above the Indoor unit perform the following.

- ■ Tape the piping and connecting cable from down to up.
- ■ Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
- ■ Fix the piping onto the wall by saddle or equivalent.



5. Air Purging

1) Air purging

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

- ■ Pressure in the system rises.
- ■ Operating current rises.
- ■ Cooling(or heating) efficiency drops.
- ■ Moisture in the refrigerant circuit may freeze and block capillary tubing.
- ■ Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system.

2) Air purging with vacuum pump

1. Preparation

- ■ Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

2. Leak test

- ■ Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.

CAUTION

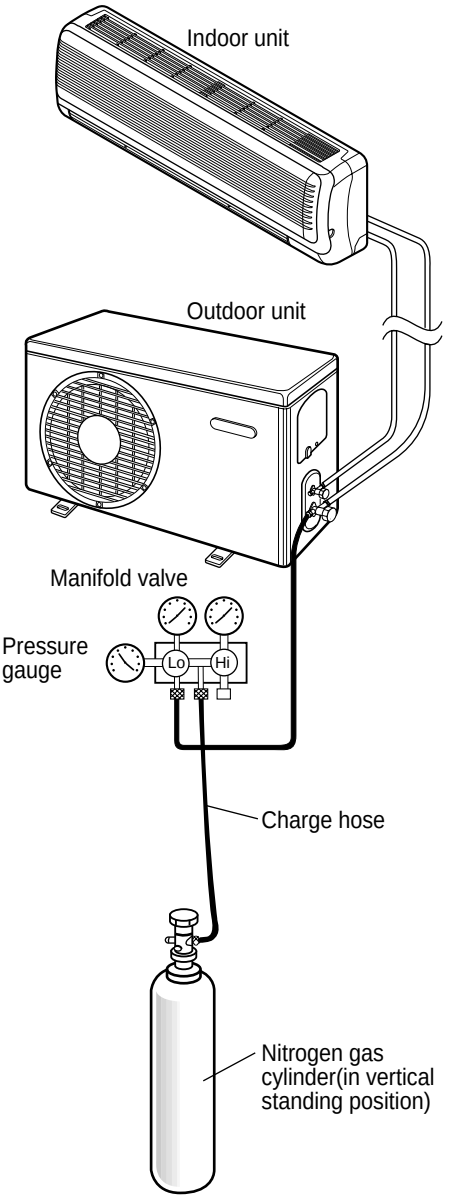
Be sure to use a manifold valve for air purging.
If it is not available, use a stop valve for this purpose.
The "Hi" knob of the manifold valve must always be kept close.

- ■ Pressurize the system to no more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 150 P.S.I.G. Next, test for leaks with liquid soap.

CAUTION

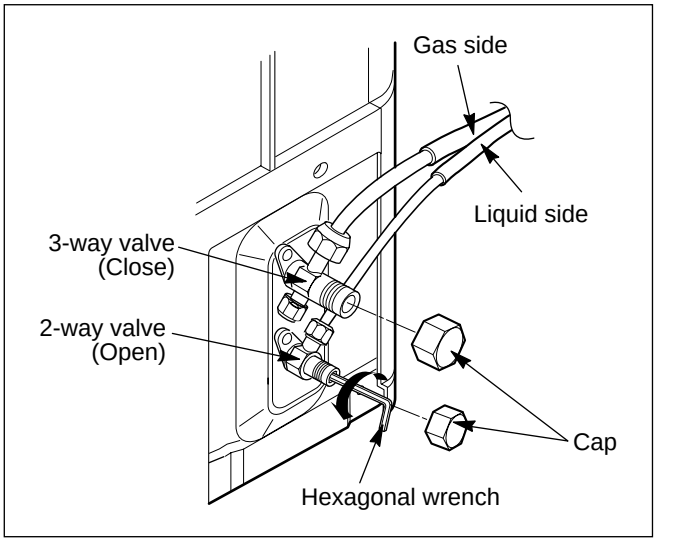
To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.

- ■ Do a leak test of all joints of the tubing(both indoor and outdoor) and both gas and liquid side service valves.
  Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.
- ■ After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.



Soap water method

(1) Remove the caps from the 2-way and 3-way valves.
(2) Remove the service-port cap from the 3-way valve.
(3) To open the 2-way valve turn the valve stem counter-clockwise approximately 90°, wait for about 2~3 sec, and close it.
(4) Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping.
(5) If bubbles come out, the pipes have leakage.



3. Evacuation

■ Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit.
Confirm the "Lo" knob of the manifold valve is open.
Then, run the vacuum pump.
The operation time for evacuation varies with tubing length and capacity of the pump.
The following table shows the time required for evacuation.

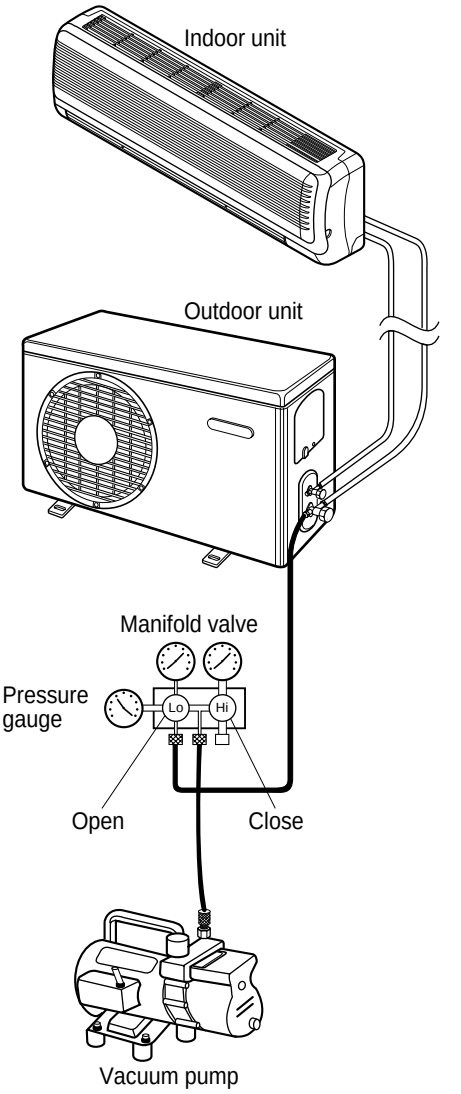
Required time for evacuation when 30 gal/h vacuum pump is used	
If tubing length is less than 10m (33 ft)	If tubing length is longer than 10m (33 ft)
10 min. or more	15 min. or more

■ When the desired vacuum is reached, close the "Lo" knob of the manifold valve and stop the vacuum pump.

4. Finishing the job

■ With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
■ Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
■ Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
■ Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system.
■ Replace the valve caps at both gas and liquid side service valves and fasten them tight.

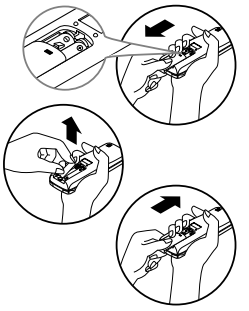
This completes air purging with a vacuum pump.
The air conditioner is now ready to test run.



6. Test Running

1. Check that all tubing and wiring have been properly connected.
2. Check that the gas and liquid side service valves are fully open.

1. Prepare remote control



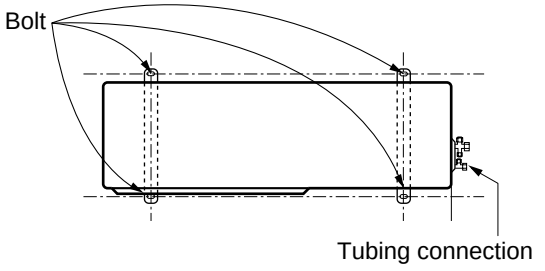
1. Remove the battery cover by pulling it according to the arrow direction.
2. Insert new batteries making sure that the (+) and (–) of battery are installed correctly.
3. Reattach the cover by pushing it back into position.

NOTE:

- *Use 2 AAA(1.5volt) batteries. Do not use rechargeable batteries.*
- *Remove the batteries from the remote control if the system is not going to be used for a long time.*

2. Settlement of outdoor unit

- Anchor the outdoor unit with a bolt and nut(ø10mm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the hose, secure the unit with an anti-vibration rubber.



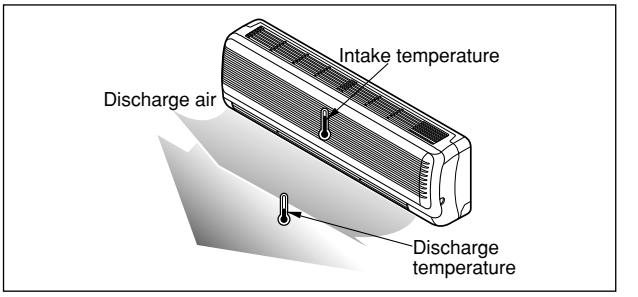
3. Evaluation of the performance

Operate unit for 15~20 minutes, then check the system refrigerant charge:

1. Measure the pressure of the gas side service valve.

2. Measure the temperature of the intake and discharge of air.

3. Ensure the difference between the intake temperature and the discharge is more than 8°C (Cooling) or reversely (Heating).



4. For reference; the gas side pressure of optimum condition is as below.(Cooling)

Refrigerant	Outside ambient TEMP.	The pressure of the gas side service valve.
R-22	35°C (95°F)	4.5~5.5kg/cm^{2}G(63.9~78.1 P.S.I.G.)
R-410A	35°C (95°F)	8.5~9.5kg/cm^{2}G(120~135 P.S.I.G.)

NOTE: If the actual pressure are higher than shown, the system is most likely over-charged, and charge should be removed. If the actual pressure are lower than shown, the system is most likely under-charged, and charge should be added.
The air conditioner is now ready for use.

PUMP DOWN

This is performed when the unit is to be relocated or the refrigerant circuit is serviced.

Pump Down means collecting all refrigerant in the outdoor unit without loss in refrigerant gas.

CAUTION:

Be sure to perform Pump Down procedure with the unit cooling mode.

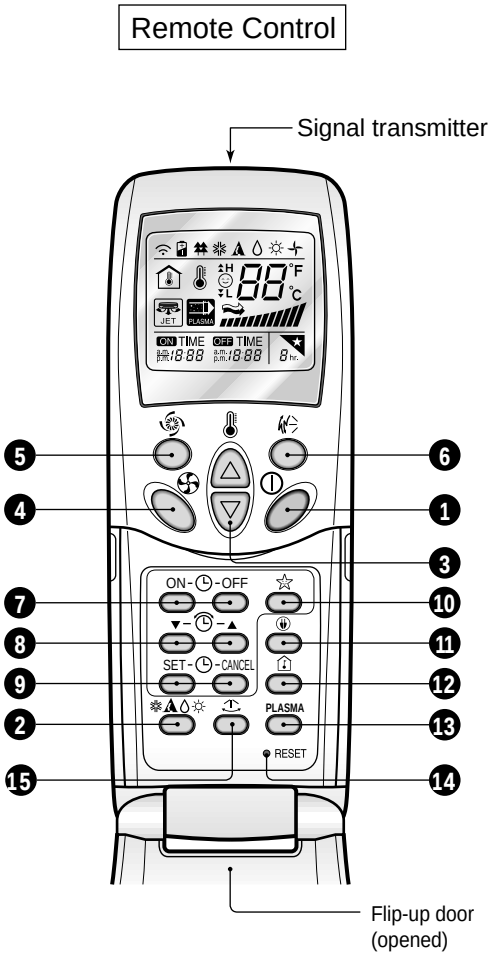
Pump Down Procedure

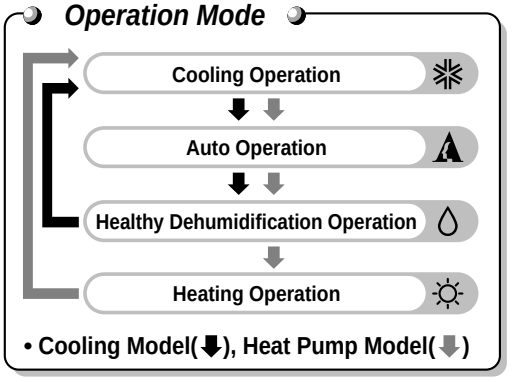
1. Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.
2. Open the gas side service valve halfway and purge the air from the manifold hose using the refrigerant gas.
3. Close the liquid side service valve(all the way in).
4. Turn on the unit's operating switch and start the cooling operation.
5. When the low-pressure gauge reading becomes 1 to 0.5kg/cm^2 G(14.2 to 7.1 P.S.I.G.), fully close the gas side valve stem and then quickly turn off the unit. At that time, Pump Down has been completed and all refrigerant gas will have been collected in the outdoor unit.

Operation

■ Name and Function-Remote Control

The remote control transmits the signals to the system.





1 START/STOP BUTTON
Operation starts when this button is pressed and stops when the button is pressed again.

2 OPERATION MODE SELECTION BUTTON
Used to select the operation mode.

3 ROOM TEMPERATURE SETTING BUTTONS
Used to select the room temperature.

4 INDOOR FAN SPEED SELECTOR
Used to select fan speed in four steps low, medium, high and CHAOS.

5 JET COOL
Used to start or stop the speed cooling. (Speed cooling operates super high fan speed in cooling mode.)

6 CHAOS SWING BUTTON
Used to stop or start louver movement and set the desired up/down airflow direction.

7 ON/OFF TIMER BUTTONS
Used to set the time of starting and stopping operation.

8 TIME SETTING BUTTONS
Used to adjust the time.

9 TIMER SET/CANCEL BUTTONS
Used to set the timer when the desired time is obtained and to cancel the Timer operation.

10 SLEEP MODE AUTO BUTTON
Used to set Sleep Mode Auto operation.

11 POWER SAVE COOLING BUTTON
Used to set Preheat mode.

12 ROOM TEMPERATURE CHECKING BUTTON
Used to check the room temperature.

13 PLASMA(OPTION)
Used to start or stop the plasma-purification function.

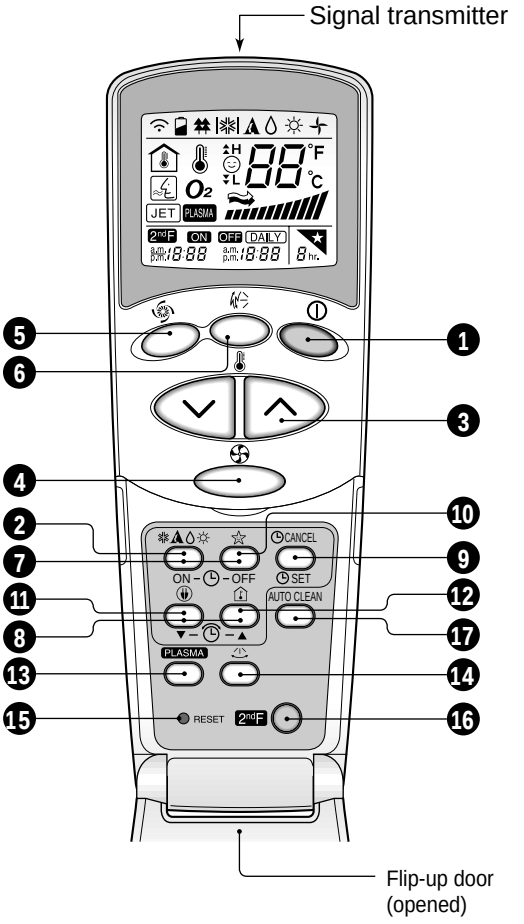
14 RESET BUTTON
Used prior to resetting time or after replacing batteries.

15 HORIZONTAL AIRFLOW DIRECTION CONTROL BUTTON (NOT ON ALL MODELS)
Used to set the desired horizontal airflow direction.

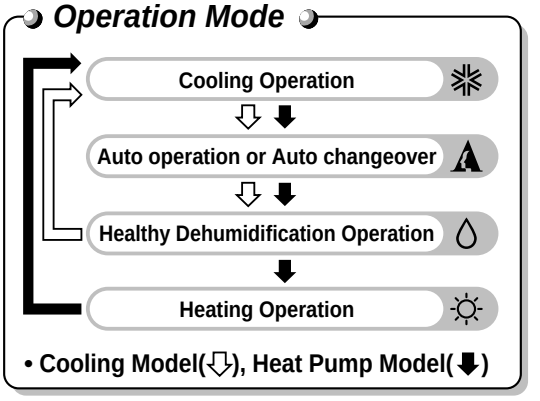
■ Name and Function-Remote Control

The remote control transmits the signals to the system.

Remote Control



Operation Mode



1 START/STOP BUTTON
Operation starts when this button is pressed and stops when the button is pressed again.

2 OPERATION MODE SELECTION BUTTON
Used to select the operation mode.

3 ROOM TEMPERATURE SETTING BUTTONS
Used to select the room temperature.

4 INDOOR FAN SPEED SELECTOR
Used to select fan speed in four steps, low, medium, high and CHAOS.

5 JET COOL / HEAT
Used to start or stop the speed cooling or heating. (Speed cooling or heating operates super high fan speed in cooling or heating mode.)

6 CHAOS SWING BUTTON
Used to stop or start louver movement and set the desired up/down airflow direction.

7 ON/OFF TIMER BUTTONS
Used to set the time of starting and stopping operation.

8 TIME SETTING BUTTONS
Used to adjust the time.

9 TIMER SET/CANCEL BUTTON
Used to set the timer when the desired time is obtained and to cancel the Timer operation.

10 SLEEP MODE AUTO BUTTON
Used to set Sleep Mode Auto operation.

11 ENERGY-SAVING COOLING MODE BUTTON (OPTIONAL)
Used to set Energy-Save in cooling mode.

AIR CIRCULATION BUTTON(OPTIONAL)
Used to circulate the room air without cooling or heating (turns indoor fan on/off).

12 ROOM TEMPERATURE CHECKING BUTTON
Used to check the room temperature.

13 PLASMA(OPTIONAL)
Used to start or stop the plasma-purification function.

14 HORIZONTAL AIRFLOW DIRECTION CONTROL BUTTON (NOT ON ALL MODELS)
Used to set the desired horizontal airflow direction.

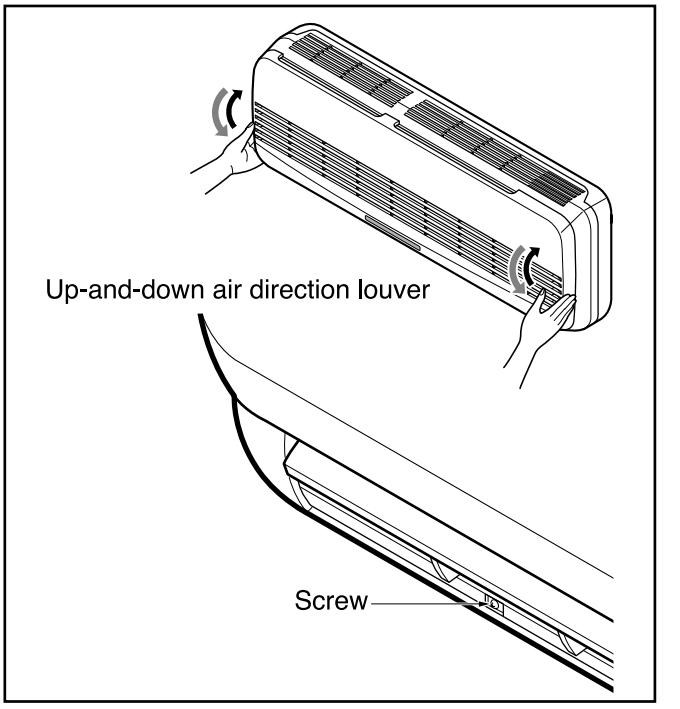
15 RESET BUTTON
Used prior to resetting time or after replacing batteries.

16 2nd F BUTTON
Used prior to using modes printed in blue at the bottom of buttons.

17 AUTO CLEAN(OPTIONAL)
Used to set Auto Clean mode.

Disassembly of the parts (Indoor unit)

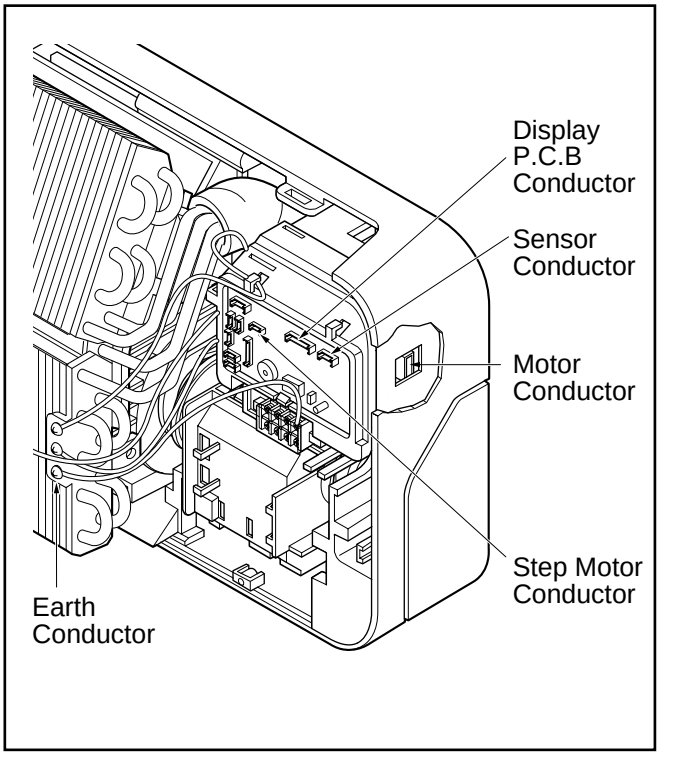
Warning :
Disconnect the unit from power supply before making any checks.
Be sure the power switch is set to “OFF”.



To remove the Grille from the Chassis.

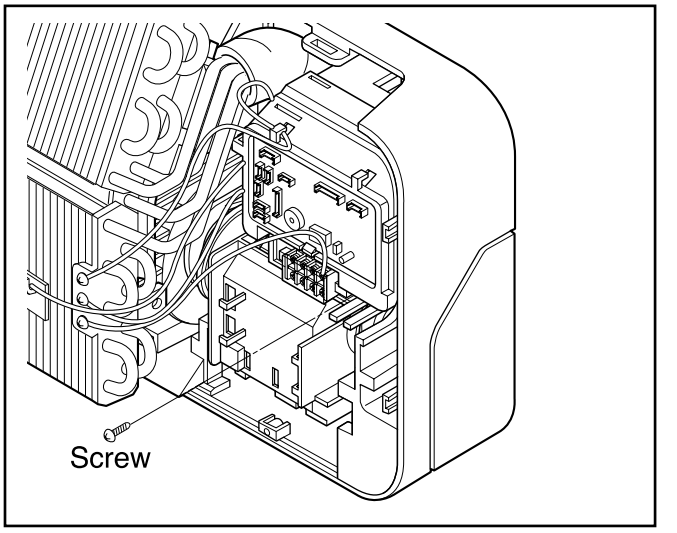
- Set the up-and-down air discharge louver to open position (horizontally) by finger pressure.
- Remove the securing screws.
- To remove the Grille, pull the lower left and right side of the grille toward you (slightly tilted) and lift it straight upward.

1. Before removing the control box, be sure to take out the wire screwed at the other end.



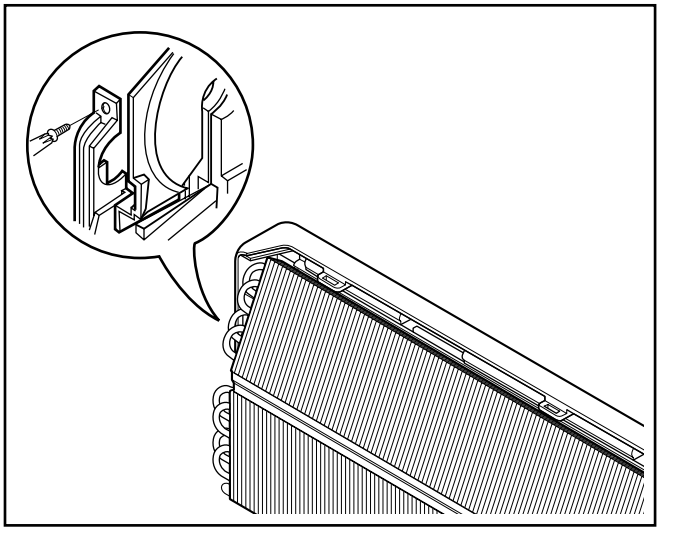
2. To remove the Control Box.

- Remove securing screws.
- Pull the control box out from the chassis carefully.



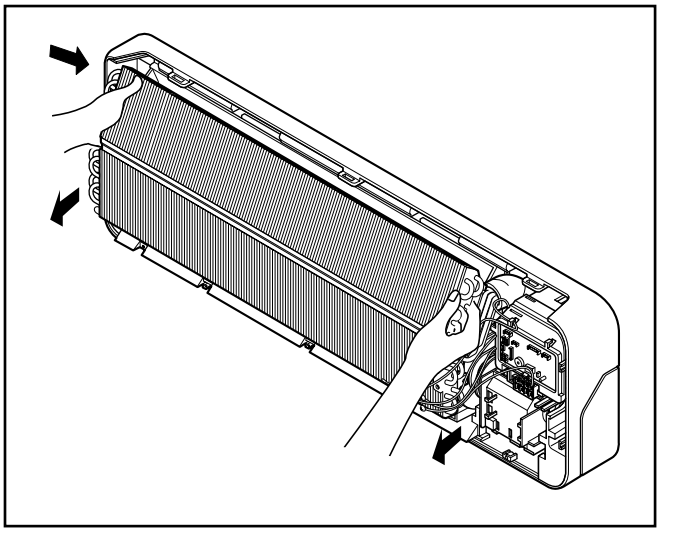
3. To remove the Discharge Grille.

- Unhook the discharge grille and pull the discharge grille out from the chassis carefully.

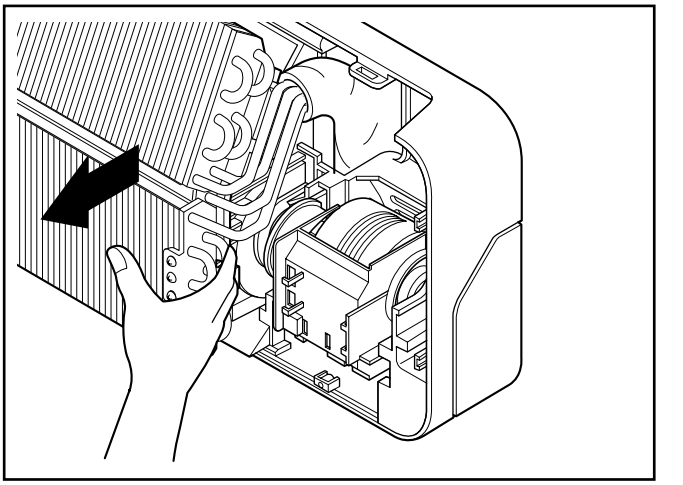


4. To remove the Evaporator.

- Remove 3 screws securing the evaporator(at the left 2EA in the Eva Holder, at the right 1EA).

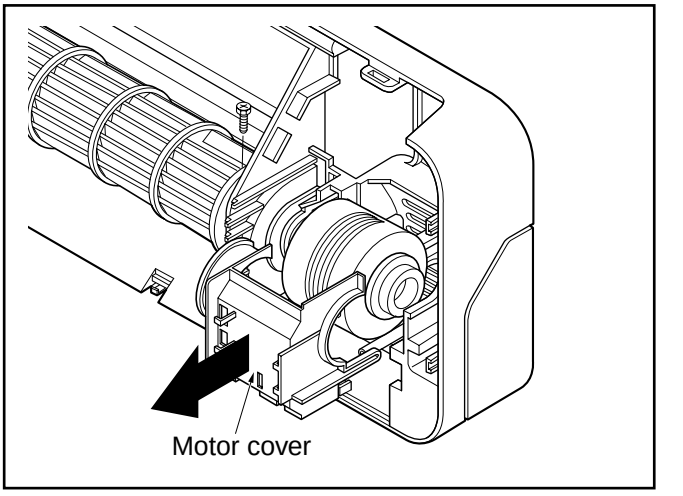


- Unhook the tab on the right inside of the chassis at the same time, slightly pull the evaporator toward you until the tab is clear of the slot.



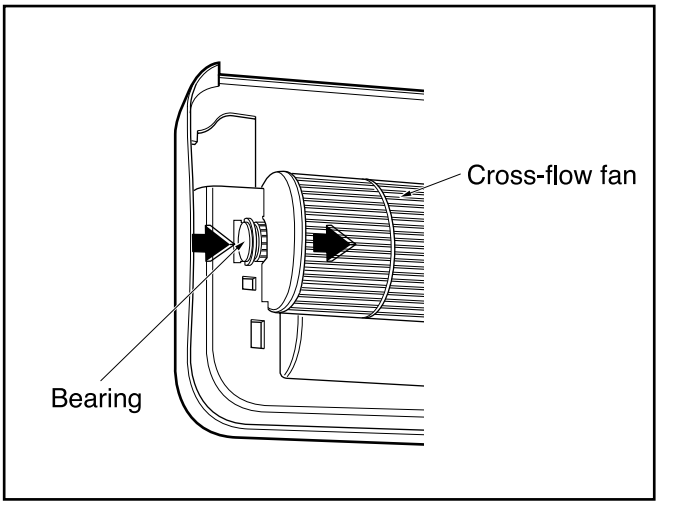
5. To remove the Motor Cover

- Remove 2 securing screw.
- Pull the motor cover out from the chassis carefully.



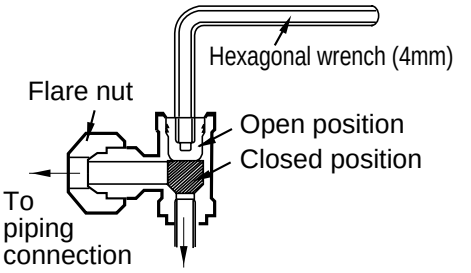
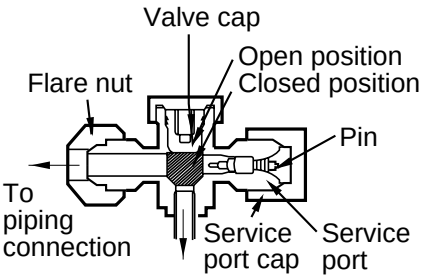
6. To remove the Cross-Flow Fan

- Loosen the screw securing the cross-flow fan to the fan motor (do not remove).
- Lift up the right side of the cross-flow fan and the fan motor, separate the fan motor from the cross-flow fan.



- Remove the left end of the cross-flow fan from the self-aligning bearing.

2-way, 3-way Valve

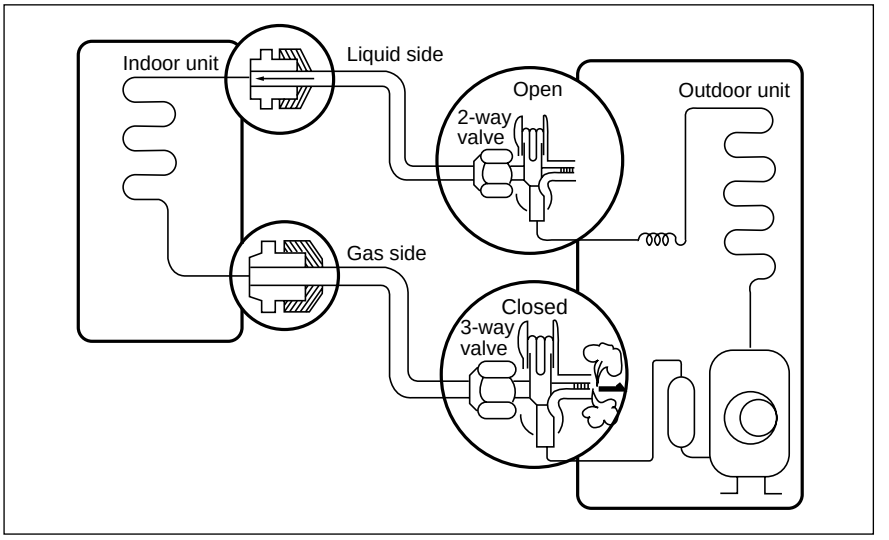
		2-way Valve (Liquid Side)	3-way Valve (Gas Side)	
		 To outdoor unit	 To outdoor unit	
Works		Shaft position	Shaft position	Service port
Shipping		Closed (with valve cap)	Closed (with valve cap)	Closed (with cap)
1.	Air purging (Installation)	Open (counter-clockwise)	Closed (clockwise)	Open (push-pin or with vacumm pump)
Operation		Open (with valve cap)	Open (with valve cap)	Closed (with cap)
2.	Pumping down (Transfering)	Closed (clockwise)	Open (counter-clockwise)	Open (connected manifold gauge)
3.	Evacuation (Servicing)	Open	Open	Open (with charging cylinder)
4.	Gas charging (Servicing)	Open	Open	Open (with charging cylinder)
5.	Pressure check (Servicing)	Open	Open	Open (with charging cylinder)
6.	Gas releasing (Servicing)	Open	Open	Open (with charging cylinder)

1. Air purging

Required tools : hexagonal wrench, adjustable wrench, torque wrenches, wrench to hold the joints, and gas leak detector.

The additional gas for air purging has been charged in the outdoor unit.
However, if the flare connections have not be done correctly and there gas leaks, a gas cylinder and the charge set will be needed.

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Service port nut:
Be sure, using a torque wrench to tighten the service port nut (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.
*** CAUTION : Do not leak the gas in the air during Air purging.**

• Procedure

(1) Recheck the piping connections.

(2) Open the valve stem of the 2-way valve counterclockwise approximately 90°, wait 10 seconds, and then set it to closed position.
– Be sure to use a hexagonal wrench to operate the valve stem.

(3) Check for gas leakage.
– Check the flare connections for gas leakage.

(4) Purge the air from the system.
– Set the 2-way valve to the open position and remove the cap from the 3-way valve's service port.
– Using the hexagonal wrench to press the valve core pin, discharge for three seconds and then wait for one minute. Repeat this three times.

(5) Use torque wrench to tighten the service port nut to a torque of 1.8kg.cm.

(6) Set the 3-way valve to the back seat.

(7) Mount the valve stem nuts to the 2-way and 3-way valves.

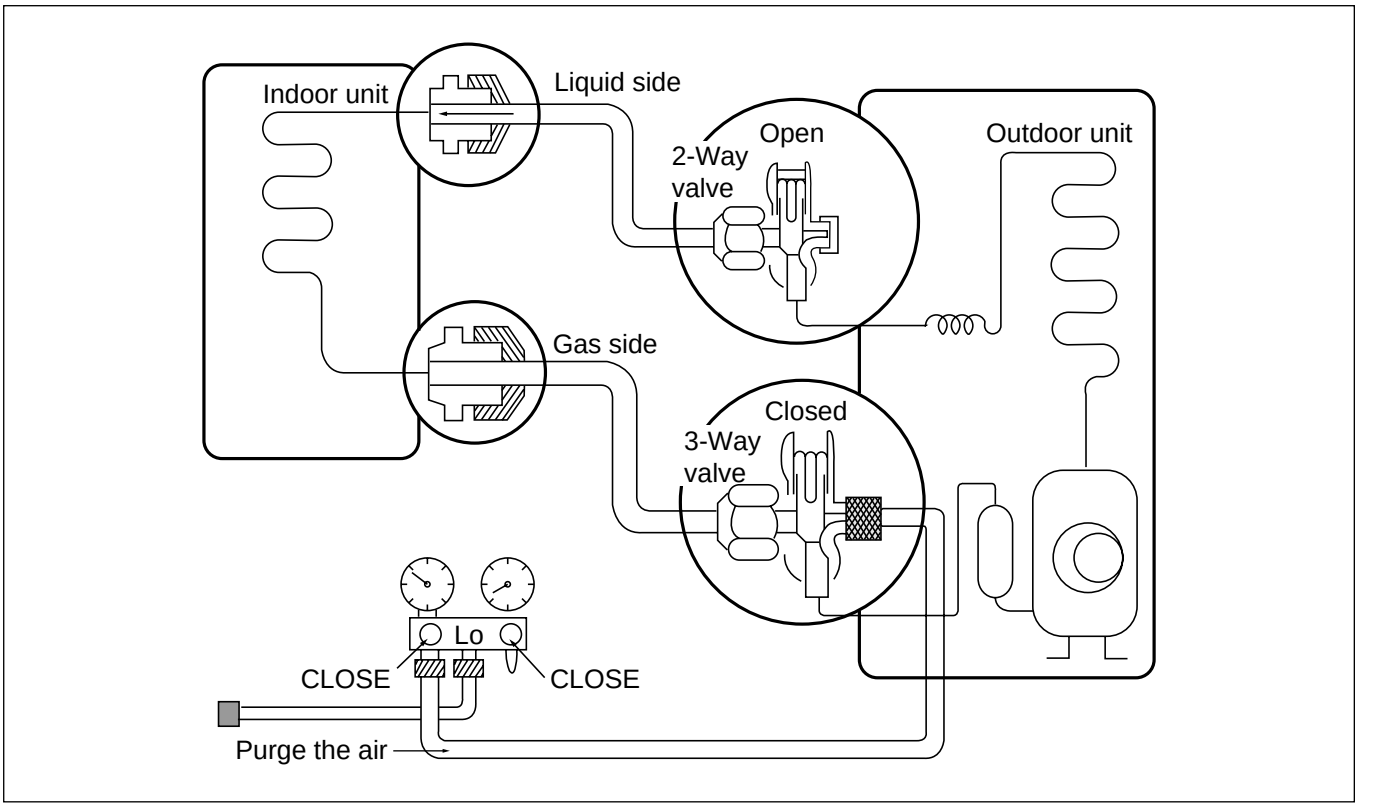
(8) Check for gas leakage.
– At this time, especially check for gas leakage from the 2-way and 3-way valve's stem nuts, and from the service port nut.

Caution

If gas leakage are discovered in step (3) above, take the following mesures :

If the gas leaks stop when the piping connections are tightened further, continue working from step (4).
If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

2. Pumping down



• Procedure

(1) Confirm that both the 2-way and 3-way valves are set to the open position.
- Remove the valve stem caps and confirm that the valve stems are in the raised position.
- Be sure to use a hexagonal wrench to operate the valve stems.

(2) Operate the unit for 10 to 15 minutes.

(3) Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.
- Connect the charge hose with the push pin to the service port.

(4) Air purging of the charge hose.
- Open the low-pressure valve on the charge set slightly to air purge from the charge hose.

(5) Set the 2-way valve to the closed position.

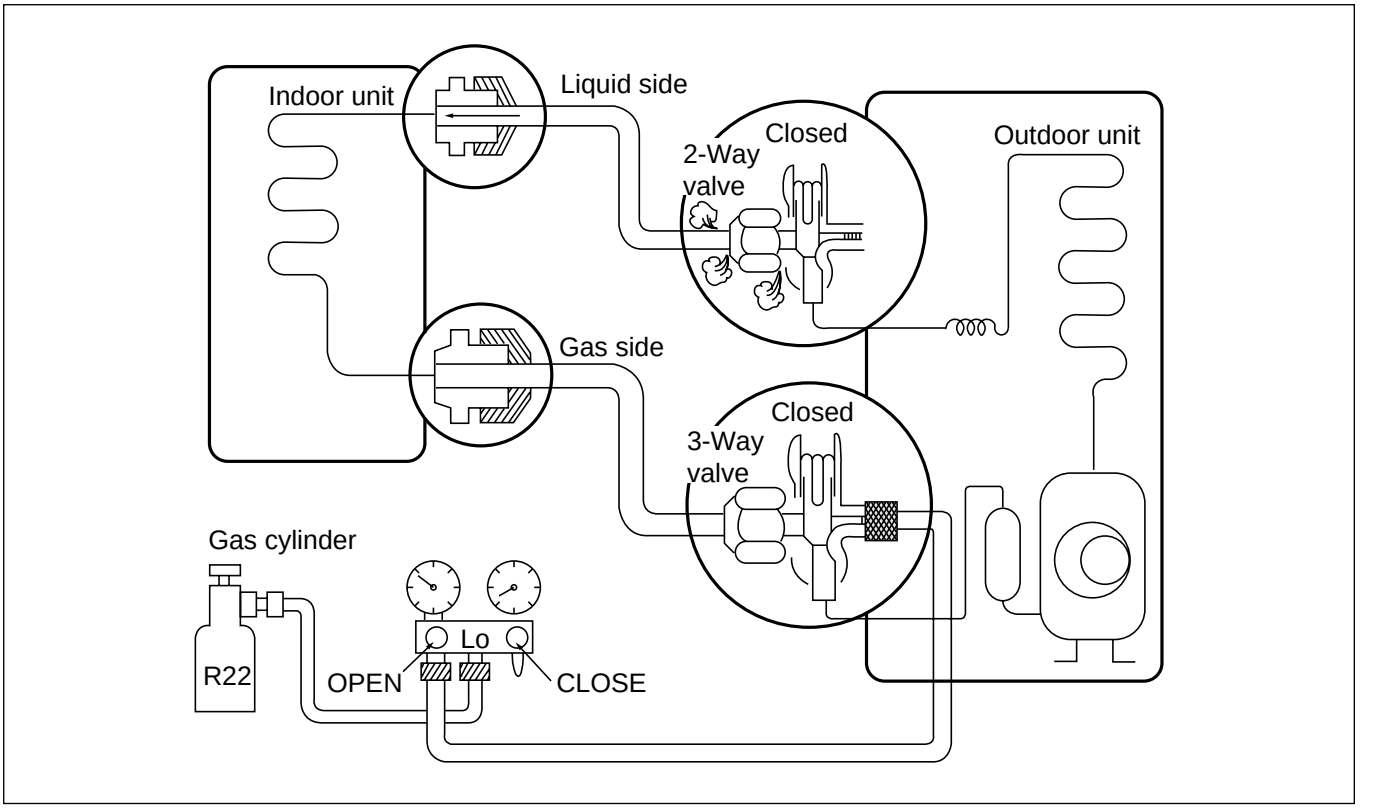
(6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 1kg/cm^{2}g.

(7) Immediately set the 3-way valve to the closed position.
- Do this quickly so that the gauge ends up indicating 3 to 5kg/cm^{2}g.

(8) Disconnect the charge set, and mount the 2-way and 3-way valve's stem nuts and the service port nut.
- Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
- Be sure to check for gas leakage.

1) Re-air purging

(Re-installation)



• Procedure

(1) Confirm that both the 2-way valve and the 3-way valve are set to the closed position.

(2) Connect the charge set and a gas cylinder to the service port of the 3-way valve.
- Leave the valve on the gas cylinder closed.

(3) Air purging.
- Open the valves on the gas cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45° for 3 seconds then closing it for 1 minute; repeat 3 times.
- After purging the air, use a torque wrench to tighten the flare nut on the 2-way valve.

(4) Check for gas leakage.
- Check the flare connections for gas leakage.

(5) Discharge the refrigerant.
- Close the valve on the gas cylinder and discharge the refrigerant until the gauge indicates 3 to 5 kg/cm^{2}g.

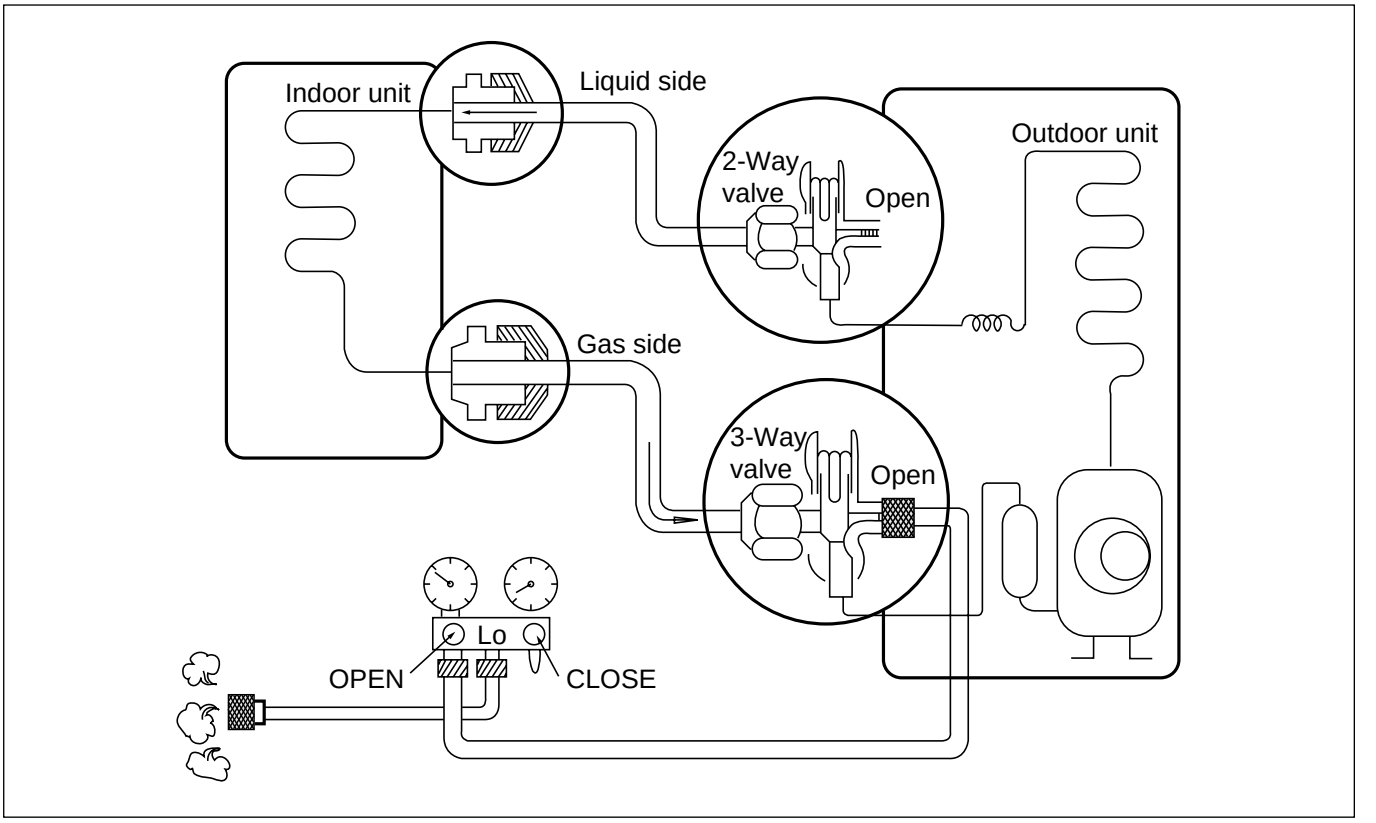
(6) Disconnect the charge set and the gas cylinder, and set the 2-way and 3-way valves to the open position.
- Be sure to use a hexagonal wrench to operate the valve stems.

(7) Mount the valve stem nuts and the service port nut.
- Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
- Be sure to check for gas leakage.

*** CAUTION:**
Do not leak the gas in the air during Air Purging.

2) Balance refrigerant of the 2-way, 3-way valves

(Gas leakage)



• Procedure

(1) Confirm that both the 2-way and 3-way valves are set to the back seat.

(2) Connect the charge set to the 3-way valve's port.

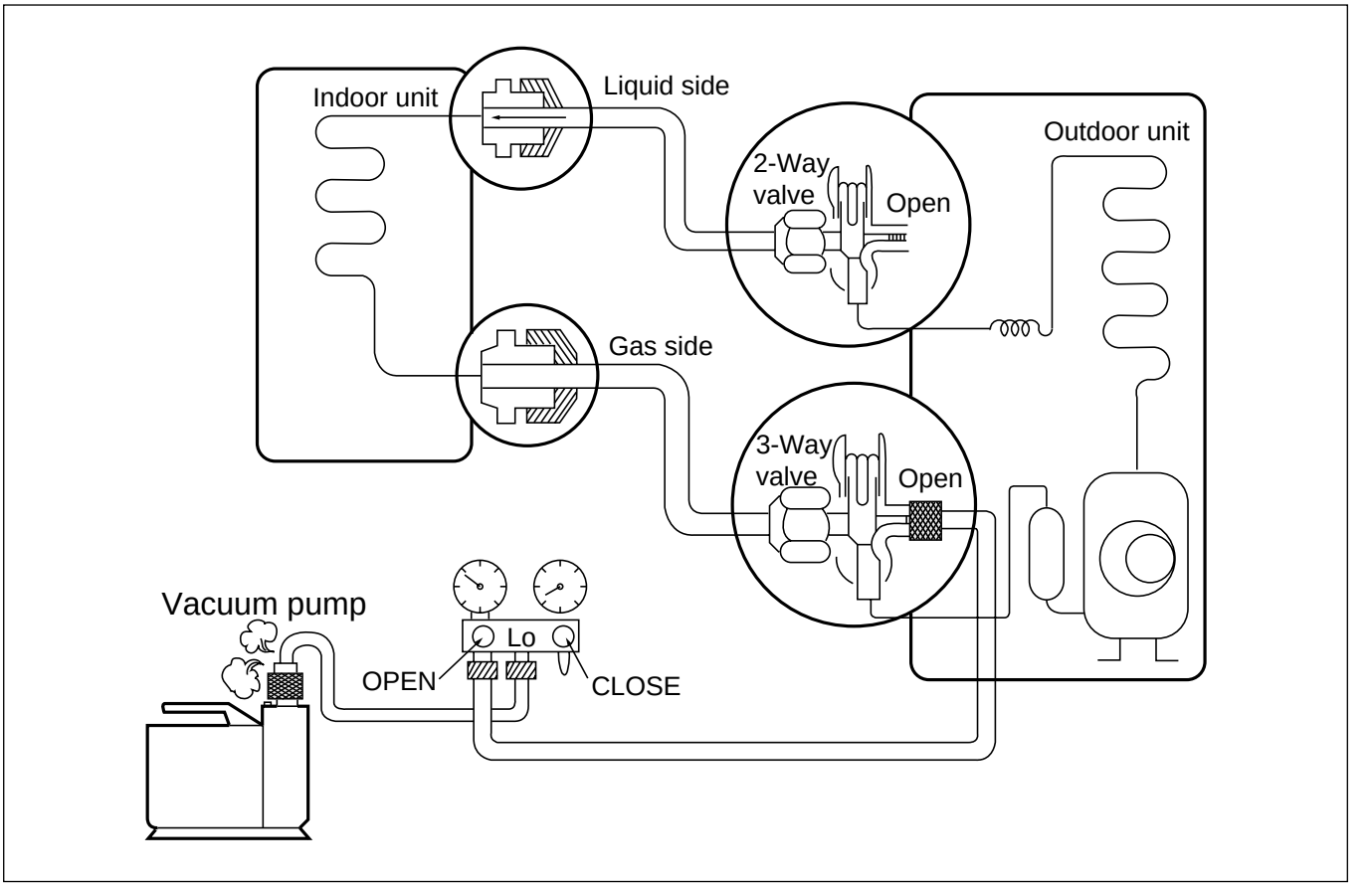
– Leave the valve on the charge set closed.
– Connect the charge hose with the push pin to the service port.

(3) Open the valve (Lo side) on the charge set and discharge the refrigerant until the gauge indicates 0 kg/cm²G.

– If there is no air in the refrigerant cycle (the pressure when the air conditioner is not running is higher than 1 kg/cm²G), discharge the refrigerant until the gauge indicates 0.5 to 1 kg/cm²G. if this is the case, it will not be necessary to apply a evacuatin.
– Discharge the refrigerant gradually; if it is discharged too suddenly, the refrigeration oil will also be discharged.

3. Evacuation

(All amount of refrigerant leaked)



• Procedure

(1) Connect the vacuum pump to the charge set's center hose

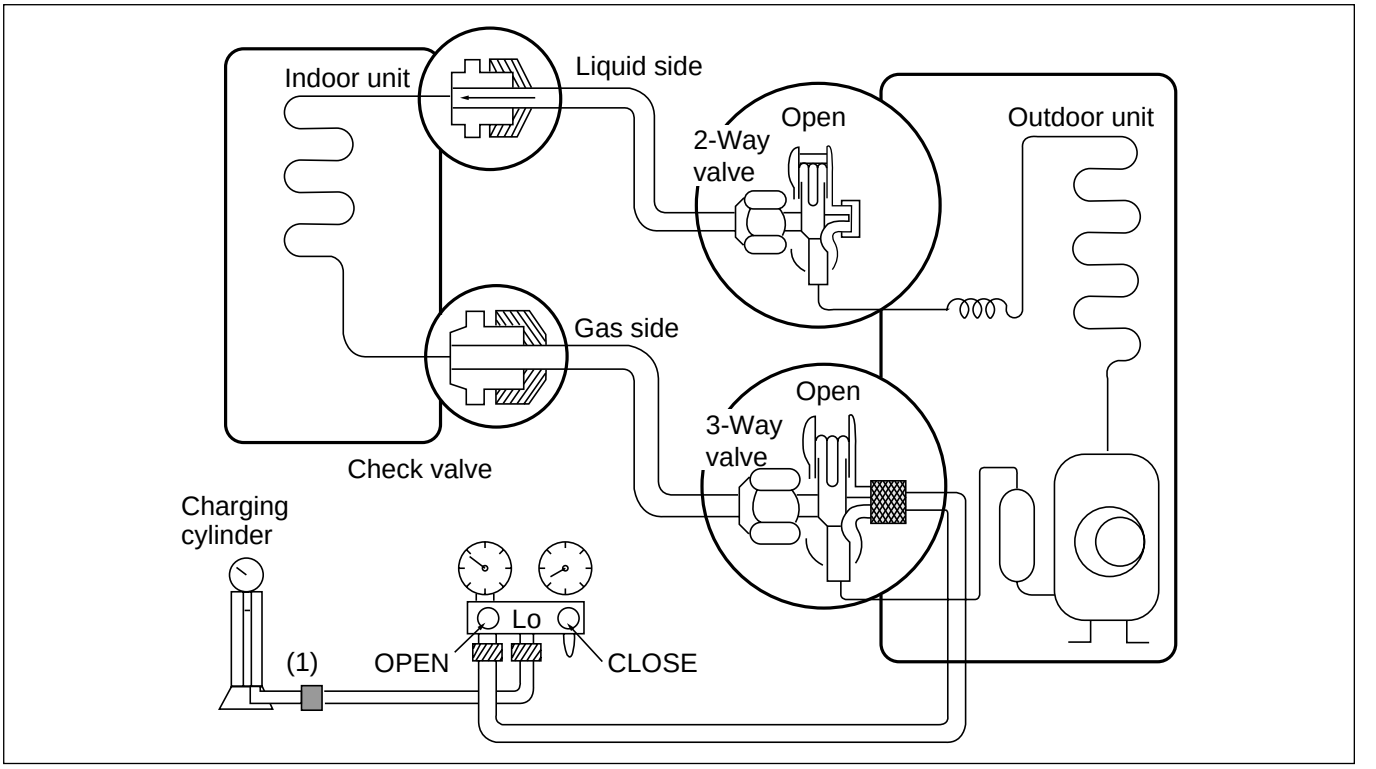
(2) Evacuation for approximately one hour.
– Confirm that the gauge needle has moved toward -76 cmHg (vacuum of 4 mmHg or less).

(3) Close the valve (Lo side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).

(4) Disconnect the charge hose from the vacuum pump.
– Vacuum pump oil.
If the vacuum pump oil becomes dirty or depleted, replenish as needed.

4. Gas Charging

(After Evacuation)



• Procedure

(1) Connect the charge hose to the charging cylinder.
- Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.
- If you are using a gas cylinder, also use a scale and revers the cylinder so that the system can be charged with liquid.

(2) Purge the air from the charge hose.
- Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air. (Be careful of the liquid refrigerant). The procedure is the same if using a gas cylinder.

(3) Open the valve (Lo side on the charge set and charge the system with liquid refrigerant.
- If the system can not be charged with the specified amount of refrigerant, it can be charged with a little at a time (approximately 150g each time) while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure (pumping down-pin).

This is different from previous procedures.
Because you are charging with liquid refrigerant from the gas side, absolutely do not attempt to charge with larger amounts of liquid refrigerant while operating the air conditioner.

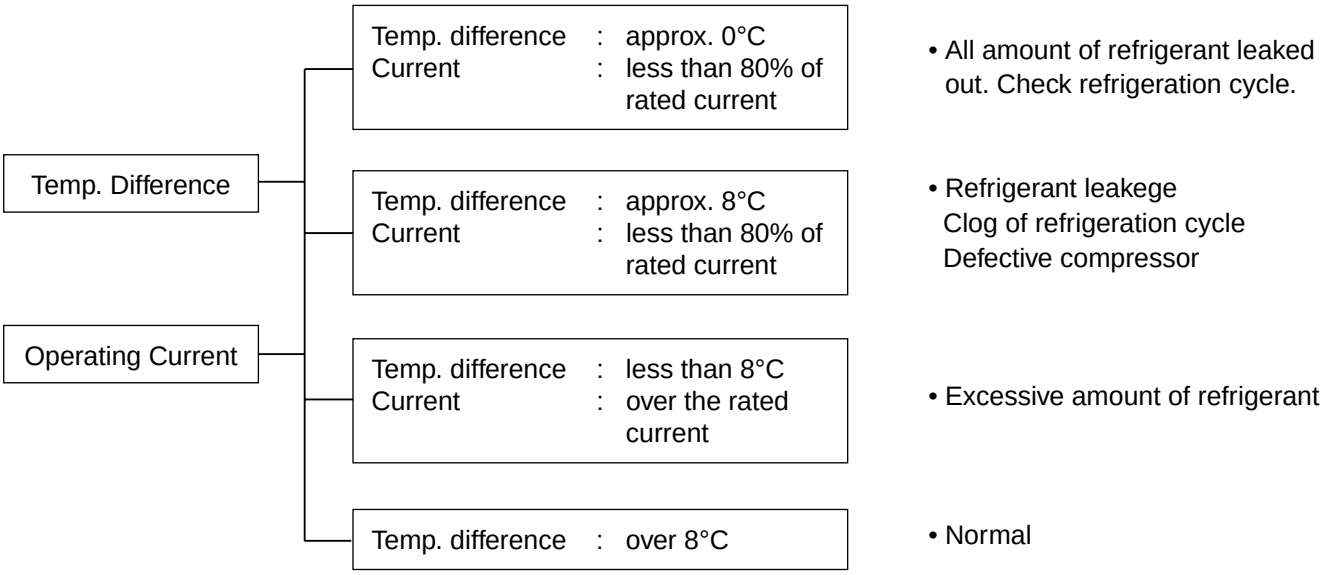
(4) Immediately disconnect the charge hose from the 3-way valve's service port.
- Stopping partway will allow the gas to be discharged.
- If the system has been charged with liquid refrigerant while operating the air conditioner turn off the air conditioner before disconnecting the hose.

(5) Mount the valve stem nuts and the service port nut.
- Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.
- Be sure to check for gas leakage.

Cycle Troubleshooting Guide

Trouble analysis

1. Check temperature difference between intake and discharge air and operating current.



Notice :
Temperature difference between intake and discharge air depends on room air humidity. When the room air humidity is relativery higher, temperature difference is smaller. When the room air humidity is relatively lower temperature difference is larger.

2. Check temperature and pressure of refrigeration cycle.

Suction pressure (Compared with the normal value)	Temperature (Compared with the normal valve)	Cause of Trouble	Description
Higher	High	Defective compressor Defective 4-way reverse valve	Current is low.
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation.
Lower	Higher	Insufficient amount of refrigerant (Leakage) Clogging	Current is low. Current is low.

Notice :
1. The suction pressure is usually 4.0~6.0 kg/cm^{2}G(Cooling) at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Self-diagnosis function

1. The malfunction indicator of indoor (see the operating LED of the INDOOR)

Error Code	The cause of malfunction	Malfunction indicator	The operating state
①	Indoor TH. is short or open.	The operating LED will be blinking once.	Keep operating state.
②	Outdoor TH. is short or open.	The operating LED will be blinking twice.	Keep operating state.
④	Temp. of Heat sink is over 95°C.	The operating LED will be blinking 4 times.	Restart compressor when OLP TH Temp is 85°C below.
⑤	Comunication error (serial comunication).	The operating LED will be blinking 5 times.	The operation is off(enable to restart by remote controller).
⑥	DC peak error.	The operating LED will be blinking 6 times.	Compressor will be turned off immediately.
⑦	Running current is overloaded.	The operating LED will be blinking 7 times.	Compressor will be turned off immediately.
⑩	D-PIPE TH is short or open.	The LED01M will be blinking 10 times.	Compressor will be turned off immediately.

❋ Error code ⑥, ⑦ can't be operated unless the power cord is removed.

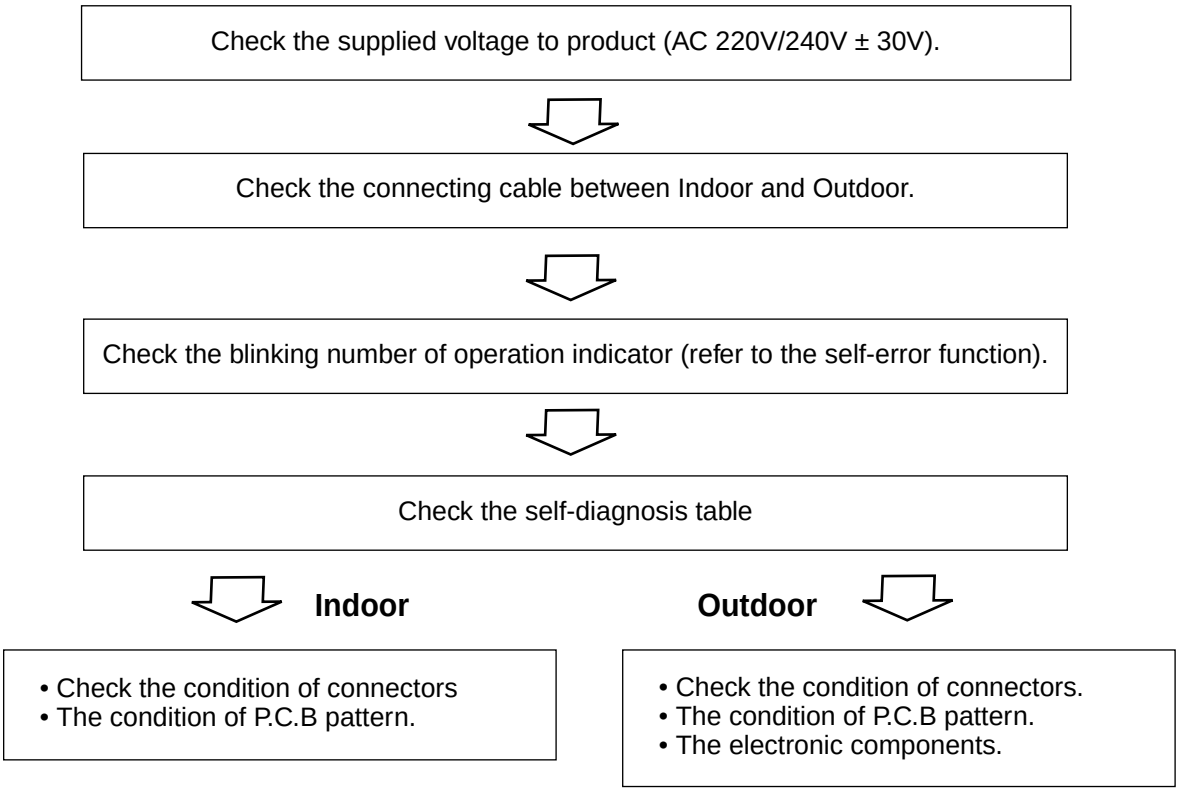
2. The malfunction indicator of outdoor (see the LED01M on the outdoor PCB ass'y)

Error Code	The cause of malfunction	Malfunction indicator	The operating state
②	Indoor TH. is short or open.	The LED01M will be blinking twice.	Keep operating state.
④	Temp. of Heat sink is over 95°C.	The LED01M will be blinking 4 times.	Restart comp. on in the OLP short state.
⑤	Comunication error (serial comunication).	The LED01M will be blinking 5 times.	The operation is off(enable to restart by remote controller).
⑥	DC peak error.	The LED01M will be blinking 6 times.	Compressor will be turned off immediately.
⑦	Running current is overloaded.	The LED01M will be blinking 7 times.	Compressor will be turned off immediately.
⑩	D-PIPE TH is short or open.	The LED01M will be blinking 10 times.	Compressor will be turned off immediately.

■ Precaution in Service or Check

Even after stopping the operation of product, it takes some time to discharge the remaining electricity of the electrolytic capacitor that was charged. Before starting a checking or repairing job, pull out the plug out of the outlet and make sure that the lamp on the control board outdoor unit is off.

■ The Diagnosis Procedure



Electronic Parts Troubleshooting Guide

❋ Refer to electronic contorol device drawing & schematic diagram.

Trouble 1 The Product doesn't operate at all.

Turn off the main power and wait to 10 seconds

⇩

Turn on the main power again.

⇩

Does "Beeping" sound is made from the indoor unit?

NO ⇩

Check the voltage of power(AC220V/AC240V, 50Hz).

- The voltage of main power.
- The voltage applied to the unit.
- The connecting method of Indoor/Outdoor connecting cable (each color)
- The P.W.B. Ass'y

(Fuse, Noise Filter, SMPS Transformer, Bridge Diode, etc.)

YES ⇩

- Primarily, the operating condition of Micom is O.K.

⇩

- Check CN-DISP1
  CN-DISP2

The operation check of the Indoor P.C.B. Ass'y

Procedure	Specification	Remedy
1) The input voltage of power transformer.	1) AC230V ± 30V : Check the rated voltage	1) Replace power transfomer.
2) The output voltage of SI TRANS	2) 12V ± 3V	2) Replace SMPS transfomer.
4) IC04D(7805)	4) DC5V	4) Replace IC04D.
5) IC01A(KIA7036)	5) The voltage of micom pin 19 : DC4.5V↑	5) Replace IC01A.

Trouble 2 Product doesn't operate with the remote controller.

Turn on main power.

While the compressor has been stopped, the compressor does not operate owing to the delaying function for 2 minutes after stopped.

When the compressor stopped Indoor Fan is driven by a low speed.
At this point the wind speed is not controlled by the remote controller.
(When operated in the Sleeping Mode, the wind speed is set to the low speed as force).)

Caused by the remote controller.

When the mark ( ) is displayed in LCD screen, replace battery.

When the detect switch (double key) inside the remote controller door is fault, it is impossible to operate temperature regulating(▲ / ▼) and wind speed selecting.

Check the connecting circuit between the remote controller MICOM(No.30)-R17(2Ω)-IR-LED-Tr-R16(2.2kΩ)

Caused by other parts except the remote controller

Check the contact of CN-DISP 1, 2 connector

Check DISP PWB Ass'y
-Voltage between CN1 ① - ② : DC +5V

Check point
- Check the connecting circuit between MICOM PIN ⑭
- Check receiver ass'y

Trouble 3 The Compressor/Outdoor Fan are unable to drive.

Turn on the main power.

⇩

Operate Cooling Mode by setting the disired temperature of the remote controller is less than one of the Indoor temperature by 1°C at least.

⇩

When in air circulation mode, compressor/outdoor fan is stopped.

⇩

Check the sensor for Indoor temperature is attatched as close as to be effected by the themperature of Heat Exchange (EVA.)

⇩

When the sensor circuit for Indoor temperature and connector are in bad connection or are not engaged, Compressor/Outdoor fan is stopped.

- Check the related circuit of R02H(12.1K), R01H(6.2K), R04H(1K), R03H(1K), C01H(103), C02H(103), Micom(pin No. 4.5).
- Check the Indoor temperature sensor is disconnected or not (about 10K at 25°C).

⇩

Check the Relay(RY-PWR) for driving Compressor.

- Check the voltage between brown and blue cable of terminal to connect the Outdoor (About AC220V / 240V).
- Check the related circuit of relay in Outdoor PCB Ass'y.

Check Point	Comp. ON	Comp. OFF
Between Micom(No. 46) and GND	DC 5V	DC 0V
Between IC01M(No. 15) and GND	DC 1V↓	DC 12V

⇩

Turn off main power.

⇩

Check the electrical wiring diagram of Outdoor side.
Check the open or short of connecting wires between Indoor and Outdoor.

Trouble 4 When indoor Fan does not operate.

Turn off main power.

↓

Check the connection of CN-MOTOR.

↓

Check the Fan Motor.

↓

Check the Fuse(AC250V, T2A).

↓

Check the related circuit of indoor Fan Motor.

- The pin No.45 of micom and the part for driving SSR.
- Check the related pattern.
- Check the SSR.
  - SSR Open: Indoor Fan Motor never operate.
  - SSR short: Indoor Fan Motor always operates in case of ON or OFF.

↓

Turn on the main power

↓

Check the SSR high speed operation by remote control.
(the Indoor Fan Motor is connected)

The voltage of Pin No 1(orange) and 3(black) of CN-MOTOR.

↓

About AC 180V over	About AC 50V over
↓	↓
SSR is not damaged	Check SSR

Trouble 5 When the horizontal louver does not operate.

- Confirm that the vertical louver is normally geared with the shaft of Stepping Motor.
- If the regular torque is detected when rotating the vertical louver with hands ⇒ Normal

⇩

- Check the connecting condition of CN-U/D Connector
- Check the soldering condition(on PCB) of CN-U/D Connector

⇩

Check the operating circuit of the vertical louver

- Confirm that there is DC +12V between pin ① of CN-U/D and GND.
- Confirm that there is a soldering short at following terminals.
  - Between ㊶, ㊷, ㊸ and ㊹ of MICOM
  - Between ④, ⑤, ⑥ and ⑦ of IC01M
  - Between ⑩, ⑪, ⑫ and ⑬ of IC01M

⇩

If there are no problems after above checks.

- Confirm the assembly condition that are catching and interfering parts in the link of the vertical louver

Trouble 6 The Outdoor Unit does not operate at all.

Does the Operating LED of indoor unit blink when Operation's ON?

YES → Refer to the self-diagnosis function.

NO ↓

Is the Connection between indoor power relay Pin ③ and terminal block No. 1 right?

NO → Check the connecting state of connector

YES ↓

Is the connection of cable between indoor and outdoor unit right?

NO →

Indoor	Outdoor
1(Brown)	1(Brown)
2(Blue)	2(Blue)
3(Green/YL)	3(Green/YL)
4(Red)	4(Red)

YES ↓

Is the voltage of CN-POWER ①, ② in outdoor PCB Ass'y about AC220V / 240V when Operation's ON?

NO → Check the Fuse of Outdoor PCB Ass'y.

YES ↓

Is the voltage of Terminal Block ①, ② in outdoor PCB Ass'y about AC220V / 240V?

NO → Check the PTC and RY-PWR.

YES ↓

Is the Bridge Diode(DB01S) right?

NO → Replace the Bridge Diode.

NO ↓

Replace the PCB Ass'y.

Trouble 7-1 When compressor does not operate normally.

■ **DC Peak Error(Error Code ⑥)**

Does the LED01M of outdoor PCB Ass'y blink 6 times?

NO → Check the state of connecting cable (3 line) between indoor and outdoor uint.

YES ↓

Is the connecting state of connectors in outdoor. PCB Ass'y right? (CN-UVW)

NO →
- Electrical wiring diagram (Colors)
- Check the connecting state of connectors in PCB Ass'y
- If CN-UWV is connected, the comprressor can be operated a opposite direction.

YES ↓

Is the power module in PCB Ass'y right?

NO →
- Check the short P-N P-U, V, W, and N-U, V, W of IPM and then collector, emiter of IGBT

YES ↓

Is the voltage of T/Block ①, ③ over than AC150V?

NO → Check the supplied voltage.

YES ↓

Is the voltage of GND-IPM(22 pin) over than about DC280V?

NO →
- Check the DC voltage between IPM 2pin GND

YES ↓

Is the refrigerant pressure right?

NO → Supply the refrigerant.

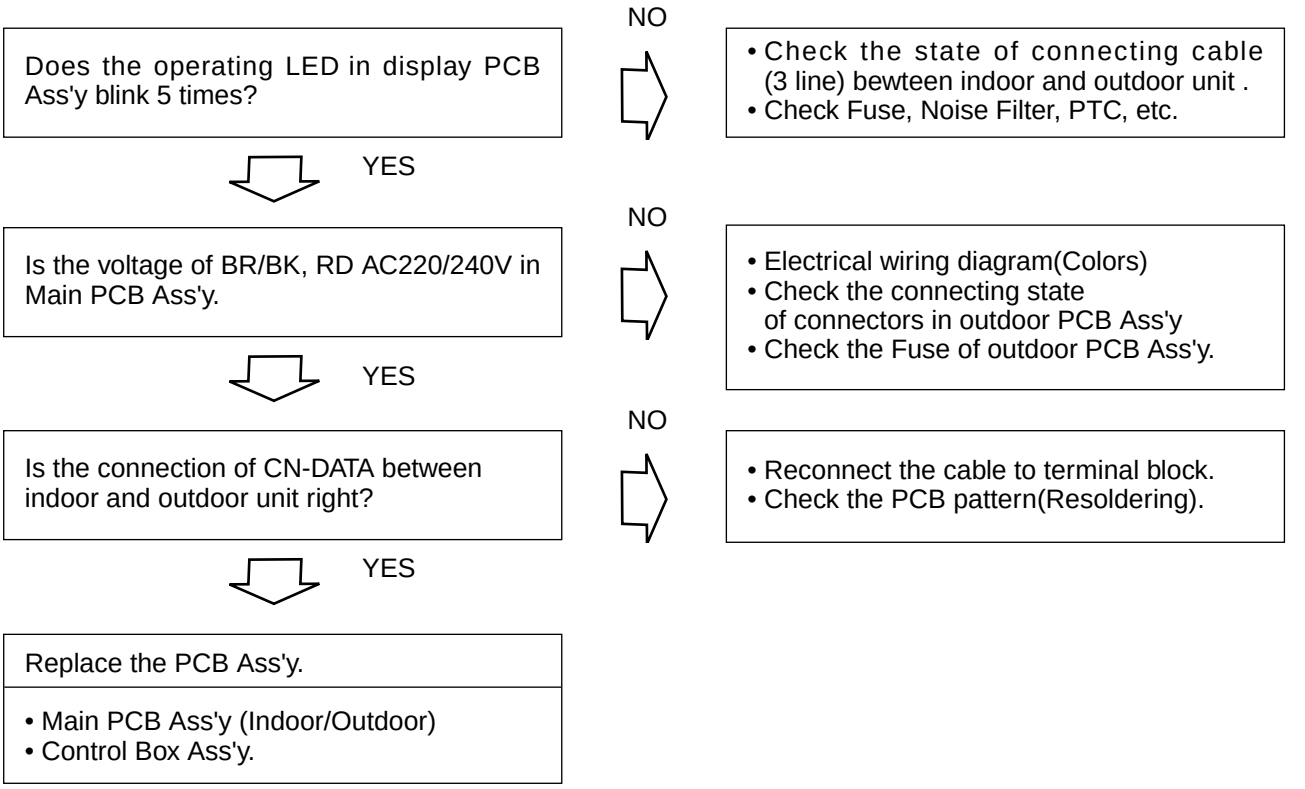
NO ↓

Replace the PCB Ass'y.

- Main PCB Ass'y
- Control Box Ass'y

Trouble 7-2 When compressor does not oprate normally.

■ **Communication error between Indoor and Outdoor (Error Code ⑤)**



Trouble 7-3 When compressor does not oprate normally.

■ **CT Error (Error Code ⑦)**

Does the operating LED in Display PCB Ass'y blink 7 times?

NO → • Check the state of connecting cable (3 line) bewteen Indoor and Outdoor Unit .
• Check fuse, Noise Filter, PTC, etc.

YES ↓

Is the courrent transformer(CT) in Main PCB Ass'y right?

NO → Check the PCB pattern(resoldering)

YES ↓

Is the indoor/outdoor fan locked?

NO → Check the indoor/outdoor fan motor.

YES ↓

Is the discharge temperature of Indoor unit right(11°C~17°C) in the cooling mode?

NO → Check the compressor.

YES ↓

Is the refrigerant pressure right?

NO → Supply the refrigerant

YES ↓

Replace the PCB Ass'y.

- Main PCB Ass'y(Outdoor)
- Control Box Ass'y(Outdoor)

■ The problem of missing the connector (INDOOR MAIN PCB ASSY)

Connectors	Condition	Problem (error mode)
CN-POWER	OPEN	• Malfunctions all indoor & outdoor unit. • Malfunctions remocon, force, test operation mode.
CN-FAN	OPEN	• Malfunctions indoor fan motor.
CN-DATA	OPEN	• Malfunctions outdoor unit. • Stop compressor and outdoor fan motor. • The operation LED blinks 5 times. • Communicaion error.
CN-DISP1	OPEN	• Malfunctions remote contoller. • Don't operate the power display module.
CN-DISP2	OPEN	• Don't operate the power display module.
CN-TH	OPEN/SHORT	• The operation LED blinks twice. • Enable to receive remote singnal.
CN-U/D	OPEN	• Malfunctions UP/DOWN step motor. • Don't operate louver.

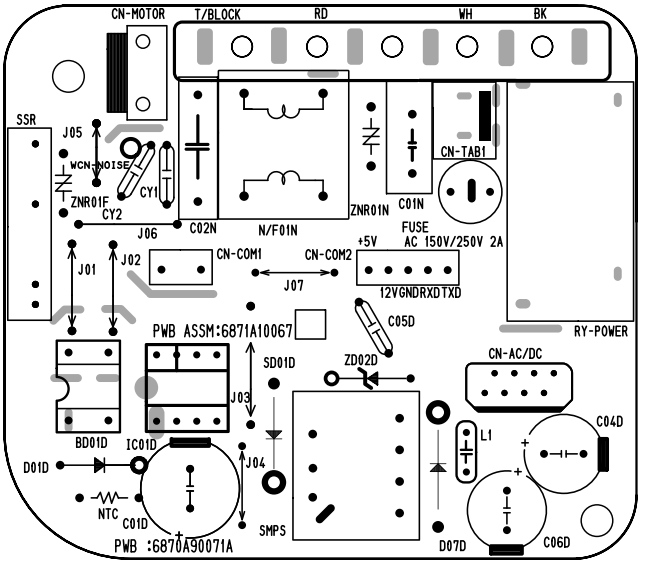
■ The problem of missing the connector (OUTDOOR MAIN PCB ASSY)

Connectors	Condition	Problem (error mode)
CN-4 WAY	OPEN	• Malfunctions 4-WAY valve.
CN-FAN	OPEN	• Malfunctions fan
CN-TH	OPEN/SHORT	• The operation LED blinks twice. • The LED01M blinks twice.
CN-COMP	OPEN/SHORT	• The LED01M blinks 10 times. • Continue Comp. operation. (when the discharge pipe TH opens) • Stop Comp. operation (when the discharge pipe TH shorts)
CN-UVW	OPEN	• Stop compressor.

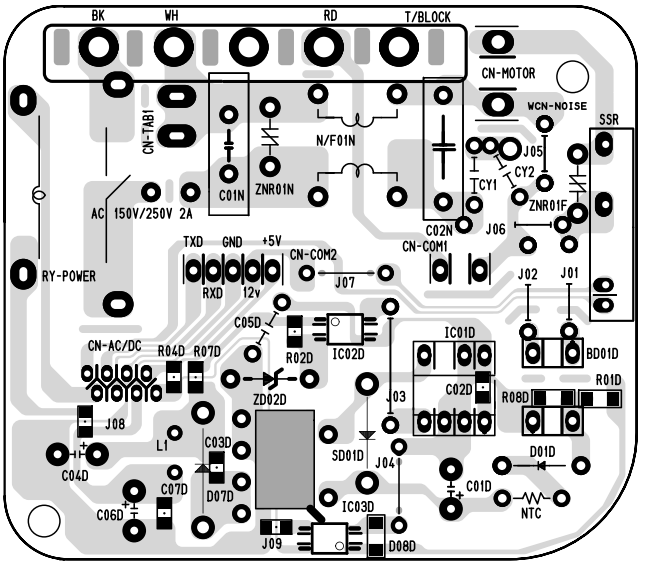
Electronic Control Device

(1) MAIN PCB ASS'Y(INDOOR)

TOP VIEW (AC PART)

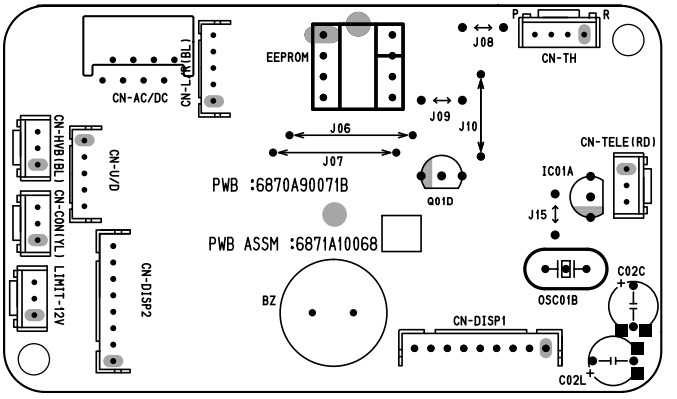


BOTTOM VIEW (AC PART)

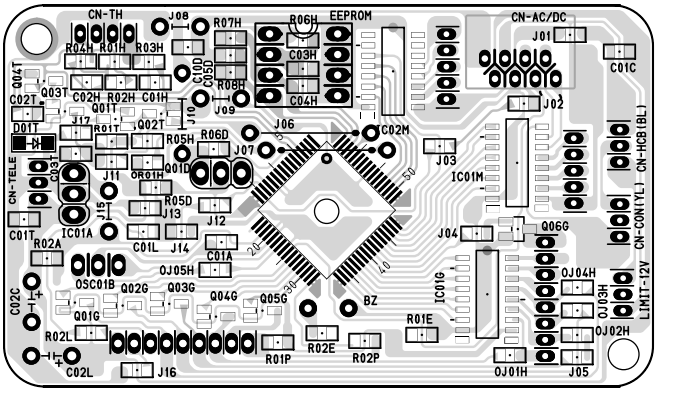


PCB ASS'Y SVC PART LIST: 6871A10067B
6871A0067E(LS-L12632L)

TOP VIEW (DC PART)



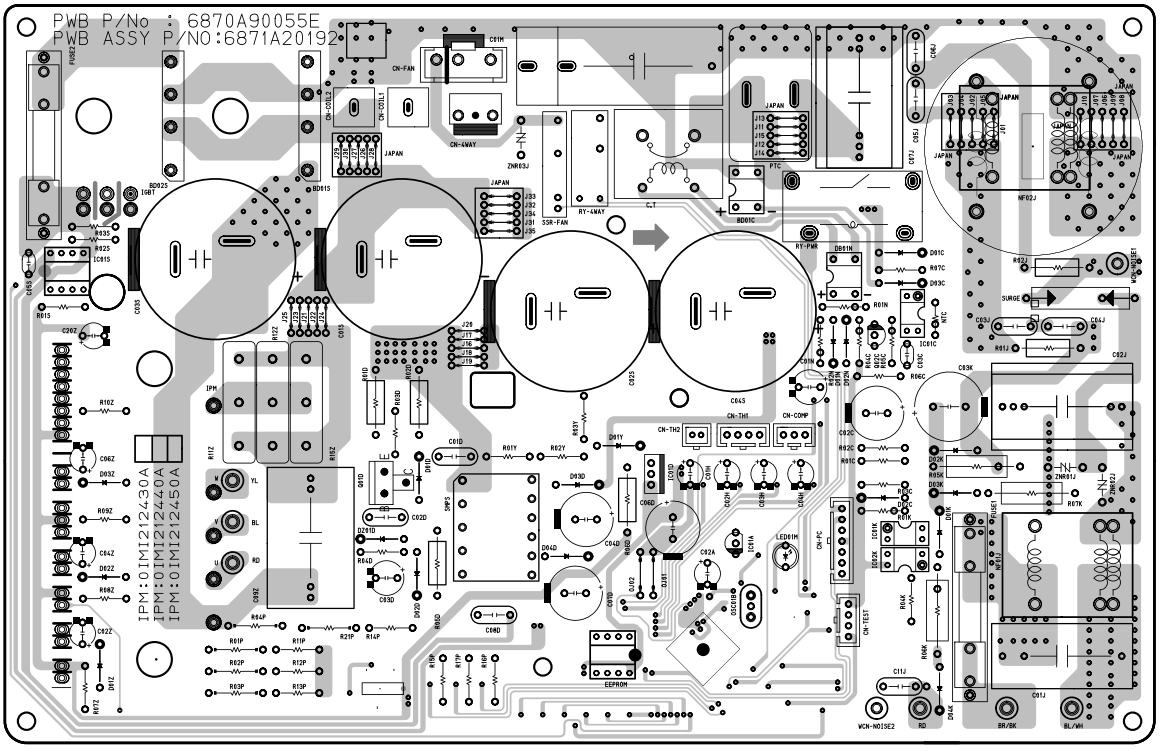
BOTTOM VIEW (DC PART)



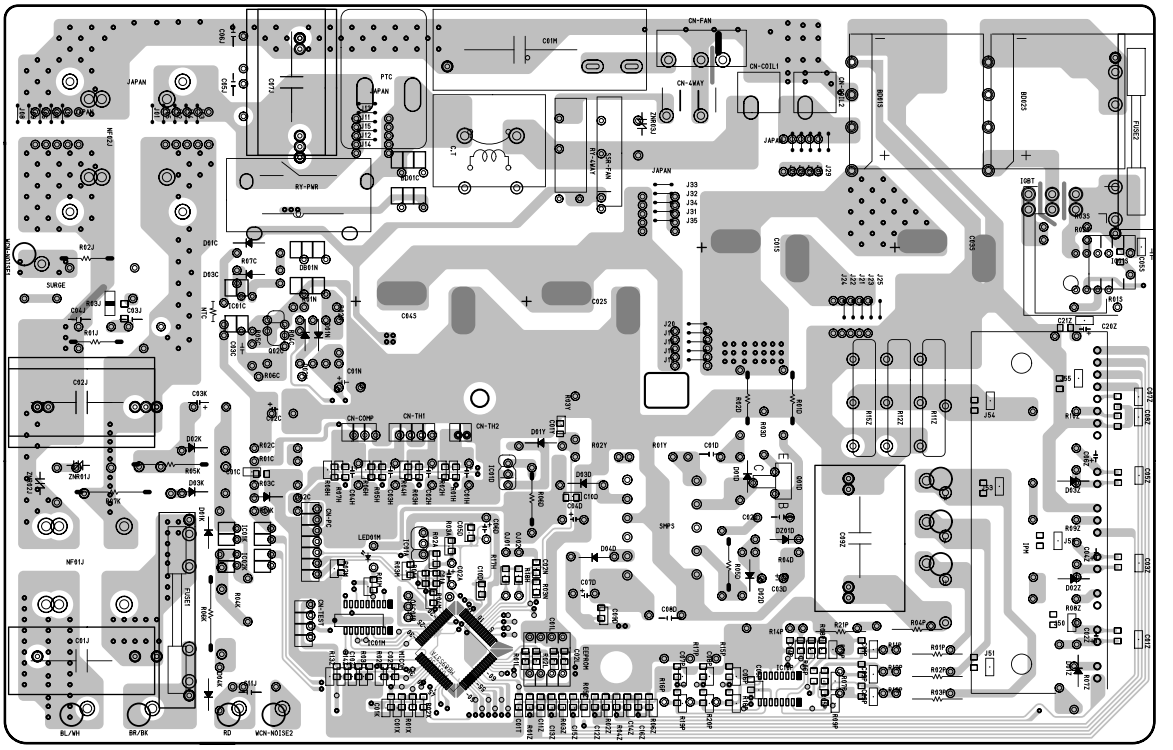
PCB ASS'Y SVC PART LIST: 6871A10068G (7K_YL Series)
6871A10068T (7K_NN Series)
6871A10068J (12K_YL Series)
6871A10068V (12K_NN Series)
6871A10068L (9K_UL Series)
6871A10068M (12K_UL Series)
6871A10068N(LS-L12632L)

(2) MAIN PCB ASS'Y(OUTDOOR)

TOP VIEW



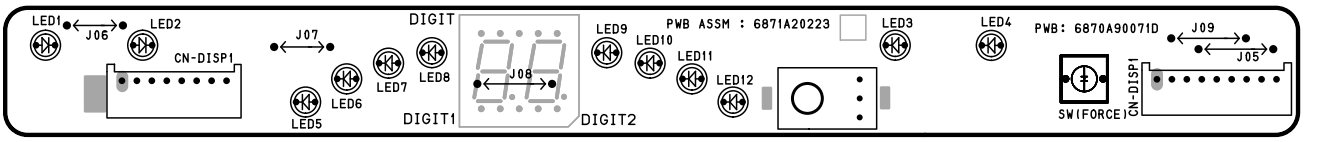
BOTTOM VIEW



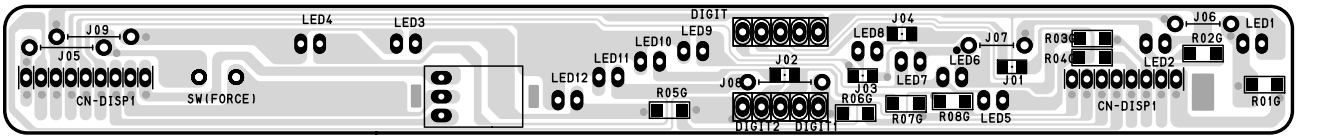
PCB ASS'Y SVC PART LIST : 6871A20192G (7K_Series) } AC
6871A20192J (12K_Series) }
6871A20192L (9K_Series) } DC
6871A20192M (12K_Series) }
6871A20193S (LS-L12632L) - AC

(3) DISPLAY ASS'Y

_YL, _UL Series
TOP VIEW

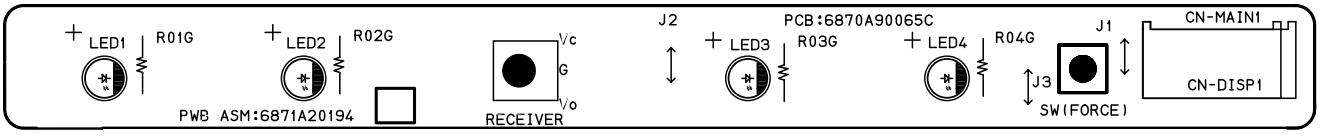


BOTTOM VIEW

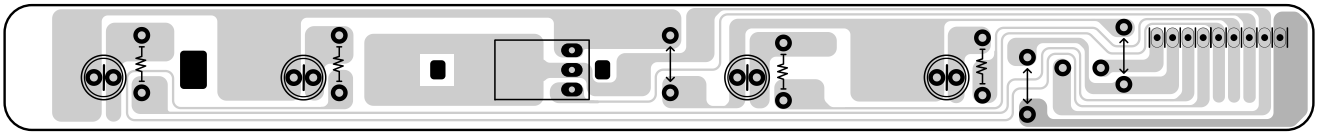


PCB ASS'Y SVC PART LIST: 6871A20223A (_YL Series)
6871A20254A (_UL Series)
6871A20223C (LS-L12632L)

_NM, _NN Series
TOP VIEW



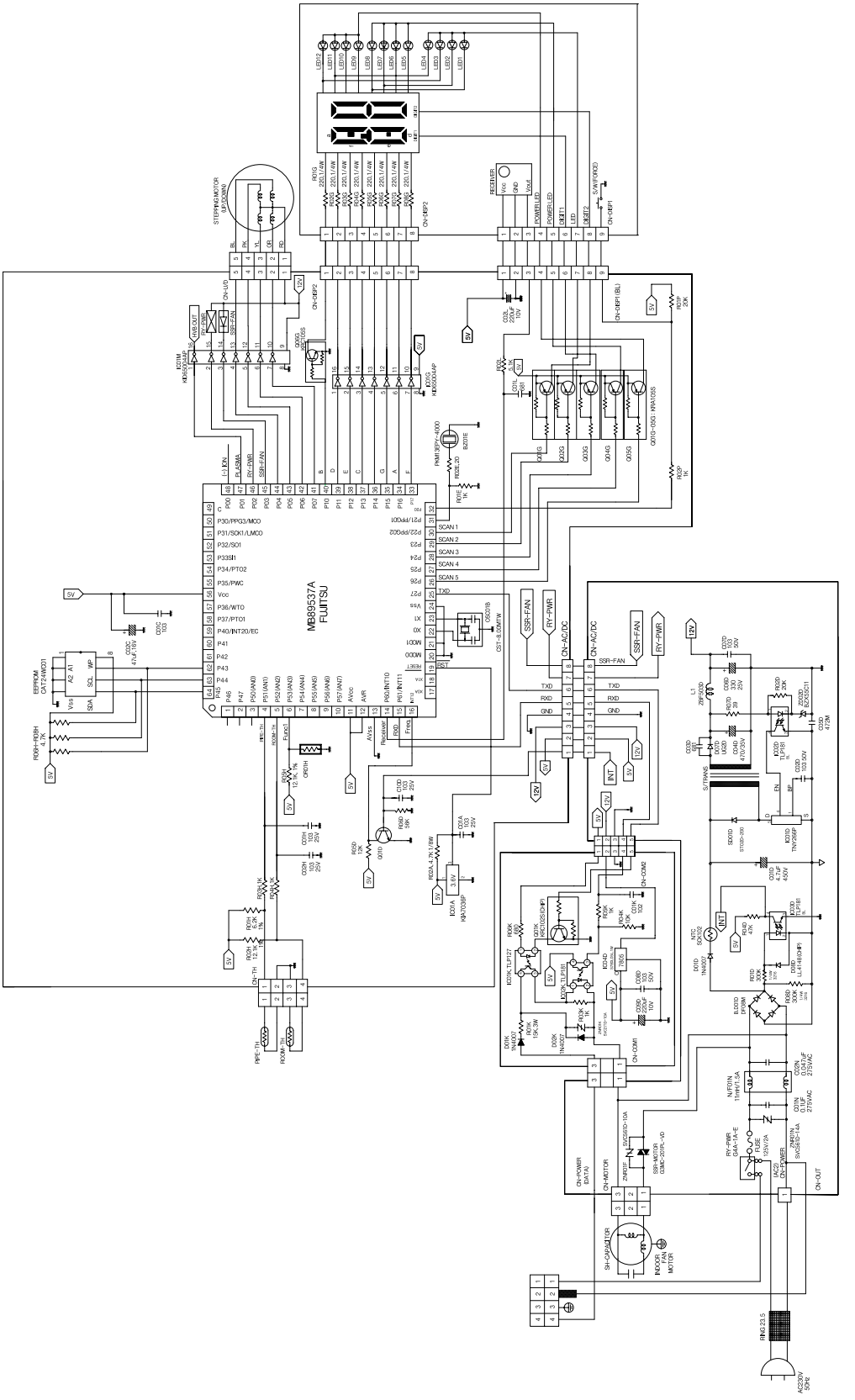
BOTTOM VIEW



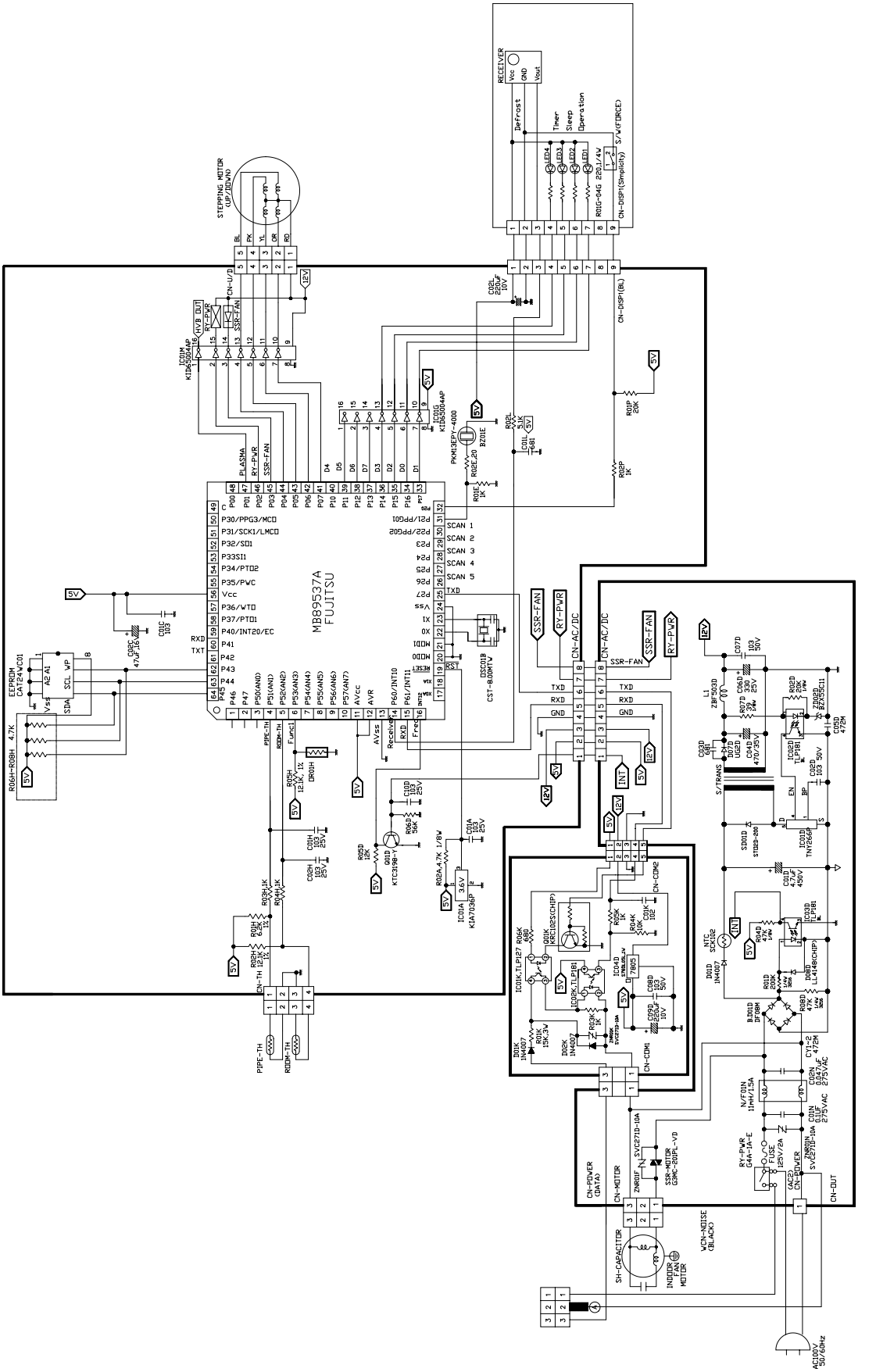
PCB ASS'Y SVC PART LIST: 6871A30009U

Schematic Diagram

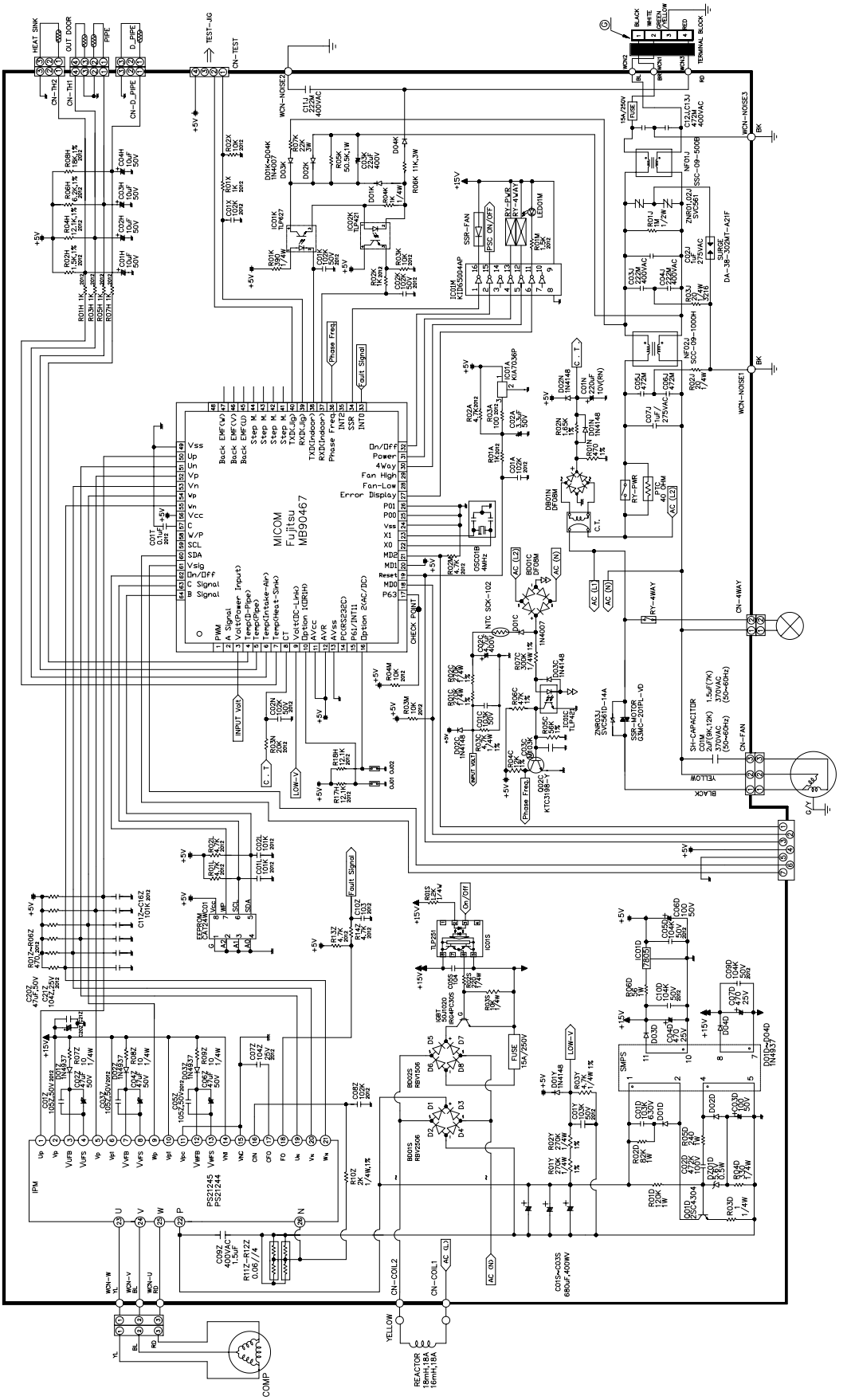
Indoor (_YL, _UL Series)



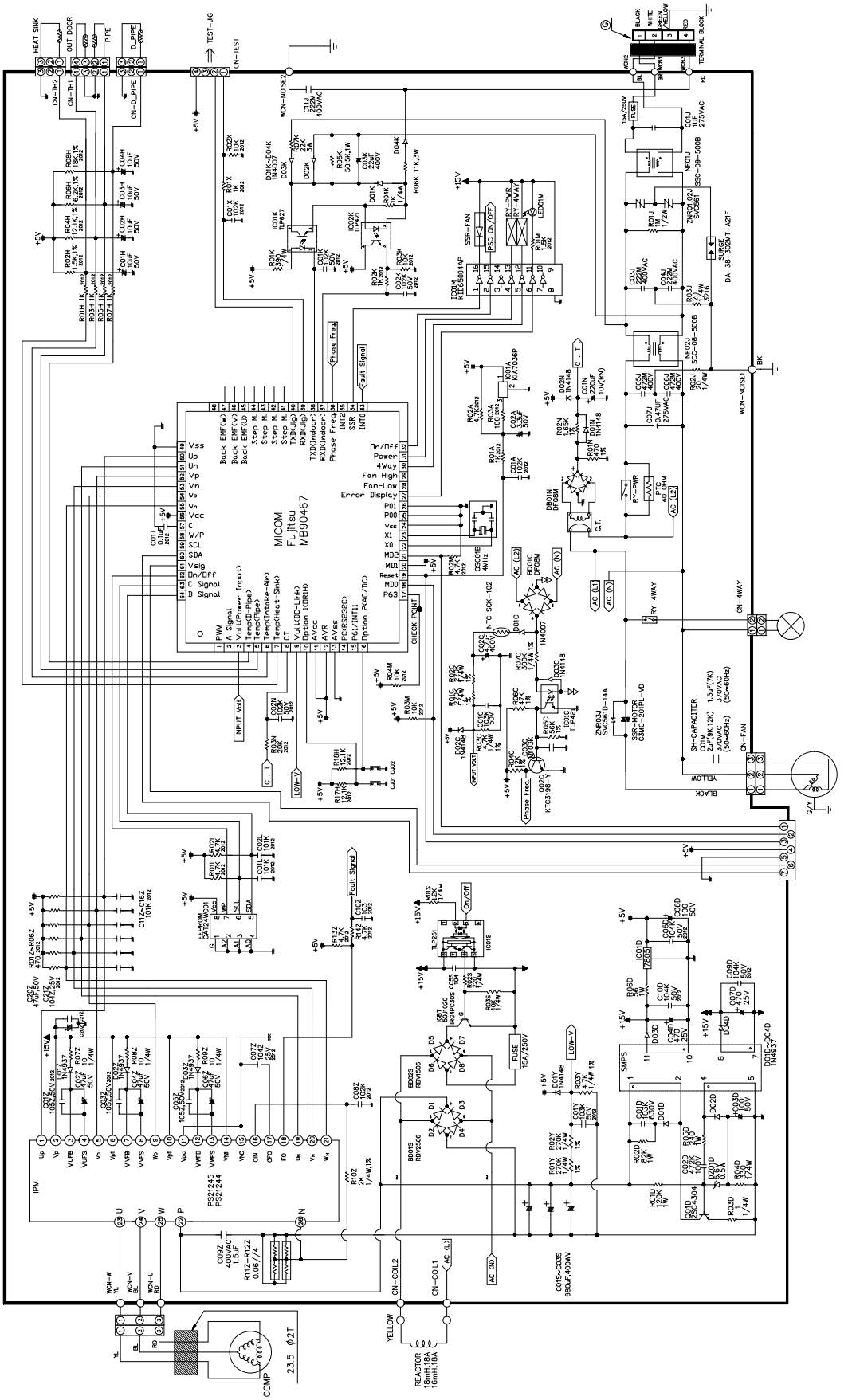
Indoor (_NM, _NN Series)



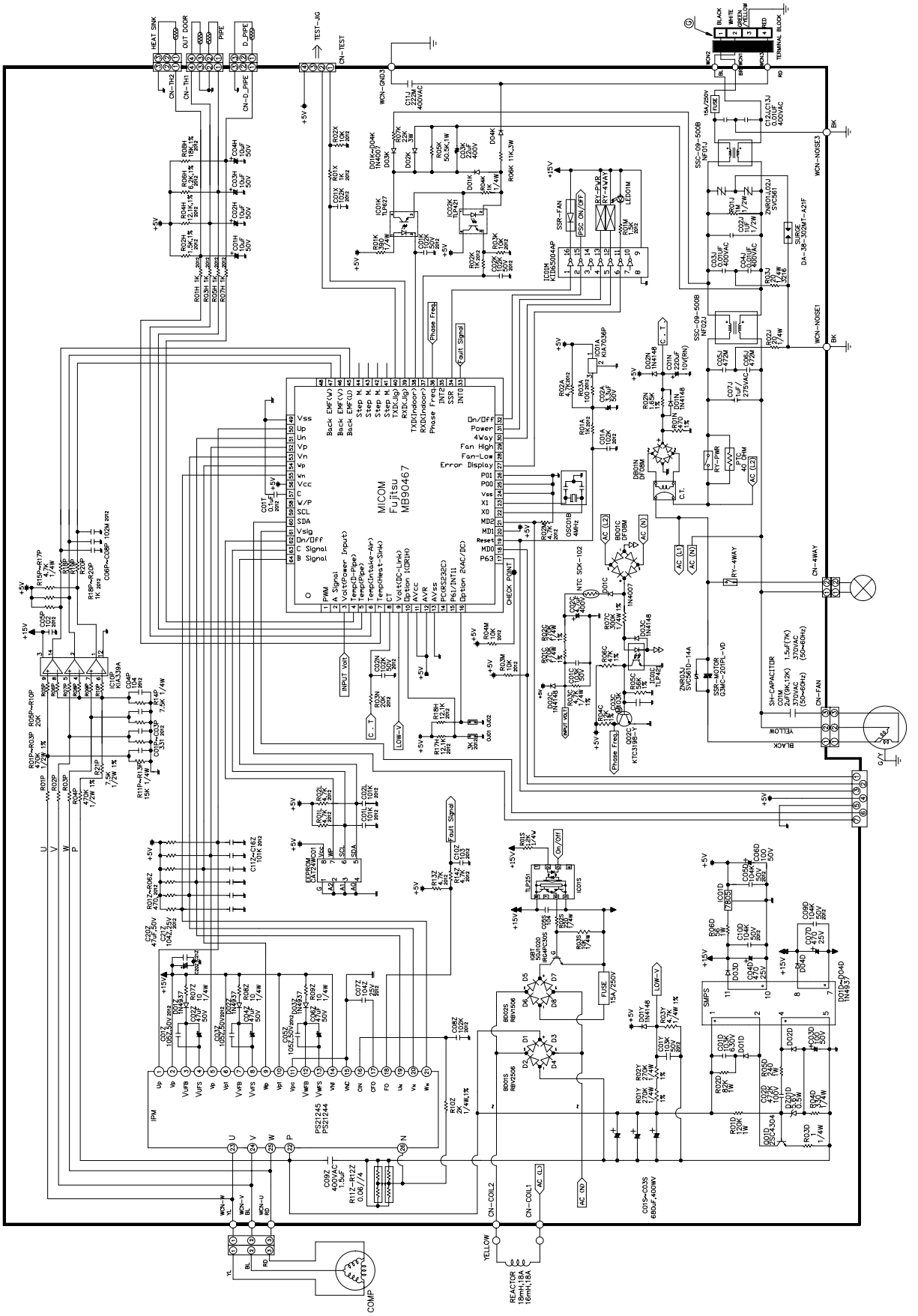
Outdoor (7K AC Series)



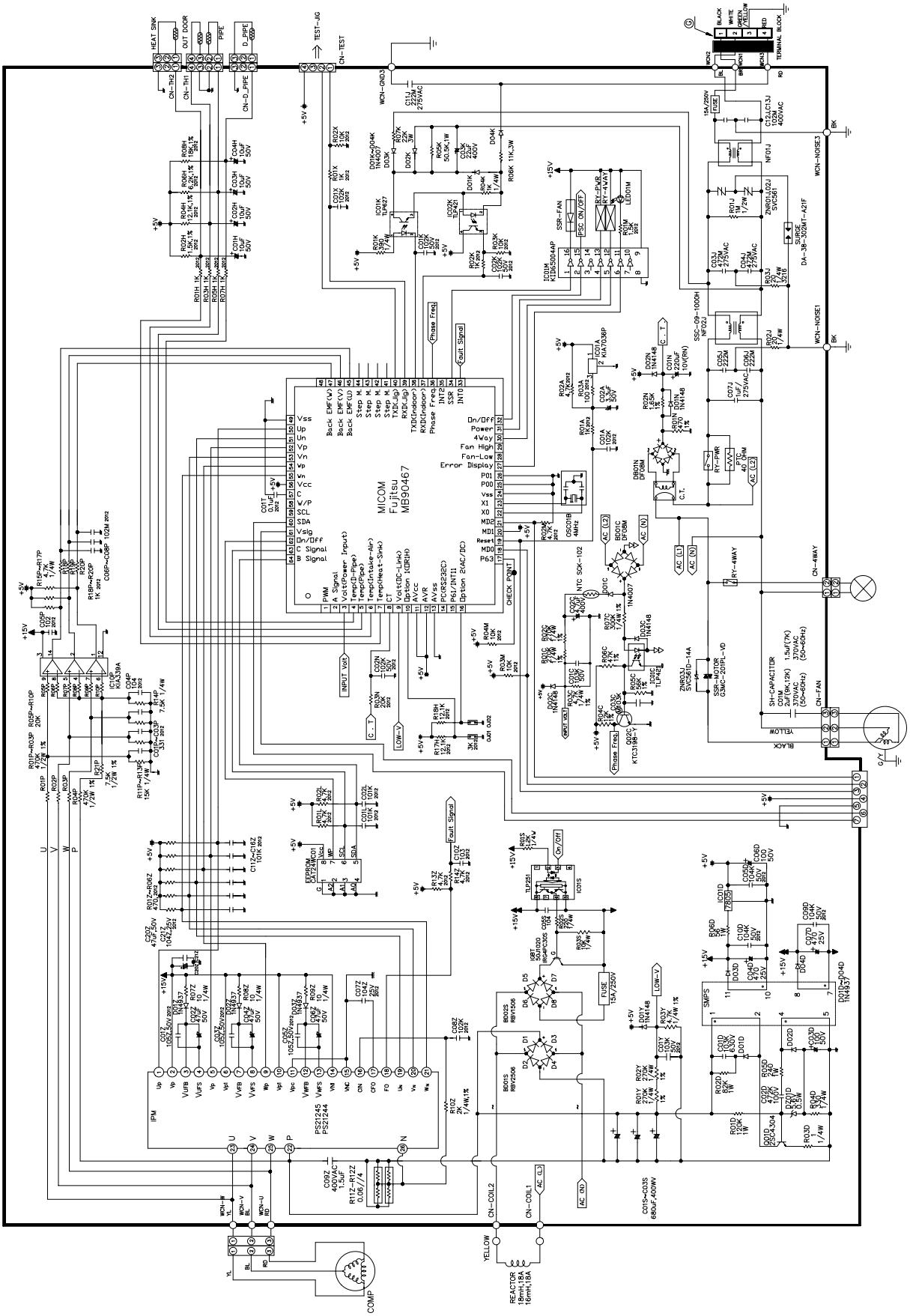
Outdoor (12K AC Series)



Outdoor (9K DC Series)

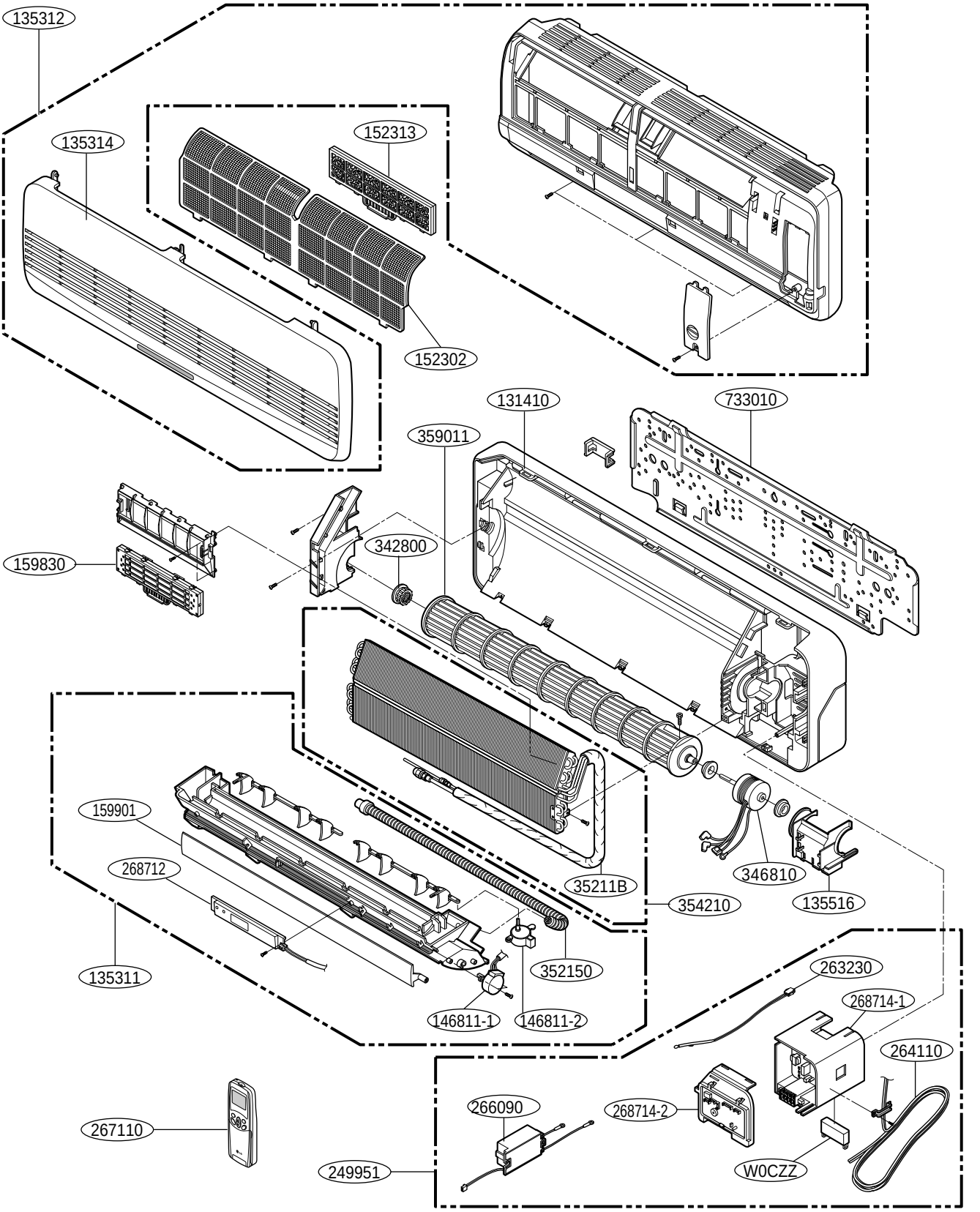


Outdoor (12K DC Series)



Exploded View and Replacement Parts List

1. Indoor Unit



Parts List(indoor)

LOCATION No.	DESCRIPTION	PART No.			REMARKS
		LS-J0762YL	LS-L1262YL	LS-L12632L	
131410	*CHASSIS ASSEMPLY	3831A20001D	3831A20003B	3141A20003B	R
135311	GRILL ASSEMBLY, DISCHARGE(INDOOR)	3531A10120D	3531A10121V	3531A10121X	R
135312	*GRILL ASSEMBLY, FRONT(INDOOR)	3531A20050T	3531A10148A	3531A10148C	R
135314	*GRILL ASSEMBLY, INLET SUB	3531A10047L	3531A20059J	3531A20201E	R
135316	COVER ASSEMBLY, MOTOR	3531A30054J	3531A30054K	3551A30054K	R
146811-1	MOTOR ASSEMBLY, STEP	4681A20055A	4681A20055A	4681A20055A	R
146811-2	MOTOR ASSEMBLY, STEP	-	-	5230A20004A	R
152302	FILTER(MECH), A/C	5230AR2630A	5230A20004A	5231A30001C	R
152313	FILTER ASSEMBLY, DEODORIZER	5231AR2412T	5231AR2412T	5983A10006A	R
159830	AIR CLEANER ASSEMBLY	-	-	5990A30006B	R
159901	*VAIN, HORIZONTAL	5900AR7225D	5990A30006B 5990A30007B	5990A30007B	R
249951	*CONTROL BOX ASSEMBLY, INDOOR	4995A20211B	4995A20211D	4995A20349A	R
263230	THERMISTOR ASSEMBLY	6323A20004A	6323A20004A	6323A20004A	R
264110	POWER CORD ASSEMBLY	6411A20013F	6411A20013B	6411A20032C	R
266090	H.V ASSEMBLY	-	-	6609A10003H	R
267110	REMOTE CONTROLLER ASSEMBLY	6711A20039V	6711A20039V	6711A20073U	R
268712	*PWB(PCB) ASSEMBLY, DISPLAY	6871A20233A	6871A20233A	6871A20223C	R
268714-1	PWB(PCB) ASSEMBLY, MAIN(AC)	6871A10067B	6871A10067B	6871A10067E	R
268714-2	*PWB(PCB) ASSEMBLY, MAIN(DC)	6871A10068G	6871A10068J	6871A10068N	R
342800	BEARING	3H02821B	3H02821B	3H02821B	R
346810	MOTOR ASSEMBLY, INDOOR	4681A20062C	4681A20003S	4681A20003S	R
35211B	TUBE ASSEMBLY, TUBING	5211AR7288A	5211AR7066B	5211AR7066B	R
352150	HOSE ASSEMBLY, DRAIN	5251AR2575A	5251AR2575A	5251AR2575A	R
354212	EVAPORATOR ASSEMBLY, FINAL	5421A20122C	5421A20121F	5421A20031W	R
359011	FAN ASSEMBLY, CROSS FLOW	5901AR6141A	5901AR6141C	5901AR6141C	R
733010	PLATE ASSEMBLY, INSTALL	3300A10002A	1H00843A	1H00843A	R
W0CZZ	CAPACITOR, DRAWING	3H01487A	3H01487A	3H01487A	R

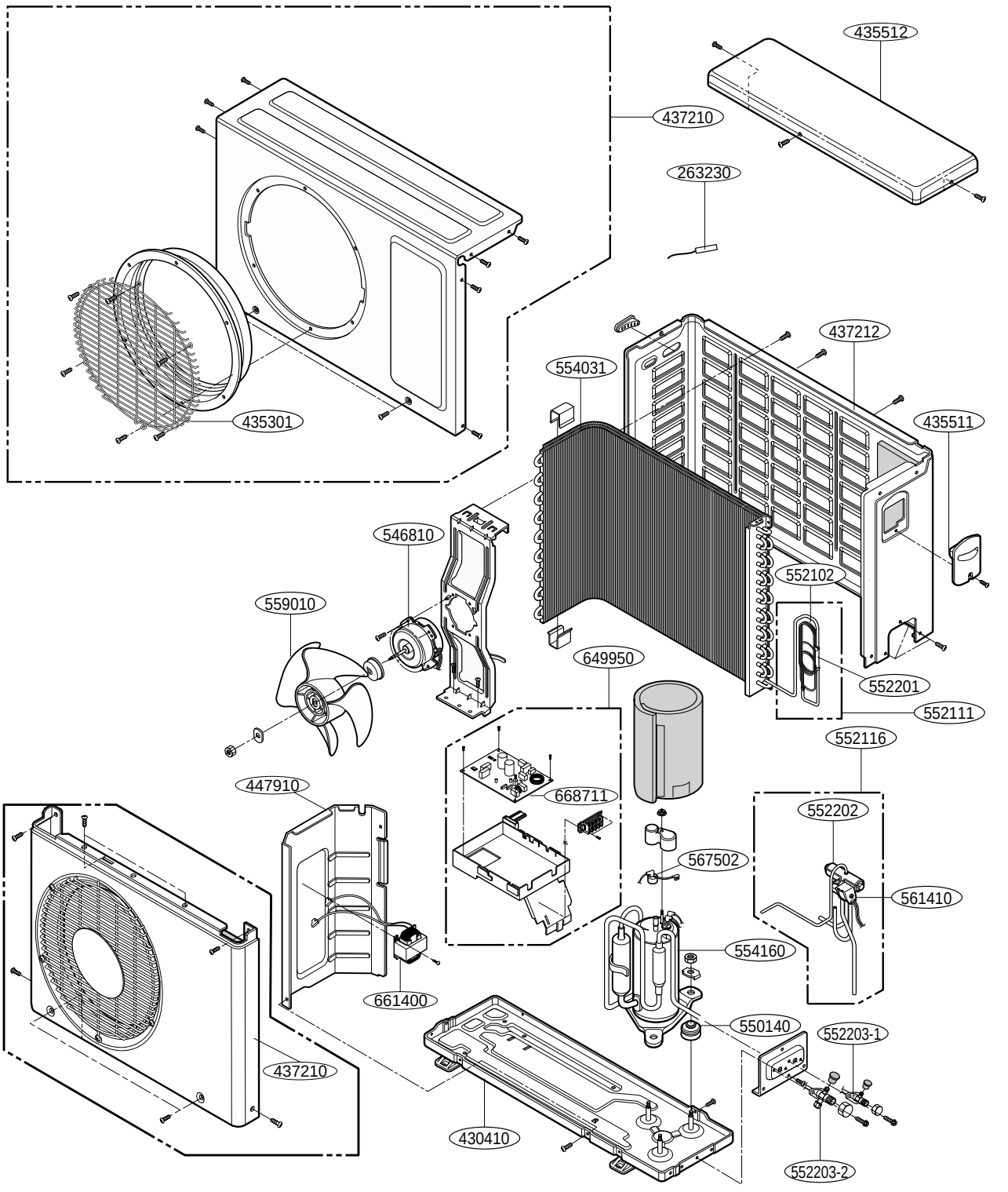
NOTE) *Please ensure GCSC since these parts may be changed depending upon the buyer's request.
(GCSC WEBSITE http://biz.LGservice.com)
"*" Can be changed it's PART NUMBER according to Buyer.

Parts List(indoor)

LOCATION No.	DESCRIPTION	PART No.		REMARKS
		LS-Q096BUL	LS-R126CUL	
131410	*CHASSIS ASSEMPLY	3141A20006A	3141A20005A	R
135311	GRILL ASSEMBLY, DISCHARGE(INDOOR)	3531A10127U	3531A10205G	R
135312	*GRILL ASSEMBLY, FRONT(INDOOR)	3531A20101N	3531A10118N	R
135314	*GRILL ASSEMBLY, INLET SUB	3531A20100L	3531A10117L	R
135316	COVER ASSEMBLY, MOTOR	3551A20050P	3551A20050N	R
146811-1	MOTOR ASSEMBLY, STEP	4681A20055A	4681A20055A	R
146811-2	MOTOR ASSEMBLY, STEP		4681A20055A	R
152302	FILTER(MECH), A/C	5230A10005A	5230A20014C	R
152313	FILTER ASSEMBLY, DEODORIZER	5231A30001C	5231A30001C	R
159830	AIR CLEANER ASSEMBLY	5983A10009B	5983A10006A	R
159901	*VAIN, HORIZONTAL	5990A10005A	5990A20007A	R
249951	*CONTROL BOX ASSEMBLY, INDOOR	4995A20211P	4995A20211Q	R
263230	THERMISTOR ASSEMBLY	6323A20004A	6323A20004A	R
264110	POWER CORD ASSEMBLY	6411A20013A	6411A20013B	R
266090	H.V ASSEMBLY	6609A10003J	6609A10003J	R
267110	REMOTE CONTROLLER ASSEMBLY	6711A20028T	6711A20028U	R
268712	*PWB(PCB) ASSEMBLY, DISPLAY	6871A20254A	6871A20254A	R
268714-1	PWB(PCB) ASSEMBLY, MAIN(AC)	6871A10067D	6871A10067D	R
268714-2	*PWB(PCB) ASSEMBLY, MAIN(DC)	6871A10068L	6871A10068M	R
342800	BEARING	4280A20004A	4280A20004A	R
346810	MOTOR ASSEMBLY, INDOOR	4681A20062L	4681A20048R	R
35211B	TUBE ASSEMBLY, TUBING	5211A21046R	5211A21046M	R
352150	HOSE ASSEMBLY, DRAIN	5251AR2575F	5251AR2575F	R
354212	EVAPORATOR ASSEMBLY, FINAL	5421A10040A	5421A20087Y	R
359011	FAN ASSEMBLY, CROSS FLOW	5901A20007E	5901A20007A	R
733010	PLATE ASSEMBLY, INSTALL	3301A10003A	1H00843A	R
W0CZZ	CAPACITOR, DRAWING	3H01487A	3H01487A	R

NOTE) ⁎Please ensure GCSC since these parts may be changed depending upon the buyer's request.
(GCSC WEBSITE http://biz.LGservice.com)
"*" Can be changed it's PART NUMBER according to Buyer.

2. Outdoor Unit



Parts List(Outdoor)

LOCATION No.	DESCRIPTION	PART No.			REMARKS
		LS-J0762YL	LS-L1262YL	LS-L12632L	
263230	THERMISTOR ASSY	6323A20003M	6323A20003G	6323A20003G	R
430411	BASE ASSY, OUTDOOR	3041A20079A	3041A20008K	3041A20008K	R
435511	*COVER ASSY, CONTROL(OUTDOOR)	3551A30023Y	3551A30058S	3551A30058S	R
435512	COVER ASSY, TOP(OUTDOOR)	3551A20034C	-	-	R
437210	PANEL ASSY, FRONT SUB	3721A20060B	3721A20027Q	3721A20027H	R
437212	PANEL ASSY, REAR	3721A20059B	3721A20026B	3721A20026B	R
447910	BARRIER ASSY, OUTDOOR	4791A20011B	4791A30002G	4791A30002G	R
546810	MOTOR ASSY, OUTDOOR	4681A20004U	4681A20004V	4681A20004V	R
550140	ISOLATOR, COMP	4H00982E	4H00982E	4H00982E	R
552111	TUBE ASSY, CAPILLARY	5211A30425A	5211A20141J	5211A20141J	R
552116	TUBE ASSY, REVERSING	5211A10219A	5211A30420A	5211A30420A	R
552202	VALVE, REVERSING	2H02479H	5220AR3084A	5220AR3084A	R
552203-1	VALVE, SERVICE	5220A20001Q	5220A20005B	5220A20005B	R
552203-2	VALVE, SERVICE	2A00393F	5220A20003B	5220A20003B	R
554031	CONDENSER ASSY, BENT	5403A20045K	5403A200226F	5403A20026F	R
554160	COMPRESSOR	5416A20022A	2520UMSV2AA	2520UMSV2AA	R
559011	FAN ASSY, PREOPELLER	5901AR1266A	5901AR1004A	5901A10004A	R
561410	COIL ASSY, REVERSING VALVE	6141AR3509J	6141AR3509J	6141AR3509J	R
649950	CONTROL BOX ASSY, OUTDOOR	4995A20203A	4995A20203D	4995A20203T	R
661400	REACTOR	5874A90003A	5874A90003A	5874A90003A	R
668711	PCB ASSEMBLY	6871A20192G	6871A20192J	6871A20192S	R
W0CZZ	CAPACITOR	OCZZA90002C	OCZZA90002C	0CZZA90002C	R

NOTE) ⋆Please ensure GCSC since these parts may be changed depending upon the buyer's request.
(GCSC WEBSITE http://biz.LGservice.com)
"*" Can be changed it's PART NUMBER according to Buyer.

Parts List(outdoor)

LOCATION No.	DESCRIPTION	PART No.		REMARKS
		LS-Q096BUL	LS-R126CUL	
263230	THERMISTOR ASSY	6323A20003J	6323A20003G	R
430411	BASE ASSY, OUTDOOR	3041A20008M	3041A20008M	R
435511	*COVER ASSY, CONTROL(OUTDOOR)	3551A30023Y	3551A30023Y	R
435512	COVER ASSY, TOP(OUTDOOR)	-	-	R
437210	PANEL ASSY, FRONT SUB	3721A20027Q	3721A20027Q	R
437212	PANEL ASSY, REAR	3721A20026B	3721A20026B	R
447910	BARRIER ASSY, OUTDOOR	4791A30002G	4791A30002G	R
546810	MOTOR ASSY, OUTDOOR	4681A20004V	4681A20004V	R
550140	ISOLATOR, COMP	4H00982E	4H00982E	R
552111	TUBE ASSY, CAPILLARY	5211A20594A	5211A30331M	R
552116	TUBE ASSY, REVERSING	5211A10260C	5211A10260C	R
552202	VALVE, REVERSING	5220AR3228F	5220AR3228F	R
55203-1	VALVE, SERVICE	2H02479H	2H02479H	R
55203-2	VALVE, SERVICE	5220A20001B	5220A20001B	R
554031	CONDENSER ASSY, BENT	5403A20028H	5403A20019T	R
554160	COMPRESSOR	5416A90008B	5416A90008A	R
559011	FAN ASSY, PREOPELLER	5901AR10004A	5901AR10004A	R
561410	COIL ASSY, REVERSING VALVE	6141AR3509J	6141AR3509J	R
649950	CONTROL BOX ASSY, OUTDOOR	4995A20203K	4995A20203L	R
661400	REACTOR	5874A90003A	5874A90003A	R
668711	PCB ASSEMBLY	6871A20192L	6871A20192M	R
W0CZZ	CAPACITOR	OCZZA90002C	OCZZA90002C	R

NOTE) *Please ensure GCSC since these parts may be changed depending upon the buyer's request.
(GCSC WEBSITE http://biz.LGservice.com)
"*" Can be changed it's PART NUMBER according to Buyer.

Memo

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