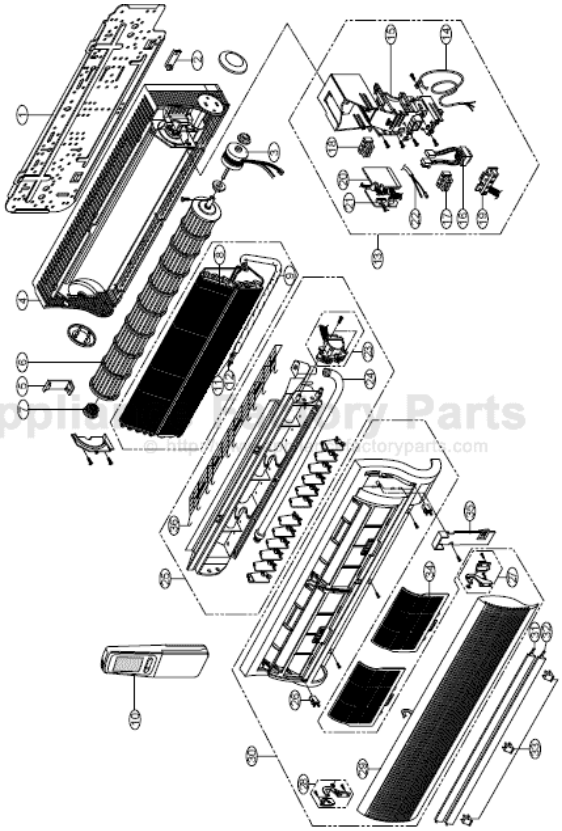
LG HMH012WAE/WAC Owner's Manual



-------- Manual continues below --------

Room Air Conditioner
SERVICE MANUAL

MODEL : LS-P0760CL/P0760HL LS-P0820C
LS-P0960CL/P0960HL
LS-S0960CL/S0960HL LS-S1120C
LS-S1260CL/S1260HL
LS-S1420CL LS-S1421CL

CAUTION
BEFORE SERVICING THE UNIT, READ THE “SAFETY PRECAUTIONS” IN THIS MANUAL.

Contents

Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

ƒU Room temperature sensor. (THERMISTOR)

Room temperature control

ƒU Maintains the room temperature in accordance with the Setting Temp.

Starting Current Control

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

Time Delay Safety Control

ƒU Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

ƒU High, Med, Low

Operation indication Lamps (LED)

⏻ --- Lights up in operation
☆ --- Lights up in Sleep Mode
◷ --- Lights up in Timer Mode
❄ --- Lights up in Deice Mode (for Heating Model)
OUTDOOR --- Lights up in compressor operation (for Cooling Model)

Soft Dry Operation Mode

ƒU Intermittent operation of fan at low speed.

Sleep Mode Auto Control

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

Natural Air Control by CHAOS Logic

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

Airflow Direction Control

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

Deice (defrost) control (Heating)

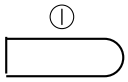
ƒU Both the indoor and outdoor fan stops during deicing.

Hot-start Control (Heating)

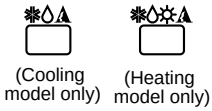
ƒU The indoor fan stops until the evaporator piping temperature will be reached at 28¡ .

Remote Controller

Operation ON/OFF



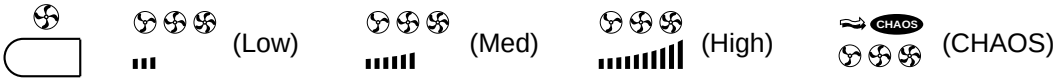
Operation Mode Selection



Cooling Operation Mode.(❄) Heating Operation Mode.(☼)

Soft Dry Operation Mode.(💧) Auto Operation Mode.(A)

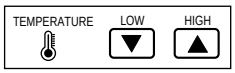
Fan Speed Selection



Room Temperature Display

: High:39°C ⟷ LOW:11°C

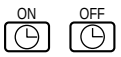
Temperature Setting



: Cooling [Down to 20°C / Up to 30°C] : Heating [Down to 16°C / Up to 30°C]

Setting the Time or Time

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

Fan Operation Mode

: Cooling Model Only

Reset

Product Specifications (Cooling Only)

SPEC. AT 220/240V

Item \ Model Name / Unit			LS-P0760CL		LS-P0960CL		LS-S0960CL		LS-S1260CL	
Cooling Capacity		BTU/h	7,200	7,300	8,400	8,500	8,800	9,000	12,000	12,000
Moisture Removal		§/h	1.0		1.2		1.2		1.2	
Power Source		§j, V, Hz	1§j220-240V, 50Hz							
Air Circulation	Indoor	m^3/min	4.6		5.3		7.3		8.9	
	Outdoor		25		25		25		25	
Noise Level	Indoor	dB (A)¡ 3	35	36	37	38	36	37	38	
	Outdoor		46	47	47	48	47	48	49	
Input		W	690	715	890	900	730	750	1,180	1,180
Running Current		A	3.2	3.2	4.0	3.9	3.4	3.3	5.8	5.4
E.E.R.		BTU/h-W	10.4	10.2	9.44	9.44	12.0	12.0	10.17	10.17
Motor Output	Indoor	W	8		8		10		15	
	Outdoor		25		25		25		25	
Dimensions (W¡ ¿H¡ ¿D)	Indoor	mm	790¡ ¿230¡ ¿142				880¡ ¿302¡ ¿183			
	Outdoor		660¡ ¿540¡ ¿260							
Net. Weight	Indoor	kg	7		7		9.5		9.5	
	Outdoor		29		29		29		30	
Refrigerant (R-22)		g	560		490		780		700	
Airflow Direction Control (Up & Down)			§		§		§		§	
Remocon Type			L.C.D Wireless							
Service Valve		Liquid	1/4" (6.35)							
		Gas	3/8" (9.52)				1/2"(12.7)			
Sleeping Operation			§		§		§		§	
Drain Hose			§		§		§		§	
Connecting Cable			1.0mm^2							
Power Cord			1.0mm^2							

SPEC. AT 220V

Item \ Model Name		Unit	LS-P0820CL	LS-S1120CL	LS-S1420CL	LS-S1421CL
Cooling Capacity		BTU/h(kcal/h)	7,500(1,900)	11,000(2,772)	13,300(3,350)	14,000(3,550)
Moisture Removal		§//h	1.2	2.3	2.3	2.5
Power Source		§j, V, Hz	1Ø, 220~V, 60Hz			
Air Circulation	Indoor	m^3/min	5.5	9.0	9.0	10.1
	Outdoor		23	24	24	27
Noise Level	Indoor	dB (A)¡ 3	36	39	39	39
	Outdoor		47	49	49	50
Input		W	710	1,050	1,378	1,500
Running Current		A	3.3	4.9	6.3	6.9
E.E.R.		BTU/h-W	10.6	10.5	9.7	9.3
Motor Output	Indoor	W	4.5	19.8	19.8	19.8
	Outdoor		20	30	30	35
Dimensions (W¡ ¿H¡ ¿D)	Indoor	mm	790¡ ¿230¡ ¿142	880¡ ¿302¡ ¿183		
	Outdoor		660¡ ¿540¡ ¿260			
Net. Weight	Indoor	kg	6	9.5	9.5	9.5
	Outdoor		29	31.5	33.5	31.5
Refrigerant (R-22)		g	600	710	980	750
Airflow Direction Control (Up & Down)			§	§	§	§
Remocon Type			L.C.D Wireless			
Service Valve		Liquid	1/4" (6.35)			
		Gas	3/8" (9.52)	1/2" (12.7)		
Sleeping Operation			§			
Drain Hose			§			
Connecting Cable			1.0mm^2			
Power Cord			1.0mm^2			

Product Specifications (Cooling & Heating)

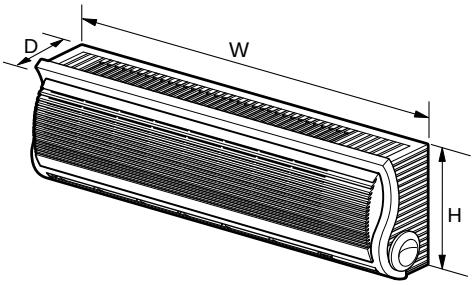
SPEC. AT 220/240V

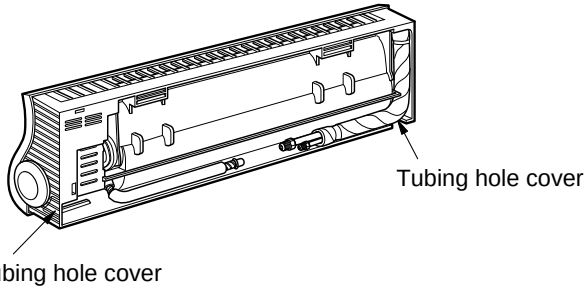
Item / Model Name / Unit			LS-P0760HL		LS-P0960HL		LS-S0960HL		LS-S1260HL	
Capacity	Cooling	BTU/h	7,000	7,000	8,400	8,500	9,400	9,500	11,700	12,000
	Heating		7,300	7,500	9,400	9,500	10,200	10,500	12,600	13,000
Moisture Removal		§⁄/h	1.3		1.17		1.2		1.2	
Power Source		§j, V, Hz	1§j 220-240V, 50Hz							
Air Circulation	Indoor	m^3/min	5.3		6.3		7.6		8.9	
	Outdoor		24		25		25		25	
Noise Level	Indoor	dB (A)¡ 3	36		38		36	37	37	38
	Outdoor		47		49		47	48	48	49
Input	Cooling	W	710	720	910	940	940	950	1,210	1,250
	Heating		730	740	940	990	900	950	1,160	1,230
Running Current	Cooling	A	3.1		4.5		4.5		6.4	6.2
	Heating		3.3		4.5		4.5		6.2	6.0
E.E.R.	Cooling	BTU/h¡ /w	9.86	9.7	9.23	9.0	10.0	10.0	9.7	9.6
C.O.P	Heating	W/W	2.93	2.97	2.93	2.81	3.32	3.2	3.2	3.1
Motor Output	Indoor	W	8		8		10		15	
	Outdoor		25		25		25		25	
Dimensions (W¡ ¿H¡ ¿D)	Indoor	mm	790¡ ¿230¡ ¿142				880¡ ¿302¡ ¿183			
	Outdoor		660¡ ¿540¡ ¿260							
Net. Weight	Indoor	kg	7		7		9.5		9.5	
	Outdoor		30		31		31		33	
Refrigerant (R-22)		g	600		540		1,020		1,150	
Airflow Direction Control (Up & Down)			§		§		§		§	
Remocon Type			L.C.D Wireless							
Service Valve		Liquid	1/4" (6.35)							
		Gas	3/8" (9.52)				1/2"(12.7)			
Sleeping Operation			§		§		§		§	
Drain Hose			§		§		§		§	
Connecting Cable			1.0mm^2							
Power Cord			1.0mm^2							

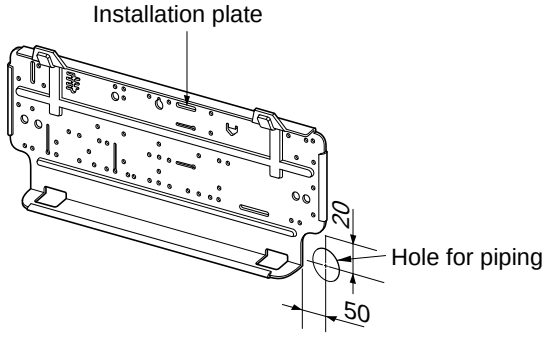
Dimensions

(1) Indoor Unit

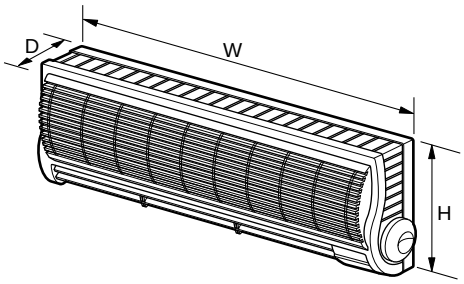
LS-P0760CL/P0760HL
LS-P0820CL
LS-P0960CL/P0960HL

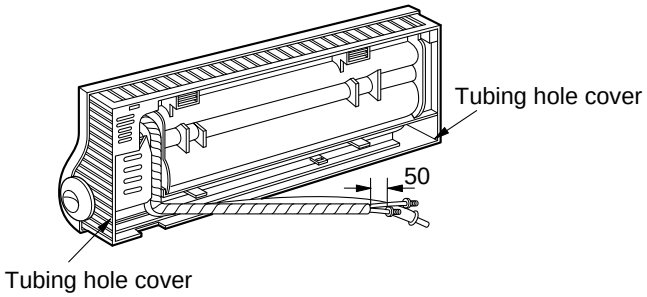


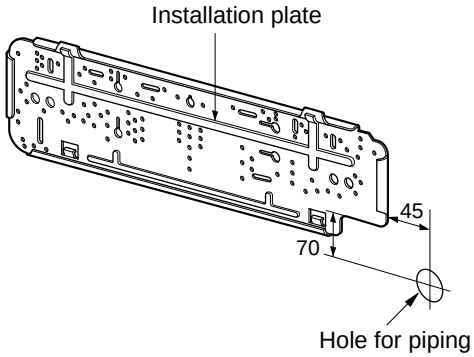




LS-S0960CL/S0960HL
LS-S1120CL
LS-S1260CL/S1260HL
LS-S1420CL/S1421CL

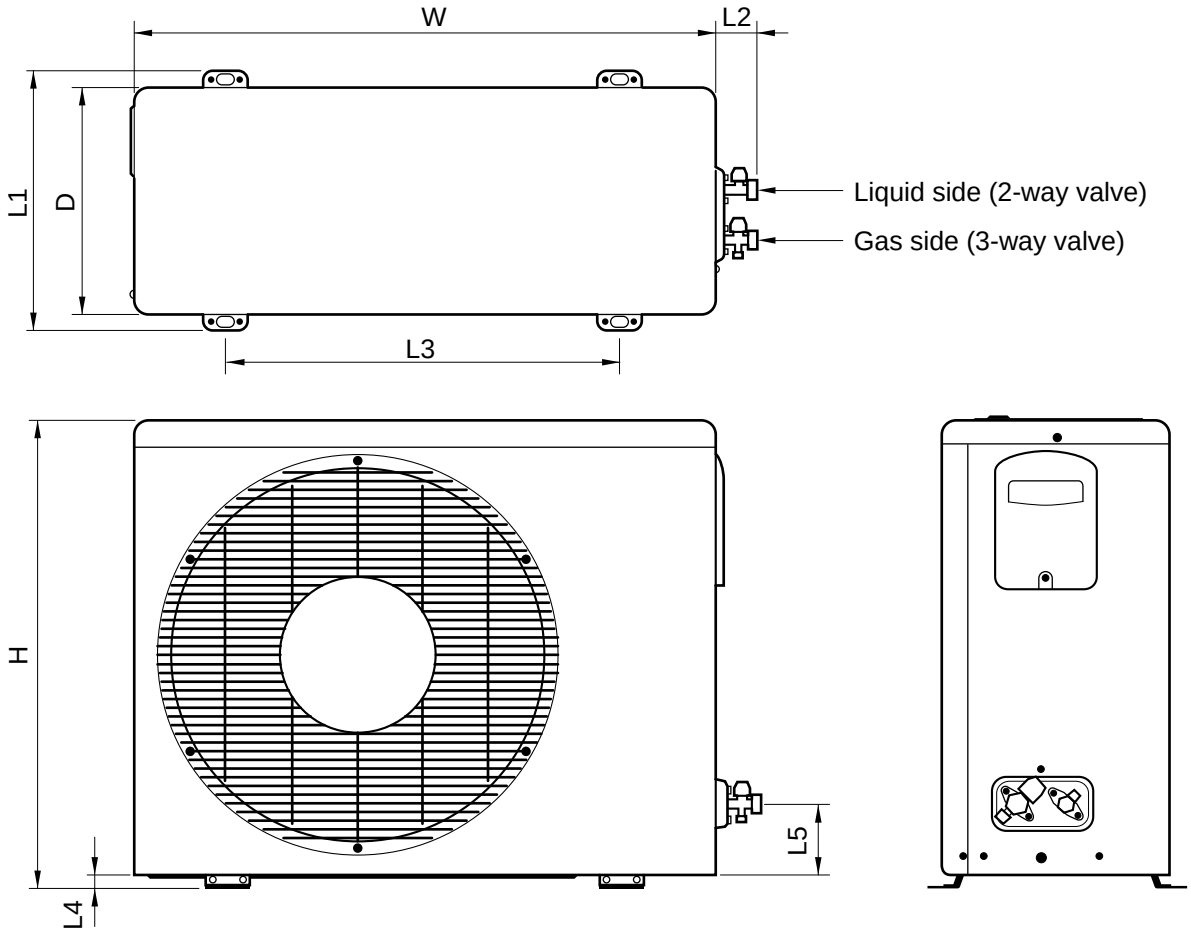






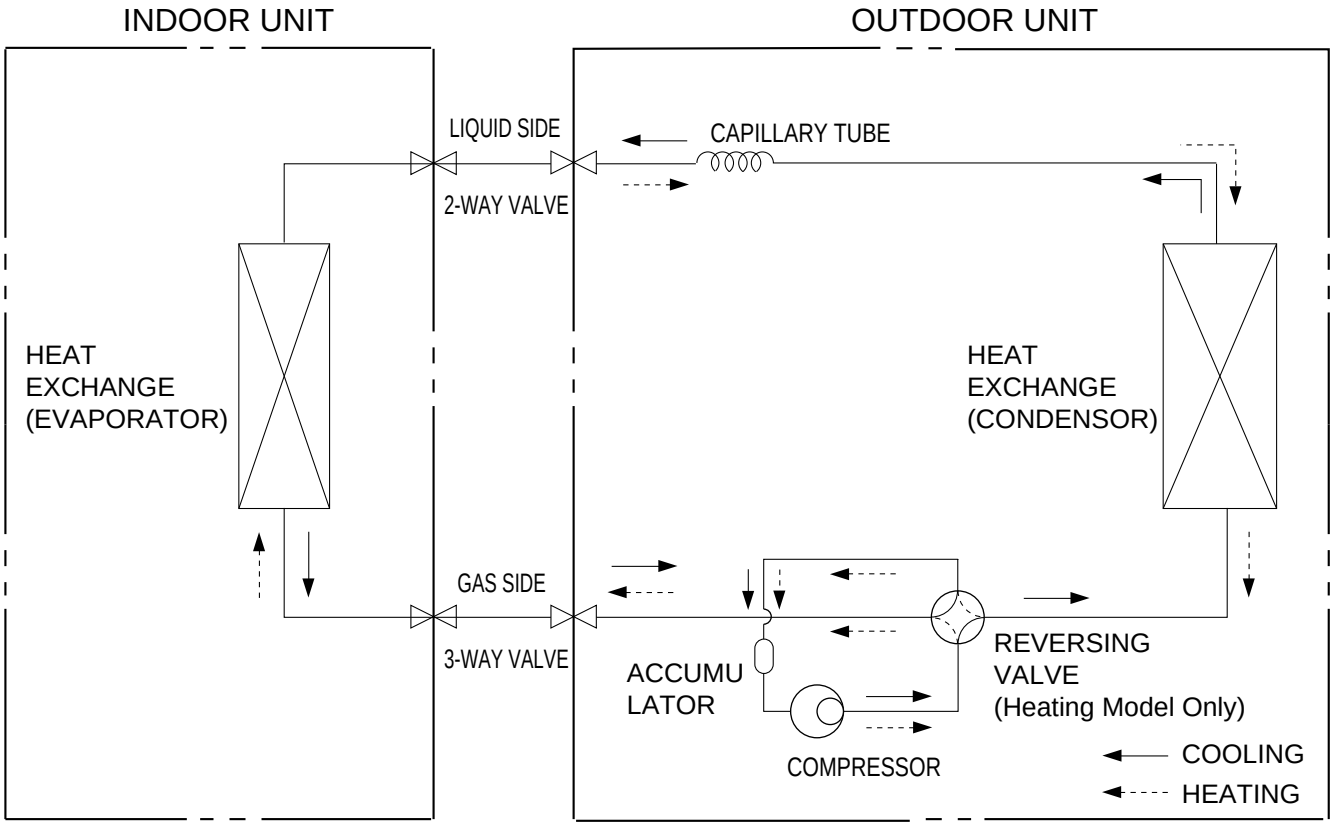
DIM \ MODEL		LS-P0760CL/P0760HL/P0820CL LS-P0960CL/P0960HL	LS-S0960CL/S0960HL/S1120CL LS-S1260CL/S1260HL/S1420CL/S1421CL
W	mm	790	880
H	mm	230	302
D	mm	142	183

(2) Outdoor Unit



DIM \ MODEL		LS-P0760CL/P0760HL, LS-P0820CL, LS-P0960CL/P0960HL LS-S0960CL/S0960HL, LS-S1120CL, LS-S1260CL/S1260HL LS-S1420CL, LS-S1421CL
W	mm	660
H	mm	540
D	mm	260
L1	mm	297
L2	mm	66
L3	mm	447
L4	mm	17
L5	mm	82

Refrigeration Cycle Diagram

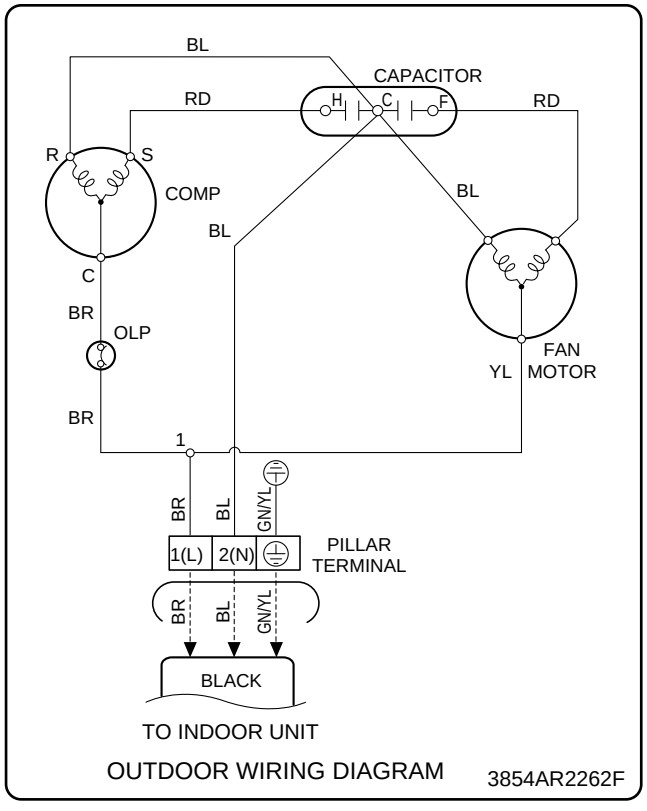


MODEL	Pipe size(Diameter:§j)		MAX. Piping length (m)	Max Elevation (m)
	Gas	Liquid		
LS-P0760CL/P0760HL LS-P0820CL LS-P0960CL/P0960HL	3/8"	1/4"	7	5
LS-S0960CL/S0960HL LS-S1120CL LS-S1260CL/S1260HL LS-S1420CL/S1421CL	1/2"	1/4"	7	5

Wiring Diagram

MODEL	INDOOR UNIT	OUTDOOR UNIT
LS-P0760CL LS-P0820CL LS-P0960CL	¤Ø	¤
LS-S0960CL LS-S1120CL LS-S1260CL LS-S1420CL LS-S1421CL	¤Œ	
LS-P0760HL LS-P0960HL	¤º	¤Ł
LS-S0960HL LS-S1260HL	¤	

¤



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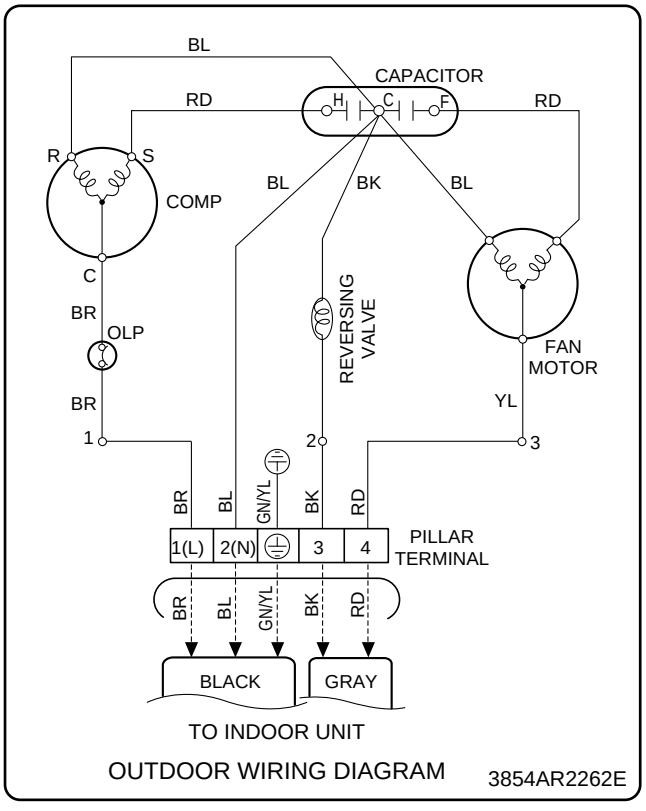

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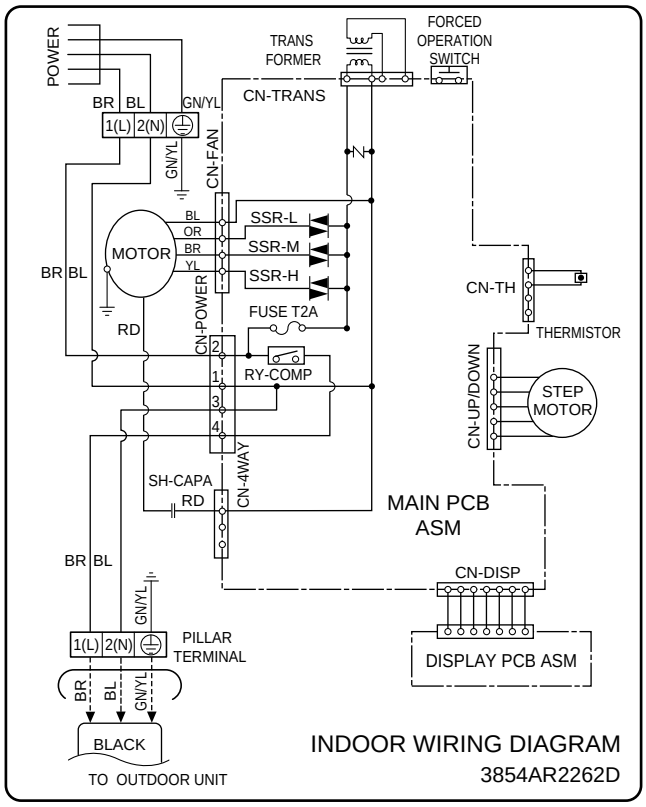
POWER
TRANS FORMER
FORCED OPERATION SWITCH
BR BL GN/YL
CN-TRANS
1(L) 2(N)
GN/YL
CN-FAN
BL OR BR YL
MOTOR
SSR-L
SSR-M
SSR-H
BR BL
CN-POWER
FUSE T2A
RD
CN-TH
THERMISTOR
RY-COMP
CN-UP/DOWN
STEP MOTOR
SH-CAPA
RD
CN-4WAY
MAIN PCB ASM
BR BL
CN-DISP
GN/YL
1(L) 2(N)
PILLAR TERMINAL
DISPLAY PCB ASM
BR BL GN/YL
BLACK
TO OUTDOOR UNIT
INDOOR WIRING DIAGRAM
3854AR2262D

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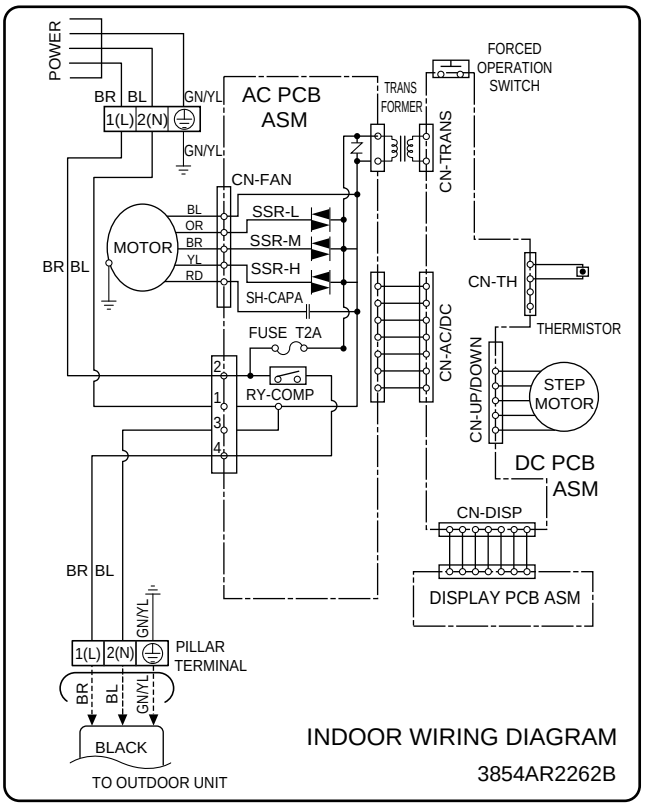
POWER
BR BL GN/YL
AC PCB ASM
TRANS FORMER
FORCED OPERATION SWITCH
1(L) 2(N)
GN/YL
CN-FAN
CN-TRANS
BL OR BR YL RD
MOTOR
SSR-L
SSR-M
SSR-H
SH-CAPA
BR BL
CN-TH
THERMISTOR
FUSE T2A
CN-AC/DC
RY-COMP
CN-UP/DOWN
STEP MOTOR
DC PCB ASM
CN-DISP
DISPLAY PCB ASM
BR BL
GN/YL
1(L) 2(N)
PILLAR TERMINAL
BR BL GN/YL
BLACK
TO OUTDOOR UNIT
INDOOR WIRING DIAGRAM
3854AR2262B

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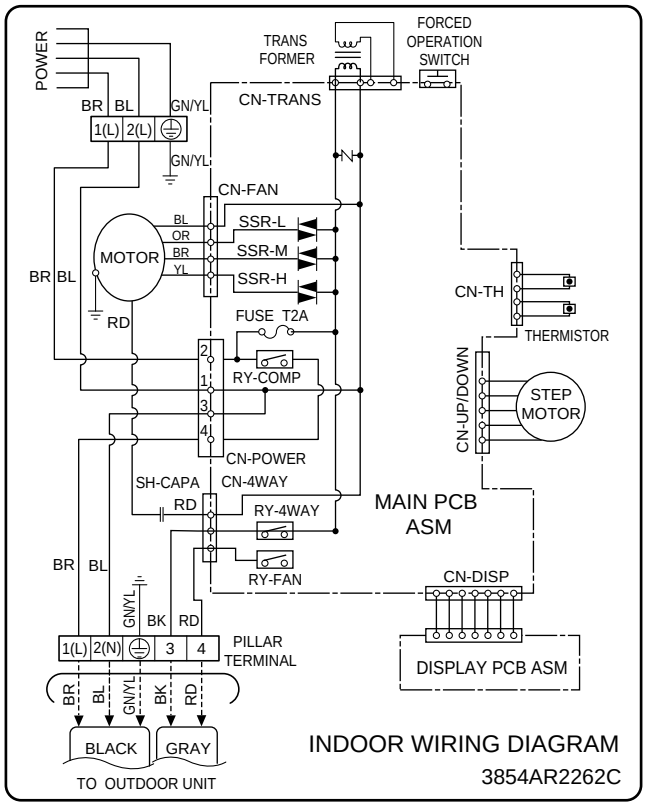
POWER
TRANS FORMER
FORCED OPERATION SWITCH
BR BL GN/YL
CN-TRANS
1(L) 2(L)
GN/YL
CN-FAN
BL OR BR YL
MOTOR
SSR-L
SSR-M
SSR-H
BR BL
CN-TH
THERMISTOR
FUSE T2A
RD
RY-COMP
CN-UP/DOWN
STEP MOTOR
CN-POWER
SH-CAPA
RD
CN-4WAY
RY-4WAY
MAIN PCB ASM
BR BL
RY-FAN
CN-DISP
GN/YL
BK RD
1(L) 2(N)
3 4
PILLAR TERMINAL
DISPLAY PCB ASM
BR BL GN/YL BK RD
BLACK
GRAY
TO OUTDOOR UNIT
INDOOR WIRING DIAGRAM
3854AR2262C

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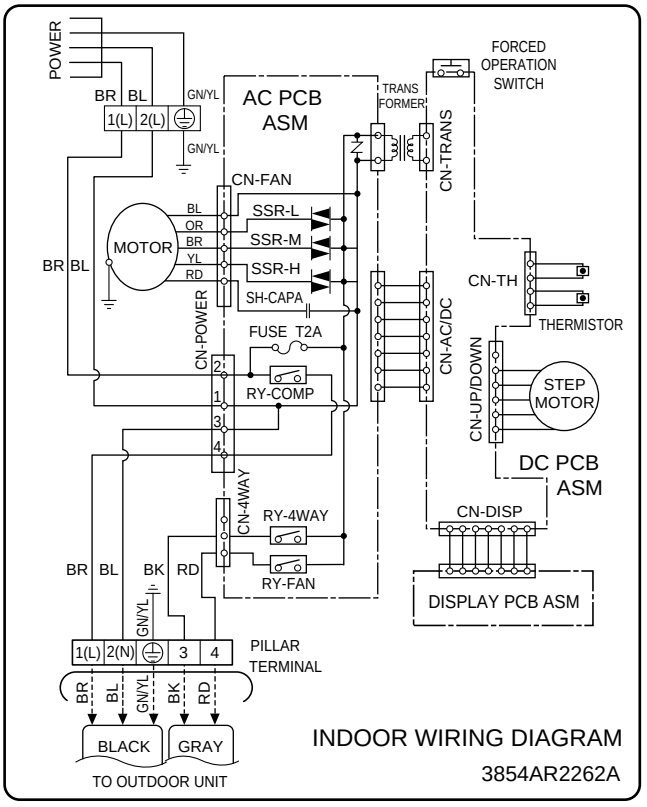

POWER
BR BL GN/YL
AC PCB ASM
TRANS FORMER
FORCED OPERATION SWITCH
1(L) 2(L)
GN/YL
CN-FAN
CN-TRANS
BL OR BR YL RD
MOTOR
SSR-L
SSR-M
SSR-H
SH-CAPA
BR BL
CN-TH
THERMISTOR
CN-POWER
FUSE T2A
CN-AC/DC
RY-COMP
CN-UP/DOWN
STEP MOTOR
DC PCB ASM
CN-4WAY
RY-4WAY
CN-DISP
BR BL BK RD
RY-FAN
DISPLAY PCB ASM
GN/YL
1(L) 2(N)
3 4
PILLAR TERMINAL
BR BL GN/YL BK RD
BLACK
GRAY
TO OUTDOOR UNIT
INDOOR WIRING DIAGRAM
3854AR2262A

Operation Details

(1) The function of main control

1. Time Delay Safety Control

ƒU3min¡ƒ The compressor is ceased for 3minutes to balance the pressure in the refrigeration cycle. (Protection of compressor)

ƒU2sec¡ƒ The indoor fan is ceased for 2sec. to prevent relay noise. (Protection of fan relay and micro chip)

ƒU30sec¡ƒ The 4-way valve is ceased for 30sec. to prevent the refrigerant-gas abnormal noise when the Heating operation is OFF or switched to the other operation mode.

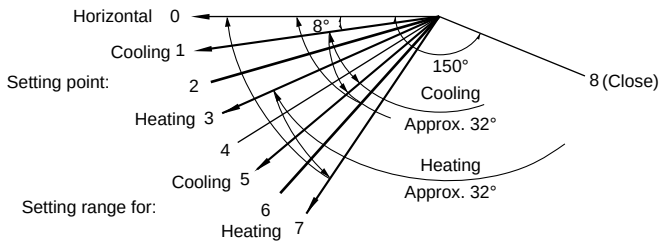
2. Airflow Direction Control

ƒU This function is to swing the louver up and down automatically and to set it at the desired position.

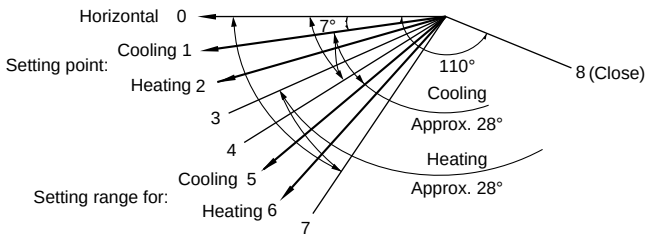
ƒU The procedure is as the following.

1st ; Press the ON/OFF Button to operate the product.
2nd ; Press the Airflow Direction Control Button to swing the louver up and down automatically.
3rd ; Repress the Airflow Direction Control Button to set the louver as the desired position.

LS-P0760CL/P0760HL, LS-P0820CL
LS-P0960CL/P0960HL

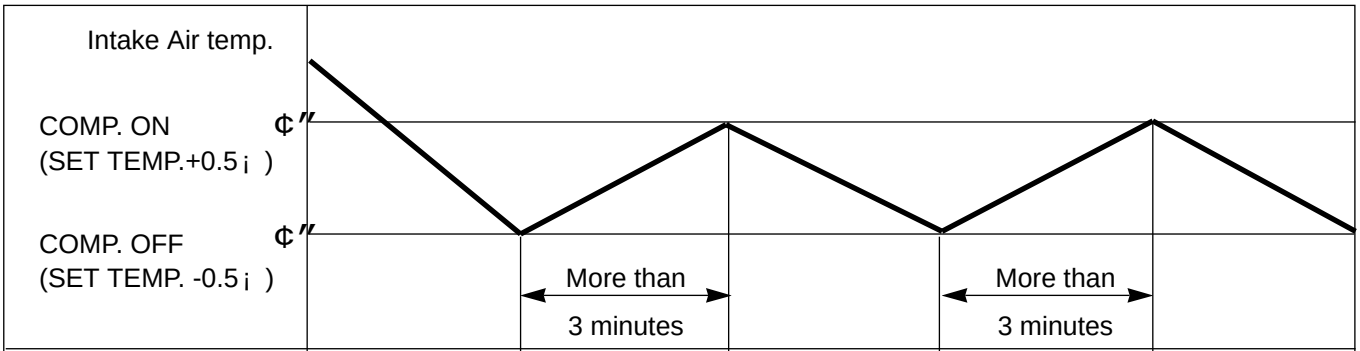


LS-S0960CL/S0960HL, LS-S1120CL
LS-S1260CL/S1260HL
LS-S1420CL, LS-S1421CL



3. Cooling Mode Operation

ƒU When selecting the Cooling(❄) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following



INDOOR FAN	Selecting fan speed	Low	Selecting fan speed	Low	Selecting fan speed
COMPRESSOR	ON	OFF	ON	OFF	ON

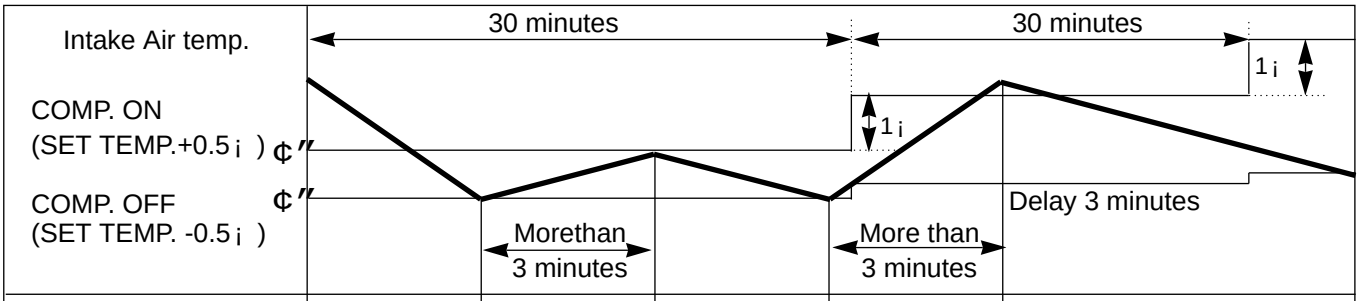
4. Cooling or Heating Mode with Sleep Mode Auto Operation

ƒU When selecting the Cooling(❄) or the Heating(☼) combined with the Sleep Mode Auto Operation(☆), the operation diagram is as following.

¡Æ **Cooling Mode with the Sleep Mode**

ƒU The setting temperature will be raised by 1¡ 30minutes later and by 2¡ 1 hour later.

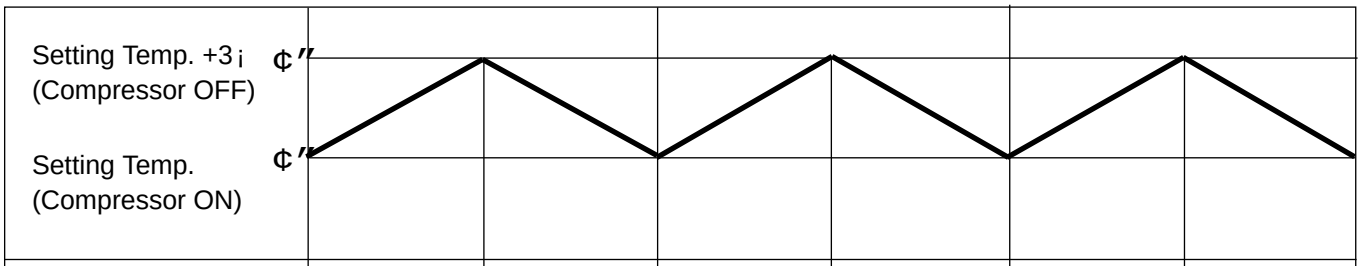
ƒU The operation will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.



INDOOR FAN	Low	Low	Low	Low	Low
COMPRESSOR	ON	OFF	ON	OFF	ON

¡Æ **Heating Mode with the Sleep Mode.**

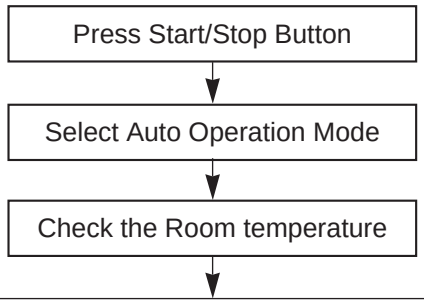
ƒU The operation will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.



Indoor Fan	Med.	Med.	Med.	Med.	Med.	Med.
Compressor	ON	OFF	ON	OFF	ON	OFF

5. Auto Operation

ƒU The operation procedure is as following.



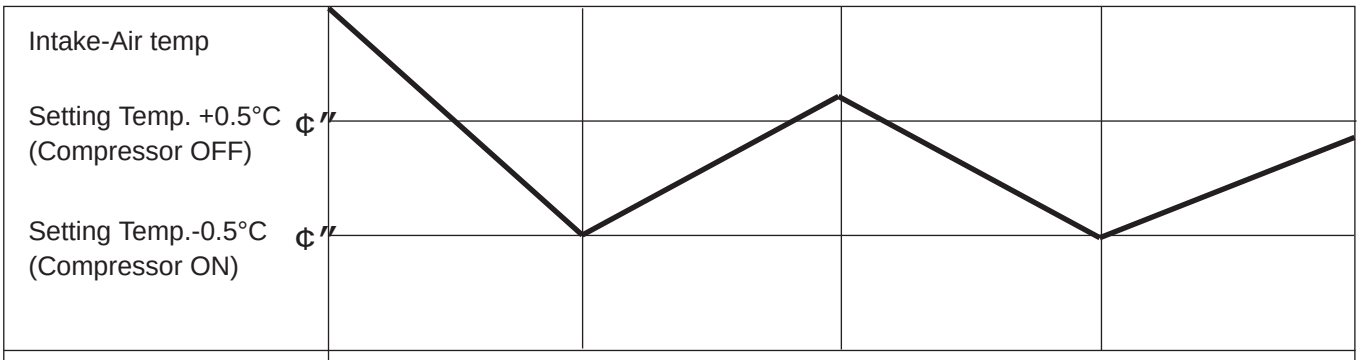
Operation mode
Indoor fan speed
Setting temperature
are automatically decided by Fuzzy rule.

Intake-air temperature	below 21¡	Over 21¡ ~ below 24¡	Over 24¡
Operation Mode	Heating	Soft Dry	Cooling

ƒNIf initial mode is decided, that mode is continued without the room temperature changing.

ƒU Auto Operation for Cooling.

Operation Condition	Intake-air Temperature	Setting temperature	Fan speed	Air Direction Control
When Auto Operation initial start	Over 26°C	25°C	Controlled by Fuzzy logic	1/f rhythm
	Over 24°C~below 26°C	Intake air -1.0°C		
	Over 22°C~below 24°C	Intake air -0.5°C		
	Over 20°C~below 22°C	Intake air temperature		
	below 20°C	20°C		
When Switch to Auto Operation	Over 20°C~below 30°C	Fuzzy control		
	below 20°C	20°C		
	Over 30°C	30°C		



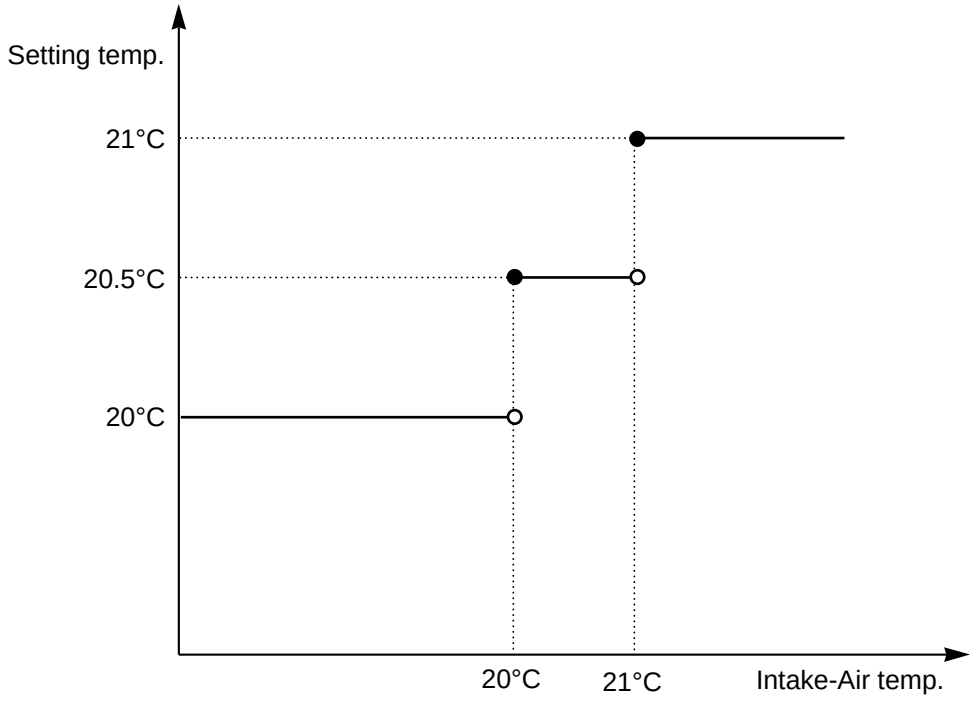
Indoor Fan	Fuzzy Speed			
Compressor	ON	OFF	ON	OFF

ƒU Auto Operation for Soft Dry.

The Setting temperature will be set to the same that of the current intake-air temperature.
- Compressor ON temperature; Setting temperature +1°C
- Compressor OFF temperature; Setting temperature -0.5°C

ƒU Auto Operation for Heating.

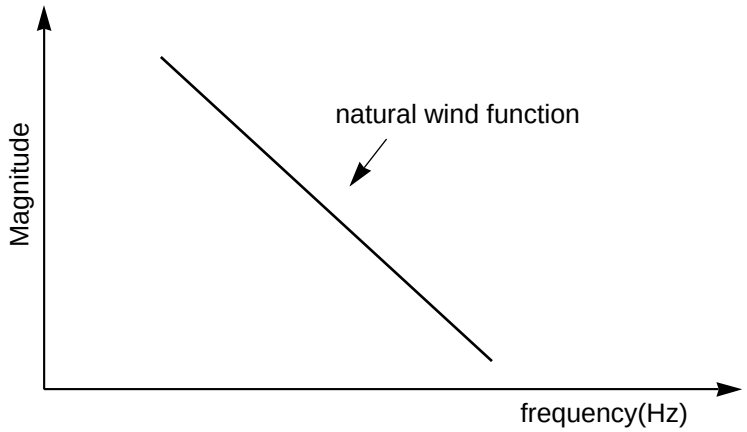
Intake Air temp.	below 20°C	over 20°C~below 21°C
Setting temp.	20°C	Intake air Temperature +0.5°C



6. Natural Wind by CHAOS logic

There are common rules in the irregular changes amid the breeze of highlands and valleys, the sound of streams, the songs of birds in the forest and brain waves of relaxation.
Mmm... the breath-taking and touchy feeling of wind from the deep mountains and dark valleys.
Through analysis in its chaos simulator, Goldstar has successfully created such a feeling of freshness and serenity by analyzing the frequency of natural wind.

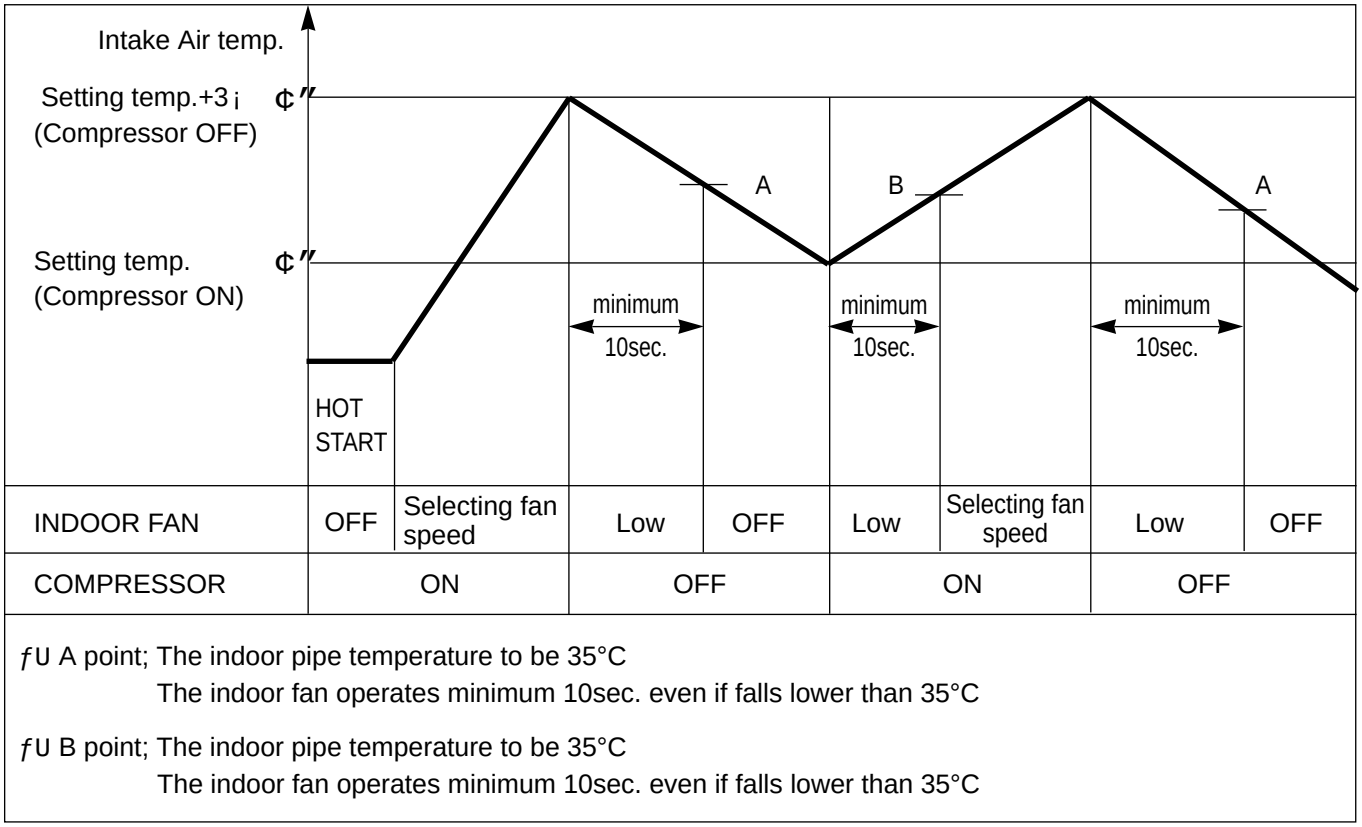
Generally natural wind has the following character (frequency-Magnitude), for example dark vally, sea, mountain wind.



So as to make a similar Natural wind function, Indoor fan speed is shifted to high from low or reversely in according to the CHAOS logic.

7. Heating Mode Operation

The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



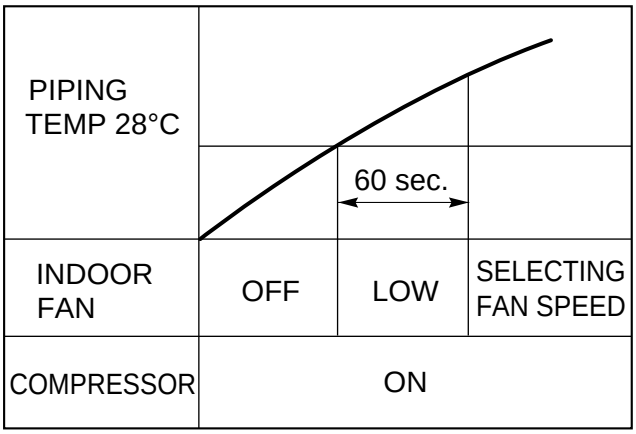
INDOOR FAN	OFF	Selecting fan speed	Low	OFF	Low	Selecting fan speed	Low	OFF
COMPRESSOR	ON		OFF		ON		OFF	

ƒU A point; The indoor pipe temperature to be 35°C
The indoor fan operates minimum 10sec. even if falls lower than 35°C

ƒU B point; The indoor pipe temperature to be 35°C
The indoor fan operates minimum 10sec. even if falls lower than 35°C

8. Hot-Start Control

ƒU The indoor fan stops until the evaporator piping temperature will be reached at 28¡ . (BY TEMPERATURE)
ƒU The operation diagram is as following.



(HOT-START BY TEMPERATURE)

9. Deice Control

ƒU Deicing operation is controlled by timer and sensing the indoor pipe temperature.

ƒU Deicing operation checks the indoor pipe temperature and Intake-air temperature at 25 minutes and 60 minutes on starting of heating operation, and discriminates by temperature difference.

ƒU When the heating operation passed 25 minutes, the temperature (¡ T1=TE1–TR1) is checked and memorized with checking the indoor pipe temperture (TE1) and the indoor Intake-air temperature (TR1).

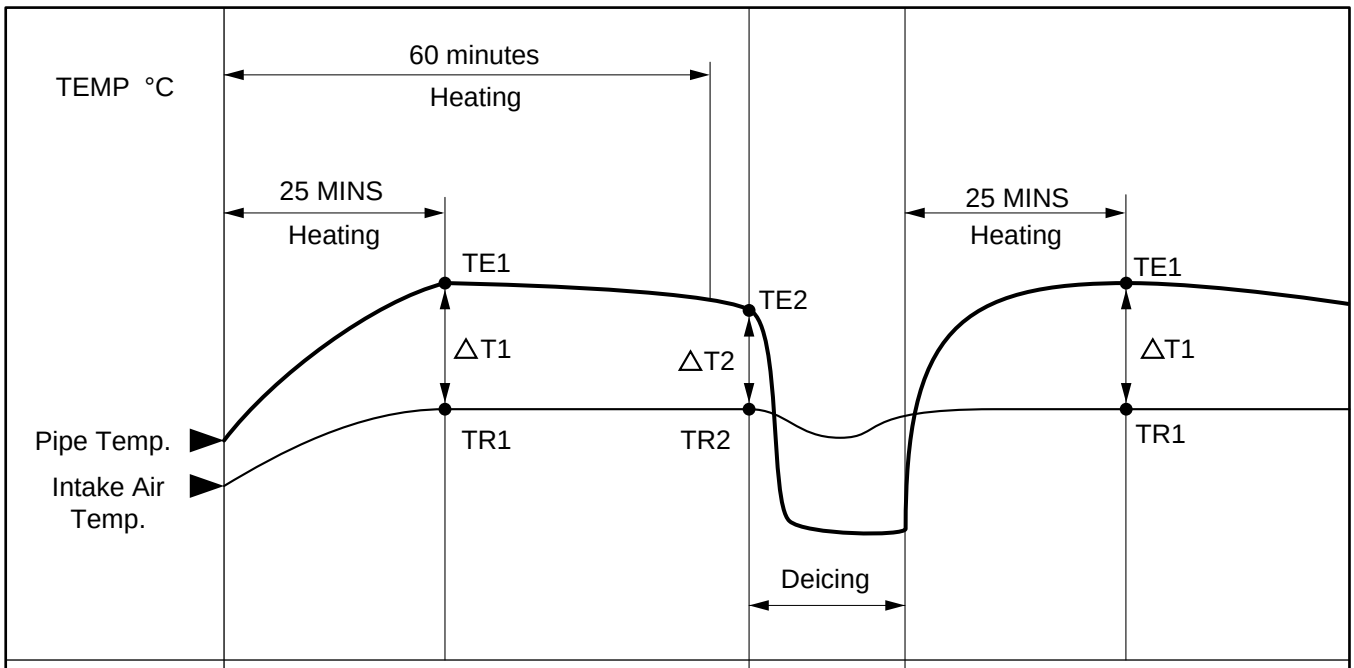
ƒU When the heating operation passed 60 minutes, deicing operation checks the indoor pipe temperature (TE2) and the indoor Intake-air temperature (TR2), and checks the temperature difference (¡ T2=TE2–TR2) and the temperature difference ¡ Td(=¡ T1–¡ T2) of ¡ T1, ¡ T2.
If the temperature difference (¡ Td) become more than the option temperature, deicing operation starts.

ƒU At that time, deicing operation time is decided.

ƒU The deicing operation time stops after deicing operation started.

ƒU If deicing operation start, above heating operation time is reset, so if deicing operation is finished, the heating operation time is recounted.

ƒU The deicinig time and the operation diagram are as following.



INDOOR FAN	ON	OFF	ON After HOT-START finished
OUTDOOR FAN	ON	OFF	ON
COMPRESSOR	ON	ON	ON
4WAY VALVE	ON	OFF	ON

Td (=T1– T2)	Over 3.5°C	3.0~3.5°C	2.5~3.0°C	2.0~2.5°C	below 2.0°C
Deicing Time	12mins	11mins	10mins	9mins	Heating Operation

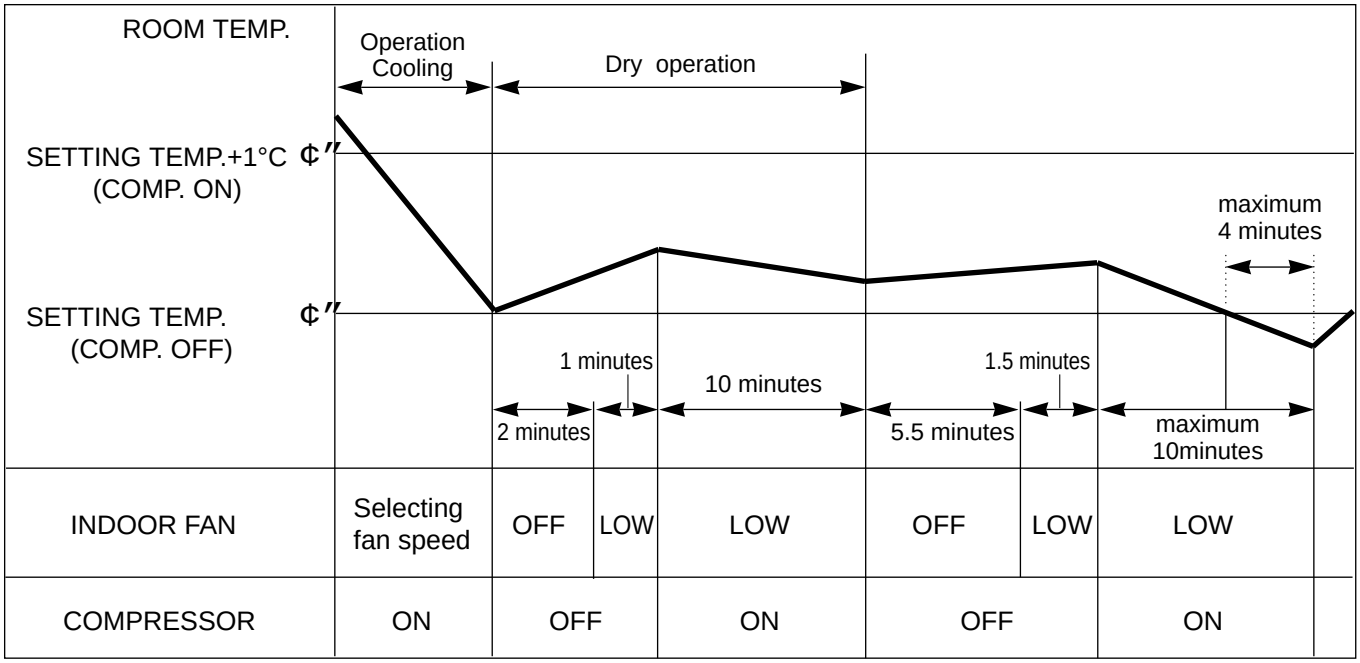
10. Soft Dry Operation.

ƒU During Soft Dry Operation, the compressor ON temperature is the setting temperature plus 1¡ , the compressor OFF temperature is the setting temperature minus 0.5¡

ƒU When the room temperature rises over the compressor ON temperature, the operation mode is switched to the cooling mode.

ƒU When the room temperature falls between the compressor ON temperature and OFF temperature, the operation mode is switched to the Soft Dry Operation.
In this temperature range, 10min. Dry Operation, 5.5min operation OFF, 1.5min. only fan operation repeat. During 10min Dry operation, even if the room temperature falls below compressor OFF temperature, 10min(MAX) Compressor ON from starting of Dry operation which includes 4 min. Compressor ON operation below the comperssor OFF temperature.

ƒU In micom dehumidify mode, control of fan speed is as following.



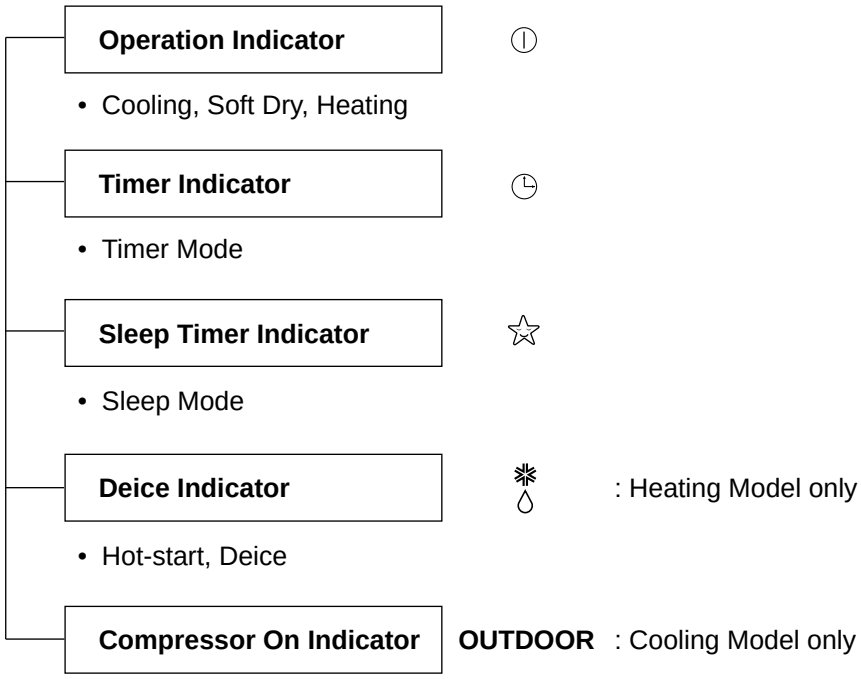
11. Forced operation

ƒU If you lose wireless remote controller, you can operate the unit with forced operation switch.

ƒU The standand conditions are as following.

	Cooling Model	Heat pump Model		
		Room Temp¡ ˆ 24°C	21°C ¡ ´Room Temp£..24°C	Room Temp £..21°C
Operation Mode	Cooling	Cooling	Soft Dry	Heating
FAN Speed	High	High	Low	High
Setting Temp.	24°C	24°C	Room Temp.	22°C

Display Function



Self-diagnosis Function

1. Protection of the evaporator pipe from frosting

If the temperature of the indoor pipe is below 0°C after 7 mins from starting the compressor, the compressor and the outdoor fan is stopped, and then after 3 mins delay of the compressor and the temperature of the indoor pipe is over 7°C, the compressor and the outdoor fan is reoperated.

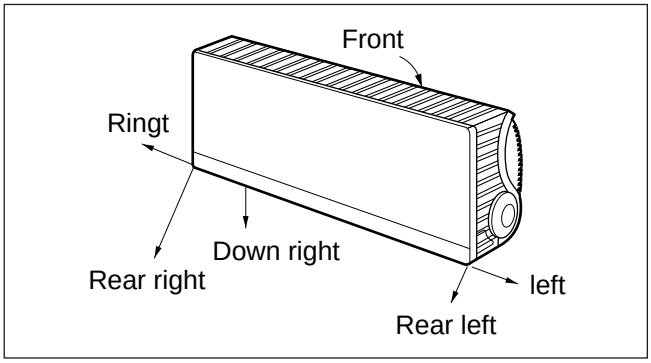
2. Thermistor Cut Off or Short

Cut Off/Short : Blinks on and off the operation mode LED. (0.5 sec ON/3 sec OFF)

Installation

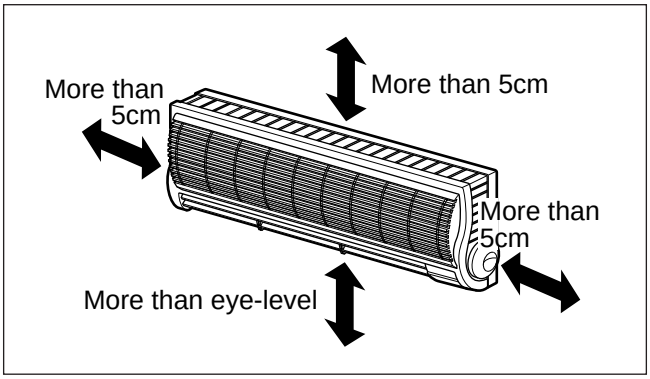
1. Installation of indoor, Outdoor unit

1) Selection of the best location



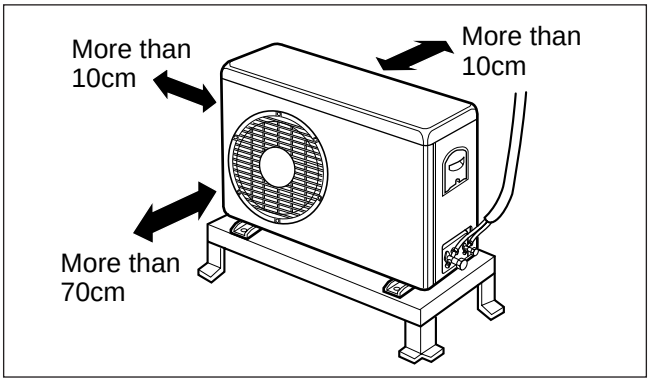
1. Indoor unit.

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to prevent the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence, or other obstacles.



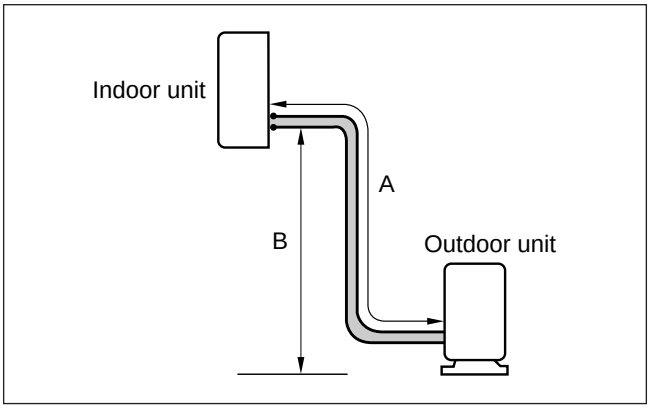
2. Outdoor unit.

- If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.
- There should not be any animals or plants which could affected by hot air discharged.
- Ensure the spaces indicated by arrows from the wall, ceiling, fence, or other obstacles.



3. Piping length and the elevation.

	Pipe size		Max. piping length A(m)	Max. elevation B(m)
	GAS	LIQUID		
LS-P0760CL/P0760HL LS-P0820CL LS-P0960CL/P0960HL	3/8"	1/4"	7	5
LS-S0960CL/S0960HL LS-S1120CL LS-S1260CL/S1260HL LS-S1420CL/S1421CL	1/2"	1/4"	7	5



2) Indoor unit installation

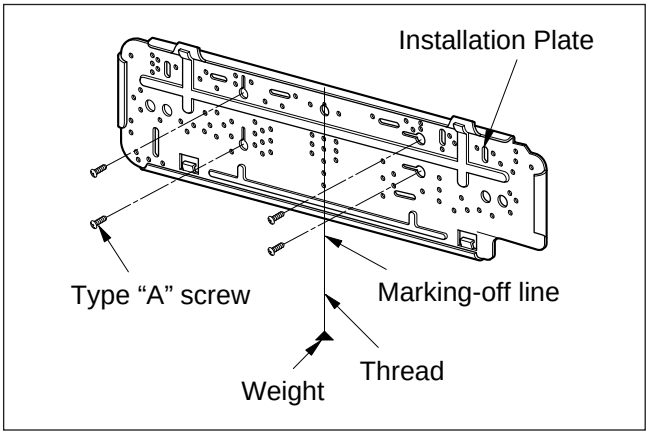
The mounting wall should be strong and solid enough to prevent it from the vibration.

1. Mount the installation plate on the wall with four Type "A" screws.

- Always mount the installation plate horizontally by aligning the marking-off line with using the thread and a level.

£ LS-P0760CL/P0760HL, LS-P0820CL LS-P0960CL/P0960HL £

- To remove the installation plate, pull the two '¡ ' marked portion of bottom of chassis and pull the installation plate out of chassis.

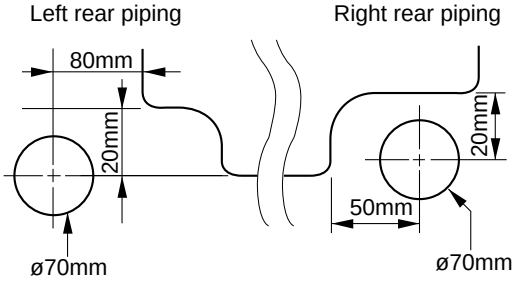


2. Drill the piping hole with 70mm dia. Hole-core drill.

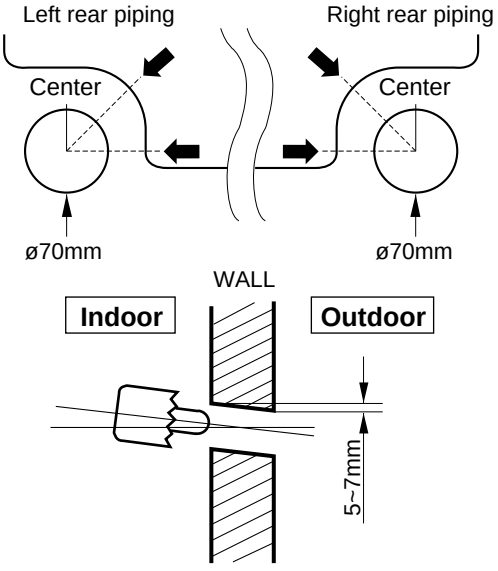
- Line according to the arrows marked on lower the left and the right side of the installation plate.
  The meeting point of the extended line is the center of the hole.
- Drill the piping hole at either the right or the left and the hole should be slightly slant to the outdoor side.

The lower left and right side of installation Plate

LS-P0760CL/P0760HL, LS-P0820CL
LS-P0960CL/P0960HL



LS-S0960CL/S0960HL, LS-S1120CL
LS-S1260CL/S1260HL, LS-S1420CL, LS-S1421CL

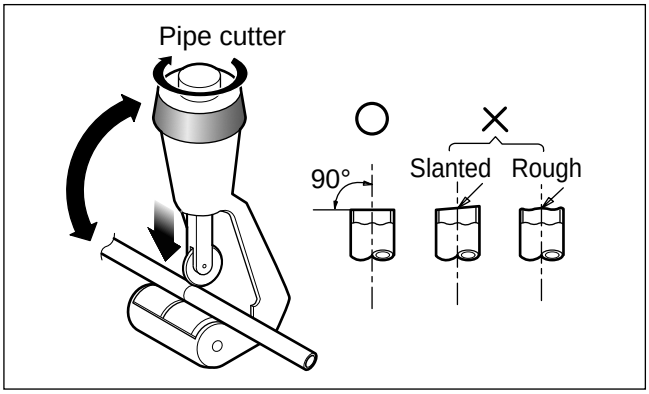


2. Piping and Drainage of indoor unit

1) Preparation of pipings

1. Cut the pipes and the cable.

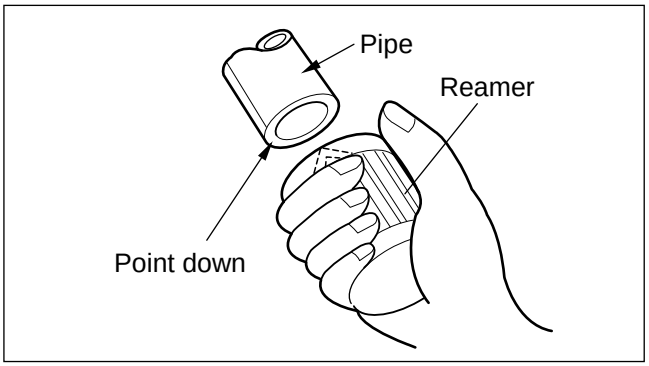
- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5m longer than the length of pipe.



2. Remove burrs.

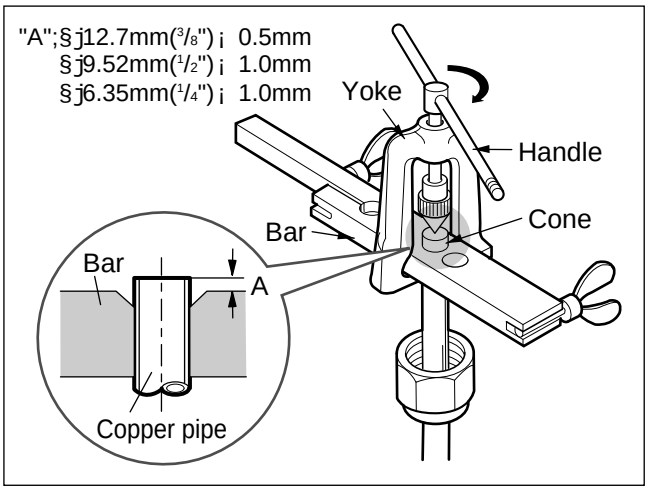
- Remove burrs from cut edges of pipes.
- Turn the pipe end toward down to avoid the metal powder entering the pipe.

Caution:
If burrs are not removed, they may cause a gas leakage.

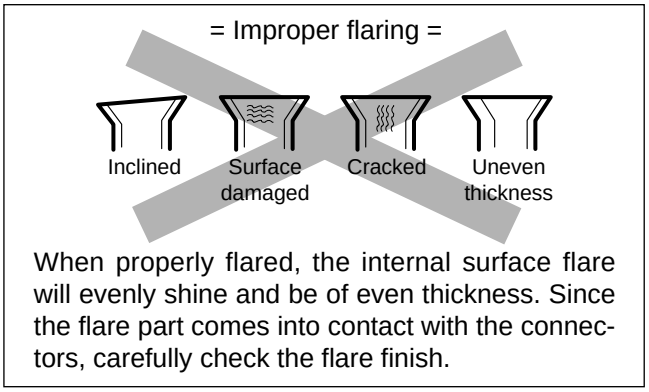


3. Flaring the pipes.

- Insert the flare nuts, mounted on the connection ports of both indoor and outdoor unit, onto the copper pipes. Some refrigerant gas may leak, when the flare nuts are removed from the indoor unit, as some gas is charged to prevent the inside of the pipe from rusting.
- Fit the copper pipe end into the Bar of flare tool about 0.5~1.0mm higher. (See illustration).
- Flare the pipe ends.



4. Tape the flaring portion to protect it from the dust or damages.



When properly flared, the internal surface flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connectors, carefully check the flare finish.

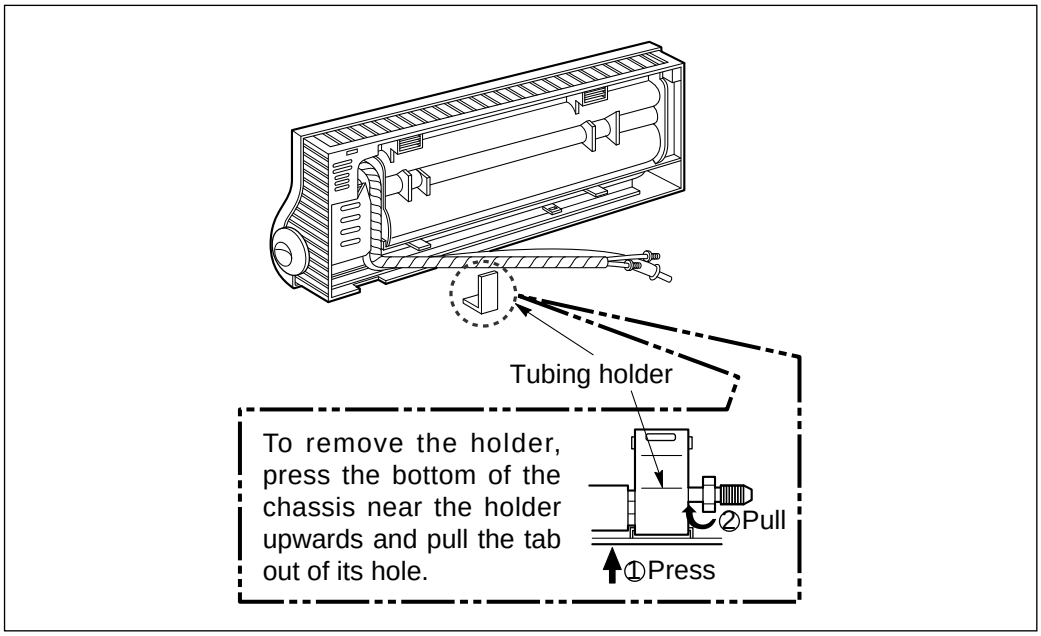
2) Connection of pipings

(LS-S0960CL/S0960HL, LS-S1120CL, LS-S1260CL/S1260HL, LS-S1420CL, LS-S1421CL)

1. Remove the indoor tubing with Drain hose to the hole.

• Remove tubing holder and pull the tubing out of the chassis.

2. Refix the tubing holder into original position.



For right rear piping

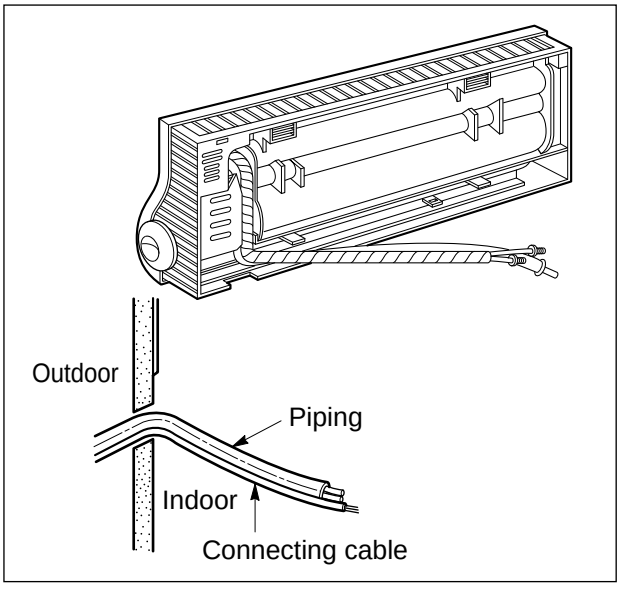
3. Route the tubing and the drain hose straight backwards(see figure).

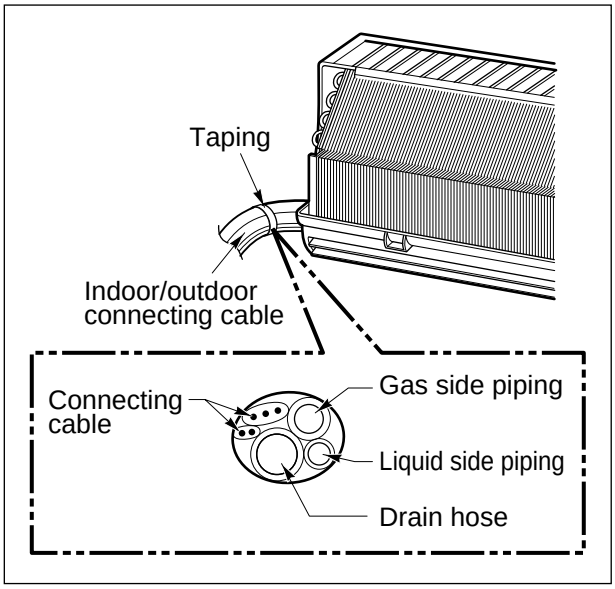
4. Insert the connecting cable into the indoor unit through the piping hole.

• Do not connect the cable to the indoor unit.

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

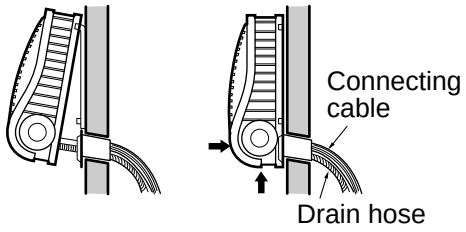
5. Tape the tubing, drain hose and the connecting cable.





6. Indoor unit installation.

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

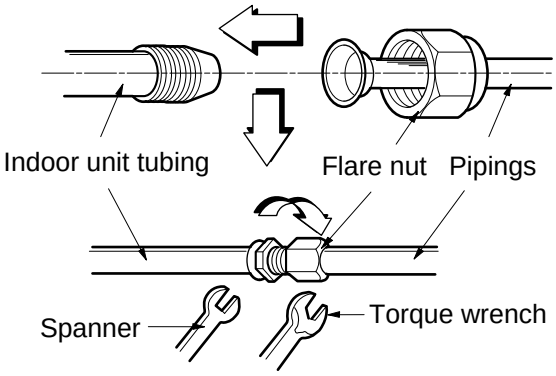


Press the lower left and right side of the unit against the installation Plate until the hooks engages with their slots(sound click).

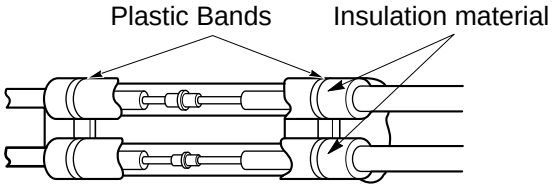
7. Connecting the pipings to the indoor unit

• Align the center of the pipings and sufficiently tighten the flare nut with fingers.
• Finally, tighten the flare nut with torque wrench until the wrench clicks.
Wrench tightening the flare nut with forque wrench, ensure the direction for tightening follows the arrows on the wrench.

Pipe Size	Torque
Liquid Side(1/4")	1.8Kg¡/m
Gas Side(1/2")	5.5Kg¡/m



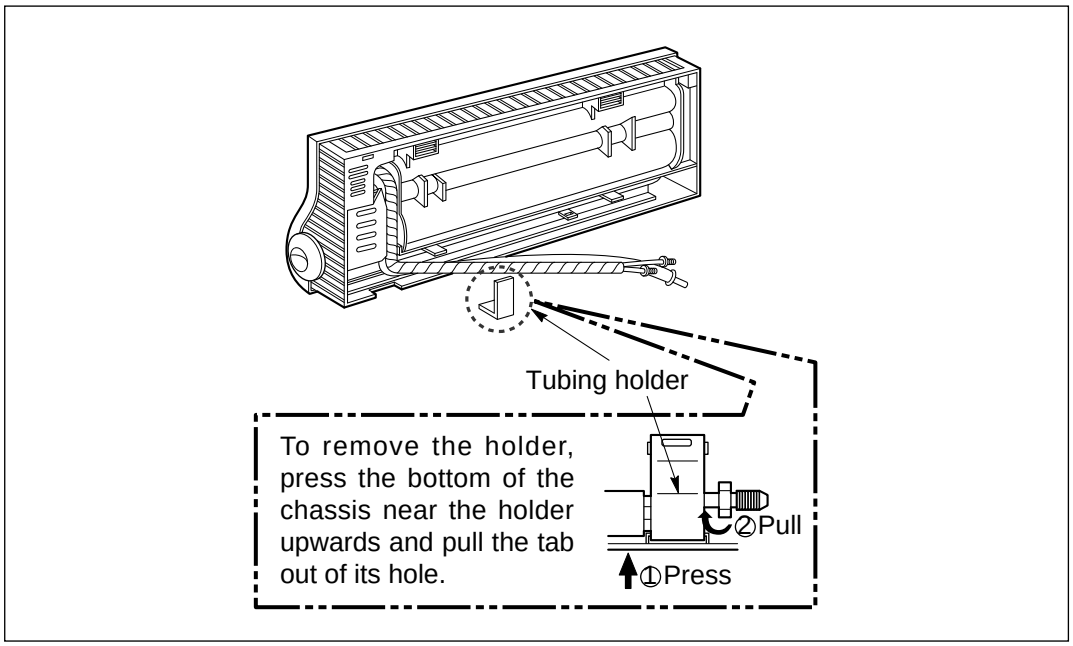
8. Wrap the insulation material around the connecting portion.



Wrap the insulation material around the connecting portion.

For the left pipings

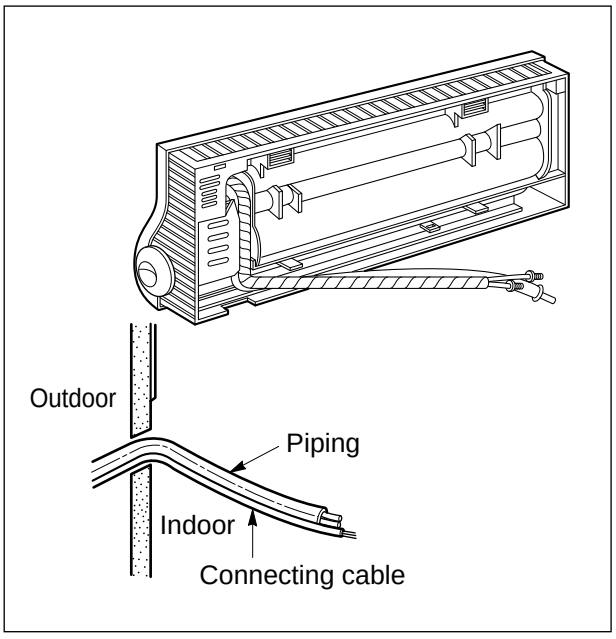
3. Route the indoor tubing with the drain hose to the piping hole as desired position.



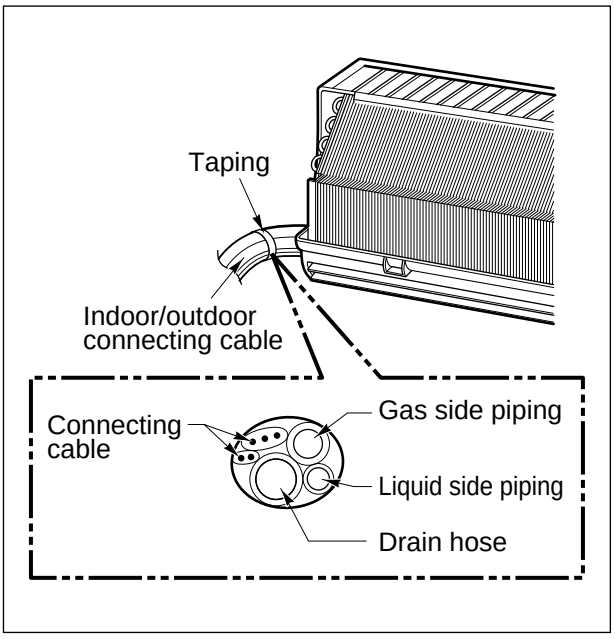
4. Insert the pipings and the connecting cable into the piping hole.

5. Insert the connecting cable into the indoor unit.

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

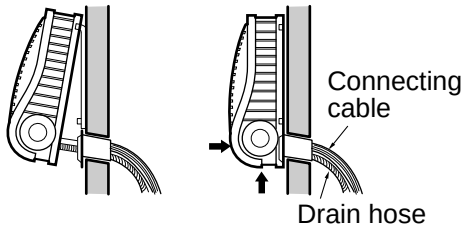


6. Tape the tubing, drain hose and the connecting cable.



7. Indoor unit installation.

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

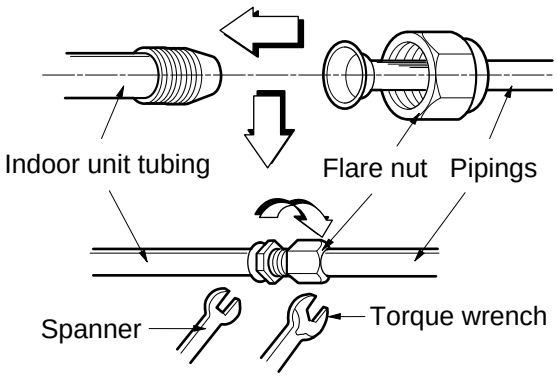


Press the lower left and right side of the unit against the installation Plate until the hooks engages with their slots(sound click).

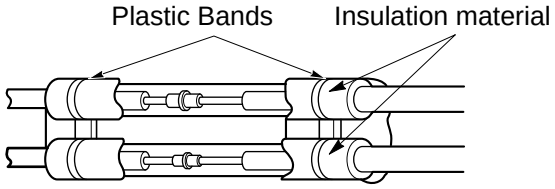
8. Connecting the pipings to the indoor unit

• Align the center of the pipings and sufficiently tighten the flare nut with fingers.
• Finally, tighten the flare nut with torque wrench until the wrench clicks.
Wrench tightening the flare nut with forque wrench, ensure the direction for tightening follows the arrows on the wrench.

Pipe Size	Torque
Liquid Side(1/4")	1.8Kg¡ /m
Gas Side(1/2")	5.5Kg¡ /m
Gas Side(5/8")	6.5Kg¡ /m

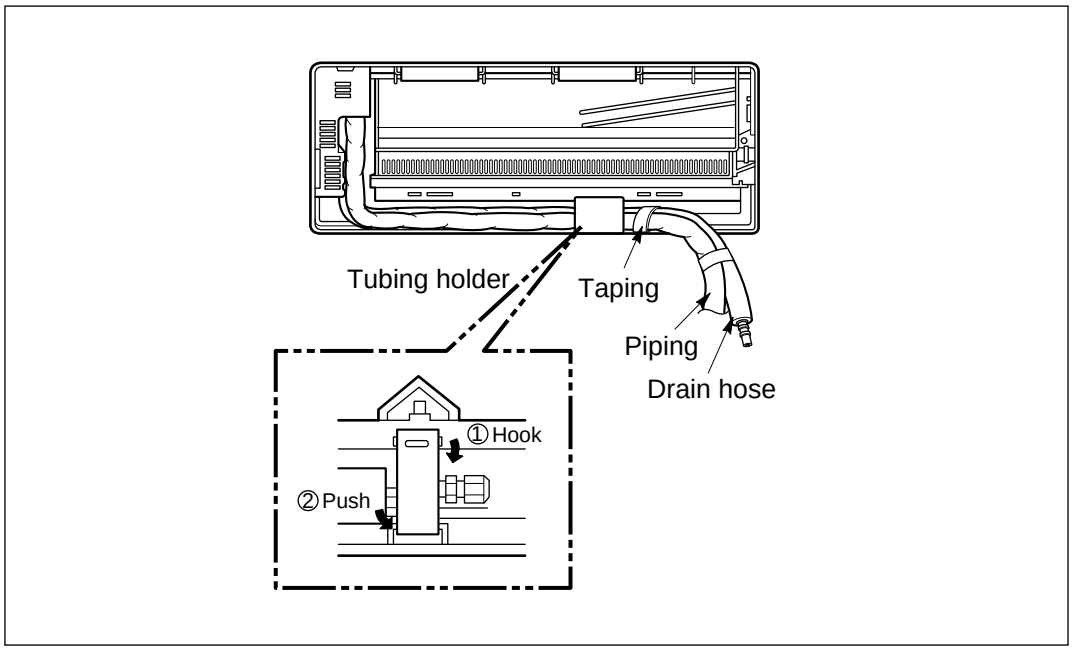


9. Wrap the insulation material around the connecting portion.



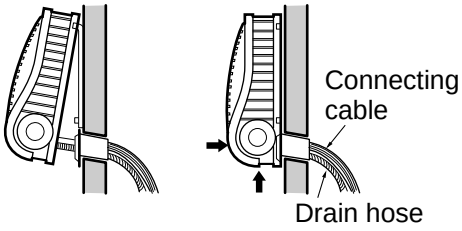
Wrap the insulation material around the connecting portion.

10.Set the pipings and the connecting cable to the back of the chassis with the tubing holder.



11. Indoor unit installation.

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

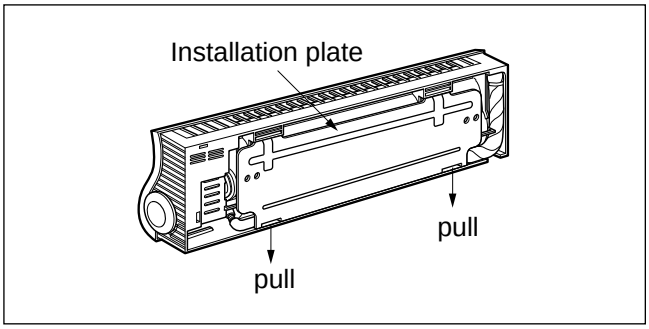


Press the lower left and right side of the unit against the installation Plate until the hooks engages with their slots(sound click).

2) Connection of Pipings (LS-P0760CL/P0760HL, LS-P0820CL, LS-P0960CL/P0960HL)

1. Remove the installation plate

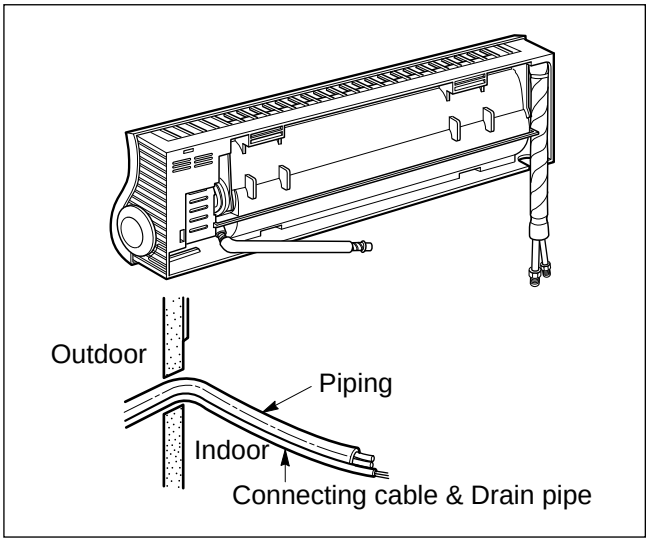
- Pull the two '¡ ' marked portion of bottom of the chassis and pull the installation plate out of chassis.



2. Route the drain hose and the indoor tubing.

For right rear piping

3. Insert the pipings, the connecting cables and the drain pipe throught the piping hole on the wall.



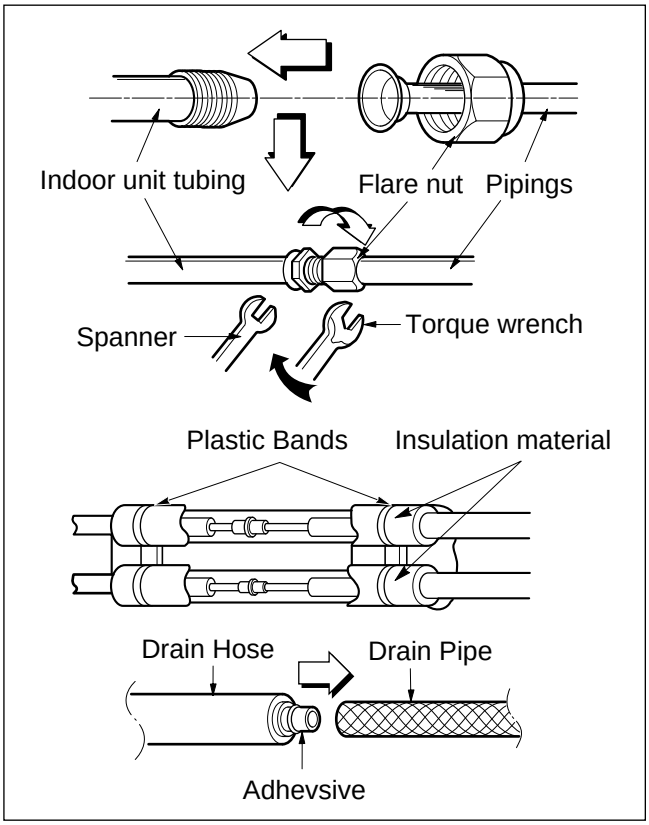
4. Connect the pipings and the indoor tubing, and drain hose and drain pipe.

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

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m

- Wrap the insulation material around the connecting portion.

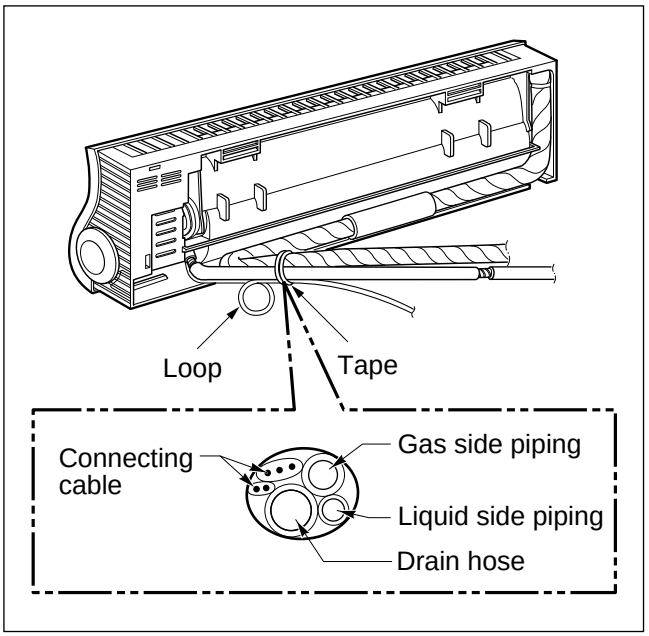
- Glue up the connection portion of drain hose and drain pipe.



5. Bend the tubing as shown in the figure and bind the pipings, the connecting cables and the drain hose altogether.

- Make a small loop for easy connection later.

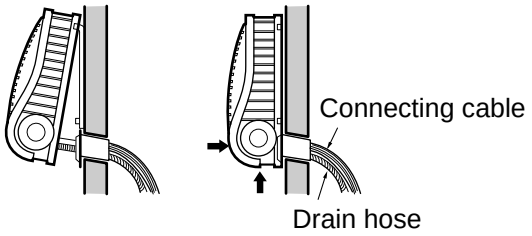
6. Wrap the tubing, the drain hose and the connecting cable



7. Indoor unit installation

- Hook the indoor unit onto the upper position of installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)
  Insure the hooks are properly seated on the installation plate by moving it in left and right.

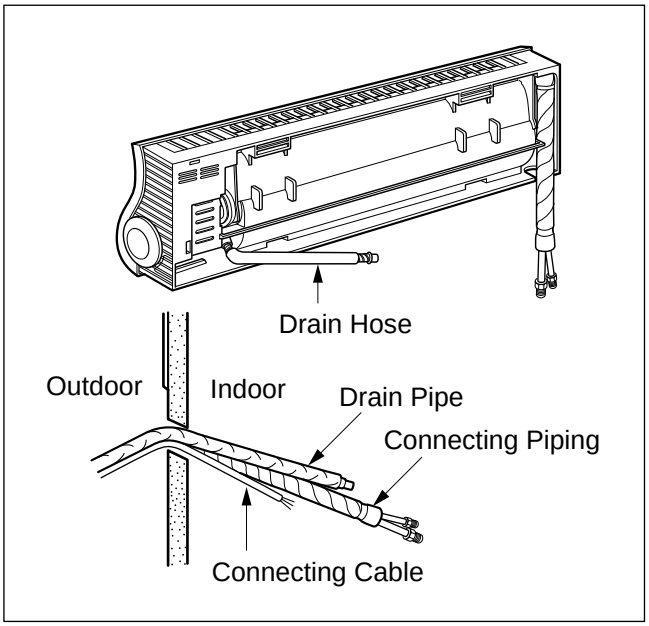
CAUTION : Take care to arrange the pipings, drain hose and cables as the feature 6 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.



Press the lower left and right side of the unit against the Installation Plate until the hooks engages with their slots (sound click).

For left rear pipings

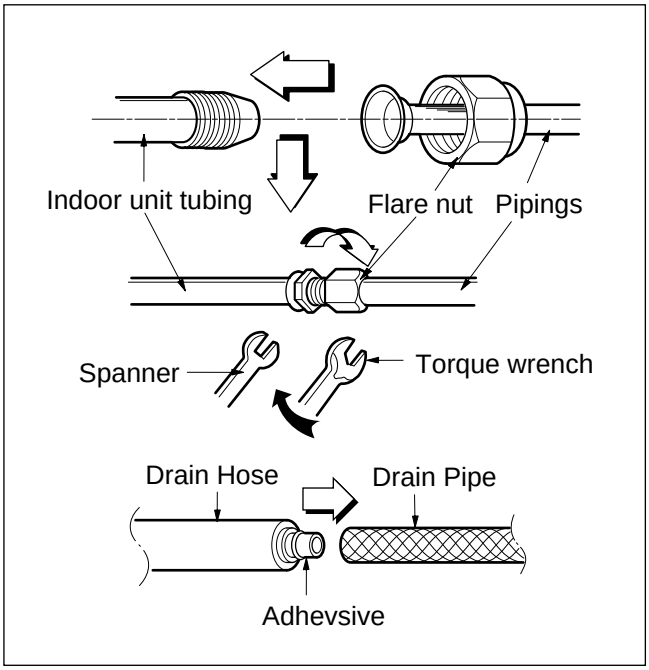
3. Insert the connecting cables, the drain pipe and connecting pipings throught the piping hole on the wall.



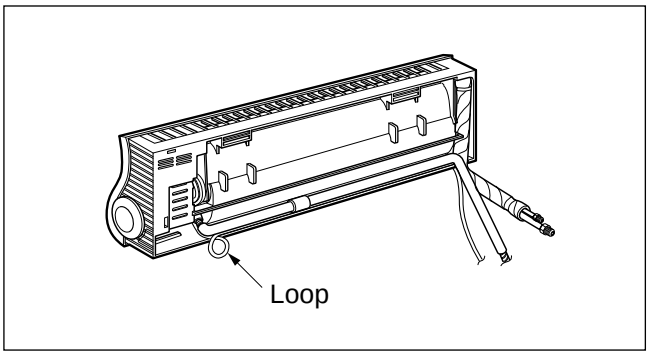
4. Connect connecting pipings and indoor tubing, and the drain hose and the drain pipe and place the drain pipe into the chassis.

- Don't connect the cableto the indoor unit.
- Make a small loop for easy connection later.
- Glue up the connection portion of drain hose and drain pipe.

Pipe Size	Torque
Liquid Side (1/4")	1.8kg·m
Gas Side (3/8")	4.2kg·m

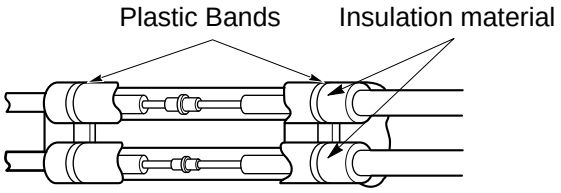


5. Bend the drain hose as shown in the figure and bind the drain hose, the pipings and the connecting cables altogether.



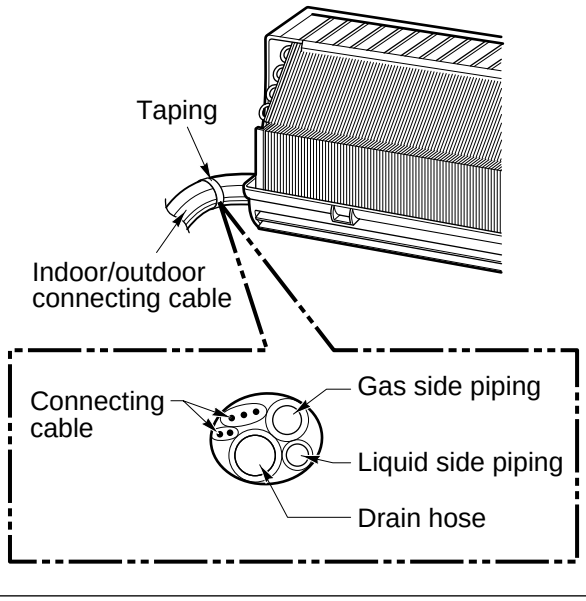
6. Wrap the insulation material around the connecting portion.

CAUTION : Take care to arrange the pipings, drain hose and cables as the feature 6 page for inserting it into the indoor unit and mount the indoor unit on the installation plate.



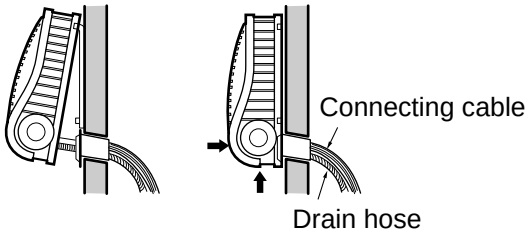
Wrap the insulation material around the connecting portion.

7. Wrap the tubing, the drain hose and the connecting cable with tape.



8. Indoor unit installation

- Hook the indoor unit onto the upper position of installation plate. (Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.)
  Insure the hooks are properly seated on the installation plate by moving it in left and right.



Press the lower left and right side of the unit against the Installation Plate until the hooks engages with their slots (sound click).

3. Connecting Pipings and the cable to Outdoor unit

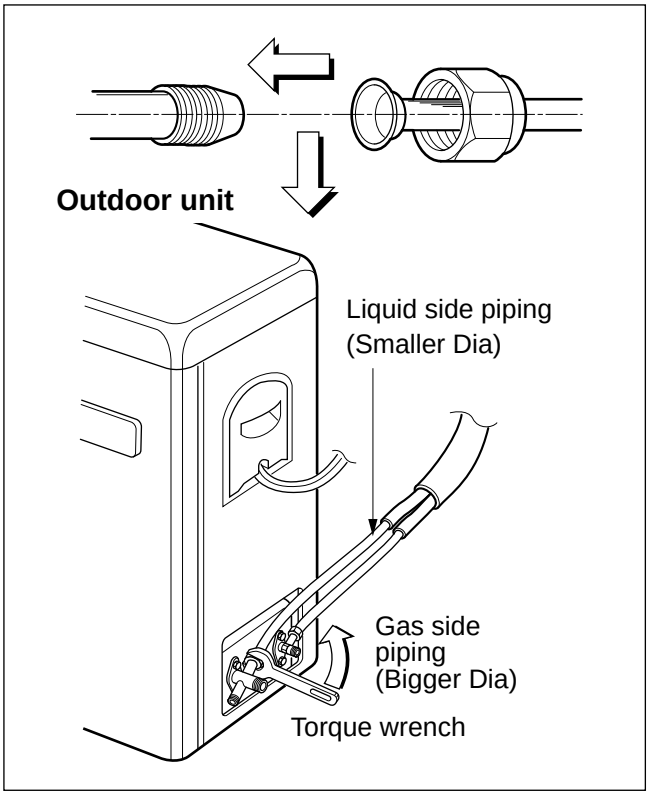
1) Connecting the piping to the Oudoor unit.

1. Align the center of the pipings and sufficiently tighten the flare nut with fingers.

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

• When tightening the flare nut with touque wrench, ensure the direction for tightening follows the arrow on the wrench.

Pipe Size	Torque
Liquid Side(1/4")	1.8Kg¡/m
Gas Side(3/8")	4.2Kg¡/m
Gas Side(1/2")	5.5Kg¡/m

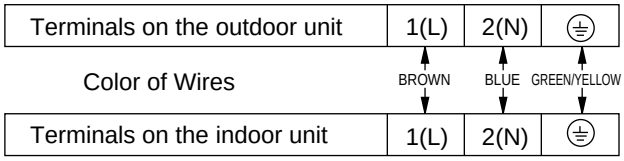


2) Connecting of the cable

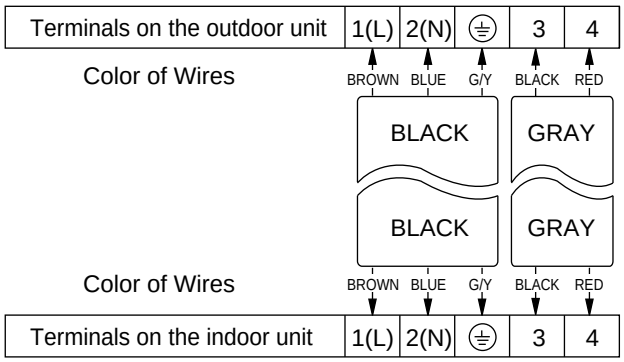
1. Remove the cover control from the unit by lossening the screw.

Connect the wires to the terminals onthe control board individually as the following.

1) Cooling only type



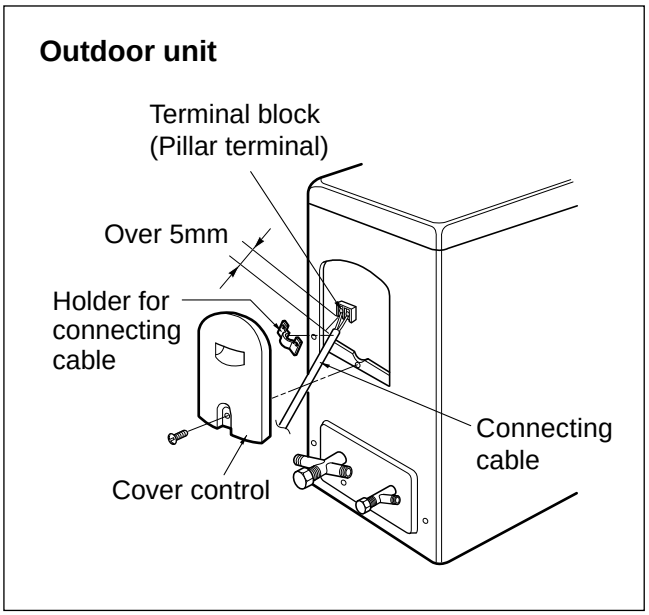
2) Cooling & Heating type



2. Secure the cable onto the control board with the holder (clamper).

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

ƒNThe connecting cable for installation of indoor and outdoor unit must be approved by TüV standard or equivalent.

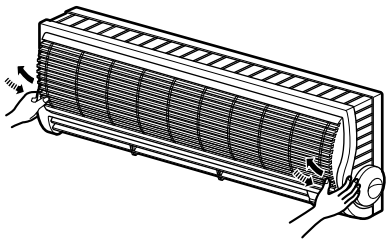


4. Checking the Drainage and Connecting the cable to Indoor unit

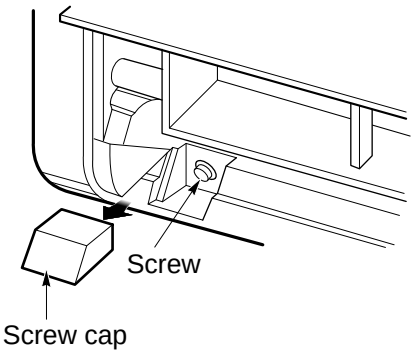
1) Checking the Drainage

1. Remove the Grille from the cabinet.

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

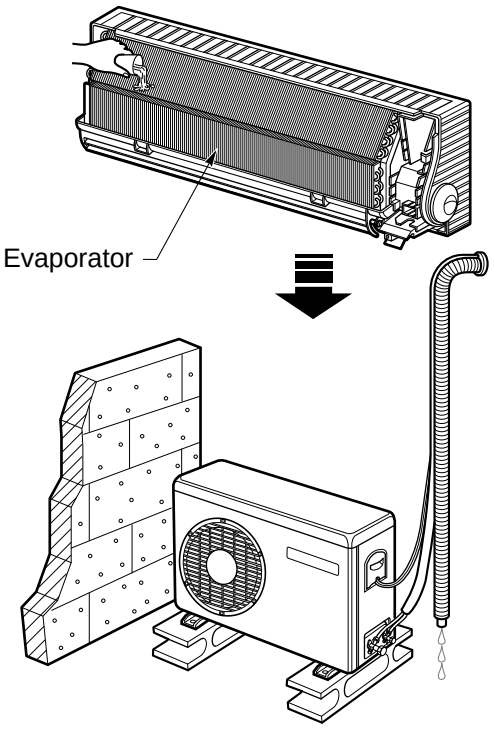


Pull the right and the left side.



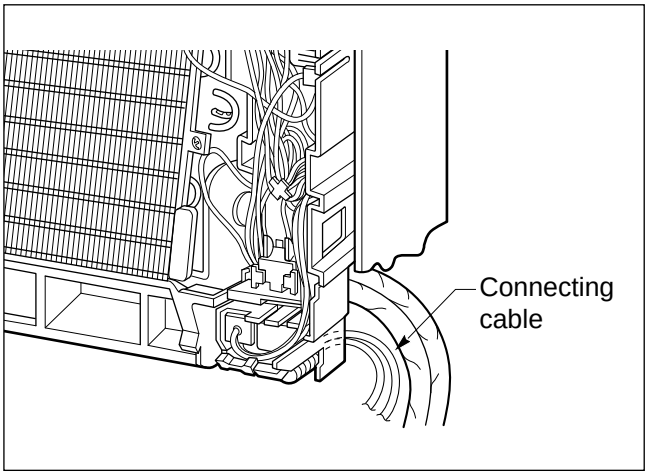
2. Check the drainage.

- Pour a glass of water on the evaporator.
- Ensure if water flows drain hose of indoor unit.



2) Connect the cable to the indoor unit

1. Connect the wires to the terminals on the control board individually according to the outdoor unit connection.



• Ensure the color of wires of outdoor unit and the terminal No.s are the same to the indoor's respectively.

1) Cooling only type

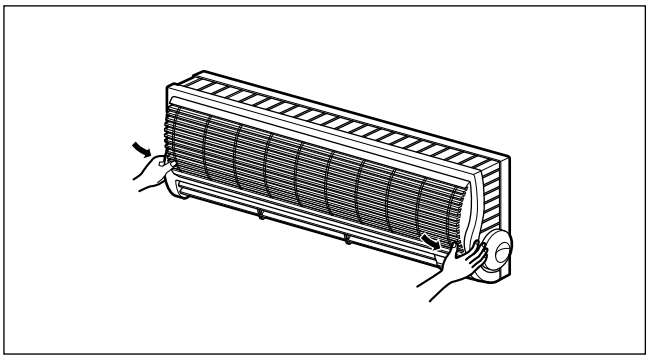
Terminals on the outdoor unit	1(L)	2(N)	⏚
Color of Wires	BROWN	BLUE	GREEN/YELLOW
Terminals on the indoor unit	1(L)	2(N)	⏚

2) Cooling & Heating type

Terminals on the outdoor unit	1(L)	2(N)	⏚	3	4
Color of Wires	BROWN	BLUE	G/Y	BLACK	RED
	BLACK			GRAY	
	BLACK			GRAY	
Color of Wires	BROWN	BLUE	G/Y	BLACK	RED
Terminals on the indoor unit	1(L)	2(N)	⏚	3	4

• Secure the cable onto the control board with the holder(clamper).

2. Attach the Grille onto the cabinet



• Grasp lower the left and right side of the Grille and engage two tabs on the top in side edge of the grille with two slots on the cabinet's top front edge.
• press the grille toward the cabinet until it will be back into place.
• Secure the grille to the cabinet with two screws.

3) Form the pipings

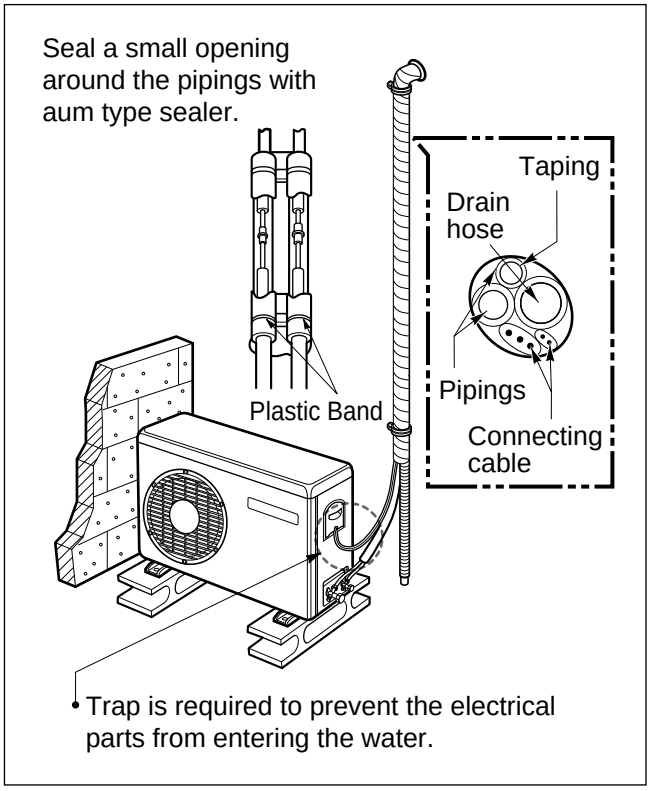
1. Wrap the connecting portion of indoor unit with the Insulation material and secure it with two plastic Bands (for the right pipings).

• If you want to connect an additional drain hose, the end of the drain-outlet should keep distance from the ground.(Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

In case of the Oudoor unit to be installed below the Indoor unit

2. Tape the pipings, drain hose and Connecting Cable from down to up.

3. Form the pipings gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.

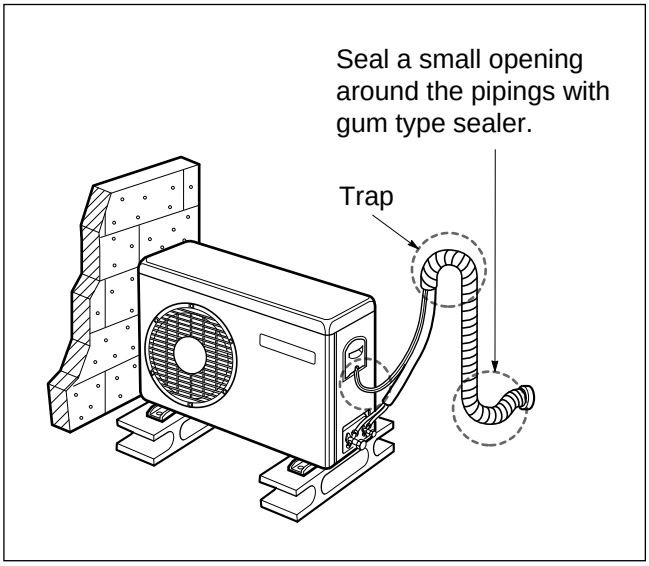


In case of the Outdoor unit to be installed upper position of the Indoor unit

2. Tape the pipings and Connecting Cable from down to up.

3. Form the pipings gathered by taping along the exterior wall and the Trap is required to prevent the room from entering the water.

4. Fix the pipings onto the wall by saddle or equivalent.



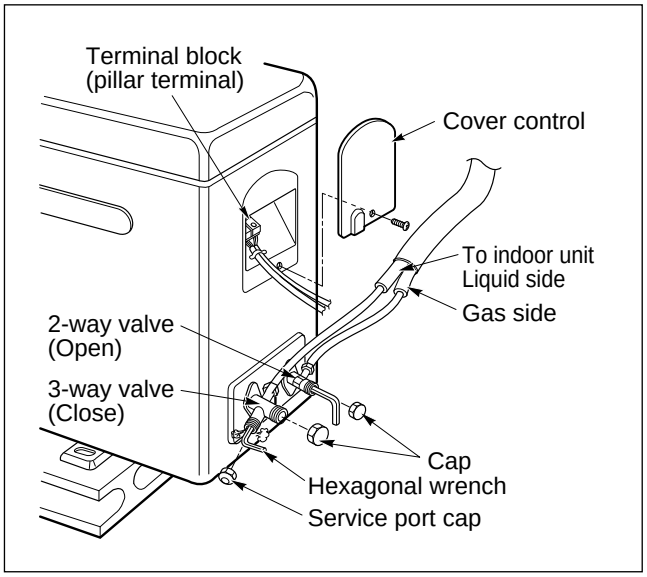
5. Air Purging

1) Air purging

The air which contains a moisture is remaining in the refrigeration cycle may cause a malfunction on the compressor.

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 valve, turn the valve stem of 2-way valve counter-clockwise approx. 90° and hold it there for five seconds, then close it.
4. Check a gas-leakage of the connection portion of the pipings.

- For the left pipings, refer page 26.
- For more details, refer page 45(2-way 3-way valve).



CAUTION:
Do not leak the gas in the air during Air purging with vacumm pump as possible as you can.

No leakage found — **Result** — **leakage found**

¤ ¤

5. To open 2-way valve again, turn the valve stem counter-clockwise until it stops.

Re-tighten the connecting portion with wrench.

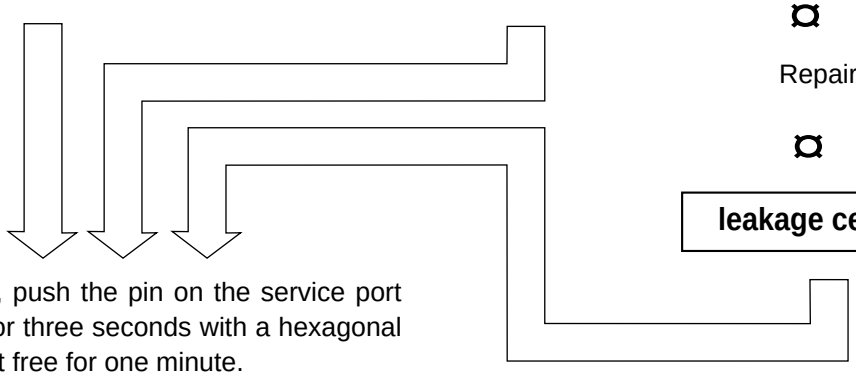
leakage ceased | **leakage persists**

¤

Repair

¤

leakage ceased



6. To purge the air, push the pin on the service port of 3-way valve for three seconds with a hexagonal wrench and set it free for one minute.

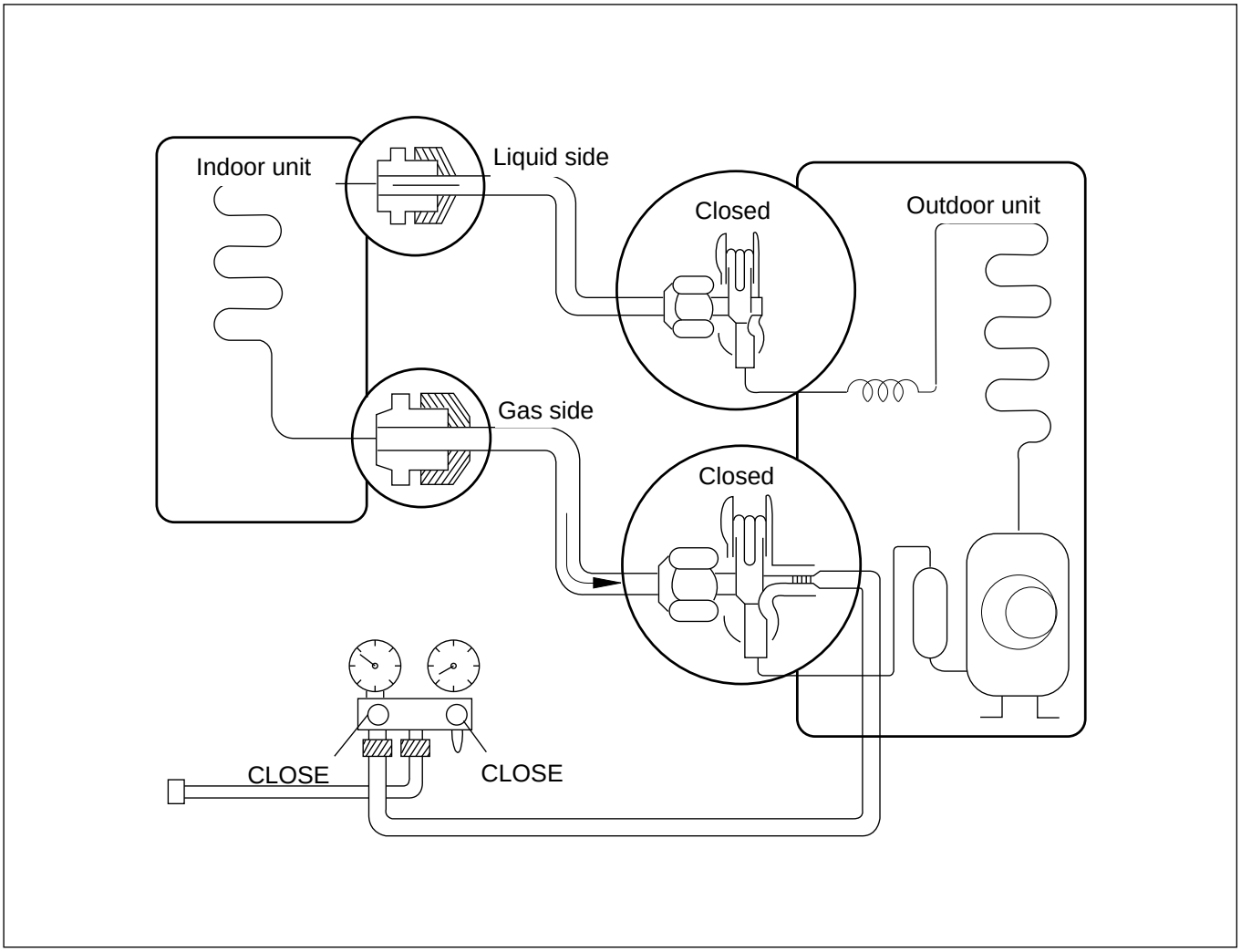
Repeat the operation three times.

7. Set the both 2-way and 3-way valves to open position with the hexagonal wrench for the unit operation.

8. Checking a gas leakage.

(1) Connect the manifold gauge to the service port of 3-way valve.
Measure the pressure.

(2) Keep it for 5-10 minutes.
Ensure if the pressure indicated on the gauge is as same as that of measured at first time.



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

CAUTION:
Do not leak the gas in the air during Air purging with vacumm pump as possible as you can.

6. Test running

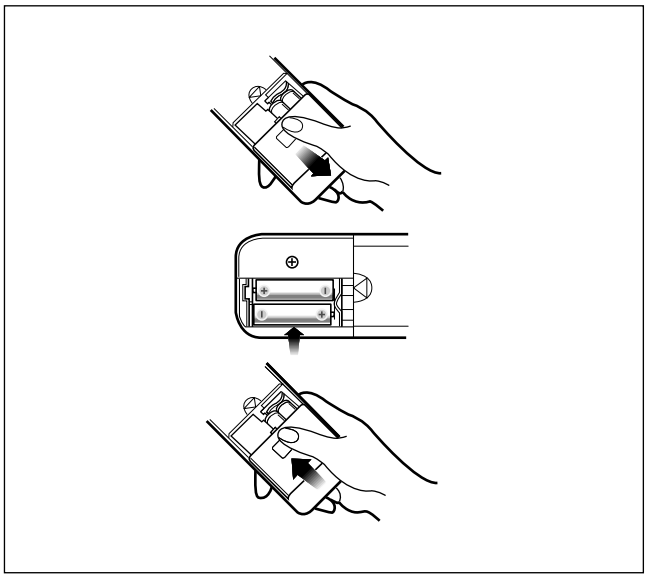
1) Connection of power supply

1. Connect the power supply cord to independent power supply.

2. Prepare the remote control.

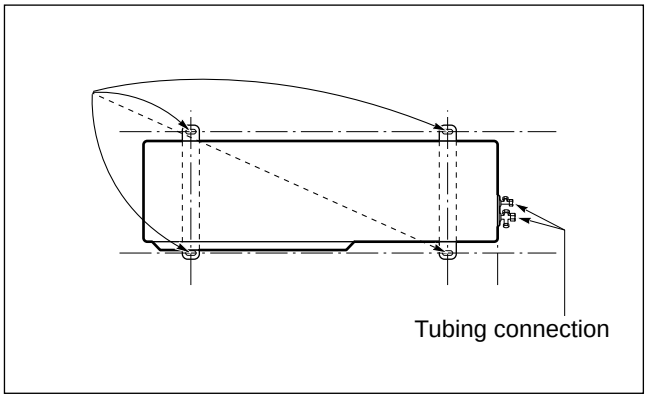
- Insert two batteries provided.
  Remove the cover from the back of the remote control.
- Slide the cover according to the arrow directon.
- Insert the two batteries.
  (Two "R03" or "AAA" dry-cell batteries or equivalent).
- Be sure that the (+) and (-) directions are correct.
- Be sure that both batteries are new.
  Re-attach the cover.
- Slide it back into position.

3. Operate the unit at cooling operation mode for fitteen minutes or more.



Settlement of Outdoor Unit

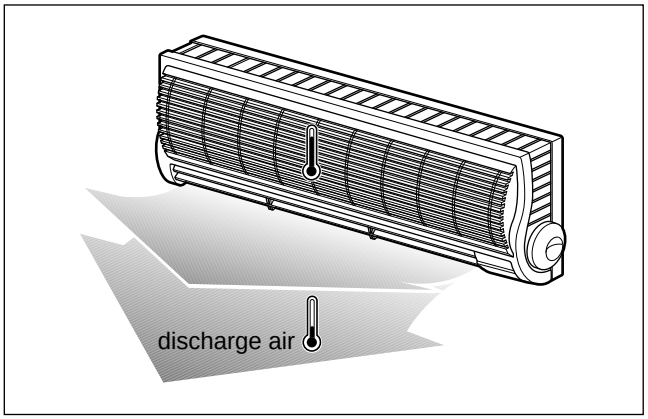
- Anchor the outdoor unit with a bolt and nut (ø10cm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the house, settle the unit with an anti-vibration rubber.



2) Evaluation of the performance

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

2. Ensure the difference between the intake temperature and the discharge one is more than 8°C.



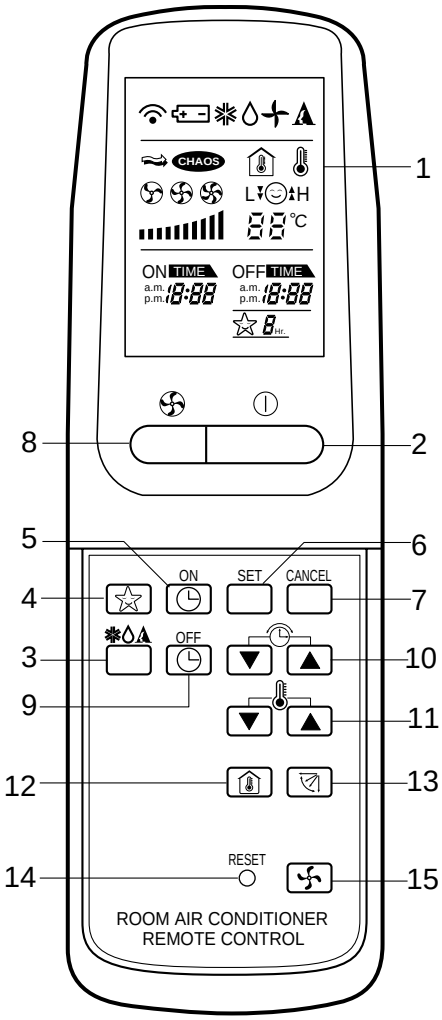
Operation

(1) Name and Function-Remote Control (Cooling Models)

Remote Controller

Signal transmitter.

Transmits the signals
to the room air conditioner.



/A **Operation Display**

Displays the operation conditions.

/B **Start/Stop Button**

Operation start when this button is pressed, and stops when the button is pressed again.

/C **Operation Mode Selection Button**

Used to select the type of operation mode.
ƒUCooling Operation Mode.
ƒUSoft Dry Operation Mode.
ƒUAuto Operation Mode.

/D **Sleep Mode Auto Button**

For Sleep Mode Auto Operation.

/E **ON Timer Button**

Used to set the time of starting operation.

/F **Timer Set Button**

Press to set the timer operation.

/G **Timer CANCEL Button**

Press to cancel the timer operation.

/H **Indoor Fan Speed Selector**

/I **OFF Timer Button**

Used to set the time of stopping operation.

/J **Time Setting Button**

/K **Room Temperature Setting Button**

Used to adjust the temperature.

/L **Room Temperature**

/M **Airflow Direction Control Button**

Press to set the desired airflow direction.

/N **Reset Button**

/O **Fan Operation Button.**

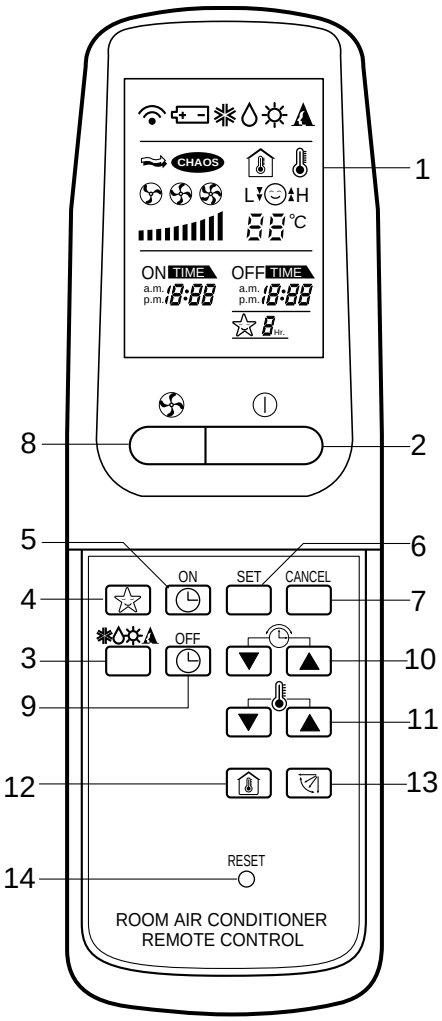
Used to operate the indoor fan only.

(2) Name and Function-Remote Control (Heat Pump Models)

Remote Controller

Signal transmitter.

Transmits the signals
to the room air conditioner.



/A Operation Display

Displays the operation conditions.

/B Start/Stop Button

Operation start when this button is pressed, and stops when the button is pressed again.

/C Operation Mode Selection Button

Used to select the type of operation mode.

ƒUCooling Operation Mode.
ƒUSoft Dry Operation Mode.
ƒUHeating Operation Mode.
ƒUAuto Operation Mode.

/D Sleep Mode Auto Button

For Sleep Mode Auto Operation.

/E ON Timer Button

Used to set the time of starting operation.

/F Timer Set Button

Press to set the timer operation.

/G Timer CANCEL Button

Press to cancel the timer operation.

/H Indoor Fan Speed Selector

/I OFF Timer Button

Used to set the time of stopping operation.

/J Time Setting Button

/K Room Temperature Setting Button

Used to adjust the temperature.

/L Room Temperature

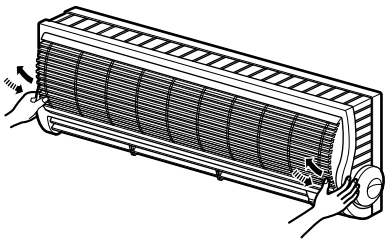
/M Airflow Direction Control Button

Press to set the desired airflow direction.

/N Reset Button

Disassembly of the parts (Indoor unit)

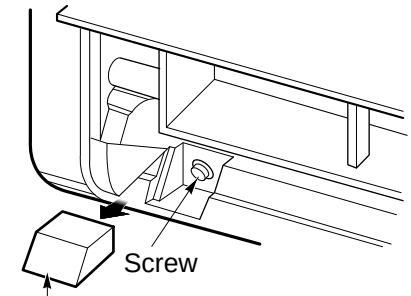
Warning :
Disconnect the unit from power supply before making any checks.
Be sure the power switch is set to “OFF”.



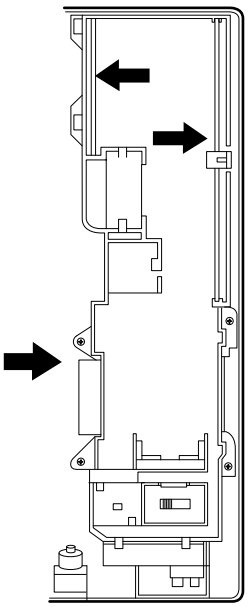
Up-and-down air direction louver

To remove the Grille from the Chassis.

- Set the up-and-down air discharge louver to open position (horizontally) by finger pressure.
- Open the screw caps upward and 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.

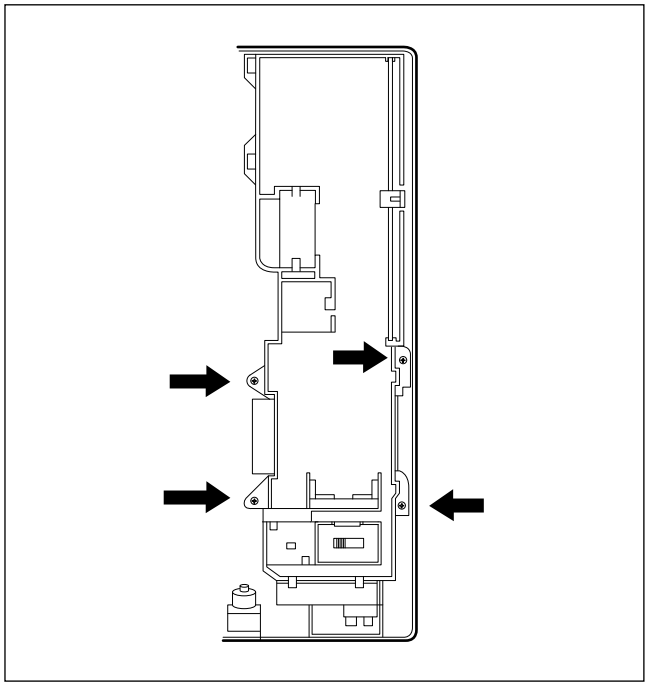


1. To remove the sensor, housing connect, earth conductor & step motor conductor with sensor holder, Motor, Evaporator & P.C.B.



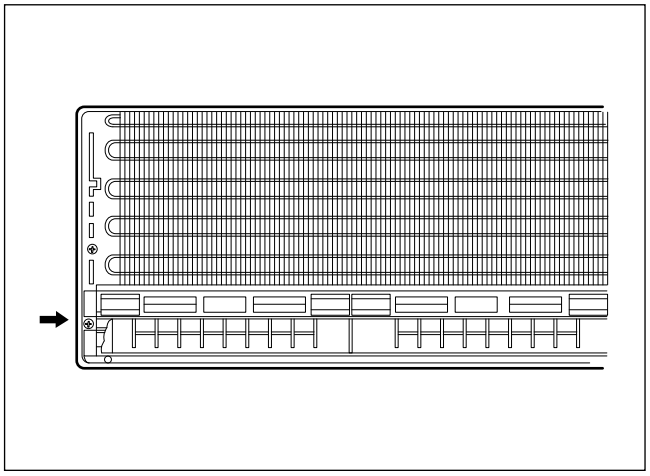
2. To remove the Control Box.

- Remove 2 or 4 securing screws.
- Pull the control box out from the chassis carefully.

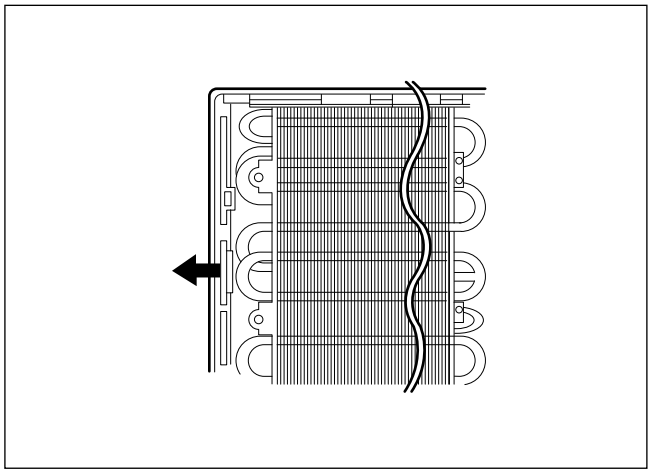


3. To remove the Discharge Grille.

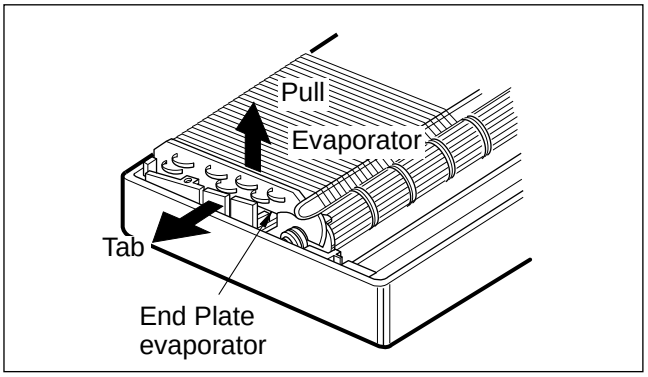
- Remove the securing screw.
- Pull the discharge grille out from the chassis carefully.



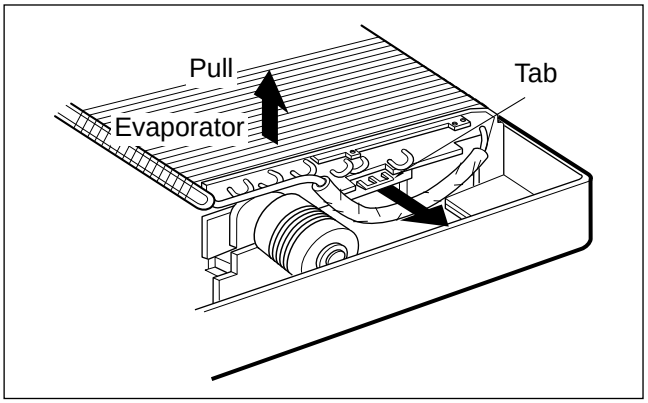
4. To remove the Evaporator.



- Unhook the tab on the left inside edge of the chassis by pressing it outwards and at the same time, slightly pull the evaporator until the tab is clear of the end-plate.
- Remove the evaporator from the chassis carefully.

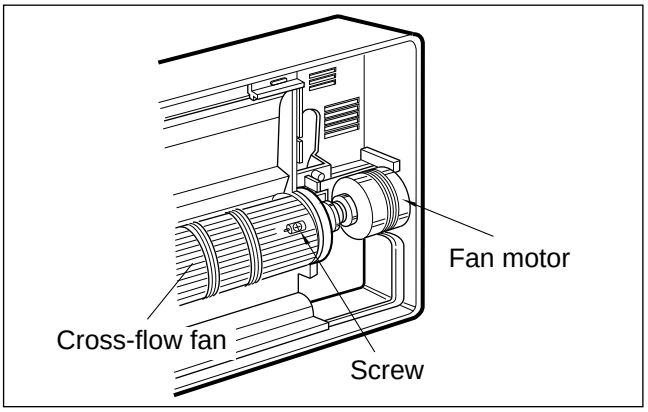


- Unhook the tab on the right inside of the chassis at the same time, slightly pull the evaporator toward you until the tab is clear of the slot.

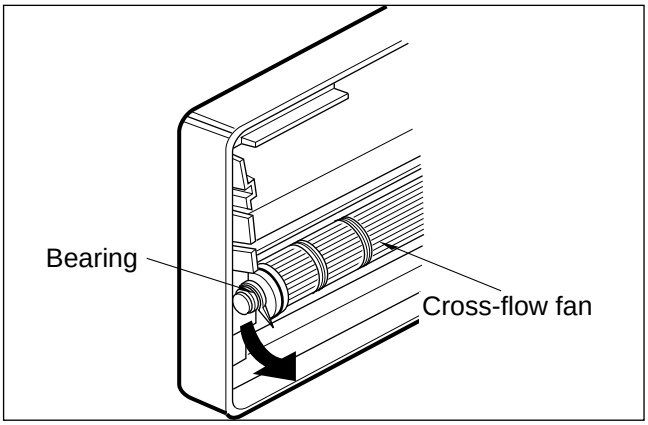


5. To remove the Cross-Flow Fan.

- Loosen the screw securing the cross-flow fan to the fan motor (do not remove).



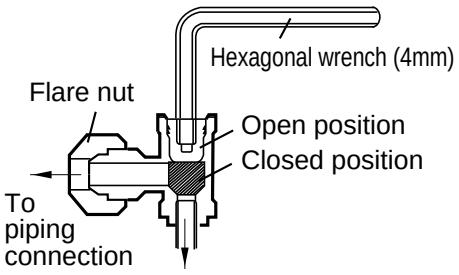
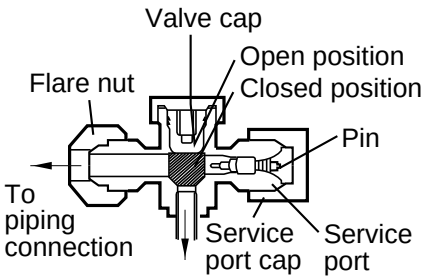
- Pull the left end of the cros-flow fan with the self-aligning bearing out the groove.
- Remove the cross-flow fan by sliding it out from the shaft of fan motor.



6. To remove the Fan Motor.

- Pick it up from the groove. (Do not remove a black rubber as a spacer).

2-way, 3-way Valve

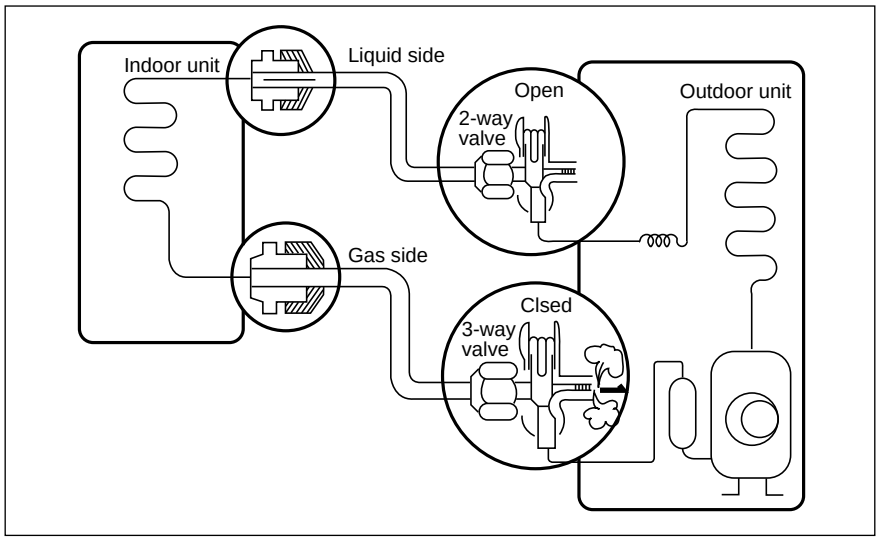
		2-way Valve (Liquid Side)	3-way Valve (Gas Side)	
		 To outdoor unit	 To outdoor unit	
Works		Shaft position	Shaft position	Service port
Shipping		Closed (with valve cap)	Closed (with valve cap)	Closed (with cap)
1.	Air purging (Installation)	Open (counter-clockwise)	Closed (clockwise)	Open (push-pin 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	"
6.	Gas releasing (Servicing)	Open	Open	"

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 been 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 unt.
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.

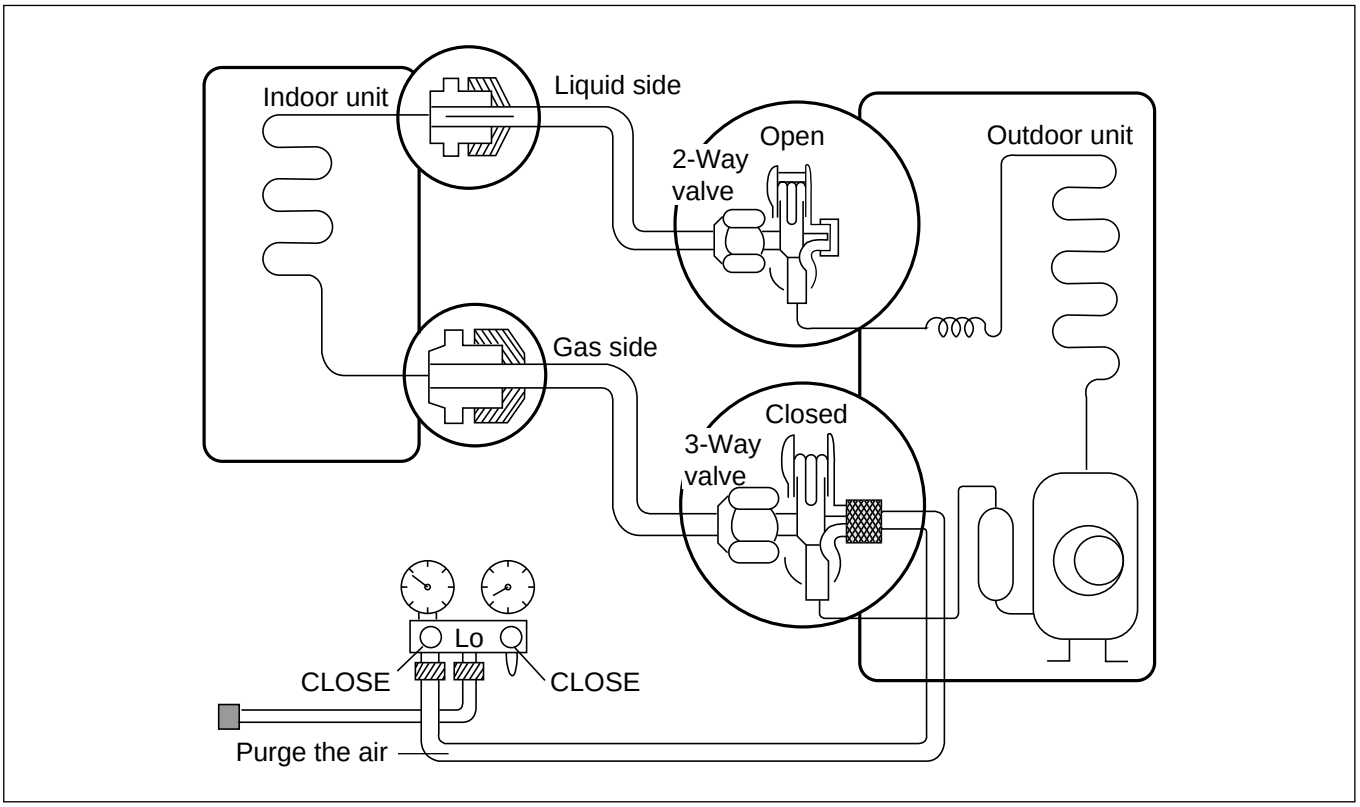
(8) Check for gas leakage.
– At this time, especially check for gas leakage from the 2-way and 3-way valve's stem nuts, and from the service port nut.

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.

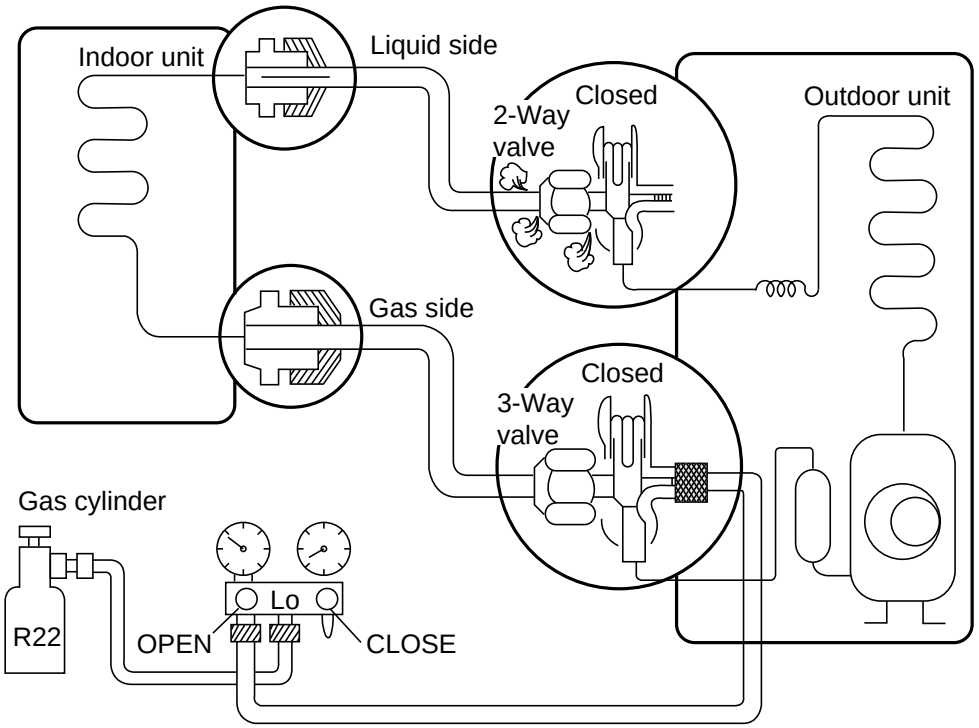
(6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 1kg/cm²g.

(7) Immediately set the 3-way valve to the closed position.
- Do this quickly so that the gauge ends up indicating 3 to 5kg/cm²g.

(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.

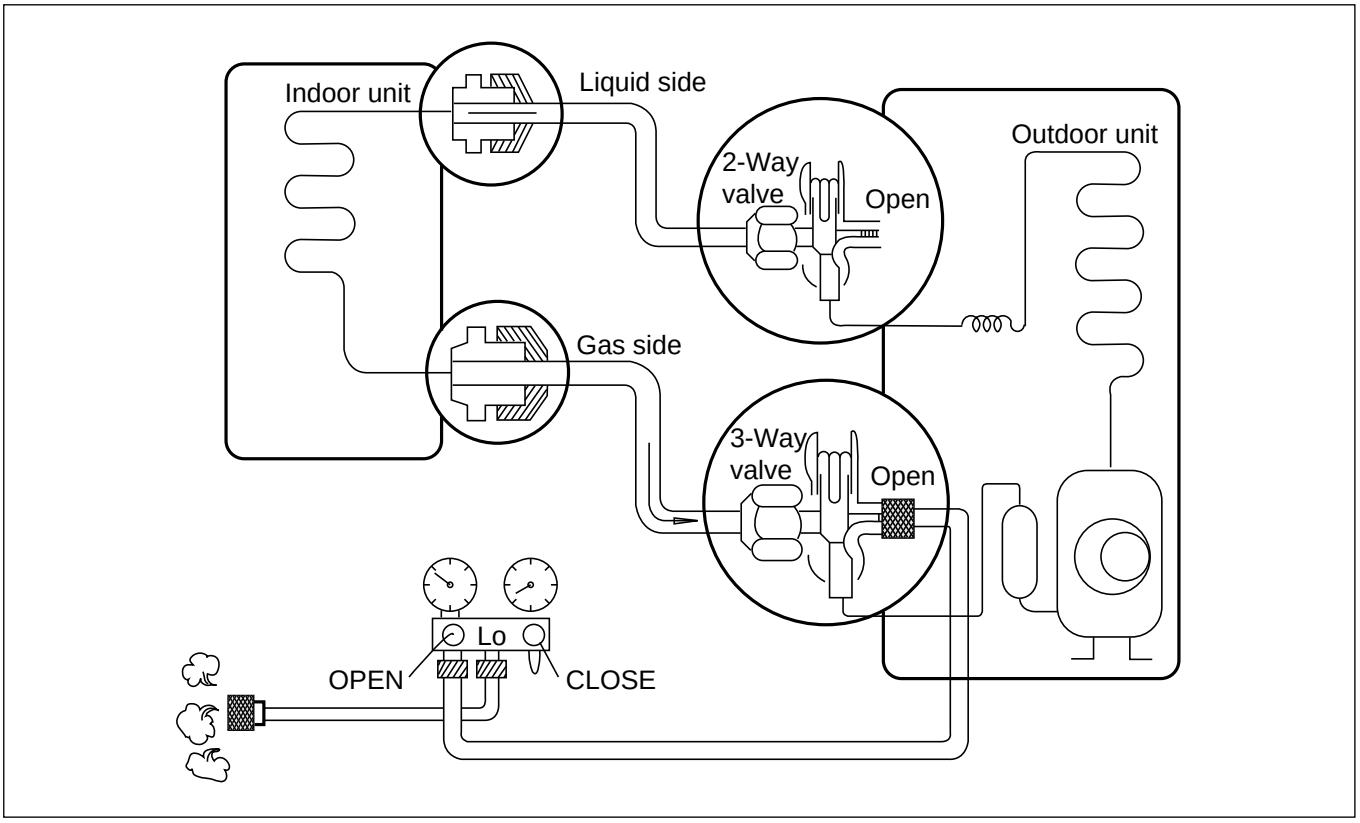
(6) Disconnect the charge set and the gas cylinder, and set the 2-way and 3-way valves to the open position.
- Be sure to use a hexagonal wrench to operate the valve stems.

(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.

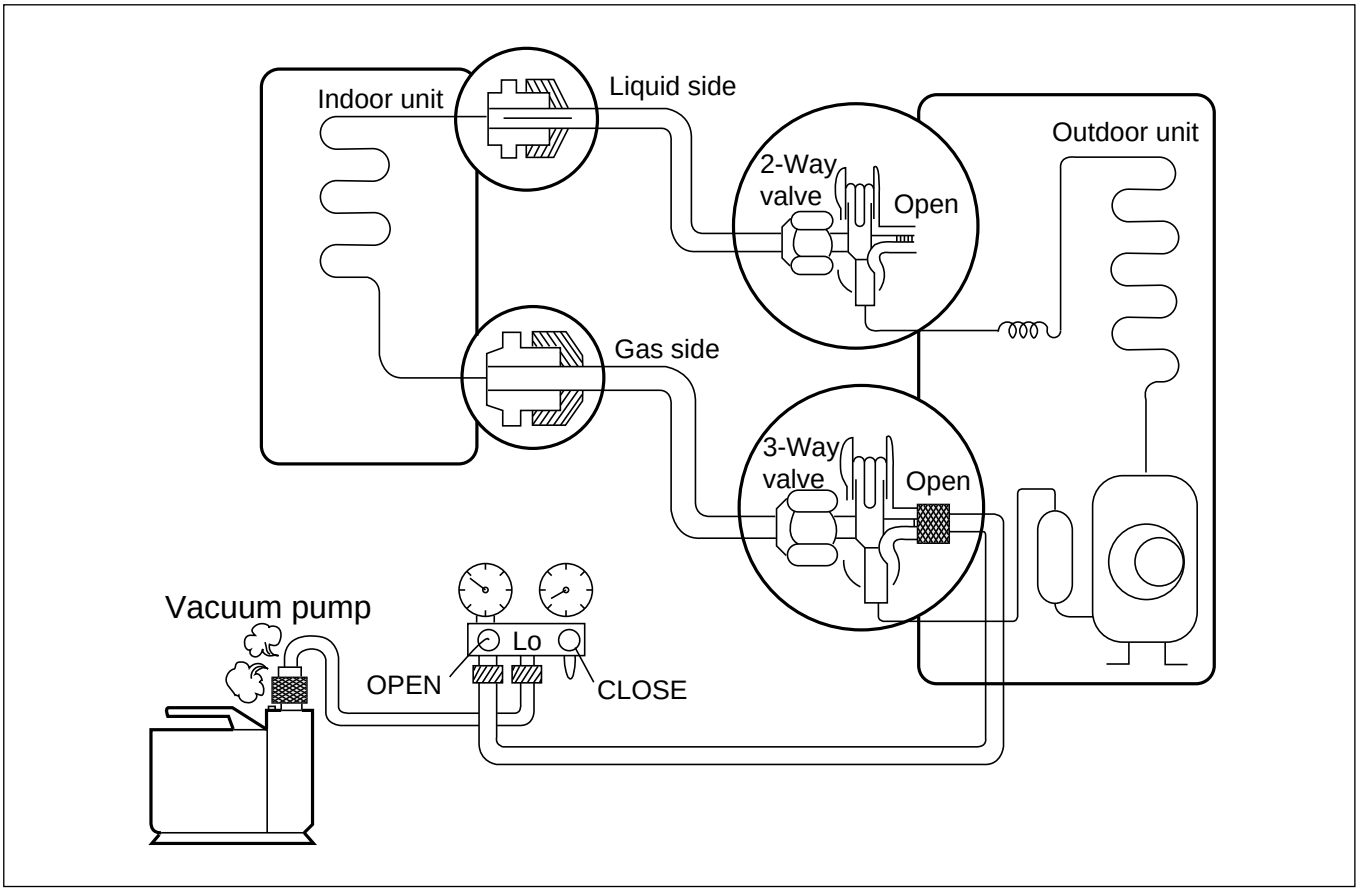
– Leave the valve on the charge set closed.
– Connect the charge hose with the push pin to the service port.

(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

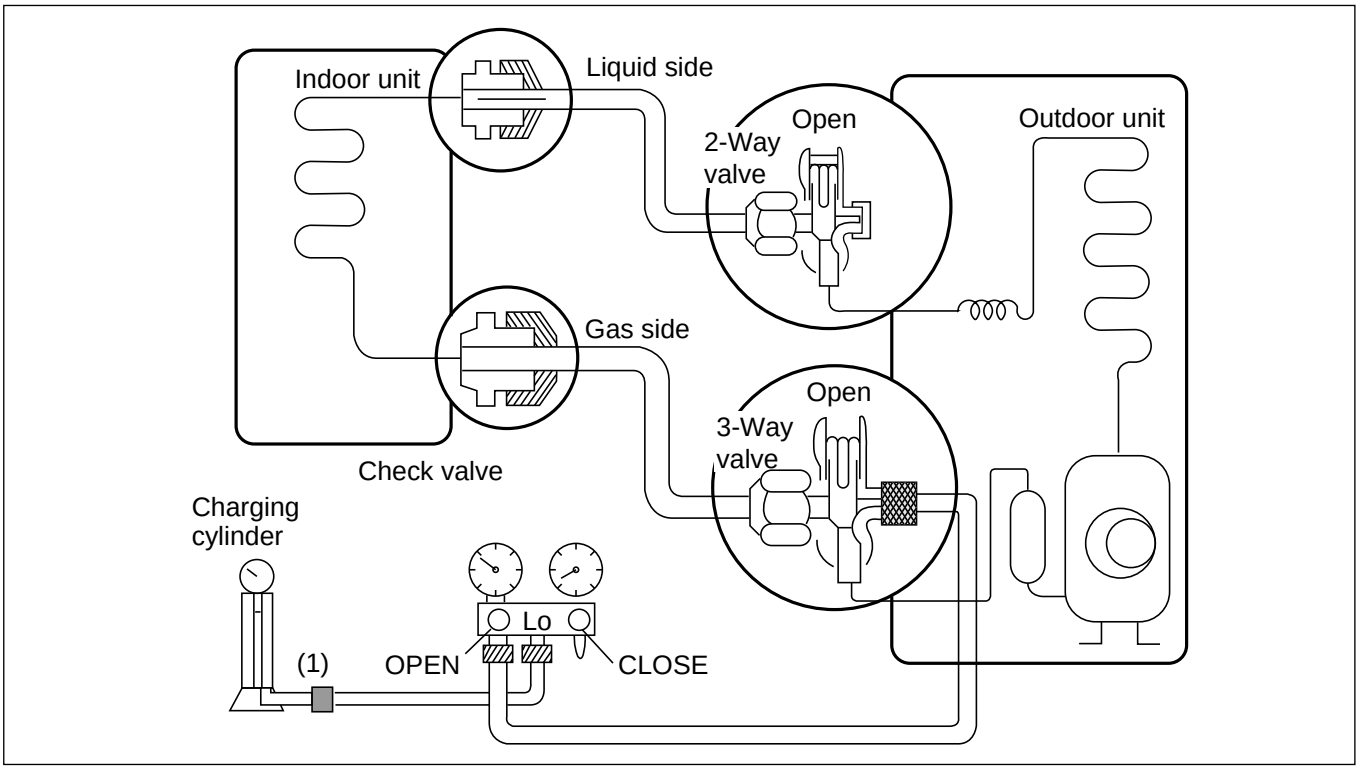
(2) Evacuation for approximately one hour.
– Confirm that the gauge needle has moved toward -76 cmHg (vacuum of 4 mmHg or less).

(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 Trouble Shooting Guide

Trouble analysis

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

	Temp. difference : approx. 0°C Current : less than 80% of rated current	All amount of refrigerant leaked out Check refrigeration cycle
Temp. Difference	Temp. difference : approx. 8°C Current : less than 80% of rated current	Refrigerant leakege Clog of refrigeration cycle Defective compressor
Operating Current	Temp. difference : less than 8°C Current : over the reated current	Excessive amount of refrigerant
	Temp. difference : over 8°C	Normal

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.

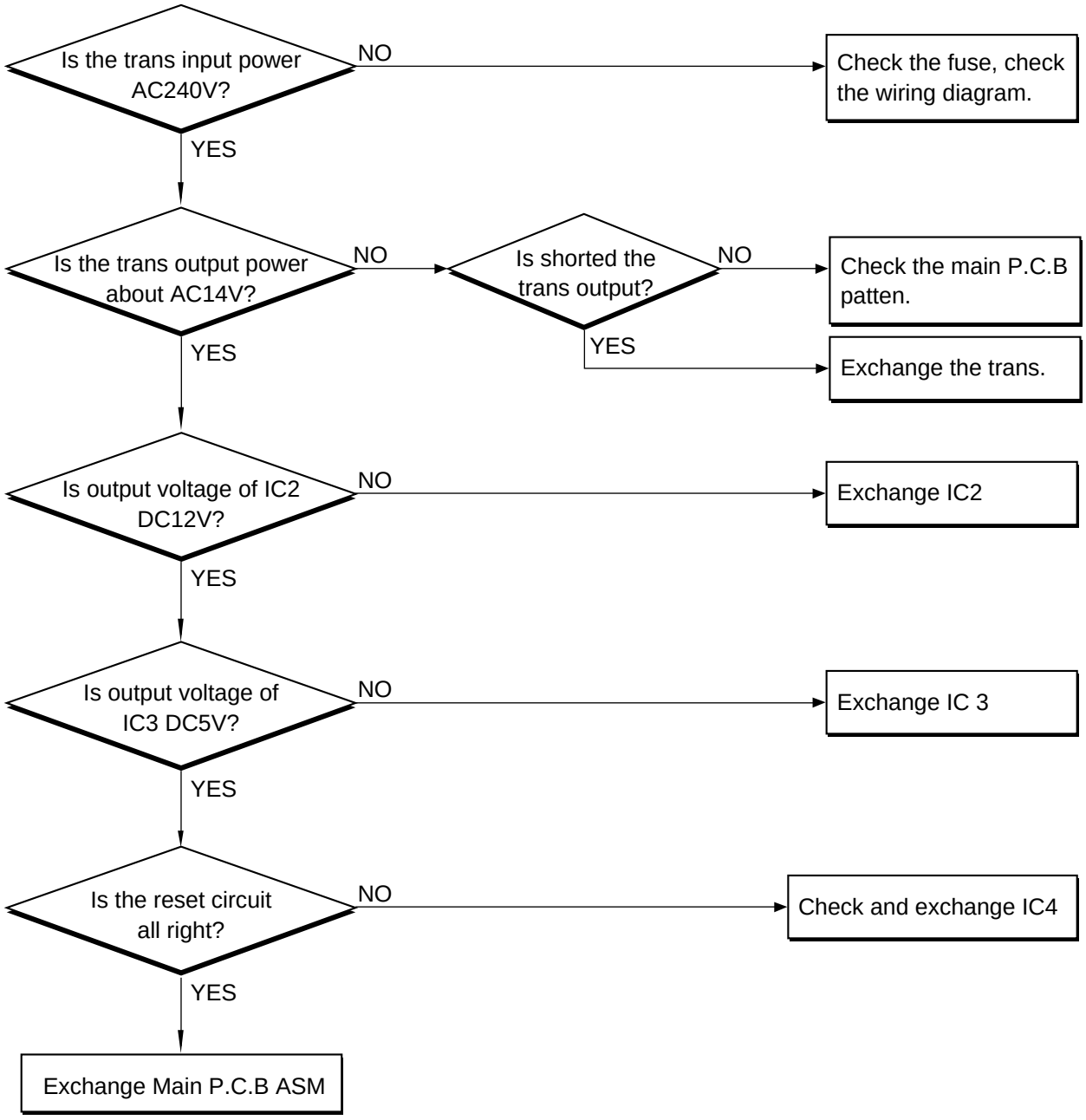
2. Check temperature and pressure of refrigeration cycle.

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

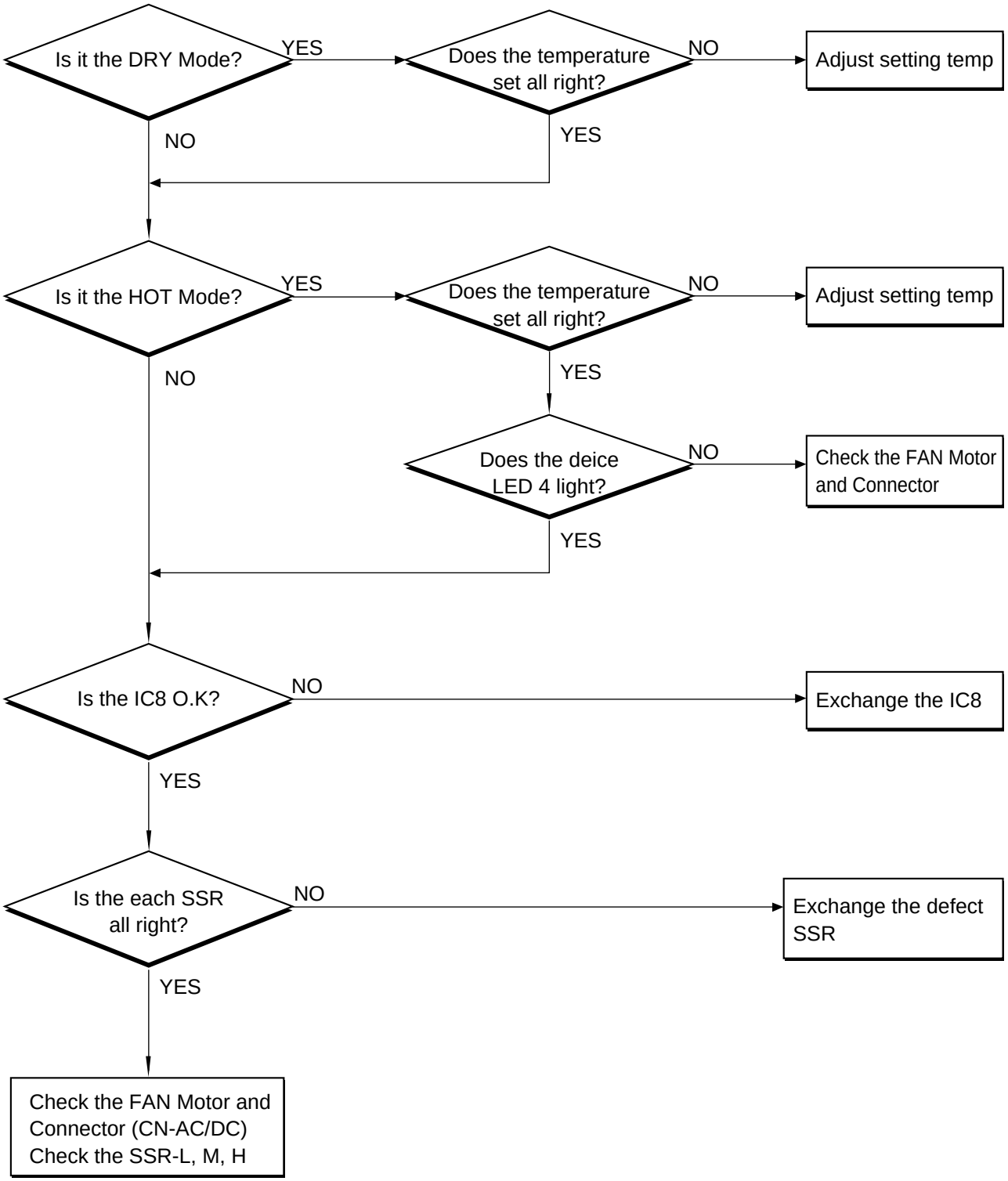
Notice :
1. The suction pressure is usually 4.5~6.0 kg/cm^{2}G at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Electronic Parts Trouble Shooting Guide

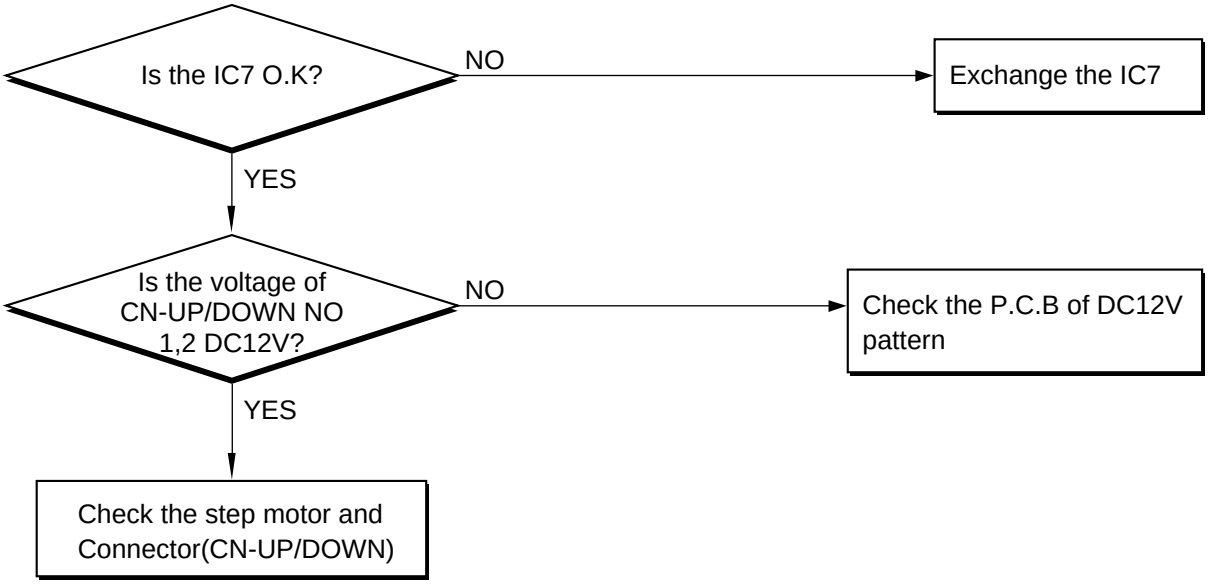
Possible Trouble 1 : The unit does not operate



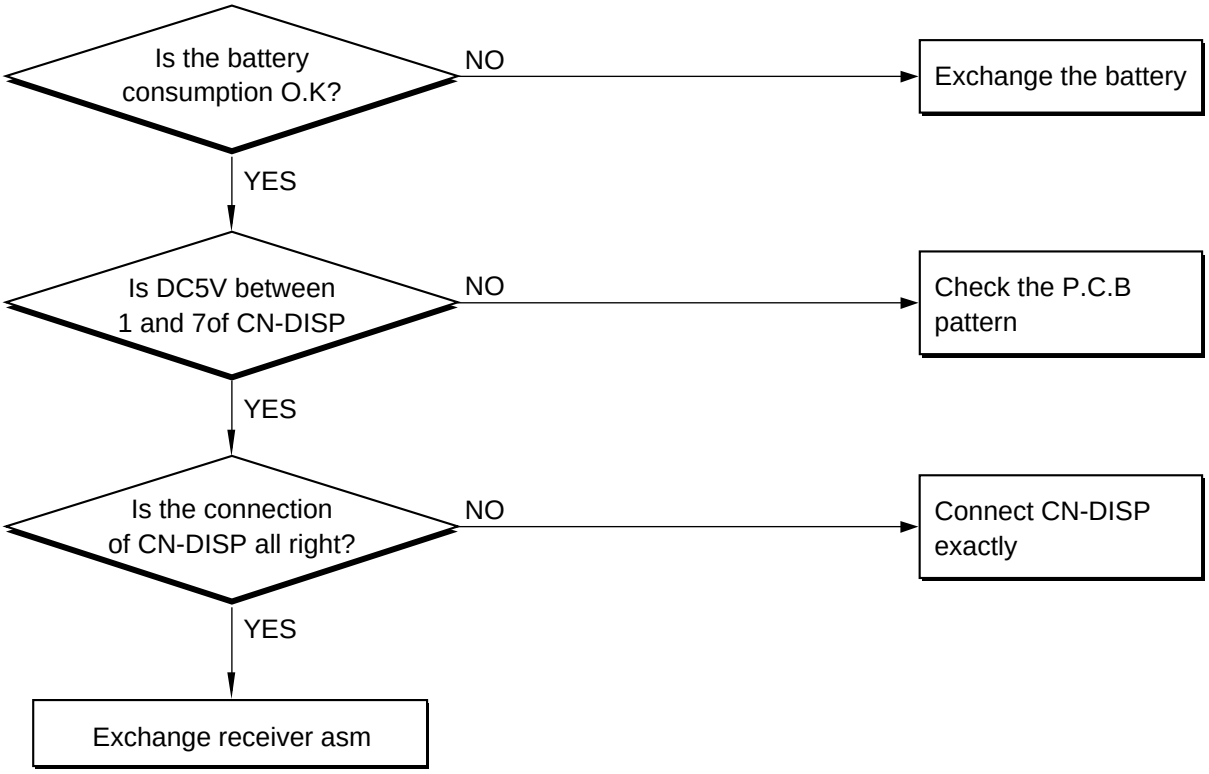
Possible Trouble 2 : Fan dose not operate



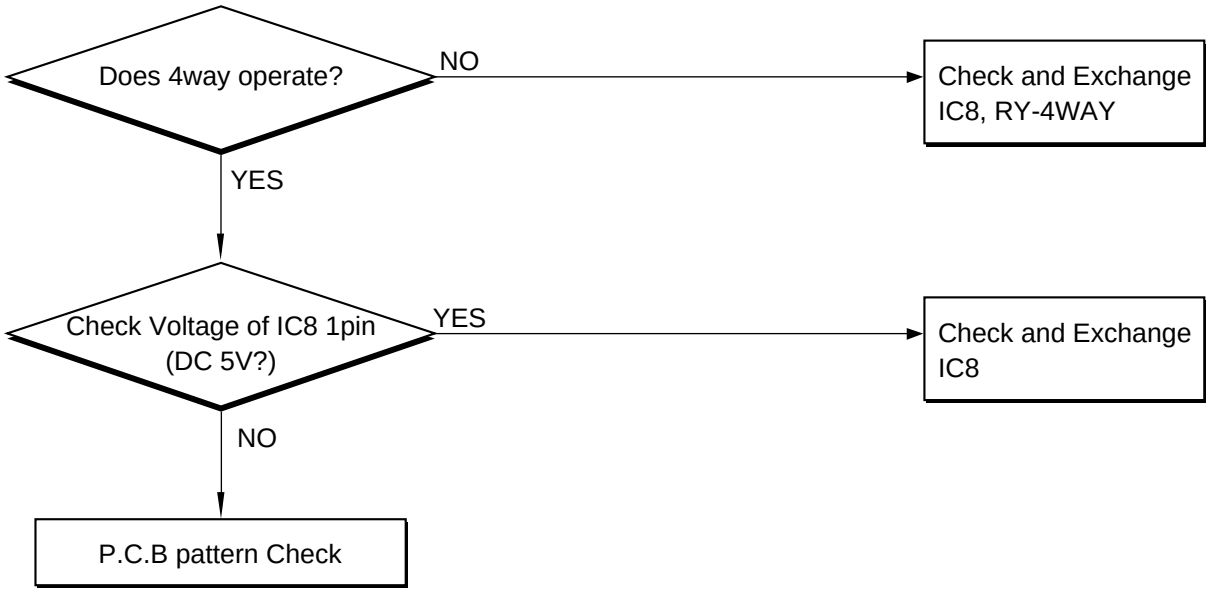
Possible Trouble 3 : Up/Down Air direction louver does not operate



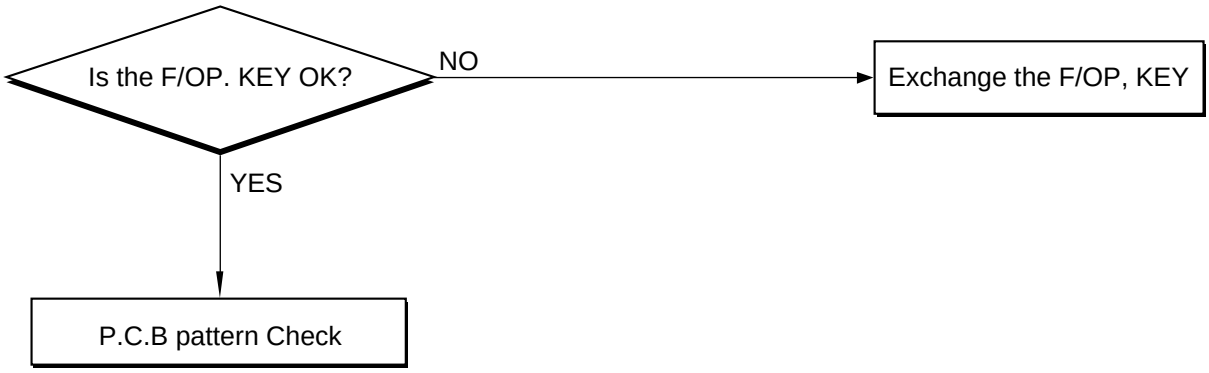
Possible Trouble 4 : Remotoe controller does not operate



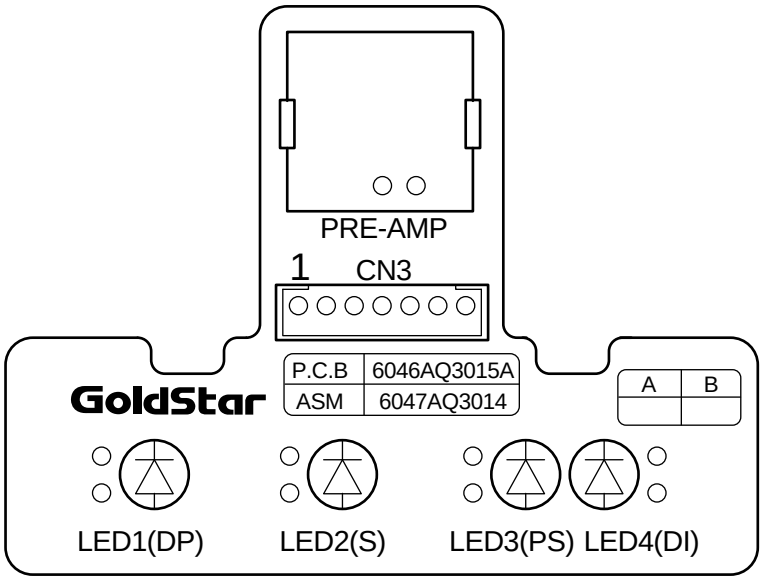
Possible Trouble 5 : Ineffective Heating



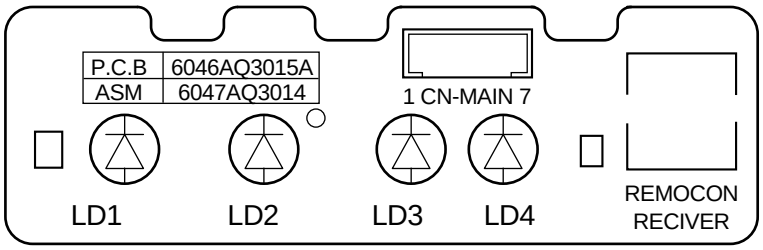
Possible Trouble 6 : It does not operate forced operation.



(7) DISPLAY P. C. B ASM : LS-S0960CL/S0960HL, LS-S1120CL, LS-S1260CL/S1260HL, LS-S1420CL, LS-S1421CL



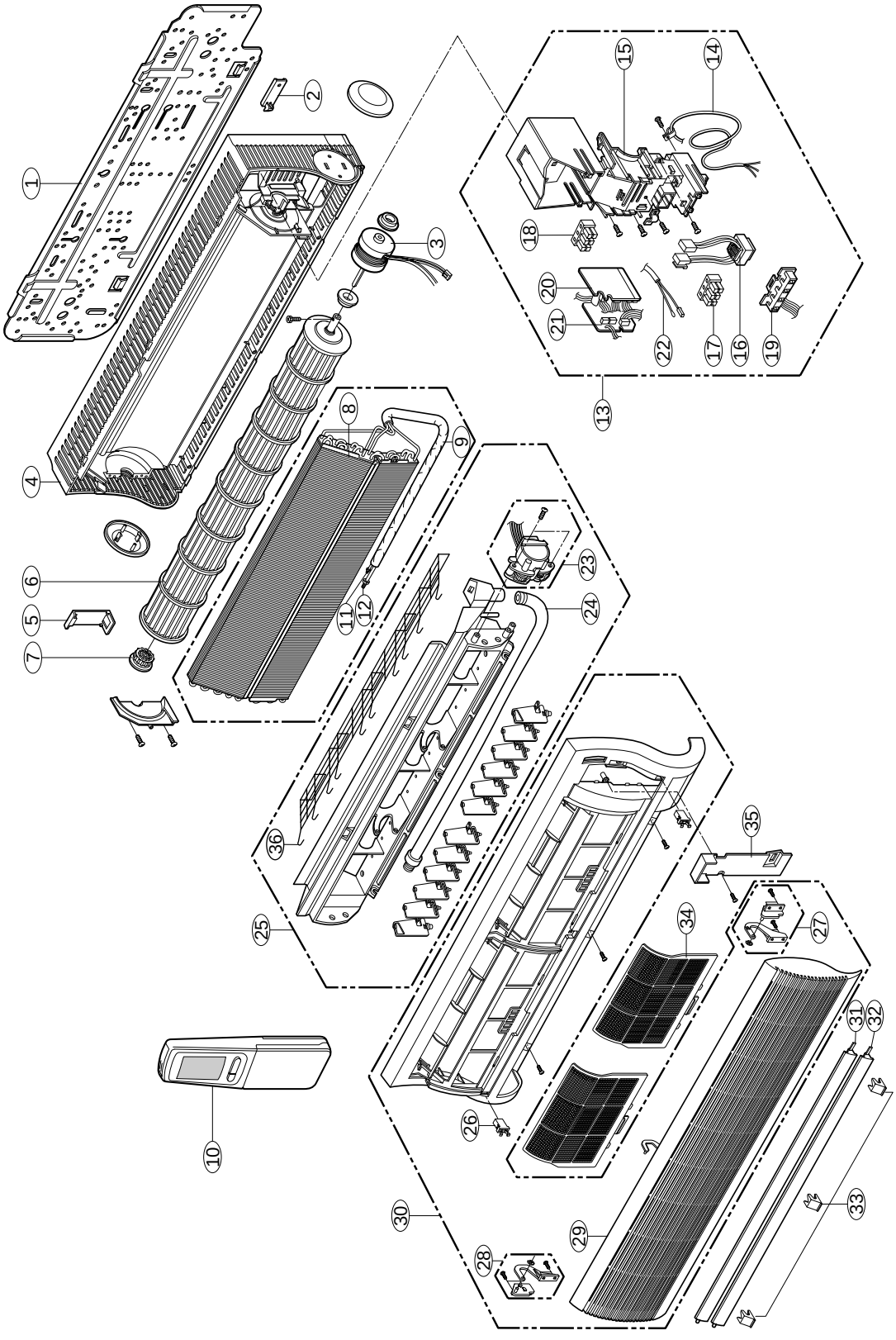
(8) Display P. C. B. ASM : LS-P0760CL/P0760HL, LS-P0820CL LS-P0960CL/P0960HL



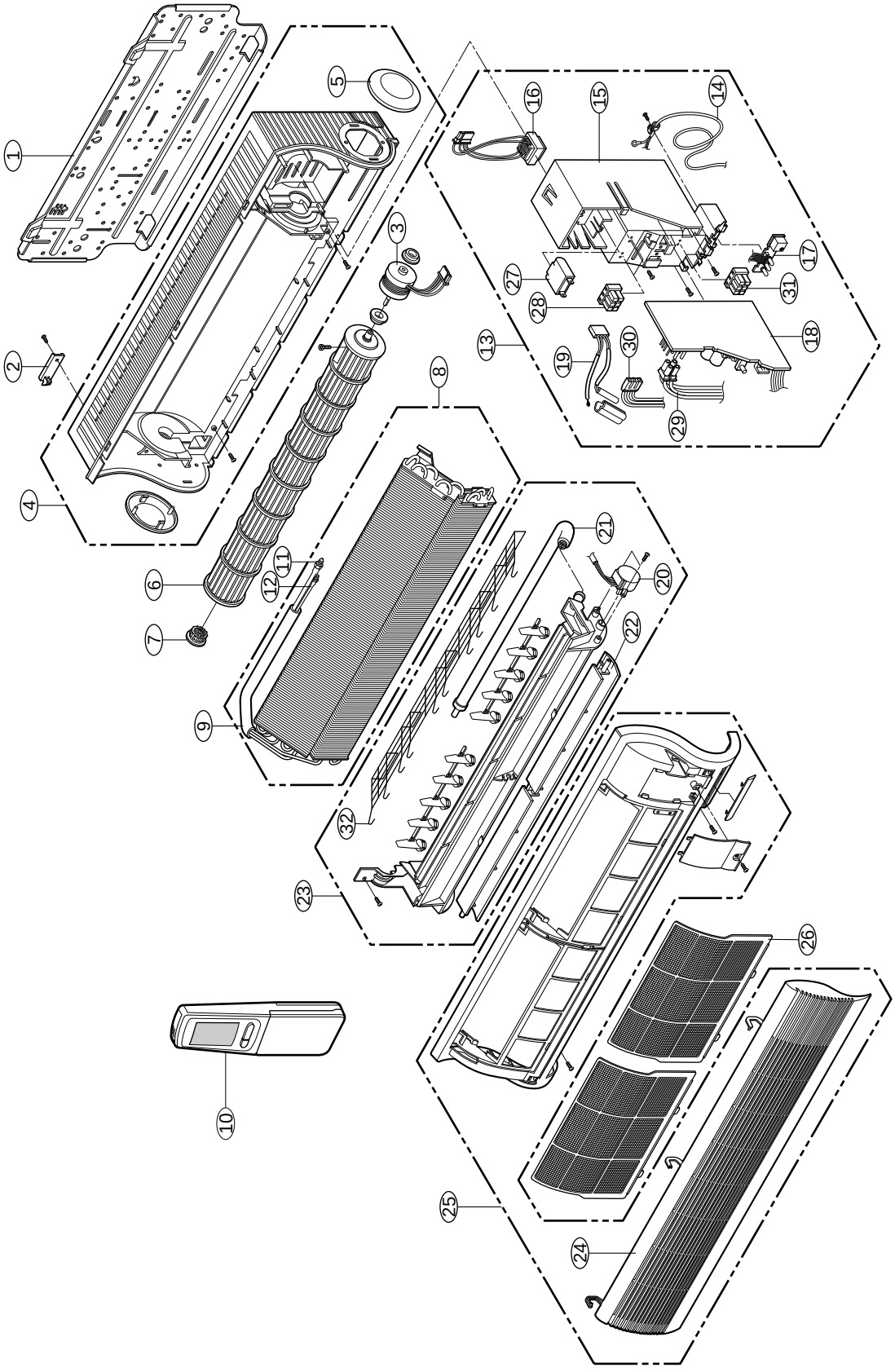
Exploded View & Replacement Parts List

1. Indoor Unit

• LS-S0960CL/S0960HL, LS-S1120CL, LS-S1260CL/S1260HL, LS-S1420CL, LS-S1421CL



- **LS-P0760CL/P0760HL, LS-P0820CL, LS-P0960CL/P0960HL**



Parts List (LS-S0960CL/S0960HL, LS-S1260CL/S1260HL)

NO	PART NO.	PART NAME	Q/TY				REMARKS
			LS-S0960CL	LS-S1260CL	LS-S0960HL	LS-S1260HL	
1	1H00843A	PLATE INSTALLING	1	1	1	1	
2	3H03651A	HOLDER, TUBE	1	1	1	1	
3	2HO2441	MOTOR, BLOWER	1C	1E	1C	1E	R
4	2H02440	CHASSIS ASM	1A	1G	1A	1G	R
5	3H03652A	COVER, TUBE	1	1	1	1	
6	2H02426A	CROSS FLOW FAN	1	1	1	1	R
7	3H02821A	BEARING ASM	1	1	1	1	R
8	3H03711	EVAPORATOR	1C	1A	1C	1A	
9	2H02449A	TUBING ASM	1	1	1	1	
10	6711AR1386	LCD REMOCON ASM	1C	1C	1D	1D	R
11	3A00375D	SOCKET FLARE	1	1	1	1	
12	3H01420A	SOCKET FLARE	1	1	1	1	
13	4781AR1220A	CONTROLLER ASM			1	1	
	4781AR1216B		1	1			
14	3H02255S	POWER CORD ASM	1	1	1	1	R
15	4780AR1013A	CONTROL BOARD	1	1	1	1	
16	6171AQ2147	POWER, TRANS	1A	1A	1A	1A	R
17	4H03048	PILLAR TERMINAL	1A	1A	1C	1C	R
18	4H03048A	PILLAR TERMINAL	1	1	1	1	R
19	6047AQ3014	DISPLAY PCB ASM	1A	1A	1A	1A	R
20	6871AQ2157	MAIN PCB ASM(D.C)	1B	1B	1A	1A	R
21	6871AQ2156	MAIN PCB ASM(A.C)	1B	1B	1A	1A	R
22	3Q35099	THERMISTOR ASM	1E	1E	1A	1A	R
23	3H03716A	GEAR CASE ASM	1	1	1	1	R
24	2H01721E	DRAIN HOSE ASM	1	1	1	1	
25	1H00866	DISCHARGE GRILLE ASM	1E	1E	1E	1E	
26	3H02857A	LOCK DOOR ASM	1	1	1	1	
27	3H03718B	BRACKET-R ASM	1	1	1	1	
28	3H03719B	BRACKET-L ASM	1	1	1	1	
29	1H00830	INLET GRILLE	1L	1L	1L	1L	
30	1H00867	FRONT GRILLE ASM	1R	1R	1S	1S	R
31	3H03601A	VANE-1	1	1	1	1	R
32	3H03602B	VANE-2	1	1	1	1	R
33	3H03650B	CAP SCREW	3	3	3	3	
34	2H02422A	AIR FILTER	2	2	2	2	R
35	3H03585	CONTROL COVER	1C	1C	1N	1N	
36	4640AR3086A	SCREEN, WIRE	1	1	1	1	

Parts List (LS-S1120CL, LS-S1420CL, LS-S1421CL)

NO	PART NO.	PART NAME	Q/TY			REMARKS
			LS-S1120CL	LS-S1420CL	LS-S1421CL	
1	1H00843A	PLATE INSTALLING	1	1	1	
2	3H03651A	HOLDER, TUBE	1	1	1	
3	2HO2441	MOTOR, BLOWER	1F	1F	1K	R
4	2H02440	CHASSIS ASM	1A	1A	1A	R
5	3H03652A	COVER, TUBE	1	1	1	
6	2H02426A	CROSS FLOW FAN	1	1	1	R
7	3H02821A	BEARING ASM	1	1	1	R
8	3H03711	EVAPORATOR	1A	1A	1A	
9	2H02449A	TUBING ASM	1	1	1	
10	6711AR1386	LCD REMOCON ASM	1C	1C	1C	R
11	3A00375D	SOCKET FLARE	1	1	1	
12	3H01420A	SOCKET FLARE	1	1	1	
13	4781AR1216B	CONTROLLER ASM	1	1	1	
14	3H02255S	POWER CORD ASM	1	1	1	R
15	4780AR1013A	CONTROL BOARD	1	1	1	
16	6171AQ2147	POWER, TRANS	1A	1A	1A	R
17	4H03048	PILLAR TERMINAL	1A	1A	1A	R
18	4H03048A	PILLAR TERMINAL	1	1	1	R
19	6047AQ3014	DISPLAY PCB ASM	1A	1A	1A	R
20	6047AQ2157	MAIN PCB ASM(D.C)	1B	1B	1B	R
21	6047AQ2156	MAIN PCB ASM(A.C)	1B	1B	1B	R
22	3Q35099	THERMISTOR ASM	1E	1E	1E	R
23	3H03716A	GEAR CASE ASM	1	1	1	R
24	2H01721E	DRAIN HOSE ASM	1	1	1	
25	1H00866	DISCHARGE GRILLE ASM	1E	1E	1E	
26	3H02857A	LOCK DOOR ASM	1	1	1	
27	3H03718B	BRACKET-R ASM	1	1	1	
28	3H03719B	BRACKET-L ASM	1	1	1	
29	1H00830	INLET GRILLE	1L	1L	1L	
30	1H00867	FRONT GRILLE ASM	1R	1R	1R	R
31	3H03601A	VANE-1	1	1	1	R
32	3H03602B	VANE-2	1	1	1	R
33	3H03650A	CAP SCREW	3	3	3	
34	2H02422A	AIR FILTER	2	2	2	R
35	3H03585	CONTROL COVER	1C	1C	1C	
36	4640AR3086A	SCREEN, WIRE				

Parts List (LS-P0760CL/P0760HL, LS-P0820CL, LS-P0960CL/P0960HL)

NO	PART NO.	PART NAME	Q/TY					REMARKS
			LS-P0760CL	LS-P0820CL	LS-P0960CL	LS-P0760HL	LS-P0960HL	
1	3300AR1008A	PLATE INSTALLING	1	1	1	1	1	
2	4930AR3015A	HOLDER TUBE	1	1	1	1	1	
3	4680AR2033	MOTOR, BLOWER	1E	1B	1D	1E	1D	R
4	3141AR2032	CHASSIS ASM	1D	1D	1D	1D	1D	R
5	3140AR3003	CHASSIS SIDE	2D	2D	2D	2D	2D	
6	5835AR2034A	BLOWER ASS'Y	1	1	1	1	1	R
7	3H02821A	BEARING ASM	1	1	1	1	1	R
8	5421AR2035	EVAPORATOR ASS'Y	1D	1B	1D	1D	1H	
9	5211AR2042A	TUBE ASS'Y	1	1	1	1	1	
10	6711AR1386	LCD REMOCON ASM	1C	1C	1C	1D	1D	R
11	3A00375D	SOCKET FLARE	1	1	1	1	1	
12	4010AR3071A	SOCKET FLARE	1	1	1	1	1	
13	4781AR2263	CONTROLLER ASS'Y	1D	1D	1D			
	4781AR2097					1H		
	4781AR2360						1B	
14	3H02255	POWER CORD ASS'Y	1U	1S	1U	1U	1T	R
15	4994AR1007A	CONTROL BOARD	1	1	1	1	1	
16	6171AQ2147	POWER TRANS	1B	1B	1B	1B	1B	R
17	6047AQ3029	DISPLAY P.C.B ASS'Y	1B	1B	1B	1B	1B	R
18	6871AQ2155	MAIN P.C.B ASS'Y	1B	1B	1B	1E	1A	R
19	3Q35099	THERMISTOR ASM	1A	1A	1A	1A	1A	R
20	2H01803B	STEP MOTOR ASM	1	1	1	1	1	R
21	5250AR2044A	DRAIN HOSE ASS'Y	1	1	1	1	1	
22	5991AR3142	VANE ASS'Y	1A	1A	1A	1A	1A	
23	5009AR1080	DISCHARGE GRILLE ASM	1F	1F	1F	1F	1F	
24	3530AR1006	INLET GRILLE	1H	1H	1H	1H	1H	
25	3531AR1081	FRONT GRILLE ASS'Y	1Q	1Q	1Q	1R	1R	R
26	5230AR2003A	AIR FILTER	2	2	2	2	2	R
27	3H01487A	SH CAPACITOR	1	1	1	1	1	
28	4H03048A	PILLAR TERMINAL	1	1	1	1	1	
29	4933AR3352	CONNECTOR ASS'Y	1A	1A	1A	1A	1A	
30	4933AR3353	CONNECTOR ASS'Y	1A	1A	1A	1B	1B	
31	4H03048	PILLAR TERMINAL	1A	1A	1A	1C	1C	
32	3700AR3072B	STEEL NET	1	1	1	1	1	

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Parts List (LS-P0760CL/P0960CL, LS-S0960CL/S1260CL)

NO	PART NO.	PART NAME	Q'TY				REMARKS
			LS-P0760CL	LS-P0960CL	LS-S0960CL	LS-S1260CL	
1	2H02435B	BASE PAN WELD ASM	1	1	1	1	
2	1H00838A	MOUNT, MOTOR	1	1	1	1	
3	1H00853	MOTOR, FAN	1D	1D	1D	1D	R
4	1H00643A	FAN	1	1	1	1	R
4-1	1WPA0600014	PLAIN WASHER	1	1	1	1	
4-2	4H02861A	FAN NUT	1	1	1	1	
5	2H02383B	SUPPORT, VALVE	1	1	1	1	
6	5403AR2046	CONDENSOR ASM	1A	1A	1A	1A	
7	5417AR2256	COMPRESSOR				1A	R
	1H00408		1M	1N	1M		
8	4H00982A	ANTI-VIBRATION BUSH	3	3	3	3	
9	1NHA0801206	HEXAGON NUTS	3	3	3	3	
10	4H00972D	WASHER	3	3	3		
	4H01811C					3	
12	2H02479	SERVICE VALVE(1/4")	1B	1B	1B	1B	R
13	2H01890	SERVICE VALVE(1/2")			1H	1H	R
	2A00393	SERVICE VALVE(3/8")	1F	1F			
14	6750-CL005A	OVER LOAD PROTECTOR				1	R
	6750-CL013A		1	1	1		
15	5300-CL101A	O.L.P SPRING	1	1	1	1	
16	4781AR2098	CONTROL PANEL ASM	1D	1D	1A	1A	
17	4H01017A	CLAMP, CAPACITOR	1	1	1	1	
18	2A00986	SH CAPACITOR	1Q	1Q	1Q		R
	2HO1451					1P	
19	4H03048	PILLAR TERMINAL	1A	1A	1A	1A	R
20	3550-CL001	TERMINAL COVER	1D	1D	1D	1D	
21	4H00947A	NUT, TERMINAL COVER	1	1	1	1	
22	1H00836B	REAR PANEL	1	1	1	1	
24	2H02448	CONTROL COVER ASM	1D	1D	1D	1D	
25	3721AR2103B	PANEL ASS'Y, FRONT	1	1	1	1	
26	4H01050A	BAND CORD	1	1	1	1	
27	3H03714	TOP COVER ASM	1B	1B	1B	1B	
28	1H00839A	CONTROL PANEL	1	1	1	1	
29	3H03168A	HANDLE	1	1	1	1	

NO	PART NO.	PART NAME	Q'TY				REMARKS
			LS-P0760CL	LS-P0960CL	LS-S0960CL	LS-S1260CL	
30	5210AR2047	TUBE DISCHARGE	1A	1A			
	5210AR2075				1A		
	5210AR3419					1A	
31	5210AR2048	TUBE SUCTION	1C				
	2HO2445			1A			
	5210AR3293				1A		
	5219AR3418					1A	
32	2H02385D	COVER GRILLE	1	1	1	1	
33	3H00390	TERMINAL BLOCK	1B	1B	1B	1B	

Parts List (LS-P0820CL, LS-S1120CL, LS-S1420CL, LS-S1421CL)

NO	PART NO.	PART NAME	Q'TY				REMARKS
			LS-P0820CL	LS-S1120CL	LS-S1420CL	LS-S1421CL	
1	2H02435B	BASE PAN WELD ASM	1	1	1	1	
2	1H00838A	MOUNT, MOTOR	1	1	1	1	
3	1H00853	MOTOR, FAN	1F	1B	1B	1G	R
4	1H00643A	FAN	1	1	1	1	R
4-1	1WPA0600014	PLAIN WASHER	1	1	1	1	
4-2	4H02861A	FAN NUT	1	1	1	1	
5	2H02383B	SUPPORT, VALVE	1	1	1	1	
6	2H02382	CONDENSOR ASM		1C	1B	1C	
	5403AR2046		1A				
7	2H02466	COMPRESSOR		1F	1H	1H	R
	2H02388		1K				
8	4H00982	ANTI-VIBRATION BUSH	3B	3A	3A	3A	
9	1NHA0801206	HEXAGON NUTS(D8.0)	3	3	3	3	
10	4H00972	WASHER	3F	3D	3D	3D	
12	2H01225H	SERVICE VALVE(1/4")		1	1	1	R
	2H02479		1B				
13	2H01890F	SERVICE VALVE(1/2")		1	1	1	R
	2A00393F	SERVICE VALVE(3/8")	1				
14	6750-CL002A	OVER LOAD PROTECTOR		1			R
	6750-CL007A				1	1	
	6750-CL008A		1				
15	5300-CL101A	O.L.P SPRING	1	1	1	1	
16	4781AR2098	CONTROL PANEL ASM	1C	1B	1B	1B	
17	4H01017A	CLAMP, CAPACITOR	1	1	1	1	
18	2A00986	SH CAPACITOR		1J	1J	1J	R
	2H01451		1N				
19	4H03048	PILLAR TERMINAL	1A	1A	1A	1A	R
20	3550-CL001A	TERMINAL COVER	1	1	1	1	
21	4H00947A	NUT, TERMINAL COVER	1	1	1	1	
22	1H00836B	REAR PANEL	1	1	1	1	
24	2H02448	CONTROL COVER ASM	1B	1B	1B	1B	
25	3721AR2103B	PANEL ASS'Y, FRONT	1	1	1	1	
26	4H01050A	BAND CORD	1	1	1	1	
27	3H03714A	TOP COVER ASM	1	1	1	1	
28	1H00839A	CONTROL PANEL	1	1	1	1	

NO	PART NO.	PART NAME	Q'TY				REMARKS
			LS-P0820CL	LS-S1120CL	LS-S1420CL	LS-S1421CL	
29	3H03168A	HANDLE	1	1	1	1	
30	5210AR2075A	TUBE DISCHARGE		1		1	
	2H02444A				1		
	5210AR2047A		1				
31	2H02445A	TUBE SUCTION		1	1	1	
	5210AR2048A		1				
32	2H02385D	COVER GRILLE	1	1	1	1	
33	3H00390	TERMINAL BLOCK	1B	1B	1B	1B	

Parts List (LS-P0760HL/P0960HL, LS-S0960HL/S1260HL)

NO	PART NO.	PART NAME	Q'TY				
			LS-P0760HL	LS-P0960HL	LS-S0960HL	LS-S1260HL	
1	2H02435B	BASE PAN WELD ASM	1	1	1	1	
2	1H00838A	MOUNT, MOTOR	1	1	1	1	
3	1H00853	MOTOR, FAN	1D	1D	1D	1D	R
4	1H00643A	FAN	1	1	1	1	R
4-1	1WPA0600014	PLAIN WASHER	1	1	1	1	
4-2	4H02861A	FAN NUT	1	1	1	1	
5	2H02383B	SUPPORT, VALVE	1	1	1	1	
6	2H02382	CONDENSOR ASM	1D	1D	1E	1E	
7	1H00408	COMPRESSOR	1H				R
	2H02466			1C	1J		
	5417AR2256					1A	
8	4H00982A	ANTI-VIBRATION BUSH	3	3	3	3	
9	1NHA0801206	HEXAGON NUTS	3	3	3	3	
10	4H00972D	WASHER	3	3	3		
	4H01811C					3	
12	2H02379	SERVICE VALVE(1/4")	1B	1B	1B	1B	R
13	2H01890	SERVICE VALVE(1/2")			1H	1H	R
	2A00393	SERVICE VALVE(3/8")	1F	1F			
14	6750-CL005A	OVER LOAD PROTECTOR				1	R
	6750-CL013A		1	1	1		
15	5300-CL101A	O.L.P SPRING	1	1	1	1	
16	4995AR2361	CONTROL PANEL ASM	1H	1A	1A	1A	
17	4H01017A	CLAMP, CAPACITOR	1	1	1	1	
18	2A00986	SH CAPACITOR	1Q				R
	2H01451			1P	1P	1P	
19	4H03048	PILLAR TERMINAL	1A	1A	1F	1F	R
20	3550-CL001A	TERMINAL COVER	1	1	1	1	
21	4H00947A	NUT, TERMINAL COVER	1	1	1	1	
22	1H00836B	REAR PANEL	1	1	1	1	
24	2H02448	CONTROL COVER ASM	1E	1E	1E	1E	
25	3721AR2103B	PANEL ASS'Y, FRONT	1	1	1	1	
26	4H01050A	BAND CORD	1	1	1	1	
27	3H03714A	TOP COVER ASM	1	1	1	1	
28	1H00839A	CONTROL PANEL	1	1	1	1	
29	3H03168A	HANDLE	1	1	1	1	

NO	PART NO.	PART NAME	Q'TY				REMARKS
			LS-P0760HL	LS-P0960HL	LS-S0960HL	LS-S1260HL	
30	5210AR2075	TUBE DISCHARGE	1A				
	5210AR3117			1A			
	5210AR2135				1A		
	5210AR2018					1B	
31	5210AR2074	TUBE SUCTION	1A				
	5210AR3120			1B			
	5210AR2136				1A		
	5210AR2019					1B	
32	2H02385D	COVER GRILLE	1	1	1	1	
33	3H00390	TERMINAL BLOCK	2A	2A	2A	2A	
34	3A02028G	COIL, REVERSING	1	1	1	1	R
	5220AR3084A	VALVE, REVERSING	1	1	1	1	

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