



Ceiling Cassette Air Conditioner **SERVICE MANUAL**

**MODELS: LT-D5480HL
LT-D5480HA/LT-H548DLE0
LT-D5480CL
LT-D5480CA**

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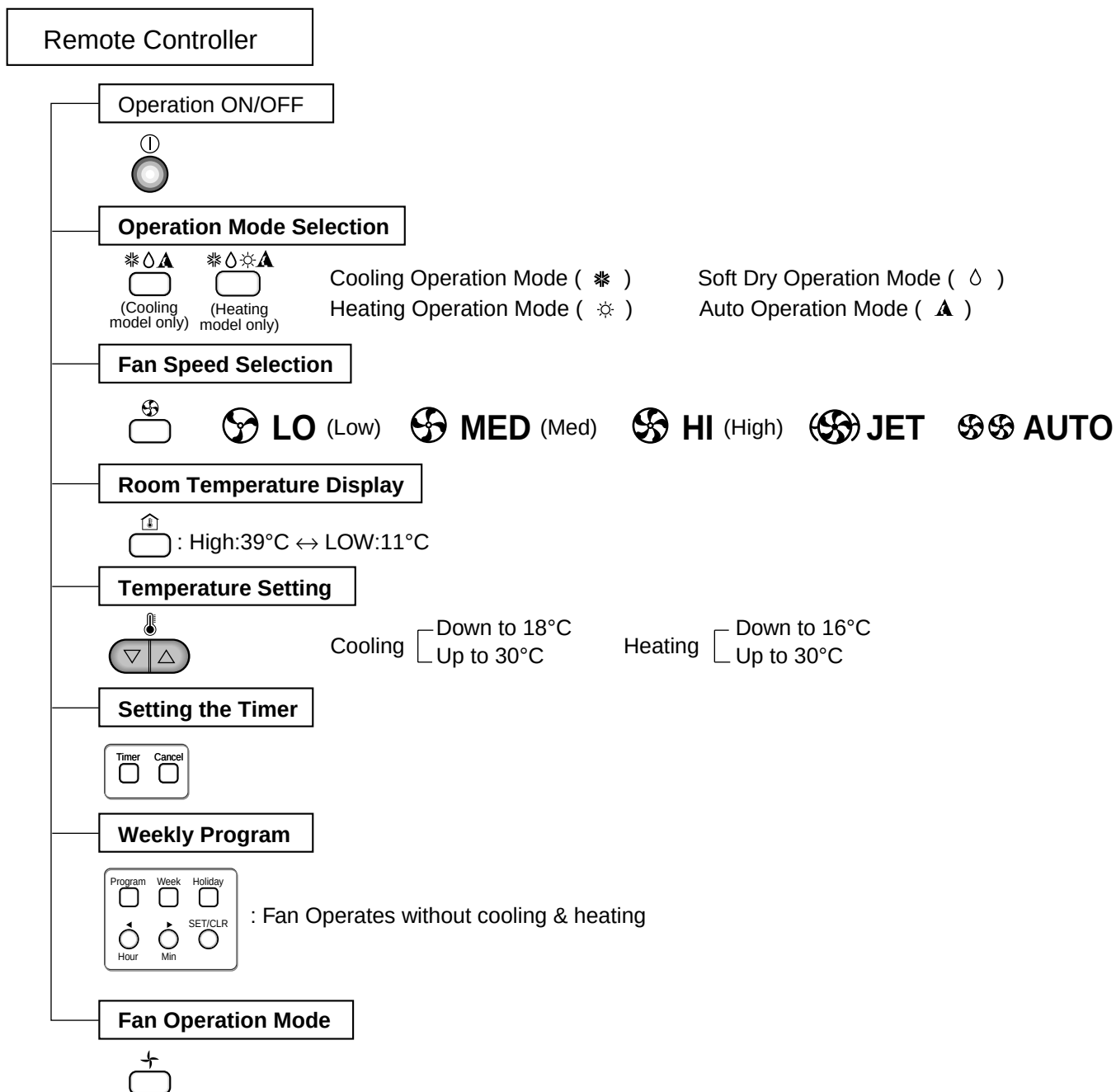
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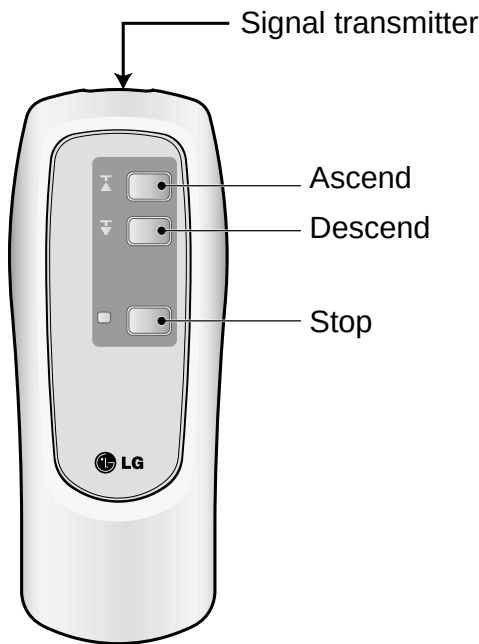
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Functions

Indoor Unit	
Operation ON/OFF by Remote controller	
Sensing the Room Temperature	• Room temperature sensor. (Thermistor)
Room temperature control	• Maintains the room temperature in accordance with the Setting Temp.
Starting Current Control	• Indoor fan is delayed for 5 seconds at the starting.
Time Delay Safety Control	• Restarting is inhibited for approx. 3 minutes.
Indoor Fan Speed Control	• Jet, High, Med, Low
Soft Dry Operation Mode	• Intermittent operation of fan at low speed.
Airflow Direction Control	• The louver can be set at swing up and down automatically.
Auto Restart	• Although the air-conditioner is turned off by a power failure, it is restarted automatically previous operation mode after power supply.
Auto Operation(Auto Change Over)	• The setting temperature and desired operation mode are automatically set by fuzzy logic.
Deice (defrost) control (Heating)	• Both the indoor and outdoor fan stops during defrosting. • Hot start after defrost ends.
Hot-start Control (Heating)	• The indoor fan stops until the evaporator piping temperature will be reached at 28°C.
Compact and light design	• To install a unit is very convenient because of smaller size than textile. (600 x 600)
Low noise	• The most advanced low-noise design. • The adoption of turbo fan and round type heat exchanger give the quietest operation.
Long life filter	• Long life wrinkle(type) and washable and anti-bacteria filter is adopted.
Plasma Air Purifying Filter(2HL Only)	
High head Drain pump	• Built-in drain pump automatically drains water. • A standard drain-head height of up to 700mm is possible.
High-Ceiling corresponding Function	• According to the height of ceiling, the RPM of indoor fan motor is selected to increase air reaching distance.
Central Control(Optional)	• It is operating individually or totally by central control function.
Group Control(Optional Wiring)	• Each controller can control 16 units and 8 controllers can be connected. • It operates maximum 16 units by only one wired remote controller and each unit starts sequentially to prevent overcurrent.
Elevation Grille (Optional)	• Auto Elevation Grille is automatically down to height of max 3m. So it enables to install the indoor unit at high ceiling space and Auto Elevation Grille makes you clean the filter easily.



■ ELEVATION GRILL (REMOTE CONTROLLER_Accessory)



• Main Components of Lift Grill

- ① Lift grill front panel assembly
- ② Bolts for installation (4 EA, P/No. 3A00255K)
- ③ Instruction manual
- ④ Remote Controller for lift grill

• How to Use Remote Controller

As for operation of Remote Controller, use it by directing the transmitter part of Remote Controller to the receiver part of front panel directly under front panel.

- Do not drop it down or into water. Or else there is worry about trouble failure.
- Do not press hard the Remote Controller button with nail (ball-point pen or other sharp substance). Or else there is worry about trouble failure.
- In case when obstacle such as curtain hides the signal reception part of receiver in between the space interval, Remote Controller operation is infeasible.

• Safety Cautions



- Caution items for safety have been described in this instruction manual along with  mark.

- Description following this mark is a matter occurrable of material damage or injury by misuse, and in some conditions, a matter with danger of invitation of serious result, so you must observe the description.

CAUTION

- Don't lay any material upon suction grill.
- Suction grill comprises 2 strands of wire. If any substance is placed on it then balance may be destroyed so that the substance would drop down and cause a breakage or damage. Also the matter may cause trouble owing to which the grill would not be correctly inserted at front panel.
- Don't shake suction grill. Or else there is worry that it may collide with adjacent material and the suction grill fall down.
- Don't pull suction grill. Don't draw out suction grill irrationally. Or else there is worry that lift grill drive part is damaged and suction grill might drop down.
- Don't place obstacle in lift passage of lift grill.
When suction grill descends, it automatically stops at a certain distance.
If there is any obstacle in lift passage, suction grill might drop down and there may be caused trouble failure of lift grill drive part.
- Turn off the air conditioner operation button before operating the lift grill.
Always stop the air conditioner operation for safety when suction grill descends.
- Don't damage lift rope by a sharp material. Or else there is worry about suction grill dropping because of rope cutoff.

• How to Operate the Lift Grill

⚠ CAUTION

- Always stop the air conditioner operation for safety before operating lift grill.
- Take heed _ there is worry about dust fall etc. when suction grill descends.
- In case when the set automatic stop distance goes wrong, check the set value of operation panel and confirm if there is neither obstacle nor mankind.
- When you are not to remove obstacle, stop the operation before touching the obstacle.

1. Stop the Air Conditioner Operation

2. Descend the Suction Grill

- Depress the down button(▼).
Then suction grill descends and stops automatically at a certain distance.
- You may stop it at wanted distance point by depressing the stop button (■) when descending.

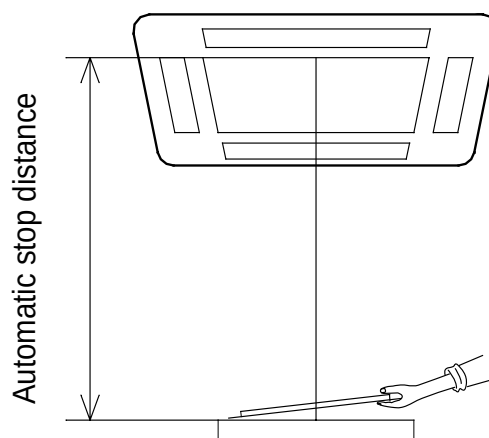
3. Raise the Suction Grill

- Depress the up button(▲).
Then suction grill goes up and enters into the front panel.

4. Stop the Suction Grill during Rising

- Depress the stop button(■).
Make use of this when you want to stop it at your wished position.

Automatic Stop Distance of Grill



Ceiling height	Low	Medium (Height: 3~4 m)	High
Automatic stop distance	1.5±0.5 m	2.5±0.5 m	3.5±0.5 m

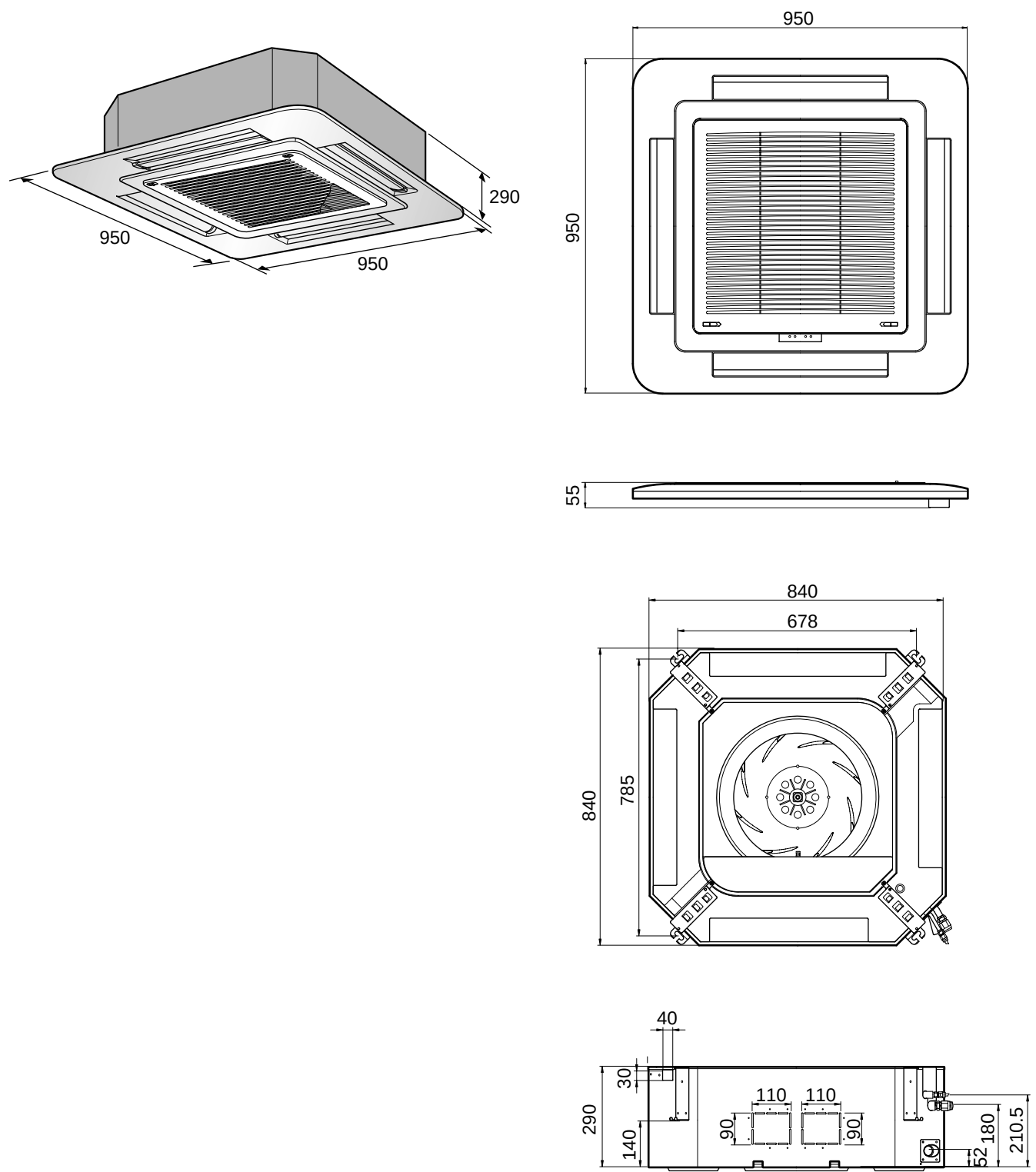
* If you want to change automatic distance setting, consult with your sale agency.

Product Specifications (Cooling & Heating)

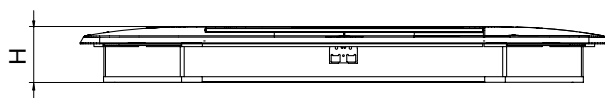
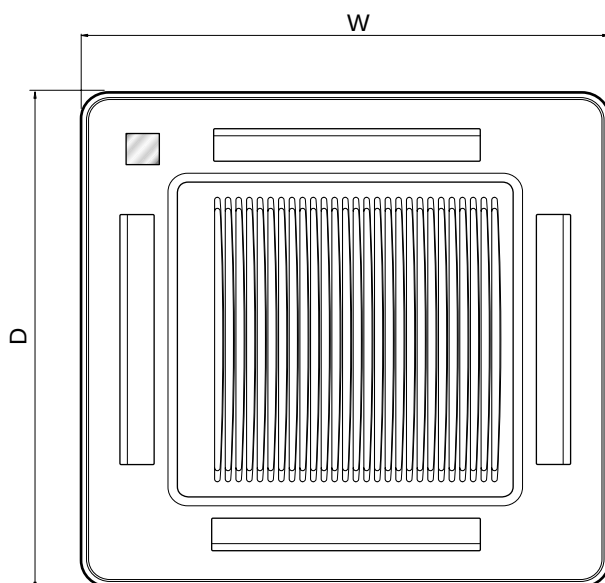
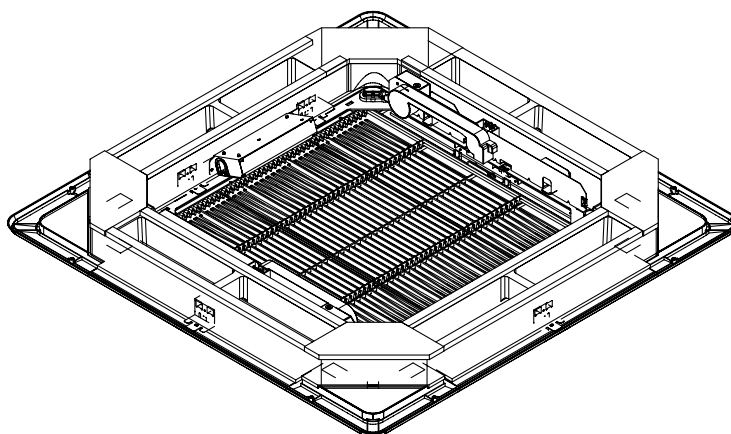
Model			LT-D5480HA LT-H548DLE0	LT-D5480HL	LT-D5480CA	LT-D5480CL
Power Supply		ø, V, Hz	3, 380-415, 50	3, 380-415, 50	3, 380-415, 50	3, 380-415, 50
Capacity	Cooling	kcal/h(W)	13,608(15,826)	13,608(15,826)	13,608(15,826)	13,608(15,826)
		Btu/h	54,000	54,000	54,000	54,000
	Heating	kcal/h(W)	13,608(15,826)	13,608(15,826)	-	-
		Btu/h	54,000	54,000	-	-
Input	Cooling	W	5,600	5,600	5,600	5,600
	Heating	W	4,850	4,850	-	-
Running Current	Cooling	A	9.5	9.5	9.5	9.5
	Heating	A	8.4	8.4	-	-
Starting Current	Cooling	A	79	79	79	79
	Heating	A	79	79	-	-
E.E.R		kcal/h(W)	2.43	2.43	2.43	2.43
C.O.P		W/W	3.26	3.26	-	-
Air Circulation	Indoor	m³/min	36	36	36	36
	Outdoor	m³/min	58	58	58	58
Moisture Removal		ℓ / h	5.8	5.8	5.8	5.8
Feature	Air-Flow Direction Control		O	O	O	O
	Heating Operation Mode		O	O	X	X
	Fan Speeds (steps)		4	4	4	4
	Auto Operation (Changeover)		O	O	O	O
	Forced Operation		O	O	O	O
	Jet Cool		O	O	O	O
	Soft Dry Operation		O	O	O	O
	Timer Delay Safety Function		O	O	O	O
	Air Deflection (Way)		4	4	4	4
	Self Diagnosis		O	O	O	O
	Hot start		O	O	X	X
	Auto Restart		O	O	O	O
	Air refresh (Hole)		O	O	O	O
	High Ceiling		O	O	O	O
	Group Control (Optional wiring)		O	O	O	O
	Central Control		Option	Option	Option	Option
	Wired remote controller (with weekly Program)		O	O	O	O
	Plasma A/Cleaner		O	X	O	X
Refrigerant(R-22) Charge		g	5,800	5,800	5,700	5,700
Dimensions (W x D x H)	Indoor	mm	840*840*288	840*840*288	840*840*288	840*840*288
	Panel	mm	950*950*30	950*950*30	950*950*30	950*950*30
	Outdoor	mm	900*1,225*370	900*1,225*370	900*1,225*370	900*1,225*370
Net Weight	Indoor	kg	32	32	32	32
	Outdoor	kg	95	95	95	95
Main Power Cord		AWG#:P*mm²	12 : 4*3.5	12 : 4*3.5	12 : 4*3.5	12 : 4*3.5
Connection Cable		AWG#:P*mm²	16 : 5*1.25	16 : 5*1.25	16 : 5*1.25	16 : 5*1.25
Service Valve	Liquid	Inch (mm)	1/2(12.7)	1/2(12.7)	1/2(12.7)	1/2(12.7)
	Gas	Inch (mm)	3/4(19.05)	3/4(19.05)	3/4(19.05)	3/4(19.05)
Installation Pipe	Length	(m)	50	50	50	50
	Elevation	(m)	30	30	30	30
	Insulation(material/thickness)		FoamPE/5mm	FoamPE/5mm	FoamPE/5mm	FoamPE/5mm
Drain Hose(I.D/O.D)		mm	Ø25 / 32	Ø25 / 32	Ø25 / 32	Ø25 / 32

Dimensions

(1) Indoor Unit



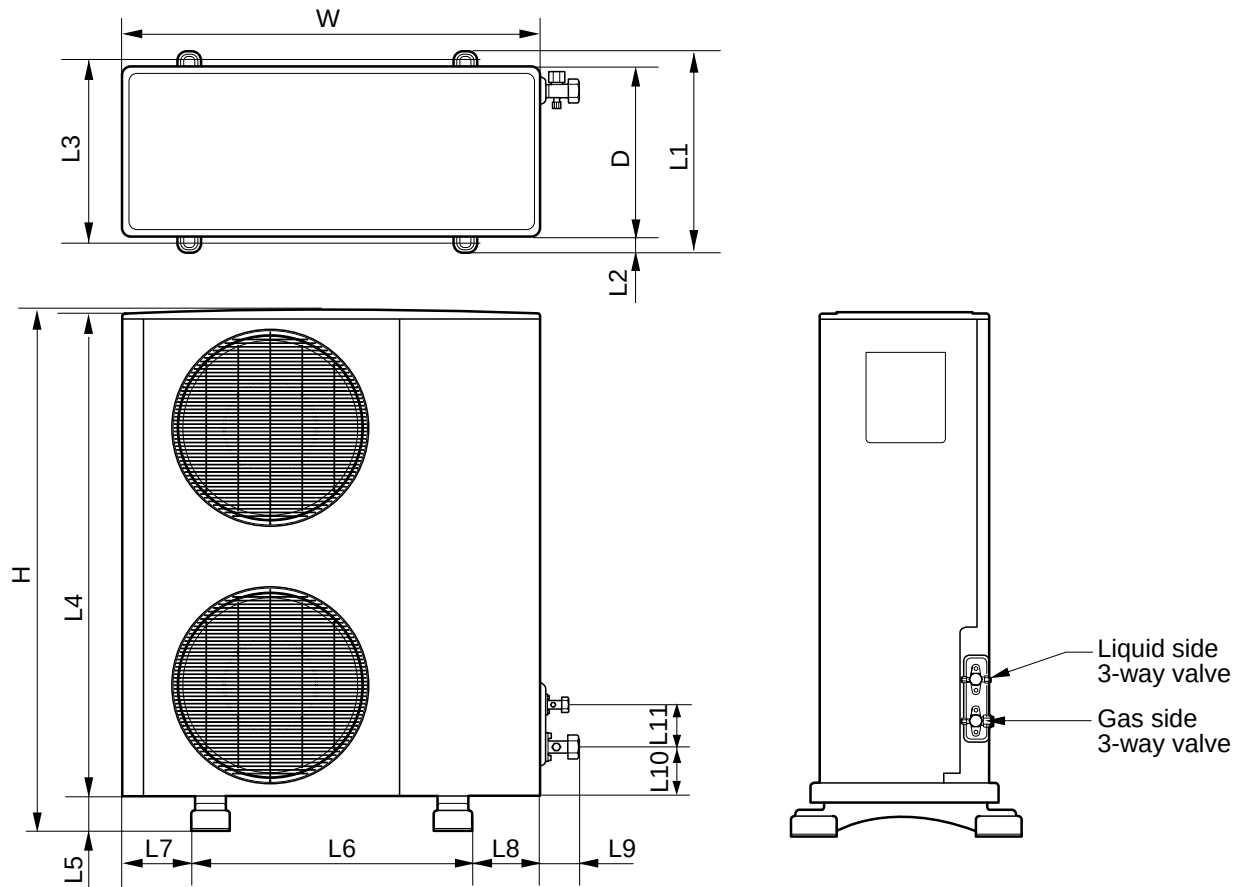
LT-H***ELE0
 LT-H***FLE0
 LT-H***DLE0



(unit : mm)

DIM	Model	LT-H***ELE0	LT-H***FLE0	LT-H***DLE0
	Unit			
W	mm	670	850	950
H	mm	90	90	90
D	mm	670	850	950

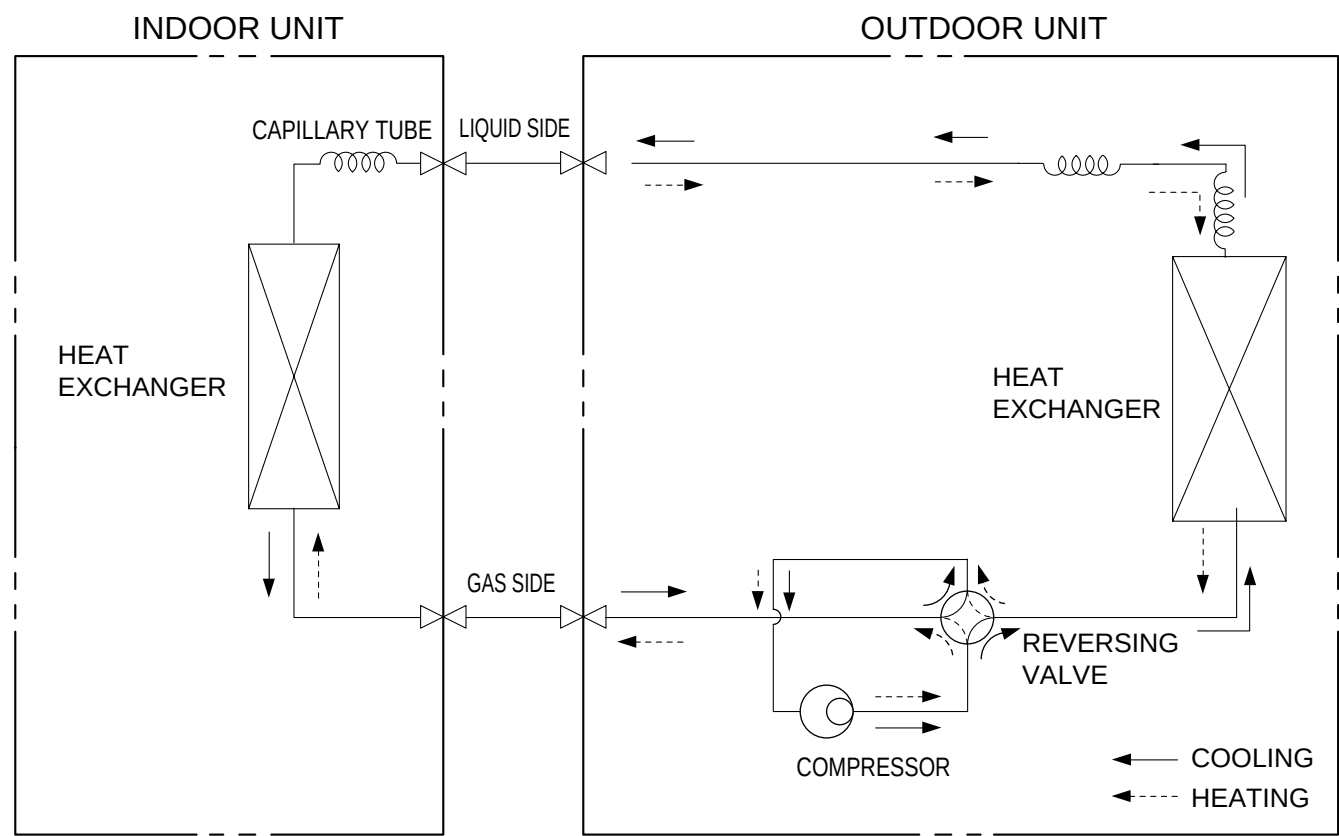
(2) Outdoor Unit(54K)



MODEL		54K Models
DIM		
W	mm	900
H	mm	1,225
D	mm	370
L1	mm	460
L2	mm	45
L3	mm	410
L4	mm	1,135
L5	mm	90
L6	mm	550
L7	mm	175
L8	mm	175
L9	mm	112
L10	mm	120
L11	mm	83

Refrigeration Cycle Diagram

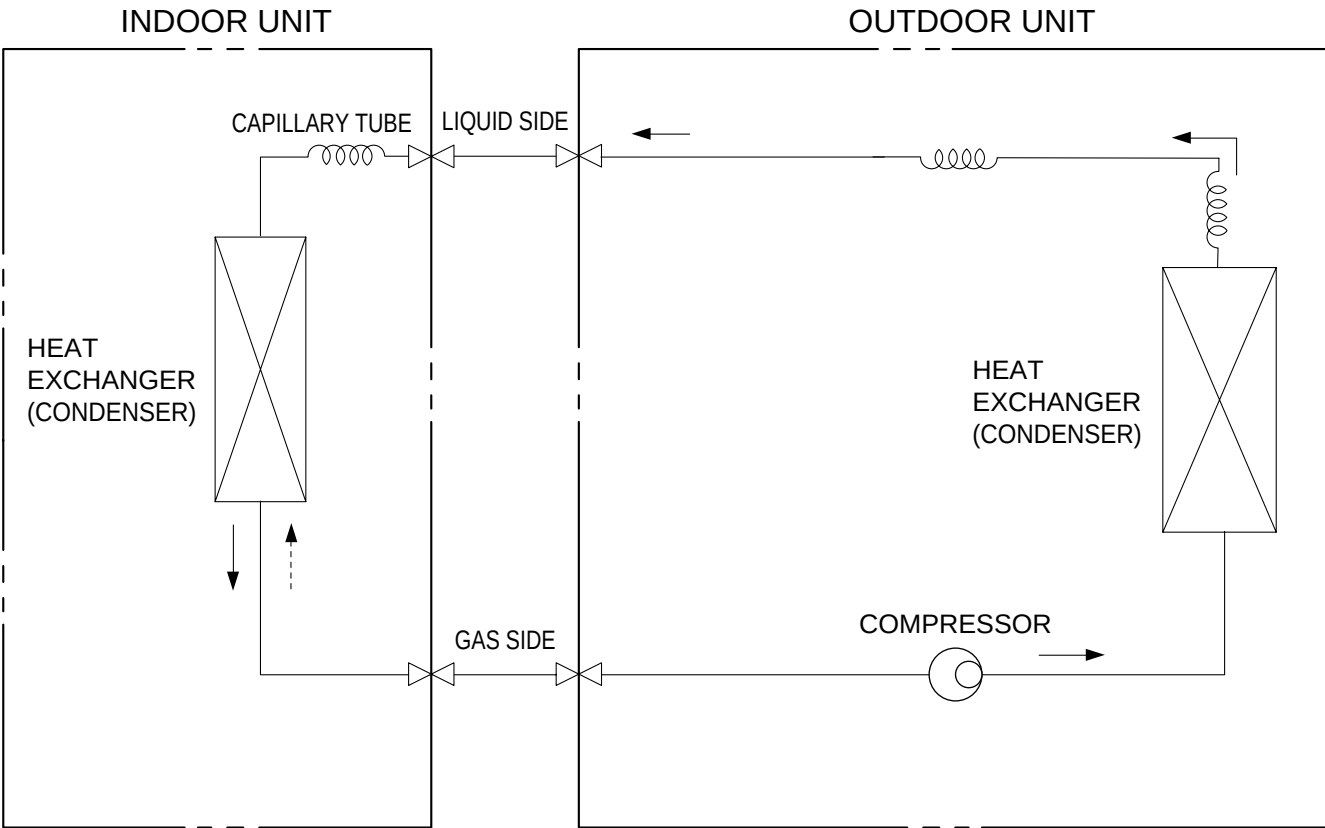
- HEAT PUMP(LT-D5480HL, LT-D5480HA, LT-H548DLE0))



Capacity	Pipe Size (Diameter:ø)		Length (m)		Elevation (m)		* Additional refrigerant (g/m)
	GAS	LIQUID	Rated	Max.	Rated	Max.	
54K	3/4"	1/2"	7.5	50	5	30	60

- Rated performance for refrigerant line length of: 7.5m
- If 54K Capacity is installed at a distance of 15m, 450g of refrigerant should be added(15-7.5) x 60g

• **COOLING ONLY(LT-D5480CL, LT-D5480CA)**



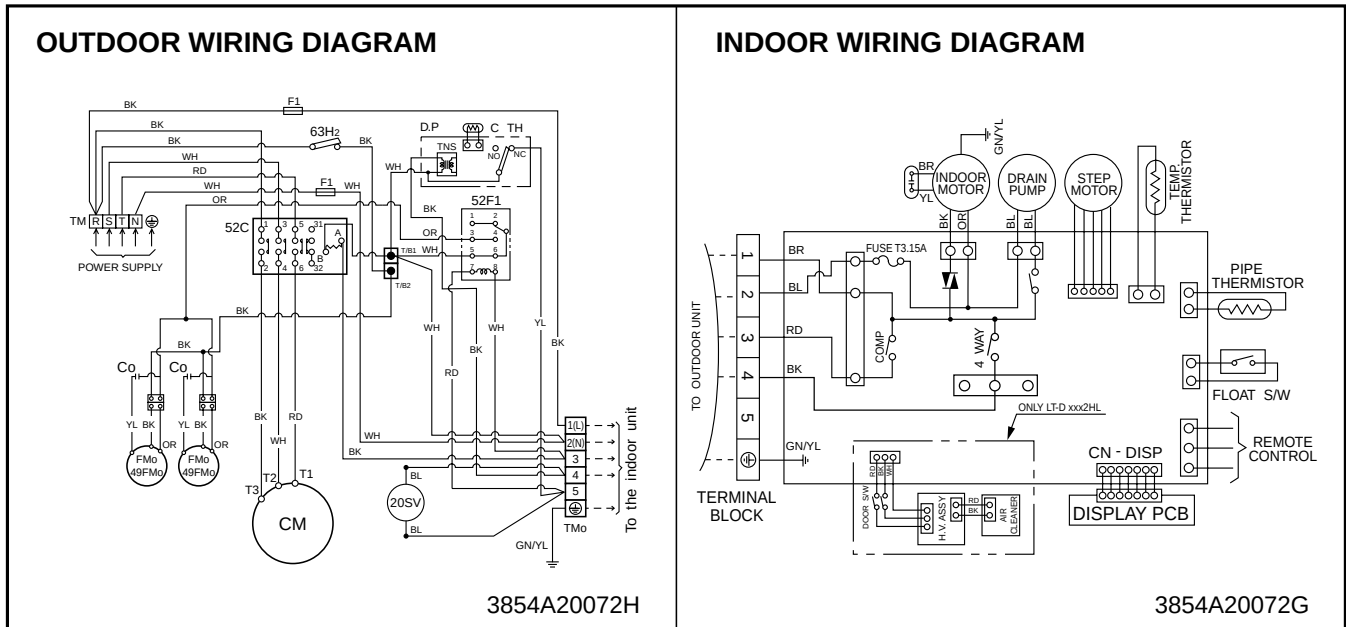
Capacity	Pipe Size		Length (m)		Elevation (m)		* Additional refrigerant (g/m)
	GAS	LIQUID	Rated	Max.	Rated	Max.	
54K	3/4"	1/2"	7.5	50	5	30	60

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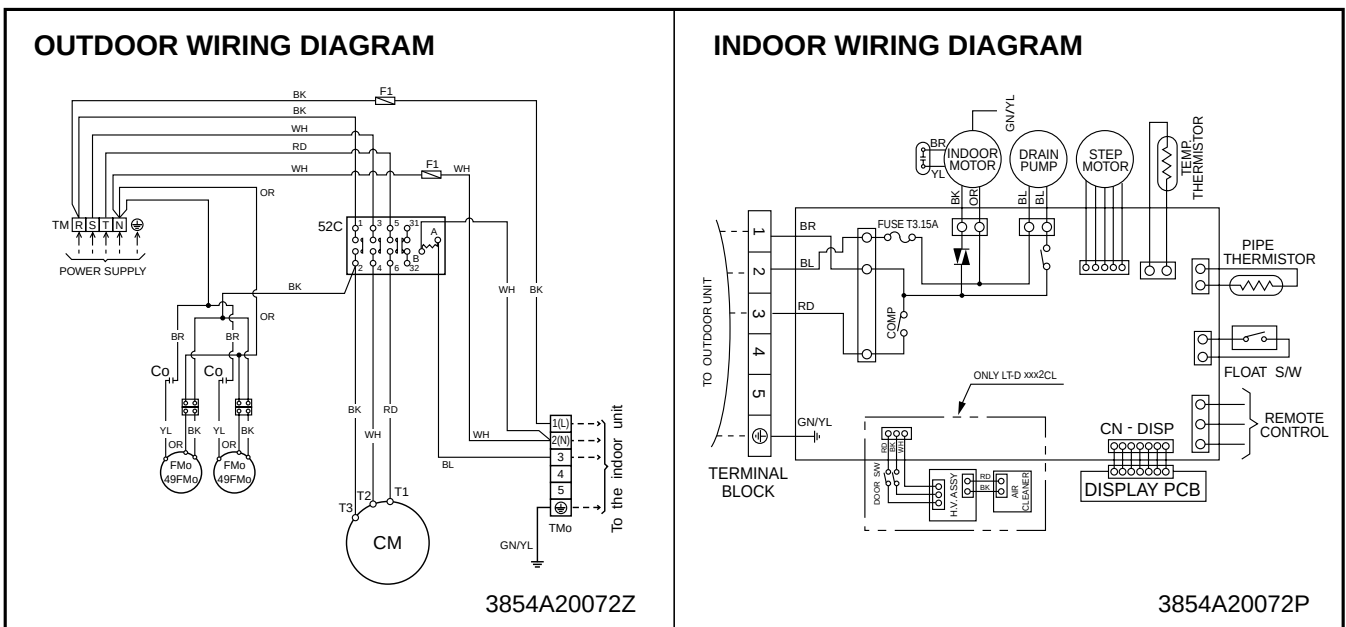
Wiring Diagram

(1) Capacity: 54K(3ø) - LT-D5480HL, LT-D5480HA, LT-H548DLE0, LT-D5480CL, LT-D5480CA

<HEAT PUMP>

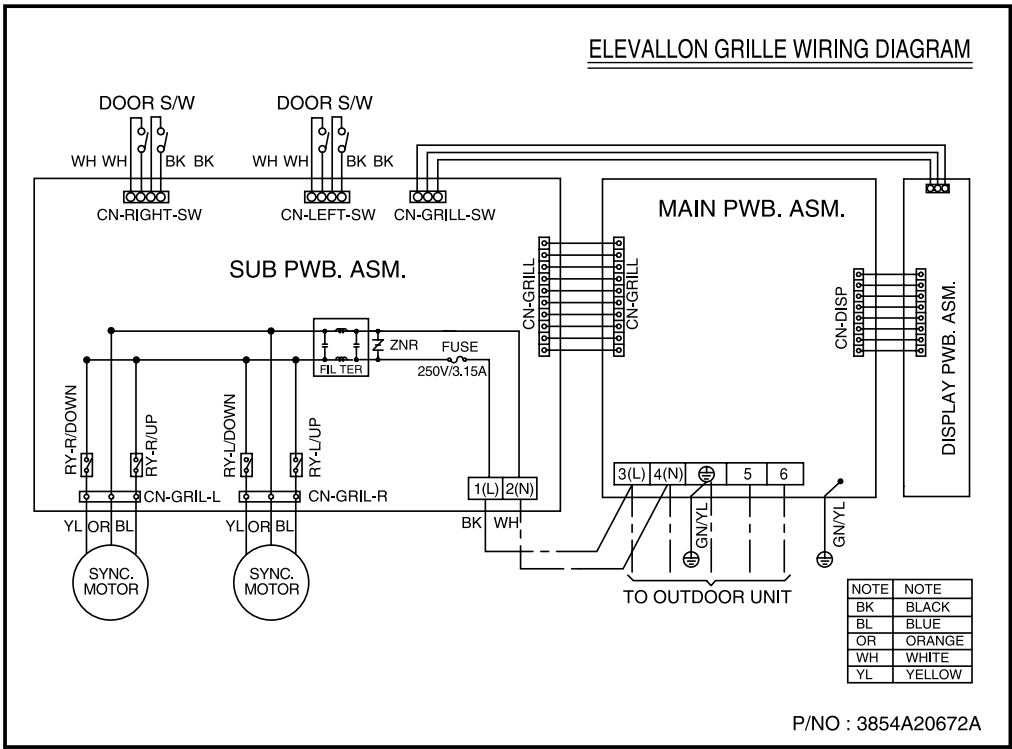


<COOLING ONLY>



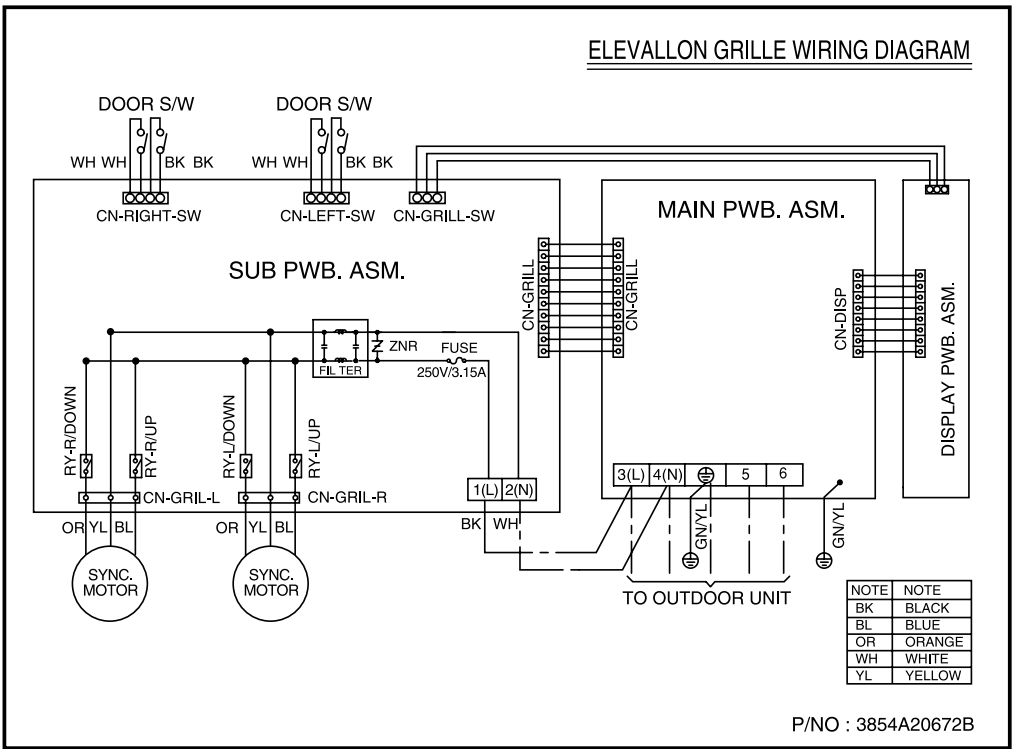
■ ELEVATION GRILL WIRING DIAGRAM (INDOOR)

LT-H***DLE0/LT-C***DLE0



LT-H***ELE0/LT-C***ELE0

LT-H***FLE0/LT-C***FLE0



Operation Details

(1) The function of main control

1. Time Delay Safety Control

- 3min... The compressor is ceased for 3minutes to balance the pressure in the refrigeration cycle.
(Protection of compressor)
- 5sec... Vertical louvers are delayed for 5 secs to be opened to prevent the frictional sound between louver and air flow.
- 30sec... The 4-way valve is ceased for 30sec. to prevent abnormal noise when the Heating operation is OFF or switched to the other operation mode while compress is off.
While compressor is running, it takes 3~5 seconds to switch.

2. Auto Swing Control

- This function is to swing the louver up and down automatically.

3. Air-Filter Checking Control

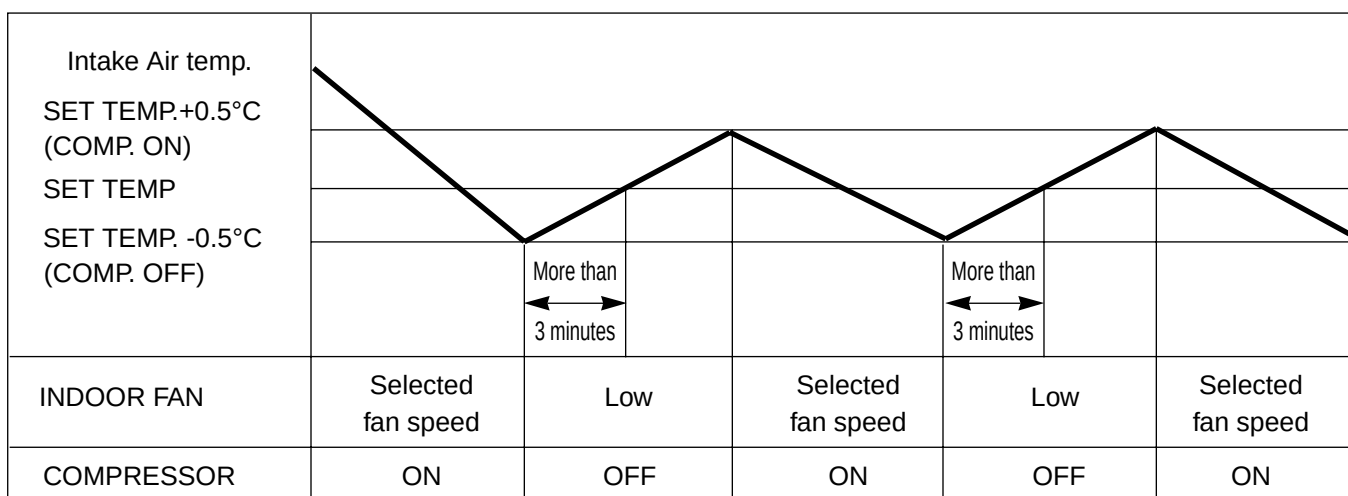
- 'Filter' sign will appear on the remote controller display and main body display when an air-filter is polluted. Then clean the air-filter referring to Owners Manual.

4. Soft-Dry Operation

- The indoor fan speed is automatically set to the low, and fan speed control is not available because of already being set to the best speed for Dry Operation by Micom Control.

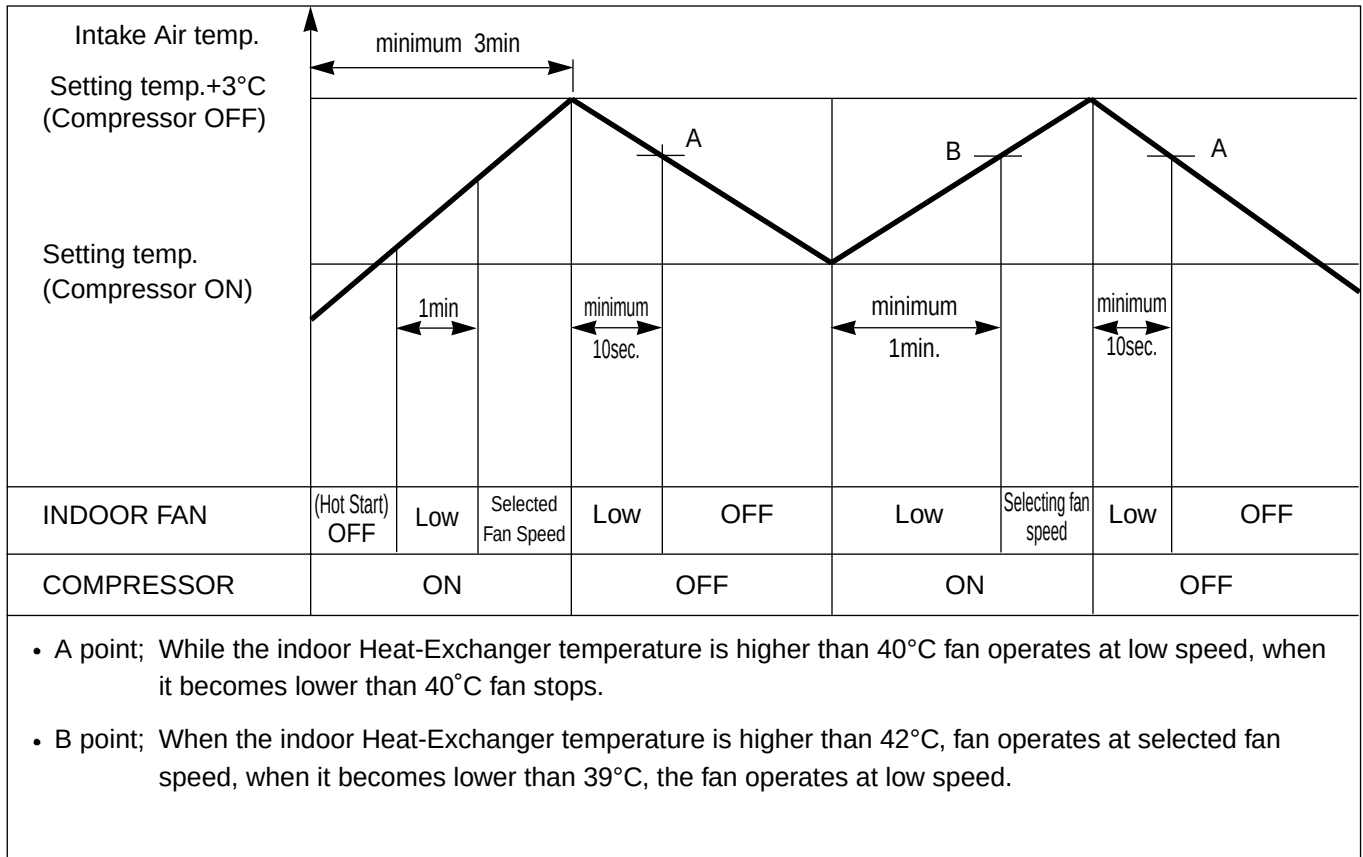
5. Cooling Mode Operation

- When selecting the Cooling(✱) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as follows.



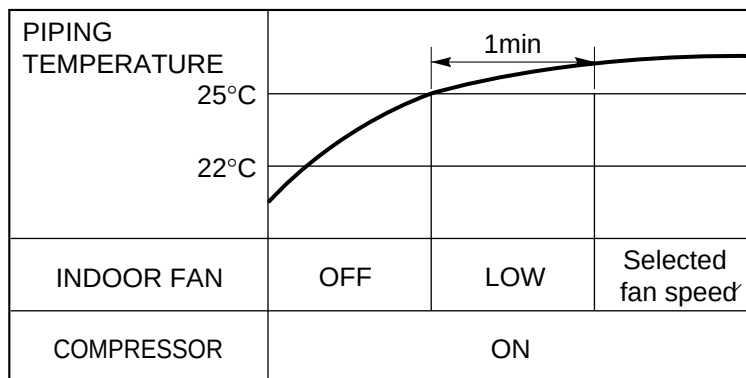
6. Heating Mode Operation

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



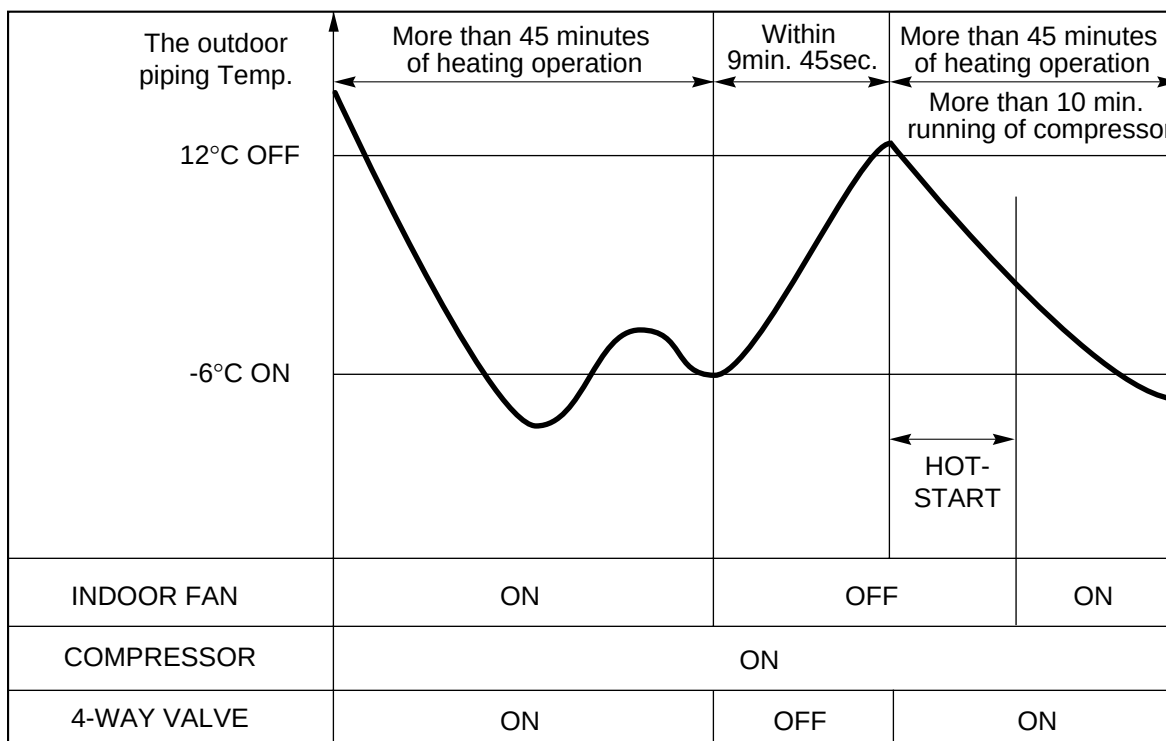
7. Hot-Start Control

- The indoor fan stops until the evaporator piping temperature reaches to 25°C.
- If the evaporator piping temperature drops below 22°C, indoor fan stops again.
- The operation diagram is as follows.



8. Defrost Control

- Defrost control is available 45 minutes later since heating mode operation started, and it will not prolong over 10 minutes.
- Defrost control is carried out when the outdoor pipe temp. falls below -6°C for more than 3 minutes after 45 minutes passed from starting of heating operation.
- Defrost ends after 10 minutes passed from starting of defrost operation or when the outdoor pipe temp. rises over 12°C after 5 minutes passed from starting of defrost.



9. Self-Diagnosis Function

- 'CHECK' will flash in the remote controller display when a problem occurs.
- Correct the 'FAULT MESSAGES' as shown in the table below before restarting operation.
- During the normal operation 'CHECK' won't be displayed in the remote controller.

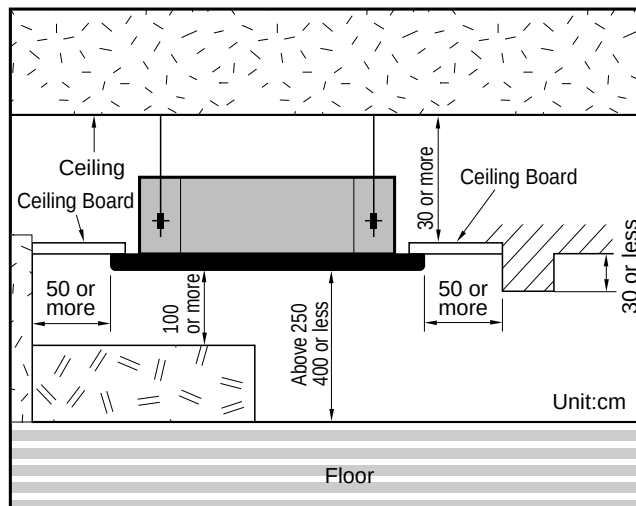
Remote controller LCD	FAULT MESSAGES
CH 01	Indoor room temperature thermistor error
CH 02	Indoor piping thermistor error
CH 03	Indoor main body / Remote controller unit communication error
CH 04	Water level float switch error

Installation of Indoor, Outdoor Unit

1. Selection of the best location

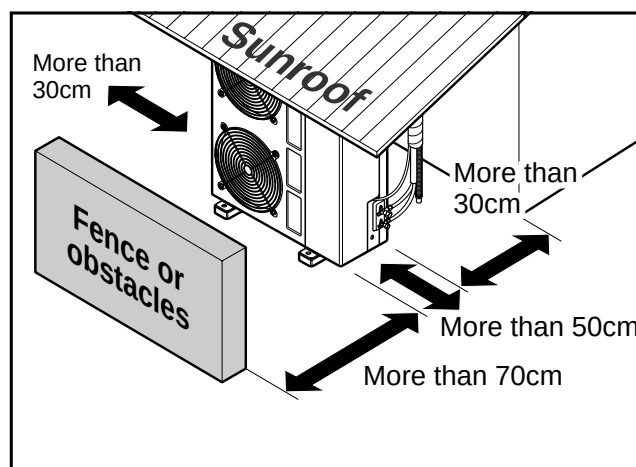
1) Indoor unit

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to 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, or other obstacles.
- The indoor unit must have the maintenance space around.



2) Outdoor unit

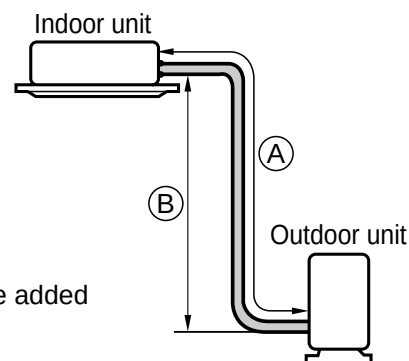
- If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.
- There should not be any animals or plants which could be affected by hot air discharged.
- Ensure the spaces indicated by arrows from the wall, ceiling,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



3) Piping length and the elevation

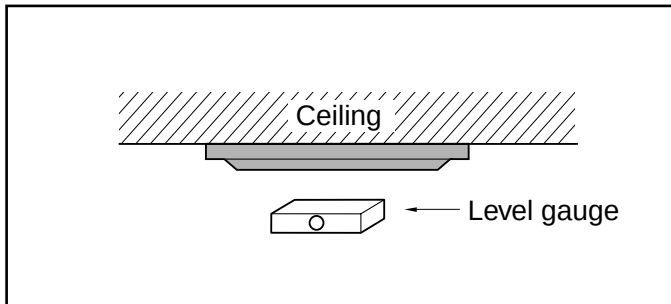
CAPACITY	Pipe Size		Length(A)(m)		Elevation(B)(m)		* Additional refrigerant (g/m)
	GAS	LIQUID	Rated	Max.	Rated	Max.	
54K Btu/h	3/4"	1/2"	7.5	50	5	30	60

- Rated performance for refrigerant line length of: 7.5m
- If 54K Model is installed at a distance of 15m, 450g of refrigerant should be added $(15-7.5) \times 60g$



2. Ceiling opening dimensions and hanging bolt location

- The dimensions of the paper model for installing are the same as those of the ceiling opening dimensions.



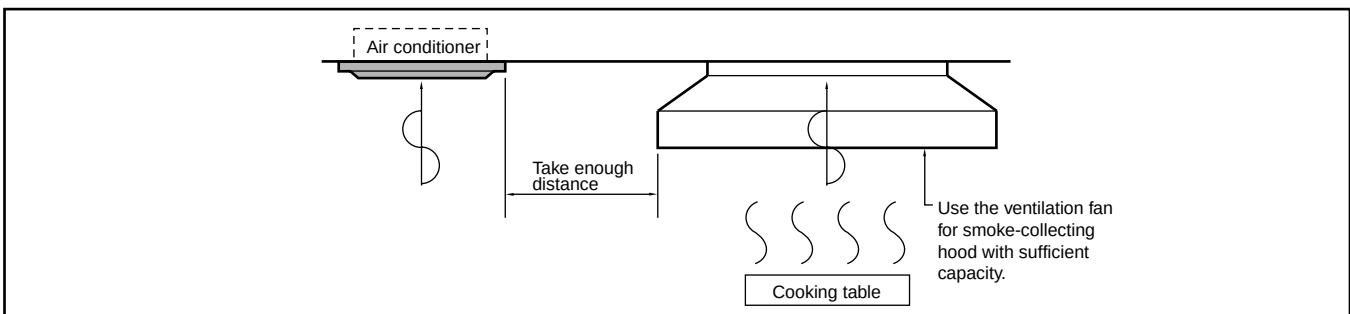
CAUTION

- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

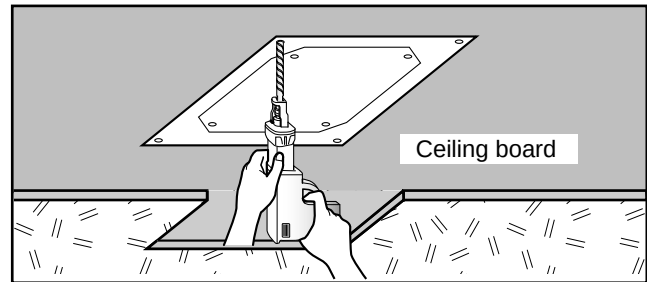
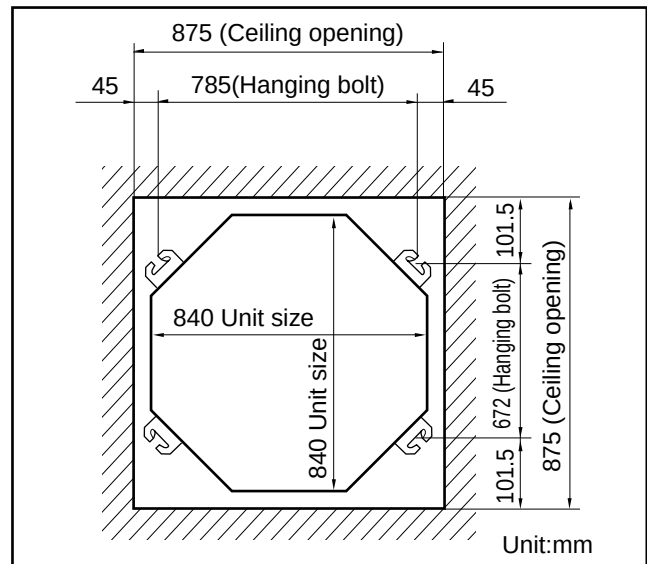
- Select and mark the position for fixing bolts and piping hole.
- Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor bolt on the wall.

NOTE:

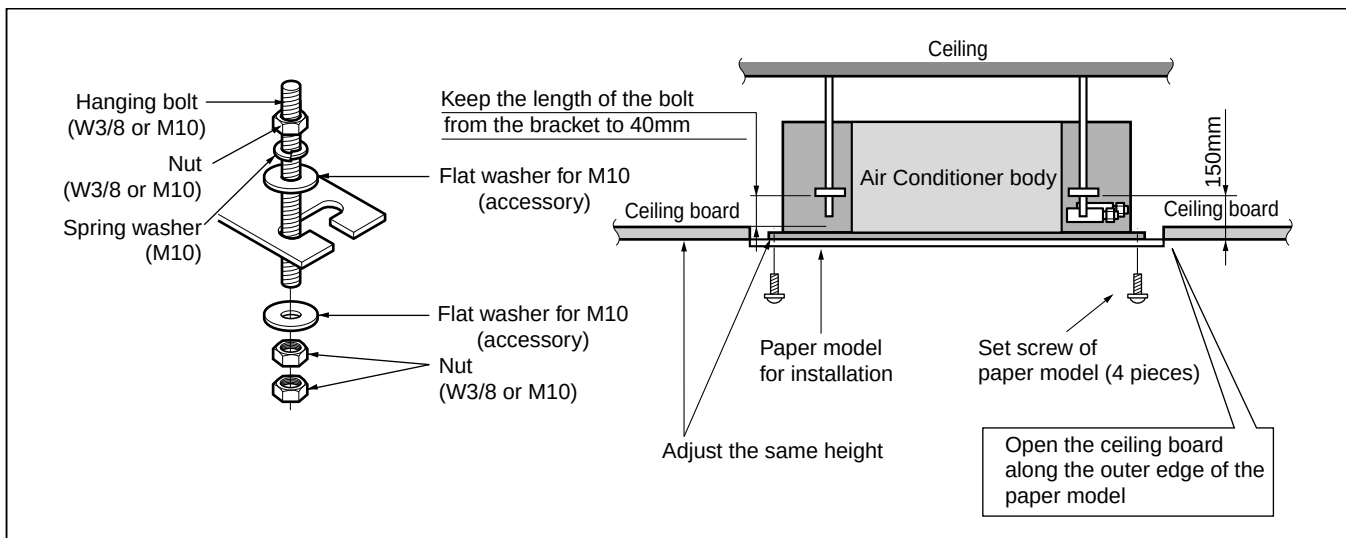
- Avoid the following installation location.
- Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;
 - Make sure that ventilation fan is enough to cover all noxious gases from this place.
 - Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.



- Avoid installing air conditioner in such places where cooking oil or iron powder is generated.
- Avoid places where inflammable gas is generated.
- Avoid place where noxious gas is generated.
- Avoid places near high frequency generators.



3. The Indoor Unit Installation



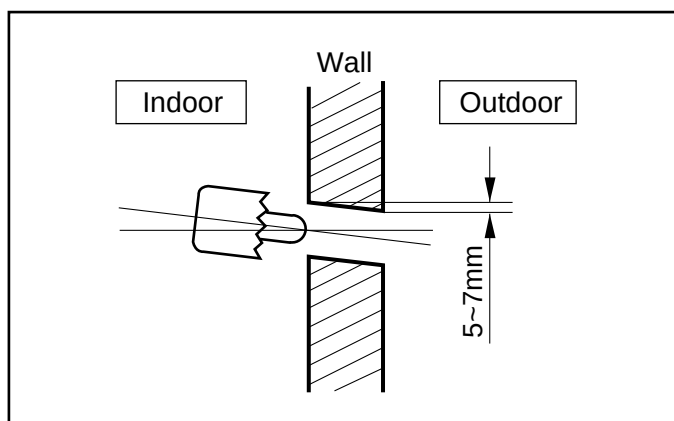
- The following parts are local purchasing.

- ① Hanging Bolt - W 3/8 or M10
- ② Nut - W 3/8 or M10
- ③ Spring Washer - M10
- ④ Plate Washer - M10

CAUTION

- Tighten the nut and bolt to prevent unit from falling off.

- Drill the piping hole on the wall slightly tilted to the outdoor side using a $\varnothing 70$ hole-core drill.



4. Remote Controller Installation

- Although the room temperature sensor is in the indoor unit, the remote controller should be installed in such places away from direct sunlight and high humidity.

Installation of the remote controller

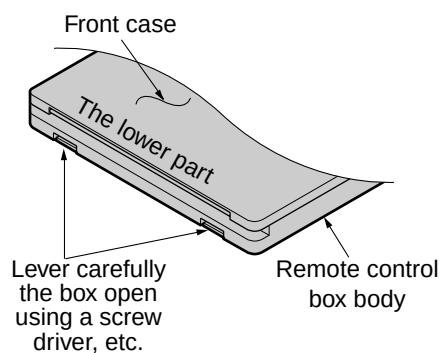
- Select places that are not splashed with water.
- Select control position after receiving customer approval.
- The room temperature sensor is built in the indoor unit.
- This remote controller equipped with liquid crystal display. If this position is higher or lower, display is difficult to see. (The standard height is 1.2 ~ 1.5m high)

Routing of the remote controller cord

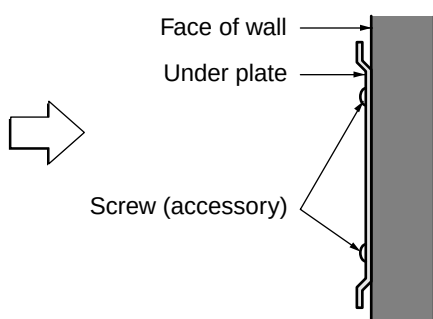
- Keep the remote controller cord away from the refrigerant piping and the drain piping.
- To protect the remote controller cord from electrical noise, place the cord at least 5cm away from other power cables (audio equipment, television set, etc.)
- If the remote controller cord is secured to the wall, provide a trap at the top of the cord to prevent water droplets from running to the controller.

WIRED REMOTE CONTROL INSTALLATION

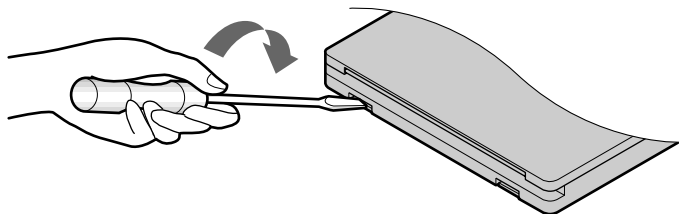
DISASSEMBLING



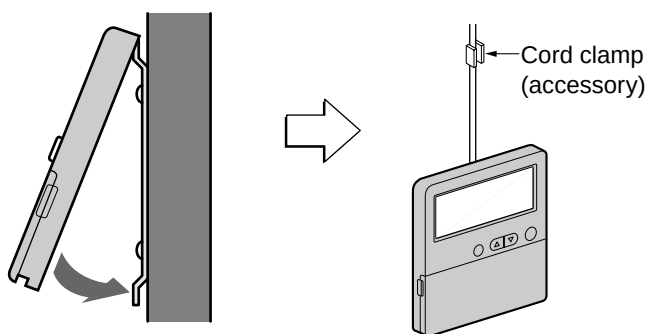
- Fix the under plate on the wall



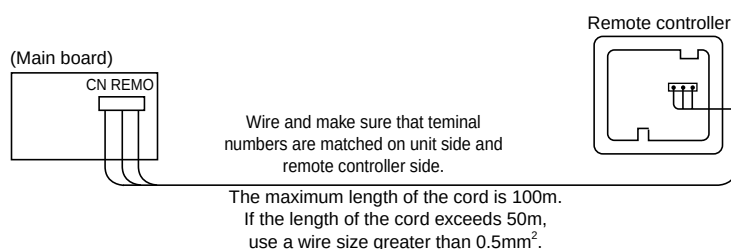
- Separate the under plate from Remote control box.



- Fix the cord clamps on the wall by $\varnothing 3$ tapping screws (accessory).
- Fix the remote control cord.

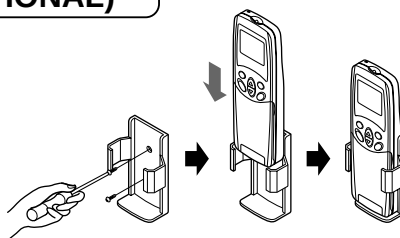


ELECTRICAL WIRING



REMOTE CONTROL PREPARATION(OPTIONAL)

HOW TO MOUNT ON A WALL



HOW TO INSERT BATTERIES

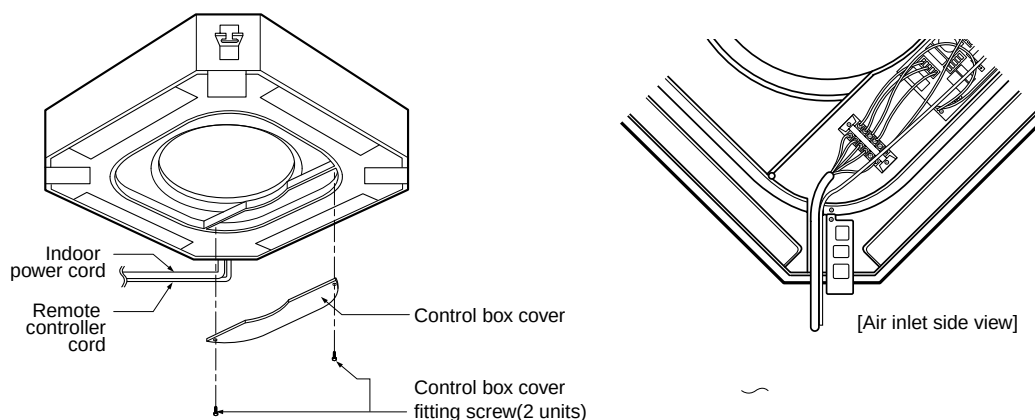
- 1 Remove the battery cover from the remote controller.
 - Slide the cover according to the arrow direction.
- 2 Insert the two batteries.
 - Be sure that the (+) and (-) directions are correct.
 - Be sure that both batteries are new.
- 3 Re-attach the cover.
 - Slide it back into position.



- Do not use rechargeable batteries, such batteries differ from standard dry cells in shape, dimensions, and performance.
- Remove the batteries from the remote controller if the air conditioner is not going to be used for some long time.

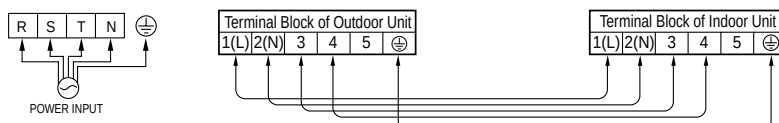
5. Wiring Connection

- Open the control box cover and connect the Remote controller cord and Indoor power wires.

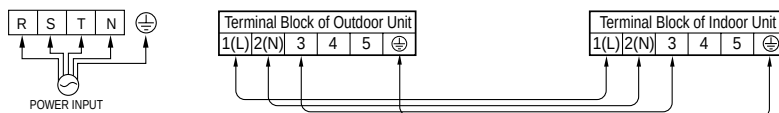


• 3 Phase

Heat Pump Model

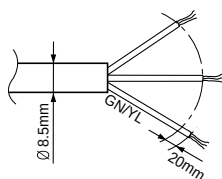


Cooling Model



CAUTION

The power cord connected to the outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



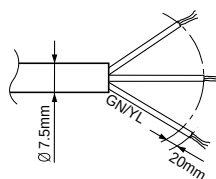
• 3 Phase

NORMAL
CROSS-SECTIONAL
AREA 2.5mm² (36K)
3.5mm² (48K, 54K)

• 1 Phase

NORMAL
CROSS-SECTIONAL
AREA 4.0mm² (36K)
6.0mm² (48K)
8.0mm² (54K)

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



NORMAL
CROSS-SECTIONAL
AREA 0.75mm² (36K)
1.25mm² (48K, 54K)

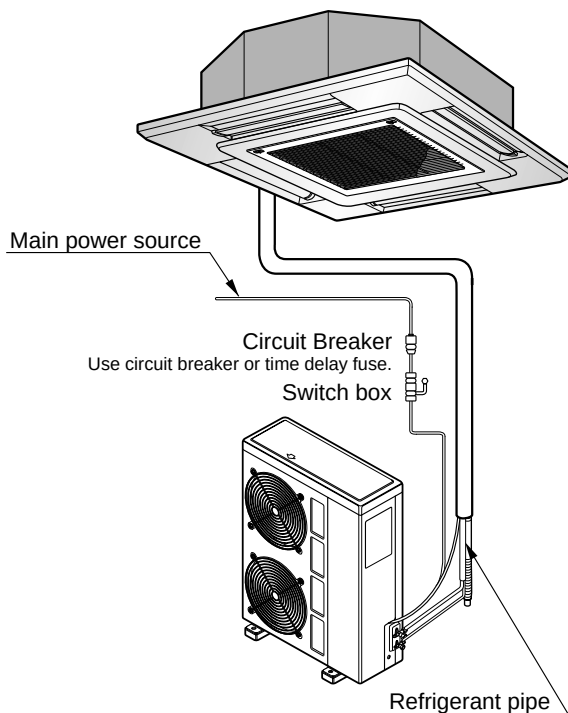
If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

⚠ WARNING

Make sure that the screws of the terminal are free from looseness.

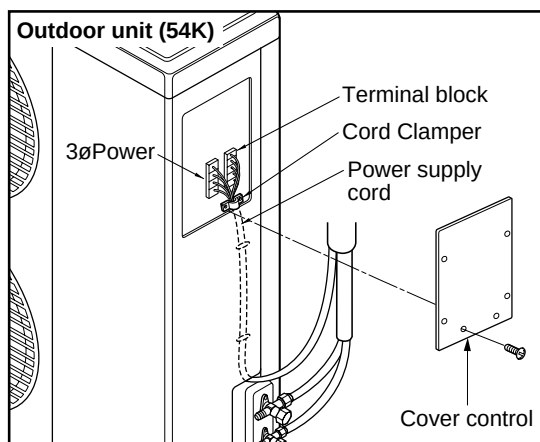
ELECTRICAL WIRING

1. All wiring must comply with LOCAL REGULATIONS.
2. Select a power source that is capable of supplying the current required by the air conditioner.
3. Feed the power source to the unit via a distribution switch board designed for this purpose.
4. The terminal screws inside the control box may be loose due to vibration during transport.
Check the screws for loose connection.
(Running the air conditioner with loose connection can overload and damage electrical components.)
5. Always ground the air conditioner with a grounding wire and connector to meet the LOCAL REGULATION.



CONNECTING THE CABLE TO OUTDOOR UNIT

1. Remove the Cover control from the unit by loosening a screw.
Connect the wires to the terminals on the control board individually as following.
2. Secure the cable onto the control board with the holder (clammer).
3. Refix the cover control to the original position with the screw.
4. Use a recognized circuit breaker 20A(54K) between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.



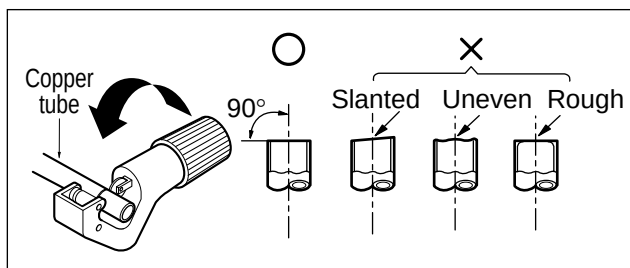
6. Connecting Pipes to the Indoor Unit

• Preparation of Piping

Main cause of gas leakage is defect in flaring work. Carry out correct flaring work in the following procedure.

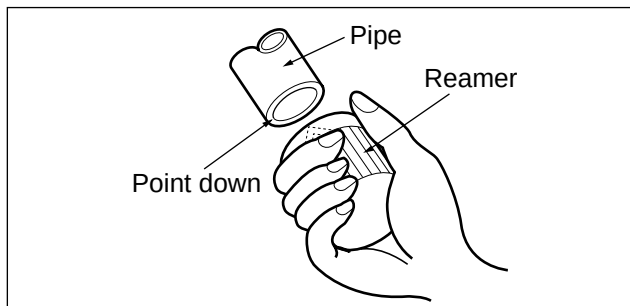
1) Cutting the pipes and the cable.

- 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 pipe length.



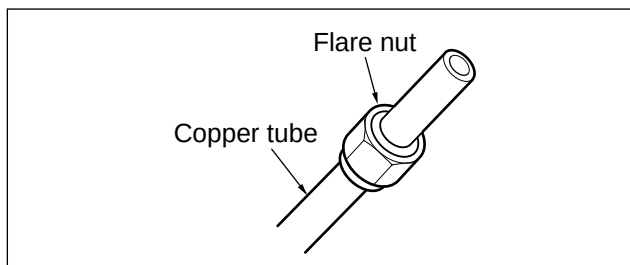
2) Burrs removal

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



3) Putting nut on

- Remove flare nuts attached to indoor and outdoor units, then put them on pipe/tube having completed burr removal.
(Not possible to put them on after flaring work)

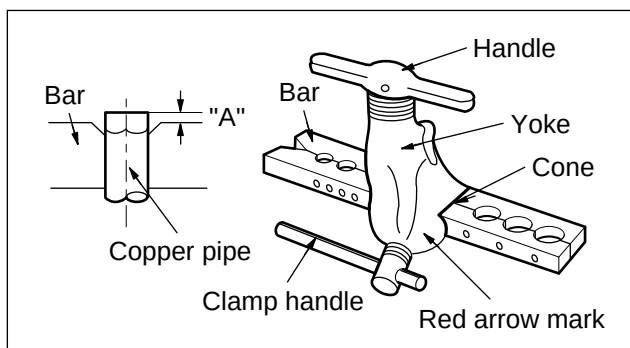


4) Flaring work

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

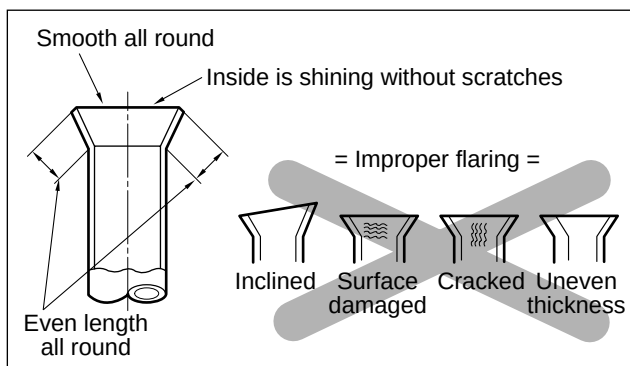
Outside diameter		A
mm	inch	mm
Ø9.52	3/8	0.5~0.8
Ø15.88	5/8	0.8~1.0
Ø19.05	3/4	0.8~1.0

Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.



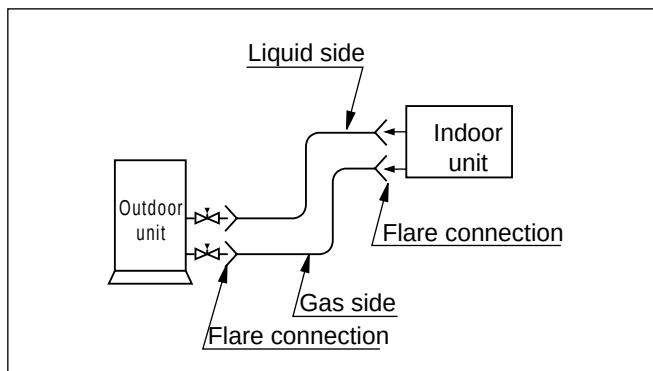
5) Check

- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and do flaring work again.



Piping Connection

1. Form the piping according to its routing. Avoid bending and bending back the same piping point more than three times. (This will result in hardening of pipe.)
2. After deforming the piping, align centers of the union fitting of the indoor unit and the piping, and tighten them firmly with wrenches.
3. Connect pipe to the service valve or ball valve which is located below the outdoor unit.
4. After completing the piping connection, be sure to check if there is gas leakage in indoor and outdoor connection.



Vacuum drying

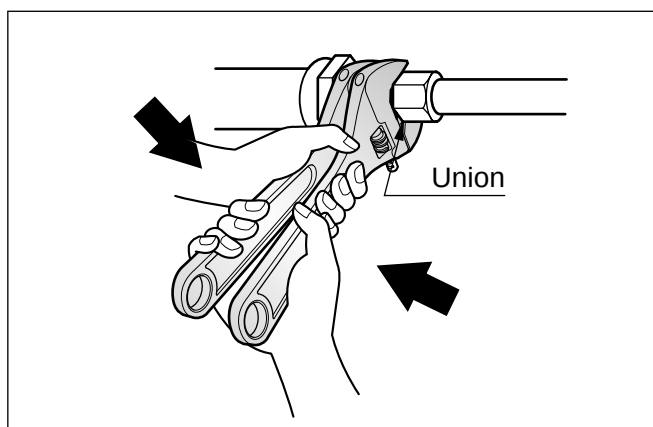
After completing the piping connection, execute vacuum drying for the connecting piping and the indoor unit. The vacuum drying must be carried out using the service ports of both the liquid and gas side valves.

Model	Liquid side piping	Gas side piping
36K Btu/h	Ø 9.52mm	Ø15.88mm
48K But/h	Ø 9.52mm	Ø19.05mm

⚠ CAUTION

Use two wrenches and tighten with regular torque.

Flare nut fastening torque	
Ø6.35mm	1.8 kg·m
Ø9.52mm	4.0 kg·m
Ø12.7mm	5.5 kg·m
Ø15.88mm	6.6 kg·m
Ø19.05mm	6.6 kg·m



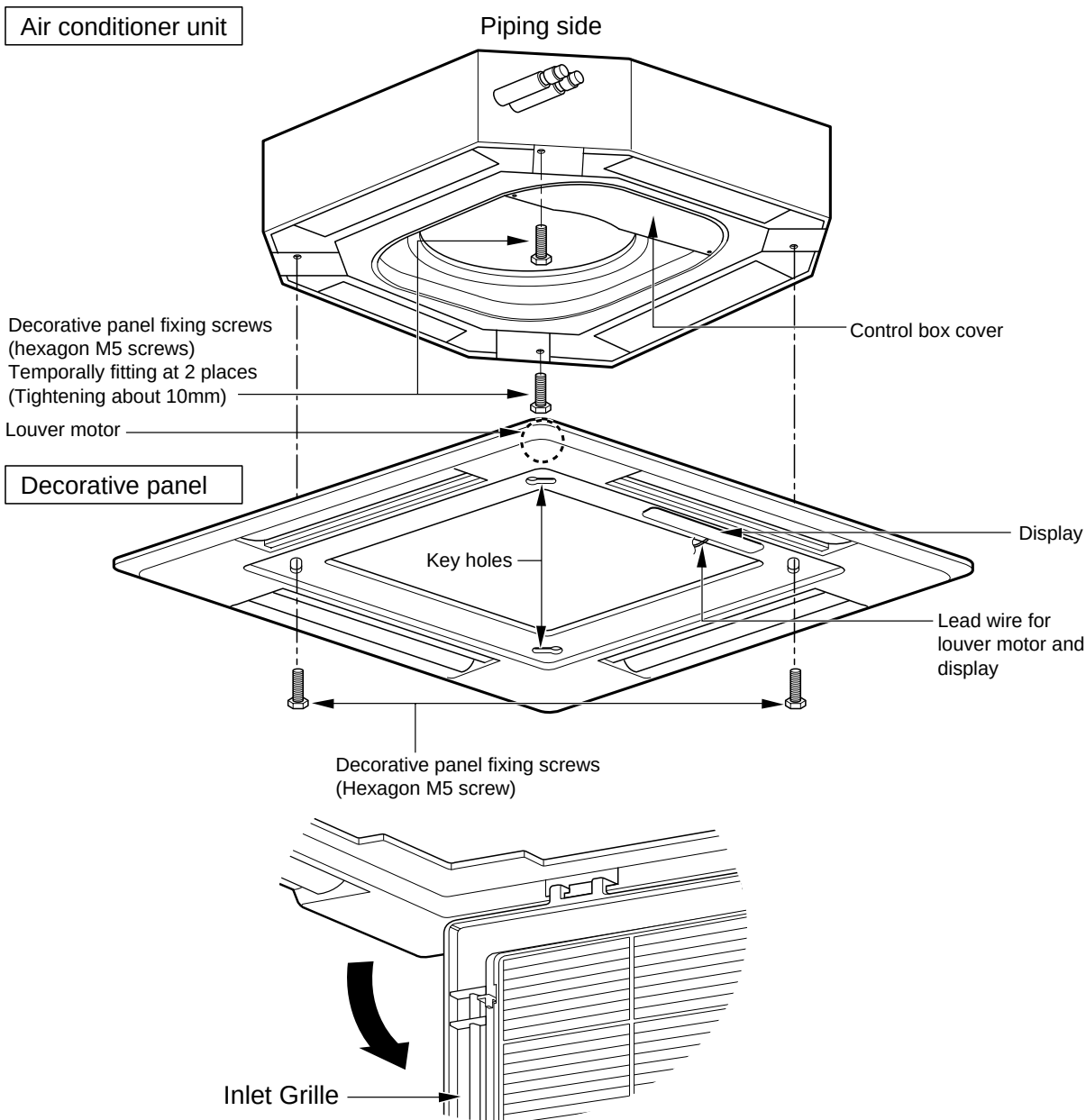
7. Installation of Decorative Panel

The decorative panel has its installation direction.

Before installing the decorative panel, always remove the paper template.

1. Temporarily fix two decorative panel fixing screws (hexagon M5 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M5 screw) are included the indoor unit box.
2. Remove the air inlet grille from the decorative panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decorative panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector and display connector.
6. After tightening these screws, install the air inlet grille (including the air filter).

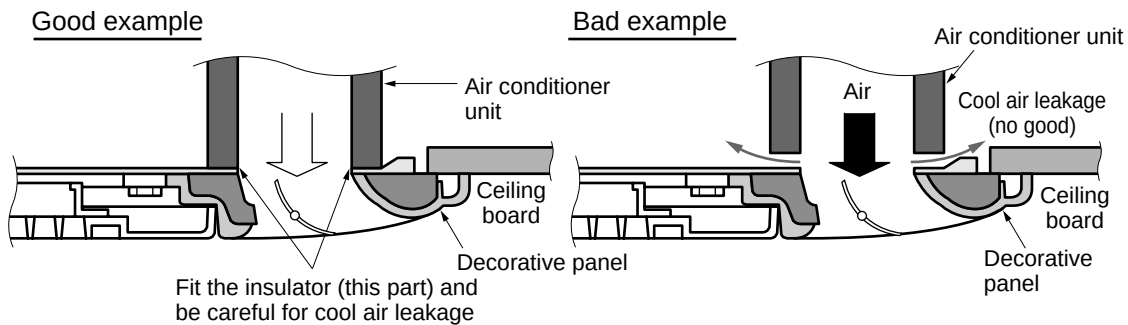
Air conditioner unit



⚠ CAUTION

Install certainly the decorative panel.

Cool air leakage causes sweating. ⇨ Water drops fall.

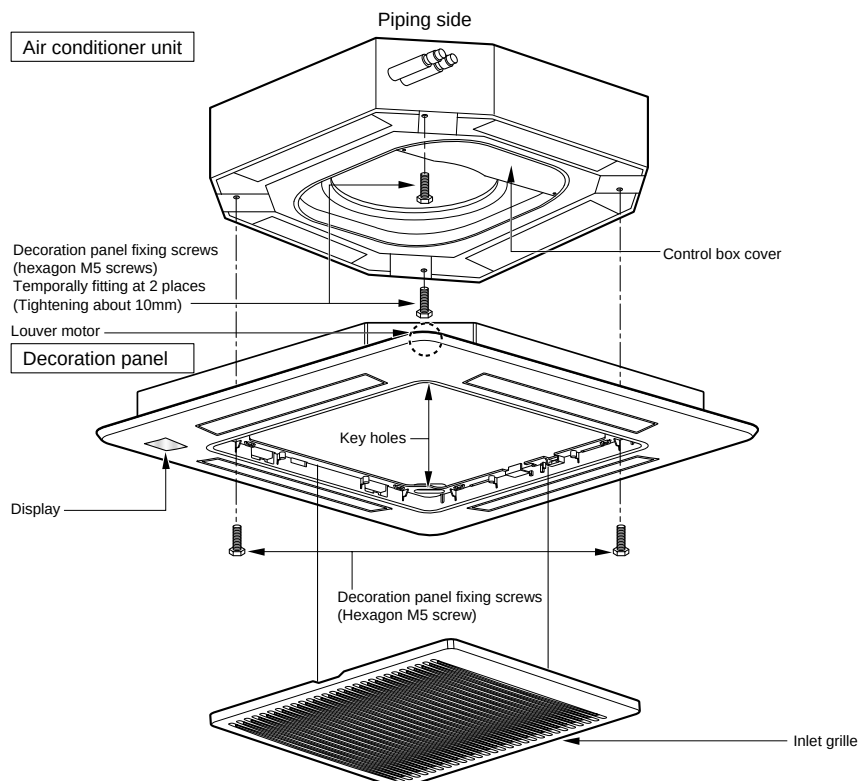


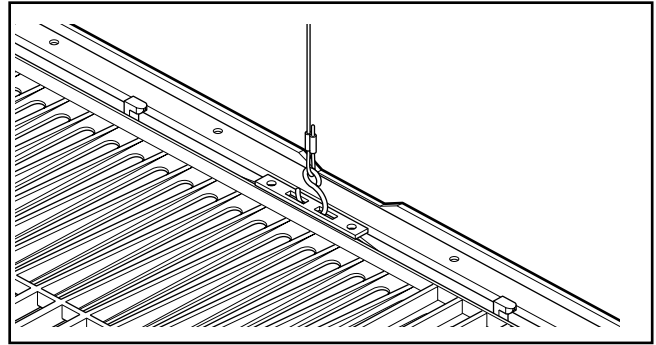
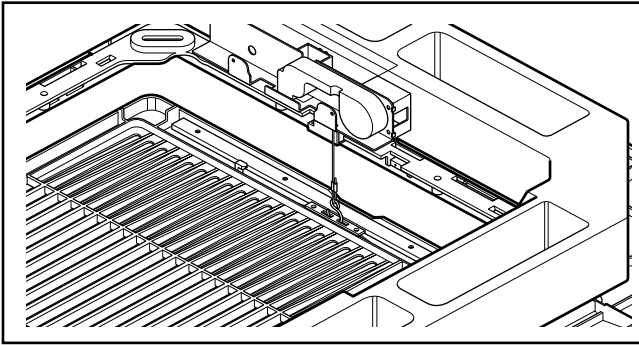
8. Installation of Decoration Panel(Elevation Grille)

The decoration panel has its installation direction.

Before installing the decoration panel, always remove the paper template.

1. Temporarily fix two decoration panel fixing screws (hexagon M5 screw) on the unit body. (Tighten by amount 10mm in length.)
The fixing screws (hexagon M5 screw) are included unit box.
2. Remove the air inlet grille from the decoration panel. (Remove the hook for the air inlet grille cord.)
3. Hook the decoration panel key hole () on the screws fixed in step above, and slide the panel so that the screws reach the key hole edge.
4. Retighten completely two temporarily fixed screws and other two screws. (Total 4 screws)
5. Connect the louver motor connector display connector, elevation grille connector and power supply connector
6. After tightening these screws, install the air inlet grille (including the air filter).





⚠ CAUTION

- Don't lay any material upon suction grill.
- Suction grill comprises 2 strands of wire. If any substance is placed on it then balance may be destroyed so that the substance would drop down and cause a breakage or damage. Also the matter may cause trouble owing to which the grill would not be correctly inserted at front panel.
- Don't shake suction grill. Or else there is worry that it may collide with adjacent material and the suction grill fall down.
- Don't pull suction grill. Don't draw out suction grill irrationally. Or else there is worry that lift grill drive part is damaged and suction grill might drop down.
- Don't place obstacle in lift passage of lift grill.
When suction grill descends, it automatically stops at a certain distance.
If there is any obstacle in lift passage, suction grill might drop down and there may be caused trouble failure of lift grill drive part.
- Turn off the air conditioner operation button before operating the lift grill.
Always stop the air conditioner operation for safety when suction grill descends.
- Don't damage lift rope by a sharp material. Or else there is worry about suction grill dropping because of rope cutoff.

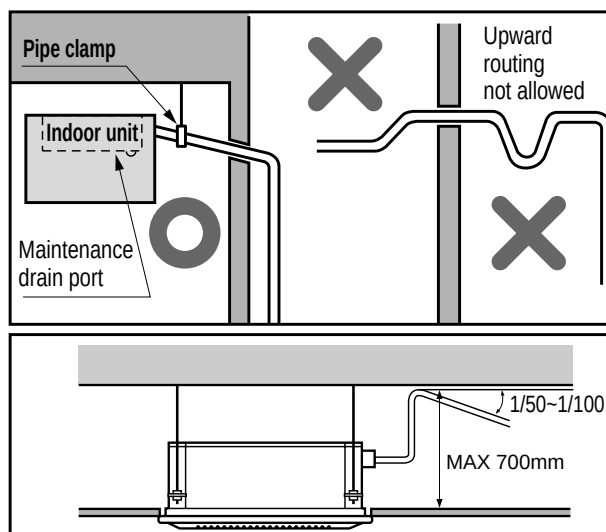
9. Indoor Unit Drain Piping

- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

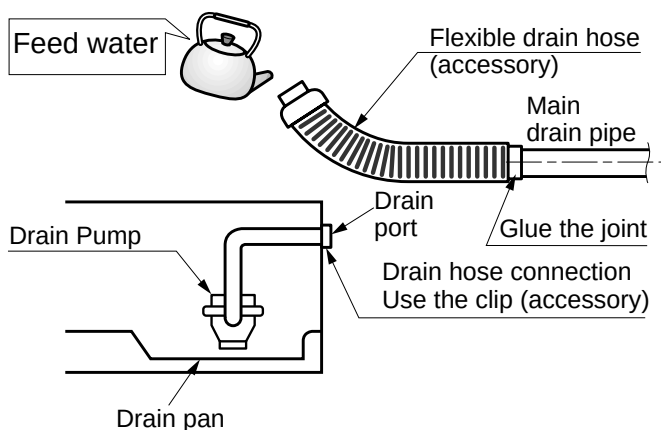
- Be sure to install heat insulation on the drain piping.

Heat insulation material: Polyethylene foam with thickness more than 8 mm.



Drain test

The air conditioner uses a drain pump to drain water. Use the following procedure to test the drain pump operation:

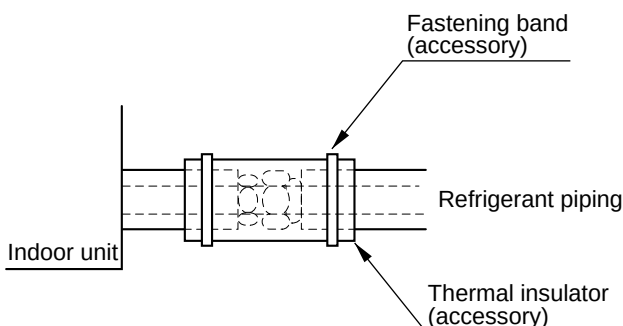


- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- Be sure to check the drain pump for normal operating and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.

HEAT INSULATION

1. Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).
2. Precautions in high humidity circumstance:
This air conditioner has been tested according to the "KS Standard Conditions with Mist" and confirmed that there is not any default. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:

- Heat insulation material to be prepared... Adiabatic glass wool with thickness 10 to 20mm.
- Stick glass wool on all air conditioners that are located in ceiling atmosphere.
- In addition to the normal heat insulation (thickness: more than 8mm) for refrigerant piping (gas piping: thick piping) and drain piping, add further 10mm to 30mm thickness material.



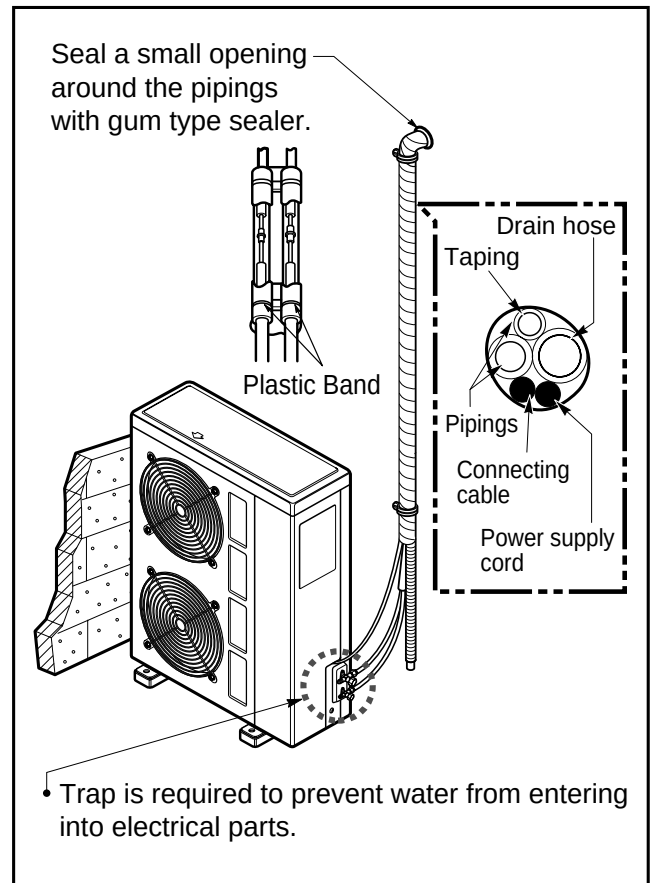
FORM THE PIPINGS

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.)

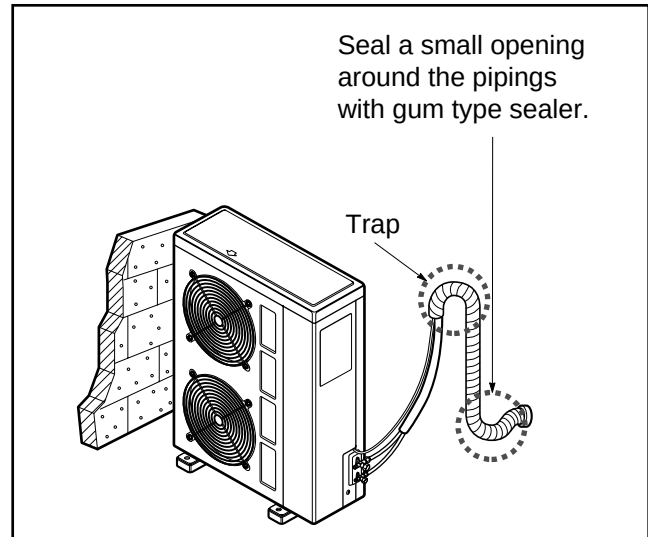
In case of the Outdoor unit being installed below position of the Indoor unit.

2. **Tape the Pipings, drain hose and Connecting Cable from bottom to top.**
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 being installed above position of the Indoor Unit.

2. Tape the Pipings and Connecting cable from bottom to top.
3. Form the pipings gathered by taping along the exterior wall, and make the trap prevent water from entering into the room.
4. Fix the pipings onto the wall by saddle or equivalent.



Test running

1) PRECAUTIONS IN TEST RUN

- The initial power supply must provide at least 90% of the rated voltage. Otherwise, the air conditioner should not be operated.

Caution

- ① For test run, carry out the cooling operation first even during winter season. If heating operation is carried out first, it leads to the trouble of compressor.
 - ② Carry out the test run more than 5 minutes without stopping.
(Test run will be cancelled 18 minutes later automatically)
- The test run is started by pressing the room temperature checking button and down timer button for 3 seconds at the same time.
 - To cancel the test run, press any button.

CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETE

- After completing work, be sure to measure and record trial run properties, and store measured data, etc.
- Measuring data are room temperature, outside temperature, suction temperature, blow out temperature, air velocity, air volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature.
- As to the structure and appearance, check following items.

- ☐ Is the circulation of air adequate?
- ☐ Is the drainage OK?
- ☐ Is the heat insulation complete (refrigerant and drain piping)?
- ☐ Is there any leakage of refrigerant?

- ☐ Does the remote controller work properly?
- ☐ Is there any error on wiring?
- ☐ Aren't terminal screws loosened?

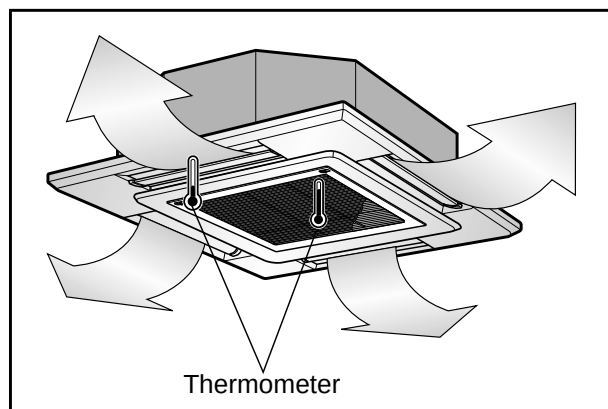
M4.....118N.cm{12kgf.cm} M5.....196N.cm{20kgf.cm}
M6.....245N.cm{25kgf.cm} M8.....588N.cm{60kgf.cm}

2) Connection of power supply

1. Connect the power supply cord to the independent power supply.
 - Circuit breaker is required.
2. Operate the unit for fifteen minutes or more.

3) 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 (Cooling) or reversely (Heating).



CAUTION

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

- 1) **Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.**
- 2) **Provide a circuit breaker switch between power source and the unit.**
- 3) **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 give rise to burn-out of the wires.)**
- 4) **Specification of power source**
- 5) **Confirm that electrical capacity is sufficient.**
- 6) **Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
- 7) **Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)**
- 8) **Never fail to equip a leakage breaker where it is wet or moist.**
- 9) **The following troubles would be caused by voltage drop-down.**
 - Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
 - Proper starting power is not given to the compressor.

HAND OVER

Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.).

2) Adjusting air volume to the height of ceiling

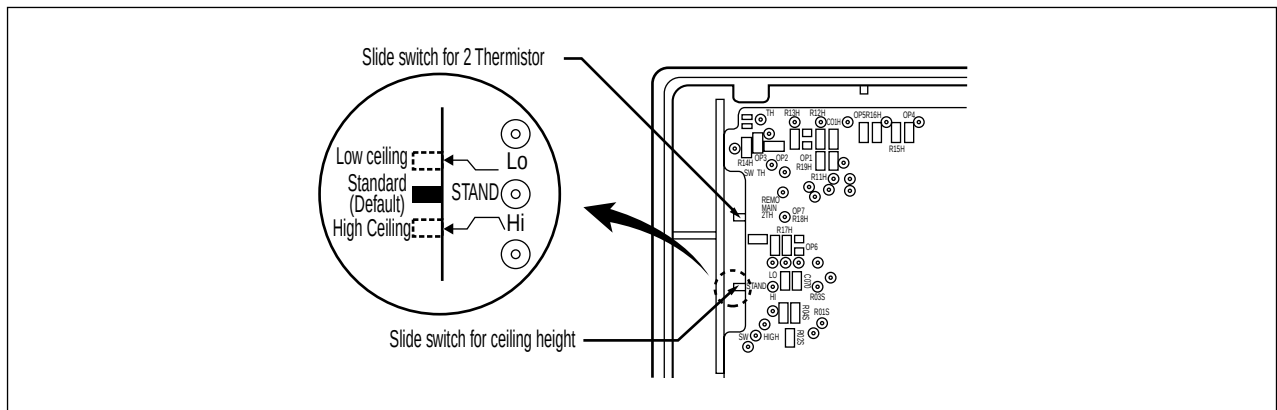
You can choose the RPM(or air volume) of indoor motor according to the height of ceiling to supply the comfortable atmosphere to consumers.

Procedure

1. Choose the selectable position in the table after measuring the height of ceiling.

Ceiling height	Mode of slide switch	Change of air volume	Remark
more than 4.0m	High Ceiling	Increasing	Maunfactured in standard mode
3.2~4.0m	Standard	-	
less than 3.2m	Low Ceiling	Decreasing	

2. In the case of changing the height as "high" or "low", open the rear cover of the wired remote-controller.
3. Move the slide switch to the set position.

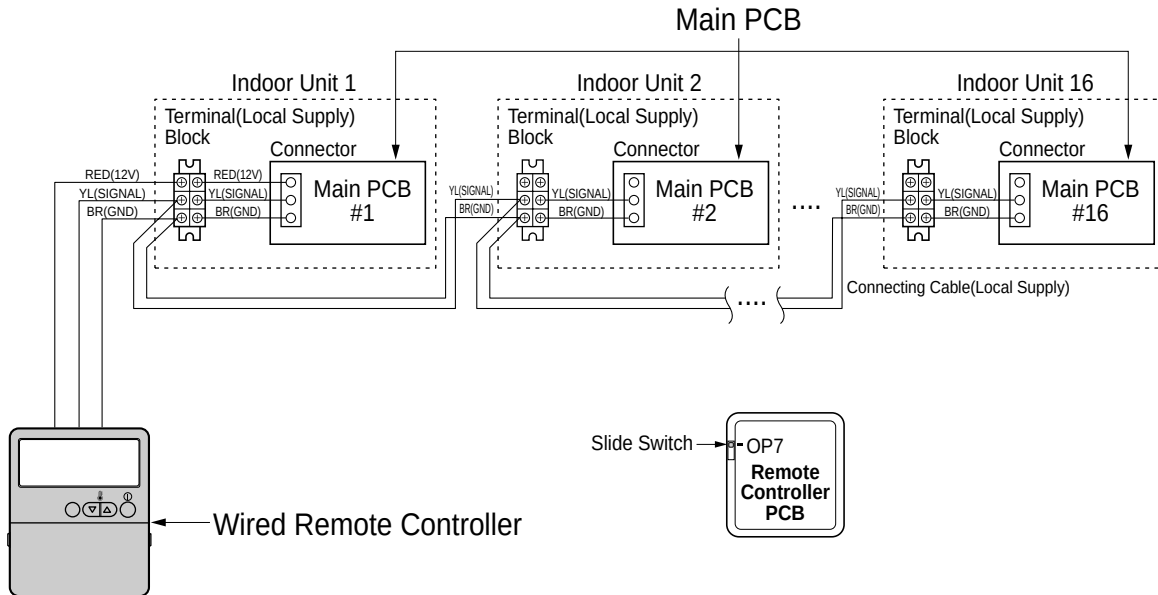


4. Close the rear cover and check if it works nomally.

3) Group Control(Optional Wiring)

- You can use a group control operation after connecting the brown and yellow wire of each air-conditioner.
- Remove the resistor "OP 7" in remote controller.
- It operates maximum 16 Units by only one Wired Remote Controller, and each Unit starts sequentially to prevent overcurrent.

Wiring design



Features

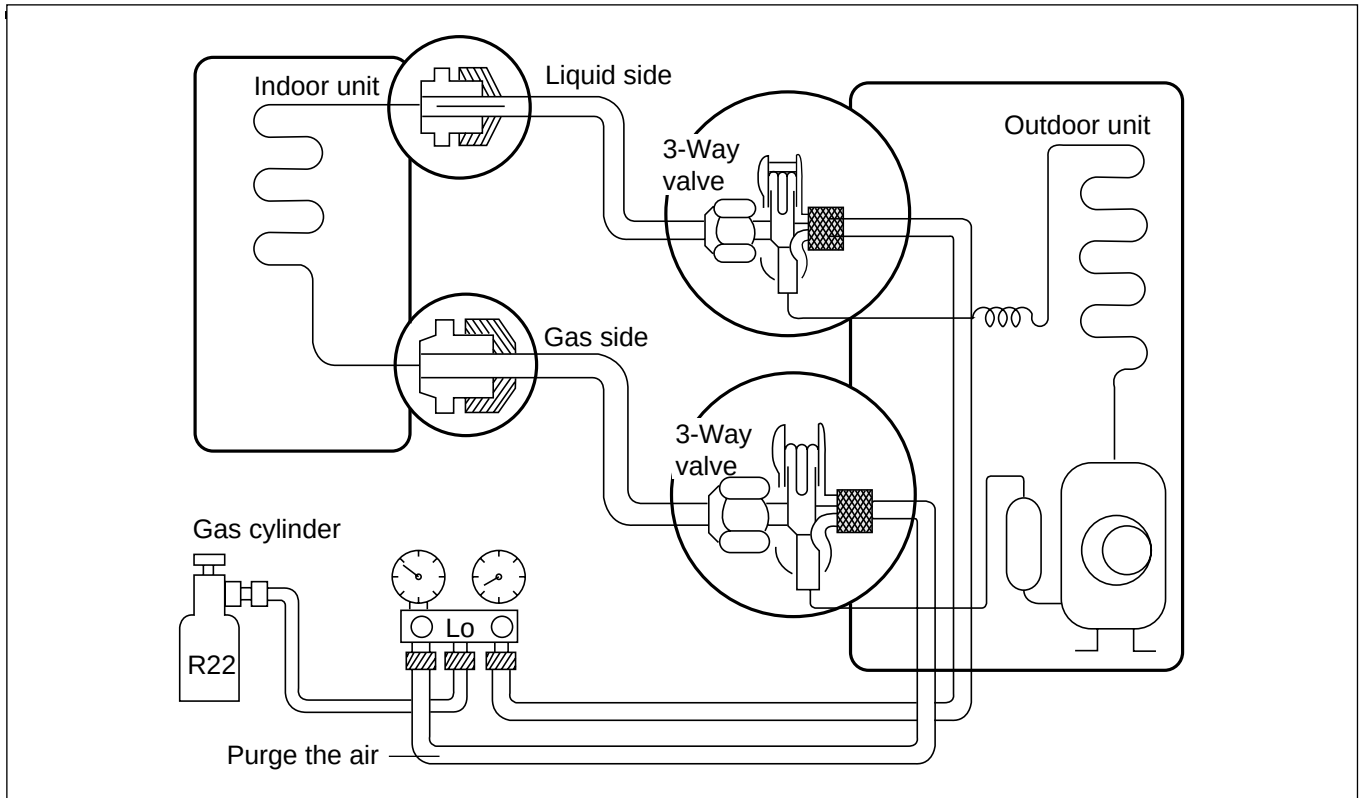
- Use Only One Wired Remote Controller with several air conditioners(max. 16 Units)
- Random starting to prevent overcurrent.

CAUTION

- Be careful not to exchange the color of wires.
- The maximum length of connecting wire should be below 200m(25Ω) on connecting each units.
- Use a wire more than 0.5mm²

Cycle

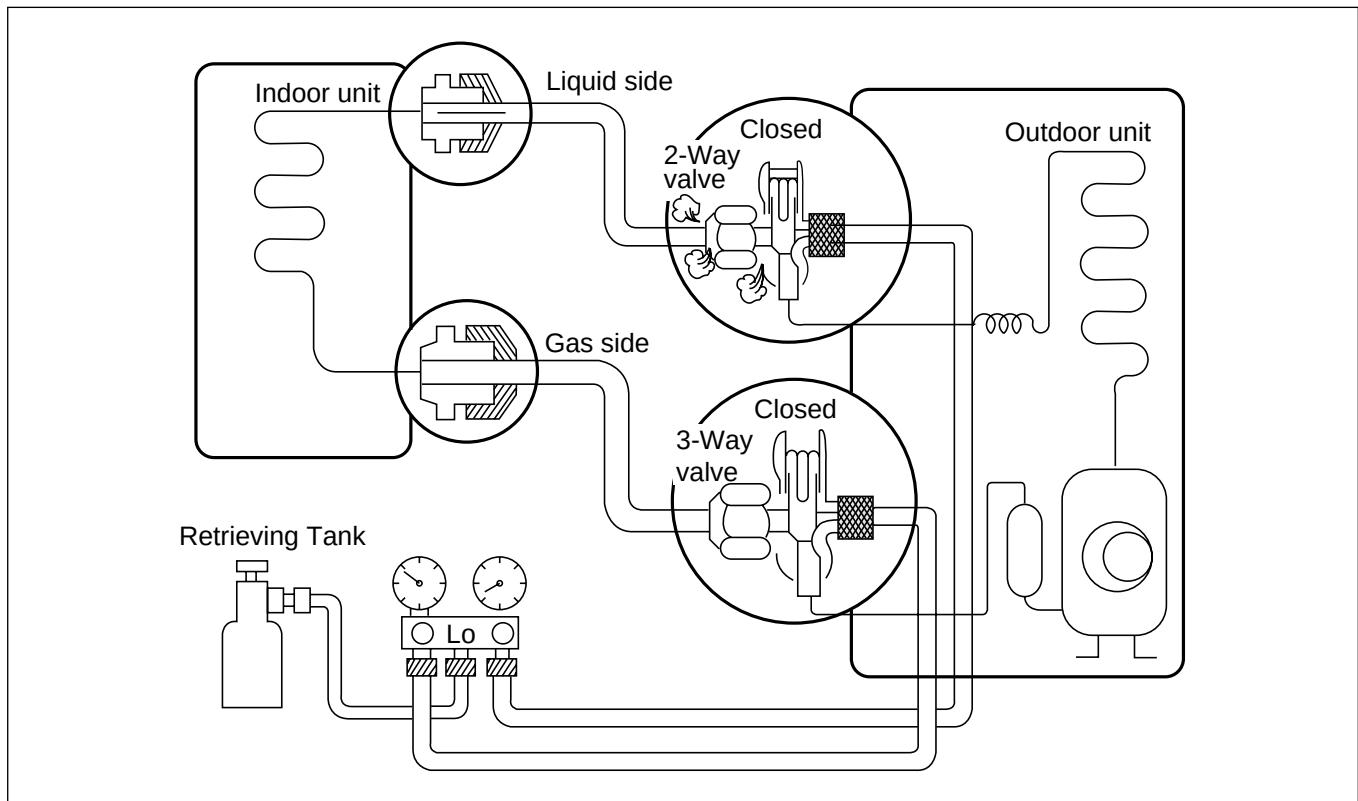
1. Installation (Connecting the piping between indoor and outdoor unit)



• Installation

- (1) Connect the piping between the indoor and outdoor unit firmly.**
 - Incorrect connection may cause the leakage and incomplete vacuuming.
- (2) Attach the charging hose (manifold gage) to the service port.**
 - Charging hose is necessary to check the pressure and to inject N₂ for leakage test.
 - The valve of charging hose must be closed before being connected.
- (3) Inject the 100~300g N₂ through the charging hose opening the valve.**
- (4) Check the joint part using a gas detector or soapy water for leakage.**
 - On checking, the service valve of main service port must be closed, this test is only for checking whether pipe connection is OK or not.
- (5) If there is no leakage, discharge N₂ in piping completely into tank for retrieving.**
 - Completely discharge is needed for vacuuming.
 - If leakage is found, please fasten the joint more tightly.
- (6) After closing the valve of charging hose, disconnect the tank and connect the vacuum pump to charging hose and open the valve again for vacuuming.**
- (7) Turn on the vacuum pump until the pressure drops below 0 kg/cm².**
- (8) After vacuuming, disconnect the vacuum pump and open the spindle of service port (liquid-side) slightly for 30 sec and then open the spindle of service port (gas side) with hexagonal wrench.**
- (9) Open the liquid side completely first and then the gas side fully in order.**

2. Disconnection (on moving)

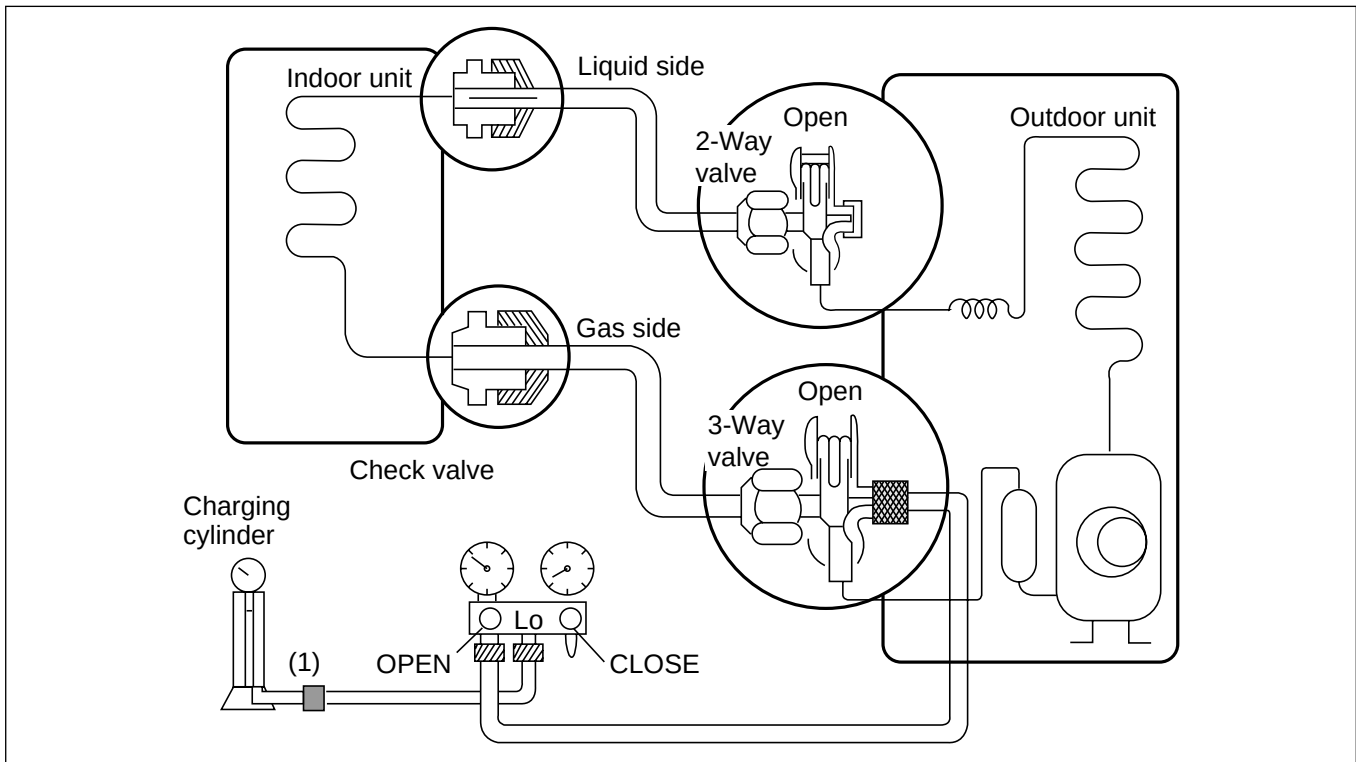


• Disconnection

- (1) **Attach the charging hose (manifold gage) to the service port.**
 - Connect the manifold gage once to the service port not stopping. Stopping in the middle of process may cause the leakage.
- (2) **Purge the air in hose into special device such as retrieving tank opening the valve of charging- hose (gas side) slightly and then close it tightly.**
- (3) **Operate the air conditioner for 10~15 min until cycle is stabilized.**
- (4) **Close the spindle of service port (liquid side-high pressure) and wait till pressure of gas side (low pressure) drops below 0 kgf/cm².**
- (5) **After the needle of gage indicates below 0 kgf/cm², close the valve of gas side quickly and turn off the power.**
- (6) **Disconnect the piping between indoor and outdoor unit and then put on service cap to the service port.**

3. 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 reverse the cylinder so that the system can be charged in liquid state.

(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.

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.

	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 leakage Clog of refrigeration cycle Defective compressor
Operating Current	Temp. difference : less than 8°C Current : over the rated 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 relatively 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.

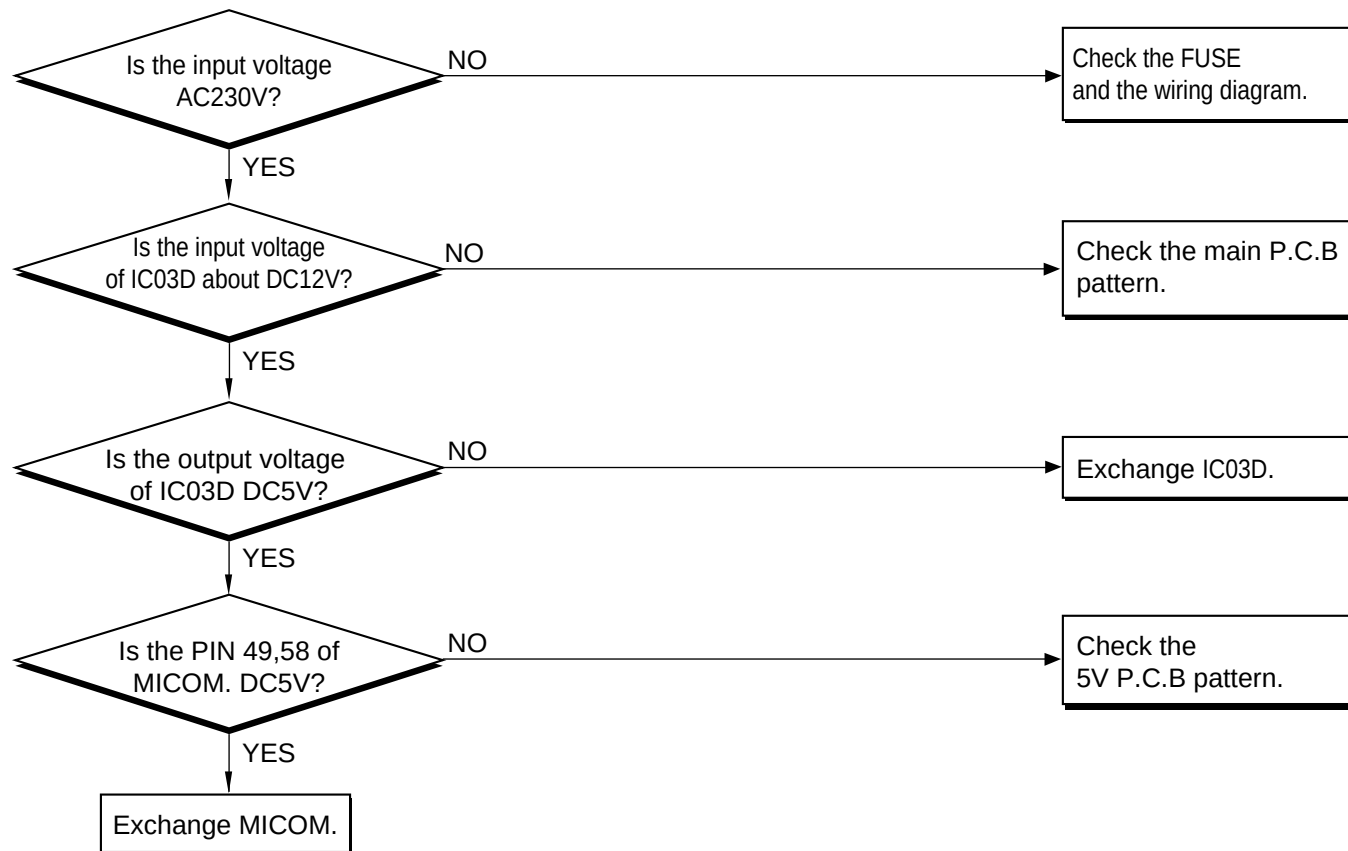
Suction pressure (Compared with the normal value)	Temperature (Compared with the normal value)	Cause of Trouble	Description
Higher	High	Defective compressor Defective 4-way reverse valve	Current is low
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation
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/cm²G at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

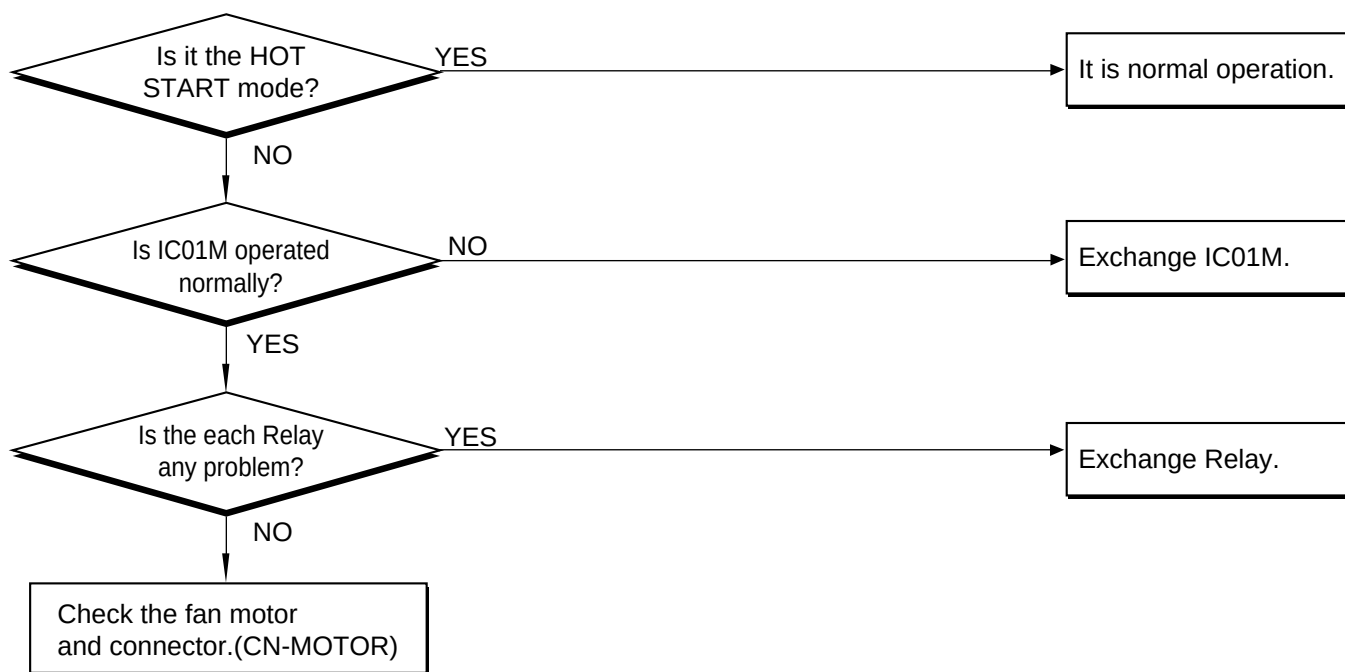
Electronic Parts Troubleshooting Guide

Possible Trouble 1 : The unit does not operate.

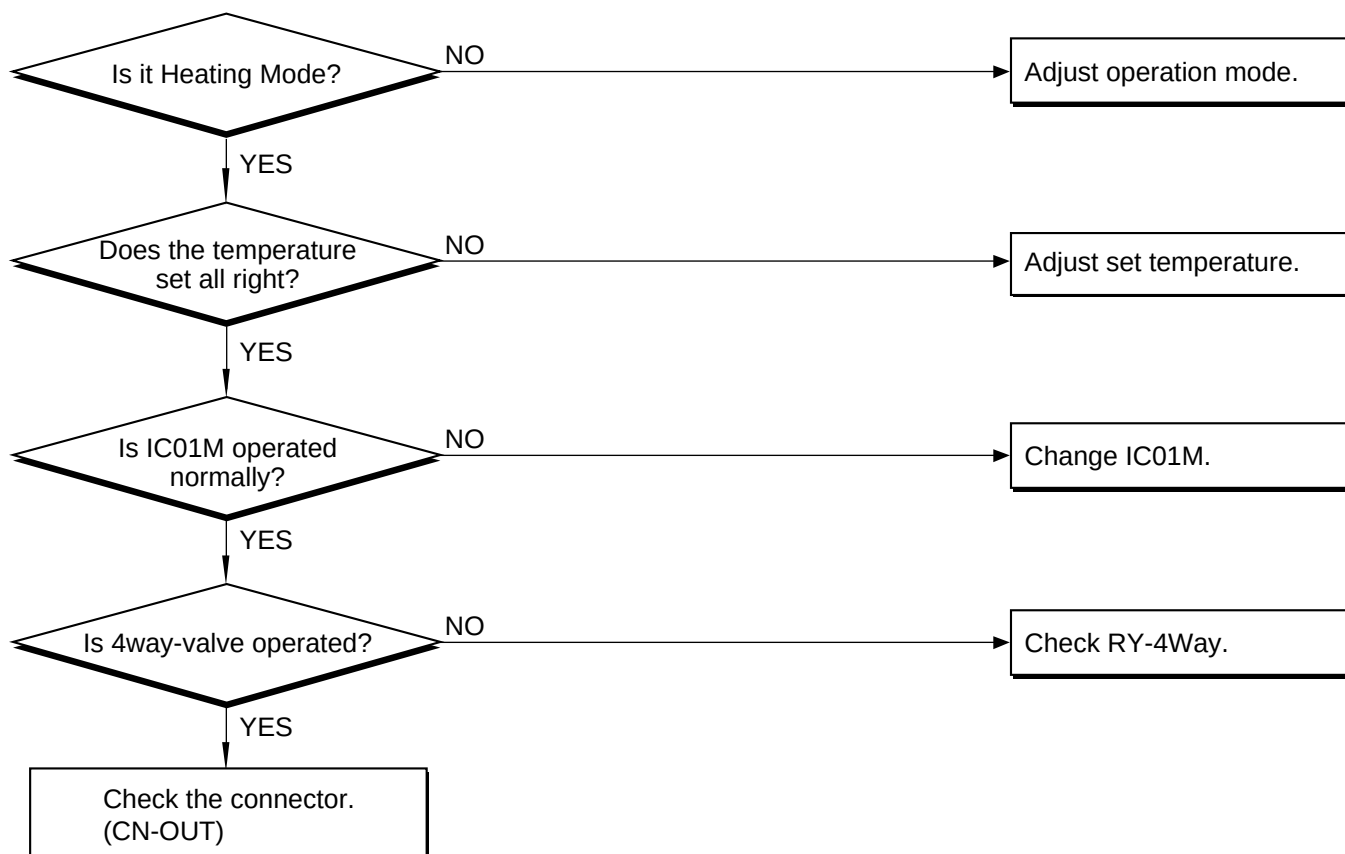


Possible Trouble 2

: The indoor fan does not operate.

**Possible Trouble 3**

: Ineffective Heating

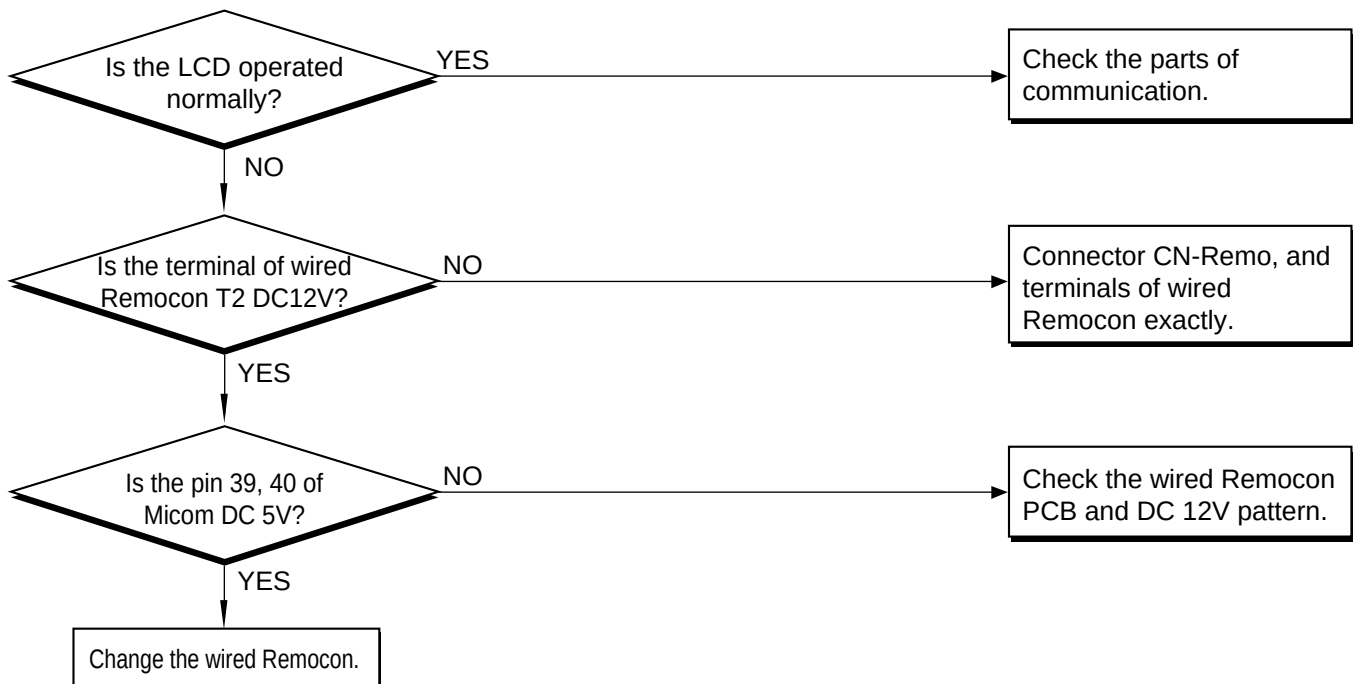


Possible Trouble 4

: Auto Air direction louver does not operate.

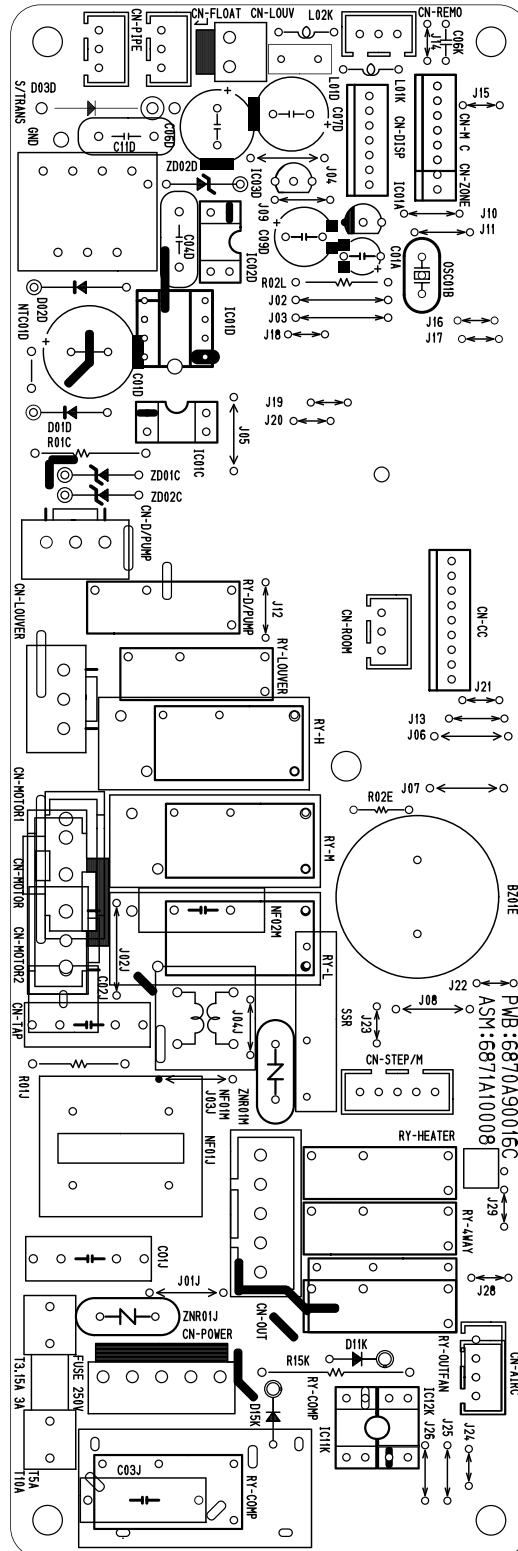
**Possible Trouble 5**

: Wired remote controller does not operate.

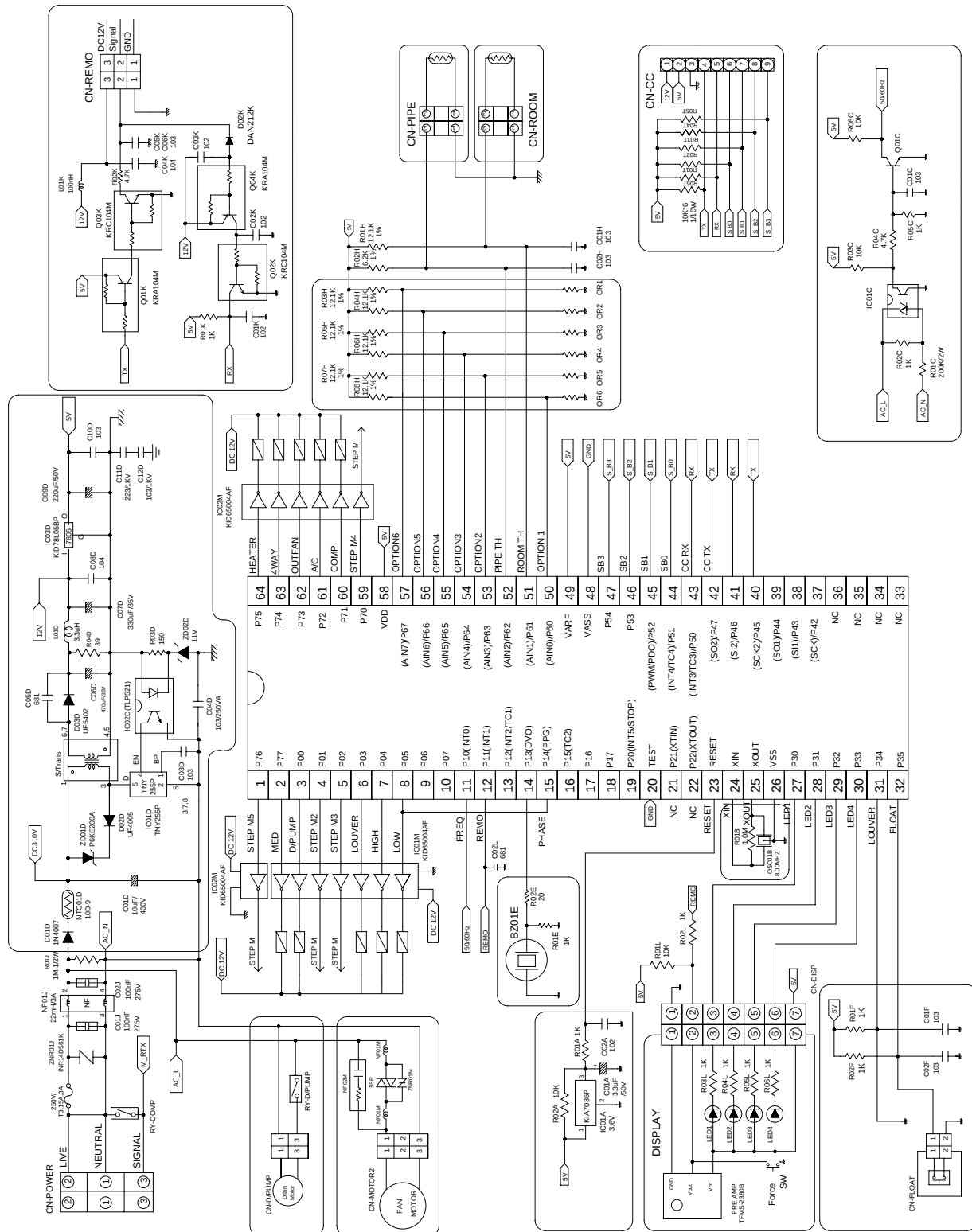


Electronic Control Device

■ MAIN P.C.B ASM

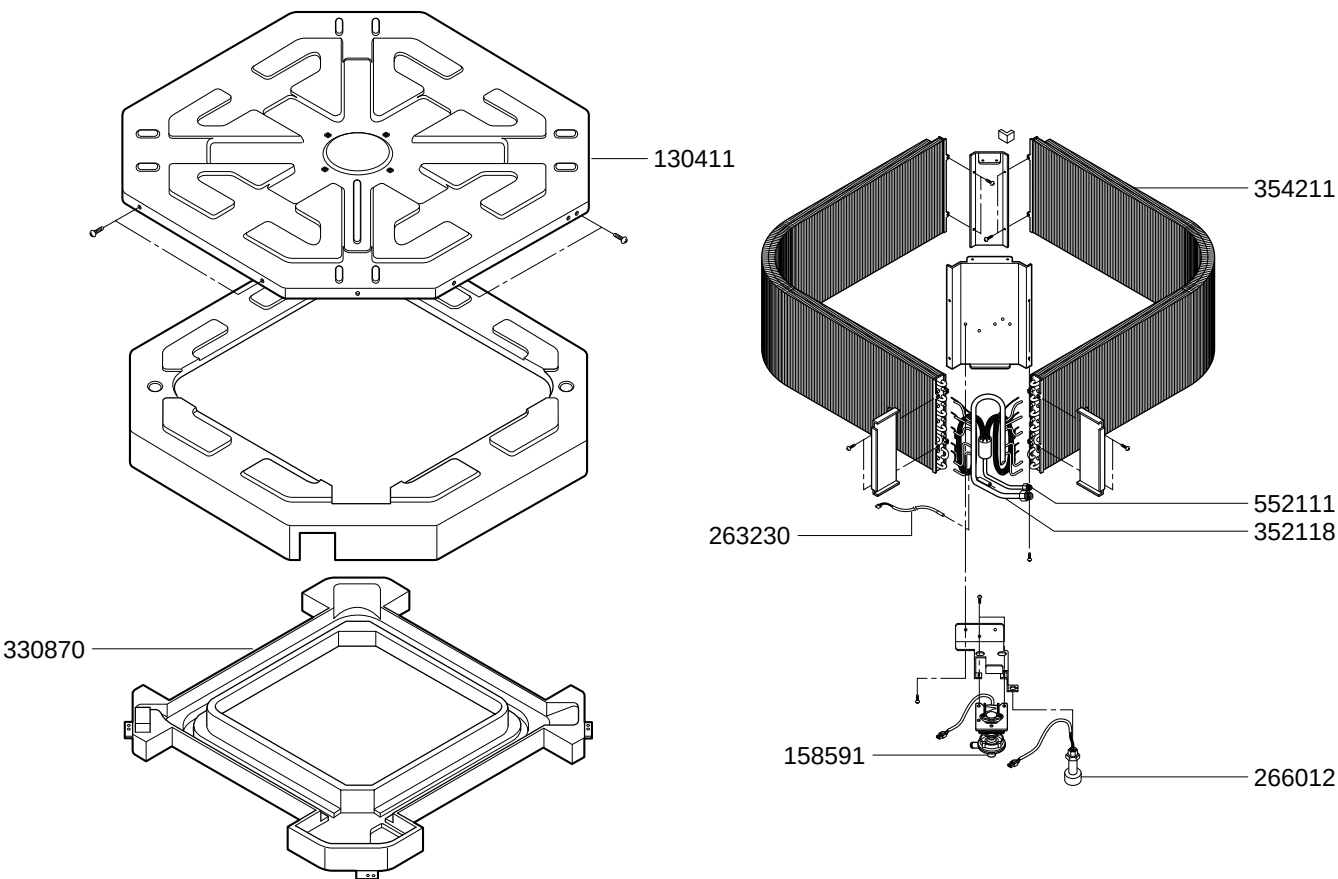
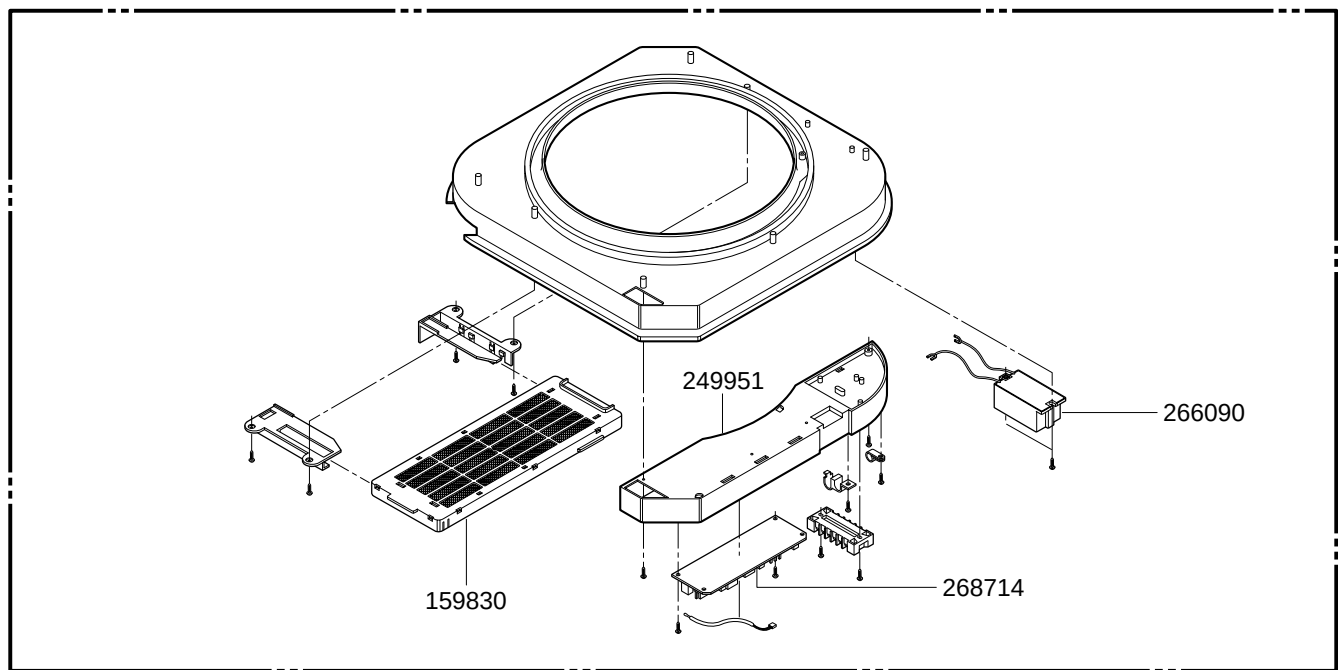


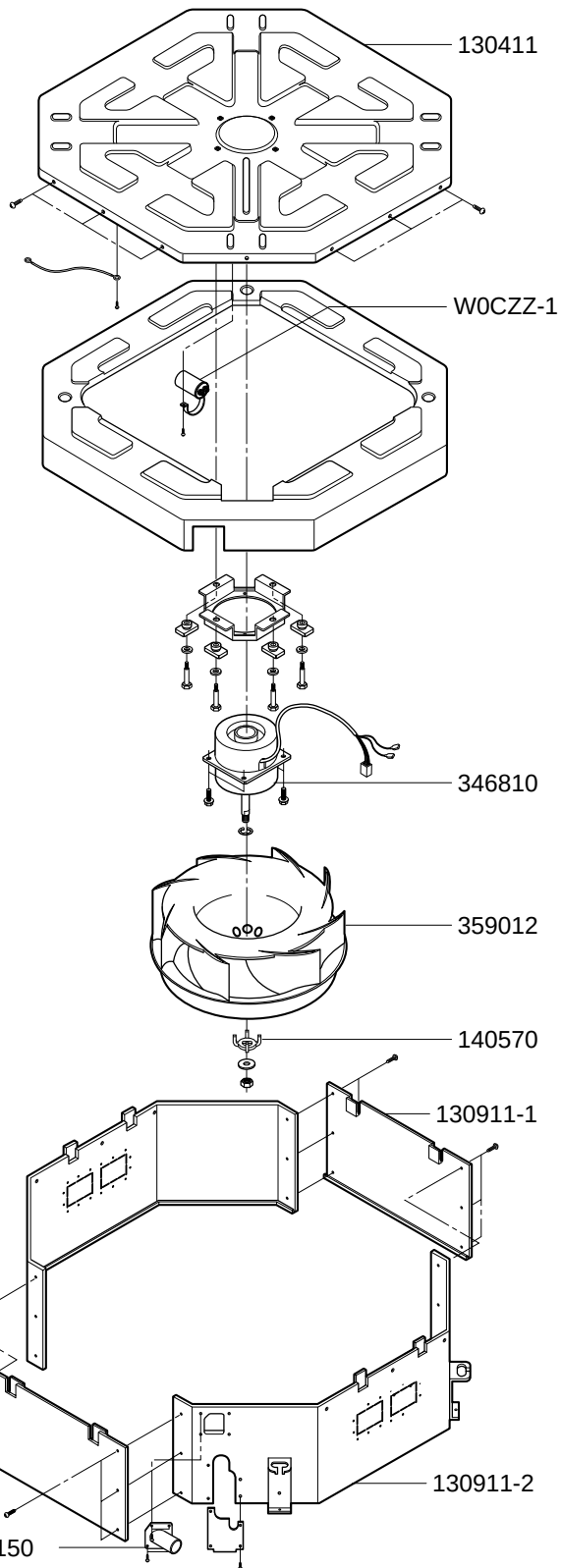
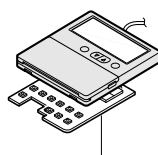
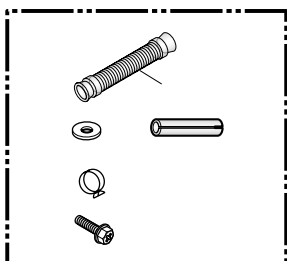
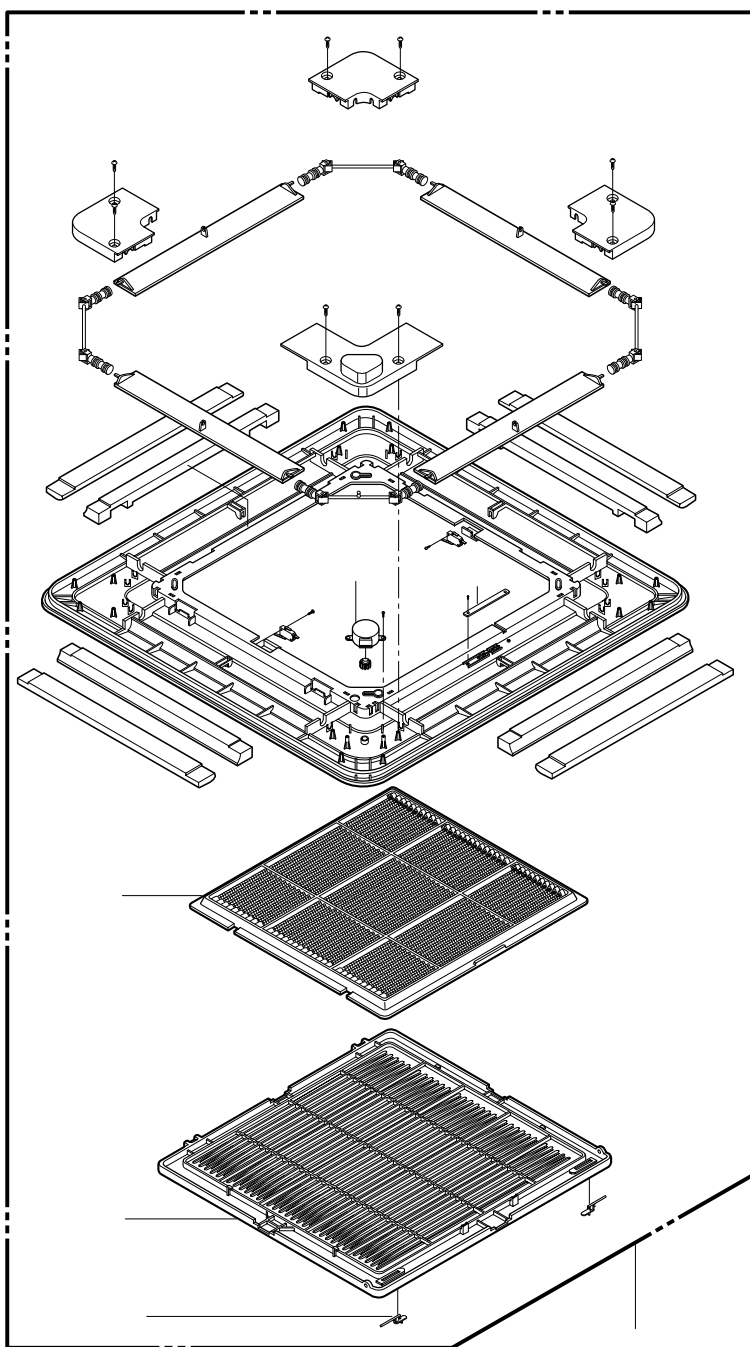
Schematic Diagram



Exploded View and Replacement Parts List

1. Indoor Unit





This exploded view diagram illustrates the assembly of a ceiling-mounted air conditioning unit. The components are arranged in a vertical sequence from top to bottom, corresponding to the assembly steps:

- 137211**: A mounting bracket or support arm at the top left.
- 249951**: A central square component, likely a diffuser or a mounting plate, positioned in the middle.
- 268712**: A rectangular frame or housing component below the central square.
- 146811**: A rectangular panel or cover that fits into the frame.
- 152312**: A rectangular panel with a grid pattern, likely a filter or a diffuser, positioned below the main frame.
- 146811**: A second rectangular panel or cover, identical to the one above, positioned below the grid panel.
- 137211**: A second mounting bracket or support arm at the bottom right.

The diagram uses leader lines to connect the part numbers to their respective components. The components are shown in a disassembled state to illustrate their relative positions and how they fit together.

• Parts List(Indoor Unit)

Model: LT-D5480HA, LT-D5480HL, LT-H548DLE0, LT-D5480CA, LT-D5480CL

LOCATION NO.	DESCRIPTION	PART NO.					REMARK
		LT-D5480HA	LT-D5480HL	LT-H548DLE0	LT-D5480CA	LT-D5480CL	
354211	EVAPORATOR ASSY	5421A10017E	5421A10017E	5421A10017E	5421A10017E	5421A10017E	R
552111	TUBE ASSY, CAPILLARY	5211A20316B	5211A20316B	5211A20316B	5211A20316B	5211A20316B	R
352118	TUBE ASSY, MANIFOLD	5211A20251A/B	5211A20251A/B	5211A20251A/B	5211A20251A/B	5211A20251A/B	R
158591	PUMP, WATER	5858A10001G	5858A10001G	5859A20001D	5858A10001G	5858A10001G	R
266012	SWITCH ASSY, FLOAT	6601A20001F	6601A20001F	6601A20001F	6601A20001F	6601A20001F	R
330870	DRAIN PAN ASSY	3087A10006A	3087A10006A	3087A10006A	3087A10006A	3087A10006A	R
249951	CONTROL BOX ASSY	4995A10030M	4995A10030M	4995A22004S	4995A10030N	4995A10030N	R
268714	PWB(PCB) ASSY, MAIN	6871A10038Q	6871A10038Q	6871A10209C	6871A10038R	6871A10038R	R
130411	BASE ASSY, WELD INDOOR	3041A10016A	3041A10016A	3041A10016A	3041A10016A	3041A10016A	R
346810	MOTOR ASSY, INDOOR	4681A20006M	4681A20006M	4681A20006M	4681A20006M	4681A20006M	R
359012	FAN, TURBO	5900A10003B	5900A10003B	5900A10003B	5900A10003B	5900A10003B	R
140570	LOCKER	4056A20001B	4056A20001B	4056A20001B	4056A20001B	4056A20001B	R
130911-1	CABINET ASSY, INDOOR	3091A10031A/B	3091A10031A/B	3091A10030A	3091A10031A/B	3091A10031A/B	R
130911-2	CABINET ASSY, INDOOR	3091A10030A/B	3091A10030A/B	3091A10030B	3091A10030A/B	3091A10030A/B	R
352150-2	DRAIN ASSY, TUBE	5251A20002B	5251A20002B	5251A20002B	5251A20002B	5251A20002B	R
135312-1	PANEL ASSY, FRONT(INDOOR)	3721A10025C	3721A10025A	3721A10107A	3721A20025R	3721A10025B	R
135313	GRILLE INLET	3530A10062A	3530A10062A	3530A10062A	3530A10062A	3530A10062A	R
146811	MOTOR ASSY, STEP	4681A20055A	4681A20055A	4681A20055A	4681A20055A	4681A20055A	R
268712	PWB(PCB) ASSY, DISPLAY	6871A20096C	6871A20096C	6871A20096J	6871A20096C	6871A20096C	R
152312	FILTER ASSY	5231A10004A	5231A10004A	5231A10004A	5231A10004A	5231A10004A	R
135802	DOOR LOCK	3580A20005A	3580A20005A	3580A20005A	3580A20005A	3580A20005A	R
267110-1	WIRELESS REMOTE CONTROLLER	6711A20039K	-	6727A90001A	6711A20039J	6711A20039G	R
267110-2	REMOTE CONTROLLER	6711A10002B	6711A10002A	6727A90001A	6711A10002Q	6711A10002P	R
266090	H.V ASSY	6609A20005H	-	-	6609A20005D	-	R
159830	AIR CLEANER ASSY	5983A10003D	-	-	5983A10003D	-	R
263230	THERMISTOR ASSY	6323AQ3226F	6323AQ3226F	6323AQ3123E	6323AQ3226F	6323AQ3226F	R
W0CZZ	CAPACITOR	2A00986D	2A00986D	2A00986D	2A00986D	2A00986D	R
352150-1	DRAIN TUBE ASSY	5251AP2984A	5251AP2984A	5251AP2984A	5251AP2984A	5251A20002B	R

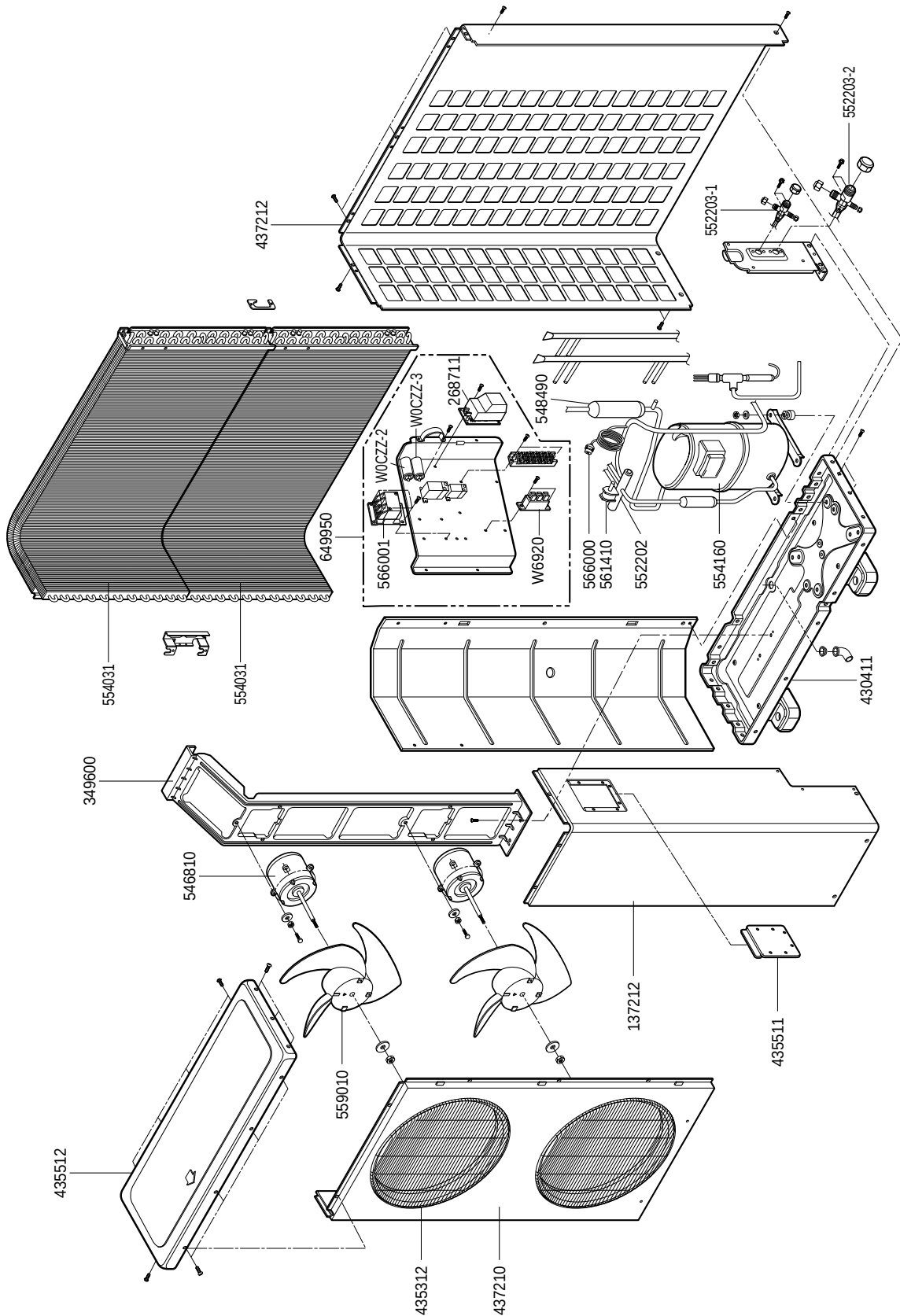
- If it is installed Auto Elevation Grille to panel ASSY Front, refer to the next page.

• **Elevation Grille_Accessory**

LOCATION No.	DESCRIPTION	Part No.			SVC CODE
		LT-H***ELE0	LT-H***FLE0	LT-H***DLE0	
137211	PANEL ASSEMBLY,FRONT(INDOOR)	3721A10105E	3721A10072K	3721A10106J	R
146811	MOTOR ASSEMBLY, STEP	4681A20055A	4681A20055A	4681A20055A	R
435310	GRILLE ASSEMBLY, INLET	3531A10350A	3531A10211A	3531A10066M	R
152312	FILTER ASSEMBLY, AIR CLEANER	5231A10005A	5231A10012A	5231A10004A	R
W4811-1	BRACKET ASSEMBLY	4811A20073A	4811A20072A	4811A20068A	R
W4811-2	BRACKET ASSEMBLY	4811A20073B	4811A20072B	-	R
266011-2	SWITCH ASSEMBLY, MICRO	6601A20002D	6601A20002D	6601A20002C	R
266011-2	SWITCH ASSEMBLY, MICRO	6601A20002E	6601A20002E	-	R
146812-1	MOTOR ASSEMBLY, SYNC.	4681AP2596J	4681AP2596J	4681AP2596H	R
146812-2	MOTOR ASSEMBLY, SYNC.	4681AP2596M	4681AP2596M	-	R
750830	ROPE ASSEMBLY	5083A20002A	5083A20002A	5083A20002A	R
249951	CONTROL BOX ASSEMBLY, INDOOR	4995A20450B	4995A20450A	4995A20450A	R
668713	PWB(PCB) ASSEMBLY, SUB	6871A20362A	6871A20362A	6871A20362A	R
268712	PWB(PCB) ASSEMBLY, DISPLAY	6871A20096K	6871A20096K	6871A20096K	R
267110	REMOTE CONTROLLER ASSEMBLY	6711A90094A	6711A90094A	6711A90094A	R

2. Outdoor Unit

Model: LT-D5480HA, LT-D5480HL, LT-H548DLE0, LT-D5480CA, LT-D5480CL



• **Parts List(Outdoor Unit)**

Model: LT-D5480HA, LT-D5480HL, LT-H548DLE0, LT-D5480CA, LT-D5480CL

LOCATION NO.	DESCRIPTION	PART NO.					REMARK
		LT-D5480HA	LT-D5480HL	LT-H548DLE0	LT-D5480CA	LT-D5480CL	
435312	GRILLE ASSY, DISCHARGE(OUTDOOR)	3530AP1225D	3530AP1225D	3530AP1225D	3530AP1225D	3530AP1225D	R
430411	BASE ASSY, WELD(OUTDOOR)	3041A20047B	3041AP2569B	3041A20047B	3041A20047B	3041A10016A	R
435511	COVER ASSY, CONTROL(OUTDOOR)	3A01293X	3A01293X	2H00644A	3A01293X	3A01293X	R
435512	COVER ASSY, TOP(OUTDOOR)	3550AP1213B	3550AP1213B	3550AP1213B	3550AP1213B	3550AP1213B	R
437210	PANEL ASSY, FRONT(OUTDOOR)	3720AP1212B	3720AP1212B	3720AP1212B	3720AP1212B	3720AP1212B	R
437212	PANEL ASSY, REAR	3720AP1202C	3720AP1202C	3720AP1202C	3720AP1202C	3720AP1202C	R
546810	MOTOR ASSY, OUTDOOR	4681A20008P	4681A20008P	4681A20008P	4681A20008P	4681A20008P	R
552202	REVERSING VALVE	3A02080A	3A02080A	3A02080A	-	-	R
552203-1	VALVE, SERVICE	2H01890G	2H01890G	2H01890G	2H01890G	2H01890G	R
552203-2	VALVE, SERVICE	2A00499A	2A00499A	2A00499A	2A00499A	2A00499A	R
554031	CONDENSER ASSY, BENDING	5403AP2378D/F	5403AP2378E/F	5403A20079F	5403A20003M/P	5403A20003M/P	R
554160	COMPRESSOR	5417A20008G	5417A20008G	5417A20008G	5417A20008G	5417A20008G	R
559010	FAN ASSY, PROPELLER	1A00195B	1A00195B	1A00195B	1A00195B	1A00195B	R
561410	COIL ASSY, REVERSING VALVE	3A02028B	3A02028B	3A02028B	-	-	R
649950	CONTROL BOX ASSY, OUTDOOR	6615AP2772Y	6615AP2772Y	6615AP2772Y	6615AP2772Z	6615AP2772Z	R
W6920	RELAY	3A00261C	3A00261C	3A00261C	6020WRD008A	6020WRD008A	R
W0CZZ	CAPACITOR, DRAWING	2A00986D	2A00986D	2A00986D	2A00986D	2A00986D	R
548490	ACCUMULATOR ASSY	4849A20001K	4849A20001K	4849A20001K	4849A20001K	4849A20001K	R
268711	PWB ASSY, DEICE	6871A20015N	6871A20015K	6871A20015N	-	-	R
566000	PRESSURE SWITCH	3A01100A	3A01100A	3A01100A	-	-	R
566001	MAGNET SWITCH	2A01031A	2A01031K	2A01031K	2A01031K	2A01031K	R
137212	PANEL, SIDE	3720AP1215A	3720AP1215A	3720AP1215A	3720AP1215A	3720AP1215A	R

