538T / 619P / 619R
Multi-zone Ductless Split System
Sizes 18 to 48

bryant®
Heating & Cooling Systems

Installation Instructions



Puron
the environmentally sound refrigerant

NOTE: Read the entire instruction manual before starting the installation.

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher nearby when brazing. Use care in handling, rigging, and setting bulky equipment.

Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes and National Electrical Code (NEC) for special requirements. Recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.

⚠ WARNING



EXPLOSION HAZARD

Failure to follow this warning could result in death, serious personal injury, and/or property damage.

Never use air or gases containing oxygen for leak testing or operating refrigerant compressors. Pressurized mixtures of air or gases containing oxygen can lead to an explosion.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Do not bury more than 36 in. (914 mm) of refrigerant pipe in the ground. If any section of pipe is buried, there must be a 6 in. (152 mm) vertical rise to the valve connections on the outdoor units. If more than the recommended length is buried, refrigerant may migrate to the cooler buried section during extended periods of system shutdown. This causes refrigerant slugging and could possibly damage the compressor at start-up.

SYSTEM REQUIREMENTS

Allow sufficient space for airflow and servicing unit.

Recommended Connection Method for Power and Communication Wiring (To minimize communication wiring interference)

Power Wiring:

The main power is supplied to the outdoor unit. The field supplied connecting cable from the outdoor unit to indoor unit consists of three (3) wires and provides the power for the indoor unit. Two wires are high voltage AC power and one is a ground wire.

Consult your local building codes and the NEC (National Electrical Code) or CEC (Canadian Electrical Code) for special requirements.

All wires must be sized per NEC or CEC and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOCP (maximum over current protection) to correctly size the wires and the disconnect fuse or breakers respectively.

Per caution note, only copper conductors with a minimum 300 volt rating and 2/64-inch thick insulation must be used.

Communication Wiring:

A separate shielded copper conductor only, with a minimum 300 volt rating and 2/64-inch thick insulation, must be used as the communication wire from the outdoor unit to the indoor unit.

To minimize voltage drop of the control wire, use the following wire size and maximum lengths shown in the chart below:

Wire Size	Length ft (m)
18 AWG	50 (15)
16 AWG	50 (15) to 100 (30)

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

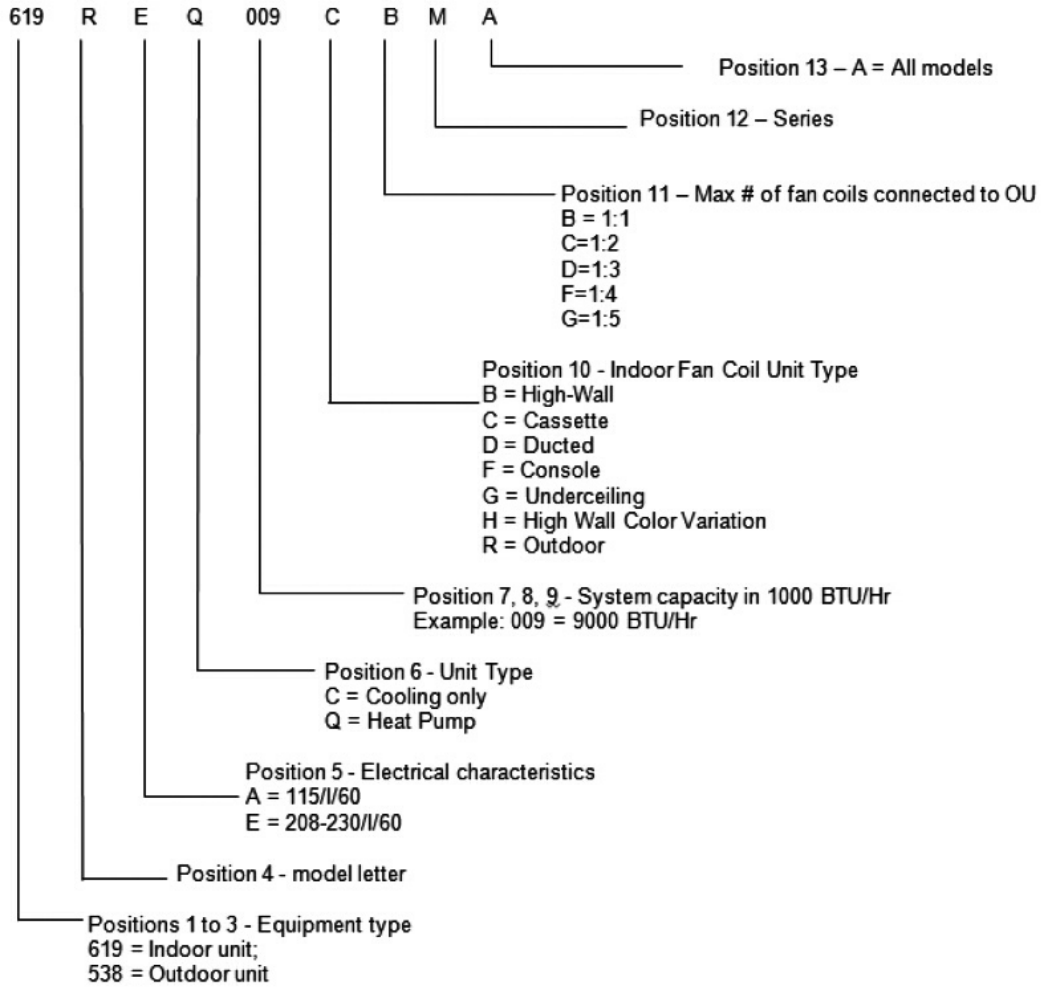
- Wires should be sized based on NEC and local codes.
- Use copper conductors only with a minimum 300 volt rating and 2/64 inch thick insulation.

- If used as MULTI unit, please refer to the Installation & operation manuals packed with outdoor unit.

Model Numbers

System Tons	System Btuh	Volt- Ph @ 60Hz	Outdoor Model Number
1.5	18,000	208/230-1	538TEQ018RCMA
2.25	27,000	208/230-1	538TEQ027RCMA
3	36,000	208/230-1	538TEQ036RCMA
4	48,000	208/230-1	538TEQ048RCMA

Model number Nomenclature



Read This Manual

Inside you will find many helpful hints on how to install and test the air conditioner properly.
All the illustrations and specifications in the manual are subject to change without prior notice for product improvement. The actual shape should prevail.

⚠ CAUTION

- Contact an authorised service technician for repair or maintenance of this unit.
- The appliance shall be installed in accordance with national wiring regulations.
- This appliance is not intended for use by persons(including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Young children should be supervised to ensure that they do not play with the air conditioner.
- Do not operate your air conditioner in a wet room such as a bathroom or laundry room.
- Installation work must be performed in accordance with the national wiring standards by authorised personnel only.

SAFETY PRECAUTIONS

- Read the follow SAFETY PRECAUTIONS carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- Incorrect installation due to ignoring of the instruction will cause harm or damage.

■ **The seriousness is classified by the following indications.**

⚠ **WARNING**	This symbol indicates the possibility of death or serious injury.
⚠ **CAUTION**	This symbol indicates the possibility of injury or damage to property.

■ **The items to be followed are classified by the symbols:**

⃠	Symbol with background white denotes item that is PROHIBITED from doing.

⚠ WARNING

1) Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock or fire.
2) Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock or fire.
3) Use the attached accessories parts and specified parts for installation. otherwise, it will cause the set to fall, water leakage, electrical shock or fire.
4) Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
5) For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock or fire.
6) Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
7) Wiring routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
8) When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury. ⃠
9) Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock. ⃠

⚠ CAUTION

1) This equipment must be earthed and installed with earth leakage current breaker. It may cause electrical shock if grounding is not perfect.
2) Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire. ⃠
3) Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.
4) The appliance shall be installed in accordance with national wiring regulations.
5) Do not operate your air conditioner in a wet room such as a bathroom or laundry room.
6) An all-pole disconnection device which has at least 0.12in(3mm) clearances in all poles , and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

1. Wall-mounted type

Selecting installation place

Read completely, then follow step by step.

Indoor unit

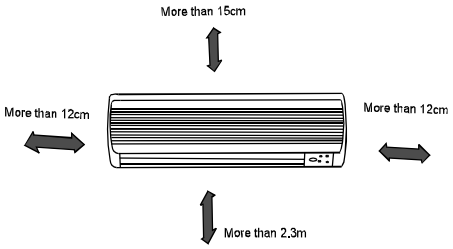


Fig.1

- Do not expose the indoor unit to heat or steam.
- Select a place where there are no obstacles in front or around the unit.
- Make sure that condensation drainage can be conveniently routed away.
- Do not install near a doorway.
- Ensure that the space on the left and right of the unit is more than 4.72in(12cm).
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.
- The indoor unit should be installed on the wall at a height of 7.55ft(2.3metres) or more from the floor.
- The indoor unit should be installed allowing a minimum clearance of 5.91in(15cm) from the ceiling.
- Any variations in pipe length will/may require adjustment to the refrigerant charge.
- There should not be any direct sunlight. Otherwise, the sun will fade the plastic cabinet and affect its appearance. If unavoidable, sunlight prevention should be taken into consideration.

Outdoor unit

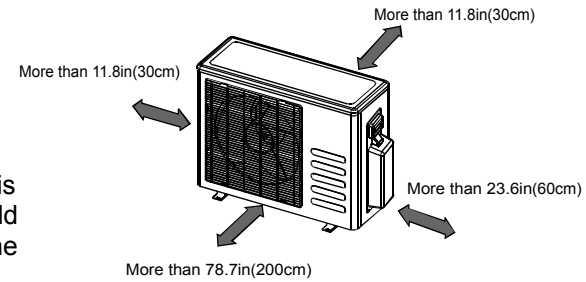


Fig.2

- If an awning is built over the outdoor unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Ensure that the clearance around the back of the unit is more than 11.8in(30cm) and left side is more than 11.8in(30cm). The front of the unit should have more than 78.7in(200cm) of clearance and the connection side (right side) should have more than 23.6in(60cm) of clearance.
- Do not place animals and plants in the path of the air inlet or outlet.
- Take the air conditioner weight into account and select a place where noise and vibration will not be an issue.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.

Rooftop installation:

- If the outdoor unit is installed on a roof structure, be sure to level the unit.
- Ensure the roof structure and anchoring method are adequate for the unit location.
- Consult local codes regarding rooftop mounting.
- If the outdoor unit is installed on roof structures or external walls, this may result in excessive noise and vibration, and may also be classed as a non serviceable installation.

INSTALLATION INSTRUCTIONS

Tools needed for installation:

Level gauge
Screwdriver
Electric drill,Hole core drill (Φ2.6in/65mm)
Flaring tool set
Specified torque wrenches: 13lbf.ft/1.8kgf.m, 30.4lbf.ft/4.2kgf.m
39.8lbf.ft/5.5kgf.m ,47.7lbf.ft/6.6kgf.m (different depending on model No.)
Spanner (half union)
Hexagonal wrench (0.16in/4mm)
Gas-leak detector

Vacuum pump
Gauge manifold
User's manual
Thermometer
Multimeter
Pipe cutter
Measuring tape

Accessories

<table>
<tr><th>Number</th><th colspan="4">Name of Accessories</th><th>Q' ty/one unit</th></tr>
<tr><td>1</td><td colspan="4">Installation Plate</td><td>1</td></tr>
<tr><td>2</td><td colspan="4">Plastic Expansion Sheath</td><td>5-8
(depending on models)</td></tr>
<tr><td>3</td><td colspan="4">Self-tapping Screw A ST3.9X25</td><td>5-8
(depending on models)</td></tr>
<tr><td rowspan="5">4</td><td rowspan="5">Connecting pipe Assembly</td><td rowspan="2">Liquid side</td><td>Φ 1/4(6.35)</td><td rowspan="5">Parts you must purchase
Consult the technician for the proper size.</td></tr>
<tr><td>Φ 3/8(9.52)</td></tr>
<tr><td rowspan="3">Gas side</td><td>Φ 3/8(9.52)</td></tr>
<tr><td>Φ 1/2(12.7)</td></tr>
<tr><td>Φ 5/8(15.9)</td></tr>
<tr><td>5</td><td colspan="4">Remote controller</td><td>1</td></tr>
<tr><td>6</td><td colspan="3">Self-tapping Screw B ST2.9X10</td><td rowspan="2">Optional parts</td><td>2</td></tr>
<tr><td>7</td><td colspan="3">Remote controller holder</td><td>1</td></tr>
<tr><td>8</td><td colspan="4">Seal (for cooling& heating models only)</td><td>1</td></tr>
<tr><td>9</td><td colspan="4">Drain Joint (for cooling& heating models only)</td><td>1</td></tr>
<tr><td rowspan="2">10</td><td colspan="4" rowspan="2">Transfer connector (packed with the indoor unit or outdoor unit, depending on models)
(<u>NOTE:</u> Pipe size differs from appliance to appliance. To meet different pipe size requirem ents, sometimes the pipe connections need the transfer connector to install on the outdoor unit .)</td><td>Optional part
(one piece/one indoor unit)</td></tr>
<tr><td>Optional part
(1-5 pieces for outdoor unit, depending on models)</td></tr>
<tr><td>11</td><td colspan="4">Magnetic ring
(Fasten it on the connective cable between the indoor units and outdoor unit after installation.)</td><td>Optional part
(one piece/one cable)</td></tr>
<tr><td>12</td><td colspan="4">Cord protection rubber ring
(If the cord clamp can not fasten the cord for the small size of the cord, please use the cord protection rubber ring (supplied with accessories) to wrap on the cord, then fix it with the cord clamp.)</td><td>1
(on some models)</td></tr>
</table>

Note: Except the above parts provided, the other parts needed for the installation must be purchased.

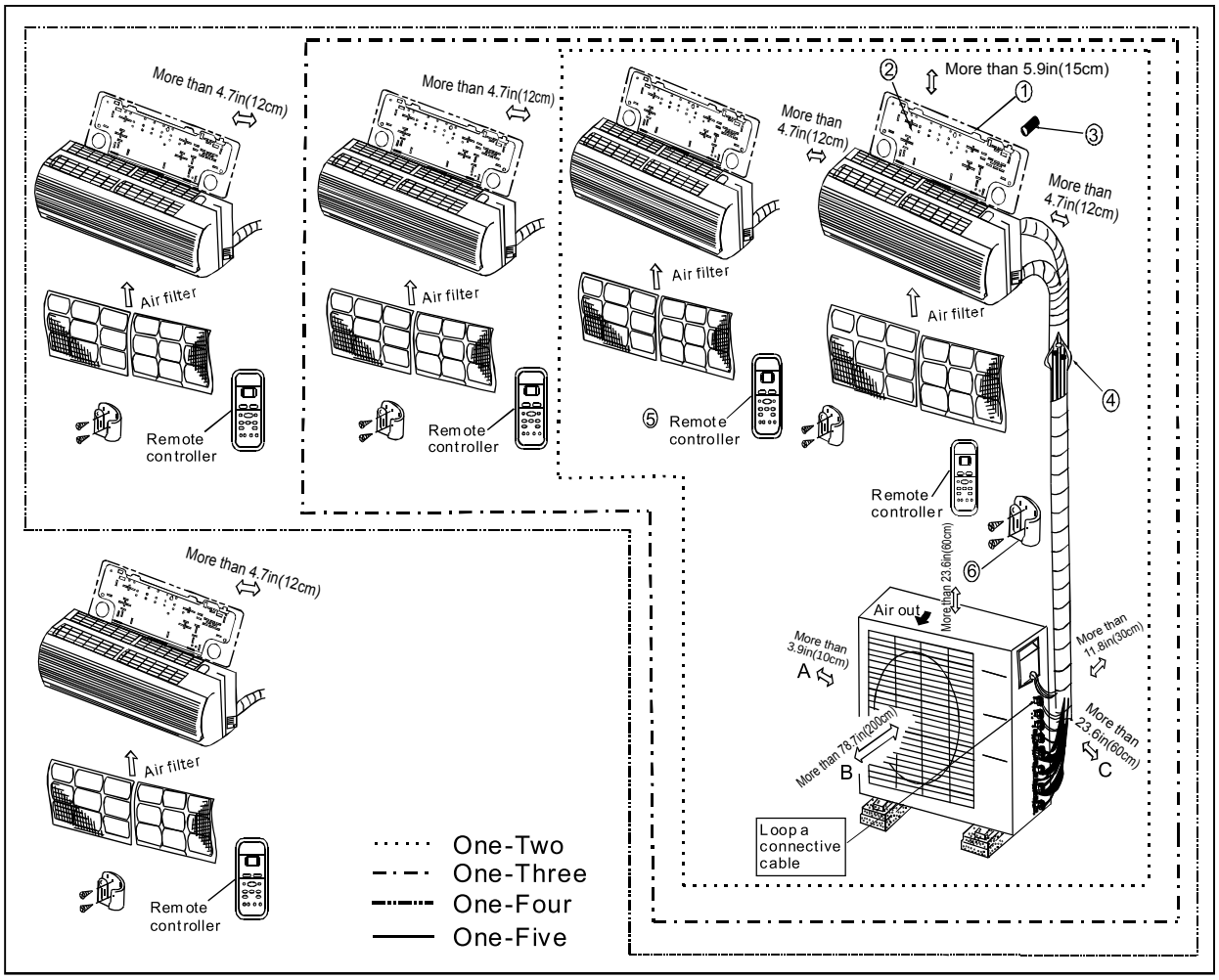


Fig.3

CAUTIONS

- This illustration is for illustration purposes only. The actual shape of your air condtioner may be slightly different.
- Copper lines must be insulated independently.

CAUTION

- Use a stud finder to locate studs to prevent unnecessary damage to the wall.
- A minimum pipe run of 9.84ft(3m) is required to minimize vibration and excessive noise.
- Two of the A, B and C directions should be free from obstructions.

INSTALLATION INSTRUCTIONS

Indoor unit installation(wall-mounted type)

1. Fit the Installation Plate

1. Fit the installation plate horizontally on structural parts of the wall with spaces around the installation plate.
2. If the wall is made of brick, concrete or a similar material , drill five or eight 5mm diameterholes in the wall.Insert clip anchor for the appropriate mounting screws.
3. Fit the installation plate on the wall with five or eight type “A” screws.

Note:

Fit the Installation Plate and drill holes in the wall according to the wall structure and indoor unit dimensions and the corresponding mounting points on the installation plate. The Installation Plate may be slightly different according to the different models of indoor units. See Fig.5 for example.

(Dimensions are in “in(mm)” unless otherwise stated.)

Indoor unitdimension in(mm)(WxH)	Mounting dimensions	
	L(Left)	R(Right)
32.9x11(835x280)	5.5(140)	4.3(110)
39x12.4(990x315)	10.2(260)	5.3(135)
46.7x13.5(1186x343)	10.8(275)	10.8(275)

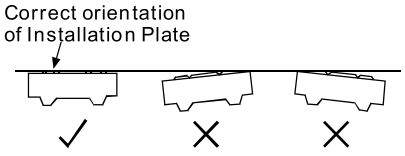
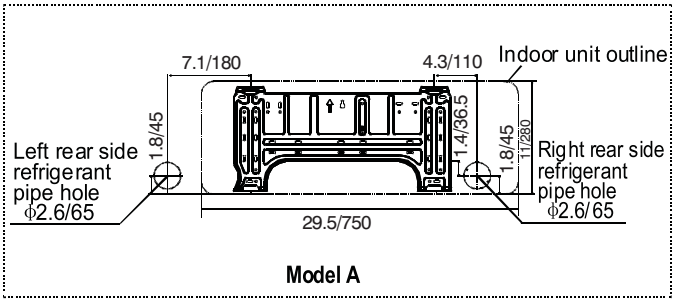
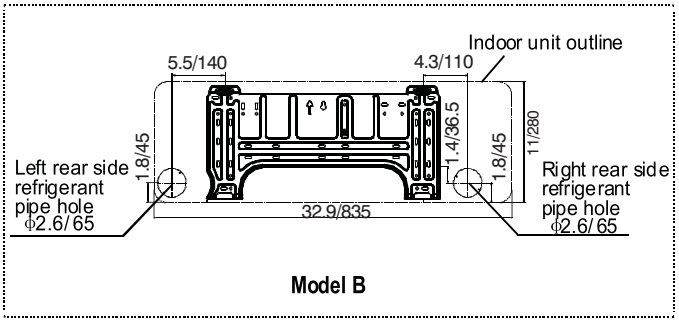
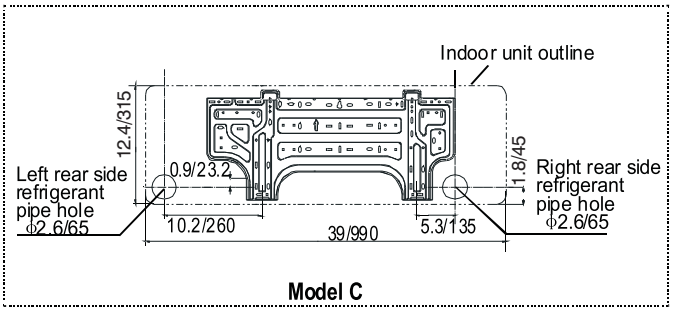


Fig.4







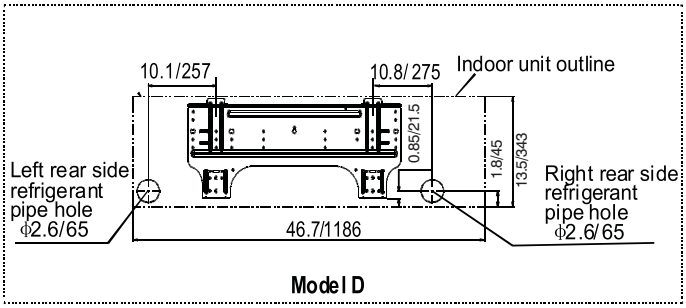


Fig.5

2. Drill a hole in the wall

1. Determine hole positions according to the diagram detailed in Fig.5. Drill one (1) hole (ϕ2.6in/65mm) slanting slightly tothe outdoor side.
2. Always use wall hole conduit when drilling a metal grid, metal plate or the like.

2.6in/65mm

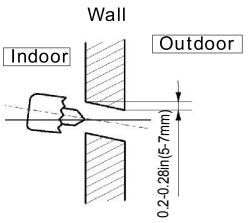


Fig.6

3. Connective Pipe and Drainage Installation

Drainage

1. Run the drain hose sloping downward. Do not install the drain hose as illustrated in Fig.7.
2. When connecting the extension drain hose, insulate the connecting part of the extension drain hose with a shield pipe, do not let the drain hose slack.

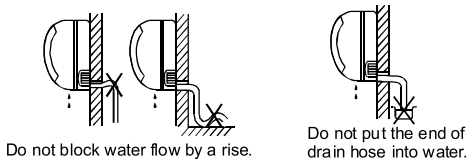


Fig.7

Connective pipe installation

1. For the left-hand and right-hand piping, remove the pipe cover from the side panel.
2. For the rear-right-hand and rear-left-hand piping, install the piping as shown in Fig.10.
3. Fix the end of the connective pipe. (Refer to the Tightening Connection in the REFRIGERANT PIPING CONNECTION).

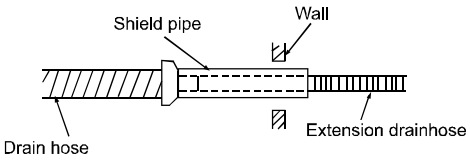


Fig.8

4. Piping and wrapping

Bundle the tubing, connecting cable, and drain hose with tape securely, evenly as shown in Fig.11.

- Because the condensed water from the rear of the indoor unit is gathered in a ponding box and is piped out of room. Do not put anything else in the box.

CAUTION

- Connect the indoor unit first, then the outdoor unit.
- Do not allow the piping to extend from the back of the indoor unit.
- Be careful not to let the drain hose slack.
- Heat both of the insulated auxiliary pipes.
- Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause the drain pan to overflow inside the unit.
- Never cross or twist the power wire with any other wiring.
- Run the drain hose sloped downward to evenly drain the condensed water.

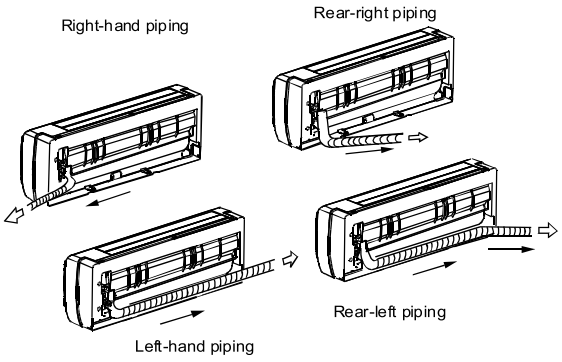


Fig.9

Fig.10

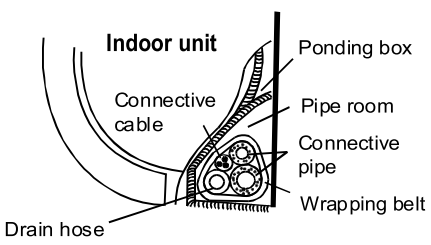


Fig.11

INSTALLATION INSTRUCTIONS

4. Indoor unit installation

1. Pass the piping through the hole in the wall.
2. Put the upper claw at the back of the indoor unit on the upper hook of the installation plate, move the indoor unit from side to side to see that it is securely hooked (see Fig.12).
3. Piping can easily be made by lifting the indoor unit with a cushioning material between the indoor unit and the wall. Get it out after the piping is complete.
4. Push the lower part of the indoor unit up on the wall, then move the indoor unit from side to side, up and down to ensure if it is fastened securely.

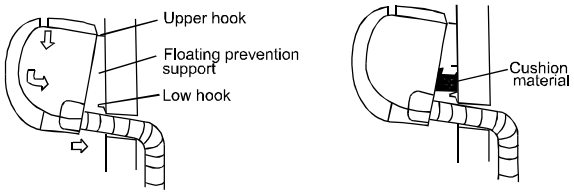


Fig.12

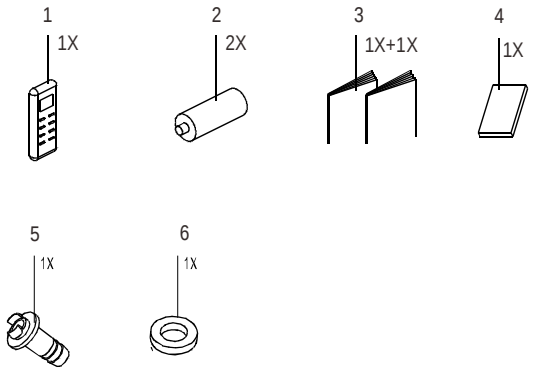
Indoor units that can be used in combination	Number of connected units	1-5units
Compressor stop/start frequency	Stop time	3 min or more
Power source voltage	Voltage fluctuation	within ±10% of rated voltage
	Voltage drop during start	within ±15% of rated voltage
	Interval unbalance	within ±3% of rated voltage

		1 drive 2	1 drive 3	1 drive 4	1 drive 5
Max. Length for all rooms		98.4ft(30m)	147.6ft(45m)	196.8ft(60m)	246.1ft(75m)
Max. Length for one indoor unit		65.6ft(20m)	82ft(25m)	98.4ft(30m)	98.4ft(30m)
Max. height different between indoor and outdoor unit	OU higher than IU	32.8ft(10m)	32.8ft(10m)	32.8ft(10m)	32.8ft(10m)
	OU lower than IU	49.2ft(15m)	49.2ft(15m)	49.2ft(15m)	49.2ft(15m)
Max. height difference between indoor units		32.8ft(10m)	32.8ft(10m)	32.8ft(10m)	32.8ft(10m)

2. Four-way cassette type

ACCESSORIES

Check if the following accessories are included with your unit.



1 Remote controller

2 Batteries

3 Installation and owner's manual

4 Anti-shock rubber (on some models)

5 Drain plug(only heat pump models)(with the outdoor unit)

6 Seal ring(only heat pump models)(with the outdoor unit)

Optional accessories

■ This indoor unit requires installation of an optional decoration panel.

2.1 Selecting installation site

When the conditions in the ceiling are exceeding 86°F /30°C and a relative humidity of 80%, or when fresh air is inducted into the ceiling, an additional insulation is required (minimum 0.4in/10 mm thickness, polyethylene foam).

1) Select an installation site where the following conditions are fulfilled and meets your customer's approval.

- Where optimum air distribution can be ensured.
- Where nothing blocks air flow.
- Where condensate water can be properly drained.
- Where the false ceiling is not noticeable on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where there is no risk of flammable gas leaking.
- The equipment is not intended for use in a potentially explosive atmosphere.
- Where piping between the indoor and outdoor units is possible within the allowable limit.(Refer to the installation manual of the outdoor unit.)
- Keep indoor unit,outdoor unit,inter unit wiring and remote controller wiring at least 3.28ft/1m away from televisions and radios.This is to prevent image interference and noise in those electrical appliances.(Noise may be generated depending on the conditions under which the electric wave is generated,even if 3.28ft/1m is kept.)
- When installing the wireless remote controller kit, the distance between wireless remote controller and indoor unit might be shorter if there are fluorescent lights are electrically started in the room.The indoor unit must be installed as far as possible away from fluorescent lights.

2) Ceiling height

Install this unit where the height of bottom panel is more than 8.2ft/2.5m so that the user cannot easily touch.

3) Use installation hooks for installation.Check whether the ceiling is strong enough to support the weight of the indoor unit.If there is a risk, reinforce the ceiling before installing the unit.

Space required for installation see the figure below (⇧ :air flow direction)

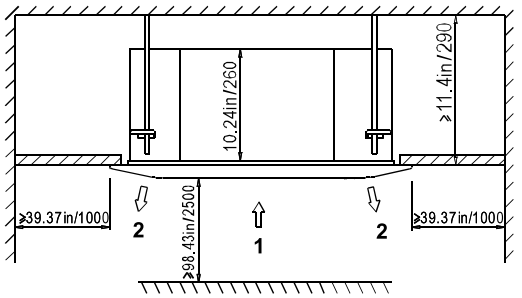
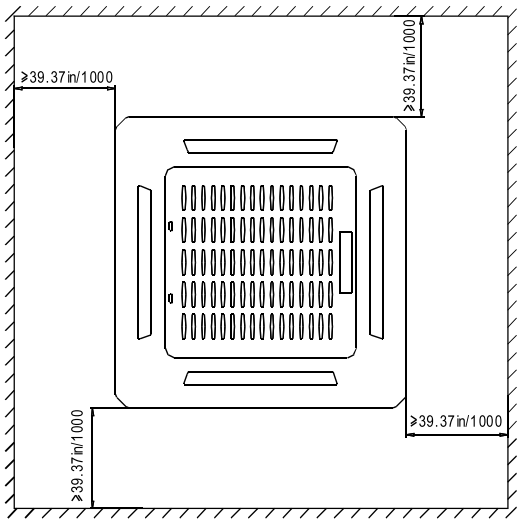


Fig.13



Unit: in/mm

1 Air inlet
2 Air outlet

Fig.14

2.2 Preparations before installation

1) Relation of ceiling opening to unit and installation hook position.

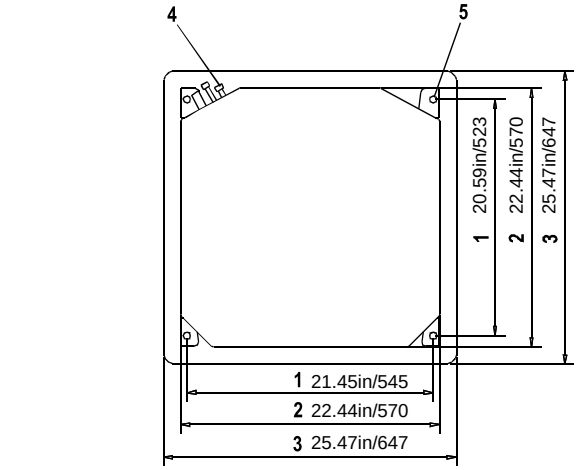
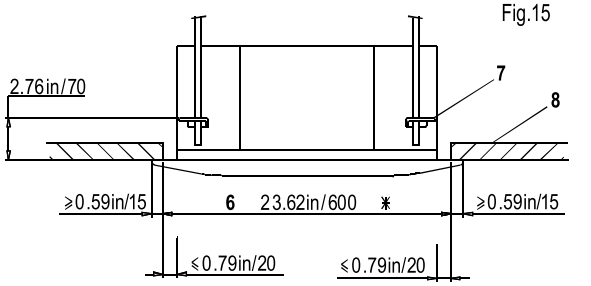


Fig.15



Unit: in/mm

Fig.16

1 Installation hook pitch dimensions
2 Indoor unit dimensions
3 Decoration panel dimensions
4 Refrigerant piping
5 Installation hook (×4)
6 Ceiling opening dimensions
7 Hanger bracket
8 False ceiling

■ **Adjust the position to ensure the gaps between the indoor unit and the four sides of false ceiling are even. The indoor unit's lower part should sink into the false ceiling for 0.95in/24mm.**

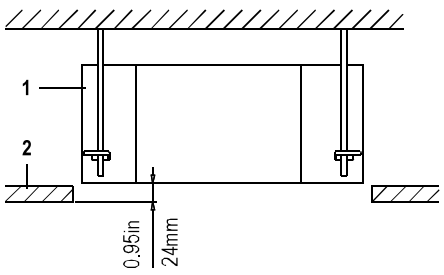


Fig.17

1 Indoor unit
2 False ceiling

NOTE: Installation is possible with a ceiling dimension of 23.62in/600mm (marked with *) . However, to achieve a ceiling-panel overlapping dimension of 0.59in /15 mm, the spacing between the ceiling and the unit should be 0.79in / 20 mm or less.If the spacing between the ceiling and the unit is over 0.79in / 20 mm, attach sealing material in the part or recover the ceiling.

2) Establish a ceiling opening needed for installation where applicable. (For existing ceilings.)

- Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type). Refer to each piping or wiring section.
- After creating an opening in the ceiling, it may be necessary to reinforce the ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.

3) Install the installation hooks. (Use either a M8 or M10 size bolt.)

Use expansible hooks, sunken anchors or other field supplied parts to reinforce the ceiling in order to bear the weight of the unit. Adjust the clearance from the ceiling before proceeding further. Installation example see figure below.

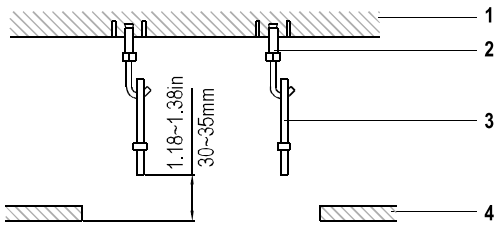


Fig.18

1 Ceiling slab
2 Expansible hook (optional)
3 Installation hook (optional)
4 False ceiling

NOTE ■ For installations other than the standard installation, contact your dealer for details.

2.3 Indoor unit installation

When installing optional accessories, read also the installation manual of the optional accessories. Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed (except for the decoration panel).However, for existing ceiling, install fresh air inlet component kit and branch duct before installing the unit.

1) Install the indoor unit temporarily.

- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using a nut and washer from the upper and lower sides of the hanger bracket.
- Securing the hanger bracket see figure below.

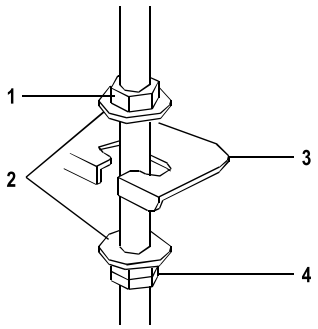
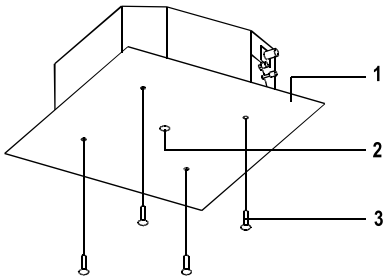


Fig.19

1 Nut (field supply)
2 Washer (field supply)
3 Hanger bracket
4 Double nuts (field supply, tighten)

2) Fix the paper pattern for installation. (For new ceilings only)

- The paper pattern for installation corresponds with the measurements of the ceiling opening. Consult the builder for details.
- The center of the ceiling opening is indicated on the paper pattern for installation.
- After removing the packaging material from the paper patten for installation, attach the paper pattern for installation to the unit with the attached screws as shown in the figure below.



1 Paper pattern for installation (on some models)
2 Center of the ceiling opening
3 Screws (supplied with the decoration panel)

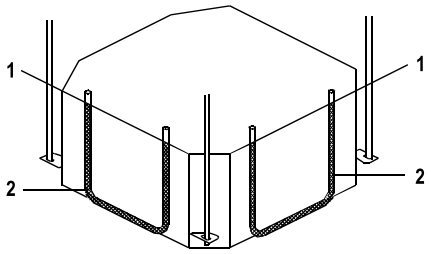
Fig.20

3) Adjust the unit to the right position for installation.

(Refer to the chapter "Preparations before installation" on page 10.)

4) Check if the unit is horizontally leveled.

- Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch. (If the unit is tilted against the direction of the condensate flow (the drain piping side is raised), the float switch may malfunction and cause water to drip.)
- Check if the unit is leveled at all four corners with a water level or a water-filled vinyl tube as shown in the figure below.



1 Water level
2 Vinyl tube

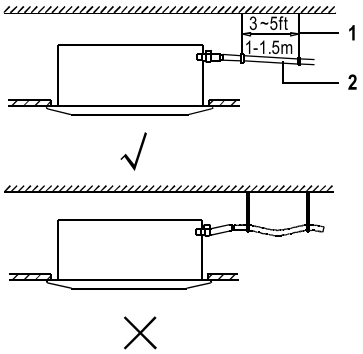
Fig.21

5) Remove the paper pattern for installation. (For new ceiling only).

2.4 DRAIN PIPING WORK

Installation of drain piping

Install the drain piping as shown in the figure below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.

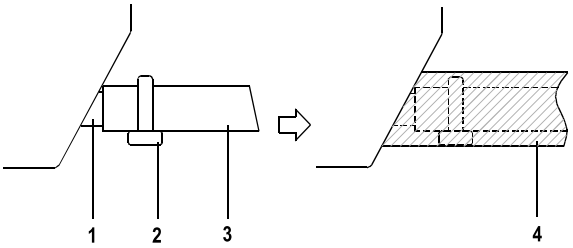


1 Hanging bar
2 ⩾1/100 gradient

Fig.22

■ **Install the drain pipes.**

- Keep piping as short as possible and slope it downwards at a gradient of at least 1/100 so that air may not remain trapped inside the pipe.
- Keep pipe size equal to or greater than that of the connecting pipe (PVC pipe, nominal diameter 0.79in/20mm in, outside diameter 0.98in/25mm).
- Push the drain hose as far as possible over the drain socket, and tighten the metal clamp securely.

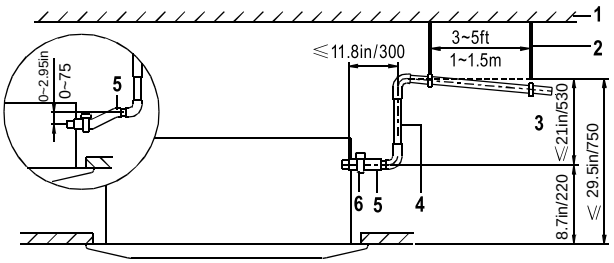


1 Drain socket (attached to the unit)
2 metal clamp
3 Drain hose
4 Insulation (field supply)

Fig.23

- Insulate the drain hose inside the building.
- If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supply).
- Make sure that heat insulation work is executed on the following 2 spots to prevent any possible water leakage due to dew condensation.
  1 Indoor drain pipe.
  2 Drain socket.

■ How to perform piping



Unit: in/mm

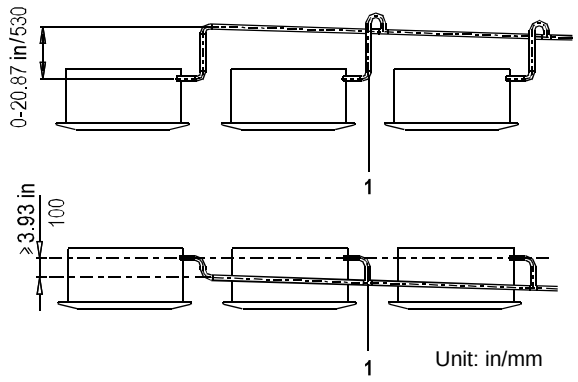
1 Ceiling slab
2 Hanger bracket
3 Adjustable range
4 Drain raising pipe
5 Drain hose
6 Metal clamp

Fig.24

- Connect the drain hose to the drain raising pipes, and insulate them.
- Connect the drain hose to the drain outlet on the indoor unit, and tighten it with the clamp.

Precautions

- Install the drain raising pipes at a height of less than 20.87in/530 mm.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 11.8in/300 mm from the unit.
- To prevent air bubbles, install the drain hose level or slightly tilted up (<2.95in/75 mm).
- The incline of the drain hose should be 2.95in/75mm or less so that the drain socket does not have to withstand additional force.
- To ensure a downward slope of 1:100, install hanging bars every 3.28ft/1m to 4.92ft/1.5 m.
- When unifying multiple drain pipes, install the pipes as shown in the figure below. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.



Unit: in/mm

Fig.25

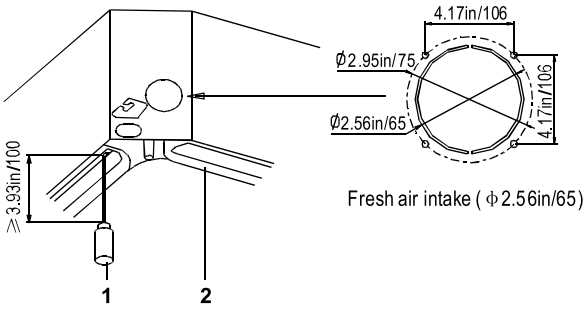
1 T-joint converging drain pipes

- Drain piping connections
  Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.
- Keep in mind that if water collects in the drain pipe, the pipe may become blocked.

■ Testing of drain piping

After the piping work is finished, check if drainage flows smoothy.

1 Add approximately 1L of water gradually through the air discharge outlet.
Method of adding water (see the figure below)



Unit: in/mm

Fig.26

1 Plastic watering can(tube should be about 3.93in/100 mm long)
2 Water-receiver

2 When the electric wiring work is finished, check the drainage flow during the COOL operation.

2.5 INSTALLATION OF THE DECORATION PANEL

■ Detach the intake grille.

- Slide the 2 grille hooks toward the middle of the decoration panel.

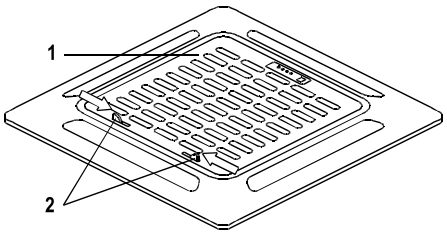


Fig.27

1 Intake grille
2 Grille hook

- Open the intake grille and remove.

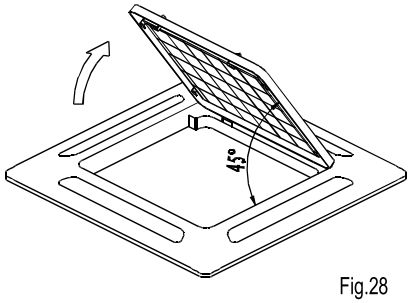


Fig.28

■ **Install the decoration panel**

- Attach the decoration panel to the unit with the supplied screws as shown in the figure below.

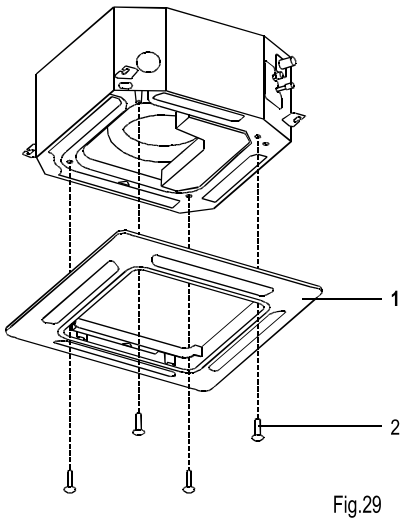


Fig.29

1 Decoration panel
2 Screws (M5)(supplied with the panel)

- After installing the decoration panel, ensure that there is no space between the unit body and decoration panel.
  Otherwise air may leak through the gap and cause dewdrop.

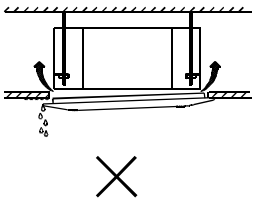


Fig.30

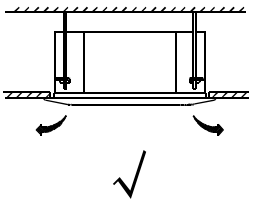


Fig.31

■ **Mount the intake grille.**
Ensure that the buckles at the back of the grille are properly seated in the groove of the panel.

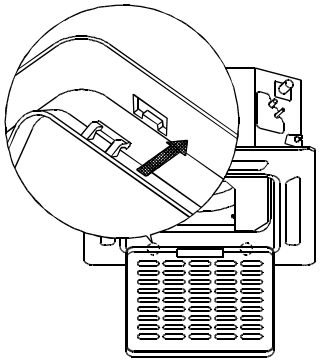


Fig.32

■ **Close the intake grille, and close the 2 grille hooks.**

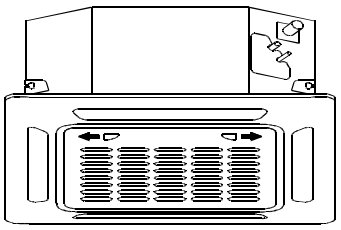


Fig.33

3. Ducted type

Installation precautions

1. Determine the moving route.
2. Move the unit in install the original state.
3. Make sure to install the electric insulation according to the relevant electric standard in case the unit is installed on metal part of building.
4. Please keep away from the following places, or amalfunction may occur. (if unavoidable, please consult a professional):

A. Near mineral oil like the oil for cutting machines.
B. Near an abundance of salty air. (near the coast)
C. Near caustic gases such as sulfuric gas. (Near a hotspring.)
D. In a factory where the voltage fluctuates greatly.
E. In a car or in a cabin.
F. In aS kitchen or a place full of oil steam.
G. Near a strong electromagnetic wave.
H. Near combustible gas or materials.
I . Near a evaporating acid or alkaline gas.
J . Other special areas.

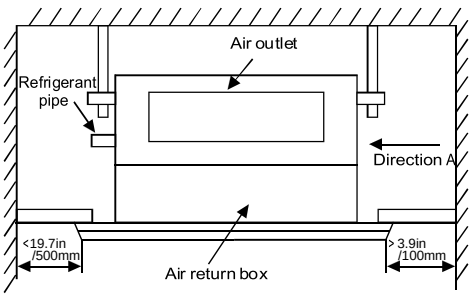
Accessories

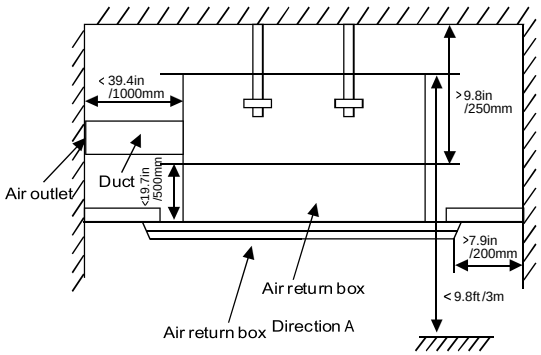
NO	Name	Qty.	Outline	Function
1	Insulation pipe	2		Pipe joint heat insulation
2	Remote controller	1		Remote control air conditioner
3	Big washer	8		Overhang indoor unit
4	Constriction bandage	10		Binding insulation pipe
5	Water outlet joint (for cool/heat type only)	1		Outdoor unit drainage
6	Gasket (for cool/heat type only)	1		Outdoor unit drainage
7	Copper nut	2		Connecting pipe
8	Drain hose	1		Indoor unit drainage
9	7# Alkaline battery	1		
10	Remote signal receiver subassembly	1		
11	Magnetic ring	1		

Indoor unit installation

❖ Installation location

- Enough room for installation and maintenance.





- The ceiling is horizontal and it can handle the weight of the indoor unit.
- The air inlet and outlet are not impeded and is not affected by outdoor air too much.
- The air flow can reach every part of the room.
- The connecting pipe and drainpipe can be easily extracted.
- There is no direct radiation from a heat source.

INSTALLATION INSTRUCTIONS

Installation of unit

Install φ0.4/10(4 pieces)hanging screw bolt

- Determine the location of hanging screw bolt following Fig.40.
- Make sure to use the hanging screw bolt of φ0.4/10.
- The treatment to the ceiling varies for each construction; please consult professionals for details.
  1) Treatment to ceiling---make sure to consolidate the roof beam for possible vibration to keep the ceiling horizontal.
  2) Please cut off the roof beam.
  3) Reinforce the area that is cut off and consolidate the roof beam.
- Perform the connection of piping and wiring inside the ceiling.
- Determine the piping direction. Especially in the case of existing ceiling, please pull the wire to the connection place before overhanging the unit.

Install the hanging bolt in the following different situations:

Wooden structure

Put a timber across the beams and install the bolts.

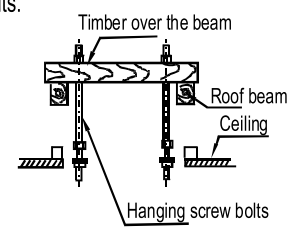


Fig.34

Original concrete bricks

Install the hanging hook with an expansible bolt into the concrete.

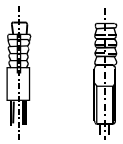


Fig.35

New concrete bricks

Install with an insertion or embedding screw.

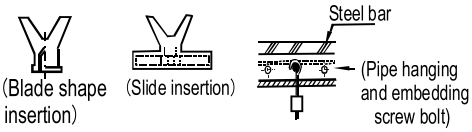


Fig.36

Steel roof beam structre

Install the supporting angle steel.

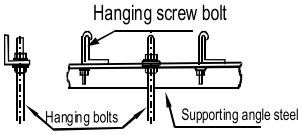


Fig.37

Overhang the unit

- Install the hanging screw bolt to the U-shaped slot of the installation area. Overhang the indoor unit and measure the level degree of the unit with a gradienter.
- Fasten and fix the upside nut.

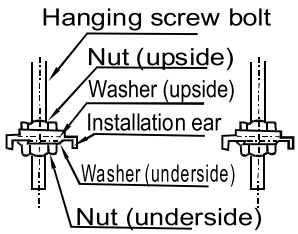


Fig.38

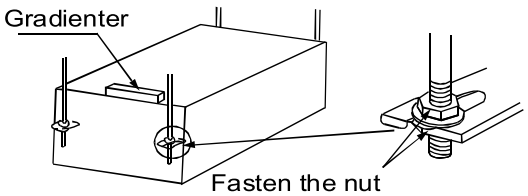
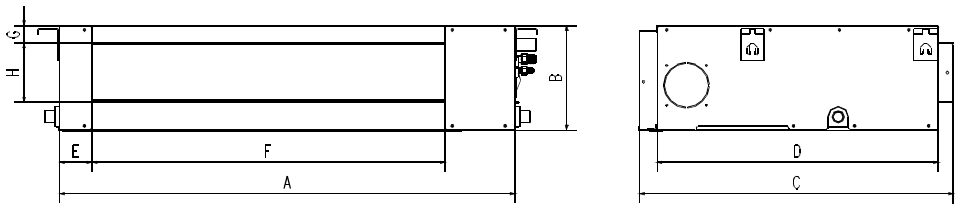


Fig.39

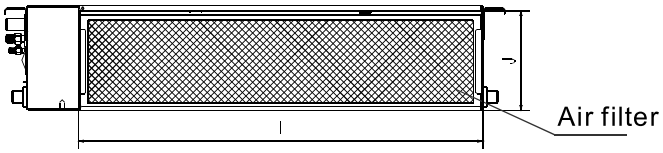
The position of hanging bolts

Dimension and air outlet size

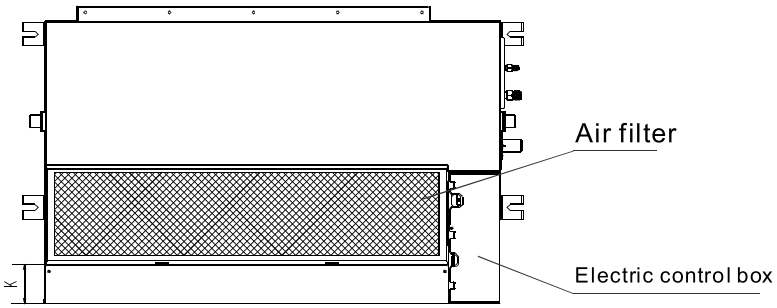
Unit: in/mm



Air inlet size



Position size of descensional ventilation opening



Size of mounted hook

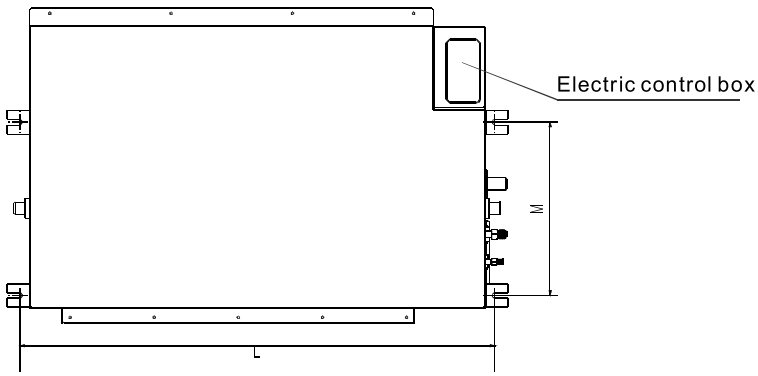


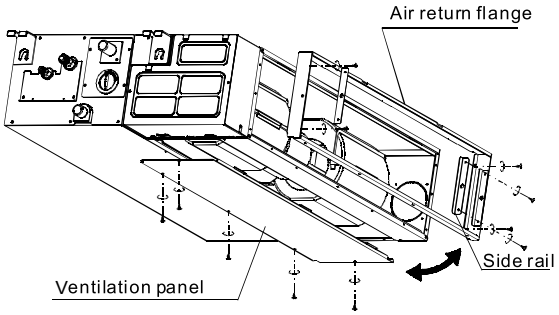
Fig.40

INSTALLATION INSTRUCTIONS

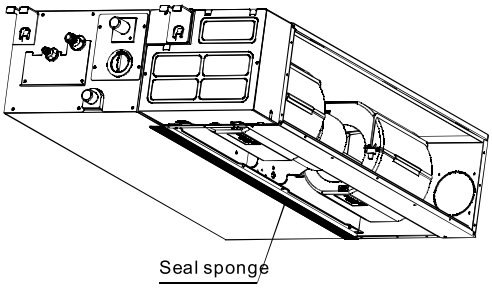
	Outline dimension				Air outlet opening size				Air return opening size			Size of mounted lug	
	A	B	C	D	E	F	G	H	I	J	K	L	M
≤12000Btu/h	27.6/700	8.3/210	25/635	22.4/570	2.6/65	19.4/493	1.4/35	4.7/119	23.4/595	7.9/200	3.2/80	29.1/740	13.8/350
>12000Btu/h	36.2/920	8.3/210	25/635	22.4/570	2.6/65	28.1/713	1.4/35	4.7/119	32.1/815	7.9/200	3.2/80	37.8/960	13.8/350

How to adjust the air inlet direction?(From rear side to under-side.)

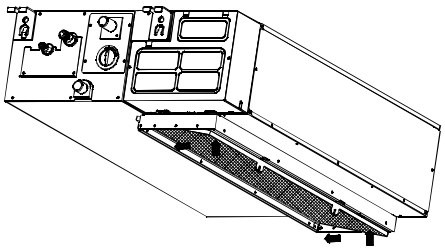
1. Take off the ventilation panel and flange, cut off the staples at the side rail.



2. Stick the attached seal sponge as per the indicating place in the following fig, and then change the mounting positions of air return panel and air return flange .



3. When installing the fi lter mesh, please plug it into flange inclined from the air return ope ning, and then push up.



4. Once the filter mesh, with the fixing blocks have been inserted into the flange position holes, the installation is complete.

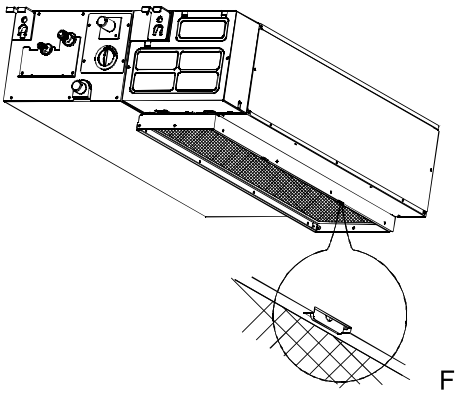


Fig.41

NOTE

All the figures in this manual are for illustration purposes only. They may differ slightly nt from the air conditioner you purc hased.

Drainpipe installation

1. Indoor unit drainpipe installation

Piping, insulation material

Piping	Hard PVC pipe
Insulation material	Cellular polyethylene, thicker than 0.24in/6mm

Drainage

See Fig.42

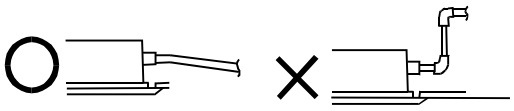


Fig.42

Heat insulation

- Please heat insulate the piping joint.
- Bind the contact insulation part between the unit and the installation location with bandage.

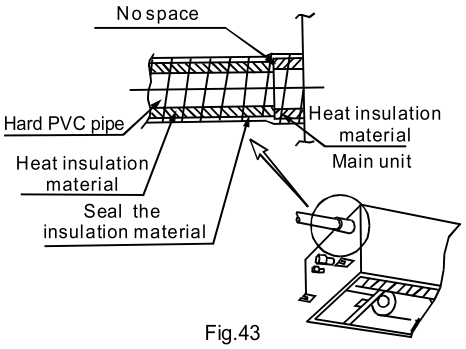


Fig.43

INSTALLATION INSTRUCTIONS

CAUTION

- The drain pipe as well as the connection part of indoor unit must be heat insulated, or condensation will occur.
- Please connect the pipe with PVC bond primer and glue and ensure there is no leakage.
- Do not impose any pressure on the connecting part of drainpipe.
- The downward gradient of the drain pipe should be over 1/100. Do not bend the drain pipe.
- Pull the drain pipe transversely within 65.6ft/20m. Please install a supporter in case the drainpipe is very long to prevent it from bending.
- Refer to the figures on pipe right for the installation.

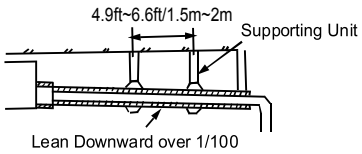


Fig.44

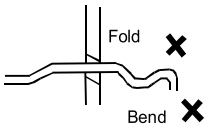


Fig.45

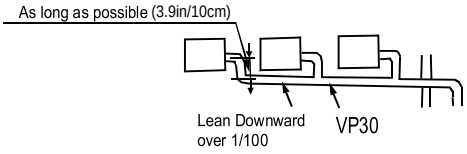


Fig.46

Accessories installation instruction for duct

Duct design

Make the duct is as short as possible due to the low static pressure (nearly 0 PSi/0 Pa) of this unit.

Fix installation board

Fix the installation board on the duct outlet with the accessory bolts. If the bolt is ensure that, the length of bolt is appropriate and make sure not to damage the inside of unit. See Fig.47

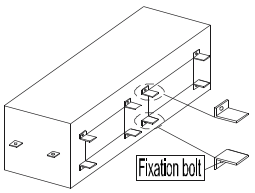


Fig.47

Duct installation

Fix the duct on the installation board with a rivet. See Fig.48

NOTE:

1. Do not let the indoor unit bear the weight of duct.
2. For convenient maintenance, install the duct at the place where it is easy to remove.
3. If installing this unit in a meeting room or such places, please equip the interior with a liner and muffler.
4. These accessories are optional. Please contact a service provider for other requirement.

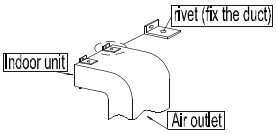


Fig.48

Accessories

Name	Qty.	Outline/specification	Function
Duct installation board	8		Connecting duct
Fixation bolt (fixing installation board)	8	ST3.9×10-F-H	Fixing duct installation board

5. Console Type

5.1 Accessories(Console)

Please check whether the following fittings are scope. If there are some spare fittings, please restore them carefully.

	NAME	SHAPE	QUANTITY
Installation fittings	1.Hook		2
	2. Magnetic ring		1
Remote controller and Its Frame (on some models)	3. Remote controller		1
	4. Frame		1
	5. Mounting screw (ST2.9 10-C-H)		2
	6. Alkaline dry batteries (AM4)		2
Others	7. Owner's manual	——	1
	8. Installation manual	——	1

Cautions on remote controller installation:

- Never throw or beat the controller.
- Before installation, operate the remote controller to determine its location in a reception range.
- Keep the remote controller at least 3.28ft/1m apart from the nearest TV set or stereo equipment. (it is necessary to prevent image disturbances or noise interferences.)
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.
- Note that the positive and negative poles are right positions when loading batteries.
- This manual is subject to change due to technological improvements without further notices.

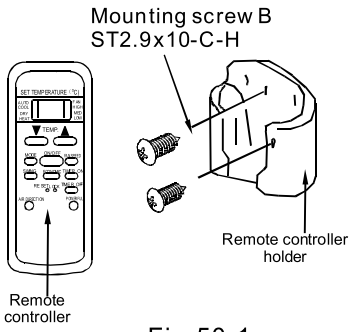


Fig.50-1

5.2 Inspecting and Handling the unit(Console)

At delivery, the package should be checked and any damage should be reported immediately to the service agent. When handling the unit, take into account the following:

1. Fragile, handle the unit with care.
2. Keep the unit upright in order to avoid compressor damage.
3. Decide on before hand the path along which the unit is to be brought in.
4. Move this unit in its original package if possible.
5. When lifting the unit , always use protectors to prevent belt damage and pay attention to the position of the unit's center of gravity.

5.3 Indoor Unit Installation(Console)

5.3.1 Installation place

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.(Refer to Fig.50-2 and Fig.50-3)
- The outlet and the inlet are not impeded, and the influence of external air is minimal.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted easily.
- There is no direct radiation from heaters.

CAUTION

Keep the indoor unit, outdoor unit, power supply wiring and transmission wiring at least 3.28ft/1m away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 3.28ft/1m is kept.)

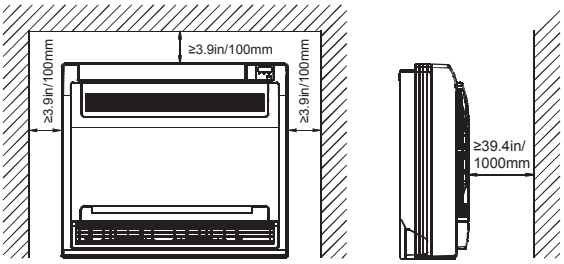


Fig.50-2

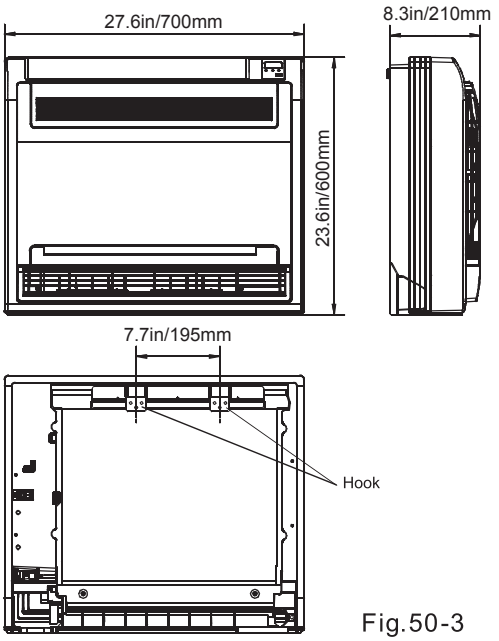


Fig.50-3

5.3.2 Install the main body

- Fix the hook with tapping screw onto the wall. (Refer to Fig.50-4)

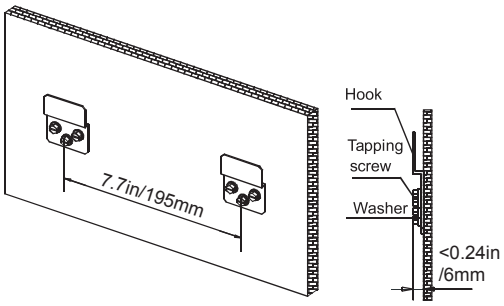


Fig.50-4

- Hang the indoor unit on the hook. (The bottom of body can touch with floor or suspended, but the body must install vertically.)

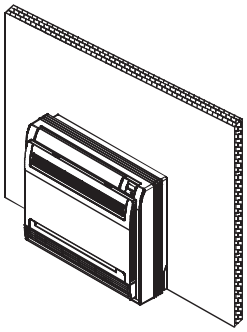


Fig.50-5

5.4 Install the connecting pipe (Console)

5.4.1 The procedure of connecting pipes:

CAUTION

- All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.
- Do not allow air, dust, or other impu rities enter the pipe system during the installation.
- The connecting pipe should not be installed until the indoor and outdoor units have been connected.
- Keep the connecting pipe dry, and do not let moisture in during installation.
- Execute the heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise, a water leak may occur.

1. Drill a hole in the wall (suitable for thesize of the wall conduit), then set thefittings (for example the wall conduit and its cover).
2. Bind the connecting pipe and the cables together tightly with binding tape. Pass the bound connecting pipe through the wall conduct from outside. Be careful of the pipe allocation to not damage the tubing.
3. Connect the pipes. Refer to "How to Connect the pipes" for details.
4. Expel the air with a vacuum pump. Refer to "How to expel the air with a vacuum pump" for details.
5. open the stop values to the outdoor unit to ensure the refrigerant pipe connects the indoor unit with the outdoor unit to create a smooth flow.
6. Check the leakage. Check all the joints with the leak detector or soap water.
7. Cover the joints of the connecting pipe with the soundproof / insulating sheath (fittings), and bind it well with tape to prevent leakage.

⚠ CAUTION

Be sure to use the insulating materials to cover all the exposed parts of the flare pipe joints and refrigerant pipe on the liquid-side and the gas-side. Ensure that there is no gap between them. Incomplete insulation may cause water condensation.

How to take indoor unit apart to connect the pipes

1. Open the front panel

- Slide the two stoppers on the left and right sides inword until they click. See Fig.50-6.

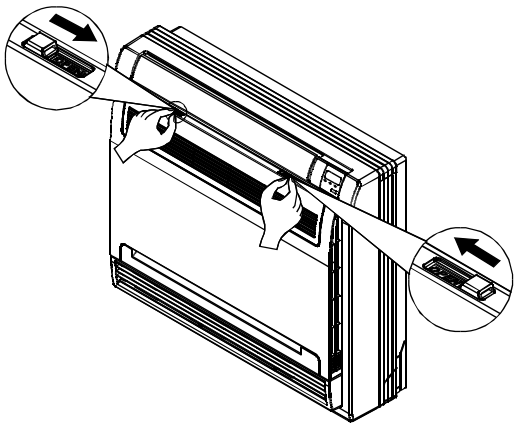


Fig.50-6

2. Remove the front panel

- Remove the string. (Refer to Fig.50-7).
- Allow the front panel to fall forward to enable you remove it.

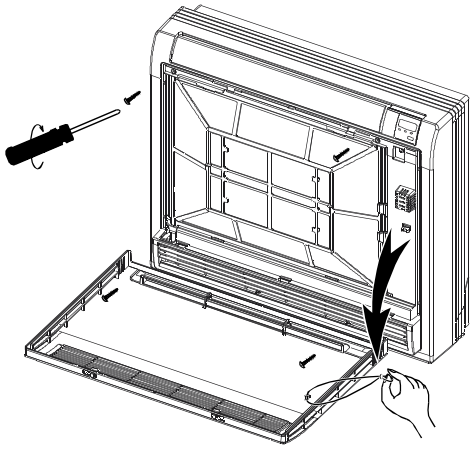


Fig.50-7

3. Remove the face plate

- Remove the four screws.(Refer to Fig.50-7).
- Open the bottom of face plate to a 30 degree angle.then remove the top of the face plate. (Refer to Fig.50-8)

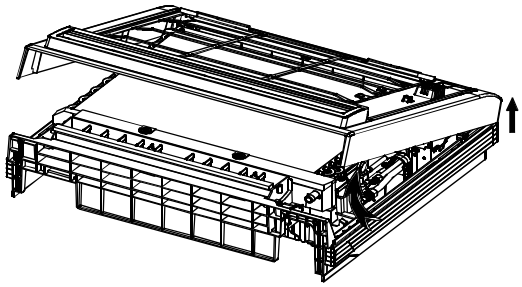


Fig.50-8

5.5 Connect the drain pipe(Console)

■ Install the drain pipe of the indoor unit

The outlet has PTI screw thread. Please use sealing materials and pipe sheath(fitting) when connecting PVC pipes.

⚠ CAUTION

- The drain pipe of the indoor unit must be heat insulated, or it will condense dew, as well as the connections of the indoor unit.
- Hard PVC binder must be used for the pipe connection, and make sure there is no leakage.
- With the connection part to the indoor unit, remember not to put pressure on the side of indoor unit pipes.

- When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- The total length of the drain pipe when pulled out traversely shall not exceed 65.6ft/20m, when the pipe is long. A prop stand must be installed to prevent winding.
- Refer to the figures on the right for the installation of the pipes.

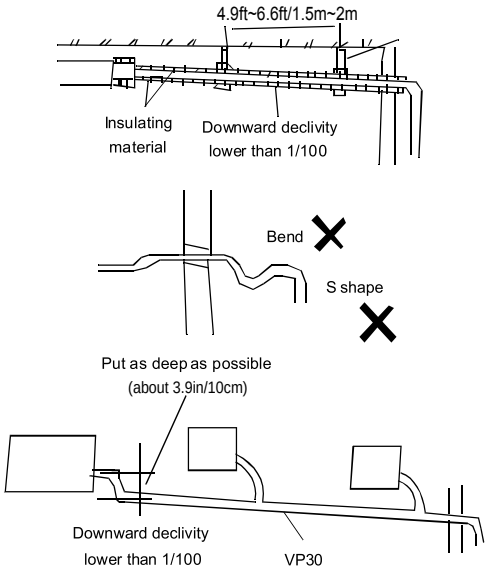


Fig.50-9

■ **Drainage test**

- Check whether the drain pipe is unhindered.
- New house es should have this test done before paving the ceiling.

5.6 Wiring(Console)

⚠ CAUTION

- The appliance shall be installed in accordance with national wiring regulations.
- The air conditioner shou ld use a separate power supply with rated voltage.
- The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.
- The wiring work should be done by qualified persons according to circuit drawing.
- An all-pole disconnection device which has at least 0.12in/3mm separation distance in all pole and a residual current device(RCD)with the rating of above 10mA shall be used in the fixed wiring according to the national rule.
- Be sure to locate the power wiring and the signal wiring to avoid cross-disturbance.
- Do not turn on the power until you have checked carefully after wiring.

5.6.1 Connect the cable

■ The installation bearer of the sensing device rotates to the another side, and thenremoves the cover of the electrical box. (Takeoff the electrical box if the capacity is18000btu/h or when using network function.) (Refer to Fig.50-10)

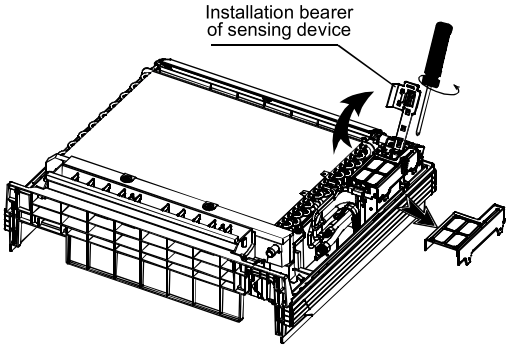


Fig.50-10

NOTE:

All the pictures in this manual are for illustration purposes only. They may differ slightly from the air conditioner you purchased(depending on model).

Outdoor unit installation

Outdoor installation precaution

- Install the outdoor unit on a rigid base to prevent increasing noise level and vibration.
- Determine the air outlet direction where the discharged air is not blocked. In the case that the installation place is exposed to strong winds such as a seaside, make sure the fan operates properly by installing the unit lengthwise along the wall or using a dust or shield plates.
- Particularly in windy areaw, install the unit to prevent the admission of wind. If you need to suspend the unit, the installation bracket should meet with technique requirement in the installation bracket diagram.
- The installation wall should be solid brick, concrete or the same type of construction, or actions to reinforce shouldbe taken. The connection the between bracket and wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which may block radiating air.

Settlement of outdoor unit

- Anchor the outdoor unit with a bolt and nut Φ0.4/10 or Φ0.32/8 tightly and horizontally on a concrete or rigid mount.

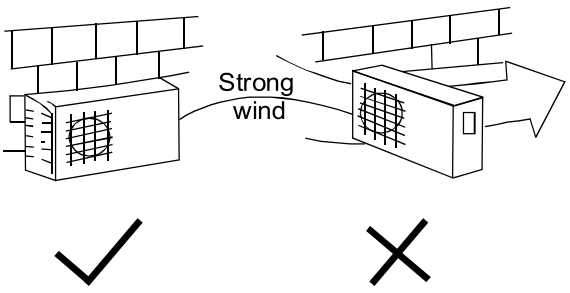
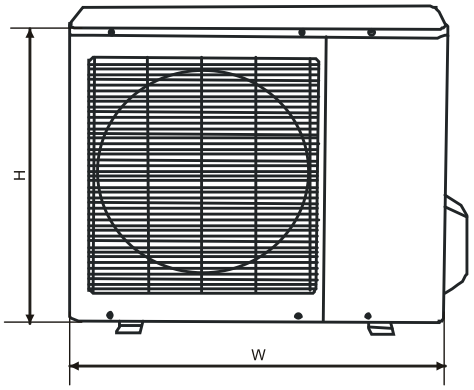
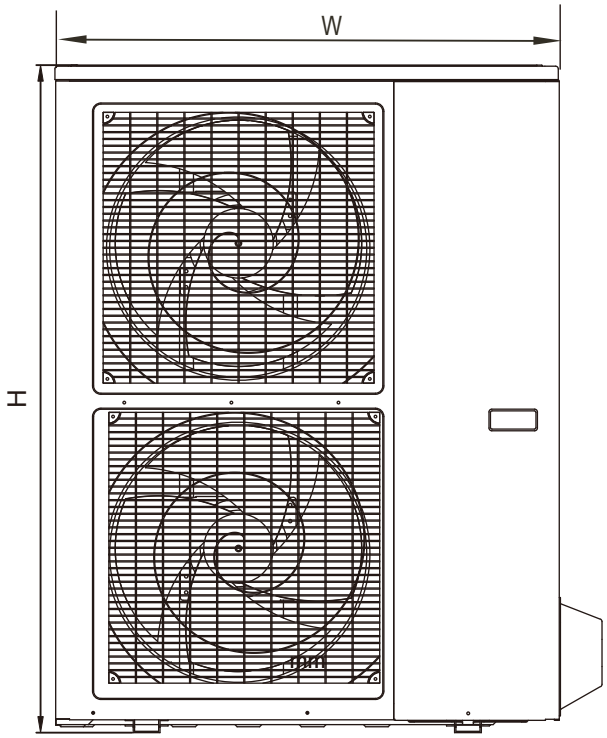


Fig.51





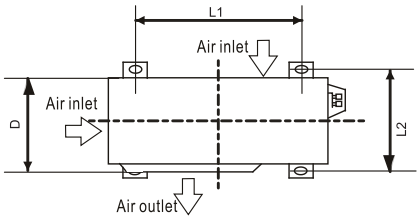


Fig.52

Unit:in/mm

Model	W in (mm)	D in (mm)	H in (mm)	L1 in (mm)	L2 in (mm)
18K	33.27 (845)	12.60 (320)	27.56 (700)	21.1 (560)	13.2 (335)
24K	37.20 (945)	15.55 (395)	31.89 (810)	25.1 (640)	15.9 (405)
36K	37.20 (945)	15.55 (395)	31.89 (810)	31.89(810)	31.89 (810)
48K	36.93 (938)	15.43 (392)	53.90 (1369)	24.96(634)	15.90 (404)

(in=mm/25.4)

Drain joint installation

NOTE: The drain joint may differ from appliance to appliance.

Fit the seal into the drain joint, then insert the drain joint into the base pan hole of the outdoor unit, and then rotate 90° to securely assemble them. Connecting the drain joint with an extension drain hose (locally purchased), in case of the water draining off the outdoor unit during the heating mode.

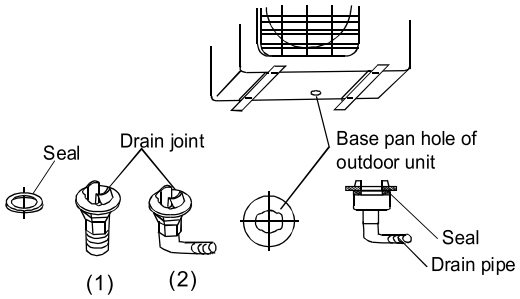


Fig.53

Refrigerant pipe connection

1. Flaring work

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

A: Cut the pipes and the cable.

1. Use the piping kit accessory or pipes purchased locally.
2. Measure the distance between the indoor and the outdoor unit.
3. Cut the pipes a little longer than the measured distance.
4. Cut the cable 4.9ft/1.5m longer than the pipe length.

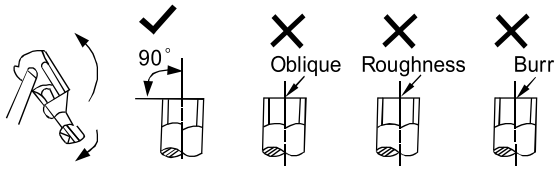


Fig.54

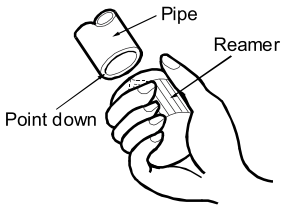


Fig.55

B: Burr removal

1. Completely remove all burrs from the cut cross section of pipe/tube.
2. Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the tubing.

C: Putting nut on

Remove flare nuts attached to the indoor and outdoor unit, then put them on pipe/tube having completed the burr removal.(not possible to put them on after the flaring work is done).

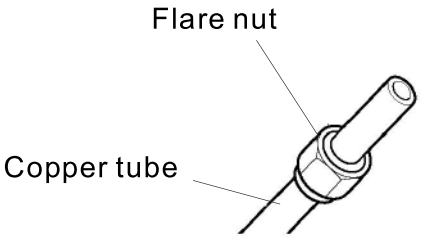


Fig.56

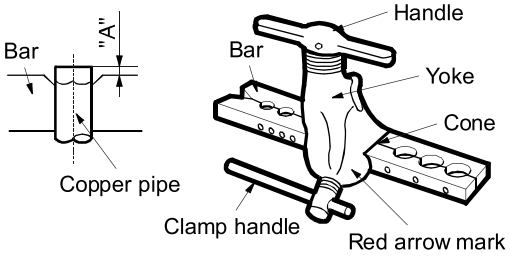


Fig.57

ELECTRICAL WORK

D: Flaring work Tightening Connection

- Align the center of the pipes.
- Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench as shown in Fig.58 & 59.

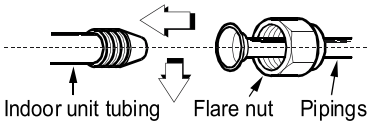
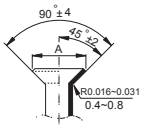


Fig.58

Pipe gauge	Tightening torque	Flare dimensin A min (in/mm)	max	Flare shape
Ø1/4in/6.35	153～163 kgf.cm (15～16 N.m)	0.33/8.3	0.34/8.7	
Ø3/8in/9.52	255～265 kgf.cm (25～26N.m)	0.47/12.0	0.48/12.4	
Ø1/2in/12.7	357～367 kgf.cm (35～36 N.m)	0.61/15.4	0.62/15.8	
Ø5/8in/15.9	459～480 kgf.cm (45～47 N.m)	0.73/18.6	0.75/19.0	

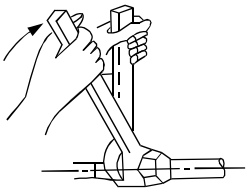


Fig.59

Caution

- Excessive torque can break the nut depending on the installation conditions.

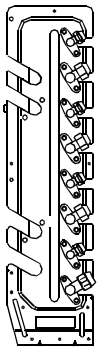
24K indoor unit

The 24K indoor unit can only be connected with the A system when the size of the low pressure valve is 1/2in.(Fig.60)

Connective pipe size of A system:

Unit:in/mm

Indoor unit capacity	Liquid	Gas
7K/9K/12K	1/4/6.35	3/8/9.52
18K	1/4/6.35	1/2/12.7
24K	1/4/6.35	5/8/15.9



C(1/4in/6.35mm)
C(3/8in/9.52mm)
B(1/4in/6.35mm)
B(3/8in/9.52mm)
A(1/4in/6.35mm)
A(1/2in/12.7mm)

Fig.60

Electrical work

Electric safety regulations for the initial Installation

1. If there is a serious safety problem with the power supply, the technicians should refuse to install the air conditioner and explain to the client that the problem must be resolved before they can install the unit.
2. Power voltage should be in the range of 90%~110%of rated voltage.
3. The creepage protector and main power switch, with a 1.5 times capacity of Max. Current of the unit, should be installed in power circuit.
4. Ensure the air conditioner is grounded well.
5. Connect all wires in accordance with the attached Electrical Connection Diagram located on the panel of the outdoor unit.
6. All wiring must comply with local and national electrical codes and be installed by qualified and skilled electricians.
7. An individual branch circuit and single receptacle, used only for this air conditioner, must be available.

Wiring connection

NOTE: Before performing any electrical work, turn off the main power to the system.

CAUTIONS

- Do not touch the capacitor even if you have disconnected the power for there is still high voltage power on it, or electric shock hazard may occur. For your safety, refrain from working for at least 5 minutes after the power is disconnected.
- The power is supplied from the Outdoor Unit. The Indoor Units are connected with signal wires or power cords and are connected reliably and correctly, or the air conditioner could not run normally.

NOTE:

The cable size and the current of thefuse or switch are determined by the maximum current indicated on the nameplate located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch. Please refer to the above tables and select the proper wire size under the local electrical requirements.

Connect the cable to the outdoor unit

1. Remove the electrical control board cover from the outdoor unit by loosening the screw as shown in Fig.61
2. Connect the connective cables to the terminals as identified with their respective matched numbers on the terminal block of indoor and outdoor units.
3. Secure the cable onto the control board with the cord clamp.
4. To prevent the ingress of water, from a loop of the connective cable as illustrated in the installation diagram of indoor and outdoor units.
5. Insulate unused cords (conductors) with PVC-tape.Prepare them so they do not touch any electrical or metal parts.

CAUTIONS

Make sure to connect the indoor unit (A,B, C, D, E) to the Hi and Lo valve and terminals of the signal wires(A, B, C, D, E) of the outdoor unit as identified with their respective matched connection. Incorrect wiring connections may cause some electrical parts to malfunction.

Minimum norminal cross-sectional area of conductors:

Rated current of appliance (A)	Nominal cross-sectional area (sq in/mm^2)
>3 and ≤6	0.001/0.75
>6 and ≤10	0.002/1
>10 and ≤16	0.002/1.5
>16 and ≤25	0.004/2.5

Suggest Minimum Wire Size
(**AWG**:American Wire Gage):

Appliance Amps	AWG Wire Size
10	18
13	16
18	14
25	12
30	10

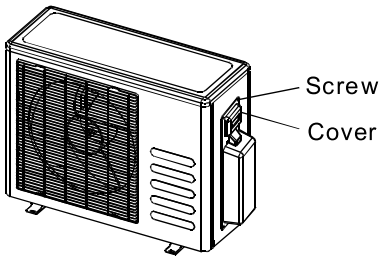


Fig.61

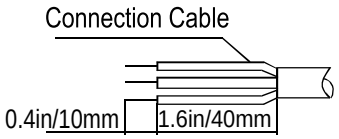
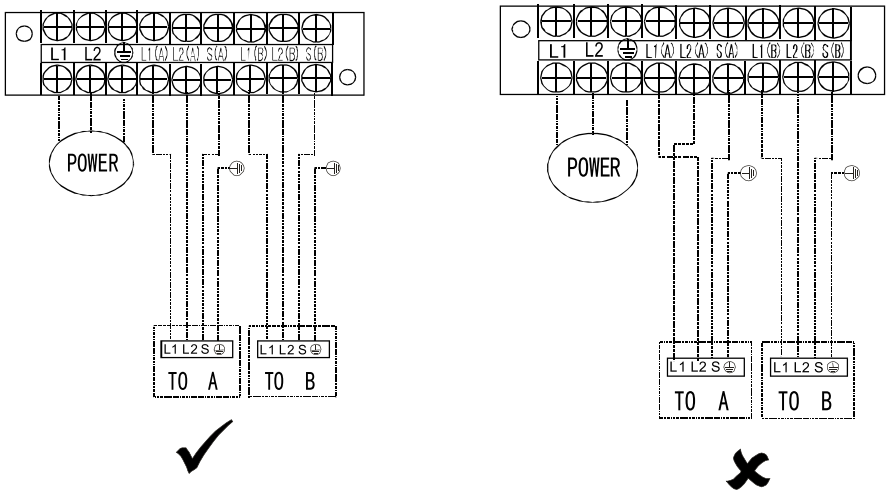


Fig.62

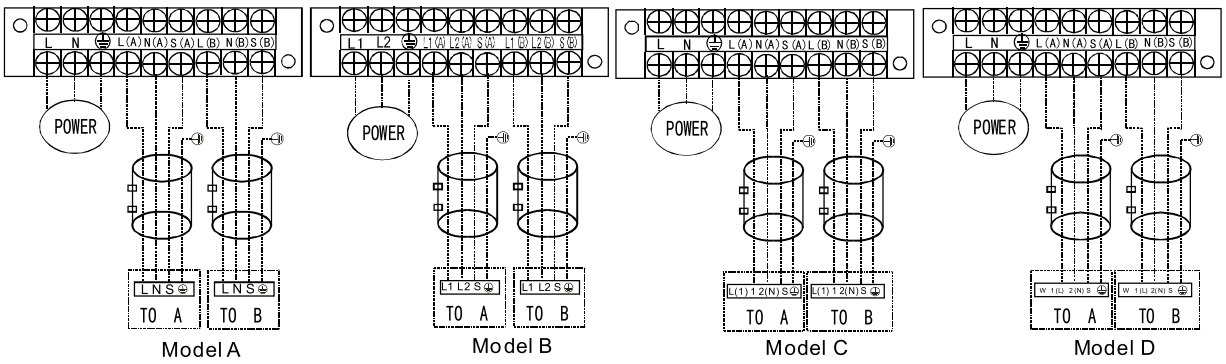
ELECTRICAL WORK

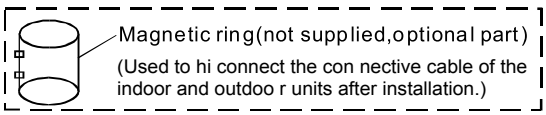
IMPORTANT: Connect the connective cables to the terminals as identified with their respective matched numbers on the terminal block of the indoor and outdoor units. For example, see the following US models: Terminal L1(A) of outdoor must connect with terminal L1 on the indoor unit.



NOTE: Please refer to the following figures,if the client wants to perform their own wiring. Please run the main power cord through the lower line-outlet of the cord clamp.

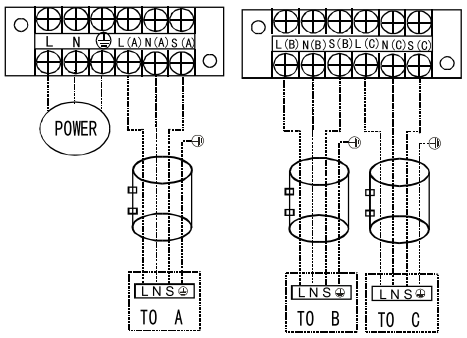
One-two models:



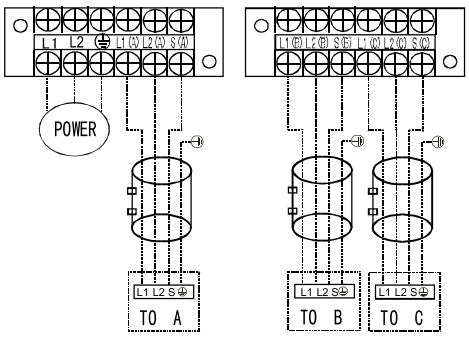


NOTE:Please refer to the following figures,if the client wants to perform their own wiring.

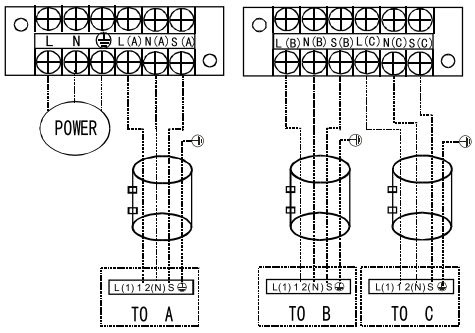
One-three models:



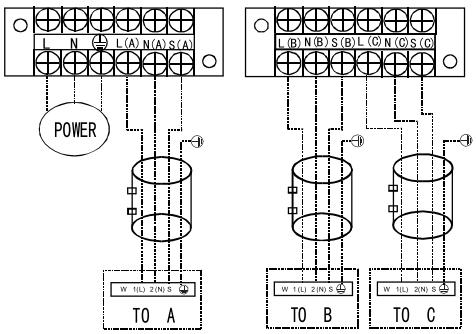
Model A



Model B

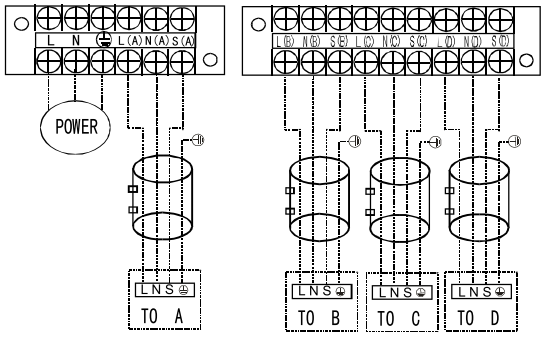


Model C

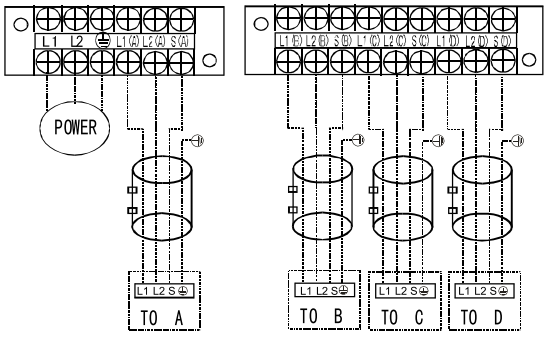


Model D

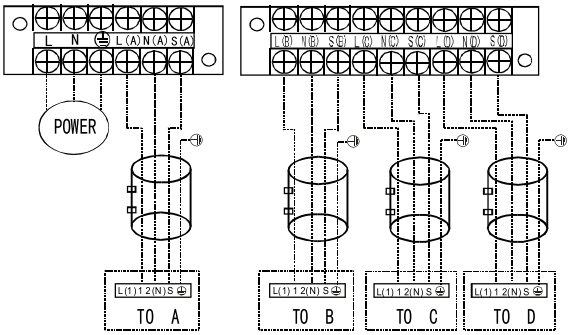
One-four models:



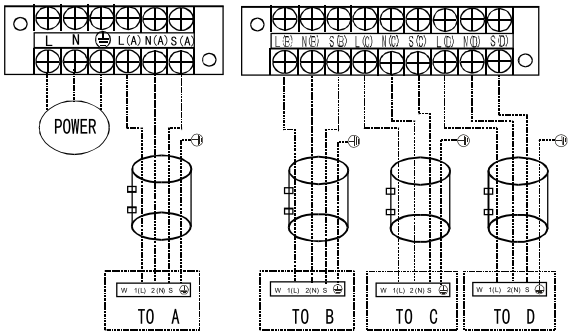
Model A



Model B



Model C



Model D

ELECTRICAL WORK

One-five models:

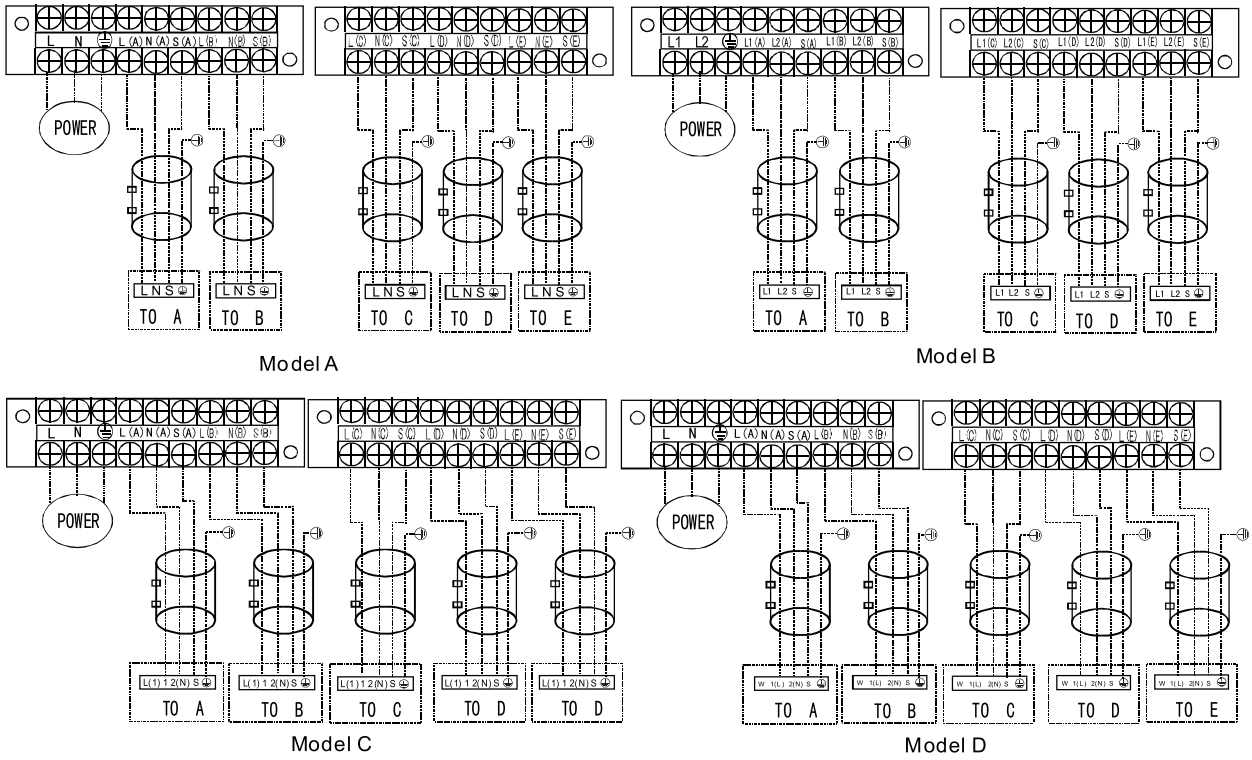


Fig.63

CAUTION

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

1) **Always have an individual power circuit specifically for the air conditioner. As for the method of wiring, use the circuit diagram posted on the inside of control cover.**
2) **The screw which fastens 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 ensure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)**
3) **Specification of power source.**
4) **Confirm that electrical capacity is sufficient.**
5) **Make sure the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**
6) **Confirm that the cable thickness is as specified in the power source specification.**
7) **Always install an earth leakage circuit breaker in a wet or moist area.**
8) **The following would be caused by voltage drop.**

   Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
9) **The means for disconnection from a power supply shall be incorporated in the fixed wiring. There should be an air gap contact separation of at least 3mm in each the active (phase)conductors.**
10) **Before obtaining access to terminals, all the supply circuits must be disconnected.**

Air purging

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

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

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

Air purging with vacuum pump

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

NOTE: N=2(one-twin models), N=3(one-three models), N=4(one-four models), N=5(one-five models). The Standard pipe length is vary according to the requirements of different area. For example, in North America area, the standard pipe length is 25ft(7.5m). While in the other areas, the standard pipe length is 16ft(5m).

Connective pipe length	Air purging method	Additional amount of refrigerant to be charged (R410A)
Pre-charge pipe length(ft/m) (Standard pipe lengthxN)	Use vacuum pump.	———
More than (Standard pipe lengthxN)ft/m	Use vacuum pump.	Liquid side: Φ1/4″(6.35) (Total pipe length - standard pipe lengthxN)x0.16oZ(15g)/ft(m) Liquid side: Φ3/8″(9.52) (Total pipe length - standard pipe lengthxN)x0.32oZ(30g)/ft(m)

- When relocating the unit to another site perform evacuation using a vacuum pump.
- Make sure the refrigerant added into the air conditioner is liquid form in any case.

Caution in handling the packed valve

- Open the valve stem until it hits against the stopper. Do not try to open it further.
- Securely tighten the valve stem cap with a spanner or the like.
- Valve stem cap tightening torque (See the Tightening torque table in previous page).

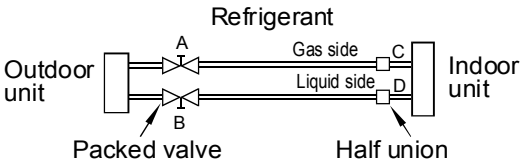


Fig.65

When Using the Vacuum Pump

(For information on the use of the manifold valve, refer to its operation manual.)

1. Completely tighten the flare nuts, A, B, C, D, connect the manifold valve charge hose to a charge port of the low-pressure valve on the gas pipe side.
2. Connect the charge hose connection to the vacuum pump.
3. Fully open the handle Lo of the manifold valve.

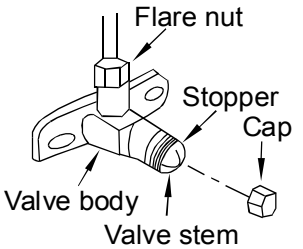


Fig.66

AIR PURGING

4. Operate the vacuum pump to evacuate. After starting the evacuation, slightly loosen the flare nut of the Lo valve on the gas pipe side and check that the air is entering(operation noise of the vacuum pump changes and a compound meter indicates 0 instead of minus).
5. After the evacuation is complete, fully close the handle Lo of the manifold valve and stop the operation of the vacuum pump. The evacuation should take fifteen minutes or more. compound meter indicates that the compound meter indicates
   $-1x10^5$Pa (-76cmHg).
6. Turn the stem of the packed valve B about 45° counterclockwise for 6-7 seconds after the gas comes out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure.
7. Remove the charge hose from the Low pressure charge hose.
8. Fully open the packed valve stems B and A.
9. Securely tighten the cap of the packed valve.
10. If the outdoor unit uses all vacuum valves, and the vacuum position is at the main valve, the system is not connected with the indoor unit and must be tightened with a screw nut. Check the gas leakage before operation to prevent leakage.

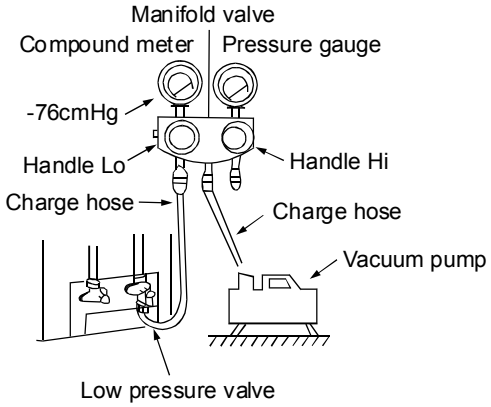


Fig.67

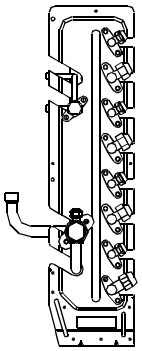


Fig.68

Safety and leakage check

● **Electrical safety check**

Perform the electric safe check after completing installation:

1. Insulated resistance
   The insulated resistance must be more than 2 Ω.
2. Grounding work
   After finishing the grounding work, measure the grounding resistance by visual detection and grounding resistance tester. Make sure the grounding resistance is less than 4 Ω.
3. Electrical leakage check (performing during test running)
   During the test operation after finishing the installation, the serviceman can use the electroprobe and multimeter to perform the electrical leakage check. Turn off the unit immediately if leakage occurs Check and find out the solution.
   Do not use the unit until repairs are made to resolve the leak.

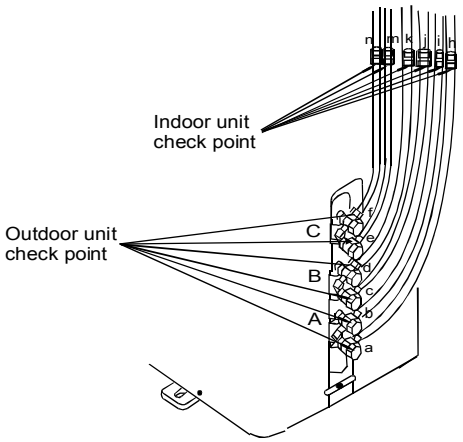


Fig.69

● **Gas leak check**

1. **Soap water method:**
   Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of th piping. If bubbles come out, the pipes have leakage.

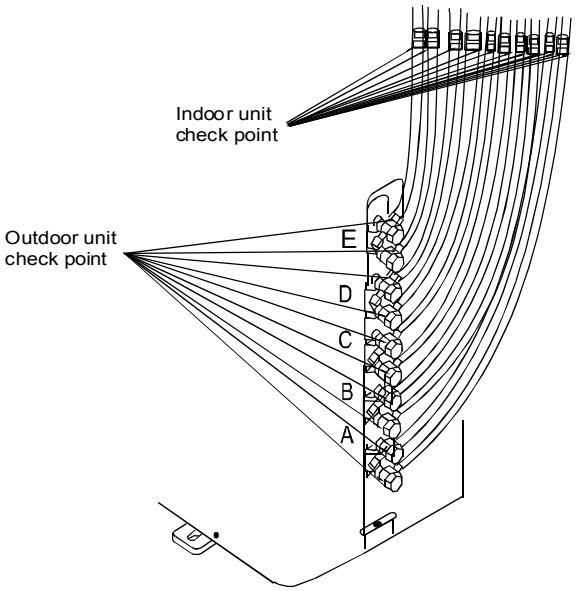
2. **Leak detector**
   Use the leak detector to check for leakage.

CAUTION

A: Lo packed valve B: Hi packed valve

C and D are ends of indoor unit connection.

NOTE: The illustration is for illustration purposes only. The actual order of A, B, C D and E on the machine may differ slightly from the unit you purchased.



A, B, C, D are points for one-four type.
A, B, C, D, E are points for one-five type.

Fig.70

Test running

Perform a test operation after completing gtheas leak check at the flare nut connections and electrical safety check.

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

1. Connect the power, press the ON/OFF button on the remote controller to turn the unit on.
2. Use the MODE button to select COOL, HEAT, AUTO and FAN to check if all the functions works well.
3. When the ambient temperature is too low(lower than 62.6˚F/17˚C), the unit can't be controlled by the remote controller to run at the cooling mode, manual operation can be used. Manual operation is used only when the remote controller is disabled or maintenance is needed.
   - Hold the panel sides and lift the panel up to an angle until it remains fixed with a clicking sound.
   - Press the Manual control button to select the AUTO or COOL modes, the unit will operate undre Forced AUTO or COOL mode(see theUser Manual for details).
4. The test operation should last about 30 minutes.

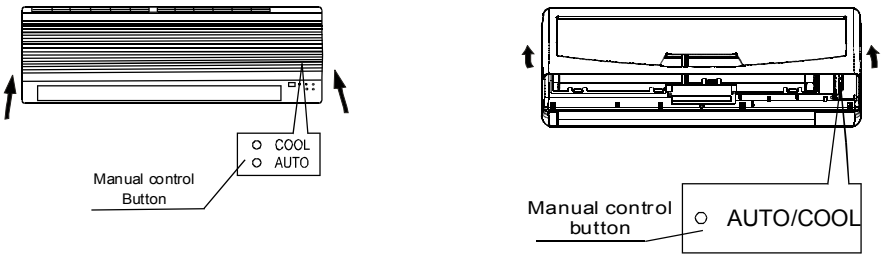


Fig.71

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Edition Date: 11/14

Catalog No: 538T-619P-619R-01SI

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