



**Vogue Ultra Universal
21UT Series**

INSTRUCTION MANUAL



WARNING!


Read and follow all safety precautions in Instruction Manual - improper use can cause serious injury.

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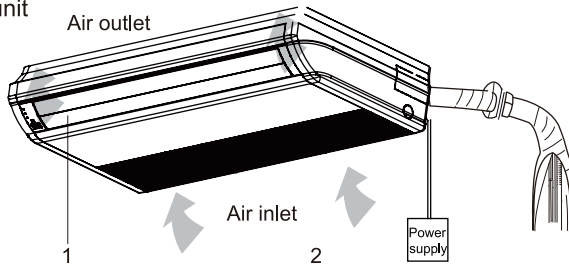
1 Safety Precautions

 WARNING!	<p>This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.</p>
 CAUTION!	<p>This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.</p>

 WARNING!	
①	<p>For operating the air conditioner pleasantly, install it as outlined in this installation manual.</p>
②	<p>Connect the indoor unit and outdoor unit with the room air conditioner piping and cord available from our standard parts. This installation manual describes the correct connections using the installation set available from our standard parts.</p>
③	<p>Installation work must be performed in accordance with national wiring standards by authorized personnel only.</p>
④	<p>If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces toxic gas.</p>
⑤	<p>Do not power on until all installation work is complete.</p>
⑥	<p>During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.</p>
⑦	<p>During the pump-down operation, make sure that the compressor is turned off before you remove the refrigerant piping. Do not remove the connection pipe while the compressor is in operation with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigerant cycle that leads to breakage and even injury.</p>
⑧	<p>When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant (R410A) to enter the refrigerant cycle. If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.</p>

2 Outline of the Unit and Main Parts

Indoor unit



Outdoor unit

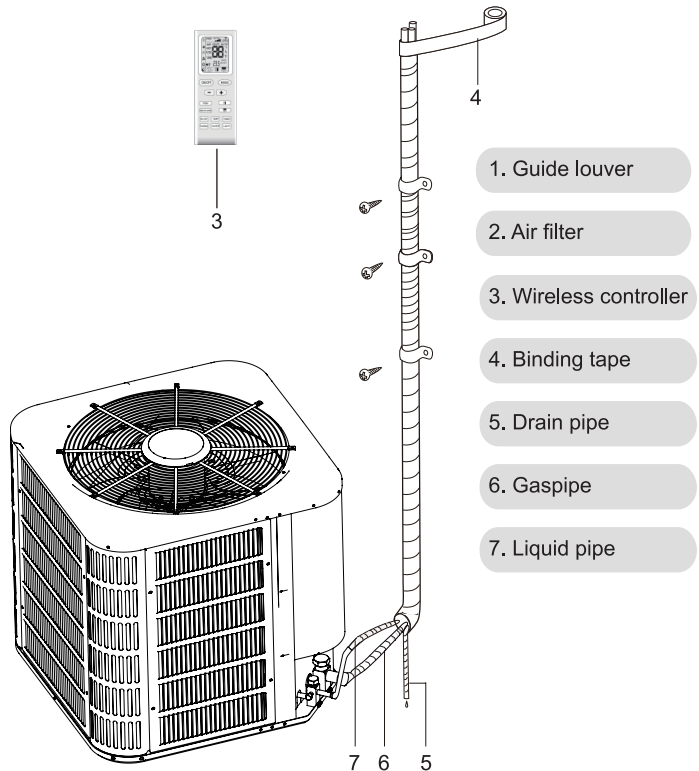


Fig.1

Notes:




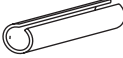




- ① . The connection pipe and duct for this unit should be prepared by the user.
- ② . This unit is standard equipped with the rectangular duct.

3 Preparative for Installation

3.1 Standard Accessory Parts

The standard accessory parts listed below are furnished and should be used as required.

Table 1

Indoor Unit Accessories				
No.	Name	Appearance	Q'ty	Usage
1	Nut with Washer		8	To fix the hook on the cabinet of the unit.
2	Wireless Controller+Battery		1+2	To control the indoor unit
3	Insulation		1	To insulate the gas pipe
4	Insulation		1	To insulate the liquid pipe
5	Installation Paperboard		1	To insulate the drain pipe
6	Fastener		4	To fasten the sponge
7	Corrugated pipe (48/60K)		1	Used to connect indoor and outdoor gas pipes
8	Damping Block		1	Used to cover the throttle to lower the airflow noise of refrigerant

3.2 Selection of the Installation Location



The unit must be installed where strong enough to withstand the weight of the unit and fixed securely, otherwise the unit would topple or fall off.



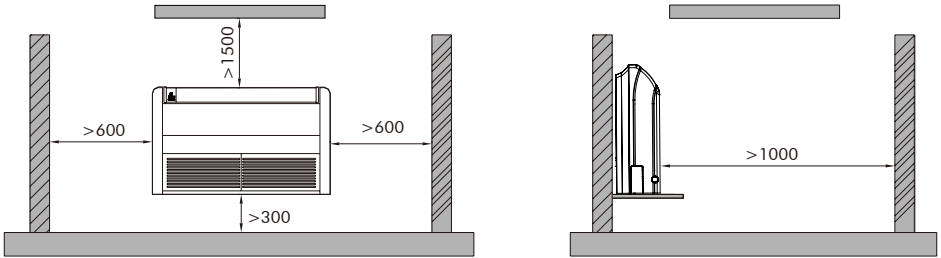
- ① . Do not install where there is a danger of combustible gas leakage.
- ② . Do not install the unit near heat source, steam, or flammable gas.
- ③ . Children under 10 years old must be supervised not to operate the unit.

Decide the installation location with the customer as follows:

3.2.1 Indoor Unit

- (1) Install the unit at a place where is strong enough to withstand the weight of the unit.
- (2) The air inlet and outlet of the unit should never be clogged so that the airflow can reach every corner of the room.
- (3) Leave service space around the unit as required in Fig.2.

◆ Floor type



◆ Ceiling type

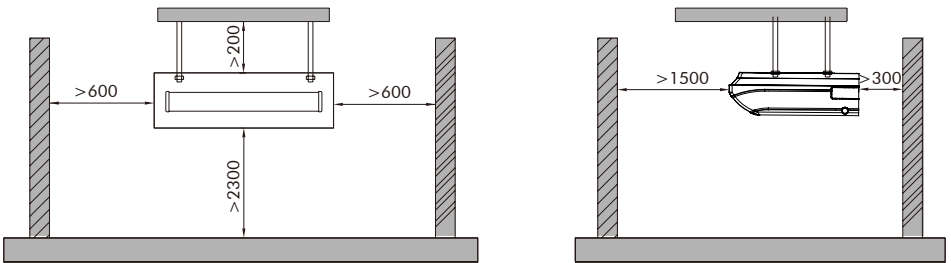



Fig.2

- (4) Install the unit where the drain pipe can be easily installed.
- (5) The space from the unit to the ceiling should be kept as much as possible so as for more convenient service.

3.2.2 Outdoor Unit

 WARNING!
① . Install the unit where it will not be tilted by more than 5°.
② . During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely.

- (1) Outdoor Unit must be fixed on stable and solid surface of floor.
- (2) Don't install Outdoor Unit under window or between buildings, and prevent the operation noise from room.
- (3) There should be no obstructions at both air inlet and outlet of indoor and outdoor units for maintaining well air ventilation.

(4) When installing indoor unit, make sure that the hanging parts at top are strong enough to stand the weight of unit.

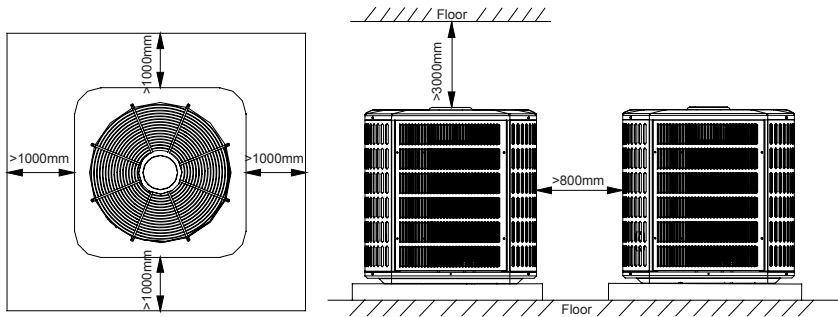


Fig.3

3.3 Connection Pipe Requirement



The maximum length of the connection pipe is listed in the table below. Do not place the units between which the distance exceeds the maximum length of the connection pipe.

Table 2

Model	Connecting Pipe (inch)		Maximum length (m)	Maximum height (m)	Drainage pipe(Outer Diameter × wall thickness) (mm)
	Liquid	Gas			
21UT024C24	3/8	5/8	15	15	17×1.75
21UT036C24	3/8	3/4	30	15	17×1.75
21UT048C24	3/8	7/8	30	15	17×1.75
21UT060C24	1/2	7/8	30	15	17×1.75

- ◆ The connecting pipe should be thermally insulated properly.
- ◆ The pipe wall thickness shall be 0.5-1.0 mm and the pipe wall shall be able to withstand the pressure of 6.0 MPa. The longer the connecting pipe, the lower the cooling and heating effect performs.

3.4 Electrical Requirement

Electric Wire Size and Fuse Capacity.

Table 3

Indoor Units	Power Supply	Fuse Capacity	Breaker Capacity	Min. Power Supply Cord
	V/Ph/Hz	A	A	mm ²
21UT024C24	220/230/1/60	1.46	15	1.3
21UT036C24	220/230/1/60	1.46	15	1.3
21UT048C24	220/230/1/60	3.60	15	1.3
21UT060C24	220/230/1/60	3.60	15	1.3

Table 4

Outdoor Units	Power Supply	Fuse Capacity	Breaker Capacity	Min. Power Supply Cord
	V/Ph/Hz	A	A	mm ²
31VA024C24	220/230/1/60	24.83	20	2.10
31VA036C24	220/230/1/60	41.93	40	5.30
31VA048C24	220/230/1/60	51.88	50	8.40
31VA060C24	220/230/1/60	65.83	60	8.40

“**” the fuse is located on the main board.

Notes:

- ① . Install the disconnect device with a contact gap of at least 3 mm in all poles nearby the units (Both indoor unit and outdoor unit).The appliance must be positioned so that the plug is accessible.
- ② . The specifications of the breaker and power cable listed in the table above are determined based on the maximum power (maximum amps) of the unit.
- ③ . The specifications of the power cable listed in the table above are applied to the conduit-guarded multi-wire copper cable (like, YJV copper cable, consisting of PE insulated wires and a PVC cable jacket) used at 40°C and resistible to 90°C(see IEC 60364-5-52). If the working condition changes, they should be modified according to the related national standard.
- ④ . The specifications of the breaker listed in the table above are applied to the breaker with the working temperature at 40°C. If the working condition changes, they should be modified according to the related national standard.

4 Installation of the Unit

4.1 Installation of the Indoor Unit

4.1.1 Indoor Unit Dimension

⚠ WARNING !

- ① . Install the indoor unit in a location which can withstand a load of at least five times the weight of the main unit and which will not amplify sound or vibration.
- ② . If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- ③ . If the job is done with the panel frame only, there is a risk that the unit will come loose. Please be careful.

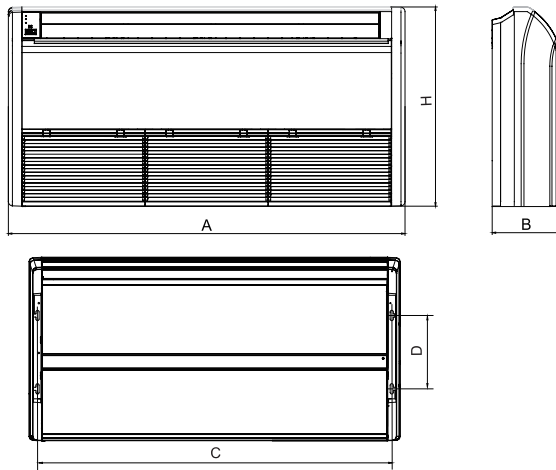


Fig.4

Table 5

Unit:mm

Model	A	B	C	D	H
21UT024C24	1220	225	1158	280	700
21UT036C24	1220	225	1158	280	700
21UT048C24	1420	245	1354	280	700
21UT060C24	1420	245	1354	280	700

4.1.2 Indoor Unit Installation

- (1) Determine the location of the hanger through the paper template, and then remove the paper template.

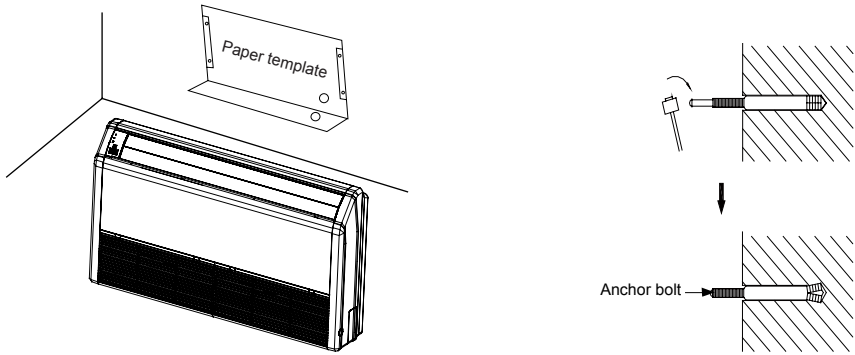


Fig.5

- (2) Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer.
- (3) Remove the right and left side panels.
- (4) Put the hanger bolt into the clasp of the indoor unit and tighten screws on the hanger to prevent the indoor unit from moving.
- (5) Reinstall and tighten the right and left side panels.

◆ Floor type

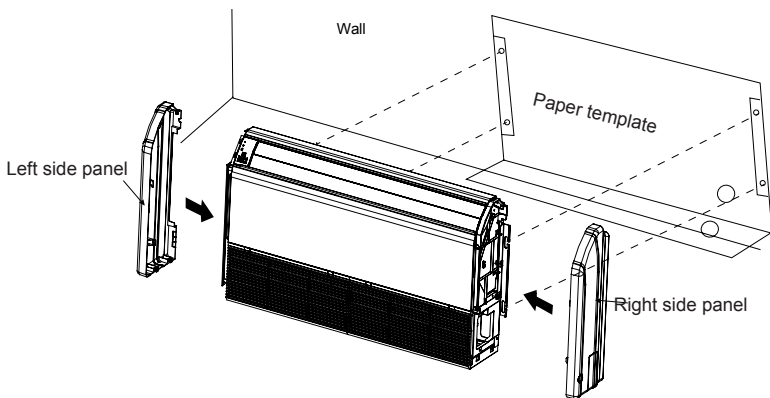


Fig.6

◆ Ceiling type

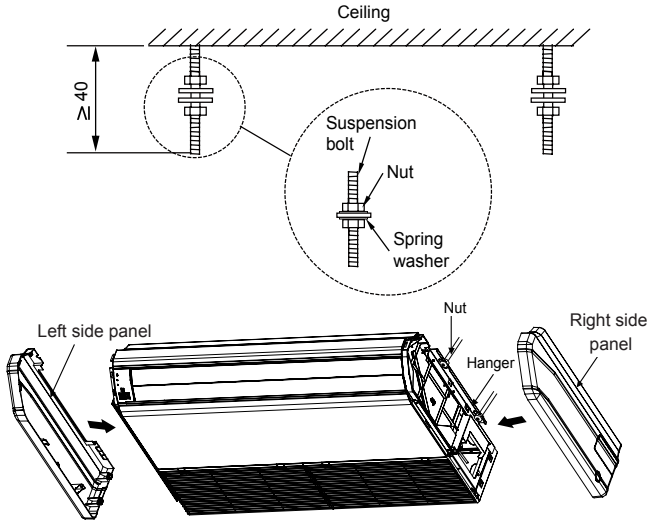


Fig.7

- (6) Adjust the height of the unit to make the drain pipe slant slightly downward so that the drainage will become much smoother.

4.2 Installation of the Outdoor Unit



WARNING!

- ① . Install the unit where it will not be tilted by more than 5°.
- ② . During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely.

Outdoor Unit Dimension:

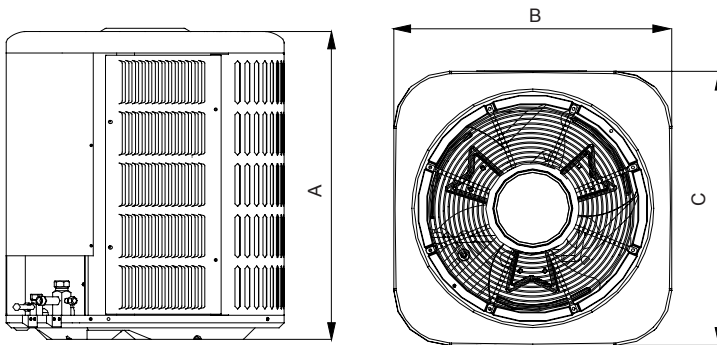


Fig.8

Table 6

Unit: mm

Model \ Item	A	B	C
31VA024C24	610	546	546
31VA036C24	735	610	610
31VA048C24	735	710	710
31VA060C24	735	710	710

4.3 Matters need Attention

- (1) Before installation, make sure that the power supply comply with in nameplate and check the security of the power supply.
- (2) Do not use or place combustibile and explosive gas or liquid near the air conditioner.
- (3) Do not attempt to install Air Conditioner by yourself to guarantee the Air Conditioner can be permanent use.
- (4) In the event of malfunction(burning smell, etc.),stop operation immediately and turn off the power switch.
- (5) Do not insert fingers or objects into the outlet port or inlet grillers.
- (6) Do not check or repair the Air Conditioner when it is running.
- (7) Do not sprinkle water on the Air Conditioner or operate it with wet hands.
- (8) Do not climb or place objects on the air conditioner.

4.4 Installation of the Connection Pipe

4.4.1 Gas pipe connection of 48/60k unit

- (1) A 7/8" gas pipe is used for connection.
- (2) Cut the connection pipe with the pipe cutter and remove the burrs.
- (3) Take out the corrugated pipe subassembly from the attached bag.
- (4) Insert 7/8" gas pipe into the corrugated pipe and fix them well by welding.

Note: Refer to the diagram shown in the attachment

4.4.2 Flare Processing

- (1) Cut the connection pipe with the pipe cutter and remove the burrs.
- (2) Hold the pipe downward to prevent cuttings from entering the pipe.
- (3) Remove the flare nuts at the stop valve of the indoor unit, then insert them to the connection pipe, after that, flare the connection pipe with a flaring tool.
- (4) Check if the flare part is spread evenly and there are no cracks, as shown in the Fig.9.

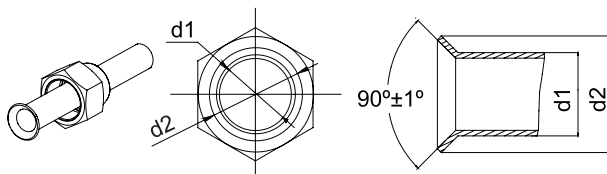


Fig.9

4.4.3 Bending Pipes

(1) The pipes are shaped by your hands. Be careful not to collapse them.

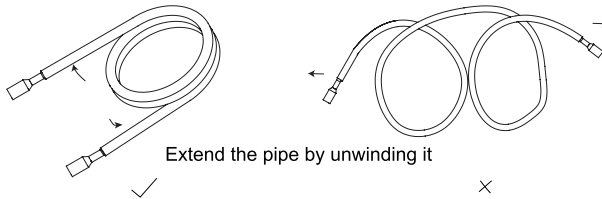


Fig.10

(2) Do not bend the pipes in an angle more than 90°.

(3) When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

(4) When bending the pipe, do not bend it as is. The pipe will be collapsed. In this case, cut the heat insulating pipe with a sharp cutter as shown in Fig.11, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the heat insulating pipe back on the pipe, and secure it with tape.

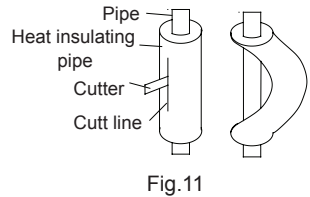


Fig.11

⚠ CAUTION!

- ① . To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 150 mm or over.
- ② . If the pipe is bent repeatedly at the same place, it will break.

4.4.4 Connecting the Pipe at the Indoor Unit Side

Detach the caps and plugs from the pipes.

⚠ CAUTION!

- ① . Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
- ② . Do not remove the flare nut until the connection pipe is to be connected so as to prevent dust and impurities from coming into the pipe system.

Centering the pipe against port on the indoor unit, turn the flare nut with your hand. When the flare nut is tightened properly by your hand, use a torque wrench to finally tighten it.

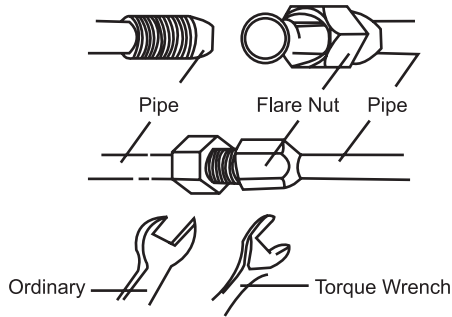


Fig.12

Table.7 Flare nut tightening torque

Pipe Diameter (inch)	Tightening Torque (N·m)
3/8	35-40
1/2	45-50
5/8	60-65
3/4	70-75
7/8	85-90

Note: After all ,cover the throttle by a damping block from the attached bag to lower the airflow noise of refrigerant.

4.4.5 Connecting the Pipe at the Outdoor Unit Side (Fig.13)

- (1) Refer to Table.8 for field tubing diameters. The pipe must remain round. Do not crimp end of the line.

Table.8 Refrigerant Line Set Inches (mm)

Model	Valve Field Connections	
	Liquid Line	Gas Line
31VA024C24	3/8 inch	5/8 inch
31VA036C24	3/8 inch	3/4 inch
31VA048C24	3/8 inch	7/8 inch
31VA060C24	1/2 inch	7/8 inch

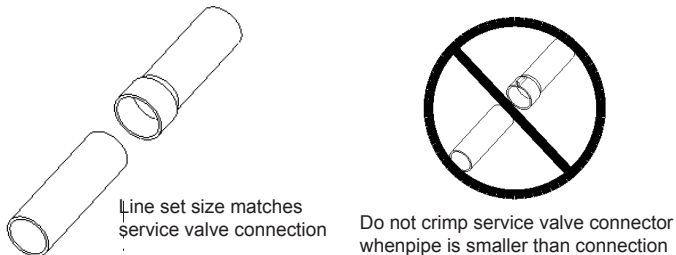


Fig.13

- (2) Remove service cap and core from both the gas and liquid line service ports.

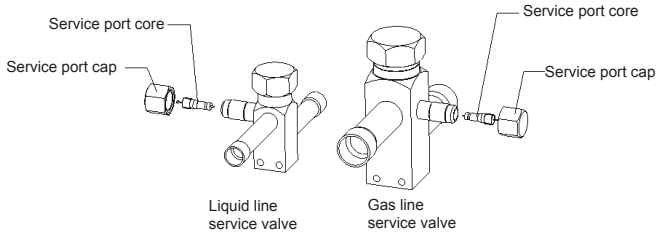


Fig.14

- (3) Flow regulated nitrogen (at 1 to 2 psig) through the low-side refrigeration gauge set into the liquid line service port valve, and out of the gas line service port valve.

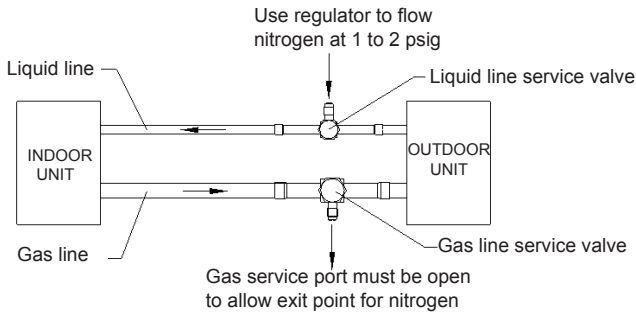


Fig.15

- (4) To help protect service valve seals during brazing, wrap water saturated cloths around service valve bodies and copper tube stubs. Water saturated cloths must remain water saturated throughout the brazing and cool-down process.

Braze line to the service valve.

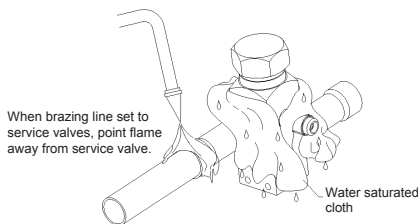


Fig.16

After all connections have been brazed, disconnect manifold gauge set from service ports. Apply water saturated cloths to both services valves to cool piping. Once piping is cool, remove all water saturated cloths. Reinstall service cap and core. Refer to the unit installation instructions for the next step in preparing the unit.

4.4.6 Checking the Pipe Connections for Gas Leaking

For both indoor and outdoor unit side, check the joints for gas leaking by the use of a gas leakage detector without fail when the pipes are connected.

4.4.7 Heat Insulation on the Pipe Joints (Indoor Side Only)

Stick coupler heat insulation (large and small) to the place where connecting pipes.

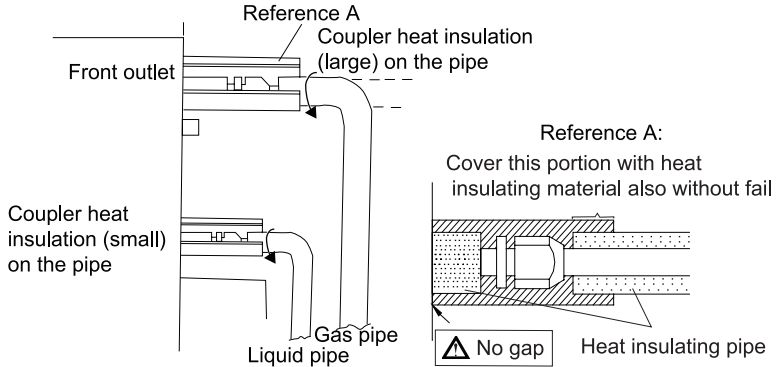


Fig.17

4.5 Vacuum and Gas Leakage Inspection



Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for air purging!

4.5.1 Vacuum

- (1) Remove the caps of the liquid valve, gas valve and also the service port.
- (2) Connect the hose at the low pressure side of the manifold valve assembly to the service port of the unit's gas valve, and meanwhile the gas and liquid valves should be kept closed in case of refrigerant leak.
- (3) Connect the hose used for evacuation to the vacuum pump.
- (4) Open the switch at the lower pressure side of the manifold valve assembly and start the vacuum pump. Meanwhile, the switch at the high pressure side of the manifold valve assembly should be kept closed, otherwise evacuation would fail.
- (5) The evacuation duration depends on the unit' capacity, generally, 30 minutes for the 24/36K units, 45 minutes for the 42/48/60 units. And verify if the pressure gauge at the low pressure side of the manifold valve assembly reads -1.0Mp (-75cmHg), if not, it indicates there is leak somewhere. Then, close the switch fully and then stop the vacuum pump.
- (6) Wait for some time to see if the system pressure can remain unchanged, 5 minutes for the 24K units, 10 minutes for 48/60K units. During this time, the reading of the pressure gauge at the low pressure side can not be larger than 0.005Mp (0.38cmHg).
- (7) Slightly open the liquid valve and let some refrigerant go to the connection pipe to balance the pressure inside and outside of the connection pipe, so that air will not come into the

connection pipe when removing the hose.

Note: that the gas and liquid valve can be opened fully only after the manifold valve assembly is removed.

(8) Place back the caps of the liquid valve, gas valve and also the service port.

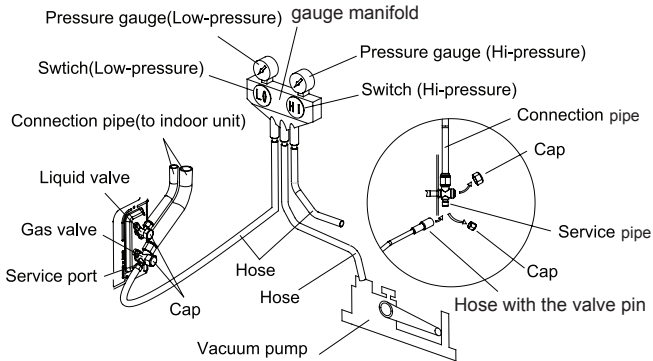


Fig.18

Note: For the large-sized unit, it has the service port for both the gas valve and the liquid valve. During evacuation, it is available to connect two hoses of the manifold valve assembly to two service ports to quicken the evacuating speed.

4.5.2 Additional Charge

Refrigerant suitable for a piping length of 5m is charged in the outdoor unit at the factory. When the piping is longer than 7 m, additional charging is necessary. For the additional amount, see Table 9.

Table 9

Model \ Item	Additional Refrigerant Amount for Extra Pipe Length
31VA024C24	54 g/m
31VA036C24	54 g/m
31VA048C24	54 g/m
31VA060C24	110 g/m

4.6 Installation of the Drain Pipe

4.6.1 Precautions When Doing the Piping Work

- (1) 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.
- (2) Keep pipe size equal to or greater than that of the connecting pipe.
- (3) Install the drain piping as shown and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.

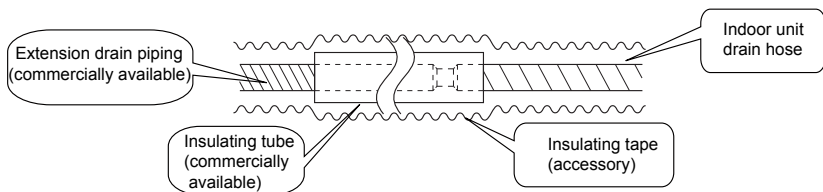


Fig.19

- (4) Connect the drain hose.(Fig.20)

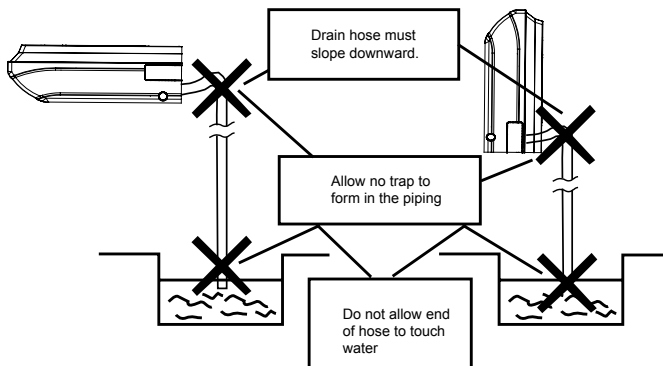


Fig.20

4.6.2 Installing the Drain Pipes

- (1) For determining the position of the drain hose, perform the following procedures.
- (2) Insert the drain pipe to the drain outlet of the unit and then tighten the clamp securely with tape. (Fig.21)
- (3) Connect the extension drain pipe to the drain pipe and then tighten the clamp with tape.

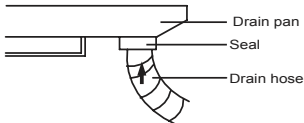


Fig.21

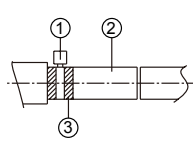


Fig.22

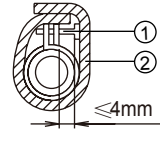


Fig.23

Tighten the clamp until the screw head is less than 4 mm from the hose.(Fig.22)

- ① - Metal clamp ② - Drain hose ③ - Grey tape

Insulate the pipe clamp and the drain hose using heat insulation sponge.(Fig.23)

- ① - Metal clamp ② - Insulation sponge

- (4) When drain hose requires extension, obtain an extension hose commercially available.
- (5) After connecting the local drain hose, tape the slits of the heat insulation tube.
- (6) Connect the drain hose to the local drain pipe. Position the inter connecting wire in the same direction as the piping.

4.6.3 Connecting the Drain Hose

- (1) Connect the extension auxiliary pipe to the local piping.
- (2) Prepare the local piping at the connection point for the drain pipe, as shown in the installation drawings.

Note: Be sure to place the drain hose as shown in the diagram below, in a downward sloping direction.

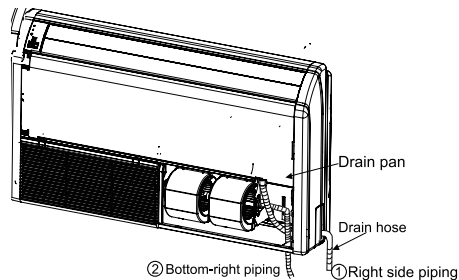


Fig.24

4.6.4 Testing of Drain Piping

- (1) After piping work is finished, check if drainage flows smoothly.
- (2) As shown in the figure, pour water into the drain pan from the right side to check that water flows smoothly from the drain hose.

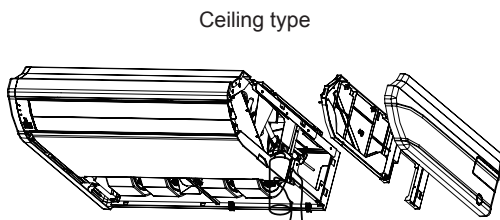


Fig.25

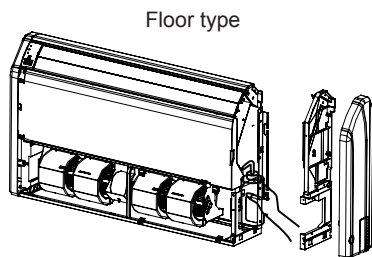




Fig.26

4.7 Electrical Wiring

4.7.1 Wiring Precautions

 WARNING !
① . Before obtaining access to terminals, all supply circuits must be disconnected.
② . The rated voltage of the unit is as shown as Table 4 and Table 5
③ . Before turning on, verify that the voltage is within the 198~264V range(for single phase unit) .
④ . Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
⑤ . Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner.
⑥ . The special branch circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3 mm between the contacts of each pole.
⑦ . Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
⑧ . Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.

 CAUTION !
① . The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
② . When the voltage is low and the air conditioner is difficult to start, contact the power company to raise the voltage.

4.7.2 Electrical Wiring

(1) For solid core wiring (Fig.27)

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 25 mm (15/16") .
- 2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
- 3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- 4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

(2) For strand wiring (Fig.27)

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 10 mm (3/8") .
- 2) Using a screwdriver, remove the terminal screw (s) on the terminal board.
- 3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- 4) Position the round terminal wire, and replace and tighten the terminal screw with a screwdriver. (Fig.28)

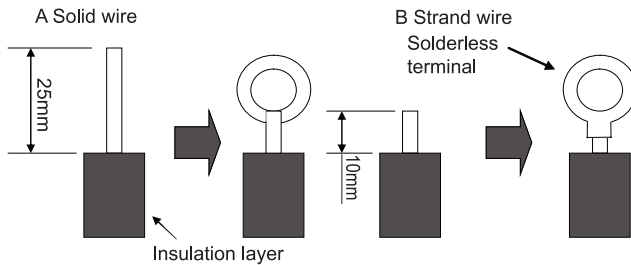


Fig.27

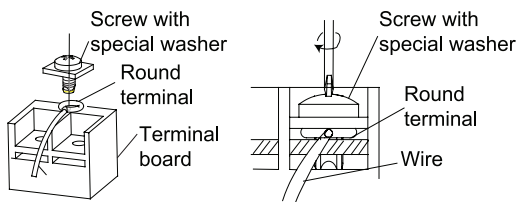


Fig.28

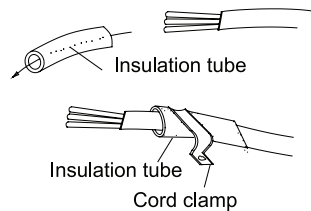



Fig.29

(3) How to fix connection cord and power cord with cord clamp

After passing the connection cord and power cord through the insulation tube, fasten it with the cord clamp.(Fig.29)

 WARNING!
① . Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
② . Match the terminal block numbers and connection cord colors with those of the indoor unit side.
③ . Erroneous wiring may cause burning of the electric parts.
④ . Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.
⑤ . Always fasten the outside covering of the connection cord with cord clamps. (If the insulator is not clamped, electric leakage may occur.)
⑥ . Always connect the ground wire.

(4) Electric wiring between the indoor and outdoor units

Model:31VA024C24+21UT024C24; 31VA036C24+ 21UT036C24;

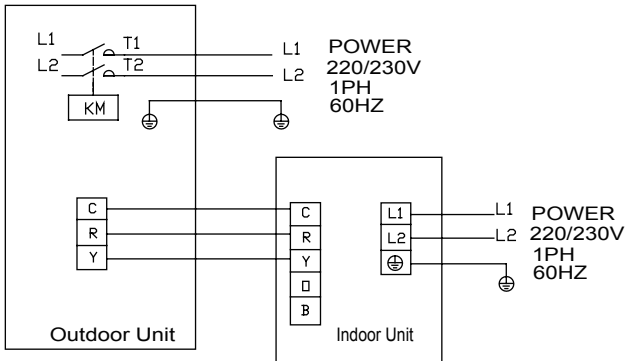


Fig.30

Model:31VA048C24+21UT048C24; 31VA060C24+ 21UT060C24;

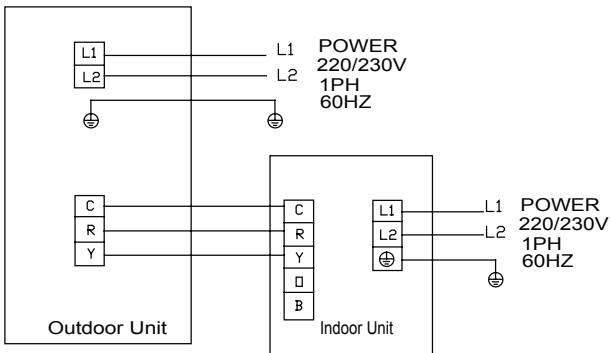


Fig.31

(5) Electric wiring of indoor unit side

Remove the left cover plate and the electric box cover then insert the end of the communication cord and the power cable into the terminal board.

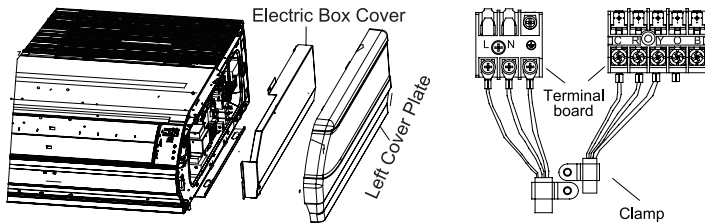


Fig.32

⚠ CAUTION!

① . The power cord and the wire of the fresh air valve are high-voltage, while the communication cord and connection wire of the wired controller are low-voltage. They should run separately against electromagnetic interference.
② . The high-voltage and low-voltage lines should pass through the rubber rings at different electric box covers.
③ . Do not bundle the connection wire of the wired controller and the communication cord together, or arrange them in parallel, otherwise improper operation would occur.
④ . The high-voltage and low-voltage lines should be fixed separately and securely, with internal big clamps for the former and small clamps for the latter.
⑤ . Tighten the indoor/outdoor connection cord and power cord respectively on the terminal boards with screws. Faulty connection may cause a fire.
⑥ . If the indoor unit connection cord (to the outdoor unit) and power supply are wired incorrectly, the air conditioner may be damaged.
⑦ . Connect the indoor unit connection cord properly based on the corresponding marks as shown in Fig.31.
⑧ . Ground both the indoor and outdoor units by attaching a ground wire.
⑨ . Unit shall be grounded in compliance with the applicable local and national codes.
⑩ . The signal line of the wire controller must be separated from the power line.

5 Installation of Controllers

Refer to the Installation Manual of the controller for more details.

Functions for Remote Controller 29FRC-100A	Available Function
Run Mode	√
Temperature Setting	√
Fan Speed	√
"Up-down" Swing	√
Timer	√
Sleep	√
"Left-right" Swing	×
Health/Energy-saving	×
Dry	×
Turbo	×
Switch among indoor/outdoor/setting Temp.	×
Lighting	×

Note:

- ① "√" means the function is available for this series unit; "×" means the function is unavailable.
- ② Please refer to the remote controller manual for specific function setting.

5.1 Installation of Controllers Mainbord Code Setting:

Please find the corresponding mainboard according to the unit type and then check whether the mainboard code is correctly set.

The relation between mainboard type and unit type:

Duct type indoor unit mainboard: Z4G25A

Code location and meaning:

Please find the corresponding mainboard according to the complete unit type and then check whether the mainboard code only. The third code remains in "3". Please refer to the following figure for detailed coding.

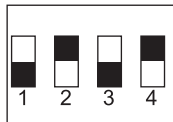


Fig.33

6 Test Running

6.1 Trial Operation and Testing

Turn on the crankcase heater 12 hours before the startup of the whole system.

Indoor Unit:

LED Board Display as shown in Fig.34 and Table.10.

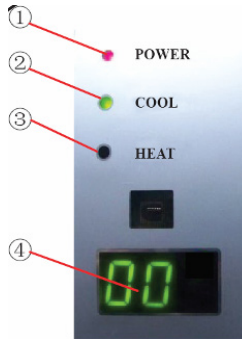


Fig.34

Table.10

① . Indication LED of “POWER”	The LED will go on when the unit is power on.
	The LED will go off when the unit is power off.
② . Indication LED of “COOL”	The LED is on under “COOL” mode operating.
	The LED is off when “COOL” mode is not operating.
③ . Indication LED of “HEAT”	The LED is on under “HEAT” mode operating.
	The LED is off when “HEAT” mode is not operating.
④ . Display of temperature or malfunction code.	

When a malfunction happens except that the FAN mode continues at the mode of COOL, DRY, HEAT, the outdoor unit and fan motor will stop, which will not affect the LCD display. When the controller displays a malfunction, please turn off the unit and contact the service center. The meaning of error codes as shown Table.11:

Table.11

Error code	Error code description
E2	Indoor anti-freezing protection
E6	Communication malfunction
E9	Water overflow protection
F0	Indoor unit ambient sensor malfunction at air return opening
F1	Evaporator sensor malfunction

Outdoor Unit: When a malfunction happens during the operation, the state(Off, On, Flashing) of two LEDs on the control board(D1[Red] and D2 [Red]) indicate diagnostics conditions that are described in Table.12.

Table.12

D1 [Red]	D2 [Red]	Trouble Case	Origin of Trouble	Measure
OFF	OFF	Power problem	No power (24V) to demand control board terminals R and C or demand control board failure.	1.Check control transformer power (24V). 2.If power is available to demand control board and LED(s) do not light, replace control board.
0.5s Circulating Flash	OFF	Actuation of high pressure switch	High pressure switch	Abnormality is detected when the contact of the high pressure switch opens for 3 sec. The system will be shut down. The unit will report this fault. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
OFF	0.5s Circulating Flash	Actuation of low pressure switch	Low pressure switch	When the unit runs more than 4 minutes or does not run, the low pressure switch opens for more than 3sec and the system will be shut down..The unit will report this fault. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
0.5s Circulating Flash	Continuous Light	Air discharge high-temperature protection of compressor	Exhaust over-temperature Protection	The exhaust temperature is higher than 125°C for more than 5s, the system will be shut down. After stopping the compressor for 3 mins, if the exhaust temperature is lower than 90°C for more than 5s, the compressor will re-start. For the first two faults within 30 minutes, the unit can be recovered automatically. If over three times, the unit cannot be recovered automatically.
Continuous Light	OFF	Malfunction of exhaust Temp. Sensor	Exhaust temperature sensor	If the exhaust temperature sensor is detected of open circuit 5 seconds successively after the compressor is started for 3 minutes or short circuit 5 seconds successively at any time The system will be shut down. After the fault is eliminated, the system can automatically resume to operation.
0.5s Circulating Flash	0.5s Circulating Flash	Normal operation	Unit operating normally or in standby mode.	None required

To stop test running, press the ON/OFF button.

For the operation method, refer to the operating manual and perform operation check.

Check that there are no abnormal sounds or vibration during the test running.

6.2 Working Temperature Range

Table.13

Test condition	Indoor side		Outdoor side	
	DB(°C)	WB(°C)	DB(°C)	WB(°C)
Nominal cooling	26.7	19.4	35	23.9
Rated cooling	26.7	19.4	46.1	23.9
Low temp cooling	19.4	13.9	19.4	13.9

Notes:

- ① . The design of this unit conforms to the requirements of EN14511 standard.
- ② . The air volume is measured at the relevant standard external static pressure.
- ③ . Cooling (heating) capacity stated above is measured under nominal working conditions corresponding to standard external static pressure. The parameters are subject to change with the improvement of products, in which case the values on nameplate shall prevail.
- ④ . In this table, there are two outside DB values under the low temp cooling conditions, and the one in the brackets is for the unit which can operate at extreme low temperature.

7 Troubleshooting and Maintenance

7.1 Troubleshooting

If your air-conditioning unit suffers from abnormal operation or failure, please first check the following points before repair:

Table 14

Failure	Possible Reasons
The unit cannot be started.	<ul style="list-style-type: none"> ① . The power supply is not connected. ② . Electrical leakage of air-conditioning unit causes tripping of the leakage switch. ③ . The operating keys are locked. ④ . The control loop has failure.
The unit operates for a while and then stops.	<ul style="list-style-type: none"> ① . There is obstacle in front of the condenser. ② . The control loop is abnormal. ③ . Cooling operation is selected when the outdoor ambient temperature is above 48°C.
Poor cooling effect.	<ul style="list-style-type: none"> ① . The air filter is dirty or blocked. ② . There is heat source or too many people inside the room. ③ . The door or window is open. ④ . There is obstacle at the air intake or outlet. ⑤ . The set temperature is too high . ⑥ . There is refrigerant leakage. ⑦ . The performance of room temperature sensor becomes worse

Note: After carrying out the check of the above items and taking relevant measures to solve the problems found but the air-conditioning unit still does not function well, please stop the operation of the unit immediately and contact the local service agency designated by DELTA. Only ask professional serviceman to check and repair the unit.

7.2 Routine Maintenance

 **WARNING !**

- | |
|---|
| ① . Do not turn off the unit and cut off the main power supply when cleaning the air conditioner, otherwise electric shock may happen. |
| ② . Do not make the air conditioner wet or electric shock may be lead; Ensure that the air conditioner will not be cleaned by water rinsing under any circumstance. |
| ③ . Volatile liquid like thinner or gasoline would damage the appearance of air conditioner. (So, only soft dry cloth and wet cloth moistened by neutral cleaning fluid could be used to clean the surface panel of air conditioner.) |

(1) Cleaning the Indoor Unit

- 1) Remove the suction grille.
- 2) Slide both knobs simultaneously and then pull them downward slowly.
- 3) Remove the air filter from the unit (Fig.35)
- 4) Clean the air filter
- 5) Use a vacuum or water to clean the air filter when it is too dirty. If necessary, neutral detergent can be used. After that, air dry it at a shady place.
- 6) Clean the suction grille by a soft brush with water and detergent, and then air dry it.

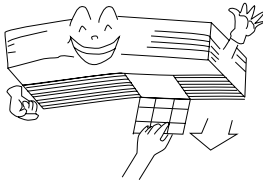


Fig.35

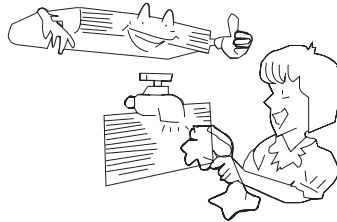


Fig.36

- 7) Reinstall the filter and suction grille as before.

(2) At the Start of the Seasonal Use

- 1) Check if there is blockage at the inlet or outlet vent of air conditioner.
- 2) Check if the earth wire has been attached reliably by the skilled serviceman.
- 3) Check if the exhausted batteries of the wireless controller have been replaced.
- 4) Check if the air filter had been installed well by professional.

Keep the power switch "On" 8 hours before the startup of the unit which has not been used for a long period.

Note: all above should be operated by the skilled serviceman.

(3) At the End of the Seasonal Use

- 1) Cut off the power supply main switch
- 2) Clean the air filters and other parts by the skilled serviceman.
- 3) Leave the fan running for 2-3 hours to dry the inside of the unit.

Note: all above should be operated by the skilled serviceman.

Thank you for Choosing



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