

Part II : Installation and Maintenance

7. Safety Precautions



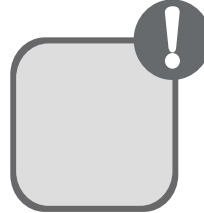
Forbidden Items! It indicates that improper operation might lead to human casualty or sever injury.



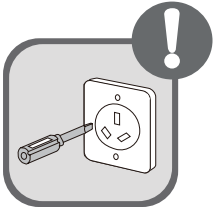
Items need to be followed. It indicates that improper operation might lead to personal injury or property damage.



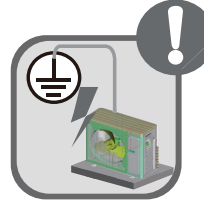
Follow this instruction to complete the installation work.
Please carefully read this manual before unit startup and service.



Installation should be conducted by dealer or qualified personnel. Please do not attempt to install the unit by yourself. Improper handling may result in water leakage, electric shock or fire disaster etc.



Before installation, please check if the power supply is in accordance with the requirements specified on the nameplate. And also take care of the power safety.



Make sure the unit can be earthed properly and soundly after plugging into the socket so as to avoid electric shock. Please do not connect the groundwire to gas pipe, water pipe, lightning rod or telephone line.



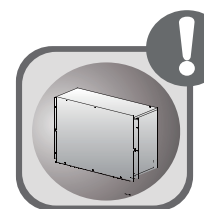
Be sure to use the exclusive accessory and part to prevent the water leakage, electric shock and fire accidents.



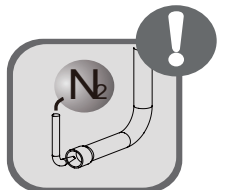
If refrigerant leakage happens during installation, please ventilate immediately. Poisonous gas will emerge if the refrigerant gas meets fire.



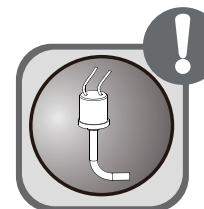
Wire size of power cord should be large enough. The damaged power cord and connection wire should be replaced by exclusive cable.



After connecting the power cord, please fix the electric box cover properly in order to avoid accident.



Never fail to comply with the nitrogen charge requirements. Charge nitrogen when welding pipes.



Never short-circuit or cancel the pressure switch to prevent unit damage.



Please firstly connect the wired controller before energization, otherwise wired controller can not be used.



Before using the unit, please check if the piping and wiring are correct to avoid water leakage, refrigerant leakage, electric shock, or fire etc.



Do not insert fingers or objects into air outlet/inlet grille.



Open the door and window and keep good ventilation in the room to avoid oxygen deficit when the gas/oil supplied heating equipment is used.



Never start up or shut off the air conditioner by means of directly plug or unplug the power cord.



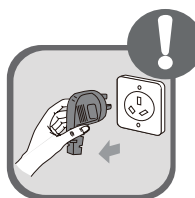
Turn off the unit after it runs at least five minutes; otherwise it will influence oil return of the compressor.



Do not allow children operate this unit.



Do not operate this unit with wet hands.



Turn off the unit or cut off the power supply before cleaning the unit, otherwise electric shock or injury may happen.



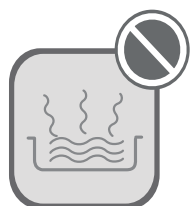
Never spray or flush water towards unit, otherwise malfunction or electric shock may happen.



Do not expose the unit to the moist or corrosive circumstances.



Electrify the unit 8 hours before operation. Please switch on for 8 hours before operation. Do not cut off the power when 24 hours short-time halting (to protect the compressor).



Volatile liquid, such as diluent or gas will damage the unit appearance. Only use soft cloth with a little neutral detergent to clean the outer casing of unit.



Under cooling mode, please don't set the room temperature too low and keep the temperature difference between indoor and outdoor unit within 5°C.



If anything abnormal happens (such as burning smell), please power off the unit and cut off the main power supply, and then immediately contact Gree appointed service center. If abnormality keeps going, the unit might be damaged and lead to electric shock or fire.



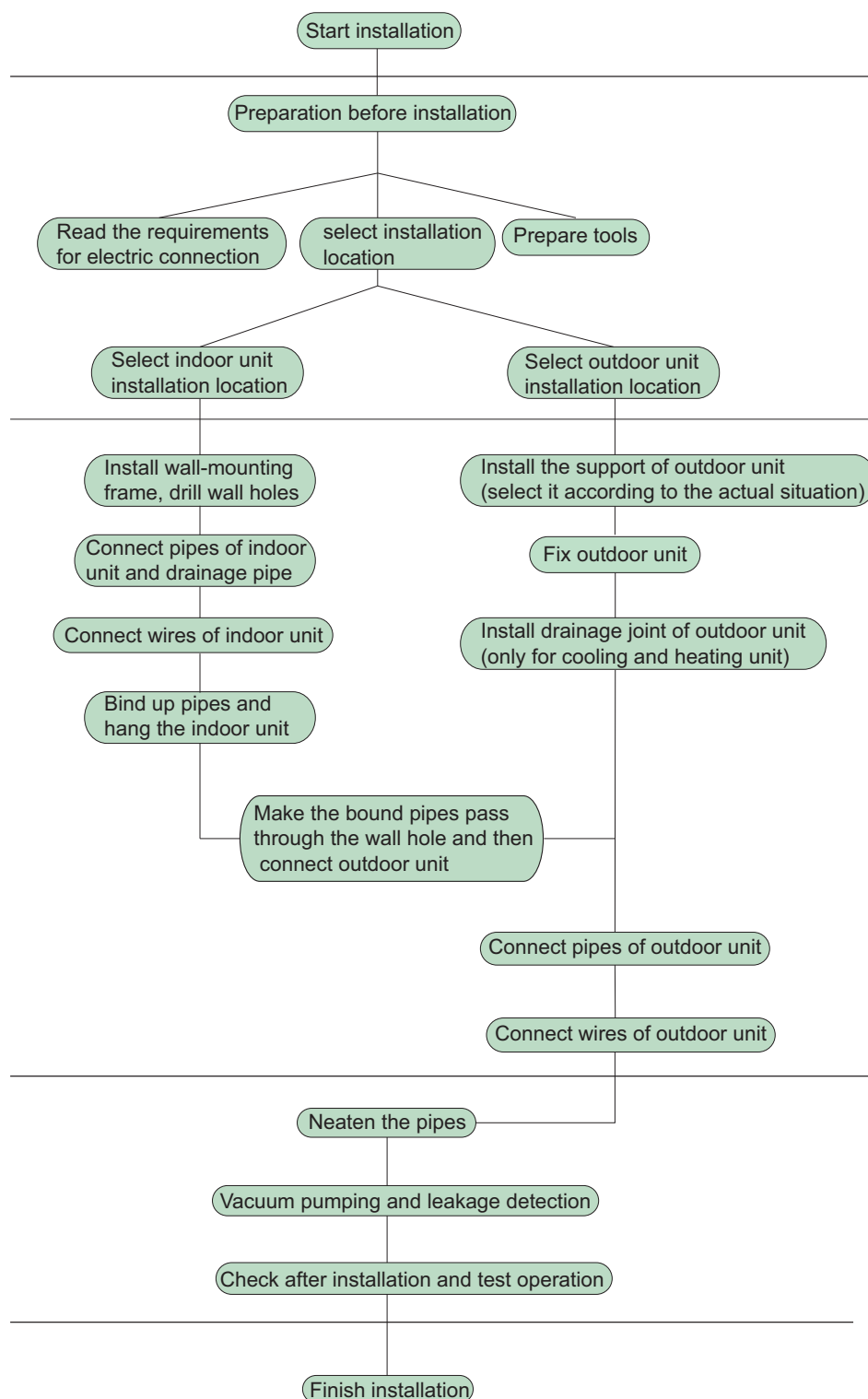
User is not allowed to repair the unit. Fault service may cause electric shock or fire accidents. Please contact Gree appointed service center for help.

Main Tools for Installation and Maintenance

<div>1. Level meter, measuring tape</div> <div></div>	<div>2. Screw driver</div> <div></div>	<div>3. Impact drill, drill head, electric drill</div> <div></div>
<div>4. Electroprobe</div> <div></div>	<div>5. Universal meter</div> <div></div>	<div>6. Torque wrench, open-end wrench, inner hexagon spanner</div> <div></div>
<div>7. Electronic leakage detector</div> <div></div>	<div>8. Vacuum pump</div> <div></div>	<div>9. Pressure meter</div> <div></div>
<div>10. Pipe pliers, pipe cutter</div> <div></div>	<div>11. Pipe expander, pipe bender</div> <div></div>	<div>12. Soldering appliance, refrigerant container</div> <div></div>

8. Installation Manual

Installation procedures


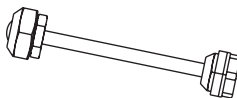


Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.1 Preparation before Installation

8.1.1 Standard parts

Please use the following standard parts supplied by GREE.

Pars of Outdoor Unit				
Number	name	picture	Quantity	Remark
1	Owner's manual		1	
2	Tube connector subassy		6	

8.1.2 Selecting installation site



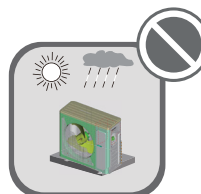
Forbidden Items! It indicates that improper operation might lead to human casualty or sever injury.



Items need to be followed. It indicates that improper operation might lead to personal injury or property damage.



Install the unit at a place where is adequate to withstand the weight of the unit and make sure the unit would not shake or fall off.



Never expose the unit under direct sunshine and rainfall. install the unit at a place where is against dust, typhoon and earthquake.



Try to keep the unit away from combustible, inflammable and corrosive gas or exhaust gas.



Leave some space for heat exchanging and servicing so as to guarantee unit normal operation.



Keep the indoor and outdoor units close to each other as much as possible. Keep the pipe length and bends as short as possible.



Never allow children to approach to the unit and take measures to prevent children touching the unit.

When the outdoor unit is totally surrounded by walls, the installation space of the unit should be as required in Fig.1.

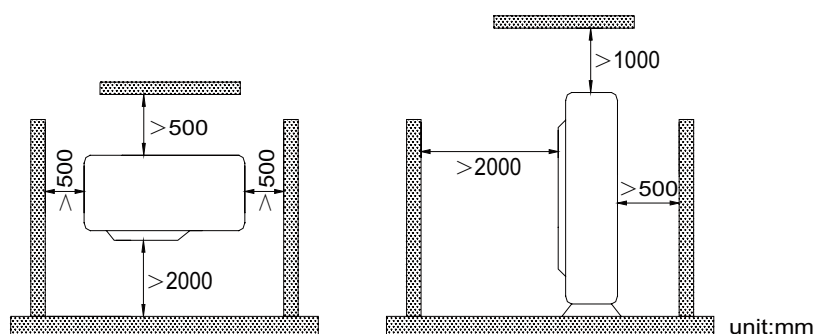


Fig.1

8.1.3 Piping Connection

The maximum pipe length is shown in the following table. When the distance between units (piping length) is out of the range listed below, normal run of the unit can not be guaranteed.

Model	Connecting Pipe (mm)		Max. Pipe length(m)	Max. Height Difference between Indoor Unit and Outdoor Unit (m)
	Liquid	Gas		
GWHD(36)NK3J O	Φ 6.35	Φ 9.52	75	When the outdoor unit is above maximum height difference between indoor and outdoor units is up to 15m; When the indoor unit is above, maximum height difference between indoor and outdoor units is up to 15m.
GWHD(42)NK3J O	Φ 6.35	Φ 9.52	75	

Note:

- ① Use water-proof insulating pipe.
- ② Wall thickness of pipe: 0.5-1.0 mm; bearing pressure: 3.0MPa
- ③ The longer the connection pipe is, the more cooling and heating capacity will decrease.

8.2 Installation Instruction

8.2.1 Outline and dimension of the outdoor unit

GWHD(36)NK3JO

Outline dimension and Mounting holes

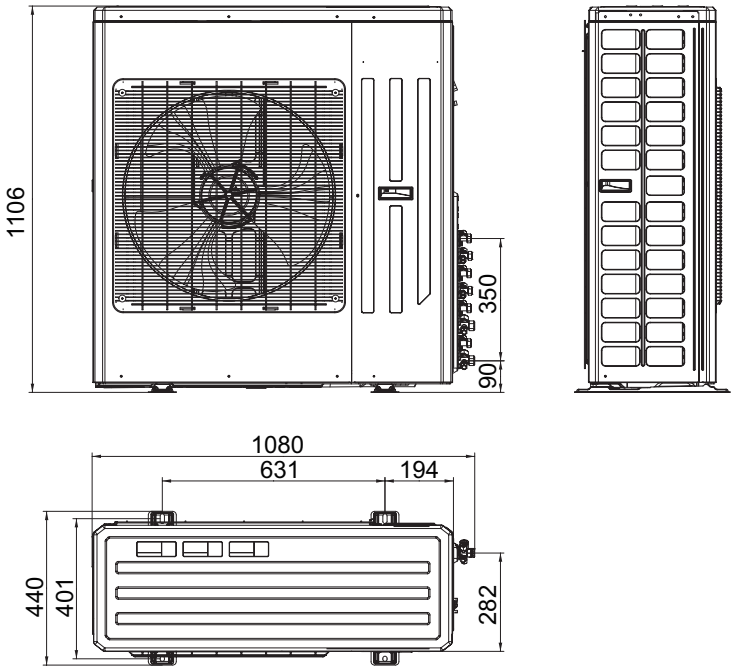


Fig.2

GWHD(42)NK3JO

Outline dimension and Mounting holes

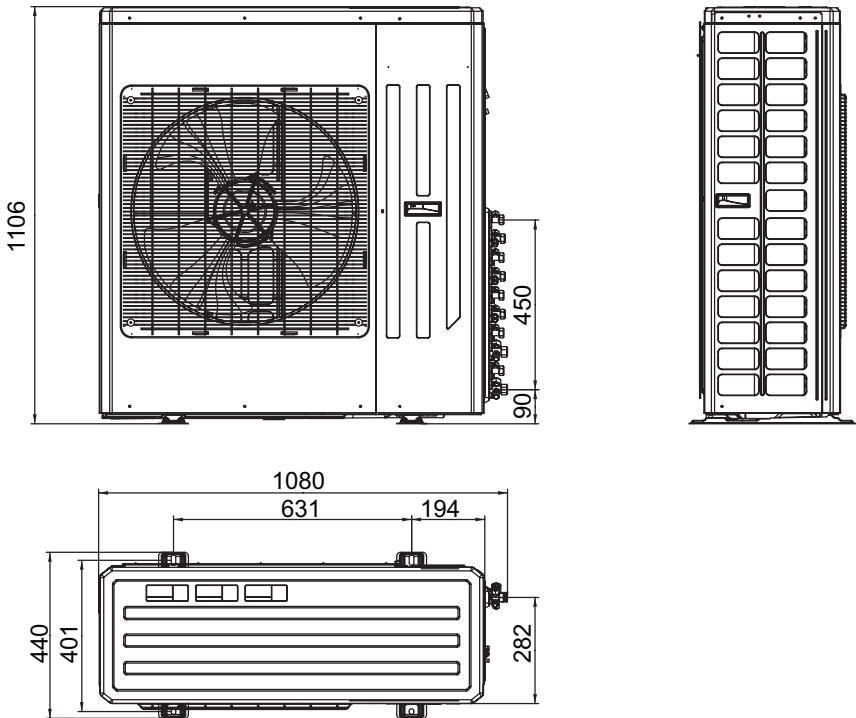


Fig.3

8.2.2 Installation of the Connection Pipe

Connecting piping for indoor unit and outdoor unit are in manifold mode. (As shown below).



Fig.4

1) Piping between the Indoor and Outdoor Units

- If the liquid and gas stop valves which have the sign of A , B, C, D or E have not been connected to the indoor units, please turn off the screw cap with the spanner airproof.
- Refer to Fig.5 for the moments of torque for tightening screws.
- Let the flare end of the copper pipe point at the screw and then tighten the screw by hand.
- After that, tighten the screw by the torque wrench unit it clatters (as shown in Fig.5).
- The bending degree of the pipe can not be too small; otherwise it will crack. And please use a pipe tube bender to bend the pipe.
- Wrap the exposed refrigerant pipe and the joints by sponge and then tighten them with the plastic tape.

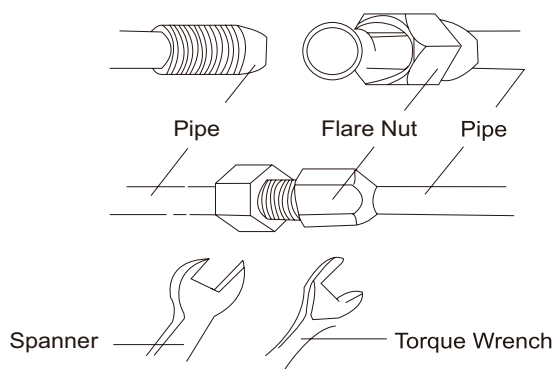


Fig.5

Pipe diameter(inch)	Thickness of copper tube	Tightening torque(ft·lbf)
Φ6.35mm	≥0.8mm	15~30 N·m
Φ9.52mm	≥0.8mm	35~40 N·m
Φ12.7mm	≥0.8mm	45~50 N·m
Φ15.9mm	≥1.0mm	60~65 N·m

⚠ CAUTION!

- ① . During the connection of the indoor unit and the refrigerant pipe, never pull any joints of the indoor unit by force; otherwise the capillary pipe or other pipe may crack, which then would result in leakage.
- ② . The refrigerant pipe should be supported by brackets, that is, don't let the unit withstand the weight of it.
- ③ . If the piping connection size of outdoor unit does not match the piping connection size of indoor unit, use the piping connection dimension of indoor unit. And use different-diameter joints which is installing on the place of the piping connection to connect the indoor unit.

CAUTION!

- For the Free Match system, each pipe should be labeled to tell which system it belongs to avoid mistaken inaccurate piping.

2) Allowable pipe length and drop height among indoor and outdoor units
If the total refrigerant pipe length (liquid pipe) is smaller than that listed in the table below, no additional refrigerant will be charged.

Model	GWHD(36)NK3JO	GWHD(42)NK3JO
Total Liquid Pipe Lenght (a+b+c+d+e)	40	40

Allowable Length and Height Fall of the Refrigerant Pipe

		Allowable Value		Fitting pipe
		GWHD(36)NK3JO	GWHD(42)NK3JO	
Total length(actual length) of fitting pipe		75m	75m	$L_1+L_2+...+L_M(M \leq 5)$
length of farthest fitting pipe(ft)		25m	25m	$L_x (X=1, 2, 3, 4,5)$
Height difference between outdoor unit and indoor unit	Outdoor unit at upper	15m	15m	H1
	Outdoor unit at lower	15m	15m	H3
Height difference between indoor units(ft)		7.5m	7.5m	H2

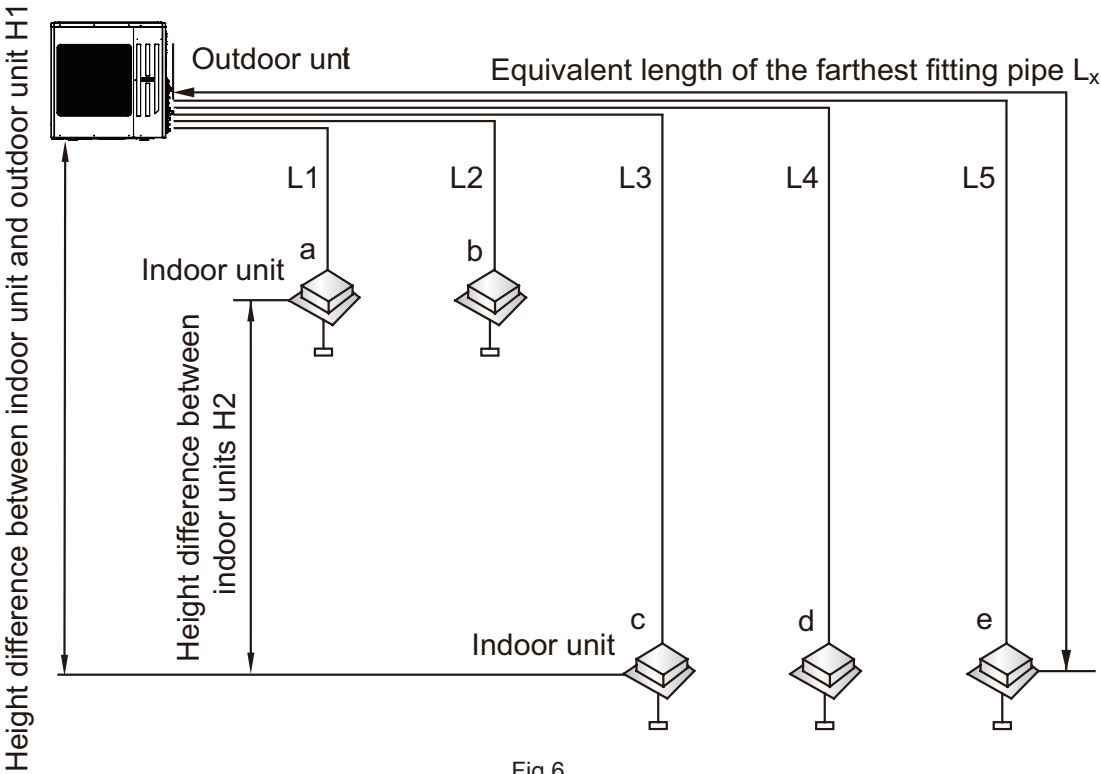
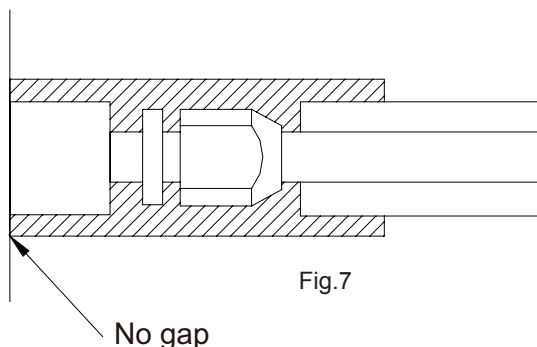


Fig.6

3) Installation of the Protection Layer of the Refrigerant Pipe

- The refrigerant pipe should be insulated by the insulating material and plastic tape in order to prevent condensation and water leakage.
- The joints of the indoor unit should be wrapped with the insulating material and no gap is allowed on the joint of the indoor unit, as shown in Fig.7.



⚠ CAUTION!

After the pipe is protected well enough, never bend it to form a small angle; otherwise it would crack or break.

4) Wrap the Pipe with Tape:

- Bundle the refrigerant pipe and electric wire together with tape, and separate them from the drain pipe to prevent the condensate water overflowing.
- Wrap the pipe from the bottom of the outdoor unit to the top of the pipe where it enters the wall. During the wrapping, the later circle should cover half of the former one.
- Fix the wrapped pipe on the wall with clamps.

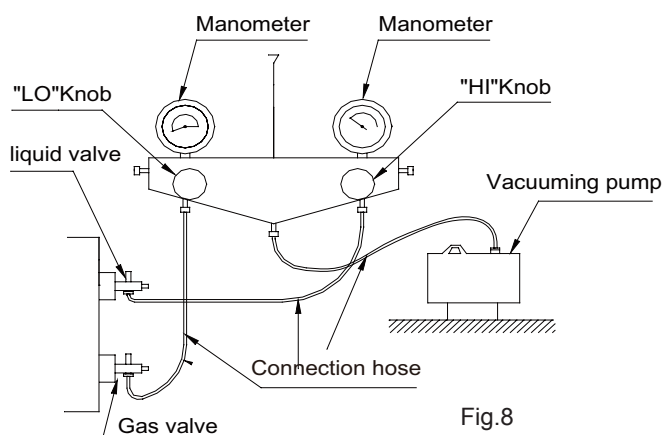
⚠ CAUTION!

- Do not wrap the pipe too tightly; otherwise the insulation effect would be weakened. Additionally, make sure the drain hose is separated from the pipe.
 - After that, fill the hole on the wall with sealing material to prevent wind and rain coming into the room.
- (4) Support and protection for pipeline Support should be made for hanging connection pipe. Distance between each support can not be over 1m.

8.2.3 Air Purging and Refrigerant Charge

Air purging

- The refrigerant has been charged into the outdoor unit before shipment, while additional refrigerant still need be charged into the refrigerant pipe during the field installation.
- Check if the liquid valve and the gas valve of the outdoor unit are closed fully.
- As shown in the following figure (Fig.8), expel the gas inside the indoor unit and refrigerant pipe out by the vacuum pump.



- When the compressor is not running, charge the R410A refrigerant into the refrigerant pipe from the liquid valve of the outdoor unit (do not do it from the gas valve).

Additional refrigerant charging

- Refrigerant Charge in the Outdoor Unit before Shipment

Notes:

- Outdoor unit has been charged refrigerant before delivery. The refrigerant charge is not included those charged additionally in the

indoor unit and the refrigerant pipe.

② . The amount of the additional refrigerant charge is dependent on the diameter and length of the liquid refrigerant pipe which is decided by the actual yield installation requirement.

③ . Record the additional refrigerant charge for future maintenance.

b. Calculation of the Additional Refrigerant Charge

Additional Refrigerant Charge=(Σ Length of Liquid Pipe Φ 9.52X54+ Σ Length of Liquid Pipe Φ 6.35X22)-880

The biggest additional refrigerant charge value is 800g. It means that if the calculated value exceed 800g, the additional refrigerant charge takes 800g, while the calculated value less than 800g, the additional refrigerant charge takes the calculated value.

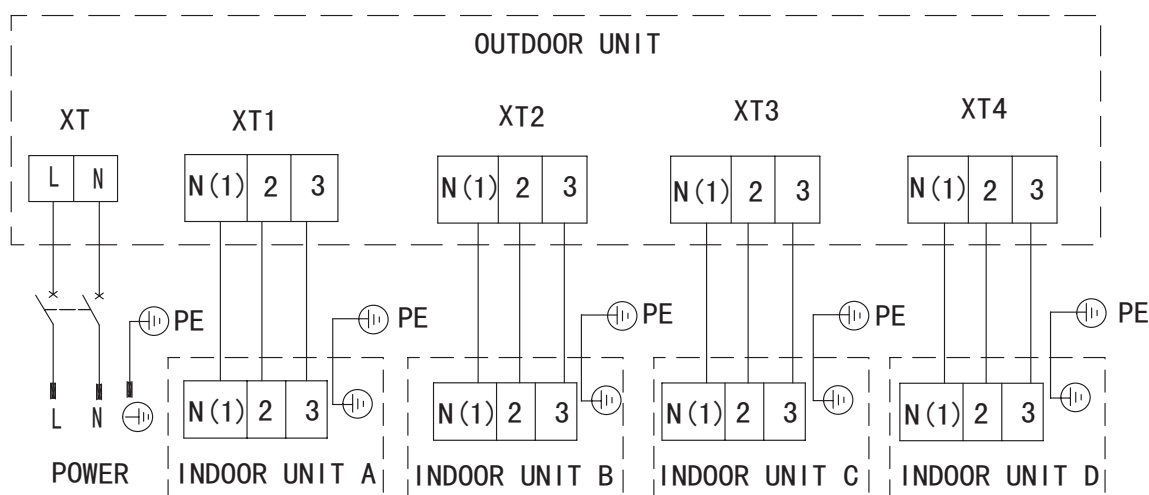
8.2.4 Electric Wiring

1) Wiring precautions

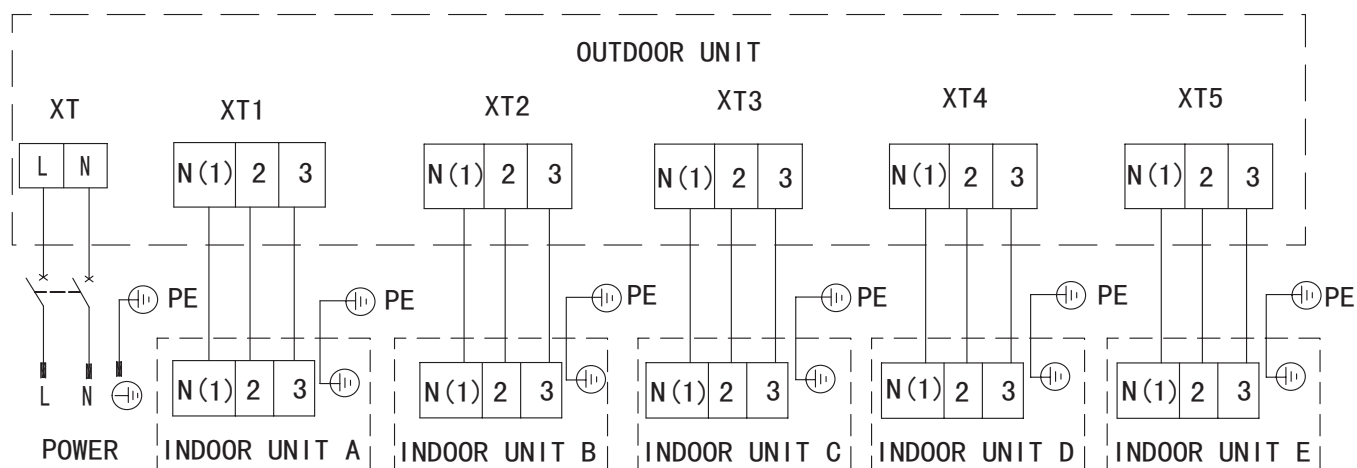
- The installation must be done in accordance with the national wiring regulations.
- Only the power cord with the rated voltage and exclusive circuit for the air conditioning can be used.
- Do not pull the power cord by force.
- The electric installation should be carried out by the technician as instructed by the local laws, regulations and also this manual.
- The diameter of the power cord should be large enough and once it is damaged it must be replaced by the dedicated one.
- The earthing should be reliable and the earth wire should be connected to the dedicated device of the building by the technician. Besides, the air switch coupled with the leakage current protection switch must be equipped, which is of enough capacity and of both magnetic and thermal tripping functions in case of the short circuit and overload.

Models	Power Supply	Capacity of the air Switch(A)	Recommended Cord(piecesx sectional area)
GWHD(36)NK3JO	220-240V~,50Hz	32	3 x 4mm ²
GWHD(42)NK3JO	220-240V~,50Hz	32	3 x 4mm ²

GWHD(36)NK3JO



GWHD(42)NK3JO



2) Earthing Requirements

- The air conditioner is classified into the Class I appliances, so its earthing must be reliable.
 - The yellow-green line of the air conditioner is the earth line and can not be used for other purpose, cut off or fixed by the tapping screw; otherwise it would cause the hazard of electric shock.
 - The reliable earth terminal should be provided and the earth wire can not be connected to any of the following places.
- ① Running water pipe; ② Coal gas pipe; ③ Sewage pipe; ④ Other places where the professional personnel think unreliable.

3) Electrical Cable Connection Cautions!

- ① . The mistake connecting line will result in malfunction. After the electrical wiring working, ensure the wire between the connection place and the fixed place has a certain freedom degree.
- ② . The connection piping and connection line of each indoor unit should connect well according to the instruction.
- ③ . The electric installation should be carried out by the technician as instructed by the local laws, regulations and also this manual.
- ④ . The installation location should be dry, and can't be expose in direct sunlight or strong breeze.
- ⑤ . Have to install a breaker in the circuit that can shut off the main power supply of the system. Besides, the air switch coupled with the leakage current protection switch must be equipped.

4) Wiring of the Power Cord

- ① . Open the side plate.
- ② . Connect the power card to the terminals "L1", "L2" and also the earthing bolt, and then connect the wiring terminals "N(1),2,3" of the indoor unit to those of the outdoor unit correspondingly.
- ③ . Fix the power cord with wire clips.
- ④ . Let the power cord go through the rubber ring.
- ⑤ . Supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord(code designation 60245 IEC 57).

CAUTIONS!

If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.