



Owner's Manual

Original Instructions
Commercial Air Conditioners

DC Inverter Multi VRF System

Applicable Models:

GMV-60WL/C-T(U)

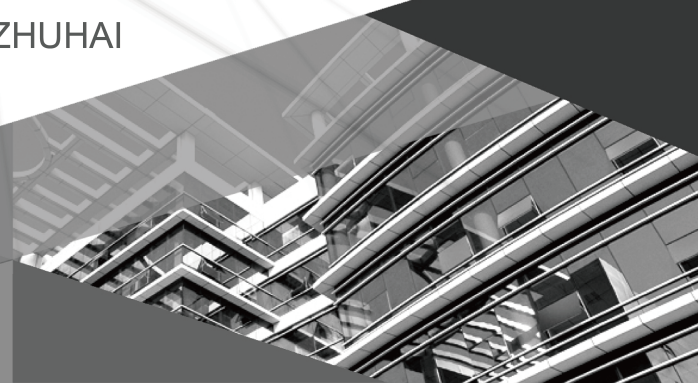
GMV-48WL/C-T(U)

GMV-36WL/C-T(U)

Thank you for choosing commercial air conditioners. Please read this Owner's Manual carefully before operation and retain it for future reference.

If you have lost the Owner's Manual, please contact the local agent or visit www.gree.com or send an email to global@cn.gree.com for the electronic version.

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI



Preface

For correct installation and operation, please read all instructions carefully. Before reading the instructions, please be aware of the following items:

| ⚠ WARNING | |
|------------------|---|
| (1) | Instructions for installation and use of this product are provided by the manufacturer. |
| (2) | Installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only. |
| (3) | For the safe operation of this unit, please read and follow the instructions carefully. |
| (4) | During operation, total capacity of indoor units should not exceed the total capacity of outdoor units. Otherwise, poor effect of cooling or heating may result. |
| (5) | Direct operators or maintainers should well keep this manual. |
| (6) | If this unit fails to operate normally, please contact our service center as soon as possible and provide the following information: 1) Content on the name plate (model number ,cooling capacity, production code, ex-factory date). 2) Malfunction details (before and after the malfunction occurs). |
| (7) | Each unit has been strictly tested and proved to be qualified before ex-factory. In order to prevent units from being damaged or operating normally because of improper disassembly, please do not disassemble the unit by yourself. If you need to disassemble and check units, please contact our service center. We will send specialists to guide the disassembly. |
| (8) | All graphics in this manual is only for your reference. For sales or production reasons, these graphics are subject to change by manufacturer without prior notice. |
| (9) | 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. Children should be supervised to ensure that they do not play with the appliance. |

User Notice



DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.



Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons:

- (1) Damage the product due to improper use or misuse of the product.
- (2) Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer.
- (3) After verification, the defect of product is directly caused by corrosive gas.
- (4) After verification, defects are due to improper operation during transportation of product.
- (5) Operate, repair, maintain the unit without abiding by instruction manual or related regulations.
- (6) After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers.
- (7) The damage is caused by natural calamities, bad using environment or force majeure.

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1 Safety Notices (Please be sure to abide them)

| | |
|------------------|---|
| ⚠ DANGER | If not abide them strictly, it may cause severe damage to the unit or the people. |
| ⚠ WARNING | If not abide them strictly, it may cause slight or medium damage to the unit or the people. |
| ⚠ CAUTION | This sign indicates that the items must be prohibited. Improper operation may cause severe damage or death to people. |
| NOTICE | This sign indicates that the items must be observed. Improper operation may cause damage to people or property. |

| ⚠ WARNING | |
|------------------|--|
| (1) | This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for the above special places, please adopt special air conditioner with anti-corrosive or anti-explosion function. |
| (2) | Follow this manual to complete the installation work. Please read this manual carefully before turning on or repairing the unit. |
| (3) | Installation should be conducted by the dealer or qualified personnel. Please do not attempt to install the air conditioner by yourself. Improper installation may lead to water leakage, electric shock or fire hazard, etc. |
| (4) | Before installation, please check whether the power supply is complied with that specified on the nameplate and check the safety of the power supply. |
| (5) | The air conditioner must be grounded reliably for avoiding electric shock. Please do not connect the earthing wire to gas pipe, water pipe, lightning rod or telephone line. |
| (6) | Be sure to use special accessories and parts for installation to prevent water leakage, electric shock and fire hazard, etc. |
| (7) | If refrigerant leakage happens, please ventilate the room immediately. |
| (8) | Diameter of power cord should be large enough. The damaged power cord and connection wire must be replaced with special cables. |
| (9) | When the power cord is connected, please fix the electric box cover properly to avoid safety accidents. |
| (10) | Never fail to comply with the nitrogen-charging welding process. Do charge nitrogen when welding the pipes. |
| (11) | Never short circuit or cancel the pressure switch to prevent unit damage. |
| (12) | As for the unit controlled by the wired controller, connect the wired controller well firstly and then energize the unit; otherwise, the unit can't operate normally. |
| (13) | When installation is finished, please check whether the drainage pipes, pipelines and electric wires are connected correctly to avoid water leakage, refrigerant leakage, electric shock or fire, etc. |
| (14) | Do not insert fingers or objects into air outlet or air return grille. |
| (15) | Open the door and window frequently to keep good ventilation for avoiding oxygen deficit when gas heater or oil heater is used in the room. |
| (16) | Never plug in or unplug the power plug directly to turn on or turn off the air conditioner. |
| (17) | Once the air conditioner is turned on, it can be turned off only after it has operated for 5min at least; otherwise, it will affect the oil return of compressor. |
| (18) | Do not allow children to operate this air conditioner. |
| (19) | Do not operate this air conditioner with wet hands. |
| (20) | The air conditioner can be cleaned only when it has been turned off and the power has been cut off; otherwise, it may cause electric shock or injury. |
| (21) | Never spray or flush water towards the air conditioner; otherwise, malfunction or electric shock may happen. |

⚠ WARNING

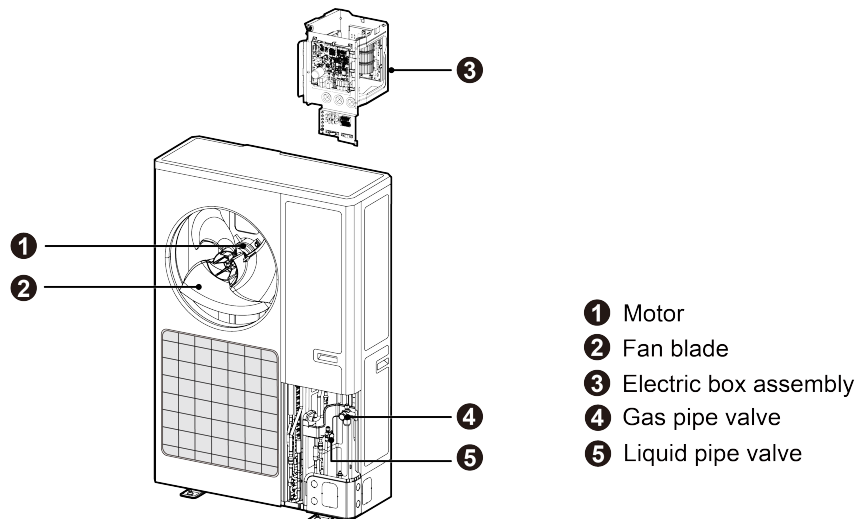
- (22) Do not expose the air conditioner to the moist or corrosive environment.
- (23) Put through the power 8 hours in advance before operation. Do not cut off the power when the air conditioner stops operation for only about one night (protect the compressor).
- (24) Volatile liquid, such as diluent or gasoline, will damage the appearance of air conditioner. Only soft dry cloth and wet cloth dipped with neutral detergent can be used to clean the outer case of air conditioner.
- (25) Under cooling mode, please don't set the room temperature too low; keep the temperature difference between indoor and outdoor within 5°C (41°F).
- (26) If there are any abnormal circumstances (such as burning smell, etc.), please turn off the unit and cut off the main power supply immediately, and then contact Gree appointed service center. If those abnormal circumstances still exist, the unit may be damaged and it may lead to electric shock or fire hazard.
- (27) Do not repair the unit by yourself. Wrong maintenance may cause electric shock or fire hazard. Please contact Gree appointed service center for help.

Any personal injury or property loss caused by improper installation, improper debug, unnecessary repair or not following the instructions of this manual should not be the responsibility of Gree Electric Appliances, Inc. of Zhuhai.

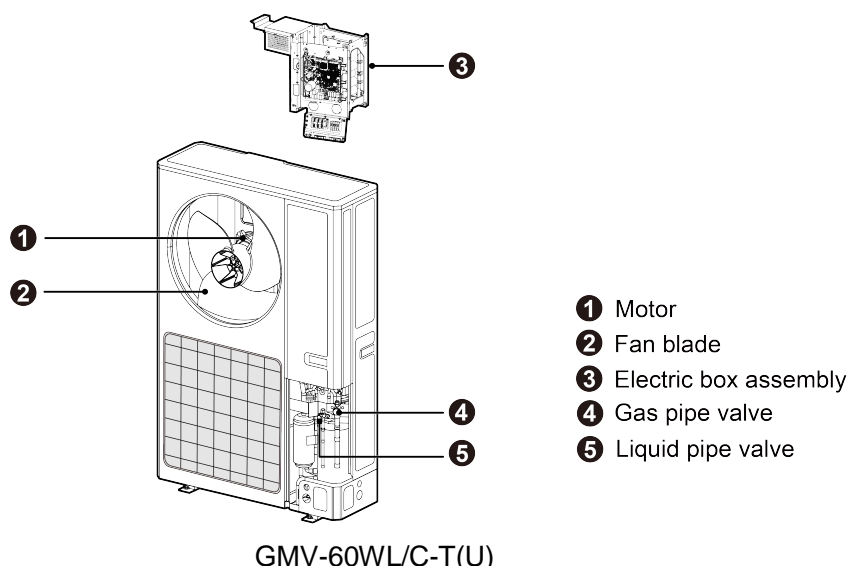
2 Product Introduction

Gree Multi VRF System adopts inverter compressor technology. By changing the displacement of compressor, step less capacity regulation within range of 15%~100% can be realized. Various product lineups are provided with capacity range from 36000Btu/h to 60000Btu/h, which can be widely used in residential, commercial and working area and especially applicable to places with big load change. Gree residential air conditioner is absolutely your best choice.

2.1 Names of Main Parts



GMV-36WL/C-T(U), GMV-48WL/C-T(U)



GMV-60WL/C-T(U)

Fig.2.1

2.2 Combinations of Indoor and Outdoor Units

- (1) See below the number of indoor units that can be connected to the outdoor unit.
- (2) The total capacity of indoor units should be within 50%~135% of that of the outdoor unit.

| Model | Max sets of connectable IDUS |
|-----------------|------------------------------|
| GMV-36WL/C-T(U) | 7 |
| GMV-48WL/C-T(U) | 8 |
| GMV-60WL/C-T(U) | 10 |

- (3) Outdoor units of DC Inverter Multi VRF System can be connected to various indoor units. When any one of the indoor units receives operating command, outdoor unit will start operation as per required capacity. When all indoor units stop, outdoor unit will be shut off.

2.3 Operating Range

| | |
|---------|--|
| Cooling | Outdoor temperature: -5~48°C(23~118°F) |
| Heating | Outdoor temperature: -20~27°C(-4~81°F) |





3 Preparation before Installation



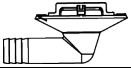
NOTICE

Graphics here are only for reference. Please refer to actual products.

3.1 Standard Parts

Please use the supplied standard parts as required.

| Parts for Outdoor Unit | | | | |
|------------------------|--------------------------------|---|-----|---|
| No. | Name | Appearance | Qty | Remark |
| 1 | User Manual |  | 1 | — |
| 2 | Wiring (match with resistance) |  | 1 | Must be connected to the last IDU of communication connection |
| 3 | Corrugated pipe |  | 1 | GMV-36WL/C-T(U) GMV-48WL/C-T(U) |
| 4 | Liquid side connection pipe |  | 1 | This part is included in the following models: GMV-60WL/C-T(U) |

| Parts for Outdoor Unit | | | | |
|------------------------|--------------------------|---|-----|---|
| No. | Name | Appearance | Qty | Remark |
| 5 | Gas side connection pipe |  | 1 | This part is included in the following models:GMV-60WL/C-T(U) |
| 6 | Chassis gluey plug |  | 3 | — |
| 7 | Drainage joint |  | 1 | — |

3.2 Installation Site

| ⚠ WARNING | |
|------------------|---|
| (1) | 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. |
| (2) | Do not install where there is a danger of combustible gas leakage. |
| (3) | Do not install the unit near heat source, steam, or flammable gas. |
| (4) | Children under 10 years old must be supervised not to operate the unit. |
| (5) | Select a location which is out of children’s reach. Keep the unit away from children. |
| (6) | Make sure the location has space for heat exchange and maintenance so that unit can operate reliably with good ventilation. |
| (7) | Make sure the location has space for heat exchange and maintenance so that unit can operate reliably with good ventilation. |
| (8) | Install the unit where it will not be tilted by more than 5°. |
| (9) | During installation, if the outdoor unit has to be exposed to strong wind, it must be fixed securely. |

| NOTICE | |
|---------------|---|
| (1) | If possible, do not install the unit where it will be exposed to direct sunlight (If necessary, install a blind that does not interfere with the air flow). |
| (2) | Install ODU in a place where it will be free from getting dirty or getting wet by rain as much as possible. |
| (3) | Install ODU where it is convenient to connect IDU. |
| (4) | ODU and IDU should stay as close as possible to shorten the length of refrigerant pipe and reduce bend angles. |
| (5) | Install ODU where the condensate water can be drained out freely during heating operation. Do not place animals and plants in the path of the warm air. |
| (6) | Take the air conditioner weight into account and select a place where noise and vibration are small |

If the ODU is totally surrounded by walls, please refer to Fig.3.1 for space dimension:

Unit: mm(inch)

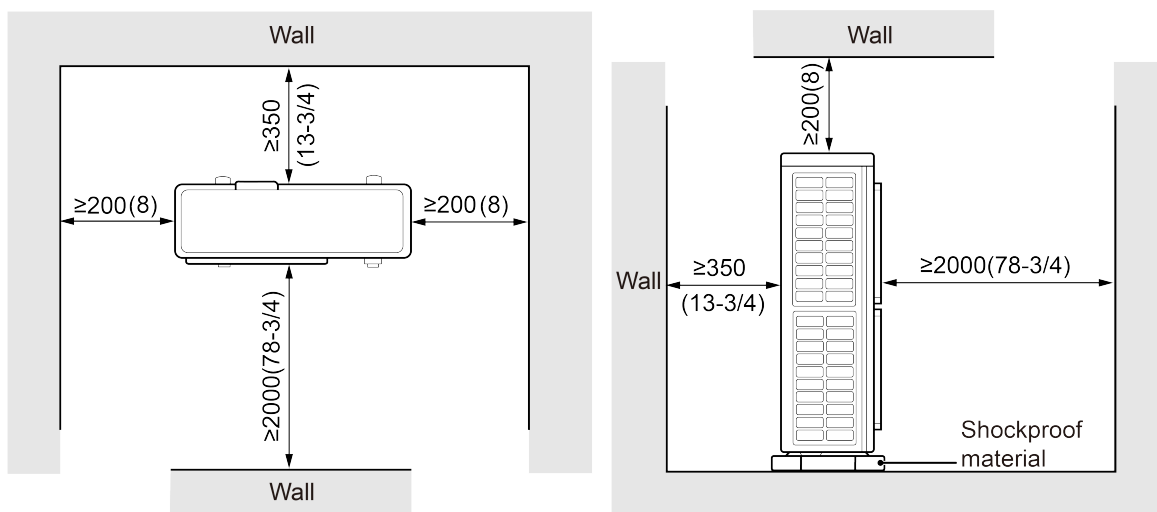


Fig.3.1

3.3 Piping Work Requirements

Refer to the table below for piping work requirements:

| R410A Refrigerant System | |
|--------------------------|--------------------------|
| Outer diameter (mm/inch) | Wall thickness (mm/inch) |
| Φ6.35(Φ1/4) | ≥0.8(1/32) |
| Φ9.52(Φ3/8) | ≥0.8(1/32) |
| Φ12.7(Φ1/2) | ≥0.8(1/32) |
| Φ15.9(Φ5/8) | ≥1.0(1/25) |
| Φ19.05(Φ3/4) | ≥1.0(1/25) |

4 Installation Instruction

NOTICE

Graphics here are only for reference. Please refer to actual products.

4.1 Dimension of Outdoor Unit and Mounting Hole

Unit Outline and Installation Dimension.

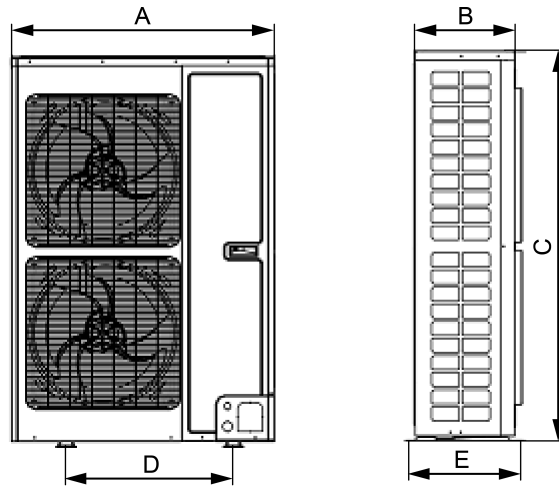


Fig.4.1

Unit: mm(inch)

| Model | A | B | C | D | E |
|-----------------|----------|-----------|----------|----------|----------|
| GMV-36WL/C-T(U) | 900 | 340 | 1345 | 572 | 378 |
| GMV-48WL/C-T(U) | (35-3/8) | (13-3/8) | (53) | (22-1/2) | (15) |
| GMV-60WL/C-T(U) | 940 | 320 | 1430 | 632 | 350 |
| | (37) | (12-9/16) | (56-1/4) | (24-7/8) | (14-7/8) |

4.2 Connection Pipe

4.2.1 Schematic Diagram of Piping Connection

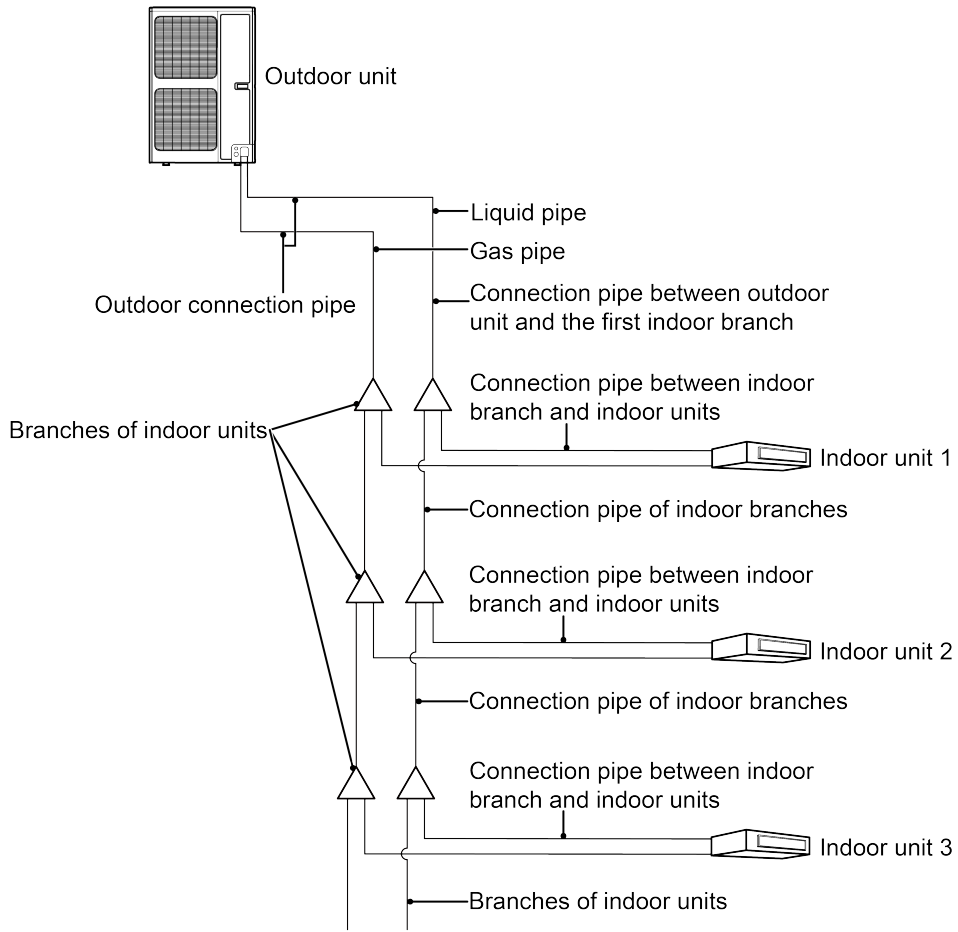


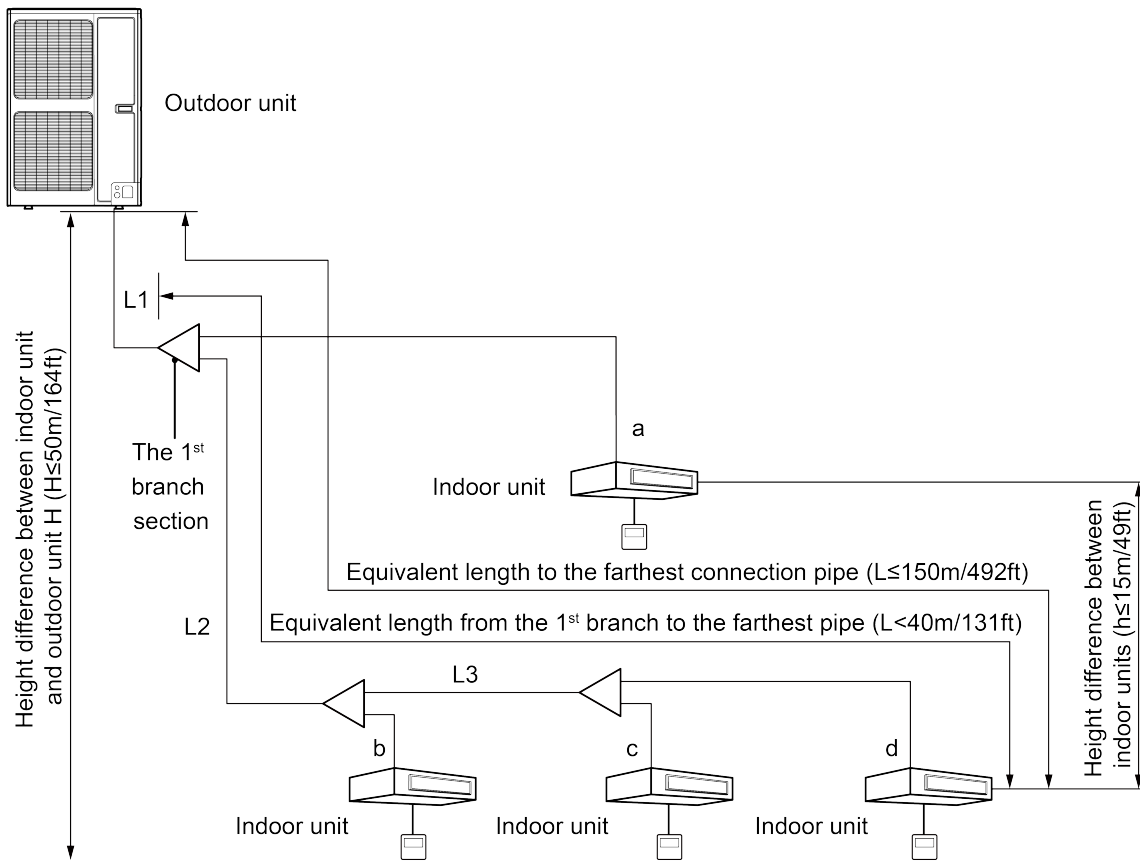
Fig.4.2

4.2.2 Allowable Length and Height Difference of Connection Pipe

Y type branch joint is adopted to connect indoor and outdoor units. Connecting method is shown in Fig.4.3 below.

NOTICE

Equivalent length of one Y-type branch is 0.5m(1-5/8feet).



Each Y-type branch equals to 0.5m (1-5/8ft) and each branch header equals to 1.0m (3-1/4ft).

Fig.4.3 Allowable Length and Height Difference of Connection Pipe

Piping parameters of GMV-36WL/C-T(U), GMV-48WL/C-T(U), GMV-60WL/C-T(U):

| — | Allowable value | | Fitting pipe |
|---|-------------------|------|------------------|
| | m | feet | |
| Total length (actual length) of fitting pipe | 300 | 984 | L1+L2+L3+a+b+c+d |
| Length of farthest fitting pipe | Actual length | 120 | L1+L2+L3+d |
| | Equivalent length | 150 | |
| From the 1st branch to the farthest indoor pipe | 40 | 131 | L2+L3+d |
| Height difference between ODU and IDU | ODU at upper side | 50 | — |
| | ODU at lower side | 40 | — |
| Height difference between IDUs | 15 | 49 | — |

4.2.3 Dimension of Pipe (Main Pipe) from ODU to the 1st Indoor Branch

Dimension of pipe from ODU to the 1st indoor branch will be determined by the dimension of outdoor connection pipe.

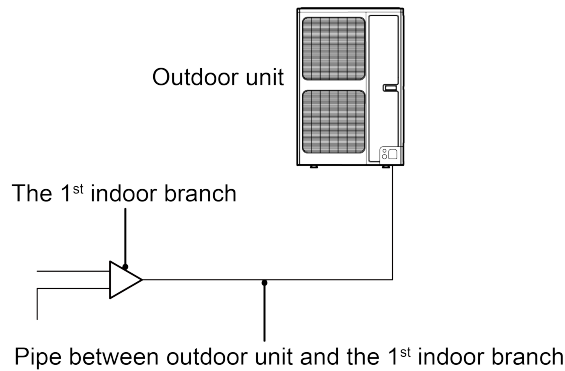


Fig.4.4

Dimension of outdoor connection pipe:

| Basic module | Pipe dimension | |
|-----------------|--------------------|-----------------------|
| | Gas pipe (mm/inch) | Liquid pipe (mm/inch) |
| GMV-36WL/C-T(U) | Φ15.9 (Φ5/8) | Φ9.52 (Φ3/8) |
| GMV-48WL/C-T(U) | Φ15.9 (Φ5/8) | Φ9.52 (Φ3/8) |
| GMV-60WL/C-T(U) | Φ19.05 (Φ3/4) | Φ9.52 (Φ3/8) |

4.2.4 Selection of Indoor Branches

Select indoor branches according to the total capacity of downstream indoor units.

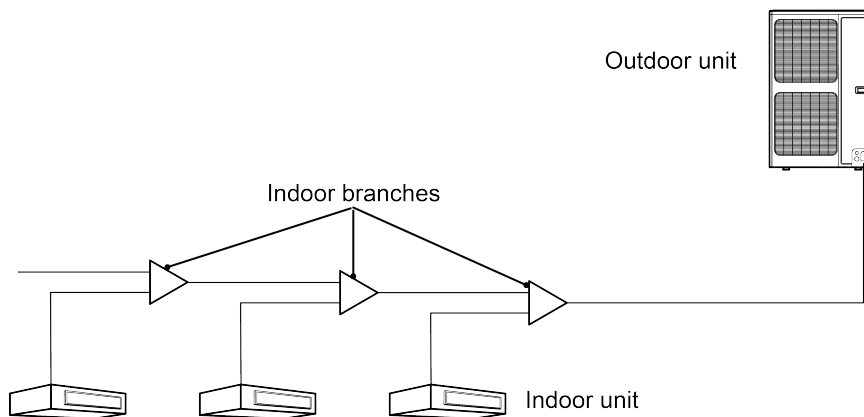


Fig.4.5

| Refrigerant system | Total capacity of downstream indoor units C (Btu/h) | Model |
|--------------------|---|---------|
| Y type branch | $C < 68200$ | FQ01A/A |
| | $68200 \leq C \leq 102400$ | FQ01B/A |
| | $102400 < C \leq 238800$ | FQ02/A |
| | $238800 < C \leq 460600$ | FQ03/A |
| | $460600 < C$ | FQ04/A |

4.2.5 Dimension of Pipe between Indoor Branches

Select pipe between indoor branches according to the capacity of downstream indoor units; if the capacity exceeds that of the outdoor unit, capacity of outdoor unit prevails.

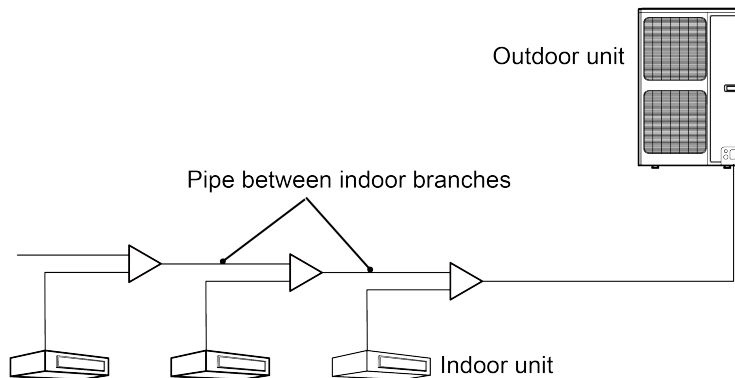


Fig.4.6

| Total capacity of downstream indoor units C (Btu/h) | Pipe (mm/inch) | Liquid pipe (mm/inch) |
|---|-------------------------|------------------------|
| $C \leq 19000$ | $\Phi 12.7 (\Phi 1/2)$ | $\Phi 6.35 (\Phi 1/4)$ |
| $19000 < C \leq 48500$ | $\Phi 15.9 (\Phi 5/8)$ | $\Phi 9.52 (\Phi 3/8)$ |
| $48500 < C \leq 76400$ | $\Phi 19.05 (\Phi 3/4)$ | $\Phi 9.52 (\Phi 3/8)$ |

4.2.6 Dimension of Pipe between Indoor Branch and IDU

Dimension of pipe between indoor branch and IDU should be consistent with the dimension of indoor pipe.

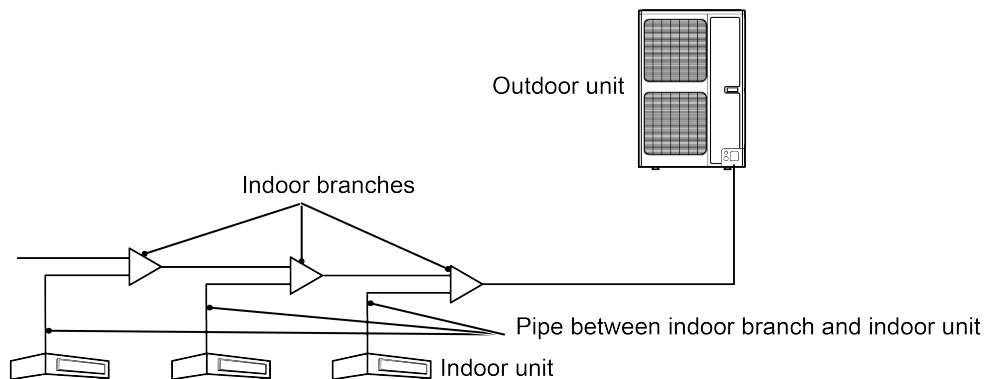


Fig.4.7

| Rated capacity of IDU C(Btu/h) | Gas pipe (mm/inch) | Liquid pipe (mm/inch) |
|--------------------------------|-------------------------|------------------------|
| $C \leq 9600$ | $\Phi 9.52 (\Phi 3/8)$ | $\Phi 6.35 (\Phi 1/4)$ |
| $9600 < C \leq 17000$ | $\Phi 12.7 (\Phi 1/2)$ | $\Phi 6.35 (\Phi 1/4)$ |
| $17000 < C \leq 48000$ | $\Phi 15.9 (\Phi 5/8)$ | $\Phi 9.52 (\Phi 3/8)$ |
| $48000 < C \leq 55000$ | $\Phi 19.05 (\Phi 3/4)$ | $\Phi 9.52 (\Phi 3/8)$ |
| $55000 < C \leq 96000$ | $\Phi 22.2 (\Phi 7/8)$ | $\Phi 9.52 (\Phi 3/8)$ |

NOTICE

If the distance between IDU and its nearest branch is over 10m(33feet), then the liquid pipe of IDU (rated capacity ≤ 17000 Btu/h) shall be enlarged.

4.3 Installation of Connection Pipe

⚠ CAUTION

- | | |
|-----|--|
| (1) | Conform to the following principles during pipe connection: Connection pipe should be as short as possible, so is the height difference between indoor and outdoor units. Keep the number of bends as little as possible. Radius of curvature should be as large as possible. |
| (2) | Weld the connection pipe between indoor and outdoor units. Please strictly follow the requirements for welding process. Rosin joint or pin hole is not allowed. |
| (3) | When laying the pipe, be careful not to distort it. Radius of bending parts should be over 200mm(8inch). Note that pipes cannot be repeatedly bent or stretched; otherwise the material will get harder. Do not bend or stretch the pipe for more than 3 times at the same position. |

4.3.1 Flaring Process

- (1) Use pipe cutter to cut the connection pipe in case it is unshaped.
- (2) Keep the pipe downward in case cutting scraps get into the pipe. Clear away the burrs after cutting.
- (3) Remove the flared nut connecting indoor connection pipe and outdoor unit. Then use flaring tool to fix the flared nut into the pipe (as shown in Fig.4.8).
- (4) Check if the flared part is flaring evenly and if there is any crack.

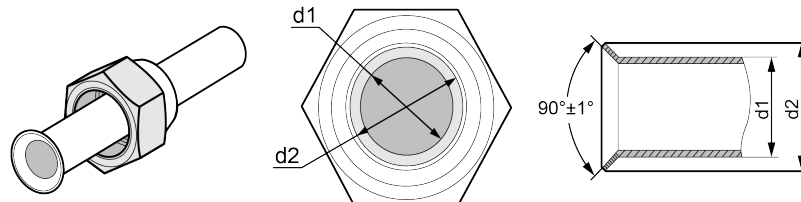


Fig.4.8

4.3.2 Pipe Bending

- (1) Reshape the pipe by hand. Be careful not to damage the pipe.
- (2) Do not bend the pipe over 90°.
- (3) If pipe is repeatedly bent or stretched, it will get hard and difficult to bend and stretch again. Therefore, do not bend or stretch the bend for over 3 times.
- (4) In case that direct bending will open cracks to the pipe, first use sharp cutter to cut the insulating layer, as shown in Fig.4.10. Do not bend the pipe until it is exposed. When bending is done, wrap the pipe with insulating layer and then secure it with adhesive tape.

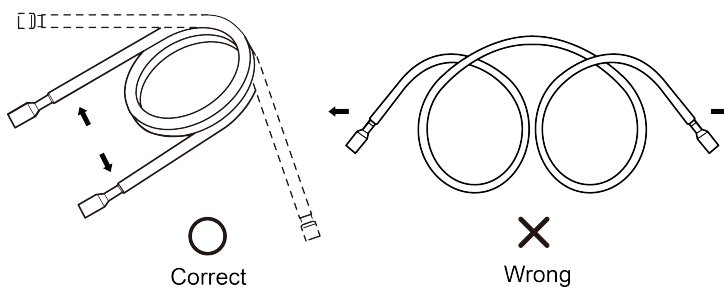


Fig.4.9

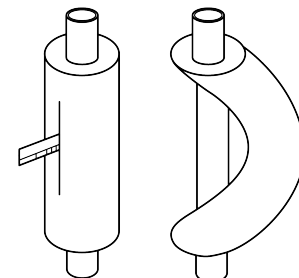


Fig.4.10

4.3.3 Indoor Pipe Connection

- (1) Remove pipe cover and pipe plug.
- (2) Direct the flared part of copper pipe to the center of screwed joint. Twist on the flared nut tightly by hand, as in Fig.4.11 (Make sure indoor pipe is correctly connected. Improper location of the center will prevent flared nut from being securely twisted. Thread of nut will get damaged if the flared nut is twisted forcibly).
- (3) Use torque wrench to twist on the flared nut tightly until the wrench gives out a click sound (Hold the handle of wrench and make it at right angle to the pipe. as in Fig.4.12).

| ⚠ CAUTION | |
|------------------|---|
| (1) | Use sponge to wrap the un-insulated connection pipe and joint. Then tie the sponge tightly with plastic tape. |
| (2) | Connection pipe should be supported by a bearer rather than the unit. |
| (3) | The bending angle of piping should not be too small; otherwise the piping might have cracks. Please use a pipe bender to bend the pipe. |
| (4) | When connecting IDU with connection pipe, do not pull the big and small joints of IDU with force in case the capillary tube or other tubes have cracks and cause leakage. |

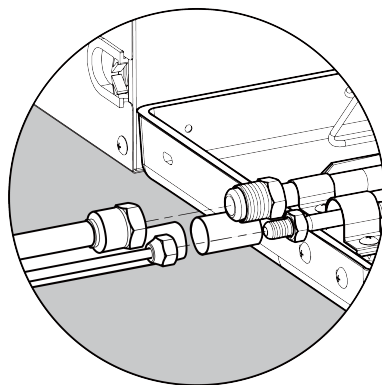


Fig.4.11

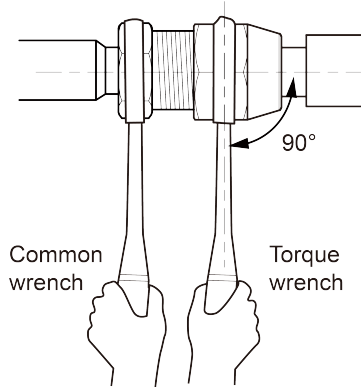


Fig.4.12

| Pipe diameter | Tightening torque |
|---------------|-------------------|
| Φ6.35mm | 15~30(N·m) |
| Φ9.52mm | 35~40(N·m) |
| Φ12.7mm | 45~50(N·m) |
| Φ15.9mm | 60~65(N·m) |

4.3.4 Outdoor Pipe Connection

- (1) Pipe connection for GMV-36WL/C-T(U), GMV-48WL/C-T(U).

Twist the flared nut on the connection pipe of outdoor valves. Twisting method is the same as for indoor pipe connection.

During engineering installation, the connection pipe inside the unit must be wrapped by insulation sleeve.

According to customer requirement or space limit, outlet pipe can be installed from the front, right or rear side.

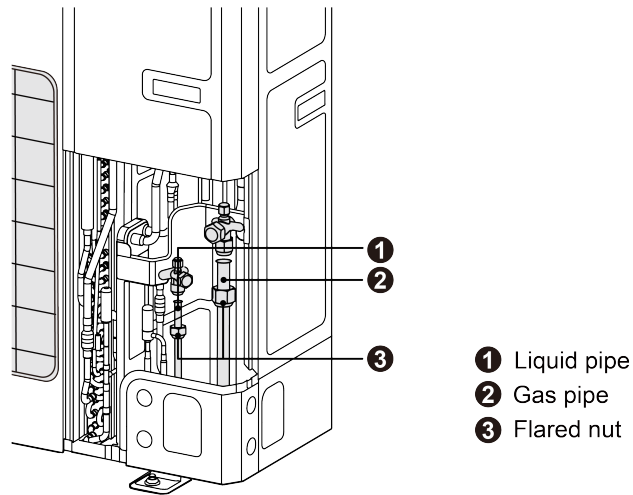


Fig.4.13

(2) Pipe connection for GMV-60WL/C-T(U).

As shown in Fig.4.14 and Fig.4.15, open the outermost soundproof cotton and place a fire barrier between compressor and straight pipe. Use a soldering gun to unsolder straight pipe 1 and straight pipe 2. Install connection pipe 1 and connection pipe 2 to the corresponding position and then seal the apertures with welding rod. First weld the liquid side connection pipe and then weld the gas side connection pipe. During welding, it's necessary to use wet gauze to wrap up the two cut-off valves. Make sure the flame won't burn the soundproof cotton or other components.

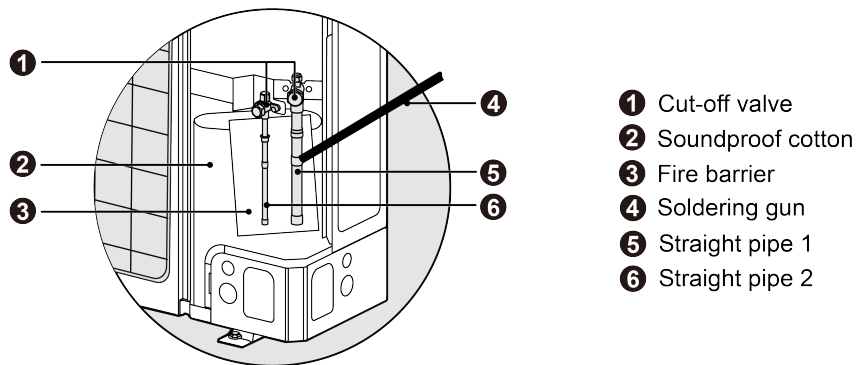


Fig.4.14

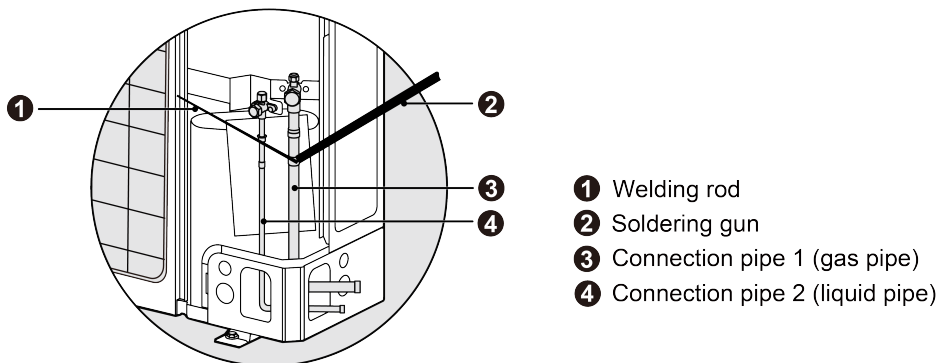


Fig.4.15

4.3.5 Installation of Y-type Branch

(1) Y-type Branch.

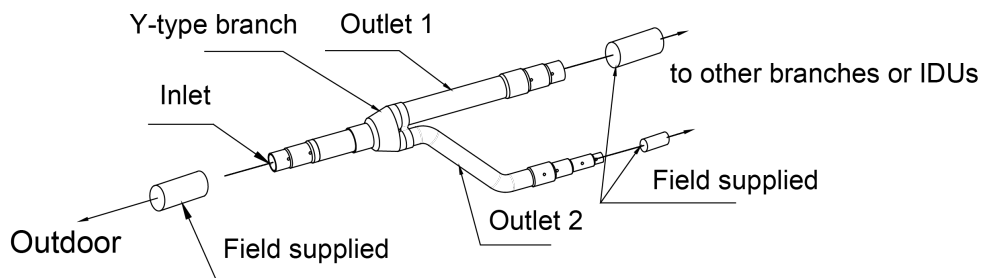


Fig.4.16

(2) Y-type branch has several pipe sections with different dimension, which facilitates to match with various copper pipes. Use pipe cutter to cut in the middle of the pipe section that is of proper dimension and remove burrs as well. See Fig.4.17.

(3) Y-type branch must be installed vertically or horizontally.

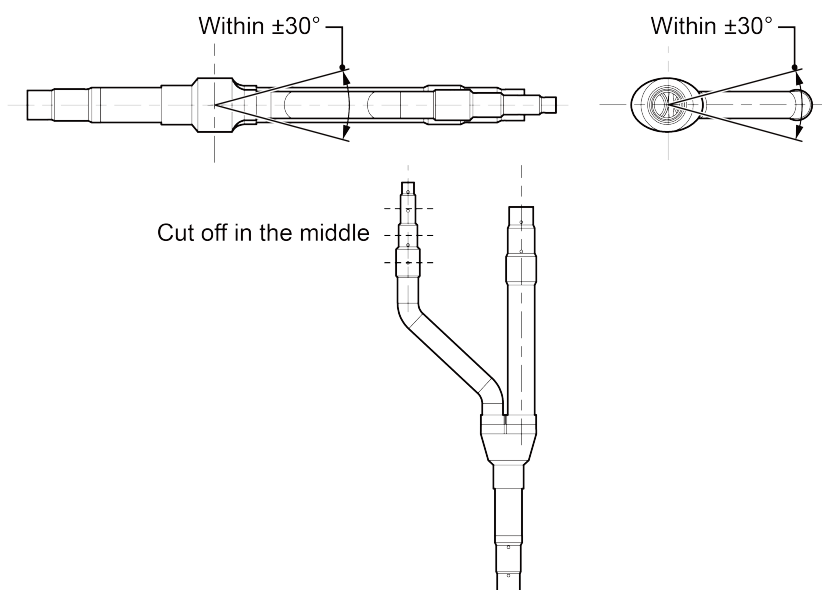


Fig.4.17

NOTICE

Branch shall be isolated by insulating material that can bear 120°C(248°F) or even higher temperature. The attached foam of branch cannot be taken as insulating material.

4.3.6 Thermal Insulation for Pipeline

- (1) For multi VRF system, every copper pipe should be labeled so as to avoid misconnection.
- (2) At the branch inlet, leave at least 500mm(19-3/4inch) straight pipe section.
- (3) Thermal insulation for pipeline
 - 1) To avoid condensate or water leakage on the connection pipe, the gas pipe and liquid pipe must be wrapped with thermal insulating material and adhesive tape for insulation from the air.
 - 2) Joints of indoor and outdoor unit should be wrapped with insulating material and leave no gap between pipe and wall. See Fig.4.18.

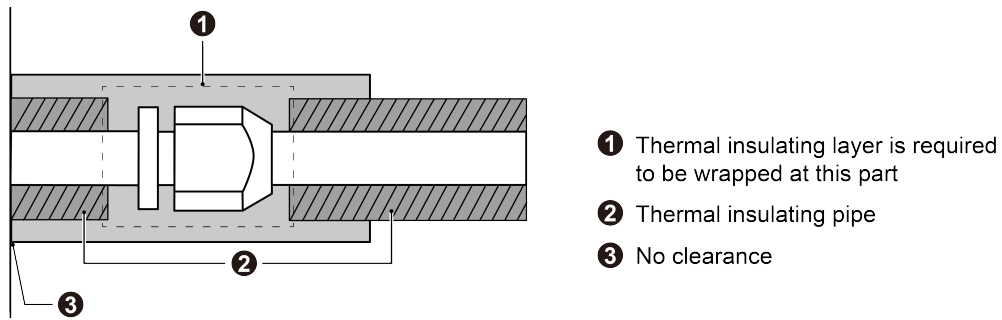


Fig.4.18

- 3) When wrapping the tape, the later circle should cover half of the former one. Don't wrap the tape too tight, otherwise the insulation effect will be weakened.
- 4) After wrapping the pipe, apply sealing material to completely seal the hole on the wall.

NOTICE

- (1) Thermal insulating material shall be able bear the pipe temperature. For heat pump unit, liquid pipe should bear 70°C(158°F) or above and gas pipe should bear 120°C(248°F) or above. For cooling only unit, both liquid pipe and gas pipe should bear 70°C(158°F) or above.
- (2) Thermal insulating material of branches should be the same as that of the pipeline. The attached foam of branches cannot be taken as insulating material.

4.3.7 Support and Protection of Pipeline

CAUTION

- (1) Support should be made for hanging connection pipe. Distance between each support cannot be over 1m(3-1/4feet).
- (2) Protection against accidental damage should be made for outdoor pipeline. When pipeline exceeds 1m(3-1/4feet), a pinch board should be added for protection.

4.4 Disassembly of Compressor Feet

In order to prevent unit from damage during transportation, 2 metal pieces are fitted to outdoor unit's compressor feet before unit leaves factory. See Fig.4.19.

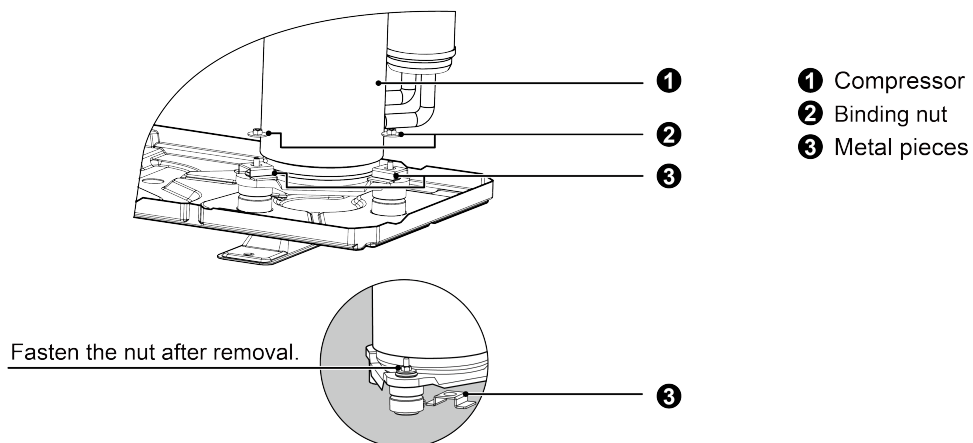


Fig.4.19

When installing the unit, metal pieces for transportation must be removed (except for GMV-60WL/C-T(U)). Then fasten the binding nuts again and wrap back soundproofing cotton. If unit runs with metal pieces fitting on, compressor will shake abnormally and unit's operating life will be shortened.

4.5 Vacuum Pumping, Refrigerant Adding

⚠ CAUTION

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 Pumping

- (1) Outdoor unit has been charged with refrigerant before delivery. Field-installed connection pipe needs to be charged with additional refrigerant.
- (2) Confirm whether outdoor liquid and gas valves are closed.
- (3) Use vacuum pump to withdraw the air inside indoor unit and connection pipe from the outdoor valve, as shown in Fig.4.20 below.

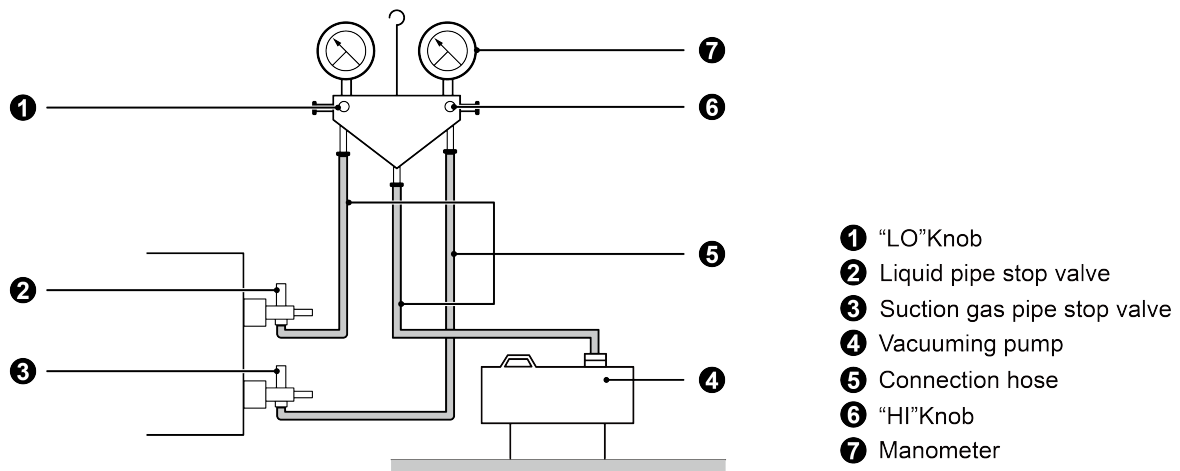


Fig.4.20

4.5.2 Refrigerant Adding

- (1) Refrigerant quantity of outdoor unit before delivery:

| Model | GMV-36WL/C-T(U) | GMV-48WL/C-T(U) | GMV-60WL/C-T(U) |
|-------------------------|-----------------|-----------------|-----------------|
| Refrigerant Qty (kg/oz) | 3.3(116) | 3.3(116) | 4.6(162) |

NOTICE

- (1) The refrigerant amount charged before delivery doesn't include the amount that needs to be added to indoor units and the connection pipeline.
- (2) Length of connection pipe is decided on site. Therefore, the amount of additional refrigerant shall be decided on site according to the dimension and length of field-installed liquid pipe.
- (3) Record the amount of additional refrigerant for convenience of after-sales service.

- (2) Calculation of the amount of additional refrigerant.

Adding refrigerant method includes 2 steps as follow:

- 1) Amount of additional refrigerant depending on the pipe size(X).
- 2) Amount of additional refrigerant depending on Quantity of IDU(Y).

$$\text{Total charging amount} = X + Y$$

Detail calculation is as follow:

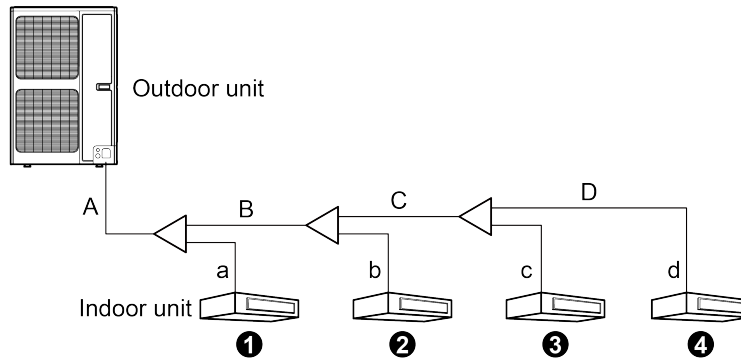
- 1) $X = \sum(\text{Liquid pipe length} \times \text{amount of additional refrigerant of each 1m})$

| Diameter of liquid pipe (mm/inch) | Φ19.05(Φ3/4) | Φ15.9(Φ5/8) | Φ12.7(Φ1/2) | Φ9.52(Φ3/8) | Φ6.35(Φ1/4) |
|-----------------------------------|--------------|-------------|-------------|-------------|-------------|
| kg/m | 0.25 | 0.17 | 0.11 | 0.054 | 0.022 |
| oz/inch | 0.224 | 0.152 | 0.099 | 0.048 | 0.020 |

2) $Y = (\text{Quantity of IDU} - 2) \times 0.3 \text{ kg} (10.58 \text{ oz})$

First confirm that there is no leakage from the system. When compressor is not working, charge additional R410A with specific amount to the unit through the filling opening of the liquid pipe valve of the outdoor unit. If required amount cannot be quickly filled due to pressure increase of the pipe, then set the unit in cooling startup and fill refrigerant from the low pressure check valve of the outdoor unit.

Example:



IDU:

| No. | IDU ① | IDU ② | IDU ③ | IDU ④ |
|-------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|
| Model | Duct type GMV-N18G/A3A-D(U) | Duct type GMV-N12G/A3A-D(U) | Duct type GMV-ND09PLS/A-T(U) | Duct type GMV-ND09PLS/A-T(U) |

Liquid pipe:

| No. | A | B | C | D |
|-----------|-----------------------|-----------------------|-----------------------|---------------------|
| Pipe size | Φ9.52mm (Φ3/8inch) | Φ9.52mm (Φ3/8inch) | Φ9.52mm (Φ3/8inch) | Φ6.35 (Φ1/4inch) |
| Length | 10m (32-3/4feet) | 5m (16-3/8feet) | 4m (13-1/8feet) | 5m (16-3/8feet) |
| No. | a | b | c | d |
| Pipe size | Φ9.52mm (Φ3/8inch) | Φ6.35 (Φ1/4inch) | Φ6.35 (Φ1/4inch) | Φ6.35 (Φ1/4inch) |
| Length | 3m (9-3/4feet) | 3m (9-3/4feet) | 2m (6-3/4feet) | 1m (3-1/4feet) |

1) Amount of additional refrigerant depending on the pipe size(X) Total length of each liquid pipe:

Φ9.52: $A+B+C+a=10+5+4+3=22\text{m}(72-3/16 \text{ feet})$

Φ6.35: $D+b+c+d=5+3+3+2+1=11\text{m}(36-1/16 \text{ feet})$

2) Amount of additional refrigerant depending on Quantity of IDU(Y) Quantity of indoor unit: 4 sets.

Therefore, the total charging amount = $(22 \times 0.054) + (11 \times 0.022) + (4 - 2) \times 0.3 = 2.03\text{kg}(71-3/5\text{oz})$

4.6 Electric Wiring

⚠ WARNING

- | |
|--|
| (1) All electrical installation must be performed by qualified technicians in accordance with local laws, regulations and this user manual. |
| (2) Use air conditioner specialized power supply and make sure that it is consistent with system's rated voltage. |
| (3) Do not pull the power cord with force. |
| (4) Caliber of the power cord must be large enough. A damaged power cord or connection wire must be replaced by specialized electrical cords. |
| (5) Connect the unit to specialized grounding device and make sure it is securely grounded. It's a must to install air switch and current circuit breaker that can cut off the power of the entire system. The air switch should include magnetic trip function and thermal trip function so that system can be protected from short circuit and overload. |
| (6) Air conditioner belongs to class I electrical appliance, so it must be securely grounded. |
| (7) The yellow-green wire inside the unit is a ground wire. Do not cut it off or secure it with tapping screws, otherwise it will lead to electric shock. |
| (8) Power supply must include secure grounding terminal. Do not connect the ground wire to the following: ①Water pipe; ②Gas pipe; ③Drain pipe; ④Other places that are deemed as not secure by professional technicians. |

4.6.1 Electrical Wiring

- (1) For solid core wiring (Fig.4.22).

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 25mm (15/16inch) .
- 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.4.23).

- 1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation about 10mm (3/8inch) .
- 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.4.23).

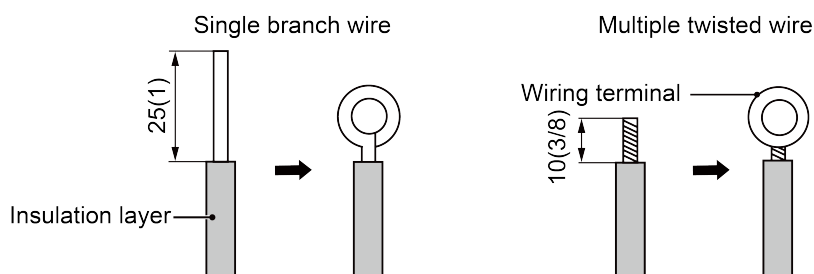


Fig.4.22

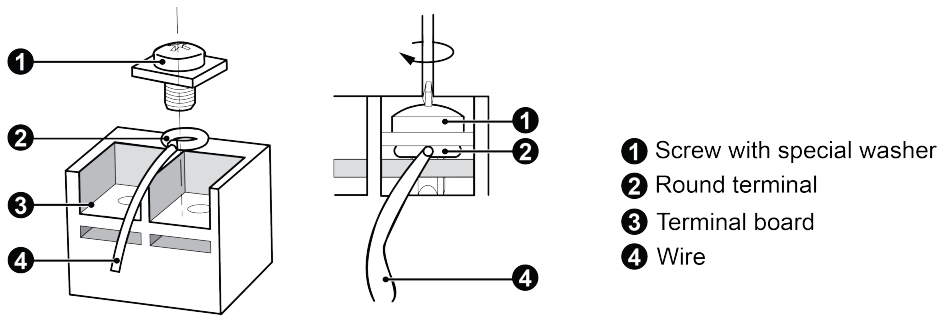


Fig.4.23

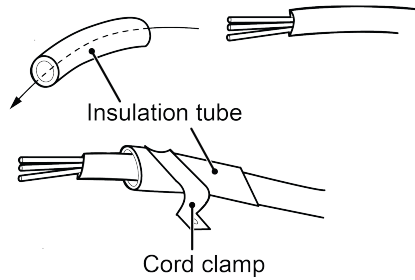


Fig.4.24

(3) How to fix connection cord and power cord by cord clamp.

After passing the connection cord and power cord through the insulation tube, fasten it with the cord clamp (Fig.4.24).

| ⚠ 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. Erroneous wiring may cause burning of the electric parts. |
| (3) | Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire. |
| (4) | Always fasten the outside covering of the connection cord with cord clamps (If the insulator is not clamped, electric leakage may occur). |
| (5) | Always connect the ground wire. |

4.6.2 Wiring Diagram

(1) Connection of power cord and communication wire.

Separate power supply for IDU and ODU.

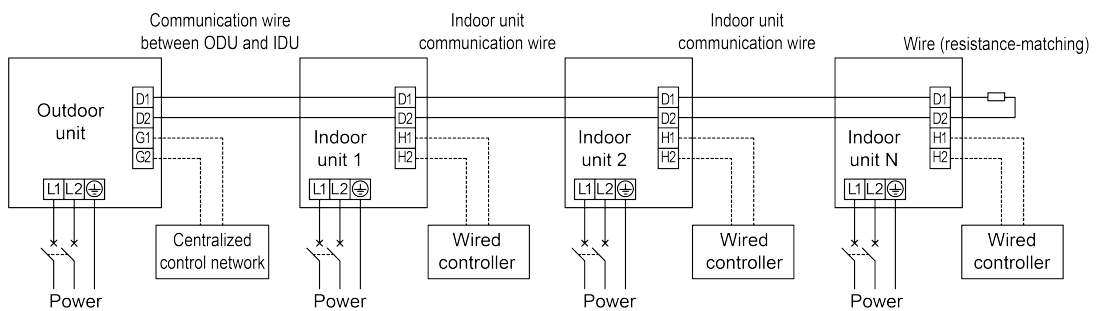


Fig.4.25

(2) Selection of air switch and power cord:

| Model | Power supply | Max Fuse Size/Fusible Max. (A) | Max Ckt, Bkr Size/Disjoncteur Max. (A) | Min. Circuit Ampacity (A) |
|-----------------|----------------|--------------------------------|--|---------------------------|
| GMV-36WL/C-T(U) | 208/230V~ 60Hz | 35 | 35 | 28.5 |
| GMV-48WL/C-T(U) | 208/230V~ 60Hz | 40 | 40 | 33 |
| GMV-60WL/C-T(U) | 208/230V~ 60Hz | 40 | 40 | 34.5 |

NOTICE

- (1) Selection of circuit breaker and power cord in the above table is based upon unit's maximum power (maximum current).
- (2) Specification of power cord is based on the working condition where ambient temperature is 40°C(104°F) and multi-core copper cable (working temperature is 90°C(194°F), e.g. power cable with YJV cross-linked copper, insulated PE and PVC sheath) is lying on the surface of slot. If working condition changes, please adjust the specification according to national standard.
- (3) Specification of circuit breaker is based on the working condition where ambient temperature of circuit breaker is 40°C(104°F). If working condition changes, please adjust the specification according to national standard.

4.6.3 Engineering Wiring of Power Supply and Communication Cable

- (1) Please refer Fig.4.26 & Fig.4.27 for engineering wiring. If there is the hole for cable tie in wiring route, please fix the wire with cable tie. Connect the power cord and communication cable to the corresponding terminal board and grounding screw according to the wiring diagram.
- (2) Please be noted that engineering wiring cannot touch the pipe and appliance.
- (3) This figure is only applicable for engineering wiring reference of power supply and communication cable. If there are differences between the figure structure and actual unit, please refer to the actual unit.
- (4) For engineering wiring, please refer to the wiring diagram provided with the unit.

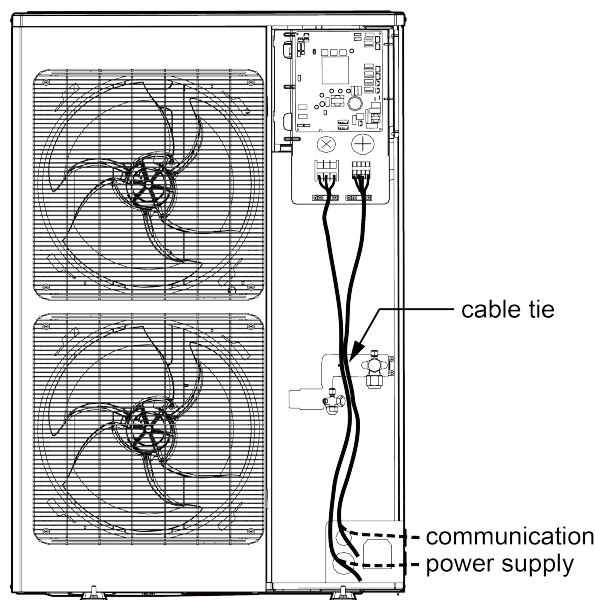


Fig.4.26

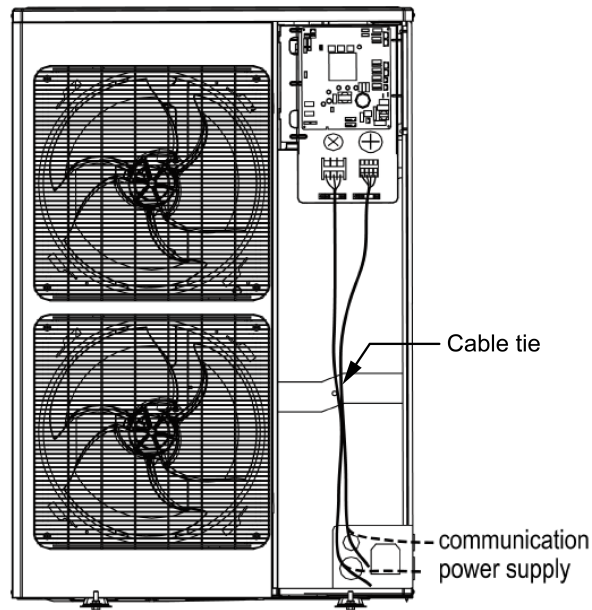


Fig.4.27

5 Check Items after Installation and Test Operation

5.1 Check Items after Installation

| Check items | Possible conditions due to improper installation | Check |
|--|--|-------|
| Each part of the unit is installed securely? | Unit may drop, shake or emit noise. | |
| Gas leakage test is taken or not? | Insufficient cooling (heating) capacity. | |
| Unit gets proper thermal insulation or not? | There may be condensation and dripping. | |
| Drainage is smooth or not? | There may be condensation and dripping. | |
| Is the voltage in accordance with the rated voltage specified on the nameplate? | Unit may have malfunction or components may get damaged. | |
| Is the electric wiring and pipe connection installed correctly? | Unit may have malfunction or components may get damaged. | |
| Unit is securely grounded or not? | Electrical leakage. | |
| Power cord meets the required specification? | Unit may have malfunction or components may get damaged. | |
| Is the air inlet/outlet blocked? | Insufficient cooling (heating) capacity. | |
| Length of refrigerant pipe and the charging amount of refrigerant are recorded or not? | The refrigerant charging amount is not accurate. | |
| Binding pieces on compressor feet are removed or not? | Compressor may get damaged. | |

5.2 Test Operation and Debugging

| NOTICE | |
|---------------|---|
| (1) | After finishing the first installation or replacing the main board of outdoor unit, it is necessary to perform test operation and debugging. Otherwise, unit won't be able to work. |
| (2) | Test operation and debugging must be performed by professional technicians or under the guidance of professional technicians. |

5.2.1 Prepare the Test Operation and Debugging

- (1) Do not connect power until all installation work is finished.
- (2) All control circuits and wires are correctly and securely connected.
- (3) Check whether the fixing loops for compressor foots are removed.
- (4) All small pieces, especially metal chips, thread ends and forceps holder, must be removed from the unit.
- (5) Check whether unit's appearance and pipeline system has been damaged during transportation.
- (6) Calculate the quantity of refrigerant that needs to be added according to the pipe length. Pre-charge the refrigerant. In case that the required charging quantity is not reached while refrigerant can't be added, record the quantity of refrigerant that still needs to add and complement the quantity during test operation. For details of adding refrigerant during test operation, see below.
- (7) After refrigerant is added, make sure valves of outdoor unit are completely open.
- (8) For the convenience of troubleshooting during debugging, unit shall be connected to a PC with applicable debugging software. Make sure unit's real-time data can be checked through this computer. The installation and connection of debugging software can be found in the Service Manual.
- (9) Before test operation, make sure unit is power on and compressor has been preheated for more than 8 hours. Touch the unit to check whether it's normally preheated. If yes, start test operation. Otherwise, compressor might be damaged.

5.2.2 Test Operation and Debugging

Description of test operation procedures and main board display of ODU

| Description of each stage of debugging progress | | | |
|---|----------------|--------------------|--|
| Progress | Debugging code | | Code meaning and operation method |
| | LED | | |
| | Code | Display status | |
| 01_Set master unit | A0 | ON | System is not debugged, hold main board's SW3 button for 5s to start debugging. |
| | 01 | ON | 2s later, next step starts. |
| 02_ Allocate addresses | 02/Ad | Display circularly | System is allocating addresses. 10s later, display as below: |
| | 02/L7 | Display circularly | No master indoor unit. Display will be on for 1min, during which master IDU can be set manually. If not, system will set the unit with minimum IP address as the master IDU. |
| | 02/oC | Display circularly | Allocation is finished. 2s later, next step starts. |
| 03_ Confirm the quantity of ODU | 03/01 | Display circularly | System is confirming. 1s later, next step starts. |
| 04_ Confirm the quantity of IDU | 04/00~16 | Display circularly | "00~16" displays the quantity of indoor unit. Confirm the number manually. If the number is not consistent the display one, cut off power of IDU and ODU and check whether communication wire of IDU is correctly connected. After the check, connect power and start debugging from progress 01. If the number is then correct, press main board's SW3 button to confirm. Then the display is as below. |
| | 04/oC | Display circularly | System has confirmed the quantity. 2s later, next step starts. |

| Description of each stage of debugging progress | | | |
|--|--------------------|--------------------|--|
| Progress | Debugging code | | Code meaning and operation method |
| | LED | | |
| | Code | Display status | |
| 05_ Detect ODU's internal communication and capacity ratio | 05/C2 | Display circularly | Communication between master ODU and driver has error. Check the communication connection of ODU's main board and drive board. When the error is eliminated, start next step. If power is off during troubleshooting, then restart debugging from progress 01 after power is on. |
| | 05/oC | Display circularly | Communication of master ODU and driver is normal. Unit will display as in the left for 2s and detect the capacity ratio of IDU and ODU. If the ratio is within range, then next step will start 2s later. If the ratio is out of range, unit will display as below. |
| | 05/CH | Display circularly | Rated capacity ratio of IDU is too high. Change the combination way of IDU and ODU to make the ratio within range. And restart debugging from progress 01. |
| | 05/CL | Display circularly | Rated capacity ratio of IDU is too low. Change the combination way of IDU and ODU to make the ratio within range. And restart debugging from progress 01. |
| 06_ Detect outdoor components | 06/error code | Display circularly | Outdoor component's error. Besides "06", the other blinking will display the related error code. After errors are eliminated, system will start next step automatically. If power is off during troubleshooting, then restart debugging from progress 01 after power is on. |
| | 06/oC | Display circularly | System detects no error on outdoor component. 10s later, next step starts. |
| 07_ Detect indoor components | 07/XX/error code | Display circularly | System detects error on indoor components. XX means the project code of IDU with error, e.g. no.1 IDU has d5 and d6 errors, meanwhile no.3 IDU displays error d6 and d7, then the nixie tube will display "07", "01", "d5", "d6" and "03" circularly. After errors are eliminated, system will start next step automatically. If power is off during troubleshooting, then restart debugging from progress 01 after power is on. |
| | 07/XXXX/error code | Display circularly | If errors occur in IDU which the project code is ≥ 3-digit number, then it will display the 2 big digits of project code first, then the 2 small digits, finally the error code, e.g: L1 error occurs in no.101 IDU, then the nixie tube will display "01", "01" and "L1" circularly. Display method is the same for several IDUs with multiple errors. |
| | 07/oC | Display circularly | No error on components of IDU. 5s later, next step starts. |
| 08_ Confirm preheated compressor | 08/U0 | Display circularly | Preheat time for compressor is less than 8 hours. Display will be as in the left until the preheat time reaches 8 hours. Press main board's SW3 button to confirm manually that the preheat time has reached 8 hours. Then start next step. (NOTE: Compressor may get damaged if it is started without 8 hours of preheat time) |
| | 08/oC | Display circularly | Compressor has been preheated for 8 hours. 2s later, next step starts. |

| Description of each stage of debugging progress | | | |
|---|----------------|--------------------|--|
| — | Debugging code | | Code meaning and operation method |
| Progress | LED | | |
| | Code | Display status | |
| 09_ Refrigerant judgments before startup | 09/U4 | Display circularly | System is lack of refrigerant and display will be as in the left. Please cut off power of IDU and ODU and check if there is leakage on pipeline. Solve the leakage problem and complement refrigerant into the unit. Then connect power and restart debugging from progress 01. (Note: Before re-charging refrigerant, unit must be power off in case system starts progress 10 automatically) . |
| | 09/oC | Display circularly | Refrigerant is normal and unit will display as in the left for 2s.Then next step starts. |
| 10_ Status judgments of outdoor valves before startup | 10/on | Display circularly | Valves of ODU are being inspected. Compressor will start operation for 2min or so and then stop. The opening and closing status of outdoor valves are as below. |
| | 10/U6 | Display circularly | Outdoor valves are not fully turned on. Press main board's SW4 button and display shows "09/OC". Then check if the gas and liquid valves of ODU are completely open. After confirmation, press the SW4 button again. Then compressor will start running for about 2min to inspect the status of valves. |
| | 10/oC | Display circularly | Valves status is normal. Unit will display as in the left for 2s and then start next step. |
| 12_ Confirm debugging startup | 12/AP | Display circularly | Ready for units to start debugging. Press main board's SW3 button to confirm startup of debugging. 2s later, main board will display as below. |
| | 12/AE | Display circularly | Startup is confirmed. After displaying for 2s, system will choose "15_Cooling debugging" or "16_Heating debugging" according to ambient temperature. If the project requests to add refrigerant but it is not complemented before debugging, then refrigerant can be added in this process through the L-VALVE. |
| 15_ Cooling debugging | 15/AC | Display circularly | Debugging for cooling mode. If no malfunction occurs for 50min when compressor is running, then the system is certified as normal. After shutting down the unit for 5s, the system will enter normal standby status. |
| | 15/error code | Display circularly | Malfunction occurs when debugging for cooling mode. |
| 16_ Heating debugging(For heat pump units only) | 16/AH | Display circularly | Debugging for heating mode. If no malfunction occurs for 50min when compressor is running, then the system is certified as normal. After shutting down the unit for 5s, the system will enter normal standby status. |
| | 16/error code | Display circularly | Malfunction occurs when debugging for heating mode. |
| 17_ Debugging finished | oF | ON | The entire unit has finished debugging and under standby-by condition. |

5.2.3 Appendix: Reference of Normal Operation Parameters

| No. | Debug item | | Parameter name | Unit | Reference | | |
|-----|----------------------------|----------------|------------------------------------|---|---|-----------------------|--|
| 1 | System parameters | ODU parameters | Outdoor temperature | °C(°F) | — | | |
| 2 | | | Compressor discharge temp | °C(°F) | <ul style="list-style-type: none"> When compressor starts, discharge temp in cool mode is within 70~105°C(158~221°F) and at least 10°C(50°F) higher than the high pressure saturation temp. As for temp in heat mode, it is within 65~90°C(149~194°F) and at least 10°C(50°F) higher than the high pressure saturation temp. | | |
| 3 | | | Defrosting temp | °C(°F) | <ul style="list-style-type: none"> In cool mode, defrosting temp is 4~10°C(39~50°F) lower than system's high pressure value. In heat mode, defrosting temp is about 2°C(36°F) different from system's low pressure value. | | |
| 4 | | | System high pressure | °C(°F) | <ul style="list-style-type: none"> In cool mode, the normal high pressure value is within 20~55°C(68~131°F). According to the change of ambient temp and system's operating capacity, the high pressure value will be 10~30°C(50~86°F) higher than ambient temp. The higher ambient temp is, the smaller temp difference is. If ambient temp is 25~35°C(77~95°F) in cool mode, system's high pressure value will be within 44~53°C(111~127°F). In heat mode, if ambient temp is above -5°C(23°F), system's high pressure value is within 40~52°C(104~126°F). If ambient temp is low and many IDUs are turned on, the high pressure will be lower. | | |
| 5 | | | System low pressure | °C(°F) | <ul style="list-style-type: none"> When ambient temp in cool mode is 25~35°C(77~95°F), the low pressure value is 0~8°C(32~46°F). When ambient temp in heat mode is above -5°C(23°F), the low pressure value is -15~8°C(5~46°F). | | |
| 6 | | | Opening degree of thermal EXV | PLS | <ul style="list-style-type: none"> In cool mode, the thermal electronic expansion valve remains 480PLS. In heat mode, the adjustable opening degree of EXV is 60~480PLS. | | |
| 7 | | | Compressor's operating freq | Hz | GMV-36WL/C-T(U) GMV-48WL/C-T(U) | Changes in 10Hz~80Hz. | |
| | | | | | GMV-60WL/C-T(U) | Changes in 16Hz~80Hz | |
| 8 | | | Compressor's operating current | A | When compressor works normally, the current is no more than 22.6A. | | |
| 9 | | | Compressor's IPM temp | °C(°F) | When ambient temp is below 35°C(95°F), IPM temp is lower than 80°C(176°F) and the highest temp won't be above 95°C(203°F). | | |
| 10 | Fan motor's operating freq | Hz | GMV-36WL/C-T(U) GMV-48WL/C-T(U) | Changes in 0~49Hz according to system's pressure. | | | |
| | | | GMV-60WL/C-T(U) | Changes in 0~40Hz according to system's pressure. | | | |

| No. | Debug item | | Parameter name | Unit | Reference | | | | |
|------------------------------------|--|--------------------|------------------------------------|---|---|------------------------------------|--|-----------------|--|
| 11 | System parameters | IDU parameters | IDU ambient temp | °C(°F) | — | | | | |
| 12 | | | Indoor heat exchanger's inlet temp | °C(°F) | <ul style="list-style-type: none"> ● According to ambient temp, for a same IDU in cool mode, the inlet temp will be 1~7°C(34~45°F) lower than the outlet temp, and 4~9°C(39~48°F) higher than the low pressure value. ● For a same IDU in heat mode, the inlet temp will be 10~20°C(50~68°F) lower than the outlet temp. | | | | |
| 13 | | | | | | | | | |
| 14 | | | Opening degree of indoor EXV | PLS | <table border="1"> <tr> <td>GMV-36WL/C-T(U) GMV-48WL/C-T(U)</td> <td> <ul style="list-style-type: none"> ● In cool mode, the opening degree of indoor EXV varies within 70~480PLS. ● In heat mode, the opening degree of indoor EXV varies within 70~480PLS. </td> </tr> <tr> <td>GMV-60WL/C-T(U)</td> <td> <ul style="list-style-type: none"> ● In cool mode, the opening angle of indoor EXV varies within 70~480PLS. ● In heat mode, the opening angle of indoor EXV varies within 40~480PLS. </td> </tr> </table> | GMV-36WL/C-T(U) GMV-48WL/C-T(U) | <ul style="list-style-type: none"> ● In cool mode, the opening degree of indoor EXV varies within 70~480PLS. ● In heat mode, the opening degree of indoor EXV varies within 70~480PLS. | GMV-60WL/C-T(U) | <ul style="list-style-type: none"> ● In cool mode, the opening angle of indoor EXV varies within 70~480PLS. ● In heat mode, the opening angle of indoor EXV varies within 40~480PLS. |
| GMV-36WL/C-T(U) GMV-48WL/C-T(U) | <ul style="list-style-type: none"> ● In cool mode, the opening degree of indoor EXV varies within 70~480PLS. ● In heat mode, the opening degree of indoor EXV varies within 70~480PLS. | | | | | | | | |
| GMV-60WL/C-T(U) | <ul style="list-style-type: none"> ● In cool mode, the opening angle of indoor EXV varies within 70~480PLS. ● In heat mode, the opening angle of indoor EXV varies within 40~480PLS. | | | | | | | | |
| 15 | Communication parameters | Communication data | — | Number of IDUs detected by software is the same with the actual number. No communication error. | | | | | |
| 16 | Drainage system | — | — | Indoor unit can drain water out completely and smoothly. Condensate pipe has no backward slope of water; Water of outdoor unit can be drained completely through drainage pipe. No water drop from unit base. | | | | | |
| 17 | Others | — | — | Compressor and indoor/outdoor fan motor do not have strange noise. Unit can operate normally. | | | | | |

6 Common Malfunctions and Troubleshooting

⚠ WARNING

- (1) If an abnormal situation (such as peculiar smell) occurs, please stop the operation immediately and turn off the main power supply, and then contact Gree authorized maintenance center. If the unit continues to operate under abnormal situation, the air conditioner will be damaged and an electric shock or fire accident may result.
- (2) Do not maintain the air conditioner by yourself, misoperation may cause electric shock or fire hazard. Please contact professional personnel of Gree authorized maintenance center to maintain.

- Before asking for maintenance, please check the following issues first.

| Phenomenon | Causes | Troubleshooting |
|--|--|---|
| Air conditioner can't operate | Fuse is broken or circuit breaker is open | Replace fuse or close the circuit breaker |
| | Power failure | Restart up the unit and then the unit will operate |
| | Power supply is not connected | Connect the power supply |
| | The power for batteries of remote controller is insufficient | Replace the batteries |
| | Remote controller is not within the remote control range | Remote control range is within 8m |
| Air conditioner operates, while it stops operation immediately | Air inlet or air outlet of indoor unit/outdoor unit is blocked | Eliminate the obstacles |
| Cooling or heating is abnormal | Air inlet or air outlet of indoor unit/outdoor unit is blocked | Eliminate the obstacles |
| | Temperature setting is improper | Adjust temperature setting by remote controller or wired controller |
| | Fan speed is set too low | Adjust fan speed setting by remote controller or wired controller |
| | Fan direction is not correct | Adjust fan direction setting by remote controller or wired controller |
| | Door or window is open | Close door and window |
| | Direct sunshine | Hang curtains or window shade at the window |
| | Too many persons in the room | — |
| | Too many thermal source in the room | Reduce the thermal source |
| The filter is dirty and blocked | Clean the filter | |

- Instruction

NOTICE

If problem cannot be solved after checking the above items, please contact Gree service center and describe the cases and models.

- Following circumstances are not malfunctions.

| Phenomenon | Causes |
|--------------------------|--|
| Unit doesn't run | When unit is started immediately after it is just turned off |
| | When power is turned on |
| Mist comes from the unit | Under cooling |
| Noise is emitted | When the power supply is connected, there is small "dada" sound. |
| | When the system is conducting cooling or defrosting, there is continuous "sa——" sound. |
| | When the system is switching cooling and heating modes; during heating operation, the unit enters or quits defrosting operation or oil return operation, there is "chi——" sound. |

| Phenomenon | | Causes |
|--|--|---|
| Noise is emitted | When the system is started or stopped for a short time, you can hear the sound of “sa——”; you can also hear this sound for a short time after the start or stop of the defrosting operation. | This is the sound produced when the refrigerant stops or changes the flow. |
| | When the system is in cooling operation or after it stops running, a continuous “sa ——” sound can be heard | This is the operation sound of drain system. |
| | When the system is running or after it stops running, a “creaking” sound can be heard. | This is the sound produced when plastic parts such as panel expansion and contraction due to temperature changes. |
| | When the system is in heating operation, after the indoor unit stops running, the sound like running water can be heard. | The unit is melting the frost on the outdoor unit, please wait about 10 minutes (due to different unit models, the waiting time will vary). |
| | When the indoor unit stops running, a faint “sa——” sound or “gurgling” sound can be heard. | This sound can be heard when other indoor units are running. This is to prevent oil and refrigerant from staying in the indoor unit, and to keep a small amount of refrigerant flowing. |
| | When the unit is running, the operating sound of the compressor changes. | This is caused by changes in compressor operating frequency. |
| | During the operation of the unit or after the operation is started or stopped, a continuous "sa ——" sound can be heard. | This is the sound produced when the refrigerant bypass valve operates. |
| | When the operating mode of the unit changes, the indoor unit and outdoor unit will produce " sa ——" and "gurgling" sounds. | This is the sound produced when the refrigerant stops or changes flow. |
| | The sound from the outdoor unit can be heard indoors | This is because the outdoor unit is installed close to the window or wall, and the sound insulation is poor, and the external noise is transmitted in. |
| There is dust blowing out from the unit | Start operation after it is not used for a long time | Dust in indoor unit is blew out |
| The unit emits odor | Operating | The odor of the air conditioner is sucked into the room and then blown out |
| The indoor unit is still running after shutting down | The indoor unit is still running after shutting down | The fan of indoor unit will continue to work for 20 to 70 seconds to fully use the residual cooling or heat of the heat exchanger, and to prepare for the next use. |
| Mode conflict | Cooling or heating mode cannot start up | When the selected operation mode of the indoor unit conflicts with the operation mode of the outdoor unit, after five seconds, the indoor unit error indicator flashes or the remote controller displays the operation conflict, and the indoor unit shuts down. At this time, the indoor unit can be converted to run with the outdoor unit. The mode can be restored to normal without conflict. The cooling mode and dry mode do not conflict, and the air supply does not conflict with any mode. |

7 Error Indication

Inquiry method of error indication: combine division symbol and content symbol to check the corresponding error.

Indoor:

| Error Code | Content | Error Code | Content |
|------------|---|------------|--|
| L0 | Malfunction of IDU (uniform) | d1 | Indoor PCB is poor |
| L1 | Protection of indoor fan | d2 | Malfunction of lower water temperature sensor of water tank |
| L2 | Auxiliary heating protection | d3 | Malfunction of ambient temperature sensor |
| L3 | Water-full protection | d4 | Malfunction of entry-tube temperature sensor |
| L4 | Abnormal power supply for wired controller | d5 | Malfunction of middle temperature sensor |
| L5 | Freeze prevention protection | d6 | Malfunction of exit-tube temperature sensor |
| L6 | Mode shock | d7 | Malfunction of humidity sensor |
| L7 | No main IDU | d8 | Malfunction of water temperature sensor |
| L8 | Power supply is insufficient | d9 | Malfunction of jumper cap |
| L9 | For single control over multiple units, number of IDU is inconsistent | dA | Web address of IDU is abnormal |
| LA | For single control over multiple units, IDU series is inconsistent | dH | PCB of wired controller is abnormal |
| LH | Alarm due to bad air quality | dC | Abnormal setting for capacity button |
| LC | IDU is not matching with outdoor unit | dL | Malfunction of air outlet temperature sensor |
| LL | Malfunction of water flow switch | dE | Malfunction of indoor CO ₂ sensor |
| LE | Rotation speed of EC DC water pump is abnormal | dF | Malfunction of upper water temperature sensor of water tank |
| LF | Malfunction of shunt valve setting | dJ | Malfunction of backwater temperature sensor |
| LJ | Setting of functional DIP switch code is wrong | dP | Malfunction of inlet tube temperature sensor of generator |
| LP | Zero-crossing malfunction of PG motor | dU | Malfunction of drainage pipe temperature sensor of generator |
| LU | Indoor unit's branch is not inconsistent for one-to-more unit of heat recovery system | db | Debugging status |
| Lb | Inconsistent IDU of group-controlled reheat and dehumidification system | dd | Malfunction of solar power temperature sensor |
| y1 | Malfunction of inlet tube temperature sensor 2 | dn | Malfunction of swing parts |
| y2 | Malfunction of outlet tube temperature sensor 2 | dy | Malfunction of water temperature sensor |
| y7 | Malfunction of fresh air intake temperature sensor | y8 | Main error of indoor air box sensor |
| yA | IFD malfunction | — | — |

Outdoor:

| Error Code | Content | Error Code | Content |
|------------|---|------------|---|
| F0 | Main board of ODU is poor | E0 | Malfunction of ODU (uniform) |
| F1 | Malfunction of high-pressure sensor | E1 | High-pressure protection |
| F3 | Malfunction of low-pressure sensor | E2 | Discharge low-temperature protection |
| F5 | Malfunction of discharge temperature sensor of compressor 1 | E3 | Low-pressure protection |
| F6 | Malfunction of exit-tube temperature sensor | E4 | High discharge temperature protection of compressor |
| F7 | Malfunction of humidity sensor | Ed | Drive module low temperature protection |
| F8 | Malfunction of water temperature sensor | J0 | Protection for other modules |
| F9 | Malfunction of jumper cap | J1 | Over-current protection of compressor 1 |

| Error Code | Content | Error Code | Content |
|------------|--|------------|---|
| FA | Web address of IDU is abnormal | J2 | Over-current protection of compressor 2 |
| FC | Current sensor of compressor 2 is abnormal | J3 | Over-current protection of compressor 3 |
| FL | Current sensor of compressor 3 is abnormal | J4 | Over-current protection of compressor 4 |
| FE | Current sensor of compressor 4 is abnormal | J5 | Over-current protection of compressor 5 |
| FF | Current sensor of compressor 5 is abnormal | J6 | Over-current protection for compressor 6 |
| FJ | Current sensor of compressor 6 is abnormal | J7 | Gas-mixing protection of 4-way valve |
| FP | Malfunction of DC motor | J8 | High pressure ratio protection of system |
| FU | Malfunction of casing top temperature sensor of compressor 1 | J9 | Low pressure ratio protection of system |
| Fb | Malfunction of casing top temperature sensor of compressor 2 | JA | Protection because of abnormal pressure |
| Fd | Malfunction of exit tube temperature sensor of mode exchanger | JC | Water flow switch protection |
| Fn | Malfunction of inlet tube temperature sensor of mode exchanger | JL | Protection because high pressure is too low |
| b1 | Malfunction of outdoor ambient temperature sensor | JE | Oil-return pipe is blocked |
| b2 | Malfunction of defrosting temperature sensor 1 | JF | Oil-return pipe is leaking |
| b3 | Malfunction of defrosting temperature sensor 2 | P0 | malfunction of driving board of compressor (uniform) |
| b4 | Malfunction of liquid temperature sensor of sub-cooler | P1 | Driving board of compressor operates abnormally (uniform) |
| b5 | Malfunction of gas temperature sensor of sub-cooler | P2 | Voltage protection of driving board power of compressor (uniform) |
| b6 | Malfunction of inlet temp sensor of gas-liquid separator | P3 | Reset protection of driving module of compressor |
| b7 | Malfunction of outlet temp sensor of gas-liquid separator | P4 | Drive PFC protection of compressor |
| b8 | Malfunction of outdoor humidity sensor | P5 | Over-current protection of inverter compressor |
| b9 | Malfunction of gas temperature sensor of heat exchanger | P6 | Drive IPM module protection of compressor |
| bA | Malfunction of oil-return temperature sensor 1 | P7 | Malfunction of drive temperature sensor of compressor |
| bH | Clock of system is abnormal | P8 | Drive IPM high temperature protection of compressor |
| bE | Malfunction of inlet tube temperature sensor of condenser | P9 | Desynchronizing protection of inverter compressor |
| bF | Malfunction of outlet tube temperature sensor of condenser | PA | Malfunction of drive storage chip of compressor |
| bJ | High-pressure sensor and low-pressure sensor are connected reversely | PH | High-voltage protection of compressor's drive DC bus bar |
| bP | Malfunction of temperature sensor of oil-return 2 | PC | Drive current detection circuit malfunction of compressor |
| bU | Malfunction of temperature sensor of oil return 3 | PL | Low-voltage protection of compressor's drive DC bus bar |
| bb | Malfunction of temperature sensor of oil return 4 | PE | Phase-lacking of inverter compressor |
| bd | Malfunction of air inlet temperature sensor of subcooler | PF | Drive charging circuit malfunction of compressor |
| bn | Malfunction of liquid inlet temperature sensor of subcooler | PJ | Failure startup of inverter compressor |
| H0 | Malfunction of driving board of fan (uniform) | PP | AC current protection of inverter compressor |
| H1 | Driving board of fan operates abnormally (uniform) | PU | AC input voltage of drive of inverter compressor |
| H2 | Voltage protection of driving board power of fan (uniform) | G0 | PV reversed connection protection |
| H3 | Reset protection of driving module of fan | G1 | PV Anti-islanding protection |
| H4 | Drive PFC protection of fan | G2 | PV DC overcurrent protection |
| H5 | Over-current protection of inverter fan | G3 | PV power generation overload |
| H6 | Drive IPM module protection of fan | G4 | PV leakage current protection |

| Error Code | Content | Error Code | Content |
|------------|---|------------|--|
| H7 | Malfunction of drive temperature sensor of fan | G5 | Phase-lacking protection at power grid side |
| H8 | Drive IPM high temperature protection of fan | G6 | Phase-lacking protection at power grid side |
| H9 | Desynchronizing protection of inverter fan | G7 | PV LVRT |
| HA | Malfunction of drive storage chip of inverter outdoor fan | G8 | Overcurrent protection at power grid side |
| HH | High-voltage protection of fan's drive DC bus bar | G9 | Drive IPM module protection at power grid side |
| HC | Drive current detection circuit malfunction of fan | GA | Low/high input voltage protection at power grid side |
| HL | Low-voltage protection of fan's drive DC bus bar | GH | Photovoltaic DC\DC protection |
| HE | Phase-lacking of inverter fan | GC | Photovoltaic DC hardware overcurrent protection |
| HF | Drive charging circuit malfunction of fan | GL | Grid side hardware overcurrent protection |
| HJ | Failure startup of inverter fan | GE | High or low photovoltaic voltage protection |
| HP | AC current protection of inverter fan | GF | DC bus neutral-point potential unbalance protection |
| HU | AC input voltage of drive of inverter fan | GJ | Grid side module high-temperature protection |
| Gd | Grid side current sensor protection | GP | Grid side temperature sensor protection |
| Gn | Insulation resistance protection | GU | Charging circuit protection |
| Gy | Unrecoverable error of grid drive (photovoltaic) | Gb | Grid side relay protection |

Debugging:

| Error Code | Content | Error Code | Content |
|------------|---|------------|---|
| U0 | Preheat time of compressor is insufficient | Cd | Communication malfunction between mode exchanger and ODU |
| U2 | Wrong setting of ODU's capacity code/jumper cap | Cn | Malfunction of network for IDU and ODU of mode exchanger |
| U3 | Power supply phase sequence protection | Cy | Communication malfunction of mode exchanger |
| U4 | Refrigerant-lacking protection | C0 | Communication malfunction between IDU, ODU and IDU's wired controller |
| U5 | Wrong address for driving board of compressor | C1 | Communication malfunction between main control and DC-DC controller |
| U6 | Alarm because valve is abnormal | C2 | Communication malfunction between main control and inverter compressor driver |
| U7 | Power grid DRED0 response protection | C3 | Communication malfunction between main control and inverter fan driver |
| U8 | Short-circuit malfunction of IDU | C4 | Malfunction of lack of IDU |
| U9 | Malfunction of pipe-line for ODU | C5 | Alarm because project code of IDU is inconsistent |
| UA | DC bus overvoltage protection at power grid side | C6 | Alarm because ODU quantity is inconsistent |
| UH | DC bus undervoltage protection at power grid side | C7 | Abnormal communication of converter |
| UC | Setting of main IDU is successful | C8 | Emergency status of compressor |
| UL | Emergency operation DIP switch code of compressor is wrong | C9 | Emergency status of fan |
| UE | Charging of refrigerant is invalid | CA | Emergency status of module |
| UF | Identification malfunction of IDU of mode exchanger | CH | Rated capacity is too high |
| UJ | FO protection for PV module | CC | Malfunction of lack of main control unit |
| Ud | Grid-connected driver board error | CL | Rated capacity is too low |
| Un | Communication malfunction between main control and inverter | CE | Communication malfunction between mode exchanger and IDU |
| Uy | Over-temperature protection for PV module | CF | Malfunction of multiple main control units |

| Error Code | Content | Error Code | Content |
|------------|--|------------|--|
| CU | Communication malfunction between IDU and the receiving lamp plate | CJ | Address DIP switch code of system is shocking |
| Cb | Overflow distribution of IP address | CP | Malfunction of multiple main wired controllers |

Status:

| Error Code | Content | Error Code | Content |
|------------|---|------------|--|
| A0 | Unit waiting for debugging | n0 | SE operation setting of system |
| A2 | Refrigerant recovery operation of after-sales | n3 | Compulsory defrosting |
| A3 | Defrosting | n4 | Limit setting for max. capacity/output capacity |
| A4 | Oil-return | n5 | Compulsory excursion of engineering code of IDU |
| A6 | Heat pump function setting | n6 | Inquiry of malfunction |
| A7 | Quiet mode setting | n7 | Inquiry of parameters |
| A8 | Vacuum pump mode | n8 | Inquiry of project code of IDU |
| AH | Heating | n9 | Check quantity of IDU on line |
| AC | Cooling | nA | Heat pump unit |
| AL | Charging refrigerant automatically | nH | Heating only unit |
| AE | Charging refrigerant manually | nC | Cooling only unit |
| AF | Fan | nE | Negative sign code |
| AJ | Alarm for cleaning filter | nF | Fan model |
| AP | Debugging confirmation for startup of unit | nJ | High temperature prevention when heating |
| AU | Long-distance emergency stop | nU | Eliminate the long-distance shielding command of IDU |
| Ab | Emergency stop of operation | nb | Bar code inquiry |
| Ad | Limit operation | nn | Length modification of connection pipe of ODU |
| An | Child lock status | Ay | Shielding status |

8 Maintenance and Care

Regular check, maintenance and care can extend unit's service life. Please have specialized person in charge of the management of air conditioners.

8.1 Outdoor Heat Exchanger

Outdoor heat exchanger shall be cleaned regularly, which is at least once every two months. You can use a dust catcher with nylon brush to clean away the dust on the heat exchanger. If compressed air source is available, it also can be used to clean the heat exchanger. Do not clean it with water.

8.2 Drain Pipe

Please check regularly whether drain pipe is blocked or not. Make sure condensate can be drained out smoothly.

8.3 Notice before Seasonal Use

- (1) Check whether air inlets and air outlets of indoor and outdoor units are blocked.
- (2) Check whether ground connection is reliable or not.
- (3) Check whether batteries in the remote controller are replaced or not.
- (4) Check whether air filter is properly installed.
- (5) If unit starts up after not operating for a long time, it should be power on 8 hours before operation starts so as to preheat the outdoor compressor.
- (6) Check whether outdoor unit is securely installed. If there is any problem, please contact Gree authorized service center.

8.4 Maintenance after Seasonal Use

- (1) Disconnect power of the entire system.
- (2) Clean the air filter and outer case of indoor and outdoor units.
- (3) Clean away the dust and obstacles on indoor and outdoor units.
- (4) If outdoor unit has rust, please apply some paint to it so as to prevent the rust from growing.

8.5 Parts Replacement

Parts and components can be obtained from nearby Gree office or Gree distributor.

⚠ WARNING

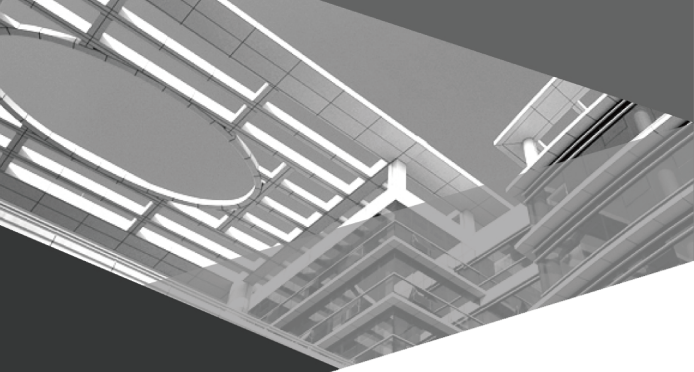
When you are conducting air tightness test and leakage test, do not mix oxygen, C₂H₂ or other dangerous gas into the refrigerant circuit. Otherwise, it may lead to danger. Use nitrogen or refrigerant to conduct the tests.

9 After-sales Service

If there's quality defect or other problems in the product, please contact Gree local after-sales service department for help.

Warranty must be based on the following conditions:

- (1) Product's initial startup must be performed by professional technicians from Gree service center or persons assigned by Gree.
- (2) Only Gree spare parts are used.
- (3) All instructions of unit operation and maintenance in this manual must be strictly followed according to set period and set frequency.
- (4) Any breach of the above conditions will disable the warranty.



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