GREE
Change for life

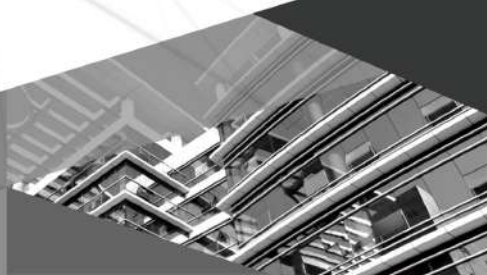
Owner's Manual

Original Instructions

Window Type Air Conditioner

INVERTER

Thank you for choosing our product.
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.



GJH09BW-A6DRNL1A

Contents

Operation and Maintenance

Operation Notices

Safety Precautions.....1
Parts Name.....5

Operation Guide

Function and Control.....6
Operation and introduction of remote controller 8

Maintenance

Clean and Maintenance.....11

Malfunction

Malfunction analysis.....13

Installation

Installation Notice

Installation and Maintenance.....14
Preparation before installation.....15

Installation

Window types and requirements..... 16
Installation procedure.....17
Sponge Sticking Method and Procedures..... 21
Preventative Maintenance..... 21
Safety operation of flammable refrigerant 22
Safety notices for maintenance 22
Specialist's manual.....24

READ THIS MANUAL

Inside you will find many helpful hints on how to use and maintain your air conditioner properly. Just a little preventive care on your part can save you a great deal of time and money over the life of your air conditioner. You'll find many answers to common problems in the chart of troubleshooting tips. If you review our chart of Troubleshooting Tips first, you may not need to call for service at all.

⚠ CAUTION

Contact the authorized service technician for repair or maintenance of this unit.

Contact the installer for installation of this unit.

The air conditioner is not intended for use by young children or infirm persons without supervision.

Young children should be supervised to ensure that they do not play with the air conditioner.

If the power cord is to be replaced, replacement work must be performed by authorized personnel only.

Installation work must be performed in accordance with the national wiring standards by authorized personnel only.

Explanation of Symbols

⚠WARNING This symbol indicates the possibility of death or serious injury.

⚠CAUTION This symbol indicates the possibility of injury or damage to property.

NOTICE Indicates important but not hazard-related information, used to indicate risk of property damage.

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.

If it needs to install, move or maintain the air conditioner, please contact dealer or local service center to conduct it at first. Air conditioner must be installed, moved or maintained by appointed unit. Otherwise, it may cause serious damage or personal injury or death.
When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.
This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

The refrigerant

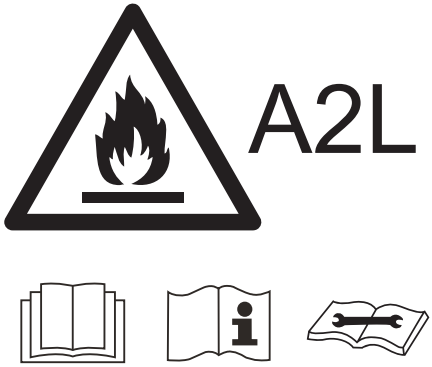
A2L Appliance filled with flammable gas R32.	Before install the appliance, read the installation manual first.
Before use the appliance, read the owner's manual first.	Before repair the appliance, read the service manual first.

- To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units there fore need a less filling.

WARNING

- Appliance filled with flammable gas R32
- Appliance shall be installed,operated and stored in a room with a floor area larger than 4m^2.
- The appliance shall be stored in a room without continuously operating ignition sources. (for example:open flames,an operating gas appliance or an operating electric heater.)
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- Ducts connected to an appliance shall not contain an ignition source.
- Keep any required ventilation openings clear of obstruction.
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- Do not use means to accelerate the defrosting process or to clean,other than those recommended by the manufacturer.
- Servicing shall be performed only as recommended by the manufacturer.

- Should repair be necessary,contact your nearest authorized Service Centre. Any repairs carried out by unqualified personnel may be dangerous.
- Compliance with national gas regulations shall be observed.
- Read specialist's manual.



Safety precautions

WARNING

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Before operation, please confirm whether power specification complies with that on nameplate.
- Before cleaning or maintaining the air conditioner, please turn off air conditioner and pull out the power plug.
- Make sure the power cord hasn't been pressed by hard objects.
- Do not pull or drag the power cord to pull out the power plug or move the air conditioner.
- Do not insert or pull out the power plug with wet hands.
- Please use the grounded power. Make sure the grounding is reliable.
- If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- If abnormal condition occurs (e.g. burned smell), please disconnect power at once and then contact local dealer.
- When nobody is taking care of the unit, please turn it off and remove the power plug or disconnect power.
- Do not splash or pour water on air conditioner. Otherwise, it may cause short circuit or damage to air conditioner.
- Prohibit operating heating equipment around the air conditioner.
- Prohibit operating the unit in the bathroom or laundry room.
- Far away from fire source, inflammable and explosive objects.
- Children and disabled people are not allowed to use the portable room air conditioner without supervision.
- Keep children from playing or climbing on the air conditioner.
- Do not put or hang dripping objects above the air conditioner.
- Do not repair or disassemble the air conditioner by yourself.

Safety precautions

WARNING

- Prohibit inserting any objects into the air conditioner.
- Do not through sundries into the air duct. If there are sundries get into the air duct, please contact the professionals to deal with it.
- Do not use an extension cord.
- Specification of fuse on the main board:T20AH 250V or T5AH 250V, the maximum current passes through.
- The appliance shall be installed in accordance with national wiring regulations.
- There may be water drained from outdoors to indoors. The water tank must be emptied in time; When heating is ended, do remove all water inside the water tank. otherwise, it may stop operation frequently for operation. An external water pipe can be connected for draining the water to the sewer. External water pump is sug-gested to be used for helping to eliminate the water inside the water tank.

Operation environment

Operating Temperature Range		
	Indoor side DB/WB(°F/°C)	Outdoor side DB/WB(°F/°C)
Maximum Cooling	90/73(32.2/22.8)	110/78(43.3/25.6)
Maximum Heating	80/-(26.7/-)	75/65(24/18.3)

Ambient temperature range (indoor temperature) for cooling is 64°F-90°F(18°C -32.2°C)
Ambient temperature range (outdoor temperature) for cooling is 64°F~110°F(18°C ~ 43.3°C)
Ambient temperature range (indoor temperature) for heat pump is 41°F-80°F(5°C -26.7°C)
Ambient temperature range (outdoor temperature) for heat pump is -8°F~75°F(-22°C~23.9°C)

Safety precautions

CAUTION:

The power supply cord with this air conditioner contains a current detection device designed to reduce the risk of fire.
Please refer to the section “Operation of Current Device” for details.
In the event that the power supply cord is damaged, it cannot be repaired-it must be replaced with a cord from the Product Manufacturer.

WARNING

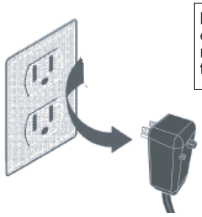
For your safety

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Avoid fire hazard or electric shock. Do not use an extension cord or an adaptor plug.Do not remove any prong from the power cord.

Electrical information

- Be sure the electrical service is adequate for the model you have chosen. This information can be found on the serial plate, which is located on the side of the cabinet and behind the grille.
- Be sure the air conditioner is properly grounded. To minimize shock and fire hazards, proper grounding is important. The power cord is equipped with a three-prong grounding plug for protection against shock hazards.
- You air conditioner must be used in a properly grounded wall receptacle. If the wall receptacle you intend to use is not adequately grounded or protected by a time delay fuse or circuit breaker, have a qualified electrician install the proper receptacle.
- Ensure the receptacle is accessible after the unit installation.
- Do not run air conditioner without side protective cover in place. This could result in mechanical damage within the air conditioner.

Do not use an extension cord or an adapter plug.



Power supply cord with 3-prong grounding plug and current detection device

Operation of Current Device

The power supply cord contains a current device that senses damage to the power cord. To test your power supply cord do the following:

1. Plug in the Air Conditioner.
2. The power supply cord will have TWO buttons on the plug head. Press the TEST button, you will notice a click as the RESET button pose out.
3. Press the RESET button, again you will notice a click as the button engages.
4. The power supply cord is now supplying electricity to the unit. (On some products this is also indicated by a light on the plug head.)

NOTE

- Do not use this device to turn the unit on or off.
- Always make sure the RESET button is pushed in for correct operation.
- The power supply must be replaced if it fails reset when either the TEST button is pushed, or it cannot be reset. Please contact Customer Service.
- If power supply cord is damaged, it cannot be repaired. It MUST be replaced with a new cord. Please contact Customer Service.

Safety precautions

WARNING

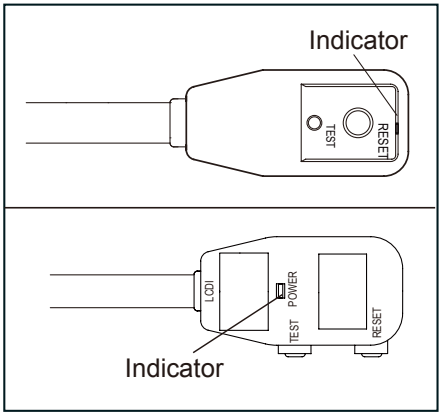
- Air Conditioner should be properly grounded. Incorrect grounding may cause electric shock.
- Do not connect air conditioner to multipurpose socket. Otherwise, it may cause fire hazard.
- Do install the air switch. If not, it may cause malfunction.
- Do not spill water on the remote controller, otherwise the remote controller may be broken.
- Do not spray water on air conditioner. It may cause electric shock or malfunction.
- Do not extend fingers or objects into air inlet or air outlet. It may cause personal injury or damage.
- Do not step on air conditioner, or put heavy objects. It may cause damage or personal injury.
- Do not block air outlet or air inlet. It may cause malfunction.
- Do disconnect power supply when cleaning air conditioner. Otherwise, it may cause electric shock.
- Do not repair air conditioner by yourself. It may cause electric shock or damage. Please contact dealer when you need to repair air conditioner.
- Maintenance must be performed by qualified professionals. Otherwise, it may cause personal injury or damage.
- Please install the devices for short-circuit protection and electrical leakage protection when installing the air conditioner.

NOTE

- The power cord of window type unit has creepage protection device. There're test button and reset button on the plug. You are suggested to check the power cord periodically.

Check method:

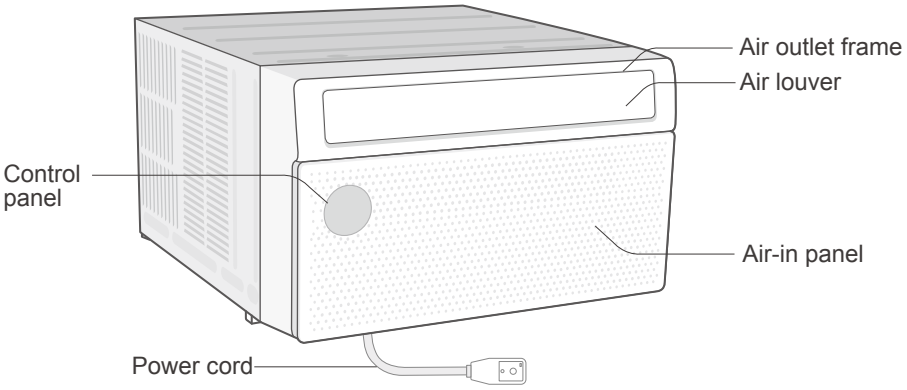
After putting through the power, indicator is ON. After pressing test button, indicator is OFF and you can heard a sound. Then press reset button, indicator will be ON, which indicates the protection device is normal.



Note:

Plug may be different with the actual product. Please refer to actual product.

Parts name



NOTE: Panel outlook picture, just for reference, please take the real unit as standard.

Introduction

Room air conditioners cool, dehumidify, and filter air inside your home. Heat pump both heating and cooling.

Read entire manual thoroughly before beginning installation and operation of your new room air conditioner. Be sure you have all necessary tools and materials on hand for the job. Study illustrations to familiarize yourself with important details of the installation process. Review manual for operating instructions.

Room Heat Pumps

Heat pumps work by moving heat instead of creating it. In the summer, the cool indoor coil absorbs heat from your room and moves it outdoors, providing cooling. In the winter, heat pumps reverse this operation. By lowering the temperature of the outdoor coil below the outdoor temperature, the heat pumpabsorbs the heat from outdoors and moves it inside your house. This heat transferring process is very efficient. For example, at 45°F outdoor temperature, a heat pump can provide 3 watts of heat for every watt of electricity it consumes.

NOTE

- Mechanical experience is required to install air conditioner.
- Installation can take from 1 to 3 hours, depending on installer's knowledge and skill.

- Do not install or place anything in the air inlet and air outlet of window type unit, in order to avoid affecting performance.
- After installing unit, reread instructions to ensure each step is complete and that all parts are fastened in place. For best results and to minimize installation time, perform all procedures in the order shown.

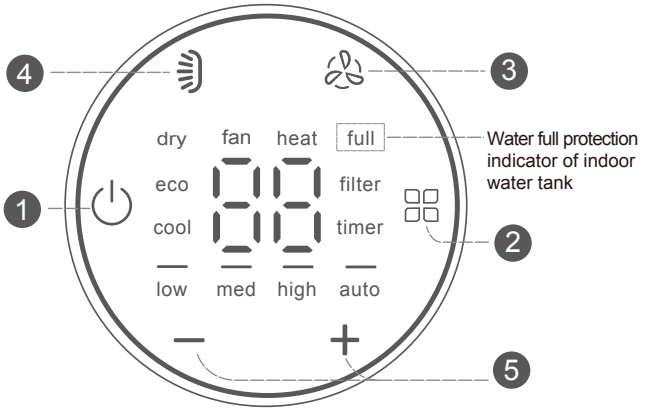
Inportant Notes

When the air conditioner runs in heating mode, the water generated during the operation of the unit may be pumped to indoor water tank. When the water tank is full, the unit stops operation until the water is eliminated. For avoiding the worry caused by frequent water pouring, you are suggested to install a water pipe at the bottom of water tank to drain the water inside the water tank to outdoor water bucket, sewer, etc. Moreover, an external water pump can be installed on the external water pipe. The water pump is always turned on and then the water inside the water tank can be drained out in time.

When you are bothered by frequently pouring the water, if outside water leakage or water dropping of air conditioner is allowed by local regulations, users can directly pull out the rubber plug at the outside bottom of air conditioners. So, the water generated by heating can drop directly from the outdoor side of air conditioner. There is no need to connect indoor water tank with a drainage pipe.

Function and control

- After putting through the power, air conditioner will give out a sound and indicators on control panel will be on. After that, you operate the air conditioner through remote controller or control panel.
- When indoor water tank is full, Indicator "full" on the panel is flashing and buzzer will beep for 10s.Users should cut off the power, pour out the water of indoor water tank and then reinstall the water tank.



1. On/Off button
2. Mode button
3. Fan Speed button
4. Swing button
5. - / + button

Operation of control panel

1 On/Off button

Press this button can turn on or turn off air conditioner.

2 Mode button

Press this button can your required operation mode in turn. Corresponding indicator will be on.

Cool → Eco → Dry → Fan → Heat

- **Cool:** Under this mode, air conditioner operates under cooling mode. Cooling indicator will be on. Press “Fan Speed” button can adjust the fan speed.
- **Eco:** Under this mode, air conditioner operates under eco mode. Eco indicator will be on.Press “Fan Speed” button can adjust the fan speed.
- **Dry:** Under this mode, the unit runs in low fan speed for dehumidification and the corresponding indicator is on; under dry mode, the fan speed cannot be adjusted.
- **Fan:** Under this mode, air conditioner will not cool or heat, only blow wind. Fan indicator will be on. Press “Fan Speed” button can adjust the fan speed.
- **Heat:** Under this mode, air conditioner operates under heating mode. Heating indicator will be on. Press “Fan Speed” button can adjust the fan speed.

3 Fan Speed button

Press this button can select your required fan speed in turn. Corresponding speed indicator will be on.

Low → Med → High → Auto

4 Swing button

Press this button can turn on or turn off the swing function. Under on states, horizontal louver of Air conditioner will swing up & down automatically at the maximum angle.

5 - / + button

Under temperature setting status, after each pressing of " - " or " + " button, temperature will increase or decrease 1 ° F. Temperature setting range: 61~86 ° F.

Function introduction for combination buttons

Filter function

After fan rotates for 250h totally, lamp of cleaning filter is on to remind customer clean it.

NOTE

- When user cleaned the filter, press mode button and swing button on the control panel for 3s to clear the operation time. Meanwhile, the warning indicator will turn off.

Defrosting

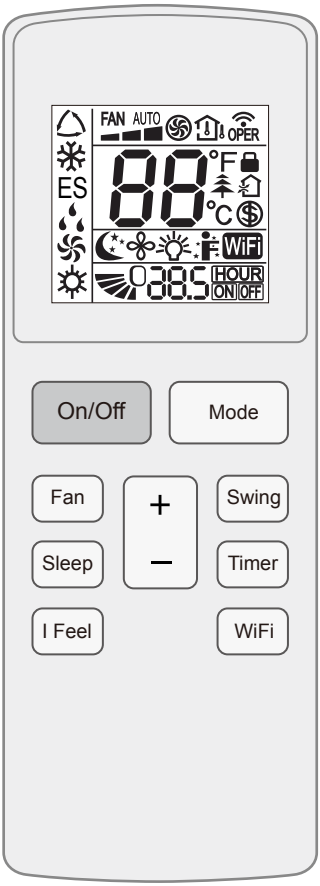
Under the defrosting status, the heating indicator is bright for 10s and then off for 0.5s circularly, which is the normal status.

Energy Saver function

When the unit switches to cooling mode and the compressor stops operation, the fan will operates and stops circularly for a period of time and then stops operation.

Operation and introduction of remote controller

Buttons on remote controller



Introduction for icons on display screen

		I feel
		Set fan speed
		Turbo mode
		Send signal
Operation mode		Auto mode
		Cool mode
	ES	ES mode
		Dry mode
		Fan mode
		Heat mode
		Sleep mode
		8℃ heating function
		Health function
		Scavenging function
		X-FAN function
Temp. display type		Set temp.
		Indoor ambient temp.
		Outdoor ambient temp.
		Set temperature
	WiFi	WiFi function
		Set time
	ON OFF	TIMER ON / TIMER OFF
		Light
		Up & down swing
		Child lock

Introduction for buttons on remote controller

NOTE

- This is a general use remote controller. It could be used for the air conditioner with multifunction. For the functions which the model doesn't have, if press the corresponding button on the remote controller, the unit will keep the original running status.
- After putting through the power, the air conditioner will give out a sound. Power indicator "⏻" is ON. After that, you can operate the air conditioner by using remote controller.
- Under on status, pressing the button on the remote controller, the signal icon "📶" on the display of remote controller will blink once and the air conditioner will give out a "di" sound, which means the signal has been sent to the air conditioner.
- Under off status, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

On/Off button

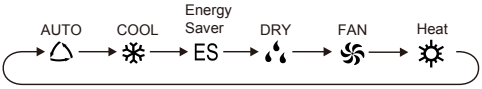
Press this button to turn on the unit,turning on the unit with remote controller, the unit will operate in energy-saving mode. Press this button again to turn off the unit.

NOTE

- Press this button to turn on air conditioner, If it's heating mode before turning off the unit, the unit operates at heating mode after turning on the unit. If turning on the unit under other modes, the unit operates under energy-saving mode. if the unit is energized after power failure, the unit will still operate according to the status before power failure.

Mode button

Press this button can your required operation mode in turn. Corresponding indicator will be on.



- **Auto:** Under this mode, the unit will operate automatically according to ex-factory setting. In this case, set temperature cannot be adjusted.
- **Cool:** Under this mode, air conditioner operates under cooling mode. Cooling indicator will be on. Press “Fan Speed” button can adjust the fan speed.
- **Energy Save:** Under this mode, air conditioner operates under ES mode. ES indicator will be on. Press “Fan Speed” button can adjust the fan speed.
- **Dry:** Under this mode, the unit runs in low fan speed for dehumidification and the corresponding indicator is on; under dry mode, the fan speed cannot be adjusted.
- **Fan Only:** Under this mode, air conditioner will not cool or heat, only blow wind. Fan indicator will be on. Press “Fan Speed” button can adjust the fan speed.
- **Heat:** When selecting heat mode, air conditioner will operate under heat mode. Then press "+" or "-" button to adjust set temperature. Press FAN button to adjust fan speed. (Cooling only unit can’t receive heating mode signal)

+ − button

- Pressing “+” or “-” button once will increase or decrease set temperature by 1° F(° C). Hold “+” or “-” button for 2s, set temperature on remote controller will change quickly. Release the button after your required set temperature is reached.
- Under timer setting status, after each pressing of “+” or “-” button, time will increase or decrease 0.5h . Hold “ + ” or “-” button, 2s later, time displayed on dual-8 nixie tube will change quickly. Loosen the button until the time is reached to your set time.

Swing button

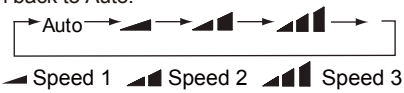
Press this button to turn “ON” & “OFF” swing.

NOTE

- This function is only available for some models.

Fan button

This button is used for setting Fan Speed in the sequence that goes from AUTO, ▂ , ▂▄ , to ▂▄▆ then back to Auto.



NOTE

- There are 3 speeds for the Fan Speed of this mode.

Sleep button

Press this button to go into the SLEEP opera-tion mode. Press it again to cancel this function. This function is available in COOL, SAVE, HEAT mode to maintain the most comfortable temperature for you.

Timer button

- Under ON status, press this button to set timer OFF; Under OFF status, press this button to set timer ON.
- Press this button once and the characters of HOUR ON (OFF) will flash to be displayed. Mean- while, press " + " button or " - " button to adjust timer setting (time will change quickly if holding " + " or " - " button). Time setting range is 0.5~ 24hours. Press this button again to confirm timer setting and the characters of HOUR ON (OFF) will stop flashing.
  If the characters are flashing but you haven't press timer button,timer setting status will be quit after 5s.If timer is confirmer, press this button again to cancel timer.

I Feel button

I feel function will be action if pressing this button. If controller receives I FEEL order, it will work under ambient temperature value which sending by remote controller, and remote controller will send ambient temperature value to controller every 10min. After 11min, if controller does not receive ambient temperature value which sending by remote controller, it will run with AC ambient temperature; if I FEEL is not set, ambient temperature will adopt sampling value of AC temperature sensor. If power off happens, this function will not be memorized.
When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

WiFi button

When WiFi function is turned on, " WiFi " icon will be displayed on the remote controller; when WiFi function is turned off, " WiFi " icon will disappear.
How to turn on WiFi: Press " WiFi " button to turn on WiFi function.
How to turn off WiFi: Hold " WiFi " button for 5s to turn off WiFi function.
Under off status, press "MODE" and " WiFi " buttons simultaneously for 1s, WiFi module will restore factory settings.

NOTE
- This function is only available for some models.

Function introduction for combination buttons

Temperature display switchover function

Under OFF status, press " - " and "Mode" buttons simultaneously to switch temperature display between °C and °F.

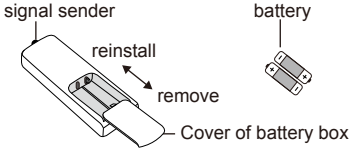
Light function

Under switch-on or switch-off state, you may hold "+"and "FAN" buttons simultaneously to set the lamp on or off and send the code. After being energized the lamp is defaulted on.

Child lock function

Press " + " and " - " buttons for 3s can reinstall turn on or turn off child lock function.

Replacement of batteries in remote controller



1. Press the back side of remote controller marked with " OPEN ", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.

NOTICE
- During operation, point the remote control signal sender at the receiving window on indoor unit.
- The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
  When you don't use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there's no display, please replace batteries.

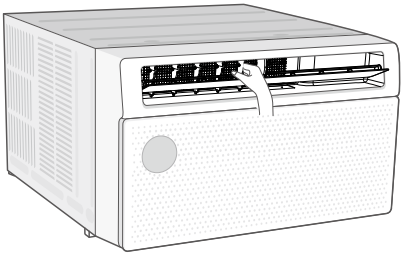
Clean and maintenance

WARNING

- Before cleaning the air conditioner, please turn off the unit and disconnect power. Otherwise, it may cause electric shock.
- Do not wash air conditioner with water. Otherwise, it may cause electric shock.
- Do not use volatile liquid (such as thinner or gas) to clean the air conditioner. Otherwise, it may damage the appearance of air conditioner.
- Do not use liquid or corrosive detergent clean the appliance and do not splash water or other liquid onto it, otherwise,it may damage the plastic components, even cause electric shock.

Air direction

Remove the front grille to adjust the vertical louvers side-to-side to direct the air left or right.



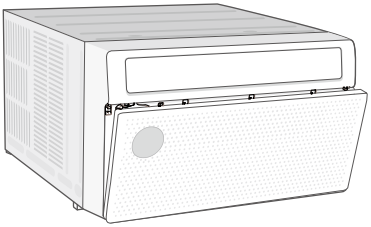
Important notes:

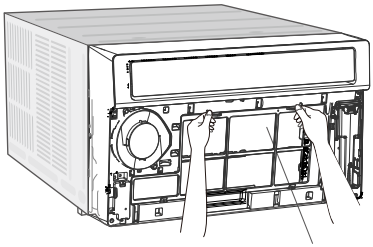
1.The unit is equipped with a rubber-grommet-mounted compressor. These grommets are factory set and require no adjustment.

2.Obstruction to air flow must be checked and removed. Check the indoor and outdoor grilles for obstructions. The unit must be located where curtains, furniture, trees, or other objects do not block air flow to and from the unit. If air is obstructed and/or deflected back into the unit, the air conditioner's compressor may cycle on and off rapidly. This could cause damage to the compressor.

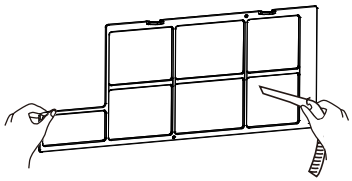
Clean filter

1. After disassembling the air-in panel with both hands, please remove the filter.
   Remove the filter as shown in the fig.





2. Clean the filter
   - Use dust catcher or water to clean the filter.
   - If the filter is very dirty, you can use the warm water (below 45 degree) dissolved with neutral abluent, and then put it under the shady place.



3. Install filter
   Install the filter and then buckle the panel cover tightly.

NOTE

- Clean the filter about once every three month. If there are lots of dust in operation environment , you can increase the clean times.
- Due to there's shaft metal fins in the air conditioner, do no touch the fins after removing filter to avoid scratching.
- Do not dry the filter on fire or use hair drier to dry the filter. Otherwise, the filter may be deformed or catch fire.
- Do not operate the air conditioner when the filter hasn't been installed.

Clean the panel

If the surface of panel is very dirty, you are suggested to use soft dry cloth or wet cloth dipped with neutral abluent to wipe it.

NOTE

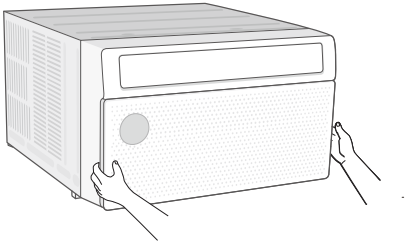
- Do not remove the panel when cleaning it.

Clean the water tank or remove all water inside the water tank (Treatment method for water full)

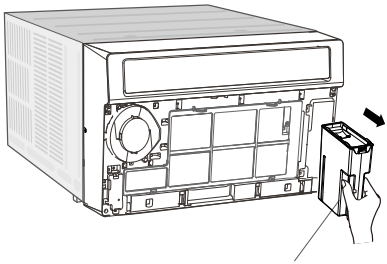
When the " Full " indicator on the panel is flashing, it indicate the water is full. Please deal with it according to the procedures as below,When heating is ended, it needs to empty the water tank. The method is same as that for removing the water.

1.Cut off the power.

2.Disassemble the air-in panel with both hands.

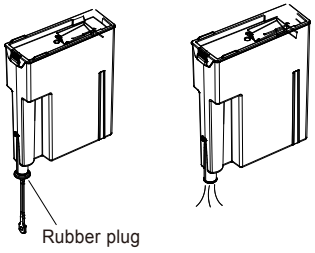


3. Take out the right side water tank.



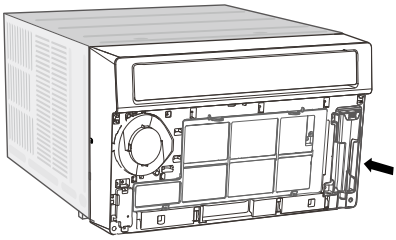
take out the water tank

4.Pull out the rubber plug and then pour the water from the bottom of the water tank.



Rubber plug

5.Reinstall the water tank.



Maintain the outer case

You are suggested to check the outer case and internal water pump of air conditioner one or twice every year. If the outer case is damaged or rusted, please contact dealer.

If the chassis is dirty and the water pump is blocked, please contact the dealer for cleaning.

If the drain pipe of water pump or the heat insulating hose of the drain pipe is damaged, please do contact the after-sale service.

NOTE

- In order to reduce damage or rust under no-use season, you can cover the air conditioner with protective covering.
- The water inside the water tank should be drained out in time. When heating is ended, do remove all water inside the water tank.
- Clean outdoor water pump and the chassis.
- If direct drainage is allowed, pull out the rubber plug directly;

Tips:

When the unit is not used for a long time, you are suggested to clean the water tank every two months to prevent the growth of bacteria and prolong the service life.

Malfunction analysis

Please check below items before asking for maintenance. If the problem still can't be solved, please contact dealer or professional person.

Phenomenon	Check items	Solution
Air conditioner can't operate	Power failure?	Wait after power recovery.
	Is plug loose?	Reinsert the plug.
	Whether the air switch is tripped off or fuse is burnt?	Ask professional person to replace air switch or fuse.
	Is there's malfunction for the circuit?	Ask professional person to replace circuit.
	Whether the unit is restarted up after stopping immediately?	Wait after voltage is resumed.
	The protection device for the plug of power cord tripps off?	Please press reset button on plug again. If the power tripps off again and heard a sound, there's malfunction for the plug or the unit. Please contact after-sales maintenance person.
	The indoor water tank is full or freeze	Please drain the water tank in time and then re-install the tank. To avoid frequent pouring of water, please connect a drainage pipe and a water pump externally.
	Outdoor blades operate abnormally	Outdoor blades may be blocked by foreign objects. Please ask the professionals for help.
Poor cooling (heating)	Is the power too low?	Wait after voltage is resumed.
	Whether the air filter is too dirty?	Clean the air filter.
	Whether the set temperature is proper? Whether door and window are closed?	Adjust the temperature. Close door and window.
Air conditioner can't receive signal from remote controller or remote controller is not sensible.	Whether the unit is interfered seriously (such as static pressure, unstable voltage)?	Please pull out the plug. Insert the plug after about 3min, and then turn on the unit.
	Whether remote controller is within the receiving range?	The receiving range of remote controller is 8m. Do not exceed this range.
Air conditioner can't receive signal from remote controller or remote controller is not sensible.	Whether it's blocked by obstacles?	Remove the obstacles.
	Is sensitivity of remote controller low?	Check the batteries of remote controller. If the power is low, please replace the batteries.
	Whether there's fluorescence lamp in the room?	Move the remote controller close to air conditioner.
		Turn off the fluorescence lamp and try it again.
There's abnormal sound during operation	Whether the unit is interfered by thunder, radio, etc?	Disconnect power, put through the power again, and then turn on the unit again. When heating under low temperature, there will be ice generated at the bottom of blades in case of improper installation or operation. Professional personnel should be asked to deal with it.
No fan blowed out from air conditioner	Whether air outlet or air inlet is blocked?	Eliminate the obstacles.
	Under heating mode, whether indoor temperature increase set temperature?	Indoor unit will stop blowing fan after reaching to set temperature.
	Whether heating mode is started up just now?	In order to prevent cold air, air conditioner will delay for a while to be started up, which is the normal phenomenon.
Set temperature can't be adjusted	Whether the unit operates under auto mode?	Temperature can't be adjusted under auto mode or fan mode.
	Whether the required temperature exceeds the temperature setting range?	Temperature setting range: 61°F-86°F .

Phenomenon	Check items	Solution
There's off flavour	There's off-flavour source in the room , such as furniture, cigarette etc.	Eliminate the off-flavour source.
		Clean the filter.
You can heard water-flowing sound	Whether the unit is turned on or turned off just now? or set fan speed is too low	There's flowing sound of refrigerant inside the air conditioner, which is the normal phenomenon.
You can heard the sound of "PAPA"	Whether the unit is turned on or turned off just now?	Heat expansion or shrinkage for the panel due to change of temperature, which cause friction sound.
Fan operating sound can be heard when the unit is turned off.	Whether the unit is turned off just now?	When the unit is just turned off, the outdoor fan will run for a while to dispel heat, which is normal.

Malfunction code

Error code	Troubleshooting
F1、F2、F4、F0、E8、H8、F3、F5、E5、E6、H5、H6、L3、PH、PL	Please contact professional person to deal with it.

NOTE

- If there're other malfunction codes, please contact qualified professionals for service.

WARNING

- If there's below phenomenon, please turn off the air conditioner and disconnect the power immediately. After that, please contact dealer at once.
  - Power cord is overheating or damaged.
  - There's abnormal sound during operation.
  - There's burning smell.
  - Power cord test or reset button often bounces automatically.
  - Water leakage at indoor side.
- Do not repair or refit the air conditioner by yourself.
- Operate the air conditioner under abnormal status will cause malfunction, electric shock or fire hazard.

Installation and maintenance

WARNING

- Observe all governing codes and ordinances.
- Do not use damaged or non-standard power cord.
- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

Selection of installation location

Basic requirement

Installing the unit in the following places may cause malfunction. If it is unavoidable,please consult the local dealer:

1. The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.
2. The place with high-frequency devices (such as welding machine, medical equipment).
3. The place near coast area.
4. The place with oil or fumes in the air.
5. The place with sulfureted gas.
6. Other places with special circumstances.

Requirement of complete unit

1. There should be no obstruction near air inlet and air outlet.
2. Select a location where the condensation water can be dispersed easily and won't affect other people.
3. The location should be able to withstand the weight of the unit and won't increase noise and vibration.
4. Select a location where the noise and outflow air emitted by the unit will not affect neighborhood.
5. The location should be able to withstand the weight of unit.
6. Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.
7. Please try your best to keep far away from fluorescent lamp.
8. When the unit operates under low temperature, the water will be drained out from outdoors and then stored indoor water tank. If indoor water tank is full, the unit stops operation. Pour out the water and then reinstall the water tank. For avoiding the worry caused by frequent water pouring, you are suggested to pull out the rubber plug of the water outlet of water tank and connect the drainage pipe to drain the water inside the water tank to toilet or sewer. In this case, the unit can continuously operate.
9. The drainage pipe can be connected with the sewer or other similar places. You are suggested to

purchase the external water pump and the water pipe. The external water pump should work continuously. The water inside the water tank can be pump out in time.

Requirements for Electric Connection

Safety precaution

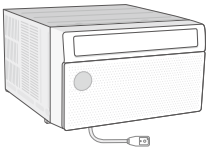
1. Must follow the electric safety regulations when installing the unit.
2. According to the local safety regulations, use qualified power supply circuit and air switch.
3. Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock,fire hazard or malfunction.
4. Please make sure the power supply complies with the requirement of air conditioner. Unstable power supply or wrong wiring may lead to electric shock, fire hazard or malfunction.
5. Properly connect the live wire, neutral wire and grounding wire of power socket.
6. Be sure to cut off the power supply before proceeding any work related to electricity and safety.
7. Do not put through the power before finishing installation.
8. The air conditioner is first class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
9. The yellow-green wire or green wire in air conditioner is grounding wire, which can't be used for other purposes.
10. The grounding resistance should comply with national electric safety regulations.

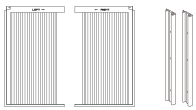
Electric wiring

- Must connect with ground reliably.
- The exclusive circuit must be used. But removable socket can' t be used because poor contact of it can cause over heat or fire.
- Don' t pull the power cord strongly.
- Connecting method between air conditioners and power cord and interconnecting method of each individual element with one another should accord with wiring diagram on the unit.
- The air conditioner should be installed in accordance with national wiring regulation.
- An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- Air switch (thermal-magnetic breaker) should be installed in the circuit.

Preparation before installation

Accessory list


Window type unit


Flexible screen and strip of flexible screen


Sealing strip (without adhesive)

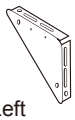

Sealing strip (with adhesive)

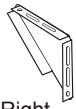

Upper guide rail

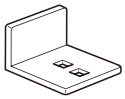

Sealing strip (with adhesive)(2)


Sponge


R1 Sealing sponge of flexible screen(2)


Left tripod (1)


Right tripod (1)


Supporter (2)


Type A screw (10)

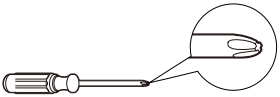
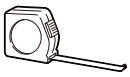
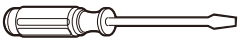

Type C screw (4)


Fixing bracket for window (2)


Type E screw (4)

 Type F screw (2)	 Battery (AAA 1.5V)
 User's manual	 Remote controller

Tools needed for installation

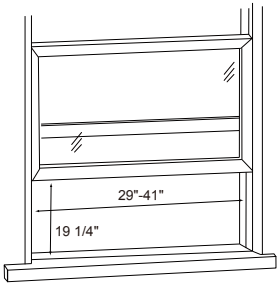
 Phillips screwdriver	 Measuring tape
 Straight screwdriver	 Scissors
 Level bar	 Pencil

Window types and requirements

NOTICE

- The description for below installation is for the standard window. If it's other types of window, you may need to adjust the window.
- If you need to install the air conditioner at the small window, you may not need to use the flexible screen sub-assy. Please refer to requirement of window size for details.
- All parts used for supporting air conditioner should be fixed at solid wooden strap, brick or metal.
- Socket must be installed at the position where the power cord is available.

Standard window

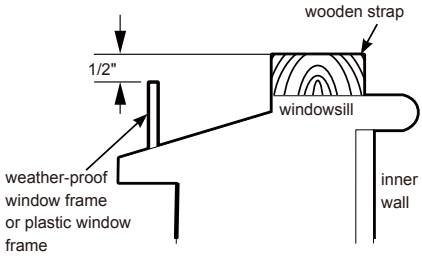


Weather-proof type window

The height of window frame is higher than windowsill for some weather-proof type window, which will affect the installation of air conditioner. In this case, before installing the air conditioner, add wooden strap on the windowsill, and fix the wooden strap at the windowsill.

Specification of wooden strap:

Width: about 2"
Length: same to the inner frame size of window
Height: Put the wooden strap on the windowsill, top part of wooden strap and window frame should be at the same horizontal level, or higher than the top part of window frame for about 1/2"

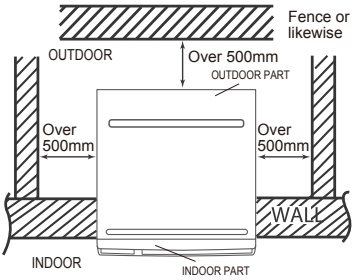


Installation procedure

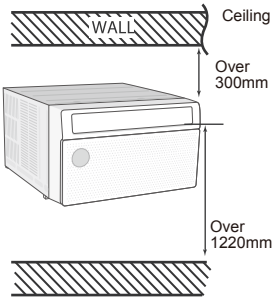
How to install

Choose a location where there are no any obstacle surrounding the unit, and the plug is accessible. Choose the installation space according to the following diagram.

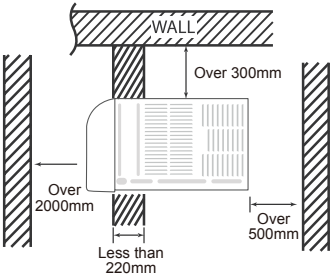
Top View



Front View



Side View



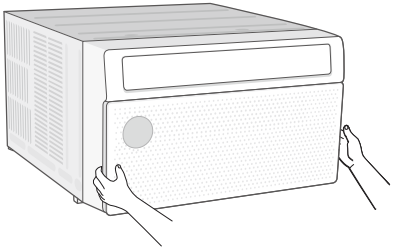
NOTE

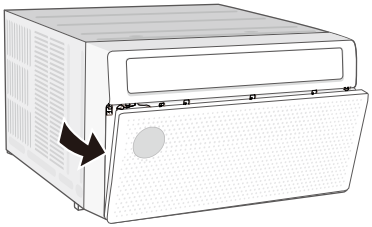
- The distance between the air conditioner and the around obstacles should meet the requirement as below:

  over 300mm(upper side), over 1220mm(downside), over 500mm(left side), over 500mm(right side), over 2000mm(front side) and over 500mm(rear side).

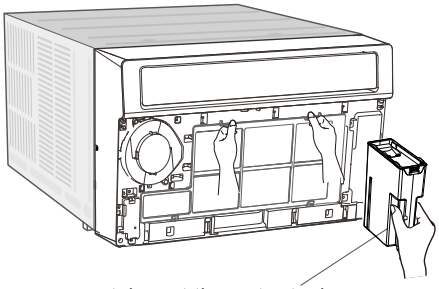
Step 1: Remove outer case

1. Disassemble the air-in panel with both hands.



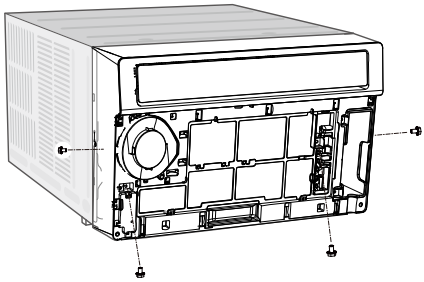


2. Remove the filter and take out the right side water tank.



take out the water tank

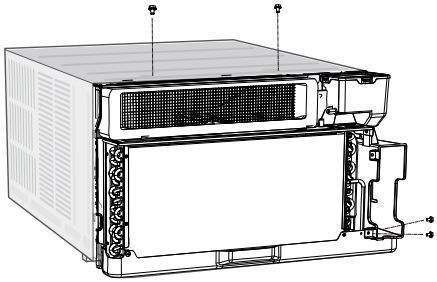
3. Remove screws at both sides of unit body and two screws on the panel (see the figure), and then remove the front case.



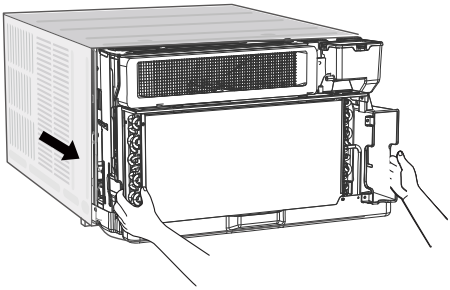
NOTE

- There are two screws at both sides and two screws on the panel . Remove all screws to pull out the unit.
- The two screws on the right and left sides can be canceled for installation if the space is not enough, which won't affect the the performance of the complete unit.

4. Remove the front case and then remove the four screws fixing Cabinet.

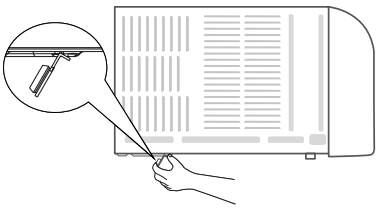


5. Then pull out the main unit from the outer case. (It is advised that two persons handle this operation, one person holding the outer case and the other person holding the clasp of main unit and pulling out the main unit from outer case.)



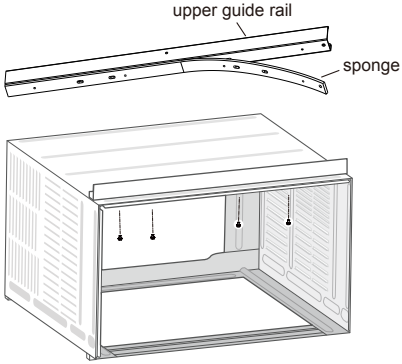
NOTE

- As for the water drainage method, please give priority to installing the water pump. Refer to the figure for its installation method. If the water pump can't be installed due to space limitation, pull out the rubber plug if the regulation is allowed.



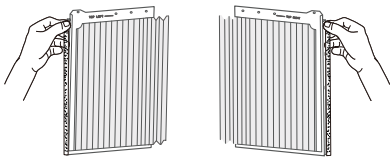
Step 2: Install upper guide rail

1. Tear off the paster at the back of sealing strip, and then align it at the bottom edge of upper guide rail to stick the sealing strip at the bottom of upper guide rail.
2. Use four type A screws to fix the upper guide rail at the outer case.

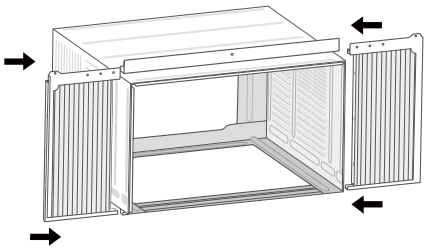


Step 3: Install flexible screen

1. Stick one sealing strip respectively on the left side and right side of flexible screen installation frame, as shown in the figure.

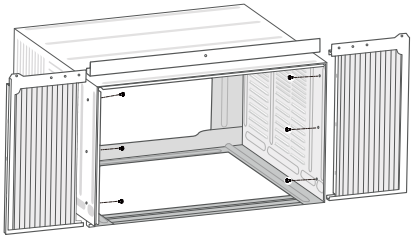


2. Slide the upper and lower ends of flexible screen into the guide rails.



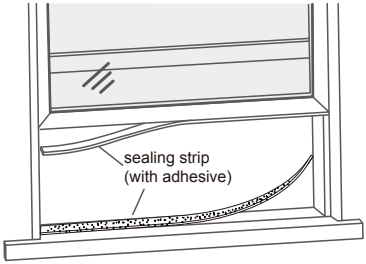
3. Fix the flexible screen at the outer case with six type A screws.

A: Tighten screws from inside to outside of outer case.



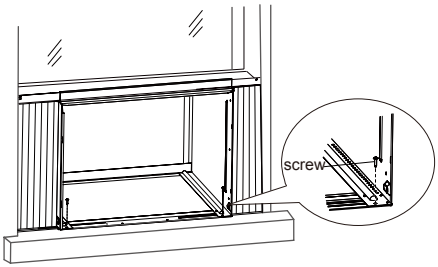
Step 4: Stick sealing strip

Stick the sealing strip (with adhesive) at the bottom of window frame.

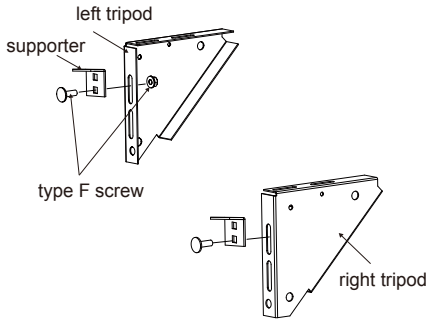


Step 5: Install outer case

1. Put the outer case at the windowsill, and the lower guide rail should be stuck to the window-sill. The outer case stays at the middle; the upper guide rail stays at the middle lower part of window; the window can stick to the upper guide rail when closing it and then fix the outer case with two type C screws.



2. Install the supporter to the tripod with screw; clamp the supporter at the window sill to make the tripod support the outer case, and then fix the tripod and outdoor unit with screw.



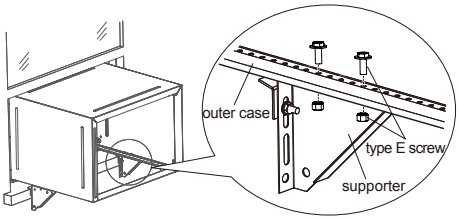
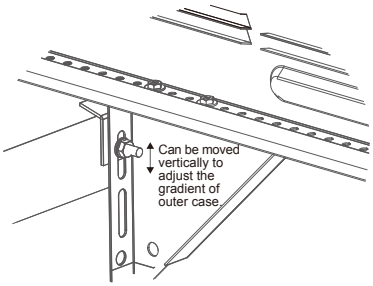


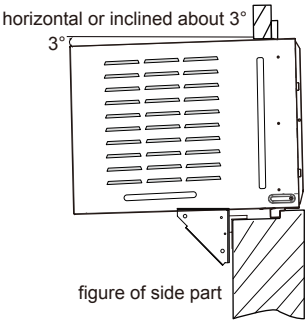
figure of rear part

3. Adjust the position of screw connecting the tripod and supporter into order to adjust the gradient of outer case. Tighten the screw after finishing adjusting.

NOTE

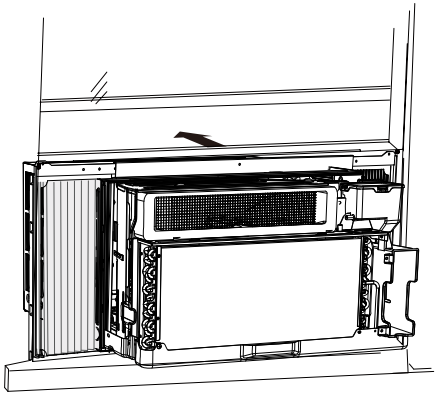
- The outer case should be placed horizontally or inclined outwards slightly.



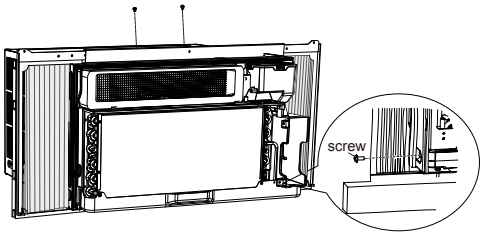


Step 6: Install main unit

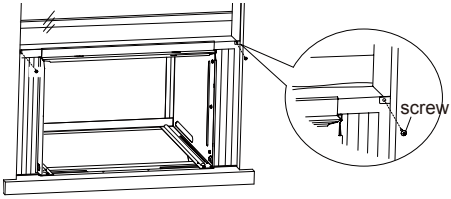
1. Ask two persons to push the main unit slowly into the outer case.



2. Install the screw at the two sides,Fix the top of outside cover with two screws.

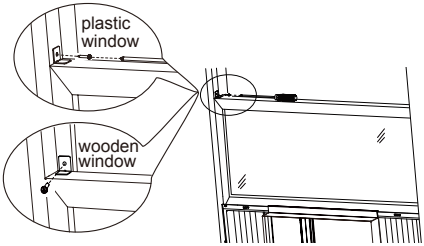


3. Fix the flexible screen with two type C screws.



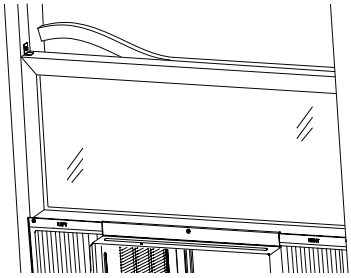
Step 7: Install fixing bracket of window

Fix the window with the fixing bracket of window.



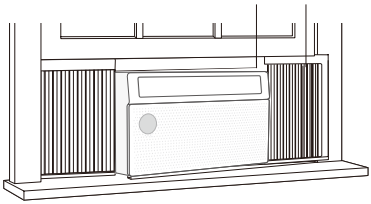
Step 8: Plug sealing strip

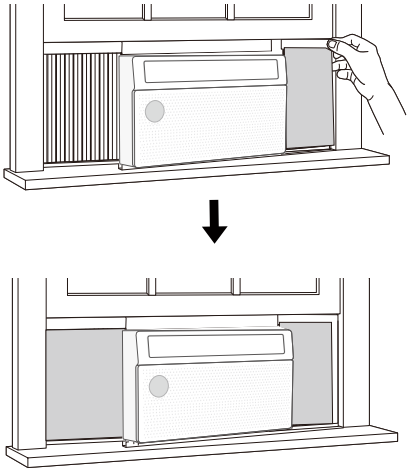
Plug the sealing strip (without adhesive) in the window.



Step 9: Reinstall the panel

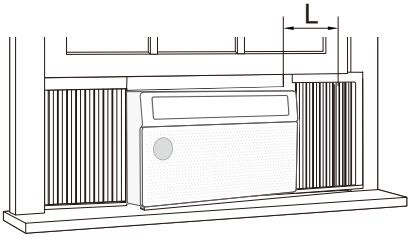
Reassemble the panel. Please note that the screws must be installed.



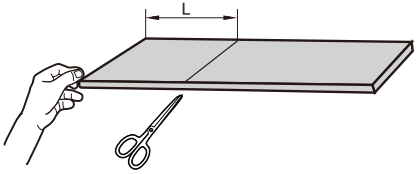


Sponge Sticking Method and Procedures

1.Install flexible screen sub-assy. After finishing installation, measure the width L between outer case of air conditioner and window frame.



2.Take out R1 sponge from the package. Cut off the sponge in rectangular shape with scissors.



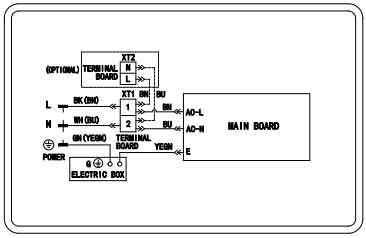
3.Stick sponges evenly on the flexible screen and the screen of window frame. The redundant 2~3mm of sponge in height can be stuffed into the frame for fixing.

Preventative Maintenance

Qualification of the working personnel for maintenance, service and repair operations should according to UL 60335-2 -40、CAN/CSA-C22.2 No. 60335-2-40-19 Annex HH.. Every working procedure that affects safety means shall only be carried out by competent persons according to Annex HH. Special training additional to usual refrigerating equipment repair procedures is required when equipment with FLAMMABLE REFRIGERANTS is affected.

Electric schematic diagram

The electric schematic diagram are subject to change without notice. Please refer to which one on the unit.



Safety operation of flammable refrigerant

Qualification requirement for installation and maintenance man

1. All the work men who are engaging in the refrigeration system should bear the valid certification award de by the authoritative organization and the qualification for dealing with the refrigeration system recognized by this industry. If it needs other technician to maintain and repair the appliance, they should be supervised by the person who bears the qualification for using the flammable refrigerant.
2. It can only be repaired by the method suggested by the equipment's manufacturer.

Installation notes

1.The air conditioner is not allowed to use in a room that has running fire(such as fire source, working coal gas ware, operating heater).
2. Leak test is a must after installation.

Maintenance notes

1.Check whether the maintenance area or the room area meet the requirement of the nameplate.
- It's only allowed to be operated in the rooms that meet the requirement of the nameplate.

2.Check whether the maintenance area is well-ventilated.
- The continuous ventilation status should be kept during the operation process.

3. Check whether there is fire source or potential fire source in the maintenance area.
- The naked flame is prohibited in the maintenance area; and the "no smoking" warning board should be hanged.

4. Check whether the appliance mark is in good condition.
- Replace the vague or damaged warning mark.

Welding

1. If you should cut or weld the refrigerant system pipes in the process of maintaining, please follow the steps as below:
   a. Shut down the unit and cut power supply
   b. eliminate the refrigerant
   c. vacuuming
   d. clean it with N_2 gas
   e. cutting or welding
   f. carry back to the service spot for welding
2. The refrigerant should be recycled into the specialized storage tank.
3. Make sure that there isn't any naked flame near the out let of the vacuum pump and it's well-ventilated.

Filling the refrigerant

1.Use the refrigerant filling appliances specialized for R32. Make sure that different kinds of refrigerant won't contaminate with each other.
2.The refrigerant tank should be Kept upright at the time of filling refrigerant.
3.Stick the label on the system after filling is finished(or haven't finished)
4.Don't overfilling.
5.After filling is finished, please do the leakage detection before test running; another time of leak detection should be done when it's removed.

Safety instructions for transportation and storage

1. Please use the flammable gas detector to check before unload and open the container.
2. No fire source and smoking.
3. According to the local rules and laws.

Safety notices for maintenance

Storage after moving the unit

1. Do not puncture or light the unit.
2. The unit shall be stored in a room without continuous fire source (e.g. naked fire, litten gas appliance, operating electric heater).
3. The unit shall be stored in a ventilated place; the ventilation device shall operate normally and ventilation port shall be without obstacle;
4. Check the unit periodically to see if there is collision mark and if the appearance is good.
5. Check the electronic components (e.g.cable) periodically to see there is breakage.
6. Do not impact or collapse the unit to avoid leakage of refrigerant; if leakage is founded, please arrange ventilation immediately and ask the professionals for maintenance, in order to avoid a fire hazard.

Disposal and recycle

Disposal

The technician shall be familiar with the device and all its characteristics before disposal. Proceeding safe recycle of refrigerant is recommended. If the recycled refrigerant shall be utilized, please analyze the sample of refrigerant and oil before proceeding. Please ensure the required power supply before testing. Please take the following operation:

1. Be familiar with the device and its operation;
2. Cut off power supply;
3. Make sure the following items before proceeding: If needed, mechanical operation device shall

be convenient for the operation of refrigerant tank; all personal protection apparatuses shall be workable and they are used correctly; the whole recycle procedure shall be done under the instruction of qualified person; recycle device and refrigerant tank shall comply with relevant standards.

4. Please arrange vacuum pumping to the refrigeration system if possible; if vacuum status cannot be reached, please arrange vacuum pumping from several positions in order to recycle the refrigerant in different parts of the system;

5. Make sure the capacity of refrigerant tank is sufficient before starting recycle;

6. Start and operate the recycle device according to the operation instruction of manufacturer;

7. The refrigerant tank shall not be too full. (the filled liquid shall not exceed 80% of the capacity of refrigerant tank);

8. Do not exceed the maximum operation pressure although the duration is short;

9. Remove the refrigerant tank and device quickly after finishing operation and make sure all cut-off valves in the device are closed;

10. The recycled refrigerant cannot be filled into another refrigeration system before purification and inspection.

Label

The unit shall be labeled with data and note after scrapping and discharging refrigerant. Make sure the label on the unit can reflect the R32 refrigerant which it has been filled.

Recycle

It's recommended to remove the refrigerant in the system before maintenance and disposal. Put the refrigerant into the specialized refrigerant tank with refrigerant label. The refrigerant tank shall be equipped with pressure-relief valve and cut-off valve, which are in good condition. If possible, the empty tank should be dealt with vacuum pumping before using and keep it in normal temperature.

Recycling device shall be kept in good working status and equipped with operation instructions for reference. The device shall be applicable for the recycle of R32 refrigerant. In addition, qualified weighing apparatus which can be used normally shall be prepared. The hose shall adopt removable connector without leakage for connection and keep it in good status. Check if the recycling device is in normal status before using it and if it is properly stored with all electrical components sealed to prevent fire hazard caused by refrigerant leakage. If you have any question, please consult with the manufacturer.

The recycled refrigerant shall be put in proper container attached with transportation instruction and send it back to the refrigerant manufacturer. Do not mix different refrigerants in the refrigerant recycle device, especially the refrigerant tank.

When disassembling the compressor or clearing the compressor oil, make sure the compressor has been dealt with vacuum pumping to suitable level, so that there is no R32 refrigerant remained in the lubricant. Vacuum pumping shall be done before the compressor is sent back to the supplier. Only electric heating can be adopted for heating the shell of compressor in order to speed up the course. When oil is drained from the system, please ensure the safety.

Aptitude requirement for maintenance man(repairs should be done only be specialists).

a. Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority,which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.

b. Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

Safety preparation work

The maximum refrigerant charge amount is shown on the following table a.

(Note:Please refer to the nameplate for the charging quantity of R32).

Minimum room area(m^2)	Charge amount (kg)	≤0.921	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5
	floor location	/	14.5	16.8	19.3	22	24.8	27.8	31	34.3	37.8	41.5	45.4	49.4	53.6
	window mounted	/	5.2	6.1	7	7.9	8.9	10	11.2	12.4	13.6	15	16.3	17.8	19.3
	wall mounted	/	1.6	1.9	2.1	2.4	2.8	3.1	3.4	3.8	4.2	4.6	5	5.5	6
	ceiling mounted	/	1.1	1.3	1.4	1.6	1.8	2.1	2.3	2.6	2.8	3.1	3.4	3.7	4

table a - Maximum charge (kg)

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

- Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

- General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material

- Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

- Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

- No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

- Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

- Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer s ' technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

--- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;

--- The ventilation machinery and outlets are operating adequately and are not obstructed;

--- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

--- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;

--- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components

are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

- Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

--- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;

--- That no live electrical components and wiring are exposed while charging, recovering or purging the system;

--- That there is continuity of earth bonding.

Repairs to sealed components

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

- Ensure that the apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

Note :

The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE Examples of leak detection fluids are

– bubble method,

– fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause Removal and evacuation.

Removal and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose –conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be

followed, since flammability is a consideration. The following procedure shall be adhered to:
a) safely remove refrigerant following local and national regulations;
b) purge the circuit with inert gas;
c) evacuate (optional for A2L);
d) purge with inert gas (optional for A2L);
e) open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.

The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to reuse of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.
b) Isolate system electrically.
c) Before attempting the procedure, ensure that:
   - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
   - all personal protective equipment is available and being used correctly;
   - the recovery process is supervised at all times by a competent person;
   - recovery equipment and cylinders conform to the appropriate standards.
d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with manufacturer's instructions.
h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labelling

Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

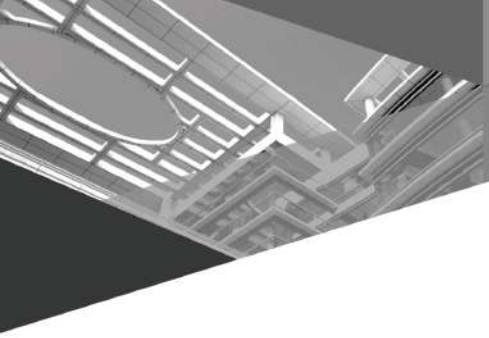
When transferring refrigerant into cylinders, ensure

that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.



GREE

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Tel: (+86-756) 8522218
Fax: (+86-756) 8669426
E-mail: global@cn.gree.com
Web: www.gree.com

600005066962