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FREE BLOW OWNER'S MANUAL OPERATION & INSTALLATION

— MODELS —

Black Outdoor Unit 1-GREE-15KBO

White Outdoor Unit 1-GREE-15KWO

Free-Blow Plenum 1-GREE-PLENUM-2

GREE

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Thank you for choosing the ECO-COOL Recreational Vehicle Air Conditioner, exclusively available from Premier Products, Inc. This manual provides all the essential information for installation, operation, and maintenance. Take a moment to learn how to optimize your cooling comfort and efficiency. Please keep this manual for future reference.

Tips for First-Time Use

1. **Heavy Object:** The RV air conditioner is heavy and requires two or more people to lift and install. Attempting to do this alone could result in injury or accidents.
2. **Upright Position:** Allow the unit to sit upright for at least 3-4 hours before powering it on. Shipping may cause the refrigerant to pool in certain areas, and standing the unit upright allows it to move freely within the coils.
3. **Initial Run:** Run the unit continuously for 24 hours after installation. This helps to resolve any issues that may have occurred during shipping.
4. **Safety First:** Some parts have sharp edges, so wearing gloves during unpacking and installation is highly recommended.
5. **Quick Start Guide:** For a quick start video guide on installation, please email ECO-COOL Pro Technicians at EcoCool@PremierProducts.net.
6. **Troubleshooting:** If you encounter any problems with your product, please email us before submitting a return request, as there might be a simple solution to your issue.

ECO-COOL Air Conditioner Guide

The ECO-COOL air conditioner is designed to provide a comfortable environment inside your recreational vehicle (RV) or caravan.

Achieving Effective Heating & Cooling

Several factors influence the total heat load within the caravan and the efficiency of the air conditioner. Before purchasing an ECO-COOL unit, consult with your caravan manufacturer to understand the total heat load and choose the appropriate air conditioner.

To reduce the heat load and improve the air conditioner's performance, consider the following tips:

- **Close Openings:** Close all doors, skylights, and windows. Draw the curtains and open the sunshade or awning.
- **Positioning:** Adjust the caravan's position so the sunshade is on the southern side in the northern hemisphere or the northern side in the southern hemisphere to reduce direct sunlight exposure.
- **Reduce Heat Sources:** Turn off unnecessary electrical appliances inside the caravan.
- **Cook Outside:** Whenever possible, cook outside the caravan.
- **Park in Shade:** Park the caravan in a shaded area if possible.
- **Pre-Cool:** In exceptionally high temperatures, turn on the air conditioner in the morning to pre-cool the space.
- **Temperature Setting:** Adjust the remote control's set temperature to prevent frequent starting and stopping of the unit.

Managing Condensation

Condensation, or "sweating," occurs when warm, moist air inside the caravan meets a cold surface. To minimize condensation:

- **Seal Openings:** Close and seal all doors, skylights, and windows to reduce the entry of warm, moist air.
- **Fan Speed:** Operate the inside fan on high speed and avoid low and auto fan speeds.

During operation, condensate water will drain onto the roof. This is normal and depends on air humidity. High humidity inside the caravan will result in more condensate. Close doors, windows, and hatches to minimize this. Note that losses or damage caused by condensate water are not covered under warranty.

Choosing and Using a Generator

The ECO-COOL air conditioner requires a mains-quality AC power source for proper operation. If using a generator, consult with the generator supplier to confirm its suitability and sizing for your application. Note that losses caused by using a generator are not covered under warranty.

By following these guidelines, you can ensure optimal performance and longevity of your ECO-COOL air conditioner. If you have any questions or need further assistance, please contact our customer support team.

Refrigerant

The ECO-COOL RV air conditioner uses R32 refrigerant, which is flammable and odorless. While it can explode under certain conditions, its flammability is very low and can only be ignited by fire. R32 is an environmentally friendly refrigerant with no harm to the ozone layer and a lower impact on the greenhouse effect. It has excellent thermodynamic properties, leading to high energy efficiency and requiring less filling.

Safety Guidelines

- **Storage:** Store the appliance in a room larger than 4 m² without continuous ignition sources, such as open flames, operating gas appliances, or electric heaters.
- **Ventilation:** Ensure the room is well-ventilated and free from obstructions. Keep any required ventilation openings clear.
- **Handling:** Prevent mechanical damage to the appliance. Do not pierce or burn the appliance or any of its components. Be aware that refrigerants may not have an odor, even in the presence of a leak.
- **Servicing:** Only use methods recommended by the manufacturer for defrosting and cleaning. Servicing should be performed by authorized service centers. Repairs carried out by unqualified personnel can be dangerous.
- **Compliance:** Follow national gas regulations.

Recommended Operating Environment

- **Temperature Range:** The recommended operating temperature range is 23°F-115°F (-5°C-46°C). For heating, the range is 23°F-75°F (-5°C-24°C), and for cooling, it is 64°F-115°F (18°C-46°C).
- **Placement:** Ensure the air inlets and outlets are far from obstacles and that there are no objects near the air outlet, as this can affect the heat-removal process. Avoid installing the appliance near fluorescent lamps or in laundry areas.
- **Protection:** The outdoor unit may stop operating due to various protections within the working temperature range.

By following these guidelines, you can ensure the safe and efficient operation of your air conditioner. If you have any questions or need further assistance, please please email ECO-COOL Pro Technicians at EcoCool@PremierProducts.net.



Table of Contents

Safety & Instruction 1-3

Electric Diagram 4

Packing List 5

Parts Description 6

Operating The Wireless Remote Controller 7-10

GREE+ App Download 11

Bluetooth Connect Instructions 12

Control Panel 13

Installation Instruction 14-20

- Step 1 - Apply Sponge Sealing Strip & Sponge on the Outdoor Unit 14
- Step 2 - Selecting an Installation Location & Installing the Roof Top Air Conditioner 15
  - Case A: Using An Existing Roof Vent 15
  - Case B: Cutting A New Roof Opening 15
- Step 3 - Mounting The Outdoor Unit 17
- Step 4 - Installing The Ceiling Assembly 17-18
- Step 5 - Electrical Wiring 19
- Step 6 - Completing The Installation 20

Troubleshooting Guide 21

Disconnecting Audible Indicator 22-24

Error Code 25

Normal Maintenance Procedures 26

Technical Manual 27-30

Safety & Instructions

Installation Precaution

WARNING

- Observe all governing codes and ordinances.
- Do not use damaged or non-standard power cords.
- Exercise caution during installation and maintenance to prevent electric shock, injury, or other accidents.
- It's recommended to have a professional perform the installation.

Working Temperature Range

- Suggested working temperature range: 23 ~ 115℉ (-5 ~ 46℃).
  - Heating: 23 ~ 75℉ (-5 ~ 24℃)
  - Cooling: 64 ~ 115℉ (+18 ~ 46℃)
- The outdoor unit may stop operating due to various protections within the working temperature range.

Selection of Installation Location

Basic Requirements:

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

- Areas with strong heat sources, vapors, flammable or explosive gas, or volatile objects in the air.
- Locations with high-frequency devices (e.g., welding machines, medical equipment).
- Near coastal areas.
- Places with oil or fumes in the air.
- Areas with sulfureted gas.
- Other places with special circumstances.
- This air conditioner unit is only for vehicles without a convex surface on the top.
- Do not operate the air conditioner when starting or driving the vehicle.
- Do not supply power to the air conditioner using the vehicle's power supply.

Air Conditioner Requirements:

- Keep the air inlet away from obstacles and do not place objects near the air outlet to ensure proper heat dissipation.
- Select a location where noise and outflow air from the outdoor unit will not affect neighbors.
- Avoid installing near fluorescent lamps.
- Do not install the appliance in a laundry room.

Requirements for Electric Connection

Safety Precautions:

- Follow electric safety regulations when installing the unit.
- Use a qualified power supply circuit according to local safety regulations.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons to avoid hazards.
- Properly connect the live wire, neutral wire, and grounding wire of the power socket.
- Cut off the power supply before performing any electrical work.
- Do not connect the power before completing the installation.
- The air conditioner must be properly grounded with a specialized grounding device by a professional to prevent electric shock.
- The yellow-green or green wire in the air conditioner is for grounding and should not be used for other purposes.
- The grounding resistance should comply with national electric safety regulations.
- Install the appliance according to national wiring regulations.
- Fuse specification on the main board: T3.15AH250V; the maximum current through the fuse should not exceed 3.15A.

Installation and Setup

- Use the appliance only as described in this manual.
- Do not use frayed or damaged electric cords.
- Properly install the air conditioner according to the manual before use.
- Turn off the unit and disconnect power before cleaning or servicing.
- Refrigerant leaks or discharges should be handled by certified professionals in compliance with local laws.
- Store the appliance in a room without continuous ignition sources (e.g., open flames, operating gas appliances, or electric heaters).
- Observe national gas regulations.
- Contact an authorized Service Centre for repairs; unqualified repairs can be dangerous.
- Designed for installation on an RV's roof.

Electrical Safety

- Ensure the external electric supply socket is effectively grounded per local regulations to prevent electric shock or fire.
- Switch on the air conditioner for electric leakage detection after installation.
- Isolate the power supply if not using the air conditioner for a long time.
- Regularly clean the air filter to maintain airflow and performance.
- Use the remote control for operation.
- Follow the manual's installation instructions to avoid damage or injury.
- Be cautious when installing on the roof; crawl boards may be needed.
- Ensure power is isolated when cutting into the roof to avoid electric shock.
- Installation and maintenance must be performed by qualified personnel with appropriate licenses.
- Do not over-tighten power connection terminals.

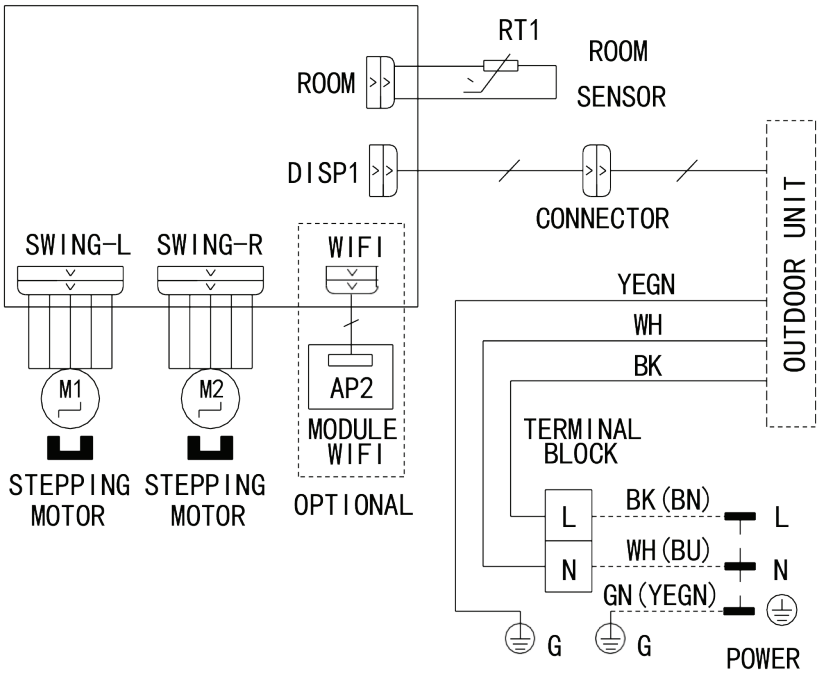
Ensure electrical supply and wiring are correctly sized for the air conditioner's power demand.

- An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- Include an air switch with suitable capacity (25A) that has magnet buckle and heating buckle functions to protect against circuit shorts and overloads.
- All wiring must comply with local and national electrical codes and be installed by qualified electricians. If you have any questions, contact a qualified electrician.
- Check the available power supply and resolve any wiring problems before installing and operating this unit.
- This air conditioner is designed to operate from a 115V AC, 60Hz, 1 Phase power supply.
- The wiring diagrams are located on the cover of the control box and the ceiling panel.

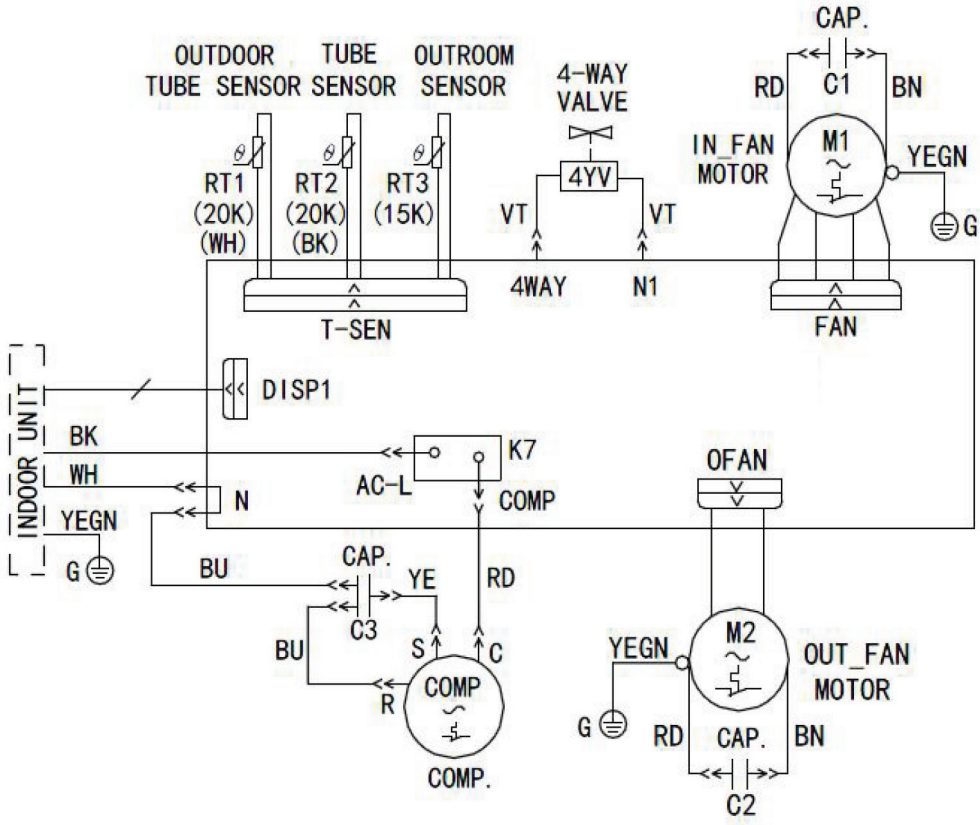
Usage and Maintenance

- This appliance is not for use by persons (including children) with reduced physical, sensory, or mental capabilities without supervision. Children aged 8 and above can use the appliance with supervision and instruction.
- Supervise children to ensure they do not play with the appliance.
- Keep air inlets and outlets clear.
- Do not spray paint or insecticide on the air conditioner.
- Turn off and isolate power if unusual odors, smoke, or fire are detected. Contact after-sales service for faults or fire.

Electric Diagram



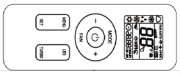
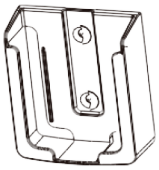
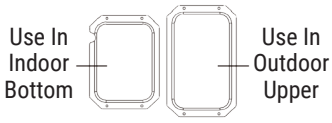
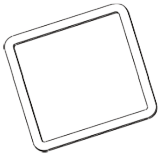
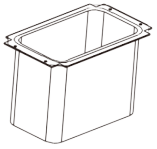
CEILING ASSEMBLY



ROOF TOP AIR CONDITIONER

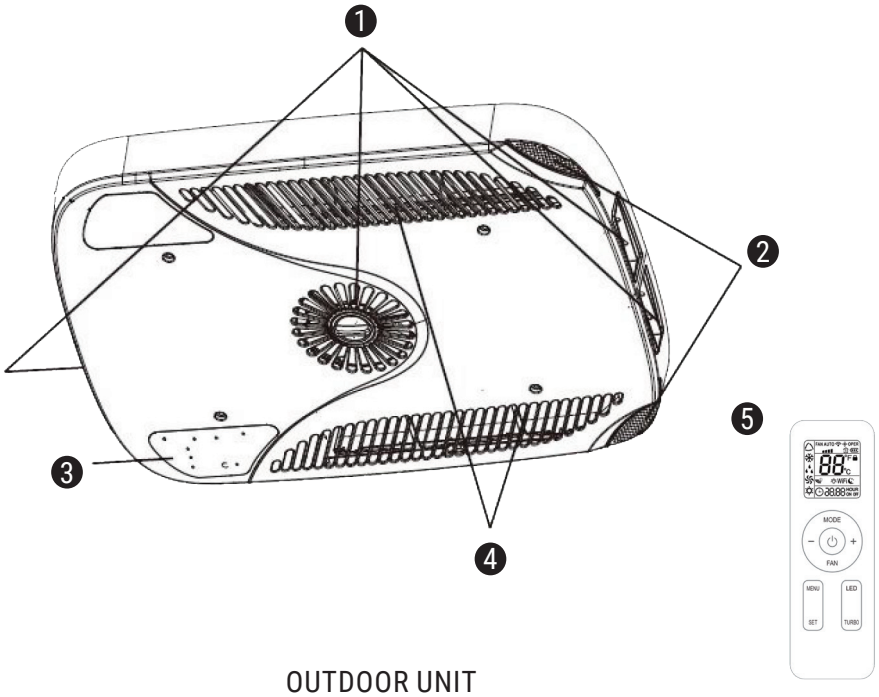
Packing List

Packing List of Indoor Unit

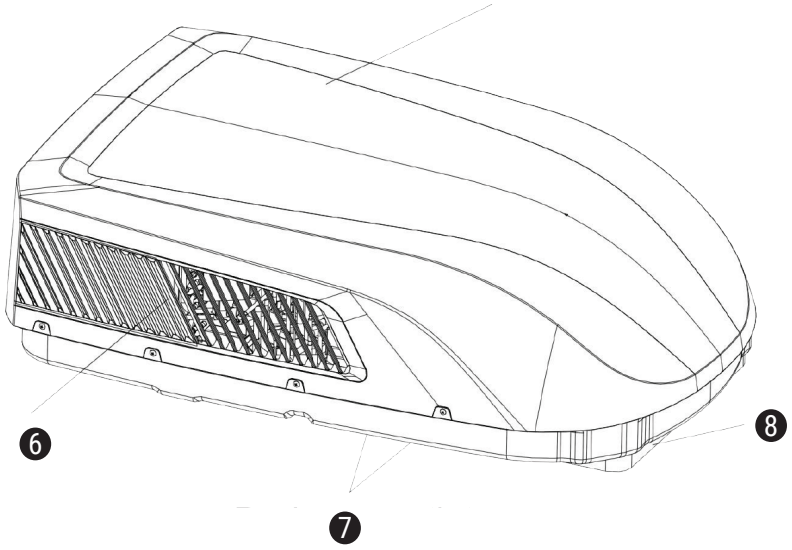
PART	APPEARANCE	QUANTITY
Fixing screw for remoter control holder		2
Remote Control		2
Remote Control Holder		1
AAA Battery		2
Screw Cap		6
Plates For Air Vent		1
Bolt for Ceiling Assembly 5.3 Inch		4
Gasket		1
Sponge Sealing Strip		1
Tapping Screw		6
Songe Air Duct		1

Parts Description

INDOOR UNIT



OUTDOOR UNIT

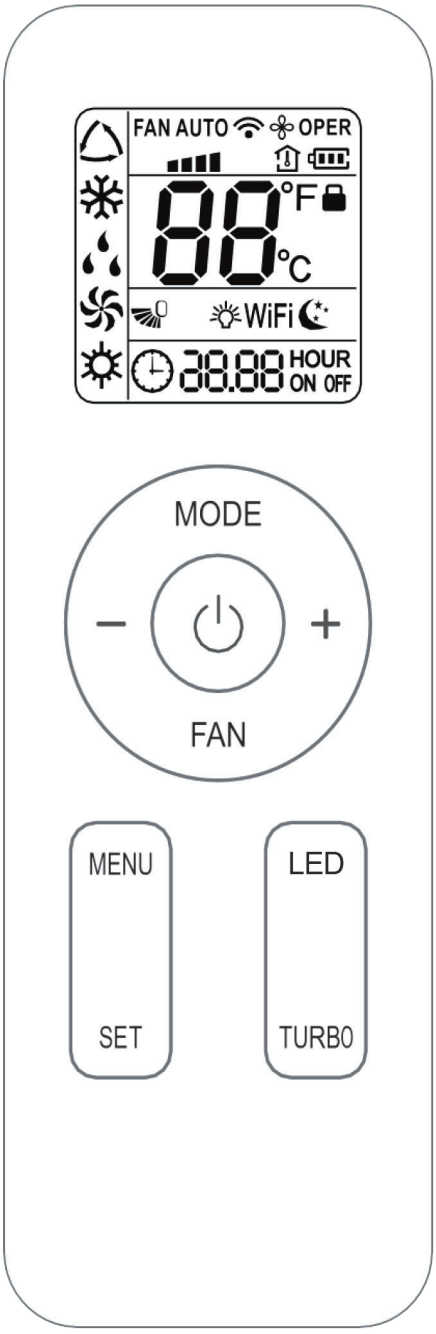


1. Air Outlet
2. Filter Sub Assembly
3. Control Panel
4. Air Inlet
5. Remote Control
6. Air Inlet
7. Drainage Outlet
8. Chassis

Note: Actual unit may be different from the graphics. Please refer to the actual unit.

Operating The Wireless Remote Controller

Buttons on the Remote Controller and Icon Descriptions on the Display Screen



FA A 0	Set Fan Speed
	Send Signal
OPERATION MODE	Auto Mode
	Cool Mode
	Dry Mode
	Fan Mode
	Heat Mode
	Sleep Mode
	Light
	X-Fan Function
	Indoor Ambient Temp.
	Clock
88	Set Temperature
WiFi	WiFi Function
88:88	Set Time
ONOFF	Timer On / Timer Off
	Up & Down Swing
	Child Lock

Introduction for Buttons on Remote Controller

NOTE:

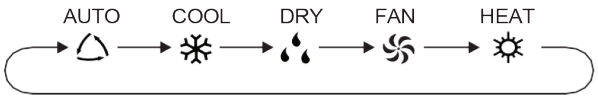
- This is a general-use remote controller designed for multifunction air conditioners. If a function is not available on your model, pressing the corresponding button will not change the unit's current status.
- When powered on, the air conditioner will emit a sound, and the power indicator will light up. You can then operate the air conditioner using the remote controller.
- When the air conditioner is on, pressing a button on the remote controller will cause the signal icon on the display to blink once, and the air conditioner will emit a sound, indicating that the signal has been received.

Power Button

- Press to turn the unit on or off.

MODE Button

- Press this button to select your required operation mode.



- **Auto Mode:** The air conditioner operates automatically based on ambient temperature. The set temperature cannot be adjusted or displayed. Use the "FAN" button to adjust fan speed.
- **Cool Mode:** The air conditioner operates in cool mode. Adjust the set temperature with the "+" or "-" buttons. Use the "FAN" button to adjust fan speed.
- **Dry Mode:** The air conditioner operates at low speed in dry mode. Fan speed cannot be adjusted.
- **Fan Mode:** The air conditioner operates as a fan only, without cooling or heating. Adjust the set temperature with the "+" or "-" buttons. Use the "FAN" button to adjust fan speed.
- **Heat Mode:** The air conditioner operates in heat mode. Adjust the set temperature with the "+" or "-" buttons. Use the "FAN" button to adjust fan speed.

NOTE:

To prevent cold air, the indoor unit will delay 1-5 minutes before blowing air in heat mode, depending on the indoor ambient temperature.

- The set temperature range is 61-86℉ (16-30℃).
- The mode indicator may not be available on some models.
- Cooling-only units will not respond to heat mode signals. If heat mode is selected, pressing the power button will not start the unit.

Fan Button

Use this button to set the fan speed in the following sequence: AUTO, ▄, ▄▄, ▄▄▄, ▄▄▄▄, and back to AUTO.

NOTE:

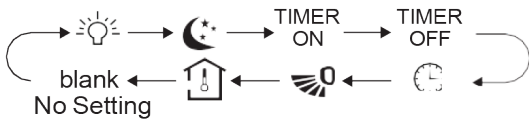
- Some fan speeds may not be available on certain models.
- In AUTO speed, the air conditioner will select the appropriate fan speed based on factory settings.
- AUTO speed is only available on some models.
- The fan operates at low speed in dry mode.

+/- Button

- Press "+" or "-" to increase or decrease the set temperature by 1℉ (℃). Holding the button for 2 seconds will change the temperature quickly. Release the button to set the temperature, and the indoor unit's temperature indicator will update accordingly. (Temperature cannot be adjusted in auto mode.)
- When setting TIMER ON, TIMER OFF, or CLOCK, use the "+" or "-" button to adjust the time. (Refer to the respective functions for details.)

Menu Button

- Press to select a submenu function, then press "SET" to confirm the function status. The submenu options can be selected in a circular sequence.



NOTE:

- Some menu functions may not be available on different models.

Light Function

- When selecting the light function, the light icon will flash for 5 seconds. Press “SET” within this time to turn off the display light on the indoor unit, and the will disappear. Press “SET” again within 5 seconds to turn the display light back on, and the will reappear.

NOTE:

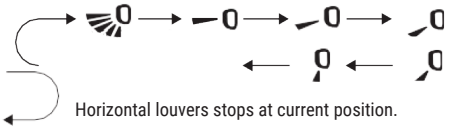
- This function is only available on some models.

Sleep Function

- When selecting the sleep function, the sleep icon will flash for 5 seconds. Press “SET” within this time to turn on the sleep function, and the icon will appear on the remote controller. Press “SET” again within 5 seconds to turn off the sleep function, and the icon will disappear.

Up & Down Swing Function

When selecting the up & down swing function, the swing icon will flash for 5 seconds. Press “SET” within this time to select the swing angle. The fan blow angle can be selected in a circular sequence.



NOTE:

- This function is only available on some models.

Ambient Temperature Display Function

- When selecting the ambient temperature display function, the icon will flash for 5 seconds. Press “SET” within this time to turn the ambient temperature display on or off. When the function is on, the icon will be displayed on the remote controller, and the indoor unit’s display will show the indoor ambient temperature for a few seconds.

Timer On Function

- The TIMER ON function sets the time for the air conditioner to turn on. When active, the “ON” icon will blink. Use the “+” or “-” button to adjust the time in 1-minute increments. Holding the button for 2 seconds will change the time quickly. Press “SET” to confirm within 5 seconds, and the “ON” icon will stop blinking.
- To cancel TIMER ON, press the “MENU” button to select the TIMER ON function, and the “ON” icon will blink. Press “SET” until the “ON” icon disappears.

Timer Off Function

- The TIMER OFF function sets the time for the air conditioner to turn off. When active, the “OFF” icon will blink. Use the “+” or “-” button to adjust the time in 1-minute increments. Holding the button for 2 seconds will change the time quickly. Press “SET” to confirm within 5 seconds, and the “OFF” icon will stop blinking.
- To cancel TIMER OFF, press the “MENU” button to select the TIMER OFF function, and the “OFF” icon will blink. Press “SET” until the “OFF” icon disappears.

Clock Function

- The CLOCK function sets the current time. When active, the clock icon will blink. Use the “+” or “-” button to adjust the time in 1-minute increments. Holding the button for 2 seconds will change the time quickly. Press “SET” to confirm within 5 seconds, and the clock icon will stop blinking.

LED Button

- Press this button to turn the LED light on the panel on or off.

NOTE:

This function is only available on some models.

Turbo Button

- In COOL or HEAT mode, press this button to activate quick COOL or quick HEAT mode. The icon will appear on the remote controller. When this function is activated, the unit will operate at super-high fan speed to quickly adjust the ambient temperature to the preset level.

Note: Fan Speed ,is available for some models.

Function Introduction for Combination Buttons

Child Lock Function

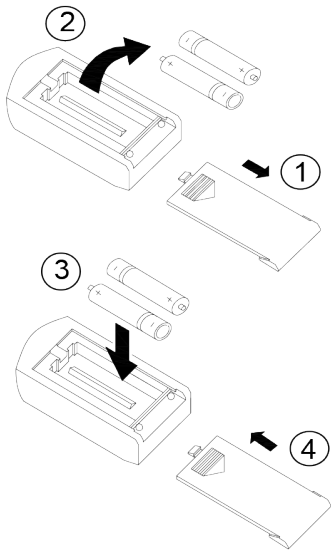
1. Press the back side of the remote controller marked with " ", as shown in the figure, and push out the battery cover in the direction of the arrow.
2. Replace the two 7# (AAA 1.5V) dry batteries, ensuring the "+" and "-" polarities are correct.
3. Reinstall the battery cover.
4. To activate or deactivate the child lock function, press the "+" and "-" buttons simultaneously. When the child lock is on, the " " icon will be displayed on the remote controller. If you try to operate the remote controller while the child lock is on, the " " icon will blink three times without sending a signal to the unit.

Temperature Display Switchover Function

When the unit is OFF, press the "-" and "MODE" buttons simultaneously to switch the temperature display between ℃ and ℉.

WiFi Function

Press the "MODE" and "TURBO" buttons simultaneously to turn the WiFi function on or off. When WiFi is on, the "WiFi" icon will be displayed on the remote controller. To reset the WiFi, press and hold the "MODE" and "TURBO" buttons simultaneously for 10 seconds. The remote controller will send a WiFi reset code and then turn on the WiFi function. The WiFi function is defaulted to ON after the remote controller is energized.



Replacement of Batteries in Remote Controller

1. Press the back side of the remote controller marked with the icon, as shown in the figure, and push out the battery cover in the direction of the arrow.
2. Replace the two 7# (AAA 1.5V) dry batteries, ensuring the "+" and "-" polarities are correct.
3. Reinstall the battery cover.

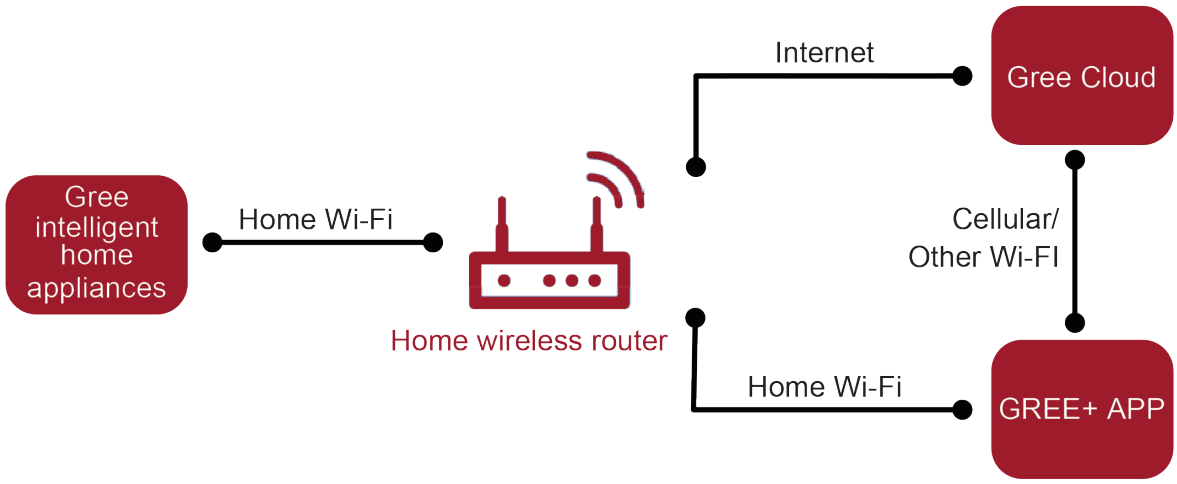
Notice

- During operation, point the remote control signal sender at the receiving window on the indoor unit.
- The distance between the signal sender and the receiving window should be no more than 8 meters, with no obstacles between them.
- Signal interference may occur in rooms with fluorescent lamps or wireless telephones; keep the remote controller close to the indoor unit during operation.
- Replace the batteries with new ones of the same model when needed.
- If you don't use the remote controller for a long time, please remove the batteries.
- If the display on the remote controller is fuzzy or there is no display, please replace the batteries.

Note: Some functions are only available for certain models.

GREE+ App Download

Control Flow Chart



Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS7.0 and above version

Android system
Support Android 4.4 and above version

Download and installation

GREE+ App Download Linkage

To download and install the app, either scan the QR code or search for 'GREE+' in your app store.

Bluetooth Connect Instructions

Connecting an Android Phone

Turn on Bluetooth:

1. Swipe down from the top of the screen to open the Quick Settings menu.
2. Tap the Bluetooth icon to turn it on. Alternatively, go to Settings > Connections > Bluetooth and toggle it on.

Pair the Device:

1. Ensure your Bluetooth device is in pairing mode (refer to your device's manual if needed).
2. On your Android phone, go to Settings > Connections > Bluetooth.
3. Your phone will scan for available devices. When your Bluetooth device appears in the list, tap on it to pair.

Confirm Pairing:

1. You may be prompted to enter a PIN or confirm a code. Follow the on-screen instructions to complete the pairing process.

Download Gree+ App:

1. Open the Google Play Store.
2. Search for Gree+ and download the app.
3. Follow the app's instructions to complete the setup.

Connecting an Apple (iPhone) Phone

Turn on Bluetooth:

1. Open the Settings app.
2. Tap Bluetooth and toggle it on.

Pair the Device:

1. Ensure your Bluetooth device is in pairing mode.
2. On your iPhone, go to Settings > Bluetooth.
3. Your iPhone will search for available devices. When your Bluetooth device appears in the list, tap on it to pair.

Confirm Pairing:

1. You may be asked to enter a PIN or confirm a code. Follow the on-screen instructions to complete the pairing process.

Download Gree+ App:

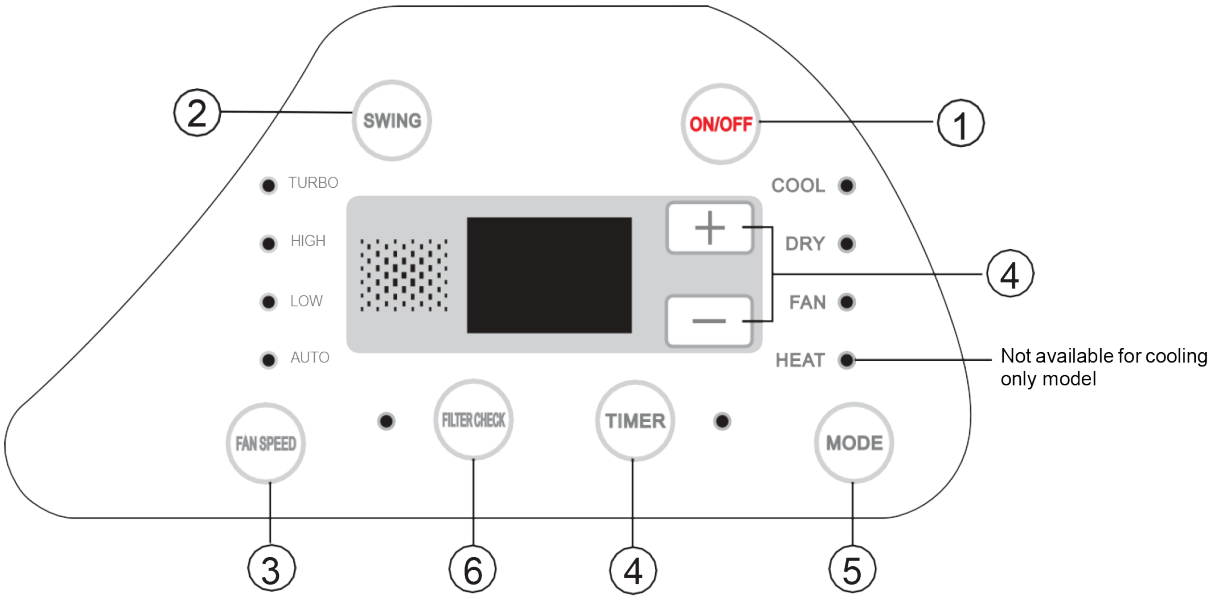
1. Open the App Store.
2. Search for Gree+ and download the app.
3. Follow the app's instructions to complete the setup.

Tips for Both Devices

1. Ensure Proximity: Make sure your phone and Bluetooth device are close to each other during the pairing process.
2. Restart Devices: If you encounter issues, try restarting both your phone and the Bluetooth device.
3. Forget and Reconnect: If the connection fails, you can try forgetting the device in your Bluetooth settings and then reconnecting.

Control Panel

Note: If the remote controller is missing, operate on the control panel.



Remote Controller Button Functions

1. **ON/OFF Button**
   - Press this button to start operation. Press it again to stop.
2. **SWING Button**
   - Activates the automatic air swing function.
3. **FAN SPEED Button**
   - Cycles through fan speeds: AUTO, LOW, HIGH, and TURBO.

Note:

- When setting fan mode via the remote controller, the turbo function is unavailable. It can only be set using the control panel buttons.
- If the unit does not support medium fan speed, it will operate at high fan speed when receiving a medium fan speed command from the app or remote controller.

4. **(+/-) / TIMER Button**
   - Press the "+" button to increase the set temperature, and the "-" button to decrease it. The temperature range is 61-86℉ (16-30℃).
   - Press the TIMER button, then use the "+" and "-" buttons to adjust the time setting. For settings up to 10 hours, each press adjusts the time by 0.5 hours. For settings over 10 hours, each press adjusts the time by 1 hour. The time range is 0.5-24 hours.
5. **MODE Button**
   - Selects the operation mode: COOL, DRY, FAN, or HEAT.
6. **FILTER CHECK Indicator**
   - This feature reminds you to clean the air filter for more efficient operation. The light will turn on automatically after the fan has operated for more than 250 hours.
   - When the light is on, turn off and power down the unit, remove and clean the air filter, then reinstall it. After powering on and turning on the unit, press the FILTER CHECK button to turn off the light.

Installation Instruction

Before Installation

1. Test run the unit with the proper power supply. Refer to the operation instruction section in the Owner's Manual Operation & Installation.
2. Ensure all controls operate correctly, then disconnect the power supply.

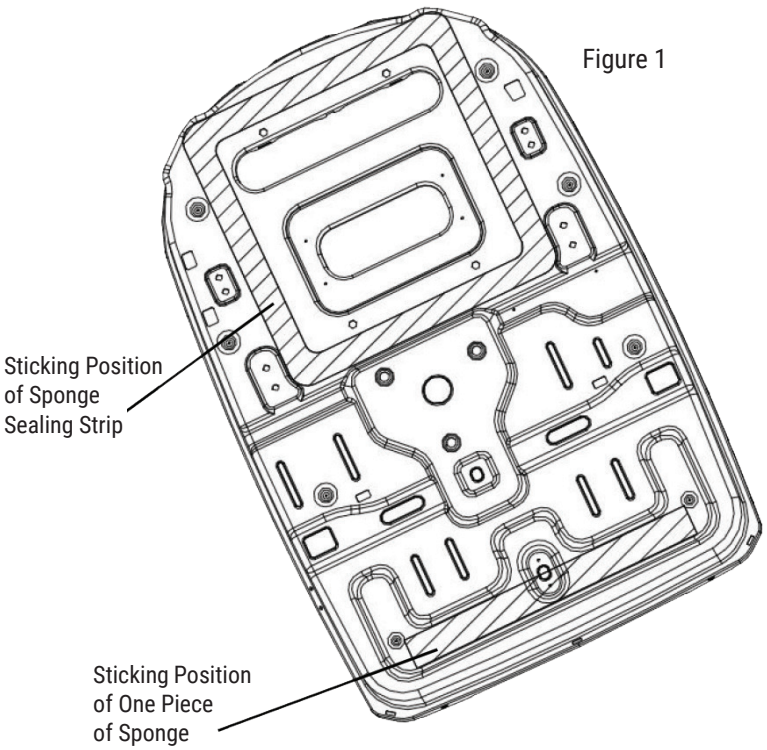
WARNING

- Moving parts may cause personal injury. Be careful when testing the unit. Do not operate the unit with the exterior cover removed.
- The outdoor unit cannot be installed in the low recess of the vehicle's roof. It must be mounted on a flat surface to ensure proper drainage of rain, car-washing water, and condensate water. Accumulated water around the outdoor unit can cause malfunctions or safety hazards.

Step 1: Apply Sponge Sealing Strip & Sponge on the Outdoor Unit

1. Clean the sticking position on the chassis of the outdoor unit to ensure it is free of debris (see Figure 1).
2. Take one piece of sponge (sealing strip) and one piece of sponge from the accessories. Remove the paper from the adhesive surface and align it at the edge of the position shown in Figure 1.
   - If the sponge (sealing strip) is damaged or not properly positioned, replace it with a new one.
3. Ensure the sponge (sealing strip) and the sponge are tightly adhered and will not fall off.

Figure 1



Step 2: Selecting An Installation Location & Installing the Roof Top Air Conditioner

1. Your air conditioner is designed for use in recreational vehicles. Check the vehicle's roof to ensure it can support both the rooftop unit and the ceiling assembly without additional support.
2. Ensure the interior ceiling mounting area does not interfere with existing structures.

Once the location is determined:

- A reinforced and framed roof hole must be cut (if there is no existing hole, refer to CASE B) or you may use existing vent holes (see CASE A).

CASE A: Using an Existing Roof Vent

1. Remove all screws securing the roof vent to the vehicle. Remove the vent and any additional trim. Carefully remove all caulking from around the opening to clear the surface.
2. Seal any old roof vent mounting screw holes that fall outside the air conditioner basepan gasket.
3. If the roof opening is smaller than 14-1/4" x 14-1/4", enlarge the opening.

CASE B: Cutting a New Roof Opening

1. If no roof vent opening is used, cut a new opening (see Figure 1-1) in the vehicle roof. A matching opening must also be cut in the interior vehicle ceiling. Be careful when cutting the ceiling opening to avoid snagging if the ceiling is carpeted.
2. After cutting the openings to the correct size, place a framed support structure between the exterior rooftop and interior ceiling. The reinforced framed structure must:
   - Support the weight of both the rooftop air conditioner and the interior ceiling assembly.
   - Hold the roof outer surface and interior ceiling apart and support them to prevent collapsing when the rooftop air conditioner and ceiling assembly are bolted together (see Figure 1-1).
   - Include an opening for the power supply wiring. Route the supply wiring through the frame during the support frame installation.

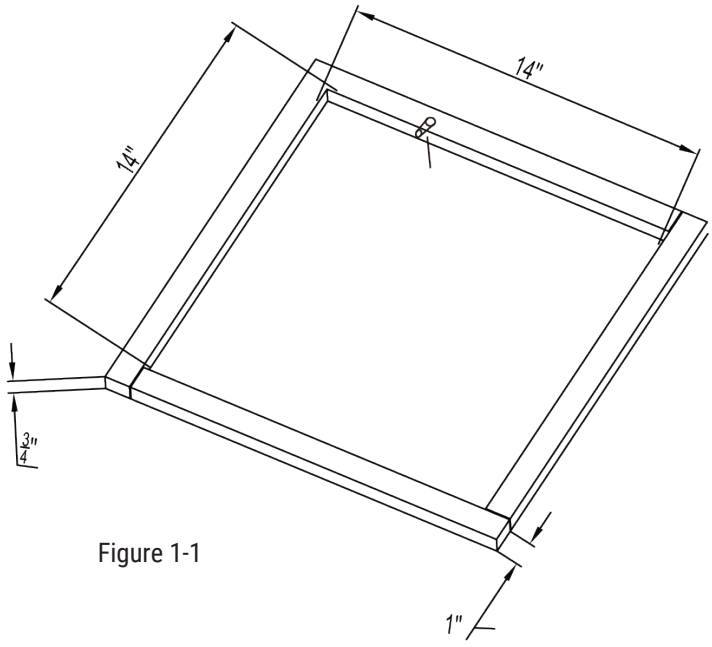


Figure 1-1

CAUTION

1. Ensure the rooftop air conditioner is mounted on a level plane from front to rear and side to side when the vehicle is parked on a flat surface. Figure 2 illustrates the maximum allowable degrees for mounting above or below level.
2. If the vehicle's roof is sloped and the air conditioner cannot be mounted within the specified degree limits, use an exterior leveling shim to achieve a level position. Figure 3 shows a typical leveling shim.
3. After leveling the rooftop air conditioner, additional shimming may be necessary above the interior ceiling assembly. Ensure the rooftop air conditioner and the interior ceiling assembly are square with each other before securing them together.
4. Once the mounting hole area is prepared, remove the carton and shipping pads from around the air conditioner. Carefully lift the unit onto the vehicle, avoiding the use of the outer plastic shroud for lifting. Position the air conditioner over the prepared mounting hole.
5. Align the front section of the outdoor unit with the vehicle's direction to reduce wind resistance.

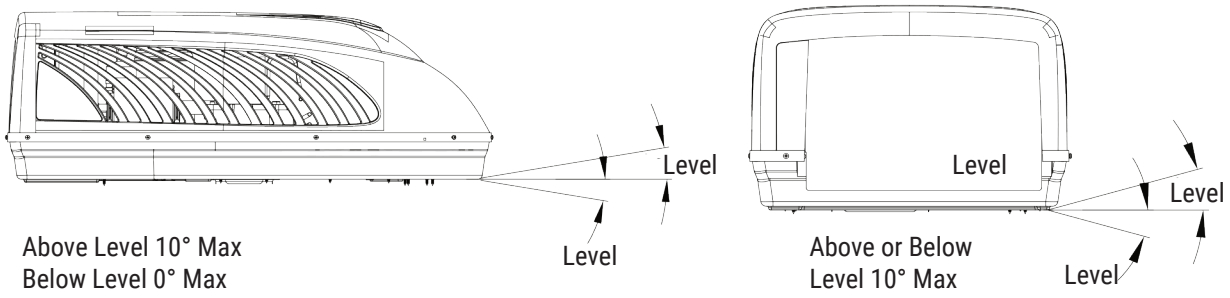
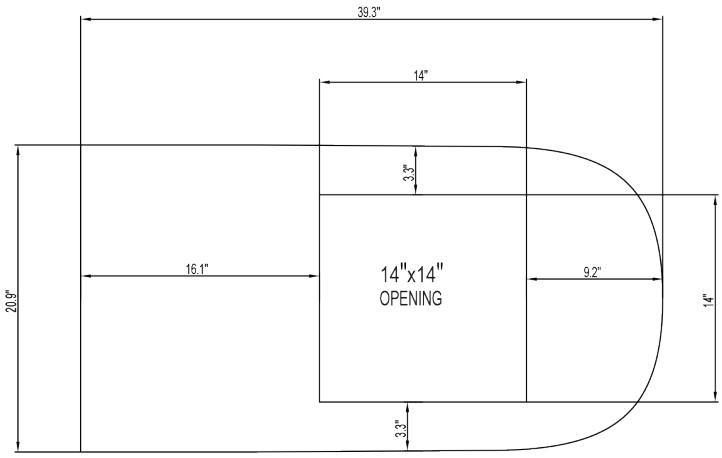


Figure 2

Note: Ensure the unit is placed on a horizontal surface for optimal operation. The unit can only function for a short duration at a maximum slope of 5° to prevent water leakage.



Note: Air Conditioner Dimensions (Roof of Unit)

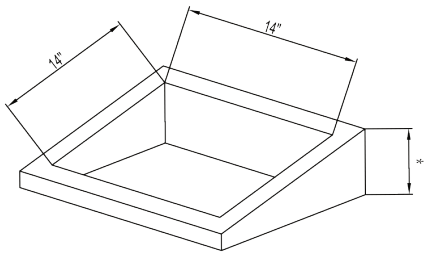


Figure 3

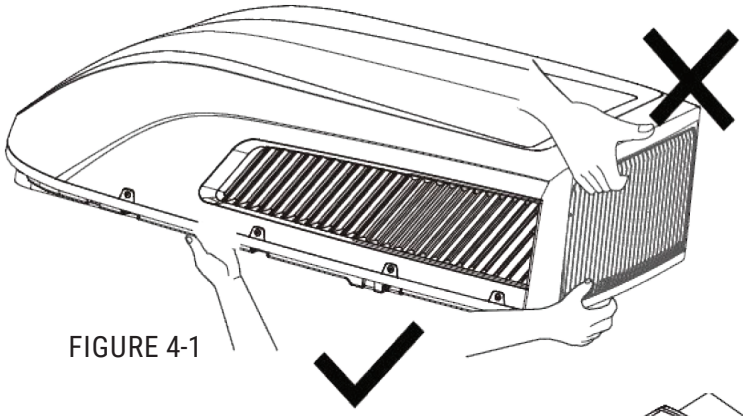


FIGURE 4-1

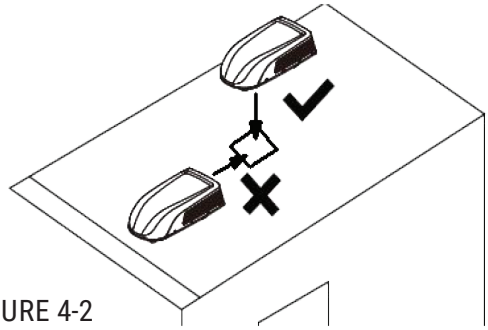


FIGURE 4-2

Step 3: Mounting The Outdoor Unit

1. Open the package and remove the outdoor unit.
   - When removing the outdoor unit, avoid lifting it by the air outlet grille at the back of the outer case (see Figure 4-1).
2. Secure the outdoor unit to the roof of the vehicle and drill the necessary holes.
3. Position the outdoor unit on the vehicle's roof, lift it to drill the holes, and then place it back. Avoid dragging the unit to prevent the seal from falling off (see Figure 4-2).

Step 4: Installing The Ceiling Assembly

Ensure the rooftop air conditioner and interior ceiling assembly are properly matched.

Caution before tightening bolts:

1. The applicable thickness of the vehicle roof ranges from 1.2" to 3.1".
2. Manually screw in the four bolts before tightening them, and avoid forcing them.
3. You can use an automatic tool to screw in the bolts, but do not fully tighten one bolt before starting the others to prevent cross-threading.
4. The maximum torque for tightening should be between 2.3Nm and 2.5Nm.

Follow these step-by-step instructions to ensure proper installation:

1. Carefully remove the ceiling assembly from the carton (the remote control is packed with the ceiling assembly).
2. Remove the ceiling grille from the ceiling assembly.
3. Before mounting the ceiling assembly to the rooftop air conditioner, fasten the fabric duct collar to the basepan of the rooftop air conditioner with four screws using the upper duct plate (see Figures 5-2, 6-1, 5, and 5-1). Pull the fabric duct collar so it hangs out of the way and does not get caught under the ceiling assembly frame before lifting the ceiling assembly.
4. Secure the ceiling assembly frame to the rooftop air conditioner with the mounting bolts (see Figure 5). Start threading the mounting bolts by hand to avoid cross-threading. **Do not use an air gun to start the mounting bolts.** Tighten the bolts until the basepan gasket is evenly compressed.
5. Insert the fabric air duct into the duct opening of the installation plate sub-assembly and cut off the four corners of the fabric air duct. Adjust the distance between the opening and the installation plate sub-assembly according to the thickness of the vehicle roof.
6. Fasten each side of the fabric duct by fitting the bottom duct plate to the ceiling assembly frame with four screws (see Figure 6). Trim any excess fabric extending beyond the edge of the bottom duct plate.

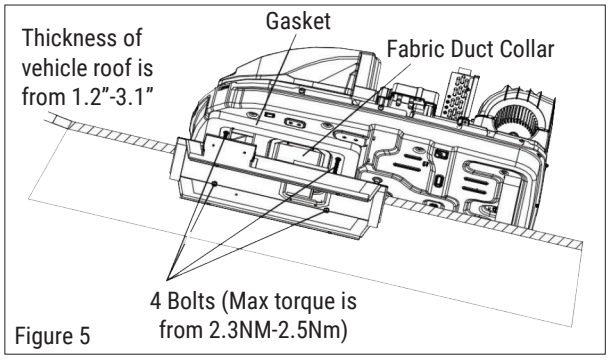


Figure 5

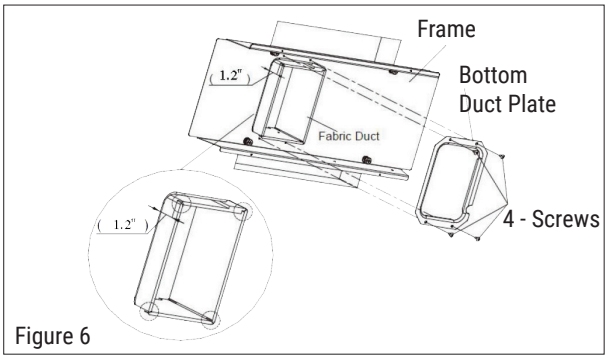


Figure 6

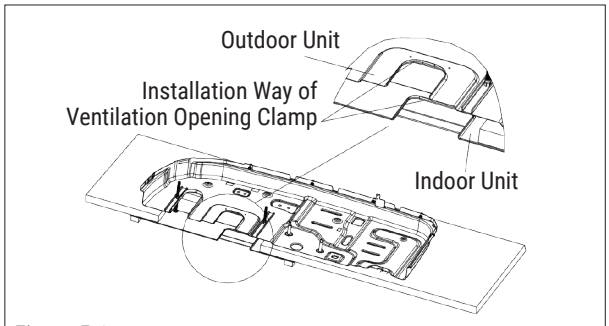


Figure 5-1

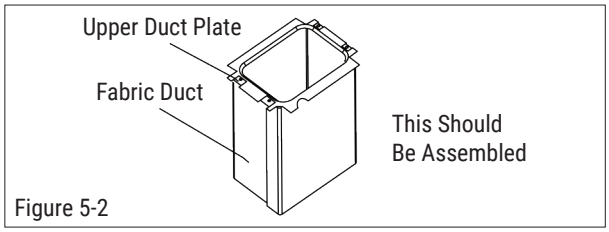


Figure 5-2

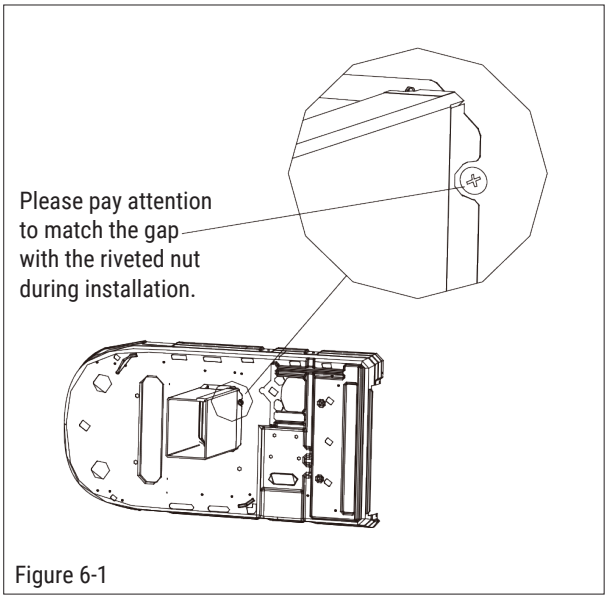


Figure 6-1

STEP 5 - Electrical Wiring

Erouting115V AC Wiring

WARNING

Ensure all power supply to the unit is disconnected before performing any work to avoid the risk of shock, injury, or equipment damage. Once the interior ceiling assembly frame is securely attached to the rooftop air conditioner, proceed with the following electrical connections:

1. As shown in Figure 7, the outdoor unit has two sets of outgoing wires: the power cord (high current) and the control signal wires. The power cord should be connected directly to the terminal box, while the control signal wires should be connected to the indoor unit's control signal wire.
2. Route a copper supply wire with ground, minimum #14AWG, from its power source to the junction box. Do not attach them at this time.
3. Connect the power cord to the black, white, and ground wires in the junction box using a terminal board. **CAUTION:** Connect black wire to black wire, white wire to white wire, and the ground wire to earth (see Figure 9). Use a protective pipe to prevent cutting the power wire when connecting the power cord.
4. Tighten the strain relief clamp to secure the supply power cord. **DO NOT OVERTIGHTEN.** Reinstall the junction box cover.
5. Connect the rooftop air conditioner power cord to the side of the junction box. Remove the junction box cover (2 screws), insert the power cord through the provided strain relief (see Figure 8).
6. Connect the connector and secure the clamp (see Figures 10 and 10-1).

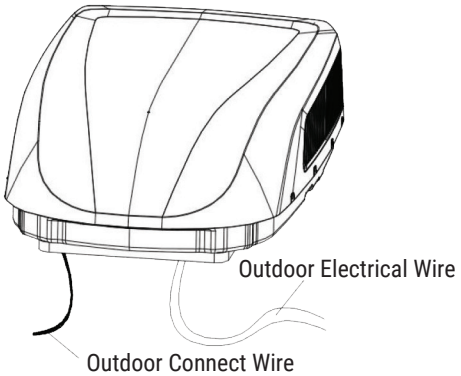


Figure 7

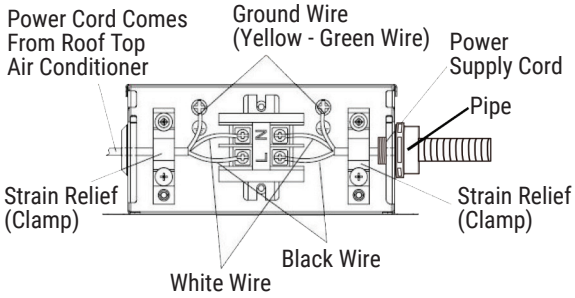


Figure 9

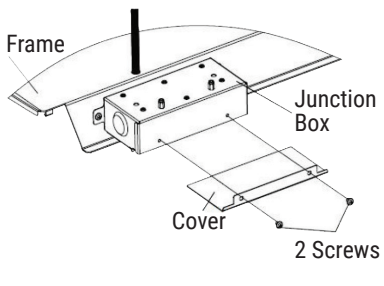


Figure 8

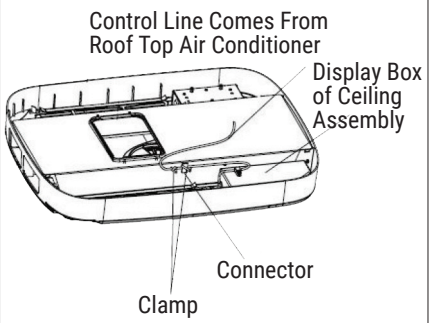


Figure 10

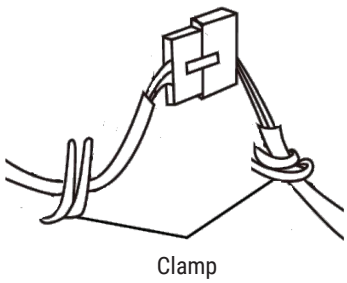


Figure 10-1

Step 6: Completing The Installation

To finalize the installation and perform the system checkout, follow these steps:

1. Verify the thermostat position. Ensure it is routed through the holding guide and not in contact with any metal surface.
2. Confirm that the guide louver and filters are correctly positioned in the ceiling grille.
3. Attach the ceiling grille to the ceiling assembly frame using four screws (refer to Figure 11).
4. Insert screw caps into the four screw holes.
5. Turn on the power supply and check if the unit is functioning properly.

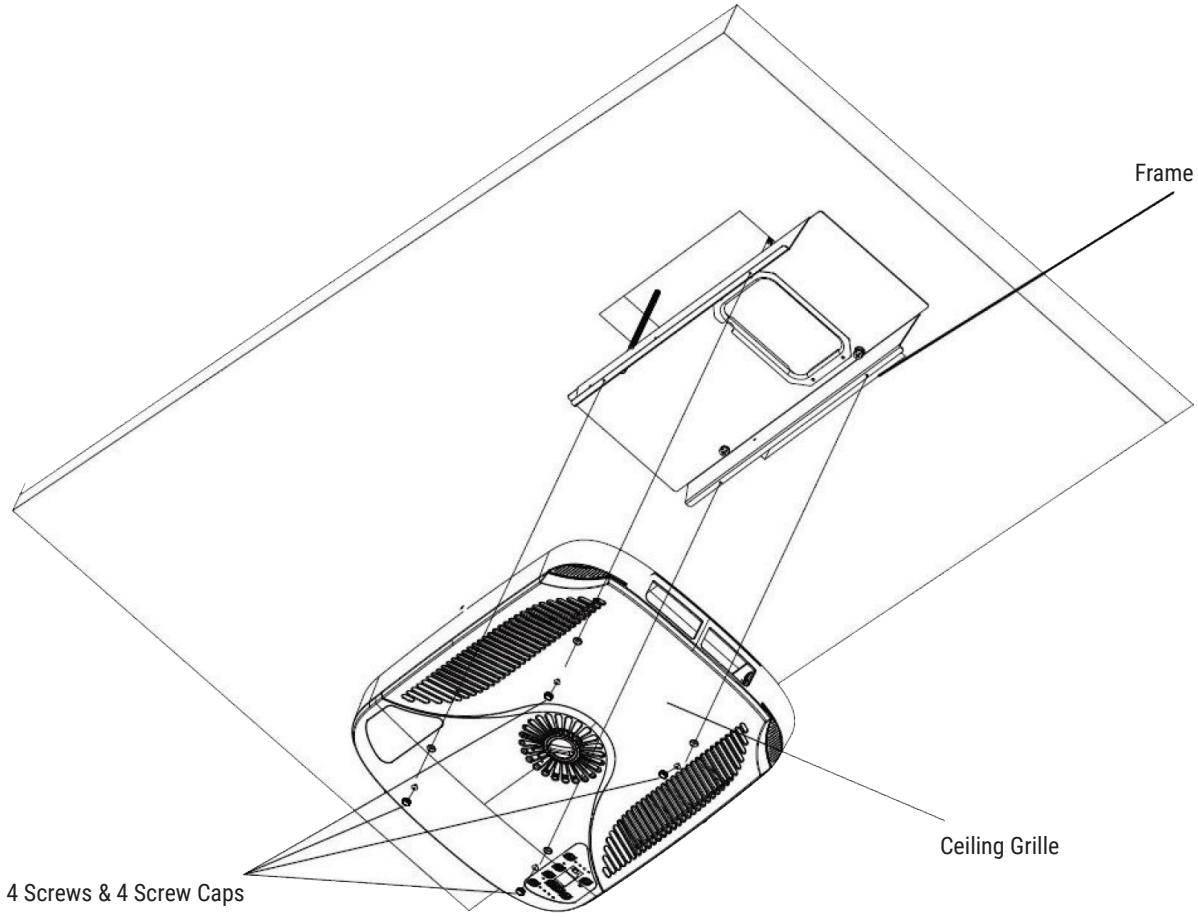


Figure 11

Troubleshooting Guide

If you encounter issues with your recreational vehicle air conditioner, please refer to this guide before reaching out to your service representative.

Issue: The unit cannot start.

- **Possible Cause:** The unit may not be connected to the power supply correctly.
- **Solution:** Check the vehicle's power supply and ensure it is properly connected.

Issue: The unit cannot cool the room.

- **Possible Cause:** The rooftop air conditioner is not level.
- **Solution:** Ensure the rooftop air conditioner is mounted as level as possible from front to rear and side to side when the vehicle is parked. Verify that the mounting is correct and level.
- **Possible Cause:** The temperature setting is too high.
- **Solution:** Reset the remote control to a lower temperature setting.
- **Possible Cause:** The air filter is dirty.
- **Solution:** Remove and clean the filter.
- **Possible Cause:** The room was already very hot before the unit was turned on.
- **Solution:** Allow a sufficient amount of time for unit to cool the room.

Issue: The unit is making noise.

- **Possible Cause:** The unit clicks and gurgles.
- **Solution:** These noise are normal during the operation of the unit.

Issue: The unit has water dripping inside.

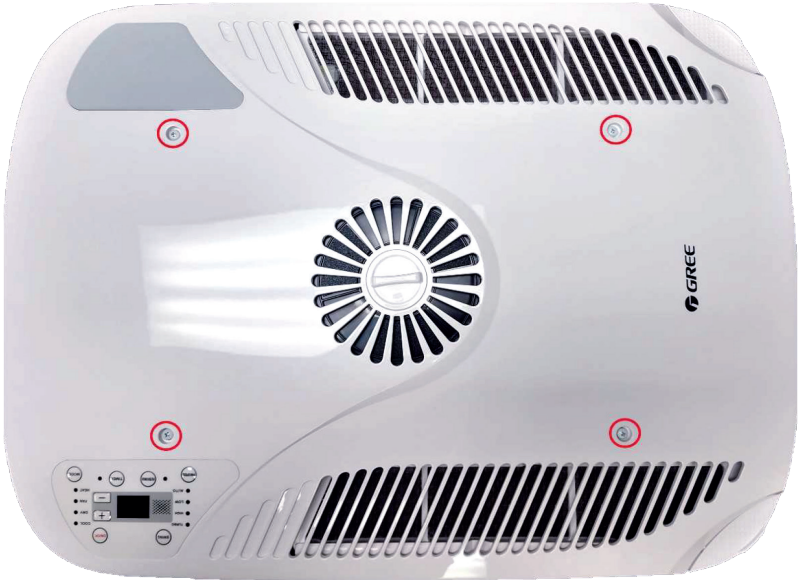
- **Possible Cause:** The basepan gasket has not been evenly compressed.
- **Solution:** Mounting bolts should be tightened evenly by compressing the basepan gasket.

Issue: The unit has ice or frost on the coils.

- **Possible Cause:** The temperature is low inside.
- **Solution:** Select FAN mode at HIGH fan speed.
- **Possible Cause:** The filter is dirty.
- **Solution:** Remove and clean the filter.

Disconnecting Audible Indicator

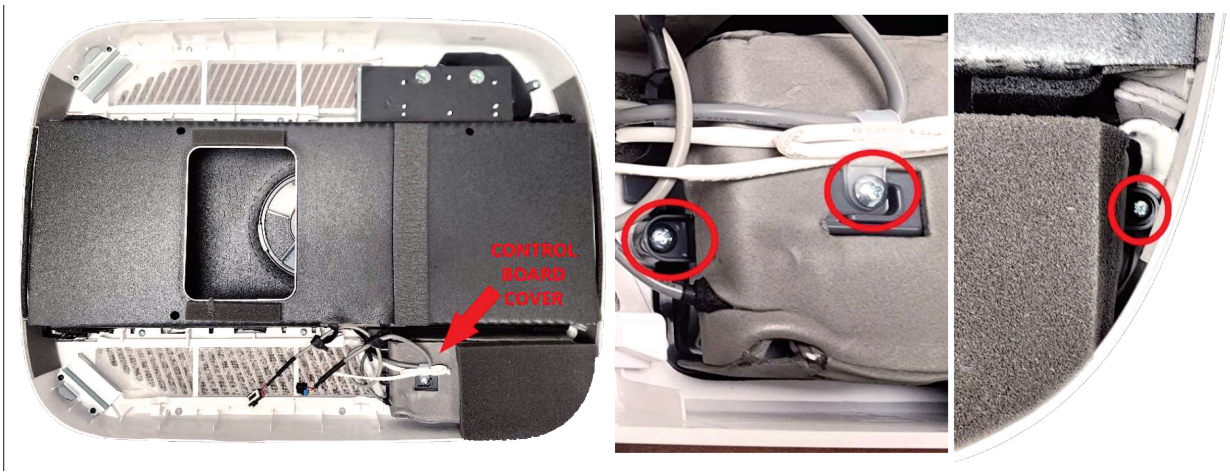
Note: The 110V AC connections for this unit will remain connected throughout this process. However, for your safety, it is recommended to turn off the master breaker to ensure the power supply is disconnected before proceeding.



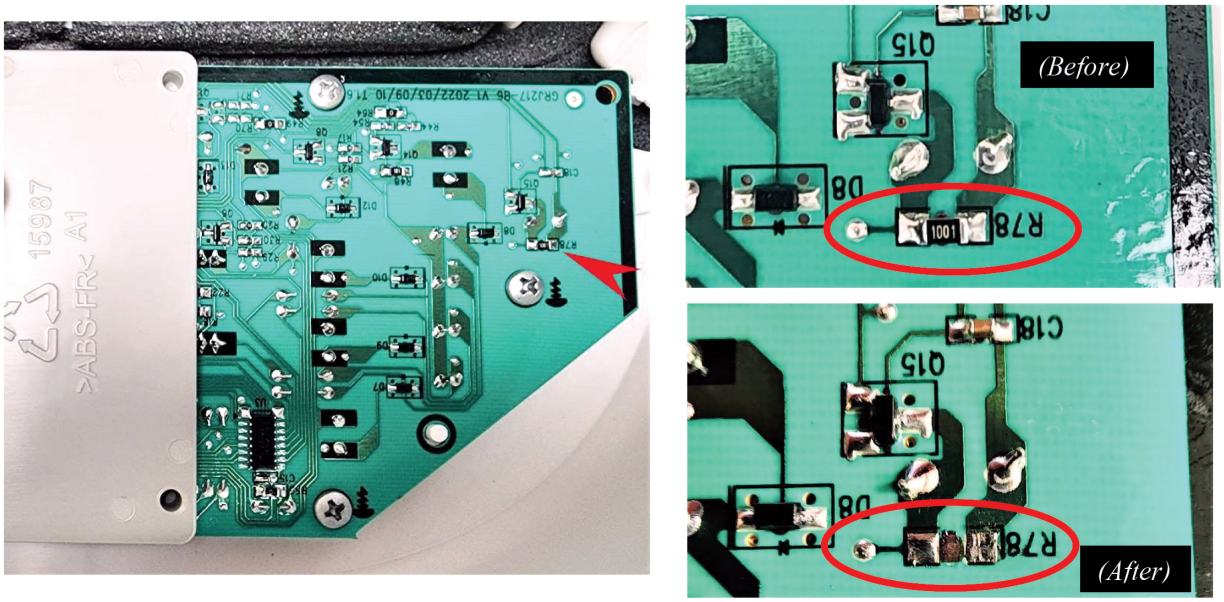
1. **Remove Rubber Inserts:** Take out the rubber inserts covering the 4 fasteners (circled in red). Remove the fasteners and set them aside with the rubber inserts.



2. **Disconnect Data Cables:** Locate and disconnect the 2 data cable connections on the back side of the plenum. Once disconnected, you can remove the plenum from the coach.



3. **Remove Control Board Cover:** Unscrew the fasteners (circled in red) on the plastic control board cover. Remove the cover and set it aside with the fasteners.



4. **Disconnect Audible Indicator:** Locate the soldered connection of the audible indicator on the circuit board (R78). Use a soldering iron to remove the resistor bridging the connection, leaving the circuit open.



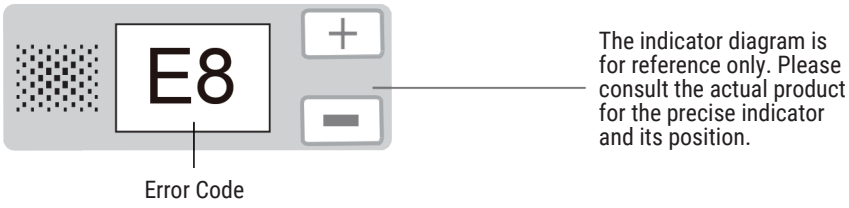
5. **Reinstall Control Board Cover:** Reinstall the plastic control board cover. Ensure the temperature probe is correctly situated above the intake area.



6. **Reconnect and Test:** Reconnect the data connections and install the plenum. Once installed, cycle through the fan speeds to ensure the indicator has been disabled.

Error Code

When the air conditioner status is abnormal, the temperature indicator on the indoor unit will blink to display the corresponding error code. Refer to the list below to identify the error code.



Error Code: E6/E8
Troubleshooting: This issue can often be resolved by restarting the unit. If the problem persists, please contact a qualified professional for service.

Error Code: PL
Troubleshooting: The power supply voltage is below 184V. Please verify the voltage. If the problem persists after restarting the unit, contact a qualified professional for assistance.

Error Code: F1/F2/F3/F4
Troubleshooting: Please contact a qualified professional for service.

Error Code: F0
Troubleshooting:

1. Dirty heat exchangers or blocked air inlet/outlet.
2. Abnormal compressor operation, strange noise, or leakage. High shell temperature.
3. Internal system blockage (dirt, ice, oil, or partially open Y-valve).
4. Refrigerant leakage.

Error Code: JF
Troubleshooting:

1. Damaged main board of the outdoor unit.
2. Damaged detection board.
3. Poor connection between the outdoor unit and detection board.

Error Code: H3
Troubleshooting:

1. Dirty heat exchangers or blocked air inlet/outlet.
2. Abnormal fan motor operation; low or no fan speed.
3. Abnormal compressor operation, strange noise, or leakage. High shell temperature.
4. Internal system blockage (dirt, ice, oil, or partially open Y-valve).
5. Refrigerant leakage causing compressor overheating protection.

Normal Maintenance Procedures

Activety: Remove the cover and wash the condenser coil.

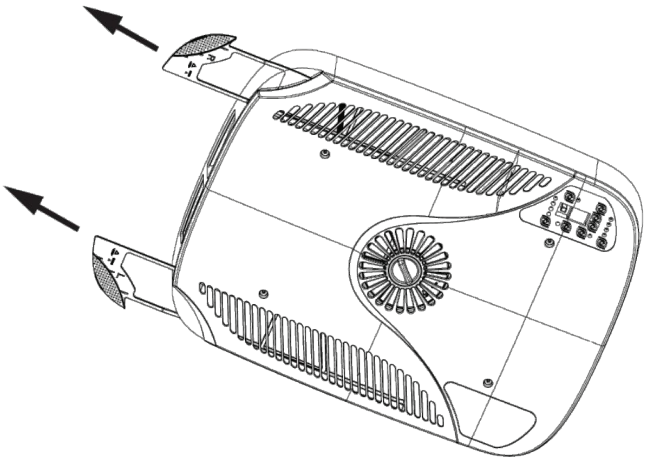
Frequency: Twice a year.

Activety: More frequent cleaning may be required depending on air quality.

Frequency: When the air conditioner's **FILTER CHECK** light turns on.

How To Remove The Air Filter

Remove the air filters by pulling them out as shown in the illustration below.



How To Clean The Air Filter

Clean the air filters by washing them with clean water or using a household vacuum cleaner to remove dust.

WARNING

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS PERSONAL INJURY

1. Do not touch the capacitor terminals without discharging the electricity. The capacitor may still hold high voltage even if the power supply is turned off.
2. Exercise caution when maintaining the refrigeration system, as it has high internal pressure.
3. Ensure the filter and indoor air inlet are not severely blocked to prevent water leakage.

Aptitude Requirements for Maintenance Personnel

Repairs should only be performed by specialists.

a. Any individual involved in working on or breaking into a refrigerant circuit must hold a current, valid certificate from an industry-accredited assessment authority. This certificate should authorize their competence to handle refrigerants safely in accordance with an industry-recognized assessment specification.

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

Safety Preparation Work

The maximum refrigerant charge amount is shown in Table A below.

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

Room Area (m^2)	/	4	6	8	10
Maximum Charge (kg)	<1.842	2.02	3.03	3.55	3.97

Table A - Maximum Charge (kg)

Before beginning work on systems containing f lammable refrigerants, safety checks are necessary to minimize the risk of ignition. The following precautions must be followed prior to conducting work on the system:

Work Procedure

Work should be undertaken under a controlled procedure to minimize the risk of flammable gas or vapor being present while the work is being performed.

General Work Area

All maintenance staff and others working in the local area must be informed about the nature of the work being carried out. Avoid working in confined spaces. The area around the workspace should be sectioned off. Ensure that the conditions within the area are made safe by controlling flammable materials.

Checking for Presence of Refrigerant

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

Presence of Fire Extinguisher

TIf any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment must be readily available. Keep a dry powder or CO2 fire extinguisher adjacent to the charging area.

No Ignition Sources

No person working on a refrigeration system that involves exposing any pipework should use any sources of ignition that could 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, repair, removal, and disposal, where refrigerant could be released into the surrounding space. Before starting work, survey the area around the equipment to ensure there are no flammable hazards or ignition risks. Display “No Smoking” signs prominently.

Ventilated Area

Ensure the area is open or adequately ventilated before breaking into the system or conducting any hot work. Maintain ventilation during the work to safely disperse any released refrigerant, preferably expelling it externally into the atmosphere.

Checks to the Refrigeration Equipment

When changing electrical components, ensure they are fit for purpose and meet the correct specifications. Always follow the manufacturer's maintenance and service guidelines. If in doubt, consult the manufacturer's technical department for assistance.

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

- The actual refrigerant charge is in accordance with the room size where the refrigerant-containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is used, check the secondary circuit for the presence of refrigerant.
- Ensure markings on the equipment are visible and legible. Correct any illegible markings and signs.
- Install refrigeration pipes or components in positions where they are unlikely to be exposed to substances that may corrode refrigerant-containing components, unless the components are inherently resistant to corrosion or suitably protected against it.

Checks to Electrical Devices

Repair and Maintenance

Repair and maintenance of electrical components must include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, do not connect the electrical supply to the circuit until the issue is resolved.

If the fault cannot be corrected immediately but operation must continue, implement an adequate temporary solution and inform the equipment owner.

Initial Safety Checks

- Ensure capacitors are discharged safely to avoid sparking.
- Verify that no live electrical components or wiring are exposed during charging, recovering, or purging the system.
- Confirm continuity of earth bonding.

Repairs to Sealed Components

Before working on sealed components, disconnect all electrical supplies from the equipment. If it is absolutely necessary to have an electrical supply during servicing, use a permanently operating leak detection system at the most critical point to warn of potential hazards.

Pay particular attention to ensure that working on electrical components does not alter the casing in a way that affects protection. This includes avoiding damage to cables, excessive connections, terminals not meeting original specifications, damage to seals, and incorrect fitting of glands. Ensure the apparatus is securely mounted and that seals or sealing materials have not degraded. Replacement parts must meet the manufacturer's specifications.

Repair to Intrinsically Safe Components

Do not apply permanent inductive or capacitance loads to the circuit without ensuring it will not exceed the permissible voltage and current for the equipment. Intrinsically safe components are the only types that can be worked on live in the presence of a flammable atmosphere. Ensure the test apparatus is correctly rated. Replace components only with parts specified by the manufacturer to avoid the risk of igniting refrigerant from a leak.

Note: The use of silicon sealant can inhibit the effectiveness of some leak detection equipment. Intrinsically safe components do not need to be isolated before working on them.

Cabling

Check that cabling is not subject to wear, corrosion, excessive pressure, vibration, sharp edges, or other adverse environmental effects. Consider the effects of aging or continual vibration from sources like compressors or fans.

Detection of Flammable Refrigerants

Never use potential sources of ignition to search for or detect refrigerant leaks. Do not use a halide torch or any detector with a naked flame.
Acceptable leak detection methods for all refrigerant systems include:

- **Electronic Leak Detectors:** These may be used to detect refrigerant leaks, but for flammable refrigerants, sensitivity may need adjustment or re-calibration. Ensure the detector is not a potential ignition source and is suitable for the refrigerant used. Set leak detection equipment to a percentage of the LFL of the refrigerant and calibrate it accordingly (25% maximum).
- **Leak Detection Fluids:** Suitable for most refrigerants, but avoid detergents containing chlorine as they may react with the refrigerant and corrode copper pipework. Examples include the bubble method and fluorescent method agents.

If a leak is suspected, extinguish all naked flames. If refrigerant leakage requires brazing, recover all refrigerant from the system or isolate it using shut-off valves in a part of the system remote from the leak. Follow the procedures for removal and evacuation.

Removal and Evacuation

When breaking into the refrigerant circuit for repairs or any other purpose, conventional procedures should be followed. For flammable refrigerants, it is crucial to adhere to best practices due to their flammability. Follow these steps:

a. Safely remove refrigerant in accordance with local and national regulations.

b. Purge the circuit with inert gas.

c. Evacuate (optional for A2L).

d. Purge with inert gas again (optional for A2L).

e. Open the circuit by cutting or brazing.

Recover the refrigerant charge into the correct recovery cylinders if venting is not permitted by local and national codes. For appliances containing flammable refrigerants, purge the system with oxygen-free nitrogen to render it safe. This process may need to be repeated several times. Do not use compressed air or oxygen for purging refrigerant systems.

For appliances with flammable refrigerants, achieve purging by breaking the vacuum in the system with oxygen-free nitrogen, filling until the working pressure is reached, venting to the atmosphere, and then pulling down to a vacuum (optional for A2L). Repeat this process until no refrigerant remains in the system (optional for A2L). When the final oxygen-free nitrogen charge is used, vent the system down to atmospheric pressure to enable work.

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

Charging Procedures

In addition to conventional charging procedures, follow these requirements:

- Prevent contamination of different refrigerants when using charging equipment. Keep hoses or lines as short as possible to minimize the amount of refrigerant contained in them.
- Keep cylinders in an appropriate position as per the instructions.
- Ensure the refrigeration system is earthed before charging with refrigerant.
- Label the system when charging is complete (if not already labeled).
- Take extreme care not to overfill the refrigeration system.

- Before recharging, pressure-test the system with the appropriate purging gas. Leak-test the system upon completion of charging but before commissioning. Conduct a follow-up leak test before leaving the site.

Decommissioning

Before starting this procedure, ensure the technician is thoroughly familiar with the equipment and its details. It is recommended to safely recover all refrigerants. Prior to beginning the task, take an oil and refrigerant sample in case analysis is required before reusing reclaimed refrigerant. Ensure electrical power is available before starting.

a. Familiarize yourself with the equipment and its operation.

b. Electrically isolate the system.

c. Before proceeding, ensure:

   - Mechanical handling equipment is available, if needed, for handling refrigerant cylinders.
   - All personal protective equipment is available and 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 the refrigerant system, if possible

e. If a vacuum is not possible, create a manifold to remove refrigerant from various parts of the system.

f. Ensure the cylinder is on the scales before recovery begins.

g. Start the recovery machine and operate it according to the manufacturer's instructions.

h. Do not overfill cylinders (no more than 80% volume liquid charge).

i. Do not exceed the cylinder's maximum working pressure, even temporarily.

j. Once the cylinders are correctly filled and the process is complete, promptly remove the cylinders and equipment from the site and close all isolation valves on the equipment.

k. Do not charge recovered refrigerant into another refrigeration system unless it has been cleaned and checked.

Recovery

When removing refrigerant from a system for servicing or decommissioning, it is recommended to safely remove all refrigerants. When transferring refrigerant into cylinders, use only appropriate refrigerant recovery cylinders. Ensure the correct number of cylinders for the total system charge are available. All cylinders should be designated for the recovered refrigerant and labeled accordingly. Cylinders must have a pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders should be evacuated and, if possible, cooled before recovery.

Ensure the recovery equipment is in good working order with instructions available and suitable for recovering all appropriate refrigerants, including flammable ones. A set of calibrated weighing scales should be available and in good condition. Hoses should have leak-free disconnect couplings and be in good condition.

Before using the recovery machine, check that it is in satisfactory working order, properly maintained, and that any associated electrical components are sealed to prevent ignition in case of a refrigerant release. Consult the manufacturer if in doubt.

Return the recovered refrigerant to the supplier in the correct recovery cylinder and arrange the relevant waste transfer note. Do not mix refrigerants in recovery units or cylinders.

If removing compressors or compressor oils, ensure they are evacuated to an acceptable level to ensure no flammable refrigerant remains within the lubricant. Perform the evacuation process before returning the compressor to the suppliers. Use only electric heating to the compressor body to accelerate this process. When draining oil from a system, do so safely.

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