

3 Installation

3.1 Choosing Proper Location for Unit

This unit is specifically designed for installation on the roof of an RV air conditioner. When determining your cooling requirements, the following should be considered:

- Size of RV air conditioner;
- Window area (increases heat gain);
- Amount of insulation in walls and roof;
- Geographical location where the RV air conditioner will be used;
- Personal comfort level required.

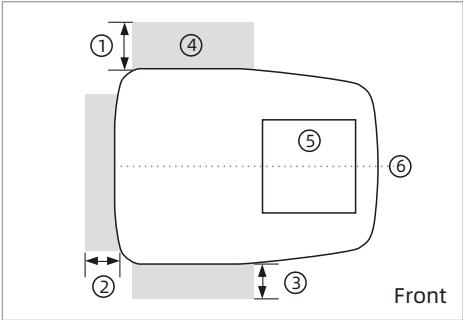
Normal locations

The unit is designed to fit over an existing roof vent opening.

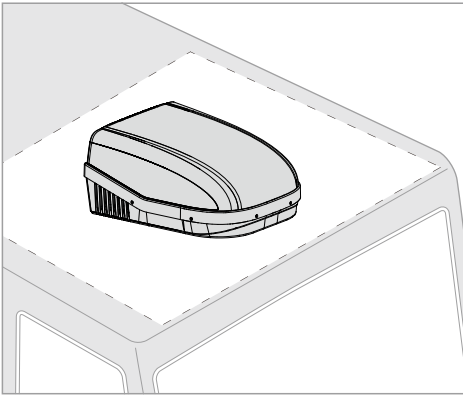
Other locations

When no roof vent is available or another location is desired, the following is recommended:

1. For one unit installation: The unit should be mounted slightly forward of center (front to back) and centered from side to side.
2. For two unit installations: Install one unit 1/3 and one unit 2/3's from front of RV air conditioner and centered from side to side. It is preferred that the unit be installed on a relatively flat and level roof section measured with the RV air conditioner parked on a level surface. The maximum inclination angle is 8°.
3. Products equipped with an auxiliary heater (PTC) must be installed to ensure a minimum distance of 13 inches between flammable materials and the machine.

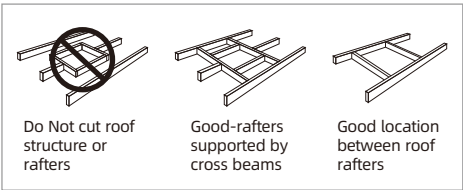


- ① 12 in. (305 mm)
- ② 4 in. (102 mm)
- ③ 4 in. (102 mm)
- ④ Keep these air flow areas free of obstructions
- ⑤ Roof opening
- ⑥ Center line of unit

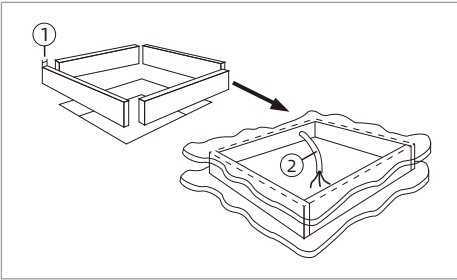


4. Maintain structural integrity. Otherwise damage to product and/or RV air conditioner could occur.

The roof must be designed to support 130 pounds when RV air conditioner is in motion. Normally a 200 lb. static load design will meet this requirement.



5. Check inside the RV air conditioner for air distribution box (hereinafter referred to as "ADB") obstructions (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.).



- ① 3/4" Min.
② 15" Min at front of opening

Lumber 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies (AC120V and DC12V) , wall thermostat and furnace wiring for connections. Leave 15" (381mm) minimum at the front of the opening.

3.2 Roof Preparation



WARNING

FIRE OR ELECTRICAL SHOCK HAZARD.

Make sure there are no obstacles (wires, pipes, etc.) inside RV air conditioner's [roof/floor/walls]. Shut OFF gas supply, disconnect 120 VAC power from RV air conditioner, and disconnect positive (+) 12 VDC terminal from supply battery BEFORE drilling or cutting into RV air conditioner.

Failure to obey these warnings could result in death or serious injury.

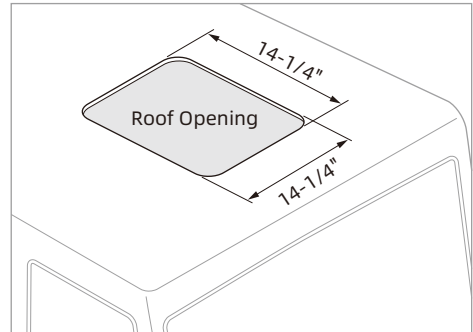
Opening Requirements

Before preparing the ceiling opening, read all of the following instructions before beginning the installation.

3.2.1 Creating a New Roof Opening

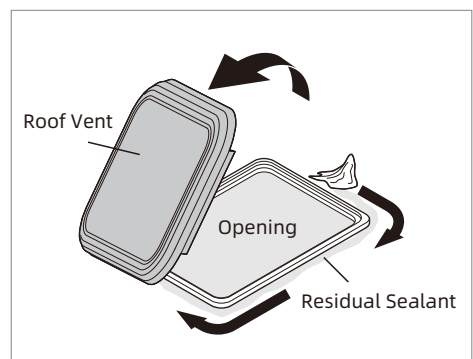
If an existing roof vent opening will NOT be used a roof opening MUST be cut through the roof and ceiling of the RV air conditioner.

This opening MUST be located between the roof reinforcing members. See "2.2 Roof Requirements"



3.2.2 Using an Existing Roof Opening

1. Unscrew and remove the roof vent.
2. Remove all caulking compound around opening.
3. Seal all screw holes and seams where the roof gasket will be located. Use a good grade of all weather sealant.



If the opening is less than 14-1/4" x 14-1/4", it must be enlarged. See "2.2 Roof Requirements".

1. Carefully mark and cut the required roof opening. See "2.2 Roof Requirements" .
2. Maintain structural integrity. Otherwise damage to product and/or RV Air conditioner could occur.



CAUTION

NEVER create a low spot on RV Air conditioner roof. Otherwise, water will pool and could cause a leak.

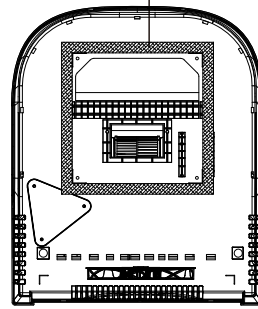
Using the roof opening as a guide, cut the matching hole in the ceiling.

The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Framing stock 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies at the front of the opening.

3.3 Stick Sponge (Sealing Strip) on The Outdoor Unit

1. Before sticking, clean up the sundries at the sticking position of the chassis of the outdoor unit to ensure that the sticking position is clean.
2. Take out one piece of sponge (sealing strip) of sponge from the accessories, and tear off the paper on the glue surface and align at the edge of the position as shown in Figure 1 to stick the sponge. If the sponge (sealing strip) is damaged or not stuck on the proper position, you must replace it with a new one and stick it properly.

Sticking position of sponge (sealing strip)



3. Check whether the sponge (sealing strip) are tightly adhered, and ensure that they will not fall off.

3.4 Wiring Requirements

Route a copper, with ground, 120 Vac supply wire from the time delay fuse or circuit breaker box to the roof opening. Use a listed/certified non metallic - sheathed single strand cable.

If vent fan was removed, the existing wire may be used provided it is of proper type, size, location, and correctly fused.

1. This supply wire must be located in the front portion of the roof opening.
2. The power **MUST** be on an appropriately sized separate time delay fuse or circuit breaker. See "2.1"
3. Make sure that at least 15" of supply wire extends into the roof opening. This ensures an easy connection at the junction box.
4. Protect the wire where it passes into the opening with approved method.

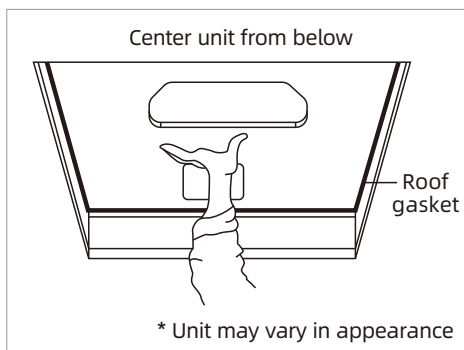
3.5 Placing Unit on Roof

1. Remove the unit from the carton and discard carton.
2. **LIFTING HAZARD.** Use proper lifting technique and control when lifting product. Failure to obey this caution could result in injury. Place unit on the roof.
3. Do NOT slide unit. Otherwise, damage to gasket (on bottom of unit) may occur and could cause a leak. Lift and place the unit over the prepared opening using the gasket on the unit as a guide.
4. Place the ADB kit inside the RV air conditioner. This box contains mounting hardware for the unit and will be used inside the RV air conditioner.

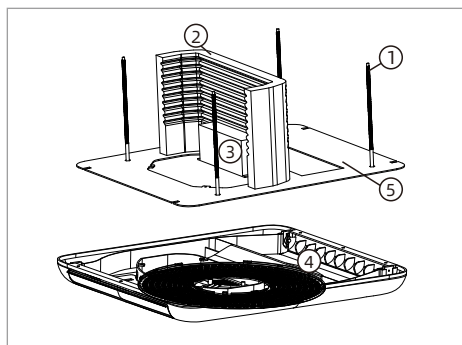
This completes the outside work. Minor adjustments can be done from inside the RV air conditioner if required.

3.6 Installation Preparation

Check gasket alignment of the unit over the roof opening and adjust if necessary. Unit may be moved from below by slightly lifting.

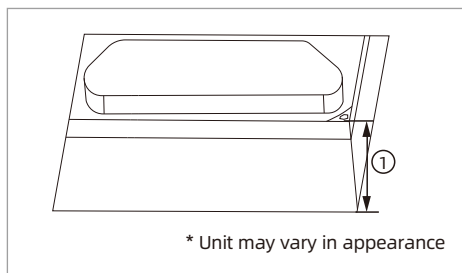


3.7 Install Air Distribution Box

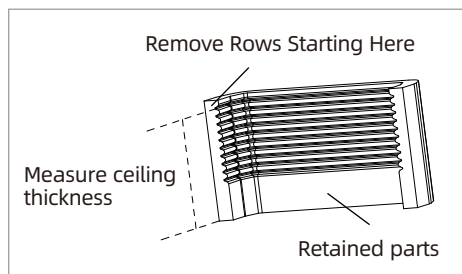


- | | |
|--------------------|------------------------|
| ① Mounting Bolt *4 | ④ Air Distribution Box |
| ② Duct Divide | ⑤ Ceiling Template |
| ③ Junction Box | |

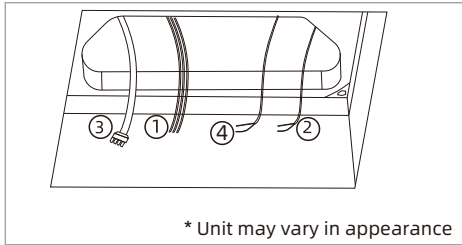
1. Measure the ceiling to AC bottom thickness.



- ① Measure ceiling thickness
2. Based on the measured thickness from the ceiling to the bottom of the air conditioner minus the excess height on the duct divide.



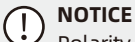
3.8 Routing Wiring



- ① AC 115V Power Supply for the Whole Machine.
3 wires: Hot, Neutral and Ground.
- ② DC 12V Controller Power Supply.
2 Wires: Red and Black Colors.
- ③ Wired controller 4 wires
- ④ Furnace connection wires.
two separate blue wires .

3.8.1 Routing 12V DC Wiring

1. Connect the controller's power supply wires (red and black) to 12V DC Power Supply Use 12 Volts DC. You may connect to the RV Battery. Please pay attention to the positive and neutral lines.
Red Color = Hot,
Black color = Neutral.
2. If applicable, locate the furnace wires from the ceiling controller, which are two separate blue wires tagged with "FURNACE". Connect them with the 12V+ wire from the furnace, and the return wire to the furnace.

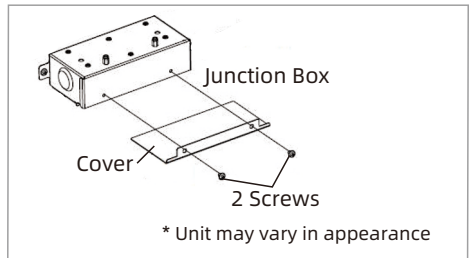


NOTICE

Polarity does not matter, connection can be freely made to either wire.
Do not connect the two blue "FURNACE" wires together.

3.8.2 Routing 115V AC Wiring

1. power cord (AC 115V high current) one should be directly connected to the terminal box while.
2. Route a copper, with ground, supply wiring with minimum #12 AWG, the wiring from its power source to the junction box. Do not attach them at this time.
3. Take the rooftop air conditioner power cord to connect to the side of the junction box.
4. Remove the junction box cover (2 screws). Take the power cord and make it get into the box through the strain relief that is provided.



5. Connect the power cord to the black, white and ground wires found in the junction box with a terminal board.



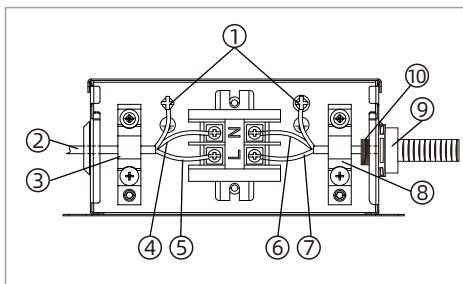
CAUTION

Connect black wire to black wire (brown wire), white wire to white wire (blue wire) and the ground wire to earth.



NOTICE

When connecting the power cord, please use the pipe for preventing cutting power wire.

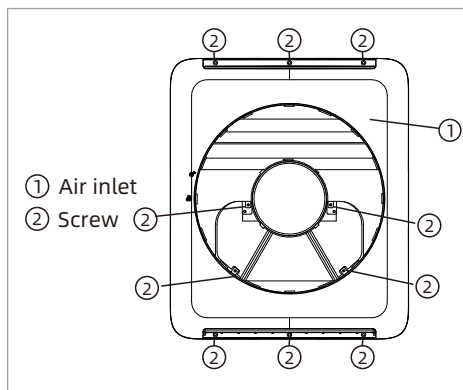


- ① Ground Wire (Yellow-Green Wire)
- ② Power Cord Come From Roof Top Air Conditioner
- ③ Strain Relief (Clamp)
- ④ White Wire
- ⑤ Black Wire
- ⑥ White Wire (Blue Wire)
- ⑦ Black Wire (Brown Wire)
- ⑧ Strain Relief (Clamp)
- ⑨ Pipe
- ⑩ Power Supply Cord

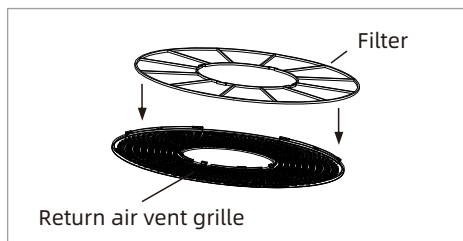
6. Tighten the strain relief clamp to secure the supply power cord. **DO NOT OVERTIGHTEN.** Reinstall the junction box cover.

3.9 Install Air Distribution Box (CONT)

1. Fix the electric control box on the top template and align it with the return air end of the host. Fix the top template on the ceiling with the fixing screws.
2. Rotate the filter clockwise, following the arrow indicator on the Air Distribution Box, to remove it from the Air Distribution Box.
3. Install Air Distribution Box panel. Cover the top template with Air Distribution Box, align the air inlet with the host air return port, and fix the screws in sequence.



4. Connect the four-wire signal cable between the outdoor unit and the ADB.
5. Place filter in return air vent grille. It may already be installed on some units.



6. Rotate the filter counterclockwise, following the arrow indicator on the Air Distribution Box, to install it onto the Air Distribution Box.