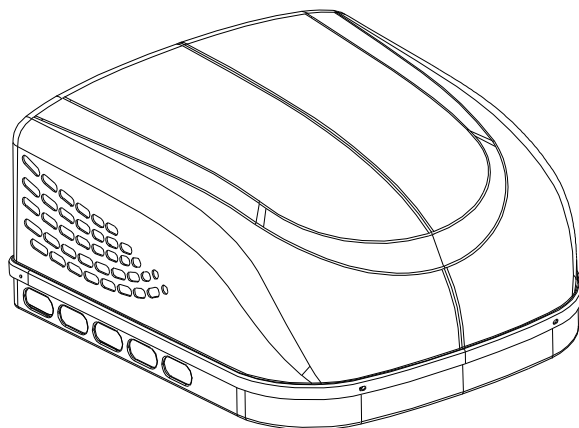




Rooftop Air Conditioner

Installation and Operation Manual



WARNING

This manual must be carefully read and understood before installation, adjustment, repair or maintenance. The equipment must be installed by qualified technicians. Transformation of this product is an extremely dangerous operation, which may lead to personal injury or property loss. Important: please keep this manual with the product.

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1 Safety Information

1.1 Safety Definitions

This manual has safety information and instructions to help you eliminate or reduce the risk of accidents and injuries.



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION

Indicates a hazardous situation which, if not avoided, could result in property damage and minor or moderate injury.



NOTICE

This symbol indicates important information where there is no risk to people or property.

1.2 Information introduction

This air conditioner (hereinafter referred to as "unit" or "product") is designed and intended for installation on the roof of a Recreational Vehicle (hereinafter referred to as Marine rooftop Air conditioner) during or after the time it is manufactured.

This unit can be installed by one person with brief help from additional personnel. Use these instructions to ensure a properly installed, and properly functioning product.

We reserves the right to modify appearances and specifications without notice.

This manual has safety information and instructions to help you eliminate or reduce the risk of accidents and injuries.

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.

- That the appliance shall be installed in accordance with national wiring regulations.

1.3 Supplemental Directives

Read and follow all safety information and instructions to avoid possible injury or death.

Read and understand these instructions before [installing/using/servicing/performing maintenance on] this product.

Incorrect [installation/operation/servicing/maintaining] of this product can lead to serious injury. Follow all instructions. The installation **MUST** comply with all applicable local and national codes, including the latest edition of the following standards:

U.S.A.

- ANSI/NFPA70, National Electrical Code (NEC)
- ANSI/NFPA1192, Recreational Vehicles Code

Canada

- CSAC22.1, Parts I & II, Canadian Electrical Code
- CSA Z240 Marine rooftop Air conditioner Series, Recreational Vehicles

1.4 General Safety Messages

Failure to obey the following warnings could result in death or serious injury:

- This product **MUST** be [installed / serviced] by a qualified service technician.
- Do **NOT** modify this product in any way. Modification can be extremely hazardous.
- Do **NOT** add any devices or accessories to this product except those specifically authorized in writing by We.



WARNING

During the use of this product, due to the great change of air temperature in the vehicle, when the temperature drops rapidly, part of condensate will adhere to the surface of objects near the air outlet, which is a normal phenomenon. After the air conditioner works normally for a certain period, it will be automatically dried and detached from the surface of objects. Therefore, when the air conditioner works, please close the doors and windows as much as possible to reduce the coagulation of water vapor on the surface of objects inside the vehicle.

2 General Information

2.1 Table - Unit Data

- * For wire length over 24 ft., consult the National Electrical Code for proper sizing.
- ** We gives GENERAL guidelines for generator requirements. These guidelines come from experiences people have had in actual applications. When sizing the generator, the total power usage of your Marine rooftop Air conditioner must be considered. Keep in mind generators lose power at high altitudes and from lack of maintenance.
- *** CIRCUIT PROTECTION: Time Delay Fuse or Circuit Breaker Required.

2.2 Roof Requirements

- A 14-1/4" x 14-1/4" (±1/8") square opening (hereinafter referred to as "roof opening") is required for installing this unit. This opening is part of the return air system of the unit and MUST be finished in accordance with NFPA1192.
- Roof construction with rafters/joists support frames on a minimum of 16 inch centers.
- Minimum of 1.5 inches and maximum of 6 inches distance between roof to ceiling of Marine rooftop Air conditioner.

2.3 Introduction of Air Conditioner

The design and installation of this machine is suitable for RV to improve its internal temperature and provide a comfortable environment.

2.4 User Guide

- The performance of air conditioner is related to the heating condition of insulation box of RV itself. Users can take some preventive measures to reduce heat entry, so as to improve the refrigeration performance of air conditioning equipment.
- When outdoor temperature is high, the following methods can be adopted to reduce the heat entry of RV and improve work efficiency:
- Park the RV in a cool place.
 - Strengthen thermal insulation of the compartment,

- remove or block the opening in the vehicle.
- Block the window with shade curtains (shutters or hanging curtains).
- Close doors and windows or avoid frequent opening and closing of them.
- Avoid using heating devices inside the vehicle.

Turn on the air conditioner in advance to achieve better effect. When indoor or outdoor temperature is high, set the air conditioner in cooling mode and turn on high wind speed will bring the performance of air conditioner into full play.

**WARNING**

The manufacturer will not be responsible for any damage arising from condensation on the ceiling or the surface of other objects caused by the condensate of this product.

2.5 Tools and Materials

Included Parts	Quantity
Wall mounted control user's guide	1
Rooftop air conditioner installation and operation manual	1
Air conditioning panel	1
Long screw (5.5*203.5mm)	4
Aluminum foil tape (40*10mm)	1
Screw (4.2*30mm)	8

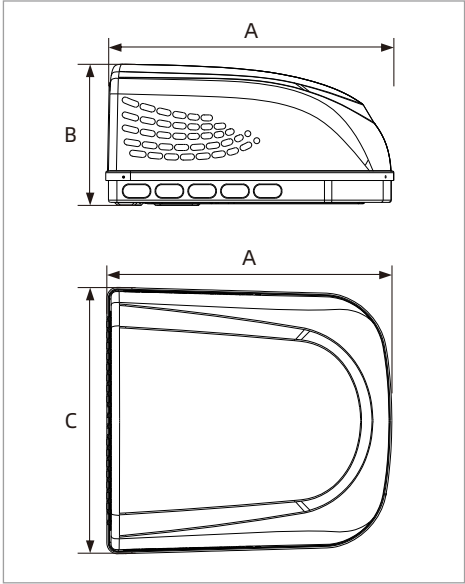
Recommended Tools	
Angle Grinder	Impact Gun
Cutting Disc for Meta	Screwdriver Bit Set
Extension Cord	Hole Saw Set
Drill	Self Tapping Screws
Phillips Screwdriver	Flat Head Screwdriver
Side Cutters	Pliers
Automotive Staple Remover	

2.6 Dimensions



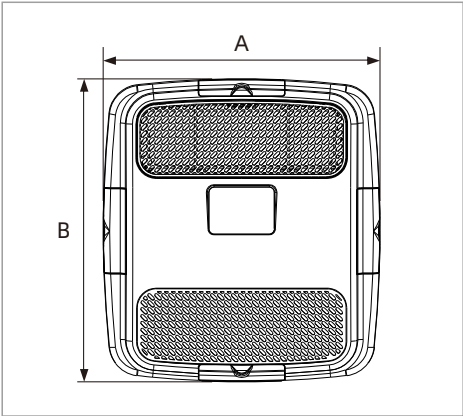
NOTICE
The images used in this document are for reference purposes only. Measurements may vary ±0.38 in. (10 mm).

Rooftop Air Conditioner



A	B	C
29.5 in (750 mm)	14.2 in (360 mm)	27.6 in (700 mm)

Air conditioning panel (ADB)



A	B
21.1 in (535 mm)	22.8 in (580 mm)

2.7 Main Parameters

MODEL		FA135	FA150	FA150
Part No.	/	FAA135WA FAA135BA	FAA150WA FAA150BA	FAA150WD FAA150BD
Nominal capacity	BTU/hr	13,500	15,000	15,000
Power Supply	VAC/Hz	115/60		
Rated current for cooling	A	13.6	15.5	15.5
Rated current for heating	A	/	/	15.7
Input needed for cooling	W	1510	1600	1600
Input of customized heat	W	/	/	1800
Air volume (high speed)	ft³/h	28251		
Maximum design pressure	PSIG	450		
Minimum design pressure	PSIG	236		
Refrigerant charged R-410A	oz	16	16	16
Minimum Wire Size* 12 AWG Copper Up to 24'	/	12AWG copper wire, length not exceeding 8m.		
AC Circuit Protection *** Installer Supplied	/	20A fuse or fuse		



WARNING

Please use the connecting wires complying with the national regulations.
During sizing of the generator, the total power usage of RV must be considered.



NOTICE

Tip: the generator will lose power due to high altitude and lack of maintenance.
Circuit protection: please use Time Delay Fuse or Circuit Breaker.

3 Installation instructions

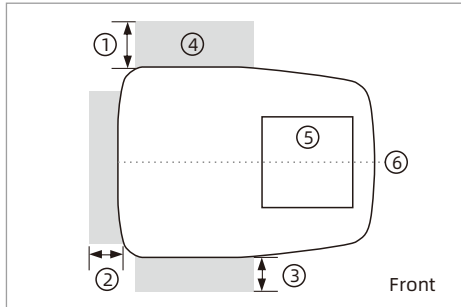
3.1 Choosing Proper Location For Unit

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

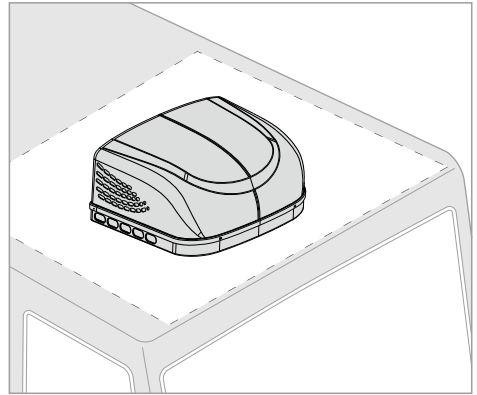
- Size of Marine rooftop Air conditioner;
- Window area (increases heat gain);
- Amount of insulation in walls and roof;
- Geographical location where the Marine rooftop Air conditioner will be used;
- Personal comfort level required.

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:

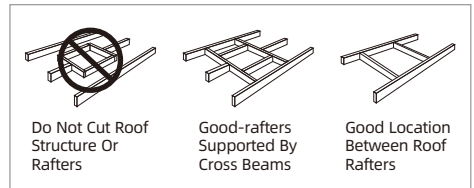
1. For one unit installation: The unit should be mounted slightly forward of center (front to back) and centered from side to side.
2. For two unit installations: Install one unit 1/3 and one unit 2/3's from front of Marine rooftop Air conditioner and centered from side to side. It is preferred that the unit be installed on a relatively flat and level roof section measured with the Marine rooftop Air conditioner parked on a level surface. The maximum inclination Angle is 8°.



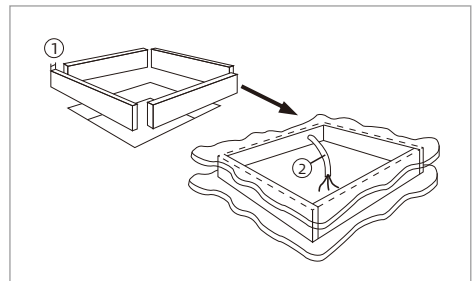
- ① 12 in. (305 mm)
- ② 4 in. (102 mm)
- ③ 4 in. (102 mm)
- ④ Keep these air flow areas free of obstructions
- ⑤ Roof opening
- ⑥ Center line of unit



3. Maintain structural integrity. Otherwise damage to product and/or Marine rooftop Air conditioner could occur. The roof must be designed to support 130 pounds when Marine rooftop Air conditioner is in motion. Normally a 200 lb. static load design will meet this requirement.



4. Check inside the Marine rooftop 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

Frame opening so it won't collapse when bolting down unit.

Leave Access For Power Supply Wiring.

3.2 Roof Preparation

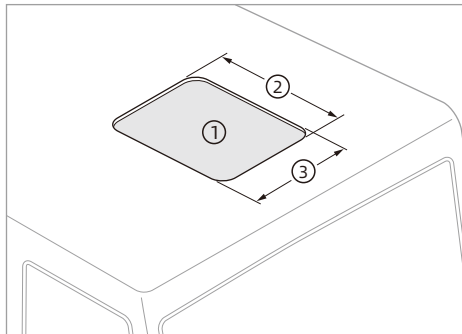


WARNING : FIRE OR ELECTRICAL SHOCK HAZARD. Make sure there are no obstacles (wires, pipes, etc.) inside Marine rooftop Air conditioner's [roof/floor/walls]. Shut OFF gas supply, disconnect 120 Vac power from Marine rooftop Air conditioner, and disconnect positive (+) 12 Vdc terminal from supply battery BEFORE drilling or cutting into Marine rooftop Air conditioner. Failure to obey these warnings could result in death or serious injury.

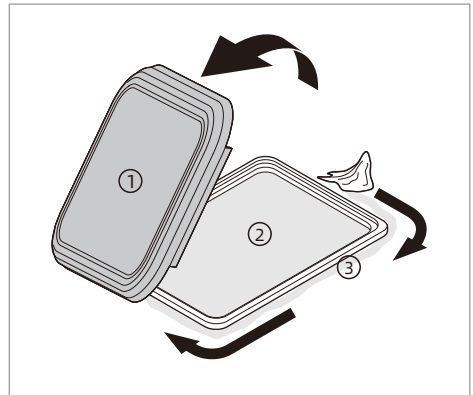
Opening Requirements - Before preparing the ceiling opening, read all of the following instructions before beginning the installation.

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



- ① Roof Opening
- ② 13.75 in. (349 mm)
- ③ 13.75 in. (349 mm)



- ① Roof Vent
- ② Opening
- ③ Residual Sealant

If the opening is less than 14-1/8" x 14-1/8", 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 Marine rooftop Air conditioner could occur.



CAUTION

NEVER create a low spot on Marine rooftop 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.

3.2.2 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.

3.3 Wiring Requirements

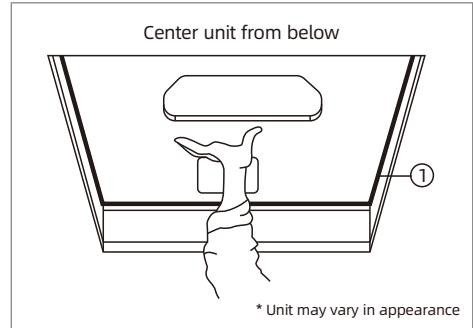
Route a copper, with ground, 120 Vac supply wire from the time delay fuse or circuit breaker box to the roof opening. Use a listed/certified non metallic - sheathed single strand cable.

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 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.



① Roof gasket

3.4 Placing Unit On Roof

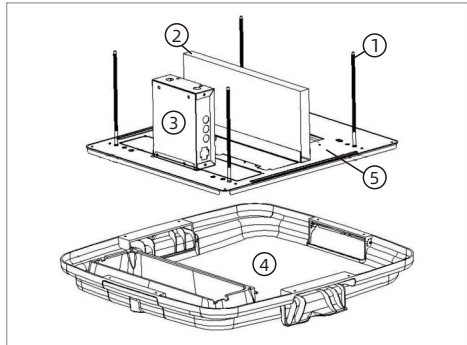
1. Remove the unit from the carton and discard carton.
2. **LIFTING HAZARD.** Use proper lifting technique and control when lifting product. Failure to obey this caution could result in injury. Place unit on the roof.
3. Do **NOT** slide unit. Otherwise, damage to gasket (on bottom of unit) may occur, 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 Marine rooftop Air conditioner. This box contains mounting hardware for the unit and will be used inside the Marine rooftop Air conditioner.

This completes the outside work. Minor adjustments can be done from inside the Marine rooftop Air conditioner if required.

4 Installing ADB

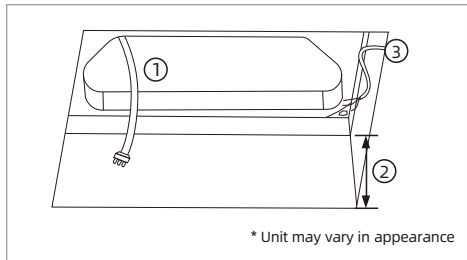
1. Install the wall control panel and route the cable into the interlayer of the air conditioner mounting port.

(Mechanical air conditioners can skip this step)



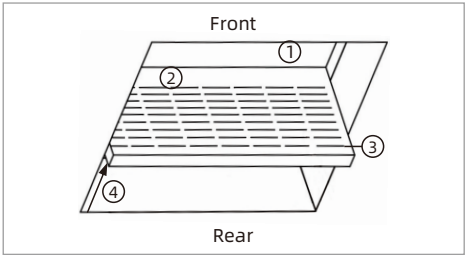
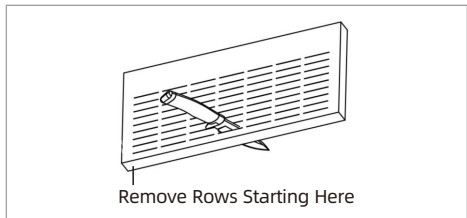
- ① Mounting Bolt *4
- ② Duct Divide
- ③ Control Box
- ④ ADB
- ⑤ Ceiling Template

2. Determine the height of partition board.



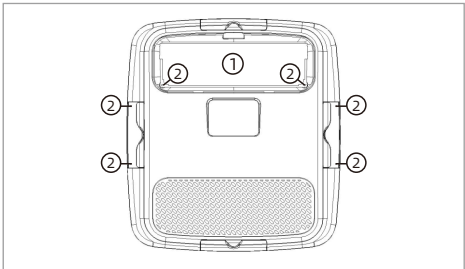
- ① Electrical cord
- ② Measure ceiling thickness
- ③ Control panel cable

3. Carefully install the duct divider in the roof opening 5-5/8" from back of roof opening.



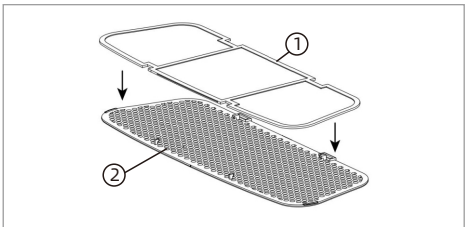
- ① Base pan
- ② Duct divider
- ③ Black side to front
- ④ 5-5/8" From back of roof opening

4. 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.
5. Wiring: Connect the main cable and wall control cable to the corresponding terminals of the electric control box then arrange the excess cable.
6. Install ADB panel. Cover the top template with ADB, align the air inlet with the host air return port, and fix the screws in sequence.



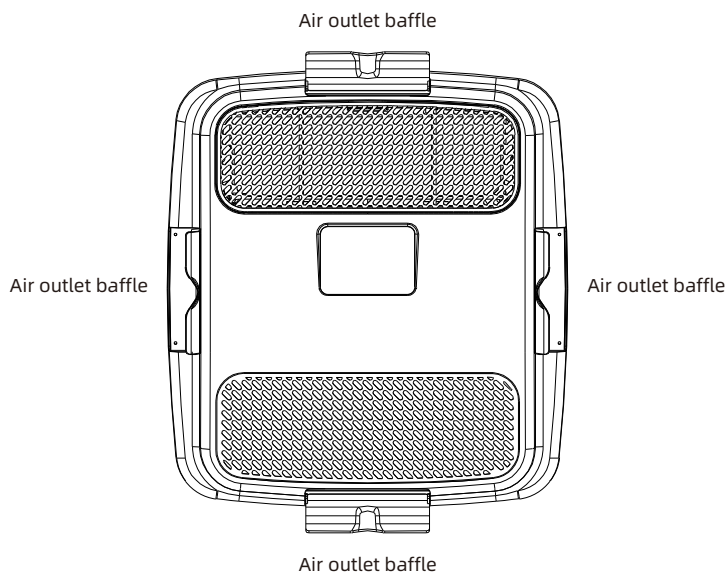
- ① Air inlet
- ② Screw *6

7. Place filter in return air vent grille. It may already be installed on some units.



- ① Filter
- ② Return air vent grille

8. Mechanical ADB also requires two temperature control knobs.

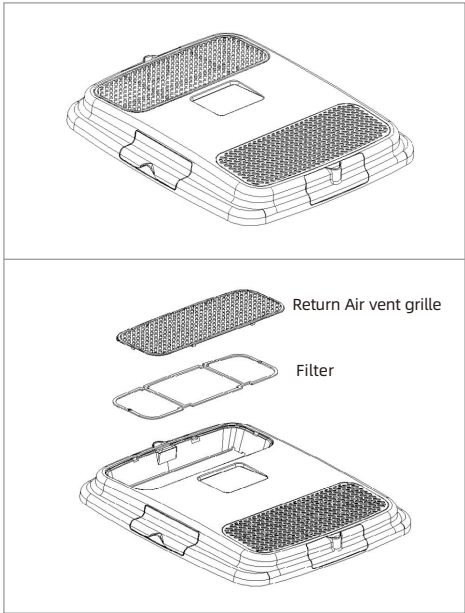
**CAUTION**

Please open the air outlet when the air conditioner is running, and the air volume can be adjusted by adjusting the angle of the air outlet baffle.

5 Maintenance of Air Conditioner

5.1 Cleaning of Air filter

Remove the filter screen behind the interior panel (press the left and right buttons of the decorative panel, and the decorative panel can be removed), clean with water, and then re install after drying.



WARNING

It is forbidden to operate the air conditioner without the air filter, otherwise, the evaporator coil will be defiled and the service life of air conditioner will be affected.

5.2 Panel Surface Cleaning

Clean the outer surface of the panel with soft cloth dipped in neutral detergent. Do not use polishing or cleaning powder.

5.3 Fan Motor

The fan motor has been lubricated during production procedure and does not need special maintenance.

6 Troubleshooting

If the air conditioning equipment cannot work normally, please carry out inspection as follows to remove the faults:

- Check whether the fuse of air conditioning equipment or leakage circuit breaker of the RV is turned on.
- If the air conditioner is powered by a generator, please first confirm whether the generator power matches the air conditioner, whether the generator runs normally and generates electricity, and whether voltage output of the generator is stable.
- If the RV is connected to the main supply, please make sure that the specification of power line matches the operating load of this product and that there is power supply. Check whether the mains voltage meets related requirements (the operating voltage of air conditioner is 115V).
- Check whether the connecting wires of air conditioner are inserted in place and connected in good condition. If the air conditioner still cannot work normally after the above inspection, please contact the factory for further help.

Code	Cause	Solution
E1	Fault of indoor temperature sensor	1. Check the sensor butt joint 2. Replace the temperature sensing head
E2	Fault of indoor coil temperature sensor	1. Check the sensor butt joint 2. Replace the temperature sensing head
E5	Communication failure	1. Check the connecting line between the power board and the controller by wire 2. Replace the electric control board or wire controller
E6	Dial switch error	Check the dial switch

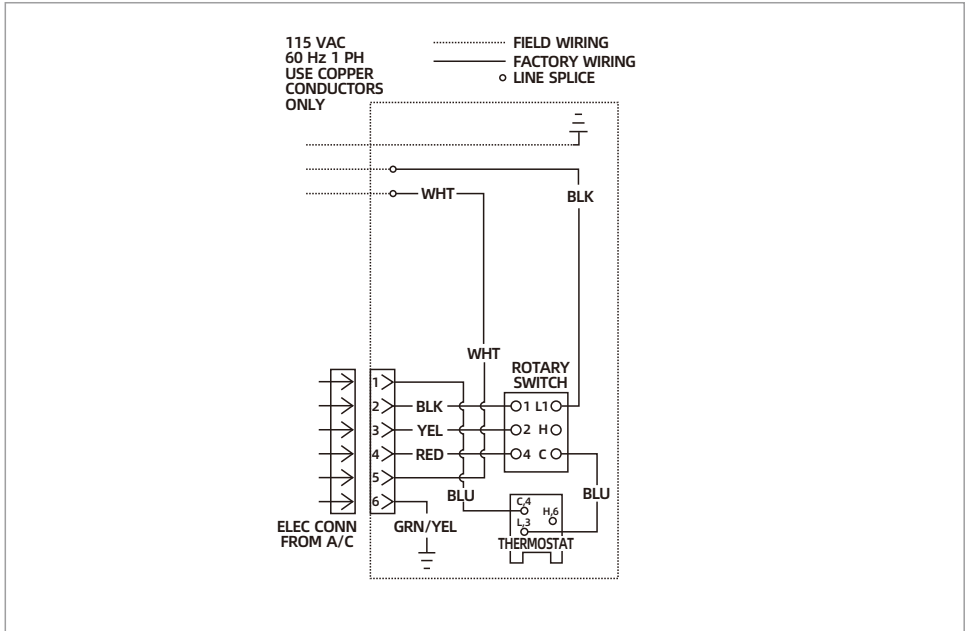
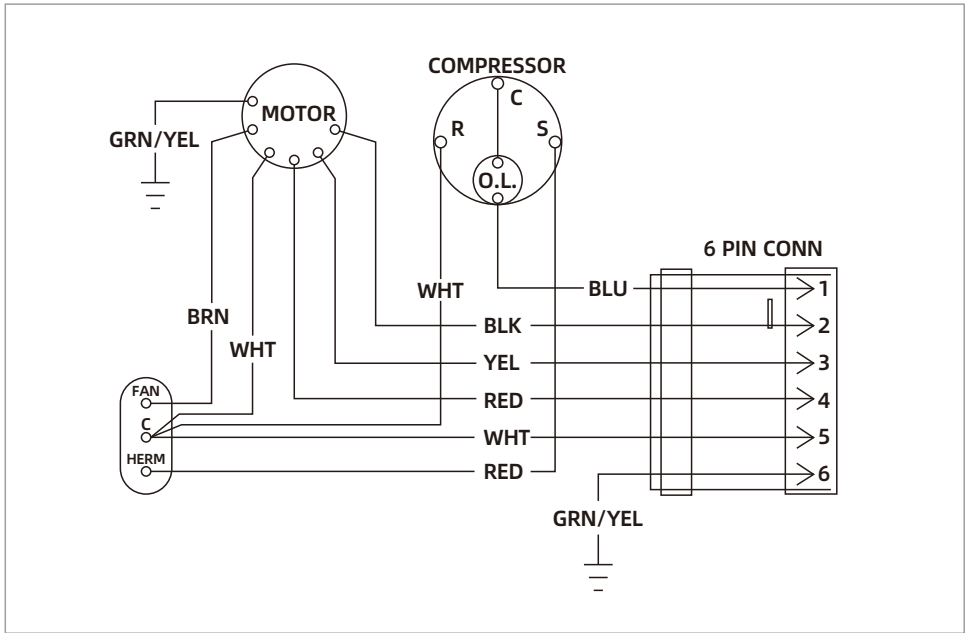


CAUTION

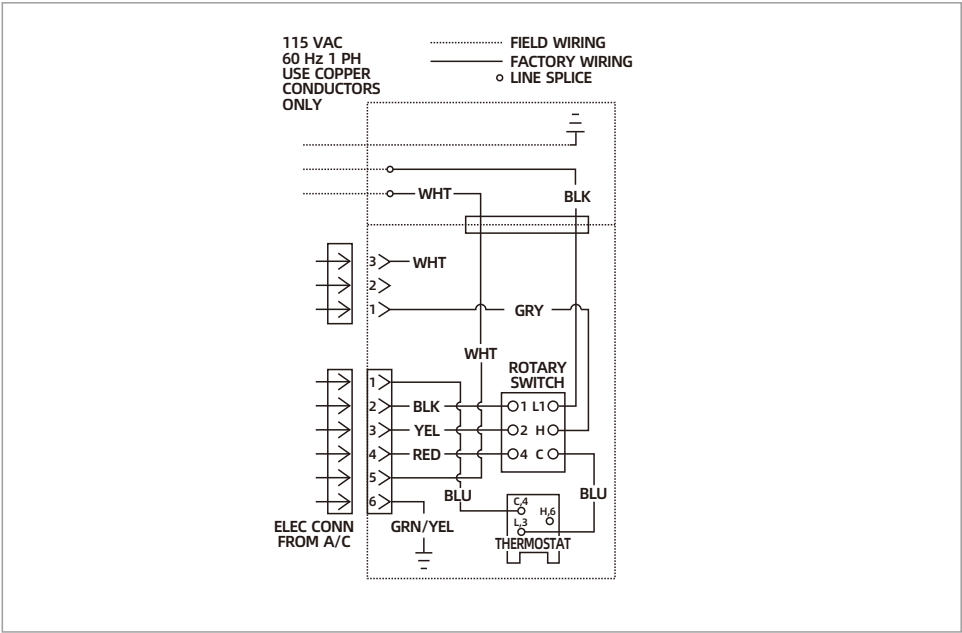
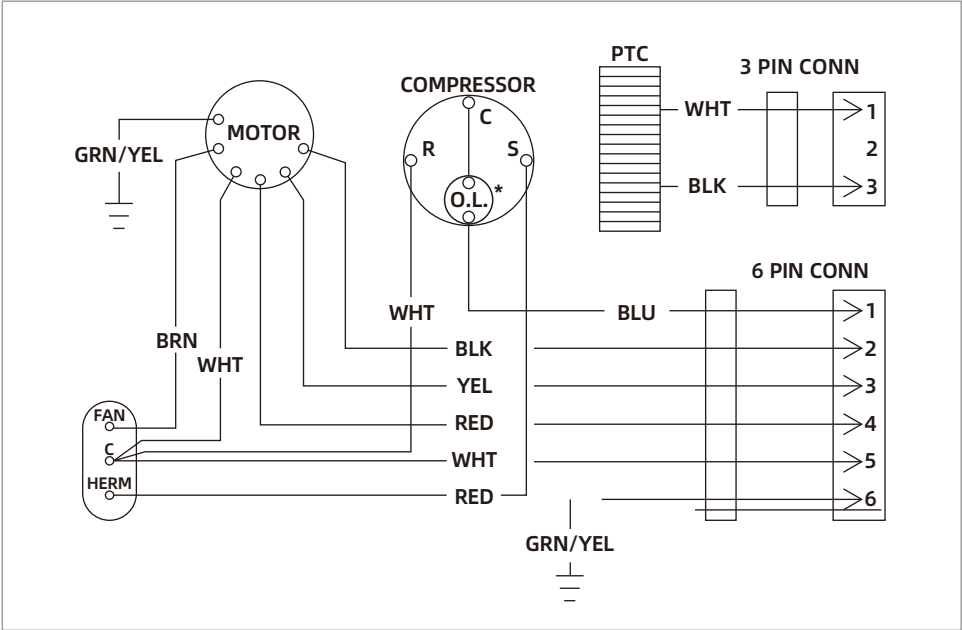
The equipment must be repaired by professional personnel.

7 Circuit Diagram

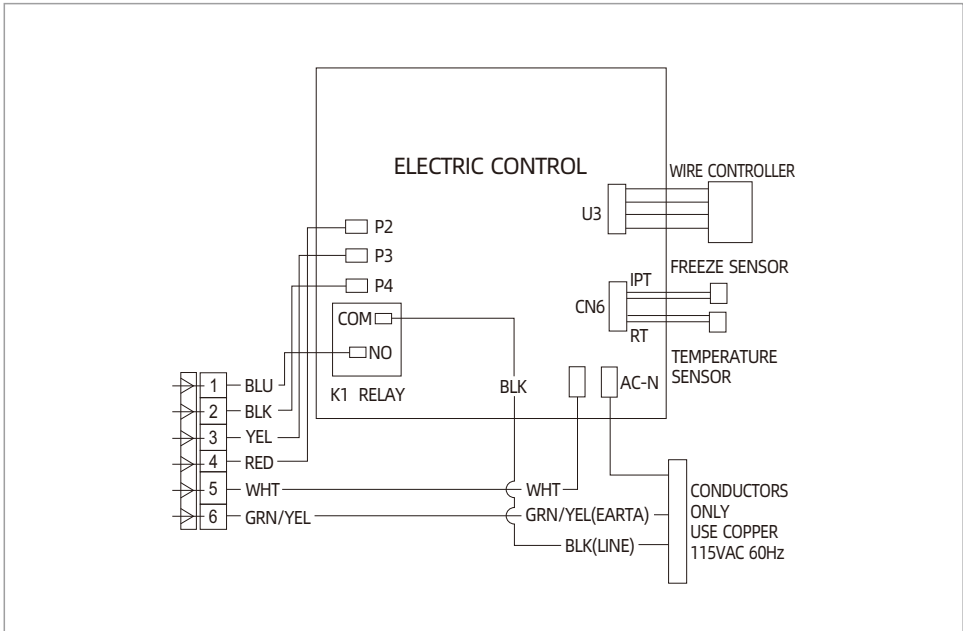
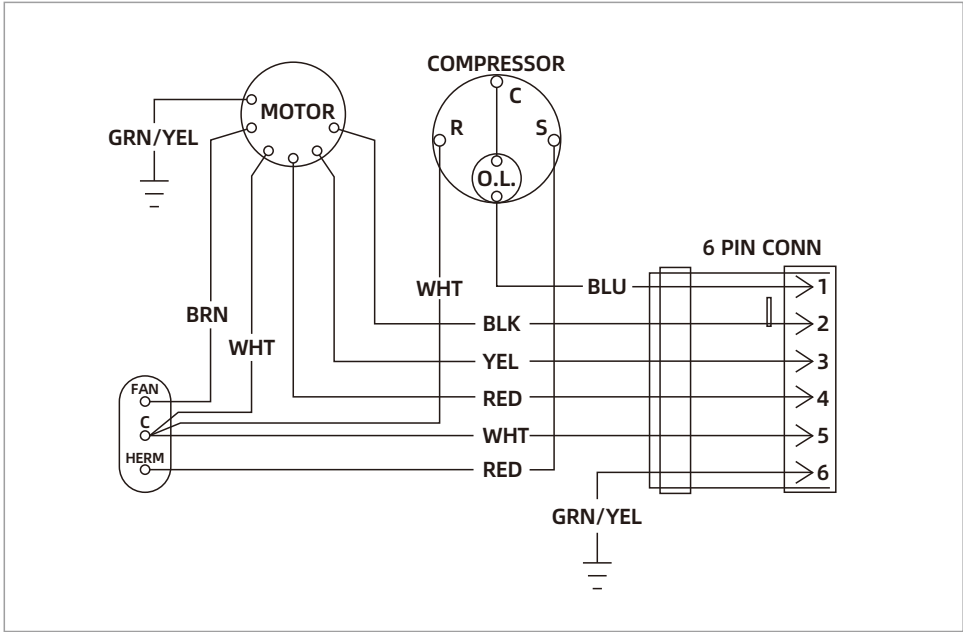
7.1 Mechanical type



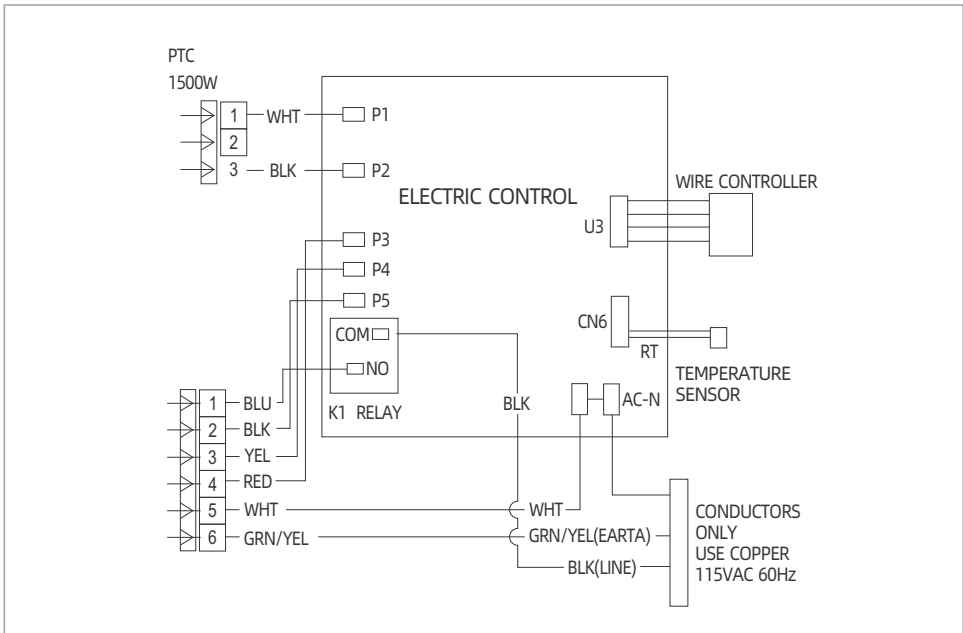
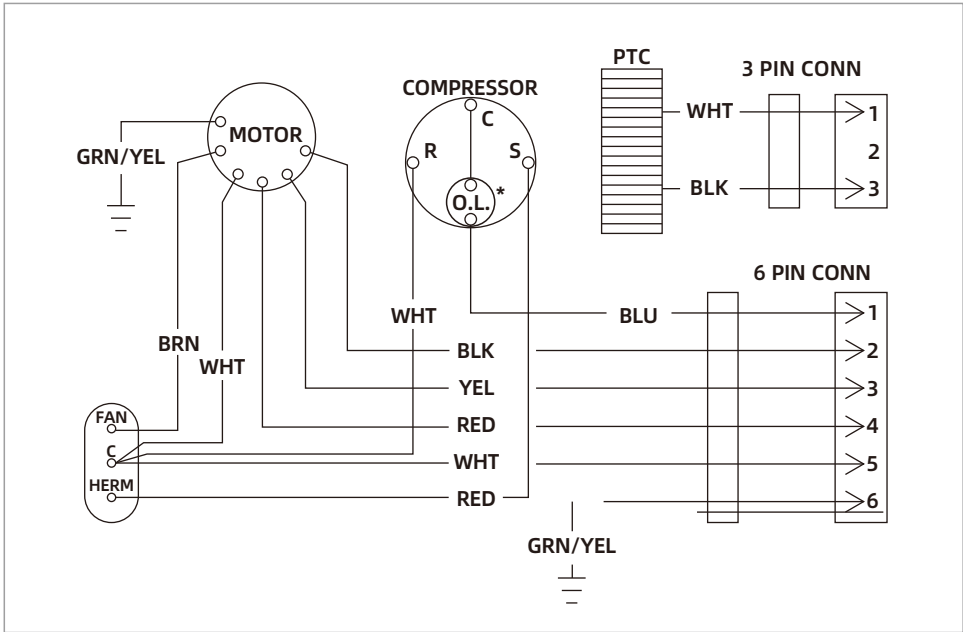
7.2 Wire control model with cooling and heating



7.3 Wire Controller type



7.4 Mechanical model with cooling and heating





Service details are available at www.fogattiliving.com

WARNING: Risk of electric shock can cause injury or death: disconnect all remote electric power suppliers before servicing.

Made in China





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