ASA electronics
THE MOBILE ELECTRONICS COMPANY SINCE 1977

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ADVENT AIR

Roof Top Air Conditioner

Non Ducted System
INSTALLATION AND OPERATING INSTRUCTIONS

USED WITH
Air Distribution Box Kit
Mechanical Type

RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:
Model Number:
Serial Number:
Date Purchased:

PRE-WIRED FOR OPTIONAL HEAT PACKAGE

⚠WARNING

This manual must be read and understood before installation, adjustment, service, or maintenance is performed. This unit must be installed by a qualified service technician. Modification of this product can be extremely hazardous and could result in personal injury or property damage.

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ROOM AIR CONDITIONER
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INSTALLATION & OPERATING INSTRUCTIONS

These instructions must stay with the unit

Safety Instructions

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

Read and follow all safety information, installation guides, recommended precautions, and safe operating instructions.

GENERAL INFORMATION

A. This air conditioner is designed for:

1. Installation on a recreational vehicle.
2. Mounting on the roof of a recreational vehicle.
3. Roof construction with rafters/joists on 16 inch centers.
4. 2.5" to 5" inch thick roofs.

B. The efficiency of the air conditioner will be affected by the conditions inside and outside of the RV. Reducing the heat gain of the RV will allow the air conditioner to function with greater efficiency. Here are some suggestions to reduce heat gain in your RV.

1. Select a shaded area to park your RV
2. Close windows and utilize the blinds and/or curtains.
3. Keep doors shut.
4. Avoid using appliances that produce heat.

Beginning the cooling process early in the day will greatly improve that air conditioner's ability to maintain the desired temperature.

In high temperature and high humidity environments, the AC should be set in Cool mode with the Fan Speed in the high position. This will allow for optimal cooling efficiency.

C. Condensation

The manufacturer of this air conditioner will not be responsible for damage caused by condensed moisture on ceilings or other surfaces. Air contains moisture and this moisture tends to condense on cold surfaces. When air enters the RV, condensed moisture may appear on the ceiling, windows, metal parts, etc. The air conditioner removes this moisture from the air during normal operation. Keeping doors and windows closed when this air conditioner is operating will minimize condensation.

Model	COOL BTU/HR	Electrical Rating	Compressor rated load (amps)	Compressor locked rotor (amps)	Fan motor rated load (amps)	Fan motor locked rotor (amps)	Air flow (High speed) (cfm)	Refrigerant (R410a) (oz)	Min.wire size	AC circuit protection (User supplied)	Unit dimensions (in)	Weight (lbs)
ACM135 ACM135SP	13500	115VAC 60HZ 1PH	9.9	50.5	2.6	5.8	500	16.9	12AWG copper up to 24'	20Amp	31x24.9x12.9	68
ACM150 ACM150SP	15000		12.4	61	2.6	5.8	500	16.9		20Amp	31x24.9x12.9	68

Notes:

1. Consult the National Electric Code for proper sizing for wire lengths over 24 ft.
2. When sizing the generator, the total power usage of your recreational vehicle must be considered. Keep in mind generators lose power at high altitudes and from lack of maintenance.
3. CIRCUIT PROTECTION: Time Delay Fuse or HACR Circuit Breakers Required.

INSTALLATION INSTRUCTIONS

1. PRECAUTIONS

A. Read installation and operating instructions carefully before attempting to start your air conditioner installation.

B. The manufacturer will not be liable for any damages or injury incurred due to failure to follow these instructions.

C. Installation **must** comply with the National Electrical Code and any State or Local Codes or regulations.

D. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by manufacturer.

E. This equipment must be serviced by qualified personnel and some states require licensed personnel.

2. CHOOSING A LOCATION FOR THE AIR CONDITIONER

This product is designed for use as a RV roof top air conditioner. The use of this product in other applications will void the manufactures warranty.

A. NORMAL LOCATIONS:

The air conditioner is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 14-1/4" x 14-1/4" ±1/8" opening.

B. OTHER LOCATIONS:

When a roof vent is not available or another location is desired, the following is recommended:

ADVENT®
24 MONTH LIMITED WARRANTY

ASA Electronics (ASA) warrants to the original retail purchaser of this Advent product that should this product or any part thereof, under normal use and conditions, be proven defective in material or workmanship within 24 months from the date of original purchase, such defect(s) will be repaired or replaced (at ASA'S option) without charge for parts and repair labor.

The intended use of this Advent product is on recreational vehicles, also known as motorhomes and travel trailers. Any installation outside of this intended use is not to be considered normal use and warranty coverage will not be extended under the expressed warranty condition of improper installation.

To obtain repair or replacement within the terms of this warranty, contact ASA at (888) 283-7374. The product is to be delivered with proof of warranty coverage (dated bill of sale), specification of defect(s) with purchaser's name and return address, transportation prepaid to ASA at the address shown provided at the time of return authorization.

This warranty does not extend to the effects of this device on other devices, to costs incurred for removal or reinstallation of the product, or to damage of any product, accessories, or electrical system(s). This warranty does not apply to any product or part thereof which, in the opinion of the company, has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

THE EXTENT OF ASAS LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE, AND, IN NO EVENT, SHALL ASAS LIABILITY EXCEED THE PURCHASE PRICE PAID BY THE PURCHASER FOR THE PRODUCT.

This warranty is in lieu of all other express warranties or liabilities. ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. ANY ACTION FOR BREECH OF ANY WARRANTY HEREUNDER INCLUDING WARRANTY OF MERCHANTABILITY MUST BE BROUGHT WITHIN A PERIOD OF 30 DAYS FROM THE DATE OF ORIGINAL PURCHASE. IN NO CASE SHALL ASA BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREECH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WHATSOEVER. No person or representative is authorized to assume for the company any liability other than expressed herein in connection with the sale of this product.

ASA Electronics
(888) 283-7374

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Rev B

IMPORTANT WARRANTY INFORMATION

DO NOT RETURN DEFECTIVE PRODUCT TO YOUR PLACE OF PURCHASE

CONTACT ADVENT® @ 1-888-283-7374

Please place this Warranty Agreement and a copy of your sales receipt in a safe and secure location, along with your other valuable documents.

MOUNTING PARTS

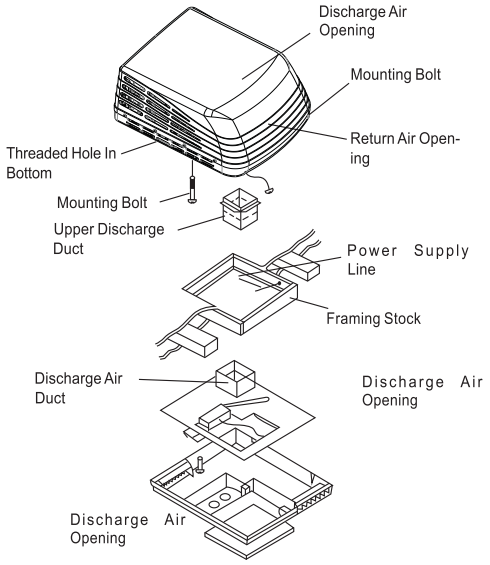
A. (4) 1/4" — #20 x 7" bolts

B. (4) #8 x 5/8" long sharp point wood screws

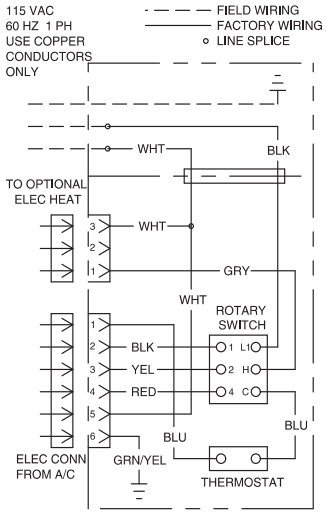
C. (7) #10 x 3/8" blunt point tapping screws

D. (1) Hole Plug

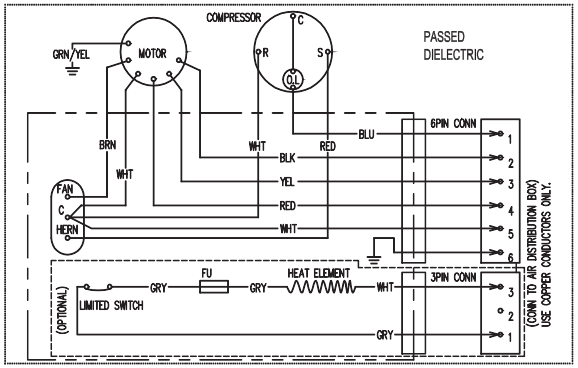
AIR CONDITIONING UNT



AIR BOX - CONTROLS WIRING DIAGRAM



AIR CONDITIONER-WIRING DIAGRAM



1. For one unit installation: The air conditioner should be mounted slightly forward of center (front to back) and centered from side to side. See FIG. 1.

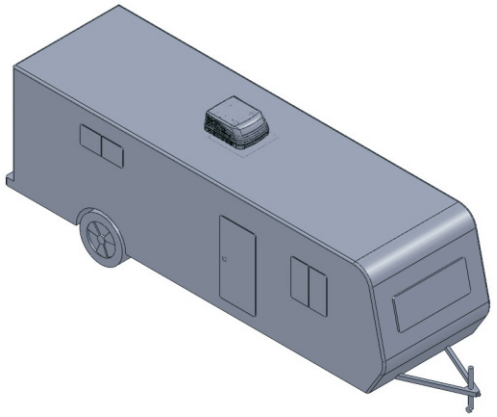


FIGURE 1

2. For two unit installation: Install one air conditioner 1/3 distance and the other air conditioner 2/3's from front of RV and centered from side to side. See FIG. 2.

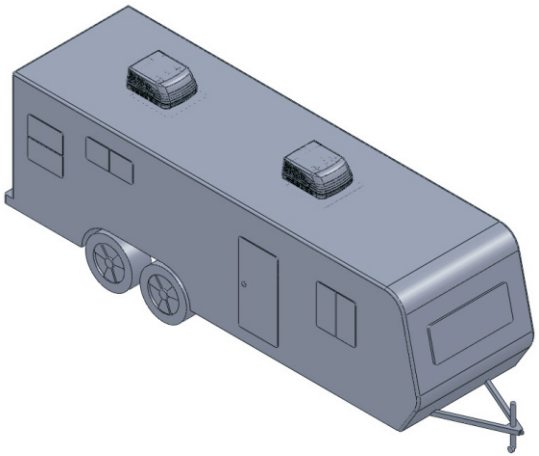


FIGURE 2

It is preferred that this air conditioner be installed in a relatively flat and level roof section measured with the RV parked on a level surface; however, up to 15° slant to either side, or front-to-back is acceptable.

C. POST LOCATION SELECTION:

1. Check for obstructions in the area where air conditioner will be installed.

A minimum clearance of 18" is required for the rear section of the air conditioner to any other roof mounted object.

2. The roof must be capable of supporting 130lbs while the RV is in motion. Normally, a 200 lb. static load design will meet this requirement.

3. ROOF PREPARATION

⚠WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 120 volt AC power cord and the positive (+) 12 volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

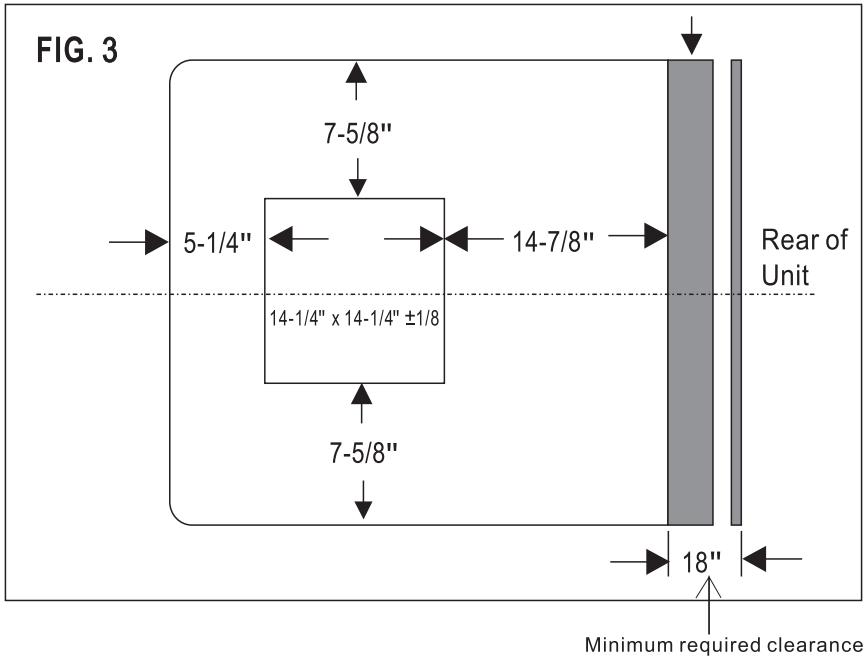
A. EXISTING ROOF VENT REMOVAL:

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.

B. NEW OPENING:

1. A 14-1/4" x 14-1/4"±1/8" opening must be cut through the roof and ceiling of the RV. It is recommended this opening be located between roof framework.
2. Mark a 14-1/4" x 14-1/4" square on the roof and carefully cut the opening.
3. Using the roof opening as a guide, cut the matching hole in the ceiling. See FIG.3.

FIG. 3



3. **FAN MOTOR**:
Factory lubricated and requires no service.

4. **FROST FORMATION ON COOLING COIL**:
Under certain conditions, frost may form on the evaporator coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioners have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control knob to a warmer setting (counter clockwise). Should frosting continue, operate on LOW, MED. or HIGH FAN setting until the cooling coil is free of frost.
If your unit fails to operate or operated improperly, check the following before calling your service center.

SERVICE

If the unit does not operate

1. If RV is connected to a generator, check to be sure the generator is running and producing the proper voltage.
2. If RV connected to power supply by a land line, check to be sure line is sized properly to run air conditioner load and it is plugged into power supply.
3. Check your circuit breaker to see if it is open.
4. After the above checks, call your local service center for further help. This unit must serviced by qualified service personnel only.

3. HEATING OPERATION:

(With Optional Heat Kit Installed)

Note: This electric heater will not replace a furnace for heating your RV in cold weather. The intent is to remove the chill on cool days or mornings. (without heater kit installed, the heating selection will be fan only)

A. Turn the selector switch to OPT. HEAT for heating operation.

B. The Heater will come on and begin heating.

C. When desired temperature level in RV is reached, move the selector switch to off position or fan position.

Note: Thermostat does not control heater ON/OFF cycle.

4. FAN OPERATION:

This will circulate the air in your RV without cooling or heating. There are three positions: HIGH FAN, MED. FAN or LOW FAN to select from, depending upon personal choice.

5. "OFF" POSITION:

This is to turn Unit off.

MAINTENANCE

1. AIR FILTER:

Every 30 days remove the return air filter located above the removable panel in the air box. Wash the filter with soap and warm water, let dry and then reinstall.

Note: Never run the air conditioner without return air filter in place. This may plug the unit evaporator coil with dirt and may substantially affect the performance of the unit.

2. AIR BOX HOUSING:

Clean air box housing and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or scouring powders.

C. OPENING PREPARATION:

1. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to install spacers.
2. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged.
3. Route a 12/3 Romex type supply line from the circuit breaker box to the front of the roof opening.
   a. The power supply must be on a separate 20 amp Time Delay Fuse or HACR Circuit Breaker.
   b. Wiring must comply with all National, State and Local wiring codes.
   c. Make sure at least 15" of wire extend into the roof opening to ensure easy connections.
4. The opening must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 3/4" thick or more and long enough to bridge the opening must be used. Remember to provide an entrance hole in the front of the opening for 110v. See FIG. 4.

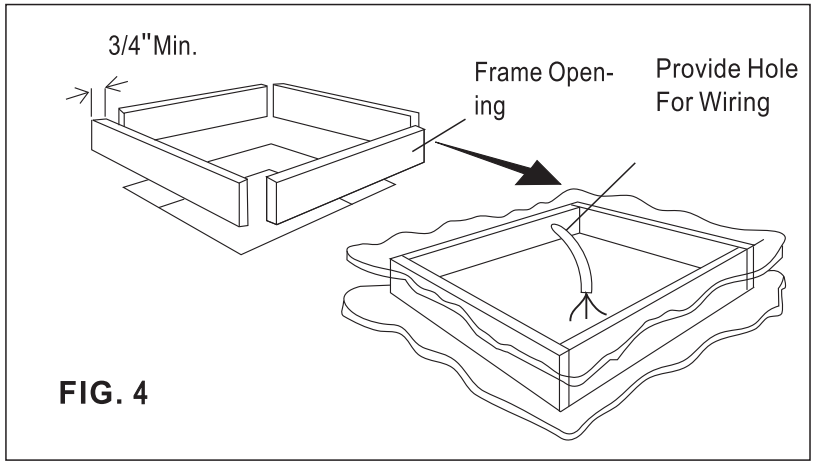


FIG. 4

5. The 14-1/4" x 14-1/4"(±1/8) roof opening is part of the return air duct and must be finished in accordance with NFPA standard 501C, Standard for Recreational Vehicles, Section 2-7.

CAUTION

It is the responsibility of the installer of this air conditioner/heat pump system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Water standing around the air conditioner/heat pump may leak into the interior causing damage to the product and RV

4.PLACING THE AIR CONDITIONER ON THE ROOF

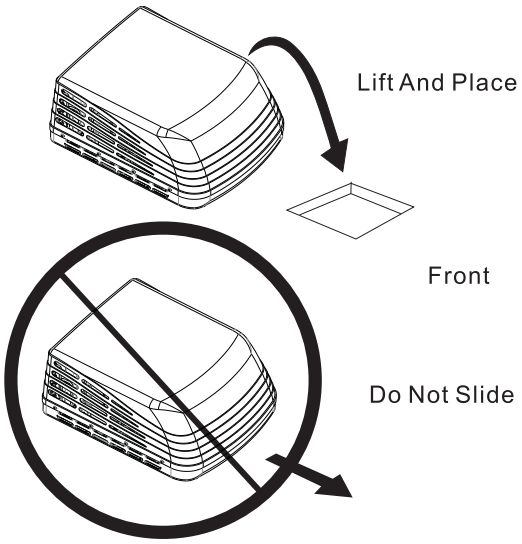
A. Remove the Air Conditioner from the carton and discard the carton.

Note: If optional heat package is to be installed, do so at this time, before the air box is installed. Follow instructions with heat package for its installation procedure.

B. Place the air conditioner on the roof.
C. Lift and place the unit over the prepared opening using the gasket as a guide.

The condenser coil goes toward the rear of the RV. See **FIG. 5**.

FIG. 5

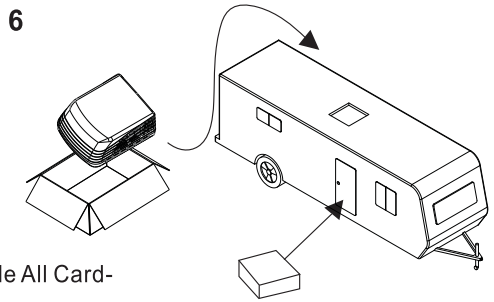


CAUTION

Do not slide the unit. This may damage the gasket attached to the bottom and create a leaky installation

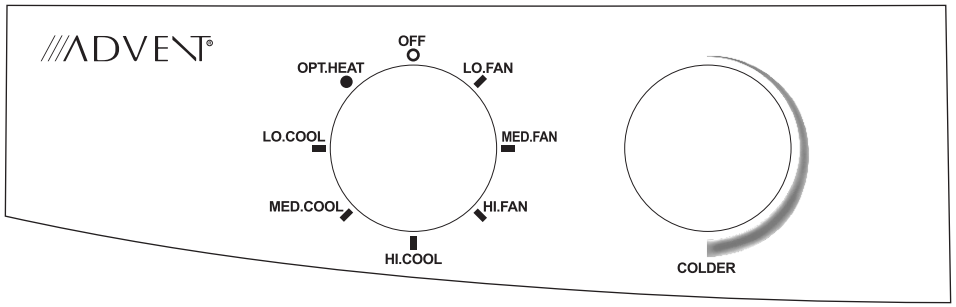
D. Place the Air Box Kit inside the RV. This box contains mounting hardware for the air conditioner and will be used inside the RV. See **FIG.6**.

FIG. 6



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

OPERATING INSTRUCTIONS



1. CONTROLS:

A. The Selector Switch has eight positions including "OFF". This controls fan speeds, heating mode, and cooling modes.

B. The Thermostat controls the temperature range from 65°F(16°C) on the coldest side to 90°F(30°C) on the warmest side. In the cooling mode, the compressor ON/OFF is controlled by the thermostat setting.

2. COOLING OPERATION:

A. Set the thermostat at the desired temperature level.

B. Select the fan speed that best satisfies your needs:

a. **HIGH COOL**: Selected when maximum cooling and dehumidification is required.

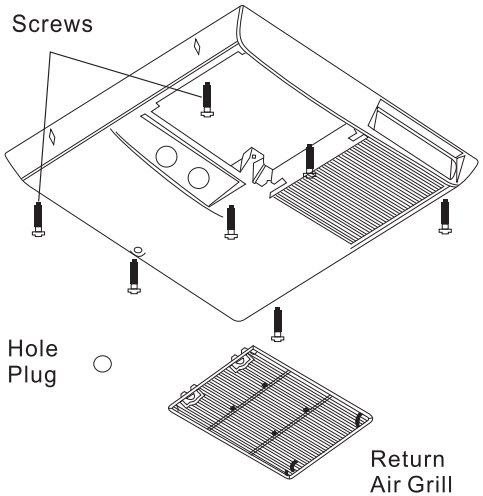
b. **MED. COOL**: Selected when normal or average cooling is required.

c. **LOW COOL**: Selected when room is at desired comfort level and needs to be maintained. Normally this speed is used for night time operation.

Note: The blower runs continuously to circulate air and maintain an even temperature. The compressor will come on as cooling is required to maintain the selected temperature level.

B. Hold air box up to ceiling template and install three (3) #10 x 3/8" screws at air box mounting point. See FIG. 10.

FIG. 10



C. Snap hole plug (D) into place at rear of air box.
D. Install four (4) wood screws (B) that hold air box tight to ceiling if so desired.
E. Reinstall return air grille and filter into air box.
F. The air conditioner installation is now complete. Turn on power to the unit for operational check. Please read Unit Operating Instructions before proceeding.

5. DISCHARGE DUCT AND CEILING TEMPLATE INSTALLATION

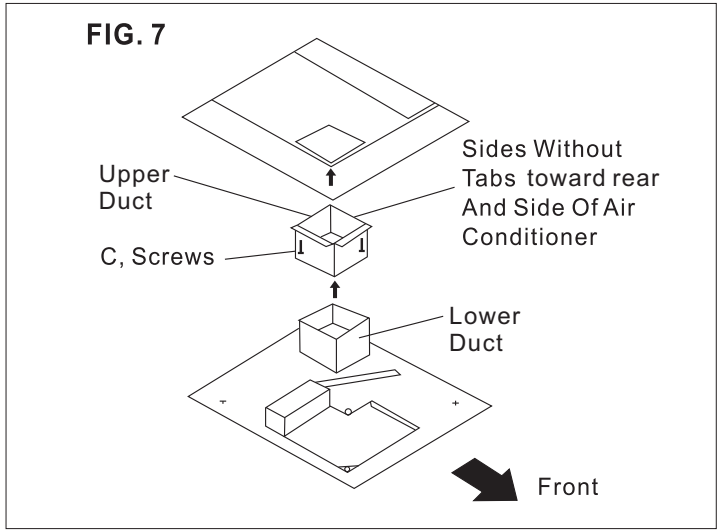
A. Remove air box and mounting hardware from carton. The upper duct is shipped inside，the lower duct is part of the ceiling template.

1. Remove upper duct from ceiling template and locate it over blower discharge.

Note: Edges without flanges install toward REAR and SIDE of opening. See

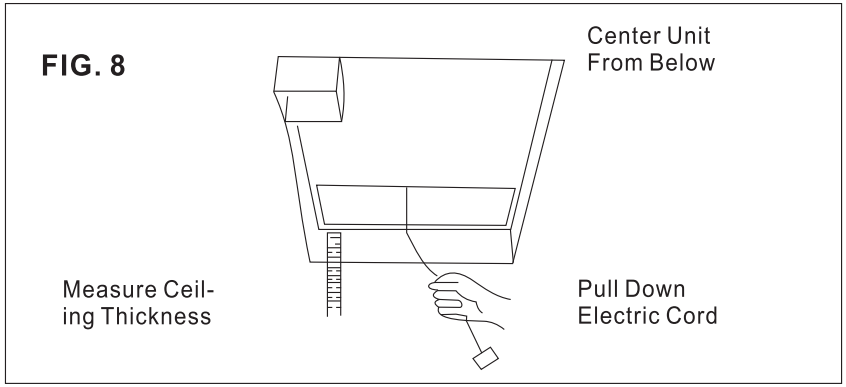
FIG.7.

FIG. 7



2. Use two (2) #10 x 3/8" screws (C) to hold duct to base pan. Holes provided in bottom of basepan for these screws to go into.

B. Check for correct alignment and adjust the unit as necessary (Roof Gasket centers over 14-1/4"±1/8 opening).
C. Reach up into return air opening of the air conditioner and pull the unit electrical cord down for later connection. See FIG. 8.



D. Measure (See FIG. 8) the ceiling to roof thickness:

1. If distance is 1"-2", remove perforated tabs from both upper and lower ducts.
2. If distance is 2"-3", remove perforated tabs from bottom duct only.
3. If distance is 3"-5", install ducts as received.
4. If distance is greater than 5", close gap with foil tape or insulation.

E. Install ceiling template by sliding lower duct over upper duct.

F. Start each mounting bolt by hand before tightening any of them. The four (4) threaded inserts in the base pan can be seen to aid in starting the bolts.

EVENLY TIGHTEN MOUNTING BOLTS TO A TORQUE OF 40 TO 50 INCH POUNDS.

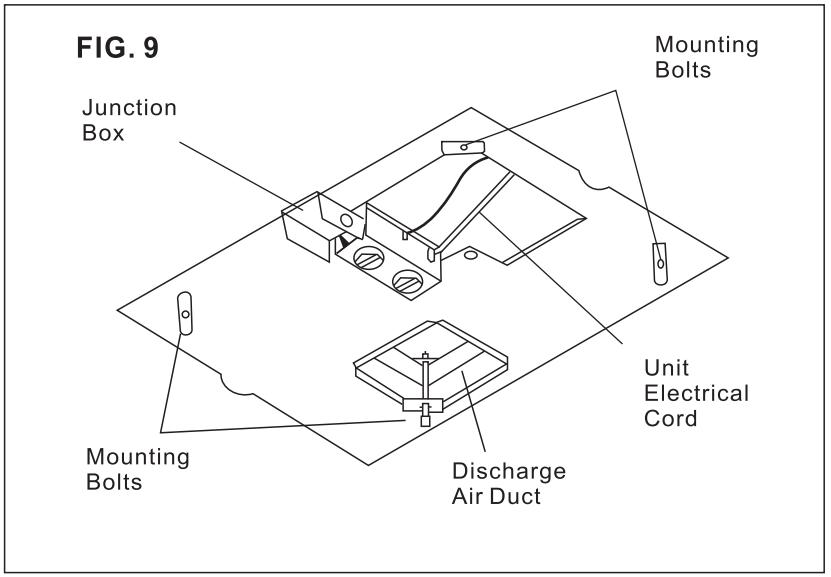
This will compress the roof gasket to approximately 1/2". The bolts are self locking so over tightening is not necessary.

CAUTION

If bolts are left loose there may not be an adequate roof seal or if over tightened, damage may occur to the air conditioner base or ceiling template. Tighten to torque specifications listed in this manual.

6. WIRING OF SYSTEM

Note: All wiring must comply with the National Electrical Code and any State or Local Codes or regulations.
(Steps A. - G refer to FIG. 9 .)



⚠ WARNING

1. Disconnect 120volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury!

2. This product is equipped with a 3 –wires(grounded) system for protection against shock hazard. Make sure that the appliance is wired into a properly grounded 120volt AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

A. Route supply line into junction box through provided Connector. Six (6) inch leads are sufficient for connection to unit wires and ground screws.

B. Connect white wire in junction box to white or neutral wire from supply line.

C. Connect black wire in junction box to black or hot wire from supply line.

D. Connect supply ground wire to identified ground screw in junction box.

E. Install junction box cover with two (2) blunt point screws (C).

F. Plug unit electrical cord into the mating connector on control box.

G. Plug in optional heat package (if used) on control box.

7. INSTALL AIR BOX

A. Remove return air grille from air box by pulling in on half-round finger catches.