



RECORD THIS UNIT INFORMATION FOR  
FUTURE REFERENCE:

Model Number \_\_\_\_\_  
Serial Number \_\_\_\_\_  
Date Purchased \_\_\_\_\_

## AIR DISTRIBUTION BOX KITS

Patents Pending

Product	Type	For Use With	Electric Heat
3310700	Mechanical Controls	52031/600 Series	Opt. Kit/Not Avail.
3310741	Mechanical Controls	520300/600 Series	Not Available
3310742	Electronics Pre-Installed In Unit	62041, 62051, & 62071	Pre-Installed In Unit
		62042, 62052, 62072 521700, 531 & 630 Series	Not Available
		52151 & 52171	Optional Kit

Note: Installation requires a #2 phillips screwdriver  
with 9/32" maximum diameter x 1-1/4" minimum length.

### 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.

### AVERTISSEMENT

Lire et comprendre ce manuel avant de procéder à l'installation, à des réglages, de l'entretien ou des réparations. L'installation de cet appareil doit être effectuée par un réparateur qualifié. Toute modification de cet appareil peut être extrêmement dangereuse et entraîner des blessures ou dommages matériels.

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[www.eDometic.com](http://www.eDometic.com)



## INSTALLATION & OPERATING INSTRUCTIONS

**REVISION A**  
Form No. 3310861.053 08/16  
(French 3310931.054\_A)  
©2016 Dometic Corporation  
LaGrange, IN 46761

**Important:** These instructions must stay  
with unit. Owner read carefully.

520300.501	520316.706	600312.331	620515.336	630516.331
520310.501	521515.701	600315.331	620525.331	630516.336
520315.501	521516.301	600315.336	620525.336	630715.331
520315.506	521700.501	620412.331	620526.331	630716.331
520315.701	521710.501	620415.331	620526.336	
520315.706	521715.701	620415.336	620712.331	
520316.301	521716.301	620425.331	620715.331	
520316.306	531515.701	620425.336	620725.331	
520316.501	531516.301	620426.331	620726.331	
520316.506	531715.701	620426.336	630515.331	
520316.701	531716.301	620515.331	630515.336	

## SAFETY INSTRUCTIONS

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

### RECOGNIZE SAFETY INFORMATION



This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

### UNDERSTAND SIGNAL WORDS

A signal word, **WARNING** OR **CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury.

**⚠ WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.

**CAUTION** used without the safety alert symbol indicates, a potentially hazardous situation which, if not avoided may result in property damage.

Read and follow all safety information and instructions.

## GENERAL INFORMATION

- A.** This air conditioner is designed for:
1. Installation on a recreational vehicle during or after the time the vehicle is manufactured.
  2. Mounting on the roof of a recreational vehicle.
  3. Roof construction with rafters/joists on minimum of 16 inch centers.
  4. Minimum of 1.00 inch and maximum of 5.5 inches distance between roof to ceiling of recreational vehicle.
- B.** The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the RV. Some preventative measures taken by the occupants of the RV can reduce the heat gain and improve the performance of the air conditioner. During extremely high outdoor temperatures, the heat gain of the vehicle may be reduced by:
1. Parking the RV in a shaded area
  2. Using window shades (blinds and/or curtains)
  3. Keeping windows and doors shut or minimizing usage
  4. Avoiding the use of heat producing appliances
- Operation on High Fan/Cooling mode will give optimum or maximum efficiency in high humidity or high outside temperature.

Starting the air conditioner early in the morning and giving it a "head start" on the expected high outdoor ambient will greatly improve its ability to maintain the desired indoor temperature.

For a more permanent solution to a high heat gain, accessories like A&E outdoor patio and window awnings will reduce heat gain by removing the direct exposure to the sun. They also add a nice area to enjoy company during the cool of the evening.

### **C.** Condensation

**Note:** 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 in operation will minimize condensed moisture on cold surfaces.

## SPECIFICATIONS

MODEL NO.	NOMINAL CAPACITY (BTU/HR) COOLING	ELECTRICAL RATING	COMPRESSOR RATED LOAD AMPS	COMPRESSOR LOCKED ROTOR AMPS	FAN MOTOR RATED LOAD AMPS	FAN MOTOR LOCKED ROTOR AMPS	SCFM-HIGH SPEED MAX	REFRIGERANT R-22 (OZ)	MINIMUM WIRE SIZE*	AC CIRCUIT PROTECTION *** USER SUPPLIED	INSTALLED WEIGHT (POUNDS)	MINIMUM GENERATOR SIZE** 1 UNIT/2 UNITS
520300.501	N/A	120 VAC, 60 HZ., 1PH.	7.8	49.0	3.0	8.5	375	20.0	12 AWG Copper up to 24'	15 Amp	89	2.4 KW / 4.0 KW
520310.501	9,000		7.8	49.0	3.0	8.5	375	20.0		20 Amp	89	2.4 KW / 4.0 KW
520315.501	13,500		10.3	62.0	3.0	8.5	375	16.5		20 Amp	91	3.5 KW / 5.0 KW
520315.506	13,500		10.3	62.0	3.0	8.5	375	16.5		20 Amp	91	3.5 KW / 5.0 KW
520315.701	13,500		12.0	58.0	3.0	8.5	375	16.5		20 Amp	91	3.5 KW / 5.0 KW
520315.706	13,500		12.0	58.0	3.0	8.5	375	16.5		20 Amp	91	3.5 KW / 5.0 KW
520316.301	15,000		13.2	60.0	2.8	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
520316.306	15,000		13.2	60.0	2.8	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
520316.501	15,000		13.2	79	2.8	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
520316.506	15,000		13.2	79	2.8	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
520316.701	15,000		12.6	62.0	2.65	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
520316.706	15,000		12.6	62.0	2.65	7.6	375	30.0		20 Amp	105	3.5 KW / 5.0 KW
521515.701	13,500		12.0	58.0	3.0	8.5	375	16.5		20 Amp	92	3.5 KW / 5.0 KW
521516.301	15,000		13.2	60.0	2.8	7.6	375	30.0		20 Amp	106	3.5 KW / 5.0 KW
521700.501	N/A		7.8	49.0	3.0	8.5	350	20.0		15 Amp	90	2.4 KW / 4.0 KW
521710.501	9,000		7.8	49.0	3.0	8.5	350	20.0		20 Amp	90	2.4 KW / 4.0 KW
521715.701	13,500		12.0	58.0	3.0	8.5	350	16.5		20 Amp	92	3.5 KW / 5.0 KW
521716.301	15,000		13.2	60.0	2.8	7.6	375	30.0		20 Amp	106	3.5 KW / 5.0 KW
531515.701	13,500		12.2	58.0	3.0	8.5	375	17.5		20 Amp	93	3.5 KW / 5.0 KW
531516.301	15,000		13.2	60.0	2.8	7.6	375	29.5		20 Amp	107	3.5 KW / 5.0 KW
531715.701	13,500		12.2	58.0	3.0	8.5	375	17.5		20 Amp	93	3.5 KW / 5.0 KW
531716.301	15,000		13.2	60.0	2.8	7.6	375	29.5		20 Amp	107	3.5 KW / 5.0 KW
600312.331	11,000		9.5	53.0	2.8	8.8	375	17.0		20 Amp	95	2.5 KW / 4.0 KW
600315.331	13,500		12.4	60.0	3.1	8.8	375	15.2		20 Amp	95	3.5 KW / 5.0 KW
600315.336	13,500		12.4	60.0	3.1	8.8	375	15.2		20 Amp	95	3.5 KW / 5.0 KW
620412.331	11,000		9.5	53.0	3.1	8.8	335	16.5		20 Amp	95	2.5 KW / 4.0 KW
620415.331	13,500		12.4	60.0	3.1	8.8	335	15.5		20 Amp	95	3.5 KW / 5.0 KW
620415.336	13,500		12.4	60.0	3.1	8.8	335	15.5		20 Amp	95	3.5 KW / 5.0 KW
620425.331	13,500		12.4	60.0	3.1	8.8	335	15.5		20 Amp	95	3.5 KW / 5.0 KW
620425.336	13,500		12.4	60.0	3.1	8.8	335	15.5		20 Amp	95	3.5 KW / 5.0 KW
620426.331	15,000		12.0	64.0	3.3	8.5	380	21.5		20 Amp	104	3.5 KW / 5.0 KW
620426.336	15,000		12.0	64.0	3.3	8.5	380	21.5		20 Amp	104	3.5 KW / 5.0 KW
620515.331	13,500		12.4	60.0	3.5	10.0	335	16.5		20 Amp	95	3.5 KW / 5.0 KW
620515.336	13,500		12.4	60.0	3.5	10.0	335	16.5		20 Amp	95	3.5 KW / 5.0 KW

\* For wire lengths over 24 ft. consult the National Electric Code for proper sizing.

\*\* Dometic Corporation 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 recreational vehicle must be considered. Keep in mind generators lose power at high altitudes and from lack of maintenance.

\*\*\* CIRCUIT PROTECTION: Time Delay Fuse or HACR Circuit Breakers Required.

## SPECIFICATIONS

MODEL NO.	NOMINAL CAPACITY (BTU/HR) COOLING	ELECTRICAL RATING	COMPRESSOR RATED LOAD AMPS	COMPRESSOR LOCKED ROTOR AMPS	FAN MOTOR RATED LOAD AMPS	FAN MOTOR LOCKED ROTOR AMPS	SCFM-HIGH SPEED MAX	REFRIGERANT R-22 (OZ)	MINIMUM WIRE SIZE*	AC CIRCUIT PROTECTION *** USER SUPPLIED	INSTALLED WEIGHT (POUNDS)	MINIMUM GENERATOR SIZE** 1 UNIT/ 2 UNITS
620525.331	13,500	120 VAC, 60 HZ., 1PH.	12.4	60.0	3.5	10.0	335	16.5	12 AWG Copper up to 24'	20 Amp	95	3.5 KW / 5.0 KW
620525.336	13,500		12.4	60.0	3.5	10.0	335	16.5		20 Amp	95	3.5 KW / 5.0 KW
620526.331	15,000		12.0	64.0	3.3	8.2	380	20.0		20 Amp	95	3.5 KW / 5.0 KW
620526.336	15,000		12.0	64.0	3.3	8.2	380	20.0		20 Amp	95	3.5 KW / 5.0 KW
620712.331	11,000		9.5	53.0	3.5	10.0	335	17.0		20 Amp	98	2.5 KW / 4.0 KW
620715.331	13,500		12.4	60.0	3.5	10.0	335	16.5		20 Amp	98	3.5 KW / 5.0 KW
620725.331	13,500		12.4	60.0	3.5	10.0	335	16.5		20 Amp	98	3.5 KW / 5.0 KW
620726.331	15,000		12.0	64.0	3.3	8.2	335	20.0		20 Amp	98	3.5 KW / 5.0 KW
630515.331	13,500		12.4	60.0	3.5	10.0	335	23.5		20 Amp	98	3.5 KW / 5.0 KW
630515.336	13,500		12.4	60.0	3.5	10.0	335	23.5		20 Amp	98	3.5 KW / 5.0 KW
630516.331	15,000		12.0	64.0	3.3	8.2	335	20.0		20 Amp	95	3.5 KW / 5.0 KW
630516.336	15,000		12.0	64.0	3.3	8.2	335	20.0		20 Amp	95	3.5 KW / 5.0 KW
630715.331	13,500		12.4	60.0	3.5	10.0	335	23.5		20 Amp	95	3.5 KW / 5.0 KW
630716.331	15,000		12.0	64.0	3.3	8.2	335	20.0		20 Amp	95	3.5 KW / 5.0 KW

\* For wire lengths over 24 ft. consult the National Electric Code for proper sizing.

\*\* Dometic Corporation 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 recreational vehicle must be considered. Keep in mind generators lose power at high altitudes and from lack of maintenance.

\*\*\* CIRCUIT PROTECTION: Time Delay Fuse or HACR Circuit Breakers Required.

## GENERAL INSTRUCTIONS

### A. Precautions

#### **⚠ WARNING**

**Personal Injury Hazard. Failure to follow these installation instructions may cause serious personal injury and/or property damage.**

1. Read installation and operating instructions carefully before attempting to start your air conditioner installation.
2. Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
3. Installation **must** comply with NFPA 70: National Electrical Code regulations and any State or Local Codes or regulations.
4. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized in writing by Dometic.
5. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

## INSTALLATION INSTRUCTIONS

### A. Choosing Location For The Air Conditioner

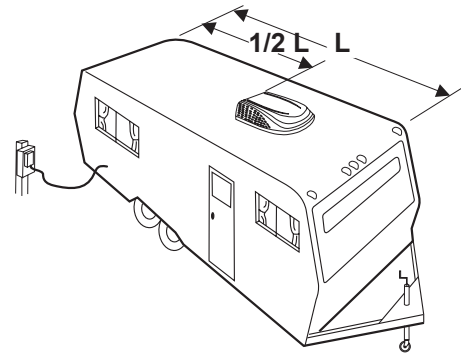
This air conditioner is specifically designed for installation on the roof of a recreational vehicle (RV). The roof must support 130 pounds when the RV is in motion. Normally a 200 lb. static load design will meet this requirement. Insure the roof will support the appliance and the installer personnel.

#### **CAUTION**

**Property damage hazard. It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Failure to heed this warning may cause water damage to the product and the RV.**

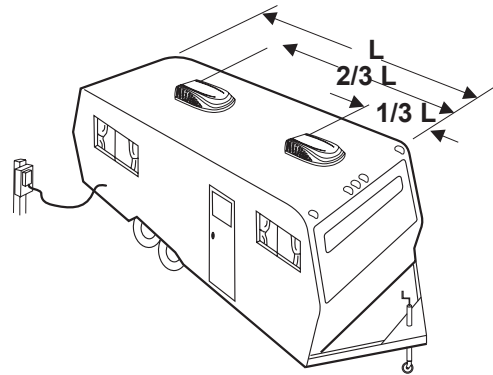
1. Normal locations  
The air conditioner is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 14-1/4" x 14-1/4" ( $\pm 1/8$ ") opening.
2. Other locations  
When no roof vent is available or another location is desired, the following is recommended:
  - a. 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.

FIG. 1



- b. For two unit installations: Install one air conditioner 1/3 and one air conditioner 2/3 from front of RV and centered from side to side. See FIG. 2.

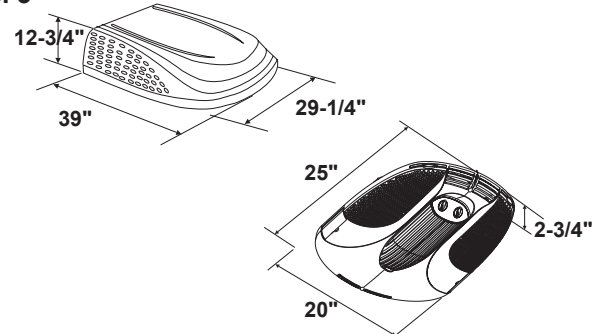
FIG. 2



This air conditioner should be installed in a relatively flat and level roof section with the RV parked on a level surface; however, up to 15° slant to either side, or front-to-back, is acceptable on 52 & 53 series units and a 8° slant to **either** side, or front to back, is acceptable for 600, 620 and 630 series units.

3. After location selection
  - a. Check inside the RV for air box obstructions. (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.) See FIG. 3 & 4.

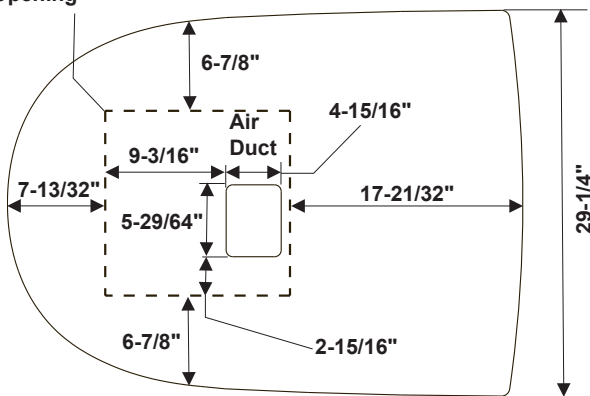
FIG. 3



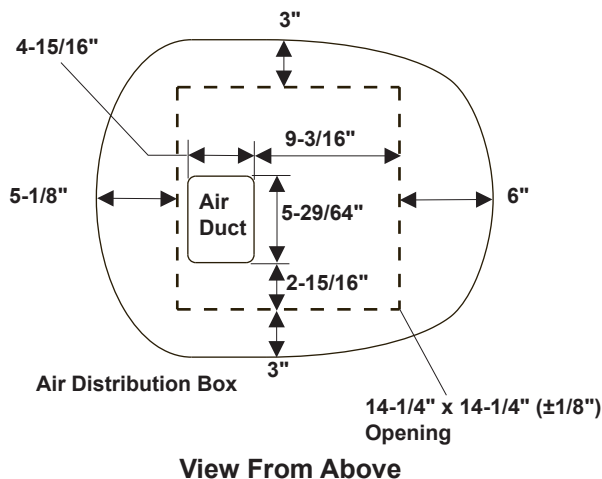
**FIG. 4**

14-1/4" x 14-1/4" (±1/8")  
Opening

52 & 53 Series Air Conditioner



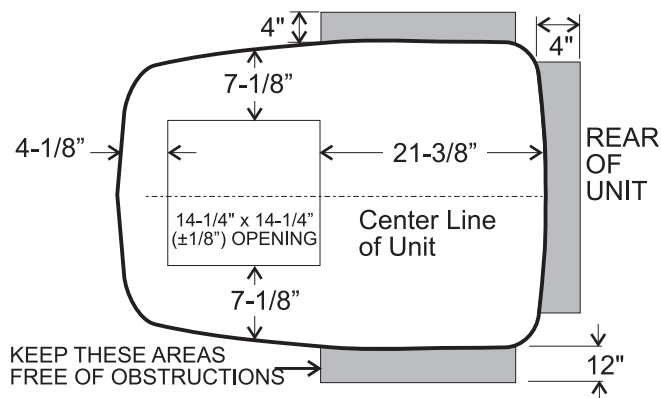
Note: 18" Clearance Is Required Between The Rear Of The Unit And Obstructions



View From Above

**FIG. 4A**

600, 620 & 630 Series Air Conditioner



KEEP THESE AREAS  
FREE OF OBSTRUCTIONS

- b. Check for obstructions in the area where air conditioner will be installed. See FIG. 4 & 4A.

## B. Roof Preparation

1. Roof Vent Removal
  - a. Unscrew and remove the roof vent.
  - b. Remove all caulking compound around opening.
  - c. Seal all screw holes and seams where the roof gasket will be located. Use a good grade of all weather sealer.

## ⚠ WARNING

**Shock Hazard.** There may be electrical wiring between the roof and the ceiling. Disconnect 120 VAC power supply and the positive (+) 12 VDC terminal at the supply battery. Failure to heed this warning may cause death or severe personal injury.

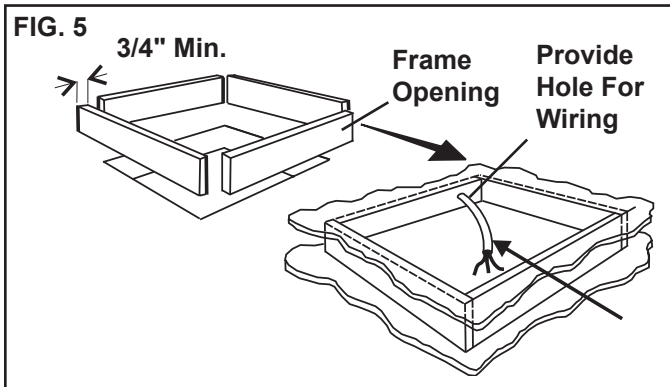
2. New Opening  
(Installations Other Than Vent Openings)
  - a. A 14-1/4" x 14-1/4" (±1/8") opening must be cut through the roof and ceiling of the RV. It is recommended this opening be located between roof reinforcing members.
  - b. Mark a 14-1/4" x 14-1/4" (±1/8") square on the roof and carefully cut the opening.
  - c. Using the roof opening as a guide, cut the matching hole in the ceiling. See FIG. 4.
3. Opening Preparation
  - a. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to install spacers.
  - b. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged.

## CAUTION

**Property damage hazard.** It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the RV roof. Never create a low spot on the roof where water will collect. Failure to heed this warning may cause water damage to the product and the RV.

- c. 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 entrance holes, for the wiring. See FIG. 5.
- d. 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.





## C. Wiring Requirements

### 1. 120 VAC Supply Line

Route a copper 12 AWG, with ground, 120 VAC supply line from the fuse or circuit breaker box to the roof opening.

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

- This supply line must be located in the front portion of the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") opening.
- The 120 VAC power supply must be on a separate Time Delay Fuse or HACR Circuit Breaker. The proper size protection can be determined from the chart on page 3 & 4.
- Make sure at least 15" of wire extends into the roof opening. This will insure easy connection to air conditioner.
- Wiring must comply with NFPA 70: National Electrical Code regulations and any State or Local Codes or regulations.
- Use a steel sleeve and a grommet or equivalent method to protect the wire where it passes into the opening.

**Note:** If installing 3310700 or 3310741 ADB with mechanical controls no further wiring is required. Proceed to Section F. "Placing The Air Conditioner On The Roof".

- Route a dedicated 12 VDC supply line (18-22 AWG) from the RV's converter or battery to the roof opening.
  - This supply line must be located in the front portion of the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") opening.
  - Make sure that at least 15" of supply wire extends into the roof opening.

**Note:** When a Comfort Control Center thermostat is being installed with multiple zones, this 12 VDC supply line needs to be supplied to the air conditioner designated zone 1 only.

- If system includes a gas furnace, route two 18 gauge thermostat wires from the furnace to the roof opening of the air conditioner that will control it. If more than one furnace is to be used, route the second set of thermostat wires to the second air conditioner. Make sure that 6" of wire extends into the opening.
- Thermostat Control Cable
  - Comfort Control Center and Digital Thermostat Only.
    - Route a 4 conductor control cable (telephone type) from the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening to the thermostat mounting location. **Review section D "Choosing Thermostat Location" before routing control cable.** Choose the shortest most direct route. Make sure at least 15" of the wire extends into the roof opening and 6" extend from the wall at the mounting position of the thermostat.

**Important:** When more than one air conditioner is being installed (additional zones) with the Comfort Control Center thermostat, an additional 4 conductor control cable must be routed to each additional air conditioner 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. Make sure at least 15" of the wire extends into the roof opening. See FIG. 24.

- Analog Thermostat
    - Route a seven conductor cable, 18 to 22 AWG, for thermostat connection. **Review section D "Choosing Thermostat Location" before routing cable.** Make sure 15" of the wire extends into the roof opening and 6" of wire extends from the wall at the thermostat mounting location.
- Remote Temperature Sensor (Comfort Control Center Only)
    - If a Remote Temperature Sensor is to be used, the connector end must be routed from sensor location to the roof opening of the system which it will control. Make sure at least 15" of the sensor cable extends into the roof opening. Follow Remote Sensor instructions for installation.
  - Energy Management System (Comfort Control Center Only)
    - If an Energy Management System (load shed feature) is to be used with the control, two wires must be routed to the roof opening of the zone to be managed. The signal required for this function is normally open relay contact. When the EMS calls for the compressor to shut off, the relay contacts should close. Make sure at least 15" of the EMS wire extends into the roof opening.

7. Automatic Generator Start Kit (Comfort Control Center Only)
  - a. If an Automatic Generator Start (AGS) kit will be installed, an additional 4 conductor control cable must be routed from the last air conditioner to the location of the AGS kit. Follow AGS kit instructions for installation.

## D. Choosing Thermostat Location

1. Thermostat location. Comfort Control Center with out Remote Sensor, Analog, and Digital Thermostats.
 

The proper location of the thermostat is very important to ensure that it will provide a comfortable RV temperature. Observe the following rules when selecting a location.

  - a. Locate the thermostat 54" above the floor.
  - b. Install the thermostat on a partition, not on an outside wall.
  - c. **NEVER** expose the thermostat to direct heat from lamps, sun or other heat producing items.
  - d. Avoid locations close to doors that lead outside, windows or adjoining outside walls.
  - e. Avoid locations close to supply registers and the air from them.

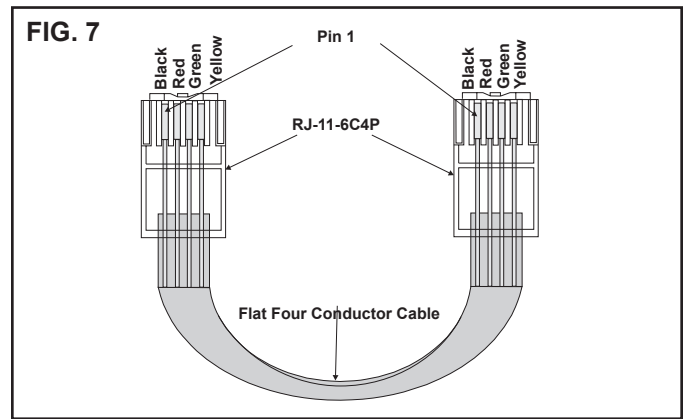
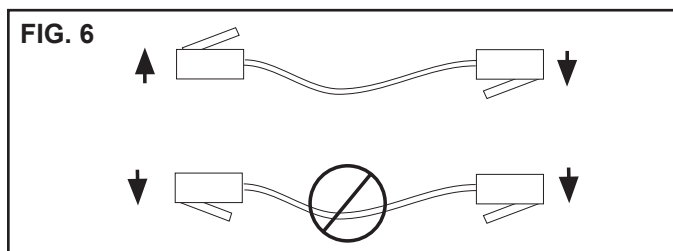
**Note:** On Comfort Control System installations with a Remote Temperature Sensor the Comfort Control Center may be mounted anywhere that is convenient in the RV. Try to avoid hard to reach and hard to see areas.

- f. A 3/8" hole will be needed to route the cable through the wall.

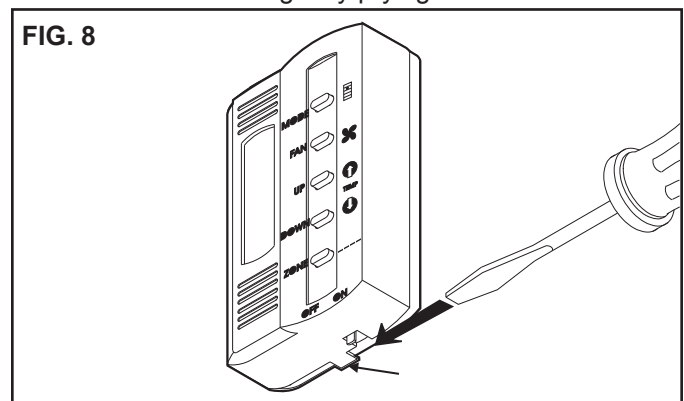
## E. Thermostat And Thermostat Cable Installation

1. Comfort Control Center.
  - a. The previously run control cable (4 conductor telephone cable) must be terminated with two (2) RJ-11-6C4P telephone connectors. Refer to the crimp tool manufacture for crimping instructions. See FIG. 6 & 7.

**Important:** RJ-11-6C4P connectors must be installed as shown in FIG. 6 & 7.



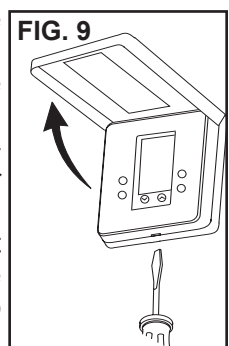
- b. Carefully remove the base plate from the Comfort Control Center. This may be accomplished by inserting a small screwdriver under the tab on the bottom edge of the front cover and gently prying. See FIG. 8



- c. Insert the control cable through the hole in the base plate and mount the plate to the wall with the two (2) screws provided.
- d. Install the control cable RJ-11-6C4P connector into the back of the Comfort Control Center and snap on the base plate.
2. Digital Thermostat
  - a. The previously run control cable (4 conductor telephone cable) must be terminated with two (2) RJ-11-6C4P telephone connectors. Refer to the crimp tool manufacture for crimping instructions. See FIG. 6 & 7

**Important:** RJ-11-6C4P connectors must be installed as shown in FIG. 6 & 7.

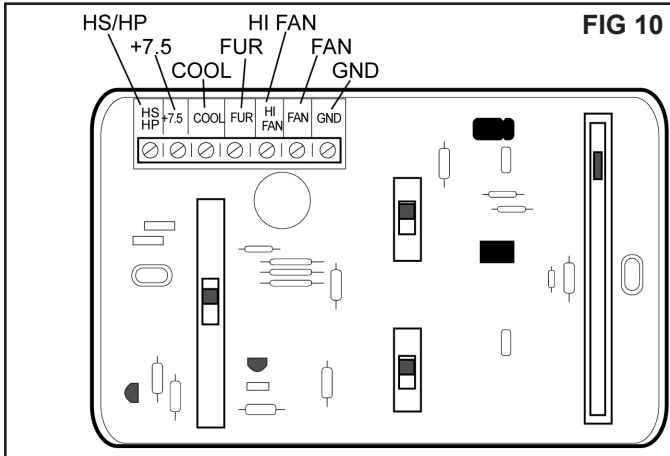
- b. Carefully remove the base plate from the digital thermostat. This may be accomplished by lifting the top cover and inserting a small screwdriver into the slot on the bottom edge of the thermostat and base plate. Push the small screw driver into the slot to release catch. See FIG. 9





- c. Install the control cable through the hole in the base plate and mount the plate to the wall with the two (2) screws provided. Check the alignment to ensure level installation.
  - d. Install the control cable RJ-11-6C4P connector into the back of the thermostat and snap on the base plate.
3. Analog Thermostat

**Note:** Wire colors listed for the seven conductor cable are the most common used in the RV industry. Wire colors may vary.



- a. Remove the cover from the analog thermostat by starting at one corner and gently lifting it from the base.
- b. Insert the previously run seven (7) conductor cable through the hole in the base assembly.
- c. Cut back the outer cable shield approximately 3 inches and strip 1/4" insulation from each wire.
- d. Mount the thermostat level on the wall using the screws provided.
- e. Make the following connections to the thermostat. See FIG 10.
  - Red/white wire to the +7.5 terminal
  - Green wire to the "GND" terminal
  - Yellow wire to "COOL" terminal
  - Tan wire to the "FAN" terminal
  - Blue wire to the "HI FAN" terminal
  - Orange wire to the "HS/HP" terminal
  - White wire to the "FUR" terminal if applicable
- f. Inspect all connections to make sure they are tight and not touching any other terminals or wires.
- g. Push the wires back through the base into the wall. Place cover on the thermostat and push until an audible click is heard.

## F. Placing The Air Conditioner On The Roof

1. Remove the Air Conditioner from the carton and recycle the carton. See Fig. 11.

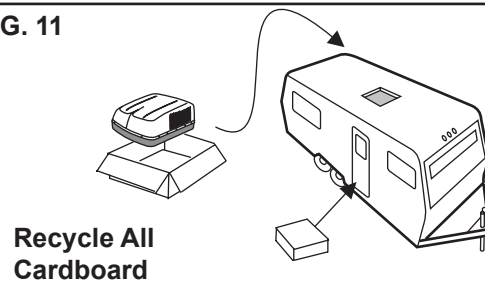
**Note:** If optional heat kit will be installed on models 52XX1X do so before placing air conditioner on roof. Follow instructions furnished with heat kit.

### **⚠ WARNING**

**Personal injury hazard. This unit weighs approximately 100 pounds. To prevent back injury, use a mechanical hoist to place air conditioner on roof. Failure to heed this warning could cause severe personal injury.**

2. Place the air conditioner on the roof.

FIG. 11

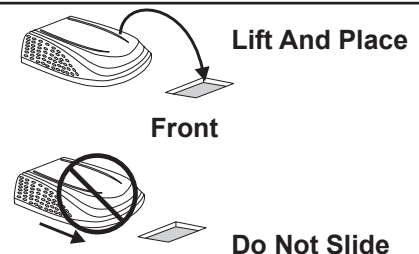


3. Lift and place the unit over the prepared opening using the gasket as a guide. The blunt end goes toward the rear of the RV. See FIG. 12.

### **CAUTION**

**Property damage hazard. Do not slide the unit. Failure to heed this warning may damage the neoprene gasket attached to the bottom and create a leaky installation.**

FIG. 12

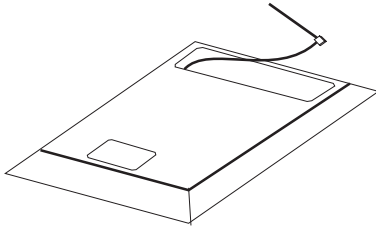


4. Place the 33107XX Air Box Kit inside the RV. This box contains mounting hardware for the air conditioner and will be used inside the RV. See FIG. 23.
5. This completes the outside work. Minor adjustments can be done from the inside if required.

## G. Discharge Duct And Ceiling Template Installation

1. Remove air box and mounting hardware from carton.
2. Remove wire tie holding center of rear aluminum bracket to plastic template.
3. Check for correct alignment of air conditioner and adjust as necessary (Roof Gasket centers over 14-1/4" x 14-1/4" ( $\pm 1/8$ ") opening).
4. Reach up into return air opening of the air conditioner and pull the unit electrical cord and thermostat wires, for electronic versions, down for later connection. See FIG. 13.

**FIG. 13** Reach In The Return Air Opening & Pull Down The Unit Electrical Cable

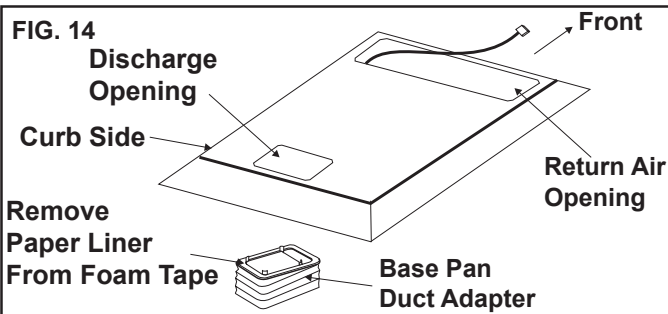


**Note:** If optional heat package is to be installed in model 520XXX series, do so prior to installing the template. Follow instructions furnished with heat kit. (Heat is not available for hi-efficiency model 520300 used with the 3310741 Air Distribution Box or hi-efficiency model 521700 used with the 3310742 Air Distribution Box.) Electric Heat is factory pre-installed on 62041, 62051 & 62071 Penguin models.

5. Base Pan Duct Adapter.

**Note:** For Penguin Models, Base Pan Duct Adapter Kit 3311109.XXX is required in place of base pan duct adapter furnished with air conditioner.

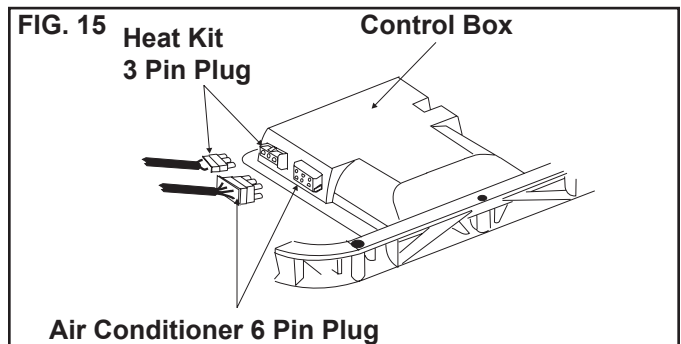
- a. Place the base pan duct adapter in position over the base pan discharge opening. Remove the paper liner from foam tape and press (make sure the base pan is clean) in position. On the Duo Therm HP style duct adapter, the wider part of the flange is always installed opposite curb side and on Penguin style the wider portion of the flange is installed curb side with notches in flange to the rear. Also on Penguin style, make sure hole in duct adapter is aligned with hole in base pan. See FIG. 14.



- b. Install screw, if desired, to help hold duct adapter to base pan on penguins.
6. Ceiling template installation.

**Note:** The large center hole in the ceiling template goes to the rear. Insure that the thermostat bulb is not moved during installation. Skip to step b if installing the 3310742 air distribution box with wall thermostat.

- a. Plug the six pin plug and three pin heat kit plug (if equipped) into the control box on the ceiling template. See Fig. 15.



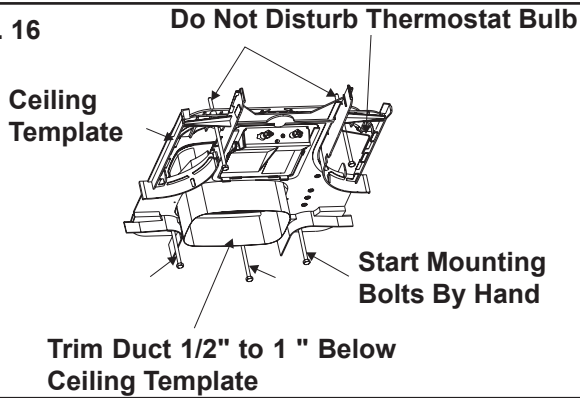
**Note:** 3310741 is manufactured without the three pin plug and not designed to have electric heat.

- b. In 6XX series units, remove the knockout from the template center hole. Start each mounting bolt by hand before tightening any of them. The threaded inserts in the base pan can be seen to aid in starting the bolts. The 5XX model series uses 4 mounting bolts, one in each corner and the 6XXX series uses 3 bolts, one in the rear center and two in the front corners. See Fig. 16.
- c. **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 further tightening is not necessary. Under tightening will result in an inadequate roof seal while over tightening may damage the air conditioner base or ceiling template. See Fig. 16.

### CAUTION

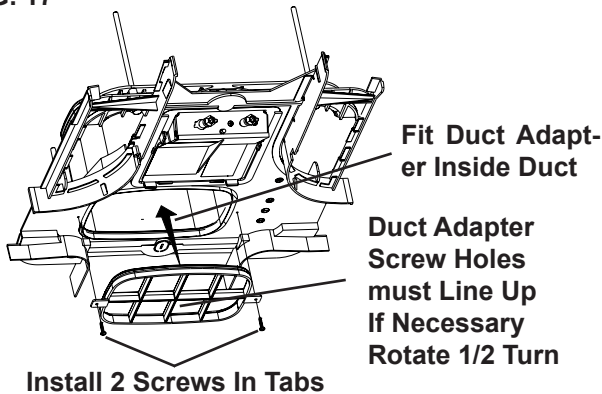
**Property damage hazard. Tighten to torque specifications listed in this manual. Failure to heed this warning may cause RV water damage and/or damage to the air conditioner.**

FIG. 16



7. Template/Duct connector
  - a. Pull duct down through template opening.
  - b. Cut the duct 1/2"-1" below template opening. See Fig. 16.
  - c. Align the template duct adapter with the template duct hole making sure the screw holes line up (if not rotate 1/2 turn). Insert template duct adapter into duct. Leave one loop of wire below the duct adapter groove. Do not insert tabs inside of the duct.
  - d. Snap duct adapter into template and install 2 screws through the duct tabs into the ceiling template. See Fig. 17.

FIG. 17



## H. Wiring The System

### ⚠ WARNING

Shock hazard. Disconnect 120 VAC at the source. Failure to heed this warning may cause death or severe personal injury.

### ⚠ WARNING

Shock hazard. This product is equipped with a 2 wire plus ground system for protection against shock hazard. Make sure that the appliance is wired into a properly grounded 120 VAC circuit and the polarity is correct. Failure to heed this warning may cause death, severe personal injury or damage to the equipment.

## 1. Connection of 120 VAC

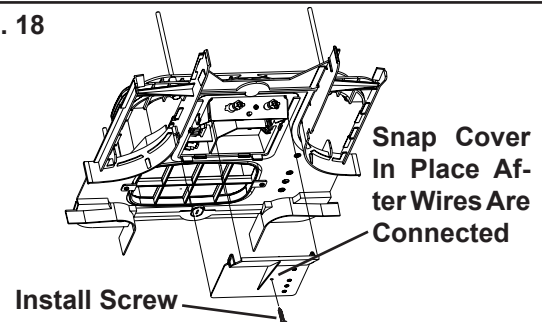
**Note:** Wiring must comply with NFPA 70: National Electrical Code regulations and any State or Local Codes or regulations.

- a. Secure Romex to side of roof opening with a staple or clamp approved for this purpose.
- b. Route the previously run 120 VAC supply line into control box or junction box through provided strain relief. Cut wire leaving six (6) inch lead for connection to unit wires.

**Note:** Connect wiring per schematic with UL listed wire connectors for size of wire being connected.

- c. Connect white wire in control box or junction box to white or neutral wire from supply line.
- d. Connect black wire in control box or junction box to black or hot wire from supply line.
- e. Connect supply ground wire to green wire in control box or junction box.
- f. 3310700 or 3310741 models, insert back edge of cover under tabs and snap control box cover into place. Secure cover with screw (provided). See FIG. 18. For 3310742 models, install the junction box cover with screws provided.

FIG. 18



2. Connection Of Low Voltage Wiring (Comfort Control Center, Digital, and Analog systems) (For 3310700 & 3310741 mechanical control models wiring is complete. Go to Section J)

### CAUTION

Property damage hazard. Disconnect the positive (+) 12 VDC terminal at the supply battery. Failure to heed this warning may cause damage to equipment.

**Note:** If optional solar panel is to be installed, do so at this time. Follow installation instructions packaged with solar panel.

- a. Connect the previously run 12 VDC wires to the red and black wires protruding from the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. (In Comfort Control Center multiple zone installations, this needs to be done at only one zone.) Connect +12 VDC to the red wire; -12 VDC to the black wire.
- b. Connect the previously run furnace thermostat wires (if applicable) to the blue wires protruding from the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. The polarity of these connections does not matter.
- c. Terminate the previously run 4 conductor control cable(s) protruding into the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. The cable(s) must be terminated with a telephone RJ-11-6C4P connector. Refer to the crimp tool manufacturer for crimping instructions. See FIG. 6 & 7.

**Important:** RJ-11-6C4P connectors must be installed with the same polarity on each end. Standard telephone cables will not operate the controls.

- d. Plug the control cable(s) into the telephone coupler(s) in the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. One for digital models and one for single zone comfort control center models. If more than one zone is used on the comfort control center models, the second coupler will be used to join each additional zone.
- e. Remote Temperature Sensor (Comfort Control Center models only). If applicable, connect the previously run **Remote Temperature Sensor** cable, to the connector that matches its color in the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening.
- f. Energy Management System (Comfort Control Center Only). If applicable, connect the previously run Energy Management System wires to the yellow wires protruding from the 14-1/4" x 14-1/4" ( $\pm 1/8$ ") roof opening. The polarity of this connection does not matter.

## I. Air Distribution Box Installation

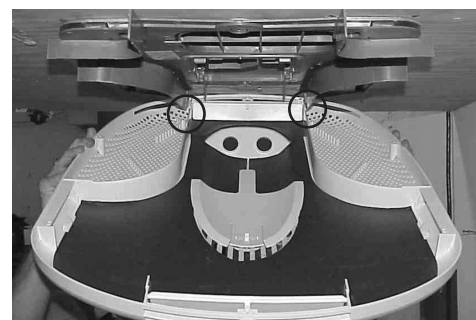
**Important:** Start working at the rear of the air distribution box. Place the inner walls inside the walls of the ceiling template. See FIG. 19.

1. Working from the rear looking forward with the rear tipped down, place the air distribution box inner wall against the inside of the ceiling template wall. Slide the air distribution box backwards until it touches the template. Raise the air distribution box to the ceiling while wiggling side to side. Hold air box in place and install the first two screws shown in FIG. 19. Install 6 remaining coarse thread metric 3.5 mm x 19 mm sharp pointed screws provided in the air box mounting parts. See FIG. 19 & 19A. Take care not to over tighten the screws.
2. Knob installation. (Mechanical models only) Install the two knobs provided on the ends of the thermostat and selector switch shafts. Align slot in knob with alignment post on shaft and push into position.

**Note:** This completes the air conditioner installation for Digital, Analog and Mechanical thermostat models. Continue with Section "K" for Comfort Control Center Thermostat models.

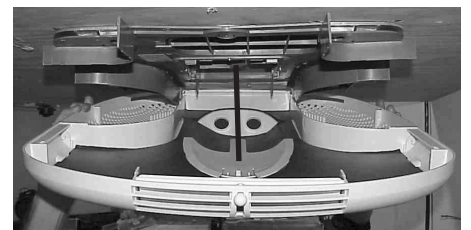
3. System check out: The power supply to the air conditioner may now be turned "**ON**". Please read and follow the User's Guide/Operating instructions furnished with the Digital and Analog Thermostat and check out unit operation. See section "OPERATING INSTRUCTIONS" in this manual for Mechanical thermostat operation.

**FIG. 19**



**Position  
ADB Walls  
Inside And  
Against End  
Of Template  
Walls**

**Raise Back  
End Of ADB  
To Ceiling**

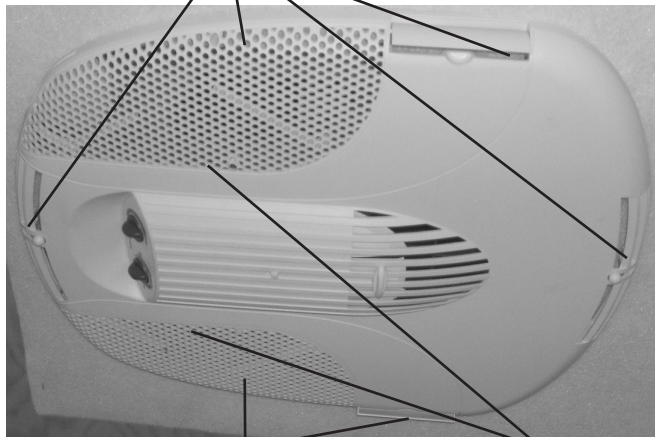


**If Not Flush,  
Wiggle Side  
To Side.**



FIG. 19A

Screw Locations



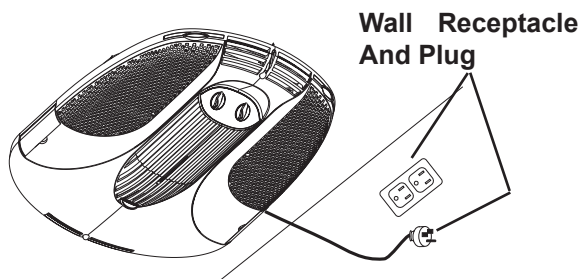
Screw Locations

Install These 2  
Screw First

## J. Installation On Tent Camper Roof

1. The permanent wiring leading to unit junction box may originate in a flanged surface inlet located in roof section near the side wall. See Fig. 19B.

FIG. 19B



2. A unique outlet receptacle for air conditioner should be located in the side wall of vehicle beneath the flanged surface inlet.
3. A cord set fabricated from an oil, water, and ozone resistant material, such as Type SJOW-A, shall be used to connect the flanged surface inlet and the air conditioning receptacle. This cord set shall be visible during use and shall not be installed in raceways or placed behind walls or cabinet panels.

## K. System Configuration and Reset (Comfort Control Center Models Only). (Dip Switch Setting)

1. System Configuration: If more than one zone (air conditioner) is present in the system it is necessary to configure the electronics. If only one zone (air conditioner) is present no further configuration is necessary. All dip switches are factory set to "OFF" unless the air conditioner has a factory pre-installed heat strip. If so dip switch 1 will be pre-set to "ON".

**Note:** Dip switches are visible when the electrical box cover is removed. Dip switches can be either a rocker or sliding style switch. See FIG. 20

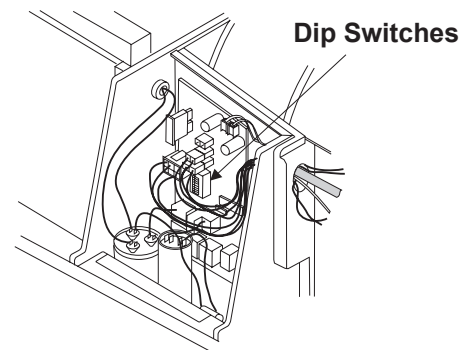
If there is more than one zone, the dip switch on the circuit board for each successive zone must be set to "ON".

Turning "ON" of zone 2 dip switch identifies this as zone 2. Likewise for zone 3 and 4.

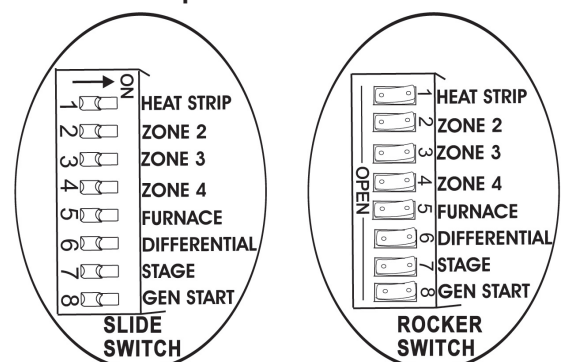
**Note:** Depending on the equipment options installed by the recreational vehicle manufacturer, the appropriate dip switches will need to be switched to the "ON" position. Placing the switch in the "ON" position selects that option. See FIGS. 20 & 21.

FIG. 20

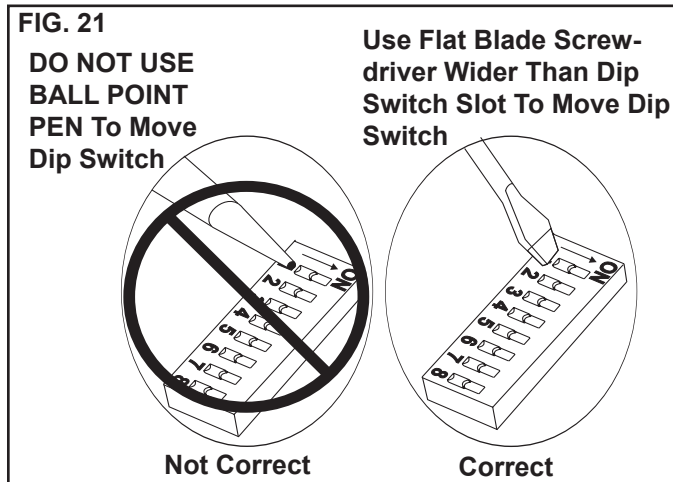
Penguin Model Shown



Dip Switches



**Important:** Dip switch damage will occur if they are not set in the proper manner. A ball point pen or similar object that will slip in the switch slot, can damage the switch causing loss of connection. Use only a small flat blade screw driver (wider than the dip switch slot) to move the dip switch. See FIG. 21.



- Heat strip selection: Units with a heat strip, the #1 dip switch will be in the "ON" position.
- Furnace selection - when a furnace has been connected to a zone, place the furnace dip switch "ON" for that zone.
- Differential - differential is the temperature difference between the "ON/OFF" cycle of the thermostat in the furnace mode. The normal differential is preset in the circuit board with the dip switch set to the "OFF" position. In some situations, it may be necessary to decrease the differential. The location of the thermostat may create a condition where the normal differential will not maintain your comfort zone. If this occurs, the differential can be shortened by placing the differential dip switch to the "ON" position.

**Note:** Setting the differential dip switch should only be required when installation conditions are less than desirable and is not covered under the limited warranty.

- Stage selection - stage is not used on these units. Leave in the "OFF" position.
  - Gen start selection - leave in the "OFF" position.
  - Replace the unit electrical box cover.
  - Repeat this procedure for each additional zone.
2. System Reset
- After setting the dip switches in the electronic control kit, do a system reset.
- Turn the ON/OFF switch to the "OFF" position.

- Simultaneously depress and hold the MODE and ZONE push-buttons while turning the ON/OFF switch to "ON". FF should appear in LCD display until the mode and zone push-buttons are released.
- When a dip switch is turned on after initial configuration, a system reset will need to be done before the **Comfort Control Center™** will recognize the updated selection.

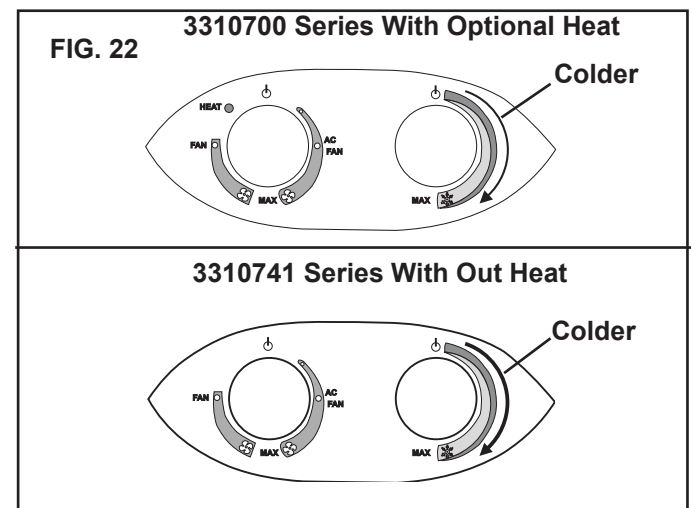
**Note:** This completes the Comfort Control Thermostat model air conditioner installation.

3. System check out: The power supply to the air conditioner may now be turned "ON". Please read and follow the User's Guide/Operating instructions furnished with the Comfort Control Center thermostat and check out unit operation.

## OPERATING INSTRUCTIONS

### A. 3310700 & 3310741 Air Distribution Box with Mechanical Controls

- Selector Switch & Thermostat
  - Model 3310700 ADB has a six position Selector Switch including "OFF". Model 3310741 has a five positions Selector Switch including "OFF". This switch controls fan speed, heating mode (if present), and cooling modes. See FIG. 22.



- The Thermostat controls the temperature range from 65° F on the coldest side to 90° F on the warmest side. The cooling and heating ON/OFF are controlled by the thermostat setting. See Fig. 22.
2. Cooling Operation
- Set the thermostat at the desired temperature level.



- b. Select the cooling mode that best satisfies your needs:
  - **HIGH COOL:** Selected when maximum cooling and dehumidification required.
  - **LOW COOL:** Selected when room at desired comfort level and needs to be maintained. Normally this speed used for night time operation.

**Note:** The compressor and blower will come on as cooling is required to maintain the selected temperature level.

3. Heating operation (With Optional Heat Kit Installed)  
(Applicable for all model series 520, except 520300)

**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.

- Set Thermostat to the desired temperature level.
- Select "HEAT" with the selector switch. See FIG. 22.

**Note:** If not equipped with the electric heater, the blower only will run based on the thermostat setting, if the HEAT position is selected. If the unit is equipped with electric heat, the blower turns off and on with the heater.

4. Fan Operation
  - a. This will circulate the air in your RV without cooling or heating. There are two positions: HIGH FAN or LOW FAN to select from, depending upon personal choice.
5. "OFF" Position
  - a. This is to turn Unit off.

## MAINTENANCE

### A. Air Filters

1. Periodically remove the return air filters located in the front end of the air box. Wash the filters with soap and warm water, let dry and reinstall.

**Note:** To insure easy future removal the filters need to be replaced with the domed side of their handle positioned towards the ceiling.

**Note:** Never run the air conditioner without return air filters in place. Dust may plug the unit evaporator coil and may substantially affect the performance of the unit.

### B. Air Box Housing

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

### C. Fan Motor

1. Factory lubricated and requires no service under normal use.

### D. Frost Formation On Cooling Coil

1. 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, turn off the compressor and operate on LOW or HIGH FAN setting until the cooling coil is free of frost.

If your unit fails to operate or operates improperly, check the following before calling your service center.

## SERVICE-UNIT DOES NOT OPERATE

- A. If RV connected to motor generator, check to be sure motor generator is running and producing power.
- B. 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.
- C. Check your fuse or circuit breaker to see if it is open.
- D. After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.

When calling for service, always give the air conditioner Model Number and Serial Number. This information can be found on unit rating plate located on the bottom of the base pan near the return air opening. Return air filters must be removed from air box to view information through inlet holes.

FIG. 23

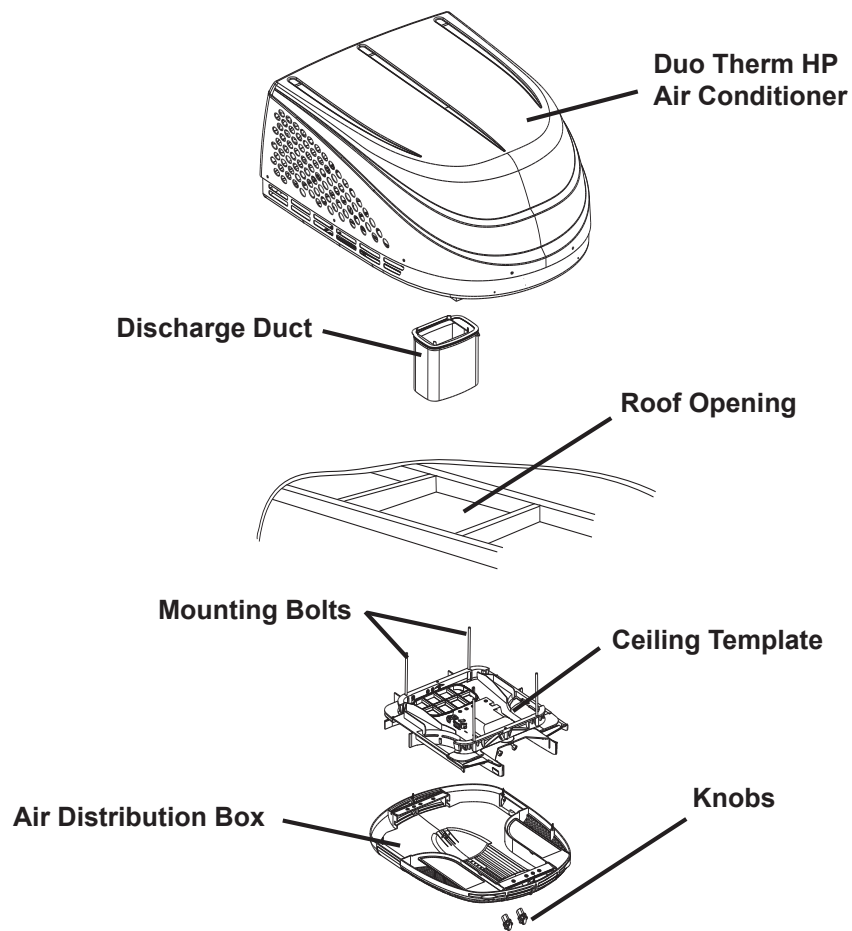
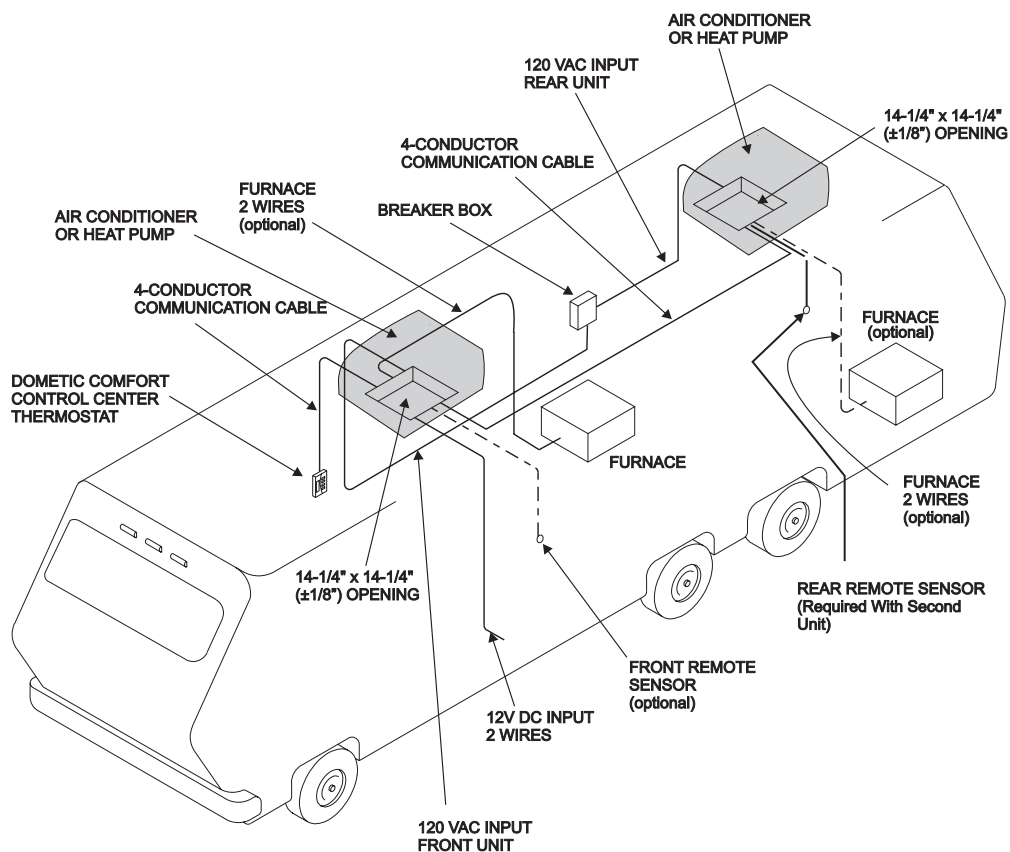
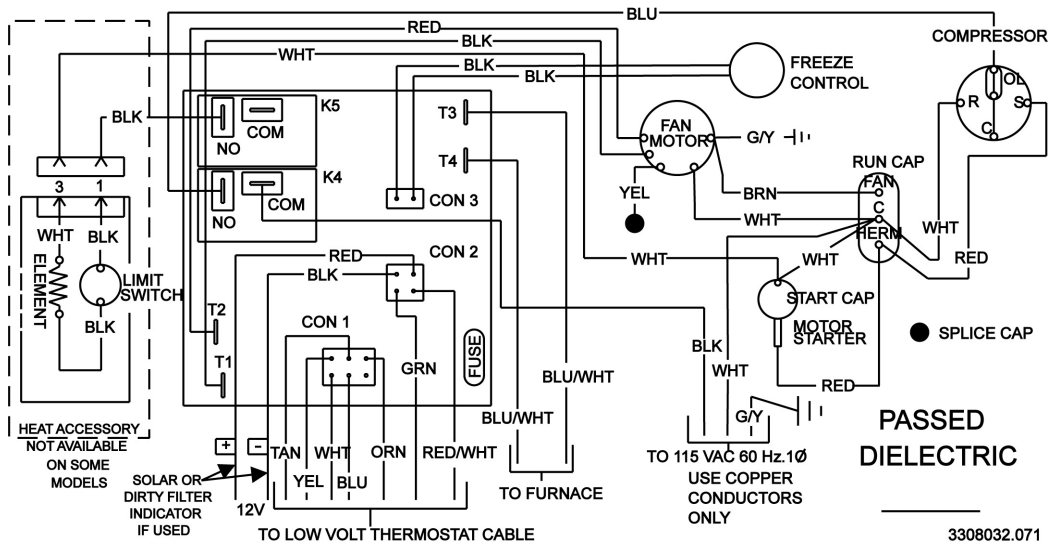


FIG. 24

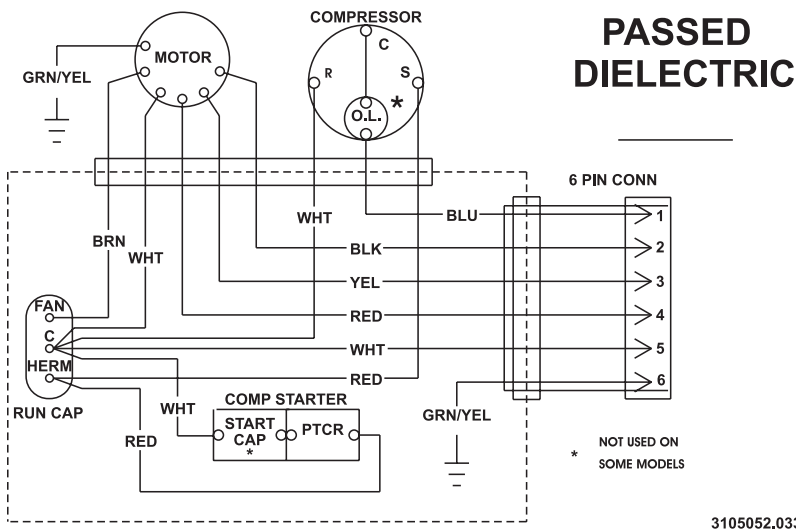


# WIRING DIAGRAM

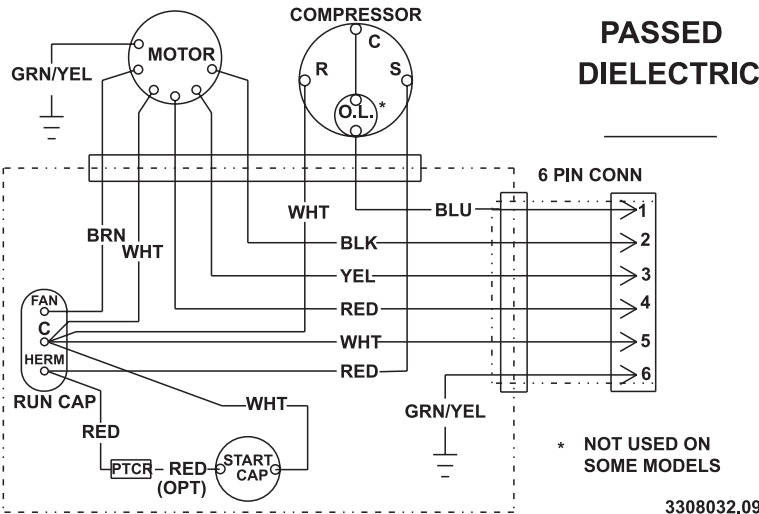
## 6204 Series W/Heat



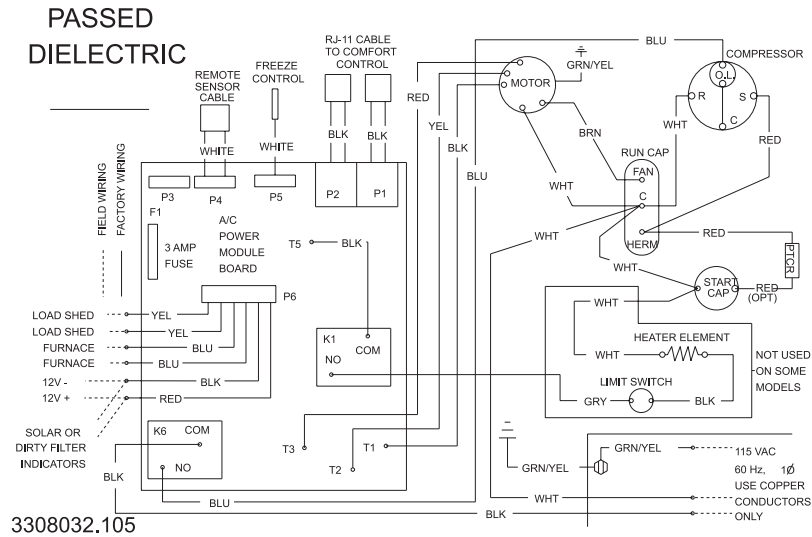
## 520XXX Series



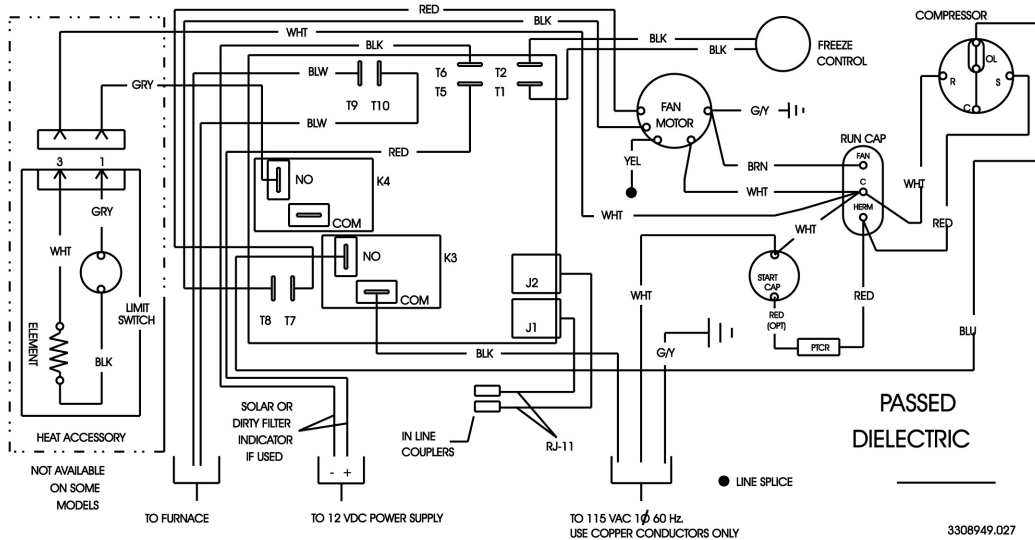
## 6003XX Series



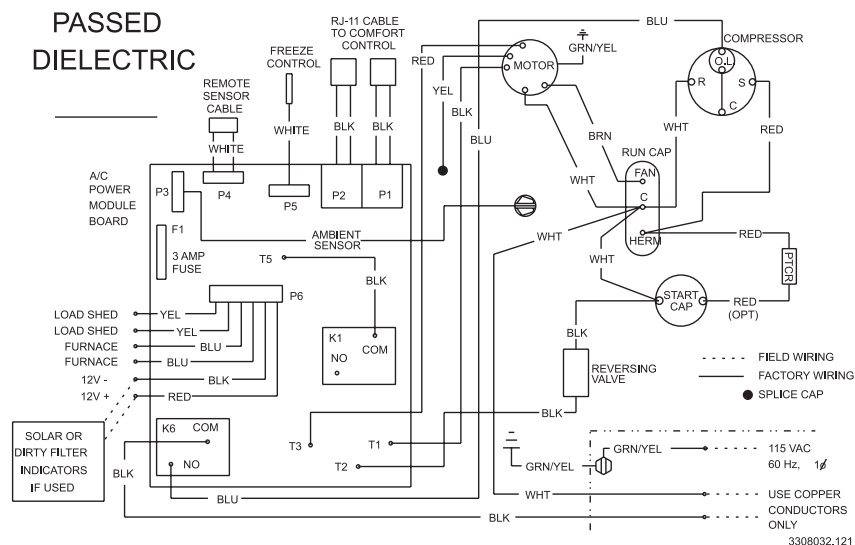
# **WIRING DIAGRAM** **6205 Series**



## **6206 Series**

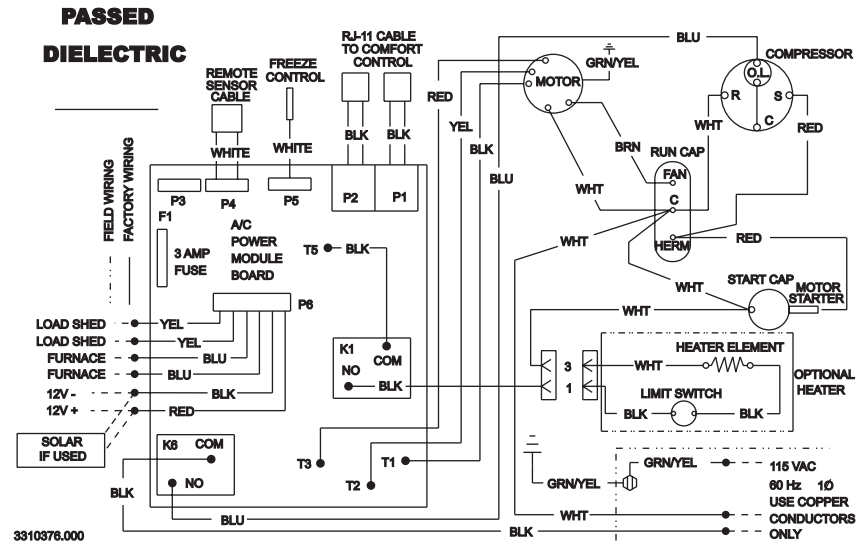


## **6305 & 5315 Series**

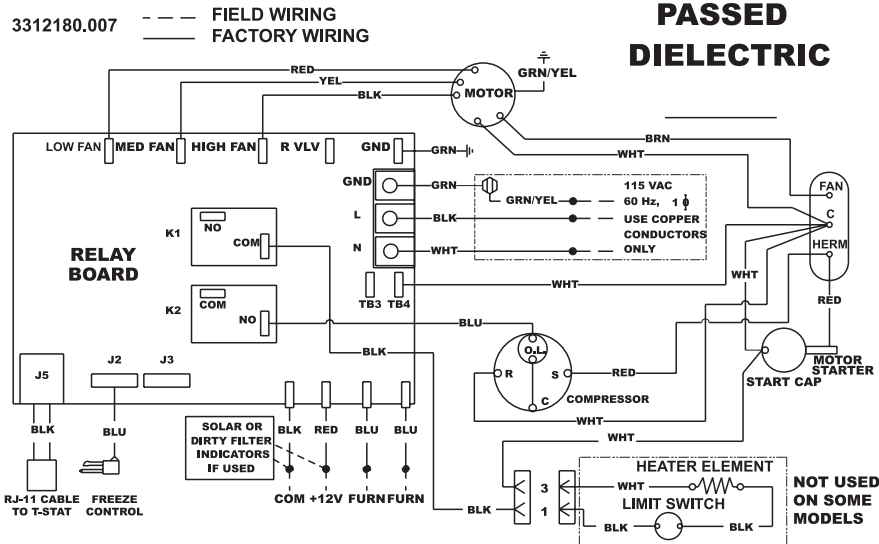


# WIRING DIAGRAM

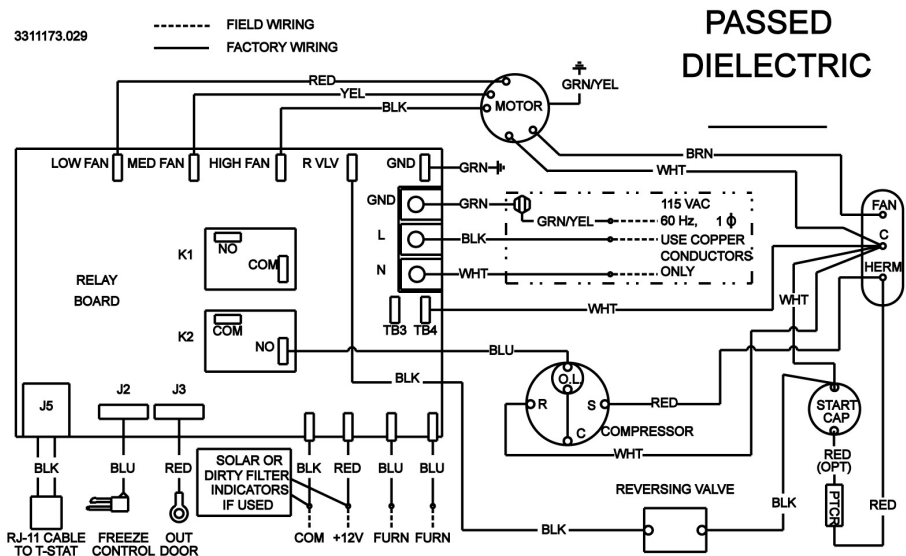
## 5215 Series



## 5217 Series

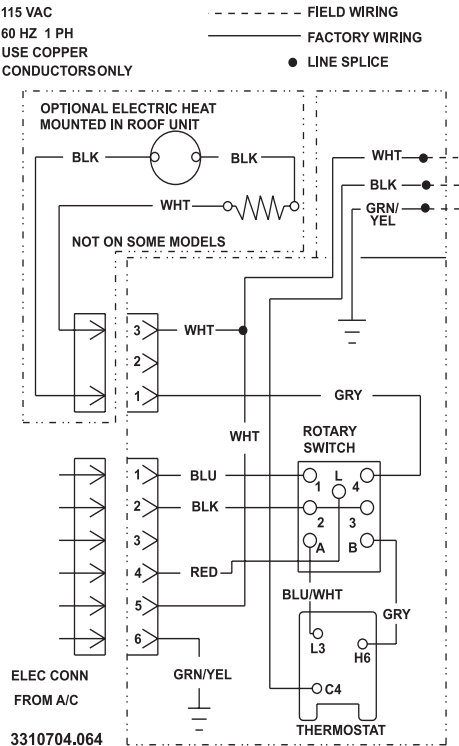


## 6307 & 5317 Series



# AIR DISTRIBUTION BOX WIRING DIAGRAM

## 3310700 Air Box With Optional Heat



## 3310741 Air Box With-Out Heat Controls

