

RECORD THIS INFORMATION
FOR FUTURE REFERENCE BEFORE
INSTALLING THE UNIT:

Model Number _____
Serial Number _____
Date Purchased _____
Place of Purchase _____

MODEL 620515, 620525, 620526

Roof Top Air Conditioner &

630515, 630516

Roof Top Heat Pump
USED WITH

3106615 Air Distribution Box Kit and
3109228.001 Duo-Therm Comfort Control Center™

This Unit Is Designed For OEM Installation. All Initial
Installations Must Be Approved By Dometic Corporation

USA
SERVICE OFFICE
Dometic Corporation
509 South Poplar Street
LaGrange, IN 46761
260-463-4858

CANADA
Dometic Distribution
866 Langs Drive
Cambridge, Ontario
CANADA N3H 2N7
(519) 653-4390

For Service Center
Assistance Call:
800-544-4881



! 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.

INSTALLATION INSTRUCTIONS

MODELS

620515.321	620526.326
620515.326	630515.321
620515.421	630515.326
620525.321	630515.421
620525.326	630516.321
620525.421	630516.326
620526.321	

REVISION
Form No. 3109529.069 1/04
(Replaces 3109529.051)
(French 3109604.060)
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LaGrange, IN 46761

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

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. Product features or specifications as described or illustrated are subject to change without notice.

B. This Air Conditioner Is Designed For:

1. Installation on a recreational vehicle during 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 2.00 inches and maximum of 4.00 inches distance between roof to ceiling of recreational vehicle. Alternate installation methods will allow for roofs more than 4.00 inches thick.

C. 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 temperatures.

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

D. 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

	620515.421	620515.321 620515.326 620525.321 620525.326	620526.321 620526.326 630516.321 630516.326	630515.421	630515.321 630515.326
MODEL NUMBER					
Nominal Capacity (BTU/HR) *	13,500	13,500	15,000	13,500	13,500
Electrical Rating	115 VAC, 60 Hz., 1 PH.				
Compressor Rated Load Amps	11.5	12.4	12.0	12.0	12.4
Fan Motor Rated Load Amps	3.1	3.1	3.3	3.1	3.1
Compressor Locked Rotor Amps	50.0	60.0	64.0	50.0	60.0
Fan Motor Locked Rotor Amps	8.8	8.8	8.5	8.8	8.8
SCFM - High Speed Max./Min.	335/250		380/250	335/250	
Refrigerant (R22) oz.	17	15.5	21.5	19.5	24.5
Minimum Wire Size **	12 AWG Copper up to 24 ft.				
AC Circuit Protection (User Supplied)	20 Amp Time Delay Fuse or HACR Circuit Breaker				
DC Circuit Protection (User Supplied)	Installation must comply with all National, State, Province and/or Local Electrical Codes				
Installed Weight (Pounds)	102	102	104	102	102
Minimum Generator Size ***	1 UNIT	3.5 KW		2 UNITS	
	2 UNITS	5.0 KW			

* Maximum unit performance achieved at full rated voltage.

** For lengths over 24 ft., consult the National Electrical Code.

*** 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. Also keep in mind generators lose power at high altitudes and from lack of maintenance.

INSTALLATION INSTRUCTIONS

A. Precautions

⚠ WARNING

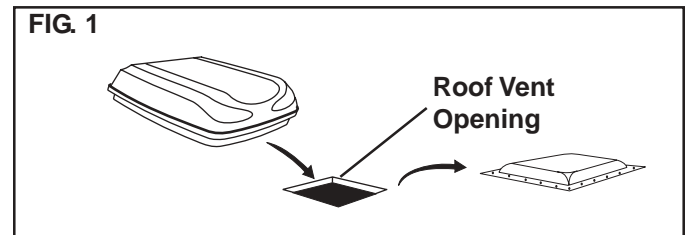
**Improper installation may damage equipment/
could endanger life, cause serious injury and/
or property damage.**

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 the National Electrical Code ANSI/NFPA-70 and CSA Standard C22.1 (latest edition and any State or Local Codes or regulations).
4. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by Dometic.
5. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

B. Choosing Proper Location For The Air Conditioner

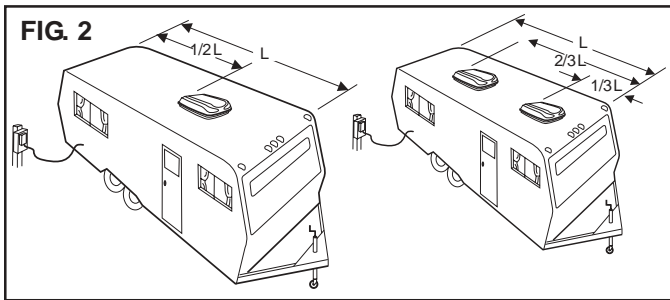
This air conditioner is specifically designed for installation on the roof of a recreational vehicle (RV). When determining your cooling requirements, the following should be considered:

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

- b. For two unit installations: Install one Air Conditioner 1/3 and one Air Conditioner 2/3's from front of RV and centered from side to side.



It is preferred that the air conditioner be installed in a relatively **flat and level** roof section measured with the RV parked on a level surface.

Note: A 8° slant to **either** side, or front to back, is acceptable for 620515, 620525, 620526, 630515 and 630516 series.

3. After Location Has Been Selected:
- Check for obstructions in the area where air conditioner will be installed. See FIG. 3 & 4.
 - The roof must be designed to support 130 pounds when the RV is in motion. Normally a 200 lb. static load design will meet this requirement.

CAUTION

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. Water standing around the air conditioner may leak into the interior causing damage to the product and the RV.

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

FIG. 3

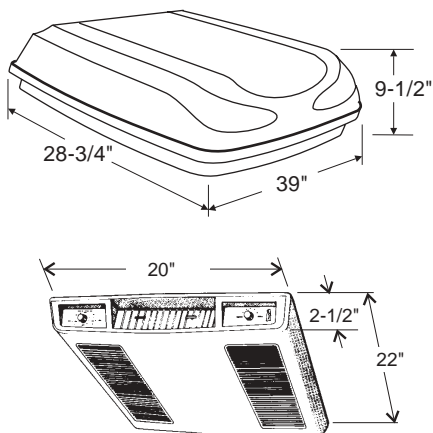
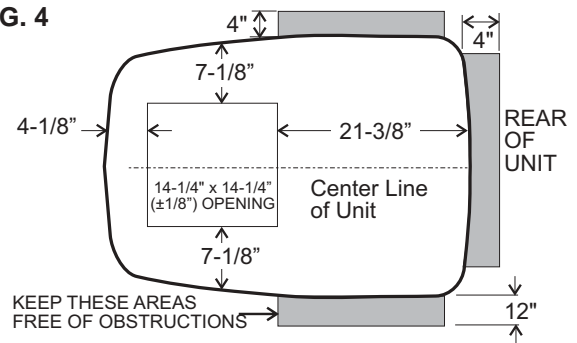
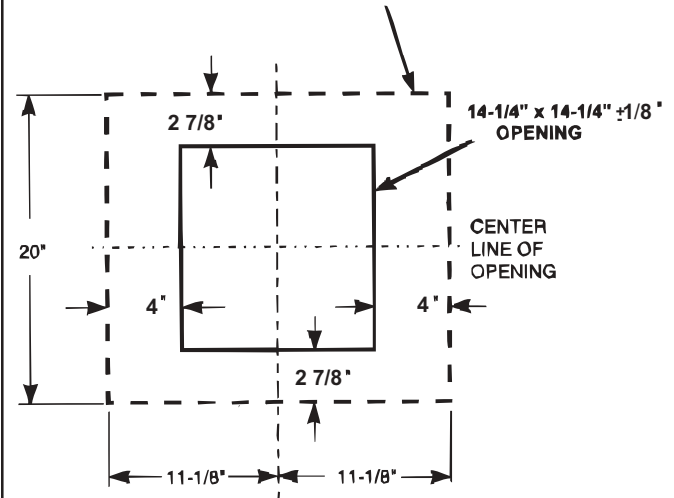


FIG. 4



AIR BOX PERIMETER



C. Roof Preparation

- Opening Requirements - Before preparing the ceiling opening, the type of system options must be decided upon. If a remote sensor is to be used, provision must be made for it. If the load shed option is to be used, wires must be run from the load shed control to the Dometic A/C. If a furnace is to be connected, wires must be run from the furnace to the Dometic A/C. Read all of the following instructions before beginning the installation.
If a roof vent opening will not be used a 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening must be cut through the roof and ceiling of the RV. This opening must be located between the roof reinforcing members.

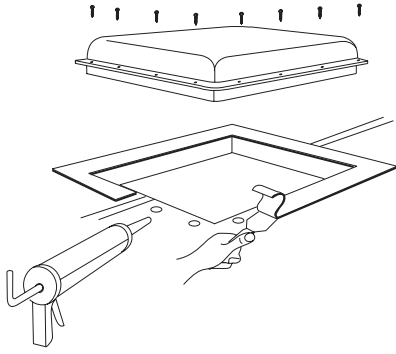
! WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 115 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.

The 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening is part of the return air system of the Air Conditioner and must be finished in accordance with NFPA Standard 501C Section 2.7.2.

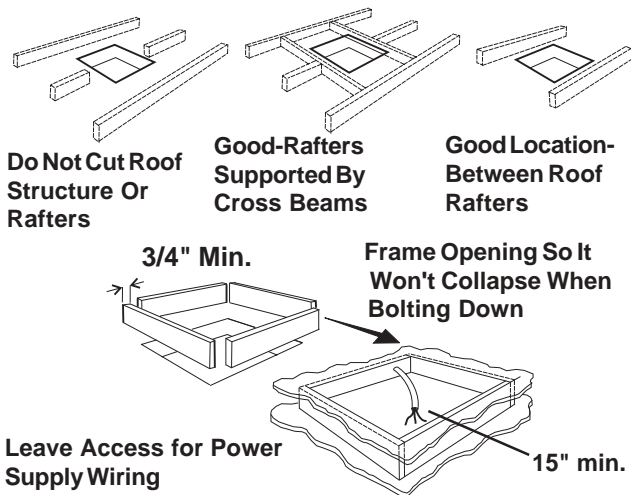
2. Roof Vent Removal
 - a. Unscrew and remove the roof vent.
 - b. Remove all caulking compound around opening.

FIG. 5



- c. Seal all screw holes and seams where the roof gasket is located. Use a good grade of all weather sealant.
 - d. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to install spacers.
 - e. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged.
3. New Opening-(Installation Other Than Vent Opening)
 - a. Mark a 14-1/4" x 14-1/4" ($\pm 1/8$ ") square on the roof and carefully cut the opening.
 - b. Using the roof opening as a guide, cut the matching hole in the ceiling.
 - d. The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies, furnace wiring, 4-conductor control cable, remote sensor and load shed (Energy Management System) options as desired.

FIG. 6



CAUTION

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. Water standing around the air conditioner may leak into the interior causing damage to the product and the RV.

D. Wiring Requirements

1. Route a copper 12 AWG, with ground, 115 VAC supply line from the fuse or circuit breaker box to the roof opening.
 - a. This supply line must be located in the front portion of the 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening.
 - b. The power **MUST** be on a separate 20 amp time delay fuse or HACR circuit breaker.
 - c. Make sure that at least 15" of supply wire extends into the roof opening. This ensures easy connection at the junction box.
 - d. Wiring must comply with all National, State and Local Wiring Codes.
 - e. Use a steel sleeve and a grommet or equivalent methods to protect the wire where it passes into the opening.
2. Route a dedicated 12 VDC supply line (18-22 AWG) from the RV's converter or battery to the roof opening.
 - a. This supply line must be located in the front portion of the 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening.
 - b. Make sure that at least 15" of supply wire extends into the roof opening.
 - c. **In a multiple zone installation, this wiring is required in only one of the 14-1/4" x 14-1/4" ($\pm 1/8$ ") openings.**
3. If a Remote Temperature Sensor is used, the connector end must be routed to the roof opening of the system which it will control. Make sure that at least 15" of the sensor cable extends into the roof opening. Refer to the Remote Sensor Instructions for details of the installation.
4. If a furnace is to be controlled by the system, the two furnace thermostat leads must be routed to the roof opening of the air conditioner that will control it. Make sure that at least 15" of the furnace thermostat wires extend into the roof opening.
5. 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 wires extend into the roof opening.

6. Route a 4-conductor control cable from the **Comfort Control Center™** mounting position into the 14-1/4" x 14-1/4" ($\pm 1/8$ ") roof opening. Make sure that at least 15" of the wire extends into the roof opening and 6" extend from the wall at the mounting position of the **Comfort Control Center™**. See Section E-2.
7. In the event that other Air Conditioners are installed (additional zones) an additional 4-conductor control cable must be routed to the other Air Conditioners. Make sure that at least 15" of the wire extends into the roof opening. See FIG. 21.
8. If an automatic generator start kit (AGS) will be installed, a 4-conductor control cable must be routed from the last air conditioner to location of AGS kit. Follow AGS kit instructions for installation.

E. Dometic Comfort Control Center™ & Cable Installation

1. Location
 - a. If the system is to be used **WITHOUT** a **Remote Temperature Sensor**, the proper location of the **Comfort Control Center™** is very important to ensure that it will provide a comfortable RV temperature. Observe the following rules when selecting a location:
 - Locate the **Comfort Control Center™** 54" above the floor.
 - Install the **Comfort Control Center™** on a partition, not on an outside wall.
 - **NEVER** expose it to direct heat from lamps, sun or other heat producing items.
 - Avoid locations close to doors that lead outside, windows or adjoining outside walls.
 - Avoid locations close to supply registers and the air from them.
 - b. If the system is to be used **WITH** a **Remote Temperature Sensor** in **ALL** zones, the **Comfort Control Center™** may be mounted anywhere that is convenient in the coach. Try to avoid hard to reach and hard to see areas.
 - Refer to the instructions provided with the **Remote Temperature Sensor** for details of installation.
 - c. A 3/8" diameter hole will be needed to route the cable through the wall. See Section D-3.

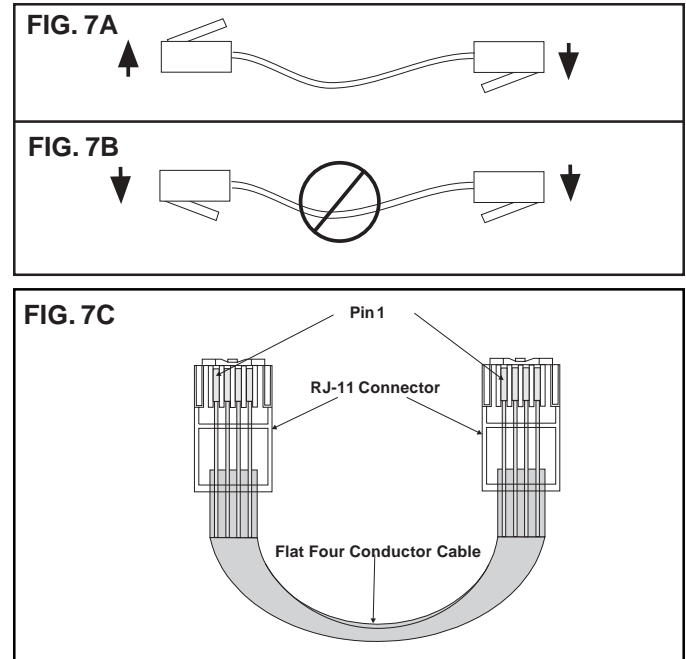
2. Control Cable Installation

A 4-conductor control cable must be routed from the roof opening to the **Comfort Control Center™**.

- a. Choose the shortest, most direct route from the 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening to the **Comfort Control Center™** location selected. Leave 6" of cable extending through the wall. See Section D-6.
- b. The control cable that should be used is a flat, 4-conductor telephone cable.

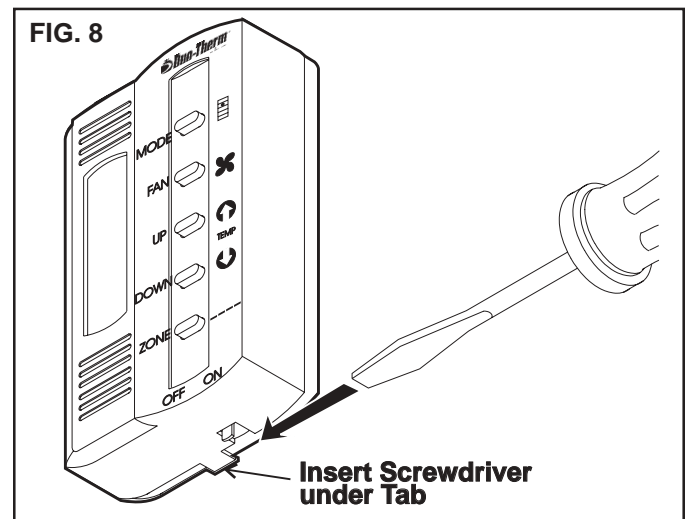
- c. The control cable must be terminated with two (2) RJ-11 telephone connectors. Refer to the crimp tool manufacture for crimping instructions.

Important: RJ-11 connectors must be installed as shown in FIG. 7A & 7C.



3. Comfort Control Center™ Installation

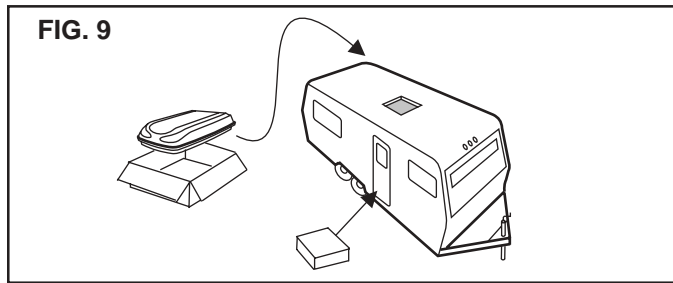
- a. Carefully remove the base plate from the **Comfort Control Center™**. This may be accomplished by inserting a small screwdriver under the tab on the bottom edge of the front cover and gently prying. See FIG. 8.



- b. Insert the control cable through the hole in the base plate and mount the plate to the wall with two (2) screws provided. Check the alignment to ensure level installation.
- c. Install the control cable RJ-11 connector into the back of the **Comfort Control Center™** and gently press onto the base plate.

F. Placing the Air Conditioner On The Roof

1. Remove the air conditioner from the carton and discard carton.
2. Place the air conditioner on the roof.



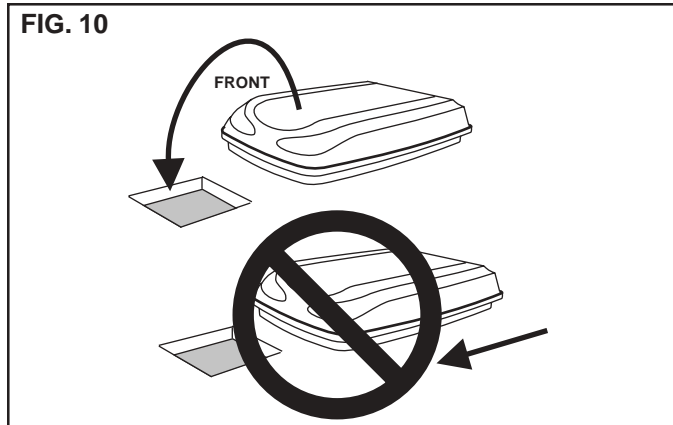
CAUTION

This unit weighs approximately 100 pounds. To prevent back injury, use a mechanical hoist to place Air Conditioner on roof.

3. Lift and place the unit over the prepared opening using the gasket on the unit as a guide.

CAUTION

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



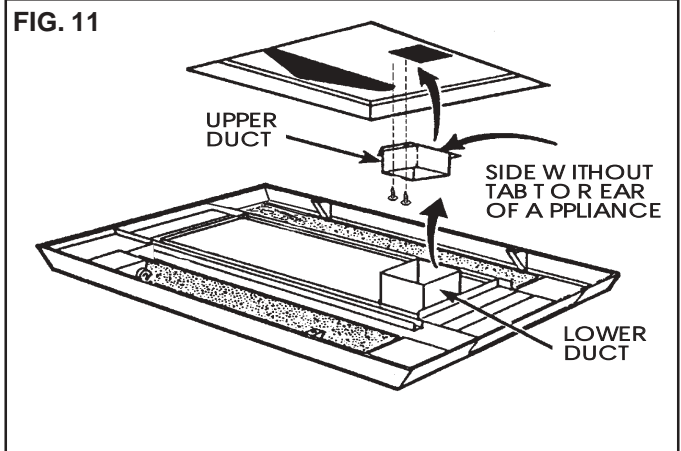
4. Place the Air Box Kit inside the RV. This box contains mounting hardware for the air conditioner and will be used inside the RV.

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

G. Installing The Air Conditioner

1. Discharge Duct & Ceiling Template Installation.
 - a. Remove the air box and mounting hardware from their carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
 - b. Locate the three 8" x 1/4" x 20 unit mounting bolts, junction box cover and Romex connector in the 3107180.006 bolt kit.

FIG. 11



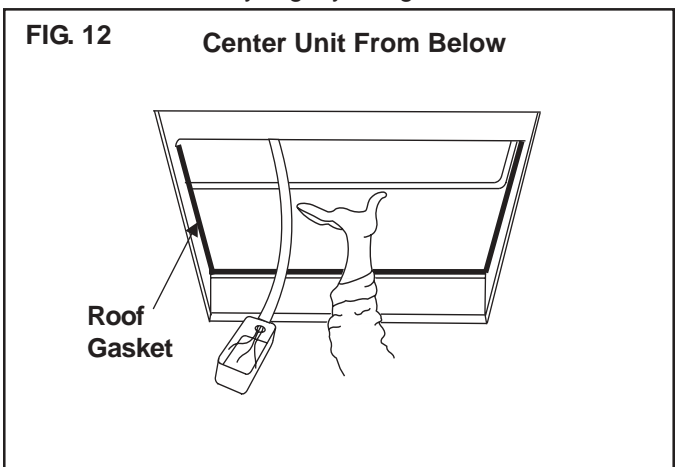
- c. Remove the upper duct from the ceiling template and locate it over the blower discharge.

Note: The edge without the flange installs toward the rear of the RV.

- d. Use two (2) #10 x 3/8" screws to hold the duct to the base pan. The holes are pre-punched in the pan for each location.
- e. Check gasket alignment over roof opening and adjust if necessary. Unit may be moved from below by slightly lifting. See FIG. 12.

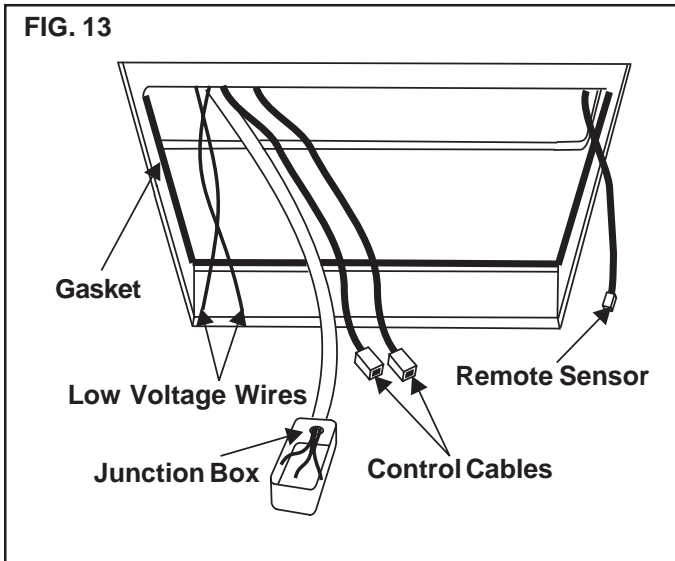
FIG. 12

Center Unit From Below



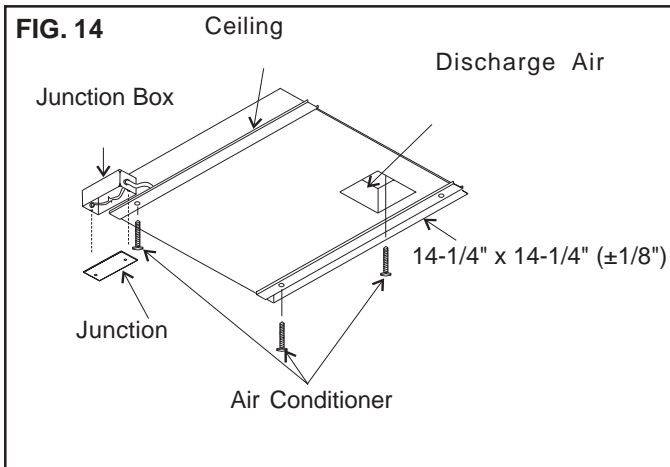
- f. Reach up into the return air opening and pull the electrical cord down.
- g. Mount the junction box to the ceiling in the following location. See FIG. 13.
 - Locate the junction box near ceiling template. Locate opposite discharge duct end and on same side as discharge duct. See FIG. 14
 - Center long side of junction box on center of mounting bolt.
 - Place edge of box approximately 1/2" from edge of ceiling template.
 - Attach junction box to ceiling of coach using two (2) #10 x 1/2" screws provided.

FIG. 13



h. Install the Romex connector in the junction box.

FIG. 14



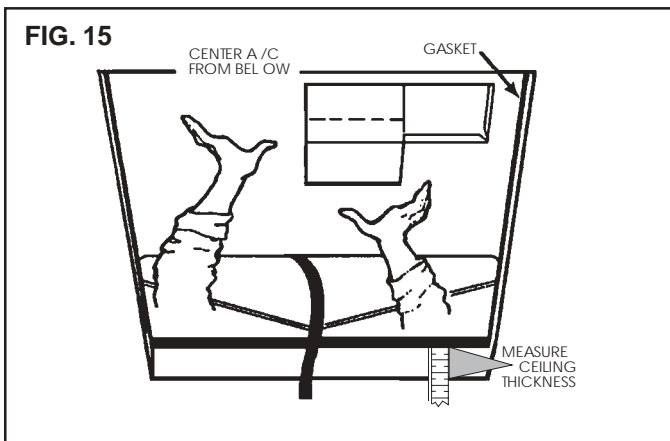
i. Measure the ceiling thickness:

- If the distance is 2" to 3" remove the perforated tabs from the bottom duct only.
- If the distance is 3" to 4" install ducts as received.
- If the distance is 4" to 6" (maximum thickness), optional Duct and Bolt Kits are available:

Duct (Part No. 318556.000)

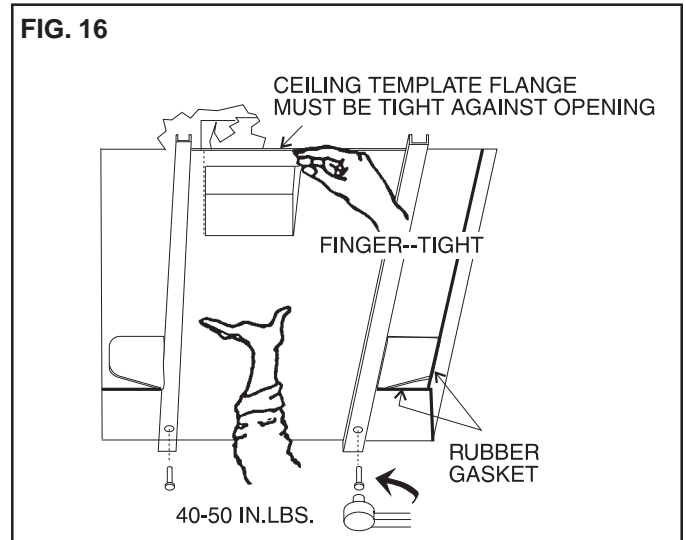
Bolts (Part No. 3100895.006)

FIG. 15



- j. Take the ceiling template and slide the lower duct over the upper duct.

FIG. 16



- k. Hold the ceiling template with one hand and with the other, install the three 1/4" mounting bolts through the template and into the base pan.

- Finger-tighten the (3) bolts and check alignment. There should be an equal opening on each side and the rear flange must be tight against the roof opening.
- **EVENLY** tighten the 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.

H. Wiring Of System

Reach up into the return air opening and pull the remaining wires down. See FIG. 13.

1. Connection Of Low Voltage Wires

CAUTION

Disconnect the positive (+) 12 volt DC terminal at the supply battery. Damage to equipment could occur if the 12 volt DC is not shut off.

- a. Route **Remote Temperature Sensor** cable, if applicable, and attach it to the connector that matches its color protruding from the return air opening.

- b. Connect the previously run 12 VDC to the red and black wires protruding from the return air opening. (In 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.
- c. Connect the previously run furnace thermostat wires (if applicable) to the blue wires protruding from the return air opening. The polarity of these connections does not matter.
- d. Connect the previously run Energy Management System wires (if applicable) to the yellow wires protruding from the return air opening. The polarity of these connections does not matter.
- e. Terminate the 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 connector. Refer to the crimp tool manufacturer for crimping instructions.

Important: RJ-11 connectors must be installed as shown in FIG. 7A & 7C.

- f. Plug the control cable(s) into the telephone jack(s) protruding from the return air opening. (It does not matter which one.)
2. Connection Of 115 Volt Power Supply

⚠ WARNING

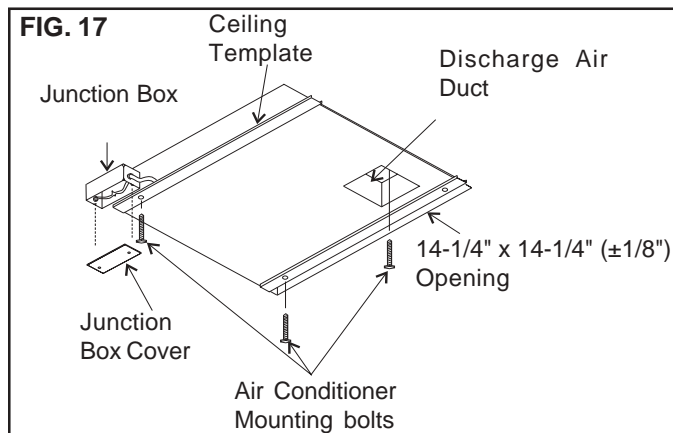
Disconnect 115 volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

- a. Route power supply line through Romex connector and into junction box on side away from the ceiling template. Tighten connector.

⚠ WARNING

This product is equipped with a 3-wire (grounded) system for protection against shock hazard. Make sure that the product is wired into a properly grounded 115 volt AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

- b. Connect white to white; black to black; and green to green or bare copper wire using appropriate sized twist connectors.
- c. Tape the twist wire connectors to the supply wire to assure they don't vibrate off.
- d. Push the wires into the box.
- e. Install the cover onto the junction box.

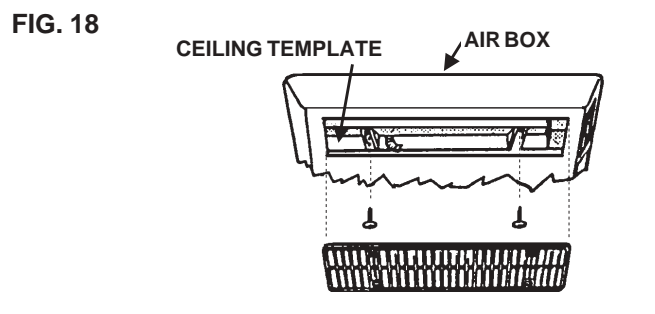


I. Air Box Installation

1. Remove the two filter-grilles from the air box.
2. Slide the air box over the ceiling template.
3. Install the four (4) sharp pointed screws through the air box legs and into the pre-punched holes in ceiling template.

Note: There are four optional mounting holes on the outer edge of the return air opening for which no screws are provided. These are only required where an uneven ceiling does not allow proper fitting of the air box.

4. Install the filter-grilles by pushing them into place. See FIG. 18.



J. System Configuration, Reset & Check Out

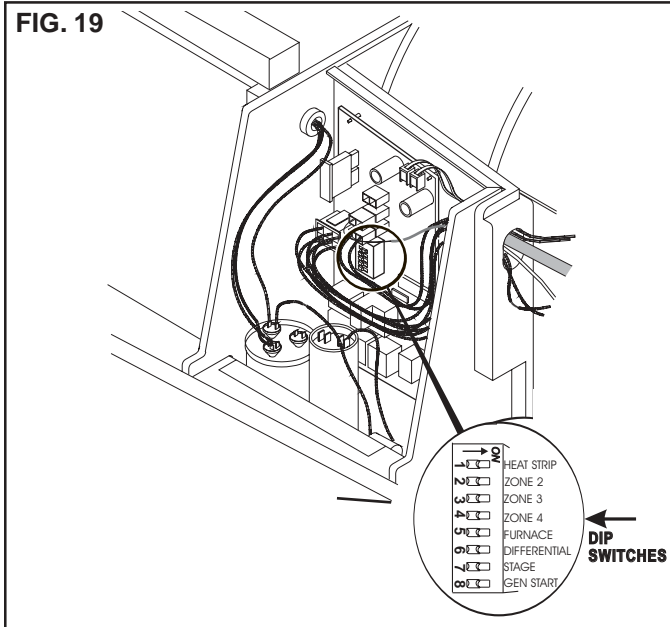
Now that the system is installed, it is necessary to check all operations and then configure the electronics. Refer to the operating manual for a description of the air conditioner operation.

1. Electronic Control Kit Configuration

Depending on the equipment options installed by the recreational vehicle manufacturer, the appropriate dip switches will need to be switched to the "ON" position. See FIG. 19. Placing the switch in the "ON" position selects that option.

Note: Dip switches are in the "OFF" position when shipped from the factory except for models supplied with the heat strip factory installed, (620515). For this model, the #1 dip switch will be in the "ON" position. To gain access to the dip switches, the shroud must be removed from the unit. Remove the four mounting screws around the perimeter of the unit. Next remove the electrical box cover. (The electrical box will be on the curb side of the RV after installation).

- a. Zone selection - when two or more units are installed and controlled by one **Comfort Control Center™**, the second unit becomes Zone 2, the third unit Zone 3 and the fourth unit Zone 4. The appropriate zone dip switch must be set in each electronic control kit for Zone 2, 3 and 4.



- b. Heat strip selection - For units with a heat strip installed at the factory (Model **620515**), the #1 dip switch will be in the "ON" position. All other models will have the dip switches in the "OFF" position.
- c. Furnace selection - when a furnace has been connected to a zone, place the furnace dip switch "ON" for that zone.
- d. Differential - differential is the temperature difference between the "ON/OFF" cycle of the thermostat. 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.

- e. Stage selection - stage is not used on these units. Leave in the "OFF" position.
- f. Gen start selection - leave in the "OFF" position.
- g. Replace the unit electrical box cover.
- h. Replace the shroud.
- i. Repeat this procedure for each additional zone.

2. System Reset

After setting the dip switches in the electronic control kit, do a system reset.

- a. Turn the ON/OFF switch to the "OFF" position.
- b. 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.
- c. 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.

3. System Checkout

We recommend that power be supplied to the air conditioner and check for proper operation. Verify that all features of the installed system work. See **Comfort Control Center™** Operating Instructions. Check fan speeds, cooling mode, heat pump mode, furnace (if connected) and heat strip. If the features do not work, check all wiring and confirm that the correct options have been selected on the Electronic Control Board.

FIG. 20

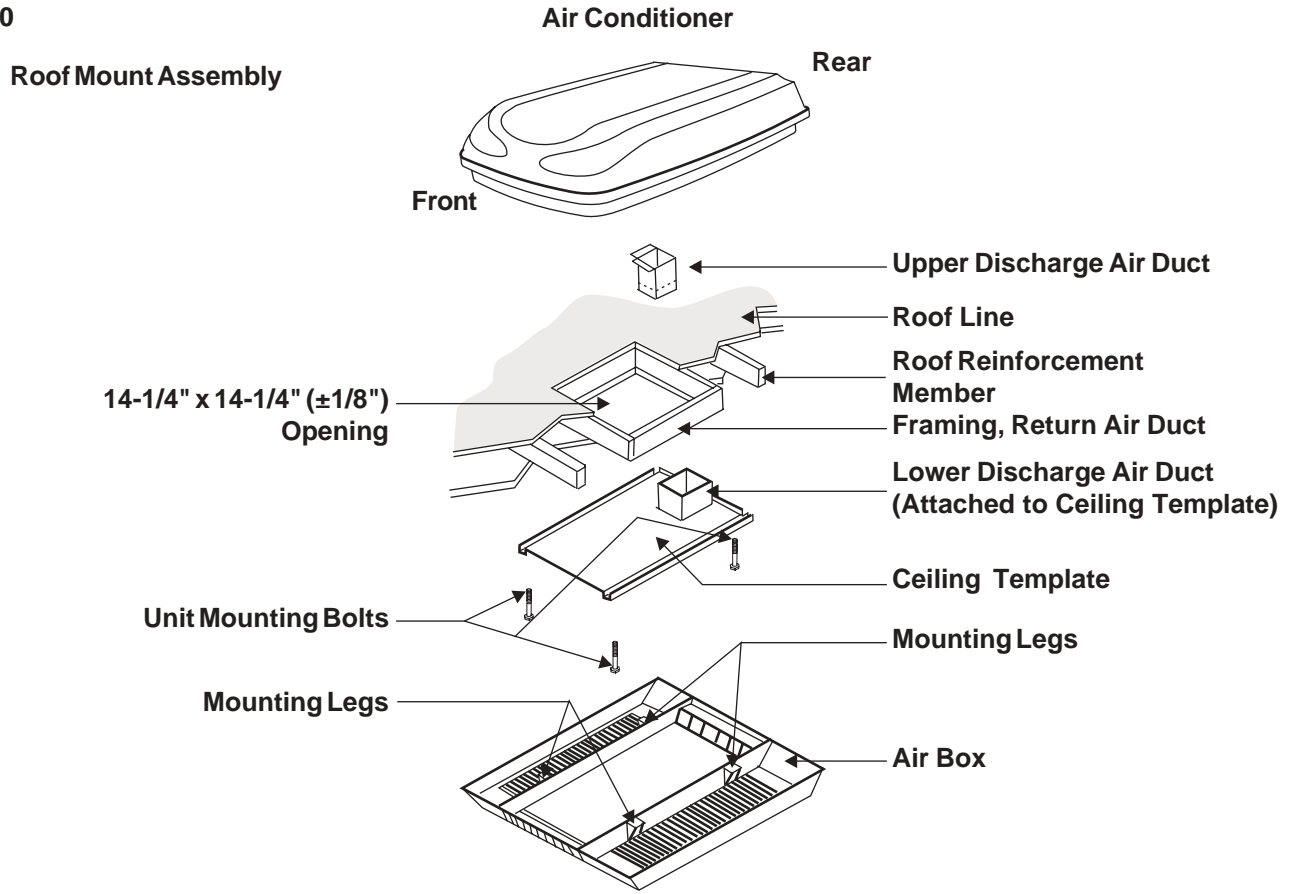
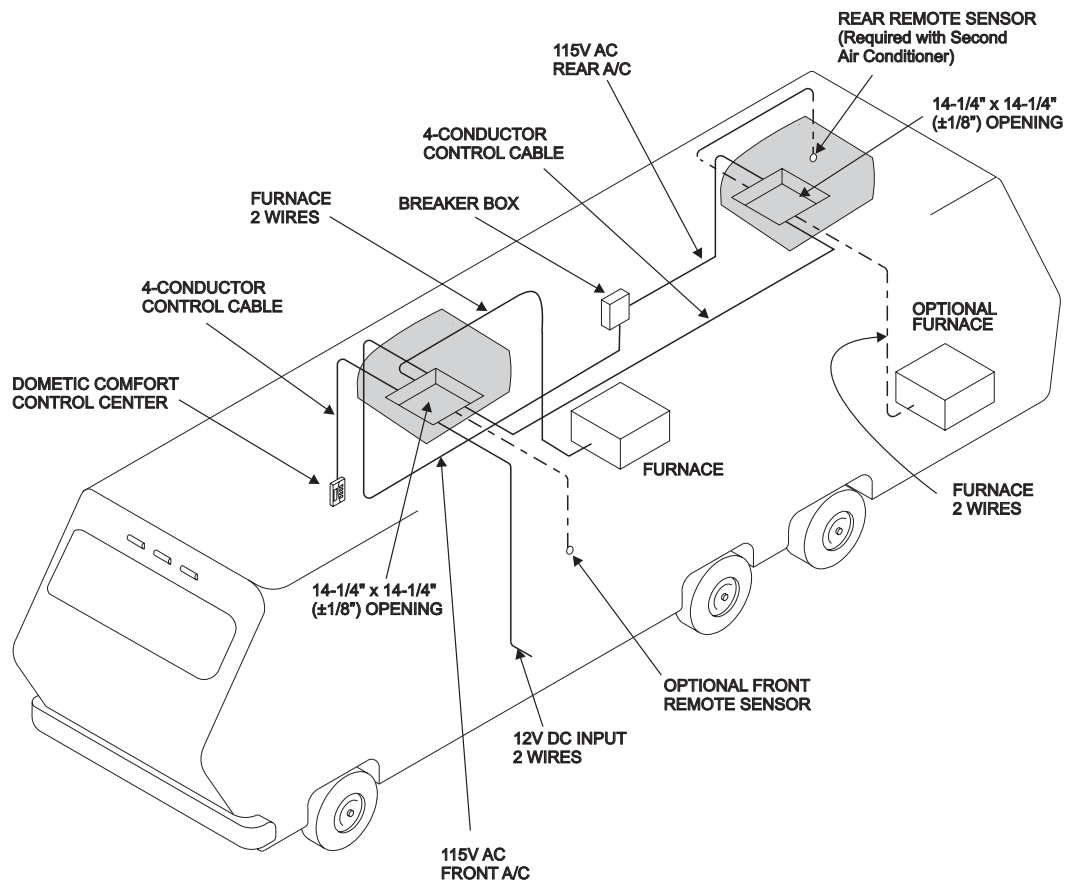
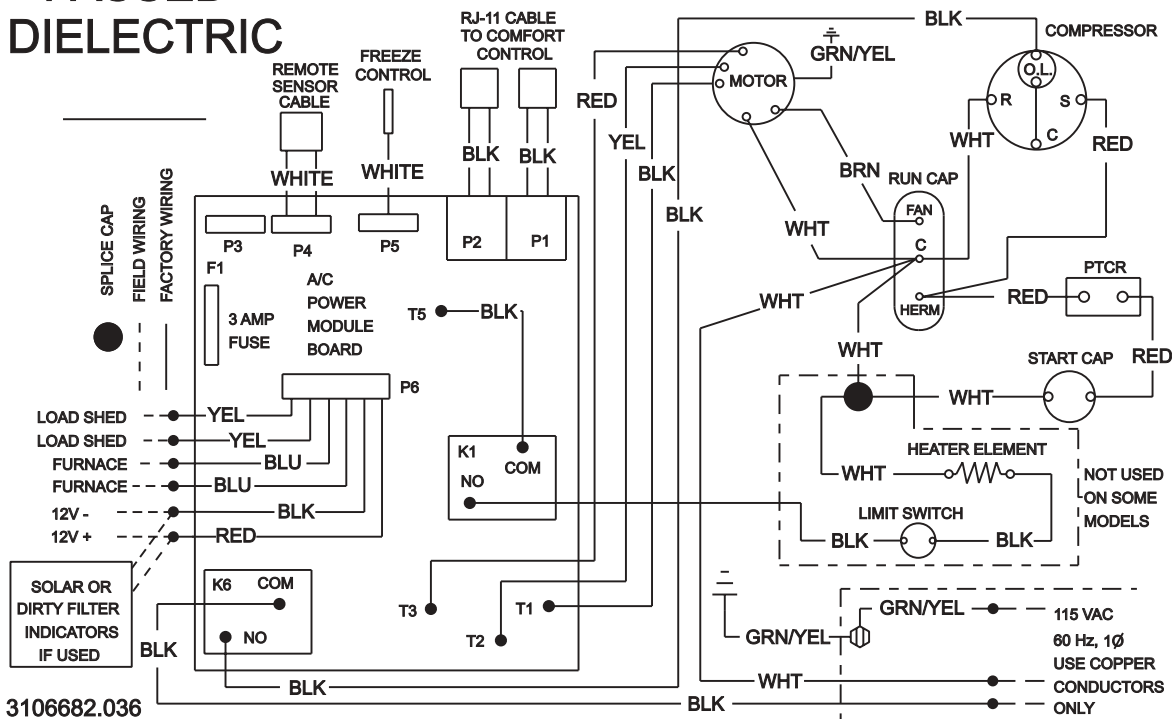


FIG. 21



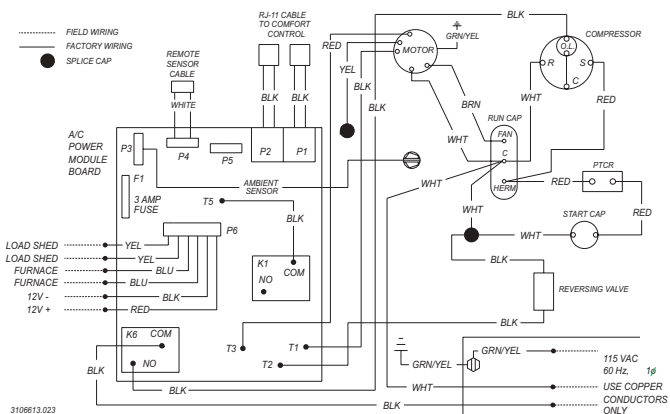
WIRING DIAGRAM FOR MODELS 620515.321, 620515.326, 620515.421, 620525.321, 620525.326, 620525.421, 620526.321 & 620526.326

**PASSED
DIELECTRIC**



WIRING DIAGRAM FOR MODELS EARLY VERSION

630515.321, 630515.326
630515.421
630516.321, 630516.326



WIRING DIAGRAM FOR MODELS LATER VERSION

630515.321, 630515.326
630516.321, 630516.326

