



RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:

Model Number _____
Serial Number _____
Date Purchased _____

59528, 59529 & 59530 QUICK COOL

Roof Top Air Conditioners USED WITH Part No. 3106917 Electronic Control Kit

THIS UNIT IS DESIGNED FOR OEM INSTALLATION
ALL INITIAL INSTALLATIONS MUST BE APPROVED BY THE DOMETIC CORP.

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SERVICE OFFICE
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Assistance Call:**
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**UNDERWRITERS
LABORATORIES
INC.®**
LISTED
637G



! 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
59528.601
59529.601
59530.601

REVISION

Form No. 3106918.034 12/99
(Replaces 3106918.026)
(French 3108565.007)
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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: means if the safety information is not followed someone could be injured or killed.

CAUTION: means if the safety information is not followed someone might be injured.

Read and follow all safety information and instructions.

SPECIFICATIONS

MODEL NO.	59528.601	59530.601	59529.601
Electrical Rating *	115VAC, 60 Hz, 1 Ph.		
Compressor			
Rated Load Amps	6.0	8.0	7.4
Locked Rotor Amps	45.6	48.3	44.0
Fan Motor			
Run Load Amps	2.0	2.0	2.0
Locked Rotor Amps	5.6	5.6	5.6
Refrigerant R22 (oz.)	16.5	19.0	20.5
Minimum Wire Size **	12 AWG Copper Conductors up to 24 ft.		
Circuit Protection	15 Amp Time Delay Fuse or HACR Circuit Breaker		
Installed Weight (lbs.)	92	94	93
Min. Generator Size ***	1 Unit	2.5 KW	
	2 Units	4.0 KW	

* Maximum unit performance achieved at full rated voltage.

** For distances over 24 ft. consult the National Electrical Code.

*** The 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.

1. GENERAL INFORMATION

A. This air conditioner is designed for:

1. Installation on a recreational vehicle at the time the vehicle is manufactured.
2. Mounting on the roof of a recreational vehicle.
3. Connection to an air distribution system located in the ceiling/roof cavity of the recreational vehicle.
4. Roof construction with rafters/joists on minimum of 16 inch centers.
5. Minimum of 2.00 inches and maximum of 5.50 inches distance between roof to ceiling of recreational vehicle. Alternate installation methods will allow for roofs more than 5.50 inches thick.

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

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.

INSTALLATION INSTRUCTIONS

1. PRECAUTIONS

⚠ WARNING

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

- A. Read Installation and operating instructions carefully before attempting to start your air conditioner installation.
- B. The Dometic Corporation will not be liable for any damages or injury incurred due to failure in following 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 Dometic.
- E. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

2. CHOOSING LOCATION FOR THE AIR CONDITIONER

This air conditioner is specifically designed for installation on the roof of a recreational vehicle (RV).

- 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; however,

Up to a 15° slant to either side or front-to-back is acceptable on 595 Series.

C. AFTER LOCATION HAS BEEN SELECTED:

- 1. Check for obstructions in the area where air conditioner will be installed.
- 2. The roof must be designed to support 130 pounds when the RV is in motion. Normally 200 pound static load design will meet this requirement.

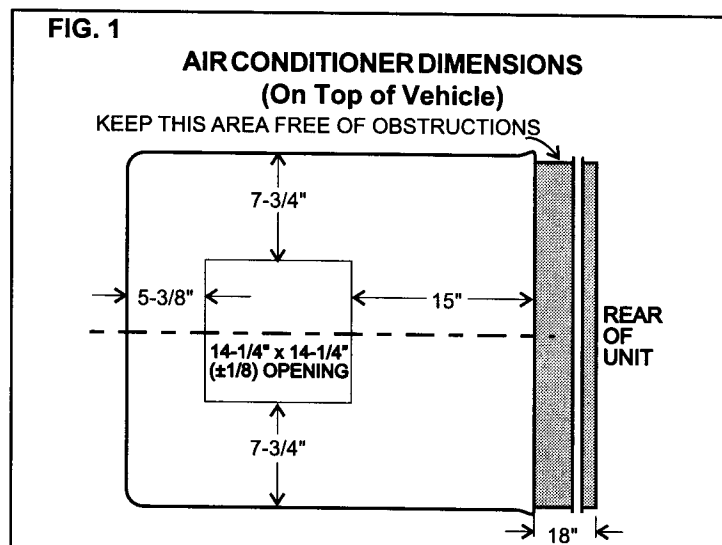
⚠ CAUTION

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.

3. AIR DISTRIBUTION SYSTEM SIZING & DESIGN

The Installer of this Air Conditioner System must design the air distribution system for his particular application. Several requirements for this system **MUST** be met for the Air Conditioner to operate properly. These requirements are as follows:

- A. Roof cavity thickness must be between 2.00" to 5.50". This distance is measured between roof and ceiling surface.



B. The total Cross-Sectional Discharge Area of outlet ducts from the Plenum Area under the Air Conditioner must be 21.0 sq. in.

C. Duct Sizing Requirements as follows:

	Min.	Max.
1. Duct Depth	1-1/2"	2-1/4"
2. Duct Width	7.00"	—
3. Total Duct Length	12 ft.	36 ft.
4. Duct Length (Short Run)	1/3 Total Length	

D. Register Requirements as follows:

	Min.	Max.
1. Distance from Duct End	5"	8"
2. Distance from End of Elbow	15"	—
3. Distance between Registers	24"	—
4. Total Number Required/AC	4	8
5. Number required per Run/AC	2	—
6. Free Area per Register	14 sq. in.	—

E. The Duct material must meet or exceed any agency or RVIA Standard that may be in existence at the time the RV is produced.

⚠ CAUTION

It is the responsibility of the installer to insure the duct-work will not collapse or bend during and after the installation. The Dometic Corporation will not be liable for roof structural or ceiling damage due to improperly insulated, sealed or collapsed duct-work.

F. ~~All Discharge Air Ducts must be properly insulated~~ to prevent condensation from forming on their surfaces or adjacent surfaces during operation of the Air Conditioner or heat pump. This insulation must be R-7 minimum.

G. Ducts and their joints must be sealed to prevent condensation from forming on adjacent surfaces during operation of the Air Conditioner.

H. Return Air Opening must have 40 sq. in. minimum free area including the filter.

I. Return Air to the Air Conditioner must be filtered to prevent dirt accumulation on Air Conditioner Cooling surface.

J. Total System Pressure must be between 0.40 to 1.10 in. W.C.

This is determined with the Air Conditioner Blower operation on High Speed and Return Air Filter and Grille in place.

INSTALLATION

The Dometic Corporation recommends the basic configuration shown below for installing this Air Conditioner System. We have found by testing, that this configuration works best in most applications of this Air Conditioner System.

It is the responsibility of the Installer of this System to review each RV floor plan and determine the following:

- A. Duct size
- B. Duct layout
- C. Register size
- D. Register locations
- E. Thermostat location.

These items must be determined in conjunction with the Air Distribution System Sizing and Design Requirements listed in Section 3 of this manual.

Important: Alternate configurations and methods may be used which still allow the air conditioner to operate properly. However, these alternate configurations and methods must be approved by The Dometic Corporation in writing.

The following instructions are based upon the use of Dometic Return Air Kit No. 3105007 or 3105935. The electronic control kit has mounting bolts supplied for use with this Kit.

A. 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 (Energy Management System feature) 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.**

B. ROOF AND CEILING OPENING PREPARATION

1. 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 and 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.

2. Mark a 14-1/4" x 14-1/4" ($\pm 1/8$ ") square on the roof and carefully cut the opening.
3. Using the roof opening as a guide, cut the matching hole in the ceiling.
4. The opening created must be framed to provide ad-

4. AIR DISTRIBUTION SYSTEM

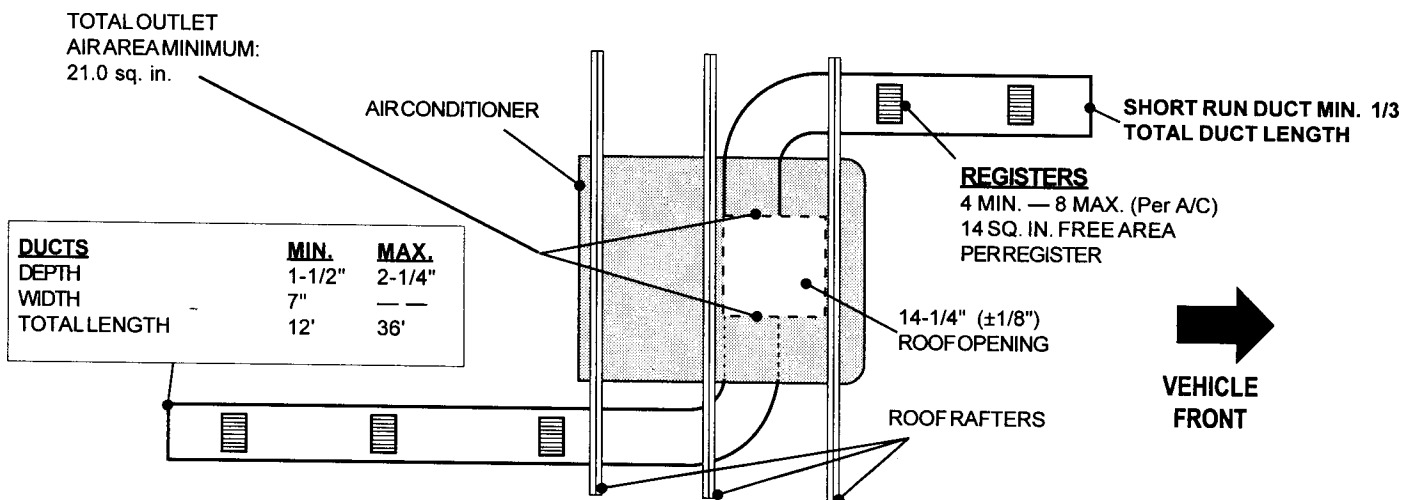
equate support and prevent air from being drawn from the roof cavity. Lumber 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies, furnace wiring, 4-conductor telephone cable, remote sensing and load shed options as desired.

5. The 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.
6. 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" ($\pm 1/8$ ") opening.
 - b. The power supply **MUST** be on a separate 15 amp Time Delay Fuse or HACR Circuit Breaker.
 - c. Make sure 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.
7. 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" ($\pm 1/8$ ") 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" ($\pm 1/8$ ") openings.**
8. If a **Remote Temperature Sensor** is to be 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.

9. 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 at least 15" of the furnace thermostat wires extend into the roof opening.
10. If an Energy Management System-EMS (load shed) 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 a normally open relay contact. When the EMS calls for the compressor to shut off, the relay contacts should close. Make sure that at least 15" of the EMS wires extend into the roof opening.
11. Route a 4-conductor telephone cable from the **Comfort Control Center™** mounting position into the 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™**.
12. In the event that other A/C's are to be installed (additional zones) an additional 4-conductor telephone cable must be routed to the **other A/C's**. Make sure that at least 15" of the wire extends into each of the roof openings. See FIG. 3.

FIG. 2

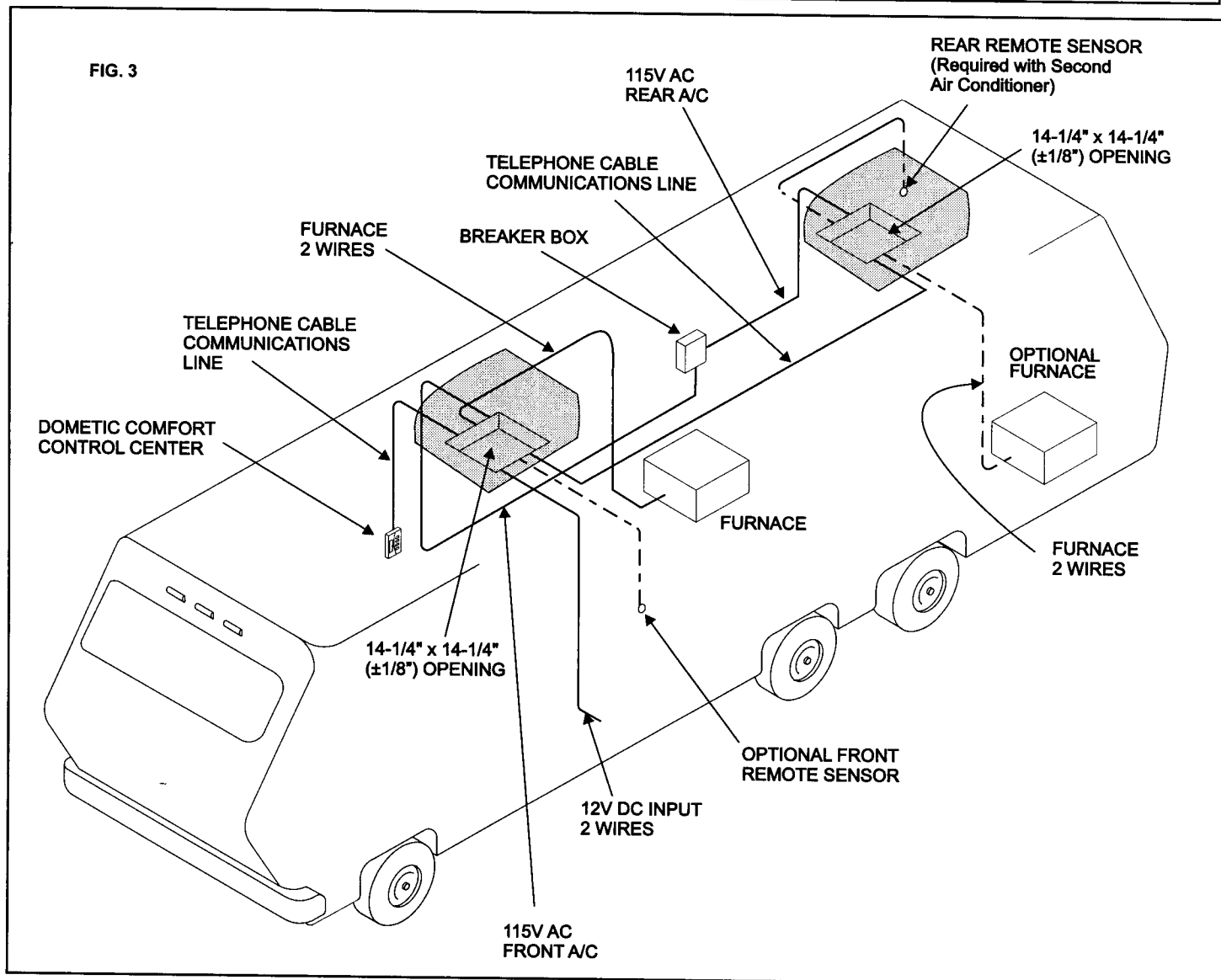
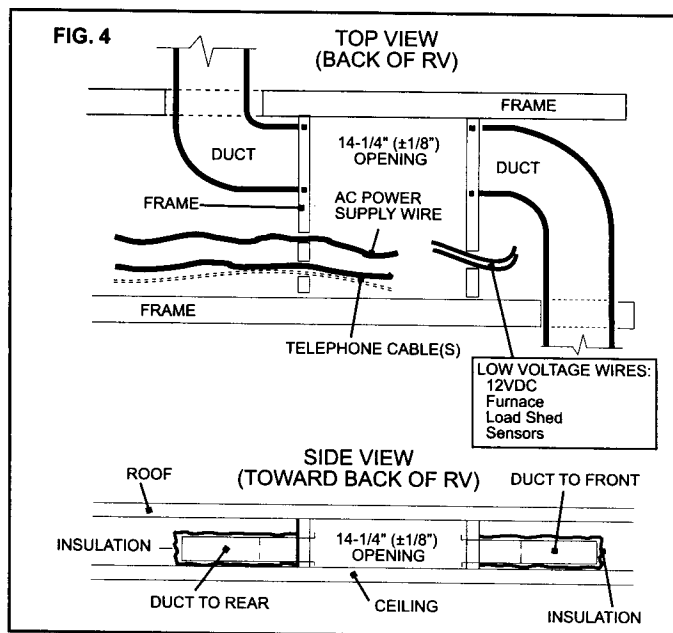


C. AIR DISTRIBUTION DUCT INSTALLATION

Install the Air Distribution Ducts in the RV Roof Cavity. The Distribution System must meet:

1. RV's requirements
2. System requirements listed in Section 3 of this Manual.

Terminate the start of the Duct at the back edge of the 14-1/4" ($\pm 1/8$ ") opening previously cut.



5. DOMETIC COMFORT CONTROL CENTER™ & CABLE INSTALLATION

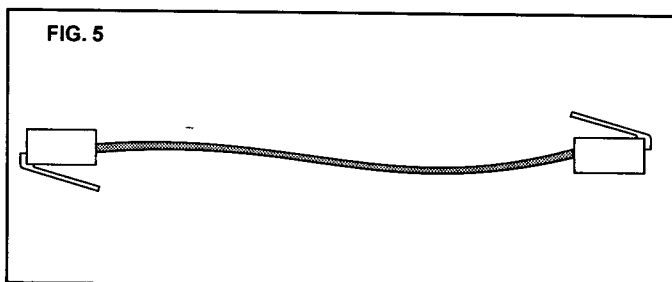
A. LOCATION

1. 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.
 - a. Locate the **Comfort Control Center™** 54" above the floor.
 - b. Install the **Comfort Control Center™** on a partition, not on an outside wall.
 - c. **NEVER** expose it 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.
2. 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.
 - a. Refer to the instructions provided with the **Remote Temperature Sensor** for details of installation.
3. A 3/8" diameter hole will be needed to route the telephone cable through the wall.

B. CONTROL CABLE INSTALLATION

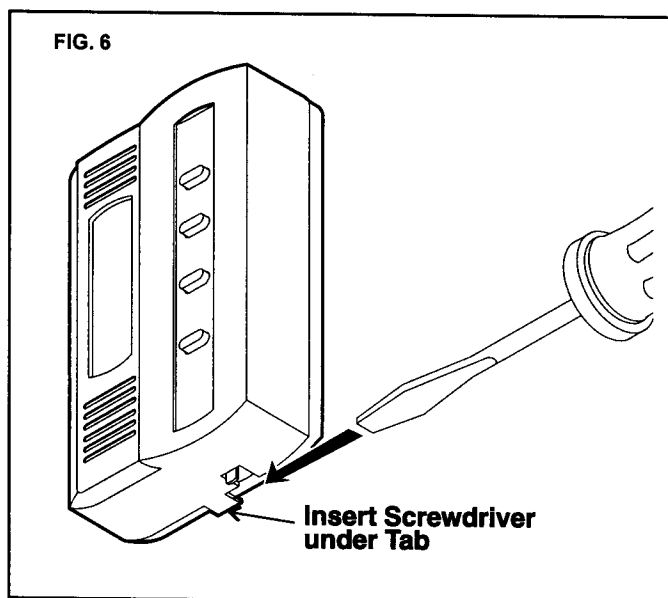
A 4-conductor telephone cable must be routed from the roof opening to the **Comfort Control Center™**.

1. Choose the shortest, most direct route from the 14" opening to the **Comfort Control Center™** location selected. Leave 6" of cable extending through the wall.
2. The cable that should be used is a flat, 4-conductor telephone cable.
3. The cable must be terminated with a telephone RJ-11 connector. Refer to the crimp tool manufacturer for crimping instructions. Ensure that the cable is installed into the connector correctly before crimping. (See FIG. 5).



C. COMFORT CONTROL CENTER™ INSTALLATION

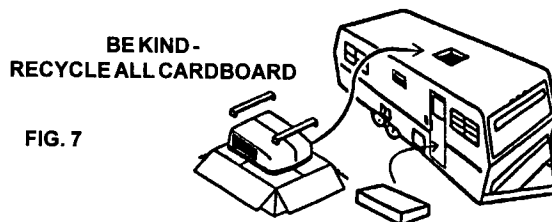
1. Carefully remove the base plate from the **Comfort Control Center™**. This may be accomplished by inserting a screwdriver under the tab on the bottom edge of the front cover and gently prying. (See FIG. 6).



2. Insert the telephone cable through the hole in the base plate and mount the plate to the wall with the two screws provided.
3. Install the control cable RJ-11 connector into the back of the **Comfort Control Center™** and gently press onto the base plate.

6. PLACING THE AIR CONDITIONER ON THE ROOF

- A. Remove the Air Conditioner from the carton and discard.
- B. Place the Air Conditioner on the roof.

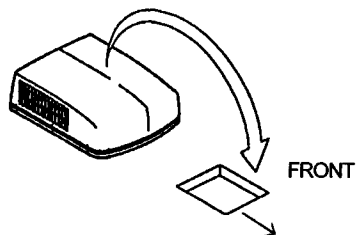


⚠ CAUTION

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

- C. Lift and place the unit over the prepared opening using the gasket on unit as a guide. The **blunt end** goes toward the **rear** of the RV.

FIG. 8



CAUTION

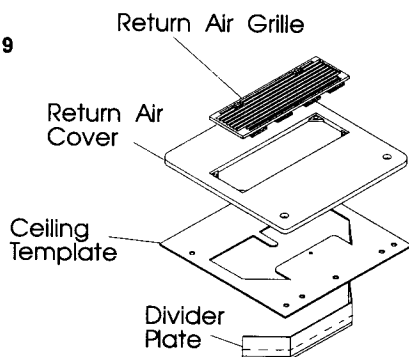
Do not slide the unit. This may damage the neoprene gasket attached to the bottom and create a leaky installation.

- D. Place the Electronic Control Kit and the Return Air Cover Kit inside the RV. These cartons contain 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.

7. INSTALLATION OF AIR CONDITIONER

FIG. 9



A. INSTALLATION OF CEILING TEMPLATE

Note: 3105007 Template and Cover are shown. 3105935 Kit installation is the same except Kit has opening for discharge of conditioned air directly from unit.

1. Check gasket alignment of the Air Conditioner over roof opening and adjust if necessary. Unit may be moved from below by slightly lifting and sliding.
2. Reach up into the return air opening of the Air Conditioner and pull the unit electrical cord down for later connection.
3. Remove Return Air Cover and Ceiling Template from the 3105007 or 3105935, return air cover kit carton.
4. Locate 1/4" unit mounting bolts in the Electronic Control Kit package.

5. Take the ceiling template and hold up to the 14" opening.
6. Start each mounting bolt through the ceiling template and up into the unit base pan by hand.
7. Evenly tighten mounting bolts to a torque of **40 to 50 Inch Pounds**.

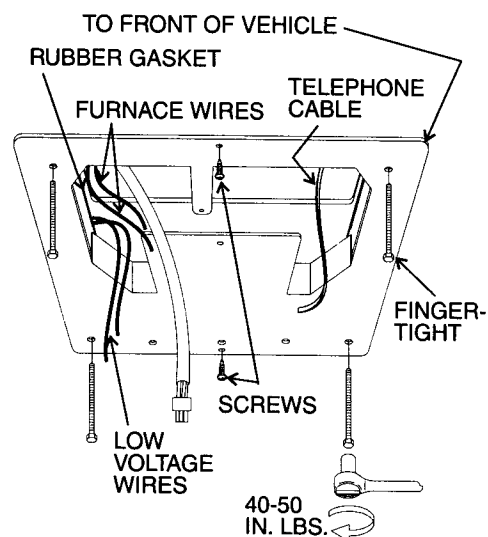
CAUTION

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.

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

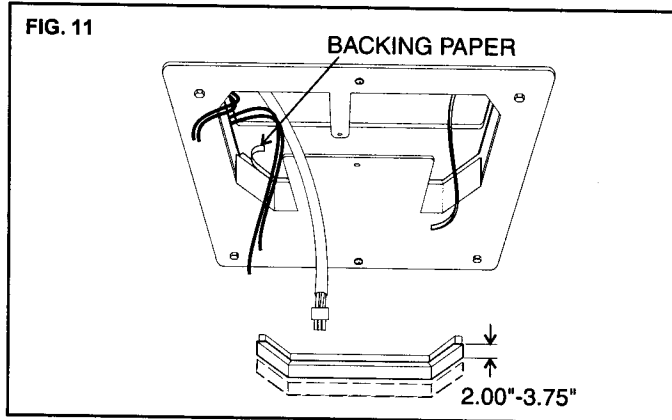
8. Install wood screw in each end of ceiling template. This insures a tight fit of return air cover to ceiling.

FIG. 10

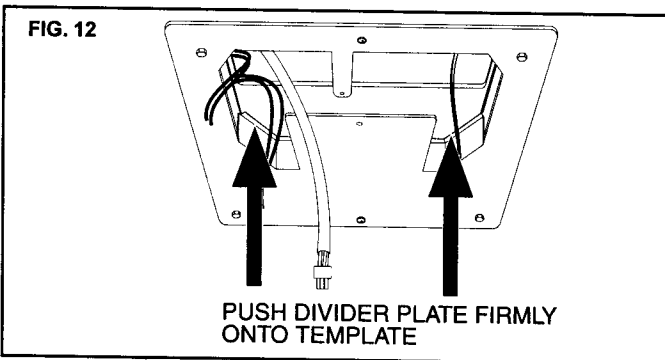


B. INSTALLATION OF DIVIDER PLATE

1. Measure the ceiling to roof thickness:
 - a. If distance is 2.00" - 3.75", remove perforated tab from Divider Plate.
 - b. If distance is 3.75" - 5.50", remove no tabs.
2. Remove the backing paper from double sided tape located on Ceiling Template.



3. Place Divider Plate up to bottom of Air Conditioner base pan firmly. The foam tape on the divider plate must seal to bottom of base pan.



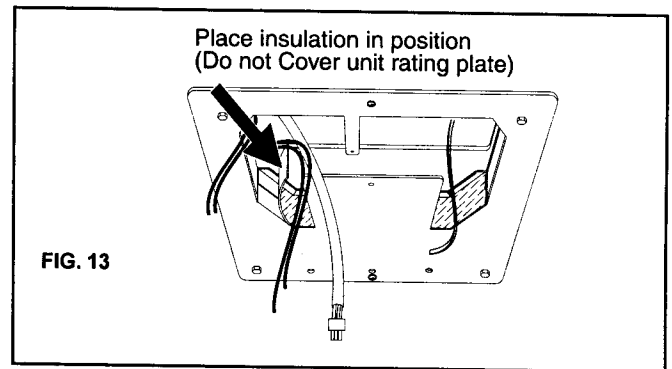
Note: The adhesive on double sided tape is extremely sticky. Divider Plate must be properly positioned before pressing in place.

4. With slight pressure, push the divider plate against the exposed double sided tape on ceiling template.
5. Locate 1/8" x 7" x 18" self-adhesive insulation supplied with the Return Air Kit.
6. Remove the backing paper from the insulation and carefully stick onto the ceiling template divider panel.

Note: The adhesive on insulation is extremely sticky. Be sure part is located where desired before pressing into place. We recommend pulling off part of backing paper, locating part and then remove backing paper as insulation is pressed into place.

- a. Excess width is intended to seal the divider plate to the sides of the 14-1/4" ($\pm 1/8$ ") opening. This is to prevent cold discharge air from circulating into the Air Conditioner return air opening.
- b. If the insulation is too high, stick the excess height of insulation to the Air Conditioner base pan.

Note: Do not cover up unit rating plate.

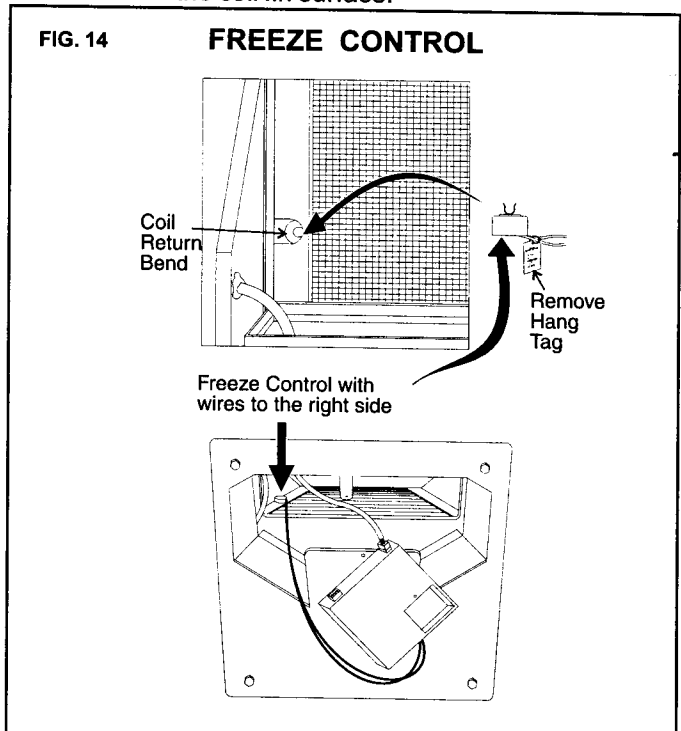


C. INSTALLATION OF ELECTRONIC CONTROL KIT

1. Terminate the 4-conductor telephone cable(s) protruding into the 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. Ensure that the cable is installed into the connector correctly before crimping. (See FIG. 5).

Note: Pre-assembled telephone cable may not work. RJ-11 connection **MUST** be installed so wire colors are the same on both ends.

2. Remove the screw holding the junction box cover to the **Electronic Control Kit**. Remove the cover.
3. Snap the **Freeze Control Sensor** onto the return bend of the evaporator coil. (See FIG. 14).
 - a. Locate "D" shaped notch in the flange of the evaporator coil.
 - b. Place the horseshoe end of the **Freeze Control Sensor** through this notch and snap it onto the return bend. When positioned correctly, the control wires will be 90 degrees to the direction of the coil fin surface.



8. WIRING OF SYSTEM

A. 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.

1. Route the **Remote Temperature Sensor** cable, if applicable, through the grommet in the **Electronic Control Kit** and attach it to the connector that matches its color. (See FIG. 15)
2. Connect the previously run 12 VDC to the red and black wires protruding from the **Electronic Control Kit**. (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.
3. Connect the previously run furnace thermostat wires (if applicable) to the blue wires protruding from the **Electronic Control Kit**. The polarity of these connections does not matter.
4. Connect the previously run Energy Management System wires for load shed (if applicable) to the yellow wires protruding from the **Electronic Control Kit**. The polarity of these connections does not matter.

B. CONNECTION OF 115 VOLT POWER SUPPLY

⚠ WARNING

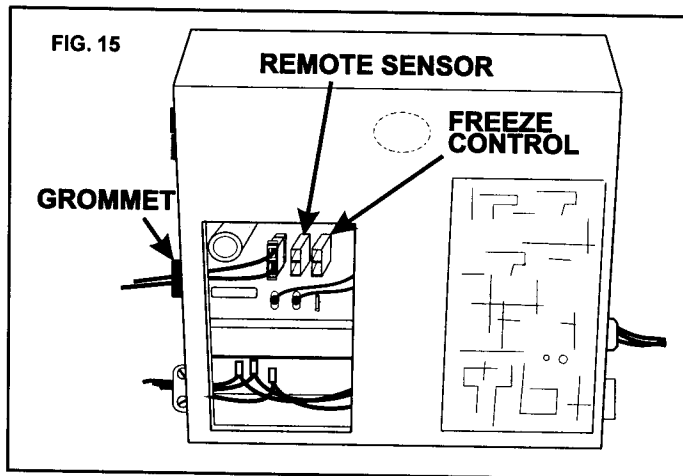
Disconnect 115 volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

1. Route the previously run power supply line through the Romex Connector and into the **Electronic Control Kit Junction Box**.

⚠ WARNING

This appliance is equipped with a 3-wire (grounded) system for protection against shock hazard. Make sure that the appliance 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.

2. Connect the white to white; black to black; and green to green or bare copper wire using appropriate sized twist wire connectors. **Tape** the twist wire connectors to the supply wiring to assure they do not vibrate off.
3. Tighten screws on strain relief connector being careful not to pinch and cut into the insulation on power supply leads.
4. Push excess wires into junction box. Replace the junction box cover onto the **Electronic Control Kit**.



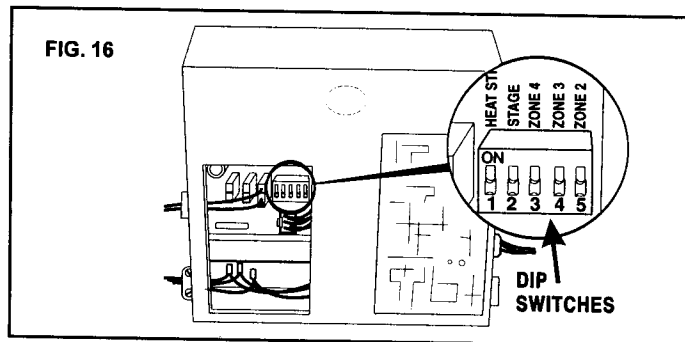
9. SYSTEM CHECKOUT & CONFIGURATION

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.

A. ELECTRONIC CONTROL KIT CONFIGURATION

1. Adjust the dip switches visible in the **Electronic Control Kit** according to the options that are installed. (See FIG. 16). Placing the switch in the ON position selects that option.
Note: Dip switches are shipped from the factory in the "OFF" position.
2. Selection of ZONE 2 identifies this unit as Zone 2; likewise, Zone 3 and 4.
3. STAGE is not used on these units. Leave in the "OFF" position.



B. SYSTEM CHECKOUT

Verify that all features of the installed system work. 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 Box. See **Comfort Control Center™** Operating Instructions.

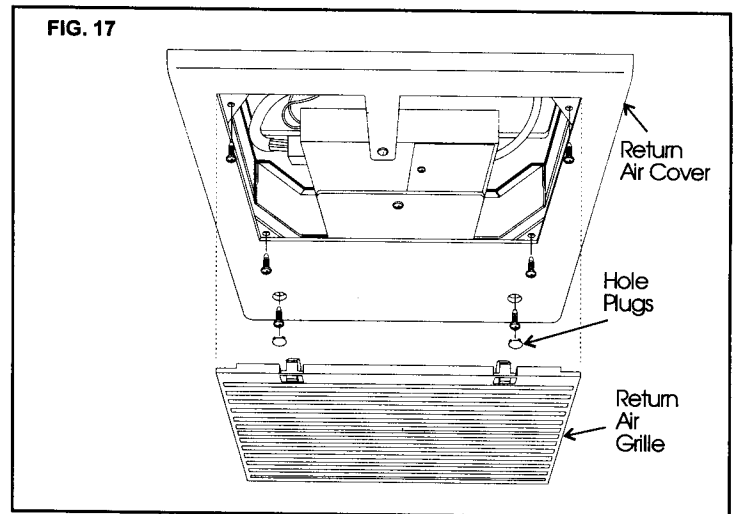
C. SYSTEM CONFIGURATION

If all features are functioning, perform the following configuration procedure:

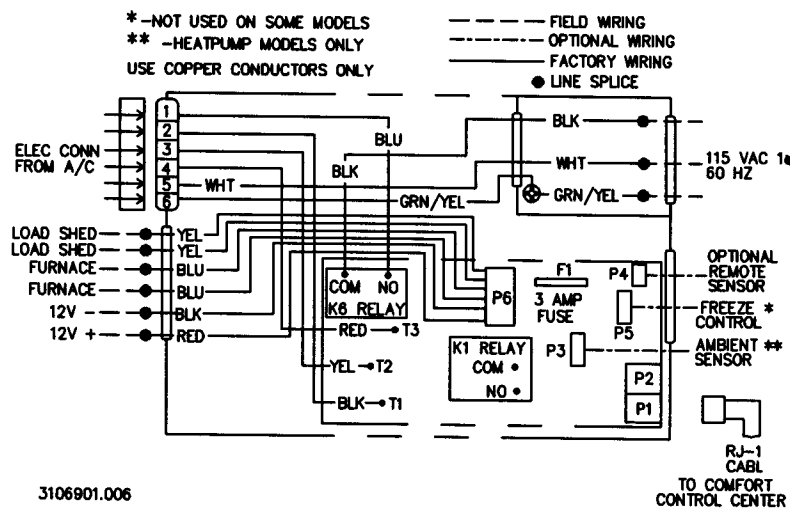
1. Simultaneously depress the **UP** and **DN** pushbuttons on the **Comfort Control Center™** for one second. This completes the system configuration.

10. INSTALLATION OF RETURN AIR COVER

- A. Remove Return Air Grille from the Return Air Cover.
- B. Place the Return Air Cover up to Ceiling Template.
- C. Install Cover to Template with #8 x 3/8" blunt point Phillips head screws provided (6 required).
- D. Reinstall Return Air Grille into Return Air Cover.
- E. Install two (2) hole plugs into screw holes in back of return air grille. Align tabs with mating notches and snap filter into place. (See FIG. 17)



ELECTRONIC FIELD WIRING DIAGRAM



UNIT FIELD WIRING DIAGRAM (A/C)

