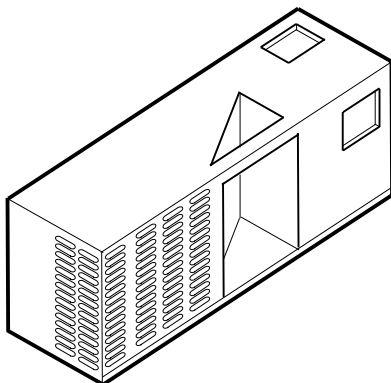




RECORD THIS INFORMATION FOR FUTURE REFERENCE
BEFORE INSTALLING THE UNIT:

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

SELF-CONTAINED AIR CONDITIONER HEAT PUMP FOR RECREATIONAL VEHICLES



ROTARY COMPRESSOR
SYSTEM MODELS
39524.602 & 39524.612



USA
SERVICE OFFICE
The Dometic Corp.
509 So. Poplar St.
LaGrange, IN 46761

CANADA
Dometic Dist.
866 Langs Dr.
Cambridge, Ontario
CANADA N3H 2N7

**For Service Center
Assistance Call:**
800-544/4881

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

⚠ 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

**SYSTEM
MODELS
39524.602
39524.612**

REVISION

Form No. 3109531.008 4/00
(French 3109540.009)
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LaGrange, IN 46761

**Important: 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.

Learn how to operate the air conditioner properly.

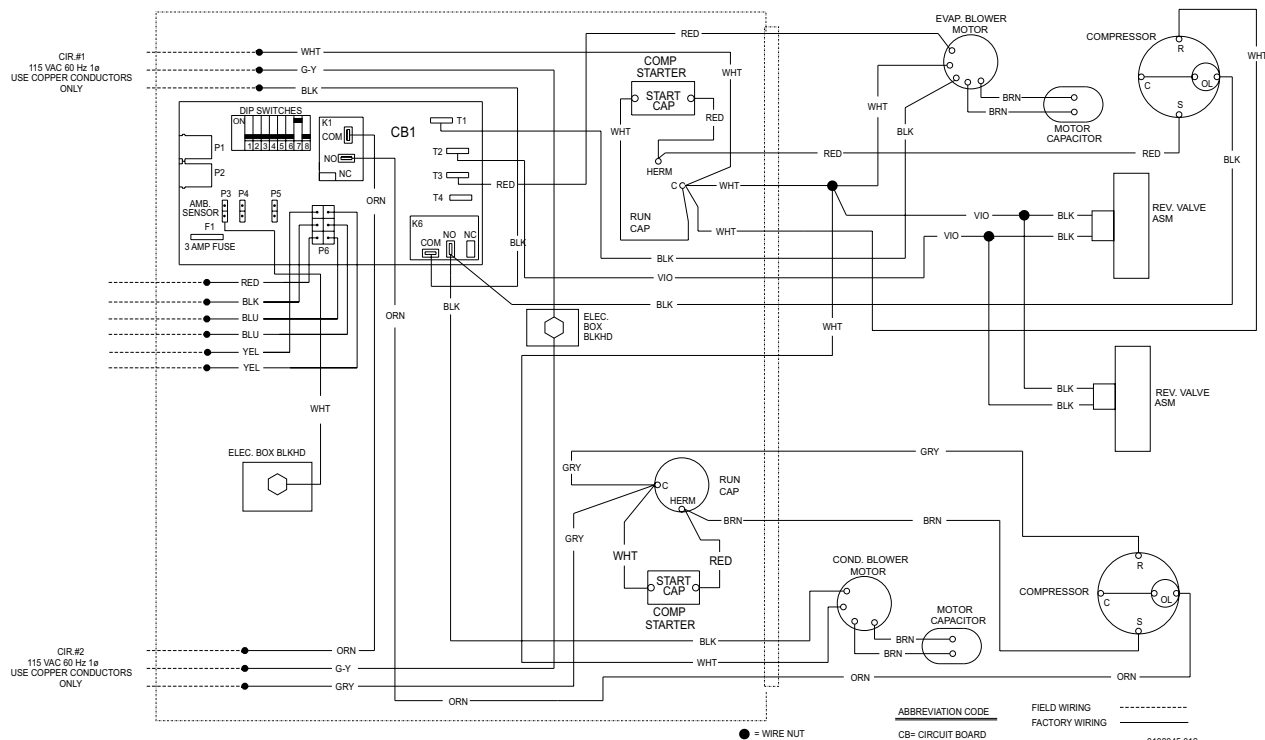
Keep your air conditioner in proper operating condition (See Maintenance Section). Do not modify the air conditioner which may impair the function.

SPECIFICATIONS

System Model	39524.602 & 39524.612		
Nominal BTU Capacity	27,000		
Volts/Phase/Hertz (each circuit)	115 AC / 1 / 60		
Run Amps Comp	(Circuit 1 = 12.3)	(Circuit 2 = 9.9)	
LRA Compressor	(Circuit 1 = 77.0)	(Circuit 2 = 54.0)	
Fan Motor Run Amps	2.04		
Fan Motor LRA Amps	6.80		
Blower Motor Run Amps	1.45		
Blower Motor LRA Amps	6.80		
Generator Size - Min. **	7.5K		
Wire Size Each Circuit	Up to 24 ft. - Use No. 12 AWG Copper Conductors		
Circuit Protection Each Circuit	20 Amp Time Delay Fuse or 20 Amp HACR Circuit Breaker		
Control Voltage	12V DC		
Refrigerant	R-22		
System Refrigerant Charge	(Circuit 1 = 39.0)	(Circuit 2 = 22.5)	
Size (In Inches)	Width 44	Height 17	Depth 22
Installed Weight	205 Pounds		

** The Manufacturer gives only general guidelines for generator requirements. These generator requirements come from experiences consumers have with our equipment in field applications. When sizing the generator, the total electrical power must be taken into consideration. Keep in mind that generators lose power because of altitude increases above sea level, high outdoor temperatures and lack of maintenance.

WIRING DIAGRAM



GENERAL INFORMATION

The Dometic Corporation will not be liable for any damages or injuries incurred due to failure to follow these instructions.

All wiring must comply with the National Electrical Code or CSA Standard C22.1, Canadian Electrical Code, Part 1; and all local codes.

Do not add any devices or accessories to this unit except those specifically authorized by The Dometic Corporation.

This unit **MUST** be serviced by a qualified technician, and some states require these people to be licensed.

The Dometic Corporation will not be responsible for damage caused by condensed moisture on ceilings, walls 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 unit removes this moisture from the air during normal operation. Keeping doors and windows closed when the unit is in operation will minimize condensed moisture on cold surfaces.

This unit is designed for:

1. Installation in a recreational vehicle at the time the vehicle is manufactured.
2. Heating operation in a **MILD GEOGRAPHICAL AREA** where the heat loss is minimal.
3. Turning "OFF" the heat pump and switching to furnace (aux. heat) when the outside temperature is below 30 degrees Fahrenheit.
4. Returning to heat pump when the temperature returns to 38 degrees Fahrenheit.

1. LOCATION

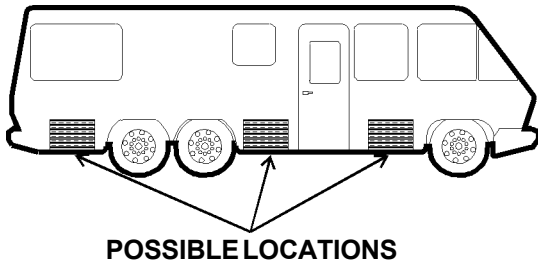
This system is intended for installation in a recreational vehicle where the interior is essentially one undivided space. (See FIG. 1)

INSTALLATION INSTRUCTIONS

- A. The unit is to be installed below the floor with DIRECT access to outside air for the outside coil.
- B. The thermostat cable maximum length is twenty-five (25) feet. Maximum length of cable used (including Tstat) for the control system is seventy-five (75) feet.
- C. The unit should be protected as much as possible from the elements. Do not locate unit where road spray, rocks, etc. will hit the unit.

Note: The fins of the outside coil should face the exterior of the vehicle.

FIG. 1



2. OUTSIDE COIL

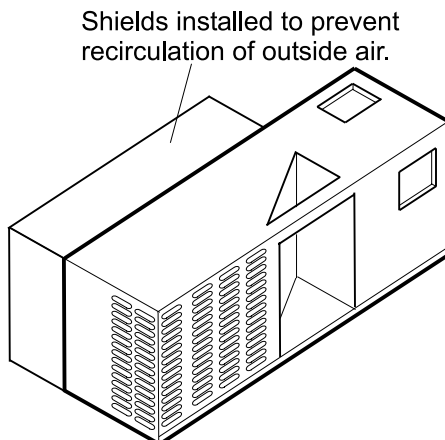
A. Supply Air

The inlet of the outside coil should be positioned so that it draws air from outside the vehicle. **Special care must be taken to prevent the discharge air from recirculating to the inlet of the outside coil. If unit is installed in a compartment, the bottom must be open to the outside. The compartment cannot be sealed.** Shields should be added to ensure fresh air supply. See FIG. 2

⚠ CAUTION

Do not install the unit where the fan will draw air from the exhaust of the vehicle, a motor generator set, transmission, road heat or any other heat producing source.

FIG. 2



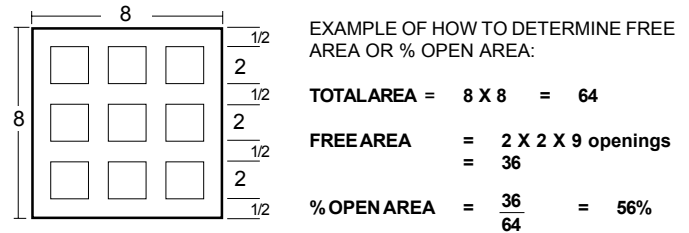
The outside coil is a "draw-through" type. When the face of the coil is positioned behind a louvered or other type of restrictive opening, the FREE AREA of the opening must be **at least 578 square inches**.

B. Free Area

Free area is the opening that remains in a grill or louvered panel after the restrictions are taken away. For example, an opening of 10 x 20 inches has 200 square inches. When this opening is covered with a grill that is 56 percent open the FREE AREA is (200 x .56), 112 square inches. See FIG. 3.

Expanded and perforated metal grills in general vary from 30 percent to 60 percent open. Be certain that **578 square inches** of FREE AREA is available to the face of the outside coil.

FIG. 3



Note: Service access must always be supplied either as clearance or as a defined access panel.

3. MOUNTING

The Model 39524 Heat Pump unit design is for installation below the floor. This unit should be mounted in an angle-iron frame, designed and built for the Model 39524. Frame rails should not restrict the condenser air discharge opening.

Important: Do not mount the Model 39524 Heat Pump in a sealed compartment.

4. CLEARANCES

The unit clearances depend on:

1. Inlet air access used;
2. Discharge air duct arrangement;
3. Return air duct;

When using the side access for return, please allow a minimum of eight (8) inches for the return air duct. Access to the electrical connections must be provided when making the installation.

5. INSIDE COIL SECTION

A. Return Air

The inside coil must have free access to room air. A minimum of 135 square inches of FREE AREA opening is required.

Where the return air must be provided through louvers or mesh screen, the FREE AREA percentage of the material used shall be taken into consideration when making this determination. An example of how to determine FREE AREA is included in "2. Outside Coil".

B. Grills (See FIG. 4)

Note: The return air grill must have the same square surface as the return air duct.

1. For each system, there must be a return grill to bring vehicle air back into the unit. There must also be at least four discharge grills per unit.
2. Return grills must be mounted in front of the inside coil. If this is not possible, make sure there is nothing blocking the air flow from the grill to the inside coil.
3. The unit must have a return filter between the grill and the unit. This filter must be accessible for periodic cleaning.

C. Discharge Air (See FIG. 4)

The air diffusion system, supplied by the installer, must be sized to maintain a static pressure at the blower outlet between 0.0 and .50 inches water column.

The installer has the options of side discharge, top discharge, side return, and top return. The unit can be ordered originally with the inside blower mounted to discharge the air as required. If the installer needs to change the direction of the discharge it is necessary to rotate the inside blower housing 90 degrees.

All air handling ducts must be properly insulated to prevent condensation forming on their surface during operation. A vapor barrier must also be supplied on the outer surface of the insulation to prevent moisture from traveling through the insulation and condensing on the cold ductwork.

D. Condensate Drain

A 1/2" diameter condensate drain stub is located in the base pan, just to the right of the side return air panel.

RETURN SYSTEM		
Return to be 6 ft. minimum from floor. Use wall structure for delivery to basement area. Return grille must be filtered.		
Minimum return required per duct sizing for unit to perform within Engineering specifications. See Chart below:		
	MINIMUM	MAX.
SIDERETURN	135 IN. ²	291 IN. ²
TOPRETURN	135 IN. ²	291 IN. ²

INSULATED DUCT	
Minimum	Maximum
45 IN. ²	80 IN. ²

(3" depth Min.)

Supply Duct must be insulated.
Supply Duct from air conditioner must be equal to or greater in IN.² as the floor ductwork.
Use 45 degree angle on inlets & outlets

Optional top return area. May be used in conjunction with side return.

FIG. 4

Optional Discharge

REGISTER REQUIREMENTS	
REQ. SIZE	MIN. QTY.
4 X 6	8
4 X 8	6
4 X 10	5
4 X 12	4

ADDITIONAL REQUIREMENTS:
Damper required in furnace.
Vibration isolators should be used at each mounting point.
12 VDC required for thermostat operation.

Electrical box access required.
Circuit #1 - 20 Amp
Circuit #2 - 20 Amp

Condenser air outlet (X2 in bottom)
Must be isolated from condenser inlet air.

6. ELECTRICAL WIRING

- A. Locate the unit electrical box. Remove the cover from the electrical box.
1. Each electrical circuit are grouped together with a wire tie.
CIR. 1 Black, White and Green w/yellow
CIR. 2 Orange, Gray and Green w/yellow
2. Route two independent 20 Amp supply circuits to the air conditioner electrical box. Each supply should be marked Cir #1 and Cir #2.
3. Circuit #1 should be wired directly from the coach's main breaker panel.
4. Circuit #2 should be wired through the on-board generator or a separate power cord dedicated to Circuit #2.

Note: A standard 30 amp hook-up will **not** power both Circuit 1 and Circuit 2 and the coach's other major appliances.

- B. Route main power supply Cir. #1 to electrical box. Using wire nuts attach the main power supply black "**Hot**" to the unit's black wire. Attach main power supply white to the white wire. Attach the main power supply ground wire to the Green w/yellow wire. Route the secondary power supply Cir. #2 to electrical box. Use wire nuts to attach black "**Hot**" to orange wire of circuit #2. Attach the secondary power supply white to the gray wire. Attach the ground wire to the green w/yellow wire. Install electrical box cover.

! WARNING

Failure to properly wire this unit may cause personal injury and will damage this product.

7. CONTROL SYSTEM WIRING INSTRUCTIONS

A. Connection of Low Voltage Wires

1. Route Remote Temperature Sensor cable, if applicable, and attach it to the matched color on the main board in the unit's electrical box.
2. Route a dedicated DC supply line (18-22 AWG) from the Converter or Battery to the unit's electrical box. Connect positive (+) DC to the red wire; Negative (-) DC to the black wire.
3. Route thermostat wires from the furnace (if applicable) to the electrical box and attached them to the blue wires extending from the main board. The polarity of these connections does not matter.
4. Route the Energy Management System 2 wires (if applicable) to the electrical box and connect them to the yellow wires extending from the main board. The polarity of these wires does not matter.

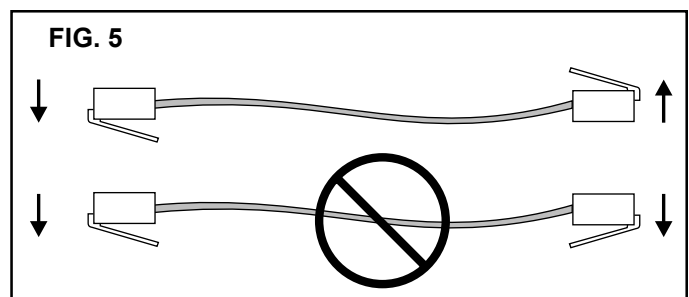
Note: If yellow wires are not used and a circuit is made between them, the unit will fail to operate.

B. Control Cable Installation

A 4-conductor flat control cable, must be routed between the Comfort Control Center (CCC) and the electrical box. The maximum length of all control cables is seventy-five (75) feet.

1. Select the shortest direct route between **Comfort Control Center™** and the electrical box for the system.
2. A 3/8" diameter hole will be needed to route the control cable through the wall.
3. Leave 6" of cable extending through the wall.
4. The cable that must be used is a 4-conductor flat control cable.
5. The cable must be terminated with two RJ-11 telephone connectors. Refer to the crimp tool manufacturer for crimping instructions. Be sure the cable is installed correctly into the connector before it is crimped. **Polarity is important and a standard pre-made telephone cable will not work.**

Important: RJ-11 connectors must be wired identically on both ends. See FIG. 5.



6. Plug the communications cable(s) into one of the telephone jack(s) on the circuit board in the electrical box. (It does not matter which one.)

8. COMFORT CONTROL CENTER MOUNTING

A. Location

The proper location of the Comfort Control Center (CCC) is very important to ensure that it will provide a comfortable RV temperature. Observe the following general rules when selecting a location.

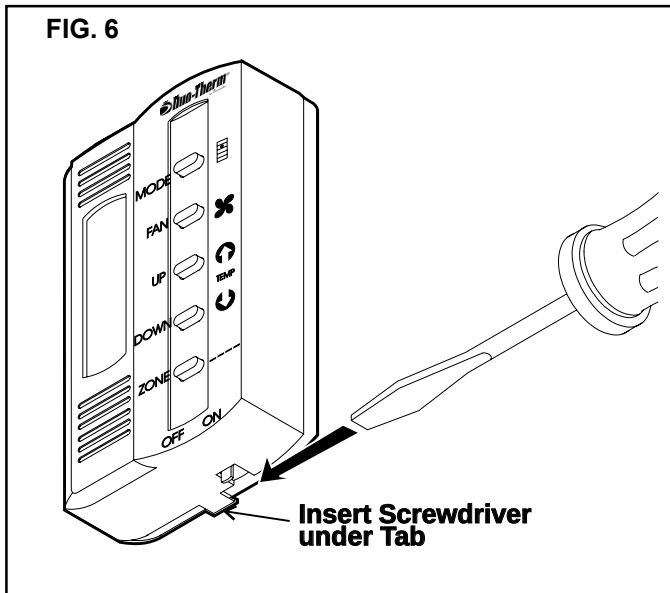
1. Locate the CCC about 54" above the floor;
2. Install CCC on a partition, not on an outside wall;
3. Direct heat from lamps, sun or other heat producing items will cause erratic operation and temperatures;
4. Avoid locations close to doors that lead outside, windows or adjoining outside walls;
5. Avoid locations close to supply registers and the air from them;
6. Never locate CCC in a room that is warmer or cooler than the rest of the coach - such as the kitchen;
7. The major living area is normally a good location.

Note: If the system is to be used with a Remote Temperature Sensor, the Comfort Control Center may be mounted anywhere that is convenient in the coach.

8. Try to avoid hard to reach or hard to see areas.
9. Refer to the instructions provided with the Remote Temperature Sensor for details of installation.

B. Comfort Control Center™ Installation

1. 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. 6



2. Insert the control cable through the hole in the base plate and mount the plate to the wall with the two screws provided. Check the alignment to ensure level installation.
3. Install the control cable RJ-11 connector into the back of the **Comfort Control Center™** and gently press onto the base plate.
4. If a Remote Temperature Sensor is to be used, the connector end must be routed to the electrical control box and connected to the color matching plug on the relay board.
5. If a furnace is to be controlled by the system, the two furnace thermostat leads must be routed to the electrical control of the air conditioner that will control it. Make sure at least 15" of the furnace thermostat wires extend into the electrical control box.
6. If an Energy Management System - EMS (load shed) is to be used with the control, two wires must be routed to the electrical control box. 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 electrical box.

7. In the event that other A/C's are to be installed (additional zones), an additional 4-conductor communications cable must be routed to the **other locations**. Make sure that at least 15" of the wire extends into each of the electrical control boxes.

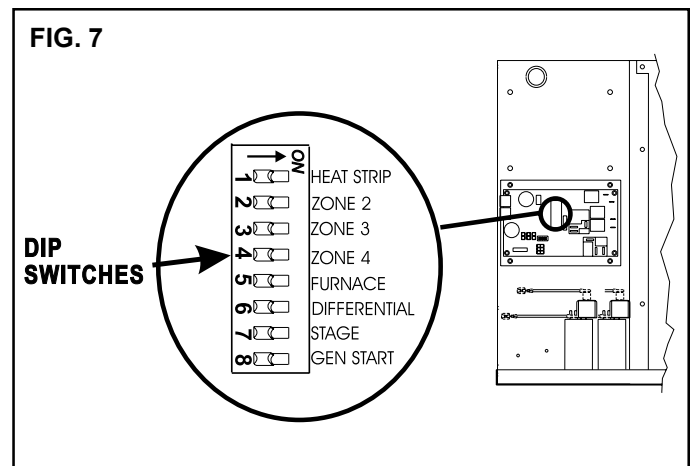
9. SYSTEM CHECKOUT & CONFIGURATION

Now that the system is installed, it is necessary to configure the electronics, and then check all operations.

If the installation is a single zone, no adjustment to the dip switches are necessary: however, the stage dip switch is pre-set to the "ON position".

A. ELECTRONIC CONTROL CONFIGURATION

1. If there is more than one zone, the dip switch for each successive zone must be set to "ON". To gain access to the dip switches the cover on the unit's electrical box must be removed.
2. Turn "ON" the "ZONE" dip switch on the electronic control board to set its zone. See figure 7.



NOTE: The Control Board should have the Stage Dip Switch pre-set to "ON". All other dip switches are shipped from the factory in the "OFF" position.

3. Turning "ON" of zone 2 dip switch identifies this as zone 2: likewise zone 3 and 4.
4. Stage dip switch is to be in the "ON" position. This will control the operation of the second compressor, provided AC power is available to Circuit #2. The temperature differential between the first and second stage is pre-set and cannot be changed.
5. Turn "ON" the furnace dip switch when a furnace is connected to the blue wires off the control board.
6. Differential dip switch is the 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" positions. In some situations, it may be necessary to decrease the Differential.

The location of the **Comfort Control Center™** may create a condition where the normal differential will not maintain the temperature at your comfort level. If this occurs, the Differential can be shortened by placing the Differential dip switch to the "ON" position.

7. The "GEN START" dip switch - leave in the "OFF" position.

B. SYSTEM RESET

On new installation the **COMFORT CONTROL CENTER™**, and/or any changes made to the dip switches requires the electronic control kit to be reset.

1. Turn "ON/OFF" switch to the "OFF" position.
2. Simultaneously depress and hold the "MODE" and "ZONE" push-buttons while turning the "ON/ OFF" switch to "ON". The LCD Display should show "FF" until the "MODE" and "ZONE" push-buttons are released.

C. System Checkout

1. Verify that all features of the installed system work. Check fan speeds, cooling mode, furnace (if connected) and heat pump. If the features do not work, check all wiring and confirm that the correct options have been selected on the Electronic Control Box. If the features do not work, check all wiring and confirm that the correct options have been selected on the Electronic Control Board in the Unit's electric box.