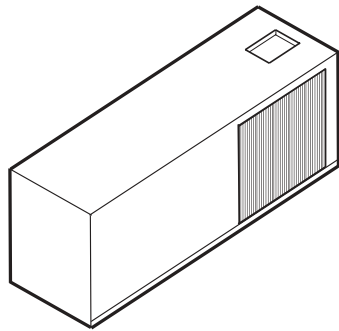


RECORD THIS INFORMATION FOR FUTURE REFERENCE BEFORE INSTALLING THE UNIT:

Model Number \_\_\_\_\_  
 Serial Number \_\_\_\_\_  
 Date Purchased \_\_\_\_\_  
 Place of Purchase \_\_\_\_\_

# SELF-CONTAINED AIR CONDITIONER & HEAT PUMP FOR RECREATIONAL VEHICLES



## ROTARY COMPRESSOR SYSTEM MODELS

**Air Conditioners**  
**39626.501 & 39626.506**  
**Heat Pumps**  
**39726.501 & 39726.506**

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

**USA**  
 SERVICE OFFICE  
 Dometic Corporation  
 2320 Industrial Parkway  
 Elkhart, IN 46516  
 574-294-2511

**CANADA**  
 Dometic Corporation  
 46 Zatonski, Unit 3  
 Brantford, ON N3T 5L8  
 CANADA  
 519-720-9578

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.



## APPLICATION MANUAL AND INSTALLATION INSTRUCTIONS

## SYSTEM MODELS

**39626.501 39726.501**  
**39626.506 39726.506**

**REVISION:**  
 Form No. 3308463.011 5/06  
 (Replaces 3308463.003  
 (French 3308477.011)  
 ©2003 Dometic Corporation  
 LaGrange, IN 46761

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

# INSTALLATION INSTRUCTIONS

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## 1.0 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.

## 2.0.0 APPLICATION MANUAL

### 2.1 AIR DISTRIBUTION

#### 2.1.1 GENERAL INFORMATION

The purpose of an air conditioning system is to provide environmental conditions in a space to keep its occupants comfortable.

The basic elements of a simple forced circulation air system consists of a cooling unit, a centrifugal blower, a temperature sensing device controlling operation of the compressor and blower, suitable air filters, and a duct system.

Air is filtered, cooled, and distributed to various areas of the vehicle. Duct work should deliver this conditioned air as directly, quietly, and economically as possible. If the distribution is not properly sized and balanced, flow of air will not be as calculated and the system will not function properly or efficiently.

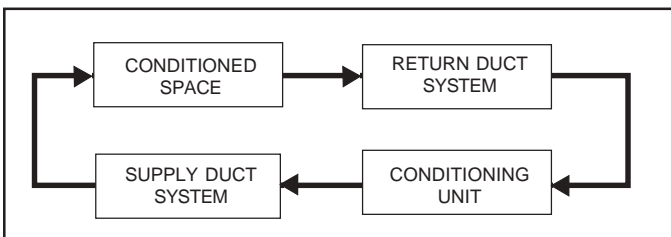
#### 2.1.2 THE BASIC AIR CONDITIONING CYCLE

The components which are basic to air conditioning systems are illustrated by Figure 2.1. Air is treated at the conditioning unit, transferred to the conditioned space through the supply duct system and returned to the conditioning unit through the return system. The duct systems are also referred to as the distribution system.

#### 2.1.3 FUNCTION OF A DUCT SYSTEM

A duct is a tube, or pipe, that carries air between two points. Strictly speaking, in air conditioning terms, a duct system is the arrangement of ducts between air conditioning equipment and rooms to be cooled, not including such items as filters, cooling coils, etc. However, we shall include in our use of the term “duct system”, every item in the air-passage network that offers resistance to air flow. From the standpoint of the blower it makes no difference whether a resistance is caused by filters or by the use of a small duct; effect will be the same. Resistance tends to restrict flow of air through the entire system.

A **forced air system** is only as good as its air delivery system. Comfort levels are affected by the quantity and velocity of air movement within the space and the proper mixing of the supply air with the room air. Supply air should be furnished in a manner that will direct the air to the sources



Block diagram of comfort air conditioning cycle. Arrows indicate direction of air flow.

FIG.2.1

of the greatest heat loss and/or heat gain. The effects of the gain or loss can then be offset by the supply air. It is important that the selection of the diffusers and grilles for the supply and return systems receive careful attention to enable them to accomplish their purpose.

Consideration must be given to all aspects of the supply air distribution patterns: throw, spread, drop, etc. Also, the outlet and return grille velocities must be held within reasonable limits. Any noise generated at the grille is equal to or greater in importance than duct noise.

A window air conditioner (Figure 2.2) is essentially a device with a minimum duct system, since the only items that offer resistance to air flow are built into the cabinet.

#### 2.1.4 FACTORS AFFECTING RESISTANCE TO AIR FLOW

Common observations of daily events tell us something about factors affecting resistance to air flow. We know, for example, that more pressure is required to force a given rate of air flow through a small duct than through a large duct. We also know that streamlining of ducts means less resistance to air flow, and that sharp angled turns must be avoided.

As air passes through ducts, cooling coils, grilles, diffusers, and dampers, the static pressure is reduced by friction and turbulence losses. Good duct design minimizes the need to balance the duct system by sizing the ducts such that the designed pressure drop allows the desired airflow rate to be delivered to each room. An improperly sized duct system will require extensive balancing. Balancing is a procedure by which the air flow allotment is adjusted to supply the correct quantity of conditioned air to each room.

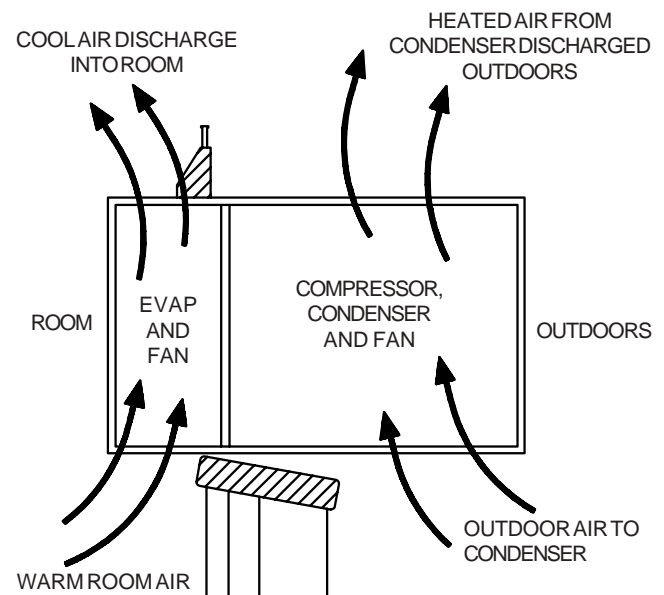


FIG. 2.2

The Window Air Conditioner represents a minimum duct system, since air to and from the cooler is handled without external ducts.

## 2.1.5 AIR FLOW AND FRICTION

Air flows in a duct system from a region of high pressure to a region of lower pressure. The blower creates the pressure differential which causes the air flow through the duct system. The point of highest pressure in the system is at the outlet of the blower. The point of lowest pressure in the system is at the return opening of the blower. The air pressure constantly decreases as the air flows through the system. The pressure ultimately diminishes to zero as it passes through the register and is diffused into the conditioned space. As air moves through a duct, a pressure drop occurs due to the friction between the air and the walls of the duct. Another factor in pressure drop is the turbulence within the air stream itself. Air moving within a duct does not flow in a placid stream. Rather it moves in a churning and mixing path, or "turbulent flow." The cumulative effect of rubbing friction and turbulence friction is friction loss. Air turbulence in a duct system becomes substantial whenever there is a change in the direction of air flow.

## 2.1.6 ECONOMICS OF DUCT DESIGN

In order to match to the system air delivery capacity, elbows for turning the air must be kept as large as allowed by the unit construction. **Duct depth for Dometic air conditioners may vary with each model series. Confirm the system to be installed and refer to Figure 3.4, for specific duct configurations required.** High loss elbows must have their resistance lowered by the use of splitters or turning vanes. Refer to Figure 2.3 through 2.7.

Another factor in duct losses is air leakage. Although leakage is not considered in duct design it should be an installation consideration. Cold air leaking into the surrounding cavity will cause condensation to form under high humidity conditions. Sealing all joints will assure moisture free cavities and maximum distribution of air to the outlets.

In most cases of high resistance encountered in duct systems, one or more of the following points have been overlooked by the installer:

### A. Small Diameter

Pressure losses increase as diameter of a duct is reduced. Good design practice is that which enables the installer to put in the smallest size duct that will do the job of delivering required airflow rate with pressure available. No single size of duct will prove to be ideal for all jobs.

### B. Length of Duct

Pressure loss increases as duct length is increased. This is almost obvious; a duct which is 6 ft. long has twice the pressure loss of one that is 3 ft. long, provided that both ducts are the same size and both are carrying the same airflow rate.

### C. Changes in Direction (Figure 2.7)

Pressure losses increase when direction of air flow is changed. When air is forced to make a 90° turn in a duct system, pressure loss is much greater than for a straight run of the same length. (Refer to FIG. 2.7)

**Item 1.** This sharp-angled bend causes a large pressure loss. A simple way of visualizing such pressure loss is to imagine that these diagrams represent highways on which you are driving a car. As you approach a bend you are forced to slow the car speed to 15 mph. In so doing, a considerable part of energy of the fast-moving car has had to be absorbed by the brakes. The analogy holds for air particles flowing around a sharp bend.

**Item 2.** This sharp-angled bend on the inside corner causes great pressure loss. The rounded corner on the outside does not help as much as might be anticipated.

**Item 3.** This is a common form of 90° bend that has relatively low resistance.

**Item 4.** If minimum resistance is desired, this extreme example of a smooth, streamlined fitting can be used, although space requirements will be prohibitive in many installations.

**Item 5.** Occasionally, a beam or rafter prevents the use of a smooth bend and a right angle bend is necessary. In such cases the use of turning vanes (splitters) will be effective in reducing resistance.

**Item 6.** Another way to reduce resistance is to change item (3) to a modified version of item (4) by inserting splitters in the sharper bend.

### D. Sudden Contraction

When air is suddenly contracted from a large duct to a small duct, a pressure loss occurs See Figure 2.8.

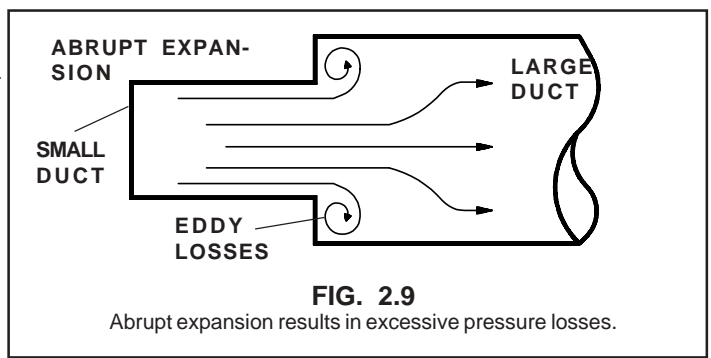
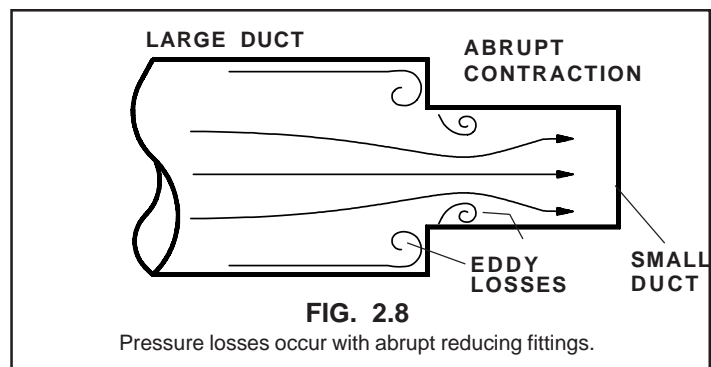
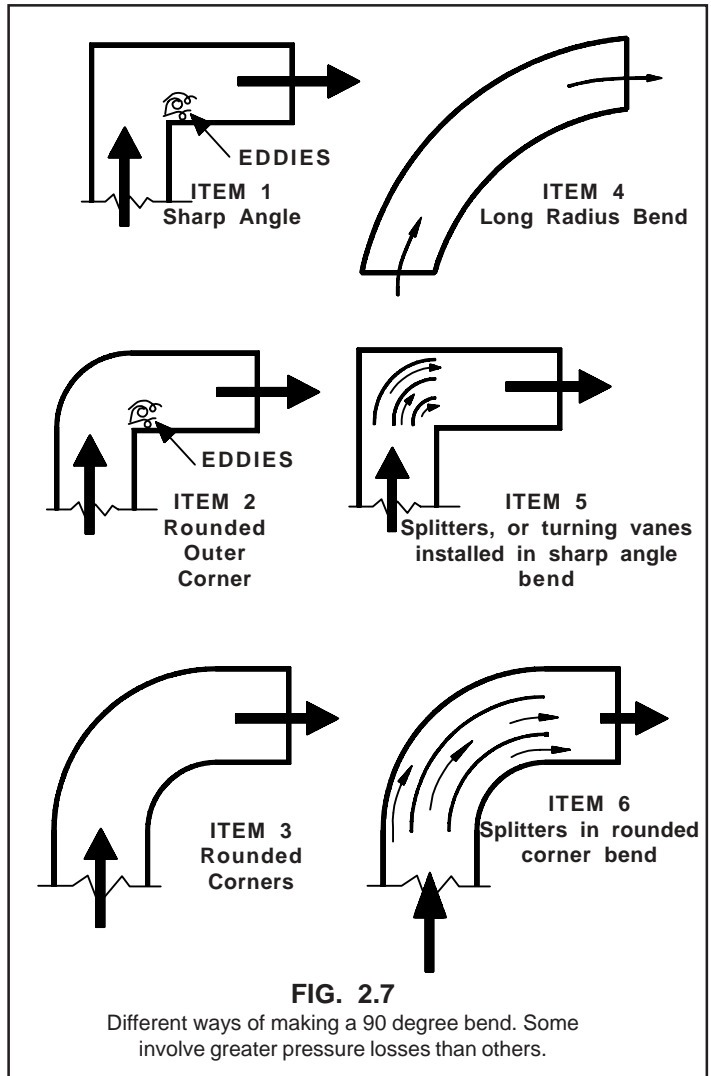
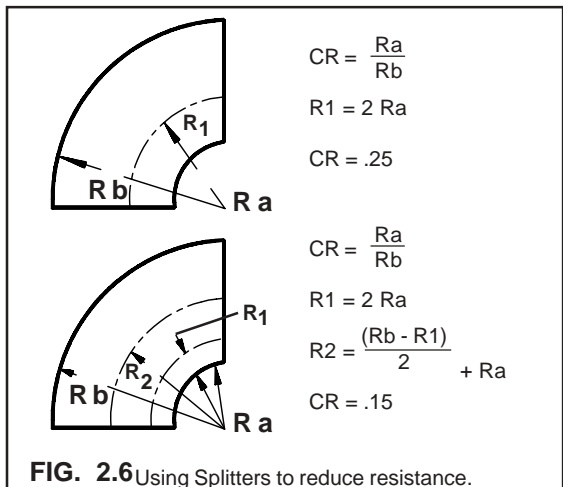
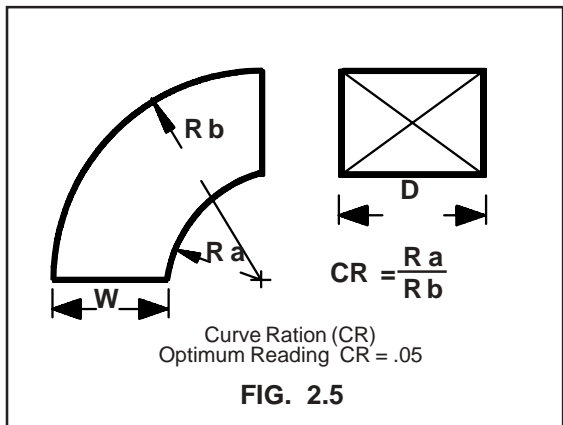
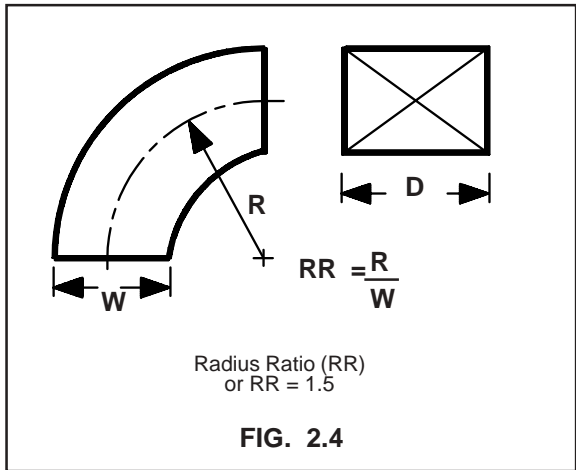
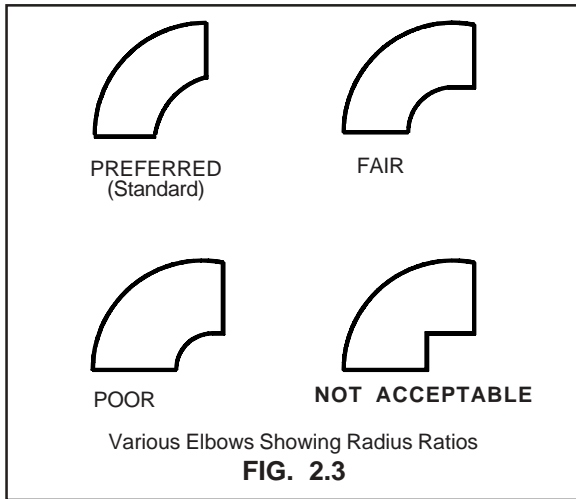
### E. Sudden Expansions

The pressure loss resulting from the sudden expansion of air from a small duct to a large duct, are much larger than losses due to sudden contraction. As with sudden contraction, much can be done by making air expansion gradual, rather than abrupt. See Figure 2.9.

To summarize Section 2.1.6, the following items contribute to higher pressure losses in a duct system:

1. Smaller diameter ducts
2. Longer duct lengths
3. Changes in direction of air flow

# INSTALLATION INSTRUCTIONS





# INSTALLATION INSTRUCTIONS

4. Sudden contractions in air stream
5. Sudden expansions in air stream

## 2.1.7 REGISTERS, DIFFUSERS, AND GRILLE SELECTION

One of the most important considerations in designing a conditioning system is the selection of the registers, diffusers and grills. Even though a system delivers the required amount of conditioned air to the room, discomfort results if the air is not satisfactorily distributed. Achieving good air distribution is as much an art as it is a science. Careful consideration must be given to the design of the air distribution system. A forced air system is only as efficient as its air delivery components.

Whenever a jet of conditioned air is admitted into a room it affects all the air within that room. Movement of the supply air induces adjacent room air to move along with it. This process of the supply air dragging along the room air and setting it in motion is called “entrainment” of the room air. As the room air mixes with the supply air, the temperature difference between them is reduced. This effect is even more pronounced with a spreading jet than with a non—spreading jet because of the greater surface area.

## 2.1.8 ROOM AIR DISTRIBUTION

The final evaluation of air distribution in a space is determined by the occupants’ comfort level. In general, a person is thermally comfortable when their body heat loss just equals their heat production.

During cooling, currents carry warm air up the wall to ceiling level, and stratification forms from the ceiling down. The solution is to project cool air into this region near the ceiling.

Performance of any supply outlet is related to initial velocity and area. As it leaves the outlet, an air jet becomes a mixture of supply and room air, expanding due to the induction of room air.

The buoyant forces with non-isothermal jets cause the jet to rise during heating and drop during cooling. If the jet is projected parallel to and within a few inches of a surface, the jet performance will be affected by the surface, which limits the induction on the surface side of the jet. This creates a low pressure region between the jet and the surface, which draws the jet toward the surface. In fact, this effect will prevail if the angle of discharge between the jet and surface is less than 40°. The surface effect will draw the jet from a ceiling outlet to the ceiling. Surface effect increases the throw for all types of outlets and decreases the drop for horizontally projected air streams.

The air stream from the outlet tends to “hug” the surface. As a matter of fact, this characteristic is almost essential for good comfort air conditioning. Therefore, rather than trying to direct the air away from surfaces, the surfaces should be used intentionally. Note that where the surfaces are used

most effectively, the high velocity portions of the air stream have less tendency to enter the occupied zone of the space.

## 2.2 HOW ROOM AIR MOTION IS RELATED TO OUTLET PERFORMANCE

The room air near the supply air stream is entrained by the air stream and, in turn, is replaced by other room air. The room air always moves toward the supply air. The only general statement that can be made regarding room air motion and the number of air changes is that 8 to 10 air changes per hour are required to prevent formation of stagnant regions.

For most applications, a better approach is to supply air in such a way that the high velocity air stream from the outlet does not enter the occupied zone. It is practical to consider the region within 12 inches of the walls as outside the occupied zone as well as the region above the heads of the occupants.

Supply air should be spread in a thin layer over the surfaces, to surround the occupied zone with conditioned air. Air within the occupied zone will then move toward the total air stream, the mixture of primary and room air. The room air carries the load with it into the air stream and room conditions are maintained by constant mixing of room and supply air.

### WARNING

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

## 2.3 SPECIFICATIONS & REQUIREMENTS

Since it is necessary to install all or part of the duct work in the ceiling, sidewall or floor.

### CAUTION

**It is the responsibility of the R.V. manufacturer to assure that structural integrity is maintained throughout the coach.**

The manufacturer should review each floor plan to determine proper duct design and register location.

The Dometic Product Engineering and Application departments are available for recommendations and suggestions.

**If the conditioned air is to be discharged from the ceiling area, the minimum roof cavity thickness for proper installation measured between the roof and ceiling structure is 4 inches. This does not include space required for insulation of the ductwork.**

The air conditioner was designed to allow flexibility for layout of duct work and the types of registers employed. To ensure air conditioner maximum performance, certain parameters must be adhered to. Refer to Figures 3.4 for duct sizing and grill placement

# INSTALLATION INSTRUCTIONS

## 2.3.1 COOLING REQUIREMENTS

When determining the cooling requirements of each vehicle, the following should be considered:

- A. The size of the vehicle will determine the number of air conditioning units that are required, or the need to pre-wire for additional air conditioners depending on the geographical location of use.
- B. Amount of insulation in walls, floor and roof of the vehicle.
- C. Identify possible heat sources and plan accordingly:
  1. Skylights - location should not be within 4 feet of the air conditioner return system.
  2. Skylights - should be tinted and double pane.
  3. Roof vents should be a tinted type, and quantity kept to minimum.
  4. Increased use of slide-outs and/or glass square footage will require tinting with additional insulation in wall and ceiling cavities.
  5. Calculation of heat producing appliances.

## 2.3.2 AIR DISTRIBUTION SYSTEM SIZING

Basement systems are designed exclusively with external ductwork for the cold air discharge. There are not provisions for an electric heater to be installed as part of the unit. The central furnace will supply heating of the vehicle, if installed.

The condenser section must be installed so as to have direct access to the outside ambient. Removal of the heated condenser air is critical for proper operation.

The installer of this air conditioner must design the air distribution system for his particular application by following the guidelines specified within this application manual and unit installation instructions. Several specific requirements **MUST BE** met for the air conditioner to operate correctly:

1. Unit Total Static Pressure See Figure 2.10.
2. Duct Area Requirement. See Figure 2.10.
3. Return air to the system must be filtered to prevent dirt accumulation on the evaporator cooling surface.
4. Return air opening must be within minimums specified in the system installation instructions. This figure must include the filter material selected.
5. Since duct work is located within a cavity, it is necessary that all duct work must be wrapped with a minimum R7 insulating blanket with a vapor barrier. This will help prevent heat gain within the duct and possible condensation.

### CAUTION

**Dometic Corporation will not be held liable for roof structural or ceiling damage if the duct work is not adequately wrapped in an insulation blanket.**

### CAUTION

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

FIG. 2.10

System P/N	Duct Size	Condenser Inlet Req.	Evap. Inlet Req.	Static Press
39626	3x15"	648 in <sup>2</sup>	135 in <sup>2</sup>	0.40 - 1.20
39726	min. 5x16" max.			

## 2.3.3 AIR DISTRIBUTION DUCT PREPARATION

Depending on the distribution configuration, ensure that the air entry points have the minimum square inches required for the series of system installed. See Figure 3.4 for permissible duct layout. Duct elbows and/or restrictions must be kept to a minimum. The duct must be pre-built within the structure and sealed along its entire length. If joints or bends leak conditioned air within the cavity, condensation will form.

When the duct is installed within the structure, care must be taken to insure that the duct will not collapse or bend during or after installation of the system to the vehicle.

## 2.3.4 LOCATION OF DISTRIBUTION DUCT

The vehicle itself and the placement of interior components will dictate the location of the duct. One must be sure that the registers will not fall near the thermostat or the return filters. The placement must be such that the air distribution from the registers will provide the best possible movement within the living area. Calculations should be made as to the strength of the cavity, to insure structural integrity if notched for location of the duct runs.

## 2.3.5 RETURN REQUIREMENTS

The return air system must be considered when layout of the duct system is in process. This should be located as near to the system as possible to insure adequate return back to the evaporator coil.

## 2.4 HI-POT REQUIREMENTS

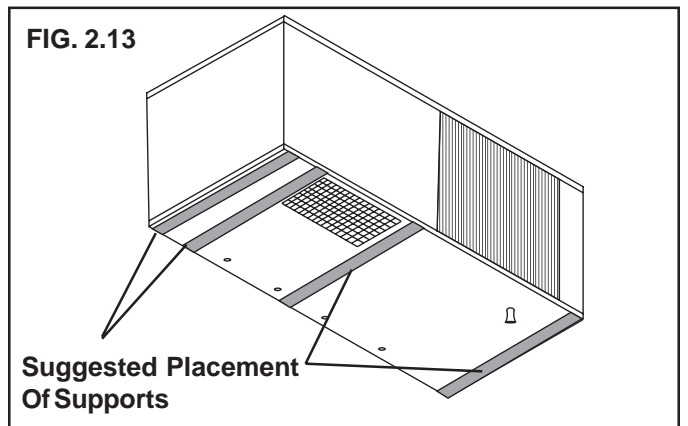
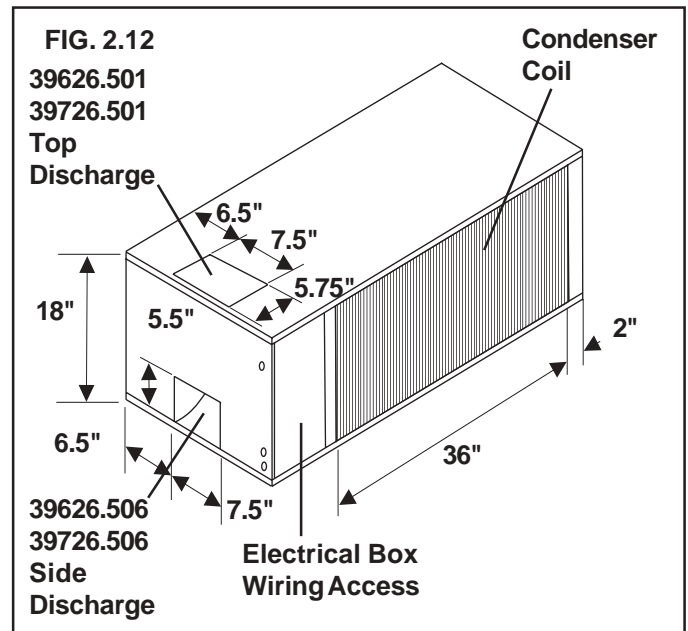
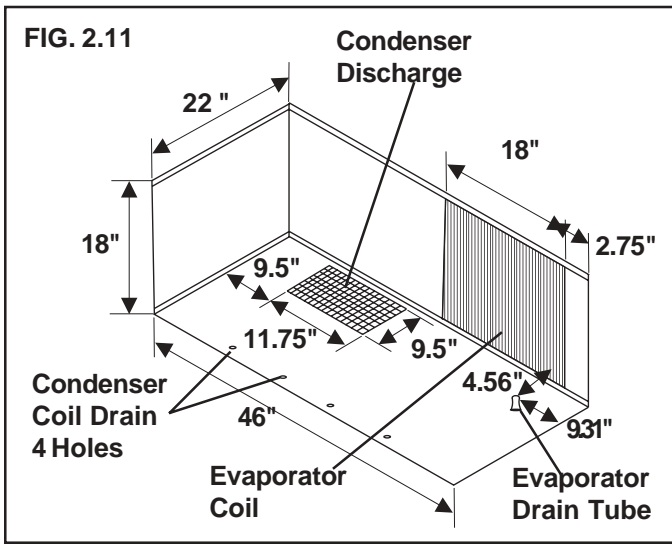
Each system that is built by Dometic is completely checked electrically and hi-pot tested on our production line. Additional hi-pot testing of the system must not be done. Disconnect the system from the power circuit prior to any vehicle high potential test operations.



## INSTALLATION INSTRUCTIONS

### 2.5.0 MOUNTING IN COACH

The dual basement air conditioner and heat pump are designed for under the floor installation. It is the vehicle manufacturer's responsibility to provide an installation space which will allow for cutouts and mounting of the unit without cutting vital frame structures. The frame and structural sections in the installation space will not cause restriction of air movement required by the dual basement air conditioner or heat pump. See Figures 2.11, 2.12 and 2.13.



## Important Notice

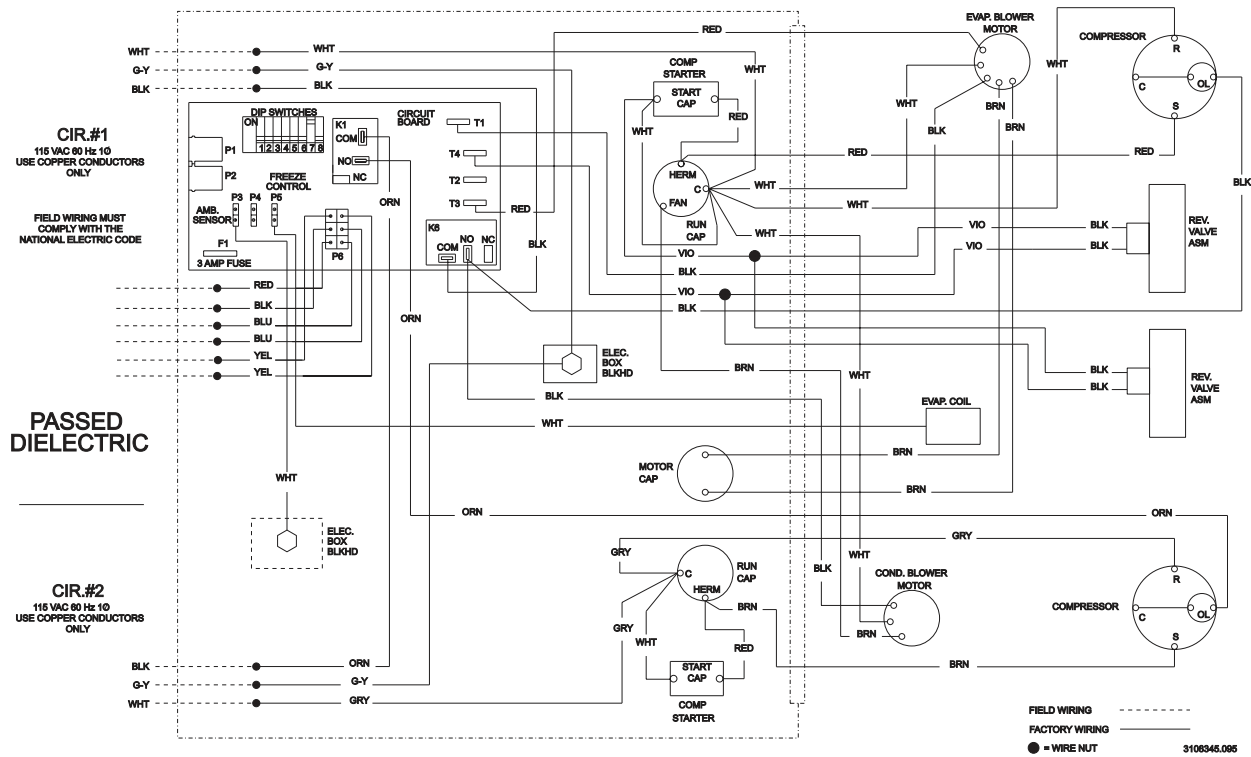
All information contained within is for the installation of Dometic Ducted Air Conditioners. These guidelines give minimum requirements for duct sizing, duct arrangement and register location so that you receive maximum performance from the system.

**These instructions DO NOT cover or warrant the final installation of the duct work that carries conditioned air within the ceiling cavity.**

The installer is responsible for the integrity of the insulated duct within the structure to insure that moisture laden air does not condense on duct surfaces. If proper practices are not adhered to, condensation will collect during high ambient conditions. Damage caused by condensation will not be covered by Dometic Corporation warranties.

# INSTALLATION INSTRUCTIONS

## 2.6 WIRING DIAGRAM 39726.501 & 39726.506



## 2.7 SPECIFICATIONS - HEAT PUMP

System Model	39726.501 & 39726.506*		
Nominal BTU Capacity	26,000		
Volts/Phase/Hz (each circuit)	115 AC / 1 / 60		
Run Amps Comp	(Circuit 1 = 10.0)	(Circuit 2 = 9.8)	
LRA Compressor	(Circuit 1 = 59.0)	(Circuit 2 = 59.0)	
Total Blwr/Fan Motor Run Amps	8.5 (Circuit 1)		
Total Blwr/Fan Motor LRA Amps	18.0 (Circuit 1)		
Duct Static - Min. ( In. Water Column)	0.40		
Duct Static - Max. ( In. Water Column)	1.20		
Generator Size Per/Unit - Min. ***	7.5K		
Wire Size (Up to 24 ft.)** (Suggested)	(Circuit 1) No. 10 AWG Copper Conductors (Circuit 2) No. 12 AWG Copper Conductors		
Circuit Protection Time Delay Fuse or HACR Circuit Breaker	(Circuit 1) 25Amp (Circuit 2) 15Amp		
Control Voltage	12V DC		
Refrigerant	R-22		
System Refrigerant Charge	(Circuit 1 = 46.5)	(Circuit 2 = 38.5)	
Size (In Inches)	Width 46	Height 18	Depth 22
Installed Weight	205 Pounds		

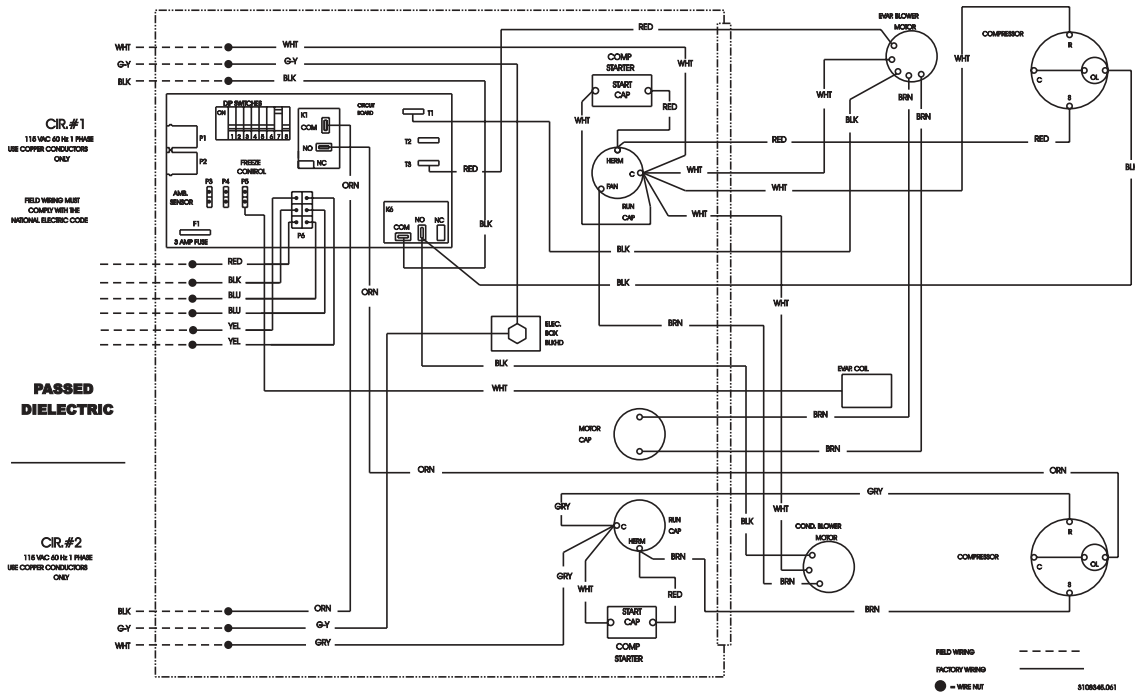
\* Models ending with .506 suffix and manufactured with "SIDE AIR DISCHARGE".

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

\*\*\* 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.

# INSTALLATION INSTRUCTIONS

## 2. 8 WIRING DIAGRAM 39626.501 & 39626.506



### 2.9 SPECIFICATIONS - AIR CONDITIONER

System Model	39626.501 & 39626.506*		
Nominal BTU Capacity	26,000		
Volts/Phase/Hz (each circuit)	115 AC / 1 / 60		
Run Amps Comp	(Circuit 1 = 10.1)	(Circuit 2 = 9.8)	
LRA Compressor	(Circuit 1 = 59.0)	(Circuit 2 = 59.0)	
Total Blwr/Fan Motor Run Amps	8.5 (Circuit 1)		
Total Blwr/Fan Motor LRA Amps	18.0 (Circuit 1)		
Duct Static - Min. ( In. Water Column)	0.40		
Duct Static - Max. ( In. Water Column)	1.20		
Generator Size Per/Unit - Min. ***	7.5K		
Wire Size (Up to 24 ft.) ** (Suggested)	(Circuit 1) No. 10 AWG Copper Conductors (Circuit 2) No. 12 AWG Copper Conductors		
Circuit Protection Time Delay Fuse or HACR Circuit Breaker	(Circuit 1) 25Amp (Circuit 2) 15Amp		
Control Voltage	12V DC		
Refrigerant	R-22		
System Refrigerant Charge	(Circuit 1 = 46.5)	(Circuit 2 = 38.5)	
Size (In Inches)	Width 46	Height 18	Depth 22
Installed Weight	205 Pounds		

\* Models ending with .506 suffix and manufactured with "SIDE AIR DISCHARGE".

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

\*\*\* 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.

## 3.0.0 INSTALLATION INSTRUCTIONS

### 3.1 GENERAL INFORMATION

#### 3.1.1 THIS UNIT IS DESIGNED FOR:

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

#### 3.1.2 HEAT GAIN/LOSS

The ability of the heat pump/air conditioner to maintain the desired inside temperature depends on the heat gain/loss of the RV. Some preventative measures taken by the occupants of the RV can reduce the heat gain and improve the performance of the unit. During extremely high outdoor temperatures, the heat gain of the vehicle may be reduced by:

- A. Parking the RV in a shaded area.
- B. Using window shade (blinds and/or curtains)
- C. Keeping windows and doors shut or minimizing usage.
- C. Avoiding the use of heat producing appliances. Starting the unit 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.

#### 3.1.3 CONDENSATION:

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.

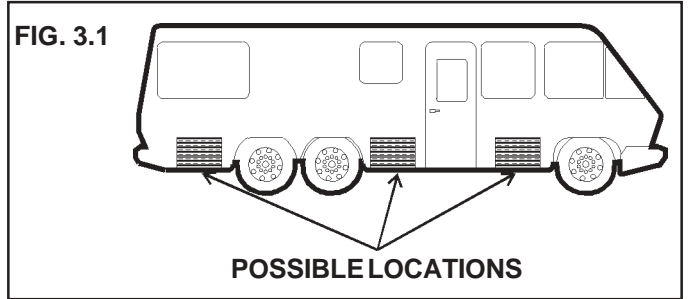
#### 3.1.4 PRECAUTIONS:

- A. Read Installation Instructions carefully before attempting to start your unit installation.
- B. Dometic Corporation will not be liable for any damages or injury incurred due to failure in the following of these instructions.
- C. Installation must comply with the National Electric Code ANSI/NFPA-70 and CSA Standard C22.1 (latest edition) and any State or Local Codes or regulations.
- D. **DO NOT** add any devices or accessories to the unit except those specifically authorized by Dometic Corporation.
- E. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

### 3.2.0 PROCEDURE

#### 3.2.1 LOCATION

This system is intended for installation in a recreational vehicle where the interior is essentially one undivided space. (See FIG. 3.1)

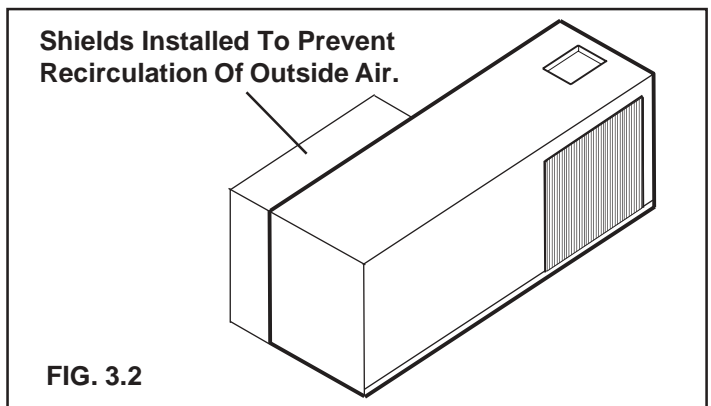


- A. The unit is to be installed below the floor with **DIRECT** access to outside air for the outside coil.
- B. The thermostat cable maximum length is twenty-five (25) feet. **Total length** of cable used (including thermostat) for the control system is seventy-five (75) feet **maximum**.
- C. The 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.

#### 3.2.2 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 discharge air must be open to the outside. The recirculation of condenser air within the compartment will cause high internal operation pressures and tripping of breakers will occur. Compartment cannot be sealed.** Shields should be added to ensure fresh air supply. See FIG. 3.2



# INSTALLATION INSTRUCTIONS

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 648 square inches**.

## CAUTION

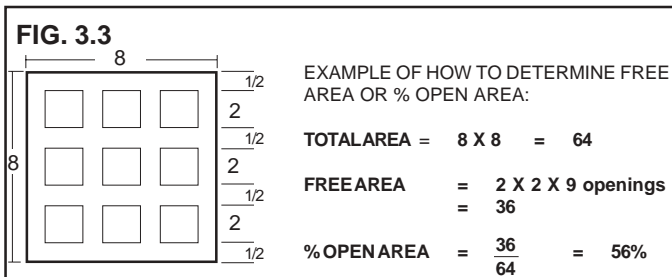
**Do not install the unit where the fan will draw air from the exhaust of the vehicle, a motor generator set, transmission, road heat or any other heat producing source.**

### 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. 3.3.

Expanded and perforated metal grills in general vary from 30 percent to 60 percent open. Be certain that **648 square inches** of FREE AREA is available to the face of the outside coil.

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



### 3.2.3 MOUNTING

The Model 39626 Air conditioner and 39726 Heat Pump units design are for installation below the floor. This unit should be mounted in an angle-iron frame, designed and built for the Model 39626 and 39726. Frame rails should not restrict the condenser air discharge opening.

**Important: Do not mount the Units in a sealed compartment. Recirculation of hot condenser discharge air will cause high system pressure and trip breakers.**

### 3.2.4 CLEARANCES

- A. The unit clearances depend on:
1. Inlet air access used;
  2. Discharge air duct arrangement;
  3. Return air duct;

Allow a minimum of eight (8) inches for the return air duct. Access to the electrical connections must be provided when making the installation.

### 3.2.5 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 "3.2.2. Outside Coil".

### B. Grills (See FIG. 3.4)

**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. 3.4)

The air diffusion system, supplied by the installer, must be sized to maintain a static pressure at the blower outlet between 0.40 (minimum) and 1.20 (maximum) inches water column.

The installer has the options of side discharge or top discharge and side 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 duct work.

### D. Condensate Drain

A condensate drain tube is located on bottom of the base pan, under the return air opening.

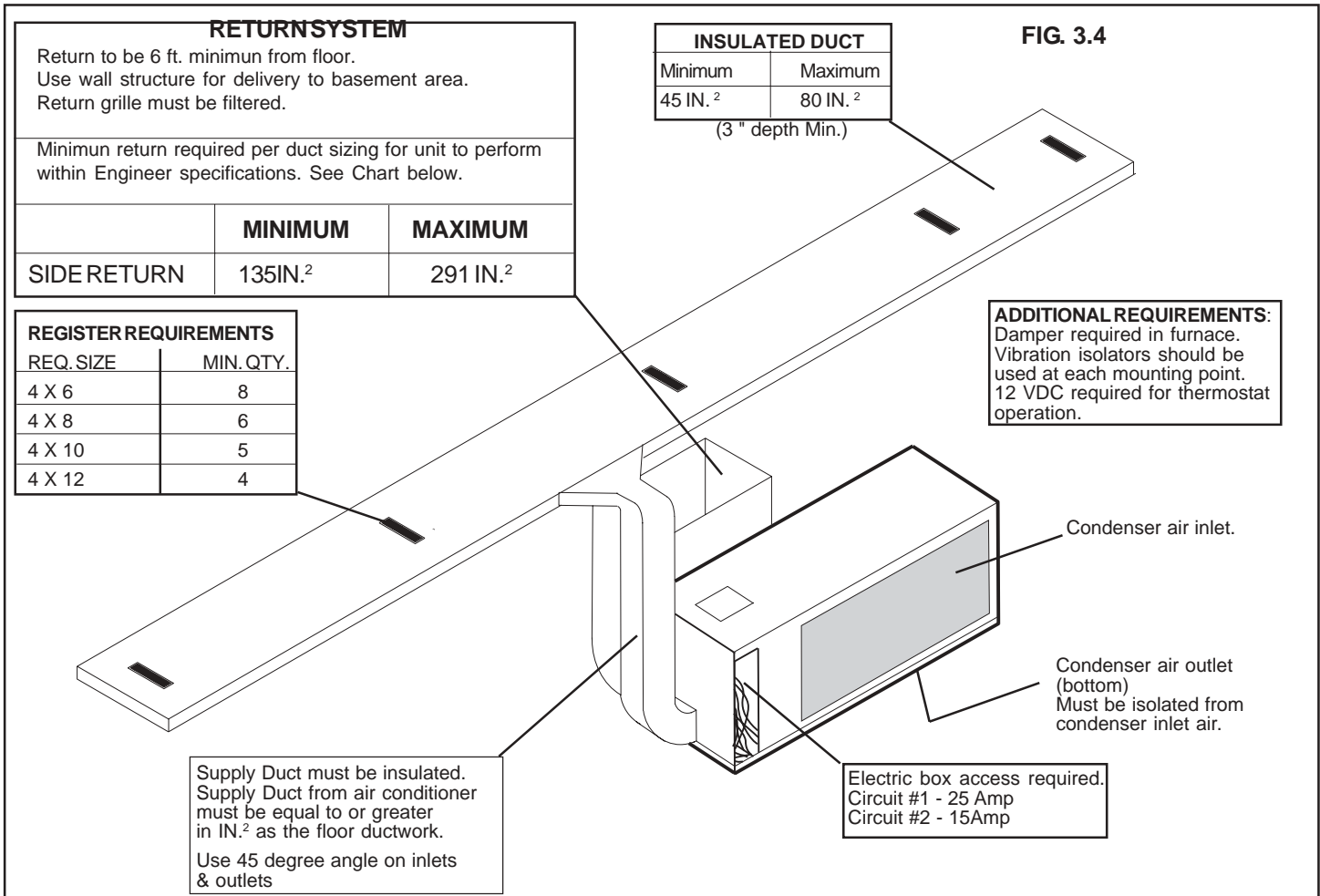
1. The installer needs to install the condensate drain into the base pan and ensure a snug fit.
2. A 3" diameter hole must be provided for installation of the tube and clearance. See Figure 2.11.

**Note:** Condensate will not drain properly if drain tube is not installed or missing.

## CAUTION

**It is the responsibility of the installer to ensure that the drain tube is installed properly and that it will not leak. Dometic Corporation will not be liable for any structural damage due to improperly installed, sealed or restricted drain tube.**

# INSTALLATION INSTRUCTIONS



## 3.3 ELECTRICAL WIRING

### **⚠ WARNING**

This product is equipped with a 3-wire (grounded) system for protection against shock hazard. Make sure that the appliance is wired into a properly grounded 1volt AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

#### 3.3.1 SUPPLY WIRE INSTALLATION

- Locate the unit electrical box. Remove the cover from the electrical box.
- 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
- Route two independent supply circuits of properly sized copper conductors to the air conditioner electrical box.
  - Circuit #1 should carry a 25 Amp load.
  - Circuit #2 a 15 Amp load.
- Circuit #1 should be wired directly from the coach's main breaker panel.

- Circuit #2 should be wired through the on-board generator or a separate power cord dedicated to Circuit #2.

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

#### 3.3.2 SUPPLY WIRE CONNECTION

- Connect main power supply Cir. #1 to unit electrical box with approved Romex connectors.
- Using wire nuts attach the main power supply black "Hot" to the units black wire, and white to the white wire. Attach the main power supply ground wire to the Green w/yellow wire.
- Connect the secondary power supply Cir. #2 to unit electrical box with approved Romex connectors. Use wire nuts to attach black "Hot" to orange wire of circuit #2. and power supply white to the gray wire. Attach the ground wire of circuit #2 to the green w/yellow wire.

## 3.4.0 CONTROL SYSTEM WIRING

### 3.4.1 CONNECTION OF LOW VOLTAGE WIRES

- Route Remote Temperature Sensor Cable, (required for additional units or if used), through the low voltage port on the electrical box and attach it the "white (P4)" plug on main board.

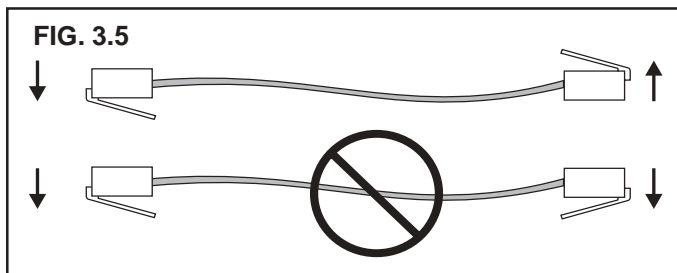


## INSTALLATION INSTRUCTIONS

- B. Route a dedicated DC supply line (18-22 AWG copper conductors) from the Converter or Battery to the unit's electrical box. Connect with wire nuts positive (+) DC to the red wire; Negative (-) DC to the black wire.
- C. 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.
- D. 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.

### 3.4.2 CONTROL CABLE INSTALLATION

- A. 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.**
- B. Select the shortest direct route between **Comfort Control Center™** and the electrical box for the system.
- C. A 3/8" diameter hole will be needed to route the control cable through the wall.
- D. Leave 6" of cable extending through the wall.
- E. The cable that must be used is a 4-conductor flat control cable.
- F. 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.**  
**Note:** RJ-11 connectors must be wired identically on both ends. See FIG. 3.5.



- G. 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.)

### 3.4.3 COMFORT CONTROL CENTER MOUNTING

#### A. Location

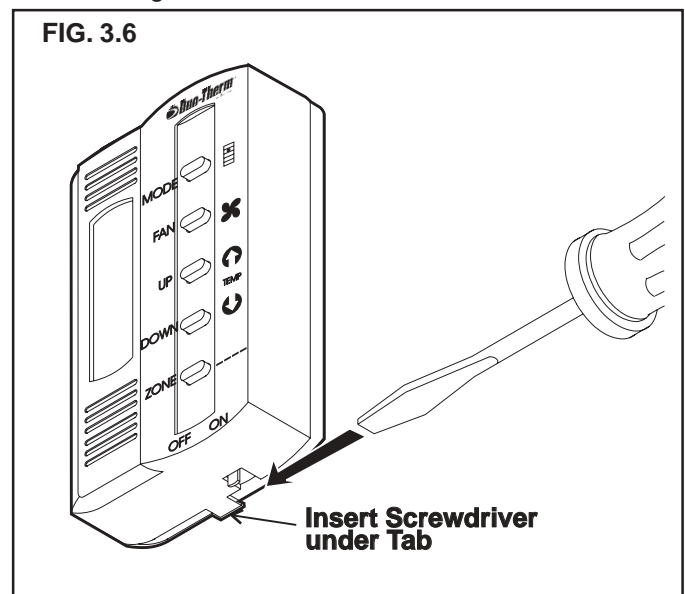
The proper location of the Comfort Control Center (CCC) is very important to ensure that it will provide a comfortable RV temperature. Observe the following general rules when selecting a location.

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. 3.6.



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.

## INSTALLATION INSTRUCTIONS

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 units 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.

### 3.5 SYSTEM CONFIGURATION & CHECK OUT

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, (Without a Furnace) no adjustment to the dip switches are necessary: however, the stage dip switch is preset to the "ON" position.

#### 3.5.1 ELECTRONIC CONTROL CONFIGURATION

- A. 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.
- B. Turn "ON" the "ZONE" dip switch on the electronic control board to set its zone. See figure 3.7.

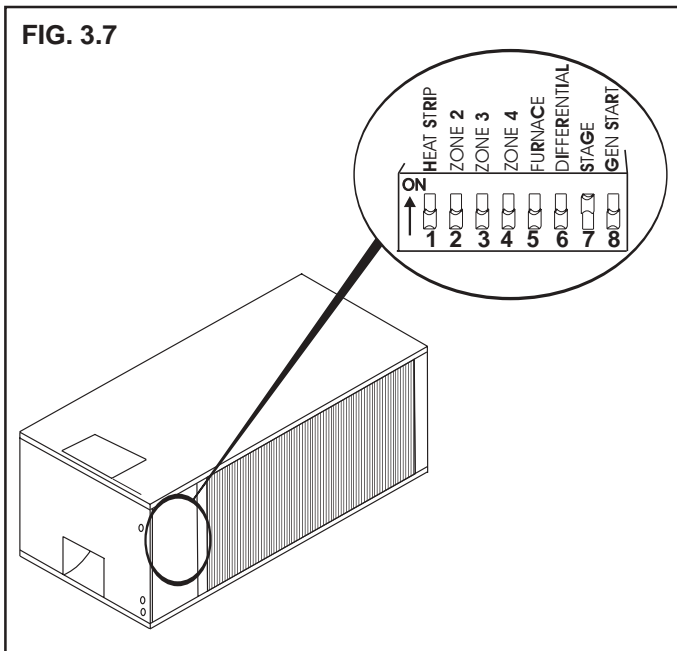


FIG. 3.7

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

- C. Turning "ON" of zone 2 dip switch identifies this as zone 2: likewise zone 3 and 4.
- D. 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 preset and cannot be changed.

- E. Turn "ON" the furnace dip switch when a furnace is connected to the blue wires off the control board.
- F. 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.

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

#### 3.5.2 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.

- A. Turn "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". The LCD Display should show "FF" until the "MODE" and "ZONE" push-buttons are released.

#### 3.5.3 System Checkout

- A. 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.

#### 3.5.4 Service And Disposal Of Unit

- A. The **Clean Air Act of 1990** set guidelines in regards to recapturing or disposition of refrigerants. Service agents working with reclamation of refrigerants must be certified by the Environmental Protection Agency (EPA). Check with the EPA authorities for proper handling or evacuation of refrigerants.