



RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:	
Type Number	_____
Product Number	_____
Serial Number	_____
ADB Number	_____
ADB Serial Number	_____
Date Purchased	_____

SERVICE OFFICE

Dometic, LLC
For Information
Contact:
www.dometic.com

Roof Top Unit				
Description	Model	Type	Use With Air Distribution Box	
			Model	Control
Air Conditioner W/Electric Heat	B3200	3241	3100292.121	Integral Mechanical

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.

INSTALLATION & OPERATING INSTRUCTIONS

TYPE

3241.301

3314597.000

Form No. 3314597.000 12/11
©2011 Dometic, LLC
LaGrange, IN 46761

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

IMPORTANT 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. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

UNDERSTAND SIGNAL WORDS

A signal word will identify safety messages and property damage messages, and will indicate the degree or level of hazard seriousness.

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

⚠ CAUTION CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE NOTICE is used to address practices not related to physical injury.

⚠ WARNING

Read and follow all safety information and instructions to avoid possible injury or death.

GENERAL INFORMATION

- A.** Product features or specifications as described or illustrated are subject to change without notice.
- B.** This Air Conditioner (hereinafter referred to as the "unit") Is Designed For:
 - 1. Installation on a Caravan during or after the time the vehicle is manufactured.
 - 2. Mounting on the roof of a Caravan.
 - 3. Roof construction with rafters/joists support frames on minimum of 406 mm centers.
 - 4. Minimum of 25 mm and maximum of 102 mm distance between roof to ceiling of Caravan. Alternate installation methods will allow for roofs more than 102 mm thick.
- C.** Basic Requirements:
 - 1. Installation opening. Cut through the roof and ceiling.
 - 2. 220-240 VAC, 50 Hz., 10 Amp.
 - 3. Power with the unit on must be above 198 VAC and the frequency must be at 50 Hz. at all times.
- D.** The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the Caravan.

Some preventative measures taken by the occupants of the Caravan can reduce the heat gain and improve the performance of the air conditioner. During extremely high outdoor temperatures, the heat gain of the Caravan may be reduced by:

 - 1. Parking the Caravan in a shaded area
 - 2. Using window shades (blinds and/or curtains)
 - 3. Keeping windows and doors shut or minimizing usage
 - 4. Avoiding the use of heat producing appliances

Operation on High Fan/Cooling mode will give optimum or maximum efficiency in high humidity or high outside temperatures.

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

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

E. Condensation

Note: The manufacturer of this unit 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 Caravan, condensed moisture may appear on the ceiling, windows, metal parts, etc. The air conditioner removes this moisture from the air during normal operation. Keeping doors and windows closed when this air conditioner is in operation will minimize condensed moisture on cold surfaces.

SPECIFICATIONS

Type	3241
A/C OR H/P	A/C
Nominal Cooling Capacity (KW)	3.0
Electric Heat Capacity (KW)	1.6
Electrical Rating	220 - 240 VAC 50 Hz., 1 Ph
Full Load Amps (Compressor / Motor)	5.46 / .92
Locked Rotor Amps (Comp / Motor)	27 / 2.3
Power (KW) Compressor + Motor	1.34
Power (KW) Heater	1.5
Refrigerant R410A Grams / Oz.	525 / 18.5
Minimum Wire Size	Up to 8 meters use 1.5 mm ² , Copper. Consult Regulatory Codes.
Circuit Protection	10 Amp Time Delay Fuse, or Circuit Breaker
* Generator Size	1 Unit - 3.5 KW 2 Unit - 5.0 KW

* Dometic, LLC 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 Caravan must be considered. Keep in mind generators lose power at high altitudes and from lack of maintenance.

INSTALLATION INSTRUCTIONS

A. Precautions

⚠ WARNING

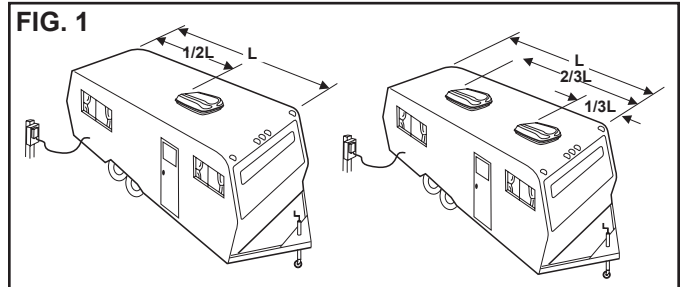
Improper installation may damage equipment, could endanger life, cause serious injury and/or property damage.

1. Read Installation and Operating Instructions carefully before attempting to start this unit installation.
2. Dometic, LLC will not be liable for any damages or injury incurred due to failure in following these instructions.
3. The equipment shall be installed in accordance with nation wiring regulation per **IEC 335-2-40, CI, 7.12.1**. Installation **MUST** comply with all applicable codes and/or regulations.
4. **DO NOT** add any devices or accessories to this unit except those specifically authorized in writing by Dometic, LLC.
5. This equipment **MUST** be serviced by qualified personnel and some localities require these people to be licensed.

B. Choosing Proper Location For The Unit

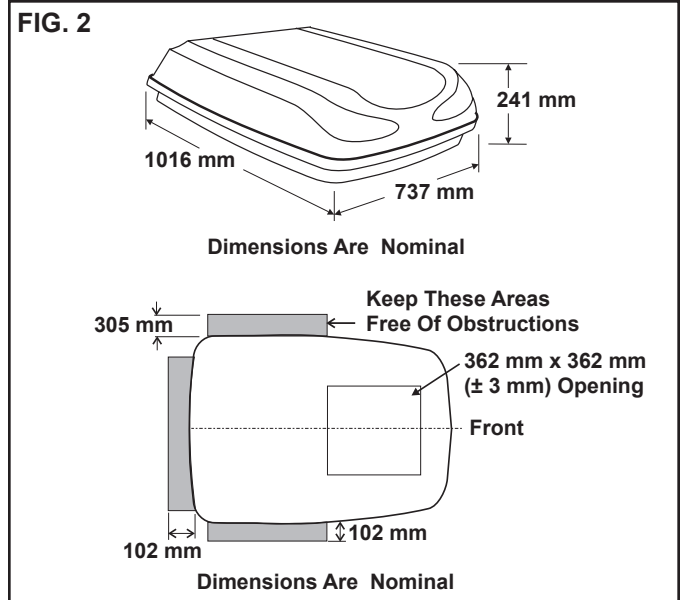
This unit is specifically designed for installation on the roof of a Caravan. When determining your cooling requirements, the following should be considered:

- Size of Caravan;
- Window area (increases heat gain);
- Amount of insulation in walls and roof;
- Geographical location where the Caravan will be used;
- Personal comfort level required.
 1. Normal Location - The unit is designed to fit over an existing roof vent opening.
 2. Other Locations - When no roof vent is available or another location is desired, the following is recommended:
 - a. For one unit installation: The unit should be mounted slightly forward of the center (front to back) and centered from side to side.
 - b. For two unit installations: Install one unit 1/3 and one unit 2/3's from front of Caravan and centered from side to side.



It is preferred that the unit be installed on a relatively flat and level roof section measured with the Caravan parked on a level surface, but up to a 8° tilt is acceptable.

3. After location has been selected:
 - a. Check for obstructions in the area where the unit will be installed. See FIG. 2.



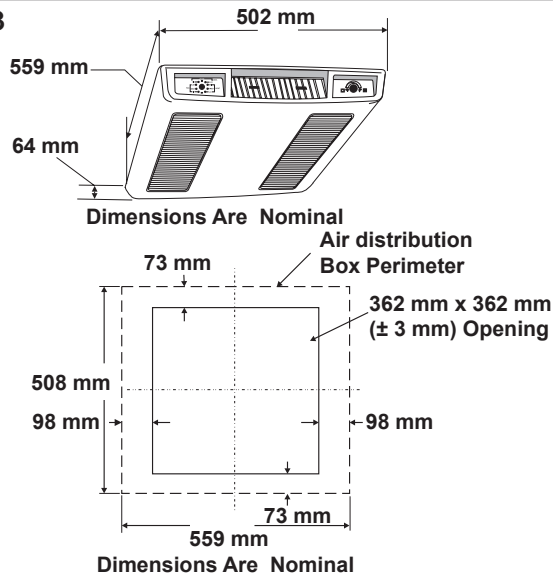
- b. The roof must be designed to support 60 kg when the Caravan is in motion. Normally a 90 kg static load design will meet this requirement.

NOTICE

It is the responsibility of the installer of this system to ensure structural integrity of the Caravan roof. Never create a low spot on the roof where water will collect. Water standing around the unit may leak into the interior causing damage to the product and the Caravan.

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

FIG. 3



C. Roof Preparation

1. Opening Requirements - Before preparing the ceiling opening, read all of the following instructions before beginning the installation.

⚠ WARNING

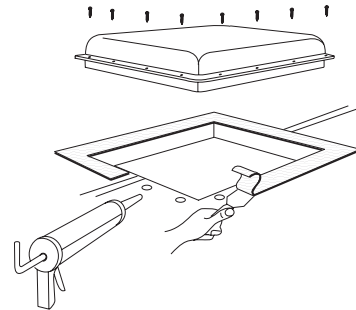
SHOCK HAZARD. There may be electrical wiring between the roof and the ceiling. Disconnect 220-240 VAC power cord and the positive (+) 12 VDC terminal at the supply battery. Failure to obey this warning could result in death or serious injury.

If an existing roof vent opening will not be used a 362 mm x 362 mm (±3 mm) opening must be cut through the roof and ceiling of the Caravan. This opening must be located between the roof reinforcing members.

The 362 mm x 362 mm (±3 mm) opening is part of the return air system of the unit and must be finished in accordance with applicable national and local codes and/or regulations.

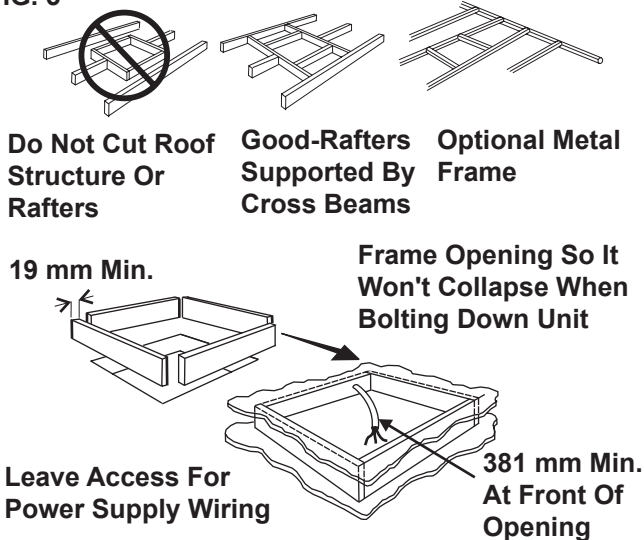
2. Roof Vent Removal
- Unscrew and remove the roof vent.
 - Remove all caulking compound around opening.
 - Seal all screw holes and seams where the roof gasket is located. Use a good grade of all weather sealant. See FIG. 4.

FIG. 4



- If the opening exceeds 365 mm x 365 mm, it will be necessary to re-size the opening to 362 mm x 362 mm (±3 mm).
 - If the opening is less than 359 mm x 359 mm, it must be enlarged to 362 mm x 362 mm (±3 mm).
3. New Opening- (Installation Other Than Vent Opening)
- Mark a 362 mm x 362 mm (±3 mm) square on the roof and carefully cut the opening.
 - Using the roof opening as a guide, cut the matching hole in the ceiling.
 - The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Framing stock 19 mm or more in thickness must be used. Remember to provide an entrance hole for power supplies at the front of the opening. See FIG. 5.

FIG. 5



NOTICE

It is the responsibility of the installer of this system to ensure structural integrity of the Caravan roof. Never create a low spot on the roof where water will collect. Water standing around the unit may leak into the interior causing damage to the product and the Caravan.

D. Wiring Requirements

1. 220-240 VAC Supply Wire
Route a copper, with ground, 220-240 VAC supply wire from the time delay fuse or circuit breaker box to the roof opening. The proper size wire can be determined from chart on page 3.

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

- a. This supply wire must be located in the front portion of the 362 mm x 362 mm (± 3 mm) opening.
- b. The power **MUST** be on an appropriately sized separate time delay fuse or circuit breaker. The proper protection can be determined from chart of page 3.
- c. Make sure that at least 381 mm of supply wire extends into the roof opening. This ensures an easy connection at the junction box.
- d. Wiring **MUST** comply with all national and local wiring codes and/or regulations.
- e. Protect the wire where it passes into the opening with approved method. See paragraph "d" above.

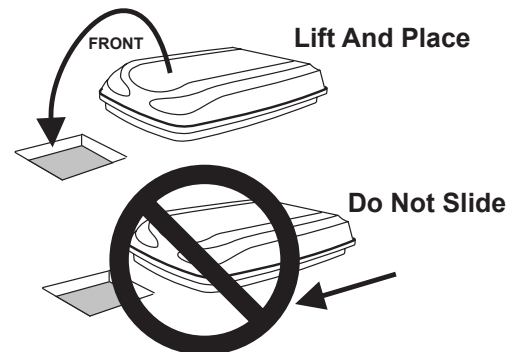
E. Placing The Unit On The Roof

CAUTION

This unit weighs approximately 45 Kilograms. To prevent back injury, use a mechanical hoist to place unit on roof.

1. Remove the unit from the carton and discard carton.
2. Place the unit on the roof.
3. Lift and place the unit over the prepared opening using the gasket on the unit as a guide. See FIG. 6.

FIG. 6



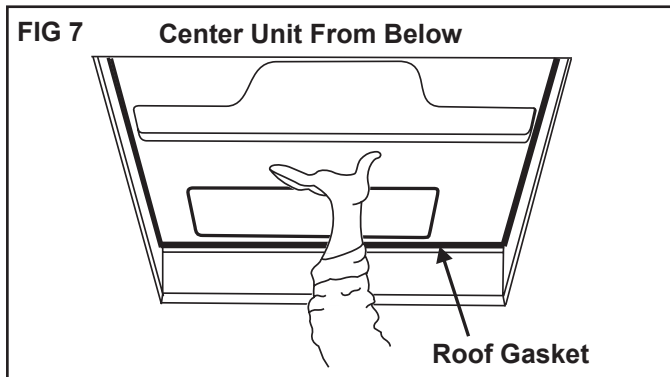
NOTICE

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

4. Place the air distribution box kit inside the Caravan. This box contains mounting hardware for the unit and will be used inside the Caravan. This completes the outside work. Minor adjustments can be done from the inside of the Caravan if required.

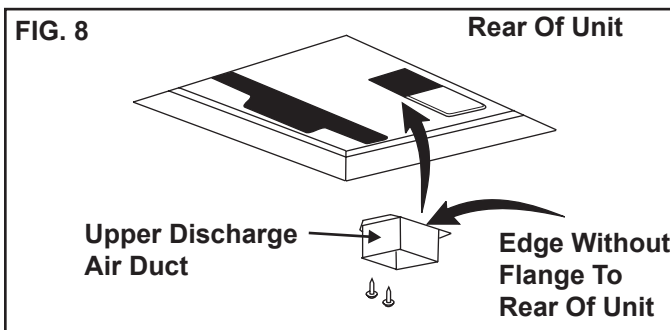
F. Installing The Unit

1. Check gasket alignment of the unit over the roof opening and adjust if necessary. Unit may be moved from below by slightly lifting. See FIG. 7.

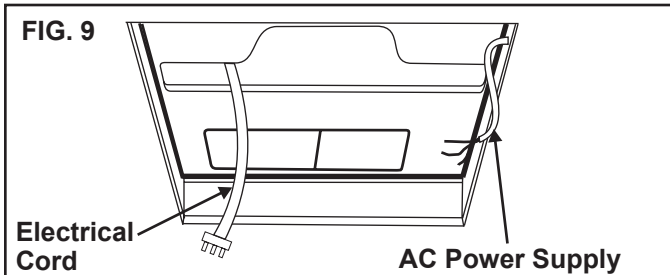


2. Remove air distribution box and mounting hardware from carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
3. All models listed in this manual will use a three (3) bolt pattern for installing the air distribution box kit. These bolts are furnished in this kit.
4. Remove upper duct from ceiling template and locate it over blower discharge. See FIG. 8.

Note: Edge without flange installs toward **REAR** of opening.

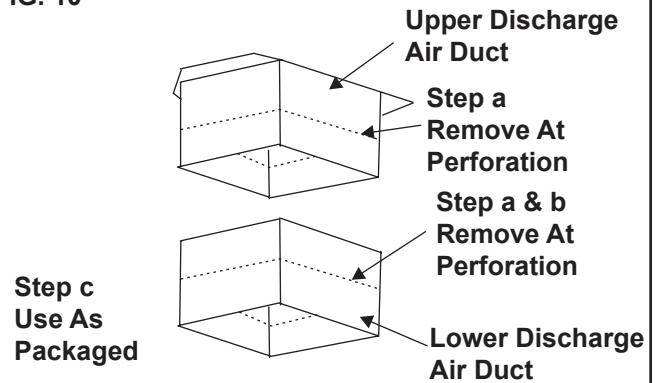


5. Use two (2) sharp pointed 10 mm long sheet metal screws to hold duct to base pan. Screw holes are provided in bottom of base pan for these screws.
6. Reach up into return air opening of the unit and pull the unit electrical cord down for later connection.



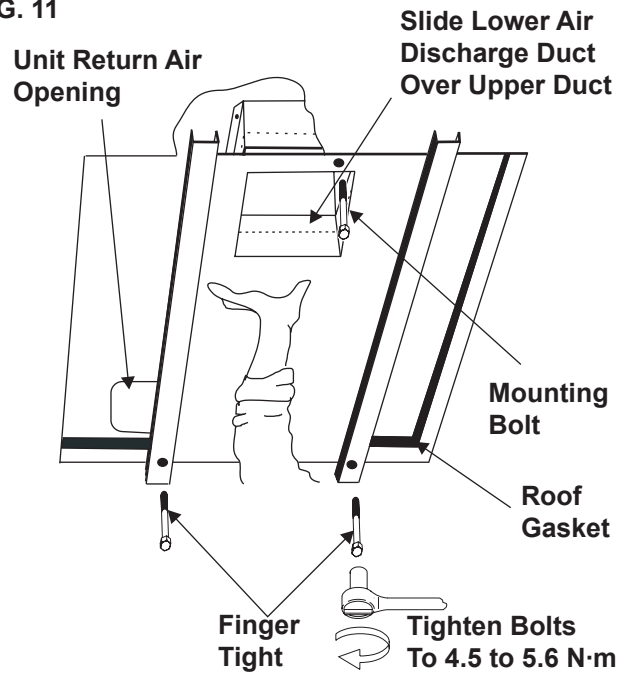
7. Measure the ceiling to roof thickness:
 - a. If distance is 25 mm - 51 mm, remove perforated tabs from both upper and lower ducts. See FIG. 10.
 - b. If distance is 51 mm - 76 mm, remove perforated tabs from bottom duct only. See FIG. 10.
 - c. If distance is 76 mm - 102 mm, install ducts as received. See FIG. 10.

FIG. 10



8. Install ceiling template by sliding lower duct over upper duct. See FIG. 11.
9. Hold the ceiling template up to the 362 mm x 362 mm (± 3 mm) opening.
 - a. Start each mounting bolt through the ceiling template and up into the base pan by hand. See FIG. 11.

FIG. 11



- Evenly tighten the three bolts to a torque of 4.5 to 5.6 N·m. This will compress the roof gasket to approximately 13 mm. The bolts are self locking so further tightening is not necessary.

NOTICE

If bolts are left loose there may not be an adequate roof seal or if over tightened, damage may occur to the unit base or ceiling template. Tighten to torque specifications listed in this manual.

G. Wiring The System

1. 220-240 VAC Power Supply Connection

⚠ WARNING

SHOCK HAZARD. Disconnect 220-240 VAC. Failure to obey this warning could result in death or serious injury.

Important: The electrical installation must be done by an authorized electrician. In some areas electricians must be licensed.

Note: You may either wire direct into the junction box for a permanent connection or wire a molded plug into the junction box for a plug in connection.

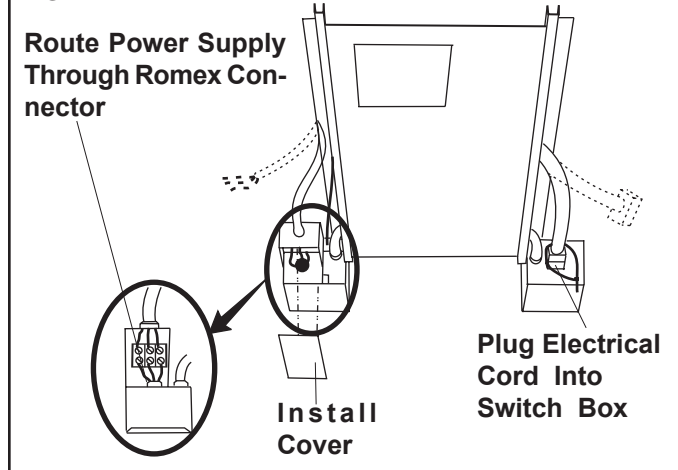
- a. **If a permanent connection:** Route the power supply wire, previously installed to the roof opening, into the junction box on the ceiling template.
 - i. Connect as described below. Connect the power supply wire to the unit at the terminal block provided in the junction box. Connect red to red; black to black; and green to green or bare copper wire (P, P, and $\perp$, respectively. See Fig. 12.
- b. **If a plug in connection:** Use the electric supply wire, to power an electrical outlet installed, according to applicable laws, at the end of the roof opening farthest from the junction box.

⚠ WARNING

SHOCK HAZARD. Do not plug the molded cord in until you have completely installed the unit and are ready for an operational check. Failure to obey this warning could result in death or serious injury.

- i. Route the molded plug set from the electric outlet into the junction box insuring not to coil excess wire so it will block air flow. Connect red to red; black to black; and green to green or bare copper wire (P, P, and $\perp$, respectively). See Fig. 12.

FIG. 12

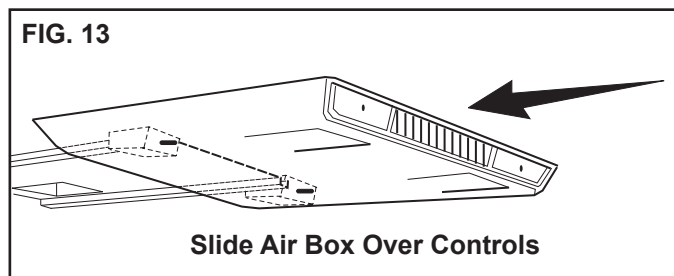


- c. Tighten the strain relief onto the power supply wire to hold it firmly in place. Be careful not to damage the wires.
- d. Carefully push all excess wire back into the junction box. Install junction box cover with two blunt pointed screws.
- e. Plug the unit electrical cord into the mating connector in the switch box. See FIG. 12.

H. Air Distribution Box Installation

1. Remove the two return air grilles and filters.
2. Slide the front end of the air distribution box over the shafts of the thermostat and selector switch. See FIG. 13.

FIG. 13



3. Install the four (4) sharp pointed screws through the air distribution box legs and into the pre-punched holes in the ceiling template.

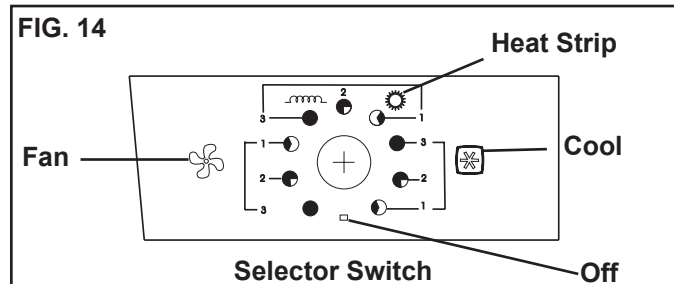
Note: There are four optional mounting holes on the outer edge of the return air opening for which no screws are provided. These are only required where an uneven ceiling does not allow proper fitting of the air distribution box.

4. Install the return air grilles and filters by simply pushing them into place.
5. Install the two knobs provided on the ends of the thermostat and selector switch shafts.
6. The power supply to the unit may now be turned "ON".
7. Your unit is now installed and ready for operation. Please read the following operating instructions before attempting to run the unit.

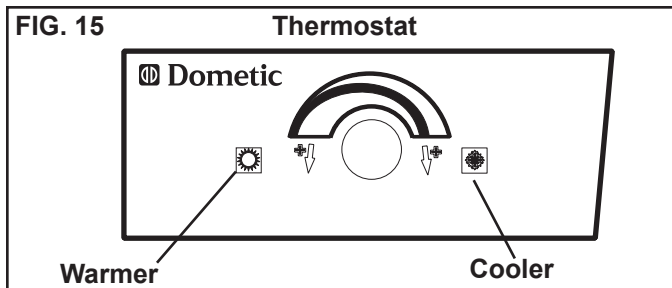
OPERATING INSTRUCTIONS

A. Controls

1. The Selector Switch has ten positions including "OFF". This controls fan speed, heating mode, and cooling modes. See FIG. 14.



2. The thermostat controls the compressor ON/OFF operation in cooling temperature range of 18° to 35°C. See FIG. 15.



B. Cooling Operation

1. Set the thermostat at the desired temperature level.
2. Select the fan speed that best satisfies your needs:
 - a. **HIGH COOL (3)**: Selected when maximum cooling and dehumidification required.
 - b. **MED COOL (2)**: Selected when normal or average cooling required.
 - c. **LOW COOL (1)**: Selected when room is at desired comfort level and needs to be maintained. Normally this speed used for night time operation.

Note: The blower runs continuously to circulate air and maintain an even temperature. The compressor will come on as cooling is required to maintain the selected temperature level.

Important: When the unit is turned on and the thermostat calls for cooling, the fan and compressor start at the same time. After shutting the unit down manually by either the selector switch or the thermostat, always wait 2-3 minutes before turning on the unit. This allows the refrigerant pressures in the unit system to equalize so the compressor may restart.

C. Fan Operation:

1. This will circulate the air in your Caravan without cooling or heating. There are three positions: **HIGH FAN (3)**, **MED FAN (2)** or **LOW FAN (1)** to select from, depending upon personal choice. See FIG. 14.

D. Heating Operation

Note: This electric heater will not replace a furnace for heating your Caravan in cold weather. The intent is to remove the chill on cool days or mornings.

1. Turn the selector switch to **"HEAT STRIP"**. See FIG. 14.
2. The heat strip will come on and begin heating. There are three positions: **HIGH HEAT (3)**, **MED HEAT (2)** or **LOW HEAT (1)** to select from, depending upon personal choice. See FIG. 14.
3. When desired temperature level in Caravan is reached, the thermostat will cycle the electric heat strip on and off; the fan will continue to operate in the speed selected.
4. Move the selector switch to **"OFF"** or **"FAN"** position to stop operation of the electric heat strip.

E. "OFF" Position

1. This is to turn unit off.

MAINTENANCE

A. Air Filter

1. Periodically (a minimum of every 2 weeks of operation) remove the return air filters located above the removable panels in the air distribution box. Wash the filters with soap and warm water, let dry and then reinstall.

Note: Never run the unit without return air filter in place. This may plug the unit evaporator coil with dirt and may substantially degrade the performance of the unit over time.

B. Air Distribution Box Housing

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

C. Fan Motor

1. The blower motor is factory lubricated and requires no service.

D. Frost Formation On Cooling Coil

1. Frost on a small portion of the coil is not unusual. Under certain conditions, ice may form on the evaporator coil. This is indicated by very cold output at very low air speed and the icing can be seen through the air inlet holes with the filters removed. If this should occur, inspect the filter and clean if dirty. Make sure air vents are open and not obstructed. Units have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control knob to a warmer setting (counter clockwise). Should frosting continue, operate on any **FAN ONLY** setting until the cooling coil is free of frost; then resume normal operation. If frost condition persist, contact your local service center for assistance.

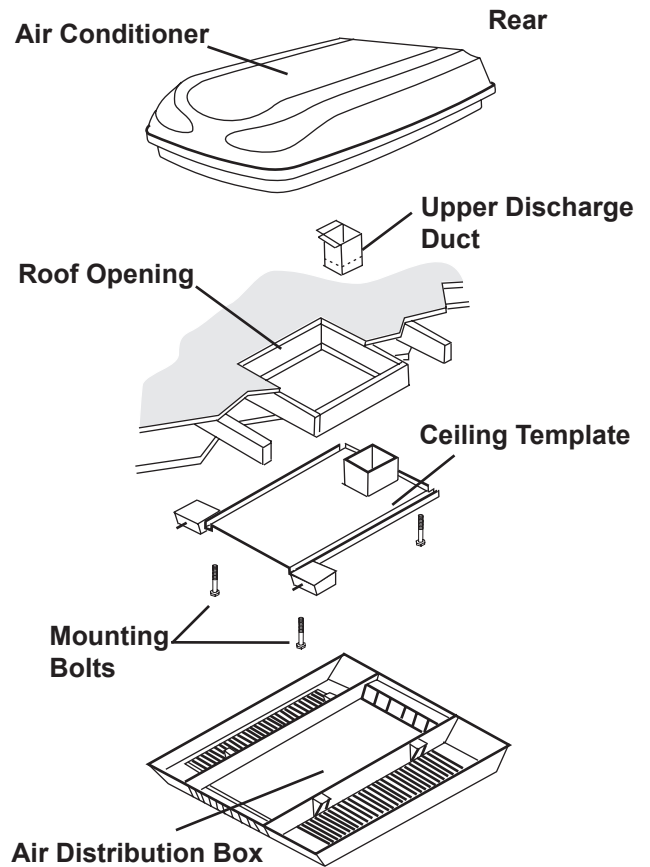
SERVICE-UNIT DOES NOT OPERATE

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

- A.** If Caravan connected to motor generator, check to be sure motor generator is running and producing power.
- B.** If Caravan connected to power supply by a land line, check to be sure line is sized properly to run unit load and it is plugged into power supply.
- C.** Check your fuse or circuit breaker to see if it is open. Insure fuse is not burnt, or circuit breaker is "ON" and not activated.
- D.** After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.
- E.** If any wiring or supply cord is damaged and needs to be replaced, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
- F.** When calling for service, always give the following:
 - 1. Unit type and serial number found on the identification label located on base pan of unit bottom. Return air grille must be removed from air distribution box to view.
 - 2. Air distribution box model and serial number found on rating plate located on ceiling template. Observe this rating plate through the filter opening.

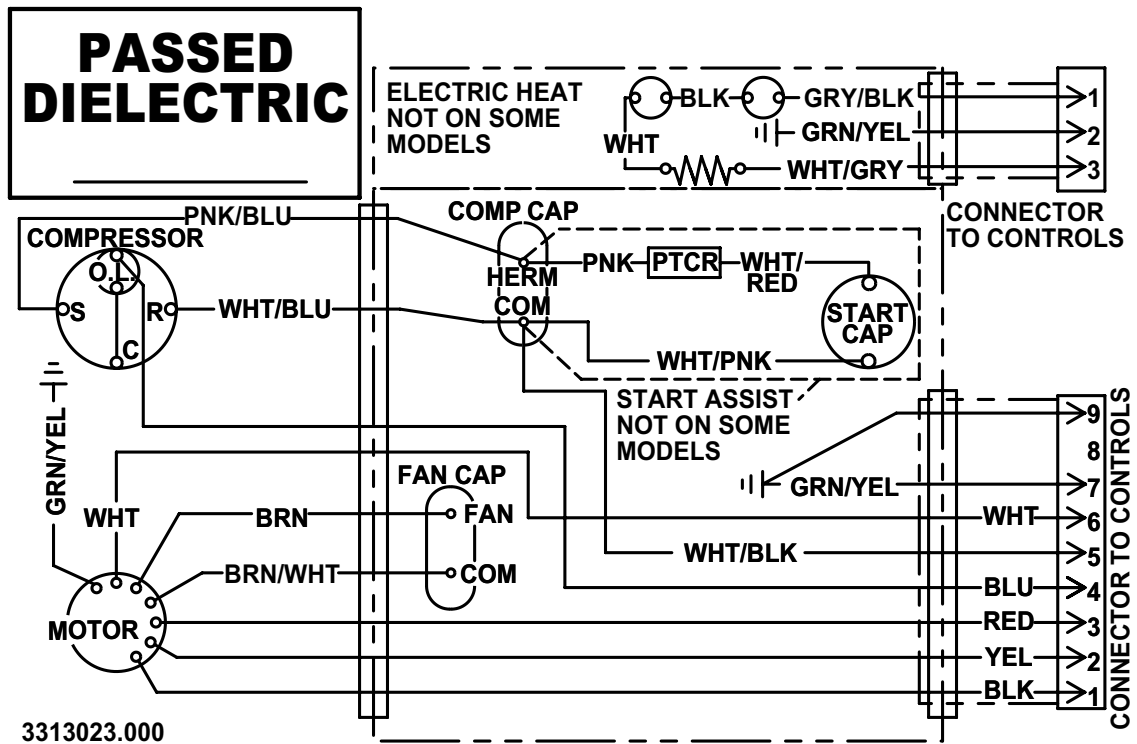
FIG. 16

Roof Mount Assembly



WIRING DIAGRAMS

Unit Wiring Diagram



Air Distribution Box Wiring Diagram

