

**RECORD THIS INFORMATION FOR FUTURE REFERENCE:**

Model Number _____
Serial Number _____
ADB Model Number _____
ADB Serial Number _____
Date Purchased _____

SERVICE OFFICE
Dometic Corporation
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	3314855.000	Integral Mechanical
	B3300	3341		

INSTALLATION & OPERATING INSTRUCTIONS

TYPE
3241C35X
3341.70X

REVISION B

Form No. 3315420.000 08/16
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LaGrange, IN 46761



Read these instructions carefully. These instructions MUST stay with this product.

INTRODUCTION

This air conditioner (hereinafter referred to as “unit” or “product”) is designed and intended for installation on the roof of a Caravan during or after the time it is manufactured.

This unit can be installed by one person with brief help from additional personnel. Use these instructions to ensure a properly installed, and properly functioning product.

Dometic Corporation reserves the right to modify appearances and specifications without notice.

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DOCUMENT SYMBOLS



Indicates additional information that is **NOT** related to physical injury.



Indicates step-by-step instructions.

IMPORTANT SAFETY INSTRUCTIONS

This manual has safety information and instructions to help you eliminate or reduce the risk of accidents and injuries.

A. 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.

B. 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 indicates a hazardous situation that, if **NOT** avoided, could result in death or serious injury.

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

NOTICE is used to address practices **NOT** related to physical injury.

C. Supplemental Directives



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

Read and understand these instructions before [installing / using / servicing / performing maintenance on] this product.

Incorrect [installation / operation / servicing / maintaining] of this product can lead to serious injury. Follow all instructions.

The installation **MUST** comply with all applicable local and national codes, including the latest edition of the following standards:

- IEC 335-2-40, Cl, 7.12.1.

D. General Safety Messages



⚠ WARNING Failure to obey the following warnings could result in death or serious injury:

- This product **MUST** be [installed / serviced] by a qualified service technician.
- Do **NOT** modify this product in any way. Modification can be extremely hazardous.
- Do **NOT** add any devices or accessories to this product except those specifically authorized in writing by Dometic Corporation.

SPECIFICATIONS

A. Table - Unit Data

Type	3241C35X	3341.70X
A/C OR H/P	A/C	A/C
Nominal Cooling Capacity (kW)	3.0	3.4
Electric Heat Capacity (kW)	1.6	1.6
Electrical Rating	220 - 240 Vac 50 Hz 1 ph	
Full Load Amps (Compressor / Motor)	5.46 / .92	5.69 / .69
Locked Rotor Amps (Compressor / Motor)	27 / 2.3	25 / 3.8
Power (kW) (Compressor + Motor)	1.34	1.38
Power (kW) Heater	1.5	1.5
Refrigerant R-410A Grams / oz	525 / 18.5	567 / 20.0
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 Units - 5.0 kW	

*Dometic Corporation gives **GENERAL** guidelines for generator requirements. These guidelines come from experiences people have had in actual applications. When sizing the generator, the total power usage of your Caravan must be considered. Keep in mind generators lose power at high altitudes and from the lack of maintenance.

B. Power Requirements

- 220 - 240 Vac, 50 Hz, 10 Amp.
- Power when the unit starts must be above 198 Vac and the frequency must be 50 Hz at all times.

C. Roof Requirements

- A 362 mm x 362 mm (±3 mm) square opening (hereinafter referred to as "roof opening") is required for installing this unit.
- If applicable: Roof construction with rafters/ joists support frames on minimum of 406 mm centers.
- Minimum of 25 mm and maximum of 102 mm distance between roof to ceiling.

INSTALLATION INSTRUCTIONS

A. Choosing Proper Location For Unit

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

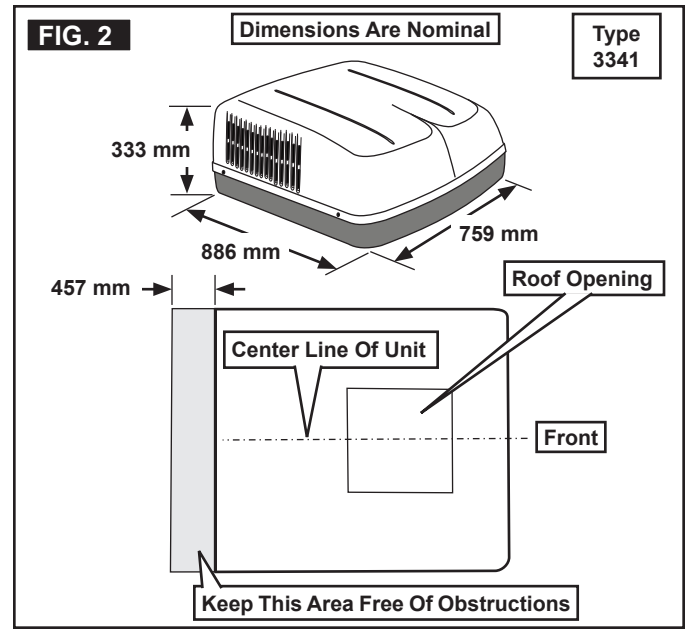
- Size of Caravan;
 - Window area (increases heat gain);
 - Amount of insulation in walls and roof;
 - Geographical location where the Caravan will be used;
 - Personal comfort level required.
1. Normal locations - The unit is designed to fit over an existing roof vent opening.
 2. Other locations - 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 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. See table below for maximum acceptable tilt.

Type Number	Max Tilt
3241	8°
3341	15°

After Location Has Been Selected:

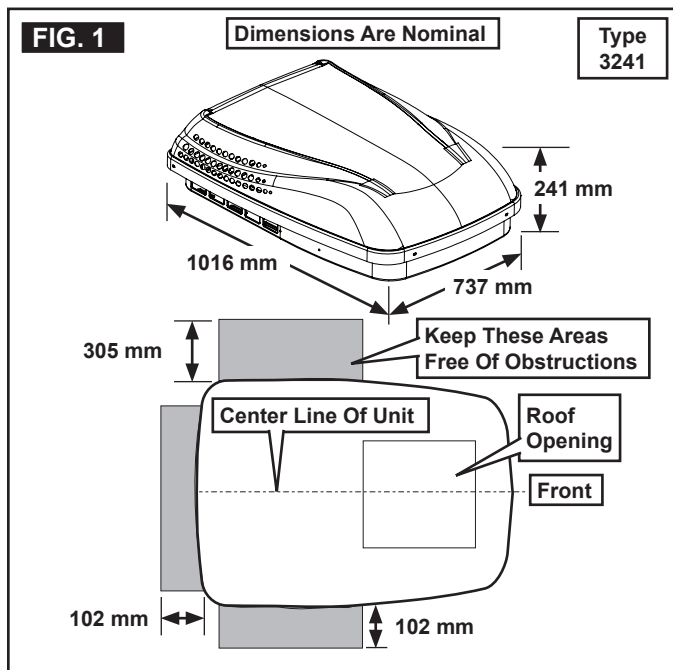
- c. Check for obstructions in the area where unit will be installed. See (FIG. 1) & (FIG. 2).



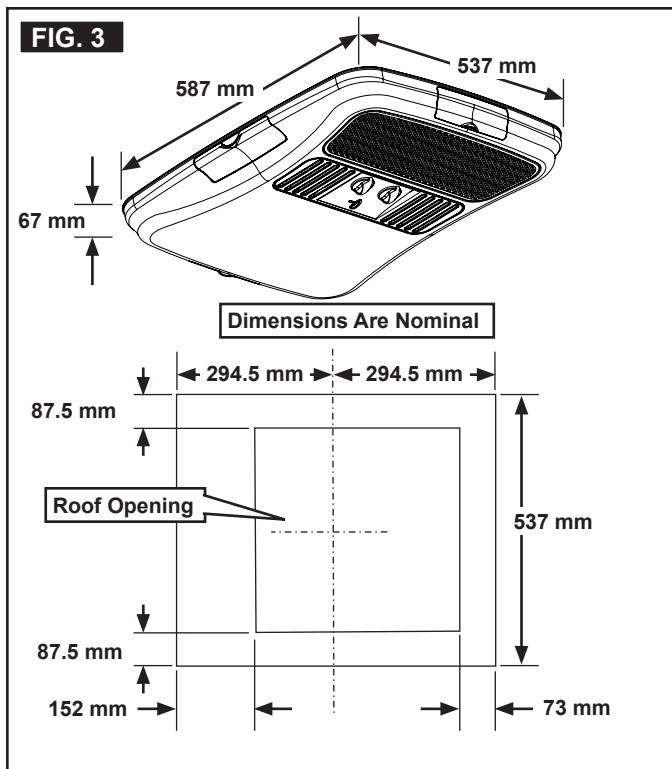
- d. **NOTICE** Maintain structural integrity. Otherwise damage to product and/or Caravan could occur.

The roof must be designed to support 60 kg when the Caravan is in motion. Normally a 91 kg static load design will meet this requirement.

- e. Check inside the Caravan for air distribution box (hereinafter referred to as "ADB") obstructions (i.e. space for doors to open, room dividers, curtains, ceiling fixtures, etc.). See (FIG. 3).



INSTALLATION INSTRUCTIONS



B. Roof Preparation

1. **⚠ WARNING FIRE OR ELECTRICAL SHOCK HAZARD.** Verify there are no obstacles inside Caravan's roof and/or walls (wires, pipes, etc.). Shut **OFF** gas supply, disconnect 220-240 Vac power from Caravan, and disconnect positive (+) 12 Vdc terminal from supply battery **BEFORE** drilling or cutting into Caravan. Failure to obey these warnings could result in death or serious injury.

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

If an existing roof vent opening will **NOT** be used, a roof opening **MUST** be cut through the roof and ceiling of the Caravan.

2. Roof vent removal
 - a. Unscrew and remove the roof vent.
 - b. Remove all caulking compound around opening.
 - c. Seal all screw holes and seams where roof gasket will be located. Use a good grade of all weather sealant.
 - d. If the opening exceeds 365 mm x 365 mm, it will be necessary to resize the opening. See "C. Roof Requirements" on page (4).

- e. If the opening is less than 359 mm x 359 mm, it must be enlarged. See "C. Roof Requirements" on page (4).

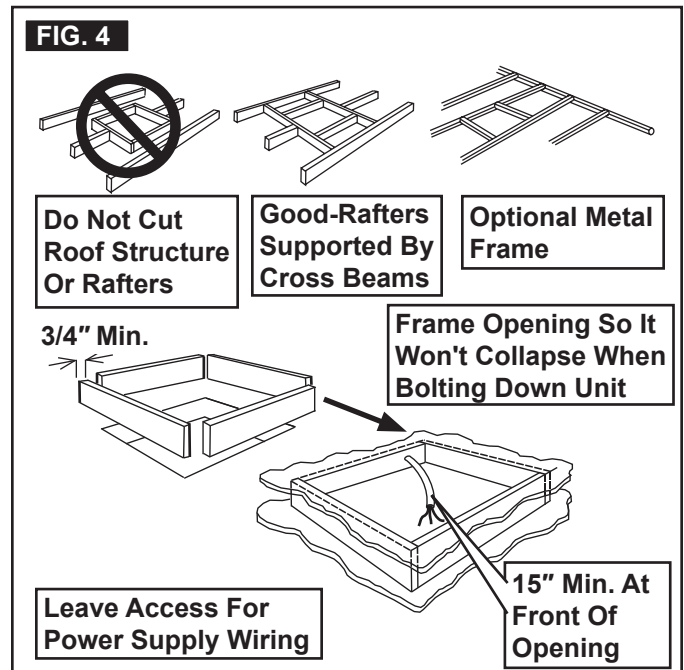
3. New opening

- a. Carefully mark and cut the required roof opening. See "C. Roof Requirements" on page (4).
- b. **NOTICE** Maintain structural integrity. Otherwise damage to product and/or Caravan could occur.

NOTICE **NEVER** create a low spot on Caravan roof. Otherwise, water will pool and could cause a leak.

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 the power supplies at the front of the opening. See (FIG. 4).



C. Wiring Requirements

1. 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 4.

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

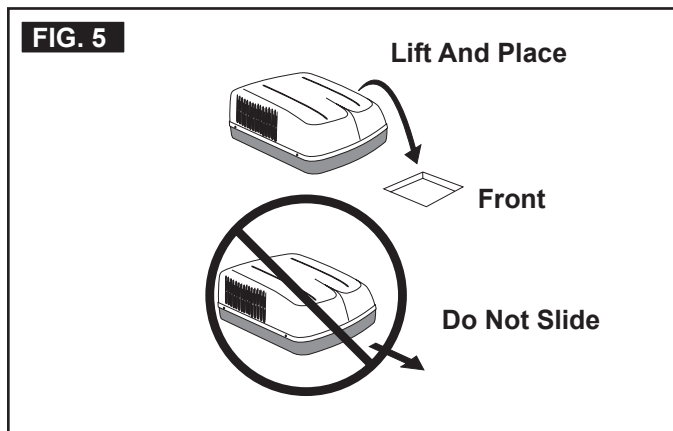
INSTALLATION INSTRUCTIONS

- This supply wire must be located in the front portion of the roof opening.
- The power **MUST** be on an appropriately sized separate time delay fuse or circuit breaker. The proper size protection can be determined from chart on page 4.
- Make sure that at least 381 mm of supply wire extends into the roof opening. This ensures an easy connection at the junction box.
- Protect the wire where it passes into the opening with approved method.

D. Placing Unit On Roof

- Remove the unit from the carton and discard carton.
- CAUTION** LIFTING HAZARD. Use proper lifting technique and control when lifting product. Failure to obey this caution could result in injury. Place unit on roof.
- NOTICE** Do **NOT** slide unit. Otherwise, damage to gasket (on bottom of unit) may occur, and could cause a leak.

Lift and place the unit over the prepared opening using the gasket on the unit as a guide. See (FIG. 5).

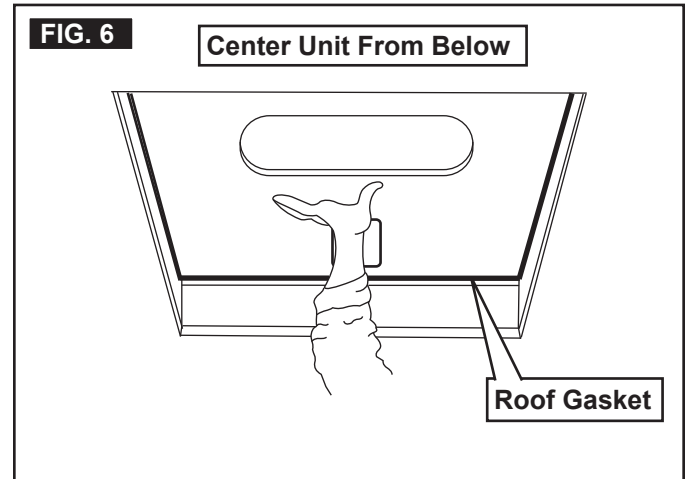


- Place the ADB inside the Caravan. This box contains mounting hardware for the unit and will be used inside the Caravan.

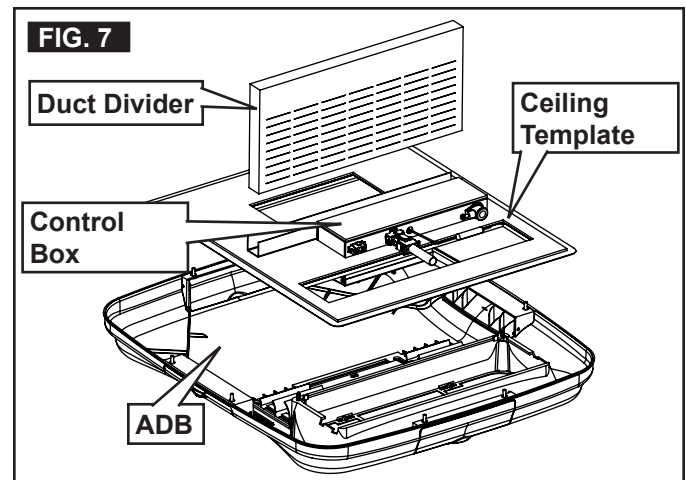
i This completes the outside work. Minor adjustments can be done from inside the Caravan if required.

E. Installing Unit

- 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. 6).

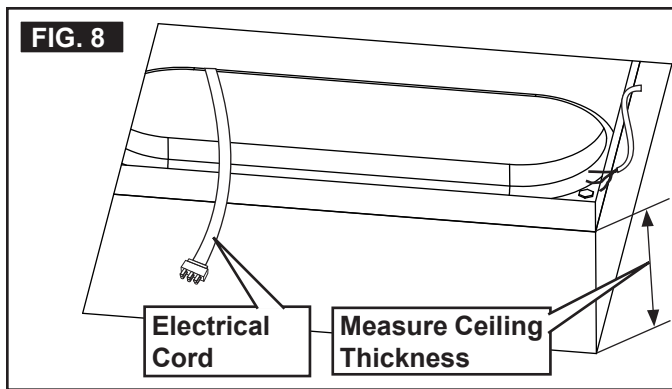


- Remove ADB and mounting hardware from carton. See (FIG. 7).



- All models in this manual will use a four (4) bolt pattern for installing the ADB kit.
- Reach up into the return air opening of the unit and pull the unit electrical cord down for later connection. See (FIG. 8).

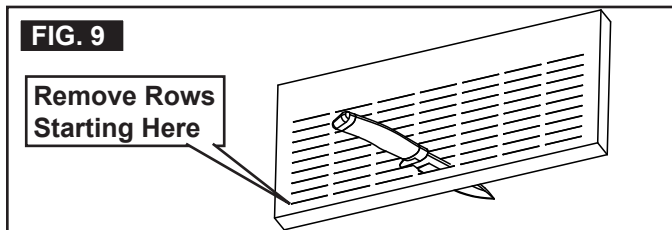
INSTALLATION INSTRUCTIONS



5. Duct Divider Installation

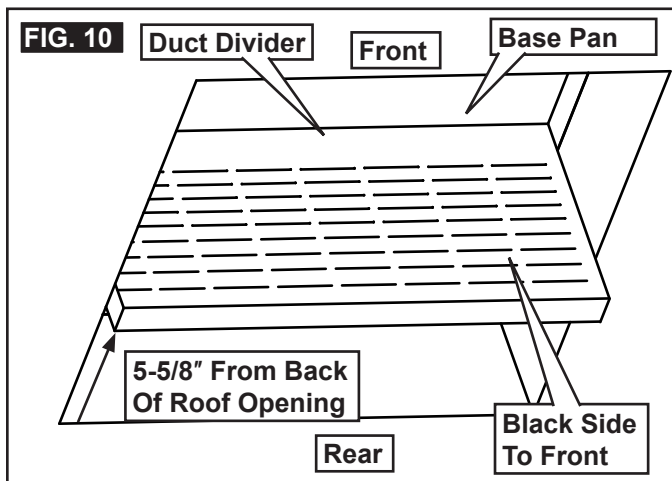
- Measure the ceiling thickness. See (FIG. 8).
- Cut away the number of rows as indicated in the table below. See (FIG. 9).

Ceiling Thickness		# Of Rows To Cut	Ceiling Thickness		# Of Rows To Cut
Min.	Max.		Min.	Max.	
6.0	6.5	0	3.5	4.0	5
5.5	6.0	1	3.0	3.5	6
5.0	5.5	2	2.5	3.0	7
4.5	5.0	3	2.0	2.5	8
4.0	4.5	4	1.5	2.0	9



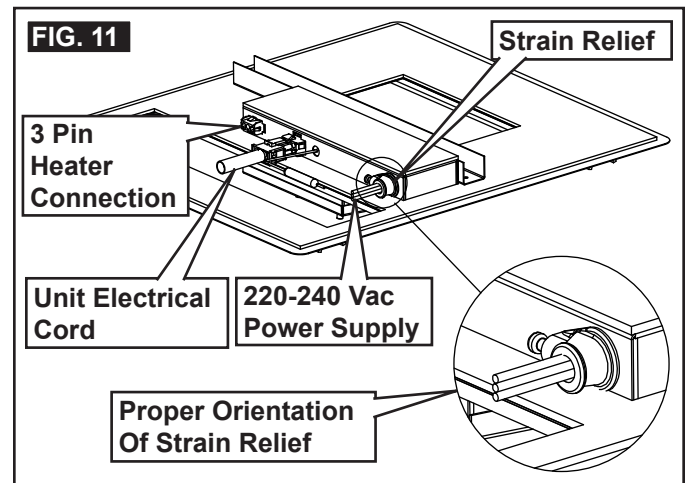
- Carefully install the duct divider in the roof opening 5-5/8" from back of roof opening. See (FIG. 10).

i Foil back faces rear of unit.

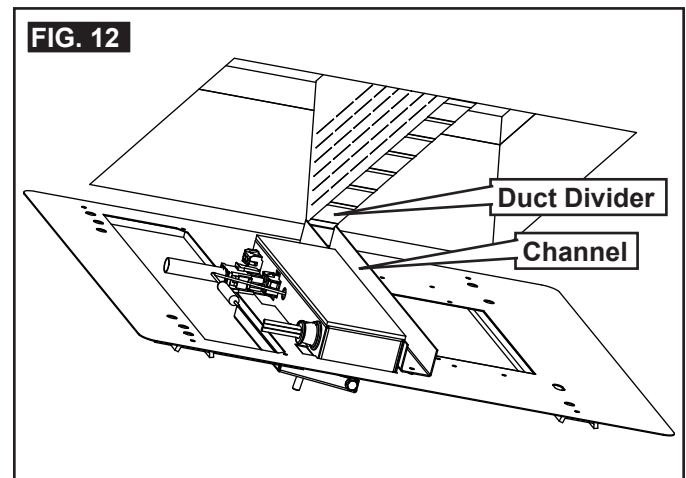


6. Ceiling Template Installation

- Plug the 9 pin electrical cord from the top unit into the matching 9 pin connector in the electronic control box. The plug is polarized and will only fit in one direction. See (FIG. 11).



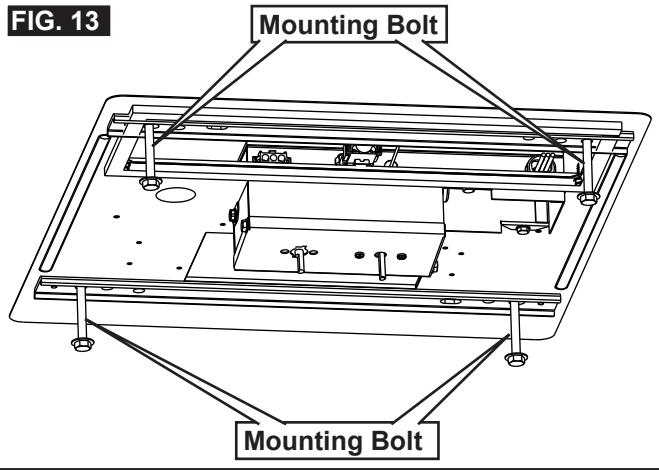
- Plug the 3 pin heater cord from the top unit into the matching 3 pin connector in the electronic control box. See (FIG. 11).
- Install supplied strain relief in junction box hole cutout. It may already be installed on some units.
- Route the previously run 220-240 Vac power supply wire through strain relief and into junction box. See (FIG. 11). If making a plug-in connection see d on page 10.
- Secure 220-240 Vac power supply wire by tightening strain relief screw making sure not to damage wires. See (FIG. 11).
- Hold the ceiling template up to the roof opening and line up the channel in the ceiling template with the previously installed duct divider. See (FIG. 12).



INSTALLATION INSTRUCTIONS

- g. Hold the ceiling template up to the roof opening and start each mounting bolt, by hand, through the ceiling template and up into the unit base pan. See (FIG. 13) & (FIG. 14).

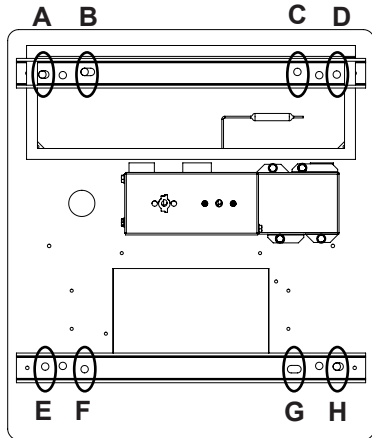
FIG. 13



Mounting Bolt Pattern Table (See Fig. 14)

Type	Bolt Location
3241	B, C, F & G
3341	A, D, E & H

FIG. 14



- h. **NOTICE** Tighten mounting bolts to correct torque specifications. Overtightening could damage unit's base pan or ceiling template. Not enough torque will allow an inadequate roof seal, and could cause a leak. Tighten all four (4) mounting bolts **EVENLY** with in 4.5 to 5.6 N·m. See (FIG. 13).

F. Wiring System

1. 220 - 240 Vac Power Supply Connection

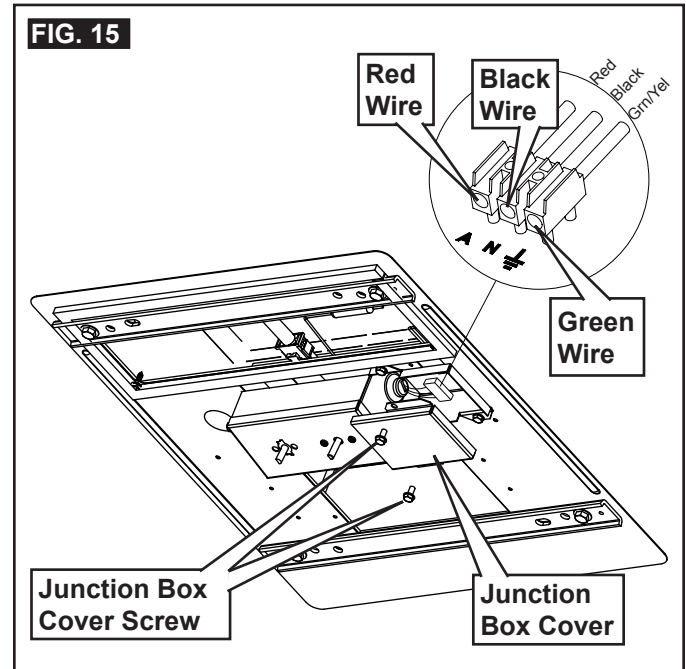
- a. **⚠ WARNING** ELECTRICAL SHOCK HAZARD. Verify 220-240 Vac power is disconnected from Caravan. Failure to obey this warning could result in death or serious injury.
- b. **⚠ WARNING** ELECTRICAL SHOCK HAZARD. Provide grounding in compliance with all applicable electrical codes. Failure to obey this warning could result in death or serious injury.

i The electrical installation **MUST** be done by an authorized electrician. In some areas electricians **MUST** be licensed.

i 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 connection.

- c. If a permanent connection, connect the power supply wire to the unit at the terminal block provided in the junction box. See (FIG. 15). Connect RED (Active) wire to terminal (A). Connect BLACK (Neutral) wire to terminal (N). Connect green or bare copper wire to terminal $\perp$.

FIG. 15



INSTALLATION INSTRUCTIONS

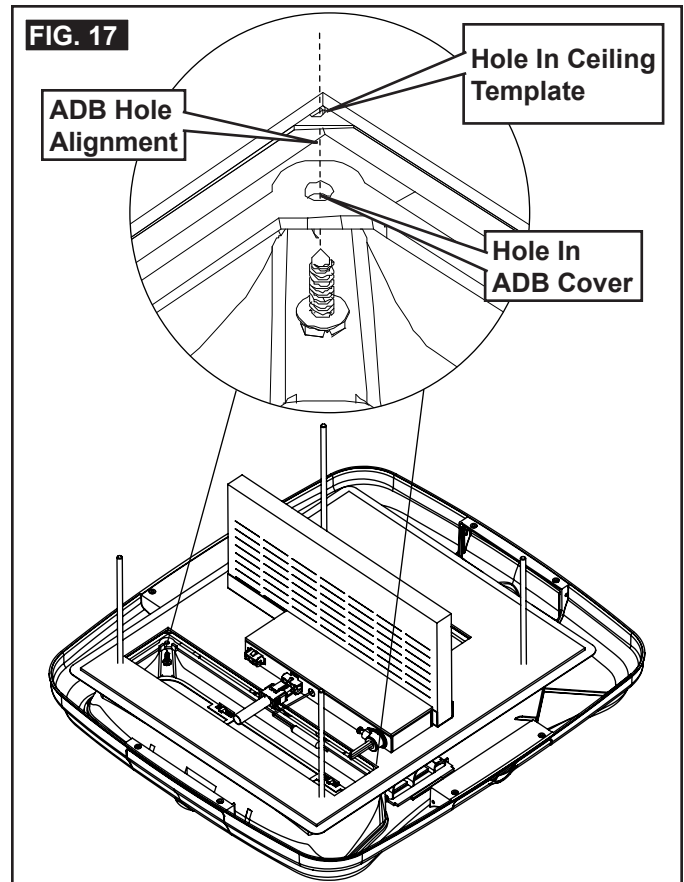
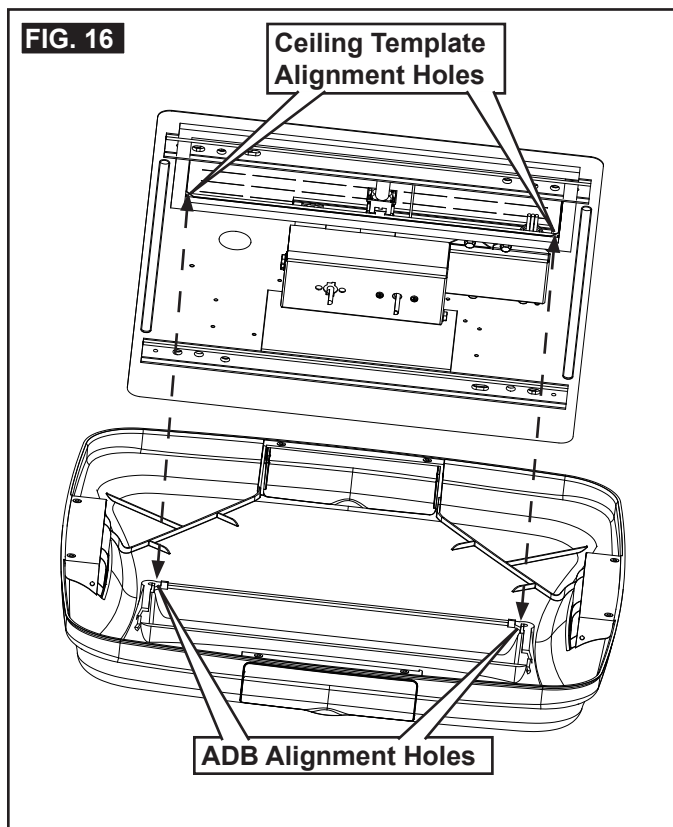
- d. If a plug in connection; Use the electric supply wire to power an electrical outlet (installed according to applicable laws) at the end of the roof opening farthest from the junction box.
Route the plug wire into the junction box in a manner that will not block air flow. Connect to terminal block as described in "c" above.
- e. Carefully push all excess wire back into the junction box and Install junction box cover. See (FIG. 15).
- f. If plug in connection was used, plug cord into electrical outlet.

G. Installing ADB

-  1. Align ADB with ceiling template. See (FIG. 16) & (FIG. 17).



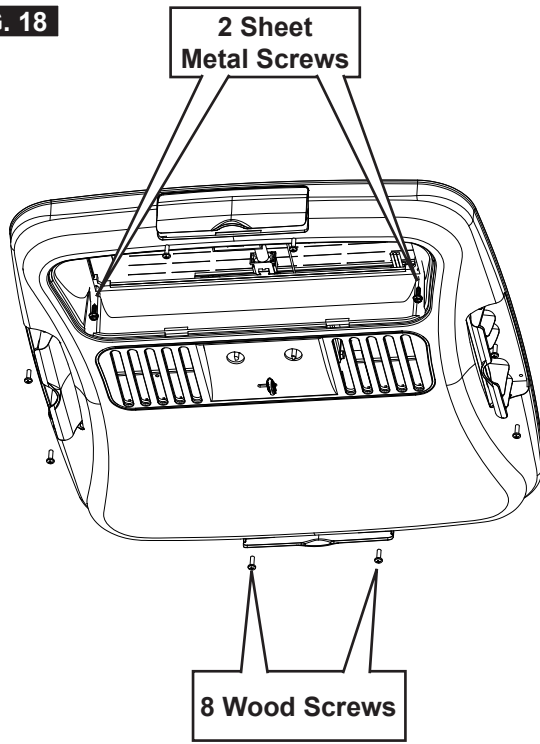
Front and rear vent doors are supplied loose. Do **NOT** install them until all screws are installed in step 2 & 3.



2. Install two (2) (supplied) sheet metal screws inside return air opening to secure ADB to ceiling template. See (FIG. 18).
3. Install eight (8) (supplied) wood screws inside the front, rear, and side doors to secure ADB to ceiling. See (FIG. 18).

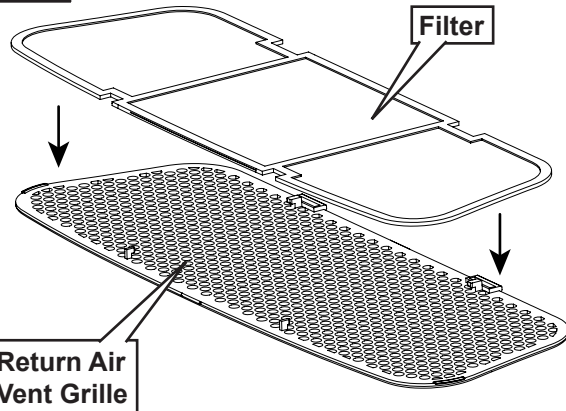
INSTALLATION INSTRUCTIONS

FIG. 18



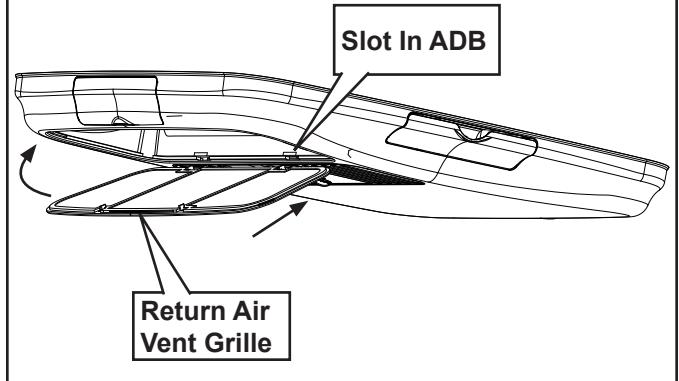
4. Install front and rear doors.
5. Place filter in return air vent grille. It may already be installed on some units. See (FIG. 19).

FIG. 19



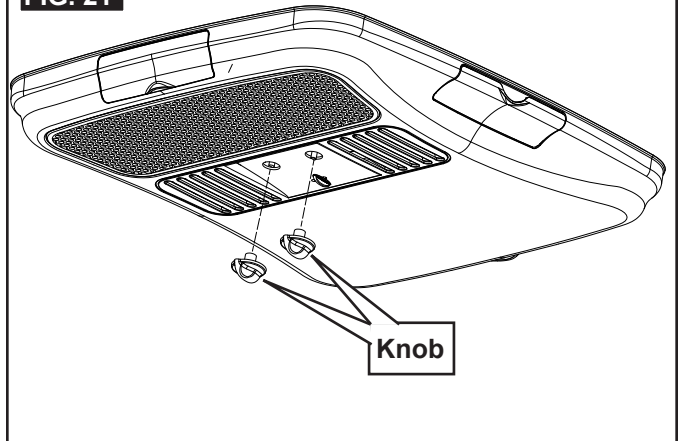
6. Install return air vent grille into the ADB. Slide return air vent grille tab into slot in ADB and rotate up and snap in place. See (FIG. 20).

FIG. 20



7. Install the control knobs in the ADB. See (FIG. 21).

FIG. 21

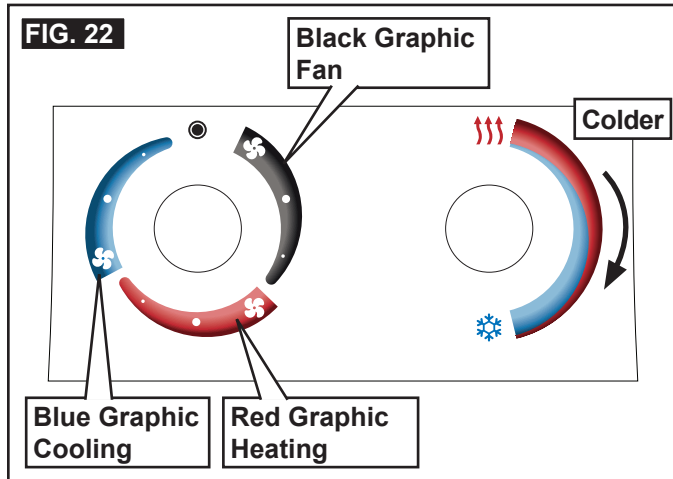


8. The unit installation is now complete and is ready for operation. The power supply to the unit may now be turned on.
9. Verify that all features of the installed system work. Please read the following operating instructions before attempting to run the unit.

OPERATING INSTRUCTIONS

A. Controls

1. The selector switch has ten positions including "OFF". It controls the fan speeds, cooling modes, and heating modes of operation. See (FIG. 22).



2. The thermostat controls the compressor ON/OFF operation within a temperature range of approximately 65° F and 90° F measured at the ADB inlet.

B. "OFF" Position (⊙)

1. This is to turn unit off.

C. Cooling Operation (Blue Graphic)

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

i The compressor will cycle on and off as cooling is required to maintain the selected temperature level. The fan runs when the compressor is off to help keep the temperature uniform throughout the Caravan.

NOTICE Wait at least 2 minutes before restarting the compressor when it has been manually cycled off with either the selector switch or the temperature set lever. Otherwise, compressor will quick-cycle and could result in compressor or supply circuit overload.

D. Electric Heater Operation (Red Graphic)

i The heating mode of operation 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. Set the thermostat to the desired temperature level.
2. Turn the selector switch to heating (red graphic). There are three positions to select from (high, medium and low). See (FIG. 22).
3. The blower will come on immediately. The heat function will start if the thermostat is not satisfied.

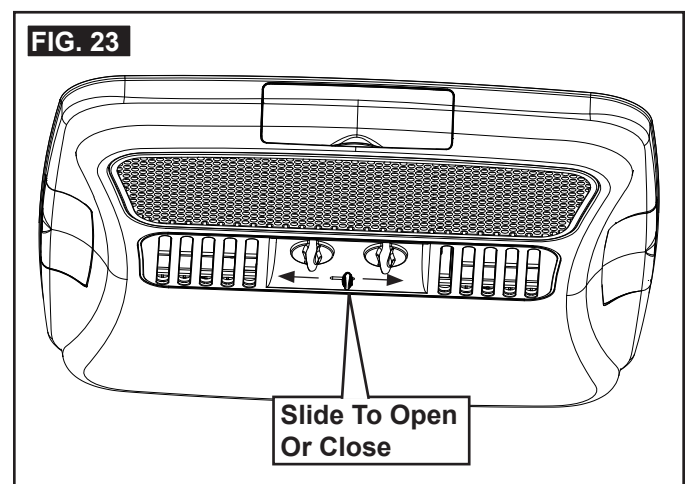
E. Fan Operation (Black Graphic)

i This will circulate the air in your Caravan without cooling or heating.

1. Turn the selector switch to fan (black graphic). There are three positions to select from (high, medium and low). See (FIG. 22).

F. Center Air Discharge

1. Slide lever to open and close. See (FIG. 23).



MAINTENANCE

A. Air Filter

1. Periodically (a minimum of every 2 weeks of operation) remove the return air filter located behind the return air vent grille and wash it with soap and warm water, let dry and then reinstall.



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

B. ADB Housing

1. Clean ADB 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.

GENERAL INFORMATION

A. 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 hole with the filter 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.

B. Heat Gain

The ability of this 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 vehicle 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.

C. Condensation

The manufacturer of this unit will not be responsible for damage caused by condensation forming on ceilings, windows, or other surfaces. Air contains water vapor which condenses when temperature of a surface is below Dew point. During normal operation this unit is designed to remove a certain amount of moisture from the air, depending on the size of the space being conditioned. Keeping doors and windows closed when this air conditioner is in operation will greatly reduce the chance of condensation forming on interior surfaces.

SERVICE - UNIT DOES NOT OPERATE

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

- If Caravan connected to motor generator, check to be sure motor generator is running and producing power.
- 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.
- 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.
- After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.

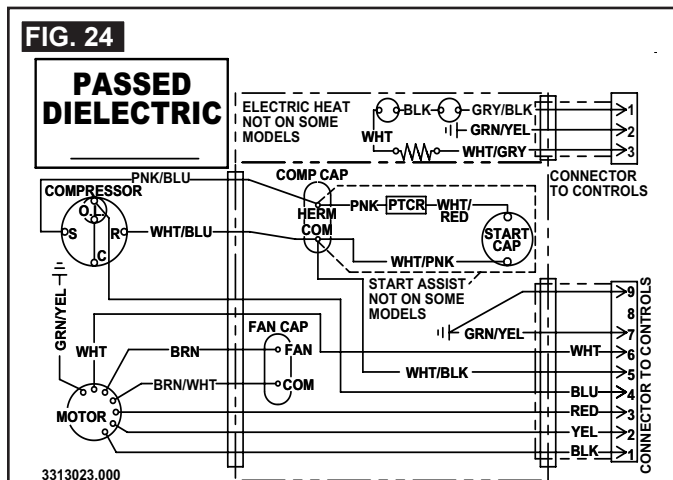
When calling for service, always give the following:

- Unit model and serial number found on the identification label located on base pan of unit bottom. Return air vent grille must be removed from ADB to view.
- ADB model and serial number found on rating plate located on ceiling template. Observe this rating plate through the filter opening.

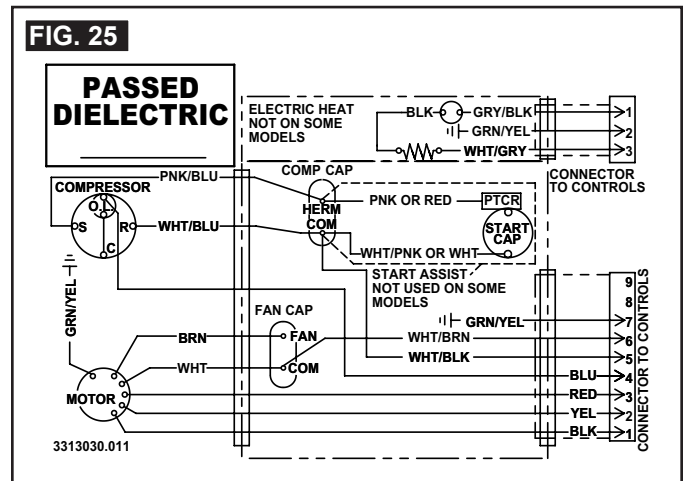
WIRING DIAGRAMS

A. Unit Wiring Diagram

1. 3241



2. 3341



WIRING DIAGRAMS

B. ADB Wiring Diagram

