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CARAVAN MODELS

B3200 Model Type 3253.336
Air Conditioner With Electric Heat
used with
3310895 Mechanical Control
Air Distribution Box

B3300 Model Type 3254.341
Heat Pump
used with
3311669 Mechanical Control
Air Distribution Box

Note: Air Box installation requires a #2 Phillips screwdriver with a 7 mm maximum diameter x 35 mm minimum length.

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
3253.336
3254.341

REVISION A
Form No. 3311974.020 11/16
©2016 Dometic Corporation
LaGrange, IN 46761, USA

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

SAFETY INSTRUCTIONS

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

RECOGNIZE SAFETY INFORMATION



This is the safety-alert symbol. When you see this symbol in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating instructions.

UNDERSTAND SIGNAL WORDS

A signal word, **WARNING OR CAUTION** is used with the safety-alert symbol. They give the level of risk for potential injury.

⚠ CAUTION 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.

GENERAL INFORMATION

A. Product features or specifications as described or illustrated are subject to change without notice.

B. This Air conditioner/heat pump Is Designed For:

1. Installation on a caravan during the time the caravan is manufactured.
2. Mounting on the roof of a caravan.
3. Roof construction with rafters/joists on minimum of 406 mm centers.
4. Minimum of 25 mm and maximum of 100 mm distance between roof to ceiling of caravan.

C. The ability of the air conditioner/heat pump 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 ability of the air conditioner/heat pump to cool the caravan. 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/heat pump 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 an outdoor patio and window awning will reduce heat gain by removing the direct sun. They also add a nice area to enjoy company during the cool of the evening.

D. Condensation

Note: The manufacturer of this air conditioner/heat pump 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/heat pump removes this moisture from the air during normal operation. Keeping doors and windows closed when this air conditioner/heat pump is in operation will minimize condensed moisture on cold surfaces.

Specifications

Model No.	B3200	Electric Heater	B3200
Type	3253.336		3254.341
Nominal Compressor Capacity (KW)	3.2	1.6	3.2
Electrical Rating	220-240 VAC 50Hz., 1 Ph		
Full Load Amps (Compressor / Motor)	5.2 / 1.1	--- / 1.1	5.2/1.1
Locked Rotor Amps (Comp / Motor)	26/ 3.8	---/ 3.8	26/3.8
Refrigerant R407C Grams/Oz.	496/15.5	---	595/21.0
Circuit Protection	10 Amp Time Delay Fuse, or Circuit Breaker		
Input Power (KW)	1.35	1.5	1.35
Minimum Wire Size	Up to 8 meters use 1mm ² , Copper		
** Generator Size	1 Unit - 3.5KW 2 Units - 5.0KW		

** The manufacturer 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 your air conditioner/heat pump installation.
2. The manufacturer 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 national 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 air conditioner/heat pump except those specifically authorized by the manufacturer.
5. This equipment must be serviced by qualified personnel and some local codes and regulations require these electricians to be licensed.

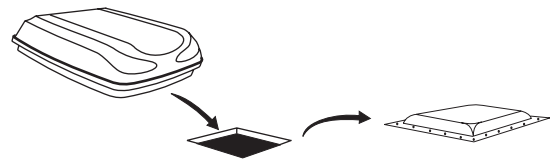
B. Choosing Proper Location For The Air conditioner/heat pump

This air conditioner/heat pump 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.

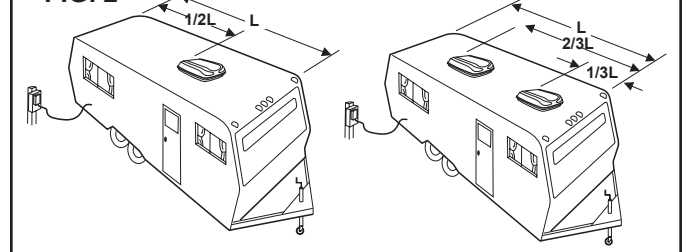
1. Normal location-The air conditioner/heat pump is designed to fit over an existing roof vent opening.

FIG. 1



2. Other locations-when no roof vent is available or another location is desired, the following is recommended:
 - a. For one unit installation: The air conditioner/heat pump should be mounted slightly forward of center (front to back) and centered from side to side.
 - b. For two unit installations: Install one air conditioner/heat pump 1/3 and one air conditioner/heat pump 2/3's from front of caravan and centered from side to side.

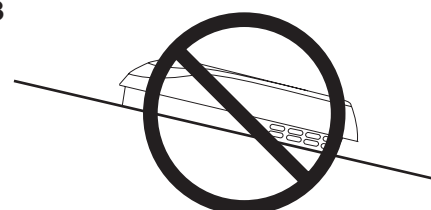
FIG. 2



It is preferred that the air conditioner/heat pump be installed on a relatively **flat and level** roof section measured with the caravan parked on a level surface.

Note: An 8° slant to **either** side is acceptable, but a **Front to Back** slant **is not** acceptable.

FIG. 3



Font to Back Slope Is NOT ACCEPTABLE

3. After location has been selected:
 - a. Check for obstructions in the area where air conditioner/heat pump will be installed. See FIG. 4.
 - b. The roof must be designed to support 65 Kg. when the caravan is in motion. Normally a 100 Kg. static load design will meet this requirement.

CAUTION

It is the responsibility of the installer of this air conditioner/heat pump 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 air conditioner/heat pump may leak into the interior causing damage to the product and the caravan.

- c. Check inside the caravan for return air kit obstructions (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.). See FIG. 4 & 5.

FIG. 4

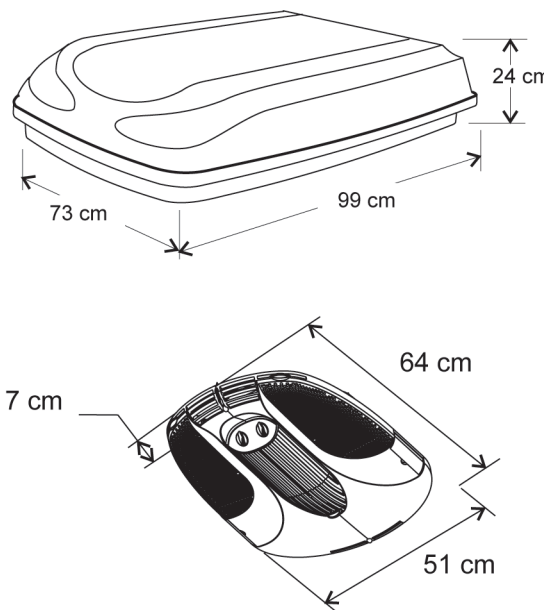
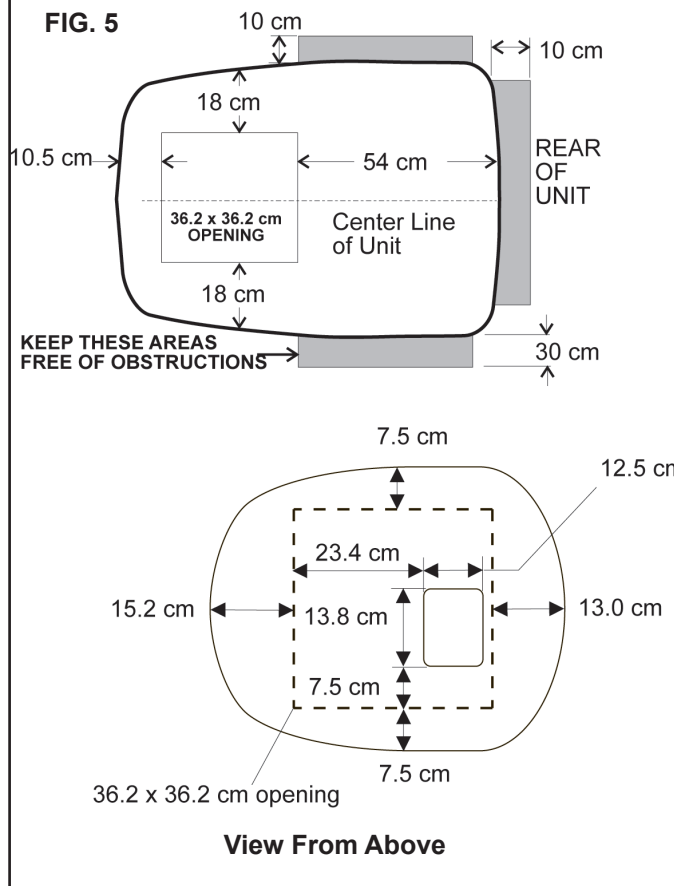


FIG. 5



C. Roof Preparation

1. 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 362 mm x 362 mm (± 3.2 mm) opening must be cut through the roof and ceiling of the caravan. This opening must be located between the roof reinforcing members.

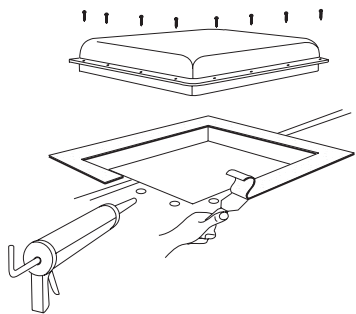
⚠ WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 220 - 240 Volt AC power cord and the positive (+) 12 Volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

The 362 mm x 362 mm (± 3.2 mm) opening is part of the return air system of the air conditioner/heat pump and must be finished in accordance with all nation and local codes and/or regulations.

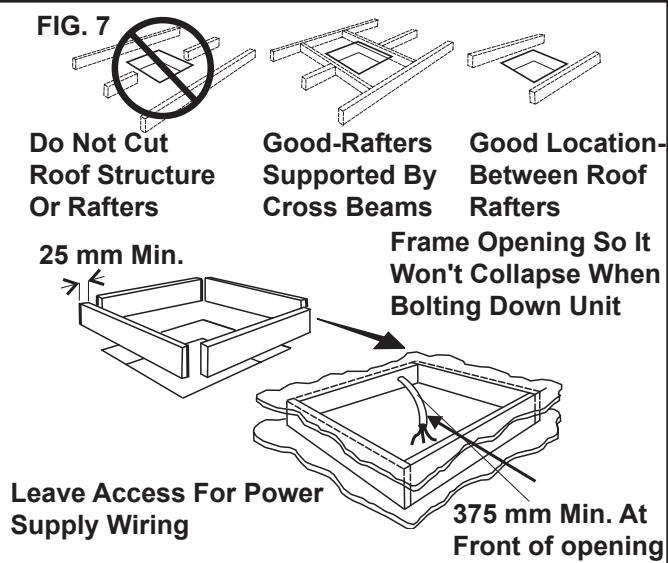
2. Roof vent removal
 - a. Unscrew and remove the roof vent.
 - b. Remove all caulking compound around opening.
 - c. Seal all screw holes and seams where the roof gasket is located. Use a good grade of all weather sealant. See FIG. 6.

FIG. 6



- d. If the opening exceeds 365.2 mm x 365.2 mm, it will be necessary to re-size the opening to 362 mm x 362 mm (± 3.2 mm).
- e. If the opening is less than 358.8 mm x 365.8 mm, it must be enlarged.
3. New opening- (Installation other than vent opening)
 - a. Mark a 362 mm x 362 mm (± 3.2 mm) square on the roof and carefully cut the opening.
 - b. Using the roof opening as a guide, cut the matching hole in the ceiling.
 - c. The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 25 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. 7.

FIG. 7

**CAUTION**

It is the responsibility of the installer of this air conditioner/heat pump 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 air conditioner/heat pump may leak into the interior causing damage to the product and the caravan.

D. Wiring Requirements

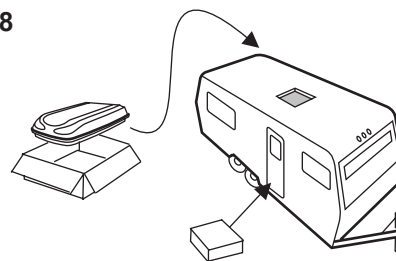
1. 220 - 240 VAC supply line
Route a copper 1 mm², with ground, 220 - 240 VAC supply line from the time delay fuse or circuit breaker box to the roof opening.
 - a. This supply line must be located in the front portion of the 362 mm x 362 mm (± 3.2 mm) opening.
 - b. The power **MUST** be on a separate 10 Amp time delay fuse or HACR circuit breaker.
 - c. Make sure that at least 375 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. Use a steel sleeve and a grommet or equivalent methods to protect the wire where it passes into the opening.

E. Placing Air conditioner/heat pump On The Roof**⚠ CAUTION**

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

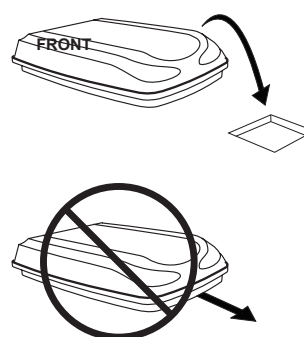
1. Remove the air conditioner/heat pump from the carton and discard carton. See FIG. 8.

FIG. 8



2. Place the air conditioner/heat pump on the roof.
3. Lift and place the unit over the prepared opening using the gasket on the unit as a guide. See FIG. 9.

FIG. 9

**CAUTION**

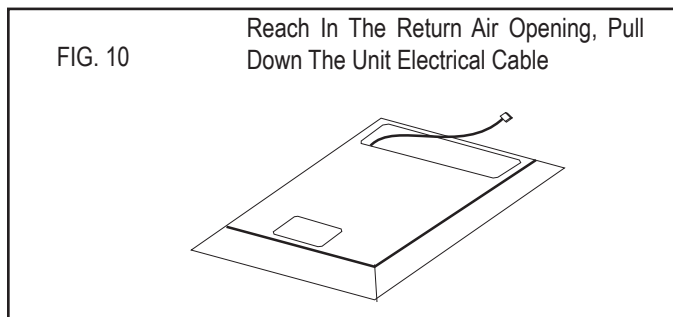
Do not slide the unit. This may damage the roof gasket attached to the bottom and may create a leaky installation.

4. Place the Mechanical Air Distribution Box Kit inside the Caravan. This box contains mounting hardware for the air conditioner/heat pump and will be used inside the Caravan.

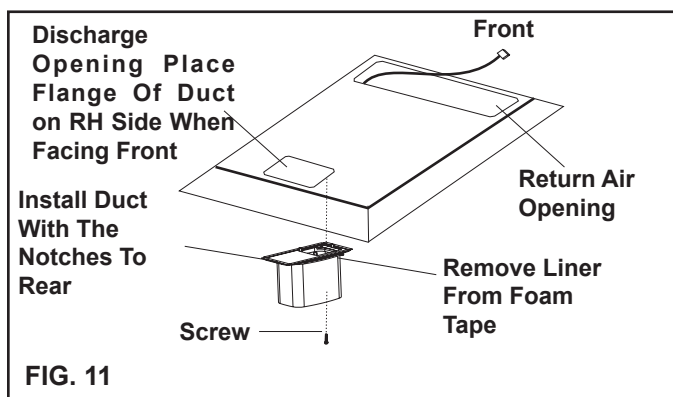
This completes the outside work. Minor adjustments can be done from the inside of the Caravan if required.

F. DISCHARGE DUCT AND CEILING TEMPLATE INSTALLATION

1. Remove air distribution box and mounting hardware from carton.
2. Check for correct alignment and adjust the unit as necessary (Roof gasket centers over the 36.2 cm x 36.2 cm (± 3.2 mm) opening).
3. Reach up into the return air opening and pull the unit electrical and heater cord down for connection later. See FIG. 10.

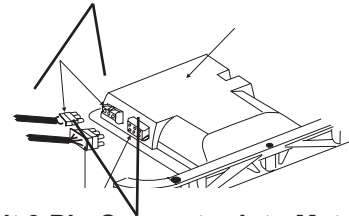


4. Base Duct Adapter
 - a. The flange notches are always to the rear when facing the front of the caravan. Remove the liner from the foam tape and position on the base so screw hole is aligned. See FIG. 11.



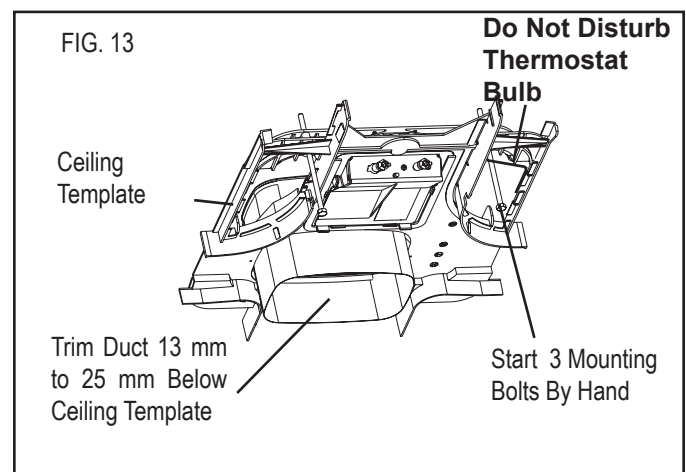
- b. Install screw to help hold the duct adapter to base pan.
5. Install ceiling template. The large center hole goes to the rear. Remove wire tie holding center of rear aluminum bracket to plastic. Make sure that the thermostat bulb is not moved during installation.
 - a. Plug the 9 pin cable from the unit and 3 pin (if available on unit) heater cable into the ceiling template. See FIG. 12.

FIG. 12
Plug 3 Pin Heater Connector (if electric heat installed) Into Matching Connector



Plug Unit 9 Pin Connector Into Matching Connector On Ceiling Template

- b. Start each mounting bolt by hand before tightening them. The 3 threaded inserts in the base pan can be seen to aid in starting the bolts. See FIG. 13.



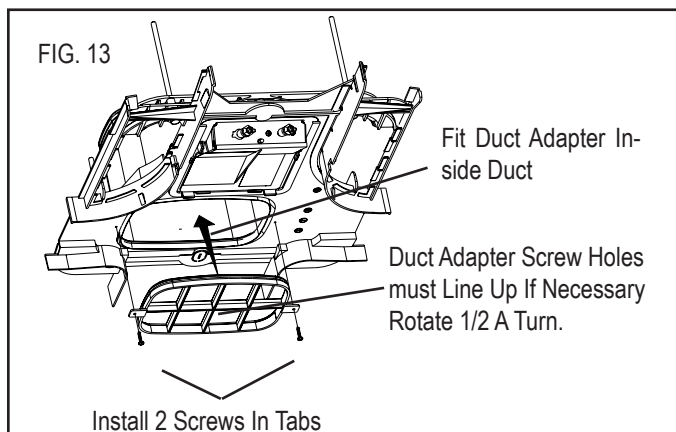
- c. **EVENLY TIGHTEN MOUNTING BOLTS TO A TORQUE OF 4.5 TO 5.5 NM (Newton Meters).** This will compress the roof gasket to approximately 13 mm. The bolts are self locking so further tightening is not necessary.

CAUTION

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

6. Template/duct adapter
 - a. Pull duct down through the template opening.
 - b. Cut the duct 13 mm to 25 mm below the template opening. See FIG. 13.

- c. Align the template duct adapter with the template duct hole making sure the screw holes line up (if not, rotate 1/2 turn). Insert template duct adapter into duct. Leave loop of wire below the duct adapter groove. Do not insert tabs inside the duct.
- d. Insert duct adapter into template and install 2 screws through the duct tabs into the ceiling template. See FIG. 13.



G. Connection Of Power Supply To Air Conditioner/Heat Pump

⚠ CAUTION

Disconnect 220 - 240 Volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

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

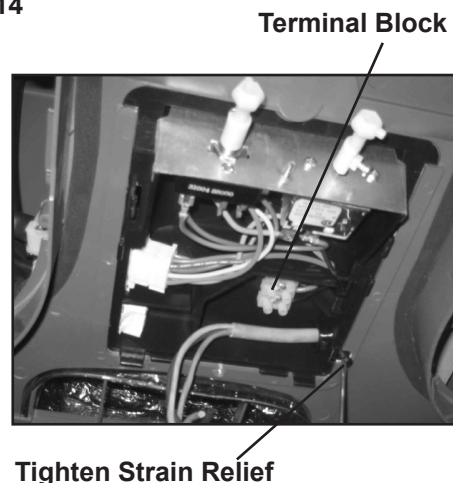
1. You may either wire direct into the junction box for a permanent connection or wire a molded plug into the junction box for a plug-in connection.
 - a. If a Permanent Connection: Route the power supply line, previously installed to the roof opening, into the junction box on the ceiling template. Connect as described in paragraph 2.
 - b. If a Plug-in Connection: Use the electric supply line, of "D. Wiring Requirements", to power and electrical outlet installed, according to applicable law, at the end of the roof opening furthest from the junction box.

⚠ CAUTION

Shock Hazard: Do not plug the molded cord in until you have completely installed the air conditioner/heat pump and are ready for an operational check. (Operating Instructions)

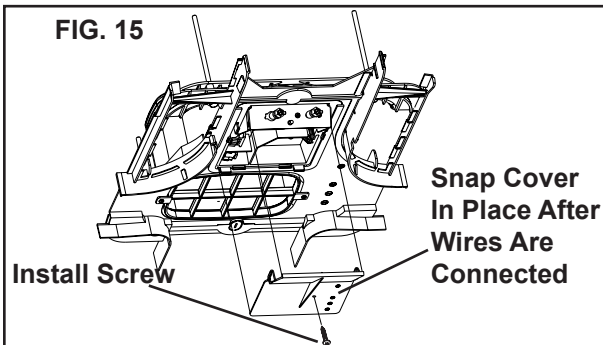
- Route the molded plug set from the electric outlet into the junctions box insuring not to coil excess wire so it will block air flow. Connect the plug set to the terminal block as described in paragraph 2.
2. Connect the power supply line to the air conditioner at the terminal block provided in the junction box. Connect to white, black and green/bare copper wire (P, N and G respectively). See FIG. 14.

FIG. 14



3. Tighten the strain relief onto the power supply line to hold firmly in place. Be careful not to pinch and short wires. See FIG. 14.
4. Carefully push all excess wire back into the junction box and snap cover in place and secure with screw. See FIG. 15.

FIG. 15

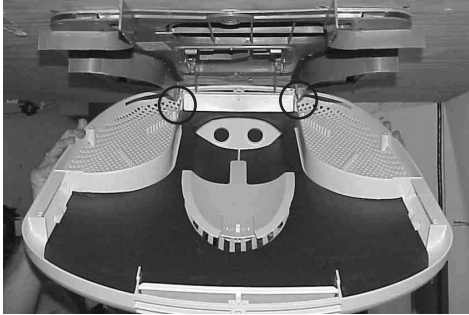


H. Air Distribution Box Installation

Important: The inner walls go inside the walls of the ceiling template

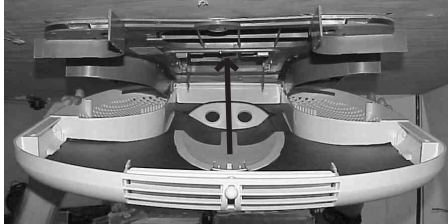
1. Working from the rear looking forward with the rear tipped down 8 cm place the air distribution box inner wall against the inside of the template wall. Slide the air distribution box backwards until it touches the template. Raise the air distribution box to the ceiling while wiggling side to side. See FIGS. 16 & 16A.
2. Hold the air distribution box to the ceiling with one hand and install two coarse threaded 3.5 mm X 19 mm sharp pointed screws in the location shown in FIG. 16A.

FIG. 16



Position ADB Walls Inside And Against End Of Template Walls

Raise Back End Of ADB To Ceiling



If Not Flush, Wiggle Side To Side.

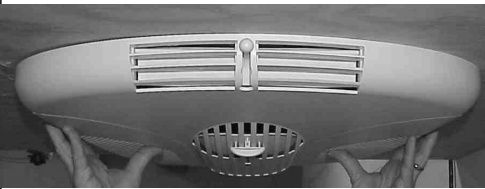
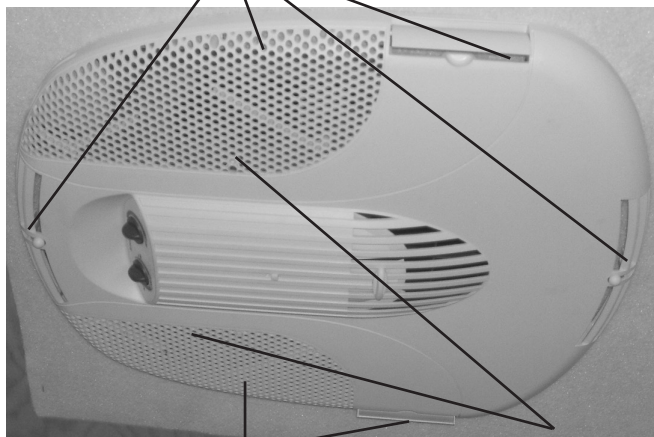


FIG. 16A

Screw Locations



Screw Locations

Install These 2 Screw First

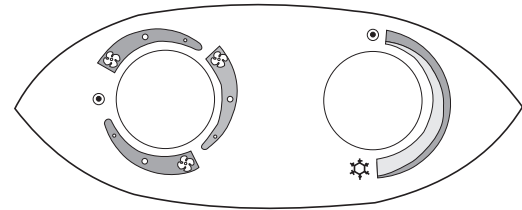
3. Install the remaining screws provided in the air distribution box. Take care not to over tighten screws.
4. Install filters in the slots and the two knobs provided on the ends of the thermostat and selector switch shafts.
5. The power supply to the air conditioner/heat pump may now be turned **"ON"**.

6. Your air conditioner/heat pump is now installed and ready for operation. Please read the following before attempting to run the unit.

OPERATING INSTRUCTIONS

A. Controls

FIG. 17



Selector Switch

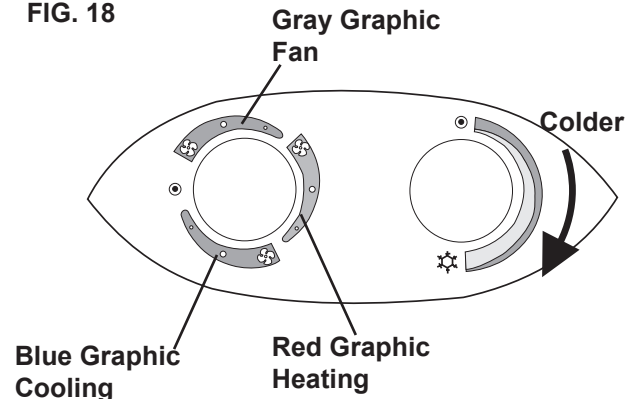
Thermostat

1. The selector switch has ten positions including **"OFF"**. This controls fan speed, heating mode, and cooling modes. See FIG. 17.
2. The thermostat controls the compressor ON/OFF operation in cooling temperature range of 18.5° C to 32.5° C. See FIG. 17.

B. Cooling Operation (Blue Graphic)

1. Set the thermostat at the desired temperature level. See FIG. 18

FIG. 18



Blue Graphic Cooling

Gray Graphic Fan

Red Graphic Heating

Colder

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

Note: The fan will continue to run keeping the temperature in the caravan even.

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

C. Fan Operation (Gray Graphic)

1. This will circulate the air in your caravan without cooling or heating. There are three positions: **HIGH FAN**, **MED FAN** or **LOW FAN** to select from, depending upon personal choice. See FIG. 18.

D. Heating Operation (Red Graphic)(Heat Strip or Heat Pump)

Note: The 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. The low fan speed is used with the electric heat strip (Use of high speed may make the outlet air feel cool, but all heating speeds deliver the same watts of electric heat to the caravan).

1. Turn the selector switch to "**HEAT**". There are three positions: **HIGH FAN**, **MED FAN** or **LOW FAN** to select from, depending upon personal choice. See FIG. 18.
2. The Heater will come on and begin heating.
3. When desired temperature level in caravan is reached, the heat pump compressor or electric heater will "cycle off". The fan will continue to run keeping the temperature in the caravan even.

E. "OFF" Position

1. This is to turn Unit off.

F. Customer Maintenance

1. Periodically slide out the return air filters located on the end of the air distribution box. Wash the filters with soap and warm water, let dry and then reinstall.

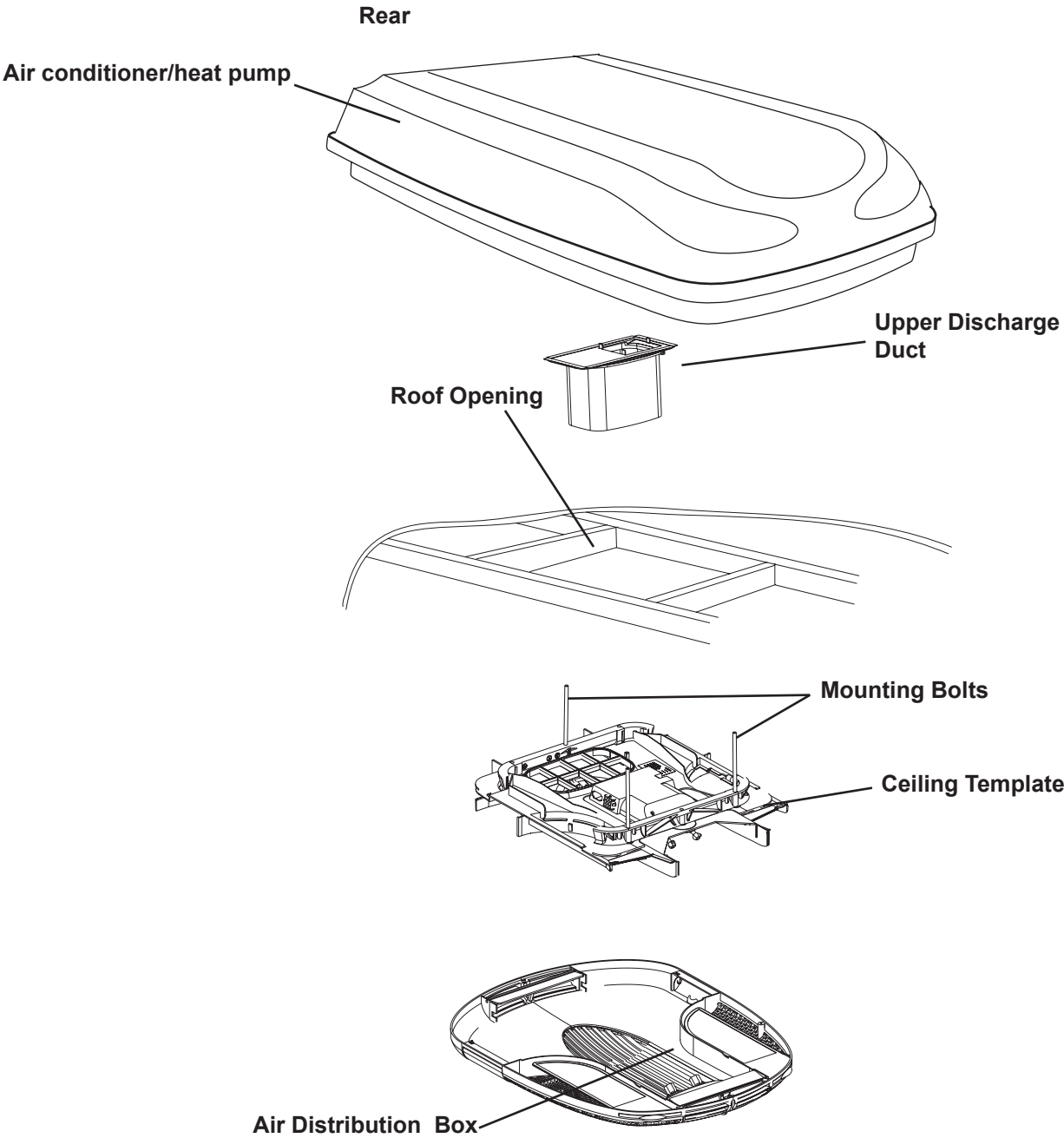
Note: Never run the air conditioner/heat pump without return air filter in place. This may plug the unit evaporator coil with dirt and may substantially affect the performance of the unit.

2. Clean air box housing and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or scouring powders.
3. The blower motor is factory lubricated and requires no service under normal use.

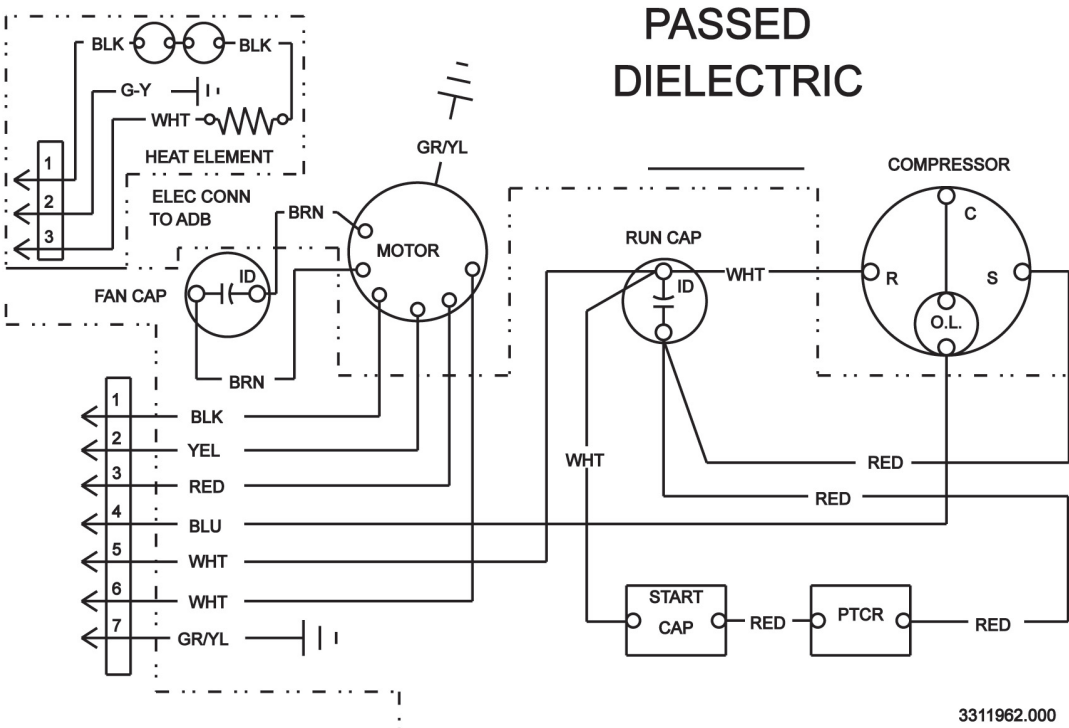
4. Under certain conditions, frost may form on the evaporator coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioner/heat pumps have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat control knob to a warmer setting (counter clockwise). Should frosting continue, operate on **LOW**, **MED**, or **HIGH FAN** only setting until the cooling coil is free of frost.
5. If your unit fails to operate or operated 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 air conditioner/heat pump load and it is plugged into power supply.
 - c. Check your fuse or circuit breaker to see if it is open.
 - d. After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.
6. 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.
7. When calling for service, always give the following:
 - a. Air conditioner/heat pump type, product and serial number found on rating plate located on base pan of air conditioner/heat pump bottom.
 - b. Air distribution box kit part and serial number found on rating plate located on ceiling template. Observe this rating plate through the air box right side vent opening.

FIG. 20

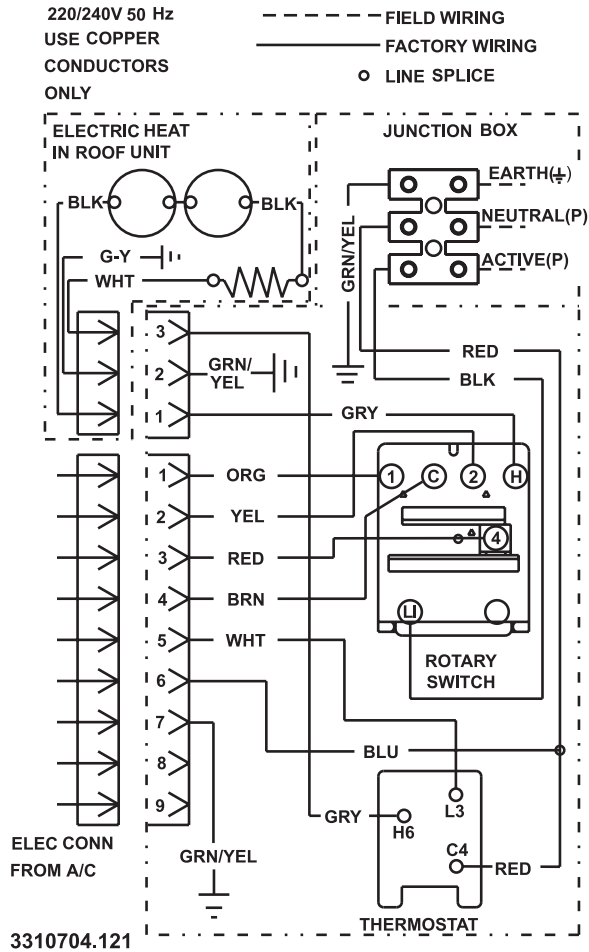
Roof Mount Assembly



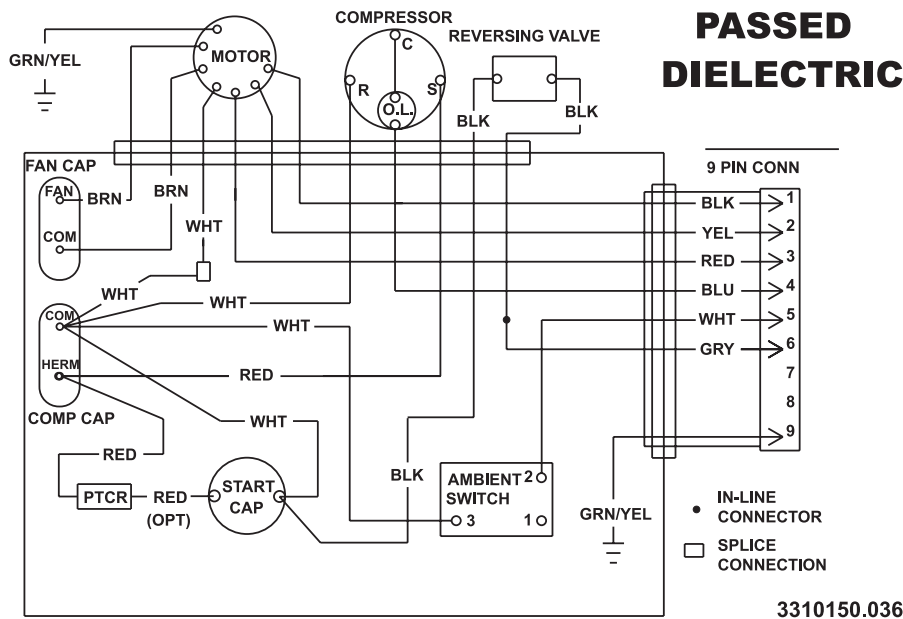
AIR CONDITIONER WIRING DIAGRAM



3310895 AIR CONDITIONER AIR BOX WIRING DIAGRAM



3254.341 Heat Pump Wiring Diagram



3311669 Heat Pump Air Box Wiring Diagram

