

RECORD THIS UNIT INFORMATION FOR FUTURE REFERENCE:
Model Number _____
Serial Number _____
Date Purchased _____

Roof-Top Air Conditioner CARAVAN MODEL B3200 TYPE 3253.331

SERVICE OFFICE
Dometic Corporation
For Information
Contact:
www.dometic.com

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

Model B3200

Form No. 3310147.000
Danish, Dutch, English,
Finnish, French, German,
Greek, Italian, Norwegian,
Portuguese, Spanish & Swedish
©2005 5/05 Dometic GmbH
D-57074 Siegen

**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.

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.

GENERAL INFORMATION

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

B. This Air Conditioner 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 406mm centers.
4. Minimum of 25mm and maximum of 100mm distance between roof to ceiling of Caravan. Alternate installation methods will allow for roofs more than 100mm thick.

C. 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 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 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

Model No.	B3200	Electric Heater
Type	3253.331	
Nominal Compressor Capacity (KW)	3.2	1.5
Electrical Rating	220-240 VAC 50Hz., 1 Ph	
Full Load Amps (Compressor / Motor)	5.2 / 0.8	6.0 / 0.8
Locked Rotor Amps (Comp / Motor)	24 / 5.0	6.0 / 5.0
Circuit Protection	10 Amp Time Delay Fuse, or Circuit Breaker	
Input Power (KW)	1.35	1.64
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.

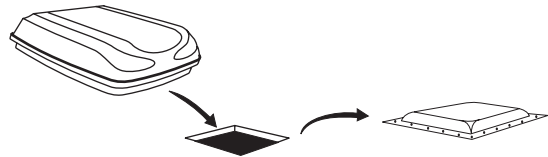
1. Read Installation and Operating Instructions carefully before attempting to start your air conditioner installation.
2. The Manufacturer will not be liable for any damages or injury incurred due to failure in following these instructions.
3. Installation must comply with all applicable codes and/or regulations.
4. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by The Manufacturer.
5. This equipment must be serviced by qualified personnel and some local codes and regulations require these people to be licensed.

B. Choosing Proper Location For The Air Conditioner

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

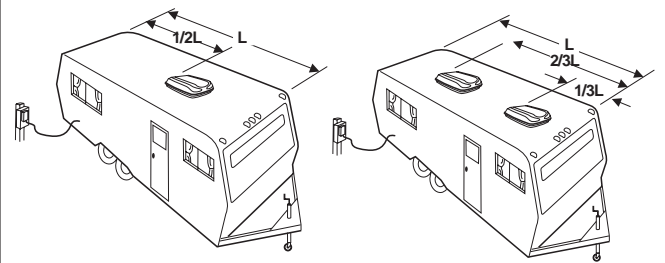
- Size of Caravan;
 - Window area (increases heat gain);
 - Amount of insulation in walls and roof;
 - Geographical location where the Caravan will be used;
 - Personal comfort level required.
1. Normal Location-The air conditioner is designed to fit over an existing roof vent opening.

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 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 1/3 and one Air Conditioner 2/3's from front of Caravan and centered from side to side.

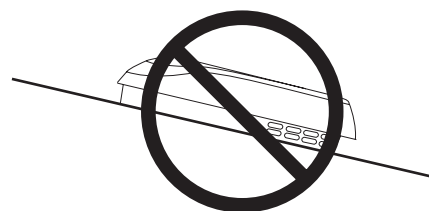
FIG. 2



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

Note: A 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 will be installed. See FIG. 4.
 - b. The roof must be designed to support 65 Kg. when the Caravan is in motion. Normally a 100Kg. static load design will meet this requirement.

CAUTION

It is the responsibility of the installer of this air conditioner 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 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

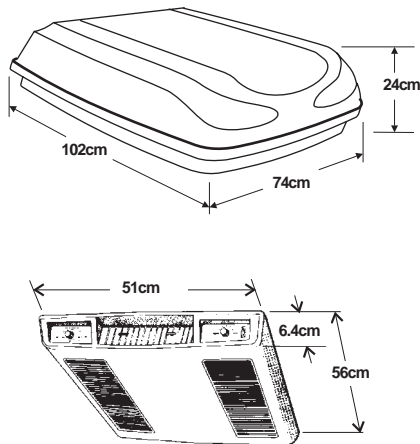
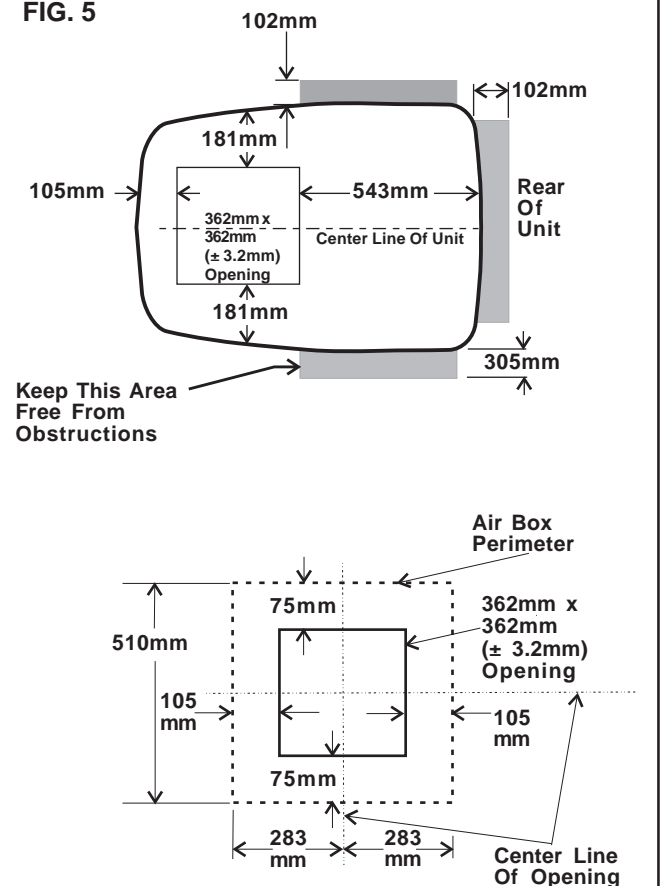


FIG. 5



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 362mm x 362mm (± 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.

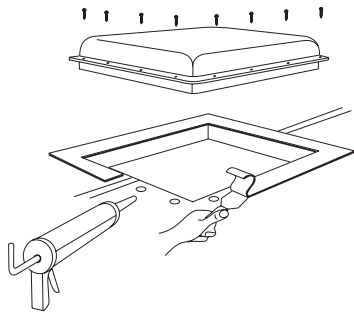
! WARNING

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 362mm x 362mm (± 3.2 mm) opening is part of the return air system of the Air Conditioner and must be finished in accordance with all Nation and local codes and/or regulations.

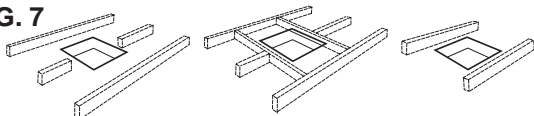
2. Roof Vent Removal
 - a. Unscrew and remove the roof vent.
 - b. Remove all caulking compound around opening.
 - c. Seal all screw holes and seams where the roof gasket is located. Use a good grade of all weather sealant. See FIG. 6.

FIG. 6



- d. If the opening exceeds 362mm x 362mm (± 3.2 mm), it will be necessary to re-size the opening to 362mm x 362mm (± 3.2 mm).
 - e. If the opening is less than 362mm x 362mm (± 3.2 mm), it must be enlarged.
3. New Opening- (Installation Other Than Vent Opening)
- a. Mark a 362mm x 362mm (± 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 25mm 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



Do Not Cut Roof Structure Or Rafters

Good-Rafters Supported By Cross Beams

Good Location-Between Roof Rafters

25mm Min.

Frame Opening So It Won't Collapse When Bolting Down Unit

Leave Access For Power Supply Wiring

375mm Min. At Front of opening

CAUTION

It is the responsibility of the installer of this air conditioner 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 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 1mm², 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 362mm x 362mm (± 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 375mm 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.

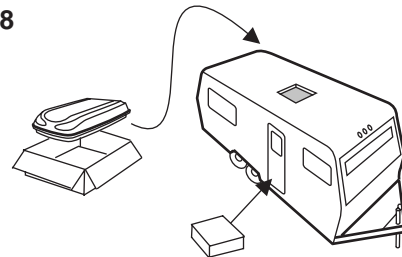
E. Placing Air Conditioner On The Roof

CAUTION

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

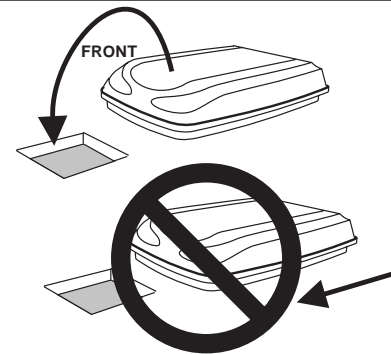
1. Remove the air conditioner from the carton and discard carton. See FIG. 8.

FIG. 8



2. Place the air conditioner 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

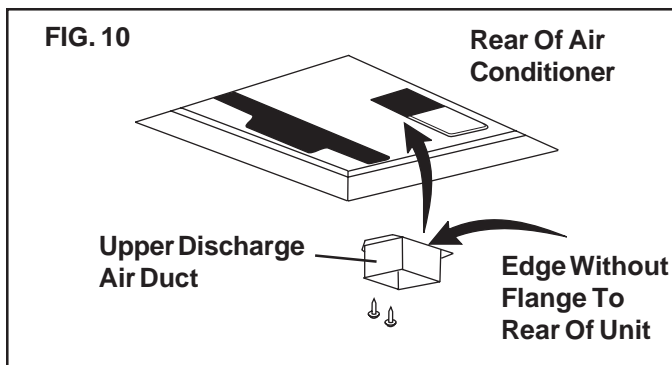
Do not slide the unit. This may damage the roof gasket attached to the bottom and may create a leaky installation.

- Place the Mechanical Air Distribution Box Kit inside the Caravan. This box contains mounting hardware for the air conditioner 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 Air Conditioner

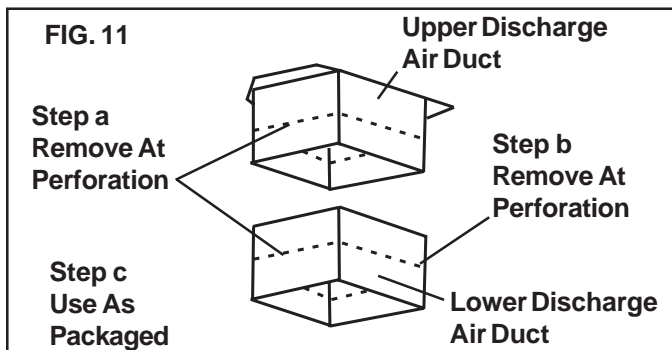
- Remove air box and mounting hardware from carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
- Check for correct alignment and adjust the unit as necessary (Roof Gasket centers over 362mm x 362mm (± 3.2 mm)).



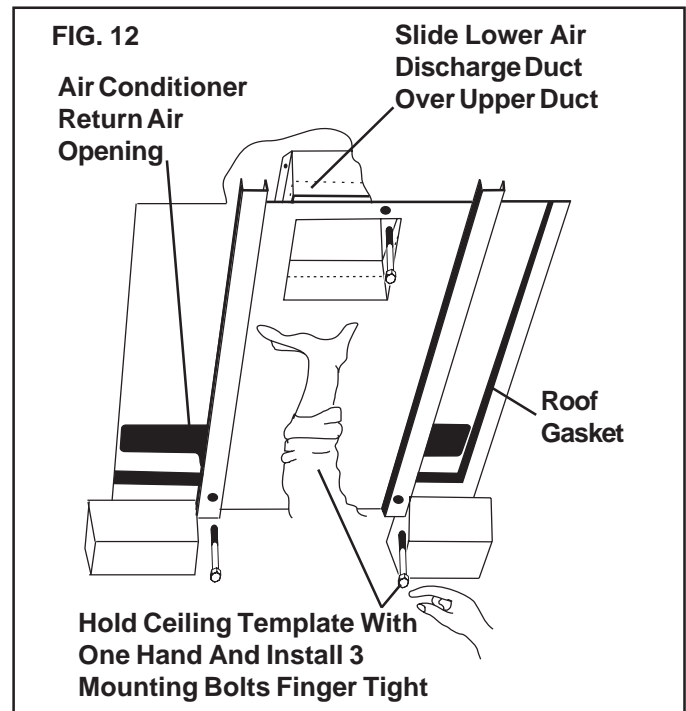
- Remove upper duct from ceiling template and locate it over blower discharge. See FIG. 10.

Note: Edge without flange installs toward REAR of opening.

- Use two (2) sharp pointed #10 sheet metal screws to hold duct to base pan. Screw holes are provided in bottom of base pan for these screws.
- Reach up into return air opening of the air conditioner and pull the unit's electrical cord down for later connection.
- Measure the ceiling to roof thickness:
 - If distance is 25mm - 50mm, remove perforated tabs from both upper and lower ducts. See FIG. 11.
 - If distance is 50mm - 75mm, remove perforated tabs from bottom duct only. See FIG. 11.
 - If distance is 75mm - 100mm, install ducts as received. See FIG. 11.



- Install ceiling template by sliding lower duct over upper duct. See FIG. 12.



- Hold the ceiling template with one hand and with the other, install the three 150mm long mounting bolts through the template and into the base pan.
 - Finger-tighten the bolts and check alignment. There should be an equal opening on each side and the rear flange must be tight against the roof opening.
 - EVENLY** tighten the three bolts to a torque of 4.5 to 5.5 NM (Newton Meters). This will compress the roof gasket to approximately 13mm. The bolts are self locking so over 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 base or ceiling template. Tighten to torque specifications listed in this manual.

G. Connection Of Power Supply To Air Conditioner

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

WARNING

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

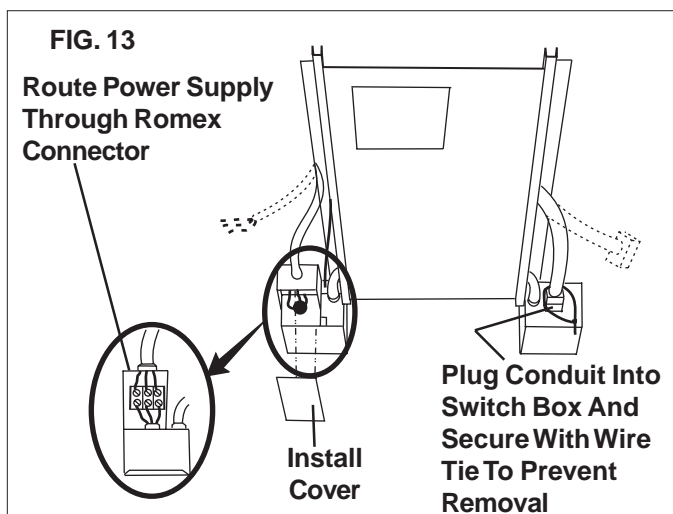
1. You may either wire direct into the junction box for a permanent connection or wire a molded plug into the junction box for a plug-in connection.
 - a. If a Permanent Connection: Route the power supply line, previously installed to the roof opening, into the junction box on the ceiling template. Connect 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.

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

- 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 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 white to white, black to black and green to green or bare copper wire (L. N. and \perp respectively).
 3. Tighten the strain relief onto the power supply line to hold firmly in place. Be careful not to pinch and short wires.

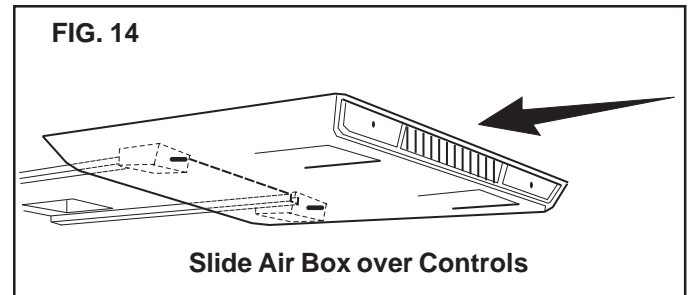
Note: If optional electric heater is part of this installation, now is the time to install it. Installation instructions are provided with the electric heater kit.

4. Carefully push all excess wire back into the junction box and install cover onto the box with two blunt screws provided.
5. Plug the electrical conduit from the upper unit into the mating switch box connector. See FIG. 13.
6. Wrap wire tie around plug connector(s) to prevent removal in field service.



H. Air Distribution Box Installation

1. Remove the two return air grills and filters.
2. Slide the front end of the air box over the shafts of the thermostat and selector switch. See FIG. 14.

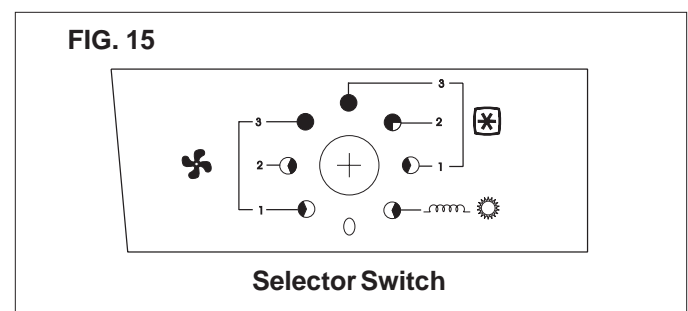


3. Install four screws through legs in air box into the pre-punched holes in the ceiling template.
4. Install the return air grills and filters by simply pushing them into place.
5. Install the two knobs provided on the ends of the thermostat and selector switch shafts.
6. The power supply to the air conditioner may now be turned "ON".
7. Your air conditioner is now installed and ready for operation. Please read the following instructions before attempting to run the unit.

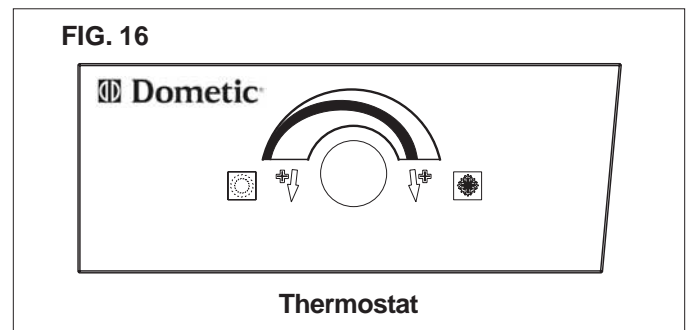
OPERATING INSTRUCTIONS

A. Controls

1. The Selector Switch has eight positions including "OFF". This controls fan speed, heating mode, and cooling modes. See FIG. 15.






2. The thermostat controls the compressor ON/OFF operation in cooling temperature range of 18.5° C to 32.5° C. See FIG. 16.



Note: The thermostat does not control the unit optional electric heater if installed.




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**: Selected when maximum cooling and dehumidification required. (3 )
 - b. **MED COOL**: Selected when normal or average cooling required. (2 )
 - c. **LOW COOL**: Selected when room at desired comfort level and needs to be maintained. Normally this speed used for night time operation. (1 )

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


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.

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.15.

D. Heating Operation (If so equipped)

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 "OPT HEAT" () . See FIG. 15.
2. The Heater will come on and begin heating.
3. When desired temperature level in Caravan is reached, move the selector switch to "OFF" or "FAN" position.

Note: Thermostat does not control heater ON/OFF cycle. If the optional heater is not installed and selected, the fan will run as "LOW FAN" operation.

E. "OFF" Position

1. This is to turn Unit off.

F. Customer Maintenance

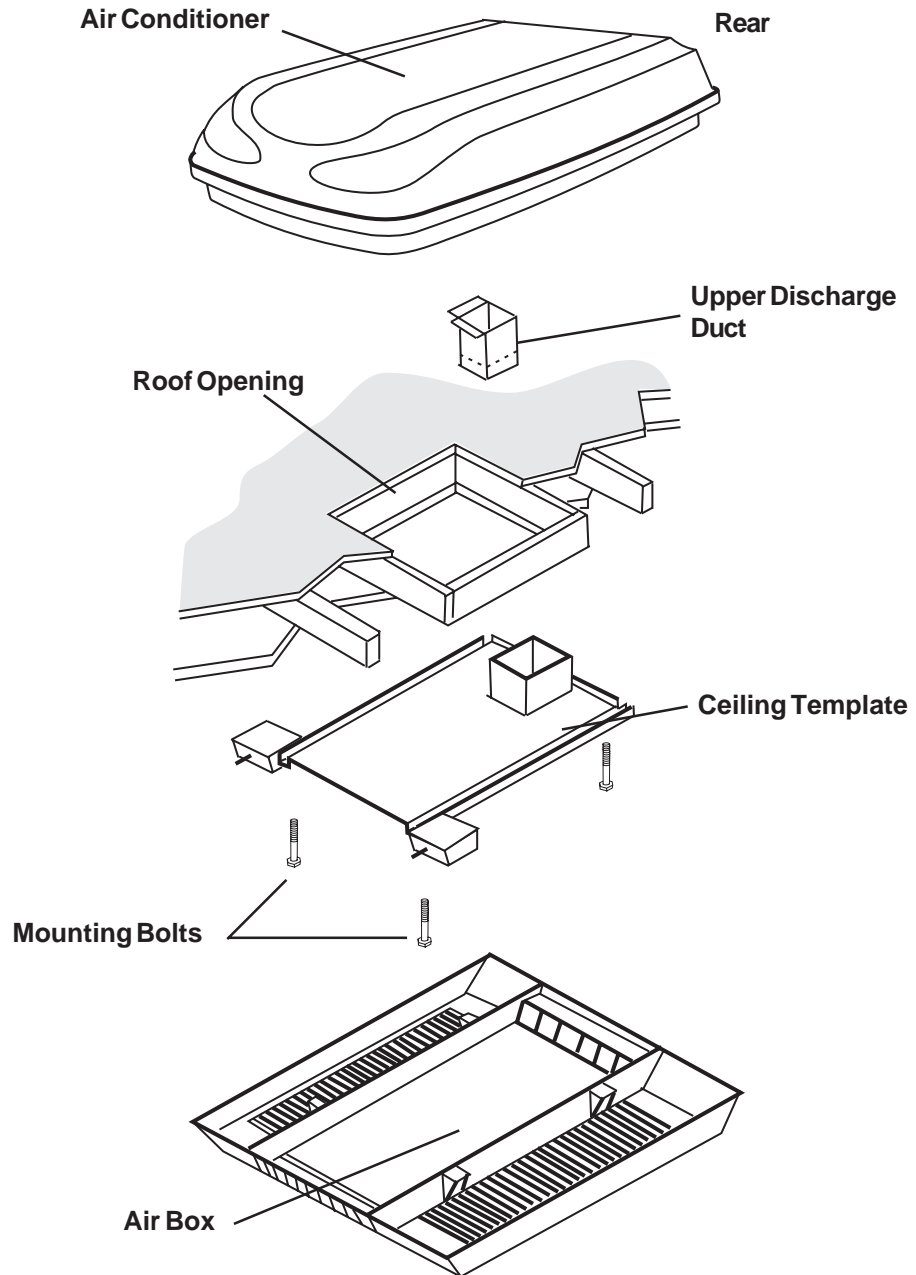
1. Periodically remove the return air filters located above the removable panels in the air box. Wash the filters with soap and warm water, let dry and then reinstall.

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

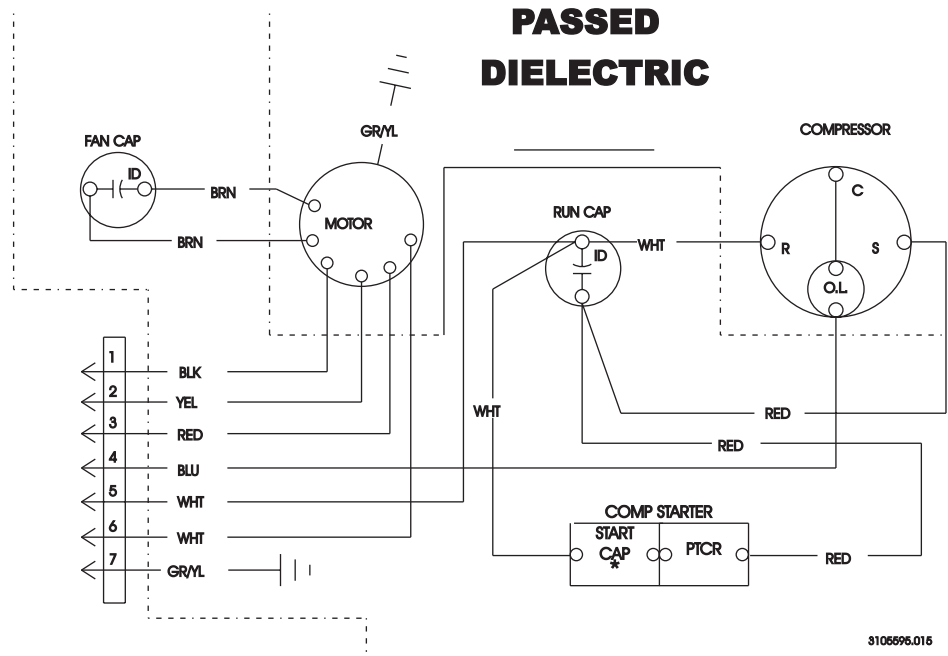
2. Clean air box housing and control panel with a soft cloth dampened with a mild detergent. Never use furniture polish or scouring powders.
3. The blower motor is factory lubricated and requires no service under normal use.
4. Under certain conditions, frost may form on the evaporator coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioners 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 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 Model and Serial Number found on rating plate located on base pan of air conditioner 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 filter grill opening.

FIG. 17

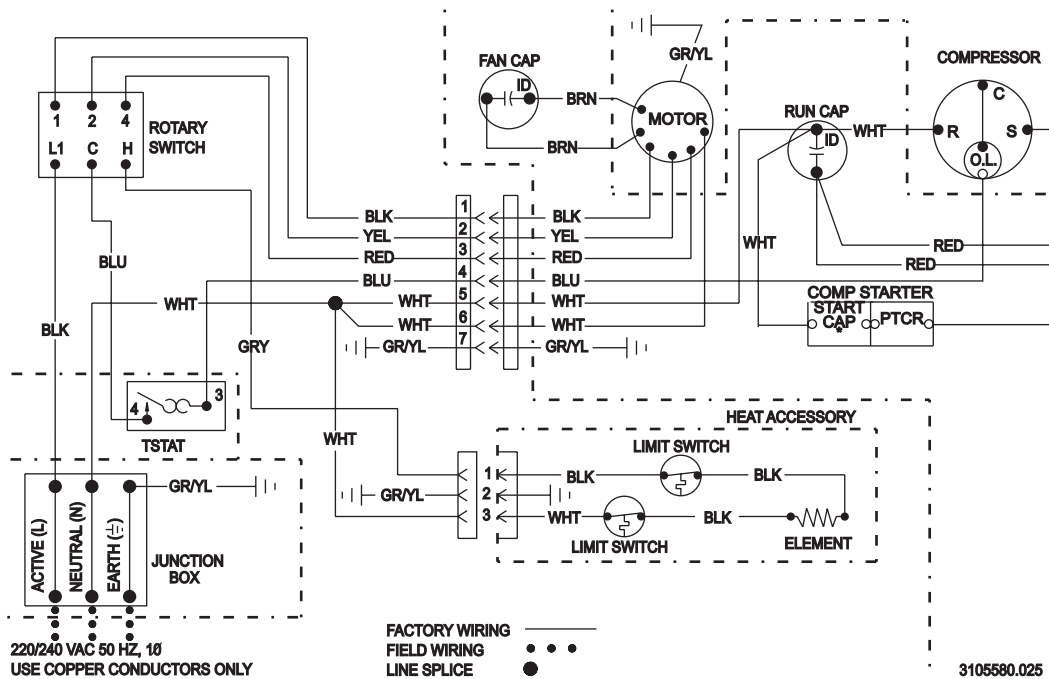
Roof Mount Assembly



AIR CONDITIONER WIRING DIAGRAM



AIR BOX WIRING DIAGRAM



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