



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

**CARAVAN ROOF MOUNT HEAT PUMP
MODEL B3200
USED WITH**

3311070 AIR DISTRIBUTION BOX KIT (3254.341)

3310137 ANALOG RELAY KIT, COOL, FURNACE, HEAT PUMP (3254.341)

**CARAVAN ROOF MOUNT AIR CONDITIONER
MODEL B3300
USED WITH**

3311068 AIR DISTRIBUTION BOX KIT (B3351)

3310086 ANALOG RELAY KIT COOL FURNACE, HEAT STRIP (B3351)

SERVICE OFFICE

Dometic, LLC
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 INSTRUCTIONS

**TYPE
HEAT PUMP
3254.341
AIR CONDITIONER
B3351.531
B3351.536**

REVISION:

Form No. 3311138.048 8/08
(Replaces 3311138.030)
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LaGrange, IN 46761

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.

1. GENERAL INFORMATION

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

The following are the basic requirements:

1. Installation opening. Cut through the roof and ceiling.
2. Additional Wiring.
220-240 VAC, 50 Hz. 10 Amp.
3. Power with the air conditioner on must be above 209 VAC and the frequency must be at 50 HZ. at all times.

B. THIS AIR CONDITIONER IS DESIGNED FOR:

1. Installation on a caravan during the time the vehicle is manufactured.
2. Mounting on the roof of a caravan.
3. Roof construction with rafters/joists on minimum of 40.6 cm centers.
4. Minimum of 5 cm and maximum of 10 cm distance between roof to ceiling of recreational vehicle.

B. 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 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 A&E 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

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

Type	3254.341	B3351.531	B3351.536
	Heat Pump	Air Cond	Air Cond
Nominal Capacity (KW) Cooling	3.2	3.2	3.2
Electrical Heat Capacity (KW)	----	1.6	----
Electrical Rating	220 - 240 VAC 50 Hz. 1Ph.		
FL Amps (Comp/Motor)	5.2/1.1	5.3/0.9	5.3/0.9
LR Amps (Comp/Motor)	26.0/3.8	22/4.4	22/4.4
Power (KW) (Comp/Motor)	1.3	1.3	1.3
Power (KW) (Heater)	----	1.5	----
Refrigerant Grams/Oz	R407 595/21.0	R22 510/18.0	R22 510/18.0
Min. Wire Size	Up to 8 meters, use 1.5mm ² Copper		
Circuit Protection	10 Amp Time Delay Fuse or 10 Amp Circuit Breaker		
Generator Size	1 Unit 2 Units	3.5 KW 5.0 KW	

The Manufacturer gives only general guidelines for Generator requirements. These Generator requirements come from experiences consumers have with our equipment in field applications. When sizing Generators, the total electrical power consumption of the caravan must be considered. Keep in mind that Generators lose power because of altitude increase above sea level, high outside temperatures and lack of maintenance.

2. INSTALLATION INSTRUCTIONS

A. PRECAUTIONS

1. Read Installation Instructions carefully before attempting to start your air conditioner installation.
2. The Dometic, LLC will not be liable for any damages or injury incurred due to failure in following these instructions.



WARNING

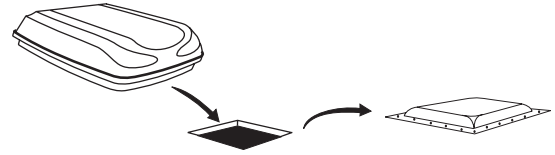
Improper installation may damage equipment/ could endanger life, cause serious injury and/ or property damage.

3. Installation must comply with the National Electrical Code and any State or Local Codes or regulations.
4. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by Dometic.
5. This equipment must be serviced by qualified personnel and some states 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. See figure 1.

FIG. 1



1. NORMAL LOCATION

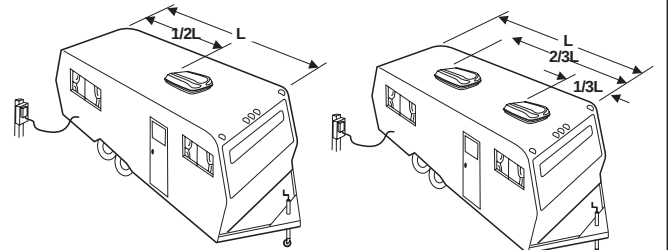
The air conditioner is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 35.5 x 35.5 cm opening.

2. OTHER LOCATIONS

When no roof vent is available or another location is desired, the following is recommended:

- a. For one unit installation: The 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. See figure 2.

FIG. 2



L = Length

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

Note: On Type 3253.334 & 3254.331 a sideways pitch up to 8° can be tolerated, but a backward pitch can **never** be accepted. See FIG. 3. A 15° slant to either side or front-to-back is acceptable on B3351.533 & B3351.534 Air conditioners **ONLY**.

FIG. 3 Types 3254.331 & 3253.334

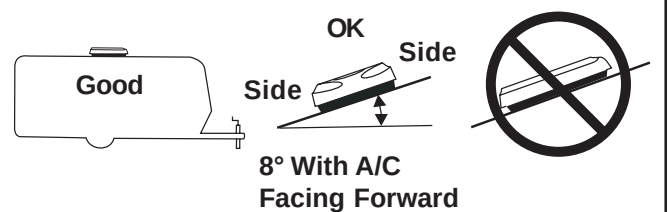
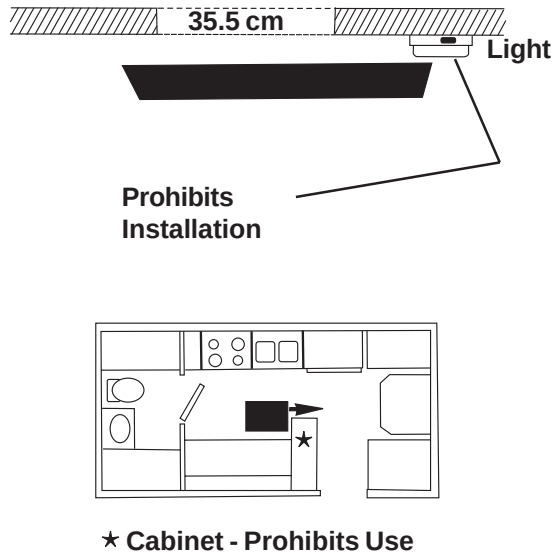


FIG. 6



C. ROOF PREPARATION

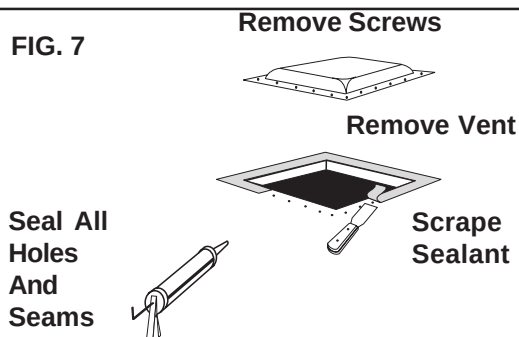
Read all of the following instructions before beginning the installation.

⚠ WARNING

There may be electrical wiring between the roof and the ceiling. Disconnect 220 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.

1. The 35.5 cm x 35.5 cm opening is part of the return air system of the Air Conditioner and must be finished in accordance with any national or local codes.
 - a. Roof Vent Locations:
 - Remove all screws that secure the vent to the roof and remove the vent from the opening.
 - Remove all sealing compound from around the vent opening.

FIG. 7

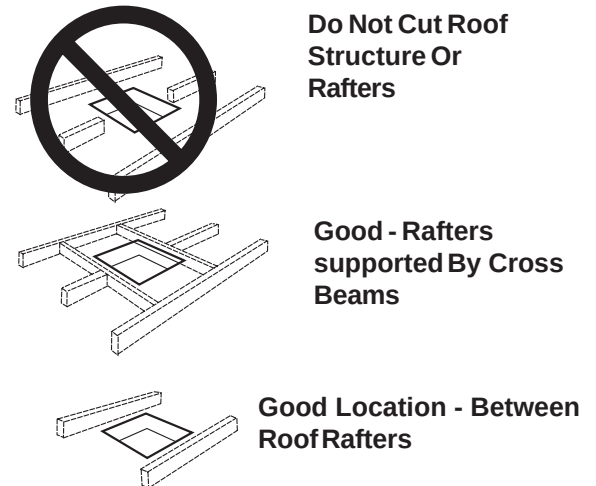


- Seal all screw holes and all roof seams with a quality all weather sealant. See FIG. 7.
- If the opening is less than 35 cm x 35 cm, it must be enlarged.

CAUTION

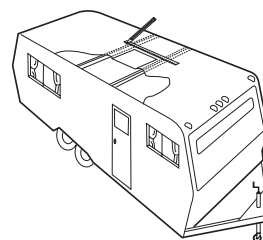
It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the caravan roof. Never create a low spot on the roof where water will collect. Water standing around the air conditioner may leak into the interior causing damage to the product and the caravan.

FIG. 8

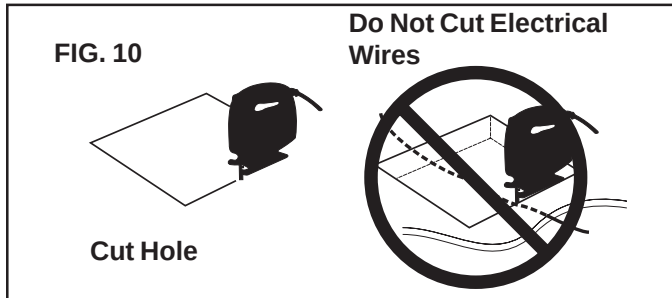


- If the opening exceeds 36 cm x 36 cm, it will be necessary to install spacers.
- b. New Opening (installation other than vent opening)
 - If a roof vent opening will not be used a 35.5 cm x 35.5 cm opening must be cut through the roof and ceiling of the Caravan. This opening must be located between the roof reinforcing members. See FIG. 8.
 - Mark a 35.5 cm x 35.5 cm square on the roof and carefully cut the opening. See FIG. 9, 10, & 11.

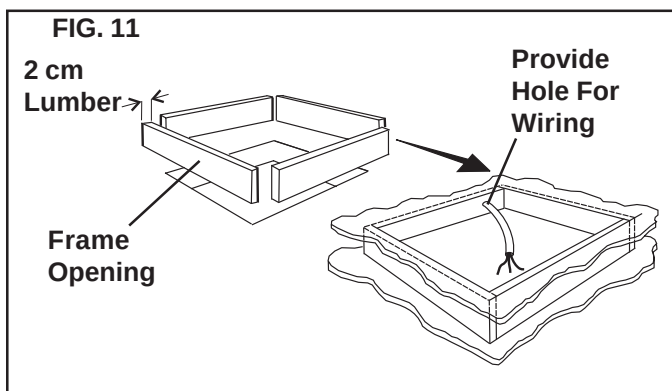
FIG. 9



- Using the roof opening as a guide, cut the matching hole in the ceiling. See figure 10.



- The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 2 cm or more in thickness must be used. See FIG. 11.



- Remember to provide an entrance hole for power supplies, furnace wiring, and control cable.
- If a furnace is to be connected, two (0.5 mm² to 0.7 mm²) wires must be run from the furnace to the 35.5 cm x 35.5 cm opening of the air conditioner that will control it. Make sure that at least 38 cm of the furnace thermostat wires extend into the roof opening.

D. THERMOSTAT AND CABLE INSTALLATION

1. THERMOSTAT LOCATION

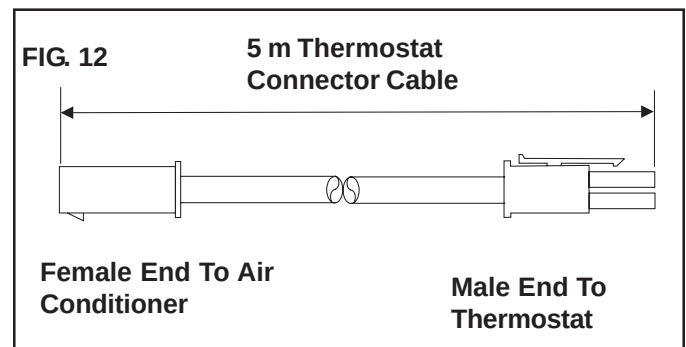
The proper location of the thermostat is very important to insure that it will provide a comfortable caravan temperature. Observe the following general rules when selecting a location.

- a. Locate the thermostat about 140 cm above the floor.
- b. Install thermostat on a partition, **NEVER** on an outside wall.
- c. **NEVER** expose it to direct heat from lamps, sun or other heat producing items.
- d. Avoid locations close to doors that lead outside, windows or adjoining outside walls.

- e. Avoid locations close to supply registers and the air from them.
- f. **NEVER** locate thermostat in a room that is warmer or cooler than the rest of the coach - such as the kitchen.
- g. The major living area is normally a good location.
- h. A 2.5 cm diameter hole will be needed to route the female connector end through the wall.

2. THERMOSTAT CONNECTOR AND CABLE INSTALLATION

- a. A thermostat connector cable is provided to connect the air conditioner control box to the thermostat. The male end of the cable goes to the thermostat. The female end of the cable goes to the control box. See figure 12.

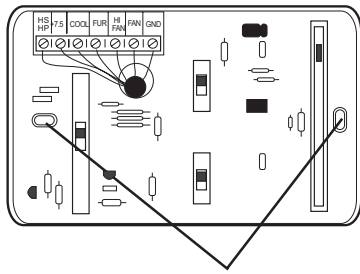


- b. Choose the shortest, direct route from the 35.5 cm x 35.5 cm opening to the thermostat location selected.
- c. Consider where screws, nails or staples might contact the cable.
- d. Leave approximately 10 cm of cable extending through the wall for connection to the thermostat.
- e. Leave approximately 38 cm of cable extending into the 35.5 cm x 35.5 cm opening for connection at unit.
- f. If system is to control a gas furnace: Route two (0.5 mm² to 0.7 mm²) wires from the furnace to 35.5 cm x 35.5 cm opening at this time.

3. ANALOG THERMOSTAT INSTALLATION.

- a. Connect the Thermostat Connector Cable protruding from the wall onto the pre-wired thermostat connector cable.
- b. Gently push the two connectors together until a snap is heard and the lock on the male connector is latched on the female connector.
- c. Gently feed the connectors through the 2.5 cm hole in the wall until the thermostat can mount flush.
- d. Remove the cover from the thermostat by starting at one corner and lifting it off the base.
- e. Mount the thermostat level on the wall using the screws provided in the locations shown in figure 13.

FIG. 13



Screw Locations

- f. Place the cover on the thermostat and push until an audible click is heard.

5. PLACING THE AIR CONDITIONER ON THE ROOF

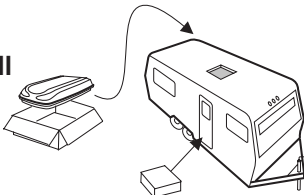
CAUTION

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

1. Remove the Air Conditioner from the carton and recycle. See FIG. 14.
2. Place the Air Conditioner on the roof. See FIG. 14.

FIG. 14

Recycle All Cardboard

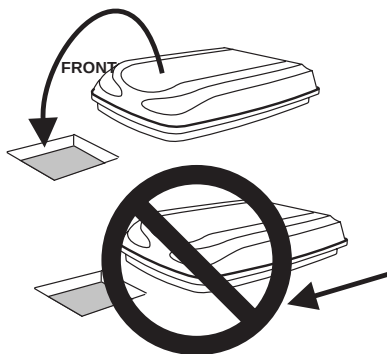


CAUTION

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

3. Lift and place the unit over the prepared opening using the gasket on unit as a guide. The **blunt end** goes toward the **rear** of the caravan. See figure 15.

FIG. 15



4. Place the Air Box Kit inside the caravan. This box contains mounting hardware for the air conditioner and will be used inside the caravan. See figure 14.

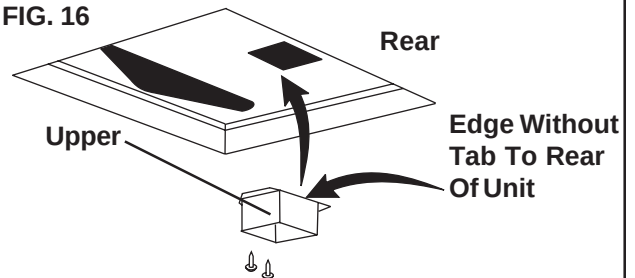
This completes the outside work. Minor adjustments can be done from the inside of the caravan if required.

F. DISCHARGE DUCT AND CEILING TEMPLATE INSTALLATION

1. Remove the air box and mounting hardware from their carton. The upper duct is shipped inside the lower duct which is part of the ceiling template.
2. Remove the upper duct from the ceiling template and locate it over the blower discharge. See figure 16.

Note: The edge without the flange installs toward the **rear** of the caravan.

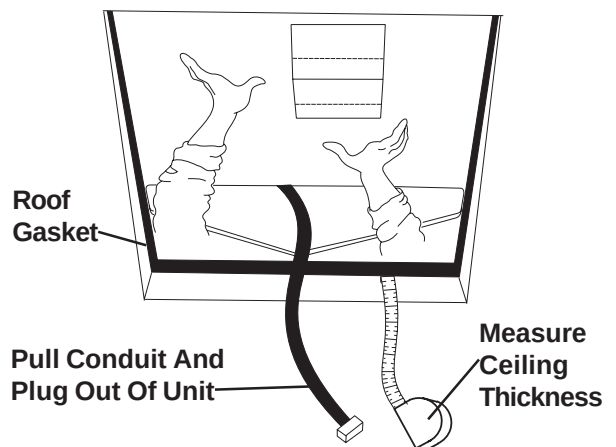
FIG. 16



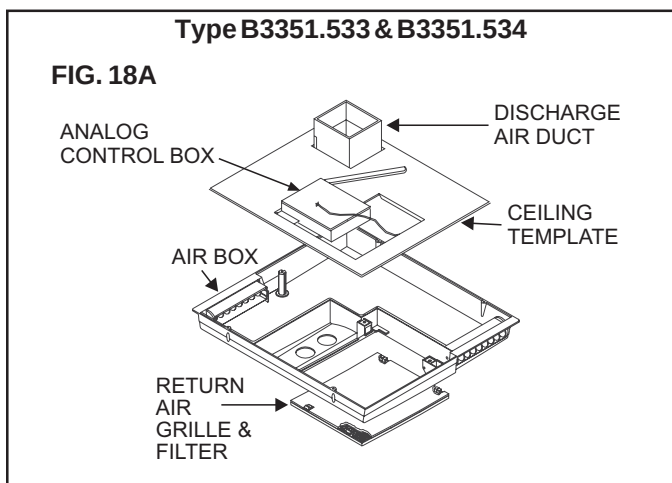
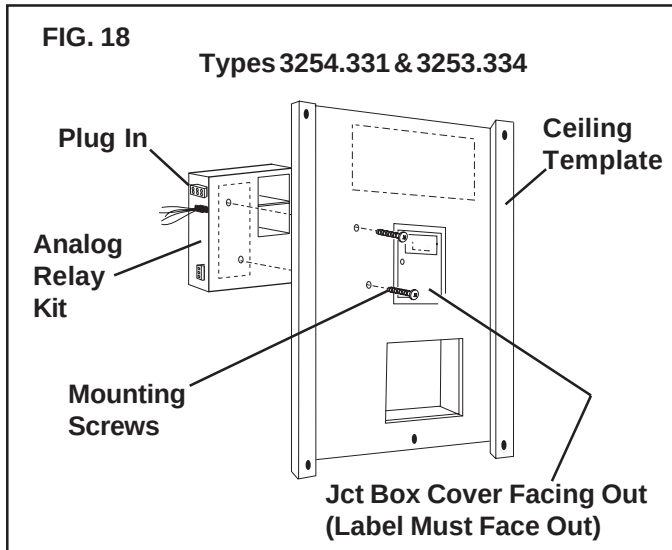
3. Use two of the sharp pointed sheet metal screws to hold the duct to the base pan. The holes are pre-punched in the pan for ease of location. See figure 16.
4. Check gasket alignment over roof opening and adjust if necessary. Unit may be moved from below by lifting. See FIG. 17.
5. Reach up into the return air opening and pull the conduit power cable down for later connection. Pull the low voltage wires and thermostat connector cable down for later connection. See figure 17.

FIG. 17

Center Unit From Below



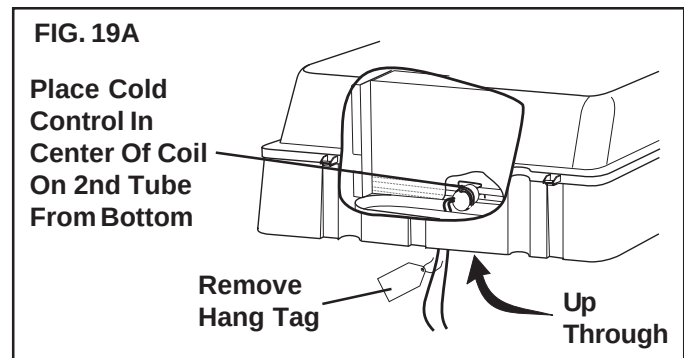
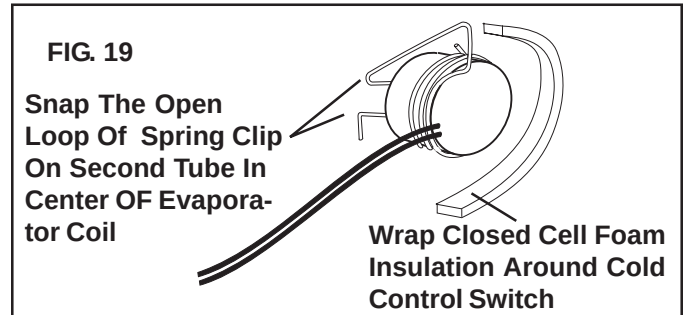
6. Measure the ceiling thickness:
 - a. If the distance is 5 cm to 7.5 cm remove the perforated tabs from the bottom duct only.
 - b. If the distance is 7.5 cm to 10.0 cm install the



ducts as received.

7. Locate the analog relay kit on the ceiling template. Drive two #10 x 3/8 blunt pointed Phillips head screws (provided) through ceiling template into holes in relay kit to hold in place. See figure 18 & 18A.
8. Remove the junction box cover from the Analog Relay Kit. See figure 18 & 18A.
9. Plug the electrical conduit from the upper unit into the mating connector in relay module located on top of the ceiling template. See figure 18 & 18A.
10. Route the 220 VAC supply line through the strain relief in junction box. Tighten strain relief, making sure enough wire is inside junction box to connect with unit 220 VAC wire. Tighten screws on strain relief connector being careful not to pinch and cut into the insulation on power supply leads.

11. Freeze Control Installation (not used in 3310137)
 - a. Place the cold control switch up through the base pan and on the second refrigerant tube from the bottom in the center of the evaporator coil. Make sure the spring clip is fastened securely to the tubing and the cold control surface is making contact with aluminum fins on evaporator coil. See figures 19 & 19A.



- b. Keep wires away from heat strip (if applicable) and sharp edges to prevent damaging the wires. Use wire ties if necessary. See figures 19 & 19A.
 - c. Remove installation notice hang tag from freeze control. See figures 19 & 19A
12. Take the ceiling template and slide the lower duct over the upper duct.
13. Hold the ceiling template with one hand and with the other install the three (Type B3351 uses four) mounting bolts through the template and into the base pan.
 - a. Finger-tighten the (3 or 4) bolts and check alignment.
 - b. **Tighten the bolts to a torque of 4.5 to 5.0 Nm. The bolts are self locking so over tightening is not necessary. This will compress the roof gasket to approximately 1.3 cm.**

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. WIRING OF SYSTEM

1. CONNECTION OF LOW VOLTAGE WIRES

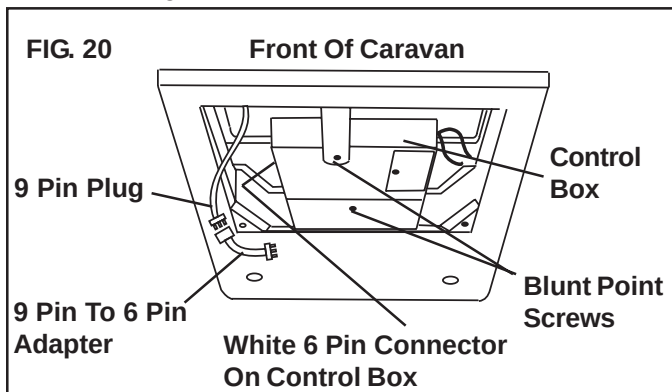
CAUTION

Disconnect the positive (+) 12 volt DC terminal at the supply battery. Damage to equipment could occur if the 12 volt DC is not shut off.

- Connect the previously run +12 VDC to the red wire labeled +12 V protruding from the relay kit.
- Connect the previously run -12 VDC to the black wire labeled -12 V protruding from the relay kit.
- Plug the female end of the thermostat cable into the male plug on the control box.
- Connect the unit blue/white wires to the two furnace control wires (if applicable).

2. CONNECTION OF UNIT TO CONTROL BOX

- Locate the 9 pin plug in the return air opening.
- Connect the supplied adapter cable (6 pin to 9 pin) to the 9 pin plug from the unit.
- Connect the adapter cable 6 pin plug into the matching 6 pin plug on the control box. See figure 20.



3. CONNECTION OF 220 VOLT POWER SUPPLY

WARNING

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

- Connect the control box white to Blue; black to Brown; and green to green/yellow or bare copper wire using appropriate sized twist connectors. **Tape** the twist wire connectors to the supply wire to assure they don't vibrate off.
- Tighten the strain relief and push the supply wires into the control box. Be careful not to pinch or short wires.
- Install the cover (part of the mounting hardware) with the one blunt point screw provided.

H. AIR BOX INSTALLATION

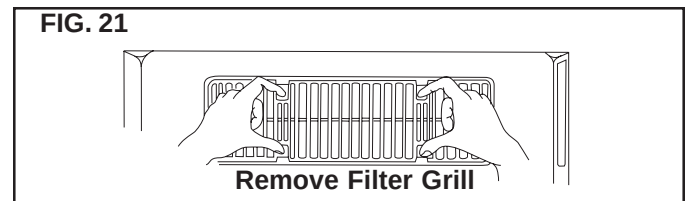
- Type 3253.334 and 3254.331 (Type B3351.533 & B3351.534 see section 2)

WARNING

This appliance is equipped with a 3-wire (grounded) system for protection against shock hazard. Make sure that the appliance is wired into a properly grounded 220 volt AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

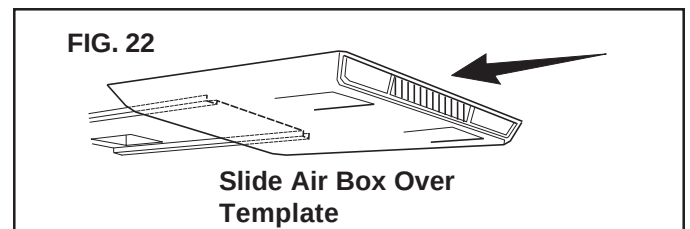
- Remove the two filter-grilles from the air box. See figure 21.

FIG. 21



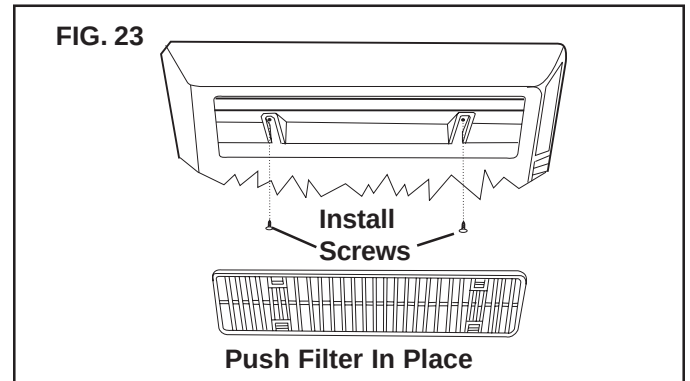
- Slide the air box over the ceiling template. See figure 22.

FIG. 22



- Install the four (4) sharp pointed screws through the air box legs and into the pre-punched holes in ceiling template. See figure 23.

FIG. 23



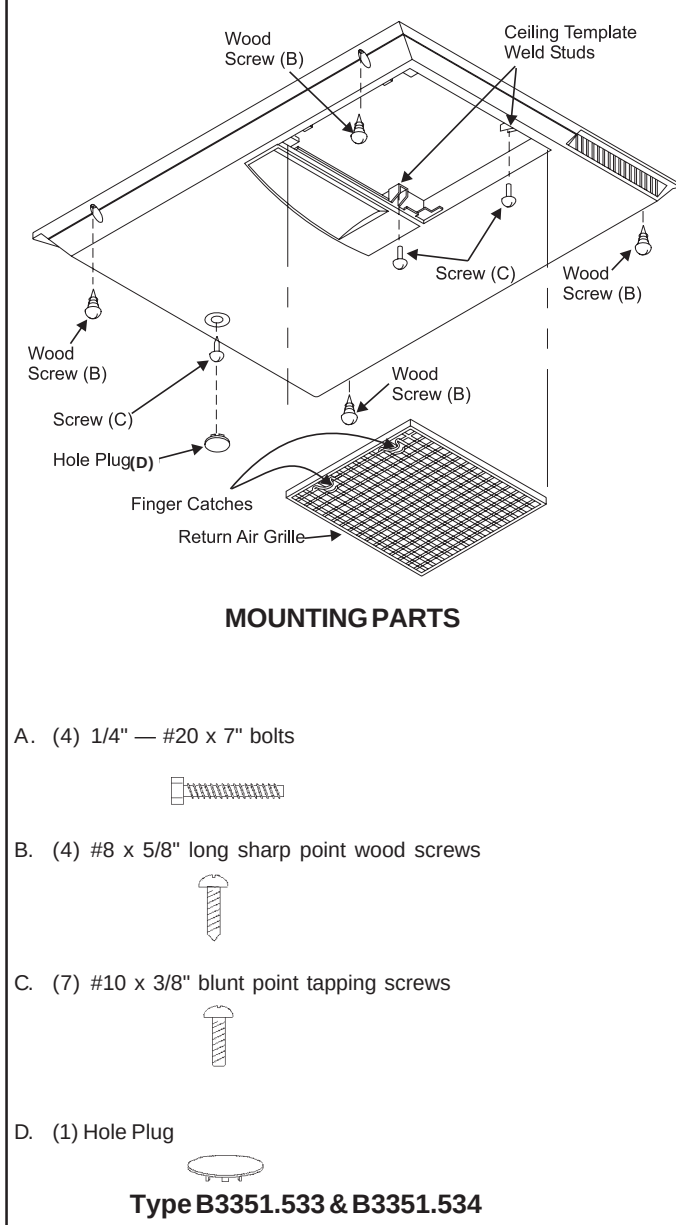
Note: There are four optional mounting holes on the outer edge of the return air opening for which **no** screws are provided. These are only required where an uneven ceiling does not allow proper fitting of the air box.

- d. Install the filter-grilles by pushing them into place. See figure 23.

2. Type B3351.533 & B3351.534 (Type 3253.334 and 3254.331 see section 1)

- a. Remove return air grille from air box by pulling in on half round finger catches. See figure 24.

FIG. 24



- b. Hold air box up to ceiling template and install three (3) #10 x 3/8" (C) screws at air box mounting point.
- c. Snap hole plug (D) into place at rear of air box.
- d. Install four (4) wood screws (B) which hold the air box tight to ceiling, if desired.

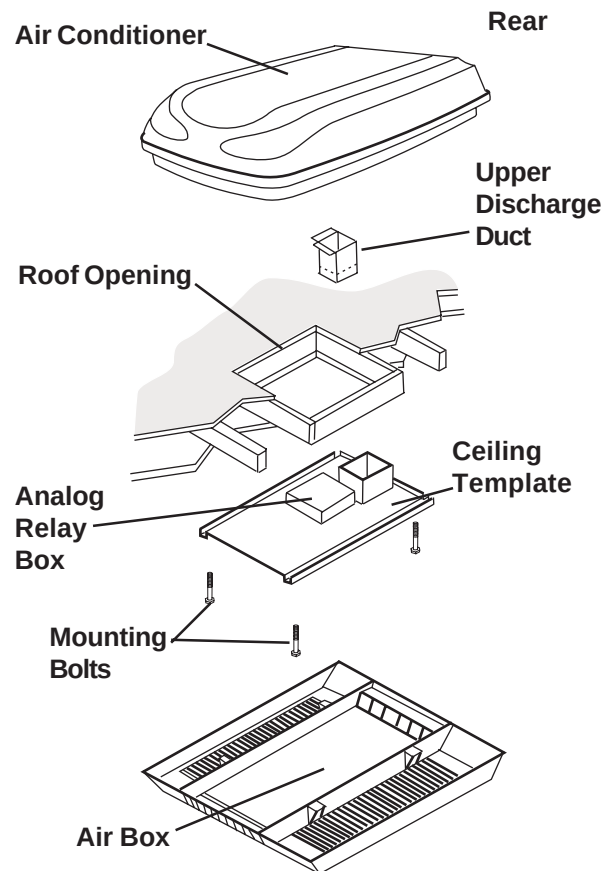
- e. Reinstall return air grille and filter into air box.
- f. The air conditioner installation is now complete.

Note: There are four optional mounting holes on the outer edge of the return air opening for which screws are provided. These are only required where an uneven ceiling does not allow proper fitting of the air box.

1. Turn on all power to the air conditioner for operational check.

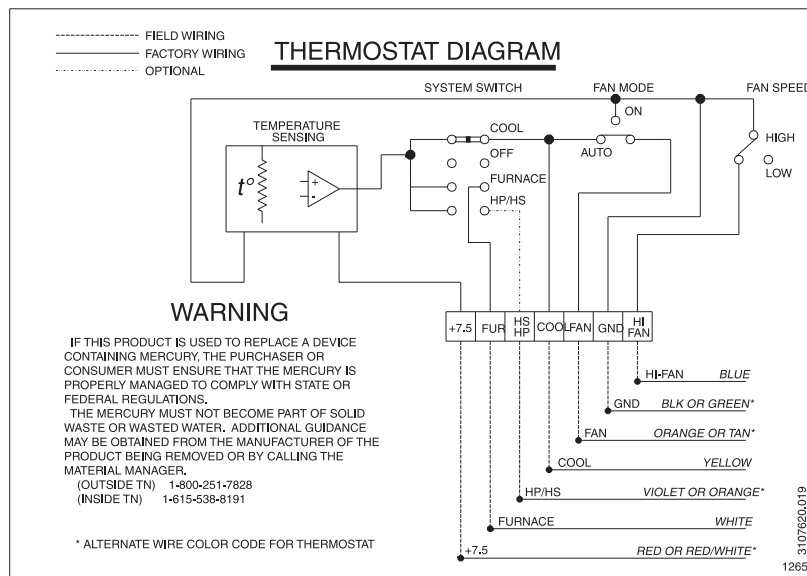
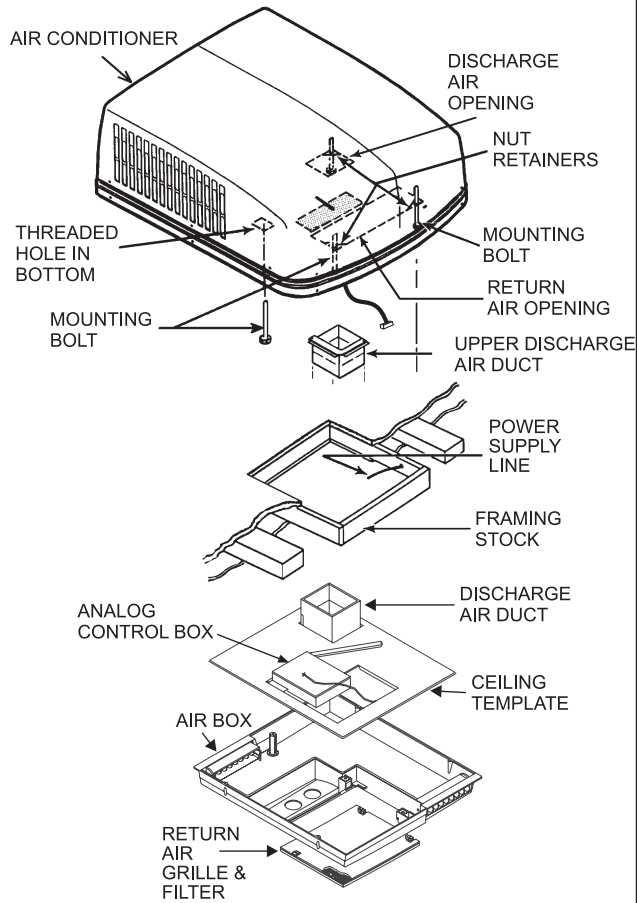
FIG. 25

**Types 3254.331 & 3253.334
Roof Mount Assembly**

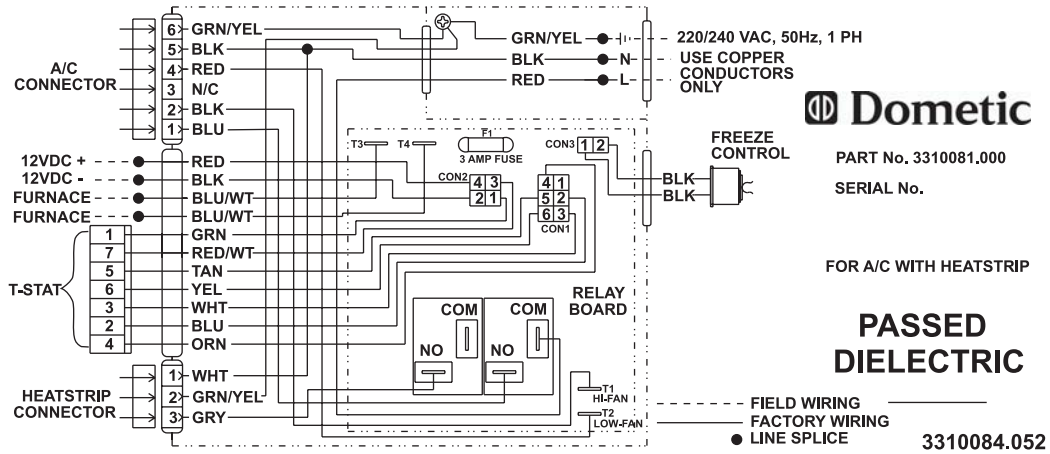


Type B3351.533 & B3351.534 AIR CONDITIONING UNIT

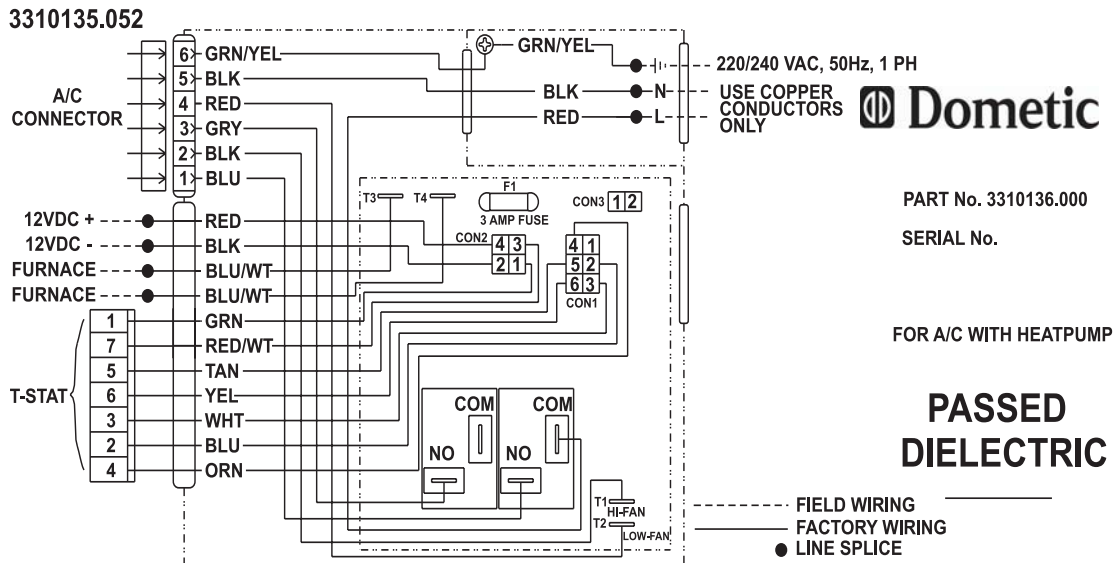
FIG. 26



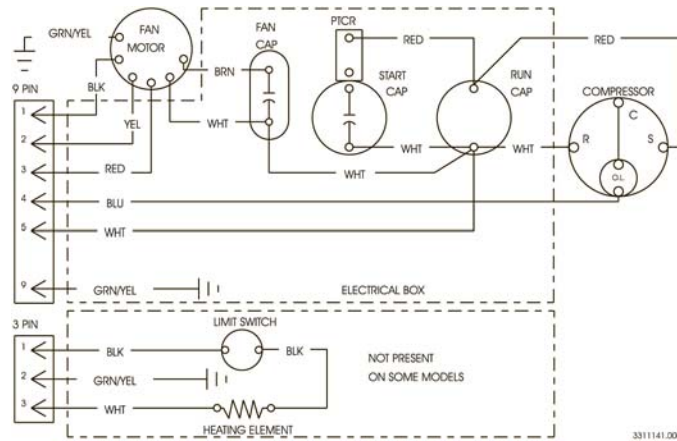
WIRING DIAGRAM FOR 3310086 RELAY KIT



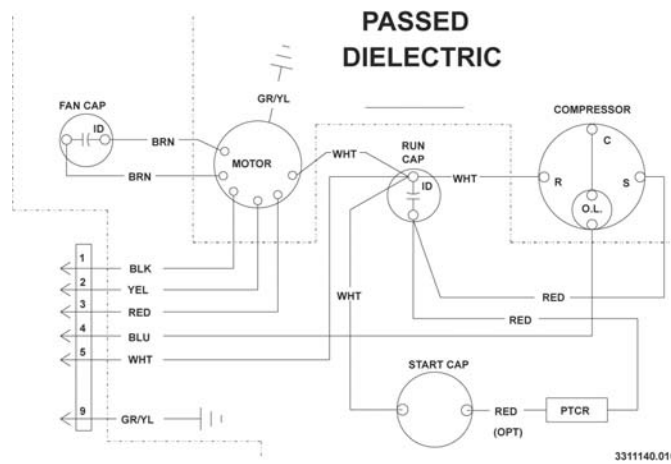
WIRING DIAGRAM FOR 3310137 RELAY KIT



Type B3351.533 & B3351.534 Wiring Diagram



Types 3253.334 Wiring Diagram



Types 3254.331 Wiring Diagram

