



RECORD THIS INFORMATION FOR FUTURE REFERENCE
BEFORE INSTALLING THE UNIT:

Model Number _____
Serial Number _____
Date Purchased _____
Place of Purchase _____

Duo-Therm®

MODEL 59155

**Roof-Top Heat Pump
used with Air Distribution Box Kit**

3108083 OR 3107570

**And 3109271 Electronic Control Kit
3109228 Comfort Control Center**

**THIS UNIT IS DESIGNED FOR OEM OR AFTER MARKET INSTALLATION ALL INITIAL
INSTALLATIONS MUST BE APPROVED BY THE DOMETIC CORPORATION**

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SERVICE OFFICE
The Dometic Corp.
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**For Service Center
Assistance Call:**
800-544-4881

! 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.

! AVERTISSEMENT

Lire et comprendre ce manuel avant de procéder à l'installation, à des réglages, de l'entretien ou des réparations. L'installation de cet appareil doit être effectuée par un réparateur qualifié. Toute modification de cet appareil peut être extrêmement dangereuse et entraîner des blessures ou dommages matériels.

INSTALLATION INSTRUCTIONS

MODEL 59155.602C

REVISION

Form No. 3109534.010 5/01
(Replaces 3109534.002)
(French 3109674.014
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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: means if the safety information is not followed someone could be injured or killed and/or damage to equipment could occur.

CAUTION: means if the safety information is not followed someone might be injured and/or damage to equipment might occur.

Read and follow all safety information and instructions.

1. GENERAL INFORMATION

- A. The **Roof Mount Heat Pump** is designed for use on a semi-sleeper with a well insulated interior cabin space up to 100 sq. ft. for the 59155. During the heating cycle, the 4-way valve reverses the direction of refrigerant flow through the coils. The outside coil now becomes the evaporator and the inside coil becomes the condenser. The refrigerant process is still the same except heat is given off inside the conditioned space. The heat pump will operate down to 30°F. When the outside temperature reaches 30°F a sensor will shut the system off. When the outside temperature rises to 38°F, the sensor will allow the heat pump operation to begin again.
- B. The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the semi-sleeper. Some preventative measures taken by the occupants of the semi-sleeper 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 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

Note: The manufacturer of this unit will not be responsible for damage caused by condensed moisture on ceilings or other cool surfaces. Air contains moisture and this moisture tends to condense on cold surfaces. When air enters the semi-sleeper, condensed moisture may appear on the ceiling, windows, metal parts, etc. The unit will remove this moisture from the air during normal operation. Keeping the doors and windows closed will minimize this condition.

SPECIFICATIONS

MODEL NO.	59155.602C
Nominal Capacity (BTU/HR)	8,000
Electrical Rating	115 VAC, 60 Hz., 1 PH.
Compressor Rated Load Amps	6.6
Fan Motor Rated Load Amps	2.0
Compressor Locked Rotor Amps	39.2
Fan Motor Locked Rotor Amps	6.0
Electric Heater Watts***	1530
Power, Cooling (KW)	1.0
SCFM-High Speed	270
Refrigerant (R22) oz.	36.5
Minimum Wire Size *	12 AWG Copper up to 24 ft.
Circuit Protection	20 Amp Time Delay Fuse or HACR Circuit Breaker
Installed Weight (Pounds)	100
Minimum Inverter**	2500W
Minimum Generator Size**	3.5 KW

This information subject to change without notice.

* For distances over 24 ft., consult the National Electric Code

** The Dometic Corporation gives **GENERAL** guidelines for inverter and generator requirements. These guidelines come from experiences people have had in actual applications. When sizing the inverter and generator, the ability to start the appliance as well as the total power usage of your vehicle must be considered. All motors draw near their full locked rotor amperage for fraction of a second on start up. The power source must be able to handle this surge. Also keep in mind generators lose power at high altitudes and from lack of maintenance and that both inverters and generators are derated at elevated temperatures.

*** On generator power only

INSTALLATION INSTRUCTIONS

1. PRECAUTIONS

⚠ WARNING

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

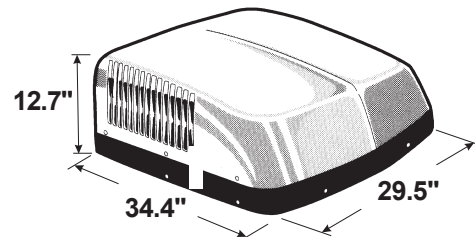
- Read Installation Instructions carefully before starting your air conditioner installation.
- The Dometic Corporation will not be liable for any damages or injury incurred due to failure to read or follow these instructions.
- Installation must comply with the National Electrical Code and any State or Local Codes or regulations.
- DO NOT add any devices or accessories to this air conditioner except those specifically authorized by Dometic.
- The 510 Amp battery pack specified is for heat pump use only. Any device added will greatly reduce the operating time of your system.
- This equipment must be serviced by qualified personnel and some states require these people to be licensed.

2. CHOOSING LOCATION FOR THE HEAT PUMP

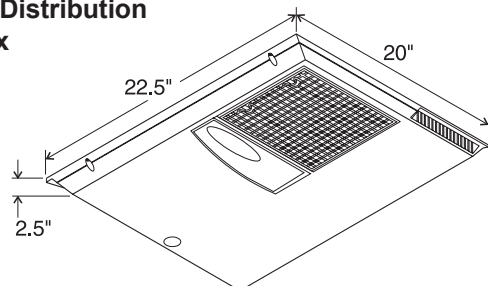
This heat pump is specifically designed for installation over cutouts centered in the roof of a semi-sleeper. (See air distribution box carton for template.)

- It is preferred that this heat pump be installed in a relatively flat and level roof section; however, up to a 15° slant front-to-back is acceptable.
- AFTER LOCATION SELECTION:**
 - Check for obstructions in the area where air conditioner will be installed.
 - The roof must be designed to support 130 pounds when the semi is in motion. Normally a 200 lb. static load design will meet this requirement.
 - Check inside the sleeper for air box obstructions. (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.) Use template from the air distribution box carton.

FIG. 1



Air Distribution Box



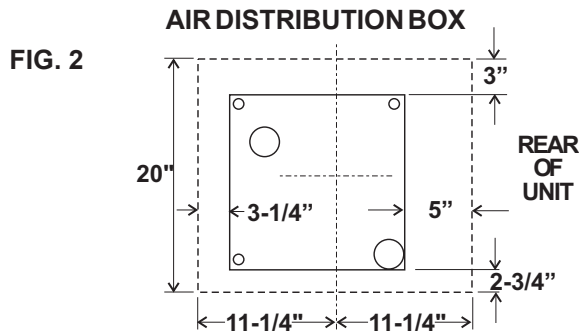
3. ROOF/OPENING

⚠ WARNING

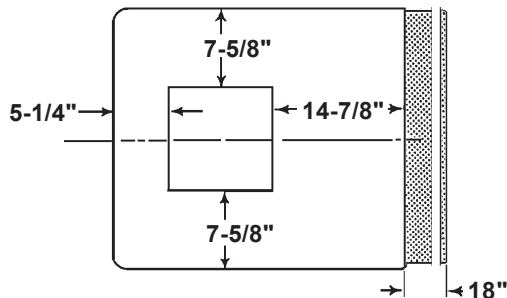
There may be electrical wiring between the roof and the ceiling. Disconnect 115 volt AC power cord and the positive (+) 12 volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

A. PARTIAL OPENING

1. Cut along dotted line to remove the template from the air box carton.
2. Cut a small hole in the center square of template and secure template to the headliner.
3. Check for obstructions that would interfere with the installation of the air box. Remove any ceiling fixtures, lights or any other item that may prevent the air box from being installed or that may block air flow.



KEEP THIS AREA FREE OF OBSTRUCTIONS



4. Cut a small hole through the headliner and look for electrical wires and roof braces. This hole should be cut where one of the 6" holes will be cut in step 10.
5. Shift if necessary.
6. Drill six (6) 1/8" holes through template, headliner and roof. These are to mark the corners of the 14-1/4" x 14-1/4" $\pm 1/8$ " opening and the center of the 6" round cutouts. See FIG. 3A.
7. Cut out the headliner only and remove headliner, insulation and liner material as need to install mounting bolts.

Template

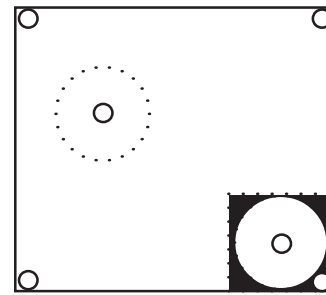


FIG. 3A

8. Move to the roof of the sleeper and locate the four (4) holes marking the corners of the 14-1/4" x 14-1/4" $\pm 1/8$ " opening. Enlarge them to 1/2".
9. Install framing needed to prevent collapse of roof/ceiling. It may be necessary to enlarge the opening to install framing for support. See FIG. 3B

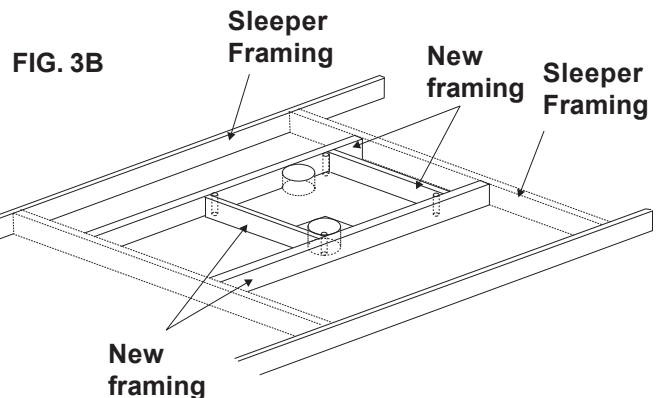
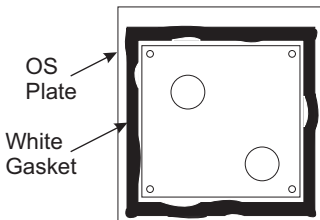


FIG. 3B

⚠ CAUTION

It is the responsibility of the installer of this air conditioner system to ensure structural integrity of the RV 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 RV.

10. Locate the two (2) inboard holes and using a 6" hole saw or a jig saw enlarge to 6". See FIG. 3A. Square off opening in hole located in corner of the 14-1/4" x 14-1/4" $\pm 1/8$ " opening.
 11. Route the 115 Volt AC power supply and 4-conductor control cable wires to the roof opening. Make sure 15" of wire extends into the roof opening to ensure easy connection.
- Note:** If heavy duty air box is being used follow steps 12 - 14. If not proceed to Section 4.
12. Remove the inside and outside plates from the carton. The plate with the large 14-1/2 x 14-1/2 hole is to be mounted on the roof of the sleeper. The plate with the two (2) square cutouts will be used on the inside of the sleeper to mount the air conditioner.

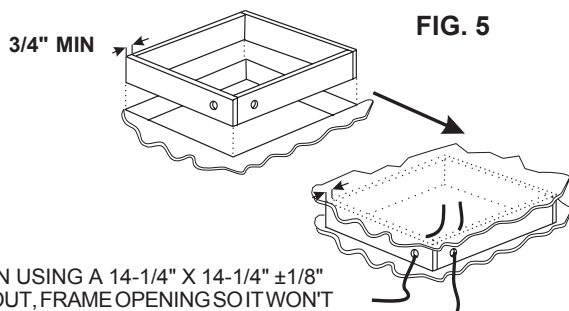
FIG. 4**REAR OF UNIT**

13. Place the white roof gasket on the roof around the opening. Use a good urethane or silicone caulk to seal all four (4) corners of the gasket. See FIG. 4.
14. Install lower duct extension to the inside plate. See FIG. 9.

B. FULL 14-1/4" x 14-1/4" ±1/8" OPENING

1. Cut along dotted line to remove the template from the air box carton.
2. Cut a small hole in the center square of template and secure template to the headliner.
3. Check for obstructions that would interfere with the installation of the air box. See FIG. 2. Remove any ceiling fixtures, lights or any other item that may prevent the air box from being installed or that may block airflow.
4. Cut a small hole through the headliner and look for electrical wires and roof braces.
5. Shift if necessary.
6. Drill Four (4) 1/8" holes through template, head liner and roof. These are to mark the corners of the 14-1/4" x 14-1/4" ±1/8" opening. See FIG. 3A.
7. Cut out the headliner only and remove headliner, insulation and liner material as needed.
8. Move to the roof of the sleeper and locate the four (4) holes marking the corners of the 14-1/4" x 14-1/4" ±1/8" opening. Using them as a guide, cut out the 14-1/4" x 14-1/4" ±1/8" opening.
9. Install framing needed to prevent collapse of roof/ceiling. See FIG. 5. Remember to provide an entrance hole for the 115 Volt AC power supply and 4-conductor control cable.
10. Route the 115 Volt AC power supply and 4-conductor control cable and furnace wires (if applicable) wires to the roof opening. Make sure 15" of wire extends into the roof opening to ensure easy connection.

Note: If heavy duty air box is being used follow steps 11-13. If not proceed to Section 4.

**FIG. 5**

WHEN USING A 14-1/4" X 14-1/4" ±1/8" CUTOUT, FRAME OPENING SO IT WON'T COLLAPSE WHEN BOLTING DOWN AIR CONDITIONER

11. Remove the inside and outside plates from the carton. The plate with the large 14-1/2 x 14-1/2 hole is to be mounted on the roof of the sleeper. The plate with the two (2) square cutouts will be used on the inside of the sleeper to mount the air conditioner.

12. Place the white roof gasket on the roof around the opening. Use a good urethane or silicon caulk to seal all four (4) corners of the gasket. Place the outside plate on the gasket. See FIG. 4.
13. Install lower duct extension to the inside plate. See FIG. 9.

4. DOMETIC COMFORT CONTROL CENTER™ & CABLE INSTALLATION

A. LOCATION

1. This system is used without a Remote Temperature Sensor, therefore the proper location of the Comfort Control Center is very important to insure that it will provide a comfortable temperature.
 - a. The Comfort Control Center™ (CCC) must be placed approximately 54" above the floor of the sleeper, on a partition, not on an outside wall.
 - b. Never expose to direct heat or cooling devices, ie: lights, which can influence the operation of the unit.
 - c. Avoid areas where air is stagnant. Placing the CCC in corners or under cupboards can result in large temperature swings.

B. CONTROL CABLE INSTALLATION

The supplied 4-conductor control cable must be routed from the heatpump to the **Comfort Control Center™** location.

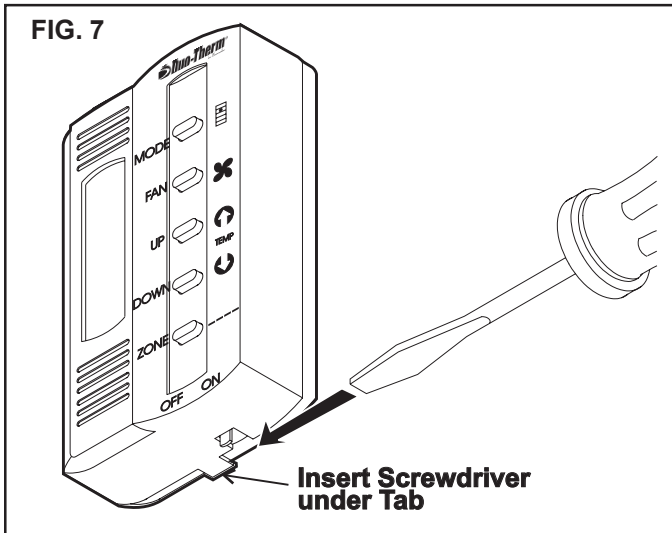
1. Choose the shortest, most direct route from the heat pump to the **Comfort Control Center™** location selected. Leave 6" of cable extending through the wall.
2. Connect the 4-conductor control cable from the Comfort Control Center to the 4-conductor control cable connected to the heat pump.

C. COMFORT CONTROL CENTER™ INSTALLATION

1. Carefully remove the base plate from the **Comfort Control Center™**. This may be accomplished by inserting a screwdriver under the tab on the bottom edge of the front cover and gently prying. See FIG. 7.
2. Insert the control cable through the hole in the base plate and mount the plate to the wall with the two screws provided.
3. Install the control cable RJ-11 connector into the back of the the **Comfort Control Center™** and gently press onto the base plate.

Note: The **Comfort Control Center™** has a zone button that is not used on this model heat pump.

FIG. 7



Insert Screwdriver under Tab

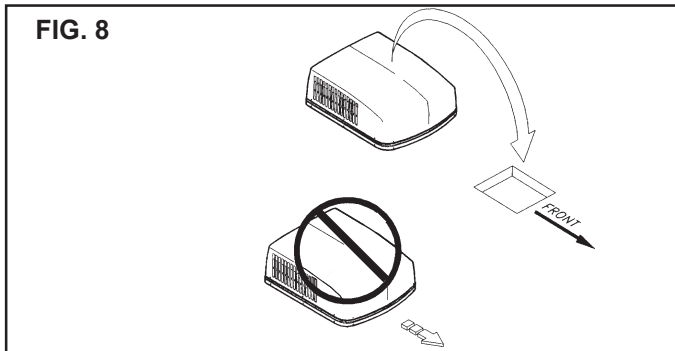
5. PLACE AIR CONDITIONER ON ROOF

⚠ CAUTION

This unit weighs approximately 90 pounds. To prevent back injury, use a mechanical hoist to place Air Conditioner on roof.

- A. Lift and place the unit over the prepared opening using the gasket as a guide. The condenser coil goes toward the rear of the semi-sleeper.

FIG. 8



⚠ CAUTION

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

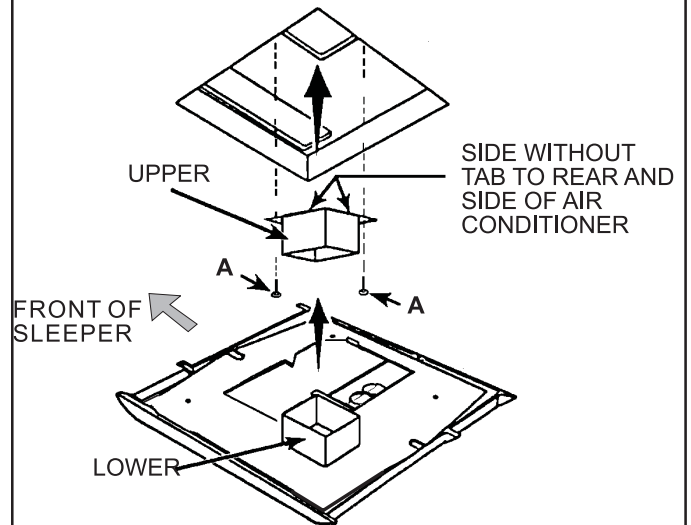
6. DISCHARGE DUCT AND CEILING TEMPLATE

- A. Remove air box and mounting hardware from carton. The upper duct is shipped inside the lower duct.
1. Remove upper duct from ceiling template and locate it over blower discharge.

Note: Edges without flanges install toward REAR and SIDE of opening.

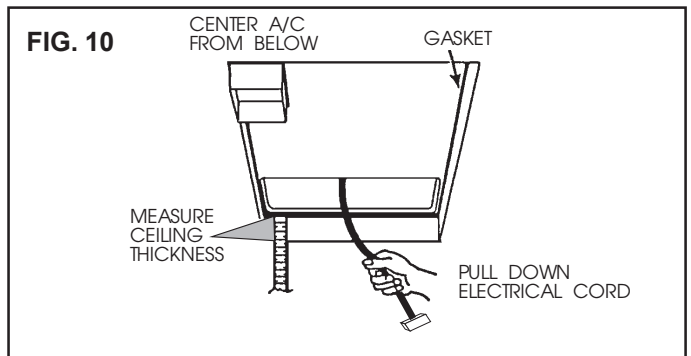
2. Use two (2) sharp pointed #10 x 1/2" sheet metal screws (A) to hold duct to base pan. Holes provided in bottom of basepan for these screws to go into.

FIG. 9



- B. Check for correct alignment and adjust the unit as necessary.
- C. Reach up into return air opening of the air conditioner and pull the unit electrical cord down for later connection.

FIG. 10

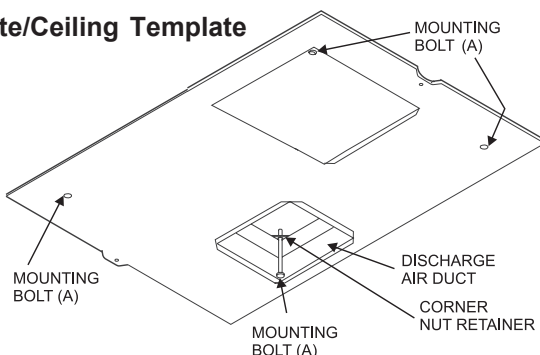


- D. Measure ceiling thickness:
1. If roof thickness is 1"-2", remove perforated tabs from both upper and lower ducts.
 2. If 2"-3", remove perforated tabs from bottom duct only.
 3. If 3"-4", install ducts as received.
- E. Install ceiling template by sliding lower duct over upper duct.
- F. Start each mounting bolt by hand before tightening any of them. The four (4) threaded inserts in the base pan can be seen to aid in starting the bolts. EVENLY TORQUE BOLTS TO 40 TO 50 INCH POUNDS. (This is no tighter than can be done with a screwdriver handle.)
- This will compress the roof gasket by approximately 50%. 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.

FIG. 11
Inside Plate/Ceiling Template



7. POWER SUPPLY CONNECTIONS

Note: All wiring must comply with the National Electrical Code and any State or Local Codes or regulations.

A. Connect 115 VAC supply wire as listed:

1. Junction box **Black Wire** to supply wire **Black Wire**.
2. Junction box **White Wire** to supply wire **White Wire**.
3. Junction box **Green/Yellow Wire** to supply wire **Ground**.

Note: When reattaching the liner, make sure you do not drive any screws into wiring.

8. SYSTEM CONFIGURATION, RESET & CHECK OUT

Now that the system is installed, it is necessary to configure the electronics and check all operations.

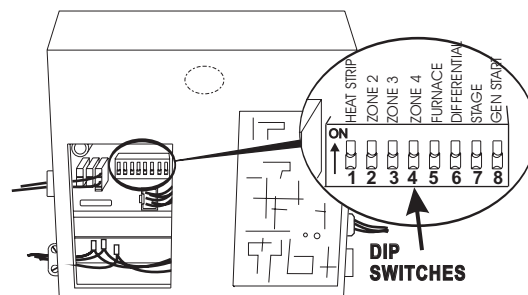
Refer to the Operating manual for a description of the air conditioner operation.

A. ELECTRONIC CONTROL KIT CONFIGURATION

Note: Dip switches are in the "OFF" position when shipped from the factory. To gain access to the dip switches, the shroud must be removed from the unit. Remove the four mounting screws around the perimeter of the unit. Next remove the electrical box cover. (The electrical box will be on the back side of the air conditioner after installation).

1. Zone selection - Leave in the "OFF" position.
2. Heat strip selection - If optional heat strip is installed place the heat strip dip switch in the "ON" position.
3. Furnace selection - Leave in the off position.
4. Differential - Leave in the "OFF" position.
5. Stage selection - Leave in the "OFF" position.
6. Gen start selection - Leave in the "OFF" position.
7. Replace the unit electrical box cover.
8. Replace the shroud.

FIG. 12



B. SYSTEM RESET

After setting the dip switches in the electronic control kit, do a system reset.

1. Turn the ON/OFF switch to the "OFF" position.
2. Simultaneously depress and hold the MODE and ZONE push-buttons while turning the ON/OFF switch to "ON". FF should appear in LCD display until the mode and zone push-buttons are released.
3. When a dip switch is turned on after initial configuration, a system reset will need to be done before the Comfort Control Center will recognize the updated selection.

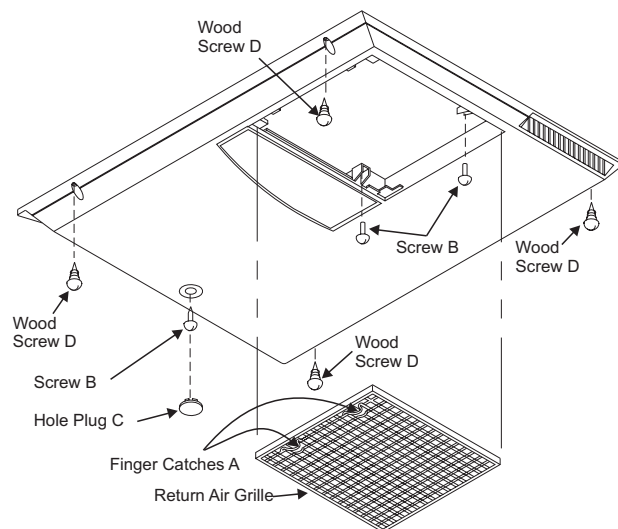
C. SYSTEM CHECKOUT

Verify that all features of the installed system work. Check fan speeds, cooling mode, heat pump mode and heat strip. If the features do not work, check all wiring and confirm that the correct options have been selected on the Electronic Control Box. See **Comfort Control Center™** Operating Instructions.

9. INSTALL AIR BOX

- A. Remove return air grille from air box by pulling in on half-round finger catches.
- B. Hold air box up to ceiling template and install three (3) #10 x 3/8" screws (B) at air box mounting point.
- C. Snap hole plug (C) into place at rear of air box.
- D. Install four (4) wood screws (D) that hold air box tight to ceiling if so desired.
- E. Reinstall return air grille and filter into air box.
- F. The air conditioner installation is now complete.

FIG. 13



AIR CONDITIONING UNIT

A. (4) 1/4" - 20 Bolts



B. (4) #8 x 5/8" long sharp point screws



C. (5) #10 x 3/8" blunt point tapping screws



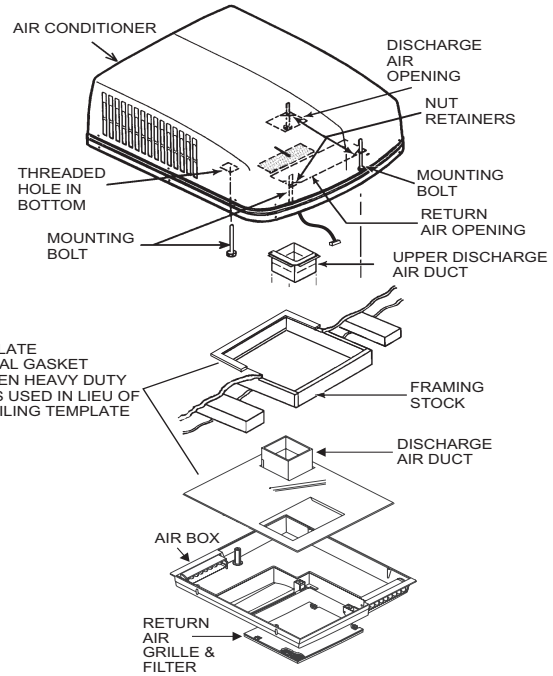
D. (1) Hole Plug



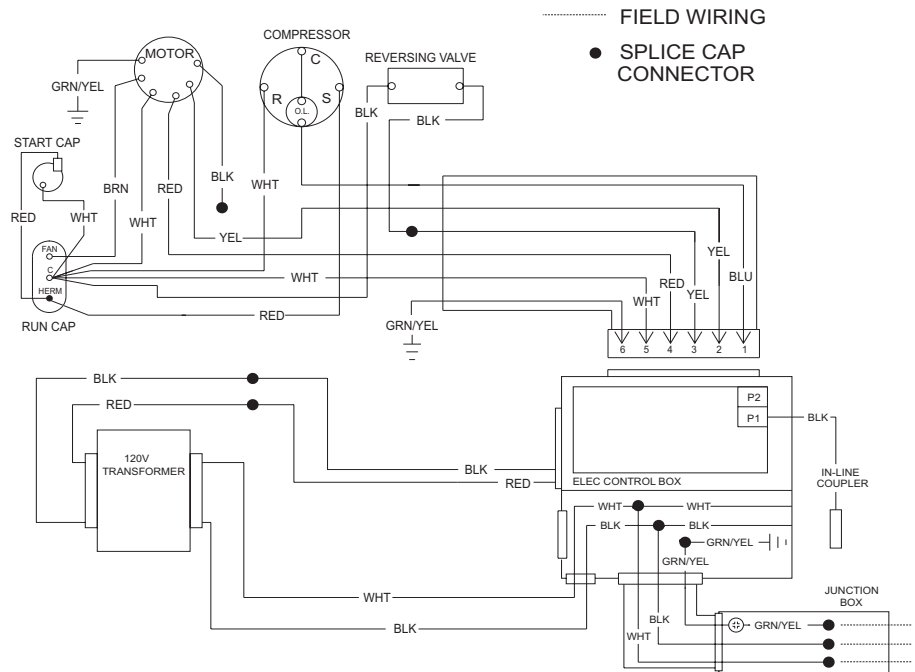
E. (2) #10 x 1/2" Sharp



AN OUTSIDE PLATE AND ADDITIONAL GASKET ARE USED WHEN HEAVY DUTY ADB 3107570 IS USED IN LIEU OF STANDARD CEILING TEMPLATE



UNIT ELECTRICAL WIRING DIAGRAM



MAINTENANCE

1. AIR FILTER:

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

Note: Never run 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. AIR BOX HOUSING:

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

3. Fan Motor:

Factory lubricated and requires no service under normal use.

4. Frost Formation on cooling Coil:

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 to a warmer setting. Should frosting continue, operate on HIGH FAN setting until the cooling coil is free of frost.

SERVICE-Unit Does Not Operate

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

1. Insure inverter/generator is producing power.
2. Check circuit breakers and fuses.
3. Check and be sure AC power is plugged in with wire of adequate size
4. Insure outside temperature is above 30 degree F. when using the "Heat Pump" mode.
5. Perform electronic reset.
6. After the above checks, call authorized service center for further help. This unit must be service by a qualified service personal only.

When calling for service, always give the following:

1. Air Conditioner Model and Serial Number found on rating plate located on base pan of air conditioner bottom.
2. Air Distribution Box Kit Part and Serial Number found on rating plated located on ceiling template. Observe this rating plate through the air discharge louver of Air Distribution box.