

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

BRISK AIR®
579 Series
590 Series
595 Series

**ROOF TOP AIR CONDITIONER
USED WITH**

**3107210 AIR DISTRIBUTION BOX KIT and
3107541 ANALOG RELAY KIT**

USA
SERVICE OFFICE
The Dometic Corporation
2320 Industrial Parkway
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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**

57908.521	57915.536	59516.331
57912.622	57915.541	59516.336
57912.631	57915.546	59516.501
57915.322	57915.622	59516.531
57915.331	57915.631	59516.536
57915.422	57915.731	59516.601
57915.522	59016.521	59516.603
57915.531	59016.621	59516.631
	59516.303	

REVISION
Form No. 3108464.060 2/05
(Replaces 3108464.053)
(French 3108982.061)
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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. THIS AIR CONDITIONER IS DESIGNED FOR:

1. Installation on a recreational vehicle during the time the vehicle is manufactured.
2. Mounting on the roof of a recreational vehicle.
3. Roof construction with rafters/joists on minimum of 16 inch centers.
4. Minimum of 2.00 inches and maximum of 4.00 inches distance between roof to ceiling of recreational vehicle. Alternate installation methods will allow for roofs more than 4.00 inches thick.

B. The ability of the air conditioner to maintain the desired inside temperature depends on the heat gain of the RV. Some preventative measures taken by the occupants of the RV 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 RV 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 temperature.

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 a high heat gain, accessories like A&E outdoor patio and window awnings will reduce heat gain by removing the direct exposure to the 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 RV, 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.	NOMINAL CAPACITY (BTU/HR) COOLING	ELECTRICAL RATING	COMPRESSOR RATED LOAD AMPS	COMPRESSOR LOCKED ROTOR AMPS	FAN MOTOR RATED LOAD AMPS	FAN MOTOR LOCKED ROTOR AMPS	SCFM-HIGH SPEED MAX/MIN	TOTAL STATIC MAX/MIN " W. C.	REFRIGERANT R-22 (OZ)	MINIMUM WIRE SIZE*	AC PROTECTION *** USER SUPPLIED	INSTALLED WEIGHT (POUNDS)	MINIMUM GENERATOR SIZE** 1 UNIT/2 UNITS
57908521	7,100	120VAC, 60 HZ., 1PH.	6.6	340	2.5	5.8	325/250	0.55/0.90	17.0	12AWG Copper up to 24'	20Amp	75	2.5 KW /4.0 KW
57912622	11,000		8.5	483	2.5	5.8	325/250	0.55/0.90	18.0		20Amp	94	2.5 KW/4.0KW
57912631	11,000		8.5	483	2.5	5.8	325/250	0.55/0.90	18.0		20Amp	94	2.5 KW/4.0KW
57915322	13,500		11.4	580	2.5	5.8	325/250	0.55/0.90	15.5		20Amp	100	3.5 KW/5.0KW
57915331	13,500		11.4	580	2.5	5.8	325/250	0.55/0.90	15.5		20Amp	100	3.5 KW/5.0KW
57915422	13,500		11.5	500	2.5	5.8	325/250	0.55/0.90	14.5		20Amp	100	3.5 KW/5.0KW
57915522	13,500		12.1	590	2.5	5.8	325/250	0.55/0.90	16.5		20Amp	94	3.5 KW/5.0KW
57915531	13,500		12.7	600	2.0	5.6	325/250	0.55/0.90	16.5		20Amp	102	3.5 KW/5.0KW
57915536	13,500		12.1	590	2.5	5.8	325/250	0.55/0.90	16.5		20Amp	94	3.5 KW/5.0KW
57915541	13,500		11.3	620	2.5	5.8	325/250	0.55/0.90	16.0		20Amp	94	3.5 KW/5.0KW
57915546	13,500		11.3	620	2.5	5.8	325/250	0.55/0.90	16.0		20Amp	94	3.5 KW/5.0KW
57915622	13,500		11.0	544	2.5	5.8	325/250	0.55/0.90	16.5		20Amp	94	3.5 KW/5.0KW
57915631	13,500		11.0	544	2.5	5.8	325/250	0.55/0.90	16.5		20Amp	94	3.5 KW/5.0KW
57915731	13,500		11.3	560	2.5	5.8	325/250	0.55/0.90	15.0		20Amp	94	3.5 KW/5.0KW
59016521	15,000		12.9	710	2.5	6.0	350/250	0.40/1.10	26.5		20Amp	101	3.5 KW/5.0KW
59016621	15,000		12.9	770	2.5	6.0	350/250	0.40/1.10	26.5		20Amp	101	3.5 KW/5.0KW
59516303	15,000		12.7	600	2.0	5.6	350/250	0.40/1.10	29.0		20Amp	102	3.5 KW/5.0KW
59516331	15,000		11.5	500	2.5	5.8	325/250	0.40/1.10	29.0		20Amp	94	3.5 KW/5.0KW
59516336	15,000		12.7	600	2.0	5.6	325/250	0.40/1.10	29.0		20Amp	94	3.5 KW/5.0KW
59516501	15,000		11.5	500	2.5	5.8	325/250	0.40/1.10	31.0		20Amp	94	3.5 KW/5.0KW
59516531	15,000		11.5	500	2.5	5.8	325/250	0.40/1.10	26.5		20Amp	94	3.5 KW/5.0KW
59516536	15,000		11.5	500	2.5	5.8	325/250	0.40/1.10	29		20Amp	94	3.5 KW/5.0KW
59516601	15,000		12.9	770	2.5	6.0	350/250	0.40/1.10	31.0		20Amp	102	3.5 KW/5.0KW
59516603	15,000		12.3	770	2.0	5.6	325/250	0.40/1.10	29.5		20Amp	102	3.5 KW/5.0KW
59516631	15,000		12.9	710	2.0	6.0	325/250	0.40/1.10	31.0		20Amp	102	3.5 KW/5.0KW

* For wire lengths over 24 ft. consult the National Electric Code for proper sizing.

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

*** **CIRCUIT PROTECTION:** Time Delay Fuse or HACR Circuit Breakers Required.

INSTALLATION INSTRUCTIONS

1. PRECAUTIONS

⚠ WARNING

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

- A. Read Installation and Operating Instructions carefully before attempting to start your air conditioner installation.
- B. The Dometic Corporation will not be liable for any damages or injury incurred due to failure in following these instructions.
- C. Installation must comply with the National Electrical Code and any State or Local Codes or regulations.
- D. **DO NOT** add any devices or accessories to this air conditioner except those specifically authorized by Dometic.
- E. This equipment must be serviced by qualified personnel and some states require these people to be licensed.

2. CHOOSING PROPER LOCATION FOR THE AIR CONDITIONER

This air conditioner is specifically designed for installation on the roof of a recreational vehicle (RV).

A. NORMAL LOCATION

The air conditioner is designed to fit over an existing roof vent opening. When the vent is removed, it normally creates a 14-1/4" X 14-1/4" ($\pm 1/8$ ") opening.

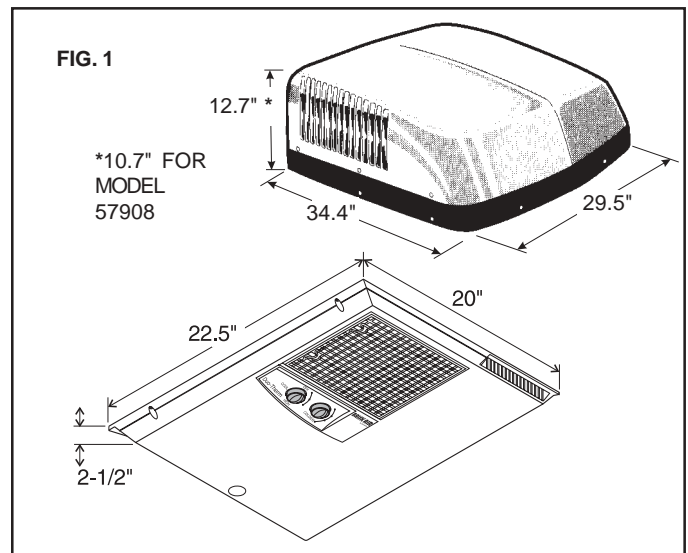
B. OTHER LOCATIONS

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

1. For one unit installation: The air conditioner should be mounted slightly forward of center (front to back) and centered from side to side.
2. For two unit installations: Install one Air Conditioner 1/3 and one Air Conditioner 2/3's from front of RV and centered from side to side.

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

Note: A 15° slant to **either** side, or front to back, is acceptable.



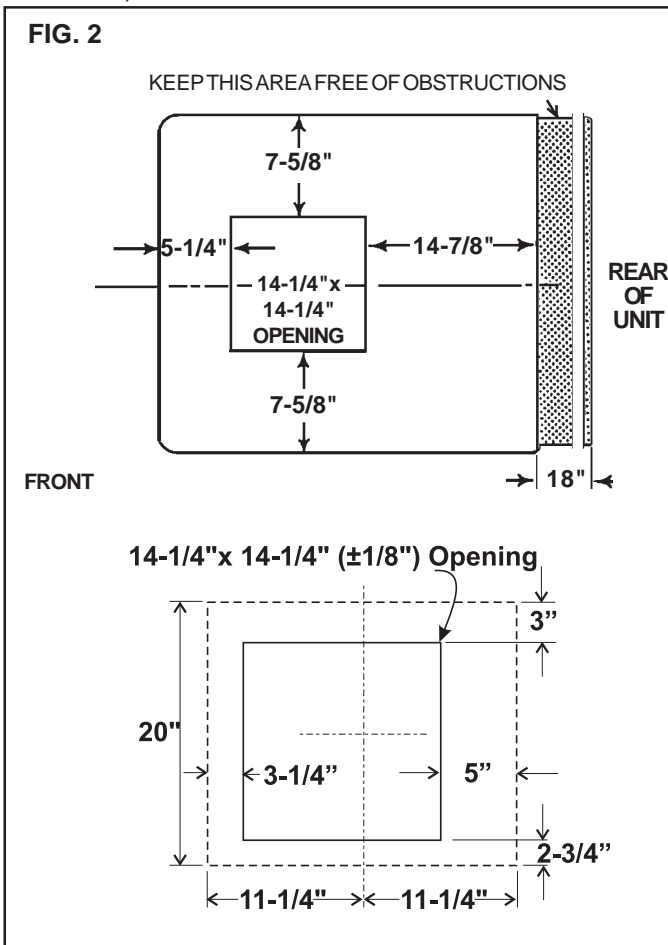
C. AFTER LOCATION HAS BEEN SELECTED:

1. Check for obstructions in the area where air conditioner will be installed.
2. The roof must be designed to support 130 pounds when the RV is in motion. Normally a 200 lb. 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 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.

3. Check inside the RV for air box obstructions (i.e. door openings, room dividers, curtains, ceiling fixtures, etc.)

FIG. 2**3. ROOF PREPARATION**

Before preparing the ceiling opening, the type of system options must be decided upon. If a furnace is to be connected, wires must be run from the furnace to the Dometic A/C. Read all of the following instructions before beginning the installation.

! WARNING

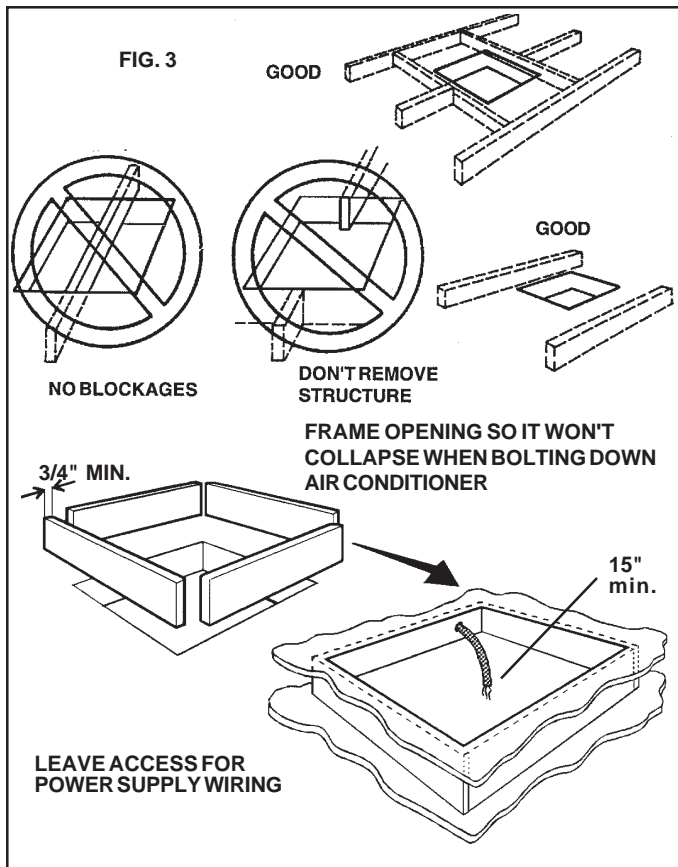
There may be electrical wiring between the roof and the ceiling. Disconnect 120 volt AC power cord and the positive (+) 12 volt DC terminal at the supply battery. Failure to follow this instruction may create a shock hazard causing death or severe personal injury.

A. CEILING OPENING REQUIREMENTS

1. A 14-1/4" x 14-1/4" (±1/8") opening must be cut through the roof and ceiling of the RV. This opening must be located between the roof reinforcing members.
2. Mark a 14-1/4" x 14-1/4" (±1/8") square on the roof and carefully cut the opening.
3. Using the roof opening as a guide, cut the matching hole in the ceiling.

B. OPENING PREPARATION

1. If the opening exceeds 14-3/8" x 14-3/8", it will be necessary to install spacers.
2. If the opening is less than 14-1/8" x 14-1/8", it must be enlarged.
3. Route a copper 12 AWG, with ground, 120 VAC supply line from the fuse or circuit breaker box to the roof opening.
 - a. This supply line must be located in the front portion of the 14-1/4" (±1/8") opening.
 - b. The power MUST be on a separate 20 amp time delay fuse or HACR circuit breaker.
 - c. Make sure that at least 15" of supply wire extends into the roof opening. This ensures easy connection at the junction box.
 - d. Wiring must comply with all National, State and Local Wiring Codes.
 - e. Use a steel sleeve and a grommet or equivalent methods to protect the wire where it passes into the opening.
4. If a furnace is to be connected, wires must be run from the furnace to the Dometic Air Conditioner.
5. The opening created must be framed to provide adequate support and prevent air from being drawn from the roof cavity. Lumber 3/4" or more in thickness must be used. Remember to provide an entrance hole for power supplies, furnace wiring (if applicable) and thermostat wires.



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.

6. The 14-1/4" x 14-1/4" ($\pm 1/8$ ") opening is part of the return air system of the Air Conditioner and must be finished in accordance with NFPA Standard 501C Section 2.7.
7. Route a dedicated 12V DC supply line (18-22 AWG) from the RV's converter or battery to the roof opening.
 - a. Wire must be fused at 3 Amps.
 - b. This supply line must be located in the front portion of the 14-1/4" ($\pm 1/8$ ") opening.
 - c. Make sure that at least 15" of supply wire extends into the roof opening.
8. If a furnace is to be controlled by the system, the two furnace thermostat leads must be routed to the roof opening of the air conditioner that will control it. Make sure that at least 15" of the furnace thermostat wires extend into the roof opening.

4. THERMOSTAT AND CABLE INSTALLATION

A. LOCATION

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

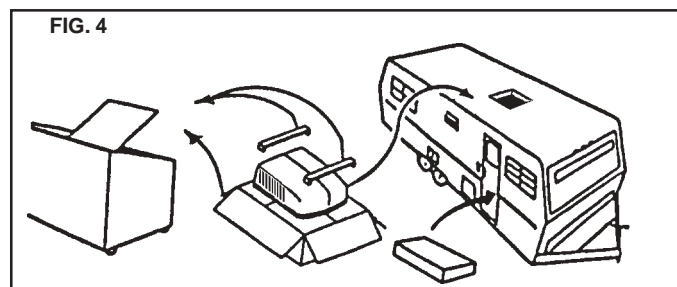
1. Locate the thermostat about 54" above the floor.
2. Install thermostat on a partition, **NEVER** on an outside wall;
3. **NEVER** expose it to direct heat from lamps, sun or other heat producing items;
4. Avoid locations close to doors that lead outside, windows or adjoining outside walls;
5. Avoid locations close to supply registers and the air from them;
6. Never locate thermostat in a room that is warmer or cooler than the rest of the coach - such as the kitchen.
7. The major living area is normally a good location.

B. CABLE INSTALLATION

1. A seven-conductor cable, 18 to 22 AWG is to be used for low voltage connections.
2. Choose the shortest, direct route from the 14-1/4" ($\pm 1/8$ ") opening to the thermostat location selected.
3. Consider where screws, nails or staples might contact the cable.
4. Leave approximately 6" of cable extending through the wall for connection to the thermostat.
5. Leave approximately 10" of cable extending into the 14-1/4" ($\pm 1/8$ ") opening for connection at unit
6. If system is to control a gas furnace: Route two 18 gauge wires from the furnace to 14 inch opening at this time.

5. PLACING THE AIR CONDITIONER ON THE ROOF

- A. Remove the Air Conditioner from the carton and discard.
- B. Place the Air Conditioner on the roof.



WARNING

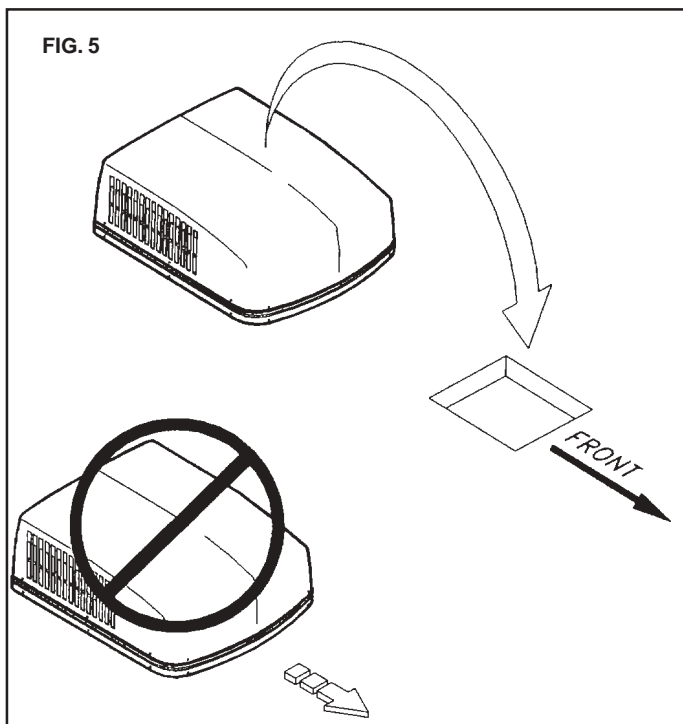
This unit weighs approximately 100 pounds. To prevent back injury, use a mechanical hoist to place Air Conditioner on roof.

- C. Lift and place the unit over the prepared opening using the gasket on unit as a guide. The **exposed coil** goes toward the **rear** of the RV. See FIG. 5

CAUTION

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

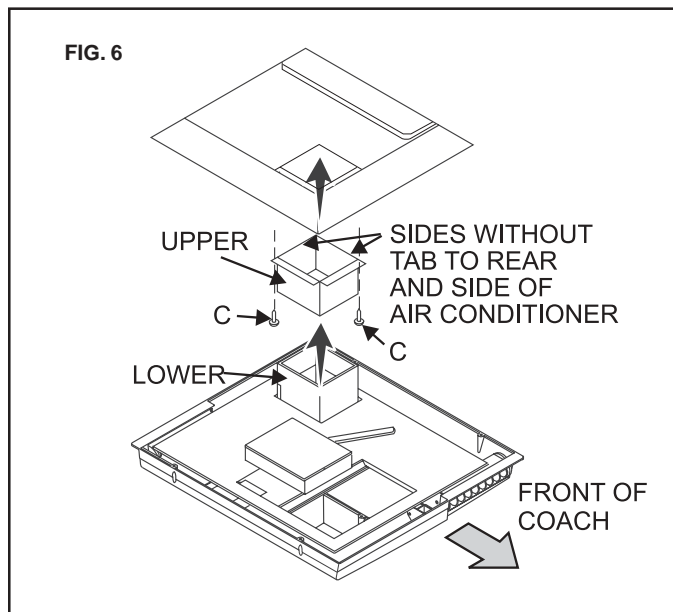
- D. Place the 3107210 Air Box Kit and Analog Control Kit inside the RV. Both boxes contain mounting hardware for the air conditioner and will be used inside the RV.



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

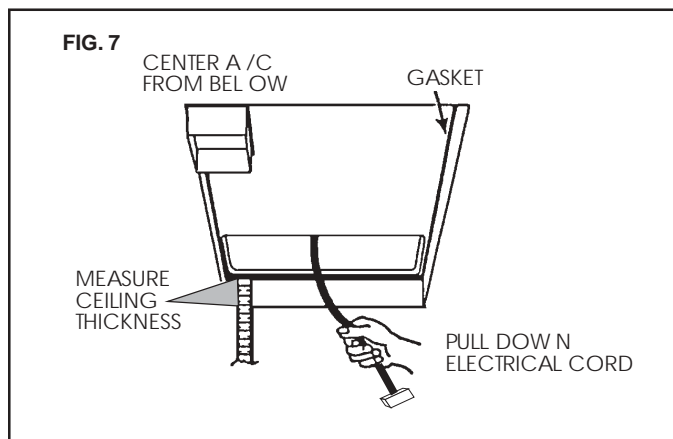
6. DISCHARGE DUCT & CEILING TEMPLATE INSTALLATION

- A. 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.
- B. Remove the upper duct from the ceiling template and locate it over the blower discharge.
- Note:** The edge without the flange installs toward the **rear and side** of the opening. See FIG. 6
- C. 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 each location.
- D. Check gasket alignment over roof opening and adjust if necessary (roof gasket centers over opening). Unit may be moved from below by lifting and sliding.



- E. Reach up into the return air opening and pull the conduit power cable down for later connection. See FIG. 7

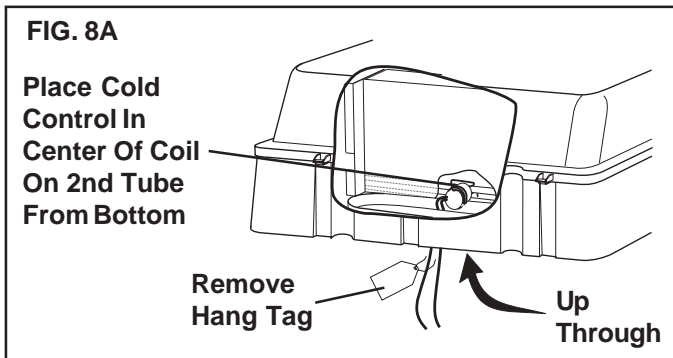
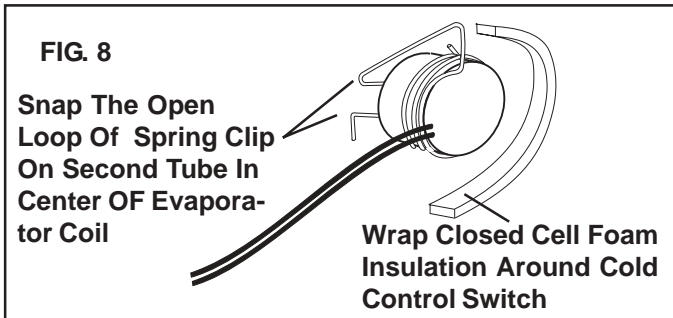
Note: In some applications it may be necessary to extend the 6 pin cable. Order cable number 3105584.001 if needed.



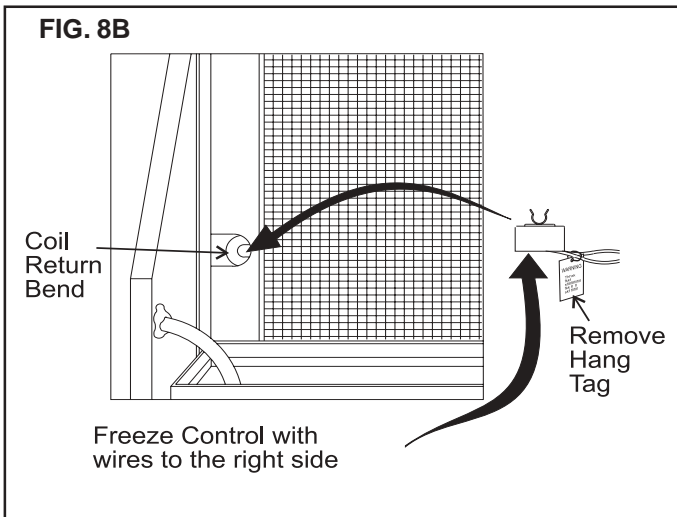
- F. Measure the ceiling thickness:
- 1) If the distance is 2" to 3", remove perforated tabs from bottom duct only.
 - 2) If the distance is 3" to 4", install ducts as received.
 - 3) If the distance is 4" to 6" (maximum thickness), optional Duct Kit and Bolt Kit are available:
Duct Kit (Part No. 3106775.004)
Bolt Kit (Part No. 3100895.006)
- G. Remove the junction box cover from the Analog Control Box.
- H. Plug the electrical conduit (6 pin connector) from the upper unit into the mating connector in Analog Control Box.

I. Freeze Control Installation (Two Types)

1. Type using a snap on spring clip
 - a. Fits on all 579, 590, 591 and 595 Series Brisk Air units by placing 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 FIGS. 8 & 8A.



- b. Keep wires away from heat strip (if applicable) and sharp edges to prevent damaging the wires. Use wire ties if necessary. See FIGS. 8 & 8A.
 - c. Remove installation notice hang tag from freeze control. See FIGS. 8 & 8A.
2. Type using a horseshoe welded snap clip.
 - a. Install on return bend located at left (curb side) side of evaporator coil as follows:
 - b. Locate "D" shaped notch in flange of evaporator coil. See FIG. 8B.



- c. Place the horseshoe end of the freeze control through this notch and snap onto the coil return bend. When positioned correctly, control wires will be toward the evaporator housing away from the evaporator coil header. See FIG. 8B.
- d. Remove installation notice hang tag from freeze control. See FIG. 8B

7. WIRING OF SYSTEM

A. CONNECTION OF 120 VOLT POWER SUPPLY

! WARNING

Disconnect 120 volt AC. Failure to follow these instructions could create a shock hazard causing death or severe personal injury.

! WARNING

This product is equipped with a 3-wire (grounded) system for protection against shock hazard. Make sure that the appliance is wired into a properly grounded 120 volt AC circuit and the polarity is correct. Failure to do so could result in death, personal injury or damage to the equipment.

1. Route the 120 VAC supply line through the strain relief in Analog Control box. Tighten strain relief, making sure enough wire is inside electronic box to connect with unit 120 VAC wire. Tighten screws on strain relief connector being careful not to pinch and cut into the insulation on power supply leads.
2. Connect the white to white; black to black; and green to green or bare copper wire using appropriately sized twist wire connectors. **Tape** the twist wire connectors to the supply wiring to assure they do not vibrate off.
3. Push the wires into the box and tighten the strain relief.
4. Install the cover (part of the mounting hardware) with the one blunt point screw provided.

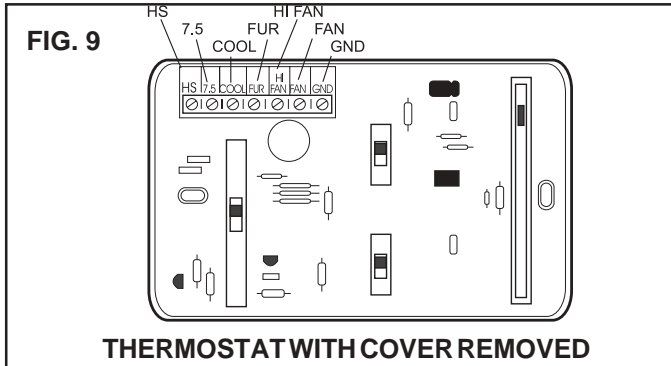
B. CONNECTION OF LOW VOLTAGE WIRES - See FIG. 9

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.

1. **Current model color coding**
 - a. Connect the previously run +12V DC to the red wire labeled +12V protruding from the relay kit.
 - b. Connect the previously run -12V DC to the black wire labeled -12V protruding from the relay kit.
 - c. Connect the red/white wire to the thermostat +7.5.
 - d. Connect the unit green wire to the thermostat GND terminal.

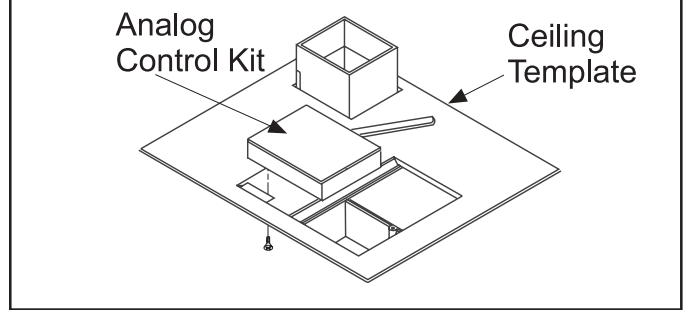
- e. Connect the unit yellow wire to the thermostat COOL terminal.
- f. Connect the unit tan wire to the thermostat FAN terminal.
- g. Connect the unit blue wire to the thermostat HI FAN.
- h. Connect the unit orange wire to the thermostat HS terminal (if applicable).
- i. Connect the unit white wire to the thermostat FUR terminal (if applicable).
- j. Connect the unit blue/white wires to the two furnace control wires (if applicable).



2. Early model color coding

- a. Connect the previously run +12V DC to the red wire labeled +12V protruding from the relay kit. Connect the previously run -12V DC to the black wire protruding from the relay kit.
 - b. Connect the other red wire labeled +12V to Tstat +12 Screw.
 - c. Connect the other relay kit black wire (unmarked) to the thermostat GND terminal.
 - d. Connect the relay kit yellow wire to the thermostat COOL terminal.
 - e. Connect the relay kit orange wire to the thermostat FAN terminal.
 - f. Connect the relay kit blue wire to the thermostat HI FAN.
 - g. Connect the relay kit violet wire to the thermostat HS/HP terminal (if applicable).
 - h. Connect the relay kit white wire to the thermostat furnace terminal (if applicable).
 - i. Connect the relay kit blue wires with white strip to the two furnace control wires (if applicable).
- C. Locate the Analog Control Kit 3107541 on the ceiling template as shown in FIG. 10. Drive two #10 x 3/8 blunt point Phillips head screws (provided) through ceiling template into holes in electronic kit to hold into place.
 - D. If your installation includes the optional electric heat kit, install it at this time. Follow the instructions with the heat package for its installation procedure.
 - E. Take the ceiling template and slide the lower over the upper duct.
 - F. Hold the ceiling template with one hand and with the other, install the four 1/4" mounting bolts through the template and into the base pan.
 1. Finger-tighten the (4) bolts and check alignment. There should be an equal opening on each side and

FIG. 10



- the rear flange must be tight against the roof opening.
2. **EVENLY** tighten the bolts to a torque of 40 to 50 inch pounds. This will compress the roof gasket to approximately 1/2".

CAUTION

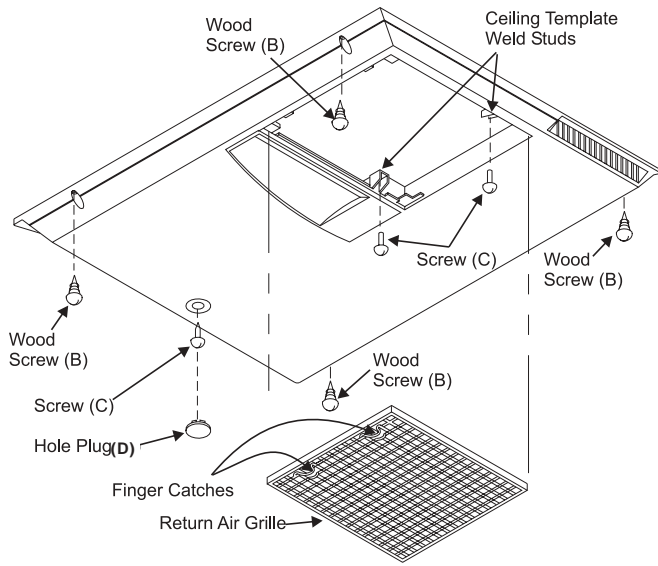
If bolts are left loose there may not be an adequate roof seal or if over tightened, damage may occur to the air conditioner base or ceiling template. Tighten to torque specifications listed in this manual.

8. AIR BOX INSTALLATION

- A. Remove return air grille from air box by pulling in on half-round finger catches. See FIG. 11
- 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. Turn on power to the unit for operational check. Please read Unit Operating Instructions before proceeding.

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.

FIG. 11



MOUNTING PARTS

- A. (4) 1/4" — #20 x 7" bolts



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



- C. (7) #10 x 3/8" blunt point tapping screws

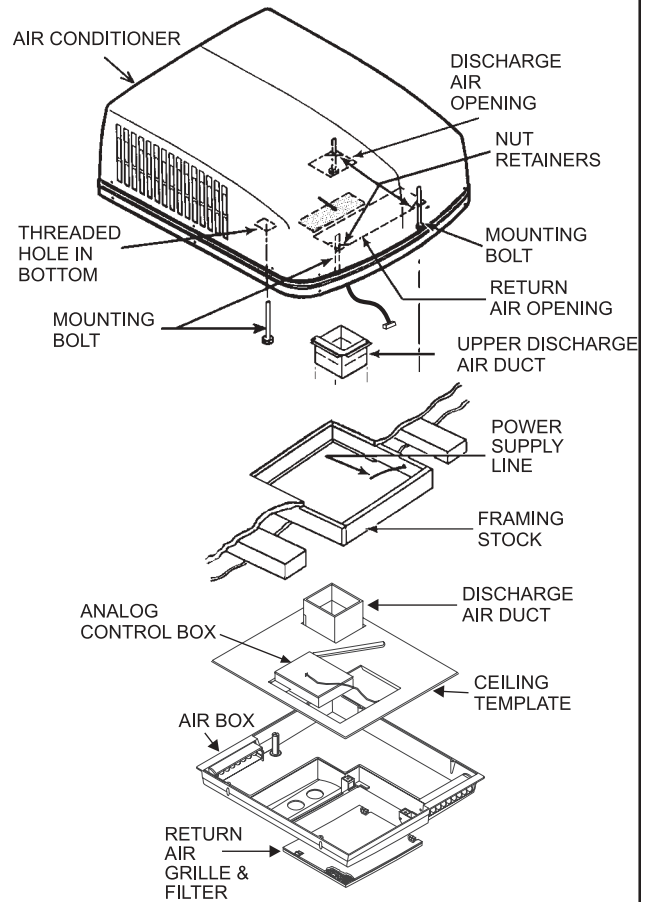


- D. (1) Hole Plug

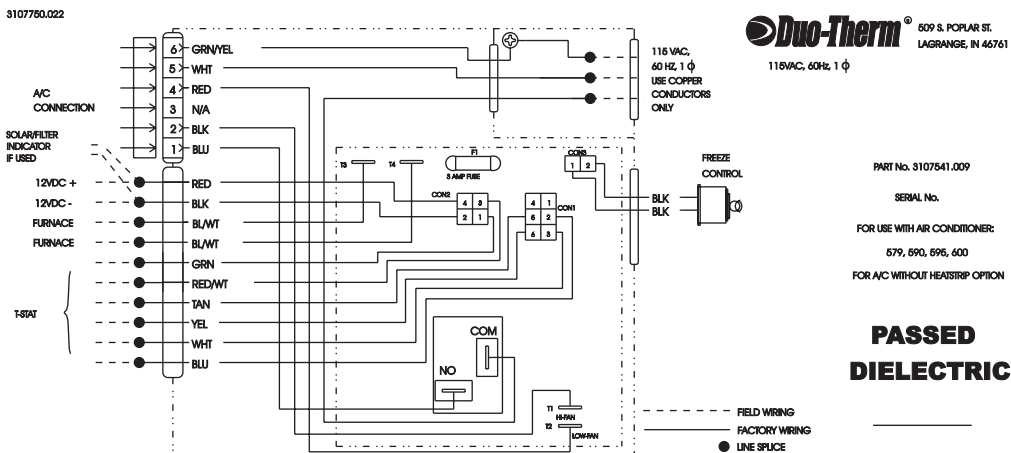


FIG. 12

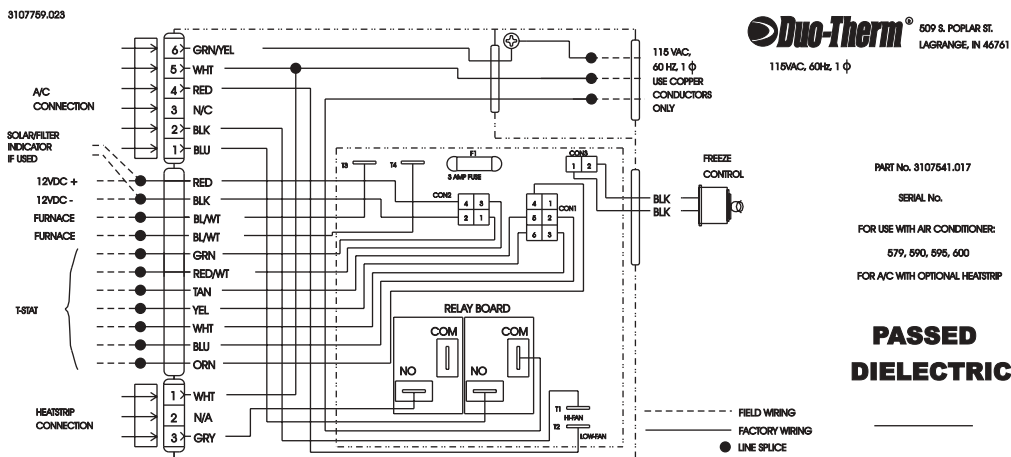
AIR CONDITIONING UNIT



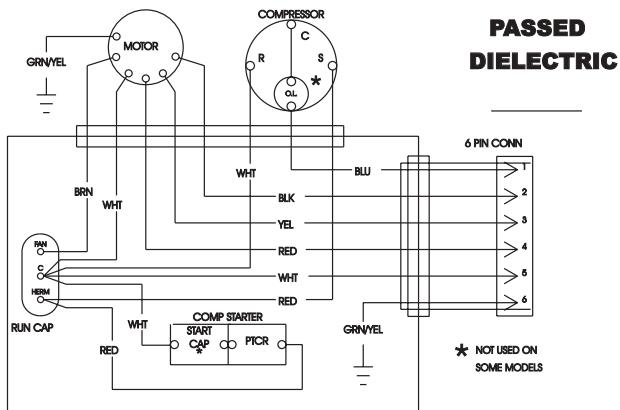
RELAY KIT FIELD WIRING DIAGRAM COOLING/FURNACE



RELAY KIT FIELD WIRING DIAGRAM COOLING/FURNACE/HEAT STRIP



UPPER UNIT WIRING DIAGRAM



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