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3315557.000 (WHITE) OR 3315557.011(BLACK) CONTROL ASSEMBLY CONVERSION KIT

TO CONVERT HEAT PUMP FOR USE WITH

3313193.000 (WHITE OR 3313193.017 (BLACK) LCD SZ THERMOSTAT

(CONVERTS A 459146.XXX/59146.XXX (ANALOG) HEAT PUMP UNIT, MAKING IT COMPATIBLE WITH 3313193.000 (WHITE) OR 3313193.017 (BLACK) LCD SZ THERMOSTAT

SERVICE INSTRUCTIONS

3315557.000 (WHITE)
3315557.011 (BLACK)
CONVERSION KIT

Form No. 3315553.000 8/13
(French 3315554.000)
©2013 Dometic Corporation
LaGrange, IN 46761

Read these instructions carefully. These instructions MUST stay with this product.

INTRODUCTION

This kit is designed for and may only be installed on (Dometic) Brisk Air 459146/59146 series heat pump (hereinafter referred to as “unit”, or “product” so it can be used with a 3313189.023 (with white thermostat) or 3313189.031 (with black thermostat) LCD SZ electronic control box and a 3313193.000 (white) or 3313193.017 (black) LCD SZ thermostat. It is not intended for and should not be used on any other model.

Read these instructions and highlight the appropriate steps for your paticular procedure before starting the conversion.

Installation can take place prior to or after the unit is installed. Use these instructions to ensure a properly installed, and properly functioning product.

Dometic Corporation reserves the right to modify appearances and specifications without notice.

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DOCUMENT SYMBOLS

Indicates additional information that is **NOT** related to physical injury.

Indicates step-by-step instructions.

IMPORTANT SAFETY INSTRUCTIONS

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

A. Recognize Safety Information

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

B. Understand Signal Words

A signal word will identify safety messages and property damage messages, and will indicate the degree or level of hazard seriousness.

⚠ WARNING indicates a hazardous situation that, if **NOT** avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if **NOT** avoided, could result in minor or moderate injury.

NOTICE is used to address practices **NOT** related to physical injury.

C. Supplemental Directives

Read and follow all safety information and instructions to avoid possible injury or death.

Read and understand these instructions before [installing / using / servicing / performing maintenance on] this product.

Incorrect [installation / operation / servicing / maintaining] of this product can lead to serious injury. Follow all instructions.

The installation **MUST** comply with all applicable local and national codes, including the latest edition of the following standards:

U.S.A.

- ANSI/NFPA70, National Electrical Code (NEC)
- ANSI/NFPA 1192, Recreational Vehicles Code

CANADA

- CSA C22.1, Parts I & II, Canadian Electrical Code
- CSA Z240 RV Series, Recreational Vehicles

D. General Safety Messages

⚠ WARNING Failure to obey the following warnings could result in death or serious injury:

- This product **MUST** be [installed / serviced] by a qualified service technician.
- Do **NOT** modify this product beyond the scope of these service instructions. Modification (beyond these service instructions) can be extremely hazardous.
- Do **NOT** add any devices or accessories to this product except those specifically authorized in writing by Dometic Corporation.

⚠ CAUTION CUT HAZARD. Wear protective gloves while handling or working near sheet metal components. Sheet metal parts could have sharp edges. Failure to obey this caution could result in injury.

GENERAL INFORMATION

A. Scope Of Delivery

(1) Service Instructions
(1) 3313189.023 Ctrl. Kit, SZ LCD Cool/Furn/HP (with white thermostat) OR 3313189.031 Ctrl. Kit, SZ LCD Cool/Furn/HP (with black thermostat)
(1) 3311731.000 Kit, Svc. Ambient Sensor-26″
(1) 3313522.000 Tinnerman, 10-16
(1) 301028.008 Bushing, Snap-In

B. Required Tools

- Volt-Ohm Meter
- Capacitor Discharge Tool
- Electric Drill (optional)
- #2 Phillips Screwdriver / Bit
- 3/8″ Hex Head Driver / Bit
- Flat-Bladed Screwdriver / Bit
- Needle Nose Pliers
- Utility Knife

PROCEDURE

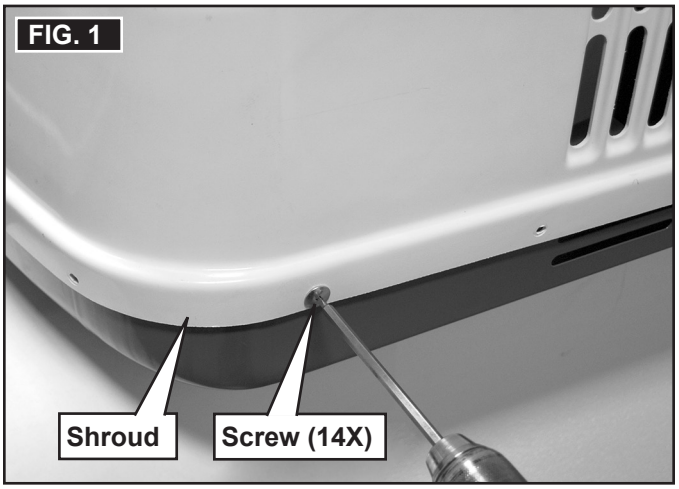
A. Unit Conversion

Before starting conversion, locate rating plate on bottom of unit and verify model number is 459146.XXX/59146.XXX.

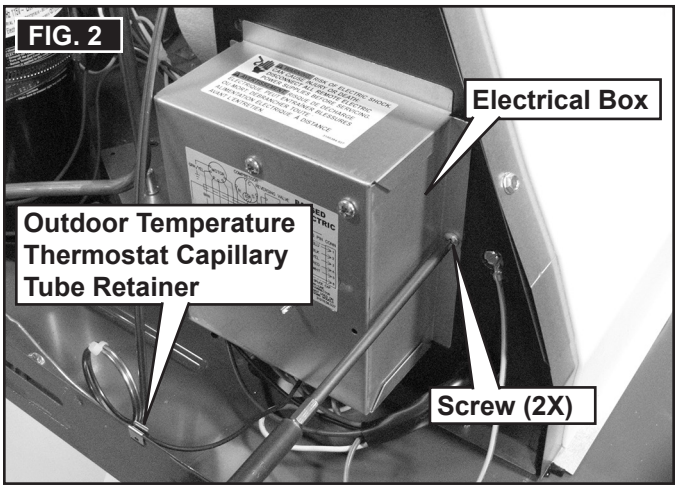
1. **⚠WARNING** ELECTRICAL SHOCK HAZARD. Disconnect 120 Vac power from RV. Failure to obey this warning could result in death or serious injury.

   NOTICE Disconnect the positive (+) 12 Vdc terminal from supply battery. Otherwise, damage to unit could occur.

2. Remove outside plastic shroud (with 14 screws). Save for reinstallation later. See (FIG. 1).



3. Remove electrical box (with 2 screws). Save for reinstallation later. See (FIG. 2).



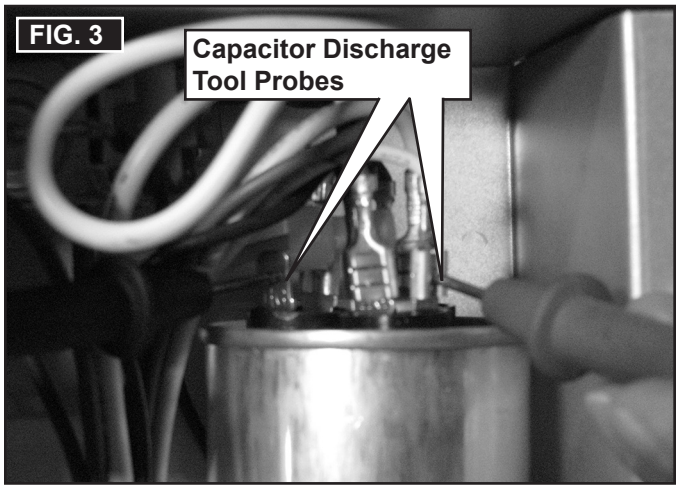
4. **⚠WARNING** ELECTRICAL SHOCK HAZARD. The capacitor(s) in this product may contain stored electrical energy. **ALWAYS** discharge a capacitor properly before working near it. **NEVER** use a screwdriver or similar object to discharge a capacitor. Failure to obey this warning could result in death or serious injury.

   Discharge capacitor using an appropriate capacitor discharge tool. Then **VERIFY** capacitor is discharged (using a volt-ohm meter). See (FIG. 3).

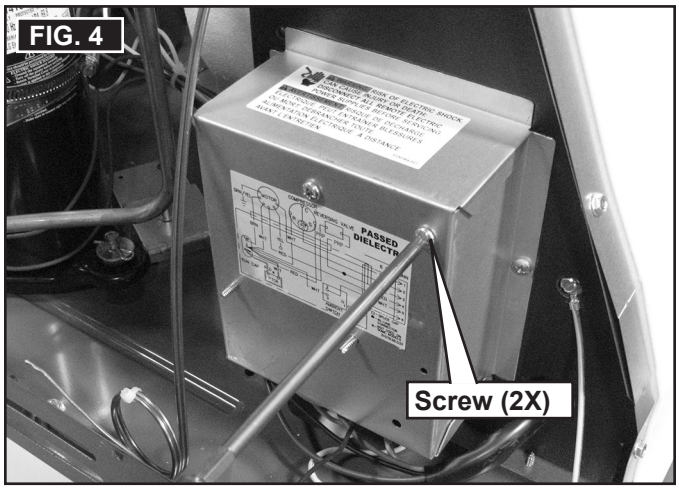
   Do **NOT** use a volt-ohm meter to discharge a capacitor. The high impedance of modern volt-ohm meters make them ineffective for discharging capacitors.

   Capacitors may have more than (2) terminals. Touch and hold capacitor discharge tool's probe to **ALL** terminals on each capacitor until fully discharged.

   Follow all instructions included with your volt-ohm meter and capacitor discharge tool.



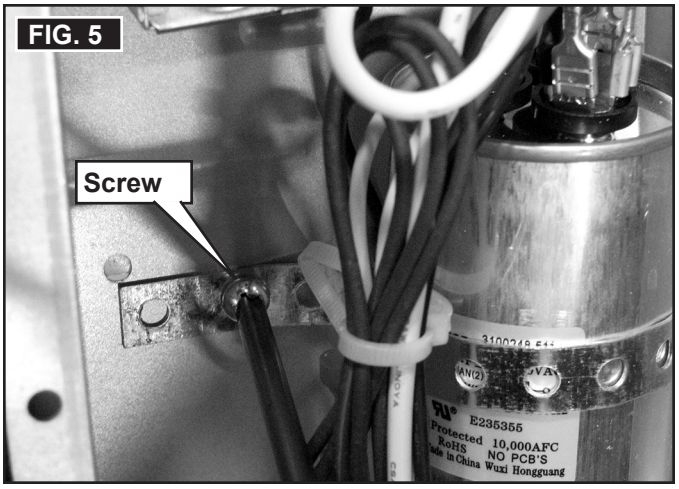
5. Remove and discard two screws securing the outside temperature thermostat to the electrical box. See (FIG. 4).



6. Remove screw to loosen capacitor retaining strap. Save for reinstallation later. See (FIG. 5).

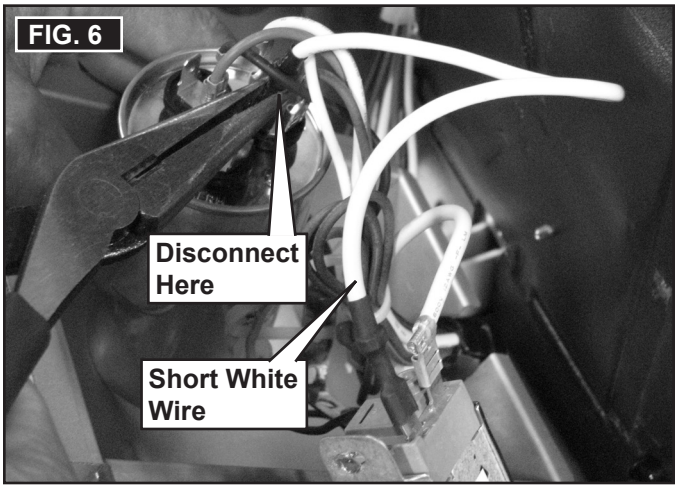
PROCEDURE

FIG. 5



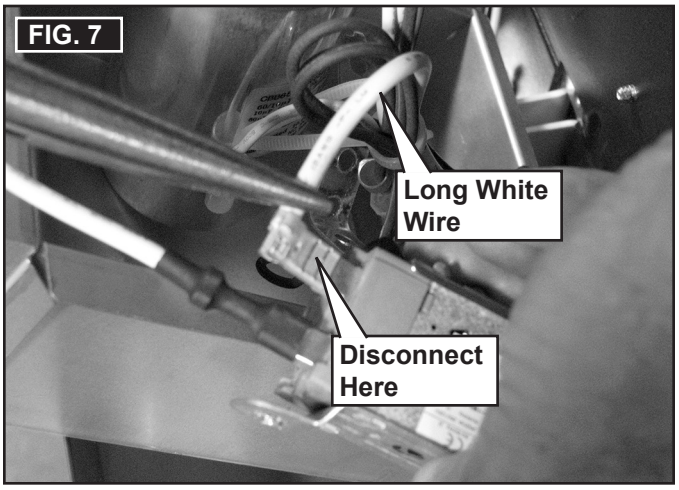
7. Disconnect the short white wire from the capacitor and outdoor temperature thermostat. See (FIG. 6).

FIG. 6



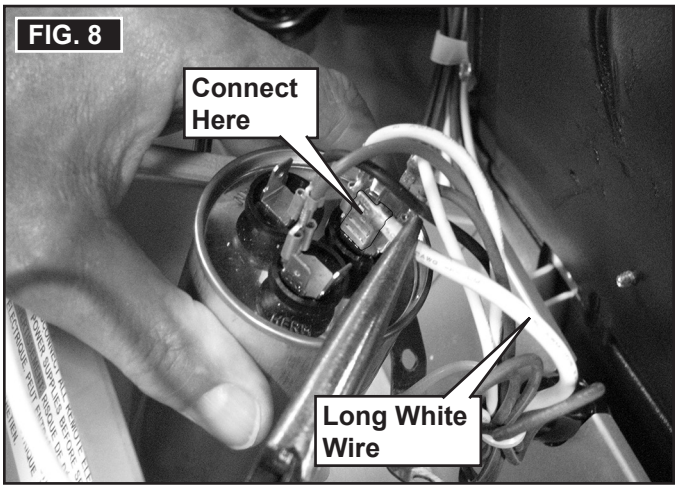
8. Disconnect the long white wire from the outdoor temperature thermostat. See (FIG. 7).

FIG. 7



9. Remove outdoor temperature thermostat capillary tube retainer and discard thermostat and short white wire. See (FIG. 2).
10. Connect the long white wire just removed in step 8 to the capacitor common terminal where short white wire was removed in step 7. See (FIG. 8).

FIG. 8



See (FIG. 25) before conversion wiring diagram & (FIG. 26) after conversion wiring diagram.

11. Resecure capacitor with retaining strap and screw.
12. Reinstall electrical box.

B. Electronic Control Box Exchange

1. **⚠ WARNING** ELECTRICAL SHOCK HAZARD. Verify 120 Vac power is disconnected from RV. Failure to obey this warning could result in death or serious injury.

   NOTICE Verify the positive (+) 12 Vdc terminal is disconnected from supply battery. Otherwise, damage to unit could occur.

2. Remove return air cover or air distribution box.
   a. Return Air Cover See (FIG. 9). Save for reinstallation later.
      - Remove two (2) hole plugs
      - Remove return air grille
      - Remove six (6) #8 x 3/8″ blunt point screws
   b. Air Distribution Box See (FIG. 10). Save for reinstallation later.
      - Remove hole plug
      - Remove return air grille
      - Remove three (3) #10 x 3/8″ screws

PROCEDURE

FIG. 9

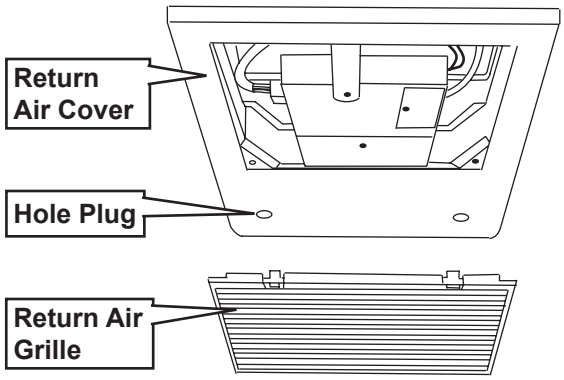
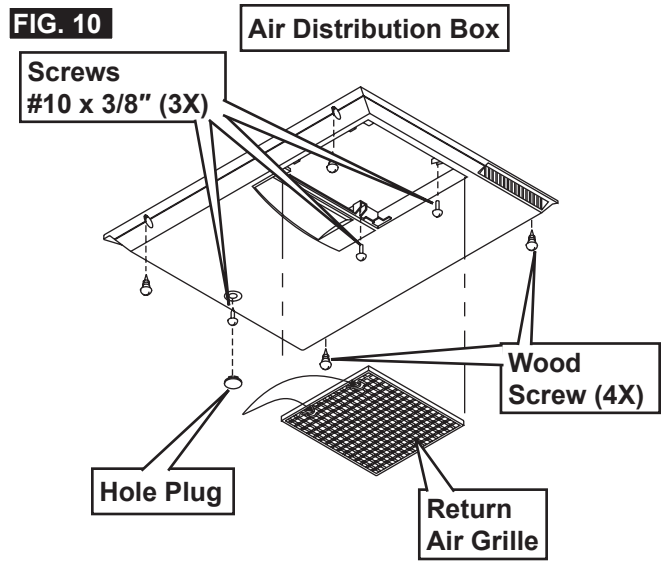


FIG. 10



3. Remove ceiling template (air distribution box application only) from ceiling. Save for reinstallation later. See (FIG. 11) & (FIG. 12).
   a. Remove four (4) mounting bolts.
   b. Remove six (6) wood screws that secure ceiling template to ceiling.

FIG. 11

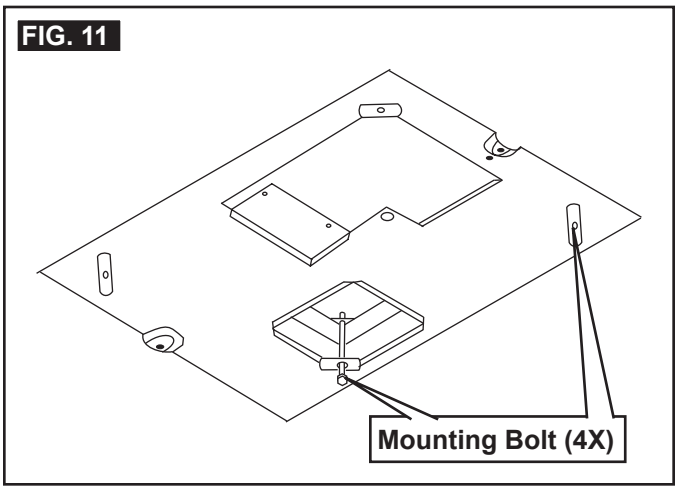
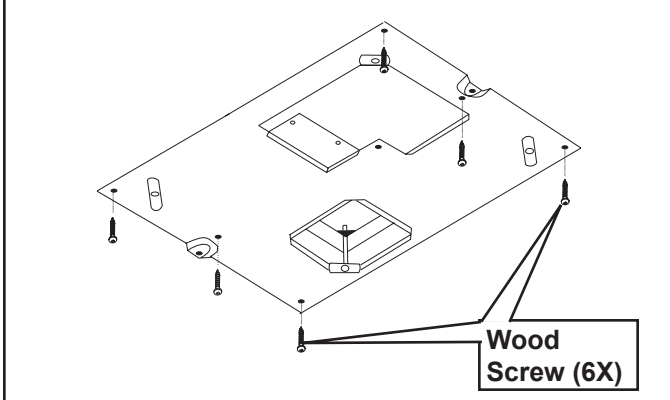


FIG. 12



4. Separate analog electronic control box from ceiling template. Remove two (2) #10 x 3/8″ screws and discard. See (FIG. 13) & (FIG. 14).

FIG. 13

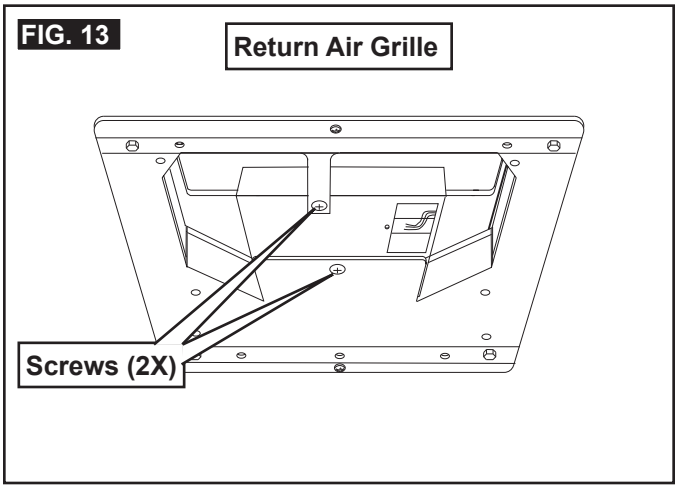
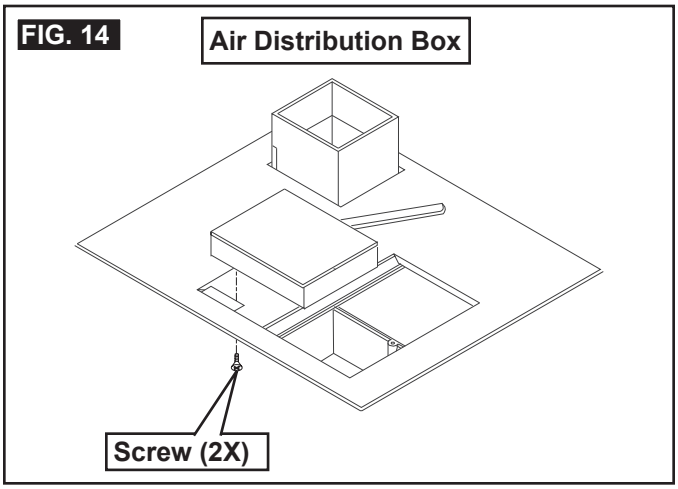


FIG. 14



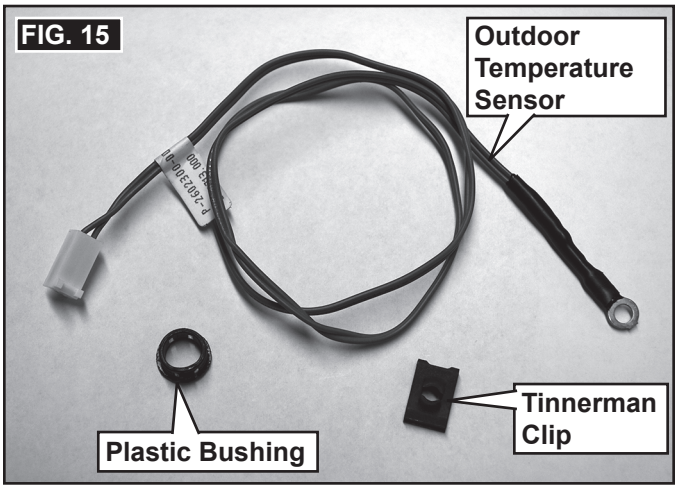
5. Disconnect the six pin plug, 120 Vac supply wires, 12 Vdc supply wires, seven wire thermostat cable, and furnace wires (if applicable) from analog electronic control box.

PROCEDURE

All wiring will be reconnected to the new LCD SZ electronic control box except for the seven wire thermostat cable, only three wires will be used.

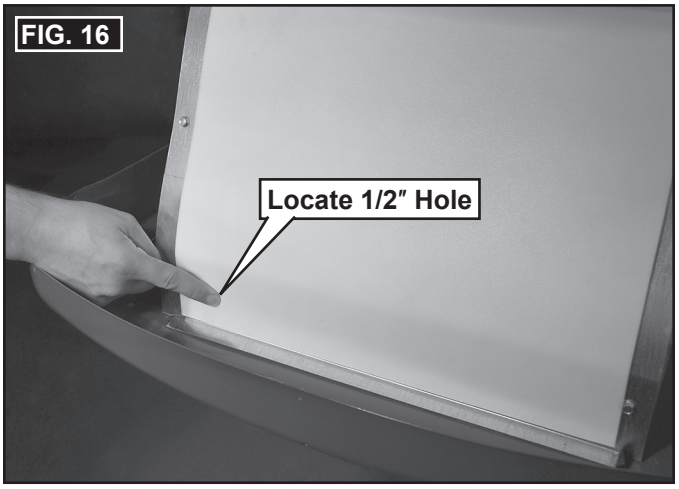
6. Install outdoor temperature sensor (FIG. 15).

FIG. 15



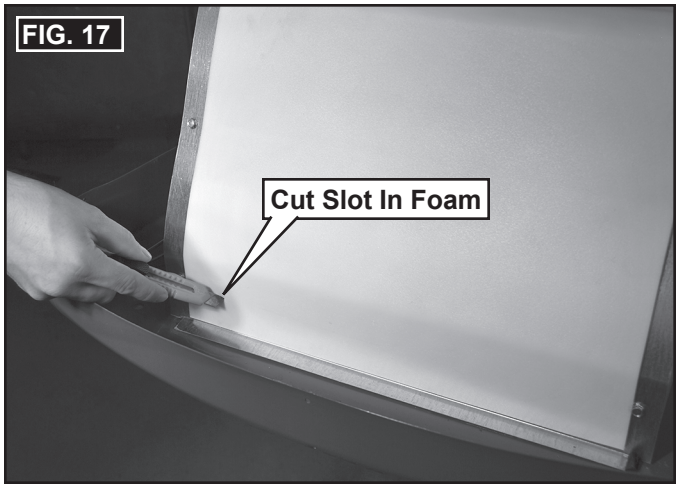
a. Locate 1/2″ hole in lower left hand side of evaporator cover. See (FIG. 16).

FIG. 16



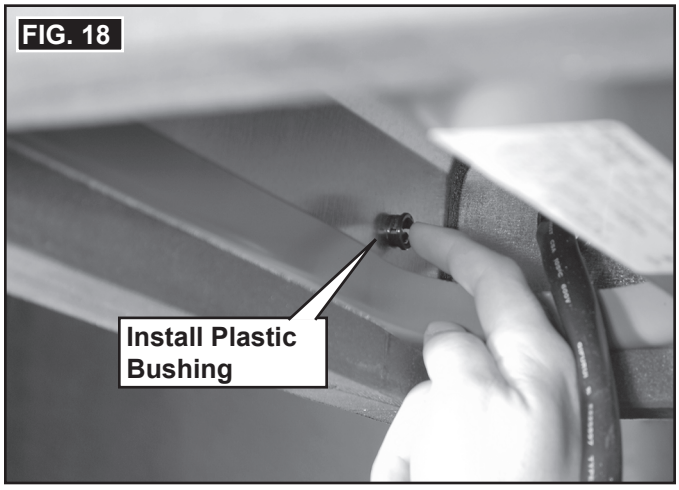
7. Using the hole opening as a guide, cut a slot in foam for outdoor temperature sensor to pass through. See (FIG. 17).

FIG. 17



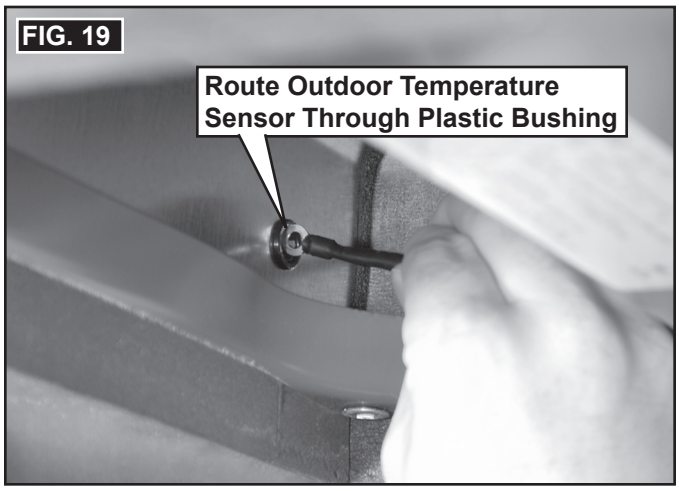
8. Install plastic bushing into the 1/2″ hole from backside of evaporator cover. See (FIG. 18).

FIG. 18



9. Leading with the sensor end of the outdoor temperature sensor route it through plastic bushing. See (FIG. 19).

FIG. 19



PROCEDURE

10. Attach tennerman clip and outdoor temperature sensor to base pan directly in front of the 1/2″ hole. See (FIG. 20). While holding the eye of the sensor tight against the bottom of the tinnerman clip, attach it to base pan. Eye must be fully seated under clip to secure properly. See (FIG. 21).

FIG. 20

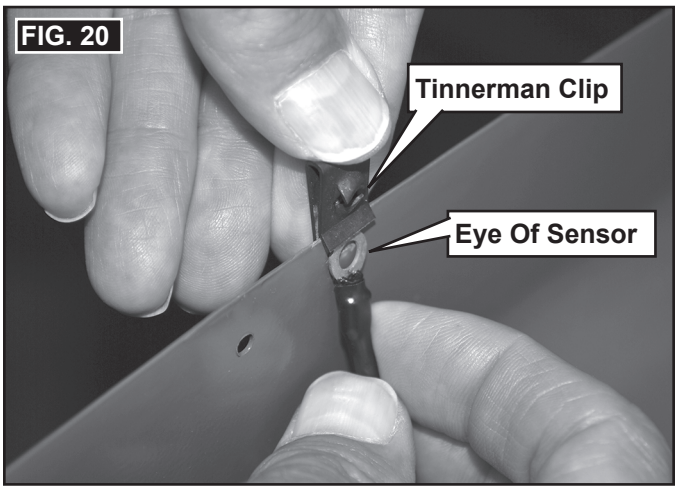
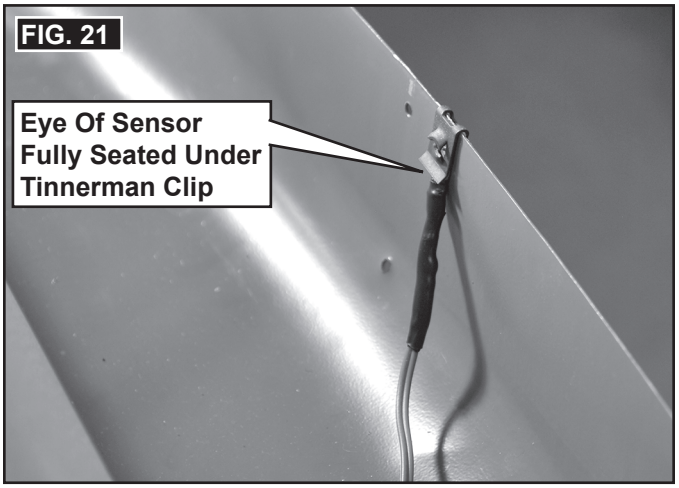
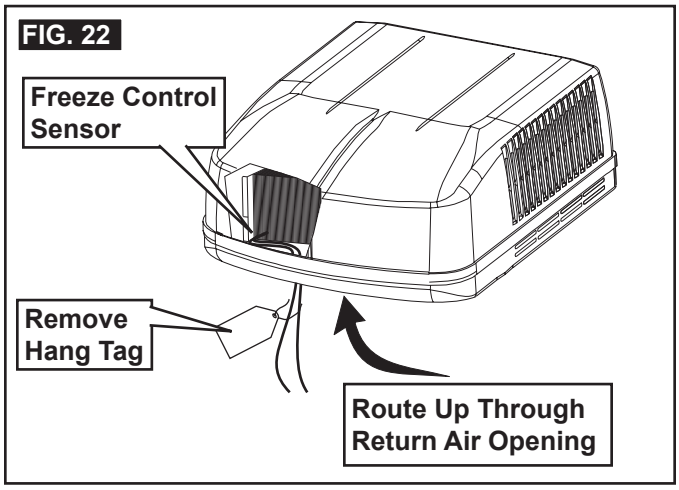


FIG. 21



11. Locate the new LCD SZ electronic control box.
12. Plug the freeze control sensor and the 4 wire harness into their matching connectors in the electronic control kit. These are supplied in the 3315557.XXX electronic control kit carton.
13. Plug the 6 pin connector from the unit into the mating connector in the electronic control box. The plug is polarized and will only fit in one direction.
14. Plug the previously installed outdoor temperature sensor into the white 2 pin matching connector in the electronic control box.
15. Remove junction box cover (with two screws) from electronic control box. Save for reinstallation later.
16. Insert the freeze control sensor into the evaporator coil fins approximately 1″ above the bottom coil fins and on the left side See (FIG. 22). Bend fins over sensor to secure in place.

FIG. 22



17. Route the 120 Vac supply wire through strain relief in electronic control kit. Tighten strain relief making sure not to damage wires. Leave enough wire inside junction box to connect to unit 120 Vac wires.
    a. Connect white to white; black to black; and green to green or bare copper wire using appropriate size wire connectors. Tape the connectors to the supply wire to ensure they don't vibrate loose.
    b. Reinstall junction box cover.
18. Connect the +12 Vdc supply wire to the red wire at the electronic control box.
19. Connect the –12 Vdc supply wire to both the black wire at the electronic control box and one wire in the seven wire cable that goes to the LCD SZ thermostat 12– terminal.

    Note color of wire so it can be matched up with the thermostat on the other end.

20. Connect the furnace thermostat wires (if applicable) to the 1/4″ connectors at the electronic control box using the supplied 1/4″ insulated connectors. The polarity of this connection does not matter.
21. Connect the red/white wire at the electronic control box to one wire in the seven wire cable that goes to the LCD SZ thermostat 12V+ terminal.

    Note color of wire so it can be matched up with the thermostat on the other end.

22. Connect the orange wire at the electronic control box to one wire in the seven wire cable that goes to the LCD SZ thermostat COMMS terminal.

Note color of wire so it can be matched up with the thermostat on the other end.

The remaining wires in the seven wire cable will **NOT** be used. Terminate as needed.

23. Install LCD SZ electronic control box on ceiling template using supplied two (2) #6 x 3/8**″** blunt point Phillips head screws. See (FIG. 13) & (FIG. 14).
24. Reinstall ceiling template (air distribution box application only) to ceiling. See (FIG. 11) & (FIG. 12).

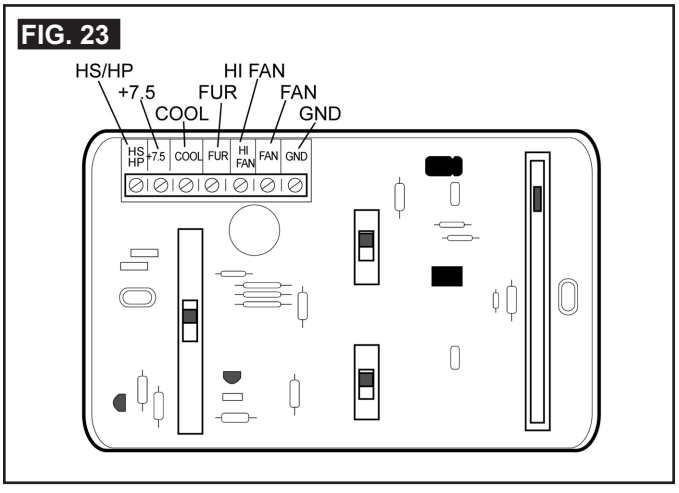
    NOTICE Tighten mounting bolts to correct torque specifications. Overtightening could damage unit's base pan or ceiling template. Not enough torque will allow an inadequate roof seal, and could cause a leak.

    Tighten all four (4) mounting bolts **EVENLY** within 40 to 50 inch pounds.
25. Reinstall return air cover or air distribution box. See (FIG. 9) or (FIG. 10).
26. Reinstall outside plastic shroud. See (FIG. 1).

C. Thermostat Exchange

1. Remove analog thermostat from wall.
   a. Remove cover by starting at one corner and gently lifting it from the base. Discard cover.
   b. Disconnect the seven wire cable from thermostat terminals. See (FIG. 23).

FIG. 23



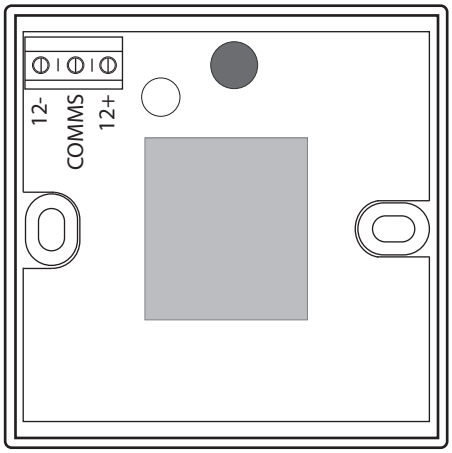
   c. Remove thermostat (with 2 screws) and discard.
2. Install LCD SZ thermostat on wall.
   a. Remove the cover from the LCD SZ thermostat. Depress tab on bottom of thermostat and separate it from the base.

Identify the three wires that were connected to the electronic control box in steps B19, B21 and B22.

The remaining wires in the seven wire cable will **NOT** be used. Terminate as needed.

   b. Route the three identified wires through the hole in the base assembly.
   c. Mount the thermostat level on the wall using the screws provided.
   d. Make the following connections to the thermostat. See (FIG. 24).

FIG. 24



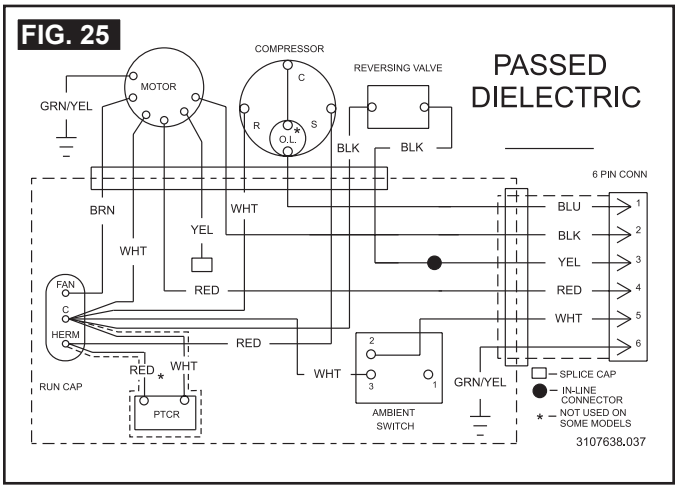
   - Connect the red/white wire to the 12V+ terminal
   - Black wire to the 12V– terminal
   - Orange wire to the "COMMS" terminal

   e. Inspect all connections to make sure they are tight and not touching any other terminals or wires.
   f. Push the wires back through the base into the wall. Place cover on the thermostat and push until an audible click is heard.
3. The conversion is now complete. Reconnect the 120 Vac and 12 Vdc power supplies. Refer to the LCD SZ thermostat operating instructions and check operation.

WIRING DIAGRAMS

A. Unit Wiring Diagram (Before Conversion)

FIG. 25



B. Unit Wiring Diagram (After Conversion)

FIG. 26