SUPPLEMENTAL INSTRUCTIONS

CMH-41 Low Ambient Control and Outdoor Thermostat Kit

The CMH-41 is a field-installable low ambient control (LAC) and outdoor thermostat to be used with a Bard wall-mounted heat pump.

The CMH-41 kit consists of:

- 7960-944A Supplemental Instructions
- 910-2112 Relay and Outdoor Thermostat Assembly
- 8408-048 Freeze Protect Thermostat
- 8406-105 Low Ambient Fan Cycling Switch
- Required fasteners
- 3/8" Vinyl-Covered Clamp
- 3/4" Open Bushing

The CMH-41 kit is for use with Bard models C36HY, C42HY, C48HY and C60HY wall-mount heat pumps.

Field-supplied tools needed:

- Appropriate personal protection equipment, including gloves and safety glasses
- 5/16" nut driver
- 7/16" wrench (service port) and 9/16" wrench (LAC control)
- T20 Torx screwdriver

Outdoor Thermostat Operation

Heat pump compressor operation at outdoor temperatures below 0° is neither desirable nor advantageous in terms of efficiency. An outdoor thermostat can be applied to take the mechanical heating (compressor) offline, and send the (compressor) signal to energize electric heat in its place (to make electric heat first stage heating). This can also be applied to limit the quantity of available electric heat. ***Example:*** *Heat pump with 10KW second stage heat. Once the outdoor thermostat has switched, 15KW without compressor.*

⚠ WARNING

Electrical shock hazard.

Disconnect the remote electric power supply or supplies before servicing.

Failure to do so can result in serious injury or death.

⚠ WARNING

Exposed moving parts.

Disconnect all electrical power before servicing.

Failure to do so can result in severe injury or amputation.

⚠ CAUTION

Sharp metallic edges.

Take care and wear appropriate protective devices to avoid accidental contact with sharp edges.

Failure to do so can result in personal injury.

Bard® SINCE 1914
Climate Control Solutions

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Installation

1. Disconnect all power to wall-mount unit.
2. Remove outer and inner control panel covers.
3. Remove right side condenser inlet grille.
4. Remove all three front service panels.
5. Install the LAC switch; a service port is located on the refrigerant liquid line just above the liquid line filter drier (mounted to the outdoor fan shroud). This port is intended for the application of 8406-105 low ambient fan cycling switch (see Figure 1). Remove the service cap from this service port and quickly thread the low ambient fan cycling switch onto this port. Once snug, use two wrenches to tighten the switch an additional 1/4 turn (one to hold the service port and one on the switch). Use soap bubbles to confirm the seal is completely tight on this connection.
6. Route low ambient control wires up through the bushing in the bottom of the control panel (see Figure 1). Replace sealing compound after routing wires through the bushing.
7. Install freeze protect thermostat to the evaporator coil as shown in Figure 2 on page 4. Route the wires down through the bushings in the blower partition and filter partition beside the filters and into the control panel.
8. Mount 910-2112 relay assembly to unit control panel as shown in Figure 3 on page 5. Use Torx head screws included with kit to attach relay to control panel.
9. Remove cover from vertical gray cable duct on control panel to allow wire harness from installed relay to route into it (see Figure 3).

NOTE: *The unit wiring diagram (included with unit literature assembly and also located on inner control panel cover) can be used to wire this kit. However, the following instructions listed here provide the necessary connections point-by-point.*

10. Locate the wire that is on the Y terminal of the defrost logic control board. This wire will either be yellow/white or yellow/black depending on the unit model. Remove from its original position and connect it to the freeze protect thermostat. Connect the other end of freeze protect thermostat to the yellow/white wire from the 910-2112 relay.
11. Locate the orange/black wire from the 910-2112 relay and connect it to the Y terminal on the defrost logic board.
12. Locate black/white wire from relay assembly and route through cable duct to defrost control logic board. Connect the wire to the C terminal. If the heat pump is a dehum unit, remove the black/white wire already connected to C terminal and stack it back onto the black/white wire from the relay assembly.
13. Locate blue wire from relay assembly and route through cable duct to defrost control logic board. Before connecting this blue wire to B terminal, remove blue wire already connected to the terminal. Next, stack the removed wire back onto the blue wire from the relay assembly.
14. Connect the low ambient control wires to terminals 1 and 3 on the 902-2112 relay.
15. Locate brown wire from relay assembly and route through cable duct to defrost control logic board. Before connecting this brown wire to W2 terminal, remove brown wire already connected to the terminal. Next, stack the removed wire back onto the brown wire from the relay assembly.
16. Route orange/black, yellow/brown and brown wires up the cable duct in the control panel. After removing the permagum from around the blower motor wires, route the wires into the blower compartment and replace the permagum around all the wires (see Figure 3).
17. Locate the outdoor thermostat provided in kit along with two (2) Torx head screws. Use the two screws to attach the outdoor thermostat onto the side of the control panel adjacent to the indoor blower in the blower compartment (see Figure 4 on page 6).
18. Blow Thru Units: Carefully route outdoor thermostat bulb down through the control panel and condenser partition with the compressor and other wires that are currently there. Referring to Figure 4, attach the outdoor thermostat bulb to the fan shroud using the 3/8" vinyl-covered clamp and hex head screw included with the kit. Be sure to dress the capillary tube so as to not have any tube or other rubs. Use the cable ties included with kit to secure the capillary tube out of the way as needed.

    Draw Thru Units: Carefully route outdoor thermostat bulb down through the control panel and condenser partition to the front of the condenser coil. Use the 3/4" bushing (included) in the condenser partition. Reference Figure 5 on page 7.
19. Connect the orange/black wire to outdoor thermostat terminal 1, the yellow/brown wire to terminal 2 and the brown wire to terminal 3.
20. Verify outdoor thermostat setpoint. Factory default is 10°F.
21. Apply “This unit is equipped with CMH-41 control module” label to the inside of the inner control panel cover above the unit wiring diagram.
22. Re-install all three front service panels.
23. Re-install right side condenser inlet grille.
24. Re-install electrical cable duct cover.
25. Re-install inner and outer control panel covers.
26. Restore unit power.

FIGURE 1
Low Ambient Control Location

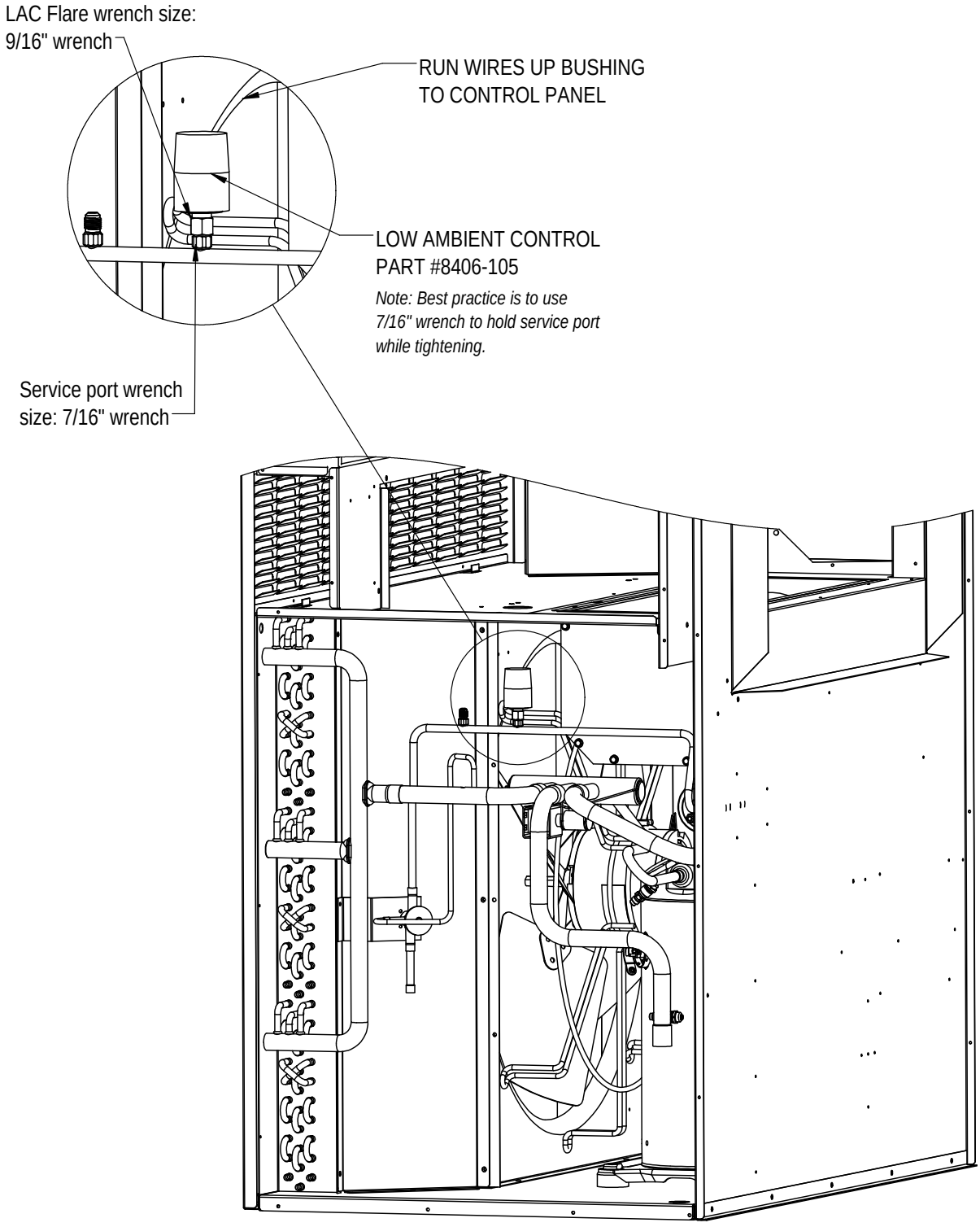

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FIGURE 2
Freeze Protection Thermostat Location and Wire Routing

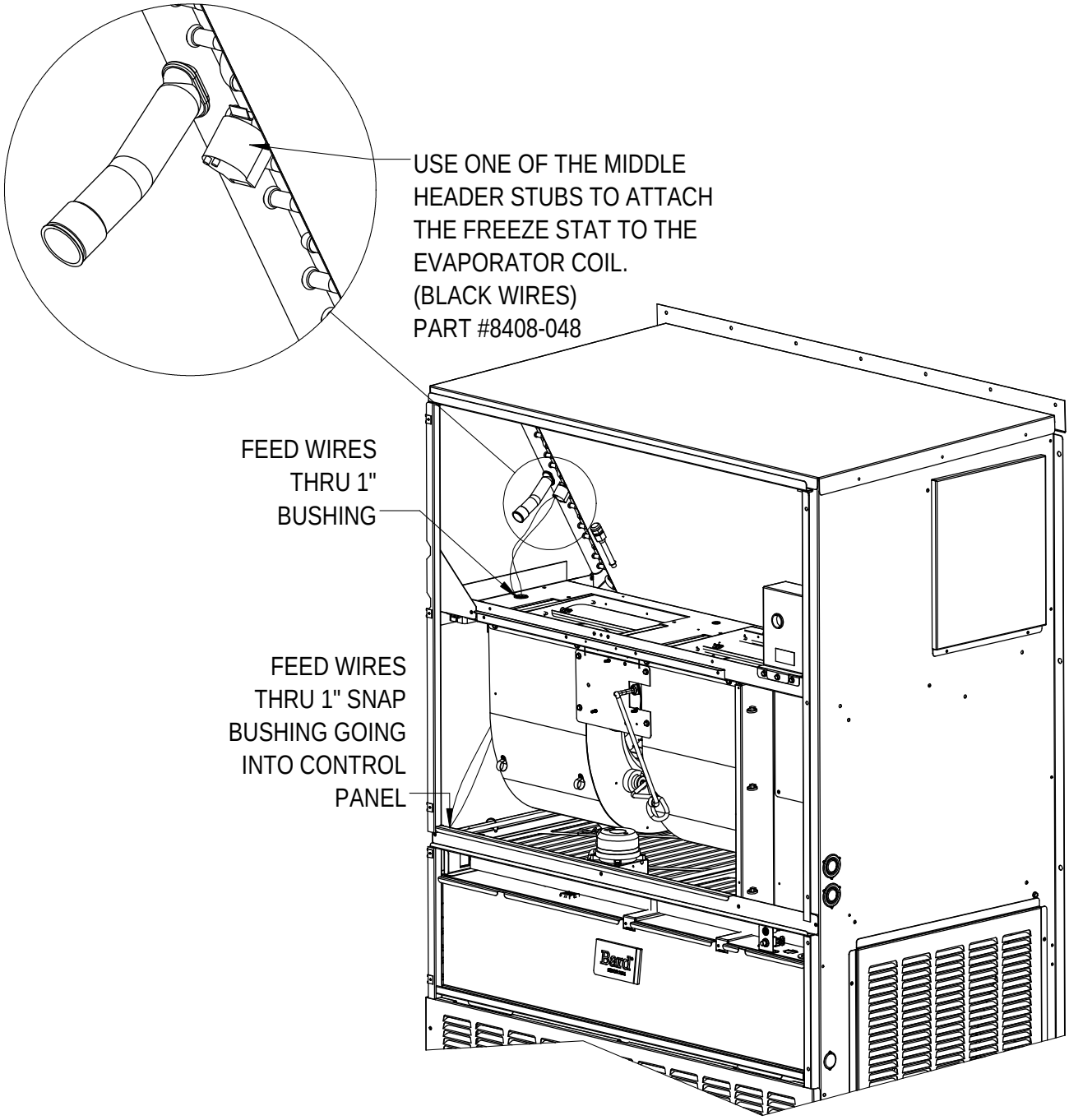

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FIGURE 3
Unit Control Panel

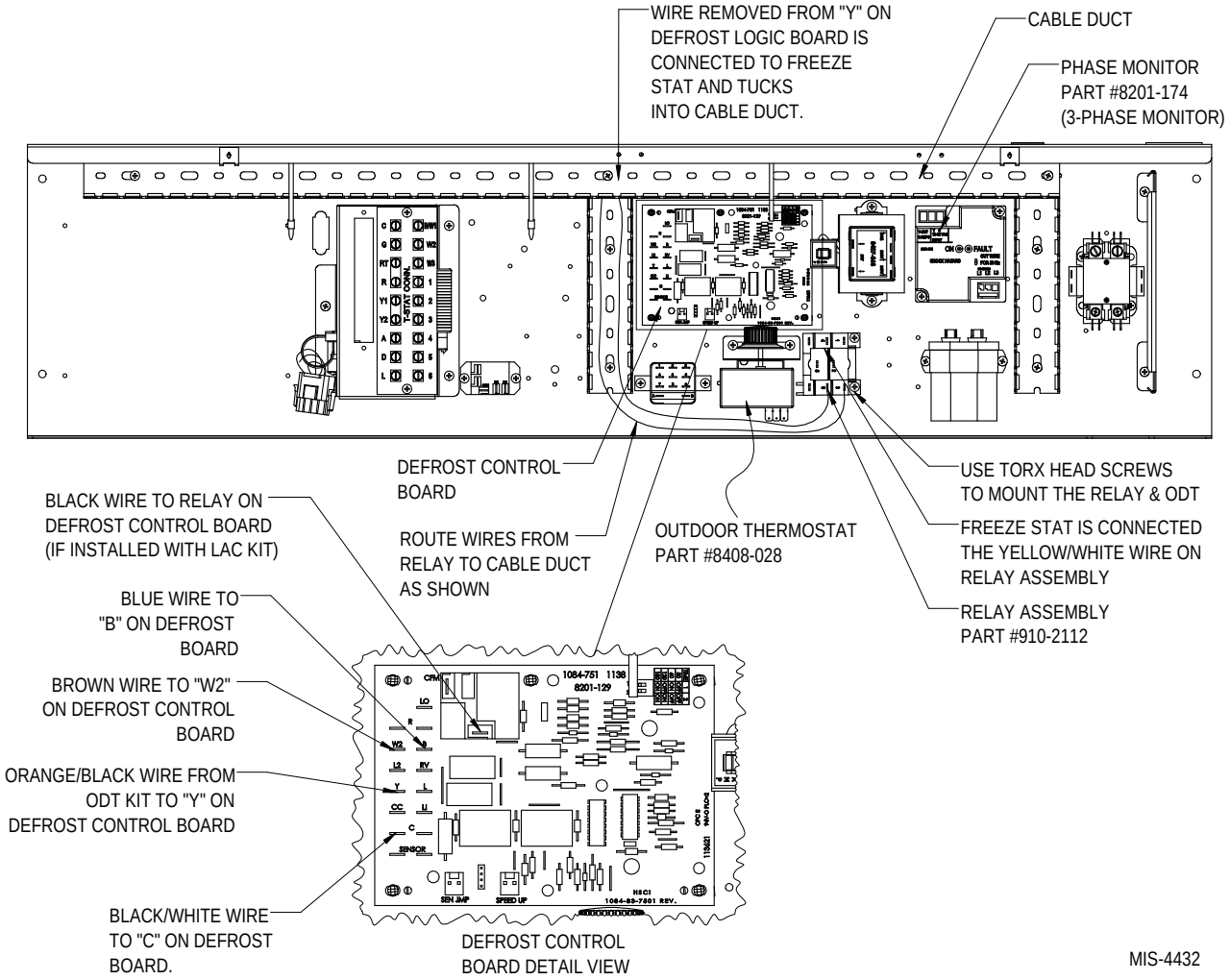

FIGURE 4
Blow Thru Unit Sensing Bulb Routing and Location

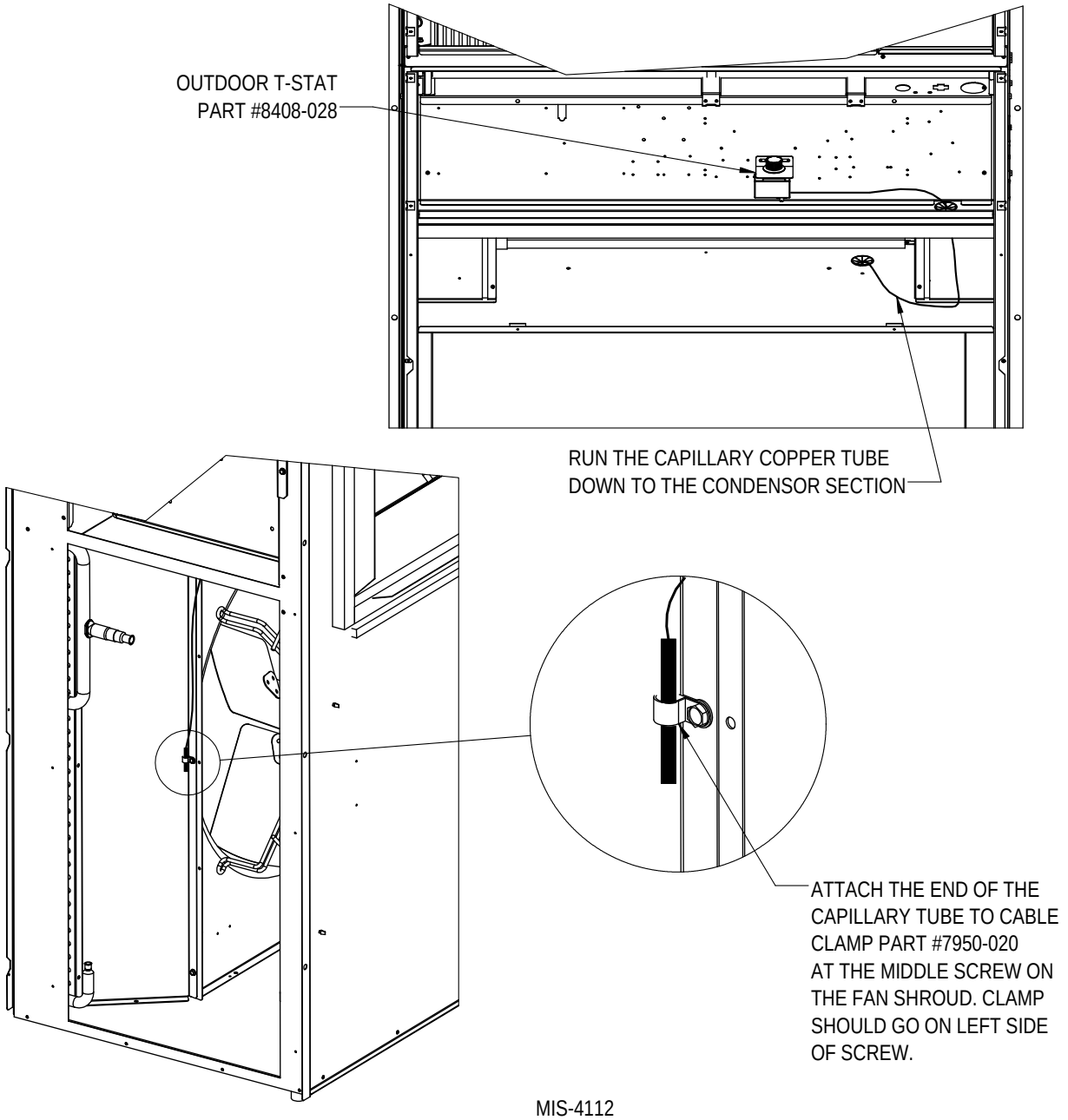

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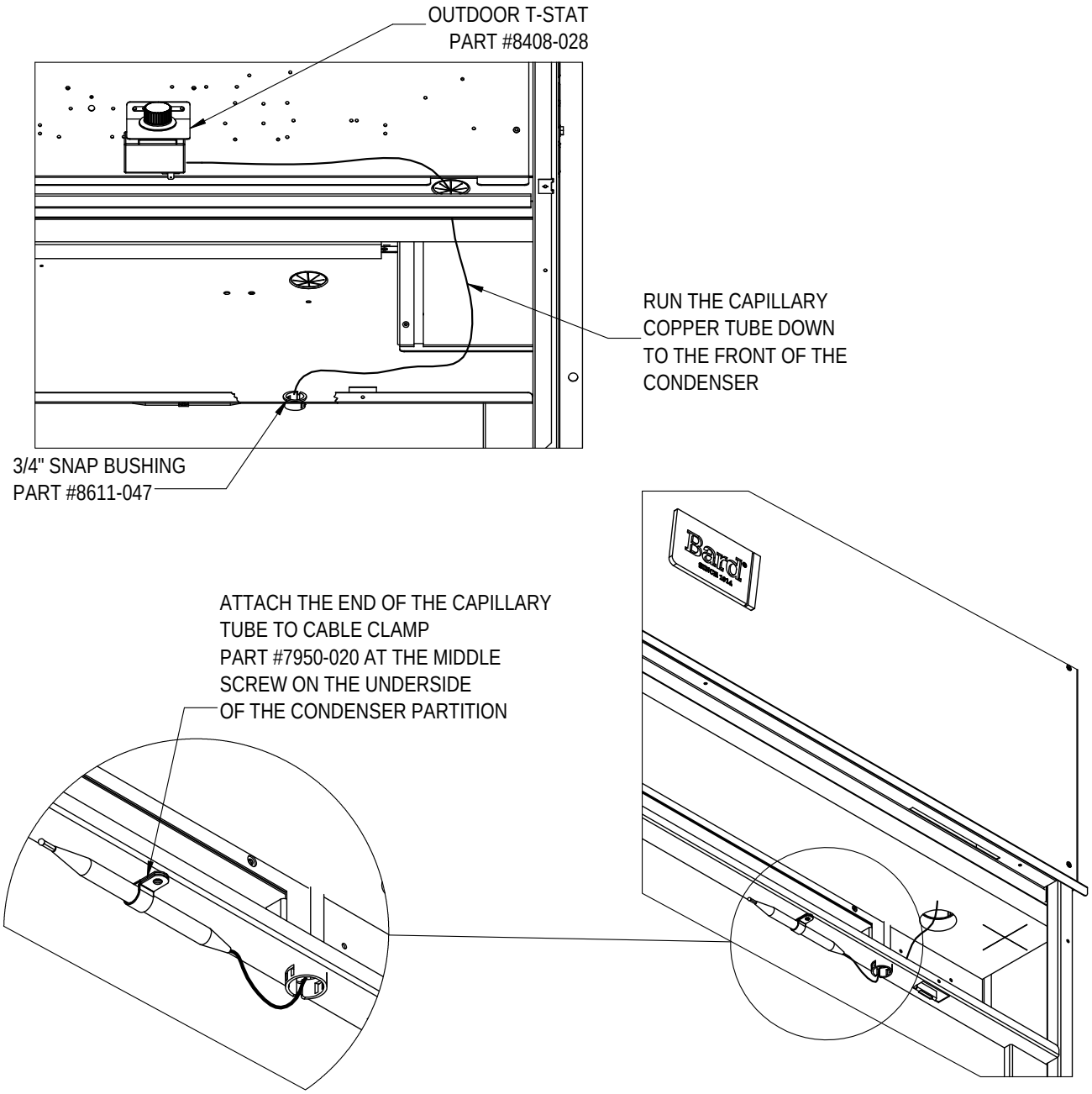
FIGURE 5
Draw Thru Unit Sensing Bulb Routing and Location



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