
SUPPLEMENTAL INSTRUCTIONS

CMH-39 Low Ambient Control and Outdoor Thermostat Kit

The CMH-39 is a field-installable low ambient control (LAC) and outdoor thermostat to be used with a Bard wall-mounted heat pump.

The CMH-39 kit consists of:

- 7960-881 Supplemental Instructions
- 910-2112 Relay and Outdoor Thermostat Assembly
- 8408-048 Freeze Protect Thermostat
- 910-2058 Outdoor Temperature Switch Assembly
- 8406-105 Low Ambient Fan Cycling Switch
- Required fasteners
- 3/8" Vinyl-Covered Clamps

The CMH-39 kit is for use with Bard models W42HC, W48HC and W60HC wall-mount heat pumps.

Field-supplied tools needed:

- Appropriate personal protection equipment, including gloves and safety glasses
- 5/16" nut driver
- 1/2" 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

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.



Climate Control Solutions

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Manual: 7960-881
Supersedes: **NEW**
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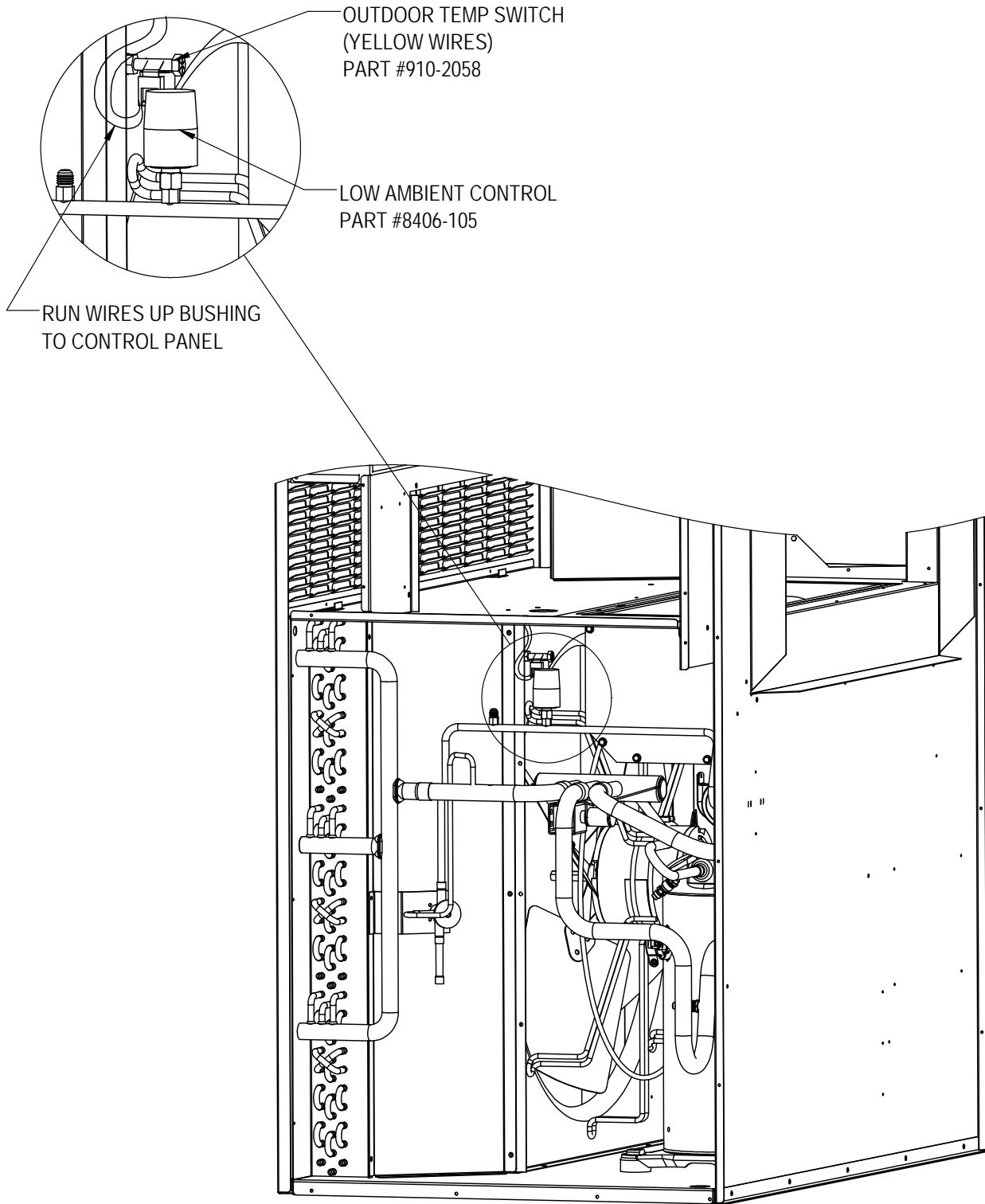
electric heat. **Example:** Heat pump with 10KW second stage heat. Once the outdoor thermostat has switched, 15KW without compressor.

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 on page 4). 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. Install outdoor temperature switch assembly to the fan shroud as shown in Figure 1. This switch defeats Balanced Climate™ airflow when the temperature falls below 50°F to help prevent evaporator freeze up. Refer to the unit installation manual for more information on Balanced Climate operation.
 7. Route low ambient control and outdoor temperature switch wires up through the bushing in the bottom of the control panel (see Figure 1). Replace sealing compound after routing wires through the bushing.
 8. Install freeze protect thermostat to the evaporator coil as shown in Figure 2 on page 5. Route the wires down through the bushings in the blower partition and filter partition beside the filters and into the control panel.
 9. Mount 910-2112 relay assembly to unit control panel as shown in Figure 3 on page 6. Use Torx head screws included with kit to attach relay to control panel.
 10. 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.
11. Find the purple and yellow/white wires not connected to anything that are tucked in the cable duct. Pull them out and connect them to each end of the outdoor temp switch wires. Refer the unit wiring diagram.
 12. 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.
 13. Locate the orange/black wire from the 910-2112 relay and connect it to the Y terminal on the defrost logic board.
 14. 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.
 15. Locate blue wire from relay assembly and route through cable duct to defrost control logic board. Connect to B terminal. Remove blue wire already connected to B terminal and stack it back onto the blue wire from the relay assembly.
 16. Connect the low ambient control wires to terminals 1 and 3 on the 902-2112 relay.
 17. Locate brown wire from relay assembly and route through cable duct to defrost control logic board. Connect to W2 terminal. Remove brown wire already connected to W2 terminal and stack it back onto the brown wire from the relay assembly.
 18. 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).
 19. 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 7).
 20. Carefully unroll the capillary tube and sensing bulb of the outdoor thermostat and route it into the condenser section through the tubing grommet in the condenser partition. Secure the capillary tubing to the insulated suction line with the supplied cable tie.
 21. Continue routing the outdoor thermostat bulb within the condenser section as shown in Figure 4. Secure the bulb as per the drawing using the vinyl-covered clamps and hex head screws included in the kit. Dress the capillary tube to ensure no tube-rubs occur and secure with supplied cable ties in both the condenser and ventilation sections.

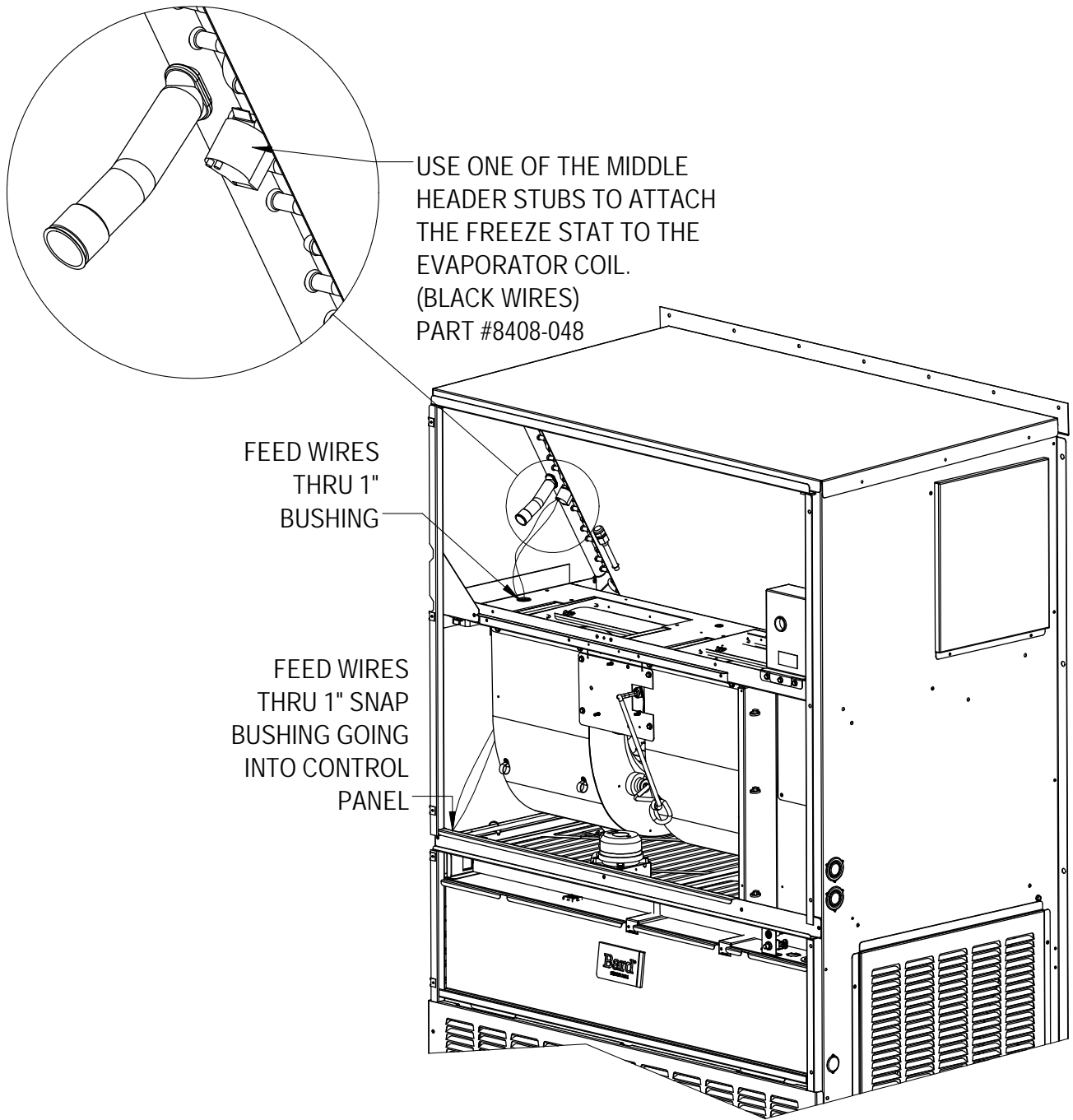
22. Connect the orange/black wire to outdoor thermostat terminal 1, the yellow/brown wire to terminal 2 and the brown wire to terminal 3.
23. Verify outdoor thermostat setpoint. Factory default is 10°F.
24. Apply “This unit is equipped with CMH-39 control module” label to the inside of the inner control panel cover above the unit wiring diagram.
25. Re-install all three front service panels.
26. Re-install right side condenser inlet grille.
27. Re-install electrical cable duct cover.
28. Re-install inner and outer control panel covers.
29. Restore unit power.

FIGURE 1
Low Ambient Control and Outdoor Temp Switch Locations



MIS-4110

FIGURE 2
Freeze Protection Thermostat Location and Wire Routing



MIS-4058

FIGURE 3
Unit Control Panel

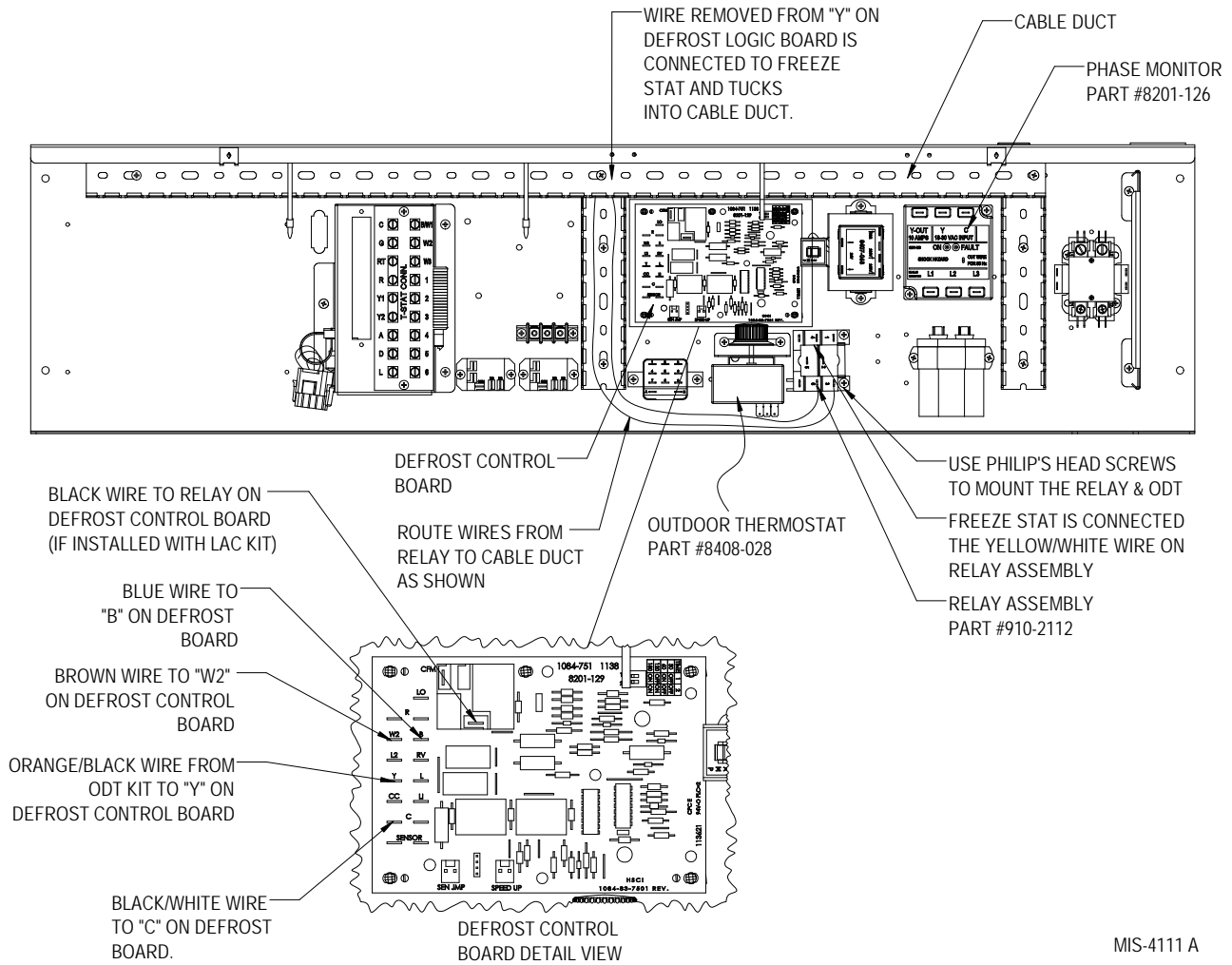
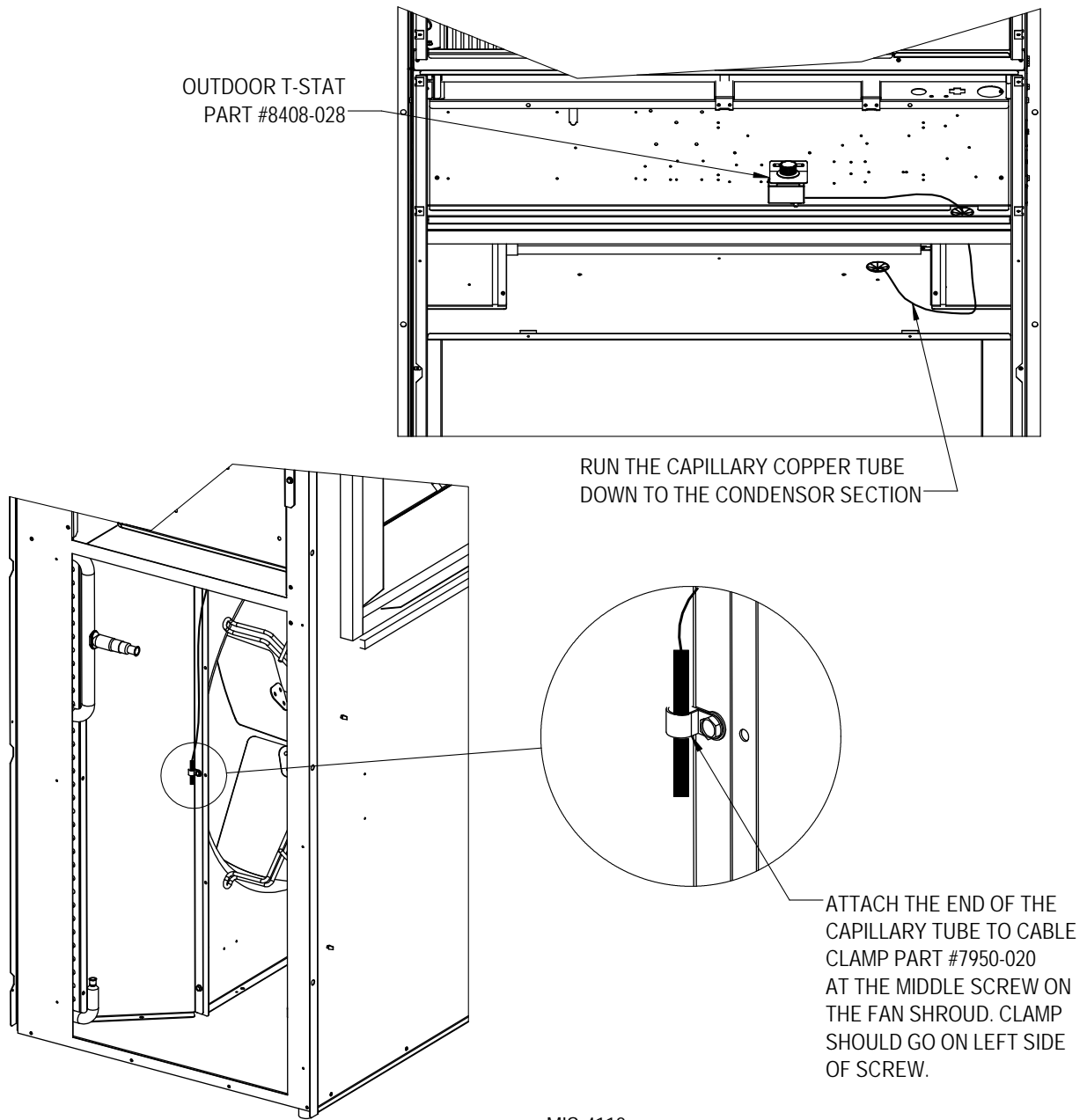


FIGURE 4
Sensing Bulb Routing and Location



MIS-4112