Bard Manufacturing Company, Inc.
Bryan, Ohio 43506

INSTALLATION INSTRUCTIONS
CMH-14A
OUTDOOR THERMOSTAT KIT

DESCRIPTION

The CMH-14A is a field installable outdoor thermostat kit suitable for use as either a compressor cutoff thermostat, or electric heat hold-off thermostat (differences explained below). The 0°- 50°F set point of either type of outdoor thermostat application is variable with geographic region and sizing of the heating equipment to the individual structure. Utilization of the heating Application Data, and the heat loss calculation of the building are useful in determining the correct set points.

Optional Compressor Cutoff Thermostat (See Figure 1) – Heat pump compressor operation at outdoor temperatures below 0° are neither desirable nor advantageous in terms of efficiency. An outdoor thermostat can be applied to take the mechanical heating (compressor) off line, 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.) The additional LAB (Low Ambient Bypass) relay is required to prevent feedback in cooling at low ambient conditions.

Electric Heat Hold-Off (See Figure 2) – In other applications, it is desirable to disable the operation of the electric heat until outdoor temperatures have reached a certain design point. This won't allow the electric heat to come on as second stage heating unless the outdoor temperature is below the set point of the outdoor thermostat. This is done to maximize efficiency by utilizing the heat pump to bring the conditioned space temperature up rather than cycling on the electric heat due a second stage call for heat from the thermostat on start-up coming off a night set-back condition or someone increasing the thermostat set point. (NOTE: Some programmable thermostats do have a built-in time delay for pulling in second stage heat when coming off set-back conditions.)

The Relay Assembly is not needed if used for electric heat hold off.

The CMH-14A consists of:

1. Outdoor thermostat 910-1644
2. Installation Instructions 7960-246
3. CMH-14A unit label 7961-312-0207
4. LAB Relay 910-1645 (8201-086)

For use with all WH18 – WH60 Wall Mount Heat Pumps.

INSTALLATION INSTRUCTIONS

Disconnect all power to unit. Remove control panel inner and outer covers, and right side condenser inlet grille and front service access panel. Circled numbers on Figures 3 - 5 correspond to installation instruction steps.

Step 1. Mount outdoor thermostat 910-1644 in position shown in Figure 5, Step 1 to side of control panel with screws provided.

Step 2. Mount relay assembly 910-1645 in position shown in Figure 3 (smaller cabinet) or 4 (larger cabinet) to control panel with the screws provided.

Step 3. Route wires through bushing in side of control panel into the low voltage terminal strip area. See Figure 5.

Step 4. Route thermostat bulb through bushing in condenser partition and mount to the fan shroud with the clamps and screws provided. See Figure 5.

Step 5. Remove the blue wire from terminal B of the heat pump control and reconnect to the coil terminal of relay 8201-086.

Step 6. Connect the blue wire from relay 8201-086 to B terminal of the heat pump control.

Step 7. Connect the brown wire from relay 8201-086 to C terminal of the compressor contactor coil. This is the side of the contactor coil that the black wire is attached to.

Step 8. Remove factory jumper (bus bar) from Y to Y1. Connect wires to the low voltage terminal strip as shown in Figure 3 or 4. See Wiring Diagrams - Figure 1.

Step 9. Run the Yellow/Brown and Yellow wires from the ODT to the LAC/ODT relay and connect as per Figure 3 or 4.

Step 10. Recheck wiring. Refer to Figure 1. Set thermostat to the desired cutout temperature for the compressor cut-off.

Step 11. Replace all panels and covers. This completes installation.

INSTALLATION FOR USE AS ELECTRIC HEAT HOLD OFF

Step 1. Same as Step 1 above.

Step 2. Wire per Figure 2.

Step 3. Same as Step 4 above.

Step 4. Same as Step 10 above.

Step 5. Same as Step 11 above.

FIGURE 1
COMPRESSOR CUTOFF WIRING

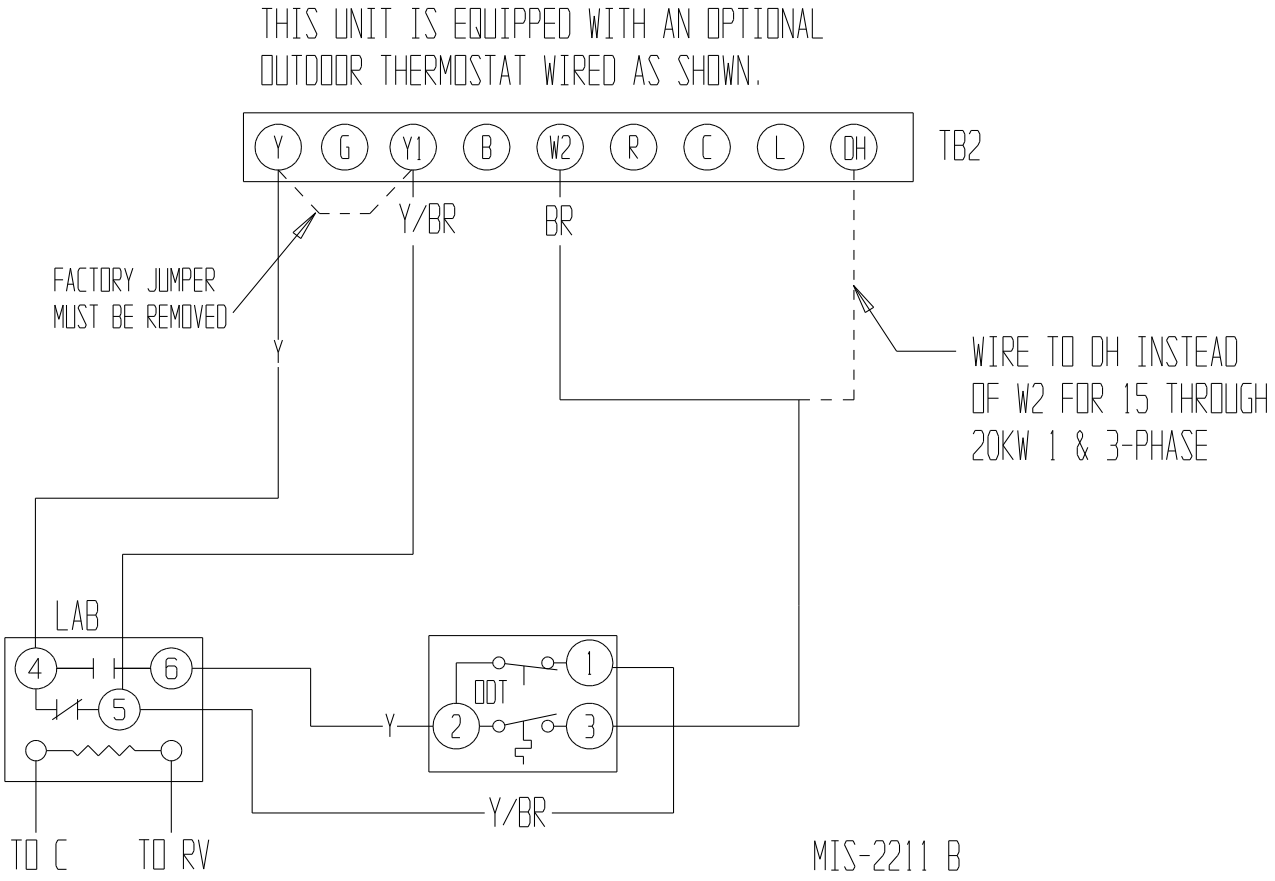
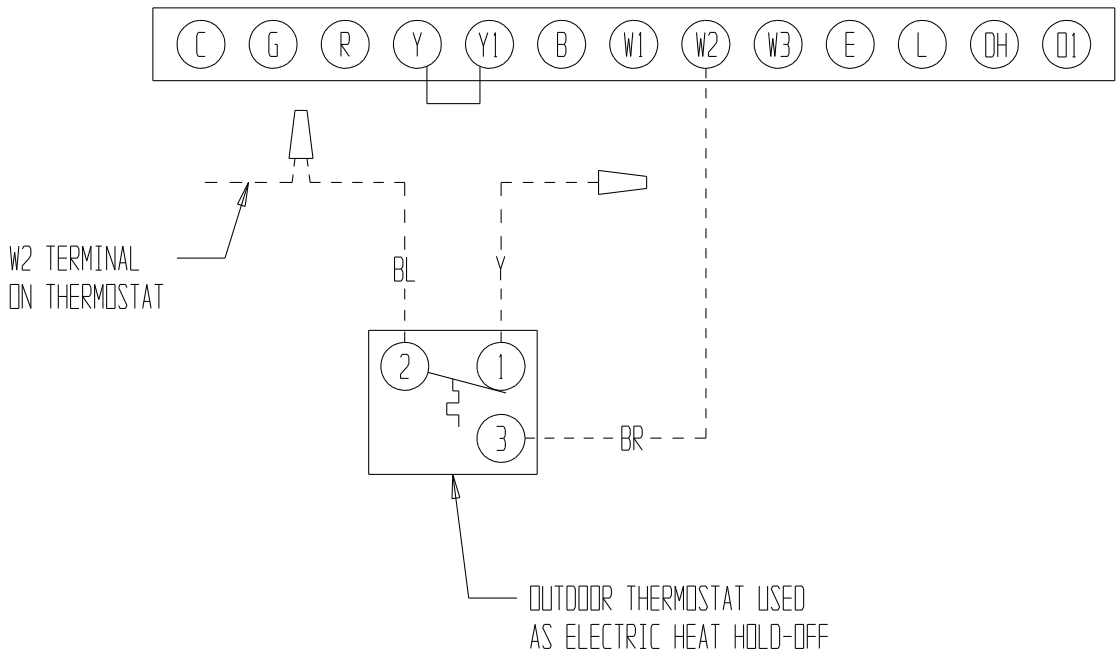


FIGURE 2
ELECTRIC HEAT HOLD-OFF THERMOSTAT WIRING

4 - 10 KW 1 Phase — 6 & 9 KW 3 Phase



15 - 20 KW 1 & 3 Phase

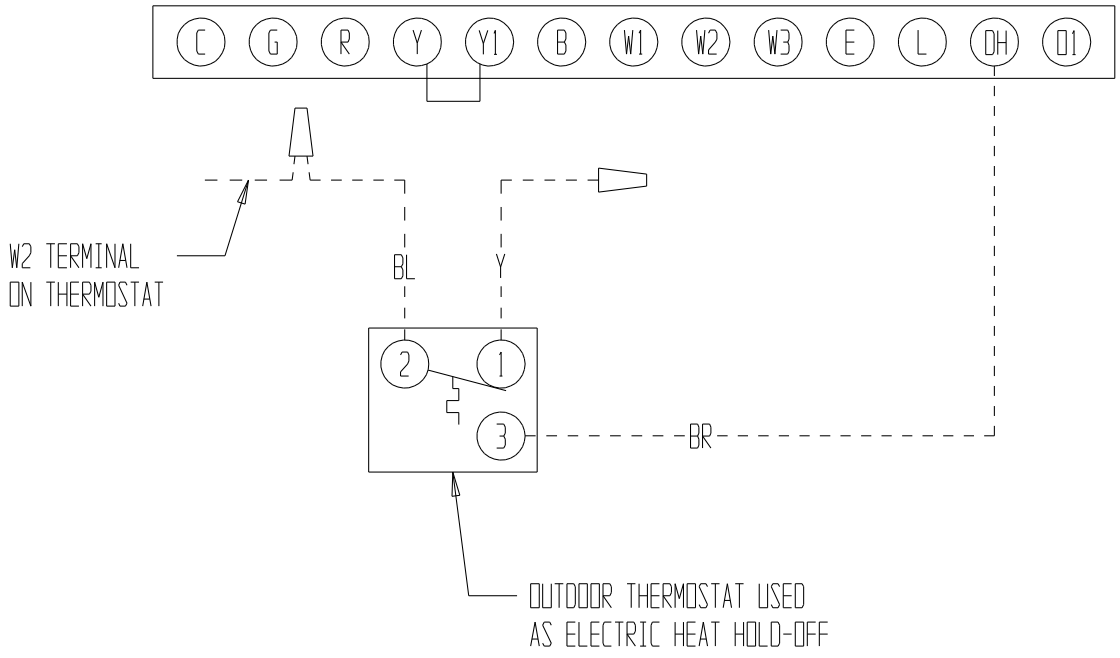


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FIGURE 3 – SMALLER CABINET UNITS

NOTE: ALL DIMENSIONS EXCEPT HOLE DIAMETERS ARE ± 1/16 INCH UNLESS NOTED OTHERWISE

DISTRIBUTION: 1 2 3 4 5

REV	DATE	REVISION RECORD	ECN NO	DRN	CHK	APR
A	8-10-06	WAS "BR"	9551	SS	SD	JN
B	1-19-10	B1 REVISED WIRING ON RELAY, B2 WAS BLACK	10232	SS	SD	JN

MAT'L

PART NAME: MODULE LOCATION

PART NO.:

DWG. NO.: MD-3545 B

DATE: 7-18-06

3/8 | SDS

SCALE | DRN

SD | JLA

CHK | APPR

BARD SINCE 1914

BARD MFG. CO. BRYAN, OHIO

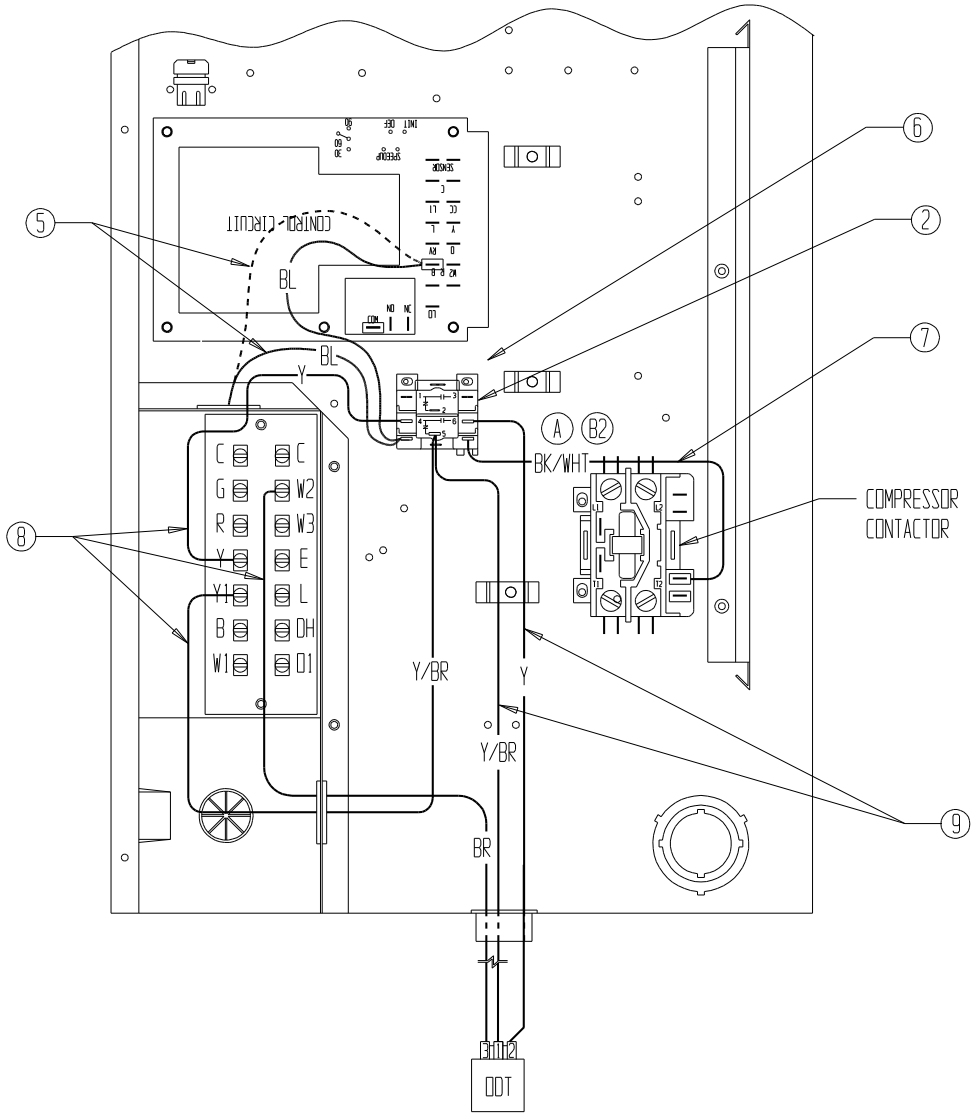


FIGURE 4 – LARGER CABINET UNITS

NOTE: ALL DIMENSIONS EXCEPT HOLE DIAMETERS ARE ± 1/16 INCH UNLESS NOTED OTHERWISE	DISTRIBUTION: 1 2 3 4 5	MAT'L

REV	DATE	REVISION RECORD	ECN NO	DRN	CHK	APR
A	8-10-06	WAS "BR"	9551	SS	SD	JN
B	1-19-10	WAS BLACK	10232	SS	SD	JN

PART NAME	MODULE LOCATION	
PART NO.		DWG. NO. MD-3546 B
DATE	7-18-06	BARD SINCE 1914
3/8	SDS	
SCALE	DRN	
		BARD MFG. CO. BRYAN, OHIO
CHK	APPR	

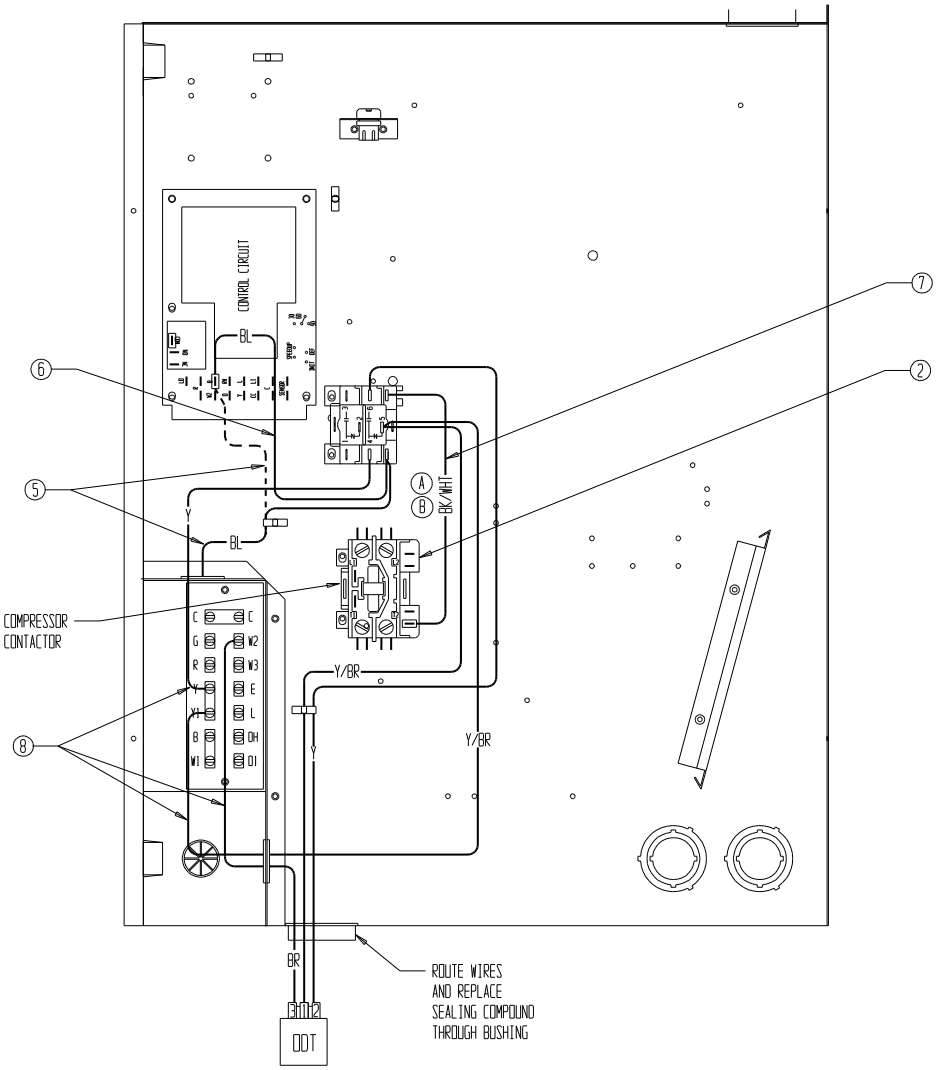


FIGURE 5

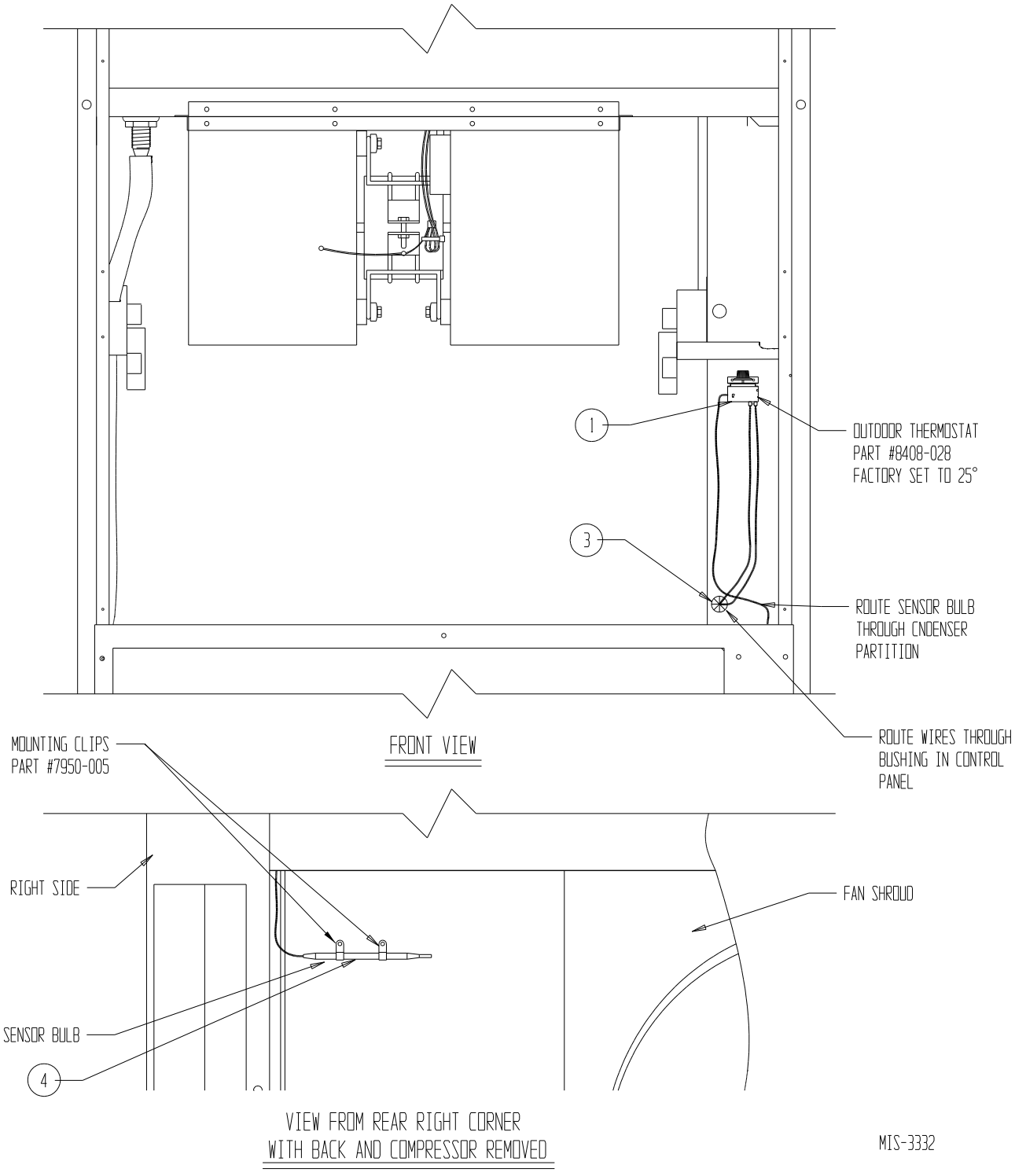
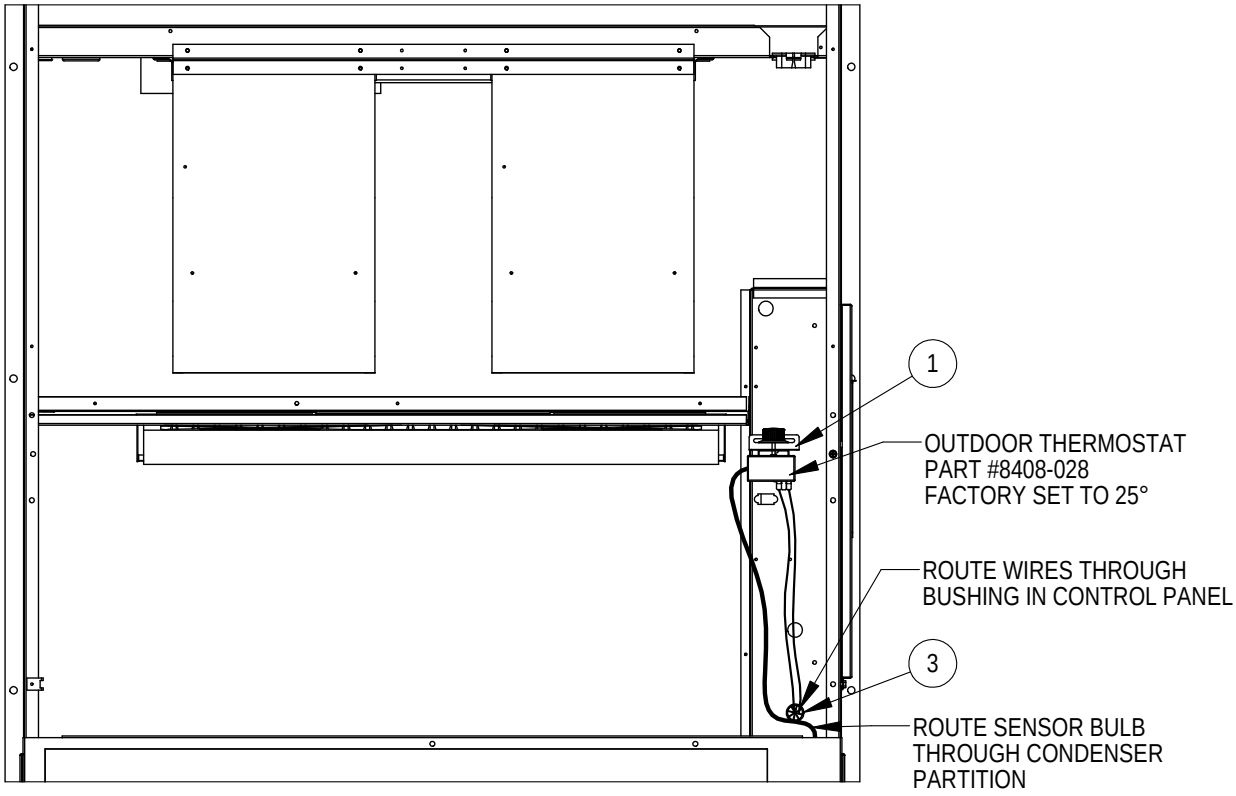
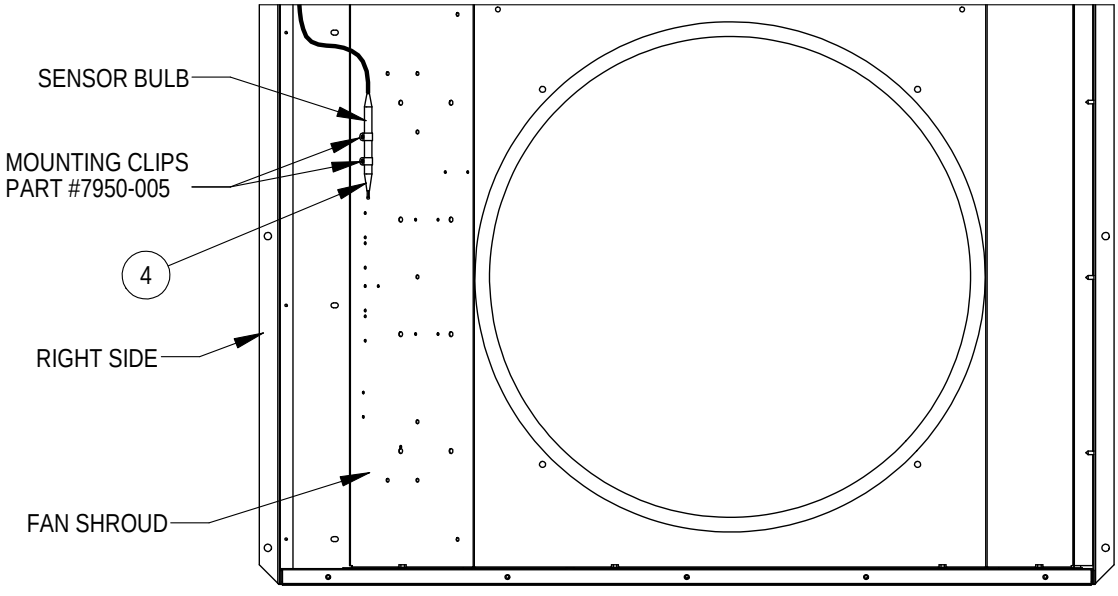

1
OUTDOOR THERMOSTAT
PART #8408-028
FACTORY SET TO 25°
3
ROUTE SENSOR BULB
THROUGH CNDENSER
PARTITION
ROUTE WIRES THROUGH
BUSHING IN CONTROL
PANEL
FRONT VIEW
MOUNTING CLIPS
PART #7950-005
RIGHT SIDE
FAN SHROUD
SENSOR BULB
4
VIEW FROM REAR RIGHT CORNER
WITH BACK AND COMPRESSOR REMOVED
MIS-3332

FIGURE 6 — 5-TON UNIT



FRONT VIEW



BACK VIEW WITH COMPONENTS
REMOVED FOR CLARITY

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