

**INSTALLATION INSTRUCTIONS FOR LOW AMBIENT KIT (23V27; LB-107318BU)
USED ON KHC180 & 240 PACKAGED ROOFTOP UNITS****Shipping and Packing List****Package 1 of 1 contains:**

- 2- Head pressure control (A190)
- 1- Temperature switch bracket
- 1- Wiring harness - A190 to K254
- 1- Wiring harness - A191 to K255
- 1-Wiring harness - K58, K118 to S201, S201 power
- 1-Wiring harness - K58, K118 to CMC-0-OUT power
- 1-Wiring harness - A190-HP to CMC-FAN1, 2 power
- 1- Bag assembly containing:
 - 2-Pressure transducers (A188, A189)
 - 2-Temperature switches (S201, S202)
 - 10-Wire ties
 - 1-Wiring diagram
 - 2-Screws, #8-32 X 1/2 TFS
 - 2-Screws, #8-32 X 1-1/4 TFS

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

Application

This kit allows low ambient operation to 0°F (-17.8°C) unless otherwise noted in product specifications.

Operation

When ambient temperature drops below 55°F (adjustable), S201 and S202 temperature switches open to de-energize K10 and K150 relay coils. Condenser fans 1, 2, 4 & 5 are de-energized.

Liquid line pressure transducer A188 and A189 convert the pressure to an analog signal which is sent to the head pressure controls (A190, A191). The head pressure control provides a variable output which slows Condenser Fan 2 & 4 operation at lower ambient temperatures.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional installer (or equivalent), service agency or the gas supplier.

Installation

- 1 - Disconnect all power to unit and open access panels.
- 2 - Install head pressure controls (A190 & A191) in the control section as shown in FIGURE 1. Secure with screws (provided).
- 3 - Using the ICM Omni App, set the head pressure controller as follows:
 - Probe Type: Pressure
 - Setpoint: 355 psig
 - Hard Start: 0.1s
 - Minimum Voltage Output: 32%
- 4 - Place heat pump jumper on HP RV pin.
- 5 - Install the temperature switch mounting bracket onto the mullion. Align the bracket with the 4th screw from the top of the unit; secure with provided screw. See FIGURE 1.
- 6 - Install the temperature switches onto the bracket.
- 7 - Install the pressure transducers on compressor 1 (stg. 1) and compressor 2 (stg. 2). liquid line pressure tap as shown in FIGURE 2.

Low Voltage Wiring

- 1 - Disconnect unit wires routed to K10-A and K150-A and reconnect. See FIGURE 3.
- 2 - Disconnect unit wires to CMC1-0-OUT and CMC2-0-OUT and reconnect. See FIGURE 3 and FIGURE 4.
- 3 - Use 24V harnesses (4), (5), (6), provided in this kit, to make wire connections as shown in FIGURE 3 and FIGURE 4.
- 4 - Connect A188 & A189 pressure transducer quick-connects to A190 & A191 head pressure controls. See FIGURE 4.

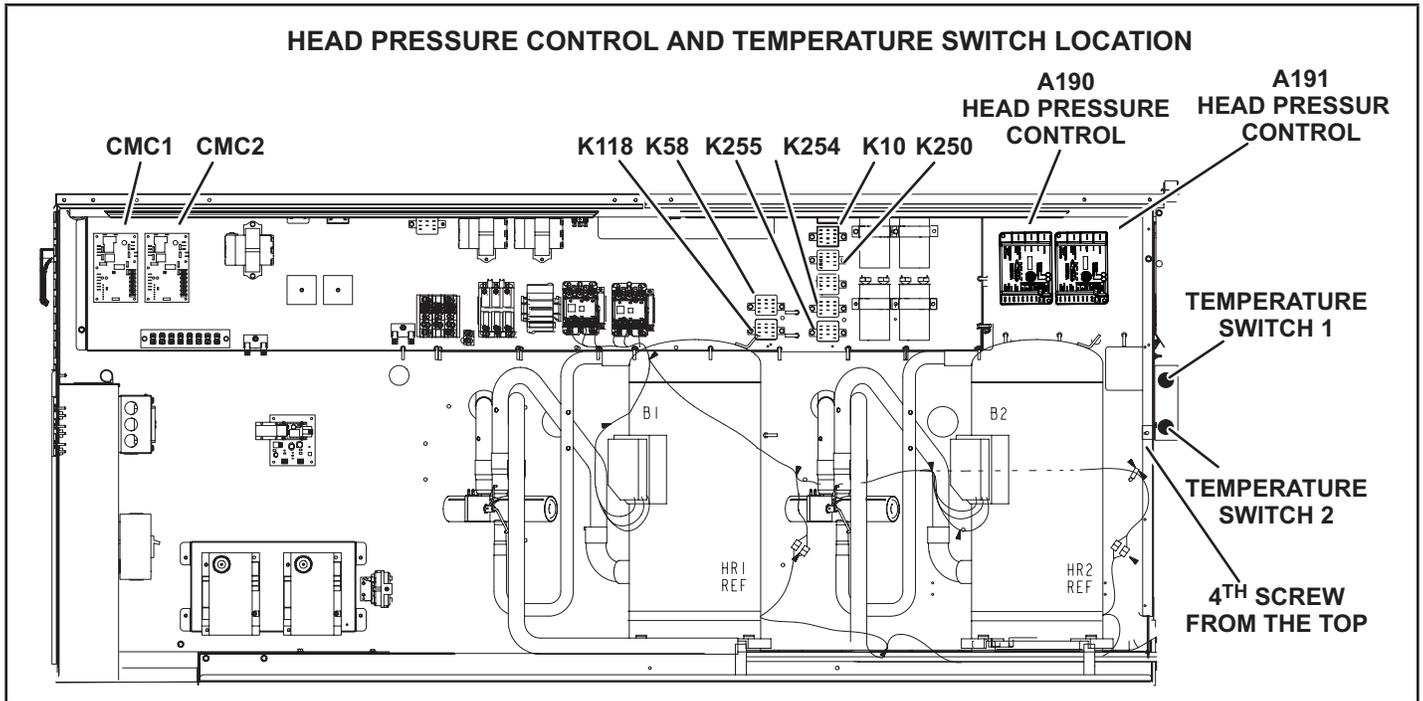


FIGURE 1

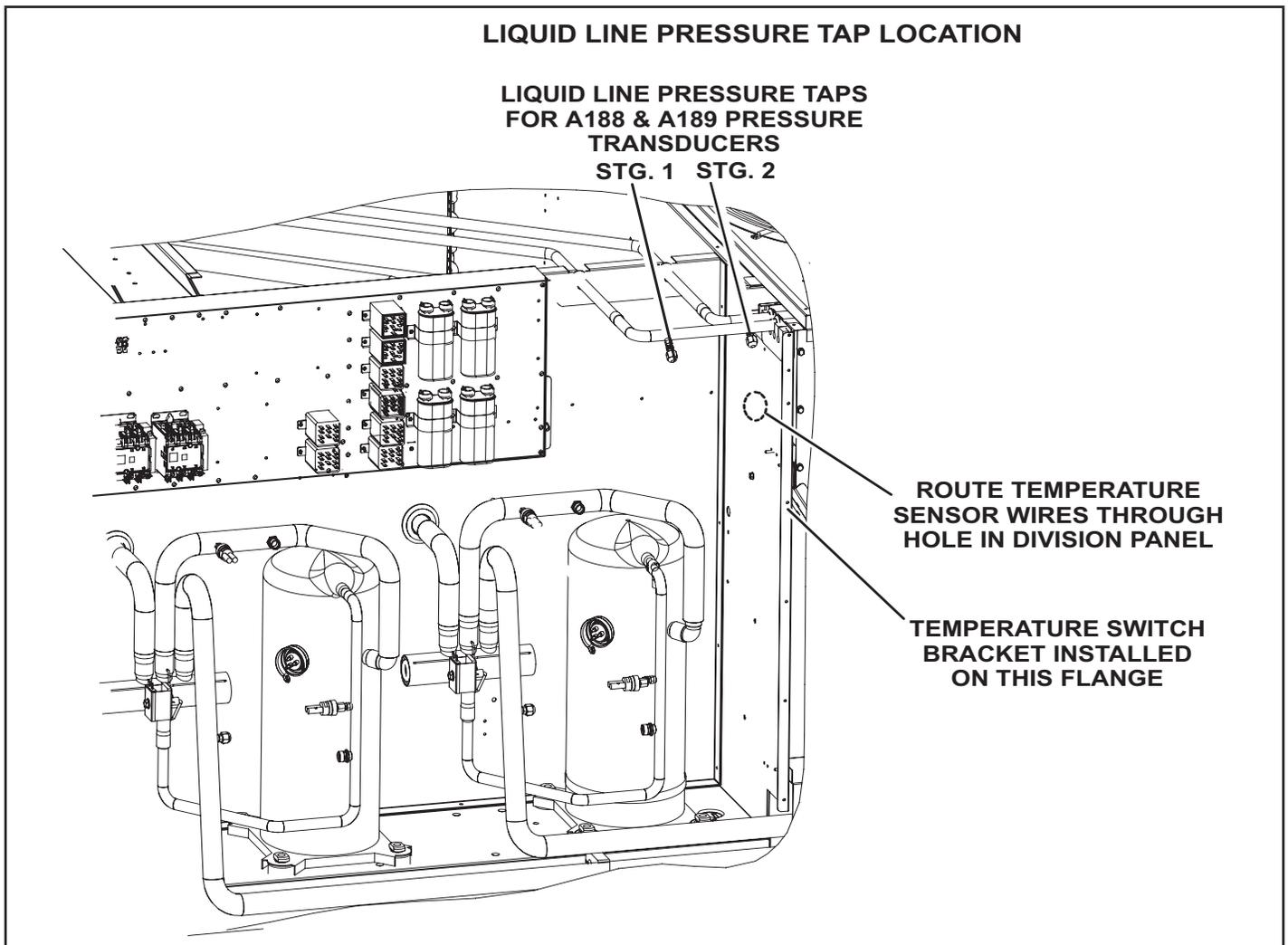


FIGURE 2

TEMPERATURE SWITCH, CMC-OUT, K58, K118 WIRING - HARNESSES (4) AND (5)

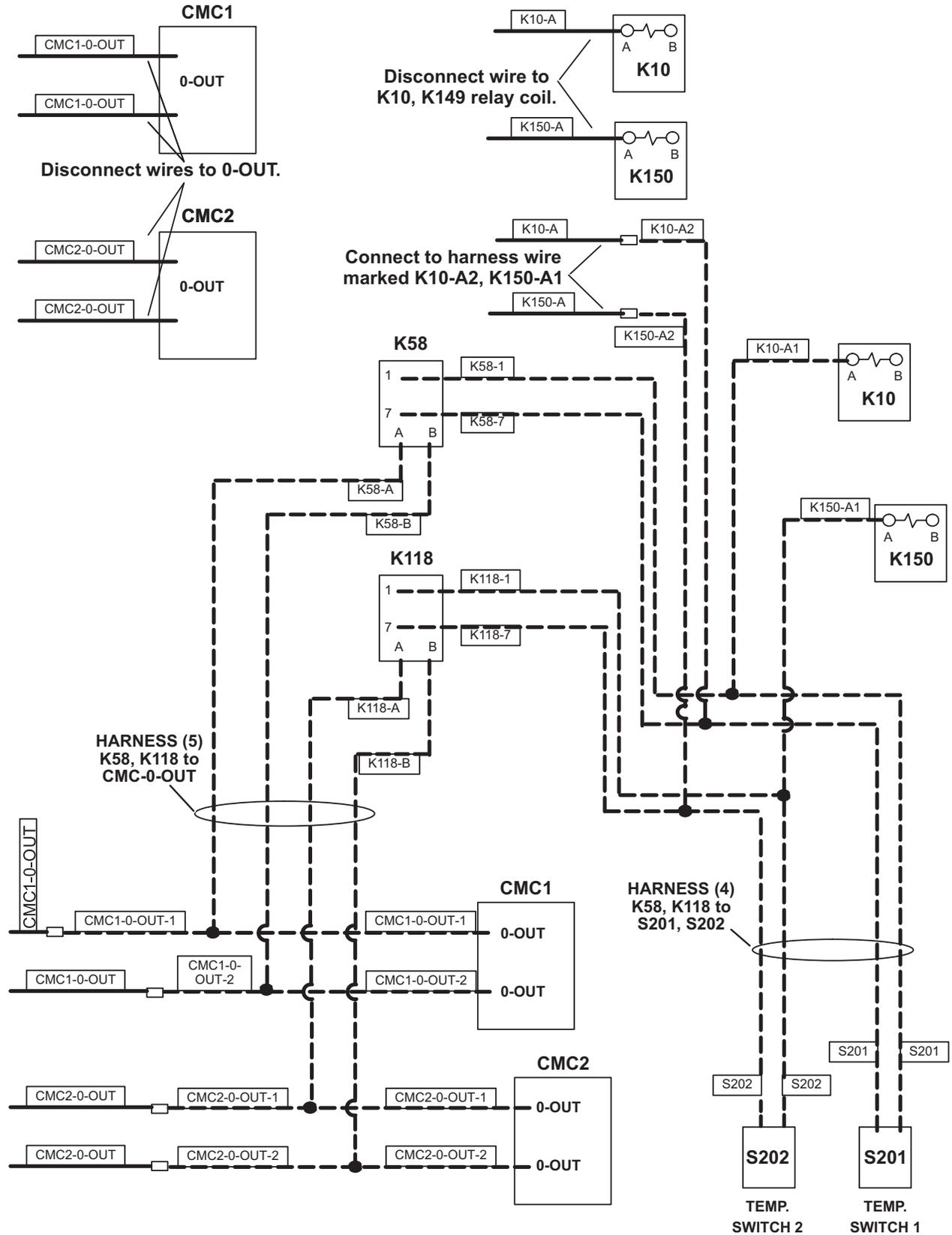
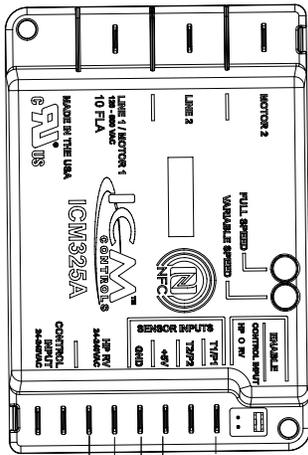


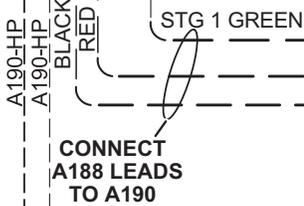
FIGURE 3

24V HARNESS WIRING - HARNESS (6)

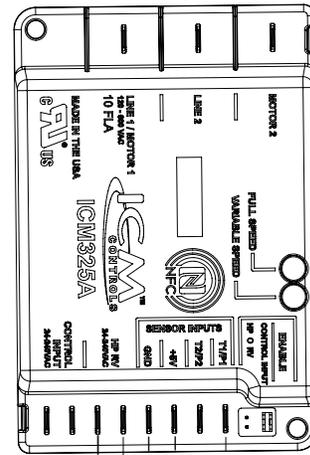
A190
HEAD PRESSURE CONTROL



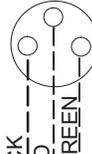
A188
STG 1
PRESSURE
TRANSDUCER



A191
HEAD PRESSURE CONTROL

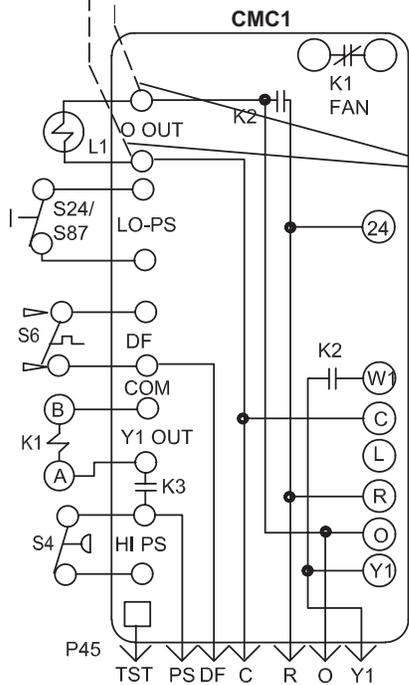


A189
STG 2
PRESSURE
TRANSDUCER



HARNESS (6)
A190-HP to
CMC-FAN1, 2

PIGGY BACK TERMINALS
PROVIDED ON THESE
WIRES
TO RECONNECT UNIT
CMC2-0-OUT WIRES



PIGGY BACK TERMINALS
PROVIDED ON THESE
WIRES TO
RECONNECT UNIT
CMC1-0-OUT WIRES

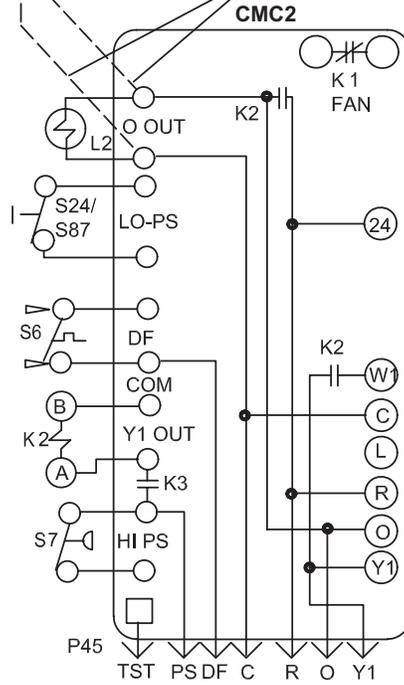


FIGURE 4

High Voltage Wire Connections

- 1 - Connect wires labeled "A190-L2" and "A191-L2" to the terminal marked Line 2 on the ICM controllers A190 & A191.
- 2 - Connect wires labeled "A190-M" & "A191-M" to the terminal marked "Motor 2" on ICM controllers A190 & A191.
- 3 - Disconnect factory wires to K254 terminals 4 & 6. Reconnect these wires to the kit harness (2) as shown in FIGURE 5.
- 4 - Disconnect factory wires to K255 terminals 4 & 6. Reconnect these wires to the kit harness (3) as shown in FIGURE 5.
- 5 - Make sure all connections are secure.
- 6 - Bundle wiring and use wire ties to route wiring away from sharp edges.
- 7 - Place the wiring diagram provided in this kit on the inside of the control door.
- 8 - Close unit panels and restore power.

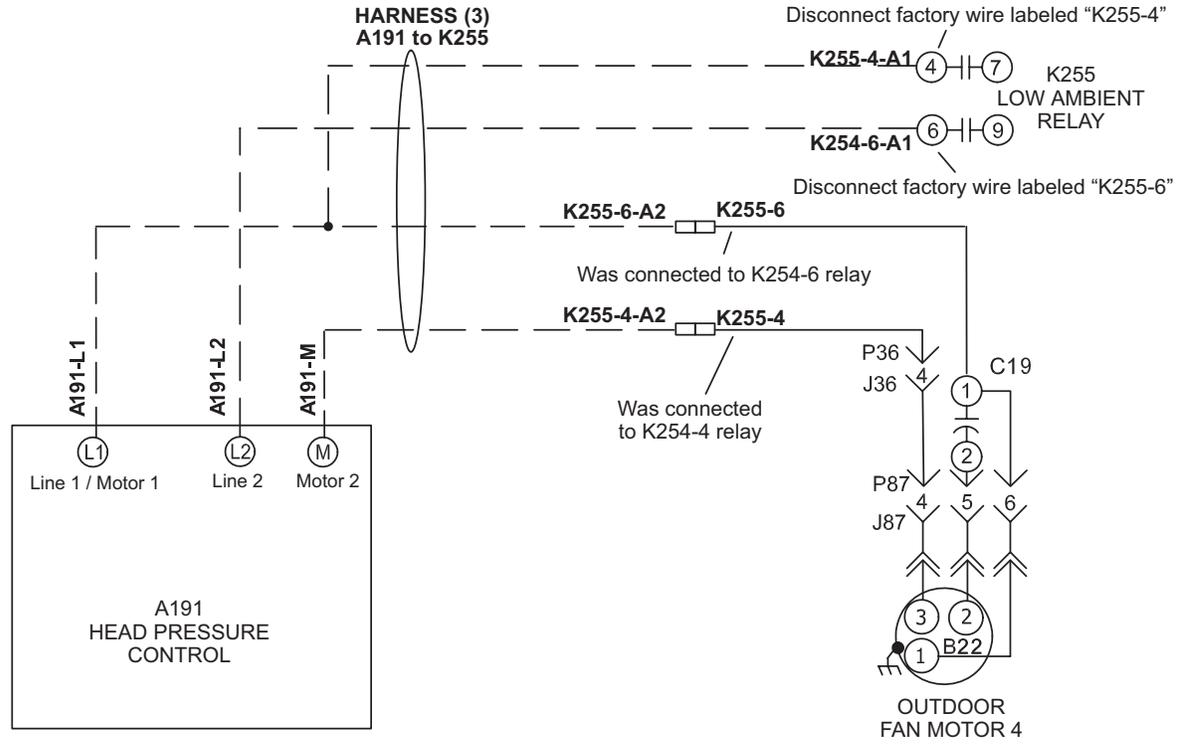
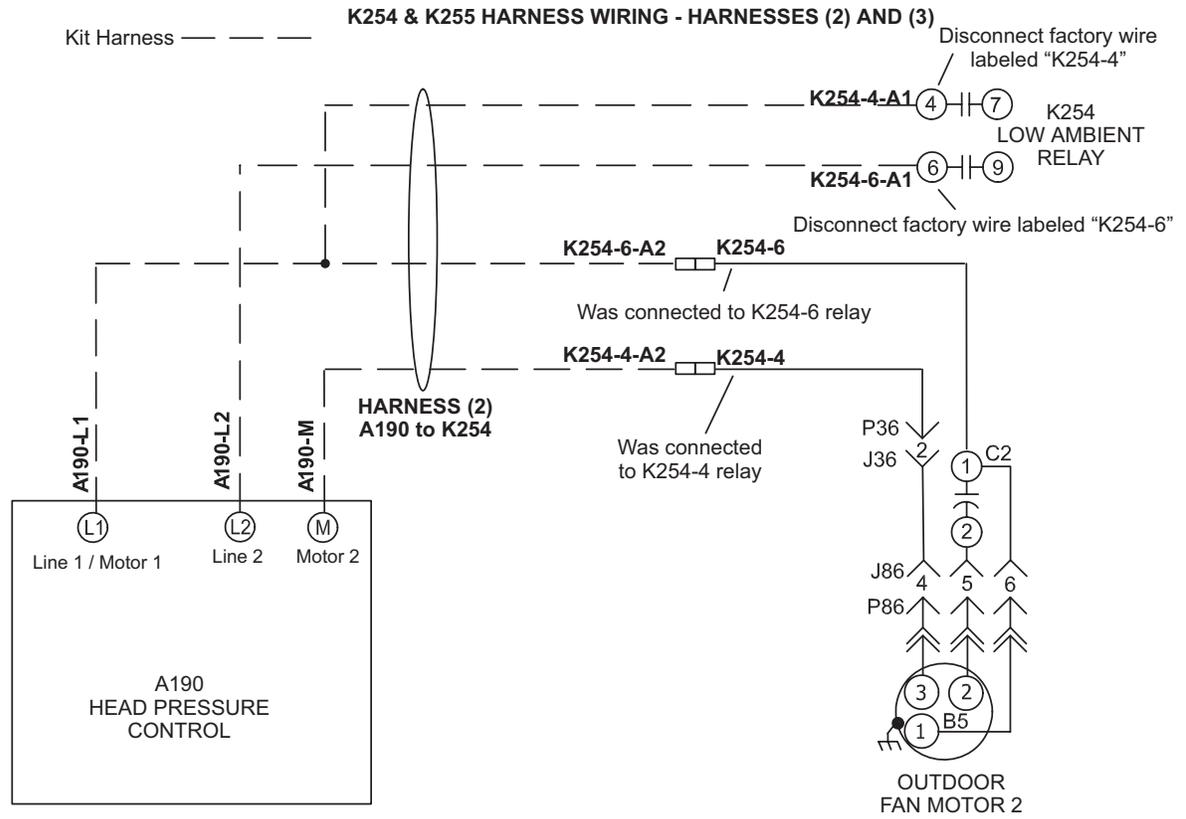
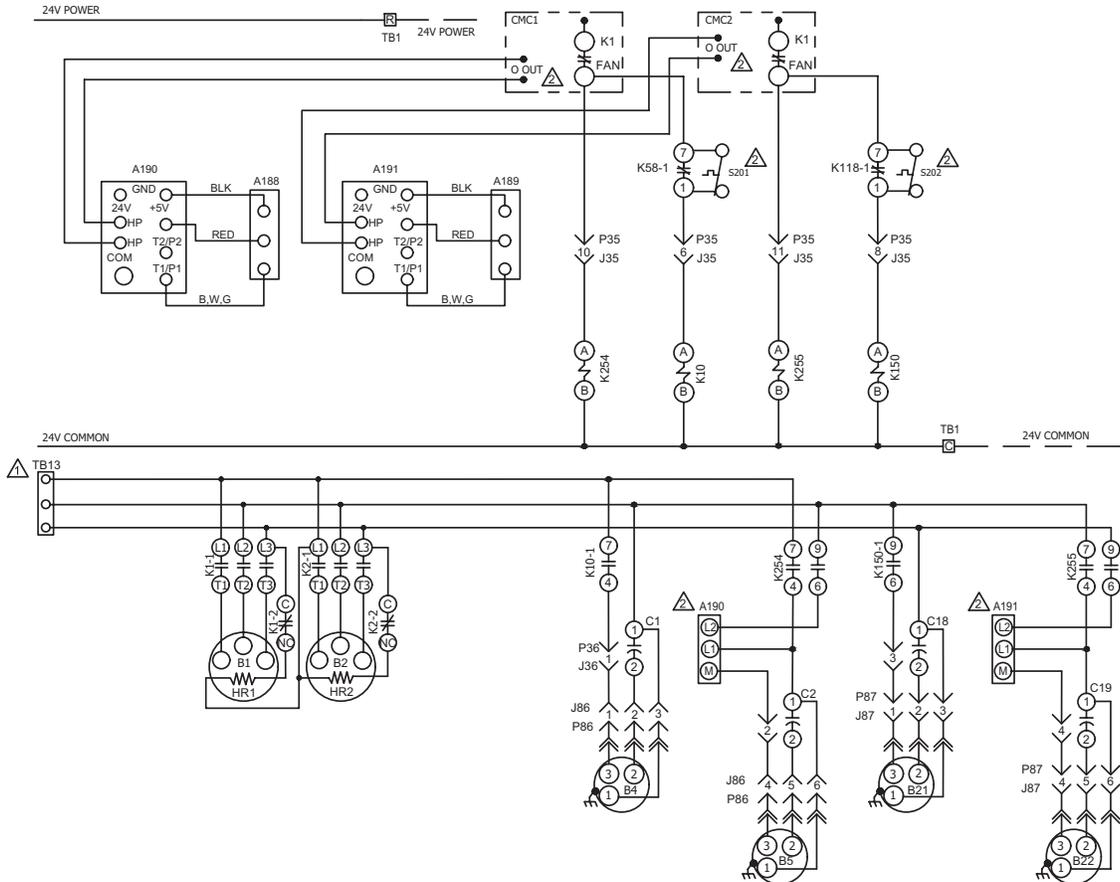


FIGURE 5



| KEY | COMPONENT |
|---------|--|
| A188 | PRESSURE TRANSDUCER, COMP 2 |
| A189 | PRESSURE TRANSDUCER, COMP 4 |
| A190 | PRESSURE CONTROLLER, COMP 2, LOW AMBIENT KIT |
| A191 | PRESSURE CONTROLLER, COMP 4, LOW AMBIENT KIT |
| B1 | COMPRESSOR 1 |
| B2 | COMPRESSOR 2 |
| B4 | MOTOR, OUTDOOR FAN 1 |
| B5 | MOTOR, OUTDOOR FAN 2 |
| B21 | MOTOR, OUTDOOR FAN 3 |
| B22 | MOTOR, OUTDOOR FAN 4 |
| C1 | CAPACITOR, OUTDOOR FAN 2 |
| C2 | CAPACITOR, OUTDOOR FAN 2 |
| C18 | CAPACITOR, OUTDOOR FAN 3 |
| C19 | CAPACITOR, OUTDOOR FAN 4 |
| CMC1 | TIMER, DEFROST, COMPRESSOR 1 |
| CMC2 | TIMER, DEFROST, COMPRESSOR 2 |
| J/P 35 | JACK/ PLUG, RUN TEST |
| J/P 36 | JACK/ PLUG, RUN TEST OD FANS |
| HR1 | HEATER, COMPRESSOR 1 |
| HR2 | HEATER, COMPRESSOR 2 |
| K1,-1,2 | CONTACTOR, COMPRESSOR 1 |
| K2,-1,2 | CONTACTOR, COMPRESSOR 2 |
| K10,-1 | RELAY, OUTDOOR FAN 1 |
| K58,-1 | RELAY, LOW AMBIENT KIT COMP 1 |
| K118,-1 | RELAY, LOW AMBIENT KIT COMP 2 |
| K150,-1 | RELAY, OUTDOOR FAN 3 |
| K254 | RELAY, LOW AMBIENT KIT FAN 2 |
| K255 | RELAY, LOW AMBIENT KIT FAN 4 |

DENOTES OPTIONAL COMPONENTS
 LIVE VOLTAGE FIELD INSTALLED

| | |
|------|------------------------------------|
| S201 | SWITCH, LOW AMBIENT TEMP SENSOR 1 |
| S202 | SWITCH, LOW AMBIENT TEMP SENSOR 2 |
| TB1 | TERMINAL STRIP, 24V |
| TB13 | TERMINAL STRIP, POWER DISTRIBUTION |

- REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION
- REFER TO INSTRUCTION SHEETS FOR LOW AMBIENT HARNESS INSTALLATION PROCEDURE

WARNING-ELECTRIC SHOCK HAZARD CAN CAUSE INJURY OR DEATH. UNIT MUST BE GROUNDED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES

FOR USE WITH COPPER CONDUCTORS ONLY
DISCONNECT ALL POWER BEFORE SERVICING

IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING, INSULATION THICKNESS AND TERMINATION

| | | | |
|-------------------------------------|--------------|----------------|--------|
| 2024/04 | | WIRING DIAGRAM | 04/24 |
| | | 538273-02 | |
| HEAT/COOL - MSAV | | | |
| KH C-BOX - 180S-240S - G, J, Y VOLT | | | |
| LOW AMBIENT KIT | | | |
| SECTION B | | | REV. 2 |
| Supersedes | New Form No. | | |
| 538273-01 | 538273-02 | | |

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FIGURE 6