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**TEMPERATURE SWITCH
REPLACEMENT KIT**

**INSTALLATION INSTRUCTION FOR TEMPERATURE SWITCH REPLACEMENT KIT (10Z23)
USED WITH HPXA19, HP21 AND SPA HEAT PUMPS**

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

⚠ WARNING

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near these areas during installation or while servicing this equipment.

⚠ CAUTION

To prevent personal injury, or damage to panels, unit or structure, be sure to observe the following:

While installing or servicing this unit, carefully stow all removed panels out of the way, so that the panels will not cause injury to personnel, nor cause damage to objects or structures nearby, nor will the panels be subjected to damage (e.g., being bent or scratched).

While handling or stowing the panels, consider any weather conditions, especially windy conditions, that may cause panels to be blown around and battered.

⚠ WARNING



Electric Shock Hazard. Can cause injury or death.

Line voltage is present at all components on units with single-pole contactors, even when unit is not in operation!

Unit may have multiple power supplies. Disconnect all remote electric power supplies before opening access panel.

Unit must be grounded in accordance with national and local codes.

Shipping and Packing List

Check parts for shipping damage; if any damage is found, immediately contact the last shipping carrier.

Package 1 of 1 contains the following:

- 1 - Temperature switch (part # A19ABC-24)
- 1 - Installation instructions

Application

Temperature switch replacement kit (10Z23) is used to replace temperature switch 13H52. This switch is used as a speed control thermostat (S55) in HP21 units and as an outdoor, second-stage lock-in thermostat (S23) in the HPXA19 and SPA units.

Model Number	Dash number(s)
HP21-411	01
HP21-413	1
HP21-511	1
HP21-413	1
HP21-651	1
HP21-653	1
HPXA19-024-230	01, 02, 05
HPXA19-036-230	01, 02, 05
HPXA19-038-230	02, 03, 05
HPXA19-048-230	01, 02, 05
HPXA19-060-230	02, 03, 05
SPA036H4	1, 3
SPA048H4	1, 3
SPA060H4	1, 3

Installation

⚠ WARNING

Before attempting to perform any service or maintenance, turn the electrical power to the unit OFF at the disconnect switch.

- 1 - Disconnect all power from unit.
- 2 - Locate the existing S55 (HP21) or S23 (HPXA19/SPA) temperature switch installed on the control box inside the unit. See figures 1 and 2.
- 3 - Mark the terminal numbers on the existing wires and disconnect the wires from the switch.
- 4 - Remove the screws that secure the existing switch to the control box and remove the switch.
- 5 - Remove the cover from the replacement switch.
- 6 - Set the temperature to match the original switch and set a differential of 10°F on control before installing. See figure 4. (The original switch is factory-set to close at 40° +/- 2°F on a temperature drop and open at 50° +/- 2°F on a temperature rise.)



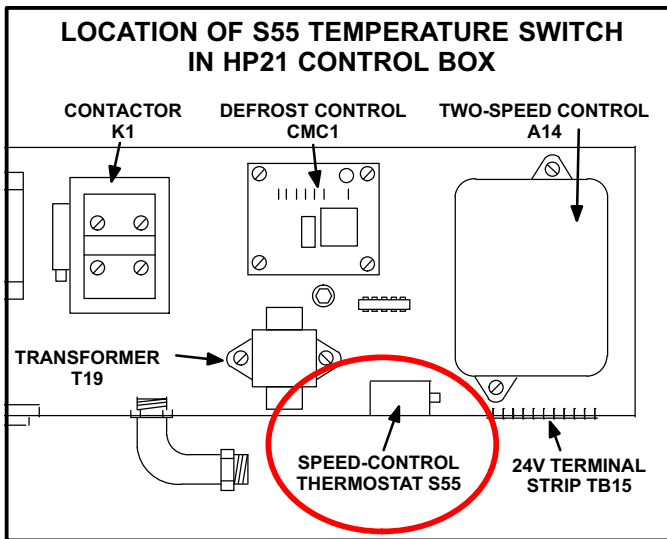


FIGURE 1

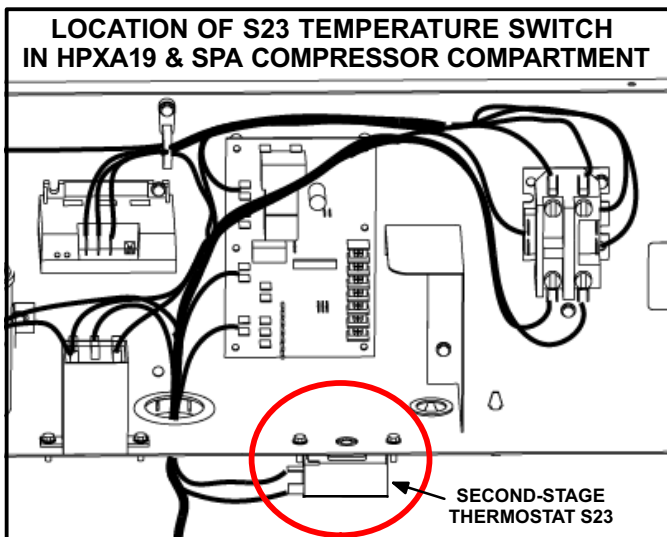


FIGURE 2

- 7 - Position the replacement switch on the control box in the same location as the original switch. Temperature adjustment screw should be centered over the access hole.
- 8 - Mark two new hole positions.
- 9 - Install new switch (A19ABC-24) on the control box using field-supplied self-tapping screws.
- 10 - Connect existing wire from terminal 1 onto R (1) and from terminal 2 onto B (3) of the new control.
- 11 - Replace the cover on the switch.
- 12 - Route the temperature-sensing bulb alongside the low-voltage wiring to a location outside of the cabinet and away from direct sunlight.

Operation

**Speed Control Thermostat S55
(early-model HP21-1 series units only)**

Speed-control thermostat S55 is a SPST temperature switch located in the unit control box (see figure 1). The switch uses a temperature-sensing bulb to monitor the ambient temperature.

The indoor thermostat regulates compressor speed when the unit is operating in cooling mode. When the unit is operating in heating mode, speed-control thermostat S55 regulates compressor speed.

First-stage heating demand from the indoor thermostat energizes the compressor (Y1 demand). Additional heating demand from the indoor thermostat (W1 demand) energizes the indoor auxiliary heat.

S55 continually monitors the ambient temperature. When the ambient temperature drops below the control setpoint, the control closes. When the switch closes, the contacts shunt across Y1 and Y2 inside the unit (see figure 3). When heating demand is present and S55 is closed, the two-speed control receives a high-speed demand. The compressor operates at high speed until the heating demand is met or S55 opens.

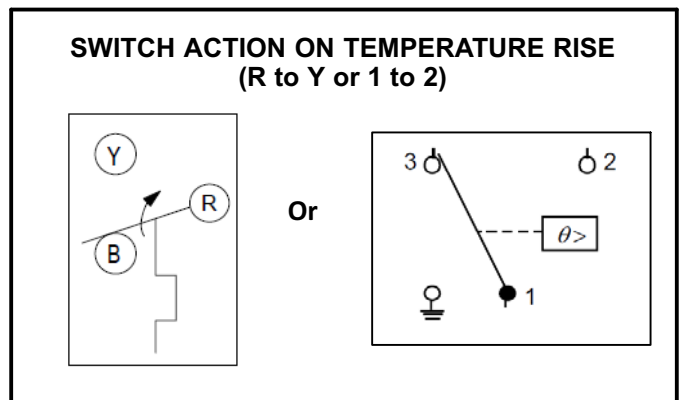


FIGURE 3

**Second-Stage Low-Ambient Thermostat S23
HPXA19 and SPA Models**

Second-stage low-ambient thermostat S23 is a SPST temperature switch located in the compressor compartment (see figure 2). The switch uses a temperature-sensing bulb to monitor the ambient temperature.

S23 continually monitors the ambient temperature. When the ambient temperature drops below the control setpoint, the switch closes. When the switch closes, the contacts shunt across Y1 and Y2 inside the unit (see figure 3). When Y1 heating demand is present and S23 is closed, the compressor will run in high capacity. The compressor will operate in high-capacity mode anytime there is a Y1 heating call from the indoor thermostat until the heating demand is met or S23 opens.

Adjustment

IMPORTANT: If the temperature-sensing bulb is located in the control box or compressor compartment, the ambient temperature sensed may be 10 to 15°F higher than the outdoor ambient. This temperature variation may be due to several factors: compressor run time, crankcase heater run time and direct sunlight on the control panel. Any of these conditions can prevent the S55 or S23 from closing and restrict the unit to low-capacity heating when there is a requirement for high-capacity heat.

To accommodate this possible temperature variation, the factory setting of the S55 or S23 may be reset to a higher temperature using the differential adjusting lever (see figure 4 and table 1). This will allow the temperature switch to compensate for the ambient differences.

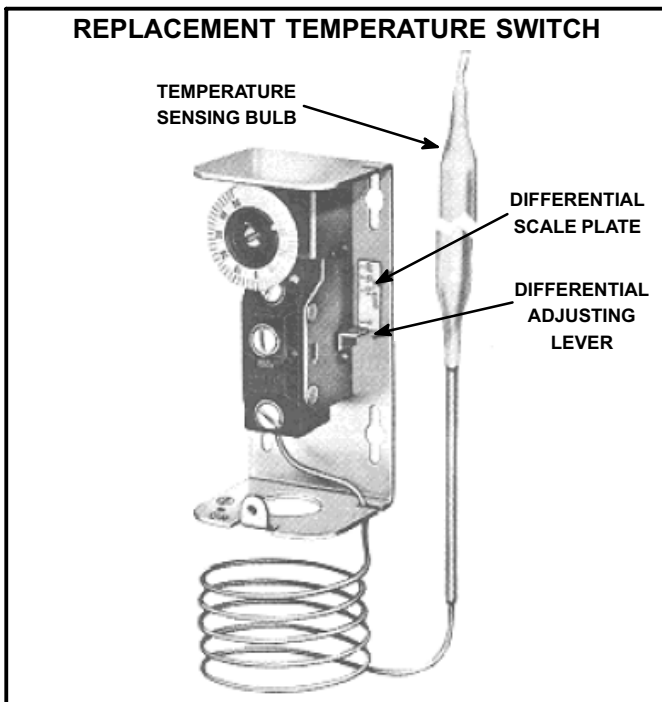


FIGURE 4

TABLE 1

Replacement Thermostat Adjustable Range	Min	Factory Setting	Max
Cut-In (Close on Temperature Drop)	37±2°F	40±2°F	55±2°F
Cut-Out (Open on Temperature Rise)	47±2°F	50±2°F	65±2°F

The replacement temperature switch (used as S55 or S23) has field-adjustable setpoints. Temperature differential (difference between cut-in and cut-out) is factory set at ±2° and should not be adjusted. Table 1 shows switch setpoints. The control is factory-set to close at 40±2°F on a temperature drop and reset at 50±2°F on a temperature rise.

Regional climatic conditions may require the thermostat to be adjusted to a different setting. The adjustment screw is accessed through a hole in the switch cover. A hole cut into the bottom shelf of the control box provides access to the adjustment screw, either from the compressor compartment (S55, figure 5) or from the control box (S23, figure 6). Figure 7 shows the adjustment range of the control. Turn adjustment screw clockwise to raise the switchover temperature and counterclockwise to lower the switchover temperature.

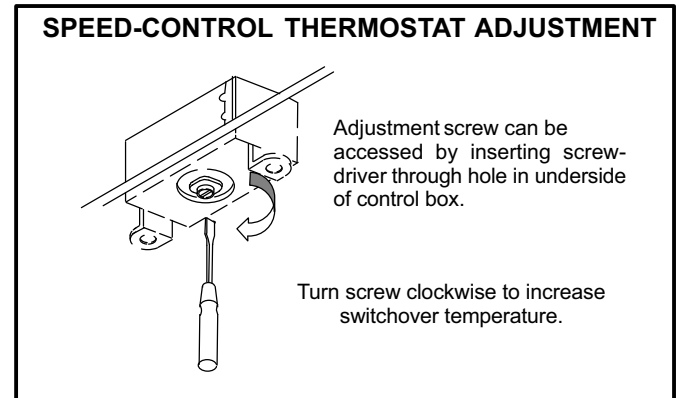


FIGURE 5

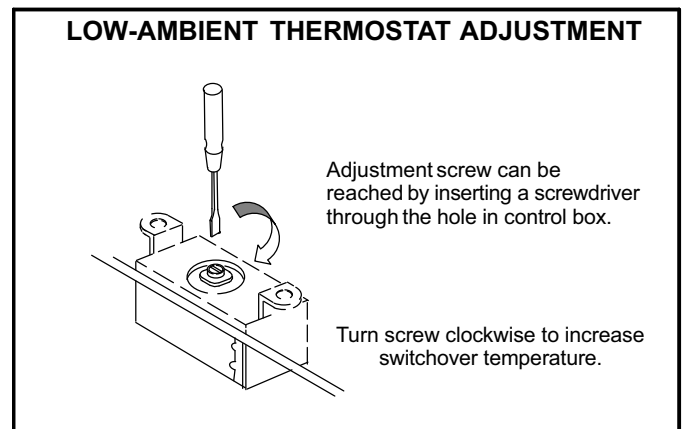


FIGURE 6

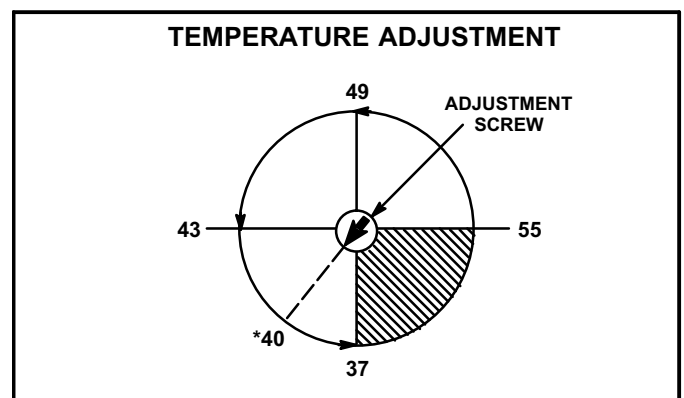
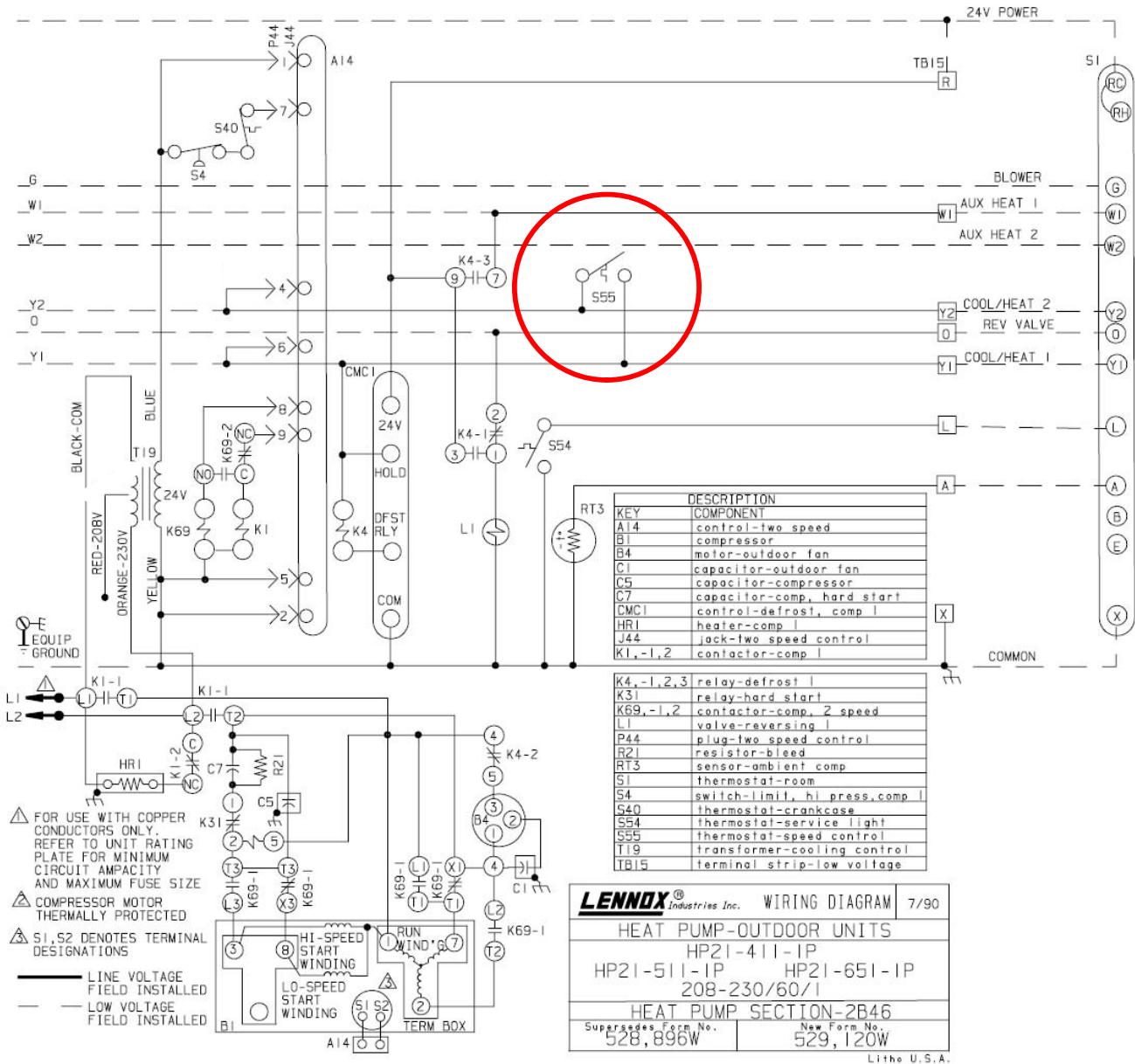
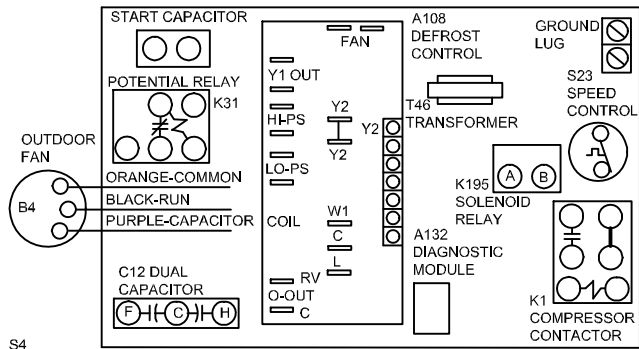


FIGURE 7

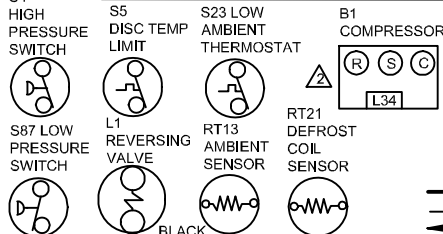
HP21 WIRING DIAGRAM



HPXA19-024, -036, -048 & -060 WIRING DIAGRAM



NOTE-FOR USE WITH COPPER CONDUCTORS ONLY. REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION SIZE

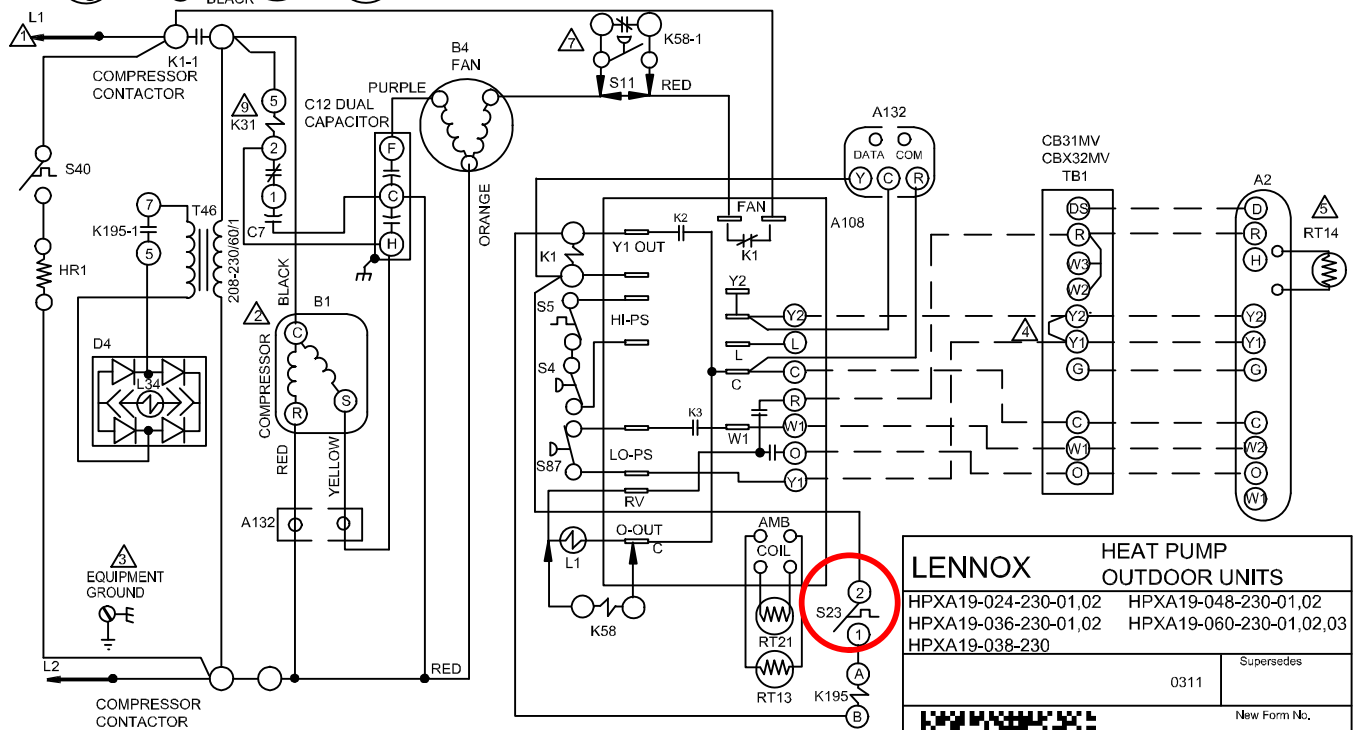


NOTE- IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING, INSULATION THICKNESS, AND TERMINATION. REFER TO COMPRESSOR IN UNIT FOR ACTUAL TERMINAL ARRANGEMENT

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

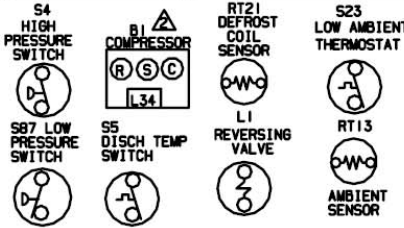
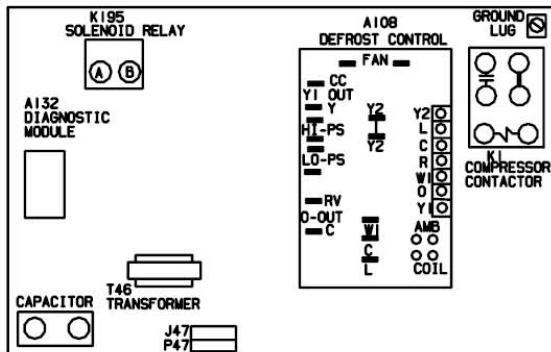
— LINE VOLTAGE FIELD INSTALLED
 - - - CLASS II VOLTAGE FIELD WIRING
 ← DENOTES OPTIONAL COMPONENTS

- ⚠ REMOVE JUMPER FOR TWO STAGE COOL
- ⚠ RT14 SENSOR, OUTDOOR TEMP (OPTIONAL)
- ⚠ S23 CLOSURES AT LOW AMBIENT TEMPERATURES TO OPERATE SECOND STAGE COMPRESSOR ON HEATING
- ⚠ S11 AND K58 ARE OPTIONAL LOW AMBIENT CONTROLS
- ⚠ L34 SOLENOID IS LOCATED IN COMPRESSOR. COIL IS 24VDC, DO NOT CONNECT 24VAC TO COIL TERMINALS.
- ⚠ K31 AND C7 ARE USED ON 024 UNITS ONLY



LENNOX HEAT PUMP OUTDOOR UNITS	
HPXA19-024-230-01,02	HPXA19-048-230-01,02
HPXA19-036-230-01,02	HPXA19-060-230-01,02,03
HPXA19-038-230	
Supersedes	
0311	
New Form No.	
534,655W	

HPXA19-038 WITH VARIABLE-SPEED MOTOR WIRING DIAGRAM



NOTE- FOR USE WITH COPPER CONDUCTORS ONLY. REFER TO UNIT RATING PLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVER-CURRENT PROTECTION SIZE.

REFER TO COMPRESSOR IN UNIT FOR ACTUAL TERMINAL ARRANGEMENT.

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

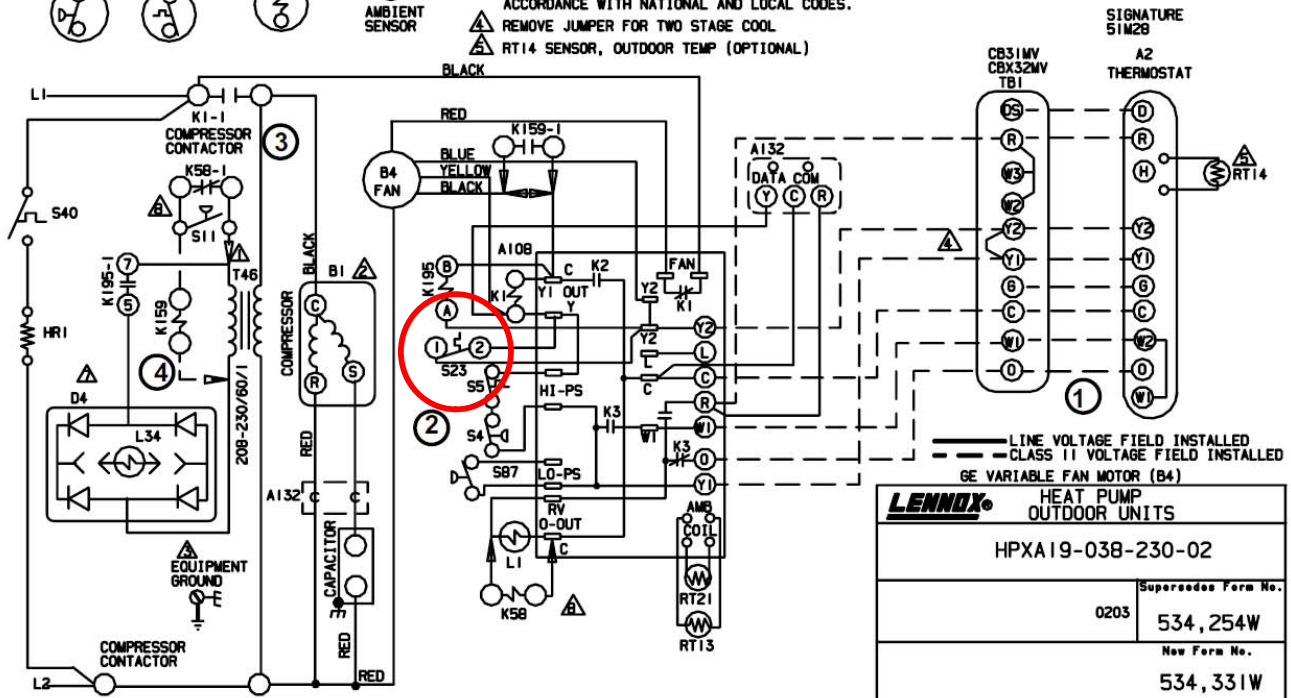
REMOVE JUMPER FOR TWO STAGE COOL

RT14 SENSOR, OUTDOOR TEMP (OPTIONAL)

S23 CLOSURES AT LOW AMBIENT TEMPERATURES TO OPERATE SECOND STAGE COMPRESSOR ON HEATING

L34 SOLENOID IS LOCATED IN COMPRESSOR, COIL IS 24VDC. DO NOT CONNECT 24VAC TO COIL TERMINALS

S11, K159 AND K58 ARE OPTIONAL LOW AMBIENT CONTROLS



LENNOX HEAT PUMP OUTDOOR UNITS HPXA19-038-230-02	
0203	Supersedes Form No. 534,254W
	New Form No. 534,331W

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SPA-036, -048 & -060 WIRING DIAGRAM

