



# BOSCH

## HK SERIES ELECTRIC HEATER PACKAGE

### INSTALLATION INSTRUCTIONS

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6 720 220 328

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## INTRODUCTION

Bosch HK Series Heater Package is a field installable electric resistance heater kit designed for use with the **CE** and **TA** series heat pumps.



The HK series heater package requires separate electrical service connection, independent from the heat pump's power supply. **DO NOT** wire the heater elements into the same circuit as the compressor.

### Note:

- A heater collar is installed in the CE and TA models, no need to order separately.
- The series heater packages are designed for installation in the heat pump model published in this document. Do not install this heater kit in a heat pump not specified in this manual. Refer to Table 3 on page 18 for compatibility.
- A heat pump thermostat with supplemental electric heat feature is required to operate the system when this kit is installed.
- 18 AWG wire will be needed to connect the thermostat to the electrical box for the "W1" & "EM" connections. See wiring diagrams at the end of this manual.

**Table 1: Electric Heater Compatibility**

Units	5kW	7.5 & 10 kW	15 kW	20 kW
TA025	✓	✓	x	x
TA035	✓	✓	x	x
TA049	✓	✓	✓	✓
TA061	✓	✓	✓	✓
TA071	✓	✓	✓	✓
CE025	✓	✓	x	x
CE035	✓	✓	x	x
CE049	✓	✓	✓	✓
CE061	✓	✓	✓	✓
CE071	✓	✓	✓	✓



*Improper installation of the electric resistance heater can result in severe injury or death due to electrical shock or fire.*

*Only trained and qualified personnel should install, repair, or service this equipment.*

*All electrical service connection to the heater must be done to National and local electrical Standard & codes.*

## PRE-INSTALLATION

1. UNPACK the HK heater kit and inspect for contents and condition. If any part or the kit appears damaged (i.e.: broken heater elements, damage relays) or missing, do not attempt to install the kit. Contact your local distributor for further help
2. Ensure that the heater kit package includes the following components. Contact your local distributor for further help.

## COMPONENTS LIST:

The following components should be found in the heater kit package:

- a. Pre-wired heater electrical box
- b. Heater elements pre-wired to the heater electrical box
- c. Heater element(s) protective metal cover
- d. Wire harness pre-wired at one end (used only in units in which a second electrical box is added)
- e. New wiring diagram
- f. Adhesive back electrical data label
- g. Clear hardware accessory bag containing:
  - Heater element mounting screws (4 for each element bank)
  - Heater element cover mounting screws (2 for each cover)
  - Two yellow wire nuts (used only for packaged units; discard for split systems)
  - Four electrical box mounting screws (used only in units in which a second electrical box is added)



- h. 2 x 30 amp fuses + 2 x 60 amp fuses for 15kW heater packages only
- i. 4 x 60 amp fuses for 20kW heater packages only
- j. This installation manual



*The heater element mounting screws and the heater element cover mounting screws are the same type of screw. Quantities used will depend on the heater package type.*

For technical assistance contact your local distributor or Call Bosch Technical Support: 866-642-3198

3. Ensure following tools and supplies, needed for installation, are available:
  - Phillips screwdriver
  - Small flat head screwdriver
  - 5/16" socket and a ratchet or drill
  - Wire cutter
  - Wire stripper
  - 18 AWG wire (connect thermostat to the electrical box)
  - Torque Phillips head screwdriver
  - Volt meter

## INSTALLATION

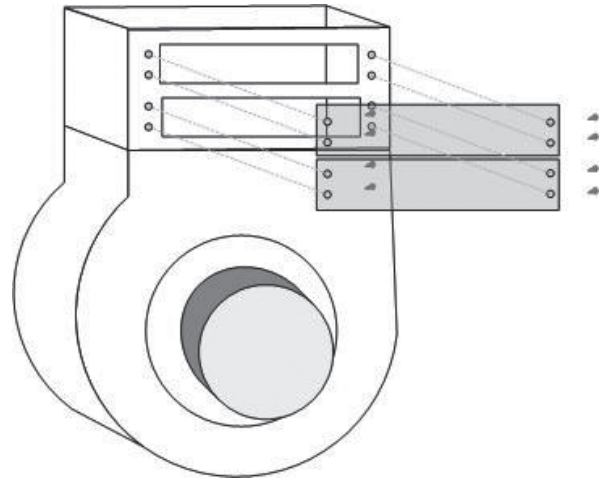
### Packaged Units (CE/TAXxx-xVT, CE/TAXxx-xHZ, CE/TAXxx-xCF)

This section is for packaged units only. See sections below for installation instructions for split systems.

#### STEP 1: DISCONNECTING THE POWER:

- a. Turn system to **"OFF"** from your Thermostat
- b. Turn the power to the heat pump to **"OFF"** at the unit's disconnect switch or breaker panel.
- c. Remove the access panel(s) from the unit exposing the blower section and compressor section of the packaged heat pump unit. Place the panel mounting screws aside in a safe place as they will need to be reused when putting the panels back on.

**STEP 2:** Remove the heater collar cover plate(s) to install the heater elements. (See Figure 1).



**Figure #1 – Showing Collar mounted on blower housing, element location and collar plate(s)**

**STEP 3:** Identify retainer pins on the end of the heater element(s). These pins are to be inserted in holes visible in the back of the heater collar. This stabilizes the heater element and prevents vibration of the heater elements.

**STEP 4:** Slide the heater element(s) into the mounting opening(s) on the heater collar, making sure that the retainer pins engage in the holes in the back of the collar.



*It may be necessary to lower the blower in order to complete this task.*

When installing the heater elements into the heater collar, ensure that the thermal overloads are on the right side; this will be the "L1" side. Secure each insert(s) with four of the supplied sheet metal screws provided (See Figure 2).

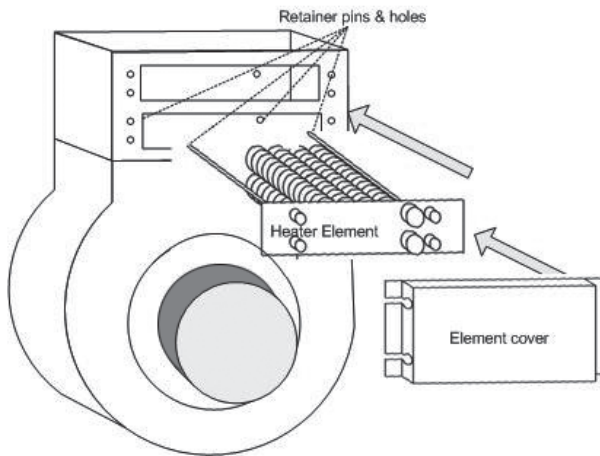


*It may be necessary to remove the line voltage wires that are connected to the element(s) from heater electrical box in order to complete installation.*

Remove the wires from heater contactor and terminal block at "L1" only. If wires are removed during installation, ensure that they are marked

for proper reconnection. When reconnecting the line voltage wires to the contactor, apply 22 in-lbs of torque.

**STEP 5:** Install the element cover over the heater element(s). These are secured with a tab at one end of the cover and two of the supplied sheet metal screws at the other end (See Figure 2). Ensure that heater wires are routed through the plastic bushing on the heater element cover.



**Figure #2 – With Collar removed insert heater element(s) (one shown in this diagram), wires not shown in diagram.**



*Ensure unused slot is covered with a collar plate.*

**STEP 6: INSTALLING THE HEATER CONTROL BOX:**

- Vertical Units - Install the heater control box between the unit corner posts at the top of the blower section.
- Horizontal Units (Straight through configuration) - Mount the heater electrical box in the rear of the unit, attached to the electrical post on the opposite side of the blower.
- Horizontal Units (End Blow Configuration) - Mount the heater electrical box in the rear of the unit, attached to the electrical post on the opposite side of the blower motor.

The mounting holes for the heater box have been pre-punched in the posts. Make sure no wires are pinched between the metal parts. Connect or reconnect wires from the heater element(s) as was marked in step 4 or follow electrical wiring diagram for corresponding model at the end of this manual.

**STEP 7:** Route the loose ends of the yellow, blue, red, purple, and the two black wire leads from the long side of the wire harness plug from the heater electrical box to the heat pump electrical box in the compressor compartment. Route these wires through the access hole in the divider panel together where the existing blower motor wires are routed.

**STEP 8: CONNECTING HIGH VOLTAGE WIRES**

- In the heat pump electrical box, disconnect the two line voltage wires that connect the transformer and blower motor to the **“LINE 1”** side of the compressor contactor.
  - Cut the wire terminal off of the following wires and strip off the insulation:
    - One of the black wires from the wire harness
    - The transformer wire disconnected in Step 8(a)
    - The black blower motor wire disconnected in Step 8(a)
  - Connect the three wires that were cut and stripped in Step 8(b) together using a yellow wire nut connector supplied with the kit. Secure with electrical tape.
- Disconnect the two line voltage wires that connect the transformer and blower motor to the **“LINE2”** side of the compressor contactor.
- Cut the terminal connections off of the following wires and strip off the insulation:
  - The remaining black wire from the wire harness
  - The transformer wire disconnected in Step 8(d)
  - The white blower motor wire disconnected in Step 8(a)



- f. Connect the three wires that were cut and stripped in Step 8(e) together using a yellow wire nut connector supplied with the kit. Secure with electrical tape.
- g. Reference Figure 3 and/or the appropriate wiring diagram at the end of the manual to ensure that all connections are correct.



Ensure that the wires are connected to the correct matching terminal and all unused wires are capped with a wire nut. Severe damage to the unit, personal injury, or death can occur if wires are not connected securely to the correct terminal or loose wires come into contact with the cabinet or other components.

### STEP 9: CONNECTING LOW VOLTAGE WIRES

- a. The four remaining wires on the long end of the wire harness are low voltage wires (Yellow, Purple, Red, and Blue). Connect these wires to the motor control board according to Table 2.

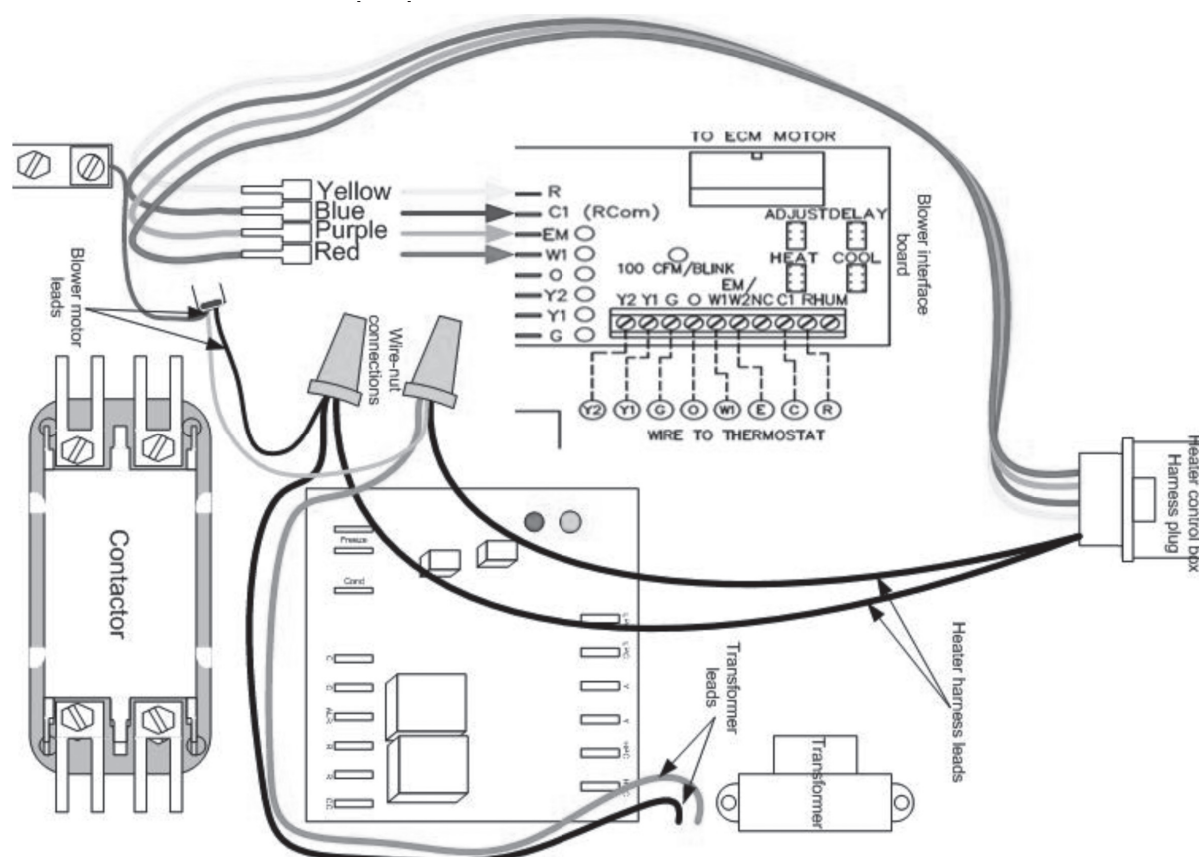
**Table 2**

Heater Box	Heat Pump Box
Yellow	R
Blue	C1
Red	W1
Purple	EM

- b. Reference Figure 3 and/or the appropriate wiring diagram at the end of this manual to ensure that all connections have been made and are correct.

### STEP 10: THERMOSTAT WIRE CONNECTIONS

- a. Ensure that two low voltage wires are available from the thermostat to make the “W1” and “EM” connections. If these wires are not located, they will need to be pulled and routed from the back of the thermostat to motor control board in the heater electrical box.



**Figure #3 – Electrical Heater wiring interface with Heat Pump Electrical Box**

- b. Strip the insulation off of the “W1” and “EM” wires and insert into the thermostat control wire block on the motor control board. Connect the other end of the wires to the back of the thermostat to the supplemental and emergency heat terminals. Reference the user’s manual for the thermostat for proper connection.

**STEP 11: ROUTING NEW LINE VOLTAGE WIRES FROM CIRCUIT BREAKER PANEL TO HEATER ELECTRICAL BOX**

- a. Select the proper wire size based upon the heater electrical load that the blower motor and electric heater element(s) will require. Refer to the data tag label that is included in the heater kit or the electrical data at the end of this manual. Ensure that all national and local electrical codes are followed for installation, wire sizing, and breaker sizing.
- b. Select the proper breaker size based upon the heater electrical load that the heat pump will require. Refer to the data tag label that is included in the heater kit or the electrical data at the end of this manual.
- c. Route the new line voltage wiring and the ground wire from the circuit breaker panel to the heat pump.
- d. Use the knockout provided in the heat pump corner post as the entry for the electrical service wiring. A plastic bushing should be used to protect the wire insulation from the metal edge of the knockout.
- e. Connect one of the line voltage wires to “L1” terminal connection and the other line voltage wire to “L2” terminal connection. Torque to 22 in-lbs.

**STEP 12:** Use the ground lug provided in the heater control box to connect the field ground from the power supply.



*The heater electrical power provides service to the unit’s Transformer, electrical heat element(s), and blower motor only. The Compressor remains on the original and now isolated circuit.*

**STEP 13:** Remove the wiring diagram that is adhered to the back side of the front panel. Replace with the wiring diagram that was included with the heater kit. Using spray adhesive glue is recommended.

**STEP 14:** Place the adhesive back heater data label next to the knockout in the post where the new electrical service for the fan motor and heater elements is entering the cabinet.

**STEP 15: RESTORING POWER / TURNING ON THE UNIT**

- a. Turn the disconnect switch or breaker switch to the “ON” position for the compressor and for the new separate circuit servicing the blower motor and the heating elements.
- b. Test the unit in “COOLING” and “HEATING” to ensure that full functionality of the unit has been restored.
- c. Run the unit in heating mode with the heating elements engaged for at least 10 minutes to ensure the unit does not shut down due to any temperature limiting device.

**STEP 16:** Install the cover on the heater electrical box and reinstall the heat pump access panel(s) with the screws that were set aside in Step 1.



*Always contact your local distributor if there is ever any doubt*

**SPLIT UNITS (CE/TAXXX-XAV, CE/TAXXX-XAH, TAXXX-XAC)**

This section is for CE vertical & horizontal split units and TA horizontal (excluding the TA025) split units only. See the section below for other split systems or the section above relating to packaged units.

**CE-VT / HZ & TA-HZ (TA025-HZ excluded) Units Covered in this Section**

Within this range of the units, the electric heater kit and the air handler will share a common electrical box, therefore a single complete new electrical box will be provided with the electrical heater kit.



**STEP 1: DISCONNECT POWER:**

*Always disconnect electrical power to the air handler and condensing section completely from its electrical source prior to any servicing.*



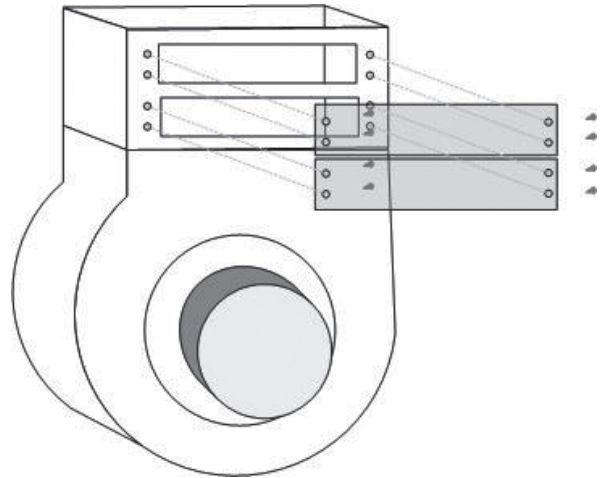
*It is highly critical that all wires that are disconnected within these steps are carefully labeled so that reconnection is easy and accurate.*

- a. Turn the system to “OFF” from the unit’s thermostat
- b. Turn the power to the condensing section and air handler section off at the unit’s disconnect switch or breaker panel.
- c. Remove the access panel from the front of the air handler exposing the blower section. Place the panel mounting screws aside in a safe place as they will need to be reused when putting the panels back on.
- d. Unplug the blower motor communication harness at the motor control board and set aside for reconnection later.
- e. The thermostat wires terminate at a common connection block on the motor control board inside the electrical box of the air handler. Unplug the thermostat terminal block and set aside for reconnection later.
- f. Disconnect the line voltage wires from the blower motor power terminal block from the service side and the ground wire from the ground lug in the air handler electrical box.
- g. The low voltage wires from the condensing section connect to a terminal block in the air handler with ¼” insulated terminal connections. Mark and disconnect these low voltage wires from terminal connections; set aside for reconnection later. The “C”, “R”, “O”, “Y1”, & “Y2” should be labeled and disconnected in this step.
- h. All wires leading into the air handler’s electrical box should now be disconnected at this point. If any wires remain connected, go back through the previous steps to ensure that all wires have

been properly labeled and disconnected before proceeding.

- i. Remove existing Electrical Box and set aside.

**STEP 2:** Remove the heater collar cover plate(s) to install the heater elements. (See Figure 1).



**Figure #1 – Showing Collar mounted on blower housing, element location and collar plate(s)**

**STEP 3:** Identify retainer pins on the end of the heater element(s). These pins are to be inserted in holes visible in the back of the heater collar. This stabilizes the heater element and prevents vibration of the heater elements.

**STEP 4:** Slide the heater element(s) into the mounting opening(s) on the heater collar, making sure that the retainer pins engage the holes in the back of the collar.



*It may be necessary to lower the blower in order to complete this task.*

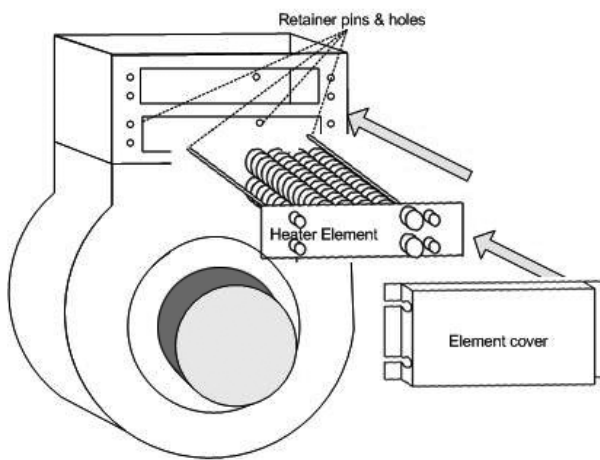
When installing the heater elements into the heater collar, ensure that the thermal overloads are on the right side; this will be the “L1” side. Secure each insert(s) with four of the supplied sheet metal screws provided (See Figure 2).



*It may be necessary to remove the line voltage wires that are connected to the element(s) from heater electrical box in order to complete installation.*

Remove the wires from heater contactor and terminal block at “L1” only. If wires are removed during installation, ensure that they are marked for proper reconnection. When reconnecting the line voltage wires to the contactor, apply 22 in-lbs of torque.

**STEP 5:** Install the element cover over the heater element(s). These are secured with a tab at one end of the cover and two of supplied sheet metal screws at the other end (See Figure 2). Ensure that heater wires are routed through the plastic bushing on the heater element cover.



**Figure #2 – With Collar removed insert heater element(s) (one shown in this diagram), wires not shown in diagram.**

**STEP 6: INSTALLING THE NEW ELECTRICAL BOX**

- Using the pre-punched holes in the two front corner posts, fasten the new electrical box provided in the electrical heater kit using the four screws that were included with the heater kit. Ensure no wires are pinched between any metal parts.
- If the wires from the heater elements were disconnected from the contactor(s) and terminal block at “L1” in Step 4, reconnect the elements to the contactor(s) applying 22 in-lbs of torque.

**STEP 7: CONNECTING HIGH VOLTAGE WIRES**



*By adding electrical heaters, the electrical demand may change quite significantly. The existing wires between the circuit panel and the air handler may not be sufficient and may need to be replaced. Verify the breaker is appropriately sized for the new electrical load also. See the data tag label that was included with the heater kit or at the end of the manual for the appropriate wire and breaker size for the amount of electric heat that is being installed. If the electrical load surpasses the rating of the breaker and/or wire size, add a separate circuit at the breaker panel, and run new wire.*

**Units with 5, 7.5, or 10 kW Electrical Heater Elements (HK050, HK075, HK100)**

- Reconnect the two line voltage wires that were disconnected in Step 1(f) to the main power terminal block in the heater/heat pump electrical box.
- Reconnect the ground wire that was disconnected in Step 1(f) to the ground lug in the heater/heat pump electrical box.
- Reconnect the blower motor line voltage wires to the terminal block that was disconnected in Step 1(g). The black wire should connect to the “L1” side, and the white wire should connect to the “L2” side.
- Reconnect the blower motor ground wire that was disconnected in Step 1(g) to the ground lug and tighten the screw.
- Reference the appropriate wiring diagram at the end of this manual to ensure that all connections have been made and are correct.

**Units with 15 or 20 kW Electrical Heater Elements (HK150, HK200)**

- Reconnect the two line voltage wires that were disconnected in Step 1(f) to the power fuse block in the heater/heat pump electrical box. Use the following torques when tightening the line voltage wires:



- 0/2 AWG 120 in-lbs
  - 8 AWG 40 in-lbs
  - 10-14 AWG 35 in-lbs
- b. Reconnect the ground wire that was disconnected in Step 1(f) to the ground lug in the heater/heat pump electrical box.
  - c. Ensure that all fuses are accounted for (2 x 30 amp + 2 x 60 amp for 15kW & 4 x 60 amp for 20kW), and are securely fastened in the fuse block.
  - d. Reconnect the blower motor line voltage wires block that was disconnected in Step 1(g) to the fuse block using the male terminal connection posts. The black wire should connect to the "L1" side, and the white wire should connect to the "L2" side.
  - f. Reconnect the blower motor ground wire that was disconnected in Step 1(g) to the ground lug and tighten the screw.
  - g. Reference the appropriate wiring diagram at the end of the manual to ensure that all connections have been made and are correct.
- b. Reconnect the low voltage wires from the condensing section to the terminal block in the air handler that was removed in Step 1(g). The "C", "R", "O", "Y1", & "Y2" should all be connected in this step.
  - c. Reconnect the blower motor communication harness that was disconnected in Step 1(d) to the new motor control board.
  - d. Reconnect the thermostat wire terminal block that was removed in Step 1(e) to the new motor control board. If new motor control board is the same as the old motor control board, the original block that was removed in Step 1(e) will fit and reconnecting the thermostat wires to the block will not be necessary.

#### STEP 9: THERMOSTAT WIRE CONNECTIONS

- a. Ensure that two low voltage wires are available from the thermostat to make the "W1" and "EM" connections. If these wires are not located, they will need to be pulled and routed from the back of the thermostat to motor control board in the heater electrical box.
- b. Strip the insulation off of the "W1" and "EM" wires and insert into the thermostat control wire block on the motor control board. Connect the other end of the wires to the back of the thermostat to the supplemental and emergency heat terminals. Reference the user's manual for the thermostat for proper connection.

**STEP 10:** Use the ground lug provided in the heater control box to connect the field ground from the power supply.

**STEP 11:** Remove the wiring diagram that is adhered to the back side of the front panel. Replace with the wiring diagram that was included with the heater kit. Using spray adhesive glue is recommended.

**STEP 12:** Place the adhesive back heater data label on top of the existing data tag as the new information will replace the existing information.

**STEP 13:** RESTORING POWER / TURNING ON THE UNIT



*Ensure that the wires are connected to the correct matching terminal and all unused wires are capped with a wire nut. Severe damage to the unit, personal injury, or death can occur if wires are not connected securely to the correct terminal or loose wires come into contact with the cabinet or other components.*

#### STEP 8: CONNECTING LOW VOLTAGE WIRES

- a. The four remaining wires on the long end of the wire harness are low voltage wires (Yellow, Purple, Red, and Blue). Connect these wires to the motor control board according to Table 2.

**Table 2**

Heater Box	Heat Pump Box
Yellow	R
Blue	C1
Red	W1
Purple	EM

- Turn on the disconnect switches or breaker switches to the "ON" position for the condensing section and the air handler.
- Test the unit in "COOLING" and "HEATING" to ensure that full functionality of the unit has been restored.
- Run the split system in heating mode with the heating elements engaged for at least 10 minutes to ensure the unit does not shut down due to any temperature limiting device.

**STEP 14:** Install the cover on the heater electrical box and reinstall the air handler access panel(s) with the screws that were set aside in Step 1(c).



*Always contact your local distributor if there is ever any doubt*

## SPLIT UNITS (CE/TAXXX-XAV, CE/TAXXX-XAH, TAXXX-XAC)

### TA-VT & TA025-HZ Units Covered in this Section

Within this range of the units, the electric heater kit will come with a separate heater electrical box to be installed. The original air handler electrical box will not be removed. Only some rewiring will be required.

#### STEP 1: DISCONNECT POWER:



*Always disconnect electrical power to the air handler and condensing section completely from its electrical source prior to any servicing.*



*It is highly critical that all wires that are disconnected within these steps are carefully labeled so that reconnection is easy and accurate.*

- Turn the system to "OFF" from the unit's thermostat
- Turn the power to the condensing section and air handler section off at the unit's disconnect switch or breaker panel.

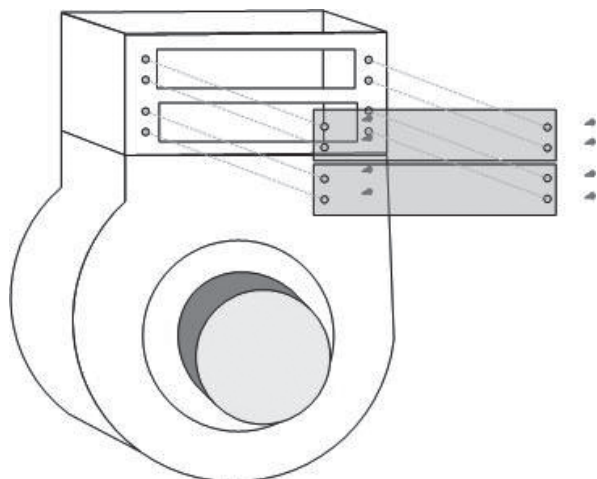
- Remove the access panel from the front of the air handler exposing the blower section. Place the panel mounting screws aside in a safe place as they will need to be reused when putting the panels back on.
- Disconnect the line voltage wires from the blower motor power terminal block from the service side and the ground wire from the ground lug in the air handler electrical box.

#### STEP 2: REMOVING THE AIR HANDLER ELECTRICAL BOX:

- Unplug the blower motor communication harness at the motor control board and set aside for reconnection later.
- Disconnect the line voltage wiring from the terminal block.
- Disconnect ground wire from the ground lug.
- The thermostat wires will terminate at a common connection block on the motor control board inside the electrical box of the air handler. Unplug the thermostat terminal block and set aside for reconnection later.
- The low voltage wires from the condensing section connect to the motor control board in the air handler with ¼" insulated terminal connections. Mark and disconnect these low voltage wires from terminal connections; set aside for reconnection later. The "C", "R", "O", "Y1", & "Y2" should be labeled and disconnected in this step.
- All wires leading into the air handler's electrical box should now be loose at this point. If any wires remain connected, go back through the previous steps to ensure that all wires have been properly labeled and disconnected before proceeding.
- Remove existing Electrical Box and set aside. Retain the mounting screws as these will be reused when reinstalling the air handler's electrical box.

**STEP 3:** Remove the heater collar cover plate(s) to install the heater elements. (See Figure 1).





**Figure #1 – Showing Collar mounted on blower housing, element location and collar plate(s)**

**STEP 4:** Identify retainer pins on the end of the heater element(s). These pins are to be inserted in holes visible in the back of the heater collar. This stabilizes the heater element and prevents vibration of the heater elements.

**STEP 5:** Slide the heater element(s) into the mounting opening(s) on the heater collar, making sure that the retainer pins engage the holes in the back of the collar.



*It may be necessary to lower the blower in order to complete this task.*

When installing the heater elements into the heater collar, ensure that the thermal overloads are on the right side; this will be the “L1” side. Secure each insert(s) with four of the supplied sheet metal screws provided (See Figure 2).

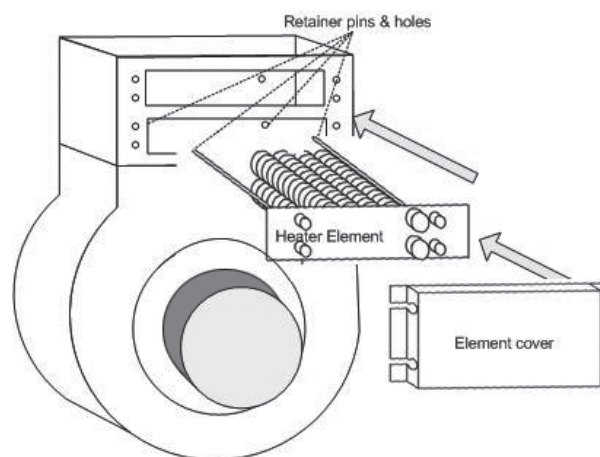


*It may be necessary to remove the line voltage wires that are connected to the element(s) from heater electrical box in order to complete installation.*

Remove the wires from heater contactor and terminal block at “L1” only. If wires are removed during installation, ensure that they are marked for proper reconnection. When reconnecting the line

voltage wires to the contactor, apply 22 in-lbs of torque.

**STEP 6:** Install the element cover over the heater insert(s). These are secured with a tab at one end of the cover and two of the supplied sheet metal screws at the other end (See Figure 2). Ensure that heater wires are routed through the plastic bushing on the heater element cover.



**Figure #2 – With Collar removed insert heater element(s) (one shown in this diagram), wires not shown in diagram.**

**STEP 7: REINSTALLING THE ELECTRICAL BOX AND INSTALLING THE NEW HEATER ELECTRICAL BOX**

- Reinstall the original air handler electrical box in the same location in which it was removed from in Step 2-(g).
- Reuse the mounting screws that were set aside in Step 2-(g).
- Using the pre-punched holes in the two front corner posts underneath the air handler electrical box, fasten the new heater electrical box provided in the electrical heater kit using the four mounting screws found in the clear accessory bag. Ensure no wires are pinched between any metal parts.

**STEP 8: CONNECTING HIGH VOLTAGE WIRES**



*By adding electrical heaters, the electrical demand may change quite significantly. The existing wires between the circuit panel and the air handler may not be sufficient and may need to be replaced. Verify the breaker is appropriately sized for the new electrical load also. See the data tag label that was included with the heater kit or at the end of the manual for the appropriate wire and breaker size for the amount of electric heat that is being installed. If the electrical load surpasses the rating of the breaker and/or wire size, add a separate circuit at the breaker panel, and run new wire.*

### Units with 5, 7.5, or 10 kW Electrical Heater Elements (HK050, HK075, HK100)

- Reconnect the two line voltage wires that were disconnected in Step 1(d) to the power terminal block in the heater electrical box. Torque to 22 in-lbs.
- Reconnect the ground wire that was disconnected in Step 1(d) to the ground lug in the heater electrical box. Tighten with a screwdriver.
- There are two black wires connected to the power terminal block in the heater electrical box with female quick connection terminals. Route these two wires from the heater electrical box to the air handler electrical box. Connect the two wires to the male quick connection terminals on the blower motor power terminal block. Ensure that the wire from the heater electrical box that is connected to "L1" side is also connected to "L1" side of the blower motor terminal block in the air handler electrical box and "L2" is connected to "L2".
- Reference the appropriate wiring diagram at the end of this manual to ensure that all connections have been made and are correct.

### Units with 15 or 20 kW Electrical Heater Elements (HK150, HK200)

- Reconnect the two line voltage wires that were disconnected in Step 1(d) to the power fuse block in the heater electrical box. Use the

following torques when tightening the line voltage wires:

- 0/2 AWG      120 in-lbs
- 8 AWG        40 in-lbs
- 10-14 AWG   35 in-lbs

- Reconnect the ground wire that was disconnected in Step 1(d) to the ground lug in the heater electrical box. Tighten with a screwdriver.
- Ensure that all fuses are accounted for (2 x 30 amp + 2 x 60 amp for 15kW & 4 x 60 amp for 20kW), and are securely fastened in the fuse block.
- There are two black wires connected to the power fuse block in the heater electrical box with female quick connection terminals. Route these two wires from the heater electrical box to the air handler electrical box. Connect the two wires to the male quick connection terminals on the blower motor power terminal block. Ensure that the wire from the heater electrical box that is connected to "L1" side is also connected to "L1" side of the blower motor terminal block in the air handler electrical box and "L2" is connected to "L2"
- Reference the appropriate wiring diagram at the end of this manual to ensure that all connections have been made and are correct.



*Ensure that the wires are connected to the correct matching terminal and all unused wires are capped with a wire nut. Severe damage to the unit, personal injury, or death can occur if wires are not connected securely to the correct terminal or loose wires come into contact with the cabinet or other components.*

### STEP 9: CONNECTING LOW VOLTAGE WIRES

- Reconnect the low voltage wires from the condensing section to the motor control board that was removed in Step 2(e). The "C", "R", "O", "Y1", & "Y2" should all be connected in this step.
- Reconnect the blower motor communication harness that was disconnected in Step 2(a) to the motor control board.



- c. Reconnect the thermostat wire terminal block that was removed in Step 2(d) to the motor control board.
- d. There are four wire leads (Yellow, Purple, Red, and Blue) with insulated female quick connections attached at one end in the heater electrical box. Route these wires from heater electrical box to the air handler electrical box and connect these wires to the motor control board according to Table 2.

Table 2	
Heater Box	Heat Pump Box
Yellow	R
Blue	C1
Red	W1
Purple	EM

#### STEP 10: THERMOSTAT WIRE CONNECTIONS

- a. Ensure that two low voltage wires are available from the thermostat to make the “W1” and “EM” connections. If these wires are not located, they will need to be pulled and routed from the back of the thermostat to motor control board in the heater electrical box.
- b. Strip the insulation off of the “W1” and “EM” wires and insert into the thermostat control wire block on the motor control board. Connect the other end of the wires to the back of the thermostat to the supplemental and emergency heat terminals. Reference the user’s manual for the thermostat for proper connection.

**STEP 11:** Use the ground lug provided in the heater control box to connect the field ground from the power supply.

**STEP 12:** Remove the wiring diagram that is adhered to the back side of the front panel. Replace with the wiring diagram that was included with the heater kit. Using a spray adhesive glue is recommended.

**STEP 13:** Place the adhesive back heater data label on top of the existing data tag as the new information will replace the existing information.

#### STEP 14: RESTORING POWER AND TURNING ON THE UNIT

- a. Turn on the disconnect switch or breaker switch to the “ON” position for the air handler.
- b. Test the unit in “COOLING” and “HEATING” to ensure that full functionality of the unit has been restored.
- c. Run the split system in heating mode with the heating elements engaged for at least 10 minutes to ensure the unit does not shut down due to any temperature limiting device.

**STEP 15:** Install the cover on the heater electrical box and reinstall the air handler access panel(s) with the screws that were set aside in Step 1(g).



*Always contact your local distributor if there is ever any doubt*

Table 3: Electric Heater Electrical Data

Heater Model	kW		Number of Stages	Hz	Phase	Heater Amps		Circuit Fuses	MCA*		MOCP*	
	208	240				208	240		208	240	208	240
HK050-1XXX-RES	3.6	4.8	1	60	1	17.3	20.0	F1/F2	30.4	33.8	35	35
HK075-1XXX-RES	5.4	7.2	1	60	1	26.0	30.0	F1/F2	41.2	46.3	45	50
HK100-1XXX-RES	7.2	9.6	1	60	1	34.6	40.0	F1/F2	52.0	58.8	55	60
HK150-1XXX-RES	10.8	14.4	1	60	1	51.9	60.0		73.7	83.8	80	90
	7.2	9.6	1	60	1	34.6	40.0	F1/F2	52.0	58.8	55	60
	3.6	4.8	1	60	1	17.3	20.0	F3/F4	30.4	33.8	35	35
HK200-1XXX-RES	14.4	19.2	1	60	1	69.2	80.0		95.3	108.8	100	110
	5.4	7.2	1	60	1	26.0	30.0	F1/F2	41.2	46.3	45	50
	5.4	7.2	1	60	1	26.0	30.0	F3/F4	41.2	46.3	45	50

\* The fan motor and electric heat elements should be rewired to be on the same circuit. MCA and MOCP include 7 amps to accommodate for the additional motor load. 7 is the amp draw on a 1 HP motor.

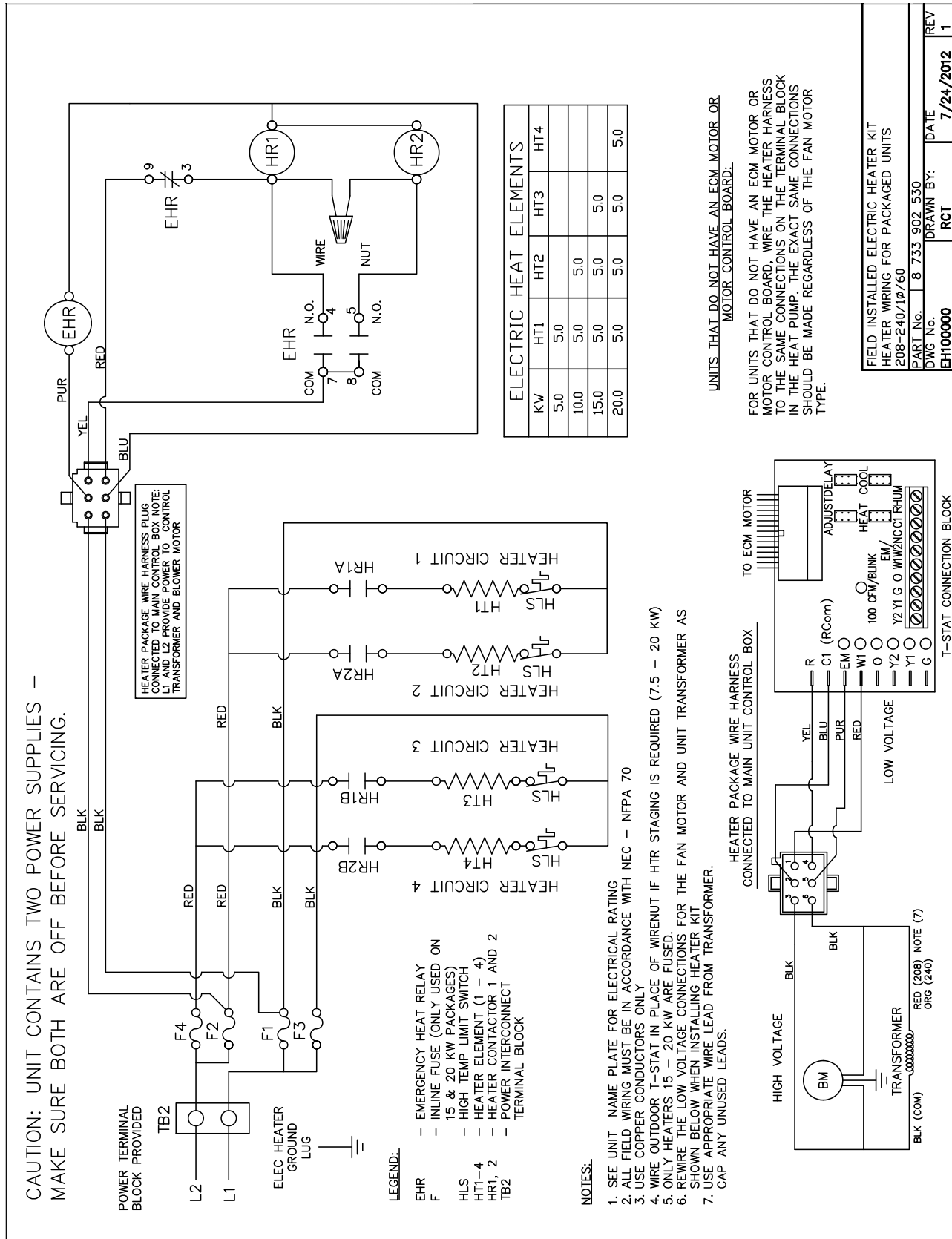
Table 4: Field Installed Electric Heater Kit Availability

CE / TA Field Installed Electric Heater Kit Model Numbers												
	Unit Model	5 kW	7.5 kW	10 kW	15 kW	20 kW	Unit Model	5 kW	7.5 kW	10 kW	15 kW	20 kW
Vertical/Counter Flow Packaged Units	TA025	HK050-1001	HK075-1001	HK100-1001	X	X	CE025	HK050-1001	HK075-1001	HK100-1001	X	X
	TA035	HK050-1002	HK075-1002	HK100-1002	X	X	CE035	HK050-1001	HK075-1001	HK100-1001	X	X
	TA049	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001	CE049	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001
	TA061	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001	CE061	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001
	TA071	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001	CE071	HK050-1002	HK075-1002	HK100-1002	HK150-1001	HK200-1001
Horizontal Packaged Units	TA025	HK050-1004	HK075-1004	HK100-1004	X	X	CE025	HK050-1004	HK075-1004	HK100-1004	X	X
	TA035	HK050-1004	HK075-1004	HK100-1004	X	X	CE035	HK050-1004	HK075-1004	HK100-1004	X	X
	TA049	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002	CE049	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002
	TA061	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002	CE061	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002
	TA071	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002	CE071	HK050-1004	HK075-1004	HK100-1004	HK150-1002	HK200-1002
Vertical/Counter Flow Air Handlers	TA025	HK050-1005	HK075-1005	HK100-1005	X	X	CE025	HK050-1007	HK050-1007	HK050-1007	X	X
	TA035	HK050-1005	HK075-1005	HK100-1005	X	X	CE035	HK050-1007	HK050-1007	HK050-1007	X	X
	TA049	HK050-1005	HK075-1005	HK100-1005	HK150-1005	HK200-1003	CE049	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005
	TA061	HK050-1005	HK075-1005	HK100-1005	HK150-1005	HK200-1003	CE061	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005
	TA071	HK050-1005	HK075-1005	HK100-1005	HK150-1005	HK200-1003	CE071	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005
Horizontal Air Handlers	TA025	HK050-1005	HK075-1005	HK100-1005	X	X	CE025	HK050-1007	HK050-1007	HK050-1007	X	X
	TA035	HK050-1006	HK075-1006	HK100-1006	X	X	CE035	HK050-1007	HK050-1007	HK050-1007	X	X
	TA049	HK050-1006	HK075-1006	HK100-1006	HK150-1003	HK200-1004	CE049	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005
	TA061	HK050-1006	HK075-1006	HK100-1006	HK150-1003	HK200-1004	CE061	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005
	TA071	HK050-1006	HK075-1006	HK100-1006	HK150-1003	HK200-1004	CE071	HK050-1007	HK050-1007	HK050-1007	HK150-1004	HK200-1005

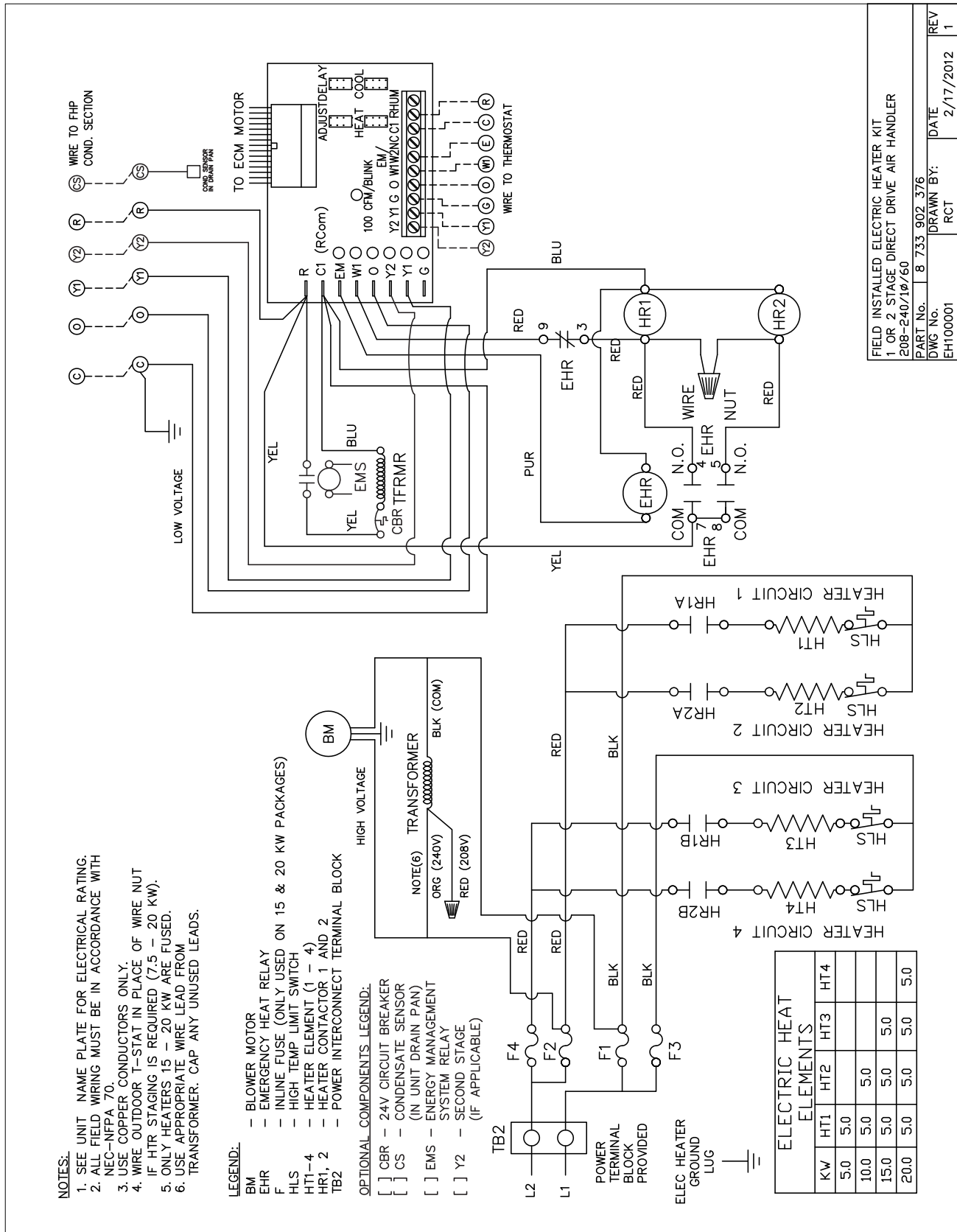




# ELECTRIC HEAT DIAGRAM - HK SERIES HEATER PACKAGE Heater Control Box For Packaged Units Rewiring Fan Motor With Electric Heat



# **ELECTRIC HEAT DIAGRAM - HK SERIES HEATER PACKAGE** **Heater Control Box For 1 Or 2 Stage Air Handler Units** **Rewiring Fan Motor With Electric Heat**











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