

# ACCESSORY INSTALLATION INSTRUCTION

## ELECTRIC HEAT ACCESSORY

### 10, 16, 26, 36 & 72

FOR SPLIT-SYSTEM AIR CONDITIONERS 5, 7-1/2, 10 & 15 TONS  
SPLIT-SYSTEM HEAT PUMPS 7-1/2 & 10 TONS

#### GENERAL

This instruction covers the installation and operation of these electric heat accessories.

Every electric heat accessory is shipped completely assembled and pre-wired with all of the power and control wiring that will be required to interconnect this accessory with the basic unit. Refer to Table 1 for accessory model numbers and for capacity ratings based on the voltage of the power supply and the mode of operation.

These electric heaters can be installed on either vertical or horizontal units, on units with ductwork, or on free standing units equipped with a supply air plenum accessory.

**NOTE:** Electric Heat is not CSA approved with the Supply Air Plenum Accessory.

Single packaged units equipped with an electric heat accessory will require two power supplies, one for the heater elements and one for the basic unit.

Split--system units equipped with an electric heat accessory will require only one power supply for both the heater elements and the supply air blower motor. Refer to Figure 2 for the locations of both the power and the control wire access openings and to the following instructions for routing and connecting the wires.

All heat pump systems and all air conditioning systems with one of these electric heat accessories will require an electric heat compatible thermostat.

**NOTE:** Heat pump systems with or without electric heat use the same thermostats. Air conditioning systems with one of these electric heat accessories will require a thermostat that can cycle the supply air blower motor with a call for heating as well as a call for cooling.

When an indoor unit is equipped with an electric heater, provide at least 1-inch clearance to combustible material around heater cabinet, supply air plenum and supply air ducts up to 3 feet from the unit.

#### REFERENCE

Refer to one of the appropriate indoor section instructions for additional information on the installation of the basic unit, for the application limitations of the total system and for the minimum clearance requirements of the indoor unit.

#### **WARNING**

Installer should pay particular attention to the words: NOTE, CAUTION and WARNING. Notes are intended to clarify or make the installation easier. Cautions are given to prevent equipment damage. Warnings are given to alert installer that personal injury and/or equipment damage may result if installation procedure is not handled properly.

**Table 1: Heating Capacity**

HEATER MODEL NUMBER	NOMINAL RATINGS	HEATING <sup>1</sup> CAPACITY			
		WITH A/C		WITH HEAT PUMP	
		STAGE 1	STAGE 2	SUPPLEMENTAL	STANDBY AND EMERGENCY
		KW	KW	KW	KW
2HT045010,25 <sup>2</sup>	10	10		10	10
2HS045010,25,46,58					
2HT045016,25 <sup>1</sup>	16	10	6	16	16
2HS045016,25,46,58					
2HT045026,25 <sup>1</sup>	26	16	10	26	26
2HS045026,25,46,58					
2HS045036,25,46,58	36	16	20	26	36
2HS045072,25,46,58	72	36	36		

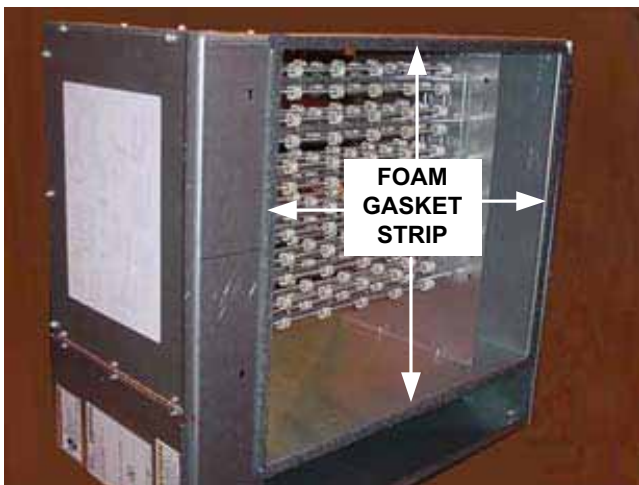
- Capacity ratings do not include the heat generated by the supply blower motor.
- Use HT Heater Models on 060 MBH Units, supplied for 208/230-3-60 Power only.

## INSTALLATION

### SPLIT SYSTEM AIR CONDITIONERS AND HEAT PUMPS

Install these electric heat accessories per the following step--by--step procedures and the illustrations shown in Figures 1, 2 and 3.

- Remove the electric heat accessory from its shipping container.



**Figure 1: Foam Gasket Location**

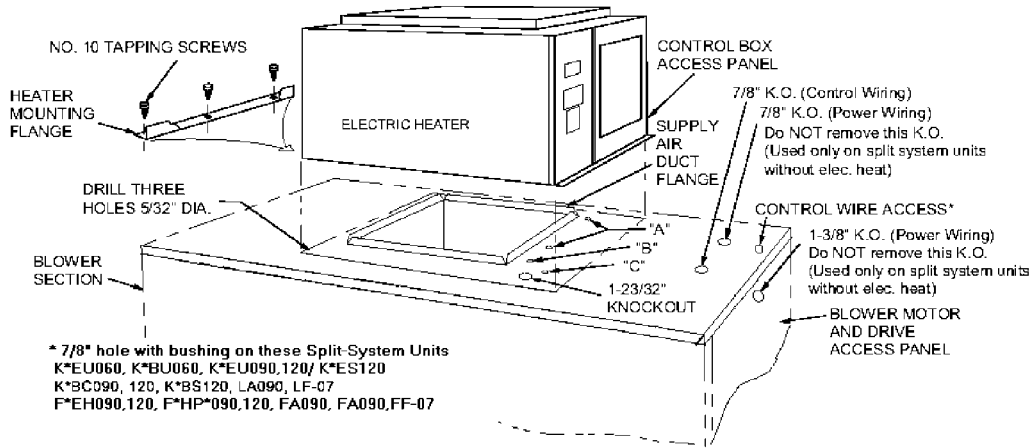
- Install Foam Gasket (See Figure 1.)

- Remove the control box access panel from the heater cabinet.
- Remove the access panel of the blower motor compartment from the indoor unit for access to the blower motor contactor box and low voltage terminal block TBI. (Refer to Figure 3.)
- Remove the cover from the blower motor contactor box.
- Remove the 1-23/32" knockout from the top of the indoor unit. Refer to Figure 2 for its location.
- Remove the two screws from the "A" locations and save them for step 10.

### **CAUTION**

Do NOT remove the screw from location "B"  
This screw must be left in place to keep the angle support for the heater wiring harness in place while the heater accessory is being installed. A clearance hole in the bottom of the heater control box at this location allows the cabinet to fit flush against the top of the indoor unit.

On some units, this screw is outside the dimensions of the heater accessory and will not interfere with its installation.



\* 7/8" hole with bushing on these Split-System Units  
 K\*EU060, K\*BU060, K\*EU090,120/ K\*ES120  
 K\*BC090, 120, K\*BS120, LA090, LF-07  
 F\*EH090,120, F\*HP\*090,120, FA090, FA090,FF-07

**Figure 2: Heater Installation**

8. Set the heater cabinet on top of the unit as shown in Figure 2.
9. Position the heater so that:
  - a. The duct flanges around the unit's supply air opening fit into the heater opening.
  - b. The head of the screw at location "B" fits into the clearance hole in the bottom of the heater control box on most units.
  - c. The 1/2" flex conduit fitting on the bottom of the heater control box fits into the 1-23/32" opening. (Knockout removed per step 5.)
  - d. The three holes in the bottom of the heater control box align with the three holes on the top of the unit -- the two holes at the "A" locations and the hole at location "C"
10. Secure the heater to the unit at the holes aligned per step 9(d) using the two screws removed per step 7 and one of the #10 x 1/2" screws provided with the accessory.
11. Drill three 5/32" holes through the top of the unit using the holes in the mounting flange on the opposite end of the heater as templates.
12. Secure the heater to the unit at these locations using the three remaining #10 x 1/2" screws provided with the accessory.
13. Remove the 7/8" knockout from the back panel of the contactor box and insert the 1/2" flex conduit fitting, provided with the accessory, into this opening. (Refer to Figure 3.) Secure fitting in contactor box by tightening the locknut.

14. Install 1/2" flex conduit (provided in accessory) between the flex conduit fitting in the bottom of the heater control box and the fitting installed per step 13. Tighten fittings to secure conduit to both boxes.
15. Route heater wiring harness thru conduit into contactor box.
16. Connect line voltage wires 724BK, 725Y, and 726BR to the L1, L2 and L3 terminals of Contactor (M10).
17. Route the control voltage wires of the heater wiring harness through the snap bushing in the back of control box and connect them to the proper terminals on terminal block TB1 per Table 2.

**Table 2: Control Voltage Terminals**

Heater Rating (KW)	Terminal Designation on TB1									
	R	B	Y	O	W	X	53	G	60	66
10	801/R	804/BR								811/BR
16&26	801/R	804/BR							812/PR	811/BR
36	801/R	804/BR					813/BK		812/PR	811/BR
72	801/R	804/BR							812/PR	811/BR

18. Secure the flex conduit to the support angle with the two ty-raps provided with the accessory. Holes are pre-punched in the support at the locations shown in Figure 3.
19. Add a conduit fitting (field-supplied) to the power access opening in the rear panel of the heater cabinet per Figure 6.
20. Connect the power wire conduit to the fitting installed per step 19, route the power wiring into the heater control box, and connect the power and ground wires per the field wiring diagram. (See Figures 4 and 5).

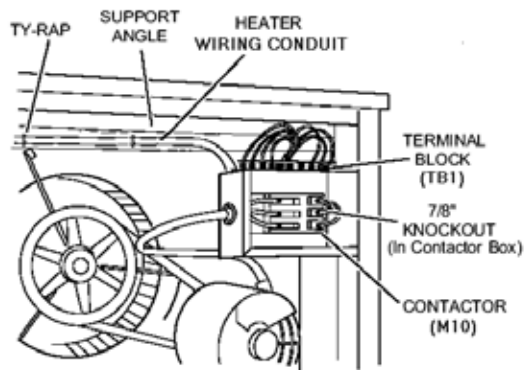


Figure 3: Contactor Box & Heater Conduit Support

21. Remove the 7/8" knockout, as needed, for control wiring from the indoor unit. (See Figure 2 for its location.) Add a 1/2" strain relief bushing (field supplied) to this opening, route the control wires from the thermostat and the outdoor unit through this bushing, connect them to terminal block TB1 per the field wiring diagram, and tighten the bushing to secure the control wiring to the unit.
22. Replace the contactor box cover removed per step 5, the indoor unit access panel removed per step 4 and heater control box cover removed per step 3.

Table 3: Physical Data

DESCRIPTION			HEATER CAPACITY				
			10KW	16KW	26KW	36KW	72KW
Rows Deep			1	2	3	4	5
Weight Shipping Lbs.			63	66	71	74	120
Fuses <sup>1</sup>	208/230 volts	Quantity	3	3	3/3	6	12
		Size - amps	45	60	60/45	60	60
	460 volts	Quantity	3	3	3	3	6
		Size - amps	25	30	45	60	60
	575 volts	Quantity	3	3	3	3	6
		Size - amps	20	25	35	50	50

1. Dual Element Time Delay fuses.

Table 4: Electrical Data For 5 Thru 10 Ton Split-System Units

MODEL BASIC UNIT	NOMINAL HEATER KW	POWER SUPPLY VOLTAGE	HEATER	INDOOR FAN MOTOR FLA	ELECTRIC HEAT AMPS	MIN. CIRCUIT AMPACITY (AMPS)	MAX FUSE <sup>1</sup> HACR BRKR <sup>2</sup> (AMPS)
K*EU060 K*BU060	10	208	7.5	7.6	20.8	35.6	40
		230	9.2	6.9	24.1	38.7	40
	16	208	12.0	7.6	33.4	51.2	60
		230	14.7	6.9	38.5	56.7	60
	26	208	19.5	7.6	54.2	77.3	80
		230	23.9	6.9	62.5	86.8	90
K*EU090 K*BC090 LA090 LF-07 F*EH090 F*HP090 <sup>3</sup> FA090 FF-07 <sup>3</sup>	10	208	7.5	6.6	20.8	34.3	35
		240	10.0	6.0	24.1	37.6	40
		480	10.0	3.0	12.0	18.8	20
		600	10.0	2.4	9.6	15.0	20
	16	208	12.0	6.6	33.4	49.9	50
		240	16.0	6.0	38.5	55.6	60
		480	16.0	3.0	19.2	27.8	30
		600	16.0	2.4	15.4	22.2	25
	26	208	19.5	6.6	54.2	76.0	80
		240	26.0	6.0	62.5	85.7	90
		480	26.0	3.0	31.3	42.8	45
		600	26.0	2.4	25.0	34.3	35
	36	208	27.0	6.6	75.1	102.1	110
		240	36.0	6.0	86.6	115.8	125
		480	36.0	3.0	43.3	57.9	60
		600	36.0	2.4	34.6	46.3	50
K*ES120 K*BS120 K*EU120 K*BC120 LA120 LF-10 F*EH120 F*HP120 <sup>3</sup> FA120 FF-10 <sup>3</sup>	10	208	7.5	7.5	20.8	35.4	40
		240	10.0	6.8	24.1	38.6	40
		480	10.0	3.4	12.0	19.3	20
		600	10.0	2.7	9.6	15.4	20
	16	208	12.0	7.5	33.4	51.1	60
		240	16.0	6.8	38.5	56.6	60
		480	16.0	3.4	19.2	28.3	30
		600	16.0	2.7	15.4	22.6	25
	26	208	19.5	7.5	54.2	77.1	80
		240	26.0	6.8	62.5	86.7	90
		480	26.0	3.4	31.3	43.3	45
		600	26.0	2.7	25.0	34.6	35
	36	208	27.0	7.5	75.1	103.2	110
		240	36.0	6.8	86.6	116.8	125
		480	36.0	3.4	43.3	58.4	60
		600	36.0	2.7	34.6	46.7	50

1. Dual element, time delay type.

2. HACR type per NEC.

3. These models not offered in 575 volts.

Table 5: Electrical Data For 15 Ton Split-System Units

MODEL BASIC UNIT	NOMINAL HEATER KW	POWER SUPPLY VOLTAGE	HEATER	INDOOR FAN MOTOR FLA	ELECTRIC HEAT AMPS	MIN. CIRCUIT AMPACITY (AMPS)	MAX FUSE <sup>1</sup> HACR BRKR <sup>2</sup> (AMPS)
K*EU180 K*BC180	10	208	7.5	10.6	20.8	39.3	40
		240	10.0	9.6	24.1	42.1	45
		480	10.0	4.8	12.0	21.0	25
		600	10.0	3.9	9.6	16.9	20
	16	208	12.0	10.6	33.4	54.9	60
		240	16.0	9.6	38.5	60.1	70
		480	16.0	4.8	19.2	30.1	35
		600	16.0	3.9	15.4	24.1	25
	26	208	19.5	10.6	54.2	81.0	90
		240	26.0	9.6	62.5	90.2	100
		480	26.0	4.8	31.3	45.1	50
		600	26.0	3.9	25.0	36.1	40
	36	208	27.0	10.6	75.1	107.1	110
		240	36.0	9.6	86.6	120.3	125
		480	36.0	4.8	43.3	60.1	70
		600	36.0	3.9	34.6	48.2	50
	72	208	54.1	10.6	150.1	200.9	225
		240	72.0	9.6	173.2	228.5	250
		480	72.0	4.8	86.6	114.3	125
		600	72.0	3.9	69.3	91.5	100

1. Dual element, time delay type.
2. HACR type per NEC.

Table 6: Heater Static Resistance

Heater Accessory (Nom. Rating)	Basic Unit Models														
	060 MBH					090 MBH					120 MBH				
	CFM					CFM					CFM				
	1,600	1,800	2,000	2,200	2,400	2,400	2,700	3,000	3,300	3,600	3,200	3,600	4,000	4,400	4,800
10KW	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.04
16KW	0.01	0.02	0.02	0.03	0.04	0.01	0.02	0.02	0.03	0.04	0.03	0.04	0.05	0.06	0.07
26KW	0.02	0.03	0.04	0.05	0.08	0.03	0.04	0.05	0.06	0.07	0.06	0.07	0.09	0.11	0.13
36KW	-	-	-	-	-	0.05	0.07	0.08	0.10	0.11	0.09	0.11	0.14	0.17	0.20
72KW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Heater Accessory (Nom. Rating)	Basic Unit Models				
	180 MBH				
	CFM				
	4,800	5,400	6,000	6,600	7,200
10KW	0.04	0.05	0.06	0.08	0.10
16KW	0.07	0.09	0.11	0.14	0.17
26KW	0.13	0.16	0.20	0.24	0.29
36KW	0.20	0.24	0.29	0.35	0.42
72KW	0.36	0.43	0.52	0.63	0.76

## ELECTRICAL COMPONENTS

These electric heat accessories include staging contactors, back-up contactors and two high limit controls (1LC and 2LC).

Staging contactors are energized through the system control circuit. When energized, each contactor will close two of three legs to one or two of the heating elements. This arrangement is illustrated in the wiring labels for the electric heat accessories.

### **WARNING**

When the staging contactors are de-energized, one of the legs to each heating element is "HOT" Open the main disconnect switch before servicing the heating accessory.

Back-up contactors are not energized through the system control circuit. They will be closed as long as there is power to the electric heat control circuit and both high limit controls are closed

The high limit controls will prevent the electric heat accessory from operating at an excessive temperature. They will open and reset automatically at the temperatures listed below.

**Table 7: Automatic Resets**

High Limit Control	Location	2HS		2HT	
		Opens	Closes	Opens	Closes
1LC	Entering	140°F	90°F	135°F	85°F
2LC	Leaving	150°F	100°F	135°F	85°F

## START-UP

Make sure that all electrical connections are tight before closing the disconnect switch to the indoor unit.

Close the disconnect switch and check the operation of each heating stage.

Check the total unit CFM in accordance with the respective basic unit instruction as referenced on page 1. Refer to the Static Resistances table for these electric heaters.

### **CAUTION**

Failure to properly adjust the supply air CFM could cause nuisance tripping of the high limit controls.

De-energize the electric heat accessory after it has been operating for several hours, and recheck all of the electrical connections for tightness.

## MAINTENANCE

Although these electric heat accessories do not require any specified maintenance, the factory recommends a semi-annual inspection of all components to see if they are functioning properly.

Check all unit filters periodically for dirt accumulation. Dirty filters will restrict air flow and could cause nuisance tripping of the high limit controls. Filters must be changed as often as necessary to assure good air flow and filtering action.

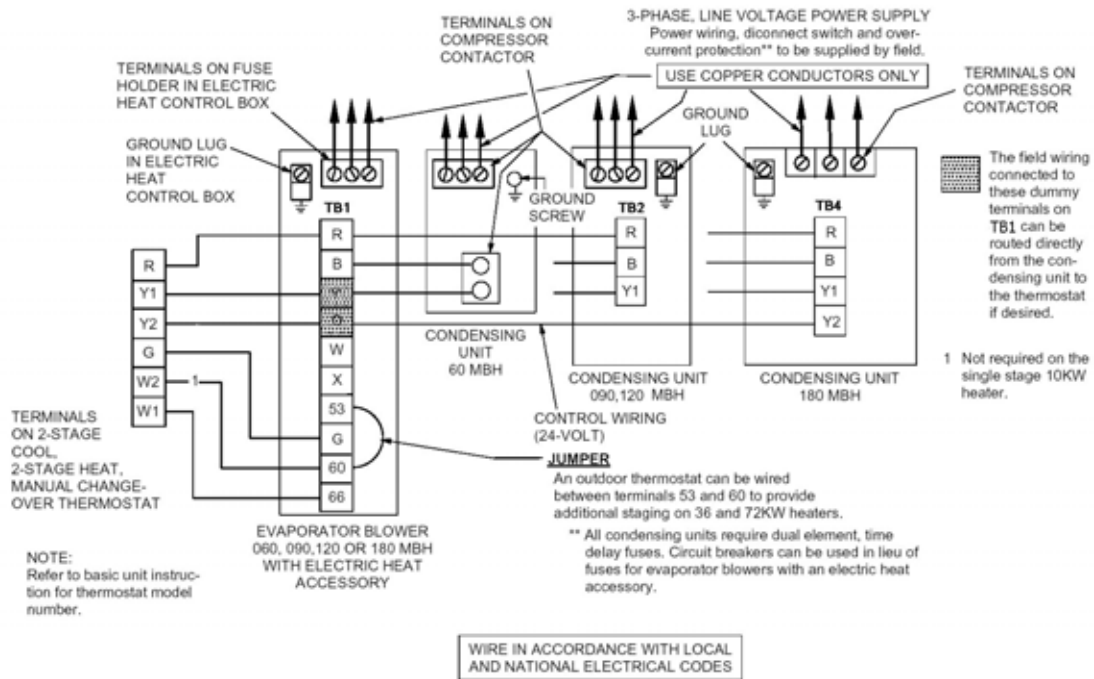


Figure 4: Field Wiring (Split-System Air Conditioner With Electric Heat Accessory)

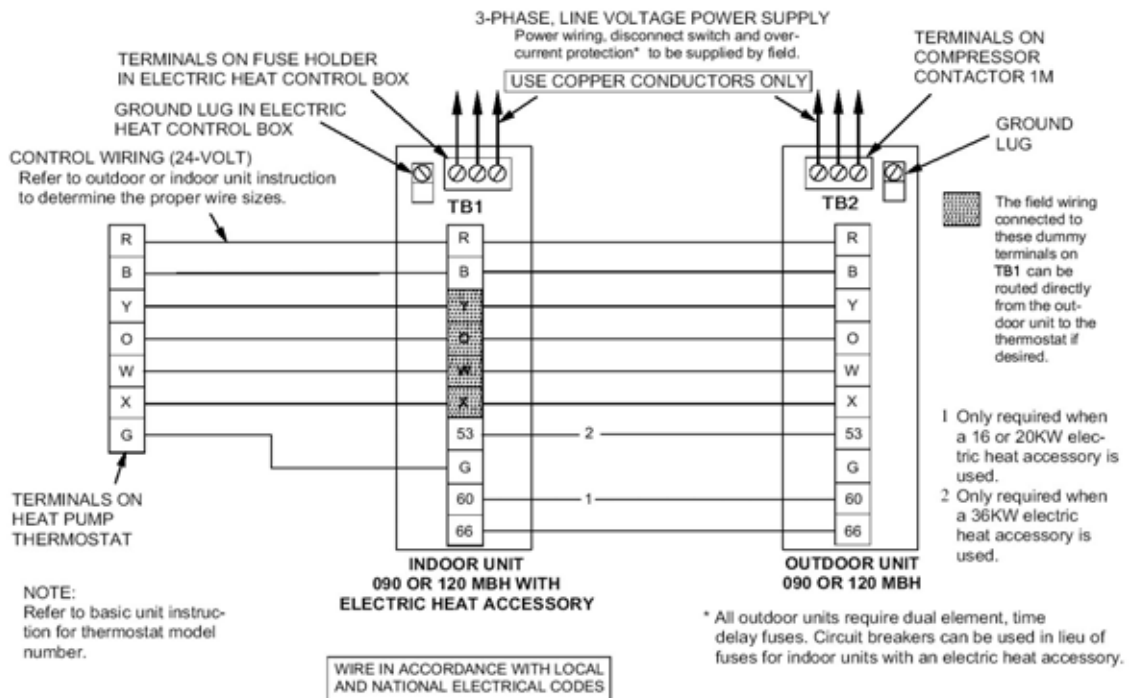


Figure 5: Field Wiring (Split-System Heat Pump With Electric Heat Accessory)

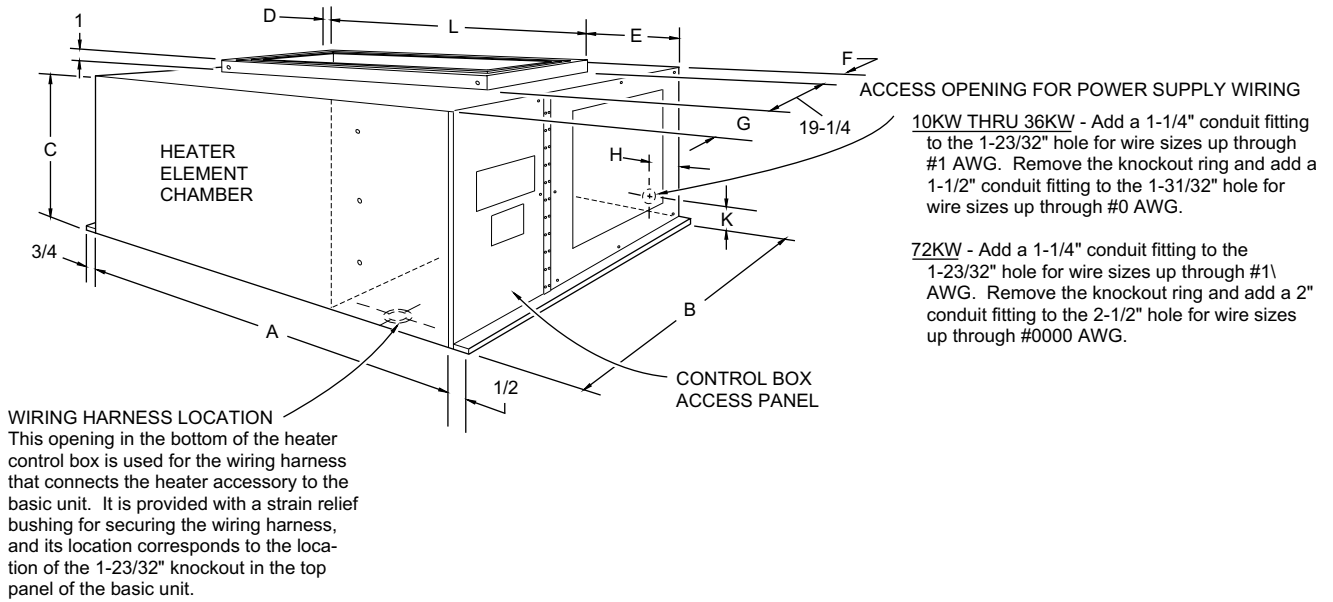


Figure 6: Heater Dimensions

Table 8: Heater Dimensions

Accessory Model	Nom. kW	Heater Dimensions (inches)										
		A	B	C	D	E	F	G	H	K	L	M
2HT04501025 2HT04501625 2HT04502625	10 16 26	25-1/8	22-1/2	13	7/8	4	1/2	5-1/4	1-11/16	1-3/4	20-1/8	16-7/8
2HS04501025, 46 2HS04501625, 46 2HS04502625, 46 2HS04503625, 46	10 16 26 36	28-1/2	25-1/4	14-1/4	1	4	1/2	5-1/2	1-1/2	1-1/2	22-1/4	19-1/4
2HS04507225, 46	72	29-7/8	26-3/8	21-3/4	2-3/8	5-1/4	3/4	6-3/4	2-1/4	2-1/2	22-1/4	19-1/4





