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# INSTALLATION INSTRUCTIONS

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## ELECTRIC HEAT PACKAGES

<b>MODELS:</b>	<b>EHWH38-A05</b>	<b>EHWA38-A05</b>
	<b>EHWH38-B06</b>	<b>EHWA38-A08</b>
	<b>EHWH38-B09</b>	<b>EHWA38-A10</b>
	<b>EHWH49-A05</b>	<b>EHWA38-B06</b>
	<b>EHWH49-A08</b>	<b>EHWA38-B09</b>
	<b>EHWH49-A10</b>	<b>EHWA38-C09</b>
	<b>EHWH49-B06</b>	<b>EHWA49-A05</b>
	<b>EHWH49-B09</b>	<b>EHWA49-B06</b>
	<b>EHWH49-C06</b>	<b>EHWA61-A05</b>
	<b>EHWH49-C09</b>	<b>EHWA61-A08</b>
	<b>EHWH61-A05</b>	<b>EHWA61-A10</b>
	<b>EHWH61-A08</b>	<b>EHWA61-B09</b>
	<b>EHWH61-A10</b>	
	<b>EHWH61-A20</b>	
	<b>EHWH61-C09</b>	

**FOR USE WITH WH381, WH431, WH491, WH491,  
WA381, WA491 AND WA611 WALL MOUNTED  
AIR CONDITIONERS AND HEAT PUMPS**



**CLIMATE CONTROL SOLUTIONS**

**BARD MANUFACTURING COMPANY**  
Bryan, Ohio 43506  
*Since 1914...Moving, ahead just as planned.*

Manual: 2100-352B  
Supersedes: 2100-352A  
File: Volume III, Tab 18  
Date: 09-12-01

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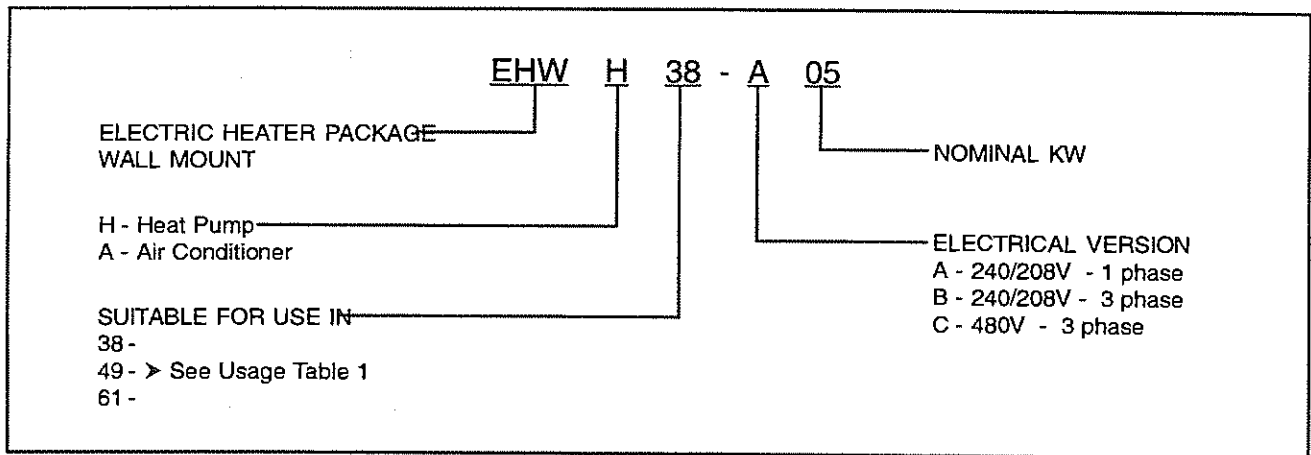
# GENERAL INFORMATION

## DESCRIPTION

The EHWA and EHWH series electric heater packages are field installable heater packages suitable for use with Bard wall mount hi boy air conditioners or heat pumps. The packages consist of the electric heat strip, the heater control base which includes the heat contactors and circuit breaker or pull disconnects,

installation instructions and wiring diagrams. See Table 1 for nominal electrical data and BTU output. Before installation, check unit serial plate to insure the heater package model that you intend to install is listed as a heater package that is suitable for use with the Bard wall mount hi boy unit. See Figure 6.

## NOMENCLATURE



**TABLE 1  
HEATER USAGE WITH MODELS**

MODELS	HEATERS USED ON MODELS LISTED							
	A05	A08	A10	A20	B06	B09	C06	C09
WH381-A	EHWH38-A05	EHWH49-A08	EHWH49-A10					
WH381-B					EHWH38-B06	EHWH38-B09		
WH381-C							EHWH38-C06	EHWH38-C09
WH431-A	EHWH49-A05	EHWH49-A08	EHWH49-A10					
WH431-B					EHWH49-B06	EHWH49-B09		
WH431-C							EHWH49-C06	EHWH49-C09
WH491-A	EHWH49-A05	EHWH49-A08	EHWH49-A10					
WH491-B					EHWH49-B06	EHWH49-B09		
WH491-C							EHWH49-C06	EHWH49-C09
WH611-A	EHWH61-A05	EHWH61-A08	EHWH61-A10	EHWH61-A20				
WH611-B						EHWH61-B09		
WH611-C								EHWH61-C09
WA381-A	EHWA38-A05	EHWA38-A08	EHWA38-A10					
WA381-B					EHWA38-B06	EHWA38-B09		
WA381-C							EHWA38-C06	EHWA38-C09
WA491-A	EHWA49-A05	EHWA49-A08	EHWA49-A10					
WA491-B					EHWA49-B06	EHWA49-B09		
WA491-C							EHWA49-C06	EHWA49-C09
WA611-A	EHWA61-A05	EHWA61-A08	EHWA61-A10					
WA611-B						EHWA61-B09		
WA611-C								EHWA61-C09

**IMPORTANT**

The equipment covered in this manual is to be installed by trained, experienced service and installation technicians.

**SHIPPING DAMAGE**

Upon receipt of equipment, the carton should be checked for external signs of shipping damage. If damage is found the receiving party must contact the last carrier immediately, preferably in writing, requesting inspection by the carrier's agent.

**UNPACKING THE ELECTRIC HEAT PACKAGE**

Remove the heat package from the shipping carton. The heat package must consist of the following:

1. Basic heater
2. Electric heat control base and wiring
3. Installation instructions
4. Wiring diagram (2); one to be applied to unit
5. Adhesive label to remark serial plate to indicate new model number. This is attached to the front of these instructions.

## WIRING MAIN POWER

1. On all installations, size unit power supply wiring for the minimum circuit ampacity requirement for the unit and heater package combination listed on the unit serial plate.

For existing installations, addition or upgrading of a heater package may require that larger supply wires be run to the unit. Resize all power supply wires for the minimum circuit ampacity rating listed on the unit serial plate that is applicable for your combination of unit and heater package.

### **WARNING**

Install properly sized power supply leads for the unit/heater combination minimum circuit ampacity as listed on the unit serial plate. Hazard of fire. Failure to install properly sized conductors could result in fire, injury or death.

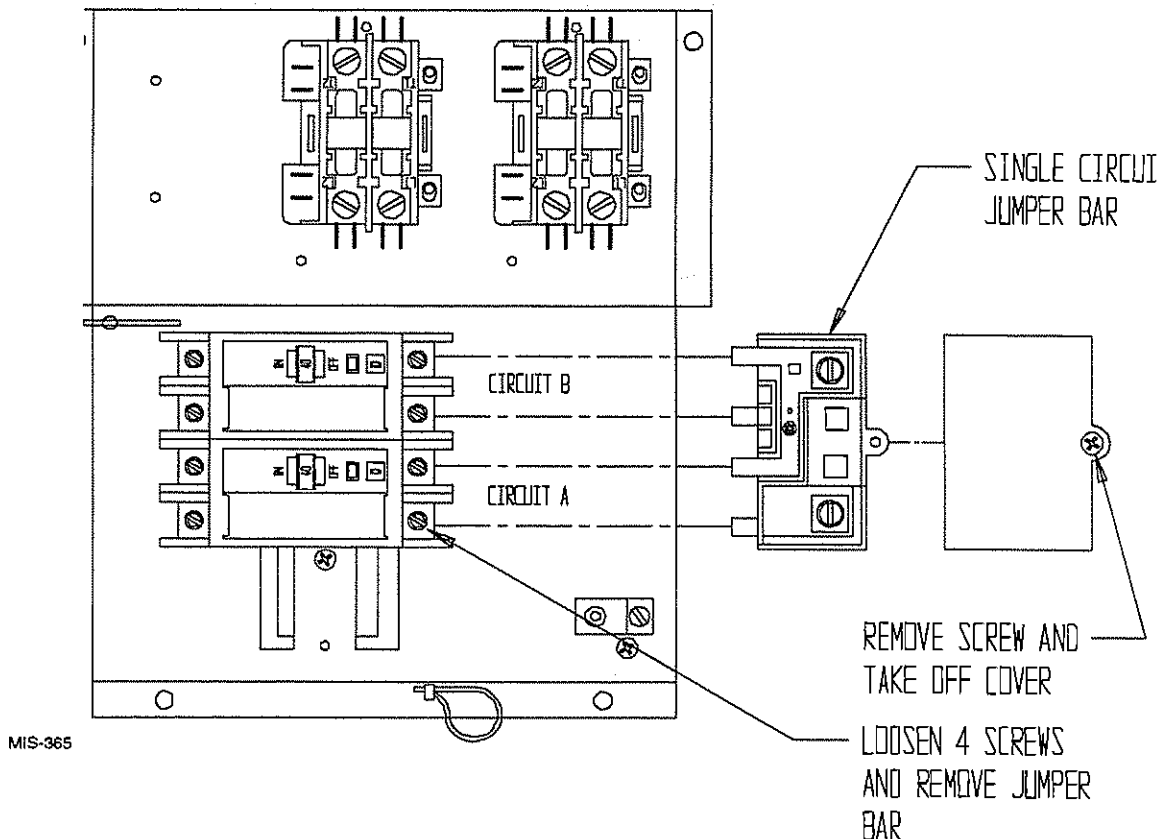
2. All heater packages covered by this manual are factory wired for a single supply circuit. The following heater packages are field convertible to a dual supply circuit if required or desired:

EHWH38-A05  
EHWH49-A05  
EHWH49-A08  
EHWH49-A10

3. To convert the above heater packages to dual circuit configuration before installation, loosen four (4) screws holding jumper bar in place. Remove jumper bar. Circuit A + B are now identified on the heater package. See Figure 1.

Wire should be sized to the minimum circuit ampacity as specified on the serial plates of units that accept these heater packages for circuits A + B.

**FIGURE 1**  
**CONVERTING HEATER PACKAGES TO DUAL CIRCUIT**  
**(MODELS LISTED ABOVE)**



**TABLE 2  
ELECTRICAL DATA AND BTU OUTPUT**

Heater Package Model	Volts	Phase	Nominal KW	Nominal BTU
EHWH38-A05 EHWA38-A05	240 / 208	1	5 / 3.75	17,065 / 12,800
EHWA38-A08	240 / 208	1	8 / 6	27,300 / 20,500
EHWA38-A10	240 / 208	1	10 / 7.5	34,130 / 25,600
EHWH38-B06 EHWA38-B06	240 / 208	3	6 / 4.5	20,480 / 15,360
EHWH38-B09 EHWA38-B09	240 / 208	3	9 / 6.75	30,600 / 23,030
EHWA38-C06	480	3	6.00	20,480
EHWH49-A05 EHWA49-A05	240 / 208	1	5 / 3.75	17,065 / 12,800
EHWH49-A08	240 / 208	1	8 / 6	27,300 / 20,500
EHWH49-A10	240 / 208	1	10 / 7.5	34,130 / 25,600
EHWH49-B06 EHWA49-B06	240 / 208	3	6 / 4.5	20,480 / 15,360
EHWH49-B09	240 / 208	3	9 / 6.75	30,600 / 23,030
EHWH49-C06	480	3	6.00	20,480
EHWH49-C09	480	3	9.00	30,700
EHWH61-A05 EHWA61-A05	240 / 208	1	5 / 3.75	17,065 / 12,800
EHWH61-A08 EHWA61-A08	240 / 208	1	8 / 6	27,300 / 20,500
EHWH61-A10 EHWA61-A10	240 / 208	1	10 / 7.5	34,130 / 25,600
EHWH61-A20	240 / 208	1	20 / 15	68,260 / 51,195
EHWA61-B09	240 / 208	3	9 / 6.75	30,600 / 23,030
EHWA61-C09	480	3	9.00	30,700

## INSTALLATION

1. Disconnect all power to unit before installation.

### **WARNING**

Disconnect all power to unit before installing heater package. Hazard of electrical shock. Failure to disconnect power could result in injury or death.

2. Before installation, check unit serial plate to insure that the heater package model that you intend to install is listed as a heater package suitable for use with the unit.

Under no circumstances shall a heater package be installed in a unit if the model number of the heater package does not appear on the unit serial plate.

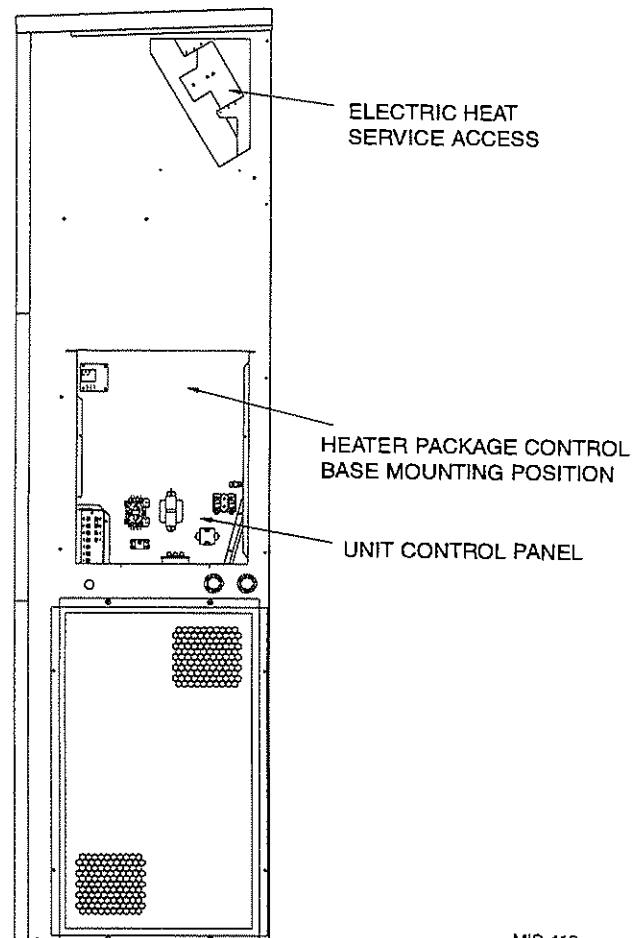
### **WARNING**

Install only heater packages listed on unit serial plate. Hazard of fire or electrical shock. Failure to install listed heater package could result in fire, injury or death.

3. Remove electric heater access panel and control panel cover, both inner and outer. See Figure 2.
4. All heaters are installed with the thermal cutoffs positioned to the top of the unit. Install heat strip(s) through heater access opening. Position heat strip support rod in heater support hole 1, 2, or 3, as indicated in Table 3 and Figure 3. Secure in place with two (2) sheet metal screws in mounting holes as indicated in Table 3 and Figure 3.  
  
On heater packages with 2 heat strips, install 9KW or 10 KW heater first in position closest to the outlet air frame. See Figure 4B and 4C.
5. Install heater control base into top of control panel as shown in Figure 5. Secure with four (4) sheet metal screws provided.
6. Plug male 6 pin connector into mating connector mounted in control panel. See Figure 5.

7. Connect red compressor supply lead to L1 of terminal block. Connect black compressor supply lead to L2 of terminal block. If 3 phase, connect yellow supply lead to L3 of terminal block. See Figure 5 and wiring diagram.
8. Route wires from heater control base up through raceway in top right corner of control panel to the heaters. See Figure 5.
9. Wire heater package per wiring diagram supplied with this heater package. All wires are stamped with wire numbers that correspond with terminal numbers on the wiring diagram and stamped numbers on the heat strip. Limit switch wires are terminated with insulated quick connect terminals. See Figure 4.

**FIGURE 2  
REMOVE COVER AND PANEL**

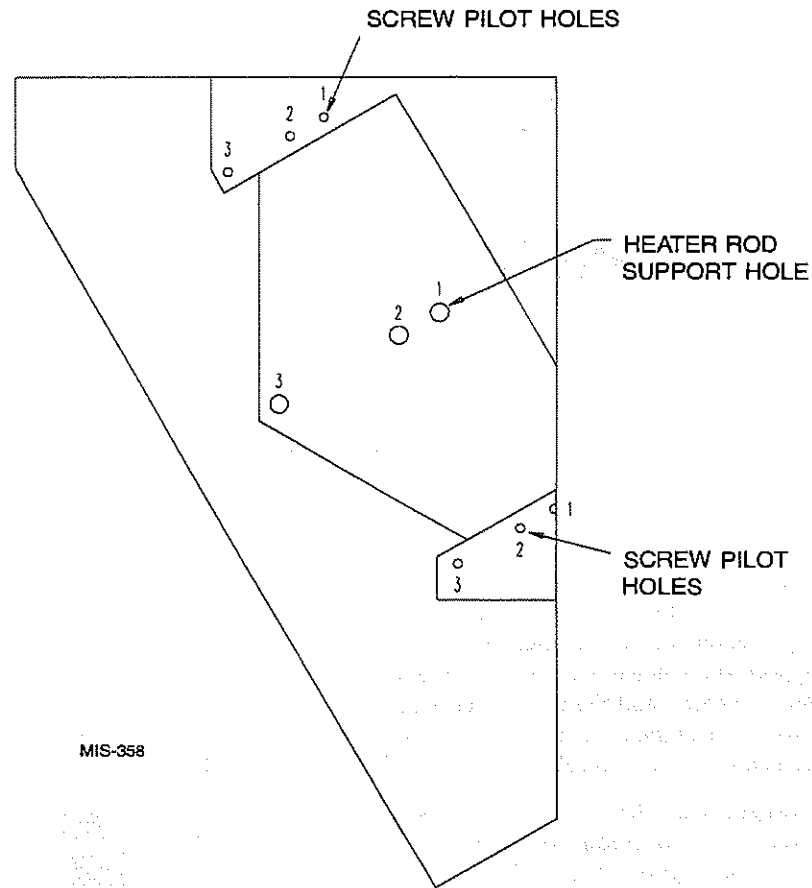


MIS-419

10. Attach adhesive wiring diagram directly above unit wiring diagram on inner control panel cover.
11. Recheck all wiring. Break out appropriate circuit breaker tabs on inner control panel cover to allow trip lever to protrude. Replace control panel and heater access panels.

12. Resupply power to the unit and check for proper operation.
13. Remark serial plate with self-adhesive label attached to the front of this manual. See Figure 6.

**FIGURE 3**  
**HOLES FOR HEATER ROD SUPPORT AND MOUNTING**

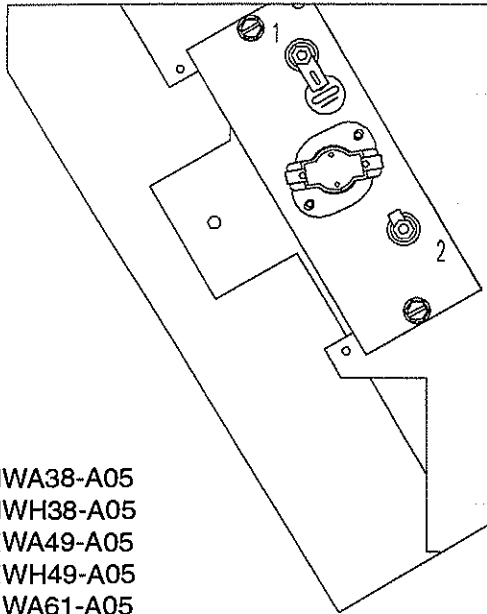




**TABLE 3  
DRAWING NUMBER AND ROD SUPPORT SCREW MOUNTING  
POSITION FOR HEATER PACKAGES**

Heater Package Model Number	FIGURE 4 Heater Terminal Identification Drawing	FIGURE 3 Rod Support and Screw Mounting Position
EHWH38-A05	4A	1
EHWH38-B06	4B	1
EHWH38-B09	4B	1
EHWA49-A05	4A	1
EHWH49-A08	4C	1
EHWH49-A10	4C	1
EHWH49-B06	4B	1
EHWH49-B09	4B	1
EHWH49-C06	4B	1
EHWH49-C09	4B	1
EHWH61-A05	4A	1
EHWH61-A08	4C	1
EHWH61-A10	4C	1
EHWH61-A20	4D	1 & 3
EHWH61-C09	4B	1
EHWA38-A05	4A	1
EHWA38-A08	4C	1
EHWA38-A10	4C	1
EHWA38-B06	4B	1
EHWA38-B09	4B	1
EHWA38-C06	4B	1
EHWA49-A05	4A	1
EHWA49-B06	4B	1
EHWA61-A05	4A	1
EHWA61-A08	4C	1
EHWA61-A10	4C	1
EHWA61-B06	4B	1

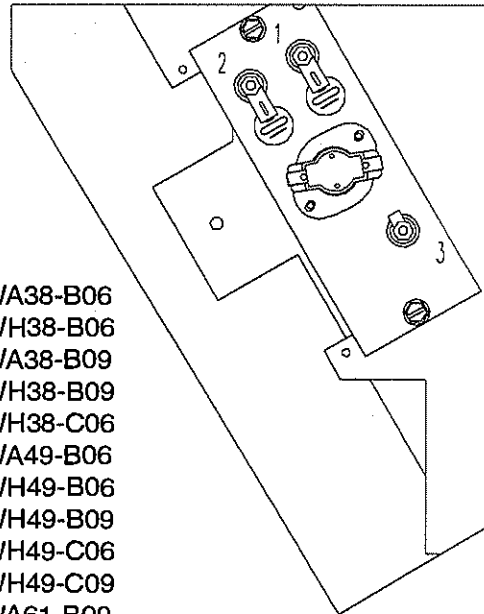
FIGURE 4A



EHWA38-A05  
 EHWH38-A05  
 EHWA49-A05  
 EHWH49-A05  
 EHWA61-A05  
 EHWH61-A05

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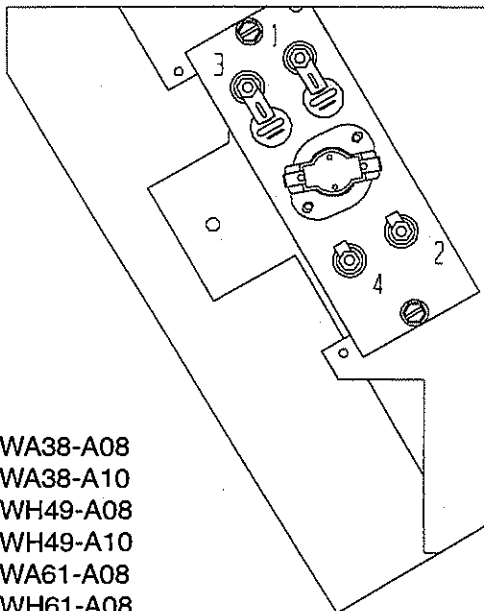
FIGURE 4B



EHWA38-B06  
 EHWH38-B06  
 EHWA38-B09  
 EHWH38-B09  
 EHWH38-C06  
 EHWA49-B06  
 EHWH49-B06  
 EHWH49-B09  
 EHWH49-C06  
 EHWH49-C09  
 EHWA61-B09  
 EHWH61-C09

MIS-1361

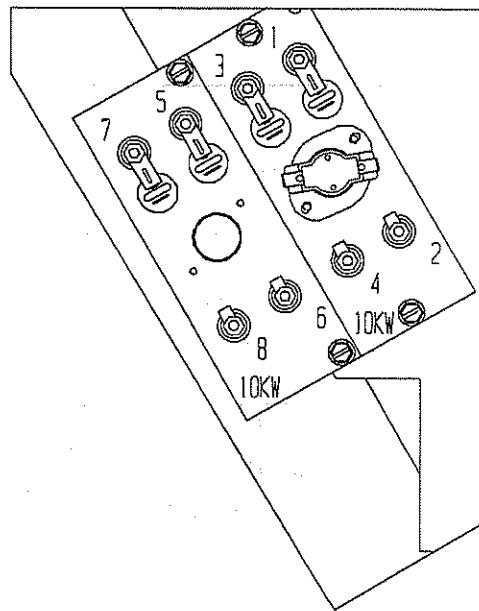
FIGURE 4C



EHWA38-A08  
 EHWA38-A10  
 EHWH49-A08  
 EHWH49-A10  
 EHWA61-A08  
 EHWH61-A08  
 EHWA61-A10  
 EHWH61-A10

MIS-1361

FIGURE 4D

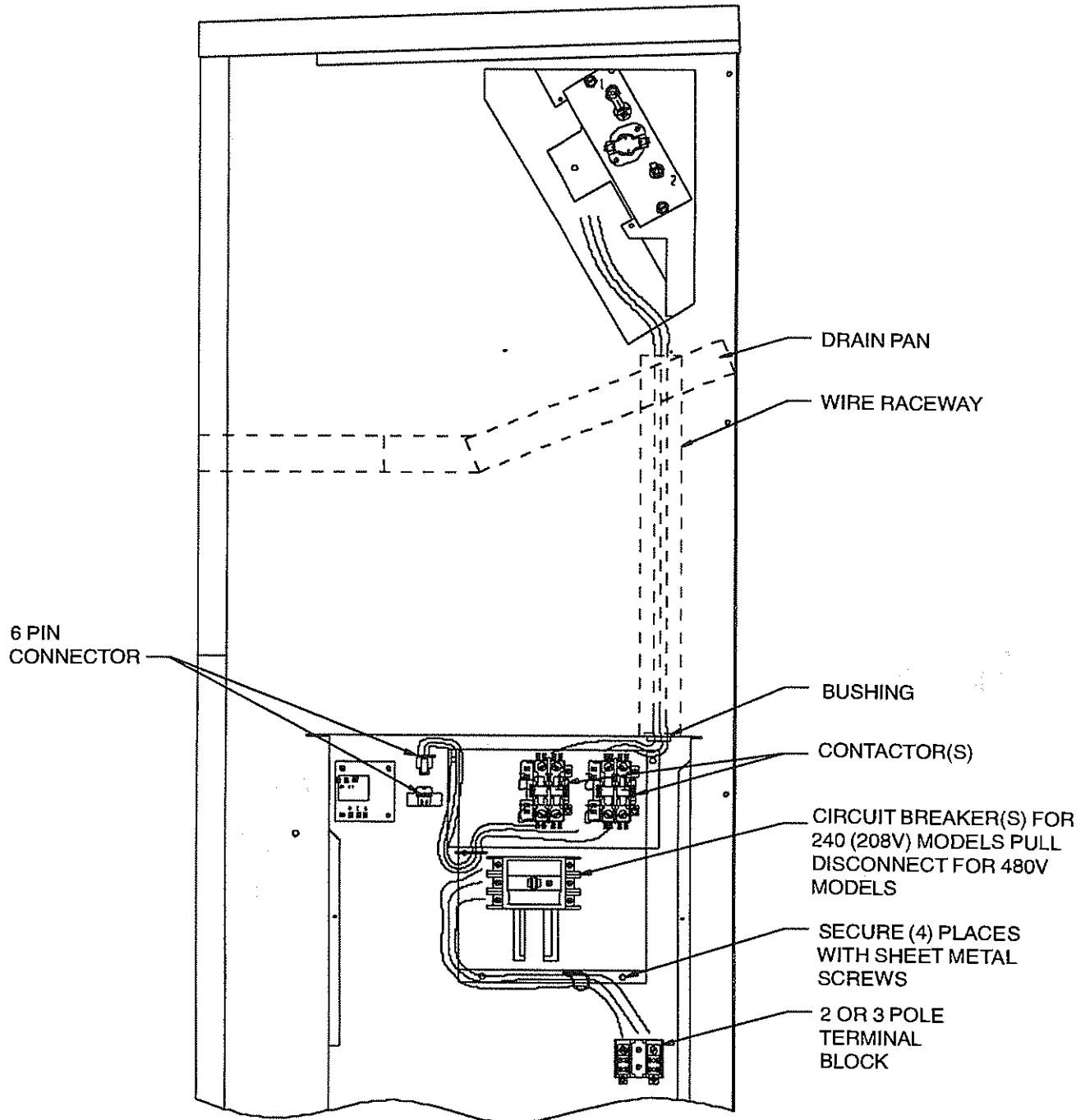


EHWH61-A20

MIS-421D

**NOTE: THERMAL CUTOFFS TO BE AT TOP OF AIR FRAME WHEN INSTALLING**

FIGURE 5  
WIRE ROUTING



MIS-422

**FIGURE 6  
SERIAL PLATE**

INSTALL ONLY HEATER PACKAGES LISTED HERE

BARD MANUFACTURING COMPANY, 1914 RANDOLPH DRIV

MODEL	APPROVED HEATER PACKAGE	VAC	HZ
WA361-A0012345	NONE	230/208	60
WA361-A0512345	EHWA03-A05	230/208	60
WA361-A0812345	EHWA03-A08	230/208	60
WA361-A1012345	EHWA03-A10	230/208	60
WA361-A1512345	EHWA03-A15	230/208	60

(1)  
APPROVED HEATER PACKAGE

BRANCH CIRCUIT SELECT CURRENT 17 OPERATION

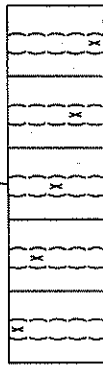
SERIAL NUMBER 125H920711193-01 UL FILE NO.

SUITABLE FOR OUTDOOR USE

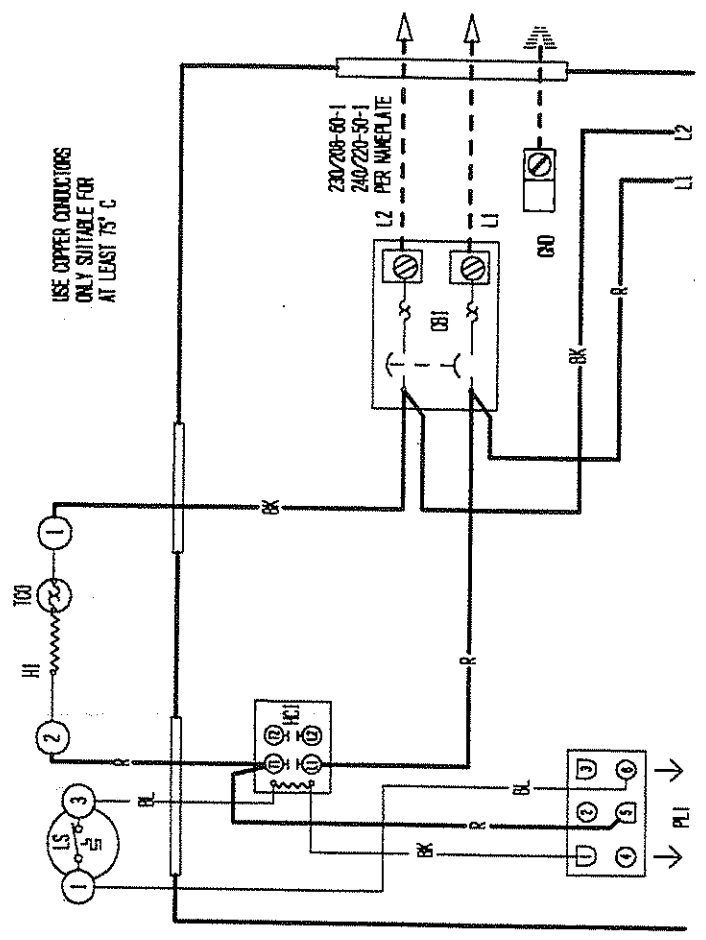
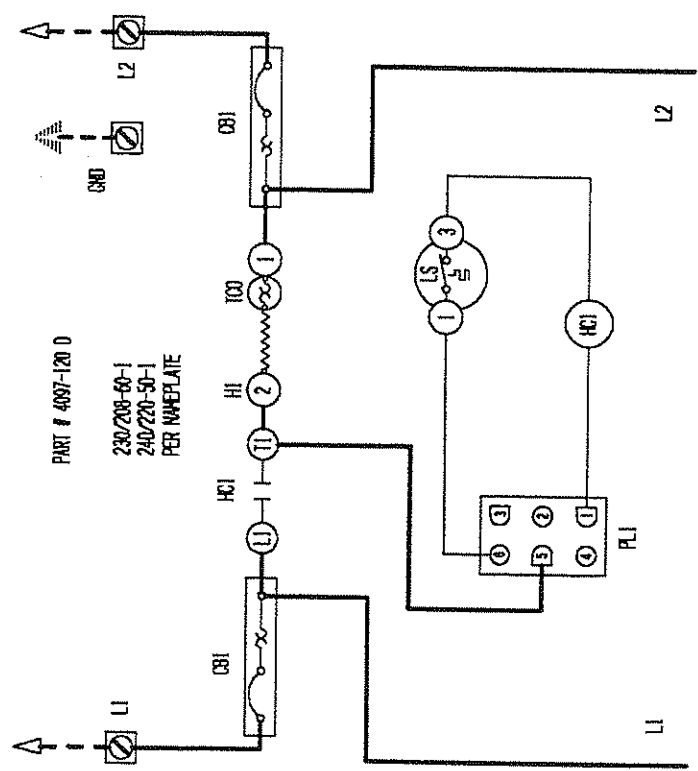
	VAC	HZ	PH	ELECTRICAL HP
COMPRESSOR	230/208	60	1	
OUTDOOR MOTOR	230/208	60	1	1/5
INDOOR MOTOR	230/208	60	1	1/3
HEATER PACKAGE				KW
EHWA03-A05	240/208	60	1	5/3.75
EHWA03-A08	240/208	60	1	8/6
EHWA03-A10	240/208	60	1	10/7.5
EHWA03-A15	240/208	60	1	15/11.25

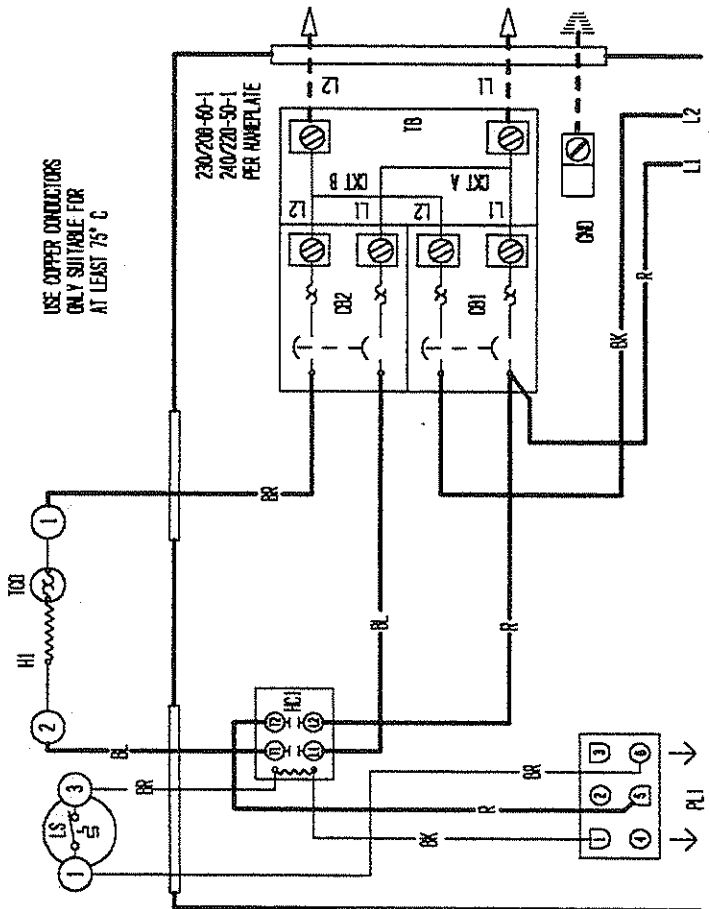
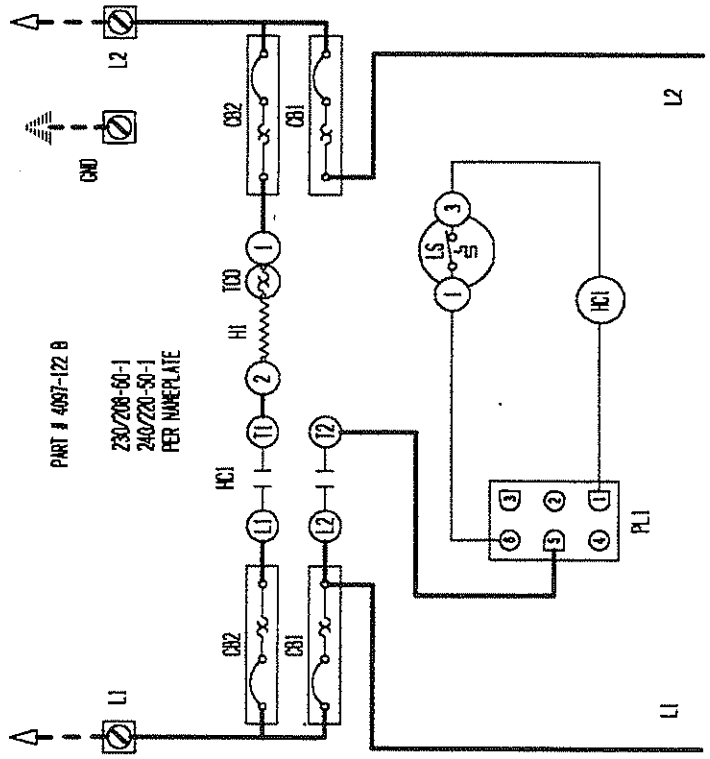
FACTORY CHARGED R22: 68 OZ. DESI

--- FACTORY  
--- CLEAR

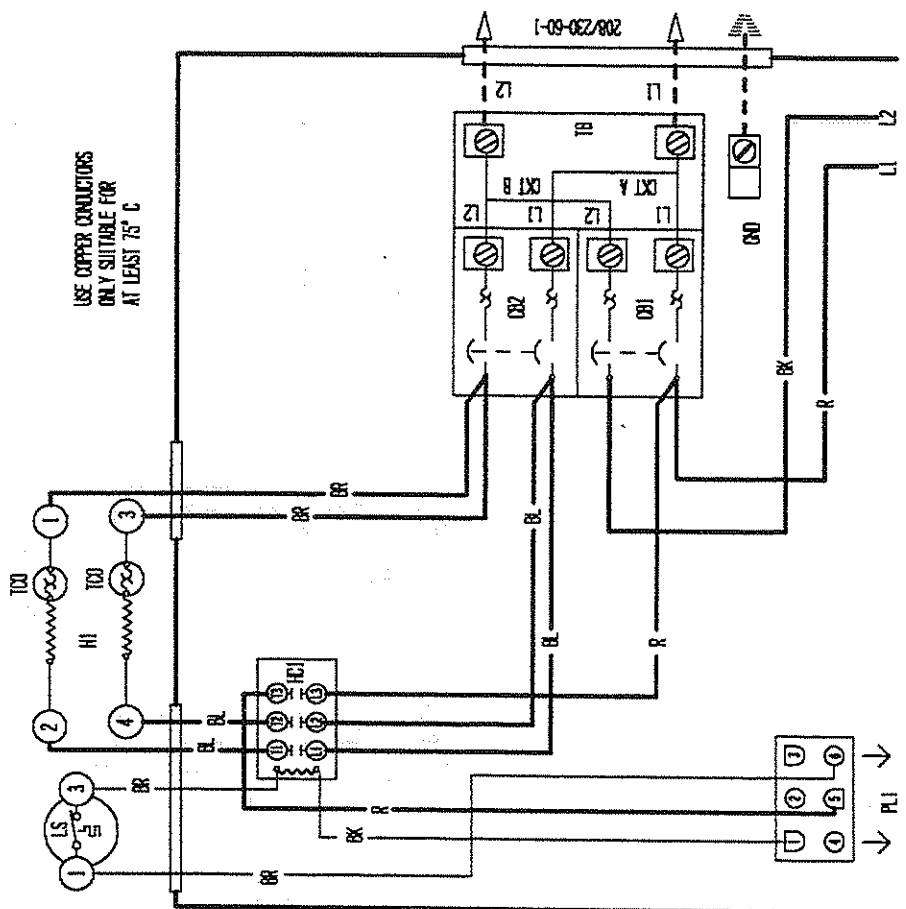


ASSURE THAT SERIAL PLATE IS CLEAN AND DRY. REMOVE APPROPRIATE LABEL STRIP FOR KW REQUIRED AND REMAKE SERIAL PLATE AS SHOWN FOR THE HEATER PACKAGE THAT IS INSTALLED.

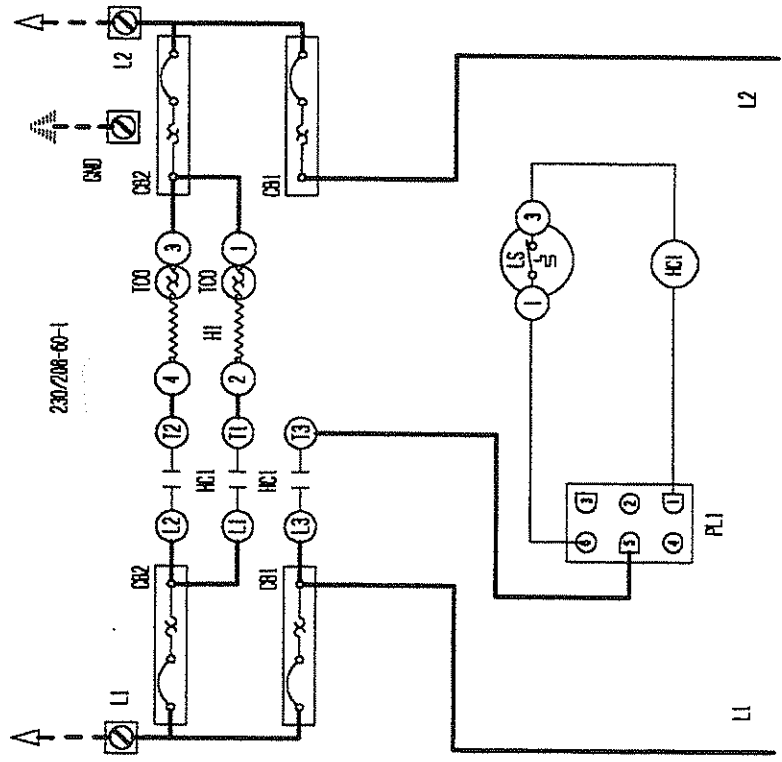








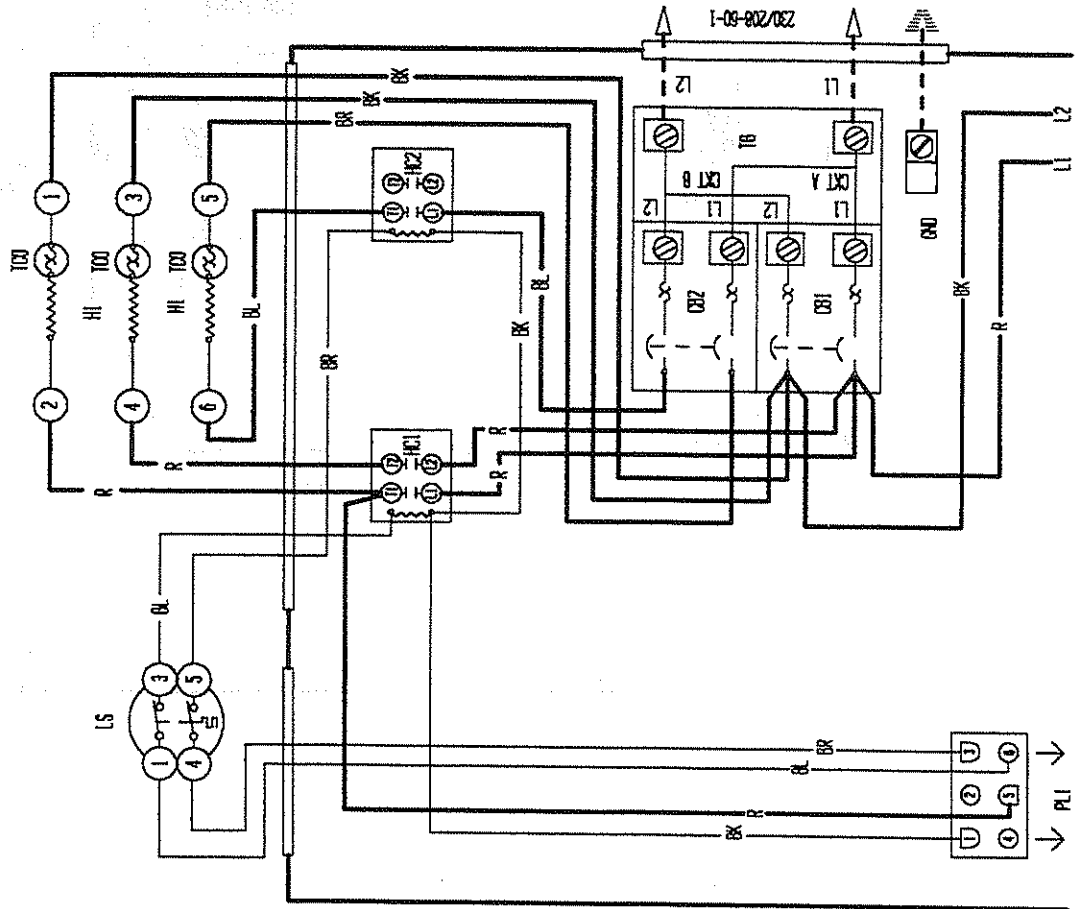
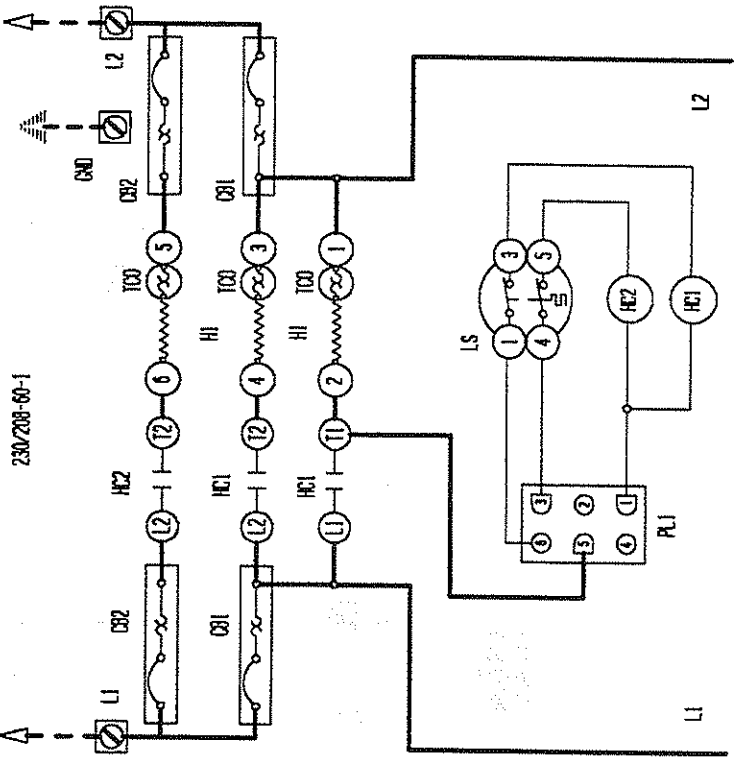
PART # 4097-142 B



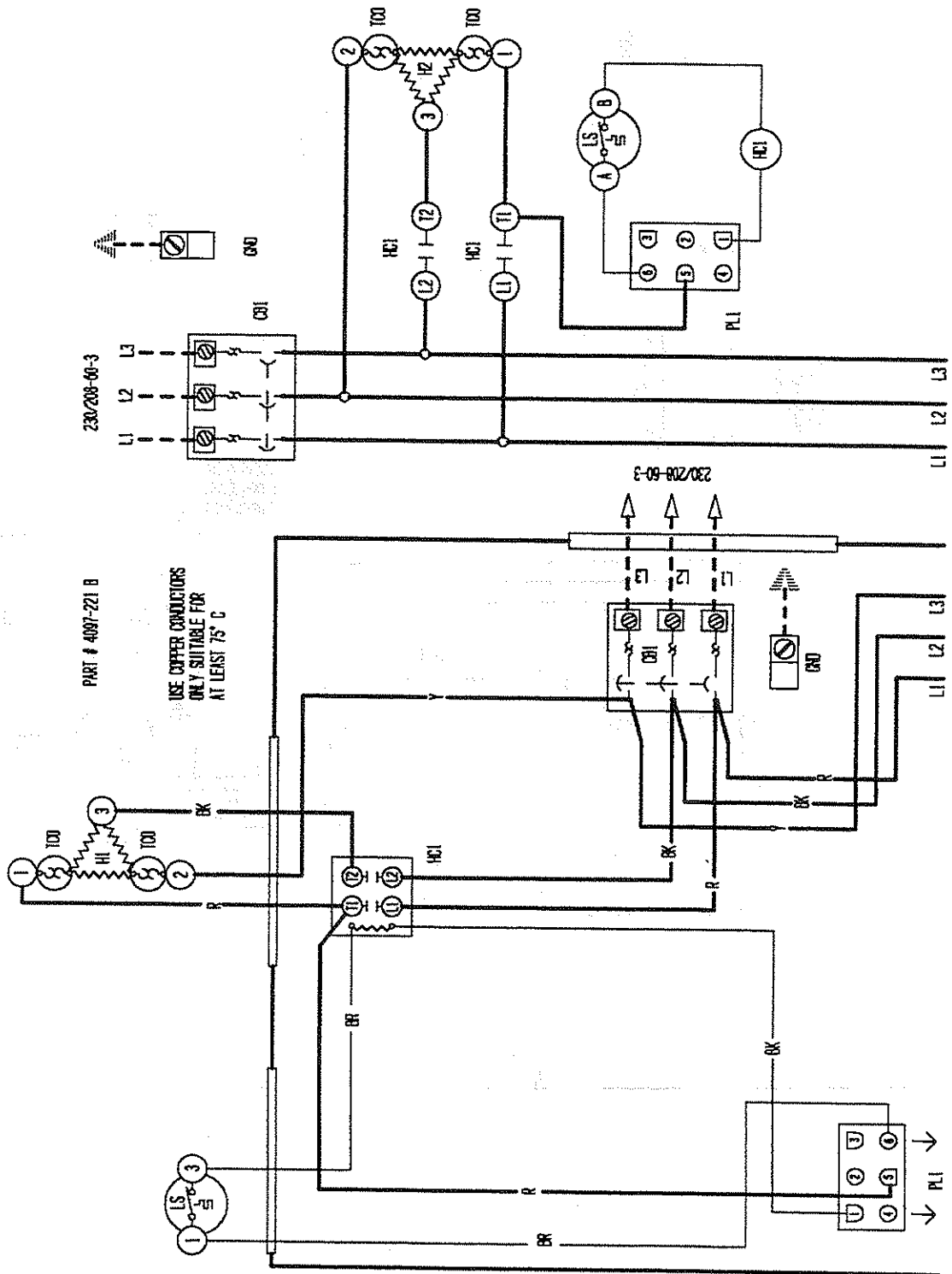


USE COPPER CONDUCTORS  
ONLY SUITABLE FOR  
AT LEAST 75° C

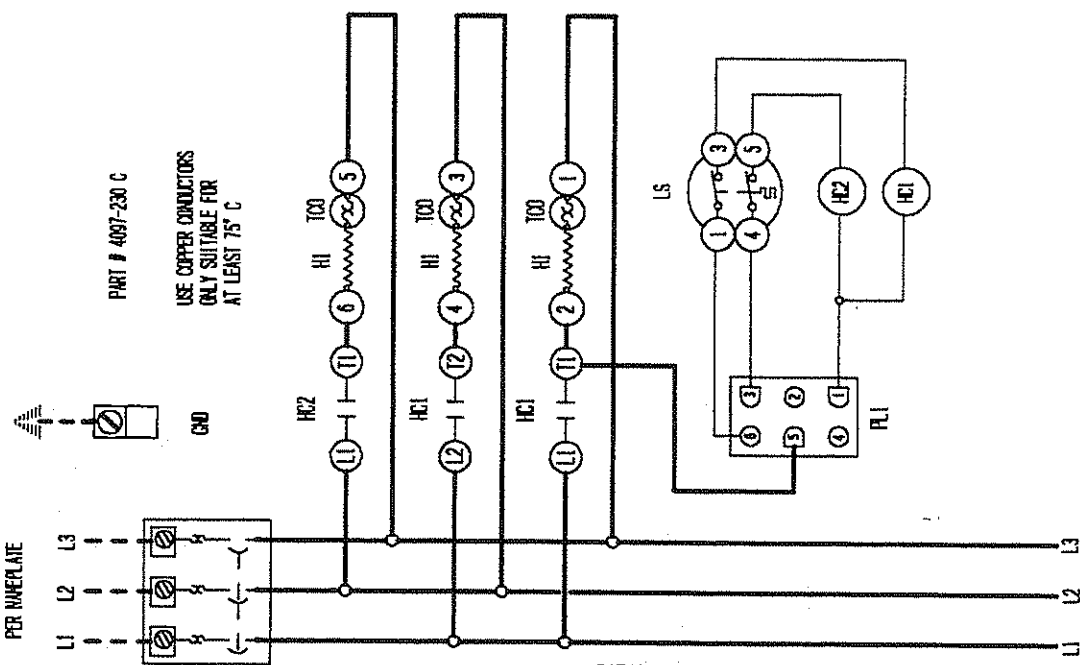
PART # 4097-150 C



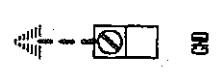




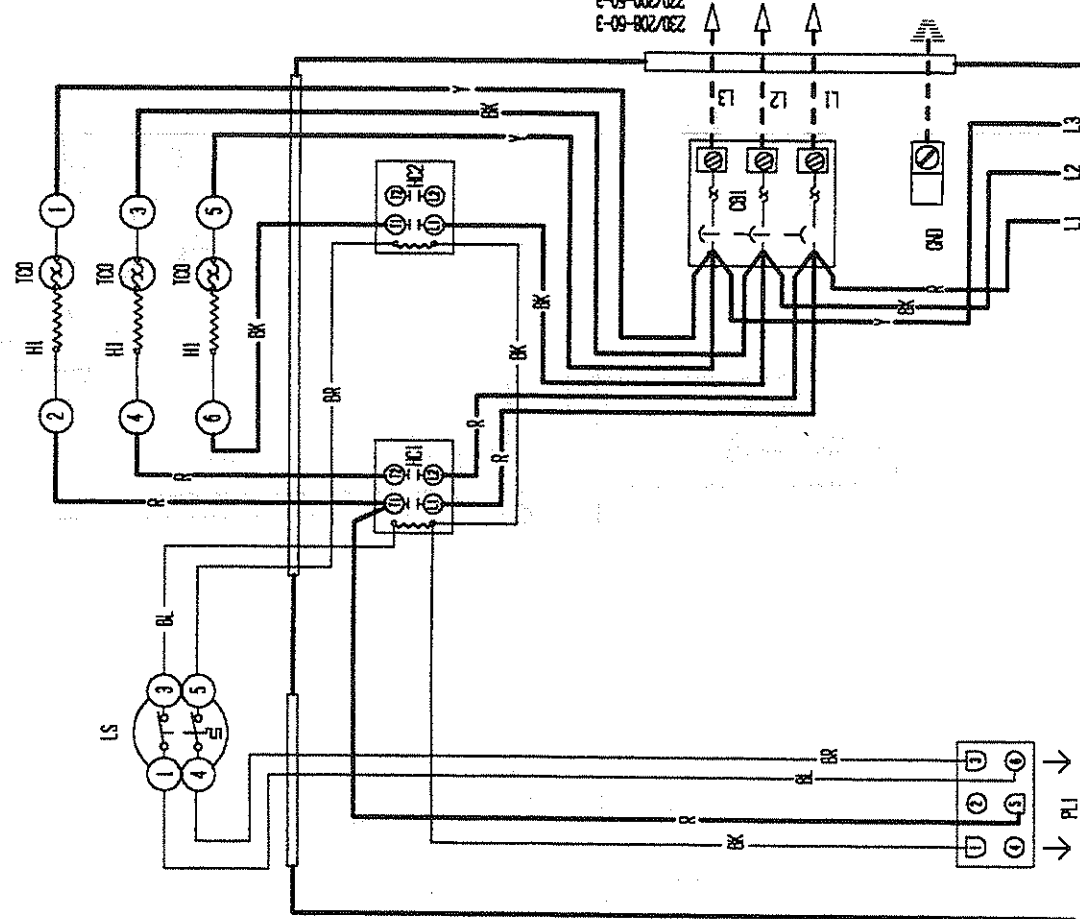
230/208-60-3  
220/200-50-3  
PER NAMEPLATE



PART # 4097-230 C  
USE COPPER CONDUCTORS  
ONLY SUITABLE FOR  
AT LEAST 75° C



230/208-60-3  
220/200-50-3  
PER NAMEPLATE











The following table shows the results of the experiment. The first column is the number of trials, the second column is the number of successes, and the third column is the probability of success. The fourth column is the standard deviation of the number of successes. The fifth column is the standard deviation of the probability of success. The sixth column is the standard deviation of the number of trials. The seventh column is the standard deviation of the probability of success. The eighth column is the standard deviation of the number of trials. The ninth column is the standard deviation of the probability of success. The tenth column is the standard deviation of the number of trials.

Number of trials	Number of successes	Probability of success	Standard deviation of the number of successes	Standard deviation of the probability of success	Standard deviation of the number of trials	Standard deviation of the probability of success	Standard deviation of the number of trials	Standard deviation of the probability of success	Standard deviation of the number of trials
10	6	0.6	1.58	0.158	3.16	0.158	3.16	0.158	3.16
20	12	0.6	2.12	0.212	4.47	0.212	4.47	0.212	4.47
30	18	0.6	2.45	0.245	5.48	0.245	5.48	0.245	5.48
40	24	0.6	2.77	0.277	6.32	0.277	6.32	0.277	6.32
50	30	0.6	3.00	0.300	7.07	0.300	7.07	0.300	7.07
60	36	0.6	3.16	0.316	7.75	0.316	7.75	0.316	7.75
70	42	0.6	3.32	0.332	8.37	0.332	8.37	0.332	8.37
80	48	0.6	3.46	0.346	8.94	0.346	8.94	0.346	8.94
90	54	0.6	3.58	0.358	9.49	0.358	9.49	0.358	9.49
100	60	0.6	3.67	0.367	10.00	0.367	10.00	0.367	10.00