

INSTALLATION INSTRUCTIONS FOR EGA AND EGH SERIES ELECTRIC HEATERS IN V OR H SERIES UNITS

NOTE TO INSTALLER

The words “SHALL” and “MUST” indicate a requirement which is essential to satisfactory and safe product performance. The words “SHOULD” and “MAY” indicate a recommendation or advice which is not essential and not required but which may be useful or helpful.

These instructions are for the use of qualified individuals, trained and experienced in installation of this type of equipment and related system components.

Installation and service personnel are required by some states to be licensed. Persons not qualified shall not install this equipment nor interpret these instructions.

The installation manual is provided to ensure the proper installation and satisfactory performance of your equipment. The instructions contained herein SHALL NOT be deemed to extend, modify, alter, or expand any of the representations contained in the LIMITED WARRANTY.



DANGER: BEFORE PERFORMING ANY WORK ON THIS EQUIPMENT, POWER SUPPLY MUST BE TURNED OFF AT THE SERVICE BOX TO AVOID THE POSSIBILITY OF SHOCK, INJURY, DEATH, OR DAMAGE TO THE EQUIPMENT.



WARNING: IMPROPER INSTALLATION MAY DAMAGE EQUIPMENT, CAN CREATE A HAZARD, AND WILL VOID THE WARRANTY.

INSPECTION AND UNPACKING

A thorough inspection of the shipping container should be made immediately upon receiving our heater. Look for any punctures or openings, and if it appears damage has occurred, it should be noted on the freight bill before signing it. The delivering carrier should be contacted immediately and asked to inspect damage, and no installation work should begin until this inspection is completed.

After carefully checking the heater for loose wires or any damage due to shipping, you are now ready to install the heater.

LOCAL CODES

The installer shall comply with all local codes and/or regulations pertaining to this type of equipment and its installation. Such codes and/or regulations should take precedence over any recommendations contained herein. In lieu of local codes, installation should be made in accordance with the National Electrical Code and recommendations made by the National Board of Fire Underwriters.

DESCRIPTION

The EGA and EGH heaters are approved for field installation in the V and H series only. If your installation involves an H series unit, pay special attention to the staging requirements in these instructions.

CLEARANCES

The V or H series unit with the EGA and EGH series heaters installed requires a ¼” clearance for the first 3 feet of supply duct. Clearance to the cabinet is 0” on all sides including the unit back panel.

Refer to the unit installation instructions for required service clearances.

Refer to the table below to confirm that the heater model to be installed does not exceed the maximum KW allowed for the unit model.

Unit Model	Maximum Allowed KW	Heater Model
V4 18-24	10	EGA
V4 30-36	15	EGA
V4 42-60	20	EGA
H4 18-60	10	EGH

INSTALLATION (ALL UNITS)

1. THE POWER TO THE UNIT MUST BE DISCONNECTED!
 - a. Make sure the electrical power source matches the unit name plate and that constant voltage can be maintained to the unit.
 - b. Please place crack-and-peel heater model number label under unit label for future reference.

2. Remove the Upper Front Panel and Middle Front Panel. Remove the Electrical Box Cover and the Blower Block Off at the exit of the blower (Fig. 1).

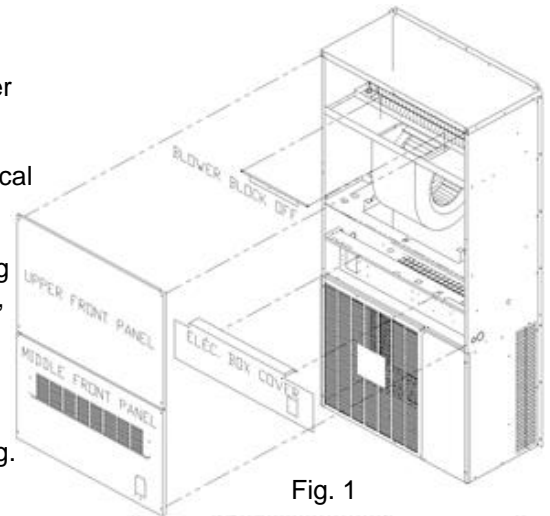


Fig. 1

3. Unplug the blower from the blower plug and remove the two screws securing the blower to the evaporator coil shelf (Fig. 2). On units with double blowers, there are three screws in the front and one screw on top (between blowers).

4. Slide the blower assembly from the unit.

5. Remove the six (6) screws holding the heater mounting plate to the unit. (Fig. 3)

(V & H 418, 424, 430, & 436 MODELS ONLY

Remove heater extension brackets from heaters.)

6. Attach heaters to the mounting plate with provided screws. Slide the heater plate assembly into the opening with the wires on your left. Secure the heater plate assembly with the six screws (Fig. 3).

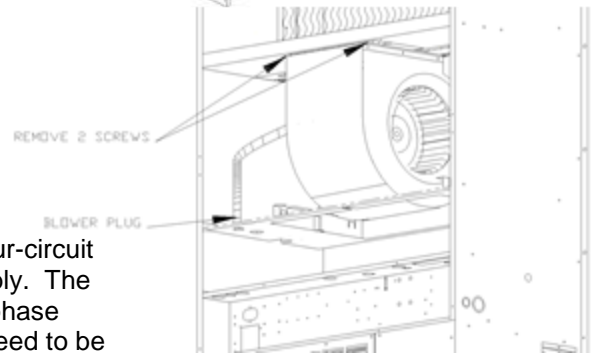


Fig. 2

7. Install the heat contactor assembly from the heater kit. Connect the four-circuit plug in the control box to the mating receptacle on the breaker assembly. The plug is keyed to connect in only one way. (For 15 kW & 20 kW single phase heaters, an additional breaker and, heat contactor supplied in kit will need to be installed)

8. Route the wires from the heater down the left side of the unit, through the bushing in the filter shelf, route the wires along the top of the control box. Secure the heater wires to the existing wires across the control box with ties provided. Route these wires through the hole in the control box above the breaker assembly (Fig. 4). Connect these wires to the corresponding terminals shown in the wiring diagram. Each wire is numbered and color-coded. For the heater wire connections to the breaker and heat contactor locations see the appropriate diagram on page 8 -12.

9. Place the crack and peel wire diagram to the electrical box cover for future reference.

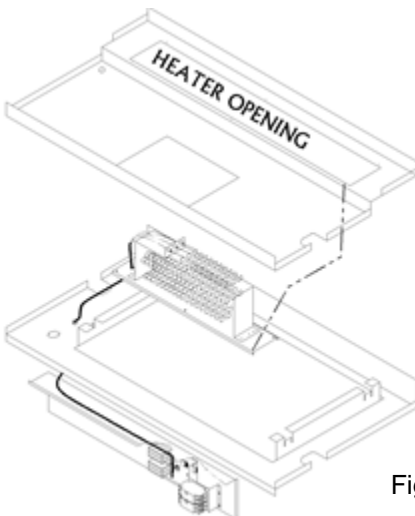


Fig. 4



Fig. 3

ELECTRICAL HOOK UP

All heater assemblies have single-point line-voltage connection terminals. All 1-phase models above 10 KW have the option of single or dual point line voltage connections. If dual point connection is to be made, remove the single point wiring terminals.

NOTE: If separate over current devices are used on the dual circuits, they **MUST** be marked to show that both devices **MUST** be turned off to completely shut off power to the unit.

The line voltage electrical service can be routed through the right side panel, the left or right side of the back panel, and the right side panel. Each area is supplied with two line voltage knockouts (1/2" – 3/4" and 1" – 1-1/4" conduit) Low voltage can be routed through the right side panel, facing the unit from the outside.

NOTE: When routing line voltage through the return air compartment, conduit **MUST** be used (even though this is a dry area) to comply with the N.E.C.. Flexible conduit is recommended.

Be sure to install a ground wire of the proper size to the units equipment ground lug.

LOW – VOLTAGE WIRING

230 volt, single and three phase, units are equipped with dual primary voltage transformers for 208/240-volt operation. These models are factory wired to the 240-volt tap. For 208-volt operation, reconnect the factory-installed wire from the 240-volt tap to the 208-volt tap. The acceptable range for the voltage tap is:

<u>Tap</u>	<u>Voltage Range</u>
240 Volt	253 – 216
208 Volt	220 – 187

Four or five color-coded conductors should be run from the thermostat location to the unit for V series units. H series units may require 7 wires.

Conductors should be sized as shown:

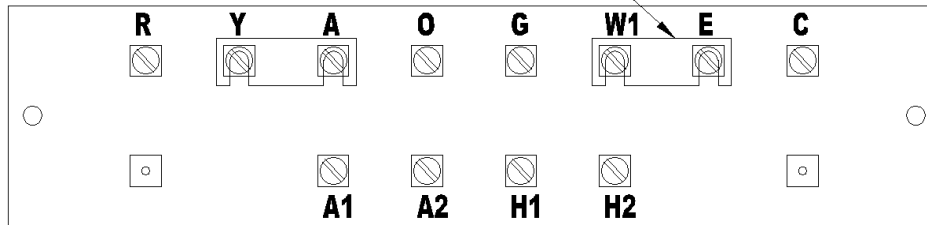
Wire Gauge	Maximum Length
20	45'
18	60'
16	100'
14	160'
12	250'

STAGING OF ELECTRIC HEAT (V SERIES)

EGA and EGH model heaters installed in V series units may be wired for single or two-stage operation. A jumper bar is supplied with each heat assembly for single stage operation. For two-stage electric heat operation disconnect the jumper bar between the W1 (first stage) and E (second stage) terminals of the unit low voltage board.

NOTE: The following applies only to EGH15B1 and EGH20B1 heat installations.

Remove Jumper Bar for Staging of Electric Heat



JUMPER BAR BETWEEN W1 AND E MUST BE REMOVED ON ALL HEAT PUMP MODELS

DUCTWORK

A section of steel duct or duct board with a length of at least 24" MUST be installed on the unit supply opening to serve as a heat sink. Any type of ductwork listed for this application may be used from there on.

Refer to the units' installation instructions for the recommended duct static and motor speed selection for our unit and heater combination.

MAINTENANCE

Always install filters and keep them clean. Check filters every ten days to two weeks. Clean or replace as necessary. Keep the return air grille clean and clear of any obstructions. Do not place any type of furniture over or in front of the grille, as it will restrict airflow. If a supply grille is use do not place any obstructions that will restrict air flow.



SERVICE WARNING:

WHILE SERVICING THE HEATER, BE SURE TO DE-ENERGIZE BOTH THE HEATER CIRCUIT AND THE AIR-CONDITIONER CIRCUIT, AS A HAZARD OF SHOCK MAY EXIST.

THERE MAY BE MORE THAN ONE DISCONNECT REQUIRED TO DE-ENERGIZE THE HEATER AND AIR CONDITIONER.

V 410A SERIES - ELECTRICAL DATA

Model No. & Electric Heater Kw [1]	Volt / Phase 60Hz	No. of Field Power Ckts	SINGLE FIELD CIRCUIT				DUAL FIELD CIRCUIT							
			MINIMUM CIRCUIT AMPACITY	MAX FUSE OR HVACR BREAKER SIZE [2]	FIELD WIRE SIZE [3],[4],[5]	GROUND WIRE SIZE	MIN WIRE AMPACITY		MAX FUSE OR HVACR BREAKER SIZE [2]		FIELD WIRE SIZE [3],[4],[5]		GROUND WIRE SIZE	
							CKT1	CKT2	CKT1	CKT2	CKT1	CKT2	CKT1	CKT2
V418B00A1	208-230/1	1	16	30	14	14	-	-	-	-	-	-	-	-
5		1	28	30	10	10	-	-	-	-	-	-	-	-
10		1	54	60	6	10	-	-	-	-	-	-	-	-
V424B00A1	208-230/1	1	18	30	14	14	-	-	-	-	-	-	-	-
5		1	28	30	10	10	-	-	-	-	-	-	-	-
10		1	54	60	6	10	-	-	-	-	-	-	-	-
V424B00A3	208-230/3	1	15	30	14	14	-	-	-	-	-	-	-	-
6		1	20	30	14	14	-	-	-	-	-	-	-	-
9		1	29	30	10	10	-	-	-	-	-	-	-	-
V430B00A1	208-230/1	1	24	30	12	12	-	-	-	-	-	-	-	-
5		1	29	30	10	10	-	-	-	-	-	-	-	-
10		1	55	60	6	10	-	-	-	-	-	-	-	-
15		1 OR 2	81	90	4	8	29	52	30	60	10	6	10	10
V430B00A3	208-230/3	1	16	30	14	14	-	-	-	-	-	-	-	-
6		1	21	30	12	12	-	-	-	-	-	-	-	-
9		1	30	60	10	10	-	-	-	-	-	-	-	-
15		1	48	60	8	10	-	-	-	-	-	-	-	-
V436B00A1	208-230/1	1	26	30	10	10	-	-	-	-	-	-	-	-
5		1	29	30	10	10	-	-	-	-	-	-	-	-
10		1	55	60	6	10	-	-	-	-	-	-	-	-
15		1 OR 2	81	90	4	8	26	52	30	60	10	6	10	10
V436B00A3	208-230/3	1	20	30	12	12	-	-	-	-	-	-	-	-
6		1	21	30	12	12	-	-	-	-	-	-	-	-
9		1	30	60	10	10	-	-	-	-	-	-	-	-
15		1	48	60	8	10	-	-	-	-	-	-	-	-
V436B00A4	460/3	1	9	15	14	14	-	-	-	-	-	-	-	-
6		1	10	15	14	14	-	-	-	-	-	-	-	-
9		1	14	15	14	14	-	-	-	-	-	-	-	-
15		1	23	30	12	12	-	-	-	-	-	-	-	-
V448B00A1	208-230/1	1	32	60	10	10	-	-	-	-	-	-	-	-
5		1	32	60	10	10	-	-	-	-	-	-	-	-
10		1	55	60	6	10	-	-	-	-	-	-	-	-
15		1 OR 2	81	90	4	8	29	52	30	60	10	6	10	10
20		1 OR 2	107	125	2	6	55	52	60	60	6	6	10	10
V448B00A3	208-230/3	1	24	30	12	12	-	-	-	-	-	-	-	-
6		1	24	30	12	12	-	-	-	-	-	-	-	-
9		1	30	60	10	10	-	-	-	-	-	-	-	-
15		1	48	60	8	10	-	-	-	-	-	-	-	-
18		1	57	60	6	10	-	-	-	-	-	-	-	-
V448B00A4	460/3	1	12	15	14	14	-	-	-	-	-	-	-	-
6		1	12	15	14	14	-	-	-	-	-	-	-	-
9		1	16	30	14	14	-	-	-	-	-	-	-	-
15		1	25	30	10	10	-	-	-	-	-	-	-	-
V460B00B1	208-230/1	1	41	60	8	10	-	-	-	-	-	-	-	-
5		1	41	60	8	10	-	-	-	-	-	-	-	-
10		1	57	60	6	10	-	-	-	-	-	-	-	-
15		1 OR 2	83	90	4	8	31	52	60	60	10	6	10	10
20		1 OR 2	109	125	2	6	57	52	60	60	6	6	10	10
V460B00B3	208-230/3	1	29	30	10	10	-	-	-	-	-	-	-	-
6		1	29	30	10	10	-	-	-	-	-	-	-	-
9		1	32	60	10	10	-	-	-	-	-	-	-	-
15		1	50	60	6	10	-	-	-	-	-	-	-	-
18		1	59	60	6	10	-	-	-	-	-	-	-	-
V460B00B4	460/3	1	15	15	14	14	-	-	-	-	-	-	-	-
6		1	15	15	14	14	-	-	-	-	-	-	-	-
9		1	16	30	14	14	-	-	-	-	-	-	-	-
15		1	25	30	10	10	-	-	-	-	-	-	-	-

[1] Heater data were based on 240V or 480V AC respectively.

[4] For single power conductor, sized per NEC Table 310-16.

[2] Maximum recommended size for "Time Delay" fuse or HACR circuit breaker.

[5] Power supply wire 75C rated COPPER CONDUCTOR ONLY.

[3] Power supply wire size and ground wire sizes were based on AWG 75C rise, NEC Article 310 and Table 310-16.

H 410A SERIES - ELECTRICAL DATA

Model No. & Electric Heater Kw [1]	Volt / Phase 60Hz	No. of Field Power Ckts	SINGLE FIELD CIRCUIT				DUAL FIELD CIRCUIT							
			MINIMUM CIRCUIT AMPACITY	MAX FUSE OR HVACR BREAKER SIZE [2]	FIELD POWER WIRE SIZE [3],[4],[5]	GROUND WIRE SIZE	MIN WIRE AMPACITY		MAX FUSE OR HVACR BREAKER SIZE [2]		FIELD POWER WIRE SIZE [3],[4],[5]		GROUND WIRE SIZE	
							CKT1	CKT2	CKT1	CKT2	CKT1	CKT2	CKT1	CKT2
H424B00A1	208- 230/1	1	18	30	14	14	-	-	-	-	-	-	-	-
5		1	44	60	8	10	-	-	-	-	-	-	-	-
10		1 OR 2	70	90	4	8	18	52	30	60	14	6	14	10
H424B00A3	208- 230/3	1	15	30	14	14	-	-	-	-	-	-	-	-
6		1	33	60	10	10	-	-	-	-	-	-	-	-
9		1	42	60	8	10	-	-	-	-	-	-	-	-
H430B00A1	208- 230/1	1	24	30	12	12	-	-	-	-	-	-	-	-
5		1	50	60	8	10	-	-	-	-	-	-	-	-
10		1 OR 2	76	90	4	8	24	52	30	60	12	6	12	10
H430B00A3	208- 230/3	1	16	30	14	14	-	-	-	-	-	-	-	-
6		1	34	60	10	10	-	-	-	-	-	-	-	-
9		1	43	60	8	10	-	-	-	-	-	-	-	-
H436B00A1	208- 230/1	1	26	30	10	10	-	-	-	-	-	-	-	-
5		1	52	60	6	10	-	-	-	-	-	-	-	-
10		1 OR 2	78	90	4	8	26	52	30	60	10	6	10	10
H436B00A3	208- 230/3	1	20	30	12	12	-	-	-	-	-	-	-	-
6		1	38	60	8	10	-	-	-	-	-	-	-	-
9		1	47	60	8	10	-	-	-	-	-	-	-	-
H436B00A4	460/3	1	9	15	14	14	-	-	-	-	-	-	-	-
6		1	18	30	14	14	-	-	-	-	-	-	-	-
9		1	23	30	12	12	-	-	-	-	-	-	-	-
H448B00A1	208- 230/1	1	32	60	10	10	-	-	-	-	-	-	-	-
5		1	58	60	6	10	-	-	-	-	-	-	-	-
10		1 OR 2	84	90	4	8	32	52	60	60	10	6	10	10
H448B00A3	208- 230/3	1	24	30	12	12	-	-	-	-	-	-	-	-
6		1	42	60	8	10	-	-	-	-	-	-	-	-
9		1	51	60	6	10	-	-	-	-	-	-	-	-
H448B00A4	460/3	1	11	15	14	14	-	-	-	-	-	-	-	-
6		1	20	30	12	12	-	-	-	-	-	-	-	-
9		1	25	30	10	10	-	-	-	-	-	-	-	-
H460B00B1	208- 230/1	1	41	60	8	10	-	-	-	-	-	-	-	-
5		1 OR 2	67	90	4	8	41	26	60	30	8	10	10	10
10		1 OR 2	93	100	3	8	41	52	60	60	8	6	10	10
H460B00B3	208- 230/3	1	29	30	10	10	-	-	-	-	-	-	-	-
6		1	47	60	8	10	-	-	-	-	-	-	-	-
9		1	56	60	6	10	-	-	-	-	-	-	-	-
H460B00B4	460/3	1	15	15	14	14	-	-	-	-	-	-	-	-
6		1	24	30	12	12	-	-	-	-	-	-	-	-
9		1	28	30	10	10	-	-	-	-	-	-	-	-

[1] Heater data were based on 240V or 480V AC respectively.

[2] Maximum recommended size for "Time Delay" fuse or HACR circuit breaker.

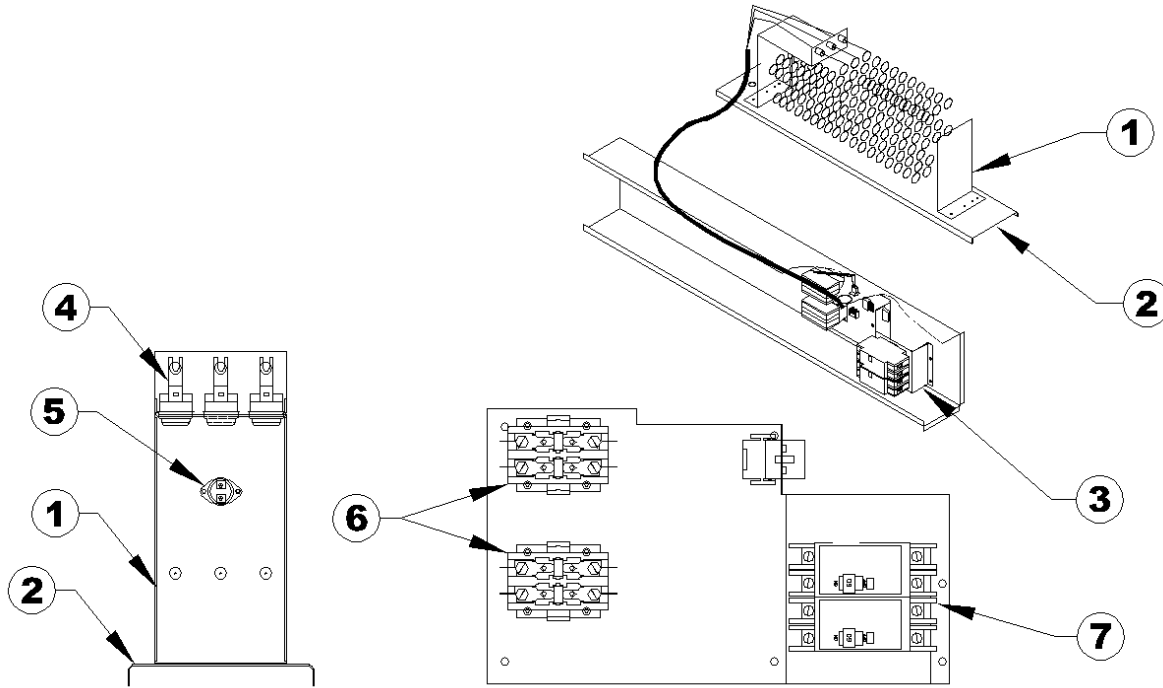
[3] Power supply wire size and ground wire size were based on AWG 75C rise, NEC Article 310 and Table 310-16.

[4] For single power conductor, sized per NEC Table 310-16.

[5] Power supply wire 75C rated COPPER CONDUCTOR ONLY.

[6] Max 10kW Heat with heat pump operation. Full electric heat available in emergency heat mode.

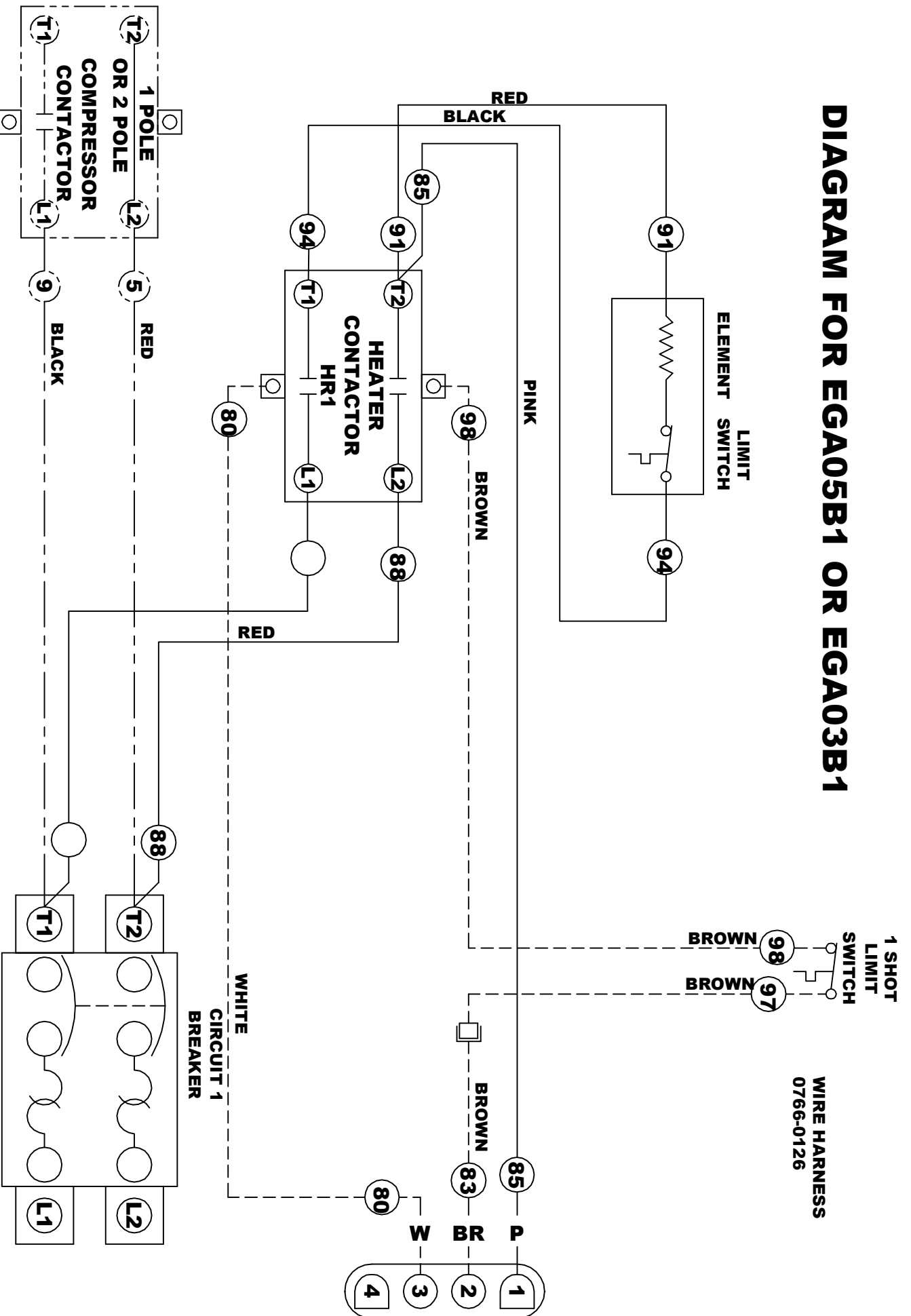
EGA AND EGH PARTS LIST



ITEM #	PART #	DESCRIPTION	03B1	05B1	07B1	A10B1	H10B1	15B1	03B3	06B3	09B3	11B3	15B3	03B4	06B4	09B4	11B4	15B4
1	0430-0089	HEATER 1P 240V 03KW	1															
1	0430-0074	HEATER 1P 240V 05KW		1				1										
1	0430-0090	HEATER 1P 240V 07KW			1													
1	0430-0072	HEATER 1P 240V 10KW				1	1	1										
1	45-8008	HEATER 3P 240V 03KW							1									
1	45-8009	HEATER 3P 240V 06KW								1								
1	45-8010	HEATER 3P 240V 09KW									1							
1	45-8011	HEATER 3P 240V 11KW										1						
1	45-8012	HEATER 3P 240V 15KW											1					
1	45-8014	HEATER 3P 480V 03KW												1				
1	45-8015	HEATER 3P 480V 06KW													1			
1	45-8016	HEATER 3P 480V 09KW														1		
1	45-8017	HEATER 3P 480V 11KW															1	
1	45-8018	HEATER 3P 480V 15KW																1
2	2022-5021	HEATER MOUNTING PLATE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	2022-0031	CIRCUIT BREAKER STAND	1	1	1	1	1	1	1	1	1	1	1					
3	65-4600	460V DISCONNECT STAND												1	1	1	1	1
4	45-4323	LIMIT SWITCH 160-30F W/FUSE	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3
4	043-0086	LIMIT SWITCH 160-30F WO/FUSE	1	1	2	2	2	3	3	3	3	3	3					
4	45-8020	LIMIT SWITCH 160-30F 460V												3	3	3	3	3
5	45-4332	LIMIT SWITCH 245 DEG 1 SHOT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	45-3151	HEAT CONTACTOR 30 AMP RES	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
7	45-3151	CIRCUIT BREAKER 2P 60 AMP	1	1	1	1	2	2										
7	O42019	CIRCUIT BREAKER 3P 60 AMP							1	1	1	1	1					
7	45-1955	DISCONNECT SWITH 460V												1	1	1	1	1

DIAGRAM FOR EGA05B1 OR EGA03B1

WIRE HARNESS
0766-0126



67-8602

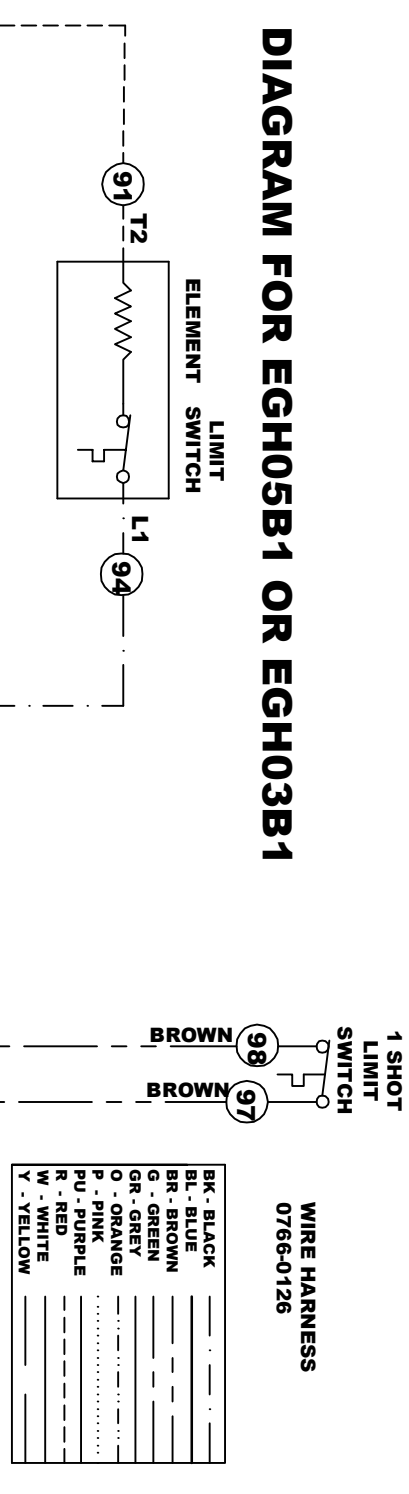
REV E

EXISTING PARTS OR WIRES

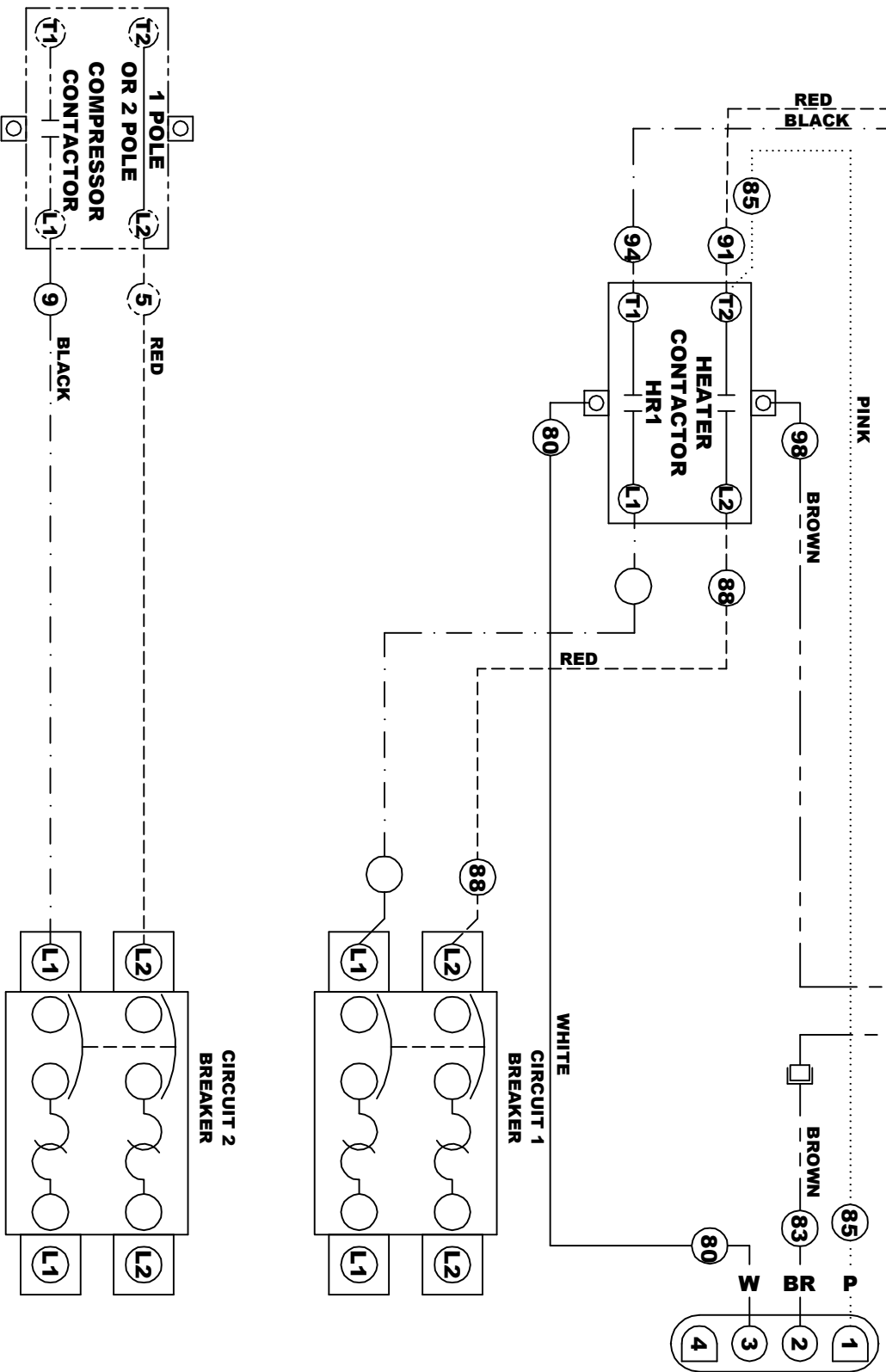
REVISED - 10-27-16

DIAGRAM FOR EGH05B1 OR EGH03B1

WIRE HARNESS
0766-0126



BK - BLACK	_____
BL - BLUE	_____
BR - BROWN	_____
G - GREEN	_____
GR - GREY	_____
O - ORANGE	_____
P - PINK	_____
PU - PURPLE	_____
R - RED	_____
W - WHITE	_____
Y - YELLOW	_____

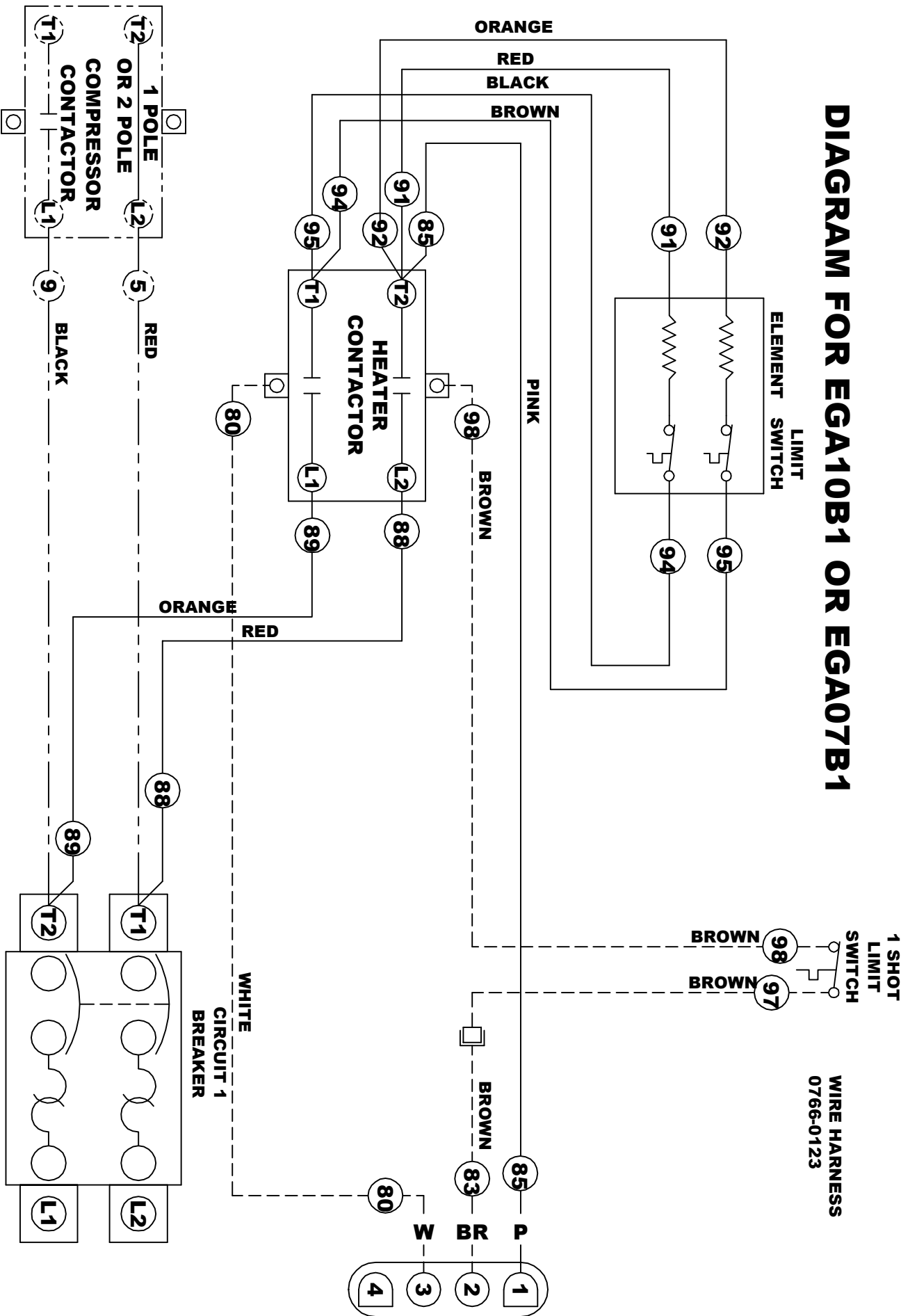


67-8607 REV G

REVISED - 01-01-15

DIAGRAM FOR EGA10B1 OR EGA07B1

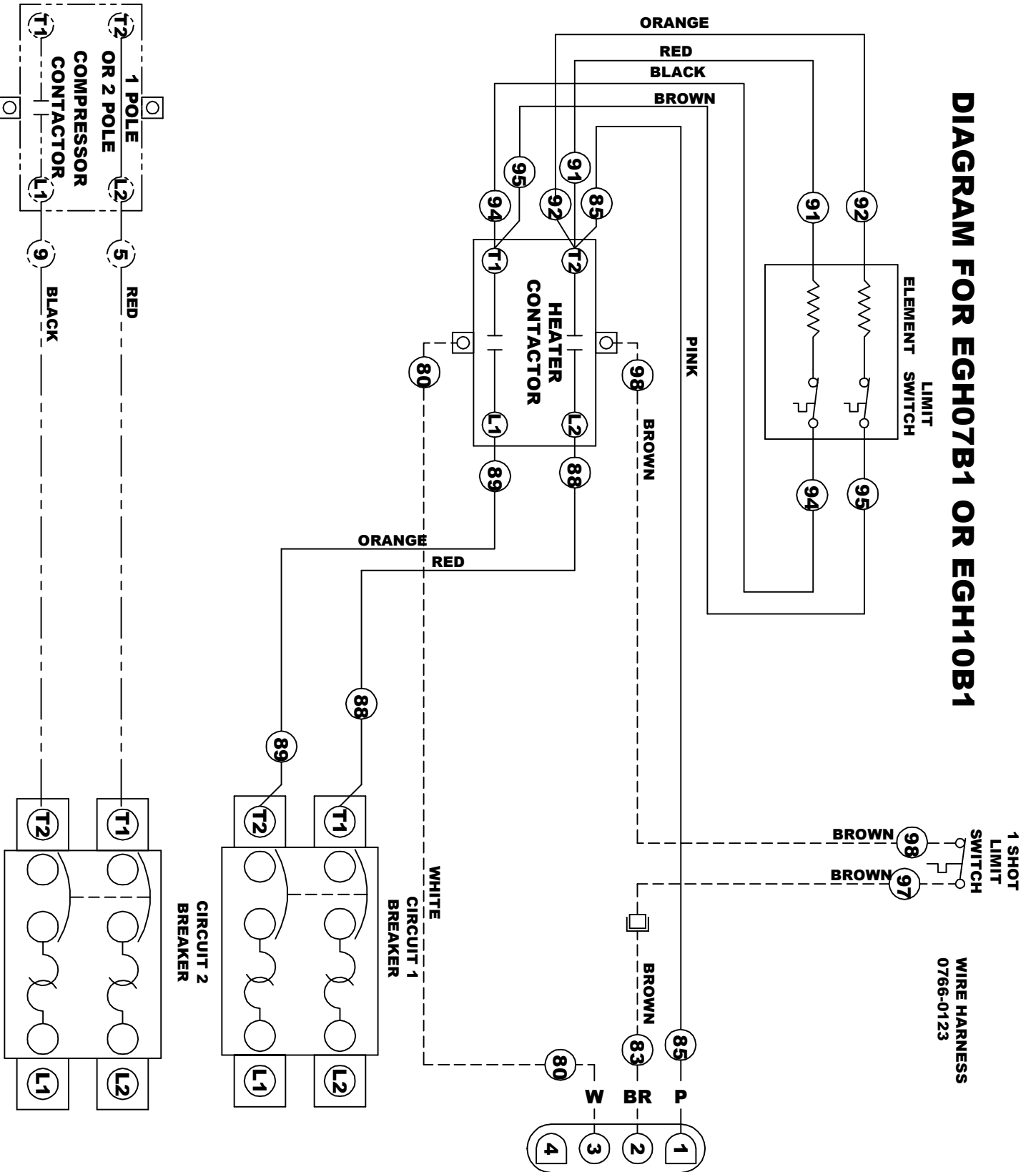
WIRE HARNESS
0766-0123



67-8603 REV G

REVISED - 10-26-16

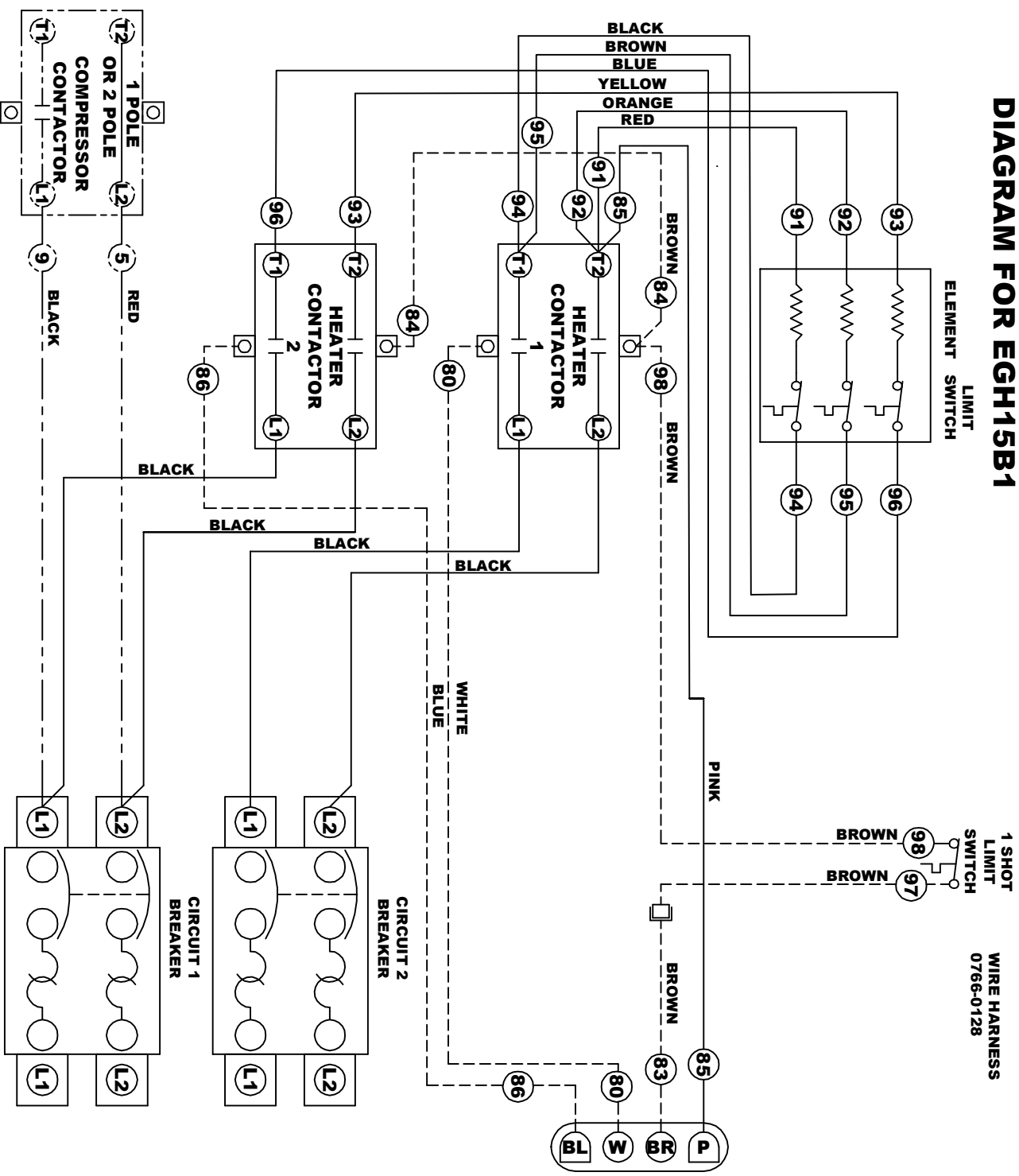
DIAGRAM FOR EGH07B1 OR EGH10B1



67-8604 REV F

REVISED - 01-01-15

DIAGRAM FOR EGH15B1



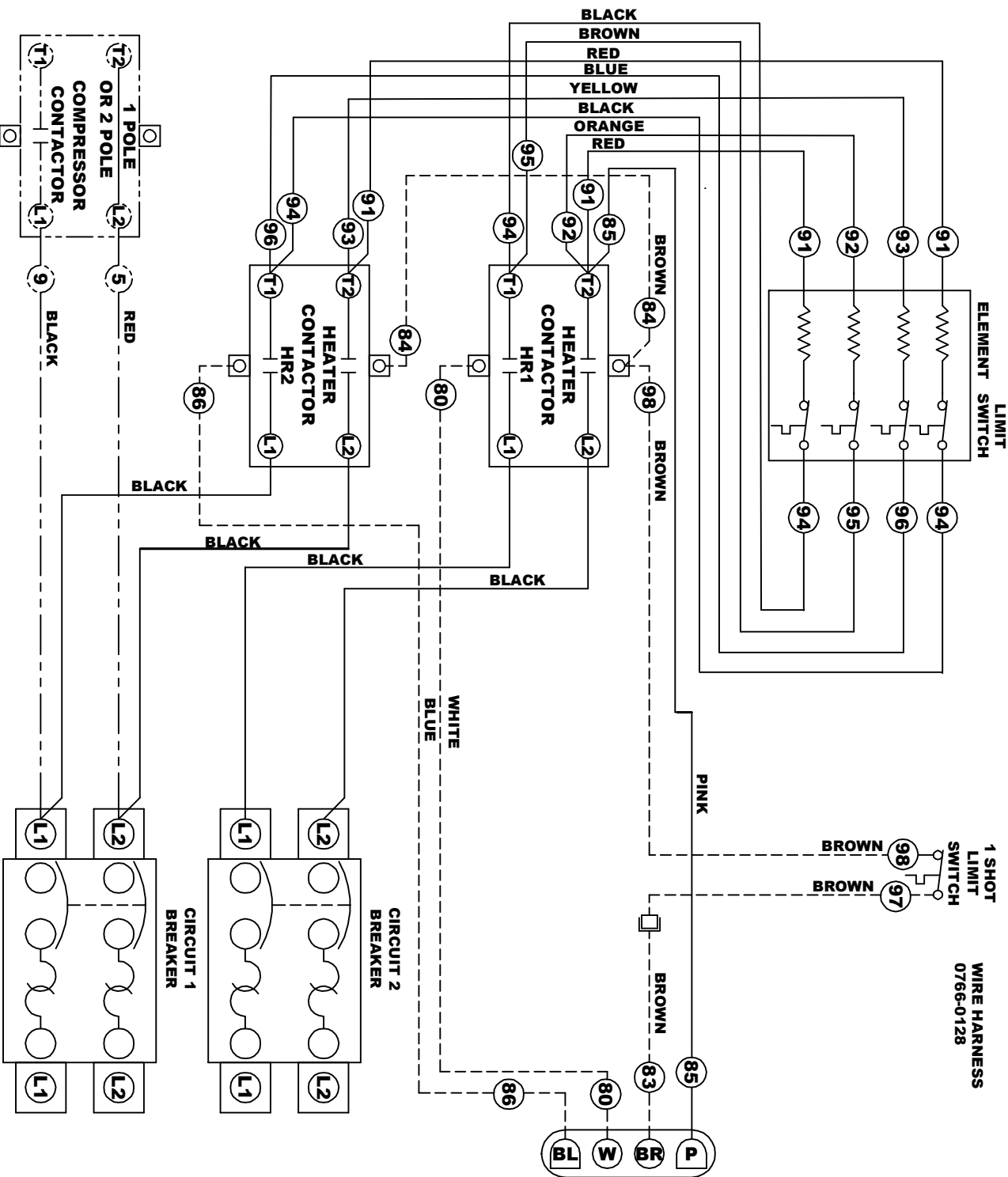
WIRE HARNESS
0766-0128

67-8605

REV F

CURRENT - 10-27-16

DIAGRAM FOR EGH20B1



67-8729-S

REV E

CURRENT - 10-27-16

WIRE HARNESS
0766-0128

DIAGRAM FOR EGH06B3, EGH09B3, (EGH15B3 FOR AC ONLY),
EGH06D4, EGH09D4, AND (EGH15D4 FOR AC ONLY)

