



SELECTIVE-COLLECTIVE OPERATION

For basic selective-collective operation, the elevator answers and remembers calls placed at the car- operating panel and at the hall stations. There are two hall call buttons at intermediate landings (up and down). When the elevator is traveling upward to answer calls (up car) it answers car calls and up hall calls in the order they are reached regardless of the order in which the car were placed. When all calls above the car have been answered, the elevator will reverse directions and travel downward (down car) to answer the calls and down hall call which have been placed below the car. An up car will bypass down hall calls and a down car will bypass up hall calls. When all calls below a down car have been answered, the elevator will reverse directions again to answer calls above the car.

OPERATING SEQUENCE

When a hall call button or a car call button is momentarily pressed, the elevator registers and remembers the call, travels to the indicated destination, opens the door and cancels the call then the door closes.

Before the door is fully closed, it may be reopened by:

- ☐ Pressing to correct hall call button for the car's direction of travel.
- ☐ Pressing the car call button for the car's direction of travel.
- ☐ Pressing the car call button for the landing the car is at.
- ☐ Pressing the DOOR OPEN button.
- ☐ Contacting the door safety edge.

Once the door is fully open it will recluse immediately. When the door has closed, the elevator proceeds to answer any remaining calls; then parks with the door closed.

SAFETY DEVICE

Activation for any of the safety devices or interlocks will immediately stop the car until the "safe" condition is restored. When it is again safe, normal operation resumes automatically and all registered calls are remembered.

The car will be stopped if:

- ☐ The emergency stop button is pulled.
- ☐ The car door is forced open.
- ☐ Any hall door interlock is malfunctioning.

ACCESS AND INSPECTION OPTION

Elevator maintenance people only should enter the elevator shaft to inspect and service hoist way equipment by using the access and inspect key switches and the car top controlled.



ACCESS

Ride or call the elevator to the top or bottom landing, and hold the door open. Turn the ACCESS key switch on the car operating panel to the "on" position to remove power from the door operator and call answering circuits; the elevator is now out of service with the door open. Turn the ACCESS key switch in the entrance doorjamb to the right or left to move up or down within safe limits set by limit switches in the hoist way. The car moves away from the entrance, it will allow the hall door to close. Hold it open if the hall door is allowed to close, you will be locked out, (If you are inside the hoist way, you cannot be locked in).

INSPECT

After the car has been moved from the top landing, it may be run up and down the shaft at leveling speed from the car top controlled. Close the INSPECT switch on the controller and then press the UP or DOWN buttons. The car and hall doors must be closed before the car can move. (The UP and DOWN buttons will signal the car door to close).

RESTORING NORMAL SERVICE

Restore normal service by leveling the car to the top or bottom landing with the hall ACCESS key switch (the INSPECT switch must be in the NORM POSITION); manually open the car door, and then return the ACCESS key switch in the car to its normal position.

INDEPENDENT SERVICE OPTION

Independent service is selected on the key switch in the car-operating panel (COP); an elevator on independent service bypasses all hall calls and answers only calls placed at the COP by the attendant. When the car stops at a landing, it parks with the door open to allow loading or unloading. To close the door, continuously press the car call button for the next destination until the door has fully closed; releasing the button prematurely will reopen the door. To restore normal service, simply return the key switch to the RUN position.

FIREMAN'S SERVICE OPTION

Fireman's service provides two modes of operation: *FIREMAN'S EMERGENCY 9 (Phase 1)* and *FIREMAN'S INDEPENDENT (PHASE II)*.

FIREMAN'S EMERGENCY (FIRE PHASE 1)

A special key switch at the designated fire floor lobby is marked *FIREMAN'S EMERGENCY/NORMAL and BYPASS*. When engaged, this switch causes the car to return to the lobby and park with the door open. The elevator will not stop to answer any calls while Returning to the lobby landing. The emergency stop switch will be inoperative during this phase of operation.



FIREMAN'S INDEPENDENT (FIRE PHASE II)

This mode is selected on a key switch in the car-operating panel. In this mode, the car will answer car calls only. Upon arriving at a destination, the door will remain closed. The door may be opened by continuously pressing the **DOOR OPEN** button; if the button is released before the door is fully open, it will re close. Once fully open, the door will remain open until closed by continuously pressing the **CLOSE** button; if the button is released before the door is fully closed, it will reopen. While closing, all door safety edge devices are deactivated.

RESTORING NORMAL SERVICE

Returning both key switches to their normal position at the lobby floor may restore normal service. When the elevator is in **FIREMAN'S INDEPENDENT**, turning the **FIREMAN'S EMERGENCY** key switch will have no effect.



CONTROLLER JOB PRINTS

HMC-1000-PHC SERIES PROGRAMMABLE HYDRAULIC CONTROLLER

JOB TITLE: MEDICAL DENTAL CLINIC

JOB#:



MODEL: HMC-1000-PHC

SERIAL#:



VOLTAGE: 408VAC;3Ø;60HZ 20HP



For Use With Controller Manual 42-02-1P00

PC BOARDS	
#	DESCRIPTION
1	TRACTION CONTROLLER MAIN RELAY BOARD
1	HC-RB4
2	HYDRAULIC CONTROLLER MAIN RELAY BOARD
2	HC-RBH
2	HC-C/O
2	HC-C/O-E
3	PROGRAMMABLE CONTROLLER CALL I/O EXPANDER BOARD
3	HC-C/O-E
3	HC-P/O
3	HC-P/O
3	HC-PC/O
4	PROGRAMMABLE CONTROLLER POWER AND CALL I/O BOARD
4	HC-P/O
4	HC-PI/O
6	NON PROGRAMMABLE CONTROLLER POWER I/O BOARD (CAR B) ⊕
6	HC-TAB
6	TRACTION ADAPTER BOARD
7	REAR DOOR RELAY BOARD
7	HC-RDRB
8	REAR DOOR LOGIC BOARD (CAR A) ⊕
8	HC-RD
9	REAR DOOR LOGIC BOARD (CAR B)
9	HC-RD
10	REAR DOOR LOGIC BOARD (CAR B)
10	HC-DB-MOD
11	FRONT G.A.L. MOD DOOR INTERFACE BOARD
11	HC-DB-MOD-R
12	REAR G.A.L. MOD DOOR INTERFACE BOARD
12	HC-DPS
13	DOOR POWER SUPPLY BOARD
13	HC-PIX
14	POSITION INDICATOR EXPANDER BOARD (CAR A) ⊕
14	HC-PIX
15	POSITION INDICATOR EXPANDER BOARD (CAR B)
15	HC-SRT
15	HC-SRT
16	SUICIDE RELAY TIMING BOARD
16	HC-SCR
17	SCR INTERFACE BOARD
17	HC-ED
18	EARTHQUAKE BOARD
18	HC-IOX
19	I/O(8 INPUT / 8 OUTPUT) EXPANDER BOARD (CAR A) ⊕
19	HC-IOX
20	I/O(8 INPUT / 8 OUTPUT) EXPANDER BOARD (CAR B)
20	HC-IOX
21	ADDITIONAL I/O(8 INPUT / 8 OUTPUT) EXPANDER BOARD (CAR A) ⊕
21	HC-IOX
26	ADDITIONAL I/O(8 INPUT / 8 OUTPUT) EXPANDER BOARD (CAR B)
26	HC-DYNA
26	DYNALFT INTERFACE BOARD
27	AC FEEDBACK RELAY BOARD
27	MC-ACFR
28	GENERAL TURBO DF I/O BOARD
28	IMC-GIO
29	TURBO DF RELAY BOARD
29	IMC-RB
30	FRONT G.A.L. MOM/MOH DOOR INTERFACE BOARD
30	HC-DB-MOM/H
31	REAR G.A.L. MOM/MOH DOOR INTERFACE BOARD
31	HC-DB-MOM/H-R
32	OUTPUT ADAPTER BOARD
32	HC-OA
33	M/G RELAY INTERFACE BOARD
33	IMC-RI
34	M/G POWER RELAY INTERFACE BOARD
34	IMC-PRI
35	DIGITAL I/O BOARD
35	IMC-DIO
36	DATA ACQUISITION BOARD
36	IMC-DAS
37	I/O(16 INPUT / 4 OUTPUT) EXPANDER BOARD (CAR A) ⊕
37	HC-I4O
38	I/O(16 INPUT / 4 OUTPUT) EXPANDER BOARD (CAR B)
38	HC-I4O
39	ADDITIONAL I/O(16 INPUT / 4 OUTPUT) EXPANDER BOARD (CAR A) ⊕
39	HC-I4O
40	ADDITIONAL I/O(16 INPUT / 4 OUTPUT) EXPANDER BOARD (CAR B)
40	HC-I4O
41	SCR/AC RELAY INTERFACE BOARD
41	SCR-RI
42	SCR/AC POWER RELAY INTERFACE BOARD
42	SCR-PRI
43	LOCK BYPASS BOARD
43	HC-LB
44	GONG BOARD
44	HC-GB
45	ADDITIONAL GONG BOARD
45	HC-GB
46	SELECTABLE INPUT BUFFER BOARD (CAR A) ⊕
46	HC-SIB
47	SELECTABLE INPUT BUFFER BOARD (CAR B)
47	HC-SIB
48	RELAY TESTER BOARD
48	HC-RT
49	AC BALDOR INTERFACE BOARD
49	HC-ACIB
50	FRONT G.A.L. MOM/MOH DOOR INTERFACE AND POWER SUPPLY BOARD
50	HC-DPS-MOM/H
51	AC DRIVE INTERFACE BOARD
51	HC-ACI
52	AC FLUX VECTOR INTERFACE BOARD
52	HC-ACIF
53	REAR G.A.L. MOM/MOH INTERFACE AND POWER SUPPLY BOARD
53	HC-DPS-MOM/H-R
54	IMC ENHANCED MOTHERBOARD
54	IMC-MBX

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① Individual group cars use board numbers for car A only

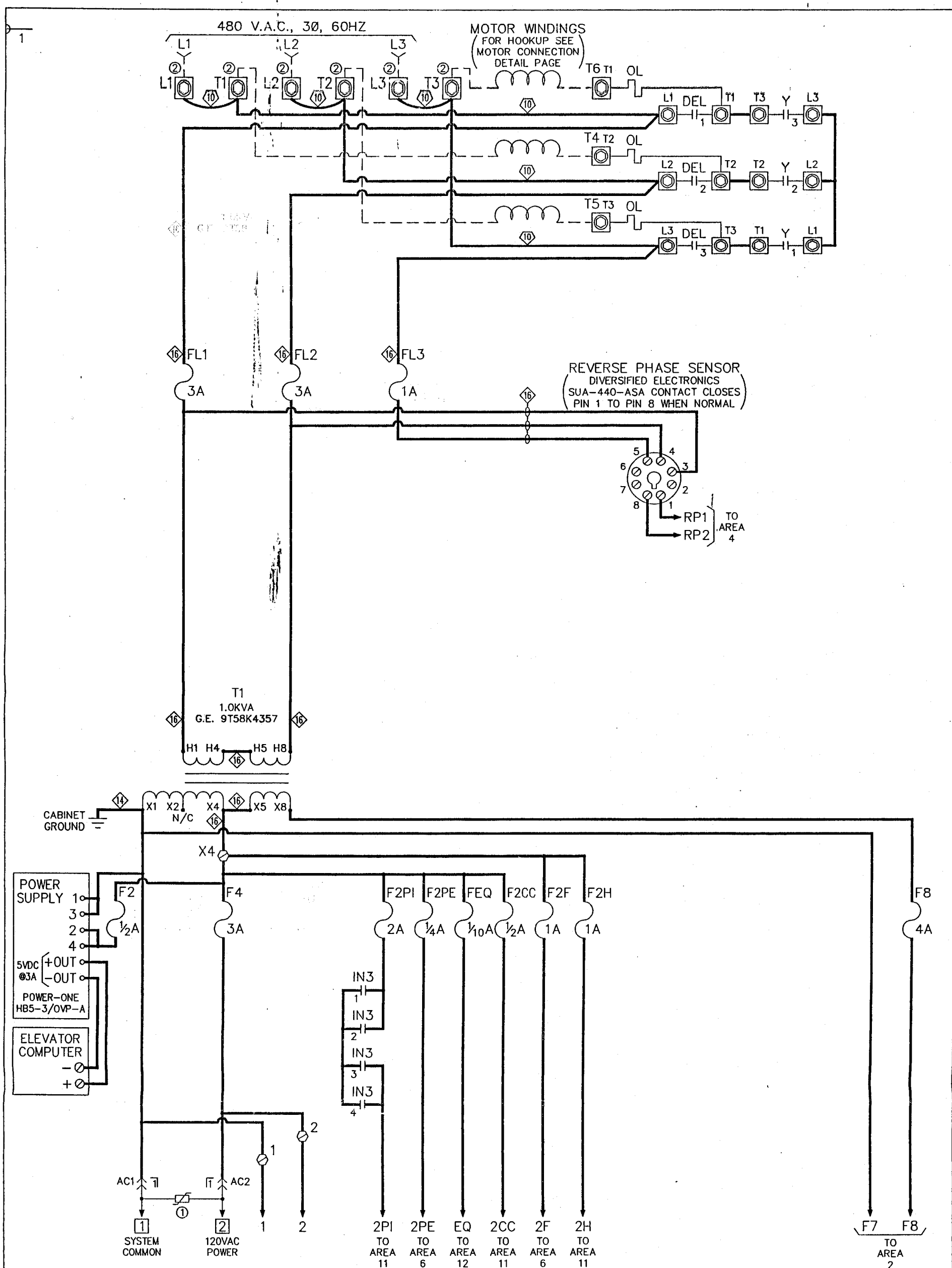
SCHEMATIC SYMBOLS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BUS LOCATED ON PC BOARD		BOARD DESIGNATOR
	BUS LOCATED OFF PC BOARD		SOLDER CONNECTION ON REAR OF PC BOARD
	MICROCOMPUTER OUTPUT OR CALL CIRCUIT		WIRING INSIDE CONTROL CABINET
	MICROCOMPUTER INPUT		TRACE ON PC BOARD
	PATTERN GENERATOR OUTPUT		CUSTOMER WIRING INTO CONTROL CABINET
	PATTERN GENERATOR INPUT		ALL UNMARKED DIODES ARE 2.5 AMP 1000 VOLT
	PATTERN GENERATOR SAFETY INPUT		VOLTAGE SPIKE SUPPRESSOR
	POWER TERMINAL		DOT BY RESISTOR INDICATES TOP OR LEFT SIDE AS MOUNTED
	PANEL MOUNT TERMINAL		BOX INDICATES UNUSED ITEM
	EYELET ON PC BOARD		RELAY COIL
	SCREW TERMINAL ON PC BOARD		NORMALLY OPEN (N.O.) RELAY CONTACT
	IDC CONNECTOR ON PC BOARD		NORMALLY CLOSED (N.C.) RELAY CONTACT
	RIBBON CABLE CONNECTOR		N/C

WIRE SYMBOLS	
SYMBOL	DESCRIPTION
	#X AWG THHN WIRE 90° C
	#X AWG PVC WIRE 105° C
	#X AWG PTL WIRE 125° C
	#X AWG TEFLON WIRE 200° C

UNLESS NOTED, ALL WIRES ARE #18 AWG PVC, WITH EXCEPTION TO THE PC BOARD WIRING, WHICH IS DETERMINED BY ENGINEERING.

WIRE GAUGES	
SYMBOL	SIZE
03	3/0 AWG
02	2/0 AWG
0	0 AWG
1	1 AWG
2	2 AWG
4	4 AWG
6	6 AWG
8	8 AWG
10	10 AWG
12	12 AWG
14	14 AWG
16	16 AWG
18	18 AWG

MCE Motion Control Engineering, Inc.	NOMENCLATURE
F:\DOCS\NMCLR2.DWG	Approved By: Engineering Manager
	Effective Date: 10-16-96 Page 2



① V130LA20A

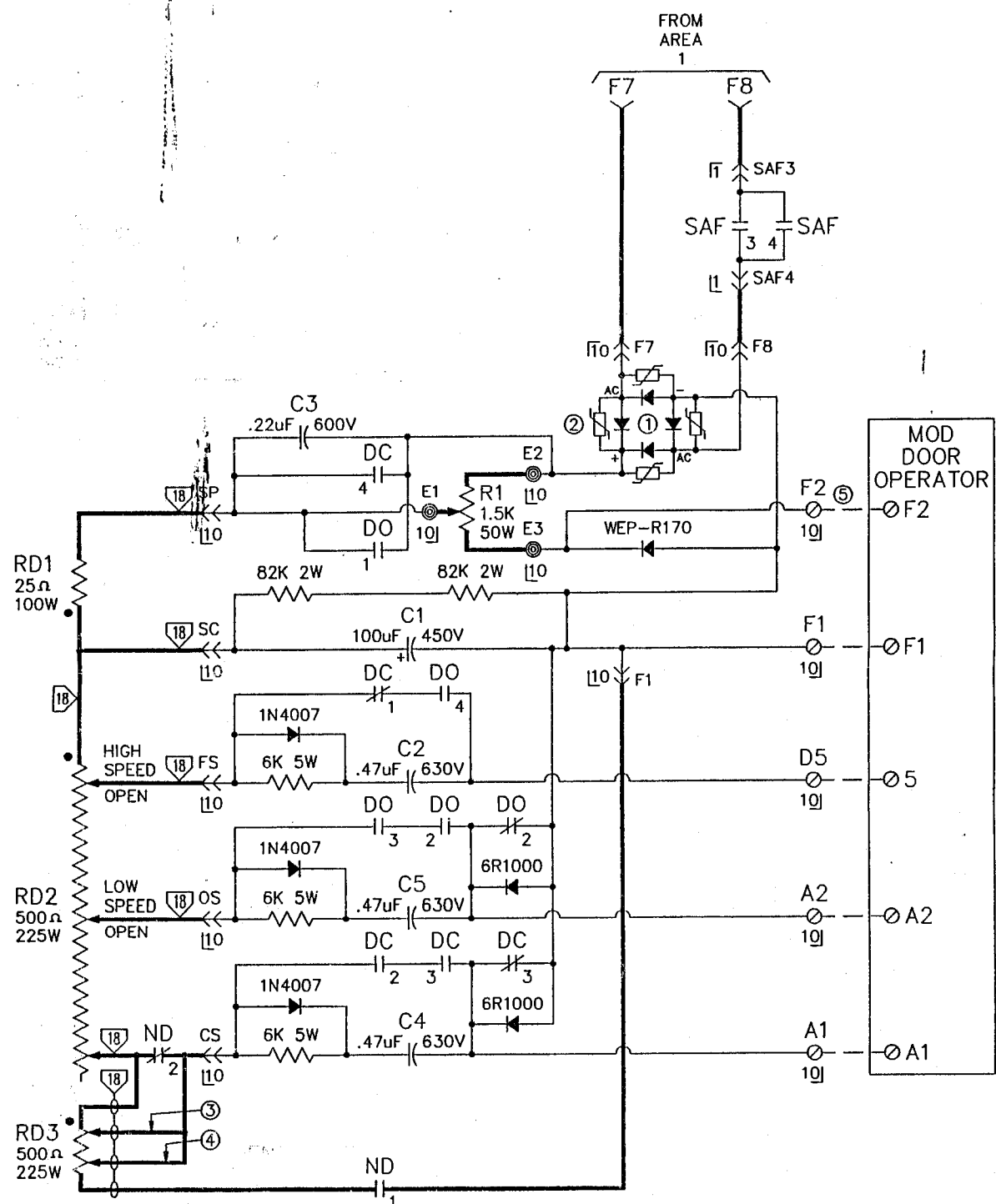
② CUSTOMER CONNECTIONS MUST BE MADE
AT THE BOTTOM OF THE POWER BLOCK

FUSES FL1, FL2 AND FL3 ARE 500V RATING
BUSSMANN TYPE FNQ OR LITTELFUSE TYPE FLQ

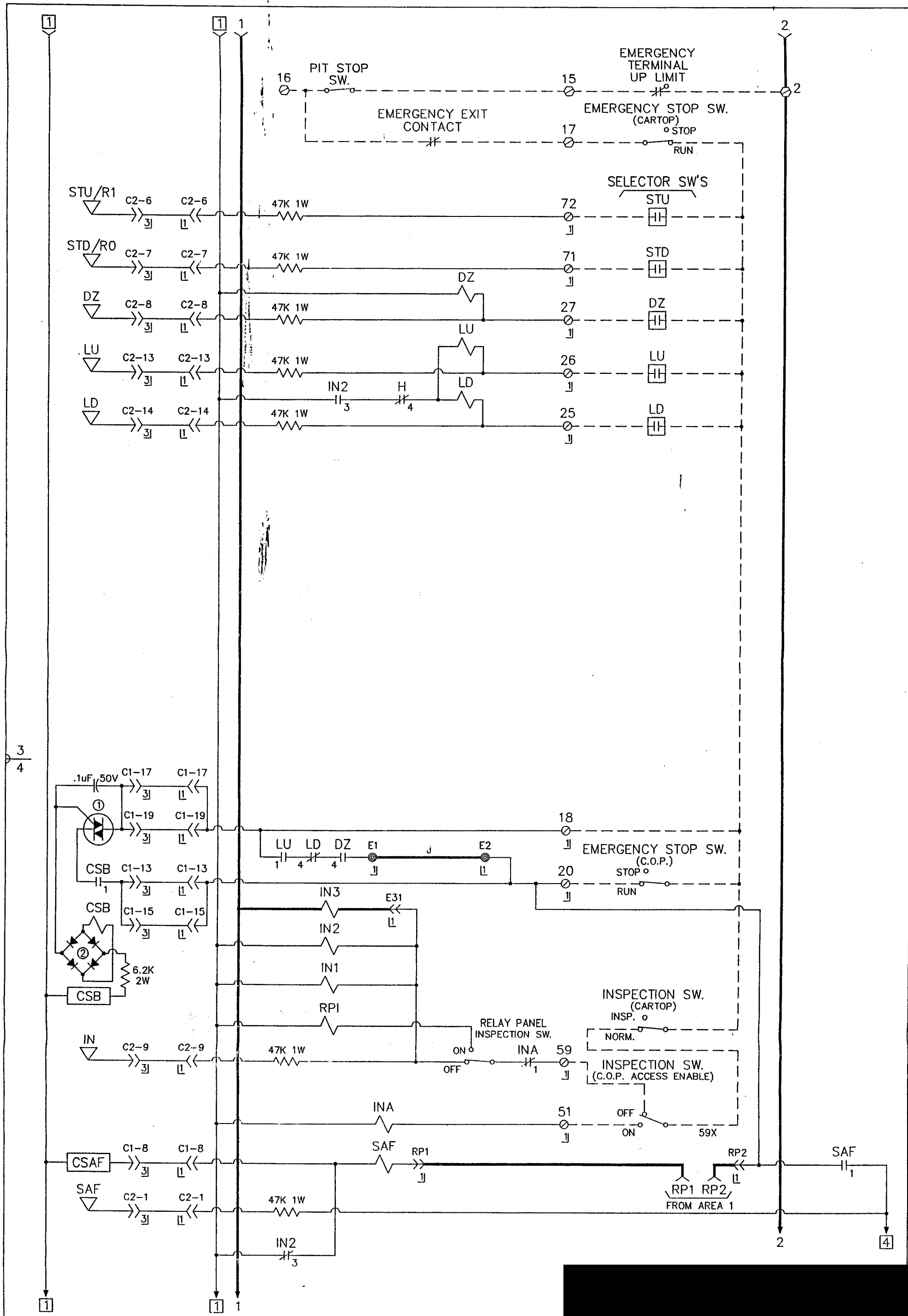
FUSES F2, F2PI, F2PE AND FEQ ARE 250V RATING
BUSSMANN TYPE MDQ OR LITTELFUSE TYPE 313

ALL OTHER FUSES ARE 250V RATING
BUSSMANN TYPE AGC OR LITTELFUSE TYPE 312

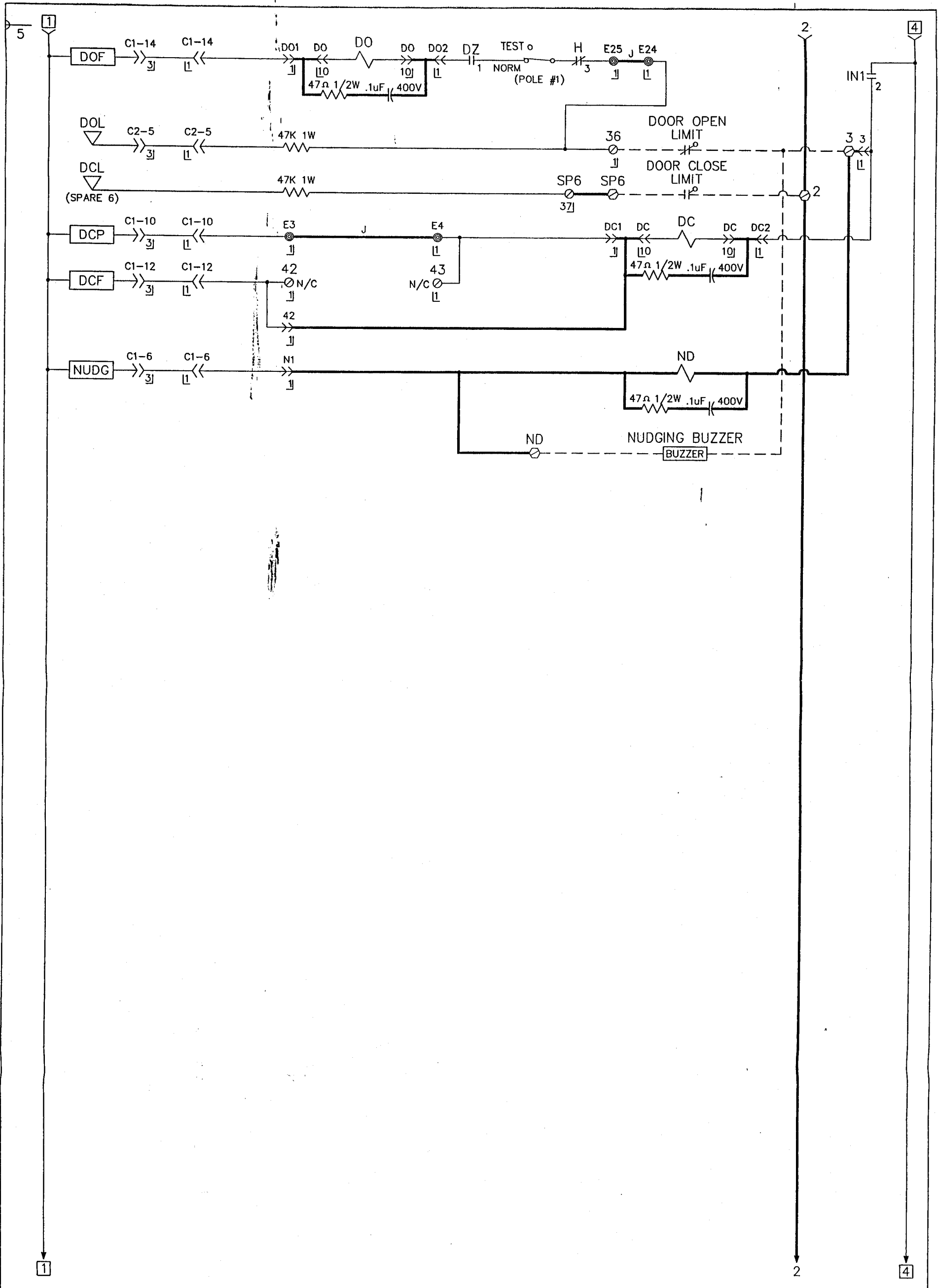
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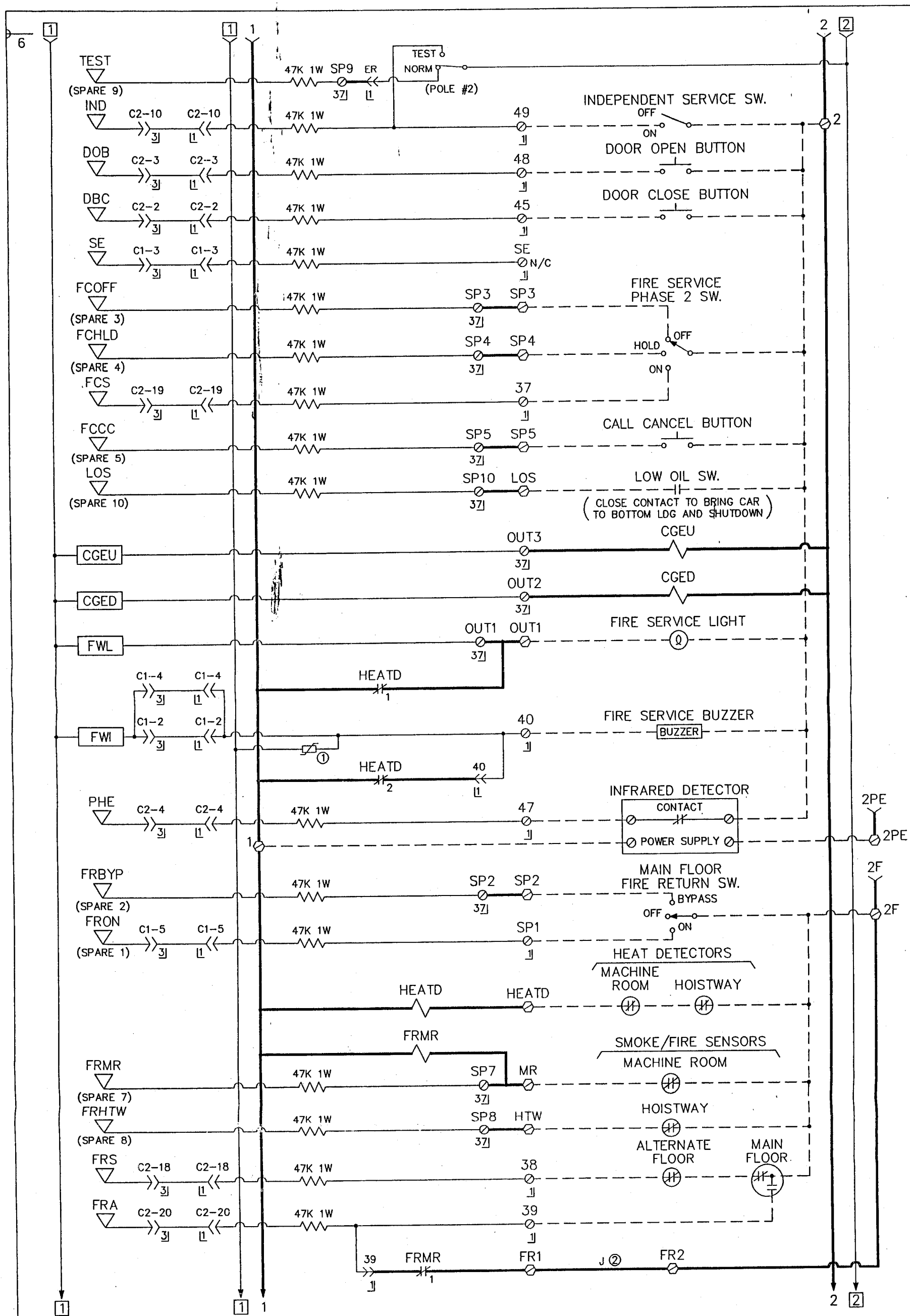


- ① 6SB1000 DIODE BRIDGE
 ② (4) S14K250 AC250V VARISTOR
 ③ LESS NUDGING SPEED
 ④ LESS NUDGING TORQUE
 ⑤ NO CONNECTION IF USING PERMANENT MAGNET



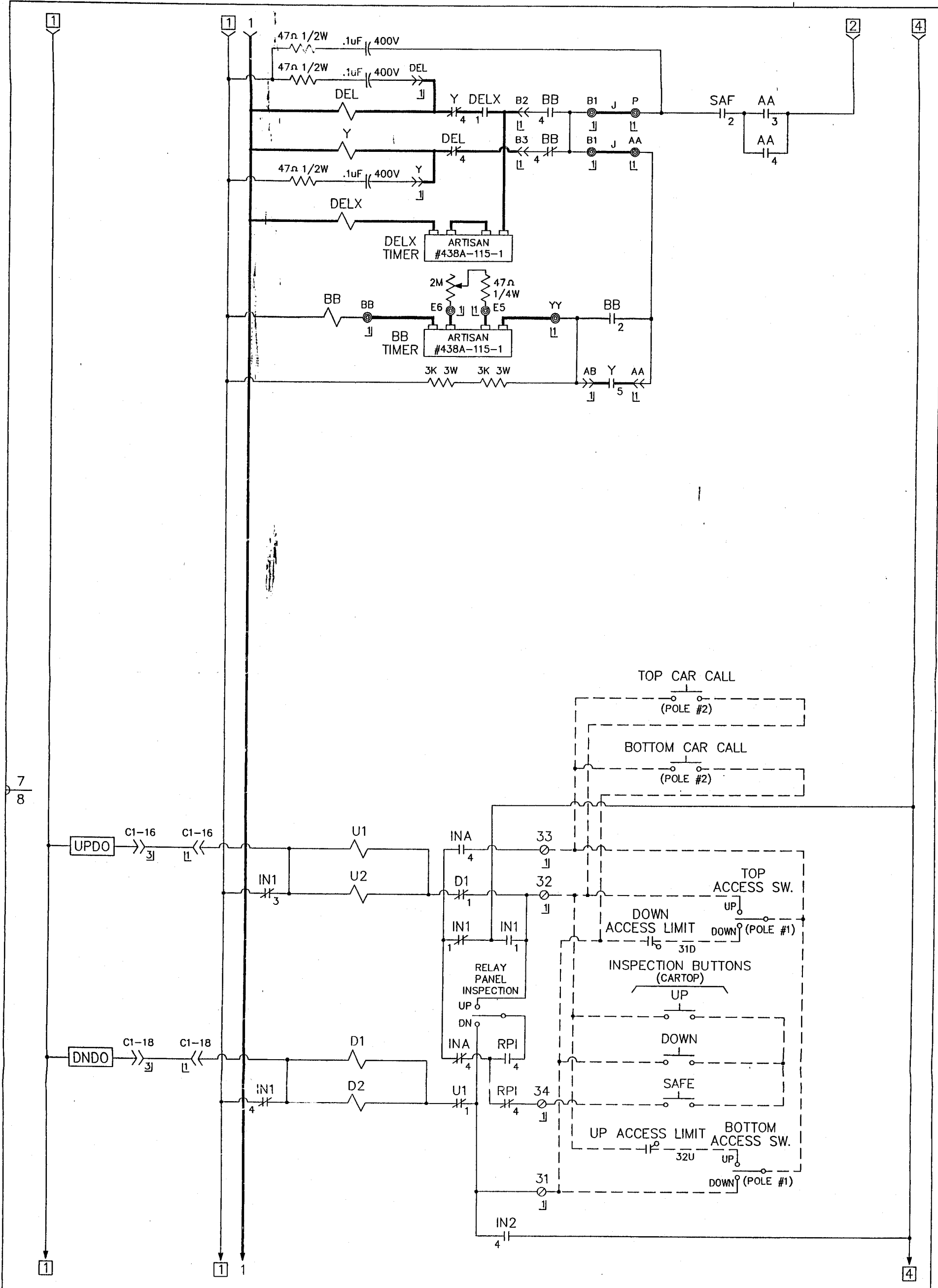
① T0808MH TRIAC
 ② RB154-ND DIODE BRIDGE



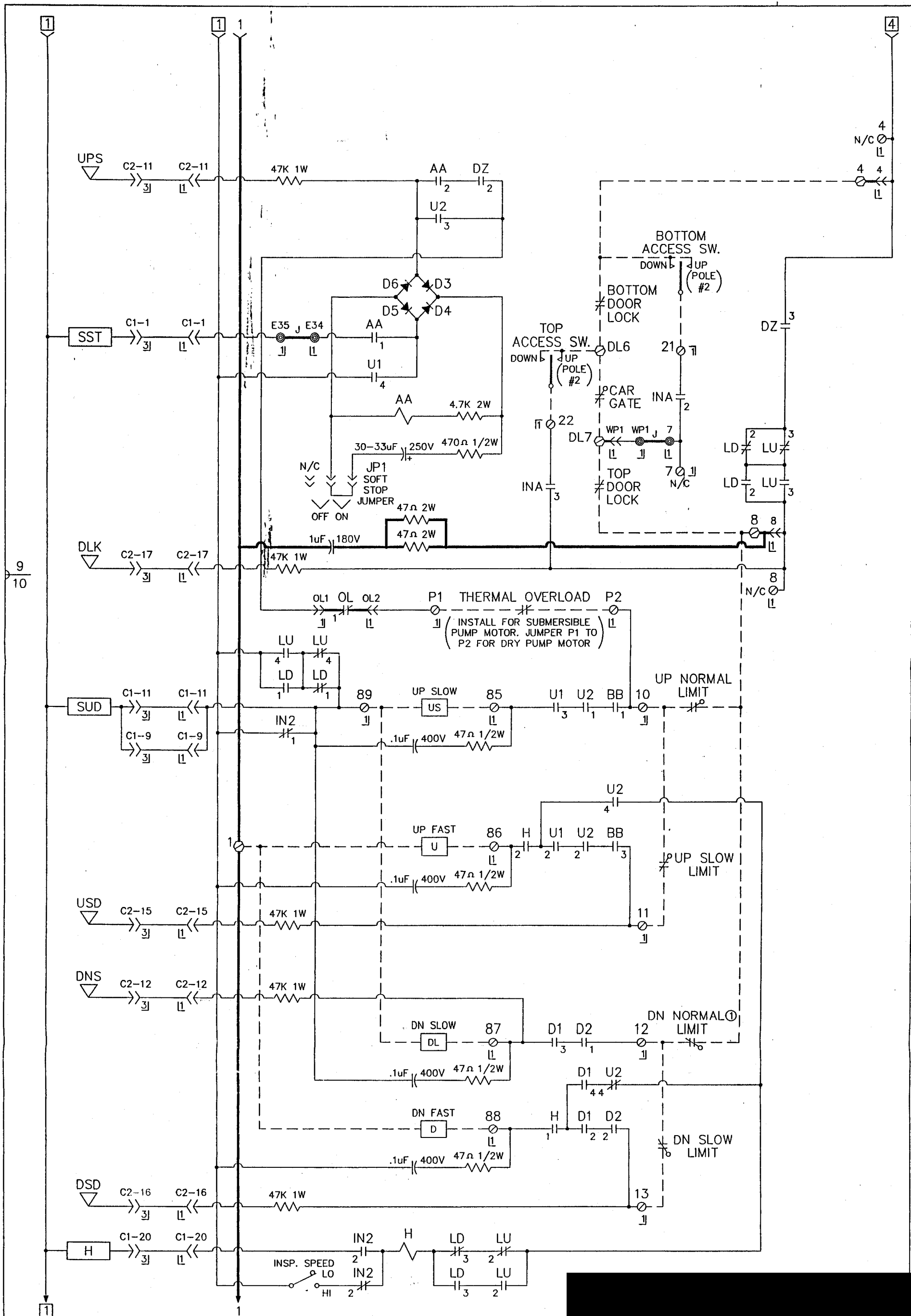


① V130LA20A

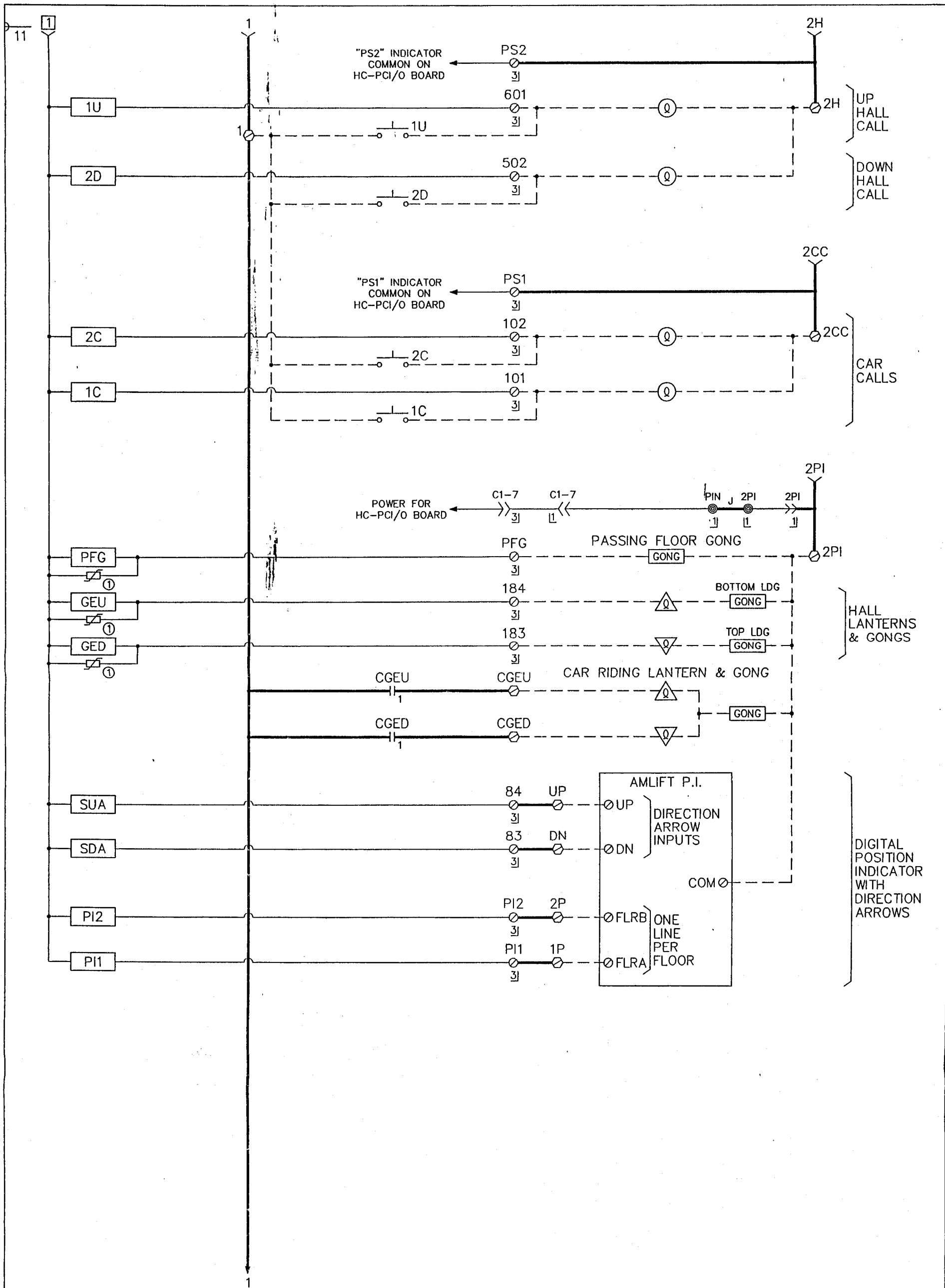
② REMOVE THE JUMPER FROM TERMINAL FR1 TO TERMINAL FR2 IF THE MACHINE ROOM IS NOT AT THE SAME LANDING AS THE MAIN FIRE FLOOR.

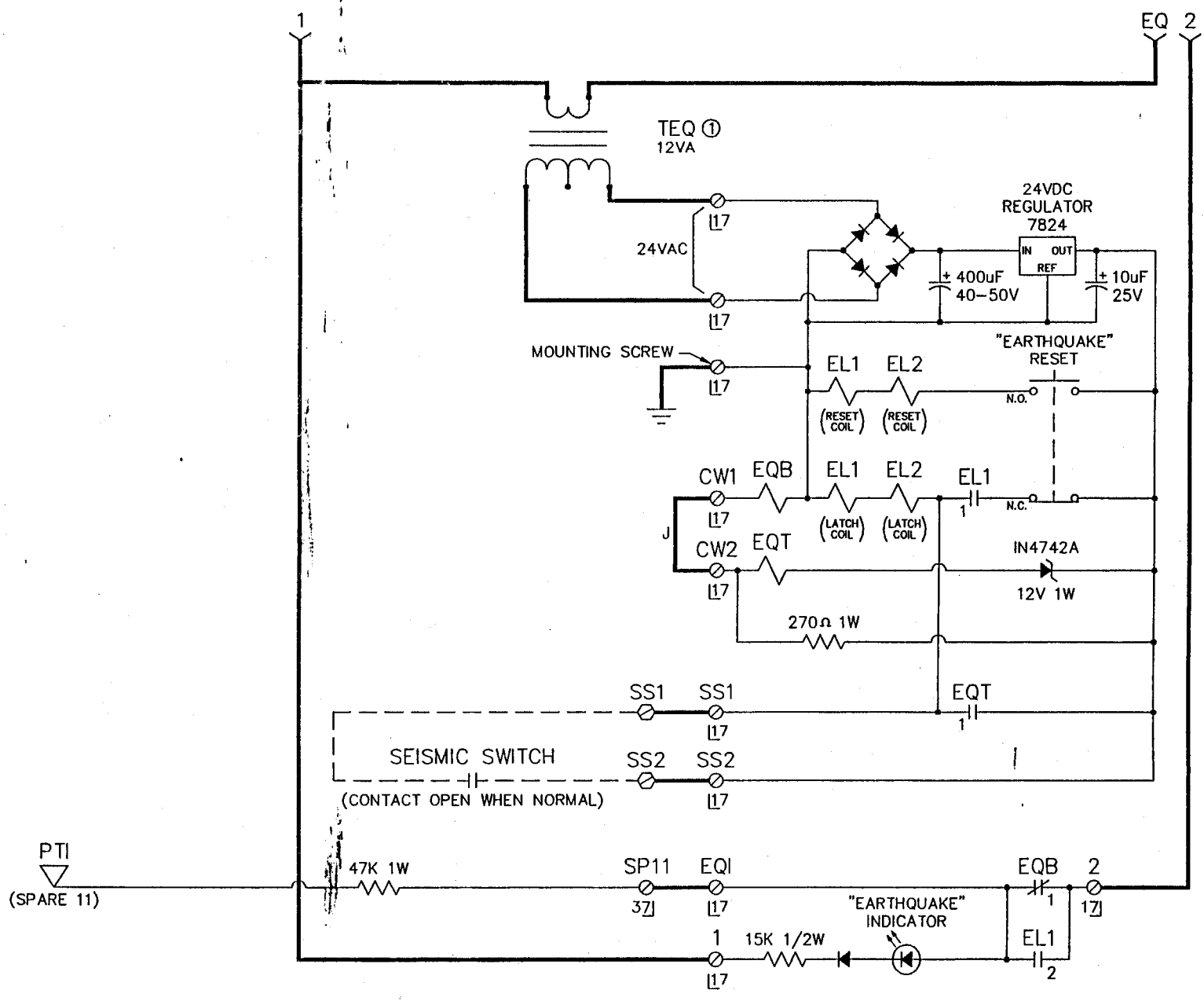


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① IF PRESSURE SWITCH IS REQUIRED,
WIRE AS FOLLOWS:
DN NORMAL
LIMIT PRESSURE SW. 8





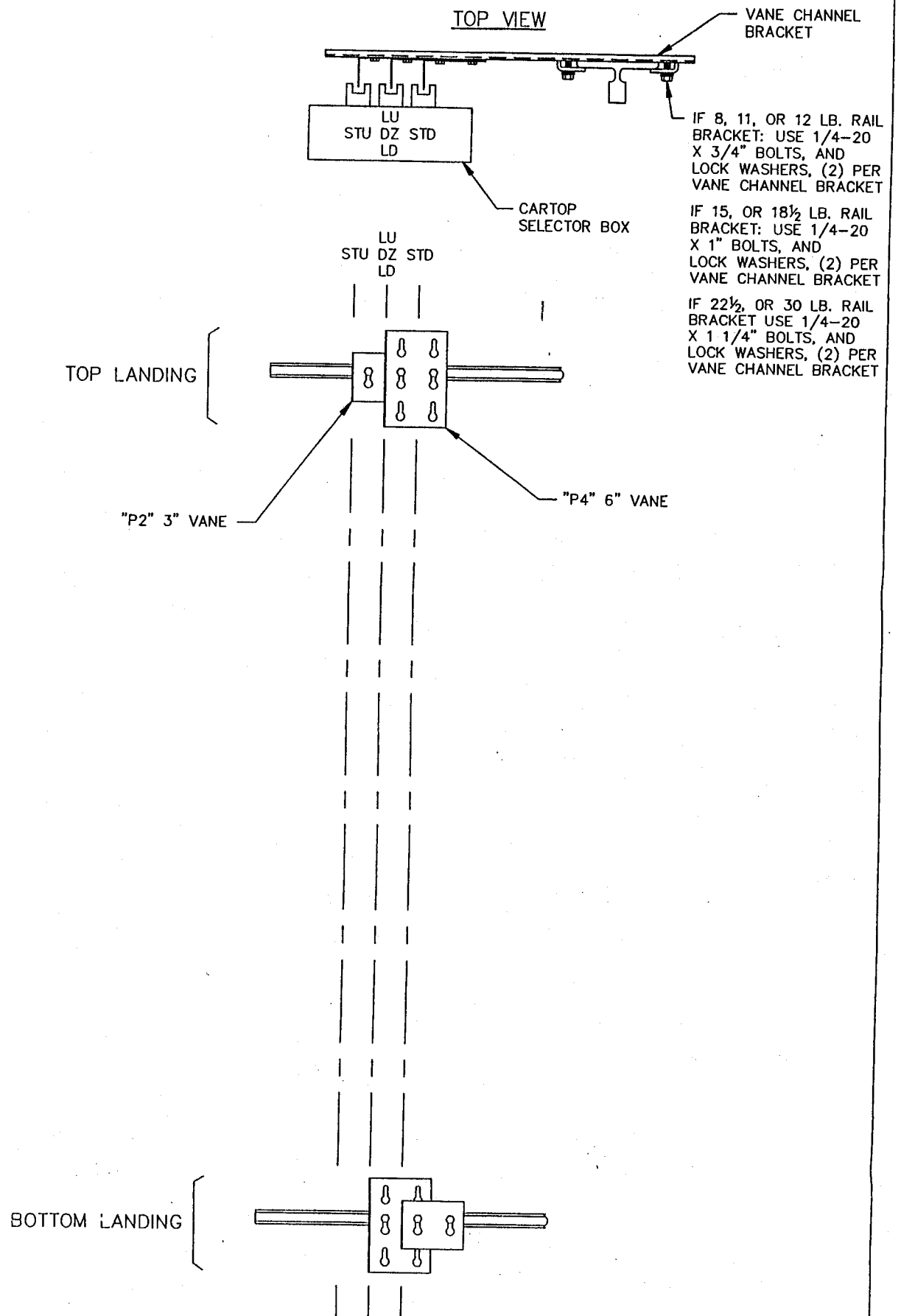
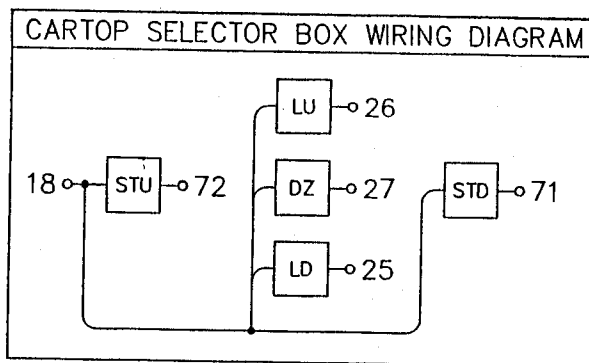
HIGH POWER RELAYS				POLE NUMBER				
SYMBOL		TYPE	COIL AREA	1	2	3	4	5
				NO/NC	NO/NC	NO/NC	NO/NC	NO/NC
DEL	STARTER DELTA SWITCH	7	7	1/1	1/1	1/1	7/7	
OL	STARTER OVERLOAD	8	1	10/10				
Y	STARTER WYE SWITCH	7	7	1/1	1/1	1/1	7/7	

POWER RELAYS				POLE NUMBER			
SYMBOL		TYPE	COIL AREA	1	2	3	4
				NO/NC	NO/NC	NO/NC	NO/NC
DC	DOOR CLOSE	10	5	2/2	2/2	2/2	2/2
DO	DOOR OPEN	10	5	2/2	2/2	2/2	2/2
ND	NUDGING	15	5	2/2	2/2		

LOGIC RELAYS				POLE NUMBER			
SYMBOL		TYPE	COIL AREA	1	2	3	4
				NO/NC	NO/NC	NO/NC	NO/NC
AA	MOTOR STARTER PILOT	1	9	9/9	7/7	7/7	7/7
BB	MOTOR TRANSFER PILOT	1	7	10/10	7/7	10/10	7/7
CGED	CAR GONG ENABLE DOWN	1	6	11/11			
CGEU	CAR GONG ENABLE UP	1	6	11/11			
CSB	CAR STOP BYPASS	17	4	4/4			
D1	DOWN #1	1	8	8/8	10/10	10/10	10/10
D2	DOWN #2	1	8	10/10	10/10		
DELX	DELTA AUX.	1	7	7/7			
DZ	DOOR ZONE	1	3	5/5	9/9	9/9	4/4
EL1	EARTHQUAKE LATCH #1	4	12	12/12	12/12		
EL2	EARTHQUAKE LATCH #2	4	12				
EQB	EARTHQUAKE BOTTOM PILOT	3	12	12/12			
EQT	EARTHQUAKE TOP PILOT	3	12	12/12			
FRMR	MACHINE ROOM FIRE SENSOR	1	6	6/6			
H	HIGH SPEED	1	10	10/10	10/10	5/5	3/3
HEATD	HEAT DETECTORS	1	6	6/6	6/6		
IN1	INSPECTION #1	1	4	8/8	5/5	8/8	8/8
IN2	INSPECTION #2	1	4	10/10	10/10	3/3	8/8
IN3	INSPECTION #3	1	4	1/1	1/1	1/1	1/1
INA	INSPECTION TRANSFER	1	4	4/4	9/9	9/9	8/8
LD	LEVEL DOWN	1	3	10/10	9/9	10/10	4/4
LU	LEVEL UP	1	3	4/4	10/10	9/9	10/10
RPI	RELAY PANEL INSPECTION	1	4				8/8
SAF	SAFETY	1	4	4/4	7/7	2/2	2/2
U1	UP #1	1	8	8/8	10/10	10/10	9/9
U2	UP #2	1	8	10/10	10/10	9/9	10/10

RELAY TYPES			
1	P+B KH-6455 AC120V OR	19	AROMAT HC4-DC24V
	OMRON MY4N 110/120VAC	20	AROMAT HC4-DC110V
2	AROMAT DS2-M-DC48V	21	OMRON MY4ZN 12VDC
3	AROMAT DS2-M-DC12V	22	WARD LEONARD WCL4-00.a +
4	AROMAT DS2E-ML2-DC12V		WBCL4-02 CONTACT BLOCK
5	P+B KUP-14A15-120	23	MIDTEX 187-32C200 24VDC OR
6	AROMAT VC15S-3a1b-AC120V		P+B KUHP-11D51-24
7	G.E. CL25A310TJ	24	AROMAT DS4-M-48VDC
8	G.E. RT1S	25	AROMAT JW2EN-DC24V
9	SQUARE D 8910 DP12V02 120VAC	26	G.E. RL4RA031TJ 120VAC
10	OMRON 4PDT, LY4-US-AC120V	27	G.E. CR7RA 120VAC
11	P+B PM17AY 240VAC	28	CRYDOM TA2425 25A SOLID STATE
12	P+B PM17DY 110VDC	29	MEC GM-4PDT-24A
13	P+B PRD11AYO 120VAC	30	AROMAT HL2-H-AC115V
14	P+B PM17AY 120VAC	31	OMRON MY4-240VAC
15	P+B PRD11AHO 120VAC	32	OMRON MY4ZN-AC110/120
16	P+B KHAU 17D12-24VDC	33	AROMAT HC4-H-AC24V
17	OMRON G5LE-14-AP3 24VDC	34	OMRON MY4-3-UA-DC48
18	AROMAT DS2-M-DC24V	35	-

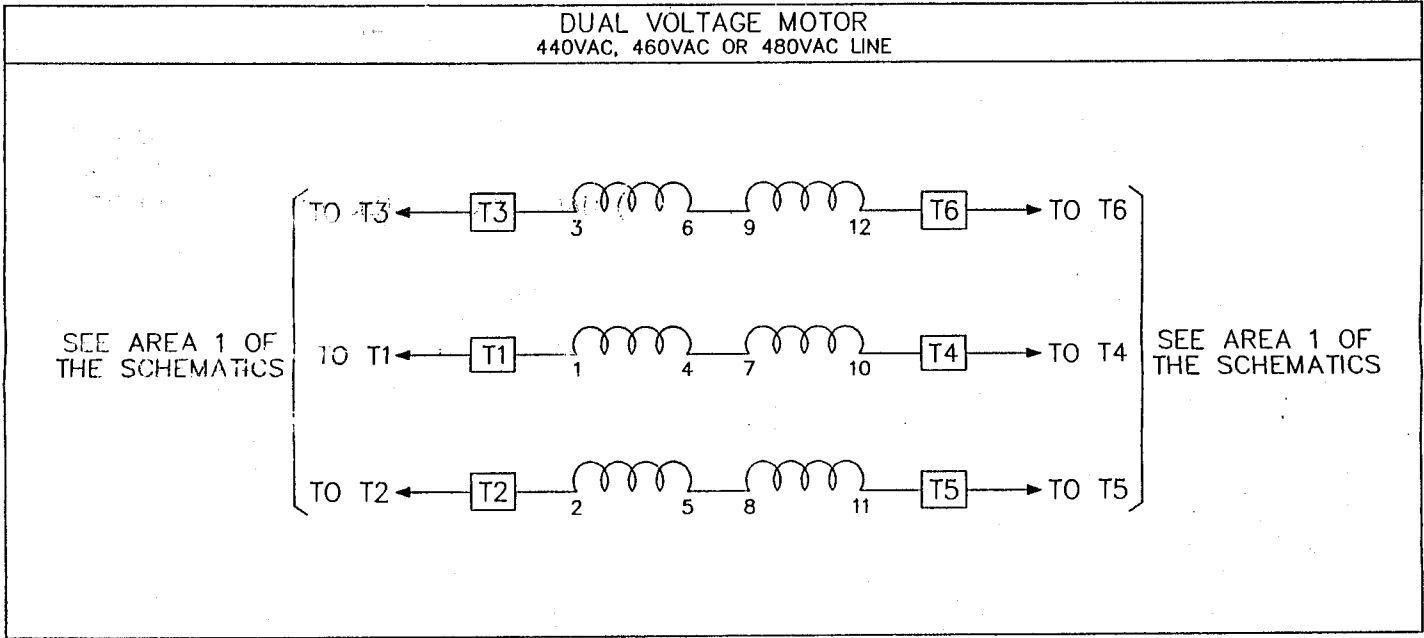
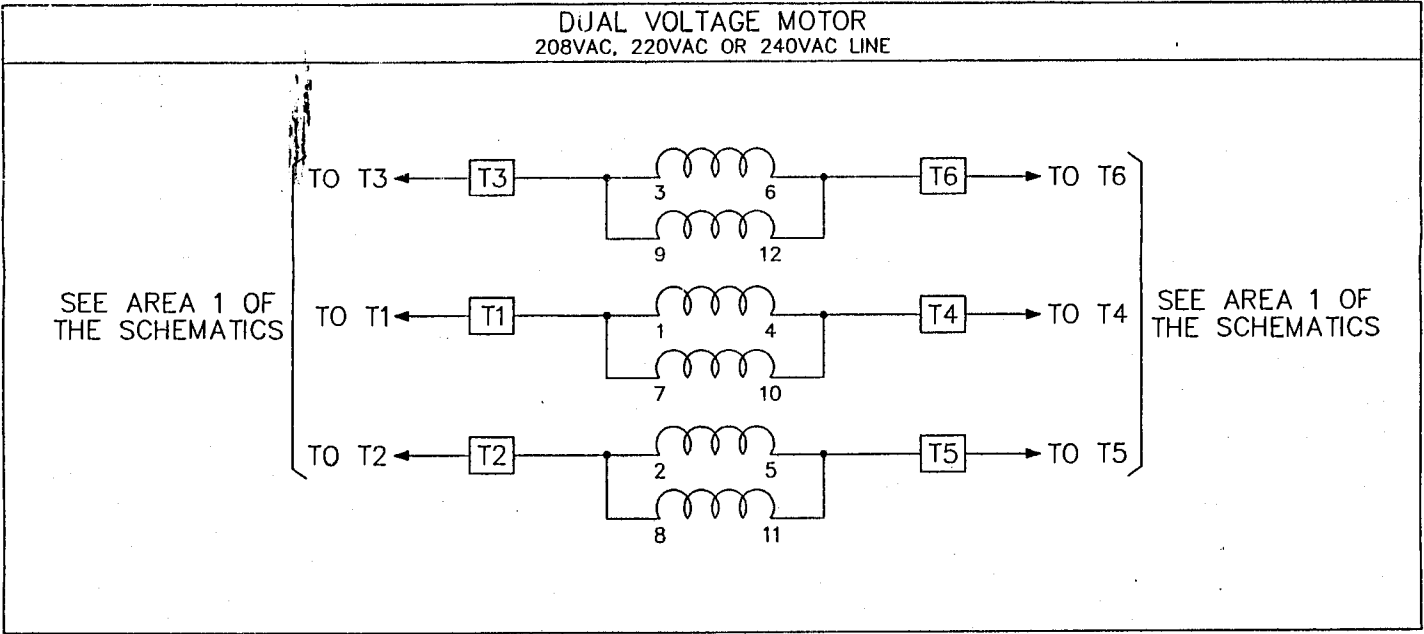
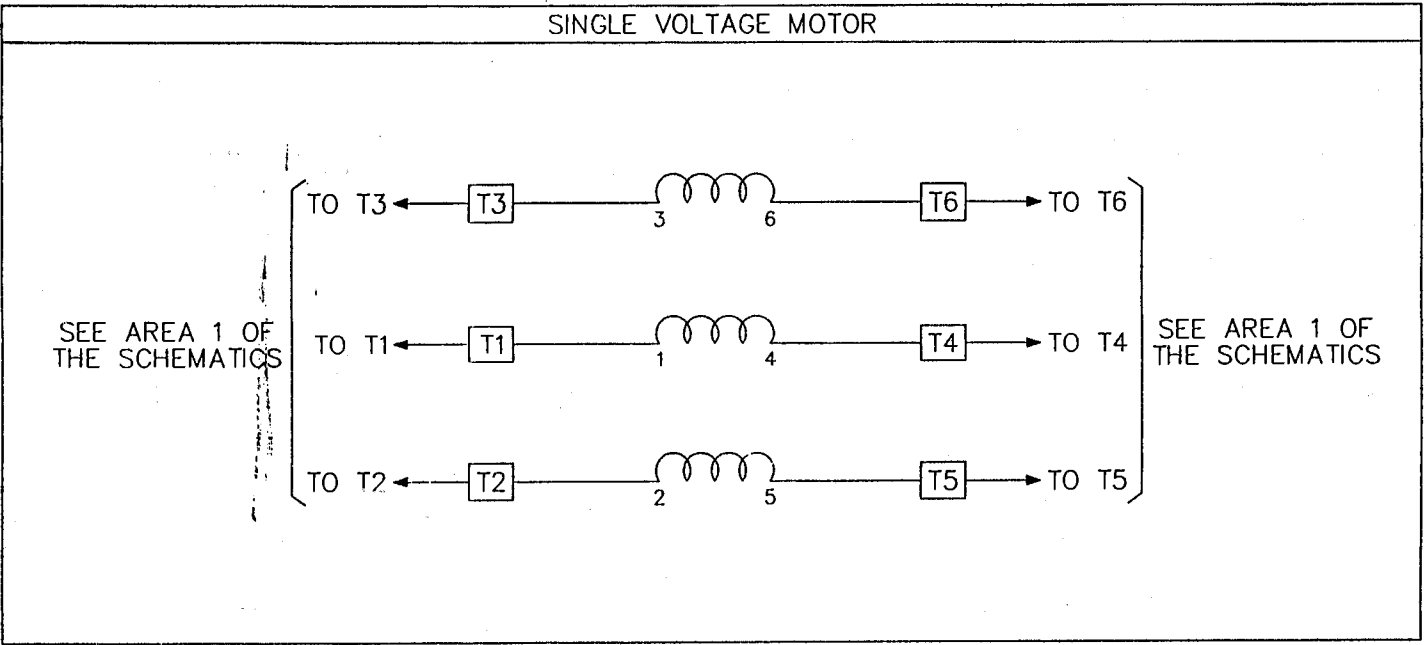
RECOMMENDED VANE INSTALLATION METHOD

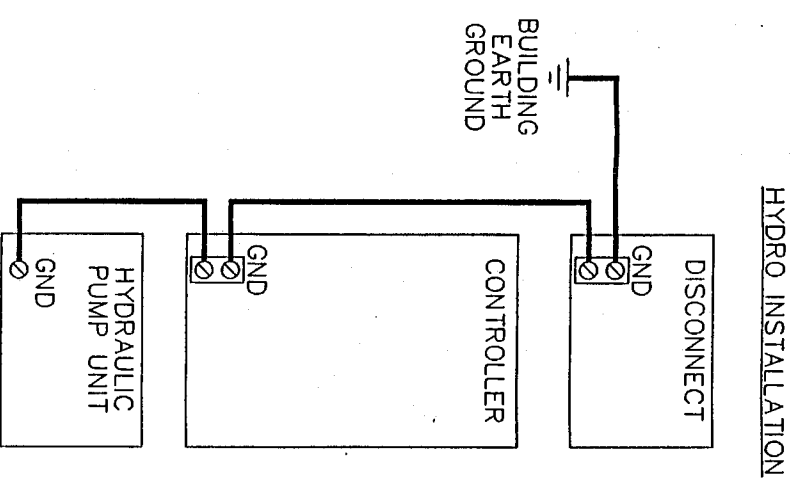


VANE INSTALLATION INSTRUCTIONS

- 1 INSTALL VANE CHANNEL SO CARTOP SELECTOR BOX WILL CLEAR ALL OBSTRUCTIONS.
- 2 INSTALL CARTOP SELECTOR BOX, ALIGN SO VANES GO THRU MIDDLE OF GAP IN SWITCHES. -ALSO SEE VANE ENGAGEMENT DETAIL ABOVE.
- 3 WITH CAR EXACTLY LEVEL AT EACH FLOOR, INSTALL EACH DZ (DOOR ZONE) VANE CENTERED ON DZ SWITCH (WHICH SHOULD BE CENTERED ON CARTOP SELECTOR BOX).
- 4 WITH CAR EXACTLY LEVEL AT EACH LANDING, INSTALL 3" A.F.E. (ABSOLUTE FLOOR ENCODING) VANES AS SHOWN.

CARTOP SELECTOR BOX AND VANE INSTALLATION





NOTE: GROUNDING WIRE SHOULD BE THE SAME GAUGE AS THE INCOMING 3 PHASE AC POWER, OR CONSULT APPLICABLE ELECTRICAL CODE(S).

GROUNDING