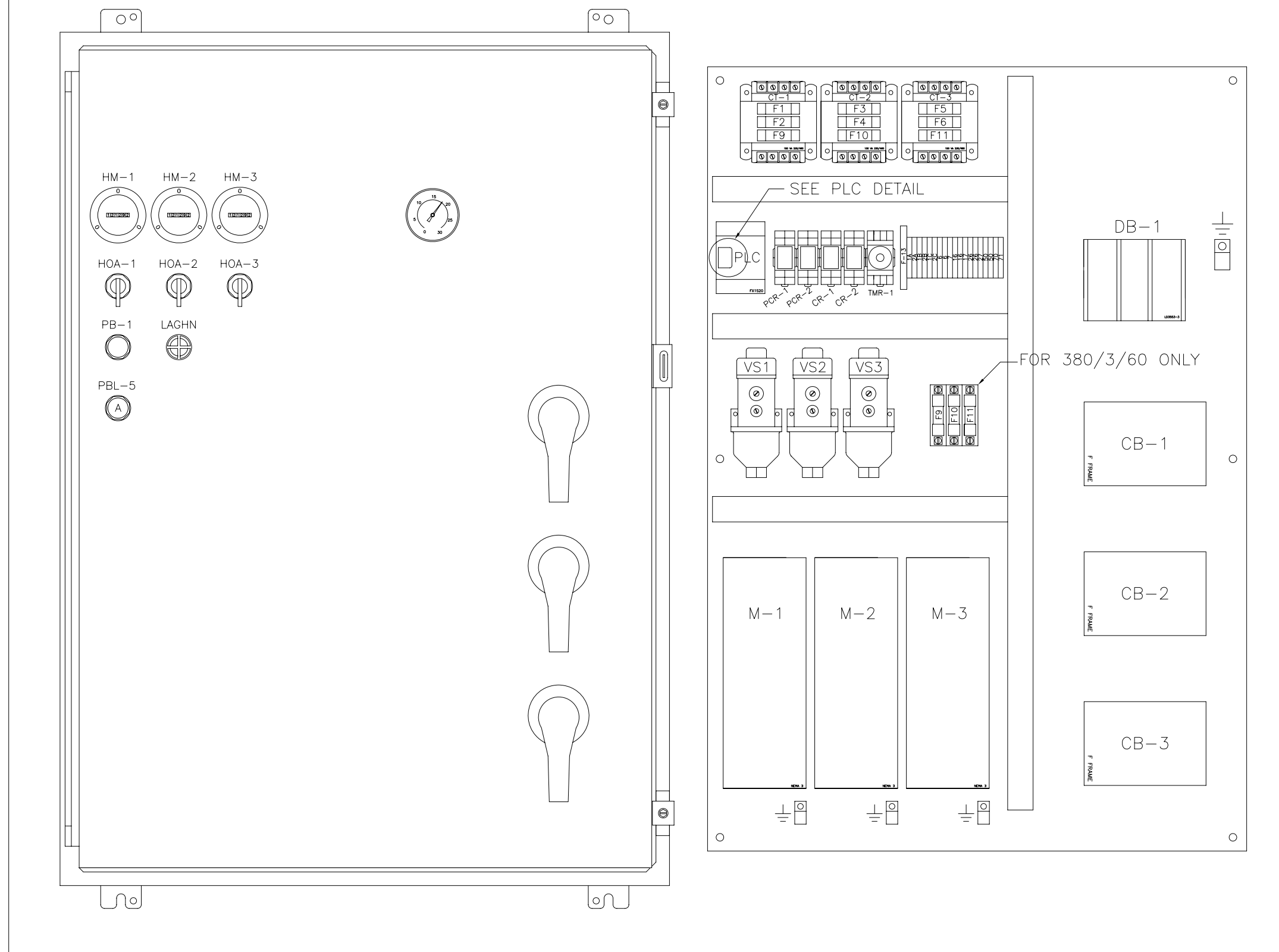


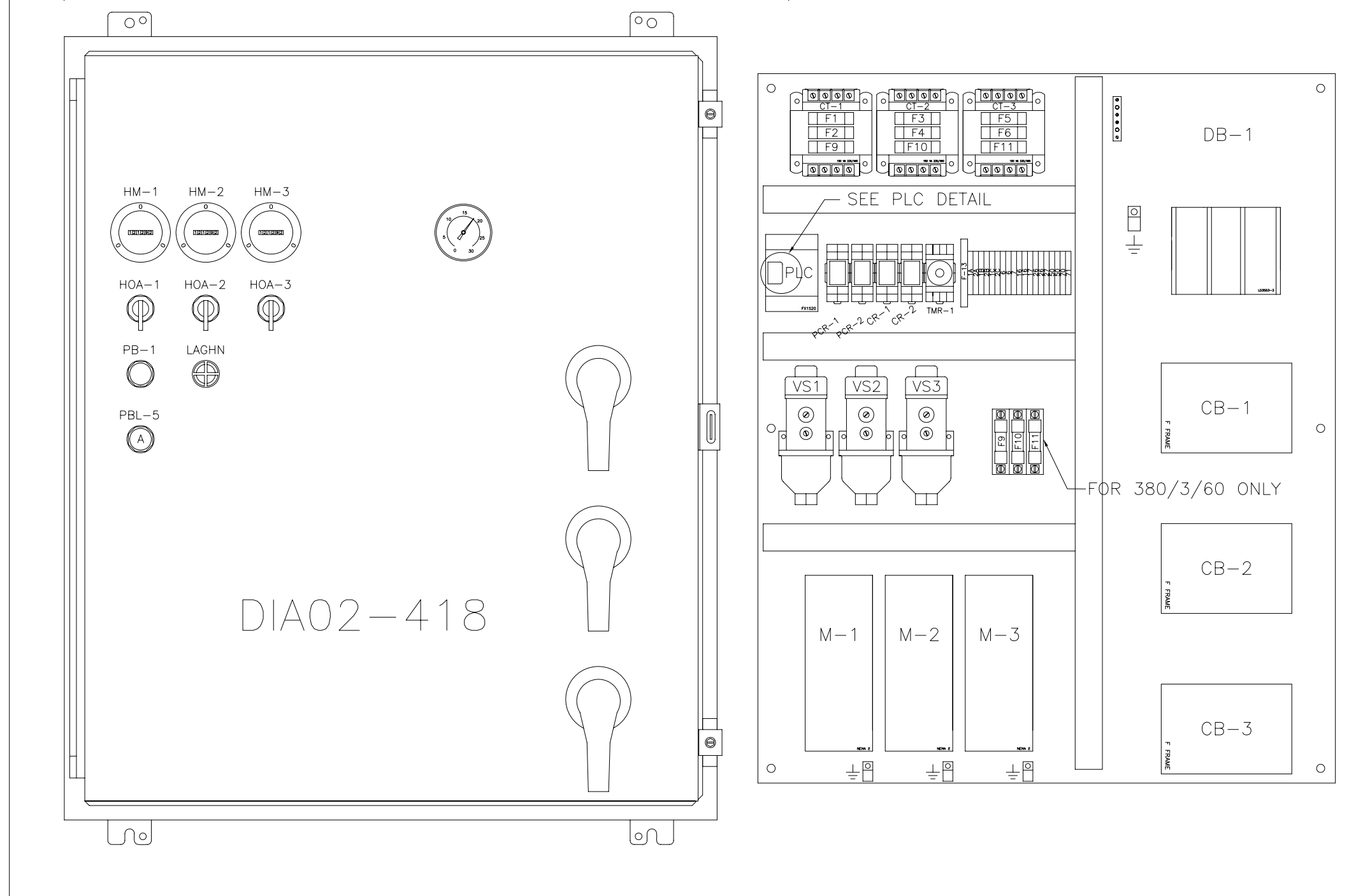
TRANSFORMER SIZING CHART

HP	208 V	230 V	380 V	460 V	575 V
3-25	100 VA	100 VA	100 VA	100 VA	100 VA
30	250 VA	100 VA	100 VA	100 VA	100 VA

PANEL FOR 20-25 HP 208-230 VOLTS  
 PANEL FOR 30 HP 460-575 VOLTS  
 (30 HP 208 VOLT NOT SHOWN)

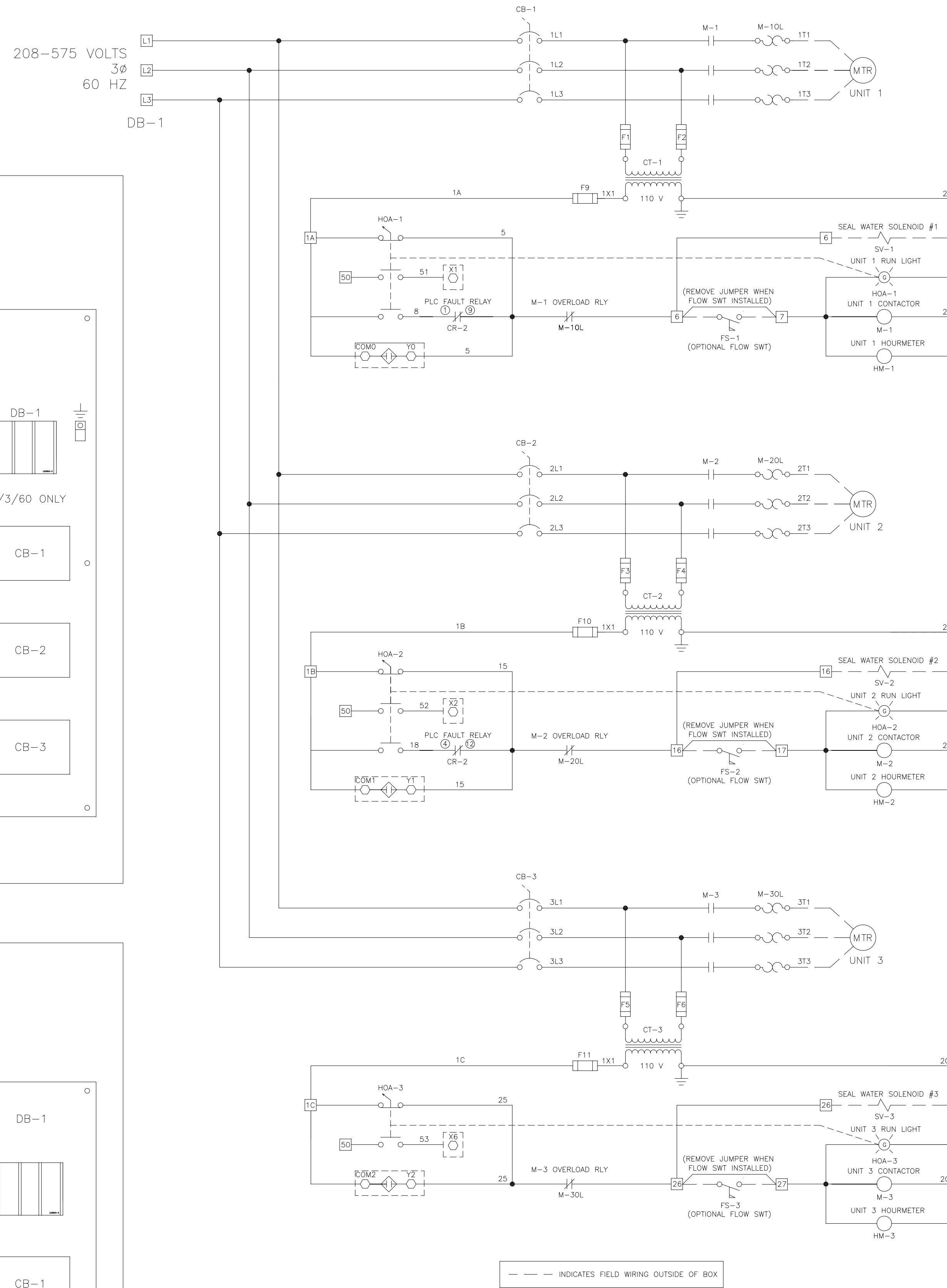


PANEL FOR 3-15 HP 208-575 VOLTS  
 PANEL FOR 20-25 HP 460-575 VOLTS  
 (30 HP 208 VOLT NOT SHOWN)



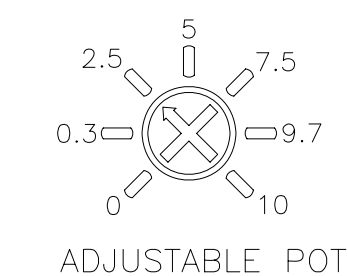
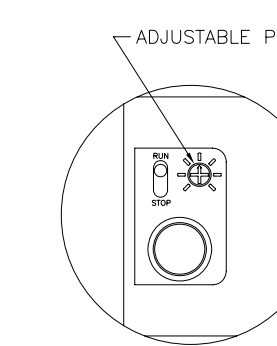
MAIN BRANCH DISCONNECT PROVIDED BY OTHER

FIELD WIRING TO BE COPPER WIRE RATED FOR 75° C MINIMUM



NOTE:

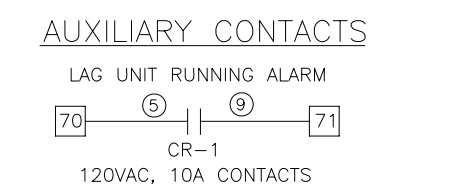
ADJUSTABLE MINIMUM RUN TIMER IS PROVIDED IN THE PLC PROGRAM (SEE PLC DETAIL FOR ADJUSTING POT AND CHART FOR CORRECT SETTINGS).



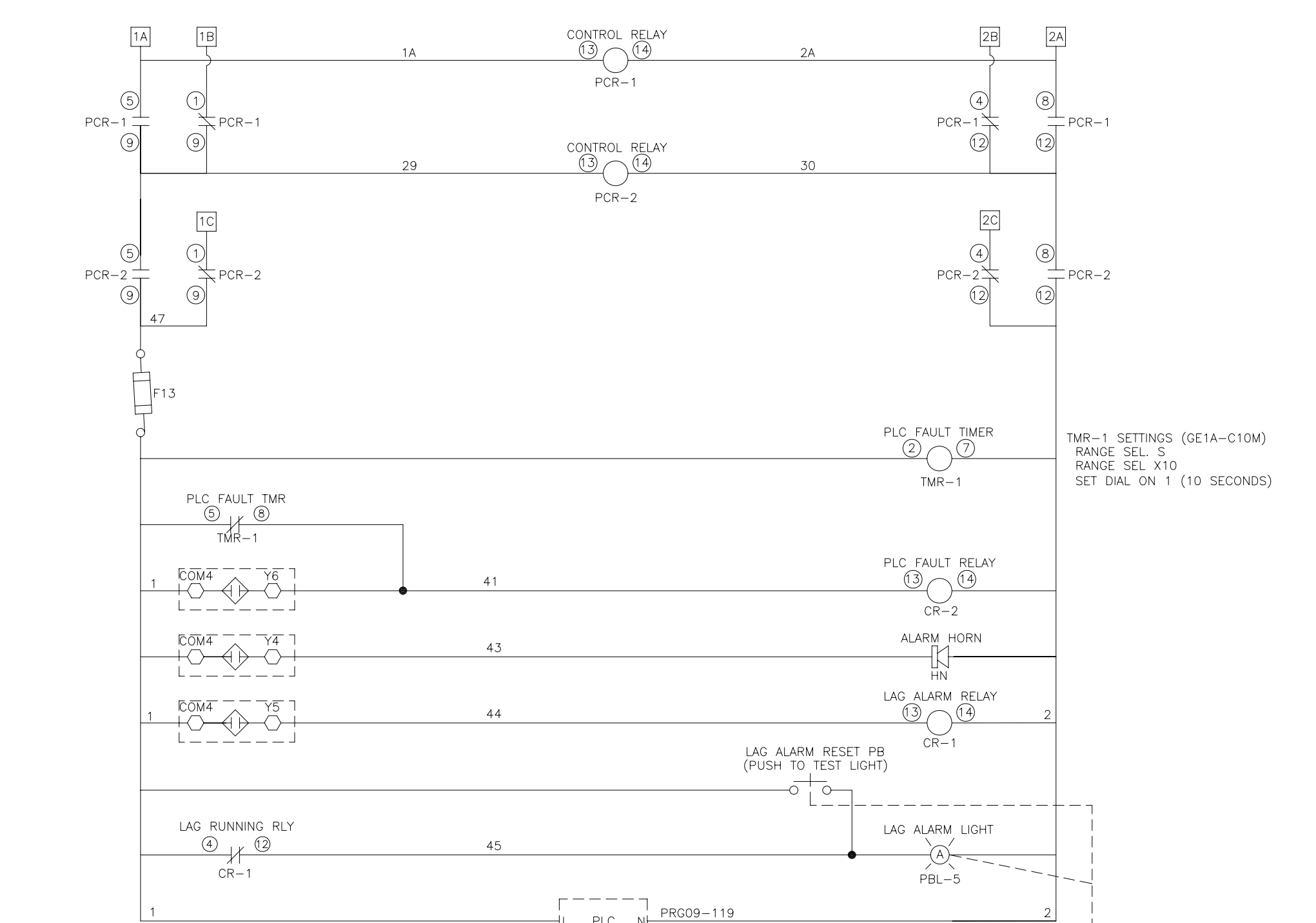
MINIMUM RUN TIMER SETTINGS

HP	SETTING
3-15	2.5
20-30	5

NOTE:  
 AUXILIARY CONTACTS 70-71 ARE "CLASS 1 CONTROL CIRCUITS, USE CLASS 1 CONDUCTORS"  
 ALL OTHERS ARE "CLASS 2 CONTROL CIRCUITS, USE CLASS 2 CONDUCTORS"



(LAG CONTACTS CR-1 CLOSED DURING NORMAL OPERATION)



VACUUM SWITCH SETTINGS

ALTITUDE	VS-1	VS-2	VS-3	RELIEF VALVE SETTING
0-3000	20-23"hg	18-21"hg	16-19"hg	25"hg
3001-4000	19-22"hg	17-20"hg	15-18"hg	24"hg
4001-5000	18-21"hg	16-19"hg	15-18"hg	23"hg
5001-6000	17-20"hg	16-19"hg	15-18"hg	22"hg
6001-7000	17-20"hg	16-19"hg	15-18"hg	21"hg

OPERATION

DURING NORMAL OPERATION THE HOA SWITCHES SHOULD BE IN THE AUTO POSITION. THE PLC WILL SIGNAL THE LEAD PUMP TO START WHEN VS-1 CLOSURES WITH FALLING VACUUM LEVEL. AFTER VS-1 OPENS AND THE ADJUSTABLE MINIMUM RUN TIMER (SEE NOTE) HAS EXPIRED THE PUMP THAT IS RUNNING WILL TURN OFF. WHEN VS-1 CLOSURES AGAIN THE PLC WILL SEQUENCE THE LEAD ROLE TO THE NEXT PUMP. IF DURING OPERATION VS-2 CLOSURES A SECOND PUMP WILL COME ON. IF DURING OPERATION VS-3 CLOSURES A THIRD PUMP IS REQUIRED TO COME ON, AND THE PLC WILL TURN ON THE "LAG ALARM".

HAND OPERATION; (EMERGENCY/TROUBLE SHOOTING MODE ONLY)

PUMPS WITH THE HOA SWITCH IN THE HAND POSITION WILL START AND RUN CONTINUOUSLY.

PLC FAULT; IF A PLC FAULT OCCURS, AND ALL VACUUM PUMPS ARE IN AUTO, PUMPS 1 & 2 WILL START AND RUN CONTINUOUSLY. VACUUM PUMPS CAN OPERATE IN THIS CONDITION UNTIL PLC FAULT IS REPAIRED

INDIVIDUAL MOTOR FULL LOAD AMPERES

SYSTEM HP	208 V	230 V	380 V	460 V	575 V
3 HP	10.8 AMPS	9.4 AMPS	5.7 AMPS	4.7 AMPS	3.8 AMPS
5 HP	16.6 AMPS	14.4 AMPS	8.7 AMPS	7.2 AMPS	5.8 AMPS
7.5 HP	24.7 AMPS	21.5 AMPS	13.0 AMPS	10.7 AMPS	8.6 AMPS
10 HP	30.8 AMPS	26.8 AMPS	16.3 AMPS	13.4 AMPS	10.7 AMPS
15 HP	47.6 AMPS	41.4 AMPS	25 AMPS	20.7 AMPS	16.5 AMPS
20 HP	60.7 AMPS	52.8 AMPS	31.9 AMPS	26.4 AMPS	21.1 AMPS
25 HP	74.5 AMPS	65.6 AMPS	39.6 AMPS	32.8 AMPS	26.2 AMPS
30 HP	90.6 AMPS	78.8 AMPS	47.6 AMPS	39.4 AMPS	31.5 AMPS

TRIPLEX SYSTEM FULL LOAD AMPERES

SYSTEM HP	208 V	230 V	380 V	460 V	575 V
3 HP	34 AMPS	30 AMPS	18 AMPS	15 AMPS	12 AMPS
5 HP	52 AMPS	45 AMPS	27 AMPS	23 AMPS	18 AMPS
7.5 HP	76 AMPS	66 AMPS	40 AMPS	33 AMPS	27 AMPS
10 HP	94 AMPS	82 AMPS	50 AMPS	41 AMPS	33 AMPS
15 HP	145 AMPS	126 AMPS	76 AMPS	63 AMPS	51 AMPS
20 HP	185 AMPS	160 AMPS	97 AMPS	80 AMPS	64 AMPS
25 HP	225 AMPS	198 AMPS	120 AMPS	99 AMPS	79 AMPS
30 HP	276 AMPS	238 AMPS	144 AMPS	119 AMPS	96 AMPS

FUSE SELECTION CHART (MAX FUSE SIZES SHOWN)

HP	FUSE	208 V	230 V	380 V	460 V	575 V
3-25	F1/F2/F3	1.6 AMPS	1.4 AMPS	0.6 AMPS	0.6 AMPS	0.5 AMPS
	F4/F5/F6	1.6 AMPS	1.4 AMPS	0.6 AMPS	0.6 AMPS	0.5 AMPS
	F9/F10/F11	1.25 AMPS	1.25 AMPS	1.25 AMPS	1.25 AMPS	1.25 AMPS
30	F1/F2/F3	3.5 AMPS	1.4 AMPS	0.6 AMPS	0.6 AMPS	0.5 AMPS
	F4/F5/F6	3.5 AMPS	1.4 AMPS	0.6 AMPS	0.6 AMPS	0.5 AMPS
	F9/F10/F11	3.5 AMPS	1.25 AMPS	1.25 AMPS	1.25 AMPS	1.25 AMPS
3-30	F13	0.7 AMPS	0.7 AMPS	0.7 AMPS	0.7 AMPS	0.7 AMPS

F1/F2/F3/F4/F5/F6 ARE LITTLEFUSE KLDL 600V TYPE  
 F9/F10/F11 ARE LITTLEFUSE FLM 250V TYPE  
 F13 IS LITTLEFUSE 2AG 250V TYPE

TITLE: LIFELINE LIQUID RING VACUUM  
 3-25 HP 208/230/380/460/575

DRAWN BY: T. HORNBUCKLE DATE: 6/18/01  
 CHECKED BY: DATE:  
 REVISED BY: T. HORNBUCKLE DATE: 11/12/07  
 SCALE: NTS D

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