

CUST. NAME:

PROJECT NO.:

P.O. NUMBER:

DESCRIPTION: P92010~12KAE  
230V, 3φ, 50/60Hz, .75~125HP  
P94015~40KAE  
460V, 3φ, 50/60Hz, 1~400HP  
TYPE 1 ENCLOSURE, MCCB, IBYP

FINAL

PRELIMINARY

FOR APPROVAL

Note: Final Engineering and Manufacturing will proceed upon receipt of final approval

- NOT APPROVED AS NOTED - RESUBMIT DRAWINGS FOR APPROVAL. DO NOT PROCEED WITH FINAL ENGINEERING OR MANUFACTURING.
- APPROVED AS NOTED - PROCEED WITH FINAL ENGINEERING AND MANUFACTURING.
- APPROVED AS SUBMITTED - PROCEED WITH FINAL ENGINEERING AND MANUFACTURING.

APPROVAL BY:

Initial

Date

NO	DRAWING NO	REV	DRAWING DESCRIPTION
00	I808PF00	6	DRAWING LIST
01	---	--	----
02	I808PF02	1	THREE-LINE DIAGRAM
03	---	--	----
04	---	--	----
05	---	--	----
06	I808PF06	2	INVERTER/BYPASS CONTROL CIRCUIT
07	---	--	----
08	---	--	----
09	---	--	----
10	---	--	----
11	---	--	----
12	---	--	----
13	I808PF13	1	P9 LOGIC INTERFACE CIRCUIT
14	---	--	----
15	---	--	----

NO	DRAWING NO	REV	DRAWING DESCRIPTION
16	I808PF16	4	RATINGS SHEET
17	---	--	----
18	I808PF18	0	LEGEND
19	I808PF19	1	ENCLOSURE OUTLINE (1)
20	I808PF20	2	ENCLOSURE OUTLINE (2)
21	---	--	----
22	---	--	----
23	---	--	----
24	---	--	----
25	---	--	----
26	---	--	----
27	---	--	----
28	---	--	----
29	---	--	----
30	---	--	----
31	---	--	----

4	03/02/15	ECO91157; REV SHT 06	SEARY	EY	RKR
3	01/08/15	REVISED SHEETS 00,16	CW	JE	RKR
2	08/19/14	REVISED SHEETS 00,06,13	CW	JE	RKR
6	09/21/16	ECO#93490	CW	JE	RKR
5	03/16/15	ECO91230; REV SHT 16	SEARY	EY	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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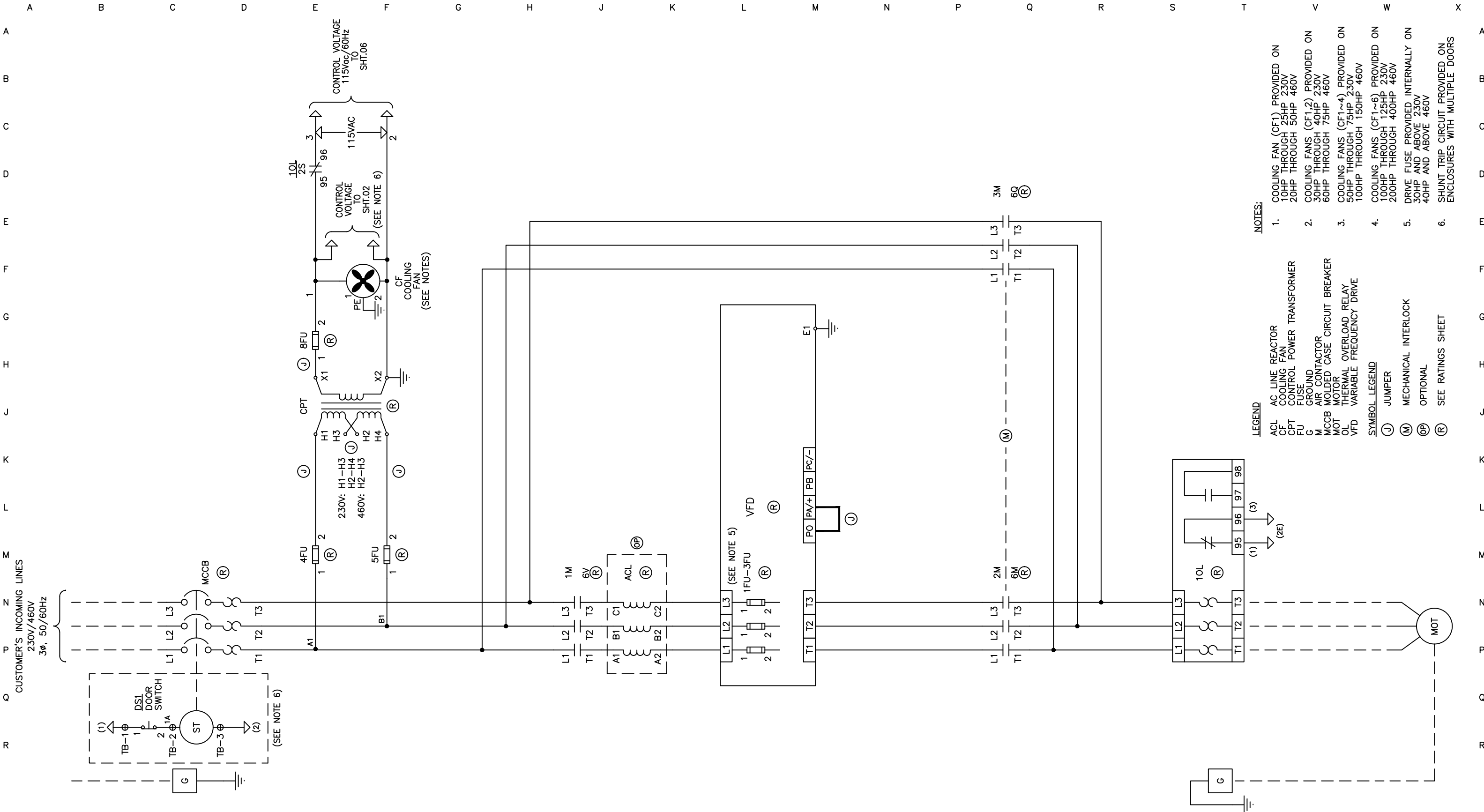
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TITLE: DRAWING LIST

CUSTOMER: \_\_\_\_\_ PROJECT NUMBER: \_\_\_\_\_

REVISION: 6 SCALE: \_\_\_\_\_

DRAWING NUMBER: I808PF00



- LEGEND**
- ACL AC LINE REACTOR
  - CF COOLING FAN
  - CPT CONTROL POWER TRANSFORMER
  - FU FUSE
  - G GROUND
  - M AIR CONTACTOR
  - MCCB MOLDED CASE CIRCUIT BREAKER
  - MOT MOTOR
  - OL THERMAL OVERLOAD RELAY
  - VFD VARIABLE FREQUENCY DRIVE
- SYMBOL LEGEND**
- (J) JUMPER
  - (M) MECHANICAL INTERLOCK
  - (OP) OPTIONAL
  - (R) SEE RATINGS SHEET
- NOTES:**
1. COOLING FAN (CF1) PROVIDED ON 10HP THROUGH 25HP 230V 20HP THROUGH 50HP 460V
  2. COOLING FANS (CF1,2) PROVIDED ON 30HP THROUGH 40HP 230V 60HP THROUGH 75HP 460V
  3. COOLING FANS (CF1~4) PROVIDED ON 50HP THROUGH 75HP 230V 100HP THROUGH 150HP 460V
  4. COOLING FANS (CF1~6) PROVIDED ON 100HP THROUGH 125HP 230V 200HP THROUGH 400HP 460V
  5. DRIVE FUSE PROVIDED INTERNALLY ON 30HP AND ABOVE 230V 40HP AND ABOVE 460V
  6. SHUNT TRIP CIRCUIT PROVIDED ON ENCLOSURES WITH MULTIPLE DOORS

4					
3					
2					
1	12/02/13	UL UPDATE	CW	JE	RKR
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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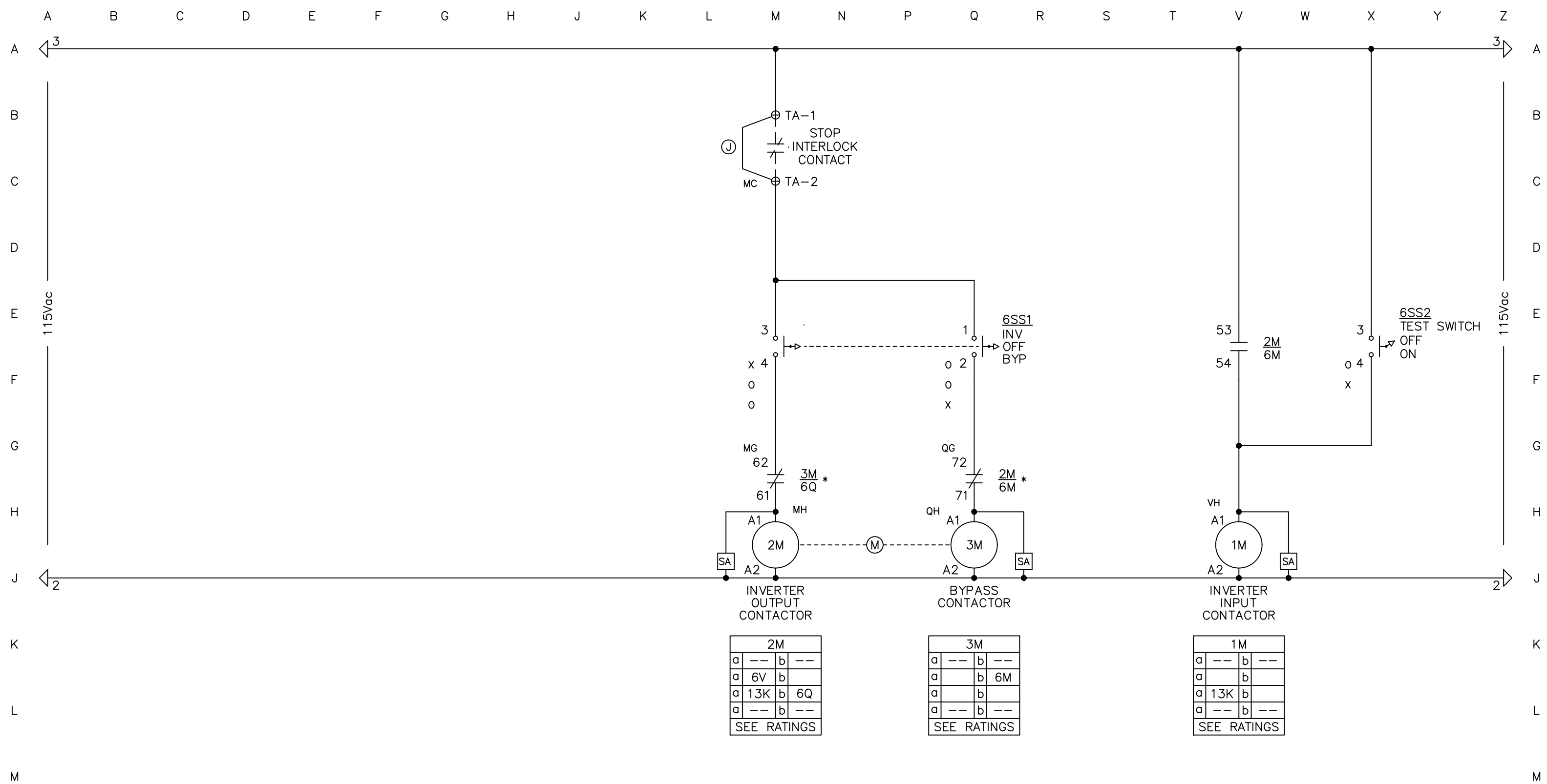
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TITLE: THREE-LINE DIAGRAM

CUSTOMER: \_\_\_\_\_ PROJECT NUMBER: \_\_\_\_\_

REVISION: 1 SCALE: \_\_\_\_\_

DRAWING NUMBER: 1808PF02



2M	
a	---
a	6V
a	13K
a	---
b	---
b	6Q
b	---
SEE RATINGS	

3M	
a	---
a	6M
a	---
a	---
b	---
b	---
SEE RATINGS	

1M	
a	---
a	---
a	13K
a	---
b	---
b	---
SEE RATINGS	

\* NOTE1: WHEN USING LC1D09-LC1D32 CONTACTORS, JUMPER KITS ARE INSTALLED, CHANGE 3M-62 AND 3M-61 TO 3M-22 AND 3M-21, AND 2M-72 AND 2M-71 TO 2M-22 AND 2M-21.

\* NOTE2: WHEN USING LC1D115-LC1D150 CONTACTORS, ELECTRICAL-INTERLOCK IS PRE-WIRED, CHANGE 3M-62 AND 3M-61 TO MI-02U AND MI-01U, AND 2M-72 AND 2M-71 TO MI-02L AND MI-01L.

4					
3					
2	03/02/15	ECO901157; ADD D115-D150 NOTE	SEARY	EY	RKR
1	08/19/14	REVISED SS LAYOUT	CW	JE	RKR
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE: INVERTER/BYPASS CONTROL CIRCUIT

CUSTOMER: \_\_\_\_\_ PROJECT NUMBER: \_\_\_\_\_

REVISION: 2 SCALE: \_\_\_\_\_

DRAWING NUMBER: 1808PF06

A B C D E F G H J K L M N P Q R S T V W

A A

B B

C C

D D

E E

F F

G G

H H

J J

K K

L L

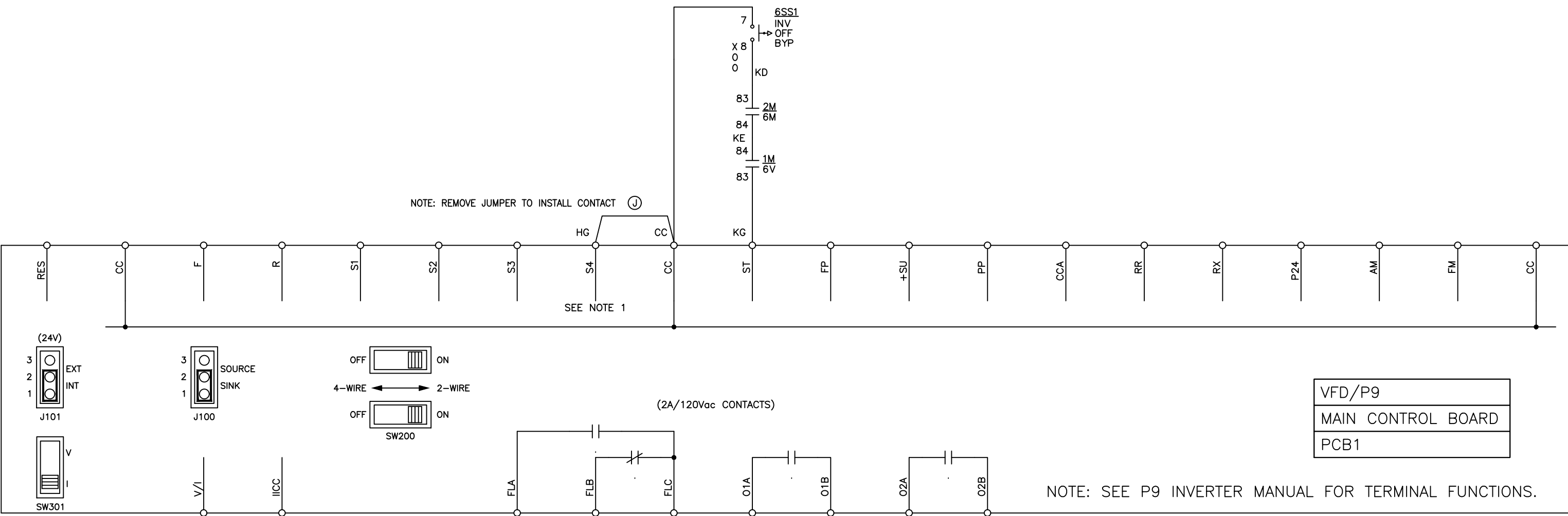
M M

N N

P P

Q Q

R R



VFD/P9  
MAIN CONTROL BOARD  
PCB1

NOTE: SEE P9 INVERTER MANUAL FOR TERMINAL FUNCTIONS.

OPTIONAL PROGRAMMING NOTES:

1. TO TRANSFER BETWEEN SPEEDPOT INPUT OR 4~20mA INPUT  
 F004 - SET FREQUENCY MODE #1 TO VI/II  
 F207 - SET FREQUENCY MODE #2 TO RR  
 F200 - SET PARAMETER TO (0) "FREQUENCY SOURCE PRIORITY SETTING"  
 F117 - SET FUNCTION TO (104) "FREQUENCY PRIORITY" N.O.

OPERATING INSTRUCTIONS FOR LOC/REM SWITCH CONNECTION  
 1. INSTALL A 2 POSITION SWITCH BETWEEN S3 AND CC.  
 2. PROGRAM DRIVE AS SHOWN ABOVE.  
 3. WITH LOC/REM SWITCH IN LOC. (N.C.) USE SPEED POT CONTROL. WITH LOC/REM SWITCH IN REM. (N.O.) USE VI CONTROL

2. TO TRANSFER BETWEEN LOCAL KEYPAD OR TERMINAL BOARD INPUT  
 F004 - SET FREQUENCY MODE #1 TO (1) VI/II OR (2) RR  
 F207 - SET FREQUENCY MODE #2 TO (5) PANEL KEYPAD  
 F200 - SET PARAMETER TO (0) "FREQUENCY SOURCE PRIORITY SETTING"  
 F115 - SET FUNCTION TO (104) "FREQUENCY PRIORITY" N.O.

OPERATING INSTRUCTIONS FOR LOC/REM SWITCH CONNECTION  
 1. INSTALL A 2 POSITION SWITCH BETWEEN S1 AND CC.  
 2. PROGRAM DRIVE AS SHOWN ABOVE.  
 3. WITH LOC/REM SWITCH IN LOC. (N.C.) USE KEYPAD CONTROL. WITH LOC/REM SWITCH IN REM. (N.O.) USE COMMAND INPUT PROGRAMMED INTO F004 (SEE P9 MANUAL PAGES 40-43 FOR OPTIONS).

NOTE: 1. SET "S4" (F118) TO "EMERGENCY OFF" (21) N.C.

4					
3					
2					
1	08/19/14	REVISED WIRING	CW	JE	RKR
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE:  
P9 LOGIC INTERFACE CIRCUIT

CUSTOMER: PROJECT NUMBER:

REVISION: 1 SCALE:

DRAWING NUMBER:  
1808PF13

A B C D E F G H J K L M N P Q R S T V W X Y Z

ⓄP

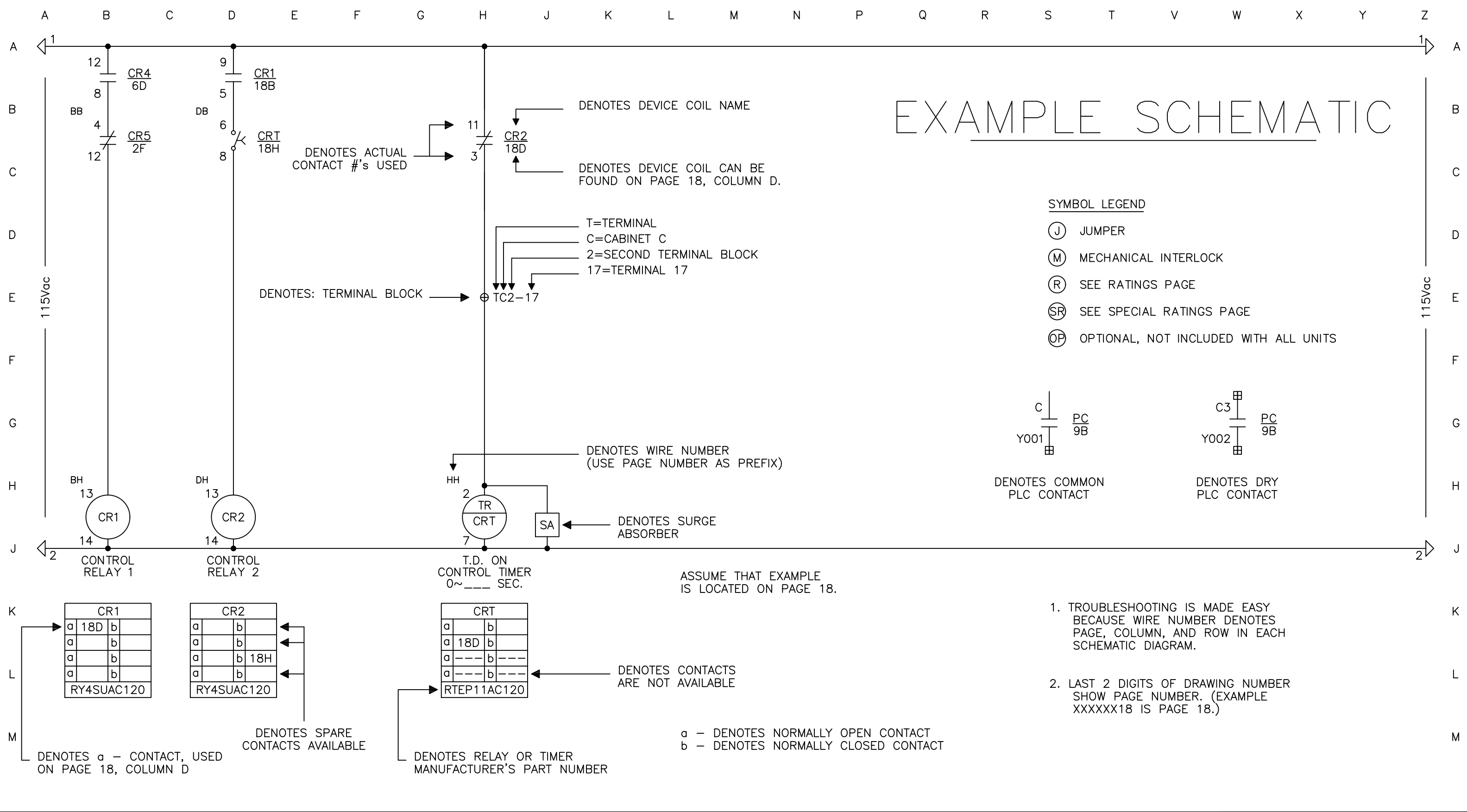
VOLTAGE	HP	VFD	MCCB(A)	CPT(VA)	4,5FU	8FU	1,2,3M	1OL(A)	1,2,3FU	ACL
230V	.75	VT130P9U2010	15	100	1.8A/600V	1.0A/250V	LC1D09	2.5~4.0	N/A	6A/240V
	1.0	VT130P9U2015	15	100	1.8A/600V	1.0A/250V	LC1D09	4.0~6.0	N/A	8A/240V
	2.0	VT130P9U2025	15	100	1.8A/600V	1.0A/250V	LC1D18	5.5~8.0	N/A	12A/240V
	3.0	VT130P9U2035	15	100	1.8A/600V	1.0A/250V	LC1D18	7.0~10	N/A	16A/240V
	5.0	VT130P9U2055	25	100	1.8A/600V	1.0A/250V	LC1D25	12~18	N/A	25A/240V
	7.5	VT130P9U2080	40	150	2.5A/600V	1.4A/250V	LC1D40A	16~24	N/A	35A/240V
	10	VT130P9U2110	40	200	3.5A/600V	2.0A/250V	LC1D50A	23~32	N/A	45A/240V
	15	VT130P9U2160	70	200	3.5A/600V	2.0A/250V	LC1D50A	37~50	N/A	45A/240V
	20	VT130P9U2220	70	250	4.5A/600V	2.5A/250V	LC1D80	48~65	N/A	55A/240V
	25	VT130P9U2270	90	250	4.5A/600V	2.5A/250V	LC1D115	55~70	N/A	80A/240V
	30	VT130P9U2330	125	300	5.0A/600V	3.0A/250V	LC1D115	60~100	160A/690V	110A/240V
	40	VT130P9U2400	150	350	6.0A/600V	4.0A/250V	LC1D115	90~150	250A/690V	110A/240V
	50	VT130P9U2500	200	500	4.5A/600V	5.0A/250V	LC1F185	90~150	250A/690V	160A/240V
	60	VT130P9U2600	225	500	4.5A/600V	5.0A/250V	LC1F185	132~220	250A/690V	160A/240V
	75	VT130P9U2750	400	500	4.5A/600V	5.0A/250V	LC1F265	132~220	315A/690V	200A/240V
100	VT130P9U210K	400	750	6.25A/600V	8.0A/250V	LC1F265	200~330	450A/690V	250A/240V	
125	VT130P9U212K	600	750	6.25A/600V	8.0A/250V	LC1F400	200~330	550A/690V	300/240V	

ⓄP

VOLTAGE	HP	VFD	MCCB(A)	CPT(VA)	4,5FU	8FU	1,2,3M	1OL(A)	1,2,3FU	ACL
460V	1.0	VT130P9U4015	15	100	1.0A/600V	1.0A/250V	LC1D09	1.6~2.5	N/A	4A/480V
	2.0	VT130P9U4025	15	100	1.0A/600V	1.0A/250V	LC1D09	2.5~4.0	N/A	6A/480V
	3.0	VT130P9U4035	15	100	1.0A/600V	1.0A/250V	LC1D09	4.0~6.0	N/A	8A/480V
	5.0	VT130P9U4055	25	100	1.0A/600V	1.0A/250V	LC1D18	5.5~8.0	N/A	16A/480V
	7.5	VT130P9U4080	25	100	1.0A/600V	1.0A/250V	LC1D25	9.0~13	N/A	25A/480V
	10	VT130P9U4110	40	100	1.0A/600V	1.0A/250V	LC1D25	12~18	N/A	25A/480V
	15	VT130P9U4160	70	150	1.2A/600V	1.4A/250V	LC1D40A	16~24	N/A	35A/480V
	20	VT130P9U4220	70	200	1.8A/600V	2.0A/250V	LC1D50A	23~32	N/A	45A/480V
	25	VT130P9U4270	90	200	1.8A/600V	2.0A/250V	LC1D50A	30~40	N/A	45A/480V
	30	VT130P9U4330	100	200	1.8A/600V	2.0A/250V	LC1D50A	30~40	N/A	45A/480V
	40	VT130P9U4400	100	200	1.8A/600V	2.0A/250V	LC1D80	48~65	100A/690V	80A/480V
	50	VT130P9U4500	125	200	1.8A/600V	2.0A/250V	LC1D115	55~70	125A/690V	80A/480V
	60	VT130P9U4600	150	250	2.0A/600V	2.5A/250V	LC1D115	63~80	160A/690V	110A/480V
	75	VT130P9U4750	200	350	3.0A/600V	4.0A/250V	LC1D150	80~104	200A/690V	110A/480V
	100	VT130P9U410K	225	500	4.5A/600V	5.0A/250V	LC1D150	90~150	200A/690V	160A/480V
	125	VT130P9U412K	250	500	4.5A/600V	5.0A/250V	LC1F185	132~220	315A/690V	200A/480V
	150	VT130P9U415K	400	500	4.5A/600V	5.0A/250V	LC1F265	132~220	350A/690V	250A/480V
	200	VT130P9U420K	600	750	6.25A/600V	8.0A/250V	LC1F330	200~330	400A/690V	250A/480V
	250	VT130P9U425K	600	750	6.25A/600V	8.0A/250V	LC1F400	300~500	500A/690V	300A/480V
	300	VT130P9U430K	600	750	6.25A/600V	8.0A/250V	LC1F400	300~500	550A/690V	420A/480V
350	VT130P9U435K	600	750	6.25A/600V	8.0A/250V	LC1F500	300~500	550A/690V	420A/480V	
400	VT130P9U440K	600	750	6.25A/600V	8.0A/250V	LC1F500	300~500	700A/690V	600A/480V	

ⓄP - OPTIONAL, NOT INCLUDED WITH ALL UNITS

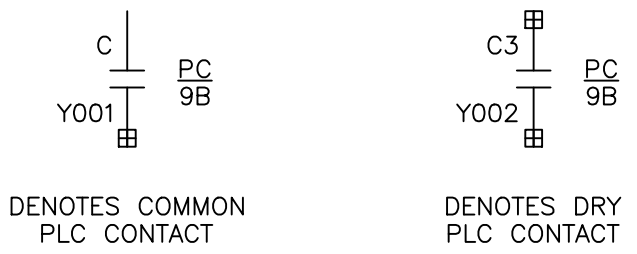
4	09/27/16	ECO#93490	CW	JE	RKR	<p><b>TOSHIBA</b>  <b>TOSHIBA INTERNATIONAL CORPORATION</b>          MADE IN HOUSTON, TEXAS U.S.A.</p> <p>THIS MATERIAL IS THE EXCLUSIVE PROPERTY OF TOSHIBA INTERNATIONAL CORPORATION AND SHALL NOT BE REPRODUCED, USED, OR DISCLOSED TO OTHERS UNLESS PRIOR WRITTEN AUTHORIZATION IS OBTAINED.</p>	TITLE: RATINGS SHEET		REVISION: 4	SCALE:
3	03/16/15	ECO91230; UPDATE MCCB, OLR RATINGS	SEARY	EY	RKR		CUSTOMER:		PROJECT NUMBER:	DRAWING NUMBER: 1808PF16
2	01/08/15	ECO 90818, ADDED DESIGNATION "A"	CW	JE	RKR					
1	12/02/13	UL UPDATE	CW	JE	RKR					
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR					
REV	DATE	DESCRIPTION	BY	CHK	APPR					



# EXAMPLE SCHEMATIC

### SYMBOL LEGEND

- (J) JUMPER
- (M) MECHANICAL INTERLOCK
- (R) SEE RATINGS PAGE
- (SR) SEE SPECIAL RATINGS PAGE
- (OP) OPTIONAL, NOT INCLUDED WITH ALL UNITS



1. TROUBLESHOOTING IS MADE EASY BECAUSE WIRE NUMBER DENOTES PAGE, COLUMN, AND ROW IN EACH SCHEMATIC DIAGRAM.
2. LAST 2 DIGITS OF DRAWING NUMBER SHOW PAGE NUMBER. (EXAMPLE XXXXXX18 IS PAGE 18.)

4					
3					
2					
1					
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE: LEGEND

CUSTOMER:

PROJECT NUMBER:

REVISION: 0 SCALE:

DRAWING NUMBER: 1808PF18

**DEVICE LEGEND:**

1. CIRCUIT DISCONNECT HANDLE
2. P9 OPERATOR KEYPAD
3. FILTERED INLET FAN
4. FILTERED OUTLET VENT
5. FILTERED OUTLET FAN
6. TEST SWITCH OFF/ON SELECTOR SWITCH
7. INVERTER/OFF/BYPASS SELECTOR SWITCH
8. HOLE PLUG

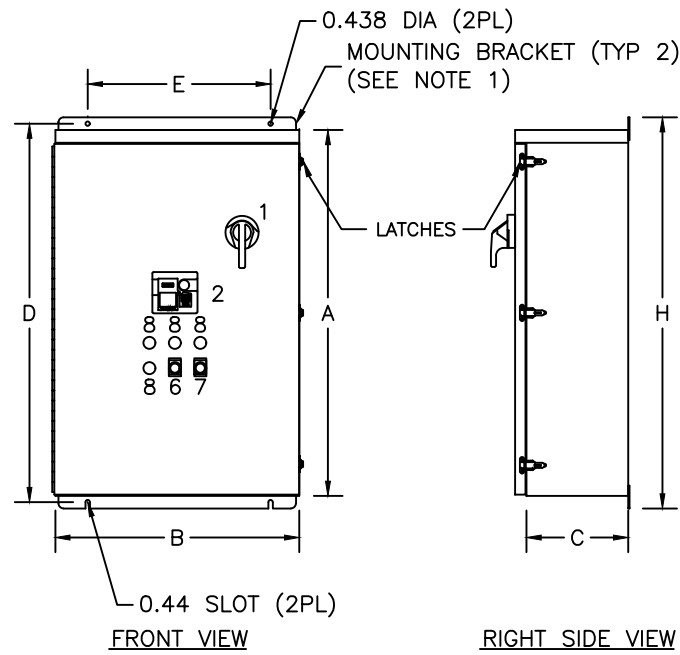


FIGURE 1

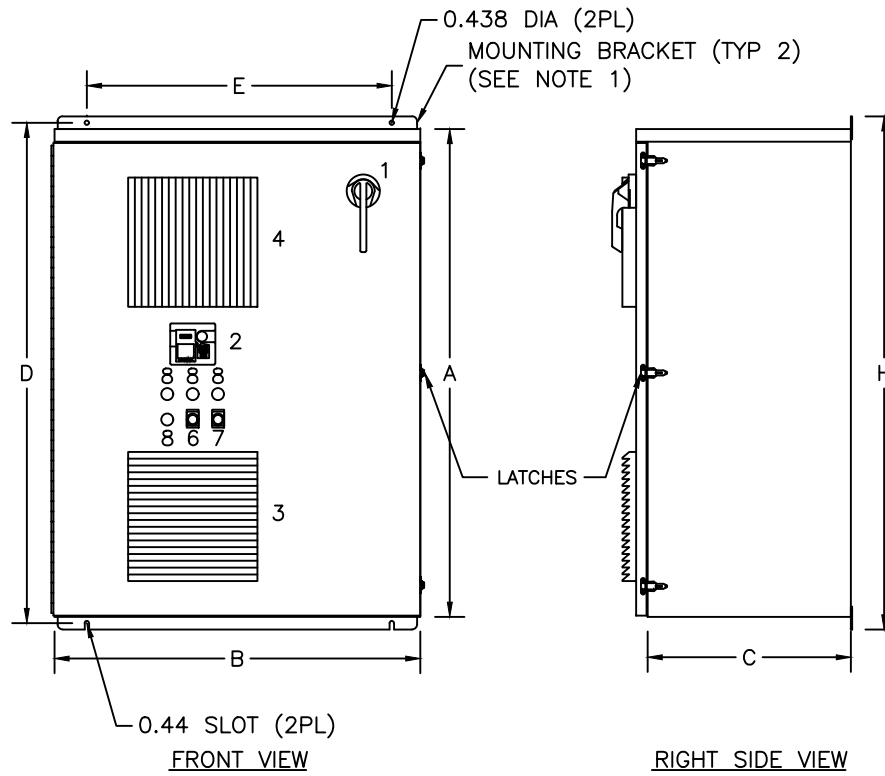


FIGURE 2

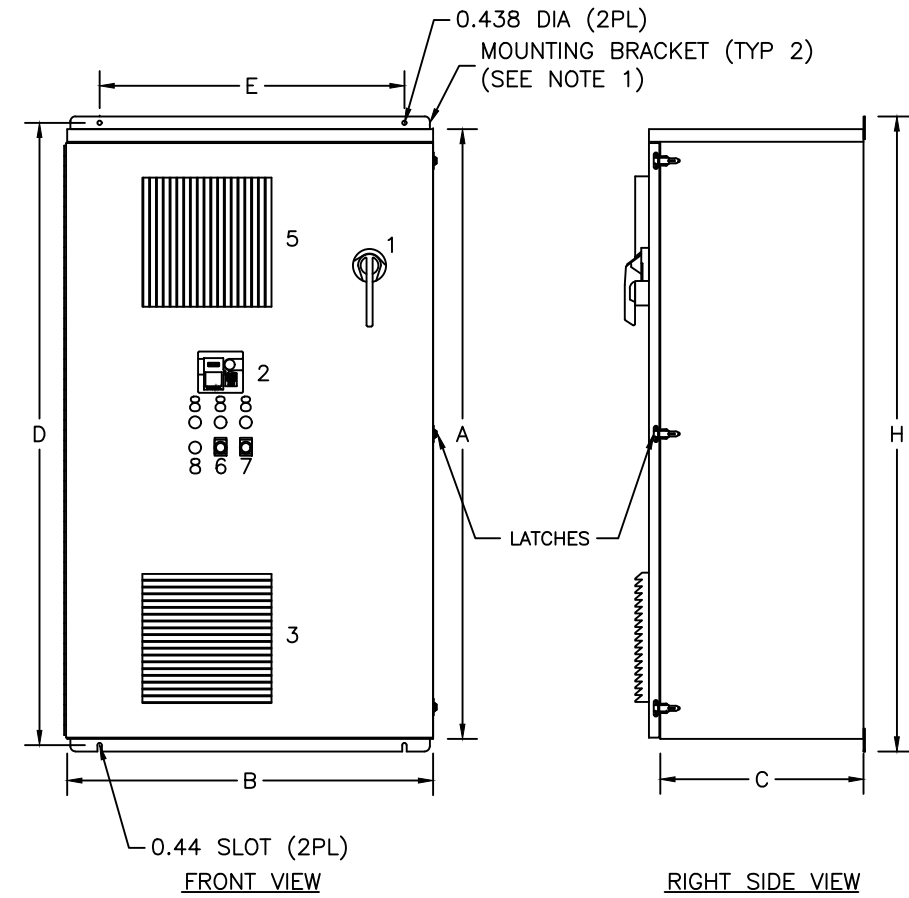
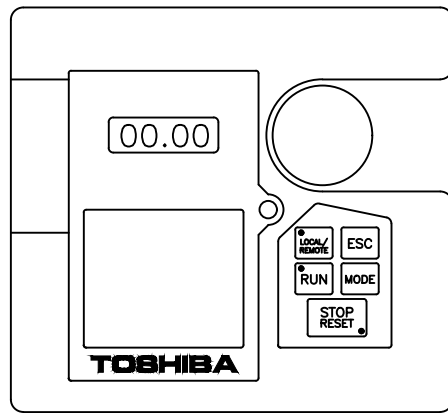


FIGURE 3



H9\_KEYPAD\_DETAIL

NOTE 1: NOT TO BE USED FOR LIFTING PURPOSES.  
 NOTE 2: PAINT TO BE ANSI 61 GRAY.  
 NOTE 3: ENCLOSURE SIZE MAY CHANGE WITH ACL OPTION.

DESCRIPTION OF ENCLOSURE	P9 HP RATING		FIGURE	ENCLOSURE SIZE			MOUNTING DIMENSIONS		
	230V	460V		A	B	C	D	E	H
36x24x10	.75-5	1-7.5	1	36.00	24.00	10.00	37.25	18.00	38.50
48x24x12	7.5	10	1	48.00	24.00	12.00	49.25	18.00	50.50
48x36x20	N/A	15	1	48.00	36.00	20.00	49.25	30.00	50.50
48x36x20	10-25	20-50	2	48.00	36.00	20.00	49.25	30.00	50.50
60x36x20	30-40	60-75	3	60.00	36.00	20.00	61.25	30.00	62.50

REV	DATE	DESCRIPTION	BY	CHK	APPR
4					
3					
2					
1	12/02/13	UL UPDATE	CW	JE	RKR
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR

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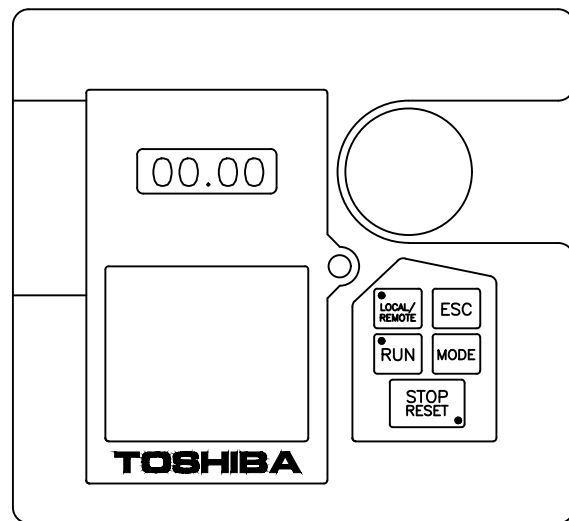
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TITLE: ENCLOSURE OUTLINE (1)	
CUSTOMER:	PROJECT NUMBER:

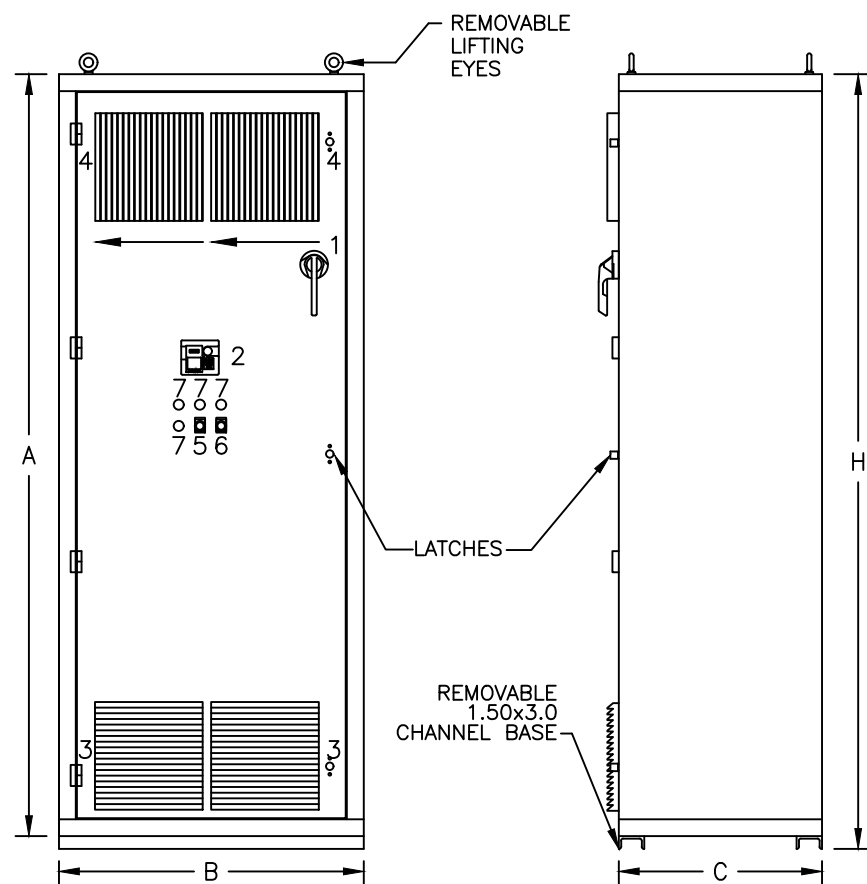
REVISION: 1	SCALE: 1.0=20.0
DRAWING NUMBER: 1808PF19	

**DEVICE LEGEND:**

1. CIRCUIT DISCONNECT HANDLE
2. P9 OPERATOR KEYPAD
3. FILTERED INLET FAN
4. FILTERED OUTLET FAN
5. TEST SWITCH OFF/ON SELECTOR SWITCH
6. INVERTER/OFF/BYPASS SELECTOR SWITCH
7. HOLE PLUG



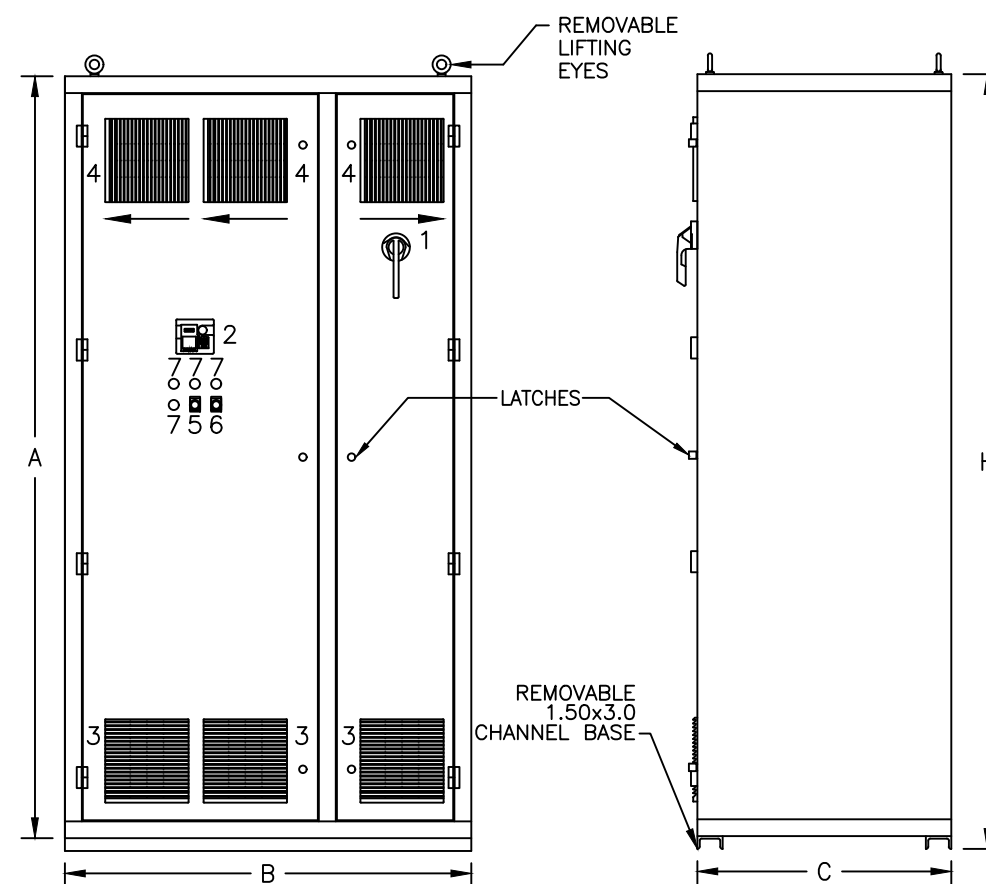
P9 KEYPAD DETAIL



FRONT VIEW

RIGHT SIDE VIEW

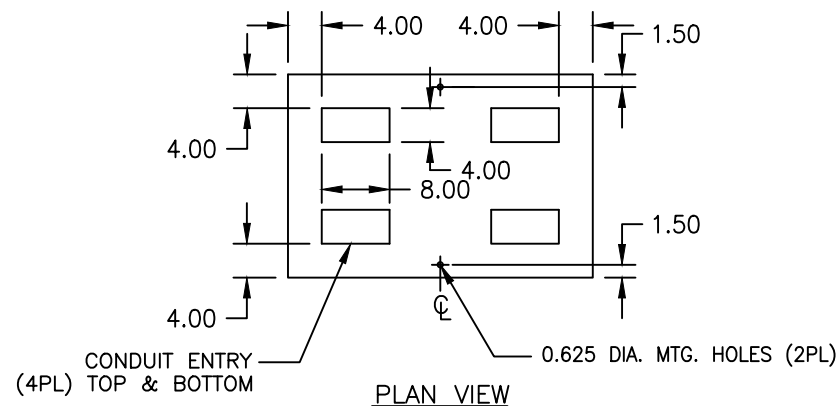
FIGURE 1



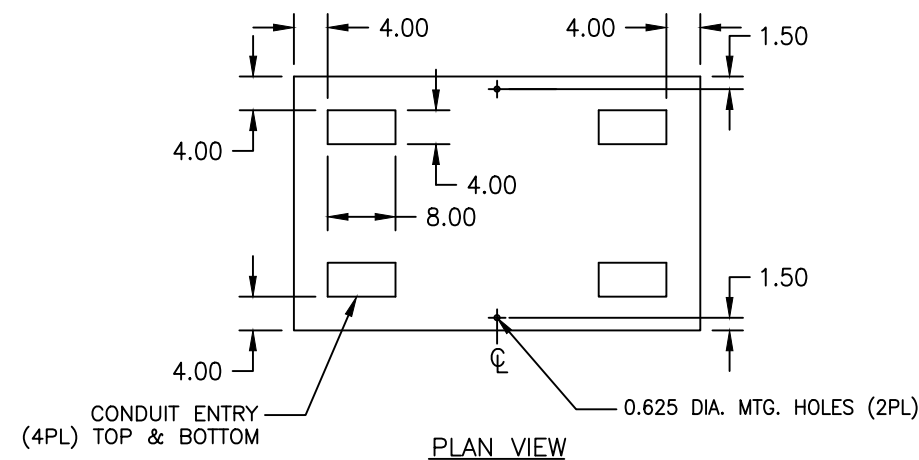
FRONT VIEW

RIGHT SIDE VIEW

FIGURE 2



PLAN VIEW



PLAN VIEW

DESCRIPTION OF ENCLOSURE	P9 HP RATING		FIGURE	ENCLOSURE SIZE			MOUNTING DIMENSIONS		
	230V	460V		A	B	C	D	E	H
90x36x24	50-100	100-150	1	90.00	36.00	24.00	N/A	N/A	91.50
90x48x30	125	200-400	2	90.00	48.00	30.00	N/A	N/A	91.50

NOTE 1: PAINT TO BE ANSI 61 GRAY.  
NOTE 2: ENCLOSURE SIZE MAY CHANGE WITH ACL OPTION.

REV	DATE	DESCRIPTION	BY	CHK	APPR
4					
3					
2	09/21/16	ECO#93490	CW	JE	RKR
1	12/2/13	UL UPDATE	CW	JE	RKR
0	06/29/11	FIRST ISSUE	MAR	CMorales	RKR

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