

**NOTE 1:** KEY MUST BE REMOVED FROM UPSTREAM BREAKER (LOCKING IT OPEN) AND USED IN THIS SECTION TO GAIN ACCESS. THIS IS TO INSURE MEDIUM VOLTAGE POWER IS REMOVED PRIOR TO ENTRY. WAIT 5 MINUTES FOR CAPACITORS TO DISCHARGE.

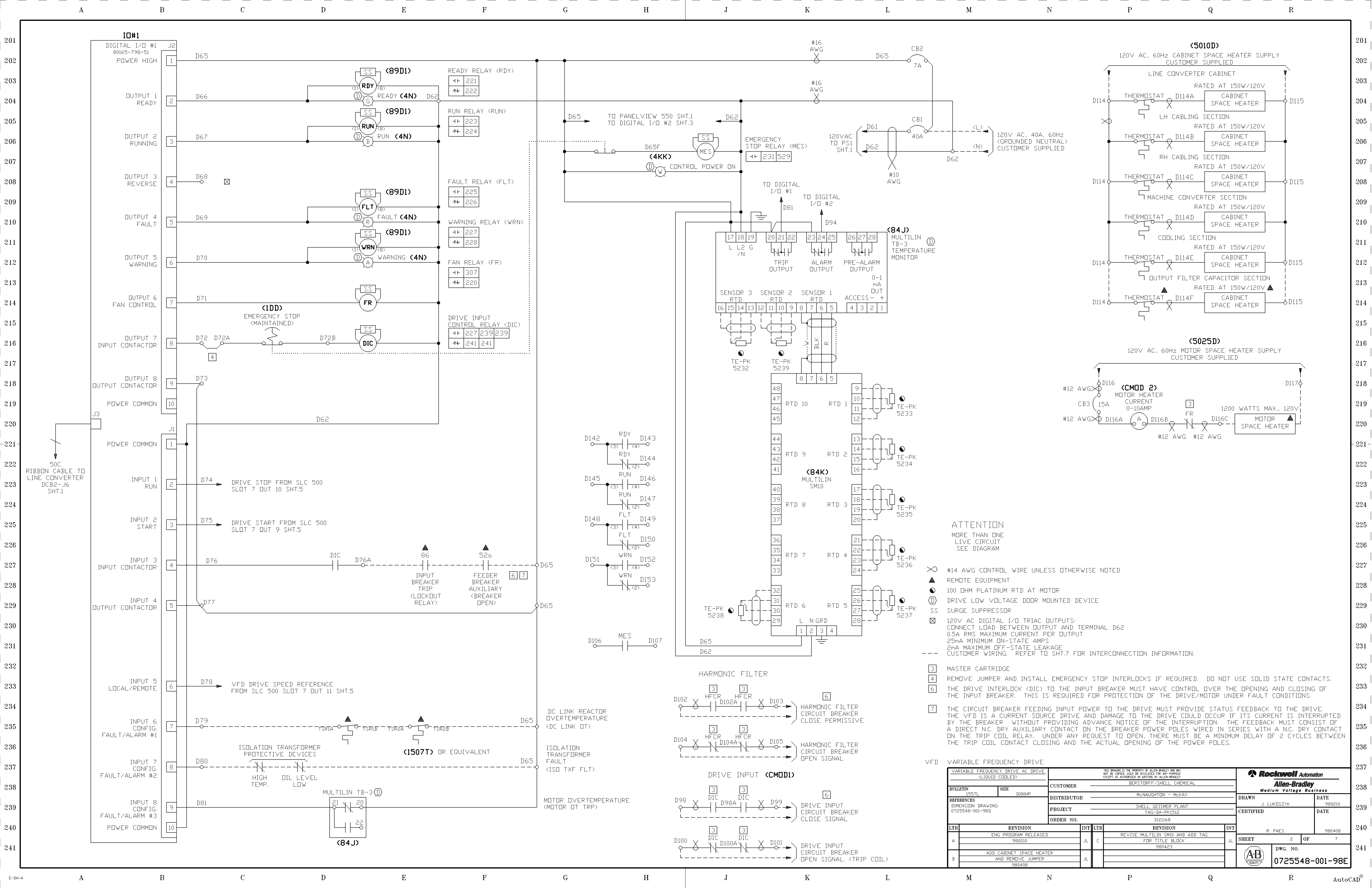
**NOTE 2:** THE DOOR(S) OF THIS SECTION MUST BE KEY INTERLOCKED TO THE CUSTOMER SUPPLIED DRIVE INPUT CIRCUIT BREAKER PROVIDED ON THIS PROJECT. THE DRIVE INPUT CIRCUIT BREAKER MUST BE LOCKED IN THE OPEN POSITION PRIOR TO ATTEMPTING ENTRY INTO THIS SECTION. THE KEY FROM THE LOCK IN THE DRIVE INPUT CIRCUIT BREAKER MUST BE USED TO GAIN ENTRY TO THE OUTPUT CAPACITOR AND VARIABLE FREQUENCY DRIVE POWER CELLS AS HAVING THE KEY INSURES THE THE INPUT FEED TO THESE SECTIONS IS LOCKED OFF. IT IS IMPERATIVE THAT THIS KEY INTERLOCKING IS IN PLACE WITH THE CORRECT NUMBER OF KEYS (1) TO INSURE THAT ENTRY IS NOT ALLOWED BEFORE ALL POTENTIAL SOURCES OF MEDIUM VOLTAGE HAVE BEEN REMOVED. THIS IS PROVIDED TO PREVENT ACCIDENTAL ENTRY BY MAINTENANCE PERSONNEL TO POWER CELLS WITH LIVE EQUIPMENT. IF THIS IS NOT FOLLOWED, INJURY OR DEATH COULD RESULT. (SUPERIOR KEY # 12936)

**NOTE 3:** REFER TO DIMENSION DRAWING FOR COMPONENT SIZING NOT SHOWN ON THIS DRAWING.

**WARNING:** GROUND MUST BE CONNECTED TO PREVENT HIGH VOLTAGES FROM BEING APPLIED TO DRIVE CONTROL BOARDS.

- L** LINE CONVERTER SNUBBER NETWORK
- M** MACHINE CONVERTER SNUBBER NETWORK
- PE GROUND:** A GROUND CONNECTION MADE DIRECTLY ONTO THE STRUCTURE'S GROUND BUS.
- TE GROUND:** A SIGNAL GROUND CONNECTION MADE DIRECTLY ONTO A SEPARATE BUS.
- D** DRIVE LOW VOLTAGE DOOR MOUNTED DEVICE
- CUSTOMER WIRING. REFER TO SHT.7 FOR INTERCONNECTION INFORMATION.
- ▲** REMOTE EQUIPMENT
- 1A** 8 kV - MINIMUM CABLE INSULATION RATING REQUIRED AT FLC x 1.225.
- 1** 8 kV - MINIMUM CABLE INSULATION RATING REQUIRED AT RATED FLC 430A.
- 2** 5 kV - MINIMUM CABLE INSULATION RATING REQUIRED.
- VFD VARIABLE FREQUENCY DRIVE
- DC LINK POWER WIRING INSTALLATION NOTE:** RUN R+ AND R- IN A SEPARATE CONDUIT FROM I+ AND I-.
- K1** KEY INTERLOCK FOR POWER CELL DOOR

VARIABLE FREQUENCY AC DRIVE (LOAD COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND NOT BE LOANED, REPRODUCED, COPIED, OR USED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ALLEN-BRADLEY		Rockwell Automation Allen-Bradley Medium Voltage Business		
BULLETIN	1557L	SIZE	3000HP	CUSTOMER	BERNSTORFF/SHELL CHEMICAL	
REFERENCES	DIMENSION DRAWING: 0725548-001-980		DISTRIBUTOR	McNAUGHTON - MCKAY	DRAWN	J. LUKOSZYK
			PROJECT	SHELL GEISMER PLANT TAG DA-PR1512	DATE	980211
			ORDER NO.	3121168	CERTIFIED	
					R. PAES	980408
LTR	REVISION	INT	LTR	REVISION	INT	
A	ENG PROGRAM RELEASED 980211	JL	C	ADD TAG NUMBER FOR TITLE BLOCK 980423	JL	SHEET 1 OF 7
B	ADD WIRE COLORS FOR 14TS1,2,3,4. PS1 AND REVISE VFB4 980408	JL				DWG. NO. 0725548-001-98E



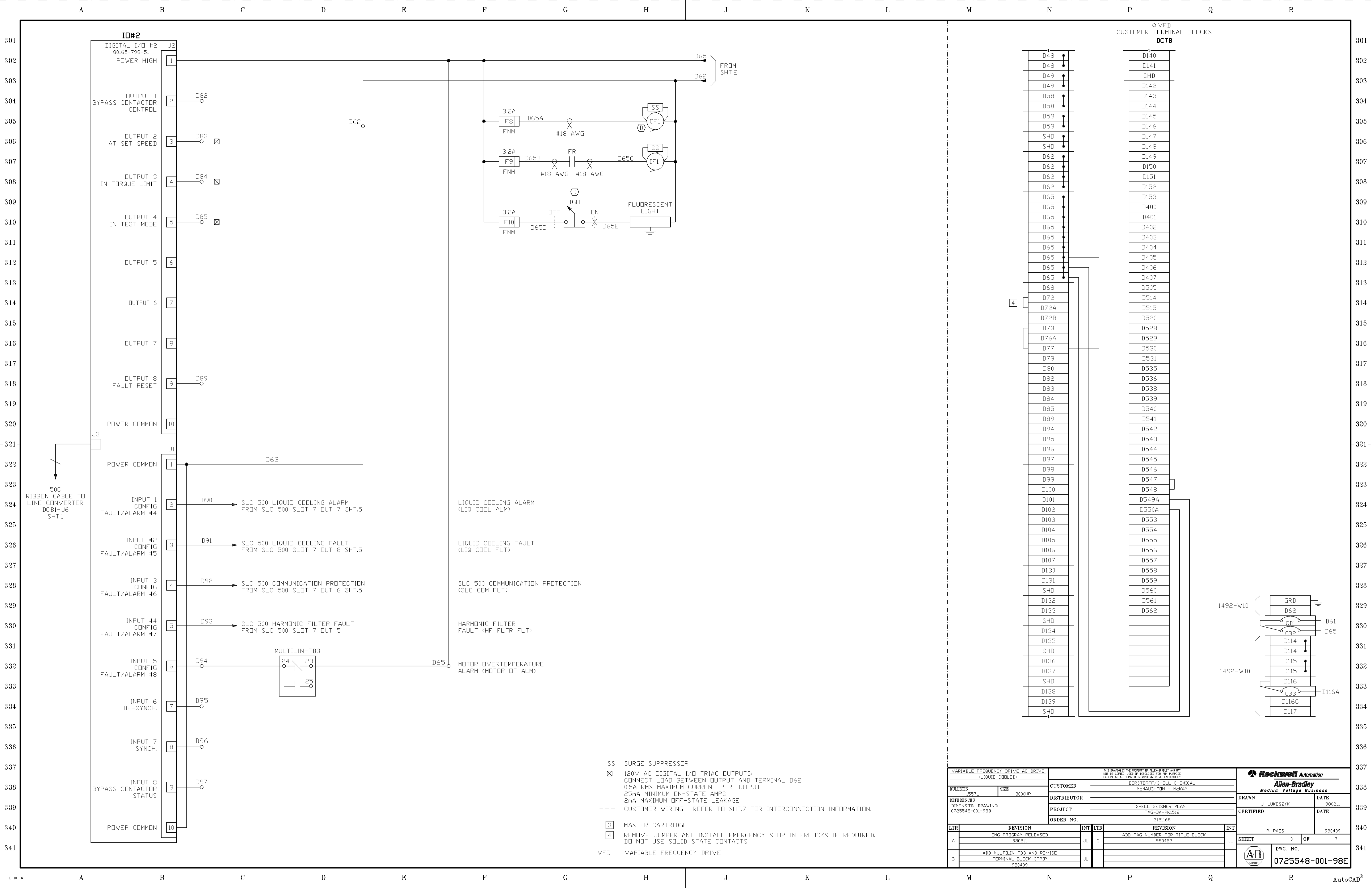
**ATTENTION**  
 MORE THAN ONE  
 LIVE CIRCUIT  
 SEE DIAGRAM

☒ #14 AWG CONTROL WIRE UNLESS OTHERWISE NOTED  
 ▲ REMOVE EQUIPMENT  
 ● 100 OHM PLATINUM RTD AT MOTOR  
 ⊕ DRIVE LOW VOLTAGE DDDR MOUNTED DEVICE  
 SS SURGE SUPPRESSOR  
 ☒ 120V AC DIGITAL I/O TRIAC OUTPUTS;  
 CONNECT LOAD BETWEEN OUTPUT AND TERMINAL D62  
 0.5A RMS MAXIMUM CURRENT PER OUTPUT  
 25mA MINIMUM ON-STATE AMPS  
 2mA MAXIMUM OFF-STATE LEAKAGE  
 CUSTOMER WIRING. REFER TO SHT.7 FOR INTERCONNECTION INFORMATION.

[3] MASTER CARTRIDGE  
 [4] REMOVE JUMPER AND INSTALL EMERGENCY STOP INTERLOCKS IF REQUIRED. DO NOT USE SOLID STATE CONTACTS.  
 [6] THE DRIVE INTERLOCK (DIC) TO THE INPUT BREAKER MUST HAVE CONTROL OVER THE OPENING AND CLOSING OF THE INPUT BREAKER. THIS IS REQUIRED FOR PROTECTION OF THE DRIVE/MOTOR UNDER FAULT CONDITIONS.  
 [7] THE CIRCUIT BREAKER FEEDING INPUT POWER TO THE DRIVE MUST PROVIDE STATUS FEEDBACK TO THE DRIVE. THE VFD IS A CURRENT SOURCE DRIVE AND DAMAGE TO THE DRIVE COULD OCCUR IF ITS CURRENT IS INTERRUPTED BY THE BREAKER WITHOUT PROVIDING ADVANCE NOTICE OF THE INTERRUPTION. THE FEEDBACK MUST CONSIST OF A DIRECT N.C. DRY AUXILIARY CONTACT ON THE BREAKER POWER POLES WIRED IN SERIES WITH A N.C. DRY CONTACT ON THE TRIP COIL RELAY. UNDER ANY REQUEST TO OPEN, THERE MUST BE A MINIMUM DELAY OF 2 CYCLES BETWEEN THE TRIP COIL CONTACT CLOSING AND THE ACTUAL OPENING OF THE POWER POLES.

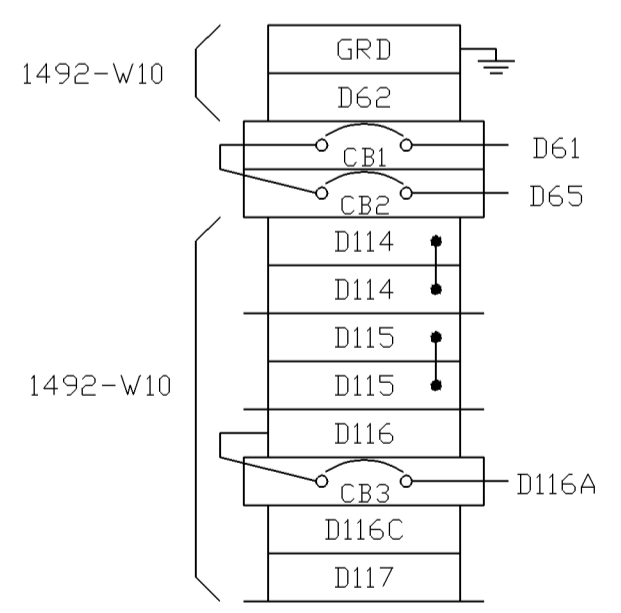
VARIABLE FREQUENCY DRIVE

VARIABLE FREQUENCY DRIVE AC DRIVE (LQUID COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND NOT BE COPIED, USED OR REPRODUCED FOR ANY PURPOSE EXCEPT AS AUTHORIZED BY ALLEN-BRADLEY		Rockwell Automation Allen-Bradley Medium Voltage Business	
BULLETIN 1557L	SIZE 3000HP	CUSTOMER	BERNSTORFF/SHELL CHEMICAL		
REFERENCES		DISTRIBUTOR	McNAUGHTON - MCKAY		
DIMENSION DRAWING: 0725548-001-980		PROJECT	SHELL GEISMER PLANT TAG-DA-PK1512		
LTR	REVISION	INT	LTR	REVISION	INT
A	ENG PROGRAM RELEASED 980210	JL	C	REVISE MULTILIN SMI0 AND ADD TAG FOR TITLE BLOCK 980423	JL
B	ADD CABINET SPACE HEATER AND REMOVE JUMPER 980408	JL			
ORDER NO. 3121168		DRAWN		DATE	
		J. LUKOSZYK		980210	
CERTIFIED		DATE		DATE	
		R. PAES		980408	
SHEET 2 OF 7		DWG. NO.		0725548-001-98E	



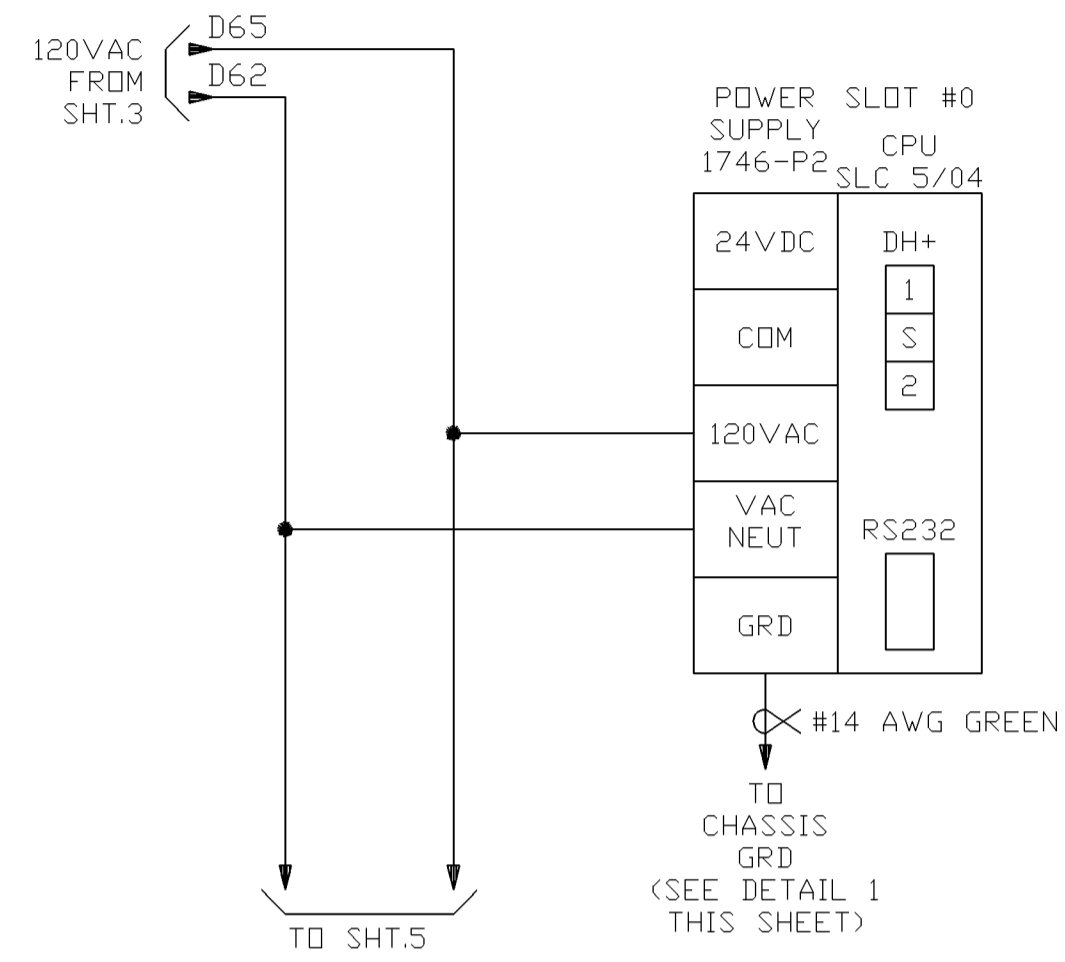
OVFD  
CUSTOMER TERMINAL BLOCKS  
DCTB

D48	D140
D48	D141
D49	SHD
D49	D142
D58	D143
D58	D144
D59	D145
D59	D146
SHD	D147
SHD	D148
D62	D149
D62	D150
D62	D151
D62	D152
D65	D153
D65	D400
D65	D401
D65	D402
D65	D403
D65	D404
D65	D405
D65	D406
D65	D407
D68	D505
D72	D514
D72A	D515
D72B	D520
D73	D528
D76A	D529
D77	D530
D79	D531
D80	D535
D82	D536
D83	D538
D84	D539
D85	D540
D89	D541
D94	D542
D95	D543
D96	D544
D97	D545
D98	D546
D99	D547
D100	D548
D101	D549A
D102	D550A
D103	D553
D104	D554
D105	D555
D106	D556
D107	D557
D130	D558
D131	D559
SHD	D560
D132	D561
D133	D562
SHD	
D134	
D135	
SHD	
D136	
D137	
SHD	
D138	
D139	
SHD	



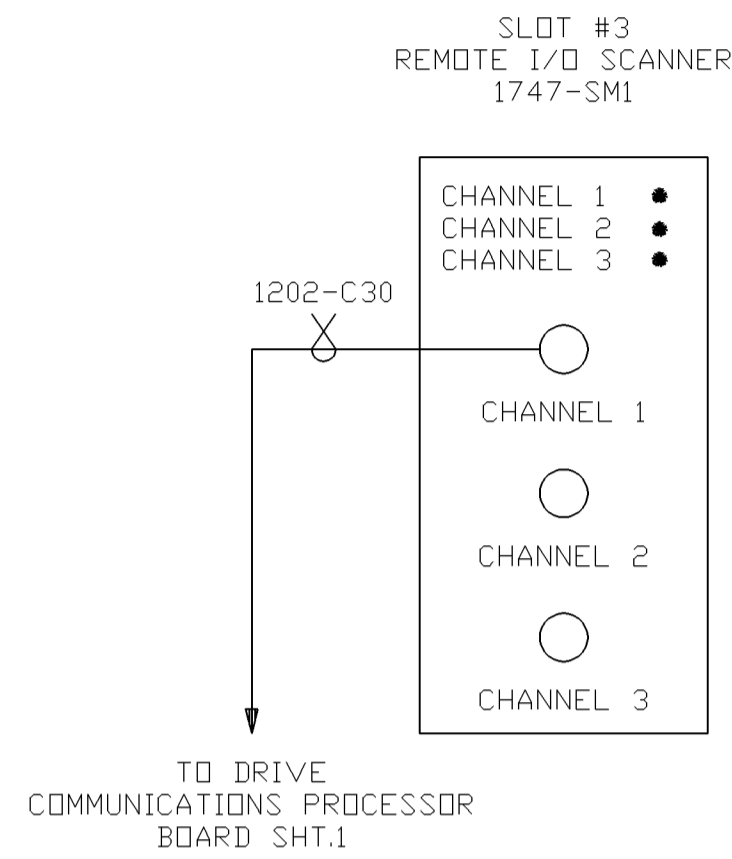
- SS SURGE SUPPRESSOR
- ☒ 120V AC DIGITAL I/O TRIAC OUTPUTS: CONNECT LOAD BETWEEN OUTPUT AND TERMINAL D62  
0.5A RMS MAXIMUM CURRENT PER OUTPUT  
25mA MINIMUM ON-STATE AMPS  
2mA MAXIMUM OFF-STATE LEAKAGE
- CUSTOMER WIRING. REFER TO SHT.7 FOR INTERCONNECTION INFORMATION.
- ☒ MASTER CARTRIDGE
- ☒ REMOVE JUMPER AND INSTALL EMERGENCY STOP INTERLOCKS IF REQUIRED. DO NOT USE SOLID STATE CONTACTS.
- VFD VARIABLE FREQUENCY DRIVE

VARIABLE FREQUENCY DRIVE AC DRIVE (LIQUID COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND NOT BE COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF ALLEN-BRADLEY.		 <b>Allen-Bradley</b> Medium Voltage Business	
BULLETIN 1957L	SIZE 3000HP	CUSTOMER	BERSTORFF/SHELL CHEMICAL MCNLAUGHTON - MCKAY		DRAWN J. LUKOSZYK DATE 980211
REFERENCES DIMENSION DRAWING: 0725548-001-980		DISTRIBUTOR	SHELL GEISMER PLANT TAG-DA-PK1512		CERTIFIED DATE
LTR	REVISION	INT	LTR	REVISION	INT
A	ENG PROGRAM RELEASED 980211	JL	C	ADD TAG NUMBER FOR TITLE BLOCK 980423	JL
B	ADD MULTILIN TB3 AND REVISE TERMINAL BLOCK STRIP 980409	JL			
ORDER NO. 3121168			R. PAES 980409		
SHEET 3			OF 7		
			DWG. NO. <b>0725548-001-98E</b>		

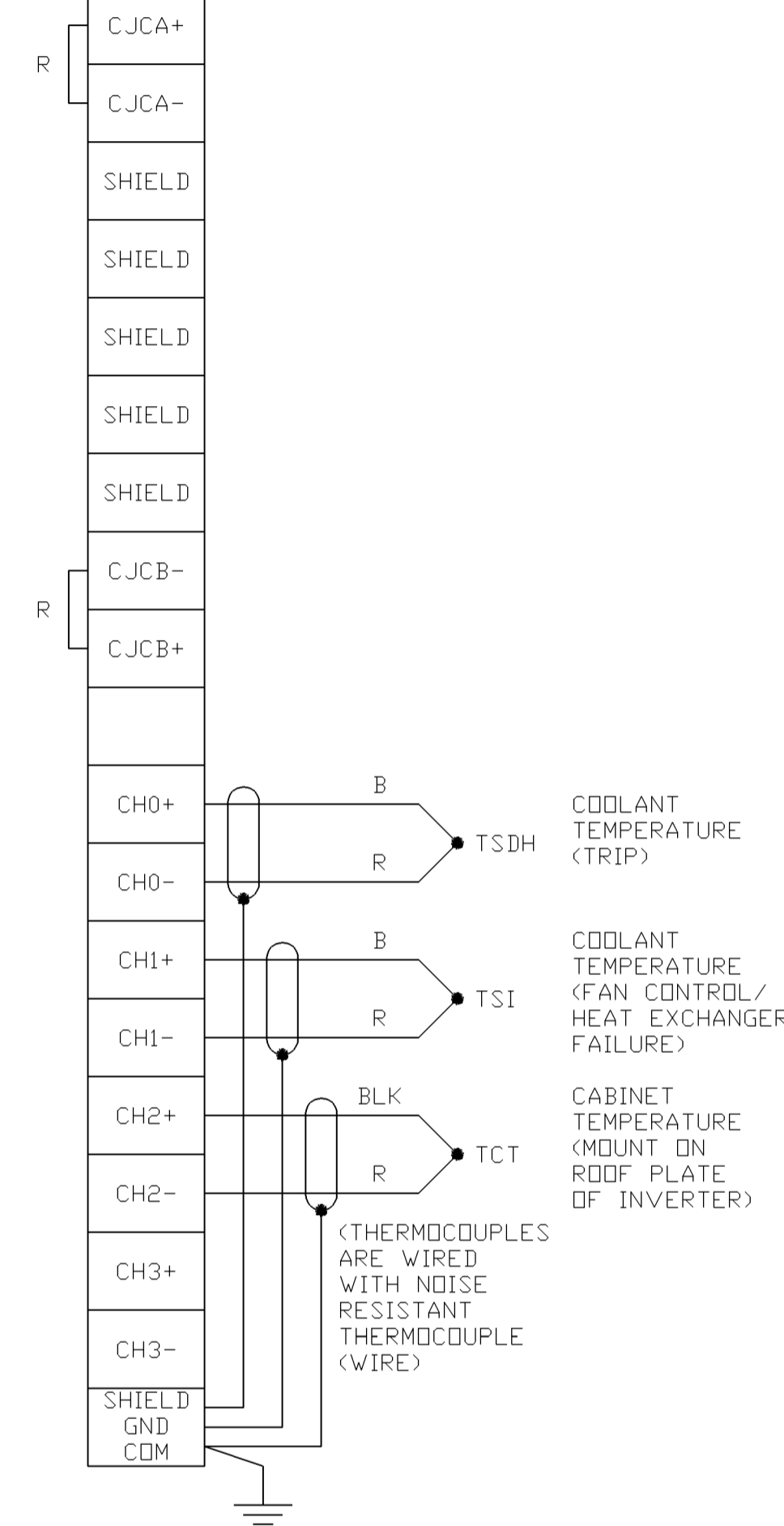


SLOT #1  
RESERVED  
FOR  
FUTURE  
USE

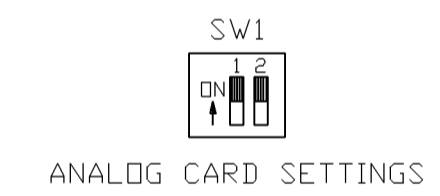
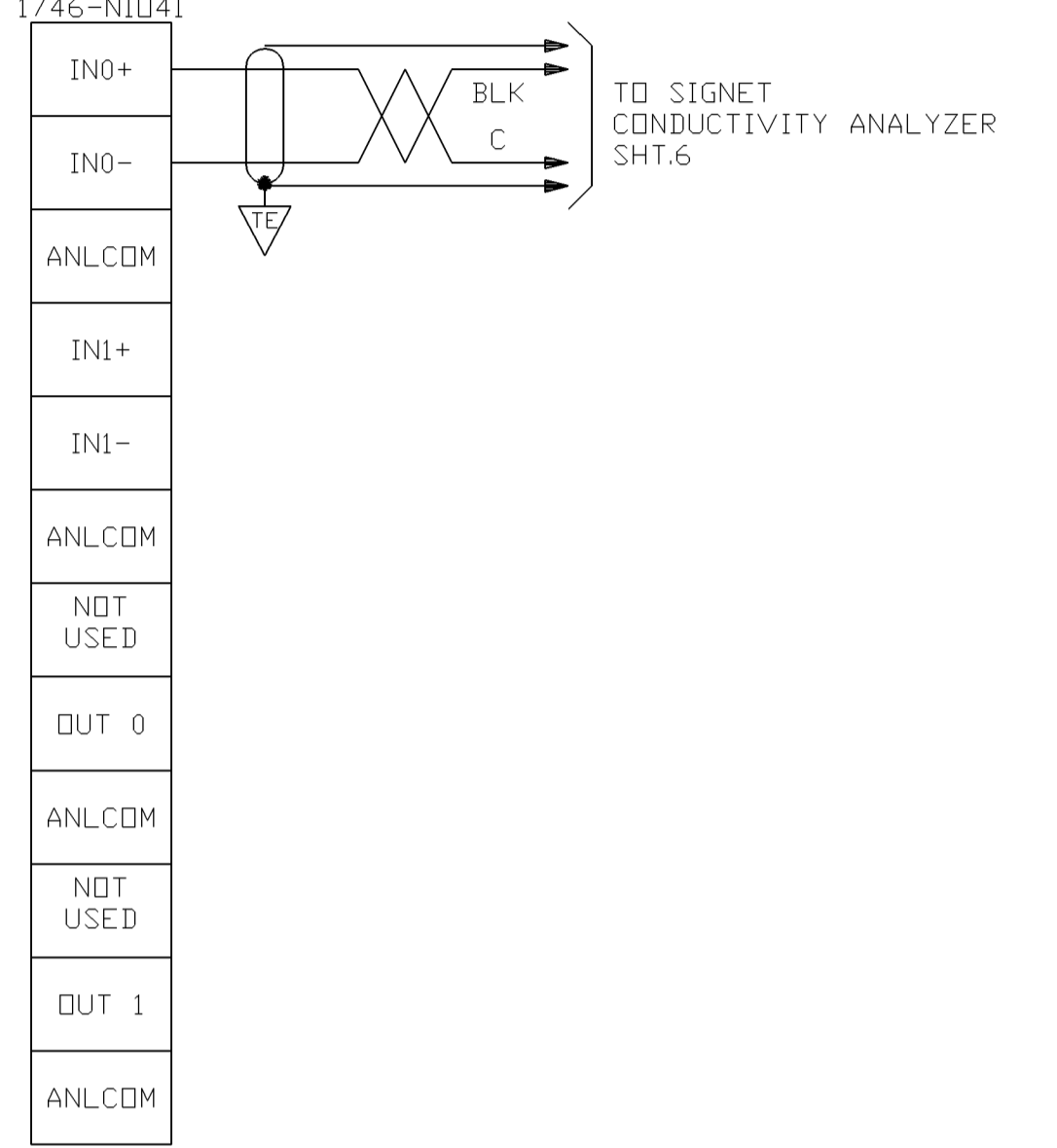
SLOT #2  
RESERVED  
FOR  
FUTURE  
USE



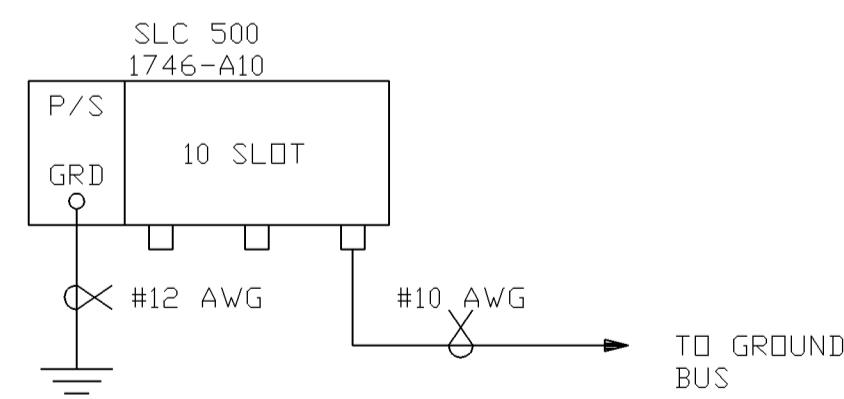
SLOT 4  
THERMOCOUPLE/mV INPUT  
1746-INT4



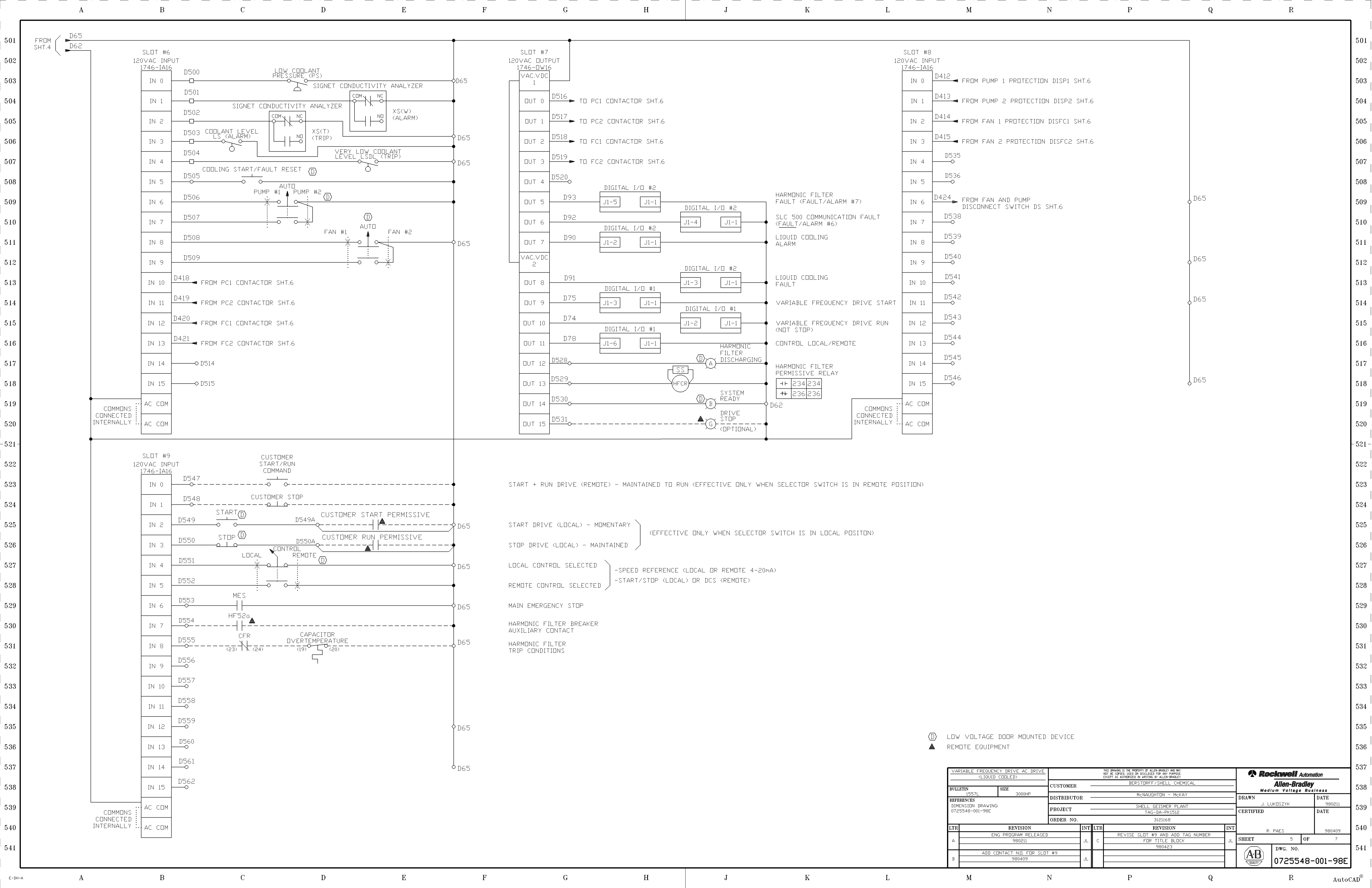
SLOT #5  
ANALOG INPUT MODULE  
1746-NI041

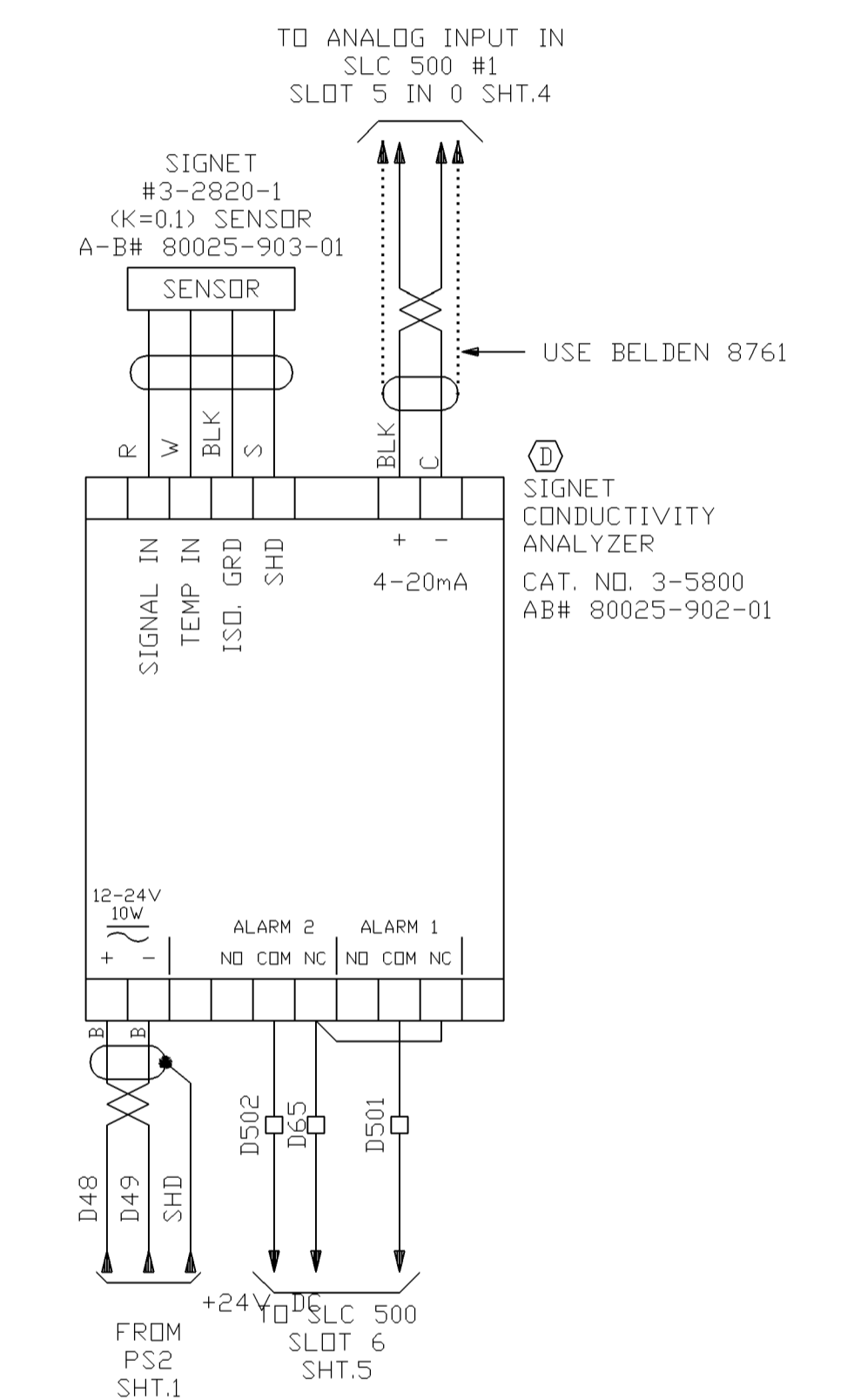
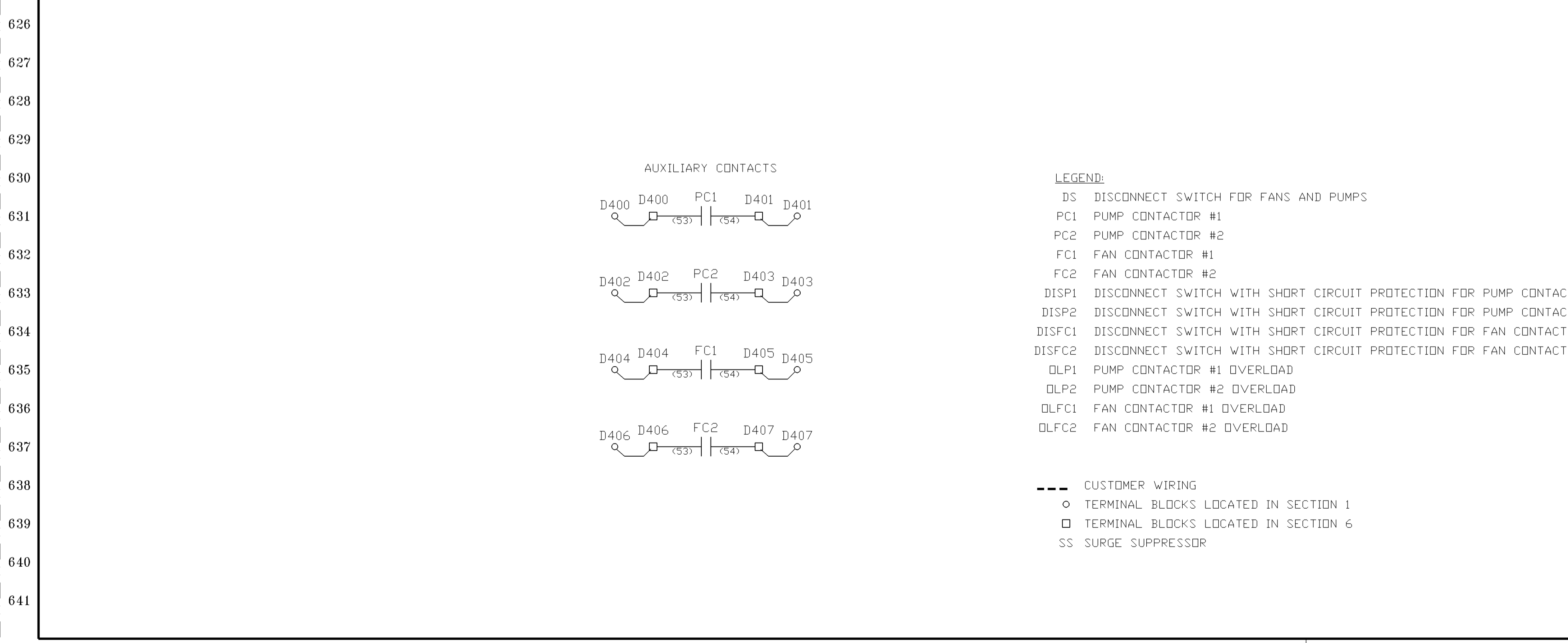
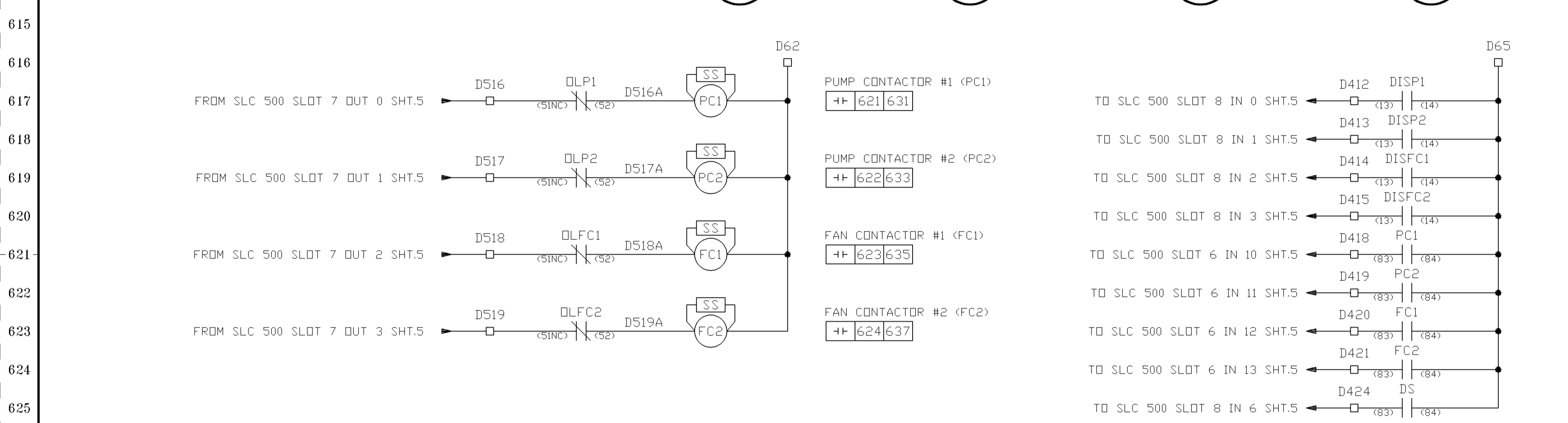
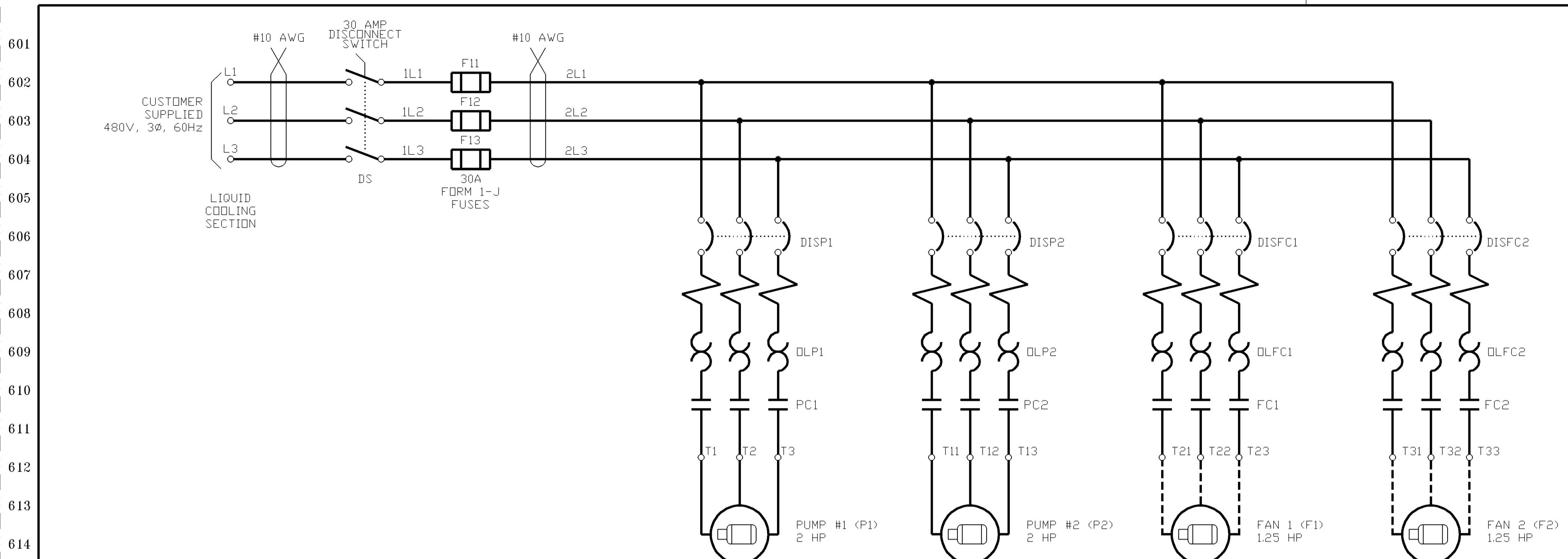


DETAIL 1



VARIABLE FREQUENCY DRIVE AC DRIVE (LIQUID COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND MAY NOT BE COPIED, USED OR REPRODUCED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ALLEN-BRADLEY		 <b>Allen-Bradley</b> <i>Medium Voltage Business</i>	
BULLETIN 1957L	SIZE 3000HP	CUSTOMER BERSTORFF/SHELL CHEMICAL		DRAWN J. LUKOSZYK	DATE 980211
REFERENCES DIMENSION DRAWING: 0725548-001-98E		DISTRIBUTOR McNAUGHTON - MCKAY		CERTIFIED R. PAES	DATE 980409
PROJECT SHELL GEISMER PLANT TAG-DA-PK1512		ORDER NO. 3121168		SHEET 4 OF 7	
LTR	REVISION	INT	LTR	REVISION	INT
A	ENG PROGRAM RELEASED 980211	JL	C	ADD TAG NUMBER FOR TITLE BLOCK 980423	JL
B	REVISE DETAIL 1 FOR SLC 500 980409	JL			
				 DWG. NO. <b>0725548-001-98E</b>	





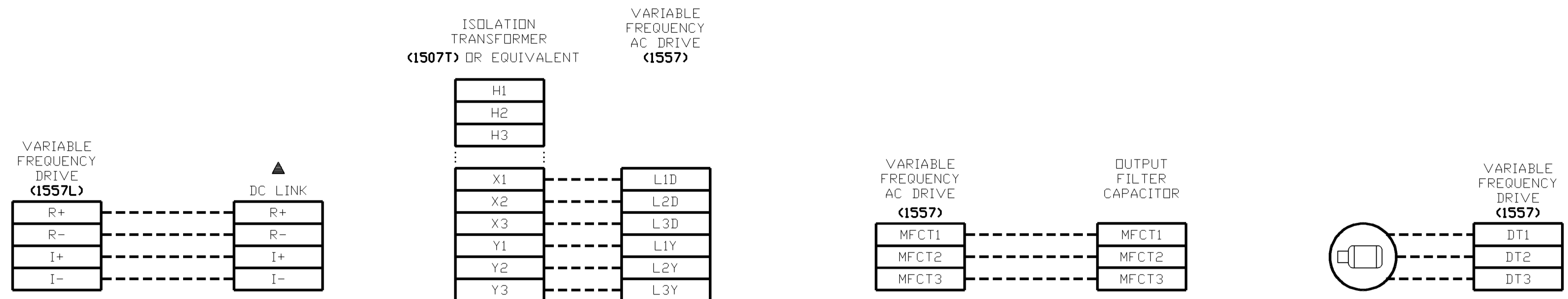
□ TERMINAL BLOCK LAYOUT  
PANEL 8A

D62
D65
D400
D401
D402
D403
D404
D405
D406
D407
D412
D413
D414
D415
D418
D419
D420
D421
D422
D500
D501
D502
D503
D504
D516
D517
D518
D519

VARIABLE FREQUENCY DRIVE AC DRIVE (LIQUID COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND NOT BE COPIED, REPRODUCED OR USED FOR ANY PURPOSE EXCEPT AS AUTHORIZED BY ALLEN-BRADLEY		 <b>Allen-Bradley</b> <i>Medium Voltage Business</i>	
BULLETIN 1957L	SIZE 3000HP	CUSTOMER BERSTORFF/SHELL CHEMICAL		DRAWN J. LUKOSZYK	DATE 980211
REFERENCES DIMENSION DRAWING: 0725548-001-980		DISTRIBUTOR McNAUGHTON - MCKAY		CERTIFIED	DATE
		PROJECT SHELL GEISMER PLANT TAG-DA-PK1512		3121168	
LTR	REVISION	INT	LTR	REVISION	INT
A	ENG PROGRAM RELEASED 980211	JL	C	ADD TAG NUMBER FOR TITLE BLOCK 9870423	JL
B	REVISE CROSS REFERENCES TERMINAL BLOCKS 980409	JL			
				R. PAES	980409
				 DWG. NO. 0725548-001-98E	

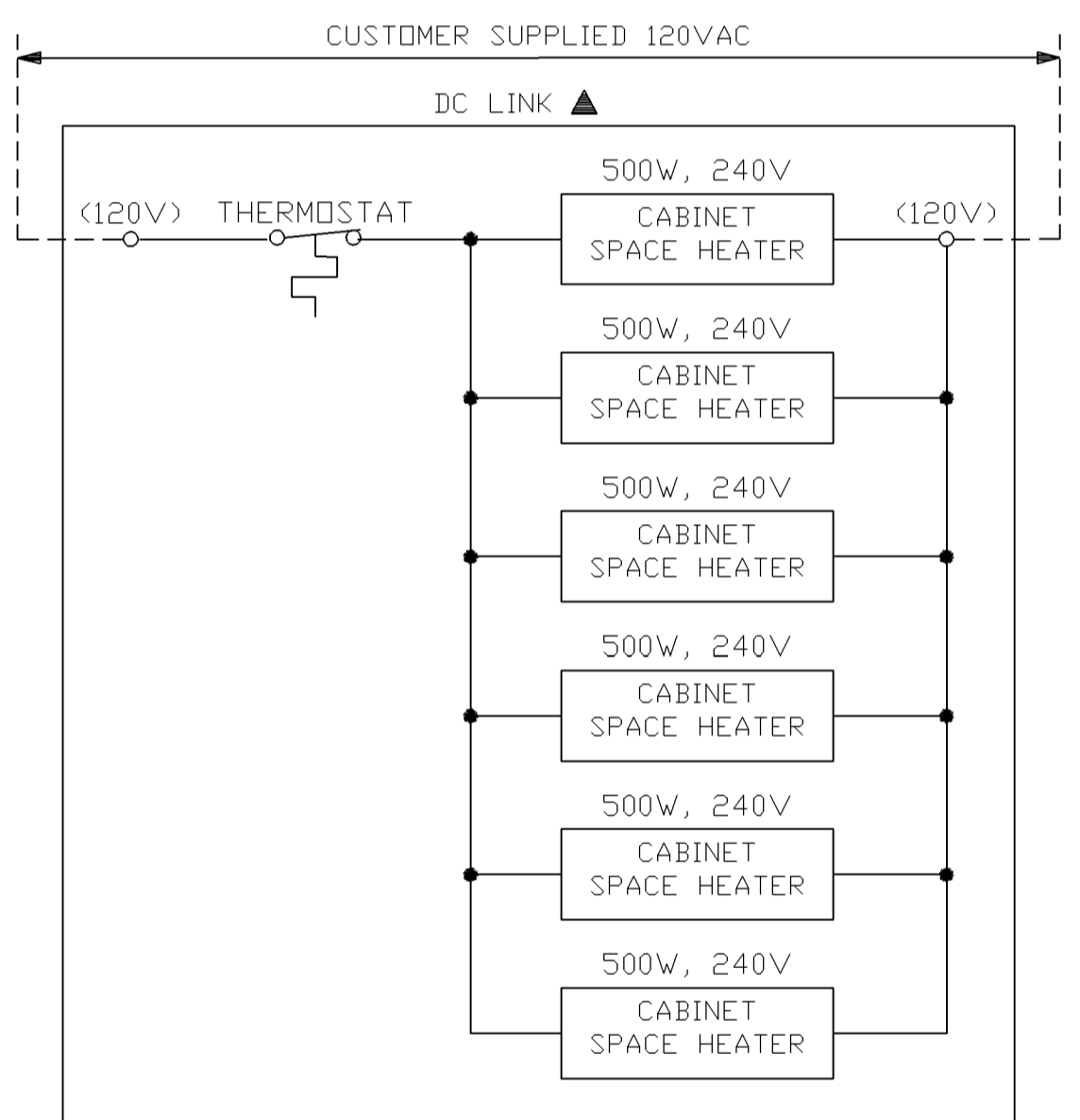
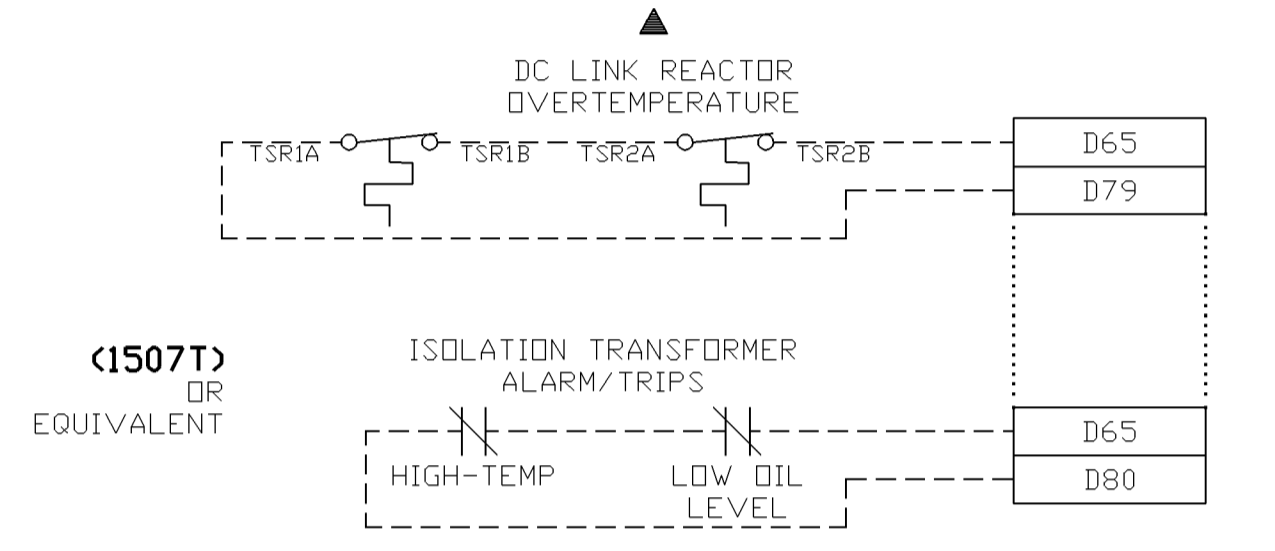


POWER WIRING



CONTROL WIRING

(ROCKWELL AUTOMATION SUPPLIED EQUIPMENT)

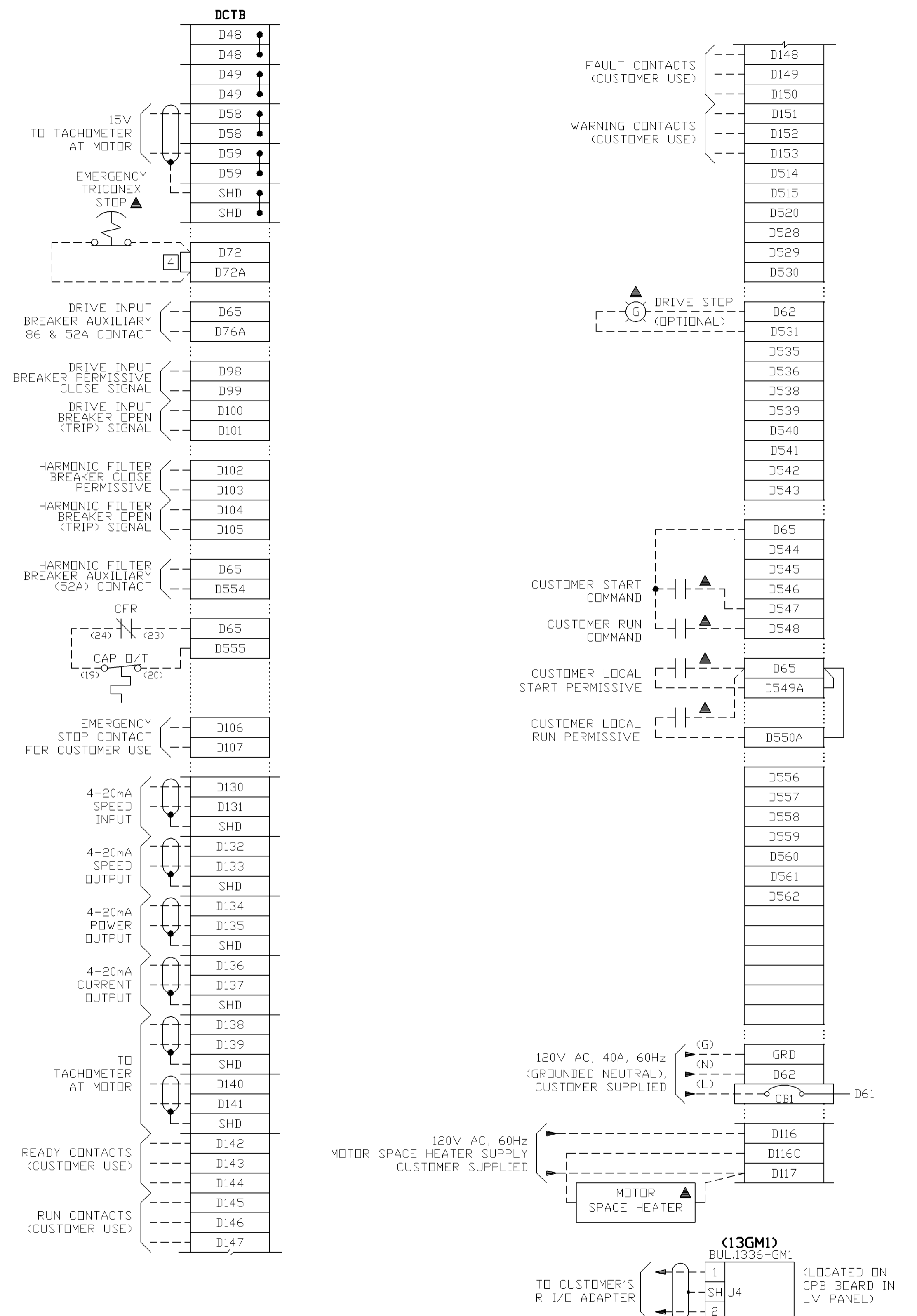


(84J)(84K)  
SEE SHEET 2 FOR RTD WIRING.

- ▲ REMOTE EQUIPMENT
- 4 REMOVE JUMPER AND INSTALL EMERGENCY STOP INTERLOCKS IF REQUIRED. DO NOT USE SOLID STATE CONTACTS.
- \* ONLY INTERCONNECTED TERMINAL BLOCKS ARE SHOWN. FOR COMPLETE CUSTOMER TERMINAL BLOCK LAYOUT SEE SHEET 3.
- CUSTOMER WIRING
- VFD VARIABLE FREQUENCY DRIVE

FIELD WIRING

(CUSTOMER SUPPLIED EQUIPMENT)



VARIABLE FREQUENCY DRIVE AC DRIVE (LQUDT COOLED)		THIS DRAWING IS THE PROPERTY OF ALLEN-BRADLEY AND NOT TO BE COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING BY ALLEN-BRADLEY.		 <b>Allen-Bradley</b> <i>Medium Voltage Business</i>	
BULLETIN 1557L	SIZE 3000HP	CUSTOMER	BERNSTORFF/SHELL CHEMICAL		
REFERENCES	DIMENSION DRAWING: 0725548-001-980	DISTRIBUTOR	McNAUGHTON - MCKAY		
LTR	REVISION	INT	LTR	REVISION	INT
A	ENG PROGRAM RELEASED 980211	JL	C	REVISE TERMINAL BLOCK STRIP 980423	JL
B	REVISE TERMINAL BLOCK STRIP 980409	JL			
ORDER NO. 3121168		DRAWN		DATE	
		J. LUKOSZYK		980211	
PROJECT SHELL GEISMER PLANT TAG-DA-PK1512		CERTIFIED		DATE	
		R. PAES		980409	
SHEET 7 OF 7		DWG. NO.		7	
		0725548-001-98E			