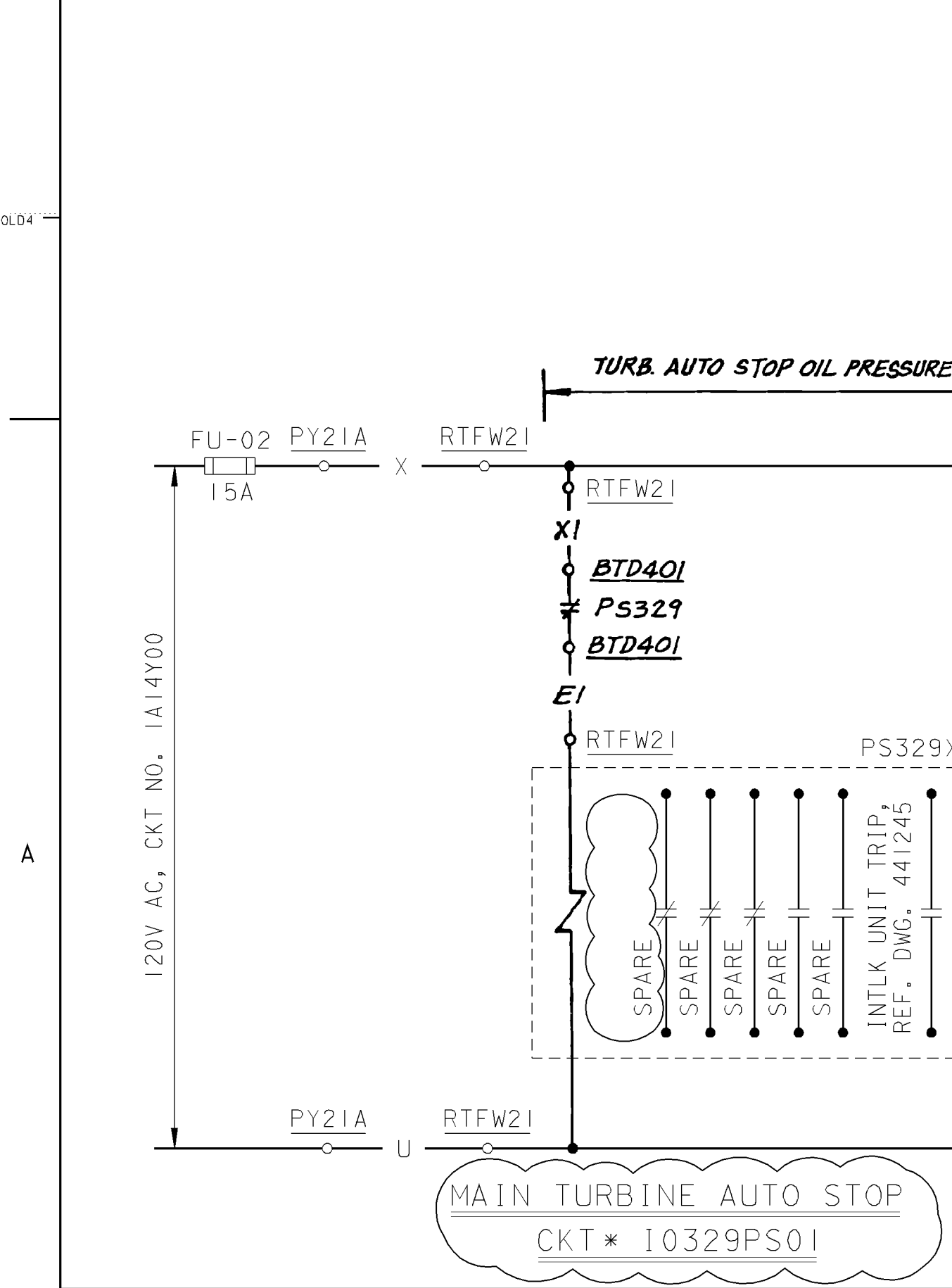
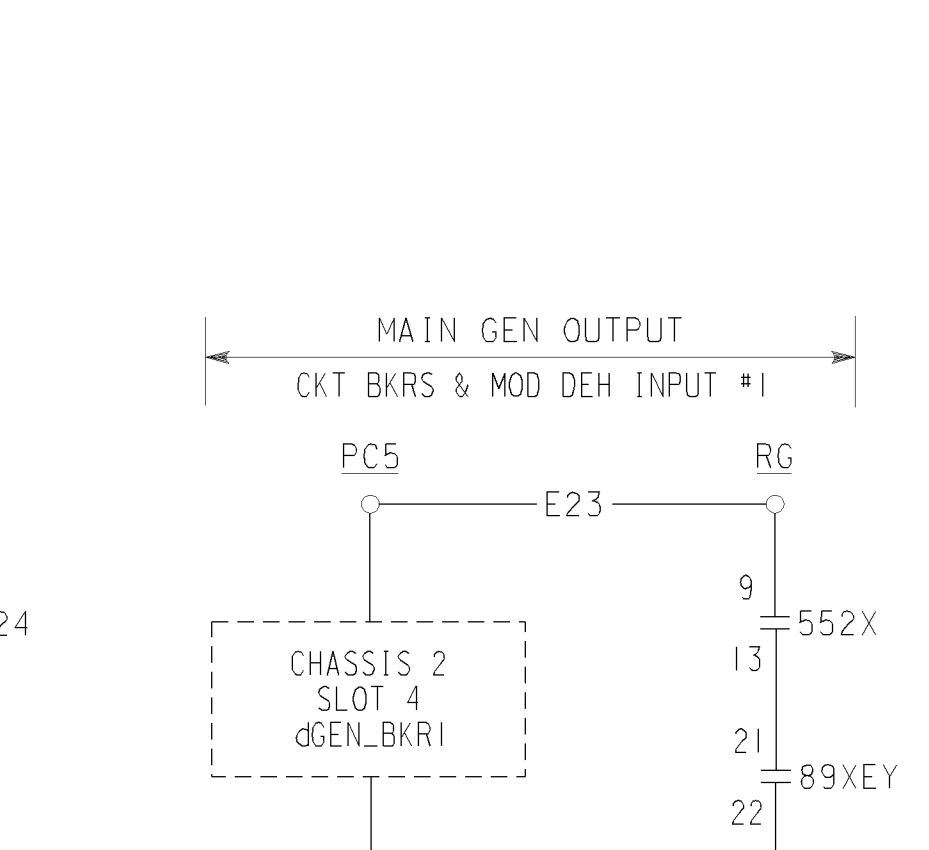
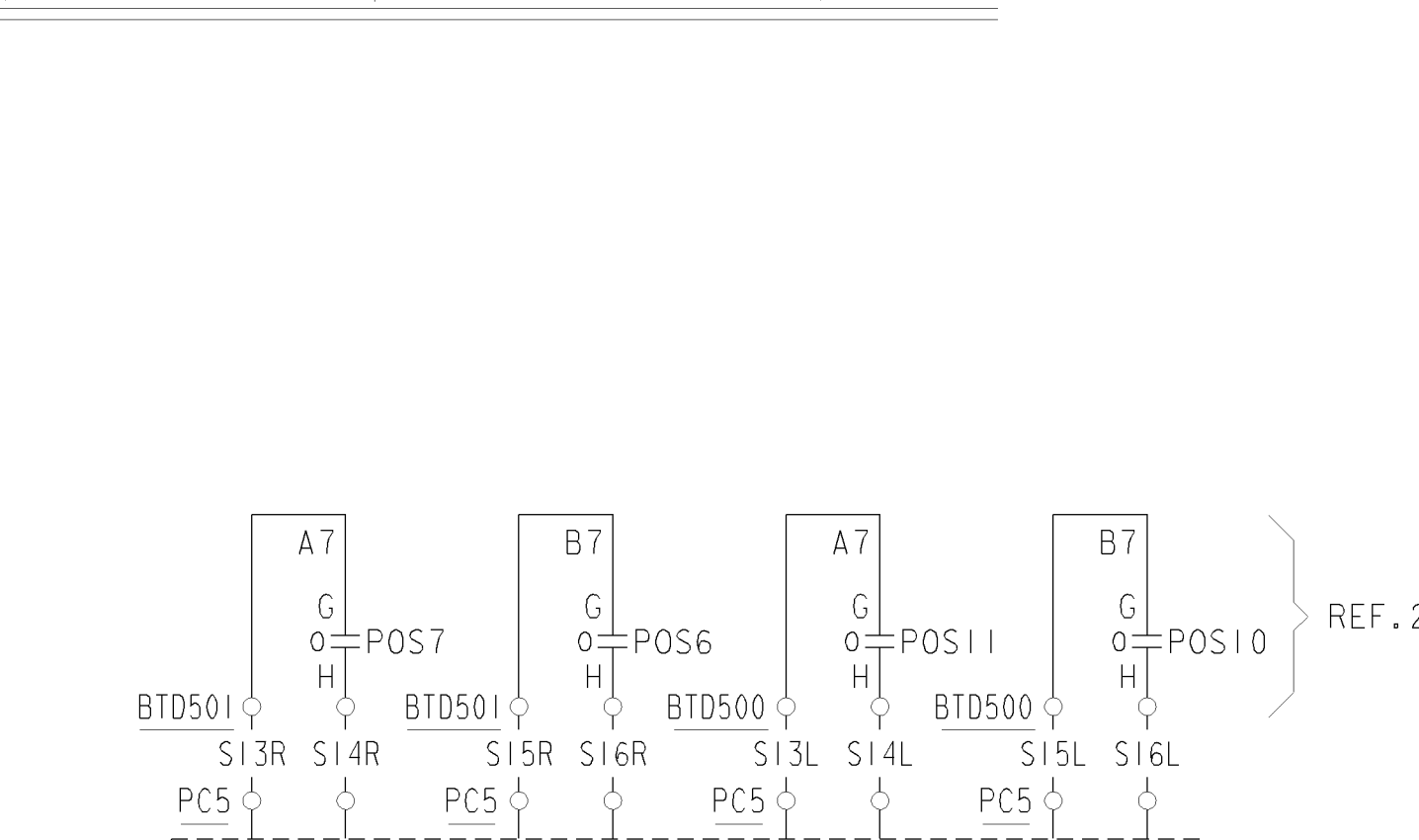
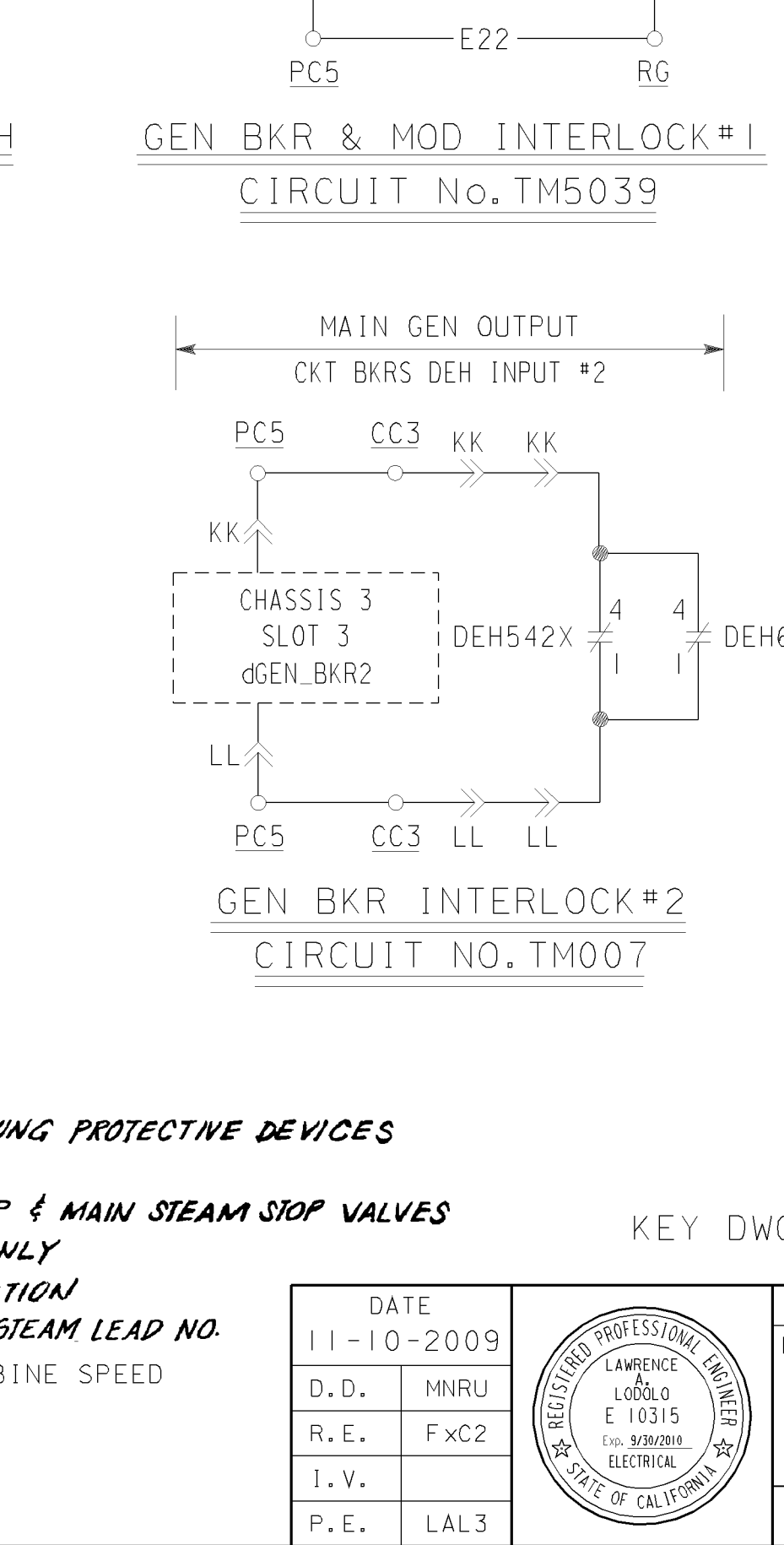
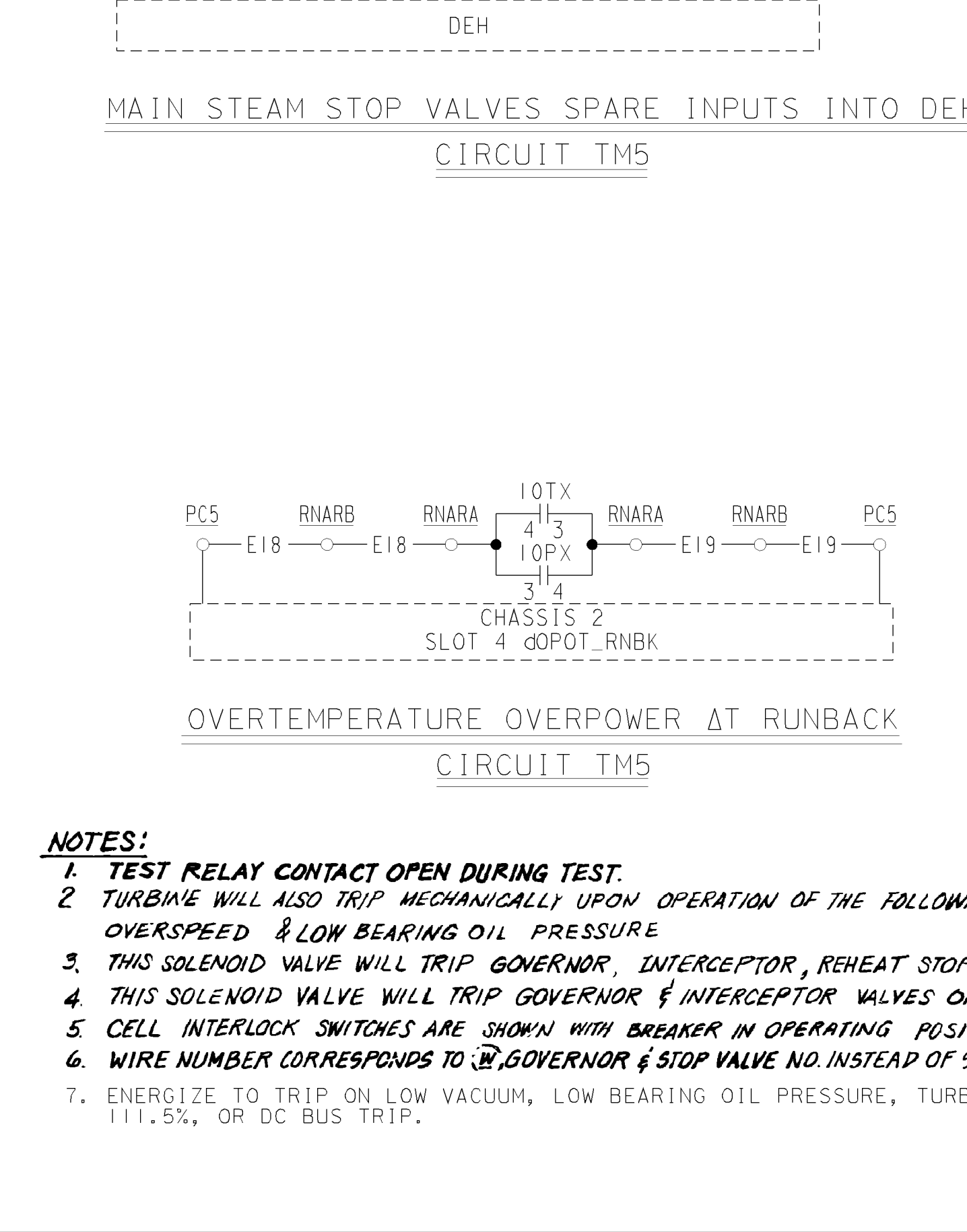


CONTACT	TRIP	POSITION	REMARK
A	X	NORMAL	THIS DWG
B	X	NORMAL	THIS DWG
C	X	NORMAL	THIS DWG
D	X	NORMAL	SPARE
E	X	NORMAL	SPARE
F	X	NORMAL	SPARE

FCV	SWITCH	STATION	TERM MARK	VALVE POSITION	INTER	CLOSED	USE
POS 9	POS 4	POS 5	A-B	X	X	X	DEH
POS 4	POS 4	POS 5	C-D	X	X	X	SPARE
POS 5	POS 4	POS 5	E-F	X	X	X	SPARE
			G-H	X	X	X	SPARE
			J-K	X	X	X	SPARE
			L-M	X	X	X	SPARE
			A-B	X	X	X	DEH
			C-D	X	X	X	SPARE
			E-F	X	X	X	SPARE
			G-H	X	X	X	SPARE
			J-K	X	X	X	SPARE
			L-M	X	X	X	SPARE



SWITCH STATION	TERM MARK	VALVE POSITION	INTER	CLOSED	USE	FCV
OPEN (O)	A-B	X	X	X	DEH	143 144 145 146
	C-D	X	X	X	SPARE	
	E-F	X	X	X	SPARE	
	G-H	X	X	X	SPARE	
	J-K	X	X	X	SPARE	
	L-M	X	X	X	SPARE	
	A-B	X	X	X	DEH	POS 11
	C-D	X	X	X	SPARE	POS 10
	E-F	X	X	X	SPARE	POS 7
	G-H	X	X	X	SPARE	
	J-K	X	X	X	SPARE	
	L-M	X	X	X	SPARE	



NOTES:
 1. TEST RELAY CONTACT OPEN DURING TEST.
 2. TURBINE WILL ALSO TRIP MECHANICALLY UPON OPERATION OF THE FOLLOWING PROTECTIVE DEVICES: OVERSPEED & LOW BEARING OIL PRESSURE.
 3. THIS SOLENOID VALVE WILL TRIP GOVERNOR, INTERCEPTOR, REHEAT STOP & MAIN STEAM STOP VALVES.
 4. THIS SOLENOID VALVE WILL TRIP GOVERNOR & INTERCEPTOR VALVES ONLY.
 5. CELL INTERLOCK SWITCHES ARE SHOWN WITH BREAKER IN OPERATING POSITION.
 6. WIRE NUMBER CORRESPONDS TO GOVERNOR & STOP VALVE NO. INSTEAD OF STEAM LEAD NO.
 7. ENERGIZE TO TRIP ON LOW VACUUM, LOW BEARING OIL PRESSURE, TURBINE SPEED 111.5%, OR DC BUS TRIP.

MAIN/EQUIV.	DEVICE NO.	FUNCTION	RATING	MFR	TYPE	QTY	REF. NO. OR TAG NO.	REMARKS
	PS329X	TURB AUTO STOP OIL TRIPPED PRESS SW RLY	120V AC	C-H	R	1	DA0RR33A	
	GTURB LATCH	COND. VACUUM TRIP LATCH				15	18, 20	DEH COMPUTER
	CSV041	TURB OVERSPEED PROTECTION				15	18, 20	DEH COMPUTER
	CSV042	TURB OVERSPEED PROTECTION				15	18, 20	DEH COMPUTER
	CSV171	TURB OVERSPEED, LOW VACUUM, LOW BEARING OIL PRESS TRIP (DEH) OR DC BUS TRIP				15	18, 20	DEH COMPUTER
	27TDC2	TURBINE CONTROL DC UNDERVOLTAGE	125VDC	W/E	SG	1	1342925	
	27TDC21	BACK-UP DC U.V.	125VDC	W/E	SG	1	1342925	
	B662	UNIT TRIP LOCKOUT RELAY				6		
	B6621	UNIT TRIP LOCKOUT RELAY				6		
	B6 LFT	8.6 LFT	125VDC	W/E	WL	1	422293665	HAND RESET
	S2R7A, B	REACTOR TRIP BREAKERS				8		
	S2B7A, B	REACTOR BYPASS BREAKERS				8		
	CSV046	MAIN STEAM LEAD 1 STOP VALVE TEST				15	18, 20	DEH COMPUTER
	CSV045	MAIN STEAM LEAD 2 STOP VALVE TEST				15	18, 20	DEH COMPUTER
	CSV043	MAIN STEAM LEAD 3 STOP VALVE TEST				15	18, 20	DEH COMPUTER
	CSV044	MAIN STEAM LEAD 4 STOP VALVE TEST				15	18, 20	DEH COMPUTER
	DC RY	1-250 DEAD COMPUTER AUX RELAY				14		
	POS 4	GOVERNOR VV, RIGHT UPPER LIMIT SW				13		
	POS 5	GOVERNOR VV, RIGHT LOWER LIMIT SW				13		
	POS 6	MAIN STM STOP VV, RIGHT UPPER LSW				13		
	POS 7	MAIN STM STOP VV, RIGHT LOWER LSW				13		
	POS 8	GOVERNOR VV, LEFT UPPER LIMIT SW				13		
	POS 9	GOVERNOR VV, LEFT LOWER LIMIT SW				13		
	POS 10	MAIN STM STOP VV, LEFT UPPER LSW				13		
	POS 11	MAIN STM STOP VV, LEFT LOWER LSW				13		
	R/OPC	TURB OVERSPEED PROTECTION AUX RLY				15		ENERGIZED BY DEH COMPUTER
	R/AST	TURB OVERSPEED TRIP AUX RLY				15		ENERGIZED BY DEH COMPUTER
	PS22A	TURB. AUTO STOP OIL TRIPPED PRESS. SW		CCS	64663E	13		CC DECREASING
	CS 28	EH RESERVOIR LOW FLUID TRIP LOCKOUT				13		ENERGIZED BY DEH COMPUTER
	SV 37	TURBINE AUTO STOP TRIP SOL VV	125 V DC			13		SEE DWG. 50078 FOR PRETRIP ALARM
	SV 171	TURBINE AUTO STOP TRIP BACK-UP SOL VV	125 V DC			13		C.C. @ 11.63 INCH DECREASING
	SV 378	TURB. AUTO STOP RESET SOL VV	115 V AC			13		C.C. @ 1.63 INCH DECREASING
	SV 40	EH FLUID EMERG TRIP SOL VV	120 V DC			13		
	SV 41	AUX GOVERNOR SOL VV				13		
	SV 42					13		
	SV 43	MAIN STM LEAD 3 STOP VALVE SV (LRH)	115 V AC			13		
	SV 44	4 (LRH)				13		
	SV 45	2 (ULH)				13		
	SV 46	1 (LLH)				13		
	40X62 & Y62	GENERATOR LOSS OF FIELD AUX RELAY				5		
	PS329	TURB AUTO STOP OIL TRIPPED PRESS SW				15		C.C. @ 45 PSIG DECREASING
	K621	SIS OR STEAM GEN. HI. HI LEVEL AUX RELAY				16, 17, 18		CC DECREASING
	PS22E	TURB AUTO STOP OIL TRIPPED PRESS SW				13 & 18		CC DECREASING
	PS22B, F, G	AUTO STOP OIL TO DRAW VLV INTERLOCK				13 & 18		CC DECREASING
	PS22B, F, G	DEH AUTO STOP LATCH SIGNAL				13 & 18		CC DECREASING
	K10A, K10B	AMSAC SYSTEM				6008434-485		
	DEH542X	DEH GEN. BREAKER 542 AUX RLY				21		
	DEH642X	DEH GEN. BREAKER 642 AUX RLY				22		
	552X	500KV PCB'S 542 & 642 AUX RLY				6		
	89XEY	25KV ISO PHASE DISCONNECT SW AUX RLY				23		
	10TX	OVERTEMPERATURE AT				25		
	10PX	OVERPOWER AT				25		
	CSV37	TURB OVERSPEED, LOW VACUUM, LOW BEARING OIL PRESS TRIP (DEH) OR DC BUS TRIP	125V DC	W/E	SG	1	1342925	DEH COMPUTER
	CC62AMG2X	UNIT TRIP TIMER BYPASS	125V DC	W/E	SG	1	1342925	DEH COMPUTER
	CC62AMG2X	UNIT TRIP TIMER BYPASS	125V DC	W/E	SG	1	1342925	DEH COMPUTER

EQUIPMENT LOCATIONS

CC3	GENERATOR CONTROL CONSOLE	RTFW	FWP SPD CONT SIGNAL PROCSS PNL
CS	GENERATOR CONTROL BOARD	RFWA	BACK AMSAC SYSTEM TRAIN A
ENBDA	RACK NO SAFEGD OUTPUT A	BT400	TURBINE EQUIP TERMINAL BOX B
PC5	MAIN TURBINE CONTROL SYSTEM CABINET	BT401	TERMINAL BOX D 403
RG	GENERATOR RELAY BOARD	BT402	TURBINE EQUIP TERMINAL BOX D
PORTB1	CONTROL PNL REACTOR TRIP BREAKERS	BT500	TERMINAL BOX D 403
PORTB2	BY-PASS BREAKERS	BT501	TURBINE EQUIP TERMINAL BOX D
		RNSTA	RACK NO. SAFEGUARD TEST A
		RDD	P250 DEAD COMPUTER AUX RELAY PANEL

REFERENCES

1.	DESCRIPTION OF ELECT. SCHEM. DIAGRAM SYMBOLS & CKT DESIGNATIONS	DWG NO.	050003
2.	LIST OF EQUIPMENT LOCATION CODES		103013
3.	SINGLE LINE METER & RELAY DIAG 125 V DC SYSTEM		441240
4.	INSTRUMENT AC SYSTEM SH. 2		441241
5.	SCHEMATIC DIAG GENERATOR CONTROL SH. 1		441245
6.	SH. 2		441246
7.	TURBINE LUBE OIL PUMPS SH. 1		441253
8.	REACTOR TRIP BREAKERS		441463
9.	MAIN ANNUNCIATOR SH. 12		500782
10.	CNDS BSTR AUX LUBE OIL PUMPS AND CNDS SYSTEM		441254
11.	TURBINE CONTROL SH. 2		441255
12.	SH. 3		100038
13.	INSTRUMENT REFERENCE		441294
14.	SCHEM. DIAG DDC HAND CONTROLLER MAN-AUTO STATIONS		103013
15.	TURBINE ELECTRICAL SYSTEM MFR. DWGS SH. 2, 6, 25 & 47		REC. NO. 663286
16.	SOLID STATE PROTECTION SYSTEM MFR. DWGS REC NO. 663281		
17.	FUNCTIONAL DIAGRAM AUX FEEDWTR PUMPS STARTUP - 495005		
18.	SCHEM. DIAG, SSPS OUTPUT RELAYS, TRAIN A, TRAIN B		DWG. 503089, 503093
19.	ATWS MITIGATION SYSTEM ACTUATION CIRCUITRY (AMSAC) REF. 6008434		
20.	TURBINE CONTROL SYSTEM BASIS OF DESIGN DOCUMENT MANUAL. 6020501-1		
21.	SCHEMATIC DIAG 125VDC MANUAL CONTROL & RELAY TRIP		445341
22.	SCHEMATIC DIAG 125VDC MANUAL CONTROL & RELAY TRIP		441247
23.	SCHEMATIC DIAG GENERATOR CONTROL		663286-6
24.	ELEMENTARY STEAM VALVE TEST		663193-250
25.	ELEMENTARY WIRING DIAG AUX RELAYS UNITS 1 & 2		500625
26.	SCHEMATIC DIAG. MAIN ANNUNCIATOR		

KEY DWG. SECTION 5 UNIT 2

DATE: 11-10-2009
 D.D. MNRU
 R.E. FXC2
 I.V.
 P.E. LAL3

REVISION DESCRIPTION: REVISED PER DDH-2302

ELECTRICAL SCHEMATIC DIAGRAM TURBINE CONTROL

DWG SCALE: BILL OF MATL: SUPDS: SUPSD BY: DRAWING SHEET PAGE REV: 441253 1 0 24

PACIFIC GAS AND ELECTRIC COMPANY
 SAN FRANCISCO, CALIFORNIA