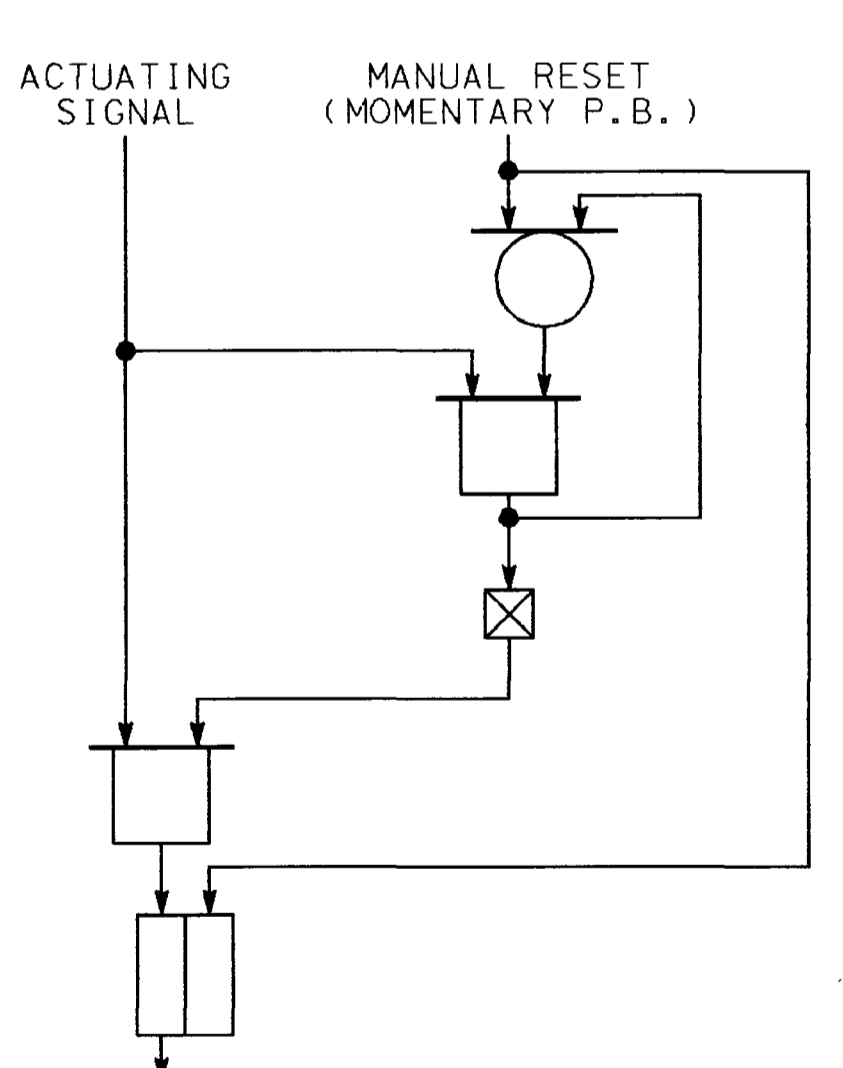


LOGIC SYMBOLS

SYMBOL	LOGIC FUNCTION
	AND A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN EVERY INPUT EXISTS.
	NOT A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN THE INPUT DOES NOT EXIST.
	OR A DEVICE WHICH PRODUCES AN OUTPUT WHEN ONE INPUT (OR MORE) EXISTS.
	OFF RETURN MEMORY A DEVICE WHICH RETAINS THE CONDITION OF OUTPUT CORRESPONDING TO THE LAST ENERGIZED INPUT, EXCEPT UPON INTERRUPTION OF POWER IT RETURNS TO THE OFF CONDITION.
	RETENTIVE MEMORY A DEVICE WHICH RETAINS THE CONDITION OF OUTPUT CORRESPONDING TO THE LAST ENERGIZED INPUT (ALSO UPON INTERRUPTION OF POWER).
	ADJUSTABLE TIME DELAY ENERGIZING A DEVICE WHICH PRODUCES AN OUTPUT FOLLOWING DEFINITE INTENTIONAL TIME DELAY AFTER RECEIVING AN INPUT.
	ADJUSTABLE TIME DELAY DE-ENERGIZING A DEVICE WHICH CONTINUES TO PRODUCE AN OUTPUT FOR A DEFINITE INTENTIONAL PERIOD OF TIME AFTER THE INPUT HAS BEEN REMOVED.
	COINCIDENCE (2 OUT OF 3 SHOWN) A DEVICE WHICH PRODUCES AN OUTPUT WHEN THE PRESCRIBED NUMBER OF INPUTS EXIST (EXAMPLE 2 INPUTS MUST EXIST FOR AN OUTPUT).
	RETENTIVE MEMORY WITH MANUAL RESET A DEVICE HAVING THE LOGICAL FUNCTION AS INDICATED BY THE DIAGRAM BELOW.



ADDITIONAL SYMBOLS

INSTRUMENT CHANNEL BISTABLE; A TAG NOTATION OF "I" INDICATES A GENERIC BISTABLE ASSOCIATED WITH A GENERIC OR TYPICAL FUNCTION BLOCK

INDICATES THAT THE DEVICE OR INSTRUMENT CHANNEL HAS A BISTABLE LOGIC "I" OUTPUT WHEN:

- PARAMETER MEASURED IS GREATER THAN A PRESET VALUE
- PARAMETER MEASURED IS LESS THAN A PRESET VALUE
- PARAMETER MEASURED DEVIATES FROM A PRESET VALUE BY MORE THAN A PRESET AMOUNT.

OR

SAME AS ABOVE EXCEPT WITH AN AUTOMATICALLY SET VARIABLE VALUE

SAME AS ABOVE EXCEPT WITH REQUIRED HYSTERESIS BETWEEN TURN ON AND TURN OFF.

NON-INSTRUMENT BISTABLE

OUTPUT INDICATOR SAME AS EXPLAINED ABOVE

ALARM ANNUNCIATOR (ALARMS ON THE SAME SHEET WITH THE SAME SUBSCRIPT SHARE A COMMON ANNUNCIATOR WINDOW)

REACTOR TRIP "FIRST OUT" ANNUNCIATOR

TURBINE TRIP "FIRST OUT" ANNUNCIATOR

COMPUTER INPUT

INDICATOR LAMP

- T TRIP STATUS LIGHTS
- P PERMISSIVE STATUS LIGHTS
- B BYPASS STATUS LIGHTS
- A ACTUATION SIGNAL LIGHTS

LOGIC INFORMATION TRANSMISSION

ANALOG INFORMATION TRANSMISSION; REAL VARIABLE FOR DIGITAL SYSTEM

ANALOG DISPLAY

- I ANALOG INDICATOR
- R RECORDER
- R2 RECORDER 2 CHANNEL
- R3 RECORDER 3 CHANNEL
- R8 RECORDER 8 POINT

ANALOG SUMMER

A DEVICE WHICH PERMITS AN ANALOG SIGNAL TO PASS IN AN ISOLATED CIRCUIT IF THE CONTROL LOGIC INPUT EXISTS.

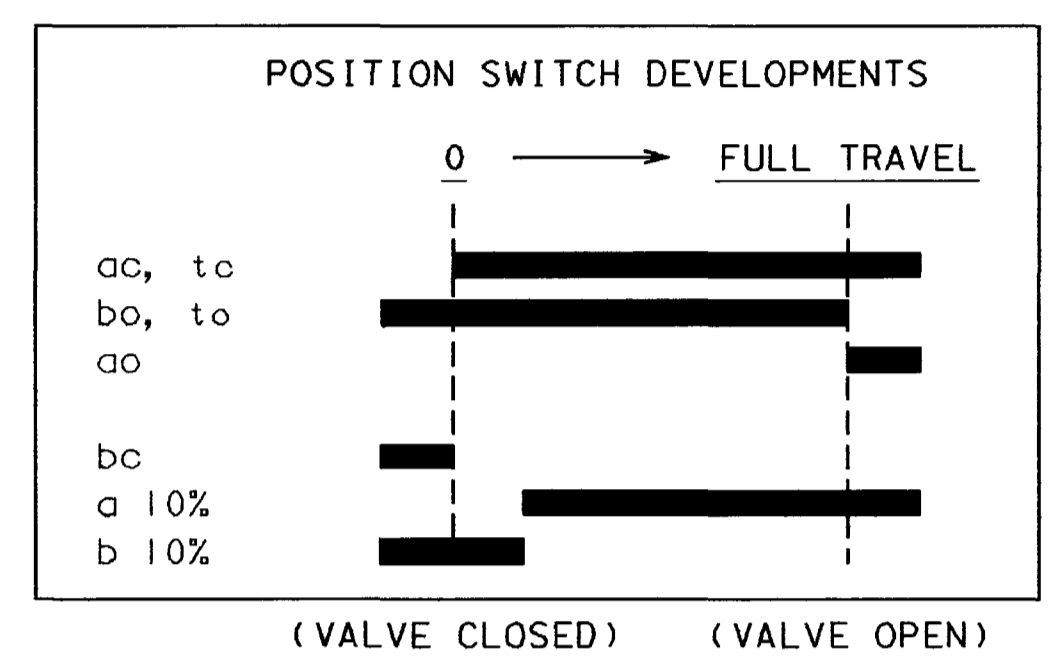
SIGNAL MULTIPLICATION FUNCTION $C=A \cdot B$

LOGIC ACTUATED SWITCHING FUNCTION $C=B$ IF $D=1$
 $C=A$ IF $D=0$

FUNCTION GENERATOR $B=f(A)$

DEVICE FUNCTION LETTERS AND NUMBERS

DC	POSITION (DISPLACEMENT) CHANNEL	63	PRESSURE SWITCH
FC	FLOW CHANNEL	71	LEVEL SWITCH
LC	LEVEL CHANNEL	80	FLOW SWITCH
NC	NUCLEAR CHANNEL	81	UNDERFREQUENCY RELAY
PC	PRESSURE CHANNEL		
RC	RADIATION CHANNEL		
TC	TEMPERATURE CHANNEL		
20	ELECTRIC OPERATED VALVE		
27	UNDERVOLTAGE RELAY		
33	POSITION SWITCH		
	SUFFIX LETTER:		
	ac, ao, bc, bo - LIMIT SWITCH		
	tc, to, - TORQUE SWITCH		



- 52 AC CIRCUIT BREAKER SUFFIX LETTER:
- a AUXILIARY CONTACT - OPEN WHEN MAIN CONTACTS ARE OPEN
 - b AUXILIARY CONTACT - CLOSED WHEN MAIN CONTACTS ARE OPEN

NOTES

- EXCEPT WHERE INDICATED OTHERWISE THE FOLLOWING IS TRUE: ALL LOGIC CIRCUITS ARE REDUNDANT. ALL INSTRUMENT CHANNELS, BISTABLES, ANNUNCIATORS, COMPUTER INPUTS, AND INDICATOR LAMPS ARE NOT REDUNDANT. MANUAL CONTROL DO NOT HAVE REDUNDANT ACTUATORS, BUT DO HAVE REDUNDANT CONTACTS WHERE LOGIC IS REDUNDANT. ALL INDICATOR LAMPS, COMPUTER INPUTS & ANNUNCIATORS ARE CONNECTED TO BOTH TRAINS SO THAT A SIGNAL IN EITHER TRAIN WILL ACTUATE.
- THIS SET OF DRAWINGS IS IDENTICAL FOR UNITS 1 & 2 EXCEPT FOR THE TAG NUMBERS. FOR UNIT 1, TAG NUMBERS ADD A "1". EXAMPLE: IPC-455E FOR UNIT 2, TAG NUMBERS ADD A "2". EXAMPLE: 2PC-455E
- WHENEVER A PROCESS SIGNAL IS USED FOR CONTROL AND IS DERIVED FROM A PROTECTION CHANNEL, ISOLATION MUST BE PROVIDED.
- THIS DRAWING ILLUSTRATES THE FUNCTIONAL REQUIREMENTS OF THE REACTOR CONTROL AND PROTECTION SYSTEM. THIS DRAWING DOES NOT REPRESENT ACTUAL HARDWARE IMPLEMENTATION. FOR HARDWARE IMPLEMENTATION, REFER TO THE APPLICABLE SCHEMATIC.
- SHEET NUMBERS REFER TO THE REFERENCE NUMBERS BELOW.

REFERENCES

WE DWG	PG&E DWG
1. FUNCTIONAL LOGIC DIAGRAM INDEX AND SYMBOLS	5653074-1 495871
2. FUNCTIONAL LOGIC DIAGRAM REACTOR TRIP SIGNALS	5653074-2 495872
3. FUNCTIONAL LOGIC DIAGRAM NUCLEAR INSTR AND MANUAL TRIP SIGNALS	5653074-3 495873
4. FUNCTIONAL LOGIC DIAGRAM NUCLEAR INSTR PERMISSIVES AND BLOCKS	5653074-4 495874
5. FUNCTIONAL LOGIC DIAGRAM PRIMARY COOLANT SYSTEM TRIP SIGNALS	5653074-5 495875
6. FUNCTIONAL LOGIC DIAGRAM PRESSURIZER TRIP SIGNALS	5653074-6 495876
7. FUNCTIONAL LOGIC DIAGRAM STEAM GENERATOR TRIP SIGNALS	5653074-7 495877
8. FUNCTIONAL LOGIC DIAGRAM SAFEGUARDS ACTUATION SIGNALS	5653074-8 495878
9. FUNCTIONAL LOGIC DIAGRAM ROD CONTROLS AND ROD BLOCKS	5653074-9 495879
10. FUNCTIONAL LOGIC DIAGRAM STEAM DUMP CONTROL	5653074-10 495880
11. FUNCTIONAL LOGIC DIAGRAM PRESSURIZER PRESSURE AND LEVEL CONTROL	5653074-11 495881
12. FUNCTIONAL LOGIC DIAGRAM PRESSURIZER HEATER CONTROL	5653074-12 495882
13. FUNCTIONAL LOGIC DIAGRAM FEEDWATER CONTROL AND ISOLATION	5653074-13 495883
14. FUNCTIONAL LOGIC DIAGRAM FEEDWATER CONTROL AND ISOLATION	5653074-14 495884
15. FUNCTIONAL LOGIC DIAGRAM AUXILIARY FEEDWATER PUMPS STARTUP	5653074-15 495885
16. FUNCTIONAL LOGIC DIAGRAM TURBINE TRIPS, RUNBACKS & SIGNALS	5653074-16 495886
17. FUNCTIONAL LOGIC DIAGRAM AMSAC SIGNALS	5653074-17 495887
18. FUNCTIONAL LOGIC DIAGRAM SEISMIC TRIP	8759077 495888
19. FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS INPUT SIGNAL VALIDATION	5653074-18 495889
20. FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS FW FLOW CONTROLLER & CV DEMAND	5653074-19 495890
21. FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS CONT VCV SEQ & TRACKING LOGIC	5653074-20 495891
22. FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS SIGNAL SELECTOR LOGIC	5653074-21 495892
23. DRAWING INDEX SOLID STATE PROTECTION SYS INTERCONNECTION & SCHEM. DIAGRAM	1080442-1 458826

DWG TYPE: 4
SUBJECT: 14
DRAWING TITLE: INDEX AND SYMBOLS
UNIT NO.: 2
PROJECT: DIABLO
INSTALLATION: 45-50
DIVISION: 51
MISC: 52
CODE: 53
MAN HOURS: 5556
CADD: 57
59
DRAWING SOURCE: A
70

1 Bruce A. Grosse
REGISTERED ENGINEER
Signature
CA REG NO. 49988
EXP DATE 1/30/91

KEY DWG--SECTION 3 UNIT 2
APPROVED (M) BY: SUPV L. HOLLOWAY
DESIGNER: M. HOLLOWAY
CHECKED BY: A. L. LIM
DATE: 1/30/91
SCALE: NONE
FUNCTIONAL LOGIC DIAGRAM INDEX AND SYMBOLS
DIABLO CANYON DEPARTMENT OF ENGINEERING
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA
COAST VALLEYS DIVISION
MICROFILM
BILL OF MATL
DWG LIST
SUPDS 663195-18
SUPSD BY
SHEET NO. 495871
SHEETS

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	5-20-91	SUPERSEDED DWG 663195-18 (000-EE-45000) REV PER AB BUILT (002-EE-42250)													