

FIG. 2  
TYPICAL DC MOTOR OPERATED VALVE AND MOTOR CONTROL CENTER

APPROVED DRAWING  
REVISIONS  
COMMENTS  
CHECKED BY  
DATE

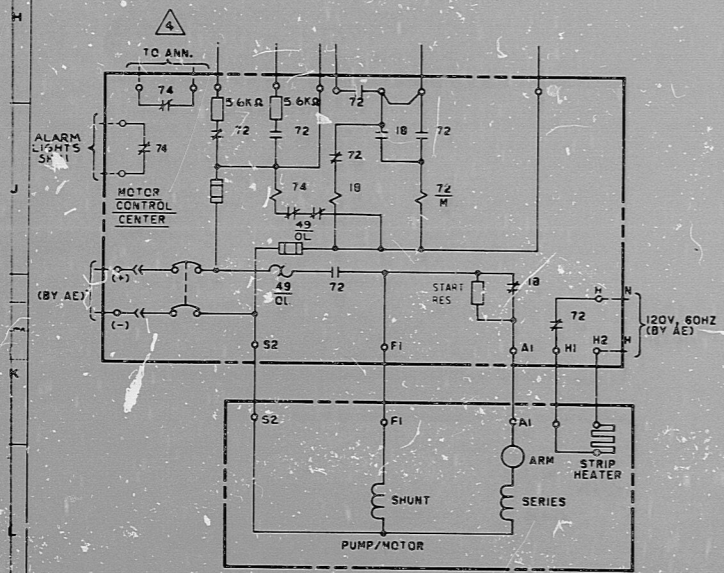


FIG. 1  
DC PUMP AND MOTOR CONTROL CENTER

LIMIT TORQUE SWITCH CONTACT DEVELOPMENT

CONTACT NUMBER	VALVE POSITION		FUNCTION
	FULL OPEN	FULL CLOSED	
LS1			BY-PASS EXT
LS2			SPARE
LS3			IND LIGHT
LS4			OPEN LIMIT
LS5			BY-PASS EXT
LS6			SPARE
LS7			IND LIGHT
LS8			SPARE
LS9			SPARE
LS10			SPARE
LS11			SPARE
LS12			SPARE
LS13			SPARE
LS14			SPARE
LS15			SPARE
LS16			SPARE

ROTORS 3 & 4 (CONTACTS LS9 THRU LS12 & LS13 THRU LS16) CAN BE SET AT VALVE POSITION FULL OPEN, FULL CLOSED OR ANY POSITION IN BETWEEN AS INDICATED BY POINTS A & B

LEGEND:  
TS17: CLOSING TORQUE SWITCH INTERRUPTS CONTROL CIRCUIT IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE OR FULLY CLOSED VALVE.  
TS18: OPENING TORQUE SWITCH INTERRUPTS CONTROL CIRCUIT IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE.

--- CLOSE CONTACT  
--- OPEN CONTACT  
--- LOCATION: USED ONLY WHEN NECESSARY FOR CLARITY.  
--- PART NO. OR TERM. NUMBER SYSTEM NO. OR TERM. NO. IDENT.  
--- MATCH NUMBER ZONE SHEET  
--- XXX: INDICATES PGCC LINE CODES

(NOTE CONT.)  
WIRES MAY BE BUNDLED TOGETHER BUT MUST BE SEPARATED BY SIX INCH MINIMUM FROM ALL OTHER WIRING OR RUN IN FLEX CONDUIT. FREE BUNDLE WHERE NECESSARY TO AVOID RETURNING IN DUCTS WITH OTHER WIRING. RUN WIRES IN CONDUIT TO MEET REQUIREMENTS OF REF. B FOR ISOLATION VALVE.

PUMP, VALVE AND CONTROL TABULATION

REF DESIG	FUNCTION	SWITCH	INDICATOR LAMPS			LOCATION
			RED	AMBER	OTHER	
E41-F002	MO VALVE STEAM SUPPLY LINE ISOL INBOARD	S1	X	X		H12-P601-22C 7
E41-F003	MO VALVE STEAM SUPPLY LINE ISOL OUTBOARD	S2	X	X		H12-P601-22C 7
E41-F001	MO VALVE STEAM TO TURBINE	S3	X	X		H12-P611-22C 7
E41-F004	MO VALVE PUMP SUCTION FROM CND5 STG TANK	S4	X	X		H12-P601-22C 8
E41-F006	MO VALVE PUMP DISCHARGE	S5	X	X		H12-P601-22C 8
E41-F007	MO VALVE PUMP DISCHARGE	S6	X	X		H12-P601-22C 7
E41-F008	MO VALVE TEST BYPASS TO CND5 STG TANK	S7	X	X		H12-P601-22C 7
E41-F012	MO VLV MIN FLOW BY-PASS TO SUPR CHAMBER	S8	X	X		H12-P601-22C 7
E41-F011	MO VLV REDUNDANT SHUT-OFF TO CND5 STG TANK	S9	X	X		H12-P601-22C 8
E41-F042	MO VALVE PUMP SUCTION FROM SUPR CHAMBER	S11	X	X		H12-P601-22C 8
E41-F028	MO VLV STEAM LINE DRAIN ISOL VLV	S12	X	X		H12-P601-22C 9
E41-F029	MO VLV STEAM LINE DRAIN ISOL VLV	S18	X	X		H12-P601-22C 9
E41-F026	MO VLV CND5 PUMP DISCH DRAIN ISOL VLV	S13	X	X		H12-P601-22C 9
E41-F025	MO VLV CND5 PUMP DISCH DRAIN ISOL VLV	S29	X	X		H12-P601-22C 9
E41-F054	MO VLV DRAIN POT DRAIN TRAP BYPASS	S14	X	X		H12-P601-22C 9
.....	INITIATION SIGNAL RESET	S17			X WHT	H12-P601-22C 4
.....	AUTO ISOLATION SIGNAL RESET "B"	S18			X WHT	H12-P601-22C 5
.....	REMOTE TURBINE TRIP	S19			X WHT	H12-P601-22C 4
.....	AUXILIARY OIL PUMP	S20	X	X		H12-P601-22C 4,8
.....	VACUUM PUMP	S21	X	X		H12-P601-22C 7
.....	VACUUM TANK CND5 PUMP	S22	X	X		H12-P601-22C 7
.....	HANDUAL INITIATION	S23			X WHT	H12-P601-22C 4
.....	REAC HIGH WTR LVL SIG RESET	S25			X WHT	H12-P601-22C 4
E41-F059	MO VLV LUBE OIL COOLING WATER CONTROL VALVE	S26	X	X		H12-P601-22C 8
.....	TURBINE STOP VALVE	.....	X	X		H12-P601-22C 9
E41-F079	MO VALVE TURBINE EXHAUST	S27	X	X		H12-P601-22C 8
.....	AUTO ISOL SIGNAL RESET "A"	S30			X WHT	H12-P601-22C 5
.....	MANUAL ISOLATION	S32			X WHT	H12-P601-22C 5
.....	HPCI DIV A OUT OF SERVICE	S34A DS70	X		X GRN	H12-P601-22C 11
E41-F066	MO VALVE TURBINE EXHAUST	S31	X	X		H12-P601-22C 8,11
.....	REACTOR HIGH WATER LEVEL	.....	X		X WHT	H12-P620 5
.....	REACTOR HIGH WATER LEVEL	.....	X		X WHT	H12-P617 5
E41-F100	MO VALVE WARM-UP LINE ISOL (INDO)	S36	X	X		H12-P601-22C 9
E41-F075	MO VALVE TURBINE EXH AC BREAKER	S24	X	X		H12-P601-22C 8
.....	HPCI DIV B OUT OF SERVICE	S34B DS23	X		X GRN	H12-P601-22C 11
.....	DIV 2 MOV'S IN TEST PREP	S41			X WHT	H12-P601-22C 7
.....	DIV 1 MOV'S IN TEST PREP	S42			X WHT	H12-P601-22C 7
.....	HPCI ISOLATION DIV 1 ISOLATED	DS11			X GRN	H12-P601-22B 11
.....	HPCI LOGIC PWR FAIL DIV 1	DS18			X GRN	H12-P601-22B 11
.....	HPCI DIV 1 MOV'S IN TEST STATUS	DS19			X GRN	H12-P601-22B 11
.....	HPCI E41-F002 COUT SW IN CLOSED POS	DS30			X GRN	H12-P601-22B 11
.....	HPCI DIV 1 MOV OVERLOAD OR PWR LOSS IN CLOSED POS	DS32			X GRN	H12-P601-22B 11
.....	HPCI E41-F006 CONT SW IN CLOSED POS	DS21			X GRN	H12-P601-22B 11
.....	HPCI LOGIC PWR FAILURE DIV 2	DS27			X GRN	H12-P601-22B 11
.....	HPCI INVERTER FAILURE	DS42			X GRN	H12-P601-22B 11
.....	HPCI IN TEST STATUS	DS26			X GRN	H12-P601-22B 11
.....	HPCI E41-F003 CONT SW IN CLOSED POS	DS31			X GRN	H12-P601-22B 11
.....	HPCI DIV 2 MOV'S IN TEST STATUS	DS28			X GRN	H12-P601-22B 11
.....	HPCI DIV 2 MOV OVERLOAD OR PWR LOSS IN CLOSED POS	DS25			X GRN	H12-P601-22B 11
.....	HPCI ISOL DIV 2 INITIATED	DS24			X GRN	H12-P601-22B 11

ES DEPT. HPCI SYSTEM  
GENERAL ELECTRIC 791E420AE  
HPCI SYSTEM  
GENERAL ELECTRIC 791E420AE  
OVERALL REVISION 15

INDEX

SH. NO.	INDEX CONTENT
1	MCC AND PUMP TYPICALS AND CONTROL TABULATIONS, NOTES AND REFERENCES.
2	SWITCH DEVICES, RELAY TABULATIONS AND PUMP POWER DISTRIBUTION AND RECORDER.
3	LOGIC CIRCUITS.
4	TURBINE CONTROL AND LOCAL TRANSMITTERS, PUMP AND VALVES.
5	PUMP AND VALVES.
6	VALVES, ANNUNCIATORS.
10	ANNUNCIATORS.
11	ANNUNCIATORS.

- NOTES
- SEE FIG. 1 FOR DC MOTOR CONTROL UNIT INTERNAL CIRCUITRY.
  - SEE INDIVIDUAL VALVE CIRCUITS (BACK SHEETS) FOR APPLICATION TO REF. 15.
  - SUPPLIED WITH TURBINE.
  - VALVE AND PUMP MOTORS SHALL BE PROTECTED BY OVERLOAD TRIPS AND LOSS OF CONTROL POWER ALARMS.
  - ALL MOTOR OPERATED VALVES SHALL HAVE STATUS LIGHTS ON THE CONTROL ROOM PANELS AS FOLLOWS:  
RED ON FOR OPEN POSITION  
RED AND AMBER FOR INTERMEDIATE POSITION  
AMBER ON FOR CLOSED POSITION
  - INDIVIDUAL TWO CONDUCTOR CABLE TO BE RUN IN FIELD UP TO PGCC TERMINATION CABINET.
  - SEE SH. 3 FIG. 9 FOR POWER DISTRIBUTION.
  - SEE SH. 3 FIG. 4 FOR POWER DISTRIBUTION.
  - SEE SH. 3 FIG. 10 FOR POWER DISTRIBUTION.
  - TO 99 RELAYS IN OTHER MCC'S CONTAINING MOV STARTERS FOR VALVES IN THE SAME SYSTEM AND DIVISION, IF REQUIRED.
  - INTRA PANEL PROCESS INSTRUMENTATION (4-20MA) SIGNAL LEADS SHALL BE BUNDLED & ROUTED SEPARATELY FROM AC & DC POWER WIRING.
  - WIRE AND CABLE SHALL BE PER REF. NO. 12.
  - SWITCH CONTACTS AND LIGHTS SHALL BE ENCLOSED IN A METAL CONTAINER AND WIRING RUN IN CONDUIT.
  - PLUGS 1 & 4 ARE JUMPERED IN TEST PLUG, REF. 14.
  - STATUS LIGHTS TO BE LOCATED BELOW HPCI ANNUNCIATOR. STATUS LIGHTS ARE JAWEL MARK IT'S WITH INTEGRAL TEST SWITCH 1/20 VAC NEON LAMPS.
  - PUMPS SHALL HAVE STATUS LIGHTS ON CONTROL ROOM PANELS AS FOLLOWS:  
RED ON FOR PUMP RUNNING  
AMBER ON FOR PUMP STOPPED
  - SEE SH. 3 FIG. 9 FOR POWER DISTRIBUTION.
  - SEE SH. 3 FIG. 6 FOR POWER DISTRIBUTION.
  - SEE SH. 3 FIG. 7 FOR POWER DISTRIBUTION.
  - UNLESS OTHERWISE INDICATED, THE FOLLOWING REFERENCE DESIGNATIONS SHOWN ON THIS DIAGRAM ARE PREFIXED WITH E41A LATEST USED DS '93
- REF. DESIGN. NAME
- |      |                        |
|------|------------------------|
| DSXX | INDICATING LAMP        |
| RSXX | ROUSE                  |
| FLXX | FLY                    |
| SWXX | SWITCH                 |
| JACK | JACK                   |
| SRXX | SIGNAL RESTORER UNIT   |
| LINE | LINE CODE (SEE LEGEND) |
- UNLESS OTHERWISE SPECIFIED, INDICATING LIGHTS ARE PD199B4054.
  - INDICATING LIGHTS ARE C5 TYPE ET16 AND SUPPLIED WITH 74EL.
  - ALL PGCC LIGHTS ARE ESS-2 UNLESS OTHERWISE SPECIFIED.
  - TERMINAL BLOCKS WITHIN PANEL H12-P617 (DIV. 1) CONNECTING TO PANEL H12-P620 (DIV. 2) MUST BE SEPARATED BY A MINIMUM OF 10 INCHES FROM ALL OTHER DIV. 1 TERMINAL BLOCKS & WIRING.
  - TERMINAL BLOCKS WITHIN PANEL H12-P620 (DIV. 2) CONNECTING TO PANEL H12-P617 (DIV. 1) MUST BE SEPARATED BY A MINIMUM OF 10 INCHES FROM ALL OTHER DIV. 2 TERMINAL BLOCKS & WIRING.
  - SHIELDED TWISTED PAIR CABLE IS SUPPLIED AS PART OF PGCC WIRING IN ANNUNCIATOR CIRCUIT. THE SHIELDS TO BE GROUNDED AT THE REMOTE ELECTRONICS. (NOTE: CONT. SEE ZONE A-9 THIS SHEET)
- REFERENCE DOCUMENTS (NOTE: CONT. SEE ZONE A-9 THIS SHEET)
- MPL 4 DRAWING NOS.
- E41-1010 HPCI SYSTEM PAID
  - B21-1010 NUCLEAR ROILER #4 ID
  - E41-1010 NUCLEAR SPRAY SYS ELEM DIAG
  - B21-1030 STEAM LEAK DETECTION SYS ELEM DIAG
  - VPP-2763-22 TURBINE INSTRUMENT WIRING DIAG
  - VPP-2763-23 TURBINE INSTRUMENT WIRING DIAG
  - A41-1010 TURB VIBRATION DETECTION FOR SAFEGUARD SYS
  - VPP-2763-23 TURB VIBRATION DETECTION WIRING DIAG
  - E41-1010 HPCI FC
  - E11-1040 RHR SYS ELEM DIAG
  - A41-1010 NUCLEAR SPRAY SYS SPECIFICATION
  - B21-1010 NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM ELEM DIAG
  - A41-1010 TEST SWIR & ASSEMBLY
  - A41-1010 MOV & MCC STANDARDS
  - E41-1010 HPCI ELEM DIAG
  - B21-1060 AUTO DEPRESSURIZATION SYS ELEM DIAG

RECORDS-MYLAR UNIT 2

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

8856-M1-E41-59 (1)-16

UNCONTROLLED DOCUMENT FOR REFERENCE ONLY

PRC APERTURE CARD

17  
11  
8.5  
58  
11

RIDS

8305250044

