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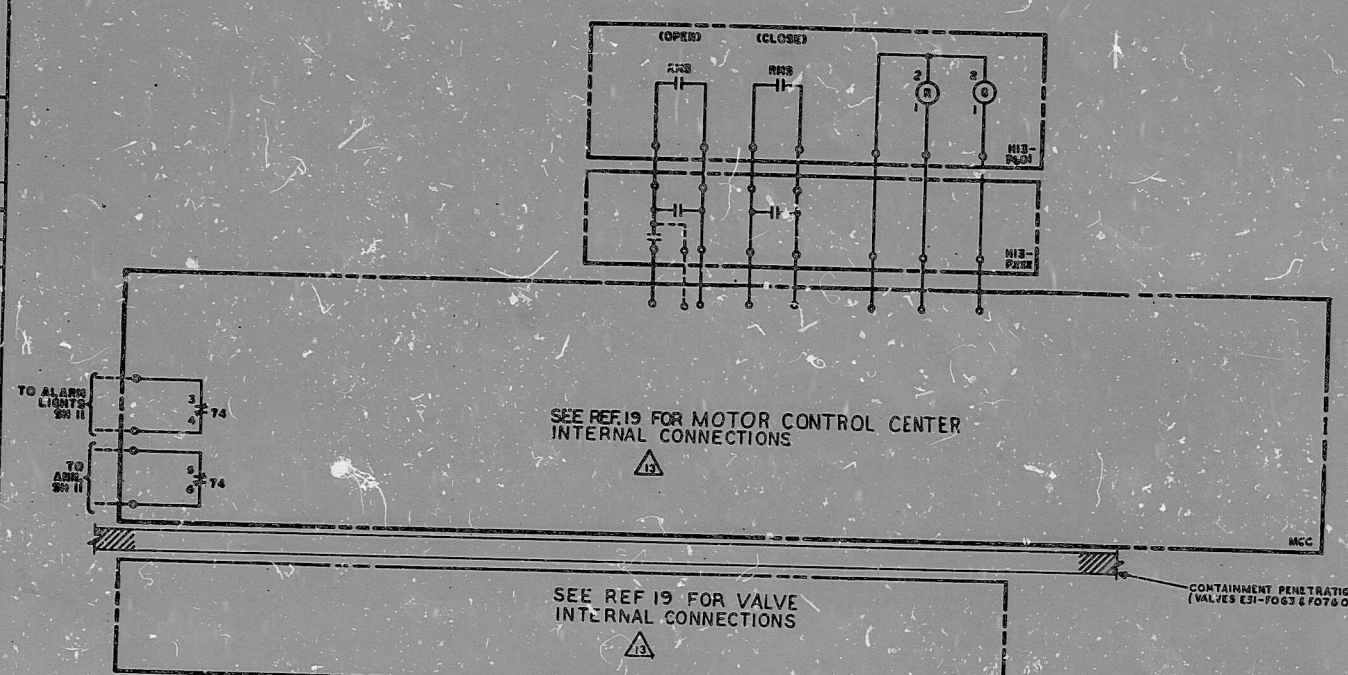


FIG. 1 TYPICAL MOTOR OPERATED VALVE AND MOTOR CONTROL CENTER

REF DESIG	DEVICE	INDICATOR LAMPS				LOCATION
		SWITCH	RED	GREEN	OTHER	
ES1-F063	NO VALVE STEAM SUPPLY LINE ISLN (INBOARD)	51	X	X	--	H13-P601 7
ES1-F064	NO VALVE STEAM SUPPLY LINE ISLN (OUTBOARD)	52	X	X	--	H13-P601 8
ES1-F045	NO VALVE STEAM TO TURBINE	53	X	X	--	H13-P601 8
ES1-F010	NO VALVE PUMP SUCTION FROM COND STORAGE TANK	54	X	X	--	H13-P601 8
ES1-F013	NO VALVE RCIC ISOLATION SHUTOFF	55	X	X	--	H13-P601 8
ES1-F022	NO VALVE TEST FCY TO COND STORAGE TANK	57	X	X	--	H13-P601 8
ES1-F046	NO VALVE RCIC TURBINE COOLING WATER SUPPLY	58	X	X	--	H13-P601 8
ES1-F019	MC VALVE HIGH FLOW TO SUPR POOL	59	X	X	--	H13-P601 8
ES1-F001	NO VALVE PUMP SUCTION FROM SUPR POOL	510	X	X	--	H13-P601 8
ES1-F025	AO VALVE (F-N BOARD) STEAM LINE DRAIN ISLN	527	X	X	--	H13-P601 8
ES1-F009	AO VALVE TURBINE EXH DRAIN ISLN (OUTBOARD)	512	X	X	--	H13-P601 9
ES1-F054	AO VALVE STEAM LINE COND DRAIN TRAP BYPASS	513	X	X	--	H13-P601 9
ES1-F065	TESTABLE CHECK VALVE	534	XX	XX	--	H13-P601 7
ES1-C1	BLIND SEAL SYSTEM AIR COMPRESSOR	515	X	X	--	H13-P601 7
-----	RCIC ISOLATION SIGNAL SEAL-IN RESET	516	--	--	7(MHT) X(MHT)	H13-P601 4
-----	TURBINE TRIP (MANUAL)	517	--	--	--	H13-P601 4
-----	RCIC INITIATION SIGNAL SEAL-IN RESET	518	--	--	X(MHT)	H13-P601 4
-----	RCIC DIV INOP	519	--	--	--	H13-P601 11
-----	MANUAL ISOLATION	520	--	--	--	H13-P601 4
ES1-F058	NO VALVE TEST RETURN TO COND STORAGE TANK	524	X	X	--	H13-P601 8
ES1-C002	TURBINE TRIP AND THROTTLE VALVE	526	X	X	--	H13-P601 8
ES1-F056	AO VALVE (OUTBOARD) STEAM LINE DRAIN ISLN	511	X	X	--	H13-P601 9
ES1-F004	AO VALVE TURBINE EXH DRAIN ISLN (INBOARD)	528	X	X	--	H13-P601 9
ES1-F065	TESTABLE CHECK VALVE	532	XX	XX	--	H13-P601 7
ES1-C003	WATER LEG PUMP	533	X	X	--	H13-P601 7
-----	RCIC DIV 2 INOP	534	--	--	--	H13-P601 11

REF DESIG	DESCRIPTION	SWITCH	RED	GREEN	OTHER	LOCATION
ES1-F068	NO VALVE FINE EXHAUST TO SUPR POOL	535	X	X	--	H13-P601 8
-----	RCIC 50VDC POWER TEST	548	--	--	--	H13-P63X 9
-----	MANUAL INITIATION	537	--	--	--	H13-P601 4
ES1-F078	NO VALVE STEAM LINE MARK UP LINE ISOLATION	538	X	X	--	H13-P601 7
ES1-F080	NO VALVE VAC BRK ISOLATION (OUTBOARD)	539	X	X	--	H13-P601 8
ES1-F084	NO VALVE VAC BRK ISOLATION (INBOARD)	540	X	X	--	H13-P601 8
-----	SUPERVISORY LIGHTS	--	X	X	--	H13-P601 9
-----	SUPERVISORY LIGHTS TRIP AND THROTTLE VLV	--	X	X	--	H13-P601 9
-----	RCIC BUS A POWER TEST	543A	--	--	--	H13-P621 5
-----	RCIC BUS B POWER TEST	543B	--	--	--	H13-P618 5

REFERENCE DOCUMENTS

1. ESK-1010 NUCLEAR ROILER P&ID.
2. ESK-1010 LEAK DETECTION SYSTEM IED, RCIC SYSTEM P&ID.
3. ESK-1010 LEAK DETECTION SYSTEM ELEMENTARY DIAGRAM (E3TA).
4. ESK-1050 RCIC FUNCTIONAL CONTROL DIAGRAM.
5. ESK-1030 RCIC FUNCTIONAL CONTROL DIAGRAM.
6. A02-4050 ELECT. EQUIP. SEPARATION FOR PROTECTION SYSTEMS.
7. VPP 3422-24-2 GOVERNOR CONTR. SYSTEM.
8. VPP 3422-16-1 TURBINE OVERSPEED TRIP.
9. VPP 3422-20-4 TURBINE WIRING DIAGRAMS.
10. A02-4010 SPECIAL WIRE AND CABLE SPECIFICATIONS.
11. ESK-1010 RESIDUAL HEAT REMOVAL SYSTEM ELEMENTARY DIAGRAM (E12A).
12. ESK-1050 REACTOR PROTECTION SYSTEM ELEMENTARY DIAGRAM (C7EA).
13. BY AE REMOTE SHUTDOWN SYSTEM ELEM DIAG. (E 51A).
14. 13802554 TEST SWITCH ASSEMBLY.
15. ESK-1050 NUCLEAR ROILER FCO LOW PRESSURE CORE SPRAY SYS ELEM DIAG.
16. ESK-1050 LOCAL INSTRUMENT PANELS.
17. A02-2150 RCIC & RCIC SEPARATION SCHEME MOV & MCC STANDARDS.
18. A02-2150 RCIC & RCIC SEPARATION SCHEME MOV & MCC STANDARDS.
19. A02-1070
20. DELETED
21. DELETED
22. C08-1050 ENGINEERING TEST AND INFORMATION SYSTEM.

NUCLEAR SAFETY RELATED DIV. 1,2

- NOTES:
1. DELETED.
  2. SEE FIG. 1 FOR TYPICAL MOTOR OPERATED VALVE AND MOTOR CONTROL CENTER. ALL NO-VALVES ARE DC UNLESS OTHERWISE SPECIFIED. SUPPLY WITH AND MOUNTED ON TURBINE ES1-C002.
  3. VALVE HAS ONE 8 LBS TORQUE SWITCHES.
  4. LIMIT SWITCH IS NOT PART OF LIMIT TORQUE VALVE CONTROL.
  5. SEE SH. 3, FIG. 6 FOR POWER DISTRIBUTION.
  6. SEE SH. 3, FIG. 7 FOR POWER DISTRIBUTION.
  7. SEE SH. 3, FIG. 8 FOR POWER DISTRIBUTION.
  8. INTRA PANEL PROCESS INSTRUMENTATION SIGNAL LEADS SHALL BE BUNDLED & ROUTED SEPARATELY FROM AC & DC POWER WIRING.
  9. SEE SH. 3, FIG. 9 FOR POWER DISTRIBUTION.
  10. SWITCH & LIGHT CONTACTS SHALL BE ENCLOSED IN A METAL CONTAINER & WIRE SHALL BE RUN IN CONDUIT TO AN ENCLOSED TERMINAL BOX WITH IN PANEL UNLESS A HIGH IMP. DIVISIONAL CLASSIFIED CABLE IS PROVIDED SEPARATELY FROM DISTRIBUTION PANEL FOR INVERTER.
  11. SEE REF 16 FOR POWER DISTRIBUTION.
  12. SEE INDIVIDUAL VALVE CIRCUITS (BACK SHEETS) FOR APPLICATION TO REF 19.
  13. UNLESS OTHERWISE SPECIFIED, THE FOLLOWING REFERENCE DESIGNATIONS SHOWN ON THIS SHEET ARE PREFERRED WITH THE FOLLOWING:
 

REF DESIG	NAME	NAME
CFE	CAPACITOR	RCE
FXR	FUSE	DCX
XX	RELAY	SDX
XX	RELAY	SDX
XX	SWITCH	CRX
XX	CABLE	CRX
  14. SEE SH. 3, FIG. 2 FOR POWER DISTRIBUTION.
  15. SEE SH. 3, FIG. 3 FOR POWER DISTRIBUTION.
  16. SEE SH. 3, FIG. 4 FOR POWER DISTRIBUTION.
  17. SEE SH. 3, FIG. 5 FOR POWER DISTRIBUTION.
  18. ALL INDICATING LIGHTS ARE OE TYPE E78 AND SUPPLIED WITH PANEL UNLESS OTHERWISE NOTED.
  19. DELETED
  20. DELETED
  21. SWITCH TO BE LOCATED BELOW LAMP BOX.
  22. SUPPLIED WITH TURBINE ES1-C002, THE ELECTRONICS PACKAGE (CONVERTER, CONTROL BOX AND RESISTOR ASSEMBLY) SUPPLIED ON A 2 1/4" X 1 1/4" X 1/4" GA STEEL PLATE. IS TO BE PERMANENTLY MOUNTED BY OTHERS A MAXIMUM OF 600 FT FROM THE TURBINE USING 16 GAUGE SHIELDED TWISTED CABLE. THE EQUIPMENT SHALL NOT BE SUBJECT TO CONDITIONS THAT EXCEED THE FOLLOWING:
    1. 150°F MAXIMUM
    2. SEISMIC LOADING OF 3 G'S DUAL AXIS IN BOTH HORIZONTAL AND VERTICAL DIRECTIONS.
  23. THE LOADS SHOWN ON POWER DISTRIBUTION CIRCUITS ARE ESTIMATED, NOT MEASURED QUANTITIES. AC LOADS ARE BASED ON 60 HZ, (SS = STEADY STATE, T = TRANSIENT).
  24. VALVES
    - A. ALL MOTOR OPERATED VALVES SHALL HAVE STATUS LIGHTS IN THE CONTROL ROOM AS FOLLOWS:
      - RED ON FOR OPEN POSITION
      - RED AND GREEN ON FOR INTERMEDIATE POSITION
      - GREEN ON FOR CLOSED POSITION
    - B. VALVE MOTORS ARE TO BE PROVIDED WITH OVERLOAD TRIPS AND ALARMS. IN ADDITION VALVE MOTOR CIRCUITS ARE TO BE PROVIDED WITH SHORT CIRCUIT PROTECTION.
  25. DELETED.
  26. DELETED.
  27. WIRE AND CABLING SHALL BE PER REF. NO. 10.
  28. DELETED.
  29. STATUS LIGHTS ARE MASTER SPECIALTY CO. IEC SERIES WITH INTEGRAL SWITCH (20V NEON LAMPS) AND ARE SUPPLIED WITH PANEL.
  30. SEE REF 11 FOR POWER DISTRIBUTION.
  31. DELETED.
  32. SEE REF. 13 FOR INTERCONNECTION TO REMOTE SHUTDOWN PANEL.
  33. PINS "1" & "2" AND "3" & "4" ARE JUMPED IN TEST PLUG, REF. 14.
  34. SEE REF. 11 AND 16 FOR POWER DISTRIBUTION TO ALL ISOLATORS AND TRIP UNITS.
  35. ALARMS TO BE RETRANSMITTED TO DOW COMPUTER PER S&W LOOP DIAG 21HC-3 COMPUTER I/O ALARM.
  36. SEE S&W ESK 75C103.
  37. INTERFACE TO BE OPTICAL ISOLATOR 22A0669 LINE CODES: NONE IN PANEL. H13-P639. SEE S&W ESK 75C103, ESK 111566. LAST LINE CODE USED: 168.
  38. ELECTRICAL SEPARATION NOT REQUIRED, BY ANALYSIS.

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