

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

SHEET 8 OF 21

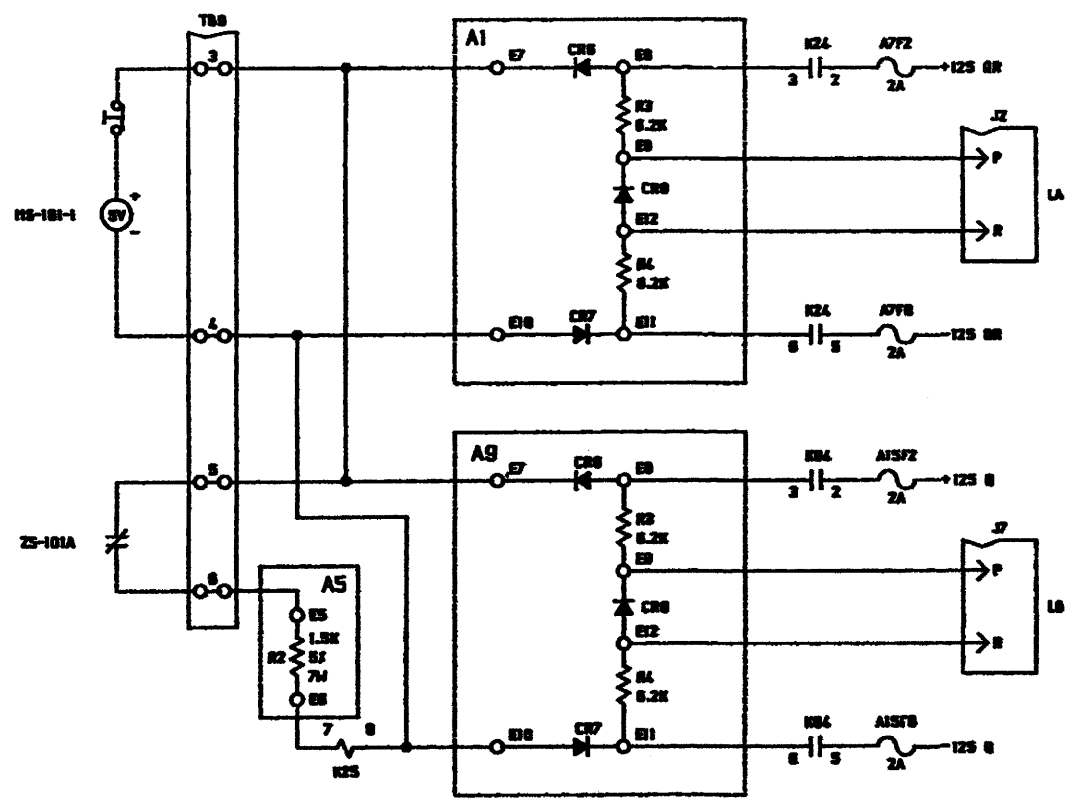
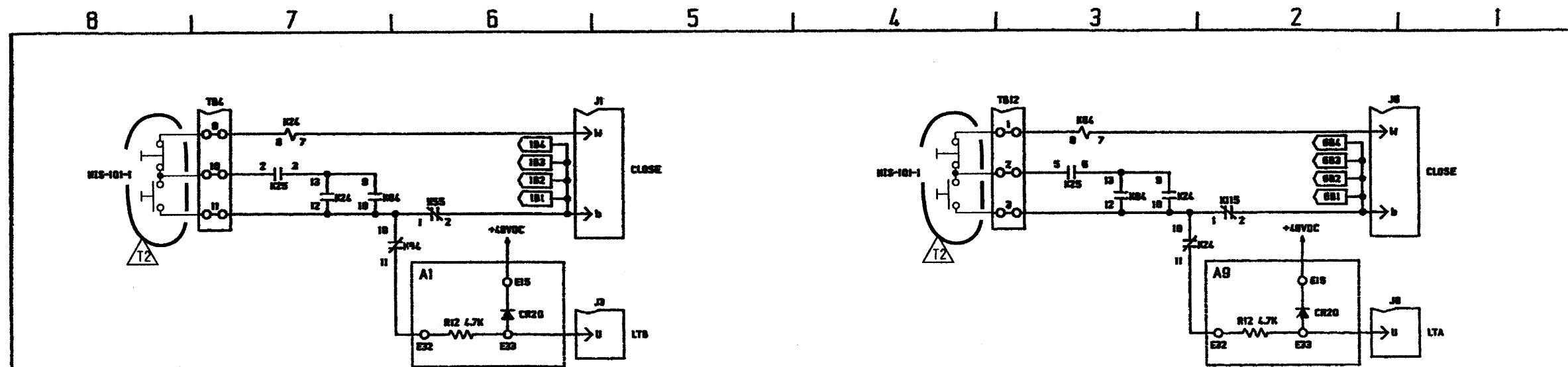
E-30AQ-012-8-3

TURBINE

NO.	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/10/01	FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.	GFB	RW	CER	MLB	LAG

FORM NO.	REV.	DATE
F 02750	S9N125	

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/2/01	FOR REVISION DESCRIPTION SEE SN'S. 14, 15, 20 & 21	AFB	RH	CEB	MLB	000

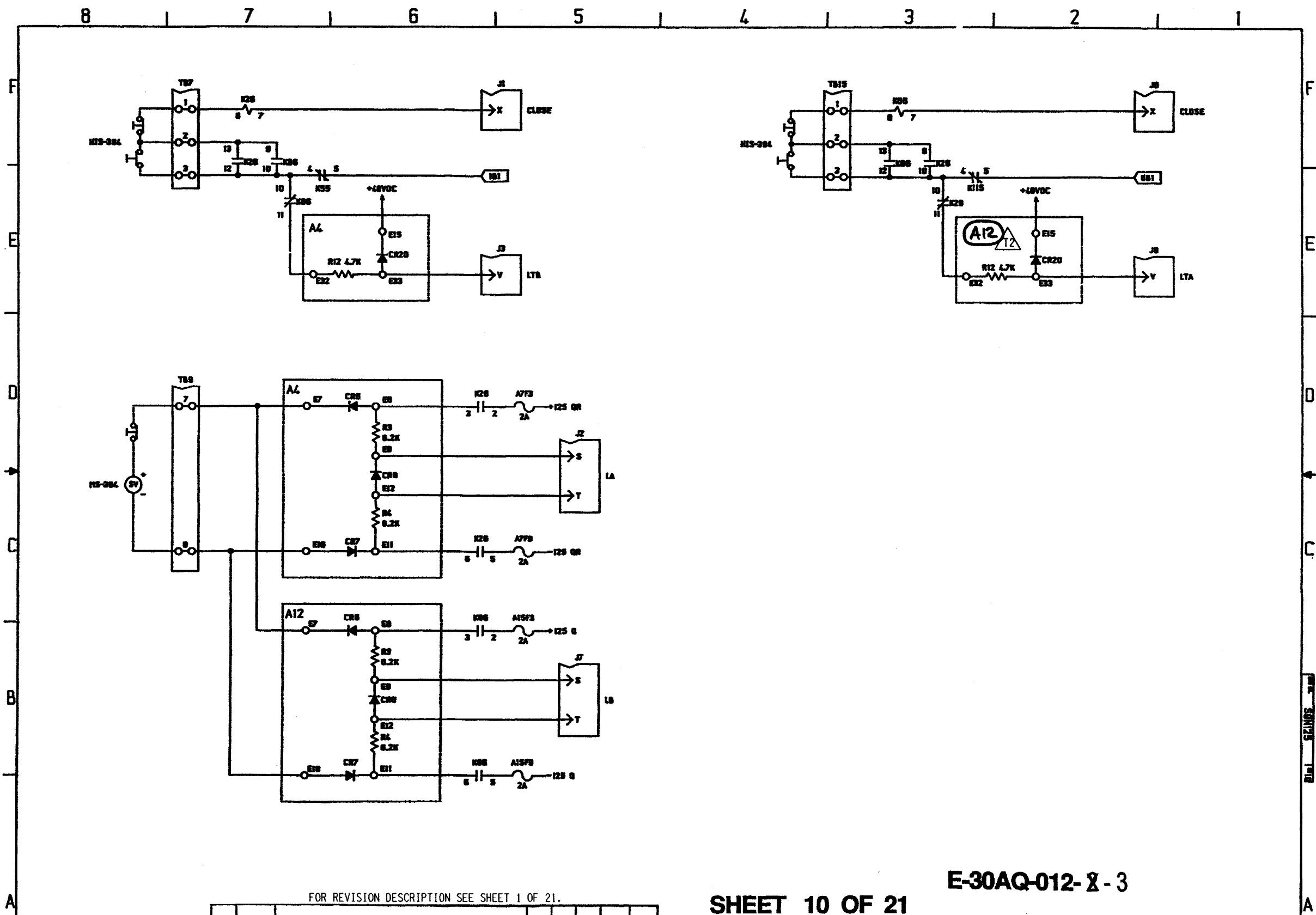
SHEET 9 OF 21

E-30AQ-012-8-3

MS-101-1

SCALE	1
DATE	02750
REV	S9N125

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

SHEET 10 OF 21

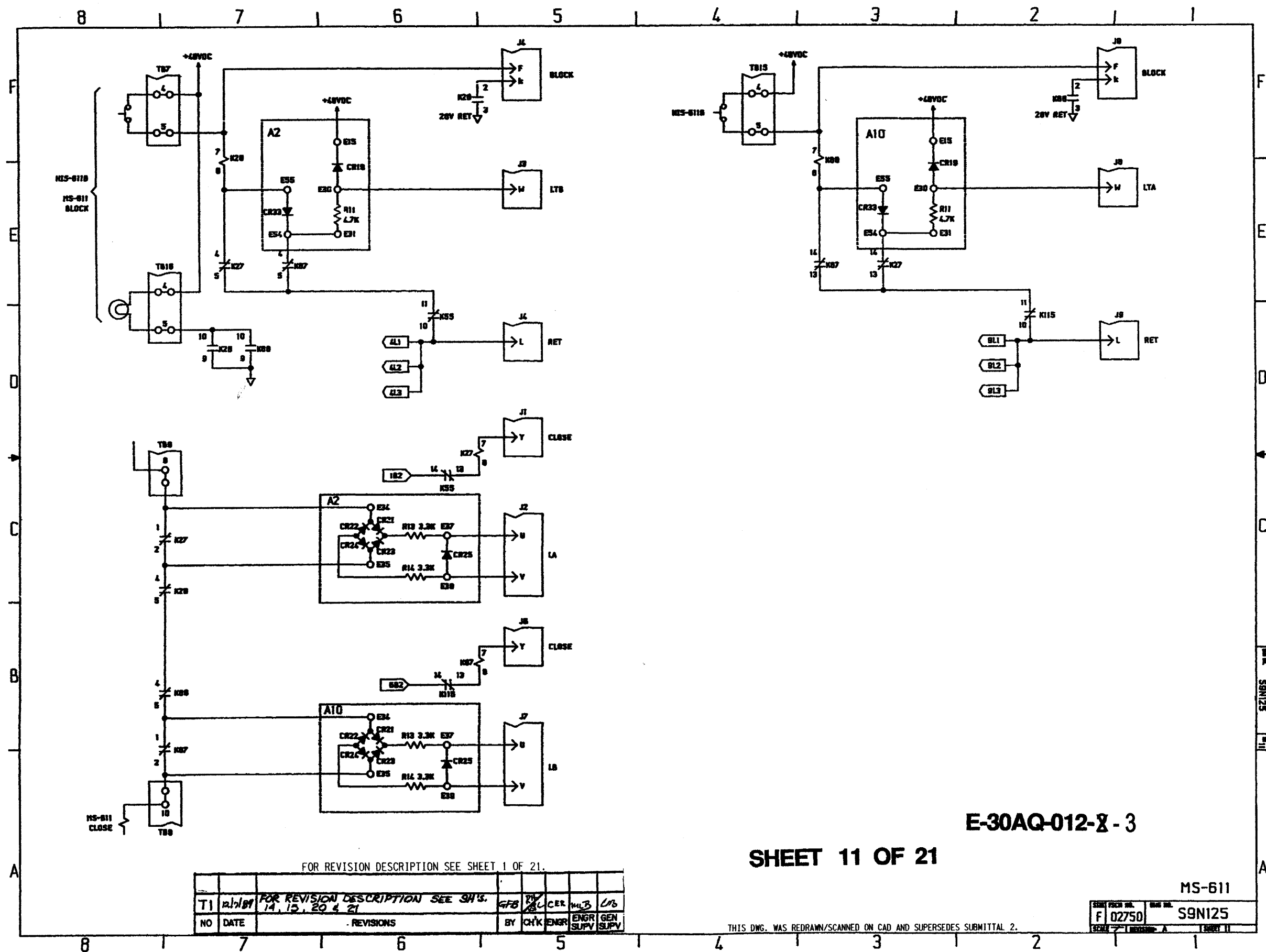
E-30AQ-012-8-3

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/01	FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21	GFB	RW	CR	WLS	CR

MS-394

FORM NO. 71	REV. NO. 1
F 02750	S9N125

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.



E-30AQ-012-8-3

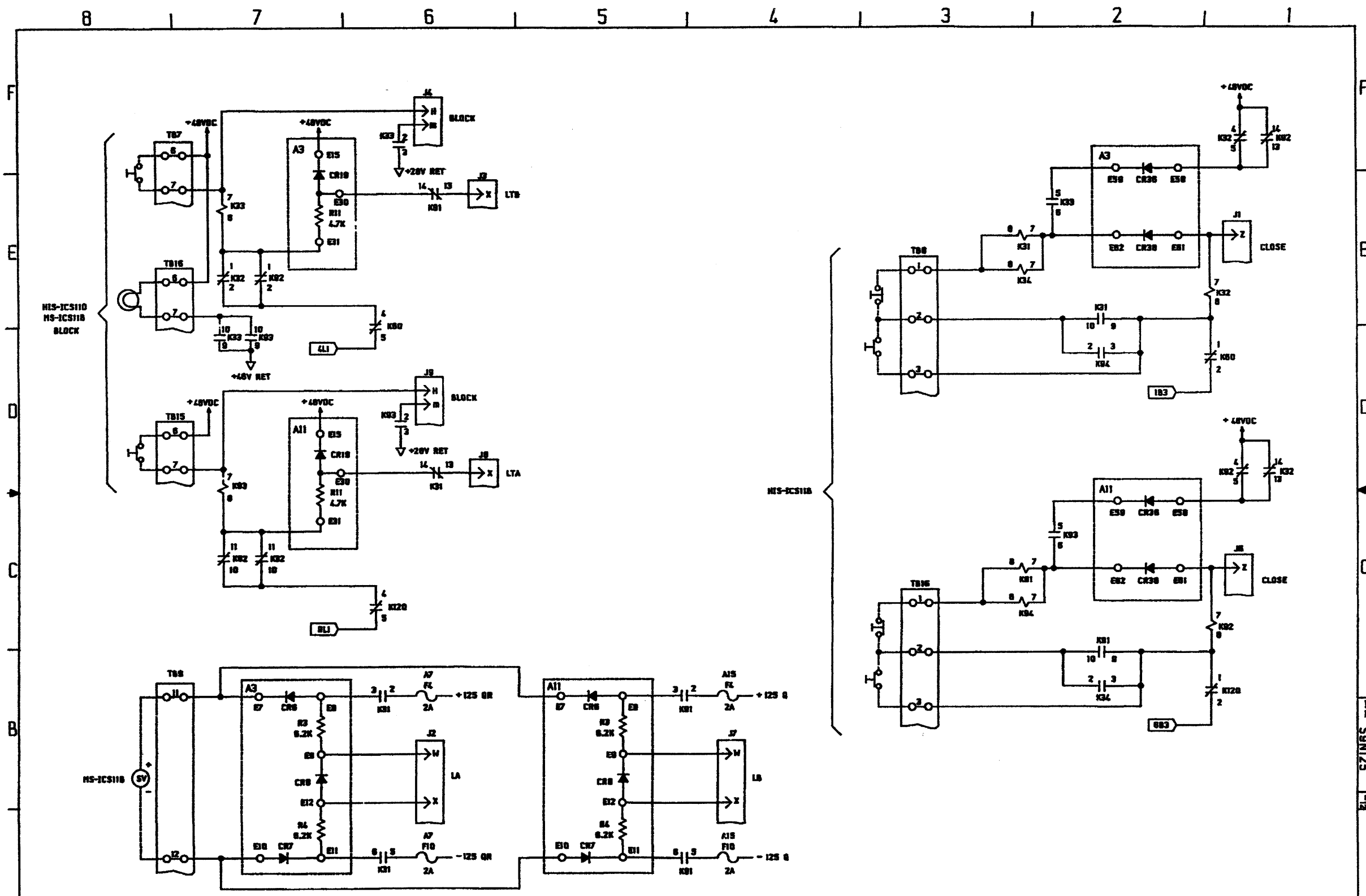
SHEET 11 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/81	FOR REVISION DESCRIPTION SEE SH'S 14, 15, 20 & 21	GFB	MLB	CER	MLB	Lrs

MS-611	
FORM NO. F 02750	REV. NO. S9N125
REV. A	REV. 11

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.



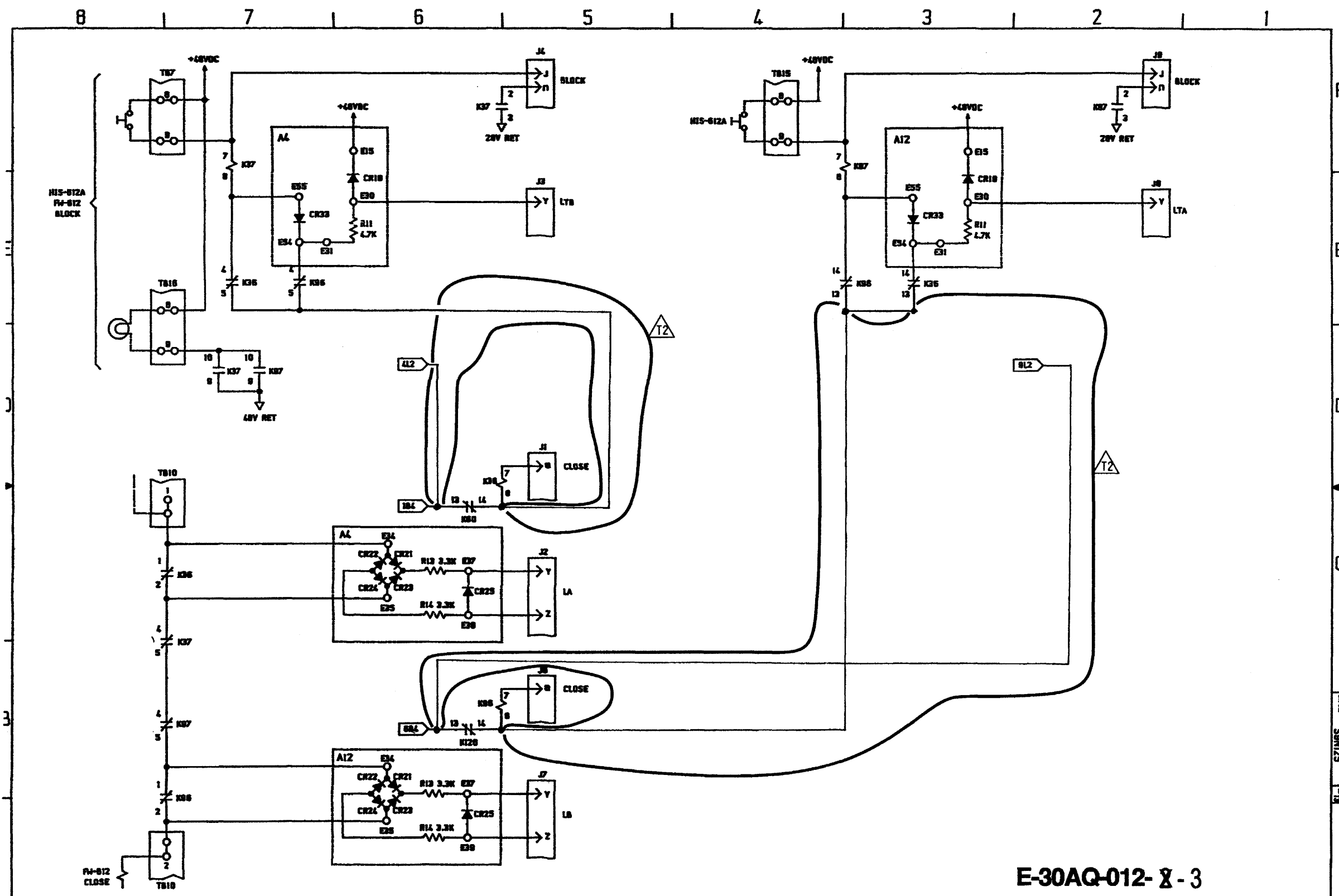
SHEET 12 OF 21 E-30AQ-012-8-3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/79	FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21	GFB	RK	CER	MJD	MRS

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

MS-ICS118	
SIZE	SCALE
F 02750	S9N125
DATE	ITER
12/1/79	12



E-30AQ-012-8-3

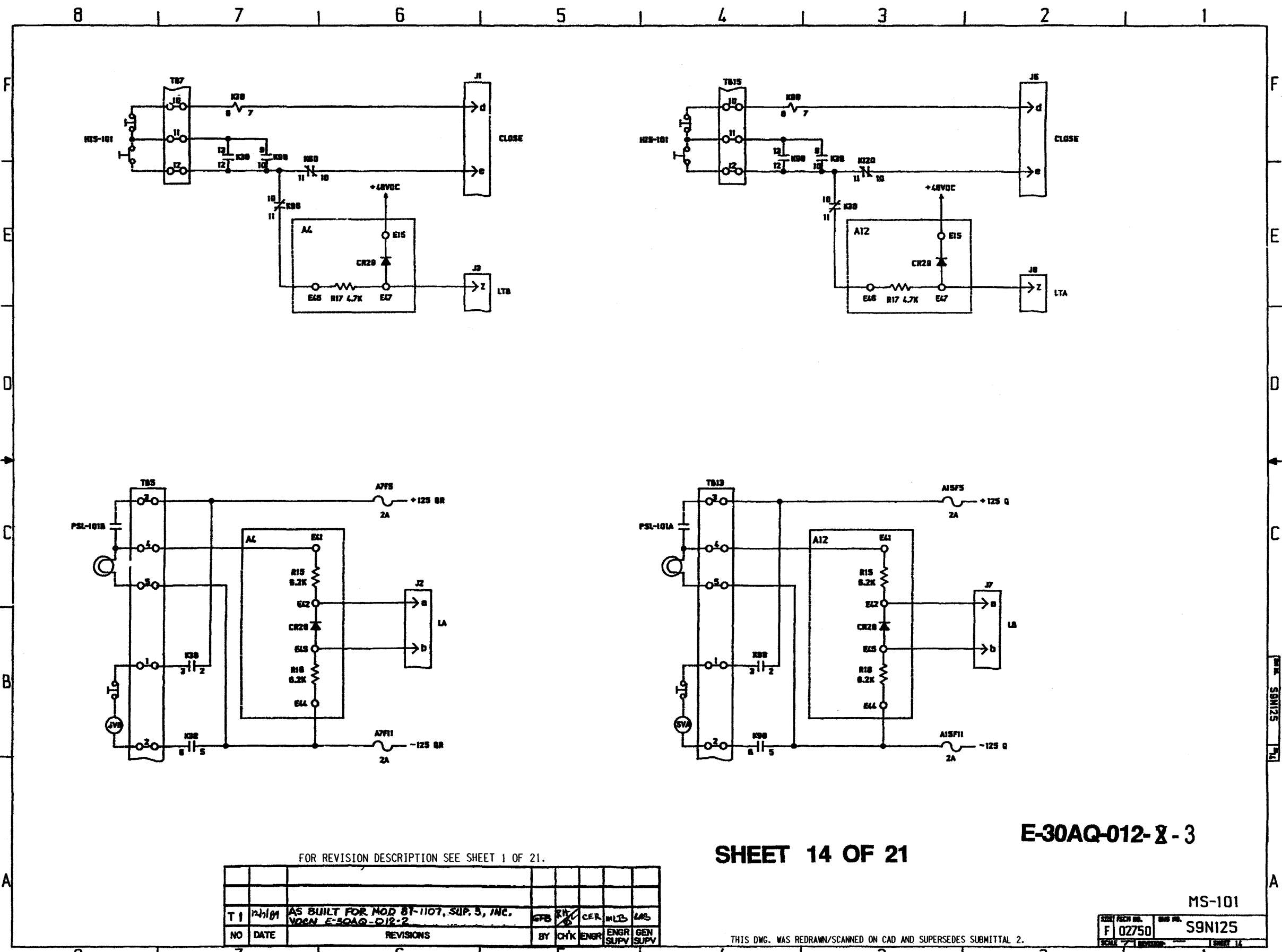
SHEET 13 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	11/10/09	FOR REVISION DESCRIPTION SEE SHS. 14, 15, 20 & 21	GFB	RY	CER	WJD	CR

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

FW-612	
FORM NO. F 02750	REV. NO. S9N125
SCALE 1:1	DATE 11/10/09



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

SHEET 14 OF 21

E-30AQ-012-8-3

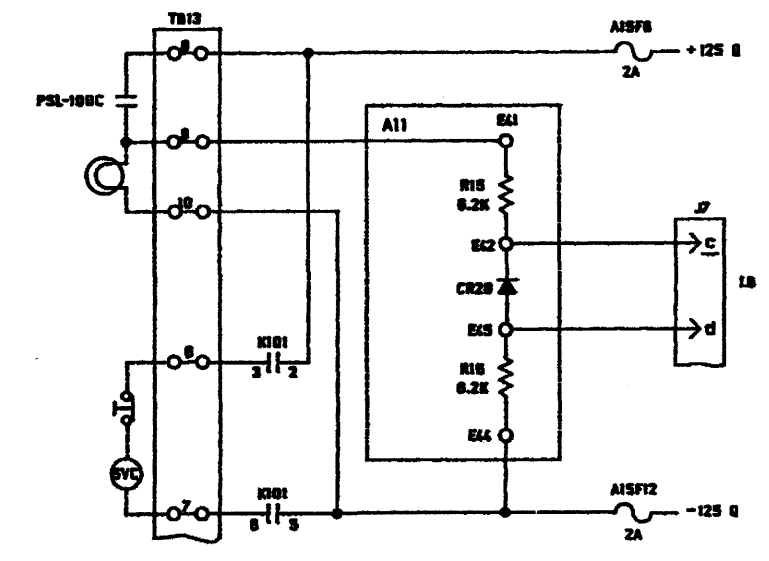
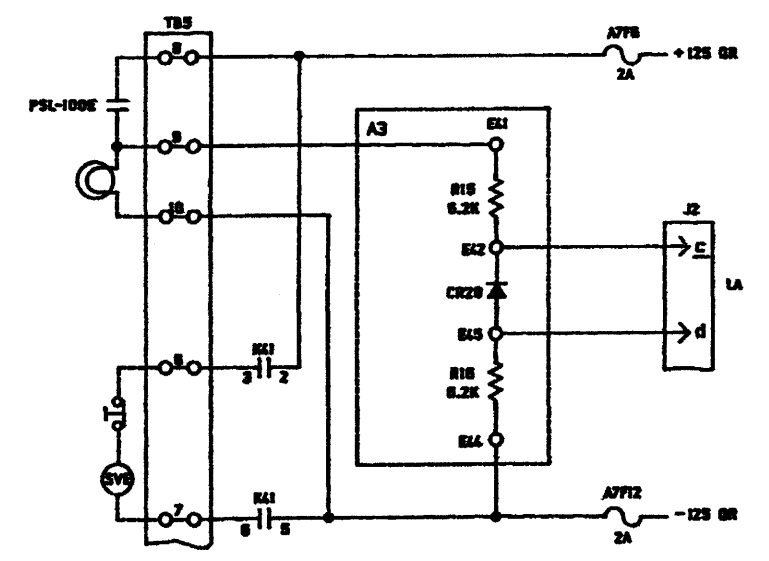
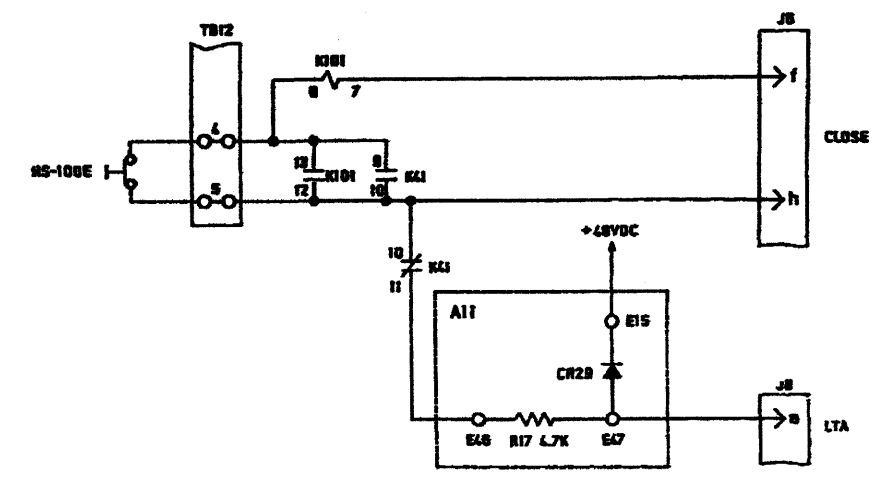
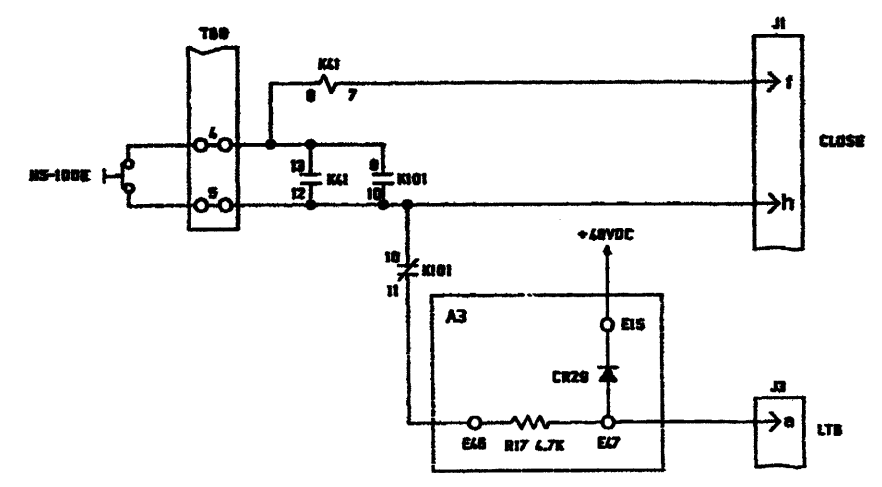
NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T 1	12/1/01	AS BUILT FOR MOD BY-1107, SUP. 3, INC. VDEN E-30AQ-012-2	GF	RY	CER	MLIS	LAB

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

MS-101	
SIZE	DATE
F 02750	S9N125
SCALE	SHEET
1:1	14

8 7 6 5 4 3 2 1

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SHEET 15 OF 21 E-30AQ-012-8-3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

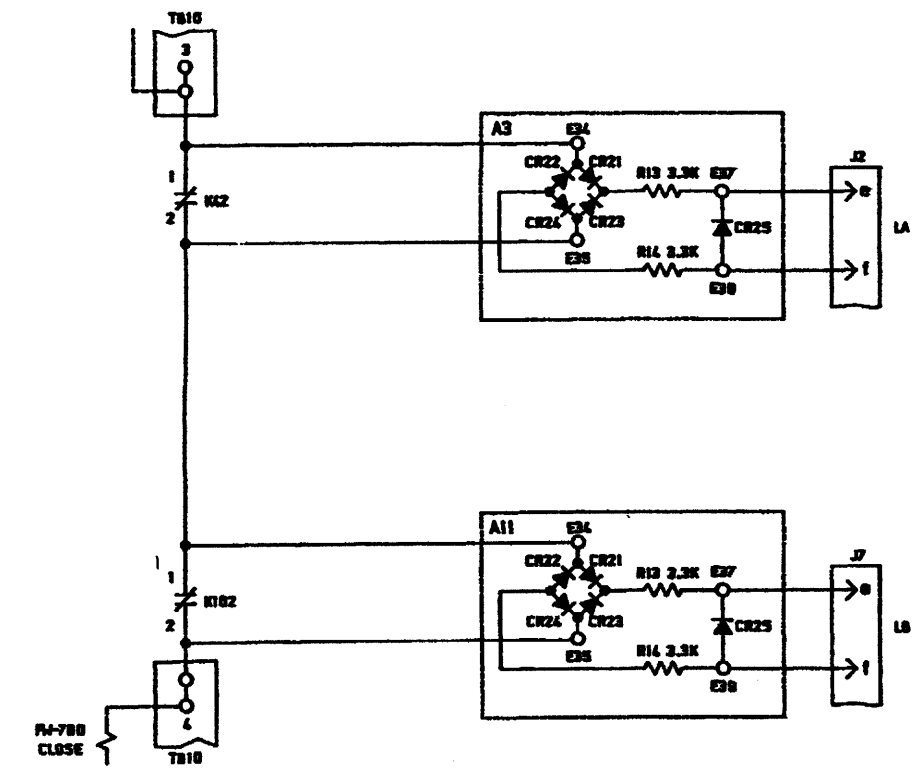
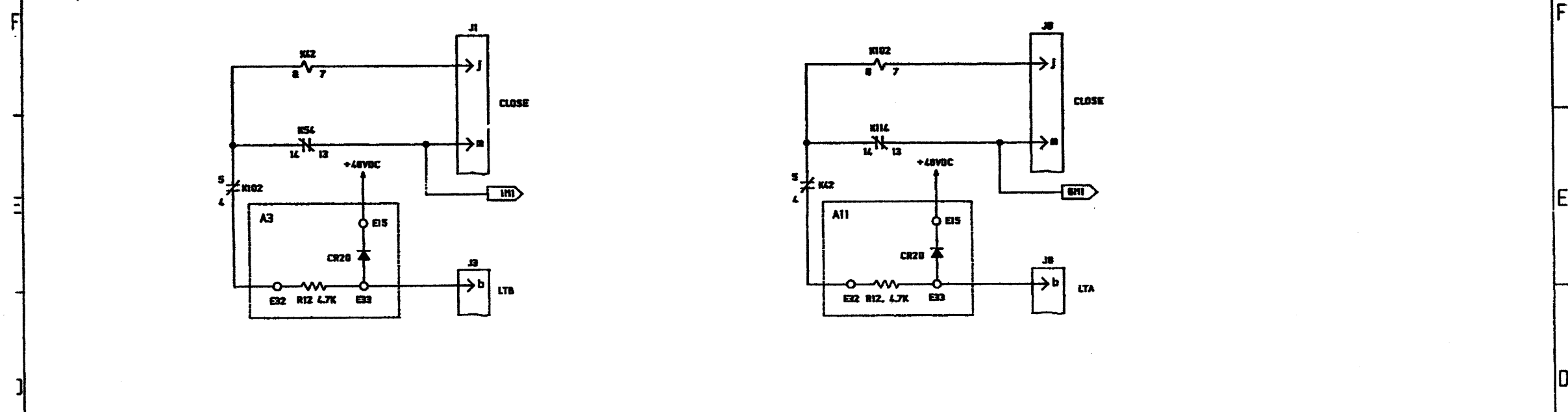
NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/84	AS BUILT FOR MOD BY-1101, SUP. 5, INC. VDCN E-30AQ-012-2	GFB	RAV	CEZ	MUS	ENS

MS-100
 F 02750 S9N125
 SHEET 15

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

MS-100 S9N125

8 7 6 5 4 3 2 1



SHEET 16 OF 21 E-30AQ-012- X - 3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

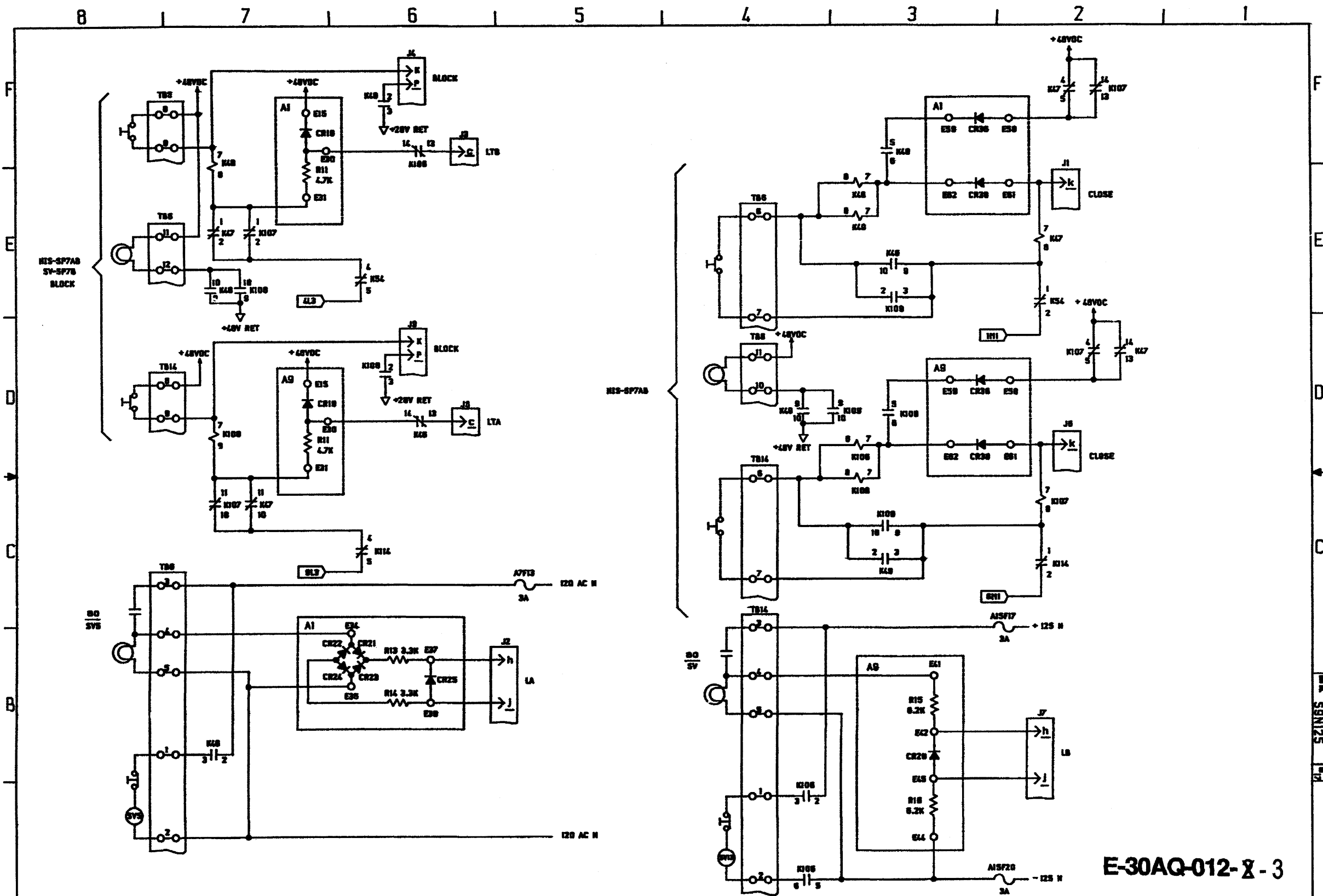
NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/99	FOR REVISION DESCRIPTION SEE SH'S 14, 15, 20 & 21	GFB	RHK	CER	MJD	OPK

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

FW-780

DATE PLOTTED	DATE
F 02750	S9N125
SCALE 1:1	SHEET 16

8 7 6 5 4 3 2 1



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

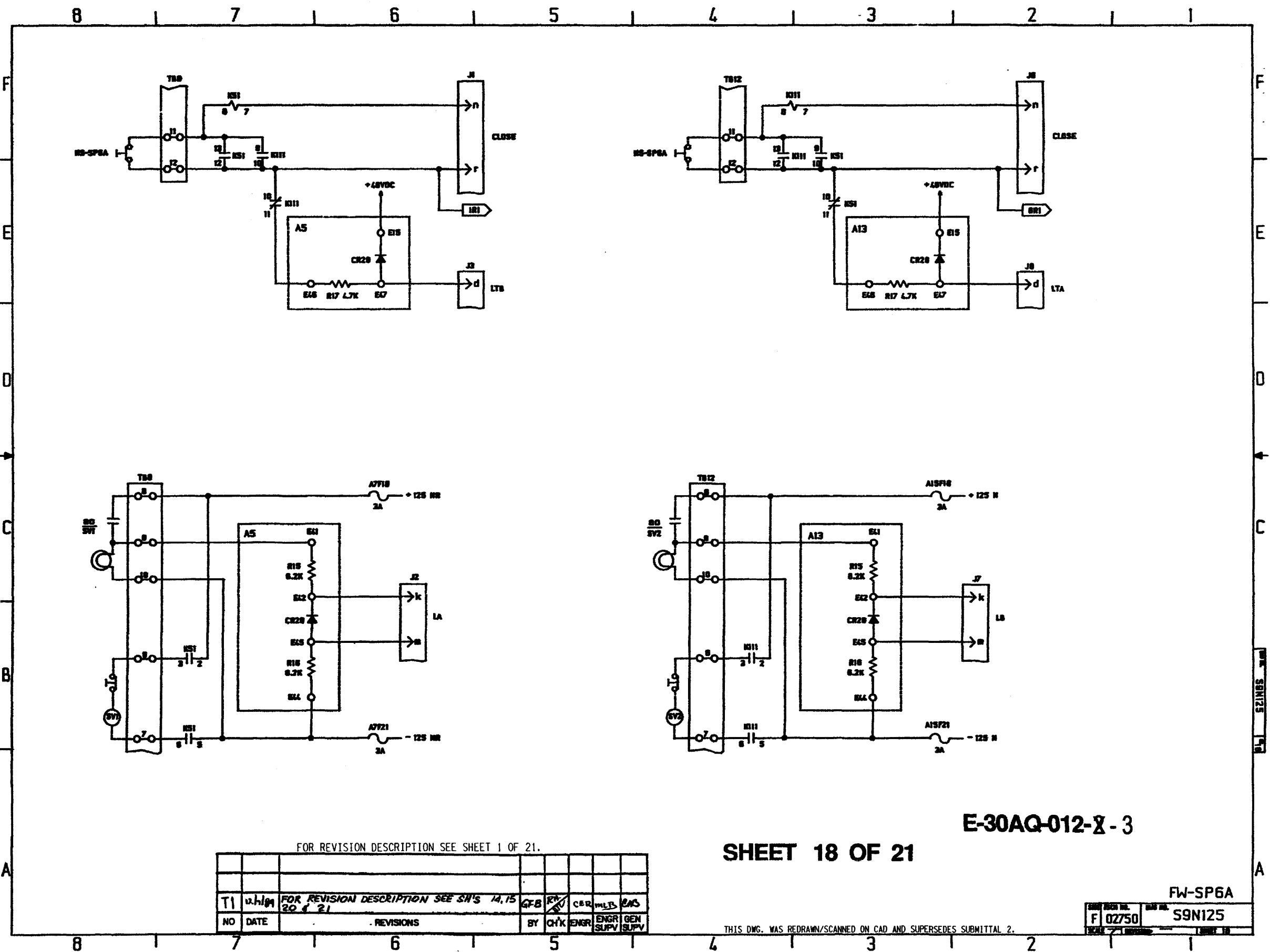
NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12-10-11	FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21	GFB	PK	CER	MLB	CAS

SHEET 17 OF 21

FW-SP7B

FIG. NO.	REV. NO.	DATE
F 02750	S9N125	

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

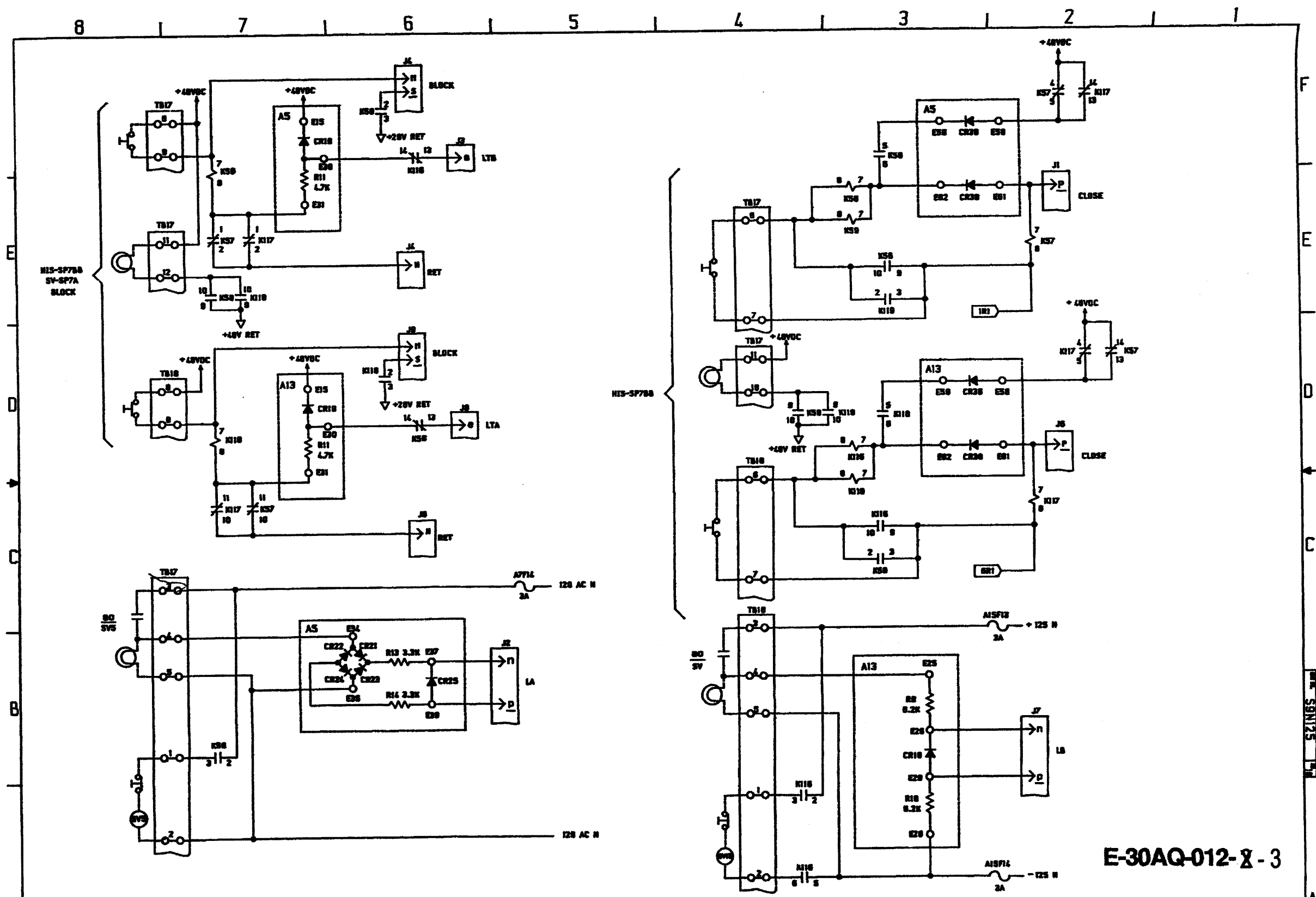
SHEET 18 OF 21

E-30AQ-012-8-3

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	11/19/94	FOR REVISION DESCRIPTION SEE SH'S 14, 15 20 & 21	GFB	RY	CER	MLLS	CAS

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

FW-SP6A	
DATE DESIGNED	DATE DRAWN
F 02750	S9N125
SCALE 7:1	SHEET 18



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/89	FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21	GFB	KIK	CER	MJB	CBS

SHEET 19 OF 21

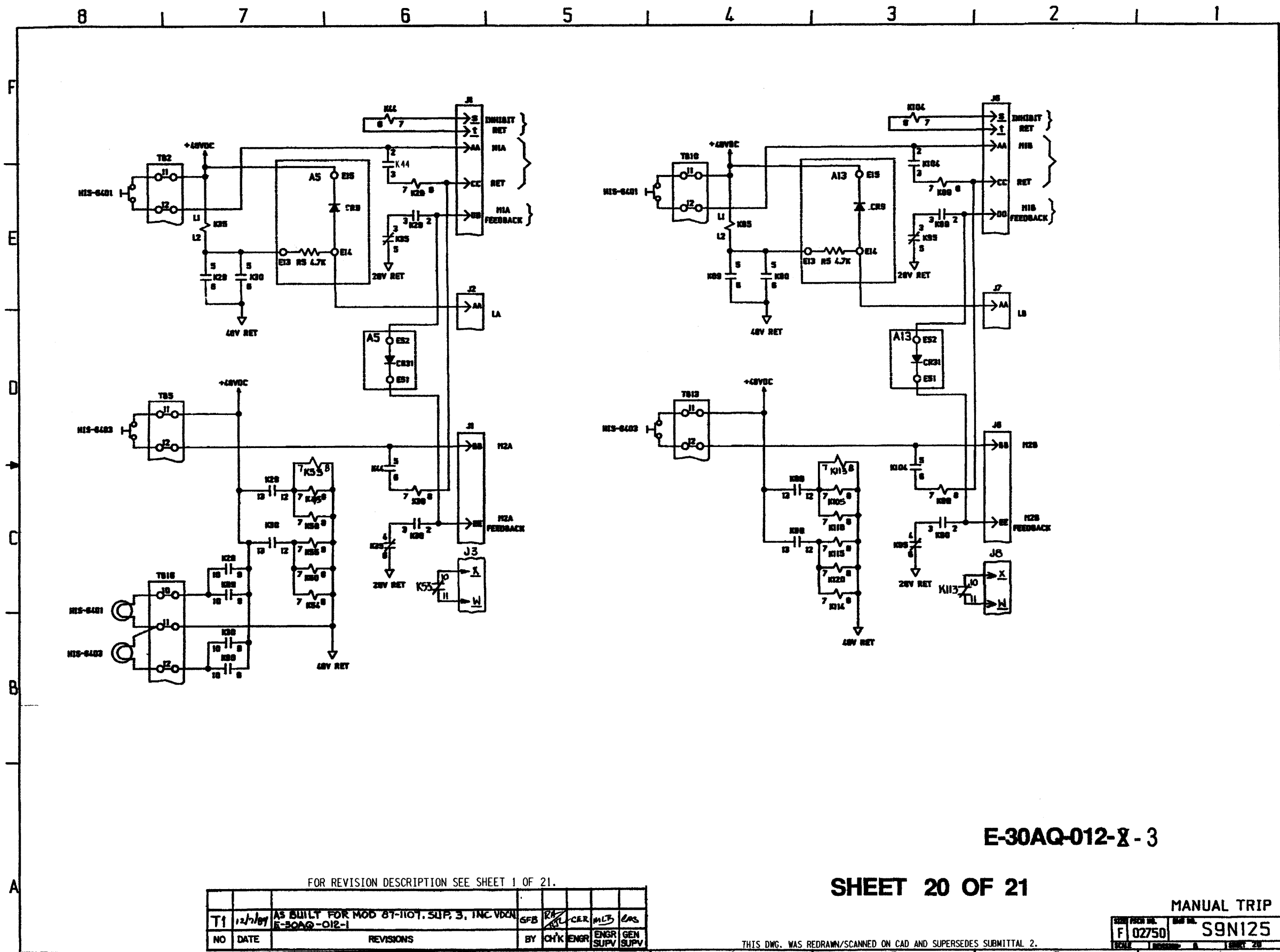
FW-SP7A

F 02750 S9N125

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

E-30AQ-012-8-3

S9N125



E-30AQ-012-8-3

SHEET 20 OF 21

MANUAL TRIP

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/87	AS BUILT FOR MOD 87-1107, SUP. 3, INC. VDCN E-30AQ-012-1	GFB	RA	CER	MLS	ENS

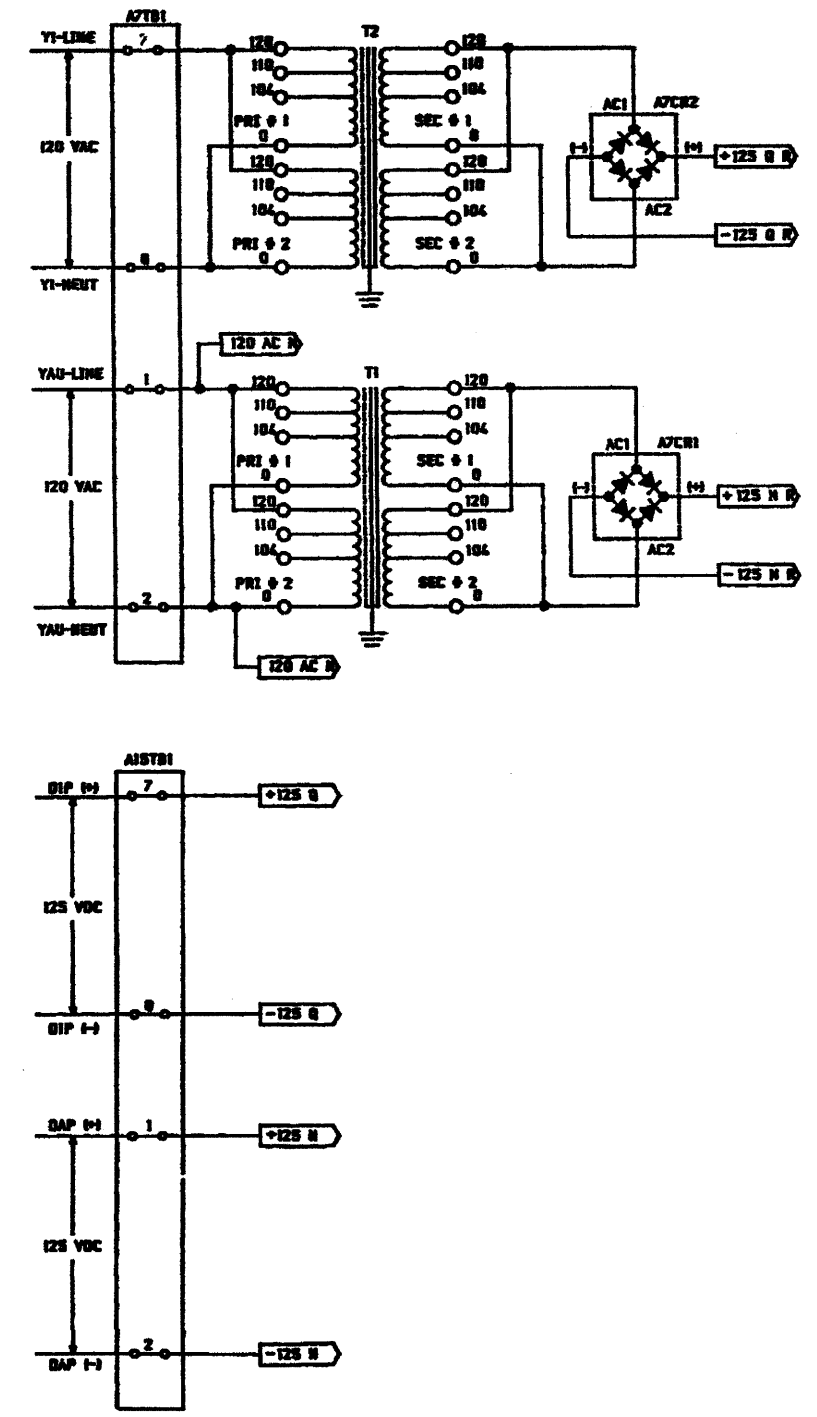
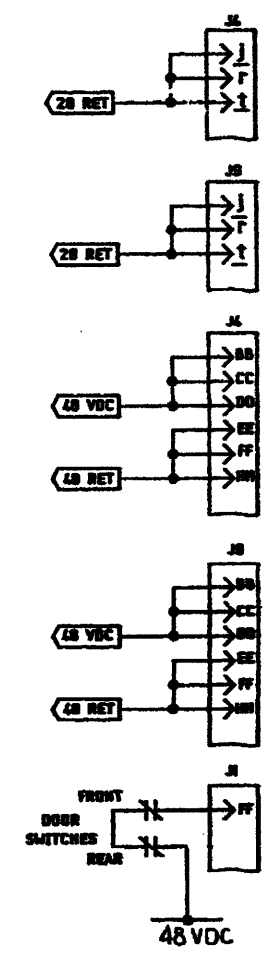
THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

SIZE	PAPER NO.	DWG NO.
F	02750	S9N125
SCALE	REVISION	SHEET 20

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E-30AQ-012-X-3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

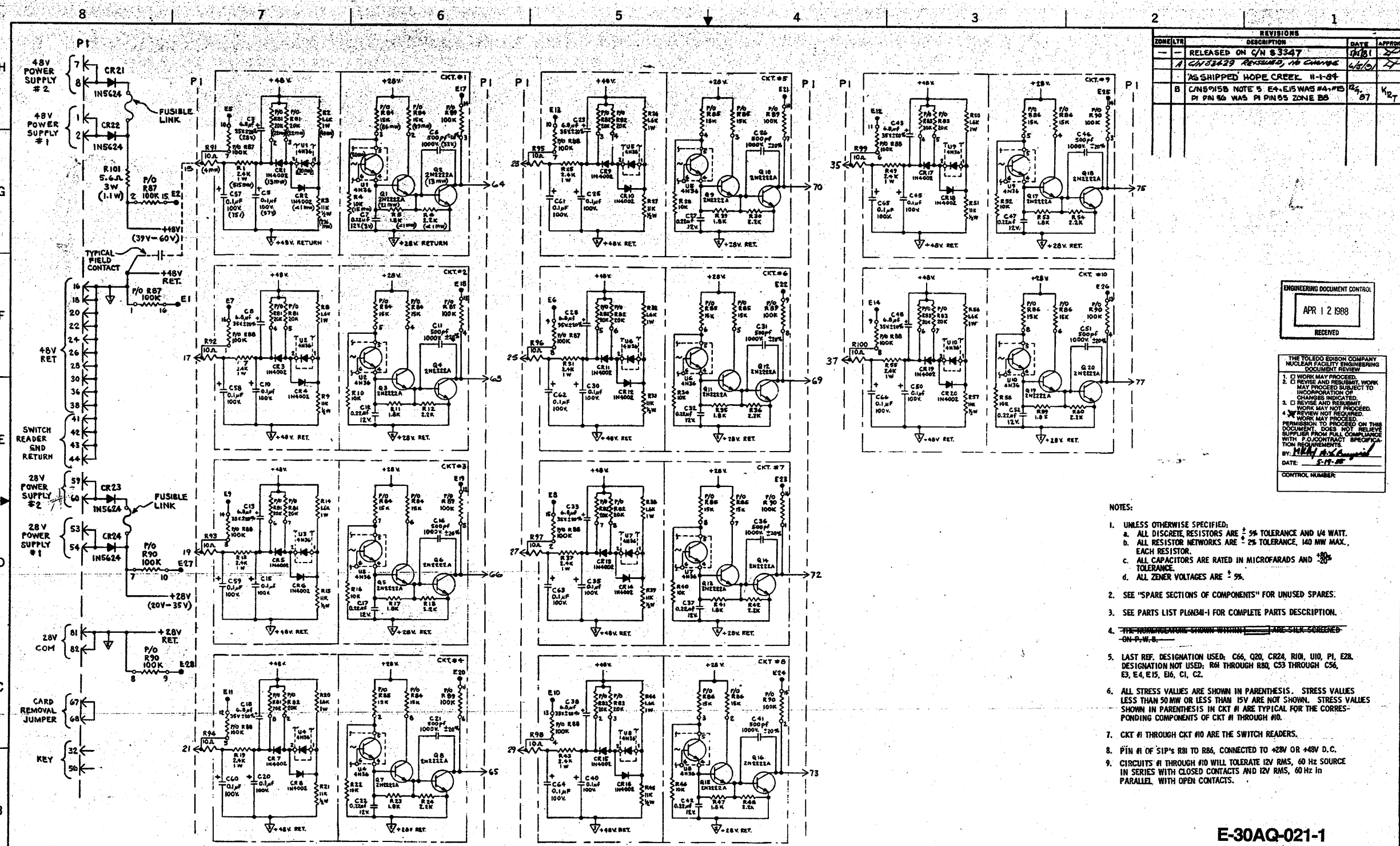
NO	DATE	REVISIONS	BY	CHK	ENGR	ENGR SUPV	GEN SUPV
T1	12/1/01	AS-BUILT FOR MOD 81-1107; SUP. 5, INC. VDDP E-30AQ-012-1	GFB	RH	GER	MJD	CAS

SHEET 21 OF 21

FORM NO. F 02750	REV. NO. S9N125
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THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



ZONE/LTR	DESCRIPTION	DATE	APPROVED
---	RELEASED ON C/N 83347	5/8/61	[Signature]
A	C/N 83429 REVISION, NO CHANGE	6/16/61	[Signature]
	AS SHIPPED HOPE CREEK 11-1-64		
B	C/N 87158 NOTE 5 E4, E15 WAS #4, #15 PI PIN 66 WAS PI PIN 65 ZONE B5	12/27/67	[Signature]

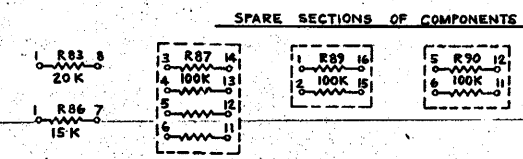
ENGINEERING DOCUMENT CONTROL
APR 12 1968
RECEIVED

THE TOLEDO EDISON COMPANY
NUCLEAR FACILITY ENGINEERING
DOCUMENT REVIEW

- WORK MAY PROCEED.
- REVISION AND REWORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.
- REVISION AND REWORK MAY NOT PROCEED. REVIEW NOT REQUIRED.
- REVISION AND REWORK MAY NOT PROCEED. PERMISSION TO PROCEED ON THIS DOCUMENT DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH F.O. CONTRACT SPECIFICATION REQUIREMENTS.

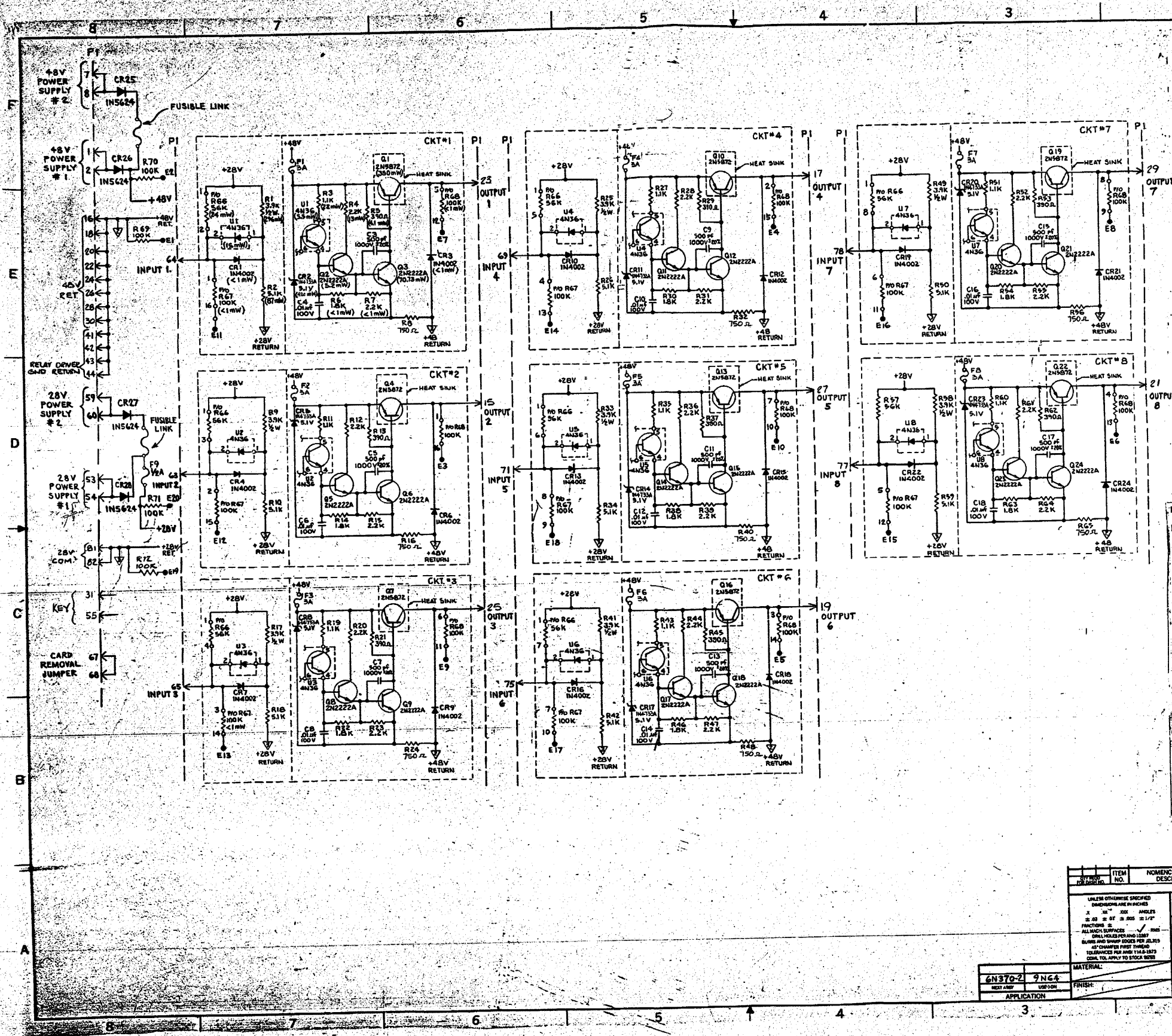
BY: [Signature]
DATE: 5-17-68
CONTROL NUMBER:

- NOTES:
- UNLESS OTHERWISE SPECIFIED:
 - ALL DISCRETE RESISTORS ARE $\pm 5\%$ TOLERANCE AND 1/4 WATT.
 - ALL RESISTOR NETWORKS ARE $\pm 2\%$ TOLERANCE, 140 MW MAX., EACH RESISTOR.
 - ALL CAPACITORS ARE RATED IN MICROFARADS AND $\pm 20\%$ TOLERANCE.
 - ALL ZENER VOLTAGES ARE $\pm 5\%$.
 - SEE "SPARE SECTIONS OF COMPONENTS" FOR UNUSED SPARES.
 - SEE PARTS LIST PLAND-1 FOR COMPLETE PARTS DESCRIPTION.
 - THE NONFUNCTIONAL SHOWN WITHIN [] ARE SILK SCREENED ON P-W-B.
 - LAST REF. DESIGNATION USED: C66, Q20, CR24, R10, U10, E28. DESIGNATION NOT USED: R61 THROUGH R80, C33 THROUGH C56, E3, E4, E15, E16, C1, C2.
 - ALL STRESS VALUES ARE SHOWN IN PARENTHESES. STRESS VALUES LESS THAN 50 MW OR LESS THAN 15V ARE NOT SHOWN. STRESS VALUES SHOWN IN PARENTHESES IN CKT # ARE TYPICAL FOR THE CORRESPONDING COMPONENTS OF CKT # THROUGH #10.
 - CKT #1 THROUGH CKT #10 ARE THE SWITCH READERS.
 - PIN #1 OF 51P'S R61 TO R66, CONNECTED TO +28V OR +48V D.C.
 - CIRCUITS #1 THROUGH #10 WILL TOLERATE 12V RMS, 60 Hz SOURCE IN SERIES WITH CLOSED CONTACTS AND 12V RMS, 60 Hz IN PARALLEL WITH OPEN CONTACTS.



E-30AQ-021-1

ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
LIST OF MATERIAL				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .001" = .0254 MM .005" = .127 MM .010" = .254 MM .020" = .508 MM .050" = 1.27 MM .100" = 2.54 MM .200" = 5.08 MM .500" = 12.7 MM 1.000" = 25.4 MM 2.000" = 50.8 MM 5.000" = 127.0 MM 10.000" = 254.0 MM 20.000" = 508.0 MM 50.000" = 1270.0 MM 100.000" = 2540.0 MM 1.000" = 25.4 MM 2.000" = 50.8 MM 5.000" = 127.0 MM 10.000" = 254.0 MM 20.000" = 508.0 MM 50.000" = 1270.0 MM 100.000" = 2540.0 MM				
CONSOLIDATED CONTROLS CORPORATION				
R. SCHMITT 5-11-61				
SCHEMATIC FIELD BUFFER				
MATERIAL: 6N341 9N64				
FINISH: [Blank]				
SIZE CODE IDENT NO: F 02750 9N64				
SCALE: [Blank] WT. [Blank] SHEET 1 OF 1				



ZONE	DATE	DESCRIPTION	APPROVED
A	11/10/93	REL. ON 56265	PSA
A	5-88	CIN59260 "PI-51" WAS "PI-52", "PI-55" WAS "PI-56"	MBT

ENGINEERING DOCUMENT CONTROL
APR 12 1988
RECEIVED

THE TOLEDO EDISON COMPANY
NUCLEAR FACILITY ENGINEERING
DOCUMENT REVIEW

- WORK MAY PROCEED.
- REVIEW AND REVISION WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.
- REVIEW AND REVISION WORK MAY NOT PROCEED.
- REVISION NOT PROCESSED. PERMISSION TO PROCEED ON THIS DOCUMENT DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH P.O. CONTRACT SPECIFICATION REQUIREMENTS.

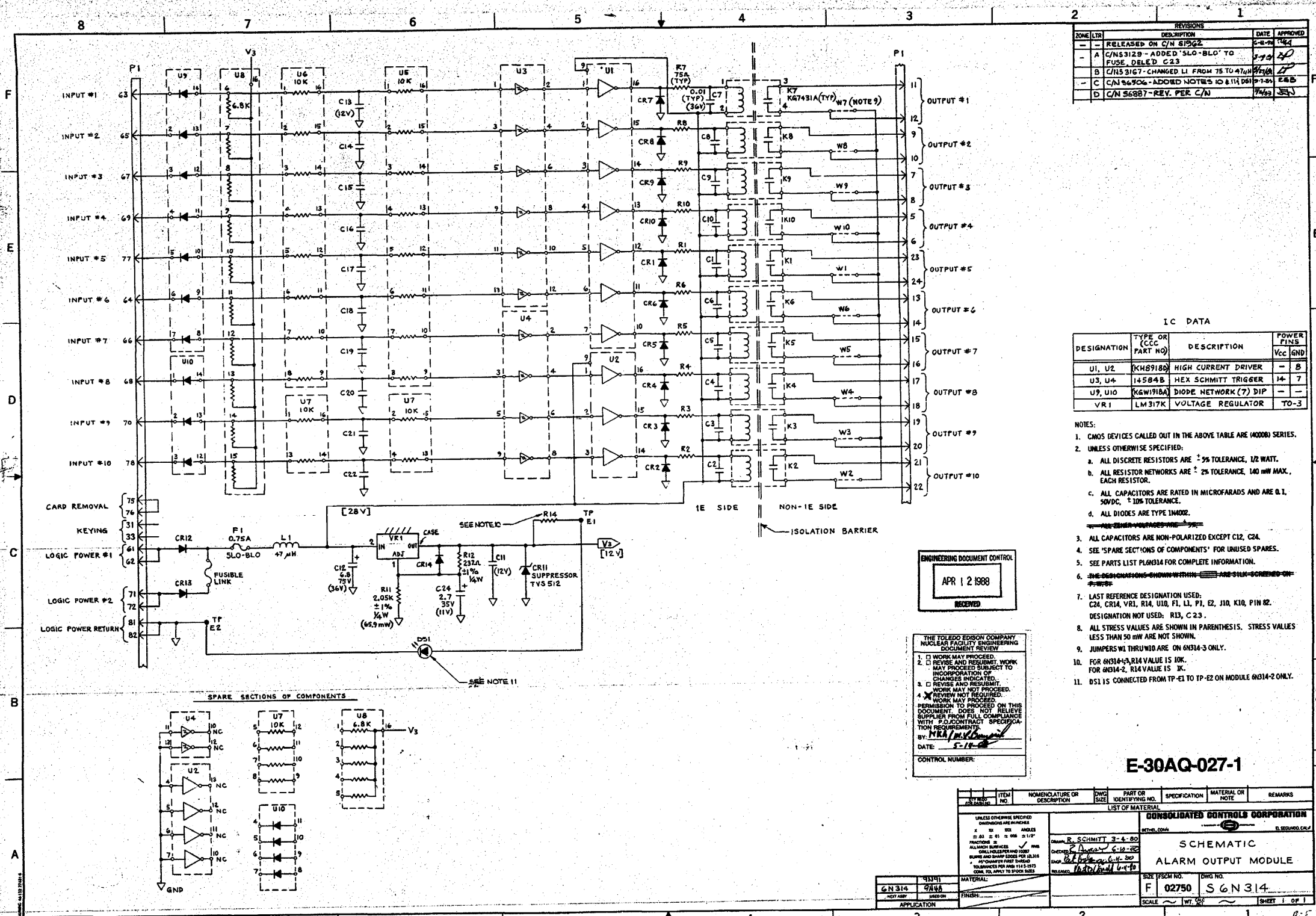
BY: *[Signature]*
DATE: 5-17-88
CONTROL NUMBER:

- NOTES:
- UNLESS OTHERWISE SPECIFIED:
 - ALL DISCRETE RESISTORS ARE 5% TOLERANCE AND 1/4 WATT.
 - ALL RESISTOR NETWORKS ARE 2% TOLERANCE, 1/4 WATT, 5% EACH RESISTOR.
 - ALL CAPACITORS ARE RATED IN MICROSECONDS AND 20% TOLERANCE.
 - ALL ZENER VOLTAGES ARE 5%.
 - ALL CAPACITORS ARE NON-POLARIZED.
 - SEE HEAT SINKS OF COMPONENTS FOR WIRE SPACES.
 - SEE PARTS LIST PL 6N370-2 FOR COMPLETE PARTS DESCRIPTIONS.
 - LAST REV DESIGNATION USED: CR, CR2, CR3, CR4, CR5, CR6, CR7, CR8, CR9, CR10, CR11, CR12, CR13, CR14, CR15, CR16, CR17, CR18, CR19, CR20, CR21, CR22, CR23, CR24, CR25, CR26, CR27, CR28, CR29, CR30, CR31, CR32, CR33, CR34, CR35, CR36, CR37, CR38, CR39, CR40, CR41, CR42, CR43, CR44, CR45, CR46, CR47, CR48, CR49, CR50, CR51, CR52, CR53, CR54, CR55, CR56, CR57, CR58, CR59, CR60, CR61, CR62, CR63, CR64, CR65, CR66, CR67, CR68, CR69, CR70, CR71, CR72, CR73, CR74, CR75, CR76, CR77, CR78, CR79, CR80, CR81, CR82, CR83, CR84, CR85, CR86, CR87, CR88, CR89, CR90, CR91, CR92, CR93, CR94, CR95, CR96, CR97, CR98, CR99, CR100.
 - DESIGNATION NOT USED: CR1 AND CR2.
 - ALL STRESS VALUES ARE SHOWN IN PARENTHESES. STRESS VALUES LESS THAN 2000 PSI OR 1000 PSI ARE NOT SHOWN. STRESS VALUES IN CKT # ARE TYPICAL FOR THE CORRESPONDING COMPONENTS ON CKT # THROUGH CKT #.
 - EACH RELAY DRIVER CHANNEL OUTPUTS THROUGH 2 CAN DRIVERS. ONLY ONE RELAY COIL SHOULD BE DRIVEN BY 48 VOLT COILS.
 - TWO OR MORE RELAY DRIVER CHANNELS SHOULD NOT BE ENERGIZED SIMULTANEOUSLY WHEN DRIVING 100 500 Ω, 48 VOLT RELAY COILS.

E-30AQ-024-1

ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
LIST OF MATERIAL				
CONSOLIDATED CONTROLS CORPORATION				
DRAWN: F. MASTRONE 11/10/93				
CHECKED: [Signature] 11/10/93				
DATE: 11/10/93				
RELEASED: [Signature] 11/10/93				
MATERIAL: [Blank]				
FINISH: [Blank]				
APPLICATION: [Blank]				
SHEET NO. 1 OF 1				

REV. 56370-2



ZONE	LTR	REVISIONS	DATE	APPROVED
-	-	RELEASED ON C/N 61962	6-14-74	[Signature]
A		C/N 3123 - ADDED 'SLO-BLO' TO FUSE, DELED C23	7-7-74	[Signature]
B		C/N 3167 - CHANGED LI FROM 75 TO 47μH	8-14-74	[Signature]
C		C/N 3696 - ADDED NOTES 10 & 11 (D91)	7-1-75	[Signature]
D		C/N 3687 - REV. PER C/N	7-1-75	[Signature]

DESIGNATION	TYPE OR CCC PART NO	DESCRIPTION	POWER Vcc GND
U1, U2	KH8918B	HIGH CURRENT DRIVER	- B
U3, U4	14584B	HEX SCHMITT TRIGGER	14- 7
U9, U10	KGW1918A	DIODE NETWORK (7) DIP	- -
VR1	LM317K	VOLTAGE REGULATOR	TO-3

- NOTES:
- CMOS DEVICES CALLED OUT IN THE ABOVE TABLE ARE (4000B) SERIES.
 - UNLESS OTHERWISE SPECIFIED:
 - ALL DISCRETE RESISTORS ARE ± 5% TOLERANCE, 1/2 WATT.
 - ALL RESISTOR NETWORKS ARE ± 2% TOLERANCE, 140 mW MAX, EACH RESISTOR.
 - ALL CAPACITORS ARE RATED IN MICROFARADS AND ARE 0.1 50VDC, ± 10% TOLERANCE.
 - ALL DIODES ARE TYPE 1N4002.
 - ALL CAPACITORS ARE NON-POLARIZED EXCEPT C12, C24.
 - SEE 'SPARE SECTIONS OF COMPONENTS' FOR UNUSED SPARES.
 - SEE PARTS LIST PL6314 FOR COMPLETE INFORMATION.
 - THE DESIGNATIONS SHOWN WITHIN THE ISOLATION BARRIER ARE SHOWN SCREENED OFF.
 - LAST REFERENCE DESIGNATION USED: C24, CR14, VR1, R14, U10, F1, L1, P1, E2, J10, K10, PIN 82. DESIGNATION NOT USED: R13, C23.
 - ALL STRESS VALUES ARE SHOWN IN PARENTHESES. STRESS VALUES LESS THAN 50 mW ARE NOT SHOWN.
 - JUMPERS W1 THRU W10 ARE ON 6N314-3 ONLY.
 - FOR 6N314-3, R14 VALUE IS 10K. FOR 6N314-2, R14 VALUE IS 3K.
 - DS1 IS CONNECTED FROM TP-E1 TO TP-E2 ON MODULE 6N314-2 ONLY.

ENGINEERING DOCUMENT CONTROL
APR 12 1988
RECEIVED

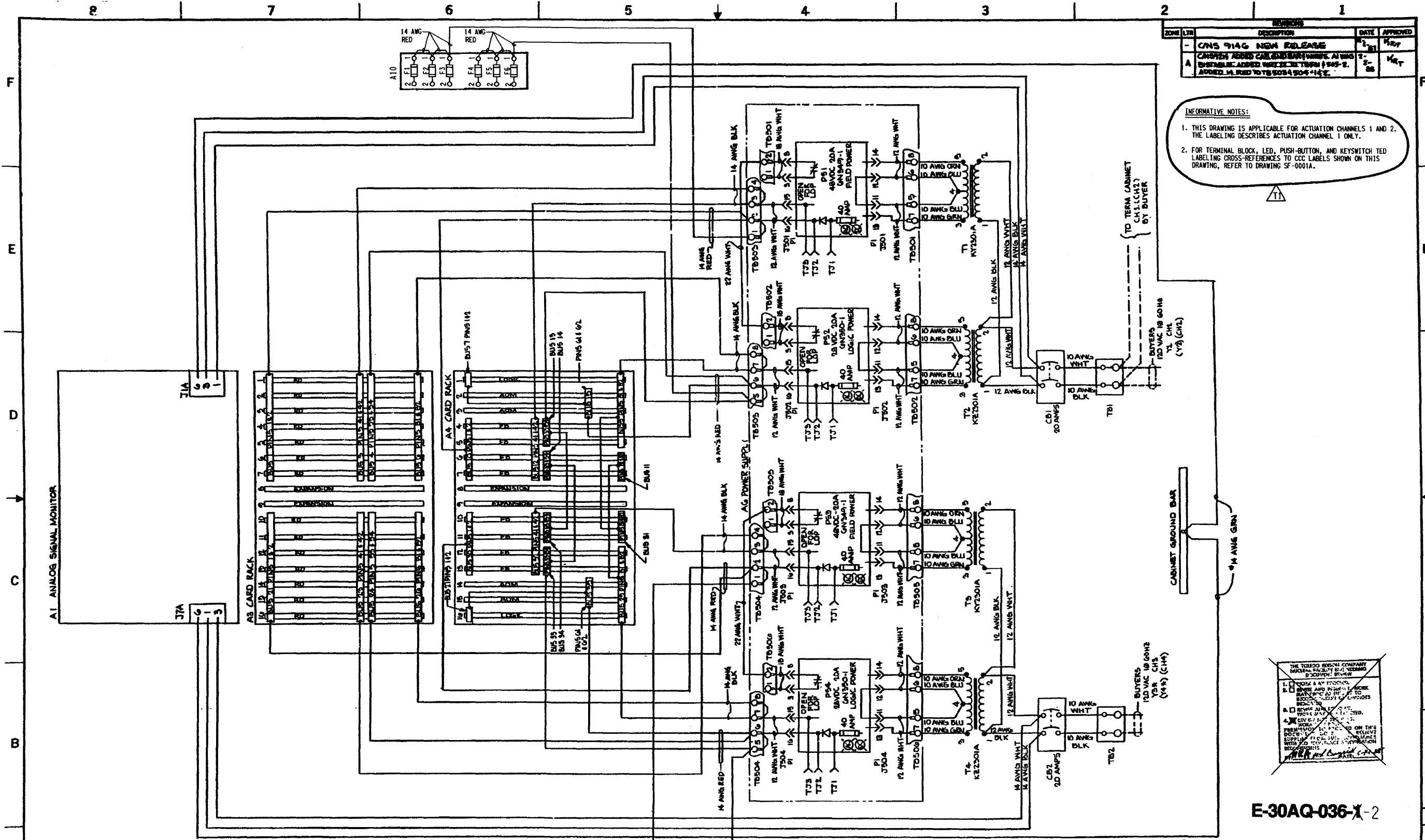
THE FOLEGO EDRON COMPANY
NUCLEAR FACILITY ENGINEERING
DOCUMENT REVIEW

1. WORK MAY PROCEED.
2. REVISE AND RESUBMIT WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.
3. REVISE AND RESUBMIT WORK MAY NOT PROCEED.
4. REVIEW NOT REQUIRED. WORK MAY PROCEED.
PERMISSION TO PROCEED ON THIS DOCUMENT DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH P.D. CONTRACT SPECIFICATION REQUIREMENTS.

BY: [Signature]
DATE: 5-18-88
CONTROL NUMBER:

E-30AQ-027-1

ITEM NO.	ITEM DESCRIPTION	NOMENCLATURE OR IDENTIFYING NO.	DWG. SIZE	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTE	REMARKS
LIST OF MATERIAL							
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES 1/16" = .0625" ANGLES Ø .01 ± .01 Ø .006 ± .012 FRACTIONS ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO BE HONED AND SHARP EDGES PER AS-314 UNLESS OTHERWISE SPECIFIED TOLERANCES PER AS-114 5-0173 DIM. TO APPLY TO STOCK SIZE							
CONSOLIDATED CONTROLS CORPORATION 2700 S. 10th St. MILWAUKEE, WI 53214				SCHEMATIC ALARM OUTPUT MODULE			
G/N 314 9144		MATERIAL:		SIZE FROM NO. DWG. NO.		F 02750 S 6N314	
APPLICATION		FINISH:		SCALE		SHEET 1 OF 1	

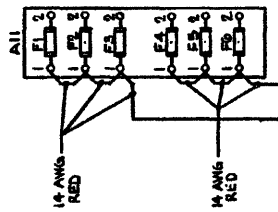


ZONE	DATE	DESCRIPTION	DATE	APPROVED
-	1-81	CNS 914G NEW RELEASE	1-81	KRT
A	2-88	CANISTER ADDS CANISTER W/WHITE AWG 22-2. ADDED 14 AWG RED TO TB804 504-142.	2-88	KRT

INFORMATIVE NOTES:

- THIS DRAWING IS APPLICABLE FOR ACTUATION CHANNELS 1 AND 2. THE LABELING DESCRIBES ACTUATION CHANNEL 1 ONLY.
- FOR TERMINAL BLOCK, LED, PUSH-BUTTON, AND KEYSWITCH TED LABELING CROSS-REFERENCES TO CCC LABELS SHOWN ON THIS DRAWING, REFER TO DRAWING SF-0001A.

NO.	DATE	REVISIONS	BY	CHK	ENGR.	DESIGN	APP.
1	9/81	INC. DUN 13-0383-001-005 REV.0 (REDRAWN)	SAC				



MODULE	+48VDC			+28VDC		
	PS1	PS2	RETURN	PS1	PS2	RETURN
FIELD METER (M541-1)	112	745	414-42	58154	58154	51482
RELAY DRIVER (M540-2)	112	745	414-42	58154	58154	51482
LOGIC MODULE (M526-1)				112	414-42	51482
ALARM OUTPUT (M534-1)				41482	71472	51482

THIS DRAWING WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL

ITEM NO.	NOMENCLATURE OR DESCRIPTION	QTY	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTE	REMARKS
LIST OF MATERIAL						
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES						
FRACTIONS 2						
ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO CENTER UNLESS NOTED OTHERWISE						
DIMENSIONS FOR AND VVA DR-1000 (SEE DRAWING FOR SPECIFICATIONS)						
MATERIAL:						
APPLICATION:						

CONDEC	Consolidated Controls Danbury, CT 06801
LOGIC CABINET POWER DISTRIBUTION DIAGRAM	
SIZE (PCHN NO.)	QTY NO.
F 02750	KJ7H316
SCALE	WEIGHT
	SHEET 1 OF 1

E-30AQ-036-X-2

INITIALS ON FILE		ON FILE		ENGR. SUPV.		GEN. SUPV.	
INITIALS	ON FILE	INITIALS	ON FILE	ENGR.	SUPV.	ENGR.	SUPV.
SAP	SMC						
6/12/14							
33							
35							
34							


SHEET No.	LATEST REV.	DESCRIPTION	SCHEME No.
1	7	TRANSFORMER 01 A RELAY CKTS	X0101
2	6	TRANSFORMER 02 A RELAY CKTS	X0201
3	15	GENERATOR-TRANSFORMER A RELAY CKTS	GX01
3A	3	GENERATOR-TRANSFORMER A RELAY CKTS	GX01
4	15	GENERATOR-TRANSFORMER A RELAY CKTS (CONTINUED)	GX01
4A	4	GENERATOR-TRANSFORMER A RELAY CKTS (CONTINUED)	GX01
5	11	GENERATOR-TRANSFORMER RELAY CKTS FOR GEN. BKR. TRIPPING ONLY	GX03
6	4	TRANSFORMER 01 B RELAY CKTS	X0102
7	3	TRANSFORMER 02 B RELAY CKTS	X0202
8	12	GENERATOR-TRANSFORMER B RELAY CKTS	GX02
9	35 (17)	GENERATOR-TRANSFORMER B RELAY CKTS (CONTINUED)	GX02
9A	2	GENERATOR INADVERTENT ENERGIZATION (GIE) PROTECTION	GX02
9B	1	GENERATOR INADVERTENT ENERGIZATION (GIE) PROTECTION (DRAWING VOID)	GX02
10	4	RELAY CONTACT ASSIGNMENTS FOR (SH-1) AND (SH-6) TRIPPING AND LOCK-OUT RELAY CKTS	
11	4	RELAY CONTACT ASSIGNMENTS FOR (SH-2) AND (SH-7) TRIPPING AND LOCK-OUT RELAY CKTS	
12	9	RELAY CONTACT ASSIGNMENTS FOR (SH-3) AND (SH-8) TRIPPING AND LOCK-OUT RELAY CKTS	
13	7	RELAY CONTACT ASSIGNMENTS FOR (SH-5) TRIPPING AND LOCK-OUT RELAY CKTS (DRAWING VOID)	
14	10	CONTACTS FOR ANNUNCIATOR AND COMPUTER ALARMS	
15	4	CONTACTS FOR ANNUNCIATOR AND COMPUTER ALARMS	

GENERAL NOTES:

- SEE DWG. 7749-E-20, GENERATOR, TRANSFORMER RELAY & METERING THREE LINE DIAGRAM, FOR FAULT RELAY SENSING & DESCRIPTIONS.
- SEE DWG. 7749-E-2, 25KV & 13.8KV METERING AND RELAYING ONE LINE DIAGRAM, FOR RELAY FUNCTION.
- FOR EXPLANATION OF EQUIPMENT AND WIRING NUMBERS, SEE 7749-E-11A, ELECTRICAL NUMBERING SYSTEMS.
- SEE SHEET 16 FOR LIST OF AUXILIARY RELAYS USED FOR TRIPPING AND LOCKING-OUT, ALARMING, ETC.
- CONNECTION TO DEVICE 86 RELAY CONTACTS FROM BKRS 52/11, 52/12, 52/13, 52/31, 52/33, 52/51, 52/71 & 52/72 (SEE SHEETS 10 THRU. 13) WILL BE MADE AT THE RELAY BOARD WITH SHIELDED CONTROL CABLE; TWO CABLES TERMINATED AT SECTION C5750A & TWO AT SECTION C5750B.

EQUIPMENT (LOCATION) DESIGNATION

- JT4404 - TURBINE STOP VALVE #1 TERMINAL BOX
- JT4405 - TURBINE STOP VALVE #2 TERMINAL BOX
- JT4203 - TURBINE STOP VALVE #3 TERMINAL BOX
- JT4204 - TURBINE STOP VALVE #4 TERMINAL BOX
- JT4309 - TURBINE INT. STOP VALVE #1 TERMINAL BOX
- JT4406 - TURBINE INT. STOP VALVE #2 TERMINAL BOX
- JT4205 - TURBINE INT. STOP VALVE #3 TERMINAL BOX
- JT4102 - TURBINE INT. STOP VALVE #4 TERMINAL BOX
- JT5309 - TURBINE INTERCEPT VALVE #1 TERMINAL BOX
- JT5406 - TURBINE INTERCEPT VALVE #2 TERMINAL BOX
- JT5201 - TURBINE INTERCEPT VALVE #3 TERMINAL BOX
- JT5103 - TURBINE INTERCEPT VALVE #4 TERMINAL BOX
- C5751 - ANNUNCIATOR SYSTEM LOGIC CABINET
- DAP, DAN, DBP, DBN - 125V DC PANELS
- C5750A&B - GENERATOR-TRANSFORMER RELAY BOARD SECTIONS
- X1 - MAIN TRANSFORMER 1
- X01 - START-UP TRANSFORMER 01
- X02 - START-UP TRANSFORMER 02
- X11 - UNIT AUXILIARY TRANSFORMER 11
- C4301 - EXCITATION CUBICLE
- JT4401 - TERMINAL BOX FOR SWITCHES OF VALVES IN ANTI-MOTING CIRCUIT
- SF11 - SWITCHBOARD F11 FOR SWYD BREAKER 52/11
- SF13 - SWITCHBOARD F13 FOR SWYD BREAKER 52/13
- C3093 - INTELLIGENT DIAGNOSTIC DEVICE 'IDD'
- C3093A - TM8 SERVERON MAIN TRANSFORMER MONITOR FOR GAS-IN-OIL
- C3093B - CONTROL CABINET FOR TM8 POWER SUPPLY
- JT3040 - MAIN TRANSFORMER 1 CT TERMINAL BOX
- JT3040A - JUNCTION BOX FOR TM8 WIRING
- PS3093A - HELIUM BOTTLE PRESSURE SWITCH FOR TM8 MONITOR MAIN TRANSFORMER GAS-IN-OIL
- UE3093A - MOISTURE/TEMPERATURE ELEMENT FOR TM8 MONITOR TOWER 3
- TOWER 3 - LOCATION OF NETWORK CONNECTION

SCALE NONE	DESIGNED	DRAWN ELO	DATE 6-20-89
DAVIS-BESSE NUCLEAR POWER STATION			
UNIT NO. 1			
<small>THE TOLEDO EDISON COMPANY</small>			
ELEMENTARY WIRING DIAGRAMS			
GENERATOR AND TRANSFORMER PROTECTION			
TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO.		REV.	
 E-31B INDEX SHT. 1		35	

THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REVISION 12.

INDEX				
SHEET No.	LATEST REV.	DESCRIPTION	SCHEME No.	
16	11	AUXILIARY RELAY SCHEDULE	—	
17	2	START-UP TRANSFORMERS X01 ANNUNCIATOR REFLASH.	Q980	
18	2	START-UP TRANSFORMERS X02 ANNUNCIATOR REFLASH.	Q983	
19A	2	MAIN TRANSFORMERS X1 ANNUNCIATION REFLASH.	Q691	
19B	7	MAIN TRANSFORMERS X1 ANNUNCIATION REFLASH.	Q691	
19C	6	MAIN TRANSFORMERS X1 ANNUNCIATION REFLASH.	Q690	
20	5	AUXILIARY TRANSFORMERS X11 ANNUNCIATION REFLASH.	Q013	
21	0	START-UP TRANSFORMERS X01 ANNUNCIATION REFLASH.	Q979	
22	0	START-UP TRANSFORMERS X02 ANNUNCIATION REFLASH.	Q982	
23	4	AUXILIARY TRANSFORMERS X11 ANNUNCIATION REFLASH.	Q014	
24	2	MAIN TRANSFORMER LOW VOLTAGE MONITOR	X103	
25A	2	MAIN TRANSFORMER GAS-IN-OIL MONITOR	X103	
25B	1	TRANSFORMER GAS-IN-OIL MONITOR SWITCH	—	
26	0	AUXILIARY TRANSFORMER GAS-IN-OIL MONITOR	X1106	

FOR REVISION DESCRIPTION SEE INDEX SHT. 1

EQUIPMENT (LOCATION) DESIGNATION

- C3093E - TM8 SERVERON AUXILIARY TRANSFORMER MONITOR FOR GAS-IN-OIL
- C3093F - CONTROL CABINET FOR X11 TM8 POWER SUPPLY
- JT3040B - JUNCTION BOX FOR X11 TM8 WIRING
- PS3093E - HELIUM BOTTLE PRESSURE SWITCH FOR TM8 MONITOR AUXILIARY TRANSFORMER GAS-IN-OIL
- UE3093E - MOISTURE/TEMPERATURE ELEMENT FOR X11 TM8 MONITOR

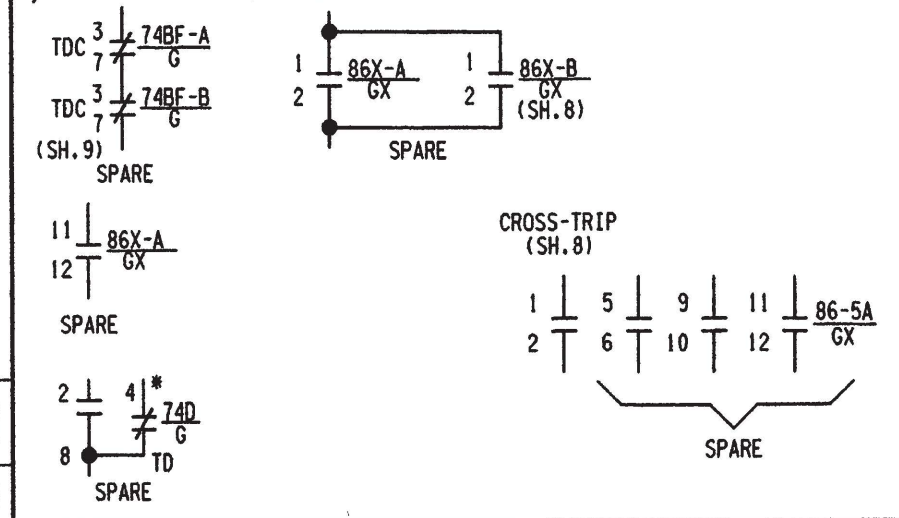
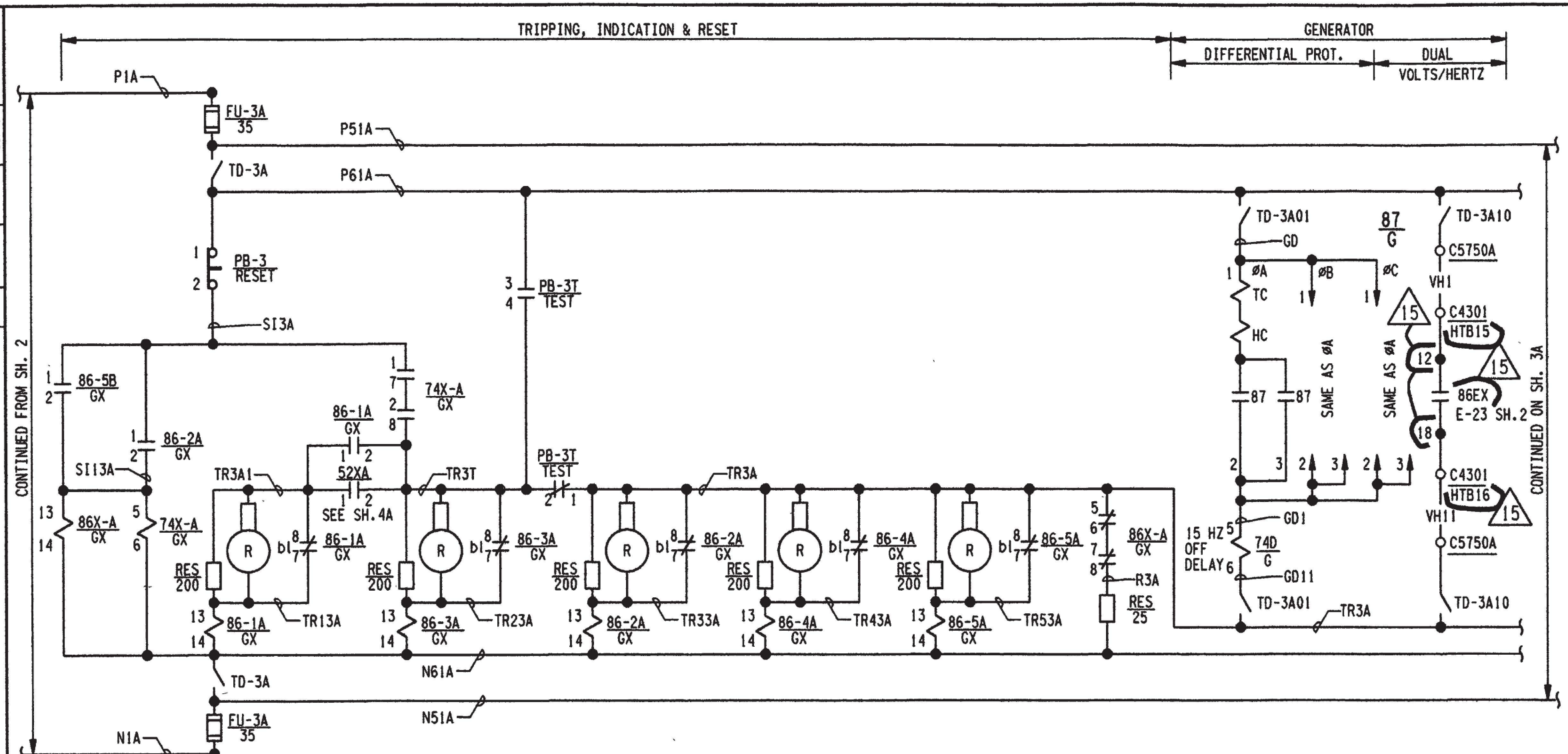
34	SEE INDEX SH. 1 FOR REVISIONS
33	SEE INDEX SH. 1 FOR REVISIONS
32	SEE INDEX SH. 1 FOR REVISIONS
31	SEE INDEX SH. 1 FOR REVISIONS
NO.	DATE

FOR GENERAL NOTES SEE INDEX SH. 1.

PREVIOUS REVISION FROM 1-13 DID NOT EXIST

SCALE NONE	DESIGNED	DRAWN DVK	DATE 5-16-89
DAVIS-BESSE NUCLEAR POWER STATION			
UNIT NO. 1			
<small>THE TOLEDO EDISON COMPANY</small>			
ELEMENTARY WIRING DIAGRAMS			
GENERATOR AND TRANSFORMER PROTECTION			
TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO.		REV.	
E-31B INDEX SHT. 2		35	

15	5/6/92	INC. DUN 12-0134-001-004 REV.00	GEN. UPDATE REDRAWN ON CADD TO IMPROVE LEGIBILITY
14	5/7/12	INC. DUN 05-0255-001-006 REV.00	
13	01-18-03	INC. DCN E-31B-137 PER MOD 90-0002-02	
9	5/6/92	GEN. UPDATE REDRAWN ON CADD TO IMPROVE LEGIBILITY	
NO.	DATE		



SCHEME NO. GX01 - CHANNEL A
START-UP SYS. NO. 087/098

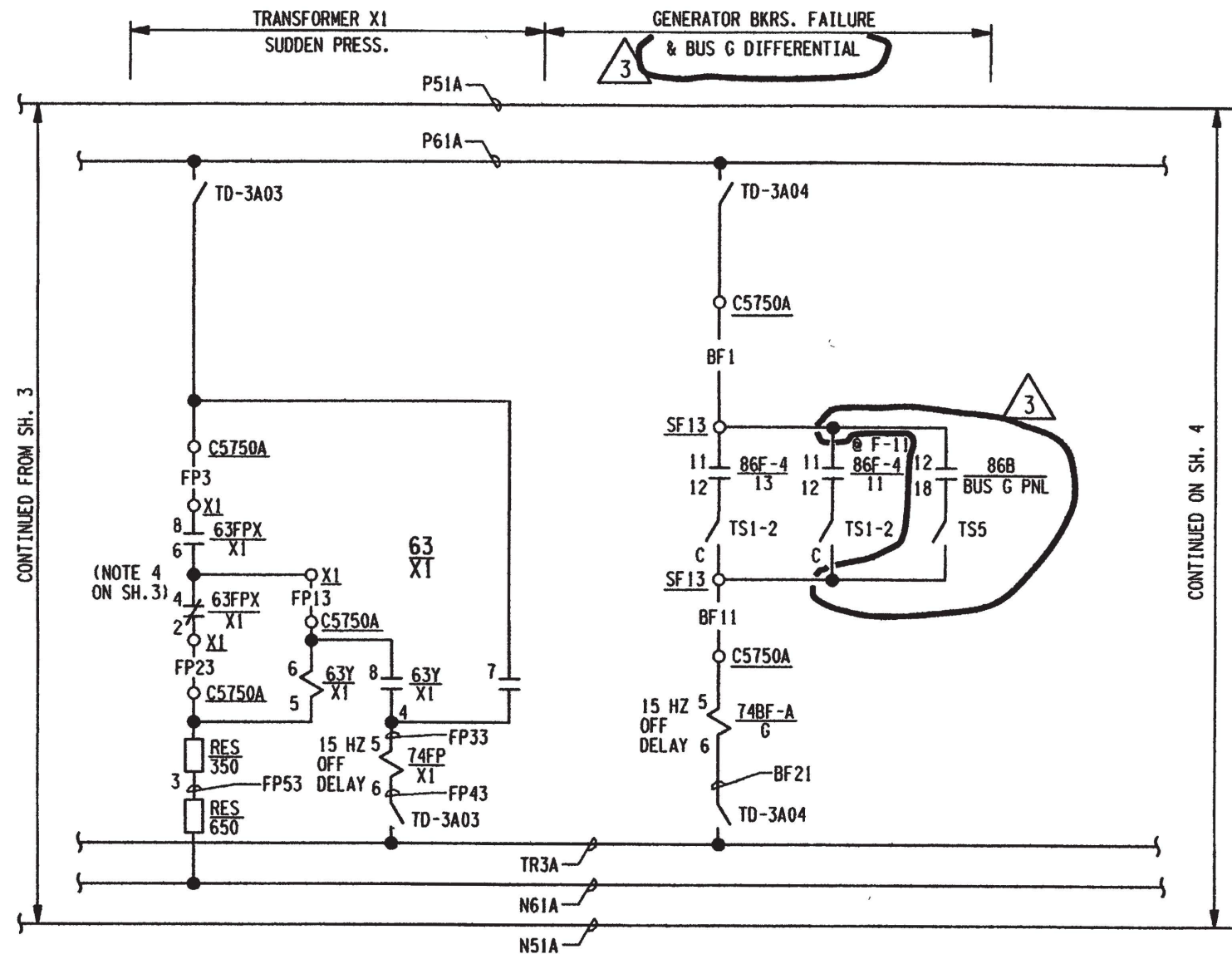
THIS DRAWING WAS REDRAWN ON CADD
& IN CONJUNCTION WITH DWG. E-31B SH. 3A
SUPERSEDES REV. 8.

GENERATOR - TRANSFORMER
A RELAY CKTS

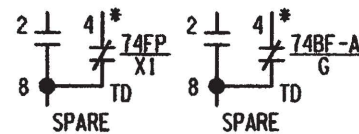
- NOTES:
1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
 2. SEE SHT.12 FOR 86 DEVICE CONTACT ASSIGNMENTS. SEE SHT.14 FOR 74D/G CONTACTS 3-7.
 3. FOR SAFETY FEATURES ACTUATION SYSTEM SEE DRAWING 7749-E-16E.
 4. SEE DRAWING 7749-E-1-1 FOR 63FPX XI RELAY COIL.
 5. *4 NOT USED - SEE GE INSTRUCTIONS GEI 10190G.
 6. FOR DETAILS OF TEST PUSHBUTTON SEE DRAWING E-30B SH.17 FIG.5.

SCALE NONE	DESIGNED TG	DRAWN JFS	DATE 03-23-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO. E-31B SH. 3			REV. 15

3	7/23/94	INC. DJN 14-0422-001-001 REV.00	BY	ENGR.	GEN. SUPV.
2	7/21/00	INC. DCN E-31B-151 PER MOD 90-0002-01 & DCN E-31B-169 PER DDR 00-1597	CH'K	ENGR.	ENGR. SUPV.
1	4/10/93	INC. DCN'S E-31B-118 PER DDR 93-0875 & E-31B-116 PER MOD 90-002 SUP. 0	INITIALS ON FILE	INITIALS ON FILE	INITIALS ON FILE
0	5/6/92	GEN. UPDATE REDRAWN ON CADD TO IMPROVE LEGIBILITY	INITIALS ON FILE	INITIALS ON FILE	INITIALS ON FILE
NO.	DATE	REVISIONS			



SCHEME NO. GX01 (CONTINUED) - CHANNEL A
START-UP SYS. NO. 087/098



NOTES:

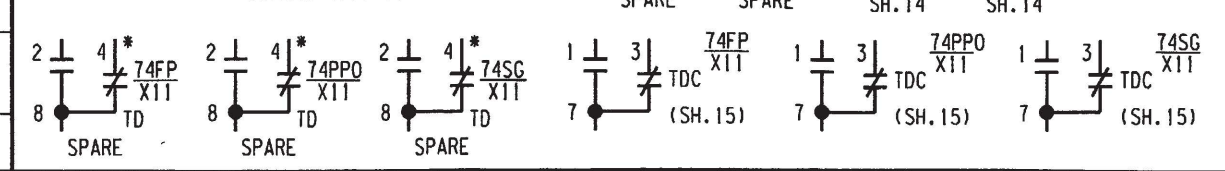
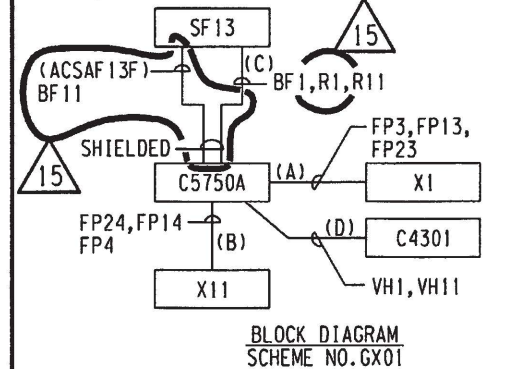
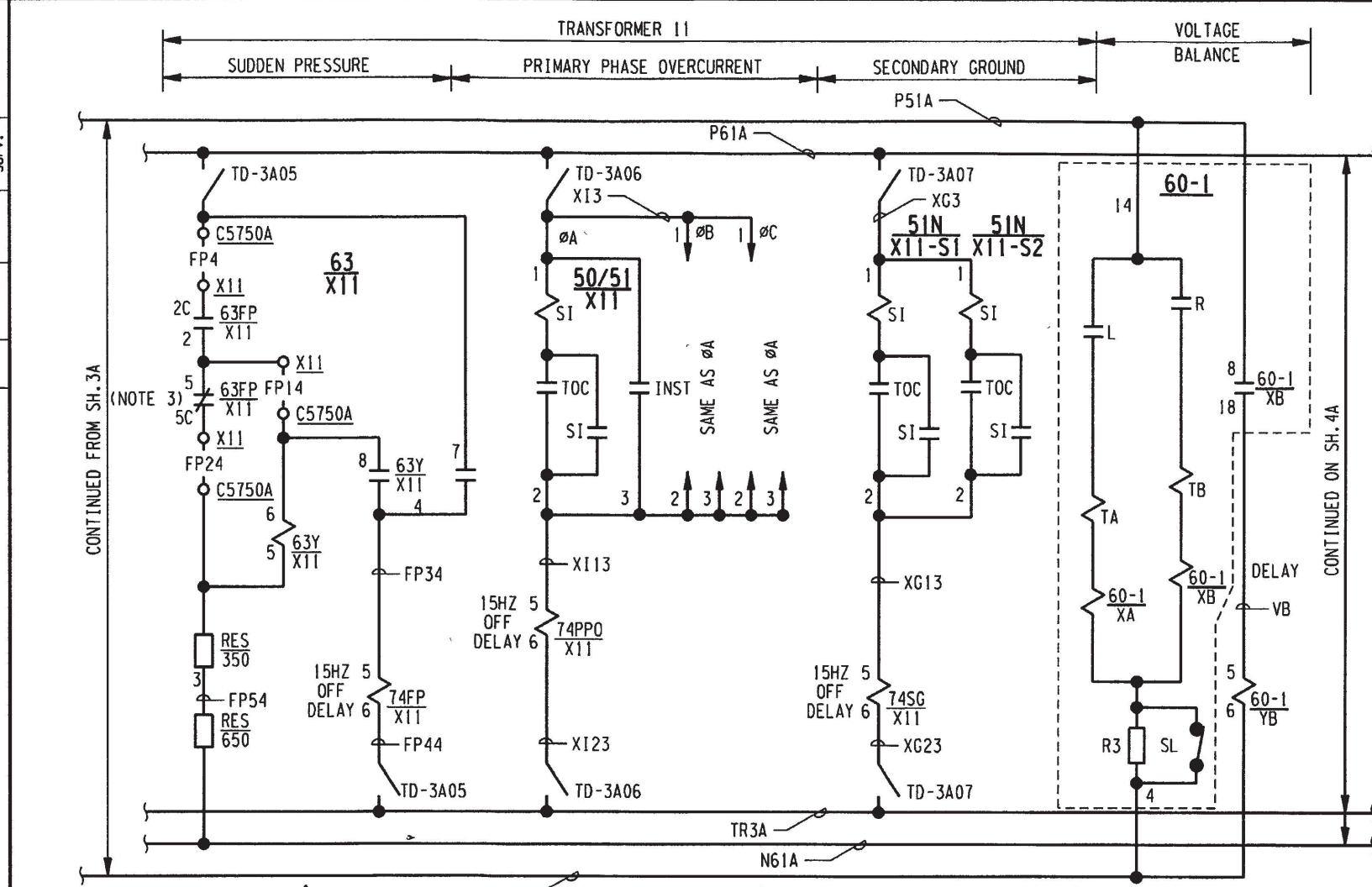
1. FOR GENERAL NOTES & DRAWING LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
2. REFERENCE SHEETS FOR CONTACT ASSIGNMENTS:
74FP/X1 3-7 SHEET 15
74BF-A/G 3-7 SHEET 3
3. *4 NOT USED - SEE GE INSTRUCTIONS GEI 101906.

THIS DRAWING WAS REDRAWN ON CADD & IN CONJUNCTION WITH DWG. E-31B SH.3 SUPERSEDES REV. 8.

GENERATOR - TRANSFORMER
A RELAY CKTS (CONTINUED)

SCALE NONE	DESIGNED TG	DRAWN JFS	DATE 03-23-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO.		REV.	
E-31B SH.3A		3	

15	5-12-16	INC. DUN 16-0255-001-003 REV. 0	GEN. SUPV.	GEN. SUPV.
14	1-18-03	INC. DCN E-31B-143 PER MOD 90-0002-02	ENGR.	ENGR.
13	7-21-00	INC. DCN E-31B-159 PER DDR 00-1574	CH'K	CH'K
9	5-9-92	GEN UPDATE, REDRAWN ON CAD TO IMPROVE LEGIBILITY	BY	BY



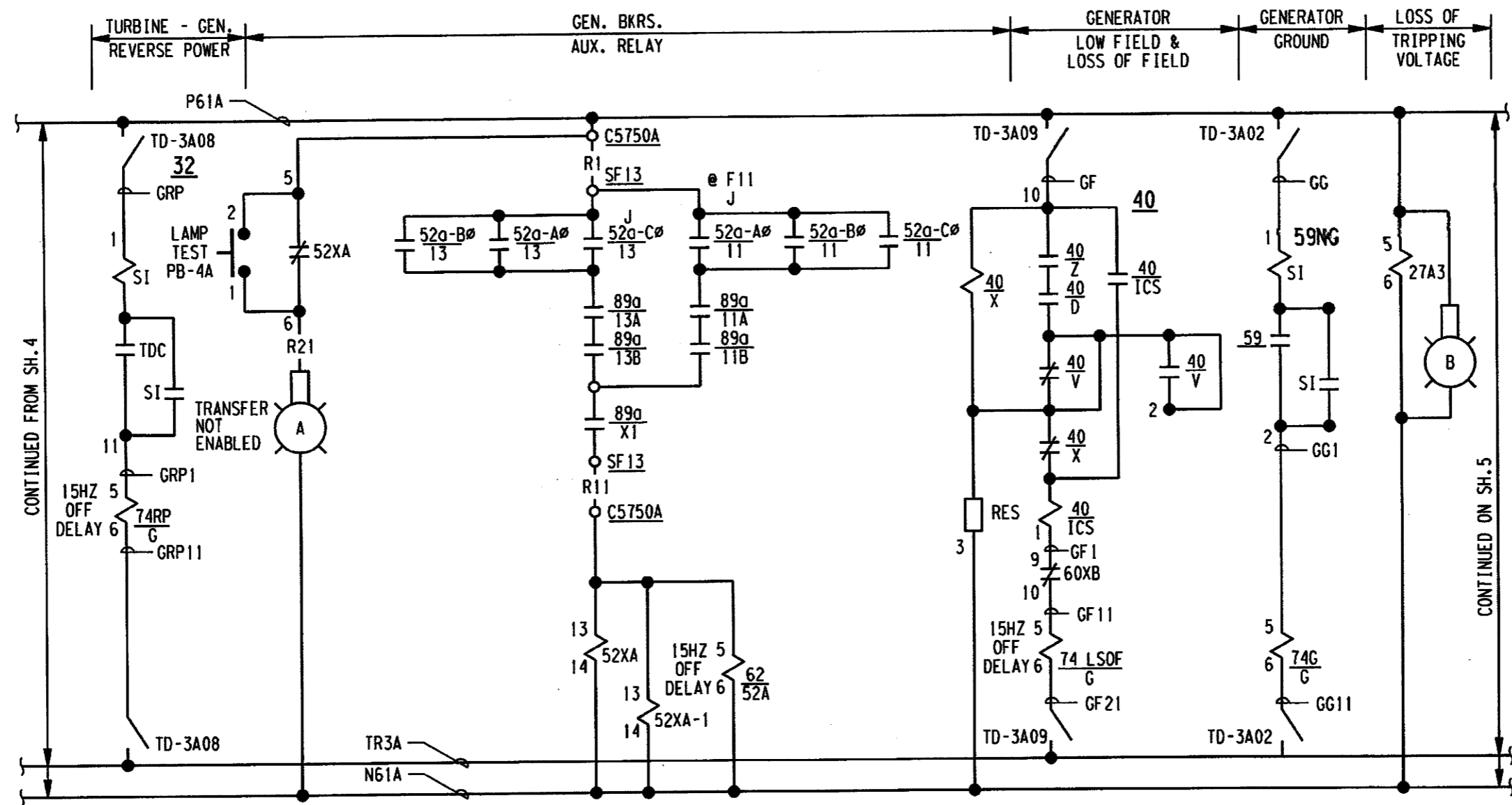
- NOTES:
1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
 2. DELETED
 3. SEE DWG 7749-E-2-10 (CENTRAL MOLONEY DWG NO4D6203) FOR 63FP RELAY COIL.
 4. *4 NOT TO BE USED - SEE GE INSTRUCTIONS GEI 10190C.

GENERATOR - TRANSFORMER
A RELAY CKTS (CONTINUED)

SCALE NONE	DESIGNED JB	DRAWN JOR	DATE 03-23-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO. E-31B SH.4			REV. 15

THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REVISION 8

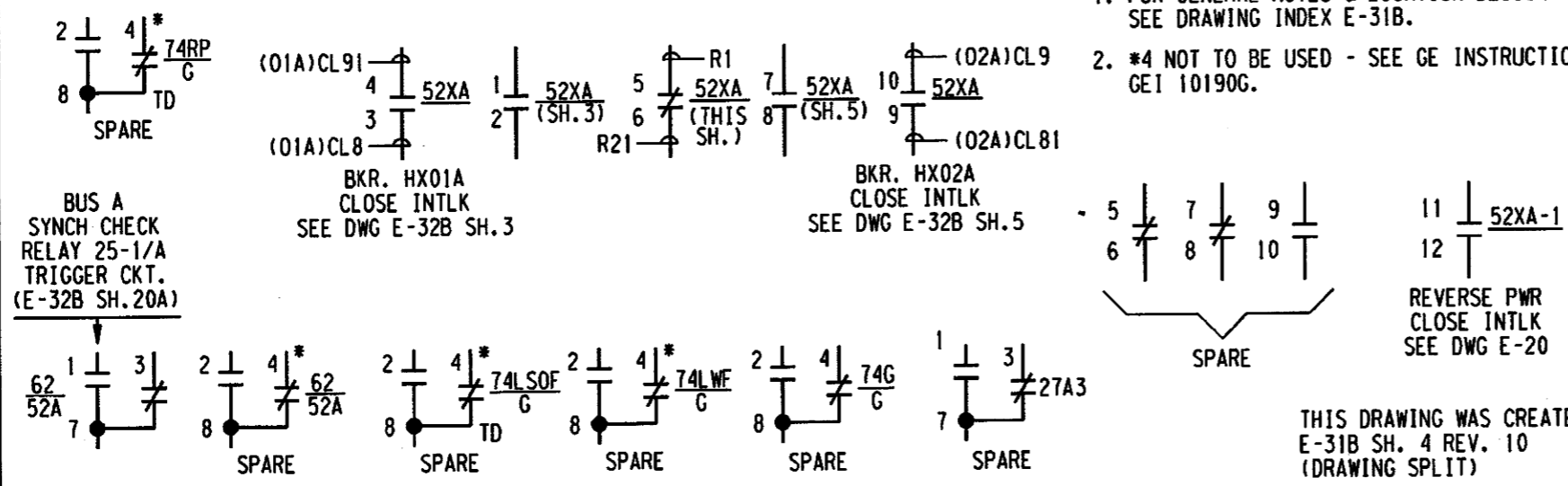
5	3/20/88	INC. DUN 14-0725-011-004 & PDUN 14-0725-012-004 BOTH REV.0 (NO DWG. CHANGE)	SBW	INITIALS ON FILE	ENGR. SUPV.
4	05-12-16	INC. DUN'S 14-0725-006-012 & 14-0725-007-004 BOTH REV.0	SBW	INITIALS ON FILE	ENGR. SUPV.
3	01-18-03	INC. DCN'S E-31B-139, 141, AND 149 PER MOD 90-0002 SUP. 02	SBW	KNF	CH'K
0	5-2-96	GEN. UPDATE PER DCR 94-0128 REF. DCN E-31B-132 (SPLIT SHT.4 TO ADD SHT. 4A)	BY	GRM	ENGR. SUPV.
NO.	DATE	REVISIONS			



SCHEME NO. GX01 (CONTINUED) CHANNEL A
START-UP SYS. NO. 087/098

NOTES:

1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
2. *4 NOT TO BE USED - SEE GE INSTRUCTIONS GE1 10190G.

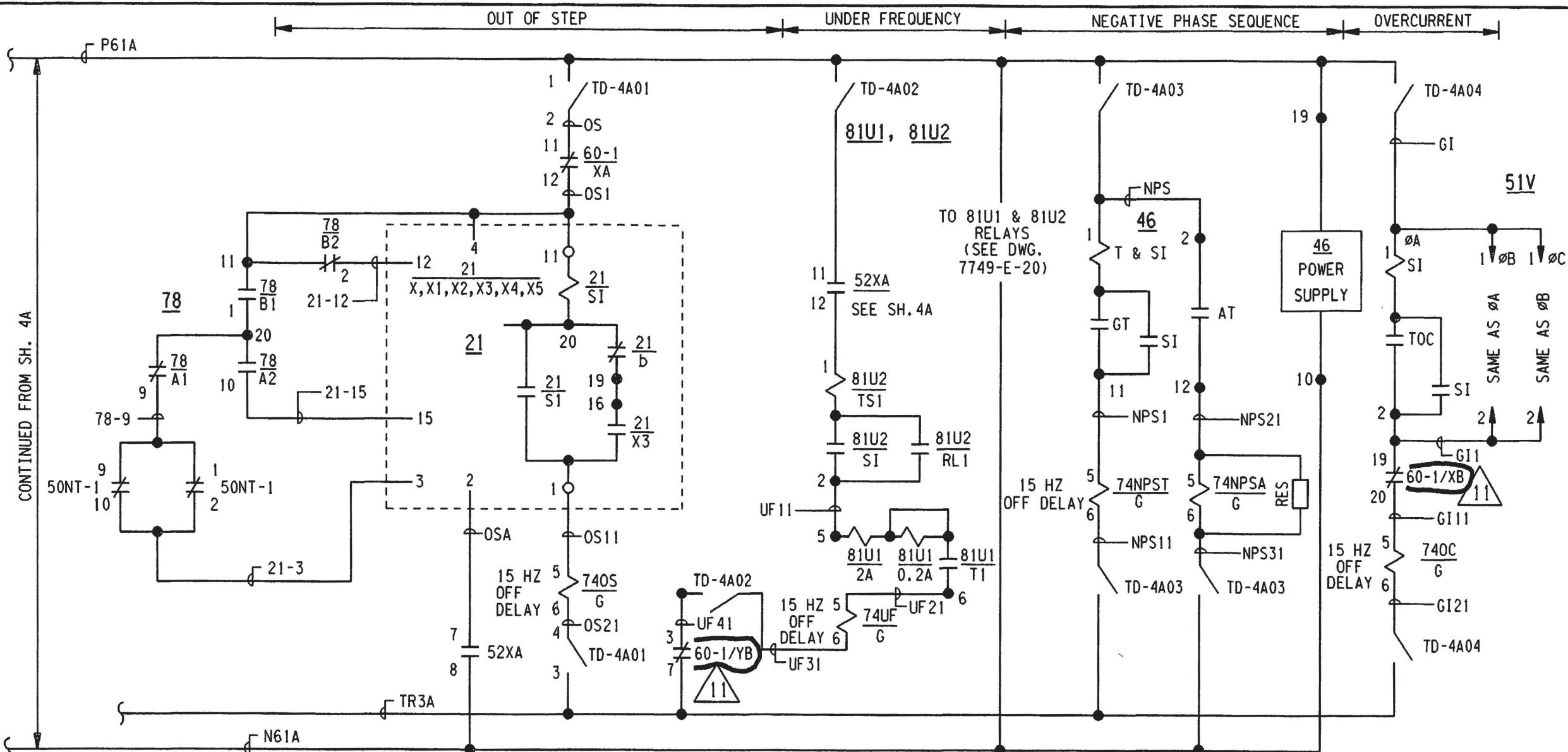


GENERATOR - TRANSFORMER
A RELAY CKTS (CONTINUED)

SCALE NONE	DESIGNED	DRAWN SBW	DATE 04-09-96
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO. E-31B SH. 4A			REV. 5

THIS DRAWING WAS CREATED FROM
E-31B SH. 4 REV. 10
(DRAWING SPLIT)

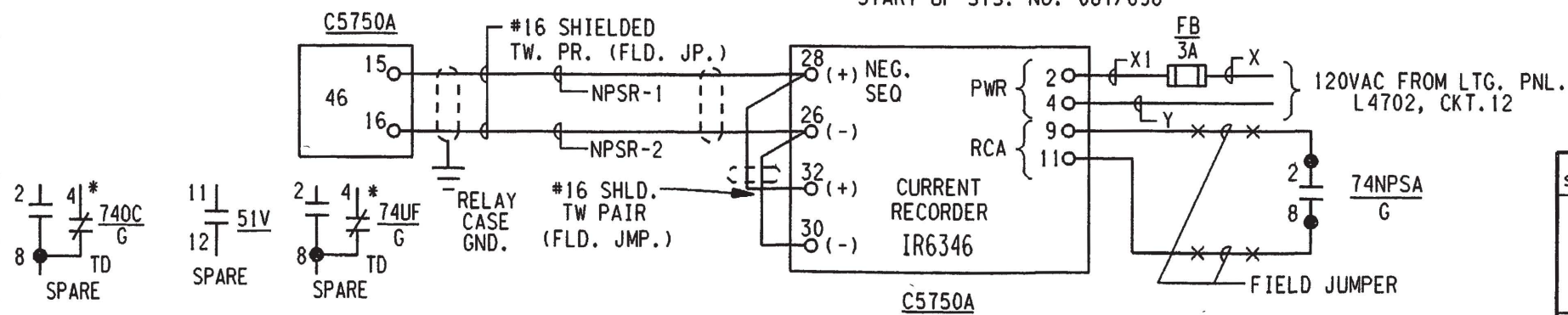
11	1/31/05	INC. DCN'S: E-31B-199 PER ECR 04-0152-00 (CR 02-04591) & E-31B-201 PER ECR 04-0114-00 (CR 02-09690)	BY	EAL	EAL	INITIALS ON FILE	INITIALS ON FILE	ENGR. SUPV.	GEN. SUPV.
10	7-21-06	INC. DCN E-31B-161 PER DDR 00-1574	BY						
6	5-6-92	INC DCN E-31B-88 PER FPR 91-4450-501. GEN. UPDATE REDRAWN ON CAD TO IMPROVE LEGIBILITY.	BY						
NO.	DATE	REVISIONS							



SCHEME NO. GX01 (CONTINUED) CHANNEL A
START-UP SYS. NO. 087/098

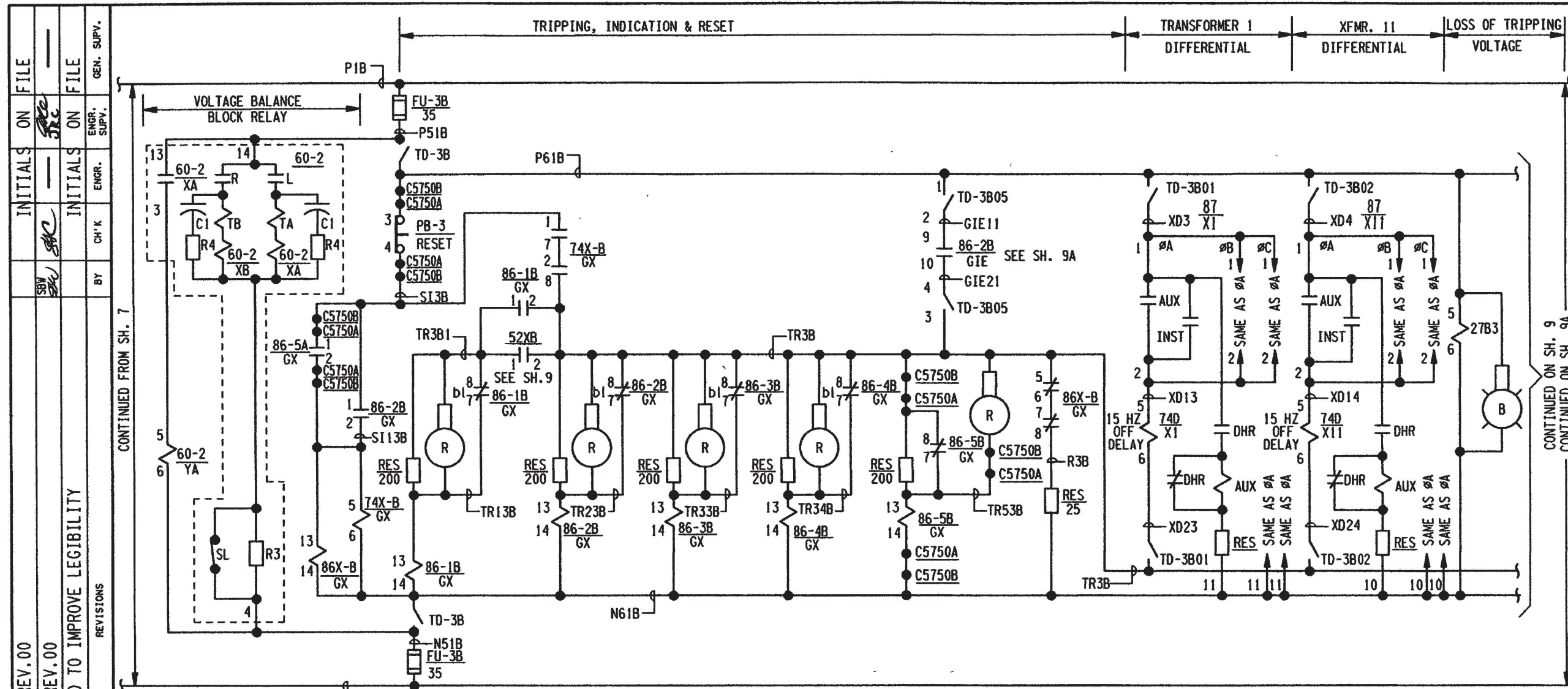
THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REV.5

GENERATOR - TRANSFORMER
A RELAY CKTS (CONTINUED)



- NOTES:
1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
 2. SEE SH-14 FOR RELAY CONTACT ASSIGNMENTS.
 3. * 4 NOT USED-SEE GE INSTRUCTIONS GEI10190G.

SCALE NONE	DESIGNED	DRAWN DVK	DATE 03-25-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAM GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO. E-31B SH-5			REV. 11



CONTINUED FROM SH. 7

CONTINUED ON SH. 9
CONTINUED ON SH. 9A

INITIALS ON FILE	GEN. SUPV.
ENGR. SUPV.	
ENGR.	
CH'K	
BY	
REVISIONS	
NO.	DATE
11	5-7-12 INC. DUN 05-0255-001-007 REV.00
12	5-8-92 INC. DUN 12-0134-001-005 REV.00
7	5-8-92 GEN. UPDATE REDRAWN ON CAD TO IMPROVE LEGIBILITY

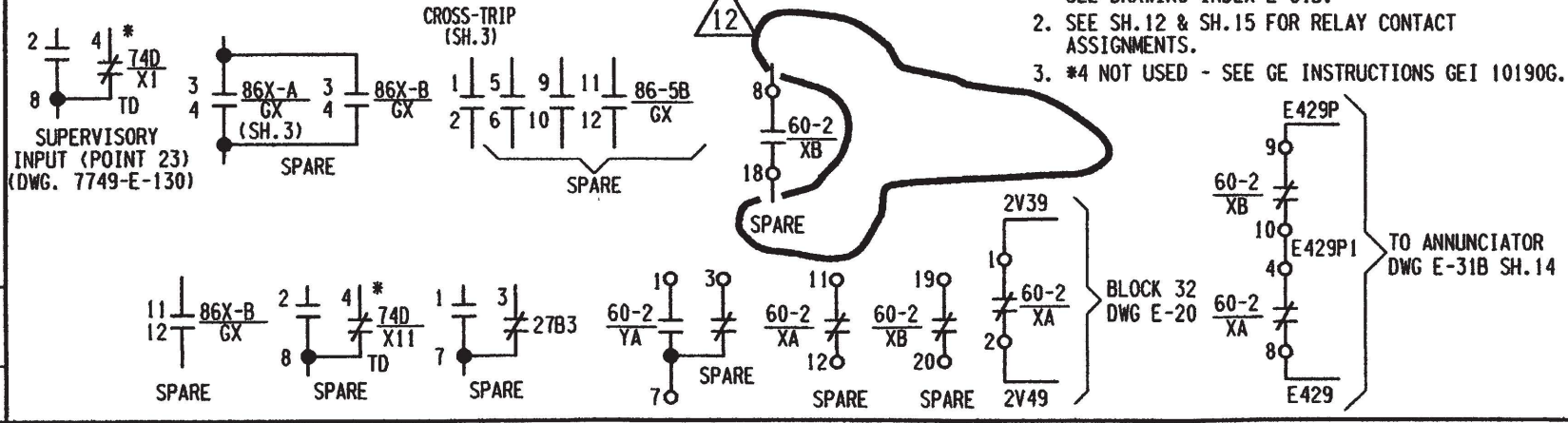
SCHEME NO. GX02-CHANNEL B
START-UP SYS. NO. 087/098

- NOTES:
1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
 2. SEE SH.12 & SH.15 FOR RELAY CONTACT ASSIGNMENTS.
 3. *4 NOT USED - SEE GE INSTRUCTIONS GEI 10190G.

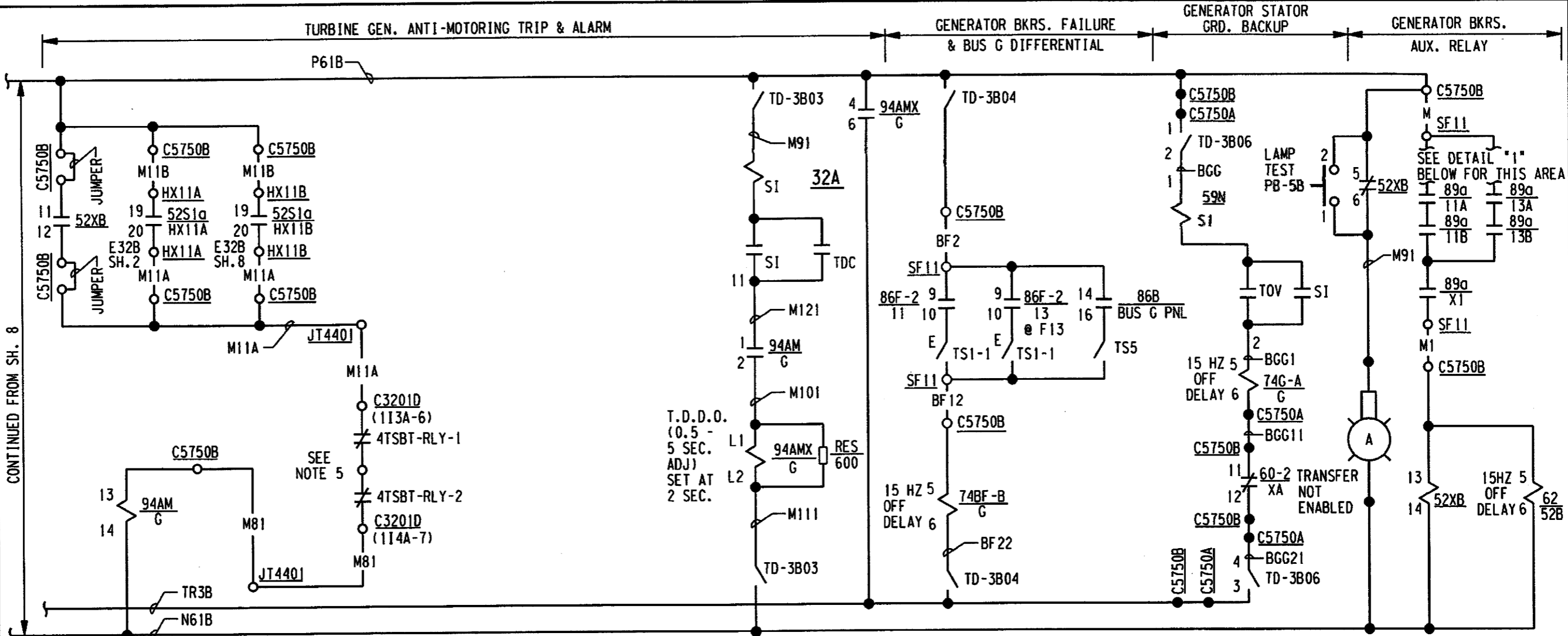
GENERATOR - TRANSFORMER
B RELAY CKTS

THIS DWG. WAS REDRAWN ON CAD AND SUPERSEDES REVISION 6.

SCALE NONE	DESIGNED TG	DRAWN JAD	DATE 03-24-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO.			REV.
E-31B SH. 8			12



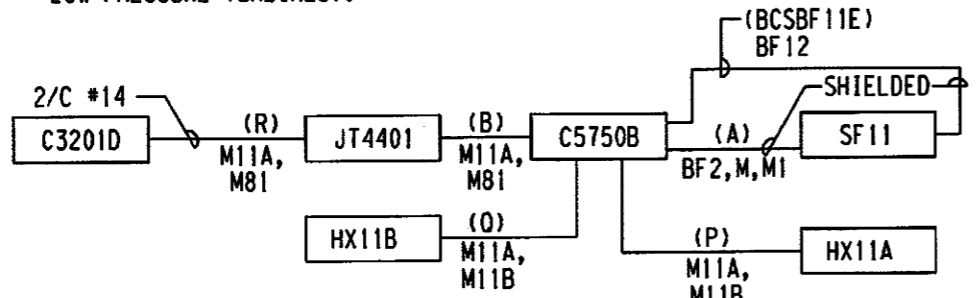
15	6/12/14	INC.	DUN 05-0140-004-141	REV.00	INITIALS	ON FILE
18	3/10/8	INC.	DUN 14-0725-011-005 & PDUN 14-0725-012-005 BOTH REV.0 (NO DWG. CHANGE)		SBW	GEN. SUPV.
17	5/12/16	INC.	DUN'S 14-0725-006-013, 14-0725-007-005 & 16-0255-002-003 ALL REV.0			ENGR. SUPV.
16	07-23-14	INC.	DUN 14-0422-001-002	REV.00		ENGR.
					BY	CH'K



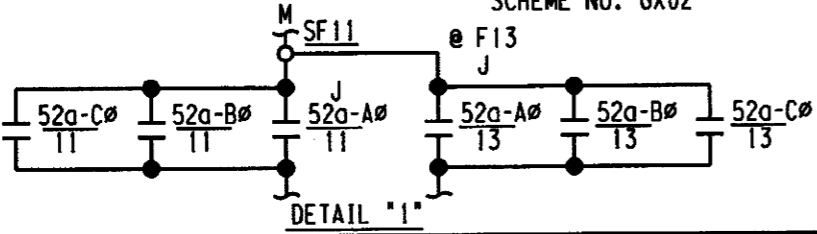
SCHEME NO. GX02 (CONTINUED) - CHANNEL B
START-UP SYS. NO. 087/098

NOTES: (CONT'D)

5. 4TSBT-RLY-1 AND 2 CONTACTS WHICH HAVE 2 OUT OF 3 LOGIC CLOSE WHEN ALL STOP VALVES ARE CLOSED AND EACH COMBINED INTERMEDIATE VALVE HAS EITHER THE INTERMEDIATE STOP VALVE OR THE INTERCEPT VALVE CLOSED WILL ENERGIZE RELAY 94AM/G (NO STEAM PATH THROUGH THE HIGH PRESSURE AND LOW PRESSURE TURBINES).



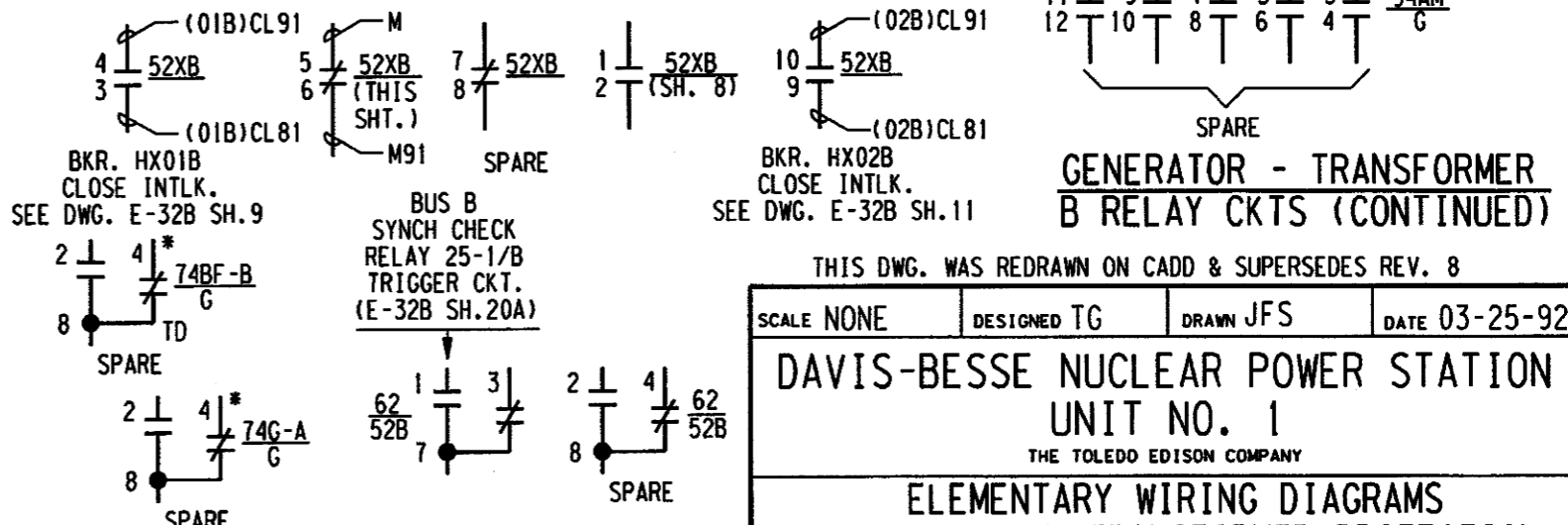
BLOCK DIAGRAM
SCHEME NO. GX02



DETAIL "1"

NOTES:

1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-31B.
2. SEE SH.12, & SH.15 FOR RELAY CONTACT ASSIGNMENTS.
3. EACH TURBINE VALVE POSITION SWITCH IS SHOWN WITH BOTH BECHTEL AND GE DESIGNATIONS, THE LATTER IS SHOWN IN PARENTHESIS.
4. *4 NOT USED - SEE GE INSTRUCTIONS GE1 10190G.

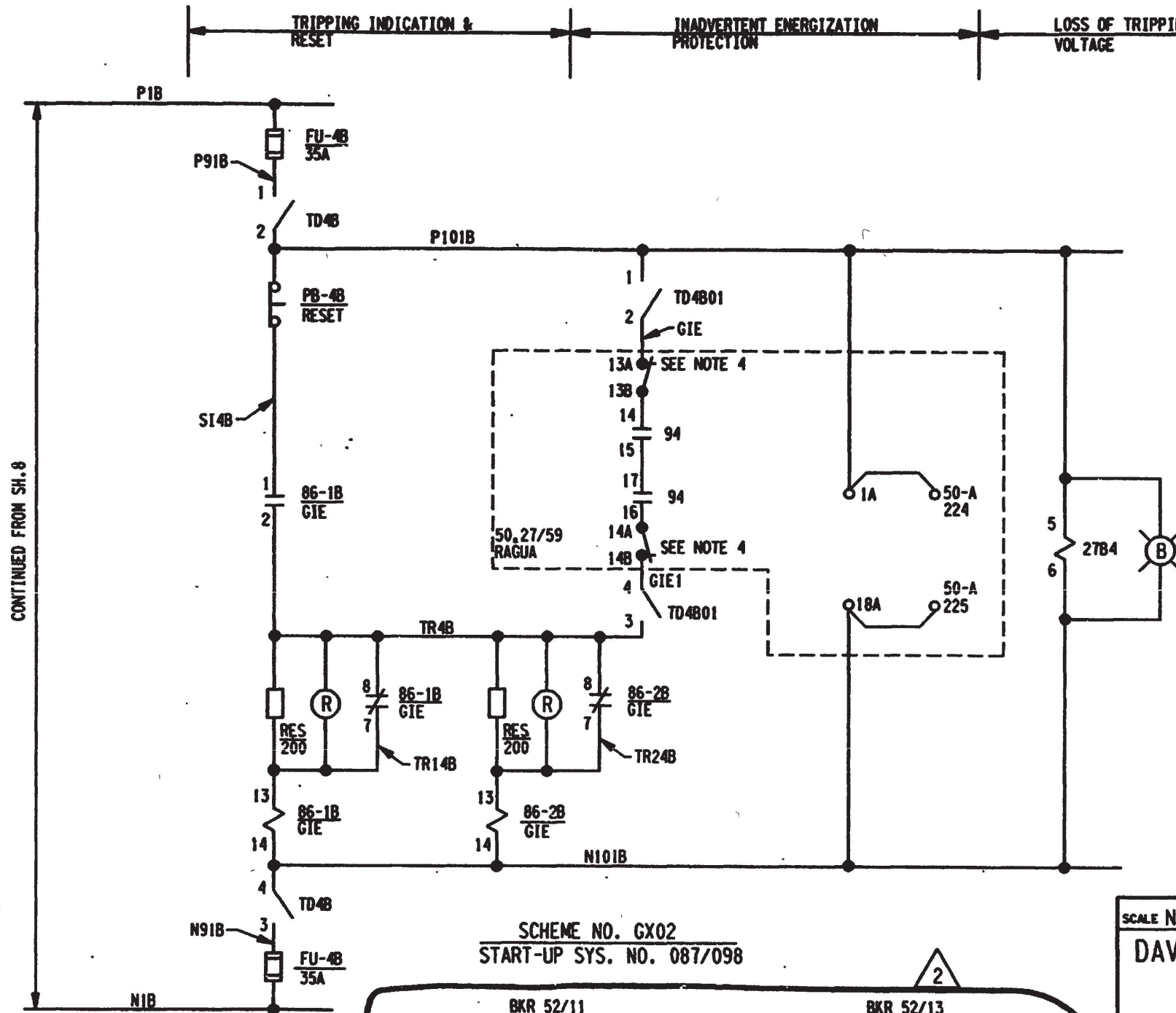


GENERATOR - TRANSFORMER
B RELAY CKTS (CONTINUED)

THIS DWG. WAS REDRAWN ON CADD & SUPERSEDES REV. 8

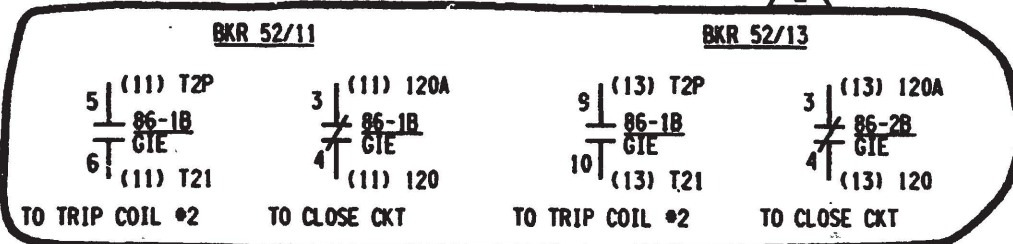
SCALE NONE	DESIGNED TG	DRAWN JFS	DATE 03-25-92
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
DRAWING NO. E-31B SH.9			REV. 18

2	7/2/80	INC. DCN E-31B-164 PER DDR 00-1574	SBW	BY	REVISIONS
1	9/20/80	"AS BUILT" FOR DCR 89-0041 INC. DCN E-31B-62.	Jae	CHK	"INITIALS ON FILE"
0	6/9/88	ISSUED FOR IMPLEMENTATION FOR MOD. 87-1318	MW	ENGR. SUPV.	"INITIALS ON FILE"
				ENGR. SUPV.	



- NOTES:**
- FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B.
 - DELETED.
 - FOR DETAILS OF TEST PUSHBUTTON SEE DRAWING E-30B SH. 17 FIG. 5.
 - BREAK-CONTACT IN RAGUA RELAY EARLY OPENING AND LATE CLOSING UPON INSERTION AND WITHDRAWAL, RESPECTIVELY, OF THE TEST HANDLE.
 - THREE (3) RAGUA OVERCURRENT RELAYS (50 RAGUA) ARE ENABLED TO TRIP BY TWO (2) UNDERVOLTAGE RAGUA RELAYS (27/59) RAGUA. SEE DRAWING E-20
 - FOR CONNECTION DIAGRAM OF THE RAGUA DEAD MACHINE RELAY SEE WOLFE & MANN DRAWING E-2948E, SH.4F (F.P. 7749-E-21-26-3)
 - FOR SCHEMATIC DIAGRAM OF THE RAGUA DEAD MACHINE RELAY SEE 7749-E-21-32.

SCHEME NO. GX02
START-UP SYS. NO. 087/098

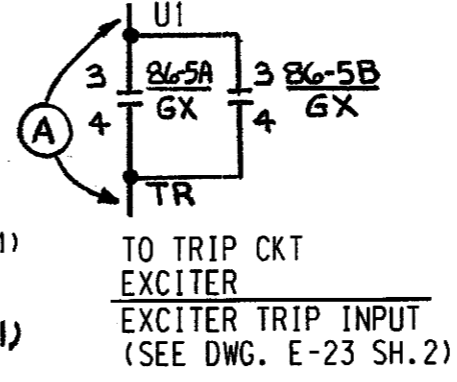
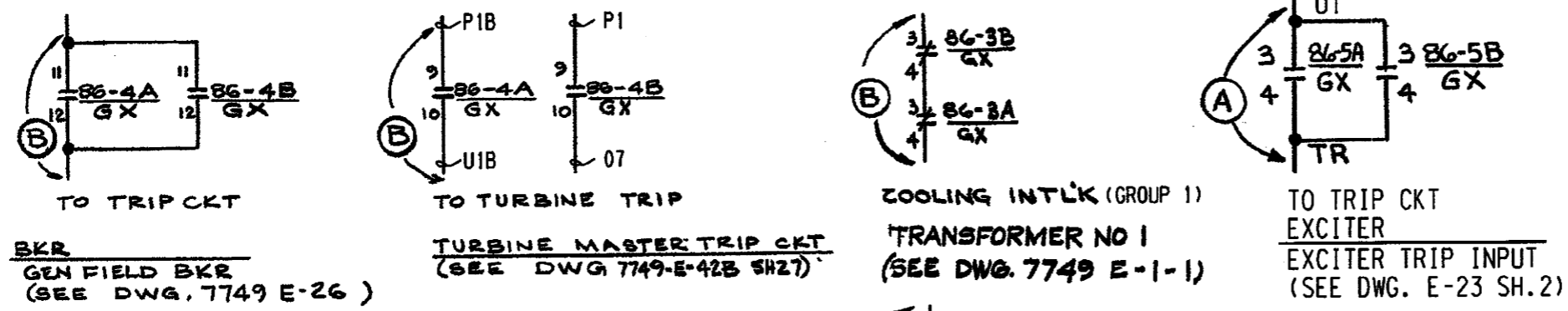
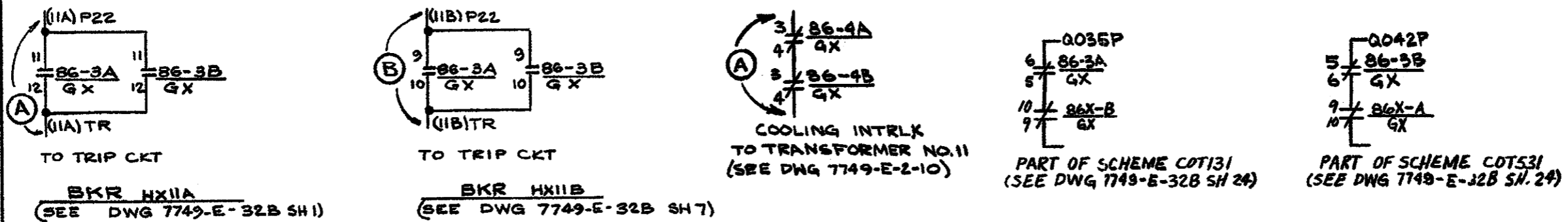
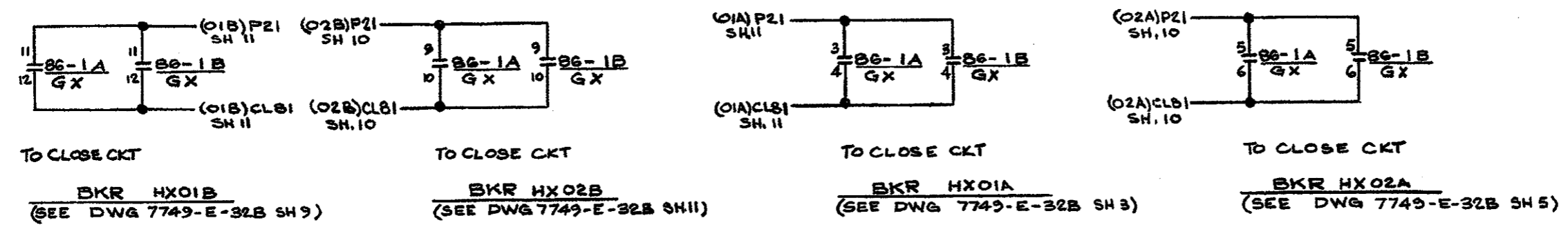
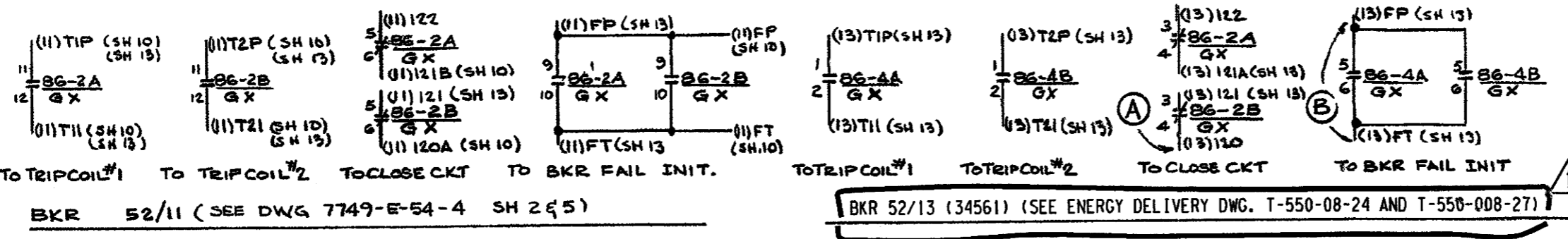


DB 07-07-00 DFN= F:/SCHEME/E31BS9A.DGN

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO THE RECORDS MANAGEMENT-DAVIS-BESSE N.P.S.
DATE: 8-1-00 OPERATOR: Dorothy Wiedle

16X

INITIALS ON FILE	6/14/14	6/14/14	6/14/14
OWNER	OWNER	OWNER	OWNER
PROJ. CHIEF	PROJ. CHIEF	PROJ. CHIEF	PROJ. CHIEF
SUPV	SUPV	SUPV	SUPV
CHK	CHK	CHK	CHK
DR	DR	DR	DR
DATE	DATE	DATE	DATE
REV	REV	REV	REV
DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION
9	INC. DUN 05-0140-004-185 REV. 01 & 12-0134-001-003 REV. 00		
10	INC. PDUN 14-0726-012-012 REV. 0		
3	REVISED AS NOTED ISSUED FOR CONSTRUCTION		



RELAY CONTACT ASSIGNMENTS FOR (SH-3) AND (SH-8) TRIPPING AND LOCK-OUT RELAY CKTS

DAVIS-BESSE NUCLEAR POWER STATION			
THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAMS GENERATOR AND TRANSFORMER PROTECTION TRIPPING AND LOCK-OUT RELAY CKTS			
BECHTEL COMPANY	JOB NO	DRAWING NO	REV
	7749	E-31B SH-12	10

- NOTES**
- FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DRAWING INDEX E-31B
 - (A) INDICATES PANEL C5750A FOR TERMINATION OF OUTGOING WIRES
 - (B) INDICATES PANEL C5750B FOR TERMINATION OF OUTGOING WIRES

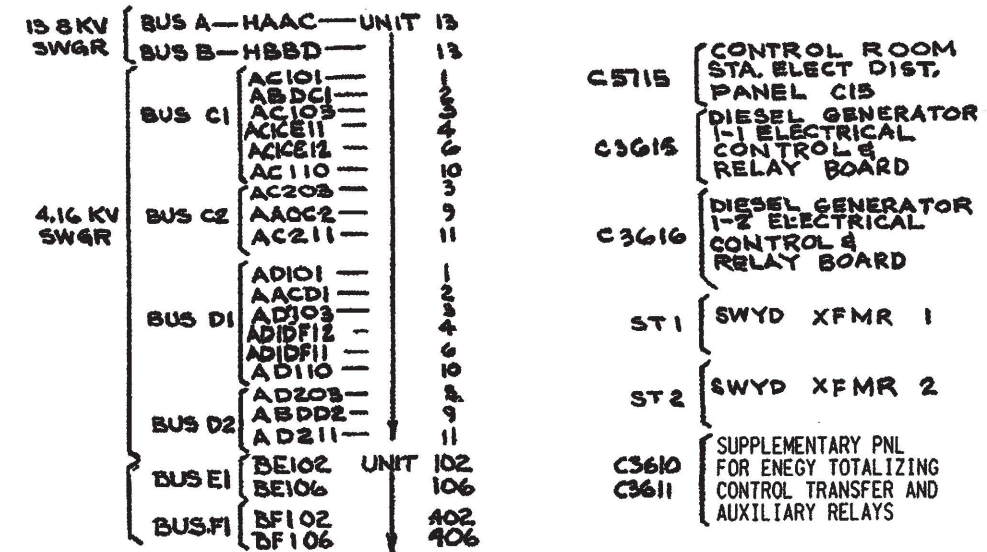
THIS DRAWING HAS BEEN REDRAWN/SCANNED ON CAD AND SUPERSEDES REV. 7.

INDEX				
SHEET NO.	LATEST REV.	DESCRIPTION	SCHEME NO.	ESSEN
1	6	4.16 KV FD BRKRS		
2	7	BUS TIE XFMR AC BRKR AAC2 CONTROL	AACC2	
3	9	4.16 KV FD BRKRS		
4	(7)	BUS TIE XFMR BD BRKR ABDC1 CONTROL	ABDC1	Q
5	10	4.16 KV FD BRKRS		
6	9	BUSES C1, C2 TIE BRKR AC110 CONTROL	AC110	Q
7	6	4.16 KV FD BRKRS		
8	7	BUS TIE XFMR BD BRKR ABDD2 CONTROL	ABDD2	
9	14	4.16 KV FD BRKRS		
10	6	BUS TIE XFMR AC BRKR AACD1 CONTROL	AACD1	Q
11	10	4.16 KV FD BRKRS		
12	(10)	BUSES D1, D2 TIE BRKR AD110 CONTROL	AD110	Q
13	12	4.16 KV FD BRKRS BUS C1 (D1) TRIPPING & LOCKOUT RELAYS & SYNCHRO CHECK RELAYS	AD103	Q
13A	2	4.16 KV FD BRKRS BUS C1 TRIPPING & LOCKOUT RELAYS & SYNCHRO CHECK RELAYS	AC103	Q
14	12	4.16 KV FD BRKRS BUS C1 (D1) VOLTAGE & AUX. RELAYS	AC103 (AD103)	Q
14A	10	4.16 KV FD BRKRS BUS C1 (D1) VOLTAGE & AUX. RELAYS	AD103	Q
14B	1	4.16 KV FD BRKRS BUS C1 (D1) VOLTAGE & AUX. RELAYS	AC103 (AD103)	Q
14C	4	4.16 KV FD BRKRS BUS C1 VOLTAGE & AUX. RELAYS	AC103	Q
15	12	4.16 KV FD BRKRS BUS C2 (D2) TRIPPING & LOCKOUT RELAYS	AC203 (AD203)	
16	7	4.16 KV FD BRKRS		
17	4	ESSEN UNIT SUBSTATION E1, F1 CONTROL	AC11CE (AD11DF) AC12CE (AD12DF)	Q
18	3	4.16 KV FD BRKRS		
		LTG. SUBSTA. CES (DF5) & SWYD FDS 1-1 (1-2) CONTROL	AC211 (AD211)	
18A	2	4.16 KV FD BRKRS		
		FDXDF6, FD, 4.16 KV DISCONNECT DSC205 CONTROL	AD205 AC205	
18B	1	4.16 KV FD BRKRS		
		FDXDF6, FD, 4.16 KV DISCONNECT DSC205 CONTROL	AD205 AC205	
19	4	4.16 KV FD BRKRS		
		LTG SUBSTA. CES (DF5) & SWYD FDS 1-1 (1-2) CONTROL	AC211 (AD211)	

GENERAL NOTES

- SEE DRAWING 7749-E-21, 13.8 KV RELAY & METERING THREE LINE DIAGRAM, FOR AC RELAY, METER, INSTRUMENT & DEVICE CONNECTIONS
- SEE DRAWING 7749-E-22 SH.1 & SH.2, 4.16 KV RELAY & METERING THREE LINE DIAGRAM, FOR AC RELAY, METER, INSTRUMENT & DEVICE CONNECTIONS
- FOR EXPLANATION OF EQUIPMENT & WIRING NUMBERS, SEE 7749-E IIA, ELECTRICAL NUMBERING SYSTEMS
- SEE DRAWING E-308 FOR CONTROL & SELECTOR SWITCH DEVELOPMENT
- SHEET & FIG. REFERENCES FOR DRAWING E-308 ARE NOTED ON THE SCHEME DIAGRAMS OF SERIES E-348
- SEE DRAWING 7749-E-3, 4.16 KV METERING & RELAYING ONE LINE DIAGRAM, FOR GENERAL ARRANGEMENT & RELAY FUNCTIONS
- NUMBER IN BRACKETS [] REPRESENTS COMPUTER INPUT NUMBER. NUMBER IN PARENTHESES () REPRESENTS COMPUTER INPUT SOURCE NUMBER

EQUIPMENT (LOCATION) NUMBERS



FOR REV. BLOCK CONT. SEE INDEX SH. 2.

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 45.

No	DATE	DESCRIPTION	DR	CHK	SUPV	CHIEF	OWNER
7	4-27-76	ISSUED SH 3 (REV 2) SH 22 (REV 3) SH 3 (REV 4)	CW	GM	SMC		SNS
6	4-5-76	ISSUED SH 19 (REV 4), ADDED NOTE 7	CW	GM	SMC		SNS
5	3-2-76	ISSUED SH'S 14, 16 (REV 3) SH 22 (REV 2)	RS	GM	SMC		SNS
4	7/9/75	ISSUED SH 11 (REV 2) SH'S 8, 9 (REV 3)	GM	GM	SMC		SNS
3	5/10/75	REISSUED FOR CONST SH'S 20, 21, 22 (REV 1); ISSUED SH'S 3, 4, 5, 9, 12, 17, 19 (REV 3); AND REVISED AS NOTED	TLB	GM	SMC		SNS
18	2-7-76	REVISED SH 14A (REV 1); SH 15 (REV 4); SH 22 (REV 5)	RNS	GM	SMC		SNS
11	7-18-77	REVISED SH 11 (REV 5) AND SH 5 (REV 6)	MMM	MLM	SMC		SNS
0	10/31/72	ISSUED FOR CONSTRUCTION REV. 0 SH 1 THRU 19	MM	MLM	SMC		SNS

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
 4.16 KV FD BRKRS
 DRAWING INDEX

JOB NO	DRAWING NO	REV.
7749	E-34B	DRAWING INDEX SHEET 1
		51

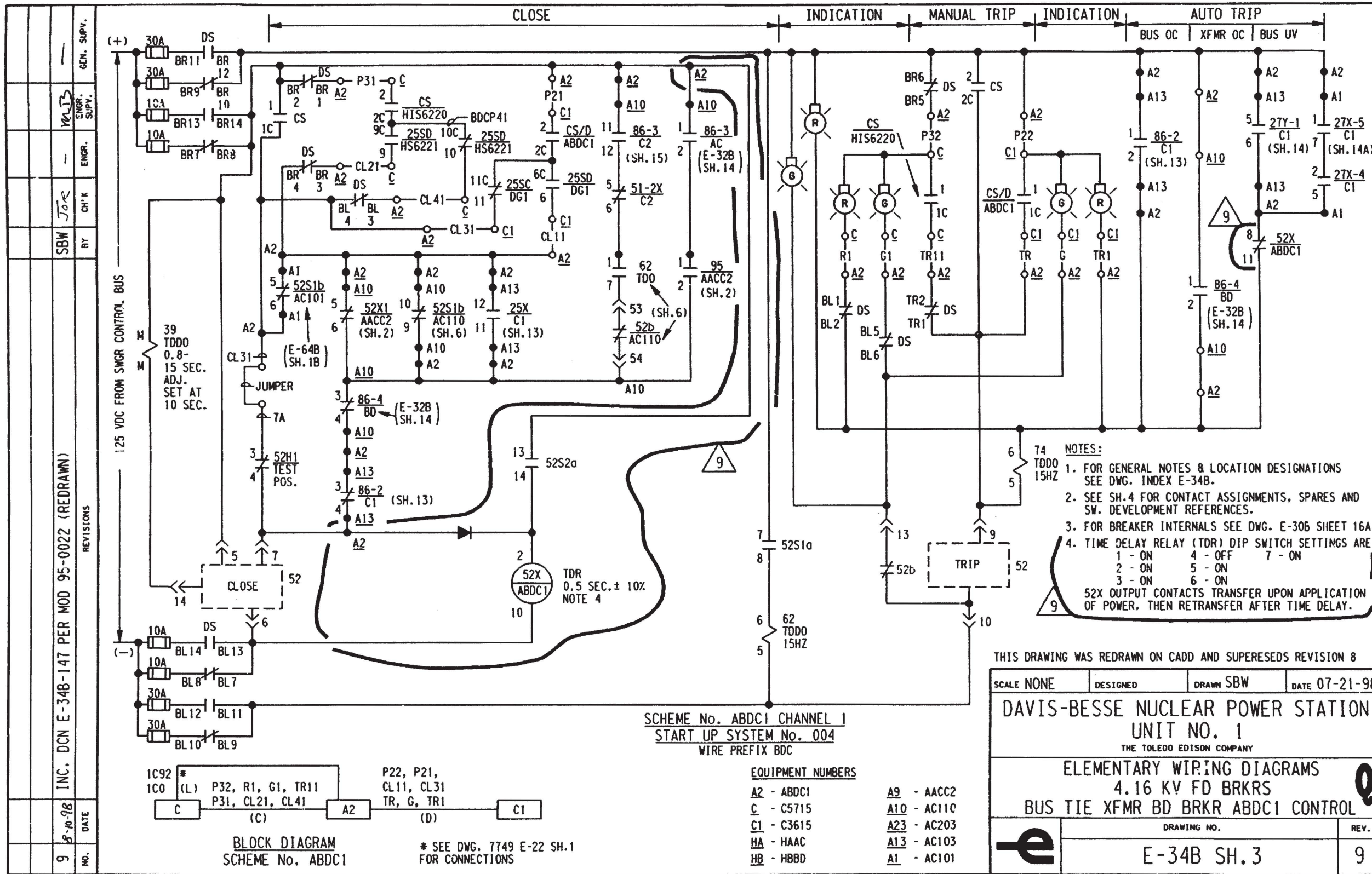
SHEET NO. DATE DR CHK SUPV ENGR PROJ OWNER OWNER
 6-211 D

INDEX				
SHEET NO.	LATEST REV	DESCRIPTION	SCHEME NO	ESSEN
20	5	4.16 KV FD BRKRS COMP POINTS Q047 & Q052	COT 131 (COT531)	
21	4	4.16 KV FD BRKRS COMP POINTS Q418 & Q419	COT131 (COT531)	
22	11	4.16 KV FD BRKRS COMP POINTS E081, E085, E-413, E-417	CON121 (CON520) ANR116 (ANR516) CO2142 (CO2562)	
23A	3	4.16KV FD BRKR NON-ESSEN UNIT SUBSTATION F7 CONTROL	AD2DF7	
23B	1	4.16KV FD BRKR NON-ESSEN UNIT SUBSTATION F7 CONTROL		
24	2	4.16KV BUS CI BRKRS ANNUNCIATION REFLASH FOR ANNUNCIATOR POINT Z413	Z413	
25	2	4.16KV BUS DI BRKRS ANNUNCIATION REFLASH FOR ANNUNCIATOR POINT Z416	Z416	

40	9-5-97	INC. DCN E-34B-159 PER DDR 97-0889 AND REVISED SH'S 6 & 12 (REV. 7) AND SH. 18B (REV. 11)	SBW	DVK	ms	-	-	-	-
39	7-11-96	REVISED SH. 1 (REV. 4), SH. 3 & 11 (REV. 8), SH. 5 (REV. 9), SH. 7 & 16 (REV. 5), SH. 9 (REV. 11), SH. 18 & 23A (REV. 3), SH. 18A (REV. 2)	KNF	SBW	GM	-	-	-	-
38	2/9/95	REVISED SH. 14A (REV. 6) AND SH. 14C (REV. 1)	SBW	FS	LB	-	-	-	-
51	5-7-12	REVISED SH. 4 (REV. 7) & SH. 12 (REV. 10)	SAC	SBW	CG	-	-	-	-
50	1-24-12	REVISED SH. 1 (REV. 6), SH. 9 (REV. 14) & SH. 11 (REV. 10)		INIT	ALS	ON	FILE		
49	9-6-11	REVISED SH. 14A (REV. 10) & SH. 14C (REV. 4)		INIT	ALS	ON	FILE		
48	5-7-10	REVISED SH. 4 & SH. 10 (REV. 6) & SH. 6 & 12 (REV. 9)		INIT	ALS	ON	FILE		
47	07-14-09	REVISED SH. 9 (REV. 13) & SH. 14B (REV. 1)		INIT	ALS	ON	FILE		
46	07-19-07	REVISED SH. 14A (REV. 9) & SH. 14C (REV. 3)		INIT	ALS	ON	FILE		
45	4/24/06	REVISED SH. 14 (REV. 12)	SAB	SBW	RR	-	-	-	-
44	12/03/03	REVISED SH. 14 (REV. 11), SH. 14A (REV. 8), SH. 14C (REV. 2)	JOR	SBW	RAF	-	-	-	-
43	3/24/03	REVISED SH. 14A (REV. 7)	JOR	SBW	SRB	-	-	-	-
42	6/23/00	REVISED SH. 7 (REV. 6), SH. 8 & 16 (REV. 7), SH. 9 (REV. 12), SH. 10 (REV. 5), SH. 11 (REV. 9) AND SH. 12 (REV. 8)	JOR	SBW	WLS	-	-	-	-
41	8-10-98	REVISED SH'S 1 & 4 (REV. 5), SH. 2 (REV. 7), SH. 3 (REV. 9), SH. 5 (REV. 10), SH. 6 (REV. 8) AND SH. 16 (REV. 6)	SBW	JOR	WLS	-	-	-	-
No	DATE	DESCRIPTION	DR	CHK	SUPV	CHIEF	PROJ	OWNER	OWNER

THIS DWG. WAS REDRAWN/SCANNED
ON CAD AND SUPERSEDES REVISION 45.

DAVIS-BESSE NUCLEAR POWER STATION			
THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAM 4.16 KV FD BRKRS DRAWING INDEX			
BECHTEL COMPANY	JOB NO. 7749	DRAWING NO E-34B	REV 51
		DRAWING INDEX SHEET 2	



GEN. SUPV.	
ENGR. SUPV.	WLD
ENGR.	
CHK	JOR
BY	SBW
REVISIONS	
INC. DCN E-34B-147 PER MOD 95-0022 (REDRAWN)	
DATE	8-10-98
NO.	9

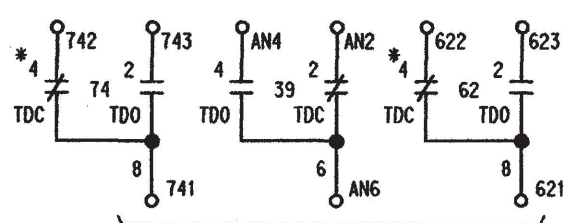
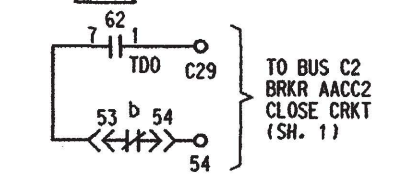
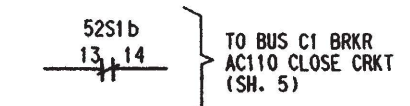
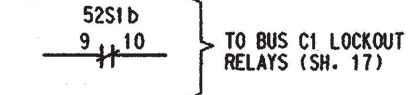
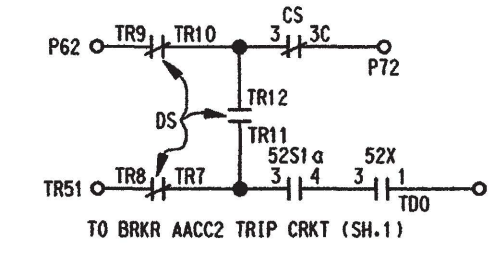
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 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

DB 07-29-98 DFN=F /SCHEME /E34BSH3 .DGN

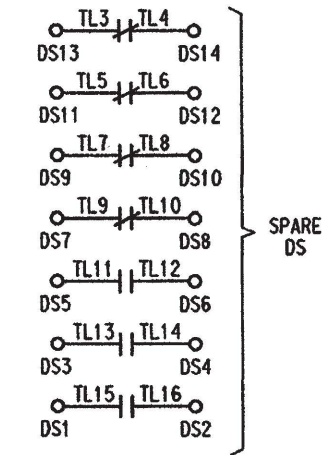
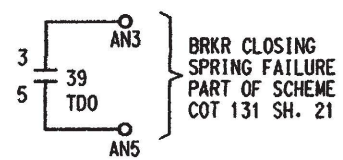
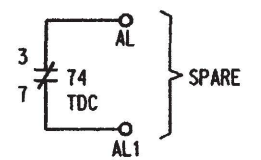
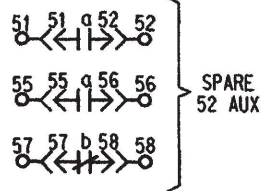
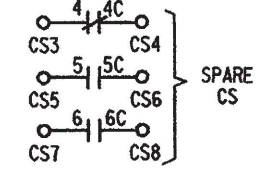
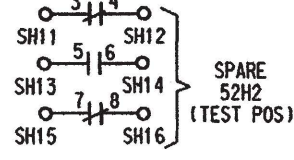
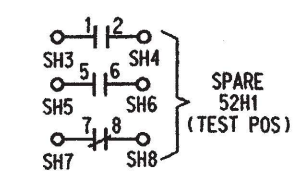
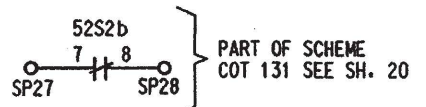
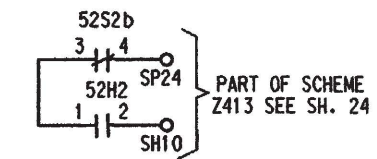
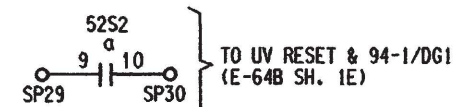
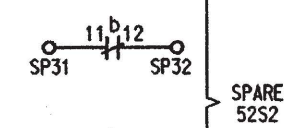
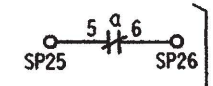
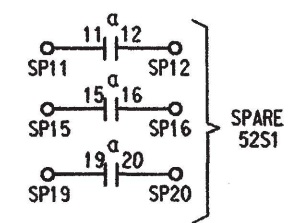
I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT-DAVIS-BESSE N.P.S.
 DATE: 8-20-98 OPERATOR: Dorothy Wiedle

16X

7	5-7-92	INC. DUN 11-0592-001-001 REV. 00	REVISIONS	BY	CH'K	ENGR.	ENGR. SUPV.	GEN. SUPV.
6	5-7-10	INC. DUN 01-0261-002-009 REV. 00						
5	8-10-98	INC. DCN E-34B-148 PER MOD 95-0022 (REDRAWN)						



* NOT TO BE USED



SWITCH DEVELOPMENT REFERENCE

- 1 - FOR CS AT SWGR. SEE FIG 2, SH 9A, DWG E-30B
- 2 - FOR REMOTE CS SEE FIG 3, SH 9, DWG E-30B
- 3 - FOR REMOTE ~~25SD~~ ^{DG1} SEE FIG 4, SH 9A, DWG E-30B
- 4 - FOR DS SEE FIG 4, SH 10, DWG E-30B
- 5 - FOR REMOTE ~~25SD~~ ^{HS6221} SEE FIG 1, SH 10, DWG E-30B

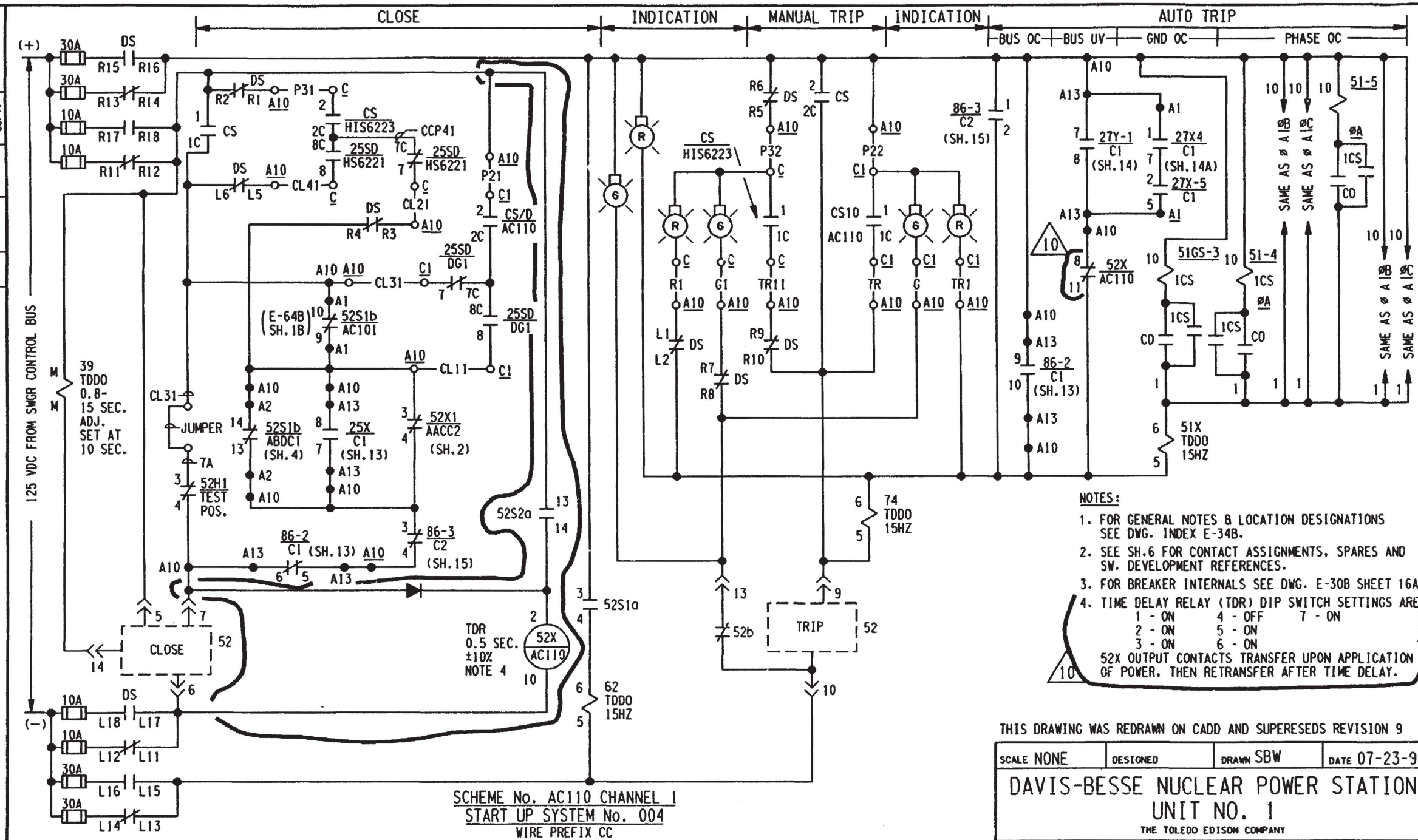
NOTES:

- 1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 4

SCALE NONE	DESIGNED	DRAWN SBW	DATE 07-23-98
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS BUS TIE XFMR BD BRKR ABDC1 CONTROL			
	DRAWING NO.		REV.
	E-34B SH. 4		7

10	8-10-88	DATE
10	8-10-88	NO.
INC. DCN E-34B-149 PER MOD 95-0022 (REDRAWN)		
SBW	BY	CH'K
		ENGR.
		ENGR. SUPV.
		GEN. SUPV.



- NOTES:
- FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.
 - SEE SH.6 FOR CONTACT ASSIGNMENTS, SPARES AND SW. DEVELOPMENT REFERENCES.
 - FOR BREAKER INTERNALS SEE DWG. E-30B SHEET 16A.
 - TIME DELAY RELAY (TDR) DIP SWITCH SETTINGS ARE:

1 - ON	4 - OFF	7 - ON
2 - ON	5 - ON	
3 - ON	6 - ON	
- 52X OUTPUT CONTACTS TRANSFER UPON APPLICATION OF POWER, THEN RETRANSFER AFTER TIME DELAY.

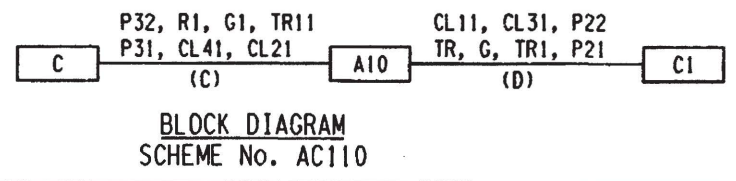
THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 9

SCALE NONE	DESIGNED	DRAWN SBW	DATE 07-23-98
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DAVIS-BESSE NUCLEAR POWER STATION
UNIT NO. 1
THE TOLEDO EDISON COMPANY

ELEMENTARY WIRING DIAGRAMS
4.16 KV FD BRKRS
BUSES C1, C2 TIE BRKR AC110 CONTROL

DRAWING NO.	REV.
E-34B SH.5	10



- EQUIPMENT NUMBERS
- | | |
|-------------|-------------|
| A10 - AC110 | A13 - AC103 |
| C - C5715 | A1 - AC101 |
| C1 - C3615 | A2 - ABDC1 |

LEVELS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 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

DB 07-29-98

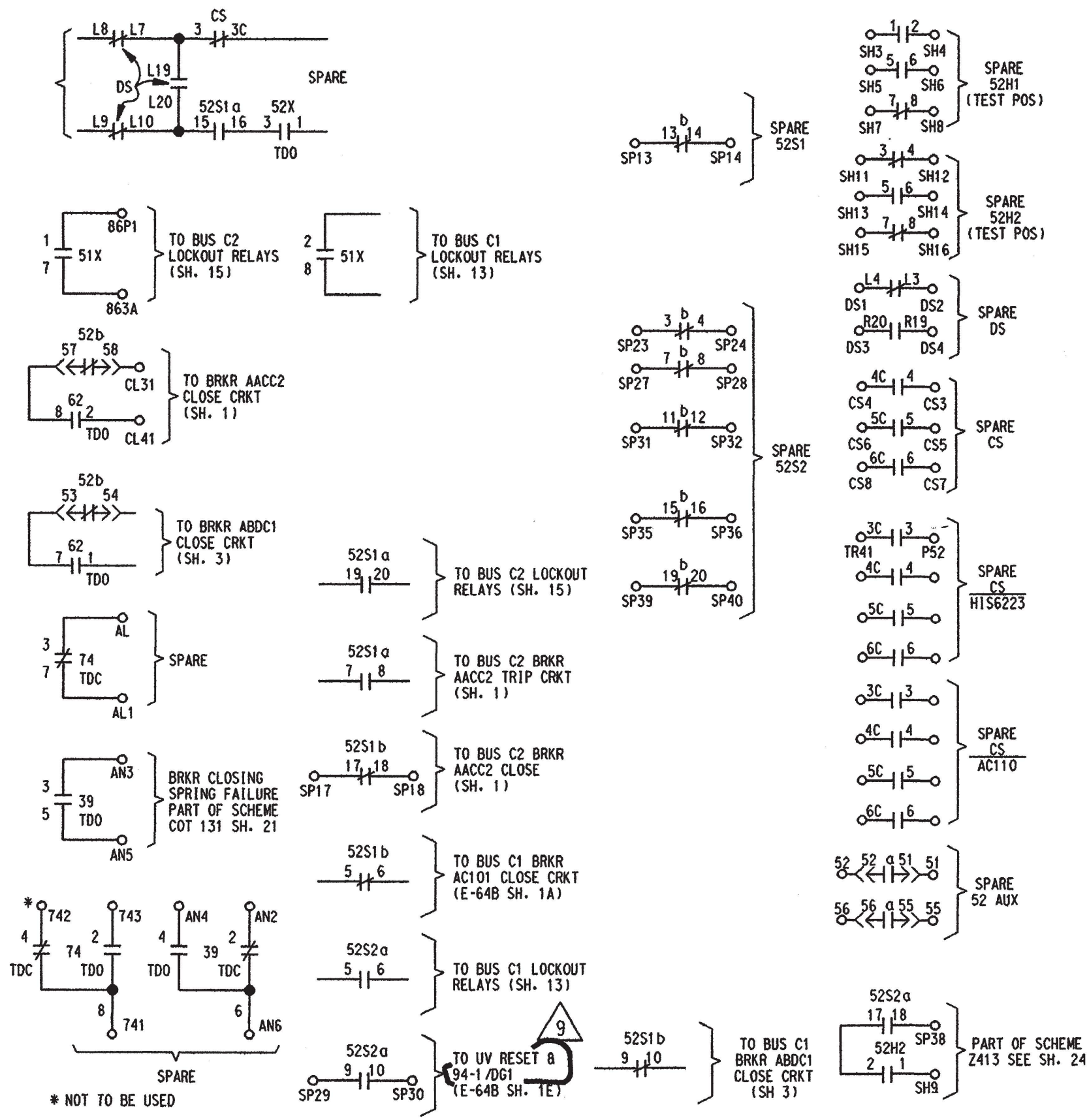
DFN=F /SCHEME /E34BSH5. DGN

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT-DAVIS-BESSE N.P.S.

DATE: 8-20-98 OPERATOR: Dorothy Wiedle

16X

9	5/7/96	INC. DUN 01-0261-002-010 REV.00	REVISIONS	BY	SBW	CHK	DVK	ENGR.	MLB	GEN. SUPV.
8	8-10-98	INC. DCN E-34B-150 PER MOD 95-0022 & GEN. UPDATE ADD Q (OMITTED AT REV 7 REDRAW)								
7	9-5-97	INC. DCN E-34B-140 PER MOD 95-0012 (REDRAWN)								

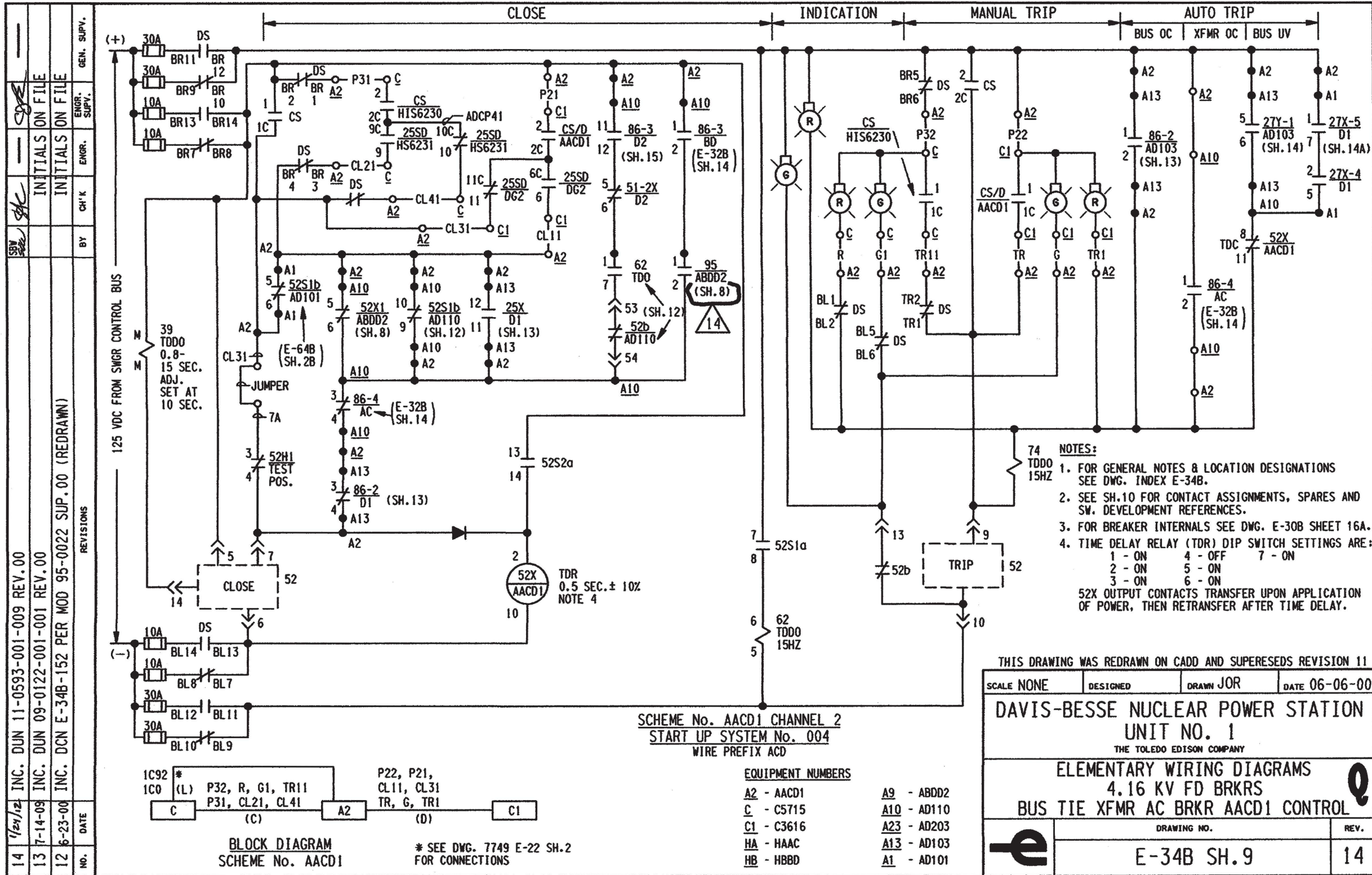


- SWITCH DEVELOPMENT REFERENCE**
- 1 - FOR CS AT SWGR, SEE FIG 2, SH 9A, DWG E-30B
 - 2 - FOR REMOTE CS, SEE FIG 3, SH 9, DWG E-30B
 - 3 - FOR REMOTE 25SD SEE FIG 4, SH 9A, DWG E-30B
 - 4 - FOR DS SEE FIG 5, SH 10, DWG E-30B
 - 5 - FOR REMOTE 25SD SEE FIG 1, SH 10, DWG E-30B

NOTES:
 1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 6

SCALE NONE	DESIGNED	DRAWN SBW	DATE 07-17-97
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS BUSES C1,C2 TIE BRKR AC110 CONTROL			
DRAWING NO.			REV.
E-34B SH.6			9

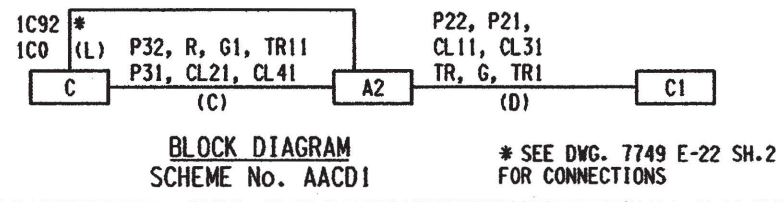


- NOTES:**
1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.
 2. SEE SH.10 FOR CONTACT ASSIGNMENTS, SPARES AND SW. DEVELOPMENT REFERENCES.
 3. FOR BREAKER INTERNALS SEE DWG. E-30B SHEET 16A.
 4. TIME DELAY RELAY (TDR) DIP SWITCH SETTINGS ARE:
 1 - ON 4 - OFF 7 - ON
 2 - ON 5 - ON
 3 - ON 6 - ON
- 52X OUTPUT CONTACTS TRANSFER UPON APPLICATION OF POWER, THEN RETRANSFER AFTER TIME DELAY.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 11

SCALE NONE	DESIGNED	DRAWN JOR	DATE 06-06-00
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1			
<small>THE TOLEDO EDISON COMPANY</small>			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS BUS TIE XFMR AC BRKR AACD1 CONTROL			
DRAWING NO. E-34B SH. 9			REV. 14

14	1/24/12	INC. DUN 11-0593-001-009 REV. 00	BY	ENGR.	GEN. SUPV.
13	7-14-09	INC. DUN 09-0122-001-001 REV. 00	BY	ENGR.	GEN. SUPV.
12	6-23-00	INC. DCN E-34B-152 PER MOD 95-0022 SUP. 00 (REDRAWN)	BY	ENGR.	GEN. SUPV.
NO.	DATE	REVISIONS			



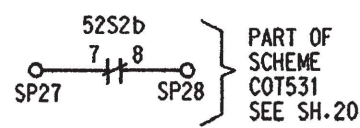
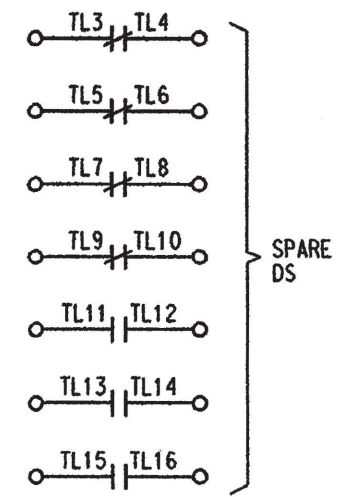
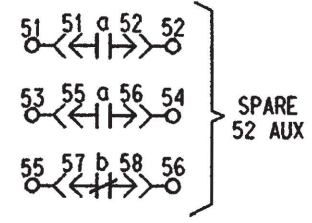
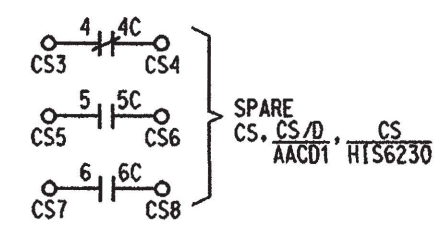
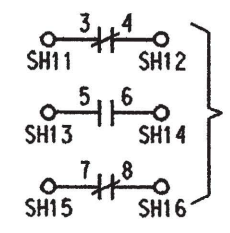
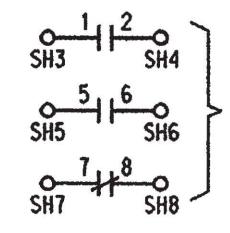
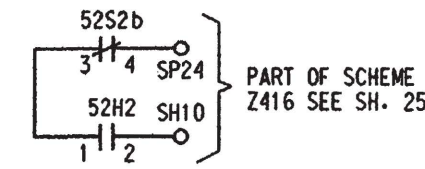
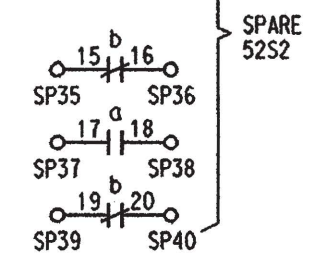
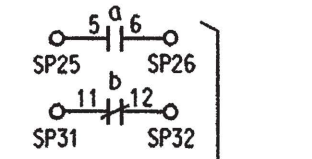
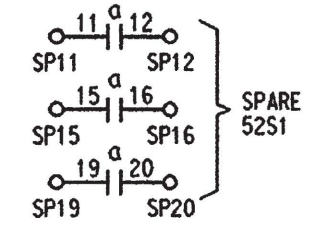
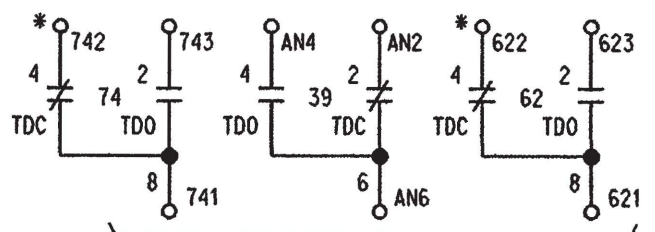
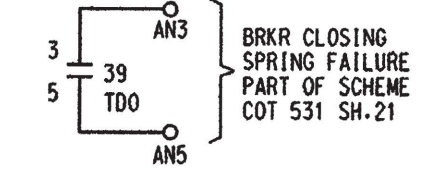
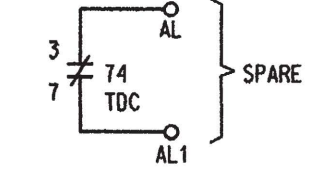
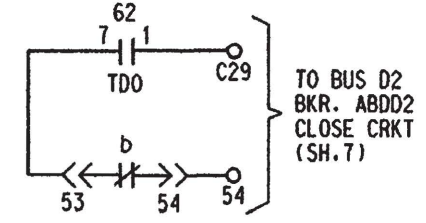
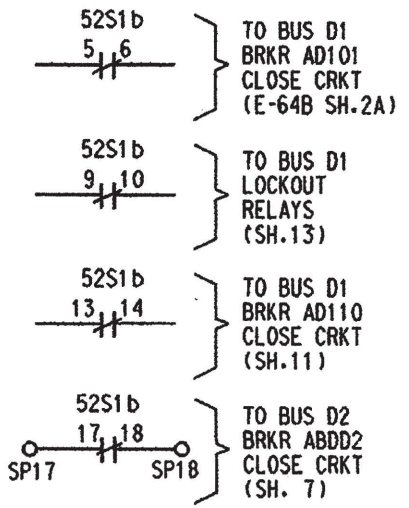
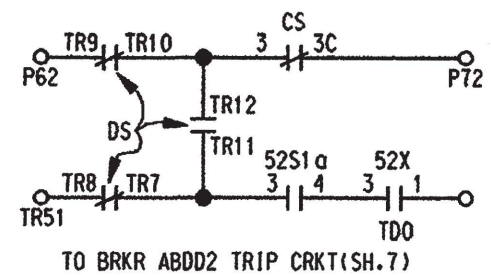
SCHEME No. AACD1 CHANNEL 2
START UP SYSTEM No. 004
WIRE PREFIX ACD

EQUIPMENT NUMBERS

A2 - AACD1	A9 - ABDD2
C - C5715	A10 - AD110
C1 - C3616	A23 - AD203
HA - HAAC	A13 - AD103
HB - HBBD	A1 - AD101

GEN. SUPV.	
ENGR. SUPV.	INITIALS ON FILE
ENGR.	
CH'K	
BY	
REVISIONS	
NO.	DATE
6	5/7/00
5	6-23-00

INC. DUN 01-0261-004-009 REV.00
 INC. DCN E-34B-153 PER MOD 95-0022 SUP.00 (REDRAWN)

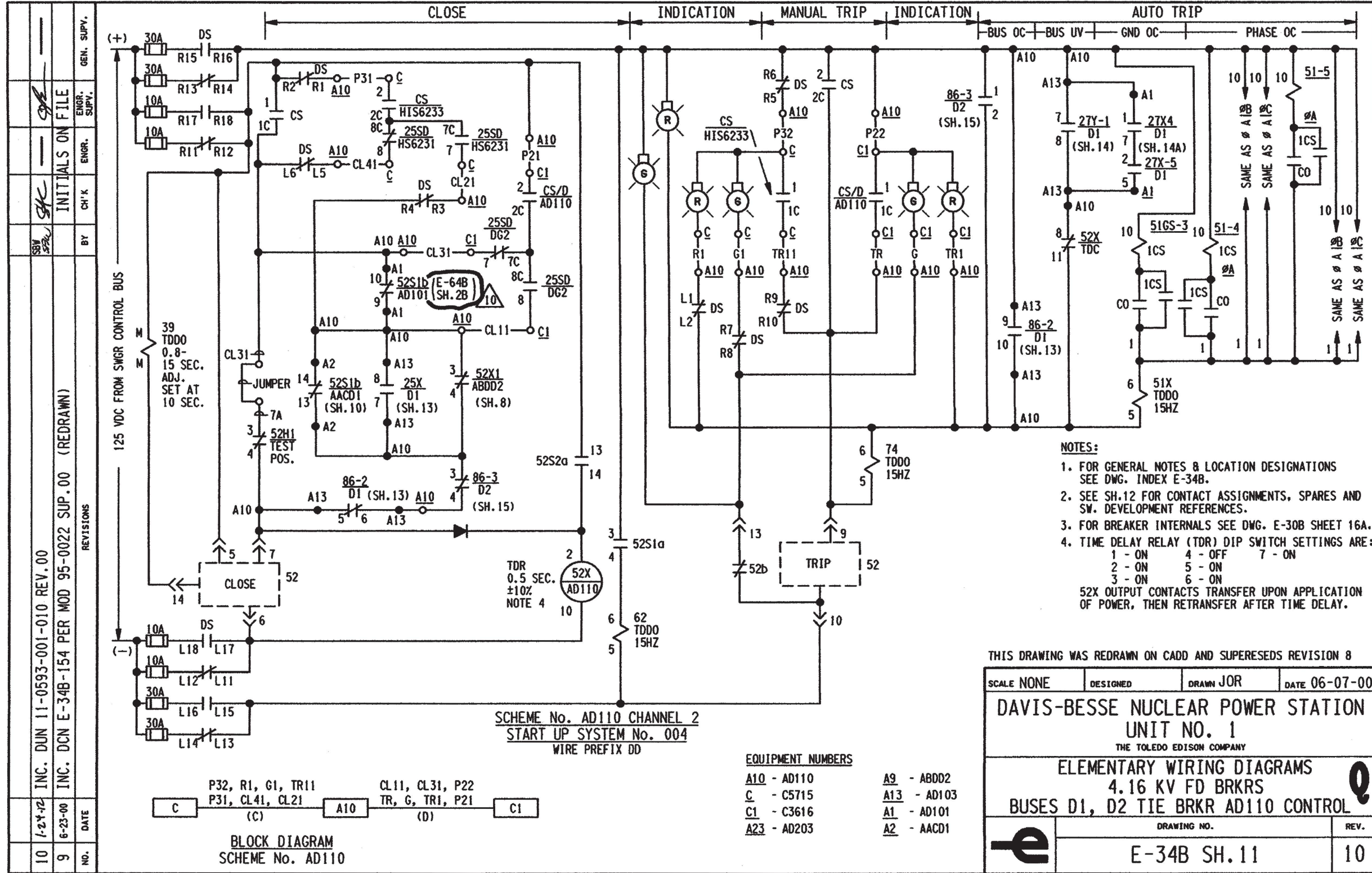


- SWITCH DEVELOPMENT REFERENCE**
- 1 - FOR CS AT SWGR, SEE FIG 2, SH 9A, DWG E-30B
 - 2 - FOR REMOTE CS, SEE FIG 3, SH 9, DWG E-30B
 - 3 - FOR REMOTE 25SD SEE FIG 1, SH 10, DWG E-30B
 - 4 - FOR DS SEE FIG 4, SH 10, DWG E-30B
 - 5 - FOR REMOTE 25SD SEE FIG 4, 9A, DWG E-30B

NOTES:
 1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 4

SCALE NONE	DESIGNED	DRAWN JOR	DATE 06-06-00
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 <small>THE TOLEDO EDISON COMPANY</small>			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS BUS TIE XFMR AC BRKR AACD1 CONTROL			
DRAWING NO.		REV.	
E-34B SH.10		6	

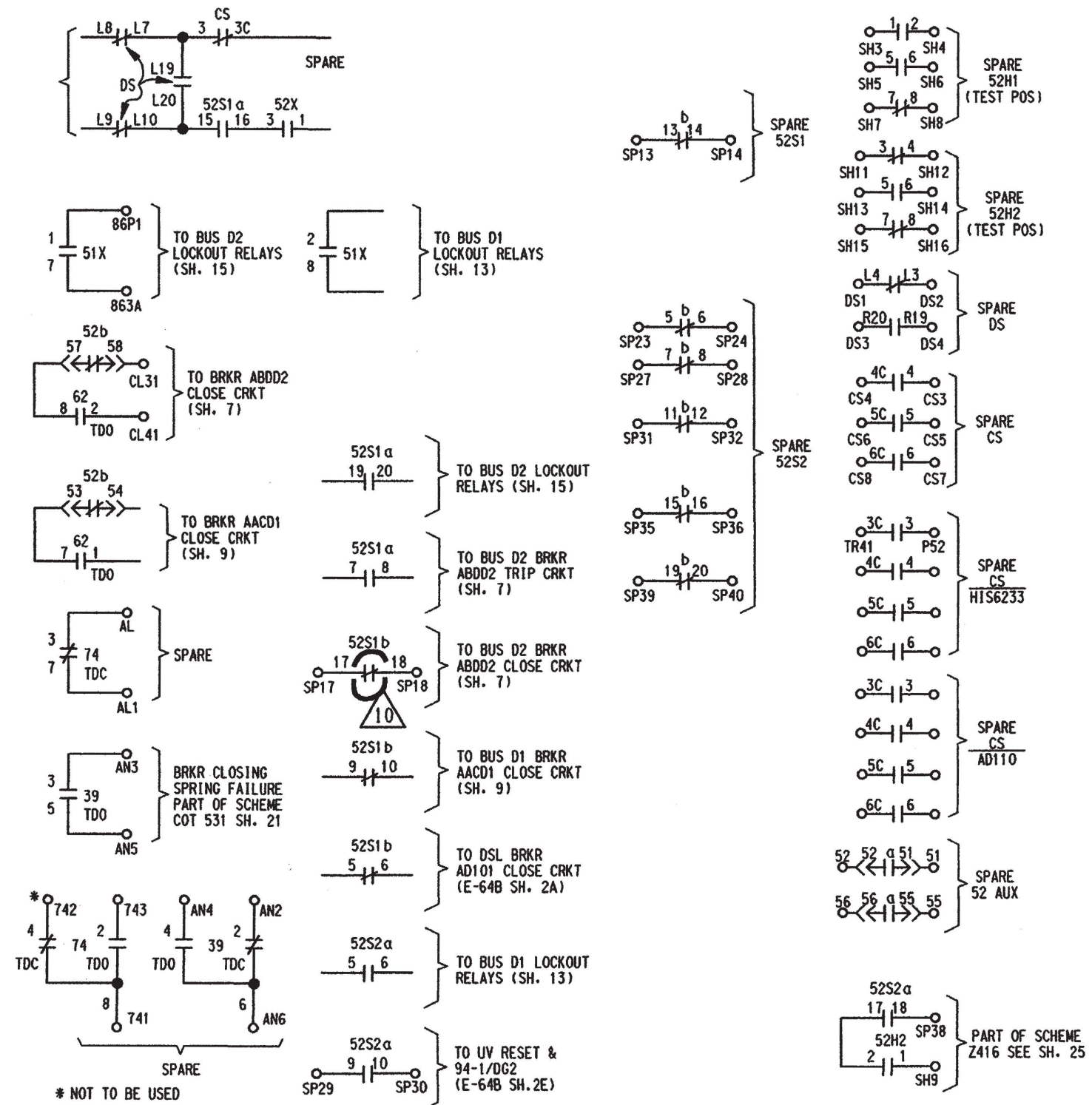


GEN. SUPV.	
ENGR. SUPV.	
ENGR.	
CHK	
BY	
REVISIONS	
NO.	DATE
10	1-24-72
9	6-23-00

INC. DUN 11-0593-001-010 REV.00
 INC. DCN E-34B-154 PER MOD 95-0022 SUP.00 (REDRAWN)

INITIALS ON FILE

10	5-7-92	INC. DUN 11-0592-001-002 REV.00	REVISIONS	BY	ENGR. SUPV.	GEN. SUPV.
9	5-7-10	INC. DUN 01-0261-004-010 REV.00				
8	6-23-06	INC. DCN E-34B-155 PER MOD 95-0022-00				
7	9-95-97	INC. DCN E-34B-141 PER MOD 95-0012 (REDRAWN)				
NO.	DATE					



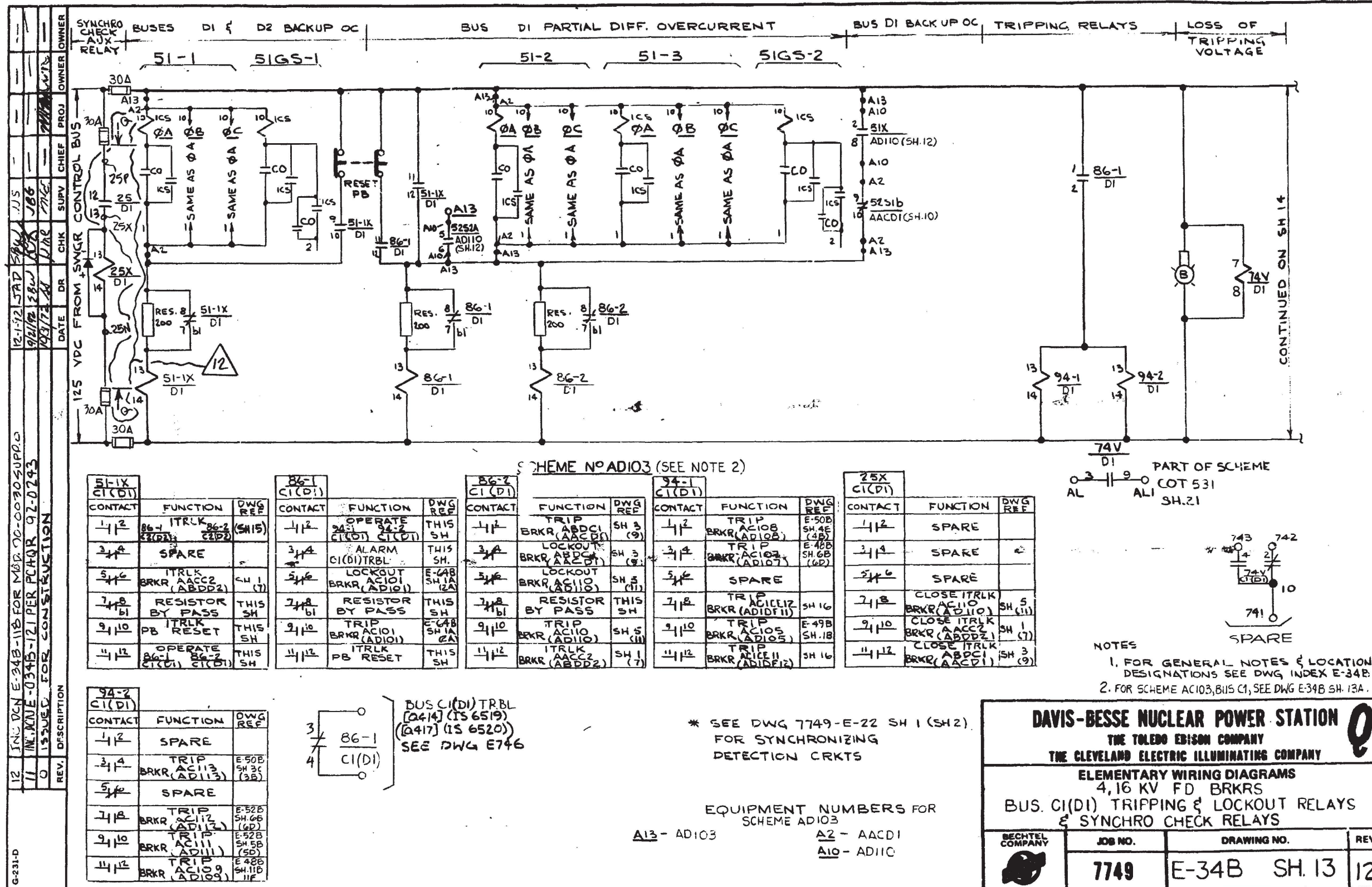
- SWITCH DEVELOPMENT REFERENCE**
- 1 - FOR CS AT SWGR. SEE FIG 2, SH 9A, DWG E-30B
 - 2 - FOR REMOTE CS. SEE FIG 3, SH 9, DWG E-30B
 - 3 - FOR REMOTE 25SD SEE FIG 4, SH 9A, DWG E-30B
 - 4 - FOR DS SEE FIG 5, SH 10, DWG E-30B
 - 5 - FOR REMOTE 25SD SEE FIG 1, SH 10, DWG E-30B HS6231

NOTES:
 1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 6

SCALE NONE	DESIGNED	DRAWN SBW	DATE 07-21-97
DAVIS-BESSE NUCLEAR POWER STATION			
UNIT NO. 1			
THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS			
4.16 KV FD BRKRS			
BUSES D1, D2 TIE BRKR AD110 CONTROL			
DRAWING NO.			REV.
E-34B SH.12			10

LEVELS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 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



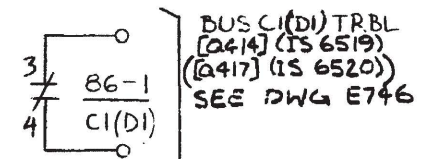
NO.	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
12	12/1/92	JAD	EBW	JJS			
11	9/21/92	EBW	JAR	JJS			
0	12/3/92	JAR					

12 INC. DCN E-34B-11B FOR MOD. TO 0030 SUPP. D
 11 INC. DNE -0345-121 PER PCHQR 92-0743
 0 ISSUED FOR CONSTRUCTION

SCHEME NO ADIO3 (SEE NOTE 2)

CONTACT	FUNCTION	DWG REF	CONTACT	FUNCTION	DWG REF	CONTACT	FUNCTION	DWG REF	CONTACT	FUNCTION	DWG REF	CONTACT	FUNCTION	DWG REF
1-12	TRIP	SH 3 (9)	1-12	OPERATE	THIS SH	1-12	TRIP	SH 3 (9)	1-12	TRIP	E-50B SH 4E (3B)	1-12	SPARE	
2-14	SPARE		2-14	ALARM	THIS SH	2-14	LOCKOUT	SH 3 (9)	2-14	TRIP	E-48B SH 6B (6D)	2-14	SPARE	
3-16	ITRCK	SH 1 (7)	3-16	LOCKOUT	E-6AB SH 1A (2A)	3-16	LOCKOUT	SH 3 (11)	3-16	SPARE		3-16	SPARE	
4-18	RESISTOR BY PASS	THIS SH	4-18	RESISTOR BY PASS	THIS SH	4-18	RESISTOR BY PASS	THIS SH	4-18	TRIP	SH 16	4-18	CLOSE ITRCK	SH 5 (11)
9-10	PB RESET	THIS SH	9-10	TRIP	E-6AB SH 1A (2A)	9-10	TRIP	SH 5 (11)	9-10	TRIP	SH 18	9-10	CLOSE ITRCK	SH 1 (7)
11-12	OPERATE	THIS SH	11-12	PB RESET	THIS SH	11-12	ITRCK	SH 1 (7)	11-12	TRIP	SH 16	11-12	CLOSE ITRCK	SH 3 (9)

CONTACT	FUNCTION	DWG REF
1-12	SPARE	
2-14	TRIP	E-50B SH 3C (3B)
3-16	SPARE	
4-18	TRIP	E-52B SH 6B (6D)
9-10	TRIP	E-52B SH 5B (5D)
11-12	TRIP	E-48B SH 11B (11C)



* SEE DWG 7749-E-22 SH 1 (SH 2) FOR SYNCHRONIZING DETECTION CRTKS

EQUIPMENT NUMBERS FOR SCHEME ADIO3
 A13 - ADIO3 A2 - AACD1
 A10 - ADIIO

74V DI PART OF SCHEME
 AL 0-3-9-0 COT 531
 ALI SH.21

- NOTES
 1. FOR GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG INDEX E-34B
 2. FOR SCHEME ACIO3, BUS C1, SEE DWG E-34B SH. 13A.

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

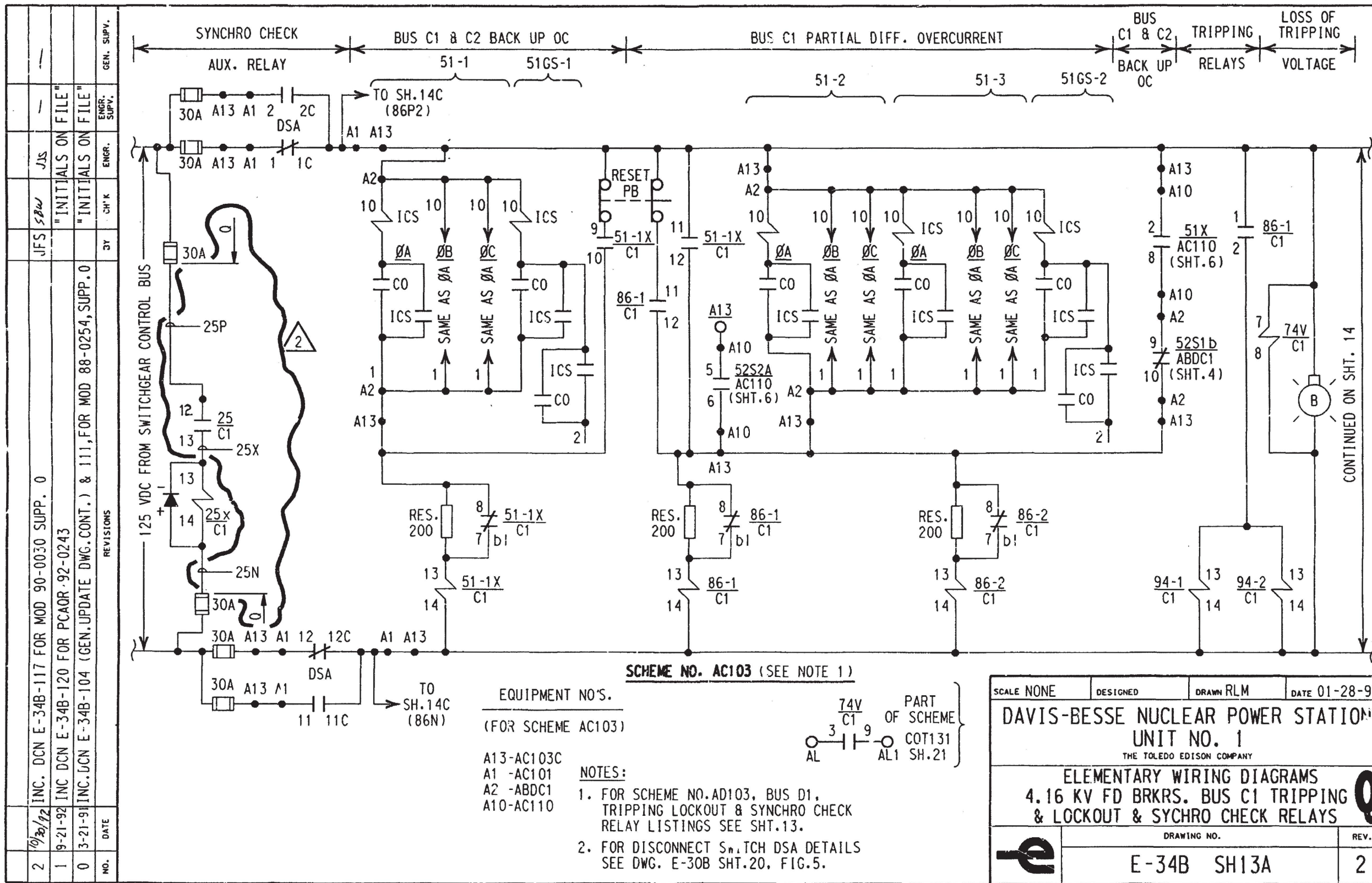
ELEMENTARY WIRING DIAGRAMS
 4,16 KV FD BRKRS
 BUS. C1(D1) TRIPPING & LOCKOUT RELAYS
 & SYNCHRO CHECK RELAYS

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-34B SH.13	12

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.
 DATE 12.3.92 OPERATOR Dorothy Wiedle 16X

NEW FAX 3/85 N58313

ED 7499



NO.	DATE	REVISIONS
2	10/30/92	INC. DCN E-34B-117 FOR MOD 90-0030 SUPP. 0
1	9-21-92	INC DCN E-34B-120 FOR PCAOR 92-0243
0	3-21-91	INC. DCN E-34B-104 (GEN.UPDATE DWG.CONT.) & 111, FOR MOD 88-0254, SUPP. 0

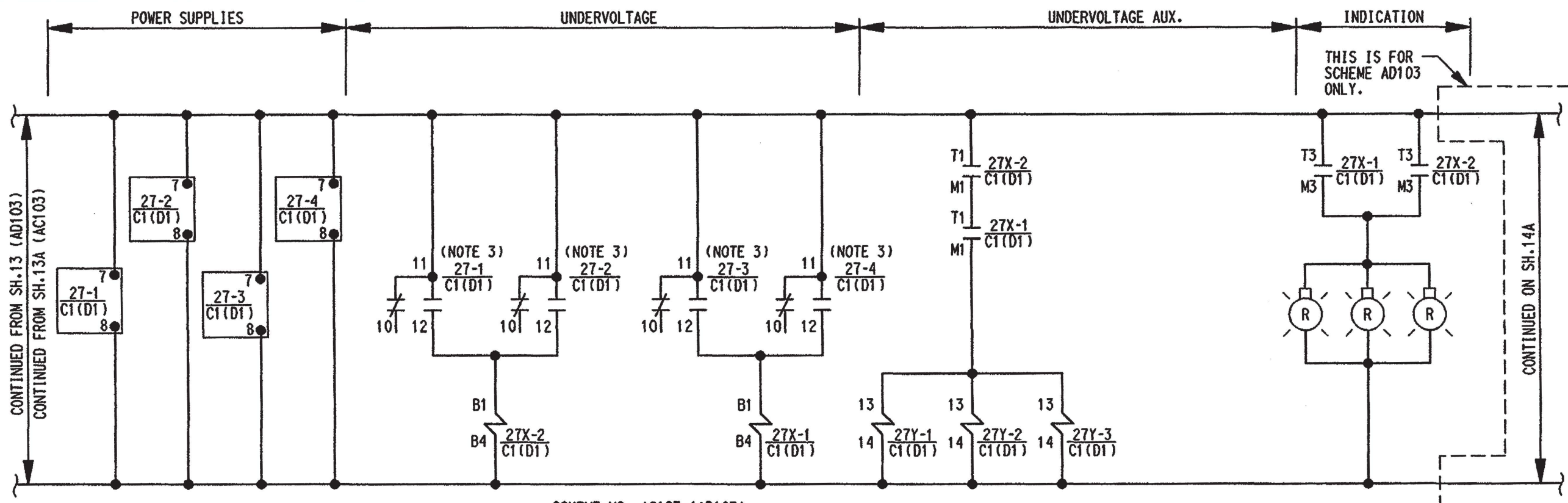
SCALE NONE	DESIGNED	DRAWN RLM	DATE 01-28-91
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS. BUS C1 TRIPPING & LOCKOUT & SYCHRO CHECK RELAYS			
DRAWING NO.		REV.	
E-34B SH13A		2	

DB 10-21-92

DFN=F:/ELEC/E34BS13A.DGN

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.
DATE 11-12-92 OPERATOR Sharon Suth 16X

12	4/24/06	INC. DCN'S E-34B-172 & 173 PER ECP 05-0095-00 (CA 03-00949-08)	BY	SAS	CHK	JOR	ENGR.	ENGR. SUPV.	GEN. SUPV.
11	12/3/03	INC. DCN,S E-34B-162 & 166 PER ECR 02-0739-00 REV.0 (REDRAWN)	BY	JOR	CHK				

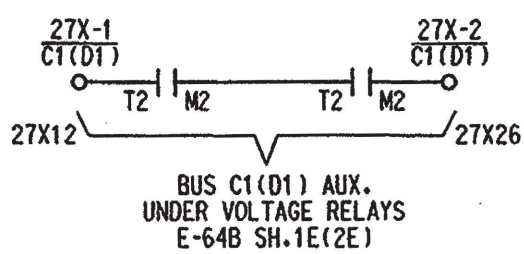
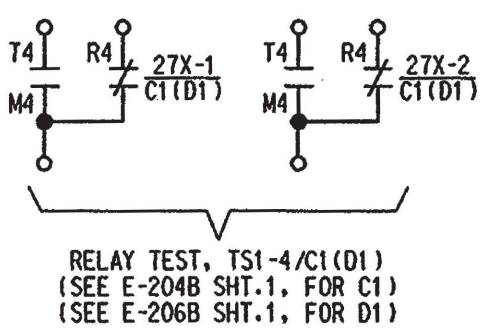
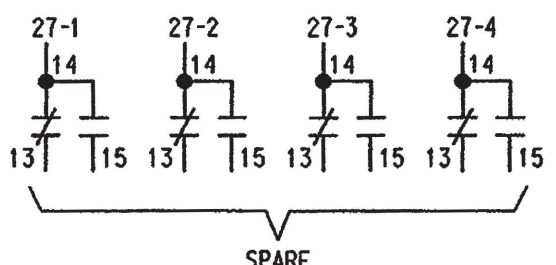


SCHEME NO. AC103 (AD103)

CONTACTS	FUNCTION	DWG. REF.
1-2	SPARE	THIS SH.
3-4	OPERATE 27X-6 RELAY C1(D1)	SH.14A
5-6	TRIP ITRLK BRKR ABDC1 (AACD1)	SH.(3) 9
7-8	TRIP ITRLK BRKR AC110 (AD110)	SH.5 (11)
9-10	SFAS SEQUENCER CH.1(CH.2)	E-64B SH.17
11-12	SPARE	

CONTACTS	FUNCTION	DWG. REF.
1-2	SPARE	THIS SH.
3-4	SPARE	12
5-6	TRIP ITRLK BRKR AC105 (AD105)	E-49B SH.1B
7-8	TRIP ITRLK BRKR AC111 (AD111)	E-52B SH.5B
9-10	TRIP ITRLK BRKR AC112 (AD112)	E-52B SH.6B
11-12	SFAS SEQUENCER CH.3(CH.4)	E-64B SH.17

CONTACTS	FUNCTION	DWG. REF.
1-2	SPARE	
3-4	TRIP ITRLK BRKR AC109 (AD109)	E-48B SH.11B
5-6	SPARE	
7-8	TRIP ITRLK BRKR AC107 (AD107)	E-48B SH.6B
9-10	SPARE	THIS SH.
11-12	SPARE	



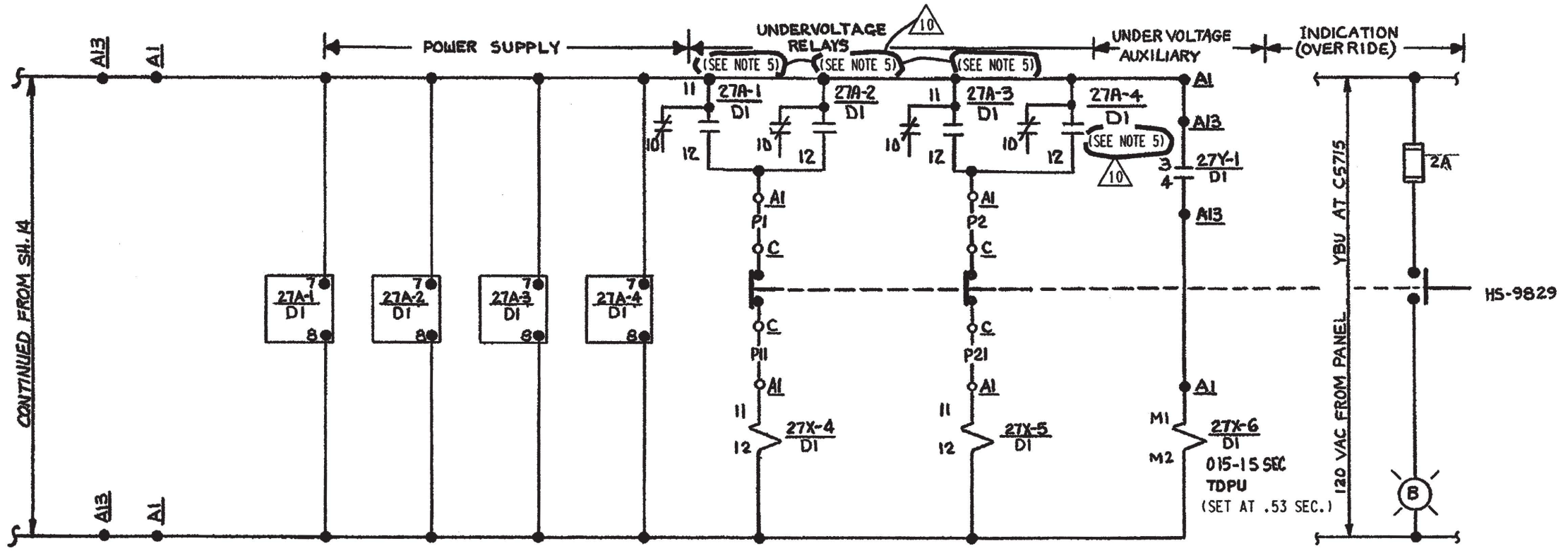
NOTES:

1. FOE GENERAL NOTES & LOCATION DESIGNATIONS SEE DWG. INDEX E-34B.
2. FOR UV DEVELOPMENT, SEE DWG. E-30B, SH.11, FIG.6 AND FOR CONTACT FUNCTIONS SEE DWG. E-34B SH.14B.
3. SEE DRAWING E-22, SH.1(2) FOR RELAYS 27-1, 27-2, 27-3 & 27-4.

THIS DRAWING WAS REDAWN ON CADD AND SUPERSEDES REV.10

SCALE NONE	DESIGNED	DRAWN JOR	DATE 06-23-03
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BKRS. BUS C1(D1) VOLTAGE & AUX. RELAYS			
DRAWING NO.			REV.
E-34B SH.14			12

INITIALS	OWNER
PROJ	CHIEF
CHK	SUPV
DATE	DR
7-19-07	88-200
9-7-79	FLUK
8-2-83	SRN
REV. 0	INC. SRN 236E
9	INC. DGN E-34B-174 PER ECP 04-0294-00 (REDRAWN)
10	INC. DUN 04-0230-001-00 REV. 00
0	ISSUED FOR CONSTRUCTION & INC. SRN 236E

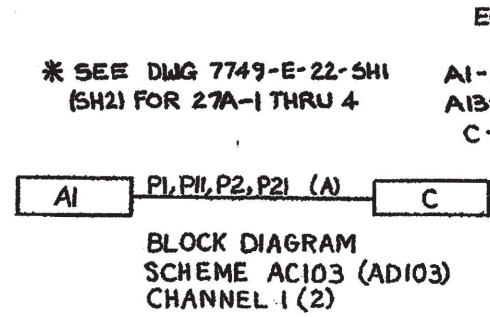
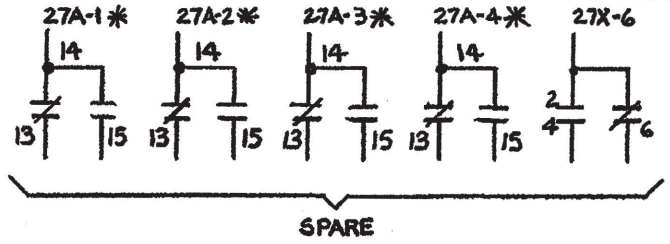


SCHEME NO AD103 (SEE NOTE 3)

27X-4 C1(D1)			27X-5 C1(D1)		
CONTACTS	FUNCTION	DWG REF	CONTACTS	FUNCTION	DWG REF
1-1-7	BREAKER AC10(AD10) TRIP INTLK	SH 5 (U)	1-1-7	BREAKER ABC(AACD) TRIP INTLK	SH 5 (U)
2-1-5	BREAKER ABD(CAACD) TRIP INTLK	SH 3 (S)	2-1-5	BREAKER AC10(AD10) TRIP INTLK	SH 5 (U)
3-1-6	SPARE		3-1-6	SPARE	
4-1-8	SPARE		4-1-8	SPARE	
9-1-13	SPARE		9-1-13	SPARE	
10-1-14	SPARE		10-1-16	SPARE	

27X-6
C1(D1)
1-1-5 } CLOSE INTLK
5-1-5 } BRK AC10(AD10)
E-64B SH 1A (2A)

- NOTES:
1. DELETED
 2. FOR OTHER NOTES SEE SH. 14.
 3. FOR SCHEME AC103, BUS C1, SEE DWG. E-34B, SH. 14C.
 4. FOR RELAY 27X-6/C1 COIL, SEE E-34B, SH. 14C.
 5. NORMALLY OPEN CONTACTS CLOSE WHEN AC INPUT VOLTAGE IS BELOW SETPOINT (REFERENCE RELAY SETTING SHEET 1-02-018A FOR THE TIME DELAY SETTING).



THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 8.

DAVIS-BESSE NUCLEAR POWER STATION
THE TOLEDO EDISON COMPANY
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
4.16 KV FD BKRS
BUS C1(D1) VOLTAGE & AUX. RELAYS

BECHTEL COMPANY	JOB NO	DRAWING NO	REV
	7749	E-34B SH14A	10

1	7/14/09	INC. DUN 09-0162-001-001, REV.00 (REDRAWN)	BY	ENGR.	ENGR. SUPV.
0	6-27-83	"AS-BUILT" FOR FCR 78-280, INC. DCN E-34B-9	CH'K		
			INITIALS ON FILE		

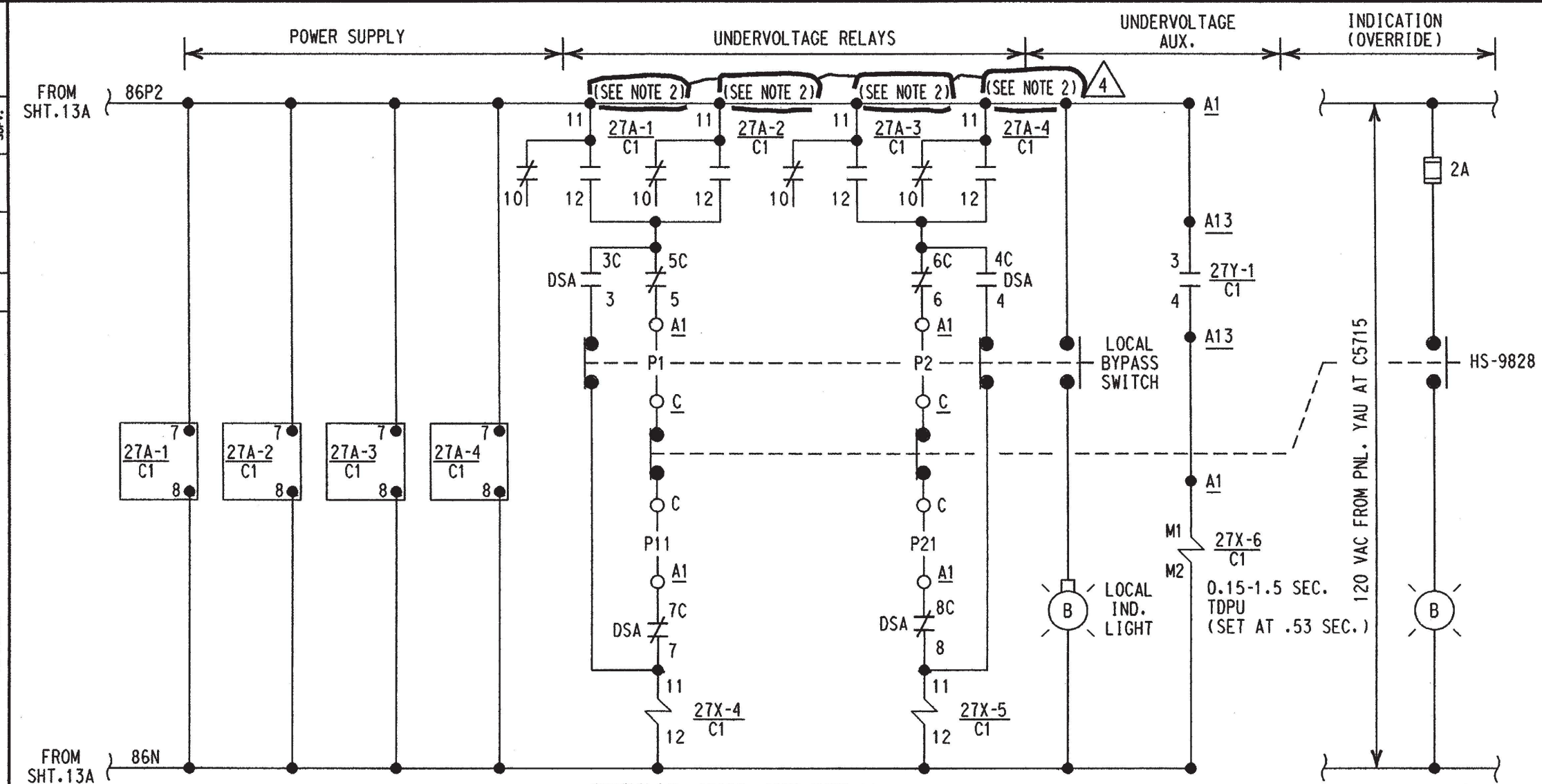
TS/UV C1(D1)	CONTACTS	FUNCTION	REF. DWG.
	5 5C	SPARE	
	6 6C	SPARE	
	7 7C	SPARE	
	8 8C	SPARE	
	9 9C	SPARE	
	10 10C	SPARE	
	11 11C	SPARE	
	12 12C	SPARE	
	13 13C	SPARE	
	14 14C	SPARE	
	15 15C	SPARE	
	16 16C	SPARE	
	17 17C	SPARE	
	18 18C	SPARE	
	19 19C	SPARE	
	20 20C	SPARE	
	21 21C	CONNECTED TO TS1-4 PTS I & J FOR TESTING	E-204B, SH.1 (E-206B SH.1)
	22 22C	SPARE	
	23 23C	SPARE	
	24 24C	SPARE	



THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REV.0.

SCALE NONE	DESIGNED	DRAWN SAS	DATE 6-19-09
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1			
ELEMENTARY WIRING DIAGRAM 4.16KV FD BRKRS BUS C1 (D1) VOLTAGE & AUX RELAYS			
FENOC	DRAWING NO.	SHEET NO.	REV.
	E-34B	14B	1

3	1/19/87	INC. DCN E-34B-175 PER ECP 04-0294-00	"INITIALS ON FILE"				
2	1/26/83	INC. DCN E-34B-165 PER ECR 03-0091-00 REV. 0	"INITIALS ON FILE"				
4	9/14/81	INC. DJN 04-0230-001-002 REV. 00		SRV	CH'K	ENGR. SUPV.	
0	9/22/91	INC. DCN E-34B-108 & 91 (GEN. UPDATE DWG. CONT.), FOR MOD 88-0254 SUPP. 0		RLM	SBV	JJS	PRJ
				BY			



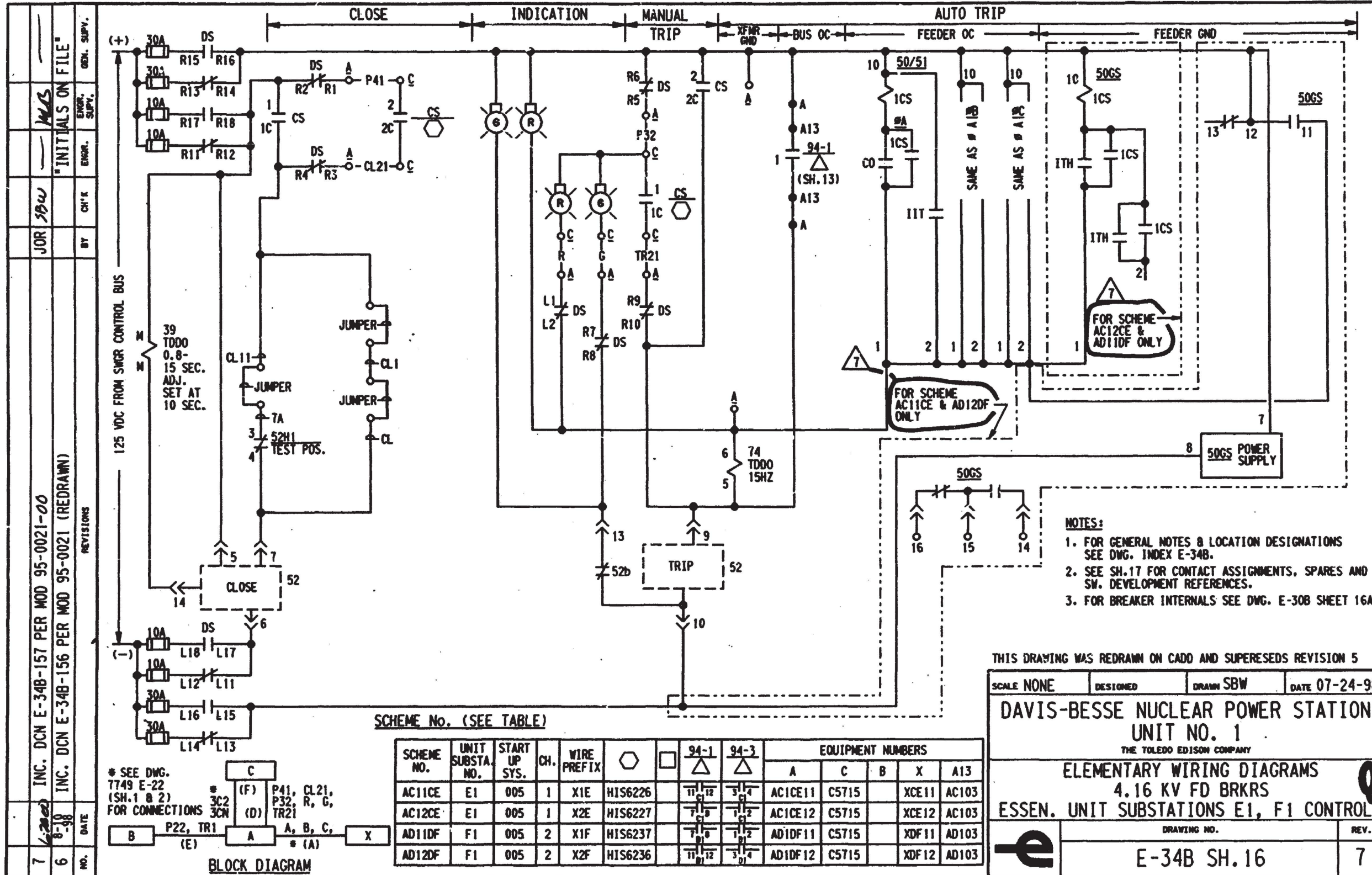
SCHEME NO. AC103 (SEE NOTE 1)

(EQUIPMENT NO'S
FOR SCHEME AC103)

A1- AC101
C- C5715

- NOTES:
- FOR SCHEME NO. AD103 BLOCK DIAGRAM, VOLTAGE & AUX. RELAY LISTINGS, REF. DWGS. AND OTHER NOTES SEE DWG. E-34B SH.14A.
 - NORMALLY OPEN CONTACTS CLOSE WHEN AC INPUT VOLTAGE IS BELOW SETPOINT (REFERENCE RELAY SETTING SHEET 1-02-011A FOR THE TIME DELAY SETTING).

SCALE NONE	DESIGNED	DRAWN RLM	DATE 01-28-91
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BKRS.			
BUS C1 VOLTAGE & AUX. RELAYS			
DRAWING NO. E-34B SH14C			REV. 4



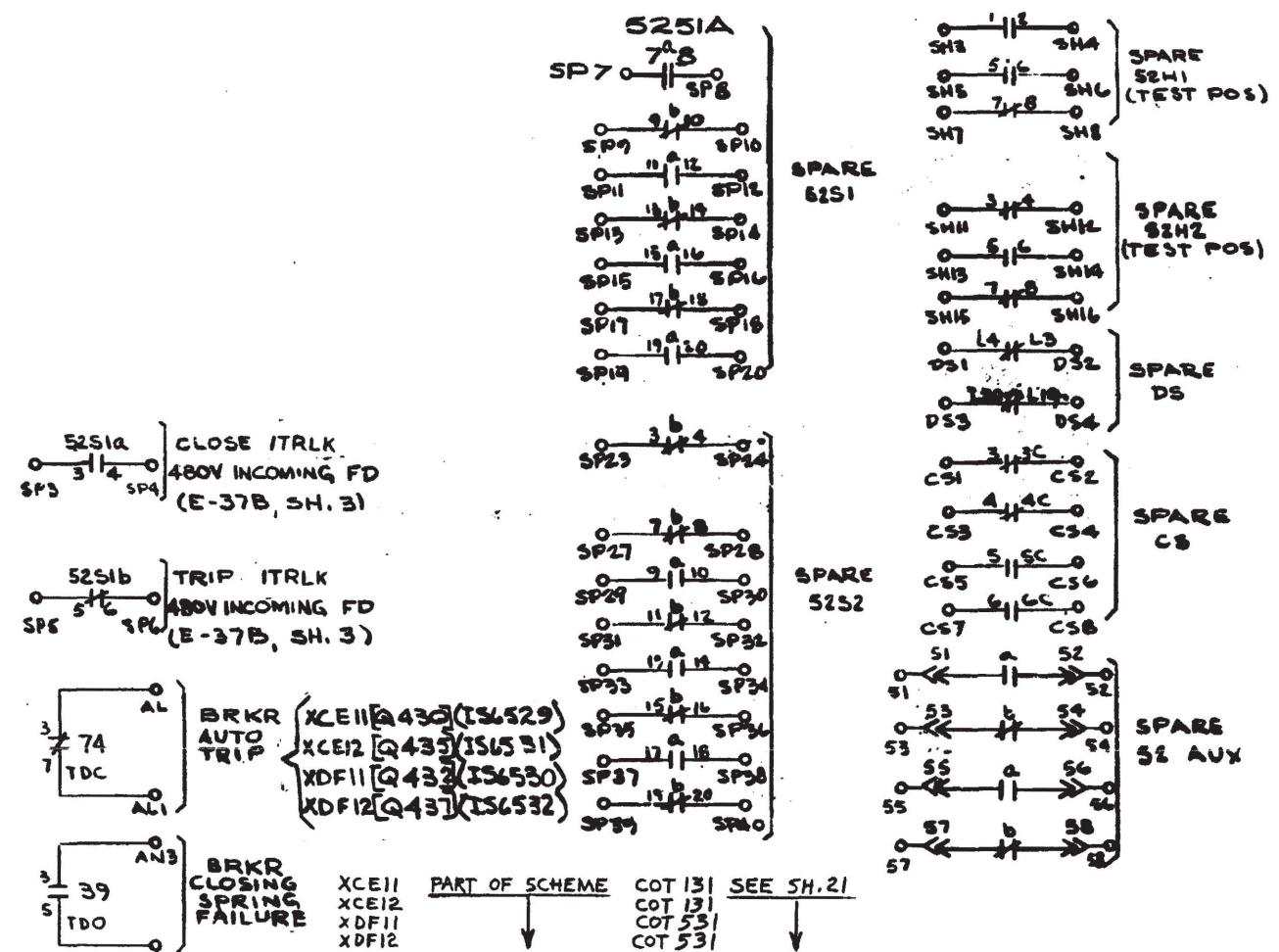
DB 06-07-00

DFN=F/SCHEME/E34BSH16.DGN

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S)

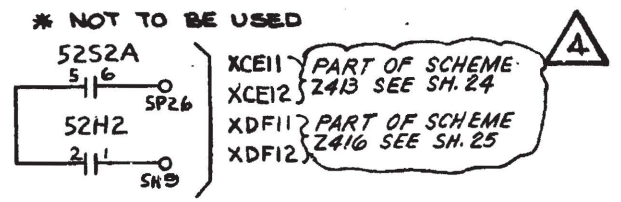
DATE: 7-7-00 Lisa Bourne No X

4	REVISED AS NOTED	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
3	ISSUED FOR CONSTRUCTION							
2								
1								



DWG E-30B
 SWITCH DEVELOPMENT REFERENCE
 1- FOR CS AT SWGR, SEE FIG 2, SH 9A, DWG E-30B
 2- FOR REMOTE CS, SEE FIG 1, SH 9, DWG E-30B
 3- FOR DS, SEE FIG 5, SH 10, DWG E-30B

NOTES
 1 - FOR GENERAL NOTES & LOCATION DESIGNATIONS
 SEE DWG. INDEX E-34B



DAVIS-BESSE NUCLEAR POWER STATION THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAMS 4.16 KV FD BRKRS ESSEN UNIT SUBSTATIONS EI, FI CONTROL			
BECHTEL COMPANY	JOB NO. 7749	DRAWING NO. E-34 B SH.17	REV. 4

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.
 DATE 12-20-88 OPERATOR K. Weibel 16X

INDEX			
SHEET No	LATEST REV	DESCRIPTION	SCHEME
1	8	THREE LINE DIAGRAM E1&F1 INCOMING FEEDER CIRCUIT BREAKERS	SEE DWG
2	5	THREE LINE DIAGRAM E1 & F1 INCOMING FEEDER CIRCUIT BREAKERS - MISCELLANEOUS DETAILS	
3	8	INCOMING FEEDER CIRCUIT BREAKERS	
4	25 (15)	MCC FEEDER CIRCUIT BREAKERS	
5	10	MCC FEEDER CIRCUIT BREAKERS	
6	8	COMPUTER PTS. Z420 AND Z422 "VOID"	
7A	1	F1 BRK'S. ANN. REFLASH FOR ANN. PT. Z422	
7B	2	F1 BRK'S. ANN. REFLASH FOR ANN. PT. Z422	
8A	1	E1 BRK'S. ANN. REFLASH FOR ANN. PT. Z420	
8B	1	E1 BRK'S. ANN. REFLASH FOR ANN. PT. Z420	

GENERAL NOTES


- FOR EXPLANATION OF EQUIPMENT, WIRING AND SCHEME NUMBERS, SEE E-11A, ELECTRICAL NUMBERING SYSTEMS.
- FOR CONTROL PANEL, SWITCHGEAR, UNIT SUBSTATION AND MCC DESCRIPTIONS, SEE E-13B ELECTRICAL EQUIPMENT LIST.
- FOR MOTOR INFORMATION, SEE E-12B ELECTRICAL MOTOR LIST.
- WIRE NUMBER PREFIX MUST BE ADDED TO FORM COMPLETE WIRE NUMBER, FOR THOSE WIRES AT MAIN CONTROL BOARD.
- NUMBER IN BRACKETS [] REPRESENTS COMPUTER INPUT NUMBERS.
- NUMBER IN () REPRESENTS COMPUTER INPUT SOURCE NUMBER.
- TERMINAL NUMBERS SHOWN ON THESE DWGS REPRESENTS THE EXTERNAL WIRING TERMINATIONS AND SHOULD BE USED ALONG WITH THE WIRE NOS. SHOWN FOR FIELD WIRING.

REFERENCE DRAWINGS

- E-4, SH1 AND 2 - 480V UNIT SUBSTATIONS, ONE LINE DIAGRAMS.
- E-10A - STANDARD NOTES & SYMBOLS
- E-11A - ELECTRICAL NUMBERING SYSTEMS

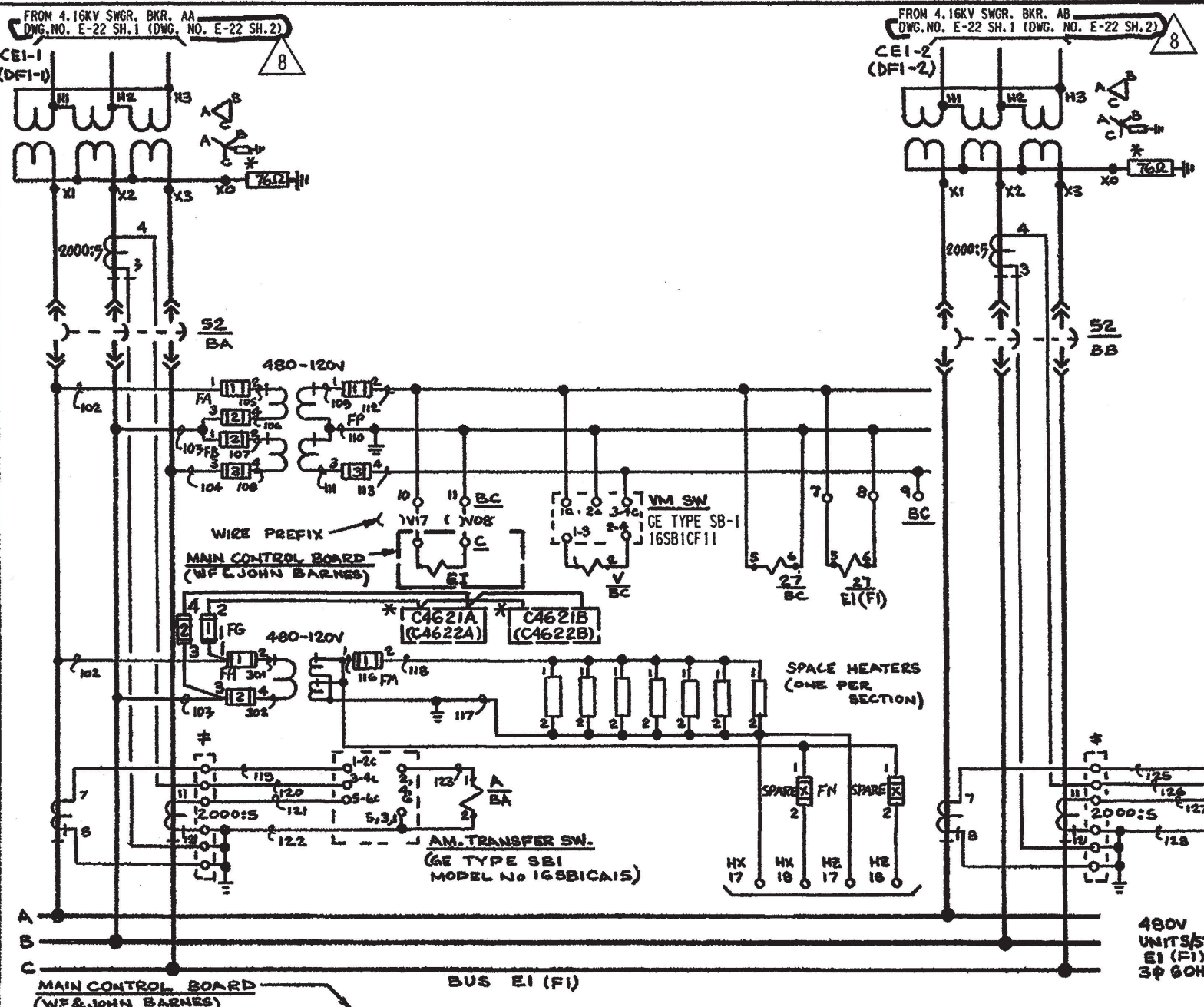
17	9/11/90	REVISED SHEET 3 (REV. 7)	CP	MS	APL				
16	12/90	REVISED SH'S 1 & 2 (REV. 5), ADDED SH'S 7A & 8A (REV. 10) SH'S 7B & 8B (REV. 1)	GFB	R	ESF				
15	12/90	REVISED: SH. 3 (REV. 6); SH. 4 (REV. 12); SH. 5 (REV. 9); SH. 6 "VOID" (REV. 8)	ETL	MTP	MRS	CVB	MMH		
14	10/90	REVISED SH. 6 (REV. 7)	GFB	MTP	SSJ	CVB	MMH		
13	4-22-87	REVISED SH. 4 (REV. 11), SH. 6 (REV. 6)	JOR	R	JNY	AWA	BR/med		
12	6/24/85	REVISED SH. 4 (REV. 10); SH. 5 (REV. 8); SH. 6 (REV. 5)	BXR	R	MMH				
11	1-18-80	REVISED SH. 6 (REV. 4) SH. 5 (REV. 7)	DLJ	JNY	MMH				
10	4-21-77	ISSUED SH 4 (REV 9)	CW	P	MMH		SNS		
9	10-7-76	ISSUED SH. 5 REV. 6	AS	P	MMH		SNS		
25	5/12/16	REVISED SHT. 4 (REV. 15)	SABW	SMW	SMC				
24	5/7/12	REVISED SHT. 3 (REV. 8) AND SHT. 5 (REV. 10)							INITIALS ON FILE
23	9/16/11	REVISED SHT. 1 (REV. 8)							INITIALS ON FILE
22	5/14/10	REVISED SHT. 1 (REV. 7)							INITIALS ON FILE
21	11/18/08	REVISED SHT. 7B (REV. 2) (REDRAWN)							INITIALS ON FILE
20	2/18/05	INC. DCN E-37B-34 PER ECR 04-019B-00 (CR 03-064BD)+REVISED SH. 1 (REV. 6)	E	A	AGM				
19	3-18-04	REVISED SH. 4 (REV. 14) AND SH'S 7A + 8A (REV. 1)	SBW	JOR	KRA				
18	4-30-97	REVISED SH. 4 (REV. 13)	SBW	DVK	MMH				
0	5/18/72	ISSUED FOR CONSTRUCTION SH'S 1, 2, 3, 4.	RDM	KP	MMH				
REV	DATE	DESCRIPTION	DR	CHK	SHV	CHIEF	PROJ	OWNER	OWNER

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 20.

DAVIS-BESSE NUCLEAR POWER STATION THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAMS ESSENTIAL UNIT SUBSTATIONS DRAWING INDEX			
	JOB NO.	DRAWING NO.	REV
	7749	E-37B	DWG INDEX SHEET 1 25

DB 05-07-16

DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
5-14-00	5-14-00	5-14-00	5-14-00	5-14-00	5-14-00	5-14-00
REV.	DESCRIPTION					
8	INC. DUN 11-0121-001 REV. 00					
7	INC. DUN 10-0153-001 REV. 00 (REDRAWN)					
0	ISSUED FOR CONSTRUCTION					



- DEVICE TYPE**
- 5N TRANSFORMER NEUTRAL OVERCURRENT RELAY GE TYPE IAC 51A
 - 27 BC BUS UNDERVOLTAGE RELAY GE TYPE HGA14 (NOT USED)
 - 27 EI(FI) BUS UNDERVOLTAGE RELAY GE TYPE IAV54E
 - ⊥ SHORT CIRCUIT TYPE TERMINAL BLOCK

SCHEME NUMBER (SEE TABLE)

*HIGH RESISTANCE GROUNDING EQUIPMENT-GE TYPE-DS9181LAY 108 AXAMC (REF. DWGS. E-7Q-62-1-001 THRU E-7Q-66-1-001 AND E-7Q-68-1-001)

SCHEME No	SWGR WIRE PREFIX
BE1	(1)
BF1	(2)

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 6.

DAVIS-BESSE NUCLEAR POWER STATION
THE TOLEDO EDISON COMPANY
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THREE LINE DIAGRAM
ESSENTIAL UNIT SUBSTATIONS EI & FI
INCOMING FEEDER CIRCUIT BREAKERS

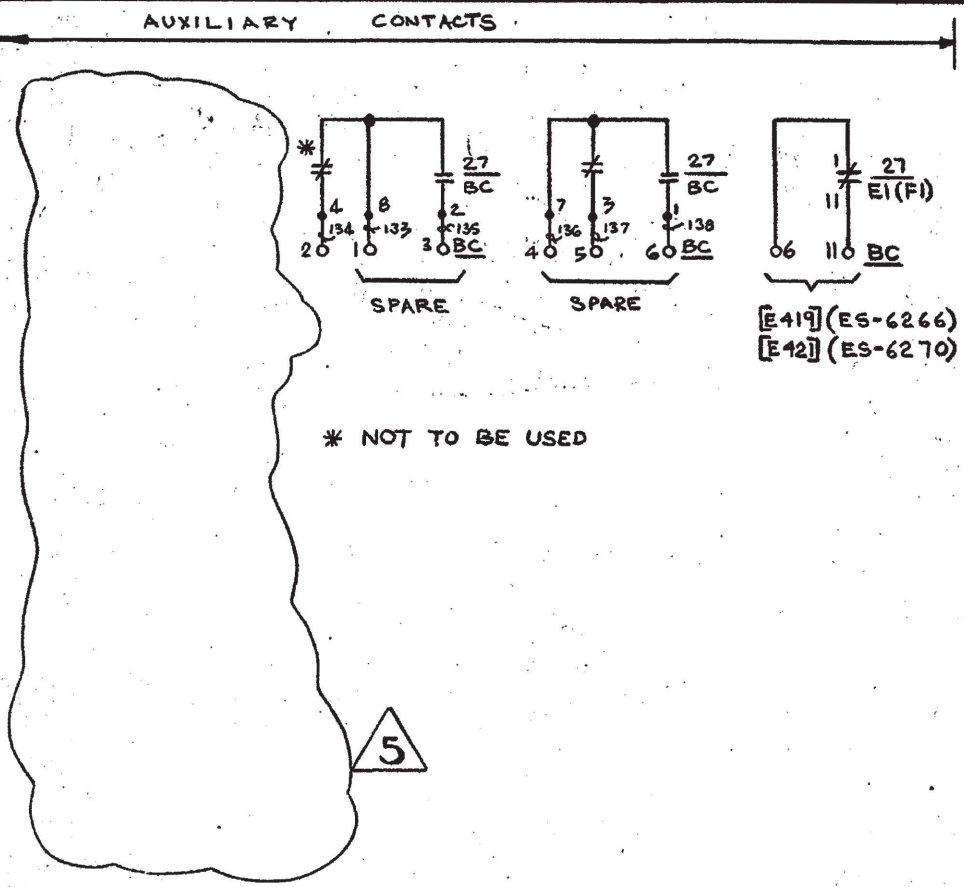
SCHEME No	UNIT S/STN. No	START-UP SYSTEM No	CHANNEL	EI	WIRE PREFIX	EQUIPMENT NUMBERS										COMPUTER INPUT
						C	BA	BB	BC	BD	AA	AB	ICE	2CE	K	
BE1	E1	008	1	EI 6266	ICE	C5715	B1CE	B2CE	BE102	BE106	ACICE11	ACICE12	ICE	2CE	E419	
BF1	F1		2	EI 6270	IDF		B1DF	B2DF	BF102	BF106	AD1DF11	AD1DF12	IDF	2DF	E421	

CONTINUED ON SH-2 THIS DWG

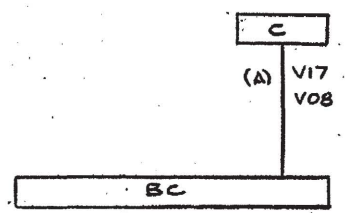
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-37 B SH-1	8

REV.	DESCRIPTION	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
4	REVISED AS NOTED							
5	INC. DEN E-37B-22 FOR PAR 85-0063, SHAD	11/19/78	RS					
0	ISSUED FOR CONSTRUCTION	6/29/78	GF					
		5/17/78	RDW	KP				

G-331-D



CONTINUED FROM SHEET 1 THIS DWG

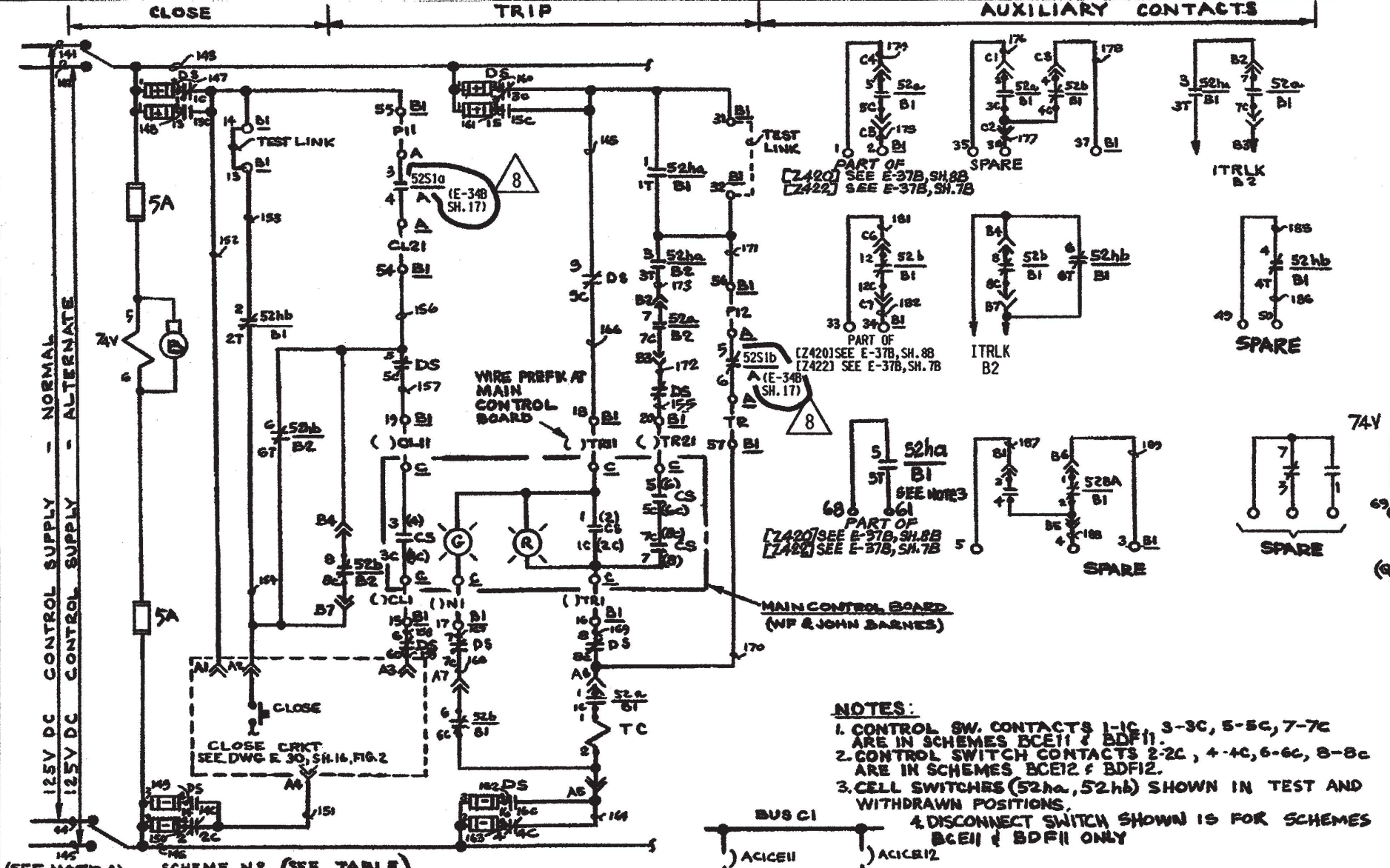


BLOCK DIAGRAM
SCHEME NO (SEE TABLE)

MISCELLANEOUS DETAILS

DAVIS-BESSE NUCLEAR POWER STATION THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
THREE LINE DIAGRAM ESSENTIAL UNIT SUBSTATIONS EI&FI INCOMING FEEDER CIRCUIT BREAKERS			
	JOB NO. 7749	DRAWING NO. E-37B SH-2	REV. 5

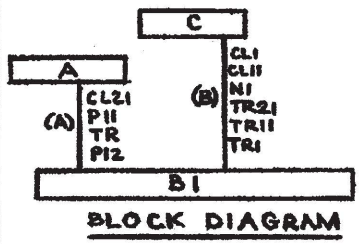
8	INC. DUN 11-0593-001-012 REV. 00 (REDRAWN)	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
7	INCORPORATED DFN E-37B-20 FOR DCE 88-0747	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
0	ISSUED FOR CONSTRUCTION	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER



DEVICE TYPE
 74V LOST CONT RWR
 GE TYPE HG11
 IND LT GE ETIG BLUE
NOTE- 74V, IND LIGHT
 AND FUSES TO BE INSTALLED
 BY CONTRACTOR.

- NOTES:**
- CONTROL SW. CONTACTS 1-1C, 3-3C, 5-5C, 7-7C ARE IN SCHEMES BCE11 & BDF11.
 - CONTROL SWITCH CONTACTS 2-2C, 4-4C, 6-6C, 8-8C ARE IN SCHEMES BCE12 & BDF12.
 - CELL SWITCHES (52ha, 52hb) SHOWN IN TEST AND WITHDRAWN POSITIONS.
 - DISCONNECT SWITCH SHOWN IS FOR SCHEMES BCE11 & BDF11 ONLY

SCHEME No.	SWITCH WIRE PREFIX	125V DC CONT. SUPPLY			
		NORMAL	ALTERNATE		
BCE11 (1)	DIP	DIP07	DIN	DIN07	
BCE12 (2)	-	-	-	-	
BDF11 (3)	D2P	D2P07	D2N	D2N07	
BDF12 (4)	-	-	-	-	



SCHEME NO.	UNIT SYS NO.	START-UP SYS NO.	CHANNEL	WIRE PREFIX	C/S NO.	SEE E-30		EQUIPMENT NUMBERS				ASSOC. INPUT SEE
						SH	FIG	C	B1	B2	A	
BCE11	E1	005	1	ICE	HIS6244	11	1	CS715	BCE11	BCE12	ACCE11	Z420
BCE12	-	-	-	2CE	-	-	-	-	BCE12	BCE11	ACICE12	-
BDF11	F1	005	2	IDF	HIS6254	11	3	-	BDF11	BDF12	ADDF11	Z422
BDF12	-	-	-	2DF	-	-	-	-	BDF12	BDF11	ADDF12	-

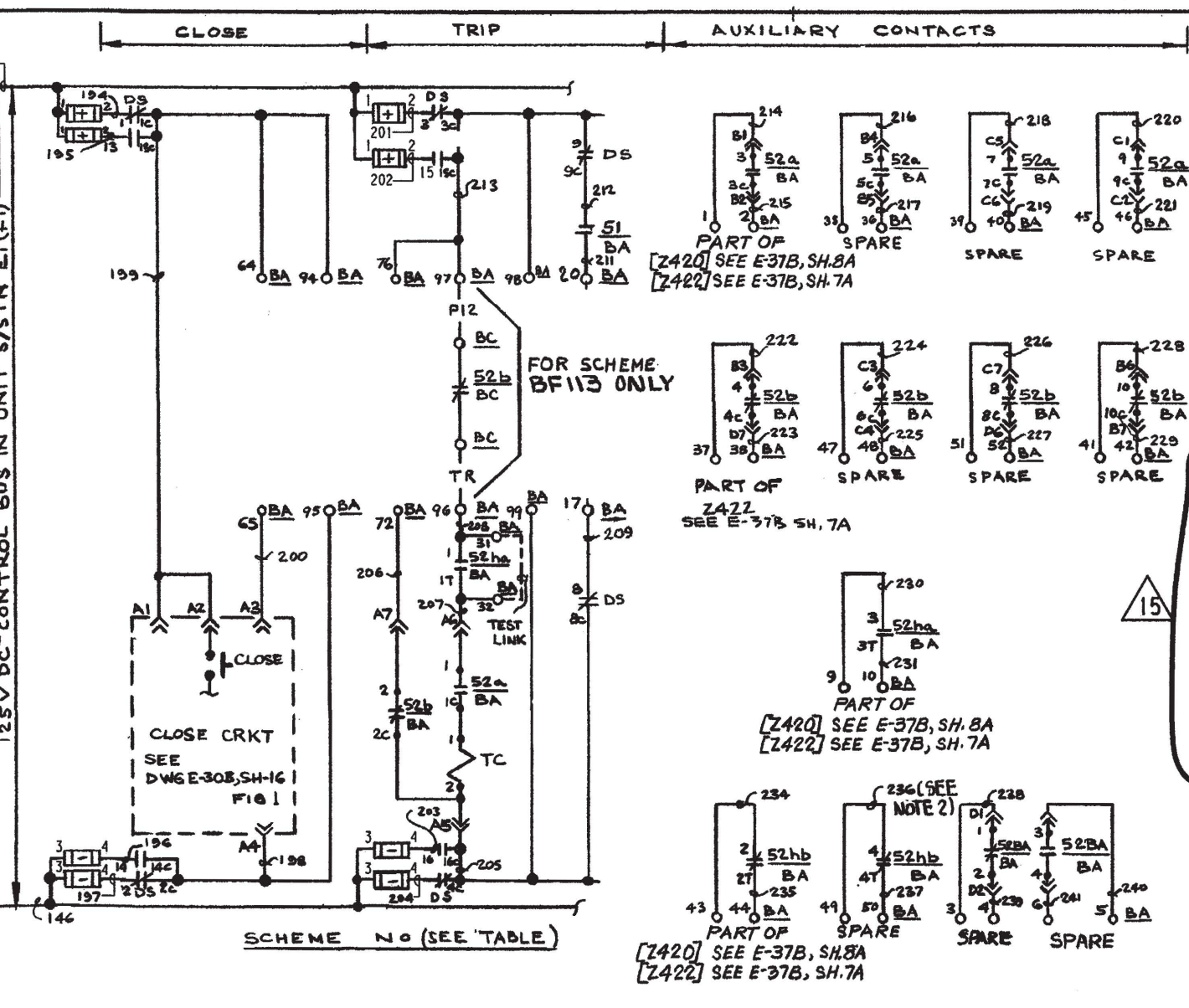
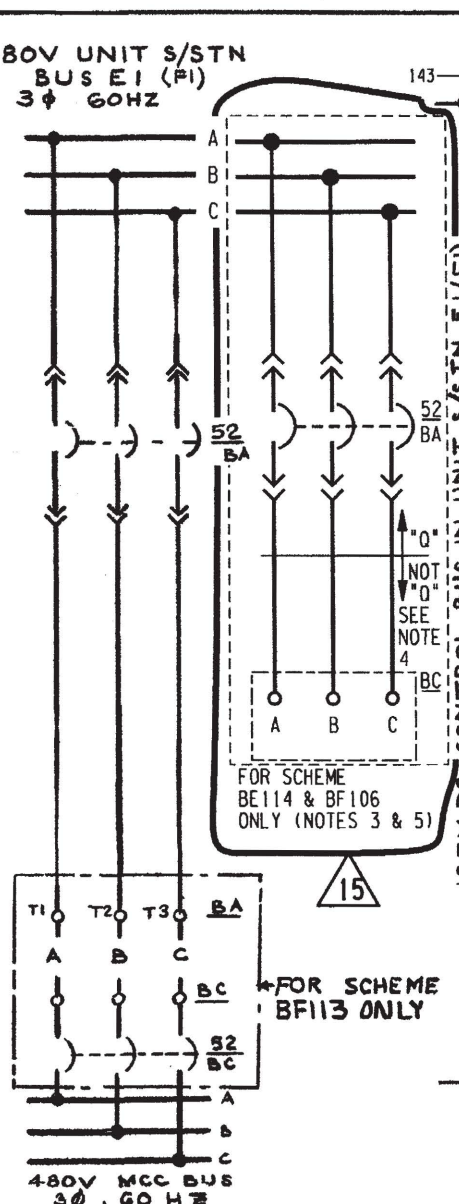
THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 7.

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

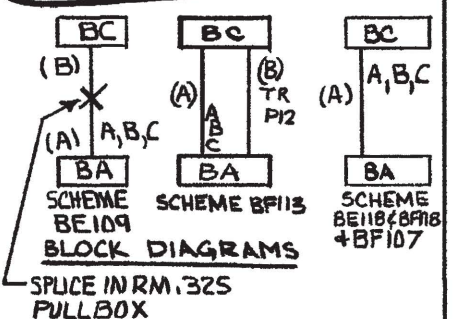
ELEMENTARY WIRING DIAGRAMS
ESSENTIAL UNIT SUBSTATIONS
INCOMING FEEDER CIRCUIT BREAKERS

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-37B SH-3	8

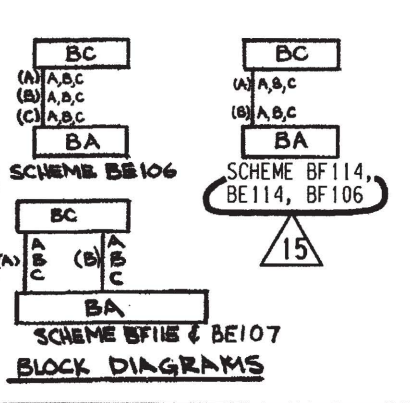
REV.	DESCRIPTION	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
14	INC. DUN E-37B-21 PER ECR 03-0250-00 DUN'S E-37B-29430 PER ECR 03-0328-00 AND DUNE-37B-33 PER ECR 03-0328-00 R/S	3/18/04	JGA	WLS	WLS	WLS	WLS	WLS
13	INC. DUN E-37B-20 PER DDR 96-1917	4-20-97	SRW	SRW	SRW	SRW	SRW	SRW
0	ISSUED FOR CONSTRUCTION	5/19/72	RDW	KP	WLS	WLS	WLS	WLS



- NOTES:
- CELL SWITCHES (52ha, 52hb) ARE SHOWN IN TEST AND WITHDRAWN POSITIONS.
 - FOR SCHEME BE118 SPARE CONTACT 4-4T IS ABANDONED BECAUSE OF DISCONTINUITY IN WIRE #236.
 - FOR SCHEME BE114 AND BF106 CABLES FROM UNIT SUBSTATION BREAKERS BE114 AND BF106 ARE CONNECTED TO FLEX RECEPTACLE ENCLOSURES.
 - WHERE "0"/NOT "0" BOUNDARIES ARE DEPICTED FOR 480VAC SWGR. ELECTRICAL COMPONENTS HOUSED ENTIRELY WITHIN THE SWGR CUBICLE SHALL BE CONSIDERED TO BE WITHIN THE "0" BOUNDARY.
 - FLEX ASSOCIATED BREAKERS ARE OPEN DURING NORMAL OPERATION AND MAY IMPACT OPERABILITY IF CLOSED WHEN ASSOCIATED BUS EQUIPMENT IS IN SERVICE.



SCHEME NUMBER	UNIT S/STN NO.	START-UP SYS NO.	CHANNEL	WIRE PREFIX	EQUIPMENT NUMBERS			ANNUC INPUT	SWGR. WIRE PREFIX
					C	BA	BC		
BE109	E1	006	1	---	BE109	BE12B	Z420	3	
BE106	E1	006	1	---	BE106	BE12A	Z420	3	
BE107	E1	006	1	---	BE107	BE11	Z420	4	
BE113	E1	005	1	---	SPARE	SPARE	---	---	
BE114	E1	005	1	---	BE114	ZSR3602	Z420	---	
BE115	E1	005	1	---	FUTURE	---	---	---	
BE118	E1	006	1	---	BE118	BE16A	Z420	8	
BF118	E1	006	2	---	BF118	BF16A	Z422	9	
BF106	F1	005	2	---	BF106	ZSR3603	Z422	---	
BF107	F1	006	2	---	BF107	BF12B	Z422	11	
BF113	F1	006	B	---	BF113	BF1310	Z422	12	
BF114	F1	006	2	---	BF114	BF12A	Z422	13	
BF115	F1	006	2	---	BF115	BF11	Z422	14	
BF109	F1	006	2	---	SPARE	---	---	---	



DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
 ELEMENTARY WIRING DIAGRAMS
**ESSENTIAL UNIT SUBSTATIONS
 MCC FEEDER CIRCUIT BREAKERS**

BECHTEL COMPANY

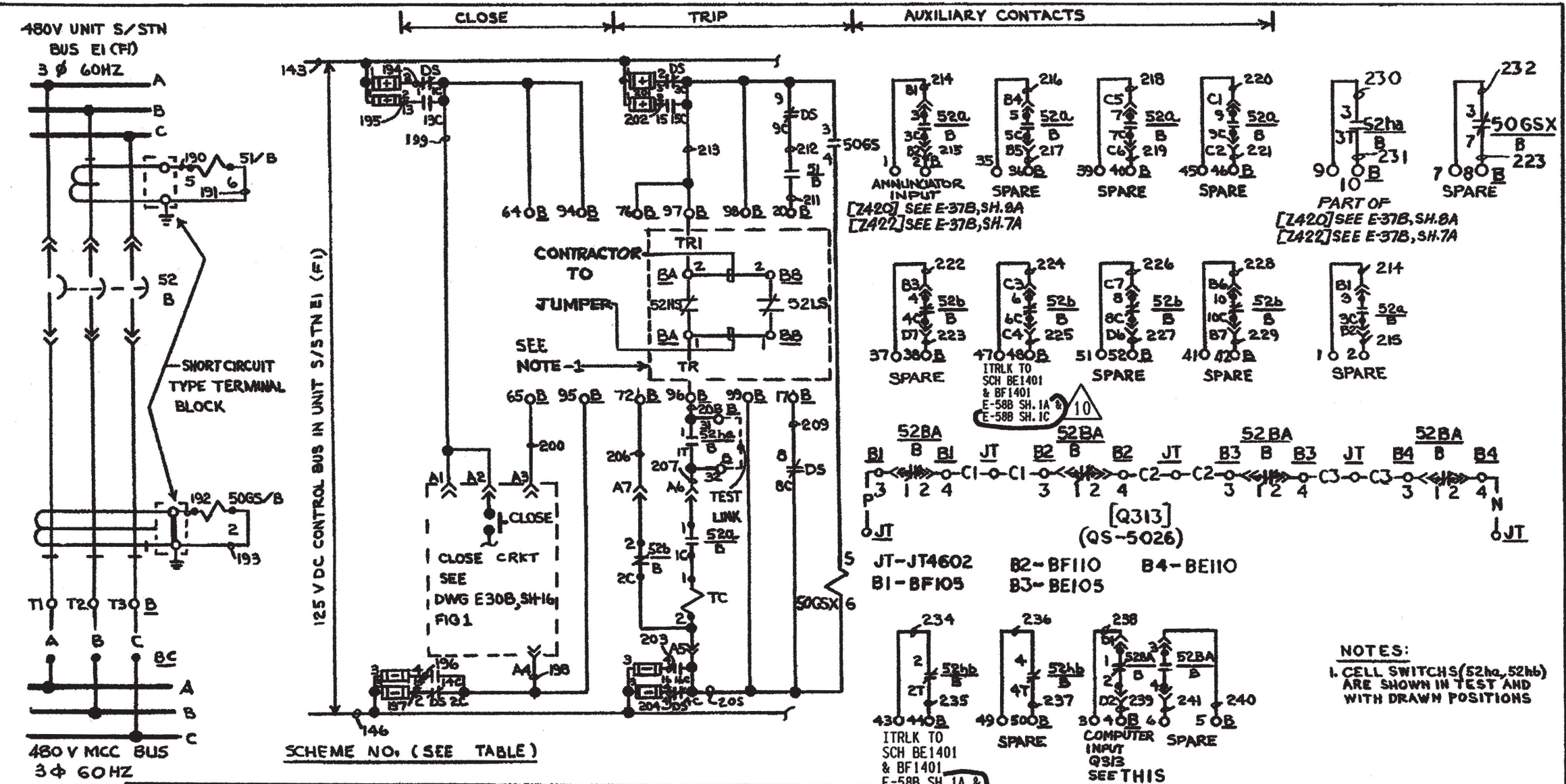
JOB NO.	DRAWING NO.	REV.
7749	E-37B SH-4	15

DB 05-07-16

DFN=F/SCHEME/E37BSH4.DGN/TIF

THIS DRAWING WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REV. 14.

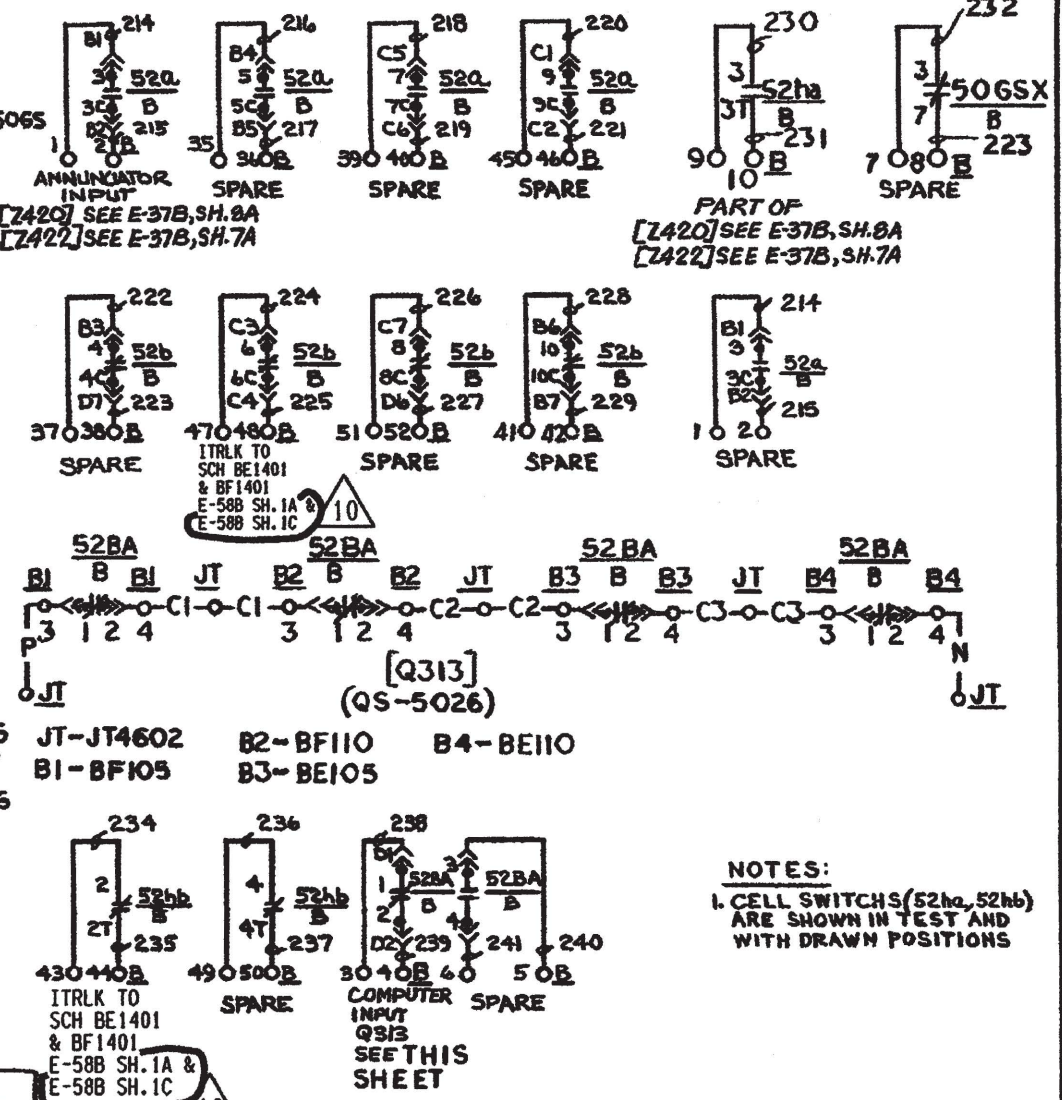
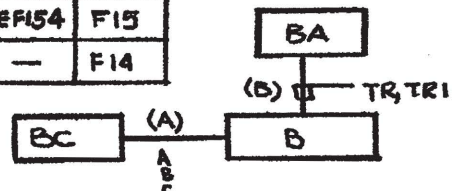
10	INC. DUN 11-0593-001-013 REV. 00 (REDRAWN)	DATE	CHK	DR	PROJ	OWNER
9	AS BUILT FOR: MOD 87-112, INC. DCN E-37B-12; MOD 87-111, INC. DCN E-37B-16; DCR 85-139, INC. DCN E-37B-19.	5-7-72	SA	SA	MRS	VMW
0	ISSUED FOR CONSTRUCTION	1/29/68	ETL	SA	SA	SA
		2/18/73	DMS	SA	SA	SA



SCHEME NO. (SEE TABLE)

SCHEME	SU NO	CHANNEL	ANNUNCIATOR INPUT	SWGE WIRE PREFIX	B	BA	BB	BC
BE105	6	1	Z 420	1	BE105	BEF151	BEF152	E15
BE110	6	1	Z 420	2	BE110	—	—	E14
BF105	6	2	Z 422	8	BF105	BEF153	BEF154	F13
BF110	6	2	Z 422	9	BF110	—	—	F14

NOTE
1 APPLIES TO SCHEMES BE105 & BF105 ONLY



NOTES:
1. CELL SWITCHES (52ha, 52hb) ARE SHOWN IN TEST AND WITH DRAWN POSITIONS

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REVISION 9.

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

**ELEMENTARY WIRING DIAGRAMS
 ESSENTIAL UNIT SUBSTATIONS
 MCC FEEDER CIRCUIT BREAKER**

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-37B SH-5	10

		INDEX			
		SHEET NO.	LATEST REV.	TITLE	
		1A	11	MOTOR DRIVEN FEEDWATER PUMP	
		1B	8	MOTOR DRIVEN FEEDWATER PUMP	
		2	5	FEEDWATER DISCHARGE VALVES	
		3A	5	FEEDWATER HEATER MOV'S	
		3B	5	FEEDWATER HEATER MOV	
		4A	15	MAIN FEEDWATER 1 STOP VALVE	Q
		4B	12	MAIN FEEDWATER 2 STOP VALVE	Q
		4C	13	AUXILIARY FEEDWATER ISOLATION VALVES	Q
		4D	17	AUXILIARY FEEDWATER ISOLATION VALVES	Q
		4E	1	DELETED	Q
		5	62 12	FEEDWATER ISOLATION VALVES	
		6A	13	AFP SUCTION VALVES	Q
		6B	14	AFP SUCTION VALVES	Q
		7	3	MFP 1-1 & 1-2 RECIRCULATING VALVES	
		8	7	FEEDWATER ANNUNCIATOR & COMPUTER INPUTS	
		9	10	MAIN FEEDWATER CONTROL VALVE SOLENOID VALVES	
		10	13	SUPERSEDED	Q
		11A	11	DELETED	
		11B	13	DELETED	
		12	5	MFP WARM-UP VALVES	
		13	3	S.G. WET LAYUP RECIRCULATING PUMPS: MP1821, MP1822	
		14A	11	AFP DISCHARGE TO STEAM GENERATOR	Q
		14B	62 11	AFP DISCHARGE TO STEAM GENERATOR	Q
		15	15	AFP DISCHARGE TO STEAM GENERATOR	Q
		16	2	FEEDWATER ANNUNCIATOR & COMPUTER INPUTS	
		17	6	DELETED	

REVISIONS

NO. DATE

FOR NEXT REVISION SEE INDEX SHEET 2

GENERAL NOTES:

- FOR EXPLANATION OF EQUIPMENT & WIRING NUMBERS SEE E-11A ELECTRICAL NUMBERING SYSTEM.
- FOR MOTOR INFORMATION SEE E-12B ELECTRICAL MOTOR LIST.
- FOR CONTROL PANEL M.C.C. DESCRIPTIONS SEE E-13B ELECTRICAL EQUIPMENT LIST.
- FOR SOLENOID VALVE INFORMATION SEE E-14B SOLENOID VALVE LIST.
- WIRE NUMBER PREFIX MUST BE ADDED TO FORM COMPLETE WIRE NUMBER FOR THOSE WIRES AT MAIN CONTROL BOARD.
- AUXILIARY CONTROL RELAY IN SOLENOID OPERATED VALVE CONTROL CIRCUITS TO BE G.E. TYPE CR120J.
- NUMBER IN [] REPRESENTS THE COMPUTER INPUT NUMBER. NUMBER IN () REPRESENTS COMPUTER INPUT SOURCE NUMBER.
- ALL G.E. EQUIPMENT IS SHOWN WITH G.E. AND BECHTEL DESIGNATIONS WHERE APPLICABLE.

REFERENCE DRAWINGS:

- E-5 - 480V M.C.C. (NON-ESSENTIAL) ONE LINE DIAGRAM.
- E-6 - 250/125VDC & 480V M.C.C. (ESSENTIAL) ONE LINE DIAGRAM.
- E-10A - STANDARD NOTES & SYMBOLS.
- E-30B - GENERAL GUIDES FOR ELEMENTARY DIAGRAMS.

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 57

SCALE NONE	DESIGNED	DRAWN BT	DATE 04-12-04
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 <small>THE TOLEDO EDISON COMPANY</small>			
ELEMENTARY WIRING DIAGRAM FEEDWATER SYSTEM DRAWING INDEX			Q
DRAWING NO.			REV.
E-44B DRAWING INDEX SH.1			62

INDEX CONT.			
SHEET NO.	LATEST REV.	TITLE	
17A	2	DELETED	
17B	2	DELETED	
17C	2	DELETED	
17D	2	DELETED	
18	5	AFP SUCTION VALVE TRANSFER RELAY	Q
19A	6	DELETED	
19B	5	DELETED	
20	12	AFP DISCH TO SG	
21A	2	MN FW SU CTRL VLV SV	
21B	2	MN FW SU CTRL VLV SV	
21C	2	MN FW SU CTRL VLV SV	
21D	2	MN FW SU CTRL VLV SV	
22	1	DELETED	
23	1	DELETED	
23A	1	DELETED	
24	3	SG AUTO ESSEN LVL CONTROL	Q
25	1	MDFP AUXILIARY LUBE OIL PUMP	
26A	1	DELETED	
26B	1	DELETED	
27	1	VOID	
28A	2	FEEDWATER SYSTEM STARTUP FEED PUMP MOTOR	

INDEX CONT.		
SHEET NO.	LATEST REV.	TITLE
28B	2	FEEDWATER SYSTEM STARTUP FEED PUMP MOTOR
28C	0	FEEDWATER SYSTEM STARTUP FEED PUMP MOTOR
30A	2	VOID
30B	2	VOID
32	2	BLOCK DIAGRAM FEEDWATER SYSTEM FLOW RATE (CALDON)

ENGR. SUPV.
ENGR.
CH'K
BY
REVISIONS
DATE
NO.

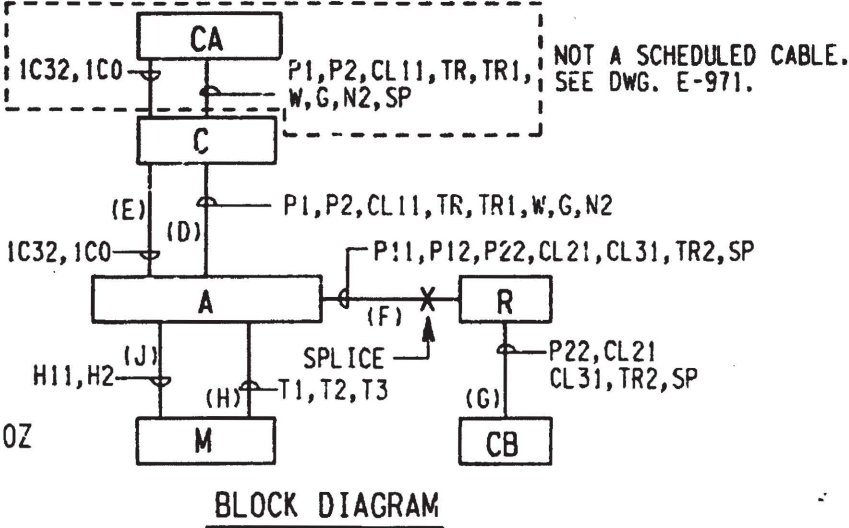
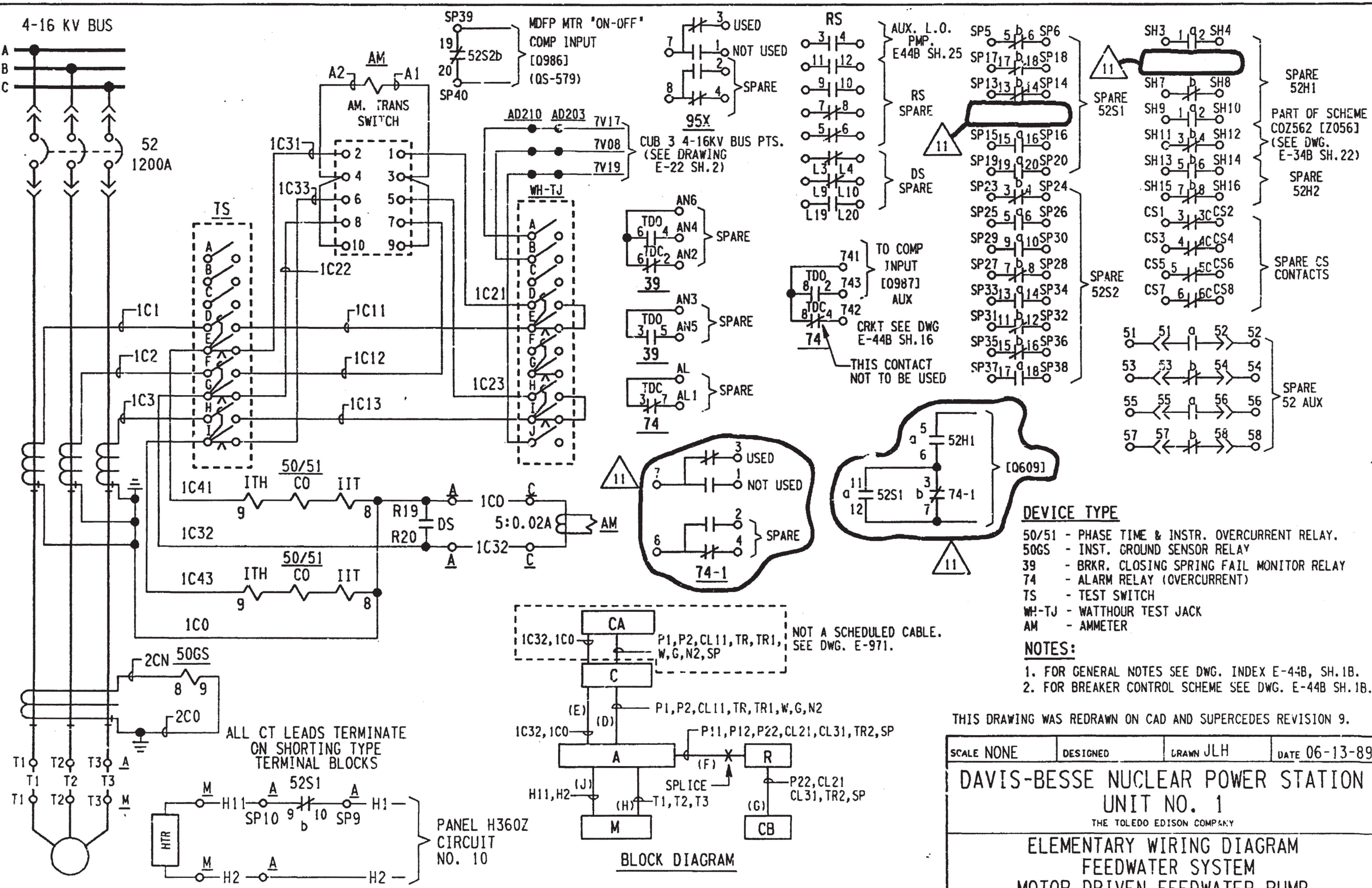
NO.	REV.	DATE	REVISIONS	BY	CH'K	ENGR.
62		3/4/14	REVISED SH. 5 (REV. 12), SH. 14B (REV. 11) & SH. 32 (REV. 2)	SAC		
61		4/06/09	REVISED SH.20 (REV.12)			
60		7/19/07	REVISED SH.20 (REV.11)			
59		1/19/06	REVISED SH.15 (REV. 15) & GEN. UPDATE REMOVE DOWN ARROWS IN TITLE DESCRIPTIONS FOR CLARITY			
58		6/14/04	REVISED SH.4A (REV. 15) AND SH.4B (REV. 12) & GEN. UPDATE, INDEX SHEET 1, DWG. TITLE FOR SH.4A & SH.4B PER DWG. UPDATE			

THIS DRAWING WAS REDRAWN ON CADD AND SUPERSEDES REVISION 57

SCALE NONE	DESIGNED	DRAWN BT	DATE 4-12-04
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAM TERMINAL BOX FOR SOV DRAWING INDEX			Q
DRAWING NO.			REV.
E-44B DRAWING INDEX SH.2			62

NEW 88-0515 880013

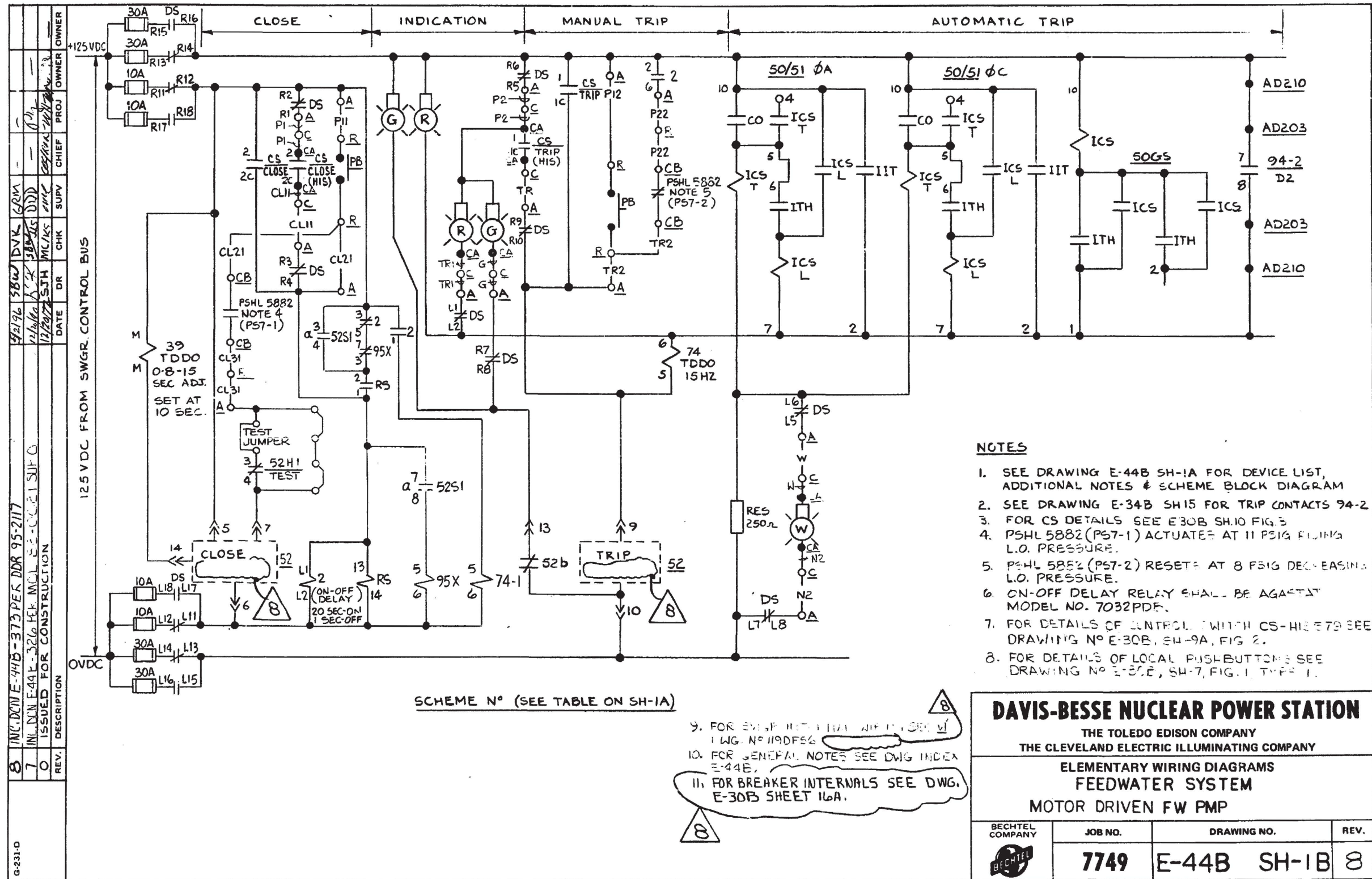
GEN. SUPV.	
ENGR. SUPV.	
ENGR.	
CHK	
BY	JBL
REVISIONS	
NO.	11
DATE	10-89
SCHEME NO.	AD210
START UP NO.	045
CHANNEL	B
WIRE PREFIX	SUF
BUS	D2
SWGR UNIT	10
CS	HIS579
EQUIPMENT	C5712 C5709 AD210 MP2410 R2408 C2405
AM	II579
PB	HS579A
DESCRIPTION	MOTOR DRIVEN FEEDWATER PUMP



- DEVICE TYPE**
- 50/51 - PHASE TIME & INSTR. OVERCURRENT RELAY.
 - 50GS - INST. GROUND SENSOR RELAY
 - 39 - BRKR. CLOSING SPRING FAIL MONITOR RELAY
 - 74 - ALARM RELAY (OVERCURRENT)
 - TS - TEST SWITCH
 - WH-TJ - WATTHOUR TEST JACK
 - AM - AMMETER
- NOTES:**
- FOR GENERAL NOTES SEE DWG. INDEX E-44B, SH.1B.
 - FOR BREAKER CONTROL SCHEME SEE DWG. E-44B SH.1B.

THIS DRAWING WAS REDRAWN ON CAD AND SUPERCEDES REVISION 9.

SCALE NONE	DESIGNED	DRAWN JLH	DATE 06-13-89
DAVIS-BESSE NUCLEAR POWER STATION			
UNIT NO. 1			
THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAM			
FEEDWATER SYSTEM			
MOTOR DRIVEN FEEDWATER PUMP			
DRAWING NO.			REV.
E-44B SH.1A			11



- NOTES**
- SEE DRAWING E-44B SH-1A FOR DEVICE LIST, ADDITIONAL NOTES & SCHEME BLOCK DIAGRAM
 - SEE DRAWING E-34B SH-15 FOR TRIP CONTACTS 94-2
 - FOR CS DETAILS SEE E-30B SH-10 FIG. 3
 - PSHL 5882 (PS7-1) ACTUATES AT 11 PSIG RISING L.O. PRESSURE.
 - PSHL 5882 (PS7-2) RESETS AT 8 PSIG DECREASING L.O. PRESSURE.
 - ON-OFF DELAY RELAY SHALL BE AGASTAT MODEL NO. 7032PDE.
 - FOR DETAILS OF CONTROL SWITCH CS-HIE 579 SEE DRAWING NO E-30B, SH-9A, FIG. 2.
 - FOR DETAILS OF LOCAL PUSHBUTTONS SEE DRAWING NO E-30E, SH-7, FIG. 1 TYPE 1.

9/2/96	SBW	DVK	GRM	OWNER
12/16/96	SBW	SBW	DD	PROJ
12/20/96	SJH	MKS	MM	CHIEF
				SUPV
				CHK
				DR
				DATE
				DESCRIPTION
8	INC. DCN E-44B-373 PER DDR 95-2117			
7	INC. DCN E-44B-326 PER MCL E-30E-1 SUP O			
0	ISSUED FOR CONSTRUCTION			

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
FEEDWATER SYSTEM
MOTOR DRIVEN FW PMP

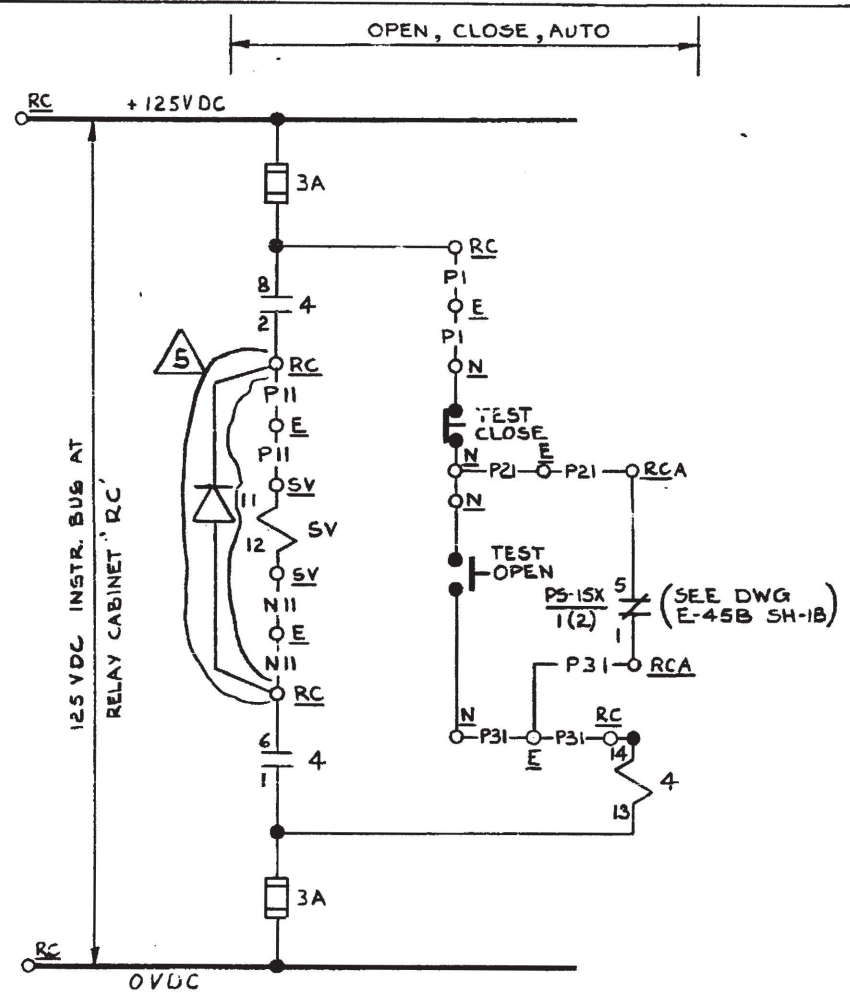
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-1B	8

- FOR SWITCH INTERNALS SEE DWG. E-30B SHEET 16A.
- FOR GENERAL NOTES SEE DWG INDEX E-44B.
- FOR BREAKER INTERNALS SEE DWG. E-30B SHEET 16A.

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

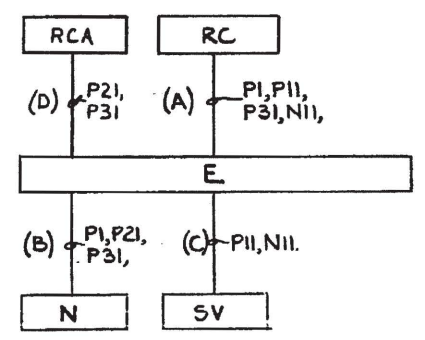
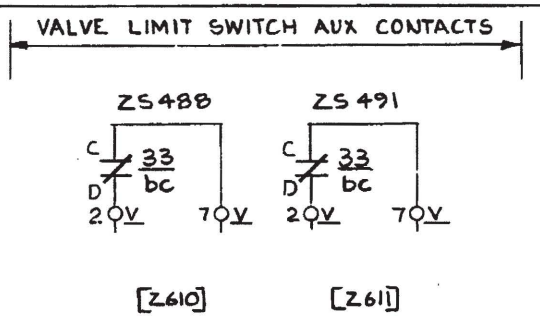
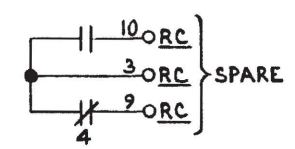
DATE: **5.7.96** OPERATOR: **Dorothy Liddle**

OWNER	OWNER	OWNER	OWNER	OWNER	OWNER
CHIEF	CHIEF	CHIEF	CHIEF	CHIEF	CHIEF
SUPT	SUPT	SUPT	SUPT	SUPT	SUPT
CHK	CHK	CHK	CHK	CHK	CHK
DATE	DATE	DATE	DATE	DATE	DATE
DR	DR	DR	DR	DR	DR
REV.	REV.	REV.	REV.	REV.	REV.
DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION
4	REVISED AS NOTED				
5	INC DCN E-44B-335&336 PER MODB7-1014 SUPD				
0	ISSUED FOR CONSTRUCTION				



SCHEME NO (SEE TABLE)

SCHEME NO	START UP NO	CHANNEL	AUXILIARY RELAY		EQUIPMENT					DESCRIPTION
			NO	CONT. NO	RC	E	N	SV	RCA	
V488	036	A	PS-15X	5-1	RC 4311	EV 264A	NV 488	SV 488	RC 2404	MFP 1-1 DISCHARGE CHECK
V491	036	B	PS-15X	5-1	RC 4410	EV 370A	NV 491	SV 491	RC 2304	MFP 1-2 DISCHARGE CHECK



BLOCK DIAGRAM

NOTES

- FOR GENERAL NOTES SEE E-44B INDEX
- FOR DETAILS OF LOCAL PUSHBUTTONS AND IND. LIGHTS, SEE DWG E-30B, SH-7, TYPES 2
- FOR DETAILS OF SOLENOID LIMIT SWITCHES SEE SCHUTTE & KOERTING CO. DWG. 72XG-42 (FPM 318-4)

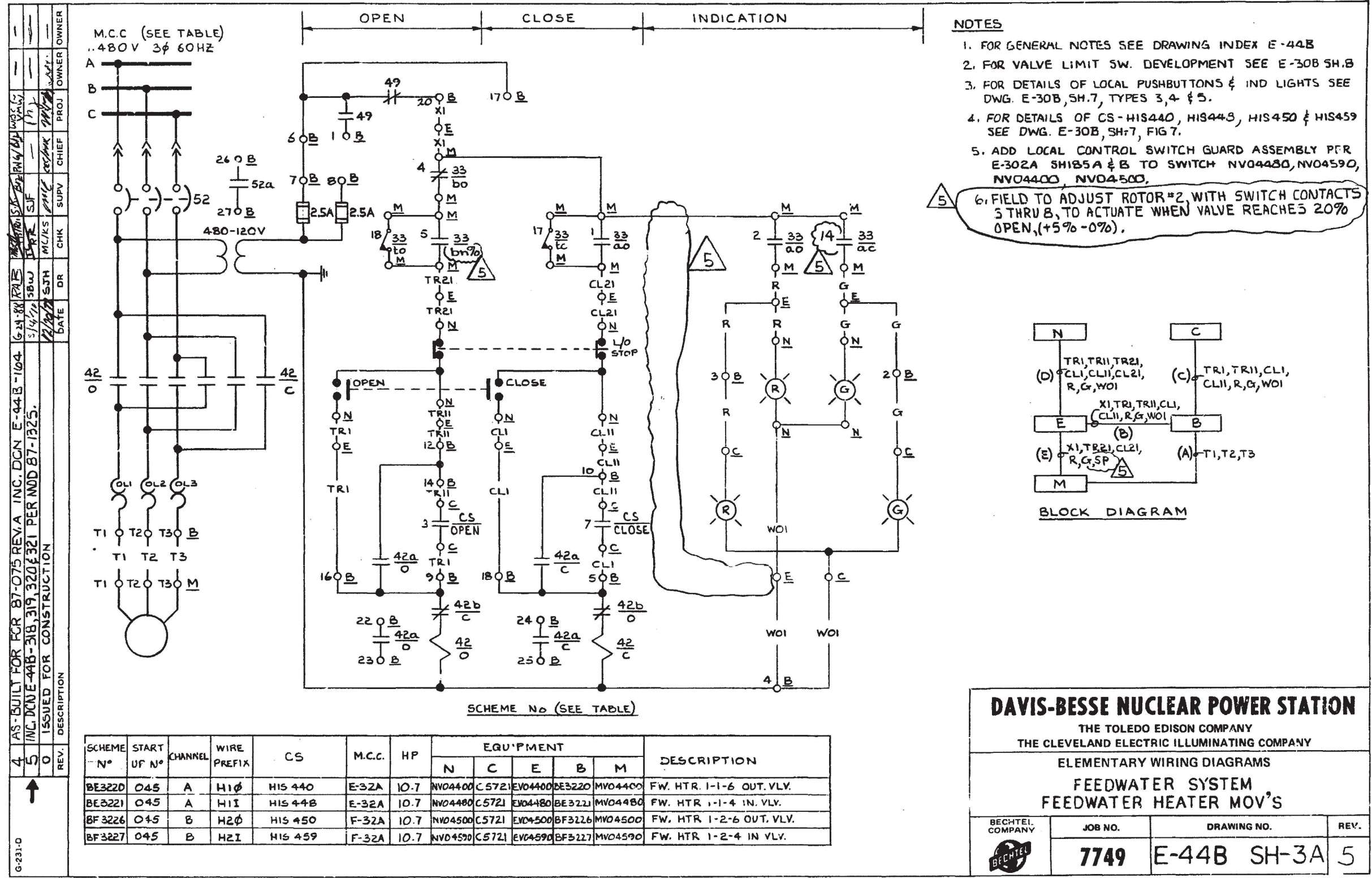
DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 FEEDWATER DISCHARGE VALVES

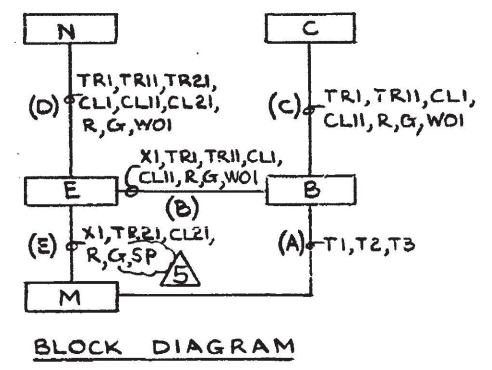
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-2	5

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

DATE 10-4-91 OPERATOR *Cynthia Ortel* 16X



- NOTES**
1. FOR GENERAL NOTES SEE DRAWING INDEX E-44B
 2. FOR VALVE LIMIT SW. DEVELOPMENT SEE E-30B SH.8
 3. FOR DETAILS OF LOCAL PUSHBUTTONS & IND LIGHTS SEE DWG. E-30B, SH.7, TYPES 3, 4 & 5.
 4. FOR DETAILS OF CS-HIS440, HIS445, HIS450 & HIS459 SEE DWG. E-30B, SH.7, FIG.7.
 5. ADD LOCAL CONTROL SWITCH GUARD ASSEMBLY PER E-302A SH185A & B TO SWITCH NVO4480, NVO4590, NVO4400, NVO4500.
 6. FIELD TO ADJUST ROTOR #2, WITH SWITCH CONTACTS 5 THRU 8, TO ACTUATE WHEN VALVE REACHES 20% OPEN, (+5% - 0%).



AS-BUILT FOR FOR 87-075 REV. A INC. DGN E-44B-104	6/24/88	PROJ. OWNER
INC. DGN E-44B-318, 319, 320 & 321 PER MOD 87-1925.	5/14/72	CHIEF
ISSUED FOR CONSTRUCTION	12/20/71	SUPV.
		CHK.
		DR.
		DATE

SCHEME N°	START UF N°	CHANNEL	WIRE PREFIX	CS	M.C.C.	HP	EQUIPMENT					DESCRIPTION
							N	C	E	B	M	
BE3220	045	A	H1φ	HIS 440	E-32A	10.7	NVO4400	C5721	EVO4400	BE3220	MVO4400	FW. HTR. 1-1-6 OUT. VLV.
BE3221	045	A	H1I	HIS 445	E-32A	10.7	NVO4480	C5721	EVO4480	BE3221	MVO4480	FW. HTR. 1-1-4 IN. VLV.
BF3226	045	B	H2φ	HIS 450	F-32A	10.7	NVO4500	C5721	EVO4500	BF3226	MVO4500	FW. HTR. 1-2-6 OUT. VLV.
BF3227	045	B	H2I	HIS 459	F-32A	10.7	NVO4590	C5721	EVO4590	BF3227	MVO4590	FW. HTR. 1-2-4 IN. VLV.

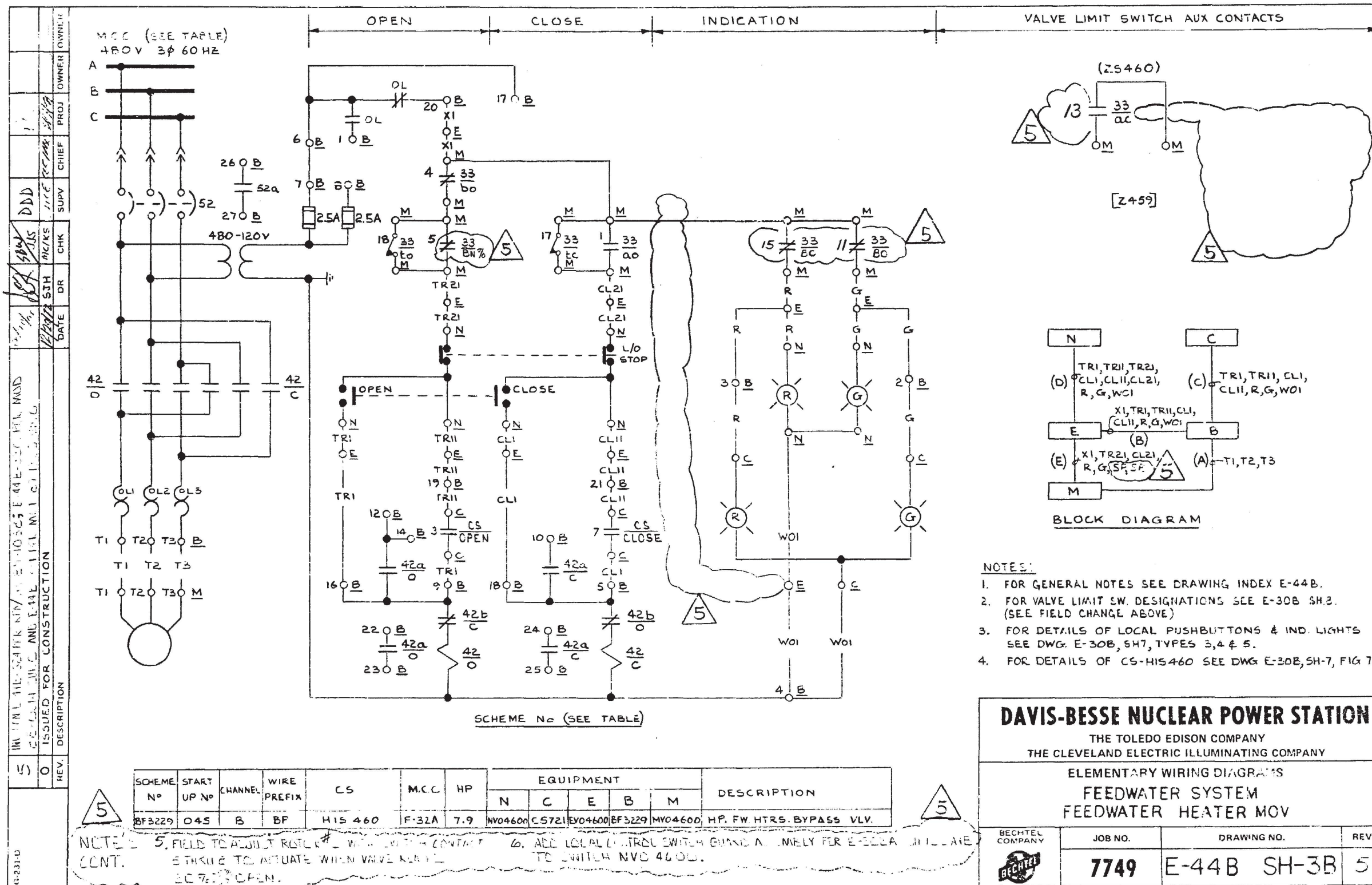
DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 FEEDWATER HEATER MOV'S

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-3A	5

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

DATE 5-7-90 OPERATOR Cynthia Detzel **16X**



- NOTES:
- FOR GENERAL NOTES SEE DRAWING INDEX E-44B.
 - FOR VALVE LIMIT SW. DESIGNATIONS SEE E-30B SH.2. (SEE FIELD CHANGE ABOVE)
 - FOR DETAILS OF LOCAL PUSHBUTTONS & IND. LIGHTS SEE DWG. E-30B, SH7, TYPES 3, 4 & 5.
 - FOR DETAILS OF CS-HIS460 SEE DWG E-30B, SH-7, FIG 7

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 FEEDWATER HEATER MOV

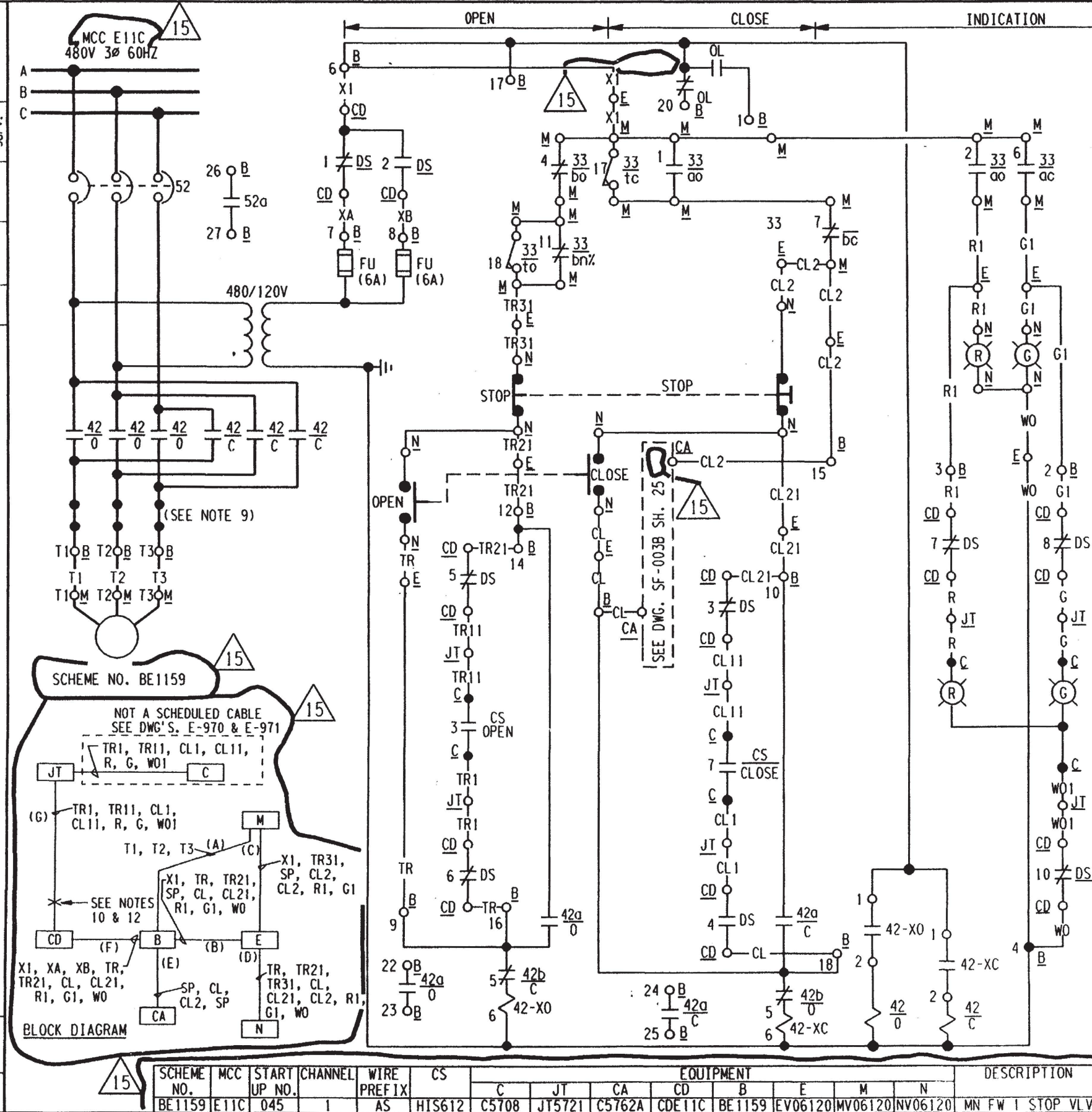
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-3B	5

NOTE: 5. FIELD TO ADJUST ROTARY SWITCH CONTACTS TO ACTUATE WHEN VALVE NEARLY 20% OPEN.
 6. ADD LOCAL CONTROL SWITCH GUARD AS SHOWN IN E-30B SH-7, FIG 7.

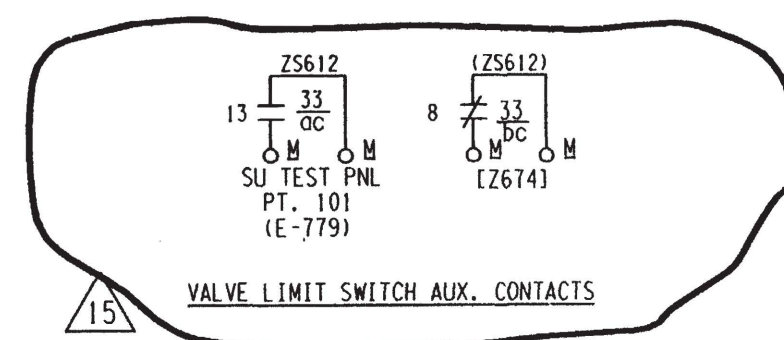
I certify that the data contained on this frame was made in the normal and regular course of business, on the date stated below and that it is an accurate reproduction of the record(s) submitted to Nuclear Records Management.
 DATE 12-28-90 OPERATOR *Donny Wiedle* 16X

GEN. SUPV.	
ENGR. SUPV.	
ENGR.	
CHK	
BY	BT
REVISIONS	
DATE	
NO.	15

INC. DCN E-44B-388 PER ECR 03-0347-00 AND DCN E-44B-391 PER ECR 03-0507-00. GEN. UPDATE, TRANSFERRED INFO (SCHEME BE1159) FROM SH. 4B TO SH. 4A PER DWG. SPLIT, AND INFO. (SCHEME BF1117) FROM SH. 4A TO SH. 4B REWORKED ALL NOTES AND DETAILS TO MAKE SH. 4A FOR BE1159, CORRECT NOTE 5 DWG. REF. PER REVIEW OF DWG. (SH. 8 TO SH. 8F).



- NOTES:
- DELETED
 - FOR GENERAL NOTES SEE DRAWING INDEX E-44B.
 - FOR LOCAL PUSHBUTTONS AND INDICATING LIGHTS DETAILS SEE DWG. E-30B, SH. 7, TYPES 3, 4 & 6.
 - FOR DETAILS OF CS SEE DWG. E-30B, SH. -7, FIG. 7.
 - FOR VALVE LIMIT SW. DEVELOPMENT SEE DRAWING NO. E-30B SH. 8F, FIG. K.
 - FOR DETAILS OF DS SEE DWG. E-30B, SH. 10A, FIG. 1 (BE1159).
 - DELETED
 - DELETED
 - OVERLOAD HEATERS REPLACED BY SHORTING BARS.
 - FIELD TO ADJUST ROTOR 3 WITH SWITCH CONTACTS 9 THRU 12 TO ACTUATE WHEN VALVE REACHES 20% (+5%, -0%) OPEN.
 - ADD LOCAL CONTROL SWITCH GUARD ASSEMBLY PER E-302A SH. 185A & B TO SWITCH NV06010, NV6120.
 - IN LINE TERMINATION LOCATED IN JB 5777 (CH. 1).
 - FOR SFRCB BLOCK SWITCH AND SCHEMATIC SEE SF-003B SH. 25.
 - RELAYS 42-X0 AND 42-XC ARE BOTH WESTINGHOUSE TYPE AR440AR.
 - FOR SCHEME BF1117, MN FW 2 STOP VLV SEE DWG. E-44B SH. 4B.



THIS DRAWING WAS REDRAWN ON CAD AND SUPERCEDES REVISION 9

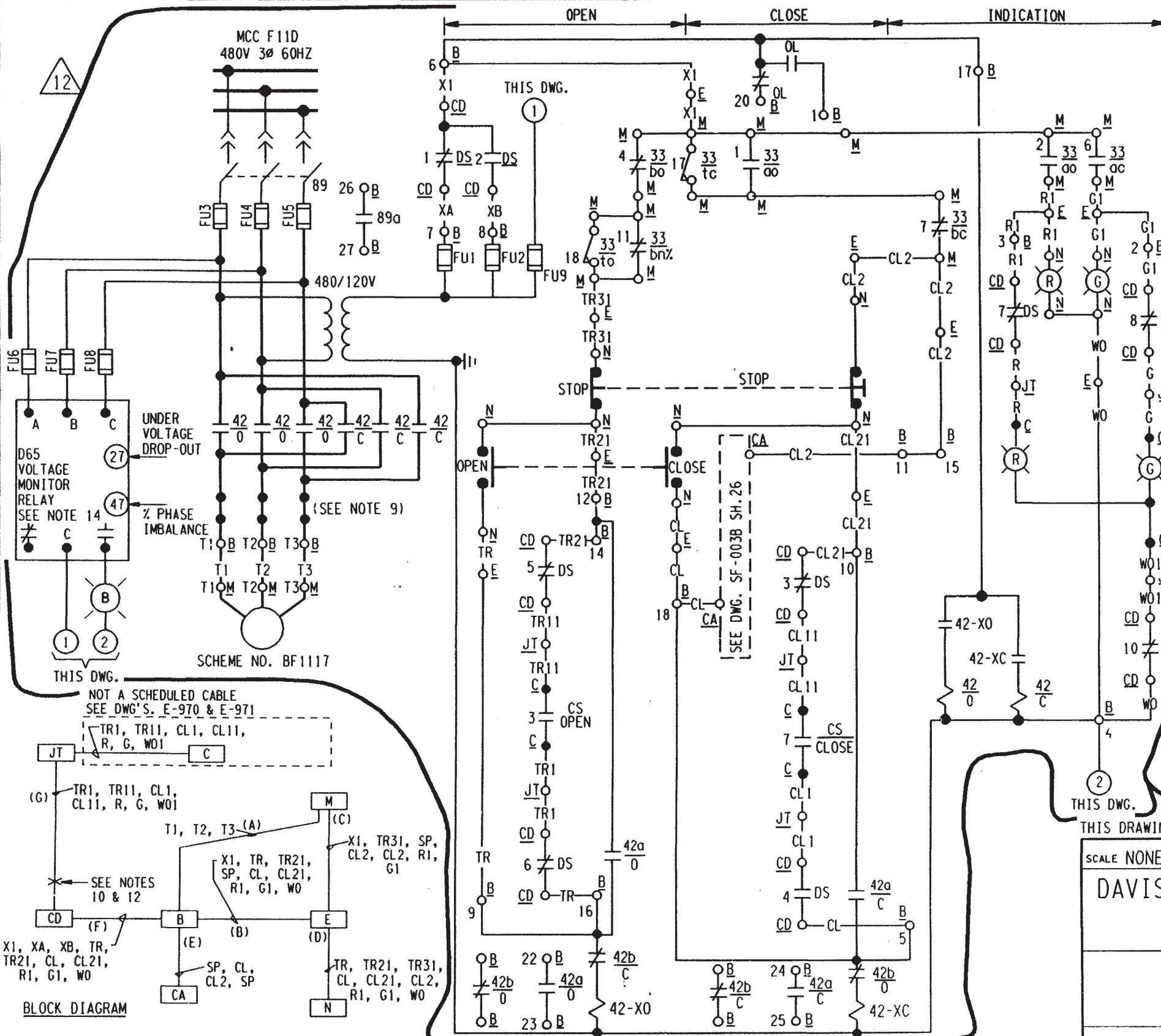
SCALE NONE	DESIGNED	DRAWN RRD	DATE 06-06-89
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS FEEDWATER SYSTEM (MN FW 1 STOP VLV)			
DRAWING NO.			REV.
E-44B SH. 4A			15

SCHEME NO.	MCC	START UP NO.	CHANNEL	WIRE PREFIX	CS	EQUIPMENT							DESCRIPTION	
						C	JT	CA	CD	B	E	M		N
BE1159	E11C	045	1	AS	HIS612	C5708	JT5721	C5762A	CDE11C	BE1159	EV06120	MV06120	NV06120	MN FW 1 STOP VLV

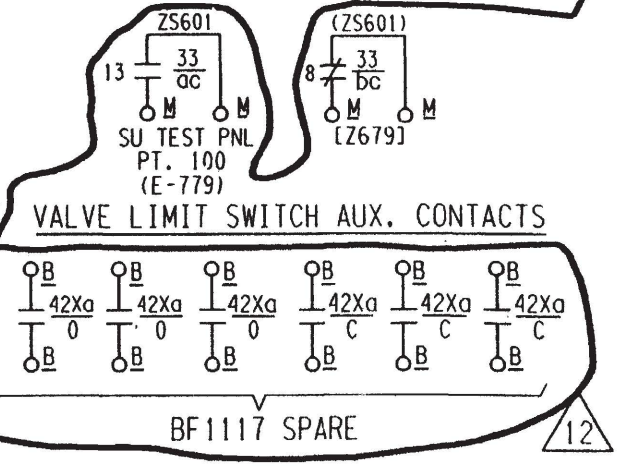
NEWFAX 3/85 N58313

ED 7489

	GEN. SUPV.
	ENGR. SUPV.
	ENGR.
50w	CH'K
BT	BY
BT	
<p>GEN. UPDATE PER ECR 03-0507-00, REF. DCN E-44B-391 AND TRANSFERRED INFO. (SCHEME BF1117) FROM SH. 4A TO SH. 4B PER DWG. SPLIT, AND INFO. (SCHEME BF1117 FROM SH. 4B TO SH. 4A), REWORKED ALL NOTES AND DETAILS TO MAKE SH. 4B FOR BF1117, CORRECTED NOTE 5 DWG. REF. PER REVIEW OF DWG. (SH. 8 TO SH. 8F). ADDED NOTE 14 REF. IN D65 VOLTAGE MONITOR RELAY BOX FOR CLARITY. (REDRAWN).</p>	
6/14/04	DATE
12	NO.



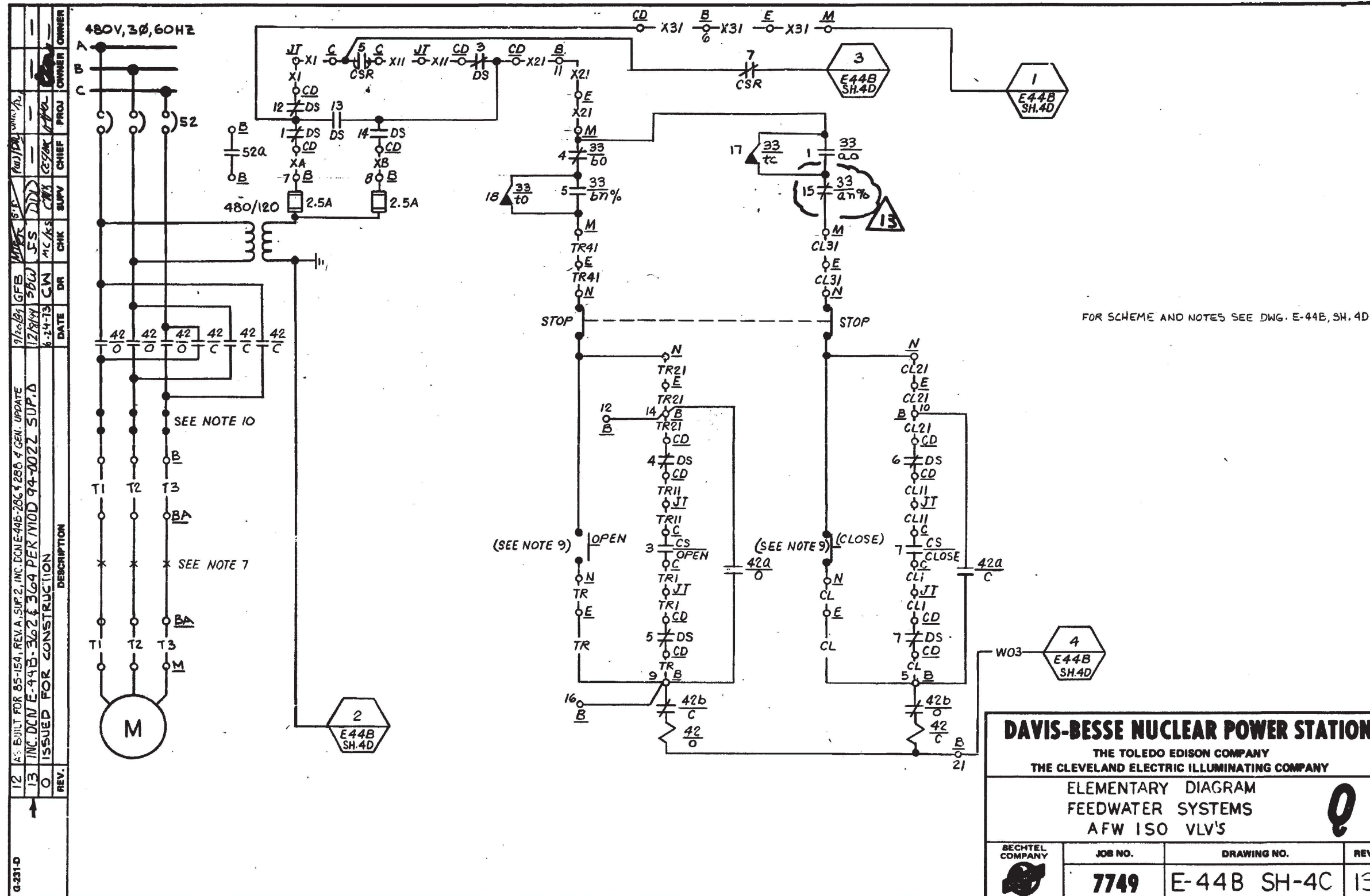
- NOTES:
1. DELETED
 2. FOR GENERAL NOTES SEE DRAWING INDEX E-44B.
 3. FOR LOCAL PUSHBUTTONS AND INDICATING LIGHTS DETAILS SEE DRAWING E-30B, SH. 7, TYPES 3, 4, AND 6
 4. FOR DETAILS OF CS SEE DWG. E-30B, SH. 7, FIG. 7.
 5. FOR VALVE LIMIT SW. DEVELOPMENT SEE DRAWING NO. E-30B SH. 8F, FIG. K.
 6. FOR DETAILS OF DS SEE DWG. E-30B, SH. 10A, FIG. 2 (BF1117).
 7. DELETED
 8. DELETED
 9. OVERLOAD HEATERS REPLACED BY SHORTING BARS.
 10. FIELD TO ADJUST ROTOR 3 WITH SWITCH CONTACTS 9 THRU 12 TO ACTUATE WHEN VALVE REACHES 20% (+5%, -0%) OPEN.
 11. ADD LOCAL CONTROL SWITCH GUARD ASSEMBLY PER E-302A SH. 185A & B TO SWITCH NV06010, NV6120.
 12. IN LINE TERMINATION LOCATED IN JB 5776 (CH. 2).
 13. FOR SFRCB BLOCK SWITCH AND SCHEMATIC SEE SF-003B SH. 26.
 14. VOLTAGE MONITOR RELAY CONTACTS ARE SHOWN IN SHELF (DEENERGIZED) STATE. SEE RELAY SETTING MANUAL FOR SETPOINTS.
 15. FOR SCHEME BE1159, MN FW 1 STOP VLV SEE DWG. E-44B SH. 4A.



THIS DRAWING WAS REDRAWN ON CAD AND SUPERCEDES REVISION 11

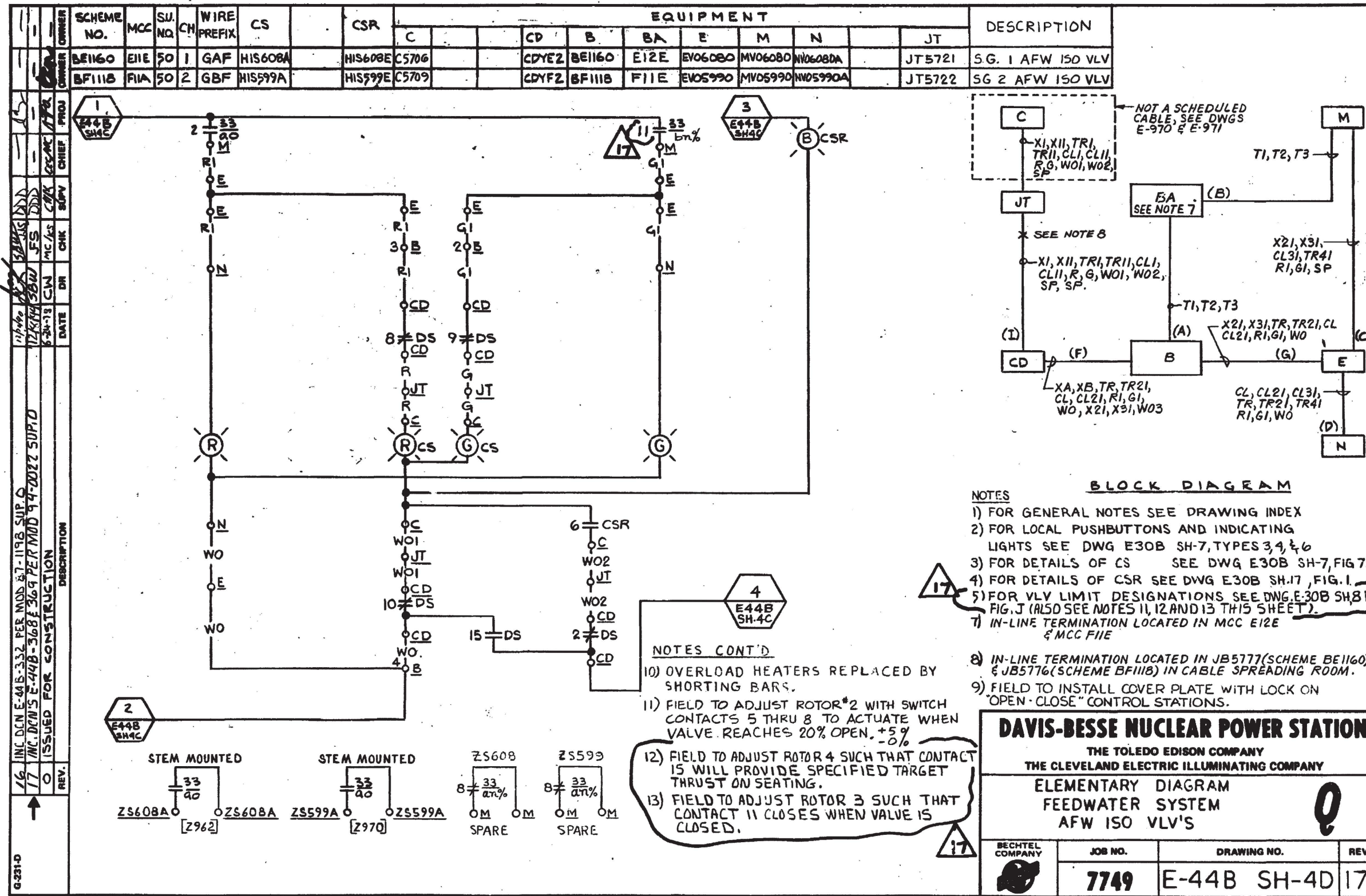
SCALE NONE	DESIGNED	DRAWN BT	DATE 4-14-04
<p>DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY</p>			
<p>ELEMENTARY WIRING DIAGRAMS FEEDWATER SYSTEM {MN FW 2 STOP VLV}</p>			
DRAWING NO.			REV.
E-44B SH. 4B			12

SCHEME NO.	MCC	START UP NO.	CHANNEL	WIRE PREFIX	CS	EQUIPMENT							DESCRIPTION	
						C	JT	CA	CD	B	E	M		N
BF1117	F11D	045	2	BS	HIS601	C5708	JT5722	C5792	CD11D	BF1117	EV06010	MV06010	NV06010	MN FW 2 STOP VLV



FOR SCHEME AND NOTES SEE DWG. E-44B, SH. 4D.

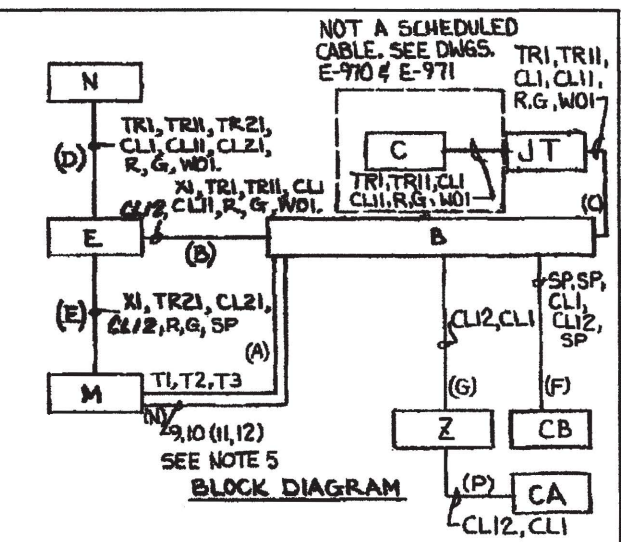
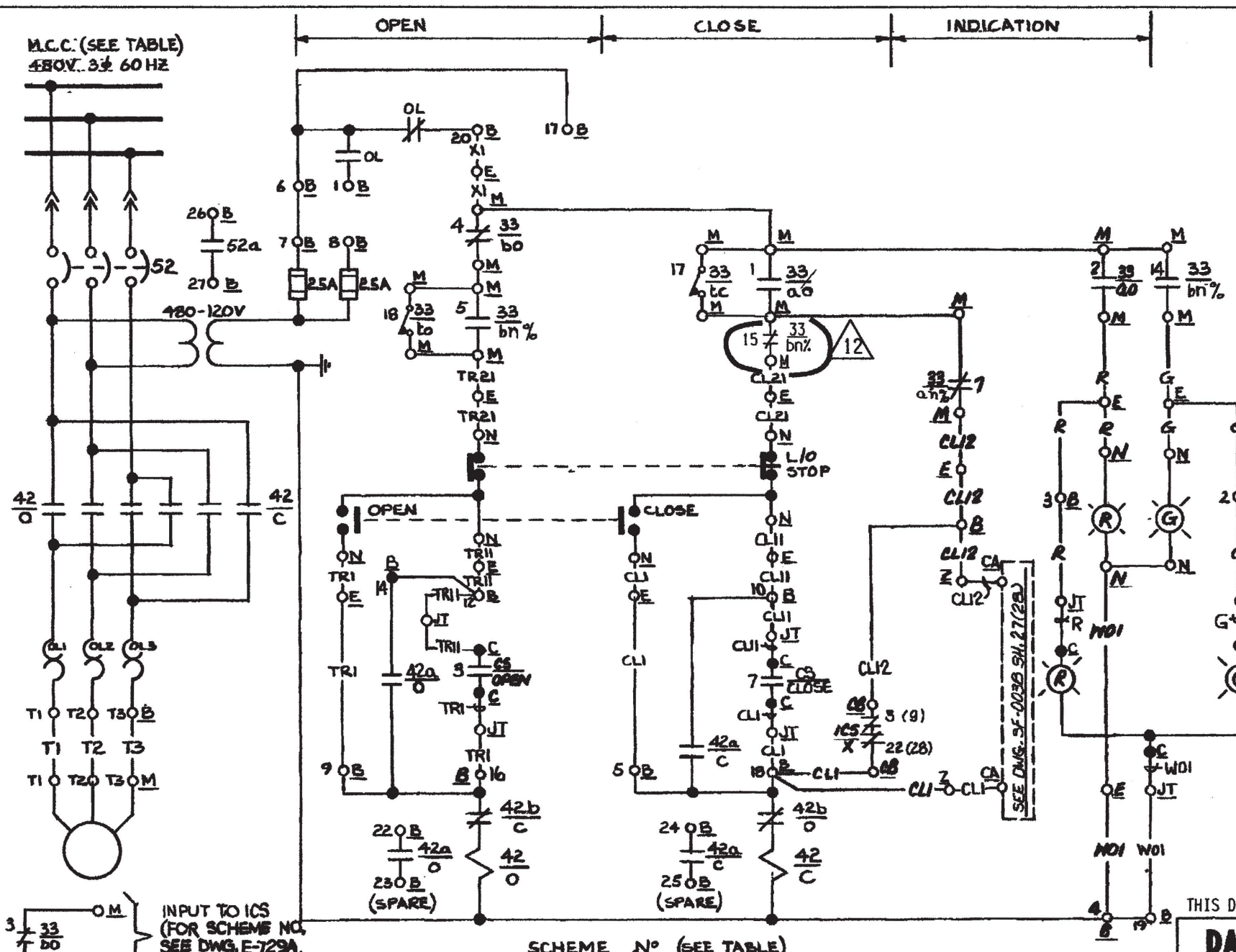
I CERTIFY THAT THE IMAGE CONTAINED IN THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.
 DATE 12.14.94 OPERATOR Dorothy Cunningham 16X



1 I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

DATE 12-14-94 OPERATOR [Signature] 16X

INC. DUN'S 02-0252-001-001 & 02-0252-002-001 BOTH REV. 1 (REDRAWN) BY K. J. SACRUM	REV.	DESCRIPTION
AS BUILT FOR PER BE-31, REV. A, INC. DEN E-44B-T11172, PER E-44B-T11172, PER E-44B-T11172, INC. DEN E-44B-T11172	12	TESTED FOR CONSTRUCTION
211, 212 GEN. UPDATE, MOD. BY 107 SUP. 2, INC. DEN E-44B-T250-250-250, SUP. 9, INC. DEN E-44B-T250-250-250	11	
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- NOTES:
- FOR GENERAL NOTES SEE DRAWING INDEX E-44B.
 - FOR VALVE LIMIT SWITCH DEVELOPMENT SEE DRAWING E-30B, SH. 8, FIG. A (SEE NOTE 6 THIS SHEET).
 - FOR DETAILS OF LOCAL PUSHBUTTONS & INDICATING LIGHTS SEE DRAWING E-30B, SH. 7, TYPES 3, 4 & 5.
 - FOR DETAILS OF CS SEE DWG. E-30B, SH. 7, FIG. 7.
 - INFORMATION IN PARENTHESIS ARE FOR SCHEME BF3261 ONLY.
 - FIELD TO ADJUST ROTOR#2 WITH SWITCH CONTACTS 5 THRU 8 TO ACTUATE WHEN VALVE REACHES 20% OPEN (+5%, -0%).
 - DELETED.
 - ADD LOCAL CONTROL SWITCH GUARD ASSEMBLY PER E-302A, SH. 185A & B TO SWITCH NV07790, NV07800.
 - FOR SFRCSS SCHEMATIC SEE DWG. SF-003B, SH. 27 (28).
 - FIELD TO ADJUST ROTOR 4 FOR FW779 & FW780 SUCH THAT CONTACT 15 OPENS WHEN VALVE IS CLOSED. (I.E. AFTER HARD SEAT CONTACT).

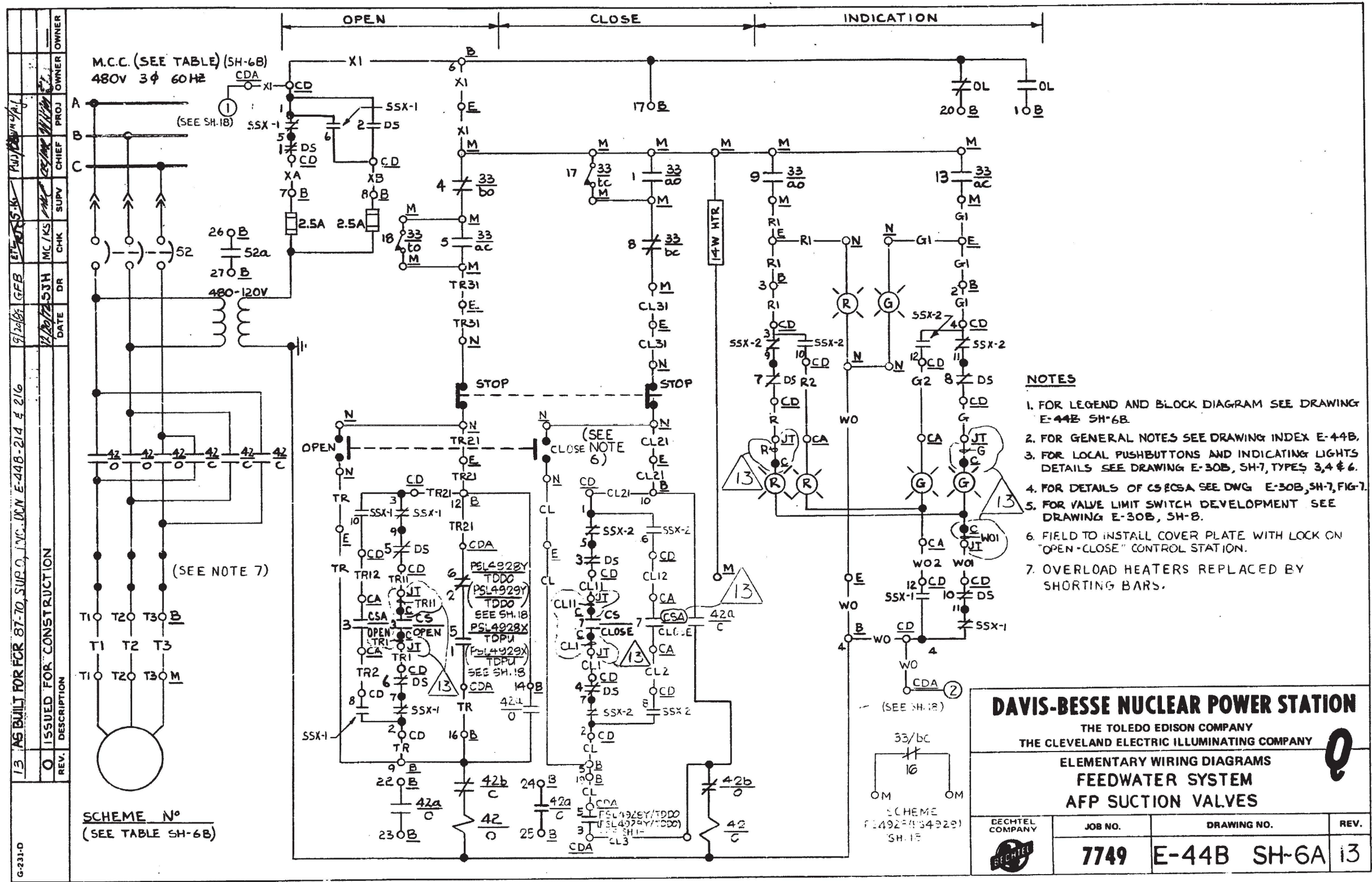
THIS DRAWING WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REV. 11

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
 ELEMENTARY WIRING DIAGRAMS
FEEDWATER SYSTEM
FEEDWATER ISOLATION VALVES

SCHEME N°	M.C.C.	START UP N°	CHANNEL	WIRE PREFIX	CS	EQUIPMENT												ICS/X RELAY	DESCRIPTION
						C	CB	B	N	E	M	CA	Z	JT					
BE3213	E32A	045	A	FII	HIS780	C5708	C5761B	BE3213	NV07800	EY07800	MV07800	C5762A	C5762Z	JT5721	ALLVC	S.G-1 MN. FW. ISO. VLV			
BF3261	F32A	045	B	FRI	HIS779	C5708	C5761B	BF3261	NV07790	EY07790	MV07790	C5792	C5792Z	JT5722	ALLVC	S.G-2 MN FW ISO. VLV			

FOR DETAILS SEE BECTEL K.P. FILE 7749-M-533-58 (B&N 21-00-411)

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-5	12



- NOTES**
1. FOR LEGEND AND BLOCK DIAGRAM SEE DRAWING E-44B SH-6B.
 2. FOR GENERAL NOTES SEE DRAWING INDEX E-44B.
 3. FOR LOCAL PUSHBUTTONS AND INDICATING LIGHTS DETAILS SEE DRAWING E-30B, SH-7, TYPES 3, 4 & 6.
 4. FOR DETAILS OF CS/CSA SEE DWG E-30B, SH-7, FIG-7.
 5. FOR VALVE LIMIT SWITCH DEVELOPMENT SEE DRAWING E-30B, SH-8.
 6. FIELD TO INSTALL COVER PLATE WITH LOCK ON "OPEN-CLOSE" CONTROL STATION.
 7. OVERLOAD HEATERS REPLACED BY SHORTING BARS.

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

**ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 AFP SUCTION VALVES**

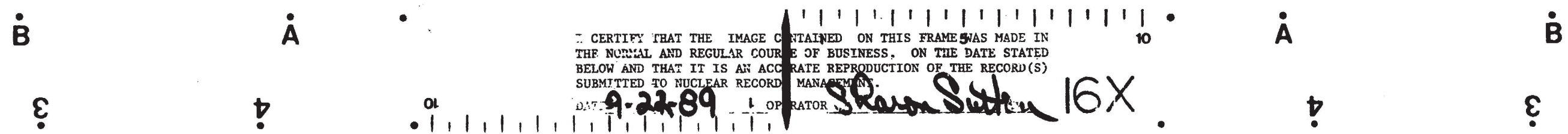
REV.	DRAWING NO.	JOB NO.
13	E-44B SH-6A	7749

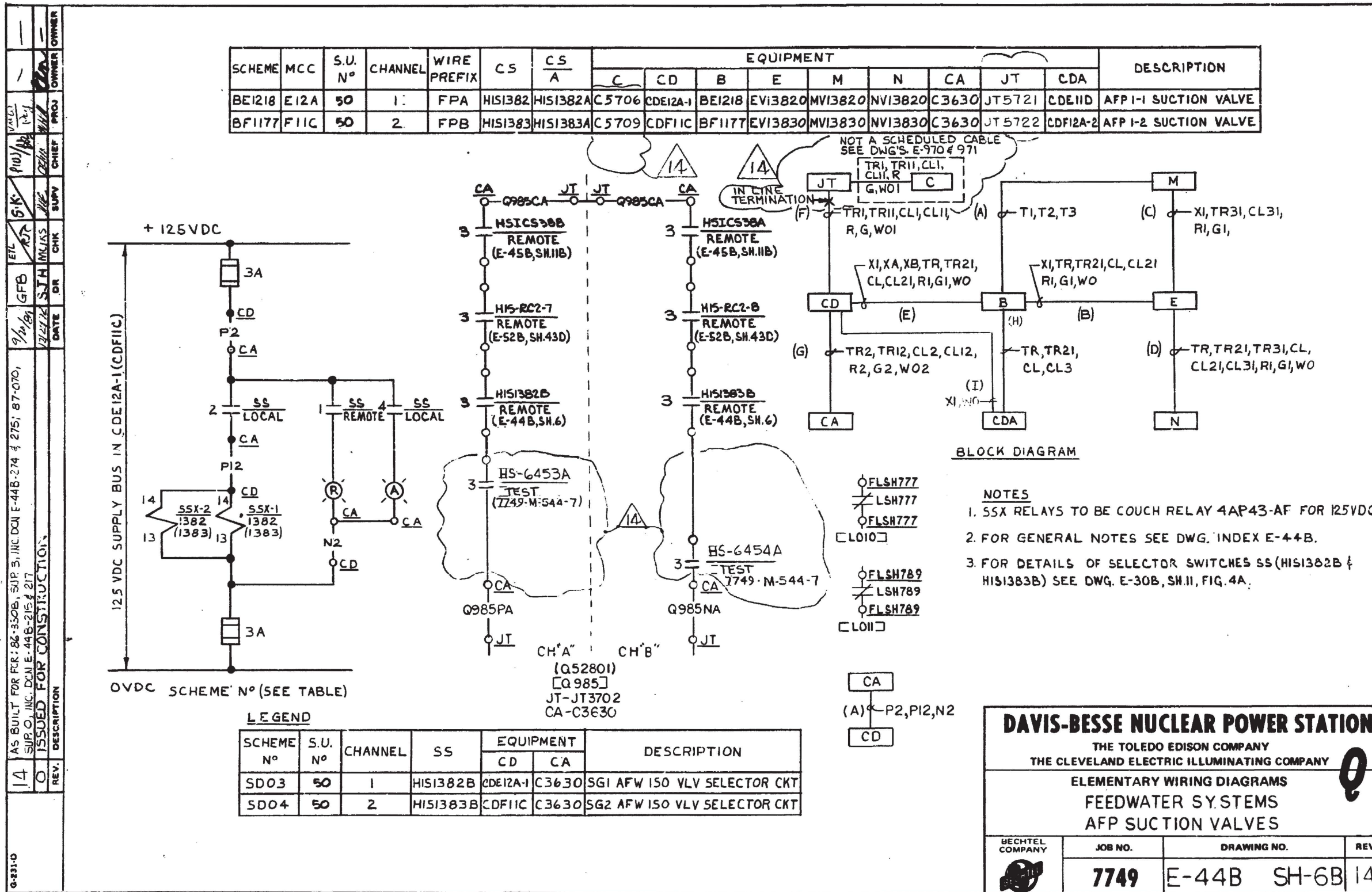
OWNER	
PROJ. CHIEF	
SUPV.	
CHK.	
MC/KS	
DR.	
DATE	
ISSUED FOR CONSTRUCTION	
REV. DESCRIPTION	
13	AS BUILT FOR 87-70, SUPD, I.V. DRN E-44B-214 & 216

SCHEME No
(SEE TABLE SH-6B)

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORD MANAGEMENT.

DATE: 9-22-89 OPERATOR: Sharon Sutton

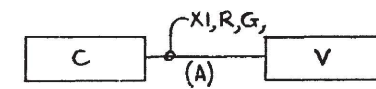
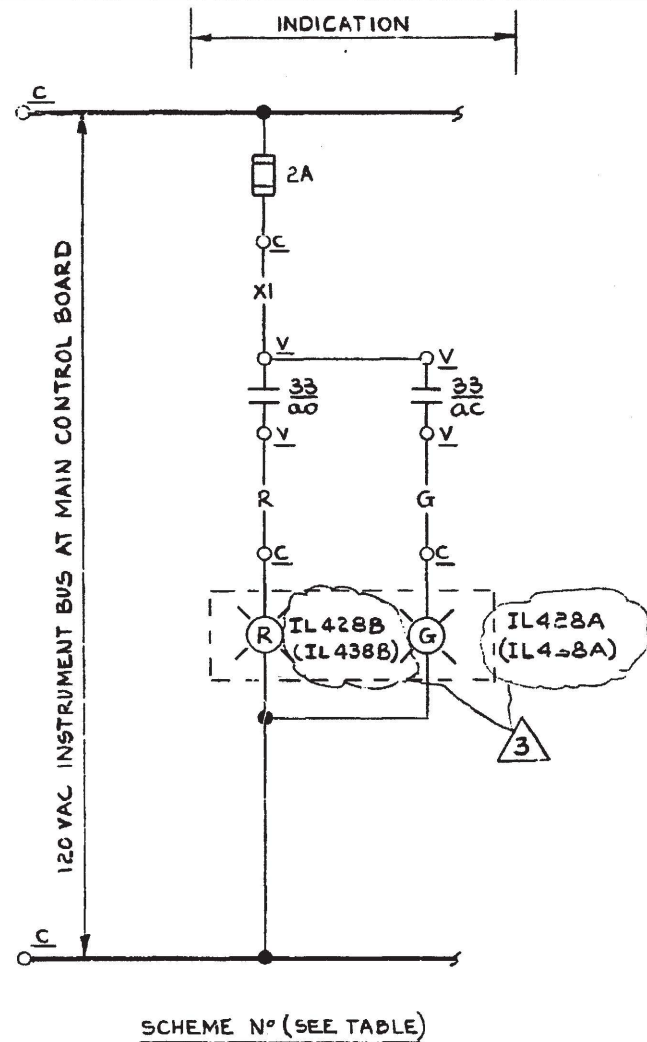




I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS. ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORD MANAGEMENT.

DATE: 9-22-89 OPERATOR: Sharon Sutton 16X

G-231-0	3	"AS BUILT" FOR DER 89-0095, INC. DEN E-44B-314	DATE	DP	CHK	SUPV	CHIEF	PROJ.	OWNER
	1	REVISED AS NOTED	2/16/88	LHS	MDEAL	CAL			
	0	ISSUED FOR CONSTRUCTION	6-24-81	PS	MCKES	CHS			
			12/20/75	SJH	MC	KS	CHC		



BLOCK DIAGRAM

NOTES

1. FOR GENERAL NOTES SEE DRAWING INDEX E:44B
2. FOR LIMIT SWITCH DESIGNATIONS SEE DRAWING E-30B, SH-2.

SCHEME	SU N°	CHANNEL	WIRE PREFIX	EQUIPMENT		DESCRIPTION
				C	V	
V428	045	A	FRA	C5711	V 428	MFP I-1 RECIRCULATING VALVE
V438	045	B	FRB	C5711	V 438	MFP I-2 RECIRCULATING VALVE

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

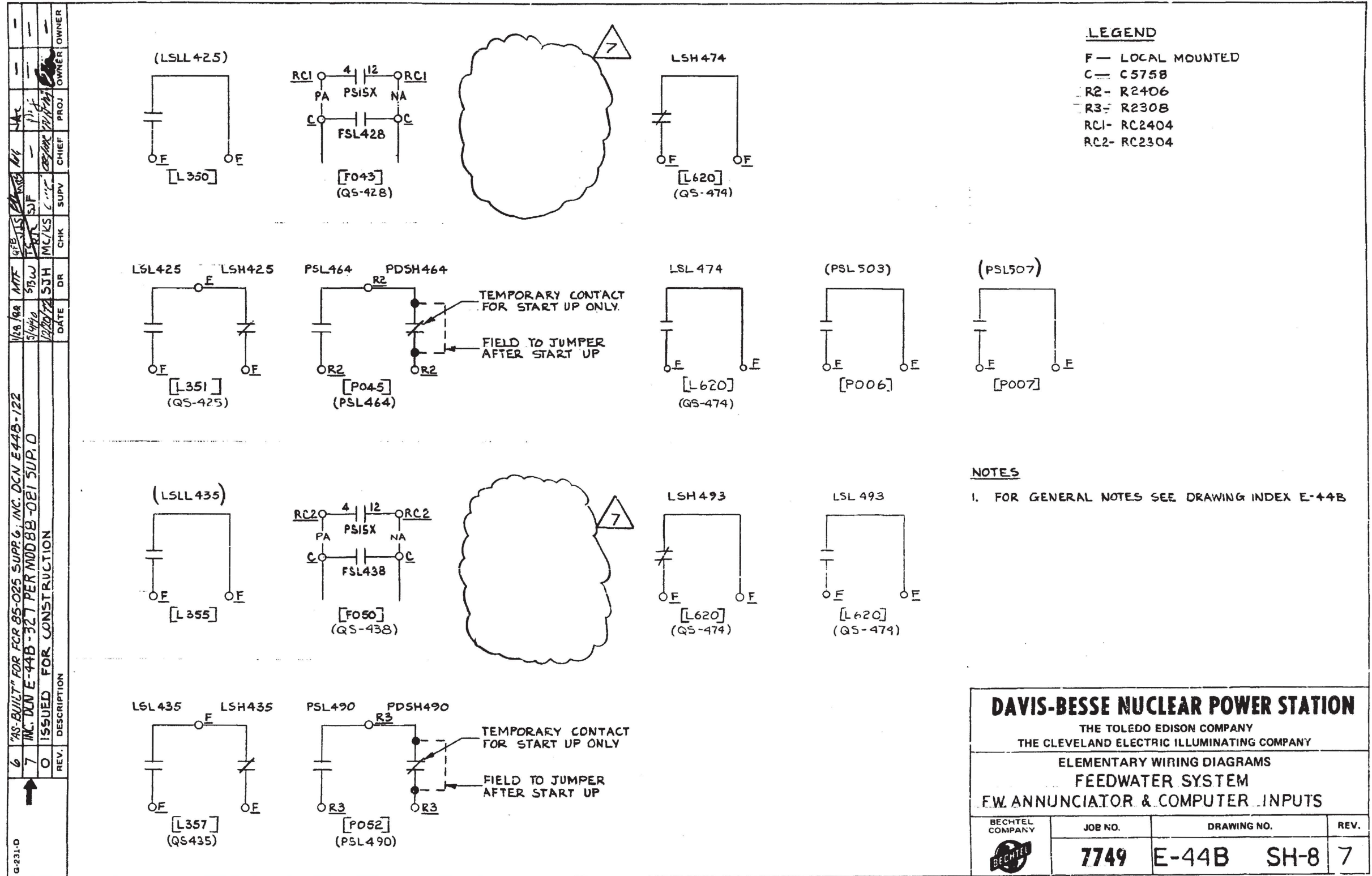
ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 MFP RECIRCULATING VALVES

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-7	3

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

223-90 OPERATOR Sharon Sutton 16X

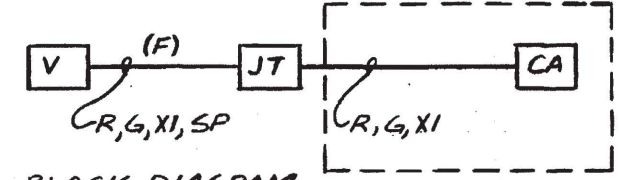
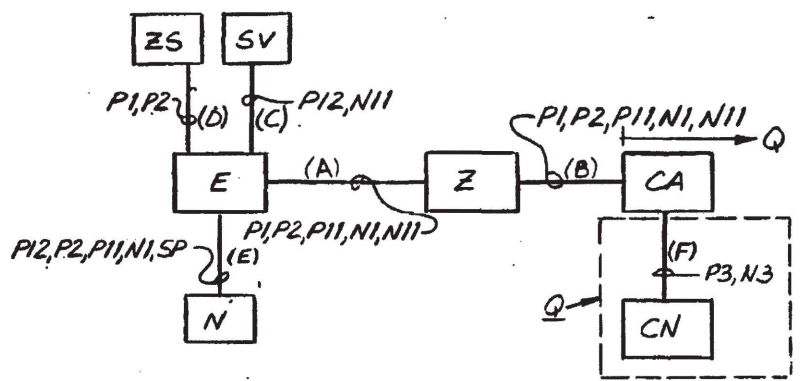
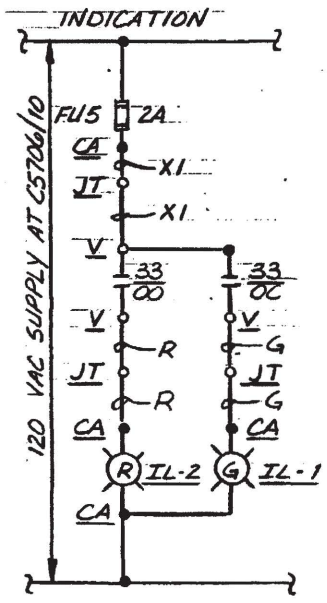
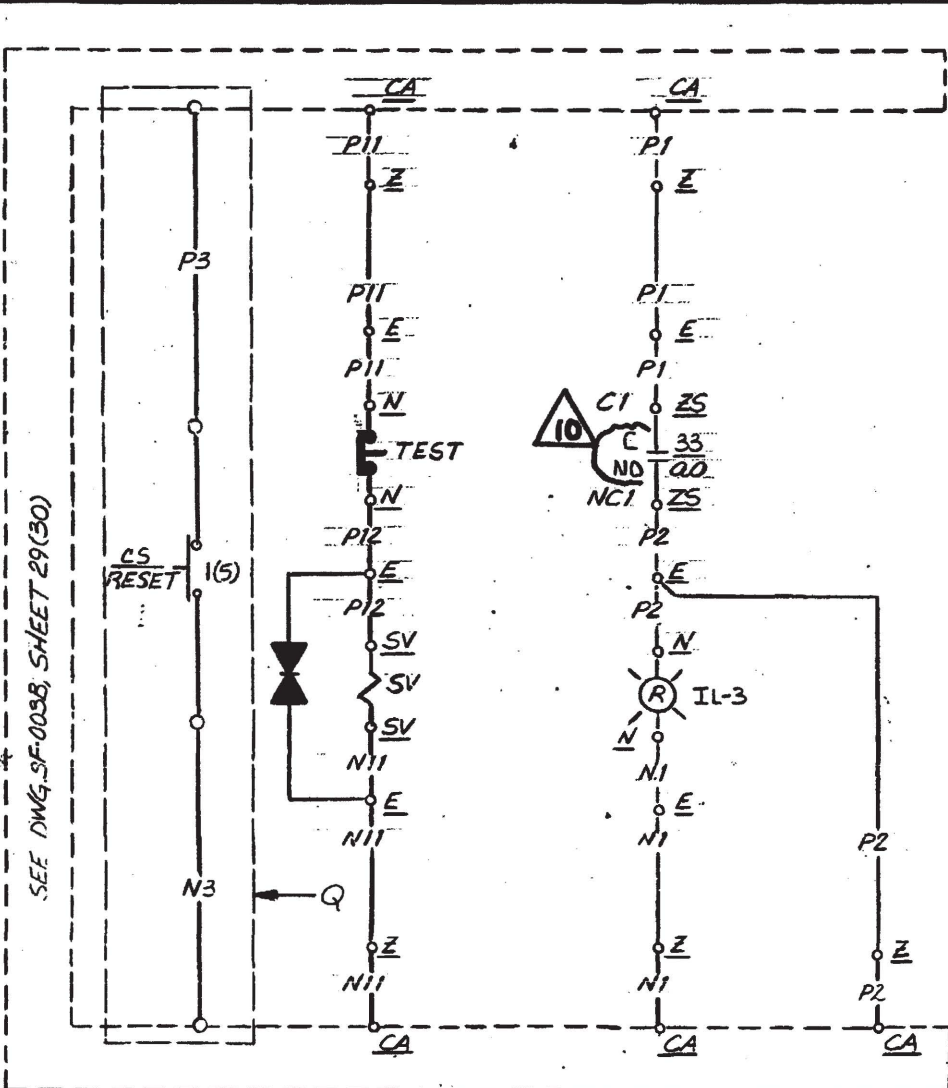
6	AS-BUILT FOR 85-025 SUPP.G, INC. DCN E-44B-122	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
7	ISSUED FOR CONSTRUCTION	12/20/72	SJH	MC/KS
0								



I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

DATE 5-7-90 OPERATOR Cynthia Ditzel 16X

INC. DCN'S E-44B-352 AND 357 PER MOD 93-0012 SUP.0 AND E-44B-372 PER DDR 94-2999	DATE	DR	CHK	BUV	CHIEF	PROJ	OWNER					
ISSUED FOR CONSTRUCTION	12/19/94	36W	JSD	DD	DD	DD	DD					
REV.	NO.	CH	EQUIPMENT NO.					DESCRIPTION				
10	0		SV	ZS	N	Z	CA	E	CS	CN	IL-3	
		1/4	SV-SP6A1	ZS-SP6A1	NV-SP6A1	C5762Z	C5762A	EV-SP6A1	HS-SP6A1	C5762N	IL-SP6A-1A	MN FW 2" CTRL VLV SV
		1/4	SV-SP6A2	ZS-SP6A2	NV-SP6A2	C5762Z	C5762A	EV-SP6A2	HS-SP6A2	C5762N	IL-SP6A-2A	MN FW 2" CTRL VLV SV
		3/8	SV-SP6B1	ZS-SP6B1	NV-SP6B1	C5792Z	C5792	EV-SP6B1	HS-SP6B1	C5792N	IL-SP6B-1A	MN FW 1" CTRL VLV SV
		3/8	SV-SP6B2	ZS-SP6B2	NV-SP6B2	C5792Z	C5792	EV-SP6B2	HS-SP6B2	C5792N	IL-SP6B-2A	MN FW 1" CTRL VLV SV



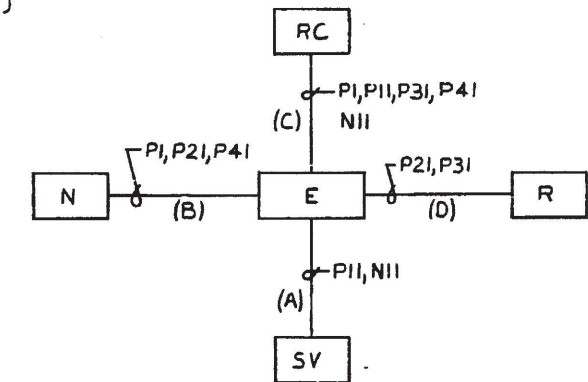
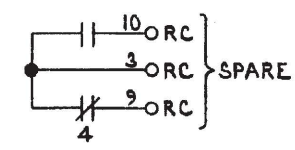
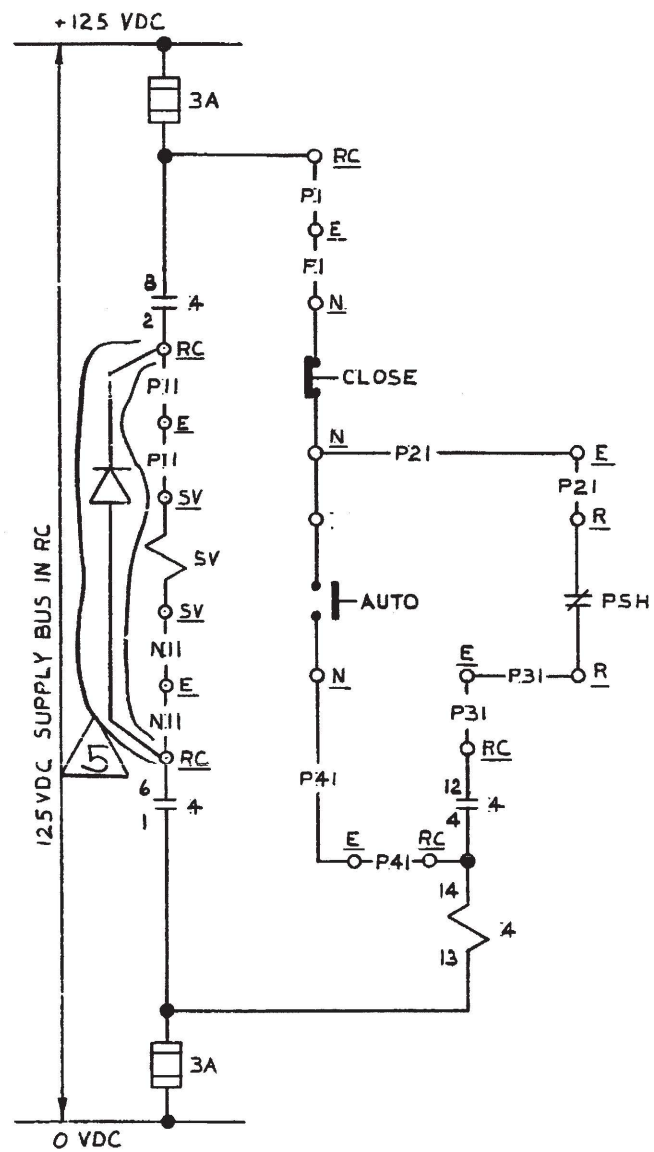
- NOTES:**
- FOR GENERAL NOTES SEE E44B INDEX SH.
 - FOR SFRCS SCHEMATIC SEE DWG SF-003B SH.29(30)
 - FOR TEST INDICATING LIGHTS USE GE. CR2940UC212B2
 - FOR DETAILS OF TEST PUSHBUTTON SEE DRAWING E30B SH.7 FIG.8

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
 ELEMENTARY WIRING DIAGRAM
 FEEDWATER SYSTEM
 MN FW CTRL VLV SV'S

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-9	10

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.
 DATE 12.14.94 OPERATOR [Signature]

4	AS-BUILT FOR FOR 87-075 REV. A INC. DEN E-44B-167	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
5	ISSUED FOR CONSTRUCTION	11/14/79	MS	MS	MS	MS	MS	MS
0		4-28-73	MS	MS	MS	MS	MS	MS



BLOCK DIAGRAM

- NOTES**
- FOR GENERAL NOTES SEE DWG. INDEX SH.
 - FOR DETAILS OF LOCAL PUSHBUTTON SEE DWG. E-30B, SH.7, TYPE 2A.
 - PSH CONTACT OPENS ON HIGH FWP DISCHARGE PRESSURE.
 - ADD LOCAL CONTROL SWITCH GUARD ASSEMBLY PER E-302A SH.185A & B TO SWITCH NV472, NV479

SCHEME NO.(SEE TABLE)

LEGEND

SCHEME NO.	S.U. NO.	CHANNEL	EQUIPMENT					DESCRIPTION
			SV	N	RC	R	EV	
V472	036	A	SV472	NV472	RC2404	R2402 (FPSH473)	EV472	MFPI-1 WARM UP VLV
V479	036	B	SV479	NV479	RC2304	R2305 (FPSH484)	EV479	MFP I-2 WARM UP VLV

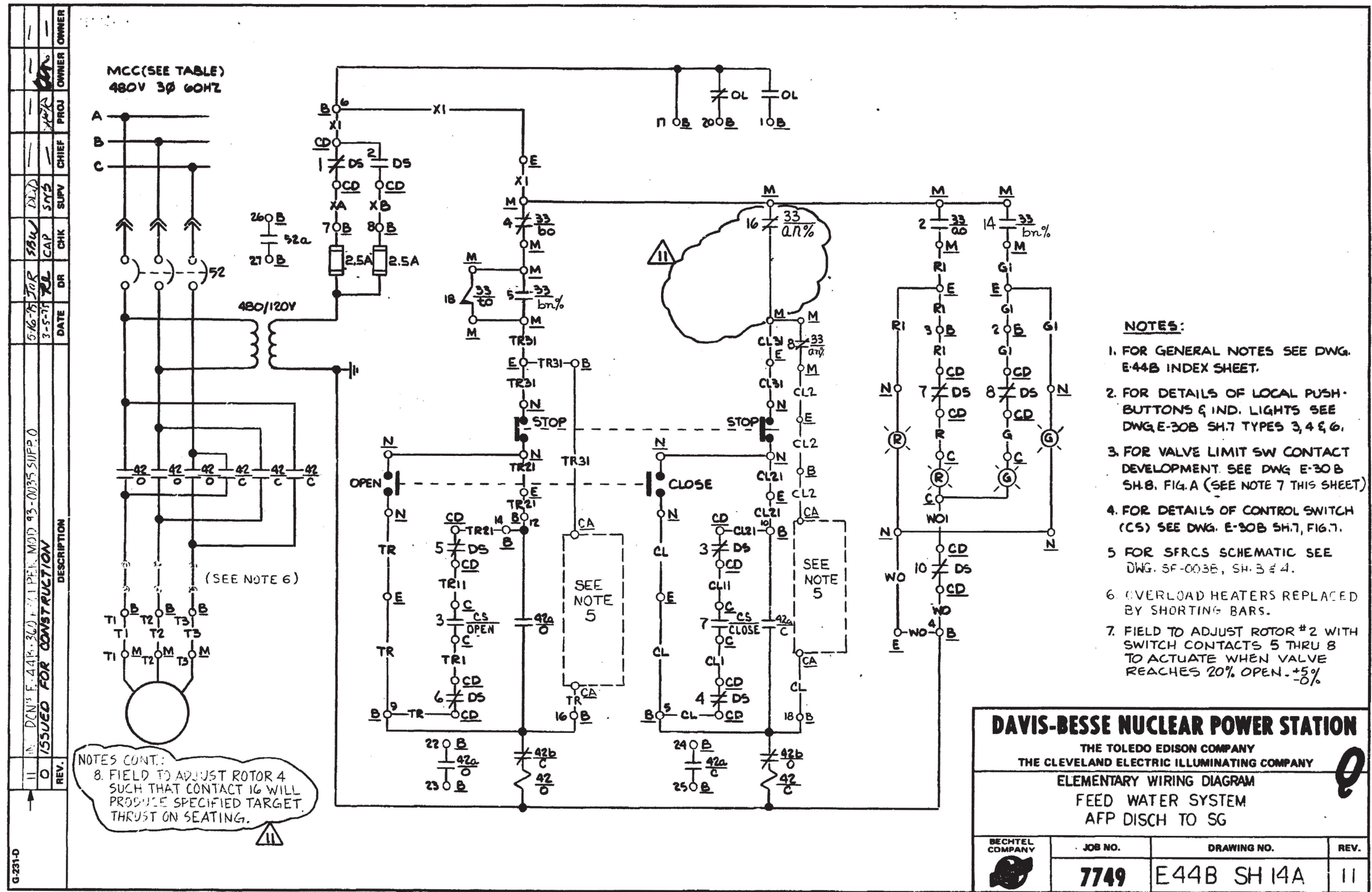
DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAMS
 FEEDWATER SYSTEM
 MFP WARM-UP VLV'S

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH-12	5

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

LATE 10-4-91 OPERATOR *Cynthia O'Neil* 16X



OWNER	PROJ	CHIEF	SUPV	CHK	DATE	DESCRIPTION
						ISSUED FOR CONSTRUCTION
						REV. 11

NOTES CONT:
 8. FIELD TO ADJUST ROTOR 4 SUCH THAT CONTACT 16 WILL PRODUCE SPECIFIED TARGET THRUST ON SEATING.

- NOTES:**
1. FOR GENERAL NOTES SEE DWG. E-44B INDEX SHEET.
 2. FOR DETAILS OF LOCAL PUSH-BUTTONS & IND. LIGHTS SEE DWG. E-30B SH.7 TYPES 3, 4 & 6.
 3. FOR VALVE LIMIT SW CONTACT DEVELOPMENT SEE DWG. E-30B SH.8, FIG. A (SEE NOTE 7 THIS SHEET)
 4. FOR DETAILS OF CONTROL SWITCH (CS) SEE DWG. E-30B SH.7, FIG.7.
 5. FOR SFRC'S SCHEMATIC SEE DWG. SF-003B, SH.3 & 4.
 6. OVERLOAD HEATERS REPLACED BY SHORTING BARS.
 7. FIELD TO ADJUST ROTOR #2 WITH SWITCH CONTACTS 5 THRU 8 TO ACTUATE WHEN VALVE REACHES 20% OPEN. +5% -0%

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAM
 FEED WATER SYSTEM
 AFP DISCH TO SG

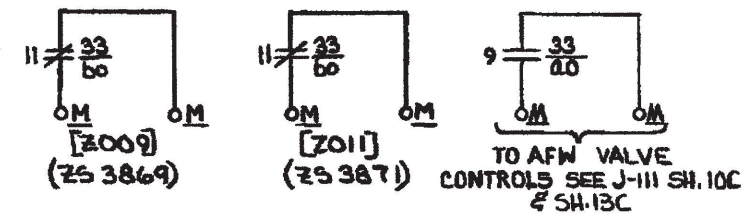
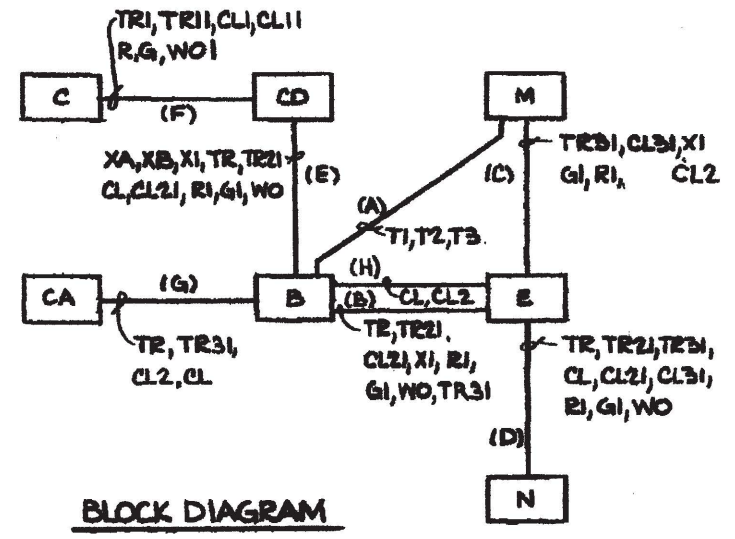
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E44B SH 14A	11

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT.

DATE: 5.19.95 OPERATOR: Dorothy Cunningham

16 X

11	INC. DUN 13-0607-001-001 REV. 0 (REDRAWN)	DATE	DR	CHK	BUV	CHIEF	PROJ	OWNER
10	AS BUILT FOR 26-330, REV. B, SUP. 1, INC. DUN E-44B-222-2833	3-1-74	SAGK	9/2	9/2	9/2	9/2	9/2
0	GENERAL UPDATE FOR MOD 57-107, SUP 2, INC. DUN E-44B-222-2833	9/2/69	GFB	9/2	9/2	9/2	9/2	9/2
0	ISSUED FOR CONSTRUCTION	3-5-75	9/2	9/2	9/2	9/2	9/2	9/2



BLOCK DIAGRAM

FOR NOTES SEE DWG E-44B, SH.14A

SCHEME	MCC	SU NO	CH	WIRE PREFIX	CS	EQUIPMENT NUMBERS						DESCRIPTION	
						C	CD	B	E	M	N		CA
BE1146	E11E	50C	1	AFE	HIS3869	C5706	CDE11E	BE1146	EV38690	MV38690	NV38690	C5762A	AFP1 DISH TO S62
BF1201	F12A	50C	2	AFE	HIS3871	C5709	CDF12A-2	BF1201	EV38720	MV38710	NV38710	C5792	AFP2 DISH TO S61



THIS DRAWING WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES REV. 10

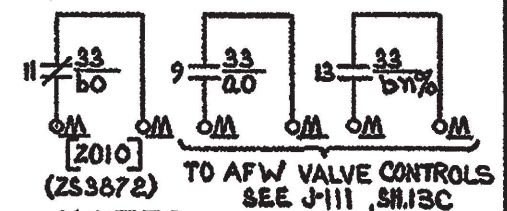
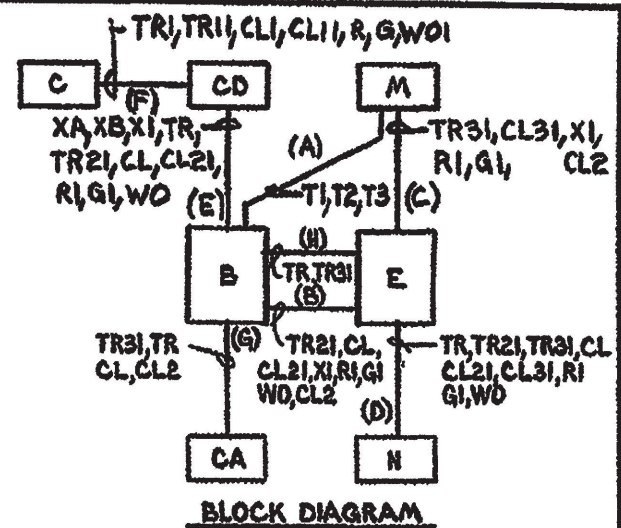
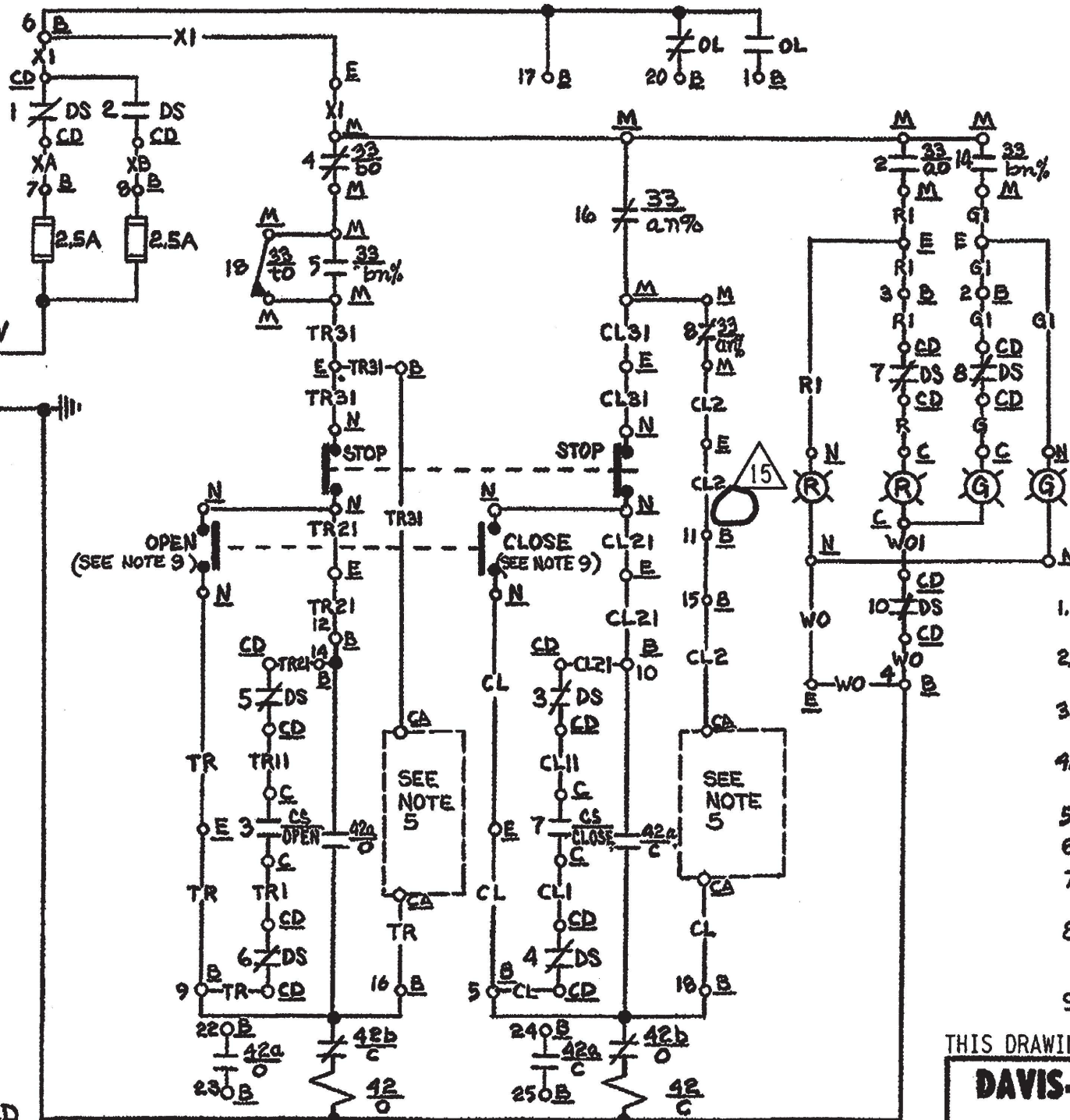
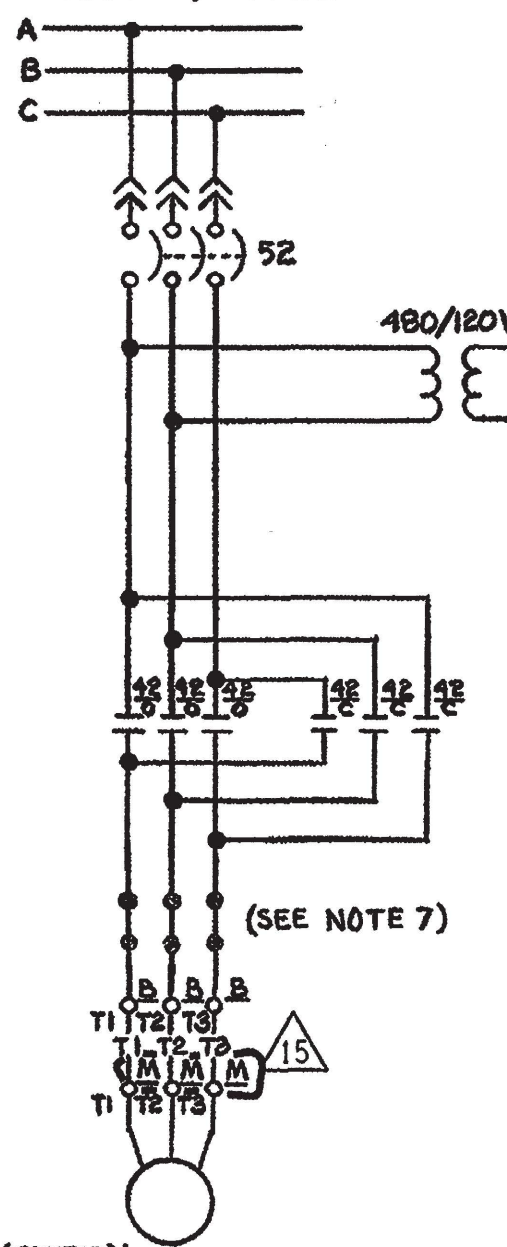
DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

ELEMENTARY WIRING DIAGRAM
FEED WATER SYSTEM
AFP DISH TO SG

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-44B SH14B	11

15	INC. DCN E-44B-397 PER ECR 03-0459-80 (CR 03-00416 CAT) (REDRAWN)	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
14	INC. DCN E-44B-359 PER MOD 92-0075 SUP. O. ISSUED FOR CONSTRUCTION	DATE	DR	CHK	SUPV	CHIEF	PROJ	OWNER
0								

MCC (SEE TABLE)
480V 3Ø 60HZ



- NOTES**
1. FOR GENERAL NOTES SEE DWG. E-44B INDEX SHEET.
 2. FOR DETAILS OF LOCAL PUSHBUTTONS AND IND LIGHTS SEE DWG E-30B SH7 TYPE 3416
 3. FOR VALVE LIMIT SW CONTACT DEVELOPMENT SEE DWG. E-30B SH.8 FIG. F (SEE NOTES #10 THIS SH.)
 4. FOR DETAILS OF CONTROL SWITCH (CS) SEE DWG E-30B SH-7 FIG-7.
 5. FOR SFRC'S SCHEMATIC SEE DWG. SF-003B, SH-6
 6. DELETED.
 7. OVERLOAD HEATERS REPLACED BY SHORTING BARS.
 8. FIELD TO ADJUST ROTOR #2 WITH SWITCH CONTACTS 5 THRU 8 TO ACTUATE WHEN VALVE REACHES 20% OPEN, +5%.
 9. FIELD TO INSTALL COVER PLATE WITH LOCK ON "OPEN-CLOSE" CONTROL STATION.

THIS DRAWING REDRAWN ON CADD AND SUPERSEDES REV. 14

DAVIS-BESSE NUCLEAR POWER STATION
THE TOLEDO EDISON COMPANY
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
ELEMENTARY WIRING DIAGRAMS
FEEDWATER SYSTEM
AFP DISCH TO SG

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E44B SH 15	15

NOTES (CONT'D):
10. FIELD TO ADJUST ROTOR 4 SUCH THAT CONTACT 16 WILL PRODUCE SPECIFIED TARGET THRUST ON SEATING.

SCHEME NO. (SEE TABLE)

SCHEME NO	MCC	SU NO	CH	WIRE PREFIX	C.S	EQUIPMENT						DESCRIPTION	
						C	CD	B	E	M	N		CA
BF1262	F12B	50C	2	AFG	HIS3872	C5709	CDF12B	BF1262	EV39720	MVS8720	NV38720	C5792	AFPI DISCH TO SG2

INDEX					
SHEET NO.		DESCRIPTION	SCHEME NO.	SCHEME NO.	S/U NO.
1A	13	MFPT CONTROL	MFPT01	MFPT02	36
1B	9	MFPT CONTROL	MFPT01	MFPT02	36
1C	10	MFPT CONTROL	MFPT01	MFPT02	36
1D	4	VOID			
1E	5	MFPT CONTROL	MFPT05	MFPT06	36
1F	1	MFPT CONTROL	MFPT11	MFPT21	36
1G	1H	MFPT CONTROL	MFPT12	MFPT22	36
1J	1K	MFPT CONTROL	MFPT16	MFPT26	36
1L	0	MFPT CONTROL			
2A	2B	MFPT MAIN OIL PUMPS	MFPT MAIN OIL PUMPS		
3	7	MFPT EMERGENCY BEARING OIL PUMP	D115	D215	36
4	5	MFPT OIL TANK VAPOR EXTRACTORS	BE3264	BF3264	36
5A	7	MFPT TURNING GEAR MOTOR CONTROL	BE3270	BF3270	36
5B	7	MFPT TURNING GEAR MOTOR CONTROL	MFPT07	MFPT08	36
6A	4	LUBE OIL FILTER PUMPS	BE3265	BF3265	36
6B	6	LUBE OIL FILTER PUMPS	BE3273	BF3273	36
7	5	MFPT DRAIN PUMPS	BE3276	BF3276	92
8A	8	MFPT MOTOR OPERATED DRAIN VALVES	AS NOTED	AS NOTED	92
8B	6	MFPT MOTOR OPERATED DRAIN VALVES	AS NOTED	AS NOTED	92
9	2	MFPT USED LUBE OIL TANK 1-1.	I1183		36
10	8	AUXILIARY RELAYS			
10A	10B	MFPT CONTROL			
10C	10D	MFPT CONTROL			
10E	10F	MFPT CONTROL			
10G	10H	MFPT CONTROL			
10J	0	MFPT CONTROL			
11A	15	AFPT CONTROL	AFPT01	AFPT02	50
11B	17	AFPT CONTROL	AFPT01	AFPT02	50

GENERAL NOTES

- FOR EXPLANATION OF EQUIPMENT & WIRING NUMBERS SEE E-11A ELECTRICAL NUMBERING SYSTEM.
- FOR MOTOR INFORMATION SEE E-12B ELECTRICAL MOTOR LIST
- FOR CONTROL PANEL M.C.C. DESCRIPTIONS SEE E-13B ELECTRICAL EQUIPMENT LIST.
- FOR SOLENOID VALVE INFORMATION SEE E-14B SOLENOID VALVE LIST.
- WIRE NUMBER PREFIX MUST BE ADDED TO FORM COMPLETE WIRE NUMBER FOR THOSE WIRES AT MAIN CONTROL BOARD.
- AUXILIARY CONTROL RELAY IN SOLENOID OPERATED VALVE CONTROL CIRCUITS TO BE G.E. TYPE CR120J.
- NUMBER IN BRACKETS [] REPRESENTS COMPUTER INPUT NUMBER. NUMBER IN () REPRESENTS COMP. INPUT SOURCE NUMBER.
- ALL G.E. EQUIPMENT IS SHOWN WITH G.E. AND BECHTEL DESIGNATIONS WHERE APPLICABLE.
- FOR GROUNDING STANDARDS AND DETAILS SEE DWG. E-1037P.

REFERENCE DRAWINGS

- E-5 - 480V M.C.C. (NON-ESSENTIAL) ONE LINE DIAGRAM
- E-6-SH142-480V M.C.C. (ESSENTIAL) ONE LINE DIAGRAM
- E-6-SH344-125/250VDC M.C.C. (ESSENTIAL) ONE LINE DIAGRAM
- E-10A - STANDARD NOTES AND SYMBOLS.
- E-30B - GENERAL GUIDES FOR ELEMENTARY DIAGRAMS
- 12501-G-CS-50 THRU 78 - WIRING DIAGRAM G.E. DWG. NO. 134B451BE SH'S 1 THRU 28
- 12501-G-CS-146 THRU 157 - ACCESSORY LIST G.E. DWG. NO. 128C226XR SH'S 1 THRU 11
- 12501-G-CS-110 THRU 112 - CONTROLS DIAGRAM G.E. DWG. NO. 509E253XR SH'S 1 THRU 3
- 12501-G-CS-133 AND 134 - CONTROL LINE-UP DIAG. G.E. DWG. NO. 509E481EX SH'S 1 & 2
- 12501-G-CS-132 - CONNECTION DIAGRAM G.E. DWG. NO. 509E428EA

CONT. ON DWG INDEX SHT 2

REV	DATE	DESCRIPTION	DR	CHK	SUPV	CHIEF	PROJ	OWNER	OWNER
13	3-3-77	REVISED SH. 8B (REV. 3); SH. 8A (REV. 4); SH. 1A (REV. 5); SH. 2B (REV. 6); SH. 1A (REV. 7)	R.W.S	LEW	SNC/HA			SNS	
12	2-3-77	ISSUED FOR CONSTRUCTION SH. 1B (REV. 0); REVISED SH. 1C (REV. 4)	R.W.S	APC	SNC/HA			SNS	CA
11	9-20-76	REVISED SH. 11A (REV. 6); SH. 11B (REV. 8)	R.W.S	LEW	SNC			SNS	
10	8-20-76	REVISED SH'S 1A, 15 (REV. 4); SH'S 2A, 2B, 11A (REV. 5); SH. 11B (REV. 7)	R.W.S	LEW	SNC			SNS	
9	7-26-76	REVISED SH'S 6B, 14, 15 (REV. 3); SH'S 2A, 2B, 11A (REV. 4); SH. 3 (REV. 5); SH. 11B (REV. 6)	R.W.S	LEW	SNC			SNS	
8	5-12-76	REVISED SH'S 6A, 6B, 8B, 9, 14, 15, 17 (REV. 2); SH'S 1C, 2A, 2B, 4, 5A, 5B, 7, 8A, 10 (REV. 3); 1A, 1B, 1E, 3, (REV. 4)	R.W.S	LEW	SNC			SNS	
7	4-13-76	REVISED SH. 11C (REV. 2); SH. 11A (REV. 3); SH. 11B (REV. 5)	R.W.S	IM	SNC			SNS	
6	2-16-75	ISSUED SH. 17 (REV. 1) SH. 11B (REV. 4)	R.W.S	LEW	SNS			SNS	
5	7-3-75	ISSUED SH'S 14 & 15 (REV. 1); SH'S 10 & 13 (REV. 2); SH'S 1D, 1E, 3 & 11B (REV. 3)	CW	LEW	SNS			SNS	
4	5-16-75	ISSUED FOR CONSTR. SH. 16 & 17 (REV. 0); REVISED SH. 11C & 12 (REV. 1); SH'S 5B, 11A, 11B (REV. 2); SH'S 1A & 1B (REV. 3)	CRS	AS	SNS			SNS	com
3	3-5-75	ISSUED FOR CONST. SH. 11C, 12, 13, 14, 15, REVISED SH'S 5B, 8B, 9, 10, 11A & 11B ALL REV. 1 REVISED SH'S 1A THRU 1E, 2A, 2B, 3, 4, 5A, 7, 8A ALL REV. 2	R.W.S	LEW	SNS			SNS	com
2	6-28-74	ISSUED SH. 6B (REV. 1)	CW	K3	SNS			SNS	
1	6-18-73	ISSUED FOR CONST. SH'S 6B, 9, 10, 11A & 11B ALL REV. 0 REVISED SH'S 1A THRU 5A, 6A, 7, 8A ALL REV. 1	MS	MC/S	SNS			SNS	
0	1-24-72	ISSUED FOR CONST. SH'S 1A THRU 1E, 2A, 2B, 3, 4, 5A, 5B, 6, 7, 8A & 8B ALL REV. 0	STH	MC/S	SNS			SNS	

THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REVISION 43

DAVIS-BESSE NUCLEAR POWER STATION			
THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAMS AFPT & MFPT CONTROL & AUXILIARIES			
DRAWING INDEX			
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-45B	DRAWING INDEX SHEET 1
			45

DB 03-07-16

DFN F:/SCHEME/E46BINDSH1.DGN/TIF

INDEX									
SHEET NO.	LATEST REVISION	DESCRIPTION	SCHEME NO.	SCHEME NO.	S/U NO.				
11C	5	AFPT CONTROL	ICSIX 5007	ICSIX 5008	50	Q			
12	0	MFPT TEMPERATURE ALARMS							
13	3	VOID							
13A	0	MFPT SPEED CONTROL	MFPT13	MFPT23	36				
13B	2	MFPT SPEED CONTROL							
14	11	MFPT 1 ANNUNCIATOR & COMPUTER INPUTS							
14A	1	MFPT 1 CTR SYS TRBL ANNUNCIATION REFLASH							
15	11	MFPT 2 ANNUNCIATOR & COMPUTER INPUTS							
16	0	MFPT SEAL & DRAINS SYSTEM TE SWITCH	H15-1329		92C				
17	9	AFPT SPEED MONITOR	SEB15	SEB16	50	Q			
17A	2								
18	2	MFPT RECEIVER TANKS DRAIN VALVES	V4981	V4982	92				
19	2	AFPT STOP VLV. POS. SW AUX RELAY	ICS38C	ICS38D	50				
		45							
33	5/1/89	REVISED SH. 11A (REV.13); SH. 11B (REV.15); SH. 11C (REV. 4); SH. 17 (REV.9); SH. 17A (REV.1)	ETL	MTE					
45	3-29-16	REVISED SH. 19 (REV.2) & GEN. UPDATE DRAWING INDEX SH. 1, GEN. NOTE 9. REVISE DWG. E-301A TO E-1037P. PER GEN DRFTG. PRACTICE & FILENET. E-301A WAS SUPERSEDED BY E-1037P.	SAP	SBW	SML				
44	12/22/08	REVISED SH. 1A (REV.13), SH. 1B (REV.10), SH. 11A (REV. 15) & SH. 11B (REV.17) (REDRAWN)			INITIALS ON FILE				
43	9-15-05	REVISED SH. 1C (REV.9), SH. 1H (REV.2)	JOR	SBW	TRG				
42	7-24-01	REVISED SH. 14A (REV.1)	JOR	SBW	KTB				
41	11-3-98	REVISED SH. 5B (REV.7)	JOR	SBW	MVB				
40	10/5/94	REVISED SH. 11A (REV.14), SH. 11B (REV.16) + SH. 1C (REV.5)	JOR	SBW	PLJ				
39	11/6/92	REVISED SH. 8A (REV.8) AND SH. 8 B (REV.6)	SBW	JBG	JJS				
38	9-22-92	REVISED SH. 3 (REV.7) AND SH. 5B (REV.6)	SBW	HEK	JJS				
37	11/15/64	REVISED SH. 17A & 18 (REV.2)	SBW	HEK	DDD				
36	10/21/90	ADDED SH. 14A (REV.0) REVISED SH. 1H (REV.1), SH'S. 5A & 8A (REV.7), SH. 8B (REV.5) SH. 10 (REV.8) SH'S. 14 & 15 (REV.11)	GFB	JJS	DD				
35	1/15/90	REVISED SH. 1A (REV.12); SH. 1B (REV.9); SH. 1C (REV.8); SH. 1K (REV.2); SH. 2B (REV.10); SH. 8A (REV.6); SH. 8B (REV.4)	ETL	MTE	JUN	PWS	VML		
34	1/17/89	REVISED SH. 2A (REV.7); SH. 2B (REV.9); SH. 5A (REV.6); SH. 5B (REV.5); SH. 19 (REV.1)	ETL	MTE	SJK	PWS	VML		
19	1/23/79	REVISED SH. 11B (REV.11)	MSP	R.N.S.	PTS				
18	11/8/78	REVISED SH'S 1A, 14, 15 (REV.6), SH. 11A (REV.9), SH. 11B (REV.10)	TC	R.N.S.	PTS				
17	2/21/78	REVISED SH. 6A (REV.3); SH'S 4, 7 (REV.4) SH'S 5A, 6B, 8A (REV.5)	J.N.	SM	SMC				
16	12/29/77	REVISED SH. 5A, 6B (REV.4)	RMR	NM	SMC				
15	7-12-77	REVISED SH. 11C (REV.3); SH. 17 (REV.4); SH'S 14, 15 (REV.5)	R.W.S.	SM	SMC				
14	4-1-77	ISSUED SH. 11A (REV.8) SH. 11B (REV.9) SH. 17 (REV.3)	FWK	LEW	SMC				
REV	DATE	DESCRIPTION	BY	CHK	SUPV	CHIEF	PROJ	OWNER	OWNER

NOTES

FOR NOTES AND REFERENCES SEE E-45B DWG INDEX SH 1

THIS DRAWING WAS REDRAWN ON CAD AND SUPERSEDES REVISION 43

DAVIS-BESSE NUCLEAR POWER STATION			
THE TOLEDO EDISON COMPANY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY			
ELEMENTARY WIRING DIAGRAM AFPT & MFPT CONTROL & AUXILIARIES DRAWING INDEX Q			
BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-45 B	45
		DWG INDEX SH 2	

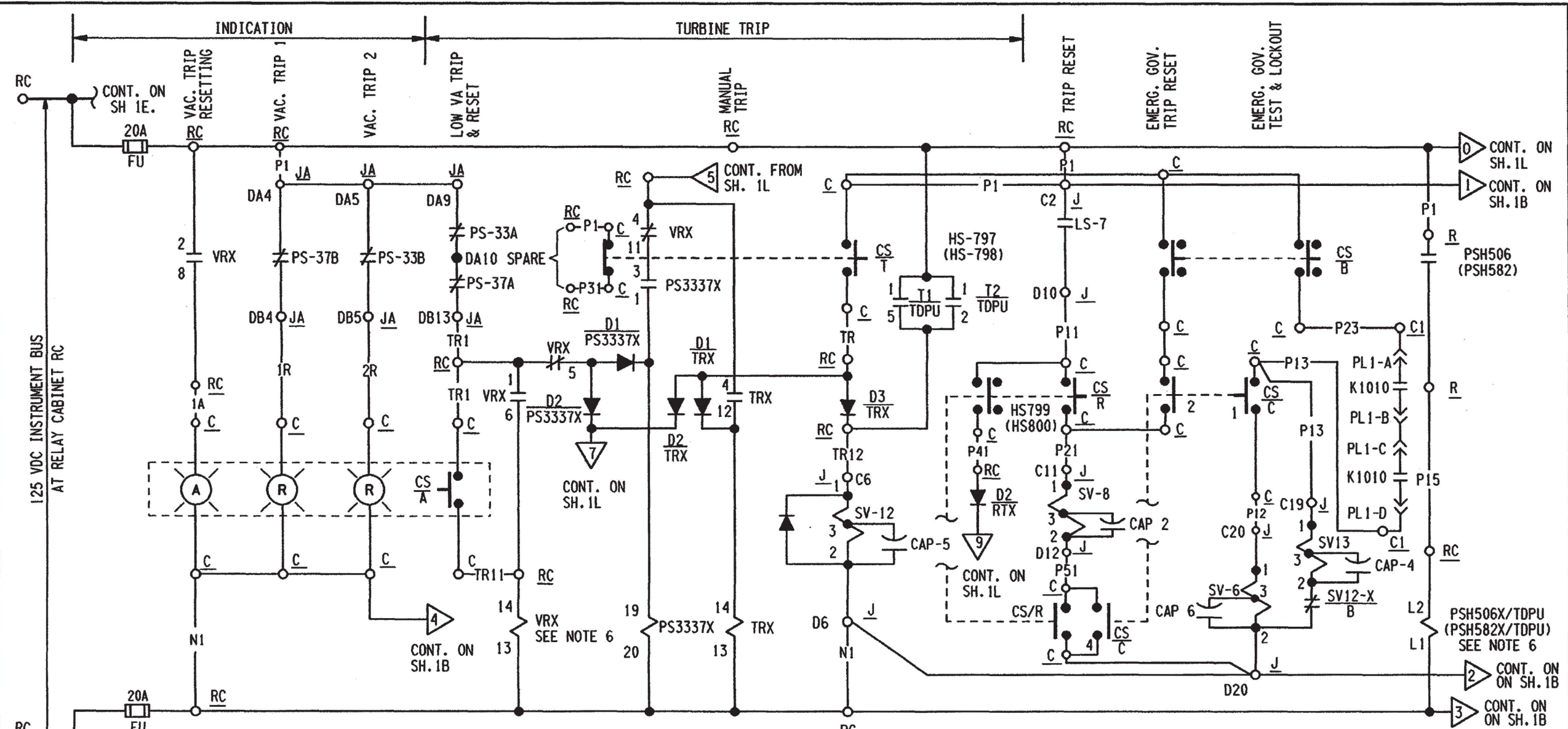
DB 03-07-16

DFN F:/SCHEME/E46BINDSH2.DGN/TIF

6-231-D

N32887

13	12/22/88	INC. DCN E-45B-205 PER ECP 02-0198-00 REV.02	BY	ENGR. SUPV.	GEN. SUPV.
12	11/5/90	"AS BUILT" FOR DCR 89-0083 INC. DCN E45B-174	CH'K	ENGR.	
11	11/7/88	AS-BUILT FOR FCR 85-203 REV.A, SUPP.4, GENERAL UPDATE; INC. DCN E-45B-83, 89, 94 & 109; GENERAL UPDATE FOR FCR 85-203 SUPP.1 & 2 (REDRAWN)			
NO.	DATE	REVISIONS			



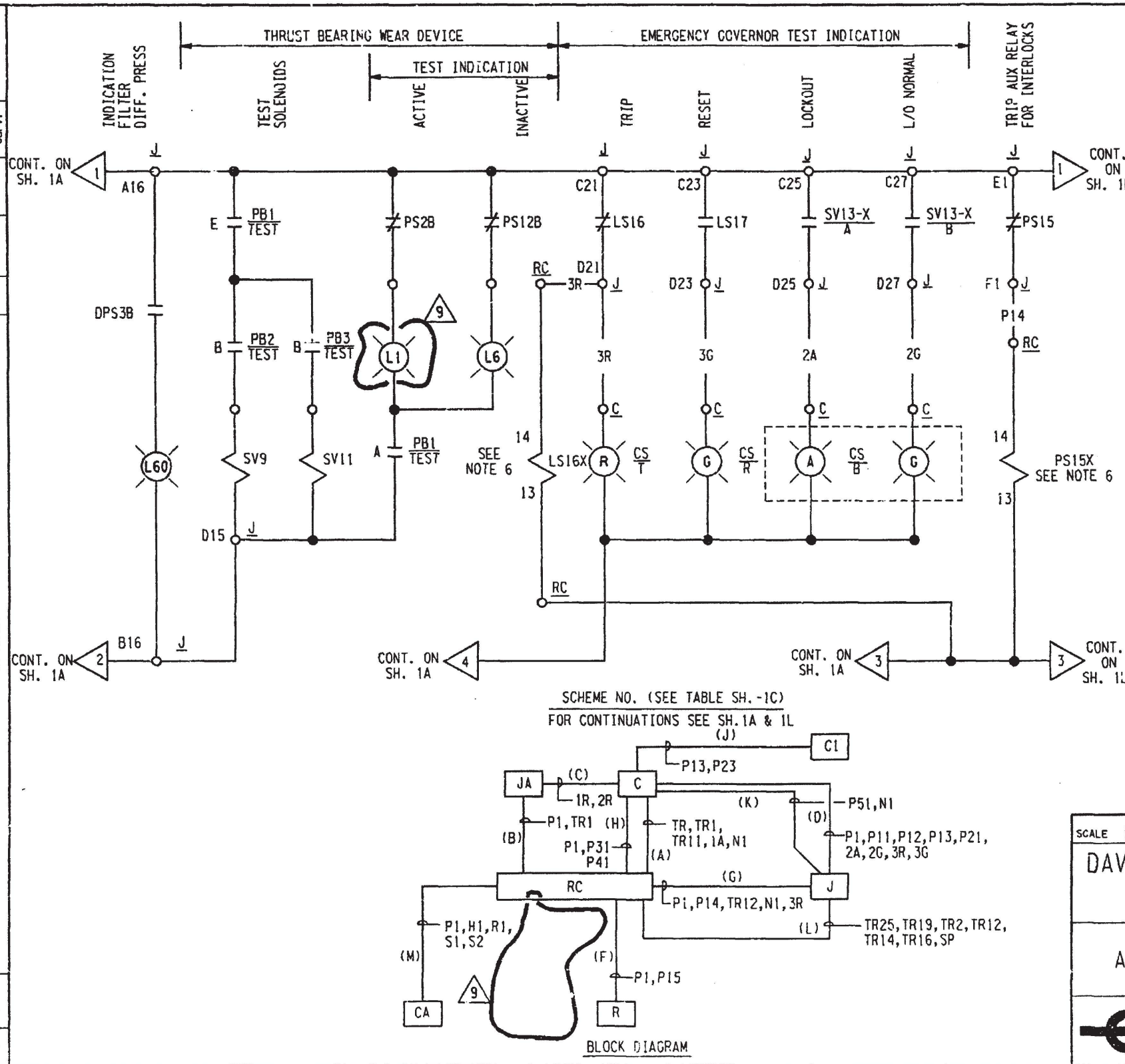
SCHEME NO. (SEE TABLE SH.1C)

FOR NOTES BLOCK DIAGRAM TABLES & PUSHBUTTON DETAILS OF THIS SCHEME SEE DRAWING E-45B, SH. 1B & 1C.

- PS14 CLOSES ON LOW HYD. OIL PRESSURE.
- PS16 ALARMS WHEN TURBINE IS TRIPPED.
- PS33 } PRESSURE SWITCHES CLOSE ON LOW
- PS37 } VACUUM IN THE CONDENSER.
- PSH CLOSES ON HIGH PRESSURE OF MFP DISCHARGE.
- PS25 CLOSES ON LOW PRESSURE OF MFP BRG. OIL.
- PS19 CLOSES ON LOW PRESSURE OF MFPT BRG. OIL.
- PS 2A } THRUST BEARING WEAR DETECTOR SWITCHES
- PS12A } CONTACTS CLOSE ON HIGH PRESSURE OF OIL IN THRUST BRG. WEAR DEVICE LINES.
- LS 7 POSITION SWITCH WHICH PREVENTS RESET OF TRIP WHEN CONTROL VALVES ARE OPEN.

SCALE	NONE	DESIGNED		DRAWN	CAD/JH	DATE	11-2-87
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY							
ELEMENTARY WIRING DIAGRAMS AFPT & MFPT CONTROL & AUXILIARIES MFPT CONTROL							
	DRAWING NO.						REV.
	E-45B SH-1A						13

9	AS BUILT FOR DCR 89-0083 INC. DCN E-45B-175	BY	JLH	CHK	MIF	ENGR.	ENGR. SUPV.	GEN. SUPV.
8	AS-BUILT FOR FCR 85-203 REV. A, SUPP. 4, GENERAL UPDATE, INC. DCN E-45B-84; ALSO INC. DCN'S E-45B-100, 110, 78, 81 & 85 (FOR WHICH NO DRAWING CHANGE IS REQUIRED) AND GENERAL UPDATE FOR FCR 81-075 SUPP. 3 (REDRAWN).	DATE	11-7-88					
REVISIONS								
INITIALS ON FILE								



DEVICE DESCRIPTIONS

LS16-CONTACTS CLOSED WHEN TRIP DEVICE IS IN TRIPPED POSITION.

LS17-CONTACTS CLOSED WHEN TRIP DEVICE IS RESET.

SV13-X-CONTACTS CLOSE WHEN EMERG. GOVERNOR LOCKOUT VALVE IS IN THE LOCKOUT POSITION:

SV13-X-CONTACTS CLOSE WHEN EMERG. GOVERNOR LOCKOUT VALVE IS IN THE NORMAL POSITION.

PS15-CONTACTS CLOSE ON LOW PRESSURE OF MFPT LUBE OIL. (TURBINE TRIP)

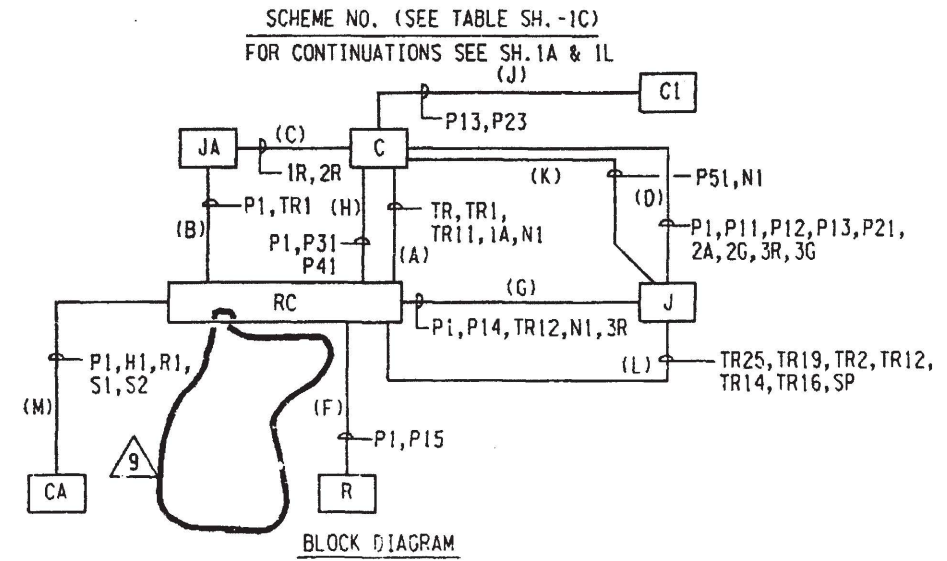
PS-2B & PS-12B-CONTACTS OPEN ON HIGH PRESSURE OF OIL IN THE RESPECTIVE THRUST BEARING WEAR DEVICE LINE

DPS3B-CONTACT CLOSURES ON EXCESSIVE PRESSURE DROP ACROSS SERVO VALVE FILTER DOF-3.

K1010-CONTACTS CLOSE BELOW 105% SPEED.

NOTES

- FOR GENERAL NOTES SEE E-45B INDEX
- FOR TABLE AND PUSH BUTTON DETAIL OF THIS SCHEME SEE E-45B SH.1C.
- FOR CONTROL SWITCHES CS/A(RESET) CS/T(TRIP) SEE DWG. E-30B SH.7, FIG.8.
- FOR CONTROL SWITCH CS/B SEE DWG. E-30B SH.7, FIG.10.
- FOR CONTROL SWITCH CS/C SEE DWG. E-45B SH.1H.
- FOR DETAILS OF AUX. RELAYS VRX,LS16X SEE DWG. E-45B SH.10B & 10C; FOR PS15X SEE DWG. E-45B SH.10 & 10A; FOR PSHX SEE DWG. E-45B SH.10D & 10E.
- FOR CONTROL SWITCH CS/R(RESET) SEE DWG. E-45B SH.1H.
- T1 IS AN AGASTAT ELECTROPNEUMATIC TDPU RELAY MODEL 7012PAB. TDPU RANGE 0.1-1 SEC, SET AT 0.130 SEC ±5% OF SETPOINT.
- T2 IS AN AGASTAT SOLID STATE TDPU RELAY MODEL DSC-XX0125DPAXAA, TYPE 01-ON DELAY *, TIMING RANGE 0.01 TO 99.99 SEC*, SET AT 0.130 SEC ±0.005 SEC *
* FIELD SELECTABLE



SCALE	NONE	DESIGNED	DRAWN CAD/JH	DATE 11-4-87
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY				
ELEMENTARY WIRING DIAGRAMS AFPT & MFPT CONTROL & AUXILIARIES MFPT CONTROL				
DRAWING NO. E45B SH. 1B				REV. 9

I CERTIFY THAT THE IMAGE OBTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS. ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR POWER MANAGEMENT.

2-11-90
Shane Sub. 16X

10	1-15-88	INC. DCN E-45B-206 PER ECP 02-0198-00 REV. 02
9	9-15-85	INC. DCN E-45B-199 PER ECR 04-0339-00 (CR 02-09678)
8	1-15-90	"AS BUILT" FOR DCR 89-0083 INC. DCN E-45B-176
7	11-7-88	"AS-BUILT" FOR FCR 85-203 REV.A SUPP.1, GEN. UPDATE, INC. DCN E-45B-59 (REDRAWN)
NO.	DATE	REVISIONS

ENGR. SUPV.	ENGR.	CH'K	BY

SCHEME NO.	START UP NO.	CHANNEL	WIRE PREFIX	CS					EQUIPMENT							VAC. PRESSURE SWITCH				
				CS/A	CS/B	CS/C	CS/T	CS/R	C	C1	RC	J	JA		R	CA	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.
MFPT01	036	A	TTA	HIS116	HIS801	HS803	HIS797	HIS799	C5711	C5757D	RC2404	JT2401	JT2403		R2402	C2302	PS2535A	PS33A	PS2535B	PS37A
MFPT02	036	B	TTB	HIS121	HIS802	HS804	HIS798	HIS800	C5711	C5757D	RC2304	JT2301	JT2303		R2303	C2303	PS2536A	PS33A	PS2536B	PS37A

PRESSURE SWITCHES										POSITION SWITCHES						DESCRIPTION	
INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	PSH	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.		G.E. NO.
PS2715	PS2A/B	PS2717	PS12A/B	PS1161	PS19	PS1192	PS25	PSH506	PS2729	PS15	ZS2741	LS7	ZS2743	LS16	ZS2744	LS17	MFPT 1 TRIP, RESET & TEST
PS2716	PS2A/B	PS2718	PS12A/B	PS1262	PS19	PS1242	PS25	PSH582	PS2730	PS15	ZS2751	LS7	ZS2753	LS16	ZS2754	LS17	MFPT 2 TRIP, RESET & TEST



SOLENOID VALVES												INDICATING LIGHTS			
INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.	INSTR. NO.	G.E. NO.
SV2779	SV12	SV2773	SV8	SV2771	SV6	SV2781	SV13	SV2775	SV9	SV2777	SV11	IL2715	L1	IL2717	L6
SV2780	SV12	SV2774	SV8	SV2772	SV6	SV2782	SV13	SV2776	SV9	SV2778	SV11	IL2716	L1	IL2718	L6

THRUST WEAR TRIP TEST PUSHBUTTONS (BY G.E. LOCATED ON CONTROL STATION ON TURBINE)

PB1 HS2775A (HS2776A)

CONTACTS	TEST	NORMAL
A	X	
B		X
C		
D		
E	X	
F		
G		X

PB2 ACTIVE THRUST HS2775 (HS2776)

CONTACTS	TEST	NORMAL
A		
B	X	

PB3 INACTIVE THRUST HS2777 (HS2778)

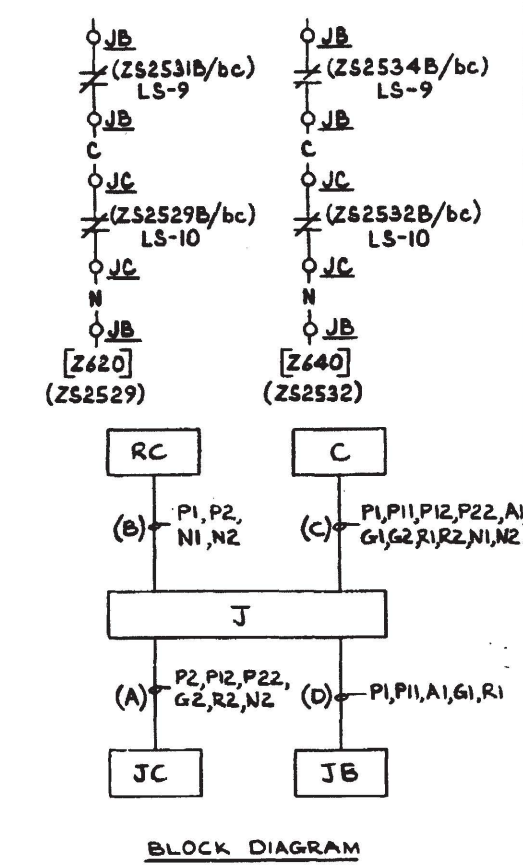
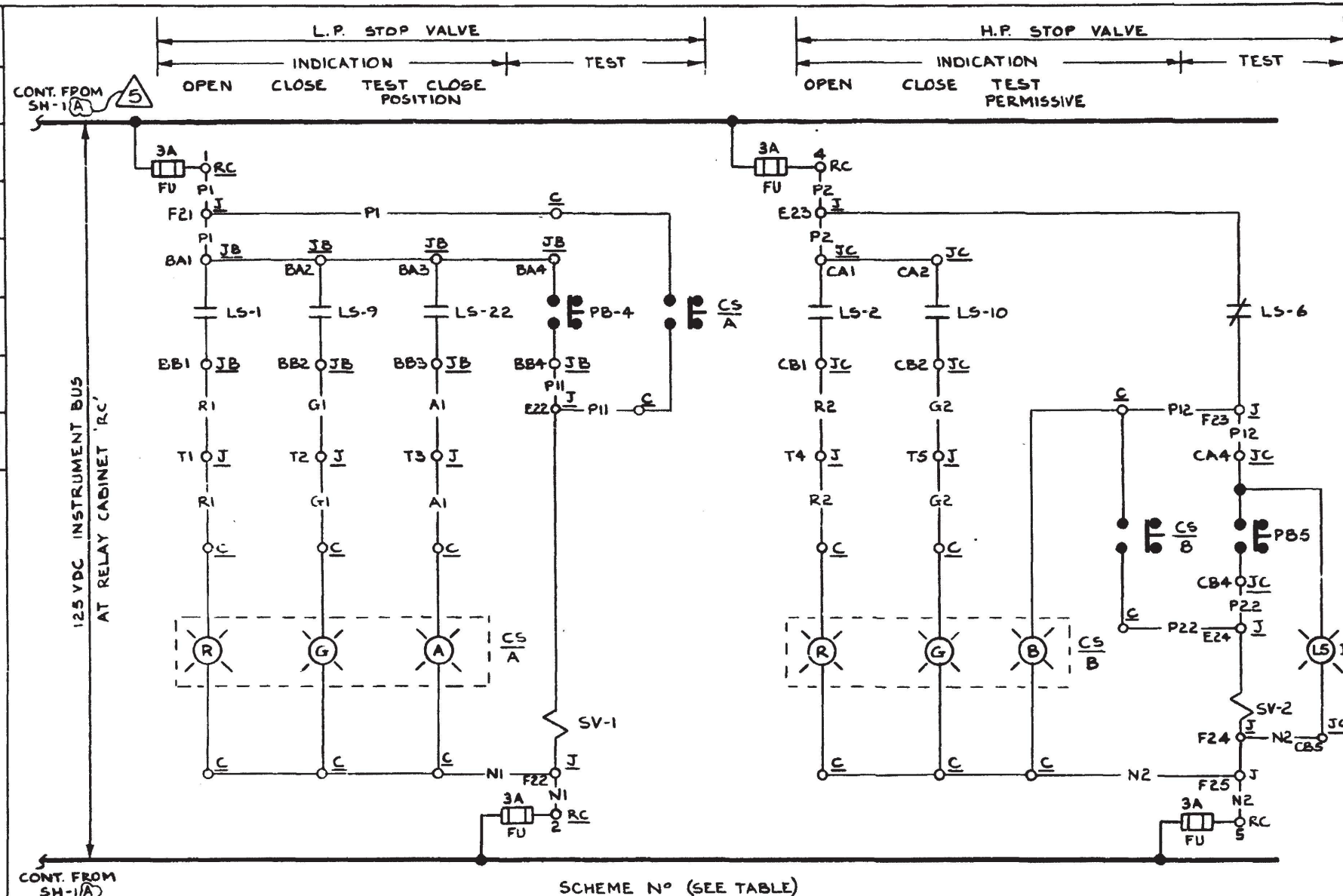
CONTACTS	TEST	NORMAL
A		
B	X	

FOR SCHEME, NOTES & BLOCK DIAGRAM SEE E-45B, SH-1A, 1B & 1L.

X DENOTES CONTACT CLOSED

SCALE NONE	DESIGNED	DRAWN JOR	DATE 10-16-88
DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1 THE TOLEDO EDISON COMPANY			
ELEMENTARY WIRING DIAGRAMS AFPT & MFPT CONTROL & AUXILIARIES MFPT CONTROL			
	DRAWING NO.		REV.
	E-45B SH.1C		10

OWNER	PROJ. NO.	DATE	DR.	CHK.	SUPV.	CHIEF	OWNER
PROJECT	NO.						
REV.	DESCRIPTION						
4	ADDED COMPUTER POINTS [Z620] & [Z640]						
5	AS-BUILT FOR FCR B5-203, REV. A SUPP. 1; INC. DCN E45B-65						
0	ISSUED FOR CONSTRUCTION						



NOTES
 1. FOR GENERAL NOTES SEE DRAWING INDEX E-45B.
 2. FOR DETAILS OF C5/A & C5/B SEE DWG E-30B, SH-7, FIG B.

SCHEME N°	START UP N°	CHANNEL	WIRE PREFIX	CS		EQUIPMENT				PUSH BUTTONS							
				A	B	C	RC	J		JB		JC		N°	GEN°	N°	GEN°
MFPT05	036	A	SA	HIS795	HIS793	LS711	RC2404	JT2401	EH	JT2406	ED	JT2407	EE	H52767	PB-4	H52769	PB-5
MFPT06	036	B	SB	HIS796	HIS794	LS711	RC2304	JT2301	EH	JT2306	ED	JT2307	EE	H52768	PB-4	H52770	PB-5

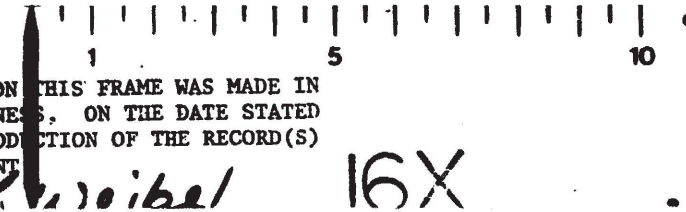
CONTINUED BELOW

POSITION SWITCHES										IND. LIGHT		SOLENOID VALVES		DESCRIPTION				
N°	GEN°	N°	GEN°	N°	GEN°	N°	GEN°	N°	GEN°	N°	GEN°	N°	GEN°		N°	GEN°		
ZS2531A	LS-1	ZS2531B	LS-9	ZS2531C	LS-22	ZS2529A	LS-2	ZS2529B	LS-10	ZS2740	LS-6	IL2769	L5	SV2767	SV-1	SV2769	SV-2	MFPT-1 STOP VALVE
ZS2534A	LS-1	ZS2534B	LS-9	ZS2534C	LS-22	ZS2532A	LS-2	ZS2532B	LS-10	ZS2750	LS-6	IL2770	L5	SV2768	SV-1	SV2770	SV-2	MFPT-2 STOP VALVE

DAVIS-BESSE NUCLEAR POWER STATION
 THE TOLEDO EDISON COMPANY
 THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
 ELEMENTARY WIRING DIAGRAMS
 AFPT & MFPT CONTROL & AUXILIARIES
 MFPT CONTROL

BECHTEL COMPANY	JOB NO.	DRAWING NO.	REV.
	7749	E-45B SH-1E	5

I CERTIFY THAT THE IMAGE CONTAINED ON THIS FRAME WAS MADE IN THE NORMAL AND REGULAR COURSE OF BUSINESS, ON THE DATE STATED BELOW AND THAT IT IS AN ACCURATE REPRODUCTION OF THE RECORD(S) SUBMITTED TO NUCLEAR RECORDS MANAGEMENT



16X