

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																								
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APPARATUS INDEX	A2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17								
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FS1 TRUNK SEIZURE AND DISCONNECT	B1	1	2	3	3	3	6	6	8	8	10	10	12	13	14	14	16	17								
FS2 COIN PRESENT TEST (INCLUDES GROUND ISOLATION TEST)	B2	1	2	3	3	3	3	7	7	7	11	12	13	14	15	16	16									
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FS4 COIN RELAY TIME TEST AND IC POWER SUPPLY AND 120 CPS CLOCK	B4	1	2	3	3	3	3	3	3	3	11	11	13	14	14	14	14									
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SHEET CANCELLED ON DWG ISS 3	B7																									
FS5 RETURN AND COLLECT TESTS	B8	1	2	3	4	4	4	4	4	9	9	9	9	13	14	14	14	17								
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FS6 RESISTANCE & LEAKAGE TEST CIRCUIT	B11	1	2	3	4	4	4	4	4	4	4	4	4	13	14	14	14	17								
	B12	1	2	3	4	4	4	4	4	4	4	4	4	13	14	15	15	15								
	B13	1	2	3	3	6	7	7	7	7	11	11	13	13	13	16	16									
FS7 BEEP CIRCUIT	B14	1	2	3	3	6	6	6	6	6	11	11	13	13	13	13	13									
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APP FIG. 1	C1	1	2	3	3	3	3	3	8	8	8	8	8	13	13	13	16	16								
	C2	1	2	3	4	4	6	6	8	9	9	9	12	13	14	14	16	17								
	C3	1	2	3	4	4	6	7	7	10	11	12	12	12	12	16	16									
	C4	1	2	3	3	3	6	6	6	6	11	12	12	12	12	12										
APP FIG. 1,2	C5	1	2	3	3	6	6	6	6	6	12	13	13	13	13	13										
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CIRCUIT NOTES	D1	1	1	3	4	4	6	6	8	9	10	11	12	13	14	14	16	16								
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SC1 LINE SEIZURE AND COIN PRESENT TEST WITH PS RELEASED	E1			2	3	3	3	3	3	3	3	3	3	13	13	13	13									
SC2 DIAL PULSE RECEPTION	E2			3	3	3	3	3	3	3	3	3	3	3	3	3	16	16								
P/O SC2 DIAL PULSE RECEPTION	E2A																16	16								
SC3 COLLECT OR RETURN TEST	E3			3	3	3	3	3	3	3	3	3	3	3	14	14	14	14								
SC4 RESISTANCE TEST	E4			3	3	3	3	3	3	3	3	3	3	13	14	14	16	16								
SC5 ANSWER GENERATING CIRCUIT	E5			3	3	3	3	3	3	3	3	3	3	13	13	13	13									
SC5 CONT. ANSWER GENERATING CIRCUIT	E6			3	3	3	3	3	3	3	3	3	3	13	13	13	13									
SC6 & SC7 TIME TEST	E7			3	3	3	3	3	3	3	3	3	3	13	13	13	16	16								
SC8 FEMC TEST	E8													13	13	13	13									
CIRCUIT REQUIREMENTS TABLE	F1	1	2	2	4	4	4	4	8	9	9	9	9	13	14	14	14	14								
	F2	1	2	3	3	3	3	3	8	9	9	9	9	12	12	12	12	12								
CAD 1,2,3	G1	1	2	3	4	4	4	4	8	9	9	11	12	13	14	14	14	14								
CAD 4,5,6	G2		2	2	2	2	6	6	8	8	8	8	12	13	14	14	14	14								
B01 BASIC SEQUENCING	H1			3	3	3	6	6	6	6	6	6	6	13	14	14	14	14								

CONTENTS	SHEET NO.	ISSUE NO.																								
		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
CPS A962 CONSTANT CURRENT SOURCE	J1	1	2	3	3	3	3	3	3	3	3	3	3	13	13	13	13	13								
CPS A963, CPS A963B LEAKAGE TEST CIRCUIT	J2	1	2	3	3	3	3	3	8	8	8	8	8	13	13	13	13	13								
CPS A964 LATCHING TRANSISTOR INTERFACE	J3	1	2	3	3	3	3	3	8	8	8	8	8	13	13	13	13	13								
CPS A965 THRESHOLD DETECTOR AND INTERFACE LOGIC	J4	1	2	3	3	3	3	3	3	3	3	3	3	13	13	13	16	16								
CPS A966 IC + POWER SUPPLY AND 120 CPS CLOCK	J5	1	2	3	3	3	3	3	8	8	8	8	8	13	13	13	13	13								
CPS A973 TIMER FOR COIN RELAY TIME TEST	J6	1	2	3	3	3	3	3	3	3	3	3	3	13	13	13	13	13								
CPS D3 TIMER	J7	1	2	3	3	3	3	3	3	3	3	3	3	13	13	13	13	13								
CPS D3 TIMER	J8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
CPS A1246 THRESHOLD DETECTOR AND INTERFACE LOGIC	J9													13	13	15	16	16								
CPS A1246B THRESHOLD DETECTOR AND INTERFACE LOGIC	J10																16	16								

SHEET INDEX NOTES

- WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
- THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
- THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
- SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
- THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	193025A J93025B
KEYSHEET DRAWINGS	
PNL-BAT. CO REL OFF.	SD-21340-01
PNL-GRD CO REL OFF. PNL. LK	SD-21630-01
CSBR NO. 1	SD-25030-01
CSBR NO. 5	SD-25760-01
SXS - NO. 1	SD-31359-01
SXS - NO. 350A & BR OFF.	SD-31364-01
SXS - NO. 355A	SD-31730-01
SXS - NO. 35E97	SD-32325-01
ESS NO. 1	SD-1A303-01
ESS NO. 2	SD-2H159-01

NOTICE- NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

ISSUE

17AC

COMMON SYSTEMS 1N99

COIN STATION TEST LINE CIRCUIT
FOR USE WITH
SXS NO. 1 CROSSBAR NO. 5 CROSSBAR
PANEL, ESS NO. 1 AND ESS NO. 2 SYSTEMSAT & TCO
STANDARD

SD-IC297-01-A1

BELL TELEPHONE LABORATORIES
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51 SHEETS

APPARATUS INDEX

EQPY LOC	APP FIG.	
	NO.	SH NO.
CIRCUIT PACKS		
3	1	C1
5	1	C1
8	1,3	C1,C3
11	1	C1
13	1,3	C1,C3
16	1	C1
DESIG		
A962	1	C1
ZJ A963	1	C1
ZK A963B	3	C6
A964	1	C1
Y9 A965 MD	1	C1
A966	1	C1
A973	1	C1
ZY A1246 MD	3	C6
ZZ A1246B	1	C1
DISC	1	C1
TM1	1	C1
TM2	1	C1
TM3	1	C1

COMPONENT ASSEMBLIES		
CA1	1	C4
CA2	1	C4
CA3	1	C4
CA4	1	C4
CA5	1	C4
CA6	1	C4
CA7	1	C4
CA9	1	C5
CA10	1	C5
CA11	1	C5
CA12	1	C5
CA13	1	C5
CA14	1	C5
CA15	1	C5
CA16	1	C5
CA17	1	C5
CA18	1	C5
CA19	1	C5
Z0,ZT,ZS CA21	4	C7
Z0,ZU CA22	4	C7

DESIG	LOCATION		
	FS	APP FIG.	EQPT
RELAYS			
1CGD	8E2		
ADS	9C0		
ANS1	10C4		
ANS2	10D4		
ATC1	9E8		
ATC2	9G8		
ATC3	9F8		
AUX1	2G3		
AUX2	3G7		
AUX3	103		
AUX4	9D4		
AUX5	12B4		
BCA	13A3		
BCB	13B3		
BCC	13C3		
BCE	13D3		
BCE	13F3		
BCF	13G3		
BP	14B8		
BPR	13A6		
CAL1	11A0		
CAL2	11A2		
CG	2B3		
CGA	2E3		
CGD	5B0		
CGE	5B1		
CGF	5C7		
CGH	8D7		
CGI	11E2		
CGJ	4F4		
DISC	1B8		
ELT	11H8		
ETT	5A7		
F	1G2		
FEMF	11C0		
GRT	11B3		
HG1	15E1		
HG2	15E1		
HG3	15F1		
INTR	13D8		
L	3F3		
LFP	11C3		
LG1	15B1		
LG2	15B1		
LG3	15C1		
LG4	15C1		
LIT	11F3		
LRT	11D3		
OH	1E3		
ON	4H4		
P1	4A4		
P2	4B4		
P3	4C4		
P4	4E4		
P5	4F4		
PS	2H7		
RA	3E7		
RC	11C3		
RET	9A4		
RHU	14D2		
RT	11A3		
RTN	14E7		
RTT	2E3		
SHF	2B7		
SN	5G1		
SR	3G3		
STP	3D7		
STR	15F1		
SUPV	8E1		
TC	9F1		
THR1	2D6		
THR2	8B7		
THR3	11B7		
TR	14A7		
TRA	14B1		
TRT	14C8		
TST	9D1		
TT	5A9		

DESIG	LOCATION		
	FS	APP FIG.	EQPT
AMPLIFIERS-CP			
AMPI	10D1	1	

CAPACITORS-CA			
C1	2C7	1	
C2	2C1	1	
C3	2F4	1	
C4	2G5	1	
C13	9F3	1	
C14	9F3	1	
C15	9F3	1	
C16	9C3	1	
C17	9D3	1	
C18	9D3	1	
C21	1B6	1	
TM1	1B6	1	

CAPACITORS			
L11 C6A,B	5F3	1	
C22	5G5	1	
C23	12A1	4	
C24	12A3	4	
CT	3B1	1	
LFF	11D2	3	
LW	3E2	1	
PH	3F2	1	
TB	3D1	1	
TN	3B4	1	
TM1	3B7	1	

CONNECTORS			
J1,XDISC	1B7	1	
J2,XTM1	2C5,C6	1	
J3,XTM2	8B6,B7	1	
J4,XTM3	11B6,B7	1	

DIODES-CA			
CR1	106		
CR3	2C1		
CR4	2G1		
CR5	2H6		
CR6	2D7		
CR7	2E7		
CR8	2F2		
CR9	2G1		
CR10	4F2		
CR11	4F2		
CR26	9F1		
CR27	9F1		
CR28	9C1		
CR29	9B2		
CR30	9B2		
CR31	9F2		
CR32	9A4		
CR33	9D4		
CR34	9D4		
CR35	9A5		
CR36	9C5		
CR37	9E7		
CR38	9F7		
CR39	9G6		
CR40	9E6		
CR42	11D1		
CR44	9E4		
CR45	11G1		
CR47	13A1		
CR48	13A2		
CR49	13B2		
CR50	13B2		

DESIG	LOCATION		
	FS	APP FIG.	EQPT
DIODE-CA CONT.			
CR51	13C3		
CR52	13C3		
CR53	13D2		
CR54	13D2		
CR55	13F2		
CR56	14B5		
CR57	14E6		
CR58	13B8		
CR59	13C8		
CR60	13C8		
CR61	13C8		
CR62	13C8		
CR63	13B8		
CR64	14A6		
CR65	14D1		
CR66	14E1		
CR75	9G3		
CR76	11E2		
CR78	11E0		
CR85	11B2		
CR88	13C1		
CR89	3G6		
CR90	9D5		
CR93	2H7		
CR101	2H1		
CR103	13G0		
CR104	13D7		
CR105	2E2		
CR106	13C8		
LW	3E2		
DISC	1B5		
SN	5G1		
AUX5	12B4		

DIODE			
1CGD	8E2	1	
AUX5	12B4	3	
BPR	13A3	1	
CR2	2C3	1	
CR17	11C5	1	
CR18	11C5	1	
CR21	5G6	1	
CR22	5H6	1	
CR46	5C0	1	
CR67	2B1	1	
CR68	2B1	1	
CR74	10G5	1	
CR76	11E2	3	
SI	1B1	1	
CR108	13C8	1	

DRIVERS-CP			
DR1	5G7	1	
DR2	5E7	1	
DR3	5E7	1	
DR4	5D7	1	
DR5	5C7	1	

DESIG	LOCATION		
	FS	APP FIG.	EQPT
LAMP			
RB	2C4	1	
SD1	8C1	1	
SD2	8C3	1	
TN	3B1	1	
TM1	10G6	1	
TM2	10G6	1	

JACKS			
TJ	1C3, 8B0	1	

DESIG	LOCATION		
	FS	APP FIG.	EQPT
LAMP			
RB	2C4	1	
SD1	8C1	1	
SD2	8C3	1	
TN	3B1	1	
TM1	10G6	1	
TM2	10G6	1	

LAMP, RESISTANCE			
R	14C1	2	

MONOPULSER-CP			
IMP1	10D2	1	

NETWORKS			
FEMF	11D0	3	
SHA	8A1	1	

POWER SUPPLIES-CP			
PSC	5E3	1	

RELAY DRIVER-CP			
RDR1	5A6	1	

COIN STATION TEST LINE CIRCUIT

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BELL TELEPHONE LABORATORIES
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APPARATUS INDEX (CONT)

DESIG	LOCATION		
	FS	APP FIG.	EQPT.
RESISTORS-CA			
DISC	1C5	1	
DISCA	1C5		
DISCB	1B5		
DT	3B6	1, 3	
DT1	3B6		
LW	3E3		
RA	12A3	3	
R2	2B7		
R4	2G2		
R5	2F4	1	
R6	2F4		
R7	8C2		
R8	8B3	1	
R42	9E3		
RBR	2C4		
TM1	2C5	3	
TM1A	2D5		
TM2	8B6		
TM2A	8A6	4	
TM2B	8A6		
TM3	11B5		
TM3A	11A6	3	
TM3B	11B6		
TA	12A3		
STA, STB, STC, STD, STE, STF, SIG, STH, STJ		4	

RESISTORS			
CG	2B3	1	
HG	15D1	1	
ICGD	8E3	3	
LA	3F3	1	
LB	3F2	1	
LC	3F1	1	
LHR	3D1	1	
LFP	1C3	3	
LRS	1C3	1	
R1	1C2	1	
R3	2B1	1	
R40	9E8	1	
R66	5C5	1	
R79	13B3	1	
R80	13D3	1	
R81	13F4	1	
R82	12A2	4	
R83	12A4	4	
R84	9E3	4	
R85	9F3	4	
R86	10B3	4	
RA	12A3	3	
TA	12A3	3	

SWITCH			
MB	1D1, 1G2	1	

TIMER-CP			
DISC	1B7	1	
TIMER	5B5	1	
TM1	2D6	1	
TM2	8B6	1	
TM3	11B6	1	

DESIG	LOCATION		
	FS	APP FIG.	EQPT.
TRANSFORMERS			
T1	5E2	1	
TN	3B2	1	

TRANSFORMER - CA			
BTR	3B7	1	
DTR	3B7	1	

TRANSISTORS-CA			
Q1	2F5	1	

VARISTORS-CA			
RV1	3B3	1, 3	
RV2	3B3	1, 3	
RV3	3B3	1, 3	

LEAD INDEX

DESIG	LOCATION		
	FS	CAO	
350A, 355A OR 360A 3 OR 4 WIRE SELECTOR IN STEP BY STEP OFFICES			
R	1B0	1B0	
S	1B0	1B0	
S1	1B0	1B0	
T	1B0	1B0	

DISTRICT OFFICE SELECTOR IN PANEL OFFICE		
R	1B0	1B0
S	1B0	1B0
S1	1B0	1B0
T	1B0	1B0

MISCELLANEOUS CKT		
MBL	1E2	1C0

OFFICE INTERRUPTER CKT		
(SEE NOTE 105)		
60IPM, 60IPMBR3	13E6	1D6
120IPM, 60IPMBR3	13E6	1D6
STB	1E9	1D6
TO	1E9	1D6

OFFICE LINK AND CONNECTOR CIRCUIT IN NO. 1 CROSSBAR OFFICE		
R	1B0	1B0
S	1B0	1B0
S1	1B0	1B0
T	1B0	1B0

RINGING CKT		
(SEE NOTE 105)		
RING R	14C0	1G6
SUP R	14C0	1D6

DESIG	LOCATION		
	FS	CAO	
RINGING SUPPLY			
(SEE NOTE 105)			
RING R	14C0	1D6	
SUP R	14C0	1D6	

TONE CIRCUIT		
(SEE NOTE 105)		
60A, 60B, 60BR3	13E5	1E6
120A, 120B, 120BR3	13E5	1E6
R(MT2)	3B9	1C6
R(TT)	3B9	1D6
T(MT2)	3B9	1C6
T(TT)	3B9	1D6

TONE SUPPLY CKT		
(SEE NOTE 105)		
BT	3A7	1C6
DT	3A7	1C6

TOUCH-TONE CALLING RECEIVING CIRCUIT		
BAT	15A0	1E6
GRD	15A0	1G6
HG1	15A0	1B6
HG2	15A0	1B6
HG3	15A0	1B6
HG4	15A0	1B6
LG1	15A0	1B6
LG2	15A0	1B6
LG3	15A0	1B6
LG4	15A0	1B6
R1	12B7	1B6
STR	15A0	1B6
T1	12B7	1B6

TRAFFIC REGISTER CIRCUIT		
MD2-5	1F9	1D0
P-	1F9	1C0

TRAFFIC USAGE RECORDER CIRCUIT		
TU-	1E9	1D6

TRANSMISSION TEST COUPLER CKT		
E	1A2	2G0
EG	1A2	2G0
R	1A2	2G0
T	1A2	2G0

TRUNK APPLICATION CKT		
FT	1D0	1C0

TRUNK LINK AND CONNECTOR CIRCUIT IN NO. 5 CROSSBAR OFFICE		
BT	1E0	1B0
F	1E0	1B0
FA	1E0	1B0
FT	1D0	1C0
R	1E0	1B0
S	1E0	1B0
S1	1E0	1B0
T	1E0	1B0
TF	1E0	1B0

TRUNK LINK CKT		
BT	1E0	1B0
F	1E0	1B0
FA	1E0	1B0
FT	1D0	1C0
R	1E0	1B0
S	1E0	1B0
S1	1E0	1B0
T	1E0	1B0
TF	1E0	1B0

COIN-STATION TEST LINE CIRCUIT

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BELL TELEPHONE LABORATORIES
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FS I
TRUNK SEIZURE AND DISCONNECT

DRAWING
ISSUE
1
20
3A
ISSUE
17AC

TO NO. 350A, 355A OR 360A 3 OR 4 WIRE SELECTOR IN STEP BY STEP OFFICES, DISTRICT OFFICE SELECTOR IN PANEL OFFICES, OR OFFICE LINK AND CONNECTOR CIRCUIT IN NO. 1 CROSSBAR OFFICES

TO TRUNK APPLICATION CIRCUIT OR TO TRUNK LINK CIRCUIT OR TO TRUNK LINK AND CONNECTOR CIRCUIT IN NO. 5 CROSSBAR OFFICES

TO TRUNK LINK CIRCUIT OR TO TRUNK LINK AND CONNECTOR CIRCUIT IN NO. 5 CROSSBAR OFFICES

TO OTHER TRUNKS ON SAME RELAY RACK FRAME

TO OFF. INT. CKT (SEE NOTE 105)

TO TRAFFIC USAGE RECORDER CKT

TO TRAFFIC REGISTER CKT

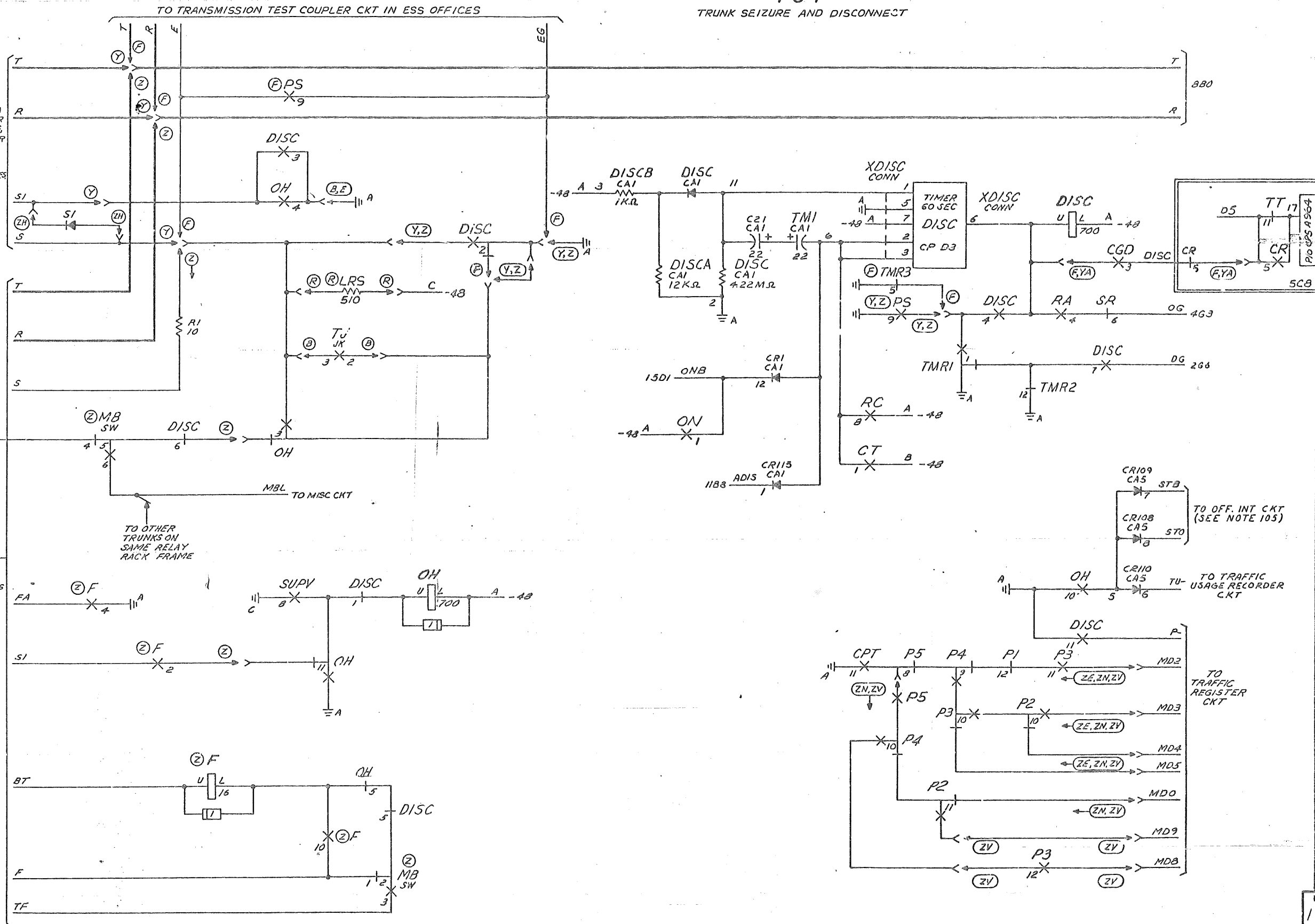
COMM. STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

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6S

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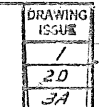


SD-IC297-01-B1

DRAWING
ISSUE
1
20
3A



DIAL-PULSE REGISTRATION



ISSUE
6B

SD-1C297-01-B3

BELL TELEPHONE LABORATORIES
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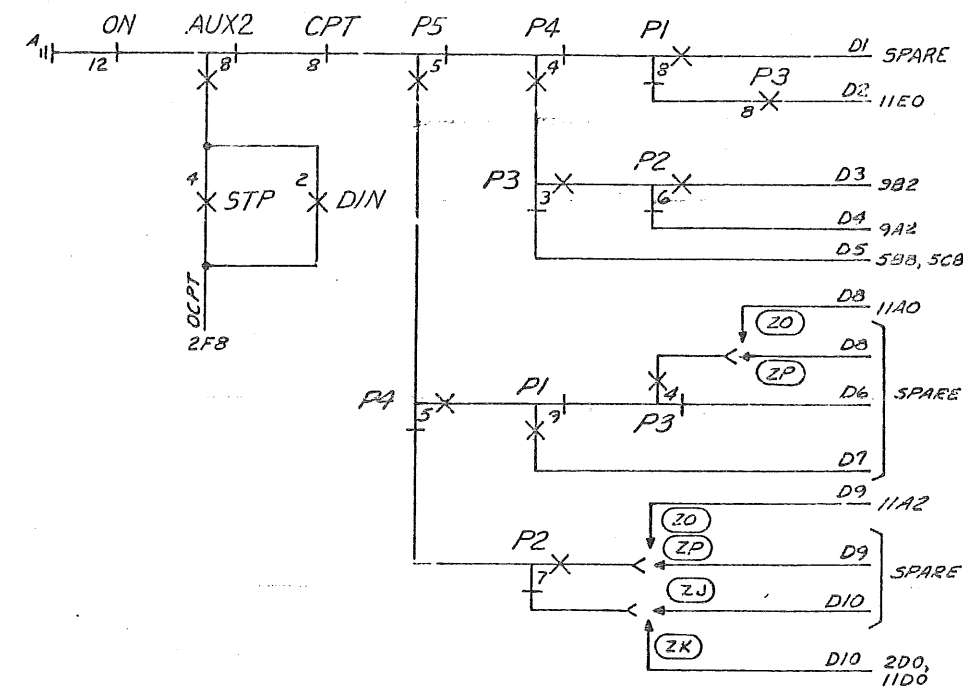
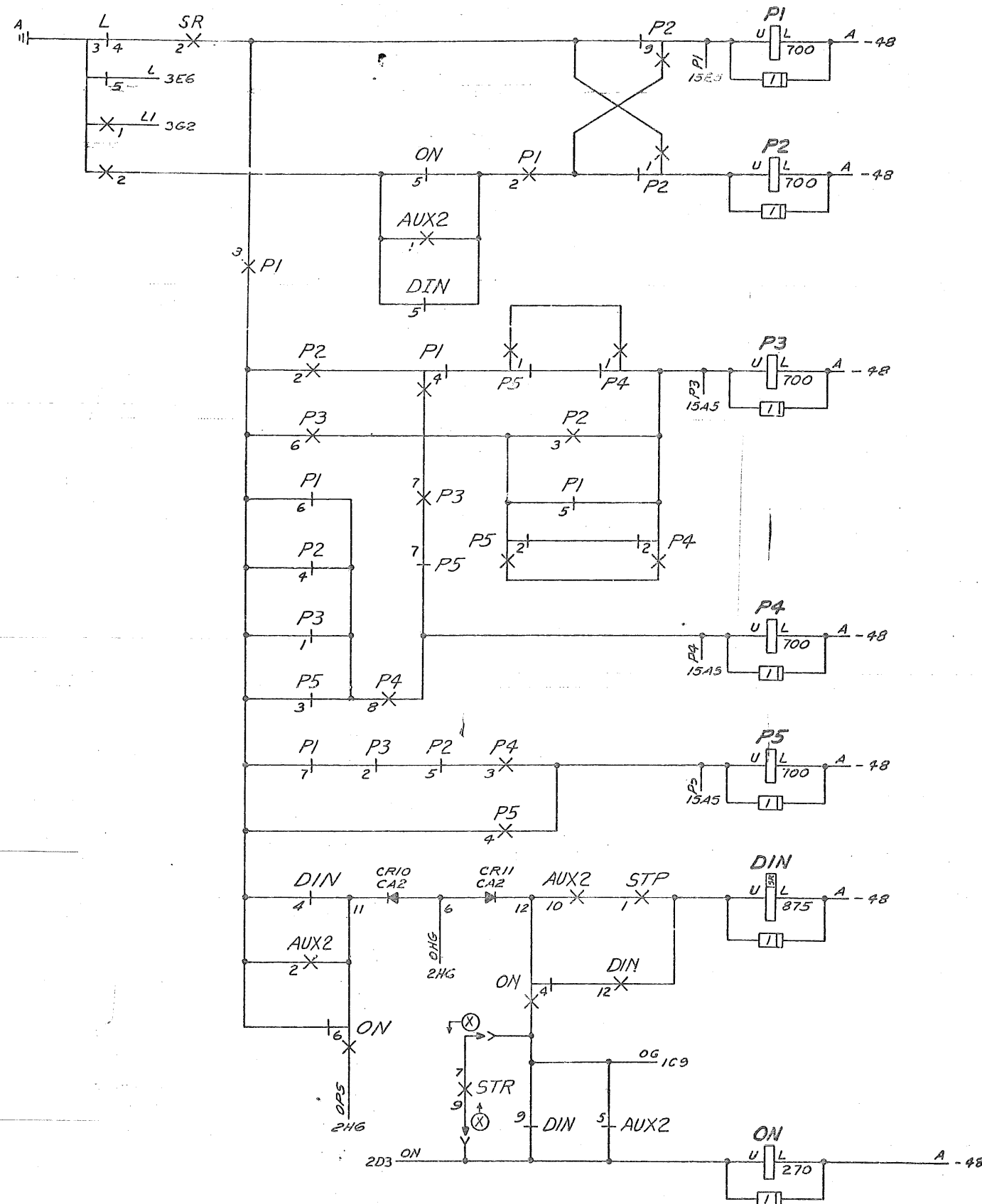
6

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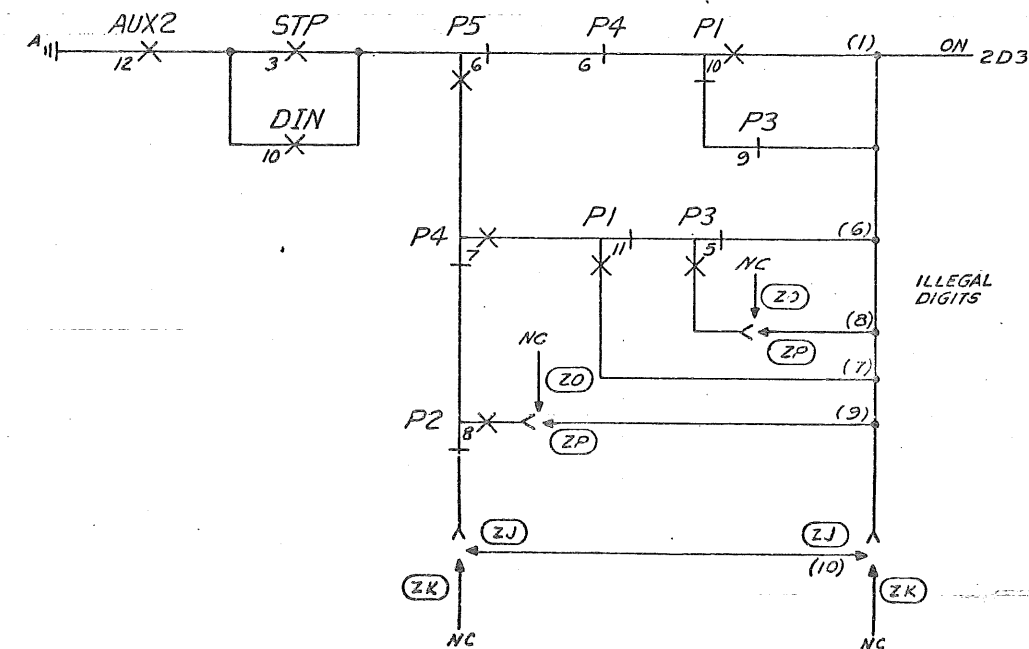
PART OF FS 3 DIAL PULSE REGISTRATION

DIAL PULSE REGISTRATION

STATE DECODING AND RETRY GENERATION
(LEGAL NUMBER GATING)



(ILLEGAL NUMBER GATING)



COIN STATION TEST LINE CIRCUIT

2

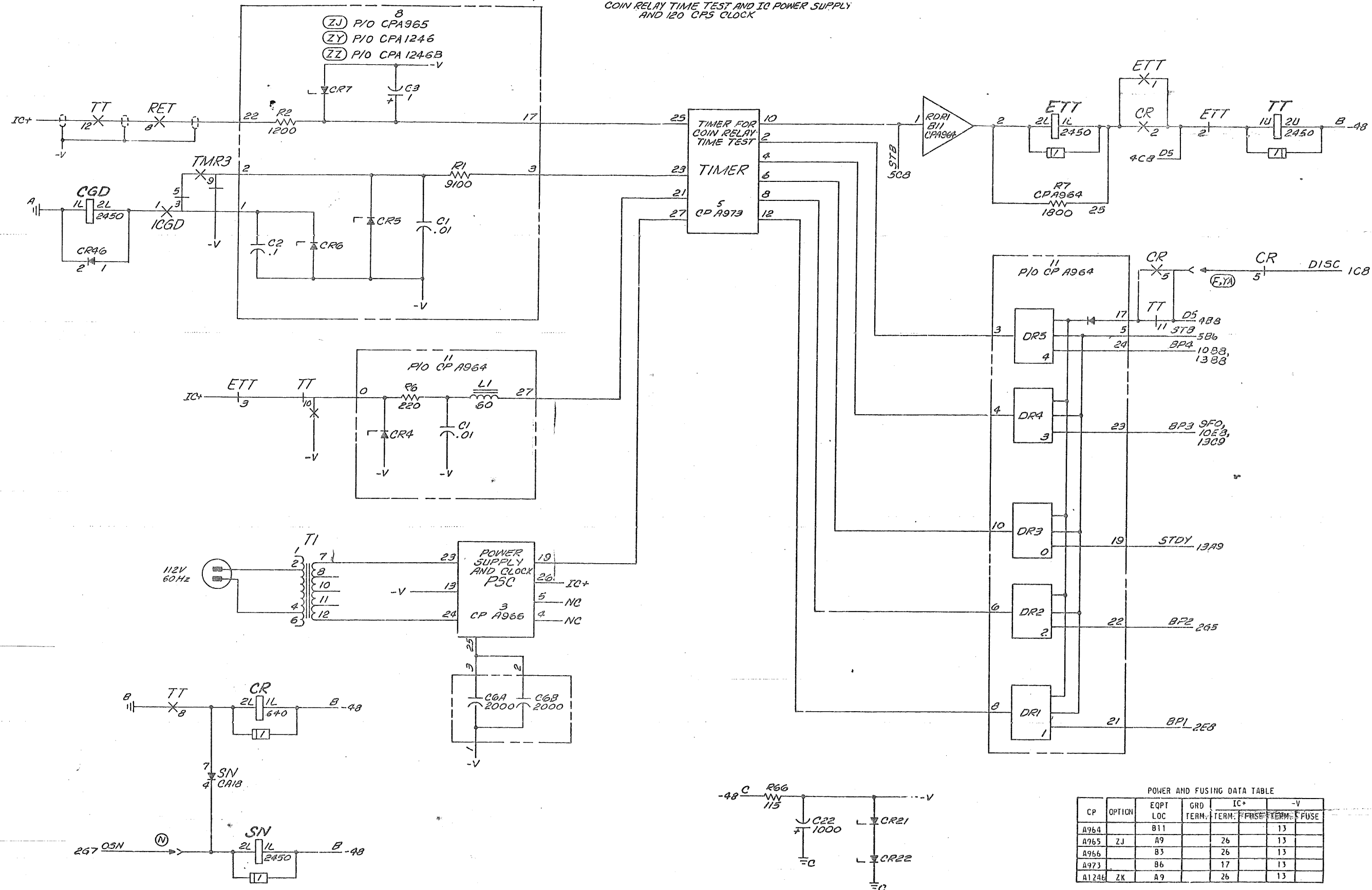
SD-1C297-01-B4

BELL TELEPHONE LABORATORIES
INCORPORATED

65

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FS 4 COIN RELAY TIME TEST AND IC POWER SUPPLY AND 120 CPS CLOCK

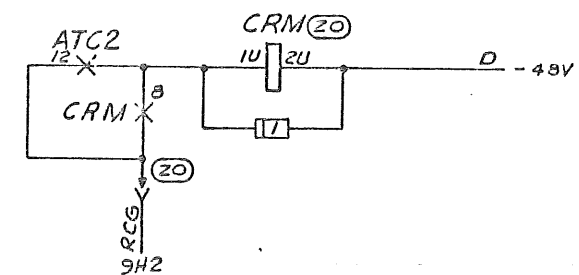
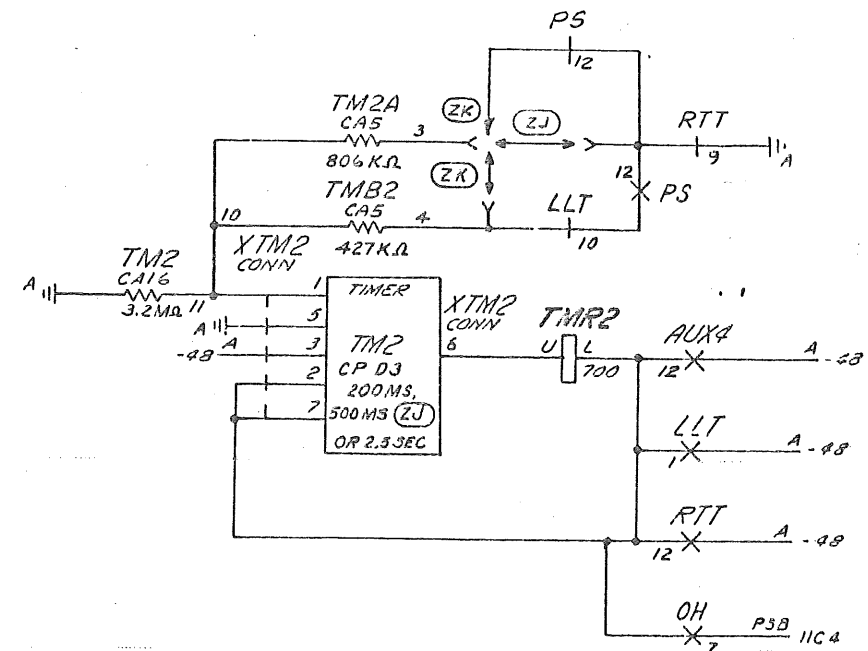
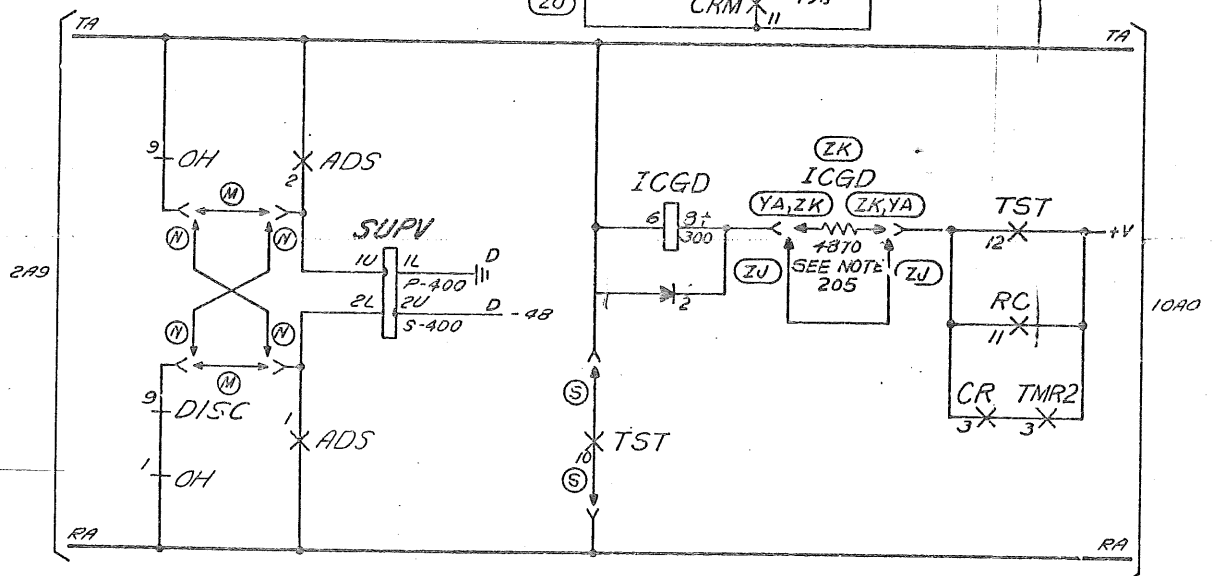
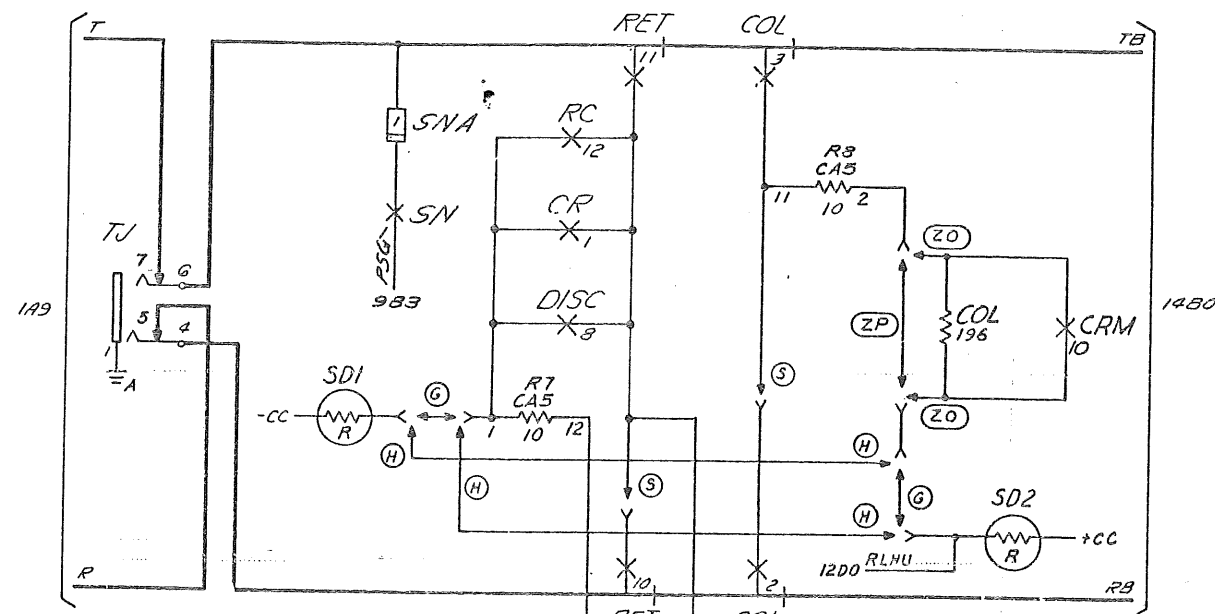


POWER AND FUSING DATA TABLE					
CP	OPTION	EQPT LOC	GRD TERM	IC+ TERM	-V TERM
A964					
A965	ZJ	A9		26	13
A966	B3			26	13
A973	B6			17	13
A1246	ZK	A9		26	13

COIN STATION TEST LINE CIRCUIT
SD-1C297-01-B5
BELL TELEPHONE LABORATORIES
INCORPORATED
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RETURN AND COLLECT TEST CONTROL
OF TIP AND RING

PART OF FS 5 RETURN AND COLLECT TESTS



DRAWING	1
ISSUE	20
	3A
	4D

SD-IC297-01-B8

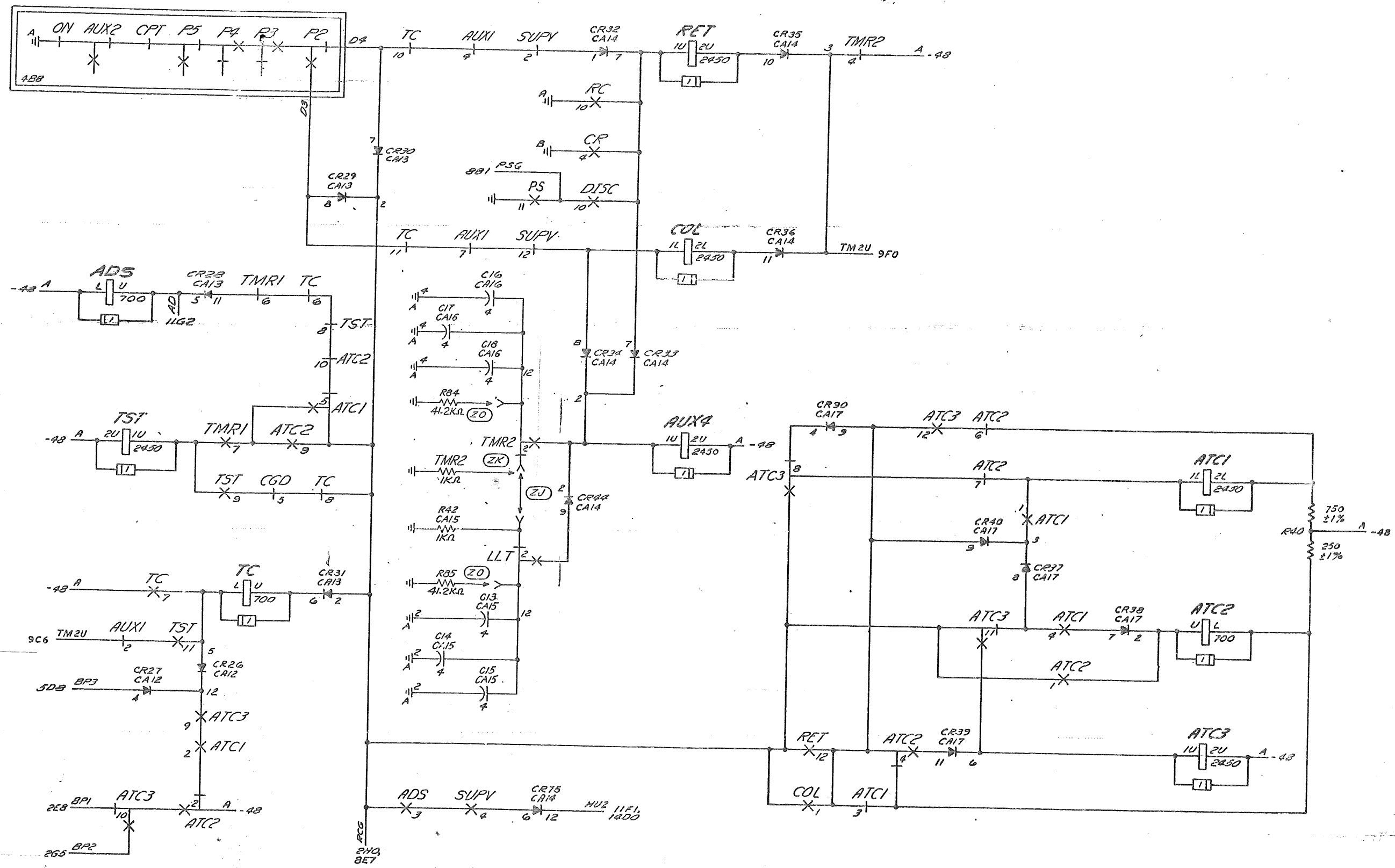
COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

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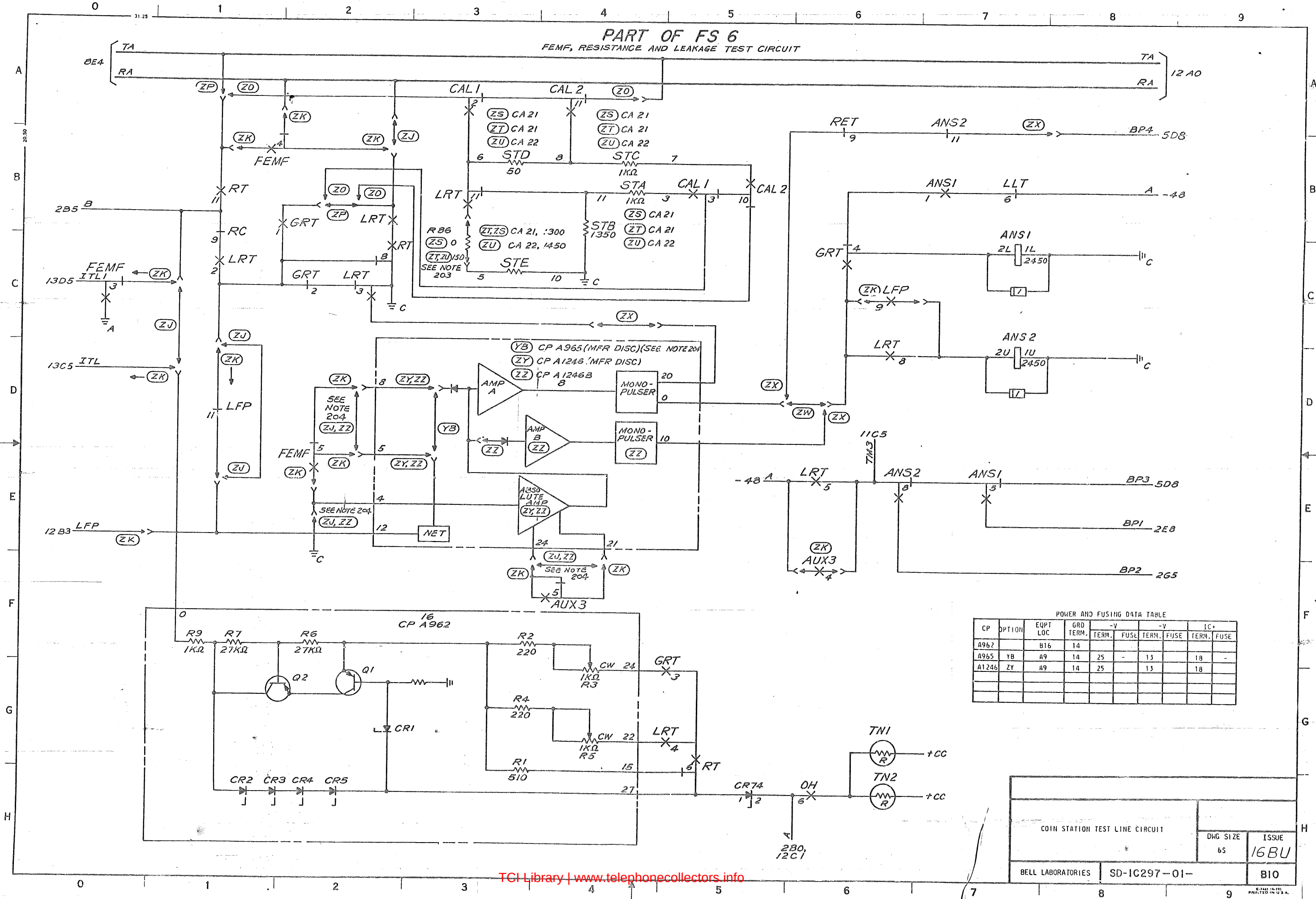
SD-IC297-01-B8

PART OF FS5 RETURN AND COLLECT TESTS



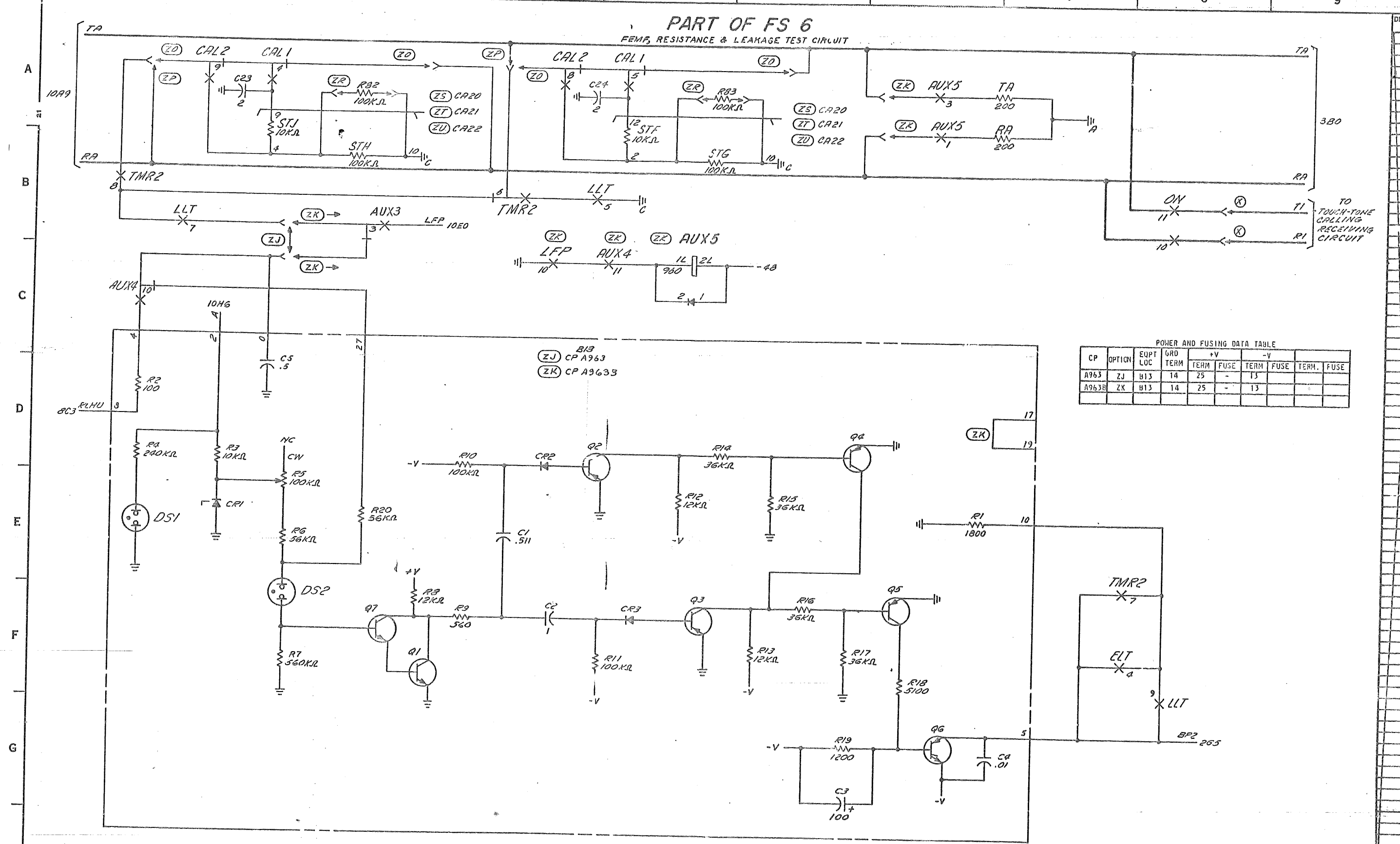
SD-1C297-01-B9

PART OF FS 6 FEMF, RESISTANCE AND LEAKAGE TEST CIRCUIT



PART OF FS 6

FEMP, RESISTANCE & LEAKAGE TEST CIRCUIT



POWER AND FUSING DATA TABLE

CP	OPTION	EQPT LOC	GRD TERM	+V TERM	+V FUSE	-V TERM	-V FUSE	TERM.	FUSE
A963	ZJ	B13	14	25	-	13	-		
A963B	ZK	B13	14	25	-	13	-		

COIN STATION TEST LINE CIRCUIT

SD-IC297-01-B12

BELL TELEPHONE LABORATORIES INCORPORATED

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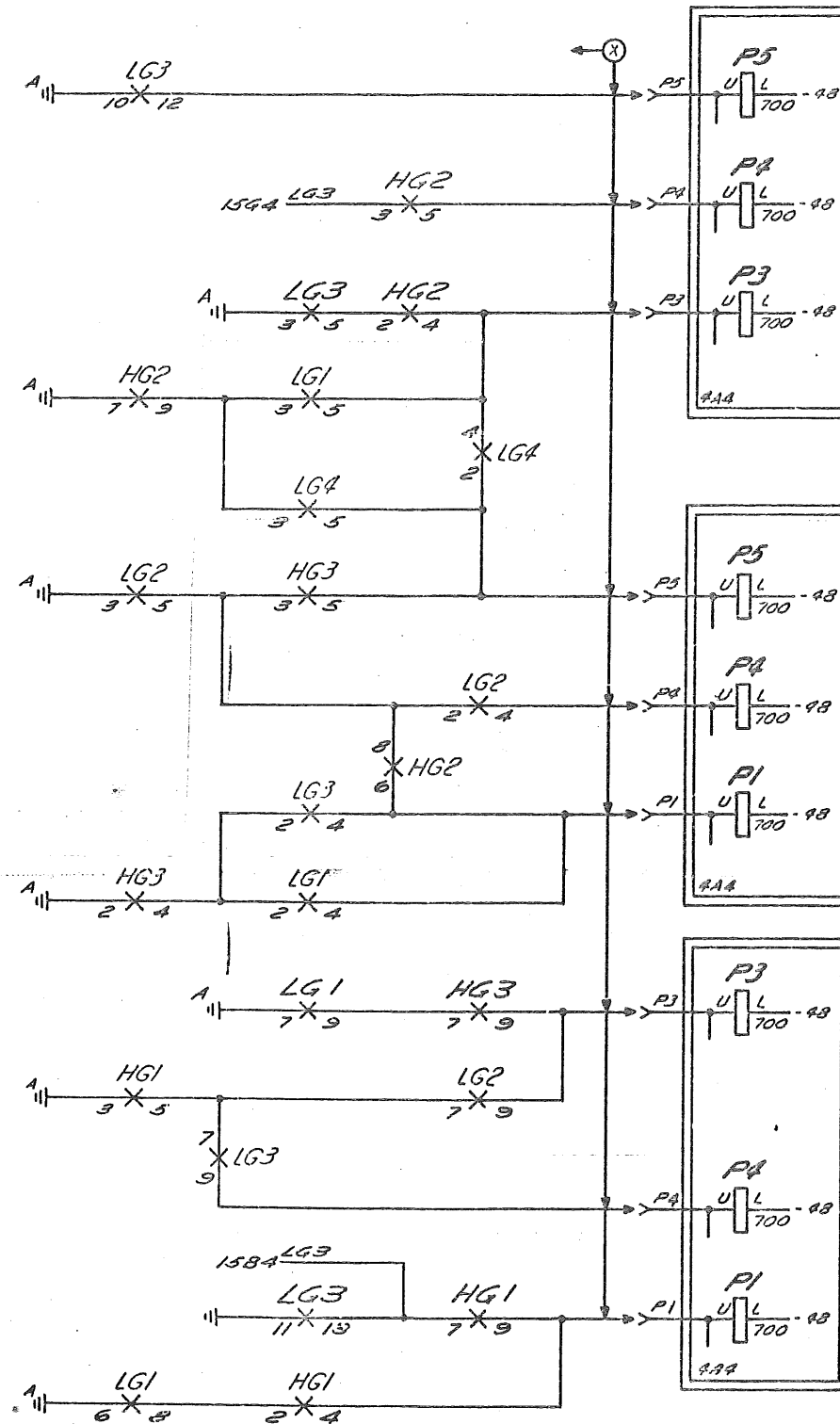
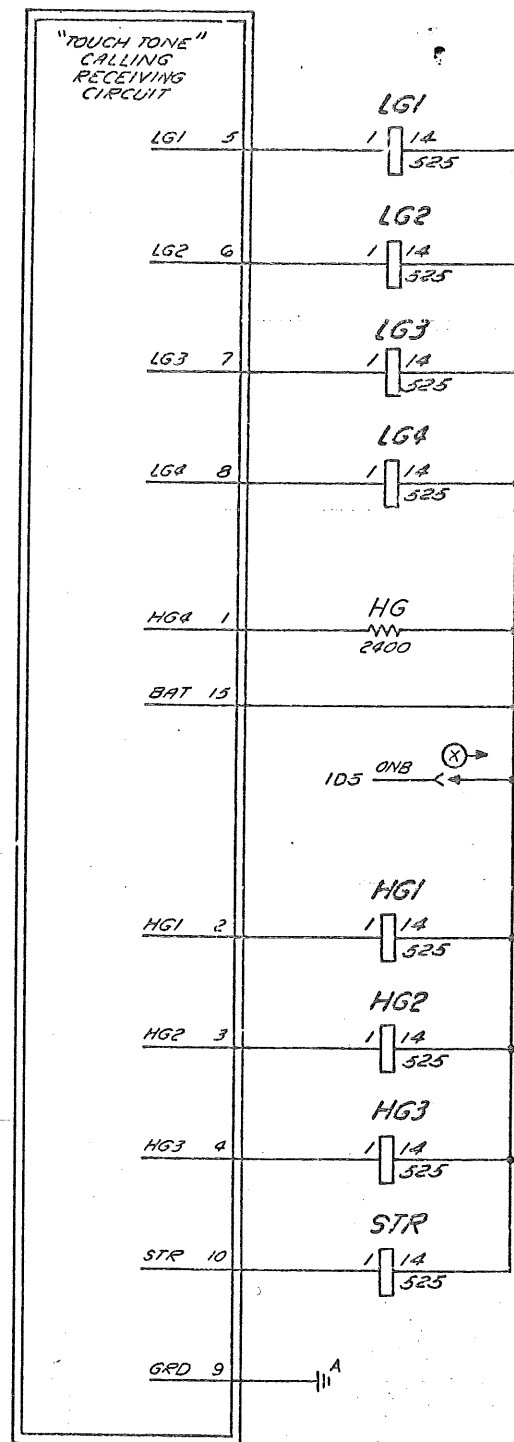
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BEEP CIRCUIT



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FS 8
TOUCH TONE INTERFACE



SD-IC297-01-B15

EQPT LOC											3										5										EQPT LOC	
DESIG																															DESIG	
CODE											A966										A973										CODE	
OPTION																															OPTION	
ELEMENT LOC			TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		ELEMENT LOC	
TERM.			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC		
27																																27
26																																26
25																																25
24																																24
23																																23
22																																22
21																																21
20																																20
19																																19
18																																18
17																																17
16																																16
15																																15
14																																14
13																																13
12																																12
11																																11
10																																10
9																																9
8																																8
7																																7
6																																6
5																																5
4																																4
3																																3
2																																2
1																																1
0																																0

CIRCUIT PACK																														EQPT LOC
EQPT LOC			8		8		8				11						13		13								16		EQPT LOC	
DESIG			A965		A1246		A1246B				A964						A963		A963B								A962		DESIG	
CODE			YB		ZY		ZZ										ZJ		ZK										CODE	
OPTION			YB		ZY		ZZ										ZJ		ZK										OPTION	
ELEMENT LOC			TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		ELEMENT LOC	
TERM.			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	TERM.	
27												5D3						1202		1202									27	
26																													26	
25													5B7																25	
24				10F8		10F8		10F8					5C7						1208		1208								24	
23													5D7																23	
22				5B1		5B1		5B1					5F7																22	
21								10E4		10E4			5G7																21	
20								10D5		10D5																			20	
19													5E7																19	
18				10F9		10F9		10F9																					18	
17				5B3		5B3		5B3					5C7																17	
16																													16	
15																													15	
14				10F8		10F8		10F8										1208		1208									14	
13				10F8		10F8		10F8					5G9					1208		1208									13	
12				10E2		10E2		10E2																					12	
11								13C5		13C5																			11	
10								10D5					5E7					12E7		12E7									10	
9								13C5		13C5																			9	
8								10D2		10D2			5G7					12D0		12D0									8	
7								13C5		13C5																			7	
6								13C5		13C5			5F7																6	
5								10E2		10E2			5C7					12G7		12G7									5	
4								10E2		10E2			5D7																4	
3				5B3		5B3		5B3					5C7					12C0		12C0									3	
2				5B1		5B1		5B1			RDR1	5B6						12C1		12C1									2	
1				5B1		5B1		5B1																					1	
0				10D5		10D5		10D5					5D2					12C1		12C1									0	

CIRCUIT PACK		
DESIG	LOC	CODE
DISC	187	D3
TM1	206	
TM2	886	
TM3	1186	

COIN STATION TEST LINE CIRCUIT

SD-IC297-01-CI

BELL TELEPHONE LABORATORIES
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SD-IC297-01-CI

PART OF APP FIG. 1

RELAY	DESIG	ADS	ANS1	ANS2	ATC1	ATC3	ATC2	AUX1	AUX2	AUX3	AUX4	DESIG
CODE	AJ516						AJ516	AG17	AG33			CODE
OPTION												OPTION
12	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
11	EM		EM		EM		EM		EM		EM	
10	EM		EM		EM		EM		EM		EM	
9	EM	11E2			EM		EM		EM		EM	
8	EM	11A6			EM		EM		EM		EM	
7	EM	11G2			EM		EM		EM		EM	
6	EM				EM		EM		EM		EM	
5	EM		EM	10E7	EM	9D2	EM	9E6	EM	9C3	EM	
4	EM	11B5	EM		EM	9F7	EM	9G6	EM	9A3	EM	
3	EM	9G3	EM		EM	9G6	EM	EM				
2	EM	8E1	EM		EM	9G1	EM	9H1	EM	9F1	EM	
1	EM	8F1	EM		EM	9E7	EM	9F7	EM	2E1	EM	
COIL	9C0		10B7		10C7	9E8		9G8		9F8		COIL

REL4Y																c (ZK) 1282							
DESIG	CGD		RC		COL		RET		CPT		CR		RTN		CT		RHU				DESIG		
CODE	AK4				AK4				AJ513				AK30				AK4						CODE
OPTION																					OPTION		
X	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	X		
12			M	8A2			M	9G5	PBEM	b			M	14D1			M	14C2			12		
11			EBM	8E3			EBM	8A2	BM	a			EBM	1307			EBM	1306			11		
10			EBM	9B4			EBM	8C2	EBM	2E2			EBM	13E7			EBM	14A7			10		
9			EMB	10B1			EMB	a	PMB	c			EMB	14B7			EMB	14C2			9		
8			EMB	1D6			EMB	5A1	EBM	4A6			EMB	14E7			EMB	14B2			8		
7									BM	13F8											7		
6									EBM	2G0											6		
5	EMB	9E2			EMB				BM	2D8	EMB	5C8			EMB	13E6					5		
4	EMB	11D1			EMB				PMB	2F7	EMB	9B4			EMB	14B6					4		
3	EBM	a			EBM	8A2			BM	2B3	EBM	BF3			EBM	3B4					3		
2	EBM				EBM	802			PBEM	2B6	EBM	5A8			EBM	3B2					2		
1	M				M	9G5			BM	2B3	M	8B2			M	10G6					1		
COIL	X	5B0	X	11C3	X	9C4	X	9A4	X	2F8	X	5F1	X	14E7	X	14E2	X	14D2	X		COIL		

RELAY	DESIG	LLT	LLT	LRT	OH	OH	P1	P2	P3	P4	P5	DESIG
CODE	AG45	AJ516	AJ516	AJ516	AJ513	AJ516	AJ516	AJ516	AJ516	AJ516	AJ516	CODE
OPTION												OPTION
12	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
11	EM		EM		EM		EM		EM		EM	
10	EM		EM		EM		EM		EM		EM	
9	EM		EM		EM		EM		EM		EM	
8	EM		EM		EM		EM		EM		EM	
7	EM		EM		EM		EM		EM		EM	
6	EM		EM		EM		EM		EM		EM	
5	EM		EM		EM		EM		EM		EM	
4	EM	11G1	EM	11G1	EM	10G5	EM	10G5	EM	10G5	EM	
3	EM	11F1	EM	11F1	EM	10C2	EM	10C2	EM	10C2	EM	
2	EM	9E3	EM	9E3	EM	10C1	EM	10C1	EM	10C1	EM	
1	EM	8B8	EM	8B8	EM	10B2	EM	10B2	EM	10B2	EM	
COIL	11F3		11F3		11G3		1E3		4H4		4A4	COIL

RELAY	DESIG	BCA	DPH	BCB	BCC	BCD	BCE	BCF	BP	CGA	STP	DESIG
CODE	AK4			AF54	AF54	AF112			AG17			CODE
OPTION												OPTION
12	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
11	EM		EM		EM		EM		EM		EM	
10	EM		EM		EM		EM		EM		EM	
9	EM		EM		EM		EM		EM		EM	
8	EM		EM		EM		EM		EM		EM	
7	EM		EM		EM		EM		EM		EM	
6	EM		EM		EM		EM		EM		EM	
5	EM		EM		EM		EM		EM		EM	
4	EM		EM		EM		EM		EM		EM	
3	EM		EM		EM		EM		EM		EM	
2	EM		EM		EM		EM		EM		EM	
1	EM		EM		EM		EM		EM		EM	
COIL	13A3		13A5		13B3		13C3		13D3		13E3	COIL

RELAY	DESIG	DIN	DISC	ELT	TST	ETT	TT	F	GRT	RTT	INT	DESIG
CODE	AG33	AJ516						AF508			AJ500	CODE
OPTION												OPTION
12	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC	CONT	LOC
11	EM		EM		EM		EM		EM		EM	
10	EM		EM		EM		EM		EM		EM	
9	EM		EM		EM		EM		EM		EM	
8	EM		EM		EM		EM		EM		EM	
7	EM		EM		EM		EM		EM		EM	
6	EM		EM		EM		EM		EM		EM	
5	EM		EM		EM		EM		EM		EM	
4	EM		EM		EM		EM		EM		EM	
3	EM		EM		EM		EM		EM		EM	
2	EM		EM		EM		EM		EM		EM	
1	EM		EM		EM		EM		EM		EM	
COIL	4F4		1B8		11H3		9D1		5A7		5A9	COIL

RELAY																				DESIG		
CODE		PS		RA		RT		SH		SUPV										DESIG		
CODE		AJ516		AG14		AJ516		AG15		AJ138										CODE		
OPTION																				OPTION		
12	CONT	ARR	LOC	CONT	ARR	LOC	CONT	ARR	LOC	CONT	ARR	LOC	CONT	ARR	LOC	CONT	ARR	LOC	CONT	ARR	LOC	12
11	EM	8A8	9A3				EM	11E1								EM	9C3					11
10	EM	13G3					EM			M	3E6					EM						10
9	EM	a,b			U		EM	11B2								EM						9
8	EM	2E2			M	3F7	EM	10B2		EM						M	1E2					8
7	EM	11C5			U		EM	11A7								EM						7
6	EM	2F3			M	3E7	EM	10H5		EM	1C9					EM	11F2					6
5	EM	2D1			U	3D6	EM															5
4	EM	2H7			M	1C8	EM	11B1		M	3D6					M	9G3					4
3	EM	2F8					EM	a														3
2	EM	2F6					EM	11C5		M						U	9A3					2
1	EM	2B5					EM	2C7														1
COIL		2H7				3E7		11A3			3G3						8E1	11A3				COIL

SD-1C297-01-C2

ISSUE 1740

COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

SD-1C297-01-C2

6S

PART OF APP FIG.1

[illegible][illegible]

Diagram of a relay with 14 pins. The connections are as follows:

- Pin 14 is connected to pin 1 via a contact labeled 525.
- Internal cross-connections:
 - (A) Pin 3 to pin 5
 - (B) Pin 4 to pin 2
 - (C) Pin 7 to pin 9
 - (D) Pin 8 to pin 6
 - (E) Pin 11 to pin 13
 - (F) Pin 12 to pin 10

DESIG		HG1	HG2	HG3	LG1	LG2	LG3	LG4	STR
CODE		295A	295A	295A	295A	295A	295A	295A	295A
OPTION		X	X	X	X	X	X	X	X
CONT.	A	15F3	1584	1504	15C4	1503	1584	15C4	3C1
	B	15G4	1584	15E3	15E4	15D4	15E4	15C4	3F6
	C	15G4	15C3	15E4	15E4	15F4	15F3		4H2
	D		15D4		15G3				
	E						15G4		
	F						15A3		
COIL	X	15E1	15E1	15F1	15A1	15B1	15B1	15C1	15F1

RELAY		CG	ICGD
303C			
5	2F2	5B1	
1			
6	2B3	8E2	

RELAY	DIODE	LOC	CODE
SHF	DESIG		
303E	1C6D	8E2	
	BPR	13A6	
	CR2	2C3	
	CR17	11C5	446F
	CR18	11C5	
	CR21	5G6	485H
	CR22	5H6	485AG
	CR46	5C0	446F

DESIG	L
CODE	292A
OPTION	
11	3F3
10	3F3
9	3F3
8	3F3
7	3F3
6	3F3
5	4A0
4	4A0
3	4A0
2	4A0
1	4A0

JACK
TJ
240CM

7
6 } 880
5
4 }
3 } 1C3
2
1

LAMP		
<u>DESIG</u>	<u>LOC</u>	<u>CODE</u>
RB	2C4	13L(RES)
SD1	8C1	13L(RES)
SD2	8C3	13L(RES)
TN	3B1	13L(RES)
TN1	10G6	13L(RES)
TN2	10G6	13L(RES)

DESIG	LOC
AD5	900
AHS1	1047
AHS2	1007
ATC1	9E8
ATC2	9F8
ATC3	9G8
AUX1	2G3
AUX2	3G7
AUX3	2D3
ALX4	904
BCA	13A3
BCB	13B3
BCC	13C3
BCD	13E3
BCE	13F3
BGF	13G3
BP	14B8
CGA	2F3
COL	9C4
CPT	2F8
CR	5G1
CT	14E2
DIH	4F4
ELT	11H3
ETT	5A7
F	1G2
GRT	11B3
INTR	130B
INTR	130B

RESISTOR		
DESIG	LOC	CODE
CG	2B3	KS-13491, L2, 1KΩ
HG	150D1	KS-19152, L1, 2.4KΩ
1CGD	8E3	KS-19153, L1, 4.87KΩ
LA	3F3	18FR
LG	3F2	18KN
LC	3F1	18HE
LHR	3D2	KS-14603, L1A, 1KΩ
LHS	1C3	18FY
R1	1C2	18R
R3	2B1	44AE
R40	9E8	19CJ
R66	5G5	44J
R79	13B3	19BW
R80	13D3	19GJ
R81	13F4	19UE

SWITCH		CODE	
DESIG	LOC	DESIG	LOC
11	5F2	373F	
TH	3b2	142C (RC)	

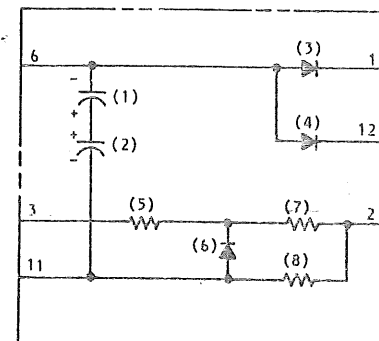
<u>CAPACITOR</u>		
<u>DESIG</u>	<u>LOC</u>	<u>CODE</u>
C4	2G5	K5-16048, L4 .01
C6A, C6B	5G3	K5-19029, 2000UF, 30V
C22	5G5	K5-19846, L5, 1000
CT	3B1	4410J
LW	3E2	437QA
PH	3E2	437QA
TB	3D1	437QA
TN	3B4	4410J
TN1	3B7	4410J

DESIG	LOC	CODE
J1 (D SC)	1B7	910A
J2 (X1M1)	2C5, 2C6	910A
J3 (XTM2)	8B6, 8B7	910A
J4 (XTM3)	11B6, 11B7	910A

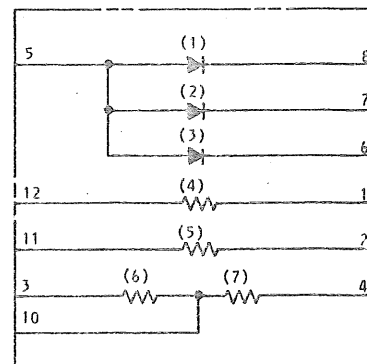
COMPONENT ASSEMBLIES
DESIG
CA1-CA18 (SEE SHEETS C4 & C5)

COMPONENT ASSEMBLY

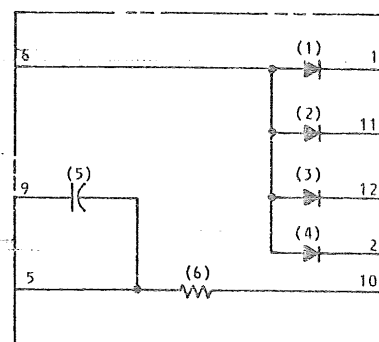
PART OF APP FIG. 1



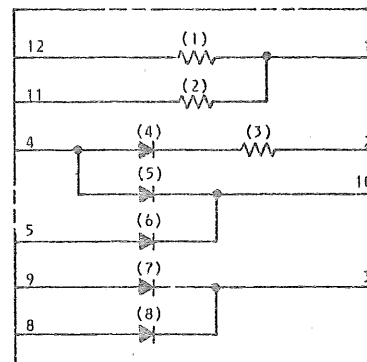
DESIG			CA1	
CODE			ED-1C707-(),G4	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	CAP.	KS-16390,L8	TM1	186
2	CAP.	KS-16390,L8	C21	186
3	DIODE	446F	CR115	186
4	DIODE	446F	CR1	106
5	RES	KS-19151,L1,1KΩ	DISCB	185
6	DIODE	446F	DISC	185
7	RES	KS-19151,L1,12KΩ	DISCA	1C5
8	RES	745A, 4.22MΩ 263A	DISC	1C5



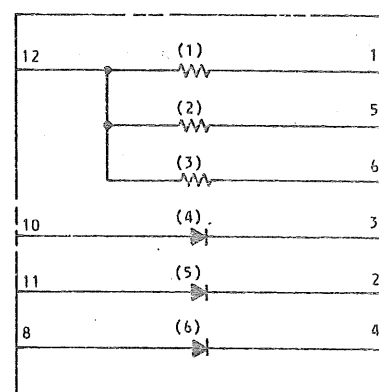
DESIG			CA5	
CODE			ED-1C707-(),G18	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR108	1E8
2	DIODE	446F	CR109	1D8
3	DIODE	446F	CR110	1E8
4	RES	KS-19152,L1,10Ω	R7	AC2
5	RES	KS-19152,L1,10Ω	R8	8B3
6	RES	221A, 806KΩ KS-20810, L1A	TM2A	8A6
7	RES	221A, 427KΩ KS-20810, L1A	TM2B	8A6



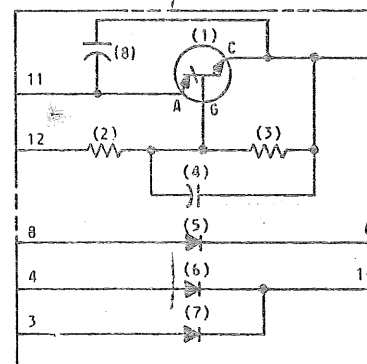
DESIG			CA2	
CODE			ED-1C707-(),G9	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR5	2H6
2	DIODE	446F	CR10	4F2
3	DIODE	446F	CR11	4F2
4	DIODE	446F	CR89	3G6
5	CAP.	542G	C1	2C7
6	RES	KS-1 9150,L1,20 KΩ	R2	2B7



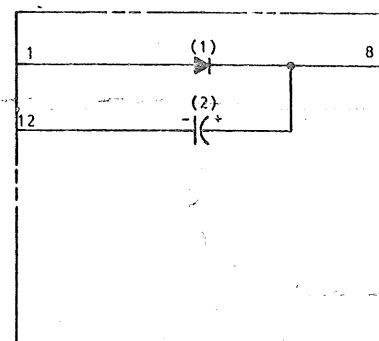
DESIG			C16	
CODE			ED-1C707-(),G2	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	RES	745A, 3.83MΩ 263A	TM1	2C5
2	RES	221A, 1.69MΩ KS-20810, L1A	TM1A	2D5
3	RES	KS19151,L1,1.8KΩ	R4	2G2
4	DIODE	446F	CR9	2G1
5	DIODE	446F	CR4	2G1
6	DIODE	446F	CR101	2H1
7	DIODE	446F	CR6	2D7
8	DIODE	446F	CR7	2E7



DESIG			CA3	
CODE			ED-1C707-(),G17	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	RES	745A, 2.58MΩ 263A	TM3	11B5
2	RES	221A, 160KΩ KS-20810, L1A	TM3A	11A6
3	RES	221A, 856KΩ KS-20810, L1A	TM3B	11B6
4	DIODE	446F	CR78	11E0
5	DIODE	446F	CR85	11B2
6	DIODE	446F	CR116	11B0



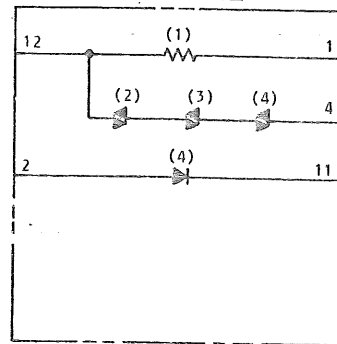
DESIG			CA7	
CODE			ED-1C707-(),G8	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	TRSTR	27A	Q1	2F5
2	RES	KS-16645,L1,4700Ω	R5	2F4
3	RES	KS-16645,L1,560Ω	R6	2F4
4	CAP.	594G	C3	2F4
5	DIODE	446F	CR57	14E6
6	DIODE	446F	CR8	2F2
7	DIODE	446F	CR105	2E2
8	CAP.	KS-16048,L4,.010μF	C4	2G4



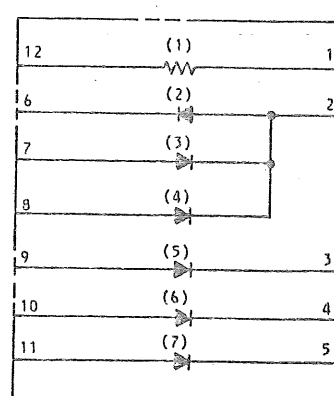
DESIG			CA4	
CODE			ED-1C707-(),G5	
OPTION			V	
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR3	2C1
2	CAP.	KS-19658,L8	C2	2C1

COMPONENT ASSEMBLY (CONT)

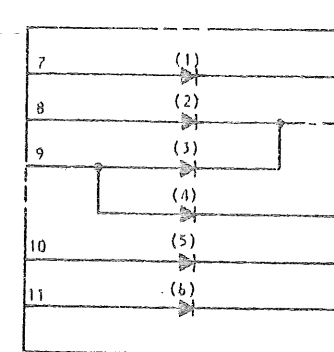
PART OF APP FIG. 1



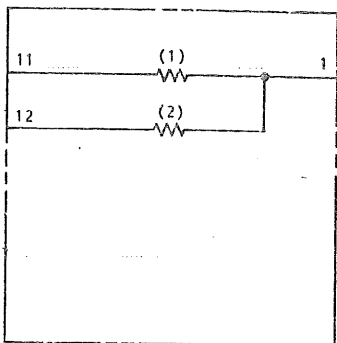
DESIG			CA9	
CODE			ED-1C707-().G11	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	RES	KS-19150,L1,620R	LW	3E3
2	VAR	100A	RV3	3C3
3	VAR	100A	RV2	3B3
4	VAR	100A	RV1	3A3
5	DIODE	446F	LW	3E2



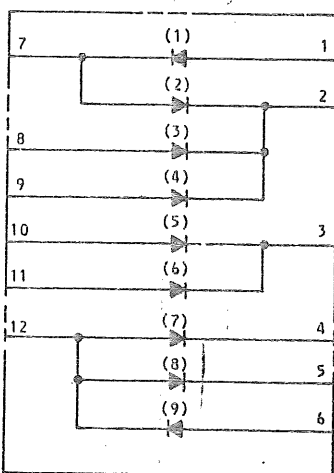
DESIG			CA13	
CODE			ED-1C707-(),G3	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	RES	KS-19152,L1,220R	RBR	2C4
2	DIODE	446F	CR31	9F2
3	DIODE	446F	CR30	9B2
4	DIODE	446F	CR29	9B2
5	DIODE	446F	CR45	11G1
6	DIODE	446F	CR42	11D1
7	DIODE	446F	CR28	9C1



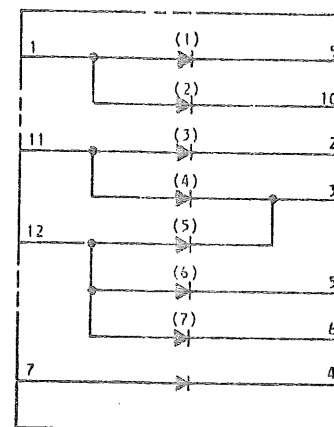
DESIG			CA17	
CODE			ED-1C707-(),G10	
OPTION				
POS	COMPT	CODE	DESIG	LCC
1	DIODE	446F	CR38	9F7
2	DIODE	446F	CR37	9E7
3	DIODE	446F	CR40	9E6
4	DIODE	446F	CR90	9D5
5	DIODE	446F	CR93	2H7
6	DIODE	446F	CR39	9G6



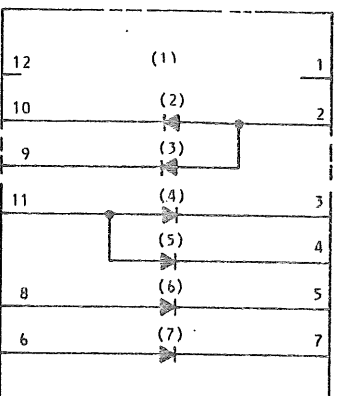
DESIG			CA10	
CODE			ED-1C707-(),G12	
OPTION				
POS	COMPT	CGDE	DESIG	LOC
1	RES	KS-19150,L1,5KΩ	DT	3B6
2	RES	KS-19150,L1,560Ω	DT1	3B6



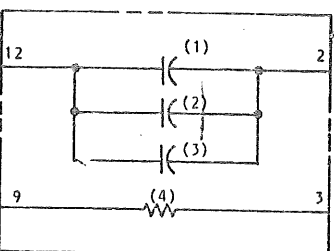
DESIG			CA14	
CODE			ED-1C707-(),G1	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR32	9A4
2	DIODE	446F	CR33	9D4
3	DIODE	446F	CR34	9D4
4	DIODE	446F	CR44	9E4
5	DIODE	446F	CR35	9A5
6	DIODE	446F	CR36	9C5
7	DIODE	446F	CR65	14D1
8	DIODE	446F	CR66	14E1
9	DIODE	446F	CR75	9G3



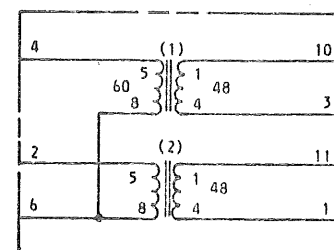
DESIG			CA18	
CODE			ED-1C707-(),G15	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR52	13C3
2	DIODE	446F	CR51	13C3
3	DIODE	446F	CR48	13A2
4	DIODE	446F	CR49	13B2
5	DIODE	446F	CR50	13B2
6	DIODE	446F	CR47	13A1
7	DIODE	446F	CR98	13C1
8	DIODE	446F	SN	9G1



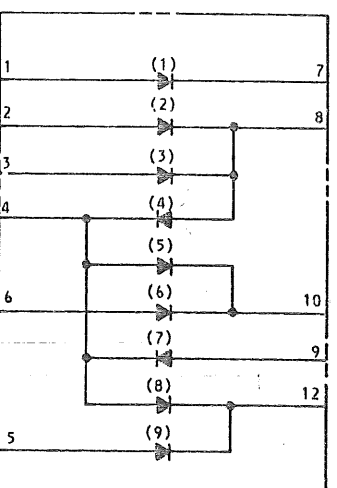
DFSIG			CA11	
CODE			ED-1C707-(),613	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1				
2	D10DE	446F	CR56	1485
3	D10DE	446F	CR64	14A6
4	D10DE	446F	CR55	13D2
5	D10DE	446F	CR54	13D2
6	D10DE	446F	CR55	13F2
7	D10DE	446F	CR103	1360



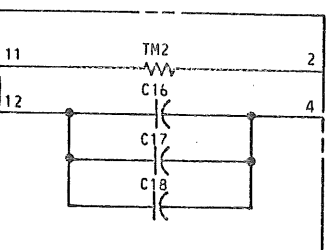
DESIG			CA15	
CODE			ED-1C707-(),G6	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	CAP.	542G	C13	9F3
2	CAP.	542G	C14	9F3
3	CAP.	542G	C15	9F3
4	RES.	KS-19151,L1,1KΩ	R42	9E3



DESIG			CA19	
CODE			ED-1C707-(),G19	
OPTION			F	
POS	COMPT	CODE	DESIG	LOC
1	TRANSF	2564N	BTR	3B7
2	TRANSF	2564N	DTR	3B7



DESIG			CA12	
CODE			ED-1C707-(),G14	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	DIODE	446F	CR104	13D7
2	DIODE	446F	CR63	13B8
3	DIODE	446F	CR62	13C8
4	DIODE	446F	CR61	13C8
5	DIODE	446F	CR59	13C8
6	DIODE	446F	CR58	13B8
7	DIODE	446F	CR60	13C8
8	DIODE	446F	CR27	9F1
9	DIODE	446F	CR26	9F1



DESIG			CA16	
CODE			ED-1C707-(),G7	
OPTION				
POS	COMPT	CODE	DESIG	LOC
1	RES	745A, 3.2MΩ 263A	TM2	8B6
2	CAP.	542G	C16	9C3
3	CAP.	542G	C17	9D3
4	CAP.	542G	C18	9D3

APP FIG. 2

LAMP, RESISTANCE

DESIG	LOC	CODE
R	14C1	13L

COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES
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2

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(ZK) APP FIG. 3

RELAY

DESIG	AUX5	SEE NOTE 1	FEMF	LFP	
CODE	AK10		AK4		
OPTION	ZK		ZK		
	CONT	LOC	CONT	LOC	
12	ARR	LOC	ARR	LOC	
11					
10					
9					
8					
7					
6					
5	M				
4	BM				
3	BM	12A6			
2	BM				
1	BM	12A6			
COIL		12C4			

CIRCUIT PACK

EQPT LOC			8		8		13		
DESIG									
CODE			A1246		A1246B		A963B		
OPTION			MO ZY		ZZ		ZK		
ELEMENT LOC			TERM.		TERM.		TERM.		
TERM			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	
27								12C2	
26									
25				10E8		10F8			
24				10E3		10E3			
23									
22				5A1		5A1			
21				10E4		10E4			
20				10D5		10D5			
19								A	
18				10F9		10F9			
17				5A1		5A3		B	
16									
15									
14				10F8		10F8			
13				10F8		10F8			
12				10E2		10E2			
11				13C5		13C5			
10				10D5		10D5		12E7	
9				13C5		13C5			
8				10D2		10D2		12D0	
7				13C5		13C5			
6				13C5		13C5			
5				10E2		10E2		12G7	
4				10E2		10E2		12C0	
3				5B3		5B3			
2				5B1		5B1		12C1	
1				5B1		5B1			
0				10D5		10D5		12C1	
								A	12C7
									1385
								B	12C7
									1385

CAPACITOR

DESIG	LOC
LFP	11D3

DIODE

DESIG	LOC	CODE
AUX5	12B5	596G, 1.47
CR76	11E2	533K

NETWORK

DESIG	LOC	CODE
FEMF	11D0	185A

RESISTOR

DESIG	LOC	CODE
ICGD	8E3	KS-19151, L1, 4.87KΩ
LFP	11C3	KS-20289, L6C, 681
TA	12A6	KS-20289, L6C, 196
RA	12A6	KS-20289, L6C, 196
TMR2	9E3	KS-19151, L1, 1KΩ

NOTES:

1. UPPER HALF OF AK-10 RELAY USED IN APP FIG. 4 WHEN OPTION 20 IS REQUIRED.

COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

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APP FIG. 4

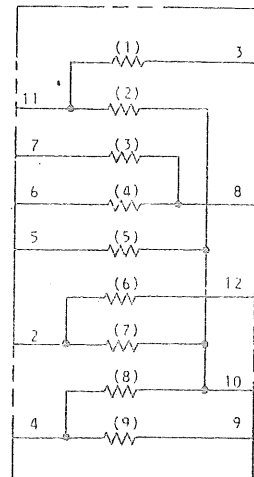
RELAY

DESIG	CAL1	CAL2	SEE NOTE 1	CRN
CODE	AK4		AK10	
OPTION	Z0		Z0	
	CONT ARR	LOC	CONT ARR	LOC
12			M	11A1
11			EMB	10A4
10			EMB	10B5
9			EMB	12A1
8			EMB	12A3
7				
6				
5	EMB	12A4		
4	EMB	12A1		
3	EMB	10B5		
2	EMB	10A3		
1	M	11A1		
COIL		11A0		11A1
				8D7

CAPACITOR

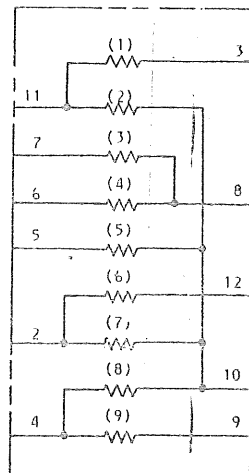
DESIG	LOC	CODE
20 C23	12A1	535J, 2
20 C24	12A3	535J, 2

COMPONENT ASSEMBLY



DESIG	CODE	CA21
CODE		EC-1C707-(), G
OPTION		Z0, ZS, ZT
POS	COMPT	CODE
1	RES	KS-20810, L1A, 1KΩ
2	RES	KS-14603, L1A, 1350
3	RES	KS-20810, L1A, 1KΩ
4	RES	KS-20810, L1A, 50
5	RES	KS-14603, L1C, 1300
6	RES	KS-20810, L1A, 10KΩ
7	RES	KS-20810, L1A, 100KΩ
8	RES	KS-20810, L1A, 100KΩ
9	RES	KS-20810, L1A, 10KΩ
	DESIG	LOC
	STA	10B4
	STB	10B3
	STC	10B4
	STD	10B3
	STE	10B3
	STF	12B4
	STG	12B4
	STH	12B2
	STJ	12B1

COMPONENT ASSEMBLY



DESIG	CODE	CA22
CODE		EC-1C707-(), G
OPTION		Z0, ZU
POS	COMPT	CODE
1	RES	KS-20810, L1A, 1KΩ
2	RES	KS-14603, L1A, 1350
3	RES	KS-20810, L1A, 1KΩ
4	RES	KS-20810, L1A, 50
5	RES	KS-14603, L1C, 1450
6	RES	KS-20810, L1A, 10KΩ
7	RES	KS-20810, L1A, 100KΩ
8	RES	KS-20810, L1A, 100KΩ
9	RES	KS-20810, L1A, 10KΩ
	DESIG	LOC
	STA	10B4
	STB	10B3
	STC	10B4
	STD	10B3
	STE	10B3
	STF	12B4
	STG	12B4
	STH	12B2
	STJ	12B1

NETWORK

DESIG	LOC	CODE
20 CAL1	11A1	185A
20 CAL2	11A2	185A

RESISTOR

DESIG	LOC	CODE
20 R82	12A2	KS-20810, L1A, 100KΩ
20 R83	12A4	KS-20810, L1A, 100KΩ
20 R84	9E3	KS-20810, L1A, 41.2KΩ
20 R85	9F3	KS-20810, L1A, 41.2KΩ
20 R86	10B3	0 OHMS (SEE NOTE 2)
20, ZU R86	10B3	KS-20810, L1A, 150 (SEE NOTE 2)
20 COL	8B3	KS-14603, L1A, 196
20 RET	8D3	KS-14603, L1A, 196

NOTES:

- LOWER HALF OF AK10 RELAY USED AS PART OF APP FIG. 3 IF OPTION ZK IS USED.
- (R86) SHALL BE MOUNTED ON CA21 ZS, ZT OPTION OR CA22 ZU OPTION TERMINAL STRIP BETWEEN TERMINALS 1 AND 5. THE VALUE MAY BE CHANGED IF OTHER THAN STANDARD REQUIREMENTS IS DESIRED. SEE CD-1C297-01 FOR FURTHER INFORMATION.

COIN STATION TEST LINE CIRCUIT

DWG. SIZE

65

ISSUE

16BU

BELL LABORATORIES

SD-1C297-01

-C7

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
DT	0.5	LT2	SEE NOTES 105 & 109
BT		HT1	
SUP R	1/2HV	AC, DC AUD OR SUP	
A	1-1/3	-48	CKT
B	1-1/3	-48	CKT
C	1-1/3	-48	CKT
D	1-1/3	-48	CKT
+CC	1/2		CKT
-CC	1/2		CKT
	1-1/3	+48	CKT
A		GRD	CKT
B		GRD	CKT
C		GRD	CKT
D		GRD	CKT
BATTERY SYMBOL		VOLTAGE RANGE	
+V		46-52V	
-48		46-52V	
+48		46-52V	
+CC		115-135V	
-CC		115-135V	
-V		3A-37V	
IC+		4.0-4.1V ABOVE -V	

CIRCUIT NOTES: (CONT)

102.

FEATURE OR OPTION			PROVIDE			
			APP FIG.	APP OR WRG	QUANTITY	
COIN STATION TEST LINE			1		1 PER CKT	
RESISTANCE LAMP			2		1 PER 10 CKTS	
TESTS TOUCH TONE COIN STATION				X		
+48 OFFICE SUPPLY AVAILABLE----		NO		W		
		YES		V		
DIAL TONE ATTENUATOR	SXS WITH "TOUCH-TONE" & PANEL, NO. 1 AND NO. 5 CSBR, ESS NO. 1 & NO. 2 WITH OR WITHOUT "TOUCH-TONE"			Q		
	NO. 1, NO. 350A, NO. 355A, NO. 360A SXS WITHOUT "TOUCH-TONE"			T		
NO. 1 CROSSBAR OFFICE				ZH, A, Y, YA		
NO. 5 CROSSBAR OFFICE				Z, B, N, YA		
NO. 1 ESS OFFICE				F, B, M		
NO. 2 ESS OFFICE				F, B, M		
STEP BY STEP WITH DIAL TONE FIRST				Y, B, M, YA		
STEP BY STEP WITHOUT DIAL TONE FIRST				Y, B, S, M, YA		
NO. 35E97 SXS WITH DIAL TONE FIRST				Y, B, R, M, YA		
NO. 35E97 SXS WITHOUT DIAL TONE FIRST				Y, B, R, M, S, YA		
TEST DIGIT MESSAGE REGISTER LEADS				ZE, ZH, ZV		
FEME TESTS		PROVIDED	3	ZK, ZZ	1 PER CKT	
		NOT PROVIDED		ZJ, YB		
CALIBRATION DIAGNOSTIC CIRCUIT	NO. 1 CROSSBAR OFFICE		4	ZO, ZT	1 PER CKT	
	NO. 5 CROSSBAR OFFICE		4	ZO, ZU	1 PER CKT	
	NO. 1 ESS OFFICE		4	ZO, ZU	1 PER CKT	
	NO. 2 ESS OFFICE		4	ZO, ZU	1 PER CKT	
	STEP BY STEP	WITHOUT DIAL TONE FIRST		4	ZO, ZS	1 PER CKT
		WITH DIAL TONE FIRST	WITH SD-37539-01 COIN TRUNK		4	ZO, ZR, ZS
OTHERS			4	ZO, ZS	1 PER CKT	
MARGINAL LOOP RESISTANCE TEST		PROVIDED		ZX		
		NOT PROVIDED		ZW		

103.

NETWORK VALUES		
NETWORK NO.	RESISTANCE IN OHMS	CAPACITANCE IN uF
1	470	0.11
2	1000	0.50

CIRCUIT NOTES: (CONT)

104.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISSUE	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MO
40	K OR J	K		J		K
40	G OR H	G	108	G		
6B	F	Y OR Z	102	F, Y, Z		
6B	B OR E	B	102	B, E		
6B	A OR APP FIG. 2	A		FIG. 2		A
6B	ZA OR ZB	ZA		ZB		ZB
6B	ZC OR ZD	ZC		ZD		ZC
8B	ZE	NONE	102	ZE		
8B	ZF OR ZG	ZF		ZG		ZF
11B	ZH	NONE	102	ZH		
12B	145A OR 263A	145A		263A		145A
	221A OR XS-20810, LIA	221A		XS-20810, LIA		221A
13B	ZJ OR ZK	ZJ		ZK		ZJ
13B	ZE OR ZH	NONE	102, 110	ZH		ZE
14BU	ZO OR ZP	ZP		ZO		ZP
14BU	ZR, ZS, ZT, ZU	NONE	102	ZR, ZS, ZT, ZU		
14BU	ZE, ZH, OR ZV	NONE	102 110	ZV		ZN
16BU	ZW OR ZX	ZW	102, 111	ZX		ZW
16BU	YB, ZY OR ZZ	ZY OR YB	111 112 113	ZZ		ZY, YB
16BU	YA	NONE	102	YA		

COIN STATION TEST LINE CIRCUIT

2

SD-1C297-01-D1

BELL TELEPHONE LABORATORIES
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CIRCUIT NOTES: (CONT)

105.

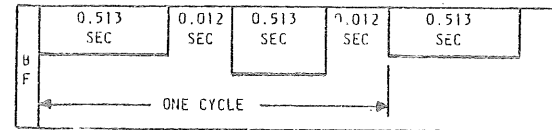
TYPE OFFICE	SIGNAL LEAD				
	DT	BT	SUP R	120 IPM	60 IPM
NO.1	LT2 FROM MISC FUSE & ALARM CKT	HT1 FROM MISC FUSE & ALARM CKT	AC, DC AUD OR SUP- MISC FUSE & ALARM CKT	120 IPM BR3 FROM MISC INTERRUPTER CKT SD-31606 (TYPICAL)	60 IPM BR3 FROM MISC INTERRUPTER CKT SD-31606 (TYPICAL)
350A	LT2 FROM MISC FUSE & ALARM CKT	HT1 FROM MISC FUSE & ALARM CKT	AC, DC AUD OR SUP-	120 IPM BR3 FROM MISC INTERRUPTER CKT SD-31606 (TYPICAL)	60 IPM BR3 FROM MISC INTERRUPTER CKT SD-31606 (TYPICAL)
SXS 355A	LT2 FROM MISC FUSE & ALARM CKT	HT1 FROM MISC FUSE & ALARM CKT	AC, DC AUD OR SUP-	120 IPM BR3 FROM MISC INTERRUPTER CKT SD-31868 (TYPICAL)	60 IPM BR3 FROM MISC INTERRUPTER CKT SD-31868 (TYPICAL)
360A	LT2 FROM MISC FUSE & ALARM CKT	HT1 FROM MISC FUSE & ALARM CKT	AC, DC AUD OR SUP-	120 IPM BR3 FROM	60 IPM BR3 FROM
35E97					
PANEL	LT2 FROM MISC FUSE & ALARM CKT	HT1 FROM MISC FUSE & ALARM CKT	AC, DC AUD OR SUP- MISC FUSE & ALARM CKT	120 IPM BR3 FROM SD-21666-01 OR SD-21667-01 MISC CKT DESIG (120 IPM BR3) SEE NOTE 107	60 IPM BR3 FROM SD-21666-01 OR SD-21667-01 MISC CKT DESIG (60 IPM BR3) SEE NOTE 106
NO.1 XBAR	LT2	HT1	AC, DC AUD OR SUP-	120 IPM BR3 SD-25062 INT FRAME CKT DESIG (120 IPM BR3) SEE NOTE 107	60 IPM BR3 SD-25062 INT FRAME CKT DESIG (60IPM BR3) SEE NOTE 106
NO.5 XBAR	LT2	HT1	AC, DC AUD OR SUP- PWR RING AND TONE DIST CKT	120 IPM BR3 FROM INTERRUPT FRAME SD-25814 (TYPICAL) DESIG (OF)	60 IPM BR3 FROM INTERRUPT FRAME SD-25814 (TYPICAL) DESIG (LB)
COMMON					
NO.1 ESS	TIP & RING LEADS SUPPLY LT1 FROM TONE CKT SD-81652- 01 DESIG T(TT) & R(TT)	TIP & RING LEADS SUPPLY HT1 FROM TONE CKT SD-81652- 01 DESIG T(MT2) R(MT2) (SEE NOTE BELOW)	SUP- FROM RINGING CKT SD-81605-01 DESIG AC-DC OR SUP-AND RING G	120 IPM FROM TONE CKT SD-81652-01 DESIG 120A & 120B	60 IPM FROM TONE CKT SD-81652-01 DESIG 60A & 60B
NO.2 ESS	TIP & RING LEADS SUPPLY LT1 FROM NO.2 ESS RINGING & TONE CKT SD-81870-01 DESIG T(TT) AND R(TT)	TIP & RING LEADS SUPPLY HT1 FROM NO.2 ESS RINGING & TONE CKT SD-81870-01 DESIG T(MT2) AND R(MT2) (SEE NOTE BELOW)	SUP- FROM NO. 2 ESS RINGING & TONE CKT SD-81870-01 DESIG AC-DC OR SUP- AND RING G	120 IPM FROM NO. 2 ESS RINGING & TONE CKT SD-81870-01 DESIG 120A & 120B	60 IPM FROM NO. 2 ESS RINGING & TONE CKT SD-81870-01 DESIG 60A & 60B

FOR STEP BY STEP OFFICES EQUIPPED WITH TOUCH-TONE USE TT3 FOR DIAL-TONE WITH Q OPTION. FOR ALL OTHER OFFICES EQUIPPED WITH TOUCH-TONE USE TT FOR DIAL-TONE WITH Q OPTION.

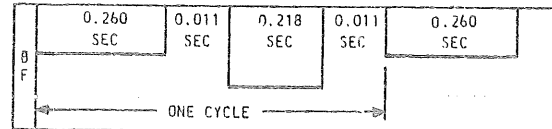
IN ESS OFFICES WHERE HT TONE ON THE BT LEADS IS NOT LOUD ENOUGH, CONNECT THE BT LEADS TO MT2 TONE TERMINALS.

CIRCUIT NOTES: (CONT)

106. INTERRUPTER (6C) PANEL SYSTEM OR (BCR) NO. 1 CSBR SYSTEM SHALL HAVE MAKE AND BREAK INTERVALS AS FOLLOWS:



107. INTERRUPTER (6C) PANEL SYSTEM OR (BCR) NO. 1 CSBR SYSTEM SHALL HAVE MAKE AND BREAK INTERVALS AS FOLLOWS:



108. PROVIDE H OPTION (RATED SPECIAL) WHEN COLLECT BATTERY IS NEGATIVE AND RETURN BATTERY IS POSITIVE. OTHERWISE PROVIDE G OPTION.

109. NO (BT) FUSE IS REQUIRED, SINCE HT-1 IS SUPERIMPOSED ON GROUND.

110. OPTION ZE WAS ADDED ON ISSUE 138 AND CHANGED TO ZH ON ISSUE 138 WHEN OPTION ZK WAS ADDED, AND THEN TO ZV ON ISSUE 168U WHEN OPTION ZO WAS ADDED.

111. OPTION ZX AND ZZ WERE ADDED ON ISSUE 168U FOR LOOP RESISTANCE MARGINAL TEST.

112. ON ISSUE 168U CPS A1246 WAS CHANGED FROM OPTION ZK TO ZY AND WAS MFR DISC.

113. ON ISSUE 168U CPS A965 WAS CHANGED FROM OPTION ZJ TO YB, AND MFR DISC.

EQUIPMENT NOTES:

201. SHIELDED WIRE SHALL BE #4-TYPE, 22 GAUGE, SINGLE CONDUCTOR. THE SHIELD GROUND WIRE SHALL BE CONNECTED TO TERMINAL 13 OF (A965) CONNECTOR.

202. WHEN ZX OPTION IS FURNISHED DIODE (CR106) CAN BE MOUNTED BETWEEN TERMINALS 4 AND 11 ON THE CONNECTOR OF (CA12).

203. RESISTOR (R86) SHALL BE MOUNTED ON THE TERMINAL STRIP OF (CA21) ZS,ZT OPTION OR (CA22) ZH OPTION BETWEEN TERMINALS 1 AND 5. THE RESISTANCE VALUE MAY BE CHANGED IF OTHER THAN THE STANDARD REQUIREMENT FOR LOOP RESISTANCE IS DESIRED. SELECT (R86) SO LOOP RESISTANCE $R_{LH} = (50) + (R86) + (STE)$

204. WHEN (CPS A1246B) IS SUBSTITUTED FOR (CPS A965); OR WHEN OPTION ZX IS SPECIFIED WITHOUT OPTION ZK, THE FOLLOWING JUMPERS MUST BE CONNECTED TO TERMINALS OF THE CONNECTOR FOR (CPS A1246B).

A. CONNECT JUMPER BETWEEN TERMINALS 5 AND 8.

B. CONNECT JUMPER BETWEEN TERMINALS 4 AND 14.

C. CONNECT JUMPER BETWEEN TERMINALS 21 AND 24.

205. A 208A TERMINAL MOUNTED ON THE (OH) RELAY UPPER MOUNTING SCREW CAN BE USED TO CONNECT RESISTOR (IC6D) IN THE CIRCUIT.

COIN STATION TEST LINE CIRCUIT

2

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301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.

302. AC POWER REQUIREMENTS FOR IC POWER SUPPLY AND CLOCK
AC VOLTAGE 115 ±10 VOLTS 50-60 Hz, CURRENT LOAD
0.1 AMP.

303. a.

STATES OF DIAL PULSE COUNTER P1-P5						
(L)	(P1)	(P2)	(P3)	(P4)	(P5)	DIGIT REGISTERED
X	R	R	R	R	R	
-	O	R	R	R	R	
X	O	O	R	R	R	1
-	R	O	O	R	R	
X	R	R	O	R	R	2
-	O	R	O	R	R	
X	O	O	O	O	R	3
-	R	O	O	O	R	
X	R	R	O	O	R	4
-	O	R	R	O	R	
X	O	O	R	O	R	5
-	R	O	R	O	R	
X	R	R	R	O	O	6
-	O	R	R	O	O	
X	O	O	R	O	O	7
-	R	O	O	R	O	
X	R	R	O	O	O	8
-	O	R	R	R	O	
X	O	O	R	R	O	9
-	R	O	O	R	O	
X	R	R	O	R	O	0

b.

STATES OF THE BEEP COUNTER							
(INTR)	LEAD NO.	(BCA)	(BCB)	(BCC)	(BCD)	(BCE)	(BCF)
X		R	R	R	R	R	R
-	2	O	R	R	R	R	R
X		O	O	R	R	R	R
-	1	O	O	O	R	R	R
X		O	O	O	O	R	R
-	3	R	O	O	O	R	R
X		R	R	O	O	R	R
-	4	R	R	R	O	R	R
X		R	O	R	O	R	R
-		R	O	R	R	O	R
X		R	R	R	R	O	R
-	2	O	R	R	R	O	R
X		O	O	R	R	O	R
-	1	O	O	O	R	R	O
X		O	O	O	O	R	O
-	3	R	O	O	O	R	O
X		R	R	O	O	R	O
-	4	R	R	R	O	R	O
X		R	O	R	O	R	O
-		R	O	R	R	O	O
X		R	R	R	R	O	O
-	2	O	R	R	R	O	O
X		O	O	R	R	O	O
-	1	O	O	O	R	R	O
X		O	O	O	O	R	O
-	3	R	O	O	O	R	O
X		R	R	O	O	R	O
-	4	R	R	R	O	R	O
X		R	O	R	O	R	O
-		R	O	R	R	O	O
X		R	R	R	R	O	O

STATES CORRESPONDING TO NUMBERS BELOW WILL CAUSE (BPR)-RELAY TO OPERATE WHEN BATTERY IS PLACED ON LEAD INDICATED.

BATTERY ON	BPR OPERATES ON
(BP1)	1
(BP2)	1,2
(BP3)	1,2,3
(BP4)	1,2,3,4

303. (CONT)

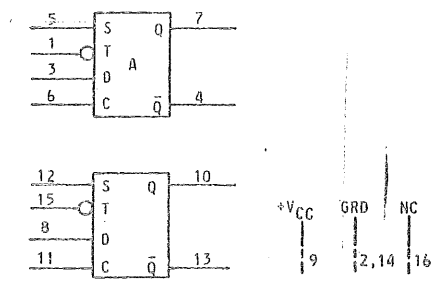
c.

STATES OF THE ATTEMPT COUNTER				
NO. OF ATTEMPTS	(COL) OR (RET)	(ATC1)	(ATC2)	(ATC3)
-	-	R	R	R
-	X	O	R	R
1	-	O	O	R
-	X	O	O	O
2	-	R	O	O
-	X	R	R	O
3	-	O	R	O

INDEX OF SYMBOLS:
X INDICATES DRIVING RELAY OPERATED
- INDICATES DRIVING RELAY RELEASED
O INDICATES COUNTING RELAY OPERATED
R INDICATES COUNTING RELAY RELEASED

304. INTEGRATED CIRCUIT ELEMENT SYMBOLOGY OF IC COUNTER CIRCUIT IS AS FOLLOWS:

a. TWO TYPE D FLIP-FLOPS (41H)

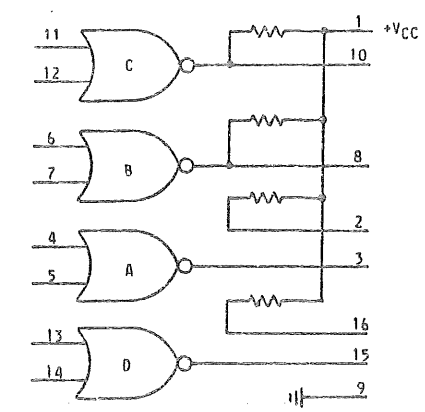


INPUT/OUTPUT INFORMATION

THE 41H CONTAINS 2 TYPE D FLIP-FLOPS, DESIGNED TO ACT AS A TWO-STAGE SHIFT REGISTER WHEN THE FLIP-FLOPS ARE CASCADED. A HIGH ON THE D LEAD AND A PULSE ON THE TOGGLE LEAD WILL SET THE FLIP-FLOP WHILE A LOW ON THE D LEAD AND A PULSE ON THE TOGGLE LEAD WILL RESET THE FLIP-FLOP. SET AND CLEAR LEADS ARE ALSO PROVIDED HOWEVER THEY REQUIRE A HIGH ON THE TOGGLE LEAD FOR PROPER OPERATION. THE DEVICE WILL TOGGLE WHEN THERE IS A HIGH TO LOW TRANSITION ON THE TOGGLE LEAD DEPENDENT ON THE STATE OF THE Q, Q-bar AND D LEADS. THE LOGIC LEVELS ARE AS FOLLOWS:
LOW < 0.25 VOLTS HIGH > 1.22 VOLTS. IN THIS CIRCUIT THE LOGIC LEVELS SHOULD BE REFERENCED TO THE VOLTAGE ON PINS 2 OR 14 OF THE IC.

304. (CONT)

b. FOUR-2 INPUT GATES (41F)

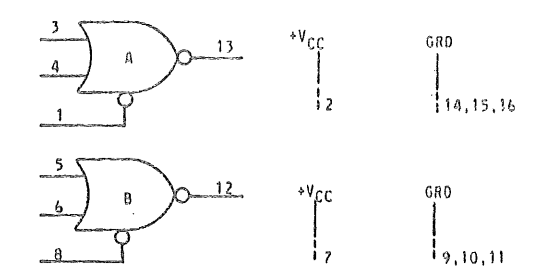


INPUT/OUTPUT INFORMATION

THE 41F CONTAINS FOUR TWO INPUT NOR GATES. IF BOTH INPUTS ARE AT OR LESS THAN 0.25 VOLTS THE OUTPUT WILL BE BETWEEN 1.22 AND 3.0 VOLTS OTHERWISE THE OUTPUT WILL BE LESS THAN 0.25 VOLTS. TWO OF THE GATES REQUIRE EXTERNAL STRAPPING OF THE LOAD RESISTOR THUS ALLOWING THESE GATES TO BE EXPANDED. IN THIS CIRCUIT THE LOGIC LEVELS SHOULD BE REFERENCED TO THE VOLTAGE ON PIN 9 OF THE IC.

304. (CONT)

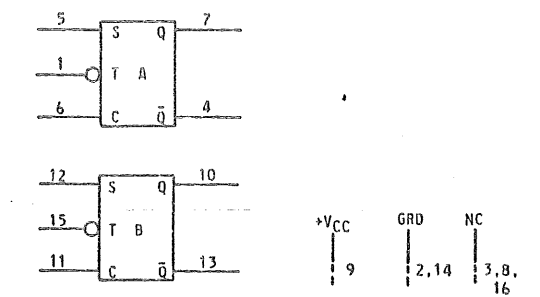
d. 2 GATES OUTPUT CURRENT OF 25MA (41G)



INPUT/OUTPUT INFORMATION

THE 41G CONTAINS TWO-TWO INPUT NOR GATES, WHICH ARE CAPABLE OF SUPPLYING 25MA AT THE OUTPUT. LEVELS ARE THE SAME AS THOSE FOR THE 41F. AN INPUT IS PROVIDED TO ALLOW CONNECTION OF ONE OR MORE EXPANDABLE OUTPUTS FROM A 1J GATE. IN THIS CIRCUIT THE LOGIC LEVELS SHOULD BE REFERENCED TO THE VOLTAGE ON PINS 9,19,11,14,15 OR 16 OF THE IC.

c. TWO TOGGLE FLIP-FLOPS (41J)

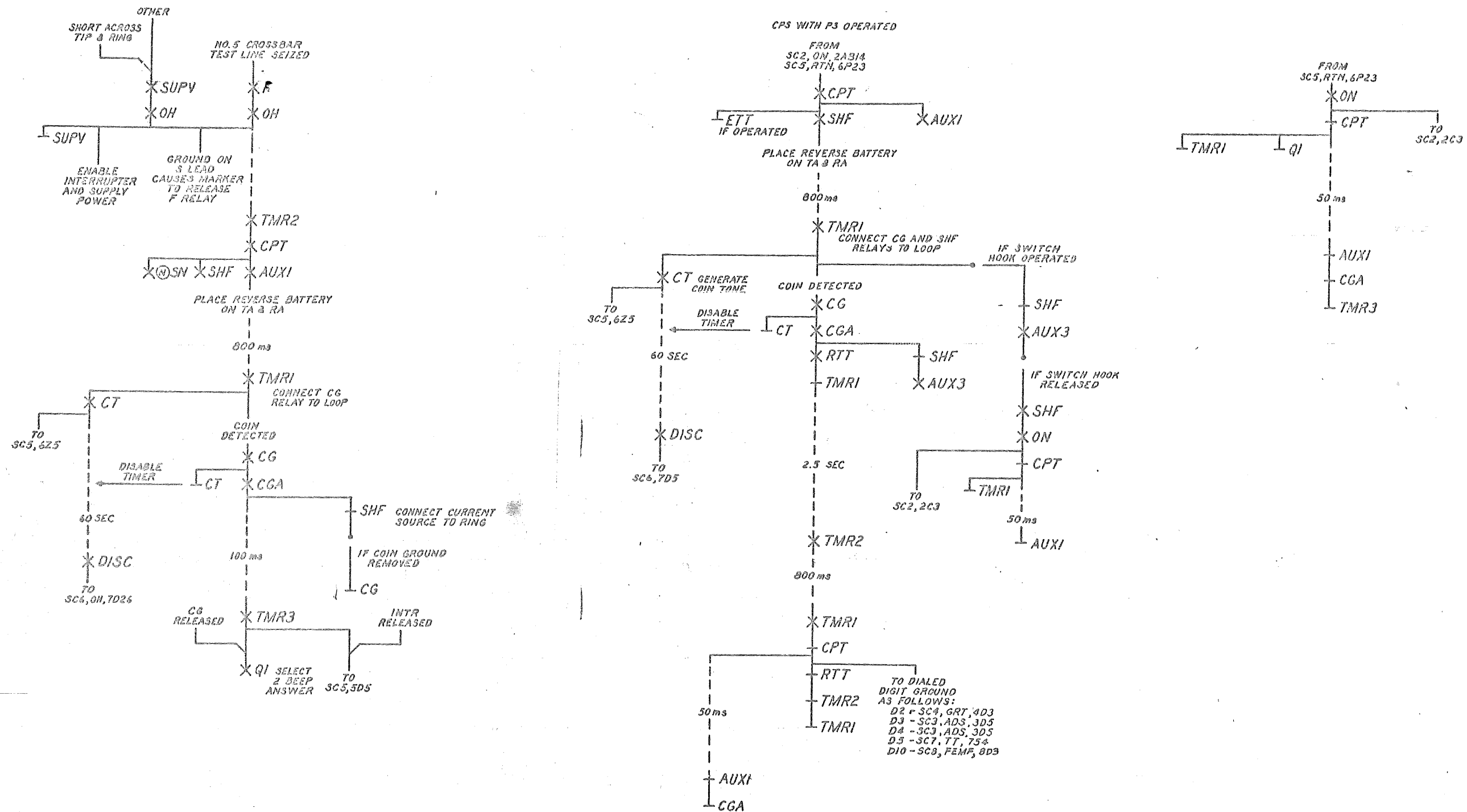


INPUT/OUTPUT INFORMATION

THE 41J IS A TOGGLE FLIP-FLOP WHICH TOGGLES WHEN THERE IS A HIGH TO LOW TRANSITION ON THE T (TOGGLE) LEAD; SET AND CLEAR INPUTS ARE ALSO PROVIDED HOWEVER, THEY ARE ONLY OPERABLE WHEN THE TOGGLE LEAD IS HIGH. THE LOGIC LEVELS ARE AS FOLLOWS: LOW < 0.25 VOLTS HIGH > 1.22 VOLTS. IN THIS CIRCUIT THE LOGIC LEVELS SHOULD BE REFERENCED TO THE VOLTAGE ON PINS 2 OR 14 OF THE IC.

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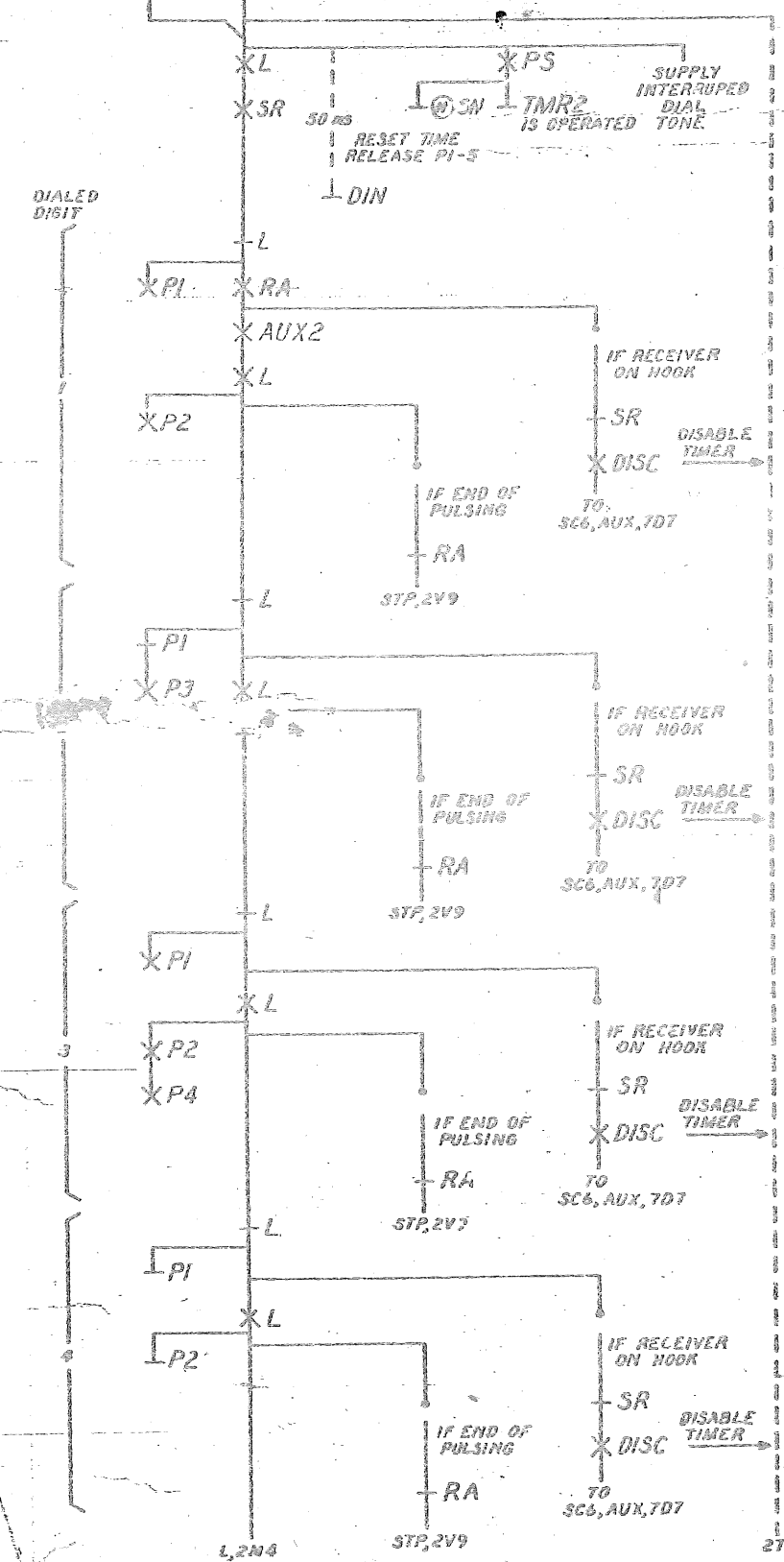
SC 1 LINE SEIZURE AND COIN PRESENT TEST WITH P3 RELEASED



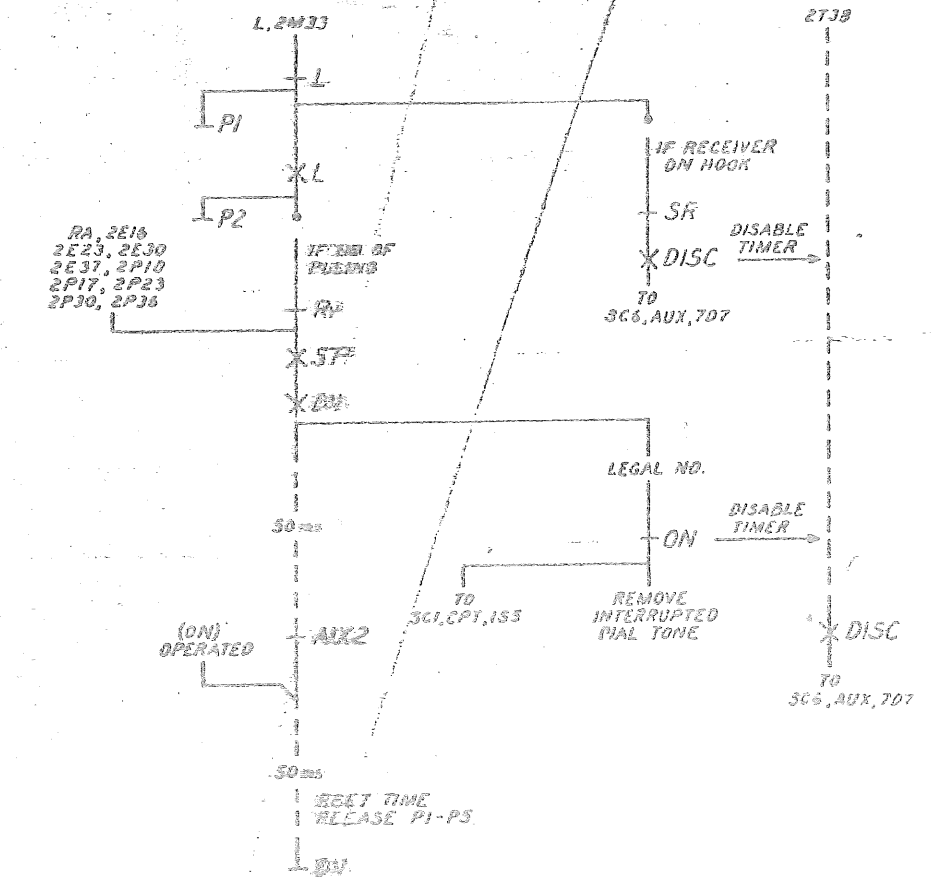
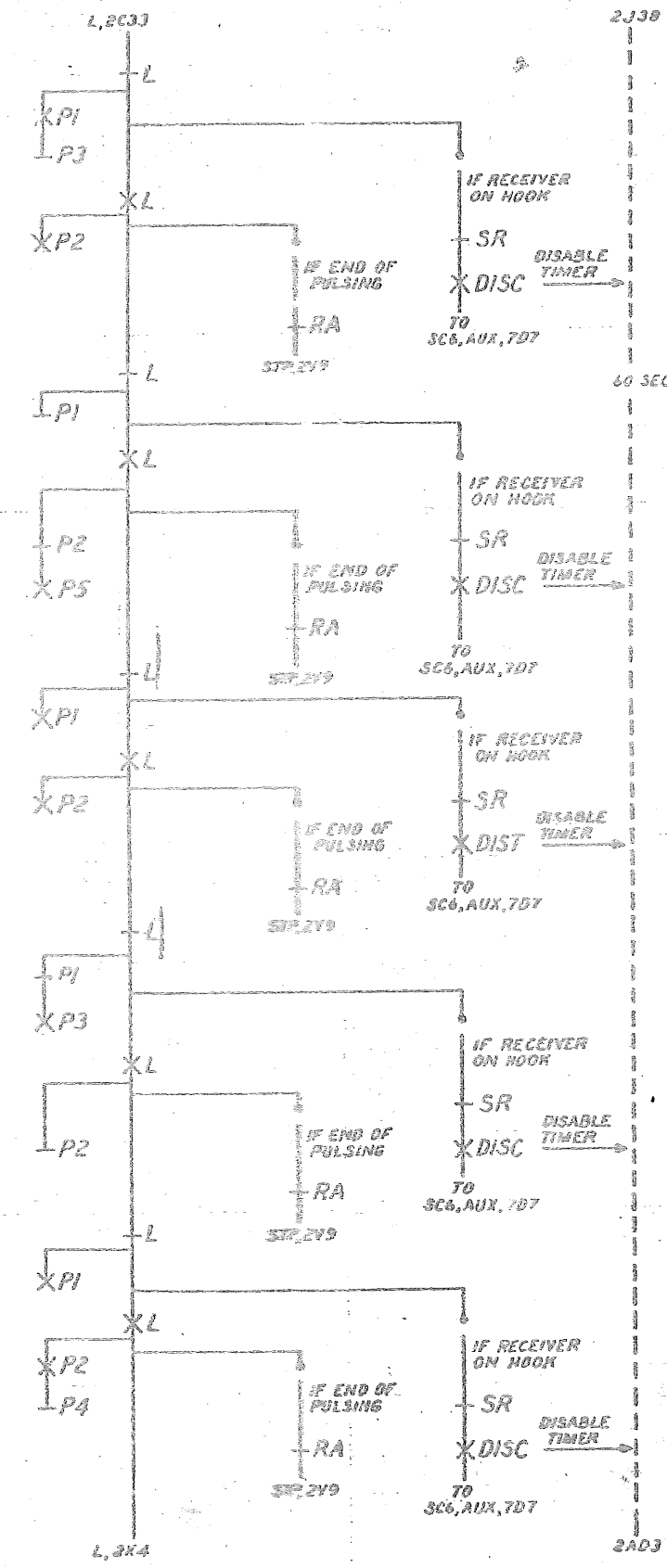
SD-1C297-01-EI

PART OF SC 2 DIAL PULSE RECEPTION

FROM
SC1, ON JAC5, 1U19
SC3, ON J24
SC4, 4W3
SC5, 6X3
ON OPERATED



DIALED
DIGIT

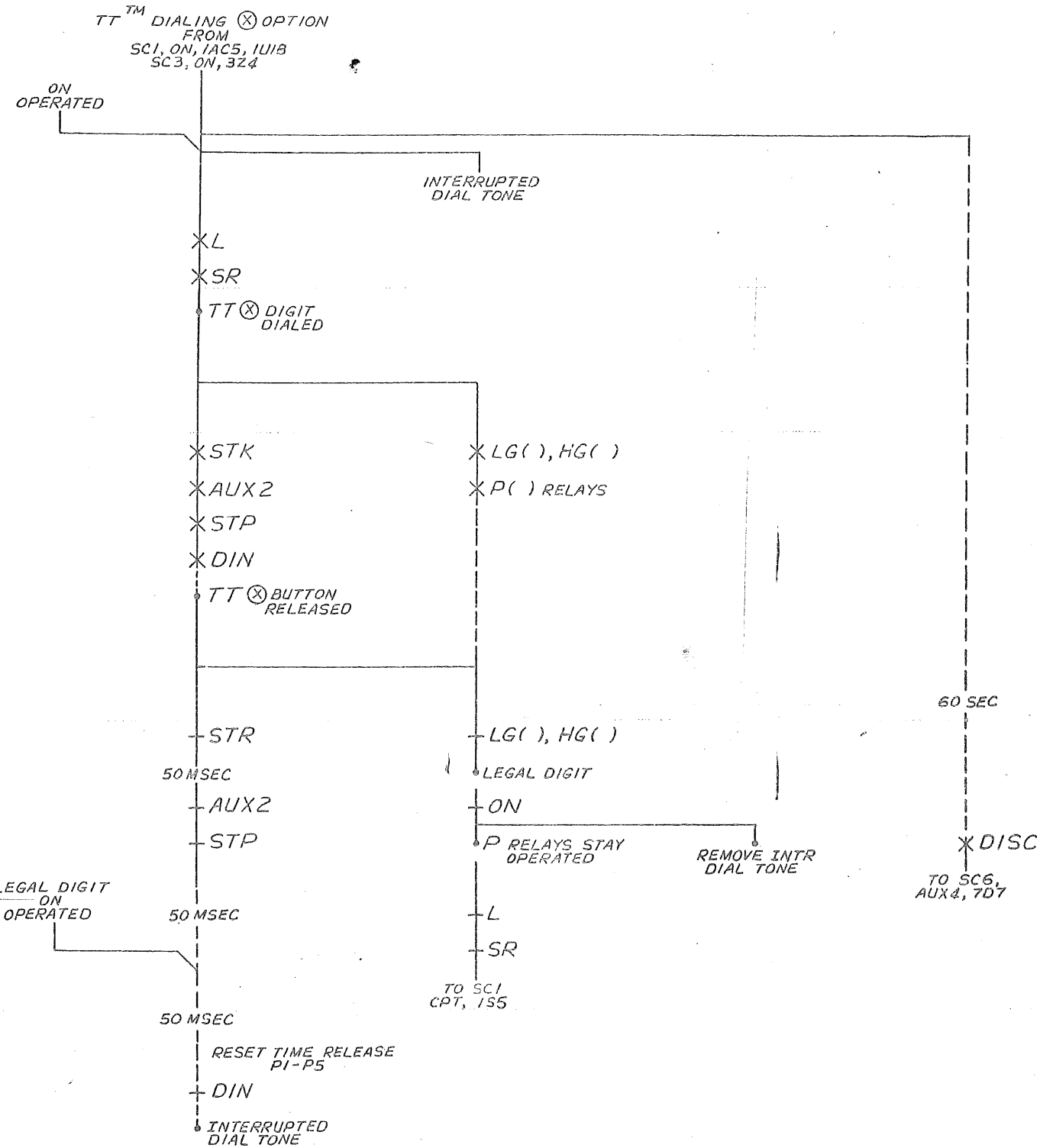


SD-1C297-01-E2

COIN STATION TEST LINE CIRCUIT
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SD-1C297-01-E2
65

A B C D E F G H J K L M N P Q R S T U V W X Y Z AA AB AC AD AE

PART OF SC 2



ISSUE
16BU

COIN STATION TEST LINE CIRCUIT

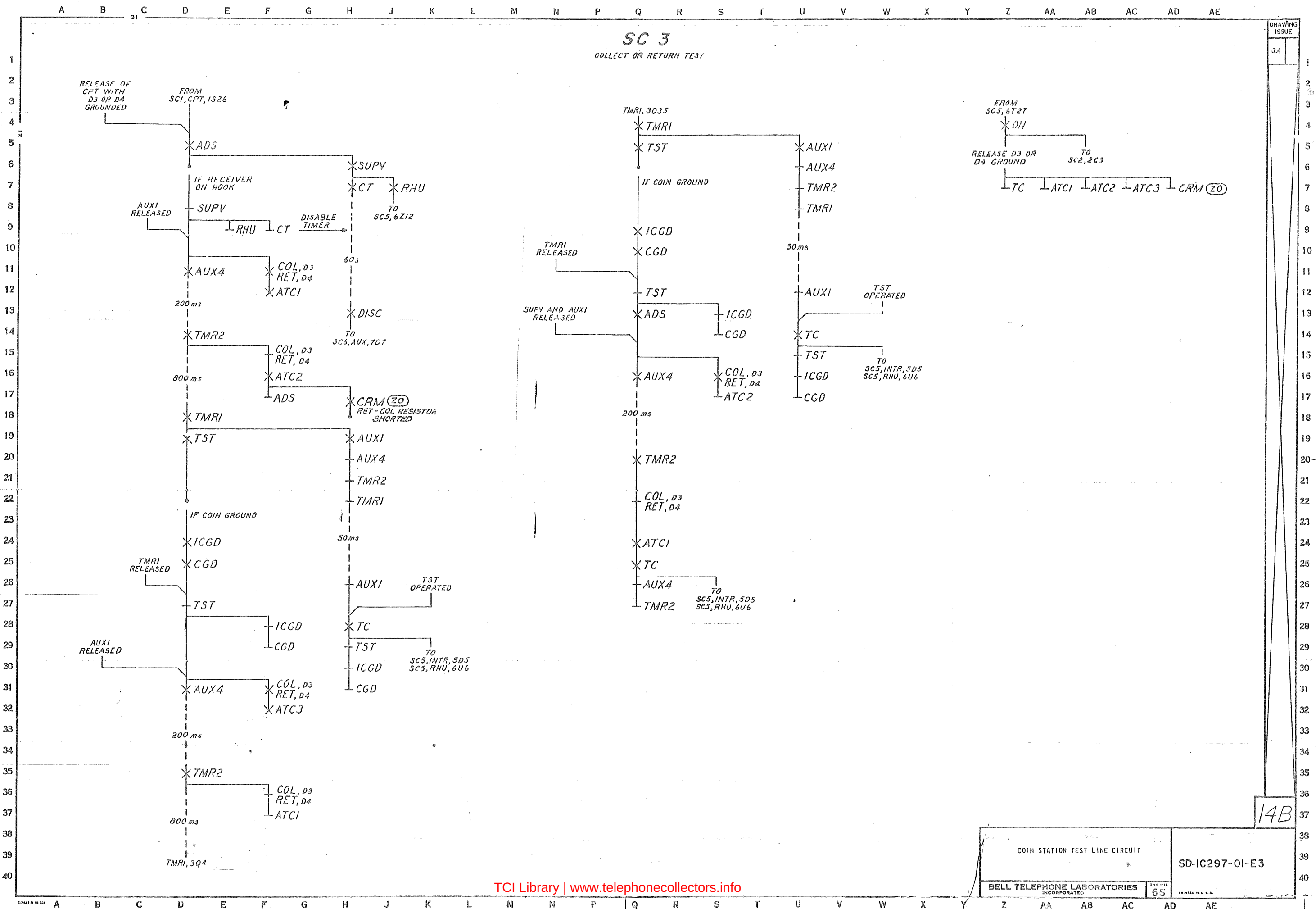
SD-1C297-01-E2A

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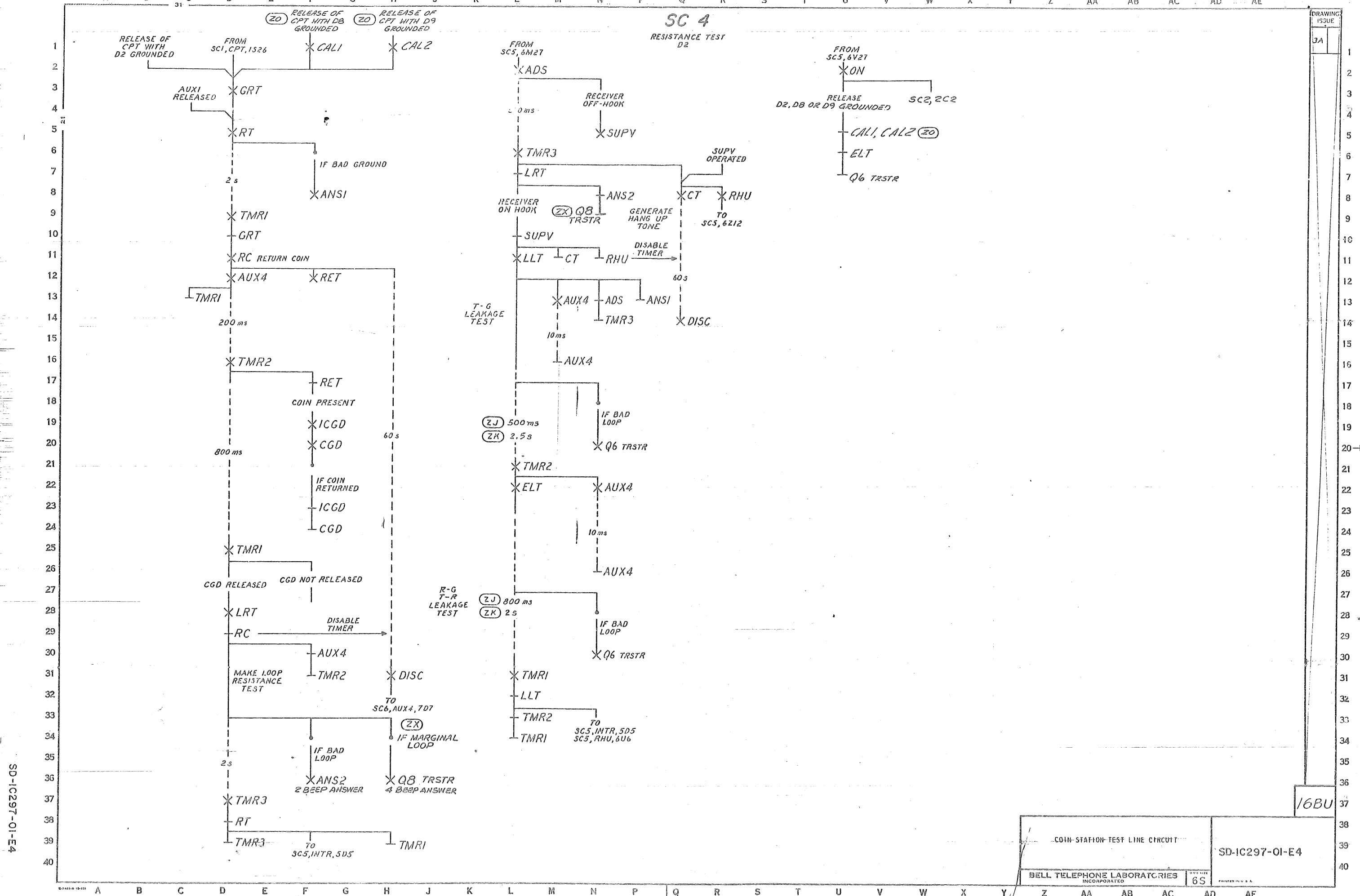
6S

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SD-IC297-01-E3

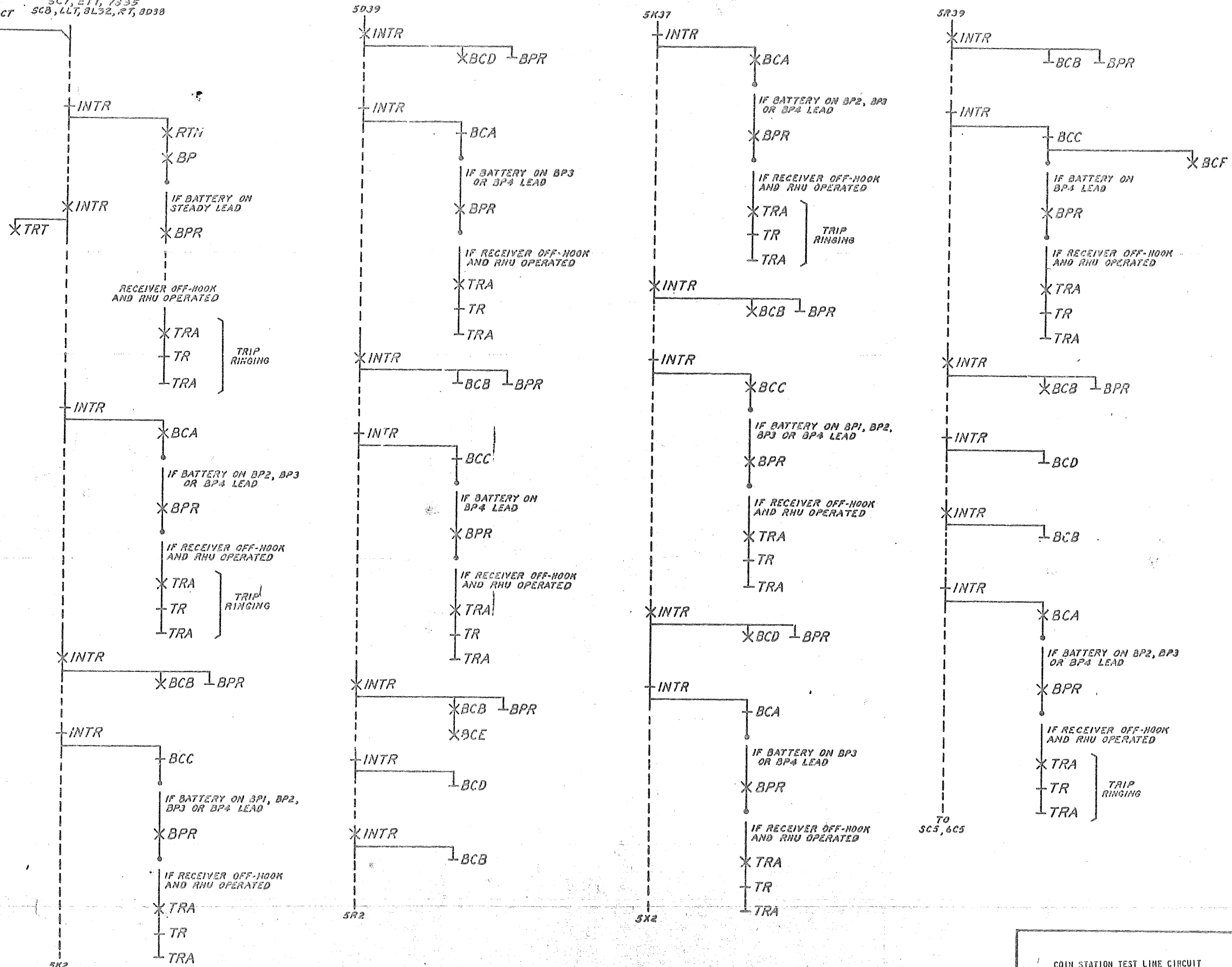


COIN STATION TEST LINE CIRCUIT		SD-IC297-01-E3	
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GROUND SUPPLIED
TO INTR (3)
RELEASE CONTACT

FROM
SC1, TMR3, IF25, TC, 3H28
3C3, TC, 3U14, 3Q25
SC4, RT, 4D38, LLT, 4L32
SC7, ETT, 7S35
SC8, LLT, 8L32, RT, 8D38



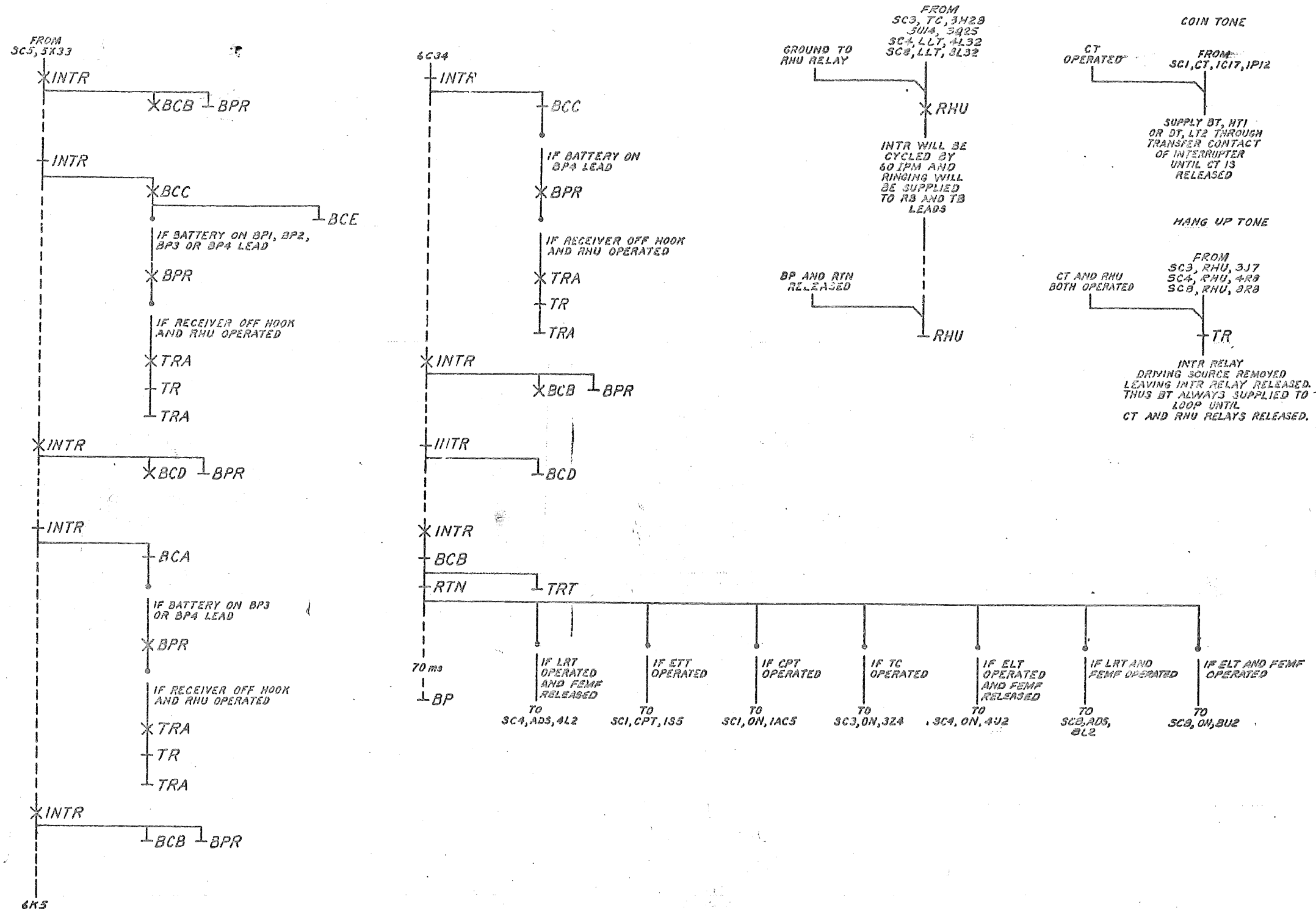
SD-1C297-01-E5

COIN STATION TEST LINE CIRCUIT

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SD-IC297-01-E5

PART OF SC 5 ANSWER GENERATING CIRCUIT



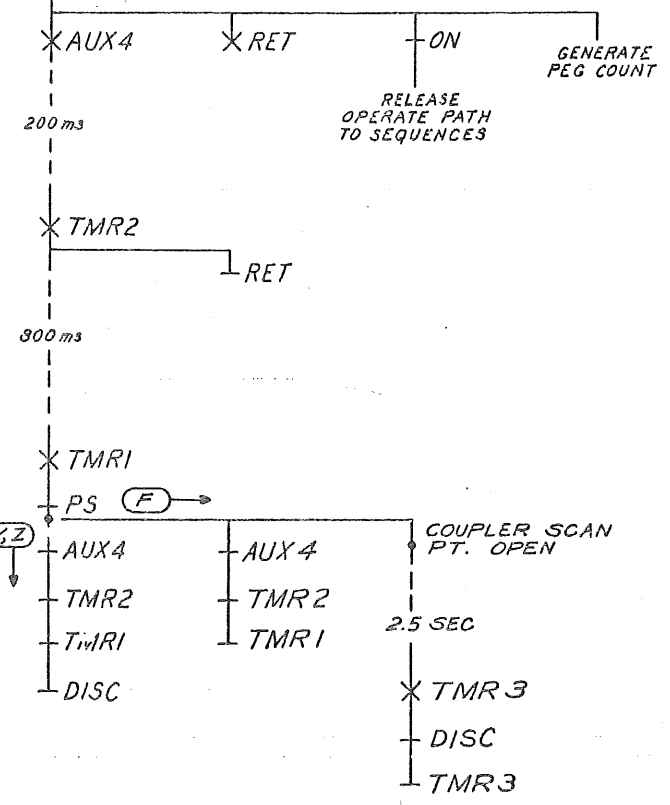
SD-10297-01-E6

13B

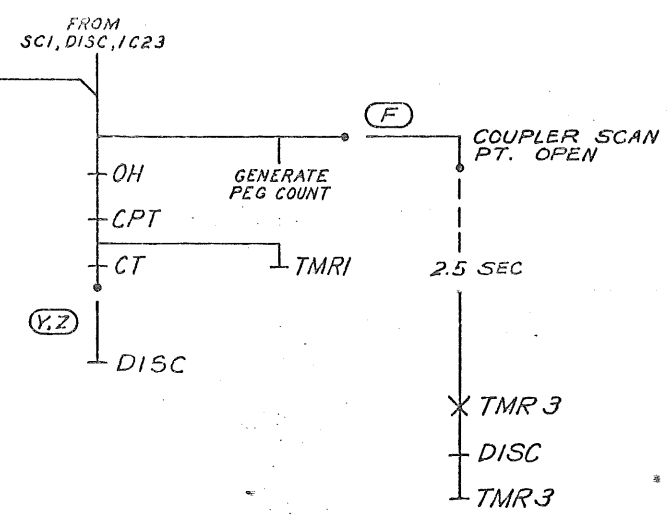
COTN STATION TEST LINE CIRCUIT		SD-10297-01-E6
BELL TELEPHONE LABORATORIES INCORPORATED	6S	PRINTED IN U.S.A.

SC 6
DISCONNECT
FROM
SCI, DISC, 1P18
SC2, DISC, 2G14,
2G22, 2G29, 2G36,
2R9, 2R16, 2R22,
2R29, 2R36, 2A88
2AD16, SC1, 4H32
SC3, DISC, 3H13
SC8, DISC, 8H32
SC7, DISC, 7W40

DISC
OPERATED



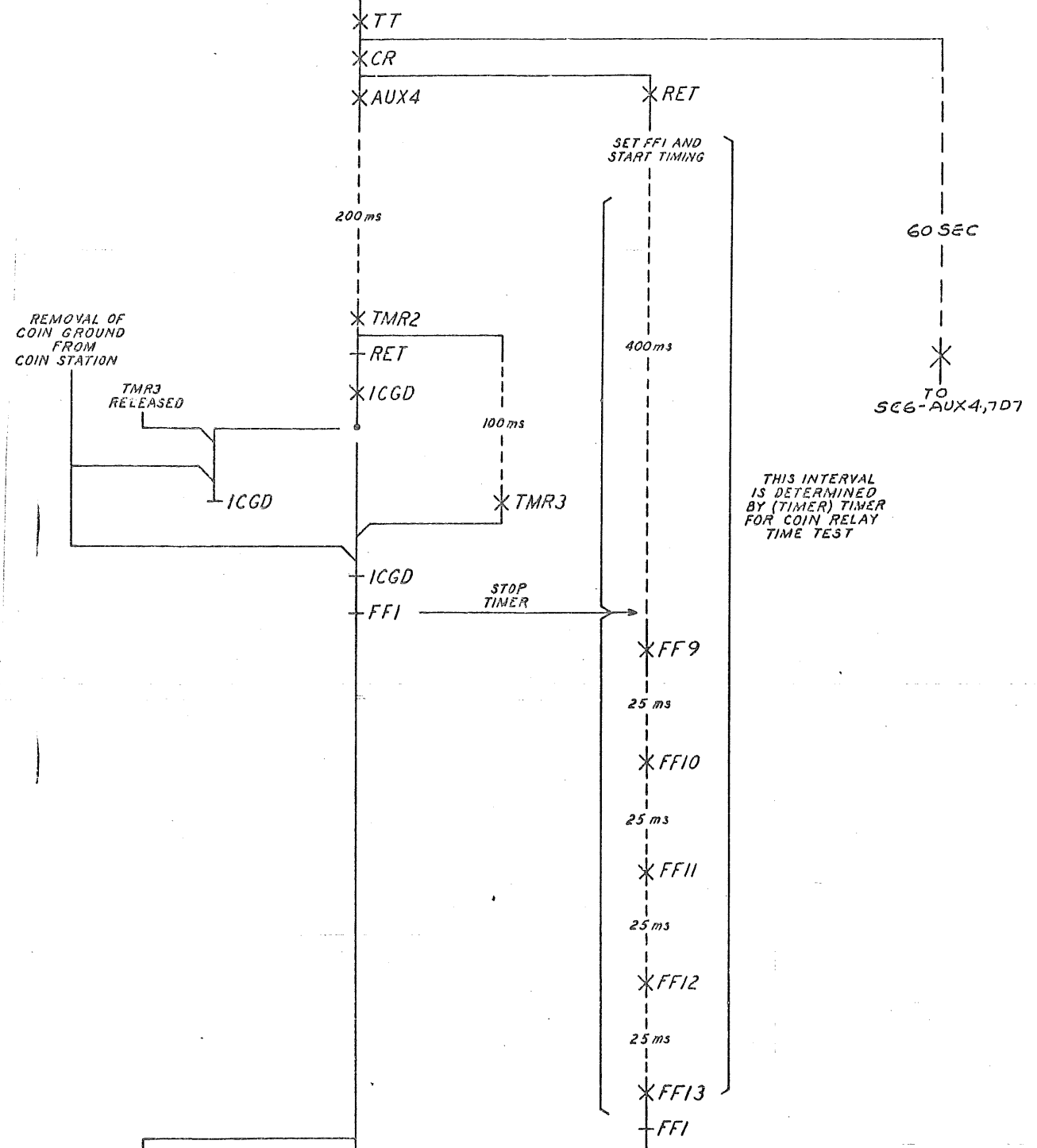
DISC
OPERATED



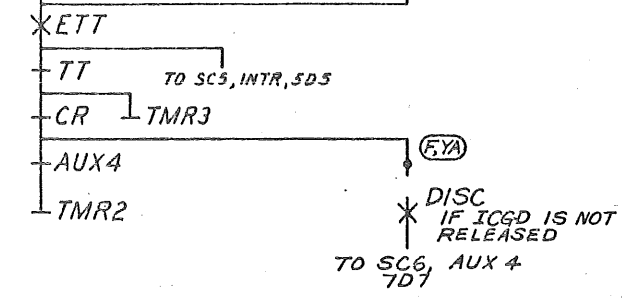
SC 7
TIME TEST
D5

RELEASE OF
CPT WITH
D5 GROUNDED

FROM
SCI, CPT, 1S26



SET ANSWER IN DR1-5 AS FOLLOWS:
NONE OF FF9-13 SET OPERATE DR1,
ONLY FF9 SET OPERATE DR2
FF9 AND FF10 OR FF9, FF10 AND FF11 SET
OPERATE DR3
FF9, FF10, FF11 AND FF12 SET OPERATE DR4
ALL FF9-13 SET OPERATE DR5



COIN STATION TEST LINE CIRCUIT

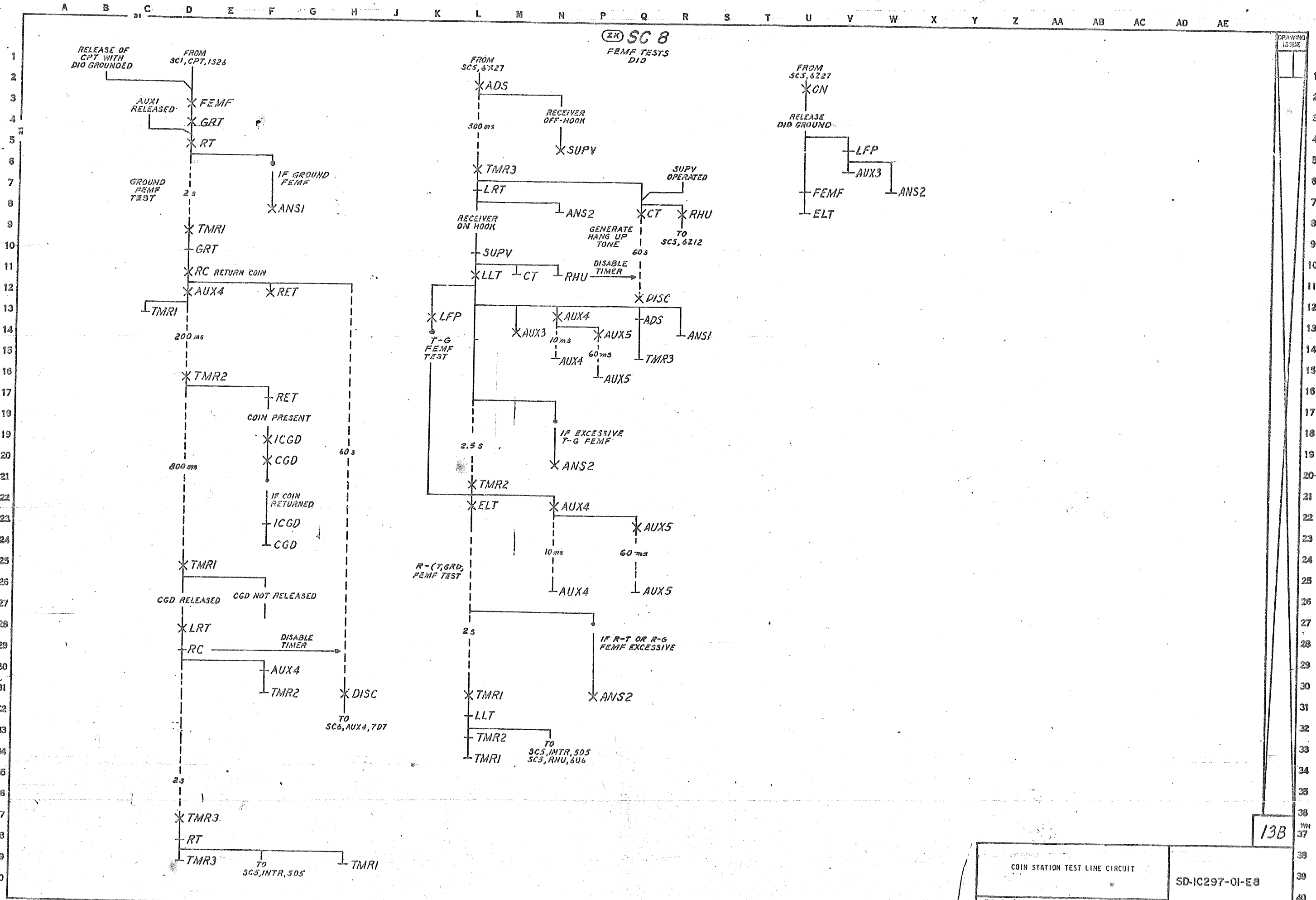
SD-IC297-01-E7

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SD-IC297-01-E7



SD-IC297-01-E8

13B

COIN STATION TEST LINE CIRCUIT	
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SD-IC297-01-E8

SD-IC297-01-F1

CIRCUIT REQUIREMENTS																		
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS
DESIG	CODE	OPT	APP FIG.	BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	AFTER SOAK MA	TEST MA	READJ MA		
RELAYS																		
1CGD	303C		1	1							1, 2	0	15	4.7	4.5			
												R	15	0.76	0.76			
ADS	AJ516		1	299					U(ADS)	GRD		0		41	39			
ANS1	1/2AK4		1	202			4B(GRT)		2L(ANS1)	BAT.		0		11.9	11.3	MOUNTED WITH (ANS2)		
ANS2	1/2AK4		1	202				2U(ANS2)		BAT.		0		11.9	11.3	MOUNTED WITH (ANS1)		
ATC1	1/2AK4		1	202			(ATC2)0		1L(ATC1)	GRD		0		11.9	11.3	MOUNTED WITH (ATC3)		
ATC2	AJ516		1	299			1(ATC2)		U(ATC2)	GRD		0		41	39			
ATC3	1/2AK4		1	202			11(ATC3)		1U(ATC3)	GRD		0		13	11.3	MOUNTED WITH (ATC1)		
AUX1	AG17		1	271B					U(AUX1)	GRD		0	18	9.3	8.8			
												H	18	1.7	1.6			
												R	18	0.8	1			
AUX2	AG33		1	305B			6(AUX2)		U(AUX2)	GRD		0	30	14.8	14			
												H	30	2.7	2.3			
												R	30	1.4	1.5			
AUX3	1/2AK4		1	202			2(AUX3)		1L(AUX3)	GRD		0		13	11.3	MOUNTED WITH (AUX4)		
AUX4	1/2AK4		1	202					1U(AUX4)	GRD		0		11.9	11.3	MOUNTED WITH (AUX3)		
AUX5	1/2AK10 ZK	3	7					2L(AUX5)		BAT		0		16.3	15.5	MOUNTED WITH (CRM)		
BCA	1/2AK4		1	202					1L(BCA)	GRD		0		11.9	11.3	MOUNTED WITH (BPR)		
BCB	AF54		1	25					U(BCB)	GRD		0		30.5	29			
BCC	AF54		1	25					U(BCC)	GRD		0		30.5	29			
BCD	AF112		1	268			2(BCD)		U(BCD)	GRD		0		38.5	33.5			
BCE	1/2AK4		1	202			1(BCE)		1L(BCE)	GRD		0		13	11.3	MOUNTED WITH (BCF)		
BCF	1/2AK4		1	202			11(BCF)		1U(BCF)	GRD		0		13	11.3	MOUNTED WITH (BCE)		
BP	AG17		1	271B			11b(RTN)		U(BP)	GRD		0	18	9.3	8.8			
												H	18	1.7	1.6			
												R	18	0.8	1			
BPR	1/2AK4		1	202				2U(BPR)		BAT.		0		11.9	11.3	MOUNTED WITH (BCA)		
CAL1	1/2 AK4		4	202					2L(CAL1)	GRD		0		11.9	11.3	MOUNTED WITH (CAL2)		
CAL2	1/2 AK4		4	202					1U (CAL2)	GRD		0		11.9	11.3	MOUNTED WITH (CAL1)		
CG	303C		1	1							1, 2	0	15	4.7	4.5			
												R	15	1.3	1.46			
CGA	1/2 AK4		1	202					1U(CGA)	GRD		0		11.9	11.3	MOUNTED WITH (STP)		
CGD	1/2 AK4		1	202					2L(CGD)	BAT.		0		11.9	11.3	MOUNTED WITH (RC)		
COL	1/2 AK4		1	202			(TC)0		1L(COL)	GRD		0		11.9	11.3	MOUNTED WITH (RET) WDG ALONE		
									1L(COL)	GRD		0		24	22.6	IN PAR WITH (AUX 4)		
CPT	AJ513		1	414					U(CPT)	GRD		0		105	100			
CR	1/2AK30		1	202					2L(CR)	GRD		0		23.5	22	MOUNTED WITH (RTN)		
CRM	1/2AK10		4	7					1U(CRM)	GRD		0				MOUNTED WITH (AUX 5)		
CT	1/2 AK4		1	202					1L(CT)	GRD		0		11.9	11.3	MOUNTED WITH (RHU)		
D1N	AG33		1	305B					U(D1N)	GRD		0	30	14.7	14			
												H	30	2.5	2.3			
												R	30	1.3	1.5			
D1SC	AJ516		1	299					U(D1SC)	GRD		0		41	39			
ELT	1/2AK4		1	202			2(ELT)		1L(ELT)	GRD		0		13	11.3	MOUNTED WITH (TST)		
ETT	1/2AK4		1	202			1(ETT)	2L(ETT)	1L(ETT)	B/G	3	0		13	11.3	MOUNTED WITH (TT)		
FEMF	1/2AK4																	
F	AF50B	Z	1	11					U(F)	L(F)	B/G		0		80	72		
FEMF	1/2AK4	ZK	3	202				2U(FEMF)		BAT		0		11.9	11.3	MOUNTED WITH (LFP)		

CIRCUIT REQUIREMENTS																	DRAWING ISSUE	
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS
DESIG	CODE	OPT	APP FIG.	BSP FIG.	CONT PRES	ARM. T.VL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	AFTER SOAK MA	TEST MA	READJ MA		
GRT	1/2AK4		1	202			9B(RT) 3B(TMR1)		1L(GRT)	GRD			0	11.9	11.3	MOUNTED WITH (RTT)		
HG1	295A	X	1								4		C R	33 3.6				
HG2	295A	X	1								4		O R	33 3.6				
HG3	295A	X	1								4		O R	33 3.6				
INTR	AJ500		1	226					U(INTR)	GRD			0	17.9	17			
L	292A		1	1							1,2	P P P S T	O NO H O O	36 9.5 7.5 4.5 26 22	18 10 7.2 4.3 25 21			
LPF	1/2AK4	ZK	3	202						BAT			0	11.9	11.3	MOUNTED WITH (FEMF)		
LG1	295A	X	1								4		O R	33 3.6				
LG2	295A	X	1								4		O R	33 3.6				
LG3	295A	X	1								4		O R	33 3.6				
LG4	295A	X	1								4		O R	33 3.6				
LLT	AG43	K	1	348			3(LLT)		U(LLT)	GRD			O H R	36 36 36	18 3.8 1.8	15.5 3.3 2		
LLT	AJ516	J	1	299			3(LLT)		U(LLT)	GRD			O	41	39			
LRT	AJ516		1	299					U(LRT)	GRD			O	41	39			
OH	AJ516		1	299			(DISC)		U(OH)	GRD			0	41	39			
ON	AJ513		1	414					U(ON)	GRD			0	105	100			
P1	AJ516		1	299			9(P2), 1(P2)		U(P1)	GRD			0	41	39			
P2	AJ516		1	299			9(P2), 1(P2)		U(P2)	GRD			0	41	39			
P3	AJ516		1	299			6(P3)		U(P3)	GRD			0	45	39			
P4	AJ516		1	299			8(P4)		U(P4)	GRD			0	45	39			
P5	AJ516		1	299			4(P5)		U(P5)	GRD			0	45	39			
PS	AJ516		1	299					U(PS)	GRD			0	41	39			

ISSUE

14B

COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

SD-IC297-01-F1

CIRCUIT REQUIREMENTS

[illegible]

TEST NOTES: (CONT)

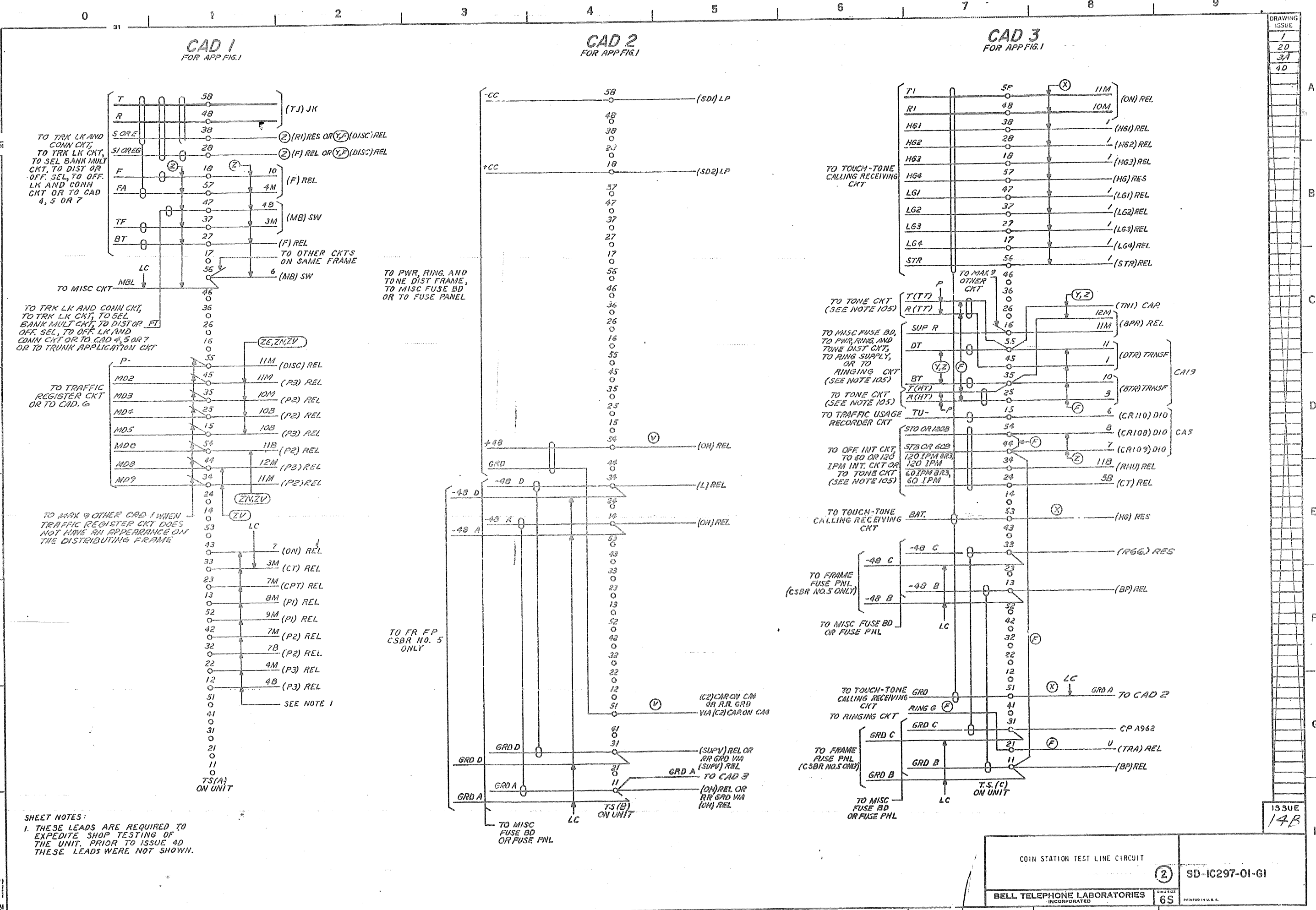
5. ARMATURE BACK TENSION - MAXIMUM 80 GRAM READJUST, 85 GRAM TEST.

STEP	PROCEDURE	INDICATION	CHECK
A	CLOSE OPERATE KEY	LAMP LIGHTED	CLOSURE OF LOAD CONTACTS.
B	CLOSE (RLS) KEY, THEN OPEN OPERATE KEY	LAMP EXTING- QUISHED	OPEN OF LOAD CONTACTS WITH (RLS) CURRENT
C	OPEN (RLS) KEY		

SD-1C297-01-F2

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ISSUE
12B



SHEET NOTES:
1. THESE LEADS ARE REQUIRED TO EXPEDITE SHOP TESTING OF THE UNIT. PRIOR TO ISSUE 4D, THESE LEADS WERE NOT SHOWN.

COIN STATION TEST LINE CIRCUIT

2

SD-IC297-01-G1

BELL TELEPHONE LABORATORIES

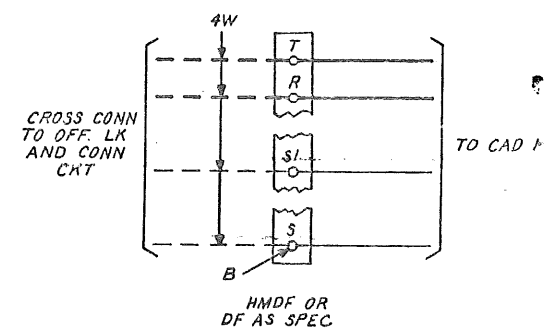
6S

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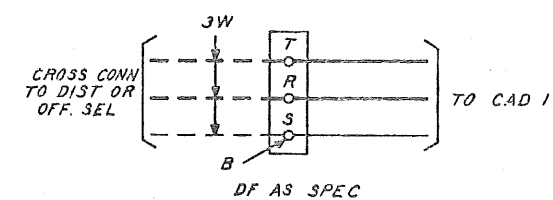
ISSUE
14B

SD-IC297-01-G1

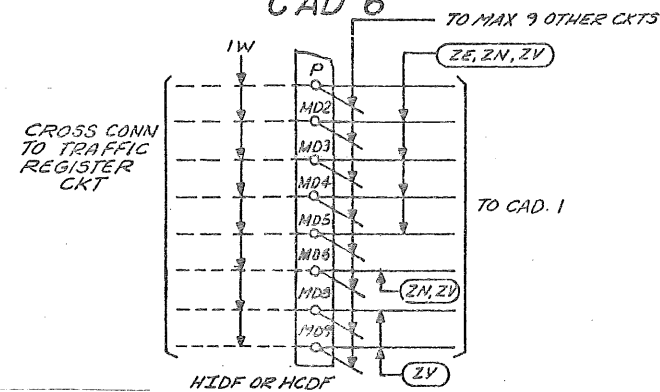
CAD 4



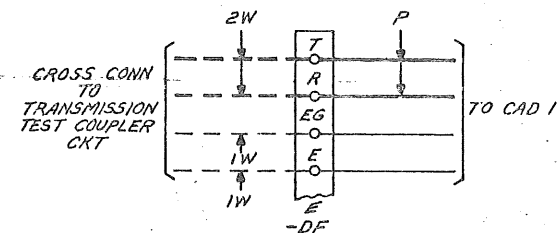
CAD 5



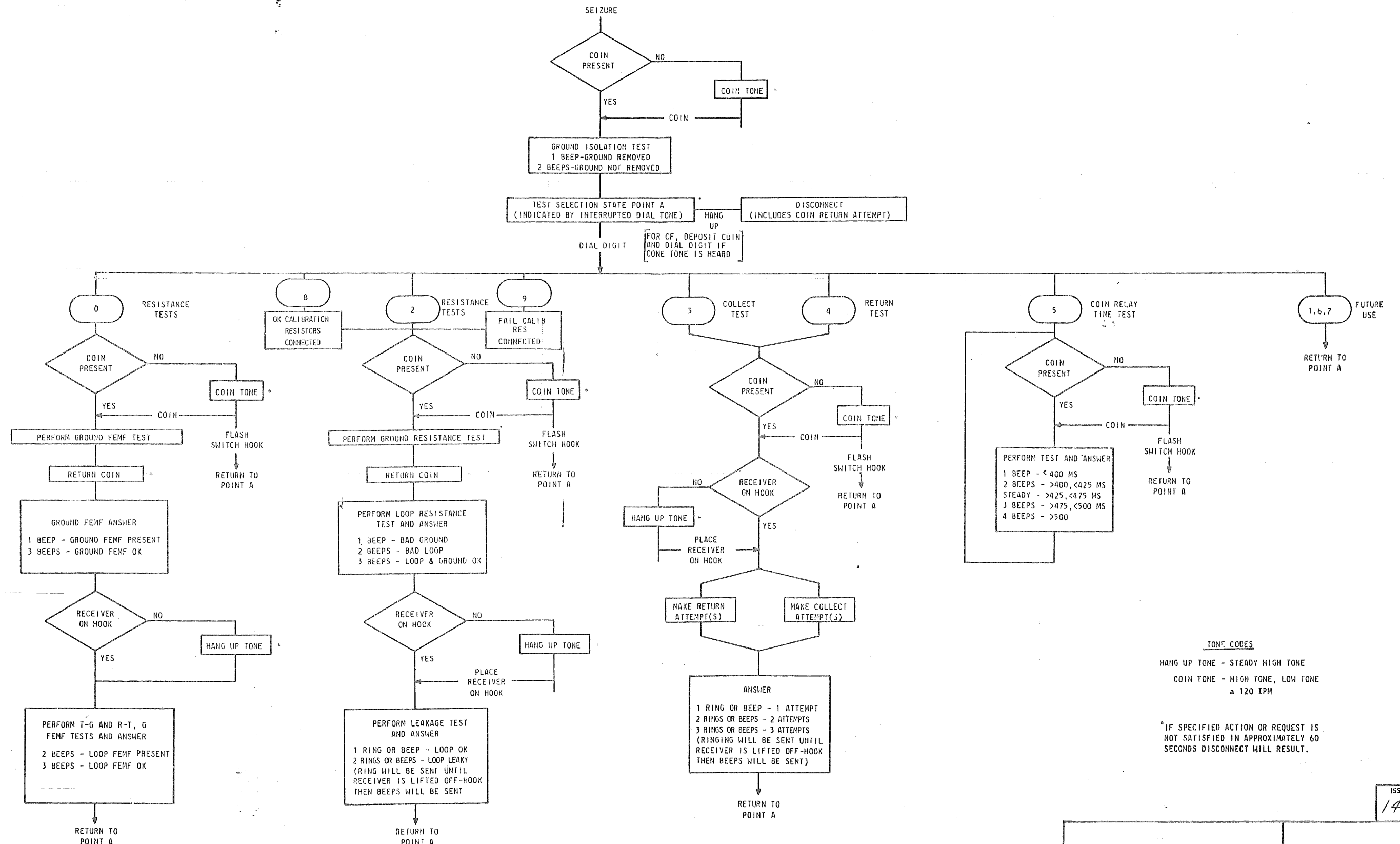
CAD 6



CAD 7



BD 1 BASIC SEQUENCING



NOTE CODES
HANG UP TONE - STEADY HIGH TONE
COIN TONE - HIGH TONE, LOW TONE
a 120 IPM

*IF SPECIFIED ACTION OR REQUEST IS
NOT SATISFIED IN APPROXIMATELY 60
SECONDS DISCONNECT WILL RESULT.

ISSUE
14B

COIN STATION TEST LINE CIRCUIT
BELL TELEPHONE LABORATORIES
INCORPORATED
SD-IC297-01-HI
PRINTED IN U.S.A.

CPS A962

CONSTANT CURRENT SOURCE

COMPONENT LIST

DIODE

DESIG	CODE
CR1	808G
CR2	813AG
CR3	813AG
CR4	813AG
CR5	813AG

POTENTIOMETER

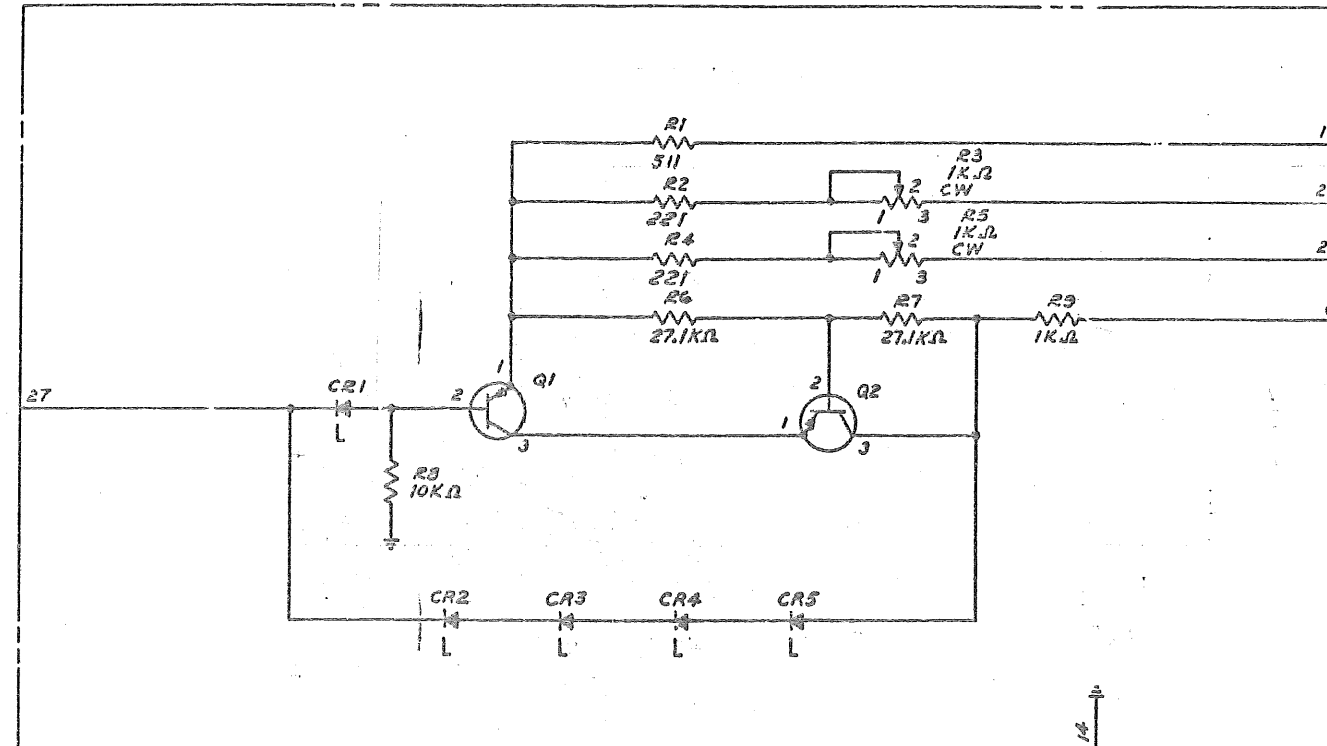
DESIG	CODE
[2]R3,R5	KS-16866,L11, 1k Ω

RESISTOR

DESIG	CODE
R1	KS-20810,L1A,511 Ω
[2]R2,R4	KS-20810,L1A,221 Ω
[2]R6,R7	KS-20810,L1A,27.1K Ω
R8	KS-16266,L1A,10K Ω
R9	KS-20289,L1C,1K Ω

TRANSISTOR

DESIG	CODE
[2]Q1,Q2	9A E/W HEAT SINK



RECORD OF CHANGES				
DWG	PREV	STD	MD	SEE
ISS	FURN			NOTE
138	426AG	813AG		3

MANUFACTURING REFERENCES	
CATEGORY	NO.
CIRCUIT PACK CODE	A962
CONNECTOR ON FRAME	9058

SYMBOL
SHOWN IN DETAIL ON F5

- NOTES:
- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
 - HORIZONTAL MTG CTR = 1.2 INCHES.
 - DIODES CR2 - CR5 WAS CHANGED DUE TO
COST SAVINGS AND PART AVAILABILITY.

SD-IC297-01-J1

CPS A962

13B

COIN STATION TEST LINE CIRCUIT

2

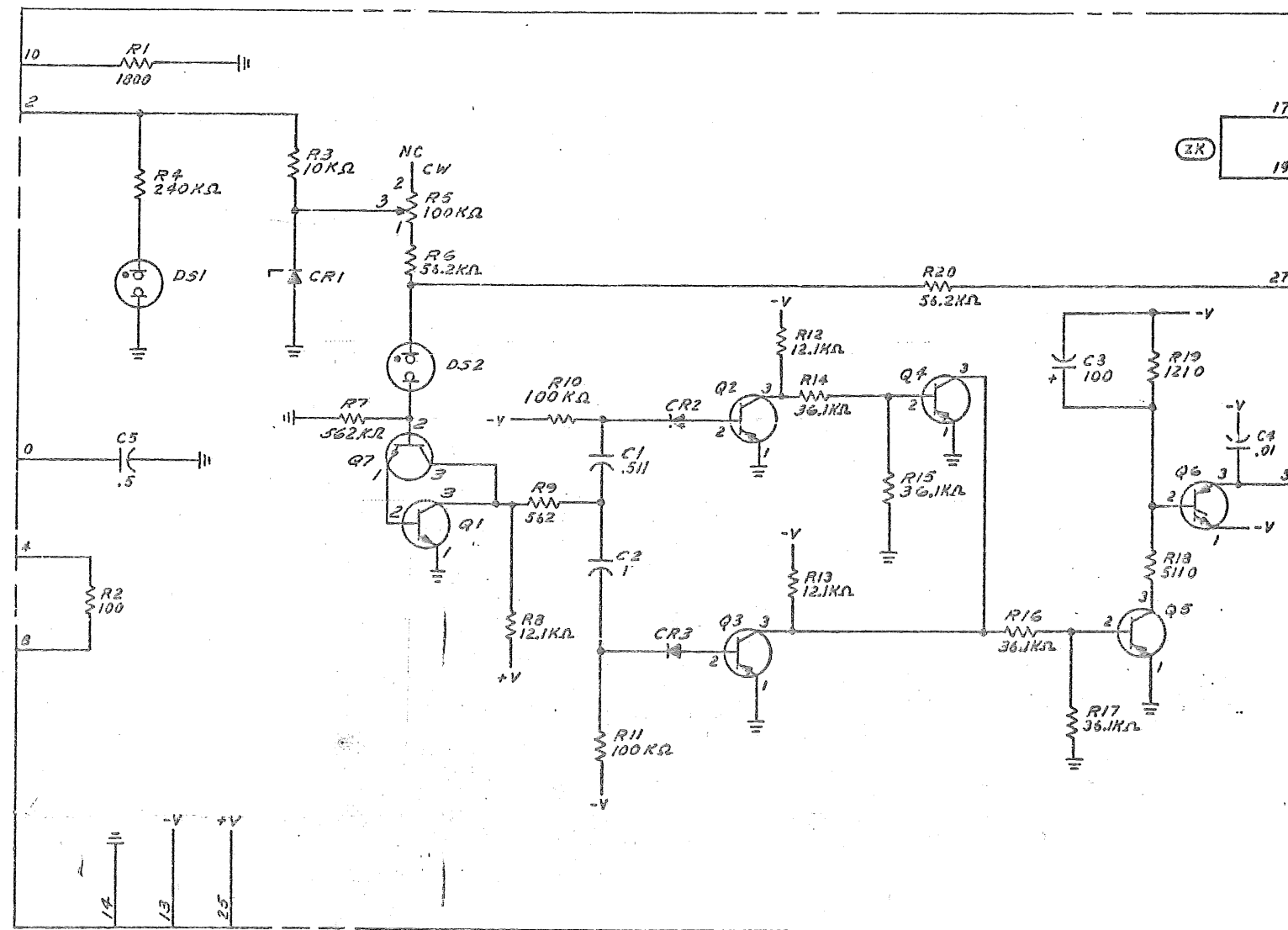
SD-IC297-01-J1

BELL TELEPHONE LABORATORIES
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65

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Q1	66J
[4]Q2-Q5	51A
Q6	127A
Q7	66J

[illegible]

1. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.

2. HORIZONTAL MTG CTR = .8 INCH.

SD-1C297-01-J2

CPS A963
CPS A963B

132UG
13B

COIN STATION TEST LINE CIRCUIT



SD-1C297-01-J2

BELL TELEPHONE LABORATORIES
INCORPORATED

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CPS A964

LATCHING TRANSISTOR INTERFACE

COMPONENT LIST

CAPACITOR

DESIG	CODE
C1	5946, .01
[5] C2.0-C2.4	600A
[5] C3.0-C3.4	KS-16048, L4, .01
C4	KS-16048, L4, .01
[ZM] C5	KS-16048, L4, .01

DIODE

DESIG	CODE
[5] CR1.0-CR1.4	458C
[5] CR2.0-CR2.4	(ZA) 446F
[5] CR2.0-CR2.4	(ZB) 458A
CR3	(ZA) 446F
CR3	(ZB) 458A
CR4	(ZF) 459B
CR4	(ZG) 804H
[5] CR5.0-CR5.4	(ZA) 446F
[5] CR5.0-CR5.4	(ZB) 458A
[5] CR6.0-CR6.4	458C
CR7	458C

INDUCTOR

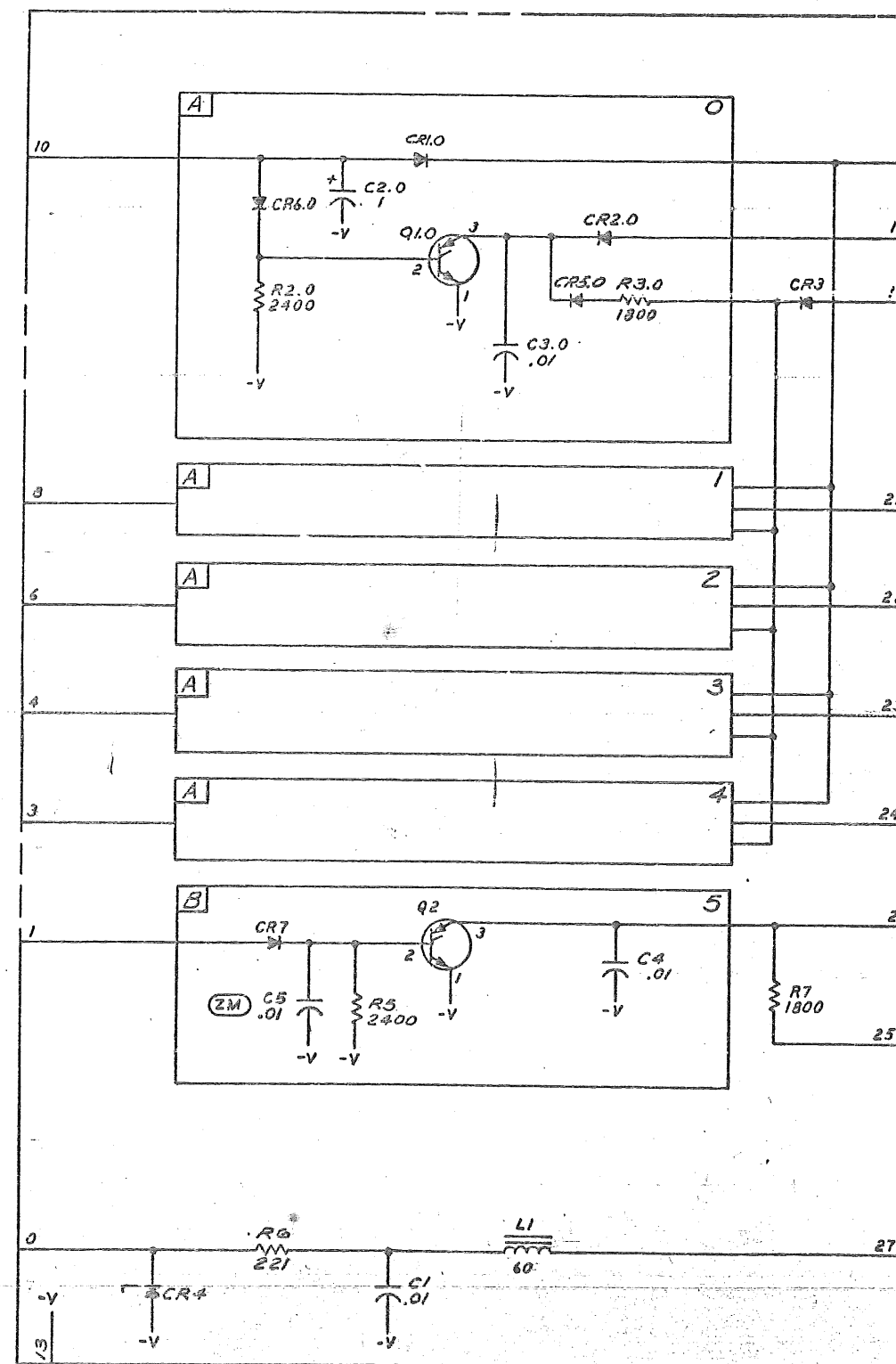
DESIG	CODE
L1	AWB16

RESISTOR

DESIG	CODE
[5] R2.0-R2.4, R5	KS-20616, L1A, 2400
[5] R3.0-R3.4	KS-20616, L1A, 2400
R6	KS-20289, L6C, 1800
R7	KS-20810, L1A, 221
	KS-20289, L6C, 1800

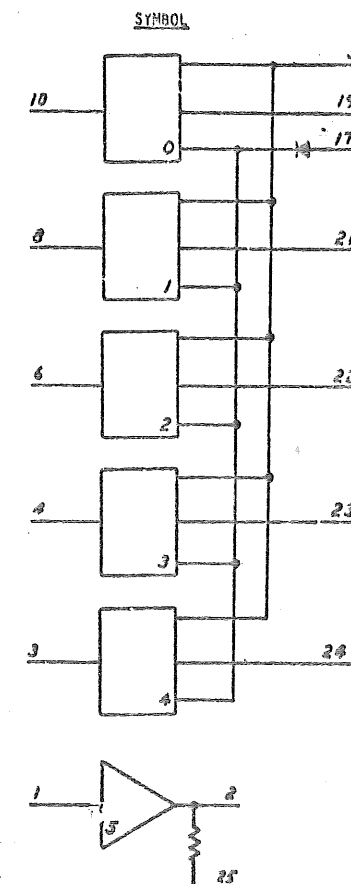
TRANSISTOR

DESIG	CODE
[5] Q1.0-Q1.4	127A
Q2	127A



RECORD OF CHANGES				
DWG	PREV	STD	MD	SEE
ISS	FURN			NOTE
88	ZF	ZG	ZF	
13B	426AT	804H		3
	ZG	ZM	ZG	

MANUFACTURING REFERENCES	
CATEGORY	NO.
CIRCUIT PACK CODE	A964
CONNECTOR ON FRAME	905B



- NOTES:
- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
 - HORIZONTAL MTG CTR = .6 INCH.
 - DIODE CR4, ZG OPTION, WAS CHANGED DUE
TO COST SAVINGS AND PART AVAILABILITY.

CPS A964

COIN STATION TEST LINE CIRCUIT

BELL TELEPHONE LABORATORIES

INCORPORATED

SD-IC297-01-J3

63

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(YB) CPS A965 (MFR DISC)

THRESHOLD DETECTOR AND INTERFACE LOGIC

COMPONENT LIST

CAPACITOR

DESIG

CODE

[2] C1, C2	594G, .01, .1
C3	600A
C6	KS-16390, L10, 10
C7	606C
C8	KS-16048, L4, .01

DIODE

DESIG

CODE

[2] CR5, CR6	804H
CR7	459B
CR9	459AF
CR10	459B
CR11	458C

RESISTOR

DESIG

CODE

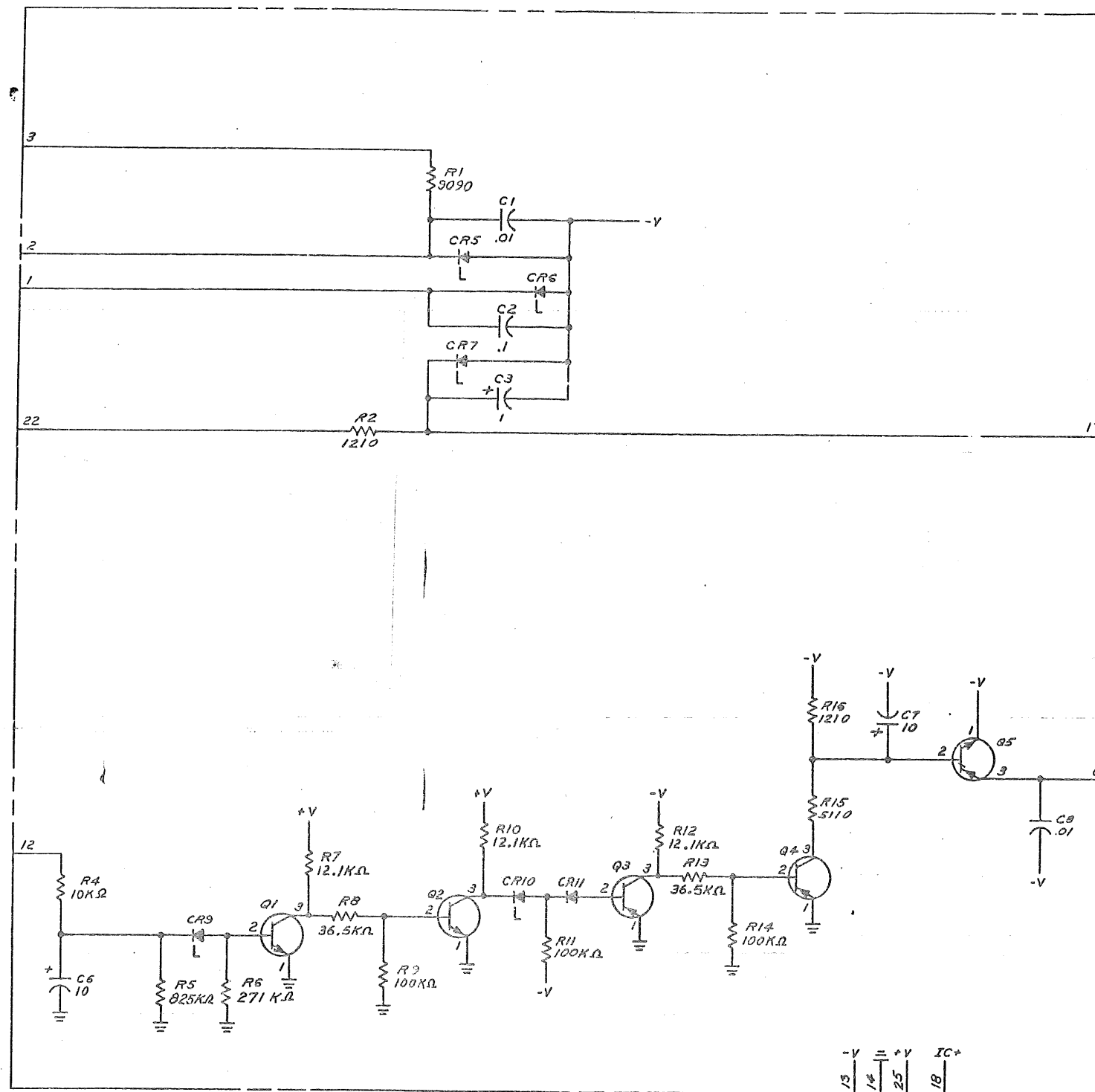
R1	KS-20616, L1A, 9090
R2	KS-20810, L1A, 1210
R4	KS-20810, L1A, 10KΩ
R5	KS-20616, L1A, 825KΩ
R6	KS-20616, L1A, 271KΩ
[3] R7, R10, R12	KS-20616, L1A, 12.1KΩ
[2] R8, R13	KS-20616, L1A, 36.5KΩ
[3] R9, R11, R14	KS-20616, L1A, 100KΩ
R15	KS-20616, L1A, 5110
R16	KS-20616, L1A, 1210

TRANSISTOR

DESIG

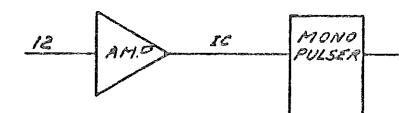
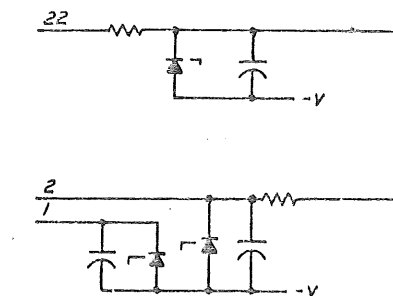
CODE

Q1	66J
Q2	66J
[2] Q3, Q4	51A
Q5	127A



MANUFACTURING REFERENCES	
CATEGORY	NO.
CIRCUIT PACK CODE	A965
CONNECTOR ON FRAME	9058

SYMBOL



NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- HORIZONTAL MTG CTR = .3 INCHES.
- DIODES CR5, CR6 & CR9 WERE CHANGED
DUE TO COST SAVINGS AND PART
AVAILABILITY.

RECORD OF CHANGES				
DWG	ISS	PREV	FURN	SEE
138				NOTE
138			ZJ	
138		813AF	426M	3
138		804H	426AT	3

CPS A965

16BU

COIN STATION TEST LINE CIRCUIT

(2)

SD-1C297-01-J4

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CPS A966
IC+ POWER SUPPLY AND
120 CPS CLOCK

COMPONENT LIST

CAPACITOR

DESIG	CODE
C1	601C
C2	594G .001
C3	594G .01
C4	KS-16048, L4 .01

DIODE

DESIG CODE

[5] CR1-CR5	813B
CR6	459B
[2] CR7, CR8	458C

POTENTIOMETER

DESIG CODE

R2	KS-19646, L2A, 500
----	--------------------

RESISTOR

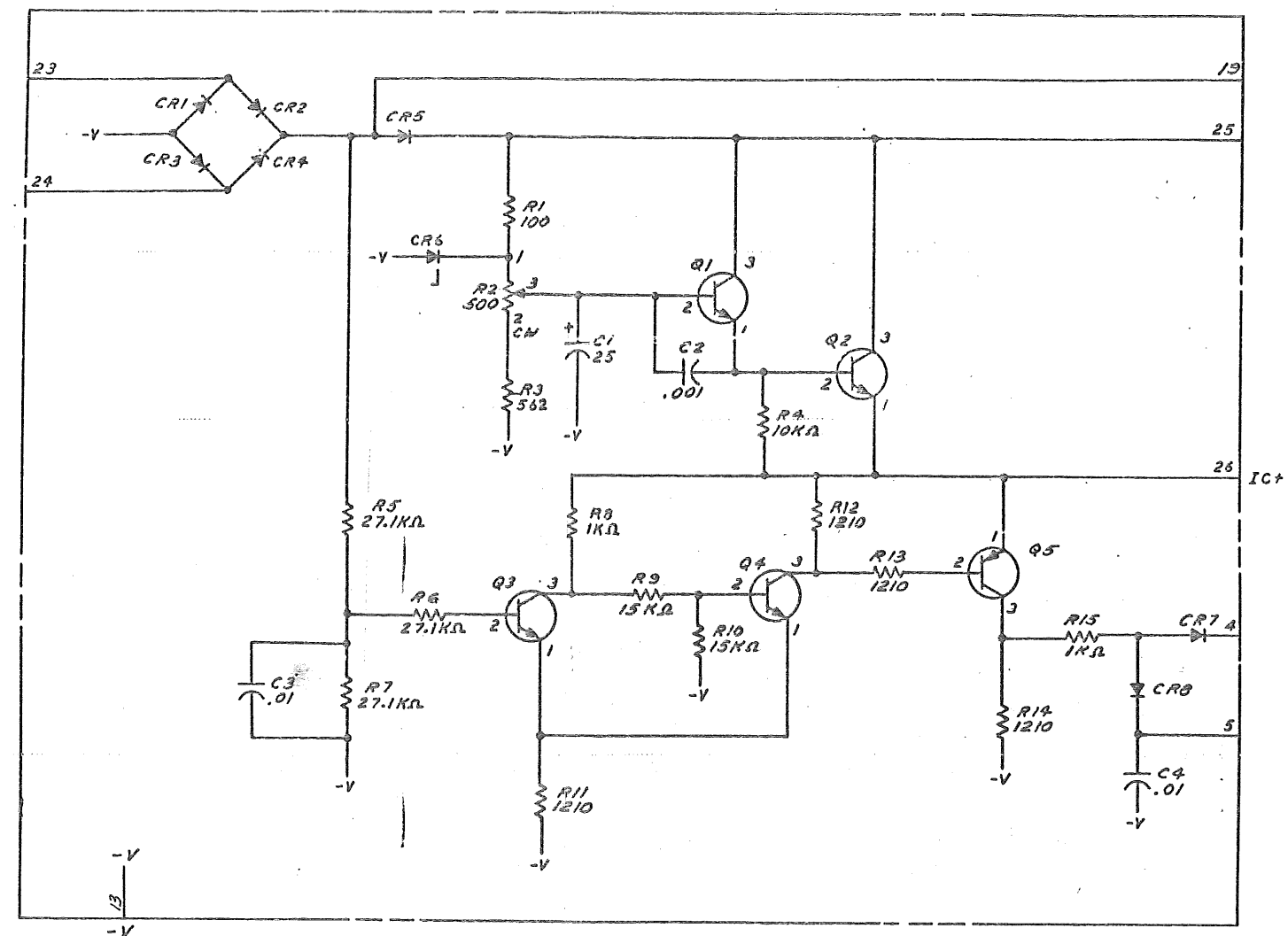
DESIG CODE

R1	KS-20616, L1A, 100
R3	KS-20616, L1A, 562
R4	KS-20616, L1A, 10K Ω
[3] R5-R7	KS-20616, L1A, 27.1K Ω
[2] R8, R15	KS-20616, L1A, 1K Ω
[2] R9, R10	KS-20616, L1A, 15K Ω
[4] R11-R14	KS-20616, L1A, 1210

TRANSISTOR

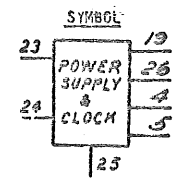
DESIG CODE

[3] Q1, Q3, Q4	66J
Q2	20L E/W HEAT SINK
Q5	51A



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE	A966
CONNECTOR ON FRAME	905B



NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- HORIZONTAL MTG CTR $\approx$ 1.2 INCH.
- DIODE CR1 - CR5 WERE CHANGED DUE TO
COST SAVINGS AND PART AVAILABILITY.

RECORD OF CHANGES				
DWG ISS	PREV FURN	STD	MD	SEE NOTE
13B	426A	813B		1

CPS A966

13B

COIN STATION TEST LINE CIRCUIT

2

SD-IC297-01-J5

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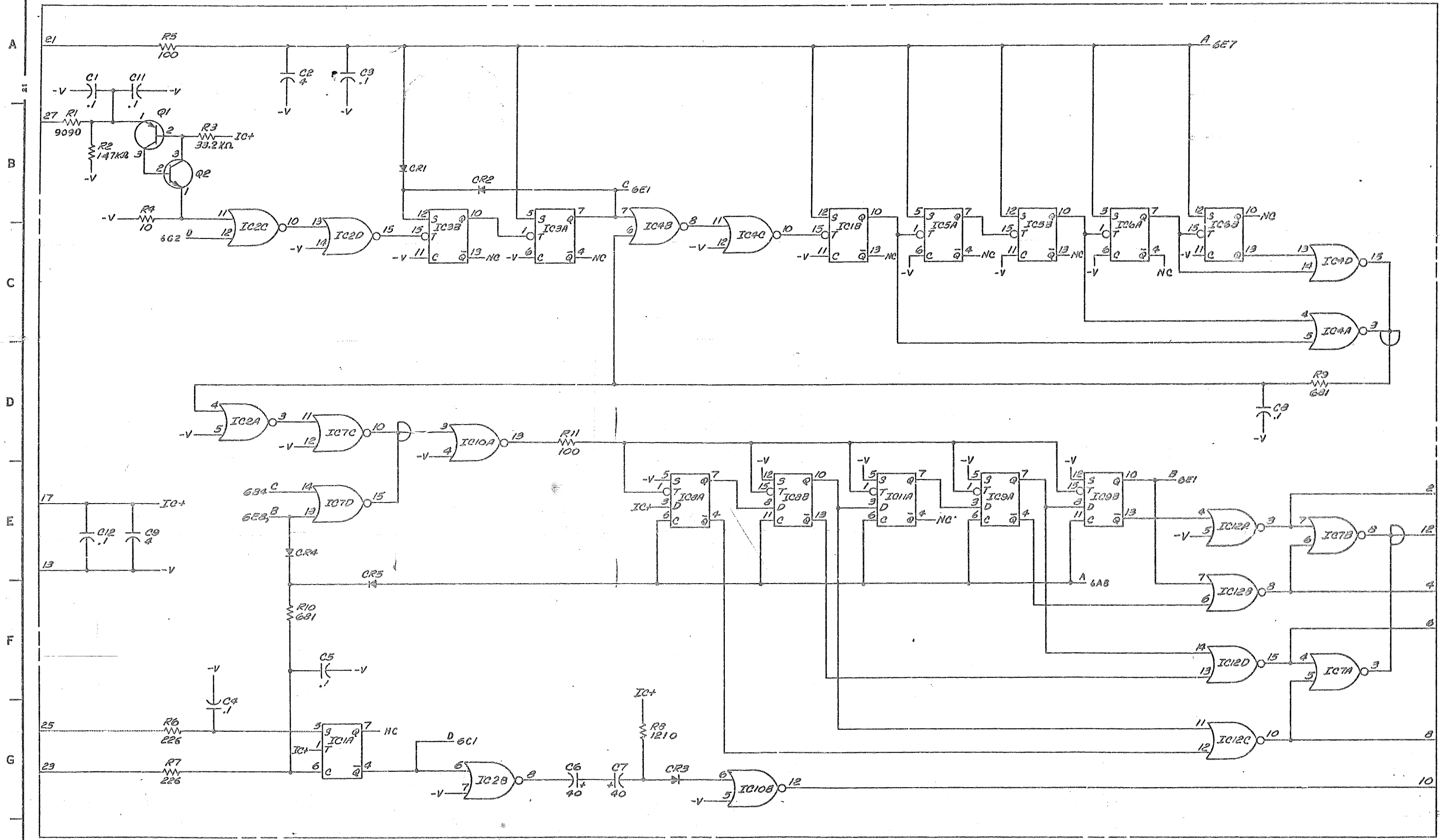
6S

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SD-IC297-01-J5

PART OF CPS A973 TIMER FOR COIN RELAY TIME TEST

DRAWING
ISSUE
37



SD-10297-01-J6

P/O CPS A973

13B

COIN STATION TEST LINE CIRCUIT		2	SD-10297-01-J6
BELL TELEPHONE LABORATORIES INCORPORATED			
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PART OF CPS A973
TIMER FOR COIN RELAY TIME TEST

COMPONENT LIST

CAPACITOR

DESIG	CODE
C1	KS-19774 L5, .1
C2	603A
C3	KS-19774 L5, .1
C4	KS-19774 L5, .1
C5	KS-19774 L5, .1
C6	602A
C7	602A
C8	KS-19774 L5, .1
C9	603A
C11	KS-19774 L5, .1
C12	KS-19774 L5, .1

COMPONENT LIST (CONT)

TRANSISTOR

DESIG	CODE
Q1	51A
Q2	66J

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE	A973
CONNECTOR ON FRAME	905A

DIODE

DESIG	CODE
[5] CR1-5	458C

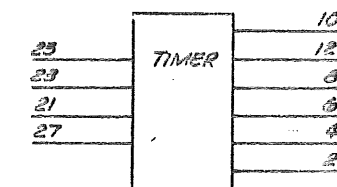
INTEGRATED CIRCUIT

DESIG	CODE
IC1 A,B	41J
IC2 A,B,C,D	41F
IC3 A,B	41J
IC4 A,B,C,D	41F
IC5 A,B	41J
IC6 A,B	41J
IC7 A,B,C,D	41F
IC8 A,B	41H
IC9 A,B	41H
IC10 A,B	41G
IC11 A	41H
IC12 A,B,C,D	41F

RESISTOR

DESIG	CODE
R1	KS-20616, L1A, 9090
R2	KS-20616, L1A, 147KΩ
R3	KS-20616, L1A, 33, 2KΩ
R4	KS-20616, L1A, 10
R5	KS-20616, L1A, 100
R6	KS-20616, L1A, 226
R7	KS-20616, L1A, 226
R8	KS-20616, L1A, 1210
R9	KS-20616, L1A, 681
R10	KS-20616, L1A, 681
R11	KS-20616, L1A, 100

SYMBOL



NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- HORIZONTAL MOUNTING CENTER .6 INCH.
- BATTERY AND GROUND TERMINATIONS FOR ICs.

IC	IC+	-V
	TERM.	TERM.
41J	9	2, 14
41F	1	9
41H	9	2, 14
41G	2, 7	9, 10, 11, 14, 15, 16

- REISSUE 13B TO CHANGE RESISTORS TO
PREFERRED VALUES.

P/O CPS A973

13B

COIN STATION TEST LINE CIRCUIT

2

SD-IC297-01-J7

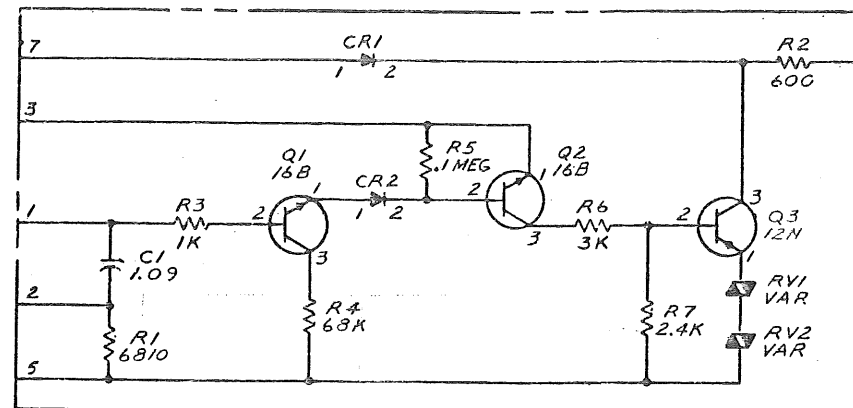
BELL TELEPHONE LABORATORIES
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CPS D3

TIMER



CIRCUIT DESCRIPTION: (CONT)

TIMING RESISTANCE (R) TO GROUND; TERMINAL 2 CONNECTS TO TERMINAL 3; TERMINAL 3 CONNECTS TO A -24V VOLTAGE DIVIDER; TERMINAL 4 IS VACANT; TERMINAL 5 IS GROUND; TERMINAL 6 CONNECTS TO ONE TERMINAL OF THE OUTPUT RELAY WITH THE OTHER TERMINAL CONNECTED TO -48V. TERMINAL 7 CONNECTS TO -48V BATTERY.

WITH THE START CONTACT NORMAL, (Q1) IS REVERSE BIASED KEEPING (Q2) AND (Q3) OFF. THE OUTPUT RELAY IS THEREFORE, NORMAL.

WHEN THE START CONTACT IS OPENED, THE TERMINAL 1 SIDE OF (C1) WHICH WAS AT -48V STARTS TO DISCHARGE TOWARDS GROUND THROUGH THE EXTERNAL TIMING RESISTOR (R) AND THE EQUIVALENT SOURCE RESISTANCE OF THE -24V VOLTAGE DIVIDER (Q1), (CR2), (Q2) AND (Q3) START TO CONDUCT WHEN THE TERMINAL 1 SIDE OF (C1) REACHES APPROXIMATELY -22V. AS CURRENT FLOWS INTO THE EQUIVALENT SOURCE RESISTANCE OF THE DIVIDER AT TERMINAL 3, THAT POINT BECAME MORE POSITIVE THAN -24V. THIS CHANGE IS REFLECTED THROUGH (C1), TURNING (Q1) ON QUICKLY BY MEANS OF POSITIVE FEEDBACK. THE OUTPUT RELAY OPERATES WHEN (Q3) SATURATES.

WHEN THE START CONTACT CLOSES, (C1) DISCHARGES THROUGH THE EQUIVALENT RESISTANCE OF THE VOLTAGE DIVIDER, BACK BIASES (Q1) WHICH TURNS OFF (Q2) (Q3) AND RELEASES THE OUTPUT RELAY. AFTER THE TERMINAL 2 SIDE OF (C1) RETURNS TO -24V, THE CIRCUIT IS COMPLETELY RECYCLED AND READY FOR ANOTHER START SIGNAL.

THE TIME INTERVAL BETWEEN THE START SIGNAL AND THE TIME WHEN THE OUTPUT RELAY STARTS TO OPERATE IS $t = 0.775RC \pm 5\%$ WHEN $\pm 1\%$ COMPONENTS ARE USED AS R AND C. THE MAXIMUM SIZE R USED IS DEPENDENT ON THE RESISTANCE VALUE OF THE VOLTAGE DIVIDER, BUT IN GENERAL IS ABOUT 1.98 MEG IF THE VOLTAGE DIVIDER USES RESISTORS OF LESS THAN 400 OHMS RESISTANCE. CAPACITANCE CAN BE ADDED TO INCREASE THE TIME INTERVAL AS IN THE MAKE CONTACT START.

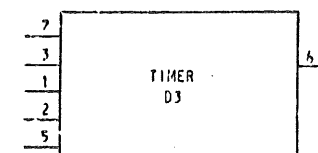
NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.

MANUFACTURING REFERENCES

CATEGORY	NUMBER
CONTROLLING DRAWING	SD-32371-01
CIRCUIT PACK CODE	D3
CONNECTOR ON FRAME	910A

SYMBOL



INPUT/OUTPUT INFORMATION:

THIS INFORMATION IS INCLUDED IN THE CIRCUIT DESCRIPTION.

CIRCUIT DESCRIPTION:

THIS CIRCUIT IN CONJUNCTION WITH A START CONTACT, AN EXTERNAL RESISTOR AND AN OUTPUT RELAY PROVIDES A VARIABLE TIME INTERVAL BETWEEN INPUT AND OUTPUT. THERE ARE TWO BASIC MODES OF OPERATION WHICH CAN BE CALLED THE MAKE CONTACT START AND THE BREAK CONTACT START.

1. MAKE CONTACT START

THE CIRCUIT PACK EXTERNAL CONNECTIONS ARE AS FOLLOWS: TERMINAL 1 CONNECTS THROUGH THE TIMING RESISTANCE (R) TO GROUND; TERMINAL 2 CONNECTS TO THE MAKE PORTION OF THE START CONTACT WITH ITS FIXED PORTION CONNECTED TO -48V; TERMINAL 2 ALSO CONNECTS TO ONE TERMINAL OF THE OUTPUT RELAY WITH ITS OTHER TERMINAL CONNECTED TO TERMINAL 6; TERMINALS 3 AND 7 CONNECT TO -48V BATTERY; TERMINAL 4 IS VACANT; TERMINAL 5 IS GROUND.

WITH THE START CONTACT NORMAL, TRANSISTORS (Q1), (Q2) AND (Q3) ARE FORWARD BIASED AND IN THEIR "ON" STATE. EVEN THOUGH (Q3) IS ON, THE OUTPUT RELAY CANNOT OPERATE BECAUSE ITS OPERATE PATH CONTAINS THE NORMAL START CONTACT.

WHEN THE START CONTACT CLOSES, THE TERMINAL 2 SIDE OF CAPACITOR (C1) WHICH WAS AT GROUND POTENTIAL CHANGES TO -48V CAUSING THE POTENTIAL AT THE TERMINAL 1 SIDE OF (C1) TO CHANGE FROM APPROXIMATELY -46V TO -94V. THIS REVERSE BIASES (Q1) WHICH CAUSES (Q2) AND (Q3) TO TURN OFF. THE OPERATE PATH OF THE OUTPUT RELAY IS NOW ESTABLISHED BUT SINCE (Q3) IS OFF THE RELAY DOES NOT OPERATE.

CAPACITOR (C1) STARTS DISCHARGING TOWARDS GROUND THROUGH THE EXTERNAL CHARGING RESISTOR. WHEN TERMINAL 1 REACHES APPROXIMATELY -46V, TRANSISTORS (Q1) AND (Q2) AND DIODE (CR2) ARE FORWARD BIASED SUFFICIENTLY TO CONDUCT. THIS CAUSES (Q3) TO TURN ON, OPERATING THE OUTPUT RELAY.

WHEN THE START CONTACT IS OPENED THE TERMINAL 2 SIDE OF (C1) STARTS TO CHARGE FROM -48V TO GROUND AND THE OUTPUT RELAY RELEASES BECAUSE ITS OPERATE PATH IS OPENED BY THE OPEN START CONTACT. THE CHARGING PATH IS THROUGH (R1), (R3) AND THE FORWARD BIASED JUNCTIONS OF (Q1), (CR2) AND (Q2). THE CIRCUIT IS NOW COMPLETELY RECYCLED AND READY FOR ANOTHER START SIGNAL. THE TIME INTERVAL BETWEEN THE START SIGNAL AND THE TIME WHEN THE OUTPUT RELAY STARTS TO OPERATE IS $t = 0.715RC \pm 5\%$ WHEN $\pm 1\%$ COMPONENTS ARE USED AS R AND C. THE MAXIMUM VALUE OF (R) IS 4.33 MEG. CAPACITANCE CAN BE ADDED FOR ADDITIONAL TIME BY CONNECTING CAPACITORS BETWEEN TERMINALS 1 AND 2.

2. BREAK CONTACT START

THE CIRCUIT PACK EXTERNAL CONNECTIONS ARE AS FOLLOWS: TERMINAL 1 CONNECTS TO THE BREAK PORTION OF THE START CONTACT WITH ITS FIXED PORTION CONNECTED TO -48V; TERMINAL 1 ALSO CONNECTS THROUGH THE

CPS D3

COIN STATION TEST LINE CIRCUIT

2

SD-1C297-01-J8

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

PRINTED IN U.S.A.

(ZY) CPS-A1246 (MFR DISC)

THRESHOLD DETECTOR & INTERFACE LOGIC

COMPONENT LIST

CAPACITOR

DESIG	CODE
C1	594G,.01
C2	594G,.1
C3	600A
C6	KS-16390,L10,10
C7	606C,10
C8	KS-16048,L4,.01

DIODE

DESIG	CODE
CR5	804AF, (MD) 808CE
CR6	804AF, (MD) 808CE
CR7	458B
CR9	453AF

CR12	458C
CR13	458C
CR14	458C, (MD) 459E
CR15	813AD
CR16	813AD
CR17	458C
CR18	458C
CR19	808CJ
CR20	458A

INTEGRATED CIRCUIT

DESIG	CODE
IC1	KS-21177,L1
IC2	KS-21177,L1
IC3	KS-21177,L1

RELAY

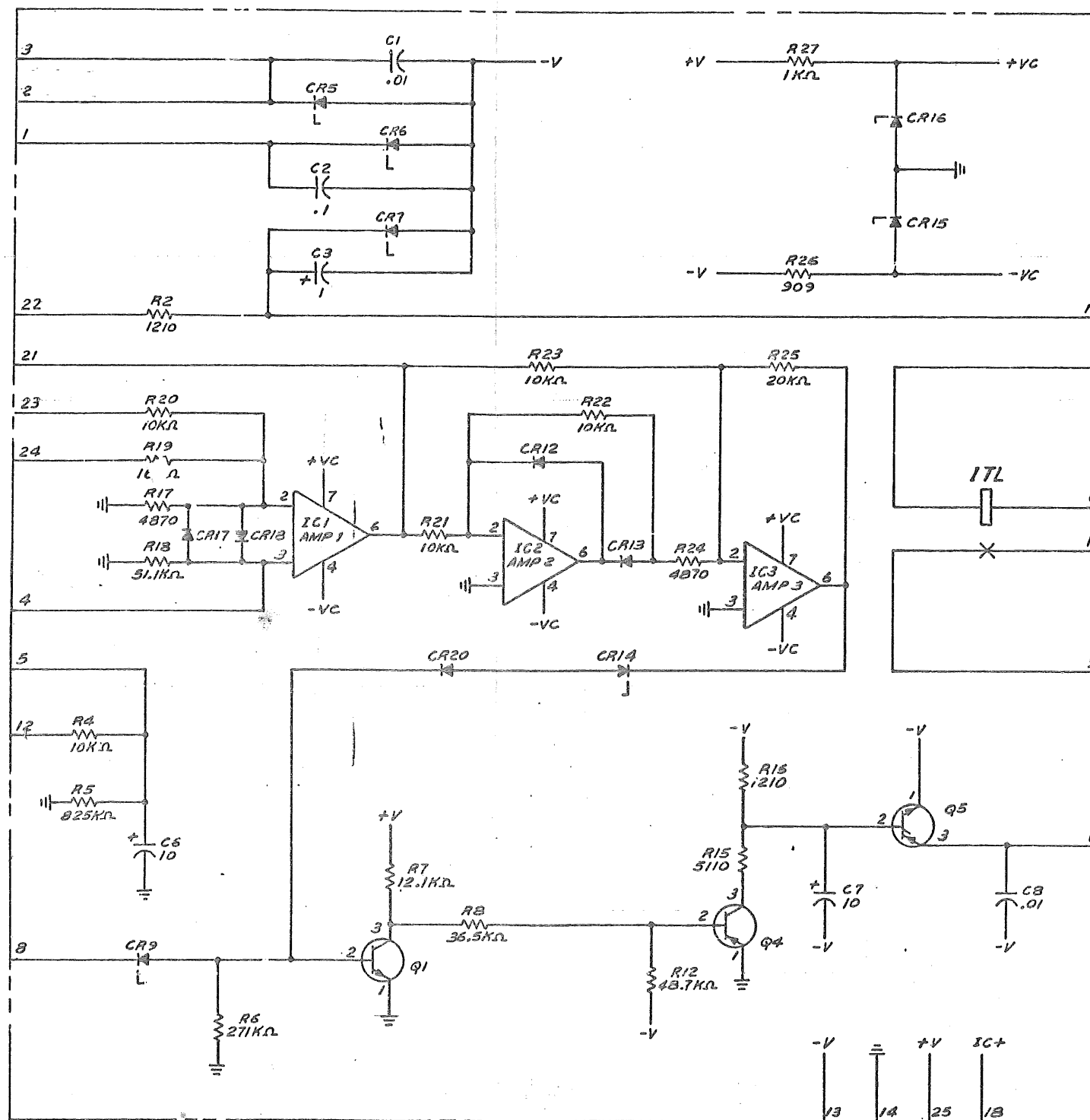
DESIG	CODE
ITL	KS-21457,L1

RESISTOR

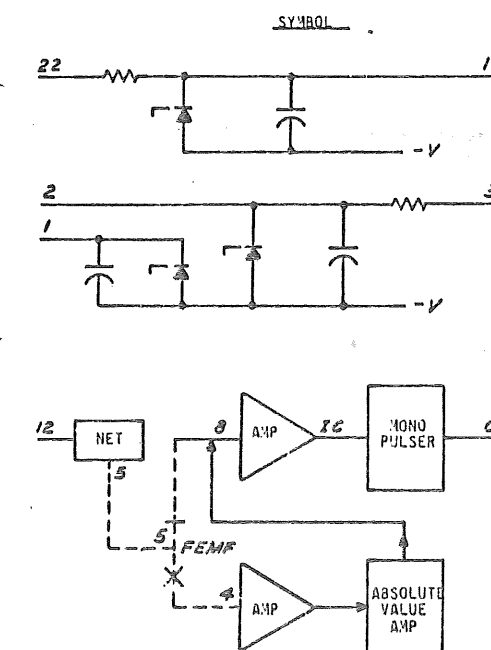
DESIG	CODE
R2	KS-20810,L1A, 1210
R4	KS-13490,L1, 10KΩ
R5	KS-20616,L1A, 825KΩ
R6	KS-20616,L1A, 271KΩ
R7	KS-20616,L1A, 12.1KΩ
R8	KS-20616,L1A, 36.5KΩ
R12	KS-20616,L1A, 48.7KΩ
R15	KS-20616,L1A, 5110
R16	KS-20616,L1A, 1210
R17	257A, 4870
R18	KS-16545,L1, 51.1KΩ
R19	257A, 10KΩ
R20	257A, 10KΩ
R21	257A, 10KΩ
R22	257A, 10KΩ
R23	257A, 10KΩ
R24	257A, 4870
R25	257A, 20KΩ
R26	KS-20289,L6C, 909
R27	KS-20289,L6C, 1KΩ

TRANSISTOR

DESIGN	CODE
Q1	66J
Q4	51B
Q5	127A



MANUFACTURING REFERENCES	
CATEGORY	NO.
CIRCUIT PACK CODE	A1246
CONNECTOR ON FRAME	9058



- NOTES:
- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
 - HORIZONTAL MTG CENTER = 0.8 INCHES.

CPS-A1246

COIN STATION TEST LINE CIRCUIT

BELL LABORATORIES

SD-1C297-01-

DWG SIZE
65

ISSUE
16BU

J9

22 CPS-A1246B

COMPONENT LIST

CAPACITOR

DESIG	CODE
C1	594G,.01
C2	594G,.1
C3	600A
C6	KS-16390,L10,10
C7	601B,10
C9	601B,10
C13	606C,10
C14	75H,.01
C15	75H,.01

DIODE

DESIG	CODE
CR5	804H, (MD) 808CE
CR6	804H, (MD) 808CE
CR7	459B
CR9	459AE
CR12	458C
CR13	458C
CR14	428H, (MD) 459E
CR15	813AD
CR16	813AD
CR17	458C
CR18	458C
CR19	808CJ

[3] CR20,CR21,CR22	458A
[2] CR23,CR24	533F

INTEGRATED CIRCUIT

DESIG	CODE
IC1	559A

RELAY

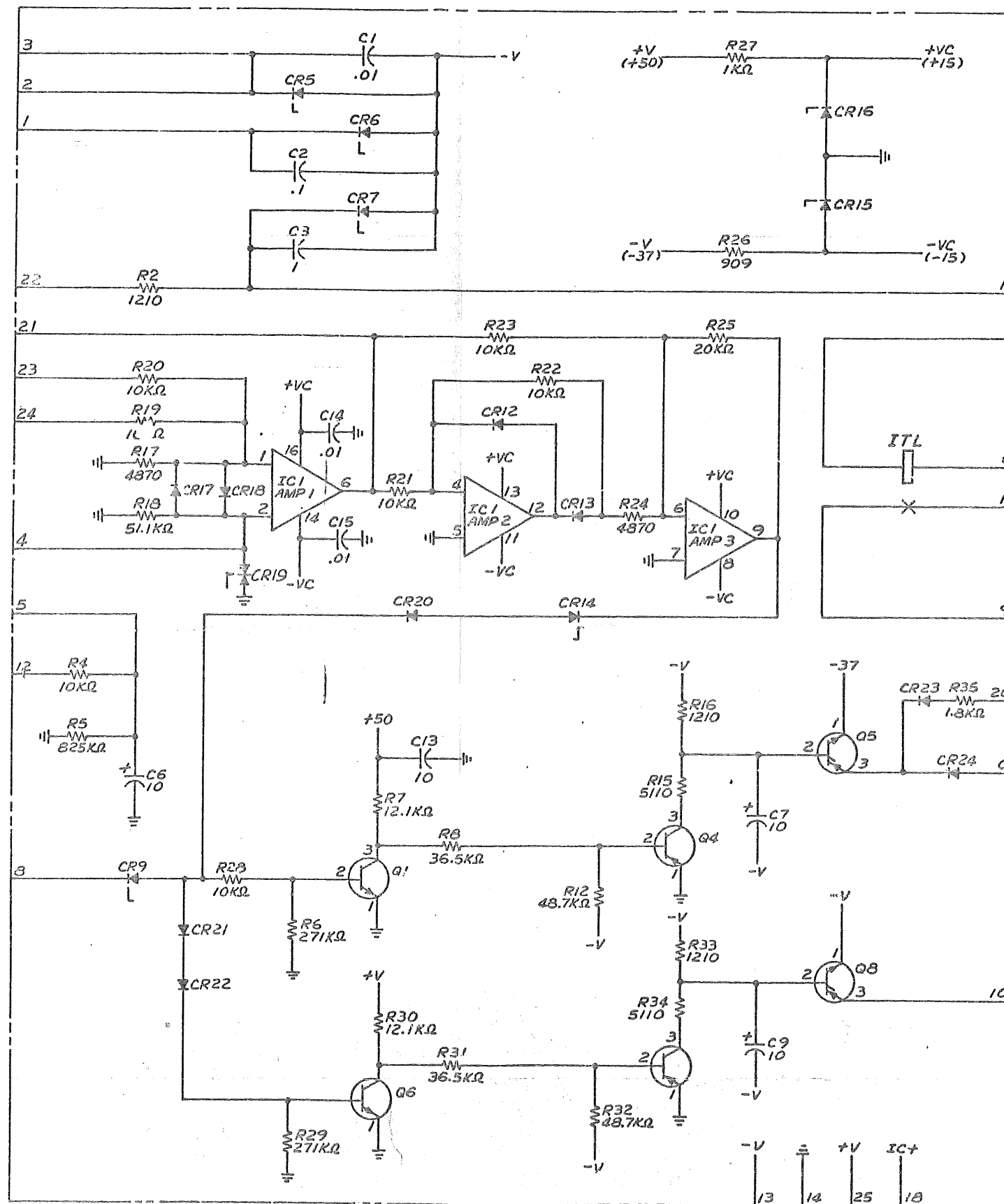
DESIG	CODE
ITL	KS-21457,L1

RESISTOR

DESIG	CODE
R2	KS-20810,L1A,1210
R4	KS-22018,L1A,10K
R5	KS-20616,L1A,825K
[2] R6,R29	KS-20616,L1A,271K
[2] R7,R30	KS-20616,L1A,12.1K
[2] R8,R31	KS-20616,L1A,36.5K
[2] R12,R32	KS-20616,L1A,43.7K
[2] R15,R34	KS-20616,L1A,5110
[2] R16,R33	KS-20616,L1A,1210
R17	257A,4870
R18	KS-20616,L1A,51.1K
R19	257A,10K
R20	257A,10K
R21	257A,10K
R22	257A,10K
R23	257A,10K
R24	257A,4870
R25	257A,20K
R26	KS-20289,L6C,909
R27	KS-20289,L6C,1K
R28	KS-20810,L1A,10K
R35	KS-20616,L1A,1.8K

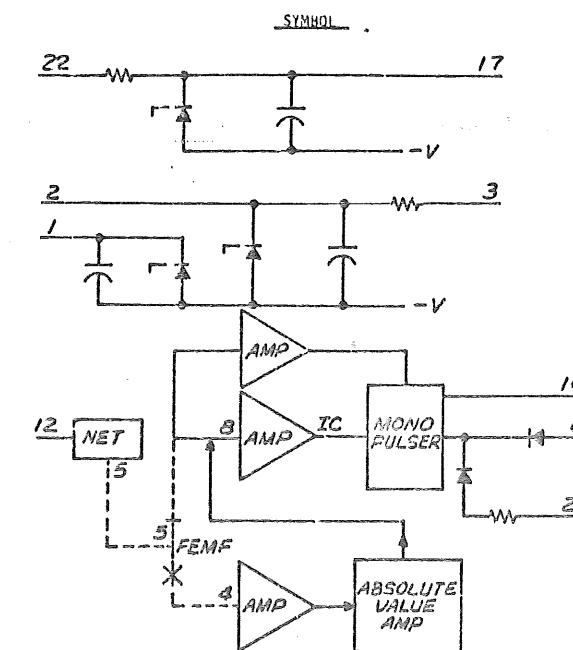
TRANSISTOR

DESIG	CODE
[2] Q1,Q6	66J
[2] Q4,Q7	51B
[2] Q5,Q8	127A



MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE	A1246B
CONNECTOR ON FRAME	905B



NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- HORIZONTAL MTG CENTER = 0.8 INCHES.

CPS-A1246

COIN STATION TEST LINE CIRCUIT		DWG SIZE	ISSUE
		6S	16BU
BELL LABORATORIES	SD-1C297-01-	J10	