

1995

[illegible]

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DESIGN REQUIREMENT	
NO. 5 XBAR	
NO. 1 XBAR	J2245I
TDM & NO. 1A	
OR 4M &	
SXS NO.1	
SXS INTERTOLL	J38909
EQUIPMENT DRAWINGS	
NO. 5	J2245IC ()
NO. 1, TDM, 4A, 4M	J2245ID ()
SXS NO.1	J2245IE ()
SXS INTERTOLL	J38909A ()
	J38909AA ()
	J38909B ()
	ED-34623-6436

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. 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.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGE OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. ON ISSUE 26 THIS DRAWING WAS CHANGED FROM THE ATTACHED TO THE DETACHED CONTACT ARRANGEMENT INCREASING THE NO. OF SHEETS FROM 21 TO 127.
7. ASSOCIATION OF CADS WITH SWITCHBOARD CABLE DETAIL DRAWINGS: CAD NUMBERS IN THE DETACHED ARRANGEMENT CORRESPOND TO THE CROSS CONNECTION FIGURE NUMBER OF THE FORMER ATTACHED FORM LESS FIFTY AND FORMER CADS 1, 2, 3 NOW APPEAR IN THE DETACHED ARRANGEMENT AS CADS 67, 68.

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

ISSUE
60A

COMMON SYSTEMS

MASTER TIMING CIRCUIT

FOR USE WITH
AUTOMATIC MESSAGE ACCOUNTING
CROSSBAR NO. 1 OR 5
CROSSBAR TANDEM
STEP BY STEP NO. 1
STEP BY STEP INTERTOLL DIALING
OR TOLL SWITCHING NO. 44 OR 44 OFFICE

AT&TCU
STANDARD

35M ONLY FOR NO. 4M

SD-25633-01-A1

146 SHEETS

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-A1

STABLO

DRAWING ISSUE	
310	REC AND
32A	RPS NC AND
33A	RPS NC AND
34B	QVC PCU AND
350	NF
36A	
37B	
38B	

ISSUE
GOA

MASTER TIMING CIRCUIT		(2)	SD-25633-01-A2
BELL TELEPHONE LABORATORIES INCORPORATED		DATE FILED 6S	PRINTED IN U.S.A.

ISSUE
60A

APPARATUS INDEX

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
043A	4IC0	4	
043B	4IE0	4	
1CL	11C5	8	
2R	32B6	20	
2R1	32B0	20	
2R2	32E0	20	
3AM	11G0	4	
3E	11E0	23	
18A	41C0	4	
18B	41D0	4	
20A	41D0	4	
21B	41F0	4	
30	41C5	4	
32	34E0	20	
37	34F0	20	
233	34B0	22	
234	33A7	22	
235	34C0	22	
238	34G0	22	
239	34Q0	22	
A	26B0	8	
A1	13F7	8	
A10	31G3	19	
AD	3800	20	
AD1	38D0	20	
ADL	32B2	20	
ADV	2A/D1	4	
AL	31G2	30	
ALM	31E3	19	
AP1	33B1	22	
AP2	33G1	22	
AP3	34A2	22	
AP4	33C1	22	
AP5	33D1	22	
AP6	33E1	22	
AP7	33F1	22	
AP8	34A4	22	
AP9	33F5	22	
AP10	33E4	22	
AP11	33B4	22	
AP12	33G4	22	
AP13	33C4	22	
AP14	34C7	22	
AP15	34A7	22	
AP16	33C7	22	
APR	36D3	20	
APT	36E3	20	
B	26A0	8	
B1	13F7	8	

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
BE1	10F6	1	
BE2	10F6	1	
BLK	36F2	22	
B01	10G6	2	
B02	10G6	2	
B1	35B6	20	
CA	32E2	20	
CA1	32C2	20	
CAS	37A3	20	
CC	16B4	8	
CCRT-	40E6	27	
CCT	40E1	29	
CE	7B7	1	
CE1	7B7	1	
CK	23F4	8	
CKC	36G3	22	
CKE	7B0	1	
CK9	7C0	2	
CKR	24A1	17	
CO	7B7	2	
CO1	7C7	2	
C01E	14A7	21	
C010	14A7	21	
C02E	14B7	21	
C020	14C7	21	
C03E	14B7	21	
C030	14C7	21	
C04E	14D7	21	
C040	14D7	21	
C05E	14E7	21	
C050	14F7	21	
C06E	14F7	21	
C060	14G7	21	
COM	13D1	21	
COP	18F2	8	
CSE	7B0	1	
CSO	7A0	2	
CSY	10H5	26	
CTS	10D7	26	
D1	26C0	8	
DA	18E0	8	
DAT	3B3	4	
DC	18E0	8	
DH	3D3	4	
D.	24G6	17	
DL1	24D2	17	
DLR	24A1	17	
DR1	5A0	4	
DR1	6A0	9	

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
DR2	5B0	4	
DR2	6B0	8	
DR3	5C0	4	
DR3	6C0	8	
DR4	5D0	4	
DR4	6D0	8	
DR5	5E0	4	
DR6	5F0	4	
DRL	17H4	8	
DRP	10E7	26	
DT	9F4	4	
DTH	3C3	4	
DTN	35C5	20	
DTNP1-4	34D0	22	
CJ	9C4	4	
E	26D0	8	
ECH	7A4	1	
ECHA	7A4	1	
EPG	2A/G5	1	
ER	38F0	20	
ERD	16E2	1	
ERE	27F6	9	
ERO	27E6	7	
ESE	12H7	9	
ESO	12H6	7	
ESP	16C3	8	
EST	22E1	13	
ET	12H3	8	
ET1	11D8	8	
ETE	11C0	1	
ETM	32E4	20	
ETO	11D0	2	
ETS	11E8	8	
EXA	30C0	4	
EXD	30B0	4	
EXH	30A0	4	
EXM	30B0	4	
EXR	30C0	A, B	
FA	31B7	24	
FA1	31C5	24	
FA2	31A6	24	
GE0	27B6	7	
GOE	27C6	9	
GR	27F2	9	
GR1	27F2	9	
GRE	27A6	7	
GRO	27C6	9	
GU	38A5	20	

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
H	8B/B5	4	
HA	2B/D2	4	
HAA	2B/E2	4	
HE	4A/F4	1	
HH	2A/E6	4	
HHR	41F0	4	
HL	7C4	3	
HO	4A/H3	2	
HRE	4A/G9	8	
HRN	4A/H9	8	
HRT	2A/F1	4	
HRT1	2B/E7	23	
HRTA	4A/B6	31	
HRTB	4A/B6	31	
HRTC	4A/B6	31	
HT	9B4	4	
HTH	2B/C2	4	
HU	9A4	4	
HU1	2B/G2	4	
HUH	2B/C1	4	
ICK	35C5	20	
KRB	22E6	20	
LC1	17D5	8	
LC2	17C5	8	
LC3	17A6	8	
LC4	17A4	8	
LOK	36H1	20	
LT1	23D0	17	
LT2	23C1	17	
LT3	23C2	17	
LT4	23C2	17	
LT5	23C3	17	
LT6	23C4	17	
LT7	23C4	17	
LT8	23C5	17	
LT9	23C5	17	
LTA	25C3	17	
LTB	23C6	17	
LTR	24H6	17	
M	9G4	4	
MA	3B8	A	
MA	5G0	B	
MA	3B8	B	
MA	6E0	B	
MA1	5G6	4	
MA1	6A5	8	
MBE	27F1	1	
MBO	27F1	2	
MC	18G0	8	
MD	3F3	A, B	
MDA	2B/I3	4	
MGE	18H0	9	
MGN	18H0	8	
MO	18G0	8	
MOH	3F6	4	
MT1	28F7	3	
MT4	28G7	3	
MU2	2B/G8	3	

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
NS	10A5	8	
OC	11C8	8	
UCH	7A4	2	
UCHA	7A4	2	
OME	28G4	23	
OMO	28H4	23	
ON	32D2	20	
OPG	2A/G5	2	
ORD	16G2	2	
ORE	27D6	9	
ORO	27D6	7	
ORP	10E6	26	
OST	12C1	20	
P	10F0	4	
P1	32F4	20	
P1	17A1	8	
P1'	36A0	20	
P1A	17B6	8	
P1A'	36D5	22	
P1E	10G0	1	
P10	12G0	2	
P2	17B1	8	
P2A	17B6	8	
P2E	10E0	1	
P20	10E0	2	
P3	17B1	8	
P3A	17C6	9	
P4	17D1	8	
P4A	17D6	9	
P5	17E1	8	
PSA	17E6	8	
P6	17F1	8	
P6A	17E5	8	
P7	17F1	8	
P7A	17F6	8	
P8	17G1	9	
P8A	17G6	8	
PC	17G4	8	
PE	1A0	1	
PF	31F2	18	
PF1	31G5	18	
PFA	31C2	18	
PH	32C4	20	
PLXE	15A6	21	
PLX0	15C8	21	
PN1, 2, 6, 8, 13, 15	3A00	22	
PN3	33D4	22	
PN4	33C0	22	
PN5	33F0	22	

DESIG	LOCATION		
	FS	APP FIG.	EQUIP.
RELAYS			
PN7	33D0	22	
PN9	33E0	22	
PN10	34A0	22	
PN11	33A7	22	
PN12	34D0	22	
PN14	33F7	22	
PN15	33B0	22	
P0	1A0	2	
PRE	27F6	9	
PRO	27G6	7	
PSA	40B8	3	
PSB	40C8	3	
PTO	18G2	8	
PTR	18C7	8	
PTRA	18H4	8	
RA	31D6	19	
RC	7D7	4	
RC'	38E2	20	
RCCK	24E7	17	
RCE	16A8	8	
RCE1	38A0	20	
RCE2	38A0	20	
RCE3	38B0	20	
RCK	36C0	20	
RC0	16D8	8	
RC01	38B0	20	
RC02	38B0	20	
RC03	38C0	20	
RCT	18G4	8	
RDO	5A8	A	
RDO	6A9	B	
RD1	5B8	A	
RD1	6A9	B	
RD2	5B8	A	
RD2	6B9	B	
RD3	5C8	A	
RD3	6B9	B	
RD4	5C8	A	
RD4	6C9	B	
RD5	5D8	A	
RD5	6C9	B	
RD6	6C9	B	
RD7	6D9	B	
RD8	6E9	B	
RD9	6F9	B	
RET	11C6	8	
RET1	3C9	8	
RH	5F3	A	
RH	6E3	B	
RK	25F1	17	
RKA	25G3	17	

DRAWING
ISSUE
310
33A
34B
38B

ISSUE
55B

MASTER TIMING CIRCUIT	②	SD-25633-01-A4
BELL TELEPHONE LABORATORIES INCORPORATED	6S	

SD-25633-01-A4

STABLO

DESIG	FS	APP	FIG	EQUIP.
RELAYS				
RKQ	25A0	17		
RLS	57G1	8		
RN	18F0	8		
ROS	18H5	8		
RS	13F5	8		
RSC	18A2	8		
RTS	38D0	20		
RW	37E1	20		
RW1	37D1	20		
RW2	38H0	20		
RWC	37C3	20		
SA	1000	3		
SC	18E0	8		
SC1	18E0	8		
SCE	13A3	9		
SC0	13B3	7		
SE	10B0	1		
SFA	31H5	19		
SKA	18D0	8		
SKP	18D0	8		
SLO	37B3	20		
SO	10C0	2		
SP	18G5	8		
SPA	18C6	8		
SPT	18C0	8		
SR	2A/G1	4		
SRC	8B/E5	2		
SS	17G4	8		
SSF	31B0	19		
ST-	22G1	10		
ST-	12H5	11		
ST-	22G1	11		
ST-	12H5	11		
ST-	22H1	12		
ST-	12H4	12		
ST-	22E1	14		
ST-	12H3	14		
ST-	22D1	15		
ST-	12H2	15		
ST-	22C1	16		
ST-	12H1	16		
STC	8B/D5	4		
STE	12L0	20		
STH	2A/D6	4		
STL	7C5	3		
SY	18B6	8		
T	8E6	4		
T(0,1,2,4,7)E	4B/F4	5		
T(0,1,2,4,7)O	4B/F4	6		
TA	2A/A6	4		
TAP	34E0	20		
TBE	13E1	7		
TBO	13F1	9		
TBR	24A5	8		

DESIG	FS	APP	FIG	EQUIP.
RELAYS				
TC	38F4	20		
TCE	16A2	1		
TCO	16B2	2		
TDE	16C2	1		
TDE1	16D0	1		
TDE2	16E1	23		
TDO	16D2	2		
TDO1	16E0	2		
TDO2	16G0	23		
TE	32B6	20		
TEA	1C0	1		
TEB	1C0	2		
TER	16F2	1		
TFE	27A0	1		
TFO	27C0	2		
TFY	16C5	7		
TGT	17C1	8		
TH	2A/C6	4		
TIB	24B6	17		
TL	7C4	3		
TLCP	4/C3	4		
TLK	32A2	20		
TM1	25C0	17		
TM2	25F6	17		
TM3	25B3	17		
TM4	25A3	17		
TM5	25B0	17		
TM6	25B0	17		
TME	16C2	1		
TME1	16E0	1		
TMH	2B/C7	3		
TMQ	16E2	2		
TMQ1	16F0	2		
TMP	23E2	17		
TMR	24E2	17		
TMT	2A/G6	4		
TMTE	2B/D5	1		
TMTO	2B/E5	2		
TOA	100	2		
TOB	100	1		
TOK	35D5	20		
TOR	16G2	2		
TPC	37E1	20		
TRI	2A/B1	23		
TRTE	4A/G0	1		
TRTO	4A/H0	2		
TS	10A5	2		
TS1	10B5	2		
TSC	29A0	26		
TSF	31B5	19		
TSP	18B3	8		
TSPP	7A0	1		
TST1	38E0	20		
TST2	38H0	20		
TT	10E5	C, D		
TTE	180	1		
TTO	183	2		
TTOA	184	2		
TTS	1004	26		
TVM	32D0	20		
TW	40D1	28		
TZ	40D1	28		
U	8A/C6	4		
U(0,1,2,4,7)E	4B/B4	5		
U(0,1,2,4,7)O	4B/B4	6		
UA	2B/B7	4		
UB	2B/C8	4		
UC	2B/A4	4		
UD	2B/A8	4		

DESIG	FS	APP	FIG	EQUIP.
RELAYS				
UH	2A/A2	4		
UL	7B4	3		
UW	2B/F5	4		
UZ	2B/G5	4		
WHR	41G0	4		
W	31E1	30		
XPE	14D2	21		
XPE1	15D2	21		
XPO	14D5	21		
XFO1	15D4	21		
Z	31E1	30		

COMPONENT ASSEMBLIES				
CA0		3		
CA1		4		
PTU1	SEE	30		
PTU2	APP	30		
PTU3	FIG	30		
RI0		32		
RI1		32		
RI2		32		

CAPACITOR				
PF	31D1	18		
PF1	31D0	18		
T	18A1	8		
T1	18B0	8		
TM	25G9	17		
TM1	25G8	17		

DIODE				
C0	188	32	RI0	
C1	187	32	RI0	
C2	188	32	RI0	
C3	187	32	RI0	
C4	188	32	RI1	
C5	187	32	RI1	
C6	188	32	RI1	
C8	188	32	RI2	
C9	187	32	RI2	
C20	188	32	RI0	
C21	187	32	RI0	
C22	188	32	RI0	
C23	187	32	RI0	
C24	188	32	RI1	
C25	187	32	RI1	
C26	188	32	RI1	
C27	188	32	RI1	
C28	188	32	RI2	
C29	187	32	RI2	
D1	2B/B7	4	CA1	
D2	2B/A7	4	CA1	
D3	2B/C5	4	CA1	
D4	2B/C7	4	CA1	
DHE	3G2	3	CAU	
DHO	3G2	3	CAO	
EMER	1A8	32	RI1	
PTU0-29	31H2	30		
PTUEM	31H2	30		
STA	23A7	20		
STB	23B7	20		
IMT	2A/G6	4		
IMTE	2A/G6	4	CA0	
IMTO	2A/G6	4	CA0	
TRE	2A/B6	3	CA0	
TRO	2A/B6	3	CA0	

DESIG	FS	APP	FIG	EQUIP.
RELAYS				
CKL		3		
CLT		3		
CMBE		3		
CMBO		3		
EXD	SEE	3		
EXH	APP	3		
EXM	FIG.	3		
EXR		3		
MSE		26		
MSO		26		
S		3		
T		26		

LAMPS				
CMBE	27G1	3		
CMBO	27G1	3		
DR1-6	7E4	3		
DT0-3	9F3	3		
DU0	9D1	3		
DU1-5	9C1	3		
DU6-9	9D1	3		
ET	7E7	3		
ETFE	180, E0	3		
ETFO	11C0	3		
HO-5	11E0	3		
HRTA	8B/B2	3		
HRTB	4A/G4	31		
HRTC	4A/H4	31		
HTO-2	4A/H4	31		
HU0-9	9C1	3		
MI-12	9A1	3		
MI-12	9H3	3		
OCH	7E7	3		
OS	7F4	4		
OT	1B3	3		
PE	7G6	3		
PF	31D2	18		
PO	7H6	3		
PTU0-9	31H1	30		
PTU10-19	31H1	30		
PTU20-29	31H1	30		
PTUEM	31H1	30		
RDO-9	7D4	3		
SE	10A0	3		
SO	10C0	3		
SSF	31D3	19		
ST0-5	8B/C2	3		
TO-9	8A/F2	3		
TSF	31D5	19		
U0-9	8A/C2	3		

RESISTORS				
A	14A1	21		
AA	14G1	21		
AB	14G1	21		
AC	14H1	21		
AD	14H1	21		
AE	14H1	21		
AF	14A4	21		
AG	14A4	21		
AH	14A4	21		
AI	14D4	21		
AJ	14B4	21		
AK	14B4	21		
AL	14B4	21		
AM	14C4	21		
AN	14C4	21		
AO	14C4	21		

DESIG	FS	APP	FIG	EQUIP.
RESISTORS				
AP	14C4	21		
APT	34F4	20		
AQ	14D4	21		
AR	14D4	21		
AS	14D4	21		
AT	14E4	21		
AU	14E4	21		
AV	14E4	21		
AW	14E4	21		
AX	14F4	21		
AY	14F4	21		
AZ	14F4	21		
B	14A1	21		
BA	14G4	21		
BB	14G4	21		
BC	14G4	21		
BD	14G4	21		
BE	14H4	21		
BF	14H4	21		
BG	14H4	21		
BT	35B5	20		
C	14A1	21		
CA	32E3	20		
CB	22E5	20		
D	14B1	21		
DTK	38F4	20		
E	14B1	21		
F	14B1	21		
FA	31A7	24		
FAE	31B6	24		
FAO	31B6	24		
G	14B1	21		
GC1	38F4	20		
GU	38A6	20		
H	14C1	21		
IR	38B5	20		

DESIG	LOCATION		
	FS	APP	FIG EQUIP
RESISTORS			
J	14C1	21	
K	14C1	21	
L	14C1	21	
M	14D1	21	
MJ	31F5	19	
N	14D1	21	
ON	32D2	20	
OP	18F2	8	
OT	39C1	22	
OT1	39C0	22	
OT2	39C3	22	
P	14D1	21	
PCK	36G4	22	
PF1	31D1	18	
PF2	31D0	18	
PF3	31D0	18	
R	14E1	21	
RC	38F2	20	
RC1	38F2	20	
RC2	38F3	20	
RCK	35D6	20	
RK	25F0	17	
RW	37E1	20	
RW1	37E5	20	
S	14E1	21	
SE	12C0	20	
SLO	3782	20	
SO	12C1	20	
T	14E1	21	
T1	19A1	8	
T2	18A0	8	
T4	18A1	8	
TA	24E1	17	
T81	2486	17	
TF	26E0	18	
TLA,B	41D3	4	
TLC	41E3	4	
TLD	41F3	4	
TLE	41F3	4	
TM	25F8	17	
TM2	25F8	17	
TM3	25F9	17	
TM4	25F8	17	
TP	22C1	17	

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DRAWN
ISSUE
310
37B

ISSUE
59B

②

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

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LEAD INDEX (SEE LEAD INDEX CONNECTING CIRCUITS-A6)

DRAWING
ISSUE
31D
REC
AND
34B
400

A

DESIG	FS LOC	CAD LOC
22 VOLT, 60 CYCLE POWER SUPPLY CKT		
GRD	29E1	8F0, 8H0
MTE ₂	29E1	8F0
MT0 ₂	29F0	8H0

B

DESIG	FS LOC	CAD LOC
ALARM CKT		
AL	31G7	2G8
FA	31G7	2C3, 2G8
MA	31G7	2G8
MJ	31G7	2G3, 2G8
MN	31E7	

C

DESIG	FS LOC	CAD LOC
AUTOMATIC INCOMING TRUNK TEST CKT		
TH	40A3	4C5

D

DESIG	FS LOC	CAD LOC
AUTOMATIC TRUNK TEST CKT		
11PM	40B3	4C5
C19	1G7	5A2

E

DESIG	FS LOC	CAD LOC
CALL COUNT PROCESS CONTROL STORAGE AND REGISTER CKT		
CC	40E0	8A0

F

DESIG	FS LOC	CAD LOC
COMMON RELEASE CONTROL CKT		
C17	1D8	5C2
C18	1D8	2D7

G

DESIG	FS LOC	CAD LOC
DECODER MARKER TEST AND TROUBLE RECORDER CKT		
DT0,1,2,4,7	20E1	2B0
DU0,1,2,4,7	21E4	2B0
HT0,1,2,4,7	4A/4B	5F2
HU0,1,2,4,7	4A/4B	5F2
MT0,1,2,4,7	28D3	2B0
MU0,1,2,4,7	28D3	2B0
THL	2A/80	2D2
TMS	16B1	2D2

H

DESIG	FS LOC	CAD LOC
FLOOR ALARM FRAME, FUSE AND TIME ALARM CKT		
AL	31G7	2C3, 2G8
FA	31G7	2C3, 2G8
MA	31G7	2C3, 2G8
MJ	31G7	2G8

DESIG	FS LOC	CAD LOC
JACK, KEY, AND LAMP CKT, PLANT REGISTER CKT FOR TROUBLE RECORDER FRAME		
CMBE	27H0	5F5
CMBO	27H0	5F5
DL		2D0,
DLB	24G8	
ETSR	12B1	5F5

DESIG	FS LOC	CAD LOC
JACK, KEY, AND LAMP CKT, PLANT REGISTER CKT FOR TROUBLE TICKETER FRAME		
CMBE	27H0	5F5
CMBO	27H0	5F5
DL		2D0,
DLB	24G8	
ETSR	12B1	5F5
LK	24D1	
MJ	24D1	2E0
MTE	24A7	5F5
MT0	24A7	5F5
MTTRE	24H1	2H2
MTTRO	24H1	5A5
R	37A6	5F5
RIT	37D7	5F5
RUT	37C7	5F5
RW	37C7	5F5
T	37B5	5F5
TSR0,2,--,28	12B1	2E0
TSR1,3,--,29	12B1	5F5
TSSE	12B0	5F5
TSSO	12B1	5F5

DESIG	FS LOC	CAD LOC
JACK, KEY, AND LAMP CKT, PLANT REGISTER CKT FOR TROUBLE TICKETER FRAME		
CMBE	27H0	5F5
CMBO	27H0	5F5
DL		2D0,
DLB	24G8	
LK	24D1	

DESIG	FS LOC	CAD LOC
JACK, KEY, AND LAMP CKT, PLANT REGISTER CKT FOR TROUBLE TICKETER FRAME		
MJ	24D1	2E0
MTE	24A7	5F5
MT0	24A7	5F5
MTTRE	24H1	2H2
MTTRO	24H1	5A5
R	37A6	5F5
RIT	37D7	5F5
RUT	37C7	5F5
RW	37C7	5F5
T	37B5	5F5

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME CONNECTOR CKT		
A	28B9	1B7, 4B7, 1A0, 4A0
A'0,1,2		
ASP	28E0	1B7, 4B7, 4B7
B	28B9	1B7, 4B7, 4B7
B'0,1,2,4,7		
BSP	28A0	1B7, 4B7, 4B7
CO	13D8	5C5, 1H4, 4H5, 5C5
C'0,1,2,4,7		
CI	13D8	5C5
D	28A0	1B7, 4B7, 1A0, 4A0
D'0,1,2,4,7		
DA	28E0	1C7, 4B7
DL	24E8, 24E6	
DS		1H4, 4H5, 2B0, 2B0
DT0,1,2,4,7	20E1	2B0
DU0,1,2,4,7	21F4	2B0
E	28B9	1B7, 4B7, 1A0, 4A0
E'0,1,2,4,7		
ET	28A0	1C7, 4B7
F'0,1,2,4,7		
		1A0, 4A0

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME CONNECTOR CKT		
HD	13C8	1C7, 4B7
HR	28A0	1C7, 4B7
HT0,1,2,4,7	4A/4B	2A7, 5F2
HU0,1,2,4,7	4A/4B	2A7, 5F2
MA0,1,2		1A0, 4A0, 1H4, 4H5
MBO,1,2,4,7		
MCO,1,2,4,7		1H4, 4H5, 1A0, 4A0
MDO,1,2,4,7		
ME0,1,2,4,7		1A0, 4A0, 1A0, 4A0
MFO,1,2,4,7		
MG	28E0	1C7, 4B7
MO	28E0	1C7, 4B7
MT0,1,2,4,7	28E0	2B0, 1A0, 4A0, 4B7
MTCE		
MTP		2F2, 5C5, 2B0
MU0,1,2,4,7	28E0	2B0
NS	28D9	1B7, 4B7
P		1H4, 4H5, 1A0, 4A0
P1		
PCN	13C7	2F2, 1A0, 4A0
PT		
PT1		1H4, 4H5, 1H4, 4H5
PTS		
RCCK	24E7	2F2, 5C5, 1A0, 4A0
RD		
RG	28E0	1C7, 4B7
RN	28E0	1C7, 4B7
RST-ENG	28B9	5D7

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME CONNECTOR CKT		
RST0,2,--,28	28B9	2E2
RST1,3,--,29	28D9	5D7
RT1E	15H6	1G0
RT10	15H6	1G0, 4G0, 4G0
RT3E	15G8	1G0, 4G0
RT30	15G8	1G0, 4G0
RTI		1A0, 4A0
SC	28E0	1C7, 4B7
SKP	28E0	1C7, 4B7
SP	28A0	1B7, 4B7
SPA	28E0	1B7, 4B7
SY	28E0	1B7, 4B7
TO,1,2,4,7		1H4, 4H5, 1H4, 4H5
TBL		
TEN	28E0	5D7
TPR	13E8	2F2
TRB	24D7	2F2, 5C5
TRST	24D7	2F2, 5C5
TV		
U0,1,2,4,7		1H4, 4H5
XPL	15D7	2E2, 5D7, 1H4, 4H5
XTC		
MASTER TEST FRAME JACK, LAMP, AND KEY CKT		
CMBE	27H0	5F5
CMBO	27H0	5F5
DL	24G8	2D0, 5F5

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME JACK, LAMP, AND KEY CKT		
DLB	24G8	5F5
EISR	12B1	5F5
FG	27A3	5F5
LK	24D1	5F5
MJ	24E1	5F5
MN	24E1	5H5
MTE	24A7	2E0
MT0	24A7	5F5
R	37A6	5F5
RIT	37D7	5F5
RUT	37C7	5F5
RW	37C7	5F5
T	37B5	5F5
TSR0,2,--,28	12B1	2E0
TSR1,3,--,29	12B1	5F5
TSSE	12B0	5F5
TSSO	12B1	5F5

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME PLANT REGISTER CKT		
MTTRE	24H1	2H2
MTTRO	24H1	5A5

DESIG	FS LOC	CAD LOC
MISC CKT FOR ALL FRAMES		
+130	31A7	
2R	37E7	
ACO	31G4	
B	27A5	
FG	27A4	
MJ	31F7	
PTU--	31H2	8C4, 8C4
PTUE	31H2	8C4
R	37C9	5C5
RIT	37C9	5C5
RUT	37C9	5C5
RW	37C9	5C5
MASTER TEST FRAME TRUNK TEST CKT		
MTC	1C8	2A5
MESSAGE REGISTER PULSE JUNCTION CKT		
MT1	1F1	
MT2	1G1	

DESIG	FS LOC	CAD LOC
MISC CKT FOR MASTER TIMING FRAME		
2R	37E7	
ACO	31G4	
AR	31D7	
DB	27A2	
FA	31B7, 31C7	
FAI	31B7	
LTA	25C6	
R	37C9	
RIT	37C9	
RA	31D7	
RET	11C5	
RUT	37C9	
RW	37C9	
T	37C9	
TA	24C1	

DESIG	FS LOC	CAD LOC
MISC CKT FOR PERFORATOR CABINET		
CCR-1	40F1	8C0
CCR-2	40G1	8C0
PTU--	31H2	8C4, 8C4
PTUE	31H2	8D4
R	37C9	5C5
RIT	37C9	5C5
RUT	37C9	5C5
RW	37C9	5C5
T	37C9	5C5

DESIG	FS LOC	CAD LOC
MASTER TEST FRAME TRUNK TEST CKT		
MTC	1C8	2A5

DESIG	FS LOC	CAD LOC
MESSAGE REGISTER PULSE JUNCTION CKT		
MT1	1F1	
MT2	1G1	

DESIG	FS LOC	CAD LOC
MISC CKT FOR RECORDER FRAME		
R	37C9	5D5
RIT	37C9	5D5
RUT	37C9	5D5
RW	37C9	5D5
T	37C9	5D5

DESIG	FS LOC	CAD LOC
MISC CKT FOR TV TROUBLE INDICATOR FRAME		
CMBE	27H0	5F5
CMBO	27H0	5F5
ETSR	12B1	
NR	24G1	
MTE	24B7	
MT0	24B7	
R	37A6	
RIT	37D7	
RUT	37C7	
RW	37C7	
T	37B5	
TIA	24F1	
TAP	24F1	
YSR-	12B1	
TSSE	12B0	
TSSO	12B1	

DESIG	FS LOC	CAD LOC
MISC CKT FOR TROUBLE RECORDER FRAME		
CMBE	27H0	5F5
CMBO	27H0	5F5
LK	24H8	1C7

DESIG	FS LOC	CAD LOC
BILLING DATA TRANSMITTER CKT		
R	37A8	
RIT	37D8	
RUT	37D8	
STP	23B8	5B7
STPG	23B8	5B7
T	37A8	

ISSUE
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SD-25633-01-A7

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
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SD-25633-01-A7

6S

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LEAD INDEX (CONT)
(SEE LEAD INDEX CONNECTING CIRCUITS - A8)

DESIG	FS LOC	CAD LOC
MISC CKT FOR TROUBLE RECORDER FRAME		
NTE	24B7	2E0
NTLRE	24H7	1C7
MTLRO	24H7	4A7
MTO	24B7	5F5
MTRE	24H1	2H2
MTTRO	24H1	5A5
R	3746	5F5
RIT	37D7	5F5
RUT	37C7	5F5
RW	37C7	5F5
T	37B5	5F5
TSRO, 2, --, 18	12A1	2E0
TSR1, 3, --, 19		5F5
TSSE	12B0	5F5
TSSO	12B1	5F5

RATE CALENDAR CKT		
DCPE	41A0	1B2
DCPO	41A0	4A2
EH	41B0	2B7, 5B7
H	41B0	2B7, 5A7
HN	41B0	2B7, 5A7
MBE	41A0	1B2
MBO	41A0	4A2
RCPE	41C9	1B2
RCPO	41C9	4A2
SF	31B5	8D0

RECORDER AND RECORDER CONNECTOR CKT		
AO, 1, 2	19A0	1H0, 4H0
AL	7F1	1E2, 4D2
AT	26B5	1E2, 4D2
J	26A5	1E2, 4D2
30, 1, 2, 4, 7	19A1	1E2, 4D2

DESIG	FS LOC	CAD LOC
RECORDER AND RECORDER CONNECTOR CKT		
BT	35B7	1B0, 4B0
CO, 1, 2, 4, 7	19A3	1E2, 4D2
C-	19B, 1C8	2E5, 5E0
CC-	40G7	2G0, 5E7
CHL	7H3	4C5
CK	34F7	1B0, 4B0
COI	15F8	1B0, 4B0
D	26C5	1E2, 4D2
DO, 1, 2, 4, 7	19A6	1B0, 4B0
DL	24C1	1E2, 4D2
DTK	38D7	1E5, 4E5
DTKA	36B7	1E5, 4E5
DTN	35C7	1E5, 4E5
DS	35D7	1E5, 4E5
E	26D5	1B0, 4B0
EO, 1, 2, 4, 7	20A0	1E0, 4E0
EMER	1A8	
ERT	12F9	
EST	22E0	
EXT	39A7	1E5, 4E5
FO, 1, 2, 4, 7	21B0	1E0, 4E0
GCC-	30F5	8B0
GU	38A7	1E5, 4E5
H	10G2	1E2, 4D2
HL	4A/H0	8C7
HRO-10	4A/H6	8C7
HR11-19	4A/H6	8C7
HR20-29	4A/H6	8C7
HRAO-29	4B/A9	9D0
HRDE	4B/A9	9D0
HREM	4A/H6	8C7
HRO, 1, 2, 4, 7	4A/H9	2E5, 5E0
HUO, 1, 2, 4, 7	4A/H9	2E5, 5E0

DESIG	FS LOC	CAD LOC
RECORDER AND RECORDER CONNECTOR CKT		
ICK	38C7	1E5, 4E5
IR	38B7	1E0, 4E0
IR1	38D7	1E5, 4E5
LS	10B2	4C5
MB	26H5	1E0, 4E0
MHO-5	8B/52	4B5
MTG-9	8A/G2	4F7
MTCE		1H0, 4H0
MTP	22B6	1E2, 4D2
MTR	26F5	1E2, 4D2
MTT	22A6	1E2, 4D2
MUO-9	8E2	3F7
MPS	13H8	1E0, 4E0
MS	18A8	1E2, 4D2
OT	39B7	1E2, 4D2
P	17C9	1E2, 4D2
P1	17G9	1B0, 4B0
PA	18D3	1E0, 4E0
PT	18C8	1E0, 4E0
PT1	19F8	1E2, 4D2
PTS	36E7	1E5, 4E5
RB	17A9	1H0, 4H0
RC	38E7	1E0, 4E0
RD	39A7	1B0, 4B0

DESIG	FS LOC	CAD LOC
RECORDER AND RECORDER CONNECTOR CKT		
RDL	39B7	1E2, 4D2
RG	21B3	1H0, 4H0
RK	25F4	1B0, 4B0
RL	26E5	1E2, 4D2
RN	18B8	1B0, 4B0
RNT	26G5	1E2, 4D2
RT-	12F8	2E5, 5E0
RTI	15F8	1B0, 4B0
SP	18G8	1E2, 4D2
ST-	22E0	2E5, 5E0
SY	18B8	1B0, 4B0
SYC	8A/A2	1E2, 4D2
SYCA	8A/A2	1E2, 4D2
T	10F2	1E2, 4D2
TO, 1, 2, 4, 7	39F7	1E5, 4E5
TBL	15E7	1E2, 4D2
TCD	38F7	1H0, 4H0
TCT	36D7	1E5, 4E5
TL	38A7	1E5, 4E5
TL1	35F7	1E5, 4E5
TM	22H0	1C5
TST	22D6	1E2, 4D2
TV	16G8	1E2, 4D2
U	10E2	1E2, 4D2
JO, 1, 2, 4, 7	39D7	1E5, 4E5
XT	35D7	1E5, 4E5
XTC	36G7	1E5, 4E5

DESIG	FS LOC	CAD LOC
TV GROUP TROUBLE RECORDER CONNECTOR CKT		
3	28B9	1A7, 4B7
ASP	28E0	1B7, 4B7
B	28B9	1B7, 4B7
BSP	28A0	1B7, 4B7
CO	13D9	5F7, 5A5
LI	13D8	5F7
CMSE		5F5
CMBO		5F5
D	28A0	1B7, 4B7
DA	28E0	1C7, 4C7
DLB		5F5
DS		1H4, 4H4
E	28B9	1B7, 4B7
ET	28A0	1C7, 4B7
HO	13D8	5A5, 5F7
HR	28A0	1C7, 4B7
HTO, 1, 2, 4, 7	4A/H8	2A7, 5A7
HUO, 1, 2, 4, 7	4A/H8	2A7, 5A7
MAO, 1, 2		1A0, 4A0

DESIG	FS LOC	CAD LOC
TV GROUP TROUBLE RECORDER CONNECTOR CKT		
MBO, 1, 2, 4, 7		1H4, 4H3
MCO, 1, 2, 4, 7		1H4, 4H3
MDO, 1, 2, 4, 7		1H4, 4H3
MEO, 1, 2, 4, 7		1H4, 4H3
MFO, 1, 2, 4, 7		1H4, 4H3
MG	28E0	1C7, 4B7
MJ	24E1	4B7, 5F5
MO	28E0	1C7, 4B7
MTO, 1, 2, 4, 7	28E0	1A0, 4A0
MTCE	24F4	1A0, 4A0
MTE		2E0
MTO		5F5
MTPE	24C7	2A7, 5A7
MTPD	24C7	2A7, 5A7
MUO, 1, 2, 4, 7	28E0	1H4, 4H3
VS	28C4	1B7, 4B7
P		1H4, 4H3
P1		1H4, 4H3
PCN	13C7	2H8
PT		1A0, 4A0
PT1		1H4, 4H3
PT3		1H4, 4H3
RCCKE		24E8
RCCKO		24E8
R		1A0, 4A0
RG	28E0	1C7, 4B7
RN		1H4, 4H3
RST-	28B9	5D7, 5E2
RST ENG	28B9	5D7, 5E2
RSTO-19		2E3, 5B7

DESIG	FS LOC	CAD LOC
TV GROUP TROUBLE RECORDER CONNECTOR CKT		
RTI	15F5	1A0, 4A0
RT1E	15H7	
RT1O	15H7	
RT3E	15H7	
RT3O	15H7	
SC	28E0	1C7, 4B7
SKP	28E0	1C7, 4B7
SP	28A0	1B7, 4B7
SPA	28E0	1B7, 4B7
SY	28E0	1B7, 4B7
TO, 1, 2, 4, 7		1H4, 4H3
TBL		1H4, 4H3
TCN	28E0	5D7, 5A5
T15	26F7	2G5, 5A5
TPR	13E8	2H8
TRBE	24C7	
TRBO	24C7	
TS	37F7	5A5, 5E0
TSO, 2, --, 13		2E0
TS1, 3, --, 19		5F5
TV		1H4, 4H3
UO, 1, 2, 4, 7		1H4, 4H3
VPL	15D7	2E2, 5D7
UTC		1H4, 4H3

DESIG	FS LOC	CAD LOC
TV TROUBLE INDICATOR CKT		
A	28B9	1B7, 4B7
A'O, 1, 2		1A0, 4A0
ASP	23E0	1B7, 4B7
B	28B9	1B7, 4B7
B'O, 1, 2, 4, 7		1H4, 4H3
BSP	28E0	1B7, 4B7
CO	13D9	5F7, 5A5
C'O, 1, 2, 4, 7		1H4, 4H3
C1	13D8	5F7, 5A5
CMSE		5F5
CMBO		5F5
D	28E0	1B7, 4B7
D'O, 1, 2, 4, 7		1A0, 4A0
DB	28D0	1C7, 4B7
DL	24F8	2G5, 5A5
DS		1H4, 4H4
E	28B9	1B7, 4B7
E'O, 1, 2, 4, 7		1A0, 4A0
ET	28A0	1C7, 4B7
ETSR		5F5
F'O, 1, 2, 4, 7		1A0, 4A0
HC	13D8	5A5, 5F7
HR	28A0	1C7, 4B7
MAO, 1, 2		1A0, 4A0

DRAWING
ISSUE
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ISSUE
58AC

MASTER TIMING CIRCUIT

SD-25633-01-A8

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6S

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SD-25633-01-A8

LEAD INDEX (CONT)
(SEE LEAD INDEX CONNECTING CIRCUITS -A6)

DRAWING
ISSUE
310
310
310

A

B

C

D

E

F

G

H

DESIG	FS LOC	CAD LOC
TV TROUBLE INDICATOR CKT		
MBO,1,2,4,7		1H4, 4H3
MCO,1,2,4,7		1H4, 4H3
MDO,1,2,4,7		1A0, 4A0
MEO,1,2,4,7		1A0, 4A0
MFO,1,2,4,7		1A0, 1A0
MG	28E0	1C7, 4B7
MO	28E0	1C7, 4B7
MR		2G3, 5A5
MT0,1,2,4,7	28E0	1A0, 4A0, 4B7
MTCE		1A0, 4A0, 4B7
MTE		2E0, 5F5
MTO,1,2,4,7	28E0	
NS	28D9	1B7, 4B7
P		1H4, 4H3
P1		1A0, 4A0
PCN	13C8	2G3, 1A0, 4A0
PT		1H4, 4H3
PTS		1H4, 4H3
R		5F5, 5F5
RIT		1A0, 4A0
RD		
RG	28E0	1C7, 4B7
RN	28E0	
RST-	28B9, 28D9	5D7, 2E2, 2E0, 2H8
RST EMG	28B9	5D7

DESIG	FS LOC	CAD LOC
TV TROUBLE INDICATOR CKT		
RTI	15F5	1G0, 4G0
RTI		1A0, 4A0
RUT		5F5, 5F5
RW		
SC	28E0	1C7, 4B7
SKP	28E0	1C7, 4B7
SP	28A0	1B7, 4B7
SPA	28E0	1B7, 4B7
SY	28E0	1B7, 4B7
T		5F5, 1H4, 4H3, 5A5
TO,1,2,4,7		
TAP		
TBL		1H4, 4H3
TEN	28E0	5D7, 5A5
TIA		
TIB	24B7	2G3, 5A5
TIS	24B7	2G3, 5A5
TPR	13E8	2G3, 5A5
TS	37F7	2E0, 5F5
TS0,2,---,18		
TS1,3,---,19		
TSSE		5F5, 5F5
TSSO		1H4, 4H3
TV		
UO,1,2,4,7		1H4, 4H3
XPL	15D7	2E2, 5D7
XTC		1H4, 4H3

DESIG	FS LOC	CAD LOC
TROUBLE RECORDER CONNECTOR CKT		
A	28B9	1B7, 4B7
A'0,1,2		1A0, 4A0
ASP	28E0	1B7, 4B7
B	28B9	1B7, 4B7
B'0,1,2,4,7		1H4, 4H3
BSP	28A0	1B7, 4B7
CO	13D8	5C5, 5F7
C'0,1,2,4,7		1H4, 4H3
C1	13D8	5C5, 5F7
D	28A0	1C7, 4B7
D'0,1,2,4,7		1A0, 4A0
DA	28E0	1C7, 4B7
DL	24E8, 24E3	2F0, 5H5
DS		1H4, 4H3
DT0,1,2,4,7	20E1	2B0
DU0,1,2,4,7	21F4	2B0
E	28B9	1B7, 4B7
E'0,1,2,4,7		1A0, 4A0
ET	28A0	1C7, 4B7
F'0,1,2,4,7		1A0, 4A0
HD	13D8	5F7
HR	28A0	1C7, 4B7
HT0,1,2,4,7	4A/A8	2A7, 5F2
HU0,1,2,4,7	4A/A8	2A7, 5F2
MA0,1,2		1A0, 4A0
MBO,1,2,4,7		1H4, 4H3
MCO,1,2,4,7		1H4, 4H3
MDO,1,2,4,7		1A0, 4A0

DESIG	FS LOC	CAD LOC
TROUBLE RECORDER CONNECTOR CKT		
MEG,1,2,4,7		1A0, 4A0
MFO,1,2,4,7		1A0, 4A0
MG	28E0	1C7, 4B7
MJ		5D5
MO	28E0	1C7, 4B7
MT0,1,2,4,7	28D3	2B0
MTCE		1A0, 4A0
MTP		2F2, 5C5
MU0,1,2,4,7	28D3	2B0
NS	28D9	1B7, 4B7
P		1H4, 4H3
P1		1A0, 4A0
PCN	13C7	2F2, 1A0, 4A0
PT		
PT1		1H4, 4H3
PTS		1H4, 4H3
RCCK	24E7	5C5, 1A0, 4A0
RD		
RG	28E0	1C7, 4B7
RN	28E0	
RST-	28B9, 28D9	2E2, 5D7
RST EMG	28B9	5D7
RTIE	15H7	1F0
RTI		1A0, 4A0
RT10	15H7	4F0
RT3E	15H7	1C0
RT30	15H7	4C0
SC	28E0	1C7, 4B7
SKP	28E0	1C7, 4B7
SP	28A0	1B7, 4B7

DESIG	FS LOC	CAD LOC
TROUBLE RECORDER CONNECTOR CKT		
SPA	28E0	1B7, 4B7
SY	28E0	1B7, 4B7
TO,1,2,4,7		1H4, 4H3
TBL		1H4, 4H3
TEN	28E0	5D7
TPR	13E8	2F2
TRB	24D7	2F2, 5C5
TRST	24D7	2F2, 5C5
UO,1,2,4,7		1H4, 4H3
XPL	15D7	2E2, 5D7
XTC		1H4, 4H3
TROUBLE RECORDER CONTROL CKT		
TML	280	2D2
TMS	16B1	2D2
TROUBLE RECORDER CONTROL AND TEST CKT		
TML	280	
TMS	16B1	

DESIG	FS LOC	CAD LOC
TROUBLE TICKETER CKT		
A	28B9	1B7, 4B7
A'0,1,2		1A0, 4A0
ASP	28E0	1B7, 4B7
B	28B9	1B7, 4B7
B'0,1,2,4,7		1H4, 4H3
BSP	28A0	1B7, 4B7
CO	13D8	5C5
C'0,1,2,4,7		1H4, 4H3
C1	13D8	5C5
CMBE		5F5, 5F5
CMBO		
D	28A0	1B7, 4B7
D'0,1,2,4,7		1A0, 4A0
DA	28E0	1C7, 4B7
DL	24E8	5F5, 5F5
DLB		
DS		1H4, 4H3
E	28B9	1B7, 4B7
E'0,1,2,4,7		1A0, 4A0
ET	28A0	1C7, 4B7
ETSR	12B1	5F5
F'0,1,2,4,7		1A0, 4A0
FG		5F5
HD	13D8	1C7, 4B7
HR	28A0	2A7, 5F2
HT0,1,2,4,7	4A/A8	
HU0,1,2,4,7	4A/A8	2A7, 5F2
MA0,1,2		1A0, 4A0

DESIG	FS LOC	CAD LOC
TROUBLE TICKETER CKT		
MBO,1,2,4,7		1H4, 4H3
MCO,1,2,4,7		1H4, 4H3
MDO,1,2,4,7		1A0, 4A0
MEO,1,2,4,7		1A0, 4A0
MFO,1,2,4,7		1A0, 4A0
MG	28E0	1C7, 4B7
MJ		5F5, 5F5
MT	28E0	1C7, 4B7
MT0,1,2,4,7	28E0	
MTCE		1A0, 4A0, 4B7, 5F5
MTO		
MTP		2F2, 5C5
MU0,1,2,4,7	28E0	
NS	28D9	1B7, 4B7
P		1H4, 4H3
P1		1A0, 4A0
PCN	13C7	2F2, 1A0, 4A0
PT		1H4, 4H3
PT1		1H4, 4H3
PTS		1H4, 4H3
R		5F5, 5F5
RIT		1A0, 4A0
RCCK	24E7	5C5, 5F5
RD		1A0, 4A0
RE	28E0	1C7, 4B7
RN	28E0	
RST-	28B9, 28D9	2E2, 5D7
RST EMG	28B9	5D7
RTIE	15G7	1F0

DESIG	FS LOC	CAD LOC
TROUBLE TICKETER CKT		
RT10	15G7	4F0
RT3E	15G7	1C0
RT30	15G7	4C0
RTI		1A0, 4A0
RUT		5F5, 5F5
RW		
SC	28E0	1C7, 4B7
SKP	28E0	1C7, 4B7
SP	28A0	1B7, 4B7
SPA	28E0	1B7, 4B7
SY	28E0	1B7, 4B7
T		5F5, 1H4, 4H3
TO,1,2,4,7		
TBL		1H4, 4H3
TEN	28E0	5C7
TML	280	2D2
TMS	16B1	2D2
TPR	13E8	2F2
TRB	24D7	2F2, 5C5
TRST	24D7	2F2, 5C5
TSR-	12A1, 12B1	5F5
TSSE	12B1	5F5
TSSO		5F5, 1H4, 4H3
TV		
UO,1,2,4,7		1H4, 4H3
XPL	15D7	2E2, 5D7
XTC		1H4, 4H3

ISSUE
51B

MASTER TIMING CIRCUIT

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LEAD INDEX (CONT.)

DESIG	FS LOC	CAD LOC
OFFICE TEST FR TROUBLE INDICATOR AND COMM CKT		
A	2889	1A7, 4A7
B	2889	1A7, 4A7
BSP	28A0	1A7, 4A7
CO,1	1308	5C5
D	28A0	1A7, 4A7
DL	24E8	
E	2889	1A7, 4A7
ET	28A0	1A7, 4A7
HD HR	1308 28A0	1A7, 4A7
MTP		2F3, 5C5
PCN	1308	2F3
RCCK	24E8	2F3, 5C5
RST-	2889	2C3, 5E7
RST EMG RT1E	2889	5E7 1G0
RT3E RT30		1G0 1G0
SP		1A7, 4A7
TPR TRB	13E8 24D8	2F3 2F3, 5C5
TRST	24D8	2F3, 5C5

DESIG	FS LOC	CAD LOC
TIMER LINK CKT		
CO-3	41E4	1B5, 4A5
C4,5	41E4	1B5, 4F2
C6,7	41E4	1B5, 4A2
C8,9	41E4	1B5, 5B7

TRAFFIC SERVICE POSITION CKT		
PGE PGO	7D3 7A3	1B5 1B5

TRUNK AND OUTPULSER TEST CKT		
IIPM	40C3	404

DRAWING ISSUE	
31D	PH
37B	CB
	A
	B
	C
	D
	E
	F
	G
	CB
	H

MASTER TIMING CIRCUIT ② SD-25633-01-A10

BELL TELEPHONE LABORATORIES
INCORPORATED

ISSUE
41B

SD-25633-01-A10

STABLO

OPTION INDEX

APP OR WRG	LOCATION
1	APP FIG. 1
2	APP FIG. 2
5	APP FIG. 5
6	APP FIG. 6
7	APP FIG. 7
9	APP FIG. 9
10	APP FIG. 10
11	APP FIG. 11
12	APP FIG. 12
13	APP FIG. 13
14	APP FIG. 14
15	APP FIG. 15
16	APP FIG. 16
23	APP FIG. 23
24	APP FIG. 24, 31C6, 31D6
25	27C2
27	APP FIG. 27
28	APP FIG. 28
29	APP FIG. 29
30	APP FIG. 30
31	APP FIG. 4, 19, 31, 4B5, 4C4, 4G2
32	APP FIG. 32
FIG. A	APP FIG. A
FIG. B	APP FIG. B
FIG. C	APP FIG. C
FIG. D	APP FIG. D
Z	3E1
Y	11E5, E6, 11F6
X	11E5, E6, 11F6
W	15F7, 24D2
V	APP FIG. 17, 15F6, F7, 24D2
T	12C4
S	12C4
R	12C5
Q	12D2
N	2A/D3, 4A/G2, H2, 7A0, AI, C2, D2, EI, E2, HI, 31A0, AI
H	12D3
K	12D7, 12E6, E8, 17C4, 17D4, 18B5
J	12D7, 12E6, E7, 17B4, 18B5

APP OR WRG	LOCATION
H	11D5
G	11D5
F	35G5
E	23D6, 25C3, 31E6, 31F6, 36F4
B	11D1, 23C6, 23D7, 25B4, 25B6, 25C2, 31E5, E6, 36F4
A	31C4, C7, 31D3, D4, D6
ZA	31C4, C6, C7, 31D3, D4, D6
ZB	37F7
ZC	35A6, A7
ZD	2A/D3, G2, 7A1, 7B1, 7B2, 7C2, 7D2, 7E2, 31A0, AI
ZE	APP FIG. 8
ZF	13D3, D5
ZG	13C3, C5
ZH	38E4, 36B1, B3, 36C1, C2, 36C4, 36D1, D2, D4, 39A2
ZI	38D4, 36B1, B4, 36C1-C4
ZJ	APP FIG. 1, 2, 3 AND 4, 2B/F2, 3B7, B8, 3C7, 3F7, F8, 5F4, F5, 5G4, 7E7, 25D7, 25E7
ZK	2B/F2, 3F7, 19D8, D9, E7, E8, 21E6, E8, E9
ZL	APP FIG. 8
ZM	17A2, 17B2, 17B8, 17C8, 18D1
ZN	APP FIG. 24
ZO	13D2
ZP	13D7
ZQ	13E7
ZR	13E2
ZS	12C6, 12D6
ZT	12C6, 12D6
ZU	25D6, 25E6
ZV	25D6
ZW	27C8, C9, 35F1, 37C4
ZX	27C8, 35G1, 37C4
ZY	18F6, 19F4, 19G4, 20B7, 21B3, 21C2
ZZ	18F6, 19F4, 21B3

APP OR WRG	LOCATION
XA	17D3
XB	17D3, D4
XC	24F1
XE	3F7, F8, 25D7, 25E7
XF	3C7, 3E7
XG	APP FIG. 8
XH	40E3, E5
XI	APP FIG. 8
XJ	40A6, 40B6, 40C6
XK	APP FIG. 17, 15F6, F7, 24E6
XN	SEE NOTE 205
XO	APP FIG. 3, 17, 24D2, 25C5, 40A4, A6, 40C6
XP	17C3
XQ	12C3
XR	11B2, B3, 11D4
XS	APP FIG. 4, 11B1-B3, 41A0, AI, B5, CO
XT	12D3
XU	APP FIG. 4
XV	APP FIG. 4
XX	41D1
XY	7B0, B2, C2
XZ	7A2, 7B1
WA	7A2, 7B0-B3
WB	23E2
WC	APP FIG. 4, 31B5, 41A0, AI, B2, B5, CO, CI, C6, C7, GI
WD	41C0
WE	41C0, 41D6
WF	APP FIG. 30
WG	31F1
WH	APP FIG. 4, 41B1
WI	APP FIG. 4
WJ	4A/F1
WK	19C6, D7, D8, E7, E8
WL	19C6-E7
WM	19C6
WN	APP FIG. 20
WO	APP FIG. 20
WP	1D1, 1D2
WQ	1D1
WR	APP FIG. 31
WS	APP FIG. 30
WT	APP FIG. 31
WW	18B2
WX	18B2

APP OR WRG	LOCATION
WY	APP FIG. 1, 2, 3, 4, 1A1, E2, 2A/B2, E8, F5, 4A/F0, 4B/AI, H3, 7C5, D5, 8A/AS, 8B/B2, 1CH6, 13B5, C5, 18A6, 19D5, G5, 21D9, 25G4, 27F8, 28A1, C8, 29B1, 41C4, C7
WZ	APP FIG. 1, 2, 3, 4, 8, 1B1, B3, 2A/E2, F8, H7, 2B/B2, D9, E7, F3, G3, 3B2, G6, 4A/C4, 7A1, C0, 8A/C6, 8B/B7, 18A6, 19D5, G5, 29B1, 31B4, H6, 41B5
VA	18C1
VB	APP FIG. 8
VC	2A/G7
VD	2A/G6, 41B4, C4, C7
VE	40A5, A7, C4, C7
VF	40B5, B7, C4, C7
VG	1D8, F6, 40A7, C7
VH	APP FIG. 3, 40B7, C7
VI	APP FIG. 19, 4A/F1, F2
VJ	41B0, D7, G0
VK	41B0, D7, G0
VL	31G4
VM	31G3
VN	7A2, C2, C3
VO	7A2, C2, C3, 40B8, C8, D9
VP	APP FIG. 2, 1C7, F0
VQ	APP FIG. 2, 1G0
VR	11D8
VS	11A8, C2, D2, D8, 12D7, E6, 25D5, 30A8, C8, D8
VT	23B7, 36A2, 38G1
VU	34B8
VV	4A/A8, B8, GI
VW	APP FIG. 1, 2, 4A/F2, GI, 4B/A1-G1
VX	2B/C9, G9, 28F5, G5
VY	4A/B5
VZ	APP FIG. 4, 2B/A5-G7, F3, G3

APP OR WRG	LOCATION
UA	APP FIG. 3, 4, 2A/H5, 2B/A4-G7, 7E8, H8
UB	APP FIG. 1, 2, 1A1
UC	APP FIG. 1, 2
UD	1A8, B8, C8
UE	34E8
UF	7F2, F5, G0, 31A1, B1, B5
UG	7D2, F2, 31B1
UH	7D2, F2, 31B1, C1
UJ	7H2, H5
UK	APP FIG. 8, 17, 18
UL	APP FIG. 8, 17, 18
UM	22H2
UN	8A/C3, E3
UO	8A/C3
UP	24E1, 31F6
UQ	24E1, 31F6

310	REC
33A	Y/C
34B	CM
350	NF
37B	
38B	

CB
ISSUE
60A

MASTER TIMING CIRCUIT
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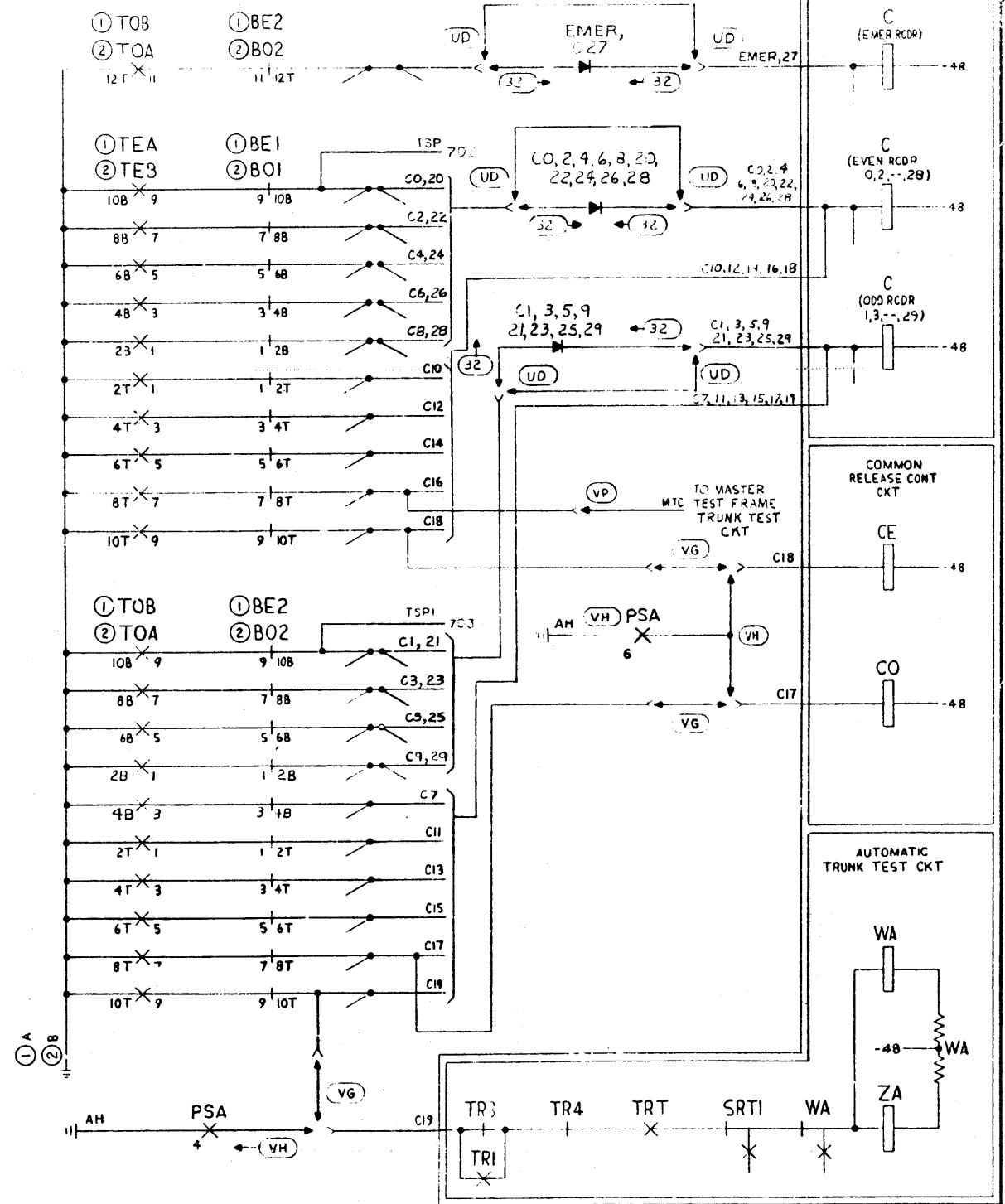
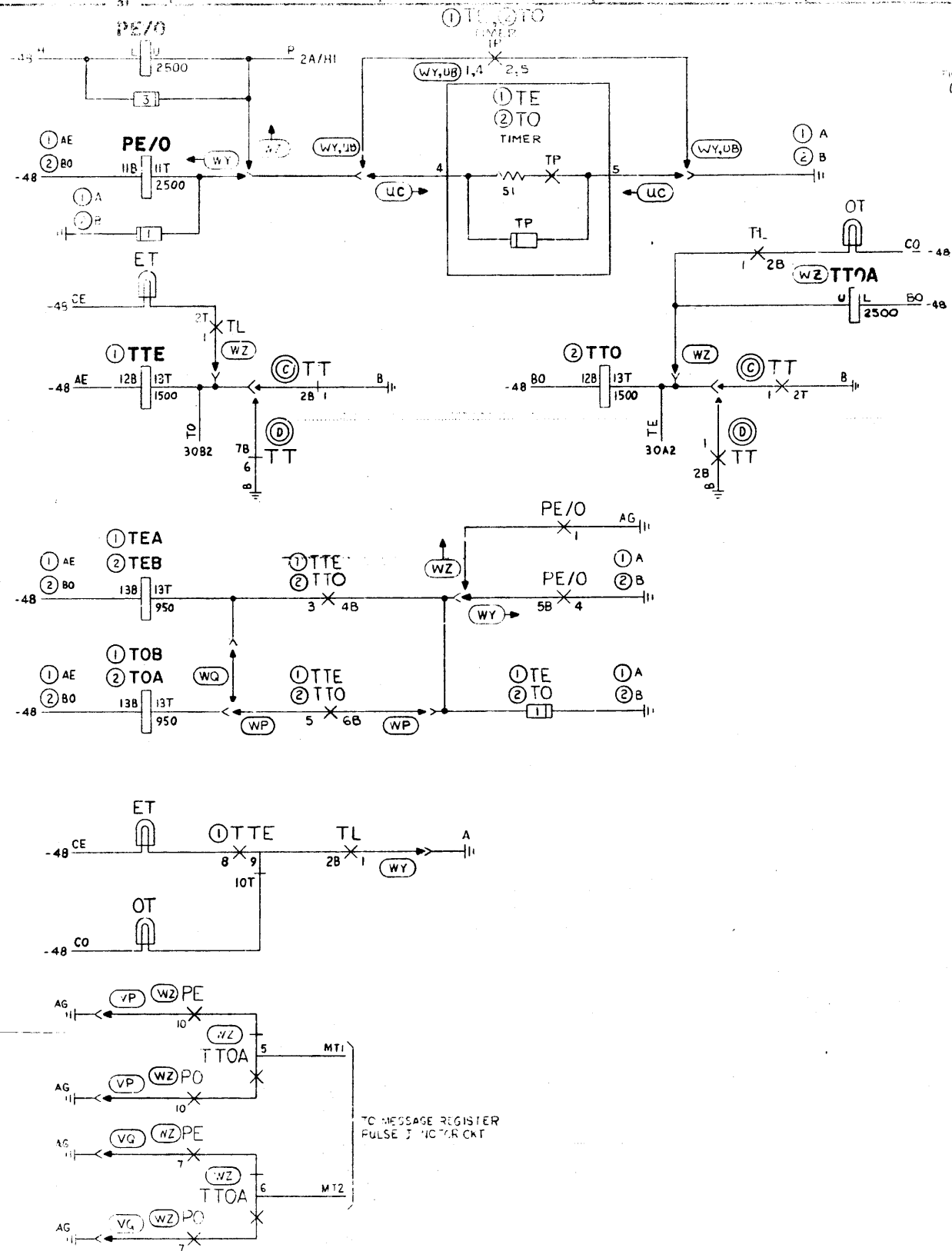
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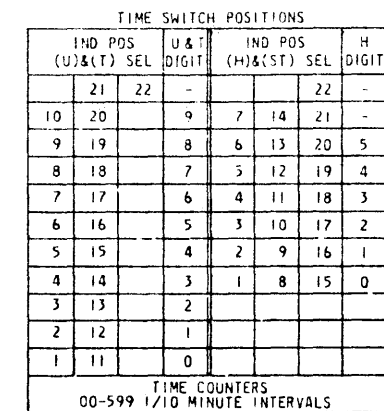
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STABLO
K2





CONTROL OF TIMING SWITCHES



SD-25633-01-B2A

②

6S

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CONTROL OF TIMING SWITCHES

(SEE TABLE B)

CONT NO.	OPTION	
	VZ	UA
a	7	8
b	1	5
c	3	6

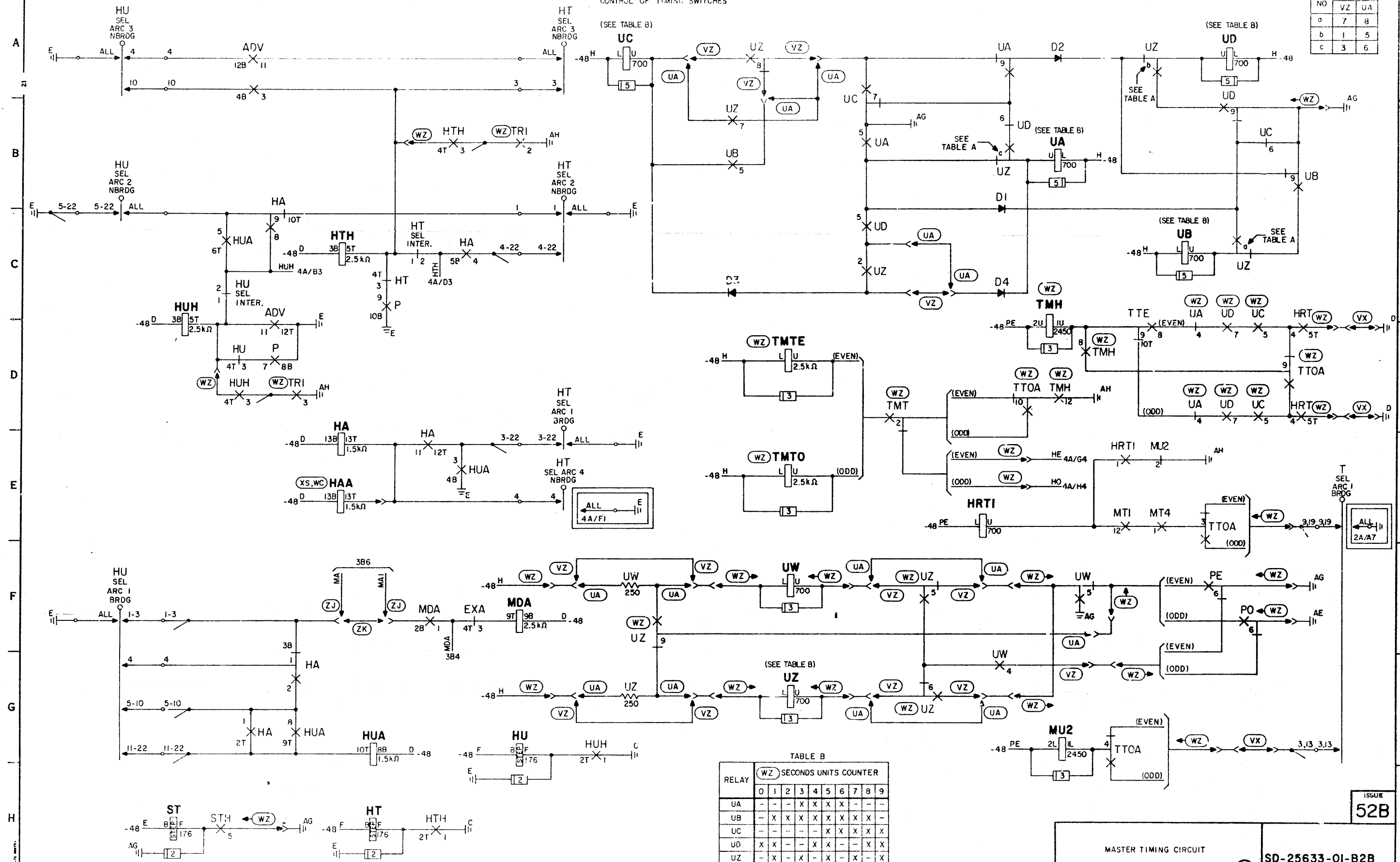


TABLE B

RELAY	(WZ) SECONDS UNITS COUNTER								
	0	1	2	3	4	5	6	7	8
UA	-	-	-	X	X	X	X	-	-
UB	-	X	X	X	X	X	X	X	X
UC	-	-	-	-	-	X	X	X	X
UD	X	X	-	-	X	X	-	-	X
UZ	-	X	-	X	-	X	-	X	-

X = DENOTES RELAY OPERATED
 - = DENOTES RELAY NORMAL

MASTER TIMING CIRCUIT

SD-25633-01-B2B

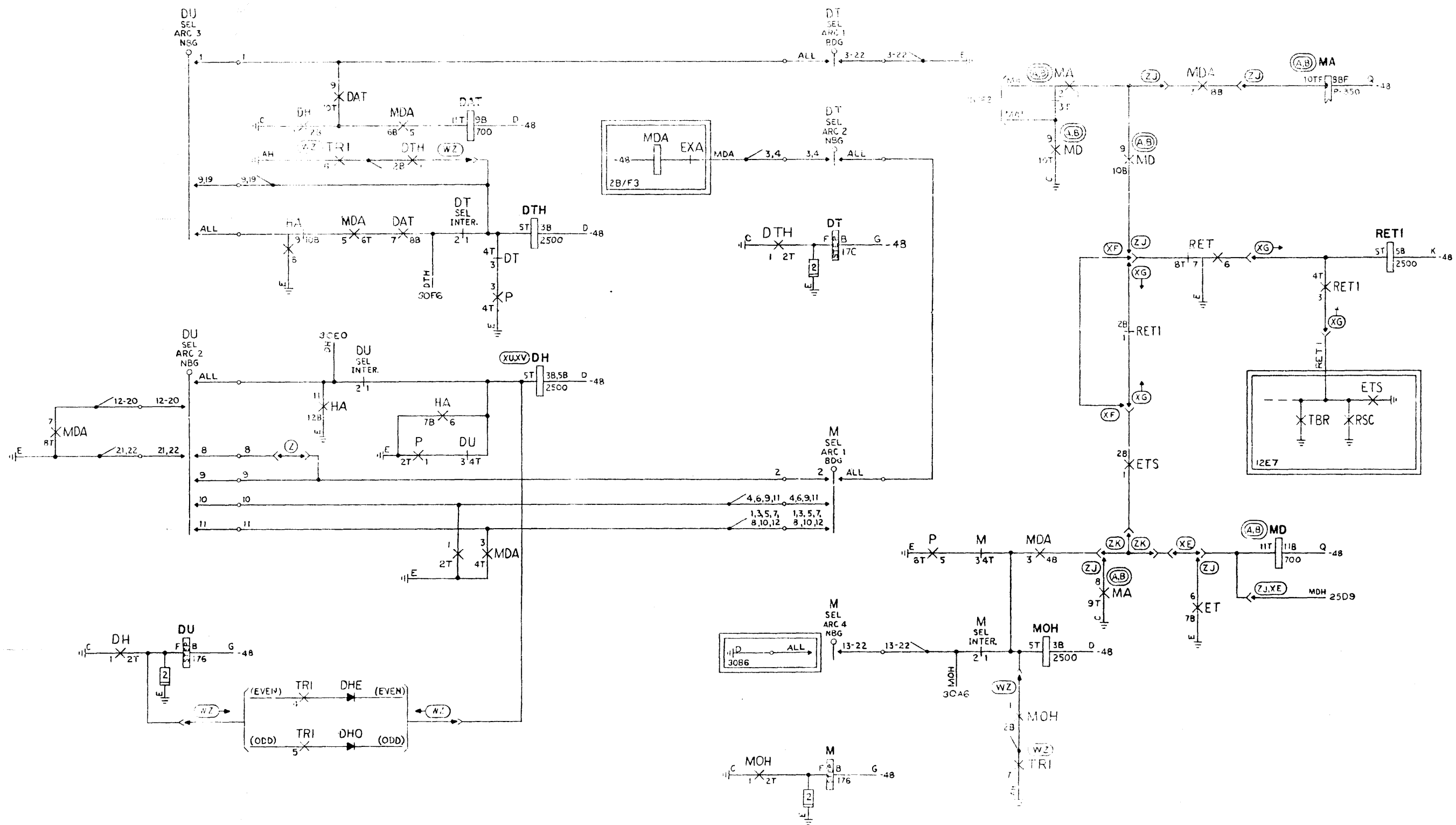
ISSUE
52B

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PART OF FS 2
CONTROL OF TIMING SWITCHES



ISSUE
41B

MASTER TIMING CIRCUIT

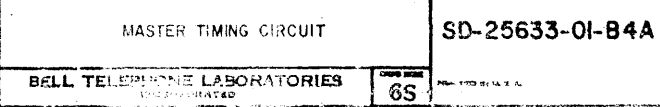
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RECORDING OF HOUR ENTRY



PART OF FS 3 RECORDING OF HOUR ENTRY

RCDR B. RCDR COMM CKT

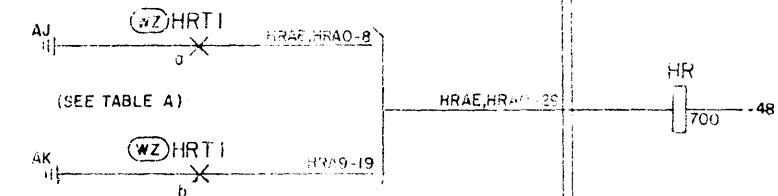
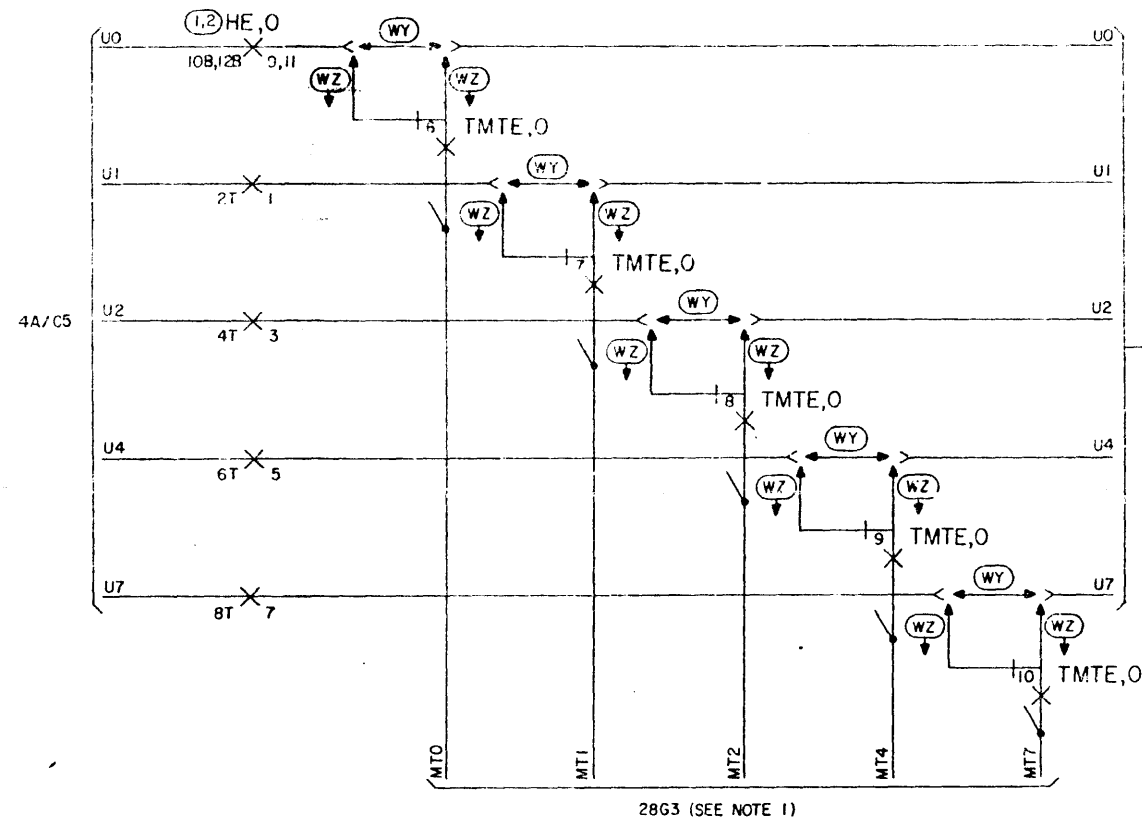
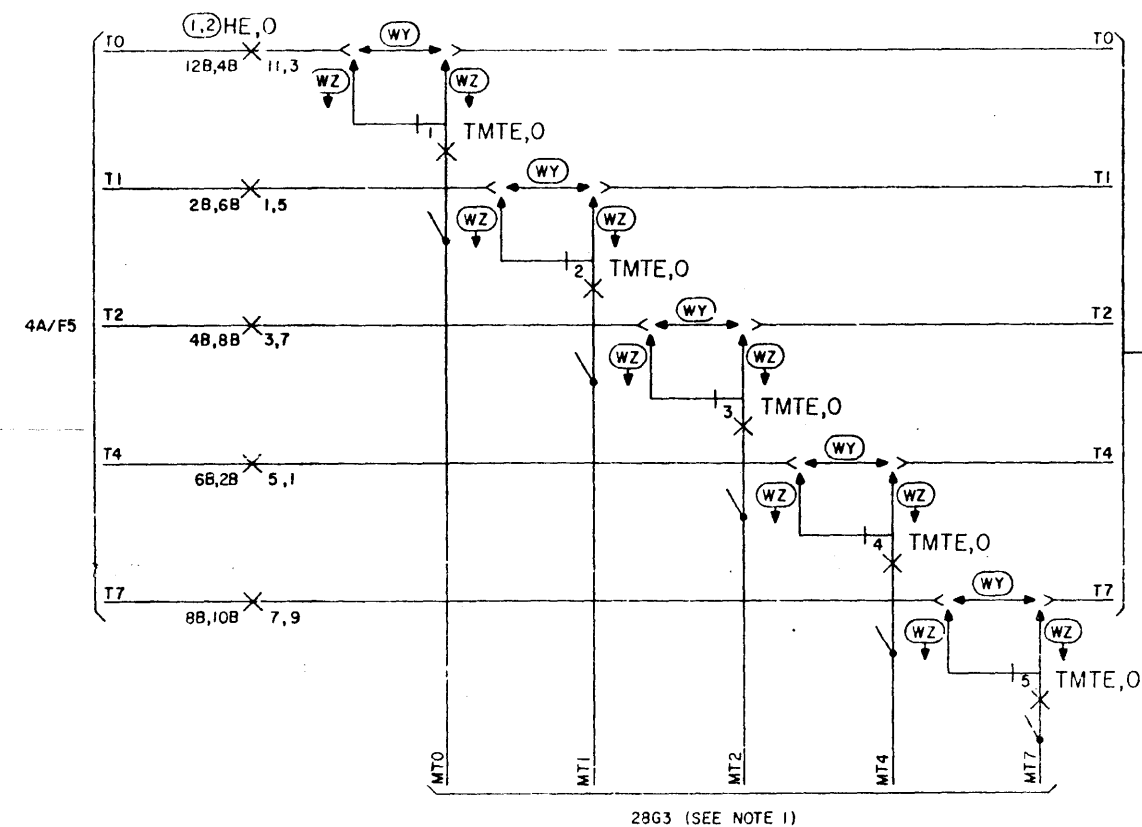


TABLE A

CONT	a	HRA-- LEAD	CONT	b	HRA-- LEAD
2	E	13	10		
3	0	14	11		
4	1	15	12		
5	2, 22	16	13		
6	3, 23	17	14		
7	4, 24	18	15		
8	5, 25	19	16, 26		
9	6	20	17, 27		
10	7	21	18, 28		
11	8	22	19, 29		
12	9	23	20		
		24	21		



⑤ U(0,1,2,4,7)E
⑥ U(0,1,2,4,7)O
13T 13B 2.5kΩ
⑤ LE
⑥ MO -48



⑤ T(0,1,2,4,7)E
⑥ T(0,1,2,4,7)O
13T 13B 2.5kΩ
⑤ LE
⑥ MO -48

NOTES:
1. (TMTE) GOES TO EVEN TIMER
(TMT0) GOES TO ODD TIMER

ISSUE
52B

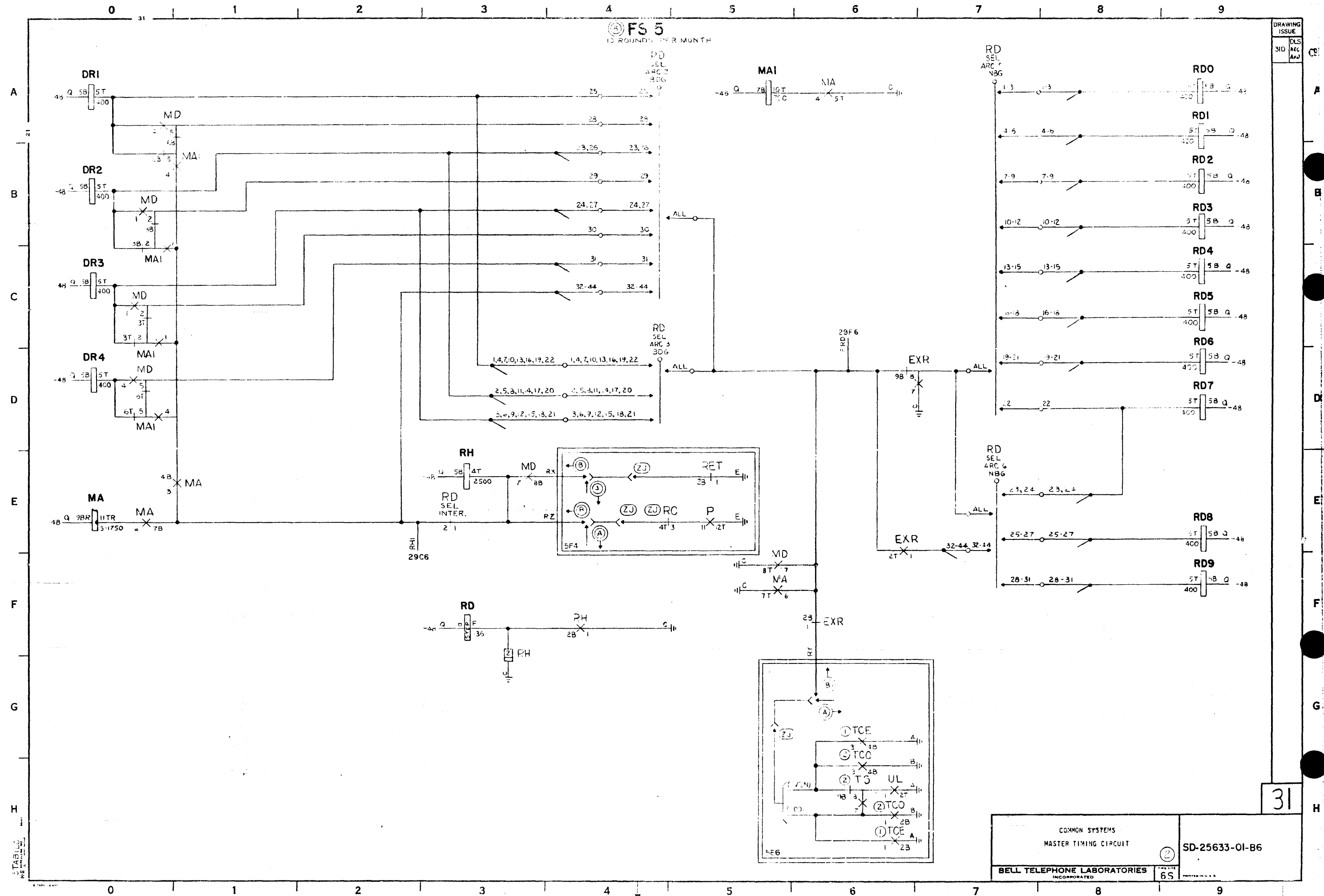
MASTER TIMING CIRCUIT

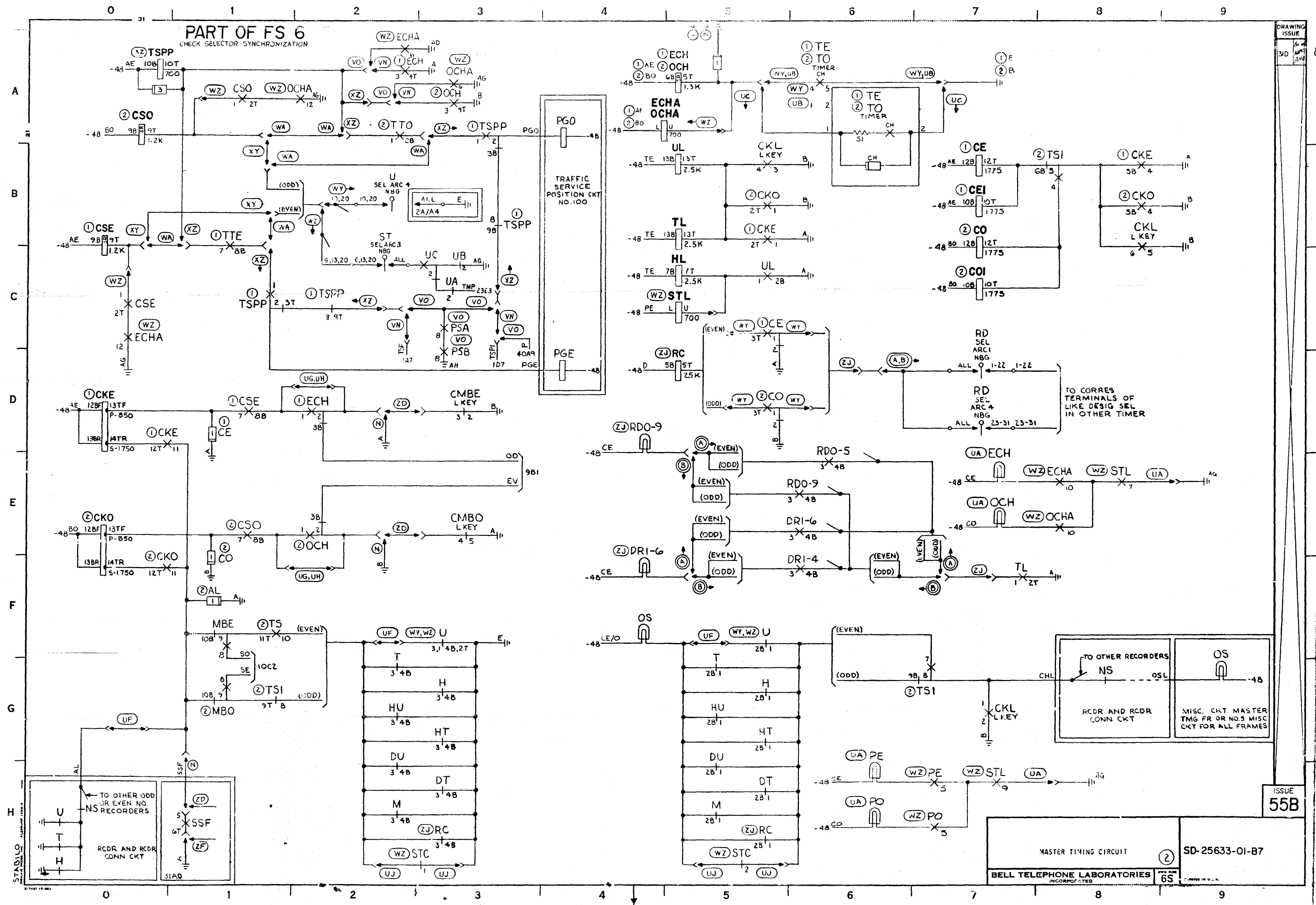
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② 6S





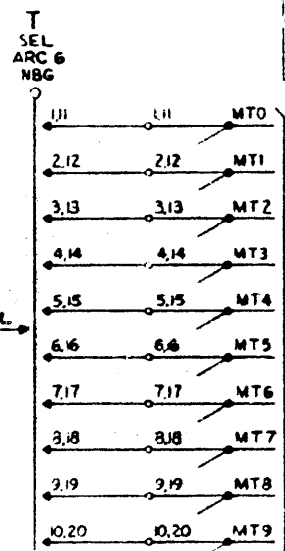
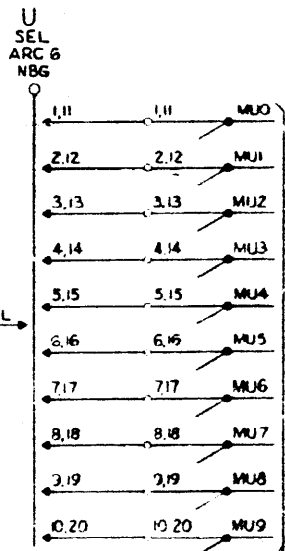
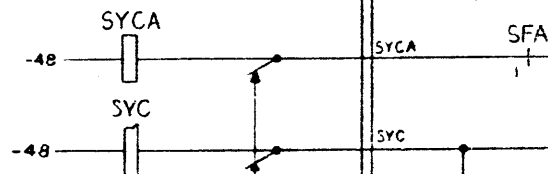


RECORDER AND RECORDER
CONNECTOR CKT

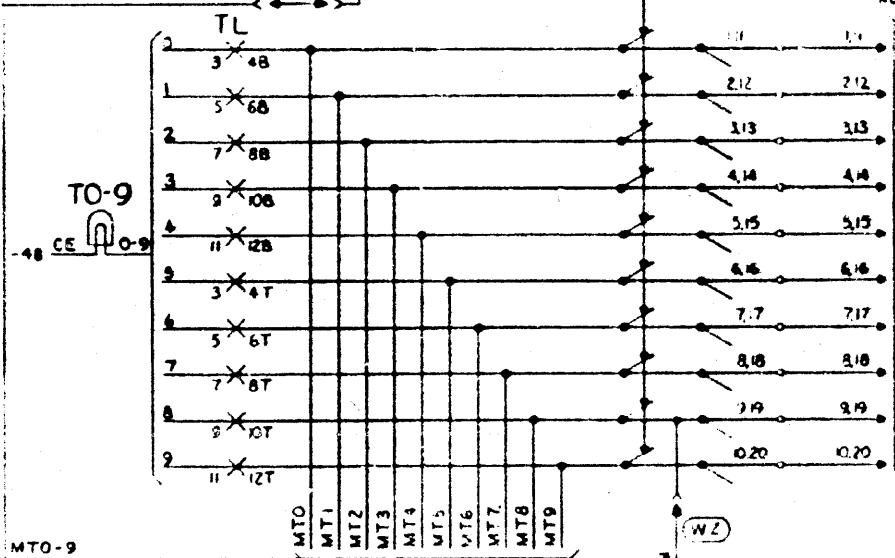
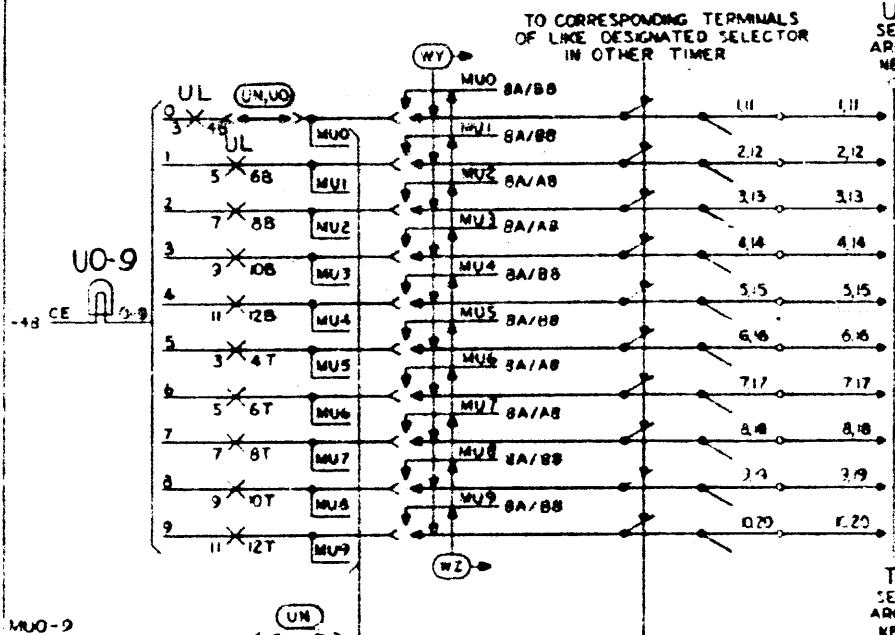
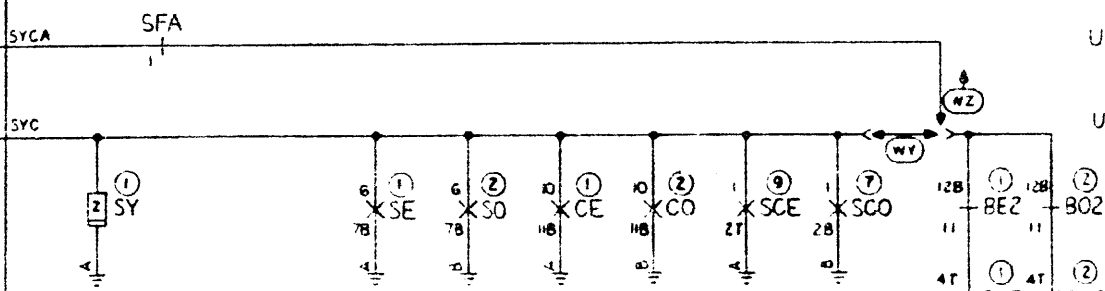
PART OF FS 6
CHECK SELECTOR SYNCHRONIZATION

TO LIKE DESIGNATED
LEADS IN OTHER TIMER

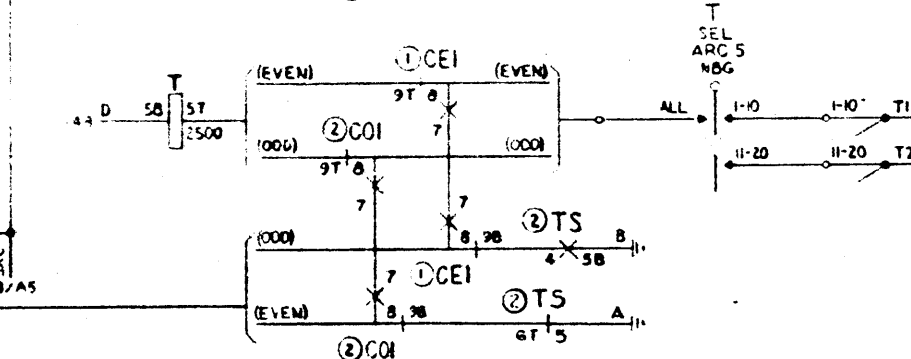
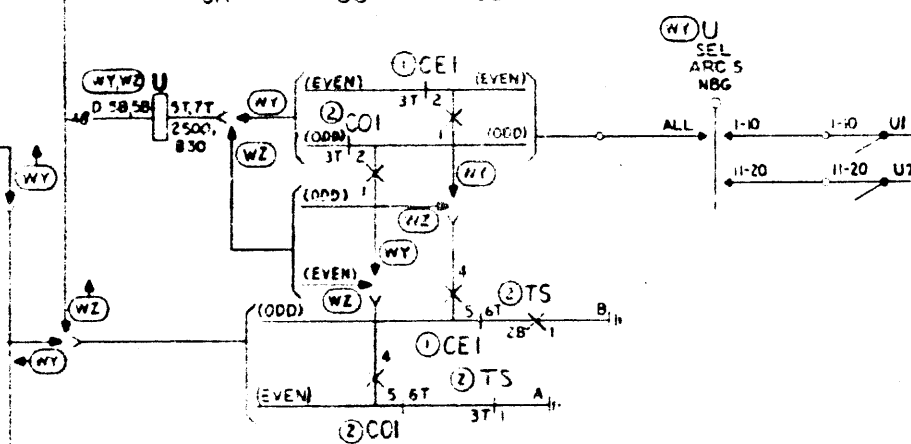
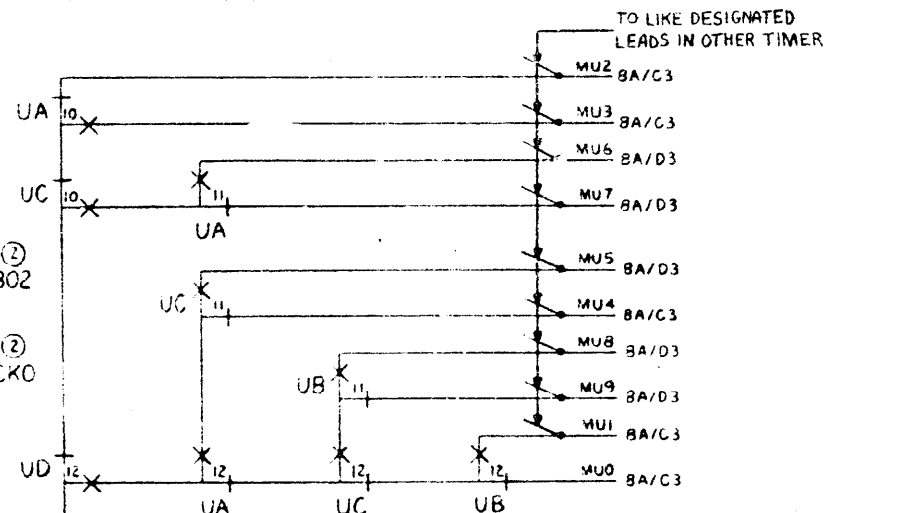
A
B
C
D
E
F
G
H



TO OTHER
RECORDERS



TO OTHER
RECORDERS



TO
CORRESPONDING
TERMINALS
OF LIKE
DESIGNATED
SELECTOR IN
OTHER TIMER

SD-25633-01-B8A

STABLO
K-E

MASTER TIMING CIRCUIT

SD-25633-01-B8A

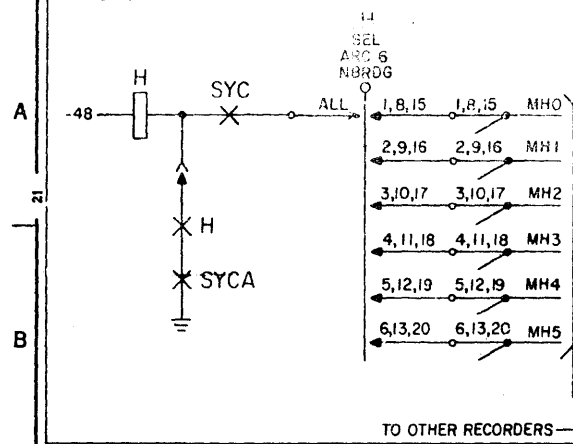
BELL TELEPHONE LABORATORIES
INCORPORATED

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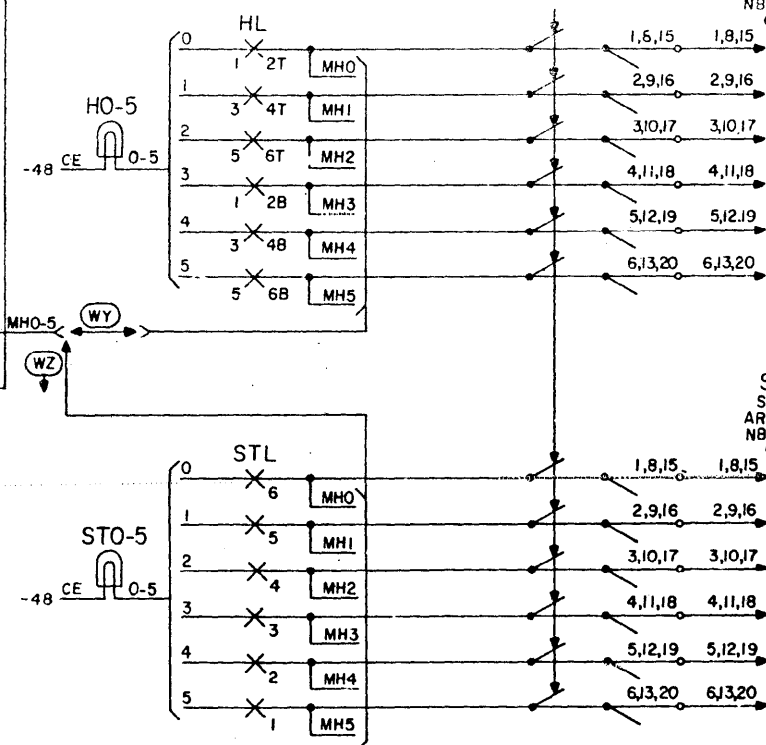
ISSUE
58AC

RECORDER AND RECORDER
CONNECTOR CKT



PART OF FS 6

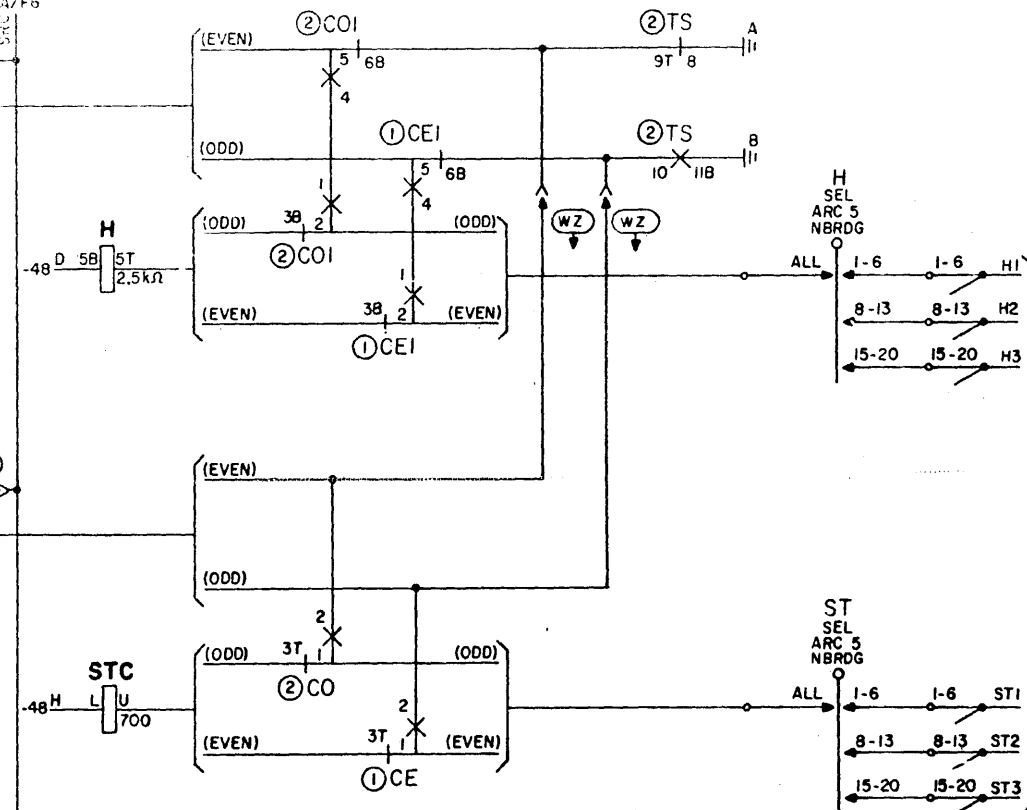
CHECK SELECTOR
SYNCHRONIZATION



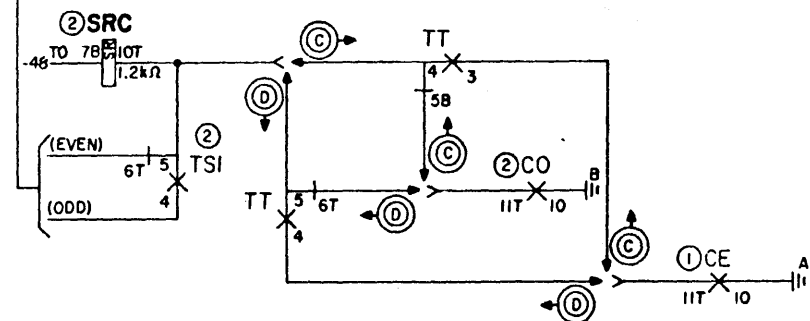
TO CORRESPONDING TERMINALS
OF LIKE DESIGNATED SELECTOR
IN OTHER TIMER

H
SEL
ARC 6
NBRDG

34/F6



TO CORRESPONDING
TERMINALS
OF LIKE
DESIGNATED
SELECTOR IN
OTHER TIMER



SD-25633-01-B88

ISSUE
52B

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

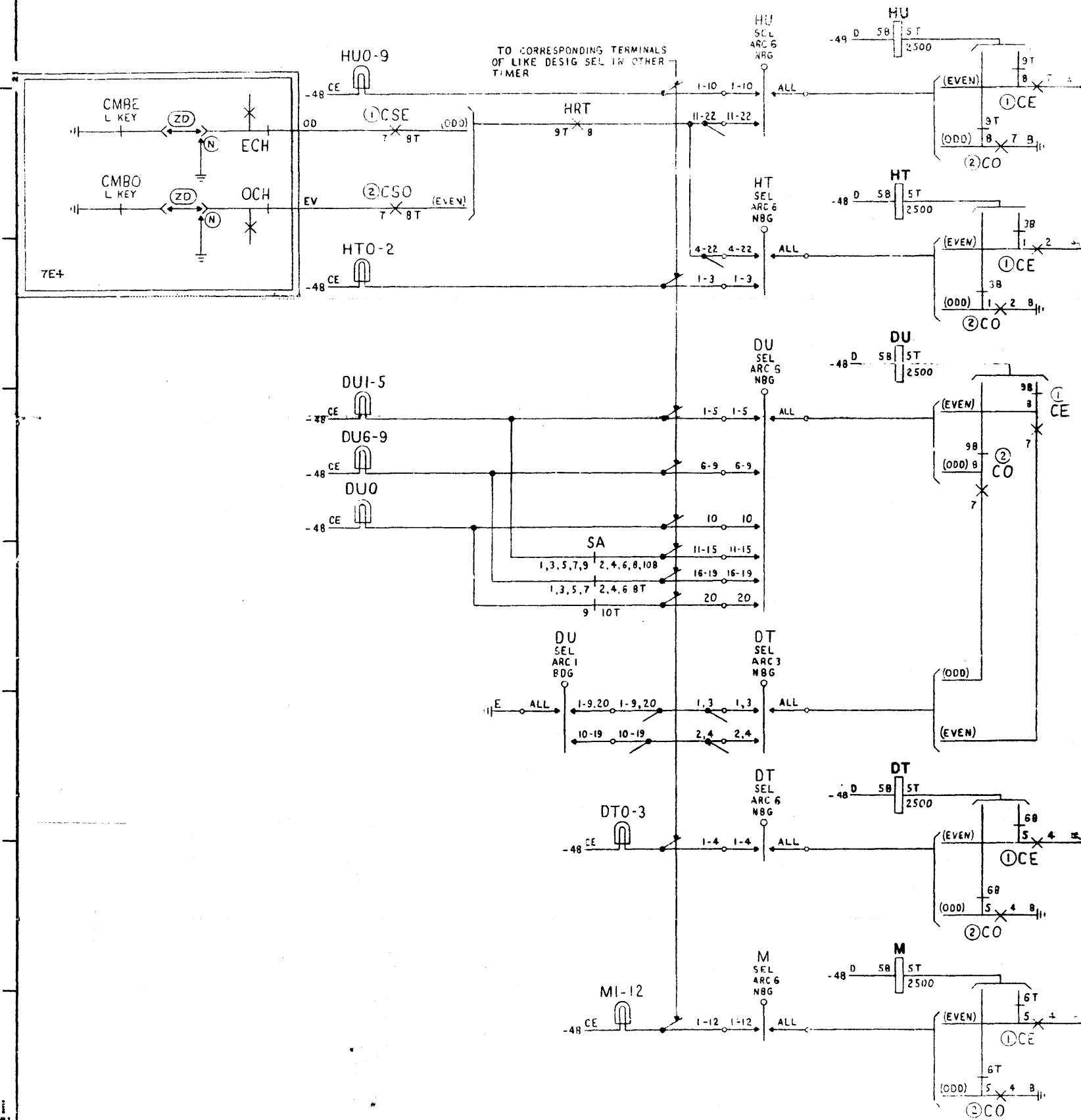
SD-25633-01-B88

65

PRINTED IN U.S.A.

PART OF FS 6 CHECK SELECTOR SYNCHRONIZATION

A
B
C
D
E
F
G
H

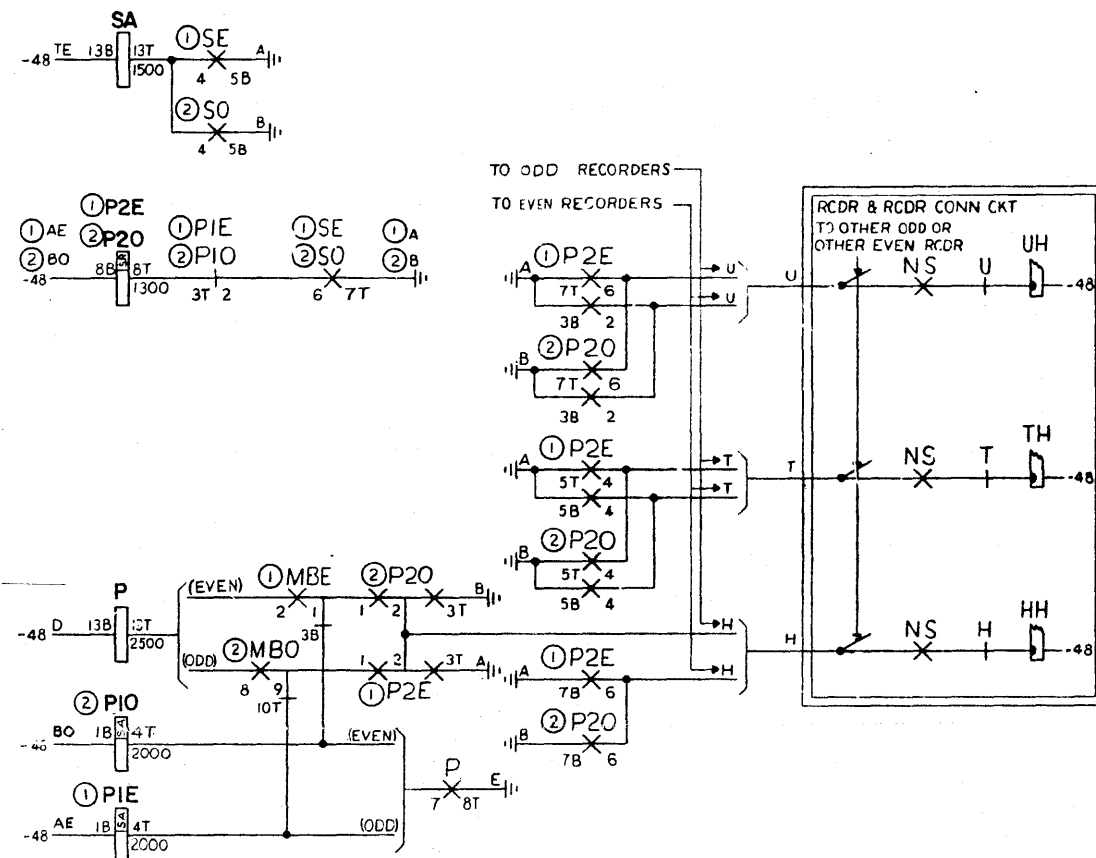
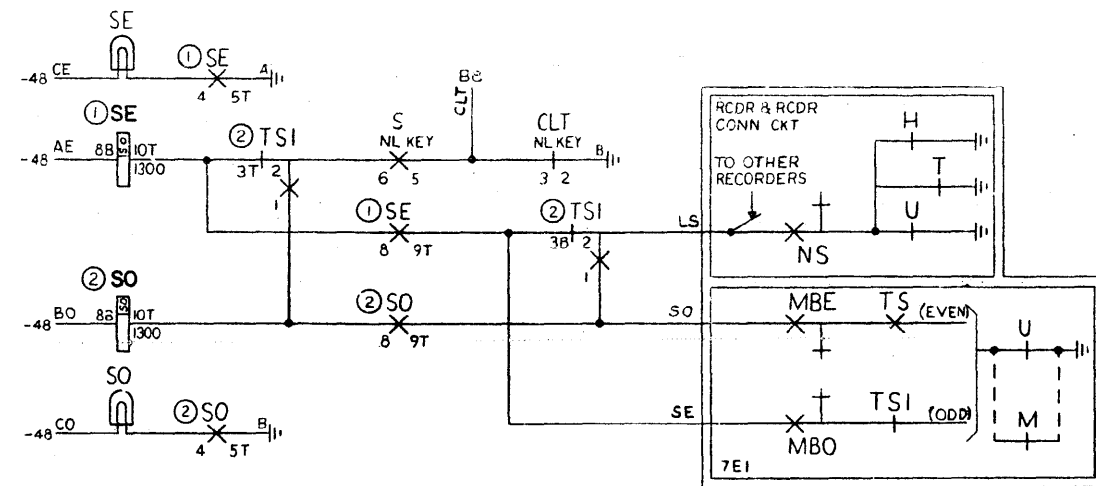


DRAWING
ISSUE
310 1401

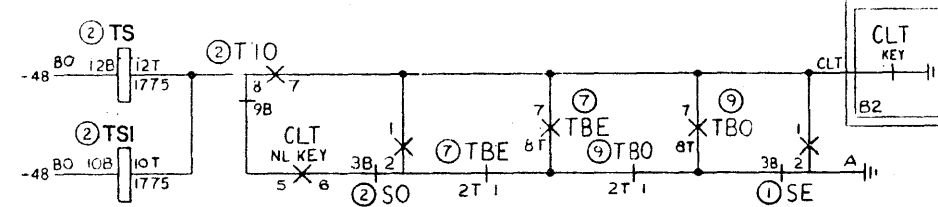
ISSUE
49B

0 1 2 3 4 5 6 7 8 9

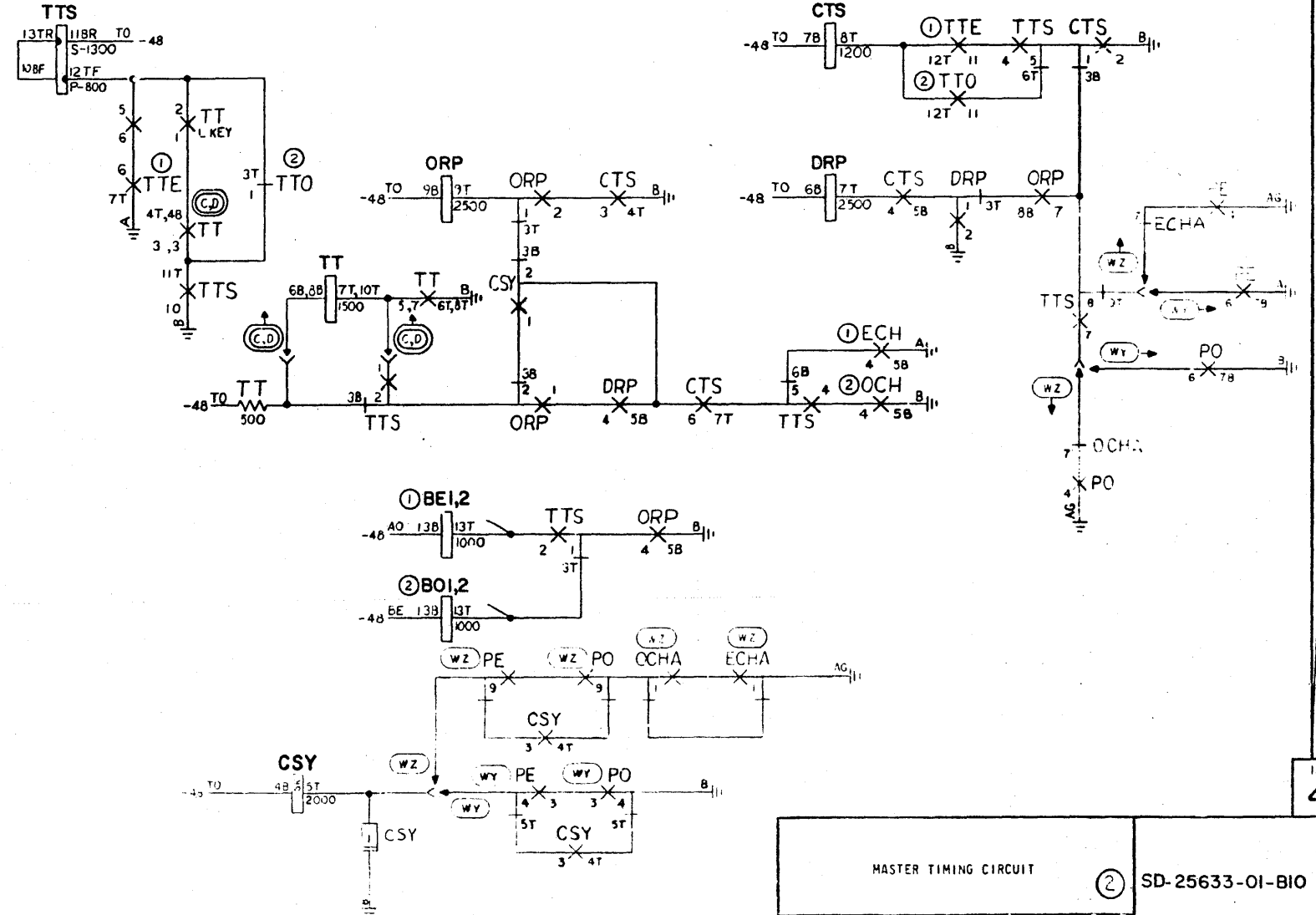
SYNCHRONIZING TIMERS

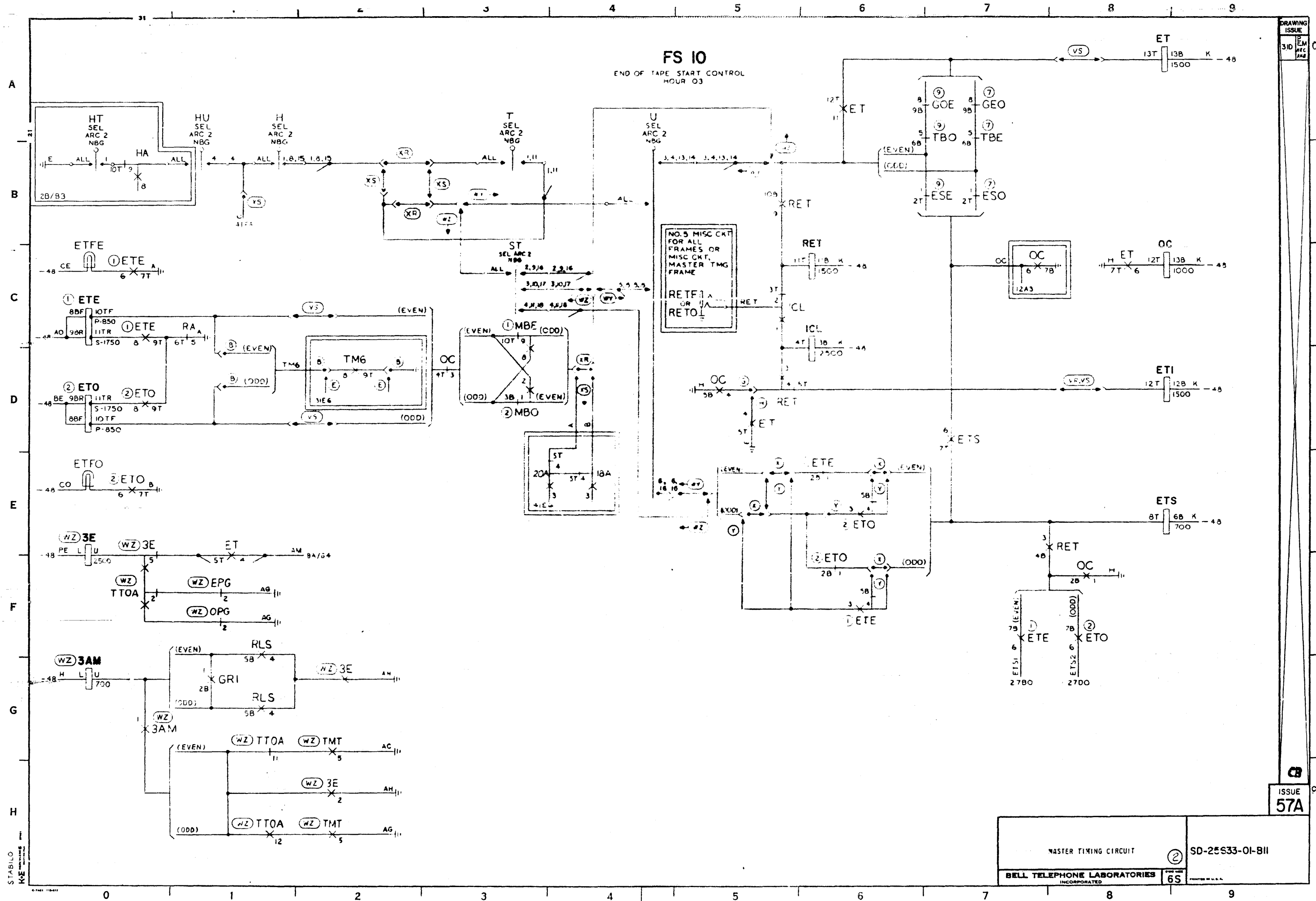


CHECK LAMP TRANSFER



TIMER TRANSFER CONTROL

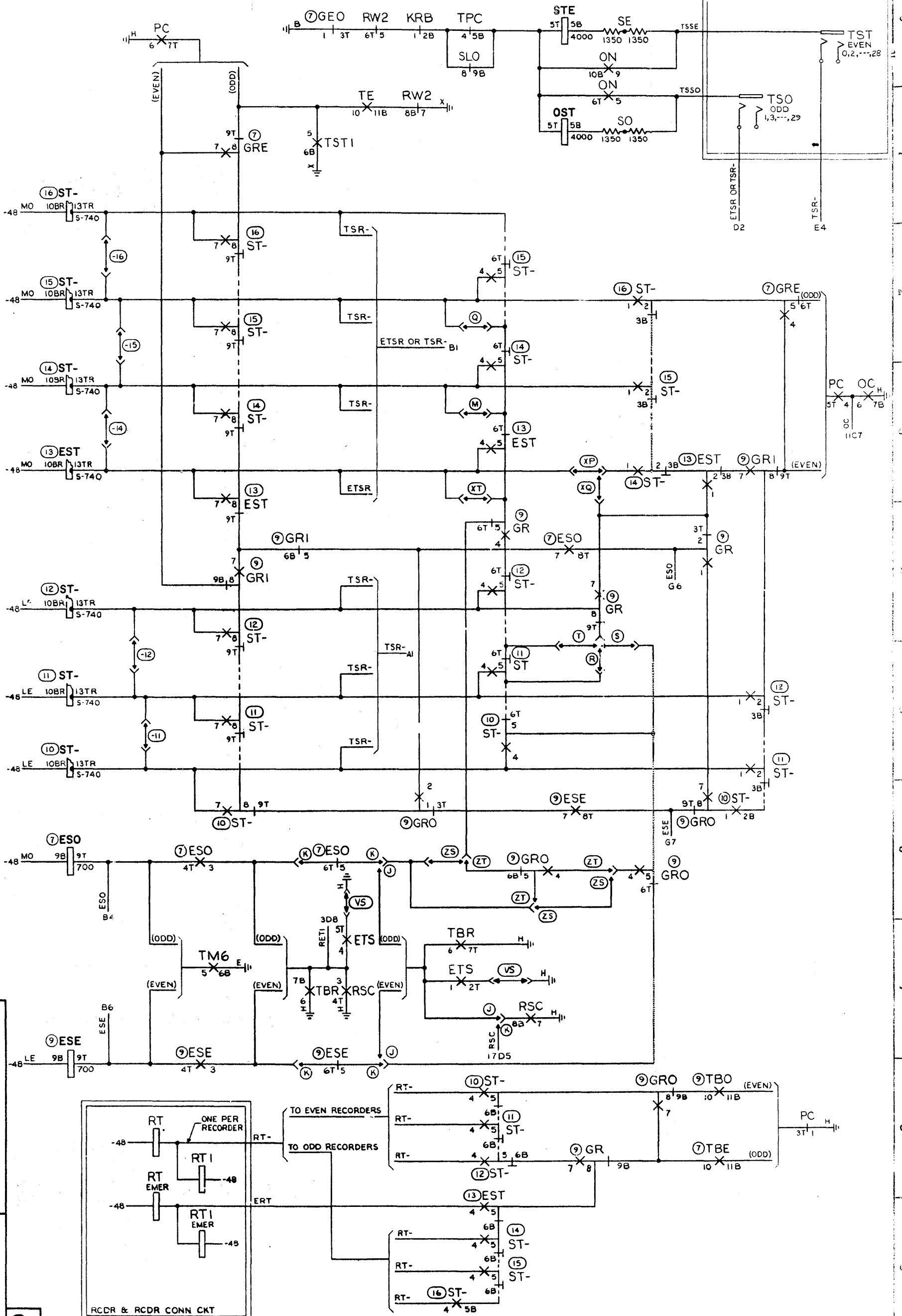




STABLO
K-3

FS II RECORDER SELECTION, SEIZURE, AND CONTROL

MISC CKT FOR TV TBL IND FR; MA TST
FR-JK, LP, & KEY CKT; JK, KEY, & LP
CKT, TBL RCDR FR; MISC CKT FOR TBL
RCDR FR; OR JK, KEY, AND LP CKT, TBL
TICKETER FR.



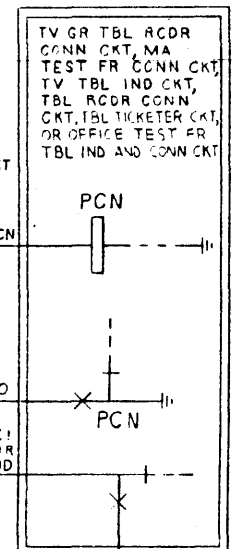
BELL TELEPHONE LABORATORIES

MASTER TIMING CIRCUIT

SD-25633-01-B12

ISSUE
60AISSUE
30 3/78

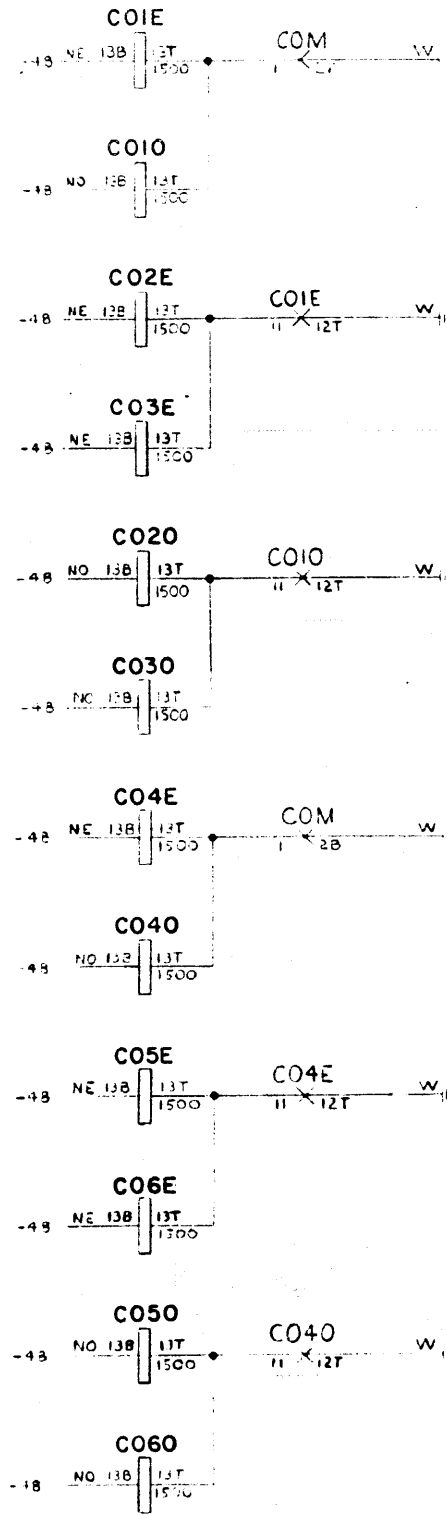
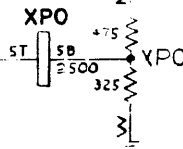
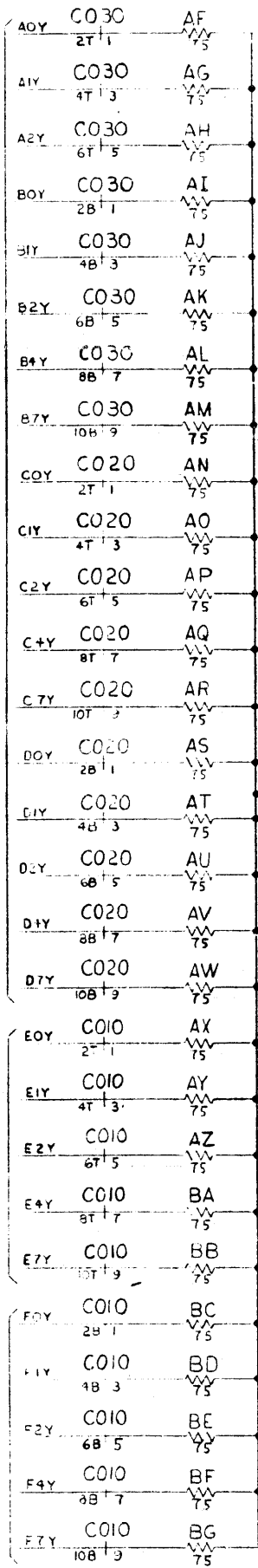
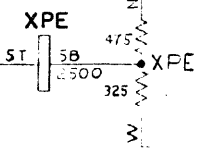
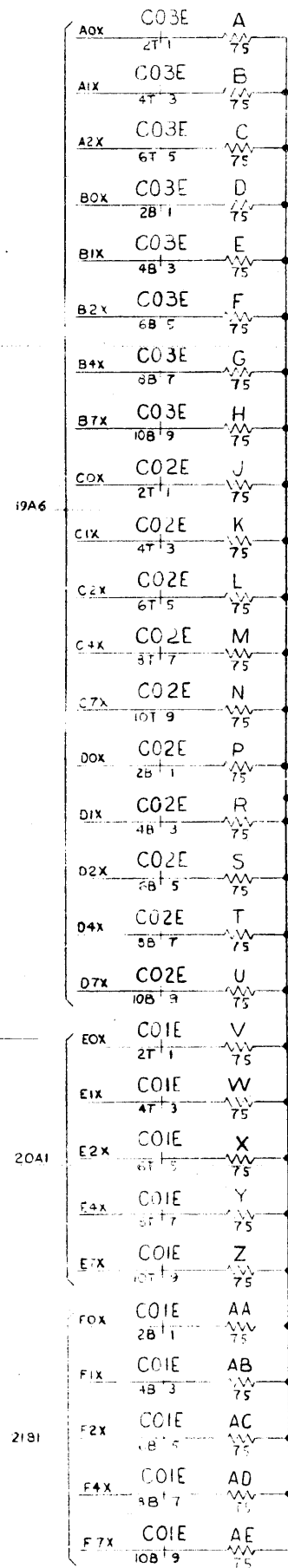
END OF TAPE PATTERN START CONTROL
AND TROUBLE RECORDER IDLE CHECK CKT



BELL TELEPHONE LABORATORIES
INCORPORATED

②
65

PART OF FS 13 STANDING TEST AND CONTROL



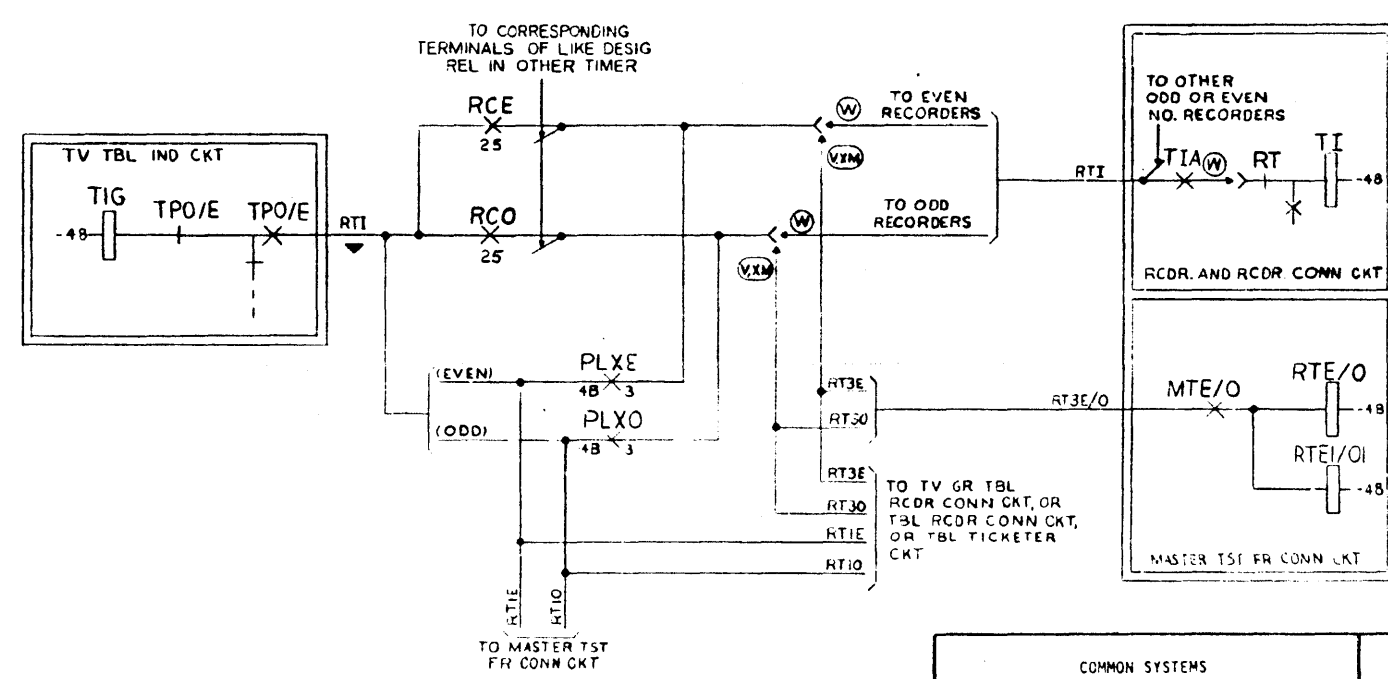
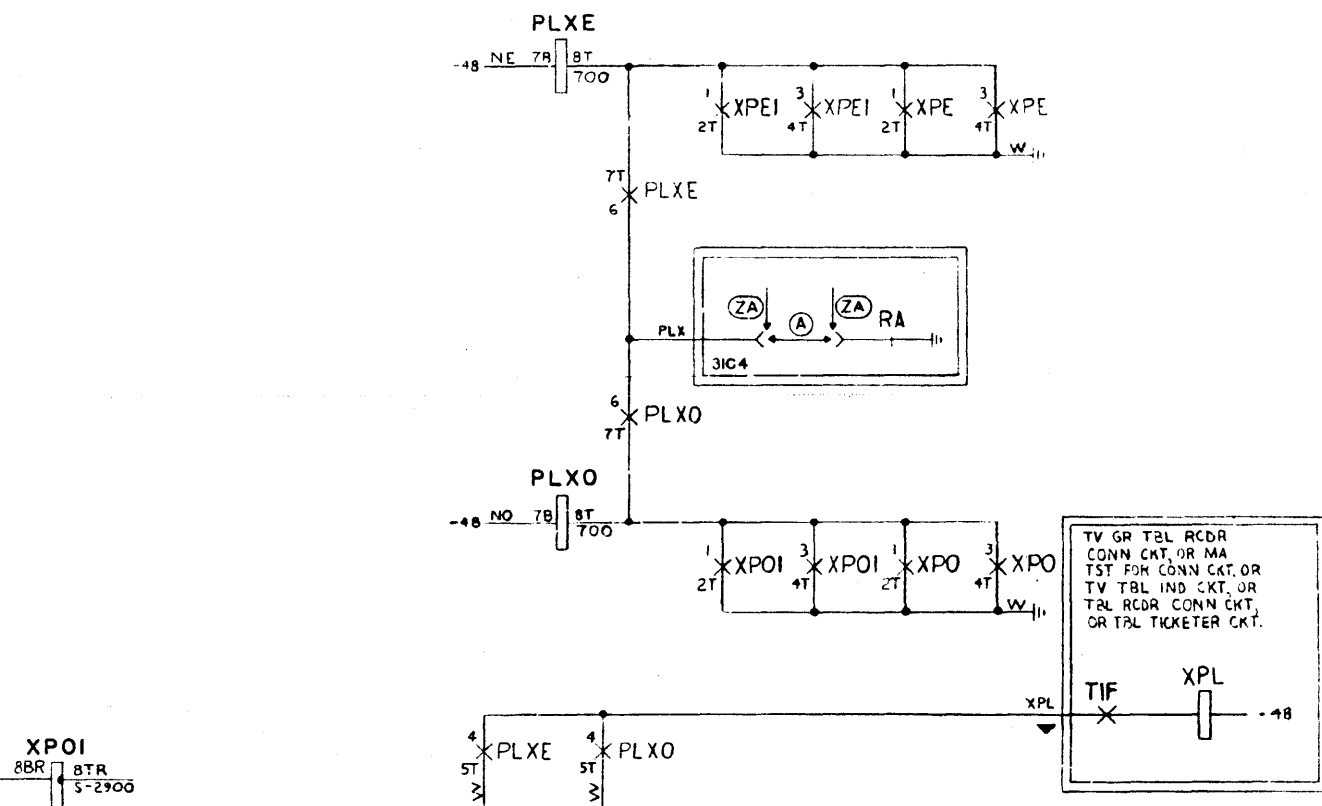
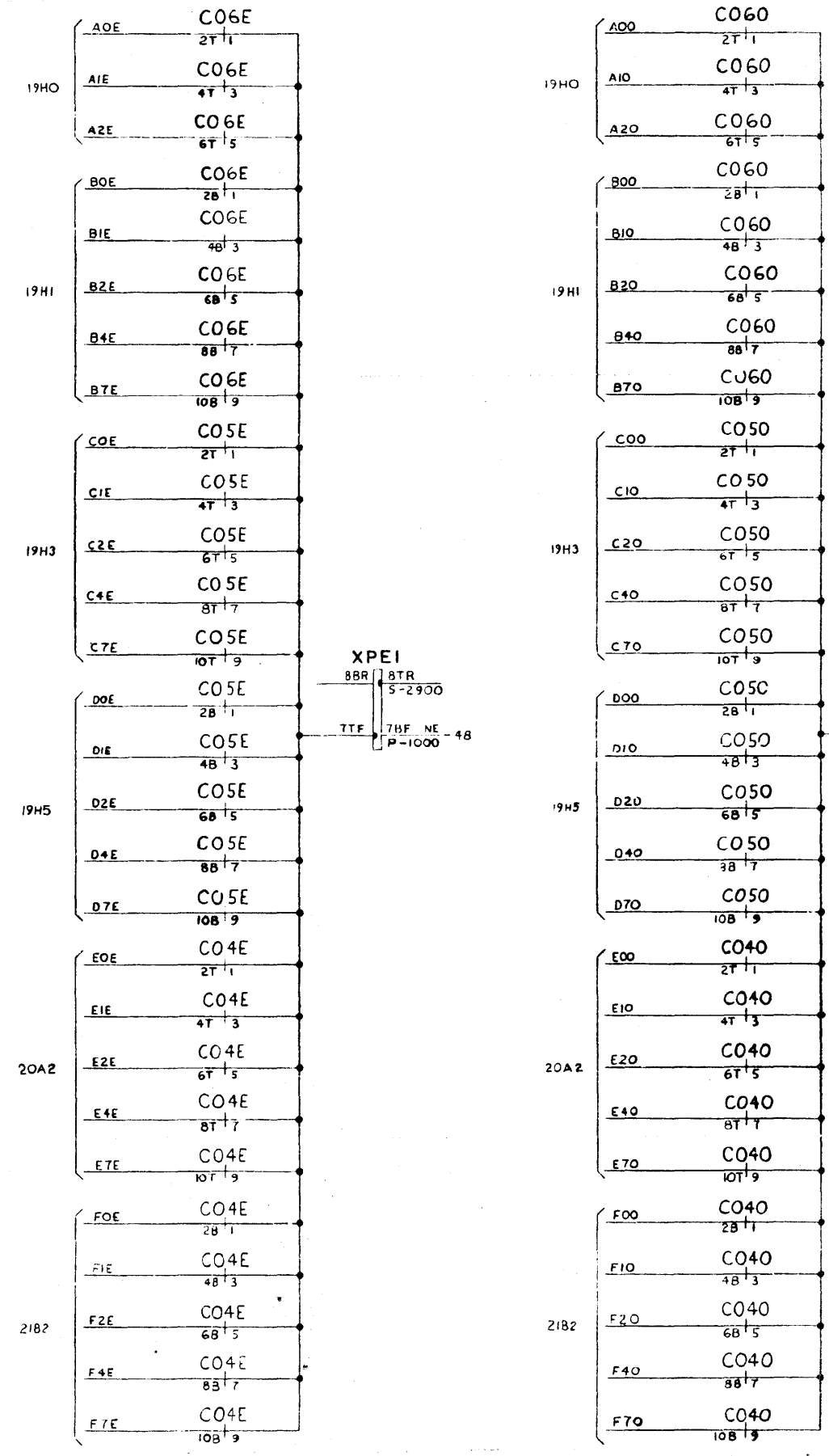
DRAWING
ISSUE
310

31

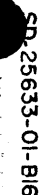
PART OF FS 13 STANDING TEST AND CONTROL

DRAWING
ISSUE
31D
51B

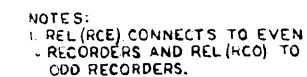
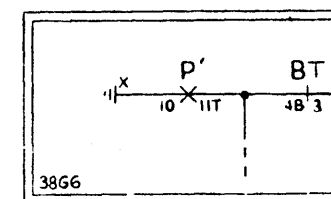
STABLO
KE



END OF TAPE DAY AND MONTH TIME CONTROL



RECORDER CONNECTOR OPERATION AND CONTROL



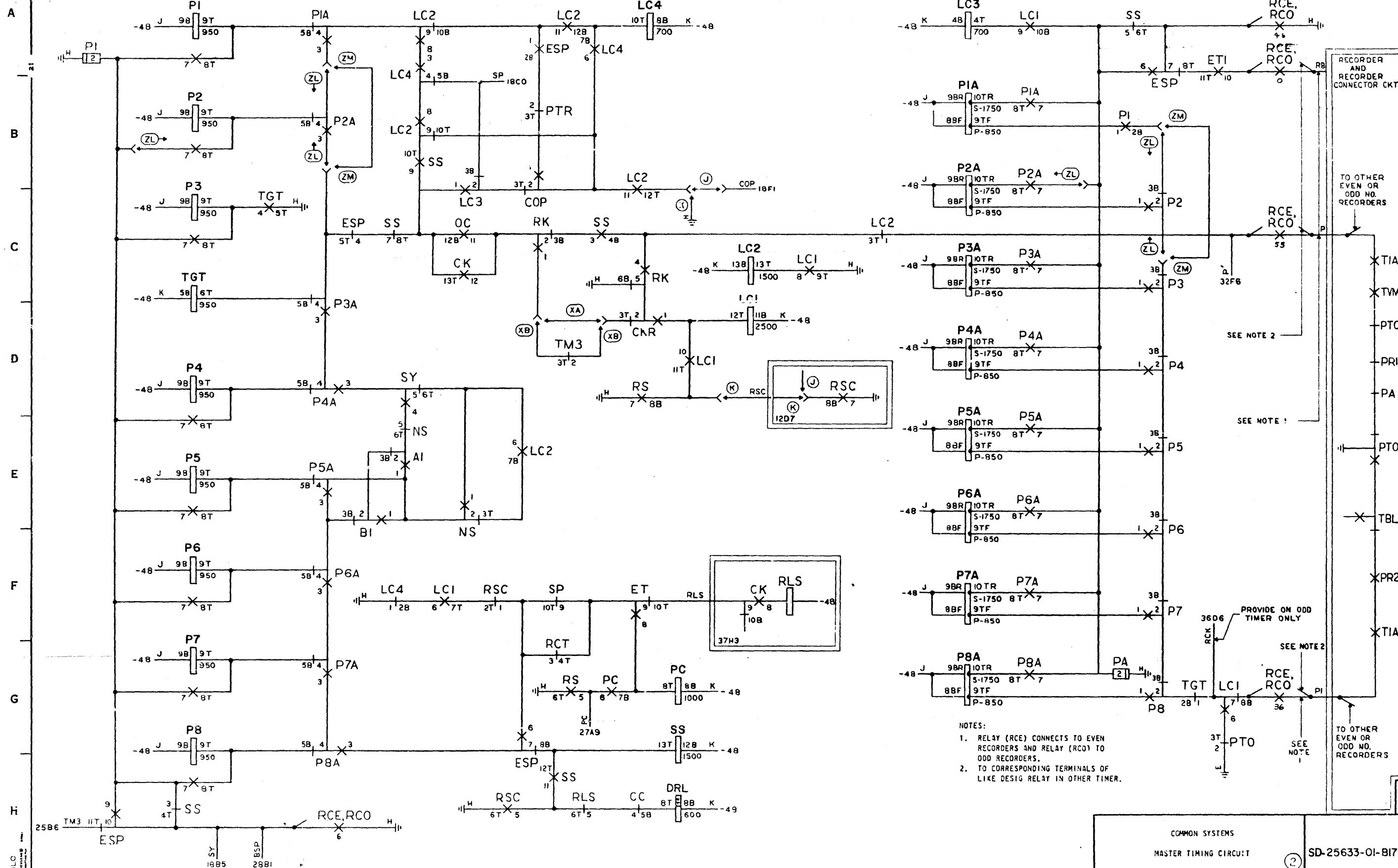
BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-B16

ISSUE
51B

END OF TAPE LINE PIERCING CONTROL
LOCAL CONTROL AND CHECKING

DRAWING
ISSUE
310
REL
AND



ISSUE
518

PART OF FS 17 CUT-IN OF INFORMATION TO RECORDERS

RECORDER & RECORDER
CONNECTOR CKT

SEE NOTE 1

TIA A- A-
TO OTHER ODD
OR EVEN NUMBER
RECORDERS

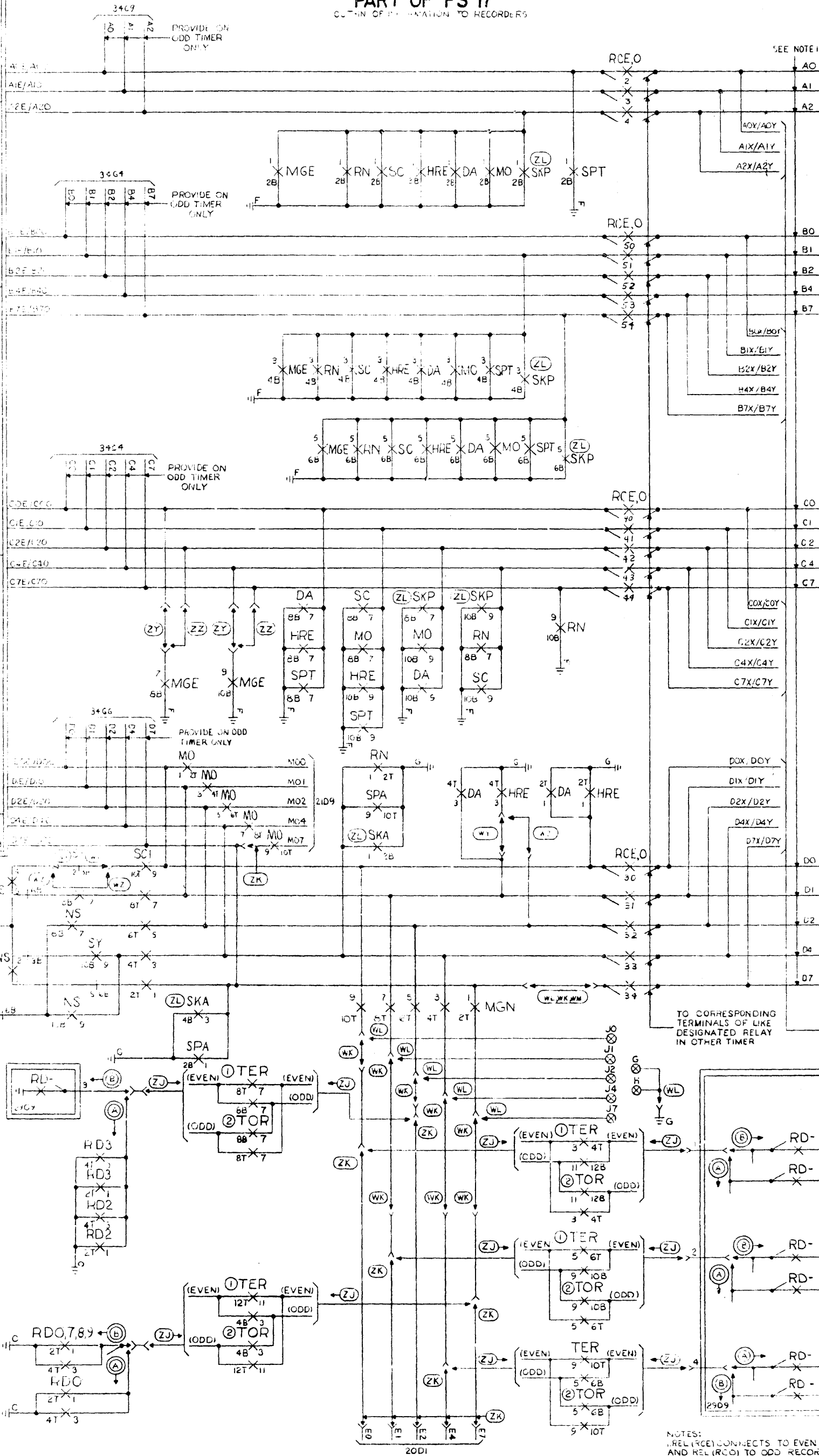
TIA B- B-
TO OTHER ODD
OR EVEN NUMBER
RECORDERS

TIA C- C-
TO OTHER ODD
OR EVEN NUMBER
RECORDERS

TIA D- D-
TO OTHER ODD
OR EVEN NUMBER
RECORDERS

CO- CO- XPE/O
14CO OR 14C3

NOTES:
REL (RCE) CONNECTS TO EVEN RECORDERS
AND REL (RCO) TO ODD RECORDERS.



STABLO

BELL TELEPHONE LABORATORIES
INCORPORATED
SD-25633-01-B19
51B

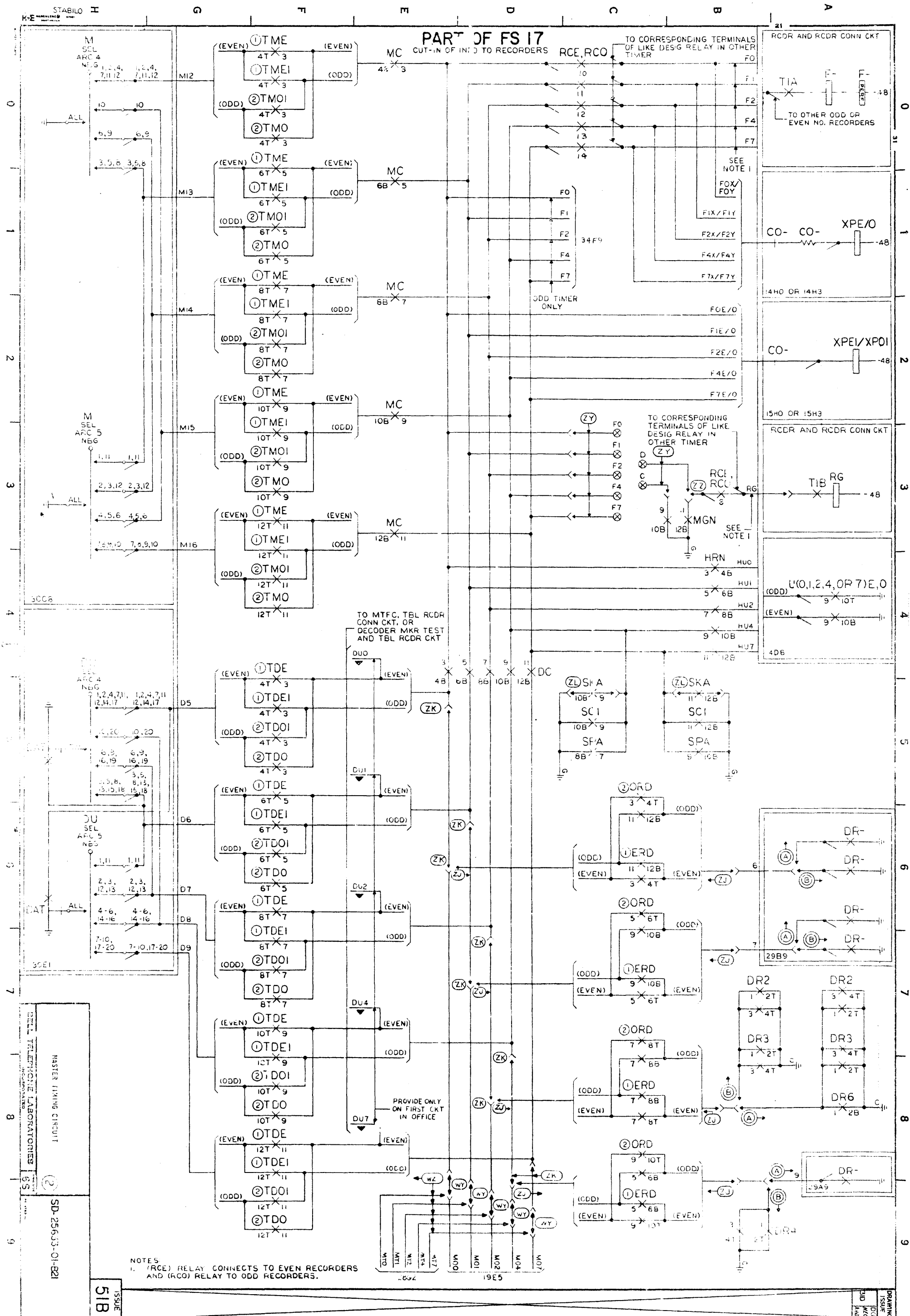
PART OF FS 17
OUT-IN OF INFORMATION TO RECORDERS

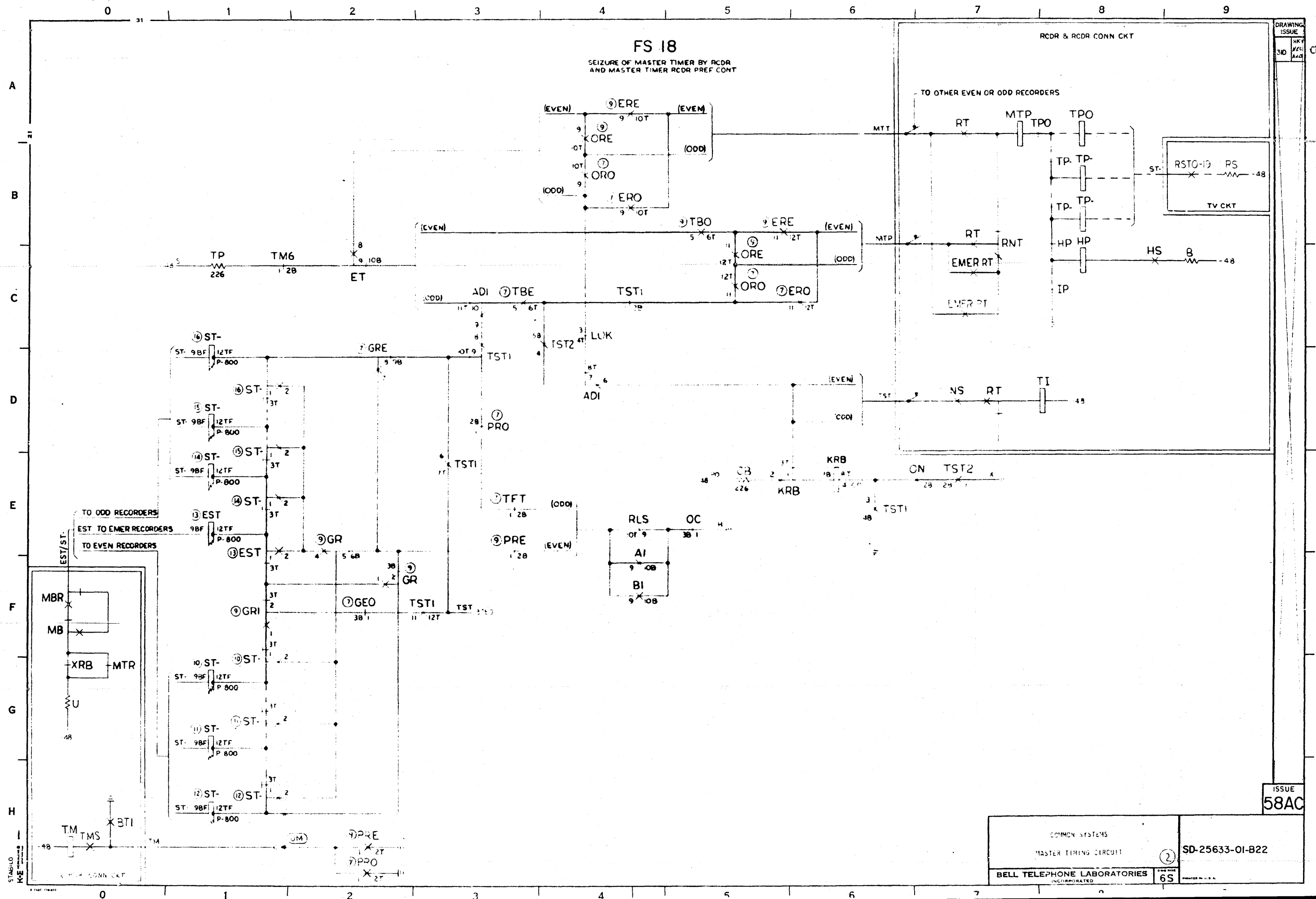


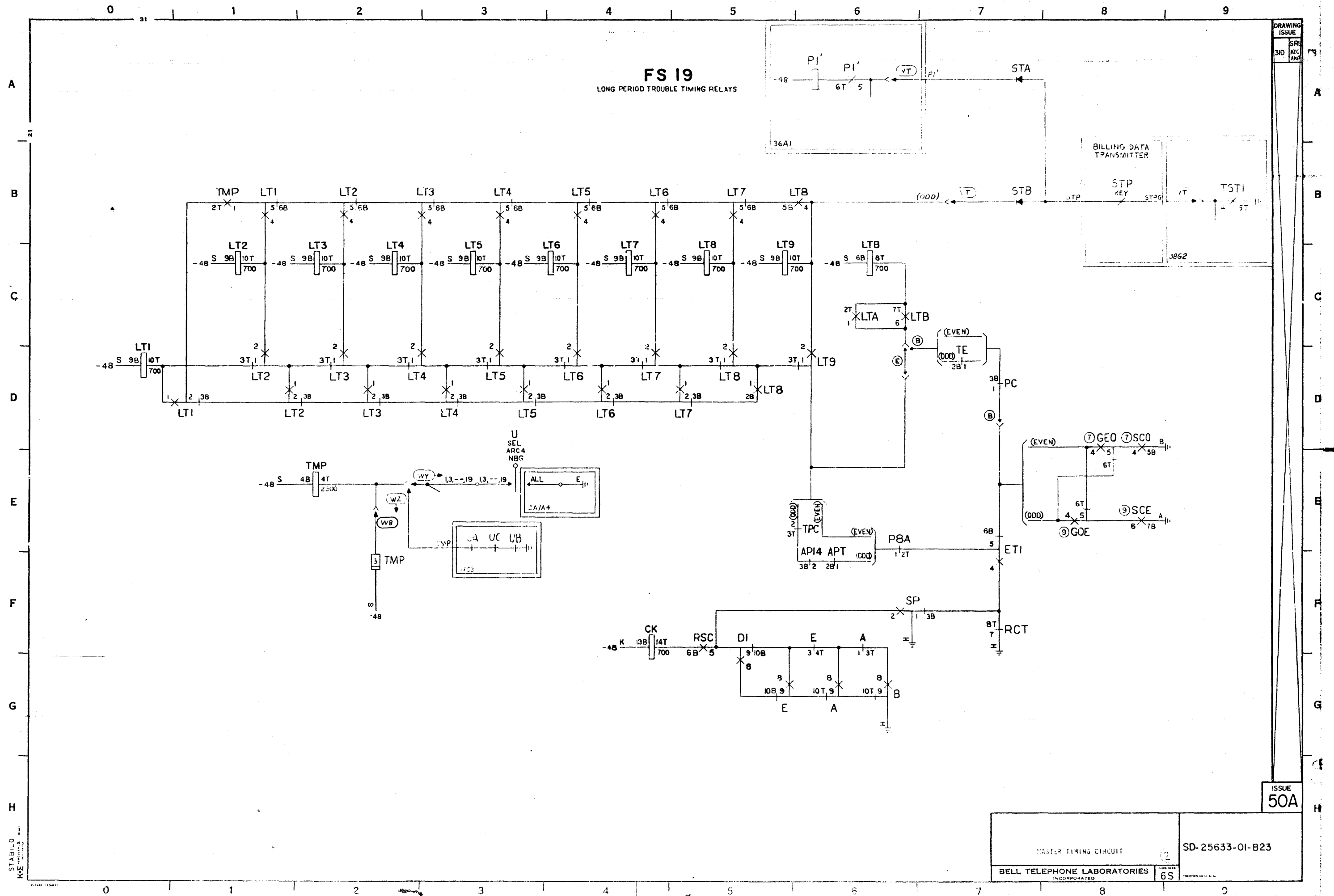
1. (RCE) REL CONNECTS TO EVEN RECORDERS & (RCO) REL TO ODD RECORDERS.

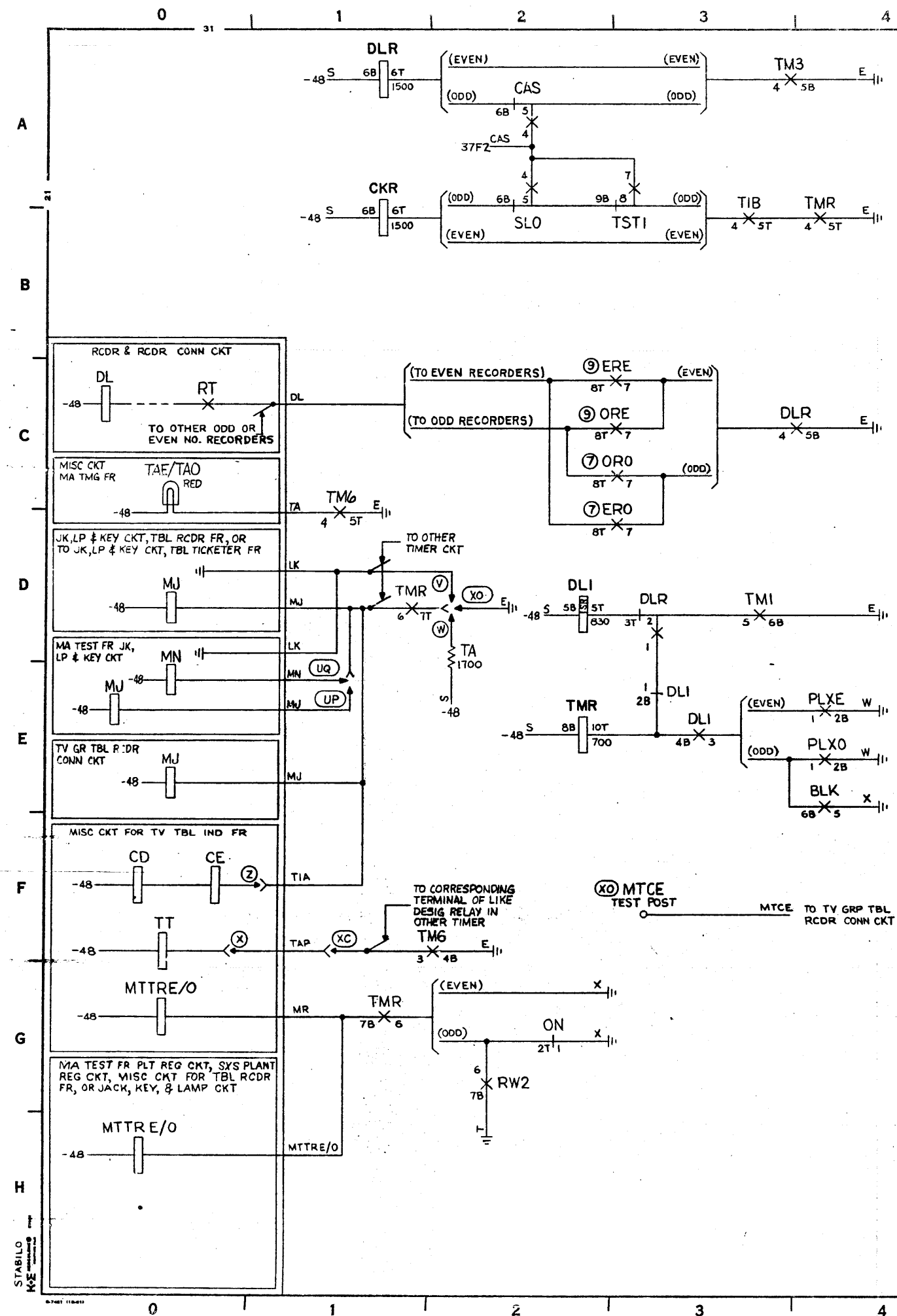
ISSUE
57A

DRAWING	31D	PM
ISSUE		MEC
		AND

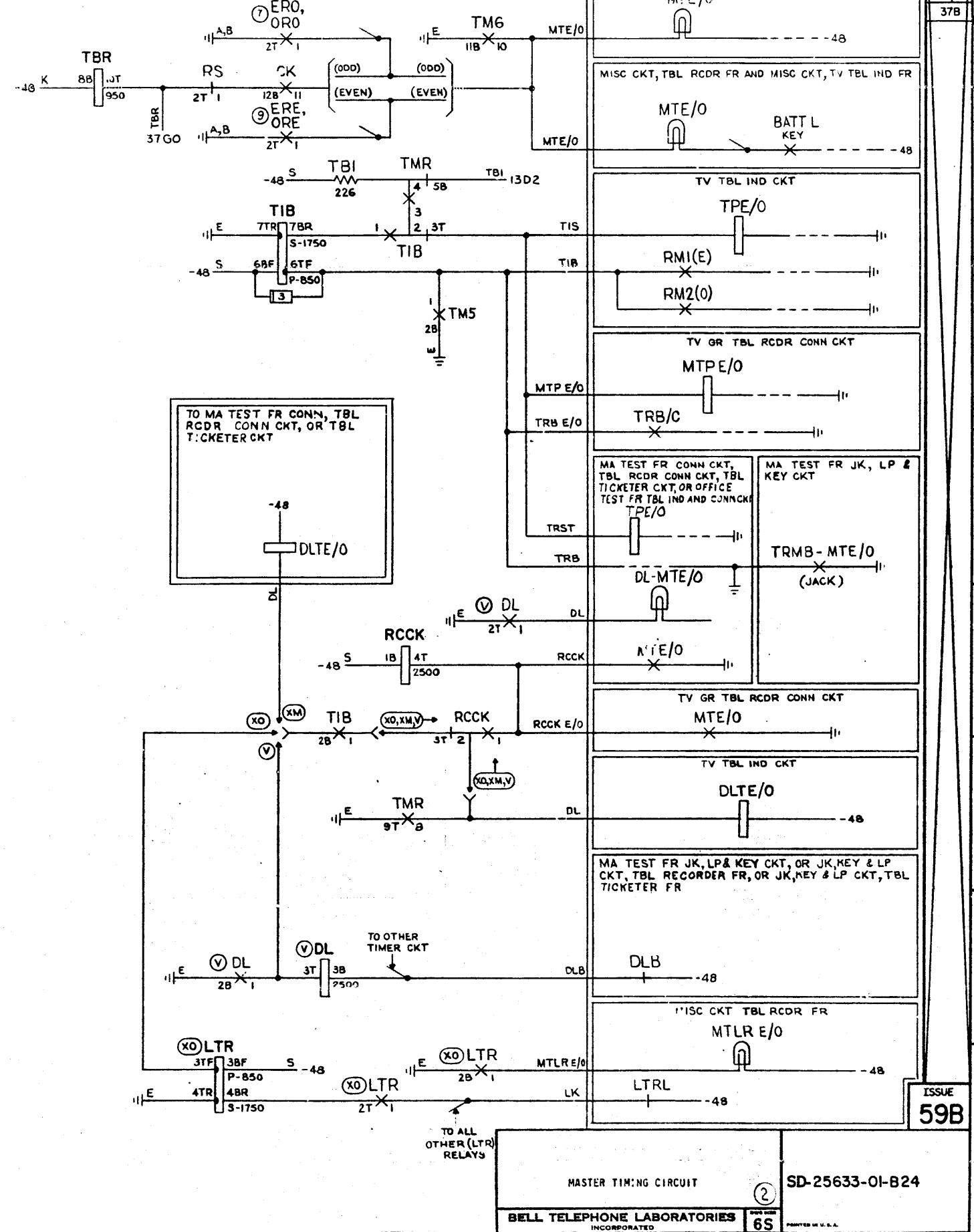








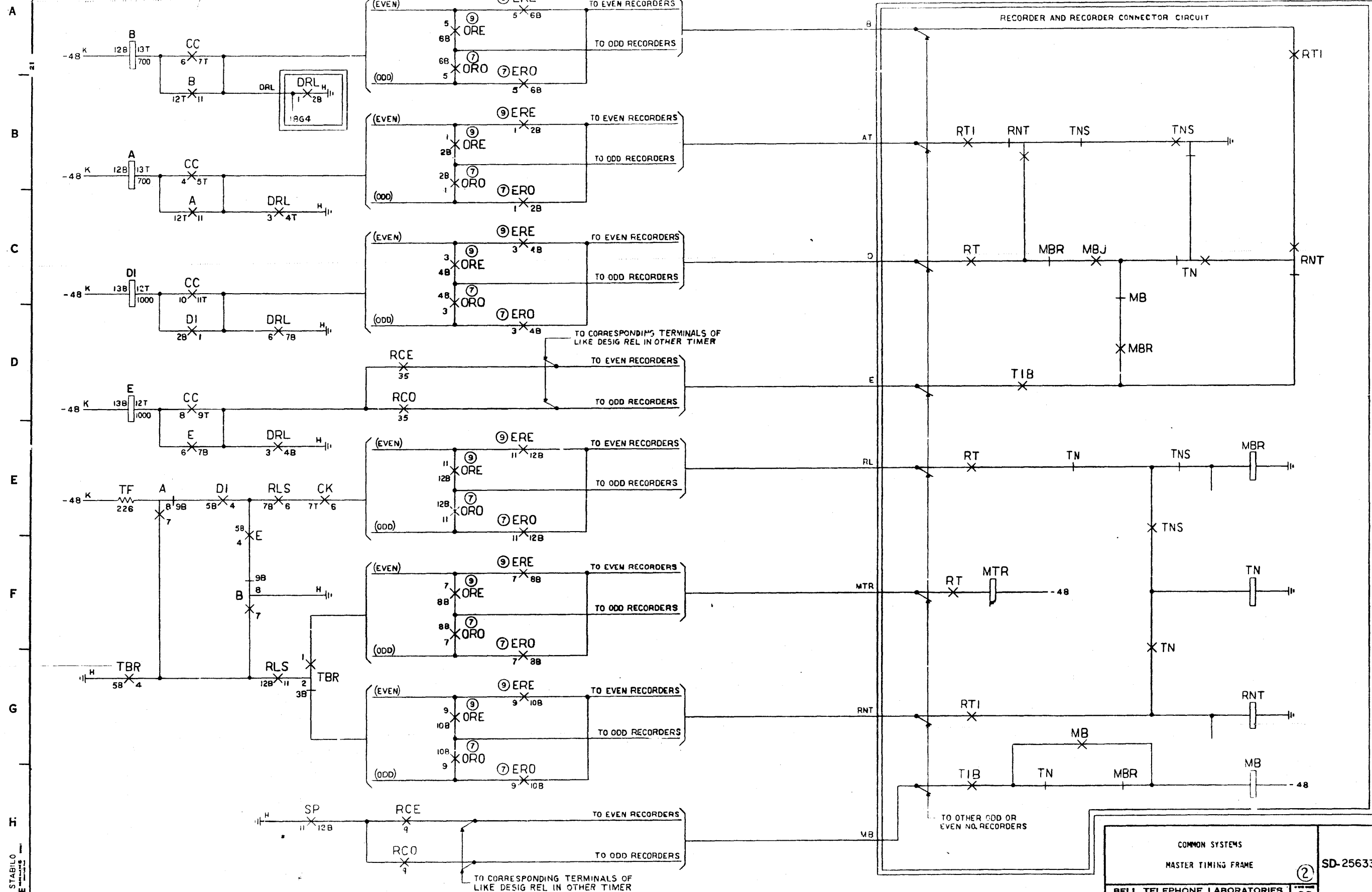
PART OF FS 20
TIME OUT AND TROUBLE RELEASE



FS 21

RECORDER TRANSFER AND MAKE BUSY

DRAWING
ISSUE
310
SRL
REC
AN.31

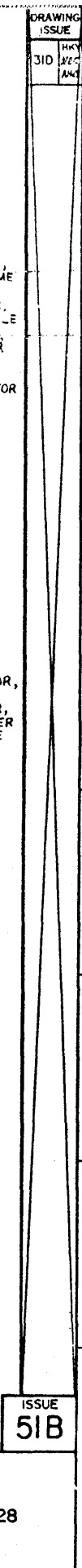


SD-25633-01-826

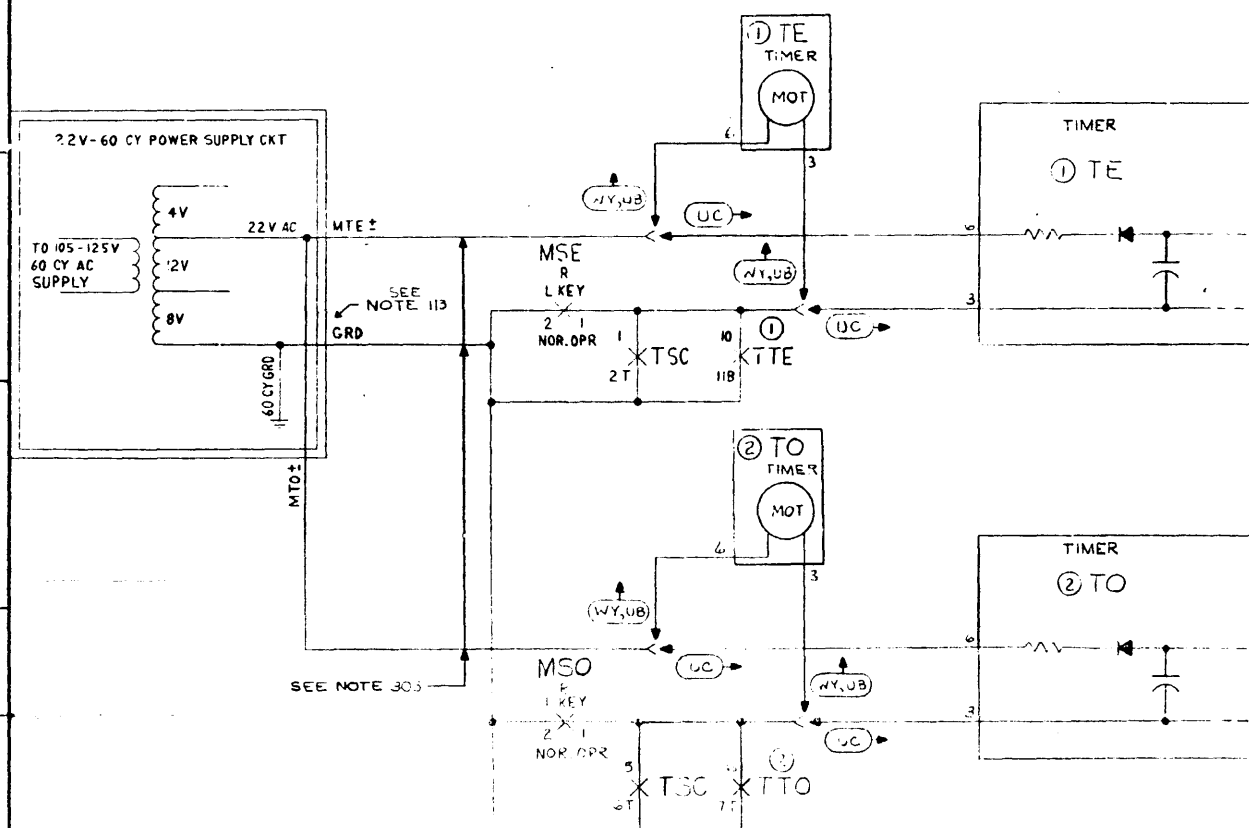
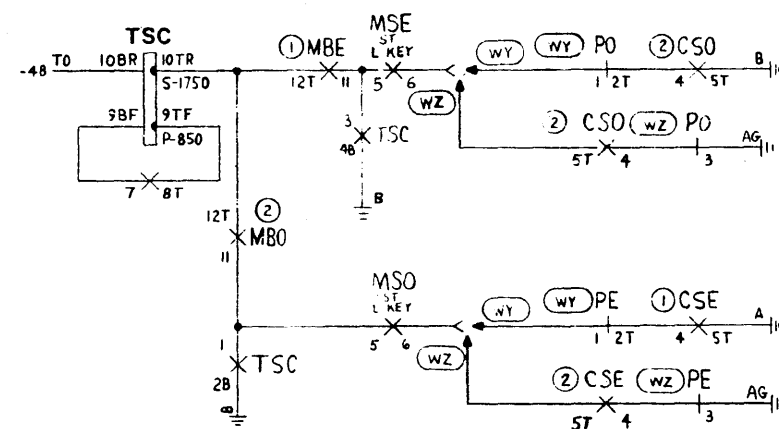
STABLO
K-E

ISSUE
51B

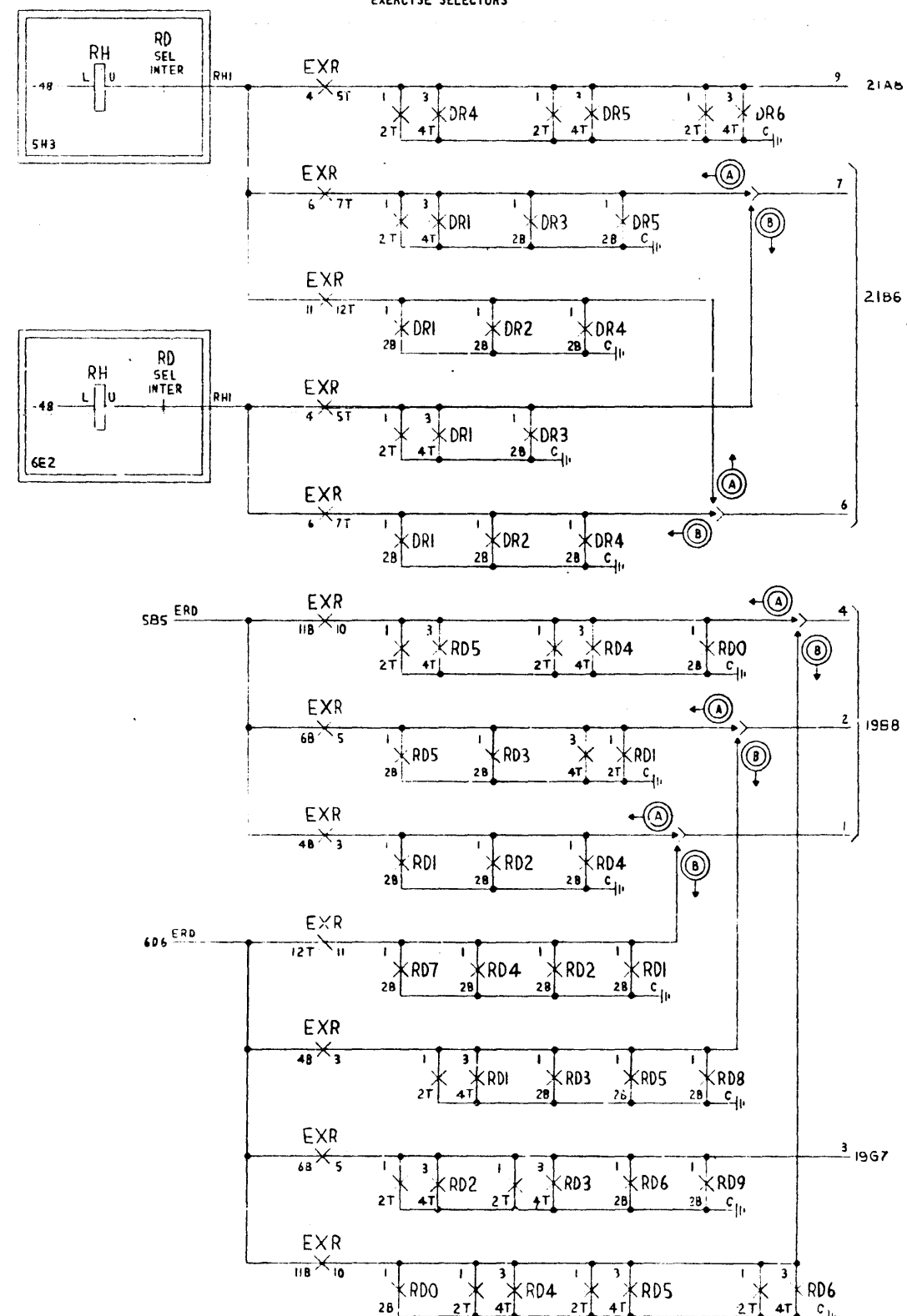
COMMON SYSTEMS
MASTER TIMING FRAME
BELL TELEPHONE LABORATORIES
INCORPORATED
SD-25633-01-826
6S
PRINTED IN U.S.A.



SYNCHRONIZE TIMERS



EXERCISE SELECTORS



ISSUE
52B

MASTER TIMING CIRCUIT

SD-25633-01-B29

BELL TELEPHONE LABORATORIES
INCORPORATED

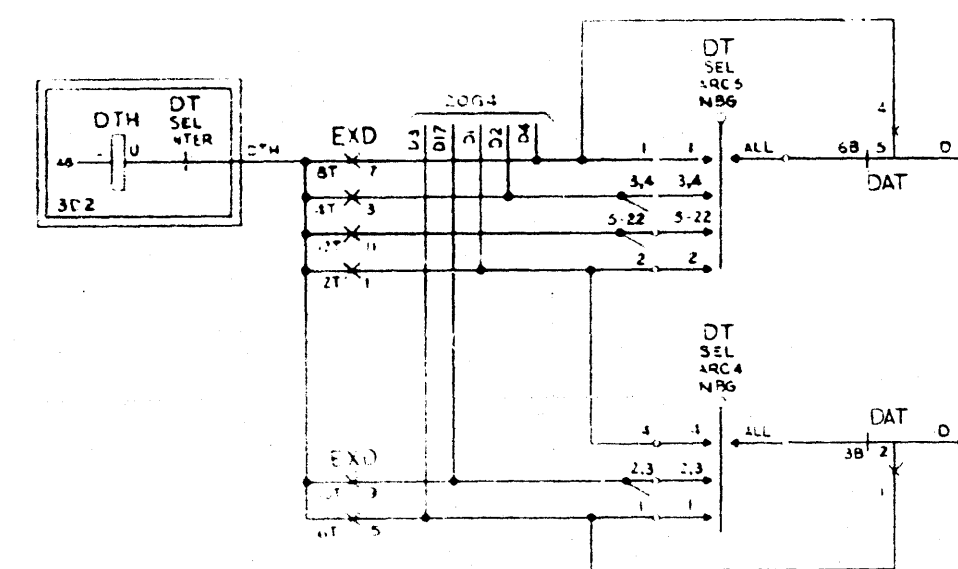
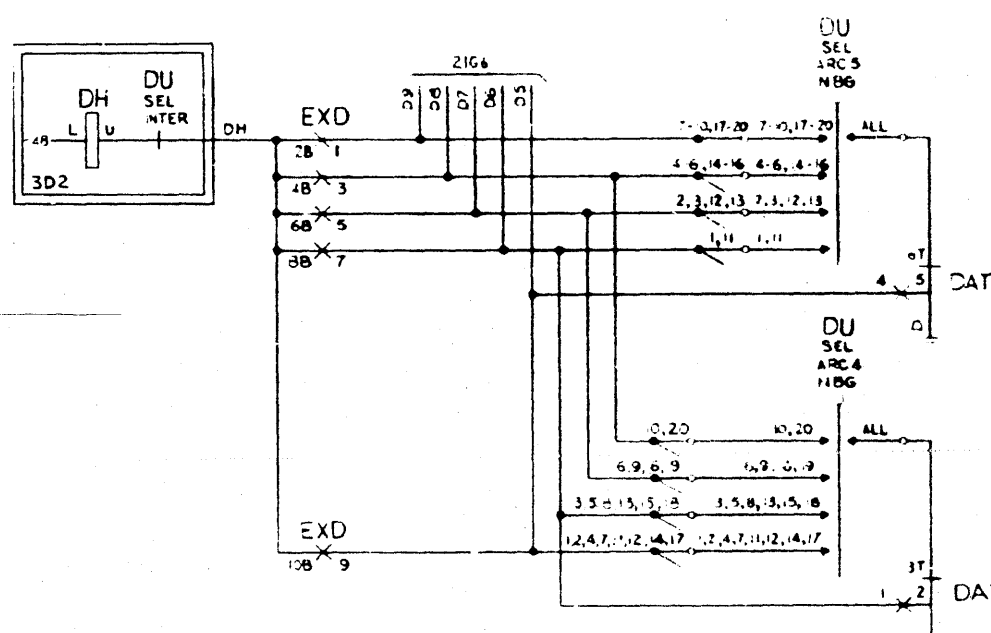
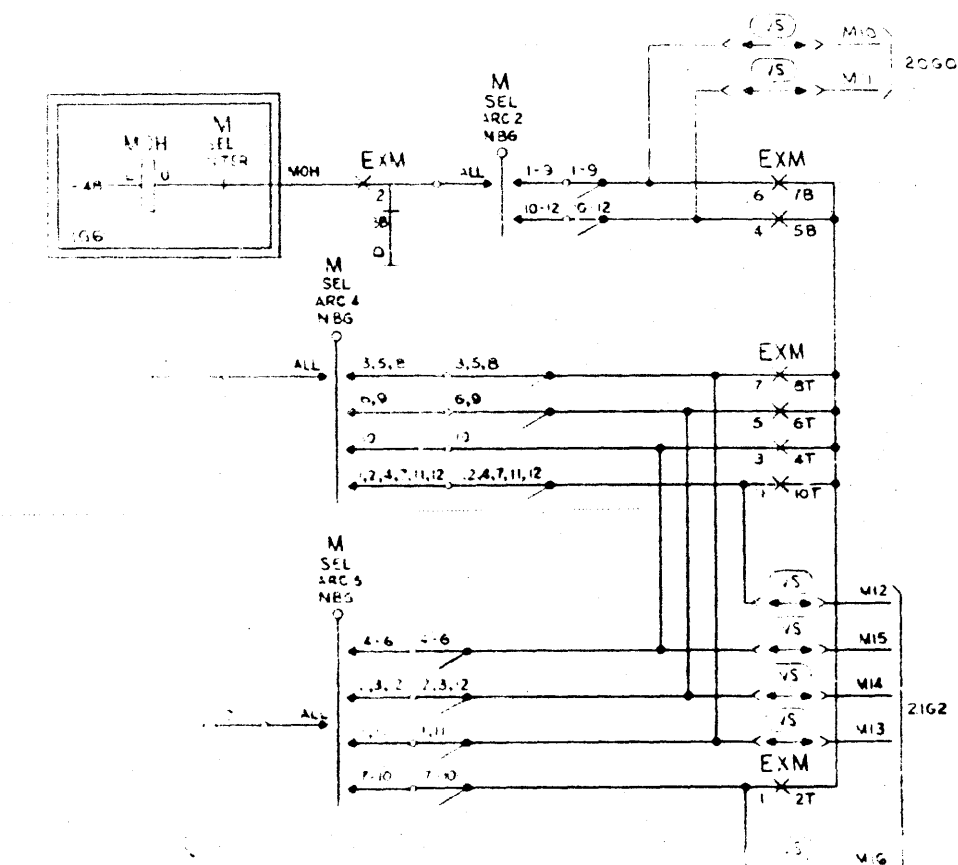
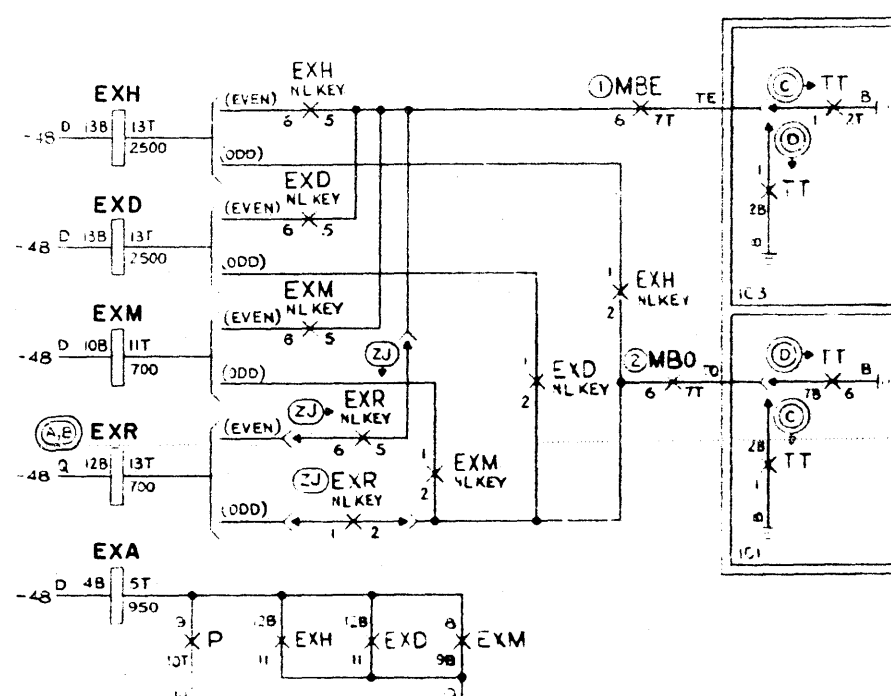
SS

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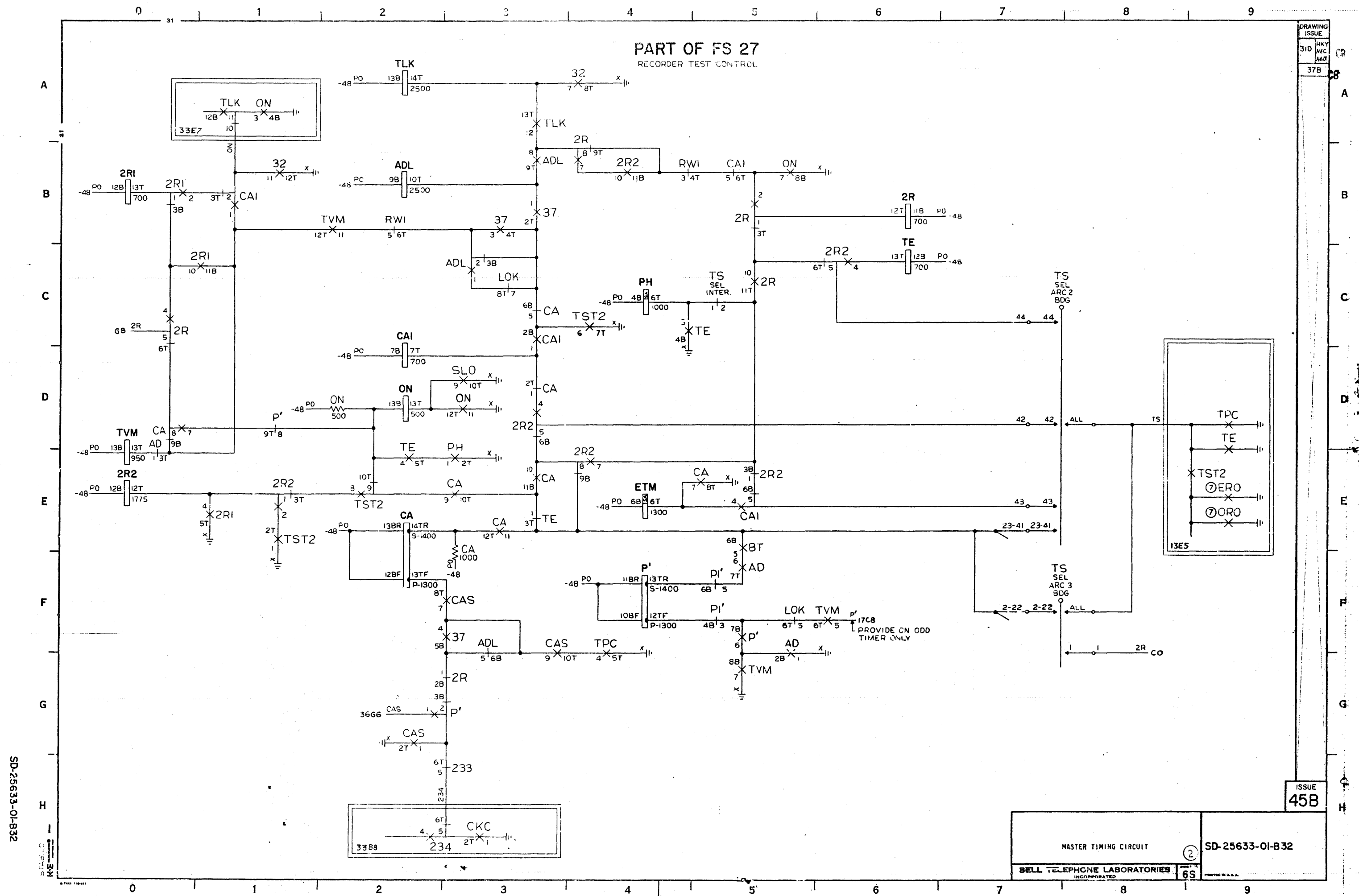
PART OF FS25 EXERCISE SELECTORS

DRAWING
ISSUE
31D
M/A
REC
AND

ISSUE
57A



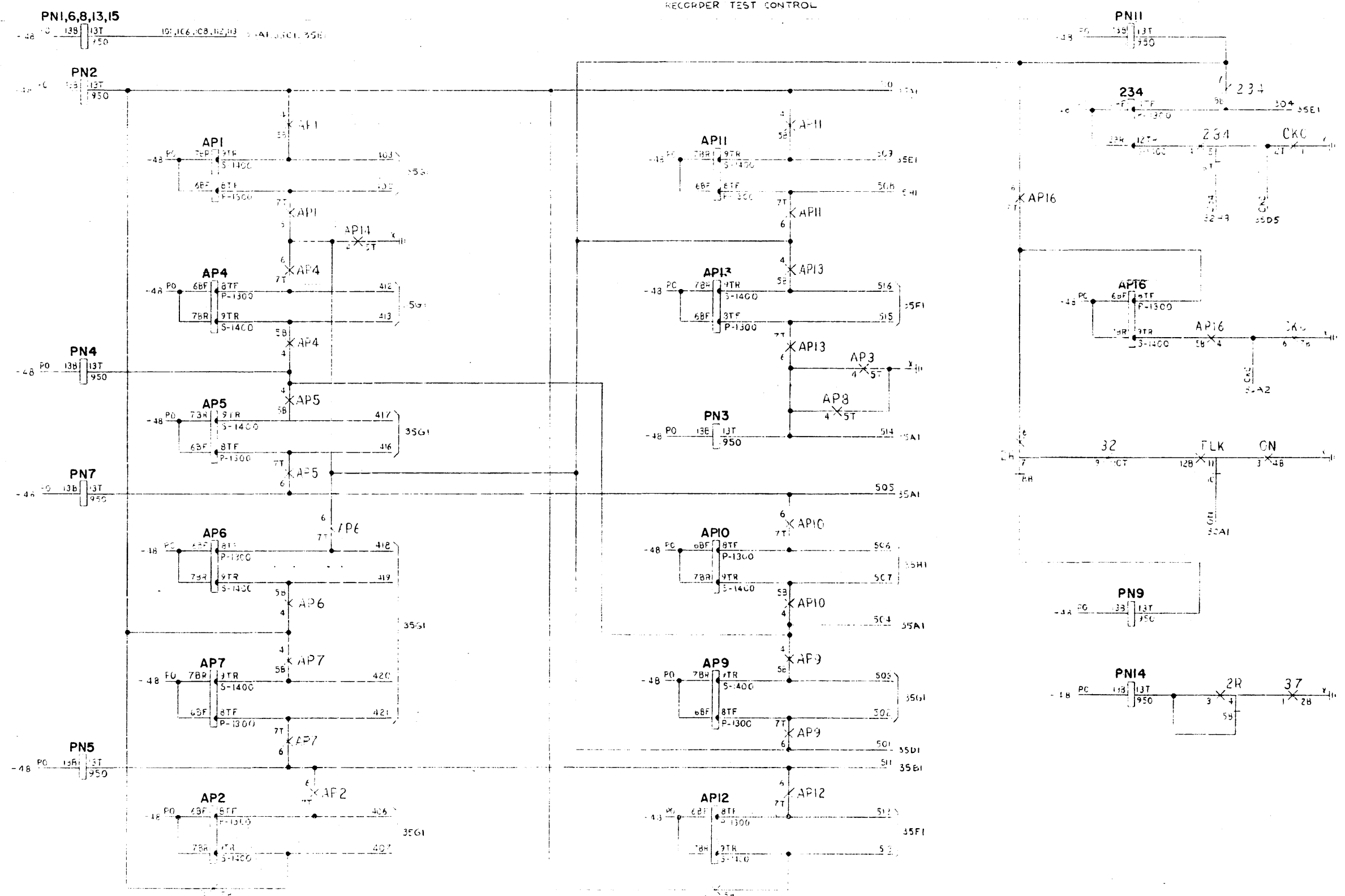
SD-25633-01-B30



PART OF FS 27 RECORDER TEST CONTROL

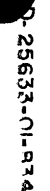
DRAWING
ISSUE
310 CLK
37B

CR
A
B
C
D
E
F
G
H



SD-25633-01-B33

DRAWING
ISSUE
310

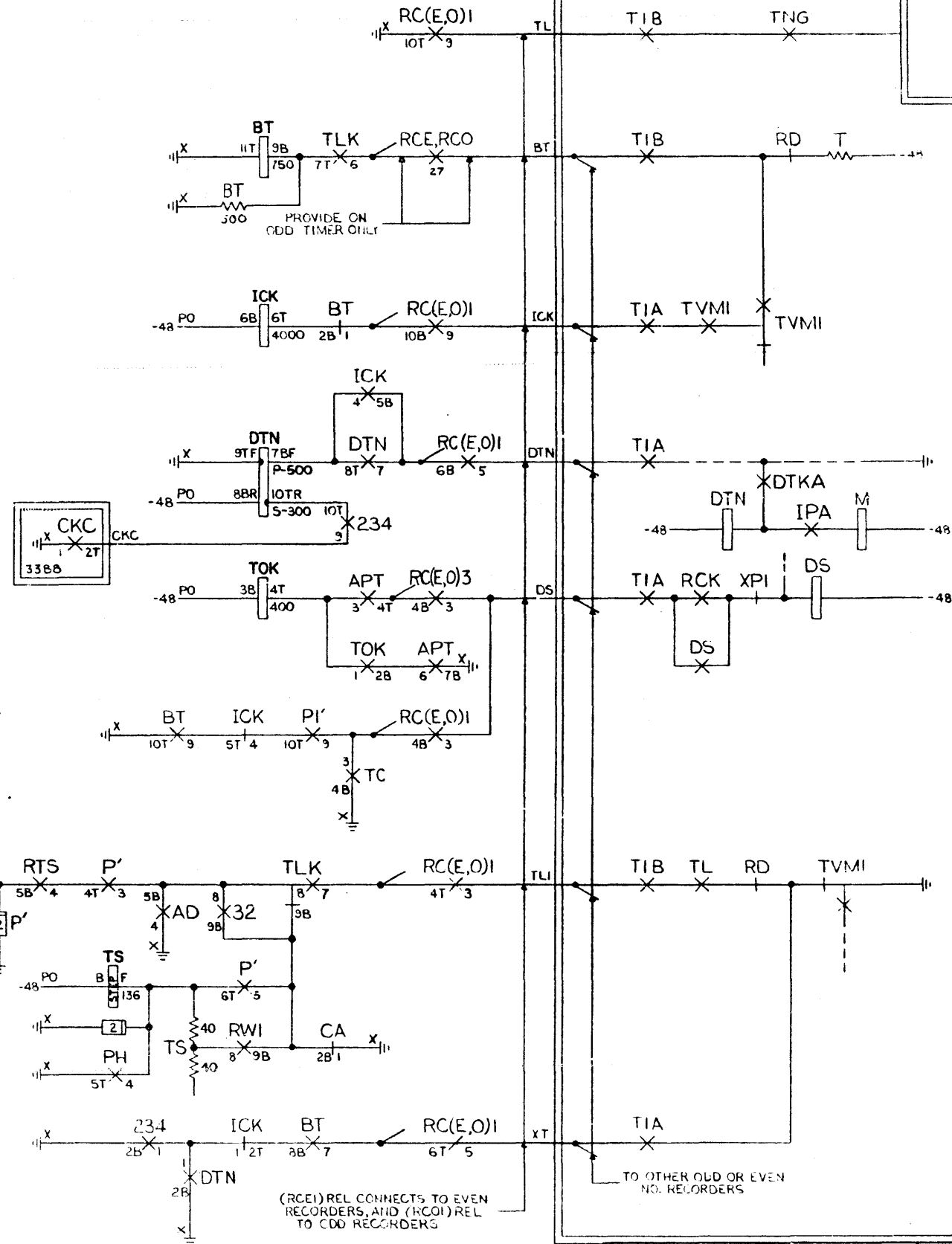
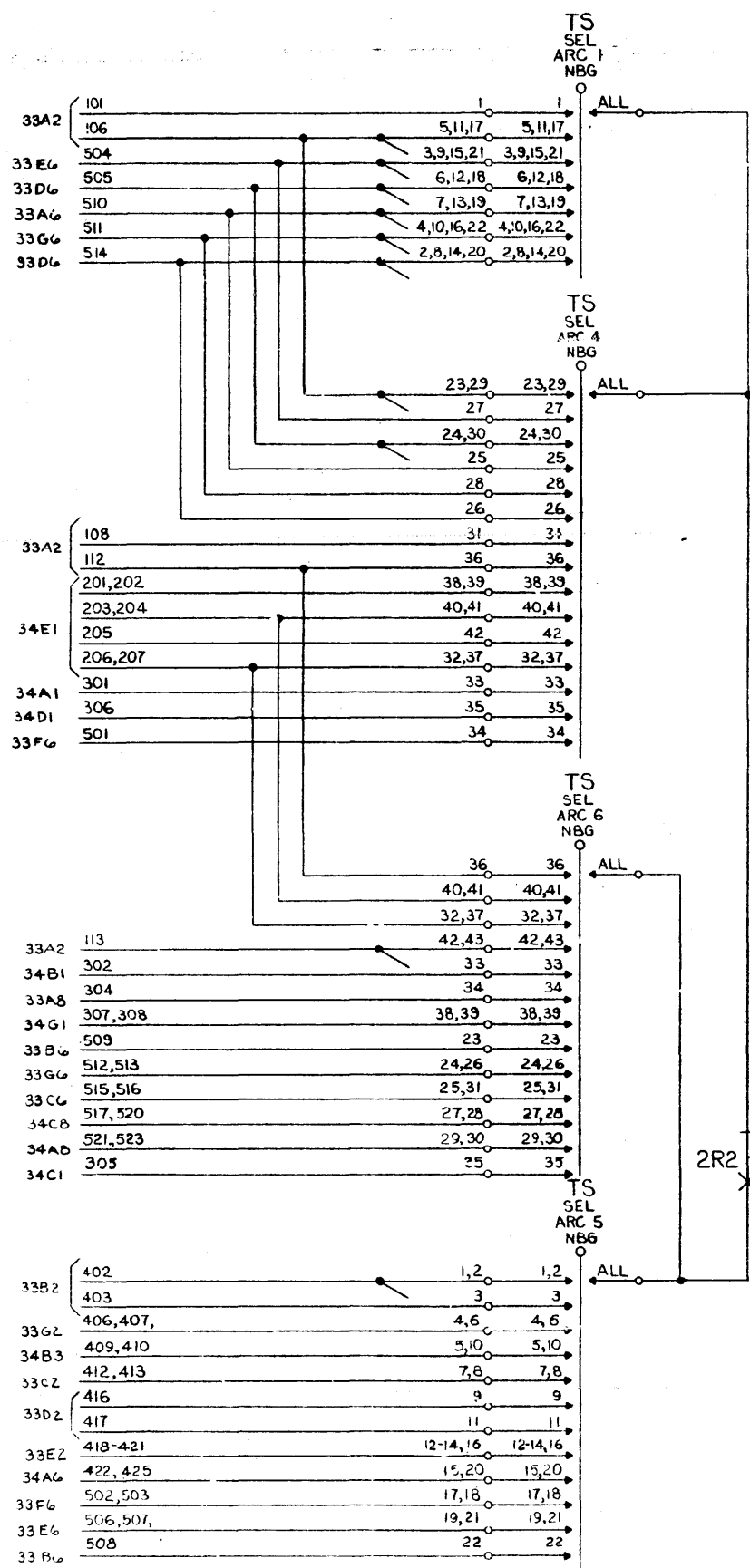


PART OF FS 27 RECORDER TEST CONTROL

RECORDER AND RECORDER CONNECTOR CKT

CALL IDENTITY
INDEXER

DRAWING
ISSUE
378



MASTER TIMING CIRCUIT

SD-25633-01-B35

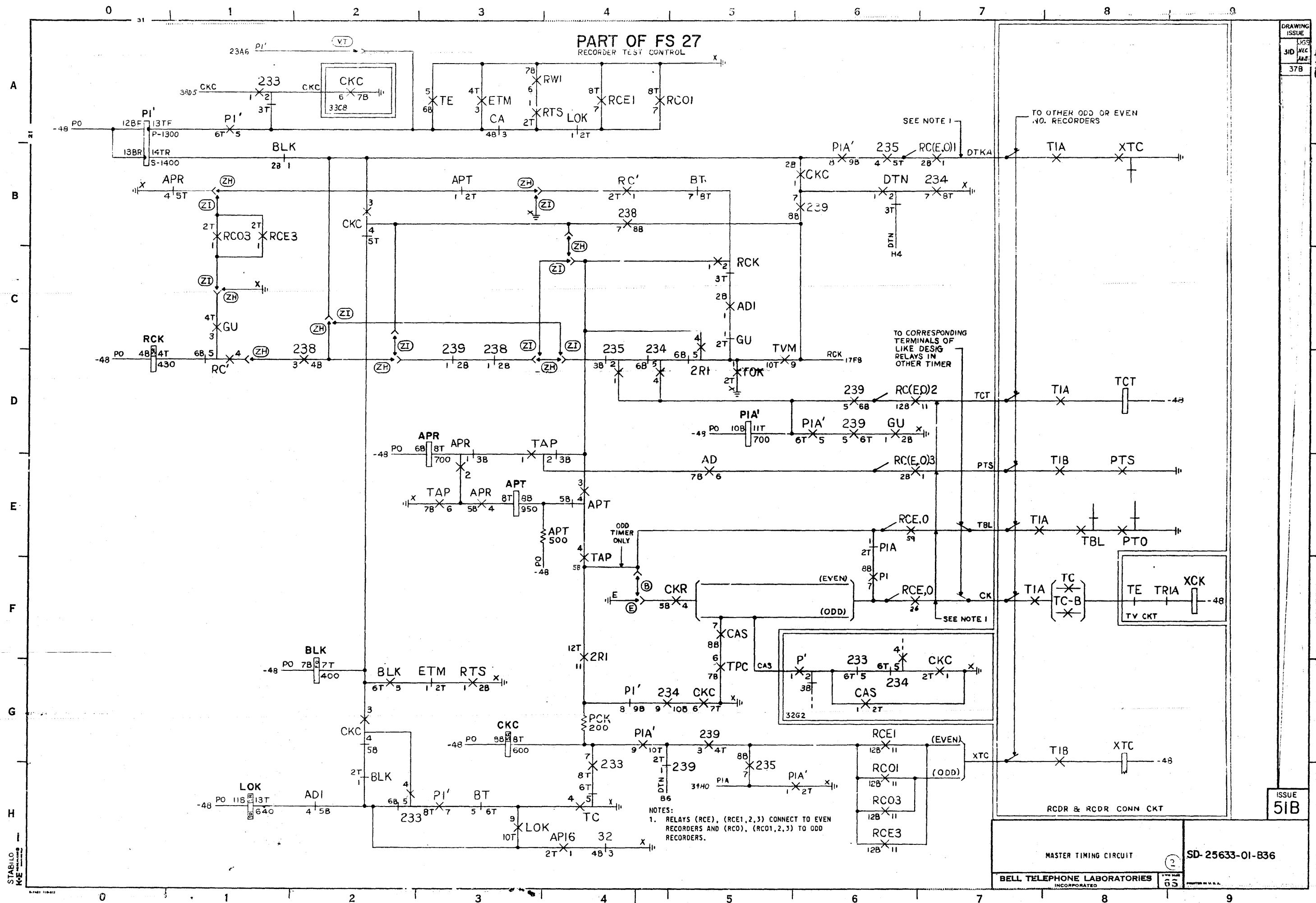
BELL TELEPHONE LABORATORIES

63

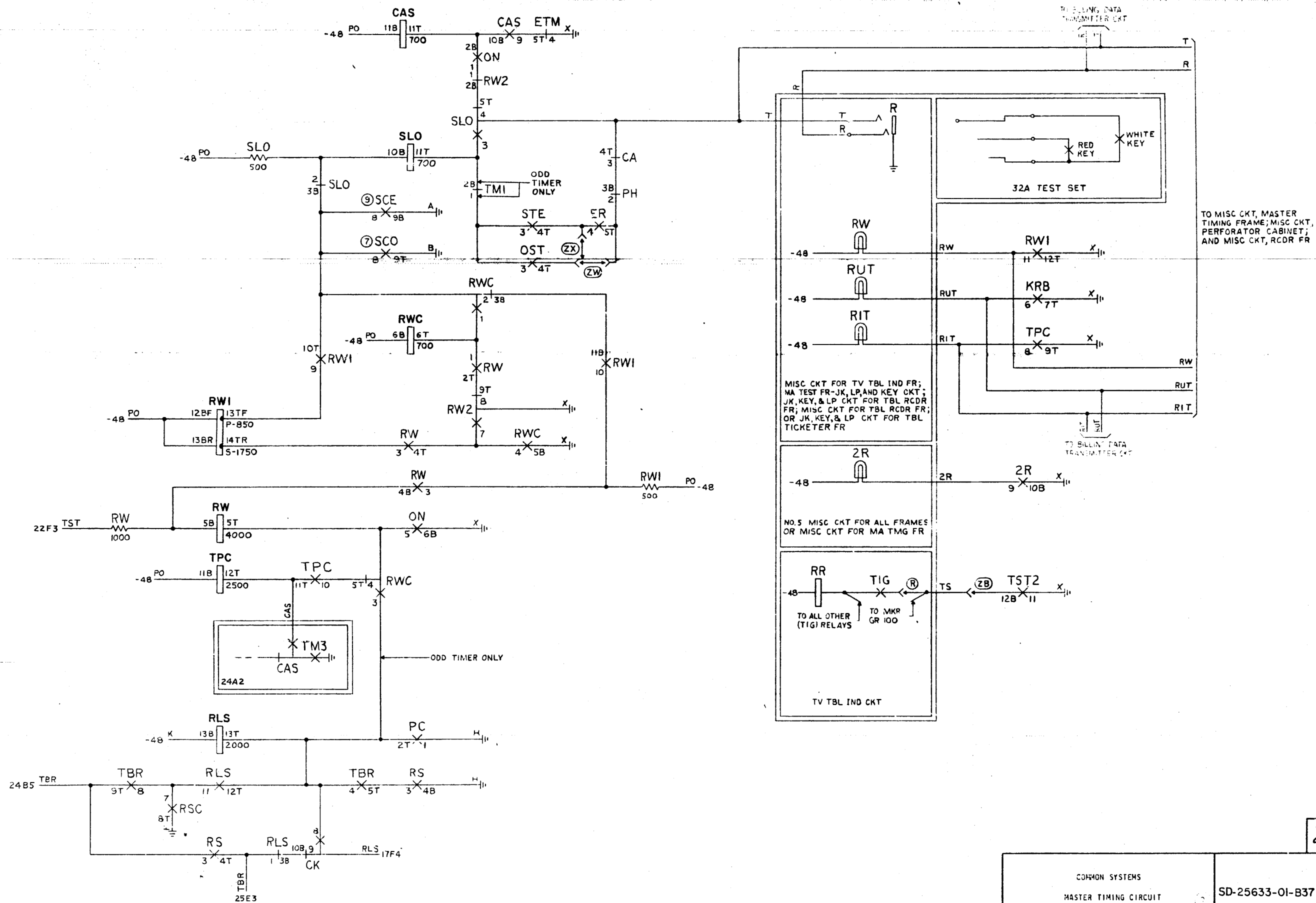
ISSUE
51B

SD-25633-01-B35

STABLO
K-E



PART OF FS 27
RECORDER TEST CONTROL



DRAWING ISSUE	
310	GTM NEC AND

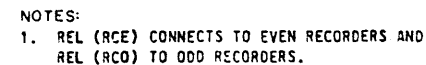
ISSUE
48B

COMMON SYSTEMS
MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-B37

DRAWING	
ISSUE	
310	310 REL AND
388	



ISSUE
51B

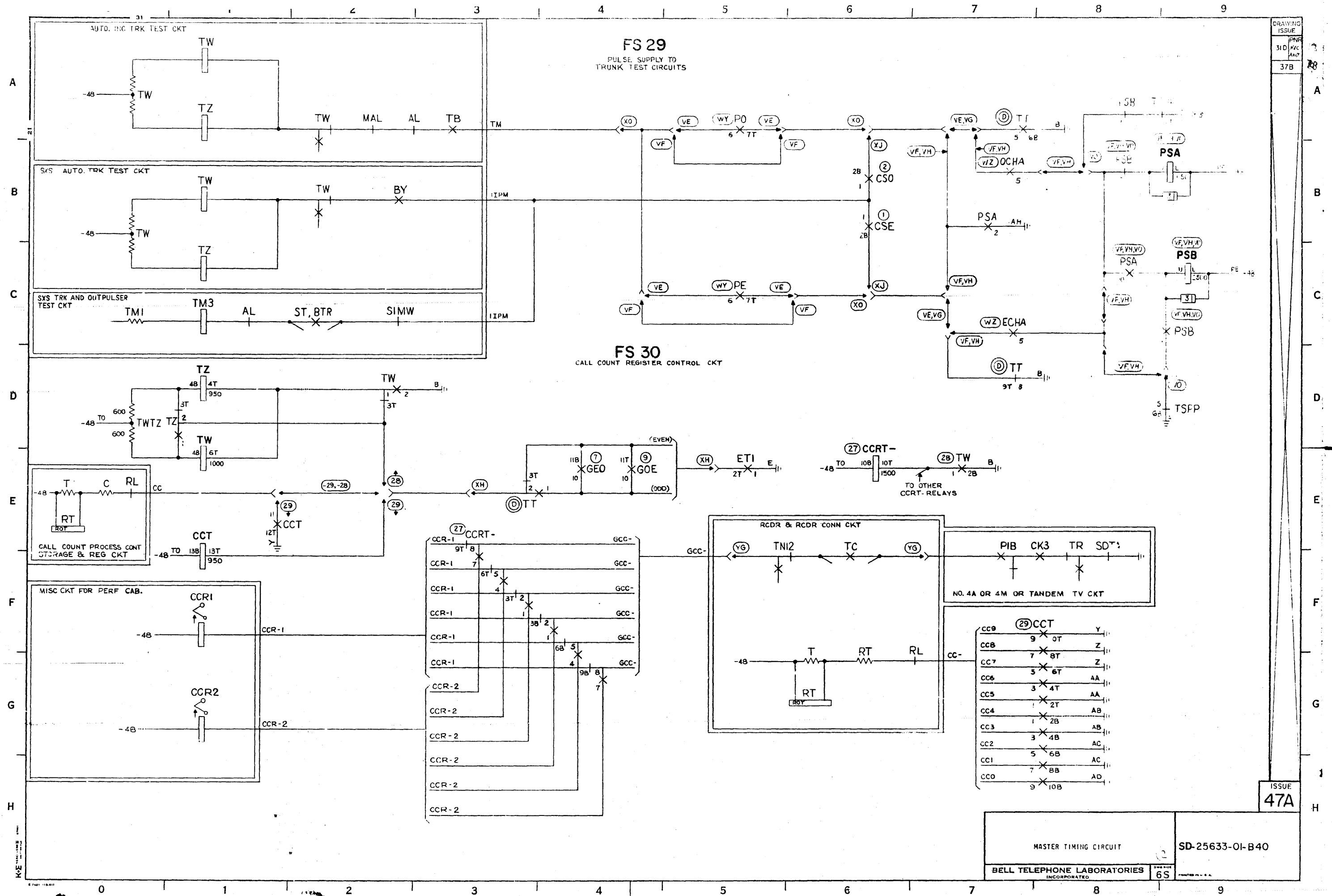
MASTER TIMING CIRCUIT

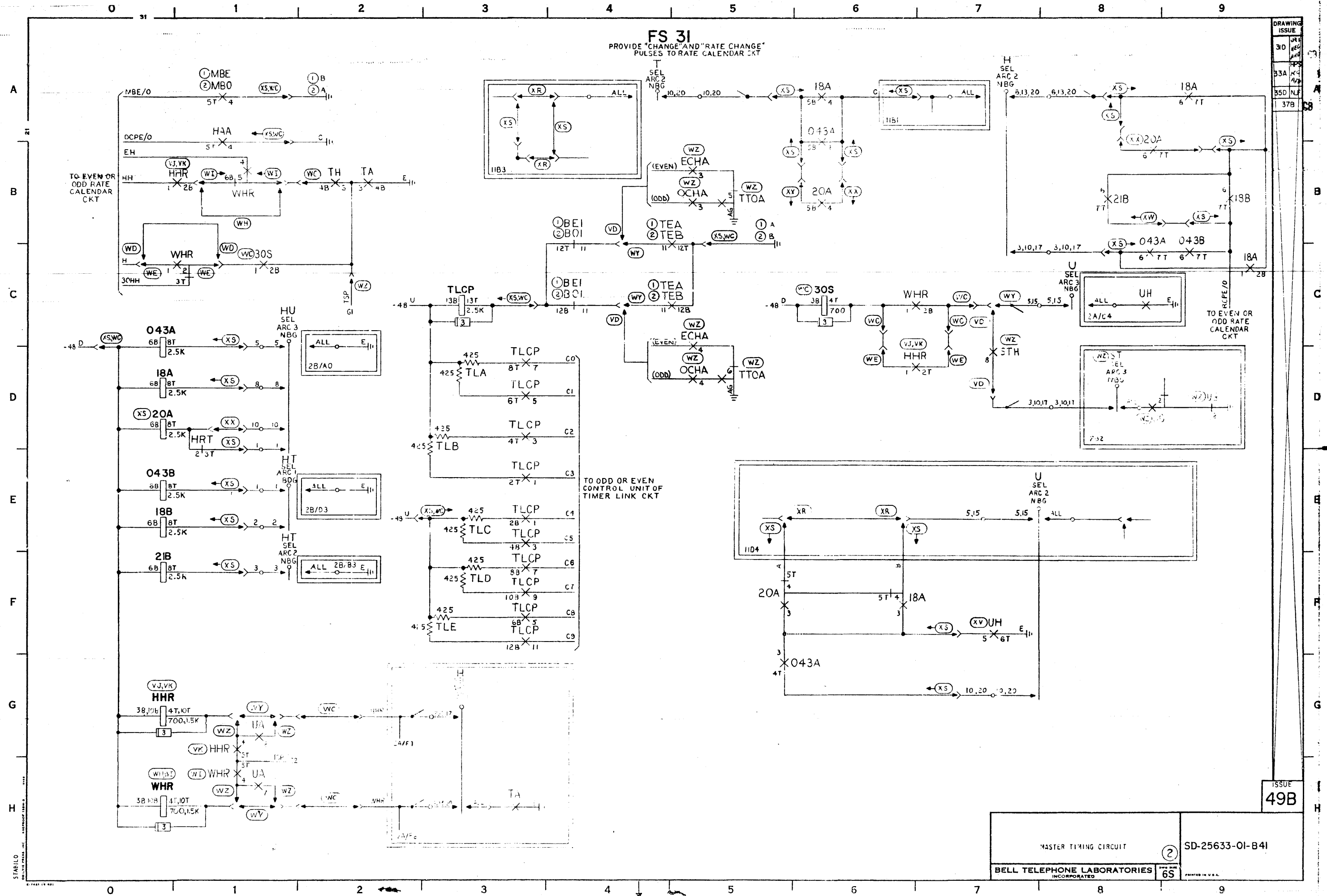
SD-25633-01-838

BELL TELEPHONE LABORATORIES
INCORPORATED

65

MADE IN U.S.A.





APP FIG. 1

RELAY		BE1			BE2			CE			CE1			CKE			CSE			ECH		
DESIG		U314			U314			U1112			U692			U891			Y231			Y109		
CODE																						
OPTION																						
X		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP		12, 11	B	4B4	12, 11	B	1A6							12, 11	M	7D1						
		10, 9	B	1A6	10, 9	B	1D6							10, 9	M	—						
		8, 7	B	1A6	8, 7	B	1D6							8, 7	M	—						
		6, 5	B	1A6	6, 5	B	1D6	9, 8, 7	BM	9B5	9, 8, 7	BM	8E7	6, 5	M	31A1	8, 7	M	9B1			
		4, 3	B	1A6	4, 3	B	1D6	6, 5, 4	SM	9H5	6, 5, 4	SM	9D7	4, 3	M	8A/B5	6, 5, 4	BM	29B2	4, 3	M	7A2
		2, 1	B	1A6	2, 1	B	1D6	2, 1, 3	MB	A	3, 2, 1	BM	9C7	2, 1	M	7C5	3, 2, 1	BM	7C0	2, 1	M	2A/E2
BOT.		2, 1	B	1A6	2, 1	B	1D6	2, 1, 3	MB	9C5	3, 2, 1	BM	8A/B7	3, 2, 1	BM	—	3, 2, 1	BM	10B6	3, 2, 1	BM	7B2
		4, 3	B	1A6	4, 3	B	1D6	6, 5, 4	SM	9G5	6, 5, 4	BM	8A/B7	5, 4	M	7B8	6, 5, 4	BM	31A5	5, 4	M	10F8
		6, 5	B	1A6	6, 5	B	1D6	9, 8, 7	BM	9D5	9, 8, 7	BM	8F7	7, 6	M	31A2	8, 7	M	7D1			
		8, 7	B	1A6	8, 7	B	1D6	11, 10	M	8B4				11, 10	M	—						
		10, 9	B	1A6	10, 9	B	1D6															
		12, 11	B	41C4	12, 11	B	8A/B5															
COIL				10F6			10F6						7B7						7B0			7B0

(WY) 707
 a (WZ) 88, 07

RELAY	ERD						ETE			HE			MBE			PIE			P2E			PE		
DESIGN CODE	U144						U300			U695			U188			U476			Y185			U318		
OPTION	ZJ																					HY		
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12, 11	M	—				12, 11	M	—															
	10, 9	M	21C9				10, 9	M	4A/3A				12, 11	M	29A1									
	9, 7	M	21C9	9, 8	M	11C0	9, 7	M	48/A1	10, 9, 8	BM	11C3												
	6, 5	M	21C7	7, 6	M	11C0	6, 5	M	48/A1	7, 6	M	30A2				7, 6	M	10E2	8, 7, 6	BM	40C			
	4, 3	M	21C6	5, 4	M	31F4	4, 3	M	48/A1	5, 4	M	41A1				5, 4	M	10F2	5, 4, 3	BM	10E			
	2, 1	M	—	3, 2, 1	BM	—	2, 1	M	48/A1	2, 1, 3	MB	27F1	3, 2, 1	BM	10E0	3, 2, 1	MM	10G1	2, 1	B	29B			
BOT.	2, 1	M	—	2, 1	B	11E6	2, 1	M	48/E1	2, 1, 3	MB	10F1				3, 2, 1	MM	10E2	3, 2, 1	BM	—			
	4, 3	M	—	5, 4, 3	BM	11F6	4, 3	M	48/E1	5, 4	M	—				5, 4	M	10F2	5, 4	M	10E			
	6, 5	M	21C9	7, 6	M	11F7	6, 5	M	48/E1	7, 6	M	27B7				7, 6	M	10G2	8, 7, 6	BM	a			
	8, 7	M	21C8				8, 7	M	48/E1	10, 9, 8	BM	7D1												
	10, 9	M	21C7				10, 9	M	48/A1	12, 11	M	—										10, 9	M	2A/B
	12, 11	M	21C6				12, 11	M	48/E1															
COIL			16E2			11C0			48/E4			27F1						10G0			10E0			1A

a	10E9 31E
---	-------------

RELAY	SE			TCE			TDE			TDE1			TEA			TER			TFE		
DESIGN CODE	U660			U1391			U144			U144			U144			U144			U90		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP							12,11	M	21F8	12,11	M	21F8	12,11	M	41B4	12,11	M	19F8			
							10,9	M	21F7	10,9	M	21F7	10,9	M	1A6	10,9	M	19C9			
	9,8	M	10B1				8,7	M	21F6	9,7	M	21F7	8,7	M	1A6	8,7	M	19F7			
	7,6	M	10E1	6,5	M	—	6,5	M	21F5	6,5	M	21F6	6,5	M	1A6	6,5	M	19C8	7,6	M	—
	5,4	M	10B0	4,3	M	4A/HI	4,3	M	21F4	4,3	M	21F5	4,3	M	1A6	4,3	M	19C7	3,2,1	M	31F4
BOT.	3,2,1	8M	—	2,1	M	16C1	2,1	M	20B1	2,1	M	—	2,1	M	1A6	2,1	M	—	3,2,1	SM	A
	3,2,1	8M	10B8	2,1	M	5F6	2,1	M	20F6	2,1	M	20F6	2,1	M	1A6	2,1	M	—	2,1	M	27G1
	5,4	M	10D0	4,3	M	5E6	4,3	M	20F3	4,3	M	20F3	4,3	M	1A6	4,3	M	19F8	4,3	M	27D1
	7,6	M	8B3	6,5	M	—	6,5	M	20F5	6,5	M	20F5	6,5	M	1A6	6,5	M	19C9	6,5	M	—
							8,7	M	20F4	8,7	M	20F4	8,7	M	1A6	8,7	M	19F7			
COIL							10,9	M	20F2	10,9	M	20F2	10,9	M	1A6	10,9	M	19C8			
							12,11	M	—	12,11	M	—	12,11	M	41C4	12,11	M	19C7			
			10B0			16A2			16C2			16D0			1C0			16F2			27B0

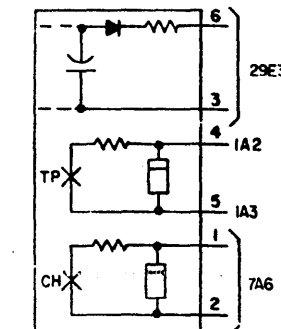
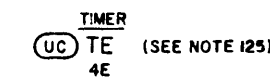
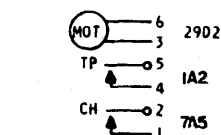
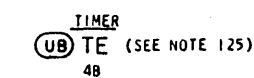
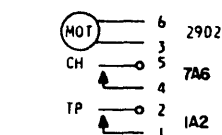
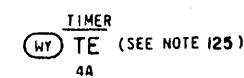
a	25C1
	27F1

RELAY	TME			TME1			TDB			TTE			TSPP								
DESIG	U145			U144			U144			U991			U611								
OPTION													XZ								
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	21F3	12,11	M	21F3	12,11	M	1A6												
	10,9	M	21F2	10,9	M	21F2	10,9	M	1D6	12,11	M	1D6									
	8,7	M	21F1	8,7	M	21F2	8,7	M	1D6	10,9,8	BM	b									
	6,5	M	21F0	6,5	M	21F1	6,5	M	1D6	7,6	M	10E4	9,8,7	BM	7C2						
	4,3	M	21F0	4,3	M	21F0	4,3	M	1D6	3,4	M	16C1	6,5,4	BM	40A9						
	2,1	M	16G0	2,1	M	—	2,1	M	1D6	2,1,3	BM	16B1	3,2,1	BM	7C1						
BOT.	2,1	M	—	2,1	M	—	2,1	M	1D6	2,1	M	4A/G3	3,2,1	BM	7A3						
	4,3	M	20F0	4,3	M	20F0	4,3	M	1D6	4,3	M	1C1	6,5,4	BM	40D9						
	6,5	M	20F1	6,5	M	20F1	6,5	M	1D6	6,5	M	1D1	9,8,7	BM	7B3						
	8,7	M	16D0	8,7	M	—	8,7	M	1D6	9,8,7	BM	7B1									
	10,9	M	16F1	10,9	M	19D5	10,9	M	1D6	11,10	M	29E2									
	12,11	M	—	12,11	M	19E5	12,11	M	—												
COIL			16C2			16E0			1D0			180			7A0						

b (WY) IEI
(WZ) 2B/C8

RELAY		ECHA		ZPG		PE		TMT2		TRTE	
DESIG		ECHA		ZPG		PE		TMT2		TRTE	
CODE		AJ15		AJ83		AF509		AJ83		AJ83	
OPTION		WZ		WZ		WZ		WZ		VH	
12	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	7C0	EBM	2A/H5	EBM		EBM	16G0	EBM		
11	EBM	31F3	EBM		M	31A6	EBM	4A/C4	EBM		
10	EBM	7E8	EBM		M	1F1	EBM	48/D4	EBM	4A/A7	
9	EBM	31A5	EBM		BM	10G6	EBM	48/C3	EBM	4A/A7	
8	EMB		EMB	2A/G3	M	31B2	EMB	48/B3	EMB	4A/A7	
7	EBM	10E9	EBM		BM	1G1	EBM	48/B2	EBM	4A/A7	
6	EMB	7A2	EMB		EMB	28/F7	EMB	40/G1	EMB	4A/A7	
5	EMB	40C7	EMB		BM	7H7	EMB	40/A6	EMB	4A/A8	
4	EBM	41C5	EBM		M	10E9	EBM	48/C3	EBM	4A/A8	
3	EBM	41B5	EBM		BM	29C2	EBM	48/F2	EBM	4A/A8	
2	EBM	31B2	EBM	11F1	M	2A/B3	EBM	48/F3	EBM	4A/A8	
1	EBM	10G7	EBM	27F7	M	1C2	EBM	48/E1	EBM	4A/A8	
COIL		7A4		2A/G5		1A0		28/D5		4A/G0	

NETWORK		LOC	CODE
GPT	DESIG		
	(1) CE	7C1	
	PE	1A0	177C
	(1) EC4	7A5	
	TE	102	
	SY	882	177A
	TSPP	7A0	185A
WZ	PE	1A0	185A
WZ	EPG	2A/GS	185A
WZ	TMT	2B/OS	185A
VW	TRTE	4A/GO	185A



APP FIG. 2

RELAY																							
DESIG		B01			B02			CKO			C0			C01			C50			ETO			
CODE		U314			U314			U891			U1112			U692			Y231			U300			
OPTION																							
X		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	
TOP		12,11	B	41B4	12,11	B	1A6	12,11	M	7C1													
		10,9	B	186	10,9	B	106	10,9	M	—													
		8,7	B	186	8,7	B	106	8,7	M	—	11,10	M	8B/E7								9,8	M	11D0
		6,5	B	186	6,5	B	106	6,5	M	3180	9,8,7	BM	985	9,8,7	BM	8E7	8,7	M	981	7,6	M	11E0	
		4,3	B	186	4,3	B	106	4,3	M	8A/36	6,5,4	BM	9H5	6,5,4	BM	8A6	6,5,4	BM	29A2	5,4	M	31F4	
BOT.		2,1	B	186	2,1	B	106	2,1	M	785	2,1,3	MB	a	3,2,1	BM	8C7	3,2,1	BM	7A1	3,2,1	BM	—	
		2,1	B	186	2,1	B	106	3,2,1	BM	—	2,1,3	MB	9C5	3,2,1	BM	8B/86	3,2,1	BM	40B6	2,1	B	11F6	
		4,3	B	186	4,3	B	106	5,4	M	788	6,5,4	BM	9G5	6,5,4	BM	8C/86	6,5,4	BM	31A5	5,4,3	BM	11E6	
		6,5	B	186	6,5	B	106	7,6	M	31A2	9,8,7	BM	905	9,8,7	BM	8F7	9,7	M	7E1	7,6	M	11F8	
		8,7	B	186	8,7	B	106	9,8	M	—	11,10	M	884										
COIL		10,9	B	186	10,9	B	106	11,10	M	—													
		12,11	B	41C4	12,11	B	8A/86																
					1066						7C0			7B7			7C7			7A0			11D0

705
8B/D6

RELAY																								
DESIG	H0						M80			OCH			ORD			P10			P20			P0		
CODE	U695						U138			Y109			U144			U476			Y185			U318		
OPTION										ZJ												Y		
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	—							12,11	M	—												
	10,9	M	4A/84	12,11	M	2981				10,9	M	21C8												
	8,7	M	49/A1	10,9,8	BM	10G1				8,7	M	21C7							10,9	M	3182			
	6,5	M	48/A1	7,6	M	3082				6,5	M	21C6				7,6	M	10E2	8,7,6	BM	40A5			
	4,3	M	48/A1	5,4	M	41A1	4,3	M	7A2	4,3	M	21C5				5,4	M	10F2	5,4,3	BM	10H6			
	2,1	M	48/A1	2,1,3	MB	27F1	2,1	M	2A/E3	2,1	M	—	3,2,1	BM	10E0	3,2,1	BM	10F1	2,1	B	29A2			
BOT.	2,1	M	48/E1	2,1,3	MB	1103	3,2,1	BM	7D2	2,1	M	—				3,2,1	BM	10E2	3,2,1	BM	—			
	4,3	M	48/E1	5,4	M	—	5,4	M	10F8	4,3	M	—				5,4	M	10F2	5,4	M	10D			
	6,5	M	48/E1	7,6	M	27A7				6,5	M	21C8				7,6	M	10G2	8,7,6	BM	a			
	8,7	M	48/E1	10,9,8	BM	7E1				8,7	M	21C7							10,9	M	2A/83			
	10,9	M	48/E1	12,11	M	—				10,9	M	21C6												
	12,11	M	48/A1							12,11	M	21C5												
COIL						27F1			4A/H3			7A4						10G0					1A0	

10F9
31F3

RELAY	S0			SRC			TCO			TDO			TD01			TEB			TFO		
DESIG	U660			Y91			U1391			U144			U144			U144			U90		
CODE																					
OPTION																					
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP										12,11	M	21F9	12,11	M	21F9	12,11	M	41B4			
										10,9	M	21F8	10,9	M	21F8	10,9	M	186			
	9,8	M	10C1	9,8,7	BM	—				8,7	M	21F7	8,7	M	21F7	8,7	M	186			
	7,6	M	10E1	6,5	B	18A7	6,5	M	—	6,5	M	21F6	6,5	M	21F6	6,5	M	186	7,6	M	—
	5,4	M	10C0	4,3	B	18B7	4,3	M	4A/H	4,3	M	21F5	4,3	M	21F5	4,3	M	186	5,4	M	31F4
BOT	3,2,1	BM	—	2,1	B	18A7	2,1	M	16D1	2,1	M	2A/B1	2,1	M	—	2,1	M	186	3,2,1	BM	a
	3,2,1	BM	10B6	3,2,1	BM	18A7	2,1	M	5F7	2,1	M	20F7	2,1	M	20F6	2,1	M	186	2,1	M	27H1
	5,4	M	10D0	6,5,4	BM	—	4,3	M	5E6	4,3	M	20F4	4,3	M	20F3	4,3	M	186	4,3	M	27D1
	7,6	M	8B3				6,5	M	—	6,5	M	20F6	6,5	M	20F5	6,5	M	186	6,5	M	—
COIL			10C0			8B/E5			16E2												
												16D2			16E0			1C0			27C0

27C0
25C1
27F1

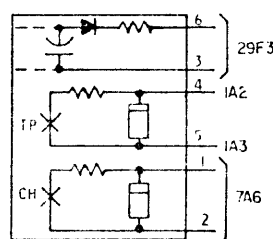
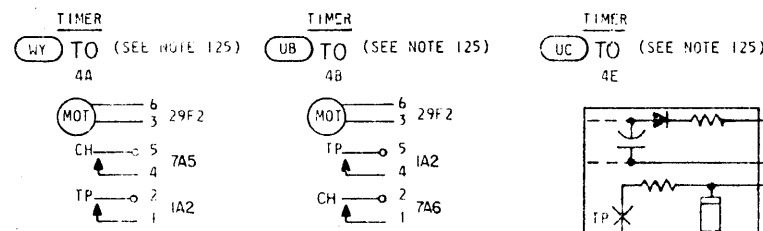
RELAY	TMO			TMO1			TOA			TOR			TS			TS1			TTO		
DESIG	U144			U144			U144			U144			U1112			U692			U991		
CODE																					
OPTION										ZJ											
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	21F4	12,11	M	21F4	12,11	M	1A6	12,11	M	19F8							12,11	M	10D8
	10,9	M	21F3	10,9	M	21F3	10,9	M	106	10,9	M	19C9							10,9,8	BM	4A/F3
	8,7	M	21F2	8,7	M	21F2	8,7	M	106	8,7	M	19F7	11,10	M	7D1						
	6,5	M	21F1	6,5	M	21F1	6,5	M	106	6,5	M	19C8	9,8,7	BM	8B/88	9,8,7	BM	7E1	7,6	M	29G2
	4,3	M	21F0	4,3	M	21F0	4,3	M	106	4,3	M	19C7	6,5,4	BM	8F7	6,5,4	BM	8B/E6	5,4	M	16D1
BOT.	2,1	M	16G0	2,1	M	-	2,1	M	106	2,1	M	-	2,1,3	MB	9D7	3,2,1	BM	10B1	2,1,3	MB	10E5
	2,1	M	-	2,1	M	-	2,1	M	106	2,1	M	-	2,1,3	MB	8A/D8	3,2,1	BM	10B2	2,1	M	7B2
	4,3	M	20F0	4,3	M	20F0	4,3	M	106	4,3	M	19F8	6,5,4	BM	9F8	6,5,4	BM	7B8	4,3	M	101
	6,5	M	20F1	6,5	M	20F1	6,5	M	106	6,5	M	19C9	9,8,7	BM	5F6	9,8,7	BM	7H3	6,5	M	101
	8,7	M	16F0	8,7	M	-	8,7	M	106	8,7	M	19F7	11,10	M	8B/88				9,8,7	BM	10B6
	10,9	M	16G1	10,9	M	18D5	10,9	M	106	10,9	M	19C8							11,10	M	4A/H2
	12,11	M	-	12,11	M	18E5	12,11	M	-	12,11	M	19C7									
COIL			16C2			16F5			100			1662			10A5			10B5			1B3

RELAY	DESIG	CODE	OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP																					
BOT.																					
COIL																					

RELAY		OCHA		OPG		PO		TMO		TTOA		TRTO	
DESIG		AJ15		AJ83		AF509		AJ83		AJ83		AJ83	
CODE													
OPTION		WZ		WZ		WZ		WZ		WZ		VH	
X	CONT ARR	LOC		CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC
12	EBM	7A1	EBM	2A/H5	EMB			EBM	16H0	EBM	11H1	EBM	
11	EBM	31G3	EBM		M	31A6	EBM	4A/C4	EBM	11G1	EBM		
10	EBM	7E8	EBM		M	1F1	EBM	4B/D4	EBM	2B/D7	EBM		
9	EBM	31A5	EBM		BM	10G6	EBM	4B/C3	EBM	2B/D9	EBM		
8	EMB		EMB	2A/G3	M	31B2	EMB	4B/B3	EMB	4A/G0	EMB		
7	EBM	10F8	EBM		BM	1G1	EBM	4B/B2	EBM	2B/G6	EBM		
6	EMB	7A3	EMB		EMB	2B/F9	EMB	4B/A1	EMB	a	EMB		
5	EMB	40B7	EMB		BM	7H7	EMB	4B/G4	EMB	b	EMB		
4	EBM	41D5	EBM		M	10F8	EBM	4B/G3	EBM	2B/G8	EBM		
3	EBM	41B5	EBM		BM	29A2	EBM	4B/F2	EBM	2B/E8	EBM		
2	EBM	31B2	EBM	11F1	M	2B/C3	EBM	4B/F3	EBM	11F0	EBM		
1	EBM	10G7	EBM	27G7	M	1C2	EBM	4B/E1	EBM	28G6	EBM		
COIL		7A4		2A/G5		1A0		2B/E5		1B4			4A/H8

VD 41D5
VQ 1G1
VD 41B5
VP 1F1

NETWORK	DESIG	LOC	CODE
OFF	AL	7D1	177C
	TO	1D2	
	CO	7D1	177C
	PO	1A0	
	OCH	7A5	177C
	OPG	2A/G5	185A
	PO	1A0	185A
	TMO	2B/E5	185A
	TRTO	4A/H0	185A



MASTER TIMING CIRCUIT

SD-25633-01-C2

BELL TELEPHONE LABORATORIES
INCORPORATED

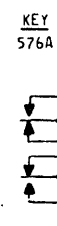
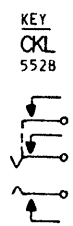
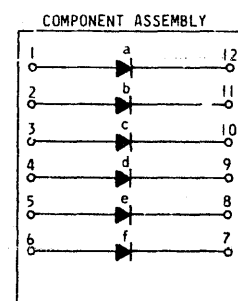
6S

ISSUE
55B

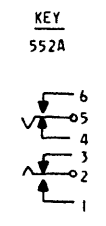
APP-FIG 3

[illegible][illegible]

a	WZ	181
	ZJ	7E7
b	WY	1E1
	WZ	183



CLT	EXD	EXH	EXM	EXR	S
1086	3081	30A1	30B1	30C1	1081
1082					
	3082	30B2	30C1	30C1	



CMBE	CMBO
	2700
	7C2
7B2	
27A0	



LAMP	DESIG	LOC	CODE
	CMBE	27G1	
	CMBO	27G1	
ZJ	[6]DR1-6	7E4	2Y
	[4]OTO-3	9F3	
	[10]DUO-9	9D1	
UA	ECH	7E7	MI
	ET	1E1	
	ETFE	1B0	
	ETFO	11C0	
	[6]HO-5	11E0	2Y
	[3]HTO-2	8B/82	
	[10]HUO-9	9C1	
	[12]MI-12	9A1	
		9H3	
UA	OCH	7E7	MI
	OT	1E0	
	PE	1B4	2Y
UA	PO	7G6	MI
		7H6	

LAMP			
OPT	DESIG	LOC	CODE
ZJ	[10]RDO-9	7D4	2Y
	SE	10A0	
	SO	10C0	
WZ	[6]STO-5	8B/C2	
	[10]TO-9	8A/F2	
	[10]JO-9	8A/C2	
NETWORK			
OPT	DESIG	LOC	CODE
	MT1	2B/F7	185A
	MT4	2B/G7	
WZ	MU2	2B/G8	
	IMH	2B/C7	
VF, VH	PSA	40B8	
VF, VH	PSB	40C8	

DESIG		CAO		
CODE		ED-94823- () G477		
OPTION				
COMPONENT		DESIG	LOC	CODE
DIODE	a	DHE	3G2	446K
	b	DHO	3G2	
	c	TRE	2A/B6	
	d	TRO	2A/B6	
	e	TMTE	2A/G6	
	f	TMT0	2A/G6	

RELAY																					
DESIG	3AM		STC		STH		TMT		UA		UB		UC		UD		UW		UZ		DESIG
CODE	AJ15		AJ15		AJ15		AJ83		AJ501		AJ501		AJ501		AJ501		AJ501		AJ501		CODE
OPTION	WZ		WZ		WZ		WZ		WZ		WZ		WZ		WZ		WZ		WZ		OPTION
☒	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	☒
12	EBM	13E0	EBM	2A/D6	EBM		EBM		EBM	8A/C6	EBM	8A/C7	EBM	8A/C7	EBM	8A/B6	EBM		EBM		12
11	EBM		EBM		EBM		EBM		EBM	8A/A6	EBM	8A/B7	EBM	8A/B6	EBM		EBM		EBM		11
10	EBM		EBM		EBM		EBM		EBM	8A/A6			EBM	8A/A6	EBM		EBM		EBM		10
9	EBM	28B7	EBM		EBM		EBM		EBM	2B/A7	EBM	2B/B9			EBM	2B/A8	EBM		EBM	2B/F4	9
8	EMB		EMB		EMB	4107	EMB		EMB	41G1	EMB		EMB		EMB		EMB		EMB	a	8
7	EBM		EBM		EBM		EBM		EBM	41H1			EBM	2B/B6	EBM	2B/C8,D8	EBM		EBM	b	7
6	EMB		EMB		EMB	2B/D6	EMB		EMB		EMB		EMB	2B/B9	EMB	2B/B7	EMB		EMB	c	6
5	EMB	28A1	EMB		EMB	2B/H1	EMB	11G2,W2	EMB	2B/B6	EMB	2B/B5	EMB	2B/C9,D9	EMB	2B/C6	EMB	2B/F7	EMB	d	5
4	EBM	13A5,B5	EBM		EBM		EBM	2A/E1	EBM	2B/C8,D8	EBM		EBM	2A/G2	EBM	2B/E7	EBM	2B/G7	EBM		4
3	EBM		EBM		EBM		EBM	2A/H6	EBM	2A/FA	EBM		EBM	2A/F3	EBM	2B/C8,D8	EBM		EBM	2B/B7	3
2	EBM	25H4	EBM	7H5	EBM		EBM	2B/D6	EBM	7C3	EBM	7C3	EBM	7C3	EBM	2A/E3	EBM		EBM	2B/C6	2
1	EBM	11G0	EBM	7H2	EBM		EBM	2A/G6	EBM	2A/E3	EBM	2A/F5	EBM	2A/E5	EBM	2A/E2	EBM		EBM	2B/A8	1
COIL		11G0		8B/D5		2B/D6		2B/H5		2B/B7		2B/C8		2B/A4		2B/A8		2B/F5		2B/G5	COIL

a	UA	2B/C9
	VZ	2B/A5
b	UA	2B/A5
	VZ	2B/C9
c	UA	2B/B7
	VZ	2B/G6
d	UA	2B/A8
	VZ	2B/F6

RELAY																		
DESIG	HAA			WHR			WHR			HHR								
CODE	U188			U422			U177			U177								
OPTION	XS, WC			WM			WI			VK								
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	-															
	10,9,8	BM	-															
	7,6	M	-				9,8,7	BM	-	9,8,7	BM	-						
	5,4	M	41A1				6,5,4	BM	41H1	6,5,4	BM	41G1						
	2,1,3	MB	-	3,2,1	BM	41C1	3,2,1	BM	41C1	3,2,1	BM	41D6						
BOT	2,1,3	MB	-	2,1	M	41C7	3,2,1	BM	41C7	3,2,1	BM	41B1						
	5,4	M	-				6,5,4	BM	41B1	6,5,4	BM	-						
	7,6	M	-				9,8,7	BM	-	9,8,7	BM	-						
	10,9,8	BM	-															
	12,11	M	-															
COIL			2B/E2			41H0			41H0			41G0						

PART OF APP FIG. 4

SELECTOR																	
DESIG	OPTION	CODE	BANK CODE	ARC												STEP MAG LOC	INTER CONT LOC
				1		2		3		4		5		6			
				TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC		
DT		206AF	26A	1,2 3,22	- 3A5	1,2 3,4 5-22	- 3B5 -	1-4 5-22	9E3 -	1-4 5-22	30G8 -	1-22	30E8	1-4 5-22	9F3 -	3C5	3C3
DU		206AF	26A	1-20 21,22	9E2 -	1-7 8-22	- 3D1	1 2-8 9 10-18 19 20-22	3A1 - 3A1 - 3A1 -	1-20 21,22	30F3 -	1-20 21,22	30E3 -	1-20 21,22	9C3 -	3F1	3D2
H		206AF	26A	1-22 3 10 17	2A/E7 41F2 41F2 41F2	1 2 3 4,5 6 7 8 9 10 11,12 13 14 15 16 17 18,19 20 21,22	11A1 - 4IC7 - 4IA7 - 11A1 - 4IC7 - 4IA7 - 11A1 - 4IC7 - 4IA7 -	1-22	2B/D7	1-22	2B/E7	1-6 7 8-13 14 15-20 21,22	8B/B8 - 8B/B8 - 8B/B8 -	1-6 7 8-13 14 15-22	8B/A4 - 8B/A4 - 8B/A4 -	2A/H3	2A/E6
HT		206AF	26A	1,2 3-22	41E1 2B/D3	1 2 3 4-22	2B/B3 - 41F1 2B/B3	1,2 3 4-22	- 2B/A3 -	1-3 4 5-22	4A/E0 2B/E3 -	1-3 4-22	4A/C0 -	1-22	9B3	2B/H2	2B/C2
HU		206AF	26A	1-22	2B/F0	1-3 4 5-22	- 11A1 2B/B0	1 2-3 4 5 6 7 8 9 10 11-22	41D1 - 2B/A0 4IC1 - 4IB1 41D1 - 2B/A0 -	1-10 11-22	4A/B0 -	1-10 11-22	4A/A0 -	1-22	9A3	2B/G3	2B/C1
M		206AF	26A	1-12 13-22	3E5 -	1-12 13-22	30A7 -	1-22	-	1-12 13-22	30B6 3F5	1-12 13-22	30C6 -	1-12 13-22	9G3 -	3G5	3F6
T		206AF	26A	1 2 3 4 5 6,7 8 9 10 11 12 13 14 15,16 17 18 19 20-22	25C5 2B/G9 - 25C5 - 25C5 2B/E9 2A/A7 25C5 - 2B/G9 25C5 - 25C5 - 2B/E9 2A/A7	1 2-9 - 10 11 12-19 20 21,22	11A3 - - 41A4 11A3 - 41D3 41A4 -	1-22	2B/A7	1-22	2B/B7	1-20 21,22	9E8 -	1-22	8E5	2A/B4	2A/C6
U	WY	206AF	26A	1 2-8 9-11 12-18 19-22	2A/F3 - 2A/F3 - 2A/F3	1,2 3-6 7-12 13-16 17-22	- 11A4 - 11A4 -	1-4 5 6-8 9,10 11-14 15 16-18 19,20 21,22	- 41C8 - 2A/C4 41C8 - 2A/C4 -	1,3,-- 19 2,4 6 8 10 12,14 16 18 20 21,22	23D3 - 31B3 - 7B2 31B3 - 7B2 2A/A4	1-20 21,22	8C8 -	1-22	8B5	2A/H1	2A/A3
ST	WZ	206AF	26A	1-5 6,7 8-12 13,14 15-19 20-22	- 2A/D7 - 2A/D7 - 2A/D7	1 2-4 5-8 9-11 12-15 16-18 19-22	- 11C3 - 11C3 - 11C3 -	1,2,3 4 5 6 7-10 11 12 13 14-17 18 19 20 21,22	- 31B3 - 7B2 - 31B3 - 7B2 - 31B3 - 7B2 -	1-5 6 7-12 13 14-19 20 21,22	- 2A/G6 - 2A/G6 - 2A/G6 -	1-6 7 8-13 14 15-20 21,22	8B/C8 - 8B/C8 - 8B/C8 -	1-6 7 8-13 14 15-22	8B/B4 - 8B/B4 - 8B/B4 -	2B/H1	2A/E6

APP FIG. 5

RELAY		[5]T(0,1,2,3,7)E												[5]U(0,1,2,4,7)E																																			
DESIG CODE		U695												U695																																			
OPTION		CONT NO.			CONT ARR			LOC			CONT NO.			CONT ARR			LOC			CONT NO.			CONT ARR			LOC			CONT NO.			CONT ARR			LOC			CONT NO.			CONT ARR			LOC					
TOP	X	12,11	M	4A/G7	12,11	M	4A/G7																																										
		10,9	M	4A/D7	10,9	M	4A/B7																																										
		8,7	M	4A/D7	8,7	M	4A/B7																																										
		6,5	M	4A/D7	6,5	M	3A/B7																																										
		4,3	M	4A/D7	4,3	M	4A/B7																																										
BOT.	X	2,1	M	3A/D7	2,1	M	4A/B7																																										
		2,1	M	3A/D7	2,1	M	4A/B7																																										
		4,3	M	4A/D7	4,3	M	4A/B7																																										
		6,5	M	3A/D7	6,5	M	4A/B7																																										
		8,7	M	4A/D7	8,7	M	4A/B7																																										
COIL	X	10,9	M	4A/D7	10,9	M	4A/B7																																										
		12,11	M	4A/D7	12,11	M	4A/B7																																										
				4B/F4			4B/B4																																										

APP FIG. 6

RELAY		[5]T(0,1,2,4,7)O						[5]U(0,1,2,4,7)O																							
DESIGN		U695						U695																							
CODE																															
OPTION																															
X		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC						
TOP		12,11	M	4A/G7	12,11	M	4A/G7																								
		10,9	M	4A/D7	10,9	M	4A/D7																								
		8,7	M	4A/D7	8,7	M	4A/D7																								
		6,5	M	4A/D7	6,5	M	4A/D7																								
		4,3	M	4A/D7	4,3	M	4A/D7																								
		2,1	M	4A/D7	2,1	M	4A/D7																								
BOT.		2,1	M	4A/D7	2,1	M	4A/D7																								
		4,3	M	4A/D7	4,3	M	4A/D7																								
		6,5	M	4A/D7	6,5	M	4A/D7																								
		8,7	M	4A/D7	8,7	M	4A/D7																								
		10,9	M	4A/D7	10,9	M	4A/D7																								
		12,11	M	4A/D7	12,11	M	4A/D7																								
COIL		4B/F4						4B/F4						4B/F4						4B/F4						4B/F4					

ISSUE
55BMASTER TIMING CIRCUIT
BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-C5

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ES

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APP FIG. 7

RELAY																						
DESIG		ERO			ESO			GEO			GRE			ORO			PRO			SCD		
CODE		U144			U979			U1112			U1112			U144			U299			U940		
OPTION																						
		CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.
TOP		12,11	M	22C6										12,11	M	22C5						
		10,9	M	22B4										10,9	M	22B4				11,10	M	—
		8,7	M	24C3	9,7	M	12C4	11,10	M	27A7	11,10	M	27A6	8,7	M	24C3				9,8	M	27C3
		6,5	M	16B5	5,5	B	12E6	9,8,7	SM	25E5	9,8,7	SM	12F1	6,5	M	15D6				7,6	M	11F5
		4,3	M	13E4	4,3		12F6	6,5,4	SM	23F9	6,5,4	SM	12A2	4,3	M	13E4				5,4	M	25E6
BOT		2,1	M	24A6	2,1	M-B	11B7	2,1,3	MB	11E0	2,1,3	MB	13F2	2,1	M	24A6	3,2,1	SM	22H2	3,2,1	SM	—
		2,1	M	25C3	4,3	M-B	—	2,1,3	MB	22F2	2,1,3	MB	27D6	2,1	M	26B3	2,1	B	22D3	3,2,1	SM	9B5
		4,3	M	26C3	2,1		27D7	6,5,4	SM	22D7	6,5,4	SM	25D7	4,3	M	26C3	4,3	M	27G6	5,4	M	23D8
		6,5	M	26A3	6,5	B	25D6	9,8,7	SM	11A7	9,8,7	SM	22D2	6,5	M	26A3				7,6	M	11E6
		9,7	M	26F3	9,7	M	27E0	11,10	M	30E3	11,10	M	27F3	9,7	M	26F3				9,8	M	27D7
COIL		10,9	M	26H3										10,9	M	26H3				11,10	M	—
		12,11	M	26E3										12,11	M	26E3						
				27E6			12H6			27B6			27A6						27G6			13B3

RELAY																					
DESIGN			TBE			TFT															
CODE			U643			U299															
OPTION																					
			CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	
TOP			12, 11	M	13E3																
			10, 9	M	13E1																
			8, 7	M	10B7																
			6, 5	M	22C3																
			4, 3	B	16C6																
BOT			2, 1	B	10F7	3, 2, 1	SM	16E4													
			2, 1	B	27B6	2, 1	B	22E3													
			4, 3	B	27C6	4, 3	M	-													
			6, 5	B	11B7																
			9, 8, 7	SM	27D8																
		11, 10	M	12B8																	
COIL					13E1			16C5													

APP FIG. 9

RELAY																							
DESIG			ERE			ESE			SOE			SR			SRT			SRO			SRE		
CODE			U144			U979			U1112			U177			U177			U1112			U144		
OPTION																							
TOP	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.		
	12,11	M	22B5																12,11	M	22C5		
	10,9	M	22A4																10,9	M	22A4		
	8,7	M	24C3	9,7	M	12C6	11,10	M	40E4	9,8,7	SM	12C4	9,8,7	SM	12A3	11,10	M	27D6	8,7	M	24C3		
	6,5	M	16A5	6,5	B	12E7	9,8,7	SM	25F6							11,10	M	15D6	6,5	M	16D6		
	4,3	M	13G4	4,3		12F7	6,5,4	SM	23E8	6,5,4	SM	12D4	6,5,4	SM	2	6,5,4	SM	12B6	4,3	M	13G4		
	2,1	M	24A6	2,1	M-B	11B7	2,1,3	MB	25D7	3,2,1	SM	12B4	3,2,1	SM	22F1	2,1,3	MB	12D6	2,1	M	24A6		
	2,1	M	26B3	4,3	M-B	-	2,1,3	MB	27E7	3,2,1	SM	22F2	3,2,1	SM	11G1	2,1,3	MB	27E6	2,1	M	26B3		
BOT.	4,3	M	26C3	2,1		27A7	6,5,4	SM	13F2	6,5,4	SM	22E3	6,5,4	SM	13E2	6,5,4	SM	13C6	5,1	M	26C3		
	6,5	M	26A3	6,5	B	25D6	9,8,7	SM	11A7	9,8,7	SM	12C8	9,8,7	SM	12F1	9,8,7	SM	12B8	6,5	M	15A1		
	9,7	M	26F3	9,7	M	27E1	11,10	M	27C7							11,10	M	27C3	9,7	M	26F1		
	10,9	M	26G3																10,9	M	26G1		
COIL	12,11	M	26E3																12,11	M	26E1		
			27F6			12H7			27C6			27F2				27F2			27C5			13D5	

RELAY																				
DESIG			PRE			SCE			TSD											
CODE			U299			U940			U643											
OPTION																				
X			CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.
TOP									12,11	M	13F3									
									10,9	M	13D1									
									8,7	M	10B8									
									7,6	M	11F3	6,5	M	22B5						
									5,4	M	25E6	4,3	B	—						
BOT			3,2,1	SM	22H2	3,2,1	SM	6	2,1	B	10B7									
			2,1	B	22E3	3,2,1	SM	27E7	2,1	B	27B6									
			4,3	M	27C6	5,4	M	11C5	4,3	B	27B6									
						7,6	M	23E8	6,5	B	11B7									
						9,8	M	27B5	9,8,7	SM	27F9									
COIL						11,10	M	—	11,10	M	12B3									
					27F5			13A3			13F1									

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-06

6S

PART OF APP FIG. 8

RELAY	1CL			A			A1			B			B1			CC			CK		
DESIG																					
CODE	U113			U639			U1113			U639			U1113			U953			U953		
OPTION																					
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP				12,11	M	26C1				12,11	M	25B1				13,12	M	15B4	13,12	M	17C3
				10,9,8	BM	23G6	10,9	M	13F7	10,9,8	BM	23G6	10,9	M	13F7	11,10	M	26C1	11,10	M	15D4
				7,6	M	16A7	9,7	M	28A8	7,6	M	16B7	9,7	M	28A8	7,6	M	26A1	7,8	M	16E7
				5,4	M	13F7	6,5,4	BM	16C7	5,4	M	13F7	6,5,4	BM	16B7	5,4	M	26B1	5,4	M	16G5
				3,2,1	BM	11C5	2,1,3	MB	23F6	3,2,1	BM	-	3,2,1	MB	-	3,2,1	BM	-	3,2,1	MB	-
BOT.				2,1	B	16C7	3,2,1	BM	17E2	2,1	B	16B7	3,2,1	BM	17F2	2,1,3	MB	18G5	2,1,3	MB	-
				4,3	M	-	6,5,4	BM	19H6	4,3	M	-	6,5,4	BM	19H6	5,4	B	17H4	5,4	B	16B4
				6,5	M	-	3,7	M	-	6,5	M	-	9,7	M	-	7,6	M	-	7,6	M	-
				9,8,7	BM	26E0	10,9	M	22F4	9,3,7	BM	26F1	10,9	M	22F4	10,9,8	BM	16D4	10,9,8	BM	37H2
				11,10	M	-				11,10	M	-				12,11	BM		12,11	M	24B6
COIL			11C6			26B0			13F7			26A0			13F7			16B4			23F4

RELAY																						
DESIG	COP			DT			DA			DC			DRL			E			ESP			
CODE	U293			U642			U144			U144			Y213			U542			U1047			
OPTION	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	
TOP				11,10,9	BM	16C6	12,11	M	18D4	12,11	M	18D6										
				8,7	B	13F6	10,9	M	-	10,9	M	18E1				11,10,9	BM	16B7				
				6,5	B	-	8,7	M	-	9,7	M	2002				8,7	B	13F6	11,10,9	BM	17H0	
				4,3	B	-	6,5	M	29D1	6,5	M	2002	7,6	PM	13F6	6,5	B	-	8,7,6	BM	17B8	
				2,1	B	-	4,3	M	19D5	4,3	M	2002	5,4,3	BM	26C1	4,3	B	23F6	5,4	B	17C7	
BOT	1,3,1	BM	17C3	2,1	B	-	2,1	M	19C5	2,1	M	2002	2,1	M	18H1	2,1	B	-	2,1,3	MB	18B1	
	2,1	B	18C1	2,1,3	MB	26C1	2,1	M	19D1	2,1	M	2002	2,1	M	18G4	2,1,3	MB	16B7	2,1,3	MB	17A3	
	4,3	M	25B5	5,4	M	26E1	4,3	M	19D2	4,3	M	21D4	5,4,3	BM	a	5,4	M	26F1	5,4	B	18G2	
				7,6	M	23B1	6,5	M	19D3	5,5	M	21D4	7,6	PM	26D1	7,6	M	26E1	8,7,6	BM	17H3	
				10,9,8	BM	23F5	8,7	M	19F4	8,7	M	21D4				10,9,8	BM	23G5	11,10,9	BM	18G6	
COIL				12,11	M	-	10,9	M	19E4	10,9	M	21D4				12,11	M	28B8				
				12,11	M	18D4	12,11	M	21D4													
			18F2			26C0			18E0			18E0			17H4			26D0			18C3	

RELAY	ET			ET1			ETS			HRE			HRH			LC1			LC2		
DESIG																					
CODE	U188			U1324			U67			U144			U144			U58			U188		
OPTION																					
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	11A6							12,11	M	18C5	12,11	M	18C6						
	10,9,8	BM	17F4	11,10	M	17A8				10,9	M	-	10,9	M	18D2	11,10	M	17D4	12,11	M	17B4
	7,6	M	11C8	9,8,7	BM	25D3	7,6	M	11D7	6,5	M	28A1	6,5	M	20F7	9,8	M	17C5	10,9,8	BM	17B2
	5,4	M	a	6,5,4	BM	25F3	5,4	M	12E7	4,3	M	19D5	4,3	M	20F7	5,4	M	18D2	5,4	M	18A1
	2,1,3	MB	27A8	2,1,3	MB	a	5,2,1	BM	12D7	2,1	M	19C5	2,1	M	20F7	3,2,1	BM	18C7	2,1,3	MB	17C1
BOT	2,1,3	MB	28A1	2,1,3	MB	18A1	5,2,1	BM	3E7	2,1	M	19D1	2,1	M	20F7	2,1	9	25B5	2,1,3	MB	25D3
	5,4	M	18B6	6,5,4	BM	23E7	5,4	M	25D5	4,3	M	19E2	4,3	M	21B4	5,4,3	BM	18F7	5,4	M	18D1
	7,6	M	3F8	9,8,7	BM	25E2				6,5	M	19D3	6,5	M	21B4	8,7,6	BM	17G8	7,6	M	17E3
	10,9,8	BM	22C2	11,10	M	25D2				8,7	M	19F4	8,7	M	21B4	10,9	M	17A7	10,9,8	BM	17A2
	12,11	M	16F7							10,9	M	19E4	10,9	M	21B4				12,11	M	17A3
COIL			11A8			11D8			11E8	12,11	M	18C5	12,11	M	21B4						
												4A/G9			4A/H9				17D5		17C5

RELAY	LC3			LC4			MC			MGE			MGN			MO			MS		
DESIG																					
CODE	U175			U1317			U144			U144			U144			U144			U1113		
OPTION																					
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP							12,11	M	18C6	12,11	M	18F5	12,11	M	18F6	12,11	M	18C5			
							10,9	M	18E2	10,9	M	18D1	10,9	M	19D6	10,9	M	19F5			
				9,8	M	-	8,7	M	2000	8,7	M	-	8,7	M	19D6	8,7	M	19F5	10,9	M	28D8
				7,6	M	-	6,5	M	2000	6,5	M	-	6,5	M	19D6	6,5	M	19F5	8,7	M	18B6
				5,4	M	18G2	4,3	M	20D1	4,3	M	18D4	4,3	M	19D6	4,3	M	19F5	6,5,4	BM	17E2
BOT.	3,2,1	BM	-	3,2,1	BM	-	2,1	M	20D1	2,1	M	28G1	2,1	M	19D6	2,1	M	19F5	3,2,1	BM	17F3
	3,2,1	BM	17C3	2,1	B	17F2	2,1	M	28F1	2,1	M	19F1	2,1	M	-	2,1	M	19D1	3,2,1	BM	19H6
				5,4,3	BM	17B2	4,3	M	21E0	4,3	M	19F2	4,3	M	-	4,3	M	19D2	6,5,4	BM	19H6
				7,6	M	17A4	6,5	M	21E0	6,5	M	19E3	6,5	M	20A7	6,5	M	19D3	8,7	M	19G6
							8,7	M	21E1	8,7	M	19G4	8,7	M	20A7	8,7	M	19E4	10,9	M	19G6
COIL							10,9	M	21E2	10,9	M	19F4	10,9	M	21B3	10,9	M	19E4			
							12,11	M	21E3	12,11	M	19F5	12,11	M	21B3	12,11	M	18C5			
			17A6			17A4			18G0			18H0			18H0			18G0			18A5

RELAY																					
DESIG	OC			P1			P1A			P2			P2A			P3			P3A		
CODE	U642			U98			U111			U98			U111			U98			U111		
OPTION										ZL			ZL								
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	11, 10, 9	BM	25D8																		
	8,7	B	1846				8,7	M	17B7				8,7	M	17B7				8,7	M	17C7
	6,5	B	1882	8,7	M	17A1	6,5	B	-	8,7	M	17B1	6,5	B	-	8,7	M	17B1	6,5	B	-
	4,3	B	11D3	6,5,4	BM	18C6	4,3	B	-	6,5,4	BM	-	4,3	B	-	6,5,4	BM	-	4,3	B	-
	2,1	B	27B7	3,2,1	BM	18G3	2,1	B	36E6	3,2,1	BM	-	2,1	B	-	3,2,1	BM	16B1	2,1	B	-
BOT	2,1,3	MB	a	3,2,1	BM	17B7	2,1	B	19C0	1,2,1	BM	17C8	2,1	B	16D0	3,2,1	BM	17C8	2,1	B	18E0
	5,4	M	11D5	6,5,4	BM	18C1	5,4,3	BM	17A1	6,5,4	BM	18D1	5,4,3	BM	17B2	6,5,4	BM	18E1	5,4,3	BM	17D2
	7,6	M	12A3	8,7	M	36F6	7,6	M	28C1	8,7	M	-	7,6	M	28D1	8,7	M	4A/F3	7,6	M	28D1
	10,9,8	BM	16C4																		
	12,11	M	17C3																		
COIL			11C8			17A1			17A6			17B1			17B6			17B1			17C6

RELAY	DESIG	CODE	OPTION	P4	P4A	P5	P5A	P6	P7
				U98	U111	U98	U111	U98	U111
				CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP				8,7	M	17D1	6,5	B	17D7
				6,5,4	BM	4A/G2	4,3	B	4A/G2
				3,2,1	BM	4A/G8	2,1	B	4A/G2
				5,4,3	BM	17D8	2,1	B	18E2
				6,5,4	BM	13E1	5,4,3	BM	17D2
				8,7	M	28A1	8,7	M	28F1
COIL				17D1	17D6	17E1	17E6	17F1	17E6

DRAWING
ISSUE
310
TLC
JUL
AMT

ISSUE
52B

SD-25633-01-C7

PART OF APP FIG. 8

RELAY									
DESIG	P7A			P8			P8A		
CODE	U111			U98			U111		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	8,7	M	17F7				8,7	M	17G7
	6,5	B	-	8,7	M	17G1	6,5	B	-
	4,3	B	-	6,5,4	BM	-	4,3	B	1304
	2,1	B	-	3,2,1	BM	-	2,1	B	23E6
	2,1	B	18G0	3,2,1	BM	17G8	2,1	B	13H0
	5,4,3	BM	17G2	6,5,4	BM	18H1	5,4,3	BM	17H1
	7,6	M	28G1	8,7	M	-	7,6	M	23H1
COIL			17F6			17G1			17G6

a 12A8 37G3
a 17G8 2505

RELAY									
DESIG	RET			RET1			RLS		
CODE	U333			U556			U80		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	18G4				12,11	M	37G1
	10,9	M	18H6				10,9	B	22E4
	3,7	B	23F7				8,7	B	16D4
	6,5	B	-	10,9	M	18B2	6,5	B	17H3
	8,7,6	BM	3C8	4,3	M	3D8	4,3	B	13F6
	5,4,3	BM	11G5	2,1	B	-	2,1	B	13F6
	2,1	B	25D9	2,1	B	3D7	2,1,3	MB	27H2
	2,1	B	5F5	2,1	B	3D7	5,4	M	11G1
	5,4,3	BM	11E8	4,3	M	-	7,6	BM	26E1
	8,7,6	BM	-				10,9,8	BM	18G7
	10,9	M	11B5				12,11	M	26G1
COIL			11C6			3C9			37G1

RELAY SEE NOTE 204									
DESIG	RCE			RCE			RCO		
CODE	263A			287A			263A		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	59	36E6	36E6	59	36E6	36E6	59	36E6	36E6
	58	18F7	18F7	58	18F7	18F7	58	18F7	18F7
	57	16G7	16G7	57	16G7	16G7	57	16G7	16G7
	56	18A7	18A7	56	18A7	18A7	56	18A7	18A7
	55	17C8	17C8	55	17C8	17C8	55	17C8	17C8
	49	39B6	39B6	49	39B6	39B6	49	39B6	39B6
	48	18A4	18A4	48	18A4	18A4	48	18A4	18A4
	47	39B6	39B6	47	39B6	39B6	47	39B6	39B6
	46	17A8	17A8	46	17A8	17A8	46	17A8	17A8
	45	18G7	18G7	45	18G7	18G7	45	18G7	18G7
	39	16F7	16F7	39	16F7	16F7	39	16F7	16F7
	38	18B7	18B7	38	18B7	18B7	38	18B7	18B7
	37	25F3	25F3	37	25F3	25F3	37	25F3	25F3
	36	17G8	17G8	36	17G8	17G8	36	17G8	17G8
	35	26D2	26D2	35	26D2	26D2	35	26D2	26D2
	29	39A6	39A6	29	39A6	39A6	29	39A6	39A6
	28	18B7	18B7	28	18B7	18B7	28	18B7	18B7
	27	35B6	35B6	27	35B6	35B6	27	35B6	35B6
	26	36F6	36F6	26	36F6	36F6	26	36F6	36F6
	25	15F3	15F3	25	15F3	15F3	25	15F3	15F3
	19	18D2	18D2	19	18D2	18D2	19	18D2	18D2
	18	18H7	18H7	18	18H7	18H7	18	18H7	18H7
	17	38B6	38B6	17	38B6	38B6	17	38B6	38B6
	16	18C7	18C7	16	18C7	18C7	16	18C7	18C7
	15	38E6	38E6	15	38E6	38E6	15	38E6	38E6
	09	26H2	26H2	09	26H2	26H2	09	26H2	26H2
	08	21B3	21B3	08	21B3	21B3	08	21B3	21B3
	07	16B8	16B8	07	16B8	16B8	07	16B8	16B8
	06	17H2	17H2	06	17H2	17H2	06	17H2	17H2
	05	38F6	38F6	05	38F6	38F6	05	38F6	38F6
	COIL	16A8	16A8	COIL	16A8	16A8	COIL	16A8	16A8
	54	19C1	19C1	54	19C1	19C1	54	19C1	19C1
	53	19C1	19C1	53	19C1	19C1	53	19C1	19C1
	52	19C1	19C1	52	19C1	19C1	52	19C1	19C1
	51	19C1	19C1	51	19C1	19C1	51	19C1	19C1
	50	19C1	19C1	50	19C1	19C1	50	19C1	19C1
	44	19C3	19C3	44	19C3	19C3	44	19C3	19C3
	43	19C3	19C3	43	19C3	19C3	43	19C3	19C3
	42	19C3	19C3	42	19C3	19C3	42	19C3	19C3
	41	19C3	19C3	41	19C3	19C3	41	19C3	19C3
	40	19C3	19C3	40	19C3	19C3	40	19C3	19C3
	34	19C5	19C5	34	19C5	19C5	34	19C5	19C5
	33	19C5	19C5	33	19C5	19C5	33	19C5	19C5
	32	19C5	19C5	32	19C5	19C5	32	19C5	19C5
	31	19C5	19C5	31	19C5	19C5	31	19C5	19C5
	30	19C5	19C5	30	19C5	19C5	30	19C5	19C5
	24	20C0	20C0	24	20C0	20C0	24	20C0	20C0
	23	20C0	20C0	23	20C0	20C0	23	20C0	20C0
	22	20C0	20C0	22	20C0	20C0	22	20C0	20C0
	21	20C0	20C0	21	20C0	20C0	21	20C0	20C0
	20	20C0	20C0	20	20C0	20C0	20	20C0	20C0
	14	21C0	21C0	14	21C0	21C0	14	21C0	21C0
	13	21C0	21C0	13	21C0	21C0	13	21C0	21C0
	12	21C0	21C0	12	21C0	21C0	12	21C0	21C0
	11	21C0	21C0	11	21C0	21C0	11	21C0	21C0
	10	21C0	21C0	10	21C0	21C0	10	21C0	21C0
	04	19C0	19C0	04	19C0	19C0	04	19C0	19C0
	03	19C0	19C0	03	19C0	19C0	03	19C0	19C0
	02	19C0	19C0	02	19C0	19C0	02	19C0	19C0
	01	38A1	38A1	01	38A1	38A1	01	38A1	38A1
	00	17A8	17A8	00	17A8	17A8	00	17A8	17A8
	COIL	16A8	16A8	COIL	16A8	16A8	COIL	16A8	16A8

RELAY									
DESIG	ROS			RS			RSC		
CODE	U286			Y205			Y205		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP				10,9	M	18G1	10,9	M	18A2
				8,7	M	16C4	8,7	M	37H1
				6,5	M	17G3	6,5	M	17H3
				4,3	M	37H1	4,3	M	12E7
	5,4	M	18H6	4,3	M	24A6	2,1	B	17F3
	3,2,1	BM	18B2	2,1	B	24A6	2,1	B	17F3
	2,1	M	18C4	2,1	S	-	2,1	B	16B4
	4,3	M	18G6	4,3	M	37G3	4,3	M	16B4
				6,5	M	18A2	6,5	M	23G5
				8,7	M	17D4	8,7	M	12C7
				10,9	M	-	10,9	M	25D5
							12,11	M	18C5
COIL			18H5			13F5			18A2

RELAY									
DESIG	SP			SPA			SPT		
CODE	U80			U6036			U6036		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	18G5				12,11	M	18D5
	10,9	B	17F3	10,9	M	19E5	10,9	M	18C0
	8,7	B	18C3	8,7	M	18C2	8,7	M	18C2
	6,5	B	25D4	6,5	M	18D7	6,5	M	18D7
	4,3	B	-	4,3	M	-	4,3	M	-
	2,1	B	-	2,1	M	28C1	2,1	M	-
	2,1,3	MB	23F6	2,1	M	19F7	2,1	M	19C1
	5,4	M	18H7	4,3	M	20F8	4,3	M	19D2
	7,6	M	18A1	6,5	M	20F8	6,5	M	19D3
	10,9,8	BM	a	9,7	M	21C5	8,7	M	19F4
	12,11	M	26H1	10,9	M	21B5	10,9	M	19E4
							11,10	M	18F1
COIL			18G5			18C0			18C0

a 18G3 28A1

RELAY									
DESIG	SY			TBR			TGT		
CODE	U1113			U179			U499		
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	10,9	M	-	9,8	M	37G1			
	8,7	M	18B6	7,6	M	12D1			
	6,5,4	BM	17D2	5,4	M	37G2	5,4	M	17C1
	3,2,1	BM	18A5	3,2,1	BM	16D4	3,2,1	BM	-
	3,2,1	BM	a	3,2,1	BM	26G2	2,1	B	17G8
	6,5,4	BM	19G6	5,4	M	26G0	4,3	M	-
	8,7	M	19G5	7,6	M	12E7	6,5	M	25E2
	10,9	M	19G6				8,7	PM	18C4
COIL			18B6			24A5			17C1

HY 19G5
WZ 18A6

RELAY												
DESIG												
CODE												
OPTION												
X	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP												
BOT												
COIL	X	X		X	X		X	X		X	X	

PART OF APP FIG. 8

CAPACITOR

DESIG	LOC	CODE
UK T(T)	18A1	2289
(T1)		2288
UL T	18A1	535NR
TI	18B0	KS-1336613
		KS-13365, L35, 1000UUF

NETWORK

DESIG	LOC	CODE
[1] COP	18F2	177C
PTO	18G2	
P1	17A0	177A
PA	17G7	177A
PTR	18C7	177C
RCE	16A8	177A
RCD	16E8	177A
SP	18C0	177E
TSP	18B3	185A
(VB) PTR	18H4	185A

RESISTOR

DESIG	LOC	CODE
OP	18F2	18GF
T1	18A1	KS-13490, L1, 1000
T2	18A0	144E, .1 MEG
T4	18A0	144E, .942 MEG
TF	26E0	18AG
TR	18C8	18GF

TUBE, ELECTRON

DESIG	LOC	CODE
SP	18A0	313CC

APP FIG. 10

APP FIG. 11

APP FIG. 12

APP FIG. 13

APP FIG. 14

APP FIG. 15

APP FIG. 16

RELAY		ST- U1291			ST- U1291			ST- U1291			EST U1291							
DESIG	CODE																	
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	11,10	M	28C8				11,10	M	28D8				11,10	M	28B8			
	9,8,7	BM	12F6				9,8,7	BM	12F5				9,8,7	BM	12F4			
	6,5,4	BM	12D5				6,5,4	BM	12D5				6,5,4	BM	12D4			
	2,1,3	MB	22G1				2,1,3	MB	22G1				2,1,3	MB	22H1			
	3,2,1	BM	12D6				3,2,1	BM	12A5				3,2,1	BM	12A5			
BOT.	6,5,4	BM	12D8				6,5,4	BM	12D8				6,5,4	BM	12D8			
	8,7	M	13B3				8,7	M	13B4				8,7	M	13B4			
COIL			a						a						a			a
		a	P-22G1 S-12H5					a	P-22G1 S-12H5					a	P-22H1 S-12H4			a

RELAY	DESIG	CODE	ST- U1291	ST- U1291	ST- U1291	ST- U1291
OPTION	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	11,10	M	28C8	11,10	M	28B8
	9,8,7	BM	12F3	9,8,7	BM	12F2
	6,5,4	BM	12D2	6,5,4	BM	12D2
	2,1,3	MB	22E1	2,1,3	MB	22D1
	3,2,1	BM	12B3	3,2,1	BM	12B3
	6,5,4	BM	12D9	6,5,4	BM	12D9
	8,7	M	13B4	8,7	M	13B5
BOT.						
COIL			a			a
			P-22E1 a S-12H3			P-22D1 a S-12H2

ISSUE
56B

MASTER TIMING CIRCUIT

2

SD-25633-01-C9

BELL TELEPHONE LABORATORIES
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SD-25633-01-C9

STABLO

APP FIG. 17

DRAWING
ISSUE
310
PNC
AND

A	RELAY																					
	DESIG	CKR			DL			DL1			DLR			LT1			LT2			LT3		
	CODE	U460			U624			Y223			U460			U582			U582			U582		
	OPTION	V																				
		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
	TOP																					
		5,4	M	-				4,3	M	-	5,4	M	-	9,8,7	BM	-	2,9,7	BM	-	9,8,7	BM	-
		3,2,1	BM	17D4	2,1	M	24E7	2,1	B	-	3,2,1	BM	24D3	2,1,3	MB	-	2,1,3	MB	23D1	2,1,3	MB	23D2
		5,2,1	BM	-	2,1	M	24G6	2,1	B	24E3	3,2,1	BM	-	3,2,1	BM	23D1	3,2,1	BM	23D1	3,2,1	BM	23D2
		5,4	M	36F5				4,3	M	24E3	5,4	M	24C4	6,5,4	BM	23B1	6,5,4	BM	23B2	6,5,4	BM	23B3
B	BOT.												6,7	M	-	8,7	M	-	8,7	M	-	
COIL			24A1			24G6			24D2			24A1			23D0			23C1			23C2	

	RELAY																					
	DESIG	LT4			LT5			LT6			LT7			LT8			LT9			LT4		
	CODE	U582			U582			U582			U582			U582			U582			U932		
	OPTION																					
		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
	TOP																					
		9,8,7	BM	-	9,8,7	BM	-	9,8,7	BM	-	9,8,7	BM	-	9,8,7	BM	-	9,8,7	BM	-	9,8,7	BM	-
		6,5,4	BM	-	6,5,4	BM	-	6,5,4	BM	-	6,5,4	BM	-	6,5,4	BM	-	6,5,4	BM	-	6,5,4	BM	-
		2,1,3	MB	21D2	2,1,3	MB	23D3	2,1,3	MB	23D3	2,1,3	MB	23D4	2,1,3	MB	23D4	2,1,3	MB	23D5	2,1,3	MB	23D6
		5,2,1	BM	23D3	5,2,1	BM	23D3	5,2,1	BM	23D3	5,2,1	BM	23D4	5,2,1	BM	23D5	5,2,1	BM	23D5	5,2,1	BM	-
	BOT.																					
		6,5,4	BM	23B3	6,5,4	BM	23B4	6,5,4	BM	23B4	6,5,4	BM	23B4	6,5,4	BM	23B5	6,5,4	BM	23B6	6,5,4	BM	-
		8,7	M	25C3	8,7	M	-	8,7	M	-	8,7	M	-	8,7	M	-	8,7	M	18B4	8,7	M	25D3
COIL			23C2			23C3			23C4			23C4			23C4			23C5			23C5	

C	RELAY																					
	DESIG	LT8			LTR			RCCK			RK			RKA			RKO			T1B		
	CODE	U607			U368			U1239			U934			U660			U162			U247		
	OPTION	X0			X0			X0, X0, V														
		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
	TOP																					
		7,6	M	23C6							10,9	M	25G1	9,8	M	-						
		5,4,3	BM	-							8,7,6	BM	25F7	7,6	M	25A1						
		2,1	B	25C4	2,1	M	24H6	3,2,1	BM	24E7	2,1	B	25G4	3,2,1	BM	25F7	3,2,1	BM	25H1	3,2,1	BM	24B7
		2,1,3	MB	-	2,1	M	24H7				3,2,1	BM	17C3	3,2,1	BM	25F6	3,2,1	BM	25G2	3,2,1	BM	24E6
D	BOT.																					
		5,4	M	25C3							6,5,4	BM	17C4	5,4	M	25G1				5,4	M	27D2
											9,8,7	BM	-	7,6	M	-						
COIL			23C6			24H6			24E7			25F1			25G3			25A0			24B6	

	RELAY																					
	DESIG	TM1			TM2			TM3			TM4			TM5			TM6			TMP		
	CODE	U594			U158			U67			U426			U1119			U639			U440		
	OPTION																					
		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
	TOP																					
		6,5	M	25F1							7,6	M	25A4	7,6	M	25A3	6,5	PM	25B1	12,11	M	25C1
		4,3	M	25H1							5,4	M	25B4	5,4,3	BM	25B3	4,3	B	25B1	10,9,8	BM	31E6
		2,1	M	25B2	3,2,1	BM	25B4	3,2,1	BM	17D3	2,1	B	25A1	2,1	B	25G2	2,1,3	MB	25D3	3,2,1	BM	23B1
		2,1	B	37B3	2,1	M	-	3,2,1	BM	25G1	3,2,1	BM	25F8	2,1	M	24C7	2,1	B	22C1	3,2,1	BM	-
	BOT.																					
		4,3	M	25G5	4,3	M	25A2	5,4	M	24A3	5,4	M	25G2	4,3	M	-	4,3	M	24F2			
		6,5	M	24D3													6,5	M	12F7			
																	9,8,7	BM	a			
																	11,10	M	24A7			
COIL			25C0			25F6			25B3			25A3			25B0			25B0			23E2	

E	CAPACITOR																					
	DESIG	LOC			CODE			DESIG			LOC			CODE			DESIG			LOC		
	CODE	25G9			2280			T1B			24B6			185A			RK			25F0		
	OPTION	(TM1)			2280			TM2			25F6			185A			TA			24D2		
					535NR			TMP			23F2			185A			TB1			24B6		
	TOP																					
		9,8	M	24F7																		
		7,6	M	24D1																		
		5,4	M	24A4																		
	F	BOT.																				
		3,2,1	BM	27D2																		
		2,1	B	13C4																		
		5,4,3	BM	24B7																		
		7,6	M	24G1																		
COIL			24E2																			

G	RESISTOR																					
	DESIG	LOC			CODE			DESIG			LOC			CODE			DESIG			LOC		
	CODE	25F0			18AC			T1B			24B6			185A			RK			25F0		
	OPTION	(TM1)			180B			TM2			25F6			185A			TA			24D2		
					1840			TMP			23F2			185A			TB1			24B6		
	TOP																					
		9,8	M	24F7																		
		7,6	M	24D1																		
		5,4	M	24A4																		
		BOT.																				
		3,2,1	BM	27D2																		
		2,1	B	13C4																		
		5,4,3	BM	24B7																		
		7,6	M	24G1																		

CAPACITOR

DESIG	LOC	CODE
TM (TM)	25G9	2280
TM1	25G8	2280
TM1	25G8	535NR
TM1	25G8	KS-13366, L1
TM1	25G8	KS-13366, L35, 1000UF

NETWORK

DESIG	LOC	CODE
T1B	24B6	185A
TM2	25F6	185A
TM7	23F2	185A

RESISTOR

DESIG	LOC	CODE
RK	25F0	18AC
TA	24D2	18D8
TB1	24B6	18AG
TM1	25F8	KS-13490, L1, 1000
TM2	25F8	144E, .1 MEG
TM3	25F8	7470, KS-20289, L6C, .5 MEG
TM4	25F9	7470, KS-20289, L6C, .5 MEG
TP	22C1	18AG

ISSUE
59B

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

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SD-25633-01-C10

6S

APP FIG. 18

RELAY	PF			PF1			PFA											
	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE
OPTION	U108			U569			UA108											
CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.
TOP																		
	6,5,4	BM	31H6	5,4	M	-	8,7	M	31D3									
	3,2,1	BM	31C1	3,2,1	BM	31C1	3,2,1	BM	-									
	3,2,1	BM	31C2	3,2,1	BM	31C2	2,1	B	31C3									
	5,4	M	-	5,4	M	-	4,3	M	-									
BOT.							6,5	M	31E4									
							8,7	PM	31D3									
COIL			31F2			31G5			31C2									

CAPACITOR
DESIG
UL PF
UK PF (PF)
PF1

LOC
31D1
31D1
31D0

CODE
535NR
273B
223B

KS-13366, L3, 10000UF
KS-13365, L35, 10000UF

LAMP
DESIG
PF

LOC
31D2

CODE
2Y

NETWORK
DESIG
PF
PF1
PFA

LOC
31F2
31G5
31C2

CODE
185A

RESISTOR

DESIG LOC CODE
PF1 31D1 KS-13490, L1, 1000
PF2 31D0 T44E, .1 MEG
PF3 31D0 T47D, 263A, 2.2 MEG

TUBE, ELECTRON

DESIG LOC CODE
PF 31D0 3130C

APP FIG. 19

RELAY	ACO			ALM			RA			SSF			TSF					
	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE	DESIG	LOC	CODE
OPTION	U270			U256			U241			U551			U306					
CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.
TOP																		
	6,5	M	-				8,7	M	-	8,7	M	31H6						
	4,3	B	-	5,4,3	BM	31G6	4,3	B	31C1	4,3	M	31A1						
	2,1	B	-	2,1	B	-	2,1	B	25B1	2,1	M	31G4	2,1	M	31H4			
	2,1	B	31E4	3,2,1	BM	31F6	2,1	B	25C1	3,2,1	BM	31G4	2,1	M	31H4			
	4,3	M	31G4	5,4	M	-	4,3	B	31C7	5,4	M	31C1	4,3	M	31E4			
BOT.							6,5	B	-	7,6	M	31E4						
COIL			31G3			31E3			31D6			31B0			31B5			

VI 4A/F2
31 4A/C5

RELAY	SFA		
	DESIG	LOC	CODE
OPTION	WZ		
CONT NO.	CONT ARR	LOC	
12	EBM		
11	EBM		
10	EBM		
9	EBM		
8	EBM		
7	EBM		
6	EBM		
5	EBM		
4	EBM		
3	EBM		
2	EBM		
1	EBM	BA/32	
COIL		31H5	

LAMP
DESIG
SSF
TSF

LOC
31D3
31D5

CODE
2Y
2Y

RESISTOR

DESIG LOC CODE
MJ 31F5 18CN

ISSUE
56B

MASTER TIMING CIRCUIT

SD-25633-01-CII

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

DRAWING ISSUE	
310	TLC NEC AND
388	

RELAY	ADL						APT			BT			CA			CA:			CAS					
DESIGN	J200						J607			U576			U1130			U643			U721			U1113		
CODE																								
OPTION																								
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC			
TCP										10,9	B	36E5	12,11	M	32E7									
	9,8	M	32B3							8,7	B	36B5	8,7	M	32E5				10,9	M	32F3			
	7,9	M	-	7,6	M	36E4	7,6	M	-	6,5	B	36H3	6,5	M	32B5				8,7	M	32F3			
	5,4	M	36B1	5,4,3	3M	631	5,4,3	3M	3536	4,3	B	-	4,3	B	37B4	6,5,4	3M	32B5	6,5,4	3M	-			
	3,2,1	3M	-	2,1	3	9C0	2,1	3	3633	2,1	B	-	2,1	B	32D3	3,2,1	3M	32B1	3,2,1	3M	32D2			
BUT	3,2,1	3M	32C3	2,1,3	3B	6,3	2,1	3	32E6	2,1	B	36C5	2,1	B	36E6	3,2,1	3M	32C3	3,2,1	3M	-			
	6,5,4	3M	32E3	5,4	M	36E3	5,4,3	3M	36E4	4,3	B	36B6	4,3	B	36A3	6,5,4	3M	32E5	6,5,4	3M	24A2			
	6,7	M	-				7,6	M	6E6	6,5	M	32E5	6,5	B	32C3				3,7	M	36F5			
										9,8,7	3M	36G6	9,8,7	B	32C0				10,9	M	37A4			
													11,10	M	32E3									
COIL			32E2			36D3			36E3			35A5			32E2			32C2			37A3			

RELAY	J51						P1			P1'			PH			RC1			RC1'					
DESIG	ON						U118			U1041			U643			U604			U831			U144		
CODE	U118						U1041			U643			U604			U831			U144					
OPTION																								
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC			
TOP	12,11	M	3203							12,11	M	3943							12,11	M	3840			
	10,9	M	38E1				11,10	M	38G6	10,9	M	35E6							10,9	M	3546			
	8,7	M	34B1				9,8,7	BM	32D1	8,7	M	36H3							8,7	M	3644			
	6,5	M	12C0				6,5	M	35F5	6,5	M	36A1				7,6	PH	38E4	6,5	M	3526			
	4,3	M	28E1	4,3	M	37C4	4,3	M	35F5	4,3	B	38A0	5,4	M	35G5	5,4,3	BM	38E2	4,3	M	35F6			
BOT.	2,1	B	24G2	2,1	B	-	2,1	B	25F2	2,1	B	38B0	3,2,1	BM	32D3	2,1	M	36B4	2,1	M	38G6			
	2,1	M	37A3	2,1	B	-	3,2,1	BM	32G3	2,1	B	38E1	3,2,1	BM	37B4	3,2,1	BM	39B5	2,1	M	36B7			
	4,3	M	33D8	4,3	M	38G1	5,4	M	38B5	4,3	B	32F5				6,5,4	BM	36D1	4,3	M	35E6			
	6,5	M	37E3				7,6	M	32F5	6,5	B	32F5							6,5	M	35C6			
	8,7	M	33B5				9,8	M	-	9,8,7	BM	36G4							8,7	M	3846			
COIL	10,9	M	12C0							11,10		-							10,9	M	35C6			
	12,11	M	22E7																12,11	M	36G6			
	32D2					12,1			32F4			36A0			32C4			38E2			38A0			

RELAY	FW						RW1			RW2			RWC			SLO			STE			TAP		
DESIC CODE	U1189						U1189			U1189			U234			U934			U747			U179		
OPTION																								
X	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP				12,11	M	37C7																		
				10,9	M	37D2	11,10	M	-															
				3,7	B	-	9,3,7	BM	37D3				10,9	M	32D3				9,8	M	39C5			
				6,5	B	32B2	6,3	B	12E0				8,7,6	BM	-				7,6	M	39H5			
	4,3	M	37D3	4,3	B	32B4	4,3	B	38E1	5,4,3	BM	37F3	5,4,3	BM	37B3	4,3	M	37C4	5,4	M	39E5			
	2,1	M	37D3	2,1	B	35E1	2,1	B	27C3	2,1	B	18A4	2,1	B	38F0	2,1	B	-	3,2,1	BM	39B0			
BOT	2,1	B	35D1	3,2,1	M	-	2,1	B	37A3	3,2,1	BM	37C3	3,2,1	BM	37B2	2,1	B	-	3,2,1	BM	36D4			
	4,3	M	37E3	5,4	M	33H0	5,4,3	BM	-	5,4	M	37D4	6,5,4	BM	24B2	4,3	M	38G1	5,4	M	36E4			
				7,6	M	36A4	8,7,6	BM	a				9,5,7	BM	12D0				7,6	M	36E3			
				9,8	M	35G5	10,9	M	-															
				11,10	M	37D4																		
	COIL				37E1			37D1			33H0			37C3			37B3			12C0			34E0	
																						</		

APP FIG. 21

RELAY DESIG CODE OPTION	C01E U326			C010 U326			C02E U326			C020 U326			C03E U326			C030 U326			C04E U326		
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
	12,11	M	14B3	12,11	M	14C3	12,11	M	14D3	12,11	M	14E3	12,11	M	14F3	12,11	M	14G3	12,11	M	14H3
TOP	10,9	B	14G1	10,9	B	14G4	10,9	B	14D1	10,9	B	14D4	10,9	B	14E1	10,9	B	14E4	10,9	B	14F1
	8,7	B	14G1	8,7	B	14G4	8,7	B	14D1	8,7	B	14D4	8,7	B	14E1	8,7	B	14E4	8,7	B	14F1
	6,5	B	14F1	6,5	B	14F4	6,5	B	14D1	6,5	B	14D4	6,5	B	14E1	6,5	B	14E4	6,5	B	14F1
	4,3	B	14F1	4,3	B	14F4	4,3	B	14D1	4,3	B	14D4	4,3	B	14E1	4,3	B	14E4	4,3	B	14F1
	2,1	B	14F1	2,1	B	14F4	2,1	B	14D1	2,1	B	14D4	2,1	B	14E1	2,1	B	14E4	2,1	B	14F1
BOT	2,1	B	14G1	2,1	B	14G4	2,1	B	14D1	2,1	B	14D4	2,1	B	14E1	2,1	B	14E4	2,1	B	14F1
	4,3	B	14G1	4,3	B	14G4	4,3	B	14D1	4,3	B	14D4	4,3	B	14E1	4,3	B	14E4	4,3	B	14F1
	6,5	B	14H1	6,5	B	14H4	6,5	B	14D1	6,5	B	14D4	6,5	B	14E1	6,5	B	14E4	6,5	B	14F1
	8,7	B	14H1	8,7	B	14H4	8,7	B	14D1	8,7	B	14D4	8,7	B	14E1	8,7	B	14E4	8,7	B	14F1
	10,9	B	14H1	10,9	B	14H4	10,9	B	14D1	10,9	B	14D4	10,9	B	14E1	10,9	B	14E4	10,9	B	14F1
COIL	12,11	M	13D6	12,11	M	13D5	12,11	M	13D6	12,11	M	13D5	12,11	M	13D6	12,11	M	13D5	12,11	M	13D6

RELAY DESIG CODE OPTION	C040 U326			C05E U326			C050 U326			C06E U326			C060 U326			COM Y122			PLYE U119		
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
	12,11	M	14F3	12,11	M	14G3	12,11	M	14H3	12,11	M	14I3	12,11	M	14J3	12,11	M	14K3	12,11	M	14L3
TOP	10,9	B	15G3	10,9	B	15H3	10,9	B	15I3	10,9	B	15J3	10,9	B	15K3	10,9	B	15L3	10,9	B	15M3
	8,7	B	15G3	8,7	B	15H3	8,7	B	15I3	8,7	B	15J3	8,7	B	15K3	8,7	B	15L3	8,7	B	15M3
	6,5	B	15F1	6,5	B	15G1	6,5	B	15H1	6,5	B	15I1	6,5	B	15J1	6,5	B	15K1	6,5	B	15L1
	4,3	B	15F1	4,3	B	15G1	4,3	B	15H1	4,3	B	15I1	4,3	B	15J1	4,3	B	15K1	4,3	B	15L1
	2,1	B	15F1	2,1	B	15G1	2,1	B	15H1	2,1	B	15I1	2,1	B	15J1	2,1	B	15K1	2,1	B	15L1
BOT	2,1	B	15G1	2,1	B	15H1	2,1	B	15I1	2,1	B	15J1	2,1	B	15K1	2,1	B	15L1	2,1	B	15M1
	4,3	B	15H1	4,3	B	15I1	4,3	B	15J1	4,3	B	15K1	4,3	B	15L1	4,3	B	15M1	4,3	B	15N1
	6,5	B	15H1	6,5	B	15I1	6,5	B	15J1	6,5	B	15K1	6,5	B	15L1	6,5	B	15M1	6,5	B	15N1
	8,7	B	15H1	8,7	B	15I1	8,7	B	15J1	8,7	B	15K1	8,7	B	15L1	8,7	B	15M1	8,7	B	15N1
	10,9	B	15H1	10,9	B	15I1	10,9	B	15J1	10,9	B	15K1	10,9	B	15L1	10,9	B	15M1	10,9	B	15N1
COIL	12,11	M	14E7	12,11	M	14F7	12,11	M	14G7	12,11	M	14H7	12,11	M	14I7	12,11	M	14J7	12,11	M	14K7

C	RELAY DESIG CODE OPTION	PLYO U119			YPE U543			XPE1 U537			XPC U543			XPO1 U537																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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PART OF APP FIG. 22

F

RELAY DESIG CODE OPTION	233 U763			234 U763			235 U763			238 U794			239 U794			2P1 U536			2P2 U536		
CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	
TOP									12,11	M	39A2	12,11	M	34H1							
									10,9	M	39D5	10,9	M	39A2							
	10,9	M	34B1	10,9	M	35D6	10,9	M	34C1	3,7	M	39C4	8,7	M	38F6						
	8,7	M	36H4	3,7	M	36B7	3,7	M	34A3	6,5	M	39F6	6,5	M	36C6	7,6	M	33B2	7,6	M	33C2
	6,5,4	BM	32H3	6,5,4	BM	33B7	6,5,4	BM	36B6	4,3	M	39F5	4,3	M	36G5	5,4	M	34G4	5,4	M	34G4
BOT	3,2,1	BM	36A1	3,2,1	BM	39B2	3,2,1	BM	-	2,1	B	36H5	3,2,1	BM	33H4	3,2,1	BM				
	2,1	BM	-	3,2,1	BM	36G5	3,2,1	BM	36A2	2,1	B	36C3	3,2,1	BM	33B2	3,2,1	BM				
	6,5,4	BM	36H2	6,5,4	BM	36D4	6,5,4	BM	-	4,3	M	36C2	4,3	M							
	3,7	M	-	3,7	M	33A8	3,7	M	36H5	6,5	M		6,5	M	36C6						
	10,9	M	34B0	10,9	M	36C4	10,9	M	34C0	3,7	M	36B4	3,7	M	36B6						
COIL		34B0			33A7			34C0			34G0			34G0			33B1			33G1	

G

RELAY DESIG CODE OPTION	2P3 U536			2P4 U536			2P5 U536			2P6 U536			2P7 U536			2P8 U536			2P9 U536		
CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	
TOP																					
	7,6	M	34D3	7,6	M	33C2	7,6	M	33D2	7,6	M	33E2	7,6	M	33F2	7,6	M	33B5	7,6	M	33F5
	5,4	M	35C3	5,4	M	34C4	5,4	M	34C4	5,4	M	34G6	5,4	M	33D5	5,4	M	33D5	5,4	M	34C5
	3,2,1	BM	-	3,2,1	BM	34D4	3,2,1	BM	34H6	3,2,1	BM	-	3,2,1	BM	-	3,2,1	BM	-	3,2,1	BM	-
BOT	2,1	BM	-	3,2,1	BM	-	2,1	BM	-	2,1	BM	-	2,1	BM	-	2,1	BM	-	2,1	BM	-
	4,3	M	34D3	4,3	M	33C2	4,3	M	33D2	4,3	M	33E2	4,3	M	33F2	4,3	M	33B5	4,3	M	33F5
COIL		34A2			33C1			33D1			33E1			33F1			33A4			33F4	

APP FIG. 23

RELAY	ONE			OMO			TDE2			TDO2					
DESIG	U220			U220			U144			U144					
CODE															
OPTION															
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP							12,11	M	28D4	12,11	M	28D4			
							10,9	M	28C4	10,9	M	28C4			
							8,7	M	28A4	8,7	M	28A4			
	6,5	M	28F5	6,5	M	28F5	6,5	M	28A4	6,5	M	28A4			
	4,3	M	28C5	4,3	M	28C5	4,3	M	28A4	4,3	M	28A4			
	2,1	B	28E5	2,1	B	28E5	2,1	M	-	2,1	M	-			
	3,2,1	BM	28C5	3,2,1	BM	28C5	2,1	M	28F4	2,1	M	28F4			
	5,4	M	28H5	5,4	M	28H4	4,3	M	28F4	4,3	M	28F4			
BOT.							6,5	M	28F4	6,5	M	28F4			
							8,7	M	28D4	8,7	M	28D4			
							10,9	M	28D4	10,9	M	28D4			
							12,11	M	-	12,11	M	-			
COIL			28G4			28H4			16G0			16G0			

RELAY	HRT1	
DESIG	AJ202	
CODE		
OPTION	WZ	
	CONT ARR	LOC
24	M	4B/A7
23	M	4B/A7
22	M	4B/A7
21	M	4B/A7
20	M	4B/A7
19	M	4B/A7
18	M	4B/A7
17	M	4B/A7
16	M	4B/A7
15	M	4B/A7
14	M	4B/A7
13	M	4B/A7
12	M	4B/A7
11	M	4B/A7
10	M	4B/A7
9	M	4B/A7
8	M	4B/A7
7	M	4B/A7
6	M	4B/A7
5	M	4B/A7
4	M	4B/A7
3	M	4B/A7
2	M	4B/A7
1	M	2B/E8
COIL		2B/E7

RELAY	3E		TRI	
DESIG	AJ83		AJ15	
CODE				
OPTION	WZ			
	CONT ARR	LOC	CONT ARR	LOC
12	EBM		EBM	
11	EBM		EBM	2A/B5
10	EBM		EBM	2A/B5
9	EBM		EBM	
8	EBM		EBM	
7	EBM		EBM	3G6
6	EBM		EBM	3B2
5	EBM	11E0	EBM	3G1
4	EBM		EBM	3G1
3	EBM		EBM	2B/D1
2	EBM	11H0	EBM	2B/B3
1	EBM	11G2	EBM	2A/F4
COIL		11E0		2A/B1

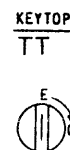
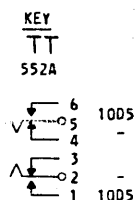
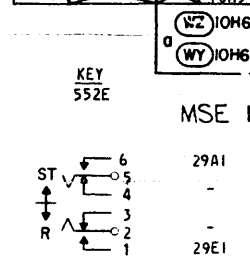
APP FIG. 24

RELAY	FA			FA1			FA2					
DESIG	UA15			U1319			U624					
CODE							ZN					
OPTION												
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP							9,8	M	31D5			
							7,6	M	27A4			
	4,3	M	31C5				5,4	M	27A4			
	2,1	B	27B3	3,2,1	BM	27B2	2,1	M	-			
	2,1	M	27B2	2,1	B	-	2,1	M	31B5			
BOT.							5,4,3	BM	27C2			
							7,6	M	-			
COIL			31B7			31C5			31A6			

RESISTOR	DESIG	LOC	CODE
(ZN) FA	31A7		RS-13492, L1, 10,000
(ZN) FAE	31B6		180F
(ZN) FA0	31B6		180F

APP FIG. 26

RELAY	CSY			CTS			DRP			ORP			TSC			TTS		
DESIG	Y107			Y266			U540			U779			U336			U1171		
CODE																		
OPTION																		
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP													8,7	M	29A0	11,10	M	10E5
													6,5	M	29G2	9,8,7	BM	10E8
	4,3	M	a	5,4,3	BM	10E6	6,5,4	BM	-	6,5,4	BM	-	4,3	M	-	6,5,4	BM	10D8
	2,1	B	31B4	2,1	B	-	2,1,3	MB	10E8	2,1,3	MB	10E6	2,1	M	29E2	2,1,3	MB	10E6
	3,2,1	BM	10E6	2,1,3	MB	10D8	3,2,1	BM	-	3,2,1	BM	10F6	2,1	M	29B1	3,2,1	BM	10F5
BOT.							6,5,4	BM	10E8	5,4	M	10F6	6,5,4	BM	10F7	4,3	M	29A1
										8,7	M	10E8	6,5	M	-	9,3,7	BM	31F2
													9,7	M	-			
COIL			10H5			10D7			10E7			10E6			29A0			10D4



NETWORK	DESIG	LOC	CODE
CSY	10H5		177C

RESISTOR	DESIG	LOC	CODE
TT	10F5		18AC

RESISTOR	DESIG	LOC	CODE
TWZ	40D0		19EY

APP FIG. 27

RELAY	CCRT-			TW			TZ			CCT		
DESIG	U177			U564			U141			U144		
CODE												
OPTION												
	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP										12,11	M	40E2
										10,9	M	40F8
										9,7	M	40F8
	9,8,7	BM	40E3							6,5	M	40F8
	6,5,4	BM	40E3							4,3	M	40F8
	3,2,1	BM	40E3							2,1	M	40F8
	3,2,1	BM	40E3							2,1	M	40F8
	6,5,4	BM	40E3							4,3	M	40F8
	9,8,7	BM	40E3							6,5	M	40F8
BOT.										8,7	M	40F8
										10,9	M	40F8
										12,11	M	-
COIL			40E6			40D1			40D1			40E1

APP FIG. 28

APP FIG. 29

ISSUE
55B

MASTER TIMING CIRCUIT

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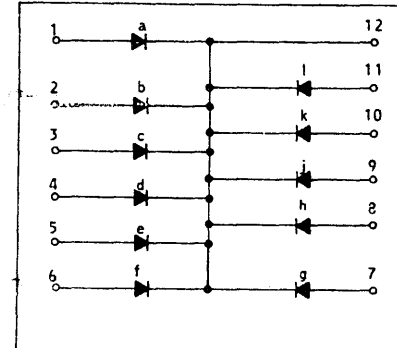
6S

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APP FIG 30

RELAY																		
DESIG			N			7												
CODE			U188			U1324			U1324									
OPTION																		
X	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	-															
	10,9,8	BM	-	11,10	M	31F1	11,10	M	31G2									
	7,6	M	-	9,8,7	BM	-	9,8,7	BM	-									
	5,4	M	31G6	6,5,4	BM	31G2	5,5,4	BM	-									
	2,1,3	MB	31G1	2,1,3	MB	31G1	2,1,3	MB	31E0									
BOT	2,1,3	MB	-	2,1,3	MB	-	2,1,3	MB	31E2									
	5,4	M	31F6	6,5,4	BM	-	6,5,4	BM	-									
	7,6	M	-	9,8,7	BM	-	9,8,7	BM	-									
	10,9,8	BM	-	11,10	M	-	11,10	M	-									
	12,11	M	-															
COIL			X	X	31G2	X	X	31E1	X	X	31E1	X	X		X	X		

COMPONENT ASSEMBLY

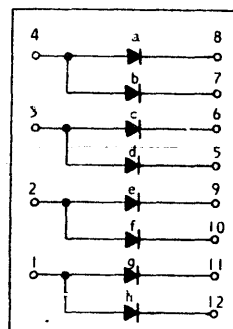


DESIG		PTU1		PTU2		PTU3	
CODE		[3]ED-94823-G435					
OPTION				WF		WS	
COMPONENT	CODE	DESIG	LOC	DESIG	LOC	DESIG	LOC
DIODE	a	PTU0	31H2	PTU10	31H2	PTU20	31H2
	b	PTU1	31H2	PTU11	31H2	PTU21	31H2
	c	PTU2	31H2	PTU12	31H2	PTU22	31H2
	d	PTU3	31H2	PTU13	31H2	PTU23	31H2
	e	PTU4	31H2	PTU14	31H2	PTU24	31H2
	f	PTU5	31H2	PTU15	31H2	PTU25	31H2
	g	PTU6	31H2	PTU16	31H2	PTU26	31H2
	h	PTU7	31H2	PTU17	31H2	PTU27	31H2
	i	PTU8	31H2	PTU18	31H2	PTU28	31H2
	j	PTU9	31H2	PTU19	31H2	PTU29	31H2
	k	PTU0M	31H2	SPARE	-	SPARE	-
	L						

LAMPS

OPT	DESIG	LOC	CODE
	[10]PTU0-9	31H1	
WF	[10]PTU10-19	31H1	2Y (RED)
	PTU0M	31H1	
WS	[10]PTU20-29	31H1	

APP FIG. 32



DESIG		RIO		RI1		RI2	
CODE		[3] ED-94933-10G					
OPTION							
COMPONENT	CODE	DESIG	LOC	DESIG	LOC	DESIG	LOC
DIODE	a	C0	1B8	C4	1B8	C8	1B8
	b	C20	1B8	C24	1B8	C28	1B8
	c	C1	1B7	C5	1B7	C9	1B7
	d	C21	1B7	C25	1B7	C29	1B7
	e	C2	1B8	C6	1B8		
	f	C22	1B8	C26	1B8		
	g	C3	1B7	EMER	1A8		
	h	C23	1B7	C27	1A8		

APP FIG 31

RELAY																		
DESIG			HRTB			HRTC												
CODE			U185			U185												
OPTION						WT												
X	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP	12,11	M	4A/G5	12,11	M	4A/H5	12,11	M	4A/H5									
	10,9	M	4A/G5	10,9	M	4A/H5	10,9	M	4A/H5									
	8,7	M	4A/G5	8,7	M	4A/H5	8,7	M	4A/H5									
	6,5	M	4A/G5	6,5	M	4A/H5	6,5	M	4A/H5									
	4,3	M	4A/G5	4,3	M	4A/H5	4,3	M	4A/H5									
BOT	2,1	M	4A/G5	2,1	M	4A/H5	2,1	M	4A/H5									
	2,1	M	4A/G5	2,1	M	4A/H5	2,1	M	4A/H5									
	4,3	M	4A/G5	4,3	M	4A/H5	4,3	M	4A/H5									
	6,5	M	4A/G5	6,5	M	4A/H5	6,5	M	4A/H5									
	8,7	M	4A/G5	8,7	M	4A/H5	8,7	M	4A/H5									
COIL	10,9	M	4A/G5	10,9	M		10,9	M										
	12,11	M	4A/G5	12,11	M		12,11	M										
			4A/B6			4A/B6			4A/B6									

LAMPS

OPT	DESIG	LOC	CODE
WR	HRTA	4A/G4	13J (RES)
WT	HRTB	4A/H4	13J (RES)
	HRTC	4A/H4	13J (RES)

ISSUE
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MASTER TIMING CIRCUIT

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APP FIG. A (MFR DISC)

RELAY DESIG CODE OPTION	DR1 U1367			DR2 U1367			DR3 U1367			DR4 U1367			DR5 U1367			DR6 U1367			EXP U519		
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
TOP	4,3	M	29B7	4,3	M	21A7	4,3	M	21A7	4,3	M	29A7	4,3	M	29A7	4,3	M	29A8	5,4	M	29B6
	2,1	M	29B7	2,1	M	21A7	2,1	M	21A7	2,1	M	29A7	2,1	M	29A7	2,1	M	29A8	2,1,3	M	29B6
	1,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B6
	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5
BOT																					
COIL																					

RELAY DESIG CODE OPTION	J100 J100			J11 J68			J1113 J1113			J1167 J1167			J1167 J1167			J1167 J1167			J1167 J1167		
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
TOP	4,3	M	29B7	4,3	M	29B7	4,3	M	29B7	4,3	M	29B7	4,3	M	29B7	4,3	M	29B7	4,3	M	29B7
	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7
	1,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7	2,1	M	29B7
	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5
BOT																					
COIL																					

RELAY DESIG CODE OPTION	RD4 U1367			RD5 U1367			RH U155											
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
TOP	4,3	M	29D7	4,3	M	29D7	4,3	M	29D7	3,2,1	BM	—						
	2,1	M	29D7	2,1	M	29D7	2,1	M	29D7	2,1	M	5HS						
	1,1	M	29D7	2,1	M	29D7	2,1	M	29D7	2,1	M	5HS						
	4,3	M	7E5	4,3	M	7E5	4,3	M	7E5	4,3	M	—						
BOT																		
COIL																		

RELAY DESIG CODE OPTION																		
	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC	CONT NO	CONT ARR	LOC
TOP																		
BOT																		
COIL																		

NETWORK		
DESIG	LOC	CODE
RH	5H4	177A

SELECTOR

DESIG	OPTION	CODE	BANK CODE	SPC										STEP	VTR
				1		2		3		4		5			
				TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC
RD		2094	26A	1-22	703	23-44	504	1-22	504	21-31 32-44	703	1-22	507	23-44	507

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APP FIG. B (APP 9100)

RELAY	DR1			DR2			DR3			DR4			EXR			HA			HAT		
CODE	UT367			UT367			UT367			UT367			U639			U300			U638		
OPTION																					
	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.
TOP													12,11	M	29F6						
													10,9,8	BM	-	9,8	M	3F7			
													7,6	M	29C6	7,6	M	6F5	9,8,7	BM	-
	4,3	M	29C7	4,3	M	21B7	4,3	M	21B7	4,3	M	21A9	5,4	M	29C6	5,4	M	6A6	6,5,4	BM	6C0
	2,1	M	29C7	2,1	M	21B7	2,1	M	21B7	2,1	M	21A9	2,1,3	MB	5E6	3,2,1	BM	3B7	3,2,1	BM	6C0
BOT.	2,1	M	29C7	2,1	M	29C7	2,1	M	29C7	2,1	M	29C7	2,1	B	6F6	2,1	B	-	3,2,1	BM	6C0
	4,3	M	7G5	4,3	M	7G5	4,3	M	7G5	4,3	M	7G5	4,3	M	29F6	5,4,3	BM	6E1	6,5,4	BM	6B1
													6,5	M	29G6	7,6	BM	6E0			
													9,8,7	BM	6D7						
													11,10	M	29G6						
COIL	6A0			6B0			6C0			6D0			6E0			6F0			6G5		

P-388
S-6E0

RELAY		RD0			RD1			RD2			RD3			RD4			RD5		
CODE		U1117			U1157			U1367			U1367			U1367			U1367		
OPTION																			
X	LOC	CONT	CONT	LOC	CONT	CONT	LOC	CONT	CONT	LOC	CONT	CONT	LOC	CONT	CONT	LOC	CONT	CONT	LOC
		NO.	ADDR		NO.	ADDR		NO.	ADDR		NO.	ADDR		NO.	ADDR		NO.	ADDR	
TOP		10,9	M	3B7															
		8,7	M	4F5															
		6,5,4	BM	5D0	4,3	M	19H9	4,3	M	29F7	4,3	M	29G7	4,3	M	29G7	4,3	M	29G8
		5,2,1	BM	5C0	2,1	M	19H9	2,1	M	29F7	2,1	M	29G7	2,1	M	29G7	2,1	M	29G8
		5,2,1	BM	5B0	2,1	M	29G7	2,1	M	29F8	2,1	M	29F7	2,1	M	29F7	2,1	M	29F8
BOT.		6,5,4	BM	6A0	4,3	M	7F5	4,3	M	7F5	4,3	M	7F5	4,3	M	7F5	4,3	M	7F5
		8,7	M	6E3															
		10,9	M	3C7															
COIL			3F9			6A9			6A9			6B9			6B9			6C9	

RELAY																					
DESIGN	RD6			RD7			RD8			RD9			RH								
CODE	U1367			U1367			U1367			U1367			U158								
OPTION																					
	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.	CONT NO.	CONT ARR.	LOC.
TOP																					
	4,3	M	29G8	4,3	M	19H9	4,3	M	19H9	4,3	M	19H9									
	2,1	M	29G8	2,1	M	19H9	2,1	M	19H9	2,1	M	19H9	3,2,1	BM	-						
BOT	2,1	M	29G8	2,1	M	29F7	2,1	M	29F8	2,1	M	29G8	2,1	M	6F4						
	4,3	M	7F5	4,3	M	7F5	4,3	M	7F5	4,3	M	7F5	4,3	M	-						
COIL			6C9			6D9			6E9			6F9			6E3						

[illegible]

NETWORK

<u>DESIG</u>	<u>LOC</u>	<u>CODE</u>
RH	6F3	177A

SELECTOR

DESIG	OPTION	CODE	BANK CODE	ARC												STEP MAG LOC	INTER CONT LOC
				1		2		3		4		5		6			
				TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC	TERM.	LOC		
RD		209A	26A	1-22	7D8	23-44	6A4	1-22	6C4	23-31 32-44	7D8 -	1-22	6A7	23-44	6D7	6F3	6E3

APP FIG. C (MFR DISC.)

APP FIG. D

RELAY		TT									TT								
DESIGN CODE		U488									U178								
OPTION																			
		CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC	CONT NO.	CONT ARR	LOC
TOP																			
		6,5	M	10E6										9,9,7	BM	b			
		4,3	M-M	10E5										6,5,4	BM	8B/F6			
		2,1		1B3										3,2,1	BM	4GE3			
		2,1	B	1B1										4,3	M-M	10E5			
BOT.		5,4,3	BM	8M/E*										2,1		1C3			
														7,6,5	BM	a			
COIL				10E5												10E5			

a	1C1 40A7
b	1CE6 40D7

SSUE
43B

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
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CIRCUIT NOTES:

DESIG	FUSE AMP	POTENTIAL	ONE PER
AE	1-1/3	-48V SIG	APP FIG. 1
AO	1-1/3	-48V SIG	APP FIG. 1 & 23
BE	1-1/3	-48V SIG	APP FIG. 2
BO	1-1/3	-48V SIG	APP FIG. 2 & 23
CE OR CO	1-1/3	-48V SIG	APP FIG. 3 & 4
D	1-1/3	-48V SIG	APP FIG. 4 ODD OR EVEN
E	1-1/3	-48V SIG	APP FIG. 4 ODD OR EVEN
F	1-1/3	-48V SIG	APP FIG. 4 ODD OR EVEN
G	1-1/3	-48V SIG	APP FIG. 4 ODD OR EVEN
U	1-1/3	-48V SIG	APP FIG. 4 ODD OR EVEN
J	1-1/3	-48V SIG	APP FIG. 8 ODD OR EVEN
K	1-1/3	-48V SIG	APP FIG. 8 ODD OR EVEN
LE	1-1/3	-48V SIG	APP FIG. 5, 10, 11, & 12
LO	1-1/3	-48V SIG	APP FIG. 9
ME	1-1/3	-48V SIG	APP FIG. 7
MO	1-1/3	-48V SIG	APP FIG. 6, 13, 14, 15, & 16
MTE OR MTO	1-1/3	-48V SIG	APP FIG. 24 LOCATED ON BUS BAR ON OTHER THAN MASTER TIMING FRAME
NE OR NO	1-1/3	-48V SIG	APP FIG. 21
PO	1-1/3	-48V SIG	APP FIG. 20 & 22
Q	1-1/3	-48V SIG	APP FIG. A OR B ODD OR EVEN
S	1-1/3	-48V SIG	APP FIG. 17 ODD OR EVEN
TE	1-1/3	-48V SIG	APP FIG. 3, 18, & 19
TO	1-1/3	-48V SIG	APP FIG. 2, 26, 27, & 28 OR APP FIG. 2, 26, & 29
MTE	1-1/3	-22V 60~	APP FIG. 1
MTO	1-1/3	-22V 60~	APP FIG. 2
MTE	1/2 HV CSBR X.180 SXS	+130V SIG	APP FIG. 8 (EVEN) AND APP FIG. 17 (ODD)
MTO	1/2 HV CSBR X.180 SXS	+130V SIG	APP FIG. 8 (ODD), APP FIG. 17 (EVEN) & APP FIG. 18
H	1-1/3	-48V SIG	APP FIG. 1 & 2 EVEN & ODD
PE	1-1/3	-48V SIG	APP FIG. 3 & 23 COMMON
PTU	1-1/3	-48V SIG	APP FIG. 30
T	1-1/3	-48V SIG	APP FIG. 31
U	1-1/3	-48V SIG	APP FIG. 31
A	SEE NOTE 205	GRD	APP FIG. 1, 2, 3, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16, 19, 23, & 24
B		GRD	APP FIG. 1, 2, 3, 6, 7, 9, 24, 26, 28, & C OR D
C		GRD	APP FIG. 4, A OR B ODD & EVEN
D		GRD	APP FIG. 4 ODD OR EVEN
E		GRD	APP FIG. 1 & 18
F		GRD	APP FIG. 4, 8, & 17 ODD & EVEN
G		GRD	APP FIG. 8 ODD & EVEN
H		GRD	APP FIG. 8 ODD & EVEN
J, K, L, M, N, P, R, S, T, U, V		GRD	APP FIG. 5 & 6
W		GRD	APP FIG. 21
X		GRD	APP FIG. 17, 20, & 22
Y, Z, AA, AB, AC, AD		GRD	APP FIG. 29
AE, AF	SEE NOTE 205	GRD	
AG, AL		GRD	APP FIG. 1, 2, & 4 EVEN & ODD
AH		GRD	APP FIG. 3 & 23 COMMON
AJ, AK		GRD	APP FIG. 23
GRD		GRD (-22V 60~)	APP FIG. 1 & 26 OR 2 & 26
PTU		GRD	APP FIG. 30

* PROVIDE 5.1 OHMS RESISTANCE IN SERIES WITH EACH 130V FUSE

BATTERY SYMBOL	VOLTAGE RANGE
-48	45-50V
+130	125V-135V

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
CHECK LAMPS	3		1
PULSE FAILURE ALARM	18		1
RECORDER TEST	20		1
PERFORATOR LEADS TEST	21		1
TEST PATTERN RELAYS	22		1
NO. 5 CSBR CAMA & LAMA IN SAME OFFICE OR NO. 5 CSBR CAMA OR SXS INTERTOLL CALL COUNT PROC CONT REG TRANSFER	29		1
TIMER TRANSFER CONTROL	26, D		1
TIME CONTROL FOR NO. 5 CSBR MASTER TEST FR & SXS & TDM CSBR TROUBLE RCDR FR OR NO. 4A OR 4M TOLL DECODER MKR TEST & TROUBLE RCDR FR OR SXS INTERTOLL TROUBLE TICKETER	23		1
NO. 5 CSBR WITH	1 MKR GP		20, ZP
NO. 1 OR TDM CSBR WITH	1 MKR GP, 1 MA TMG FR		20, ZP
	1 TV TBL IND OR 1 TBL RCDR		20, ZP
	2 MKR GROUPS	MGO	20, ZQ
	2 MA TMG FRAMES	MGO	20, ZP
	1 TV TBL IND OR 1 TBL RCDR		20, ZP
SXS NO. 1 WITH	1 IDENTIFIER GP		20, ZP
	1 MA TMG FR		20, ZP
SXS INTERTOLL			20, ZP
NO. 4A OR NO. 4M TOLL WITH	1 TV GP		20, ZP
	1 MA TMG FR		20, ZP
	2 TV GROUPS	TV GR A	20, ZQ
	2 MA TMG FRAMES	TV GR B	20, ZP
NO. 4A OR NO. 4M TOLL OR TANDEM CSBR CALL COUNT PROCESS CONTROL REGISTER TRANSFER			27
			28
POSITION CKT (TRAFFIC SERVICE POSITION NO. 100A)	WITH 1 SEC TMG		XZ, VO 1 PER CKT
	WITHOUT 1 SEC TMG		XZ, VN 1 PER CKT
PAPER TAKE-UP ALARM IN AMA PERFORATOR CABINET	PERFORATORS 10-19	30	WF 1 PER CKT
	PERFORATORS 20-39		WS
TO CONFINE MUTILATED HOUR ENTRIES TO THOSE RECORDERS THAT ARE OUT OF SYNCHRONISM	NO		VI
	YES		VI
	RECORDERS 11-19	31	WR 1 PER CKT
	RECORDERS 20-29		WT
	NO		VI, WJ
1 SEC TMG ACCURACY (SEE NOTE 134, 135, 136)	NO. 1 CSBR NO. 5 CSBR SXS IT.	NO	WY
		YES	WZ, VC, UA, UC
	CSBR TDM	NO	WY
		WITHOUT TSP	WZ, VC, UA, UC
	YES	WITH TSP	WZ, VD, UA, UC
	NO. 4 TOLL	NO	WY, VE
	YES		WZ, VC, VF, UA, UC
	SXS NO. 1	NO	WY, VC
	YES		WZ, VC, VH, UA, UC
CHECK FAILURE ALARM			
TO PERIODICALLY REINSTATE ALARM AFTER ACO KEY IS OPERATED IF TROUBLE REMAINS	YES	19	VM 1
	NO		VL
BILLING DATA TRANSMITTER CKT PROVIDED	YES		VT, UE
	NO		VU

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
NO. 5 CSBR REMOTE MESSAGE REGISTRATION	WHEN 48 MESSAGE REGISTER PULSE JUNCTOR CIRCUITS OR LESS ARE PROVIDED		VP
	WHEN AN ADDITIONAL 48 MESSAGE REGISTER PULSE JUNCTOR CIRCUITS ARE PROVIDED		VQ
TO ISOLATE "C-" LEADS BETWEEN RECORDERS WHEN MORE THAN 20 RECORDERS ARE PROVIDED	YES	32	1 PER 4 RECORDERS
	NO		UD
MASTER TIMER PROVIDES FOR 3AM ENTRY AND TIME FOR AMA RECORDERS (SEE NOTES 132, 138 & 139)	YES		VS, UF, UP
	WITH 1 SEC TIMING ACCURACY		VX, UJ
	WITH APP FIG 31		VY
	NO		VR, UQ
	WITH 1 SEC TIMING ACCURACY		UG
	WITH 6 SEC TIMING ACCURACY		UH

CIRCUIT NOTES: (CONT)

102. (CONT)	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
TIME PULSE RCDR CONTROLLER	1		1
MONTH, DAY & HOUR CONTROL	4		1
HOURLY TIME LEADS	5		10
RCDR RECORD CONTROLLER	8		1
GROUPING CKT	9		1
START FOR FIRST EVEN RCDR	10		1
START FOR INTER. EVEN RCDR	11		1 PER RCDR
START FOR LAST EVEN RCDR	12		1
WHEN LAST EQUIPPED EVEN RCDR IS WIRED PER APP FIG. 10 PROVIDE "S" OPTION, IF PER APP FIG. 11 PROVIDE "R" OPTION, IF PER APP FIG. 12 PROVIDE "T" OPTION			
TIME OUT & TROUBLE RELEASE	17		1
NO. 5 CSBR FUSE ALARM	24	7N	1
NO. 1 TDM CSBR, NO. 4A OR NO. 4M TOLL OR SXS NO. 1 OR SXS INTERTOLL FUSE ALARM CONN	25		1
TANDEM CSBR WITH TROUBLE RCDR		XM	
FLEXIBLE NUMBER ROUNDS PER MONTH		ZK, XE, XG	
TO ADVANCE (M) SEL AT END OF 28 DAY MONTH. TO BE REMOVED ONLY DURING LEAP YEAR		Z	
NO. 1 OR TDM CSBR WITH TV TBL IND		W	
NO. 5 CSBR OR SXS NO. 1 OR SXS INTERTOLL		V, ZF	
NO. 1 OR TDM CSBR WITH	1 MKR GP, 1 MA TMG FR 1 TV TBL IND, OR 1 TBL RCDR 2 MKR GROUPS, 2 MA TMG FRAMES, 1 TV TBL IND OR 1 TBL RCDR	ZF	
NO. 4A OR NO. 4M TOLL		XO	
NO. 4A OR NO. 4M TOLL WITH	1 TV GP 1 MA TMG FR 2 TV GROUPS 2 MA TMG FRAMES	ZF ZG	
LOCAL CSBR & SXS NO. 1 AMA		ZY	
NO. 5 CSBR LAMA	AND CAMA REQ MORE THAN 1 RCDR GP NO.		
TDM CSBR AMA		ZZ	
NO. 4A OR 4M TOLL SXS INTERTOLL			
CALL COUNT PROCESS CONTROL REGISTER TRANSFER		XH	
SXS NO. 1 AMA		XJ	
CENTRALIZED COIN ZONE AND COIN TOLL DIALING FOR CSBR TDM	WITH 1 SEC TMG WITHOUT 1 SEC TMG	WC, WE, WI, VK WC, WE, WI, VJ	
NO. 5 CSBR CAMA		ZZ	
RCDR GP HUNDREDS	NOT REQUIRED RCDR GROUPS IN OFFICE IN SAME HUNDREDS	WK WL WM	

102. (CONT)	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
1 SEC TMG ACCURACY (SEE NOTE 133, 134, 135, 136)	NO. 1 CSBR	NO	WY
		YES	WZ, VC, UA, UC
	NO. 5 CSBR SXS IT	NO	WY, VV
		YES	WZ, VC, VW, UA, UC
	CSBR TDM	NO	WY, VV
		YES WITHOUT TSP	WZ, VC, VW, UA, UC
			WZ, VD, VW, UA, UC
		WITH TSP	
	NO. 4 TOLL	NO	WY, VE, VY
		YES	WZ, VC, VW, UA, UC, VF
	SXS NO. 1	NO	WY, VG, VY
		YES	WZ, VC, VW, VV, UA, UC

102. (CONT)	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
TIME PULSE RCDR CONTROLLER	2		1
MONTH, DAY & HOUR CONTROL	3		1
HOURLY TIME LEADS	6		10
GROUPING CKT	7		1
RCDR RECORD CONTROLLER	8		1
START FOR EMERGENCY RCDR	13		1
START FOR FIRST REG ODD RCDR	14		1 FOR FIRST REG ODD RCDR
START FOR INTER. ODD RCDR	15		1 PER RCDR
START FOR LAST ODD RCDR	16		1
WHEN LAST EQPT ODD RCDR IS WIRED PER APP FIG. 14 PROVIDE "M" OPTION, IF PER APP FIG. 15 PROVIDE "Q" OPTION			
TIME OUT & TROUBLE RELEASE	17		1
NO. 5 CSBR FUSE ALARM	24	ZN	1
NO. 1 TDM CSBR OR SXS NO. 1 OR SXS INTERTOLL FUSE ALARM CONN	25		1
CALL COUNT PROCESS CONTROL REG TRFR		XH	
TDM CSBR WITH TROUBLE RCDR		YM	
FLEXIBLE NUMBER ROUNDS PER MONTH		ZK, XE, XG	
TO ADVANCE (M) SEL AT END OF 28 DAY DAY MONTH. TO BE REMOVED ONLY DURING LEAP YEAR		Z	
NO. 1 OR TDM CSBR WITH TV TBL IND		W, ZB	
NO. 5 CSBR OR SXS NO. 1		V, ZF	
NO. 1 OR TDM CSBR WITH	1 MKR GP, 1 MA TMG FR, 1 TV TBL IND, OR 1 TBL RCDR 2 MKR GROUPS, 2 MA TMG FRAMES, 1 TV TBL IND OR 1 TBL RCDR	ZF ZG	
NO. 4A OR NO. 4M TOLL		XO	
NO. 4A OR NO. 4M TOLL WITH	1 TV GP 1 MA TMG FR 2 TV GROUPS 2 MA TMG FRAMES	ZF ZG	
LOCAL CSBR & SXS NO. 1 AMA		ZY	
NO. 5 CSBR LAMA	AND CAMA REQ MORE THAN 1 RCDR GP NO.		
TDM CSBR AMA		ZZ	
NO. 4A OR 4M TOLL SXS INTERTOLL			
SXS NO. 1 AMA		XJ	
WHERE AMA TRK TRANSFER CKT	IS PROVIDED IS NOT PROVIDED	XQ XP	
CENTRALIZED COIN ZONE AND COIN TOLL DIALING FOR CSBR TDM	WITH 1 SEC TMG WITHOUT 1 SEC TMG	WC, WE, WI, VK WC, WE, WI, VJ	
NO. 5 CSBR CAMA		ZZ	
PAPER TAKE-UP ALARM IN AMA PERFORATOR CABINET		WG	1
RCDR GP HUNDREDS	NOT REQUIRED RCDR GROUPS IN OFFICE IN SAME HUNDREDS	WK WL WM	

102. (CONT)	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY PER MASTER TIMING FR
1 SEC TMG ACCURACY (SEE NOTE 133, 134, 135, 136)	NO. 1 CSBR	NO	WY
		YES	WZ, VC, UA, UC
	NO. 5 CSBR SXS IT	NO	WY, VV
		YES	WZ, VC, VW, UA, UC
	CSBR TDM	NO	WY, VV
		YES WITHOUT TSP	WZ, VC, VW, UA, UC
			WZ, VD, VW, UA, UC
		WITH TSP	
	NO. 4 TOLL	NO	WY, VE, VY
		YES	WZ, VC, VW, UA, UC, VF
	SXS NO. 1	NO	WY, VG, VY
		YES	WZ, VC, VW, VV, UA, UC

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MASTER TIMING CIRCUIT

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CIRCUIT NOTES: (CONT)

103. (FORMERLY NOTE 106)	NETWORK VALUES	
	NETWORK NO	RESISTANCE IN OHMS
	1	470
	2	150
	3	470
	4	150
	5	1000

104.	RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
	CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
					STD	A&M	MD
							PROV
	11-B	X	Y		X		Y
	11-B	J	K		J		K
	11-B	G	H		G		H
	11-B	F	NONE		F		
	11-B	B	E		B		E
	11-B	ZA	A		ZA		A
	11-B	ZB	NONE		ZB		
	11-B	ZC	NONE		ZC		
	12-B	N OR ZD	N	129	ZD		N
	13-B	ZH OR ZI	ZH		ZI		ZH
	13-B	ZK OR ZJ	ZJ	102	ZK, ZJ		
	13-B	ZL OR ZM	ZL		ZM		ZL
	13-B	ZS OR ZT	ZS		ZT		ZS
	13-B	ZU OR ZV	ZU		ZV		ZU
	13-B	ZW OR ZX	ZW		ZX		ZW
	14-B	ZF OR ZG	ZF	102	ZF, ZG		
	14-B	ZO, ZP, ZQ OR ZR	ZO, ZP	102	ZO, ZP, ZQ, OR ZR		
	15C	ZN	NONE		ZN		
	16D	ZY OR ZZ	ZY		ZZ		ZZ
	16D	RELAYS		U188		U1199	
	16D	XA OR XB	XA		XB		XA
	16D	XC OR XD	XC		XD		XC
	17B	XE	NONE	102	XE		
	18B	XG	XE & ZK OR ZJ ONLY	102, 111	XG		XF
	19D	XH	NONE	102	XH		
	19D	APP FIG C OR D	APP FIG C	112	APP FIG D		APP FIG C
	19D			102	APP FIG 27		
	19D			102	APP FIG 28		
	19D	ZE OR XI	ZE		XI		ZE
	19D				ZZ		
	20D	XJ	NONE	102	XJ		
	20D						APP FIG A&B
	20D						ZJ
	22D			102	APP FIG 29		
	22D	TIMER		4A		0171689	
	22C	XM	V OR W	102	XM		
	23D	XN	NONE	205	XN		
	23D	XO	XJ, XM, VH	102	XO		
	23D	RESISTOR		147D		141A	
	24D	XP OR XQ	XP	102	XP, XQ		
	24D	ZY OR ZZ	ZY		ZY, ZZ		
	24D	RESISTOR		144E		140A	
	24D	RESISTOR		147D		141A	
	26D	XT	NONE	115	XT		
	26D	XR OR XS	XR	119	XR XS		
	26D	XU, XV	XU	114	XV		XU
	27D	XY, XZ, WA	N WITH WA OR ZD WITH XY	102 117	XY XZ		WA
	28AC	WB	NONE	120	WB		
	28AC	WC	NONE	102	WC		XS
	30D	WD OR WE	WD OR NONE	103	WE		WD

104.	RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
	CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
					STD	A&M	MD
							PROV
	34B	APP FIG 3D	NONE	102	APP FIG 3D		
		WF	NONE	102	WF		
	35D	WG	NONE	102	WG		
		WH, WI	WH OR NONE	102, 118	WI		VH
	37B	WJ	NONE	102, 121	WJ		
	38B	WK, WL, WM	WK, WM	102, 122	WK, WL, WM		
		WN, WO	WN	123			WN
		WP	WP	124	WQ		WP
		VI OR APP FIG 31, WR	WI WITH ZD OR N	102, 129	WI		
	39D	WS	NONE	102	WS		
		WT	NONE	102	WT		
		VC, VD	WC OR WZ WITH VC OR NONE	102	VC, VD		
		VE, VF	XO WITH VE OR NONE	102	VE, VF		
		VG, VH	XJ WITH VG OR NONE	102	VG, VH		
	43B	VJ OR VK	VJ WITH WC OR NONE	102, 130	VJ, VK		
		VN, VO	XZ WITH VN OR NONE	102, 130	VN, VO		
		WY, WZ	WY	102, 125, 126, 134, 136	WY, WZ		
	45B	WW, WX	WW	127	WX		WW
		VA, VB	VA	128	VB		VA
		CAPACITOR		KS-13365, L35		KS-13366, L3	
	48B	VL, VM	VL	102	VL, VM		
		VP, VQ	NONE	102, 131	VP, VQ		
		VR, VS	VS	102, 132, 139	VR, VS		
	50A	VT, VU	VU	102, 137	VT, VU		
	51B	VX	WZ WITH VX OR WZ	102, 132	VX		
		VY	APP FIG 31 WITH VY OR VI WITH ZD OR N	102, 132	VY		
		VV, VW	VV OR NONE	102, 133	VV, VW		
	52B	UB, UC	UB WITH WZ OR NONE	102, 125, 135	UC		UB
		UA, VZ	VZ WITH WZ OR NONE	102, 134, 136	UA		VZ
	53B	APP FIG 32, UD	UD	102	APP FIG 32, UD		
	54AC	UE	NONE	102, 137	UE		
	55B	UF, UG, UH	UF	102, 138, 139	UF, UG, UH		
		UJ	WZ & UJ OR NONE	102	UJ		

104.	RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES						
	CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
					STD	A&M	MD
							PROV
	56B	UL, UK	UK	140	UL		UK
		RESISTOR			KS-20289, L6C & 263A		147D
	58AC	UM	NONE	141	UM		
		UN OR UOX	UN	142	UN, UO		
	59B	UP OR UQ	UP	102, 139	UP, UQ		

* OPTION UO IS A FALSE OPTION

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MASTER TIMING CIRCUIT

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CIRCUIT NOTES: (CONT)

105. NOTE CANCELLED ON ISSUE 49B

106.
(FORMERLY
NOTE 107)

RECORDER OPERATION								
CLASS RELAYS OPERATED	SPLICE	MAKE BUSY		TRANSFER				
		PLUG INSERTED	PLUG REMOVED	PLUG INSERTED		PLUG REMOVED		
				REGULAR	EMER	EMER	REGULAR	
				RCOR RECORD	RCOR RECORD	RCOR RECORD	RCOR RECORD	
SP	D	E	A, A1	A1, B	B, B1	B, B1		

107. ALL CURRENT FLOW TESTS AS APPLIED BY APP FIG 20 HAVE BEEN COMPUTED ON THE BASIS OF HAVING A MINIMUM OF 48.5V AND A MAXIMUM OF 50V. ALL LOCAL CIRCUIT APPARATUS WILL OPERATE ON A VOLTAGE RANGE OF 45-50V.

108. FORMER NOTE 108 NOW NOTE 107.

109.

(TS) TEST SELECTOR (APP FIG 20)											
TERM ARCS 1 & 4	TEST NUMBER PROVIDED	(FN) APP FIG 22	(DTNP) APP FIG 22	TEST	TERM ARCS 5 & 6	TEST RECORDER CHECK RELAYS	(AP) APP FIG 22	(PN) APP FIG 22	OR- LEADS	TEST	
1	001010	1		VISUAL PATTERN CHECK OF INDIVIDUAL PERFORATORS	1	B0	1	11	-B4	FOR TROUBLE CROSSES IN CONTACTS OF CHECK RELAYS	
2	233333	3			2	B7			-B4		
3	030303	4			3	B7		2	-B4		
4	115161	5			4	B0, B1, B2	2	5	+B2		
5	266666	6			5	B1, B2, B4	3	3	+B4		
6	061616	7			6	B2, B3, B7	2	2	+B2		
7	103030	2			7	C0	4	11	-C4		
8	233333	3			8	C7	4	4	-C4		
9	030303	4			9	C0, C1, C2	5	7	+C2		
10	116161	5			10	C1, C2, C4	3	3	+C4		
11	266666	6			11	C2, C4, C7	5	4	+C2		
12	061616	7			12	C0	6	11	-C4		
13	103030	2			13	D7	6	2	-C4		
14	233333	3			14	D0, D1, D2	7	5	+D2		
15	030303	4			15	D1, D2, D4	8	3	+D4		
16	116161	5			16	D2, D4, D7	7	2	+D2		
17	266666	6			17	E0	9	11	-E4		
18	061616	7			18	E7	4	4	-E4		
19	103030	2			19	E0, E1, E2	10	7	+E2		
20	233333	3			20	E1, E2, E4	8	3	+E4		
21	030303	4			21	E2, E4, E7	10	4	+E2		
22	116161	5			22	F0	11	11	-F4		
23	266666	6			23	F7	11	2	-F4		
24	061616	7			24	F0, F1, F2	12	5	+F2		
25	103030	2			25	F1, F2, F4	13	3	+F4		
26	233333	3			26	F2, F4, F7	12	2	+F2		
27	030303	4			27	A0, A1	14	11	+A1		
28	116161	5			28	A0, A2	11	11	+A2		
29	266666	6			29	A1, A2	15	12	+A2		
30	061616	7			30	A0, A1, A2	15	12	+A0		
31	175757	8			31	NAME OPERATOR	15	11	-A0		
32	052525	9			32	OTO	16	11	-OT		
33	227272	10		RECORDER OPERATION WITH TRANSVERTER	33	RLK		10			
34	044444	11			34	OTK		11			
35	188888	12			35			11		TBL GRD XTC LEAD	
36	259595	13			36			13		TRANSVERTER	
37	195959	14			37			14			
38		11	1	RECORDER ANSWER & DISCONNECT RECORDS	38					OPEN OT LEAD	
39		33	2		39					TBL GRD TCO LEAD	
40		66	3		40			DTNP 3			
41		00	4		41			DPNP 4		ANS OR DISCONNECT	
42				TBL ENTRY	42	IDENTIFICATION		15		END OF CYCLE	
43				PASS BY	43	288000				PASS BY	
44				OPERATE(2R)	44						

110. FORMER NOTE 110 NOW NOTE 104.

111. PRIOR TO ISSUE 18B, OPTION XF WAS PART OF OPTION ZK.

112. PRIOR TO ISSUE 19B, FIG C (NOW APP FIG C) WAS PART OF FIG 26 (NOW APP FIG 26).

113. WITH THE 22V 60 CPS SUPPLY AN EMERGENCY POWER SUPPLY SHALL BE USED THAT HAS AN UPPER FREQUENCY LIMIT OF 60 CPS.

114. NOTE CANCELLED.

115. IF THE OFFICE IS ARRANGED WITH ONE RECORDER AND AN EMERGENCY RECORDER PROVIDE OPTION XT.

116. PRIOR TO ISSUE 26D, LOOPING SYMBOLS WERE NOT SHOWN.

117. WHERE XZ IS PROVIDED, OPTION XY MUST ALSO BE PROVIDED. PRIOR TO ISSUE 27D OPTION WA WAS SHOWN AS PART OF OPTION N AND OPTION XY WAS SHOWN AS PART OF OPTION ZD.

118. PRIOR TO ISSUE 35D, OPTION WH WAS PART OF OPTION WC.

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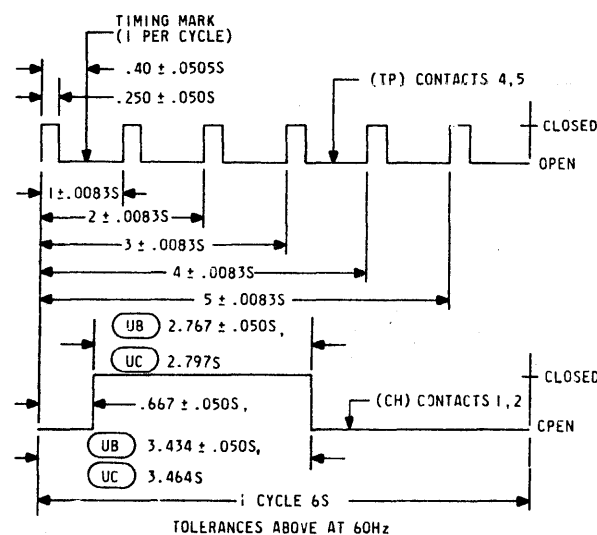
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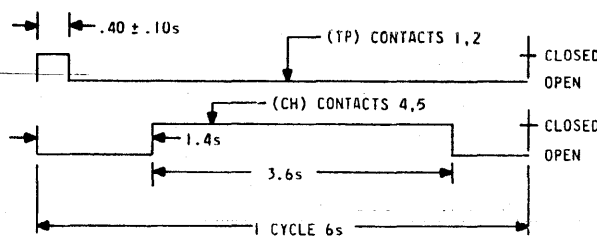
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CIRCUIT NOTES: (CONT)

119. WHEN "XS" OPTION IS PROVIDED, "XV" OPTION MUST BE PROVIDED.
120. TO INCREASE THE LIFE OF THE 206 AF SELECTOR DESIGNATED (U), ADD OPTION "WB".
121. TO CONFINE MUTILATED HOUR ENTRIES TO THOSE RECORDERS THAT ARE OUT OF SYNCHRONISM, ADD "WJ" OPTION.
122. IF RECORDER GROUP HUNDREDS IS REQUIRED, AND RECORDER GROUPS IN OFFICE ARE IN MORE THAN ONE HUNDREDS, THE RECORDER GROUP HUNDREDS IS PROVIDED BY THE INDIVIDUAL RECORDERS, AND NOT BY THIS CIRCUIT. OPTION "WM" IS A FALSE OPTION TO PERMIT REMOVAL OF OPTION "WK" IN THIS CASE.
123. IF RELAY (DTK) IN AMA RECORDER CIRCUIT IS CHANGED TO 600N 316U, OPTION "WQ" MUST REPLACE OPTION "WN".
124. IF APP FIG. 31 IS PROVIDED, OPTION "WQ" MUST REPLACE OPTION "WP".
125. A. 1 SECOND TIMING.



B. TIMER INTERVALS FOR 4A TIMER, 6 SECOND TIMING, OPTION "WY".

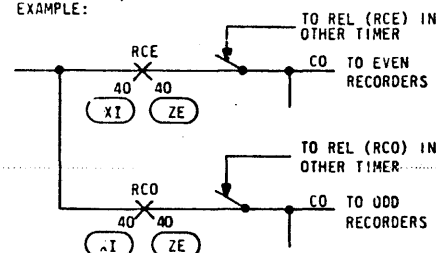


126. WHEN ONE SECOND TIMING ACCURACY IS PROVIDED, OPTIONS "G" AND "ZD" ARE REQUIRED. APP FIGURES A OR B, IF PROVIDED, MUST BE REMOVED. APP FIG. 23 MUST BE ADDED IF NOT A-READY PROVIDED. FOR X9R TDM WITH TSP, OPTION "WI" MUST BE ADDED IF NOT ALREADY PROVIDED.
127. PROVIDE OPTION "WX" TO INSURE THE PERFORATION OF A SECOND SPLICE PATTERN WHEN A TAPE WINDOW IS ENCOUNTERED DURING THE TAPE IDENTITY PERFORATION FOLLOWING A PREVIOUS SPLICE PATTERN.
128. TO PREVENT EROSION OF CONTACTS 3 AND 4B OF RELAY (PTR), OPTION "VB" MUST REPLACE OPTION "VA". OPTION "VB" SHOULD BE PROVIDED WHEN OPTION "XX" OF SD-25872-01 (RECORDER AND RECORDER CONNECTOR) IS PROVIDED.
129. PRIOR TO ISSUE 388, OPTION "VI" WAS PART OF OPTION "ZD" AND WAS PROVIDED AFTER DATE STANDARD.

130. PRIOR TO ISSUE 43B, "VJ" OPTION WAS PART OF "WC" OPTION AND "VN" OPTION WAS PART OF "XZ" OPTION.
131. WHEN THE REMOTE REGISTER PULSE FEATURE PER OPTIONS "VP" AND "VQ" IS PROVIDED, OPTIONS "WZ" AND "VC" MUST BE PROVIDED.
132. WHEN OPERATING WITH CAMA-C OR BILLING DATA TRANSMITTER AND THE PAPER TAPE PERFORATORS ARE REMOVED, THE TIME KEEPING FUNCTION AND 3AM ENTRIES ARE NOT NECESSARY IN THE AMA RECORDERS. PRIOR TO ISSUE 51B, OPTION "VX" WAS PART OF OPTION "WZ" AND OPTION "VY" WAS A PART OF APP FIG. 31.
133. OPTION "VW" PROVIDES SEPARATE CONTROLS FOR TROUBLE CARD DATA AND AMA RECORDER HOUR/TEN MINUTE DATA. SEPARATE CONTROLS WILL PREVENT INCORRECT ENTRIES DURING SIMULTANEOUS REQUESTS FOR DATA FROM BOTH THE AMA RECORDER AND THE TROUBLE RECORDER IN OFFICES ARRANGED FOR ONE-SECOND TIMING. OPTIONS "VV" AND "VW" DO NOT APPLY TO NO. 1 CROSSBAR.
134. FOR THE ONE-SECOND TIMING FEATURE PROVIDE OPTION "UA" FOR THE FOLLOWING IMPROVEMENT:
- TO ELIMINATE MARGINAL CONDITIONS IN THE "SECONDS UNITS" COUNTER.
 - TO ELIMINATE MARGINAL CONDITIONS IN THE UW/UZ CIRCUIT.
 - TO PROVIDE LAMPS TO MONITOR THE TP AND CH OUTPUT SIGNALS FROM BOTH THE EVEN AND ODD TIMERS.
 - TO ELIMINATE POSSIBLE FALSE RELEASE OF THE TMT RELAY DURING TEN MINUTE ENTRIES.
135. OPTION "UC" PROVIDES THE 4E ELECTRONIC TIMER FOR THE ONE SECOND TIMING FEATURE. PRIOR TO ISSUE 52B, OPTION "UB" WAS PART OF "WZ". WHEN OPTION "UC" IS PROVIDED IT MUST BE APPLIED IN BOTH THE EVEN AND ODD TIMERS.
136. PRIOR TO ISSUE 52B, OPTION "VZ" WAS PART OF OPTION "WZ".
137. WHEN OPTION VT, THE BILLING DATA TRANSMITTER FEATURE IS USED, OPTION UE MUST ALSO BE PROVIDED TO PREVENT FAILURE OF RECORDER TEST 232 IF ALL RECORDERS ARE NOT EQUIPPED WITH OPTION WN.
138. PRIOR TO ISSUE 55B OPTION UJ WAS A PART OF OPTION WZ.
139. WHEN RECORDERS ARE DISABLED BUT LEFT IN PLACE, OR WHEN THE MASTER TIMING FUNCTIONS ARE NOT REQUIRED FOR AMA BUT ONLY FOR THE TROUBLE RECORDER, THE FOLLOWING CONDITIONS APPLY:
- PROVIDE OPTION "VR" WITH OPTION "UG" OR "UH".
 - REMOVE FUSES NE, NO AND PTU.
 - DISCONNECT LEADS EST AND ST- TO THE RECORDER AND RECORDER CONNECTOR CIRCUIT.
 - REPLACE OPTION "UP" WITH OPTION "UQ".
140. ON ISSUE 56B CAPACITOR CODE 535NR IS PROVIDED STD WITH OPTION "UL" FOR REPLACEMENT OF MFR. DISC. CODE 228B WITH OPTION "UK".
141. WHEN THE AMA RECORDER IS EQUIPPED WITH APP FIG 31 WHICH IS USED TO DETECT OPEN START LEADS TO THE MASTER TIMER, PROVIDE OPTION UM TO ELIMINATE POSSIBLE FALSE OPERATION OF THE TM TIMER IN THE AMA RECORDER.
142. WHEN THE AMA RECORDER IS MODIFIED FOR CAMA C OR BDT OPERATION WITH TIME KEEPING FUNCTIONS RETIRED IN PLACE, AND INSTANT TRANSFER AND MAKE BUSY OPERATION AFTER PERFORATOR REMOVAL IS REQUIRED, (SD-25872-01 OPTION JF), FURNISH OPTION UO AND REMOVE OPTION UN. THIS WILL PREVENT FALSE UNIT LAMP INDICATIONS.

EQUIPMENT NOTES:

201. NOTE CANCELED (SEE CROSS CONNECTING INFORMATION).
202. THE CONNECTION FOR THE LEAD FROM GROUND "W" SHALL BE MADE AT THE FIRST PIECE OF APPARATUS, IT SHALL BE LOOPED TO THE OTHER APPARATUS AND FROM THE LAST PIECE OF APPARATUS BACK TO THE FIRST PIECE OF APPARATUS.
203. IN CADS 1 AND 2, THE STRAPS BETWEEN TERMINALS 1-4 AND 10-13 ON TS(MGN) WERE RATED MFR DISC. ON ISSUE 11B.
204. THE DIFFERENCE BETWEEN A HORIZONTAL MULTIPLE FOR 263 TYPE RELAYS, "ZE" OPTION, AND THE 287 TYPE RELAYS, "XI" OPTION, IS ILLUSTRATED IN THE FOLLOWING TYPICAL EXAMPLE:



- ZE CONTACT 40 IS THE FIXED SPRING WITH THE HORIZONTAL MULTIPLE ON THE ARMATURE.
- XI THE HORIZONTAL MULTIPLE IS ON FIXED SPRING 40.

205. LOOP A AND B GROUNDS TO ALL APPARATUS AS DESIGNATED AND CONNECT OTHER END OF LOOPS TO AE AND AF GROUNDS, "XN" OPTION, RESPECTIVELY.
206. PROVIDE SUPPLEMENTAL LOCAL CABLE WHEN "XS" OPTION IS REQUIRED.

INFORMATION NOTES:

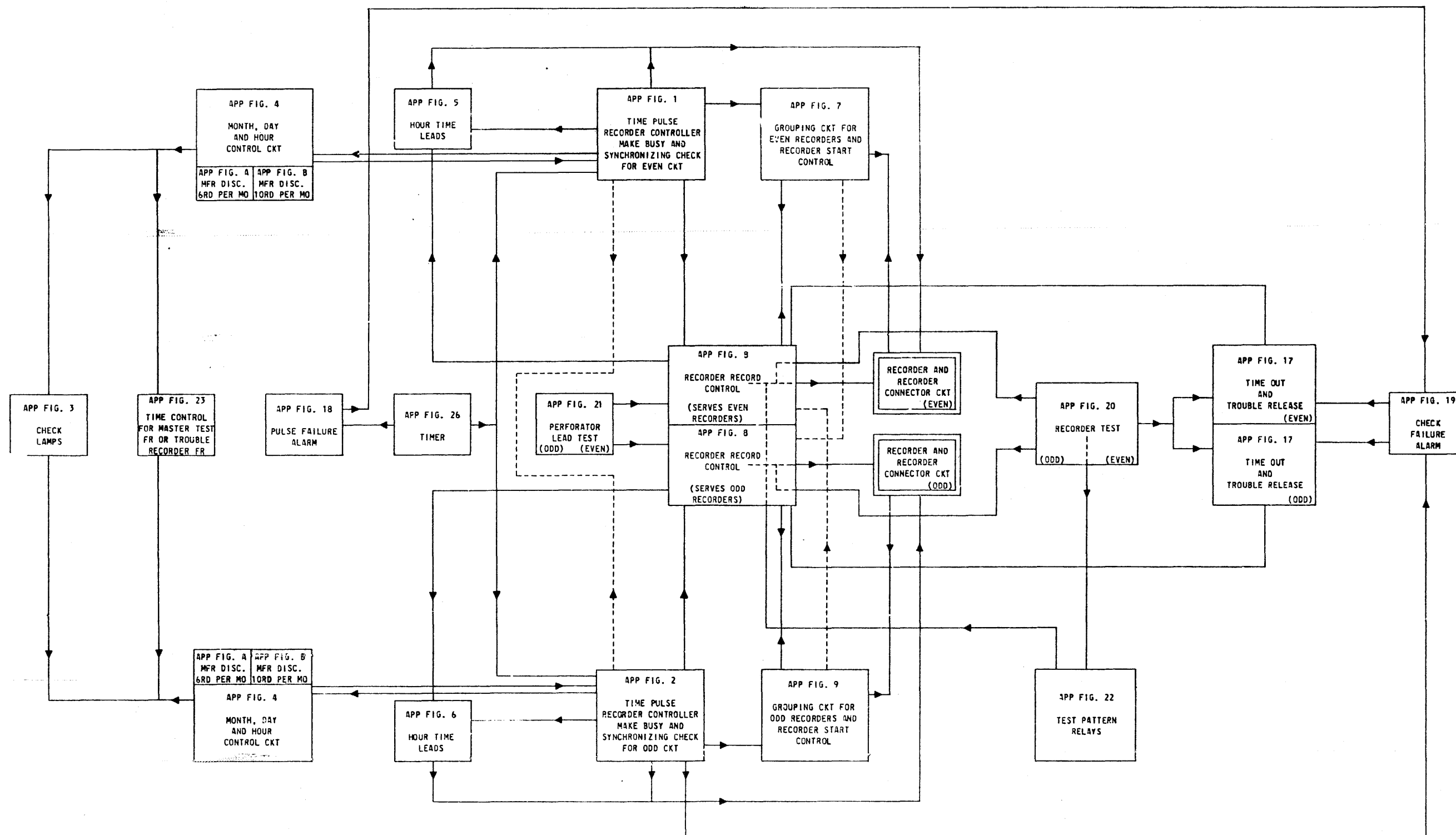
301. UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS, VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.
302. SHOWN ON SHEET D4B.
303. INTERRUPTIONS IN THE 22V AC SUPPLY FOR THE TIMERS RESULTING FROM LOSS OF 120V AC COMMERCIAL POWER OR SWITCHOVERS DURING ROUTINE TESTING OF THE AC RESERVE SYSTEM MAY CAUSE AN OUT-OF-SYNCHRONISM CONDITION RESULTING IN LOSS OF REVENUE. MASTER TIMERS ARRANGED FOR ONE-SECOND TIMING ARE MORE SENSITIVE TO SUCH INTERRUPTIONS. TO AVOID THESE INTERRUPTIONS, THE 120 VAC SOURCE SHOULD BE BACKED WITH A STANDBY INVERTER SUCH AS THE LORAIN WAAS01B. TO ALLEVIATE ONLY THOSE INTERRUPTIONS DURING SWITCHOVERS, THE 120V AC MAY BE SUPPLIED FROM A POWER SERVICE CABINET WHICH IS ONLY TRANSFERRED TO THE EMERGENCY SUPPLY DURING LOSS OF COMMERCIAL AC POWER.

MASTER TIMING CIRCUIT

DWG SIZE 65 ISSUE 59B

BELL LABORATORIES SD-25633-01-03

MASTER TIMING CIRCUIT



DRAWING
ISSUE
310
THU
MCS
AND

ISSUE
52B

CROSS CONNECTING INFORMATION:(GENERAL)

CROSS CONNECTIONS FOR	CROSS CONN TABLE PART	CIRCUITS WITH RELATED CROSS CONN
MARKER GROUP NUMBER FOR CROSSBAR LOCAL AMA OR IDENTIFIER GROUP NUMBER FOR SXS NO. 1	1	
RECORDER GROUP HUNDREDS	2	

CROSS CONNECTING INFORMATION:(CONDITION)

PART	CONDITION	CONNECT		CONNECT		REFERENCE
		TERM.	TO TERM.	TERM.	TO TERM.	
1	MARKER GROUP NUMBER FOR CROSSBAR LOCAL AMA OR IDENTIFIER GROUP NUMBER FOR SXS NO. 1	TENS NUMBERING	0	E4	E7	
			1	E0	E1	
			2	E0	E2	
			3	E1	E2	
			4	E0	E4	
			5	E1	E4	
			6	E2	E4	
			7	E0	E7	
			8	E1	E7	
			9	E2	E7	
		UNITS NUMBERING	0	F4	F7	
			1	F0	F1	
			2	F0	F2	
			3	F1	F2	
			4	F0	F4	
			5	F1	F4	
			6	F2	F4	
			7	F0	F7	
			8	F1	F7	
			9	F2	F7	
2	RECORDER GROUP HUNDREDS		0	J4	J7	
			1	J0	J1	
			2	J0	J2	
			3	J1	J2	
			4	J0	J4	
			5	J1	J4	
			6	J2	J4	
			7	J0	J7	
			8	J1	J7	
			9	J2	J7	

CROSS CONNECTING INFORMATION:(LOCATION)

TERMINAL	FS	LOCATION		CROSS CONN TABLE PART	FUNCTIONAL DESIGNATION
		TERMINAL STRIP	NO.		
A	20B7	MGN	13	1	
B	20B8		4		
C	21C3		13		
D	21C3		4		
E0,1,2,4,7	20B7		9,8,7,6,5		
F0,1,2,4,7	21C3		9,8,7,6,5	2	
G	19C7		16		
H	19C7		15		
J0,1,2,4,7	19C7		14,12,3,2,1		

DRAWING

ISSUE

310

378

388

ISSUE

52B

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

2

6S

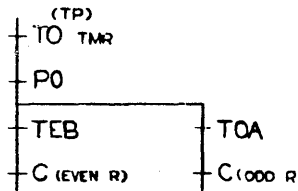
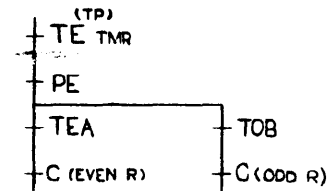
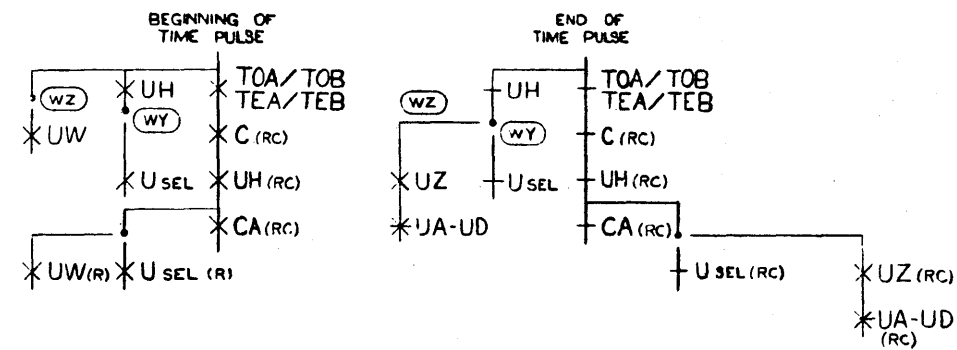
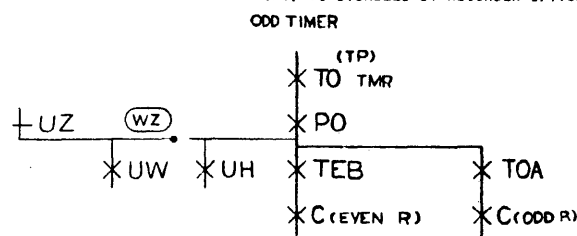
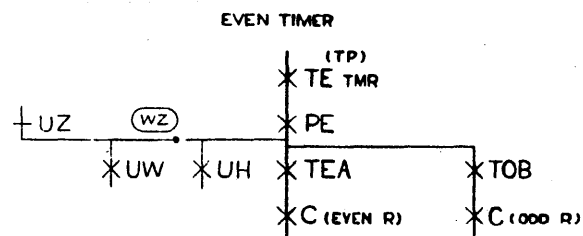
SD-25633-01-D4B

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SD-25633-01-D4B

STAB/LO
10-E

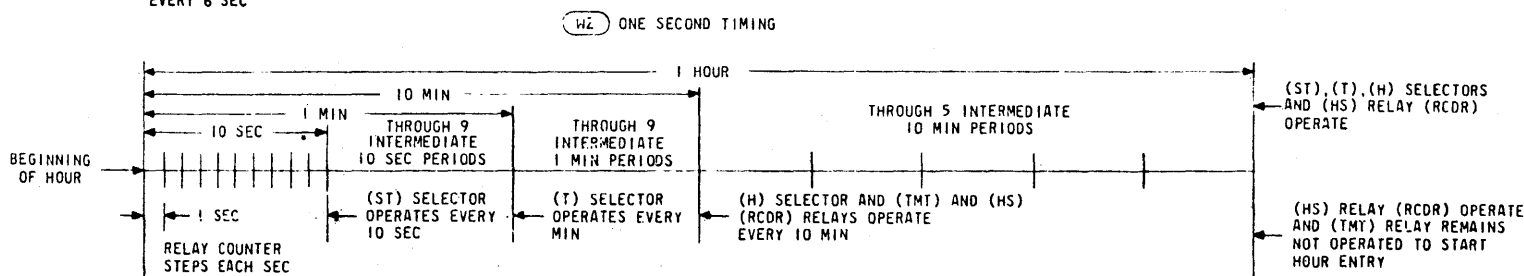
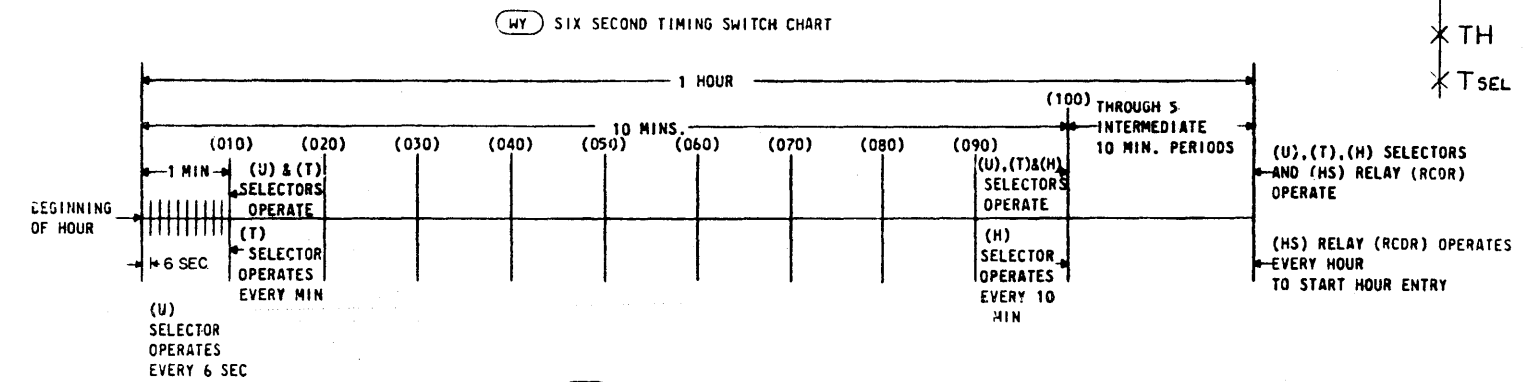
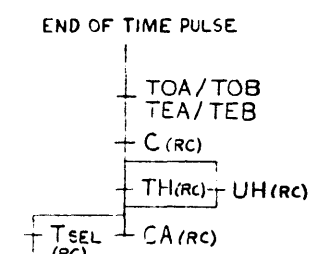
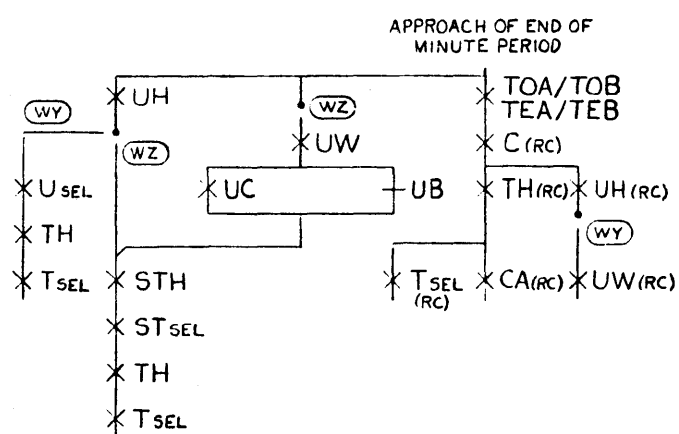
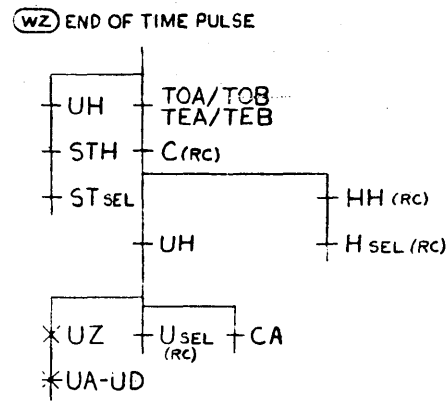
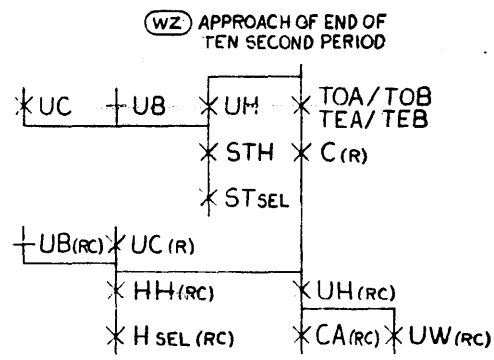
PART OF SC I TIME PULSES (THIS SC DOES NOT APPLY TO BDT OR CMA-C OPERATION WITH OPTION VR PROVIDED SINCE RELAY C (RC) IS DISABLED BY RECORDER OPTION UF)

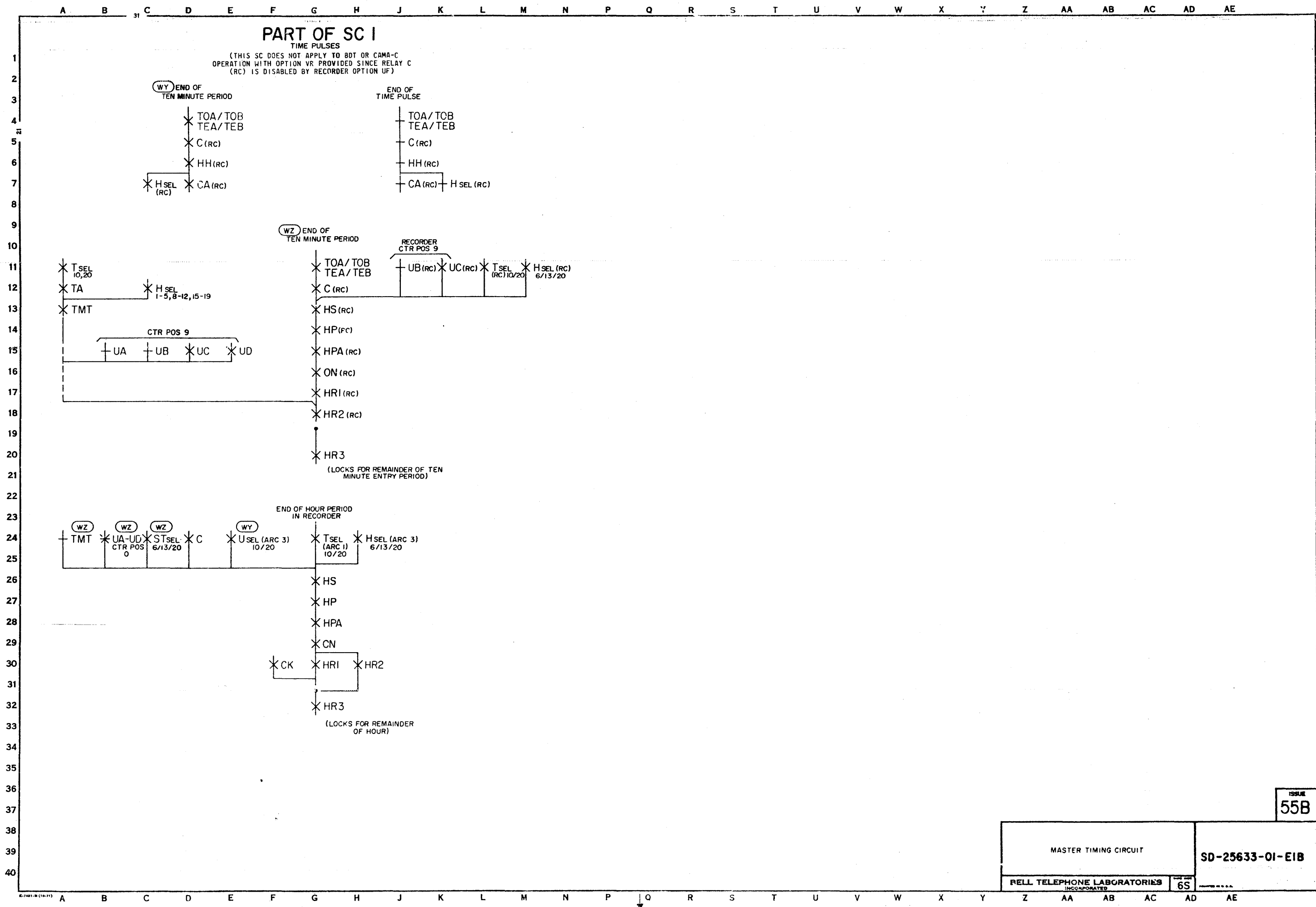


WZ DECIMAL COUNTER

RELAY	0	1	2	3	4	5	6	7	8	9
UA	-	-	-	X	X	X	X	-	-	-
UB	-	X	X	X	X	X	X	X	X	-
UC	-	-	-	-	X	X	X	X	X	X
UD	X	X	-	-	X	X	-	-	X	X
UZ	-	X	-	X	-	X	-	X	-	X

X = DENOTES RELAY OPERATED
- = DENOTES RELAY NORMAL





ISSUE
55B

MASTER TIMING CIRCUIT

SD-25633-01-E1B

RELL TELEPHONE LABORATORIES
INCORPORATED

6S

PART OF SC 2

CONTROL OF TIMING SWITCHES
HOUR, DAY, & MONTH INFORMATION

TIME SWITCH POSITIONS

IND POS (U)&(T) SEL	U & T DIGIT	IND POS (H)&(ST) SEL	H DIGIT
21	22	-	22
10	20	9	7
9	19	8	6
8	18	7	5
7	17	6	4
6	16	5	3
5	15	4	2
4	14	3	1
3	13	2	-
2	12	1	-
1	11	-	-

TIME COUNTERS
000-599 1/10 MINUTE INTERVALS

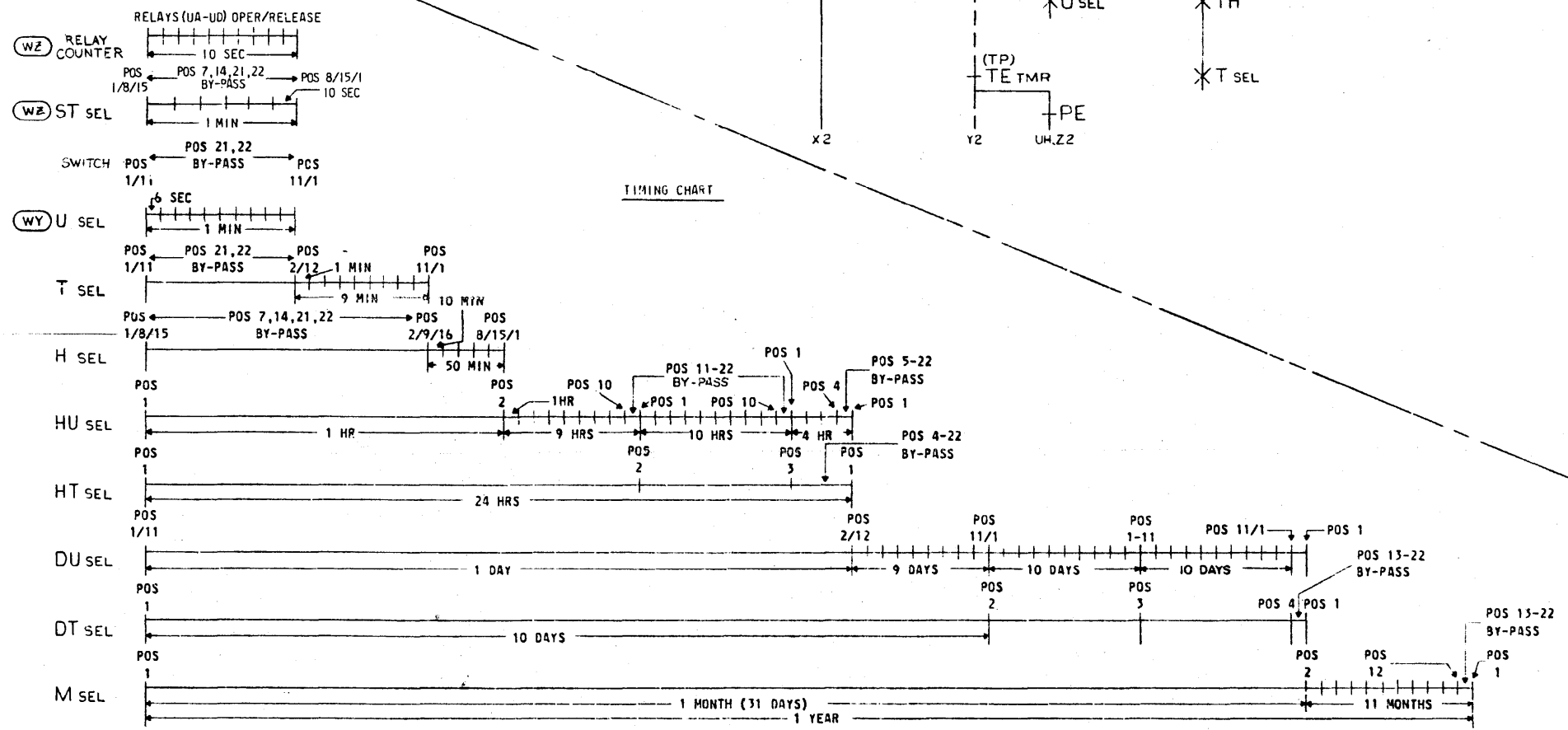
(WY) 4A TIMER CONTACTS CLOSE EVERY SIX SECONDS

(WY) REPEAT ABOVE SEVEN TIMES

(WY) REPEAT ABOVE SEVEN TIMES

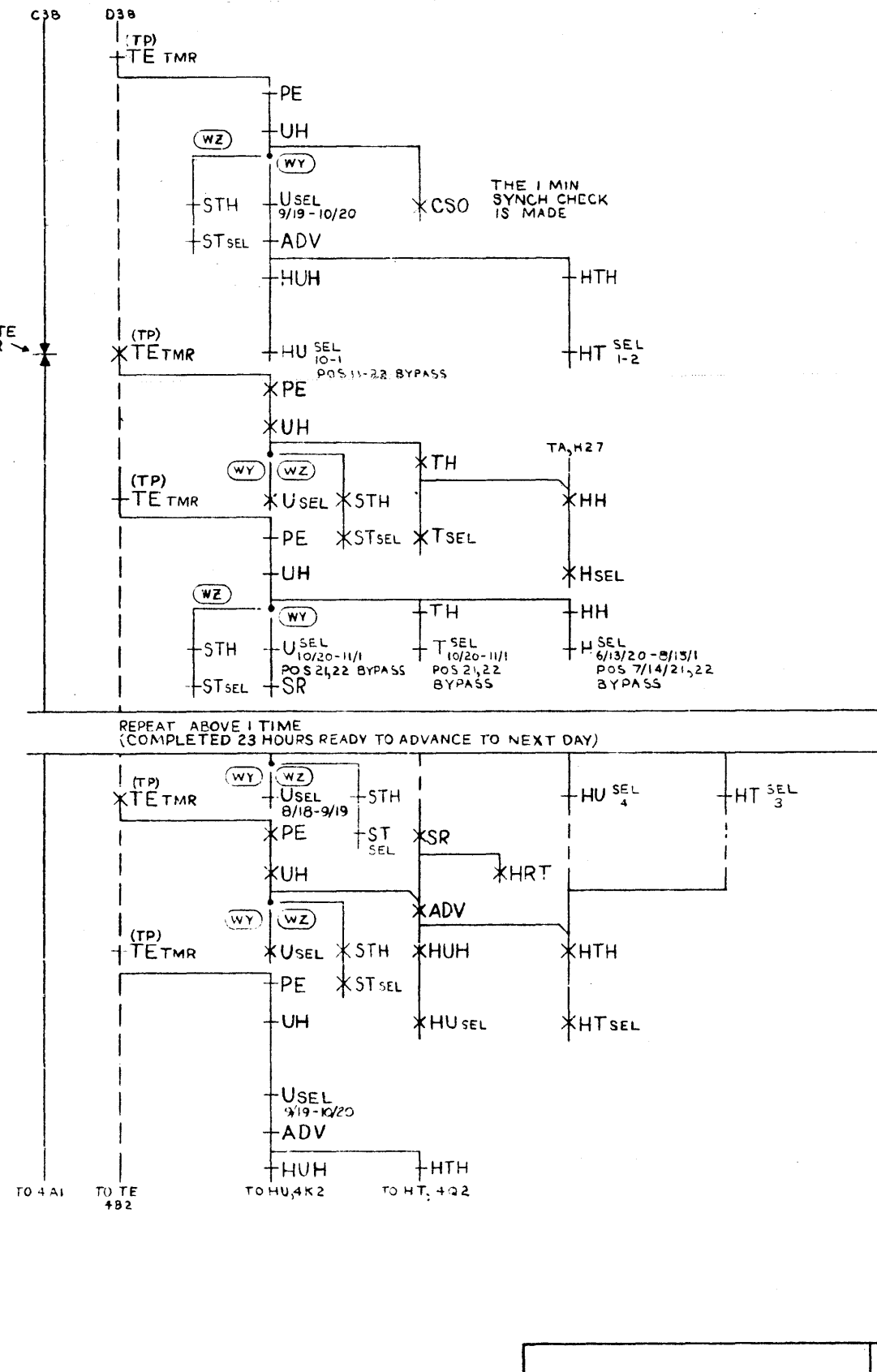
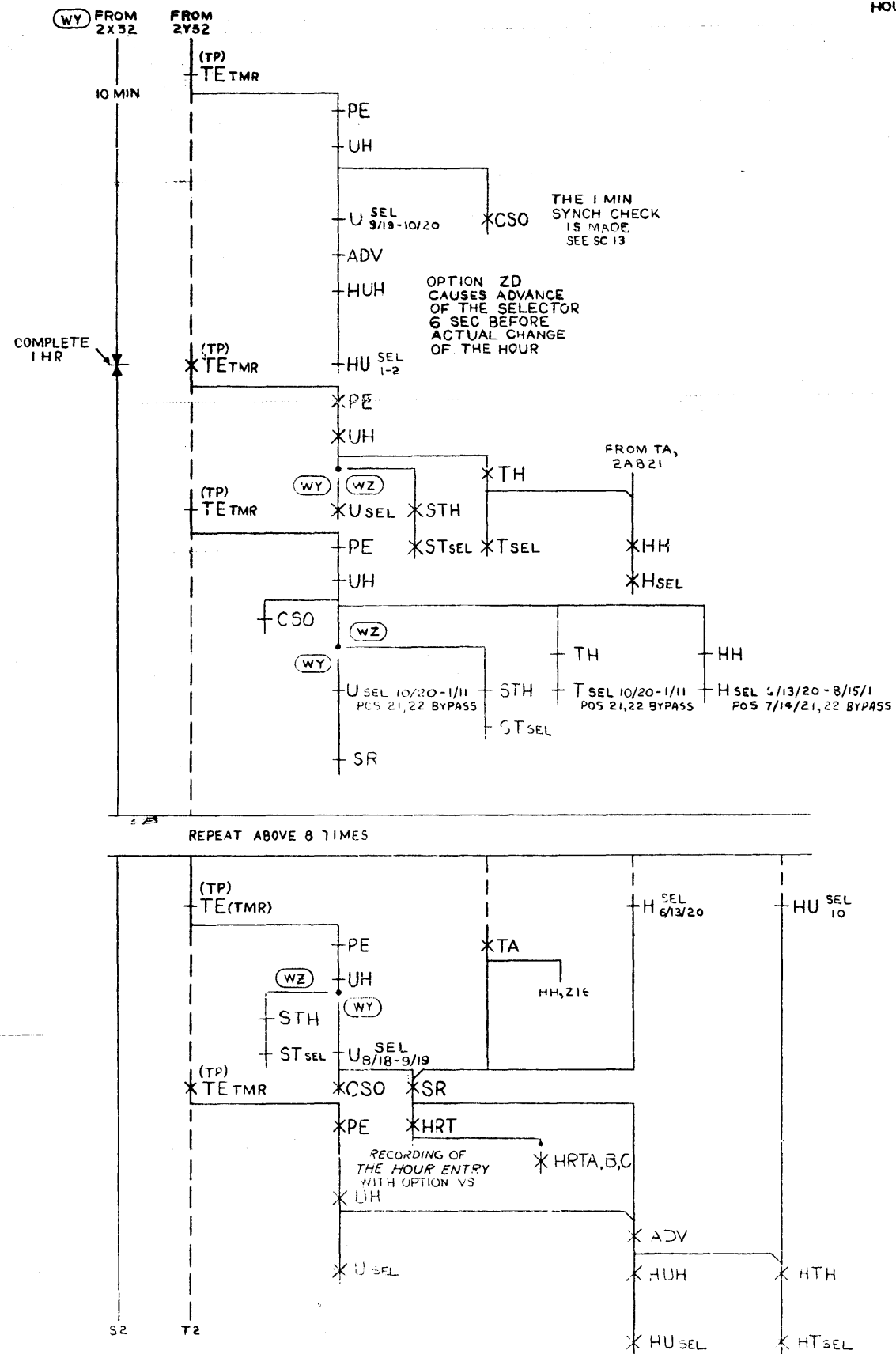
(WY) REPEAT ABOVE FOUR TIMES

TIMING CHART



PART OF SC 2
CONTROL OF TIMING SWITCHES
HOUR, DAY, & MONTH INFORMATION

DRAWING	ISSUE
310	55B
388	



REPEAT ABOVE 1 TIME
(COMPLETED 23 HOURS READY TO ADVANCE TO NEXT DAY)

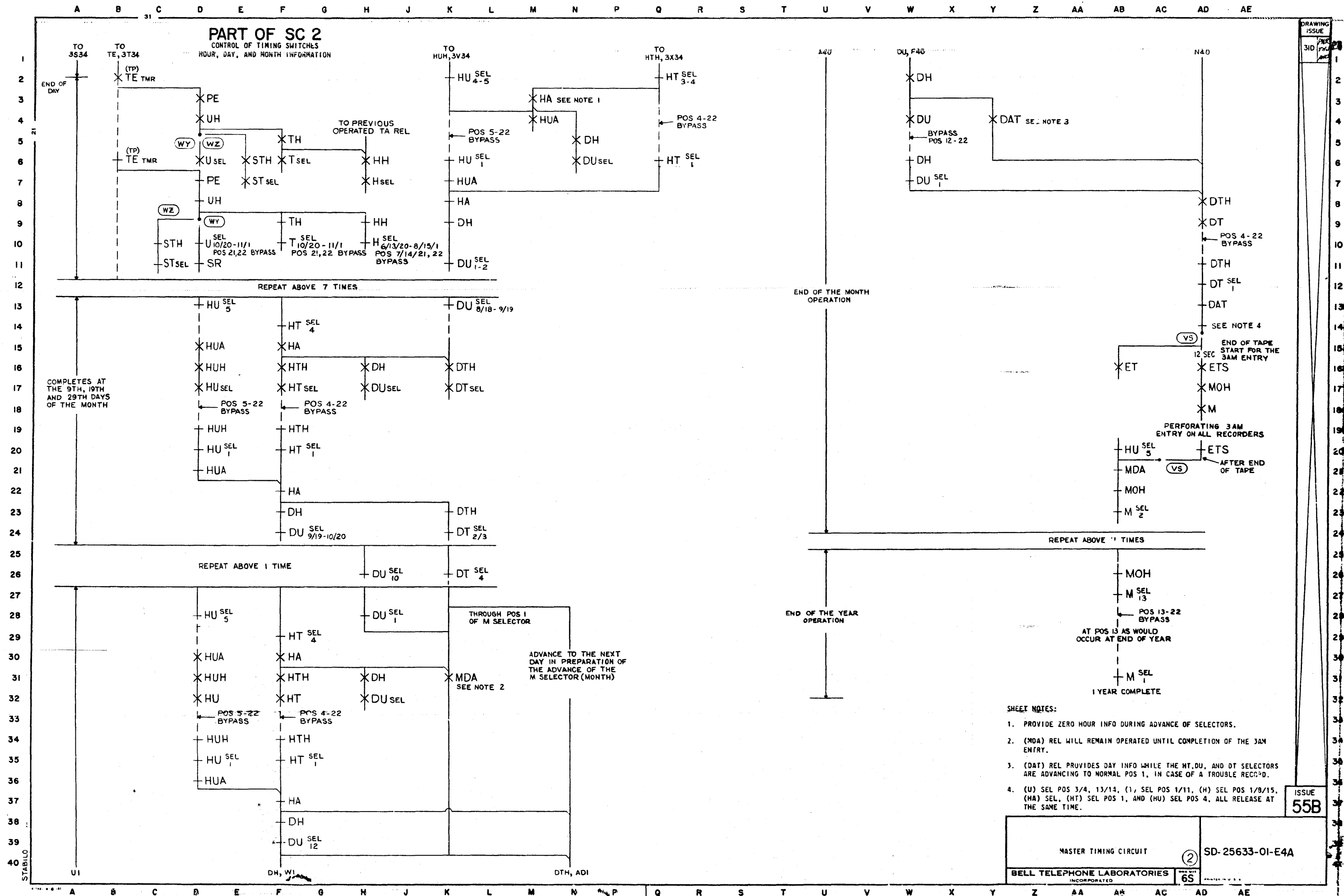
REPEAT ABOVE 6 TIMES

MASTER TIMING CIRCUIT		SD-25633-01-E3
BELL TELEPHONE LABORATORIES	INCORPORATED	6S

SD-25633-01-E3

CONTROL OF TIMING SWITCHES

HOUR, DAY, AND MONTH INFORMATION



SHEET NOTES:

1. PROVIDE ZERO HOUR INFO DURING ADVANCE OF SELECTORS.
2. (MDA) REL WILL REMAIN OPERATED UNTIL COMPLETION OF THE JAM ENTRY.
3. (DAT) REL PROVIDES DAY INFO WHILE THE MT,DU, AND DT SELECTORS ARE ADVANCING TO NORMAL POS 1, IN CASE OF A TROUBLE RECD.
4. (U) SEL POS 3/4, 13/14, (I) SEL POS 1/11, (H) SEL POS 1/9/15, (HA) SEL, (HT) SEL POS 1, AND (HU) SEL POS 4. ALL RELEASE AT THE SAME TIME.

ISSUE
55B

MASTER TIMING CIRCUIT

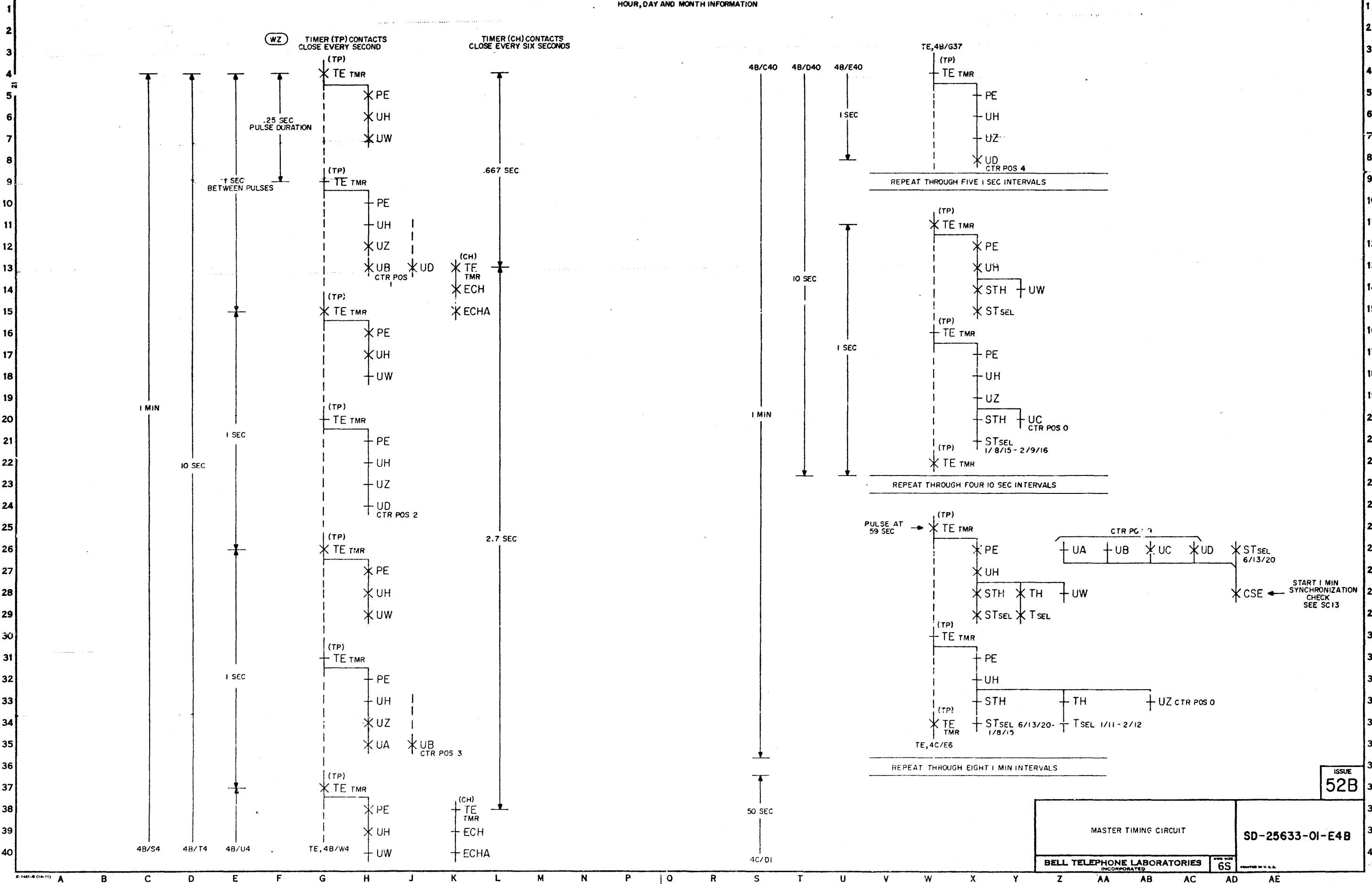
SD- 25633-01-E4A

BELL TELEPHONE LABORATORIES
INCORPORATED

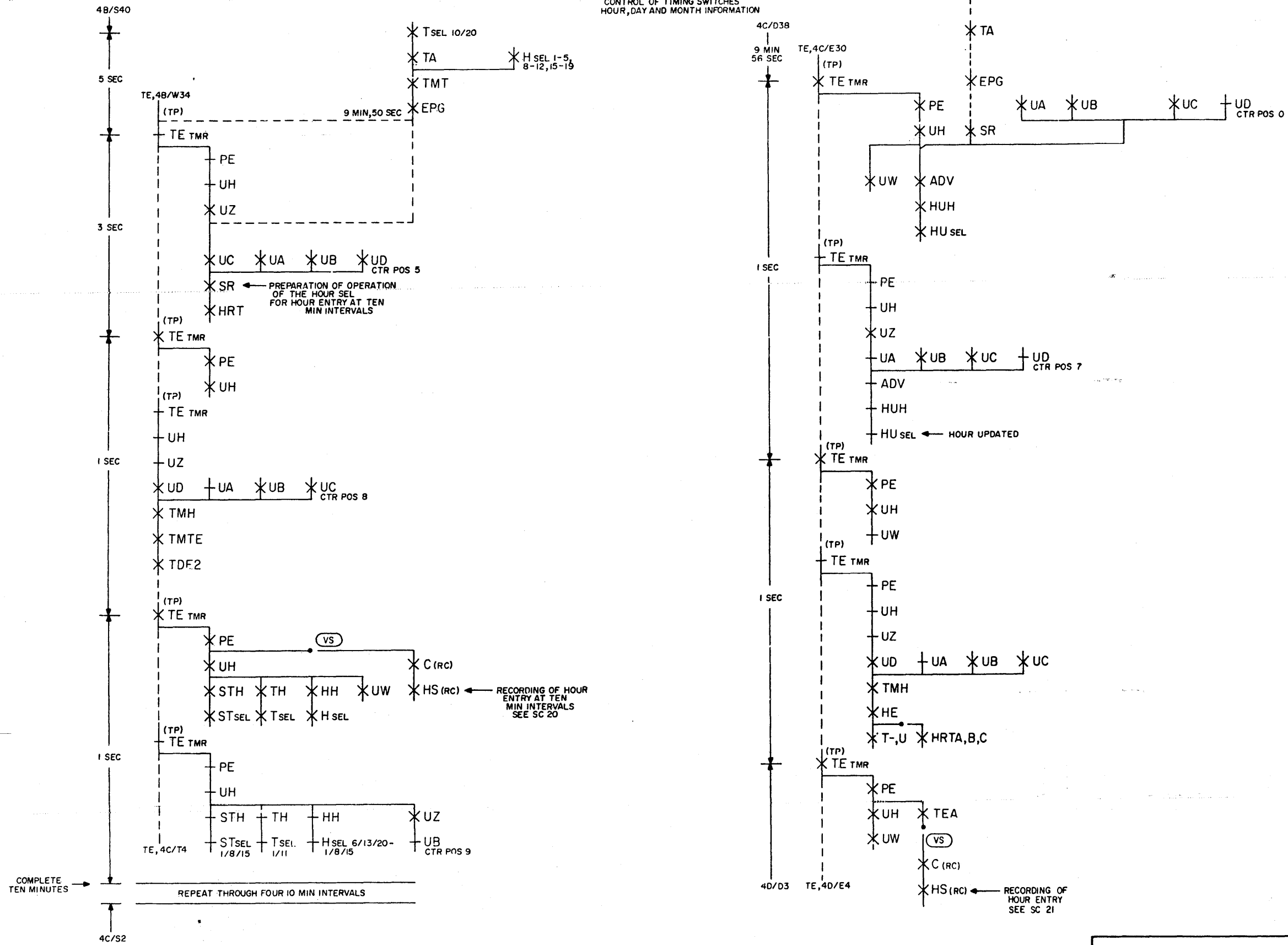
6S

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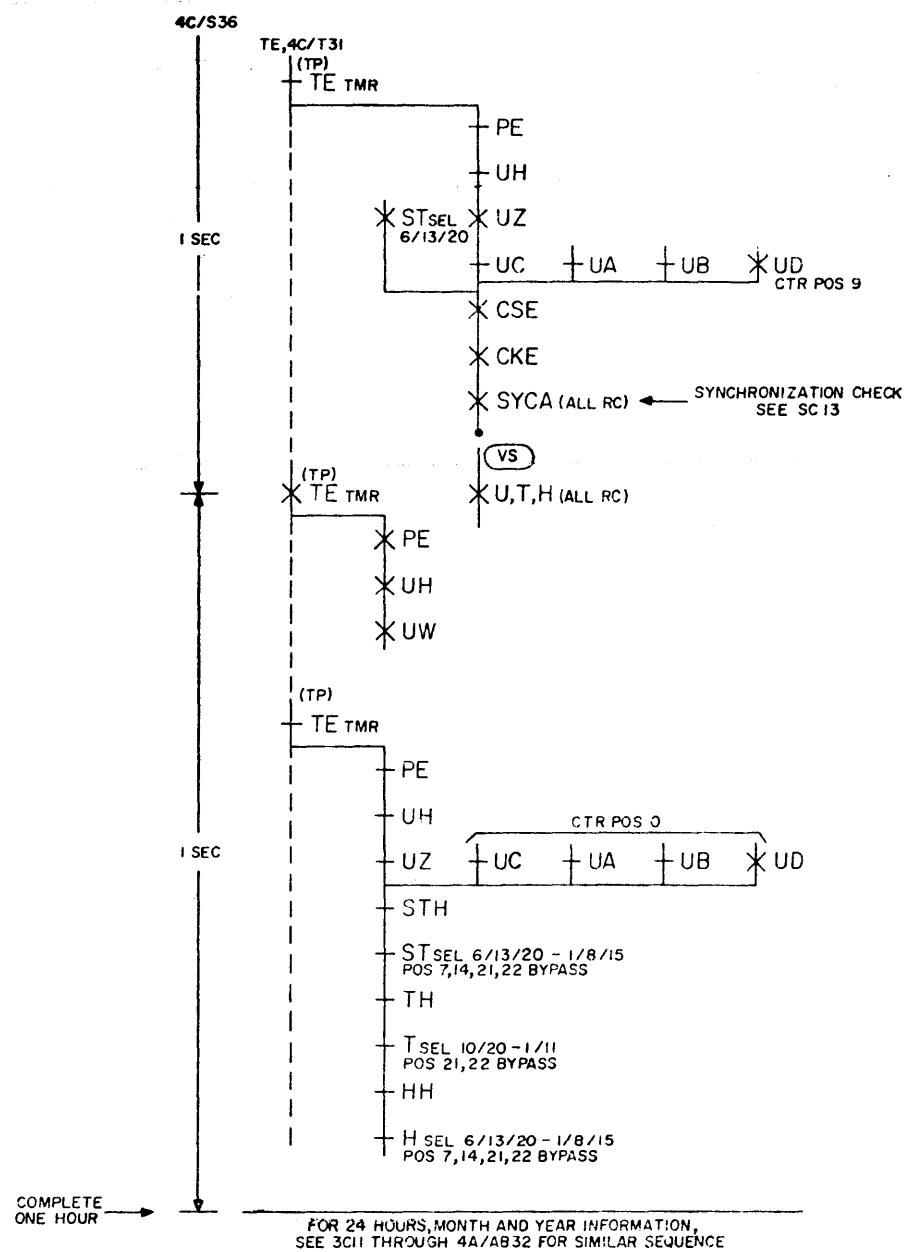
PART OF SC 2
CONTROL OF TIMING SWITCHES
HOUR, DAY AND MONTH INFORMATION



PART OF SC 2 CONTROL OF TIMING SWITCHES HOUR, DAY AND MONTH INFORMATION



PART OF SC 2 CONTROL OF TIMING SWITCHES HOUR, DAY AND MONTH INFORMATION



ISSUE
55B

MASTER TIMING CIRCUIT
 SD-25633-01-E4D
 BELL TELEPHONE LABORATORIES
 63

BRUNING 44-131 24592

PART OF SC 3

RECORDING OF HOURLY ENTRY
 (THIS SC DOES NOT APPLY TO BOT OR CMA-C
 OPERATION WITH OPTION VR PROVIDED SINCE RELAY C
 (RC) IS DISABLED BY RECORDER OPTION UF.)

MASTER TIMER
 (MFR DISC.)

TIME ON SELECTOR
 INDICATORS
 H T U
 6/13/20 10/20 9/19

TIME PULSES
 6 SEC

SWITCHES
 ADVANCED

CONTACT
 CLOSED

1 SEC DELAY BEFORE
 CLOSING CH CONTACT

CHECKS
 MADE

1 SEC DELAY

SWITCH
 ADVANCED

TO 6AC1

TO 6AD1

H T U
 1/18/15 1/11 2/12
 TO 6AE1

NOTES:

1. WHEN (HU) SEL RELEASES THE (U₂E AND T₂E) RELAYS BROUGHT UP BY THE OLD HOUR RELEASE & A NEW SET OF (U₂E AND T₂E) RELAYS OPERATE FROM THE NEW HOUR SETTING ON THE (HU AND HT) SEL THE (T₂E) RELAYS PERFORM THIS OPERATION AT THE 10TH, 20TH AND 00 HOURS ONLY.
2. (U, T, H, HU, DT, DU AND M) RELAYS ARE OPERATED AND RELEASED IN THE ODD MASTER TIMER (THE EVEN MASTER TIMER IS IN CONTROL).

MASTER TIMING CIRCUIT

2

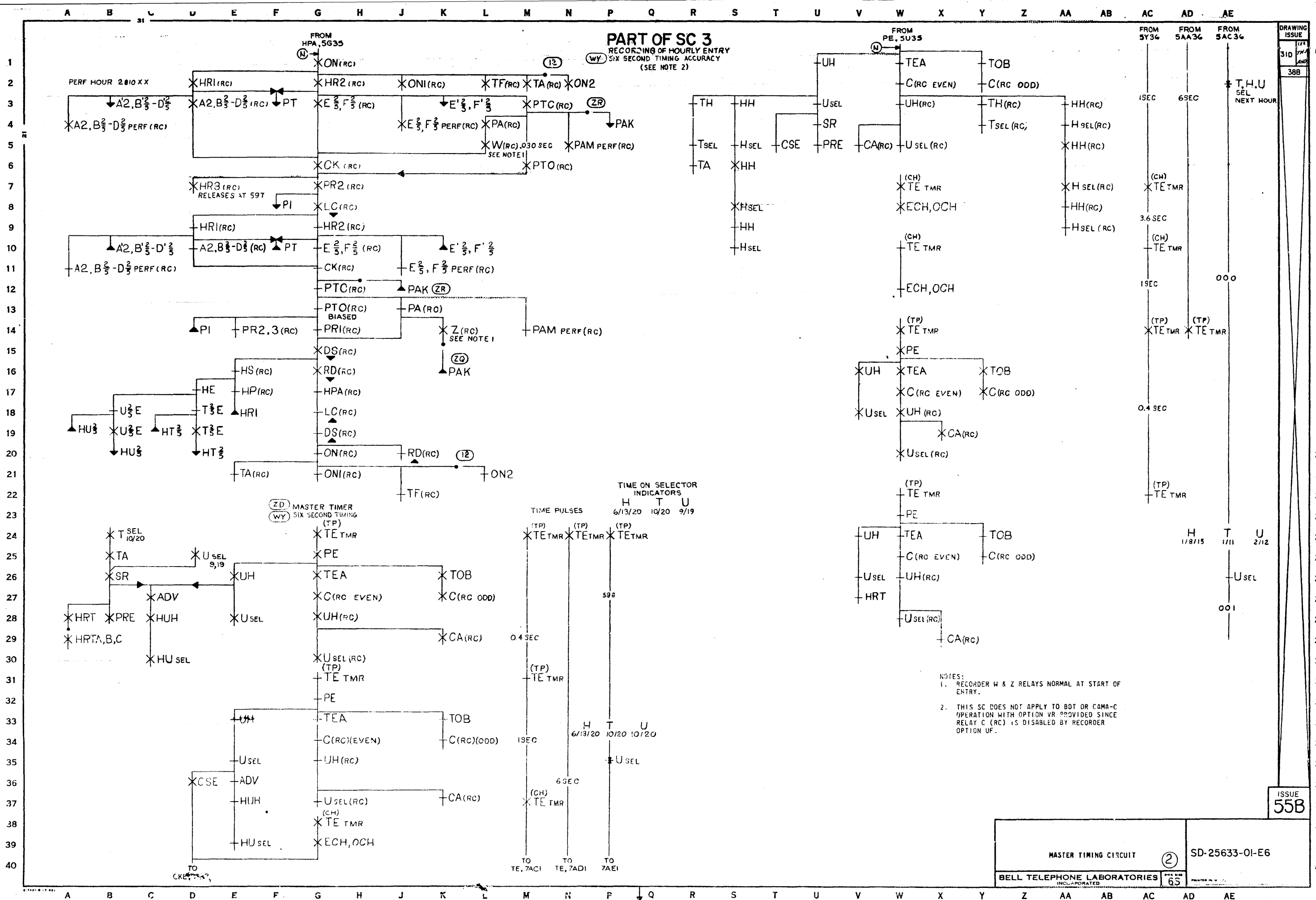
SD-25633-01-E5

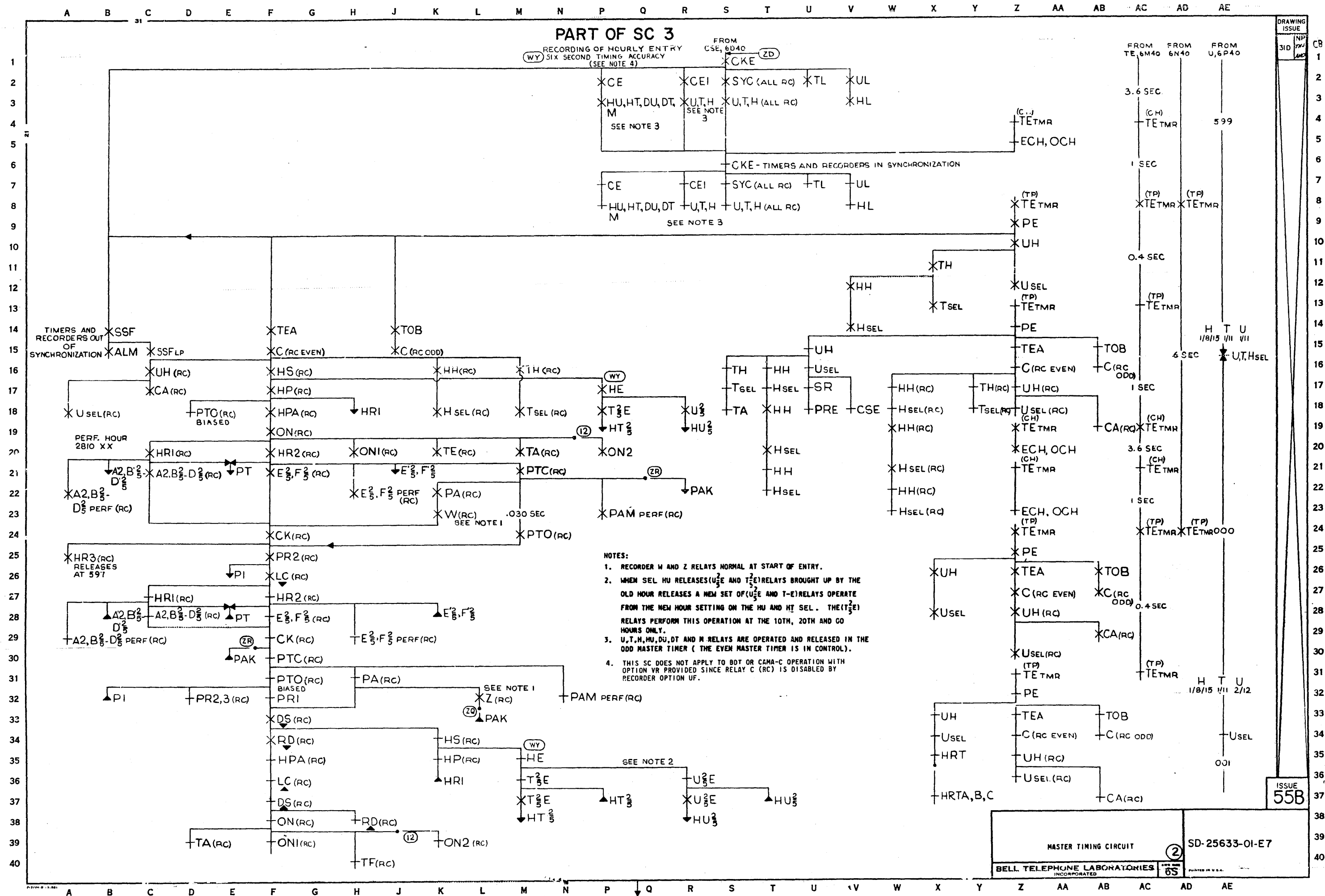
BEIL TELEPHONE LABORATORIES

65

ISSUE
 55B

SD-25633-01-E5





RECORDING END OF TAPE PATTERN 3A.M.
(THIS SC DOES NOT APPLY TO BDT OR CMA-C
OPERATION WITH OPTION VR PROVIDED SINCE RELAY ET IS DISABLED.)



SHORT
PERIOD
TIMING
(SEE NOTE 5)

CONNECTION TO RECORDERS

TAPE CUTTING
RECORD CONTROL

TO
9AC1

TO 9AC11	TO 9AD1
-------------	------------

1. THE (CK) RELAY OPERATES SLIGHTLY IN ADVANCE OF THE (PTD) RELAY.
2. FOR ROUTINE TEST OF END OF TAPE WITH ONE SECOND TIMING, OPTION WZ: IF PLUG IS INSERTED IN (RET) JACK AT LEAST 2 MINUTES BEFORE A TEN MINUTE ENTRY, THE 3AM INHIBIT FEATURE WILL BE FUNCTIONAL IF THE 3AM ENTRY IS NOT COMPLETED FOR ALL RECORDERS. IF PLUG IS INSERTED DURING LAST MINUTE OF A TEN MINUTE PERIOD, 3AM INHIBIT FEATURE WILL NOT OPERATE. IT IS RECOMMENDED TO INSERT PLUG FOLLOWING AN HOUR ENTRY OR FOLLOWING ANY TEN MINUTE ENTRY.
3. ASSUME 3AM INHIBIT FEATURE, OPTION WZ, HAS ENDED FOLLOWING TEN MINUTE ENTRY.
4. WITH OPTION WZ, (ET) OPERATES TEN SECONDS AFTER (3AM) FOLLOWING TEN MINUTE PERFORMANCE.
5. WITH OPTION WZ, SHORT PERIOD TIMING IS CANCELED UNTIL END OF TAPE INHIBIT RELEASES.
6. WITH OPTION WZ, RELAY (3AM) OPERATED INHIBITS OPERATION OF (SCE/SCQ) RELAY TO PREVENT NEW END OF TAPE ENTRY IF ALL RECORDER 3AM ENTRIES ARE NOT COMPLETED UNTIL TEN MINUTE ENTRY IS RECORDED.

ISSUE
558

MASTER TIMING CIRCUIT

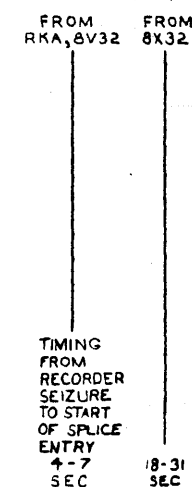
SD- 25633- 01 - E8

BELL TELEPHONE LABORATORIES
(INCORPORATED)

65

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RECORDING OF END OF TAPE PATTERN 3A.M.
(THIS SC DOES NOT APPLY TO BDT OR CMA-C
OPERATION WITH OPTION VR PROVIDED SINCE RELAY ET IS DISABLED.)
FROM
PR2-BL40



1. (W) AND (2) RELAY IN THE RECORDER ASSUMED NORMAL AT START OF ENTRY.
2. THE (CK) RELAY OPERATES SLIGHTLY IN ADVANCE OF THE (PTO) RELAY.

TO 10ZZ TO 10AAZ

ISSUE
55E

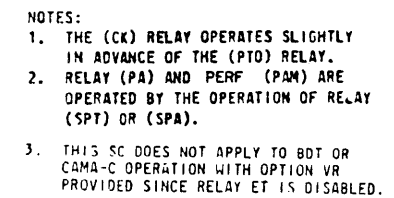
MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

SD-25633-01-E9

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RECORDING OF END OF TAPE
PATTERN 3AM
(SEE NOTE 3)



MASTER TIMING CIRCUIT

SD- 25633- 01- E10

BELL TELEPHONE LABORATORIES
INCORPORATED

65

99264720-179 U. S. A.

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

DRAWING
ISSUE
310 744
AND

PART OF SC 4

RECORDING OF END OF TAPE PATTERN 3AM
(THIS SC DOES NOT APPLY TO BOT OR CMA-C
OPERATION WITH OPTION VR PROVIDED SINCE RELAY ET
IS DISABLED.)

FROM
10AA36

FROM
LT2, 10V38

SEE SC 10

(WY) REPEAT FOR 66-78 SEC
APPROXIMATELY 800 LINES OR
(WZ) 59-69 SEC APPROXIMATELY
700 LINES

COMPLETION
OF TAPE
CUTTING
RECORD

TIMING FROM END
OF SPLICE ENTRY
TO START OF
RELEASE

NOTE:
1. THE (CK) RELAY OPERATES
SLIGHTLY IN ADVANCE OF
THE (PTO) RELAY.

12 SEC

TO 12X2 TO 12Y2

ISSUE
558

MASTER TIMING CIRCUIT

SD-25633-01-EII

BELL TELEPHONE LABORATORIES
INCORPORATED

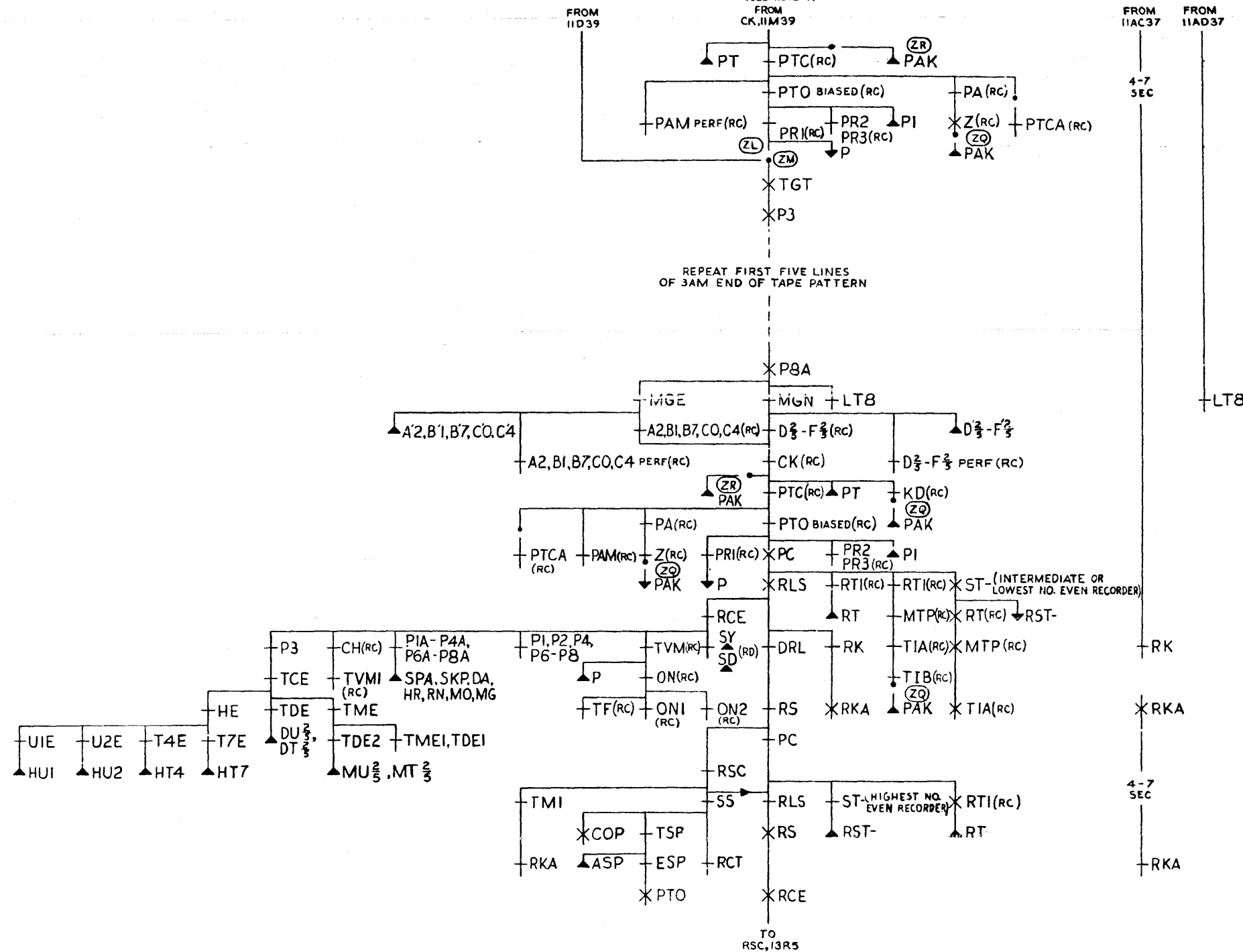
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SD-25633-01-EII

PART OF SC 4

RECORDING OF END OF TAPE PATTERN 3AM
(SEE NOTE 1)



NOTES:
1. THIS SC DOES NOT APPLY TO BDT OR CMA-C OPERATION
WITH OPTION VR PROVIDED SINCE RELAY ET IS DISABLED.

DRAWING
ISSUE

31D 1711
ANG

ISSUE
558

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

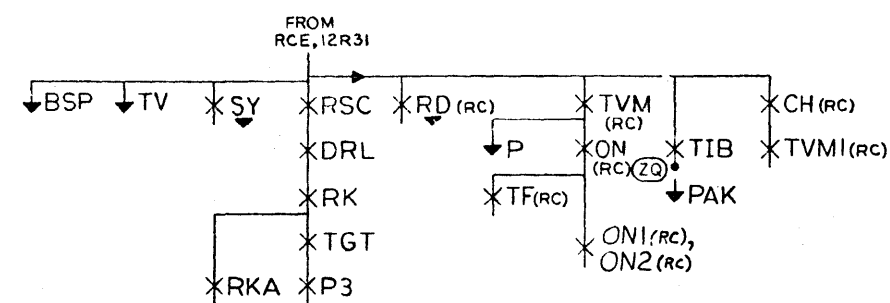
SD-25633-01-E12

2

65

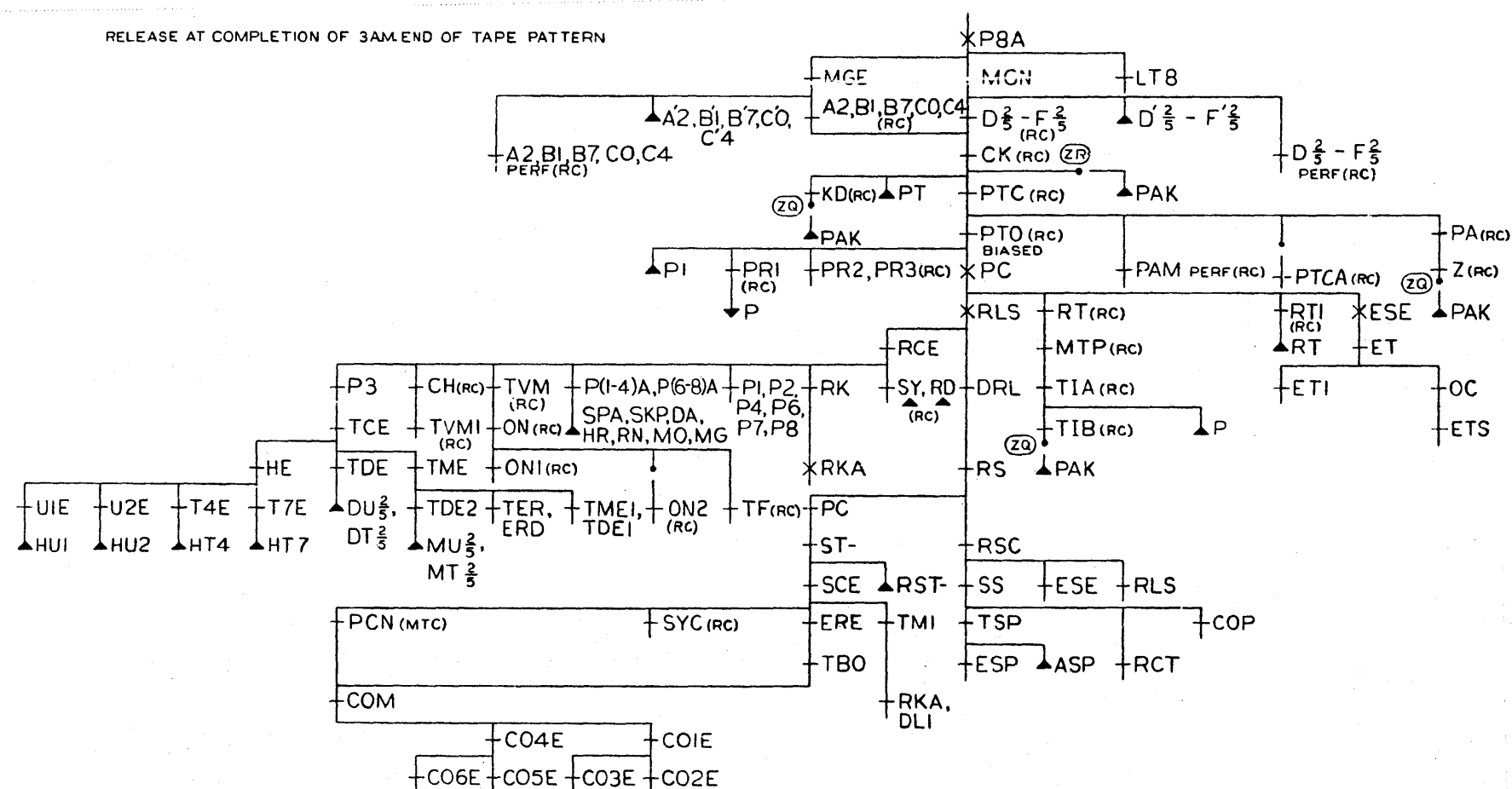
SD-25633-01-E12

RECORDING OF END OF TAPE PATTERN 3A.M.
(THIS SC DOES NOT APPLY TO BDT OR CAMA-C
OPERATION WITH OPTION VR PROVIDED SINCE RELAY ET
IS DISABLED.)

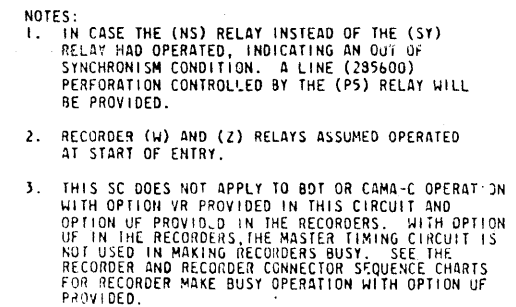


REPEAT COMPLETE 3AM END OF TAPE PATTERNS FOR ALL
INTERMEDIATE AND LOWEST NO. EVEN RECORDER

RELEASE AT COMPLETION OF 3AM END OF TAPE PATTERN



RECORDING OF END OF TAPE PATTERN
WINDOW SPLICE OR MAKE BUSY
(SEE NOTE 3)



ISSUE
55B

MASTER TIMING CIRCUIT

SD-25633-01-E14

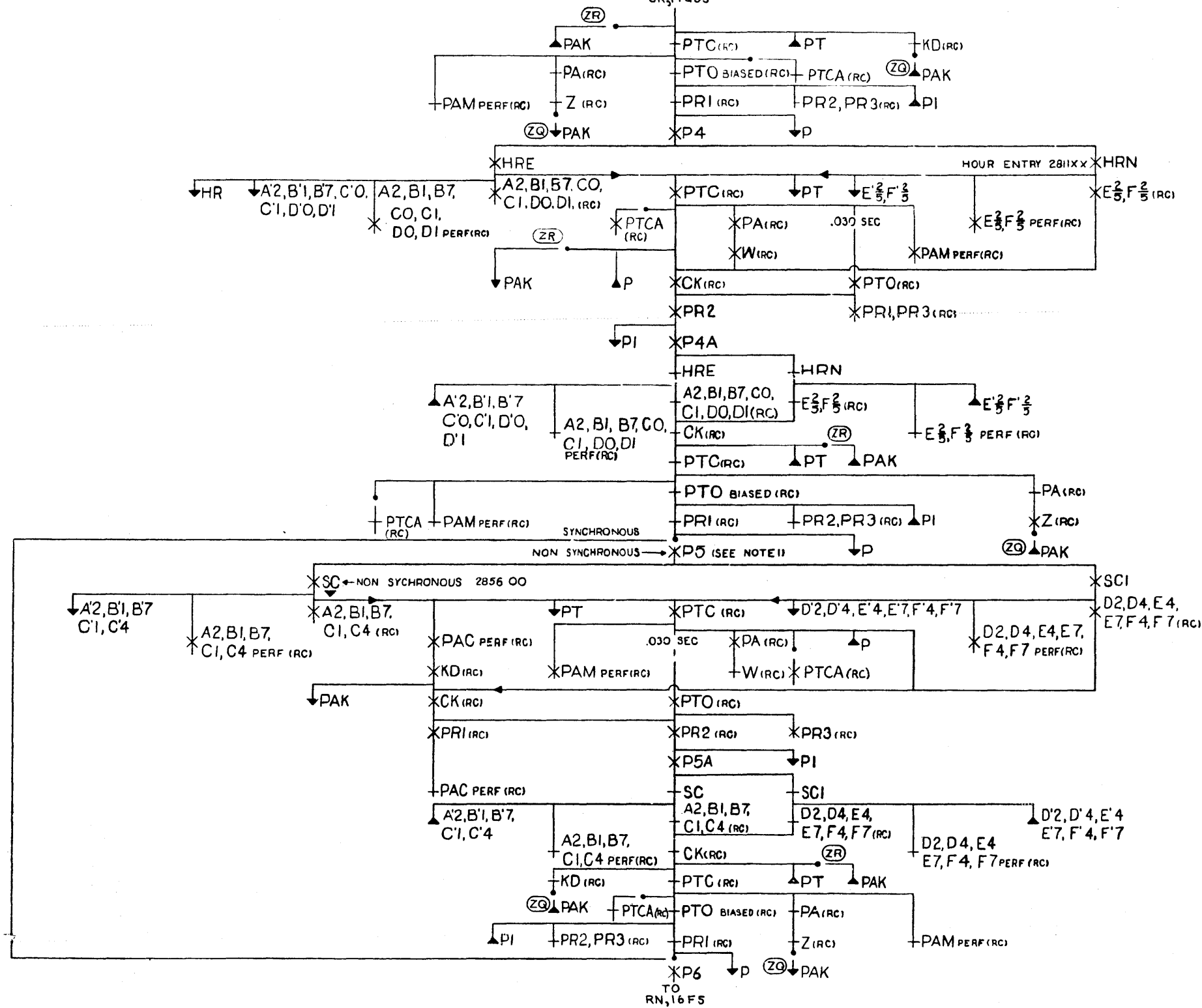
BELL TELEPHONE LABORATORIES
INCORPORATED

65 PRINTED IN U.S.A.

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 5
RECORDING OF END OF TAPE PATTERN
WINDOW SPLICE OR MAKE BUSY
(SEE NOTE 2)
FROM
CK, 4Q35

DRAWING
ISSUE
310
7/1/65



- NOTES:
1. IN CASE THE (NS) RELAY INSTEAD OF THE (SY) RELAY HAS OPERATED, INDICATING AN OUT OF SYNCHRONISM CONDITION, A LINE (285600) PERF CONTROLLED BY THE (P5) RELAY WILL BE PROVIDED.
 2. THIS SC DOES NOT APPLY TO 807 OR CMA-C OPERATION WITH OPTION VR PROVIDED IN THIS CIRCUIT AND OPTION UF PROVIDED IN THE RECORDERS. WITH OPTION UF IN THE RECORDERS, THE MASTER TIMING CIRCUIT IS NOT USED IN MAKING RECORDERS BUSY. SEE THE RECORDER AND RECORDER CONNECTOR SEQUENCE CHARTS FOR RECORDER MAKE BUSY OPERATION WITH OPTION UF PROVIDED.

ISSUE
558

MASTER TIMING CIRCUIT

SD-25633-01-E15

BELL TELEPHONE LABORATORIES
INCORPORATED

65

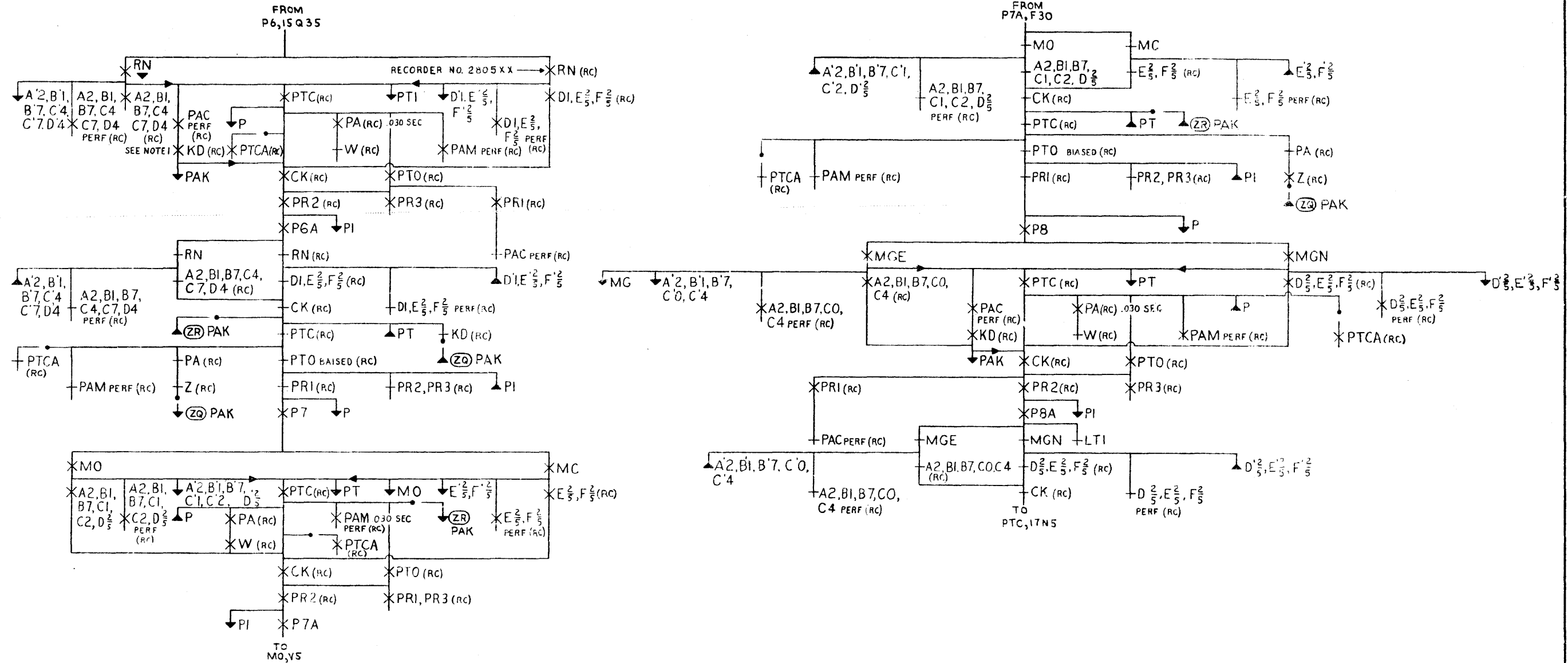
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SD-25633-01-E15

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

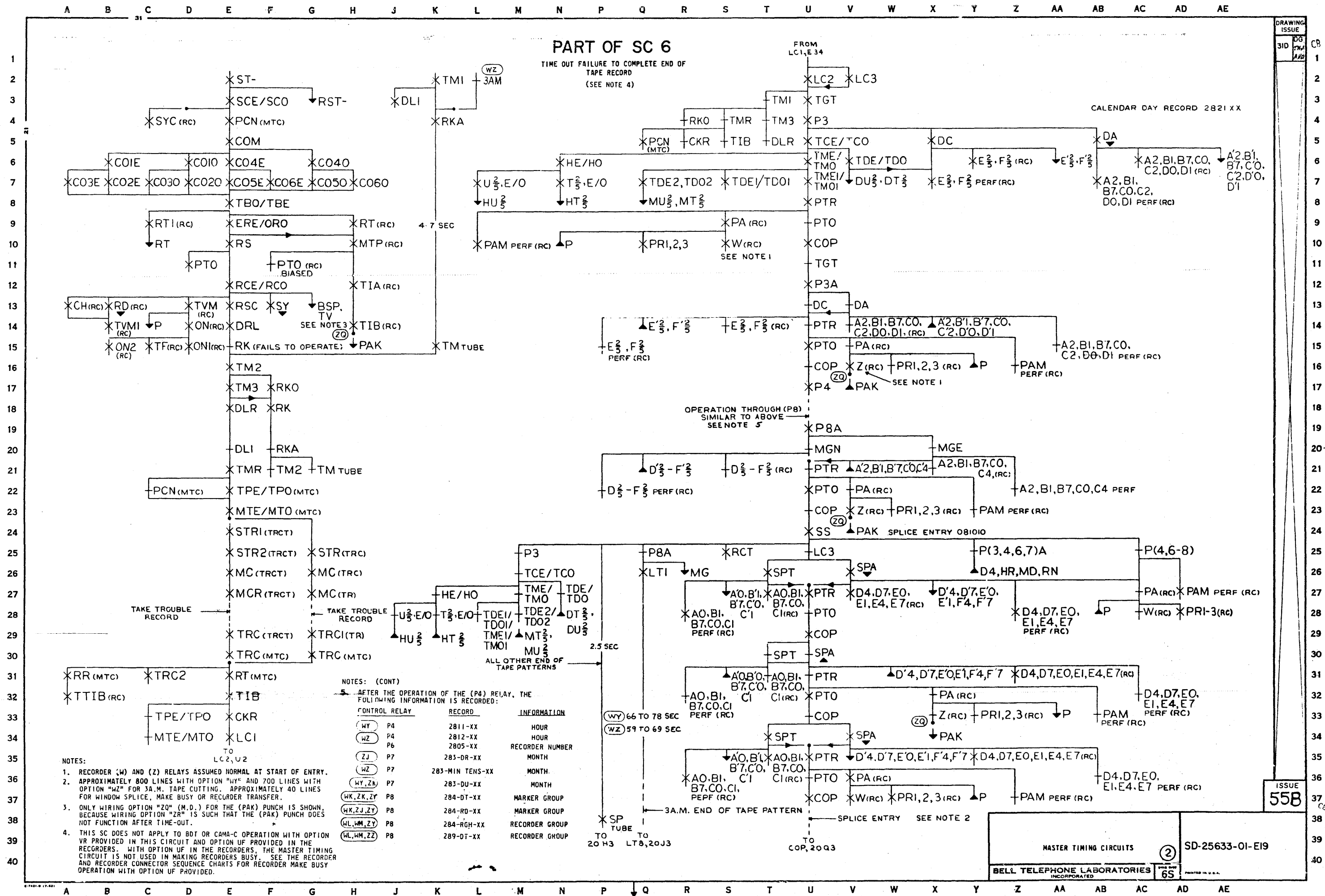
PART OF SC 5

RECORDING OF END OF TAPE PATTERN
WINDOW SPLICE OR MAKE BUSY
(THIS SC DOES NOT APPLY TO BOT OR CAMA-C
OPERATION WITH OPTION VR PROVIDED IN THIS CIRCUIT
AND OPTION UF PROVIDED IN THE RECORDERS. WITH OPTION
UF IN THE RECORDERS, THE MASTER
TIMING CIRCUIT IS NOT USED IN MAKING RECORDERS BUSY.
SEE THE RECORDER AND RECORDER CONNECTOR SEQUENCE CHARTS
FOR RECORDER MAKE BUSY OPERATION WITH OPTION UF PROVIDED.)



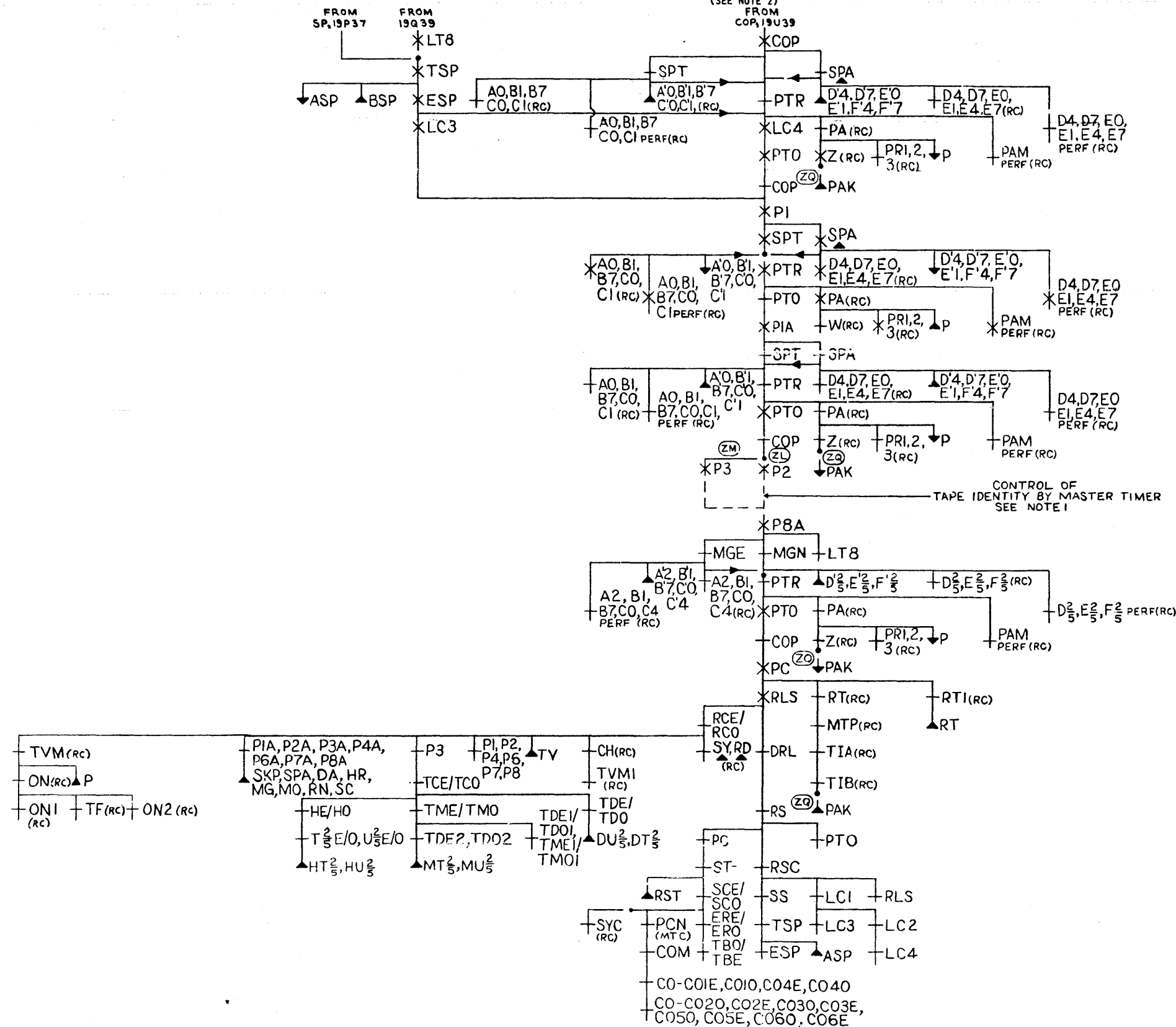
- NOTES:
1. AFTER RECORDER NUMBER PERFORATOR AND IN SUBSEQUENT PERFORATORS THE PAPER ADVANCE CHECK (PAC) RELAY OPERATION SHOWN ASSUMES THE RECORDER AND MASTER TIMER WERE IN SYNCHRONISM.

ISSUE
558



PART OF SC 6

TIMEOUT FAILURE TO COMPLETE
END OF TAPE RECORD
(SEE NOTE 2)



NOTES:

1. AFTER (P2) OR (P3) RELAY OPERATES, THE FOLLOWING INFORMATION IS RECORDED:

CONTROL RELAY	RECORD	INFORMATION
(ZL) P2	286000	SKIP SPLICE PATTERN
(ZM) P3	2821-XX	DAY
P4	2811-XX	HOURLY
(WZ) P4	2812-XX	HOURLY
P6	2805-XX	RECORDING NUMBER
P7	283-00-XX	MONTH
(WY, ZJ) P7	283-00-XX	MONTH
(WZ) P7	283-MIN-TENS-XX	MONTH
(WK, ZK, ZY) P8	284-0T-XX	MARKER
(WK, ZJ, ZY) P8	284-RD-XX	MARKER
(WL, AM, ZY) P8	284-RGH-XX	MARKER
(WL/AM), ZZ P8	289-0T-XX	RECORDED
(WK, ZJ, ZZ) P8	289-RD-XX	RECORDED
(WL/AM), ZZ P8	289-RGH-XX	RECORDED

2. THIS SC DOES NOT APPLY TO BDT OR CANA-C OPERATION WITH OPTION VR PROVIDED IN THIS CIRCUIT AND OPTION UP PROVIDED IN THE RECORDERS. WITH OPTION UP IN THE RECORDERS, THE MASTER TIMING CIRCUIT IS NOT USED IN MAKING RECORDERS BUSY. SEE THE RECORDER AND RECORDER CONNECTOR SEQUENCE CHARTS FOR RECORDER MAKE BUSY OPERATION WITH OPTION UP PROVIDED.

ISSUE
55B

MASTER TIMING CIRCUIT

SD-25633-01-E20

BELL TELEPHONE LABORATORIES
INCORPORATED

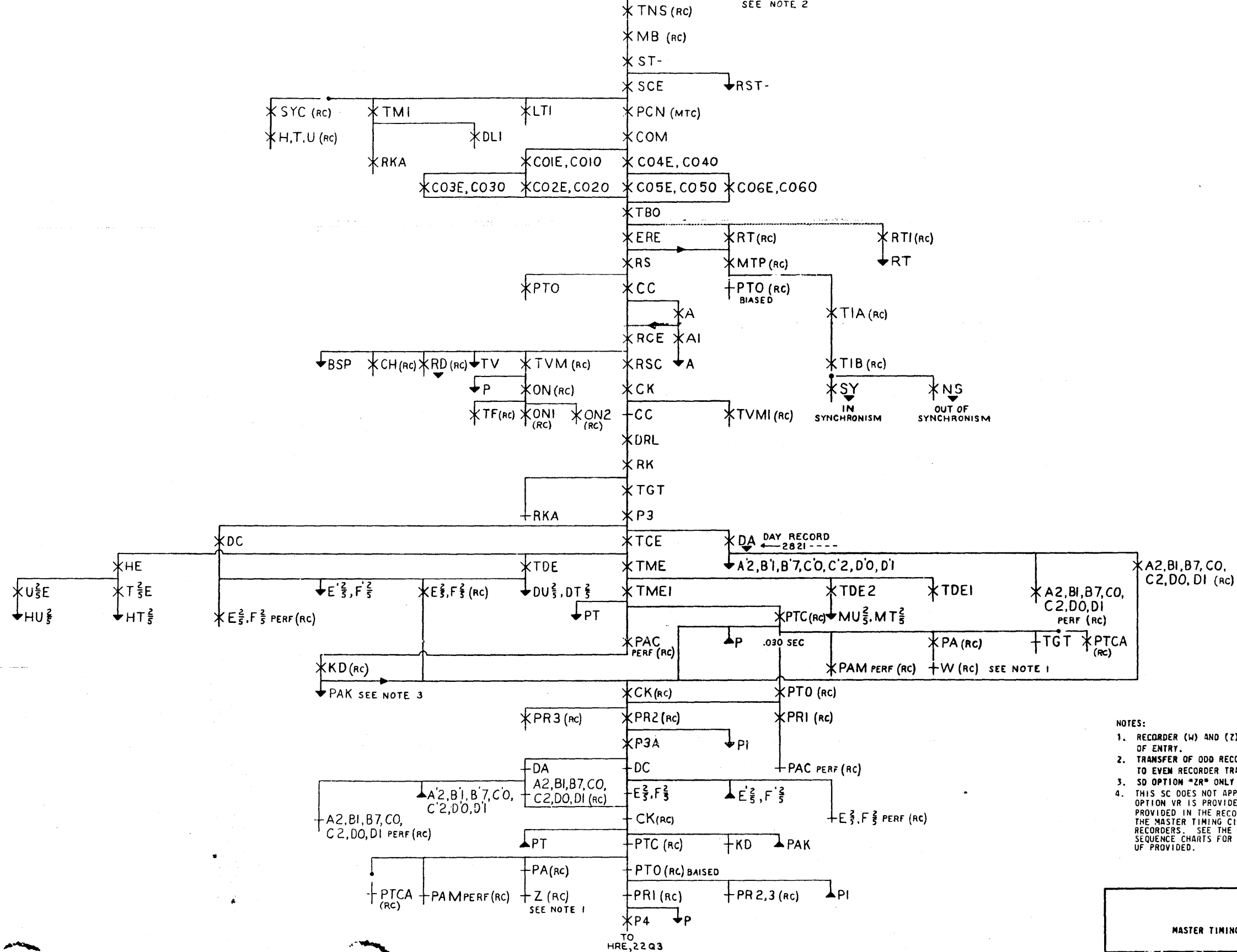
65

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RECORDING OF END OF TAPE PATTERN RECORDER TRANSFER
(SEE NOTE 4)

INSERT PLUG IN
TRANSFER JACK (TN)

EVEN RECORDER TO
EMERGENCY RECORDER
SEE NOTE 2



1. RECORDER (W) AND (Z) RELAYS ASSUMED OPERATED AT START OF ENTRY.
2. TRANSFER OF ODD RECORDER TO EMERGENCY RECORDER IS SIMILAR TO EVEN RECORDER TRANSFER.
3. SD OPTION "ZR" ONLY IS SHOWN FOR "PAK".
4. THIS SC DOES NOT APPLY TO BDT OR CAMA-C OPERATION WHEN OPTION VR IS PROVIDED IN THIS CIRCUIT AND OPTION UF IS PROVIDED IN THE RECORDERS. WITH OPTION UF IN THE RECORDERS THE MASTER TIMING CIRCUIT IS NOT USED IN TRANSFERRING RECORDERS. SEE THE RECORDER "ND RECORDER CONNECTOR CIRCUIT SEQUENCE CHARTS FOR RECORDER TRANSFER OPERATION WITH OPTION UF PROVIDED.

ISSUE
55B

SD-25633-01-E21

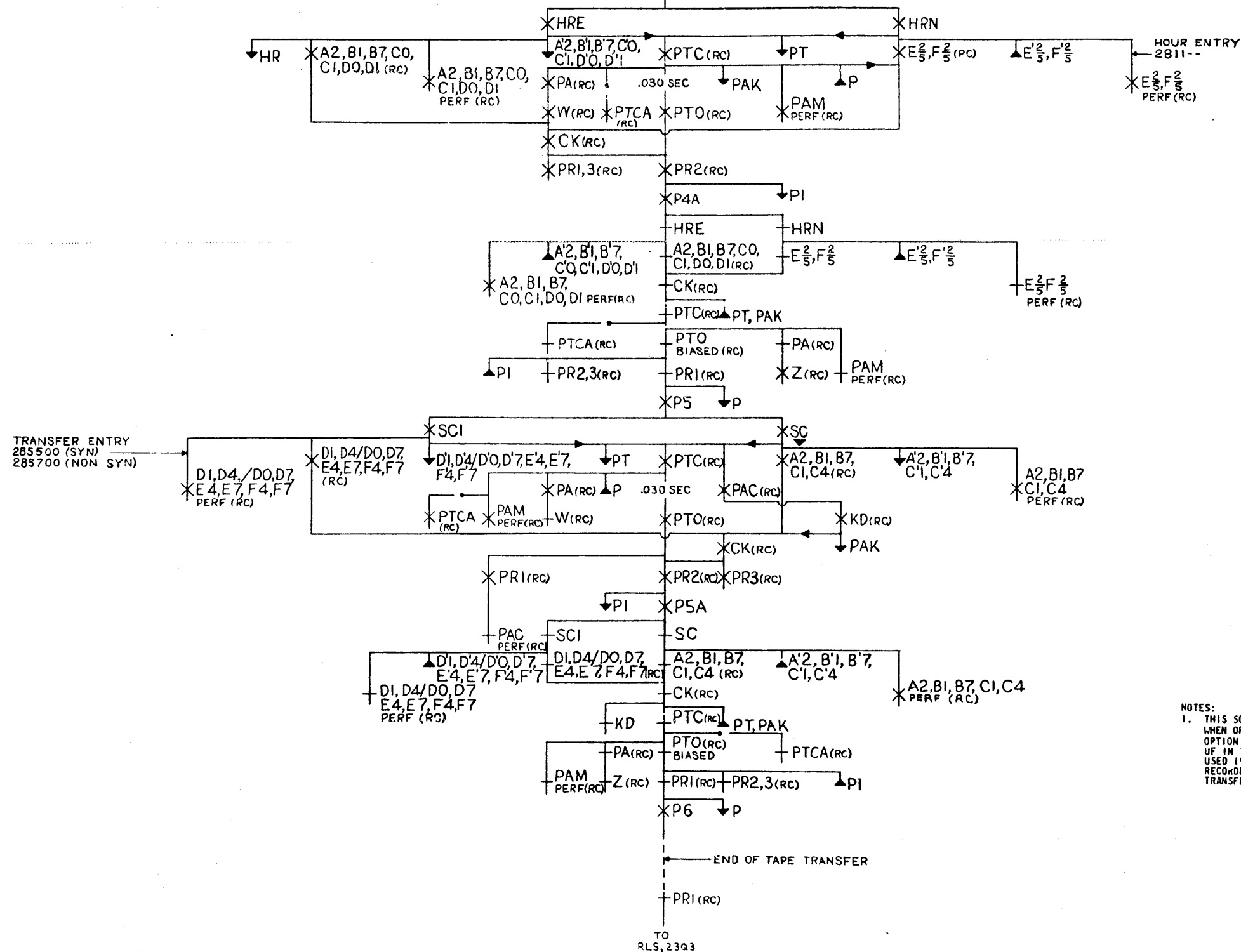
BELL TELEPHONE LABORATORIES
INCORPORATED

65

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PART OF SC 7

RECORDING OF END OF TAPE PATTERN
RECORDER TRANSFER
(SEE NOTE 1)
FROM
P4, 21P 39



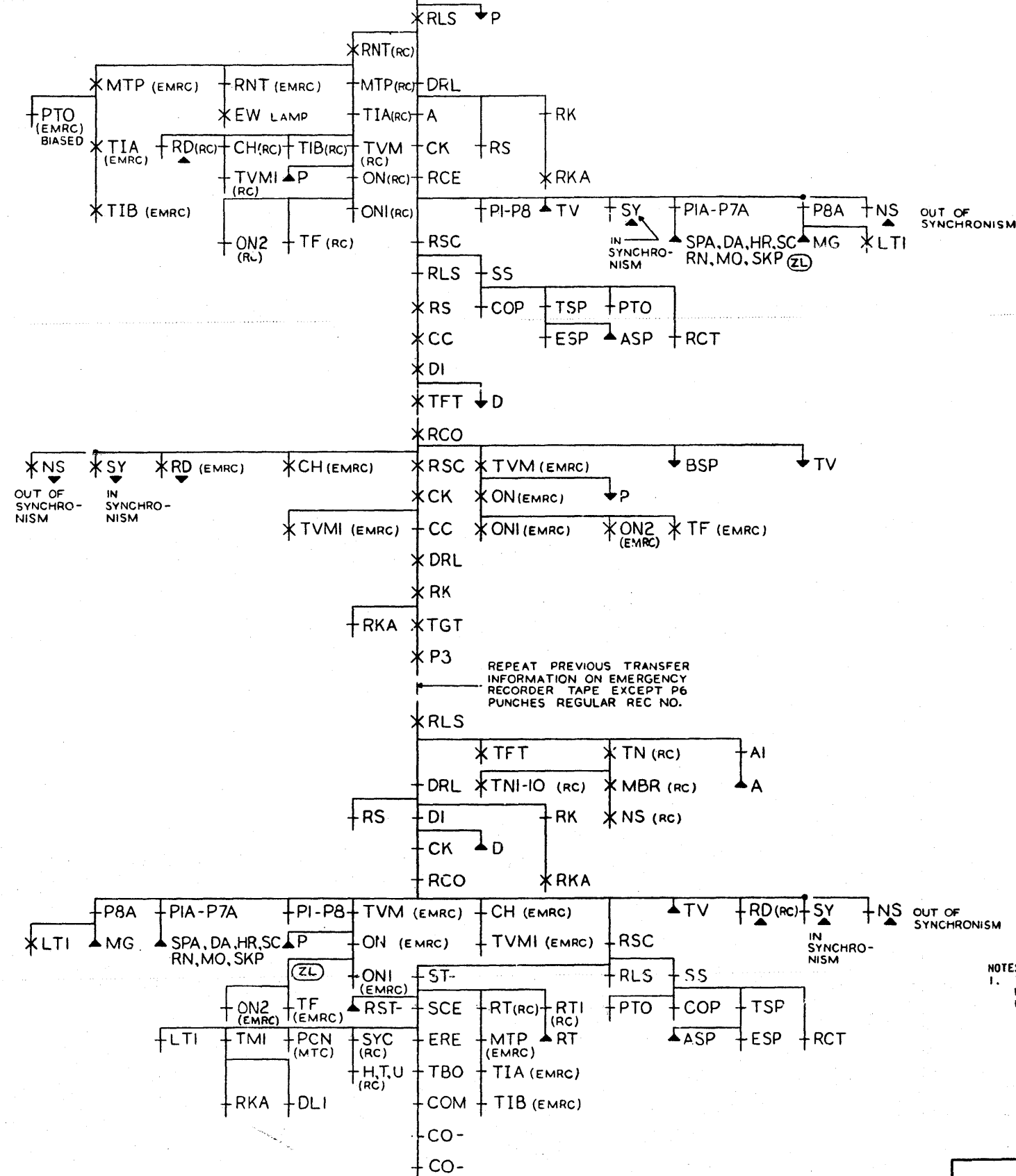
NOTES:
1. THIS SC DOES NOT APPLY TO BDT OR CAMA-C OPERATION WHEN OPTION VR IS PROVIDED IN THIS CIRCUIT AND OPTION UP IS PROVIDED IN THE RECORDERS. WITH OPTION UP IN THE RECORDERS, THE MASTER TIMING CIRCUIT IS NOT USED IN TRANSFERRING RECORDERS. SEE THE RECORDER AND RECORDER CONNECTOR CIRCUIT SEQUENCE CHARTS FOR RECORDER TRANSFER OPERATION WITH OPTION UP PROVIDED.

DRAWING
ISSUE
55B

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 7

RECORDING OF END OF TAPE PATTERN RECORDER TRANSFER
(SEE NOTE 1)
FROM PRI, 22Q34



NOTES:
1. THIS SC DOES NOT APPLY TO BDT OR CMA-C OPERATION WHEN OPTION VR IS PROVIDED IN THIS CIRCUIT AND OPTION UF IS PROVIDED IN THE RECORDERS. WITH OPTION UF IN THE RECORDERS, THE MASTER TIMING CIRCUIT IS NOT USED IN TRANSFERRING RECORDERS. SEE THE RECORDER AND RECORDER CONNECTOR CIRCUIT SEQUENCE CHARTS FOR RECORDER TRANSFER OPERATION WITH OPTION UF PROVIDED.

DRAWING
31D
EM
TNA
AND

CB
1
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ISSUE
55B

MASTER TIMING CIRCUIT

2

SD-25633-01-E23

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

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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

SD-25633-01-E23

RECORDING OF END OF TAPE PATTERN
RECORDER TRANSFER

(THIS SC DOES NOT APPLY TO BDT OR CAMA-C OPERATION WHEN OPTION VR IS PROVIDED IN THIS CIRCUIT AND OPTION U IS PROVIDED IN THE RECORDERS. WITH OPTION U IN THE RECORDERS, THE MASTER TIMING CIRCUIT IS NOT USED IN TRANSFERRING RECORDERS. SEE THE RECORDER AND RECORDER CONNECTOR CIRCUIT SEQUENCE CHARTS FOR RECORDER TRANSFER OPERATION WITH OPTION U PROVIDED.)

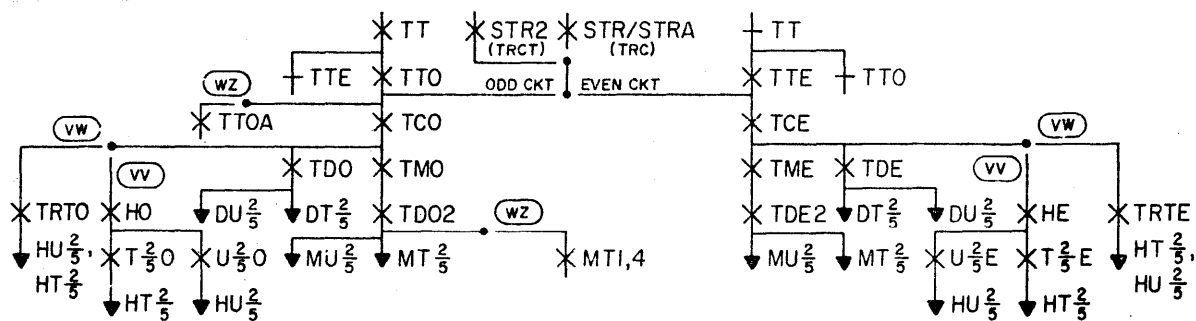
83



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 AR AC AD AE

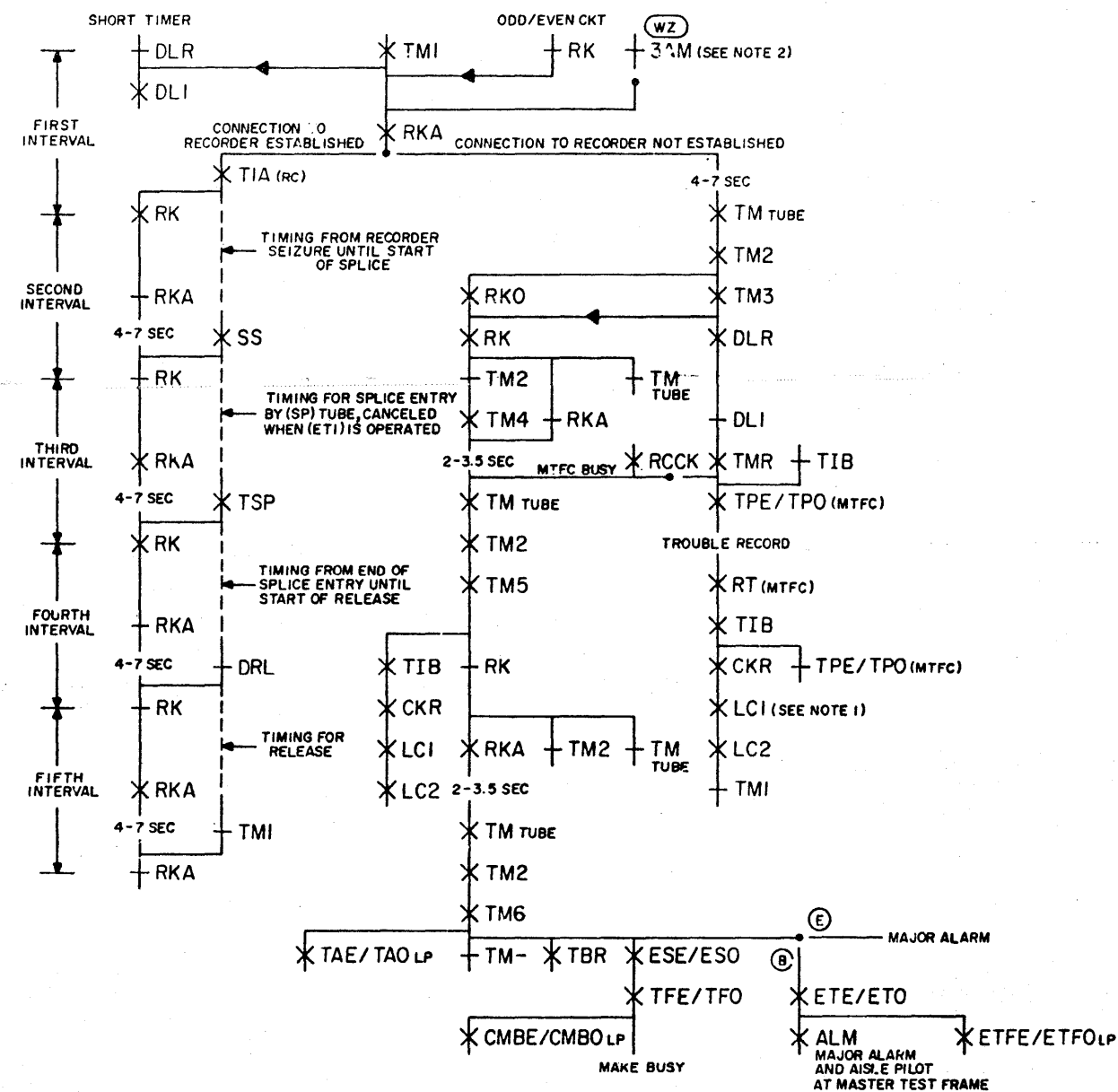
SC 8

TIME TO MASTER TEST FRAME
OR TROUBLE RECORDER FRAME



PART OF SC 9

SHORT AND LONG TIMERS AND SEIZURE
OF TROUBLE RECORDER
(TIME OUT AND TROUBLE)



NOTES:

1. IF P LEAD IS GROUNDED FROM THE RECORDER, THE (LC1) RELAY WILL OPERATE FOLLOWING (CKR) WITHOUT WAITING FOR SECOND TIME OUT TO RELEASE (RK).
2. WITH OPTION WZ, SHORT PERIOD TIMING IS CANCELED UNTIL END OF TAPE "INHIBIT" CEASES.

ISSUE
52B

MASTER TIMING CIRCUIT

SD-25633-01-E25A

BELL TELEPHONE LABORATORIES

6S

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PART OF SC 9 SHORT AND LONG TIMERS AND SEIZURE OF TROUBLE RECORDER (TIME OUT AND TROUBLE)

SEE NOTE 1

SEE NOTE 1

SEE NOTE 1

AUXILIARY
LONG TIMER

ODD/EVEN CKT

NOTES:

1. (TMP) RELAY OPERATES EVERY 12 SECONDS WITH OPTION WY AND EVERY 10 SECONDS WITH OPTION WZ FROM CLOSURE THROUGH THE (U) SELECTOR, ARC 4 AND THROUGH (UA-UD) RELAY COUNTER, RESPECTIVELY.
2. (LTA) OPERATES ON EVERY THIRD ADVANCE OF THE (T) SELECTOR.
3. RELAY ACTION IS THE SAME AS THAT FOLLOWING THE OPERATION OF THE TM-6 ON THE SHORT TIMER, EXCEPT FOR THE RELEASE OF (M-) RELAYS.

MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

SD-25633-01-E25B

ISSUE
49B

PART OF SC 10

(WZ) TRANSFER OF TIMERS
AND GENERATION OF PULSES

(WZ) TRANSFER TIMERS IN SYNCHRONISM (SEE NOTE 1)

(WZ) TRANSFER TIMERS OUT
OF SYNCHRONISM
(SEE NOTE 1)

(WZ) EVEN TMR

EVEN TO ODD

EVEN TO ODD

0.25 SEC

0.66 SEC

ONE CYCLE
6 SEC

2.76 SEC

NOTES:

1. SEQUENCE IS SHOWN FOR EVEN TO ODD TRANSFER ONLY. FOR ODD
TO EVEN TRANSFER REFER TO SIMILAR SEQUENCE SHOWN FOR OPTION WY.

ISSUE
49B

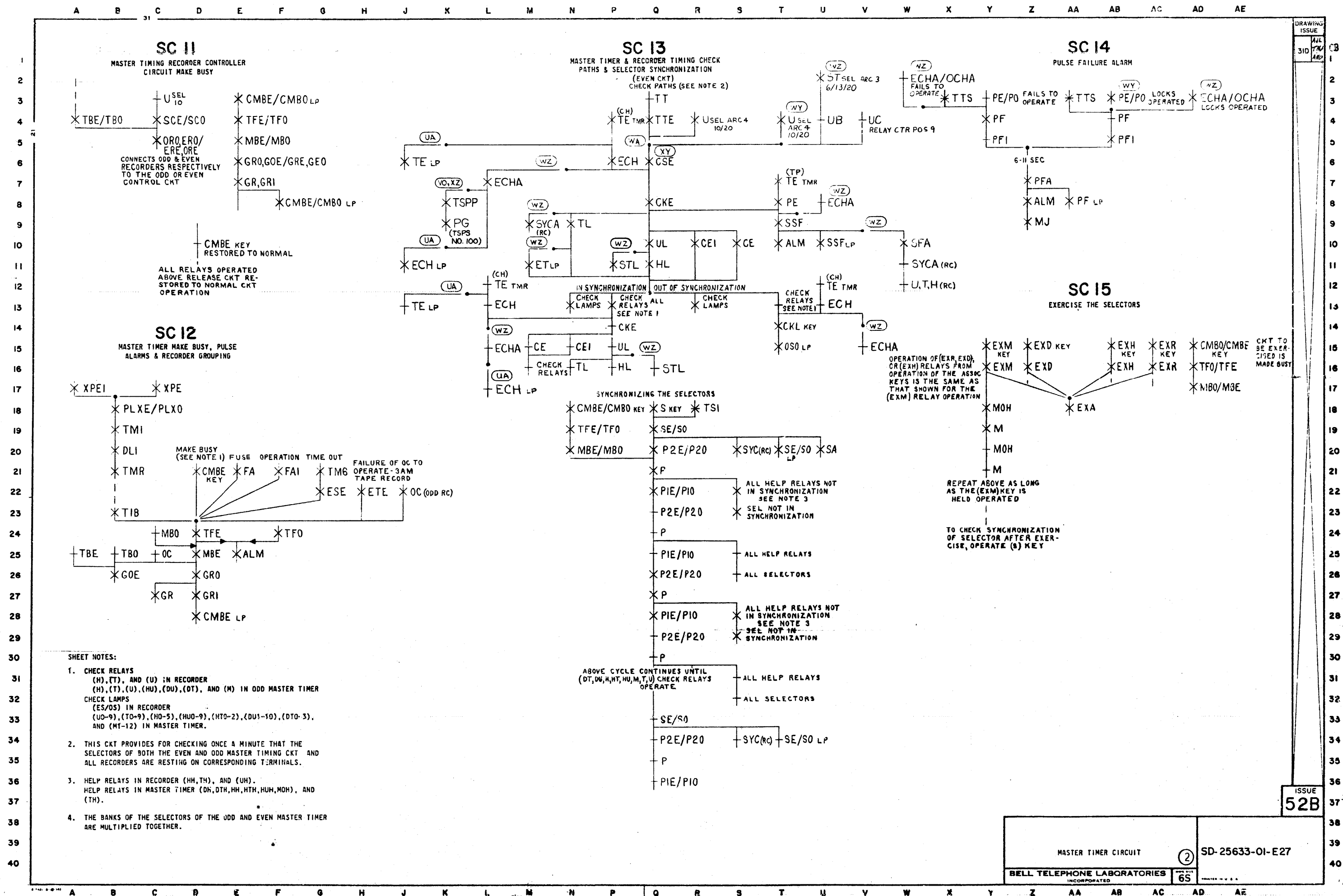
MASTER TIMING CIRCUIT

SD-25633-01-E26B

BELL TELEPHONE LABORATORIES
INCORPORATED

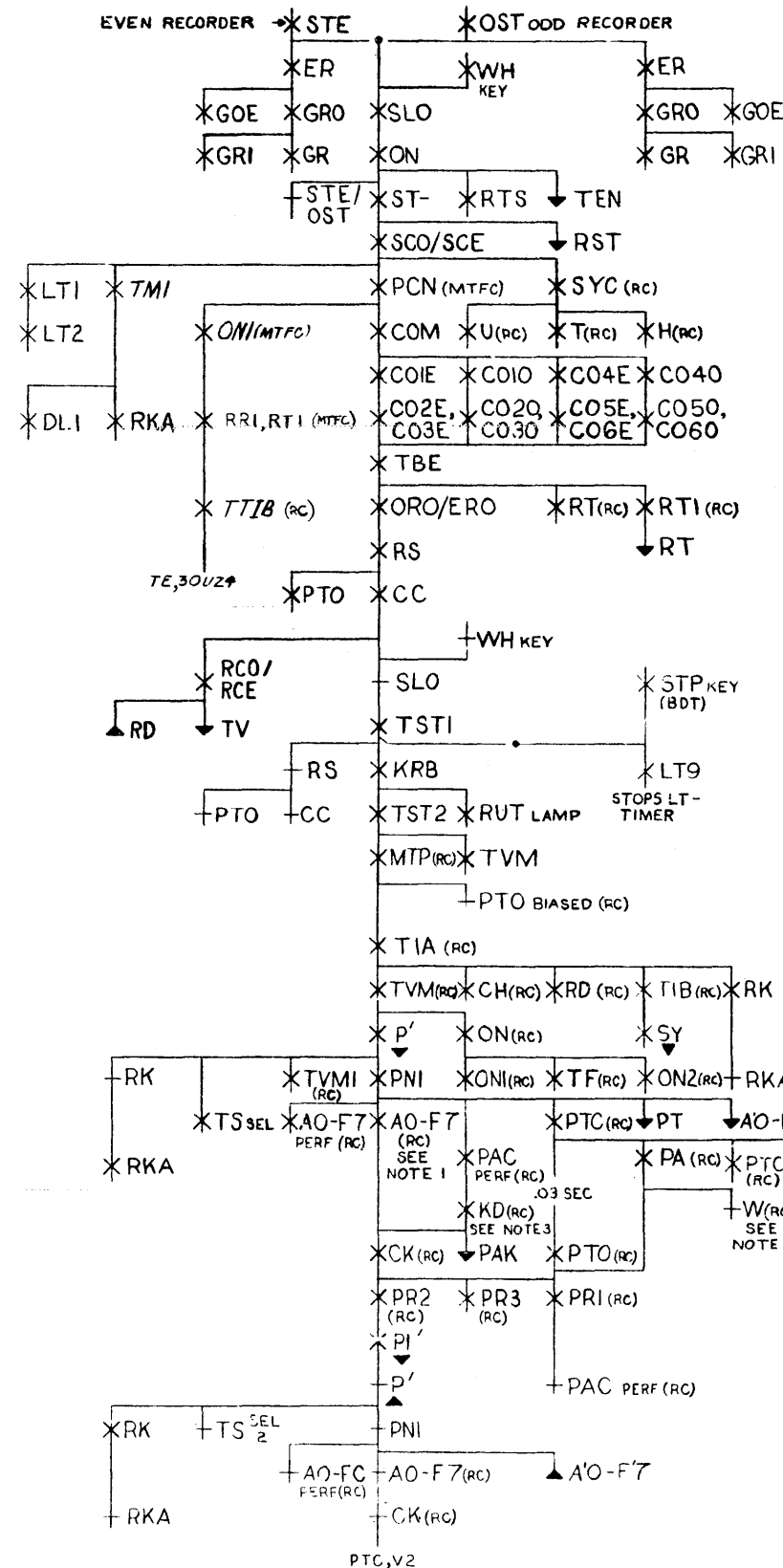
6S

PRINTED IN U.S.A.



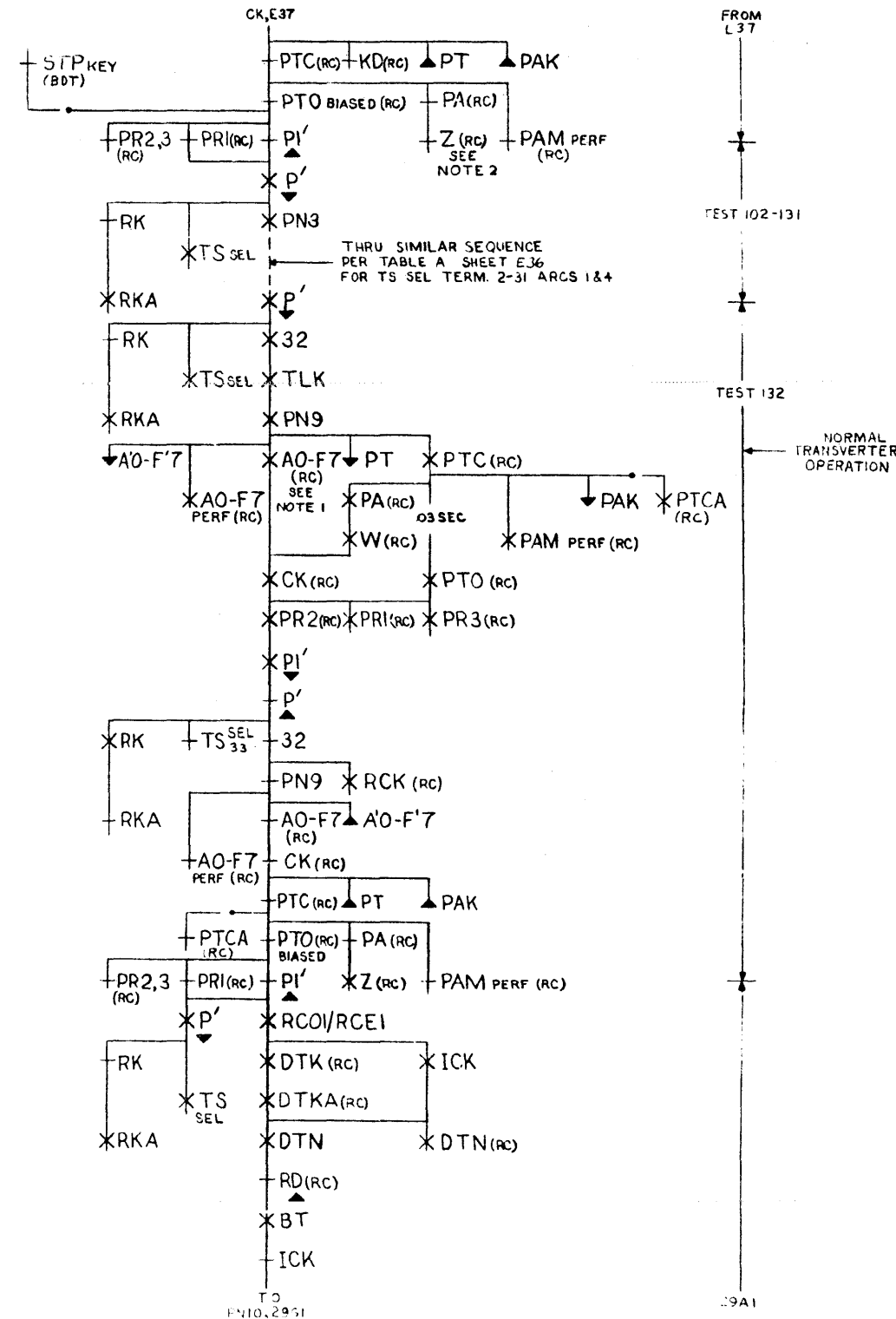
MAKE RECORDER BUSY
MAKE BUSY PLUG IN REC JACK (TST) PLUG OF 32A TEST SET IN JACK (R) OF MASTER TIMER

PART OF SC 16 AMA RECORDER TEST RECORDER OF TEST GROUP ENTRY (FOR BDT AND CMA-C TYPICAL RECORDING OPERATION WITH PERFORATOR REMOVED SEE SC 22 AND SC 23)



TEST 101
TEST OF PERFORATOR LEAD
TO AB2

- NOTES:
1. SEE TABLE A ON SHEET E36.
 2. ASSUME W(RC) & Z(RC) RELAYS OPERATED AT BEGINNING OF TEST.
 3. THE STANDARD ARRANGEMENT, OPTION ZR(RC), ONLY IS SHOWN.



DRAWING
ISSUE
310
350
378

ISSUE
55B

MASTER TIMING CIRCUIT

SD-25633-01-E28

BELL TELEPHONE LABORATORIES
INCORPORATED

65

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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

FROM
23AB34

FROM
ICK, 28W35

PART OF SC 16

AMA RECORDER TEST
RECORDER OF TEST GROUP ENTRY
(FOR BOT AND CMA-C TYPICAL RECORDING
OPERATION WITH PERFORATOR REMOVED
(SEE SC 22 AND SC 23)).

PN14, G37

A 39

TEST 133

TEST
134-136

TEST 137

TEST 138

THRU SIMILAR SEQUENCE
FOR PN11, 12, 13

NOTES:
1. SEE TABLE A ON SHEET E34

DTK (RC) FAILS TO HOLD

TO
DTN, 30F2

TO
30Q3

MASTER TIMING CIRCUIT

CELL TELEPHONE LABORATORIES
INCORPORATED

2

SD-25633-01-E29

ISSUE
55B

DRAWING
ISSUE
310 T/W
350 N/P

SD-25633-01-E29

RUWE
STABLE

PART OF SC 16

AM RECORDER TEST
RECORDER OF TEST GROUP ENTRY
(SEE NOTE 1)

FROM
39AE 37

TEST 138

TEST 139

TEST 140

AE 1

PTC, F37

Q39

TEST 140

TEST 141

TEST 142

TO
31Q2

CANCEL
ENTRY

ISSUE
55B

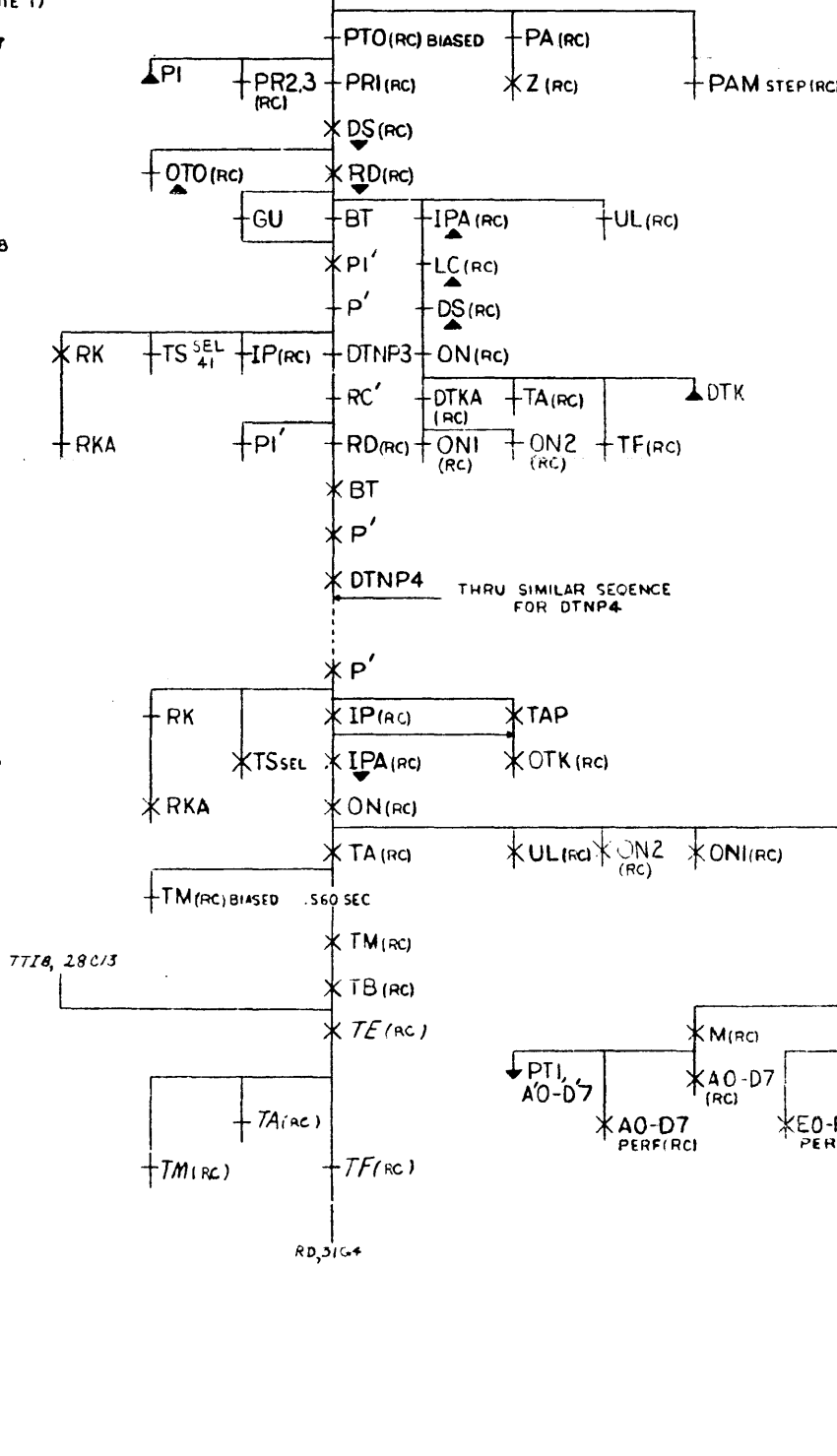
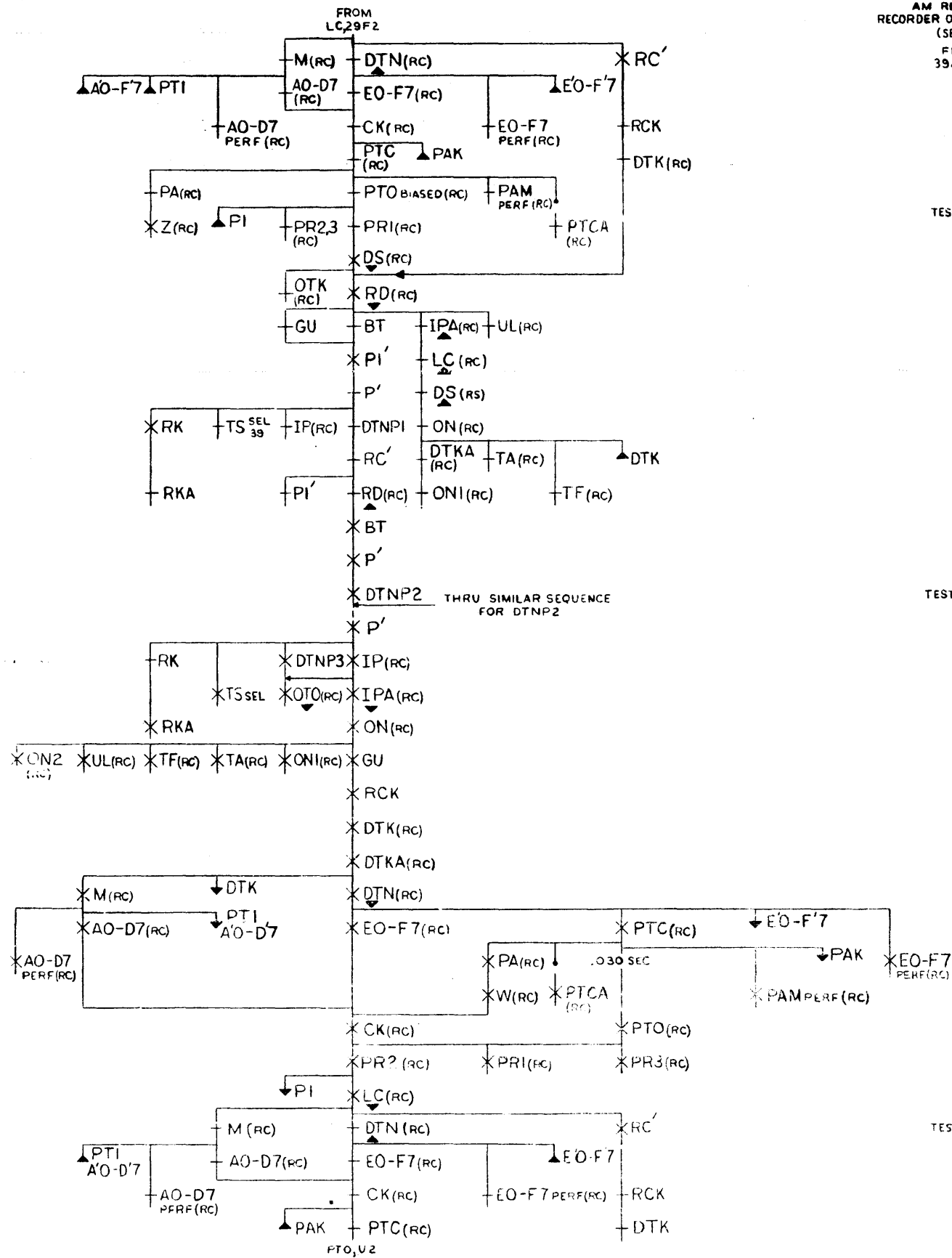
MASTER TIMING CIRCUIT

SD-25633-01-E30

BELL TELEPHONE LABORATORIES
INCORPORATED

65

NOTES:
1. FOR BDT AND CMA-C TYPICAL RECORDING
OPERATION WITH PERFORMER REMOVED (SEE
SC 22 AND SC 23)



DRAWING
ISSUE
51D 74
350 14
37B

ISSUE
55B

SD-25633-01-E30

STAB 10

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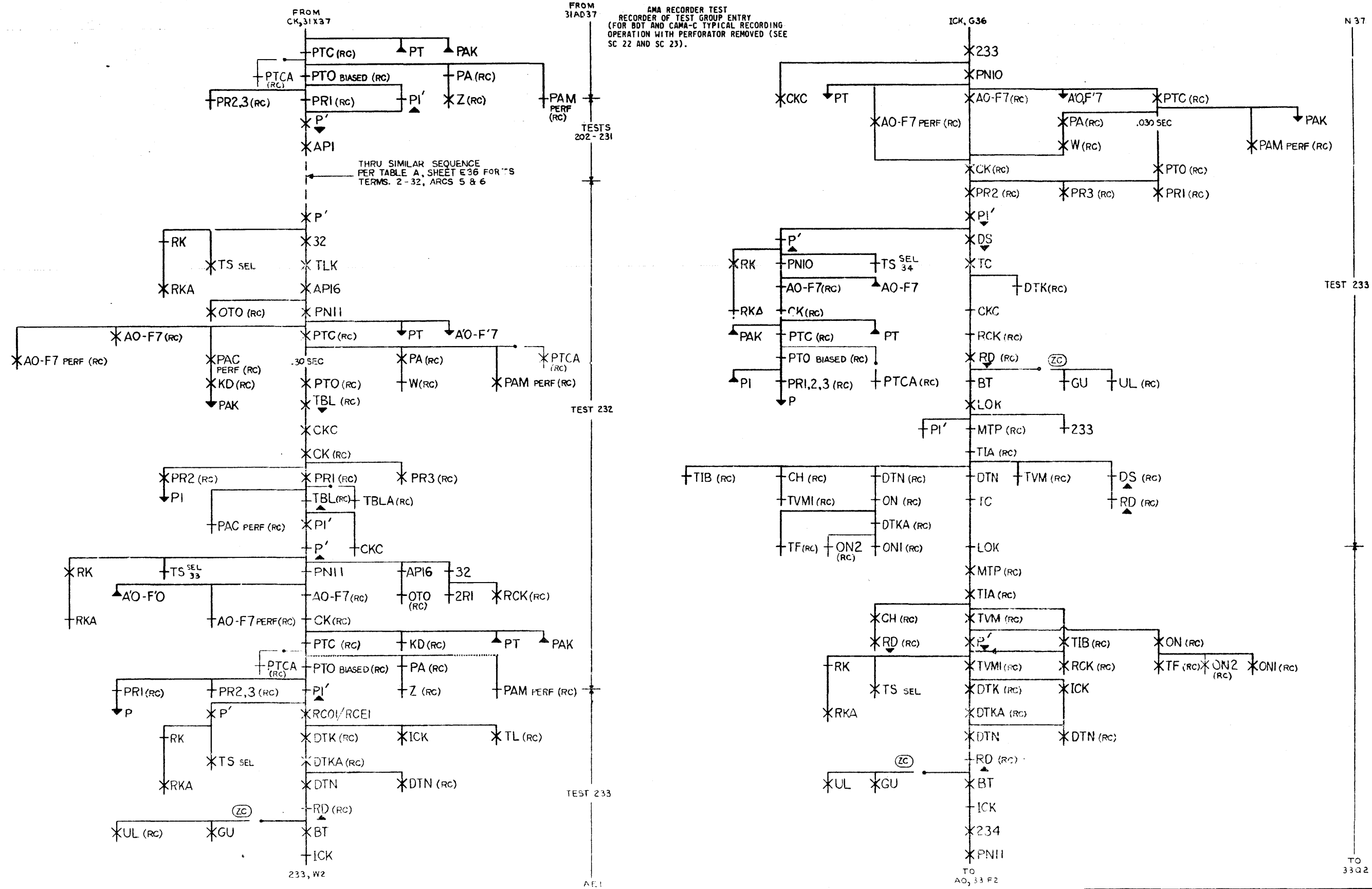
373

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 16

AMA RECORDER TEST
RECORDER OF TEST GROUP ENTRY
(FOR BOT AND CMA-C TYPICAL RECORDING
OPERATION WITH PERFORATOR REMOVED (SEE
SC 22 AND SC 23)).

DRAWING
ISSUE
310
350



ISSUE
558

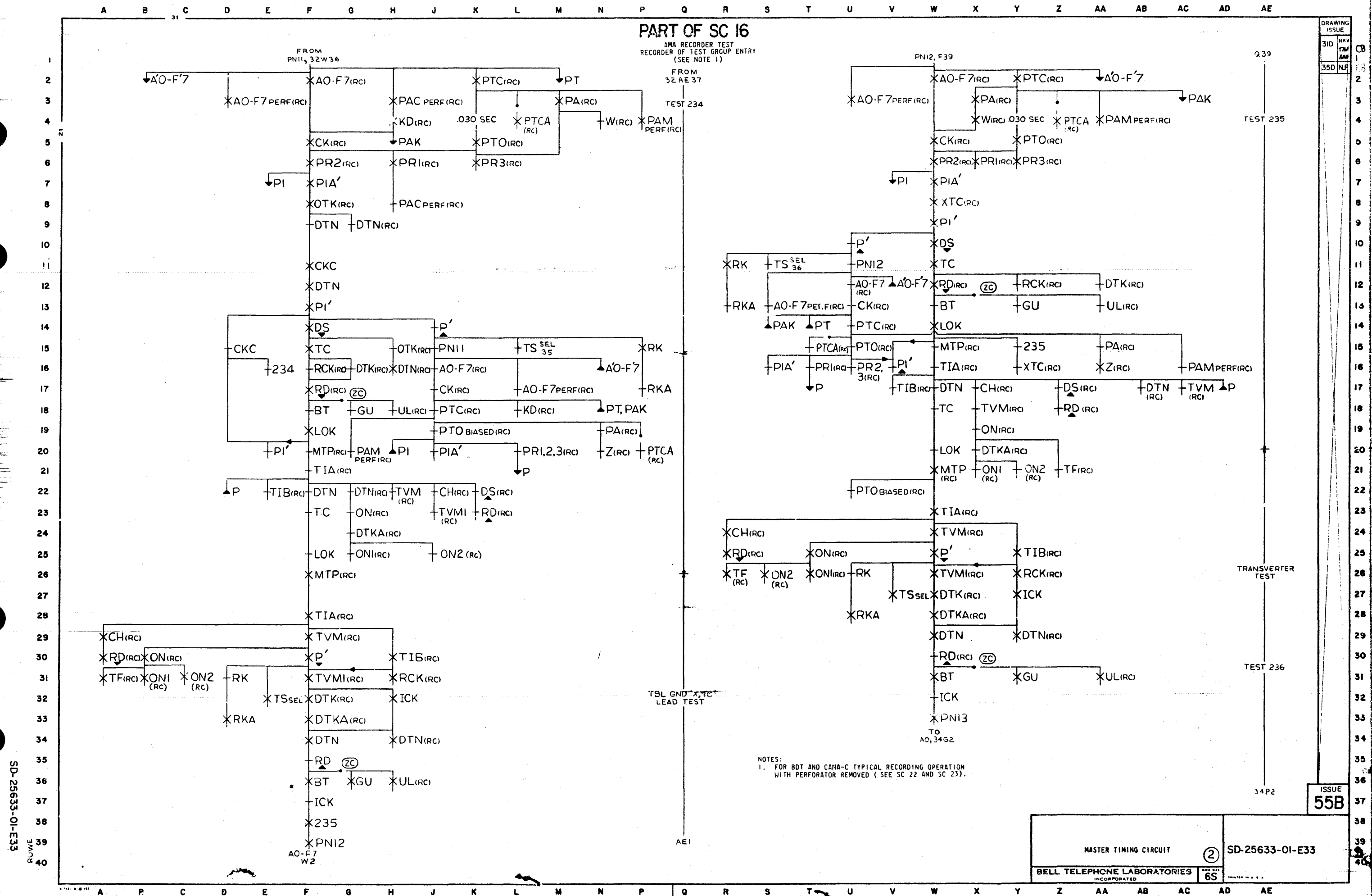
MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

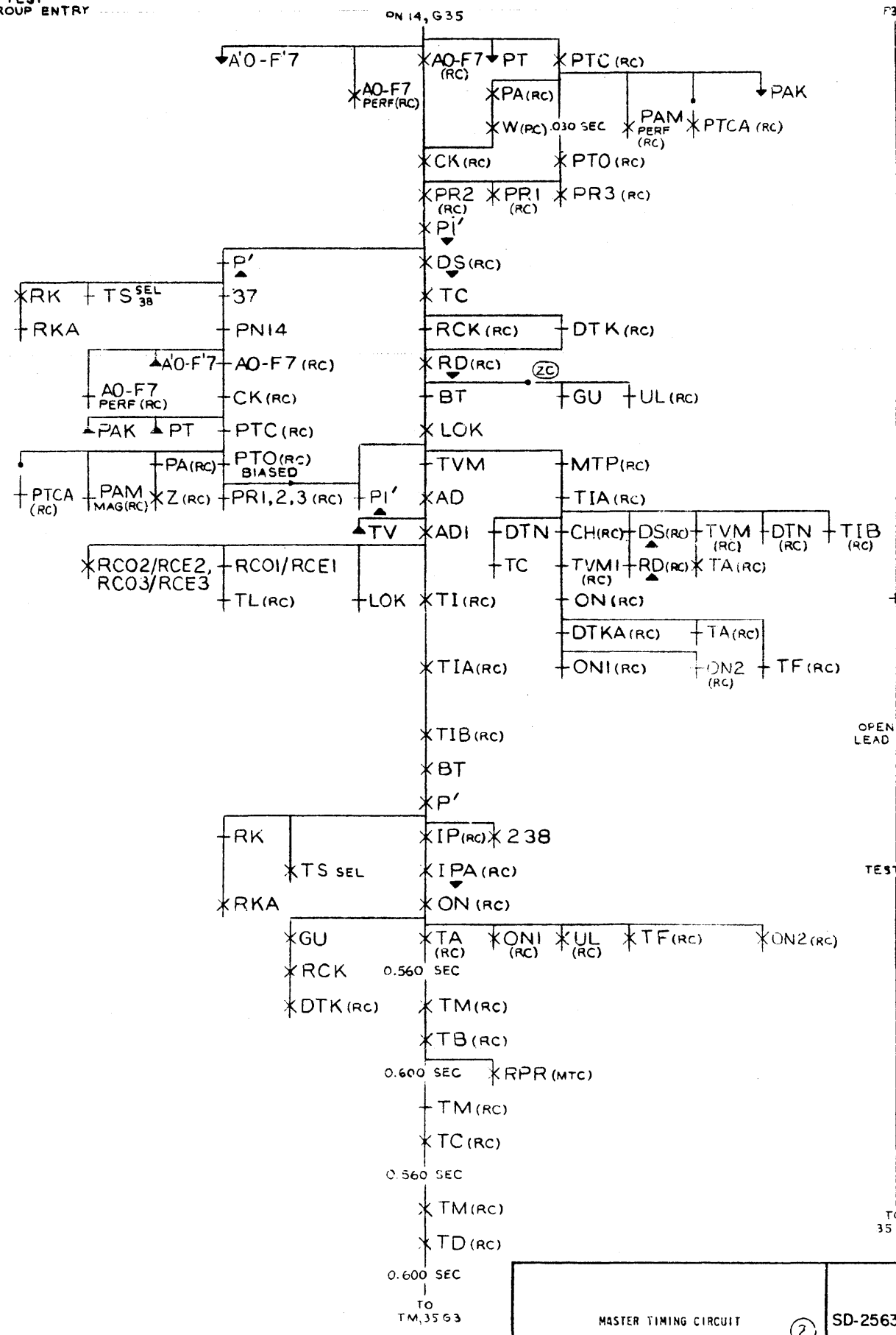
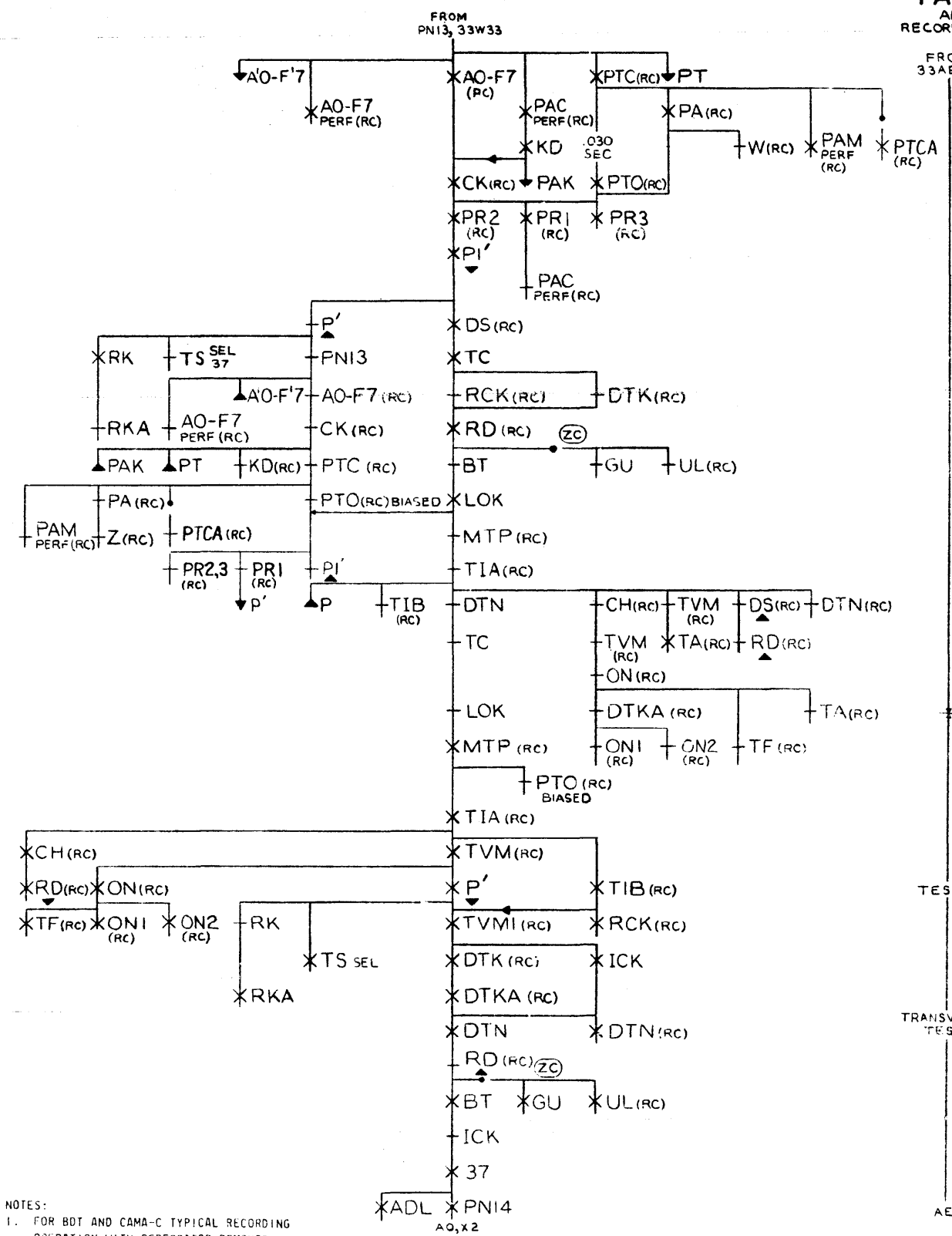
SD-25633-01-E32

6S

SD-25633-01-E32



PART OF SC 16 AMA RECORDER TEST RECORDER OF TEST GROUP ENTRY (SEE NOTE 1)



NOTES:
1. FOR BOT AND CMA-C TYPICAL RECORDING
OPERATION WITH PERFORATOR REMOVED
(SEE SC 22 AND SC 23).

TEST 237

TRANSVERTER
TEST

AEI

OPEN "T"
LEAD TEST

TEST 238

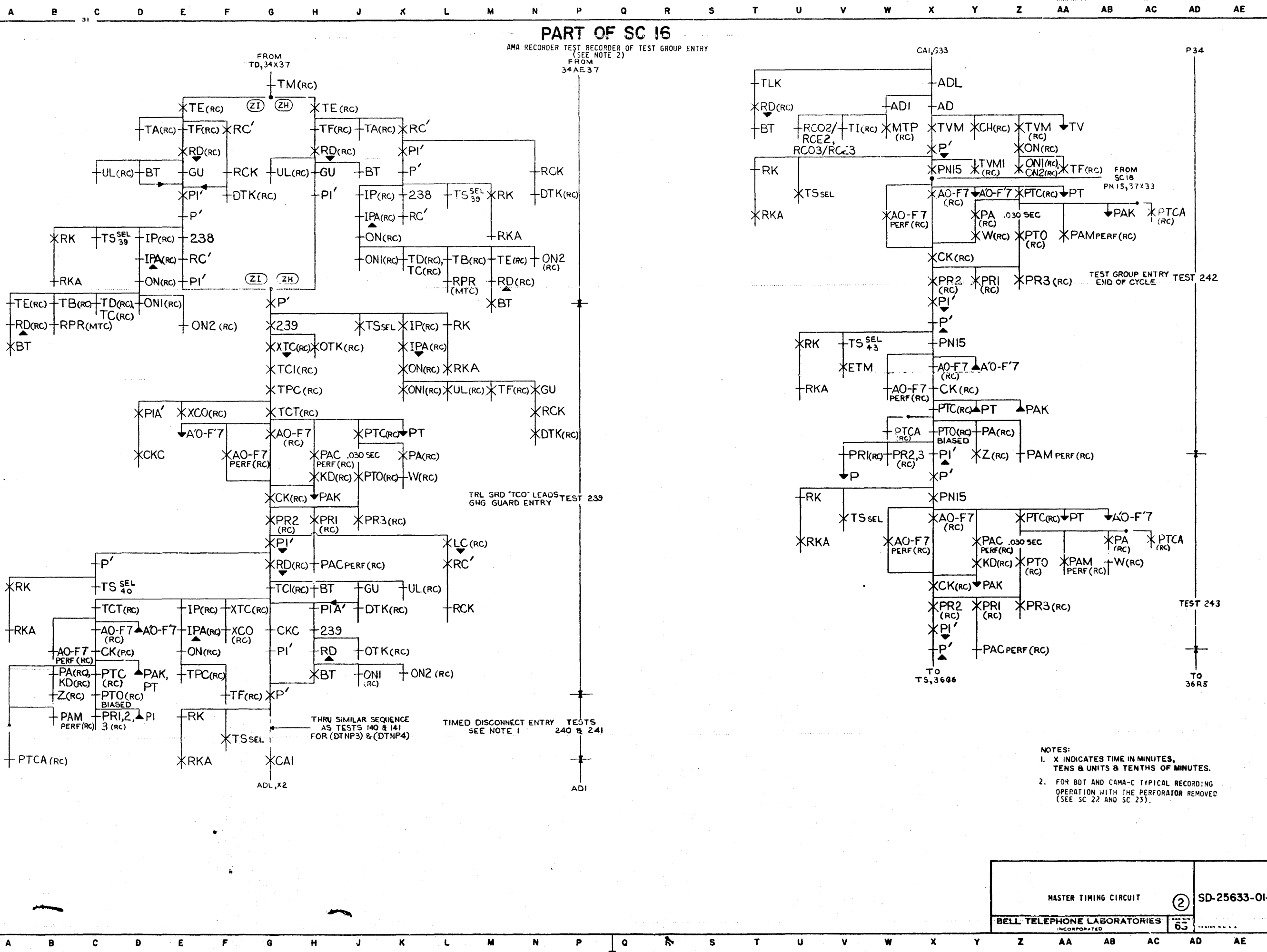
TO
35 PI

SD-25633-01-E34

DRAWING
ISSUE
310
350

PART OF SC 16

AMA RECORDER TEST RECORDER OF TEST GROUP ENTRY
(SEE NOTE 2)
FROM
34AE37



- NOTES:
1. X INDICATES TIME IN MINUTES, TENS & UNITS & TENTHS OF MINUTES.
 2. FOR BDT AND CMA-C TYPICAL RECORDING OPERATION WITH THE PERFORMER REMOVED (SEE SC 22 AND SC 23).

ISSUE
55B

MASTER TIMING CIRCUIT		②	SD-25633-01-E35
BELL TELEPHONE LABORATORIES INCORPORATED		65	

SD-25633-01-E35

STABLO

PART OF SC 16
AMA RECORDER TEST
RECORDER OF TEST GROUP ENTRY

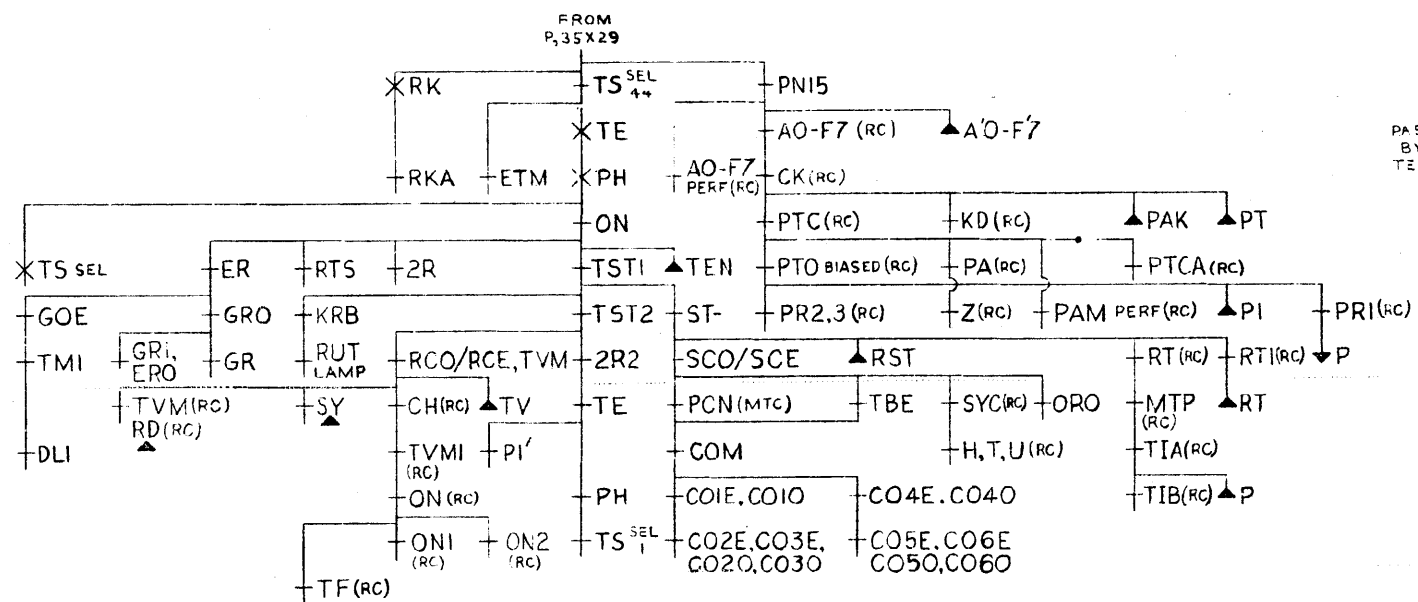


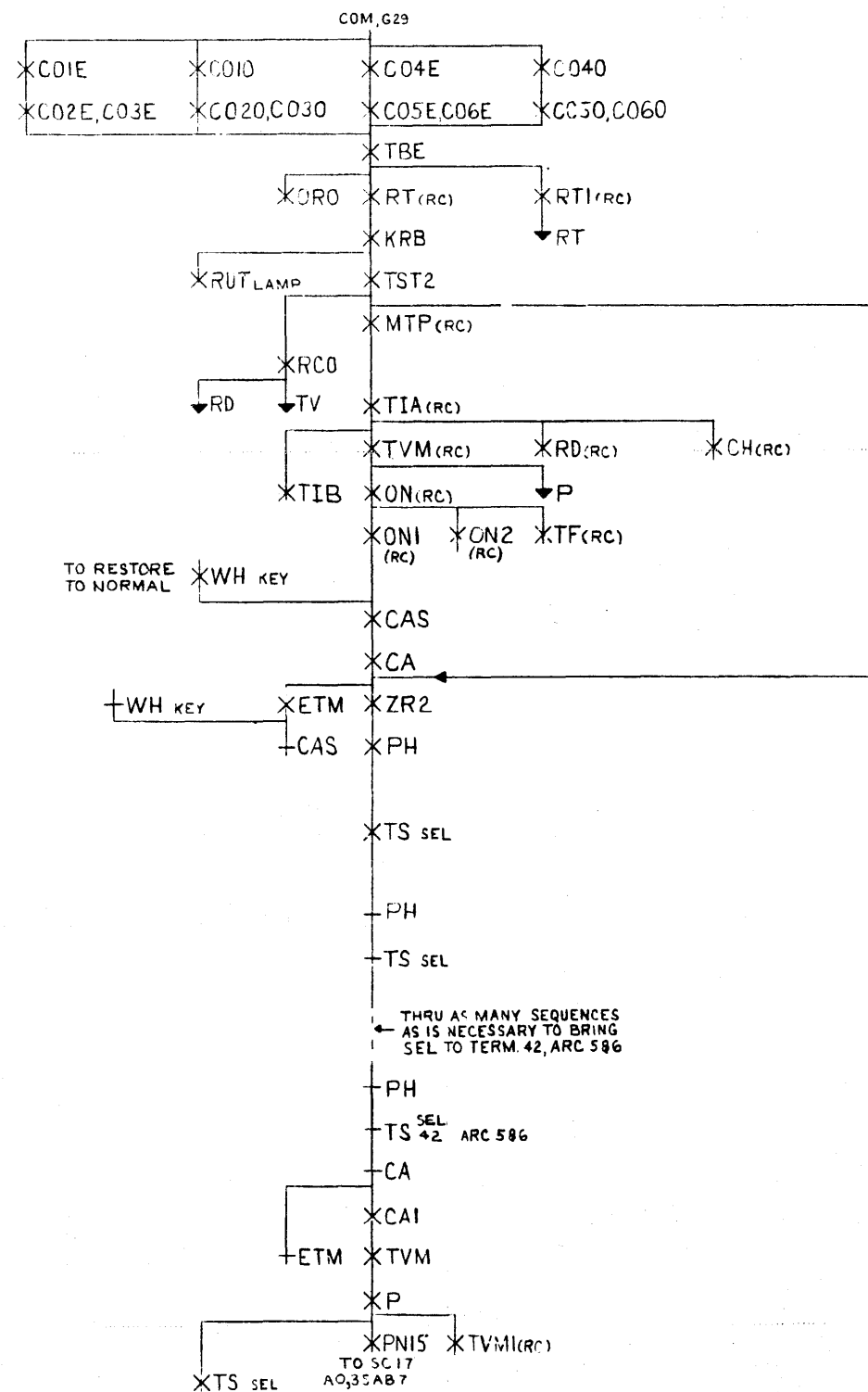
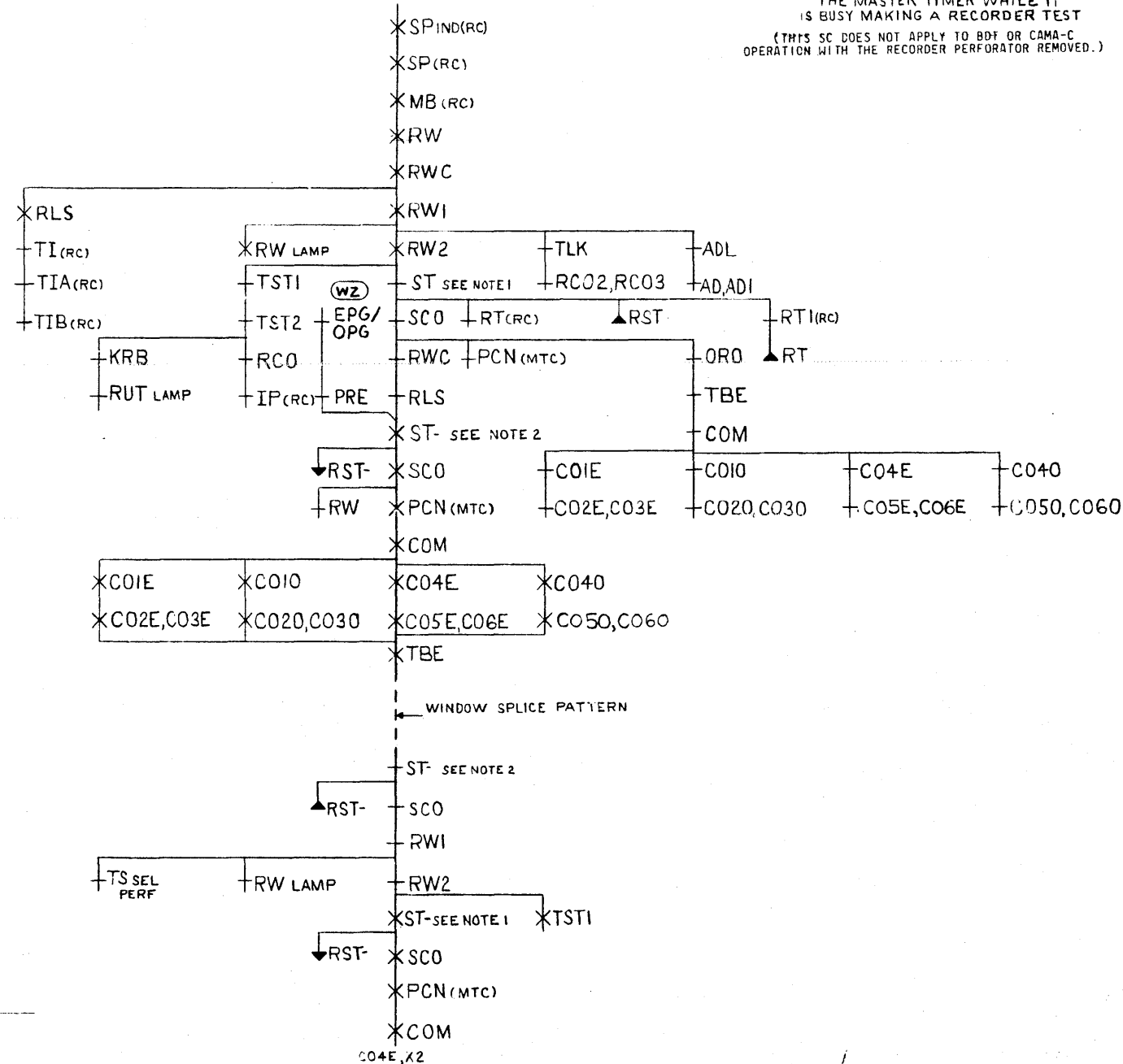
TABLE A																							
STEPPING MAGNET (TS) - TEST SELECTOR																							
TEST LEAD	TERMS ARCS 1 & 4	TEST NUMBER PERFORATED						PATTERN RELAYS			RECORDER CHECK RELAYS TESTED	TEST											
		A	B	C	D	E	F	AP REL	PN REL	DTNP REL													
101	1	0	0	1	0	1	0	1					80	FOR TROUBLE CROSSES IN CONTACTS OF CHECK RELAYS IN RECORDER									
102	2	2	3	3	3	3	3					80											
103	3	0	3	0	3	0	3	4				87											
104	4	1	1	6	1	6	1	5				80,81,82											
105	5	2	5	6	6	6	6	6				81,82,84											
106	6	0	6	1	6	1	6	7				82,84,87											
107	7	1	0	3	0	3	0	2				C0											
108	8	2	3	3	3	3	3					C7											
109	9	0	3	0	3	0	3	4				C0,C1,C2											
110	10	1	1	6	1	6	1	5				C1,C2,C4											
111	11	2	5	6	6	6	6	6				C2,C4,C7											
112	12	0	6	1	6	1	6	7				D0											
113	13	1	0	3	0	3	0	2				D7											
114	14	2	3	3	3	3	3					D0,D1,D2											
115	15	3	3	3	3	3	3	4				D1,D2,D4											
116	16	1	1	6	1	6	1	5				D2,D4,D7											
117	17	2	5	6	6	6	6	6				E0											
118	18	0	6	1	6	1	6	7				E7											
119	19	1	0	3	0	3	0	2				E0,E1,E2											
120	20	2	3	3	3	3	3	3				E1,E2,E4											
121	21	0	3	0	3	0	3	4				E2,E4,E7											
122	22	1	1	6	1	6	1	5				F0											
123	23	2	5	6	6	6	6	6				F7											
124	24	0	6	1	6	1	6	7				F0,F1,F2											
125	25	1	0	3	0	3	0	2				F1,F2,F4											
126	26	2	3	3	3	3	3	3				F2,F4,F7											
127	27	0	3	0	3	0	3	4				A0,A1											
128	28	1	1	6	1	6	1	5				A0,A2											
129	29	2	5	6	6	6	6	6				A1,A2											
130	30	0	6	1	6	1	6	7				A0,A1,A2											
131	31	1	7	5	7	5	7	8															
132	32	0	5	2	5	2	5	9				OTO											
133	33	2	2	7	2	7	2	10				RCK											
134	34	0	4	4	4	4	4	11				OTK											
135	35	1	8	8	8	8	8	12															
136	36	2	5	9	5	9	5	12				TBL GRD "XTC" LEAD											
137	37	1	9	5	9	5	9	14				TRANSVERTER											
138	38	1	X	X	X	X	X	1				OPEN "QT" LEAD											
139	39	1	X	X	X	X	X	2				TBL GRD "TCO" LEADS											
140	40	3	X	X	X	X	X	3				CHG GUARD ENTRY											
141	41	3	X	X	X	X	X	4				TIMED DISCONNECT ENTRY (SEE NOTE 1)											
142	42	1	X	X	X	X	X	0				TEST GROUP ENTRY											
		2	8	7	1	0	0					END OF CYCLE											
143	43											PASS BY											
144	44											PASS BY											

NOTES:
1. X INDICATES TIME IN MINUTES TENS & UNITS
A TENTHS OF MINUTES.
2. THIS SEL POS 42 CAUSES THE FAILURE OF THE
(CK) RELAY IN THE RECORDER.
3. ANY NUMBERS WITH A LINE THRU THEM INDICATE
THE NUMBER OF THE HOLE OR HOLES PERFORATED.

ISSUE
49B

SC 17

AMA RECORDER REQUESTS
THE MASTER TIMER WHILE IT
IS BUSY MAKING A RECORDER TEST
(THIS SC DOES NOT APPLY TO BDT OR CMA-C
OPERATION WITH THE RECORDER PERFORATOR REMOVED.)



NOTES
1. ASSOCIATED WITH RECORDER UNDER TEST.
2. ASSOCIATED WITH RECORDER REQUESTING
MASTER TIMER.

ISSUE
55B

MASTER TIMING CIRCUIT

SD-25633-01-E37

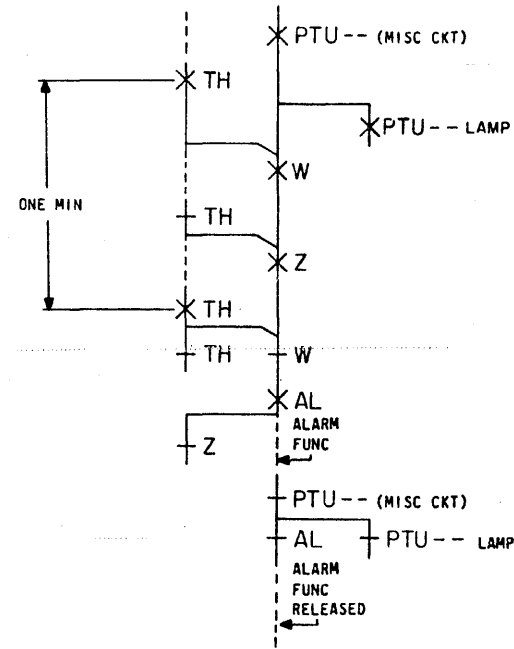
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INCORPORATED

2

65

STABLO A

SC 19
PAPER TAKE-UP ALARM
(THIS SC DOES NOT APPLY TO BDT OR CMA-C
OPERATION WITH THE RECORDER PERFORATOR REMOVED.)



DRAWING	ISSUE
348	PKJ
350	NLF

ISSUE
55B

MASTER TIMER CIRCUIT

SD-25633-01-E39

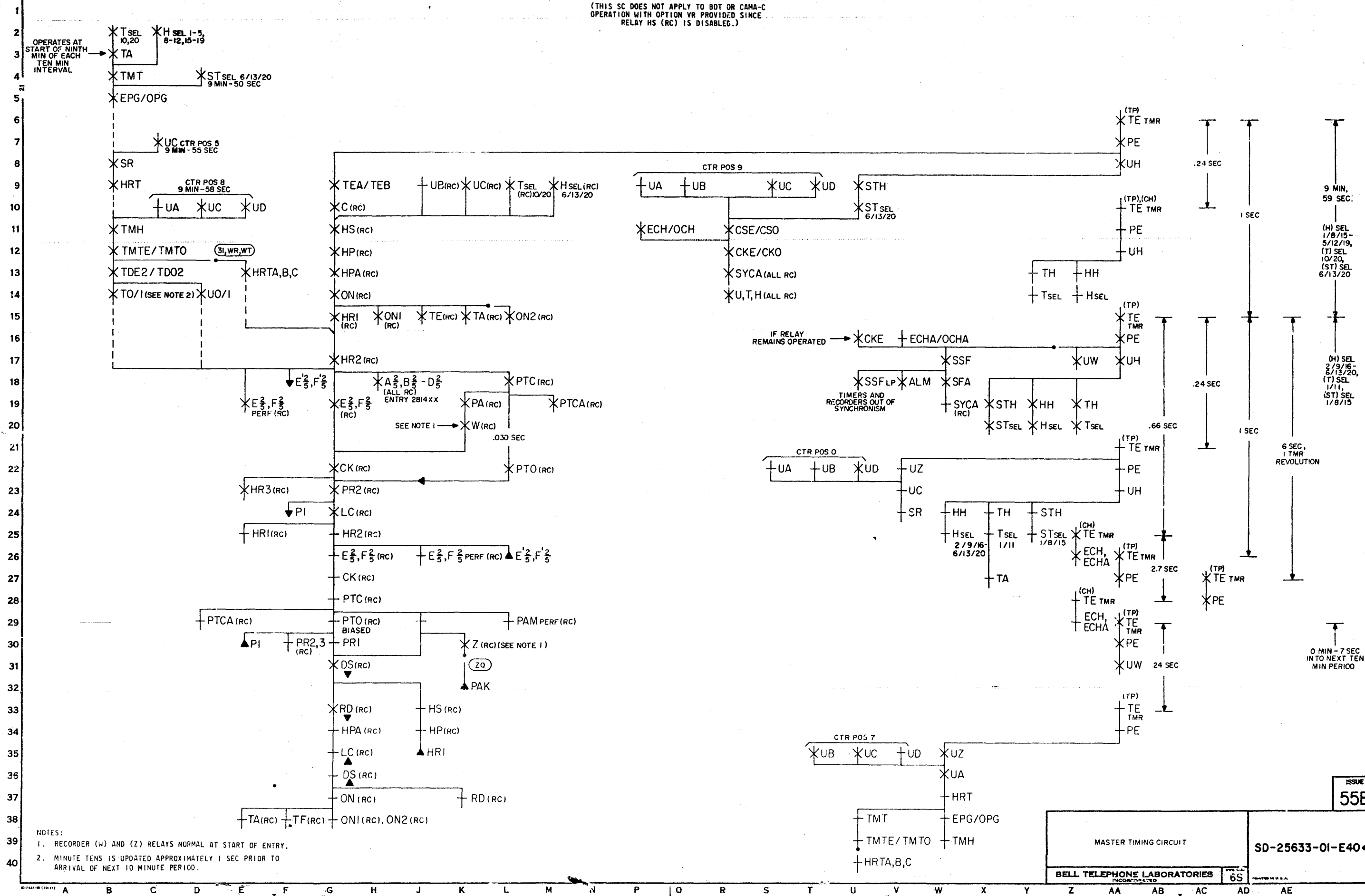
BELL TELEPHONE LABORATORIES
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SD-25633-01-E39

RECORDING OF TEN MINUTE ENTRY
(THIS SC DOES NOT APPLY TO BDT OR CAMA-C
OPERATION WITH OPTION VR PROVIDED SINCE
RELAY HS (RC) IS DISABLED.)





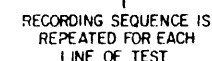
MASTER TIMING CIRCUIT

SD-25633-01-E41

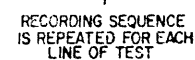
BEI L. TELEPHONE LABORATORIES
INCORPORATED

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BILLING DATA TRANSMITTER
TYPICAL RECORDING OPERATION WITH
PERFORATOR REMOVED



CAMA-C SYSTEM
TYPICAL RECORDING OPERATION
WITH PERFORATOR REMOVED



E42

CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ				REMARKS	310		
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRSS	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA				TEST WDG	TEST FOR	AFTER SOAK	TEST MA	READJ MA				
CA	U643		20	162/103	H	50			TF(CA)	GRD		P	0		22.5	21	WDG ALONE			
							3T(TE), 9B(2R2)		TR(CA)	GRD		S	0		25.5		CKT COMB. OF (CA)REL. & (CA)RES			
CA1	U721		20	121/121	H	50			T(CA1)	GRD		0			22	20.5				
CAS	U1113		20	114/114	H	50	5T(ETM)		T(CAS)	GRD		0			22.5	21				
CC	U953		8	207/197	H	59			T(CC)	GRD		0			27.5	26				
CCRT	U177		27	139/139	H	59			T(CCRT)	GRD	1, 2, 3	0			19	18	WDG ALONE			
												0			41.5	39.5	CKT COMB. OF (CCRT) RELAYS			
												0			55	62	CKT COMB. OF (CCRT) RELAYS			
												0			90	85	CKT COMB. OF (CCRT) RELAYS			
CCT	U144		29	113/113	H	29			T(CC)	GRD	2, 4	0			21.5	20.5	WDG ALONE			
CE	U1112		1	163/163	H	59	6B(TSI)		T(CE)	GRD		0			17.5	16.5	CKT COMB. OF (CE) AND (CEI) REL			
												0			39	37	WDG ALONE			
CEI	U692		1	139/139	H	59	6B(TSI)		T(CEI)	GRD		0			17	16	PAR COMB. WITH (CE) REL			
												0			38	36				
CK	U953		8	207/197	H	59			T(CK)	GRD		0			27.5	26				
CKC	Y218		22	320/320	H	53			T(CKC)	GRD		0	FS		43.5	41				
										GRD		H	FS		6.3	6				
										GRD		R	FS		1.5	1.9				
CKE	U891		1	113/127	H	47	7B(CSE)		TF(CKE)	GRD		P	0		25.5	24				
							11T(CKE)		TR(CKE)	GRD		S	0		20.5					
CKD	U891		2	113/127	H	47	7B(CSO)		TF(CKD)	GRD		P	0		25.5	24				
							11T(CKD)		TR(CKD)	GRD		S	0		20.5					
CKR	U460		17	108/108	H	47			T(CKR)	GRD		0			11.2	10.6				
CQ	U1112		2	163/163	H	59			T(CQ)	GRD		0			17.5	16.5	WDG ALONE			
												0			39	37	CKT COMB. OF (CQ) AND (CQ1) REL			
CQ1	U692		2	139/139	H	59			T(CQ1)	GRD		0			17	16	WDG ALONE			
												0			38	36	CKT COMB. OF (CQ) AND (CQ1) REL			
CQ1E	U826		21	124/124	H	59				REL		0			20	19	WDG ALONE			
CQ10							2T(COM)	T	TSI	GRD		0			45	42.5	CKT COMB. OF (CQ1E) AND (CQ10)REL			
CQ2E	U826		21	124/124	H	59						0			20	19	WDG ALONE			
							11T(CQ1E)		T(CQ2E)	GRD		0			45	42.5	CKT COMB. OF (CQ2E) AND (CQ3E)REL			
CQ20	U826		21	124/124	H	59						0			20	19	WDG ALONE			
							11T(CQ10)		T(CQ20)	GRD		0			45	42.5	CKT COMB. OF (CQ20) AND (CQ30)REL			
CQ3E	U826		21	124/124	H	59						0			20	19	WDG ALONE			
							11T(CQ1E)		T(CQ3E)	GRD		0			45	42.5	CKT COMB. OF (CQ3E) AND (CQ3E)REL			
CQ30	U826		21	124/124	H	59						0			20	19	WDG ALONE			
							11T(CQ10)		T(CQ30)	GRD		0			45	42.5	CKT COMB. OF (CQ30) AND (CQ30)REL			
CQ4E	U826		21	124/124	H	59				REL		0			20	19	WDG ALONE			
CQ40							2B(COM)	T	TSI	GRD		0			45	42.5	CKT COMB. OF (CQ4E) AND (CQ40)REL			

TEST NOTES:

- MAKE ADJUSTMENTS IN CKT AS QUICKLY AS POSSIBLE TO MINIMIZE INTERFERENCE WITH "CALL COUNT PROCESS CONTROL" FEATURE.
- ADJUSTMENTS SHOULD NOT BE MADE DURING THE TIME BETWEEN 2:55 AM & 3:30 AM.
- RESTORE RELAYS TO CONDITION BEFORE ADJUSTMENTS WERE MADE.
- INSULATE CONTACT 7 OF (RL)RELAY IN CALL COUNT PROCESS CONTROL STORAGE AND REGISTER CKT AND CONTACT 28 OF (RL) RELAY IN RECORDER AND RECORDER CONN CKT TO PREVENT SELECTOR FROM STEPPING TO NEXT POSITION WHEN TESTING IS COMPLETE, REMOVE INSULATORS.

MASTER TIMING CIRCUIT

SD-25633-01-F2

BELL TELEPHONE LABORATORIES
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CIRCUIT REQUIREMENTS																				DRAWING ISSUE	
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ				REMARKS			310	
DESIG	CODE	OPT	FIG.	BSP FIG	CONT PRESS	ARM TRVL	BLOCK OR INSULATE	TEST CLIP DATA					TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.				4.2
								CONN BAT.	CONN GRD												
CQ5E	U826		21	124/124	H	59									0	20	19	WDG ALONE			
							11T(CQ4E)		T(CQ5E)	GRD				0		45	42.5	CKT COMB. OF (CQ5E) AND (CQ6E) REL			
CQ50	U826		21	124/124	H	59									0	20	19	WDG ALONE			
							11T(CQ40)		T(CQ50)	GRD				0		45	42.5	CKT COMB. OF (CQ50) AND (CQ60) REL			
CQ6E	U326		21	124/124	H	59									0	20	19	WDG ALONE			
							11T(CQ4E)		T(CQ6E)	GRD				0		45	42.5	CKT COMB. OF (CQ6E) AND (CQ6E) REL			
CQ60	U826		21	124/124	H	59									0	20	19	WDG ALONE			
							11T(CQ40)		T(CQ60)	GRD				0		45	42.5	CKT COMB. OF (CQ60) AND (CQ50) REL			
COM	Y122		21	190/115	H	24	9T(TBO) (TBE)		TF(COM)	GRD			P	0	FS	19	18				
										GRD			P	H	FS	2.8	2.6				
									TR(COM)	GRD			P	R	FS	1	1.3				
										GRD			S	0	FS	18.5	17.5				
COP	U293		8	132/110	H	47	2B(PTD)		T(COP)	GRD						19	18				
									T(COP)	GRD				NO		11.7	12.4				
CSE	Y231		1	118/118	H	50	(ECH)NO		T(CSE)	GRD	1					23.5	22				
										GRD	1			NO		12.8	13.5				
										GRD	1					4.4	4.2				
										GRD	1			R		0.7	0.9				
CSD	Y231		2	118/118	H	50	(OCH)NO		T(CSD)	GRD	1					23.5	22				
										GRD	1			NO		12.8	13.5				
										GRD				H		4.4	4.2				
										GRD				P		0.7	0.9				
CSY	Y107		26	198/175	H	47	4T(PE)		T(CSY)	GRD					FS	14.3	13.6				
										GRD				H	FS	1.7	1.6				
										GRD				P	FS	0.7	0.9				
CTS	Y266		26	215/102	H	53	5T(TTS)		T(CTS)	GRD						24.5	23				
										GRD				H		3.5	3.3				
										GRD				R		0.9	1.1				
D1	U642		8	169/161	H	56			T(D1)	GRD						22.5	21				
DA	U144		8	115/113	H	29			T(DA)	GRD						22	20.5	WDG ALONE			
																49	45.5	CKT COMB. OF (DA) AND (DC) REL			
DAT	U1289		4	114/118	H	50			T(DAT)	GRD						25	23.5				
DC	U144		8	113/113	H	29			T(DC)	GRD						22	20.5	WDG ALONE			
																49	45.5	CKT COMB. OF (DC) AND (DA) REL			
DH	U1228	XU	4	111/101	H	29	6B(H4)		T(DH)	GRD						6.3	6				
DH	U340	XV	4	111/111	H	29	6B(H4), 2T(EXA)		T(DH)	GRD						8	7.6				
DL	U624		17	101/101	H	29	1B(DL)		T(DL)	GRD						6.6	6.3				
DL1	Y225		17	133/133	H	35			T(DL1)	GRD						28.5	27				
										GRD				H	FS	3.2	3				
										GRD				R	FS	1.7	2				

TEST NOTES:

- BEFORE TESTING OR ADJUSTING, OPERATE (TT) KEY, AND WAIT FOR OPERATION OF (TT) RELAY. SEE BSP.

COMMON SYSTEMS

MASTER TIMING CIRCUIT

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CIRCUIT REQUIREMENTS																		DRAW NO	ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET	SEE	DIRECT CURRENT FLOW REQ				REMARKS		
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		PREP	NOTE	TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.			
DLR	U460		17	108/108	H	47			T(DLR)	GRD			0		11.2	10.6			
DR1-6	U1367		A	111/111	H	29	9B(EXR)		T REL TST	GRD			0		29	27.5			
DR1-4	U1367		B	111/111	H	29	9B(EXR)		T REL TST	GRD			0		29	27.5			
DRL	Y218		8	320/320	H	53	(RS)NO		T(DRL)	GRD			C	FS	43.5	41			
										GRD			H	FS	6.3	6			
										GRD			R	FS	1.5	1.9			
DRP	U540		26	102/108	H	53			T(DRP)	GRD			0		10.6	10.1			
DT	U164		4	128/128	H	41	6B(CE), (CO)		T(D1)	GRD			0		8.8	8.3			
DTH	U1228		4	111/101	H	29	8B(HA)		T(DTH)	GRD			0		6.3	6			
DTN	U556		20	118/121	H	50		BF(DTN)		BAT.		P	0		25	23.5			
									TR(DN)	GRD		S	0		95				
DTNP 1-4	U144		22	113/113	H	29			T REL TST	GRD			0		22	20.5			
DU	U164		4	128/128	H	41	9B(CE), (CO)		T(DU)	GRD			0		8.8	8.3			
E	U642		8	169/161	H	56			T(E)	GRD			0		22.5	21			
ECH	Y109		1	190/108	H	47							H	FS	22	20.5			
													R	FS	3.5	3.3	WINDING ALONE		
							4,5(TE) TMR INTER.		T(ECH)	GRD			0	FS	72	68	CKT COMB. OF (ECH) AND (ECHA) REL		
										GRD			H	FS	11.5	10.8			
										GRD			R	FS	2.3	3.1			
ECHA	AJ15	WZ	1	249					U(ECHA)	GRD			0		43	40.5	WINDING ALONE		
							4,5(TE) TMR INTER.						0		72	67.5	CKT COMB. OF (ECHA) AND (ECH)REL		
EPG	AJ83	WZ	1	249					U(EPG)	GRD	2		0		13.3	12.6			
ER	U937		20	179/139	H	59			T(ER)	GRD			0		28.5	27			
ERD	U144	ZJ	1	113/113	H	29							0		22	20.5	WOG ALONE		
									T(ERD)	GRD			0		48	46	CKT COMB. OF (ERD) AND (TER) REL		
ERE	U144		9	113/113	H	29	3B(GRO)		T(ERE)	GRD			0		22	20.5			
ERO	U144		7	113/113	H	29			T(ERO)	GRD	1		0		22	20.5			
ESE	U979		9	310/310	H	68	3T(GRE)		T(ESE)	GRD			0		32	31			
ESO	U979		7	310/310	H	68	3T(GR), 6B(GR1)		T(ESO)	GRD			0		32.5	31			
ESP	U1047		6	167/167	H	65			T(ESP)	GRD			0		23.5	22			
EST	U1291		13	163/118	H	59			TR(EST)	GRD		S	0		47.5	45			
										GRD		S	NO			23			
										GRD		S	R		9.3	9.8			
								BF(EST)		BAT.		P	0		29.5				
										BAT.		P	NO		13.2				
ET	U188, U199		8	161/161	H	53	(OC)NO		T(ET)	GRD			0		18.5	17.5			
ET1	U1324		8	163/163	H	59	2T(ET1)		T(ET1)	GRD			0		23	21.5			

TEST NOTES:

- NO TEST SHOULD BE MADE DURING FIRST FIVE MINUTES IN AN HOUR. SEE BSP.
- BEGIN TEST IMMEDIATELY AFTER ANY MINUTE. HALT TEST BEFORE NEXT MINUTE IF NOT COMPLETED.

MASTER TIMING CIRCUIT

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TEST NOTES:
1. NO TEST SHOULD BE MADE DURING FIRST FIVE MINUTES
IN AN HOUR. SEE BSP.
2. BEGIN TEST IMMEDIATELY AFTER ANY MINUTE.
HALT TEST BEFORE NEXT MINUTE IF NOT COMPLETED.

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MASTER TIMING CIRCUIT

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CIRCUIT REQUIREMENTS																		DRAWING ISSUE	
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET	SEE TEST	DIRECT CURRENT FLOW REQ				REMARKS		
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		PREP	NOTE	TEST WOG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.			
ETE	U300		1	117/148	H	47	BT(ETE)	TF(ETE) TR(ETE)	GRD GRD			P S	0 0		21 17	20			
ETM	U706		20	160/160	H	47		T(ETM)	GRD				0 NO		25.5 12.3	24 13			
ETO	U300		2	117/148	H	47	BT(ETO)	TF(ETO) TR(ETO)	GRD GRD			P S	0 0		21 17	20			
ETS	U67		8	145/108	H	47		T(ETS)	GRD				0		18	17			
EXA	U151		4	128/132	H	47		T(EXA)	GRD				0		19.5	18.5			
EXD, EXH	U695		4	113/113	H	29		T REL TST	GRD				0		10.4	9.9			
EXM	U809		4	112/117	H	47		T(EXM)	GRD				0		19	18			
EXR	U639	A,B		161/195	H	53		T(EXR)	GRD				0		38	32			
FA	UA13		24	110/101	H	35		B(FA)	BAT	1			0		5.3 33.5	5 31.5	WDG ALONE CKT COMB. OF (FA)REL & ASSOC RES IN MISC CKT		
FA1	U1319		24	117/148	H	47	8T(FA1)	T(FA1)	GRD				0		12.3	11.7			
FA2	U624	ZN	24	101/101	H	29		T(FA2)	BAT				0		6.7	6.3			
GEO	U1112		7	163/163	H	59	10T(GEO), 2B(TBE)	T(GEO)	GRD	2			0		17.5 39	16.5 37	WDG ALONE CKT COMB. OF (GEO) AND (GRE)REL		
GOE	U1112		9	163/163	H	59	10T(GOE), 2B(TBO)	T(GOE)	GRD	3			0		17.5 39	16.5 37	WDG ALONE CKT COMB. OF (GOE) AND (GRO)REL		
GR, GR1	U177		9	139/139	H	59		T REL TST	GRD	3			0		19 42.5	18 40	WDG ALONE CKT COMB. OF (GR) AND (GR1)REL		
GRE	U1112		7	163/163	H	59	10T(GRE), 2B(TBE)	T(GRE)	GRD	2			0		17.5 39	16.5 37	WDG ALONE CKT COMB. OF (GRE) AND (GEO)REL		
GRO	U1112		9	163/163	H	59	10T(GRO), 2B(TBO)	T(GRO)	GRD	3			0		17.5 39	16.5 37	WDG ALONE CKT COMB. OF (GRO) AND (GOE)REL		
GU	U148		20	120/108	H	47		T(GU)	GRD				0		9 17	8.5 15	WDG ALONE CKT COMB. OF (GU)REL &(GU) RES		
H	U164		4	128/128	H	41	3B(CE1), (CO1)	T(H)	GRD				0		8.8	8.3			
HA	U1199, U188		4	161/161	H	53	11T(HA) 4-5T(HAA)	T(HA) T(HA)	GRD GRD				0 5		18.5 41.5	17.5 39	WINDING ALONE PAR. COMB. (HA,HAA)		
HAA	U188	XS, WC	4	161/161	H	53	11T(HA) 4-5T(HAA)	T(HAA)	GRD	5			0		18.5 41.5	17.5 39	WINDING ALONE PAR. COMB (HA,HAA)		
HE	U695		1	113/113	H	29		T(HE)	GRD	4			0		10.4	9.9			
TEST NOTES: 1. CONNECT DIRECT GRD TO T(FA) AND REMOVE THE (FA) LAMP IN ASSOCIATED CKT. 2. NO TEST SHOULD BE MADE DURING FIRST FIVE MINUTES IN AN HOUR. SEE BSP. 3. SEE BSP. 4. BEFORE TESTING OR ADJUSTING, OPERATE (TT) KEY, AND WAIT FOR OPERATION OF (TT) RELAY. SEE BSP. 5. PARALLEL COMB. OF RELAYS HA AND HAA ARE WITH XS AND WC OPTIONS PROVIDED.																		PAGE 6	
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BELL TELEPHONE LABORATORIES																		41B	

TEST NOTES:
1. CONNECT DIRECT GRD TO T(FA) AND REMOVE THE (FA) LAMP
IN ASSOCIATED CKT.
2. NO

CIRCUIT REQUIREMENTS																		DRAWING ISSUE	
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SKE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS	
DESIG	CODE	OPT	FIG.	BSP. FIG.	CONT. PRESS.	TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	APPR SOAK MA.	TEST MA.	READJ MA.			
								CONN BAT.	CONN GRD										
HH	U897		4	130/111	H	44	5T(UH)		T(HH)	GRD			0	19	18				
HHR	U422	VJ	4	132/101	H	47	2B(HHR)		T(HHR)	GRD	1		0	17.5	13.7				
HHR	U177	VK	4	139/139	H	59	(TA)NO		T(HHR)	GRD	1		0	19	18				
HL	U207		3	123/123	H	29							0	7.2	6.8	WDG ALONE			
							TB(UL)		T(HL)	GRD			0	39	36.5	CKT COMB. OF (HL) AND (STL) REL			
HO	U695		2	113/113	H	29			T(HO)	GRD			0	10.4	9.9	SEE BSP			
HRE	U144		8	113/113	H	29			T REL TST	GRD			0	22	20.5	WDG ALONE			
HRN									TST				0	49	45.5	CKT COMB. OF (HRE) AND (HRN) REL			
HRT	U660		4	117/145	H	47	1T(SR), 6B(HRT)		T(HRT)	GRD			0	23.5	22				
HRT1	AJ202	WZ	23	500					U(HRT1)	GRD			0	43	40.5				
HRTA	U495		31	113/113	H	29			T(HRTA)	GRD			0	17.5	16.5				
														39	37	IN PAR. WITH (HRTB)			
HRTB	U495	WR	31	113/113	H	29			T(HRTB)	GRD			0	17.5	16.5				
														39	37	IN PAR. WITH (HRTA)			
HRTC	U495	WT	31	113/113	H	29			T(HRTC)	GRD			0	17.5	16.5	WDG ALONE			
														58	55	IN PAR. WITH (HRTA & HRTB)			
HT	U164		4	128/128	H	41	3B(CE), (CO)		T(HT)	GRD			0	8.8	8.3				
HTH	U1228		4	111/101	H	29	1B(AD)		T(HTH)	GRD			0	6.3	6				
HU	U164		4	128/128	H	41	9T(CE), (CO)		T(HU)	GRD			0	8.8	8.3				
HUA	U268		4	149/183	H	47			T(HUA)	GRD			0	12.4	11.8				
HUH	U1228		4	111/101	H	29	1T(AD)		T(HUH)	GRD			0	6.3	6				
ICK	U686		20	160/108	H	47			T(ICK)	GRD			0	7.6	7.2				
KRB	U948		20	321/144	H	53	1T(KRB)	B(KRB)	T(KRB)	B/G B/G			0	8.1	7.7				
													NO	5.2	4.5				
LC1	U58		8	127/150	H	50			T(LC1)	GRD			0	11.2	10.7				
LC2	U188		8	161/161	H	53			T(LC2)	GRD			0	18.5	17.5				
LC3	U735		8	132/132	H	47			T(LC3)	GRD			0	17.5	16.5				
LC4	U1317		8	117/148	H	47	6B(LC4)		T(LC4)	GRD			0	19	18				
LOK	Y82		20	168/150	H	50			T(LOK)	GRD GRD GRD			0	FS	26	24.5			
													H	FS	5.4	5.1			
													R	FS	1	1.2			
LT1-9	U582		17	126/118	H	59	1B(LT1), 1T(REL TST)		T REL TST	GRD			0	27	25.5				
LTA	U932		17	327/108	H	53	3T(LTA), 2T(LTB)		6T(LTA)	GRD			0	11.1	10.5				
LTB	U607		17	148/130	H	47	1T(LT9)		8T(LTB)	GRD			0	20.5	19.5				
LTR	U368	XQ	17	101/101	H	29	2B(LTR)		3TF(LTR)	GRD BAT.			P S	0	14.8 12	14.1 11.5			
								4BR(LTR)											
M	U164		4	128/128	H	41	6T(CE), (CO)		T(M)	GRD			0	8.8	8.3				

TEST NOTES:
1. DO NOT TEST RELAY (HHR) WITHIN TEN MINUTES
OF THE HALF HOUR.

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MASTER TIMING CIRCUIT

SD-25633-01-F4

BELL TELEPHONE LABORATORIES
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CIRCUIT REQUIREMENTS																		DRAWING ISSUE	
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS	
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.			
								CONN BAT.	CONN GRD										
MA	U300		A,B	117/148	H	47	6B(MA)		TF TR	(MA)	GRD		P	0	21	20			
											GRD		S	0	16.8				
MA1	U68		A,B	139/121	H	59			T(MA1)		GRD		0		27.3	26			
M8E	U188, U1199		1	161/161	H	53	1T(TFE)		T(M8E)		GRD		0		18.5	17.5			
M8O	U188, U1199		2	161/161	H	53	1T(TFO)		T(M8O)		GRD		0		18.5	17.5			
MC	U144		8	113/113	H	29			T(MC)		GRD		0		22	20.5	WDG ALONE		
													0		49	45.5	CKT COMB. OF (MC) AND (MO) REL		
MD	U1113		A,B	114/114	H	50			T(MD)		GRD		0		22.5	21			
MDA	U699		4	109/109	H	29	(EXA)O		T(MDA)		GRD		0		8.2	7.8			
MGE	U144		8	113/113	H	29			T(MGE)		GRD		0		22	20.5	WDG ALONE		
													0		49	45.5	CKT COMB. OF (MGE) AND (MGN) REL		
MGN	U144		8	113/113	H	29			T(MGN)		GRD		0		22	20.5	WDG ALONE		
													0		49	45.5	CKT COMB. OF (MGN) AND (MGE) REL		
MO	U144		8	113/113	H	29			T(MO)		GRD		0		22	20.5	WDG ALONE		
													0		49	45.5	CKT COMB. OF (MO) AND (MC) REL		
MOH	U1228		4	111/101	H	29			T(MOH)		GRD		0		6.3	6			
MT1	1/2AK49 WZ	3		234					U(MT1)		GRD		0		11.9	11.3	MTD WITH (MT4)REL		
MT4	1/2AK49 WZ	3		234					U(MT4)		GRD		0		11.9	11.3	MTD WITH (MT1)REL		
MU2	1/2AK49 WZ	3		234					U(MU2)		GRD		0		11.9	11.3	MTD WITH (TMH)REL		
NS	U1113		8	114/114	H	50			T(NS)		GRD		0		22.5	21			
OC	U642		8	169/161	H	56	6T(ET)		T(OC)		GRD		0		22.5	21			
OCH	Y109		2	190/108	H	47			T(OCH)				0	FS	22	20.5			
													H	FS	3.5	3.3	WINDING ALONE		
							4.5(TO) TMR INTER.		T(OCH)		GRD		R	FS	0.9	1.2			
											GRD		0	FS	72	6.8	CKT COMB. OF (UCH) AND (OCHA) REL		
											GRD		H	FS	11.5	10.8			
													R	FS	2.3	3.1			
OCHA	AJ15	WZ	2	249					U(OCHA)		GRD		0		43	40.5	WINDING ALONE		
							4.5(TO) TMR INTER.						0		72	67.5	CKT COMB. OF (OCHA) AND (OCH) REL		
OME, OMO	U220		23	120/108	H	47			T REL TST		GRD		0		19	18			
ON	U118		20	119/113	H	35	11T(ON)		T(ON)		GRD		0		38	36			
OPG	AJ83	WZ	2	249					U(OPG)		GRD	2	0		13.3	12.6			
ORD	U144	ZJ	2	113/113	H	29			T(ORD)		GRD		0		22	20.5	WDG ALONE		
													C		48	46	CKT COMB. OF (ORD) AND (TOR)REL		
ORE	U144		9	113/113	H	29			T(CE)		GRD		0		22	20			
ORO	U144		7	113/113	H	29	3B(GRE)		T(ORO)		GRD	1	0		22	20.5			
ORP	U779		26	153/118	H	53	(CTS)NO		T(ORP)		GRD		0		12	11.4			
OST	U747		20	110/110	H	35		8(OST)			BAT		0		5.3	5			

TEST NOTES:
1. NO TEST SHOULD BE MADE DURING FIRST FIVE MINUTES IN
AN HOUR. SEE BSP.
2. BEGIN TEST IMMEDIATELY AFTER ANY MINUTE.
HALT TEST BEFORE NEXT MINUTE IF NOT COMPLETED.

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MASTER TIMING CIRCUIT

SD-25633-01-F4

BELL TELEPHONE LABORATORIES
INCORPORATED

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ISSUE
47A

SD-25633-01-F4

CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET	SEE TEST	DIRECT CURRENT FLOW REQ				REMARKS			
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		SET PREP	NOTE	TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.				
P	U695		4	113/113	H	29	1T(P23), (P20)		T(P)	GRD			0		10.4	9.9				
P'	U1041		20	195/117	H	47	2B(CA)		TF(P') TR(P')	GRD GRD		P S	0 0		21 22.5	20				
P1	U98		8	118/118	H	50			T(P1)	GRD			0		23.5	22				
P1'	U643		20	162/103	H	50			TF(P1') TP(P1')	GRD GRD		P S	0 0		22.5 25.5	21				
P1A	U111		8	152/148	H	47			TF(P1A) TR(P1A)	GRD GRD		P S	0 0		24.5 20	23				
P1A'	U341		22	172/149	H	47			T(P1A')	GRD			0		21	20				
PIE, PIO	U476		1, 2	132/136	H	47			T REL TST	GRD GRD			0 NO		18.5 11.2	17.5 11.8				
P2	U98	ZL	8	118/118	H	50			T(P2)	GRD			0		23.5	22				
P2A	U111	ZL	8	152/148	H	47			TF(P2A) TR(P2A)	GRD GRD		P S	0 0		24.5 20	23				
P2E, P20	Y185		1, 2	158/158	H	44			I REL TST	GRD GRD			0 H R	FS FS FS	24.5 6.8 1.4	23 6.4 1.7				
P3-B	U98		8	118/118	H	50			T REL TST	GRD			0		23.5	22				
P3A- 8A	U111		8	152/148	H	47			TF REL TR TST	GRD GRD		P S	0 0		24.5 20	23				
PC	U1173		8	321/321	H	53			T(PC)	GRD			0		26.5	25				
PE	AF509	WZ	1	219			1,2(TE) TMR INTER.		T(PE)	GRD			0		11.2	10.8				
PF	U318		1	150/179	H	50	1(TE) TMR INTER.		T(PE)	GRD			0		11.7	11.1				
PF	U108		18	121/108	H	50	9B(TTS)		T(PF)	GRD			0		10.1	9.6				
PF1	U569		18	108/108	H	47	6T(PF)		T(PF1)	GRD GRD			0 NO		26.5 13.6	25 14.4				
PFA	UA108		18	118/344	H	50	1B,3B(PF1), 1B,8B(PFA)	BR(PFA)	TR(PFA)	B/G B/G	2 3	S S	0 0		8.1 11.2	7.7 10.6				
PH	U604		20	108/132	H	47	4T(PH)		T(PH)	GRD GRD			0 NO		18 9.3	17 9.8				
PLXE, PLX0	U144		22	113/113	H	29			T REL TST	GRD			0		16	14.9				
PNI- 15	U144		22	113/113	H	29			T REL TST	GRD			0		22	20.5				
PO	AF509	WZ	2	219			1,2(TO) TMR INTER.		U(PO)	GRD			0		11.2	10.6				
PO	U318		2	150/179	H	50	1T(TO) TMR INTER.		T(PO)	GRD			0		21	20				
PRE	U299		9	132/110	H	47	3B(PRE), 9B(TBE)		T(PRE)	GRD			0		21	20				
PRO	U299		7	132/110	H	47	3B(PRO), 9B(TBO)		T(PRO)	GRD			0		21	20				
PSA	AG2	VF, VH, VO	3	368					U(PSA)	GRD			0 H R	36 36 36	12.4 2.1 1.1	11.8 2 1.4				
PSB	AF63		3	229					U(PSB)	GRD			0		7.1	6.7				

TEST NOTES:
1. BEFORE TESTING OR ADJUSTING, OPERATE (TT) KEY, AND WAIT FOR OPERATION OF (TT) RELAY. SEE BSP.
2. CONTACTS 7-8B SHALL CLOSE.
3. RELAY SHALL FULLY OPERATE.

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MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

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CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS		
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG			TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.				
PT0	U293		8	132/110	H	47	2B (PTR)		T(PT0)	GRD			0	19	18					
PTR	U293		8	132/110	H	47			T(PTR)	GRD			NO	11.7	12.4					
PTRA	316M	VB	8							GRD			NO	11.7	12.4					
													0	3.3	1.1					
													R	0.3						
RA	U241		19	152/138	H	47			T(RA)	GRD			0	17	16					
RC	U164	ZJ	4	128/128	H	41			T(U)	GRD			0	9.3	8.3					
RC'	U831		20	320/121	"	53			TF(RC')	GRD	P		0	43	41					
									TR(RC')	GRD	S		0	27						
										GRD	P		NO	19	20					
RCKK	U1239	V	17	132/132	H	47			T(RCKK)	GRD			0	8.1	7.7					
	263A	ZE											0	73.5	70	WDG ALONE				
RCE			8						T(RCE)	GRD			0	170	160	2 WDG IN PAR.				
	287A	XI											0	80	75	WDG ALONE				
									T(RCE)	GRD			0	180	170	2 WDG IN PAR.				
RCE 1-3	U144		20	113/113	H	29			T REL TST	GRD			0	22	20.5					
RCK	Y209		20	175/175	H	47							0	FS	24.5	23				
									T(RCK)	GRD			H	FS	2.9	2.7				
										GRD			R	FS	1.4	1.7				
	263A	ZE											0	73.5	70	WDG ALONE				
RCO			8						T(RCO)	GRD			0	170	160	2 WINDINGS IN PAR.				
	287A	XI											0	80	75	WDG ALONE				
									T(RCO)	GRD			0	180	170	2 WINDINGS IN PAR.				
RCO 1-3	U144		20	113/113	H	29			T REL TST	GRD			0	22	20.5					
RCT	Y82		8	168/150	H	50							0	FS	26	24.5				
									T(RCT)	GRD			H	FS	5.4	5.1				
										GRD			R	FS	1	1.2				
RD0-5	U1367	A,B		111/111	H	29	9B(EXR)		T REL TST	GRD			0	29	27.5					
RD6-9	U1367		8	111/111	H	29	9B(EXR)		T REL TST	GRD			0	29	27.5					
RET	U333		8	150/150	H	50			T(RET)	GRD			0	15.5	14.4					
RET1	U566	XG	8	110/110	H	35			T(RET1)	GRD			0	6.5	6.2					
RH	U158	A,B		132/111	H	47			T(RH)	GRD			0	7.9	7.5					
RK	U934		17	150/139	H	59			T(RK)	GRD			0	29.5	28					
RKA	U660		17	117/145	H	47			T(RKA)	GRD			0	28.5	27					
										GRD			NO	18	19					
RKO	U162		17	108/132	H	47			T(RKO)	GRD			0	18	17					
RLS	U80		8	124/161	H	59			T(RLS)	GRD			0	18	17					
RN	U144		8	113/113	H	29			T(RN)	GRD			0	22	20.5					
ROS	U286		8	108/111	H	47			T(ROS)	GRD			0	15.8	15					
RS	Y205		8	129/129	H	35	1T(RLS)						0	FS	26	24.5				
									T(RS)	GRD			H	FS	7.1	6.7				
										GRD			R	FS	1.8	2.2				

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MASTER TIMING CIRCUIT

BELL TELEPHONE LABORATORIES
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ISSUE 47A

CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ				CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS	31D
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA	CONN BAT.	CONN GRD				TEST WOG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.		
RSC	Y205		8	129/129	H	35	(DRL)NO					GRD			0	FS	26	24.5		
								T (RSC)				GRD			H	FS	7.1	6.7		
												GRD			R	FS	1.8	2.2		
RTS	Y109		20	190/108	H	47						GRD			0	FS	22	20.5		
								T (RTS)				GRD			H	FS	3.5	3.3		
												GRD			R	FS	0.9	1.2		
RW	U1199		20	111/110	H	35	3B(RH)	B(RW)	T(RW)	B/G					0		6.3	6		
RW1	U409		20	168/170	H	50	3B(SLO), 3B(RWC)		IF(RW1)		GRD		P	0			24.7			
									TR(RW1)		GRD		S	0			20	19		
RW2	U1312		20	103/150	H	50			T(RW2)		GRD			0			11.9	11.3		
RWC	U234		20	160/108	H	47	3B(SLO)		T(RWC)		GRD			0			19	18		
SA	U926		3	124/124	H	59			T(SA)		GRD			0			20	19		
SC, SC1	U144		8	113/113	H	29				REL		GRD		0			22	20.5	WDG ALONE	
									T	TST				0			49	45.5	CKT COMB. OF (SC) AND (SC1) REL	
SCE	U940		9	127/127	H	47			T(SCE)		GRD			0			21	20		
SCO	U940		7	127/127	H	47			T(SCO)		GRD			0			21	20		
SE	U660		1	117/145	H	47	8T(SE)		T(SE)		GRD			0			28.5	27		
SFA	AJ15	WZ	19	249					U(SFA)		GRD			NO			43	40.5		
SKA	U144	ZL	8	113/113	H	29								0			22	20.5	WDG ALONE	
									T(SKA)		GRD			0			49	45.5	CKT COMB. OF (SKA) AND (SKP) REL	
SKP	U144	ZL	8	113/113	H	29								0			22	20.5	WDG ALONE	
									T(SKP)		GRD			0			49	45.5	CKT COMB. OF (SKP) AND (SKA) REL	
SLO	U934		20	150/139	H	59			T(SLO)		GRD			0			29.5	29		
SO	U660		2	117/145	H	47	8T(SO)		T(SO)		GRD			0			28.5	27		
														NO			18	19		
SP	U80		8	124/161	H	59			T(SP)		GRD			0			12	11		
SPA	U6036		8	112/112	H	29	2B(COP)		T(SPA)		GRD			0			19	18	WDG ALONE	
														0			42.5	40	CKT COMB. OF (SPA) AND (SPT) REL	
SPT	U6036		8	112/112	H	29	2B(COP)		T(SPT)		GRD			0			19	18	WDG ALONG	
														0			42.5	40	CKT COMB. OF (SPT) AND (SPA) REL	
SR	U108		4	121/108	H	50	6B(HA)		T(SR)		GRD			0			10.1	9.6		
SRC	Y91		2	155/121	H	50	5T(TS1)							0	FS	23	21.5			
									T (SRC)		GRD			H	FS	3.7	3.5			
											GRD			R	FS	0.7	0.9			
SS	U930		8	330/178	H	59			T(SS)		GRD			0			20	19		
SSF	U551		19	109/145	H	47	5T(CKE), (CKO), 4B(SSF)		TF(SSF)		GRD		P	0			19.5	19.5		
									TR(SSF)		GRD		S	0			11.4			

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MASTER TIMING CIRCUIT

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BELL TELEPHONE LABORATORIES
INCORPORATED

CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ				CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ					REMARKS	31D
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA	CONN BAT.	CONN GRD				TEST WOG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.		
ST-	U1291		10, 11, 12, 14, 15, 16	163/116	H	59						GRD			S	0		47.5	45	
								BF (ST-)		TR (ST-)		GRD			S	NO		23		
												GRD			S	R		9.3	9.8	
												BAT.			P	0		29.5		
												BAT.			P	NO		13.2		
STC	AJ15	WZ	4	249			3T(CE)OR(CO)		U(STC)		GRD				U			43	40.5	
STE	U747		20	110/110	H	35		B(STE)		U(STC)		BAT.			0		5.3	5		
STH	AJ15	WZ	4	249			2T(UH)		U(STH)		GRD				0		43	40.5		
STL	AJ15	WZ	3	249					U(STL)		GRD				0		43	40.5	WINDING ALONE	
							1B(UL)								U		58	54.5	CKT COMB. OF (STL) AND (HL) REL	
SY	U1113		8	114/114	H	50			T(SY)		GRD				0		22.5	21		
T	U164		4	128/128	H	41	9T(CE1), (CD1)		T(T)		GRD				0		8.8	8.3		
	U695		5	113/113	H	29			T	REL	GRD	1.2			0		10.4	9.9		
T(O, 1,2,4, 7)E									TST											
	U695		6	113/113	H	29			T	REL	GRD	1.2			0		10.4	9.9		
T(O, 1,2,4, 7)O									TST											
TA	U158		4	132/111	H	47			T(TA)		GRD				0		7.9	7.5		
TAP	U179		20	117/145	H	47			T(TAP)		GRD				0		20	18.5		
TBE	U643		7	162/103	H	50	3T(GRE), (ERO)		TF(TBE)		GRD		P	0			22.5	21		
									TR(TBE)		GRD		S	0			25.5			
TBO	U643		9	162/103	H	50	6B(GOE)		TF(TBO)		GRD		P	0			22.5	21	SEE BSP	
									TR(TBO)		GRD		S	0			25.5			
TBR	U179		8	117/145	H	47			T(TBR)		GRD				0		19.5	18.5		
TC	U577		20	163/150	H	59	4T(AD1)		T(TC)		GRD				0		29.5	28		
															NO		10.9	11.5		
TCE	U1391		1	123/123	H	29			T(TCE)		GRD				0		14.3	13.6		
TCO	U1391		2	123/123	H	29			T(TCO)		GRD				0		14.3	13.6		
TDE	U144		1	113/113	H	29			T(TDE)		GRD				0		22	20.5	WDG ALONE	
															0		48	46	CKT COMB. OF (TDE) AND (TME) REL	
TDE1	U144		1	113/113	H	29			T(TDE1)		GRD				0		22	20.5	WDG ALONE	
															0		48	46	CKT COMB. OF (TDE1) AND (TME1) REL	
TDE2	U144		23	113/113	H	29			T(TDE2)		GRD				0		22	20.5		
TDO	U144		2	113/113	H	29			T(TDO)		GRD				0		22	20.5	WDG ALONE	
															0		49	46	CKT COMB. OF (TDO) AND (TMO) REL	
TDO1	U144		2	113/113	H	29			T(TDO1)		GRD				0		22	20.5	WDG ALONE	
															0		49	46	CKT COMB. OF (TDO1) AND (TMO1) REL	

TEST NOTES:

- SEE CIRCUIT NOTE 102.
- NO TEST SHOULD BE MADE DURING FIRST FIVE MINUTES IN AN HOUR. SEE BSP.

PAGE 12

MASTER TIMING CIRCUIT

SD-25633-01-F6

BELL TELEPHONE LABORATORIES
INCORPORATED

2
95

ISSUE
41B

SD-25633-0-F6

CIRCUIT REQUIREMENTS																				DRAWING ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION					TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ				REMARKS	310	JUL SEN A.H.
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		CONN BAT.	CONN GRD			TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.			
TD02	U144		23	113/113	H	29					T(TD02)	GRD			0		22	20.5		
TE	U639		20	161/195	H	53					T(TE)	GRD			0		34	32		
TEA	U144		1	113/113	H	29					T(TEA)	GRD	1		0		22	20.5		
TEB	U144		2	113/113	H	29					T(TEB)	GRD			0		22	20.5	SEE BSP	
TER	U144	ZJ	1	113/113	H	29					T(TER)	GRD			0		22	20.5	WDG ALONE	
															0		48	46	CKT COMB. OF (TER) AND (ERD) REL	
TFE, TFO	U90		1, 2	145/123	H	47				TF TR	REL TST	GRD GRD		P S	0 0		18 14.5	17		
TFT	U299		7	132/110	H	47	3T(TBE)				T(TFT)	GRD			0		21	20		
TGT	U499		8	108/110	H	47					T(TGT)	GRD			0		20.5	19.5		
TH	U897		4	130/111	H	44	2T(UH)				T(TH)	GRD			0		19	18		
TIB	U247		17	108/108	H	47					TF(TIB)	GRD		P S	0 0		25 19.5	23.5 18.5		
										BR(TIB)		BAT.								
TL	U695		3	113/113	H	29	1T(CKE), (CKO)				T(TL)	GRD			0		10.4 23.5	9.9 22	WDG ALONE CKT COMB. OF (TL) AND (UL) REL	
TLCP TLK	U115 U1158	XSWC	4 20	113/113 207/223	H H	29 SPL					T(TLCP) T(TLK)	GRD GRD	2		0		10.4 11.4	9.9 10.8	ARM. TRVL 50	
TM1	U594		17	123/120	H	35	2T(TMS)				T(TM1)	GRD			0		6.9	6.5		
TM2	U158		17	132/111	H	47	2B(RKA)			T(TM2)		BAT.			0		7.9	7.5		
TM3	U67		17	145/108	H	47	2T(TM2)				T(TM3)	GRD			0		18	17		
TM4	U426		17	148/108	H	47					T(TM4)	GRD			0		19	18		
TM5	U1119		17	318/111	H	44					T(TM5)	GRD			0		17	16		
TM6	U639		17	161/195	H	53	4B(RA), 11T(TM6)				T(TM6)	GRD			0		34	32		
TME	U144		1	113/113	H	29					T(TME)	GRD			0		22 48	20.5 46	WDG ALONE CKT COMB. OF (TME) AND (TDE) REL	
															0					
TME1	U144		1	113/113	H	29					T(TME1)	GRD			0		22 48	20.5 46	WDG ALONE CKT COMB. OF (TME1)AND(TDE)REL	
TMH	1/2AK49	WZ	3	234						1U(TM)	GRD				0		11.9	11.3	MTD WITH(MU2)REL	
TMO	U144		2	113/113	H	29					T(TMO)	GRD			0		22 49	20.5 46	WDG ALONE CKT COMB. OF (TMO) AND (TDO)REL	
															0					
TMO1	U144		2	113/113	H	29					T(TMO1)	GRD			0		22 49	20.5 46	WDG ALONE CKT COMB. OF (TMO1)AND(TDO)REL	
															0					
TMP	U440		17	132/132	H	47					T(TMP)	GRD			0		8.8	8.3		
TMR	U601		17	117/148	H	47					T(TMR)	GRD			0		14	18		
TMT	AJ83	WZ	4	249			2T(TA), 3(TMT)				U(TMT)	GRD			0		13.9	12.6		
TMT	AJ83	WZ	1	249							U(TMT)	GRD			0		13.3	12.6	WDG ALONE	
																	29.5	28	CKT COMB. OF (TMT)AND (TRTE) REL	
TMT0	AJ83	WZ	2	249							U(TMT0)	GRD			0		13.3	12.6	WDG ALONE	
																	29.5	28	CKT COMB. OF (TMT0) AND (TRT0) REL	
TOA	U144		2	113/113	H	29					T(TOA)	GRD			0		22	20.5	SEE BSP	
TOB	U144		1	113/113	H	29					T(TOB)	GRD	1		0		22	20.5		

DRAWING
ISSUE

PAGE 13

TEST NOTES:

- BEFORE TESTING OR ADJUSTING, OPERATE (TT) KEY, AND WAIT FOR OPERATION OF (TT) RELAY. SEE BSP.
- WHEN TESTING THE RELAY IN THE EVEN APP FIG. 4, THE FUNCTIONS OF THE EVEN CONT UNIT IN THE TIMER LINK CKT MUST BE TRANSFERRED TO THE ODD CONT UNIT AND VICE VERSA.

MASTER TIMING CIRCUIT

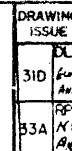
SD-25633-01-F7

BELL TELEPHONE LABORATORIES
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CIRCUIT REQUIREMENTS																			DRAWING ISSUE
APPARATUS				MECH REQ			CIRCUIT PREPARATION				TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQ				REMARKS		
DESIG	CODE	OPT	FIG.	BSP FIG.	CONT PRESS.	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST WDG	TEST FOR	AFTER SOAK MA.	TEST MA.	READJ MA.					
								CONN BAT.	CONN GRD										
TOK	U1346		20	132/101	H	47			T(TOK)	GRD			0	26.5	25	WDG ALONE CKT COMB. OF (TOR) AND (ORD) REL			
TOR	U144	ZJ	2	113/113	H	29			T(TOR)	GRD			0	22	20.5				
TPC	U58		20	127/150	H	50			T(TPC)	GRD			0	113	10.7	WDG ALONE CKT COMB. OF (TRTE) AND (TMTE) REL			
TRI	AJ15	WZ	23	249			1T(TDE),(TDO)		U(TRI)	GRD	11		0	43	40.5				
TRTE	AJ83	VW	1	249					U(REL TST)	GRD			0	13.3	12.6	WDG ALONE CKT COMB. OF (TRTE) AND (TMTE) REL			
														29.5	28				
TRTO	AJ83	VW	2	249					U(REL TST)	GRD			0	13.3	12.6	WDG ALONE CKT COMB. OF (TRTO) AND (TMTO) REL			
														29.5	28				
TS	U1112		2	163/163	H	59							0	17.5	16.5	WDG ALONE CKT COMB. OF (TS) AND (TSI) REL			
													0	39	37				
TSI	U692		2	139/139	H	59							0	17	16	WDG ALONE CKT COMB. OF (TSI) AND (TS) REL			
													0	38	36				
TSC	U336		26	109/109	H	29			TR(TSC)	GRD		S	0	14.2	13.5	WDG ALONE CKT COMB. OF (TSC) AND (TSF) REL			
TSF	U306		19	111/111	H	29	2T(CSV), (C80), 1B(TSF)		TF(TSF)	GRD		P	0	13.2	12.5				
									TR(TSF)	GRD		S	0	7.5					
TSP	U4108		8	118/344	H	50	(SS)NO, 3T(OC) 1B(TSP)	BR(TSP)	TR(TSP)	B/G	3	S	0	8.1	7.7	WDG ALONE CKT COMB. OF (TSP) AND (TST1) REL			
										B/G	4	S	0	11.2	10.6				
									TF(TSP)	GRD	4	P	0	20.5					
TSP	U611	XZ	1	139/139	H	59			T(TSP)	GRD			0	30	28.5	WDG ALONE CKT COMB. OF (TSP) AND (TST1) REL			
TST1	U439		20	161/195	H	53			T(TST1)	GRD			0	34	32				
TST2	U1072		20	197/161	H	59			T(TST2)	GRD			0	18	17	WDG ALONE CKT COMB. OF (TST2) AND (TST3) REL			
TT	U488	C		307/160	H	47	(TTE)O, 5T(TT) (TTO)NO		T(TT)	GRD			0	16.5	15.5	SEE CIRCUIT NOTE 112			
										GRD			R	2.6	2.8				
TT	U178	D		139/311	H	59	(TTE)O, 7T(TT), (TTO)NO		T(TT)	GRD			0	19	18	WDG ALONE CKT COMB. OF (TT) AND (TTO) REL			
										GRD			R	1.6	1.7				
TTE	U991		1	161/178	H	53	4B(PE), (HE) NO		T(TTE)	GRD	5		0	17	16	WDG ALONE CKT COMB. OF (TTE) AND (TTO) REL			
TTO	U991		2	161/178	H	53	(CTS), (HO) NO, 4B(PO)		T(TTO)	GRD			0	17	16				
TTOA	AJ83	WZ	2	249			(CTS),(HO) NO,4B(PO)		U(TTOA)	GRD			0	13.3	12.6	WDG ALONE CKT COMB. OF (TTOA) AND (TTO) REL			
													0	41	39				
TTS	U1171		26	163/139	H	59	10T(TTS), (CTS)NO		TF(TTS)	GRD		P/S	0	17	16	WDG ALONE CKT COMB. OF (TTS) AND (TTS) REL			
TYM	U794		20	119/119	H	35			T(TYM)	GRD			0	22.5	21	WDG ALONE CKT COMB. OF (TYM) AND (TYM) REL			
TW	U564		28	142/132	H	53	(TZ)NO, 2T(TW)		T(TW)	GRD	6.8, 9.10		0	16.5	15.5	WDG ALONE CKT COMB. OF (TW) AND (TW) REL			
													0	37	34.5				
TZ	U141		28	132/132	H	47	(TW) NO, 2T(TW)		T(TZ)	GRD	7.8, 9.10		0	18.5	17.5	WDG ALONE CKT COMB. OF (TZ) AND (TZ) REL			
													0	40	37.5				
U	U164	WY	4	128/128	H	41	3T(CE1), (CO1)		T(U)	GRD			0	8.8	8.3	WDG ALONE CKT COMB. OF (U) AND (U) REL			
U	Y224	WZ	4	201/188		41	3T(CE1), (CO1)		T(U)	GRD			0	40	30.5	WDG ALONE CKT COMB. OF (U) AND (U) REL			
													H	42	3.7				
													0	40	1.9	WDG ALONE CKT COMB. OF (U) AND (U) REL			
													0	40	2.2				
UO,1, 2,4, 7JE	U695		5	113/113	H	29			T	REL TST	GRD	1/2		0	10.4	9.9	WDG ALONE CKT COMB. OF (UO,1, 2,4, 7JE) AND (UO,1, 2,4, 7JE) REL		
UO,1, 2,4, 7JO	U695		6	113/113	H	29			T	REL TST	GRD	1/2		0	10.4	9.9	WDG ALONE CKT COMB. OF (UO,1, 2,4, 7JO) AND (UO,1, 2,4, 7JO) REL		
UA,UB, UC,UD	AJ501	WZ	4	249					U	REL TST	GRD			0	43	40.5	WDG ALONE CKT COMB. OF (UA,UB, UC,UD) AND (UA,UB, UC,UD) REL		

(FOR APP FIGURES A,B,1,4,5,9,10,11,12,17,18,19,20,21,23,24,25,26, AND 29)
FOR EVEN MASTER TIMER



ISSUE
58AC

MASTER TIMING CIRCUIT

SD-25633-01-G

BELL TELEPHONE LABORATORIES
INCORPORATED

65

PART OF CAD 1

(FOR APP FIGURES A, B, I, 4, 5, 9-12, 17-21, 23-26 AND 29)
FOR EVEN MASTER TIMERS

WHEN ISOLATION OF
RECORDER C-LEADS
IS PROVIDED

ADD
REMOVE

REMOVE
ADD
WHEN ISOLATION OF
RECORDER C-LEADS
IS PROVIDED

WHEN ISOLATION OF
RECORDER C-LEAD
IS PROVIDED

TO TBL RCDR CONN FR
(TDM) OR TO TBL RCDR
FR (SXS) OR TO MASTER
TEST FR CONN BAY
(NO. 5) OR TO TBL RCDR
FR (NO. 4A OR 4M TOLL)
VIA TBL RCDR CONN FR
WHEN FURNISHED

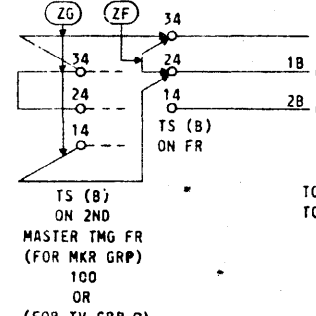
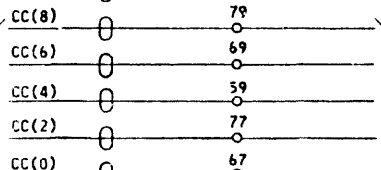
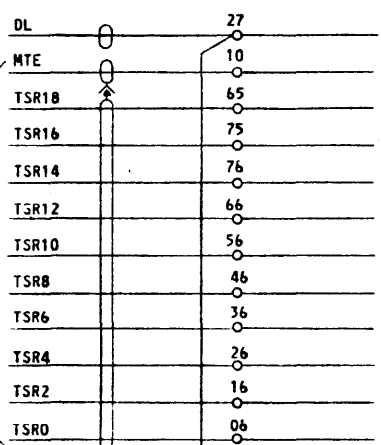
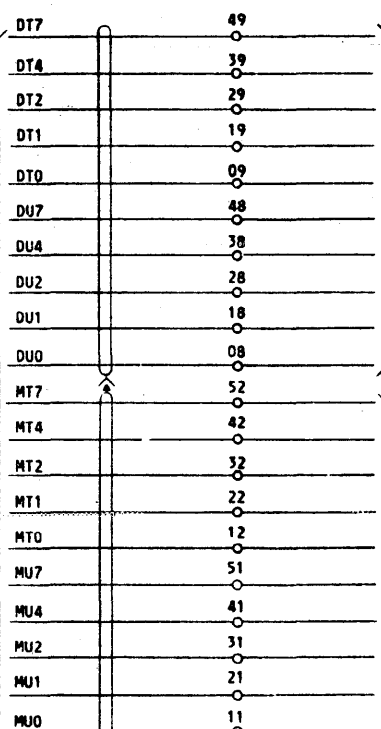
(RUN FROM MA
TIMER ASSOC
WITH FIRST TV
GP ONLY)

TO JK, LP, & KEY CKT MASTER
TEST FR RCDR BAY OR CONT
BAY (MFR DISC) OR TO JK,
KEY, & LP CKT TBL RCDR FR
OR TO JK, KEY, & LP CKT TBL
TICKETER FR OR PEDESTAL

TO TV TBL IND FR, TO
JK, LP, & KEY CKT ON
MASTER TEST FR
JK BAY OR RCDR
BAY OR AUX CONT BAY
OR TO JK, KEY, & LP
CKT TBL RCDR FR OR TO
JK, KEY, & LP CKT TBL
TICKETER FR OR
TO MISC CKT FOR TBL
RCDR FR

TO TBL RCDR FR

TO RECORDERS
AND RCDR
CONN CKT



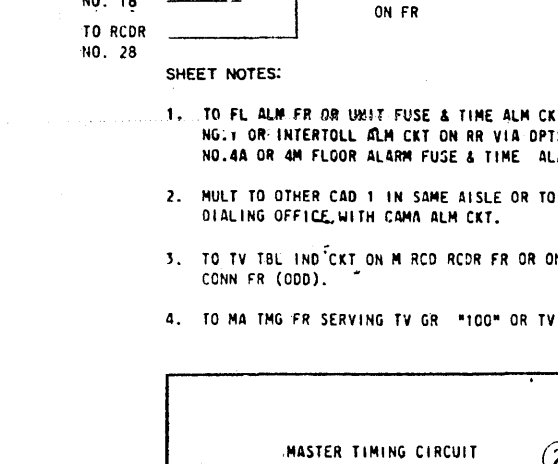
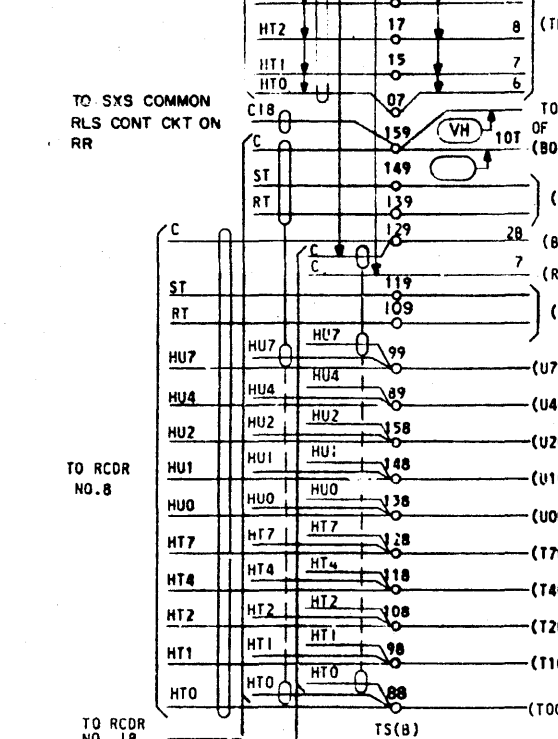
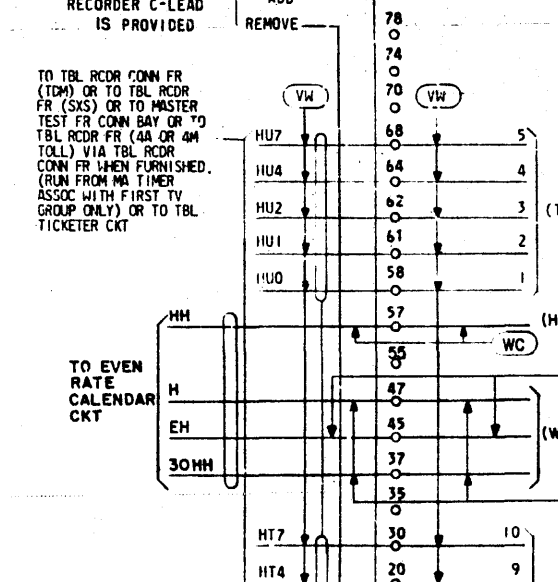
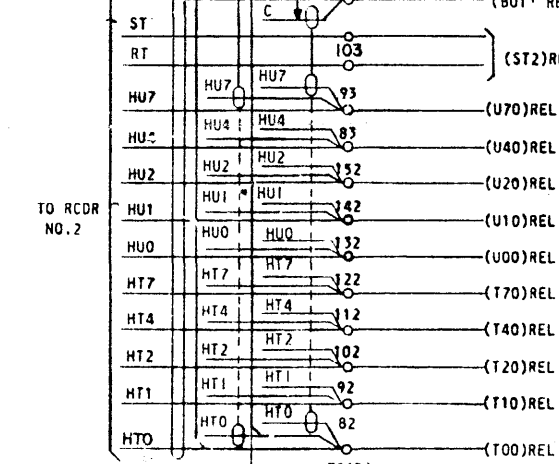
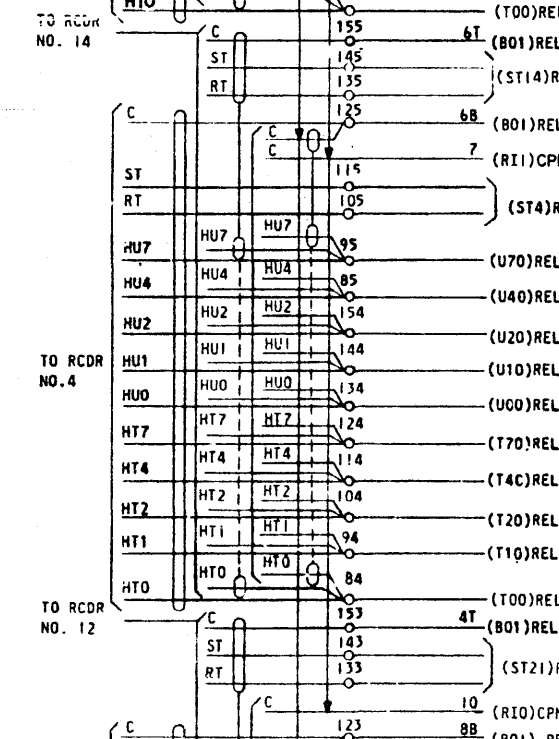
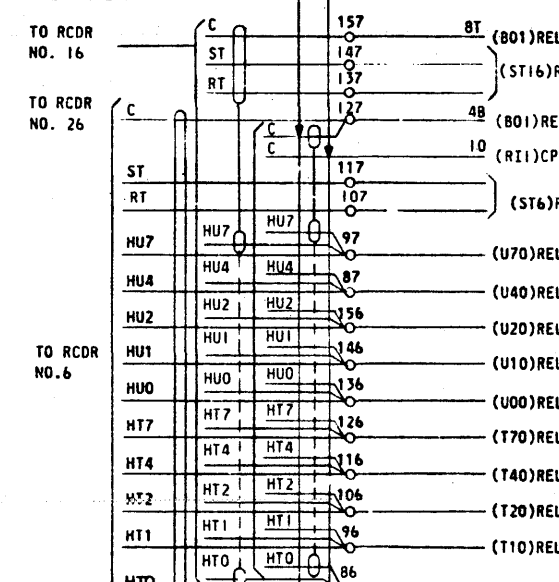
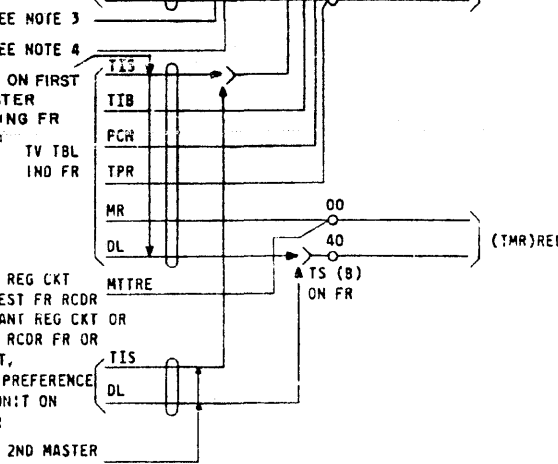
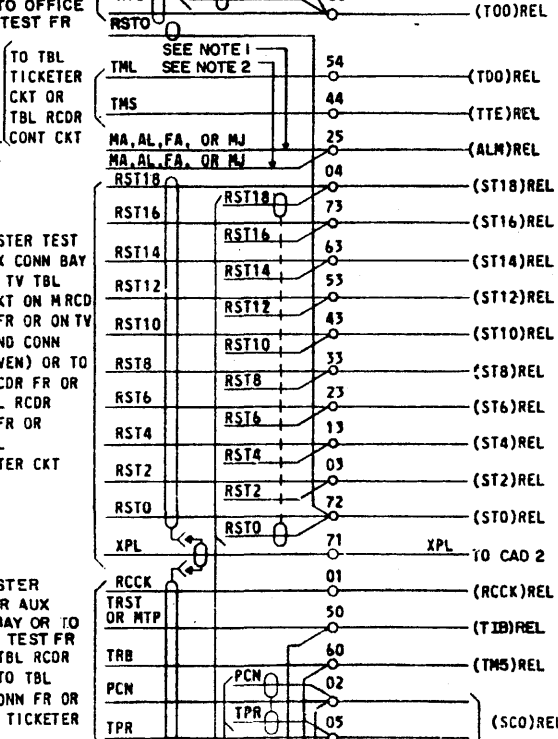
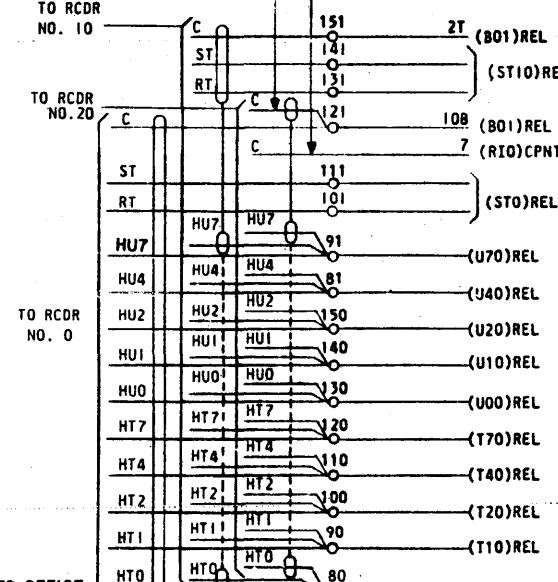
MASTER TEST
FR RCDR BAY
OR TO TBL
RCDR FR OR
MASTER TEST
FR AUX CONT
BAY

TO MASTER TEST
FR AUX CONN BAY
OR TO TV TBL
IND CKT ON MRCO
RCDR FR OR ON TV
TBL IND CONN
FR (EVEN) OR TO
TBL RCDR FR OR
TO TBL RCDR
CONN FR OR
TO TBL
TICKETER CKT

TO MASTER
TEST FR AUX
CONN BAY OR TO
OFFICE TEST FR
OR TO TBL RCDR
FR OR TO TBL
RCDR CONN FR OR
TO TBL TICKETER
CKT

SEE NOTE 3
SEE NOTE 4
R- ON FIRST
MASTER
TIMING FR
ONLY

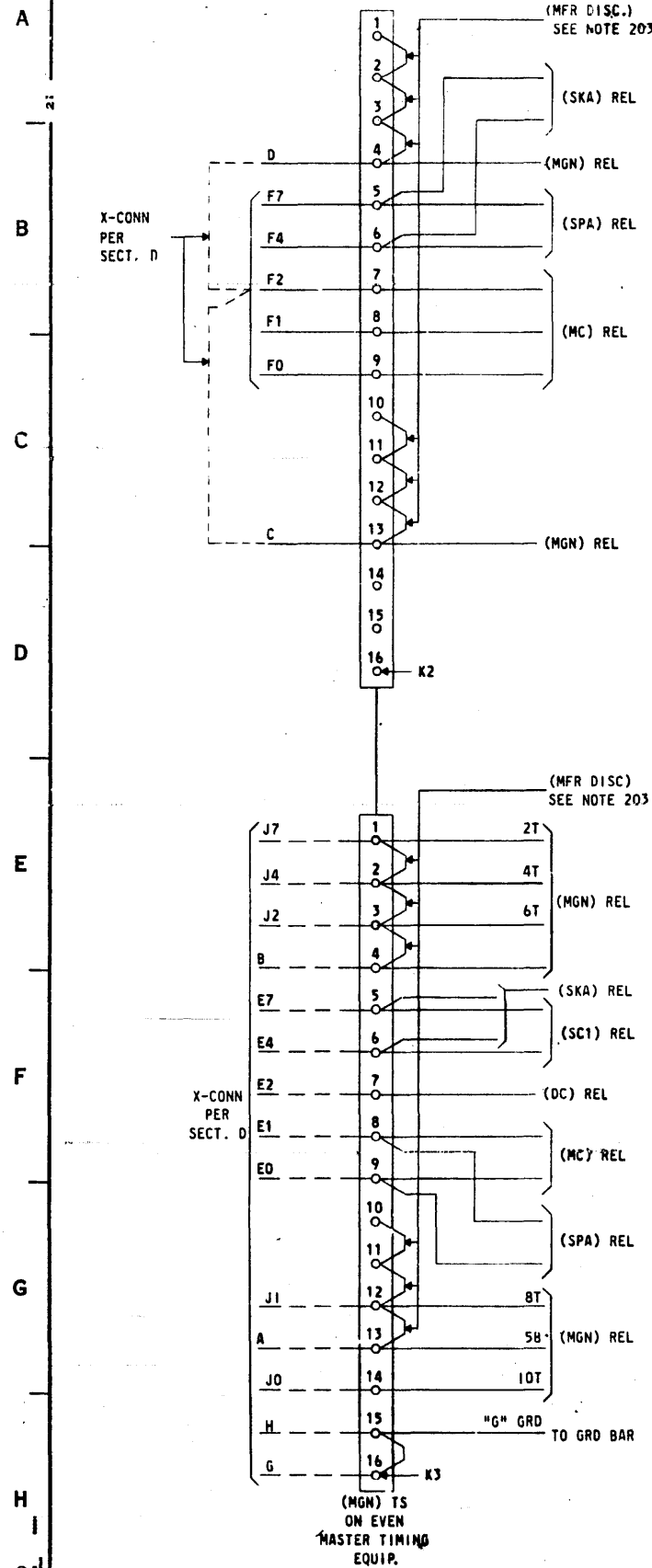
TO PLANT REG CKT
MASTER TEST FR RCDR
BAY OR TO SXS PLANT REG CKT
OR
TO MISC CKT FOR TBL RCDR FR OR
TO JACK, KEY, & LP CKT,
TO AUX PREFERENCE
CHAIN UNIT ON
MISC FR
RUN ON 2ND MASTER
TMG FR ONLY



- SHEET NOTES:
- TO FL ALM FR OR UNIT FUSE & TIME ALM CKT OR TO SXS NG-1 OR INTERTOLL ALM CKT ON RR VIA DPTS OR TO NO. 4A OR 4M FLOOR ALARM FUSE & TIME ALARM CKT.
 - MULT TO OTHER CAD 1 IN SAME AISLE OR TO INTERTOLL DIALING OFFICE WITH GAMA ALM CKT.
 - TO TV TBL IND CKT ON M RCD RCDR FR OR ON TV TBL IND CONN FR (ODD).
 - TO MA TMG FR SERVING TV GR "100" OR TV GRP "B".

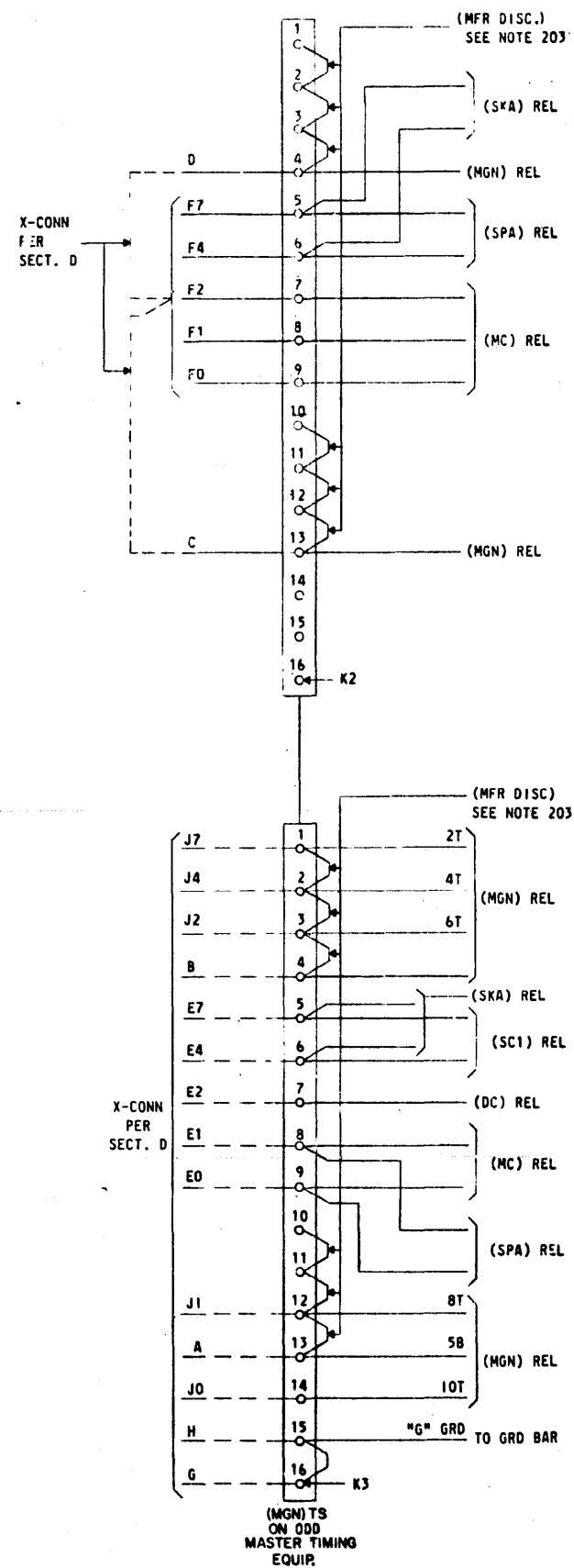
PART OF CAD 1

(FOR APP FIG. A, B, 1, 4, 5, 9, 10, 11, 12, 17, 18, 19, 20, 21, 23, 24, 25, 26, AND 29)
FOR EVEN MASTER TIMER



PART OF CAD 2

(FOR APP FIG. A, B, 2, 3, 4, 6, 7, 13, 14, 15, 16, 17, 18, 20, 21, 24, 25, AND 29)
FOR ODD MASTER TIMER



TO JACK, LP
AND KEY
CKT

TO MASTER TEST CONN
FR OR TO RCDR
CONN CONT AND
PREF RELAY AUX
UNIT ON REL
RACK

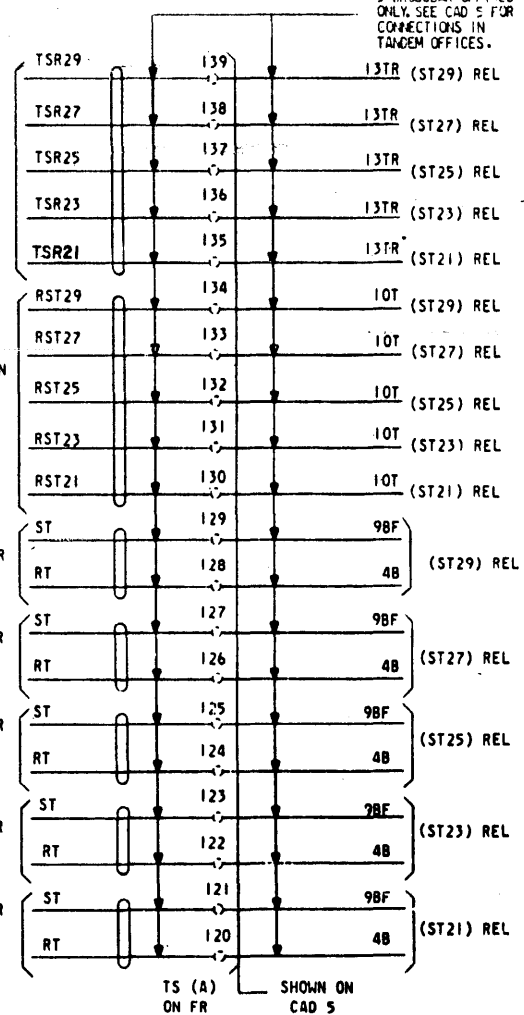
TO RCDR
NO. 29

TO RCDR
NO. 27

TO RCDR
NO. 25

TO RCDR
NO. 23

TO RCDR
NO. 21



DRAWING
ISSUE
310
388

ISSUE
390

MASTER TIMING CIRCUIT

SD-25633-01-G3

BELL TELEPHONE LABORATORIES
INCORPORATED

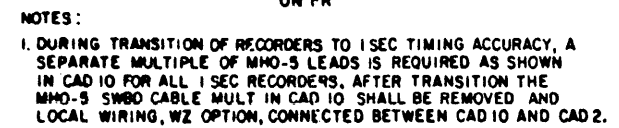
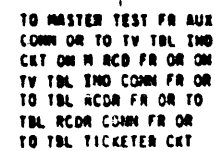
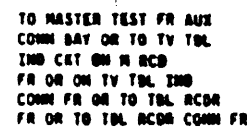
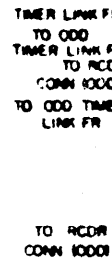
6S

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SD-25633-01-G3

STABLO

(FOR APP FIG. A. 8. 2. 3. 4. 6. 7. 13. 14. 15. 16. 17. 18. 20. 21. 24. 25. AND 29)
FOR ODD MASTER TIMER



ISSUE
58AC

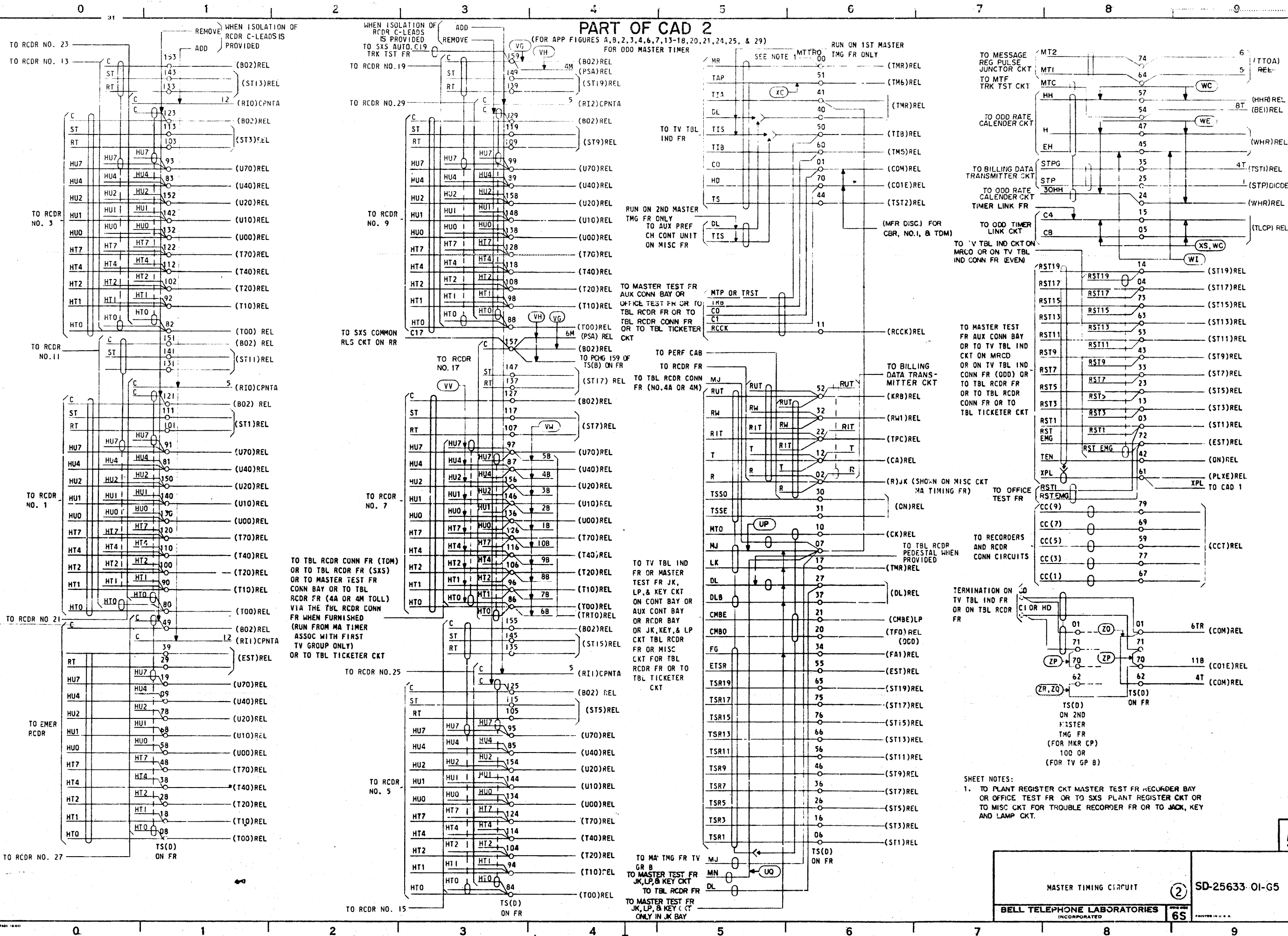
② SD-25633-01-G4

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PART OF CAD 2

(FOR APP FIGURES A, B, 2, 3, 4, 6, 7, 13-18, 20, 21, 24, 25, & 29)
FOR ODD MASTER TIMER



SHEET NOTES:
1. TO PLANT REGISTER CKT MASTER TEST FR RECORDER BAY OR OFFICE TEST FR OR TO SXS PLANT REGISTER CKT OR TO MISC CKT FOR TROUBLE RECORDER FR OR TO JACK, KEY AND LAMP CKT.

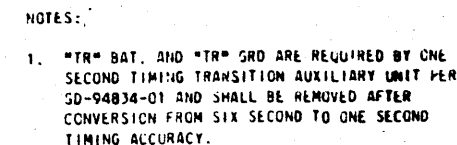
DRAWING	
ISSUE	
310	OG
	GA
	AND



ISSUE
45B

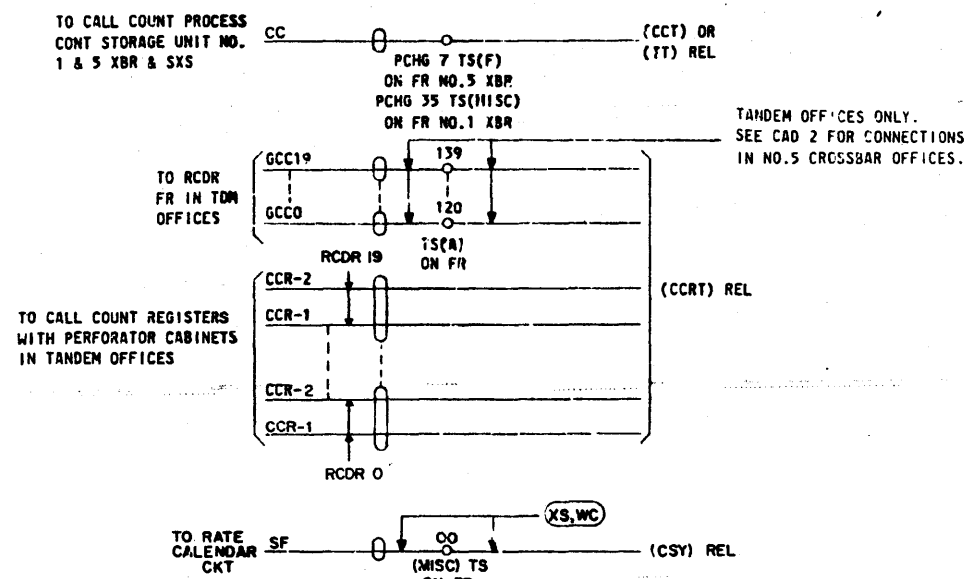
MASTER TIMING CIRCUIT		②	SD-25633-01-G6
BELL TELEPHONE LABORATORIES INCORPORATED		DATE CODE 6S	PRINTED IN U.S.A.

SEE NOTE 1
TO PCMG 11
OF (IA) IS



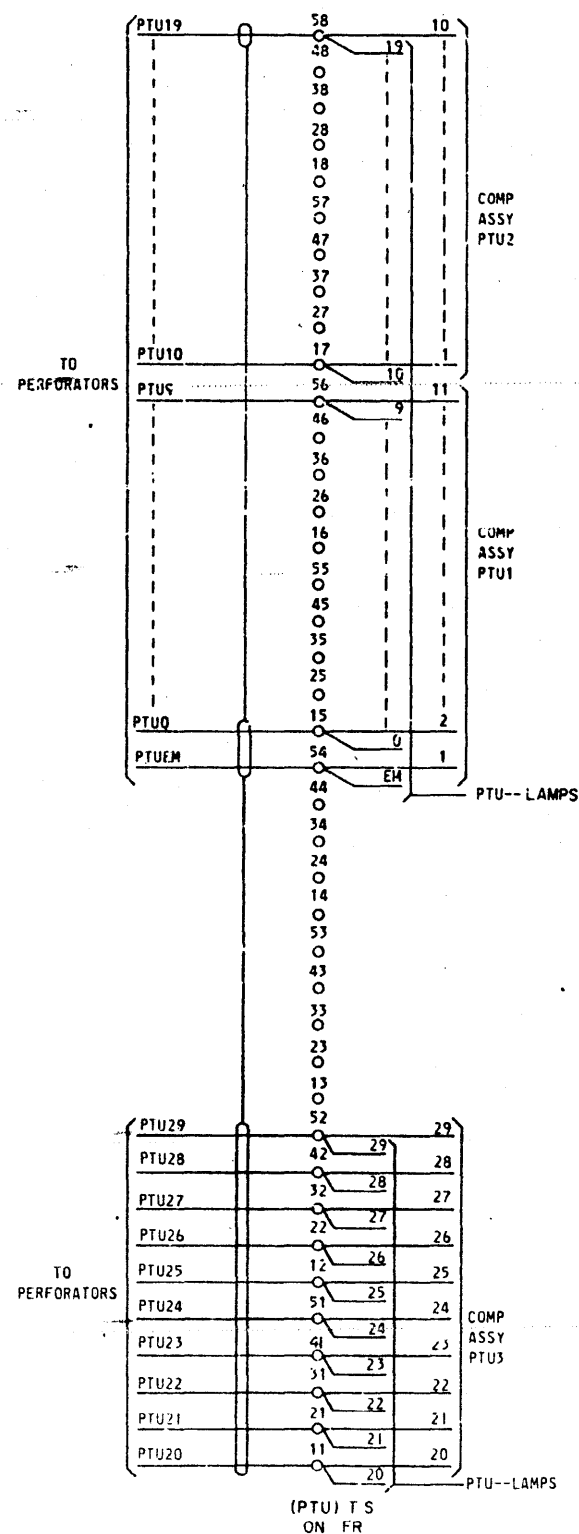
CAD 5

(FOR APP FIG 27, 28, 29 AND D)



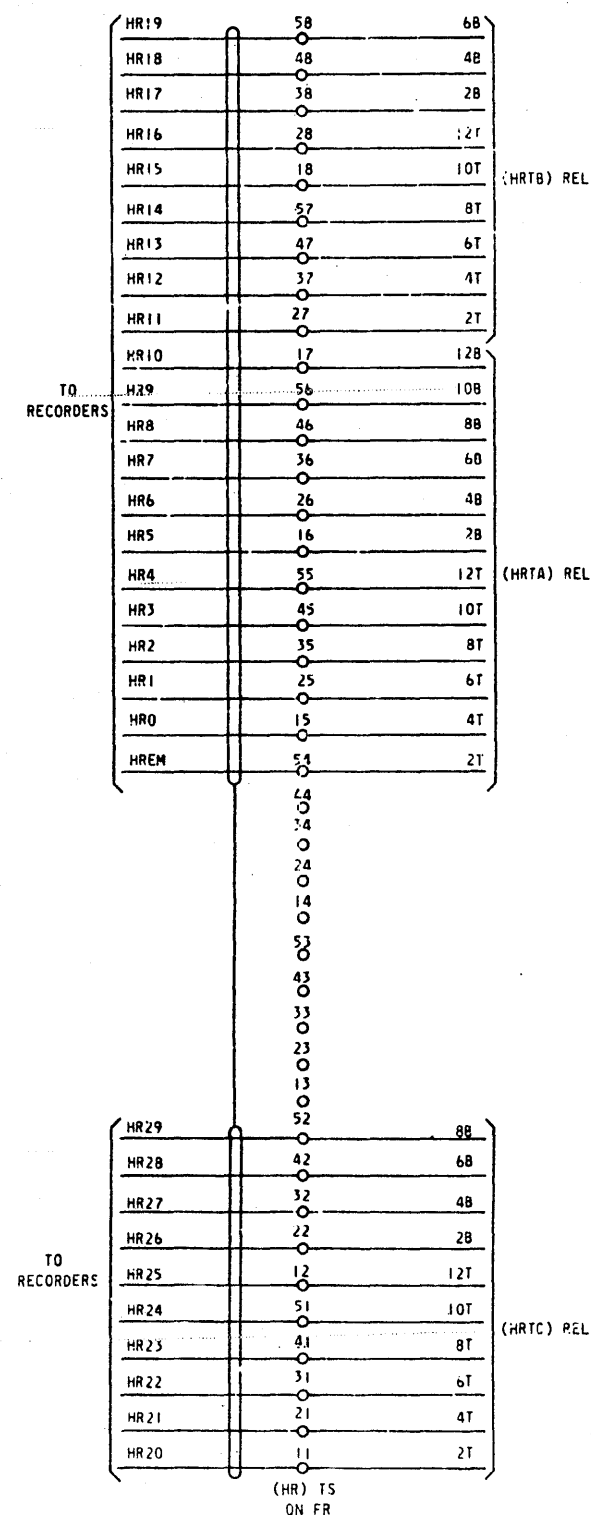
CAD 8

(FOR APP FIG 30)



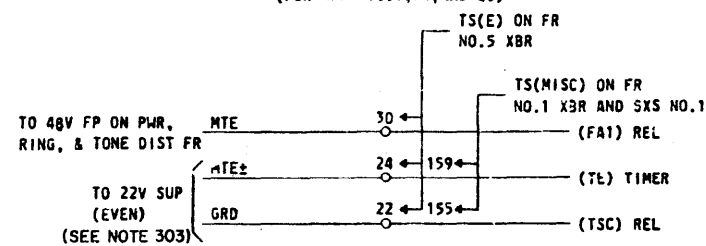
CAD 9

(FOR APP FIG 31)



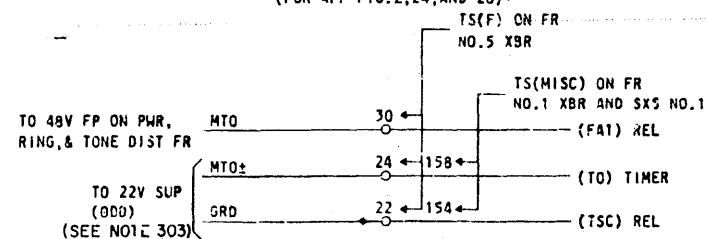
CAD 6

(FOR APP FIG.1, 24, AND 26)



CAD 7

(FOR APP FIG.2, 24, AND 26)



ISSUE
52B

MASTER TIMING CIRCUIT

SD-25633-01-G8

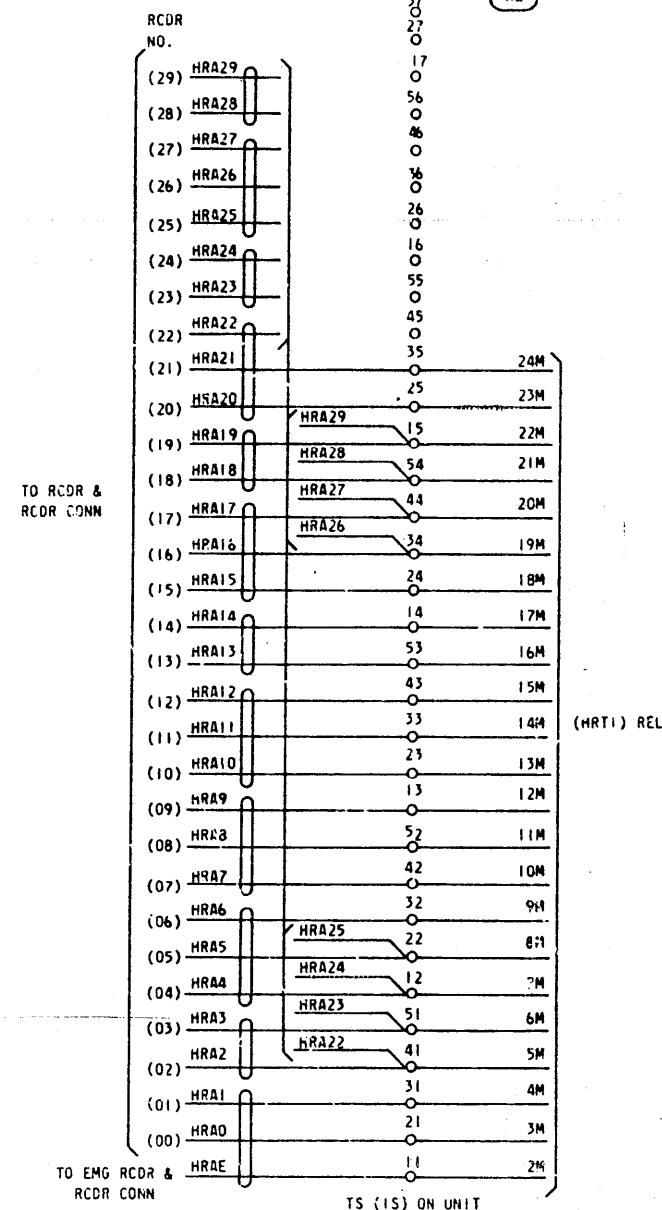
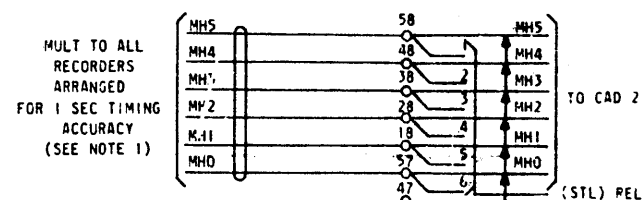
BELL TELEPHONE LABORATORIES
INCORPORATED

6S

PRINTED IN U.S.A.

CAD 10

FOR NO. 1 AND NO. 5 CROSSBAR, CROSSBAR
TANDEM, NO. 4A OR 4M TOLL AND
SXS AND SXS INTERTOLL OFFICES



NOTES:

1. DURING TRANSITION OF RECORDERS TO 1 SEC TIMING ACCURACY, A SEPARATE MULTIPLE OF MHO-5 LEADS IS REQUIRED AS SHOWN IN CAD 10 FOR ALL 1 SEC RECORDERS. AFTER TRANSITION THE MHO-5 SWBD CABLE MULT IN CAD 10 SHALL BE REMOVED AND A LOCAL WIRING, WZ OPTION, CONNECTED BETWEEN CAD 10 AND CAD 2.

