

[illegible]

SUPPORTING INFORMATION

CATEGORY	NO.
CIRCUIT PACK SCHEMATIC	50-1A102-01
EQPT DESIGN REQ	J11068 820-070-150
CONSOLE CONTROL CABINET EQPT	J1A068B
COMMON EQPT UNIT	J1A068B4
CONSOLE CONTROL UNIT	J1A068B8
RELAY UNIT	J1A068B0
DESCRIPTION	231-202-101

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 CHANGED 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.

DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APPROVED
1	1	4-21-66	FLB FES AE	DD AF AF
2A	2A	8-2-67	FLB FES AE	DD AF AF
3A	2A APP 1A	12-29-67	AE AD AD	DD AF MG
4A	3A	12-29-67	AE AD AD	DD AF MG
5A	3A APP 1A	5-9-68	BLF FLB	DD AF MG
6A	3A APP 2A	5-9-68	BLF FLB	DD AF MG
7A	4A	7-30-68	CED RAH	DD GH ML
8A	4A APP 1A	4-28-69	FWS RAH	JFW GH ML
9A	4A APP 2A	4-15-70	PSY JFW BWW	JFW GH MG
10B	4A APP 3A	7-30-70	JFM FLB	JFW GH MG
11B	5B	4-15-74	ASAS JLD	KLE GH ML

APPARATUS INDEX

EQUIP. LOC.	APP. FIG.	
	NO.	SH. NO.
CIRCUIT PACKS		
103-08	1	C1
103-09	1	C1
103-10	1	C1
103-11	1	C1
103-12	1	C1
103-13	1	C1
103-16	1	C1
103-22	1	C1
103-23	1	C1
105-03	1	C2
105-06	1	C2
105-08	1	C2
105-09	1	C2
105-11	1	C2
105-12	1	C2
105-13	1	C2
107-03	1	C2
107-04	1	C2
107-05	1	C2
107-06	1	C2
107-07	1	C2
107-08	1	C2
107-09	1	C2
107-10	1	C2
107-11	1	C2
107-12	1	C2
107-13	1	C2
107-14	1	C2
107-15	1	C2
107-16	1	C2
113-16	3	C4
113-18	3	C4
DESIG.		
LA	1	C2
LSS	1	C2
OBC	1	C2
OSC	1	C2
SYNC	1	C2
TG	1	C1

DESIG.	LOCATION		
	FS	APP. FIG.	EQUIP.
RELAYS			
K32	4B1	3	
KSP	4E4	2	
RR	4E2	1	

4 R-C SHIFT GATES-CP			
DESIG.	FS	APP. FIG.	EQUIP.
PC	1C6	1	103-10
SG0	3B2	1	107-16
SG01	3B3	1	107-16
SG02	3B5	1	107-16
SG03	3B7	1	107-16
SG04-07	3E1	1	107-14
SG08-11	3E2	1	107-12
SG12-15	3E3	1	107-10
SG16-19	3E5	1	107-08
SG20	3E6	1	107-06
SG21	3E8	1	107-06
SG22	3G2	1	107-06
SG23	3G3	1	107-06
SG24	3G5	1	107-04
SG25	3G7	1	107-04
SG1	2B1	1	103-12
SG2	2B2	1	103-12
SG4	2B4	1	103-12
SG8	2B6	1	103-12
SG16	2B8	1	103-10

4 TR FLIP FLOPS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
C	3G4	1	107-03
C1	2B1	1	103-11
C2	2B3	1	103-11
C4	2B5	1	103-11
C8	2B7	1	103-11
C16	2B8	1	103-09
MS	1E4	1	103-09
PC	1C7	1	103-09
R00	3B0	1	107-15
R01	3B2	1	107-15
R02	3B4	1	107-15
R03	3B6	1	107-15
R04-07	3E1	1	107-13
R08-11	3E2	1	107-11
R12-15	3E3	1	107-09
R16-R19	3E5	1	107-07
R20	3E6	1	107-05
R21	3E7	1	107-05
R22	3G1	1	107-05
R23	3G2	1	107-05
SS	1B4	1	103-09
ST	3G6	1	107-03

700 AND 2100 CPS OSCILLATORS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
OSC	1B0	1	105-06

DESIG.	LOCATION		
	FS	APP. FIG.	EQUIP.
CAPACITORS			
C30	4B1	3	
C31	4B1	3	
C32	4E6	2	
C33	4E6	2	
C34	4B1	3	
C35	1E1	1	

DIODES			
DESIG.	FS	APP. FIG.	EQUIP.
CR1	4B1	3	
CR2	4C2	3	
CR4	4B1	3	
CR5	4B1	3	
CR6	4B1	3	

DIODE TRANSLATORS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
	5B3	3	113-18
	5B7	3	113-16

FLIP FLOPS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
KSP	4E3	1	103-23

GATES - CP			
DESIG.	FS	APP. FIG.	EQUIP.
ASW	1B6	1	105-12
B0	1E5	1	105-12
B1	1D5	1	105-12
BC	1E4	1	105-11
INT	4F1	1	103-22
INU0	1F1	1	105-11
INV1	1C4	1	105-11
LSP	4G1	1	103-22
RR	4E1	1	103-22
SH	1F6	1	105-11
SH0	1F8	1	105-11
SH1	1F8	1	105-11
SH2	1G8	1	105-11
ST	1B5	1	105-11
STC	1F4	1	105-12
TR	2E5	1	105-12

INDUCTOR			
DESIG.	FS	APP. FIG.	EQUIP.
L10	4B2	3	

LINE AMPLIFIERS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
LA	1D1	1	105-03

LINE SIGNAL AMPLIFIERS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
LSS	1D2	1	105-09

DESIG.	LOCATION		
	FS	APP. FIG.	EQUIP.
OSCILLATOR BUFFER CIRCUIT - CP			
OBC	1E1	1	105-08

RESISTORS			
DESIG.	FS	APP. FIG.	EQUIP.
R32	4B2	3	
R33	4B1	3	
R34	4B2	3	
R35	4E4	2	
R36	4E4	2	
R37	4E6	2	
R38	4E1	1	

TONE GATES- CP			
DESIG.	FS	APP. FIG.	EQUIP.
TG	2D1	1	103-16

ZERO CROSSINGS - CP			
DESIG.	FS	APP. FIG.	EQUIP.
SYNC	1C2	1	105-11

LEAD INDEX

DESIG.	LOCATION	
	FS	CAD
CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT		
A0-3	3A3	
A4-21	3D4	
B0-3	3A3	
B4	3D4	
B17-21	3D4	
INT	4F2	
LSP	4F2	
RES	3A3	
S0	3A3	
S1	3A3	
S4	3D4	
S5	3D4	
S9	3D4	
S10	3D4	
S14	3D4	
S15	3D4	
S19	3D4	
TR	2E6	

CENTREX DATA LINK CKT		
DESIG.	FS	CAD
R1	1D0	9C1
R2	2D1	9C1
T1	1D0	9C1
T2	2D1	9C1

DESIG.	LOCATION	
	FS	CAD
TEL. CONSOLE C		
BVK	SF4	10D4
BVR	SF4	10D4
CONFK1	SF4	10D4
CONFK2	SF4	10D4
CONFR1	SF4	10D4
CONFR2	SF4	10D4
EXDTK	SF8	10D4
EXDTR	SF8	10D4
EXSRCK	SF8	10D4
EXSRCR	SF8	10D4
HLDK	SF8	10D4
HLDR	SF8	10D4
LPK0	SF1	10C1
LPK1	SF1	10C1
LPK2	SF1	10C1
LPK3	SF2	10C1
LPK4	SF2	10C1
LPK5	SF2	10C1
LPRO	SF1	10C1
LPR1	SF1	10C1
LPR2	SF1	10C1
LPR3	SF2	10C1
LPR4	SF2	10C1
LPR5	SF2	10C1
NTK	SF3	10D4
NTR	SF3	10D4
PBK	SF3	10D4
PBR	SF3	10D4
RDTK	SF6	10D4
RDTR	SF6	10D4
RLSK	SF6	10D4
RLSR	SF6	10D4
RSRCK	SF6	10D4
RSRCR	SF6	10D4
SDTK	SF7	10D4
SDTR	SF7	10D4
SPK1	SF2	10D4
SPK2	SF3	10D4
SPK3	SF5	10D4
SPK4	SF5	10D4
SPR1	SF3	10D4
SPR2	SF3	10D4
SPR3	SF4	10D4
SPR4	SF5	10D4
SSRCK	SF7	10D4
SSRCR	SF7	10D4
STK	SF7	10D1
STR	SF7	10D1
SUPVK	—	10D4
SUPVR	—	10D4

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUITBELL TELEPHONE LABORATORIES
INCORPORATED

(2)

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6S

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DRAWING
ISSUE
1
5A
7AISSUE
11B

LEAD INDEX (CONT)

DESIG	LOCATION	
	FS	CAD
TEL CONSOLE 1		
BVK	5F4	11D4
BVR	5F4	11D4
CONFK1	5F4	11D4
CONFK2	5F4	11D4
CONFR1	5F4	11D4
CONFR2	5F4	11D4
EXDTK	5F8	11D4
EXDTR	5F8	11D4
EXSRCK	5F8	11D4
EXSRCR	5F8	11D4
HLDK	5F8	11D4
HLDR	5F8	11D4
LPK0	5F1	11C1
LPK1	5F1	11C1
LPK2	5F1	11C1
LPK3	5F2	11C1
LPK4	5F2	11C1
LPK5	5F2	11C1
LPRO	5F1	11C1
LPR1	5F1	11C1
LPR2	5F1	11C1
LPR3	5F2	11C1
LPR4	5F2	11C1
LPR5	5F2	11C1
NTK	5F3	11D4
NTR	5F3	11D4
PBK	5F3	11D4
PBR	5F3	11D4
ROTK	5F6	11D4
RDTR	5F6	11D4
RLSK	5F6	11D4
RLSR	5F6	11D4
RSRCK	5F6	11D4
RSRCR	5F6	11D4
SDTK	5F7	11D4
SDTR	5F7	11D4
SPK1	5F2	11D4
SPK2	5F3	11D4
SPK3	5F5	11D4
SPK4	5F5	11D4
SPR1	5F3	11D4
SPR2	5F3	11D4
SPR3	5F4	11D4
SPR4	5F5	11D4
SSRCK	5F7	11D4
SSRCR	5F7	11D4
STK	5F7	11D1
STR	5F7	11D1
SUPVK	—	11D4
SUPVR	—	11D4

DESIG	LOCATION	
	FS	CAD
TEL CONSOLE 2		
BVK	5F4	12D4
BVR	5F4	12D4
CONFK1	5F4	12D4
CONFK2	5F4	12D4
CONFR1	5F4	12D4
CONFR2	5F4	12D4
EXDTK	5F8	12D4
EXDTR	5F8	12D4
EXSRCK	5F8	12D4
EXSRCR	5F8	12D4
HLDK	5F8	12D4
HLDR	5F8	12D4
LPK0	5F1	12C1
LPK1	5F1	12C1
LPK2	5F1	12C1
LPK3	5F2	12C1
LPK4	5F2	12C1
LPK5	5F2	12C1
LPRO	5F1	12C1
LPR1	5F1	12C1
LPR2	5F1	12C1
LPR3	5F2	12C1
LPR4	5F2	12C1
LPR5	5F2	12C1
NTK	5F3	12D4
NTR	5F3	12D4
PBK	5F3	12D4
PBR	5F3	12D4
ROTK	5F6	12D4
RDTR	5F6	12D4
RLSK	5F6	12D4
RLSR	5F6	12D4
RSRCK	5F6	12D4
RSRCR	5F6	12D4
SDTK	5F7	12D4
SDTR	5F7	12D4
SPK1	5F2	12D4
SPK2	5F3	12D4
SPK3	5F5	12D4
SPK4	5F5	12D4
SPR1	5F3	12D4
SPR2	5F3	12D4
SPR3	5F4	12D4
SPR4	5F5	12D4
SSRCK	5F7	12D4
SSRCR	5F7	12D4
STK	5F7	12D1
STR	5F7	12D1
SUPVK	—	12D4
SUPVR	—	12D4

DESIG	LOCATION	
	FS	CAD
TEL CONSOLE 3		
BVK	5F4	13D4
BVR	5F4	13D4
CONFK1	5F4	13D4
CONFK2	5F4	13D4
CONFR1	5F4	13D4
CONFR2	5F4	13D4
EXDTK	5F8	13D4
EXDTR	5F8	13D4
EXSRCK	5F8	13D4
EXSRCR	5F8	13D4
HLDK	5F8	13D4
HLDR	5F8	13D4
LPK0	5F1	13C1
LPK1	5F1	13C1
LPK2	5F1	13C1
LPK3	5F2	13C1
LPK4	5F2	13C1
LPK5	5F2	13C1
LPRO	5F1	13C1
LPR1	5F1	13C1
LPR2	5F1	13C1
LPR3	5F2	13C1
LPR4	5F2	13C1
LPR5	5F2	13C1
NTK	5F3	13D4
NTR	5F3	13D4
PBK	5F3	13D4
PBR	5F3	13D4
ROTK	5F6	13D4
RDTR	5F6	13D4
RLSK	5F6	13D4
RLSR	5F6	13D4
RSRCK	5F6	13D4
RSRCR	5F6	13D4
SDTK	5F7	13D4
SDTR	5F7	13D4
SPK1	5F2	13D4
SPK2	5F3	13D4
SPK3	5F5	13D4
SPK4	5F5	13D4
SPR1	5F3	13D4
SPR2	5F3	13D4
SPR3	5F4	13D4
SPR4	5F5	13D4
SSRCK	5F7	13D4
SSRCR	5F7	13D4
STK	5F7	13D1
STR	5F7	13D1
SUPVK	—	13D4
SUPVR	—	13D4

OPTION INDEX

APP OR WIRING	LOCATION
Z	2D1, 2D2, CAD 5
Y	2D1, 2D2, 2E1, CAD 5
X	1E1
W	4B1, APP FIG. 3
V	4B2, APP FIG. 3

DRAWING	1	FILE	1
ISSUE	2A	FILE	1
11B			

FSI DATA RECEIVER

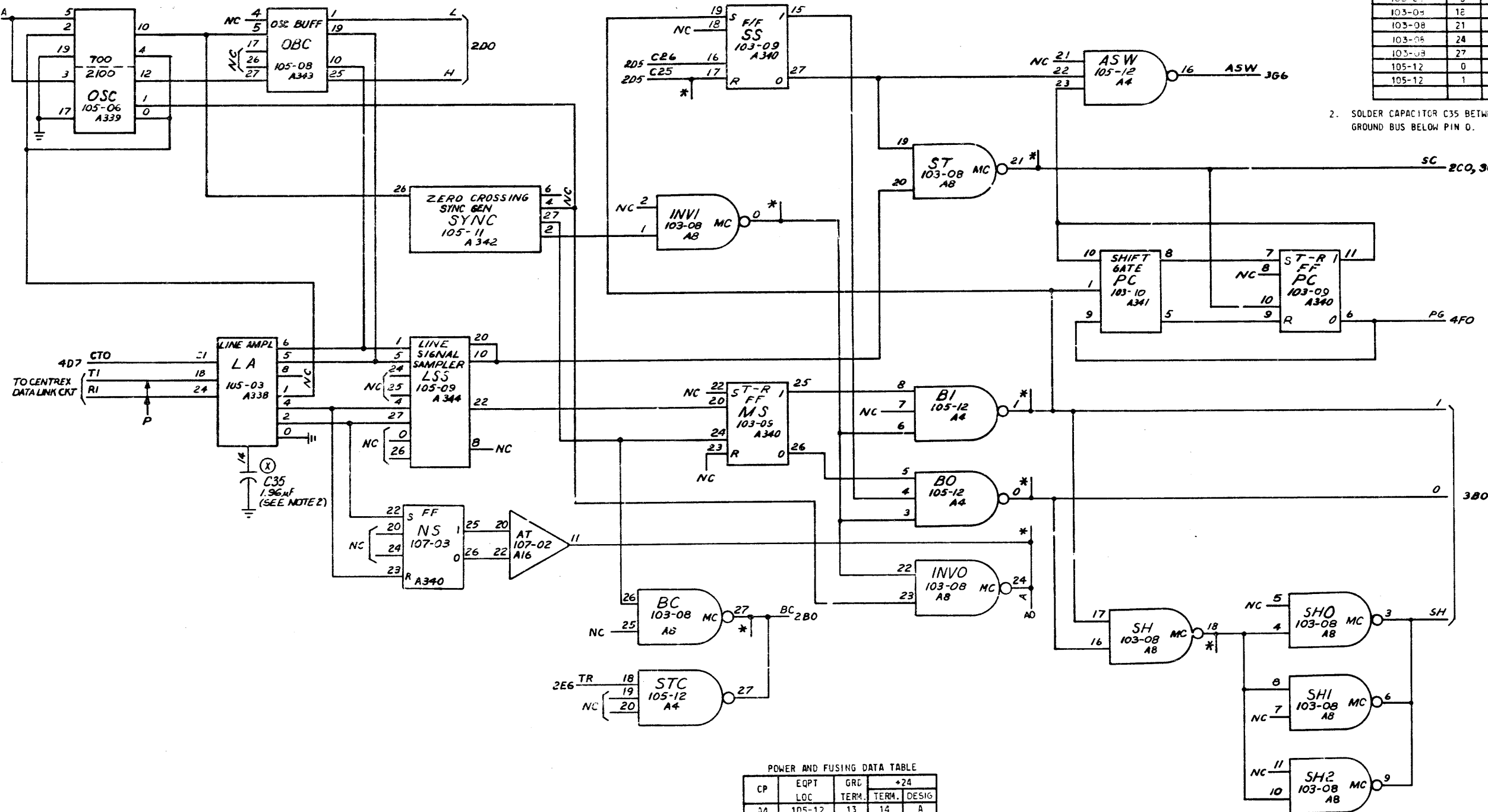
NOTES:

- * IN EXTERNAL COMPONENT CONNECTED PER COMPONENT CONNECTIONS TABLE.

COMPONENT CONNECTIONS TABLE

EQPT LOC	TERM	EQPT LOC	TERM	CP
103-09	17	105-13	6	A35
103-09	0	105-13	2	A35
103-09	18	105-13	1	A35
103-08	21	105-13	18	A35
103-08	24	105-13	10	A35
103-08	27	105-13	9	A35
105-12	0	105-13	7	A35
105-12	1	105-13	8	A35

- SOLDER CAPACITOR C35 BETWEEN PIN 14 AND THE GROUND BUS BELOW PIN 0.



POWER AND FUSING DATA TABLE

CP	EQPT LOC	GRG TERM.	*24 TERM.	*24 DESIG
A4	105-12	13	14	A
A8	103-08	13, 15	14	A
A16	107-02	13	14	A
A35	105-13		14	A
A338	105-07	13	14	A
A339	105-06	13	14	A
A340	103-09	13	14	A
A341	103-10		14	A
A342	105-11	13	14	A
A343	105-08	13	14	A
A344	105-09	13	14	A

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

BELL TELEPHONE LABORATORIES
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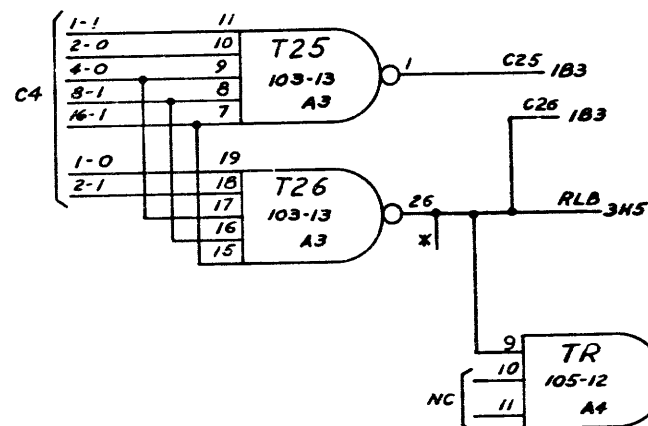
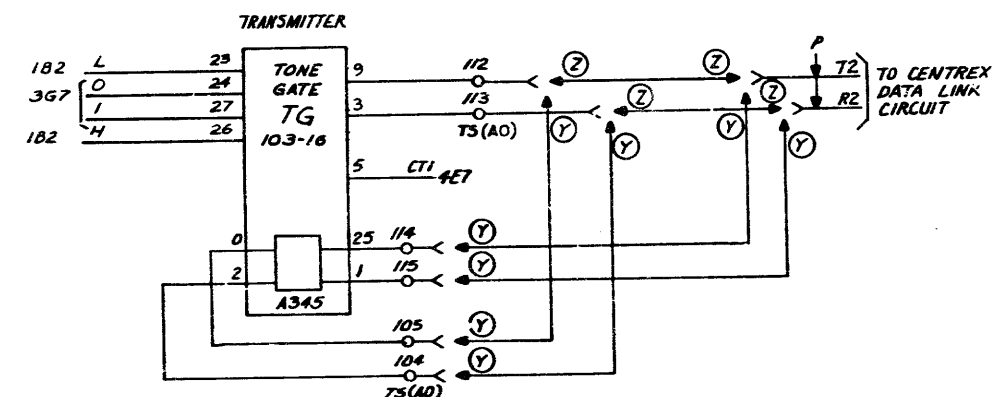
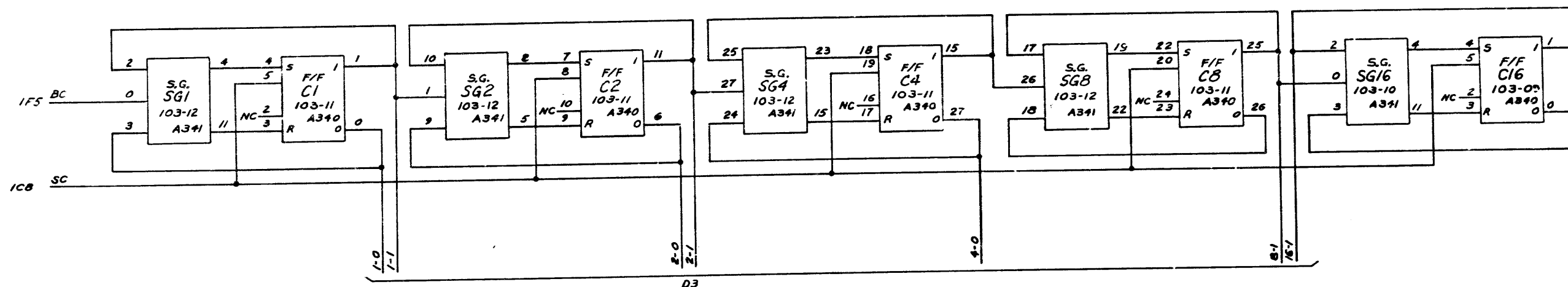
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FS 2 BIT COUNTER

NOTES:

1. X - AN EXTERNAL COMPONENT CONNECTED PER COMPONENT CONNECTIONS TABLE.



COMPONENT CONNECTIONS TABLE				
CKT ELEMENT	CONN TO RESISTORS			
EQPT LOC	TERM.	EQPT LOC	TERM.	CP
103-13	26	105-13	3	A35
105-12	2	105-13	4	A35

POWER AND FUSING DATA TABLE				
CP	EQPT LOC	GRD TERM.	+24 TERM.	DESIG
A3	103-13	13	14	A
A4	105-12	13	14	A
A35	105-13		14	A
A340	103-09	13	14	A
A340	103-11	13	14	A
A341	103-10		14	A
A341	103-12		14	A
A345	103-16	13	14	A

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

2

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BELL TELEPHONE LABORATORIES
INCORPORATED

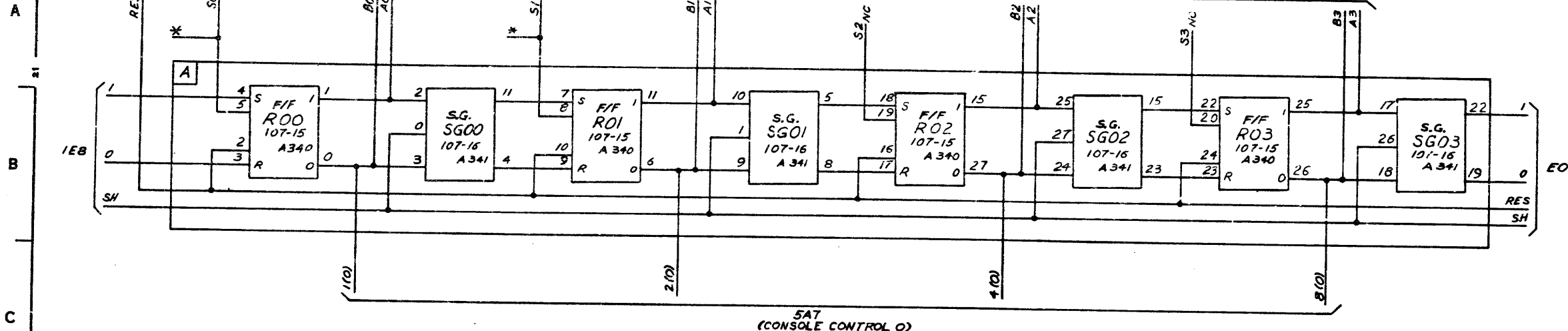
6S

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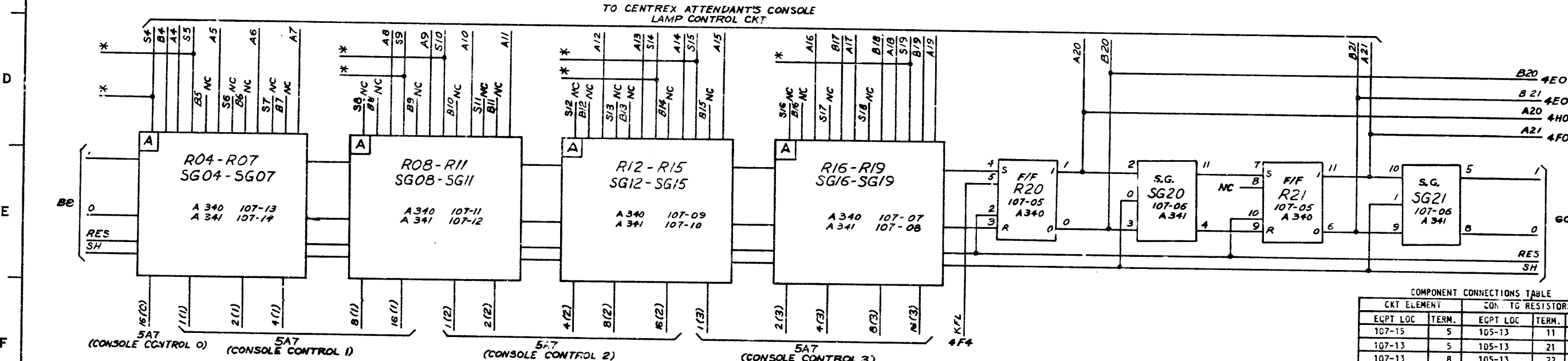
FS3
SHIFT REGISTER
(SEE NOTE 202)

NOTES:
1. * AN EXTERNAL COMPONENT CONNECTED PER COMPONENT CONNECTIONS TABLE.

DRAWING	ISSUE
1	REVISED
2A	FLB
3A	AE AD MG
4A	AE AD MG
7A	



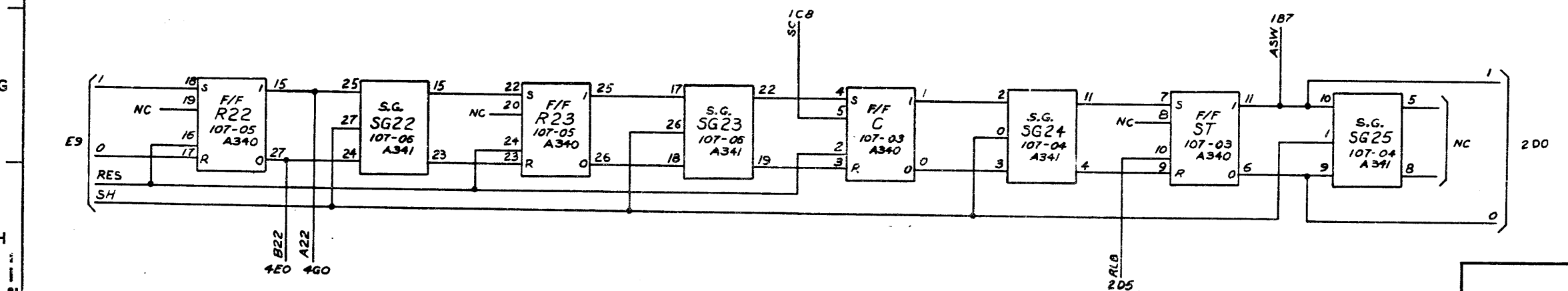
5A7
(CONSOLE CONTROL 0)



5A7 (CONSOLE CONTROL 0) 5A7 (CONSOLE CONTROL 1) 5A7 (CONSOLE CONTROL 2) 5A7 (CONSOLE CONTROL 3)

COMPONENT CONNECTIONS TABLE				
CKT ELEMENT		CON. TO RESISTORS		
EQPT LOC	TERM.	EQPT LOC	TERM.	CP
107-15	5	105-13	11	A35
107-13	5	105-13	21	A35
107-13	8	105-13	22	A35
107-11	8	105-13	23	A35
107-11	19	105-13	24	A35
107-09	19	105-13	25	A35
107-09	20	105-13	26	A35
107-07	20	105-13	27	A35
107-15	8	105-13	5	A35

POWER AND FILING DATA TABLE				
CP	EQPT LOC	GRD TERM.	TERM.	DESIG
A340	ALL	13	14	B
A341	ALL		14	B



FS4 KEY SIGNAL PRESENT (SEE NOTE 202)

NOTES:

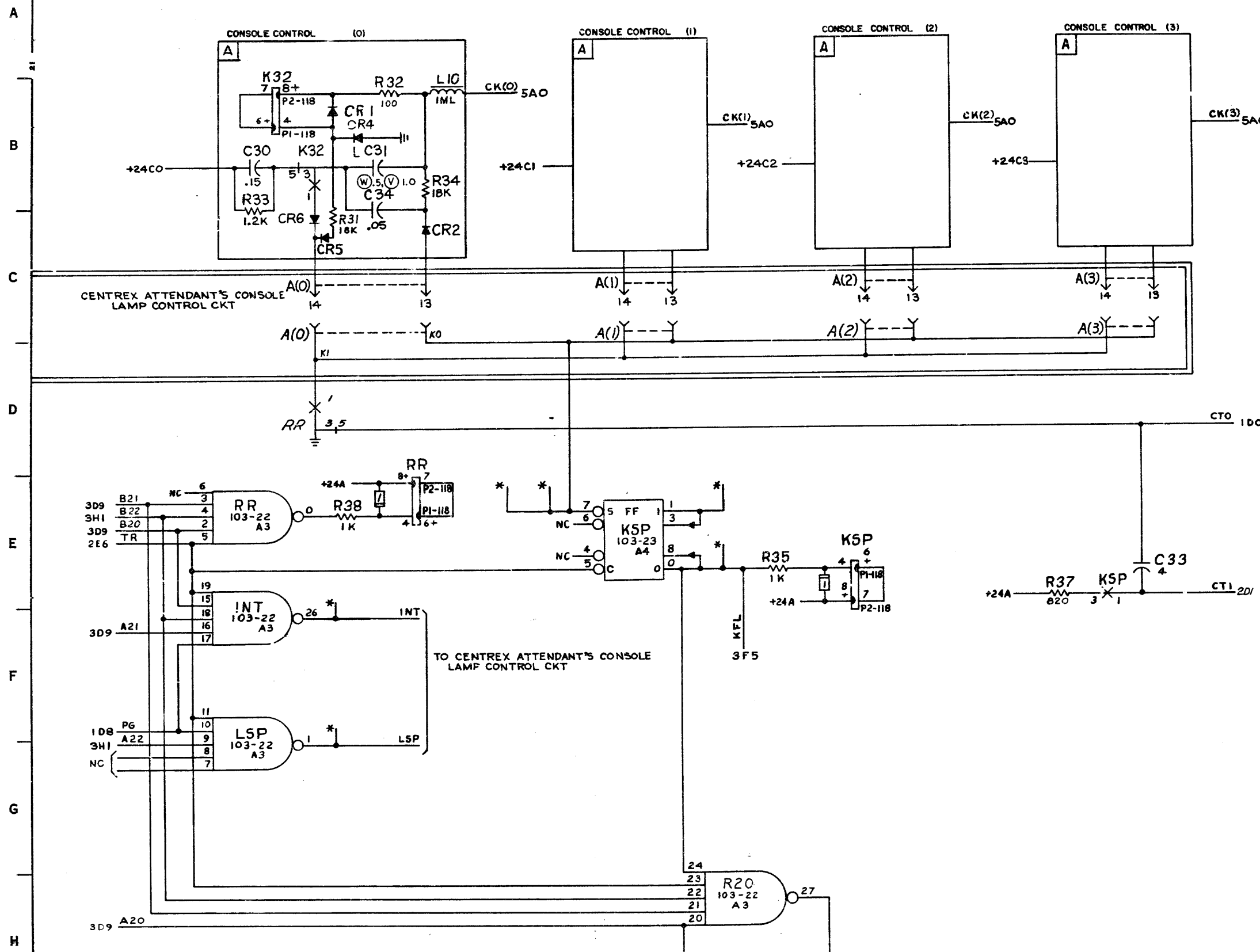
1. * A EXTERNAL COMPONENT CONNECTED PER COMPONENT CONNECTIONS TABLE.

DRAWING	ISSUE
1	1
2A	1
3A	1
5A	1
7A	1

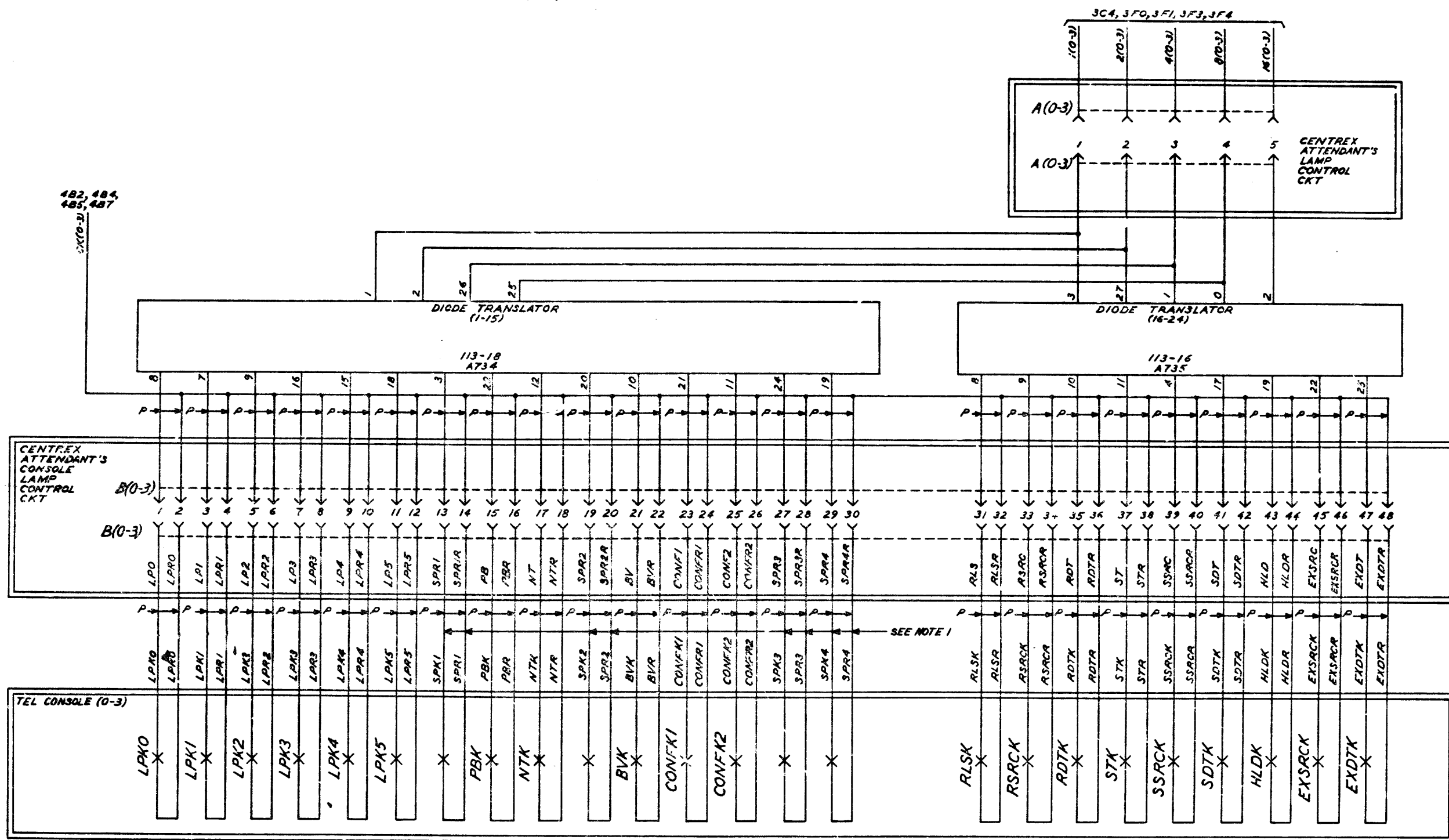
ISSUE
1E

COMPONENT CONNECTIONS TABLE				
CKT ELEMENT	CONN TO RESISTORS			
EQPT LOC	TERM.	EQPT LOC	TERM.	CP
103-22	1	105-13	17	A35
103-22	26	105-13	19	A35
103-23	0	105-13	16	A35
103-23	1	105-13	12	A35
103-23	7	105-13	20	A35
103-23	7	105-13	0	A35

POWER AND FUSING DATA TABLE				
CP	EQPT LOC	GRD TERM.	+24 TERM.	DESIG
A3	103-22	13	14	A
A4	103-23	13	1	A
A35	105-13		14	A



NOTES:
1. THESE ARE SPARE LEADS.



CP	EQPT LOC	GRD TERM	+24	
			TERM	DESIG
A734	113-18		14	C ()
A735	113-16		14	C ()

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

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PART OF APP FIG. 1

[illegible]

DRAWING ISSUE	
1	FLB FLB FLB
2A	FLB FLB FLB
3A	FLB FLB FLB
7A	

[illegible]

*** WHEN THIS CIRCUIT IS USED IN CONJUNCTION WITH THE CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CIRCUIT, THESE POSITIONS ARE USED ON THE CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CIRCUIT.

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

SD-IE059-01-C2

BELL TELEPHONE LABORATORIES

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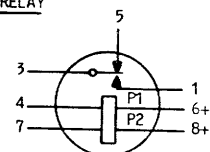
EQPT LOC				107-18		107-19		107-20				107-22				107-24		107-25		107-26				107-28		107-29				107-31		107-32		EQPT LOC	
DESIG				XXX		XXX		XXX				XXX				XXX		XXX		XXX				XXX		XXX				XXX		XXX		DESIG	
OPTION																																		CODE	
ELEMENT LOC		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		OPTION			
TERM.		DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	ELEMENT LOC			
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6																																6			
5																																5			
4																																4			
3																																3			
2																																2			
1																																1			
0																																0			

XXX WHEN THIS CIRCUIT IS USED IN CONJUNCTION WITH

XXX WHEN THIS CIRCUIT IS USED IN CONJUNCTION WITH THE CENTRE ATTENDANT'S CONSOLE LAMP CONTROL CIRCUIT, THESE POSITIONS ARE USED ON THE CENTRE ATTENDANT'S CONSOLE LAMP CONTROL CIRCUIT.

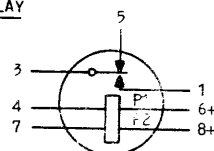
APP FIG. 2

RELAY



DESIG	RR
CODE	03G
OPTION	
8	4E2
7	4E2
6	4E2
5	4D1
4	4E2
3	4D1
2	
1	4D1

RELAY



DESIG	KSP
CODE	303G
OPTION	
8	4E4
7	4E4
6	4E4
5	
4	4E4
3	4E6
2	
1	4E6

NETWORK

DESIG	LOC	CODE
KSP	4E4	185C

RESISTOR

DESIG	LOC	CODE
R35	4E4	KS-19150, L2, 1KΩ
R37	4E6	KS-19151, L2, 820

CAPACITOR

DESIG	LOC	CODE
C35	1E1	596G

NETWORK

DESIG	LOC	CODE
RR	4E1	185C

RESISTOR

DESIG	LOC	CODE
R38	4E1	KS-19150, L2, 1KΩ

CAPACITOR

DESIG	LOC	CODE
C33	4E6	542G

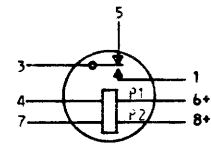
1
FEB
1967

1

6S

PART OF APP FIG. 3

RELAY



DESIG	LOC
CODE	303G
OPTION	
5	4B1
7	4B1
6	4B1
5	4B1
4	4B1
3	4B1
2	4B1
1	4B1

RESISTOR

DESIG	LOC	CODE
R31	4C1	KS-19150, L2, 18K
R32	4B2	KS-19150, L2, 100
R33	4B1	KS-19150, L2, 1.2K
R34	4B2	KS-19150, L2, 18K

CAPACITOR

DESIG	LOC	CODE
C30	4B1	542A-H
C31	4B1	542A-V 542D
C34	4B1	542P

DIODE

DESIG	LOC	CODE
CR1	4B1	458C
CR2	4C2	458C
CR4	4B1	446L
CR5	4B1	446F
CR6	4B1	446F

INDUCTOR

DESIG	LOC	CODE
L10	4A2	302DW

DRAWING	ISSUE
1	RES
2A	FLB
3A	AD
5A	MG
7A	

ISSUE
11B

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

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CIRCUIT NOTES:

101.			
DESIG	FUSE AMP	POTENTIAL	ONE PER
A	1 1/3	+24V	CKT
B	1 1/2	+24V	CKT
C ()	3/4	+24V	TEL CONSOLE
<u>BATTERY</u>		<u>VOLTAGE RANGE</u>	
+24		20.5V-26.3V	
+24V FUSES ARE SUPPLIED AS PART OF THE CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT.			

102.

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR REG	QUANTITY
DATA RECEIVER, BIT COUNTER AND SHIFT REGISTER	1		1 PER CKT
KEY SIGNAL PRESEN	2		1 PER CKT
CONSOLE KEY TRANSLATOR	3		1 PER TEL CONSOLE
TRANSMITTER LOOP LENGTH (SEE WORKING LIMITS NOTE 1,2) SEE NOTE 203		Y	1 PER CKT
		Z	

103.

NETWORK VALUES		
NETWORK NO.	RESISTANCE IN OHMS	CAPACITANCE IN UF
I	560	0.25

104.

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES							
CHANGED ON ISSUE	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CKT			
				STD	A&M	MD	
11B	X	NONE	304	X			
	W OR V	W	305	V		W	

EQUIPMENT NOTES:

201. EQUIPMENT LOCATIONS 113-() ARE FOR CONSOLE 0. FOR CONSOLE 1 EQUIPMENT LOCATIONS WOULD BE 119-(). FOR CONSOLE 2 EQUIPMENT LOCATIONS WOULD BE 207-(). FOR CONSOLE 3 EQUIPMENT LOCATIONS WOULD BE 213-().
202. NUMBER WITHIN THE PARENTHESIS REFERS TO CONSOLE CONTROL POSITION 0, 1, 2, OR 3.
203. JOB RECORDS NEED NOT BE MAINTAINED FOR Z AND Y OPTIONS.
204. THIS EQUIPMENT SHALL BE SHIPPED WITH THOSE CIRCUIT PACKS USED DURING THE EQUIPMENT TEST AT THE TIME OF MANUFACTURE.

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.

HIGHEST RES. AND CAP. USED ON THIS DRAWING	
R38	C35
NOT USED	
R36	C32

303. INDUCTOR NUMBERING STARTS WITH L10.

304. USE OF OPTION X (1.96ufd,C35) PROVIDES ADDITIONAL FILTERING OF THE +24 LEAD. LOCALLY GENERATED NOISE ON THE +24 MAY INTERFERE WITH THE LINE AMPLIFIER AND CAUSE ASW FAILURE INDICATIONS. INSTALLATIONS WITH BATTERY BACKUP AND NO AC RECTIFIERS WITHIN THE CABINET SHOULD CONTAIN THIS OPTION.

305. USE OF OPTION V PROVIDES ADDITIONAL DRIVE TO THE CK LEAD. INSUFFICIENT DRIVE RESULTS IN OCCASIONAL ERRONEOUS KEY SIGNALS. CABINET-TO-CONSOLE CABLE LENGTHS OF UNDER 500 FT. SHOULD BE OK WITH OPTION W. HOWEVER BETWEEN 500 AND 1000 FEET, OPTION V MAY BE REQUIRED.

WORKING LIMITS:

1. MAXIMUM LOOP RESISTANCE IS 1500 OHMS. MAXIMUM LOOP LENGTH IS 45,000 FT. THE SIGNALING PAIRS SHOULD MEET THE SAME TRANSMISSION REQUIREMENTS AS THOSE THAT APPLY TO A NORMAL SUBSET INSTALLATION. THAT IS:

NO LOADING ON LOOPS LESS THAN 18,000 FEET, NORMAL (H88) LOADING ON LOOPS OVER 18,000 FEET.

2. OPTIONS Y AND Z IN THIS CIRCUIT SHOULD BE COORDINATED WITH OPTIONS X,W,Y & Z IN THE CONNECTING CIRCUIT, SD-14265-01, AS FOLLOWS:

LOOP LENGTH	SD-14265-01	SD-1E059-01
LESS THAN 10,000 FT.	Y	Y
10,000-22,000 FEET	W,Y	Z
22,000-30,000 FEET	X	Y
30,000-45,000 FEET	W,X	Z

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

2

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DRAWING
ISSUE

1
FES
2A
5A
6AC
10B

ISSUE

11B

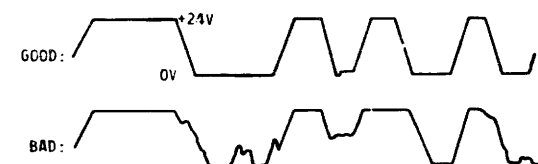
0 1 2 3 4 5 6 7 8 9

TROUBLESHOOTING WAVEFORMS
CTX DATA RECEIVER AND TRANSMITTER CKT

INFORMATION NOTES: (CONT)

350. LINE AMPLIFIER OUTPUT (SHEET B1/LOC D1 A338 TERM. 2 OR 4)

IF SIGNAL IS PRESENT, A TONE OF CORRESPONDING FREQUENCY IS BEING RECEIVED AND PROPERLY AMPLIFIED. IF SIGNAL IS DISTORTED, CHECK PACK AND INTEGRITY OF TIP-RING PAIR T1 & R1.

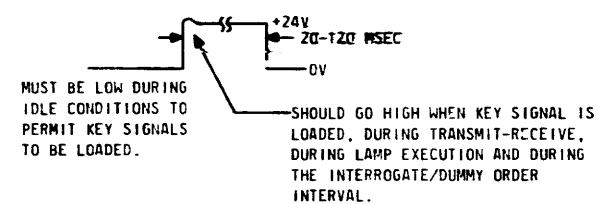


351. MS FLIP-FLOP (SHEET B1/LOC E4 A340 TERM. 25)

IF A SIMILAR SIGNAL IS PRESENT, WITH PULSE WIDTHS OF APPROXIMATELY 200-400 MICROSECONDS, THEN RECEIVED "ONES" ARE BEING DETECTED PROPERLY BY THE LINE SIGNAL SAMPLER, AND VERIFIES PROPER OPERATION OF THE OSCILLATORS, OSC, BUFFER, & ZERO CROSSING SYNC GENERATOR.



352. RR GATE (SHEET B4/LOC E1 103-22 TERM. 0)



353. LSP LEAD (SHEET B4/LOC G1 103-22 TERM. 1)

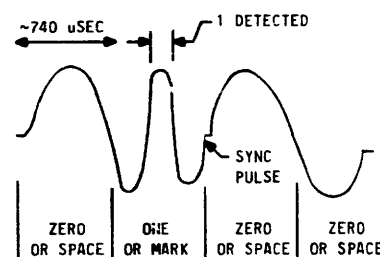
IF LAMP SIGNAL (BIT 22) IS RECEIVED, AND IF PARITY IS GOOD, LEAD WILL GO LOW AT END OF TRANSMISSION AND REMAIN THERE UNTIL REGISTER IS RESET BY A PULSE ON THE RES LEAD.



LAMP SIGNAL PRESENT INDICATION, TO LAMP CONTROL CIRCUIT.

INFORMATION NOTES: (CONT)

354. LOOP SIGNALLING WAVEFORM (TYPICAL)



355. INT LEAD (SHEET B4/LOC F1 103-22 TERM. 26)



GOES LOW AT END OF TRANSMIT-RECEIVE
WHEN BIT 22 = 0
AND BIT 21 = 1

0 1 2 3 4 5 6 7 8 9

PART OF CAD I
(FOR APP FIG. 3 CONSOLE CONTROL UNIT 0)

DRAWING
ISSUE
1
7A

A

B

C

D

E

F

G

H

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

CONN (A) ON CONSOLE CONTROL UNIT 0
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

SD-IE059-01-G1

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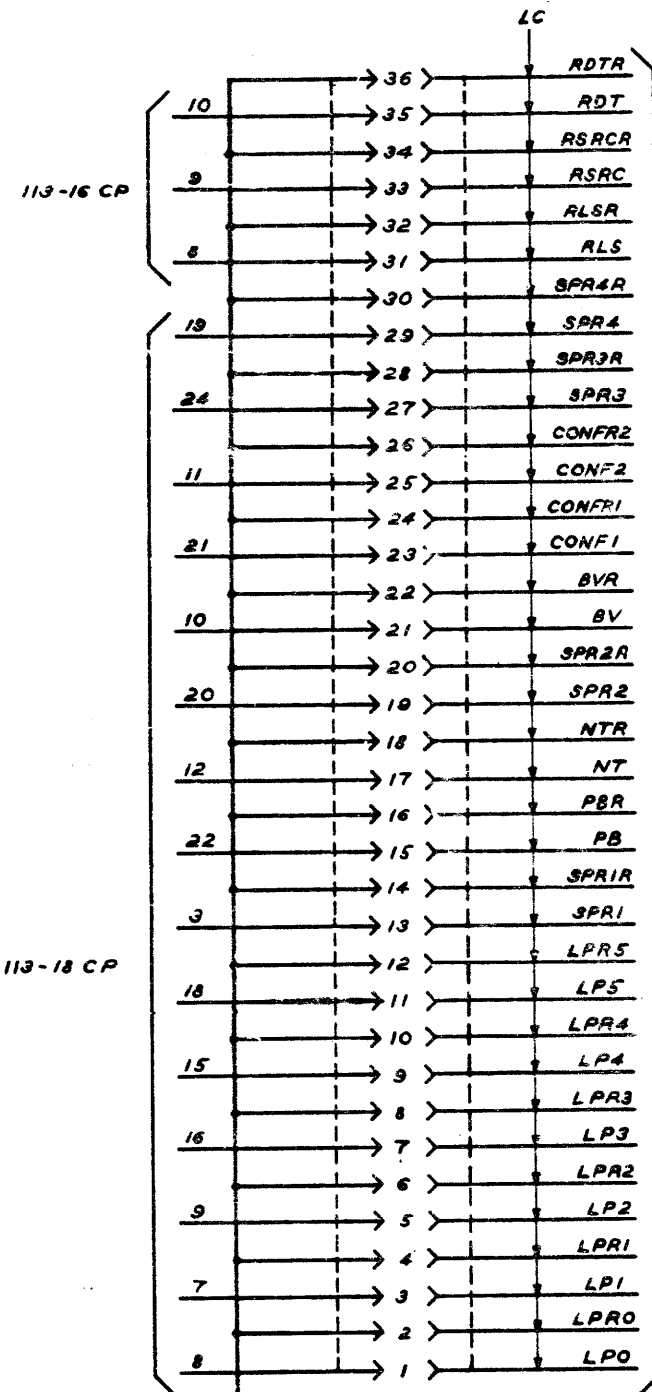
6S

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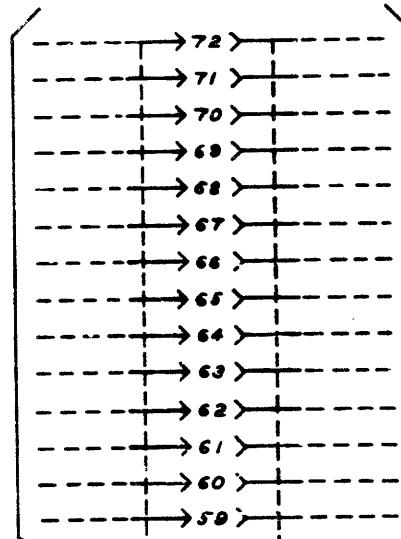
PART OF CAD 1

(FOR APP FIG. 3
CONSOLE CONTROL UNIT 0)



TO CAD 5

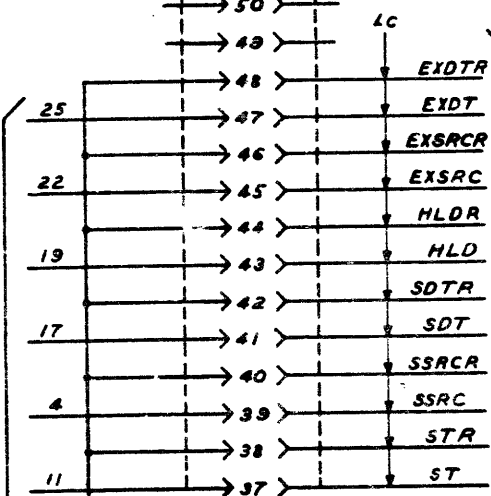
SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP
CONTROL CKT



SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP
CONTROL CKT

SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP
CONTROL CKT

113-16CP



TO CAD 5

(LID) INDR CK(0)

CONN (N) ON CONSOLE CONTROL UNIT 0
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

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6S

PART OF CAD 2

(FOR APP FIG. 3 CONSOLE CONTROL UNIT 1)

DRAWING
ISSUE
1
7A

A

B

C

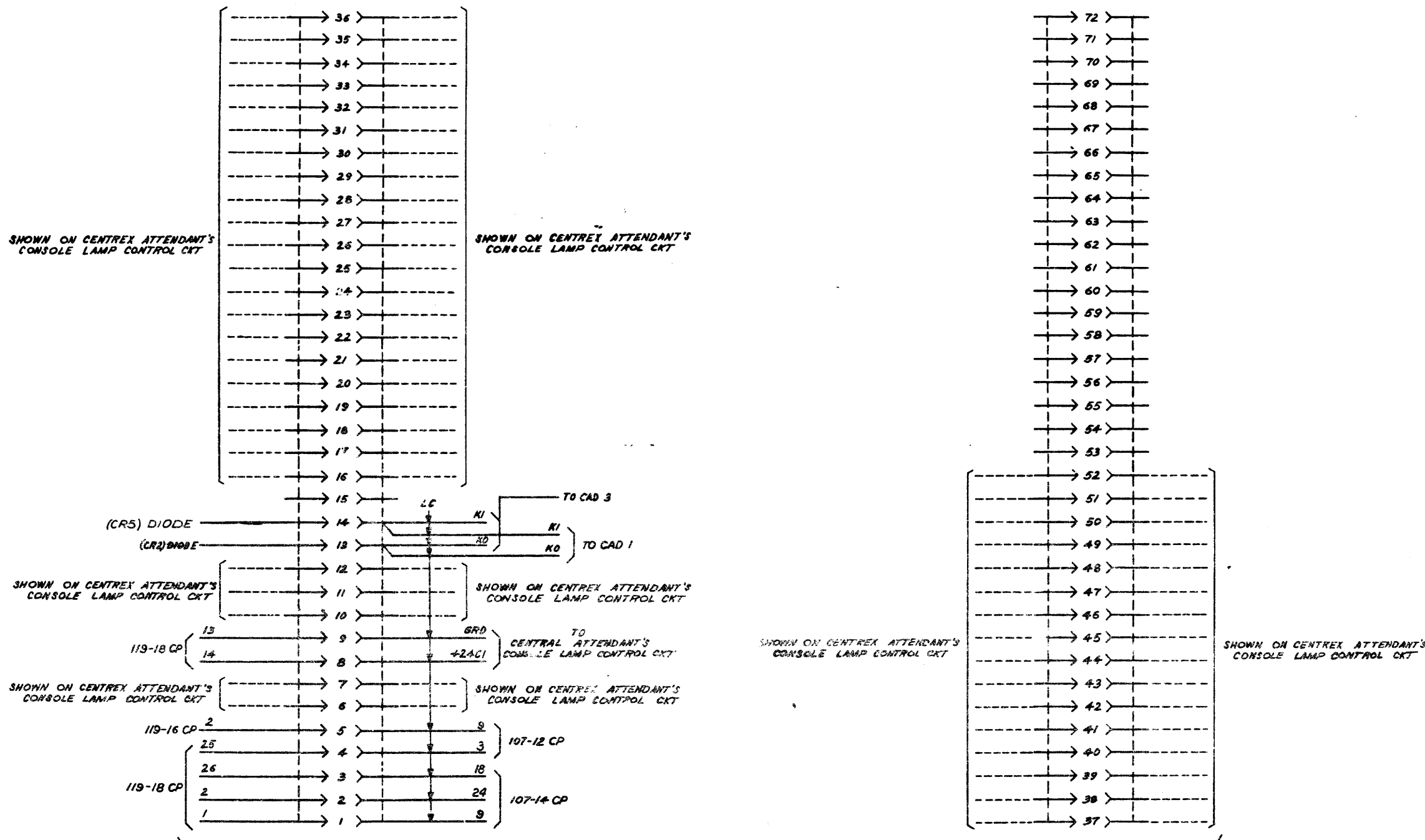
D

E

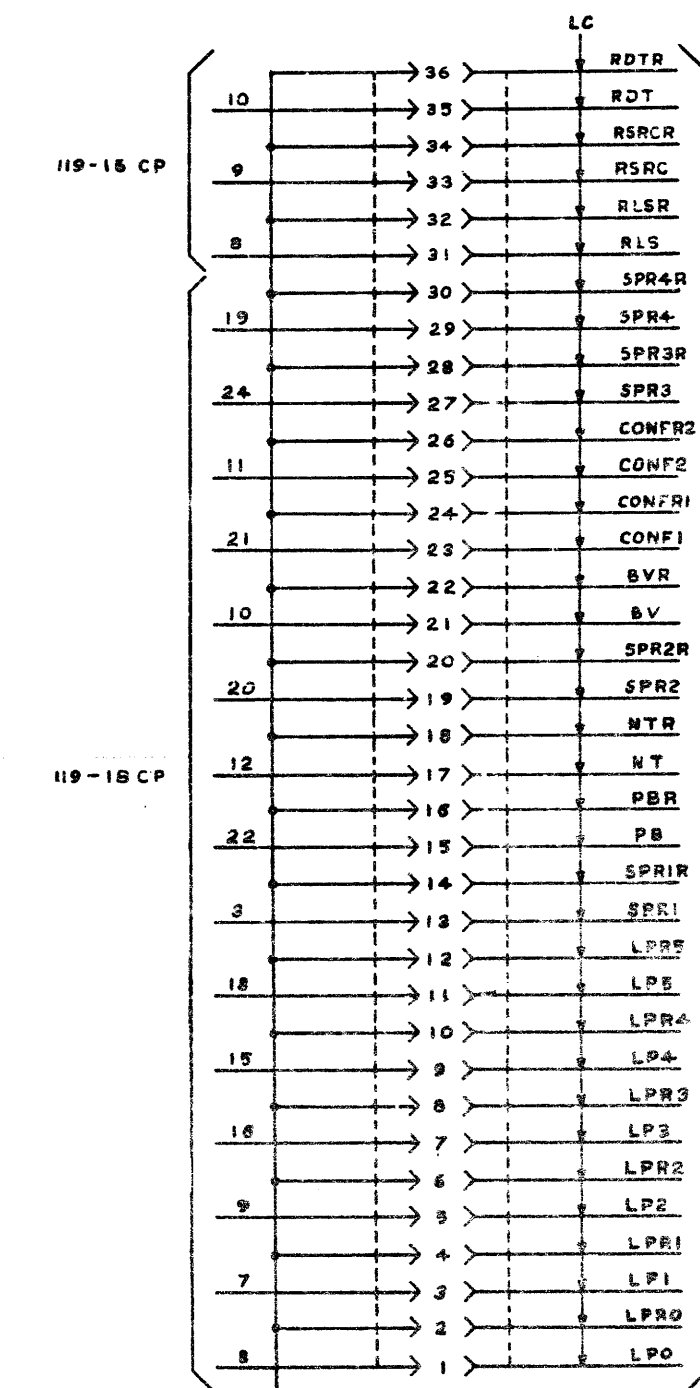
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G

H

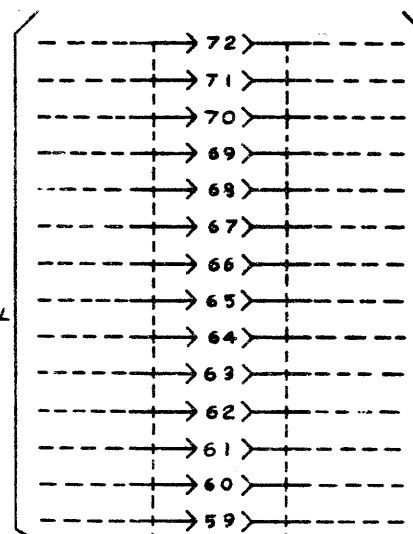


PART OF CAD 2 (FOR APP FIG. 3 CONSOLE CONTROL UNIT 1)

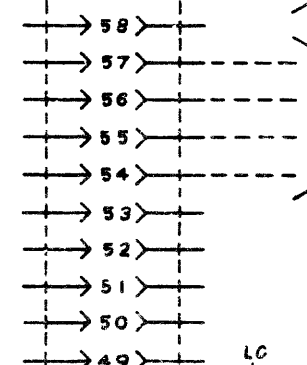


TO CAD 6

SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL
CKT

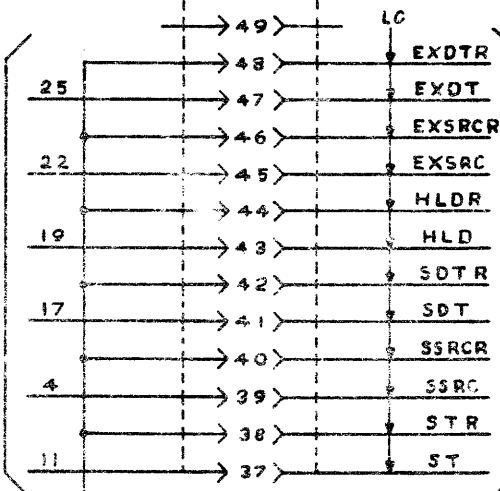


SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL
CKT



SHOWN ON
CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL
CKT

119-18 CP



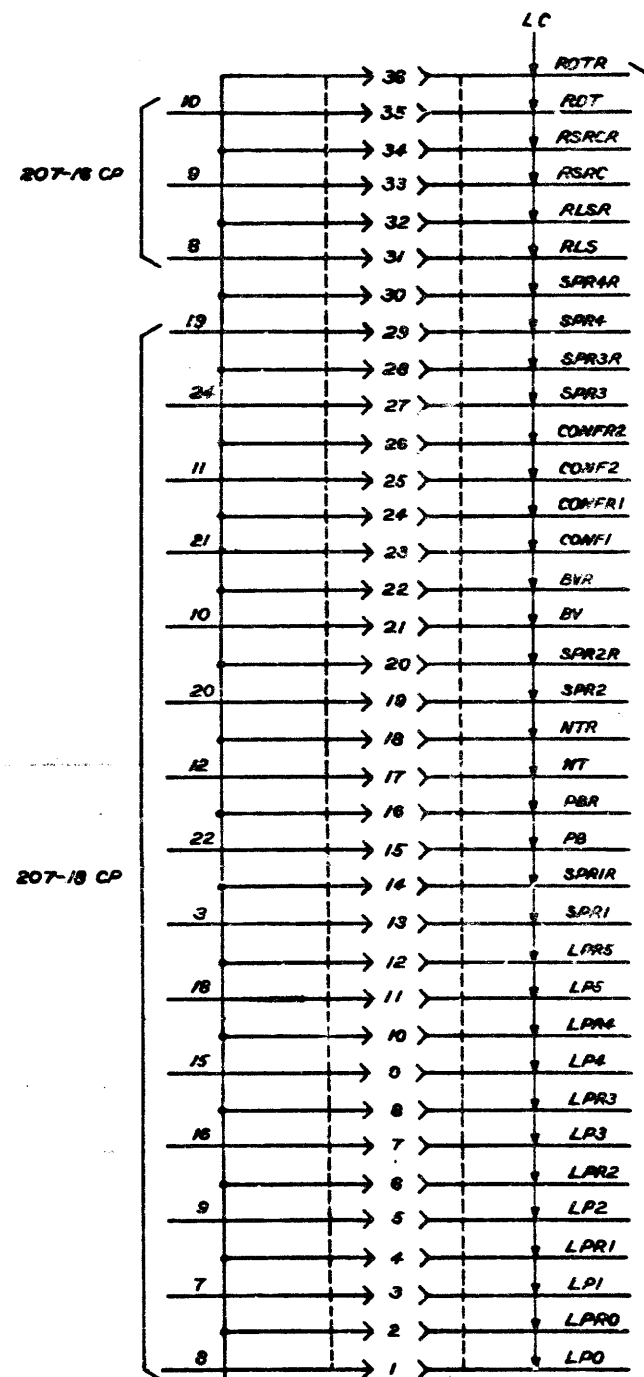
TO CAD 6

(L10) INDR CK(1)

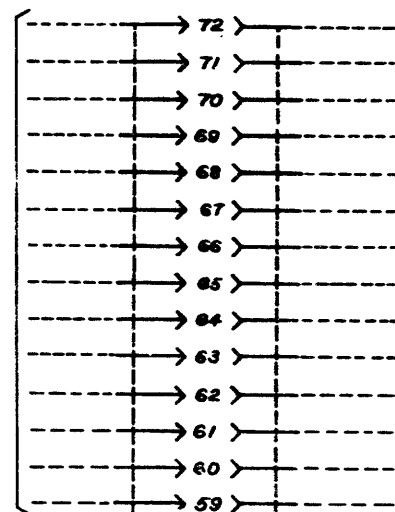
CONN(S) ON CONSOLE CONTROL UNIT 1
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT



PART OF CAD 3 (FOR APP FIG. 3 CONSOLE CONTROL UNIT 2)

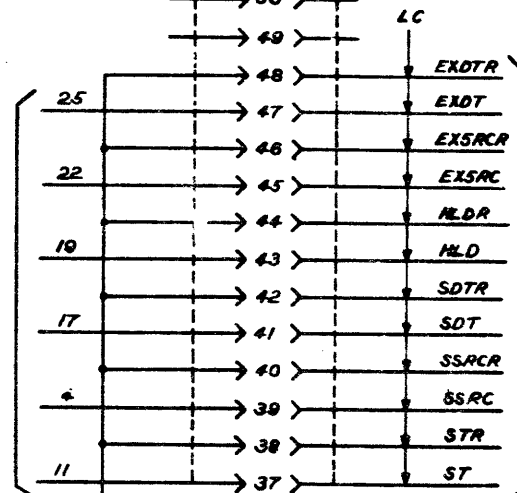


SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT



SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

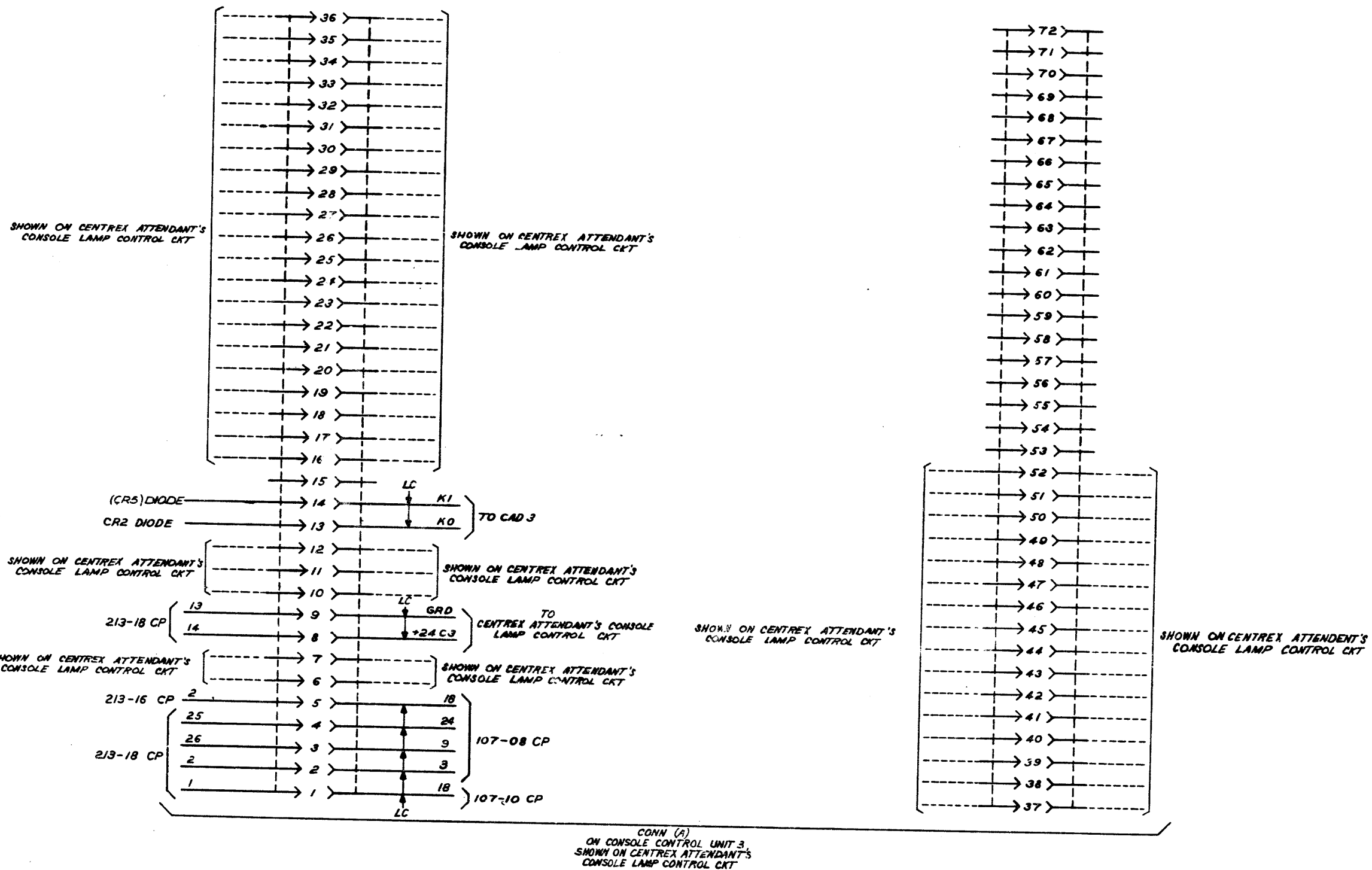


TO CAD 7

(L10)INDR CK(2)

CONN (B)
ON CONSOLE CONTROL UNIT 2
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

PART OF CAD 4
(FOR APP FIG. 3 CONSOLE CONTROL UNIT 3)



DRAWING
ISSUE
1
7A

7

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

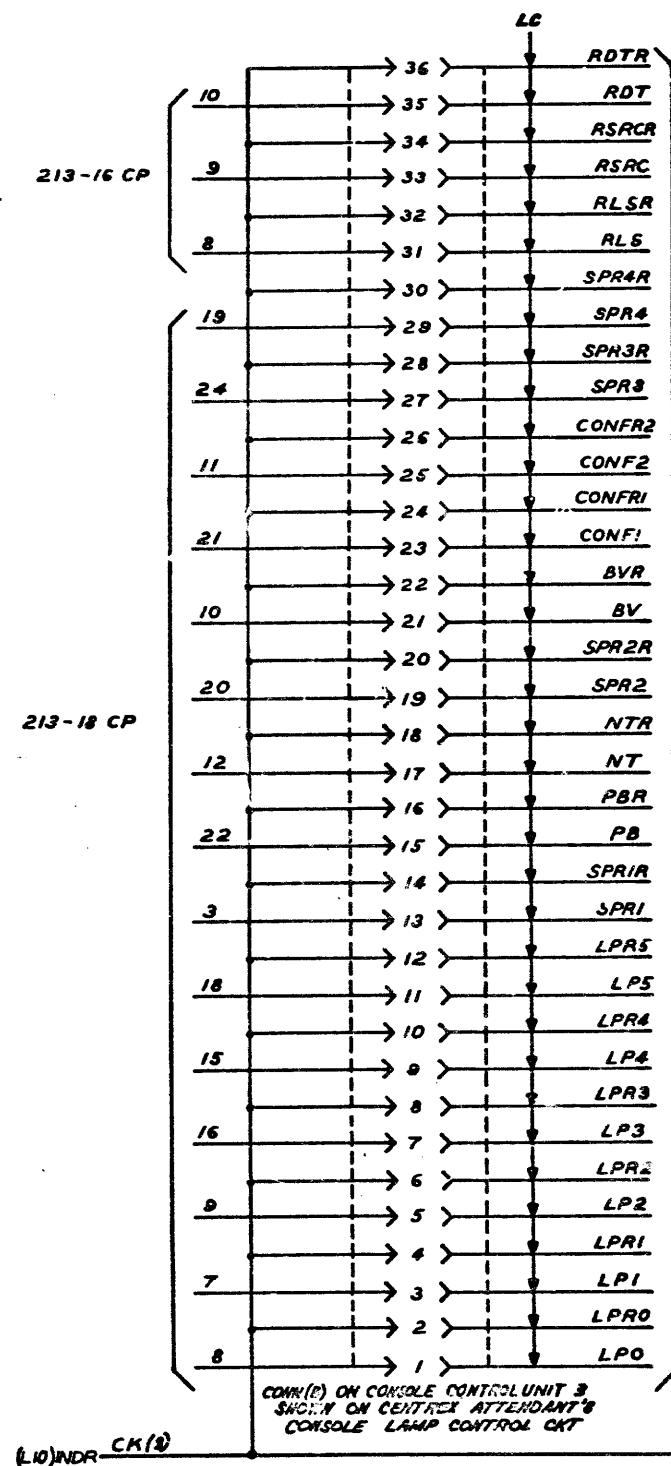
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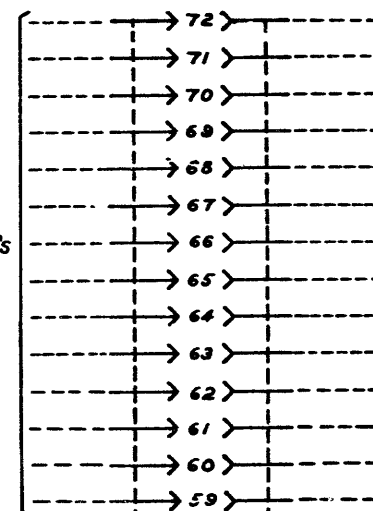
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PART OF CAD 4
(FOR APP FIG. 3 CONSOLE CONTROL UNIT)



TO CAD 8

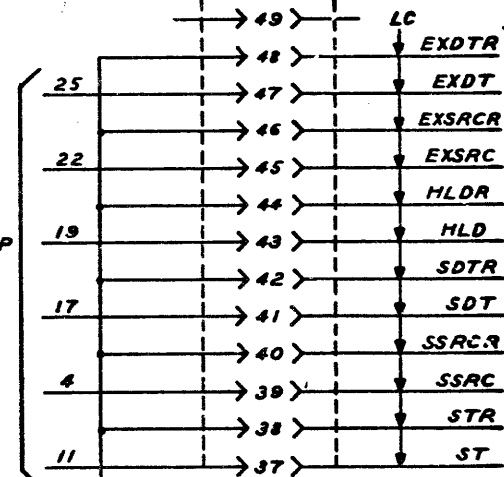
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT



SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

213-16 CP



TO CAD 8

CONN(B) ON CONSOLE CONTROL UNIT 3
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

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CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

2

SD-IE059-01-68

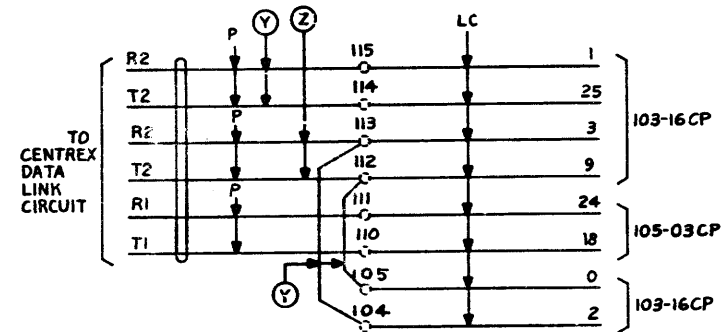
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PART OF CAD 5 (FOR APP FIG. 1)



SHOWN ON
CENTREX ATTENDANT'S CONSOLE
LAMP CONTROL CKT

SHOWN ON
CENTREX ATTENDANT'S CONSOLE
LAMP CONTROL CKT

PART OF TS (AO)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

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A

B

C

D

E

F

G

H



CAD 6 (FOR APP FIG. 3)

TO
TEL CONSOLE 1

TO CAD 2

TO
TEL CONSOLE 1

TO CAD 2

TO
TEL CONSOLE 1

TO CAD 2

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

PART OF TS (BI)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

PART OF TS (BI)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

DRAWING
ISSUE
1
FBS
2A
FLB
8A

8

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

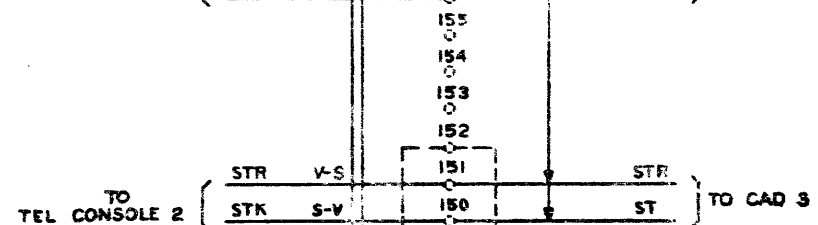
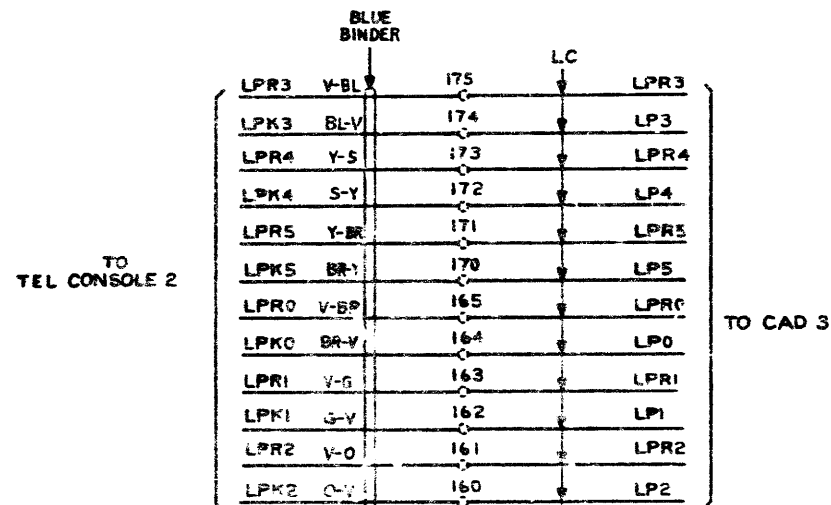
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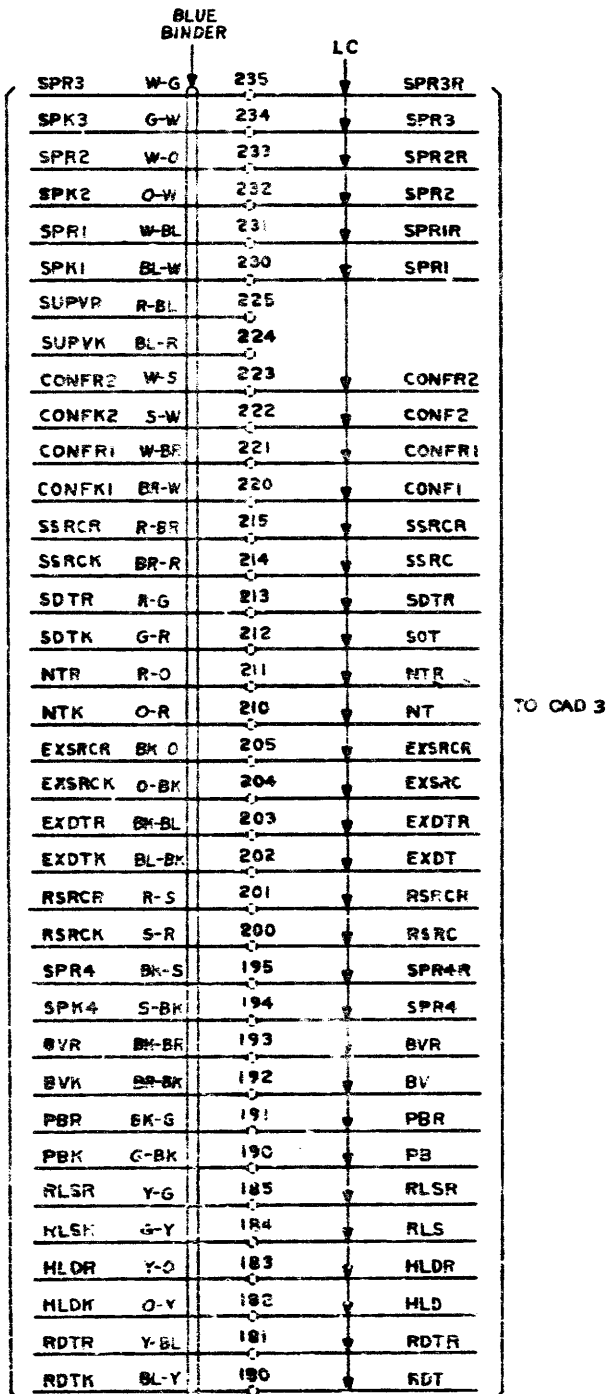
CAD 7 (FOR APP FIG. 3)



SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

PART OF TS (B2)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT



PART OF TS (B2)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

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SD-IE059-01-012

CAD 8 (FOR APP FIG. 3)

BLUE BINDER		LC	
LPR3	V-BL	175	LPR3
LPR3	BL-V	174	LP3
LPR4	Y-S	173	LPR4
LPR4	S-Y	172	LP4
LPR5	Y-B	171	LPR5
LPR5	BR-Y	170	LP5
LPR6	V-BR	165	LPR6
LPR6	BR-V	164	LP6
LPR1	V-G	163	LPR1
LPR1	G-V	162	LP1
LPR2	V-O	161	LPR2
LPR2	O-V	160	LP2

TO
TEL CONSOLE 3

TO CAD 4

STR	V-S	151	STR
STN	S-V	150	ST

TO
TEL CONSOLE 3

TO CAD 4

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

PART OF TS(B3)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

BLUE BINDER		LC	
SPR3	W-G	235	SAR3R
SPK3	G-W	234	SPR3
SPR2	W-O	233	SPR2R
SPK2	O-W	232	SPR2
SPR1	W-BL	231	SPR1R
SPK1	BL-W	230	SPR1
SUPVR	R-BL	225	
SUPVX	BL-R	224	
CONFR2	W-S	223	CONFR2
CONFK2	S-W	222	CONF2
CONFR1	W-B	221	CONFR1
CONFK1	B-W	220	CONF1
SSRCR	R-BR	215	SSRCR
SSRCX	BR-R	214	SSRC
SDTR	R-G	213	SDTR
SDTK	G-R	212	SDT
NTR	R-O	211	NTR
NTX	O-R	210	NT
EXSRCR	BR-O	205	EXSRCR
EXSRCX	O-BK	204	EXSRC
EXDTR	BR-BL	203	EXDTR
EXDTK	BL-BK	202	EXDT
RSRCR	R-S	201	RSRCR
RSRCX	S-R	200	RSRC
SPR4	BK-S	185	SPR4R
SPK4	S-BK	184	SPR4
BVR	BK-BR	183	BVR
BVK	BR-BK	182	BV
PBR	BK-G	181	PBR
PBK	G-BK	180	PB
RLSR	Y-G	185	RLSR
RLSK	G-Y	184	RLS
HLDR	Y-O	183	HLDR
HLDK	O-Y	182	HLD
RDTR	Y-BL	181	RDTR
RDTK	BL-Y	180	RDT

TO CAD 4

PART OF TS(B3)
AT TOP OF CABINET
SHOWN ON CENTREX ATTENDANT'S
CONSOLE LAMP CONTROL CKT

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

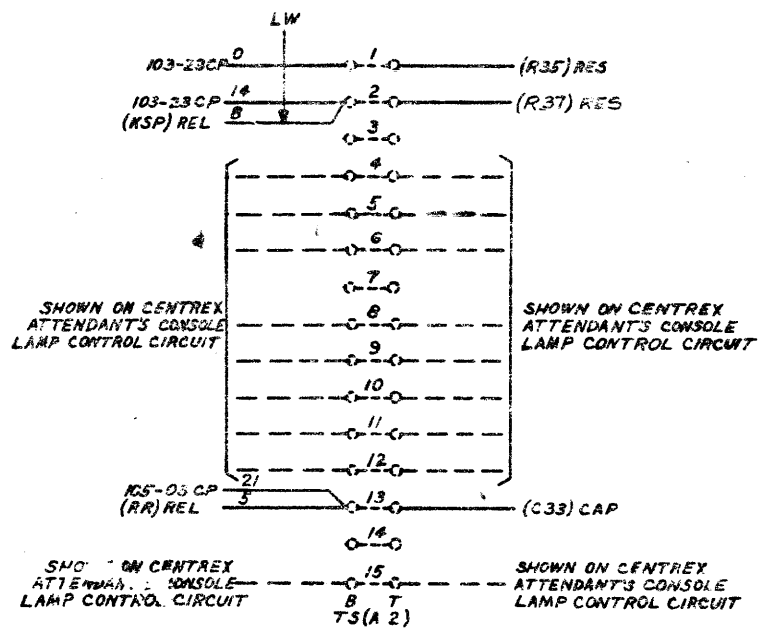
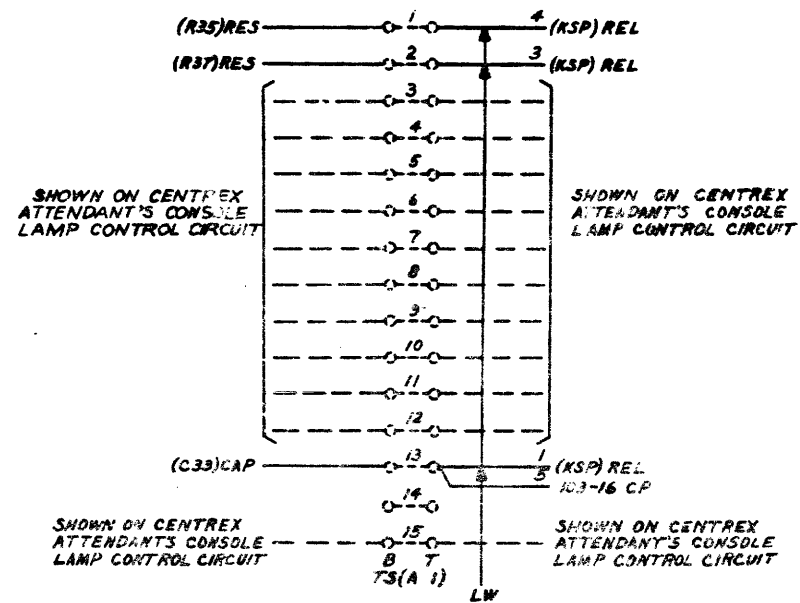
SD-1E059-01-G13

BELL TELEPHONE LABORATORIES

65

NOTES: R.F.E.

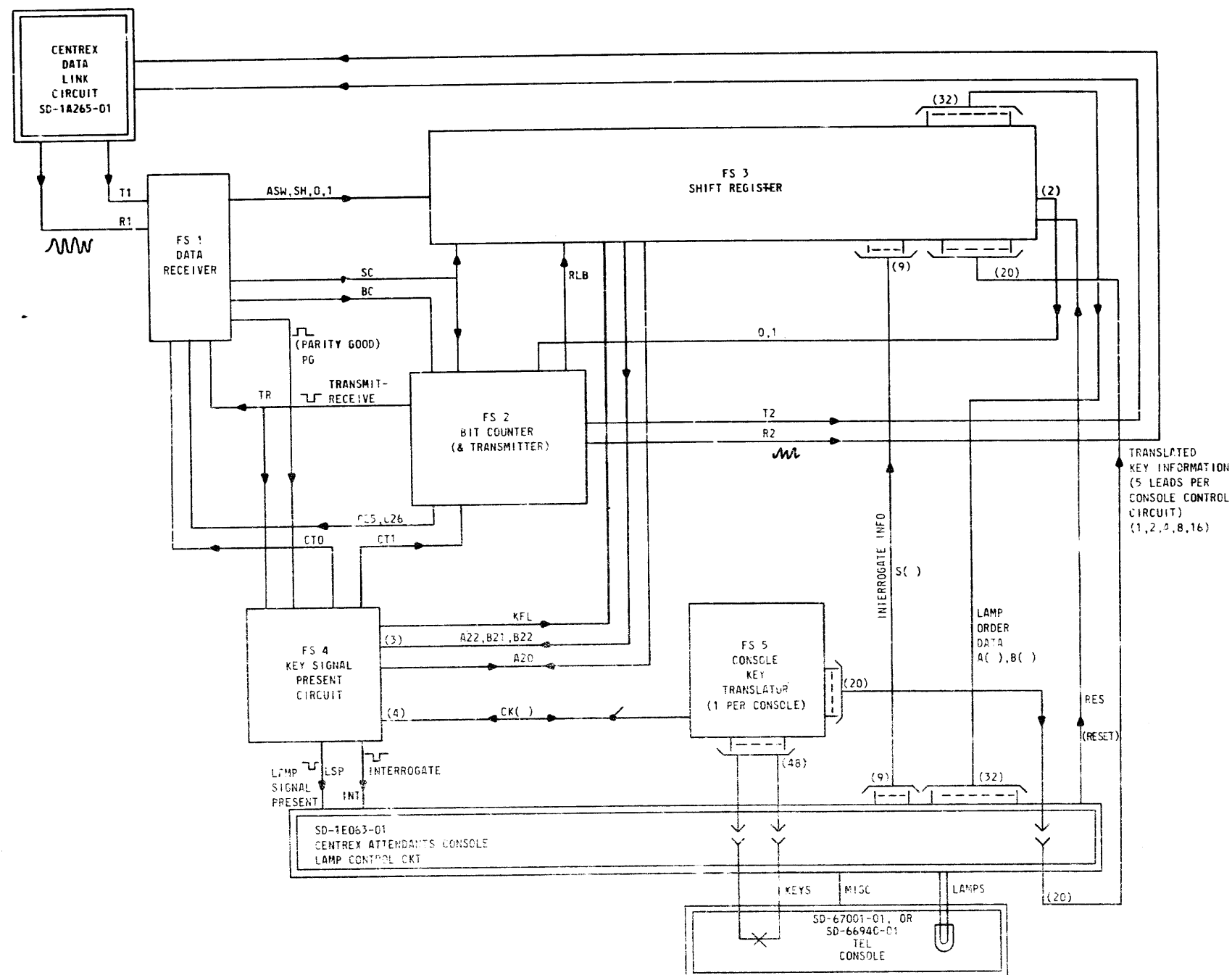
CAD 9 (FOR APP FIG. 3)



BD 1 BLOCK DIAGRAM CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

NOTES:

1. ALL POWER FOR THIS CIRCUIT IS SUPPLIED BY THE CENTREX ATTENDANTS CONSOLE LAMP CONTROL CIRCUIT.



BD 2
SKELETONIZED CENTREX CABINET
CIRCUITRY - (ESSENTIALLY A
SINGLE CONSOLE INSTALLATION)

