SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3	4	5	6	7	8	9	10	11	SHEET NO.
SHEET INDEX SUPPORTING INFORMATION	A1	1	2	3	4	5	6	7	8	9	10	11	A1
APPARATUS INDEX	A2	1	1	1	1	5	5	7	7	7	7	11	A2
LEAD INDEX	A3	1	2	2	2	2	2	2	2	2	2	11	A3
OPTION INDEX													
FS 1 DATA RECEIVER	B1	1	2	3	3	5	5	5	8	9	9	11	B1
FS 2 BIT COUNTER	B2	1	2	2	2	2	2	2	2	2	2	11	B2
FS 3 SHIFT REGISTER	B3	1	2	3	4	4	4	7	7	7	7	7	B3
FS 4 KEY SIGNAL PRESENT	B4	1	2	3	3	5	5	7	7	7	7	11	B4
FS 5 CONSOLE KEY TRANSLATOR	B5	1	1	1	1	1	1	1	1	1	1	1	B5
APP FIG. 1	C1	1	2	3	3	3	3	3	8	8	8	8	C1
	C2	1	2	3	3	3	3	7	7	7	7	7	C2
APP FIG. 2	C3	1	2	2	2	2	2	2	2	2	2	11	C3
APP FIG. 3	C4	1	1	1	1	1	1	1	1	1	1	1	C4
	C5	1	2	3	3	5	5	7	7	7	7	11	C5
CIRCUIT NOTES EQUIPMENT NOTES INFORMATION NOTES	D1	1	2	2	2	5	6	6	6	6	10	11	D1
INFORMATION NOTES (CONT)	D2											11	D2
CKT REQT TABLE	F1	1	1	1	1	1	1	1	1	1	1	1	F1
CAD 1	G1	1	1	1	1	1	1	7	7	7	7	7	G1
	G2	1	1	1	1	1	1	8	8	8	8	8	G2
CAD 2	G3	1	1	1	1	1	1	7	7	7	7	7	G3
	G4	1	1	1	1	1	1	8	8	8	8	8	G4
CAD 3	G5	1	1	1	1	1	1	7	7	7	7	7	G5
	G6	1	1	1	1	1	1	8	8	8	8	8	G6
CAD 4	G7	1	1	1	1	1	1	7	7	7	7	7	G7
	G8	1	1	1	1	1	1	8	8	8	8	8	G8
CAD 5	G9	1	2	2	2	2	2	2	2	2	2	11	G9
	G10	1	2	2	2	2	2	2	8	8	8	8	G10
CAD 6	G11	1	2	2	2	2	2	2	8	8	8	8	G11
CAD 7	G12	1	2	2	2	2	2	2	2	2	2	2	G12
CAD 8	G13	1	2	2	2	2	2	2	2	2	2	2	G13
CAD 9	G14	1	1	3	3	3	3	3	3	3	3	3	G14
BD 1	H1											11	H1
BD 2	H2											11	H2

SUPPORTING INFORMATION

CATEGORY	NO.
CIRCUIT PACK SCHEMATIC	SD-1A102-01
EQPT DESIGN REQT	J11068 820-070-150
CONSOLE CONTROL CABINET EQPT	J1A068B
COMMON EQPT UNIT	J1A068BA
CONSOLE CONTROL UNIT	J1A068BE
RELAY UNIT	J1A068BD
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	APPD
1	1	12-21-66	FLB	DD AF MGP
2A	2A	8-21-67	AE FLB	DD AF MGP
3A	2A APP 1A	12-29-67	AE AD	DD AF MG
4A	3A	12-29-67	AE AD	DD AF MG
5A	3A APP 1A	5-9-68	BLF FLB	DD AF MG
6AC	3A APP 2AC	5-9-68	BLF FLB	DD AF MG
7A	4A	7-30-68	CED RAH	DD GH MG
8A	4A APP 1A	4-28-69	FWS RAH	JJW GH MG
9A	4A APP 2A	4-15-70	PSV BHW	FJW GH MGP
10B	4A APP 3B	7-30-70	J M FLB	FJW GH MG
11B	5B	4-15-74	RSSS JLD	KLR GH AJL

ISSUE 11B

SD-1E059-01 1J15

PBX SYSTEMS

5ESS CUSTOMER PREMISES SYSTEM

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

(2) (CDRT)

AT&TCO STANDARD

SD-1E059-01-A1

32 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

PAGE NO. 6S

PRINTED IN U.S.A.

SD-1E059-01-A1

APPARATUS INDEX

EQPT LOC	APP FIG. NO.	APP FIG. 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	EQPT
RELAYS			
K32	4B1	3	
KSP	4E4	2	
RR	4E2	1	

4 R-C SHIFT GATES-CP			
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			
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			
OSC	1B0	1	105-06

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

DIODES			
CR1	4B1	3	
CR2	4C2	3	
CR4	4B1	3	
CR5	4B1	3	
CR6	4B1	3	

DIODE TRANSLATORS - CP			
	5B3	3	113-18
	5B7	3	113-16

FLIP FLOPS - CP			
KSP	4E3	1	103-23

GATES - CP			
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	105-13

INDUCTOR			
L10	4B2	3	

LINE AMPLIFIERS - CP			
LA	1D1	1	105-03

LINE SIGNAL AMPLIFIERS - CP			
LSS	1D2	1	105-09

DESIG	LOCATION FS	APP FIG	EQPT
OSCILLATOR BUFFER CIRCUIT - CP			
OBC	1B1	1	105-08

RESISTORS			
R32	4B2	3	
R33	4B1	3	
R34	4B2	3	
R35	4E4	2	
R36	4E4	2	
R37	4E6	2	
R38	4E1	1	

TONE GATES- CP			
TG	2D1	1	103-16

ZERO CROSSINGS - CP			
SYNC	1C2	1	105-11

LEAD INDEX

DESIG	LOCATION FS	LOCATION 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			
R1	1D0	9C1	
R2	2D1	9C1	
T1	1D0	9C1	
T2	2D1	9C1	

DESIG	LOCATION FS	LOCATION CAD
TEL CONSOLE D		
BVK	5F4	10D4
BVR	5F4	10D4
CONFK1	5F4	10D4
CONFK2	5F4	10D4
CONFR1	5F4	10D4
CONFR2	5F4	10D4
EXDTK	5F8	10D4
EXDTR	5F8	10D4
EXSRCK	5F8	10D4
EXSRCR	5F8	10D4
HLDK	5F8	10D4
HLDR	5F8	10D4
LPK0	5F1	10C1
LPK1	5F1	10C1
LPK2	5F1	10C1
LPK3	5F2	10C1
LPK4	5F2	10C1
LPK5	5F2	10C1
LPR0	5F1	10C1
LPR1	5F1	10C1
LPR2	5F1	10C1
LPR3	5F2	10C1
LPR4	5F2	10C1
LPR5	5F2	10C1
NTK	5F3	10D4
NTR	5F3	10D4
PBK	5F3	10D4
PBR	5F3	10D4
RDTK	5F6	10D4
RDTR	5F6	10D4
RLSK	5F6	10D4
RLSR	5F6	10D4
RSRCK	5F6	10D4
RSRCR	5F6	10D4
SDTK	5F7	10D4
SDTR	5F7	10D4
SPK1	5F2	10D4
SPK2	5F3	10D4
SPK3	5F5	10D4
SPK4	5F5	10D4
SPR1	5F3	10D4
SPR2	5F3	10D4
SPR3	5F4	10D4
SPR4	5F5	10D4
SSRCK	5F7	10D4
SSRCR	5F7	10D4
STK	5F7	10D1
STR	5F7	10D1
SUPVK	—	10D4
SUPVR	—	10D4

DRAWING ISSUE 1 FLR FES MCR
5A
7A

ISSUE 11B

SD-IE059-01-A2

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2) SD-IE059-01-A2

BELL TELEPHONE LABORATORIES INCORPORATED 6S

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
LPR0	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
RDTK	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
LPR0	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
RDTK	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
LPR0	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
RDTK	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 ISSUE

1	FLR FCS MCP
2A	AE FLR MCP

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

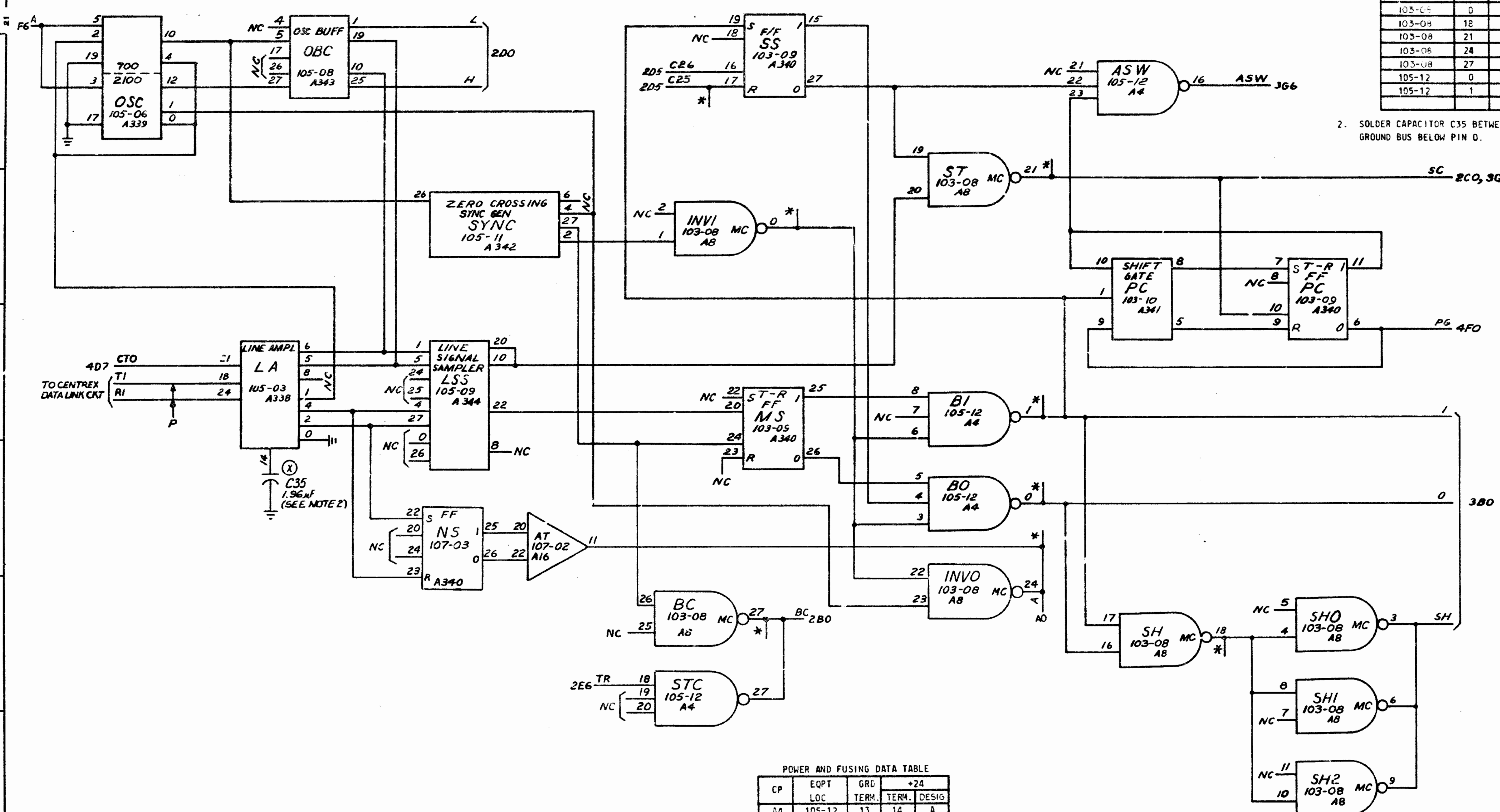
SD-IE059-01-A3

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

SD-IE059-01-A3

FS 1
DATA RECEIVER



NOTES:

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

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

COMPONENT CONNECTIONS TABLE

CKT ELEMENT		CONN TO RESISTORS		
EQPT LOC	TERM	EQPT LOC	TERM.	CP
103-09	17	105-13	6	A35
103-08	0	105-13	2	A35
103-08	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

POWER AND FUSING DATA TABLE

CP	EQPT LOC	GRD 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	105-03	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

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-B1

BELL TELEPHONE LABORATORIES INCORPORATED

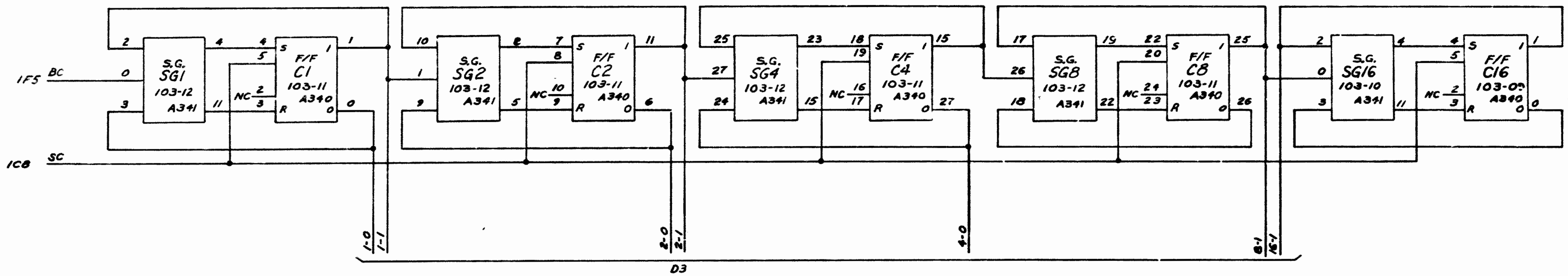
6S

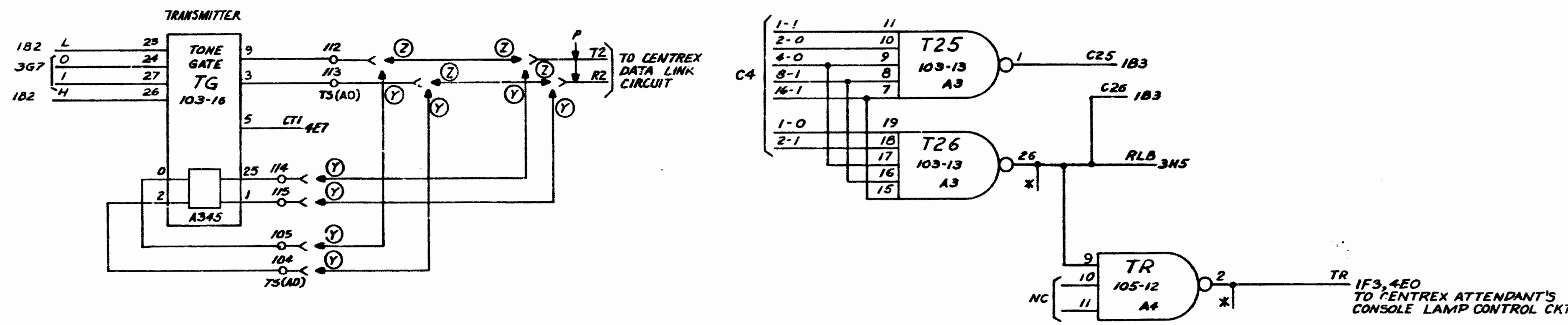
NOTES:

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

FS 2

BIT COUNTER





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

DRAWING ISSUE 1 2A

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2)

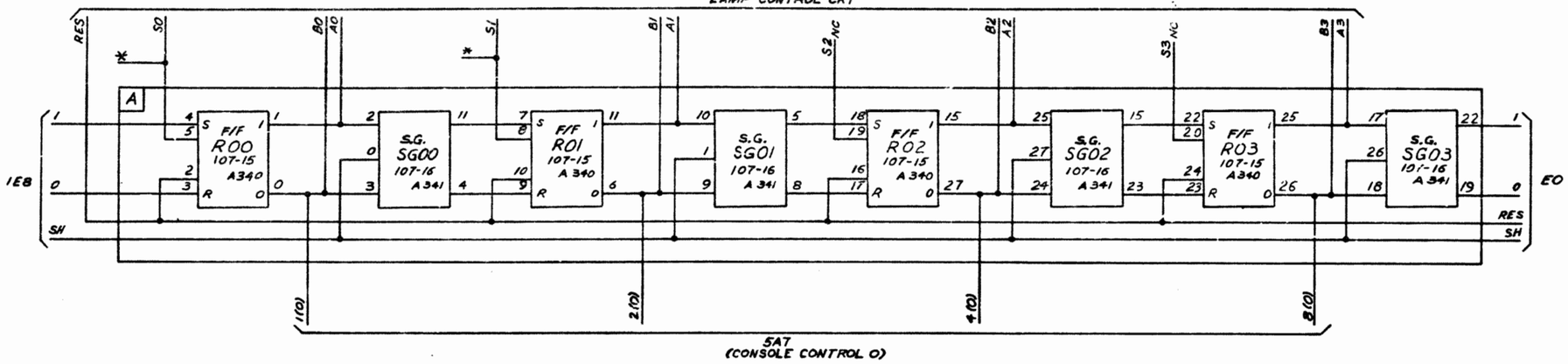
BELL TELEPHONE LABORATORIES INCORPORATED 6S

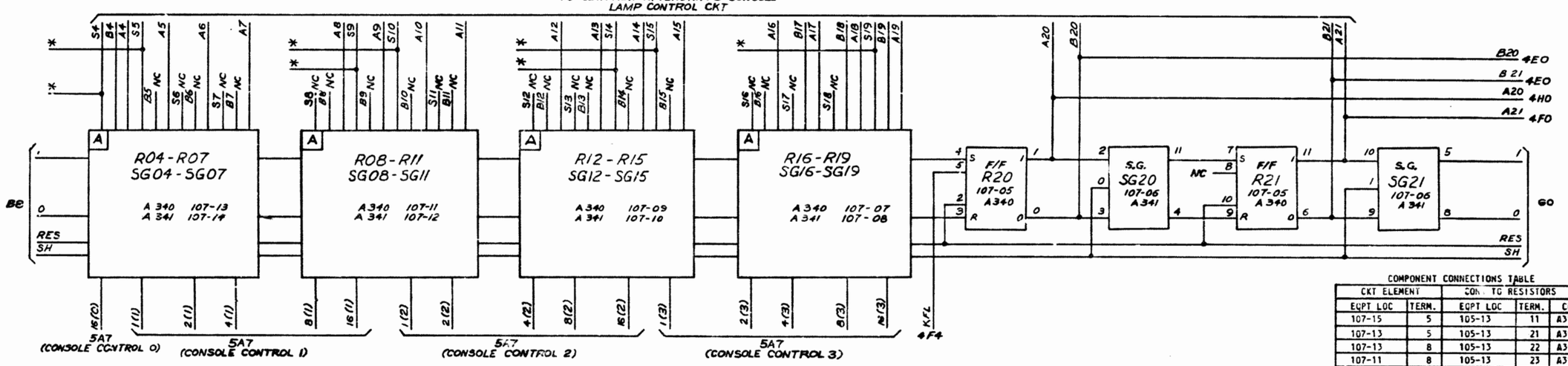
SD-1E059-01-B2

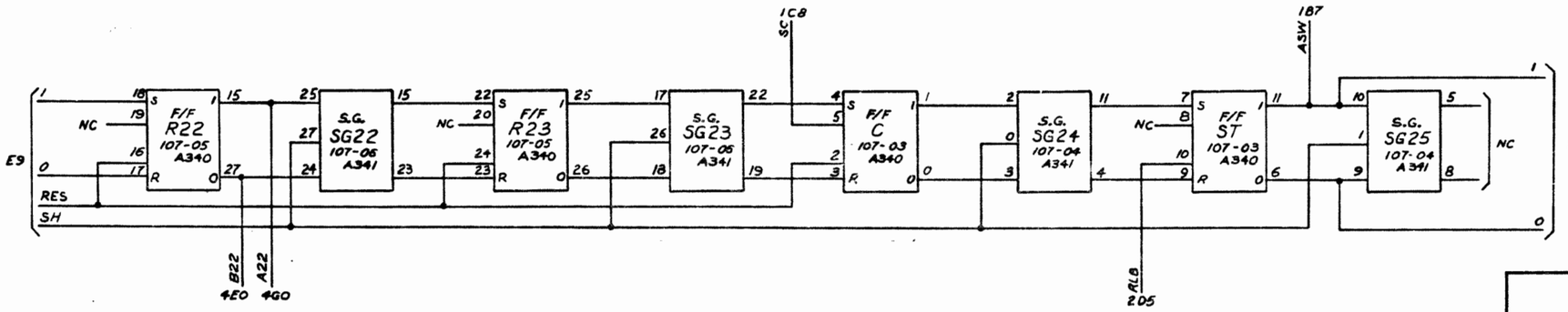
FS3
SHIFT REGISTER
(SEE NOTE 202)

NOTES:

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







COMPONENT CONNECTIONS TABLE

CKT ELEMENT		CONN 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 FUSING DATA TABLE

CP	EQPT LOC	GRD TERM.	+24 TERM.	+24 DESIG
A340	ALL	13	14	B
A341	ALL		14	B

DRAWING ISSUE

1	TLW FES MSP
2A	AE FLB MSP
3A	AE AD MG
4A	AE AD MG
7A	

7

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-B3

BELL TELEPHONE LABORATORIES INCORPORATED

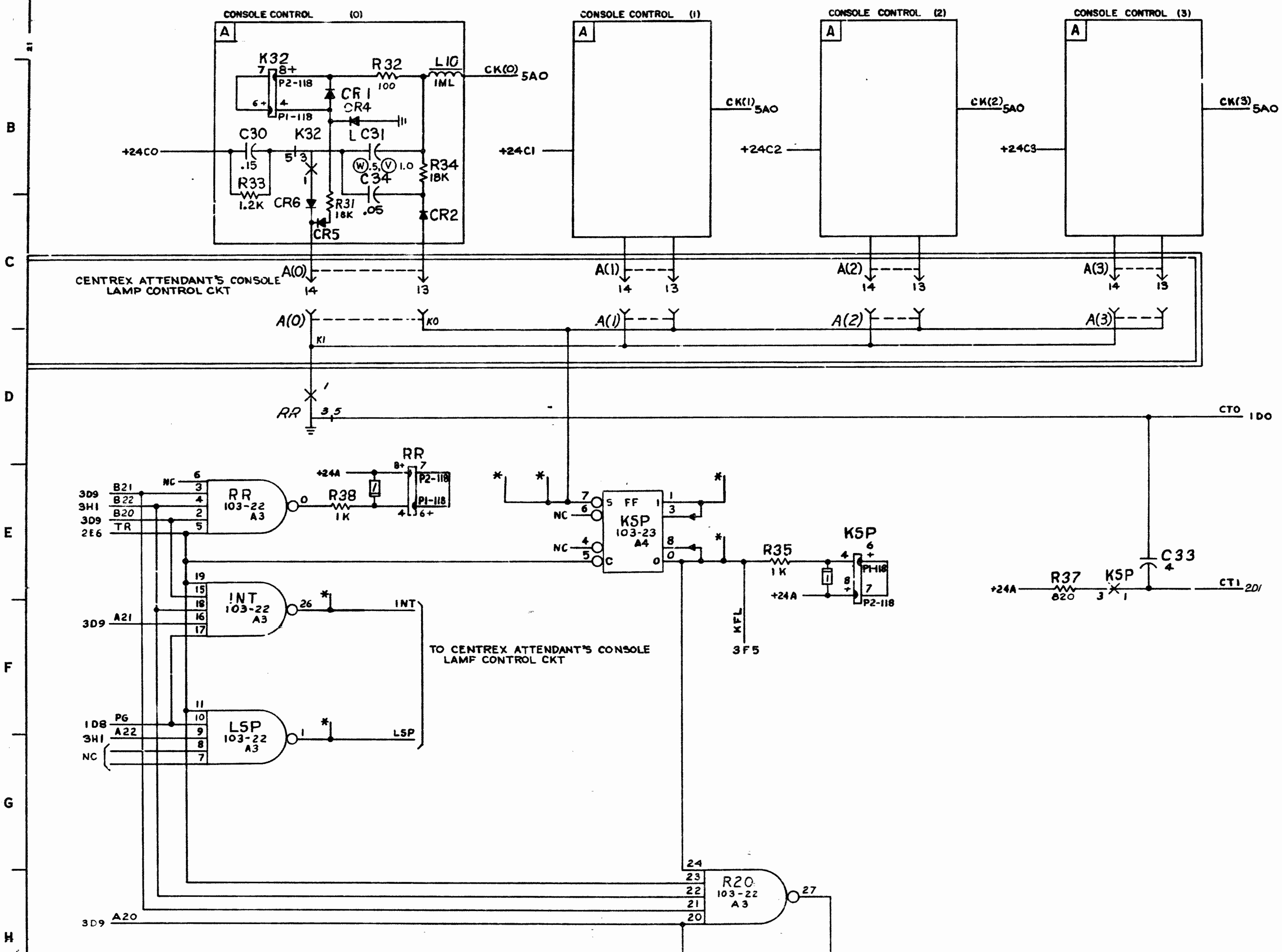
6S

SD-1E059-01-B3

FS4
KEY SIGNAL PRESENT
(SEE NOTE 202)

NOTES:

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



CONSOLE CONTROL (0)
CONSOLE CONTROL (1)
CONSOLE CONTROL (2)
CONSOLE CONTROL (3)
K32
R32 100
L10 1ML
CK(0) 5A0
CK(1) 5A0
CK(2) 5A0
CK(3) 5A0
P2-118
P1-118
CR1
CR4
C30 .15
R33 1.2K
CR6
R31 18K
C31
C34 .05
R34 18K
CR2
CR5
+24C0
+24C1
+24C2
+24C3
CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT
A(0)
A(1)
A(2)
A(3)
K0
K1
RR
CT0 1D0
CT1 2D1
RR 103-22 A3
R38 1K
+24A
INT 103-22 A3
LSP 103-22 A3
FF KSP 103-23 A4
R35 1K
KSP
C33
R37 820
KFL 3F5
TO CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT
R20 103-22 A3
3D9
3H1
2E6
1D8
B21
B22
B20
TR
A21
PG
A22
A20
NC
INT
LSP

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[illegible]	A
A35	105-13		14	A

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

ISSUE 11E

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-B4

BELL TELEPHONE LABORATORIES INCORPORATED

6S

NOTES:
1. THESE ARE SPARE LEADS.

FS 5

CONSOLE KEY TRANSLATOR
(SEE NOTE 201, 202)

3C4, 3FO, 3F1, 3F3, 3F4

A(0-3)

A(0-3)

CENTREX ATTENDANT'S LAMP CONTROL CKT

482, 484, 485, 487

CKT(0-3)

DIODE TRANSLATOR (1-15)

DIODE TRANSLATOR (16-24)

113-18 A734

113-16 A735

CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

B(0-3)

B(0-3)

LP0 LP0R LP1 LP1R LP2 LP2R LP3 LP3R LP4 LP4R LP5 LP5R SPR1 SPR1R PB PBR NT NTR SPR2 SPR2R BV BVR CONFI CONFIR CONF2 CONF2R SPR3 SPR3R SPR4 SPR4R RLS RLSR RSRC RSRCR RDT RDTR ST STR SSRC SSRCR SDT SDTR HLD HLDR EXSRC EXSRCR EXDT EXDTR

SEE NOTE 1

TEL CONSOLE (0-3)

LPK0 LPK1 LPK2 LPK3 LPK4 LPK5 PBK NTK SPK2 BVK CONFK1 CONFK2 SPK3 SPK4 RLSK RSRCK RDTK STK SSRCK SDTK HLDK EXSRCK EXDTK

POWER AND FUSING DATA TABLE

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

DRAWING ISSUE 1

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-IE059-01-85

BELL TELEPHONE LABORATORIES INCORPORATED

PART OF APP FIG. I

CIRCUIT PACK

TERM.	103-08 DESIG	103-08 FS LOC	103-09 DESIG	103-09 FS LOC	103-10 DESIG	103-10 FS LOC	103-11 DESIG	103-11 FS LOC	103-12 DESIG	103-12 FS LOC	103-13 DESIG	103-13 FS LOC	103-16 DESIG	103-16 FS LOC	TERM.
EQPT LOC	103-08		103-09		103-10		103-11		103-12		103-13		103-16		EQPT LOC
DESIG													TG		DESIG
CODE	A8		A340		A341		A340		A341		A3		A345		CODE
OPTION															OPTION
27	BC	1E4	SS	1B4			C4	2B5			SPARE				27
26			[illegible]	1E4			[illegible]	2B7			T26	2E4			26
25			MS	1E4			C8	2B7					TG	2D1	25
24	INVC	1F5													24
23					SPARE				SG4	2B4					23
22					SPARE				SG8	2B6					22
21	ST	1B5													21
20															20
19					SPARE				SG8	2B6					19
18	SH	1F6													18
17															17
16															16
15			SS	1B4	SPARE		C4	2B5	SG4	2B4					15
14															14
13															13
12															12
11			PC	1C7	SG16	2B8	C2	2B3	SG1	2B1					11
10															10
9	SH2	1G8													9
8					PC	1C6			SG2	2B2					8
7															7
6	SH1	1F8	PC	1C7			C2	2B3							6
5					PC	1C6			SG2	2B2					5
4					SG16	2B8			SG1	2B1					4
3	SHO	1F8													3
2															2
1			C16	2B8			C1	2B1			T25	2D4			1
0	INV1	1C4	C16	2B8			C1	2B1			SPARE				0

CIRCUIT PACK

TERM.	103-17 DESIG	103-17 FS LOC	103-22 DESIG	103-22 FS LOC	103-23 DESIG	103-23 FS LOC	103-26 DESIG	103-26 FS LOC	103-28 DESIG	103-28 FS LOC	103-30 DESIG	103-30 FS LOC	103-31 DESIG	103-31 FS LOC	TERM.
EQPT LOC	103-17		103-22		103-23		103-26		103-28		103-30		103-31		EQPT LOC
DESIG															DESIG
CODE	***		A3		A4		***		***		***		***		CODE
OPTION															OPTION
27			R20	4H4	SPARE										27
26			INT	4F1											26
25															25
24															24
23															23
22															22
21															21
20															20
19															19
18															18
17					SPARE										17
16					SPARE										16
15															15
14															14
13															13
12															12
11															11
10															10
9															9
8															8
7															7
6															6
5															5
4															4
3															3
2					SPARE										2
1			LSP	4G1	KSP	4E3									1
0			RR	4E1	KSP	4E3									0

*** 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.

DRAWING ISSUE	
1	
2A	
3A	
8A	

8

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-C1

BELL TELEPHONE LABORATORIES INCORPORATED 6S

PART OF APP FIG. 1

CIRCUIT PACK

EQPT LOC					105-03						105-06				105-08	
DESIG					LA						OSC				OSC	
CODE					A338						A339				A343	
OPTION																
ELEMENT LOC	TERM.		TERM.		TERM.		TERM		TERM.		TERM.		TERM.		TERM.	
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
27																
26																
25															OSC	1B1
24																
23																
22																
21																
20																
19																
18																
17																
16																
15																
14																
13																
12											OSC	1B0				
11																
10																
9																
8					LA	1D1										
7																
6																
5																
4																
3																
2																
1																
0																

EQPT LOC	105-09				105-11		105-12		105-13		105-14				105-16	
DESIG	LSS				SYNC											
CODE	A344				A342		A4		A35		***				***	
OPTION																
ELEMENT LOC	TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.	
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
27					SYNC	1C2	STC	1F4		3F9						
26										3F9						
25										3F9						
24										3F9						
23										3F9						
22	LSS	1D2								3F9						
21										3F9						
20										4C9						
19										4C9						
18										1A9						
17							SPARE			4C9						
16							ASW	1B6		4C9						
15																
14																
13																
12										4C9						
11										3F9						
10										1A9						
9										1A9						
8										1A9						
7										1A9						
6										1A9						
5										3F9						
4										2E6						
3										2E6						
2							TR	2E5		1A9						
1							B1	1D5		1A9						
0							B0	1E5		4C9						

CIRCUIT PACK

EQPT LOC			107-02		107-03		107-04		107-05		107-06		107-07		107-08	
DESIG																
CODE			A16		A340		A341		A340		A341		A340		A341	
OPTION																
ELEMENT LOC	TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.	
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
27					SPARE				R22	3G1			R18	3E5		
26					NS	1E2			R23	3G2			R19	3E5		
25					NS	1E2			R23	3G2			R19	3E5		
24																
23							SPARE				SG22	3G2			SG18	3E5
22							SPARE				SG23	3G3			SG19	3E5
21																
20																
19							SPARE				SG23	3G3			SG19	3E5
18																
17																
16																
15					SPARE		SPARE		R22	3G1	SG22	3G2	R18	3E5	SG18	3E5
14																
13																
12																
11			AT	1E3	ST	3G6	SG24	3G5	R21	3E7	SG20	3E6	R17	3E5	SG16	3E5
10																
9																
8							SG25	3G7			SG21	3E8			SG17	3E5
7																
6					ST	3G6			R21	3E7			R17	3E5		
5							SG25	3G7			SG21	3E8			SG17	3E5
4							SG24	3G5			SG20	3E6			SG16	3E5
3																
2																
1					C	3G4			R20	3E6			R16	3E5		
0					C	3G4			R20	3E6			R16	3E5		

EQPT LOC	107-09		107-10		107-11		107-12		107-13		107-14		107-15		107-16	
DESIG																
CODE	A340		A341		A340		A341		A340		A341		A340		A341	
OPTION																
ELEMENT LOC	TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.	
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
27	R14	3E3			R10	3E2			R06	3E1			R02	3B4		
26	R15	3E3			R11	3E2			R07	3E1			R03	3B6		
25	R15	3E3			R11	3E2			R07	3E1			R03	3B6		
24																
23			SG14	3E3			SG10	3E2			SG06	3E1			SG02	3B5
22			SG15	3E3			SG11	3E2			SG07	3E1			SG03	3B7
21																
20																
19			SG15	3E3			SG11	3E2			SG07	3E1			SG03	3B7
18																
17																
16																
15	R14	3E3	SG14	3E3	R10	3E2	SG10	3E2	R06	3E1	SG06	3E1	R02	3B4	SG02	3B5
14																
13																
12																
11	R13	3E3	SG12	3E3	R09	3E2	SG08	3E2	R05	3E1	SG04	3E1	R01	3B2	SG00	3B2
10																
9																
8			SG13	3E3			SG09	3E2			SG05	3E1			SG01	3B3
7																
6	R13	3E3			R09	3E2			R05	3E1			R01	3B2		
5			SG13	3E3			SG09	3E2			SG05	3E1			SG01	3B3
4			SG12	3E3			SG08	3E2			SG04	3E1			SG00	3B2
3																
2																
1	R12	3E3			R08	3E2			R04	3E1			R00	3B0		
0	R12	3E3			R08	3E2			R04	3E1			R00	3B0		

*** 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.

DRAWING ISSUE: 1, 2A, 3A, 7A

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CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

(2) SD-1E059-01-C2

BELL TELEPHONE LABORATORIES INCORPORATED

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SD-1E059-C2

PART OF APP FIG. 1

CIRCUIT PACK

EQPT LOC					107-16		107-19		107-20				107-22				107-24		107-25		107-26				107-28		107-29				107-31		107-32		EQPT LOC		
DESIG																																			DESIG		
CODE					XXX		XXX		XXX				XXX				XXX		XXX		XXX				XXX		XXX				XXX		XXX		CODE		
OPTION																																			OPTION		
ELEMENT LOC			TERM.		TERM.		TERM.		TERM		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		ELEMENT LOC		
TERM.			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC.			TERM.
27																																					27
26																																					26
25																																					25
24																																					24
23																																					23
22																																					22
21																																					21
20																																					20
19																																					19
18																																					18
17																																					17
16																																					16
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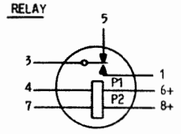
11																																					11
10																																					10
9																																					9
8																																					8
7																																					7
6																																					6
5																																					5
4																																					4
3																																					3
2																																					2
1																																					1
0																																					0

XXX 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.

APP FIG. 2

RELAY



DESIG	RR
CODE	303G
OPTION	
8	4E2
7	4E2
6	4E2
5	4D1
4	4E2
3	4D1
2	
1	4D1

CAPACITOR

DESIG	LOC	CODE
(X) C35	1E1	596G

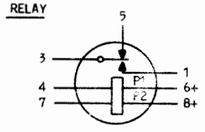
NETWORK

DESIG	LOC	CODE
RR	4E1	185C

RESISTOR

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

RELAY



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

CAPACITOR

DESIG	LOC	CODE
C33	4E6	542G

NETWORK

DESIG	LOC	CODE
KSP	4E4	185C

RESISTOR

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

DRAWING ISSUE

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-C3

BELL TELEPHONE LABORATORIES INCORPORATED

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SD-1E059-01-C3

PART OF APP FIG. 3

(SEE NOTE 101)

CIRCUIT PACK

EQPT LOC					113-06						113-08		113-09		113-10		113-11						113-16		EQPT LOC	
DESIG																									DESIG	
CODE					***						***		***		***		***						A735		CODE	
OPTION																									OPTION	
ELEMENT LOC			TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		ELEMENT LOC	
TERM.			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC			TERM.
27																										27
26																										26
25																								5C7		25
24																										24
23																										23
22																										22
21																										21
20																										20
19																										19
18																										18
17																										17
16																										16
15																										15
14																										14
13																										13
12																										12
11																										11
10																										10
9																										9
8																										8
7																										7
6																										6
5																										5
4																										4
3																										3
2																										2
1																										1
0																										0

CIRCUIT PACK

EQPT LOC					113-18				113-21		113-22		113-23		113-24		113-25		113-26		113-27		113-28		113-29		113-30		113-31		113-32		EQPT LOC	
DESIG																																	DESIG	
CODE					A734				***		***		***		***		***		***		***		***		***		***		***		***		CODE	
OPTION																																	OPTION	
ELEMENT LOC			TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		TERM.		ELEMENT LOC	
TERM.			DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC	DESIG	FS LOC			TERM.
27																																		27
26																																		26
25																																		25
24					5C3																													24
23																																		23
22																																		22
21																																		21
20																																		20
19																																		19
18																																		18
17																																		17
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11																																		11
10																																		10
9																																		9
8																																		8
7																																		7
6																																		6
5																																		5
4																																		4
3																																		3
2																																		2
1																																		1
0																																		0

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

DRAWING ISSUE: 1

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

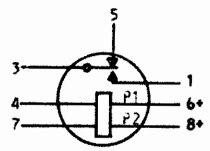
SD-1E059-01-C4

BELL TELEPHONE LABORATORIES INCORPORATED — SHEET 6S

SD-1E059-01-C4

PART OF APP FIG. 3

RELAY



DESIG	K32
CODE	303G
OPTION	
8	4B1
7	4B1
6	4B1
5	4B1
4	4B1
3	4B1
2	
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	542AH
C31	4B1	(W) 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
2A
3A
5A
7A

ISSUE 11B

CENTREX DATA RECEIVER
AND TRANSMITTER CIRCUIT

SD-1E059-01-C5

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

SD-1E059-01-C5

DRAWING ISSUE	
1	KJB FES 1964
2A	AE FLB MGP
5A	
6AC	
10B	

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

BATTERY	VOLTAGE RANGE
+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 WRG	QUANTITY
DATA RECEIVER, BIT COUNTER AND SHIFT REGI[illegible]TER	1		1 PER CKT
KEY SIGNAL PRESEN[illegible]	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
1	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 MICROFARDS; 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

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

(2)

SD-1E059-01-D1

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SD-1E059-01-D1

TROUBLESHOOTING WAVEFORMS
CTX DATA RECEIVE AND TRANSMITTER CKT

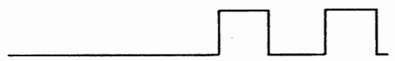
INFORMATION NOTES: (CONT)

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.

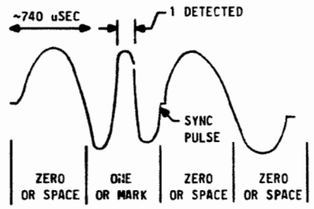
351. MS FLIP-FLOP (SHEET B1/LOC E4 A340 TERM. 25)

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.

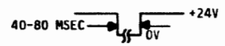


INFORMATION NOTES: (CONT)

354. LOOP SIGNALLING WAVEFORM (TYPICAL)

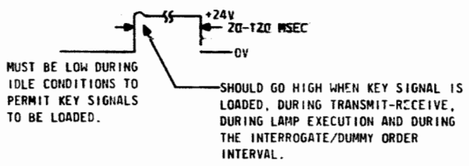


355. INT LEAD (SHEET B4/LOC F1 103-22 TERM. 26)



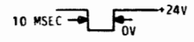
GOES LOW AT END OF TRANSMIT-RECEIVE
WHEN BIT 22 = 0
AND BIT 21 = 1

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.

SD-IE059-01-D2

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2)

SD-IE059-01-D2

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FORM 6S

CIRCUIT REQUIREMENTS

DRAWING ISSUE

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS
RELAY																	
K32	303G		3	3								P1	O	66	22		
												P1	R		12.6		
												P2	O	66	22		
												P2	R		12.6		
												P1/P2	O	33	11		
												P1/P2	R		6.3		
KSP	303G		2	3								P1	O	66	22		
												P1	R		12.6		
												P2	O	66	22		
												P2	R		12.6		
												P1/P2	O	33	11		
												P1/P2	R		6.3		
RR	303G		1	3								P1	O	66	22		
												P1	R		12.6		
												P2	O	66	22		
												P2	R		12.6		
												P1/P2	O	3	11		
												P1/P2	R		6.3		

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SD-1E059-01-F1

CIRCUIT REQUIREMENTS

DRAWING ISSUE

APPARATUS DESIG	APPARATUS CODE	APPARATUS OPT.	APPARATUS FIG.	MECH REQT BSP FIG.	MECH REQT CONT PRES	MECH REQT ARM. TRVL.	CIRCUIT PREPARATION BLOCK OR INSULATE	CIRCUIT PREPARATION TEST CLIP DATA CONN BAT.	CIRCUIT PREPARATION TEST CLIP DATA CONN GRD	TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	REMARKS

/

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-F1

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PART OF CAD 1

(FOR APP FIG. 3 CONSOLE CONTROL UNIT 0)

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

15

LC

(CR5) DIODE — 14 — K1 — TO CAD 2

(CR2) DIODE — 13 — K0 — 1 (RR) REL

7 103-23 CP

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT — 12 11 10 — SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

113-18CP: 13 → 9 GRD; 14 → 8 +24.0 — TO CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT — 7 6 — SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

113-18CP: 2 → 5 → 3 — 107-14 CP

113-18CP: 25 → 4 → 18; 26 → 3 → 24; 2 → 2 → 9; 1 → 1 → 3 — 107-16 CP

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37

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

DRAWING ISSUE 1 — 7A

7

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

BELL TELEPHONE LABORATORIES INCORPORATED

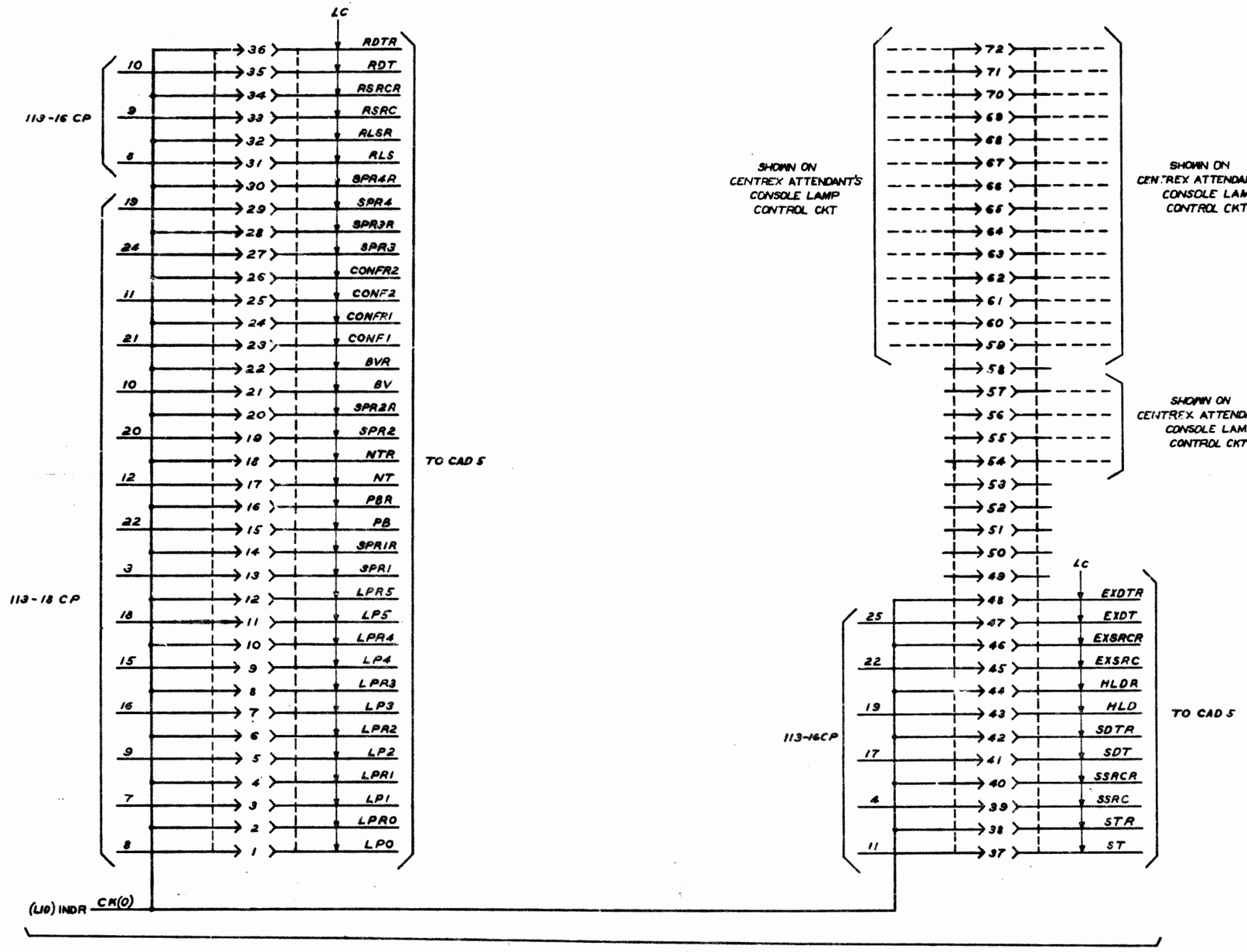
6S

SD-1E059-01-G1

SD-1E059-01-G1

PART OF CAD 1

(FOR APP FIG 3 CONSOLE CONTROL UNIT 0)



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

DRAWING ISSUE 1 BELL TELEPHONE LABORATORIES 8A

8

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT 2

SD-IE059-01-62

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-IE059-01-62

PART OF CAD 2

(FOR APP FIG. 3 CONSOLE CONTROL UNIT 1)

DRAWING ISSUE 1 REL REQ NEW

7A

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

36
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19
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16

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

15 — LC — K1 — TO CAD 3

(CR5) DIODE — 14 — K1

(CR2) DIODE — 13 — K0 — TO CAD 1

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

12
11
10

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

119-18 CP — 13 — 9 — GRD

14 — 8 — +24C1 — TO CENTRAL ATTENDANT'S CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

7
6

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

119-16 CP — 2 — 5 — 9

25 — 4 — 3 — 107-12 CP

119-18 CP — 26 — 3 — 18

2 — 2 — 24

1 — 1 — 9 — 107-14 CP

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

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

72
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37

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

SD-IE059-01-G3

7

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

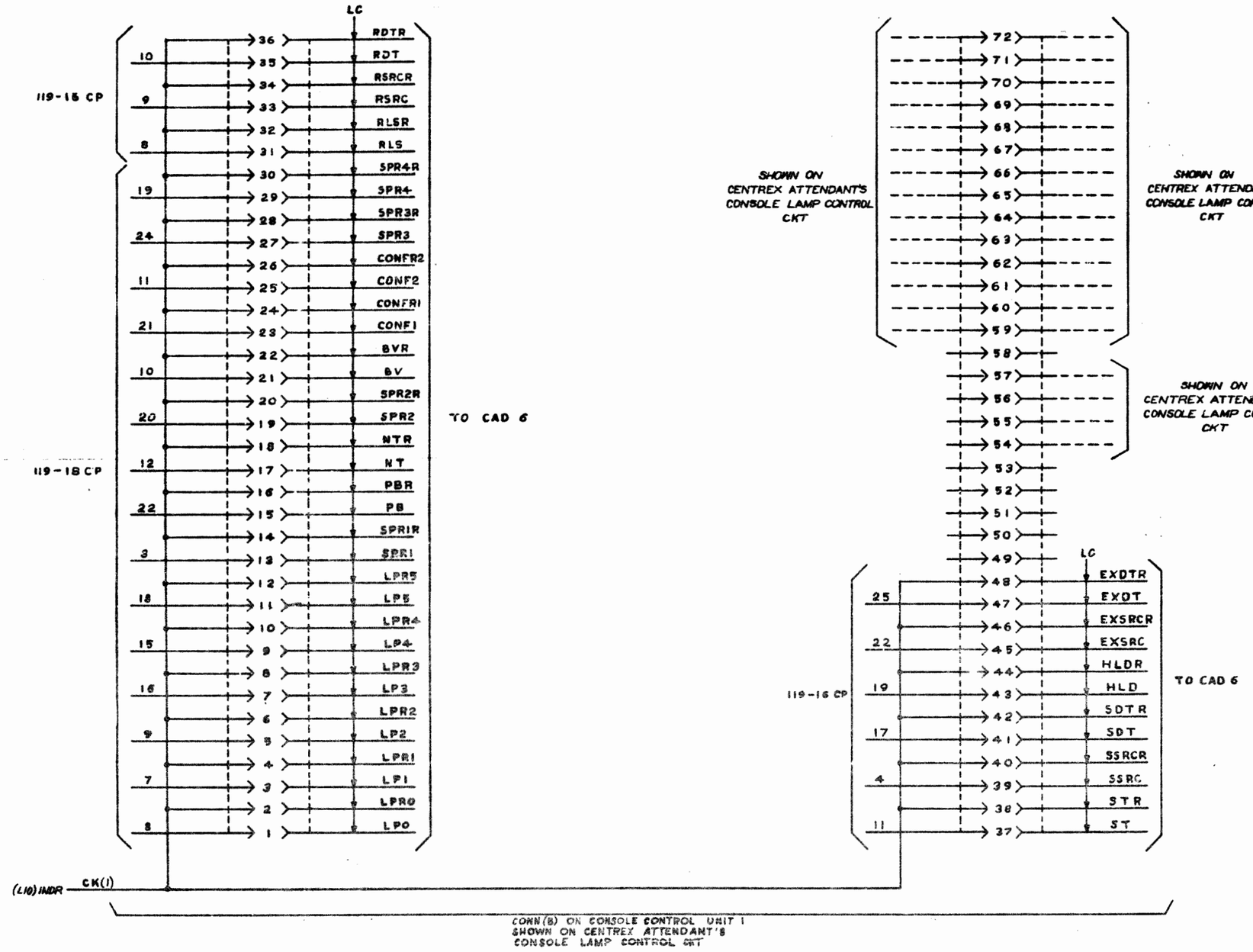
SD-IE059-01-G3

BELL TELEPHONE LABORATORIES INCORPORATED

6S

PART OF CAD 2

(FOR APP FIG.) CONSOLE CONTROL UNIT I)



DRAWING ISSUE 1

8A

8

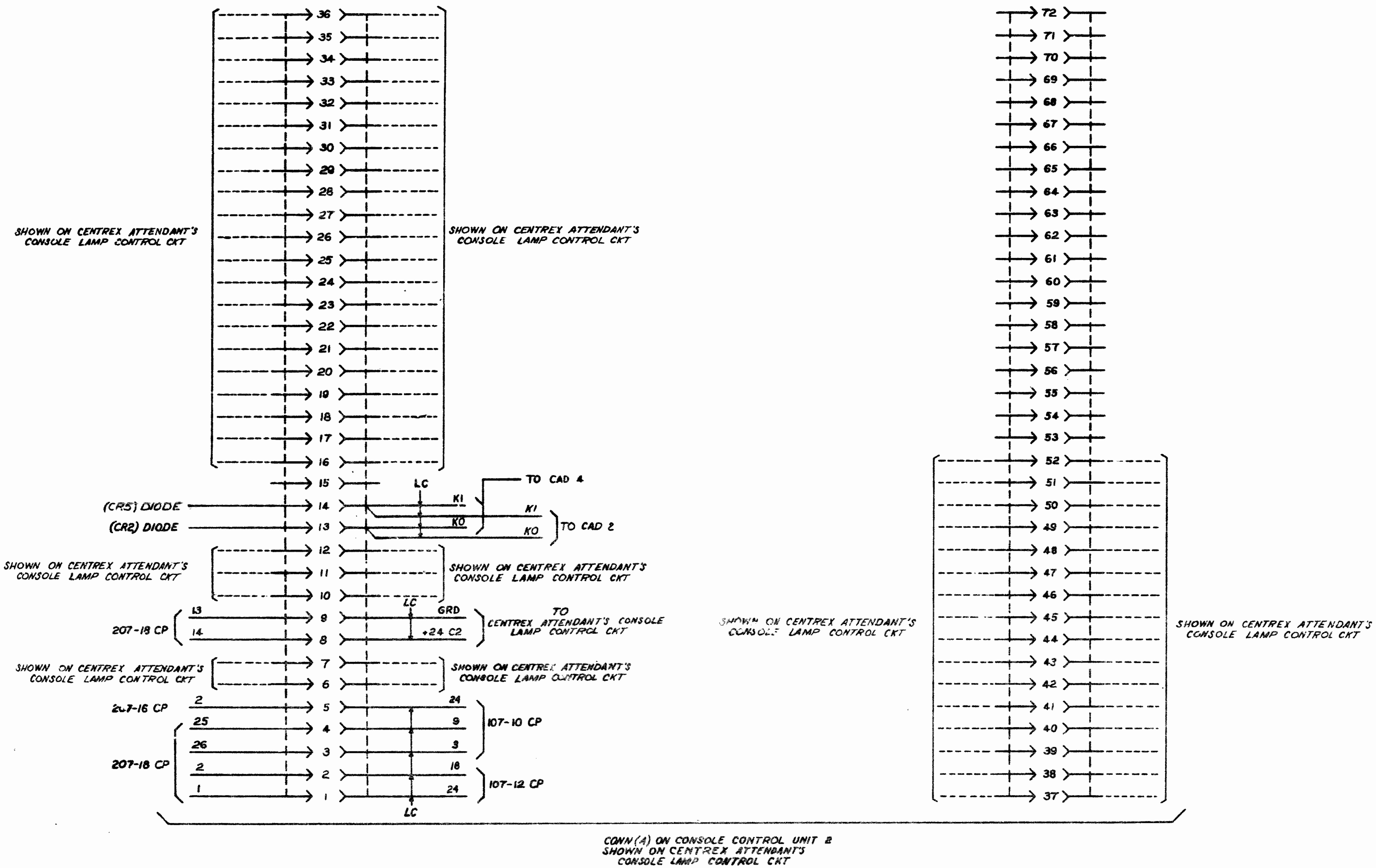
CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2)

SD-1E059-01-G4

BELL TELEPHONE LABORATORIES INCORPORATED

PART OF CAD 3

(FOR APP FIG 3 CONSOLE CONTROL UNIT 2)



DRAWING ISSUE 1 — 7A

7

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-G5

BELL TELEPHONE LABORATORIES INCORPORATED

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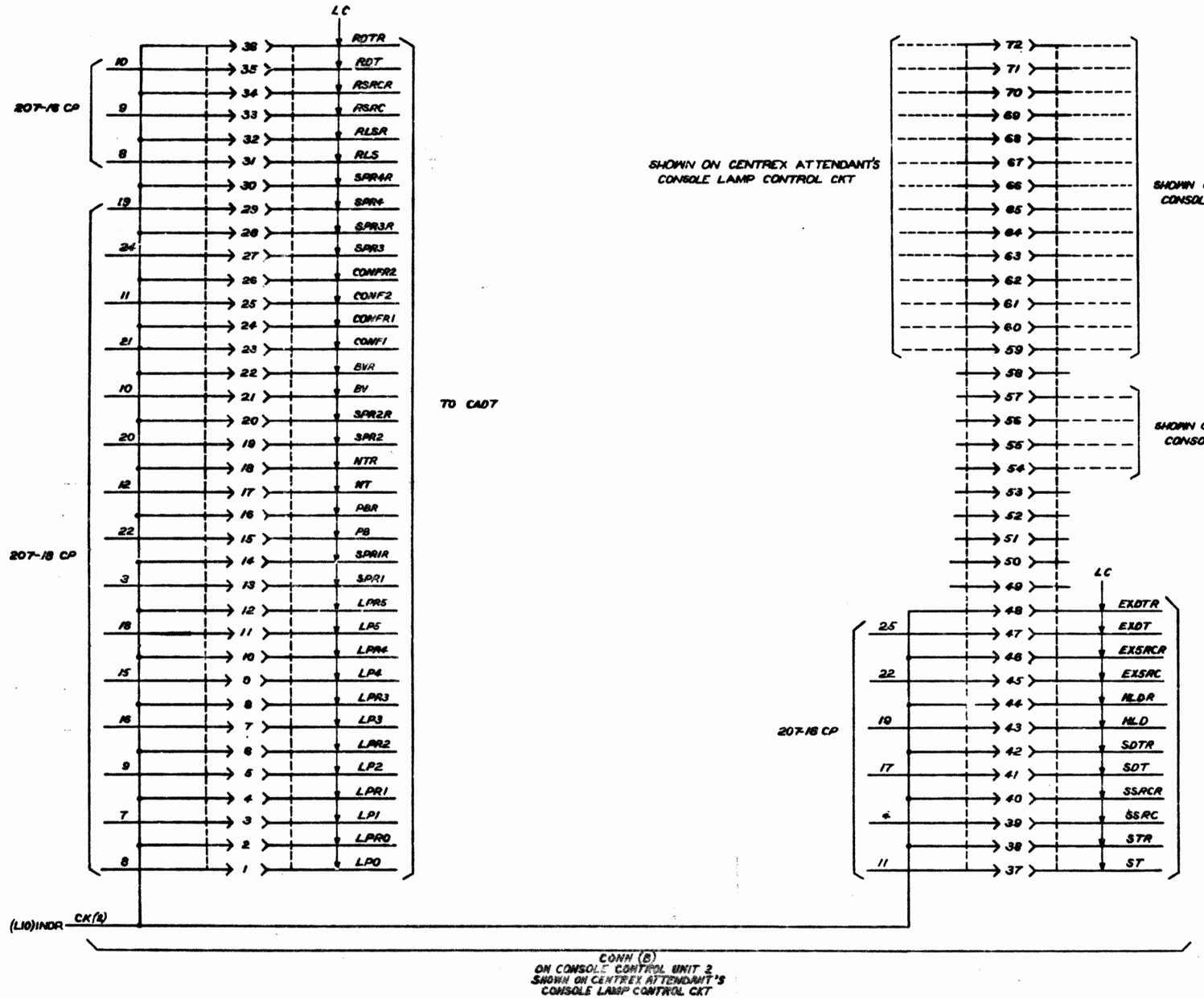
PART OF CAD 3

(FOR APP FIG. 3 CONSOLE CONTROL UNIT 2)



DRAWING ISSUE 1 — 8A

8

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-IE059-01-06

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-IE059-01-06

PART OF CAD 4
(FOR APP FIG 3 CONSOLE CONTROL UNIT 2)

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

36
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25
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23
22
21
20
19
18
17
16

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

15
(CR5) DIODE — 14 — LC — K1
CR2 DIODE — 13 — K0
TO CAD 3

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT — 12, 11, 10 — SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

213-18 CP — 13 — 9 — LC — GRD
14 — 8 — +24 C3
TO CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT — 7, 6 — SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

213-16 CP — 2 — 5 — 18
25 — 4 — 24
26 — 3 — 9
213-18 CP — 2 — 2 — 3
107-08 CP

1 — 1 — 18
107-10 CP
LC

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

SHOWN ON CENTREX ATTENDANT'S CONSOLE LAMP CONTROL CKT

72
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37

SHOWN ON CENTREX ATTENDENT'S CONSOLE LAMP CONTROL CKT

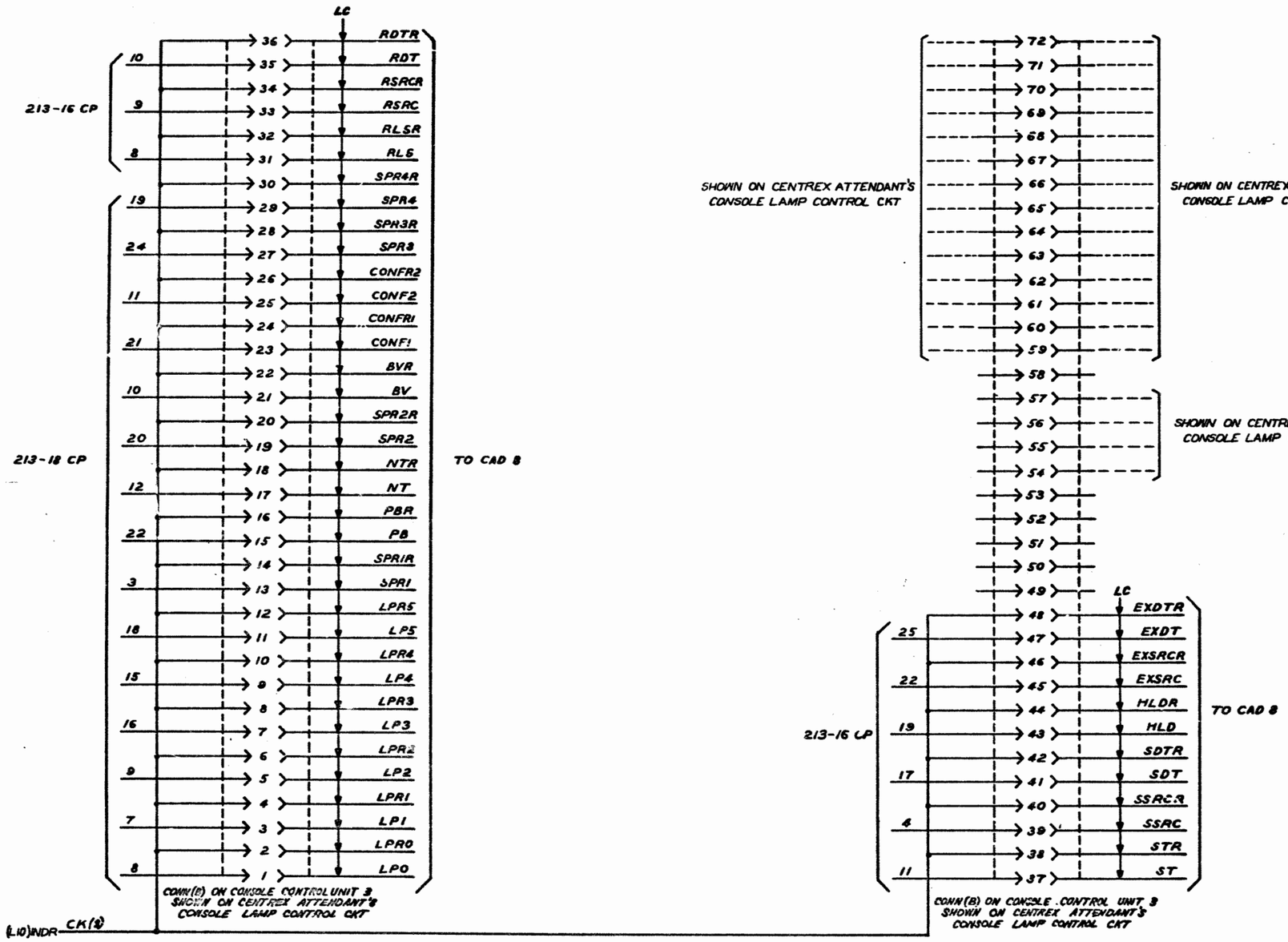
DRAWING ISSUE
1
7A

SD-1E059-01-G7

7

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2)
SD-1E059-01-G7
BELL TELEPHONE LABORATORIES INCORPORATED
6S

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



DRAWING ISSUE 1 — 8A

SD-IE059-01-08

8

CENTREX-DATA RECEIVER AND TRANSMITTER CIRCUIT (2) SD-IE059-01-08

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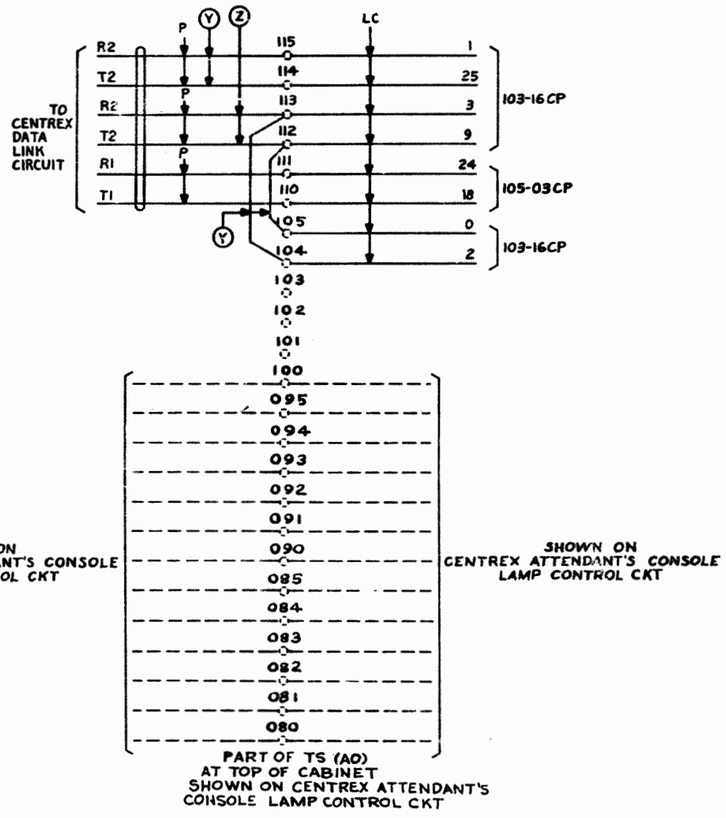
PART OF CAD 5
(FOR APP FIG. 1)



DRAWING ISSUE
1 RHF FES MGF
2A AE FLB MGF

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2) SD-1E059-01-69

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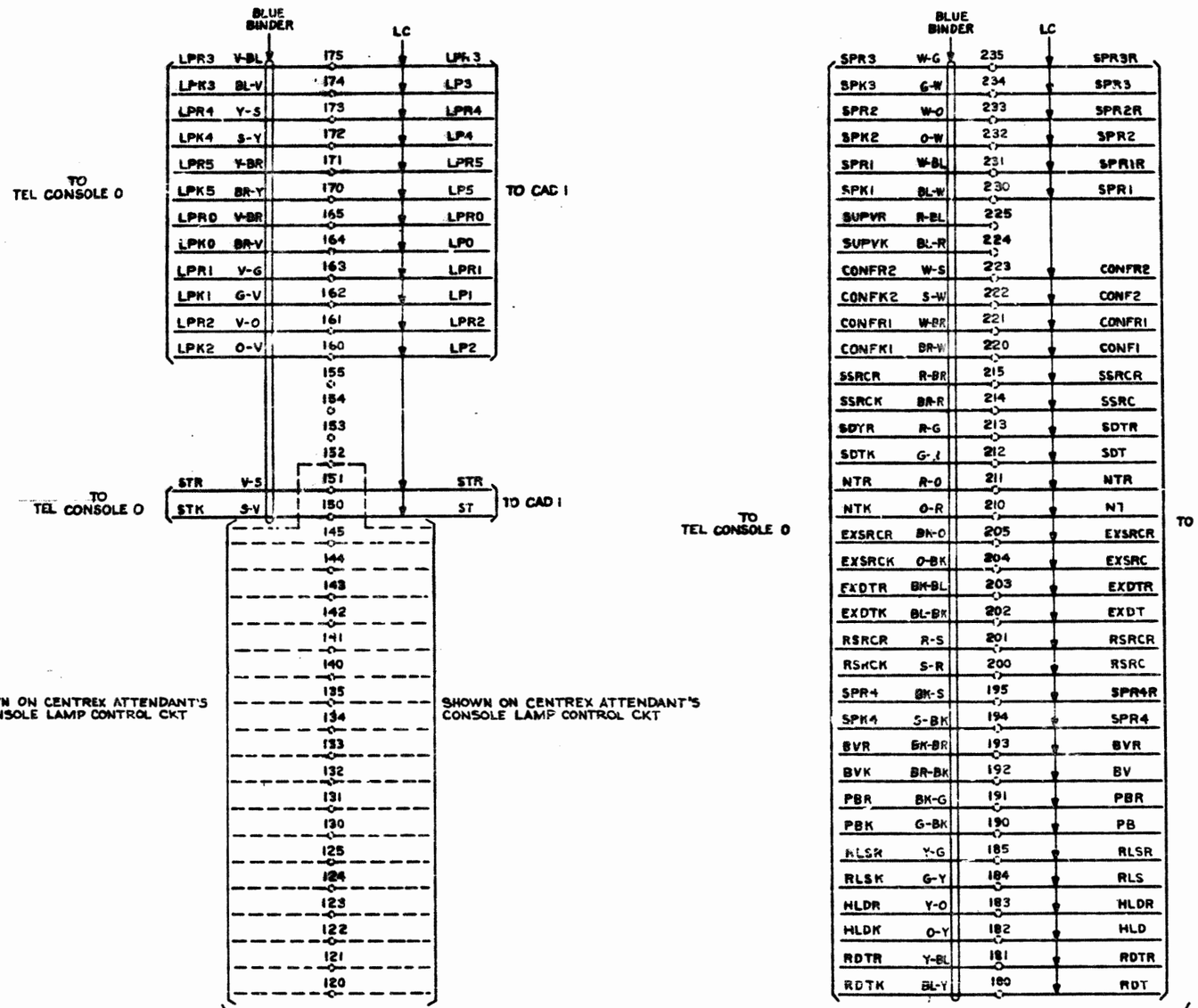
SD-1E059-01-69

PART OF CAD 5
(FOR APP FIG. 3)



DRAWING ISSUE
1
2A
6A

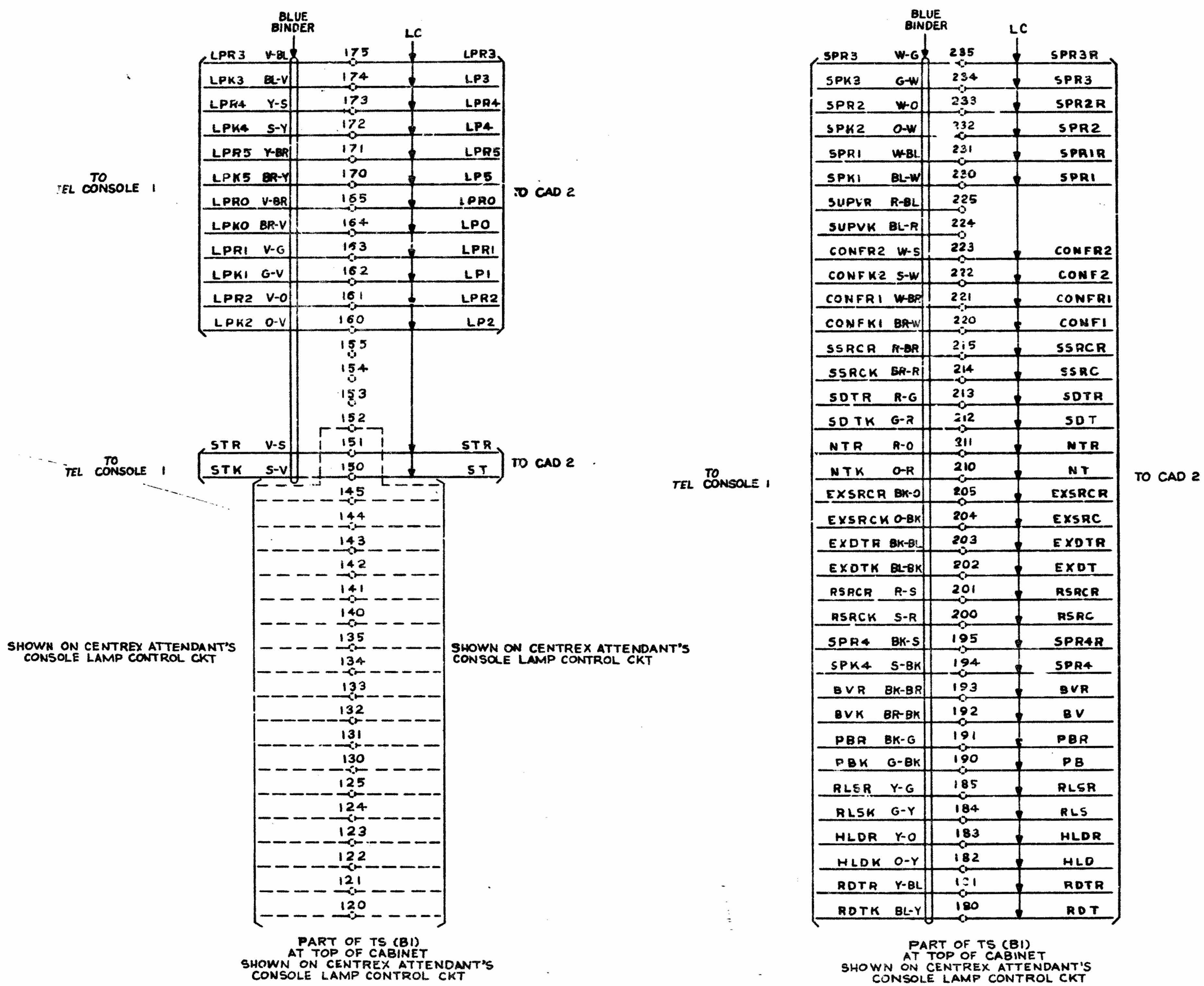
8

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2)
SD-1E059-01-610
BELL TELEPHONE LABORATORIES INCORPORATED
6S

SD-1E059-01-610

CAD 6

(FOR APP FIG. 3)



DRAWING ISSUE	
1	
2A	
8A	

8

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

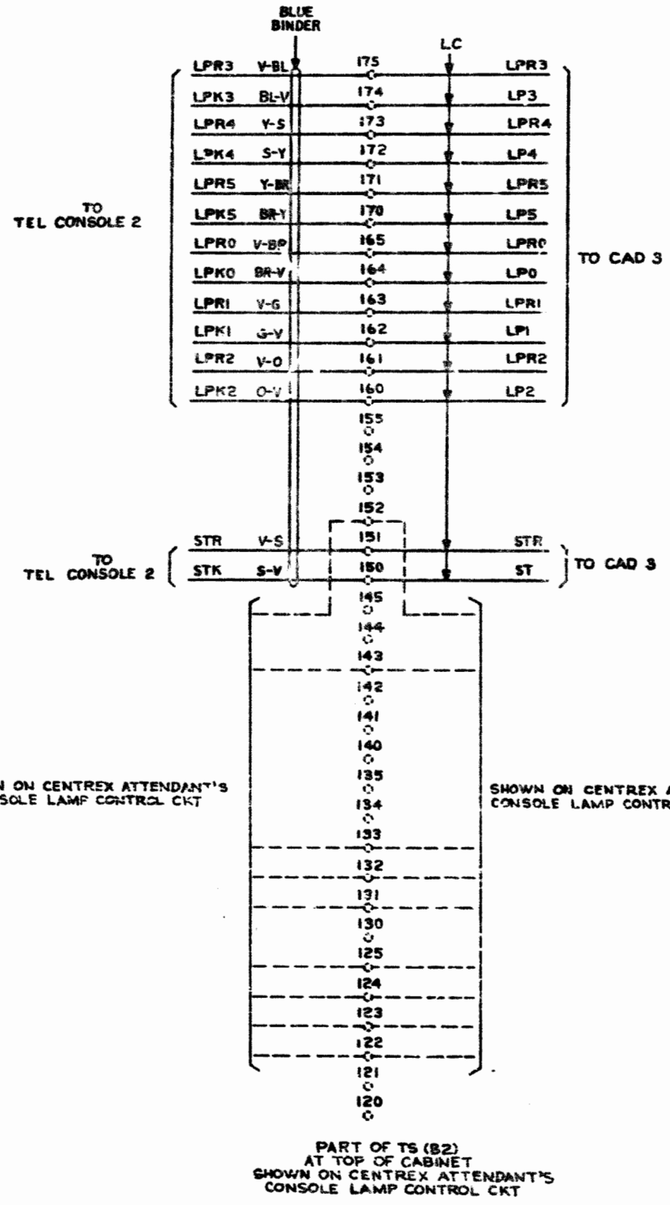
SD-1E059-01-G11

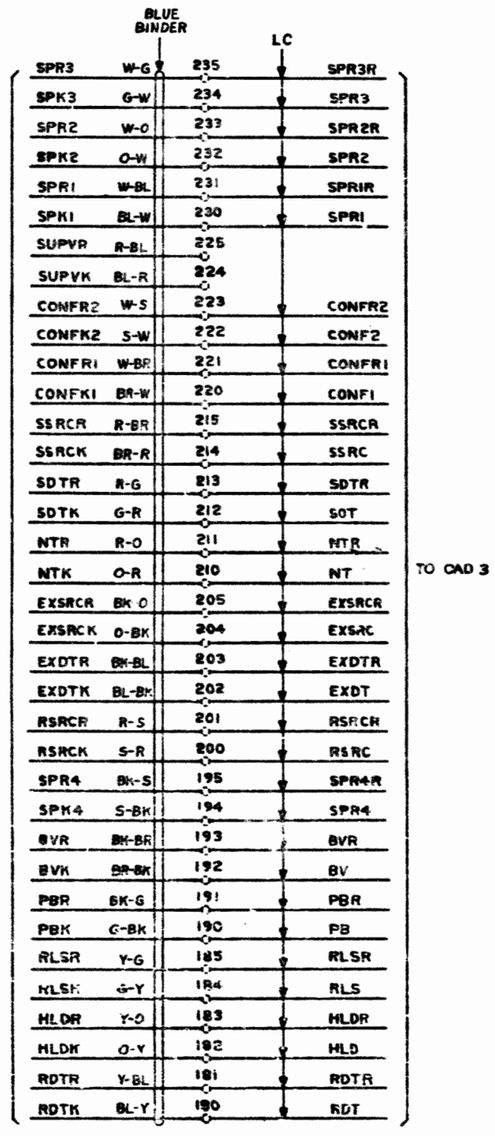
BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-1E059-01-G11

CAD 7
(FOR APP FIG. 3)





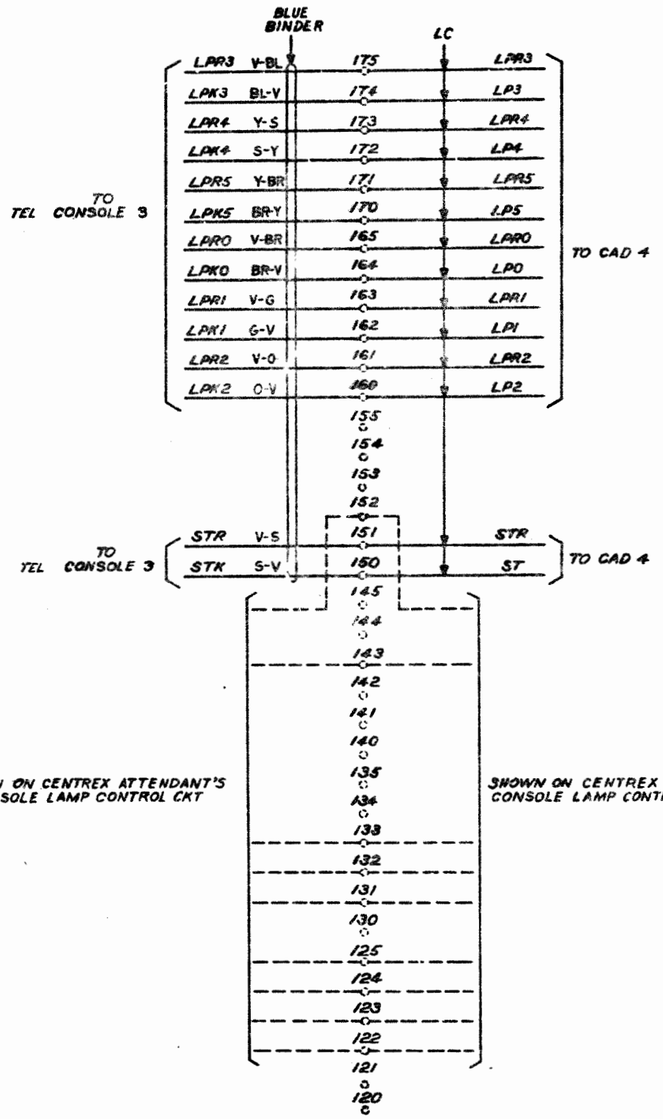
DRAWING ISSUE
1 FES BCP
2A AE FLB BCP

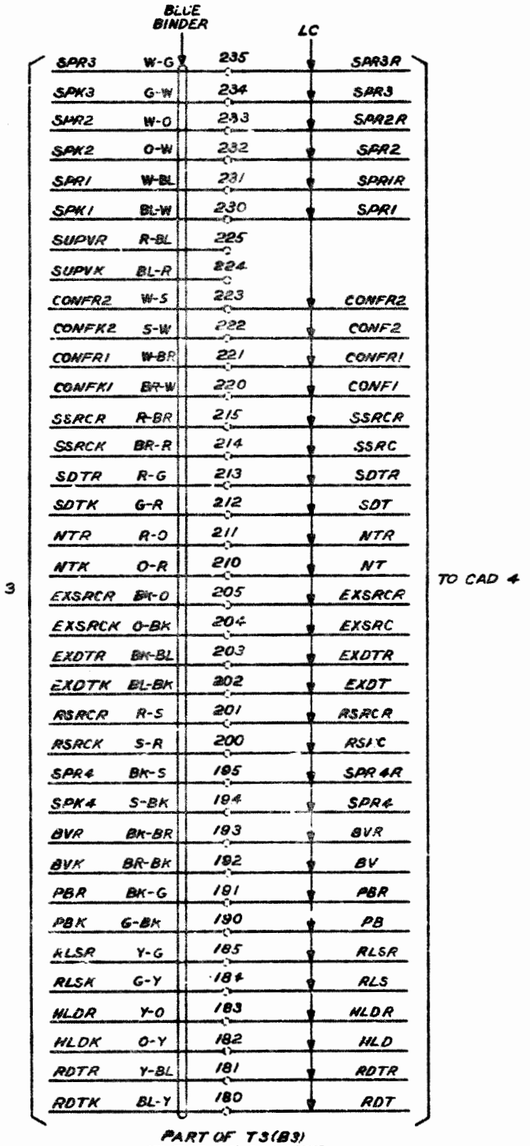
SD-1E059-01-GI2

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2) SD-1E059-01-GI2
BELL TELEPHONE LABORATORIES INCORPORATED 6S

CAD 8

(FOR APP FIG. 3)





DRAWING ISSUE

1	KMV FES MCP	
2A	AE FLB MCP	

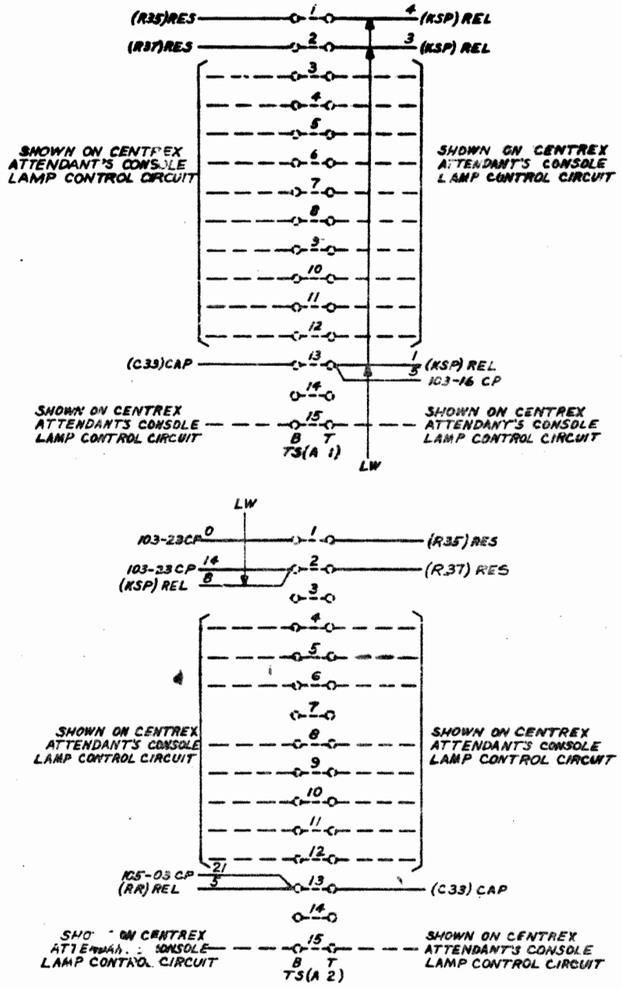
2

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT (2) SD-1E059-01-GB3

BELL TELEPHONE LABORATORIES INCORPORATED 65

SD-1E059-01-GB3

CAD 9
(FOR APP FIG. 3)



DRAWING INDEX	
1	
34	

3

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

2

SD-1E059-01-614

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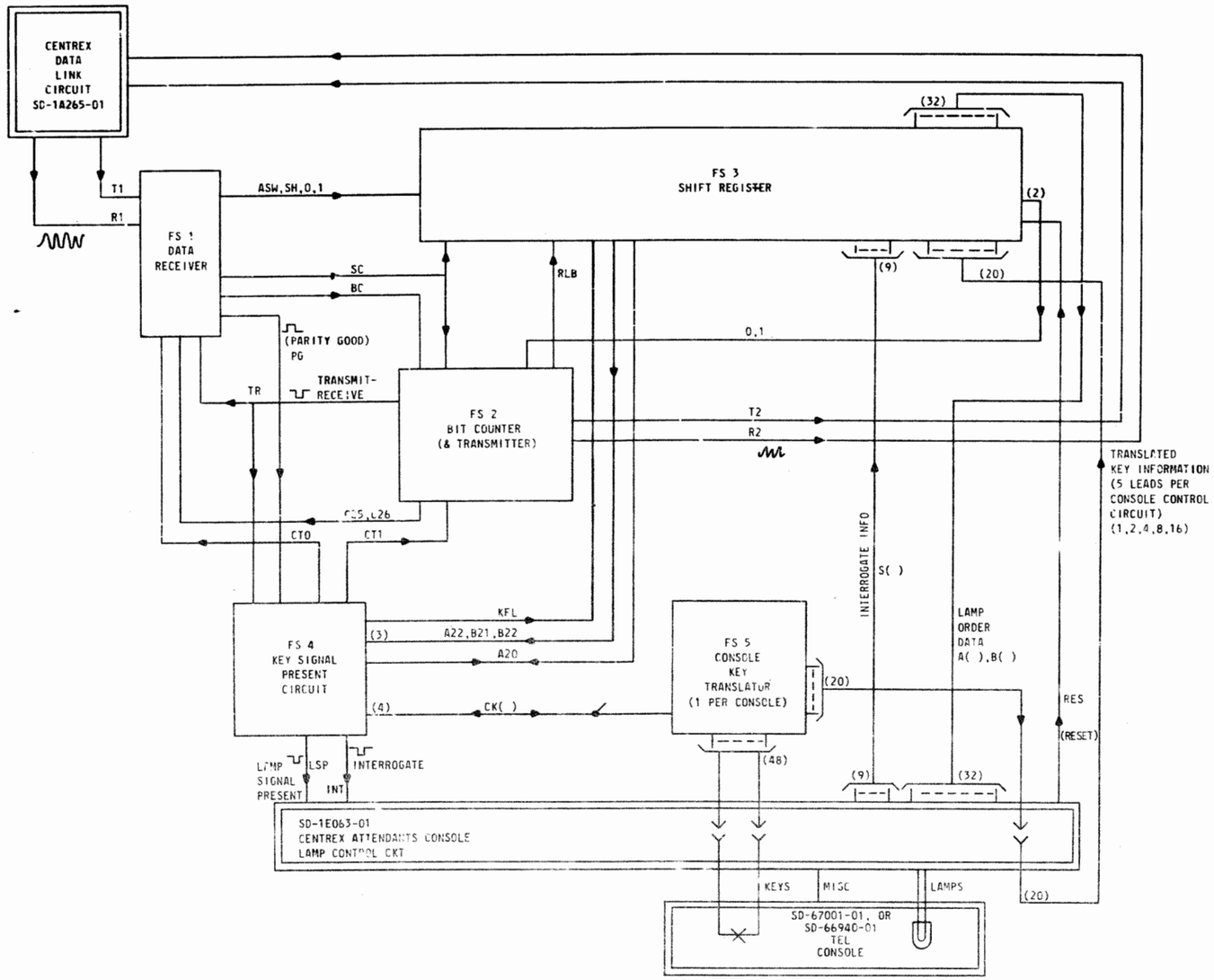
65

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.



ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-HI

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SYM SIZE 6S

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BD 2

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

TONE GATE
TO CENTREX DATA LINK CIRCUIT
FROM CENTREX DATA LINK CIRCUIT
LINE AMP
SHIFT REGISTER
LINE SIGNAL SAMPLER
MS F/F
OSC BUFFER
OSC'S 700-2100 Hz
ZERO X-ING SYNC GEN
PARITY CHECK
COUNTER
SHIFTING
START-STOP
CONTROL LOGIC
SYNC
CT1
CTO
SH
TTT
TR
RELAY DRIVERS
312A RELAYS
TRANSLATOR
SPR RELAY
SPG
GROUP SELECT RELAYS
A654
A656
PSO LEAD
LG
CNS( )
+24V
+10V
+0V
DELAY PULSE GEN
LSP
A834
Q1
Q2
3000Ω
10Ω
F10 3/4 A
PSO
SP F/F
SPR RELAY
+V
RES
+24G(O)V
CONSOLE POWER
A36
FERREED SWITCH LAMP MEMORY
INTERRUPTER
241C
360Ω
A732
NOTE: SEE BD 1 FOR VARIATIONS ON THIS WIRING
LAMPS
KEYS
ATTENDANT CONSOLE SD-67001-01
CABINET TO CONSOLE CABLE
INT
REED RELAY
INTERROGATE FUNCTION
FERREED CONTACTS
K32
KSP F/F
KSP
RR
KEY SIGNAL PRESENT CIRCUIT
TO PHANTOM LOOP TO THE C.O. (CDL CKT)

ISSUE 11B

CENTREX DATA RECEIVER AND TRANSMITTER CIRCUIT

SD-1E059-01-H2

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DWG SIZE 6S

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