SHEET INDEX

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FS2 RECEIVE CIRCUIT			B2
FS3 SIGNALING CIRCUIT	B2	1 2 2	
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CIRCUIT NOTES	D1	1 2 3	D1
EQUIPMENT NOTES	D2	1 1 1	D2
INFORMATION NOTES			

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	J98718SF
EQUIPMENT DESIGN REQUIREMENTS	J98718 (801-505-153)

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.

OPTION INDEX

APP OR WRG	[illegible]	[illegible] NOTES	[illegible] LOCATION
Z	[illegible]		APP FIG. 1, 2EB
Y	[illegible]		APP FIG. 1, 2EB

DWG ISSUE	CD ISSUE	DATE ISSUED
1	1	3-18-75
2B	1 APP 1B	9-17-75
3A	2A	1-13-76

ISSUE 3-

SD- 3C221-01 1N22

COMMON SYSTEM SINGALING

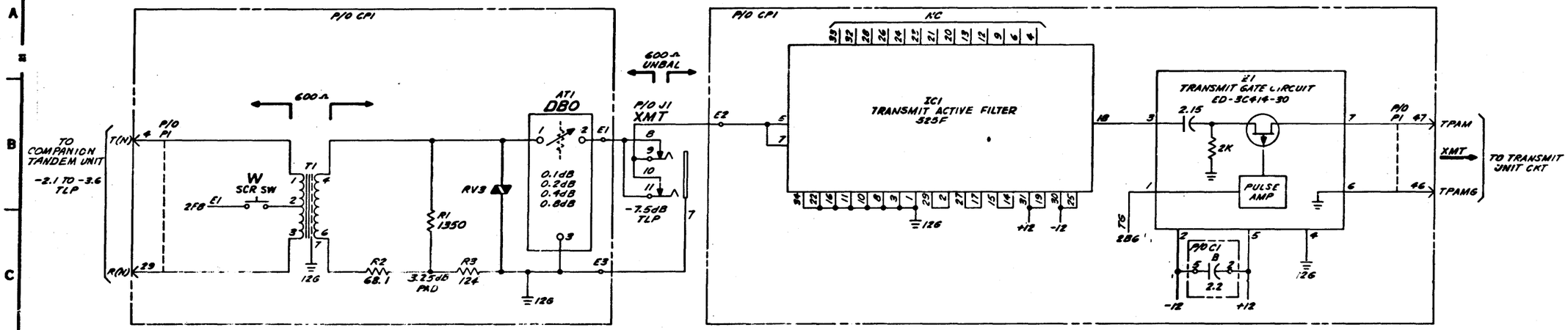
TYPE D3, 24-CHANNEL PULSE CODE MODULATION BANK 4-WIRE, 600-OHM TANDEM CHANNEL UNIT CIRCUIT

AT&TCO STANDARD

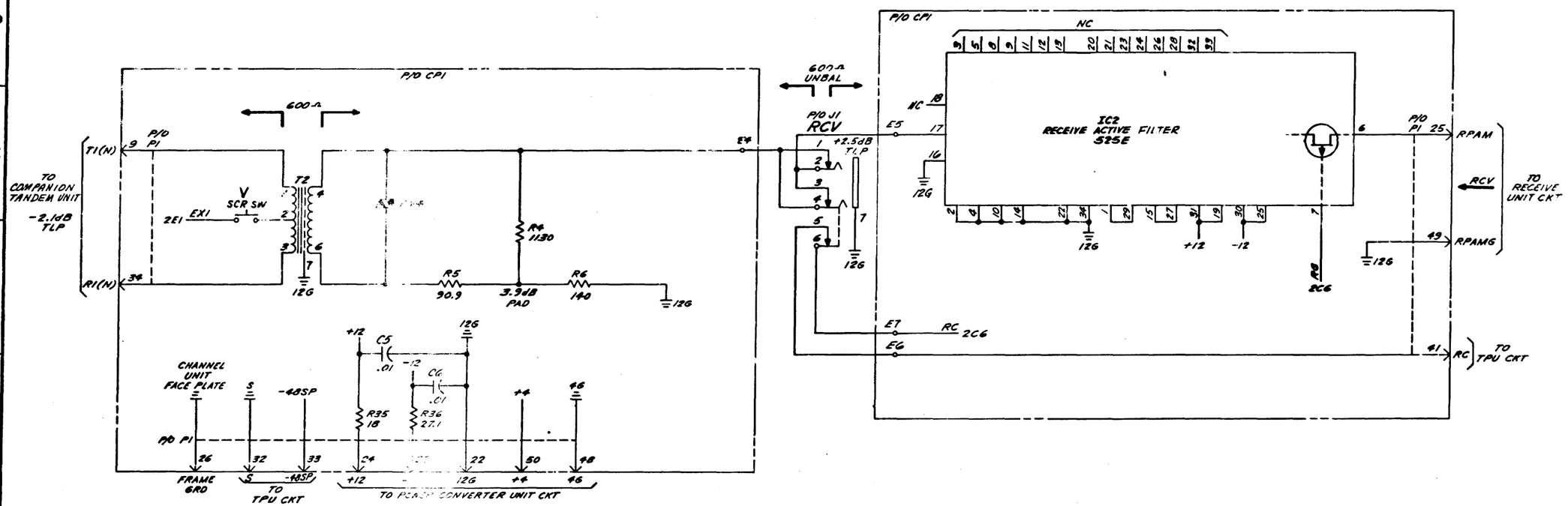
BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-3C221-01-A1
6 SHEETS

FS1
TRANSMIT CIRCUIT



FS2
RECEIVE CIRCUIT

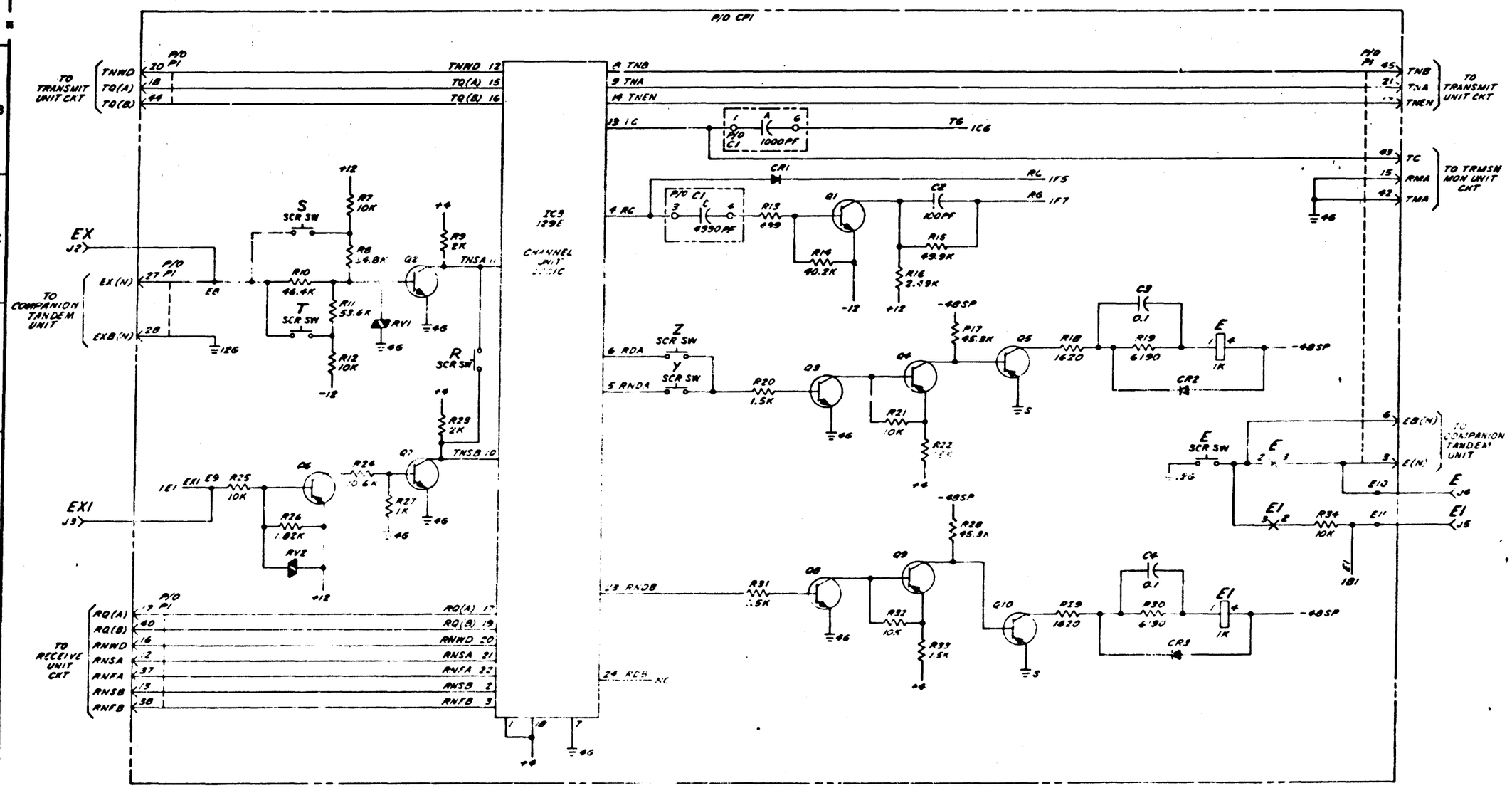


4-WIRE, 600-OHM TANDEM CHANNEL UNIT	SD-3C221-01-BI
BELL TELEPHONE LABORATORIES INCORPORATED	SIZE 6S

ISSUE 3A

SD-3C221-01-BI

FS3
SIGNALING CIRCUIT



4-WIRE 600-OHM TANDEM REPEATER UNIT	SD-3C221-01-B2
BELL TELEPHONE LABORATORIES INCORPORATED	65

SD-3C221-01-B2

APP FIG. 1

CONNECTOR

DESIG	LOC	CODE
[1] XMT(J1)	1B3	601AM
RCV(J1)	1E4	
EX(J2)	2C0	KS-20667,L13
EX1(J3)	2E0	KS-20667,L13
E(J4)	2E9	KS-20667,L9
E1(J5)	2E9	KS-20667,L9

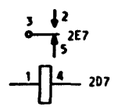
JACK

SEE CONNECTOR

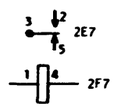
CIRCUIT PACK

DESIG	LOC	CODE
CP1	1A1,1A4, 1D2,1D5,2A4	ED-3C487-( )
E/W		

E
326A



E1
326A



ATTENUATOR

DESIG	LOC	CODE
AT1	1B3	50C

CAPACITOR

DESIG	LOC	CODE
[1] C1A-C	1C7,2B4,2C4	734C CAP PAK
C2	2C5	KS-16958,L31,100PF
C3	2D7	KS-594C,0.1
C4	2F7	KS-594C,0.1
C5	1G2	KS-16048,L4,.01
C6	1G2	KS-16048,L4,.01

DIODE

DESIG	LOC	CODE
CR1	2C4	458C
CR2	2D7	458A
CR3	3F7	458A

INTEGRATED CIRCUIT

DESIG	LOC	CODE
IC1	1B5	525F
IC2	1D6	525E
IC3	2C3	129E

NETWORK

DESIG	LOC	CODE
Z1	1B7	ED-3C474-30

RESISTOR

DESIG	LOC	CODE
R1	1C2	KS-20810,L1A,1350
R2	1C2	KS-20810,L1A,68.1
R3	1C2	KS-20810,L1A,124
R4	1F3	KS-20810,L1A,1130
R5	1F2	KS-20810,L1A,90.9
R6	1F3	KS-20810,L1A,140
R7	2C2	KS-20810,L1A,10K
R8	2C2	KS-20810,L1A,34.8K
R9	2C2	KS-20810,L1A,2K
R10	2C1	KS-20810,L1A,46.4K
R11	2D2	KS-20810,L1A,53.6K
R12	2D2	KS-20810,L1A,10K
R13	2C4	KS-20810,L1A,499
R14	2C5	KS-20810,L1A,40.2K
R15	2C5	KS-20810,L1A,49.9K
R16	2D5	KS-20810,L1A,2.49K
R17	2D6	KS-20810,L1A,45.3K
R18	2D6	KS-20810,L1A,1620
R19	2D7	KS-20810,L1A,6190
R20	2D4	KS-20810,L1A,1.5K
R21	2E5	KS-20810,L1A,10K
R22	2E5	KS-20810,L1A,1.5K
R23	2D2	KS-20810,L1A,2K
R24	2E2	KS-20810,L1A,10.6K
R25	2E1	KS-20810,L1A,10K
R26	2E1	KS-20810,L1A,1.82K
R27	2E2	KS-20810,L1A,1K
R28	2E5	KS-20810,L1A,45.3K
R29	2F6	KS-20810,L1A,1620
R30	2F7	KS-20810,L1A,6190
R31	2F4	KS-20810,L1A,1.5K
R32	2F5	KS-20810,L1A,10K
R33	2F5	KS-20810,L1A,1.5K
R34	2E8	KS-20810,L1A, ⓧ 10K, ⓨ 1K
R35	1G2	KS-20810,L1A,18
R36	1G2	KS-20810,L1A,27.1

SELECTOR BLOCK

DESIG	LOC	CODE
[1] W	1B1	840952451
V	1E1	
[1] S	2C1	840952451
T	2D1	
[1] Z	2D4	840952451
Y	2D4	
E	2E7	P-44P303
R	2D2	P-44P303

TRANSFORMER

DESIG	LOC	CODE
T1	1B1	2532AD
T2	1E1	2532AD

TRANSISTOR

DESIG	LOC	CODE
Q1	2C5	66J
Q2	2C2	66J
Q3	2D5	666
Q4	2D5	51A
Q5	2D6	51B
Q6	2E1	51A
Q7	2E2	66J
Q8	2F5	666
Q9	2F5	51A
Q10	2F6	51B

VARISTOR

DESIG	LOC	CODE
RV1	2D2	106A
RV2	2F1	106A
RV3	1B2	106A
RV4	1E2	106A

SD-3C221-01-CI

SHEET 34

4-WIRE, 600-CHM TANDEM CHANNEL UNIT

SD-3C221-01-CI

BELL TELEPHONE LABORATORIES INCORPORATED

6S

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
BATTERY SYMBOL			VOLTAGE RANGE

102.

FEATURE OR OPTION	PROVIDE APP FIG.	PROVIDE APP OR WRG	PROVIDE QUANTITY

103.

RECORD OF FIGURES, WIRING, AND APPARATUS CHANGES						
CHANGED ON ISSUE	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USED IN CIRCUIT STD	USED IN CIRCUIT A&M	USED IN CIRCUIT MD
28	Z OR Y	Z		Y		Z

CIRCUIT NOTES: (CONT)

104. D80 SHOULD BE SET TO BUILD OUT THE CABLING LOSS FROM THE CAMPANION TANDEM UNIT TO 1.5dB. THE LOSS OF THE ATTENUATOR IS INDICATED BY THE SUM OF THE EXPOSED DIGITS.

105. TANDEM UNITS MUST NOT BE USED IN THE CHANNEL 24 POSITION DUE TO INTERFERENCE WITH THE TMU'S TESTING OF THE D3 BANK.

106. FOR CONNECTION INFORMATION SEE APPLICATION SCHEMATIC FOR THE D3 BANK SD-3C104-01.

107. SCREW SWITCH SETTINGS SHALL BE IN ACCORDANCE WITH TABLE A.

TABLE A

SCREW SWITCH SETTINGS

TYPE OF CONNECTION			SCREW SWITCH DESIGNATION Z	Y	E	W	V	T	S	R
FOREIGN EXCHANGE (3 STATE SIGNALING)	NON-LOOPED SIGNALING LEADS	TANDEM UNIT TOWARD CO END OF CKT	OPEN	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	OPEN
		TANDEM UNIT TOWARD SUBSCRIBER END OF CKT	CLOSED	OPEN	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN
	LOOPED SIGNALING LEADS	TANDEM UNIT TOWARD CO END OF CKT	OPEN	CLOSED	OPEN	CLOSED	CLOSED	OPEN	CLOSED	OPEN
		TANDEM UNIT TOWARD SUBSCRIBER END OF CKT	CLOSED	OPEN	OPEN	CLOSED	CLOSED	CLOSED	OPEN	OPEN
ALL 2-STATE SIGNALING CONNECTIONS	NON-LOOPED SIGNALING LEADS		CLOSED	OPEN	CLOSED	OPEN	OPEN	OPEN	CLOSED	CLOSED
	LOOPED SIGNALING LEADS		CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED	CLOSED

EQUIPMENT NOTES:

201. "PI" INDICATES PRINTED CONNECTOR FINGERS OF PWB PLUG END AND MATES WITH A 940A CONNECTOR.

202. DESIGNATIONS SHOWN IN BOLD CHARACTERS IN B SECTION ARE MARKED ON UNIT.

203. TO CLOSE A SCREW SWITCH, THE SCREW SWITCH SHALL BE TIGHTENED SUFFICIENTLY TO INSURE CONTACT BETWEEN TERMINALS AND UNDERSIDE OF SCREW HEAD. CAUTION IN TIGHTENING SCREW IS RECOMMENDED TO AVOID SHEARING OF SCREW. TO OPEN A SCREW SWITCH, THE SCREW SHALL BE LOOSENED APPROXIMATELY TWO TURNS. UNIT IS NORMALLY FURNISHED WITH SCREWS CLOSED.

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.

3A

4-WIRE, 600-OHM TANDEM CHANNEL UNIT

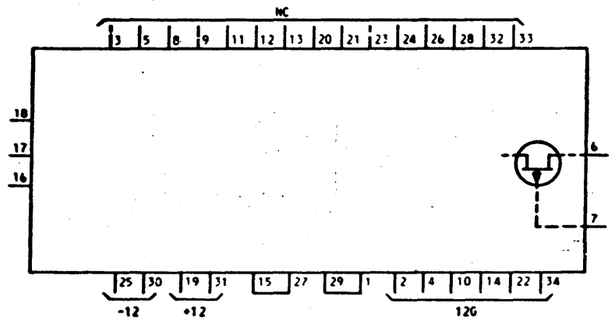
SD-3C221-01-DI

BELL TELEPHONE LABORATORIES INCORPORATED

6S

INFORMATION NOTES (CONT)
302. I.C. DEVICE CIRCUIT ELEMENTS

(A) **525E** RECEIVE ACTIVE FILTER



INPUT/OUTPUT INFORMATION

PIN 6 IS THE PRIMARY CHANNEL INPUT FOR THE RECEIVE PULSE AMPLITUDE MODULATED SIGNAL.

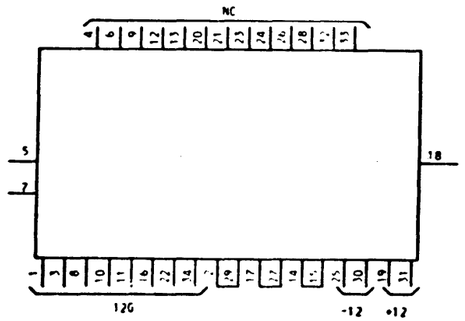
PIN 7 IS THE TIMING INPUT REQUIRED TO SAMPLE THE INDIVIDUAL CHANNEL.

PIN 17 IS THE PRIMARY CHANNEL OUTPUT FOR THE RECONSTRUCTED VOICE FREQUENCY SIGNAL.

CIRCUIT DESCRIPTION

THE RECEIVING ACTIVE FILTER RE-CONSTRUCTS THE TRANSMITTED WAVEFORM FROM THE RECEIVED SAMPLES. IT EFFECTIVELY HAS A LOW-PASS CHARACTERISTIC WHICH SUPPRESSES FREQUENCY COMPONENTS IN THE INPUT ABOVE 4 kHz.

(B) **525F** TRANSMIT ACTIVE FILTER



INPUT/OUTPUT INFORMATION

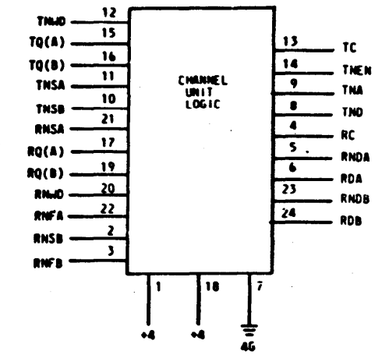
PIN 5 IS THE PRIMARY VOICE FREQUENCY SIGNAL INPUT.

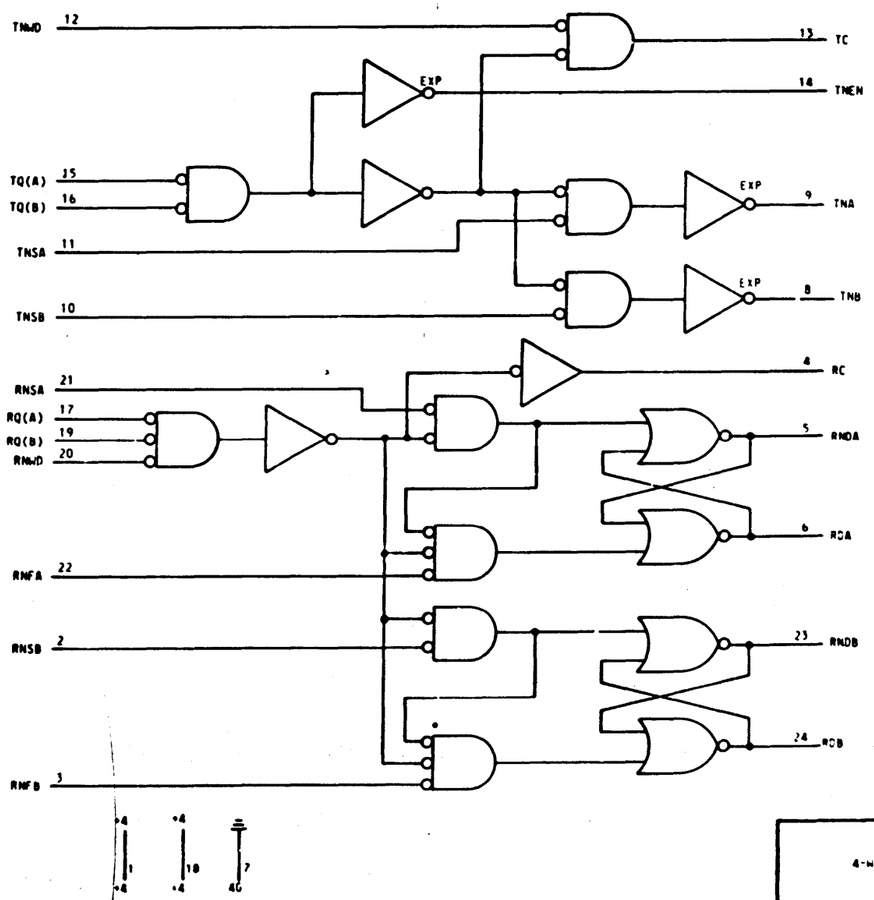
PIN 18 IS THE FILTERED VOICE FREQUENCY OUTPUT.

CIRCUIT DESCRIPTION

THE TRANSMIT ACTIVE FILTER IS A LOW-PASS FILTER WHICH EFFECTIVELY SUPPRESSES FREQUENCIES ABOVE 4 kHz. THESE FREQUENCIES WOULD PRODUCE MODULATION PRODUCTS BELOW 4 kHz IF THEY WERE NOT SUPPRESSED.

(C) **129E** CHANNEL UNIT LOGIC





4-WIRE, 600-OHM TANDEM CHANNEL UNIT		SD-3C221-01-D2
BELL TELEPHONE LABORATORIES INCORPORATED	6S	

1