SD-3C230-01

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3	4	SHEET NO.
SHEET INDEX SUPPORTING INFORMATION	A1	1	2	3	4	A1
FS1 TRANSMITTER AMPLIFIER	B1	1	2	3	4	B1
FS2 RECEIVER AMPLIFIER FS3 CHANNEL UNIT LOGIC	B2	1	2	2	2	B2
APP FIG. 1	C1	1	2	3	4	C1
CIRCUIT NOTES	D1	1	2	2	2	D1
EQUIPMENT NOTES	D2	1	1	1	1	D2
INFORMATION NOTES						

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	J98718SQ
EQUIPMENT DESIGN REQUIREMENTS	J98718 (801-505-153)

DWG ISSUE	CD ISSUE	DATE (ISSUED)
1	1	2-82
2A	1 APP 1A	1-2-84
3A	1 APP 2A	4-86
4A	1 APP 3A	3-88

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.

SD- 3C230-01 IN22

COMMON SYSTEMS
TYPE D3, 24-CHANNEL
PULSE CODE MODULATION BANK
4-WIRE, EQUALIZED TRANSMISSION ONLY
CHANNEL UNIT
CIRCUIT

AT&TCO STANDARD

SD-3C230-01-A1
6 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED 6S

SD-3C230-01-A1

FS I
TRANSMITTER AMPLIFIER

T
J1
(-9 TO +5dB TLP)
XMT
TO TRUNK CKT
R
J2
P/O P1
E1
E2
OPEN
1200
600
150
OPEN
1200
600
150
T1
LF SCR SW
CR3
C25 SCR SW
C5 SCR SW
C1 SCR SW
C2 SCR SW
P/O C1
F .5
E .25
D .5
C 1.0
B 1.0
A 1.0
CW
R1 5K RLF
R2 5K RHF
E3
E4
E5
E6
P/O CP1
R3 51.1
3dB
R4 51.1
R7 1690
R8 681
R11 51.1
R12 51.1
L1 5.74 mH
P/O C1
H .25
G .25
HF SCR SW
C2 .499
R5 10K
R6 46.4K
R9 619
C5 .499
R13 10K
IC1-C
-12
C3 .01 12G
C4 .01 12G
R14 46.4K +12
12G
R10 600
AT1
1dB 2dB 4dB 8dB
AT2
.1dB .2dB .4dB .8dB
12G
E7
P/O J3 XMT
-7.5dB TLP
E8
E9
12G

NC
IC2
TRANSMIT ACTIVE FILTER 525F
Z1
TRANSMIT GATE CIRCUIT ED-3C414-30
P/O P1
-7
TPAM
2.15
2K
XMT
TO XMT UNIT CKT
PULSE AMP.
TPAMG
C6 .01
C7 .01
+12
12G
-12
C8 1000PF
C9 2.2
+12
-12
12G
TC
2G2
TO XMSN MON UNIT CKT

UNIT FACE PLATE
-12
12G
+12
4G
+4
R15 27.1
R16 18
P/O P1
FRG
TO FRAME GRD
TO POWER CONVERTER UNIT CKT

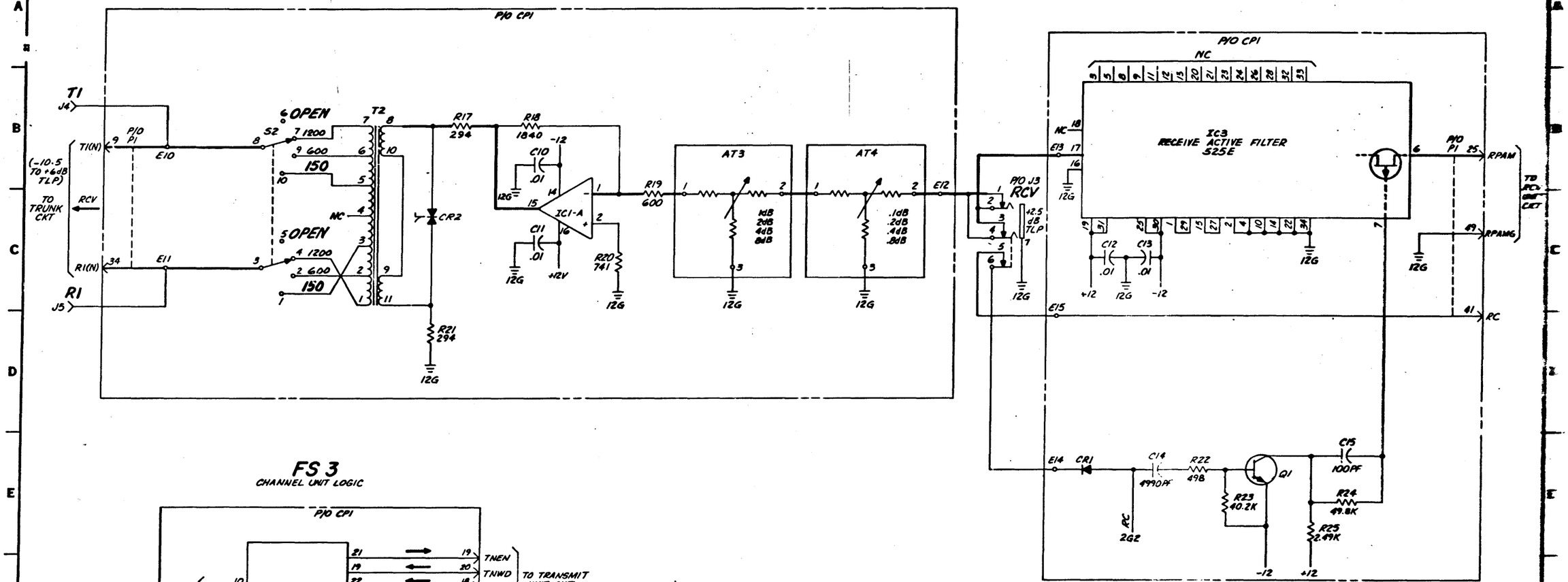
ISSUE 4A

4-WIRE, EQUALIZED TRANSMISSION ONLY CHANNEL UNIT

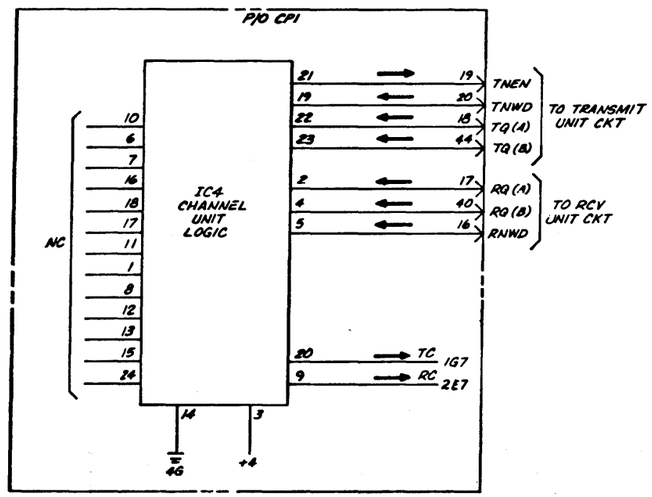
SD-3C230-01-81

BELL TELEPHONE LABORATORIES INCORPORATED 6S

FS 2
RECEIVER AMPLIFIER



FS 3
CHANNEL UNIT LOGIC



4-WIRE, EQUALIZED TRANSMISSION ONLY CHANNEL UNIT	SD-3C230-01-B2
BELL TELEPHONE LABORATORIES INCORPORATED	6S

2A

SD-3C230-01-B2

APP FIG. 1

CONNECTOR

DESIG	LOC	CODE
T(J1)	1B0	KS-20667,L9
R(J2)	1D0	KS-20667,L13
[1] XMT(J3)	1C9	601A
[1] RCV(J3)	2C6	601A
T1(J4)	2B0	KS-20667,L9
R1(J5)	2C0	KS-20667,L13

JACK

SEE CONNECTOR

POTENTIOMETER

DESIG	LOC	CODE
R1	1A2	KS-21423,L3
R2	1A4	KS-21423,L4

CIRCUIT PACK

DESIG	LOC	CODE
CP1	1B4,2A3,2A8,2E1	ED-3C490-( )

E/W

ATTENUATOR

DESIG	LOC	CODE
AT1	1C8	50E
AT2	1C8	50C
AT3	2B4	50E
AT4	2B5	50C

CAPACITOR

DESIG	LOC	CODE
[1] C1 A-H	1C3,1C5	734F CAP PAC#
C2	1B6	535JS,,499
C3	1C7	KS-19774,L1,,01
C4	1D7	KS-19774,L1,,01
C5	1D6	535JS,,499
C6	1F6	KS-19774,L1,,01
C7	1F6	KS-19774,L1,,01
C8	1F7	KS-16742,L32,1000PF
C9	1F8	KS-20736,L8,2.2
C10	2B3	KS-19774,L1,,01
C11	2C3	KS-19774,L1,,01
C12	2C7	KS-19774,L1,,01
C13	2C7	KS-19774,L1,,01
C14	2E7	KS-16742,L32,4990PF
C15	2E8	KS-16958,L31,100PF

DIODE

DESIG	LOC	CODE
CR1	2E6	458C
CR2	2C2	521B
CR3	1C2	521B

INDUCTOR

DESIG	LOC	CODE
L1	1C5	16228S

CIRCUIT PACK (CONT)

INTEGRATED CIRCUIT

DESIG	LOC	CODE
[1] IC1-A	2C3	559A
[1] IC1-B	SPARE	559A
[1] IC1-C	1C7	559A
IC2	1E6	525F
IC3	2B7	525E
IC4	2F1	1290

NETWORK

DESIG	LOC	CODE
Z1	1E8	ED-3C414-30

SCREW SWITCH

DESIG	LOC	CODE
C.25	1C3	851587785
C.5	1C3	851587785
C1	1C4	851587785
[1] C2	1C4	851587785
MF	1C5	851587785
LF	1C2	851587785

RESISTOR

DESIG	LOC	CODE
R3	1B4	KS-20810,L1A,51.1
R4	1B4	KS-20810,L1A,51.1
R5	1B6	KS-20810,L1A,10K
R6	1B7	KS-20810,L1A,46.4K
R7	1C4	KS-20610,L1A,1690
R8	1C5	KS-20810,L1A,681
R9	1C6	KS-20810,L1A,619
R10	1C7	KS-20810,L1A,600
R11	1D4	KS-20810,L1A,51.1
R12	1D4	KS-20810,L1A,51.1
R13	1D6	KS-20810,L1A,10K
R14	1D6	KS-20810,L1A,46.4K
R15	1F2	KS-20810,L1A,27.1
R16	1F2	KS-20810,L1A,18
R17	2B2	KS-20810,L1A,294
R18	2B3	KS-20810,L1A,1840
R19	2C4	KS-20810,L1A,600
R20	2C3	KS-20810,L1A,741
R21	2D3	KS-20810,L1A,294
R22	2E7	KS-20810,L1A,498
R23	2E7	KS-20810,L1A,40.2K
R24	2E8	KS-20810,L1A,49.8K
R25	2E8	KS-20810,L1A,2.49K

SWITCH

DESIG	LOC	CODE
S1	1B1	KS-19104,L18
S2	2B1	KS-19104,L18

CIRCUIT PACK (CONT)

TRANSFORMER

DESIG	LOC	CODE
T1	1B1	2578BA
T2	2B2	2578BA

TRANSISTOR

DESIG	LOC	CODE
Q1	2E8	66J

SD-3C230-01-CI

4-WIRE, EQUALIZED TRANSMISSION ONLY
CHANNEL UNIT

SD-3C230-01-CI

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
BATTERY SYMBOL			VOLTAGE RANGE

102.

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY

103.

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

CIRCUIT NOTES: (CONT)

104. TALK BATTERY AND GROUND MUST NOT BE CONNECTED TO TERMINALS 25 AND 26.

EQUIPMENT NOTES:

201. "P1" 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 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 COMPLETE 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.

2A

4-WIRE, EQUALIZED TRANSMISSION ONLY
CHANNEL UNIT

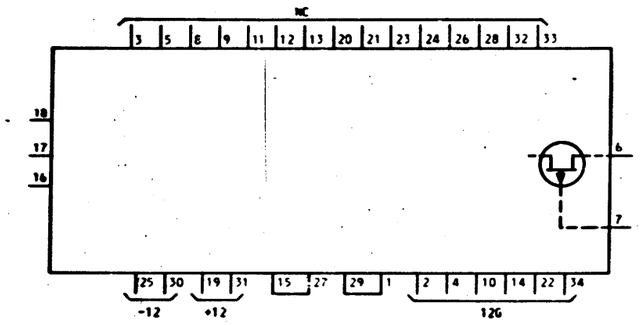
SD-3C230-01-DI

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

INFORMATION NOTES (CONT)
302. T.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.

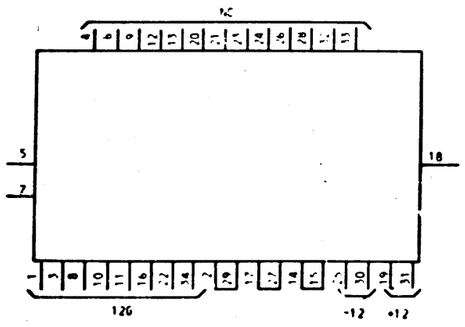
PIN 7 IS THE TIMING INPUT REQUIRED TO SAMPLE THE INDIVIDUAL CHANNEL.

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

CIRCUIT DESCRIPTION

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

(A) 525F TRANSMIT ACTIVE FILTER



INPUT/OUTPUT INFORMATION

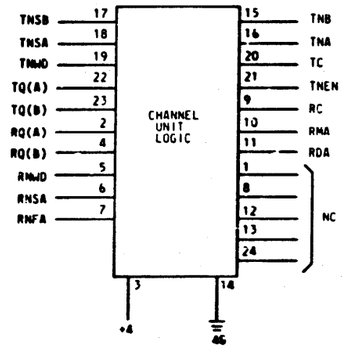
PIN 5 IS THE PRIMARY VOICE FREQUENCY SIGNAL INPUT.

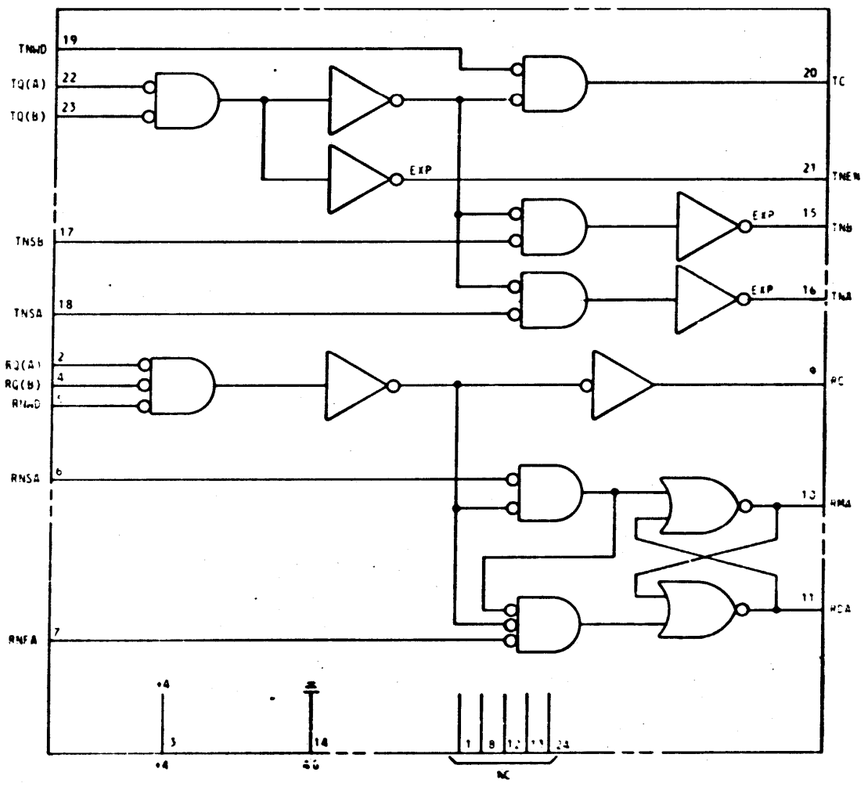
PIN 18 IS THE FILTERED VOICE FREQUENCY OUTPUT.

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) 129D CHANNEL UNIT LOGIC

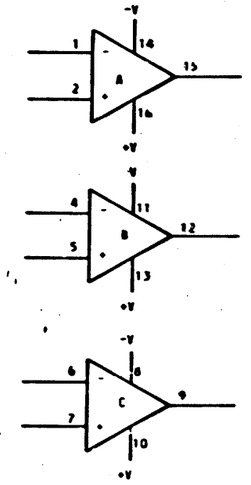




INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

(D) 559A HYBRID INTEGRATED CIRCUIT TRIPLE OPERATIONAL AMPLIFIER



INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION

4-WIRE, EQUALIZED TRANSMISSION ONLY CHANNEL UNIT		SD-3C230-01-D2
BELL TELEPHONE LABORATORIES INCORPORATED	6S	