SD-3C219-01

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	SHEET NO.
SHEET INDEX SUPPORTING INFORMATION	A1	1	2																																																		A1
FS1 TRANSMIT AND RECEIVE CKT	B1	1	2																																																	B1
FS2 SIGNALING CKT	B2	1	2																																																B2
APP FIG.1	C1	1	2																																																C1
CIRCUIT NOTES	D1	1	2																																															D1
EQUIPMENT NOTES	D2	1	1																																															D2
INFORMATION NOTES																																																		

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	J98718SD
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.

DWG ISSUE	CD ISSUE	DATE ISSUED
1	1	2-1475
2A	1/1A	1-2876

SIZE A4

SD-3C219-01 1N22

COMMON SYSTEMS
SIGNALING

TYPE D3, 24-CHANNEL
PULSE CODE MODULATION BANK
2-WIRE, 900-OHM DUPLEX
CHANNEL UNIT
CIRCUIT

AT&TCO STANDARD

SD-3C219-01-A1
6 SHEETS

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STANDARD DRAWING 65

FSI
TRANSMIT AND RECEIVE CIRCUIT

P/O CP1

P/O C1
.261
.953
1.78
L1 .788H
RV1
T&R AT1
DBO AT2
1.0dB
2.0dB
0.1dB
0.2dB
0.4dB
0.8dB
P/O J5 XMT
-7.5 TLP
NC
IC1 TRANSMIT ACTIVE FILTER 525F
C5 .01
C6 .01
+12
-12

N2 J1
TO PRECISION NET
P/O P1 PN2 36 E1
PN1 11 E2
N1 J2
T J3
T1
(+0.9 TO -3.6dB TLP)
TO TRUNK CKT
T(N) 4 P/O P1 E3
R(N) 29 E4
(-1.35 TO -5.85dB TLP)
R J4

COMP NET SCR SW
R1 898
2 SCR SW
4 SCR SW
8 SCR SW
16 SCR SW
32 SCR SW
64 SCR SW
C2
A .002
B .004
C .008
D .016
E .032
F .064

R2 1370
C4 1.96
C3 1.96
P/O C1
1.07
T2
RV2
RV3
REV
S1
NORM
2CO

Z1 TRANSMIT GATE CIRCUIT ED-9C414-30
2.15
2K
PULSE AMP.
C8 1000PF
C7 2.2
P/O P1 47 TPAM XMT TO TRANSMIT UNIT CKT
46 TPAMG
43 TC TO XMSN CKT
25 RPAM RCV TO RCV UNIT CKT
49 RPAMG
41 RC TO TPU CKT

IC2 RECEIVE ACTIVE FILTER 525E
C9 .01
C10 .01
P/O J5 RCV
+2.5 TLP
2DG
C11 100PF
C12 4990PF
R3 499
R4 49.9K
R5 40.2K
R6 2.49K
Q1
CR1

S6 -48SP TO TPU CKT
FG -48F TO FUSE ALARM AND FILTER CKT
-12 R20 27
126
+12 R21 18
46
+4
FRAME FRAME GRD
P/O P1 32 33 8 7 23 22 24 48 50 26
TO PWR CONVERTER UNIT CKT

2 WIRE, 900-OHM DUPLEX CHANNEL UNIT

SD-3C219-01-BI

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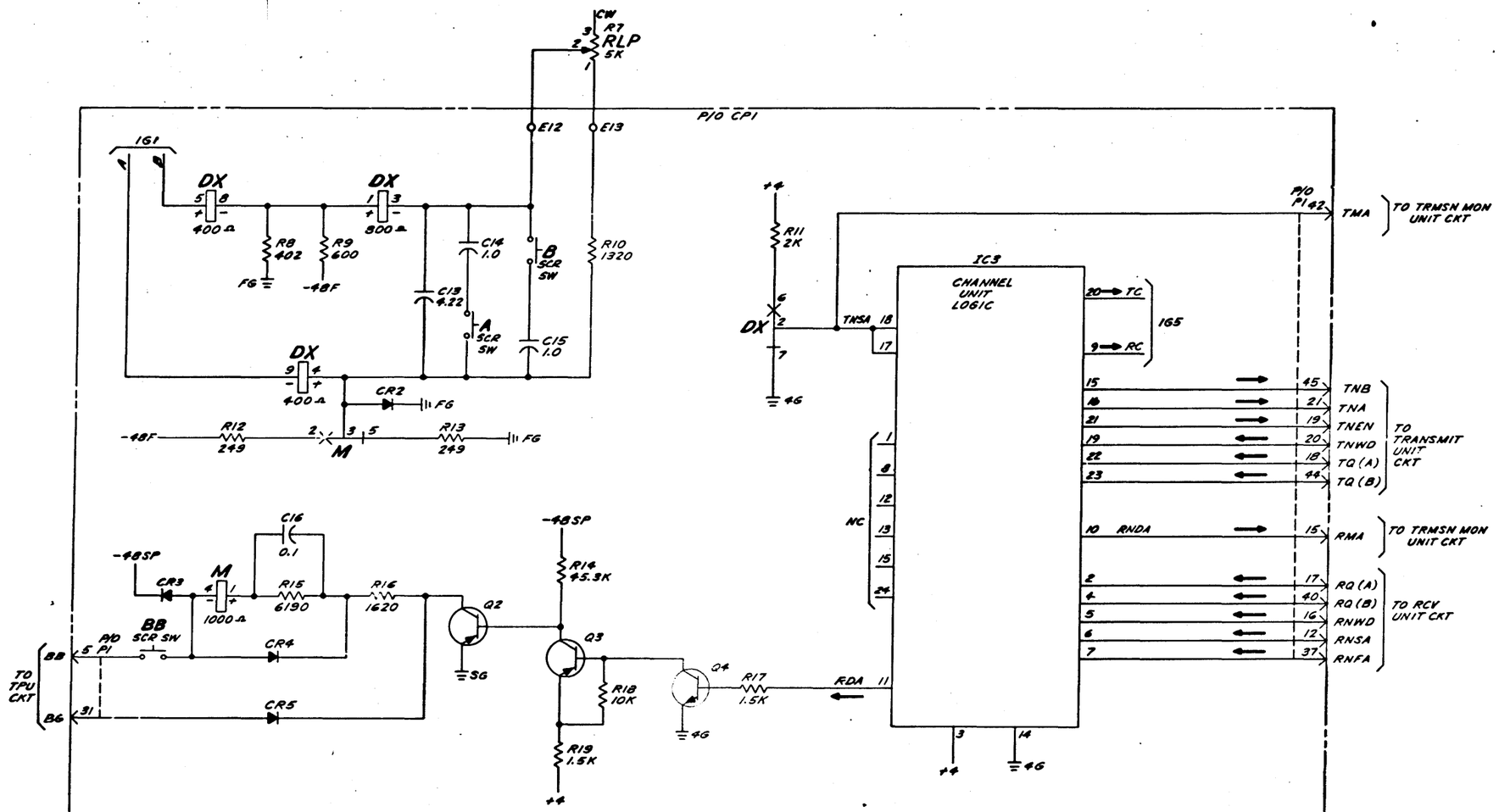
FS2
SIGNALING CIRCUIT



2A

2-WIRE, 900-OHM DUPLEX CHANNEL UNIT

BELL TELEPHONE LABORATORIES INCORPORATED

6S

SD-3C219-01-B2

APP FIG. 1

CONNECTOR

DESIG	LOC	CODE
N2(J1)	1B0	KS-20667,L14
N1(J2)	1C0	KS-20667,L15
T(J3)	1D0	KS-20667,L9
R(J4)	1D0	KS-20667,L13
[1] XMT(J5)	1A9	601A
[1] RCV(J5)	1F9	601A

JACK

SEE CONNECTOR

POTENTIOMETER

DESIG	LOC	CODE
R7	2B3	KS-21423,L4,5K

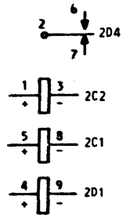
CIRCUIT PACK

DESIG	LOC	CODE
CP1	1A2,2B4	ED-3C483-( )

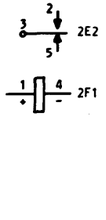
E/M

RELAY

DX 338A



M 326A



ATTENUATOR

DESIG	LOC	CODE
AT1	1A5	50D
AT2	1A6	50A

CAPACITOR

DESIG	LOC	CODE
[1] C1,A-I	1A1,1D1,1D2 1D3	734B,CAP-PAK
[1] C2,A-F	1D4	726K,CAP-PAK
C3	1E1	596C,1.96
C4	1E2	596C,1.96
C5	1C7	KS-16048,L4,.01
C6	1C7	KS-16048,L4,.01
C7	1E7	KS-20736,L8,2.2
C8	1E7	KS-16742,L32,1000PF
C9	1G7	KS-16048,L4,.01
C10	1G8	KS-16048,L4,.01
C11	1G7	KS-16958,L31,100PF
C12	1G6	KS-16742,L32,4990PF
C13	2D2	535GA,4.22
C14	2C2	596C,1.0
C15	2D3	596C,1.0
C16	2E1	594C,0.1

CIRCUIT PACK (CONT)

DIODES

DESIG	LOC	CODE
CR1	1H5	458C
CR2	2D2	426AH
CR3	2F1	458A
CR4	2F1	458A
CR5	2F1	458A

INDUCTOR

DESIG	LOC	CODE
L1	1B1	1622BJ,.788H

INTEGRATED CIRCUIT

DESIG	LOC	CODE
IC1	1B7	525F
IC2	1F7	525E
IC3	2D5	129D

NETWORK

DESIG	LOC	CODE
Z1	1D8	ED-3C414-30

RESISTOR

DESIG	LOC	CODE
R1	1D3	KS-20810,L1A,898
R2	1D2	KS-20810,L1A,1370
R3	1G6	KS-20810,L1A,499
R4	1G7	KS-20810,L1A,49.9K
R5	1H6	KS-20810,L1A,40.2K
R6	1H7	KS-20810,L1A,2.49K
R8	2C1	KS-8512,L66C,402
R9	2C1	KS-8512,L66C,600
R10	2C3	KS-20810,L1A,1320
R11	2C4	KS-20810,L1A,2K
R12	2D1	KS-8512,L66C,249
R13	2D2	KS-8512,L66C,249
R14	2E3	KS-20810,L1A,45.3K
R15	2F1	KS-20810,L1A,6190
R16	2F2	KS-20810,L1A,1620
R17	2F4	KS-20810,L1A,1.5K
R18	2F3	KS-20810,L1A,10K
R19	2G3	KS-20810,L1A,1.5K
R20	1H3	KS-20810,L1A,27.1
R21	1H3	KS-20810,L1A,18

SELECTOR BLOCK

DESIG	LOC	CODE
BB	2F1	P-44P303
A	2D2	P-44P303
B	2C3	P-44P303
COMP NET	1C3	P-44P303
[1] 2	1C3	841587793
[1] 4	1C4	841587793
[1] 8	1C4	841587793
[1] 16	1C4	841587793
[1] 32	1C5	841587793
[1] 64	1C5	841587793

SCREW SWITCH

SEE SELECTOR BLOCK

CIRCUIT PACK (CONT)

SWITCH

DESIG	LOC	CODE
S1	1F1	KS-20400,L2

TRANSFORMER

DESIG	LOC	CODE
T1	1D1	2663C
T2	1E1	2663C

TRANSISTOR

DESIG	LOC	CODE
Q1	1G7	66J
Q2	2F2	51B
Q3	2F3	51A
Q4	2F4	66G

VARISTOR

DESIG	LOC	CODE
RV1	1B2	106A
RV2	1F2	106A
RV3	1F2	100A

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2A

2-WIRE, 900-OHM DUPLEX CHANNEL UNIT

SD-3C219-01-CI

BELL TELEPHONE LABORATORIES INCORPORATED

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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. SCREW SWITCH "BB" SHALL BE CLOSED TO ENABLE CARRIER FAILURE ALARM CIRCUITRY.

105. SCREW SWITCH "A" SHALL BE CLOSED FOR SUBSCRIBER LOOP LENGTHS OF OVER 30 KFT
SCREW SWITCH "B" SHALL BE CLOSED FOR SUBSCRIBER LOOPS OVER 90KFT.

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.

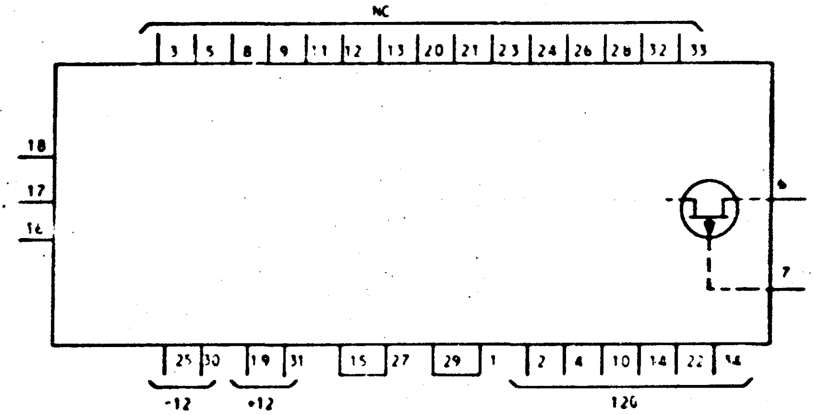
2A

2-WIRE, 900-OHM DUPLEX CHANNEL UNIT	SD-3C219-01-DI
BELL TELEPHONE LABORATORIES INCORPORATED	6S

INFORMATION NOTES: (CONT)

302. IC 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.

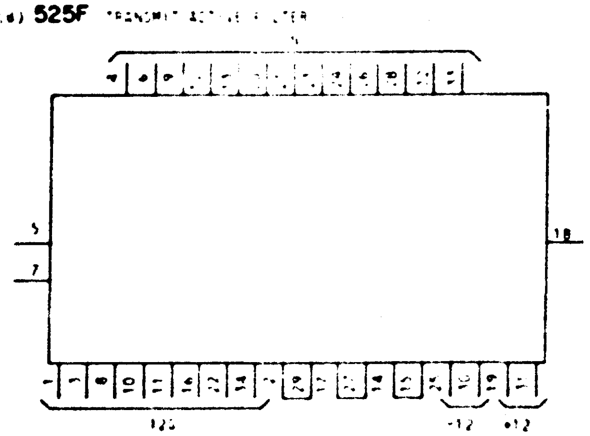
PIN 7 IS THE TIMING INPUT REQUIRED TO SAMPLE THE INDIVIDUAL CHANNEL.

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 [illegible] EFFECTIVELY HAS A LOW-PASS CHARACTERISTIC WHICH SUPPRESSES FREQUENCY COMPONENTS IN THE INPUT ABOVE 4 kHz.

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



INPUT/OUTPUT INFORMATION

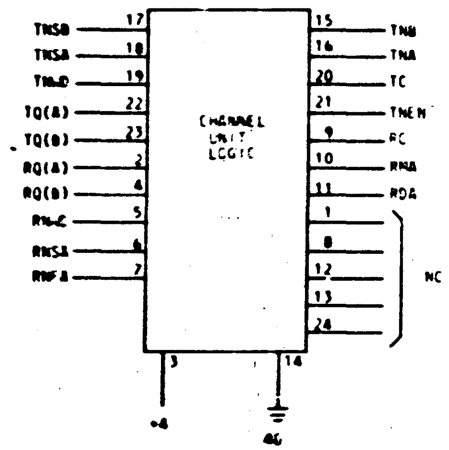
PIN 5 IS THE PRIMARY VOICE FREQUENCY SIGNAL INPUT.

PIN 18 IS THE FILTERED VOICE FREQUENCY OUTPUT

CIRCUIT DESCRIPTION

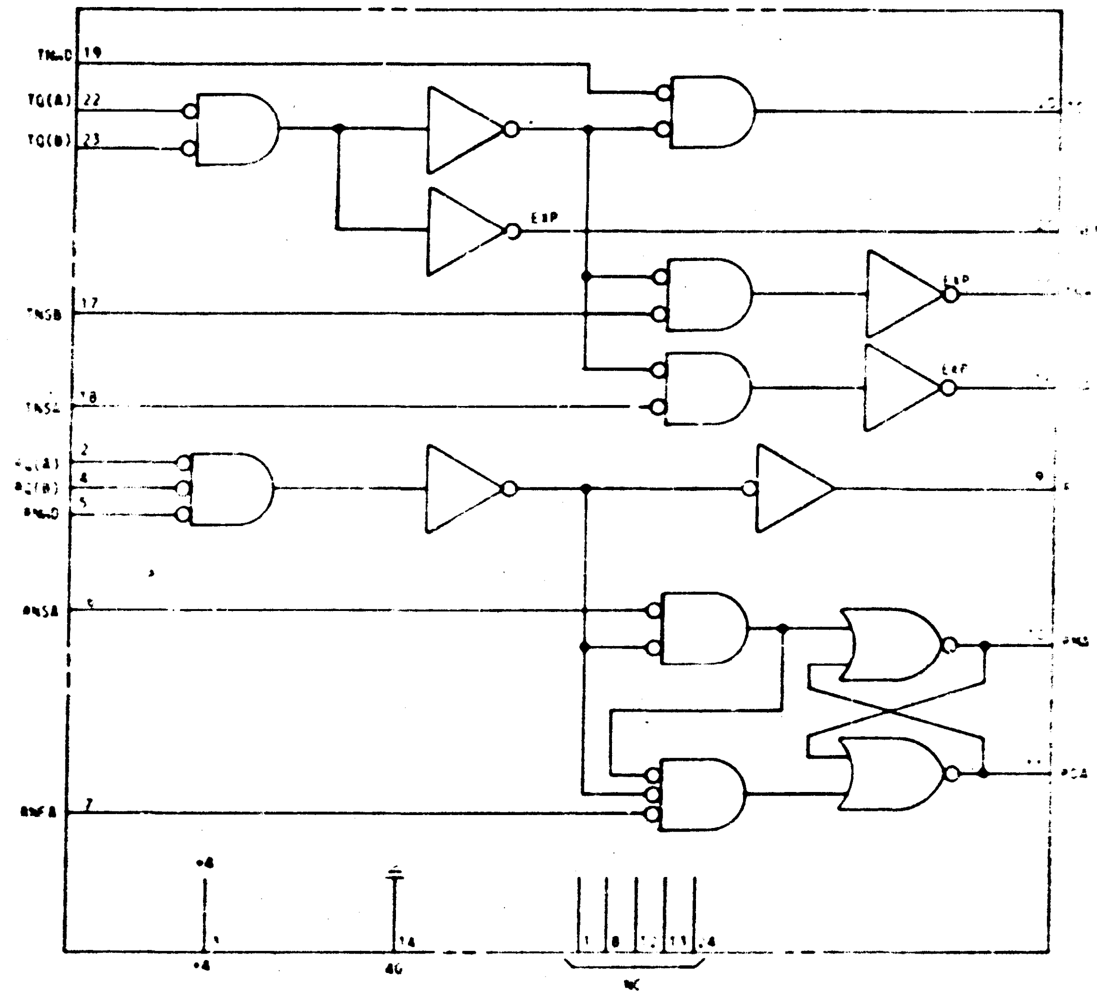
THE TRANSMIT ACTIVE FILTER, IS A LOW-PASS FILTER WHICH EFFECTIVELY SUPPRESSES FREQUENCIES ABOVE 4 kHz [illegible] THESE FREQUENCIES WOULD PRODUCE MODULA-TION PRODUCTS BELOW 4 kHz IF THEY WERE NOT SUPPRESSED

(C) **1290D** CHANNEL UNIT LOGIC



INPUT/OUTPUT INFORMATION

CIRCUIT DESCRIPTION



2-WIRE 900 OHM DUPLEX CHANNEL UNIT

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SD-3C219-01-02

ISSUE 1