

21

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DWGS ISSUE	CD ISSUE	DWGS ISS	CD ISSUE	DWGS ISS	CD ISSUE
1	1				

DWGS ISSUE	CD ISSUE	DATE ISSUED	DWGS	APPD	
2B1	2B1	6-3-76	ZEN OL	JMM DGF JS	MO
3B1	2B1 1B1	7-19-76	OL DGF	JMM DGF JS	MO
4B1	2B1 APPX	8-23-77	ADC OL	ANG DGF JS	MO

ISSUE

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.

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
Z	MD 4		4G1
Y	MD 4		4G1
X	STD 4		APP FIG. 2
W	STD 4		APP FIG. 2

ISSUE
4B1

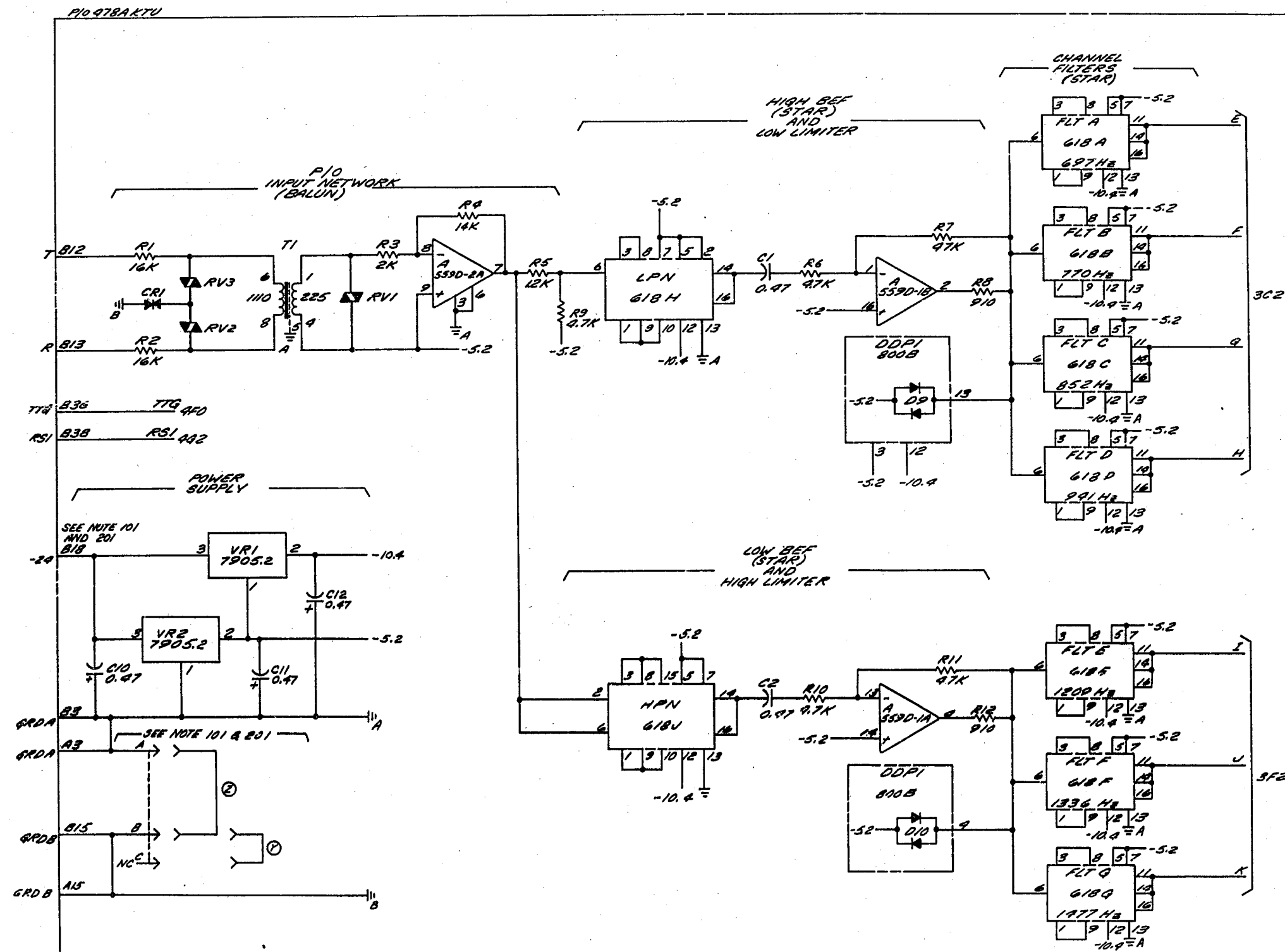
AT&TCO
STANDARD

SD-69931-01-A1
10 SHEETS

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

PART OF FS1 (MFR DISC)
478A KTU TOUCH-TONE ADAPTER



ISSUE
2B1

TOUCH-TONE ADAPTER

SD-69931-01-B1

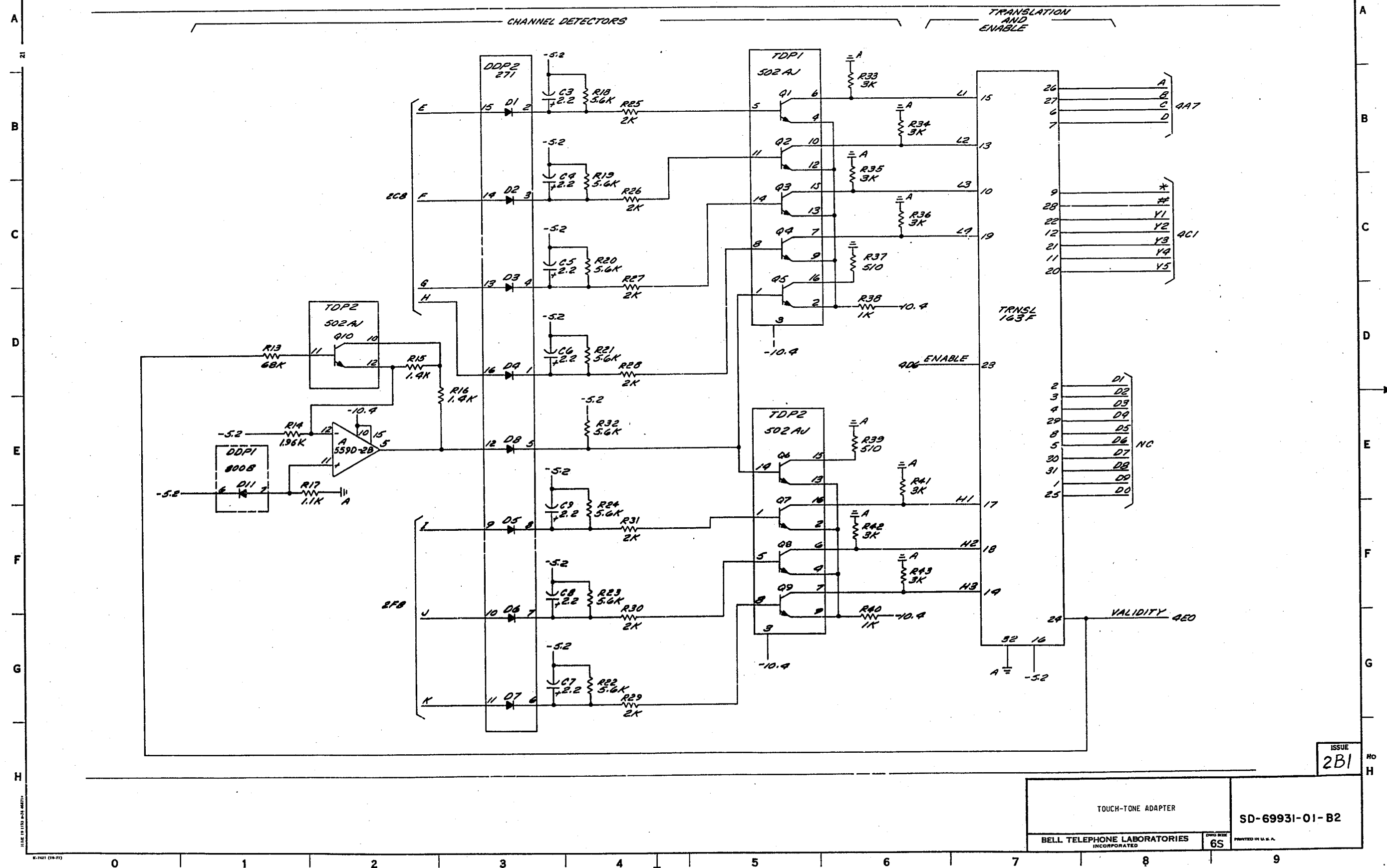
BELL TELEPHONE LABORATORIES
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DWG SIZE
6S

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31

PART OF FS 1 (MFR DISC)
478A KTU TOUCH-TONE ADAPTER

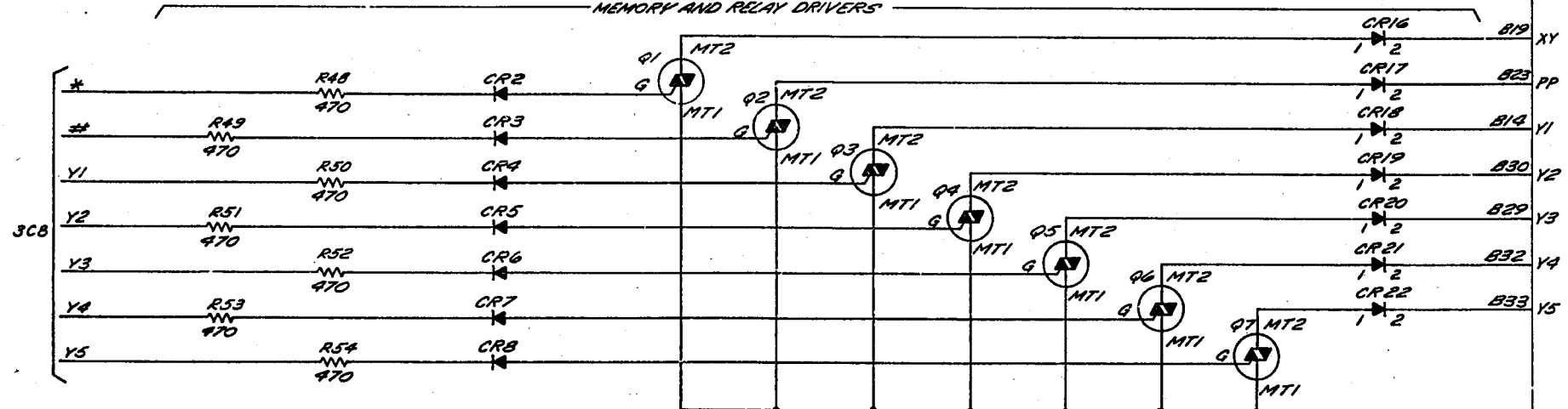


PART OF FS 1 (MFR DISC) 478A KTU TOUCH-TONE ADAPTER

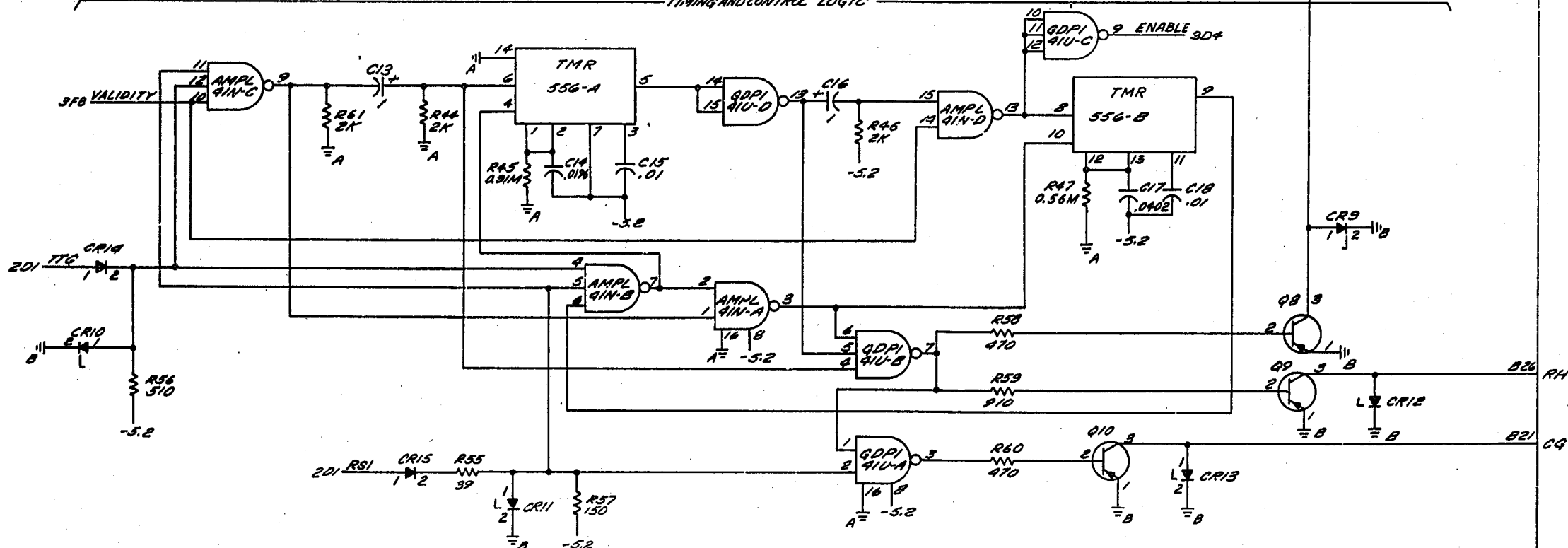
P/O 478A KTU

D	A31	D
C	A32	C
B	A34	B
A	A33	A

MEMORY AND RELAY DRIVERS



TIMING AND CONTROL LOGIC



ISSUE
2B/

TOUCH-TONE ADAPTER

SD-69931-01-B3

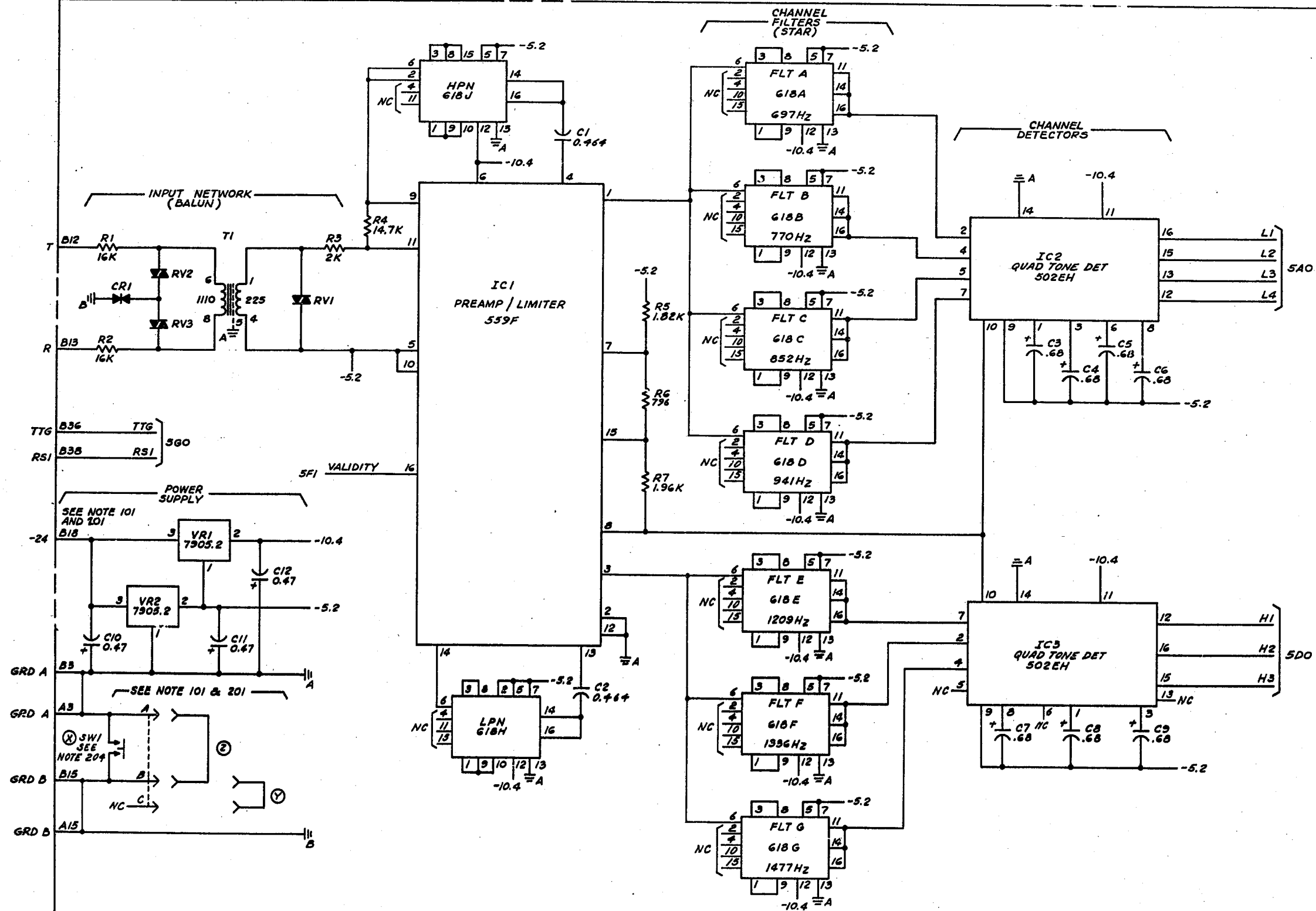
BELL TELEPHONE LABORATORIES
INCORPORATED

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PART OF FS 2 478B KTU TOUCH-TONE ADAPTER

P/O 478B KTU



ISSUE
4B1

TOUCH-TONE ADAPTER

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BELL TELEPHONE LABORATORIES
INCORPORATED

DATE 6S

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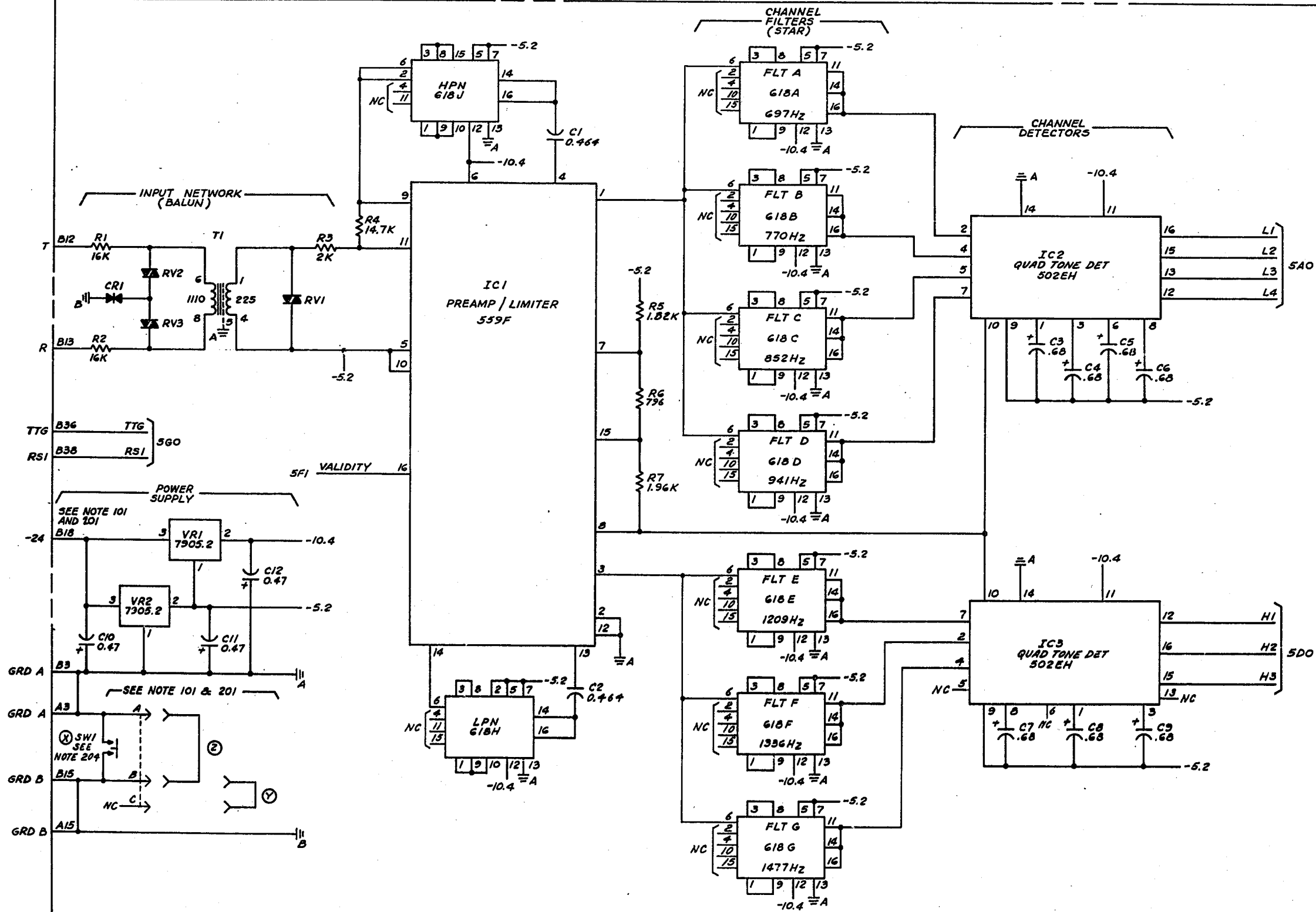
P/O 478B KTU



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PART OF FS 2 478B KTU TOUCH-TONE ADAPTER

P/O 478B KTU



ISSUE
4B1

TOUCH-TONE ADAPTER

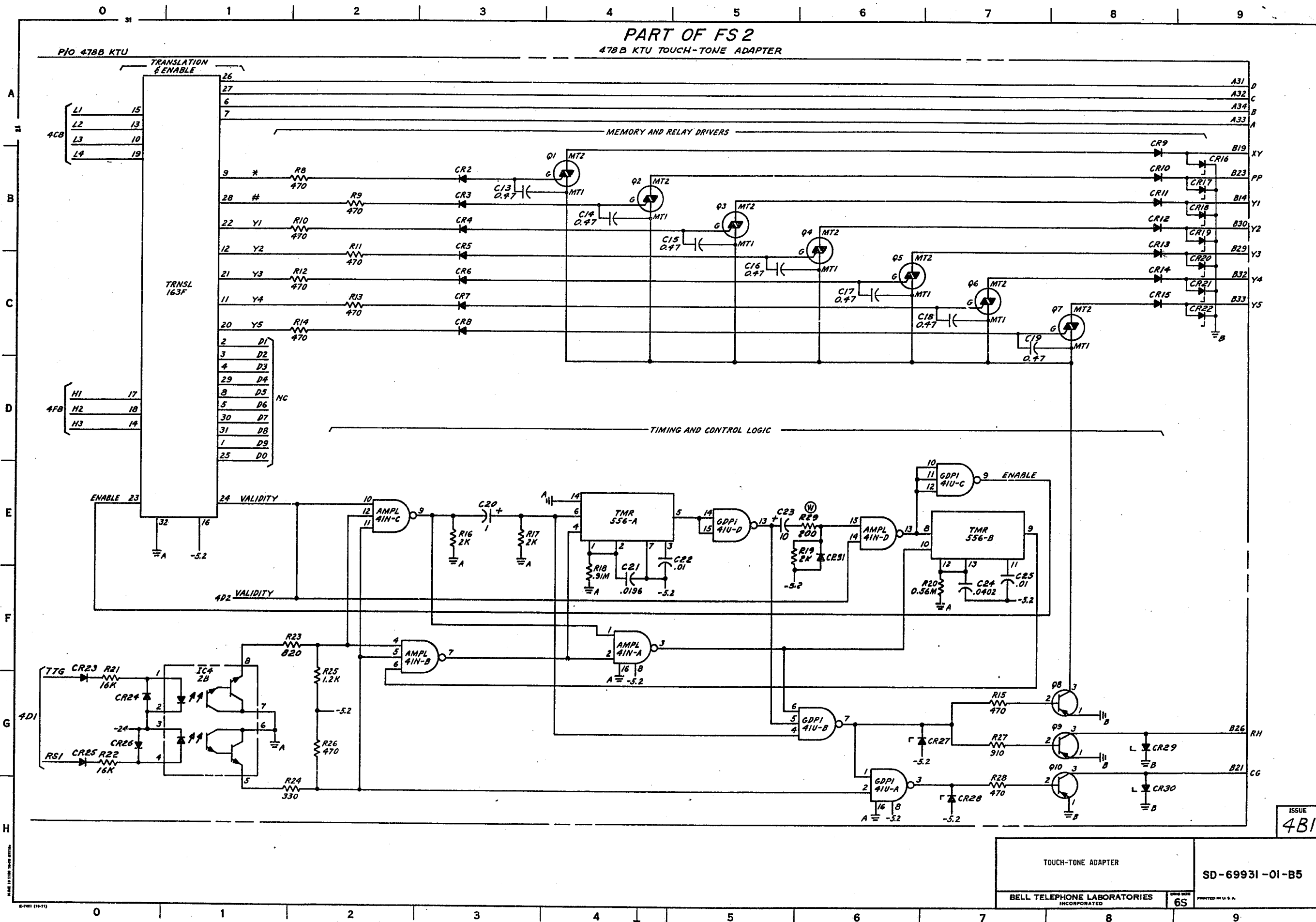
SD-69931-01-B4

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

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PART OF FS 2 478B KTU TOUCH-TONE ADAPTER



ISSUE
4B1

TOUCH-TONE ADAPTER

SD-69931-01-B5

BELL TELEPHONE LABORATORIES
INCORPORATED

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INTEGRATED CIRCUIT (DEVICE)

DESIG	A	
CODE	5590	
ELEM IDENT	DESIG	SH LOC
1A	A	2F6
1B	A	2C6
2A	A	2C3
2B	A	3E2

DESIG	AMPL		DDP1		DDP2	
CODE	41N		800B		FSA2719M FAIRCHILD	
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC
A	AMPL	4F4	D9	2D6	D1	3B3
B	AMPL	4F3	D10	2G6	D2	3C3
C	AMPL	4E1	D11	3E1	D3	3C3
D	AMPL	4E5			D4	3D3
					D5	3F3
					D6	3F3
					D7	3G3
					D8	3E3

DESIG	FLT A		FLT B		FLT C		FLT D		FLT E		FLT F		FLT G	
CODE	618A*		618B*		618C*		618D*		618E*		618F*		618G*	
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC
	FLT A	2B7	FLY B	2C7	FLT C	2C7	FLT D	2D7	FLT E	2F7	FLT F	2G7	FLT G	2G7

DESIG	GDP1	
CODE	41U	
ELEM IDENT	DESIG	SH LOC
A	GDP1	4G5
B	GDP1	4G5
C	GDP1	4D6
D	GDP1	4E4

DESIG	HPN		LPN	
CODE	618J*		618H*	
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC
	HPN	2F4	LPN	2C4

DESIG	TDP1		TDP2	
CODE	502AJ		502AJ	
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC
	Q1	3B5	Q6	3E5
	Q2	3B5	Q7	3F5
	Q3	3C5	Q8	3F5
	Q4	3C5	Q9	3F5
	Q5	3D5	Q10	3D2

DESIG	TMR		TRNSL		VR1		VR2	
CODE	NES56A* FAIRCHILD		163F*		7905.2CP* MOTOROLA		7905.2CP* MOTOROLA	
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC
A	TMR	4E3	TRNSL	3D7	VR1	2E2	VR2	2E1
B	TMR	4E6						

* SINGLE ELEMENT DEVICE

CAPACITORS	DESIG	LOC	CODE
C1	2C5	702C	0.47
C2	2F5	702C	0.47
C3	3B3	603H	
C4	3B3	603H	
C5	3C3	603H	
C6	3C3	603H	
C7	3E3	603H	
C8	3F3	603H	
C9	3G3	603H	
C10	2F1	607D	0.47
C11	2F2	KS-19774	L5,0.47
C12	2E2	KS-19774	L5,0.47
C13	4E2	650B	
C14	4E3	594C	.0196
C15	4E3	KS-19774	L2,.01
C16	4E4	650B	
C17	4E6	594C	.0402
C18	4E6	KS-19774	L2,.01

CONNECTOR	DESIG	LOC	CODE
		2G1	KS-2129N L1

DIODES	DESIG	LOC	CODE
CR1	2C1	521D	
CR2	4B4	456F	
CR3	4B4	456F	
CR4	4C4	456F	
CR5	4C4	456F	
CR6	4C4	456F	
CR7	4D4	456F	
CR8	4D4	456F	
CR9	4F7	459BE	
CR10	4F0	459B	
CR11	4G3	459B	
CR12	4G7	459BE	
CR13	4G6	459BE	
CR14	4F0	456F	
CR15	4G2	456F	
CR16	4B8	456F	
CR17	4B8	456F	
CR18	4B8	456F	
CR19	4C8	456F	
CR20	4C8	456F	
CR21	4C8	456F	
CR22	4C8	456F	
R1	2C1	KS-16645	L1,16K
R2	2C1	KS-16645	L1,16K
R3	2C2	KS-20616	L1A,2K
R4	2C3	KS-20616	L1A,14K
R5	2C3	KS-16645	L1,1.2K
R6	2C5	KS-16645	L1,4.7K
R7	2C6	KS-16645	L1,47K
R8	2C6	KS-16645	L1,910
R9	2C4	KS-16645	L1,4.7K
R10	2F5	KS-16645	L1,4.7K
R11	2F6	KS-16645	L1,47K
R12	2F6	KS-16645	L1,910
R13	3D1	KS-16645	L1,68K
R14	3E1	KS-20616	L1A,1960
R15	3D2	KS-20616	L1A,1.4K
R16	3D3	KS-20616	L1A,1.4K
R17	3E1	KS-16645	L1,1.1K
R18	3B4	KS-16645	L1,5.6K
R19	3B4	KS-16645	L1,5.6K
R20	3C4	KS-16645	L1,5.6K
R21	3D4	KS-16645	L1,5.6K
R22	3E4	KS-16645	L1,5.6K
R23	3F4	KS-16645	L1,5.6K
R24	3G4	KS-16645	L1,5.6K
R25	3B4	KS-16645	L1,2K
R26	3C4	KS-16645	L1,2K
R27	3C4	KS-16645	L1,2K
R28	3D4	KS-16645	L1,2K
R29	3F4	KS-16645	L1,2K
R30	3F4	KS-16645	L1,2K
R31	3G4	KS-16645	L1,2K
R32	3E4	KS-16645	L1,5.6K
R33	3B6	KS-16645	L1,3K

RESISTORS (CONT)	DESIG	LOC	CODE
R34	3B6	KS-16645	L1,3K
R35	3B6	KS-16645	L1,3K
R36	3C6	KS-16645	L1,3K
R37	3C6	KS-16645	L1,510
R38	3D6	KS-16645	L1,1K
R39	3E6	KS-16645	L1,510
R40	3G6	KS-16645	L1,1K
R41	3E6	KS-16645	L1,3K
R42	3F6	KS-16645	L1,3K
R43	3F6	KS-16645	L1,3K
R44	4E2	KS-16645	L1,2K
R45	4E3	KS-16645	L1,0.91M
R46	4E4	KS-16645	L1,2K
R47	4E6	KS-16645	L1,0.56M
R48	4B3	KS-16645	L1,470
R49	4B2	KS-16645	L1,470
R50	4C3	KS-16645	L1,470
R51	4C2	KS-16645	L1,470
R52	4C3	KS-16645	L1,470
R53	4D2	KS-16645	L1,470
R54	4D3	KS-16645	L1,470
R55	4G2	KS-16645	L1,39
R56	4G1	KS-16645	L1,510
R57	4G3	KS-16645	L1,150
R58	4F5	KS-16645	L1,470
R59	4G5	KS-16645	L1,910
R60	4G5	KS-16645	L1,470
R61	4E2	KS-16645	L1,2K

TRANSFORMER	DESIG	LOC	CODE
T1	2C2	2564E	

TRANSISTOR	DESIG	LOC	CODE
Q1	4B4	MAC92-4,	TRIAC MOTOROLA
Q2	4B5	MAC92-4,	TRIAC MOTOROLA
Q3	4B5	MAC92-4,	TRIAC MOTOROLA
Q4	4C6	MAC92-4,	TRIAC MOTOROLA
Q5	4C6	MAC92-4,	TRIAC MOTOROLA
Q6	4C7	MAC92-4,	TRIAC MOTOROLA
Q7	4D7	MAC92-4,	TRIAC MOTOROLA
Q8	4F7	MPSA55,	MOTOROLA
Q9	4G7	51B	
Q10	4G6	MPSA55,	MOTOROLA

VARIATOR	DESIG	LOC	CODE
RV1	2C2	100A	
RV2	2C1	100J	
RV3	2C1	100J	

ISSUE
2B1

TOUCH-TONE ADAPTER

SD-69931-01-C1

BELL TELEPHONE LABORATORIES
INCORPORATED

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APP FIG. 2
4788 KTU

INTEGRATED CIRCUIT (DEVICE)

DESIG		AMPL				FLT A		FLT B		FLT C		FLT D		FLT E		FLT F		FLT G				GDP1				DESIG
CODE		41N				618A *		618B *		618C *		618D *		618E *		618F *		618G *				41U				CODE
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	ELEM IDENT	
A	AMPL	5F4			FLT A	4A5	FLT B	4B5	FLT C	4C5	FLT D	4D5	FLT E	4E5	FLT F	4F5	FLT G	4G5			GDP1	5H6			A	
B	AMPL	5F2																			GDP1	5G6			B	
C	AMPL	5E2																			GDP1	5E7			C	
D	AMPL	5E6																			GDP1	5E5			D	

DESIG		HPN				IC1		IC2		IC3				LPN				TMR		TRNSL		VR1		VR2		DESIG
CODE		618J *				559F *		502EH *		502EH *				51100 *				163F *		163F *		163F *		163F *		CODE
ELEM IDENT	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	DESIG	SH LOC	ELEM IDENT	
A	HPN	4A3				4D3		4C7		4F7			LPN	4F3			TMR	5E4	TRNSL	5C1	VR1	4E1	VR2	4E1	A	
B																	TMR	5E7							B	

* SINGLE ELEMENT DEVICE

CAPACITOR

DESIG	LOC	CODE
C1	4B3	702C, 0.464
C2	4F3	702C, 0.464
C3	4C6	1500604X9010A2, SPRAGUE, .60, 607E, 0.68
C4	4D7	1500604X9010A2, SPRAGUE, .60, 607E, 0.68

C5	4C7	1500604X9010A2, SPRAGUE, .60, 607E, 0.68
C6	4D7	1500604X9010A2, SPRAGUE, .60, 607E, 0.68
C7	4F6	1500604X9010A2, SPRAGUE, .60, 607E, 0.68
C8	4F7	1500604X9010A2, SPRAGUE, .60, 607E, 0.68

C9	4F7	1500604X9010A2, SPRAGUE, .60, 607E, 0.68
C10	4F0	1500474X9055A2, SPRAGUE, .47, 607D, 0.47
C11	4F1	1500474X9055A2, SPRAGUE, .47, 607D, 0.47
C12	4E1	1500474X9055A2, SPRAGUE, .47, 607D, 0.47

C13	5B3	KS-20736 L1, 0.47
C14	5B4	KS-20736 L1, 0.47
C15	5B5	KS-20736 L1, 0.47
C16	5C5	KS-20736 L1, 0.47

C17	5C6	KS-20736 L1, 0.47
C18	5C7	KS-20736 L1, 0.47
C19	5C7	KS-20736 L1, 0.47
C20	5E3	6500, .1, 6500, 1

C21	5F4	594C, .0196
C22	5E5	KS-19774 L2, .01
C23	5E6	651F, 10
C24	5F7	594C, .0402

C25	5F7	KS-19774 L2, .01
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CONNECTOR

DESIG	LOC	CODE
	4F0	KS-21290 L1

DIODE

DESIG	LOC	CODE
CR1	4C0	521D
CR2	5B3	456F
CR3	5B3	456F
CR4	5B3	456F

CR5	5C3	456F
CR6	5C3	456F
CR7	5C3	456F
CR8	5C3	456F

CR9	5A8	456F
CR10	5B8	456F
CR11	5B8	456F
CR12	5B8	456F

CR13	5B8	456F
CR14	5C8	456F
CR15	5C8	456F
CR16	5B9	459BE

CR17	5B9	459BE
CR18	5B9	459BE
CR19	5B9	459BE
CR20	5C9	459BE

CR21	5C9	459BE
CR22	5C9	459BE
CR23	5G0	456F
CR24	5G0	456F

CR25	5G0	456F
CR26	5G0	456F
CR27	5G7	459C
CR28	5H7	459C

CR29	5G8	459BE
CR30	5H8	459BE
CR31	5E6	819A

OPTOISOLATOR

DESIG	LOC	CODE
IC4	5G1	2B

RESISTOR

DESIG	LOC	CODE
R1	4C0	KS-16645, L1, 16K
R2	4C0	KS-16645, L1, 16K
R3	4C2	KS-20616, L1A, 2K
R4	4B2	KS-20616, L1A, 14.7K

R5	4C4	KS-20616, L1A, 1.82K
R6	4D4	KS-20616, L1A, 796
R7	4D4	KS-20616, L1A, 1.96K
R8	5B2	KS-16645, L1, 470

R9	5B2	KS-16645, L1, 470
R10	5B2	KS-16645, L1, 470
R11	5C2	KS-16645, L1, 470
R12	5C2	KS-16645, L1, 470

R13	5C2	KS-16645, L1, 470
R14	5C2	KS-16645, L1, 470
R15	5G7	KS-16645, L1, 470
R16	5E3	KS-16645, L1, 2K

R17	5E3	KS-16645, L1, 2K
R18	5F4	KS-16645, L1, .91M
R19	5E6	KS-16645, L1, 2K
R20	5F7	KS-16645, L1, .56M

R21	5G0	KS-16645, L1, 16K
R22	5G0	KS-16645, L1, 16K
R23	5F2	KS-16645, L1, 820
R24	5H2	KS-16645, L1, 330

R25	5G2	KS-16645, L1, 1.2K
R26	5G2	KS-16645, L1, 470
R27	5G7	KS-16645, L1, 910
R28	5G7	KS-16645, L1, 470

R29	5E6	KS-16645, L1, 200
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SWITCH, SCREW

DESIG	LOC	CODE
SW1	4F0	841685258

TRANSFORMER

DESIG	LOC	CODE
T1	4C1	2564E

TRANSISTOR

DESIG	LOC	CODE
Q1	5B4	MAC92-4, TRIAC MOTOROLA
Q2	5B4	MAC92-4, TRIAC MOTOROLA
Q3	5B5	MAC92-4, TRIAC MOTOROLA
Q4	5B6	MAC92-4, TRIAC MOTOROLA

Q5	5C6	MAC92-4, TRIAC MOTOROLA
Q6	5C7	MAC92-4, TRIAC MOTOROLA
Q7	5C8	MAC92-4, TRIAC MOTOROLA
Q8	5G8	MPSA55, PNP MOTOROLA
Q9	5G8	51B
Q10	5G8	MPSA55, PNP MOTOROLA

VARISTOR

DESIG	LOC	CODE
RV1	4C2	100A
RV2	4C1	100J
RV3	4C1	100J

ISSUE
4B1

TOUCH-TONE ADAPTER

SD-69931-01-C2

BELL TELEPHONE LABORATORIES
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CIRCUITS NOTES:

101. 478A AND 478B GROUNDING OPTION "A" TO "B" WITH "C" OPEN ALLOWS INTERNAL CONNECTION OF "A" AND "B" GROUND SYSTEMS WHERE "A" GRD CANNOT BE SUPPLIED. SEE NOTES 201.

102.

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY
478B KTU	2		1 PER CKT

103.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN.	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD
4B1	X	Y OR Z	204	X		Y,Z
4B1	W	NONE		W		

EQUIPMENT NOTES:

201. THE 478A AND 478B KTU GROUNDING OPTION REQUIRED FOR THE FOLLOWING USES ARE SHOWN BELOW:
(MFR DISC.)

USAGE	CONNECT	OPTION	NOTE
570A,B KSU	B TO C	Y X	202.
580A,B KSU	B TO C	Y X	203
641A PANEL	A TO B	Z	
642A PANEL	B TO C	Y X	
626A PANEL	B TO C	Y X	
4A-ACD	B TO C	Y X	
69E,F APP MTG	B TO C	Y X	
702A,B PANEL	B TO C	Y X	

* FACTORY PROVIDED

202. THE 478A OR 478B KTU REQUIRES THAT CONNECTORS J13 AND J14 OF THE 570A KSU AND J21 AND J22 OF THE 580A KSU HAVE "A" GRD ON PIN 3 AND "B" GRD ON PIN 15.

203. THE CAPABILITY OF USING A 478A OR 478B KTU IN PLACE OF THE 440A KTU IN A 570A OR 580A KSU NOT FACTORY WIRED AS SHOWN ABOVE IS PROVIDED BY MEANS OF THE D-180720 KIT OF PARTS FURNISHED WITH THE 478A OR 478B KTU. IN THE 570A KSU "A" GRD SHALL BE OBTAINED FROM J9 PIN 3 OR J10 PIN 3 AND "B" GRD FROM J10 PIN 37. IN THE 580A KSU "A" GRD SHALL BE OBTAINED FROM J18 PIN 3 AND "B" GRD FROM J23 PIN 15.

204. SCREW SWITCH SW1 MUST BE IN THE OPEN POSITION WHEN USED IN THE FOLLOWING UNITS:

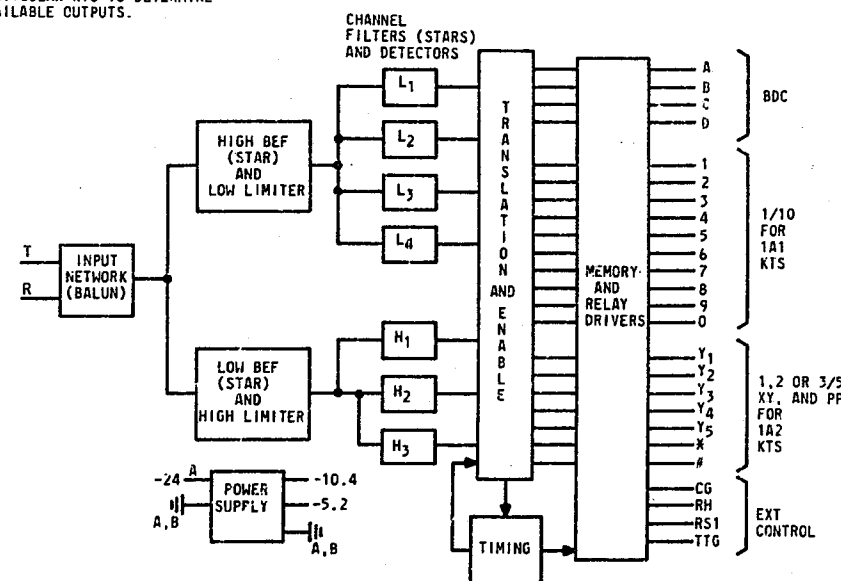
570A,B KSU
580A,B KSU
626A PANEL
642A PANEL
4A - ACD
69E,F APPARATUS MOUNTING
702A,B PANEL

SCREW SWITCH SW1 MUST BE SCREWED DOWN WHEN THE 478B IS USED IN THE 641A PANEL.

INFORMATION NOTES:

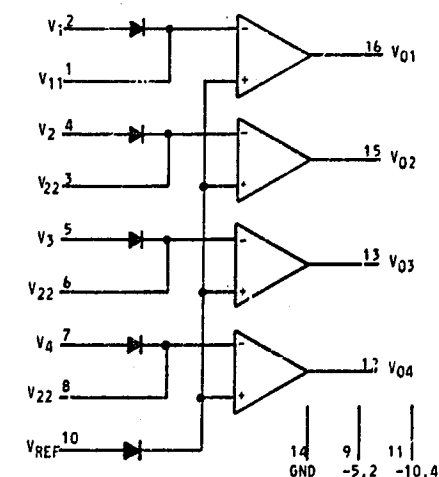
301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
K IS FOR KILOHMS,
M IS FOR MEGOHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.

302. GENERAL KTU SYMBOL - REFER TO PARTICULAR KTU TO DETERMINE AVAILABLE OUTPUTS.



303. IC CHIP CIRCUIT ELEMENTS:

(A) 502EH QUAD COMPARATOR



CIRCUIT DESCRIPTION

THE QUAD COMPARATOR IS DESIGNED SPECIFICALLY TO INTERFACE ANALOG INPUT SIGNALS AND PROVIDE OUTPUT LEVELS COMPATIBLE WITH LOW POWER DIGITAL TTL INTEGRATED CIRCUITS. THE INPUTS ARE RECTIFIED FOR PEAK DETECTION AND REQUIRE AN EXTERNAL CAPACITOR. THE REFERENCE VOLTAGE IS COMMON TO ALL COMPARATORS. TEMPERATURE COMPENSATION AND VOLTAGE MATCHING IS INHERENT TO THE DESIGN BOTH WITH RESPECT TO THE COMPARATOR CIRCUITS AND THE INPUT DIODES. IN NORMAL OPERATIONS, ONLY ONE DETECTOR IS USED AT A GIVEN TIME.

ISSUE
4B1

TOUCH-TONE ADAPTER

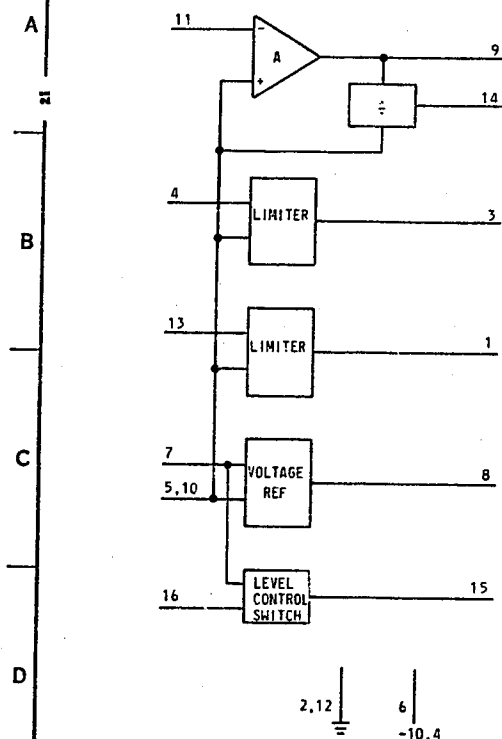
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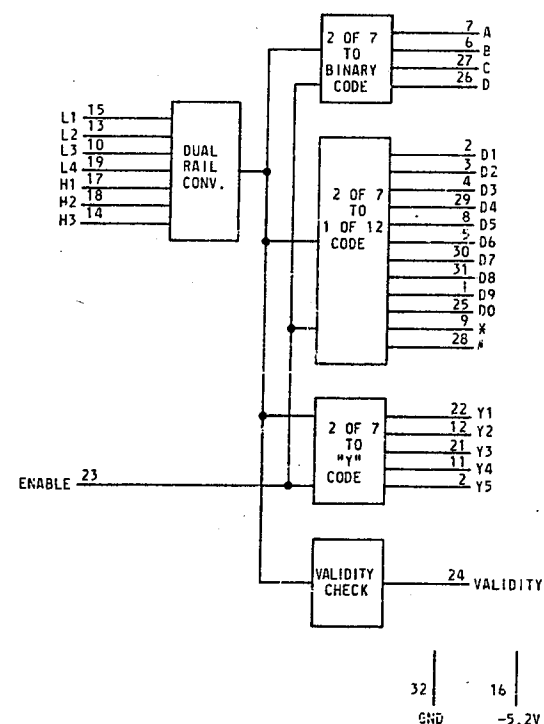
INFORMATION NOTES: (CONT)
303. (B) 559F POLY-CHIP DIP



CIRCUIT DESCRIPTION

THIS INTEGRATED CIRCUIT IS A POLY-CHIP-DIP (PCD) CONTAINING TWO DEVICES. ONE A QUAD OPERATIONAL AMPLIFIER AND THE OTHER IS AN INTERCONNECT DEVICE CONTAINING RESISTORS, DIODES, AND A TRANSISTOR. THESE DEVICES ARE INTERCONNECTED TO FORM A PREAMPLIFIER, TWO IDENTICAL LIMITER CIRCUITS, AND A CONTROLLED VOLTAGE REFERENCE WITH THERMAL CHARACTERISTICS SIMILAR TO THE DUAL LIMITERS. THE CIRCUIT IS DESIGNED SPECIFICALLY FOR USE WITH THE 478B KTY TOUCH-TONE ADAPTER CIRCUIT.

INFORMATION NOTES: (CONT)
303. (C) 163F POLY-CHIP-DIP



CIRCUIT DESCRIPTION

THIS DEVICE IS A POLY-CHIP-DIP (PCD) INTEGRATED CIRCUIT USING LOW POWER TTL DEVICES WHICH CONVERT THE TWO-OF-SEVEN INPUT CODE USED IN TOUCH-TONE RECEIVERS TO THREE SWITCHING CODES USED IN KEY TELEPHONE SELECTORS. THE OUTPUT CODES ARE BINARY, ONE-OF-TWELVE, AND "Y" CODE. THE VALIDITY CHECK CIRCUIT PROVIDES AN OUTPUT IF AND ONLY IF TWO INPUTS ARE PRESENT AND WITH ONLY ONE FROM EACH GROUP. OUTPUTS ARE PROVIDED ONLY IF AN ENABLE SIGNAL IS PRESENT.

THE ENABLE, VALIDITY, AND BINARY CODE OUTPUTS ARE NORMAL LOGIC. ALL OTHER INPUTS AND OUTPUTS ARE COMPLEMENTARY LOGIC.

ISSUE
2B1

TOUCH-TONE ADAPTER

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