

Price: \$3.75

**Keyboard Printer and Punch**  
Logic Layouts,  
Current and History

SDS 900888B

August 1966

This publication supersedes SDS 900888A-1  
dated April 1965, revised January 1966.

**SDS**

SCIENTIFIC DATA SYSTEMS • 1649 Seventeenth Street • Santa Monica, Calif. • (213) 871-0960

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**LIST OF EFFECTIVE PAGES**

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Title.....	Original		
A.....	Original		
1 thru 56.....	Original		

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1a	A								
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REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 16B)

- NOTES:
1. REV LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
  2. CHECK INDIVIDUAL SHEETS FOR REV LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

KEYBOARD/PRINTER & PUNCH  
PAGE 1a  
A

1. NOTED UNLESS SPECIFIED 2. UNLESS OTHERWISE SPECIFIED 3. UNLESS OTHERWISE SPECIFIED 4. UNLESS OTHERWISE SPECIFIED 5. UNLESS OTHERWISE SPECIFIED	DRAWING NO. <b>107476</b>	DESCRIPTION <b>DIAGRAM, LOGIC KEYBOARD/PRINTER &amp; PUNCH</b>	MATERIAL LIST NONE	REFERENCE DESIGNATION <b>D 107419</b>
PROJECT NO. <b>9234</b>	SHEET NO. <b>107476</b>	TITLE <b>DIAGRAM, LOGIC KEYBOARD/PRINTER &amp; PUNCH</b>	SCALE <b>D</b>	SHEET NO. <b>107419</b>
CHECKED BY <i>W. B. B.</i>	DATE <b>11/5/64</b>	DRAWN BY <i>D. J. B.</i>	DATE <b>11/5/64</b>	SHEET NO. <b>A</b>

REVISIONS	107419	A
REV.	DESCRIPTION	CHK BY
A	RELEASED TO MFG.	<i>W.B.B.</i>

REFERENCE DESIGNATIONS  
ARE ABBREVIATED.  
PREFIX THE DESIGNATION  
WITH UNIT NUMBER  
OR ASSEMBLY DESIGNATION  
OR BOTH. (MIL. STD. 16B)

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- NOTES:
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  - CHECK INDIVIDUAL SHEETS FOR REV LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

KEYBOARD/PRINTER  
& PUNCH  
PAGE 1a  
B

DRAWING NO.		DESCRIPTION		MATERIAL LIST		REFERENCE DESIGNATION	
107476		DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		S-5-64		SPDS SPECTRUM DATA SYSTEMS MIRTA, BERKELEY, CALIFORNIA	
DRAWN BY: [Signature]		CHECKED BY: [Signature]		DATE: 1/5/74		SCALE: D	
APPROVED BY: [Signature]		DATE: 1/5/74		SCALE: 107419		SHEET: B	
PROJECT NO.: 9234		SCALE: DO NOT SCALE DRAWING		SHEET			

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	RELEASED TO MFG.		5-11-74	[Signature]
B	SEE REVISION E O			

107419 | B

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
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8	B								
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REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 16B)

- NOTES:  
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KEYBOARD/PRINTER  
& PUNCH  
PAGE 1a  
C

REV.	DESCRIPTION	CHK	DATE	APPROVED
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B	SEE REVISION E O	W.S.	1/17/74	W.S.
C	SEE REVISION E O	W.S.	1/23/74	W.S.

DRAWING NO.		DESCRIPTION		REFERENCE DESIGNATION	
9234		DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		107419	
107476		MATERIAL LIST		SHEET 12 OF 12	
9234		1. DRAWING APPROVED 2. CHECK FOR CORRECTIONS 3. CHECK FOR CHANGES 4. CHECK FOR DELETIONS 5. CHECK FOR ADDITIONS 6. CHECK FOR REVISIONS		W.S. 1/5/74 W.S. 1/17/74 W.S. 1/23/74	
107476		1. DRAWING APPROVED 2. CHECK FOR CORRECTIONS 3. CHECK FOR CHANGES 4. CHECK FOR DELETIONS 5. CHECK FOR ADDITIONS 6. CHECK FOR REVISIONS		W.S. 1/5/74 W.S. 1/17/74 W.S. 1/23/74	

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1A	D								
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4	B								
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7	B								
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9	B								
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14	A								
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REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 168)

NOTES:  
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 2. CHECK INDIVIDUAL SHEETS FOR REV LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

KEYBOARD/PRINTER & PUNCH  
 PAGE 1a  
 D

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B	SEE REVISION E O			
C	SEE REVISION E O			
D	SEE REVISION E O			

NO. DRAWING NO. 107476	DESCRIPTION	REFERENCE DESIGNATION
NOTES: UNLESS OTHERWISE SPECIFIED: 1. DIMENSIONS IN INCHES 2. DIMENSIONS IN MILLIMETERS 3. DIMENSIONS IN FEET AND INCHES 4. DIMENSIONS IN METERS 5. DIMENSIONS IN DECIMETERS 6. DIMENSIONS IN CENTIMETERS 7. DIMENSIONS IN MILES	DRAWN: [Signature] CHECKED: [Signature] DATE: 1/5/64 SCALE: 1/8" = 1"	TITLE: <b>DIAGRAM, LOGIC          KEYBOARD/PRINTER          &amp; PUNCH</b>
PROJECT NO. 9234 DRAWING NO. 107476	SCALE: [Blank] SHEET / OF: [Blank]	DO NOT SCALE DRAWING SHEET / OF: [Blank]

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
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REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 16B)

- NOTES:
- REV LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
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KEYBOARD/PRINTER  
& PUNCH  
PAGE 1a  
E

NO. 107476	DRAWING NO.	DESCRIPTION	900888	REFERENCE DESIGNATION	
9234	DRAWN BY	DATE	10/5/64	TITLE	DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH
107476	CHECKED BY	DATE	10/5/64	SCALE	D
	APPROVED BY	DATE		DO NOT SCALE DRAWING	E

REV	DESCRIPTION	CHK	DATE	APPROVED
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C	SEE REVISION E O			
D	SEE REVISION E O			
E	SEE REVISION E O			

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18	F								
1	A								
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REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MILY STD. 168)

- NOTES:
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KEYBOARD/PRINTER & PUNCH  
PAGE 14  
F

REV	DESCRIPTION	DATE	BY
A	RELEASED TO MFG.		
B	SEE REVISION E O		
C	SEE REVISION E O		
D	SEE REVISION E O		
E	SEE REVISION E O		
F	SEE REV E C		

9234 107476	7 1/5/64 1/5/64	107419 D F
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DIAGRAM, LOGIC  
& PUNCH



REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
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B	SEE REVISION E O		
C	SEE REVISION E O		
D	SEE REVISION E O		
E	SEE REVISION E.O.		
F	SEE REV. E.O.		
G	SEE REV. E.O.		

KEYBOARD/PRINTER  
& PUNCH  
PAGE 14  
G

REFERENCE DESIGNATIONS  
ARE ABBREVIATED.  
PREFIX THE DESIGNATION  
WITH UNIT NUMBER  
OR ASSEMBLY DESIGNATION  
OR BOTH. (MIL. STD. 16B)

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NOTES:  
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THIS SHEET BEFORE USING THIS DRAWING.

DRAWING NO.		DESCRIPTION		REFERENCE DESIGNATION	
9234		DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		D 107419 G	
107476					

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1a	H								
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2	B								
3	H								
4	F								
5	H								
6	B								
7	F								
8	H								
9	B								
10	A								
11	E								
12	B								
13	A								
14	A								
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16	D								

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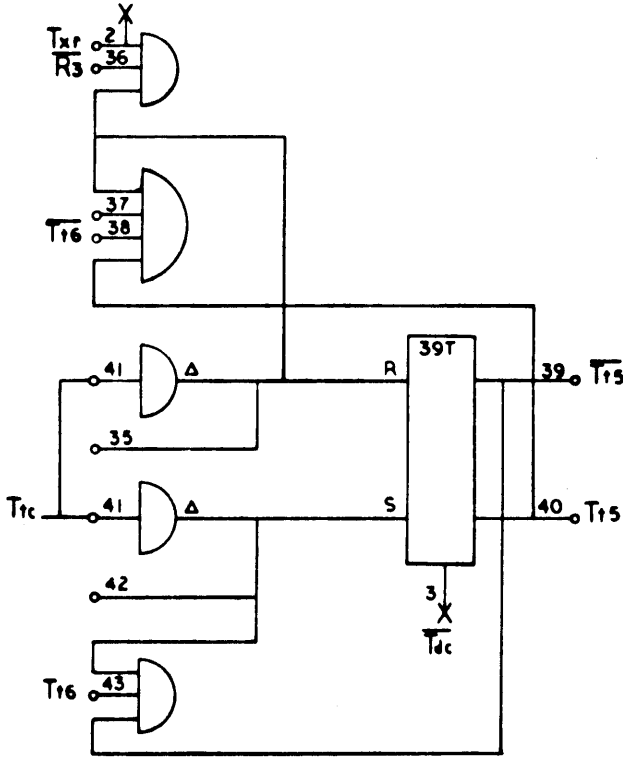
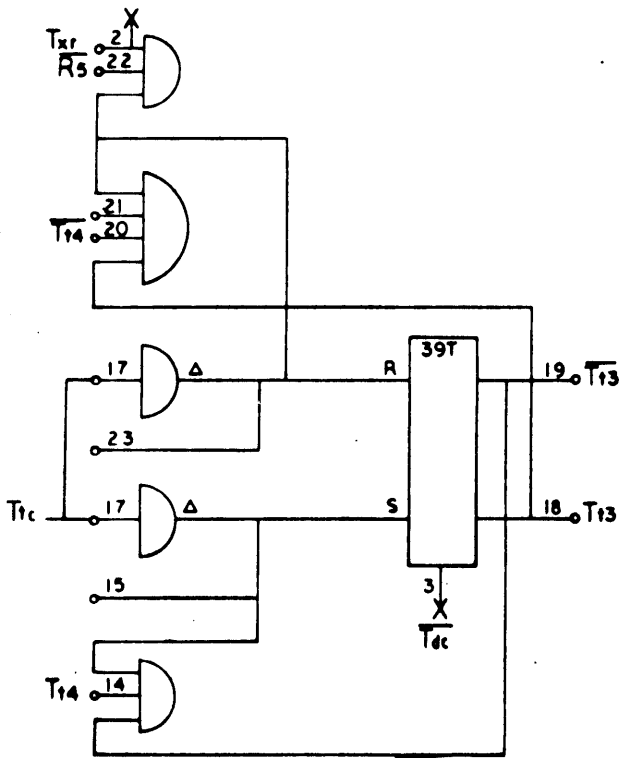
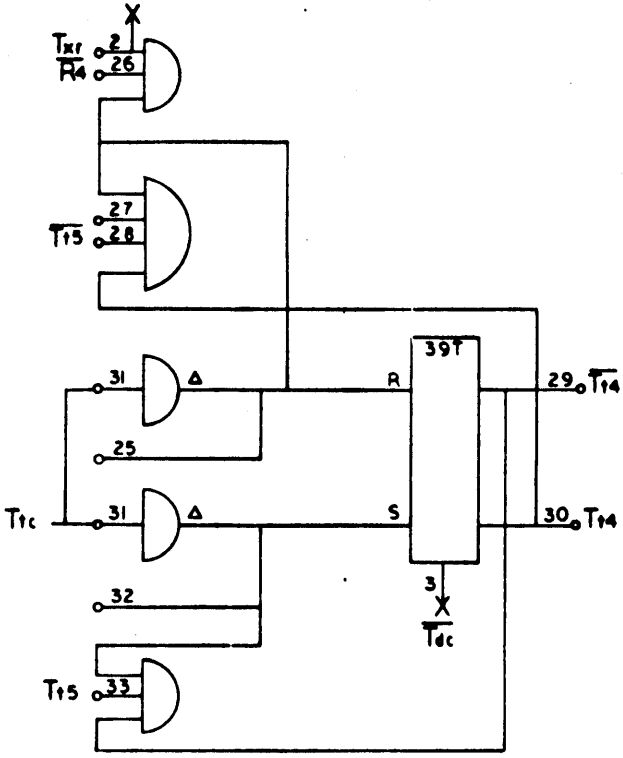
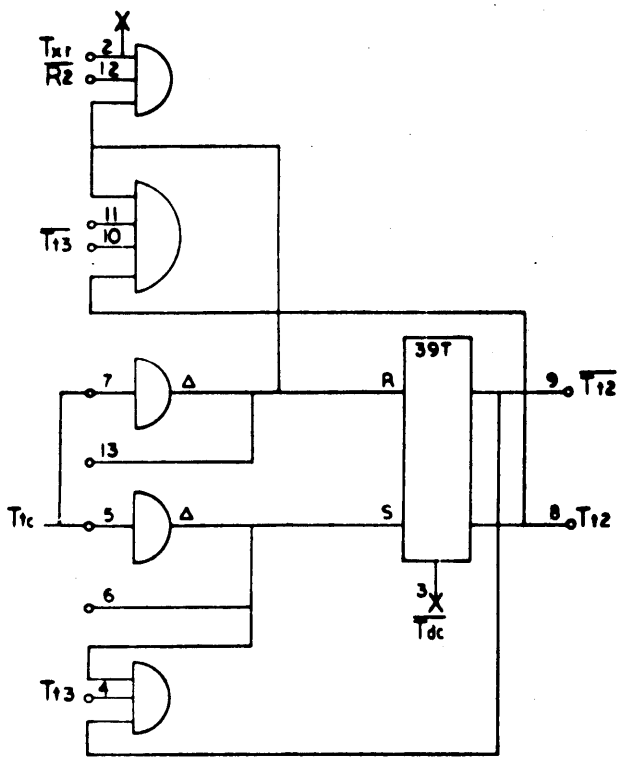
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KEYBOARD/PRINTER & PUNCH  
PAGE 1a  
H

PARTIAL CITY		DESCRIPTION	
9234		107476	
D		H	
DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH 107419			

REV.	DESCRIPTION	DATE	BY	APP.
A	RELEASED TO MFG.			
B	SEE REVISION E O			
C	SEE REVISION E O			
D	SEE REVISION E O			
E	SEE REVISION E O			
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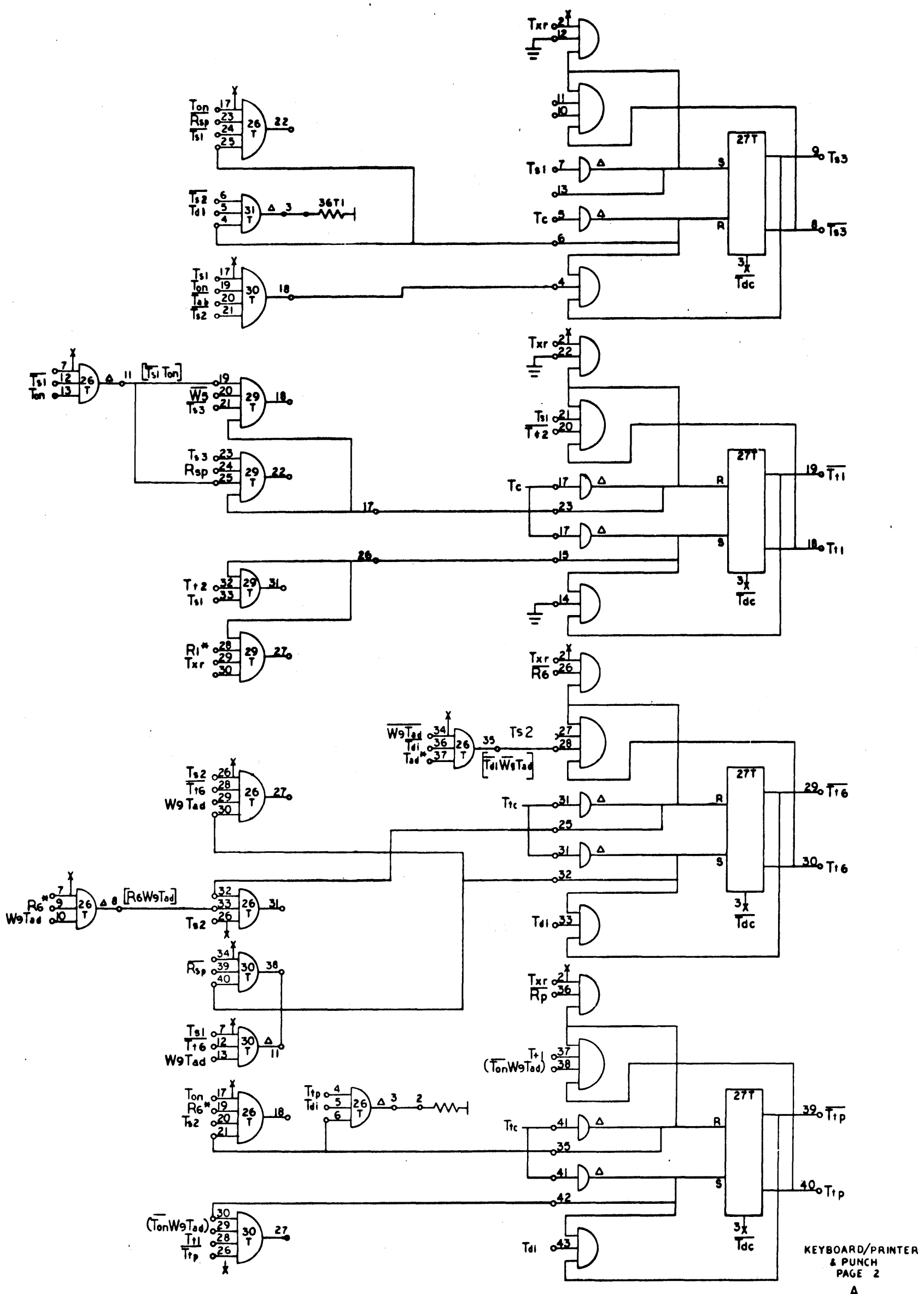
107419 H



KEYBOARD/PRINTER  
& PUNCH  
PAGE 1  
A

REVISIONS		DATE	BY	APPROVED
REV.	DESCRIPTION			
A	REL TO MFG			

SDS		SCIENTIFIC DATA SYSTEMS		2200 AVENUE OF THE STARS		BETHESDA, MARYLAND, 20814	
DIAGRAM, LOGIC							
KEYBOARD/PRINTER							
& PUNCH							
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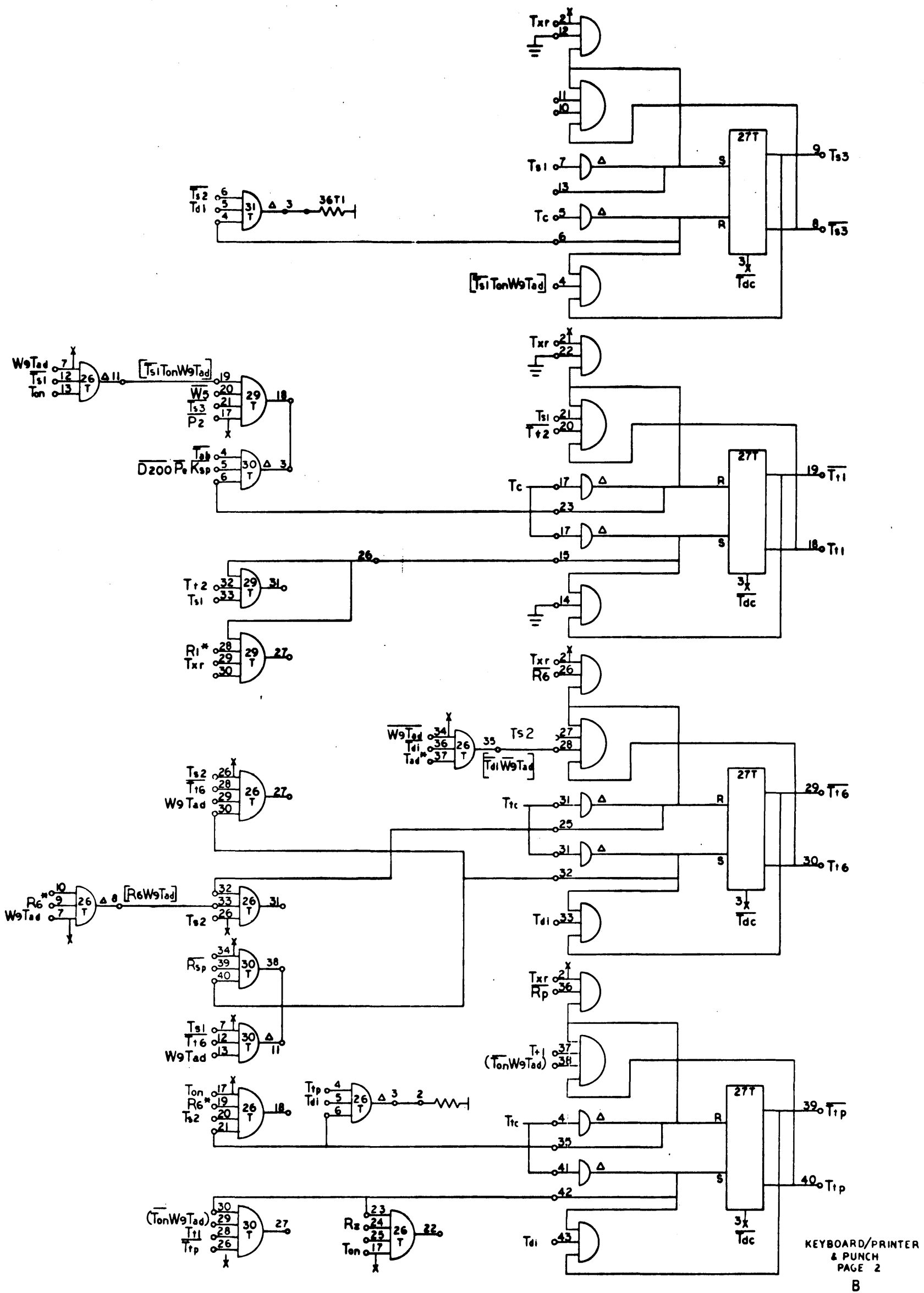


KEYBOARD/PRINTER  
PAGE 2  
A

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DIAGRAM LOGIC  
KEYBOARD/PRINTER  
& PUNCH

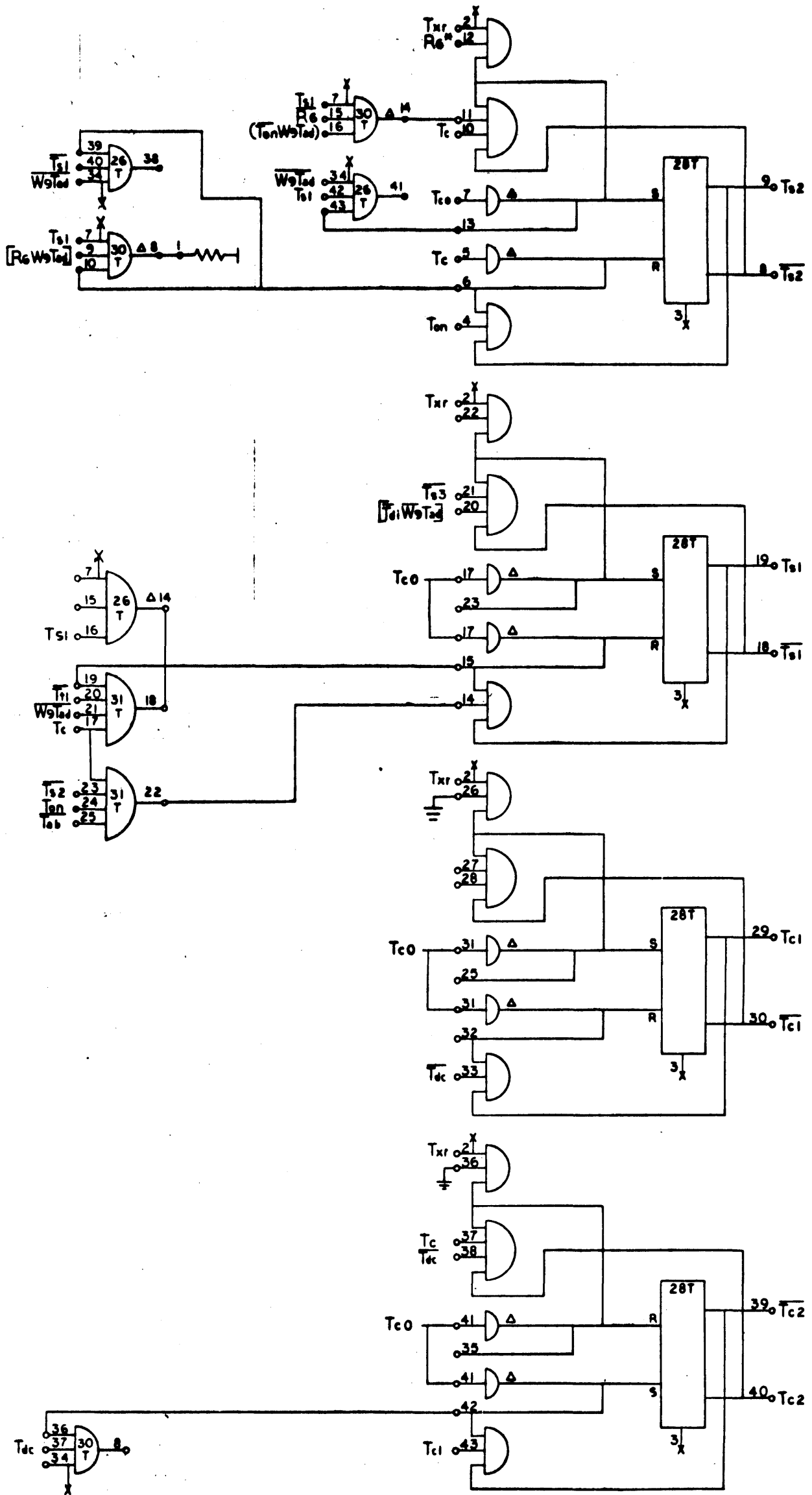


KEYBOARD/PRINTER & PUNCH  
PAGE 2  
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 KEYBOARD/PRINTER  
 & PUNCH  
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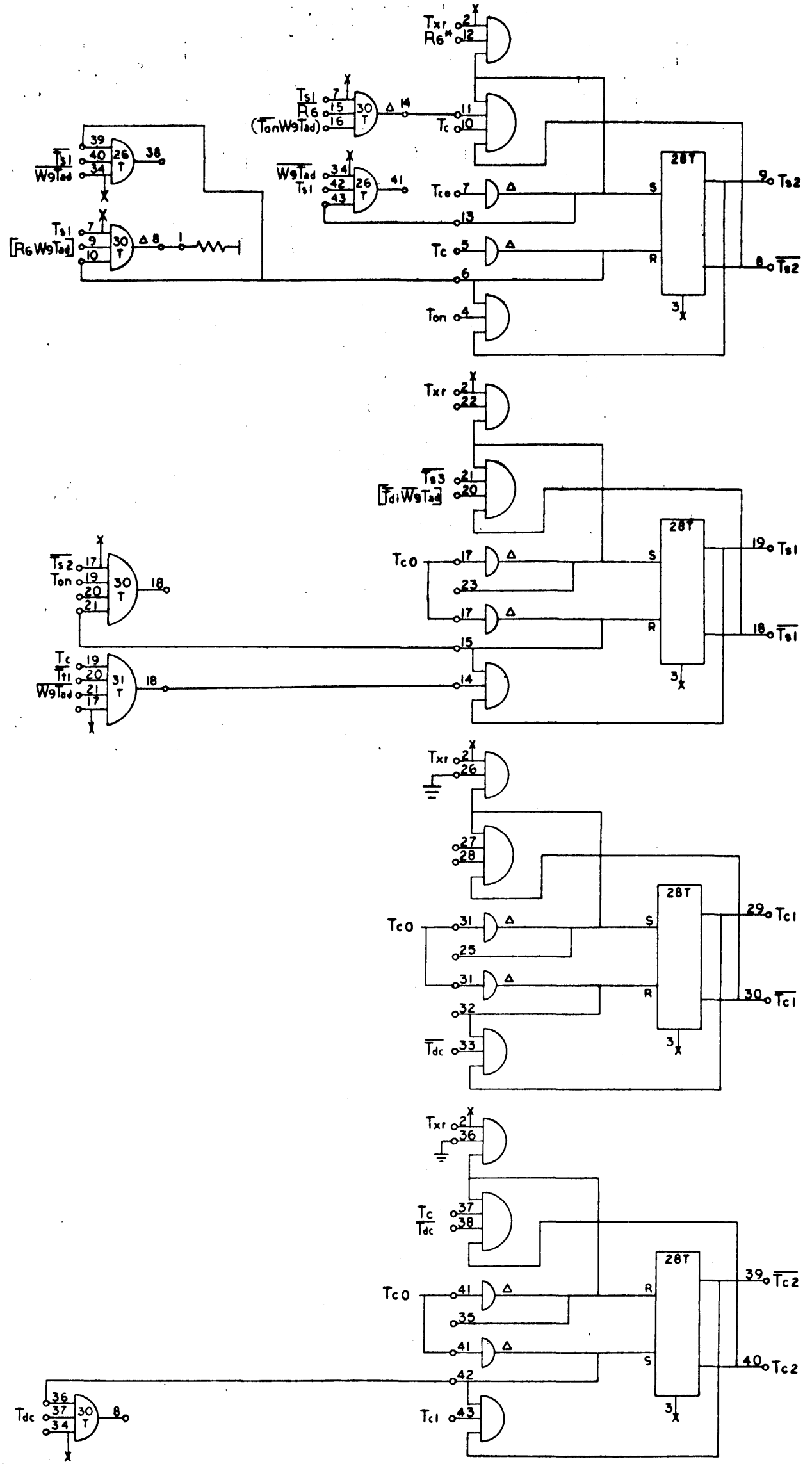


KEYBOARD PRINTER  
& PUNCH  
PAGE 3  
A

REVISIONS	
REV	DESCRIPTION
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DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH



KEYBOARD PRINTER & PUNCH PAGE 3 B

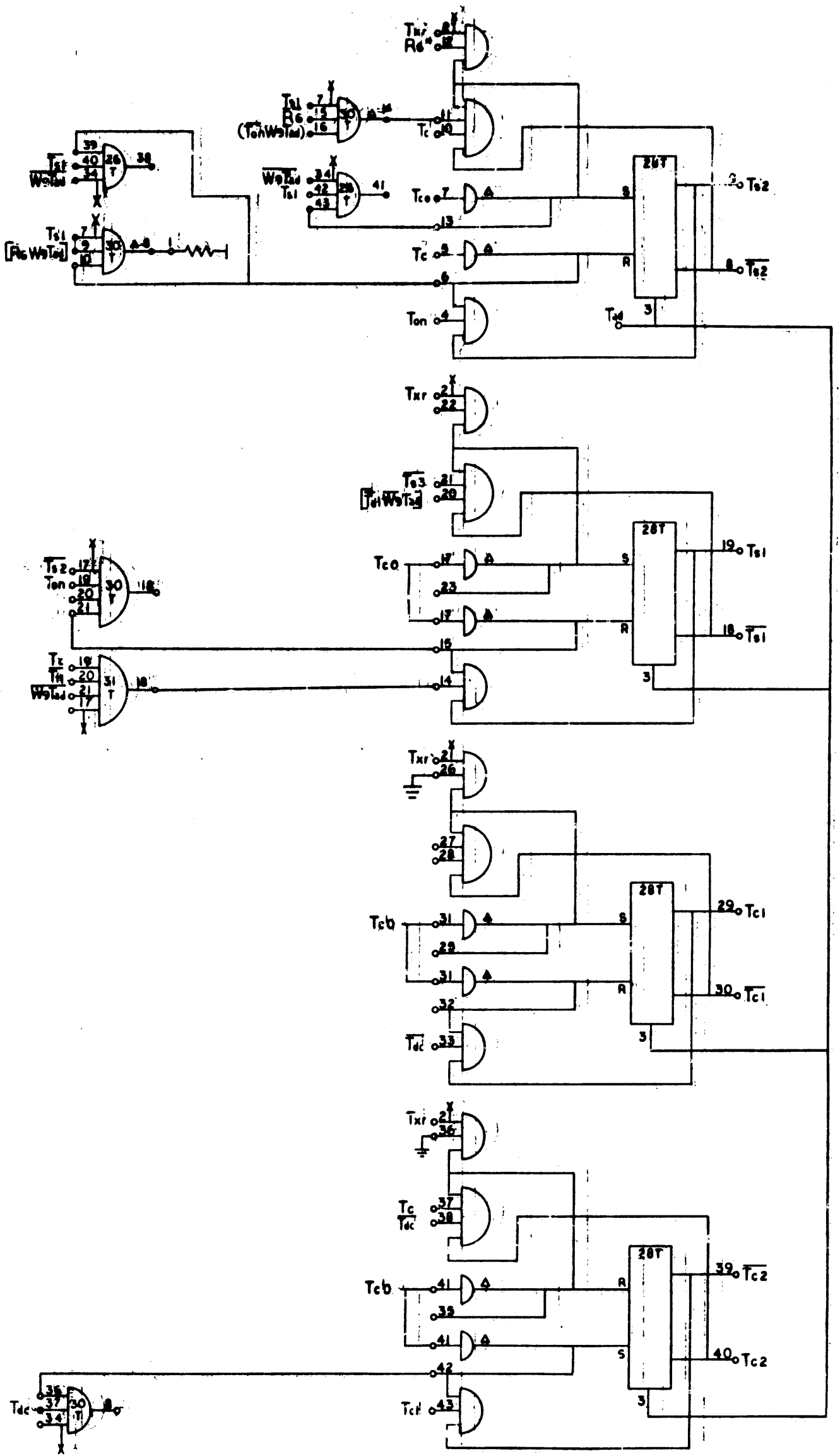
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DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

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B





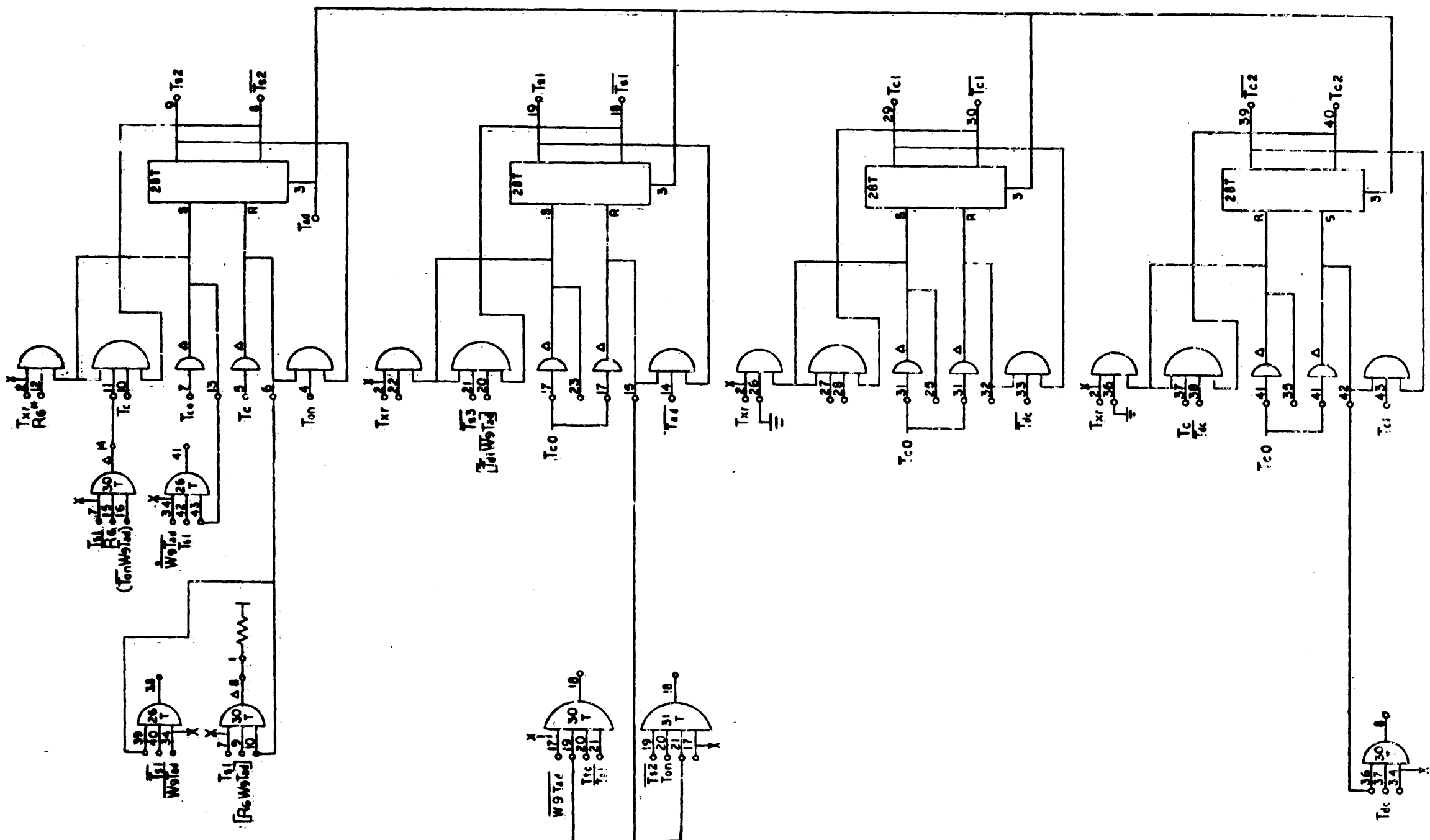
KEYBOARD PRINTER  
& PUNCH  
PAGE 3  
G

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

6

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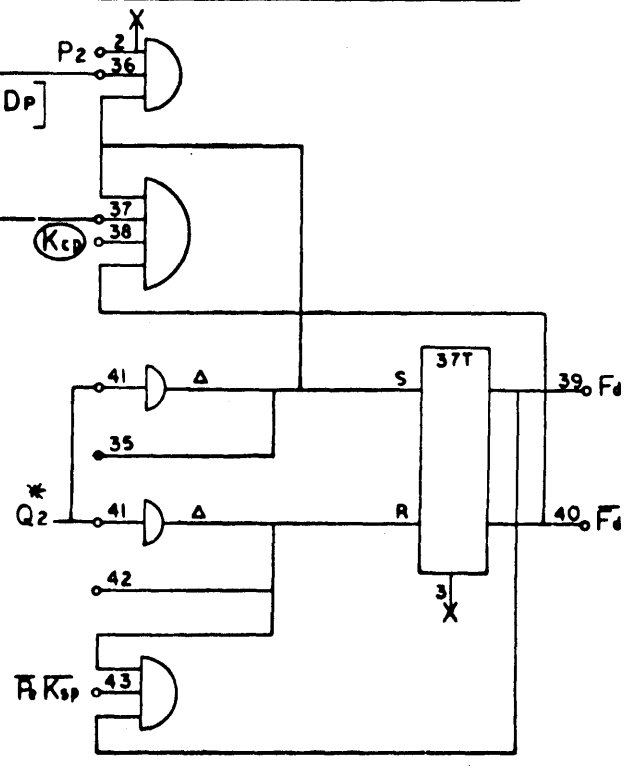
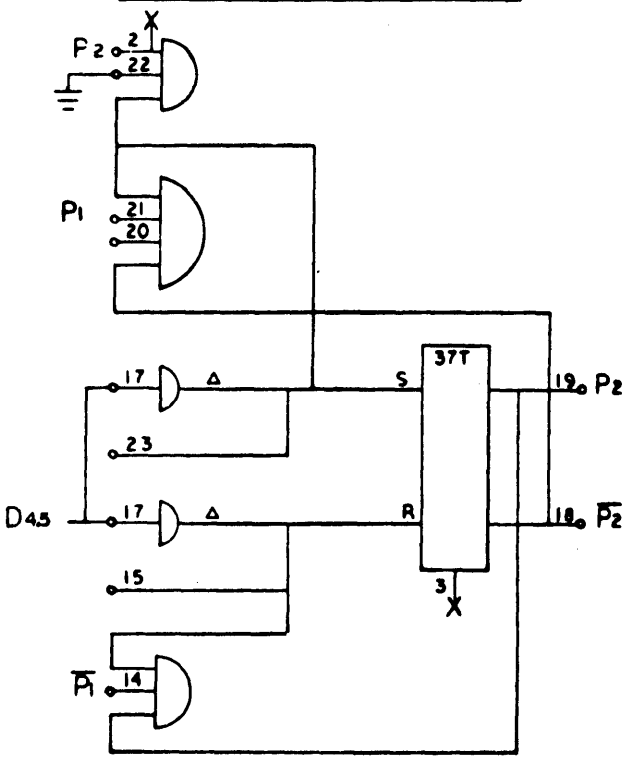
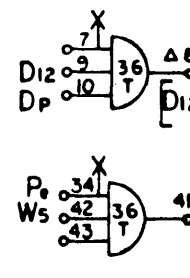
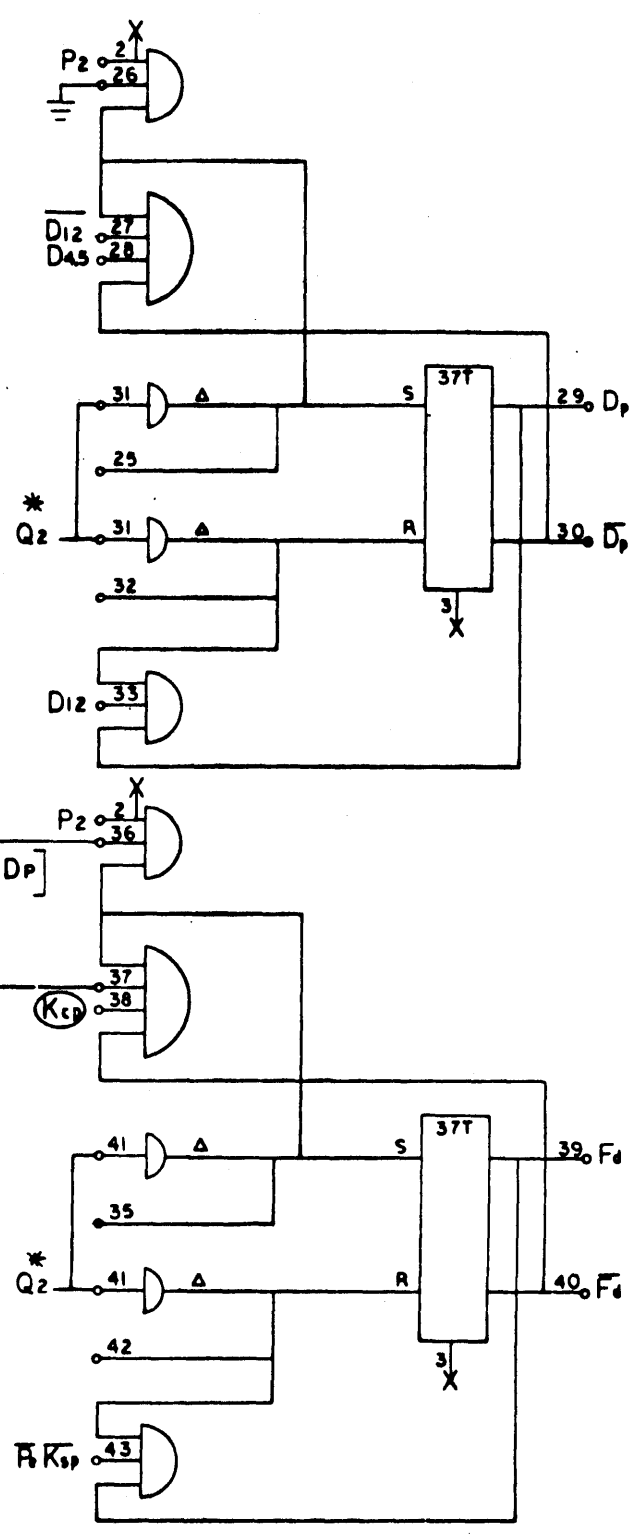
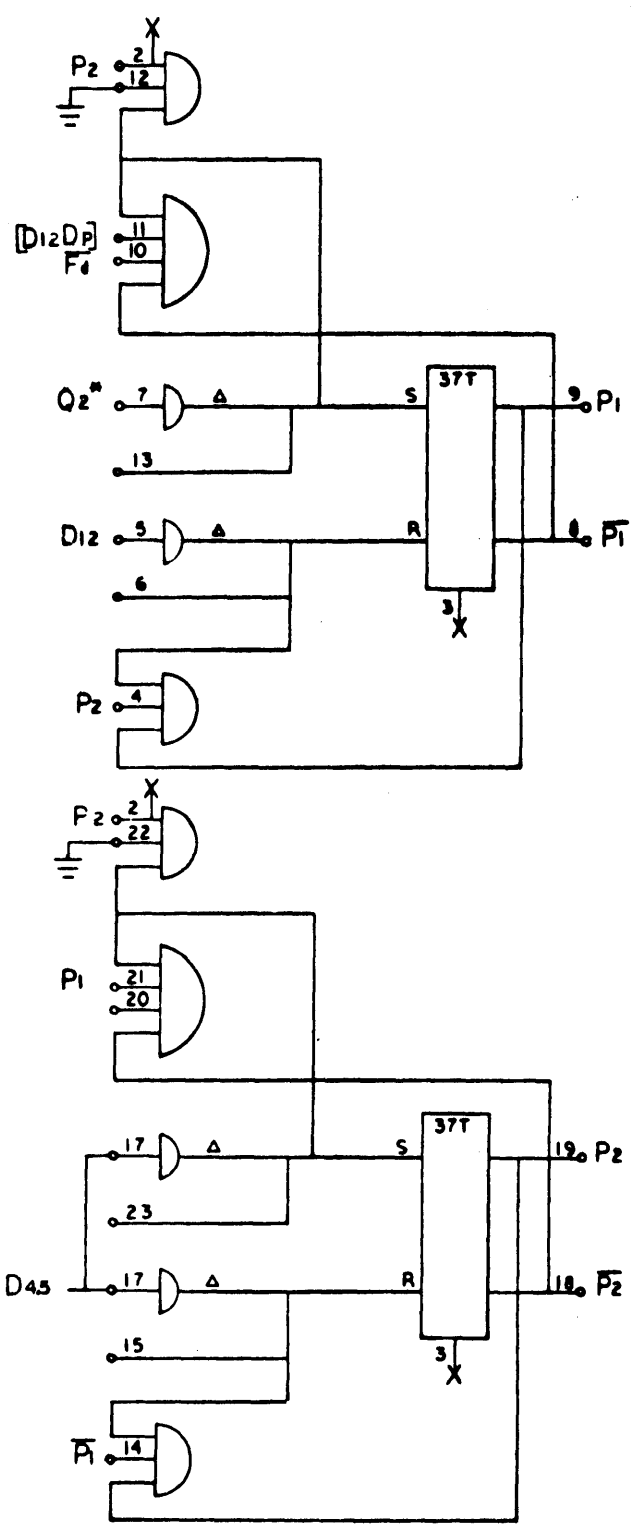
KEYBOARD PRINTER  
& PUNCH  
PAGE 3  
H

REVISIONS			
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G	SEE REV E.O.		
H	SEE REV E.O.		

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DIGITAL DATA ORGANIZATION

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

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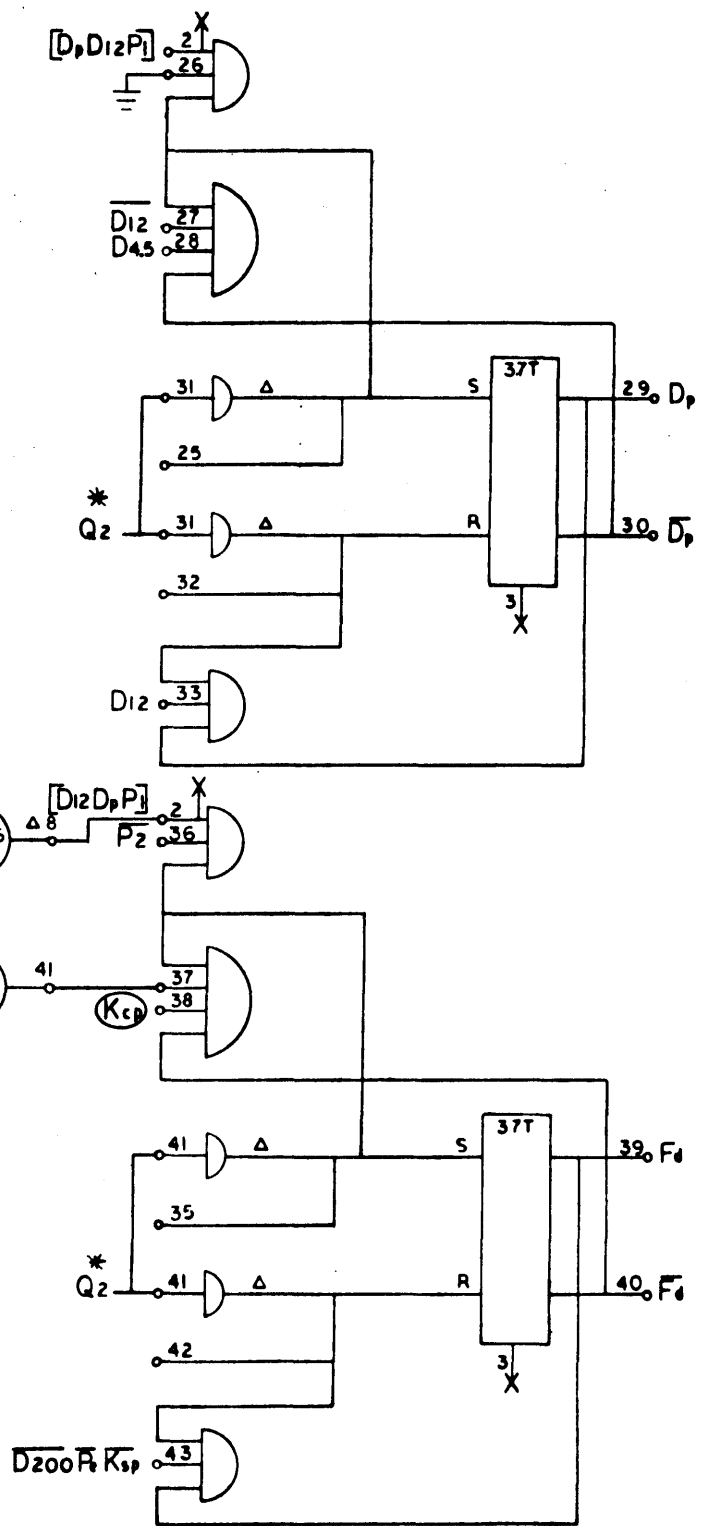
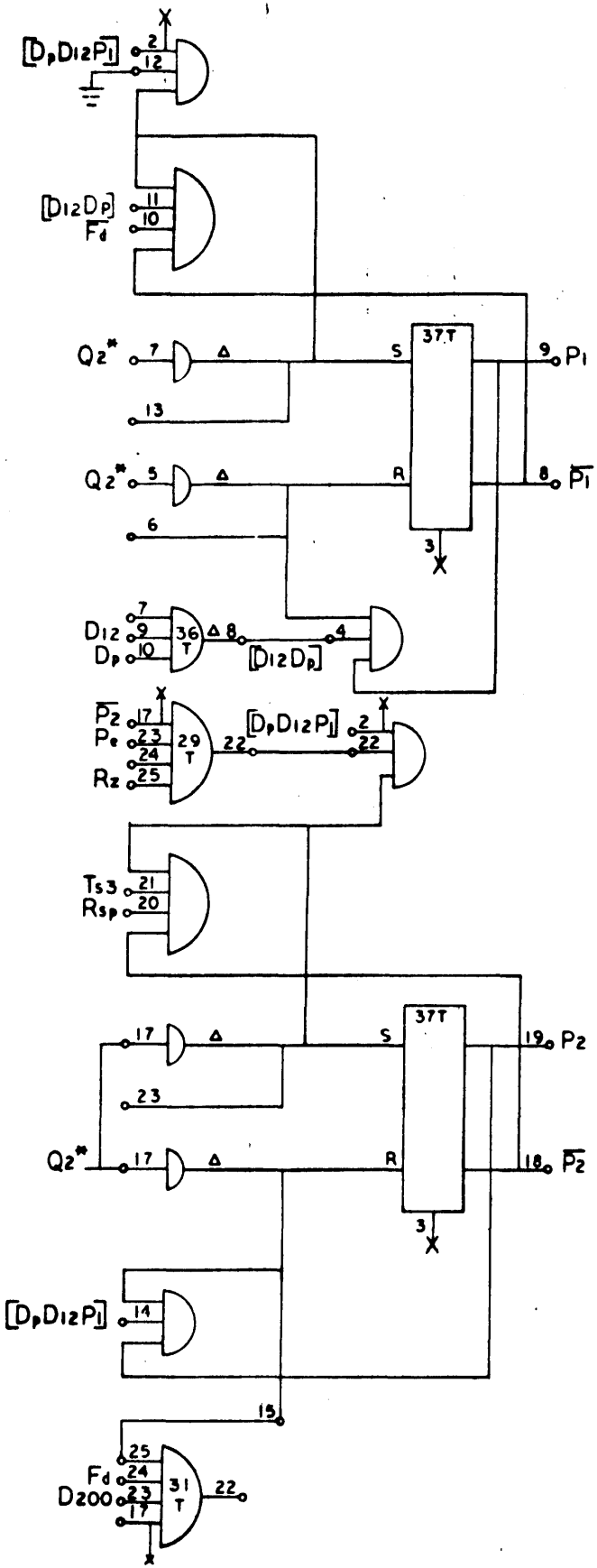


KEYBOARD/PRINTER  
& PUNCH  
PAGE 4  
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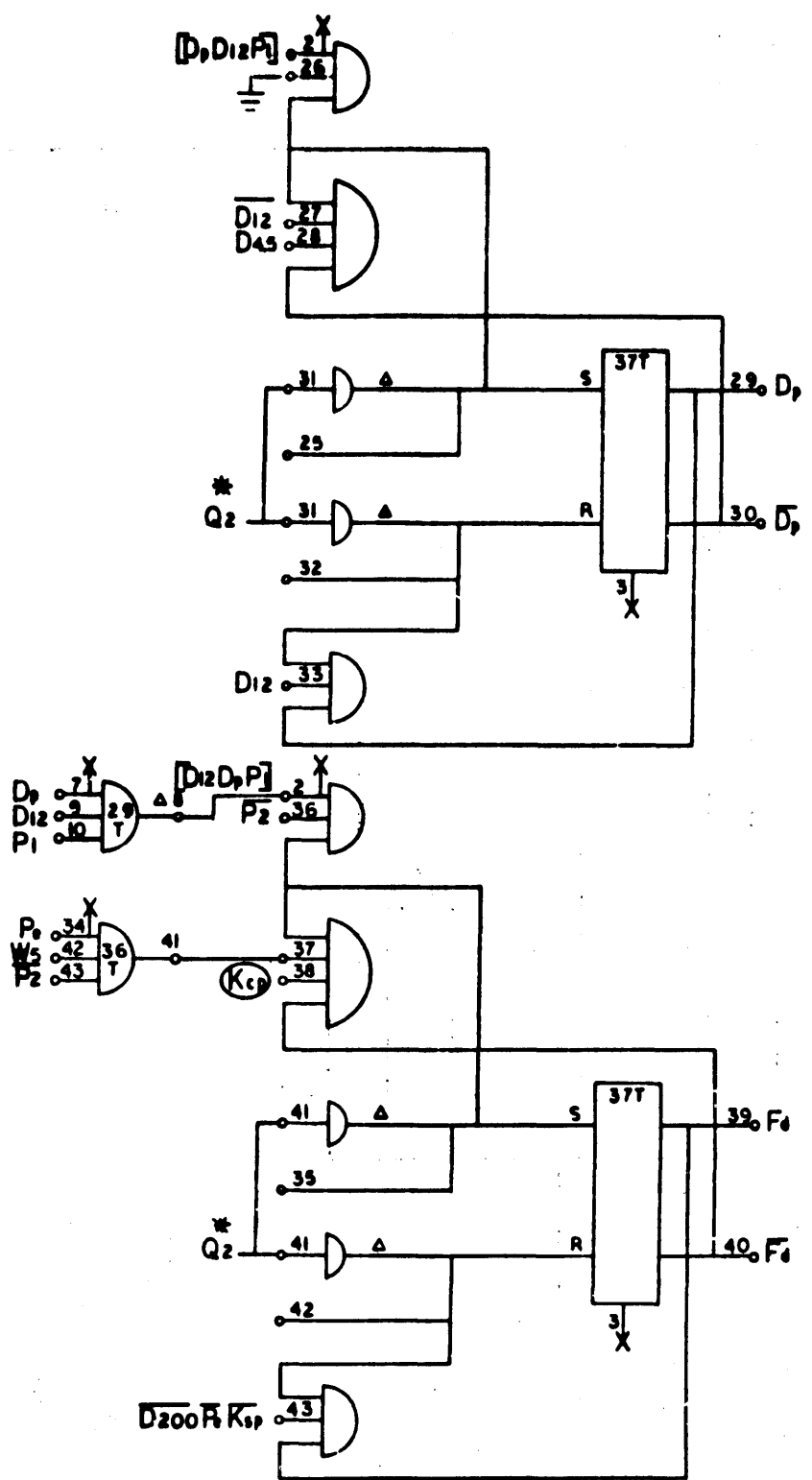
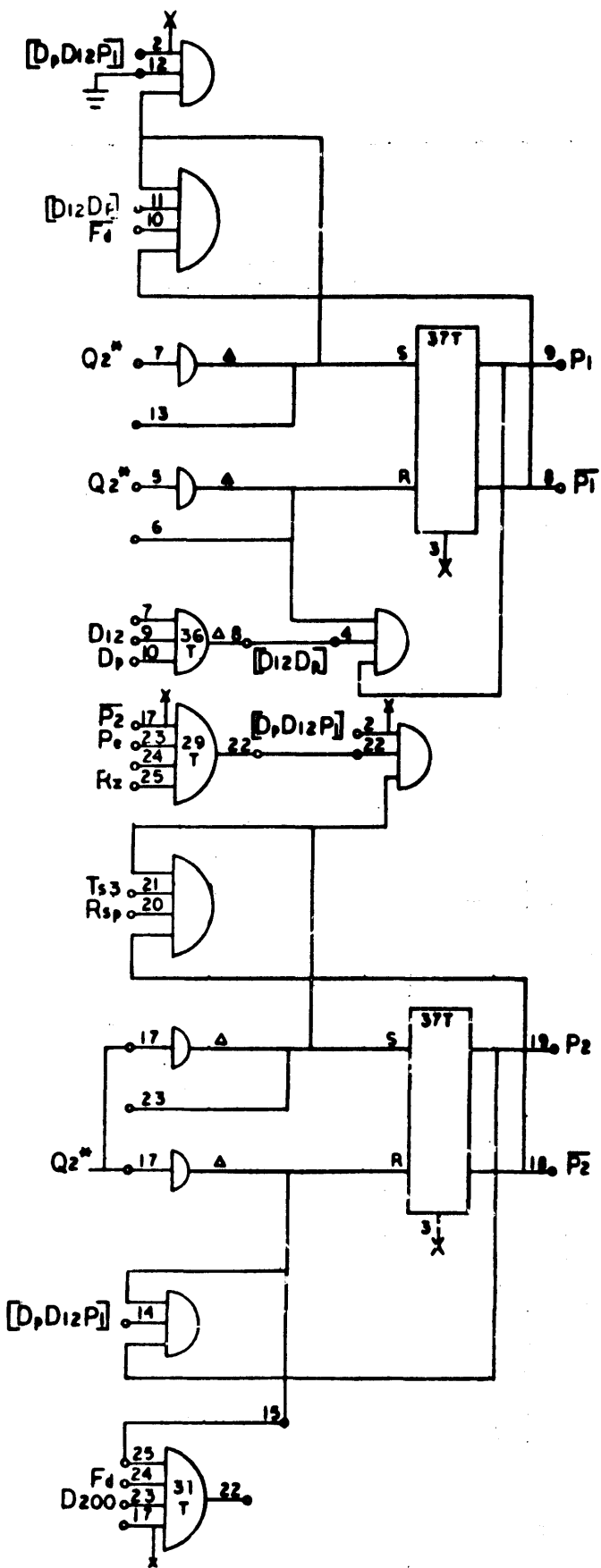
DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419  
A



KEYBOARD/PRINTER  
& PUNCH  
PAGE 4  
B

DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		107419		B	
REVISIONS					
REV	DESCRIPTION	DATE	BY	APPROVED	
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KEYBOARD/PRINTER  
& PUNCH  
PAGE 4  
F

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

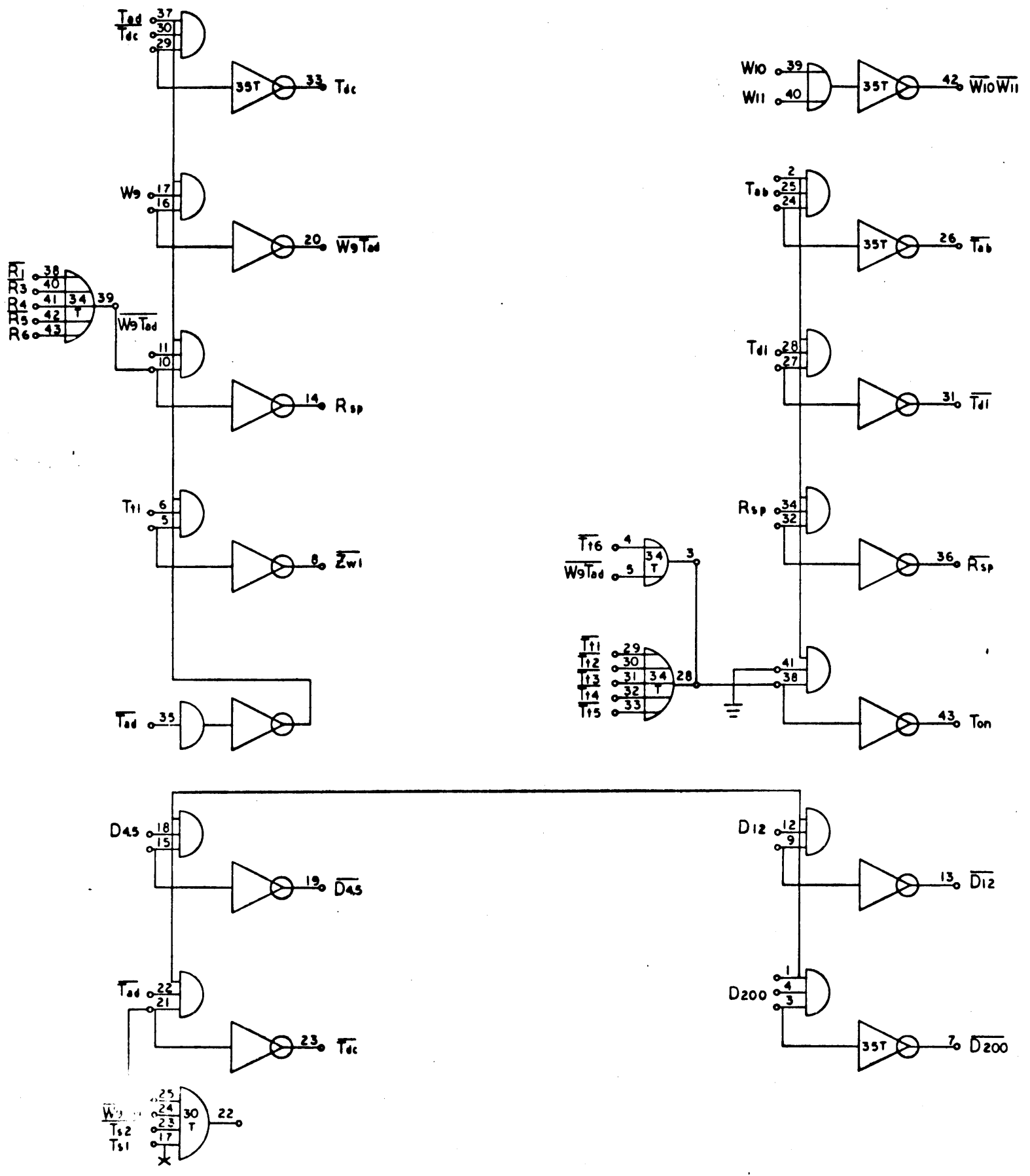
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107419

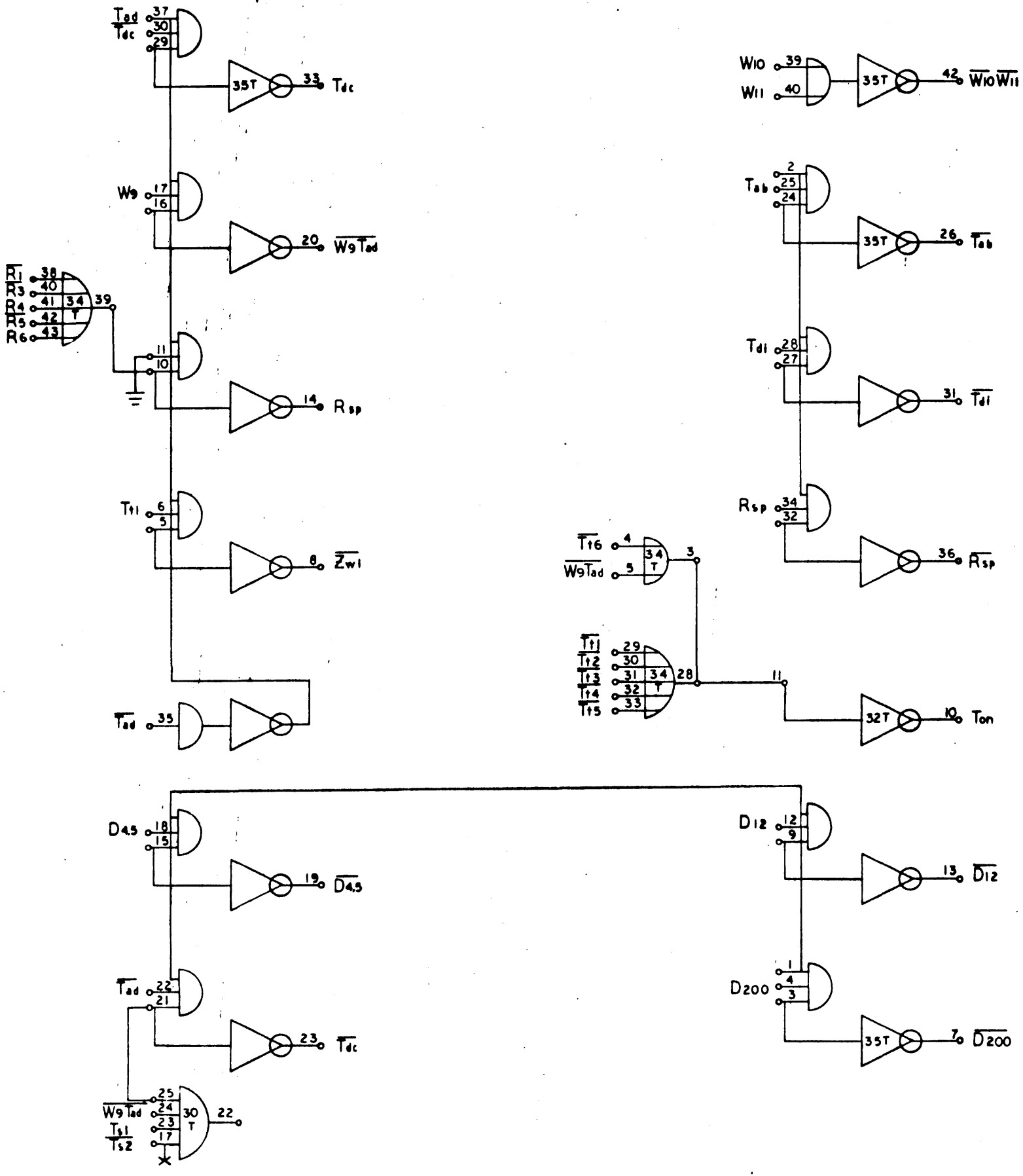




KEYBOARD/PRINTER  
& PUNCH  
PAGE 6  
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DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH					

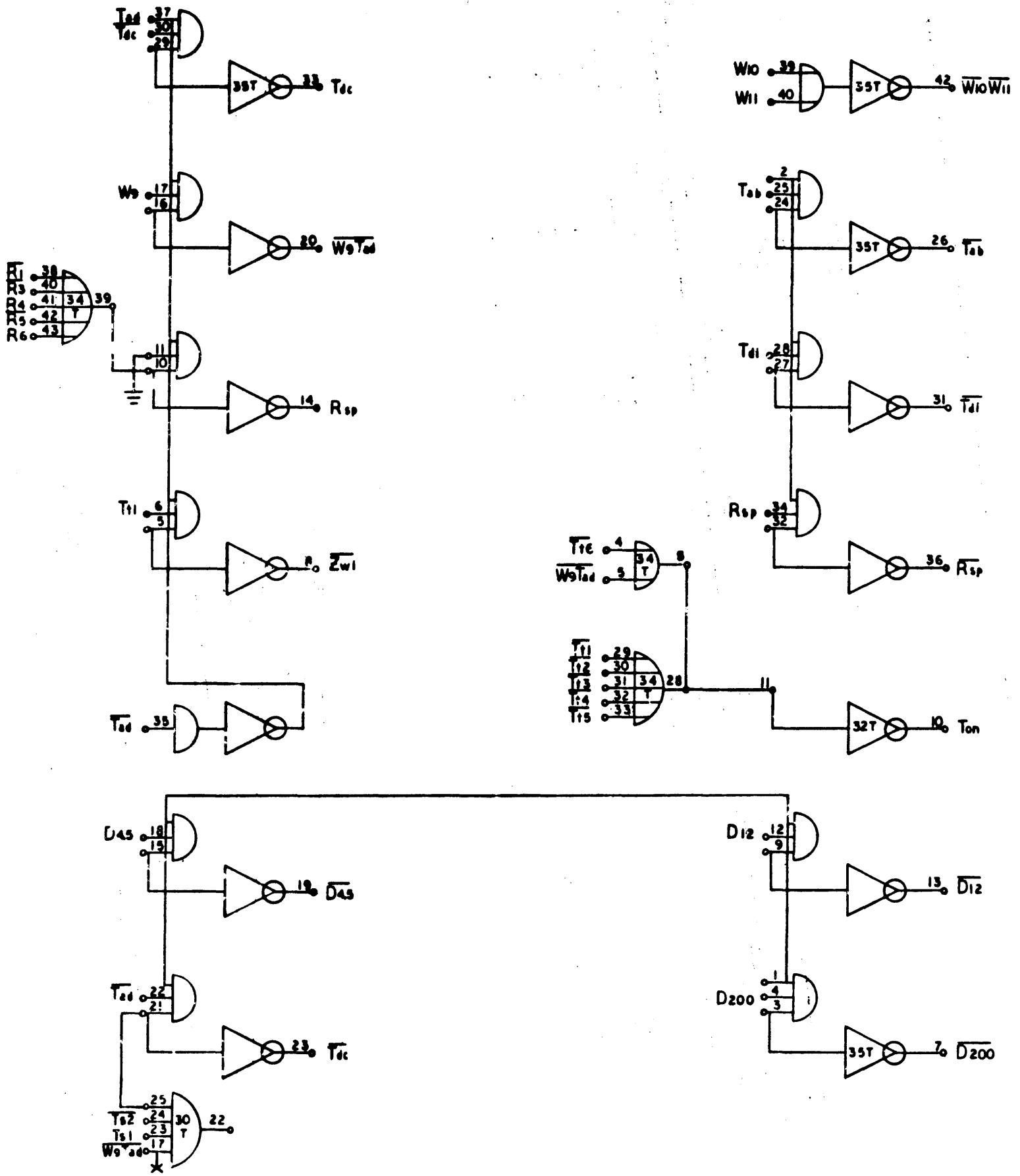


KEYBOARD/PRINTER  
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 PAGE 5  
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KEYBOARD/PRINTER  
& PUNCH  
PAGE 5  
H

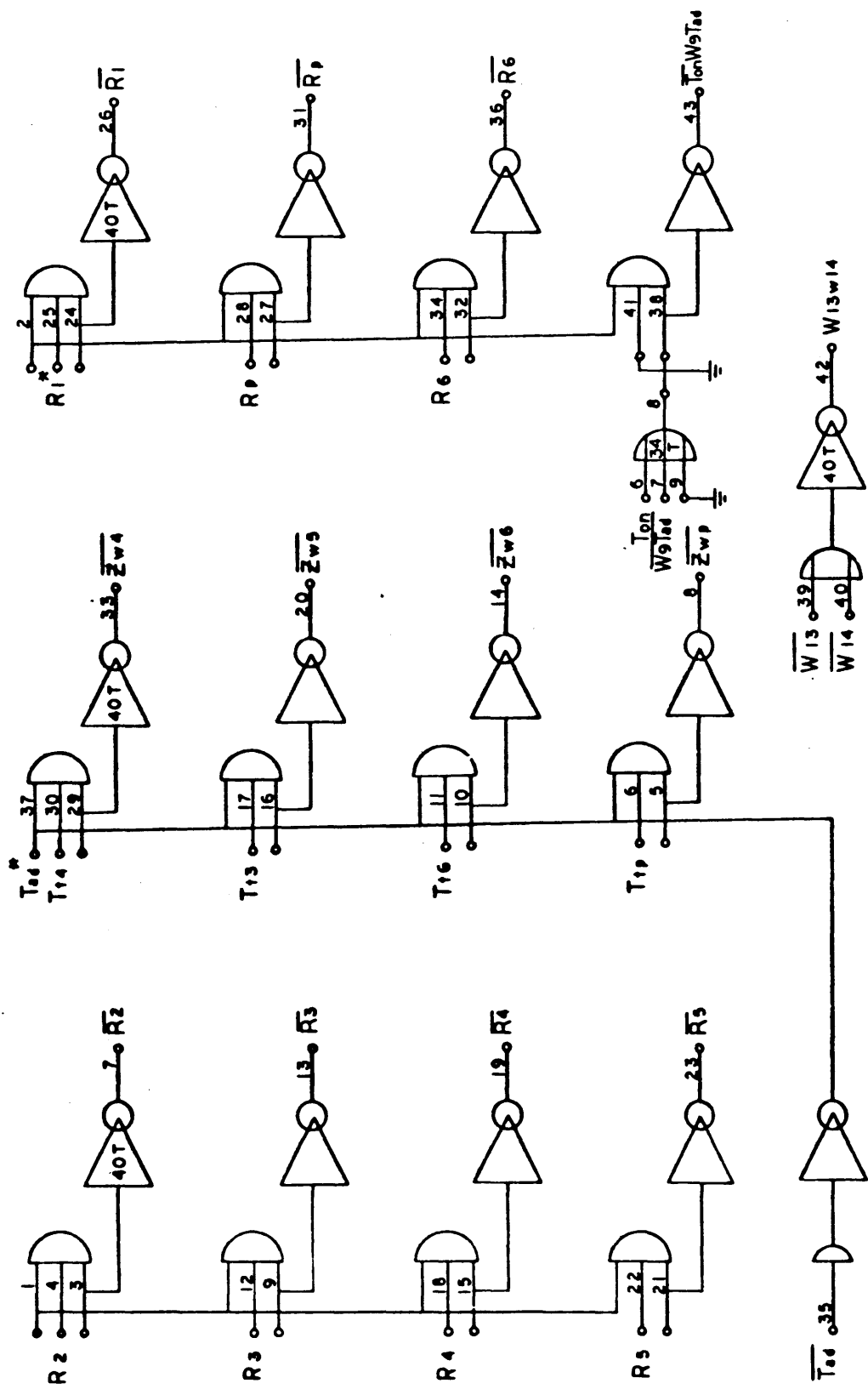
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DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

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KEYBOARD/PRINTER  
& PUNCH  
PAGE 6  
A

REVISIONS			
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A	REL TO MFG		

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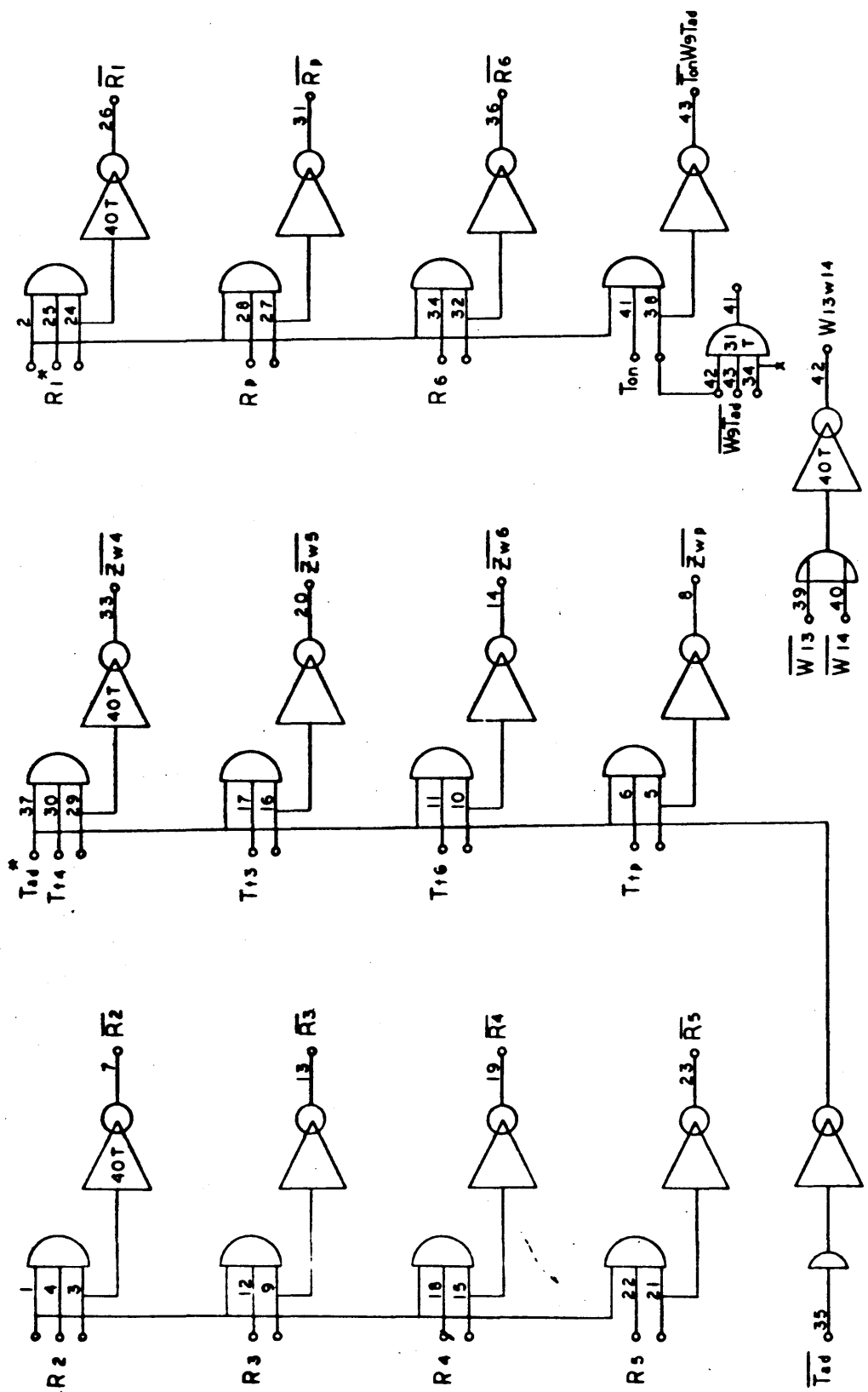


DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

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KEYBOARD/PRINTER  
& PUNCH  
PAGE 6  
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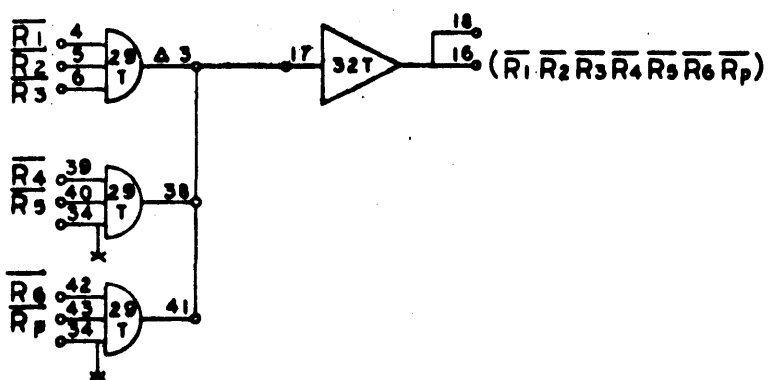
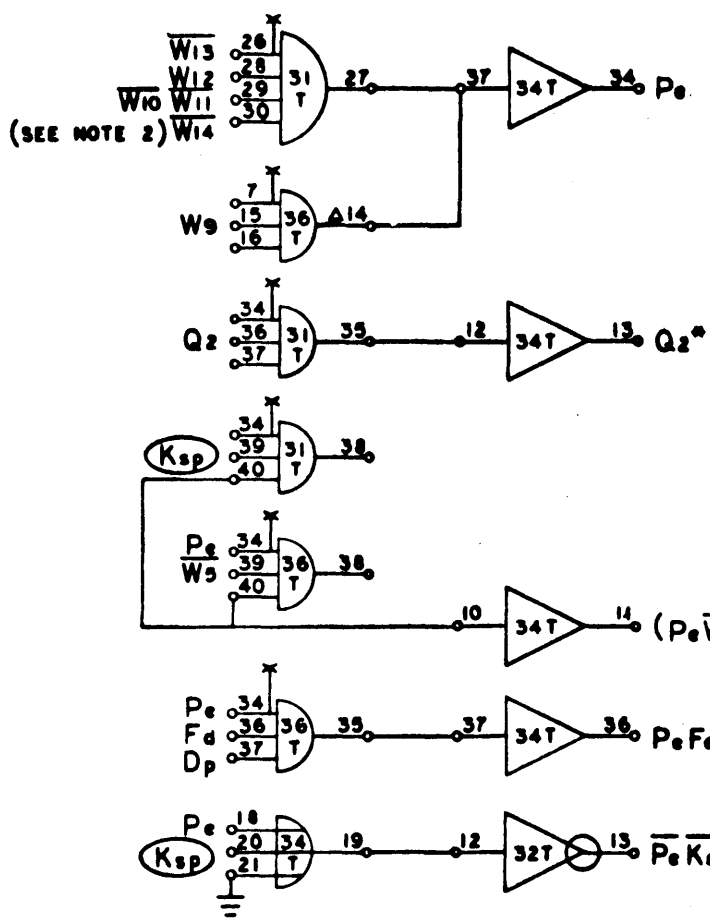
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REV.	DESCRIPTION	CHK	DATE	APPROVED	
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**SDS**  
SCIENTIFIC DATA SYSTEMS  
SANTA MONICA, CALIFORNIA

TITLE  
DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

REV.	107419	REV. NO.	B
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107419 B



TERMINAL BOARD

Signal	TBI(T)	
$\overline{Td13}$	1	o
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$\overline{Td02}$	4	o
$\overline{Td11}$	5	o
$\overline{Td01}$	6	o
Gnd1	7	o
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+8V	11	o
Tab	12	o
	13	o
Gnd2	14	o
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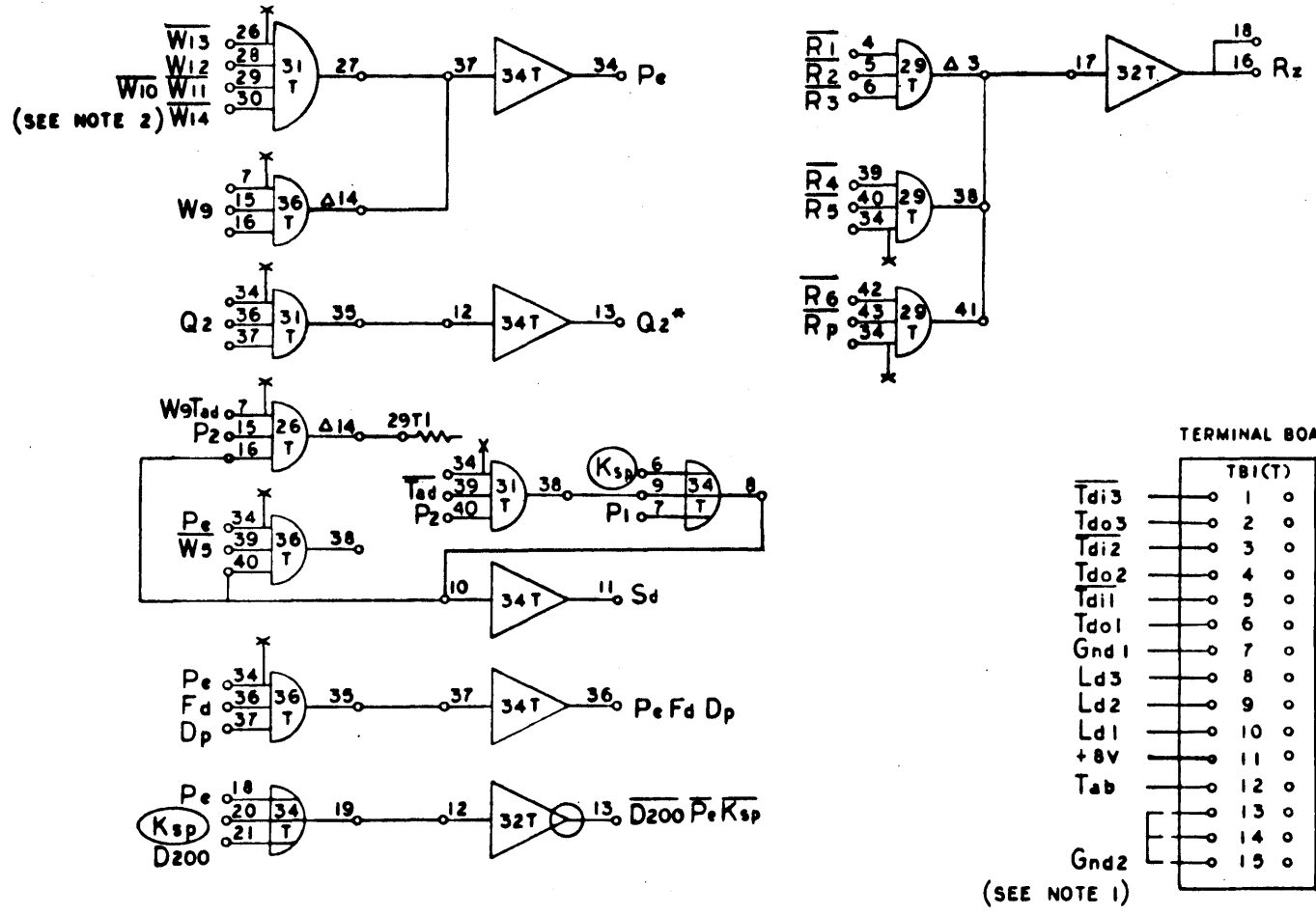
(SEE NOTE 1)

NOTE:

- JUMPER BETWEEN TBI-13 & TBI-14 IS REMOVED IF A SECOND KEYBOARD/PRINTER IS ATTACHED.  
" " " TBI 14 & TBI 15 " " " " THIRD " " " "
- $\overline{W14}$  IS REMOVED AND  $\overline{W14}$  IS ADDED TO PIN 3130 IF THE PUNCH IS A NO.2 UNIT.

KEYBOARD/PRINTER  
& PUNCH  
PAGE 7  
A

	<p>DIAGRAM, LOGIC KEYBOARD/PRINTER &amp; PUNCH</p>	<p>107419</p>	<p>A</p>
		<p>A</p>	



NOTE:

1. JUMPER BETWEEN TBI-13 & TBI-14 IS REMOVED IF A SECOND KEYBOARD/PRINTER IS ATTACHED.  
 " " " TBI 14 & TBI 15 " " " THIRD " " " "

2.  $\overline{W14}$  IS REMOVED AND  $\overline{W14}$  IS ADDED TO PIN 31T30 IF THE PUNCH IS A NO.2 UNIT.

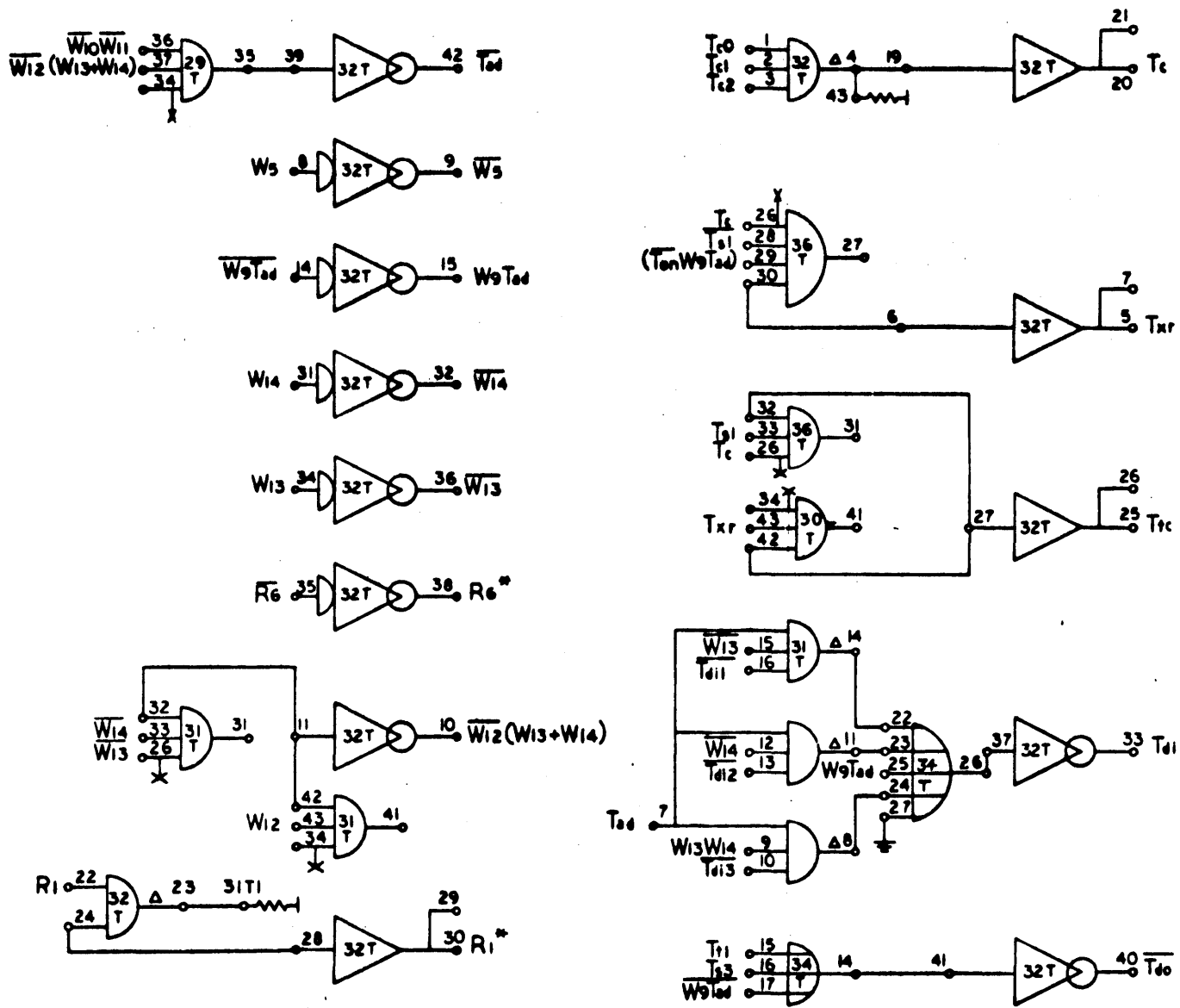
KEYBOARD/PRINTER  
& PUNCH  
PAGE 7  
B

		DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH	
PART NO. 107419	REV. B	DATE APPROVED 12/21/64	DESIGNED BY J. H. ...
DO NOT SCALE DRAWING		REVISIONS	
107419   B		A REL. TO MFG. SEE REV E0	









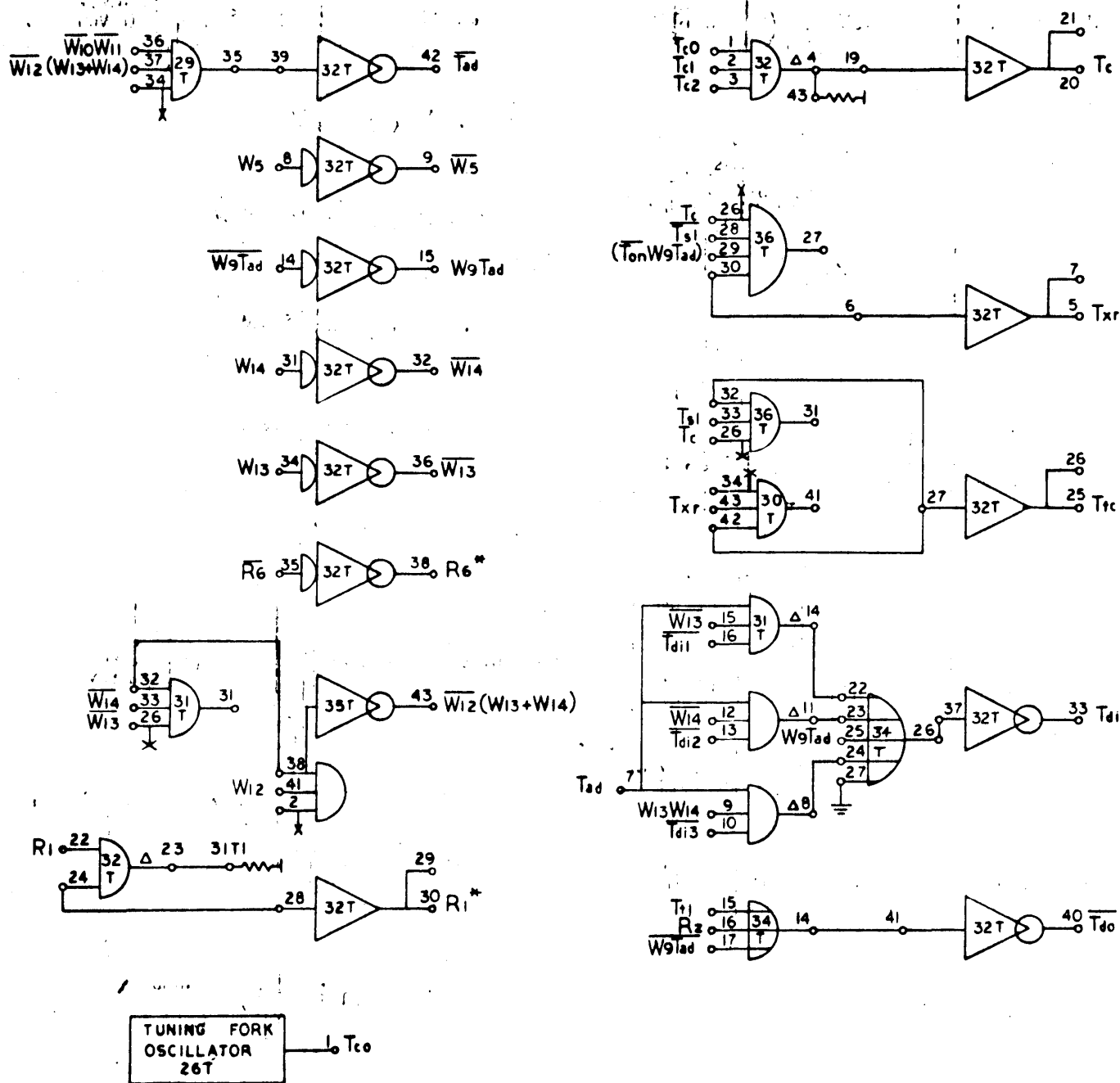
KEYBOARD/PRINTER  
& PUNCH  
PAGE 8  
A

REVISIONS		DATE	APPROVED
A	REL TO MFG		

DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		107419	A
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107419 A

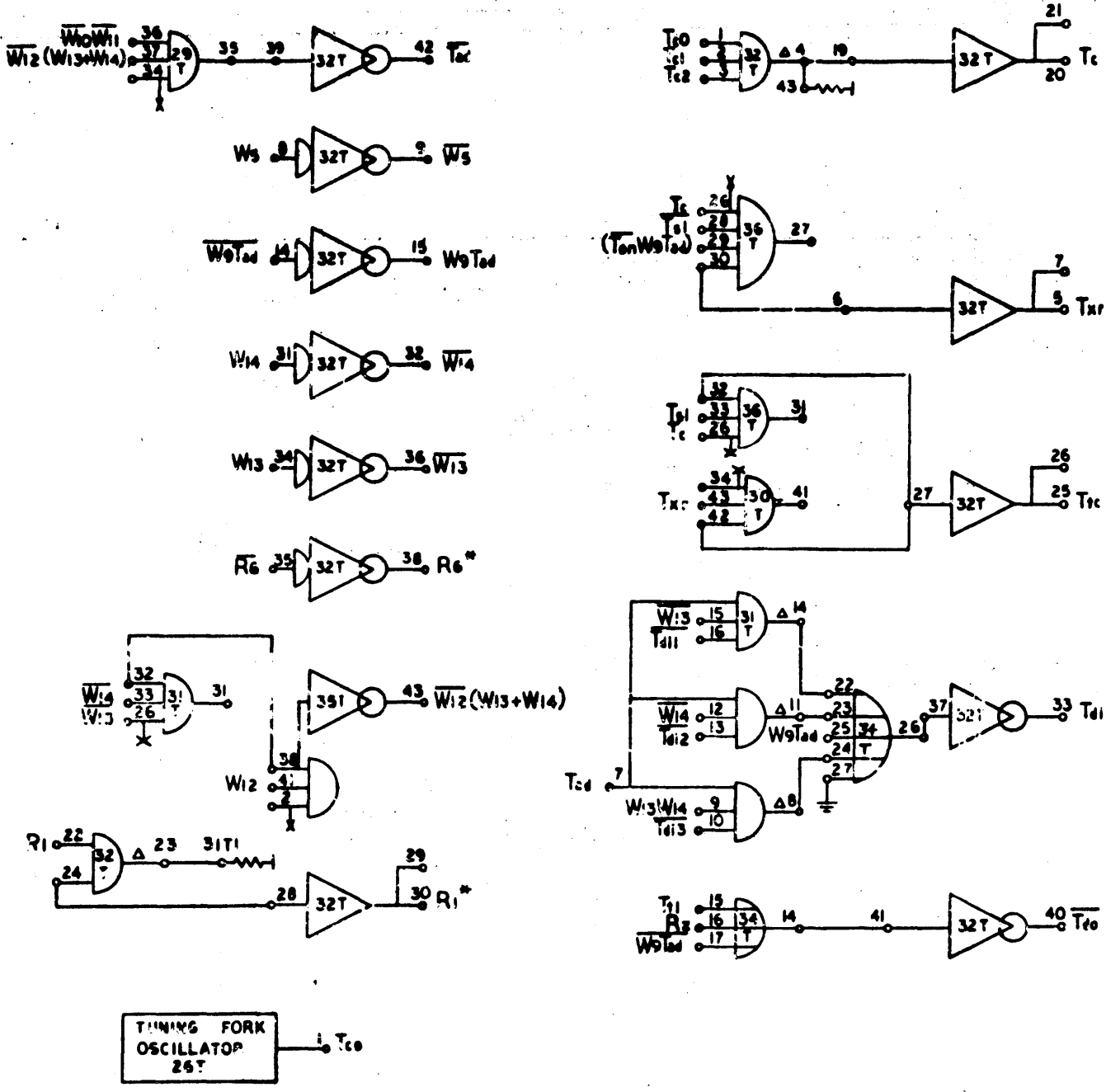


KEYBOARD, PRINTER & PUNCH  
PAGE 8  
B

REVISIONS		NO.	DESCRIPTION	DATE	BY	APPROVED
A	REL TO MFG					
B	SEE REV E O					

TITLE <b>DIAGRAM, LOGIC KEYBOARD/PRINTER &amp; PUNCH</b>	PART NO. <b>107419</b>	QUANTITY <b>B</b>
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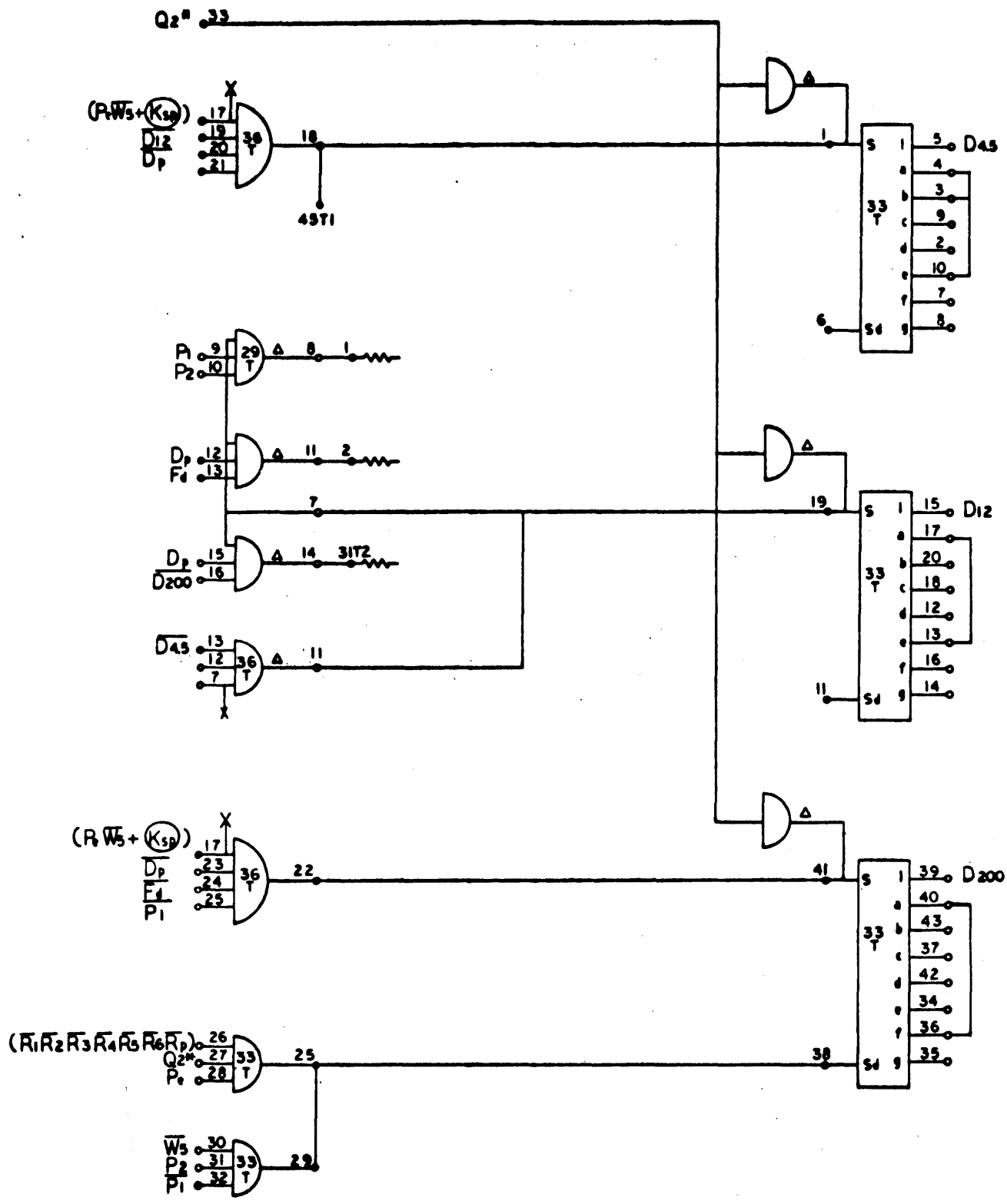
NOTES:  
 1. TERMINAL 32T39 IS CONNECTED TO GND FOR MODELS S232, 9233.

KEYBOARD/PRINTER  
 & PUNCH  
 PAGE 8  
 H

DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		107419		H	
33/34		9 0717		H	

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	REL TO MFG			
B	SEE REV E O			
H	SEE REV E O.			



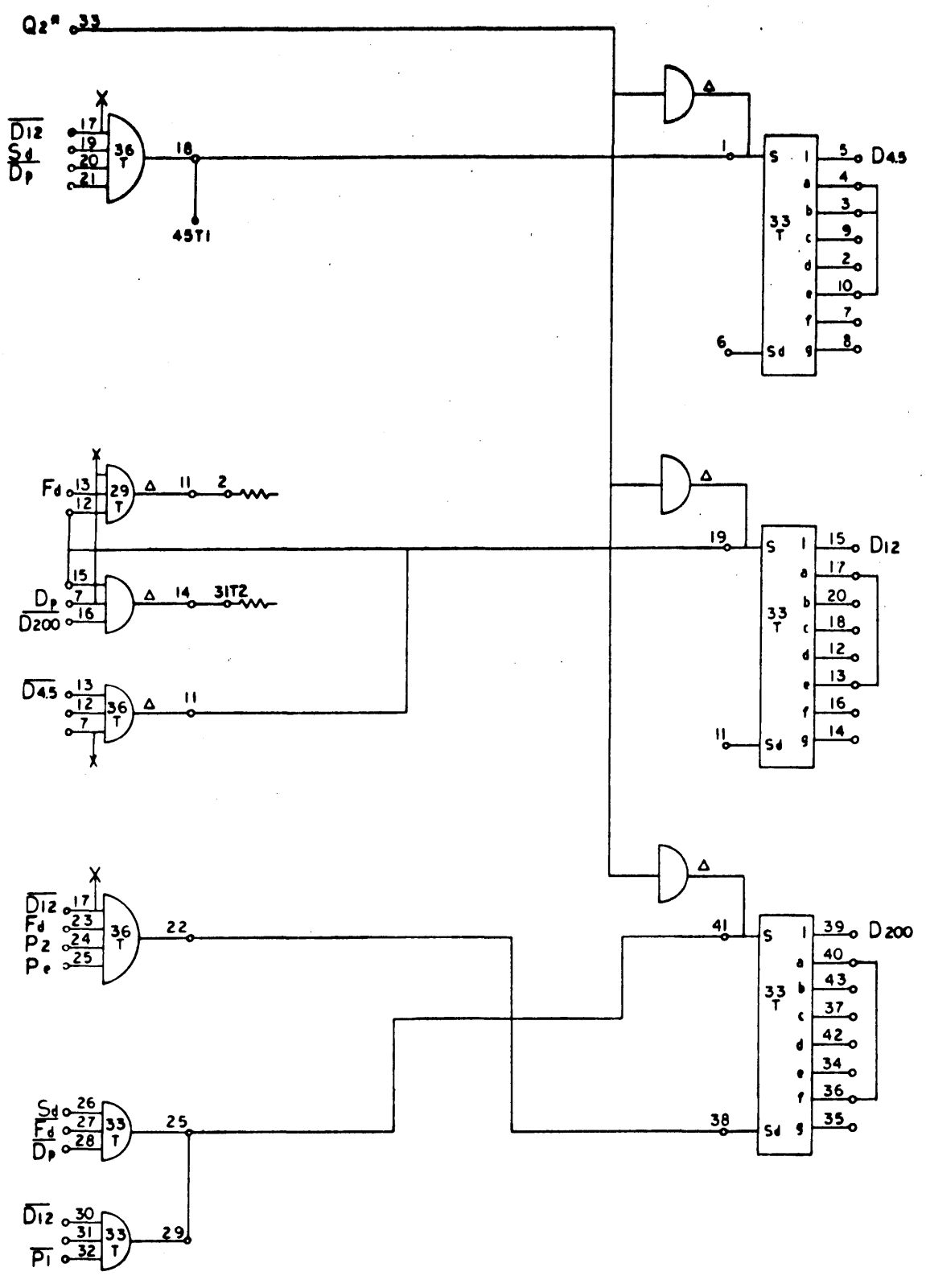


KEYBOARD/PRINTER  
& PUNCH  
PAGE 9  
A

REVISIONS		CHK	DATE	APPROVED
A	REL TO MFG			


DIAGRAM LOGIC  
KEYBOARD/PRINTER  
& PUNCH

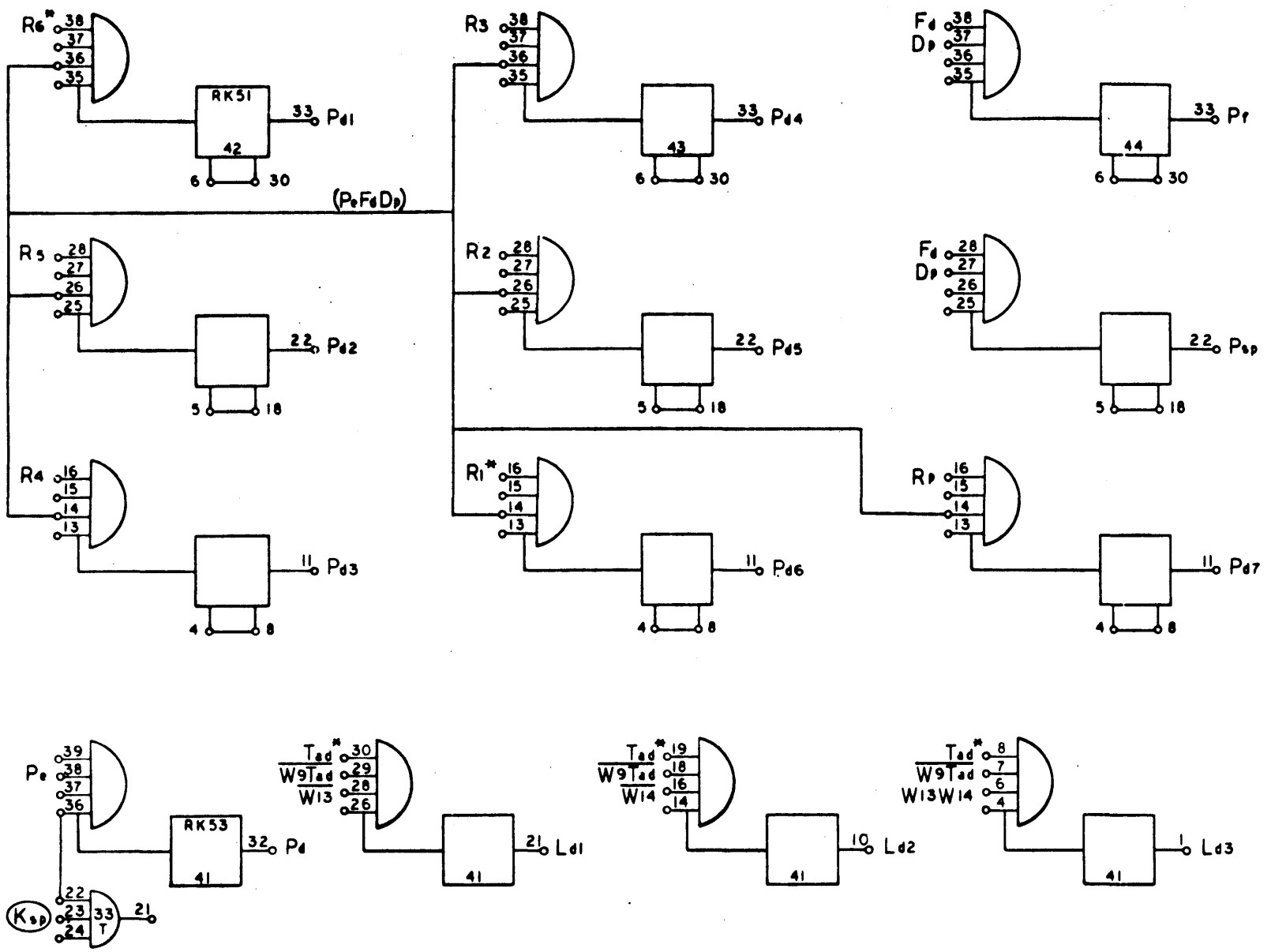
107419  
A



KEYBOARD/PRINTER  
& PUNCH  
PAGE 9  
B

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	REL TO MFG		12/11	W/G
B	SEE REV E O		12/11	W/G

  
 DIAGRAM, LOGIC  
 KEYBOARD/PRINTER  
 & PUNCH  
 107419  
 8

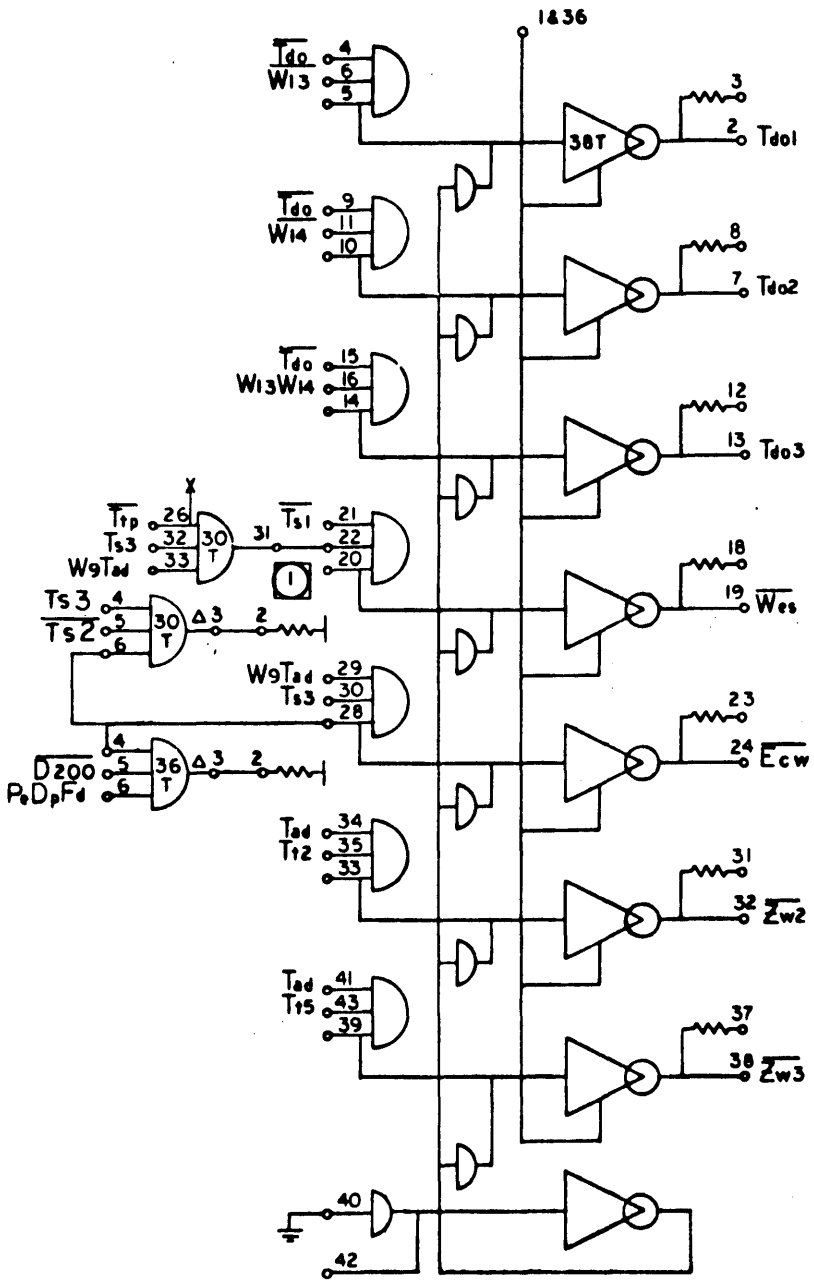


KEYBOARD/PRINTER  
& PUNCH  
PAGE 10  
A

REVISIONS	
REV.	DESCRIPTION
A	REL. TO MFG.

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419  
A



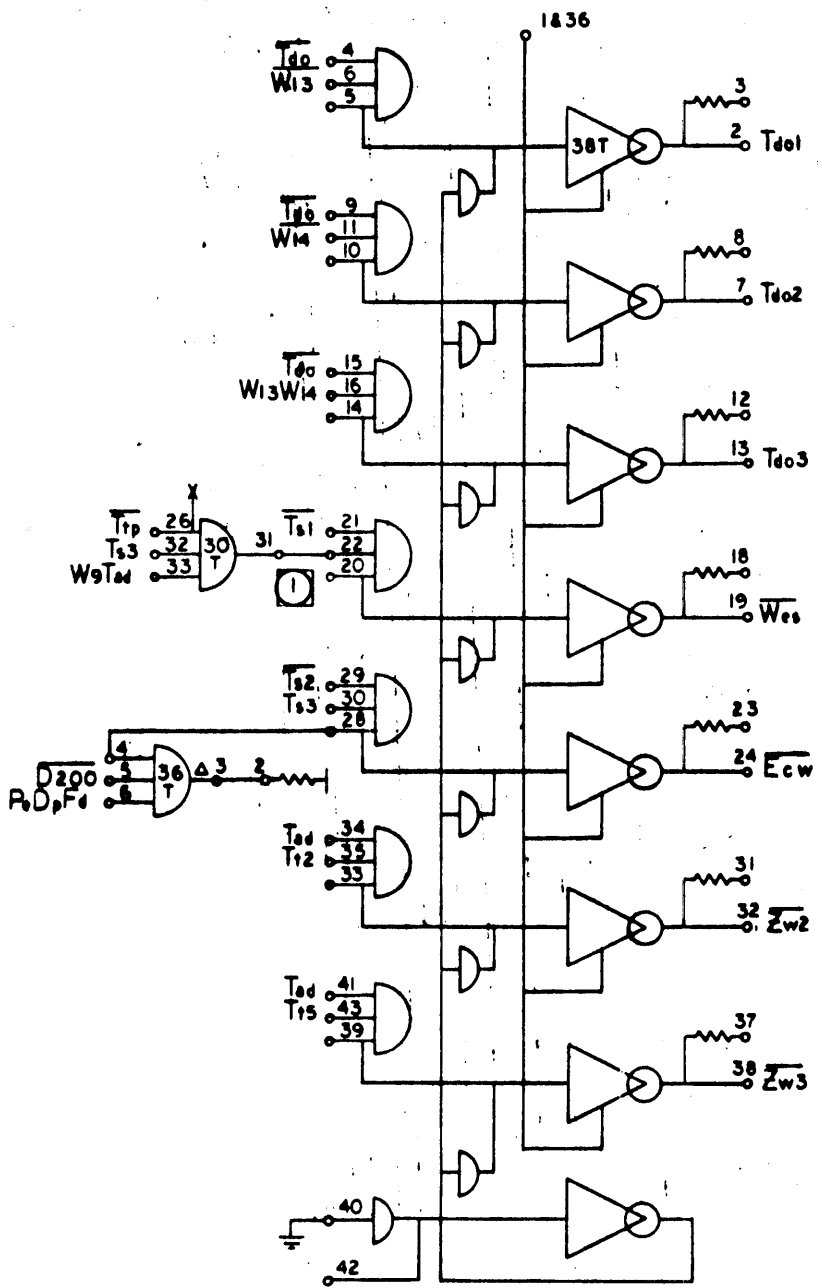
NOTES: UNLESS OTHERWISE SPECIFIED

1 TERMINAL 38 T 20 IS CONNECTED TO GRD FOR A 9232 AND 9233 COUPLERS (PUNCH ONLY)

KEYBOARD/PRINTER & PUNCH PAGE 11 A

REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	7/27/64	W
NOV	1074		
DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH			
NOV	107419		
A			





NOTES: UNLESS OTHERWISE SPECIFIED

① TERMINAL 38T20 AND 38T40 ARE CONNECTED TO GRD FOR A 9232 AND 9233 COUPLERS (PUNCH ONLY)

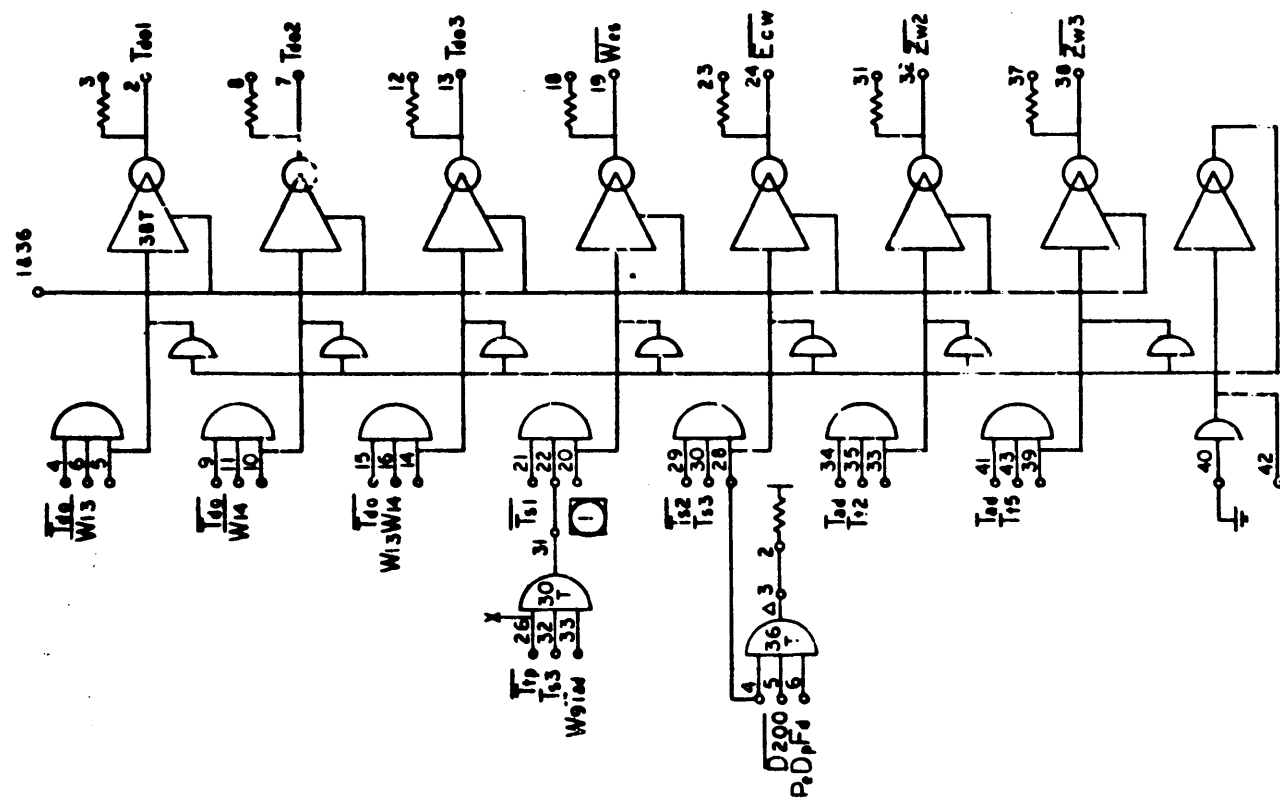
KEYBOARD/PRINTER  
& PUNCH  
PAGE 11  
B

REVISIONS	
REV.	DESCRIPTION
A	REL TO MFG
B	SEE REV E O

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

B



NOTES: UNLESS OTHERWISE SPECIFIED

1 TERMINAL 38T20 AND 38T30 ARE CONNECTED TO GRD FOR 9232 AND 9233 COUPLERS (PJMCH ONLY)

KEYBOARD/PRINTER  
& PUNCH  
PAGE 11  
E

REVISIONS				107419
REV.	DESCRIPTION	CHK.	DATE	APPROV.
A	REL TO MFG			
B	SEE REV E O			
E	SEE REV E O			

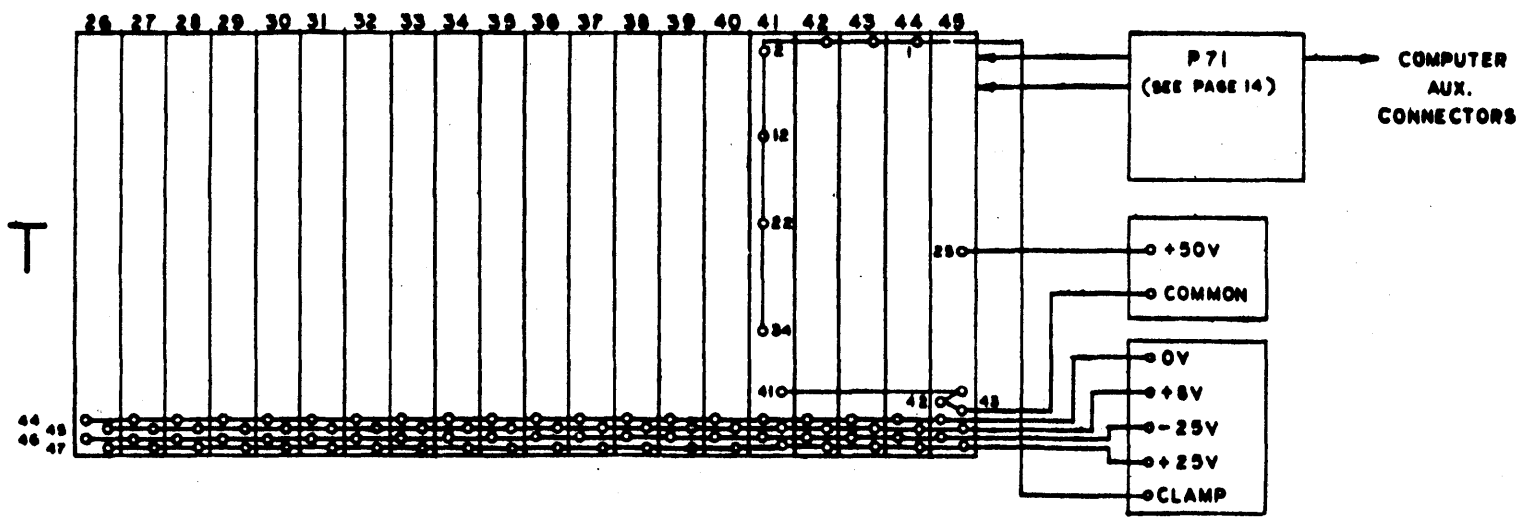
**DDI**

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

	107419	E
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SCALE: DO NOT SCALE DRAWING SHEET 12 OF 1

107419 E



MODULE CHART

LOCATION	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26
TYPE	--	RK 51	RK 51	RK 51	RK 53	IC 12	FC 17	AX 14	FH 17	GK 51	IC 12	BH 11	OX 13	IK 51	GK 51	GK 51	GK 51	FC 17	FC 17	CX 16
KEY	6 30	4 44	4 44	4 44	8 22	10 34	2 32	20 24	2 32	2 22	10 34	2 26	2 46	2 8	2 22	2 22	2 22	2 32	2 32	3 33
		① ②	① ②	① ②			③ ②		① ②				① ②			③ ②		③ ②	③ ②	③ ②

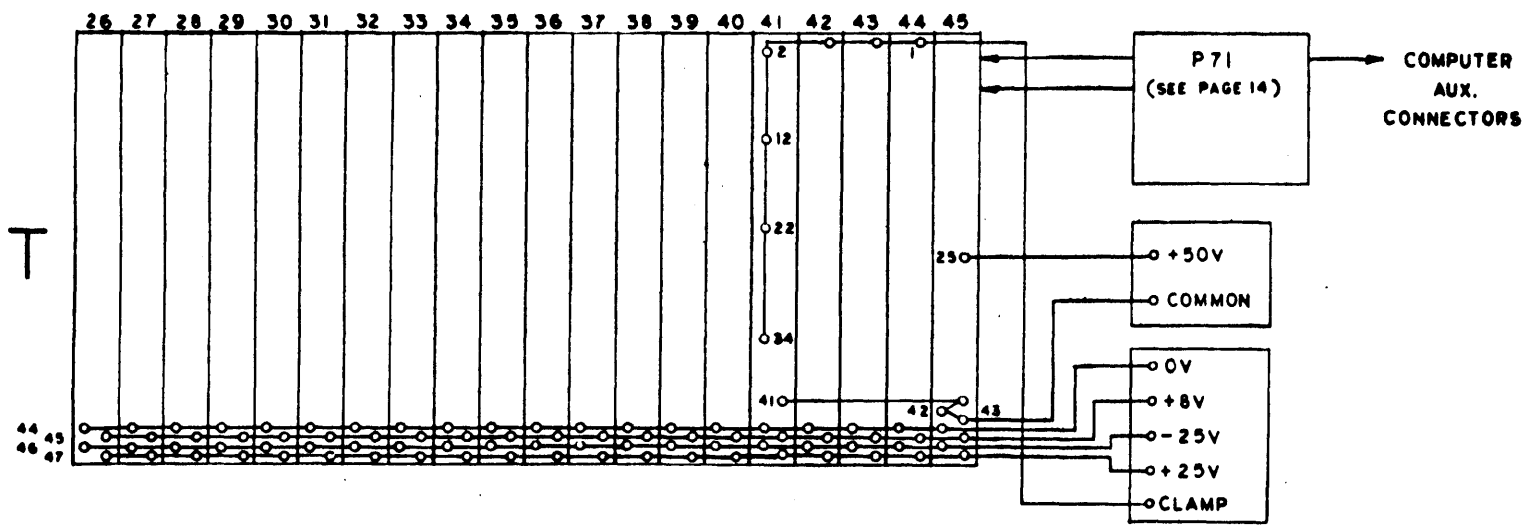
NOTES:

- ① USED WITH MODEL 9232 & 9233.
- ② USED WITH MODEL 9234.
- ③ USED WITH MODEL 9237.

KEYBOARD / PRINTER  
& PUNCH  
PAGE 12  
A

		DIAGRAM LOGIC KEYBOARD PRINTER & PUNCH		PART NO. 107419	REV. A
REVISIONS	DATE	BY	APPROVED	107419 A	107419 A
A	REL. TO MFG.	DATE	BY	APPROVED	107419 A

107419 A



MODULE CHART

LOCATION	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26
TYPE	--	RK 51	RK 51	RK 51	RK 53	IC 12	FC 17	AX 14	FH 17	GK 51	IC 12	BH 11	OX 13	IK 51	GK 51	GK 51	GK 51	FC 17	FC 17	CX 16
KEY	6 30	4 44	4 44	4 44	8 22	10 34	2 32	20 24	2 32	2 22	10 34	2 26	2 46	2 8	2 22	2 22	2 22	2 32	2 32	3 33
		① ②	① ②	① ②			③ ②								③ ②			③ ②	③ ②	③ ②

NOTES:

- ① USED WITH MODEL 9232 & 9233.
- ② USED WITH MODEL 9234.
- ③ USED WITH MODEL 9237.

KEYBOARD / PRINTER  
& PUNCH  
PAGE 12  
B

SCALE

DO NOT SCALE DRAWING

107419

B

REVISIONS

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	REL. TO MFG.			
B	SEE REV E O			

DIAGRAM LOGIC  
KEYBOARD PRINTER  
& PUNCH

107419

B

107419 | B

MODULE LIST

9232 & 9233			
ITEM	DESCRIPTION	MODEL	QTY
1	CABLE DRIVER	AX14	1
2	OR GATE BUFFER AMP	BH11	1
3	UNIVERSAL FLIP FLOP	FH17	1
4	DIODE GATE #1	GK51	3
5	AND---INVERTER	IC12	2
6	INVERTER AMPLIFIER	IK51	1
7	ONE SHOT MULTIVIBRATOR	OX13	1
8	RELAY DRIVER	RK51	3
9	RELAY DRIVER	RK53	1

9234			
ITEM	DESCRIPTION	MODEL	QTY
1	CABLE DRIVER	AX14	1
2	OR GATE BUFFER AMP	BH11	1
3	TUNING FORK OSCILLATOR	CX16	1
4	UNIVERSAL FLIP FLOP	FC17	3
5	UNIVERSAL FLIP FLOP	FH17	1
6	DIODE GATE #1	GK51	4
7	AND---INVERTER	IC12	2
8	INVERTER AMPLIFIER	IK51	1
9	ONE SHOT MULTIVIBRATOR	OX13	1
10	RELAY DRIVER	RK51	3
11	RELAY DRIVER	RK53	1

9237			
ITEM	DESCRIPTION	MODEL	QTY
1	CABLE DRIVER	AX14	1
2	OR GATE BUFFER AMP	BH11	1
3	TUNING FORK OSCILLATOR	CX16	1
4	UNIVERSAL FLIP FLOP	FC17	3
5	DIODE GATE #1	GK51	4
6	AND---INVERTER	IC12	2
7	INVERTER AMPLIFIER	IK51	1
8	RELAY DRIVER	RK53	1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIERS CODE (SEE INDEX)
1	RESISTOR, 470 $\Omega$ $\pm$ 2%	(P71) R1 THRU R15	15	2,3,11, 12
2	RESISTOR, 8.2K $\pm$ 2%	(P71) R16 THRU R24	9	16,17
3	INDUCTOR, MOLDED 224 $\mu$ H $\pm$ 5%	(P71) L1 THRU L15	15	42,70,90
4	DIODE, SILICON SWITCHING (SDS103)	(P71) D1 THRU D9	9	6,11,18,20,21,23
5	RESISTOR, 270 $\Omega$ $\pm$ 2%	(TB"C") R1	1	2,3,11, 12
6	RESISTOR, 10 $\Omega$ $\pm$ 5%	(TB "C") R2	1	11,12,13,14,15,17,18,19,20,21
7	CONNECTOR, SOLDER TAIL 47 CONTACT #7008-47	J(26T) THRU J(45T)	20	82
8	TERMINAL, TAPER TAB 187 SERIES, #54110-2	TB"C"	11	145
9	BLOCK, TERMINAL MOLDED BARRIER 140 SERIES, #353-11-15- 001	(15 TERMINAL) TB1-T	1	60

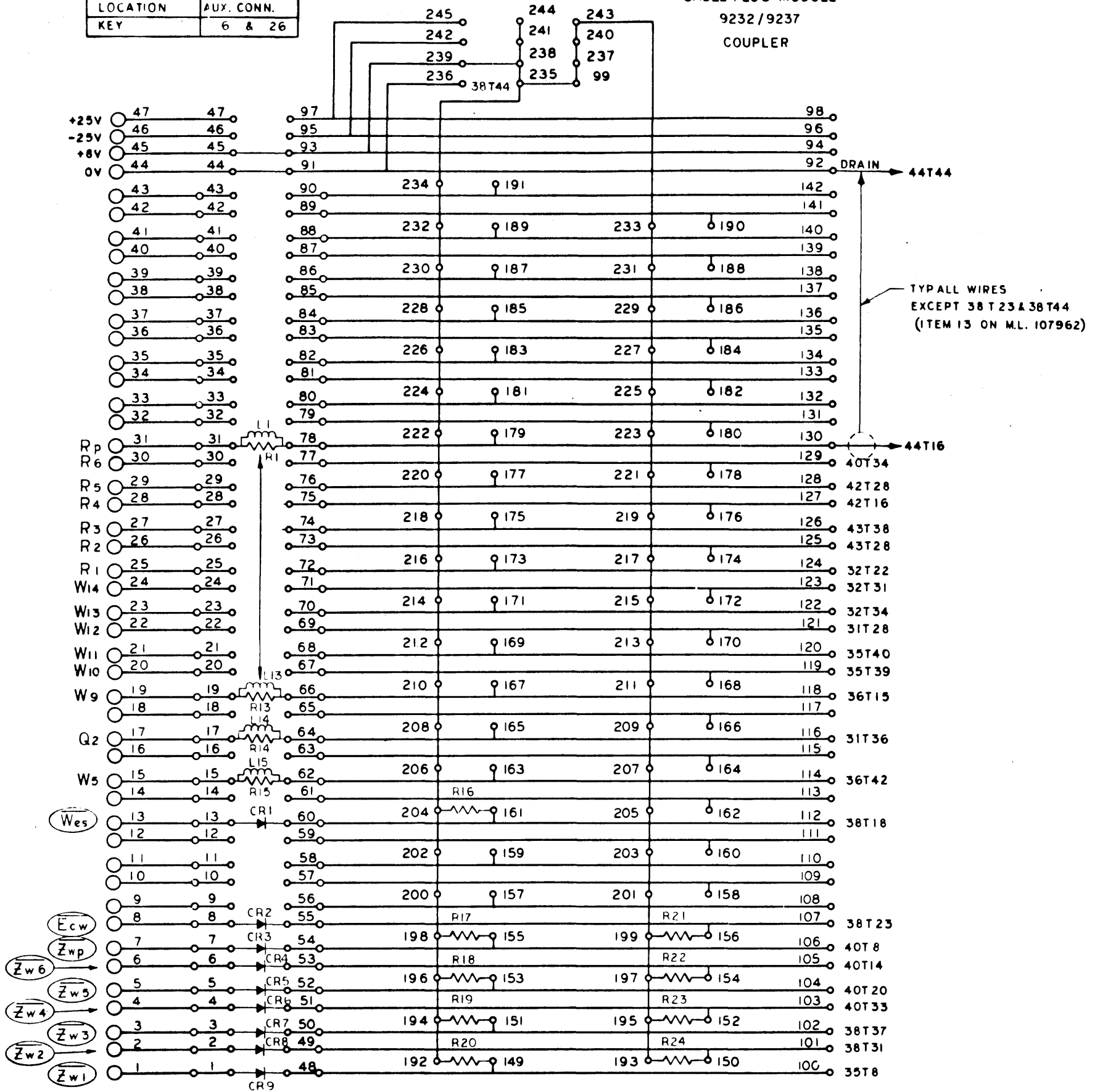
KEYBOARD/PRINTER  
& PUNCH  
PAGE 13  
A

DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH 107419 A	REVISIONS 107419 A 10/15/68
	DESCRIPTION RELEASED TO MFG.

107419 A

DESIGNATION	P71
LOCATION	AUX. CONN.
KEY	6 & 26

CABLE PLUG MODULE  
9232/9237  
COUPLER



KEYBOARD / PRINTER  
& PUNCH  
PAGE 14  
A

TITLE <b>SDS</b> SCIENTIFIC DATA SYSTEMS DATA SERVICE CORPORATION	DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH 107419 A	REV.	107419	A
		DESCRIPTION	REL. TO MFG.	DATE APPROVED
DO NOT SCALE DRAWING		CHK	DATE	APPROVED

107419 | A

<u>Page</u>	<u>Signal</u>	<u>Page</u>	<u>Signal</u>	<u>Page</u>	<u>Signal</u>
4	Dp	7	(R1 R2 R3 R4 R5 R6 Rp)	3	Ts1
4	$\overline{Dp}$	6	R2	2	[Ts1 Ton]
9	D4.5	6	R3	3	Ts2
5	$\overline{D4.5}$	6	R4	3	$\overline{Ts2}$
9	D12	6	R5	2	Ts3
5	$\overline{D12}$	8	R6*	2	$\overline{Ts3}$
9	D200	6	R6	8	Ttc
5	$\overline{D200}$	2	[R6 W9 Tad]	2	Ttp
4	Fd	5	$\overline{Rsp}$	2	$\overline{Ttp}$
4	$\overline{Fd}$	6	Rp	2	Tt1
4	P1	5	Tab	2	$\overline{Tt1}$
4	P1	5	Tad	1	Tt2
4	P2	6	(W13 W14)	1	$\overline{Tt2}$
10	Pd	8	W13	1	Tt3
10	Pd1	8	W14	1	$\overline{Tt3}$
10	Pd2	6	Tad*	1	Tt4
10	Pd4	8	$\overline{Tad}$	1	$\overline{Tt4}$
10	Pd5	8	Tc	1	Tt5
10	Pd6	3	Tc1	1	$\overline{Tt5}$
10	Pd7	3	Tc2	2	Tt6
7	Pe	5	Tdc	2	$\overline{Tt6}$
7	Pe Fd Dp	5	$\overline{Tdc}$	8	Txr
10	Pf	8	Tdo	8	W5
10	Psp	8	Tdi	8	(W9 Tad)
7	Q2*	5	$\overline{Tdi}$	5	W9 Tad
8	R1*	5	Ton	5	W10 W11
6	R1	3	Ts1	8	W12 (W13 + W14)
			Total Signals	81	

DIRECTORY

KEYBOARD/PRINTER  
& PUNCH  
PAGE 15  
A


DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH 107419 A	REV.	A	DESCRIPTION	RELEASED TO MFG.	CHK.	DATE	APPROVED	107419	A
	NO. OF REV.								

107419 | A

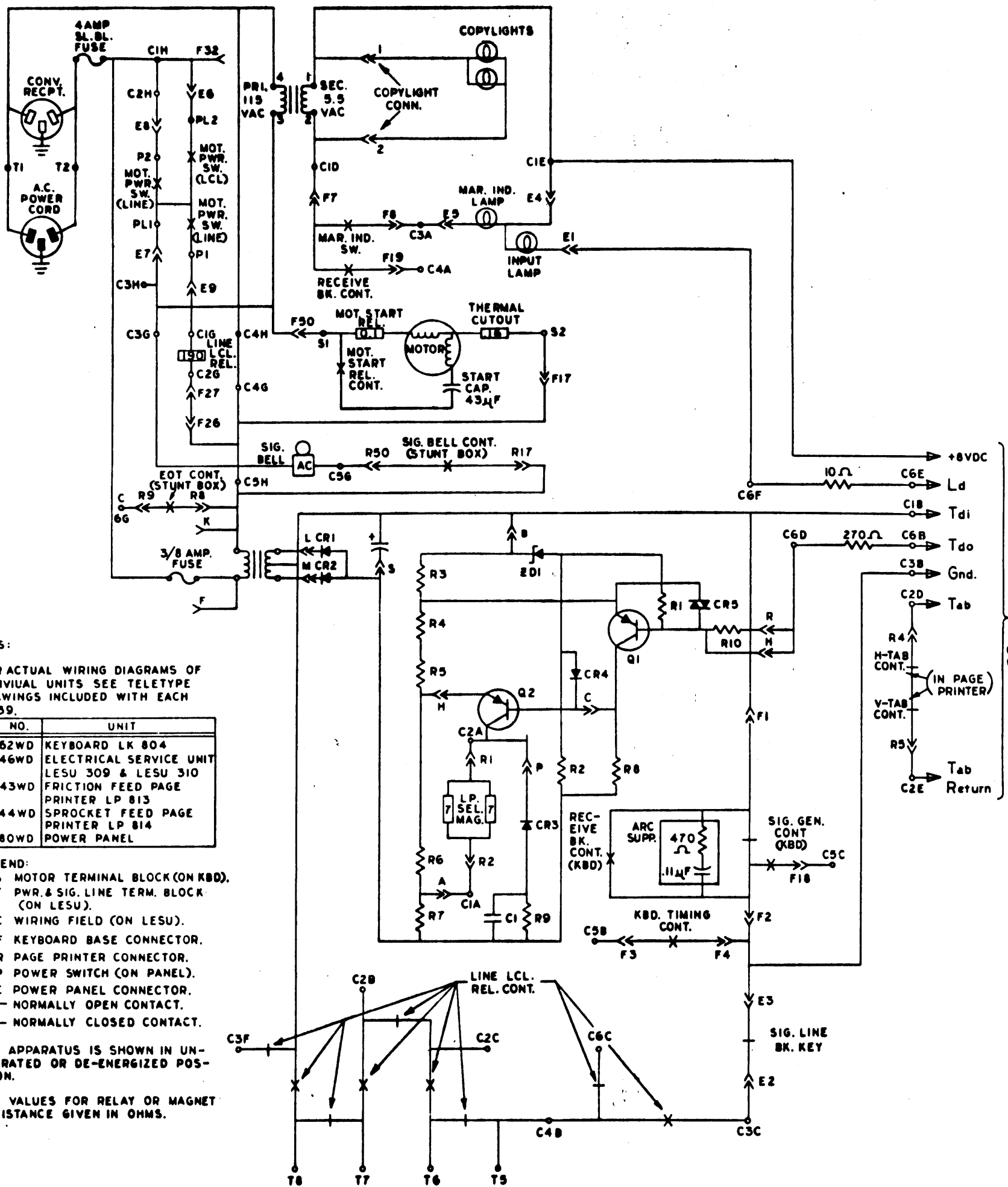
<u>Page</u>	<u>Signal</u>	<u>Page</u>	<u>Signal</u>	<u>Page</u>	<u>Signal</u>
4	Dp	7	Rz	3	Ts1
4	$\overline{Dp}$	6	$\overline{R2}$	2	$\overline{Ts1}$ Ton W9Tad
9	D4.5	6	$\overline{R3}$	3	Ts2
5	$\overline{D4.5}$	6	$\overline{R4}$	3	$\overline{Ts2}$
9	D12	6	$\overline{R5}$	2	Ts3
5	$\overline{D12}$	8	R6*	2	$\overline{Ts3}$
9	D200	6	$\overline{R6}$	8	Ttc
5	$\overline{D200}$	2	[R6 W9 Tad]	2	Ttp
4	Fd	5	$\overline{Rsp}$	2	$\overline{Ttp}$
4	$\overline{Fd}$	6	$\overline{Rp}$	2	Ttl
4	P1	7	Sd	2	$\overline{Ttl}$
4	$\overline{P1}$	5	Tab	1	Tt2
4	P2	5	Tad	1	$\overline{Tt2}$
10	Pd			1	Tt3
10	Pd1			1	$\overline{Tt3}$
10	Pd2	6	Tad*	1	Tt4
10	Pd4	8	$\overline{Tad}$	1	$\overline{Tt4}$
10	Pd5	8	Tc	1	Tt5
10	Pd6	3	Tc1	1	$\overline{Tt5}$
10	Pd7	3	Tc2	2	Tt6
7	Pe	5	Tdc	2	$\overline{Tt6}$
7	Pe Fd Dp	5	$\overline{Tdc}$	8	Txr
10	Pf	8	Tdo	8	$\overline{W5}$
10	Psp	8	Tdi	8	(W9 Tad)
7	Q2*	5	$\overline{Tdi}$	5	$\overline{W9 Tad}$
8	R1*	5	Ton	5	$\overline{W10 W11}$
6	R1	3	Ts1	8	$\overline{W12}$ (W13 + W14)
				6	(W13 W14)
				8	$\overline{W13}$
				8	$\overline{W14}$
			Total Signals 82		

DIRECTORY

KEYBOARD/PRINTER  
& PUNCH  
PAGE 15  
B

		DIAGRAM, LOGIC KEYBOARD/PRINTER & PUNCH		107419		B	
REV	DESCRIPTION	CHK	DATE	APPROVED			
A	RELEASED TO MFG						
B	SEE REV E O						





NOTES:

1. FOR ACTUAL WIRING DIAGRAMS OF INDIVIDUAL UNITS SEE TELETYPE DRAWINGS INCLUDED WITH EACH 9239.

WD NO.	UNIT
6362WD	KEYBOARD LK 804
6046WD	ELECTRICAL SERVICE UNIT LESU 309 & LESU 310
6043WD	FRICTION FEED PAGE PRINTER LP 813
6044WD	SPROCKET FEED PAGE PRINTER LP 814
6380WD	POWER PANEL

2. LEGEND:

- S MOTOR TERMINAL BLOCK (ON KBD).
- T PWR. & SIG. LINE TERM. BLOCK (ON LESU).
- C WIRING FIELD (ON LESU).
- KEYBOARD BASE CONNECTOR.
- PAGE PRINTER CONNECTOR.
- P POWER SWITCH (ON PANEL).
- POWER PANEL CONNECTOR.
- ✕ NORMALLY OPEN CONTACT.
- ⊕ NORMALLY CLOSED CONTACT.

3. ALL APPARATUS IS SHOWN IN UN-OPERATED OR DE-ENERGIZED POSITION.

4. ALL VALUES FOR RELAY OR MAGNET RESISTANCE GIVEN IN OHMS.

KEYBOARD/PRINTER & PUNCH  
PAGE 16  
A

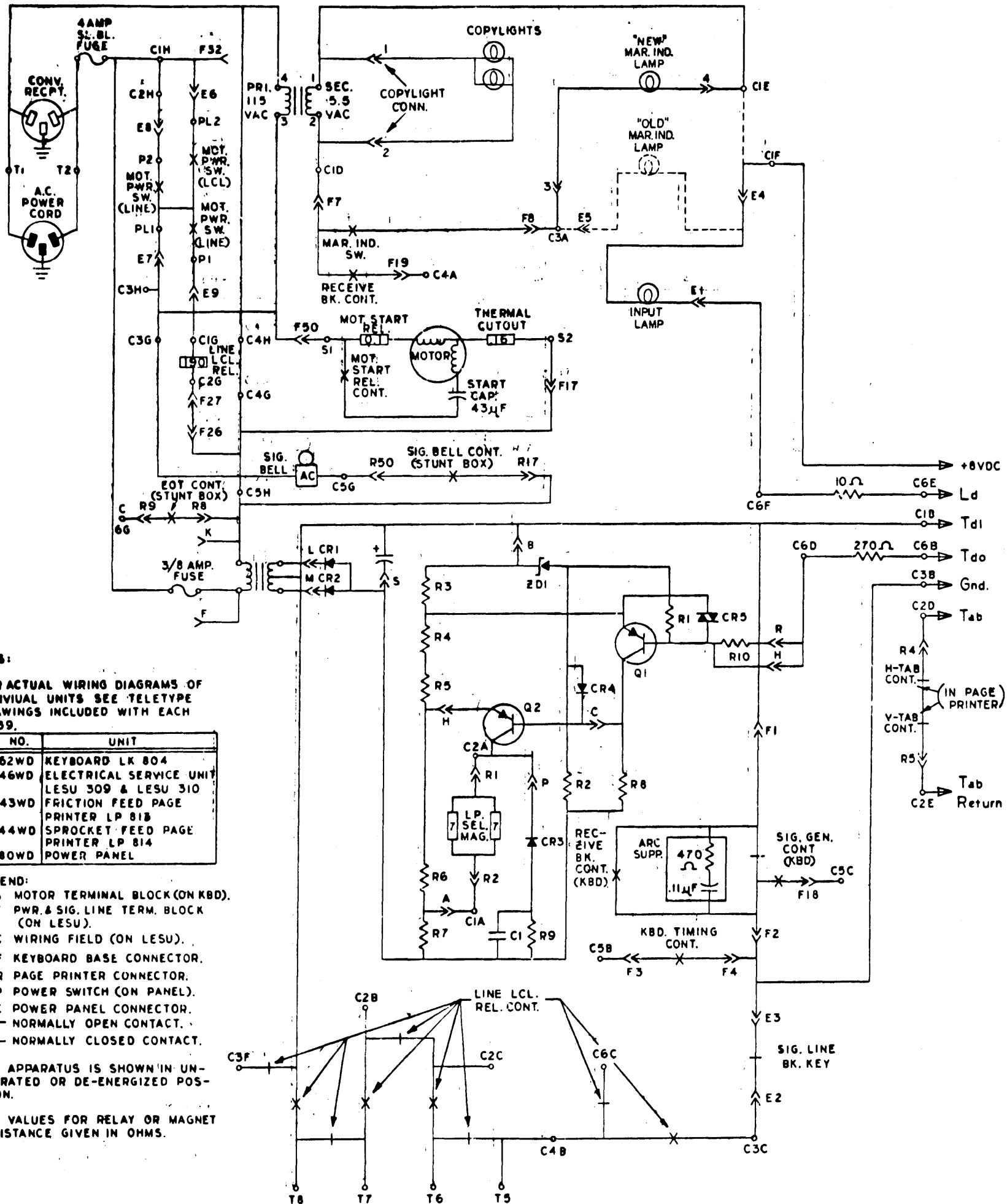
DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

A

REVISIONS	
REV.	DESCRIPTION
A	RELEASED TO MFG.

107419 A



**NOTES:**

1. FOR ACTUAL WIRING DIAGRAMS OF INDIVIDUAL UNITS SEE TELETYPE DRAWINGS INCLUDED WITH EACH 9239.

WD NO.	UNIT
6362WD	KEYBOARD LK 804
6046WD	ELECTRICAL SERVICE UNIT LESU 309 & LESU 310
6043WD	FRICTION FEED PAGE PRINTER LP 813
6044WD	SPROCKET FEED PAGE PRINTER LP 814
6380WD	POWER PANEL

**2. LEGEND:**

- S MOTOR TERMINAL BLOCK (ON KBD).
- T PWR. & SIG. LINE TERM. BLOCK (ON LESU).
- C WIRING FIELD (ON LESU).
- F KEYBOARD BASE CONNECTOR.
- R PAGE PRINTER CONNECTOR.
- P POWER SWITCH (ON PANEL).
- E POWER PANEL CONNECTOR.
- ✕ NORMALLY OPEN CONTACT.
- NORMALLY CLOSED CONTACT.

3. ALL APPARATUS IS SHOWN IN UN-OPERATED OR DE-ENERGIZED POSITION.

4. ALL VALUES FOR RELAY OR MAGNET RESISTANCE GIVEN IN OHMS.

KEYBOARD/PRINTER  
& PUNCH  
PAGE 16  
C

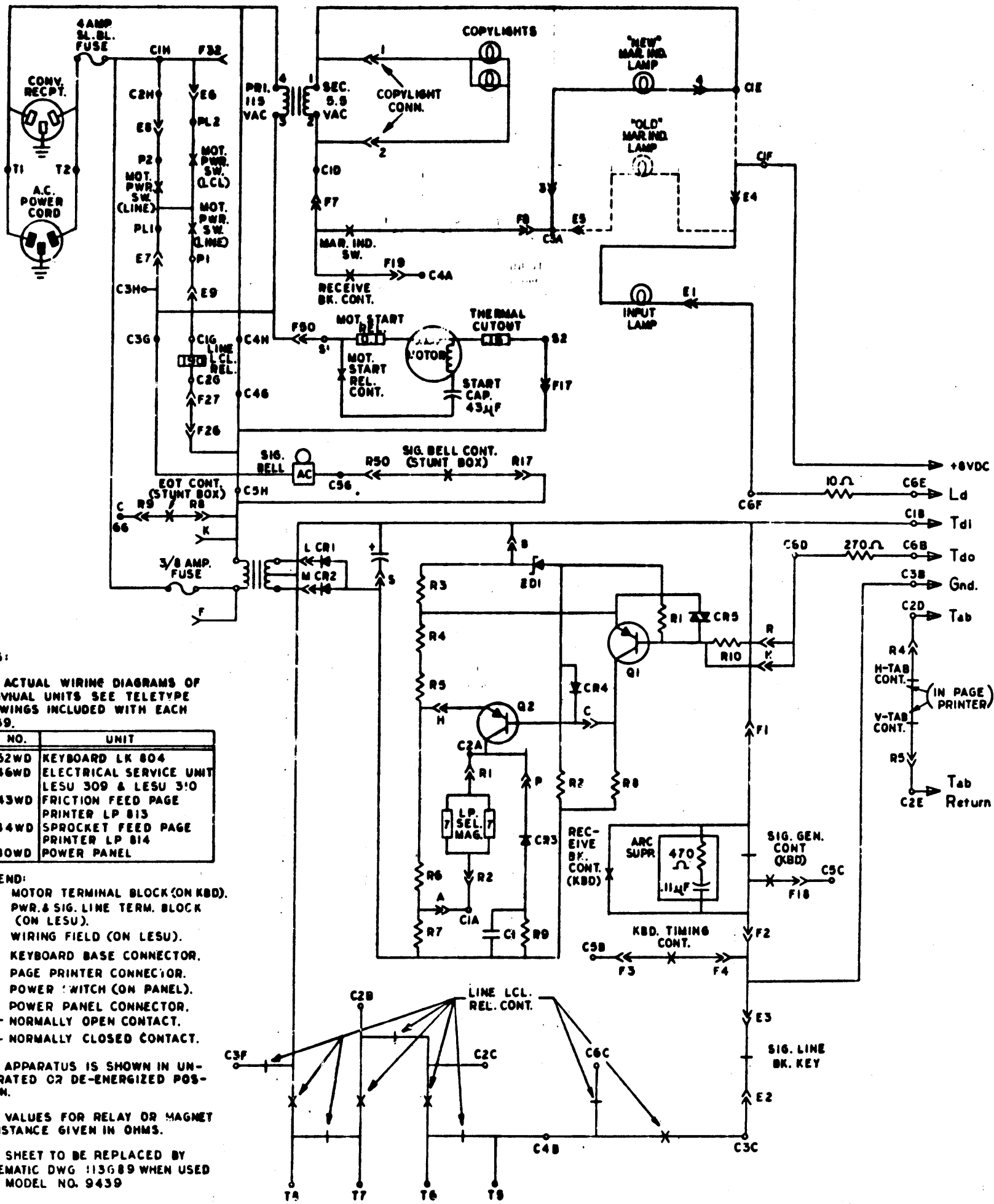
REV.	DESCRIPTION	DATE	APPROVED
A	RELEASED TO MFG.	12/54	[Signature]
C	SEE REVISION EO		

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

C

107419 C



**NOTES:**

1. FOR ACTUAL WIRING DIAGRAMS OF INDIVIDUAL UNITS SEE TELETYPE DRAWINGS INCLUDED WITH EACH 9239.

WD NO.	UNIT
6362WD	KEYBOARD LK 804
6046WD	ELECTRICAL SERVICE UNIT
6043WD	LESU 309 & LESU 310
6043WD	FRICTION FEED PAGE PRINTER LP 813
6044WD	SPROCKET FEED PAGE PRINTER LP 814
6380WD	POWER PANEL

**2. LEGEND:**

- S MOTOR TERMINAL BLOCK (ON KBD).
- T PWR. & SIG. LINE TERM. BLOCK (ON LESU).
- C WIRING FIELD (ON LESU).
- F KEYBOARD BASE CONNECTOR.
- R PAGE PRINTER CONNECTOR.
- P POWER SWITCH (ON PANEL).
- E POWER PANEL CONNECTOR.
- ✕ NORMALLY OPEN CONTACT.
- ⊕ NORMALLY CLOSED CONTACT.

3. ALL APPARATUS IS SHOWN IN UN-OPERATED OR DE-ENERGIZED POSITION.

4. ALL VALUES FOR RELAY OR MAGNET RESISTANCE GIVEN IN OHMS.

5. THIS SHEET TO BE REPLACED BY SCHEMATIC DWG 113689 WHEN USED FOR MODEL NO. 9439

KEYBOARD/PRINTER  
& PUNCH  
PAGE 16  
D

DIAGRAM, LOGIC  
KEYBOARD/PRINTER  
& PUNCH

107419

D

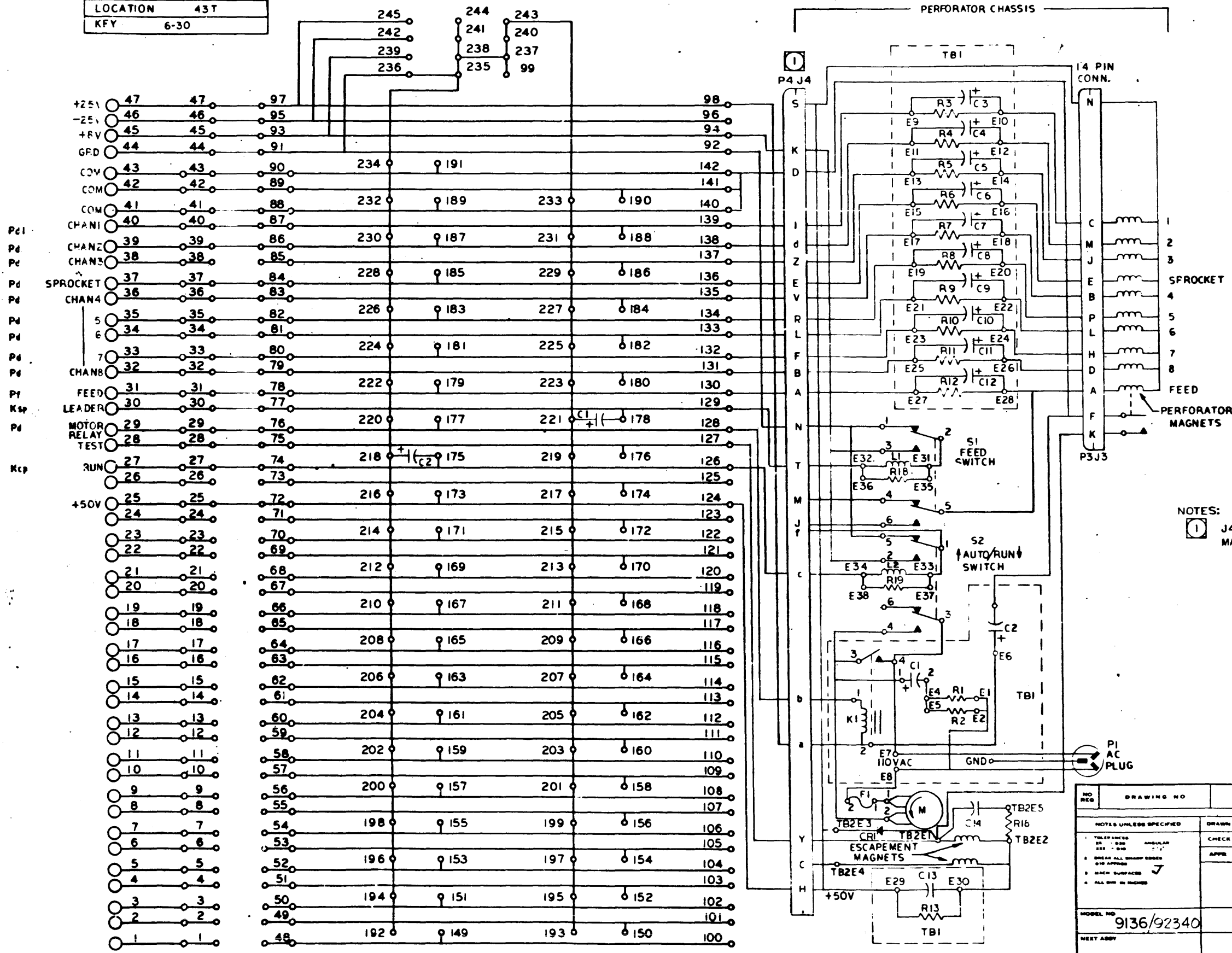
REV.	DESCRIPTION	DATE	BY
A	RELEASED TO MFG.		
C	SEE REVISION E3		
D	SEE REV. E3		

107419 | D



REVISIONS			
REV	DESCRIPTION	CHK	DATE
H	REVISED AND REDRAWN SEE REV E0 RELEASED TO MFG		
J	SEE REV E0		

DESIGNATION	P5
LOCATION	43T
KFY	6-30



NOTES:  
 ① J46 ON ASSY 107395 & IN VENDORS MANUAL.

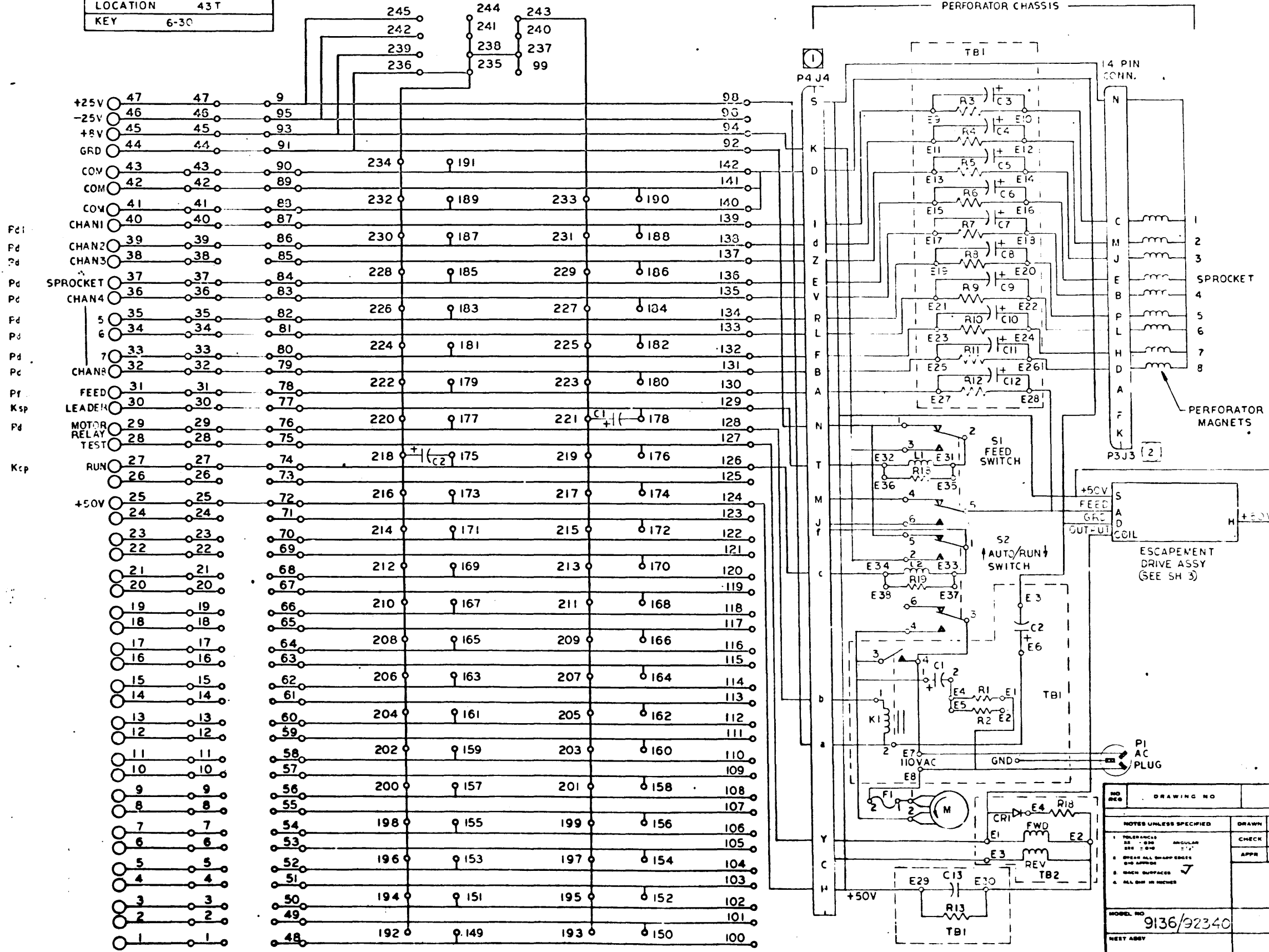
NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	FORM NO.
NOTES UNLESS SPECIFIED				
1. TOLERANCES UNLESS SPECIFIED		MATERIAL LIST		
2. BREAK ALL SHARP EDGES AND SPINES		SDS SCIENTIFIC DATA SYSTEMS		
3. HATCH SURFACES		1442 FIFTEENTH STREET, SANTA MONICA, CALIFORNIA		
4. ALL DIM IN INCHES		TITLE		
		SCHEMATIC, TAPE PERFORATOR		
MODEL NO.		DWG NO.		
9136/92340		D 101163		J
NEXT ASSY		SCALE		SHEET 1 OF 2

101163 J

DESIGNATION	P5
LOCATION	43T
KEY	6-30

- NOTES:
- ① J46 ON ASSY 107395 & IN VENDORS MANUAL
  - ② P43 ON WIRE LIST 101160

REVISIONS			
REV	DESCRIPTION	CHK	DATE
H	REVISED AND REDRAWN SEE REV EC		
J	RELEASED TO MFG		
K	SEE REV EC		



NO	REQ	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	ITEM NO.
NOTES UNLESS SPECIFIED					
1. TOLERANCES: .050 ANGULAR .250					
2. BREAK ALL SHARP EDGES .010 APPROX					
3. HATCH SURFACES					
4. ALL DIM IN INCHES					
DRAWN		Rosso	3-21-59	SDS DESIGNTYPE DATA SYSTEMS	
CHECK		Ed	1/5/64	1542 FIFTEENTH STREET SANTA MONICA, CALIFORNIA	
APPR				TITLE	
				SCHEMATIC, TAPE PERFORATOR	
MODEL NO		9136/92340		SIZE	D
NEXT ASSY				DWG NO	101163
				SCALE	DO NOT SCALE DRAWING
				SHEET 1 OF 3	

101163 K

REVISIONS			
REV	DESCRIPTION	CHK	DATE
	SEE SHEET ONE		

C1163 J

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 10Ω ± 2%	(TBI) R1, R2 (P5) R19	2	36, 38, 73
2	RESISTOR, WW, 150Ω ± 1%	(TBI) R3 THRU R13	11	88, 89
3	RESISTOR, 270Ω ± 2%	(TBI) R18, R19	2	36, 38, 73
4	INDUCTOR, 220 μH ± 5%	(TBI) L1, L2	2	42, 90, 91
5	CAPACITOR, OIL, 1 μF ± 20% 1000V	(TBI) C2	1	80, 81
6	CAPACITOR, TANTALUM 15 μF ± 20% 50V	(TBI) C1 THRU C13	12	23, 77
7	RELAY, A.C. CNAS-13A / 115 VAC	(TBI) K1	1	79
8	FUSE, 3AG, 3AMP, 250V, SERIES AGC SERIES 311(000) & 312(000)	F1	1	49 48
9	CONNECTOR, 34 PIN FEMALE #34-20S	P4	1	98
10	CONNECTOR, 34 PIN MALE #34-20P	J4	1	98
11	CORD, AC CORD #16/3 SPT-3 WITH PLUG #PA-3	P1	1	101
12	RESISTOR, 100Ω ± 2%	R18	1	16, 17
13	CAPACITOR, MYLAR .33 μF ± 10%	C14	1	26, 27, 74
14	DIODE, 1N3189	CRI	1	2, 6, 30, 68
15	CAPACITOR, MYLAR .001 μF ± 10%	(P5) C1, C2	2	26, 27, 74

1101163 J1

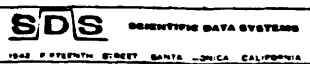
REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	QTY
		MATERIAL LIST		
NOTES UNLESS SPECIFIED		DRAWN: J. CASTRO 5-13-63	SDE SCIENTIFIC DATA SYSTEMS	
1. TOLERANCES UNLESS SPECIFIED		CHECK: C. J. GARDNER 5/15/63	1640 FIFTEENTH STREET, SANTA MONICA, CALIFORNIA	
2. BREAK ALL SHARP CORNERS		APPR: G. H. HILL 5/16/63	TITLE	
3. HIDE SURFACES			SCHEMATIC, TAPE PERFORATOR	
4. ALL DIM. IN DIMENSIONS				
MODEL NO.	9136/92340	REV	D	DWG NO. 101163 J
WEST ARBY		SCALE	DO NOT SCALE DRAWING	SHEET 2 OF 2

REVISIONS			
REV	DESCRIPTION	CHK	DATE
	SEE SHEET ONE		

REPLACEMENT PARTS LIST

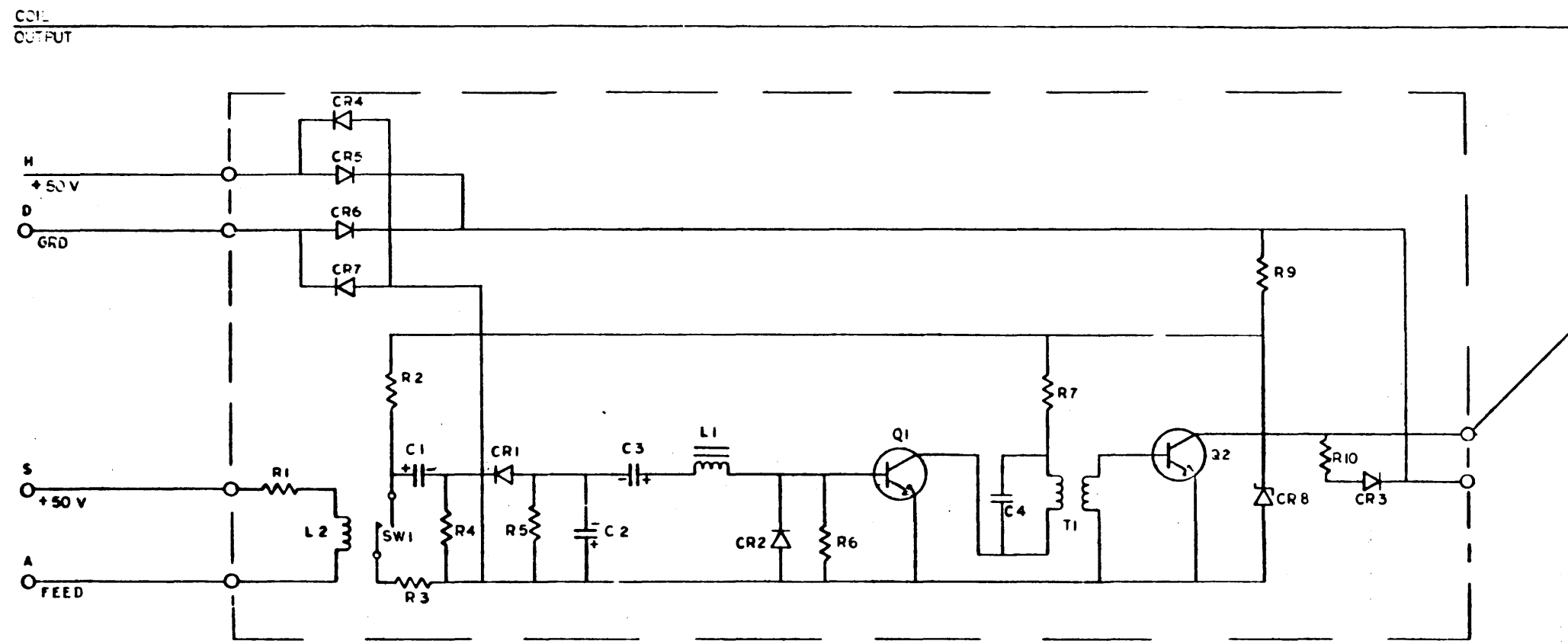
ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 10Ω ± 2%	(TD) R1, R2 (FS) R19	2	36,32,73
2	RESISTOR, WW, 15Ω ± 1%	(TB) R3 THRU R13	11	52, 89
3	RESISTOR, 270Ω ± 2%	(TB) R18, R19	2	36,33,73
4	INDUCTOR, 220 μH ± 5%	(TD) L1, L2	2	42,50,91
5	CAPACITOR - OIL, 1 μF ± 20% 1000V	(TE) C1	1	80, 21
6	CAPACITOR, TANTALUM 15 μF ± 20% 50V	(TE) C2 THRU C13	12	23, 77
7	RELAY, A.C. CRAS-13A/115 VAC	(TB) K1	1	79
8	FUSE, 3AG, 3AMP, 250V, SERIES AGC SERIES 311(000); 312(000)	F1	1	49 42
9	CONNECTOR, 34 PIN FEMALE #34-20S	P4	1	98
10	CONNECTOR, 34 PIN MALE #34-20P	J4	1	98
11	CORD, AC CORD #16-3 SPT-3 WITH PLUG #PA-3	P1	1	101
12	RESISTOR, 100Ω ± 2%	R18	1	16,17
13				
14	DIODE, IN3189	CR1	1	2,6,30,53
15	CAPACITOR, MYLAR .001 μF ± 10%	(P5) C1, C2	2	26,27,74
16	RESISTOR, 250Ω 5W	R1	1	23
17	RESISTOR 1K	R2, R10	3	16,11,21
18	RESISTOR 10Ω	R3	1	16,11,21
19	RESISTOR 12Ω	R4	1	16,11,21
20	RESISTOR 470Ω	R5	1	16,11,21
21	DIODE CD15-9	CR1, CR2, CR3	3	14
22	DIODE SS575 SS 275	CR4, CR5, CR6, CR7	4	①
23	INDUCTOR 1.6 HY 317000	L1	1	①
24	INDUCTOR 165Ω 032566	L2	1	①
25	TRANSFORMER 7 HY 317993	T1	1	①
26	CAPACITOR .22 MFD	C1	1	22,23
27	CAPACITOR 4.7 MFD	C2	1	22
28	CAPACITOR 1.8 MFD	C3	1	22
29	CAPACITOR .5 MFD	C4	1	22
30	RESISTOR 630Ω	R6	1	16,11,21
31	RESISTOR 390Ω	R7	1	16,11,21
32	TRANSISTOR 5M1947	Q1	1	1
33	TRANSISTOR 2N2102	Q2	1	7
34	SWITCH DRS-1	SW1	1	①
35	RESISTOR 1K 1W	R9	1	230 152
36	DIODE, 222A, 22 V ± 10%	CR8	1	①

① DENOTES TALLY PART NUMBER

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	ITEM NO.
MATERIAL LIST				
NOTES UNLESS SPECIFIED		DRAWN	CASTRO 5-13-65	 1025 PATENT STREET SANTA MONICA, CALIFORNIA
1. TOLERANCES UNLESS SPECIFIED		CHECK	CASTRO 5/15/65	
2. DIMENSIONS UNLESS SPECIFIED		APPR	CASTRO 5/15/65	
3. BREAK ALL SHARP EDGES AND SPINES				TITLE
4. DIMENSIONS UNLESS SPECIFIED				SCHEMATIC, TAPE PERFORATOR
5. ALL DIM. IN INCHES				
MODEL NO.		SIZE	DWG NO.	
9136/92340		D	101163	K
NEXT REV.		SCALE	DO NOT SCALE DRAWING	SHEET 2 OF 3



REVISIONS				
REV.	DESCRIPTION	CHK	DATE	APPROVED
1	SEE SHEET ONE			



ESCAPEMENT DRIVE ASSEMBLY

REV. NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV. NO.

NOTES UNLESS SPECIFIED		MATERIAL LIST	
1. TELEPHONES	DRAWN <i>P. Paul</i>		
2. DIMENSIONS	CHECK		
3. CHECK ALL DIMENSIONS AND TOLERANCES	APPR.		
4. HOLE SURFACES		TITLE	
5. HOLE DIA. IN PARENTH		SCHEMATIC, TAPE PERFORATOR	
MODEL NO.		REV. NO.	
9136/92340		D	101163
SCALE		DO NOT SCALE DRAWING	SHEET 3 OF 3