

G-15 SUPPLEMENTARY DRAWINGS
ALPHANUMERIC INPUT/OUTPUT SYSTEM

FOREWORD

The drawings to follow are intended to supplement those in the G15D TECHNICAL MANUAL - REVISION #1, which documents the NUMERIC G15's. The new drawings cover the ALPHANUMERIC INPUT/OUTPUT SYSTEM and the associated TYPEWRITERS (AT-1, AT-2) and COUPLERS (NC-1, ANC-1, ANC-2).

Also included are three drawings (72-74) covering new circuits not necessarily associated with the INPUT/OUTPUT system.

A summary of the G15 logic changes is provided on drawing 66 in equation form. Most of the new logic appears on the drawings in this booklet; however, some of the changes (indicated below) should be applied to certain drawings in the G15 TECHNICAL MANUAL - REVISION #1 in order to up-date them. These changes are:

EQUATION NO.	APPLIES TO DRAWING NO.
1	22
2	30 (apply to CH _r in drawing)
3	30
4	47
5	48 (see drawing 68)
7	30
26b	60

INDEX OF DRAWINGS

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GROUP I: Changes applying to all G15's

1) CG_T } add: $\langle P \rangle \cdot \langle SA \rangle + \text{TAPE START} \cdot \text{WORD 107}$
 considering item 35, this = } NUMERIC
 2) CH_S } $\langle P \rangle + \langle P \rangle \cdot \langle SA \rangle \cdot \text{WORD 107} +$
 $\langle \text{AUTO TAPE START} \rangle \cdot \text{WORD 107}$ }
 or }
 3) CQ_T } $\langle P \rangle + \langle P \rangle \cdot \overline{AS} \cdot \langle SA \rangle \cdot \text{WORD 107} +$ } ALPHA-
 $\langle \text{AUTO TAPE START} \rangle \cdot \text{WORD 107}$ } NUMERIC

4) MAGNETIC TAPE STOP
 old: $\text{READY} + [\text{STOP}]_{OB} \cdot \textcircled{S}$
 new: $\text{READY} + [\text{STOP}]_{OB} \cdot \textcircled{S} \cdot \text{OC1}$

5) OB_T } old: $\text{PHOTO TAPE REV} \cdot [\text{STOP}]_{OB} \cdot \textcircled{E}$ } for
 (K) } new: $\text{FAST IN} \cdot \textcircled{E}$ } MTA-2
 (see also item 20 for additional }
 ALPHANUMERIC change) }

† 6) \textcircled{Q} } old: $\text{SLOW OUT} \cdot \text{OG}$
 new: $\text{SLOW OUT} \cdot \text{OG} \cdot [\text{STOP}]_{OB}$
 (applies to NUMERIC only; see item }
 34 for ALPHANUMERIC version) }

GROUP II: Changes applying to all ALPHANUMERIC G15's and some modified NUMERIC G15's

7) CQ_S } a) old: $\text{DS} \cdot \text{S5} \cdot \text{SW} \cdot \text{T1} \cdot \text{AR}$
 new: $\text{DS} \cdot \text{S5} \cdot \text{SW} \cdot \text{T1} \cdot \text{AR} \cdot \textcircled{4}$ } for
 b) add: PL18-16 (from CA-2) } CA-2

8) $M20w$ } add: $\text{DS} \cdot \text{S7} \cdot \text{SX} \cdot \textcircled{2} \cdot \text{M18}$

9) "FORWARD" to PHOTO-READER "FORWARD" TRIODE
 old: $\text{SLOW} \cdot \text{IN} \cdot \text{OC2} \cdot \text{OC1}$
 new: $\text{SLOW} \cdot \text{IN} \cdot \text{OC2} \cdot \text{OC1} \cdot \text{PERMIT}$ } for
 PR-1

10) "REVERSE" to PHOTO-READER "REVERSE" TRIODE
 old: $\text{FAST IN} \cdot \text{OC2}$
 new: $\text{FAST IN} \cdot \text{OC2} \cdot \text{PERMIT}$

GROUP III: Changes applying to ALPHANUMERIC G15's only

11) AS_S } a) add: $\text{DS} \cdot \overline{CV} \cdot \text{C1}$
 b) add: $\langle E \rangle \cdot \langle SA \rangle$ } (new)

* 12) AS_T } add: $\overline{ANC-2} \cdot \text{READY}$
 $\overline{ANC-2} \cdot \text{OC}_T$ }

13) AUTO } = $\text{SLOW IN} \cdot \text{AS}$

14) HC } delete: $\text{TYPE} \cdot \overline{\text{OC2}} \cdot \overline{\text{OF3}}$

15) $M23w$ } a) apply: $\overline{\text{OC4}} + \overline{\text{OC3}} + \overline{\text{AS}} + \overline{\text{OY}} (= \overline{\text{AUTO} \cdot \text{OY}})$
 to the recirculation gate
 b) add: $\text{AUTO} \cdot \text{OY} \cdot \overline{\text{OG}} \cdot \text{TE} \cdot \overline{\text{CF}}$
 c) old: $\text{IN} \cdot \text{OG} \cdot \text{OF3} \cdot \text{OA1}$
 new: $\text{IN} \cdot \text{OG} \cdot \text{OF3} \cdot \text{OA1} \cdot \overline{\text{OH}}$

16) OA_T } add: $\text{AUTO} \cdot \text{OH} \cdot \text{OS} \cdot \overline{\text{OG}} \cdot \text{TF}$

17) $OA1_S$ } a) add: $\text{AUTO} \cdot \text{OY} \cdot \text{TE} \cdot \overline{\text{CF}}$
 b) old: $\text{M23} \cdot \textcircled{O}$
 new: $\text{M23} \cdot \textcircled{O} \cdot \overline{\text{OY}}$

18) $OA1_T$ } a) add: $\text{AUTO} \cdot \text{OY} \cdot \text{T2}$
 b) old: $\text{M23} \cdot \textcircled{O}$
 new: $\text{M23} \cdot \textcircled{O} \cdot \overline{\text{OY}}$

19) OB_S } The "LEVELS → OB's" probe:
 old: $\text{IN} \cdot \text{OF1}$
 new: $\text{IN} \cdot \text{OF1} \cdot \overline{\text{OH}} + \text{IN} \cdot \text{OF1} \cdot \overline{\text{OS}}$
 (= $\text{IN} \cdot \text{OF1} \cdot \overline{\text{OH}} \cdot \overline{\text{OS}}$)

† 20) OB_T } old: OC_T
 (K) } new: READY
 (see also item 5)

* 21) OC_T } a) old: $\langle \textcircled{S} \rangle \cdot \overline{\text{OC2}} \cdot \overline{\text{OC1}}$
 new: $\overline{ANC-2} \cdot \langle \textcircled{S} \rangle \cdot \overline{\text{OC2}} \cdot \overline{\text{OC1}} \cdot \overline{\text{OH}}$
 $\overline{ANC-2} \cdot \langle \textcircled{S} \rangle \cdot \overline{\text{OH}}$
 b) old: $[\text{STOP}]_{OB} \cdot \text{SLOW IN} \cdot \overline{\text{OF1}} \cdot \text{OE}$
 new: $[\text{STOP}]_{OB} \cdot \text{SLOW IN} \cdot \overline{\text{OF2}} \cdot \overline{\text{OD}}$
 c) add: $\text{AUTO} \cdot \text{OH} \cdot \text{OF3} \cdot \textcircled{F}$
 d) add: $\textcircled{M} \cdot \text{OH} \cdot \text{OA1}$

22) OC_3 } add: $\langle E \rangle \cdot \langle SA \rangle$

23) OC_4 } add: $\langle E \rangle \cdot \langle SA \rangle$

24) OD_S } a) old: $[\text{STOP} + \text{REL}]_{OB} \cdot \textcircled{S}$
 new: $[\text{STOP} + \text{REL}]_{OB} \cdot \textcircled{S} \cdot \overline{\text{AS}}$
 (= $\overline{\text{OB5}} \cdot \overline{\text{OB3}} \cdot \overline{\text{OB2}} \cdot \textcircled{S} \cdot \overline{\text{AS}}$)
 b) add: $\text{AUTO} \cdot \text{OG} \cdot \text{TF} \cdot \text{OA3}$
 c) add: $\text{AUTO} \cdot \text{OG} \cdot \text{TF} \cdot \text{M23}$
 d) add: $\textcircled{M} \cdot \text{OH} \cdot \text{OA1}$

* 25) OD_T } add: $\overline{ANC-2} \cdot \overline{\text{OC4}} \cdot \overline{\text{HC}} \cdot \text{TO} \cdot \text{AS}$
 $\overline{ANC-2} \cdot \overline{\text{OC4}} \cdot \overline{\text{HG}} \cdot \text{TO} \cdot \text{OH}$

* 26) OE_S } a) add: $\text{SLOW OUT} \cdot \text{OH} \cdot \textcircled{C}$
 b) old: $\text{FAST OUT} \cdot \text{OD} \cdot \textcircled{C}$
 new: $\overline{ANC-2} \cdot \text{FAST OUT} \cdot \text{OD} \cdot \textcircled{C} \cdot \overline{\text{AS}}$
 $\overline{ANC-2} \cdot \text{FAST OUT} \cdot \text{OD} \cdot \textcircled{C} \cdot \overline{\text{OH}}$

27) OF_3_S } a) add: $\text{AUTO} \cdot \text{OG} \cdot \text{TF} \cdot \text{OA3} \cdot \text{OH} \cdot \text{OS}$
 b) delete: $\text{TYPE} \cdot \text{OY} \cdot \textcircled{C}$

28) OC_S } add: $\text{AUTO} \cdot \text{OH} \cdot \text{OS} \cdot \overline{\text{OG}} \cdot \text{TF}$

29) OH_S } a) add: $\text{DS} \cdot \overline{CV} \cdot \text{C1} \cdot \textcircled{4} \cdot \text{IN}$
 b) add: $\langle E \rangle \cdot \langle SA \rangle$
 c) add: $\text{TYPE} \cdot \text{AS} \cdot \text{OY} \cdot \text{TO}$ } (new)

30) OH_T } a) add: READY
 b) add: $\text{TYPE} \cdot \overline{\text{OY}} \cdot \text{TO}$

* 31) OS_S } a) add: $\langle \textcircled{S} \rangle \cdot \text{AUTO}$
 b) add: $\text{DS} \cdot \text{S2} \cdot \text{SV}$
 c) old: $\text{T1} \cdot \text{CN} \cdot \text{M19} \cdot \textcircled{T}$
 new: $\overline{ANC-2} \cdot \text{T1} \cdot \text{CN} \cdot \text{M19} \cdot \textcircled{T}$
 $\overline{ANC-2} \cdot \text{T1} \cdot \text{CN} \cdot \text{M19} \cdot \textcircled{T} \cdot [\text{SIGN}]_{OF}$

32) OY_S } a) add: $\text{DS} \cdot \overline{CV} \cdot \text{C1} \cdot \text{AUTO} \cdot \text{TF}$
 b) add: $\langle E \rangle \cdot \langle SA \rangle \cdot \text{TO}$
 c) add: $\text{AUTO} \cdot \text{OG} \cdot \text{TF} \cdot \text{OA3}$
 d) add: $\text{AUTO} \cdot \text{OG} \cdot \text{TF} \cdot \text{M23}$
 e) old: $[\text{STOP} + \text{REL}]_{OB} \cdot \textcircled{S}$
 new: $[\text{STOP} + \text{REL}]_{OB} \cdot \textcircled{S} \cdot \overline{\text{AS}}$
 (= $\overline{\text{OB5}} \cdot \overline{\text{OB3}} \cdot \overline{\text{OB2}} \cdot \textcircled{S} \cdot \overline{\text{AS}}$)
 f) old: $\text{SLOW OUT} \cdot \overline{\text{HC}} \cdot \textcircled{C}$
 new: $\text{SLOW OUT} \cdot \overline{\text{HC}} \cdot \overline{\text{OY}} \cdot \overline{\text{OH}} \cdot \overline{\text{OS}} \cdot \text{TO}$

33) OY_T } a) old: $\text{TYPE} \cdot \textcircled{F}$
 new: $\text{TYPE} \cdot \textcircled{E} \cdot \text{OY}$
 b) add: $\text{TYPE} \cdot \text{AS} \cdot \overline{\text{OH}} \cdot \langle F-B \rangle$

34) \textcircled{Q} } old: $\text{SLOW OUT} \cdot \text{OG}$
 new: $\text{SLOW OUT} \cdot \text{OG} \cdot \overline{\text{AS}} \cdot [\text{STOP}]_{OB}$

35) TAPE START
 old: $\langle \text{AUTO TAPE START} \rangle + \langle P \rangle \cdot \langle SA \rangle$
 new: $\langle \text{AUTO TAPE START} \rangle + \langle P \rangle \cdot \langle SA \rangle \cdot \overline{\text{AS}}$

36) 5th LEVEL OUTPUT DRIVER
 a) old: OB5
 new: $\text{OB5} \cdot \overline{\text{AS}}$
 b) add: $\text{OB5} \cdot \overline{\text{OY}} \cdot \text{OH}$

GROUP IV: Additional DRIVER TUBES in LOGIC CHASSIS to accommodate ALPHANUMERIC OUTPUT

37) $OB1$	old: V7A	SUBCHASSIS
	new: V7A, V13A, V13B	
38) $OB2$	old: V6B	
	new: V6B, V14A, V14B	
39) $OB3$	old: V7B	SUBCHASSIS
	new: V7B, V15A, V15B	
40) TYPE	new:	V16A
41) AS	new:	V16B

GROUP V: Additional wiring to CONNECTORS to accommodate ALPHANUMERIC INPUT/OUTPUT

* 42) PLF14-32 } old: (SPARE)
 new: $\overline{ANC-2} \cdot \text{AS DRIVER output}$
 $\overline{ANC-2} \cdot (\text{SPARE})$

* 43) PLF1-18 } old: -20V
 new: $\overline{ANC-2} \cdot -20V$
 $\overline{ANC-2} \cdot \text{AS DRIVER output}$

44) PLF1-20 } old: (SPARE)
 new: $\langle E \rangle$

45) PLF1-28 } old: (SPARE)
 new: $\langle \text{REWIND} \rangle$
 (involves addition of RY-C to PHOTO-TAPE READER)

46) PLF1-33 } old: (SPARE)
 new: TYPE DRIVER output

NOTES

* Differences in logic exist if an ANC-2 is used instead of an ANC-1 or NC-1. The ANC-2 logic is standard, hence is indicated on the drawings.

† These changes are anticipated at the time of this publication (April, 1961); however, they are not yet applied to the hardware or indicated on any drawings.

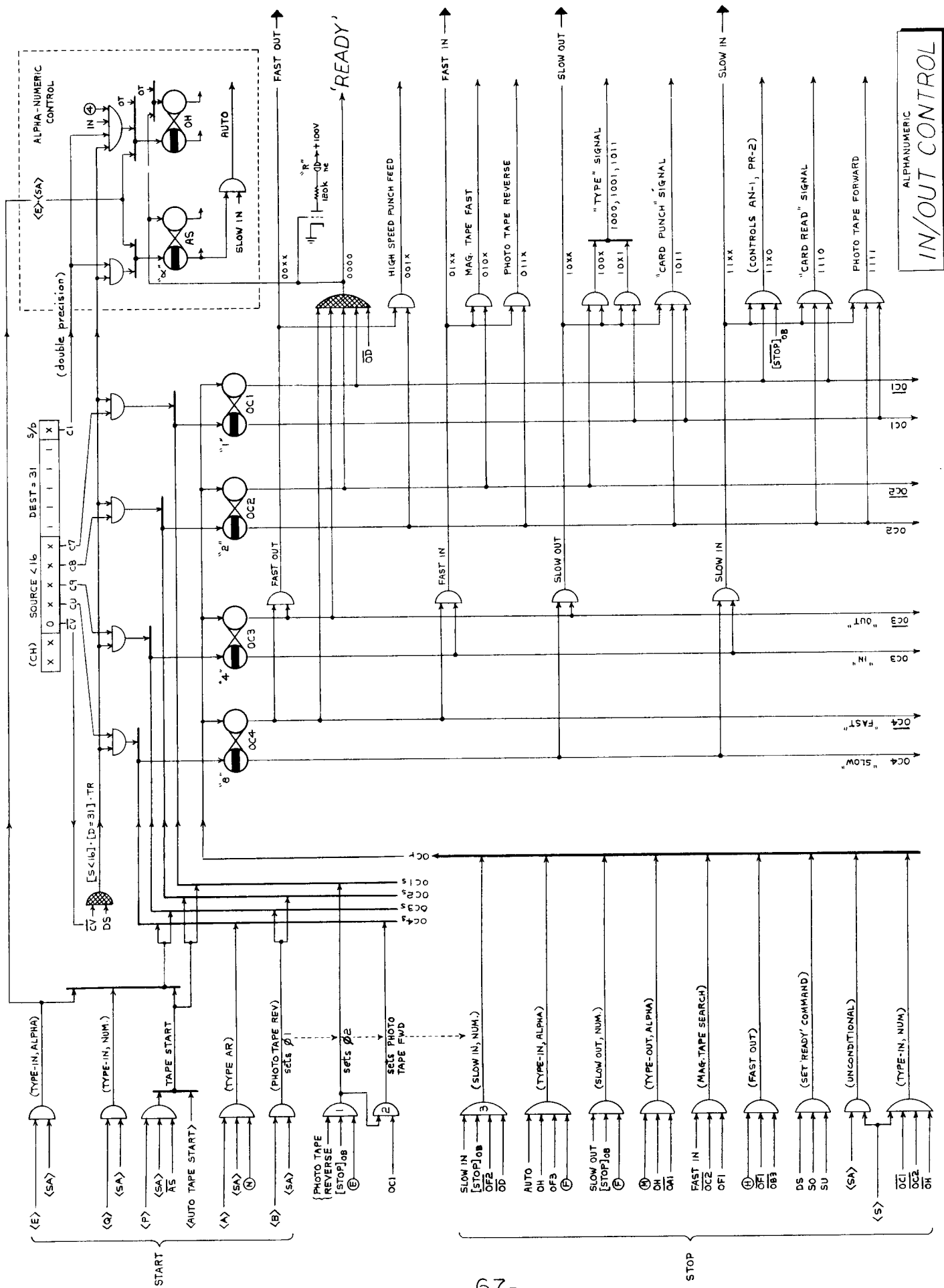
$\langle \textcircled{S} \rangle$ is the same signal as $\langle S \rangle$. The INPUT-OUTPUT WRITER uses the " \textcircled{S} " key to raise the signal while the original NUMERIC TYPEWRITER uses the "s" key.

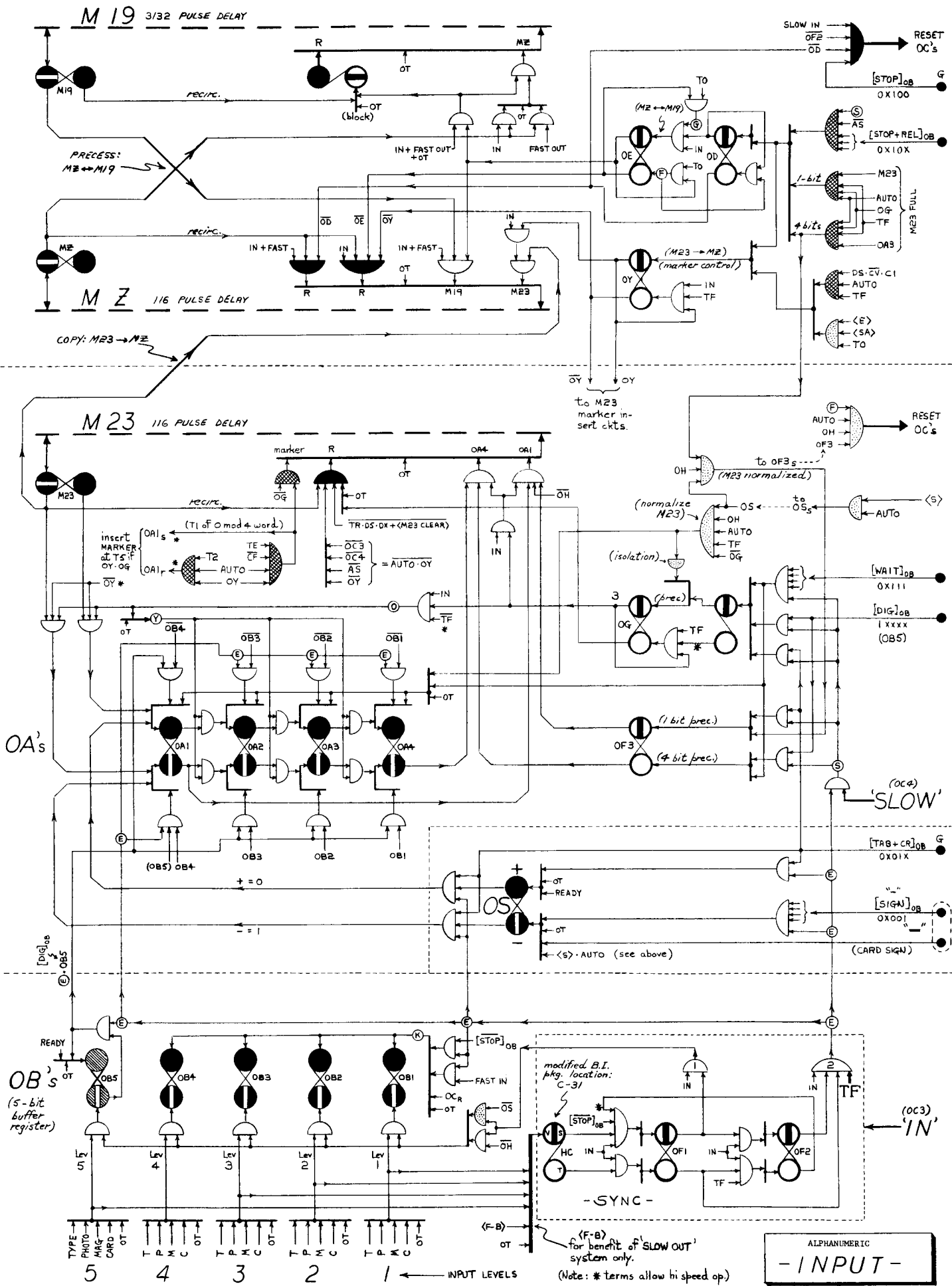
GENERAL: This list does not include new equations for G-15 outputs dealing with control of new accessories. Changes to original G-15 logic to accommodate new accessories are listed in GROUP II.

G15 LOGIC CHANGES

resulting from

ECO 970 - 1153





M 19 3/32 PULSE DELAY

M Z 116 PULSE DELAY

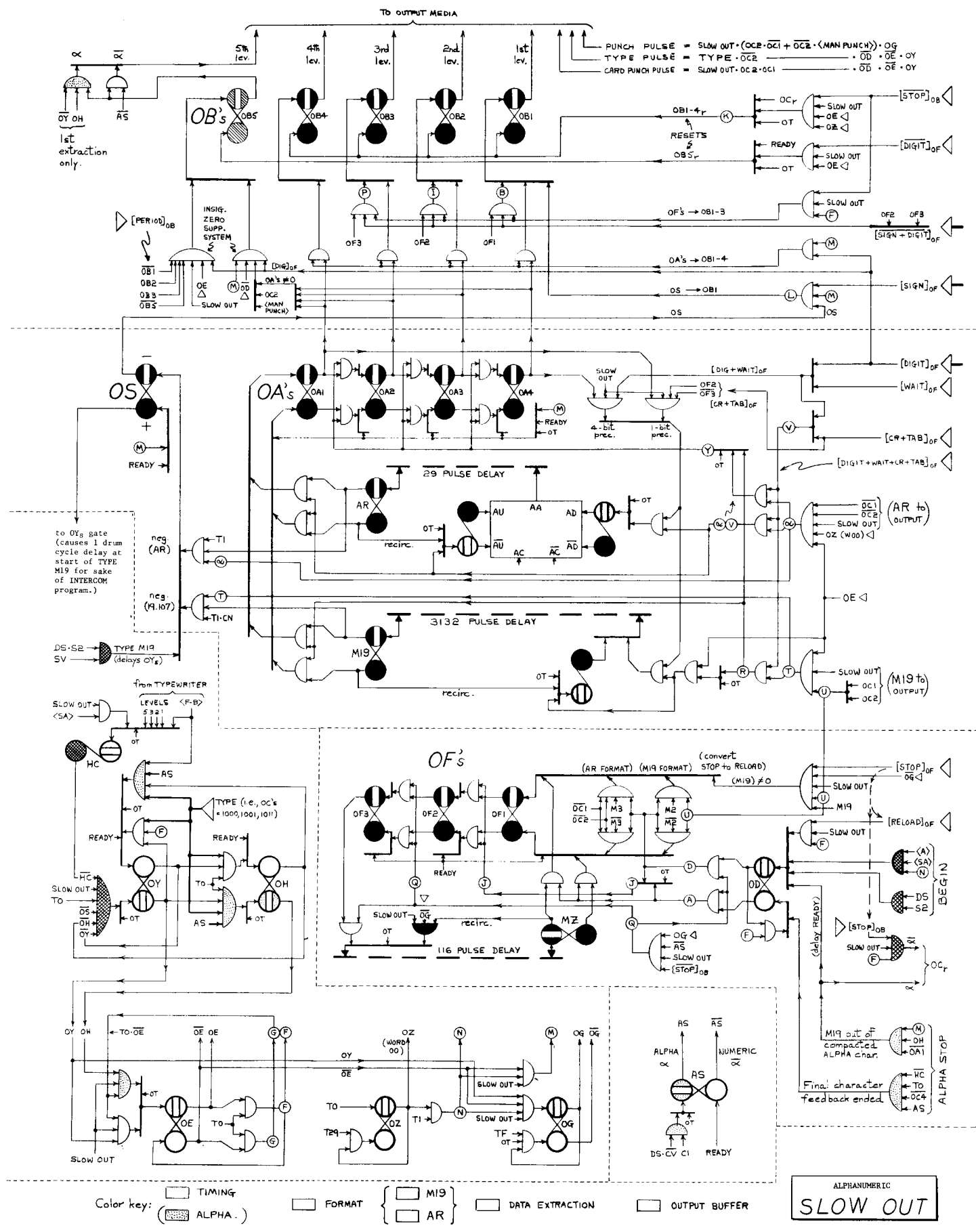
M 23 116 PULSE DELAY

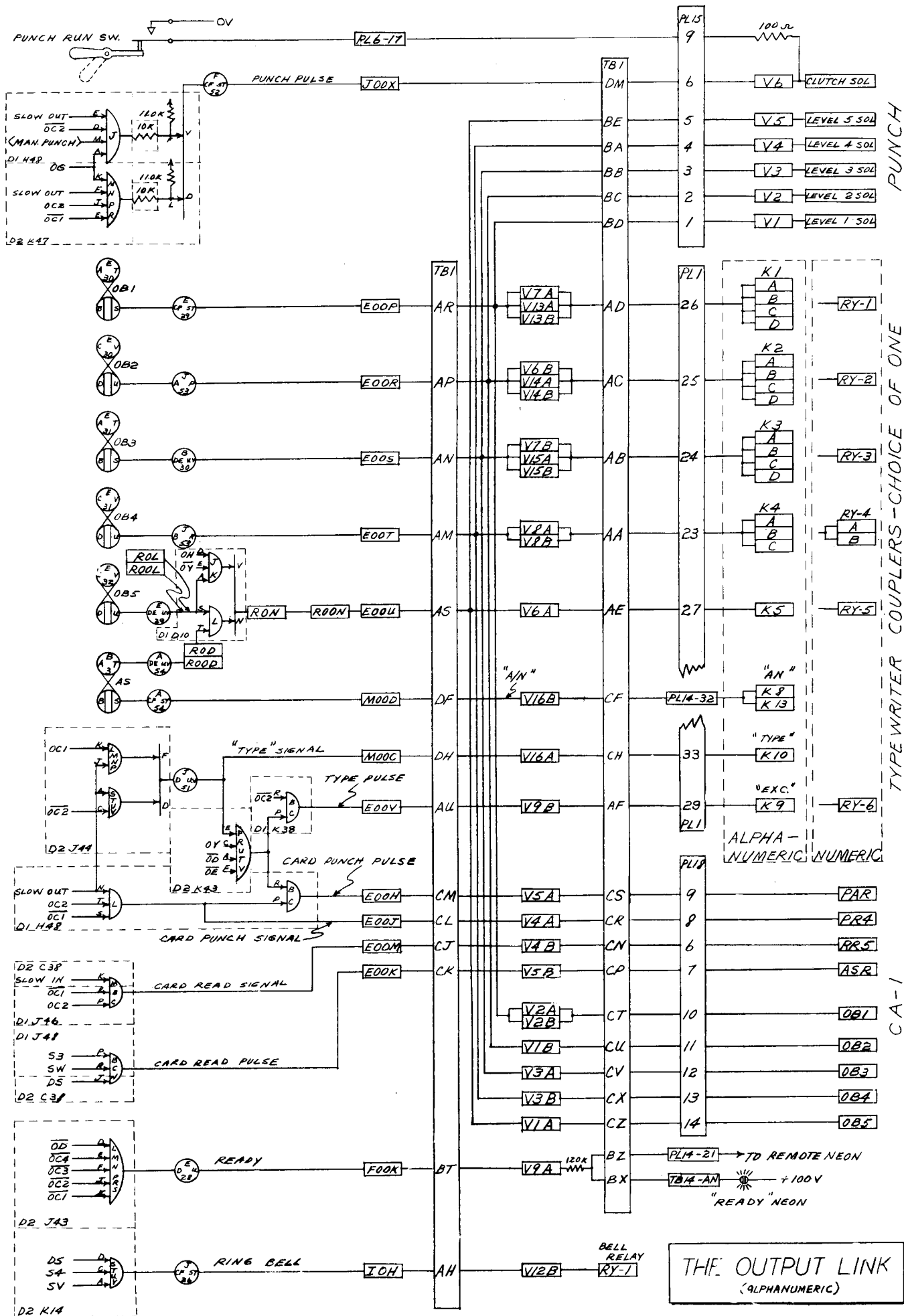
OA's

OB's
(5-bit
buffer
register)

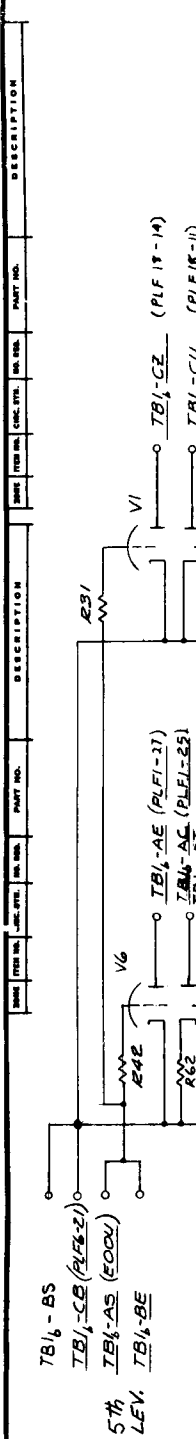
ALPHANUMERIC
- INPUT -

(F-B) for benefit of 'SLOW OUT' system only.
(Note: * terms allow hi speed op.)

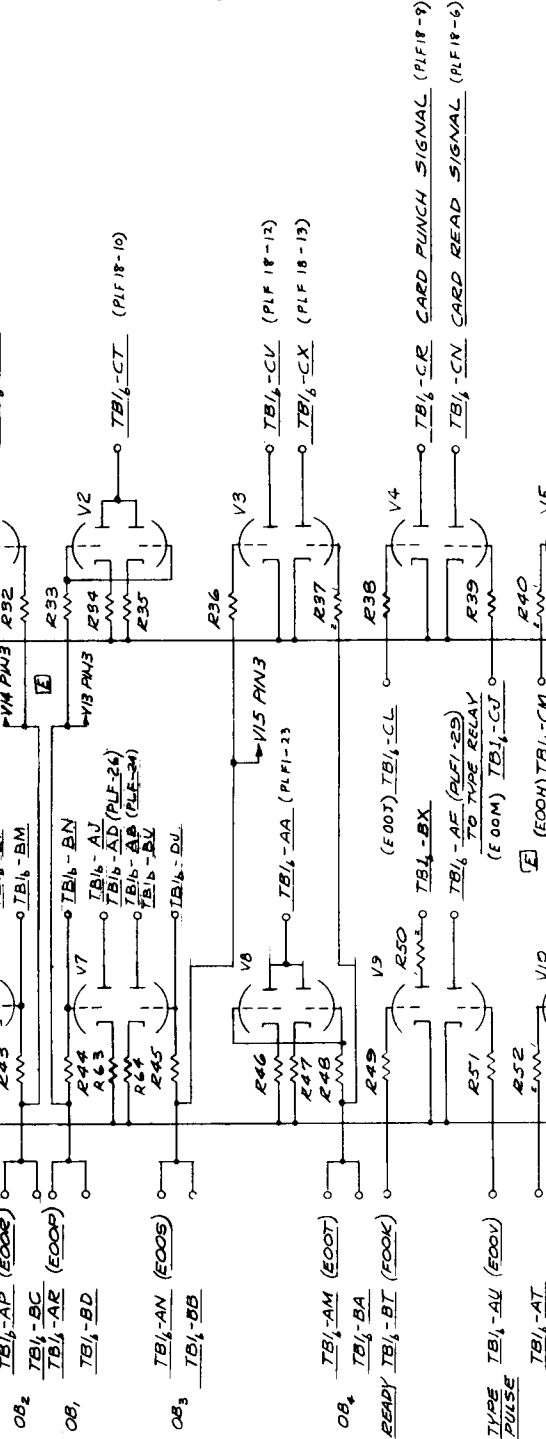




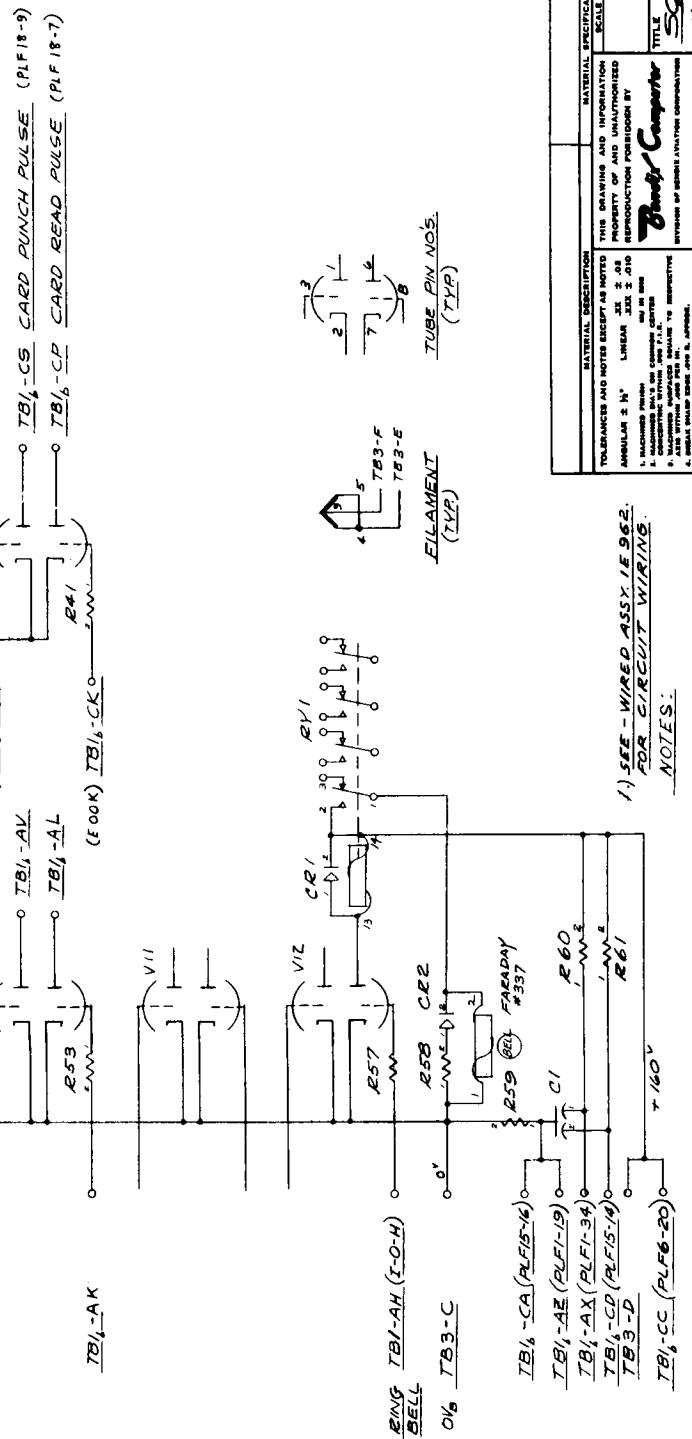
REVISIONS		
REV.	DESCRIPTION	DATE
A	SEE ECO # 542	6-14-54
B	SEE ECO # 804	7/15/54
C	SEE ECO # 905	7/28/54
D	SEE ECO # 1021	8/11/54
E	SEE ECO # 1153	9/10/54



CYC. NO.	REQ.	PART NO.	DESCRIPTION
R21	THRU R23	3	RESISTOR 10K 1/2W ±10%
R24	R25	2	RESISTOR 100K 1/2W ±10%
R26	R27	10	100K 1/2W ±10%
R28	R29	2	RESISTOR 100K 1/2W ±10%
R30	R31	2	RESISTOR 100K 1/2W ±10%
R32	R33	3	RESISTOR 100K 1/2W ±10%
R34	R35	1	RESISTOR 100K 1/2W ±10%
R36	R37	1	RESISTOR 50K 1/2W ±10%
R38	R39	1	RESISTOR 50K 1/2W ±10%
R40	R41	1	RESISTOR 50K 1/2W ±10%
R42	R43	1	RESISTOR 100K 1/2W ±10%
R44	R45	1	TUBE - 6350 OR EQUIV.
R46	R47	2	RESISTOR 10K 1/2W ±10%
R48	R49	1	RELAY
C1			RECTIFIER
			INT. CECT. CR-2B
			CAPACITOR - 75 P.F. - 300V



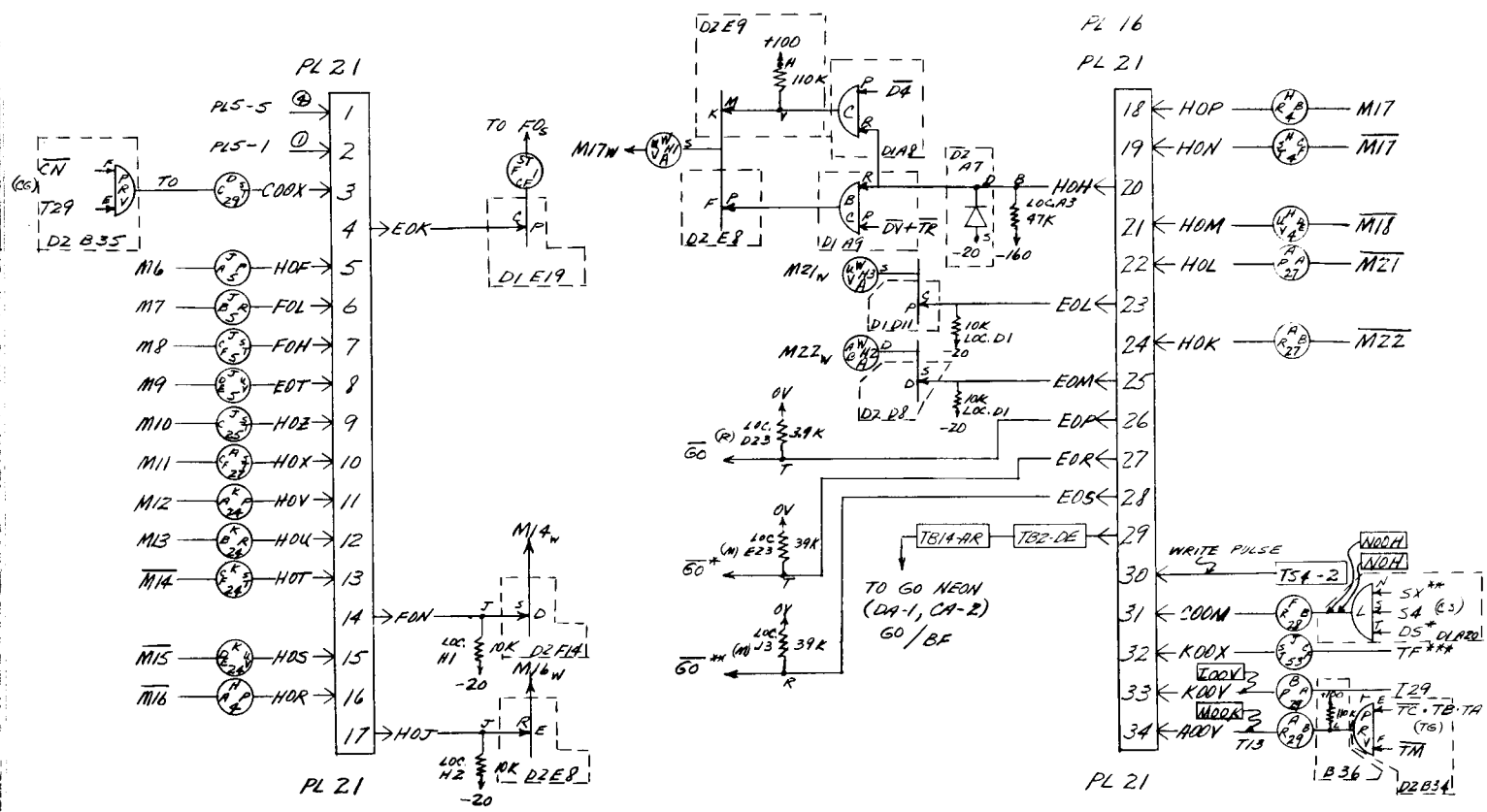
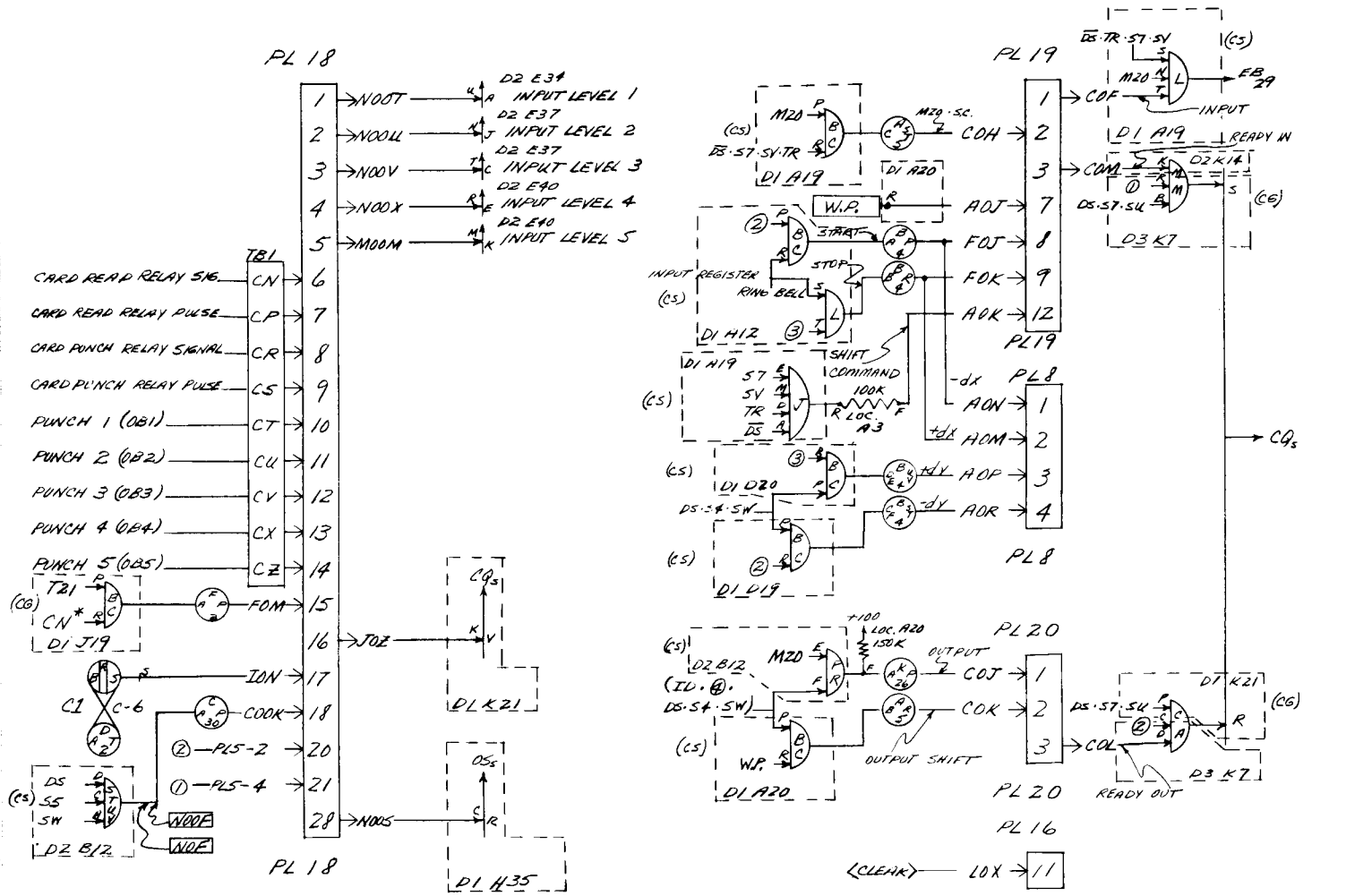
REV.	DESCRIPTION	DATE	APP.
A	SEE ECO # 542	6-14-54	
B	SEE ECO # 804	7/15/54	
C	SEE ECO # 905	7/28/54	
D	SEE ECO # 1021	8/11/54	
E	SEE ECO # 1153	9/10/54	



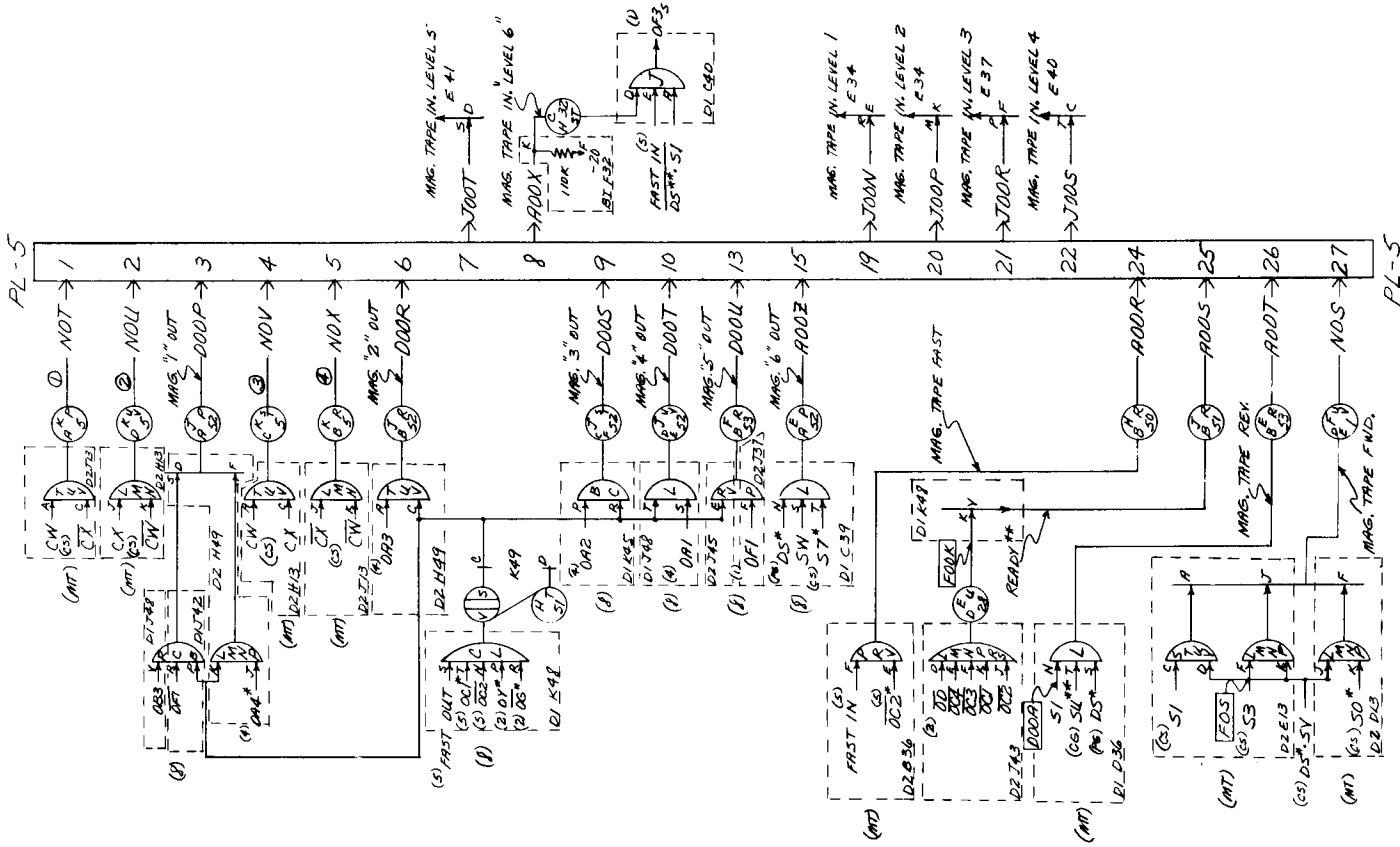
PART NO. 3C272		REV. NO. E	
TITLE SCHEMATIC - BEL		PART NO. 3C272	
DATE 5-5-52		REV. NO. E	
DRAWN BY R. B. B.		CHECKED BY R. B. B.	
SCALE 1/2" = 1"		MATERIAL SPECIFICATION	
TOLERANCES AND NOTES EXCEPT AS NOTED		THIS DRAWING AND INFORMATION HEREON IS UNCLASSIFIED	
1. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		DATE 5-5-52	
2. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		BY R. B. B.	
3. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		REVISIONS	
4. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		DATE 5-5-52	
5. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		BY R. B. B.	
6. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		CHECKED BY R. B. B.	
7. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		APPROVED BY R. B. B.	
8. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		TITLE SCHEMATIC - BEL	
9. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		PART NO. 3C272	
10. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		REV. NO. E	

1) SEE WIRED ASSY IE 962 FOR CIRCUIT WIRING.

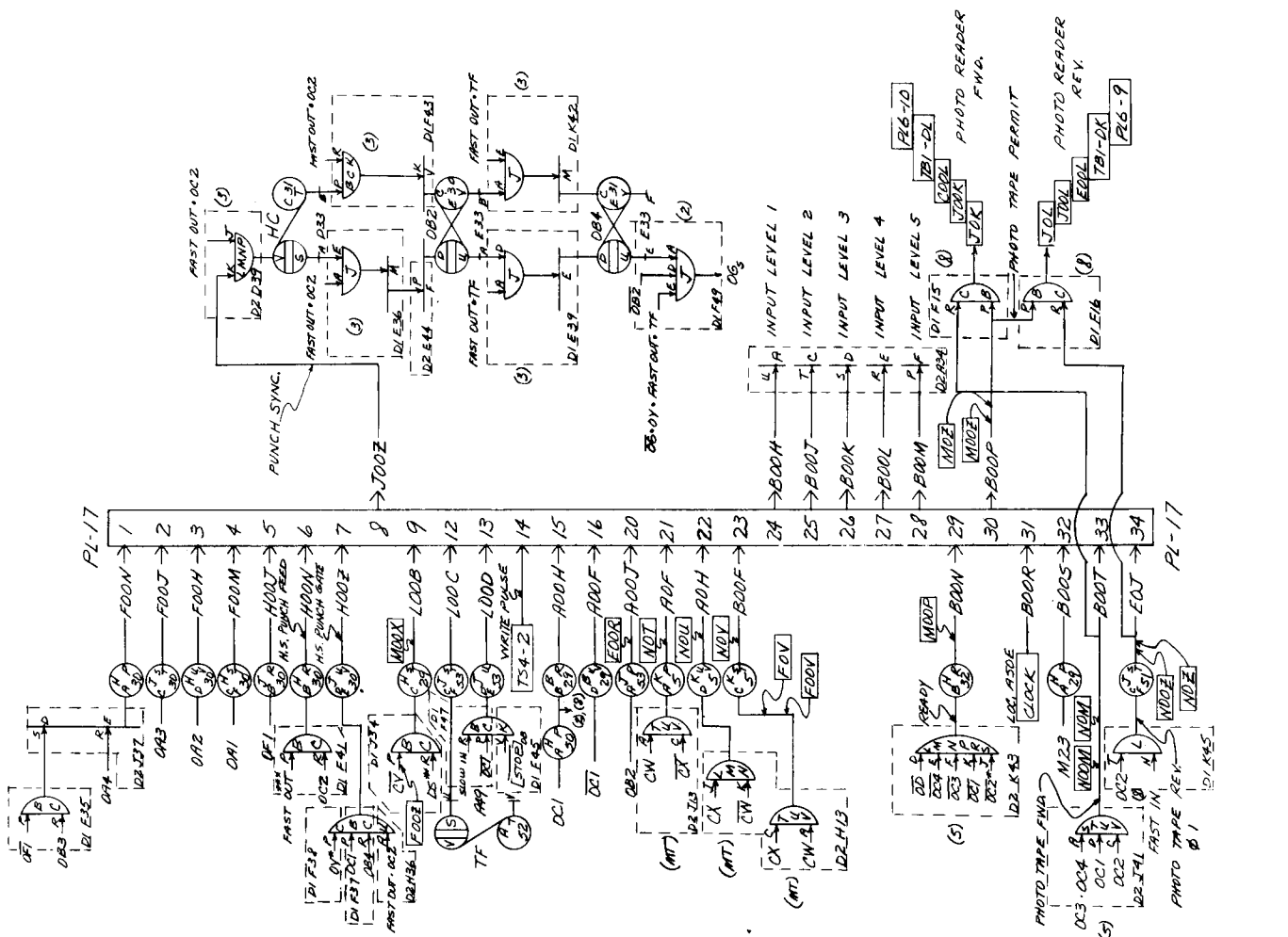
NOTES:



ACCESSORY CONTROL
1



ACCESSORY CONTROL # 2

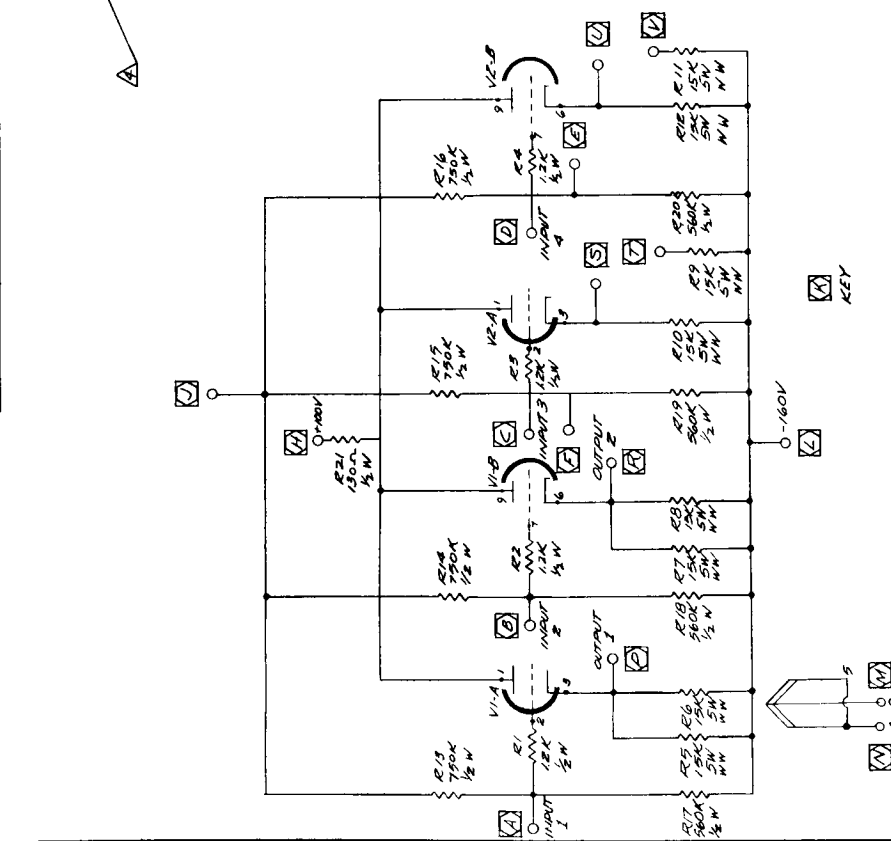
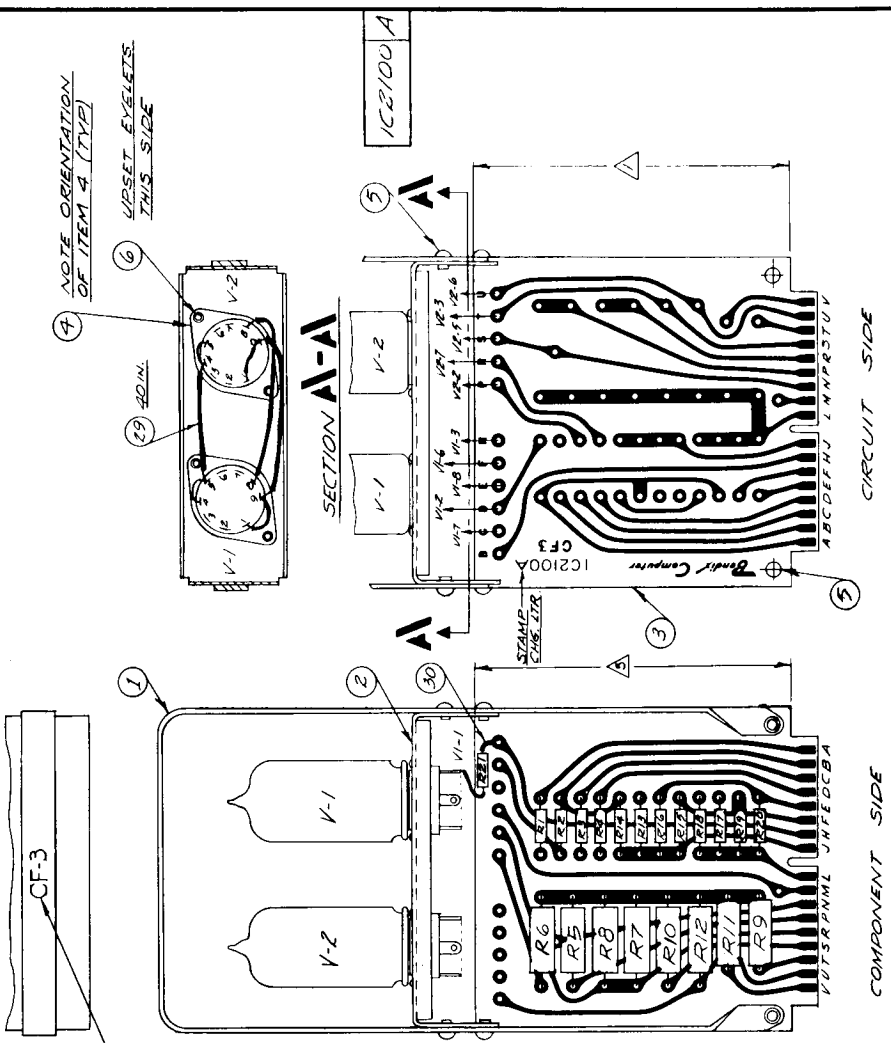


REVISIONS		
REV.	DESCRIPTION	DATE
A	PRODUCTION RELEASE	9/18/59

ITEM NO.	QTY.	PART NO.	DESCRIPTION
19	R13	80C10-744B	RESISTOR - 1/2W 5 PRT
20	R14	80C10-744B	
21	R15	80C10-744B	
22	R16	80C10-744B	RESISTOR - 1/2W 5 PRT
23	R17	80C10-964B	RESISTOR - 1/2W 5 PRT
24	R18	80C10-964B	
25	R19	80C10-964B	
26	R20	80C10-964B	RESISTOR - 1/2W 5 PRT
27	R21	80C10-131B	RESISTOR - 1/2W 5 PRT
28	V1	93A16A	TUBE - 9AB7
29	V2	6Y6P-D024C	WIRE-ELECT SOLID STATE
30		64C2-003C	TUBING - CLEAR 1/4IN X 1/2

ITEM NO.	QTY.	PART NO.	DESCRIPTION
7	R1	80C10-122B	RESISTOR - 1/2W 5 PRT
8	R2	80C10-122B	
9	R3	80C10-122B	
10	R4	80C10-122B	RESISTOR - 1/2W 5 PRT
11	R5	81A46A	RESISTOR - 5W
12	R6	81A46A	
13	R7	81A46A	
14	R8	81A46A	
15	R9	81A46A	
16	R10	81A46A	
17	R11	81A46A	
18	R12	81A46A	RESISTOR - 5W

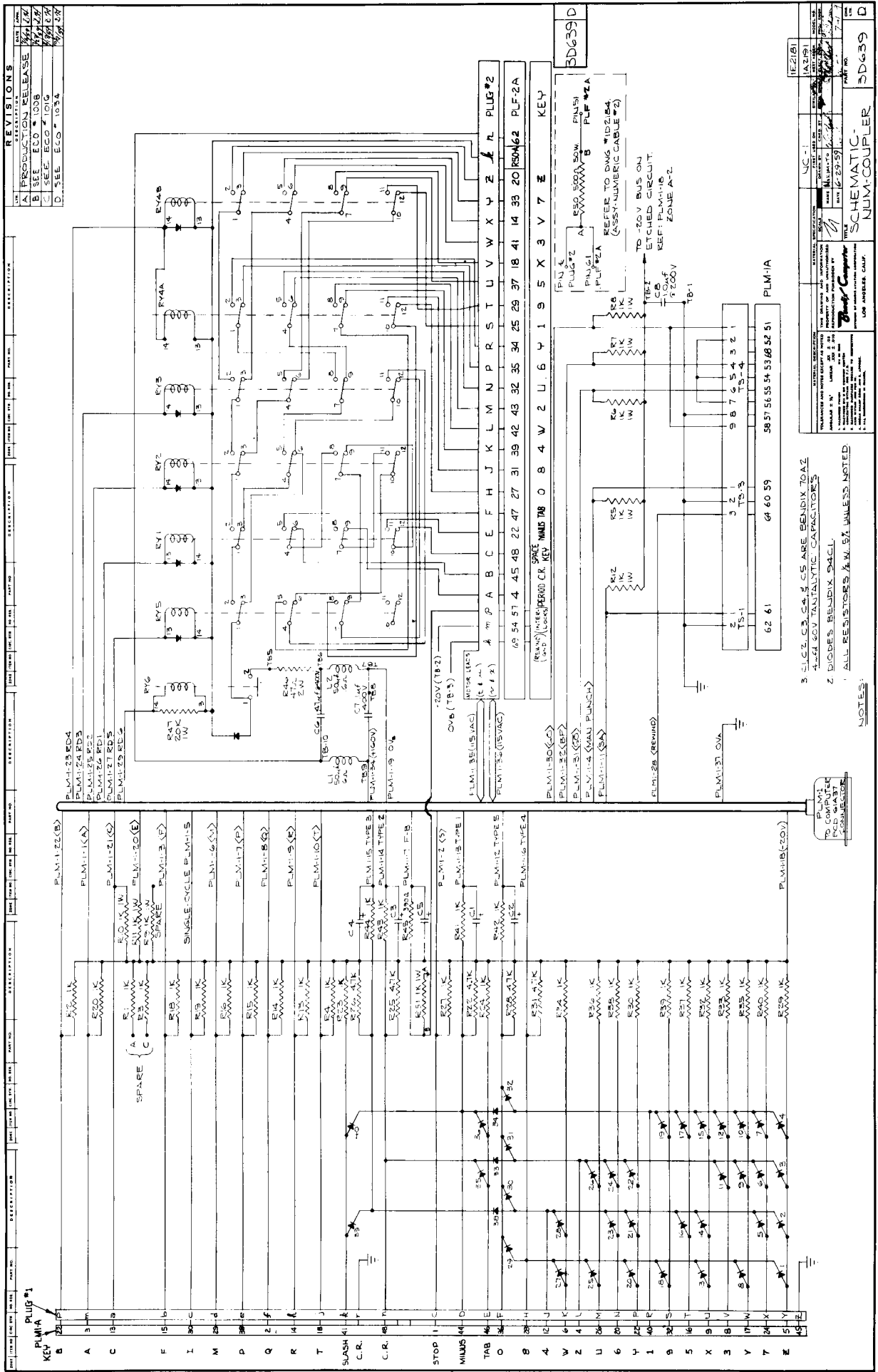
QTY.	PART NO.	DESCRIPTION
1	18C9-001A	HANDLE - PLUG-IN (M-C-24)
2	18E-001F	FRAME - PLUG-IN ARG TUBE
3	18E-001P	BOARD ASSY - CATH FOL 3
4	6E-02-A	SOCKET - 9 PIN TUBE
5	18C1-004B	RIVET - SEMI-TUBULAR
6	14C1-014B	EYELETS

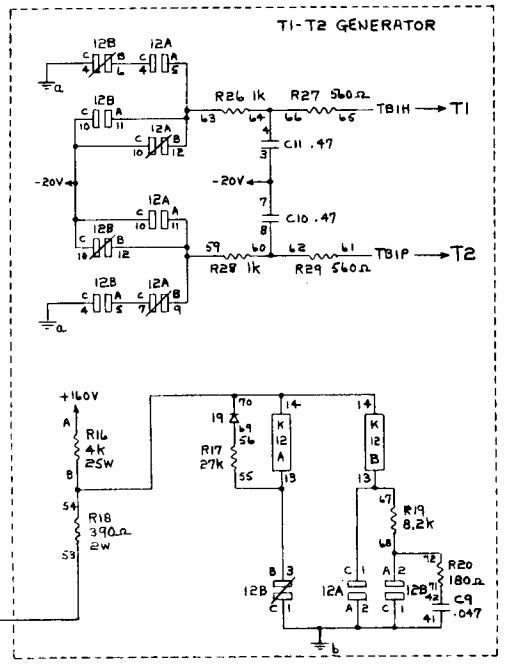
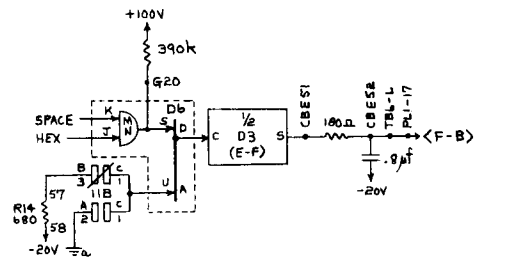
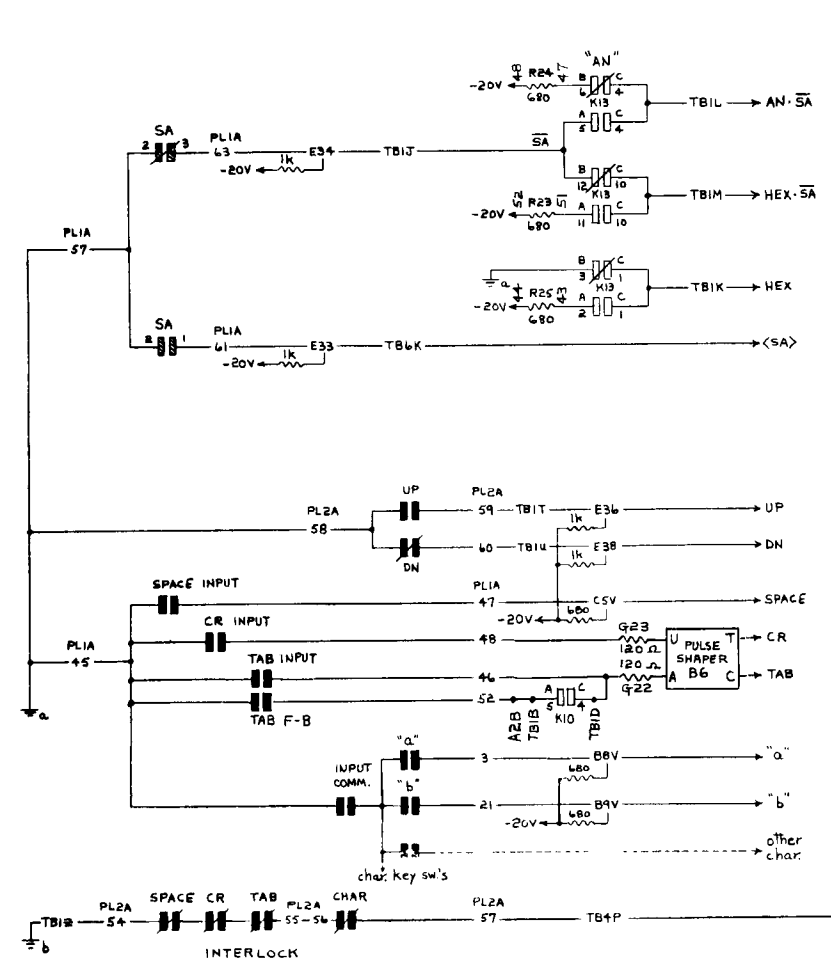
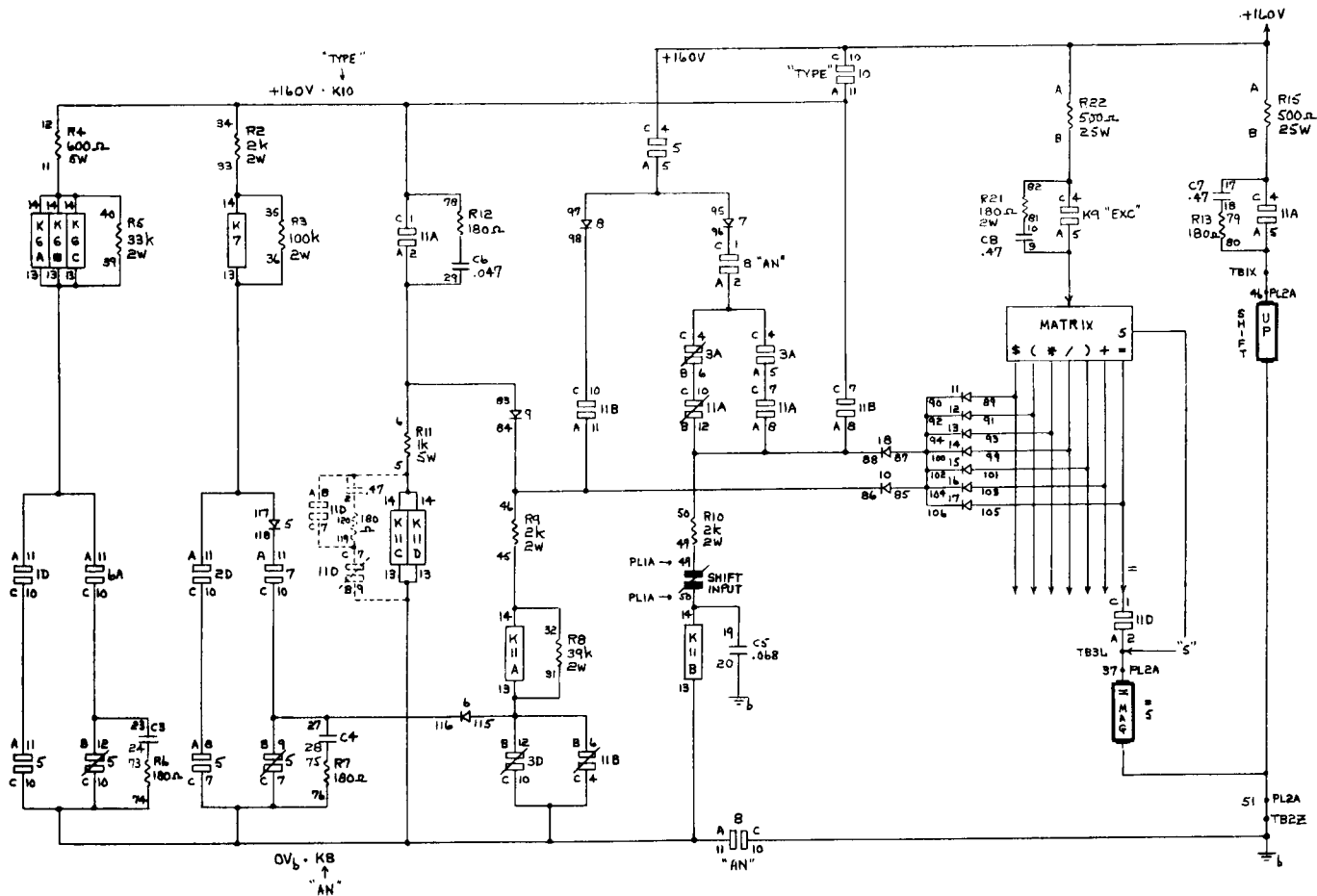


MATERIAL DESCRIPTION	MATERIAL SPECIFICATION	SCALE	DATE
TOLERANCES AND NOTES EXCEPT AS NOTED PROPERTY OF AND UNAUTHORIZED REPRODUCTION FORBIDDEN BY	THIS DRAWING IS NOTED PROPERTY OF AND UNAUTHORIZED REPRODUCTION FORBIDDEN BY	ANGULAR 5° W	3-16-59
1. MACHINED PARTS	2. MACHINED PARTS	3. MACHINED PARTS	4. MACHINED PARTS
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13. MACHINED PARTS	14. MACHINED PARTS	15. MACHINED PARTS	16. MACHINED PARTS
17. MACHINED PARTS	18. MACHINED PARTS	19. MACHINED PARTS	20. MACHINED PARTS

1. MACHINED PARTS
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 6. MACHINED PARTS
 7. MACHINED PARTS
 8. MACHINED PARTS
 9. MACHINED PARTS
 10. MACHINED PARTS
 11. MACHINED PARTS
 12. MACHINED PARTS
 13. MACHINED PARTS
 14. MACHINED PARTS
 15. MACHINED PARTS
 16. MACHINED PARTS
 17. MACHINED PARTS
 18. MACHINED PARTS
 19. MACHINED PARTS
 20. MACHINED PARTS

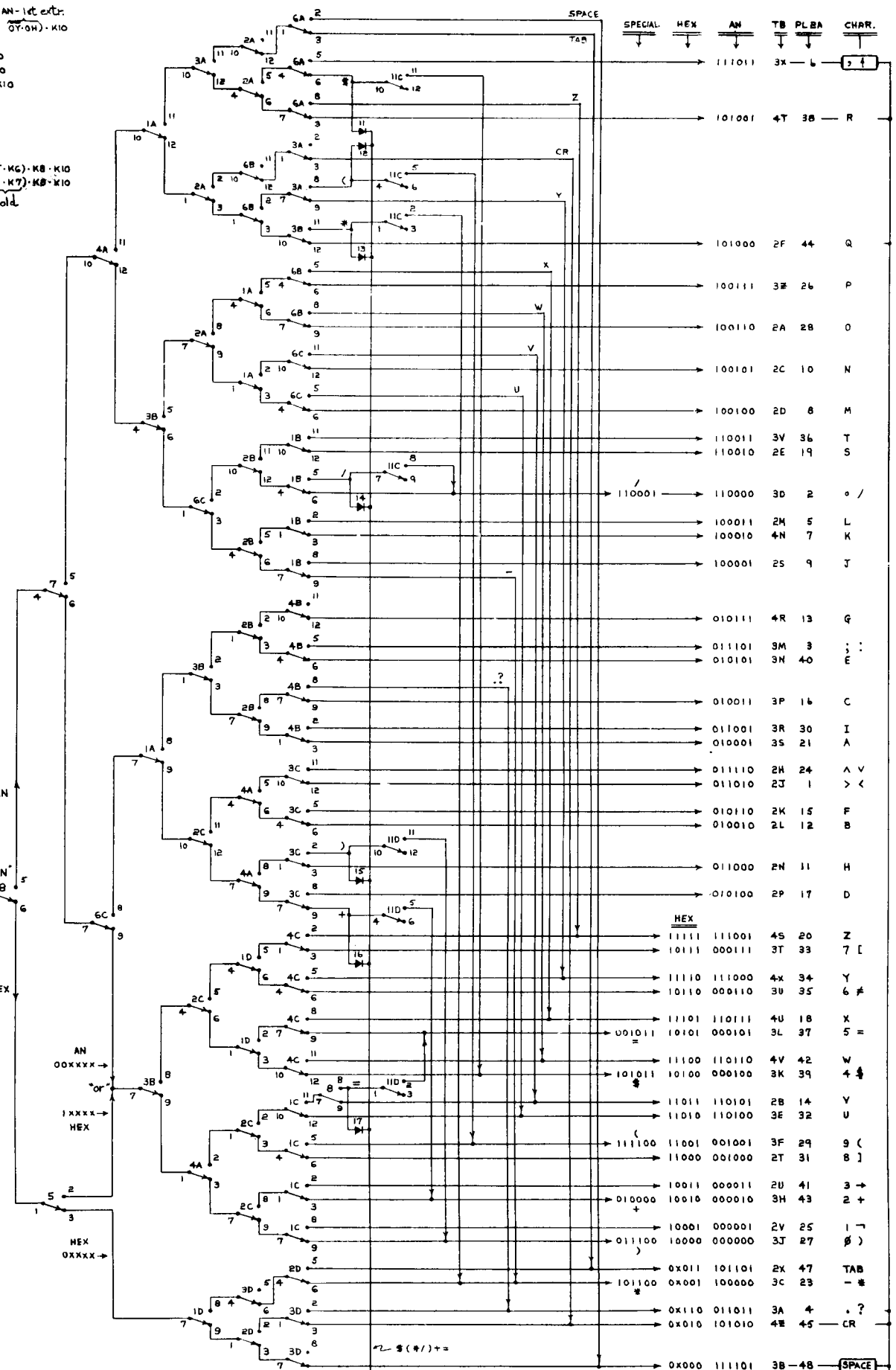
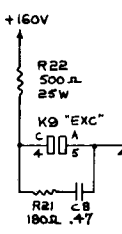
TITLE: FINAL ASSY - CATH FOL 3
 PART NO.: 1C2100 A
 MODEL NO.: 1C2100 A
 DATE: 3/17/59
 DRAWN BY: C. J. WILSON
 CHECKED BY: J. W. HARRIS
 PART USED ON: 6-15
 BILLY TO: 1C2100 A
 ELECT ENGR: 1C2100 A
 MFG: 1C2100 A
 1C2100 A



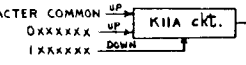


K# HEX AN-1st ext:
 5: 0B5 · (K3 + 07·0H) · K10
 4: 0B4 · K10
 3: 0B3 · K10
 2: 0B2 · K10
 1: 0B1 · K10
 X11111 HEX
 654321
 0000
 11111111 AN
 6: (K5 · K1 + K5 · K6) · K8 · K10
 7: (K5 · K2 + K6 · K7) · K8 · K10
 pick hold

K8 — AN
 K9 — EXC.
 K10 — TYPE



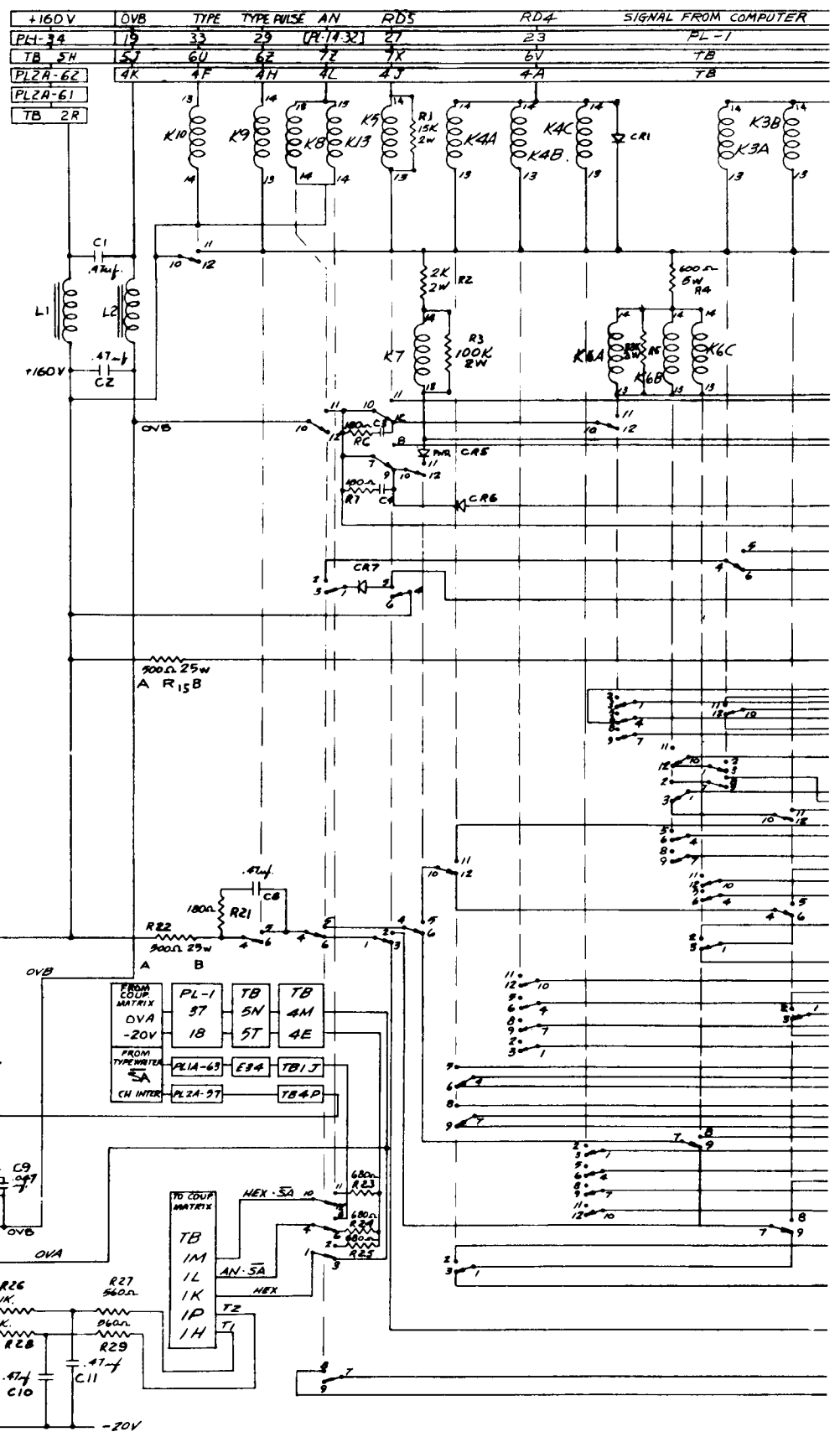
DECODING CIRCUITS
ANC-1

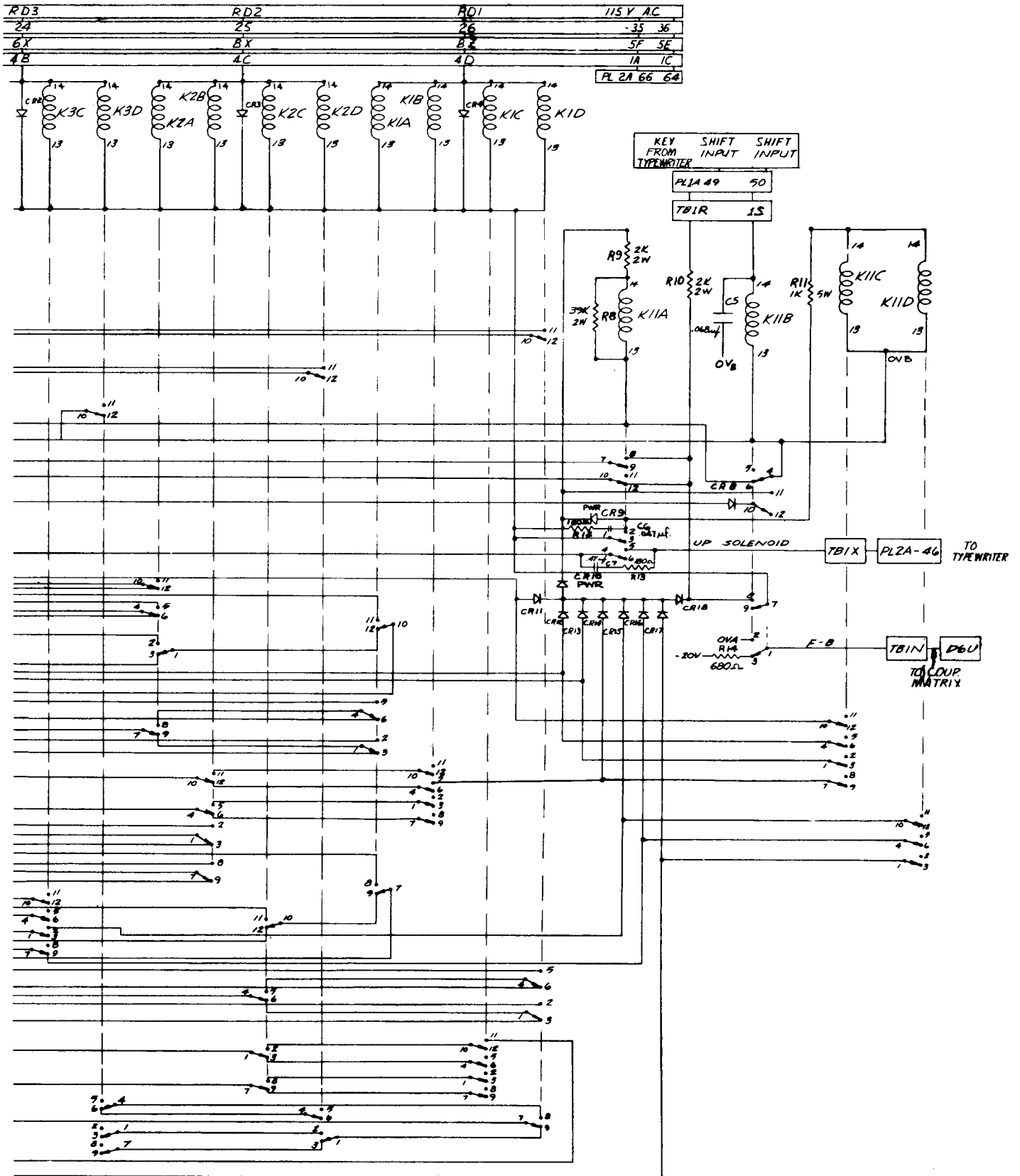


2Z-51

KEY	EXIT POINT		TB	PLZA
	AN	HEX		
A	K4B-3		35	21
B	K3C-6		2L	12
C	K4B-9		3P	16
D	K3C-8		2P	17
E	K4B-6		3N	40
F	K3C-5		2K	15
G	K4B-12		4R	13
H	K3C-3		2N	11
I	K4B-2		3R	30
J	K1B-8		2S	9
K	K1B-3		4N	7
L	K1B-2		2M	5
M	K6C-6		2D	8
N	K6C-12		2C	10
O	K6B-9		2A	28
P	K6B-6		38	26
Q	K3B-12		2F	44
R	K6A-9		4T	38
S	K1B-12		2E	19
T	K1B-11		3V	36
U	K6C-5	K1C-12	5E	32
V	K6C-11	K8-9	2B	14
W	K6B-8	K4C-11	4V	42
X	K6B-5	K4C-8	4U	18
Y	K3A-9	K4C-5	4X	34
Z	K6A-8	K4C-2	45	20
1	K1C-8	K1C-8	2V	25
2	K11D-5	K1C-3	3H	43
3	K1C-2	K1C-2	2U	41
4	K11C-11	K4C-12	3K	39
5	K11D-2	K4C-9	3L	37
6	K4C-6	K4C-6	3U	35
7	K4C-6	K4C-3	3T	33
8	K4C-6	K1C-6	3T	31
9	K1C-5	K1C-5	3F	29
0	K11D-11	K1C-9	3J	27
-	K1B-9, K1K-2	K2D-6	3C	29
^	K3C-11		2H	24
>	K3C-12		2J	1
:	K6A-5		3X	6
;	K4B-5		3M	3
.	K4B-8	K3D-2	3A	4
°	K1B-6	K11C-8	3D	2
TAB	K6A-3	K2D-5	2X	47
SP	K6A-2	K3D-9	3B	48
CR	K3A-3	K3D-3	4Z	45

SIGNAL TO TYPEWRITER	TB	PLZA
OVB	2Z	51
OVB	1Z	54
OVB	1F	69

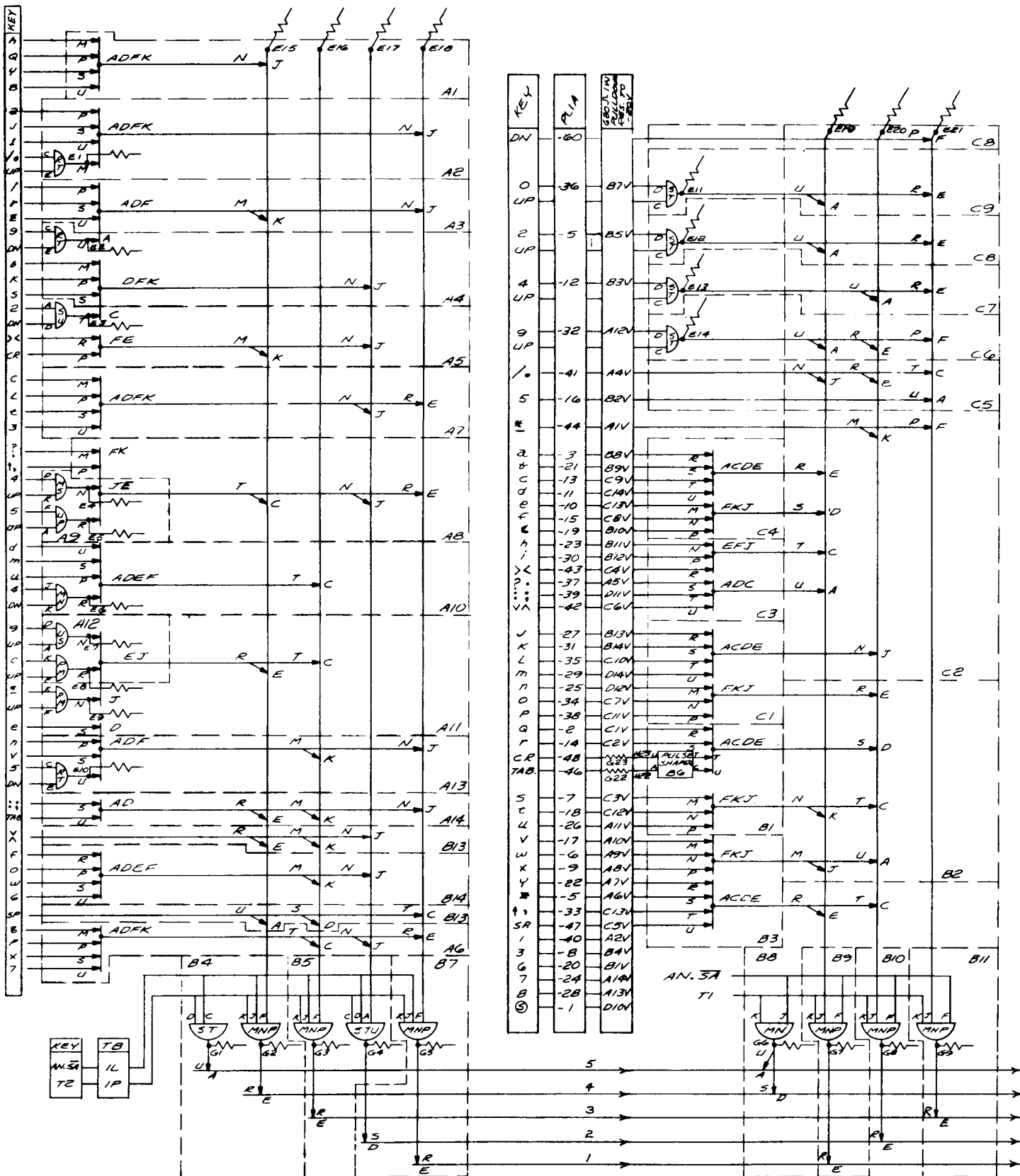




ALL RESISTORS 1/2 W UNLESS NOTED.

NOTES:

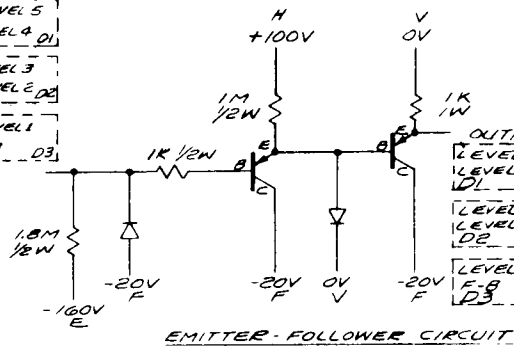
SCHEMATIC - DECODER
ANC-1 COUPLER



- 3. RESISTORS 'G22' & 'G23' ARE 120Ω 1/4W FOR CURRENT LIMITING
- 2. RESISTORS 'G17' & 'G18' & 'G19' ARE 110K 1/4W TO +100V
- 1. RESISTORS 'E1' THRU 'E14' ARE 56K 1/4W TO +100V
 RESISTORS 'E15' THRU 'E29' ARE 330K 1/4W TO -160V
 RESISTORS 'E31' THRU 'E60' ARE 390K 1/4W TO +100V

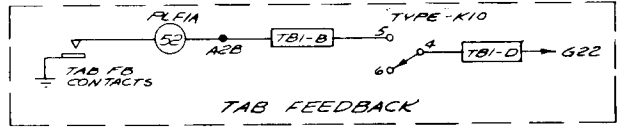
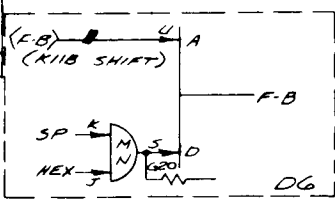
NOTES:

INPUTS
 B LEVEL 5
 C LEVEL 4 D1
 B LEVEL 3
 C LEVEL 2 D2
 B LEVEL 1
 C LEVEL 1 D3
 C F B D3



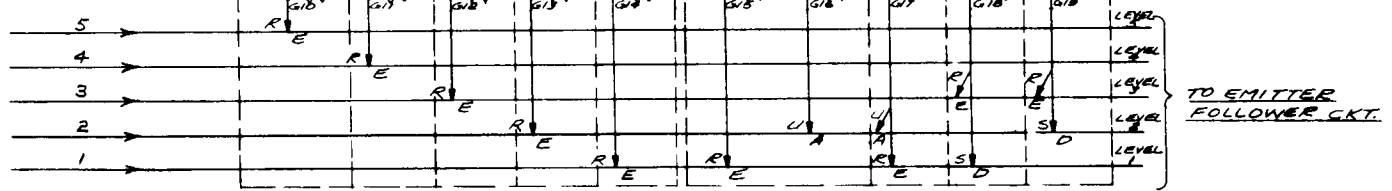
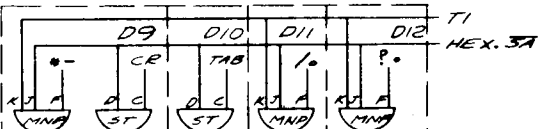
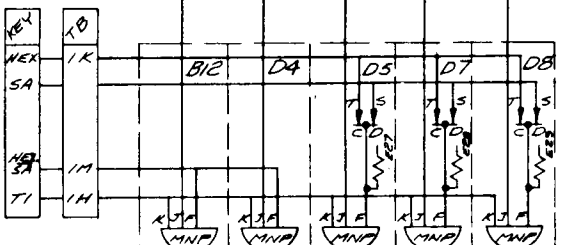
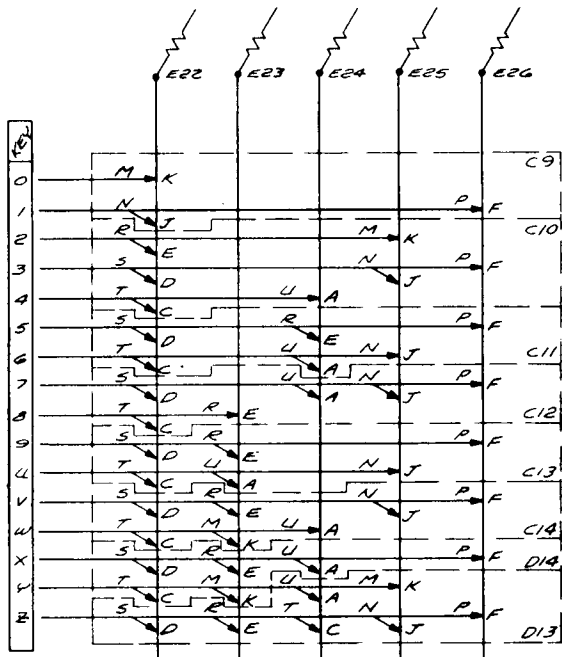
OUTPUTS
 LEVEL 5 R E41
 LEVEL 4 S1 E43
 LEVEL 3 R E45
 LEVEL 2 S1 E47
 LEVEL 1 R E49
 F-B D3 E51

LB
 180Ω
 E41
 E43
 E45
 E47
 E49
 E51
 TB
 GM -12
 GN -16
 GP -15
 GR -14
 GS -13
 GL -17
 PL1



SIGNAL LIST

KEY	PLIP	1B	PL1	
0	-1	D10V	7K -2	
C	-13	C4T	7L -21	
B	-21	A4M	7M -22	
E	-10	C4M	7N -20	
M	-29	C1U	7P -6	
F	-15	C4N	7R -3	
A	-3	A2P	7S -1	
I	-30	A3P	7T -5	
P	-35	C1P	6A -7	
Q	2	A1P	6B -8	
R	-14	A3S	6C -9	
T	-18	B1N	6D -10	
	-64	G24	6T -28	
G0	-51	E31	6E -30	
G0	-55	E32	6H -31	
SA	-61	E33	6K -11	
BP	-53	E35	6F -32	
M	-59	E37	6J -4	
SA	-63	E34	1J	
			5F -35	
			5E -36	
				} A.C.
UP	-59	IT	E36	5S -18
DOWN	-60	IU	E38	5N -37
-20V				5M
OVA				5U -26
+100				5P -27
-160V				



SCHMATIC - ENCODER
 ANC-1 COUPLER

K# HEX AN-1st extr.

5: 0B5 · K10 + 0Y · 0H · K10

4: 0B4 · K10

3: 0B3 · K10

2: 0B2 · K10

1: 0B1 · K10

XXXXX HEX

11111

654321

XXXX

1XXXXXX AN

6: (K5 · K1 + K5 · K6) · K8 · K10

7: (K5 · K2 + K5 · K7) · K8 · K10

pick hold

K8 — AN

K9 — EXC.

K10 — TYPE

K11B,C — INTERCEPT

14 ○ ○ 13

3 — — 9

1 — — 7

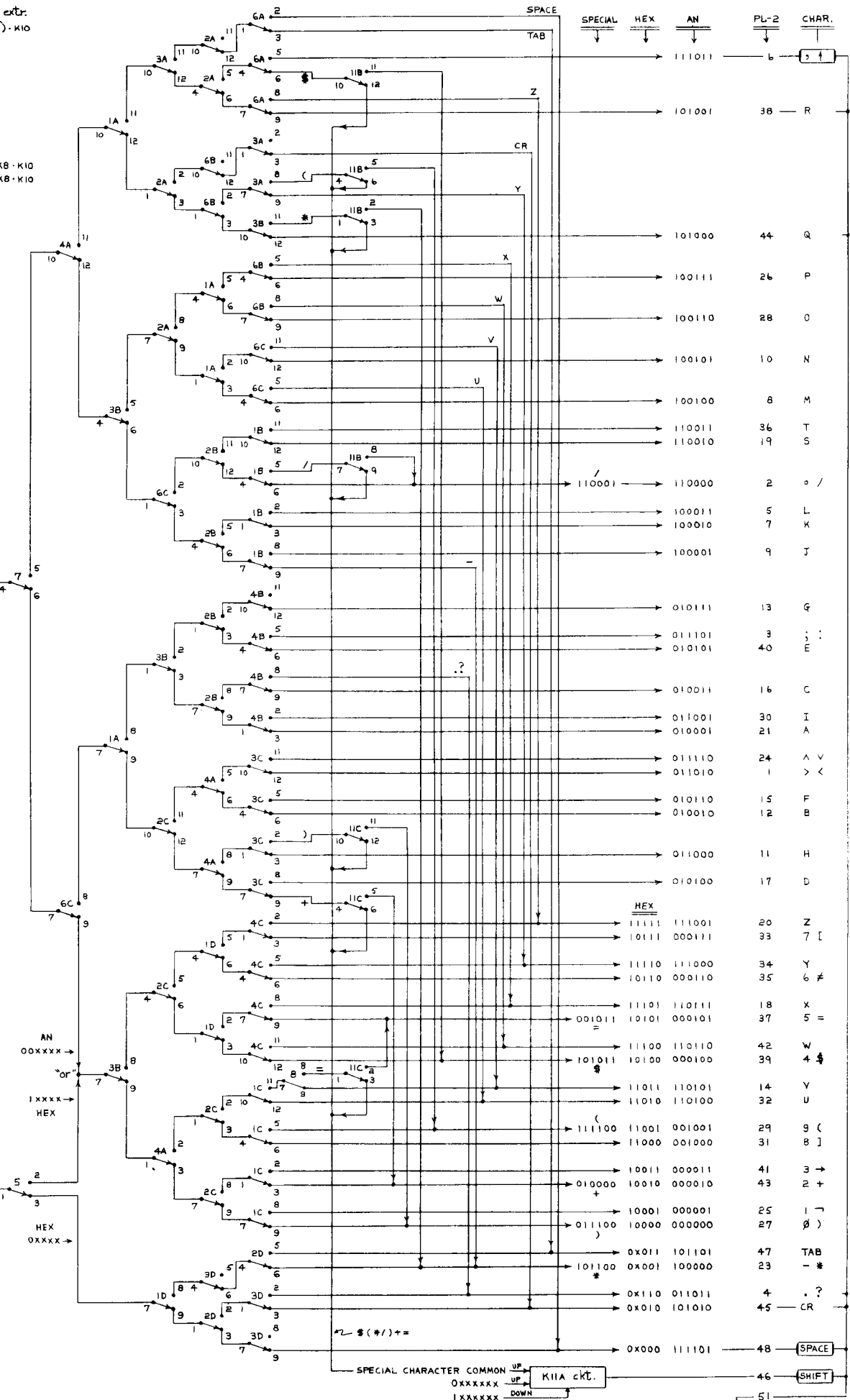
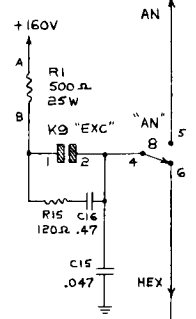
2 — — 8

6 — — 12

4 — — 10

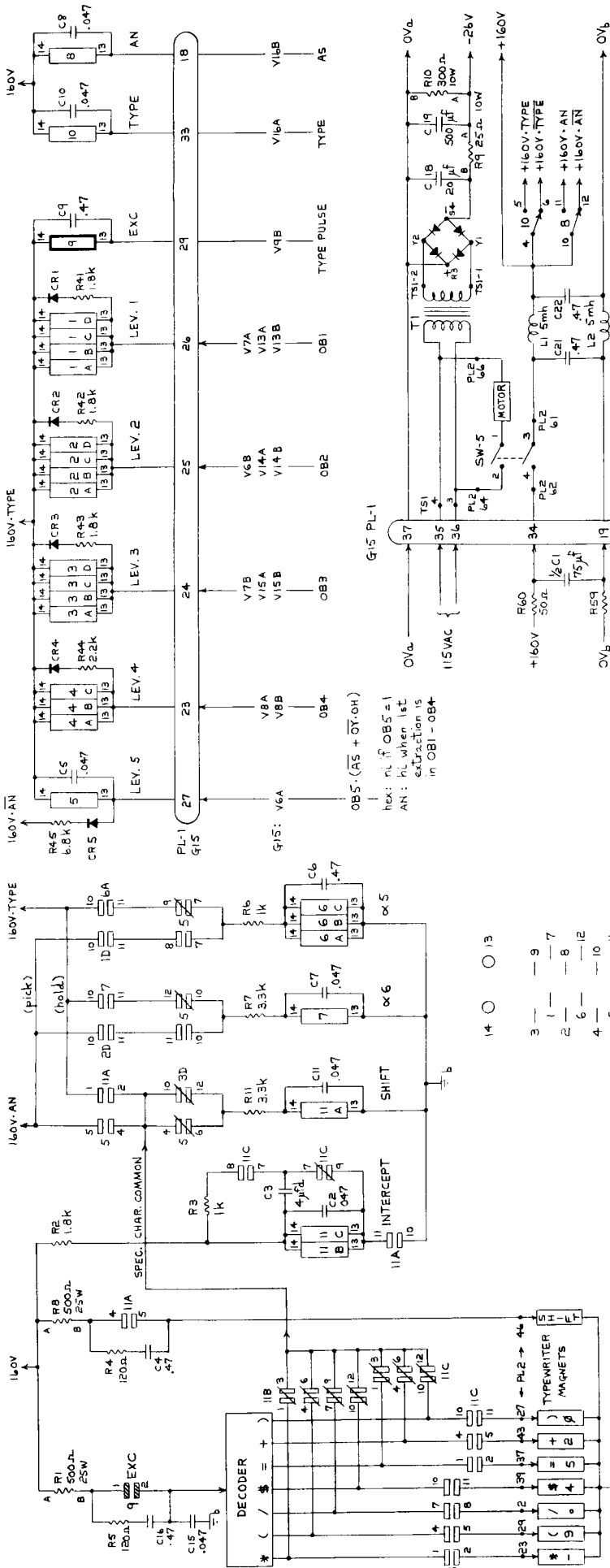
5 — — 11

RELAY KEY

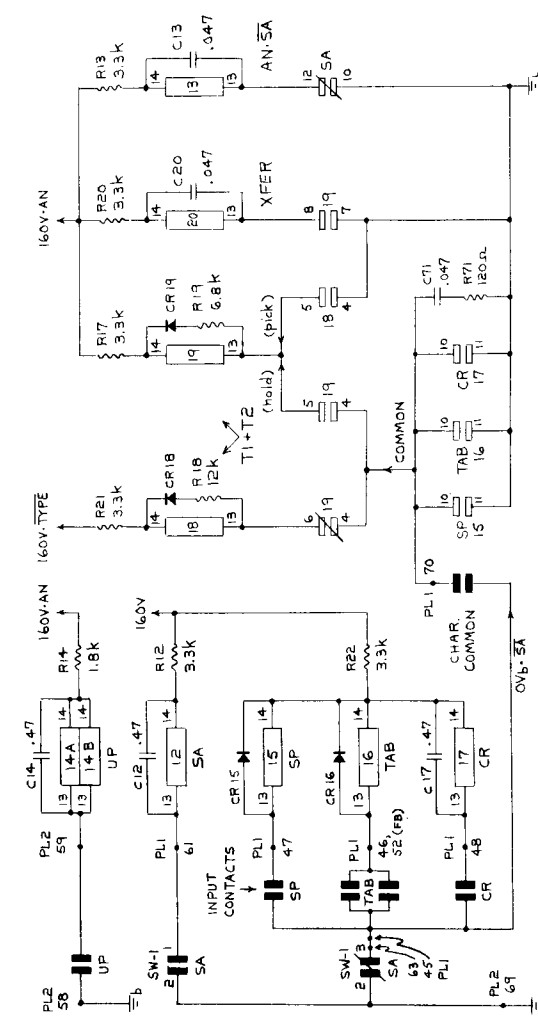


4/27/61

ANC-2
DECODER

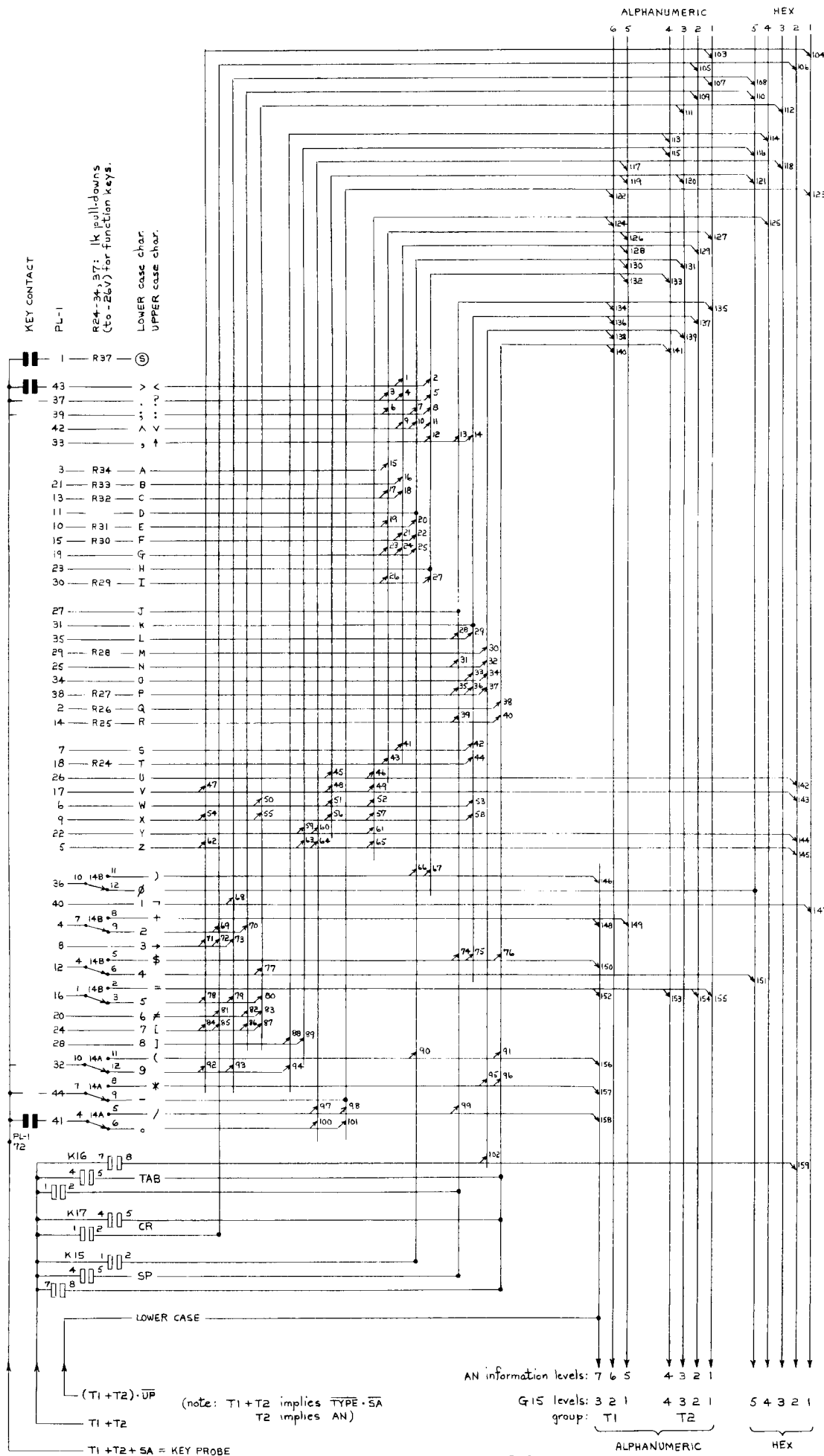


IN	HEX	FUNCTION	OUT	HEX	AN
1	ABCD	lev. 1		0B1	OB1
2	ABCD	lev. 2		0B2	OB2
3	ABCD	lev. 3		0B3	OB3
4	ABC	lev. 4		0B4	OB4
5	ABC	lev. 5		0B5	OB5
6	ABC	× 6			
7	AN	× 6			
8	AN	EXC.			
9	AN	EXC.			
10	A	SHIFT			
11	BC	INT.			
12	SA*	AN SA			
13	AN SA	AN SA			
14	AB	UP*			
15	SP	SP* SA*			
16	TAB	TAB* SA*			
17	CR	CR* SA*			
18	COMM.	COMM. SA*			
19	T1	T1+T2			
20	T2	XFER			



* means SWITCH
 [xk] means HOLD
 /xxx/ means PRESENCE NOT REQUIRED
 COMM = CHAR. COMMON*
 SP+TAB+CR
 SPEC. CHAR. = 9-11BC.
 x(/#-#)

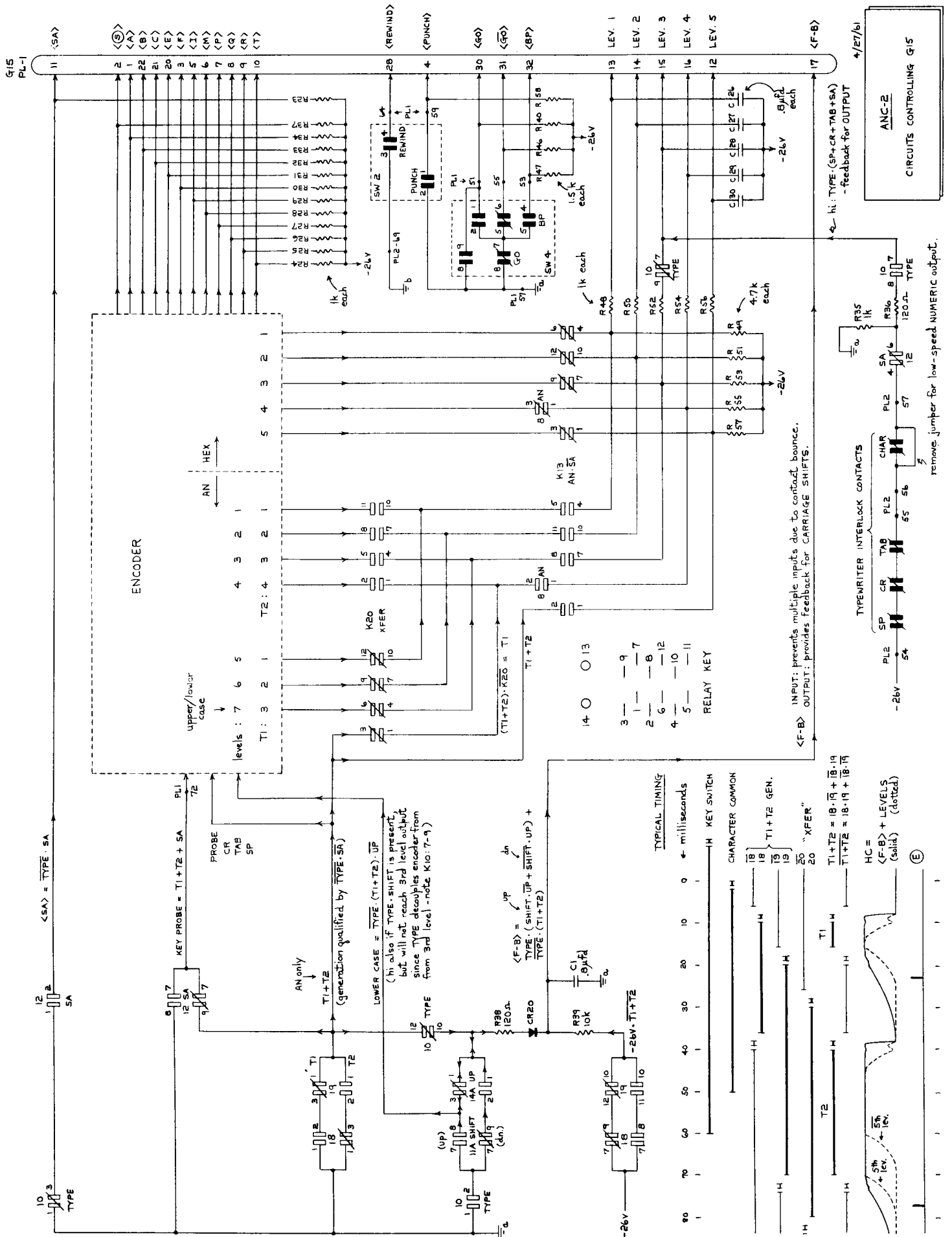
4/27/61
 ANC-2
 RELAY CONTROL

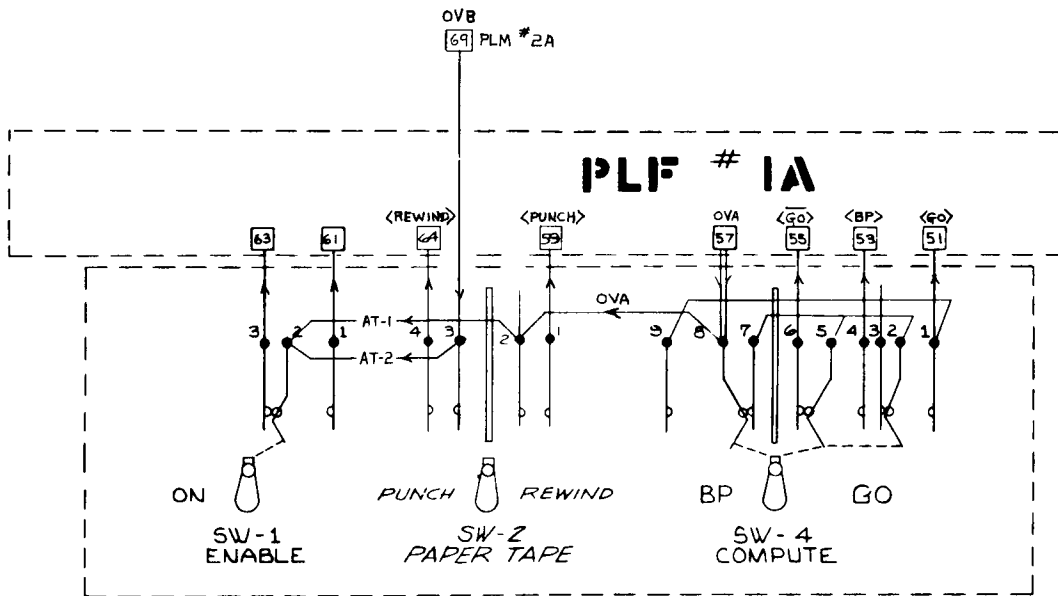
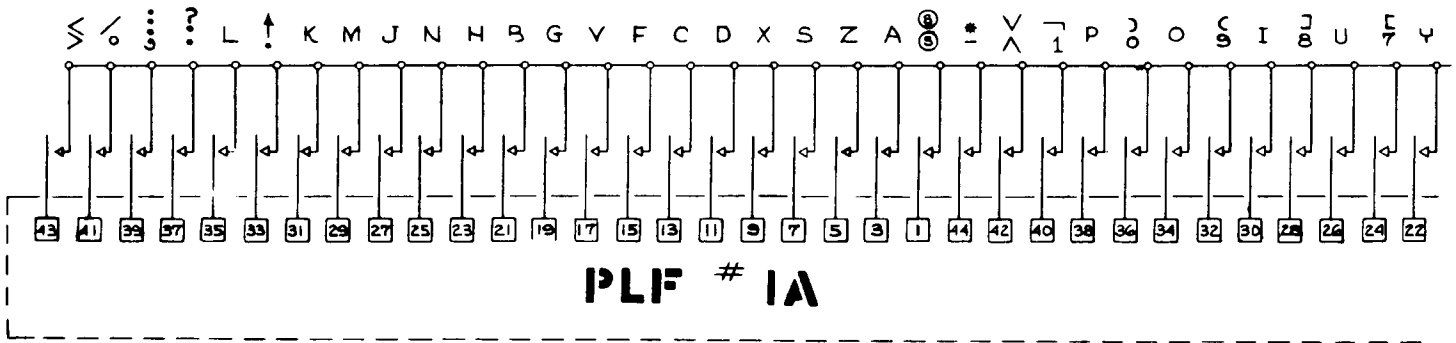
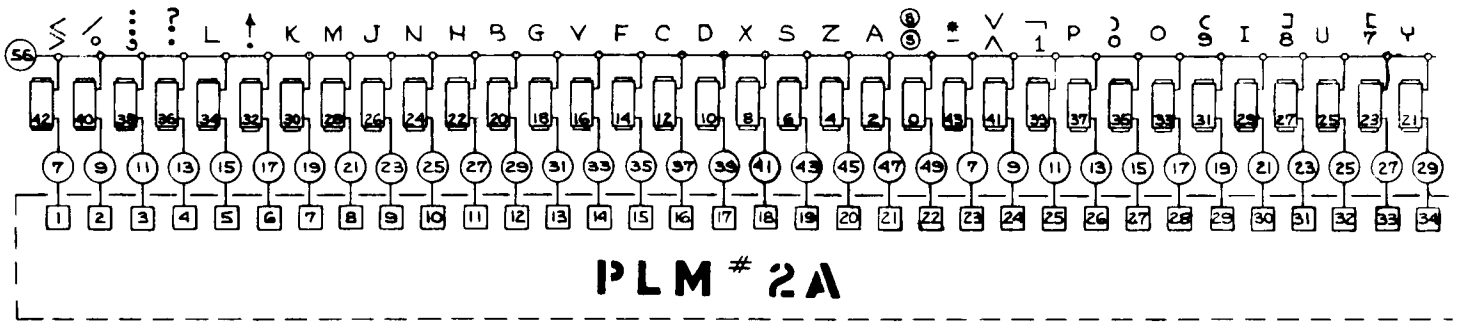


DIODE LOCATIONS

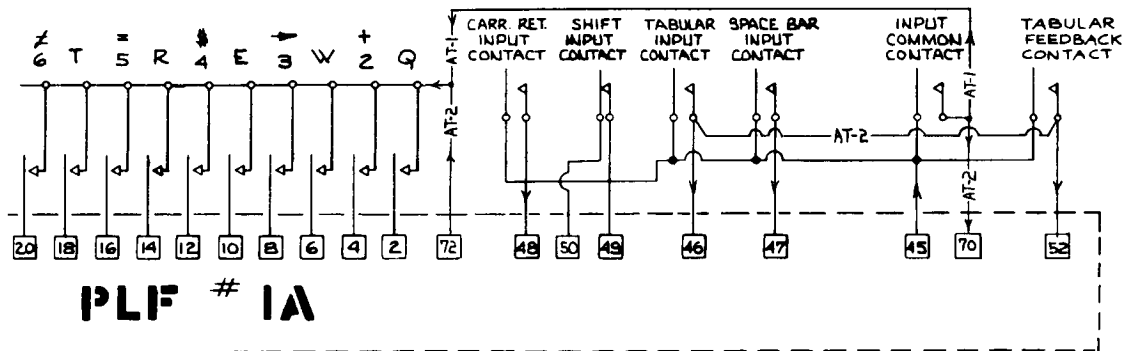
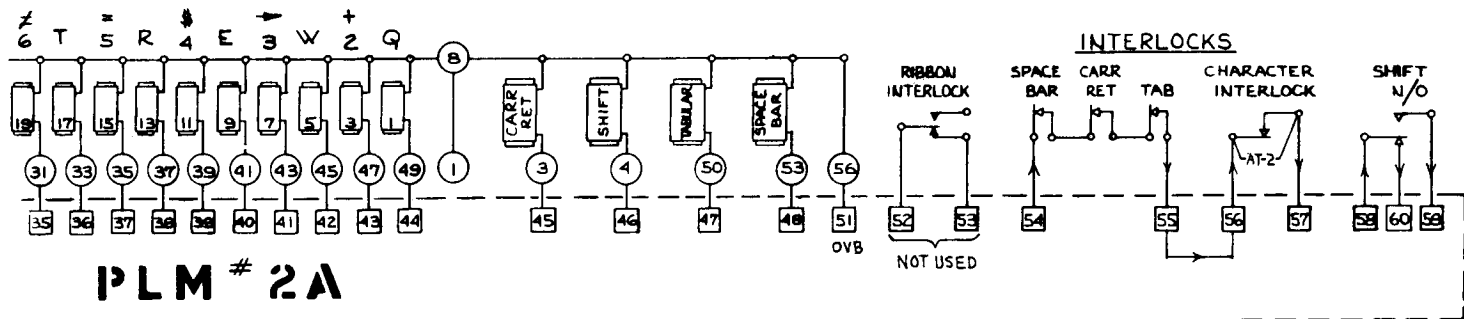
#	Pkg.	→	#	Pkg.	→
			80	16	PF
1	12	UA	81	1	PF
2	12	TC	82	1	NJ
3	11	PF	83	1	MK
4	11	NJ	84	1	UA
5	11	MK	85	1	TC
6	11	UA	86	1	SD
7	11	TC	87	1	RE
8	11	SD	88	15	RE
9	10	PF	89	15	SD
10	10	NJ	90	14	RE
11	10	MK	91	4	SD
12	10	TC	92	15	MK
13	10	SD	93	15	NJ
14	10	RE	94	15	PF
15	10	UA	95	14	MK
16	9	MK	96	14	NJ
17	9	PF	97	13	MK
18	9	NJ	98	13	NJ
19	9	SD	99	13	PF
20	9	RE	100	13	TC
21	9	UA	101	13	UA
22	9	TC	102	13	SD
23	6	PF	103	23	SD
24	6	NJ	104	23	TC
25	6	MK	105	23	RE
26	8	NJ	106	23	NJ
27	8	MK	107	22	PF
28	8	RE	108	22	RE
29	8	PF	109	22	NJ
30	8	SD	110	22	SD
31	8	UA	111	14	UA
32	8	TC	112	23	PF
33	7	NJ	113	12	SD
34	7	MK	114	22	MK
35	5	PF	115	12	RE
36	5	NJ	116	22	TC
37	5	MK	117	20	MK
38	7	PF	118	21	UA
39	7	SD	119	20	SD
40	7	RE	120	19	PF
41	7	UA	121	22	UA
42	7	TC	122	21	TC
43	4	NJ	123	23	UA
44	4	MK	124	21	SD
45	3	PF	125	20	UA
46	3	NJ	126	20	TC
47	6	UA	127	19	TC
48	6	TC	128	20	RE
49	6	SD	129	19	RE
50	5	UA	130	20	NJ
51	5	TC	131	19	NJ
52	5	SD	132	20	PF
53	5	RE	133	12	PF
54	4	UA	134	21	RE
55	4	TC	135	19	UA
56	4	SD	136	21	PF
57	4	RE	137	19	SD
58	4	PF	138	21	NJ
59	3	UA	139	19	MK
60	3	TC	140	21	MK
61	3	SD	141	12	NJ
62	2	SD	142	3	MK
63	2	RE	143	6	RE
64	2	PF	144	3	RE
65	2	NJ	145	2	MK
66	17	SD	146	17	UA
67	17	TC	147	2	TC
68	2	UA	148	17	PF
69	15	TC	149	17	RE
70	15	UA	150	18	UA
71	18	MK	151	17	NJ
72	18	NJ	152	16	RE
73	18	PF	153	16	SD
74	18	RE	154	16	TC
75	18	SD	155	16	UA
76	18	TC	156	14	TC
77	17	MK	157	14	PF
78	16	MK	158	13	RE
79	16	NJ	159	23	MK

ANC-2
ENCODER



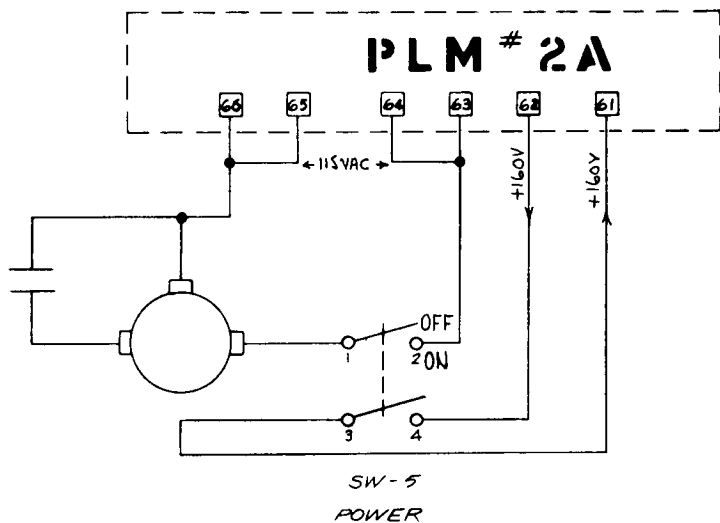


NOTE: An INPUT-OUTPUT WRITER used with an ANC-1 or NC-1 is an AT-1; that used with an ANC-2 is an AT-2. There are minor wiring differences involving the ENABLE SWITCH, CHARACTER INTERLOCK, TAB CONTACTS, and INPUT COMMON as indicated on this drawing. (e.g. •—AT-2—• means the wire exists in an AT-2 but not in an AT-1.) Conversion of an AT-1 to an AT-2 is outlined on dwg. 1D3001.



MISCELLANEOUS CONNECTIONS

	<u>ANC-1</u>	<u>ANC-2</u>
PLM2A		
54	OVB	-26V
57	R18	K12-4
58	OVA	OVB
59	ENCODER	K14-13
60	ENCODER	(nc)
PLF1A		
45	OVA	OVB · \overline{SA}
46	ENCODER	K16-13
47	ENCODER	K15-13
48	ENCODER	K17-13
49	R10	(nc)
50	K11B-14	(nc)
52	K10-5	(nc)
61	E33	K12-13
63	E34	PLM1A-45
70	K19-4--	(nc)
72	(nc)	T1+T2+SA



INPUT-OUTPUT WRITER
AT-1/AT-2

Bendix Computer Division
LOS ANGELES 45, CALIFORNIA

