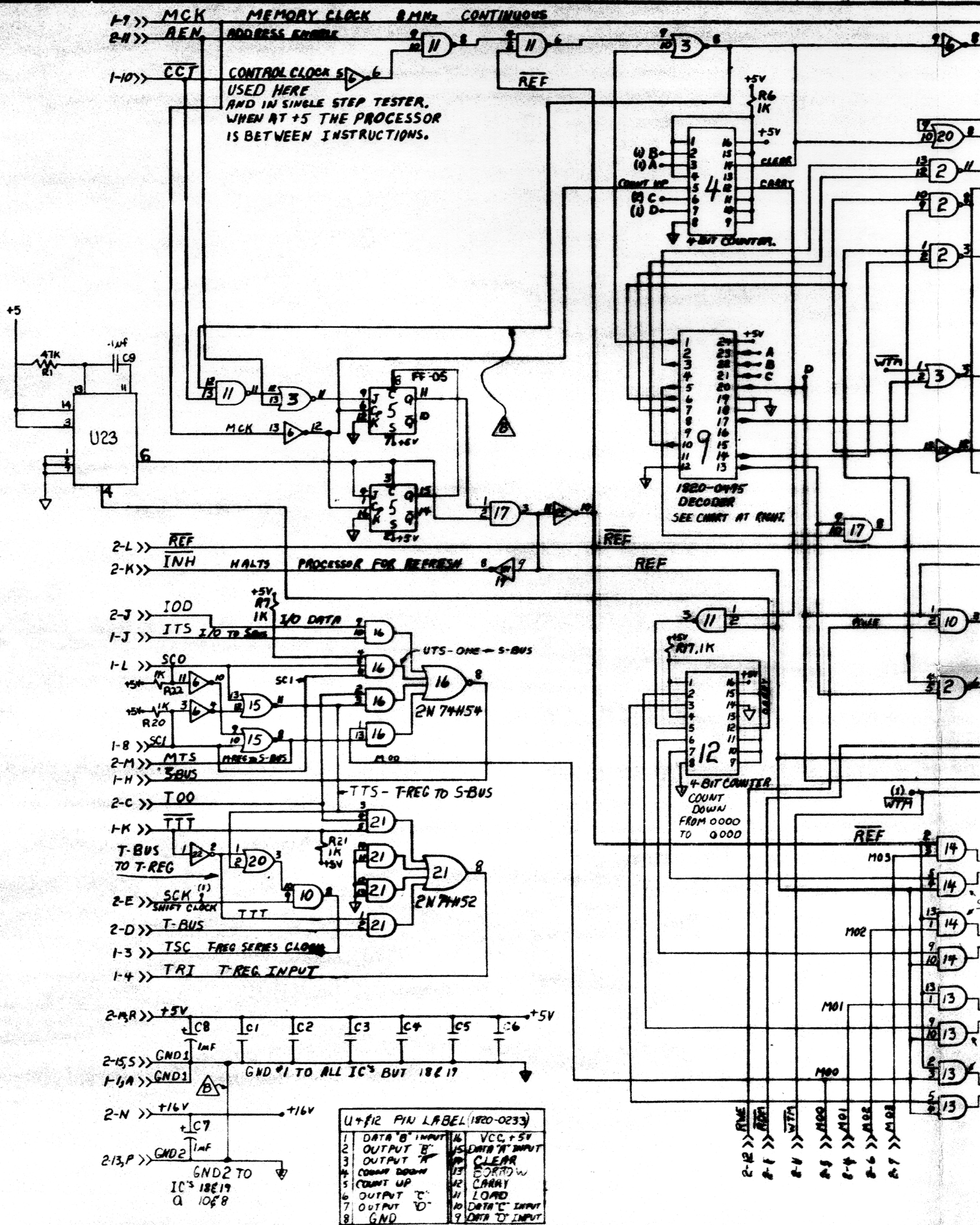
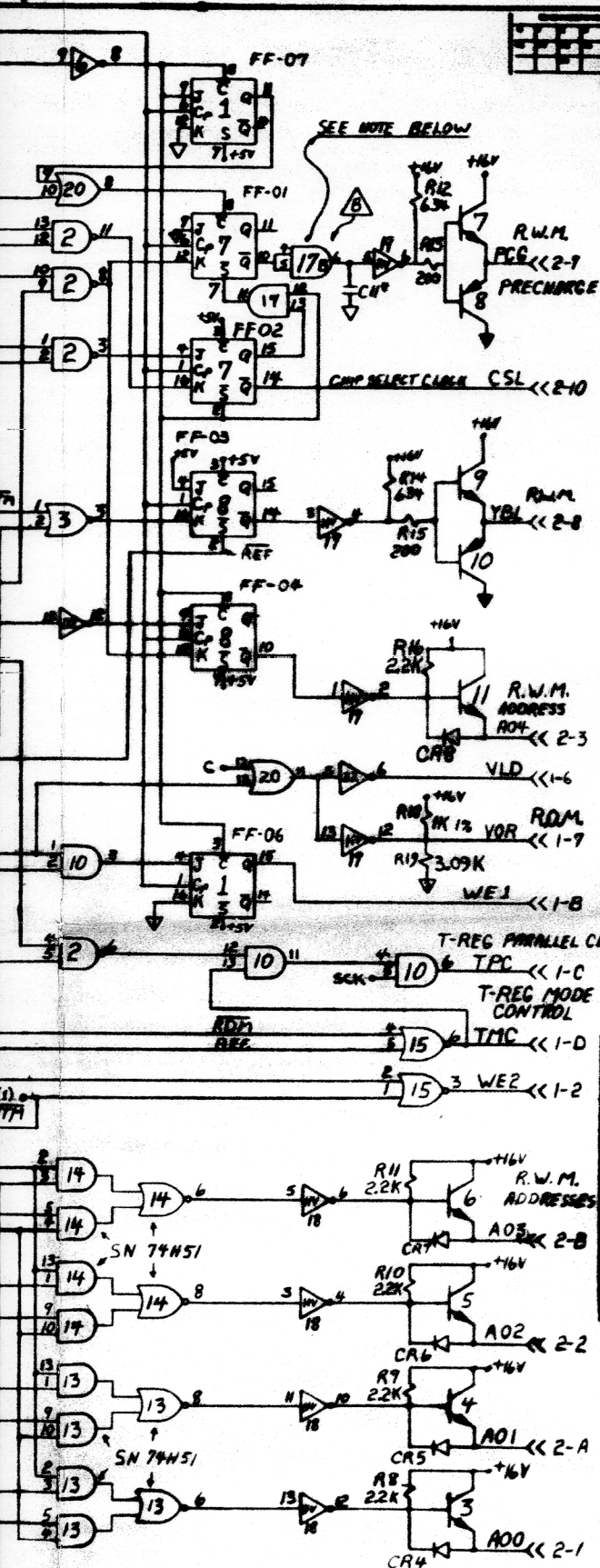
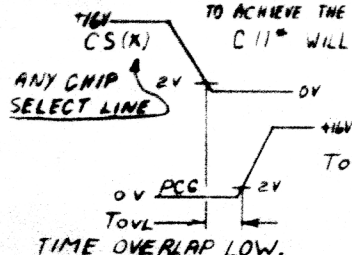






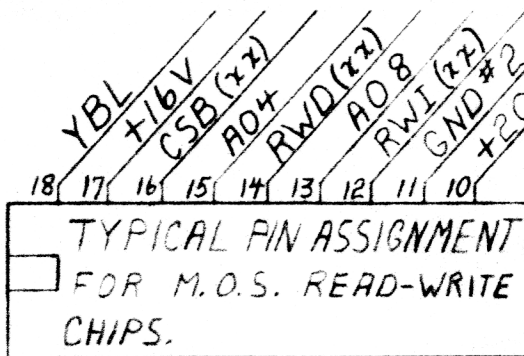
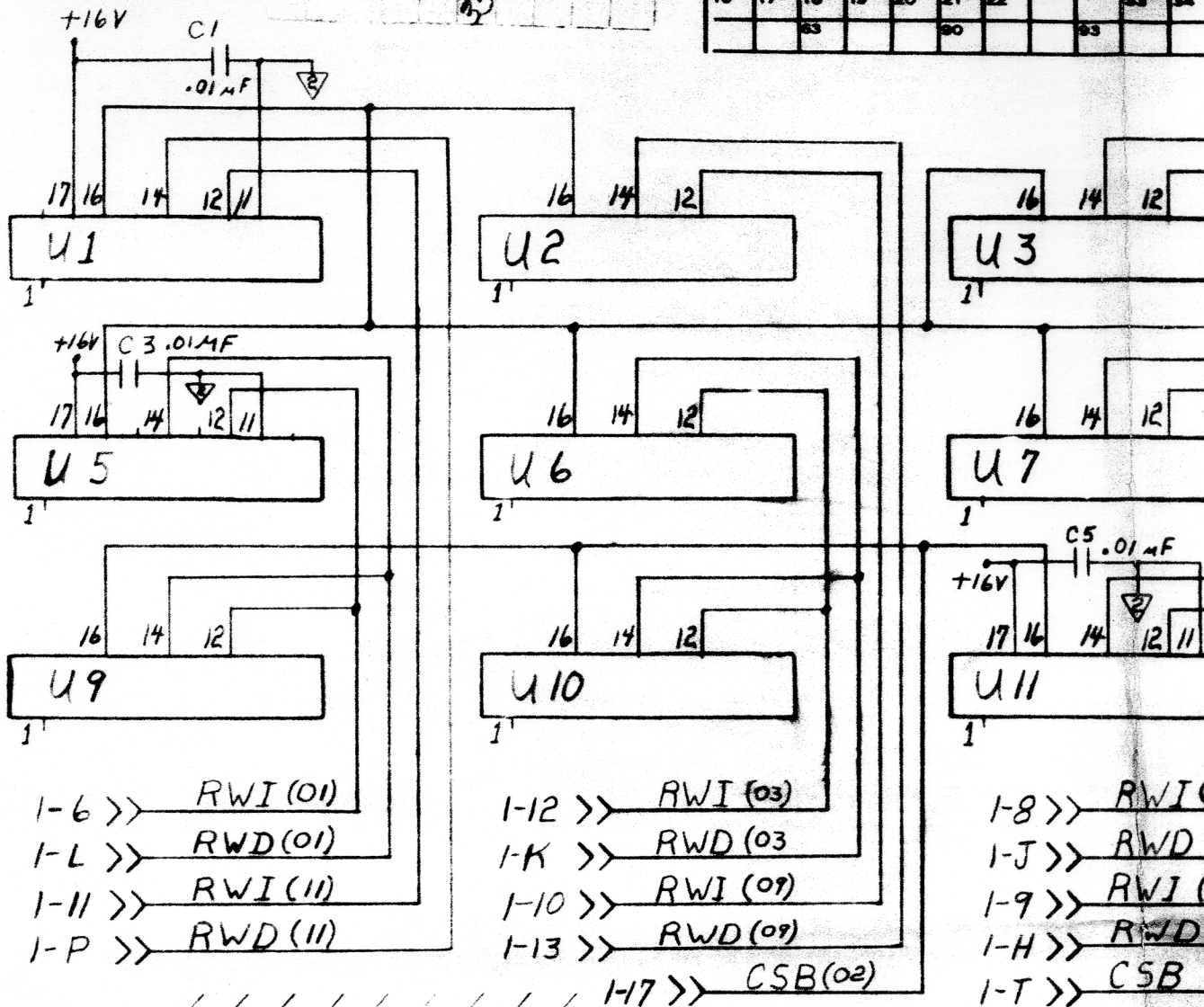
NOTE: IC17B MUST BE A 1820-0551. THE DELAY TIME IN THIS TYPE I.C. IS REQUIRED TO ACHIEVE THE T.O.V. SPECIFIED BELOW. C11* WILL AFFECT T.O.V.



NOTE: REVA SCHEMATIC GOOD FOR MODIFIED REV B/C BOARDS
REV B SCHEMATIC GOOD FOR REV D BOARDS.

REV	QTY	DESCRIPTION	REV	QTY	DESCRIPTION
1	1	1820-0495	1	1	1820-0495
2	1	1820-0551	2	1	1820-0551
3	1	1820-0551	3	1	1820-0551
4	1	1820-0551	4	1	1820-0551
5	1	1820-0551	5	1	1820-0551
6	1	1820-0551	6	1	1820-0551
7	1	1820-0551	7	1	1820-0551
8	1	1820-0551	8	1	1820-0551
9	1	1820-0551	9	1	1820-0551
10	1	1820-0551	10	1	1820-0551
11	1	1820-0551	11	1	1820-0551
12	1	1820-0551	12	1	1820-0551
13	1	1820-0551	13	1	1820-0551
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15	1	1820-0551	15	1	1820-0551
16	1	1820-0551	16	1	1820-0551
17	1	1820-0551	17	1	1820-0551
18	1	1820-0551	18	1	1820-0551
19	1	1820-0551	19	1	1820-0551
20	1	1820-0551	20	1	1820-0551
21	1	1820-0551	21	1	1820-0551
22	1	1820-0551	22	1	1820-0551
23	1	1820-0551	23	1	1820-0551
24	1	1820-0551	24	1	1820-0551
25	1	1820-0551	25	1	1820-0551
26	1	1820-0551	26	1	1820-0551
27	1	1820-0551	27	1	1820-0551
28	1	1820-0551	28	1	1820-0551
29	1	1820-0551	29	1	1820-0551
30	1	1820-0551	30	1	1820-0551
31	1	1820-0551	31	1	1820-0551
32	1	1820-0551	32	1	1820-0551
33	1	1820-0551	33	1	1820-0551
34	1	1820-0551	34	1	1820-0551
35	1	1820-0551	35	1	1820-0551
36	1	1820-0551	36	1	1820-0551
37	1	1820-0551	37	1	1820-0551
38	1	1820-0551	38	1	1820-0551
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40	1	1820-0551	40	1	1820-0551
41	1	1820-0551	41	1	1820-0551
42	1	1820-0551	42	1	1820-0551
43	1	1820-0551	43	1	1820-0551
44	1	1820-0551	44	1	1820-0551
45	1	1820-0551	45	1	1820-0551
46	1	1820-0551	46	1	1820-0551
47	1	1820-0551	47	1	1820-0551
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49	1	1820-0551	49	1	1820-0551
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97	1	1820-0551	97	1	1820-0551
98	1	1820-0551	98	1	1820-0551
99	1	1820-0551	99	1	1820-0551
100	1	1820-0551	100	1	1820-0551

ENGINEERING RESPONSIBILITY										SEPA
0	1	2	3	4	5	6	7	8	9	10
16	17	18	19	20	21	22			23	24
		25			26			27		



NOTE. IC'S 9, 10 & 11
ARE USED FOR PROGRAM
STEP STORAGE, CSB(02).

IC'S 1-8 USED FOR
REGISTER STORAGE, CSB(01)

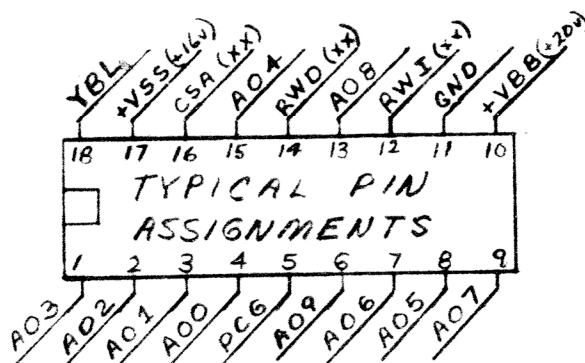
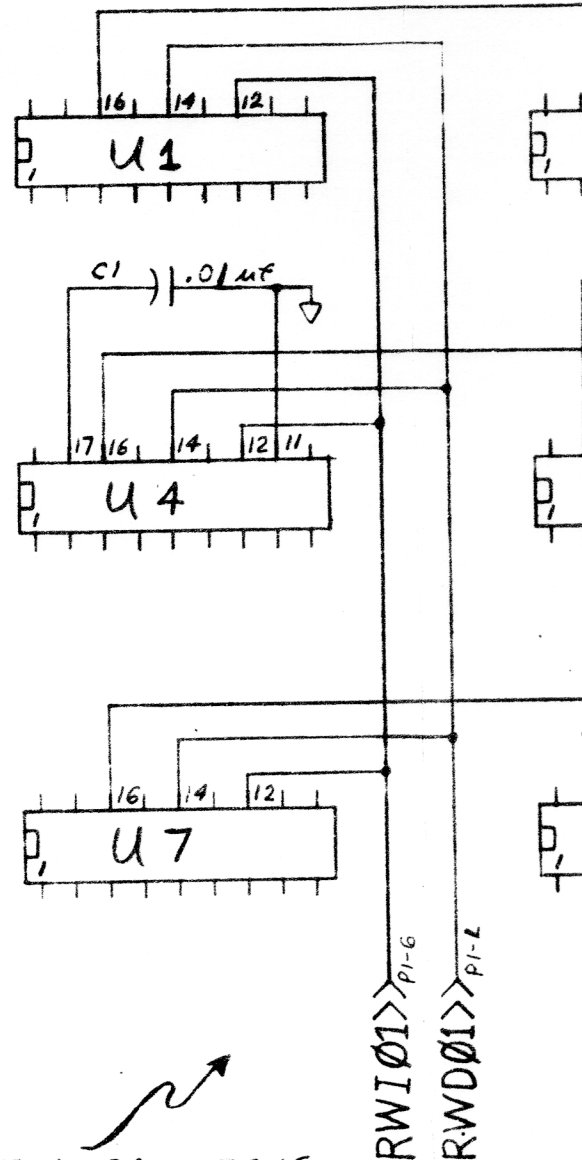
DO NOT SCALE THIS DRAWING
UNLESS OTHERWISE SPECIFIED.
DIMENSIONS ARE IN INCHES.
TOLERANCES .XX ± .02 .XXX ± .005

DRAWN BY
ENGINEER
RELEASE TO
SUPERSEDE

ENGINEERING RESPONSIBILITY										SEPIA
0	1	2	3	4	5	6	7	8	9	10
16	17	18	19	20	21	22			33	34
		63			90			93		

CONNECTOR PIN ASSIGNMENTS (PI)

A	GND	1	A01
B	A03	2	A00
C	A02	3	A04
D	A05	4	A06
E	A08	5	A09
F	A07	6	RWI 01
H	RWD 07	7	RWI 03
J	RWD 05	8	RWI 05
K	RWD 03	9	RWI 07
L	RWD 01	10	RWI 09
M	RWD 15	11	RWI 11
N	RWD 13	12	RWI 13
P	RWD 11	13	RWD 09
R	YBL	14	RWI 15
S	CSA 01	15	PCG
T	CSA 03	16	CSA 02
U	+VSS(+16V)	17	CSA 04
V	GND	18	VCC(+20V)



NOTE: THIS DRAWING IS
LAVED OUT THE SAME AS
THE BOARD

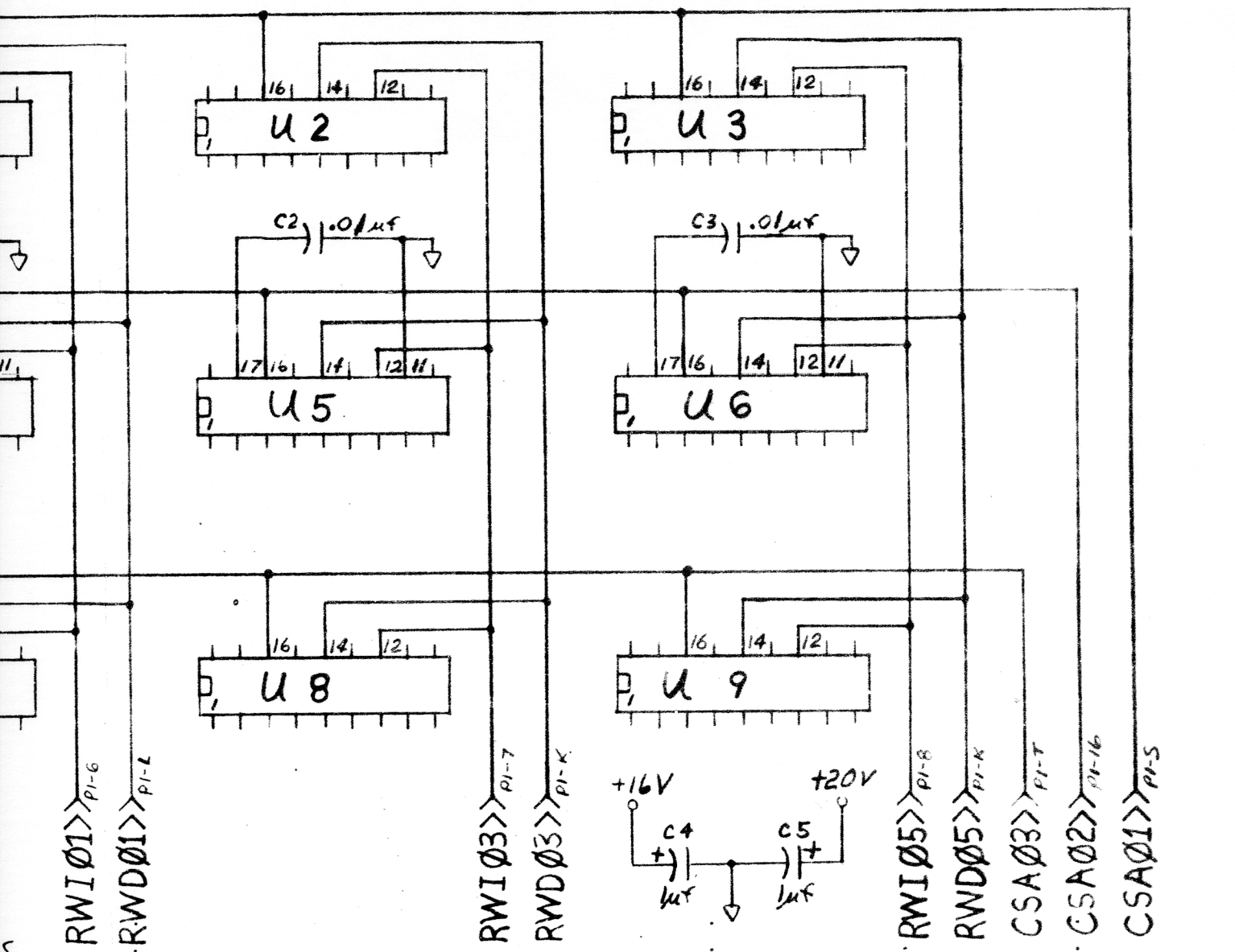
NOTE: PIN ASSIGNMENTS ARE COMMON
TO ALL ICS, UNLESS OTHERWISE SHOWN.

DO NOT SCALE THIS DRAWING
UNLESS OTHERWISE SPECIFIED.
DIMENSIONS ARE IN INCHES.
TOLERANCES .XX ± .02 .XXX ± .008

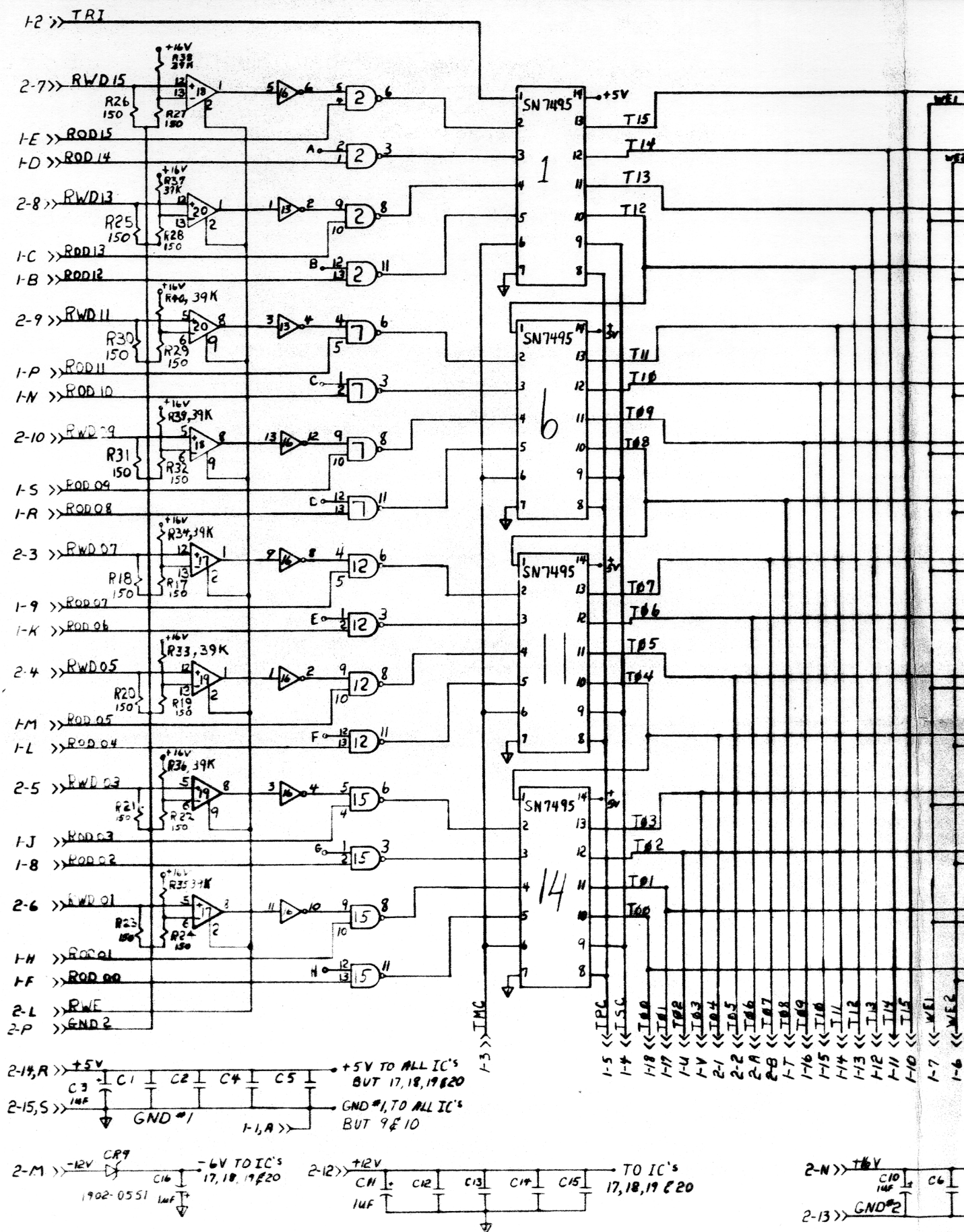
ITEM
DRAWN BY
ENGINEER
RELEASE T
SUPERSED

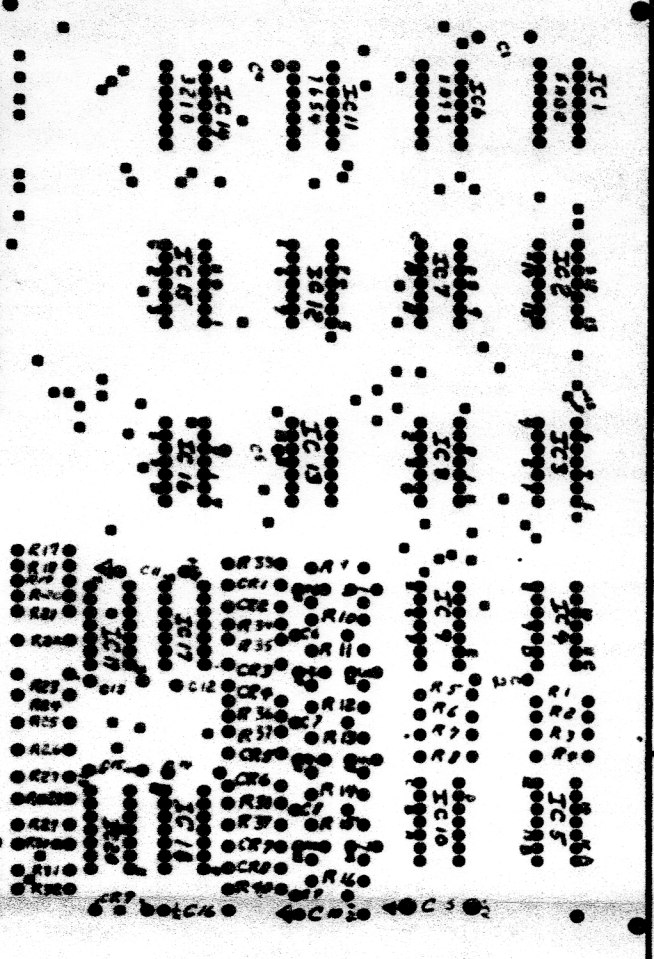
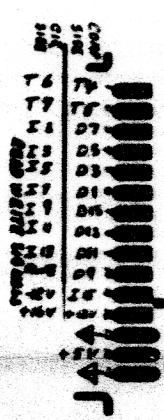
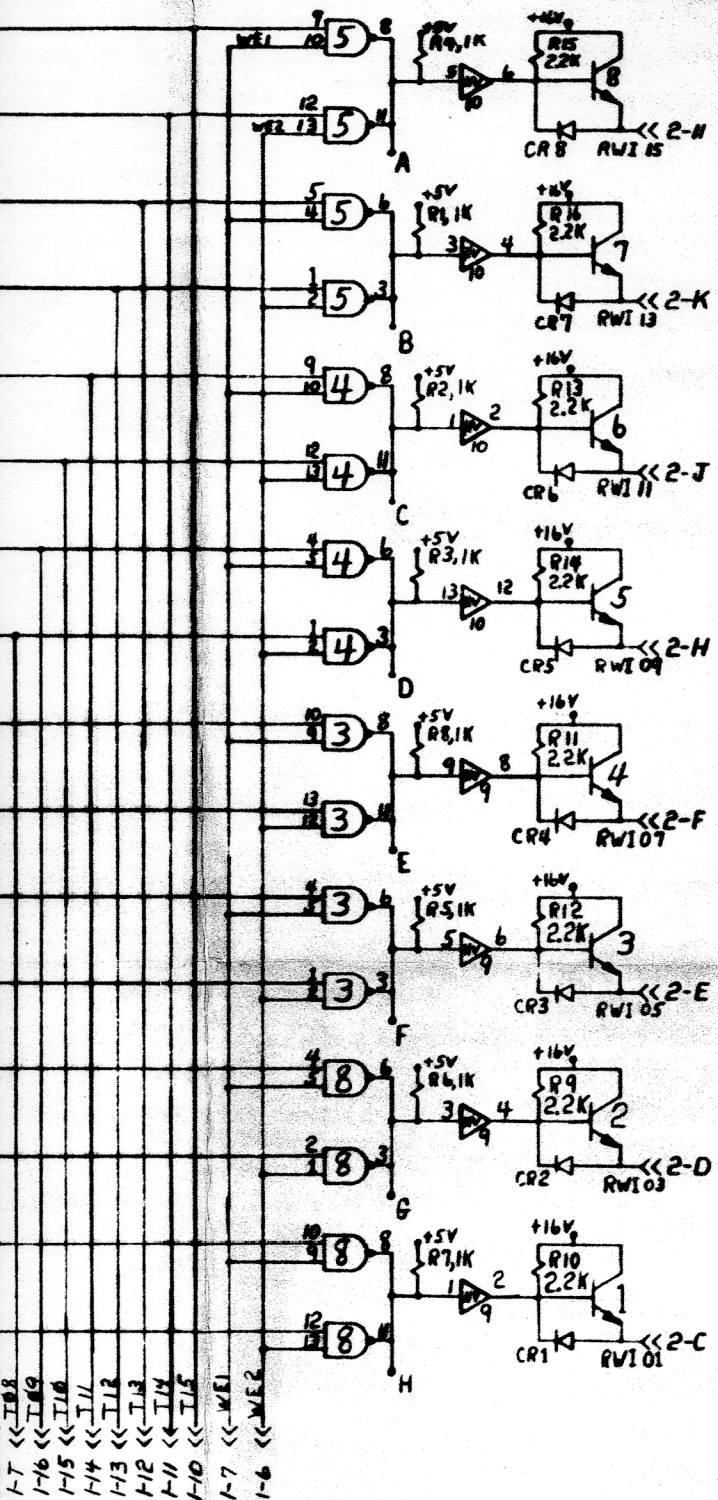
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---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

SYN	REVISIONS	APPROVED	DATE
A	AS ISSUED	JL	7-6-71

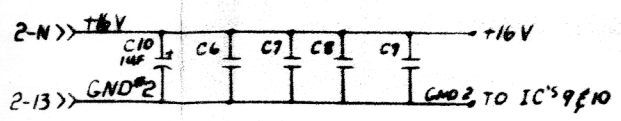


ITEM	QTY.	MATERIAL-DESCRIPTION	MAT'L-PART NO.	MAT'L-OWG. NO.	MAT'L-SPEC.
DRAWING SPECIFIED. IN INCHES. 2 .XXX ± .005 DRAWN BY <i>Wayne Harlan</i> ENGINEER <i>F/INN</i> RELEASE TO PROD. <i>J. Smith</i> SUPERSEDES DWG. DATE 7-12-71 DATE 7-6-71 TITLE 9810 OPT 003 READ/WRITE MEMORY NEXT ASSEMBLY 11218-66526 FINISH OK 6-16-71 SCALE HEWLETT PACKARD PART NUMBER B-11218-66526-2					

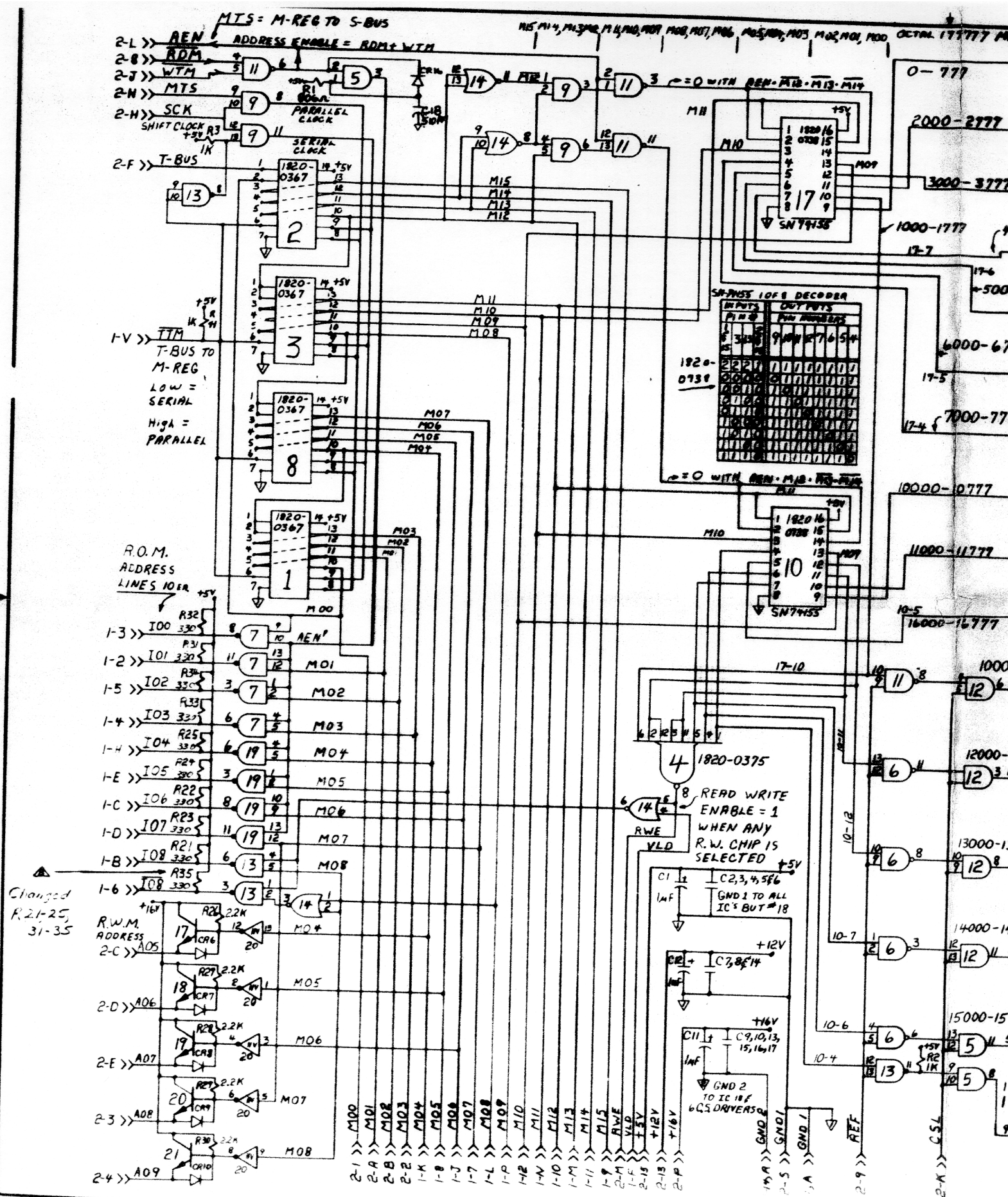


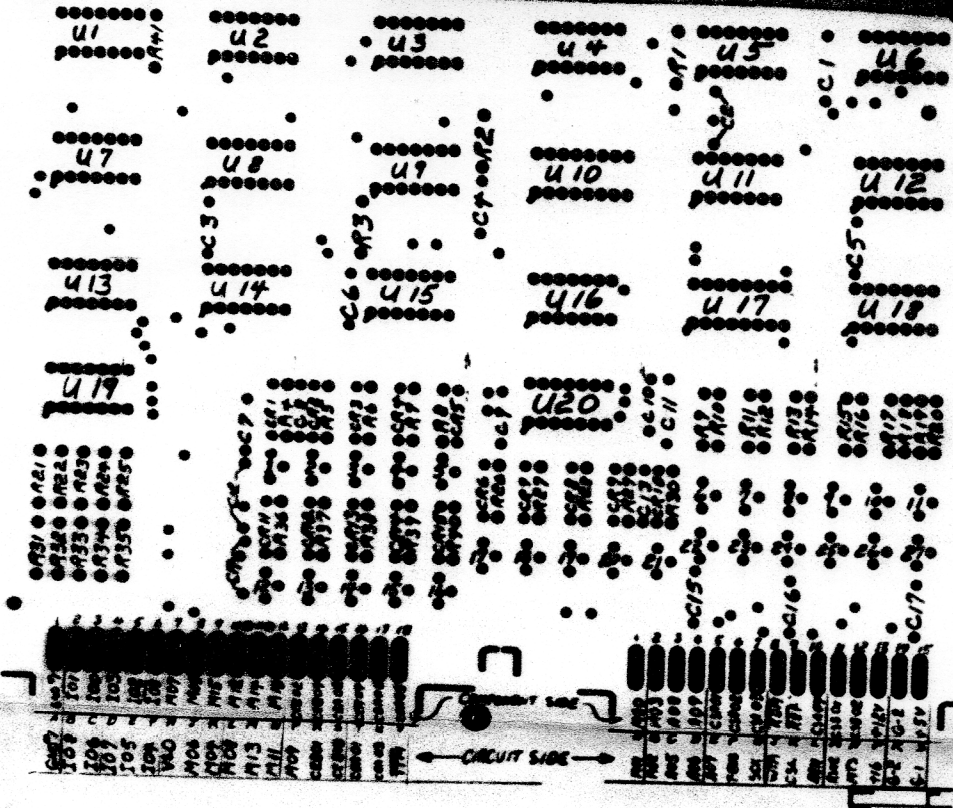
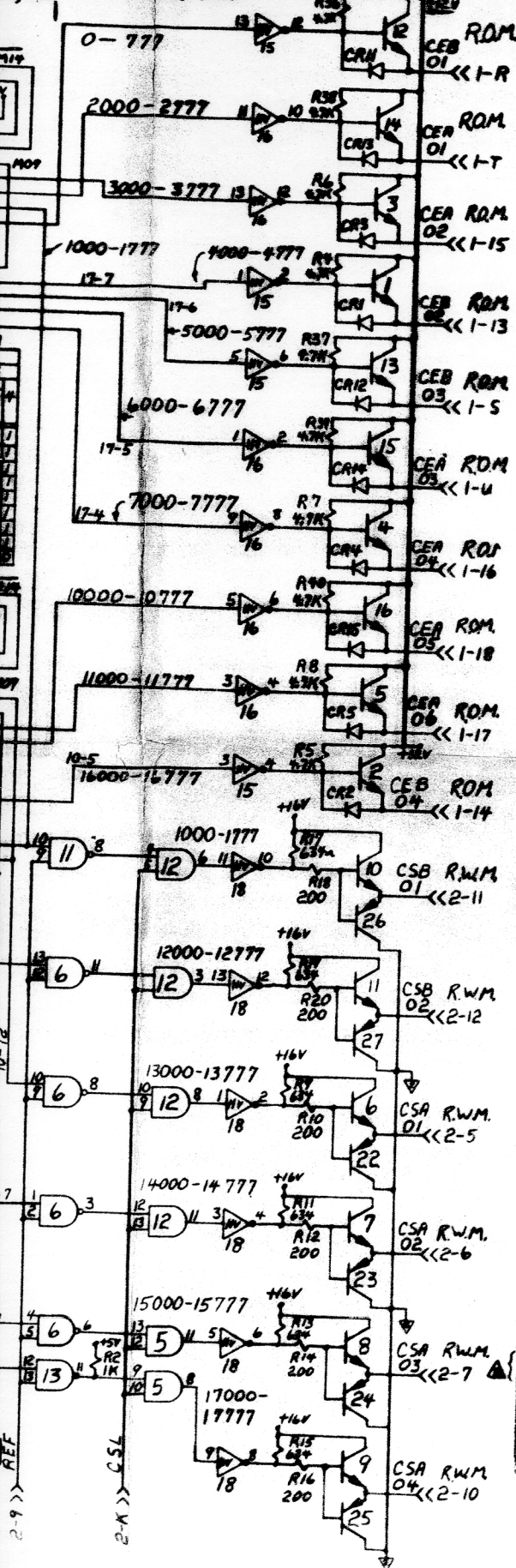


- U13,16 4N74404 1820-0324
- U14,15 4N74404 1820-0367
- U17,18 4N74404 1820-0049
- U19,20 4N74404 1820-0605
- U21,22 4N74404 1820-0668
- U23,24 4N74404 1820-0668
- U25,26 4N74404 1820-0668
- U27,28 4N74404 1820-0668
- U29,30 4N74404 1820-0668
- U31,32 4N74404 1820-0668
- U33,34 4N74404 1820-0668
- U35,36 4N74404 1820-0668
- U37,38 4N74404 1820-0668
- U39,40 4N74404 1820-0668
- U41,42 4N74404 1820-0668
- U43,44 4N74404 1820-0668
- U45,46 4N74404 1820-0668
- U47,48 4N74404 1820-0668
- U49,50 4N74404 1820-0668
- U51,52 4N74404 1820-0668
- U53,54 4N74404 1820-0668
- U55,56 4N74404 1820-0668
- U57,58 4N74404 1820-0668
- U59,60 4N74404 1820-0668
- U61,62 4N74404 1820-0668
- U63,64 4N74404 1820-0668
- U65,66 4N74404 1820-0668
- U67,68 4N74404 1820-0668
- U69,70 4N74404 1820-0668
- U71,72 4N74404 1820-0668
- U73,74 4N74404 1820-0668
- U75,76 4N74404 1820-0668
- U77,78 4N74404 1820-0668
- U79,80 4N74404 1820-0668
- U81,82 4N74404 1820-0668
- U83,84 4N74404 1820-0668
- U85,86 4N74404 1820-0668
- U87,88 4N74404 1820-0668
- U89,90 4N74404 1820-0668
- U91,92 4N74404 1820-0668
- U93,94 4N74404 1820-0668
- U95,96 4N74404 1820-0668
- U97,98 4N74404 1820-0668
- U99,100 4N74404 1820-0668



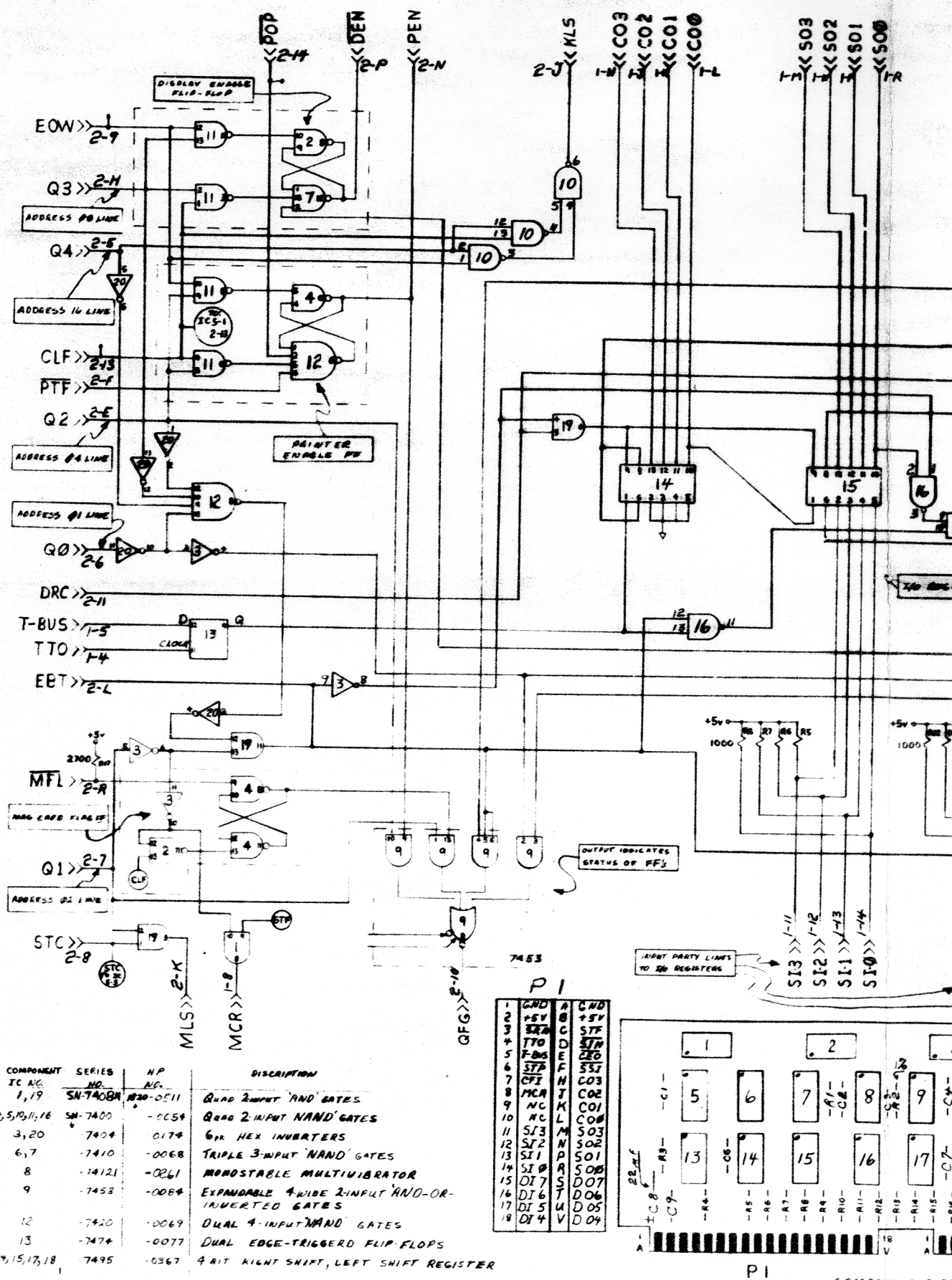
DO NOT SCALE THIS DRAWING		UNLESS OTHERWISE SPECIFIED		DIMENSIONS ARE IN INCHES		TOLERANCES: .010 IN. .005 IN. .002 IN.	
DATE	REV	DESIGNED BY	DATE	DESIGNED BY	DATE	DESIGNED BY	DATE
6-21-71		FINN	7-29-71				
L. Chondler				OK 6-21-71			
T* REGISTER				NEWLETT PACKAGED			
09810				REF. DWG. D-3			
D-09810-66524-2				D-09810-66524-2			

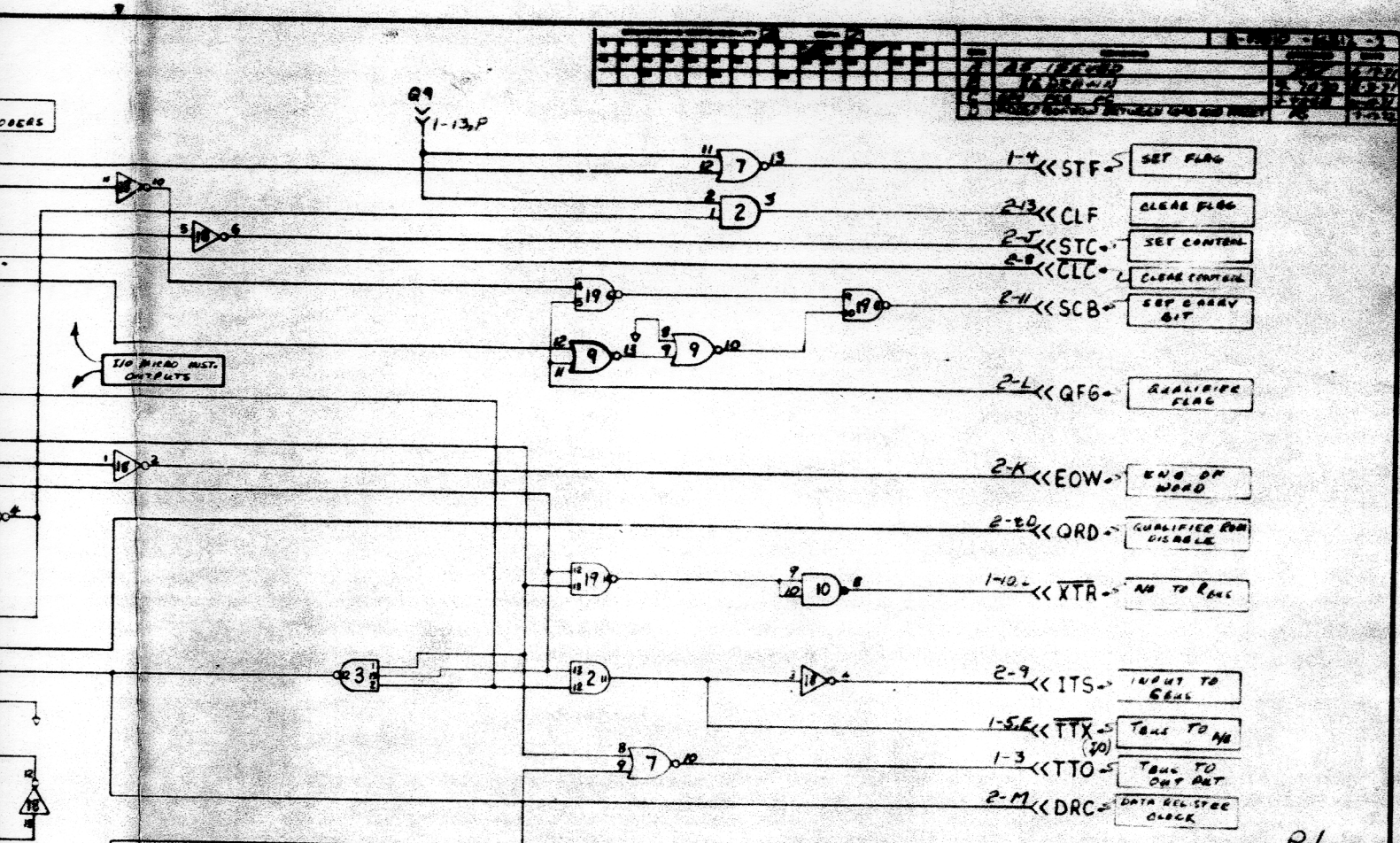




IC 1,2,3,8 SN 7995 1820-0367	Q 6,7,8,9,10,11 1854-0087	R 9,11,13,15,13,19 634-12 0678-4457
IC 4 SN 74130 1820-0975	Q 22,23,24,25,26,27 1853-0016	R 12,12,16,18,20 200-12 0757-0407
IC 5,7,12 MC 3000 1820-0191	ALL OTHER NPN 1518 1853-0904	R 4,5,6,7,8,36,37,38,39,40 67K 0684-4721
IC 6,11,14 SN 7400 1820-0370	ALL DIODES 1518 1801-0040	R 26,27,28,29,30 22K 0684-2221
IC 13 SN 7401 1820-0605	IC 10,17 SN 74157 1820-0788	C 1,11,12 LWF TAN 0100-0841
IC 14,15 SN 7406 1820-0771	IC 14 MC 3002 1820-0239	ALL OTHER 1K 0684-1021
		R 21-25,31-35 330 0684-3311

DO NOT SCALE THIS DRAWING UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: .010 OR .005 OR .002	DESIGNED BY B. TRAYER CHECKED BY FINN DATE 7-27-71 SUPERSEDED BY	MATERIAL DESCRIPTION 8-16-71 DATE	REF. PART NO. M REGISTER 9810 07810-66523 OA 6-6-71 SCALE	REF. PART NO. REF DWG D-3 B-07810-66523-2
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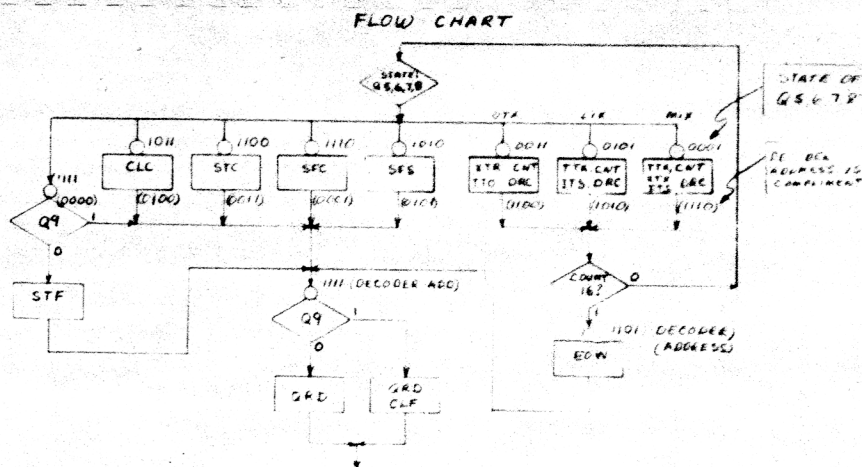


1 of 16 DECODER

INPUT DIGIT	OUTPUT PIN LOW
0 0 0 0	PIN 1
0 0 0 1	PIN 2
0 0 1 0	PIN 3
0 0 1 1	PIN 4
0 1 0 0	PIN 5
0 1 0 1	PIN 6
0 1 1 0	PIN 7
0 1 1 1	PIN 8
1 0 0 0	PIN 9
1 0 0 1	PIN 10
1 0 1 0	PIN 11
1 0 1 1	PIN 13
1 1 0 0	PIN 14
1 1 0 1	PIN 15
1 1 1 0	PIN 16
1 1 1 1	PIN 17

1820-0495

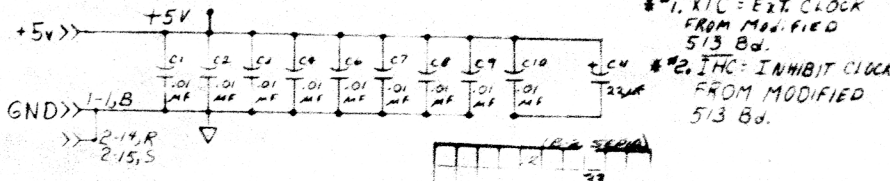
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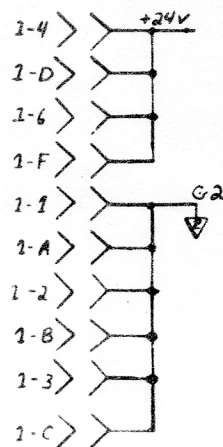


6	GAD	A	GAD
3	TSY	TSY	TSY
4	TO	TO	SNA
5	STR	STR	INN
6	TR	TR	TR
7	MCK	MCK	MCK
8	STR	STR	STR
9	ECT	ECT	ECT
10	SCK	SCK	SCK
11	KTR	KTR	KTR
12	CTR	CTR	CTR
13	RCK	RCK	RCK
14	Q9	Q9	Q9
15	T-BUS	T-BUS	T-BUS
16	EEB	EEB	EEB
17	Q8	Q8	Q8
18	Q9	Q9	Q9
19	Q6	Q6	Q6
20	Q5	Q5	Q5

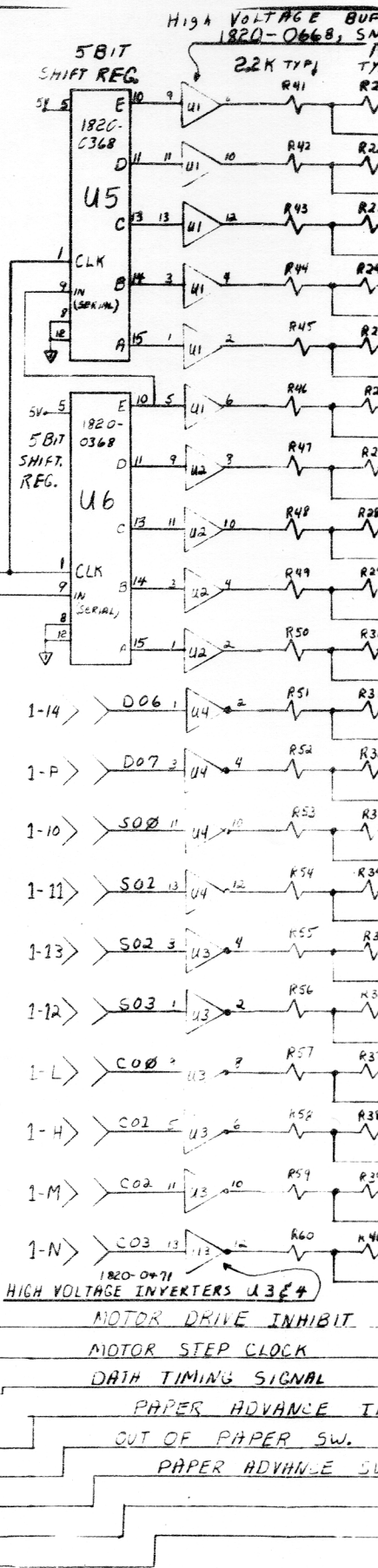
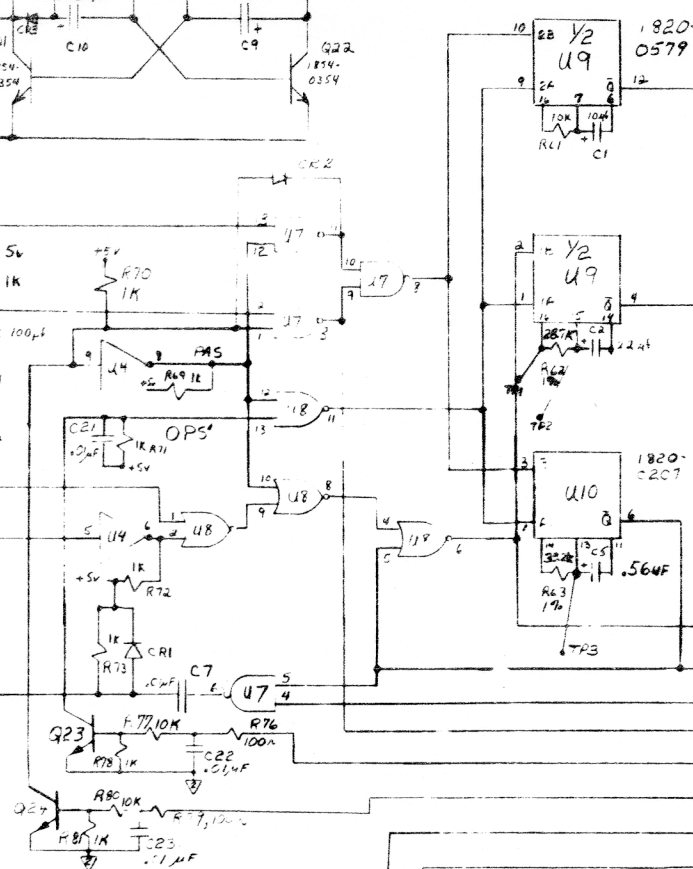
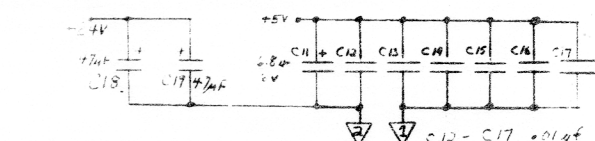
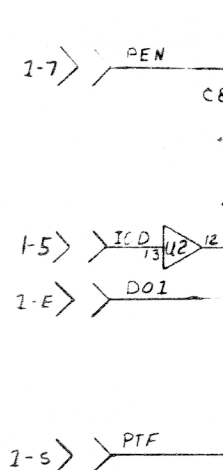
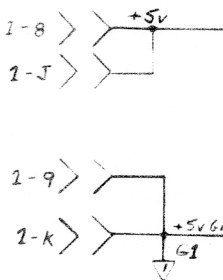
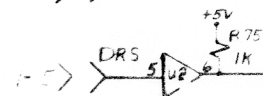
P2

2	NC	A	NC
3	NC	B	NC
4	*#2	C	*#2
5	QRO	D	QRO
6	CC#	E	CC#
7	CC#	F	CC#
8	CC#	G	CC2
9	CLC	H	STC
10	ITS	J	EDW
11	EBT	K	QFB
12	SCB	L	DRC
13	RCA	M	RCA
14	CLP	N	POP
15	GND	P	GND
16	GND	S	GND

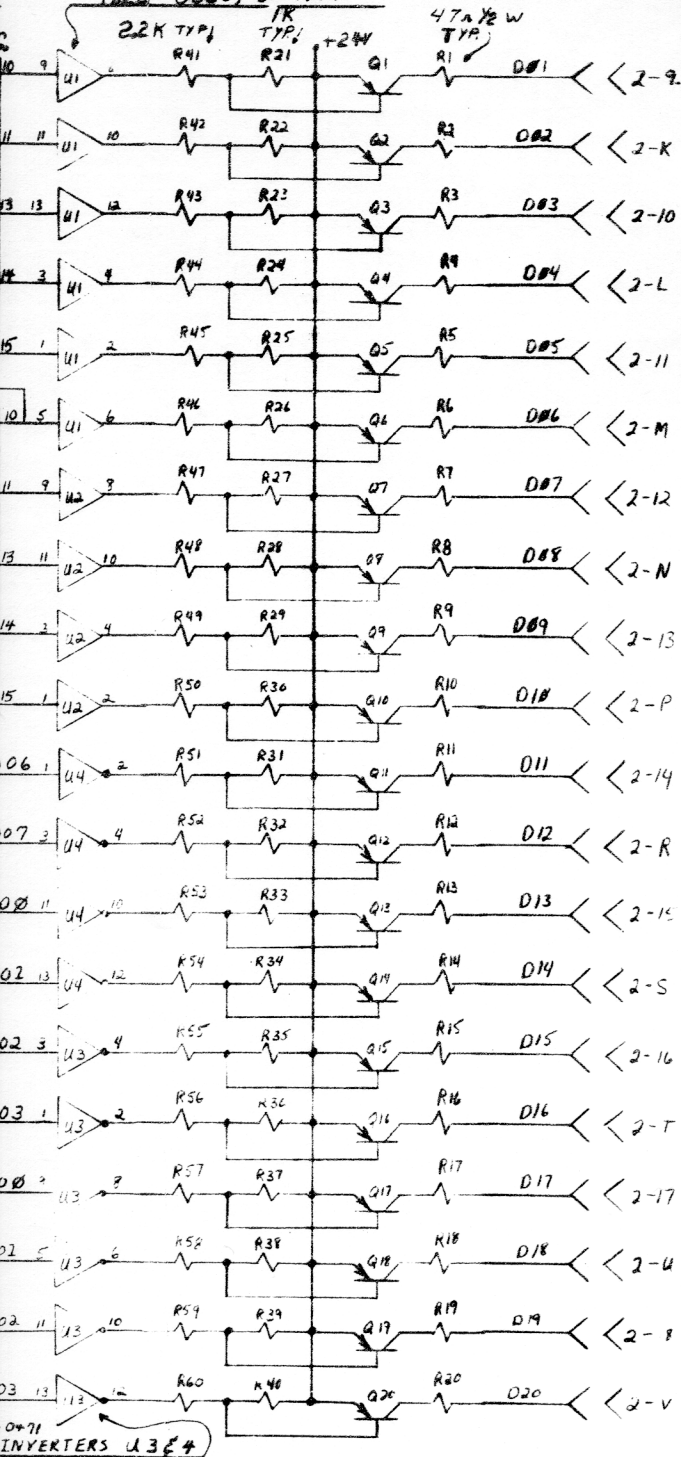
[illegible]



P1		P2	
1	GND#2	1	OPS
2	GND#2	2	PAS
3	GND#2	3	+24V
4	24V	4	DTS
5	IOD	5	DOI
6	24V	6	+5V
7	PEN	7	GND#2
8	+5V	8	GND#2
9	GND#1	9	DOI
10	S00	10	DO3
11	S01	11	DO5
12	S03	12	DO7
13	S02	13	DO9
14	DO6	14	DO11
15	DRS	15	DO13
		16	DO15
		17	DO17
		18	DO19

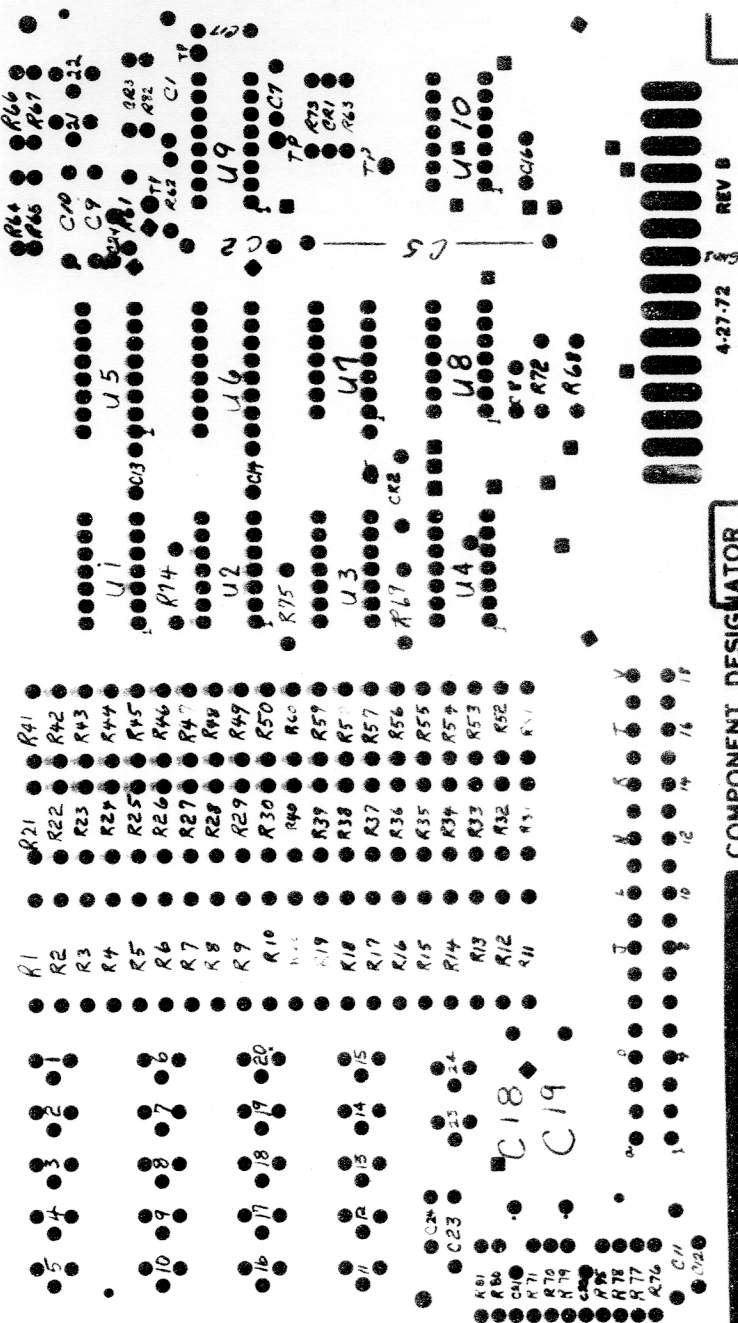


High VOLTAGE BUFFER, U182
1820-0668, SN 7407

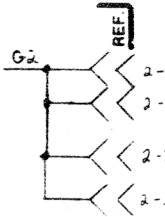


OR DRIVE INHIBIT MDI < 2-A
OR STEP CLOCK MSC < 2-B
TIMING SIGNAL QTS < 2-4
PAPER ADVANCE INHIBIT PAI < 2-D
T OF PAPER SW. OPS < 2-1
PAPER ADVANCE SW. PAS < 2-2
DOZ < 2-5
IOD < 2-E

REV	QTY	DESCRIPTION	DATE	BY	CHKD	APP'D
1	1	REWORK	5/1/72	J. D. RILEY		
2	1	NEW COMP DES FLOW/COMP DES V9, V10	5/1/72	J. D. RILEY		
3	1	REVISED DES FLOW/COMP DES V9, V10	5/1/72	J. D. RILEY		

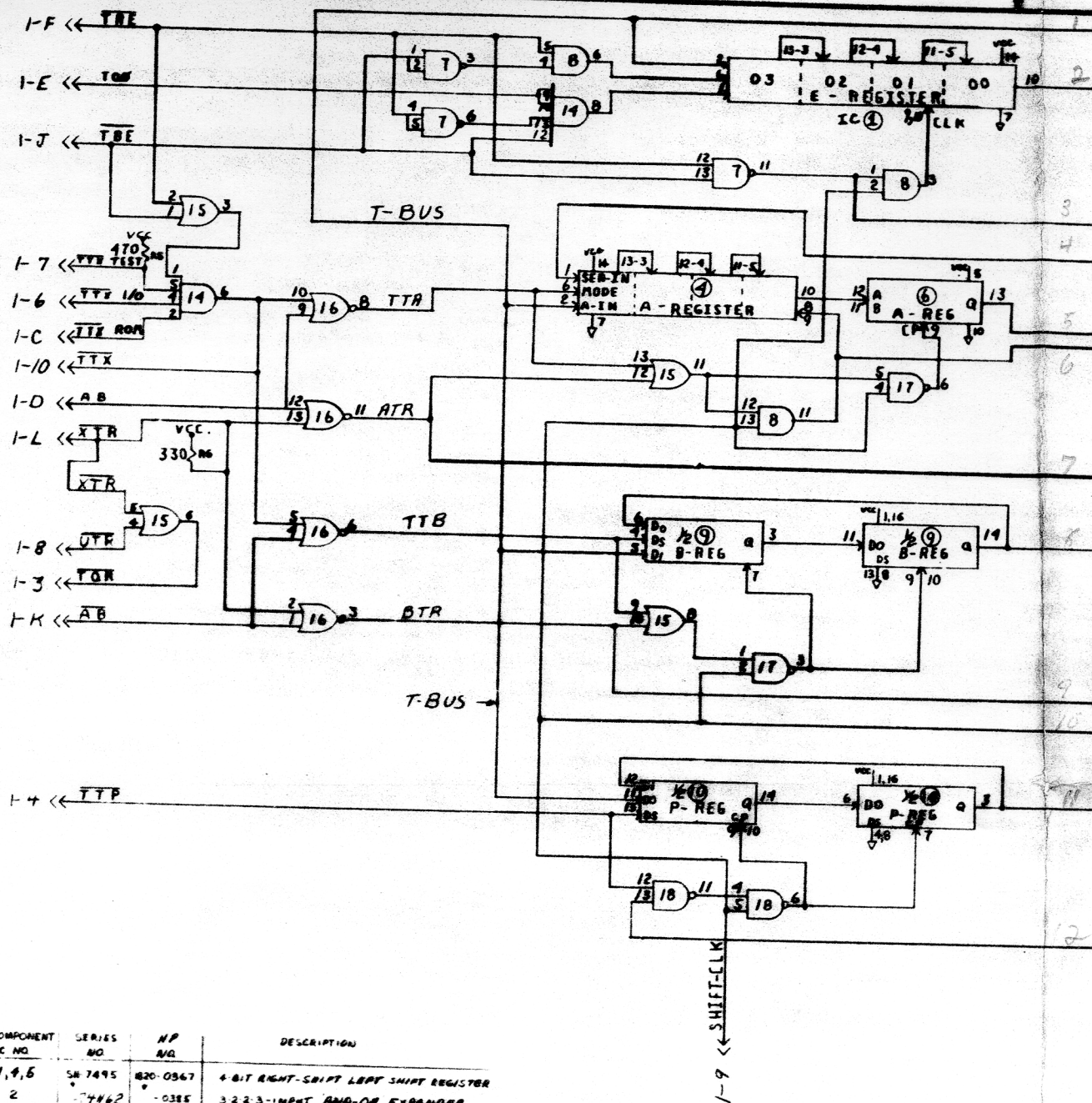


COMPONENT DESIGNATOR

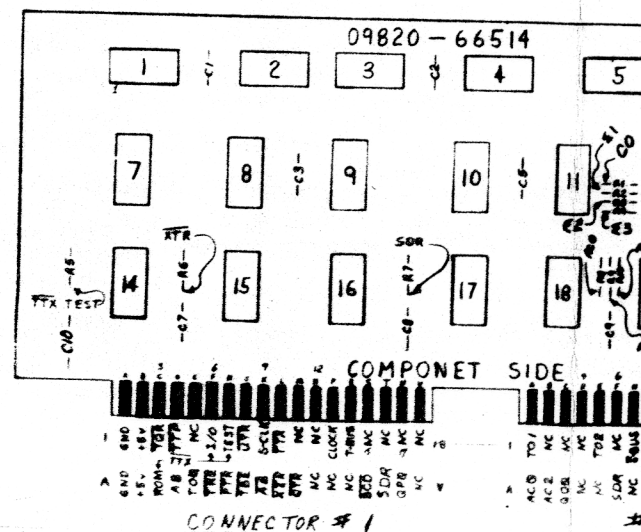


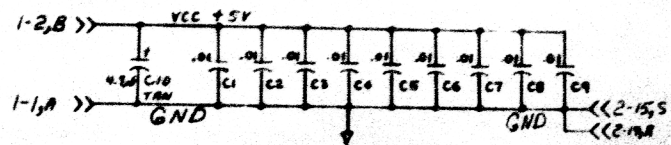
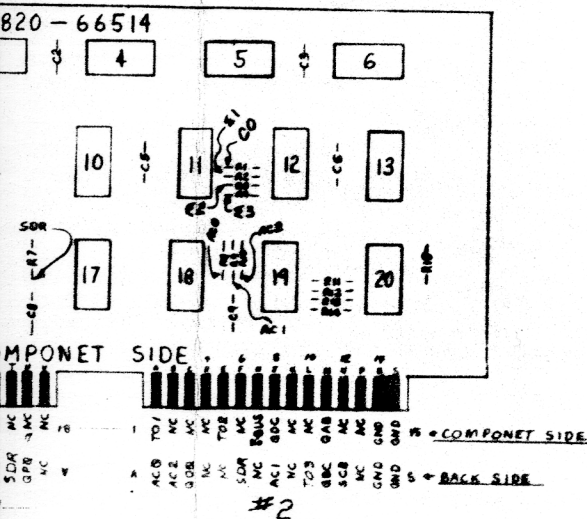
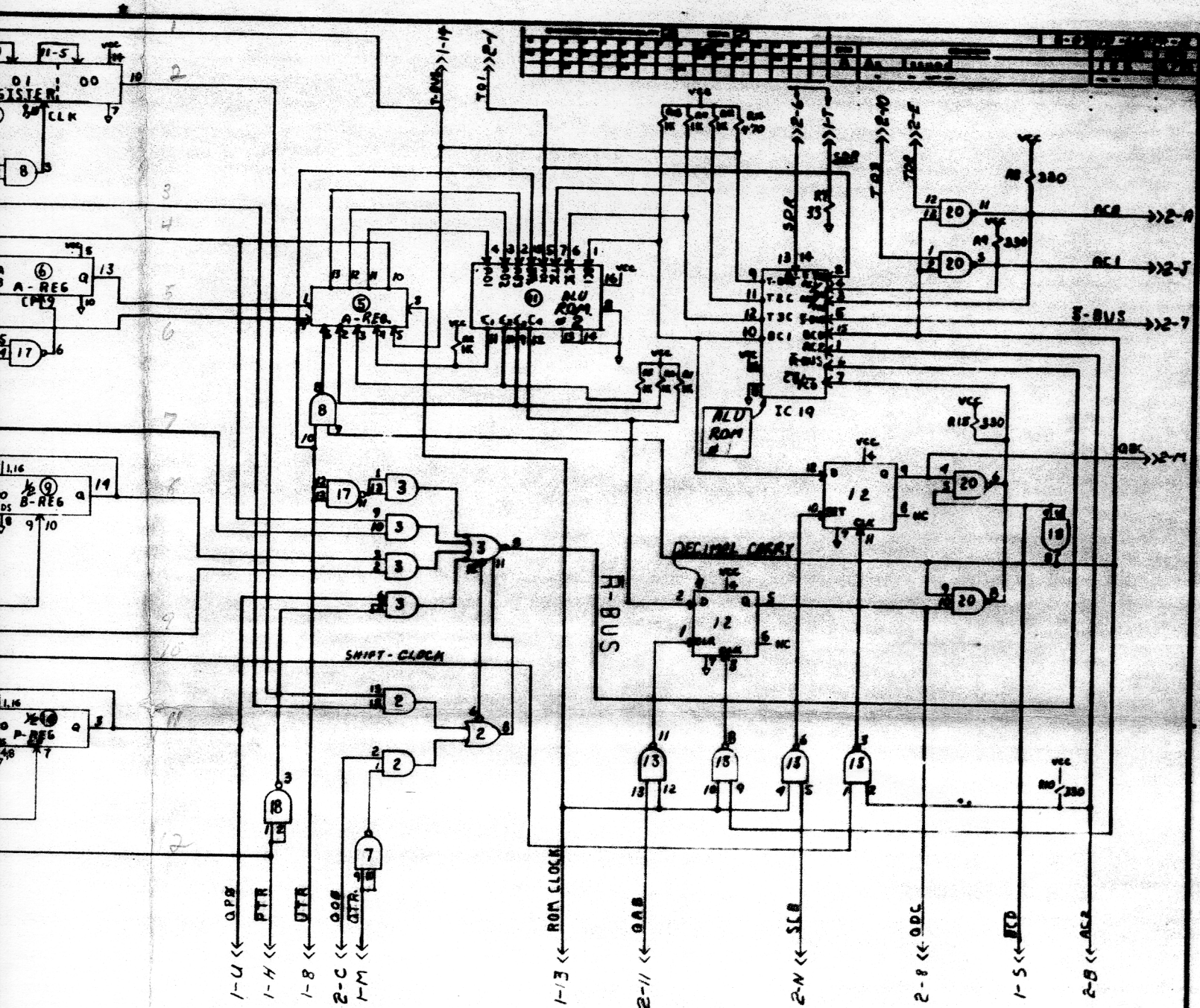
DO NOT SCALE THIS DRAWING UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN INCHES. TOLERANCES: XX ± .02 XXX ± .005	DRAWN BY J. D. RILEY ENGINEER J. D. RILEY RELEASE TO PROD. 5/1/72 SUPERSEDES DWG. REV 6 5/1/72	MATERIAL DESCRIPTION DATE 5/1/72 TITLE BOARD NEXT ASSEMBLY 11219-66551 CHK 12471	MATERIAL PART NO. MATERIAL DWG NO. MATERIAL SPEC.	PRINTED CONTROL REF DWG D-3 B-11219-66551-2
--	---	--	---	---

R1 - R20 47 A 1/2 W 5%
R21 - R40 10 KA 1/4 W 10%
R41 - R60 4.7K 1/4 W 10%
All other Resistors 1/4 W 10%
Unless otherwise noted



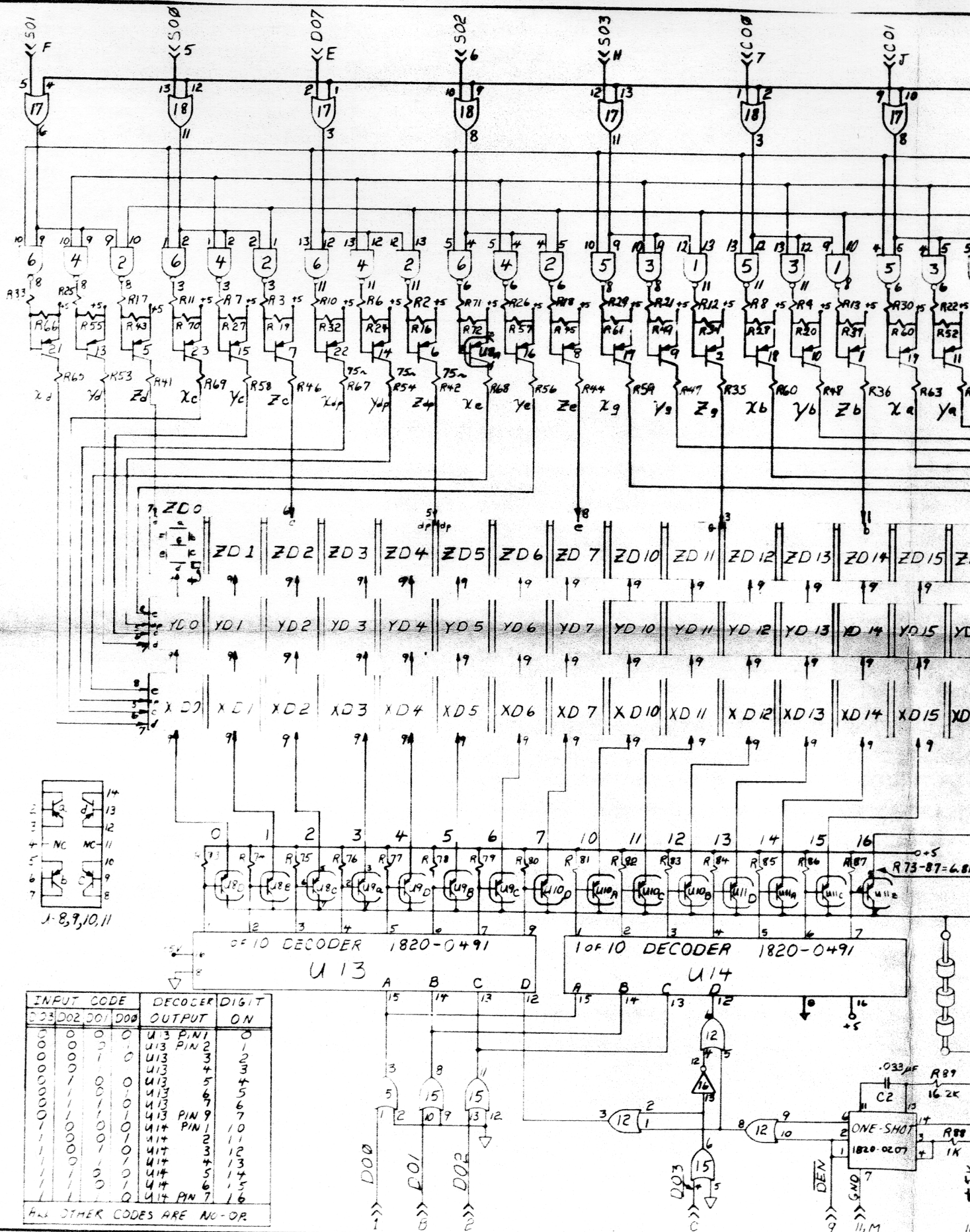
COMPONENT IC NO.	SERIES NO.	HP NO.	DESCRIPTION
1, 9, 5	SN 7495	820-0367	4-BIT RIGHT-SHIFT LEFT-SHIFT REGISTER
2	74462	-0385	3-2-2-3-INPUT AND-OR EXPANDER
3	74453	-0380	EXPANDABLE 2-2-2-3-INPUT AND-OR INVERTED GATE
6	7491	-0364	8-BIT SHIFT REGISTER
7, 13, 17, 18	74400	-0370	QUAD 2-INPUT NAND GATES
8	MC 3001P	-0141	QUAD 2-INPUT AND GATES
9, 10	F932859	-0741	8-BIT SHIFT REGISTER, DUAL
11	1814-2052		B1-POLAR ROM
12	SN 7474	820-0077	DUAL EDGE-TRIGGERED FLIP-FLOPS
14	SN 7421	-0374	DUAL 4-INPUT AND GATES
15	MC 3008P	-0205	QUAD 2-INPUT OR GATES
16	MC 3002P	-0239	QUAD 2-INPUT NOR GATES
19	1814-2051		B1-POLAR ROM
20	SN 74401	820-0605	QUAD 2-INPUT NAND GATE (OPEN COLLECTOR OUTPUT)

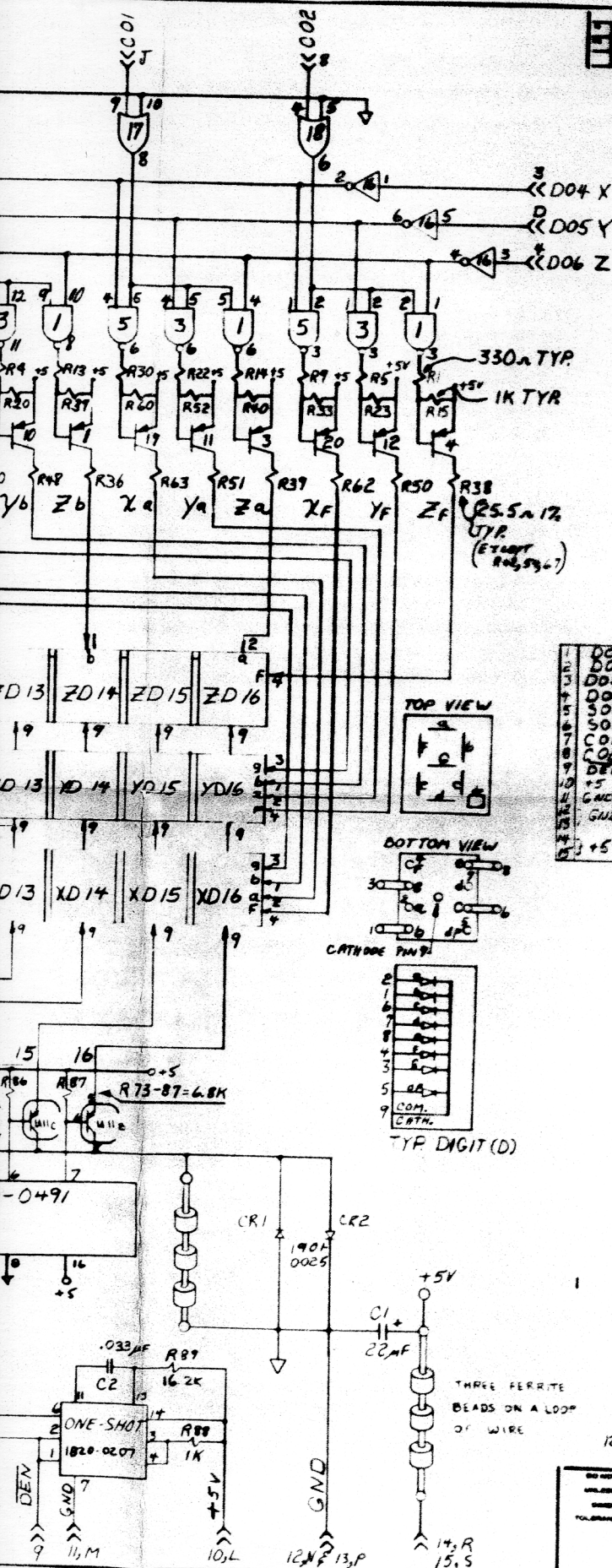




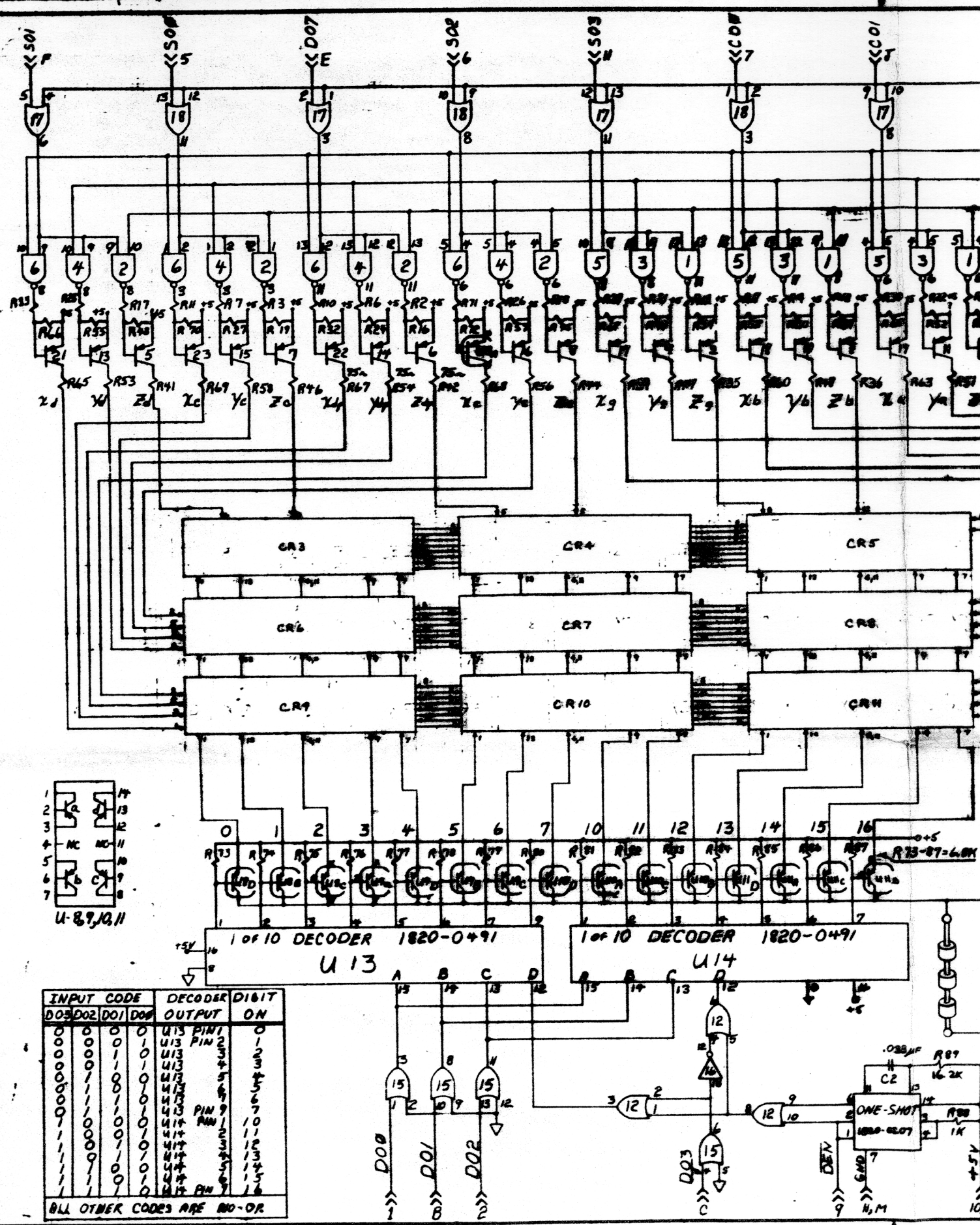
43

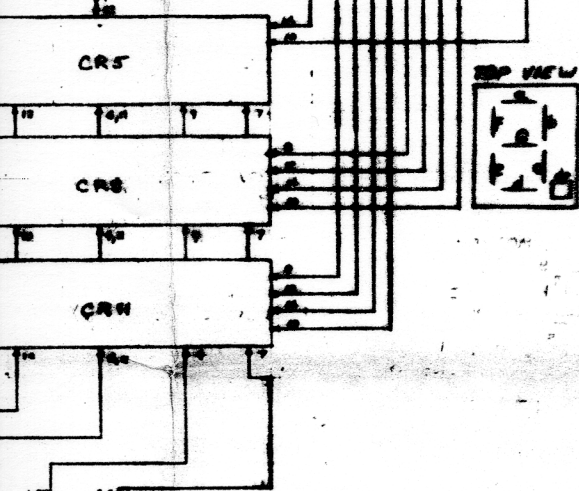
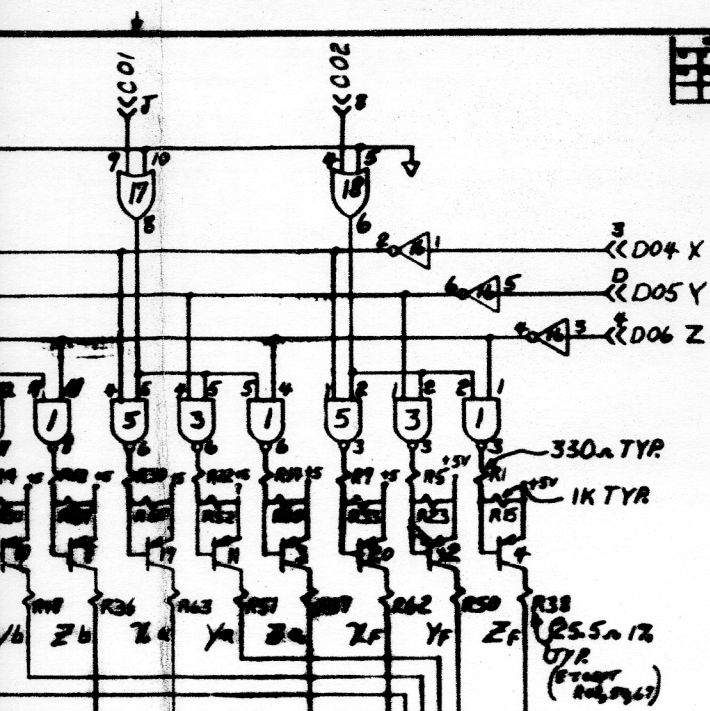
DO NOT SCALE THIS BRANCH		VALUED OTHERWISE SPECIFIED		BRANCHES ARE IN HUNDRED		TELEBRANCHES 20 0 00 100 0 000	
DATE		TIME		CITY		STATE	
3-28-71		10:00		NEW YORK		NY	
FRED GROSS		JES		6 18 71		OK 6-9-71	
RELEASE TO PRESS		SUPERVISOR'S SIGNATURE		FBI		SCALE	
0-09810-66514-2							



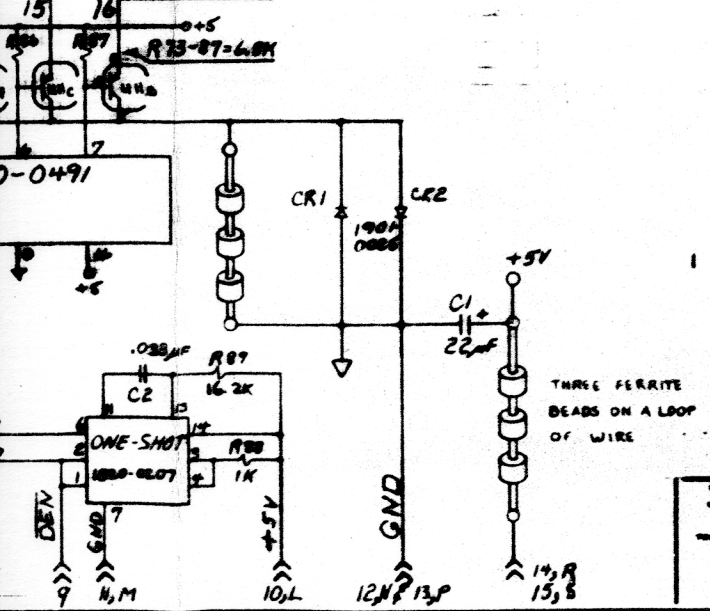


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2	DO2	B	DO2
3	DO3	C	DO3
4	DO4	D	DO4
5	DO5	E	DO5
6	DO6	F	DO6
7	DO7	G	DO7
8	DO8	H	DO8
9	DO9	J	DO9
10	DO10	K	DO10
11	DO11	L	DO11
12	DO12	M	DO12
13	DO13	N	DO13
14	DO14	P	DO14
15	DO15	R	DO15
16	DO16	S	DO16

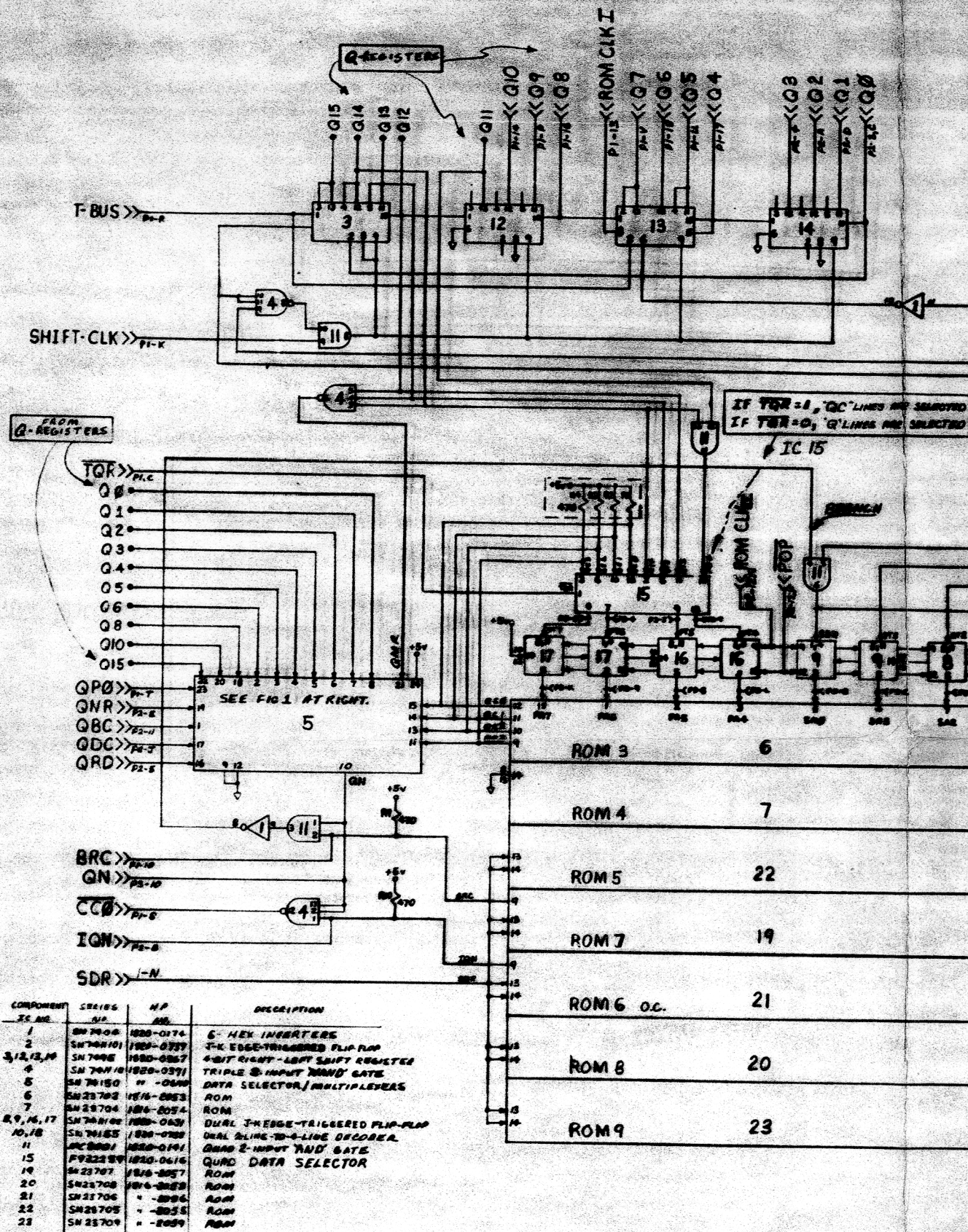




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2	DO5	DO2
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4	DO7	DO4
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8	DO11	DO8
9	DO12	DO9
10	DO13	DO10
11	DO14	DO11
12	DO15	DO12
13	DO16	DO13
14	DO17	DO14
15	DO18	DO15
16	DO19	DO16
17	DO20	DO17
18	DO21	DO18
19	DO22	DO19
20	DO23	DO20
21	DO24	DO21
22	DO25	DO22
23	DO26	DO23
24	DO27	DO24
25	DO28	DO25
26	DO29	DO26
27	DO30	DO27
28	DO31	DO28
29	DO32	DO29
30	DO33	DO30
31	DO34	DO31
32	DO35	DO32
33	DO36	DO33
34	DO37	DO34
35	DO38	DO35
36	DO39	DO36
37	DO40	DO37
38	DO41	DO38
39	DO42	DO39
40	DO43	DO40
41	DO44	DO41
42	DO45	DO42
43	DO46	DO43
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45	DO48	DO45
46	DO49	DO46
47	DO50	DO47
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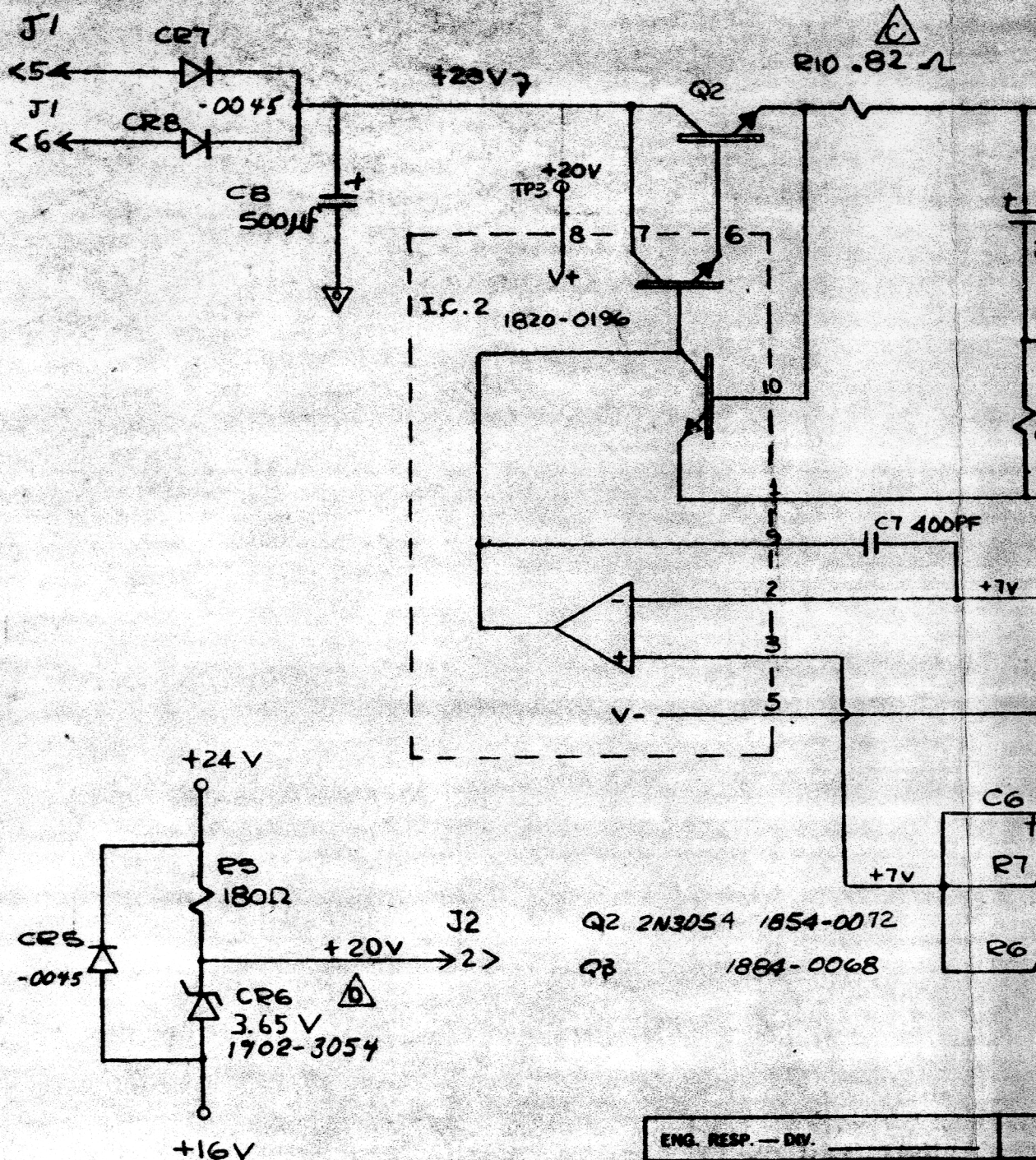


DATE	BY	REVISION	DESCRIPTION	APPROVED
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12-10-71	12-10-71	2	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	3	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	4	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	5	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	6	DISPLY MODEL 10	REVIEWED
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12-10-71	12-10-71	8	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	9	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	10	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	11	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	12	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	13	DISPLY MODEL 10	REVIEWED
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12-10-71	12-10-71	98	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	99	DISPLY MODEL 10	REVIEWED
12-10-71	12-10-71	100	DISPLY MODEL 10	REVIEWED



COMPONENT IC NO.	SERIES NO.	HP NO.	DESCRIPTION
1	SN 7400	1000-0174	6-HEX INVERTERS
2	SN 7401	1000-0171	J-K EDGE-TRIGGERED FLIP-FLAP
3, 12, 13, 14	SN 7400E	1000-0174	4-BIT RIGHT-LEFT SHIFT REGISTER
4	SN 7401	1000-0171	TRIPLE 3-INPUT NAND GATE
5	SN 74150	" -0640	DATA SELECTOR/MULTIPLEXERS
6	SN 23702	1016-0053	ROM
7	SN 23704	1016-0054	ROM
8, 9, 16, 17	SN 7401	1000-0171	DUAL J-K EDGE-TRIGGERED FLIP-FLAP
10, 18	SN 74163	1000-0700	DUAL 2-LINE-TO-4-LINE DECODER
11	SN 7400	1000-0174	6-HEX INVERTERS
15	SN 7400	1000-0174	6-HEX INVERTERS
19	SN 23707	1016-0057	ROM
20	SN 23708	1016-0058	ROM
21	SN 23706	" -0056	ROM
22	SN 23705	" -0055	ROM
23	SN 23709	" -0059	ROM

D 365V was 4

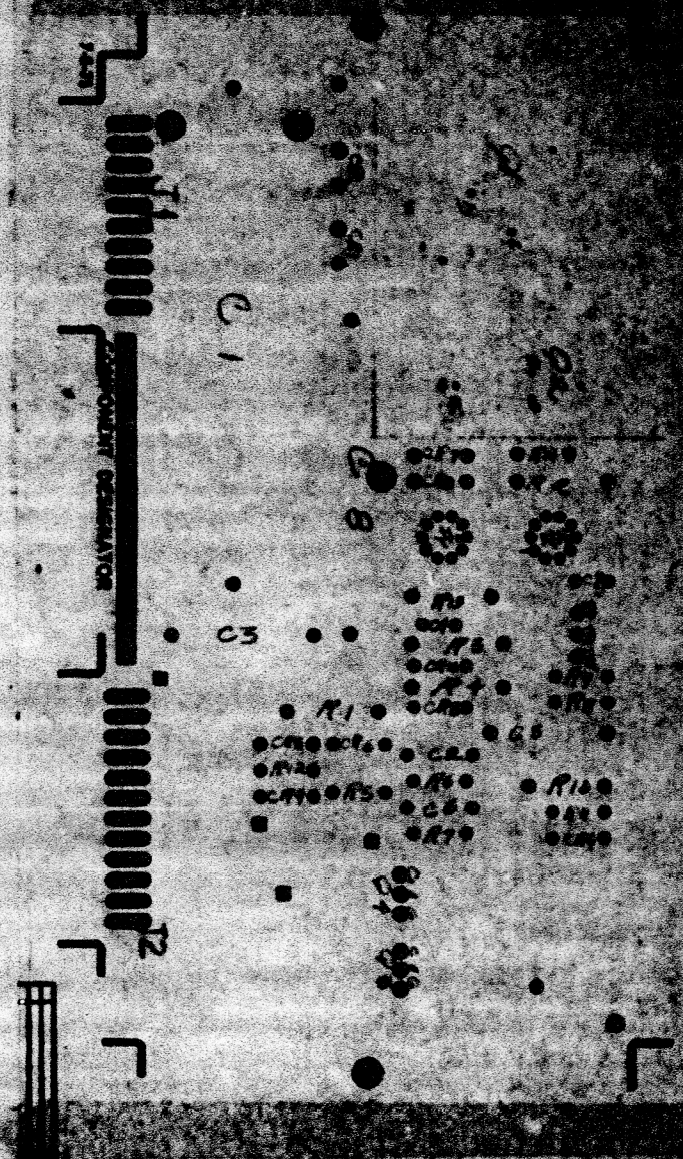
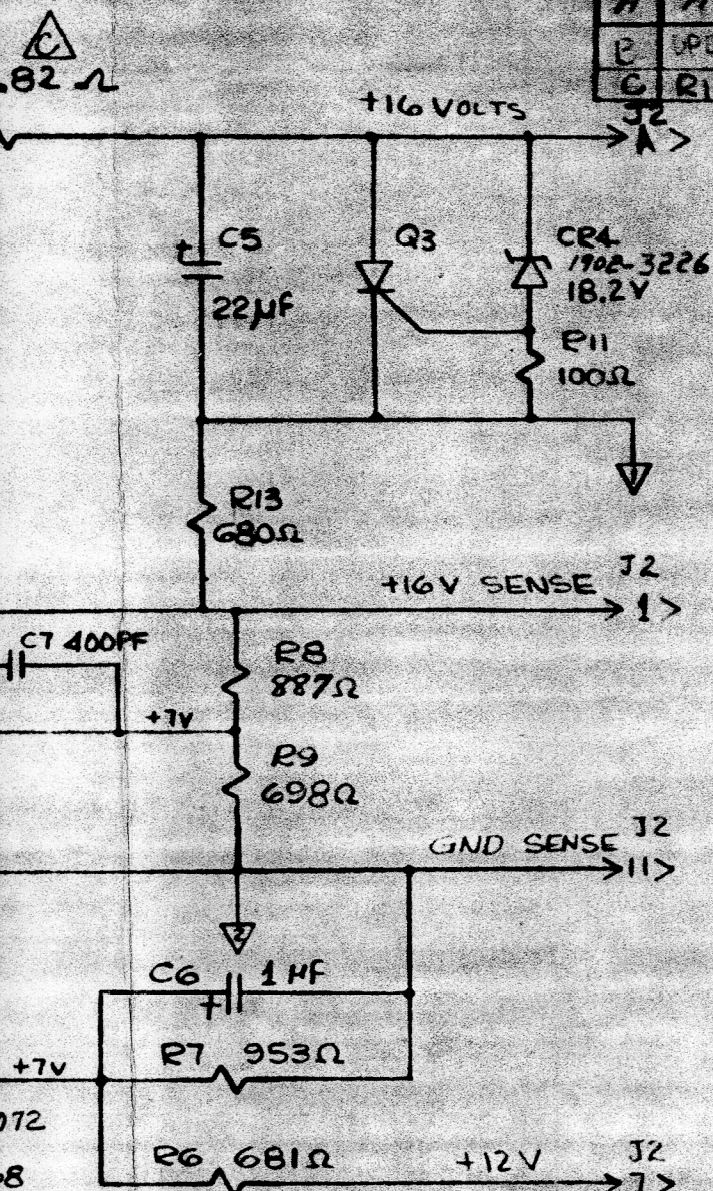


12

ENG. RESP. — DIV. _____	ITEM _____
UNLESS OTHERWISE NOTED — TOLERANCES —	
0.XX ± 0.02 0.XXX ± 0.005	
ANGULAR $\pm$ _____	
MACHINED SURFACES $\checkmark 63$	
— DO NOT SCALE —	

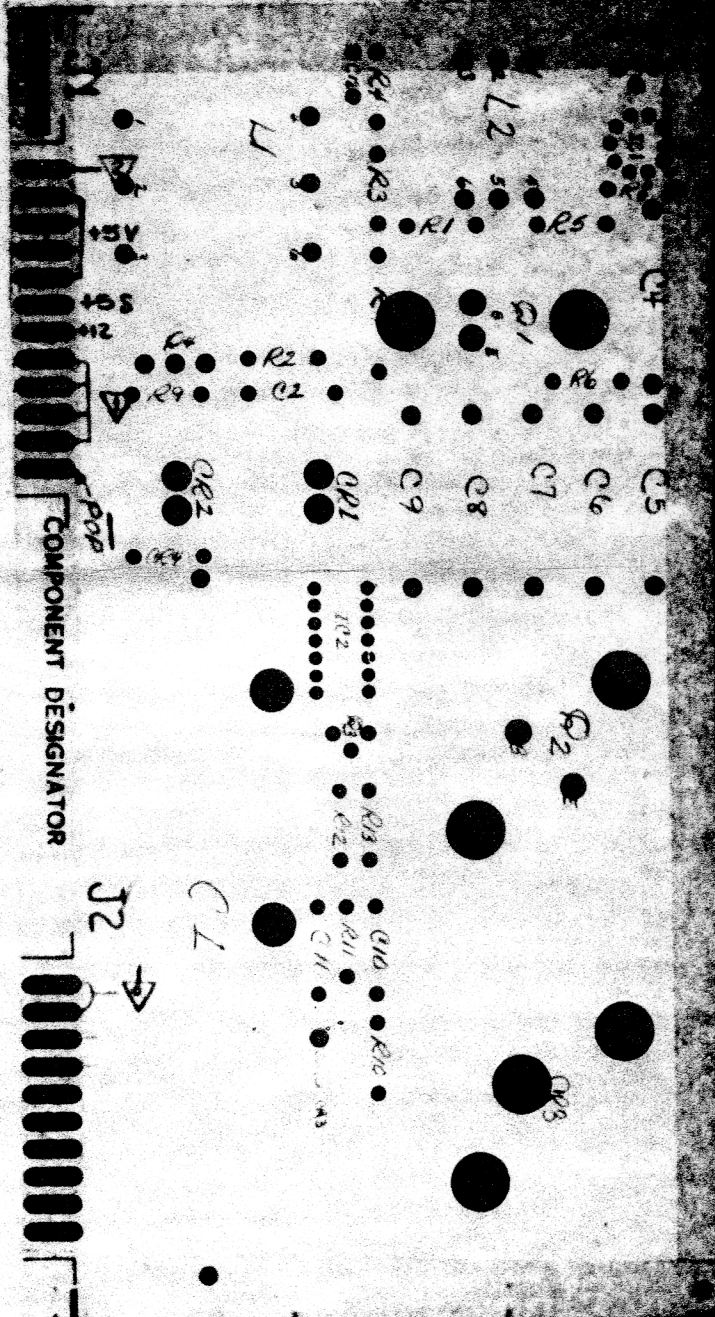
365 V was 4.32 V METRIC 2-14-74

SYM	REVISIONS
A	AS
B	UPDATED AND
C	RID



ITEM	QTY	DESCRIPTION	PART NO.	DWG. NO.	MAT'L
AL UGIL		DATE 3-10-71	TITLE +16 V & +20V SUPPLY		
ENGINEER R. SIMCOE		DATE 3/18/71			
APPROVED S. Chandler		DATE 7-29-71	1/209800-GC582		
SUPERSEDES					
		FINISH OK 5-15-71	SCALE	NEXT ASSY. 09810-66582	
				B-09810-66582-2	

APPROVED	DATE
JP 9841	7-1-77
FE	7-1-77

SHEET OF

ENV
SUPPLY
SEE
+12 V
SUPPLY
B-09810-
66583-2

C2
1,000
μF

-19 V

RS
390 Ω

1902.0049

Q3

-12.6V

CRB
0.19V

-6V

Q2

TP.2

R10
3.01K

R9
9.09K

R3
4.53K

R2
4.53K

C5
100PF

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

-6V

INVERTING
INPUT

I.C. 2 1820-0196

ENG. RESP. $\leq$ DIV. 9

UNLESS OTHERWISE NOTED
— TOLERANCES —

0.XX $\pm$ 0.02

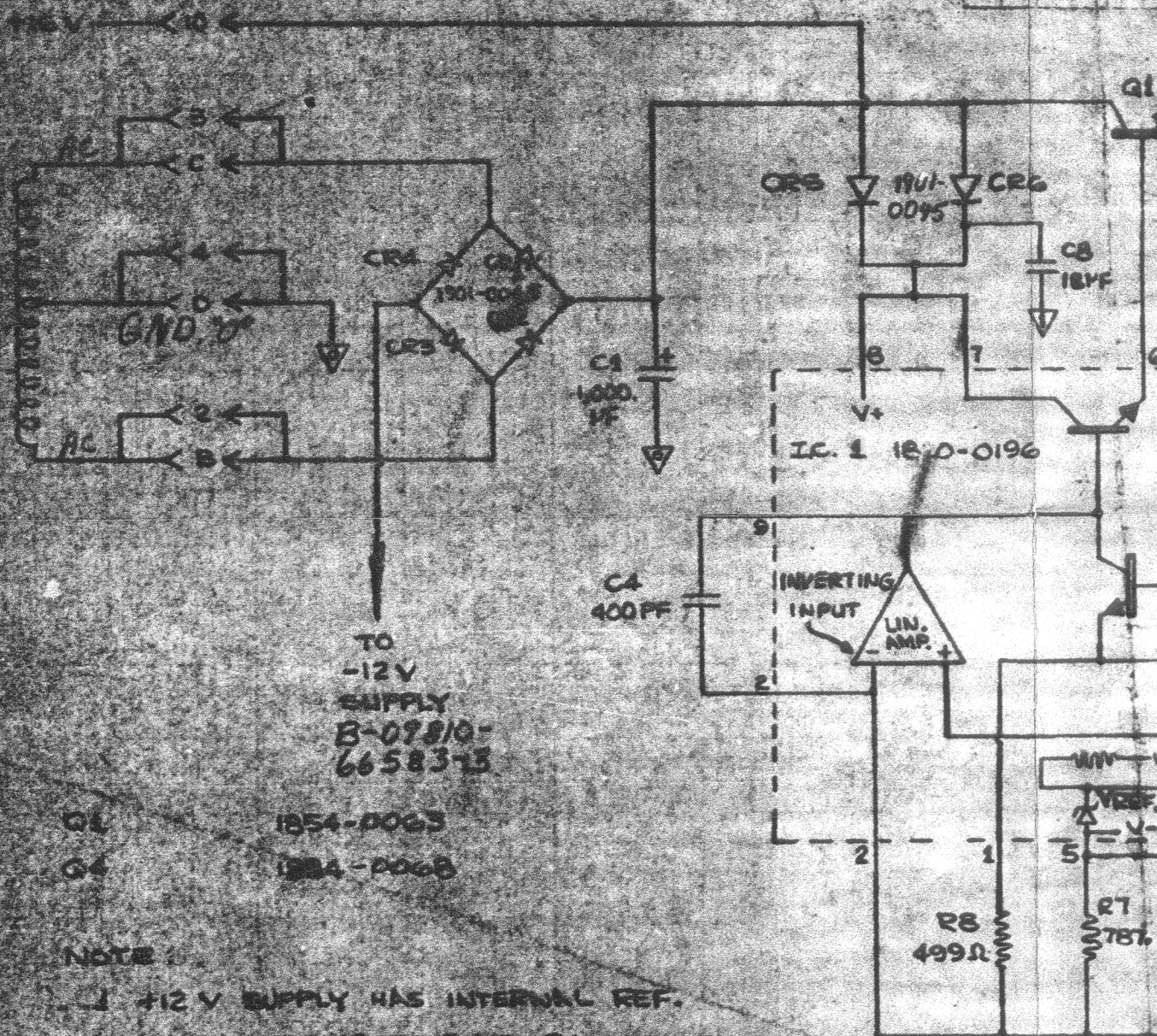
0.XXX $\pm$ 0.005

ANGULAR $\pm$

ITEM

AD

K.5



Q1 1854-0063
Q4 1854-0068

NOTE

1. +12 V SUPPLY HAS INTERNAL REF.

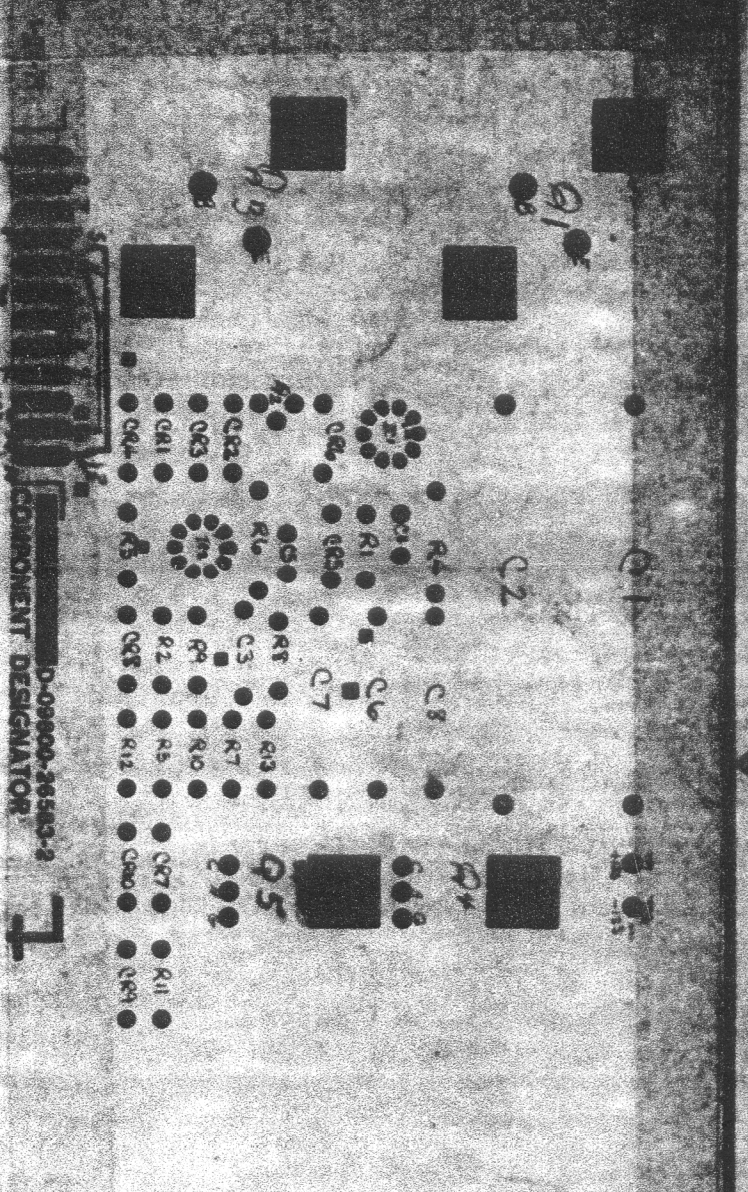
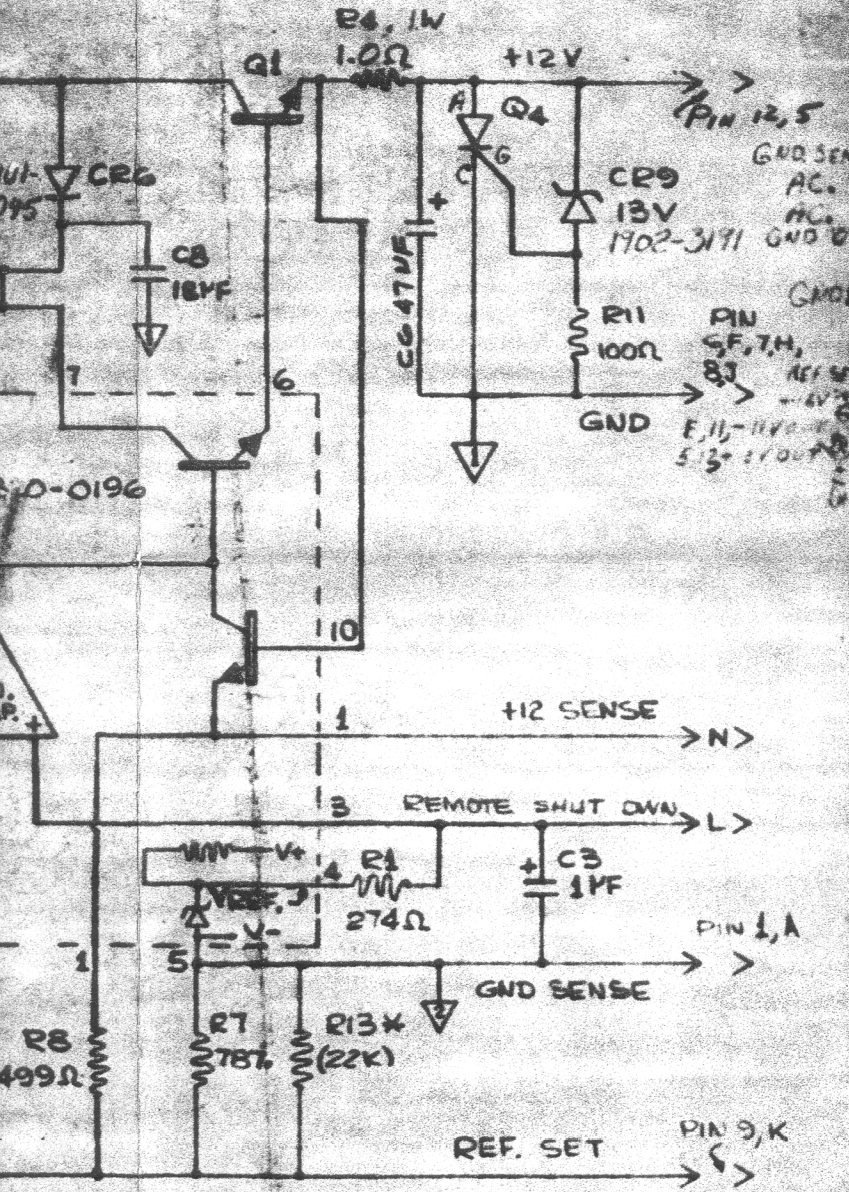
2. +16V-BACKUP TO BIAS Q1

$$V_{OUT} = \left[V_{REF} \times \frac{R_2(R_1 \parallel R_4)}{R_2} \right] \text{ WHERE } V_{REF} \approx 7.15V$$



ERG. RESP. ± 0.1V	9	ITEM
UNLESS OTHERWISE NOTED — TOLERANCES —		AL
0.1K ± 0.02	0.100K ± 0.005	K.S.
ANGULAR ±		
MACHINED SURFACES	163	

SYM	REV	DATE	APPROVED	DATE
D	REDAWN		9-278	11-9-71



ITEM	QTY	DESCRIPTION	PART NO.	QWS. NO.	MAT'L SPEC.
1	1	AL UNGN			
2	1	ENGINEER			
3	1	K. SIMCOE			
4	1	APPROVED			
5	1	DATE			
6	1	11-9-71			
7	1	11-9-71			
8	1	11-9-71			
9	1	TITLE			
10	1	+12 VOLT SUPPLY			
11	1	09810-66583			
12	1	BOARD			
13	1	HEWLETT-PACKARD			
14	1	LABORATORY INSTRUMENTS			
15	1	09810-66583			

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