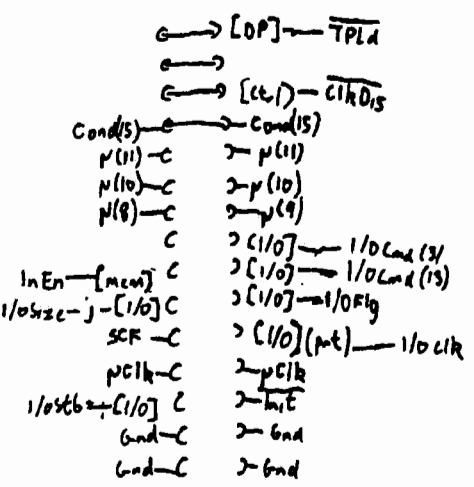
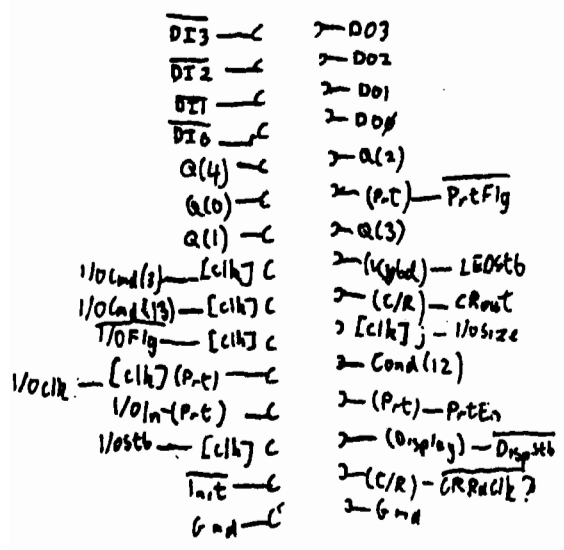
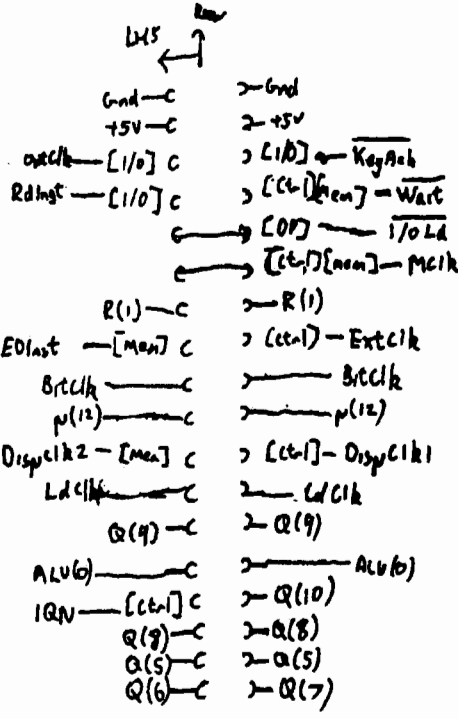
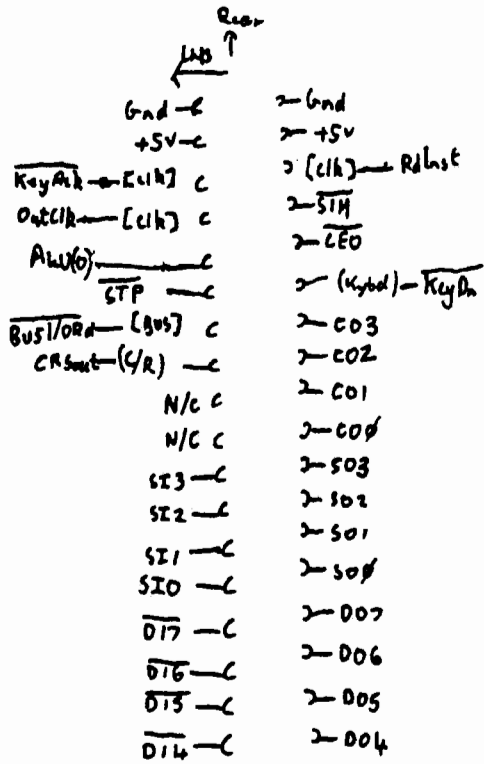


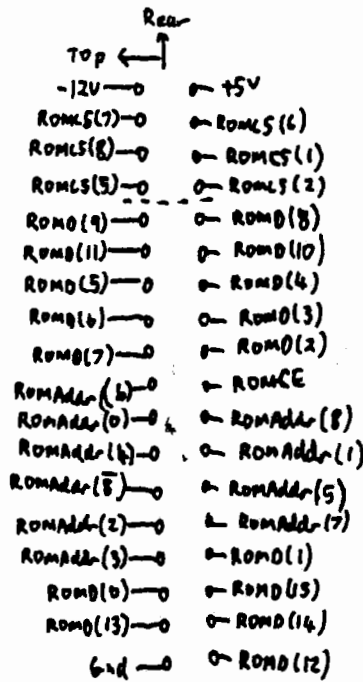
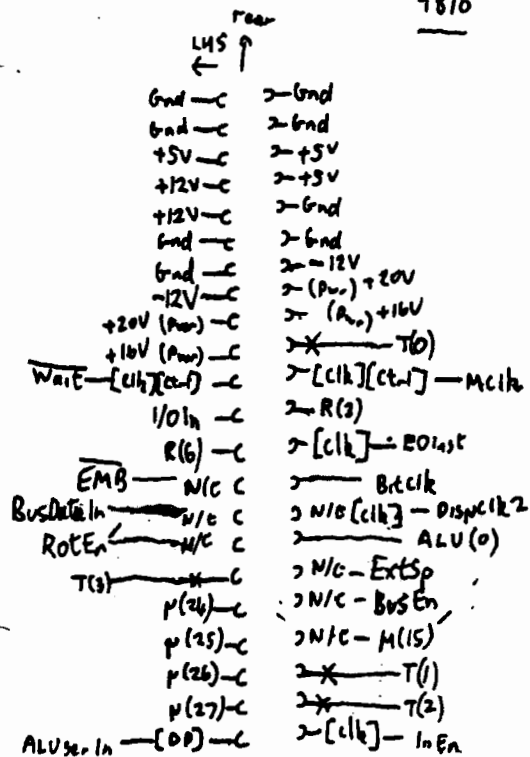
9810



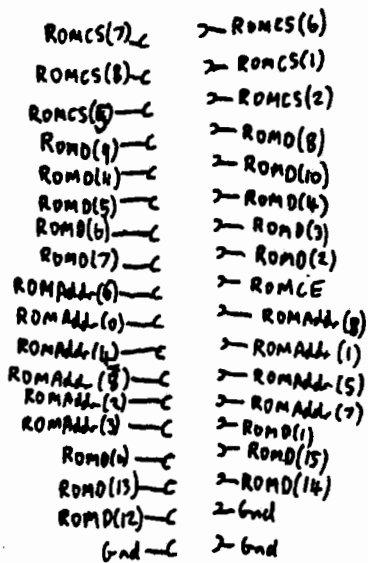
09810-66511
Connector
(I/O Interface)

09810-66512
Connector
(clock)

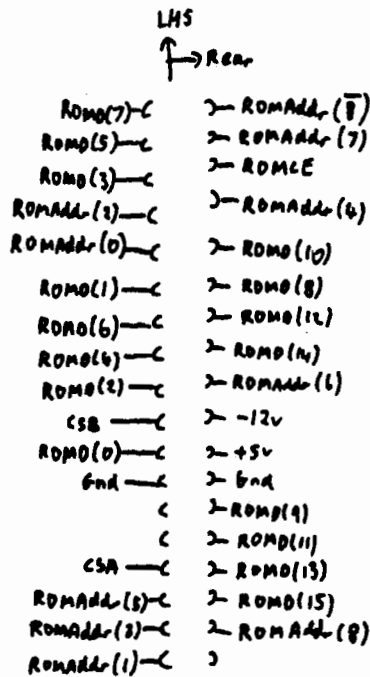
9810

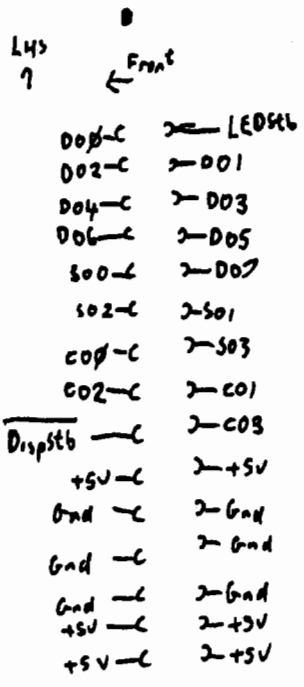


ROM Backplane Connector

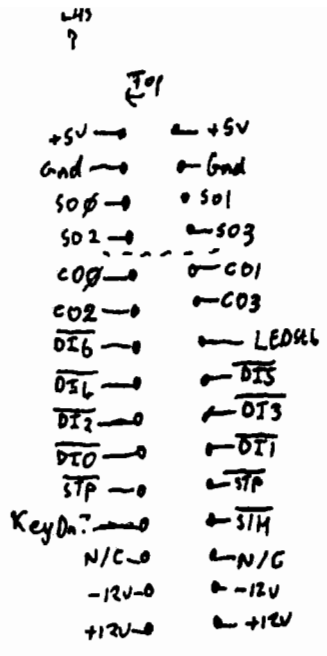


Memory box
connector

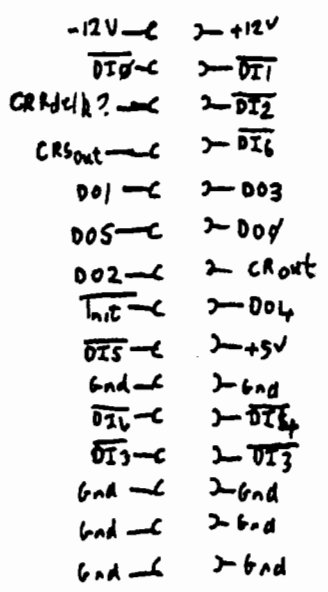




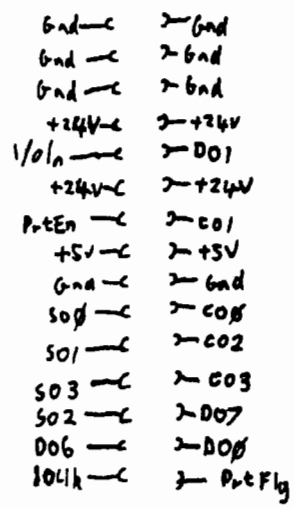
Display



Keyboard

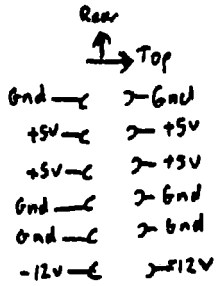


Card Reader

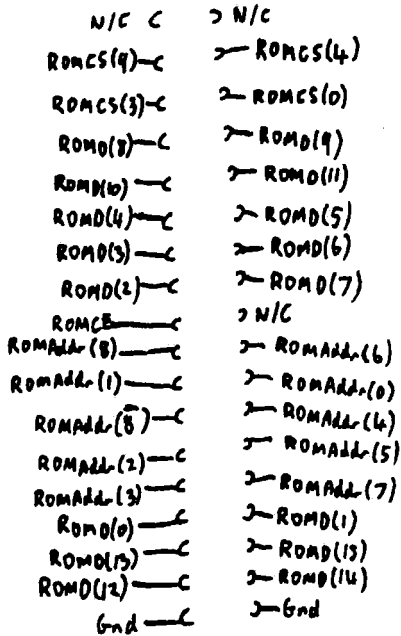
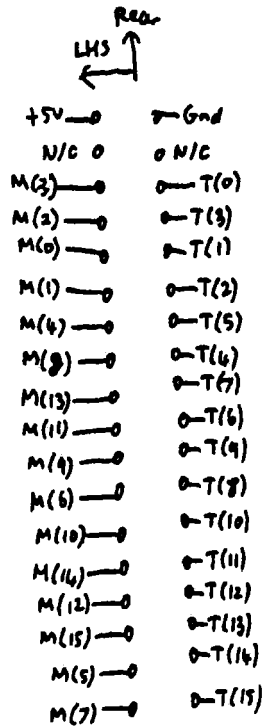


Printer

9810 Peripheral Connections
09810-66502 Backplane



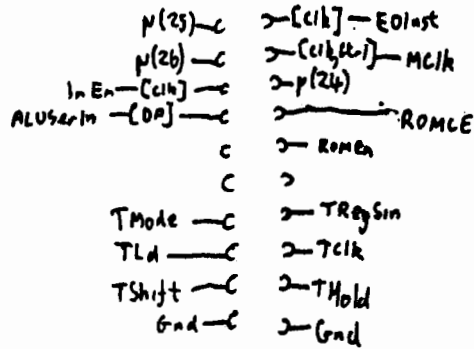
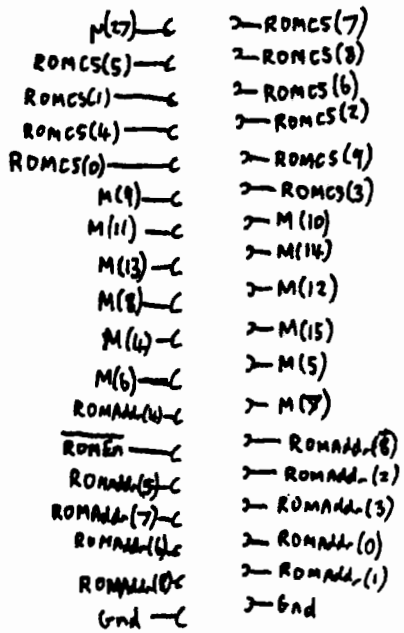
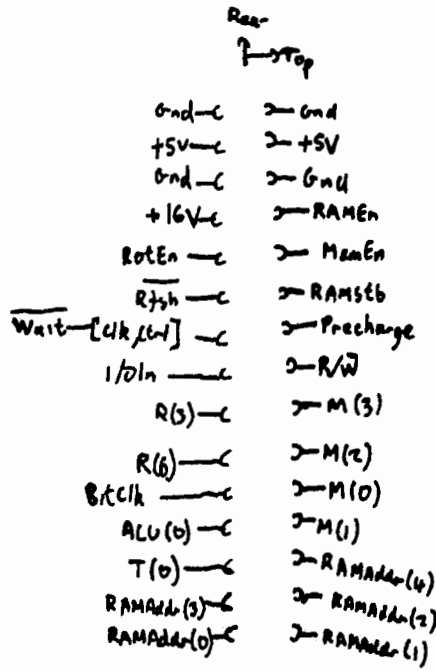
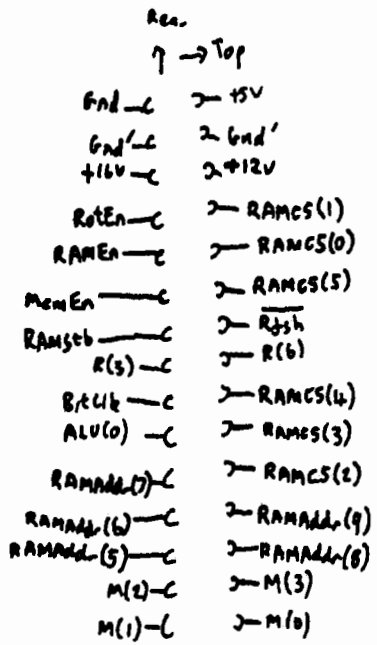
9810



Test Connector
on Memory Box

11216-66521
ROM
(R/B)

9810



09810-66522
Memory Timing
(R/R)

09810-66523
Memory Address
(R/O)

9810

R/Y : Data R/R : DRAM Timing
R/O : Address R/B : PGM

Rear
Top
→

(Gnd) Vdd-C	→ V66
VSS-C	→ CEB RAMCS(1)
RAMCS(0) ZEA-C	→ N/C
N/C-C	→ Precharge
R/W-C	→ Din15
Dout11-C	→ Dout9
Dout13-C	→ Din13
Dout13-C	→ Din11
Dout1-C	→ Din9
Dout3-C	→ Din7
Dout5-C	→ Din5
Dout7-C	→ Din3
A7-C	→ Din1
A8-C	→ A9
A5-C	→ A6
A2-C	→ A4
A3-C	→ A1
Vdd(Gnd)-C	→ A0

Rear
Top
→

Gnd-C	→ Gnd
+5V-C	→ +5V
Gnd'-C	→ Gnd
(+16V) VSS-C	→ +12V
-12V-C	→ RAMDin(15)
RAMEn-C	→ RAMDout(9)
RAMDin(13)-C	→ RAMDout(11)
RAMDin(11)-C	→ RAMDout(13)
RAMDin(9)-C	→ RAMDout(15)
RAMDin(7)-C	→ RAMDout(1)
RAMDin(5)-C	→ RAMDout(3)
RAMDin(3)-C	→ RAMDout(5)
RAMDin(1)-C	→ RAMDout(7)
T(7)-C	→ T(5)
T(6)-C	→ T(4)

09810-66525

R/Gn RAM

Rear
Top
→

Vdd(Gnd)-C	→ V66
VSS-C	→ N/C RAMCS(5)
RAMCS(4) N/C C	→ N/C RAMCS(3)
RAMCS(2) CEC-C	→ Precharge
R/W-C	→ N/C
N/C C	→ N/C
N/C C	→ N/C
N/C C	→ N/C
Dout1-C	→ N/C
Dout3-C	→ N/C
Dout5-C	→ Din5
N/C C	→ Din3
A7-C	→ Din1
A8-C	→ A9
A5-C	→ A6
A2-C	→ A4
A3-C	→ A1
Vdd(Gnd)-C	→ A0

T(3)-C	→ T(0)
T(2)-C	→ T(1)
T(8)-C	→ T(9)
ROMD(9)-C	→ T(10)
ROMD(8)-C	→ T(11)
ROMD(11)-C	→ T(12)
ROMD(10)-C	→ T(13)
ROMD(5)-C	→ T(14)
ROMD(4)-C	→ T(15)
ROMD(6)-C	→ ROMD(7)
ROMD(3)-C	→ ROMD(8)
ROMD(1)-C	→ TShrt
ROMD(0)-C	→ THold
ROMD(15)-C	→ TLd
ROMD(14)-C	→ TCik
ROMD(13)-C	→ TMode
ROMD(12)-C	→ TRegin
Gnd C	→ Gnd

04810-66524

R/Y Memory Data

11217-66526

R/BU RAM

4810 I/O Backplane

09810-66501

Top

STP - C2 22 - Gnd
 CY - 012 - CEO
 STH - 0x 20
 C03 - CW 19 - C02
 C01 - CV 18 - C00
 S13 - CV 17 - S03
 S12 - CT 16 - S02
 S11 - CS 15 - S01
 S10 - CR 14 - S00
 D17 - CP 13 - D07
 D16 - CN 12 - D06
 D15 - CM 11 - D05
 D14 - CL 10 - D04
 D11 - CK 9 - D12
 D03 - CJ 8 - D13
 D02 - CH 7 - D01
 D00 - CF 6 - D10
 * Bitclk - CE 5 - R(3) *
 Gnd - CD 4 - Gnd/Mclk
 * BusEn - CC 3 - T(0) *
 +5V - CB 2 - +5V
 Gnd - CA 1 - Gnd

I/O slot

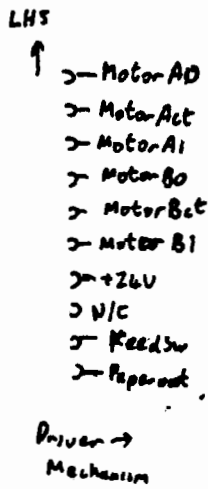
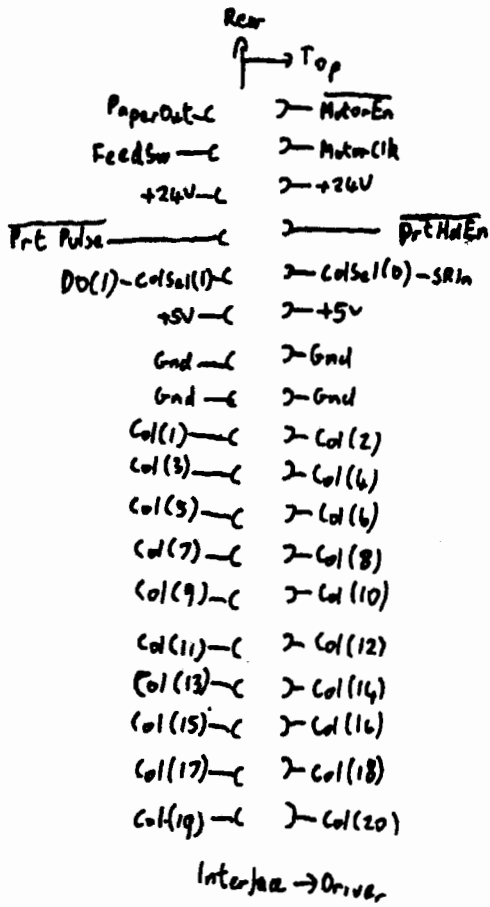
* Only on bottom slot

Rear

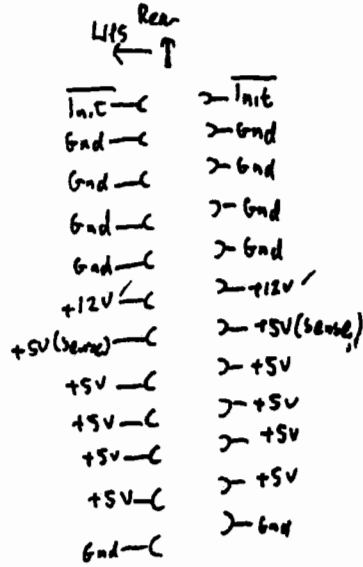
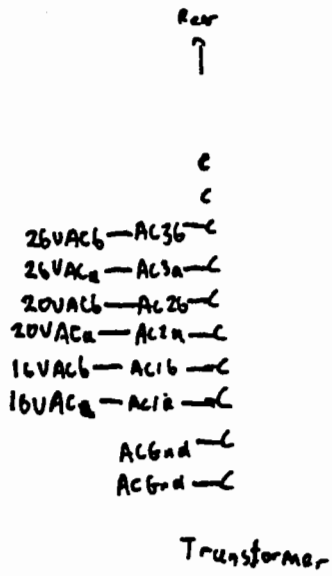
STP - 0 - Gnd
 Bus10Rd - 0 - CEO
 S14 - 0 - KeyDn
 C03 - 0 - C02
 C01 - 0 - C00
 S13 - 0 - S03
 S12 - 0 - S02
 S11 - 0 - S01
 S10 - 0 - S00
 D17 - 0 - D07
 D16 - 0 - D06
 D15 - 0 - D05
 D14 - 0 - D04
 D11 - 0 - D12
 D03 - 0 - D13
 D02 - 0 - D01
 D00 - 0 - D10
 Bitclk - 0 - R(3)
 ExtSp N/c 0 - Mclk
 BusEn - 0 - T(0)
 +5V 0 - +5V
 Gnd - 0 - Gnd
 BusDataIn - N/c 0 - N/C-M(15)
 EMB - N/c 0 - N/C-RotEn
 M(27) - N/c 0 - N/C-R(6)

To main backplane

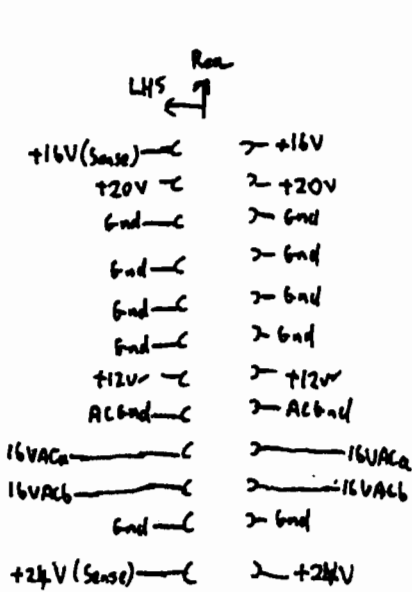
9810 Printer



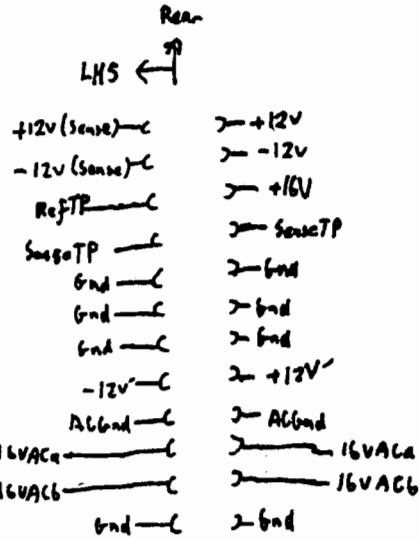
7810 PSU



09810-66581
(5V)

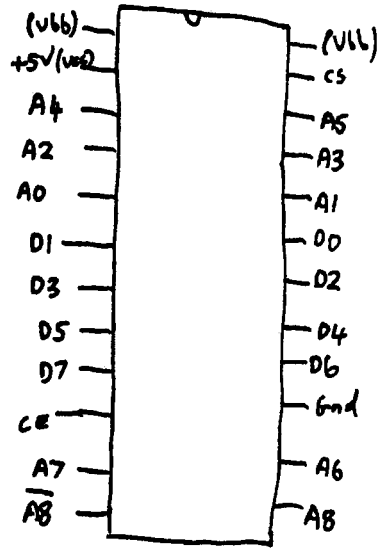


09810-66582
(+16V, +20V, +24V)

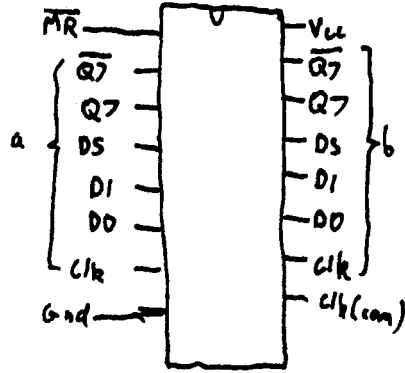


09810-66583
(±12V)

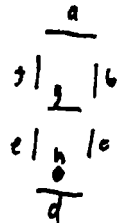
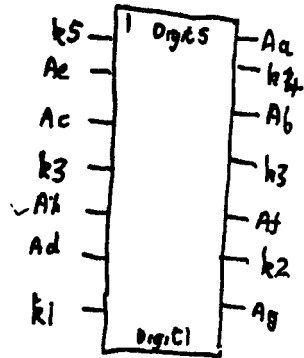
HP ROM (9810)

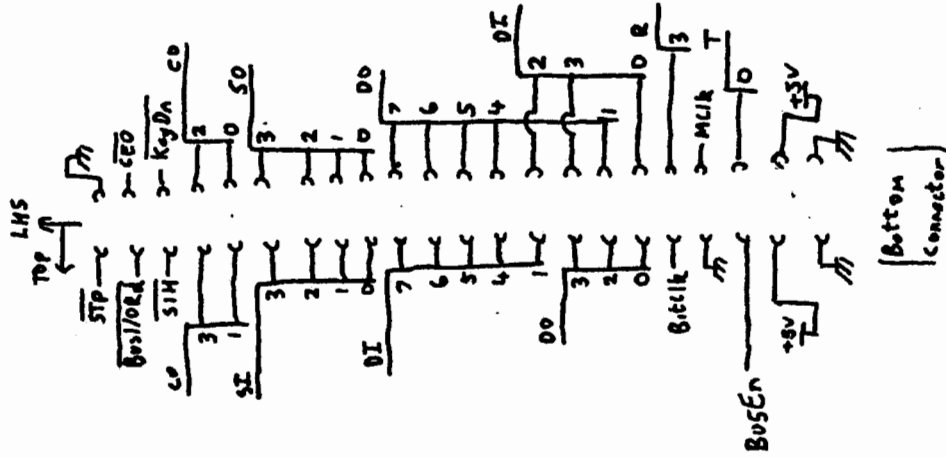


(Dual 8bit 5120 S/R) 9328



HP9810 Display → Top



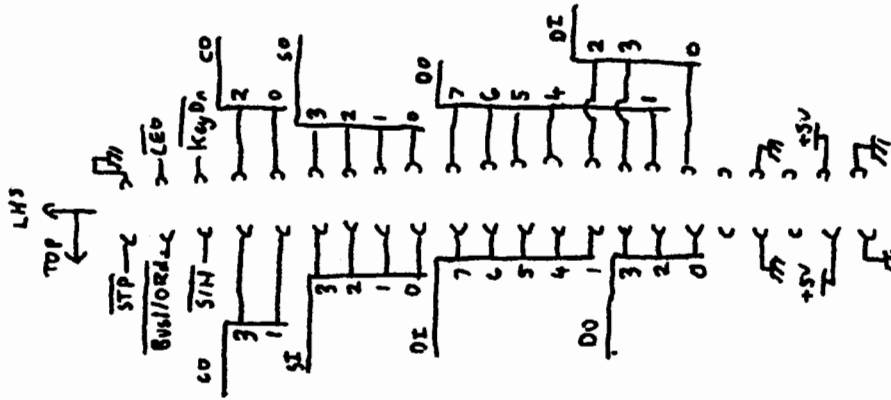


Bottom Connector

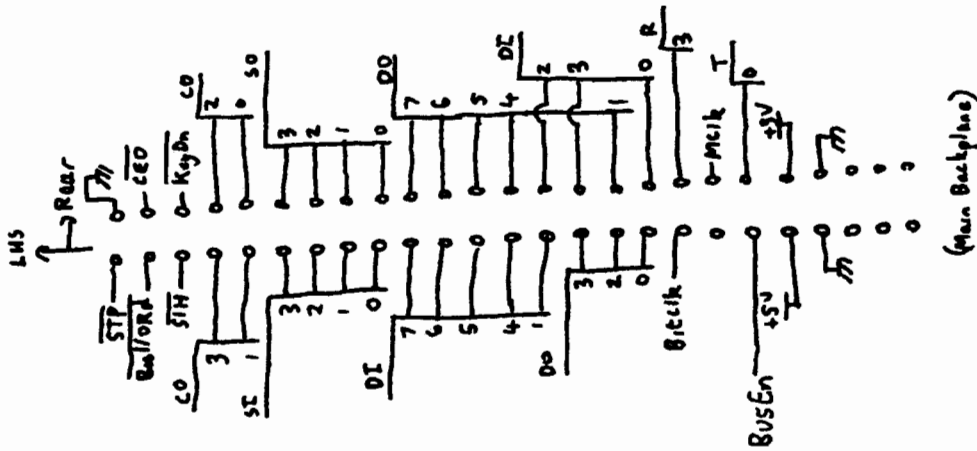
I/O Connectors

09810-66501

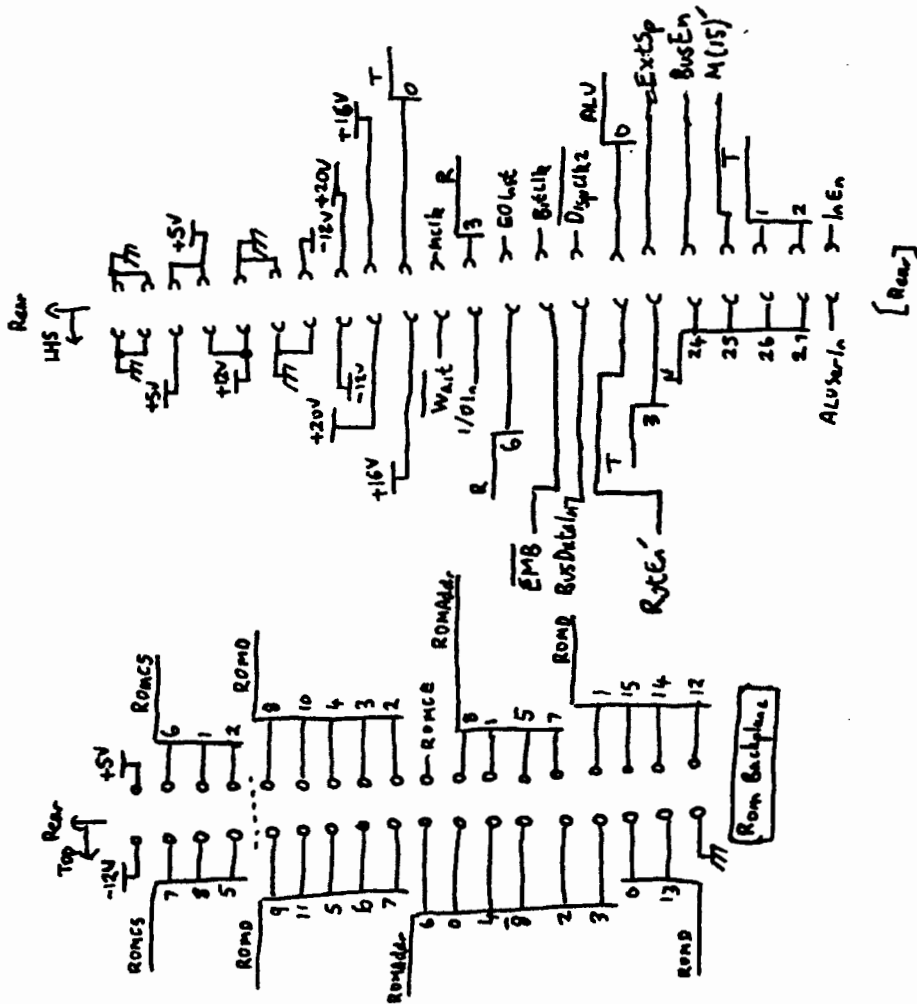
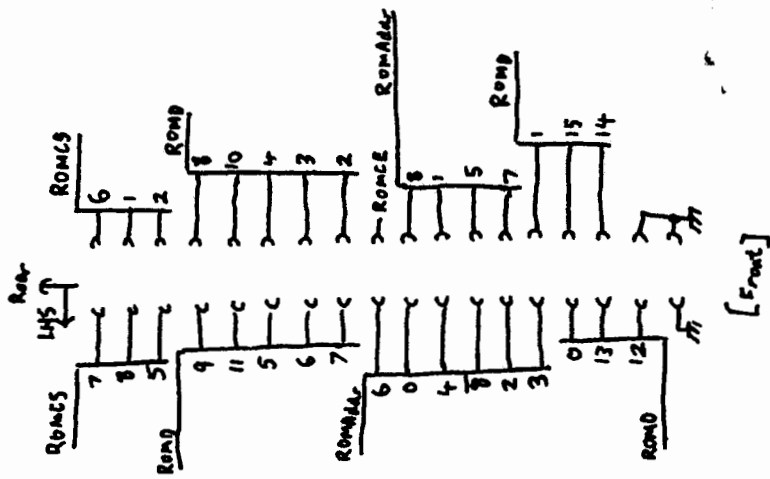
HP9810 I/O Backplane



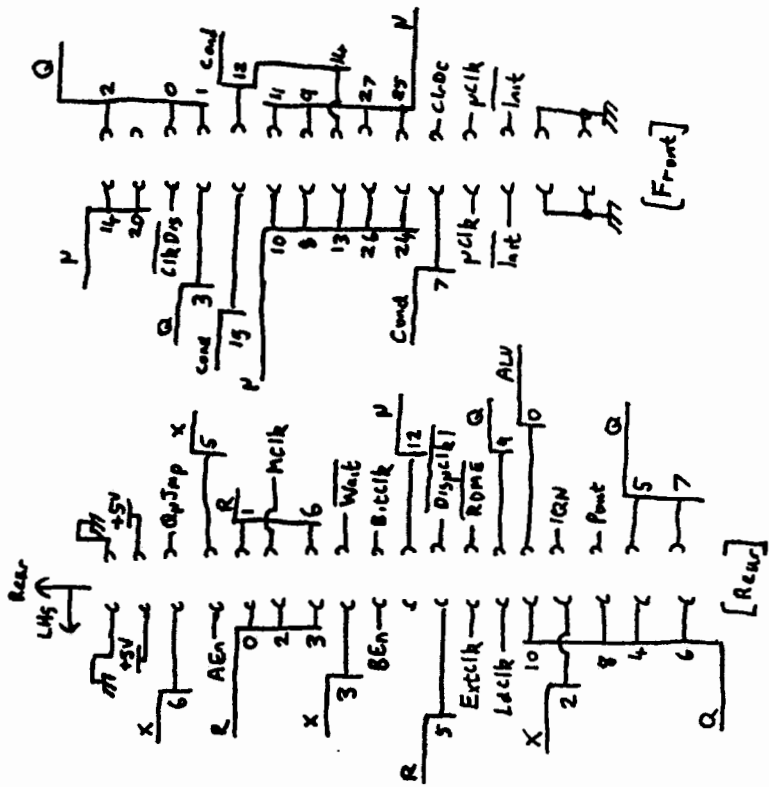
Typical of Top 3 connectors



(Main Backplane)

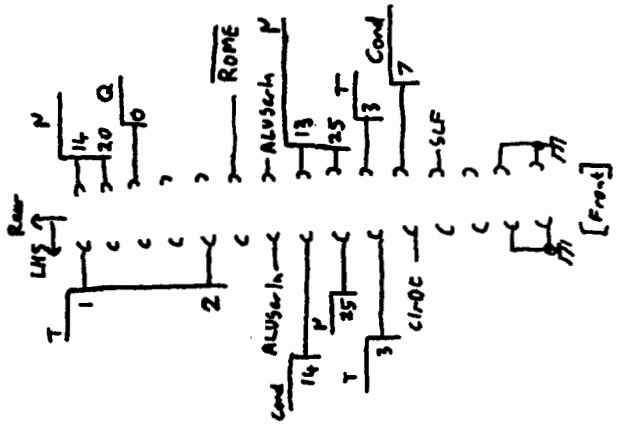


Memory Backplane
(09810-66527)



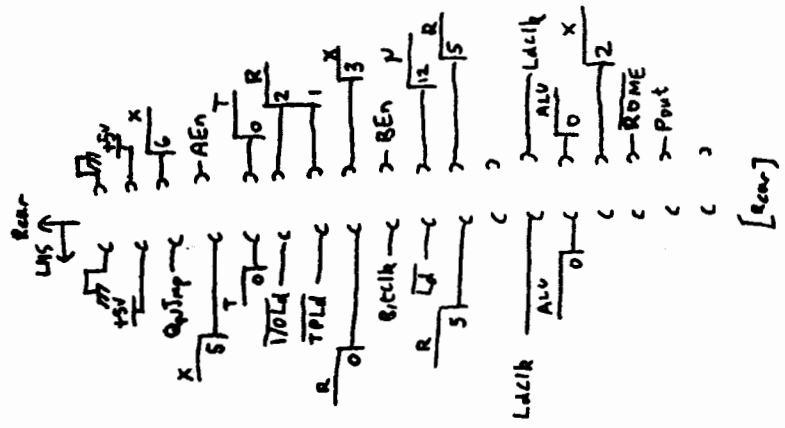
CPU Control

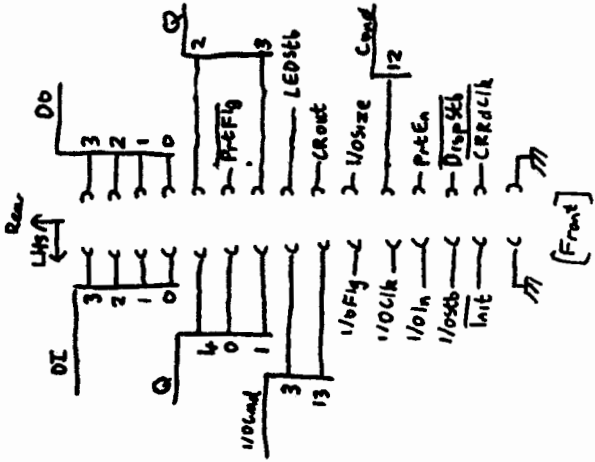
(09810-66513)



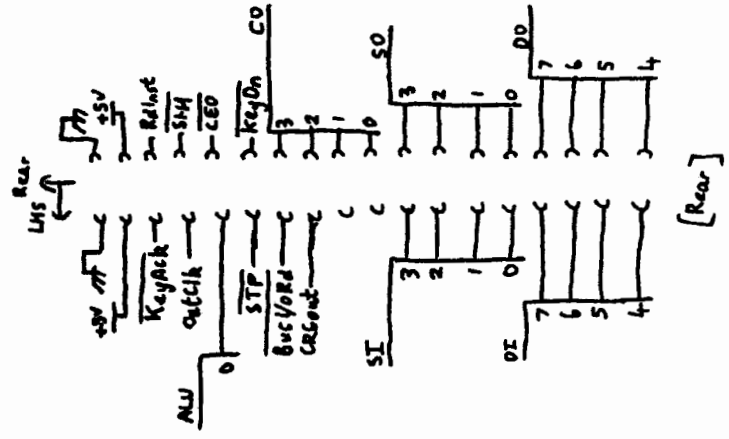
Data Path

(09810-66514)

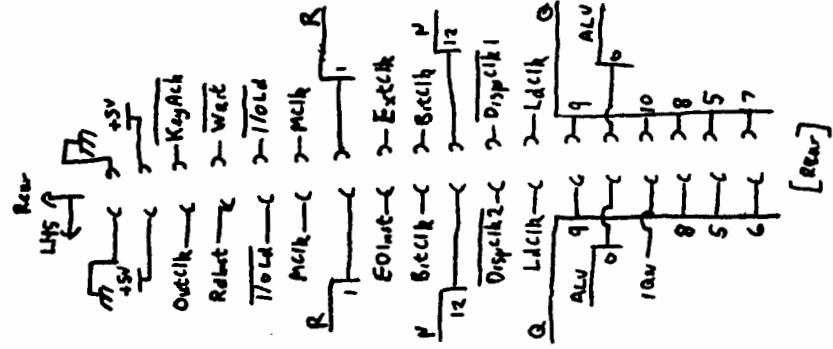
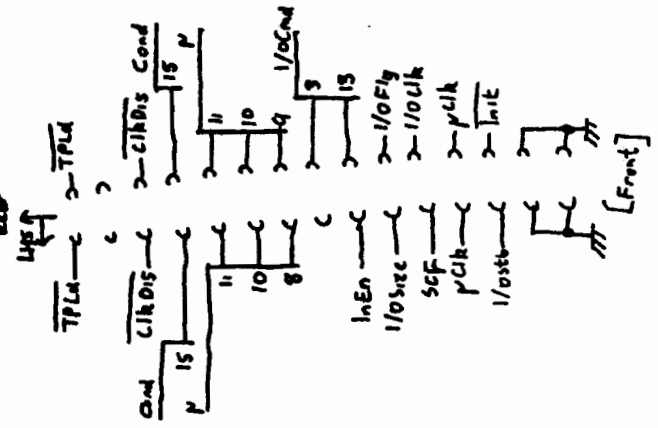


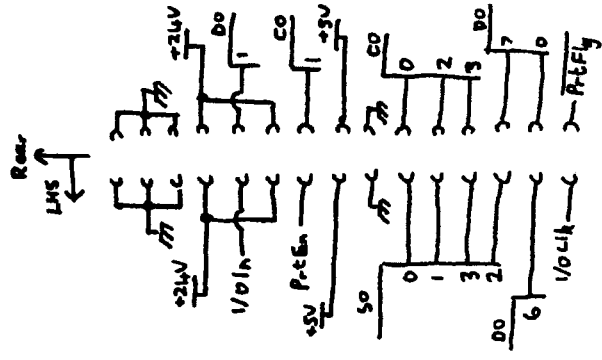


I/O Interface
(09810-66511)

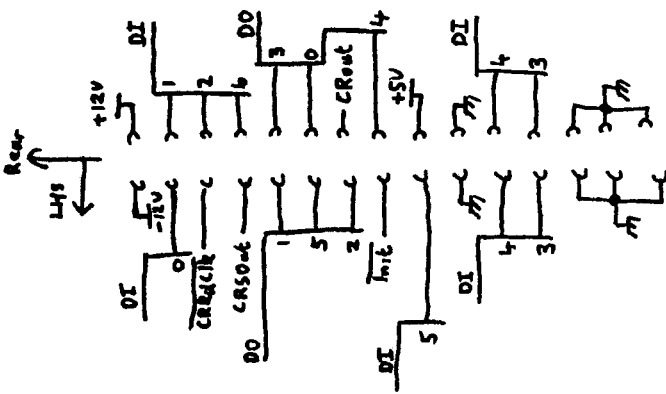


Clock
(09810-66512)

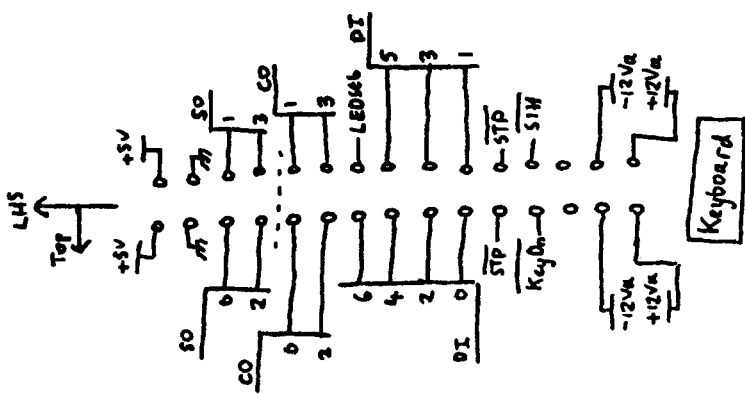




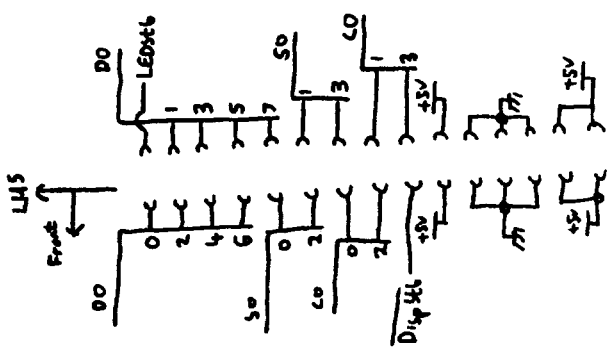
Printer
(11214-66551)



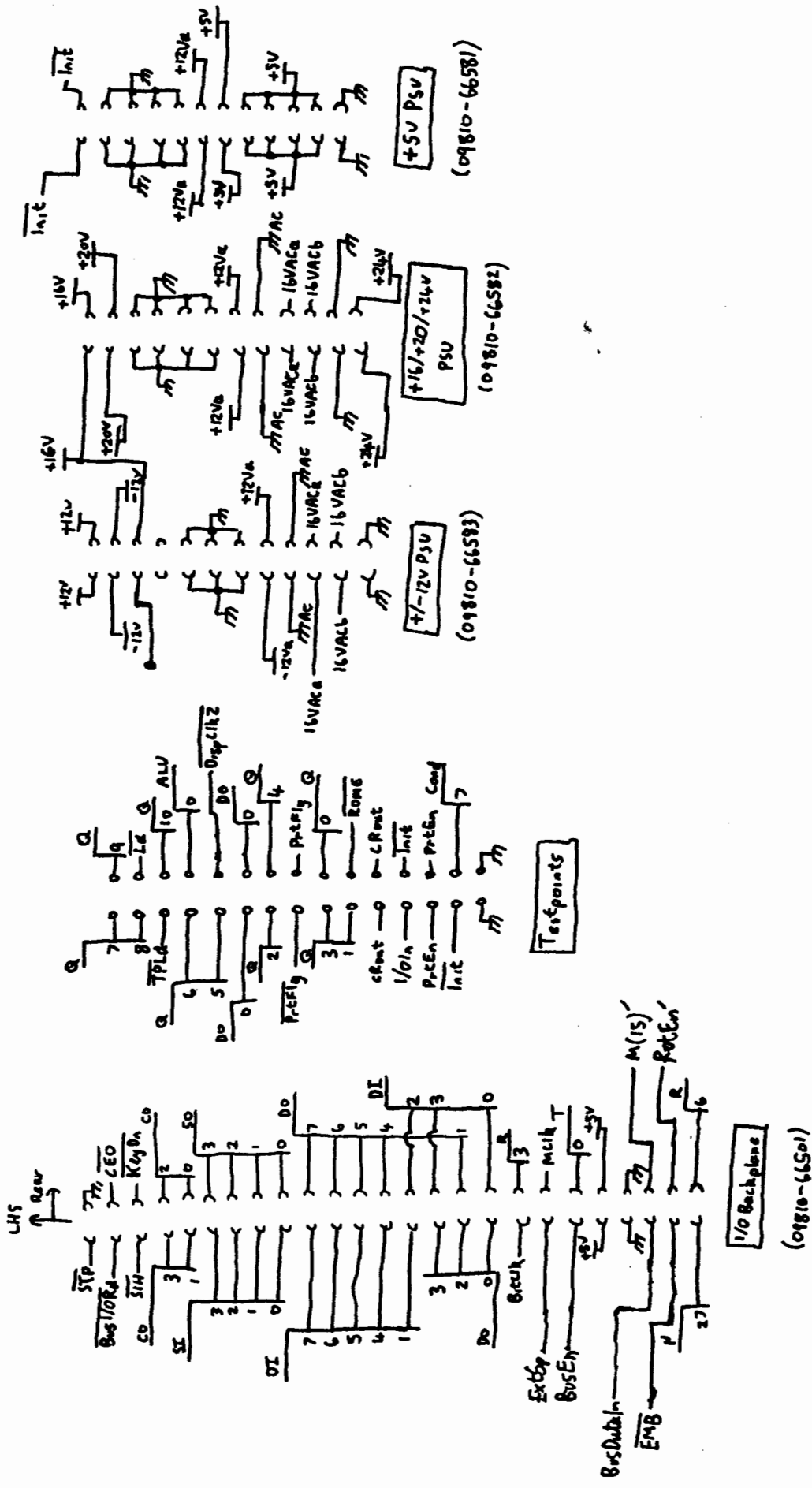
Card Reader Interface
(09810-66562)

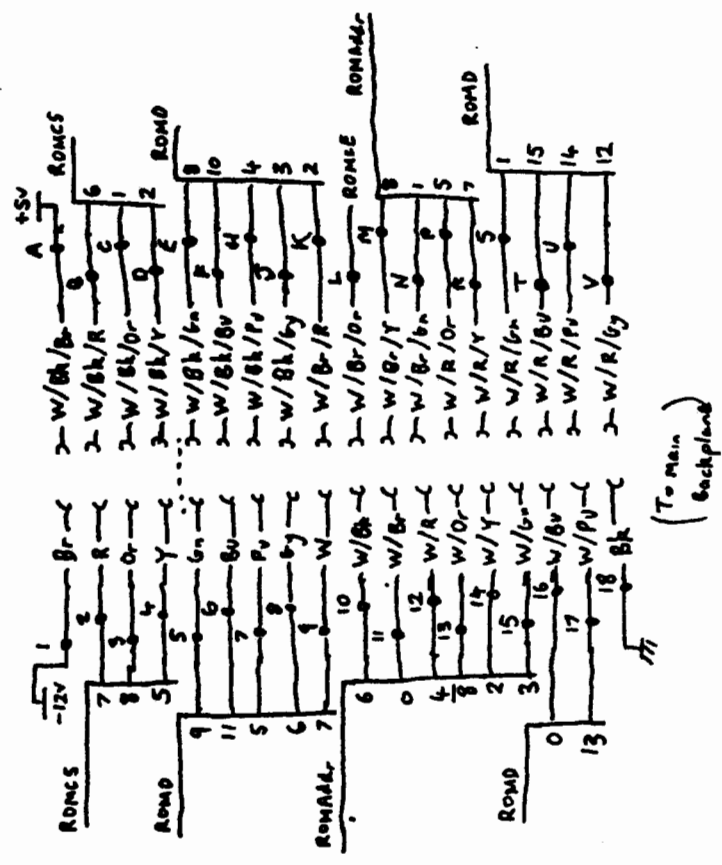
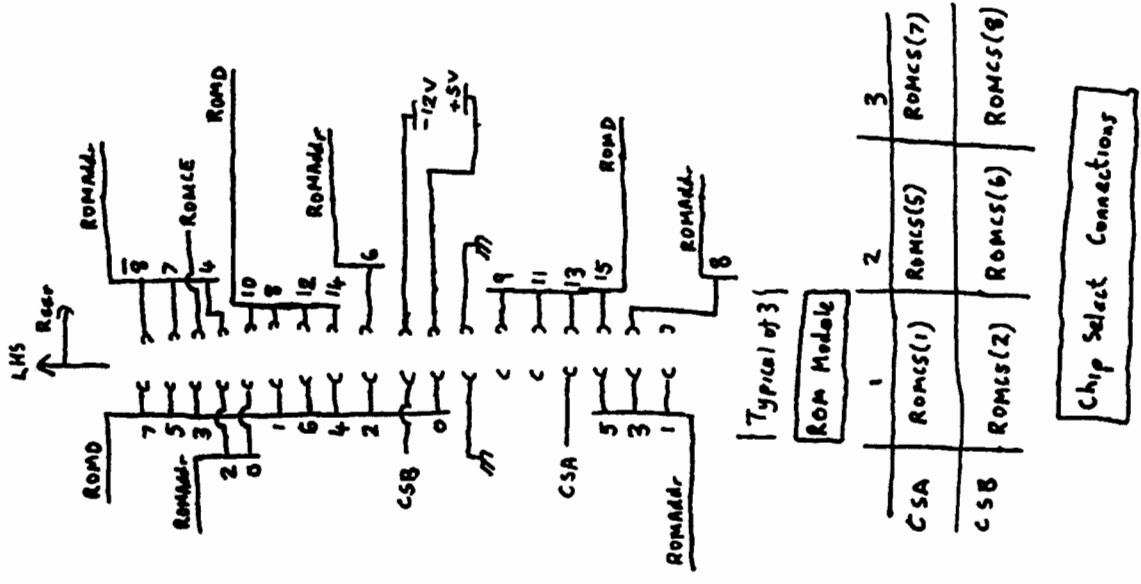


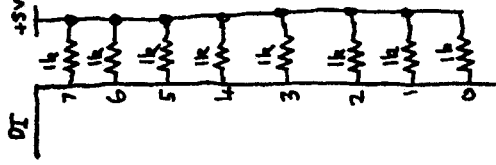
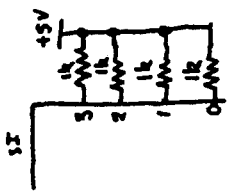
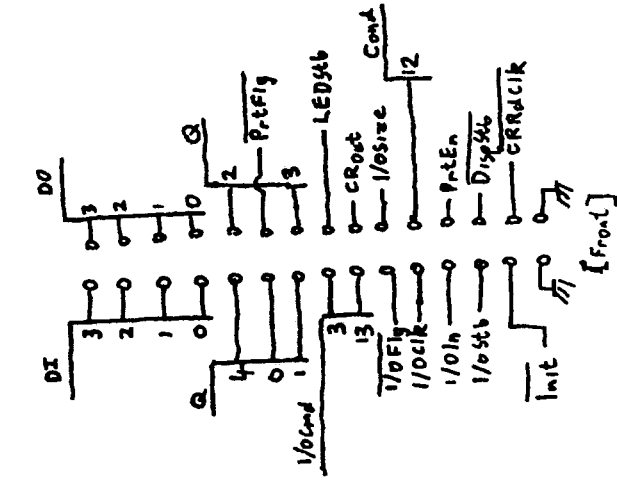
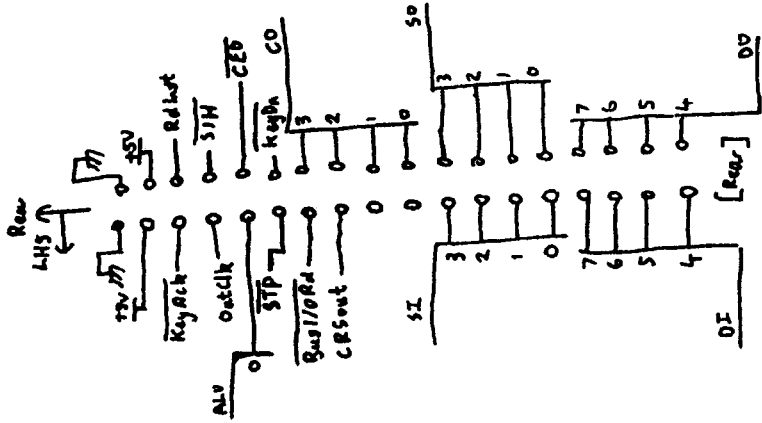
Keyboard
(09810-66542)



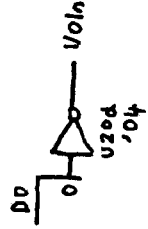
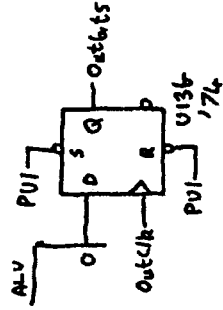
Display
(09810-66542)

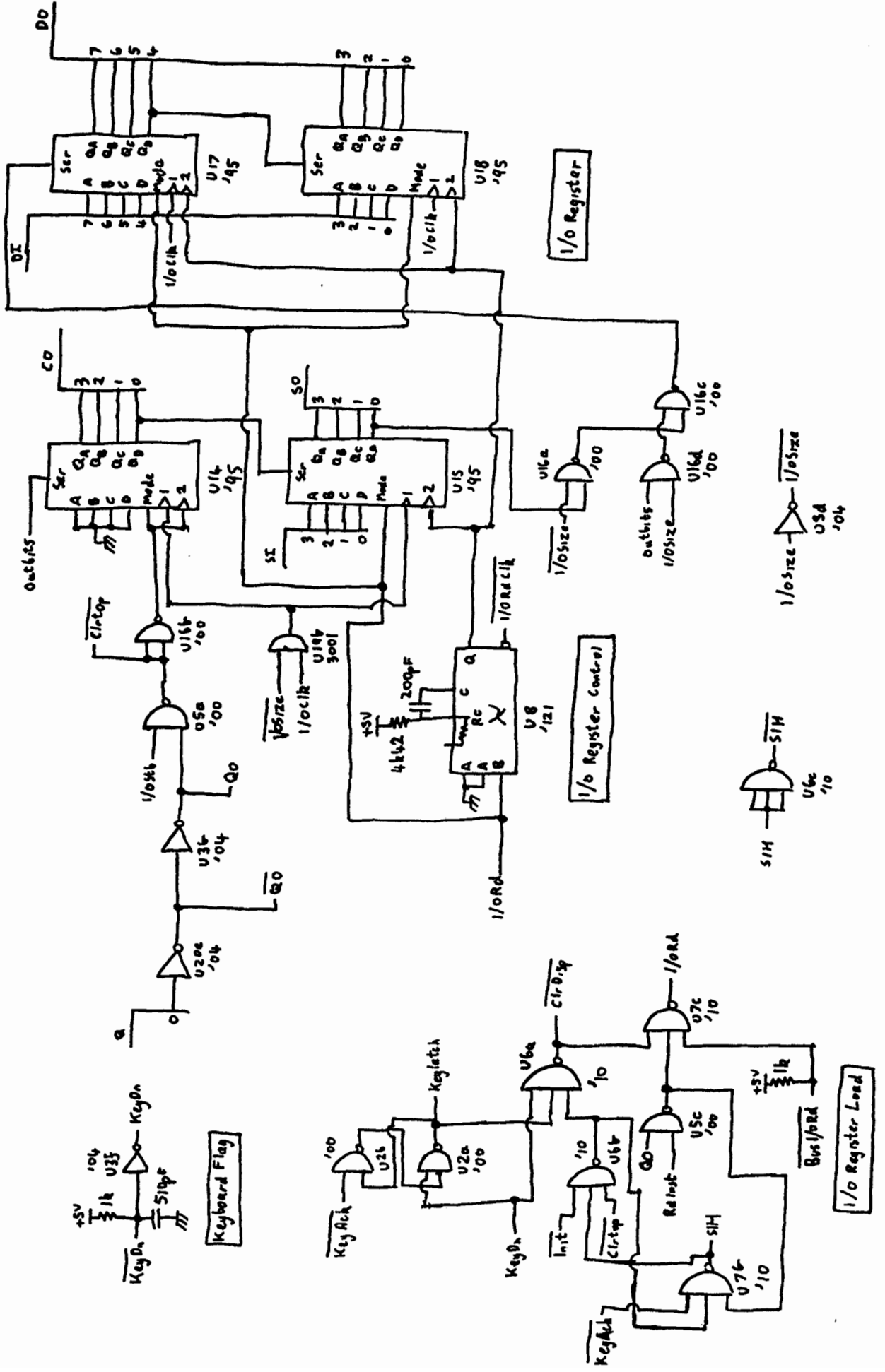


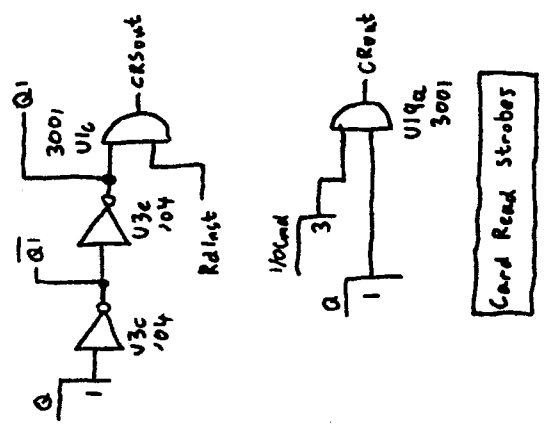
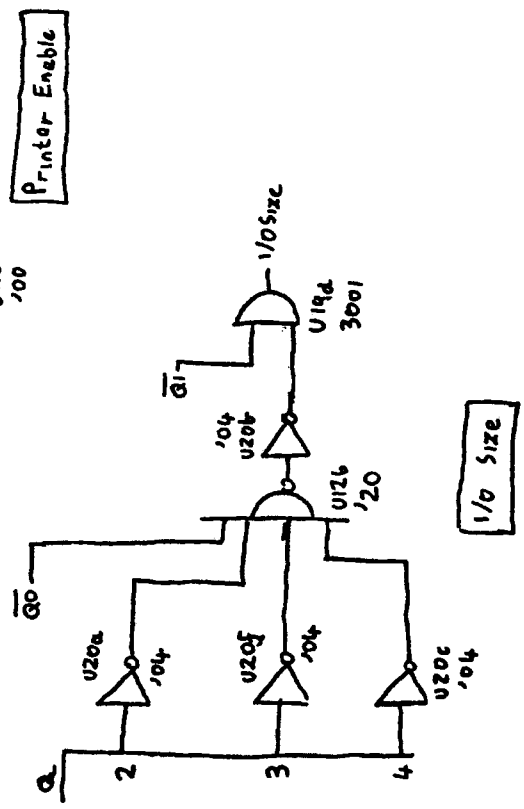
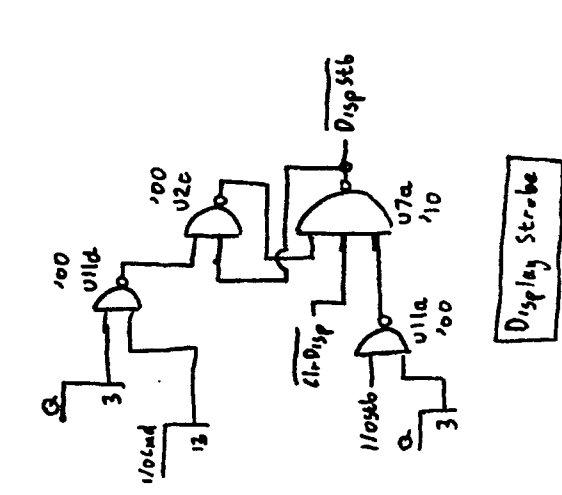
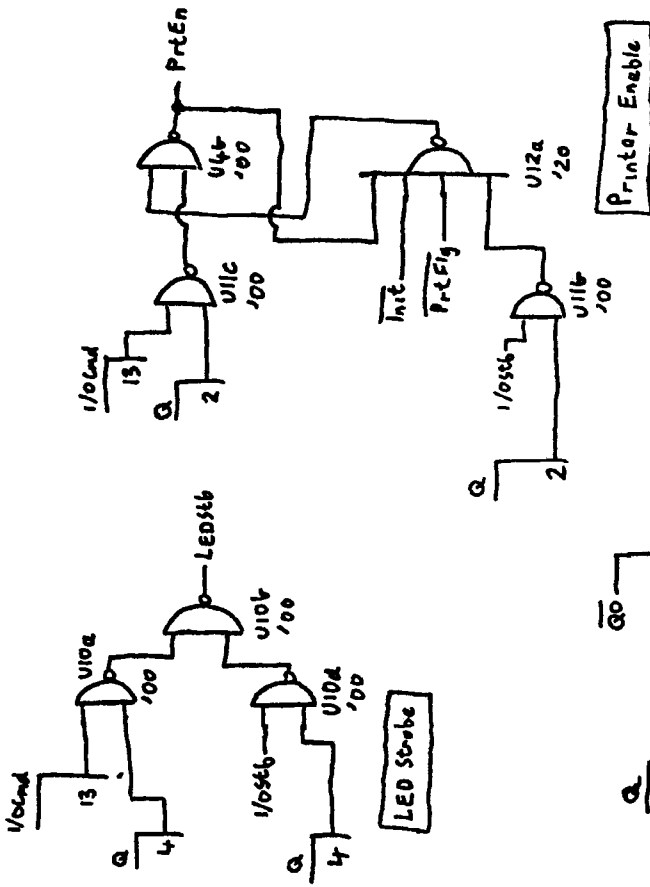


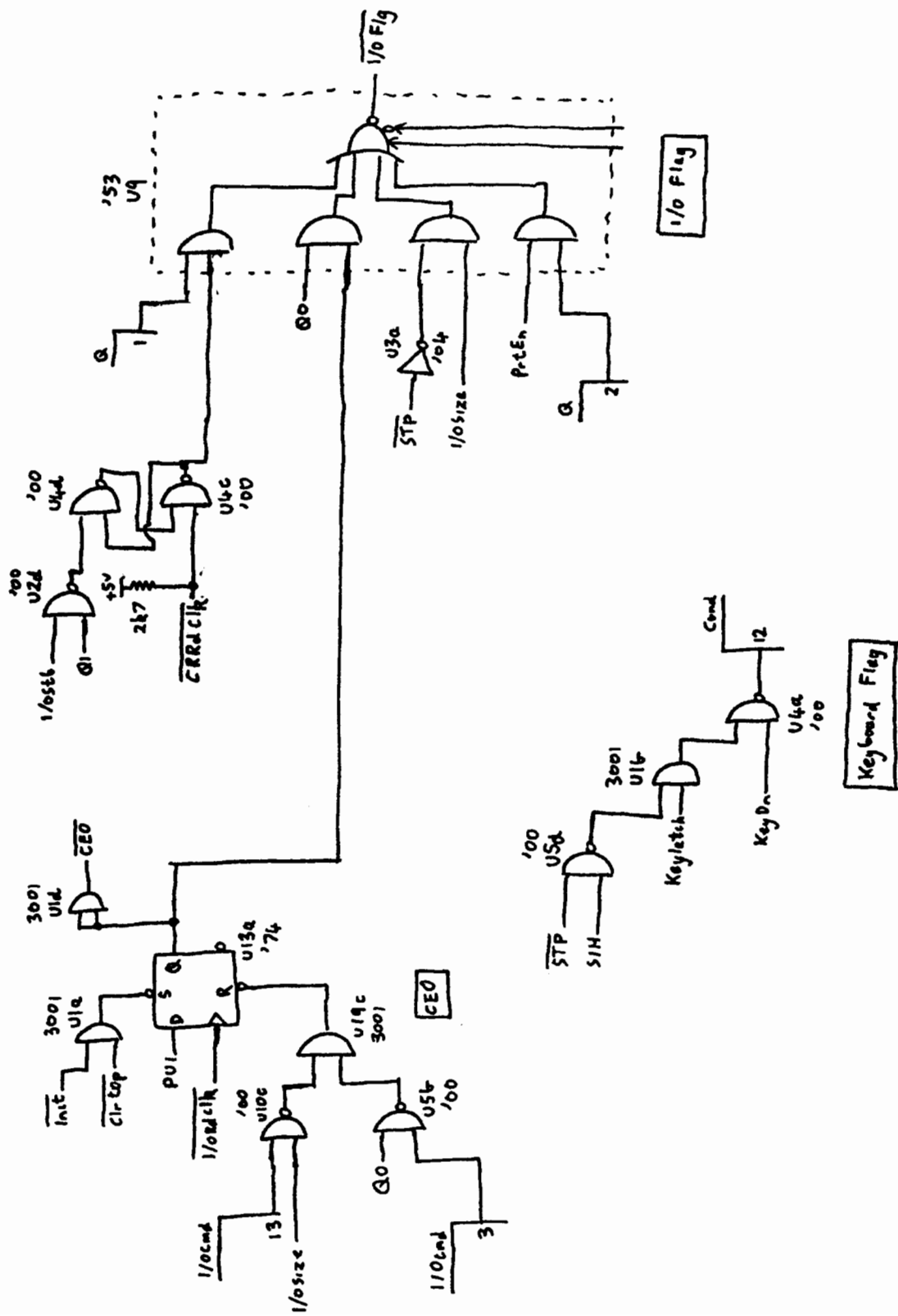


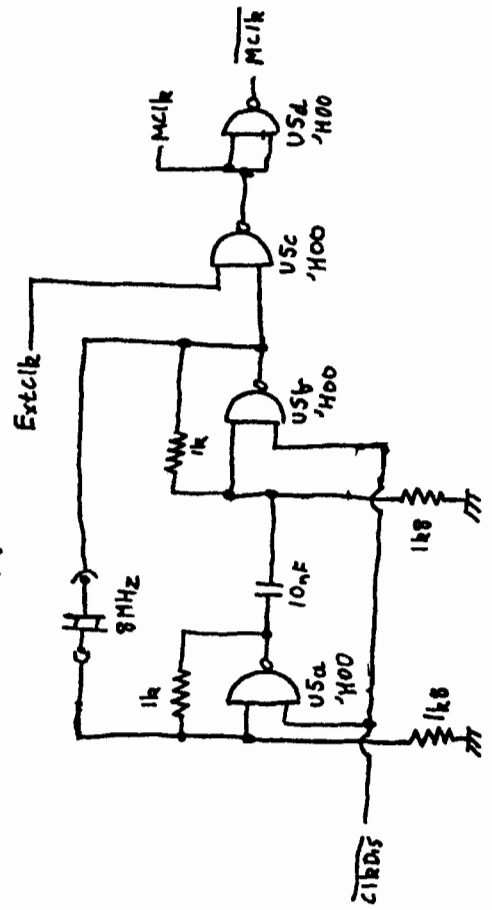
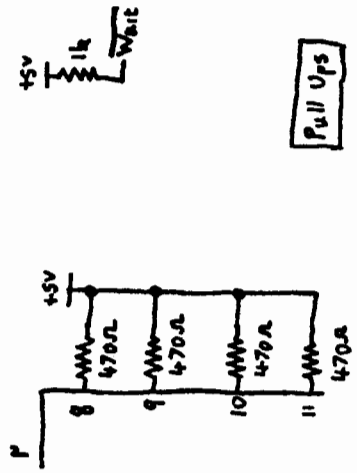
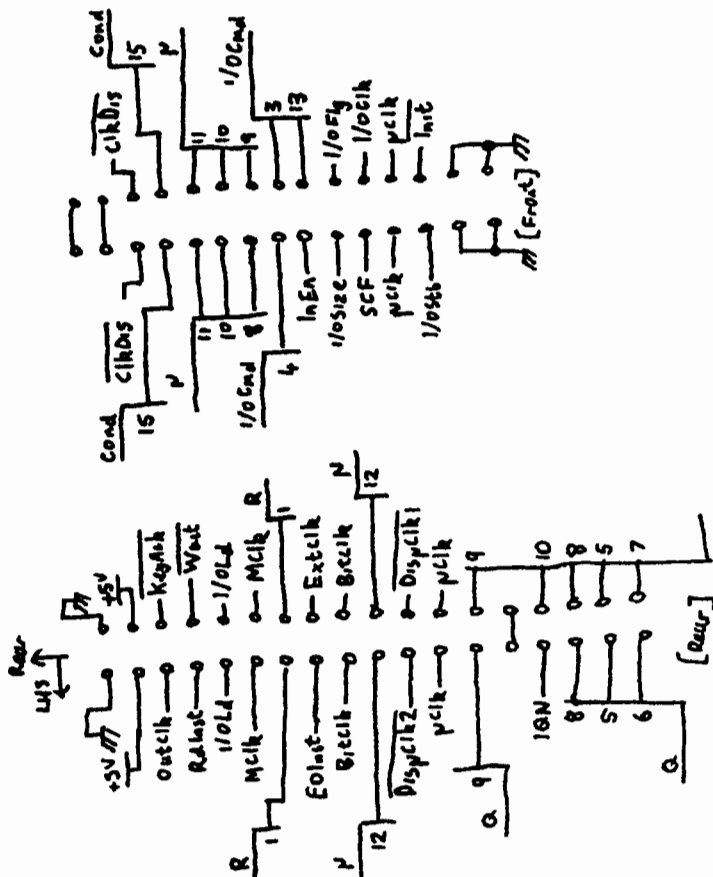
Bus Pull Ups



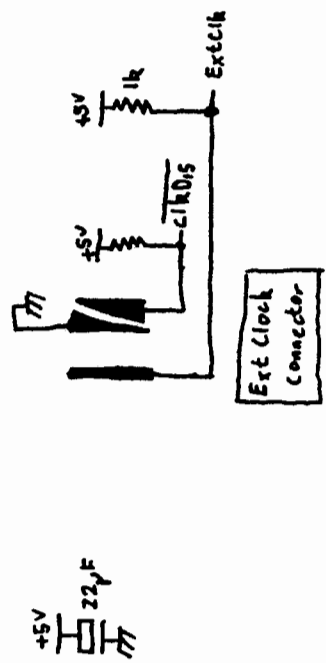


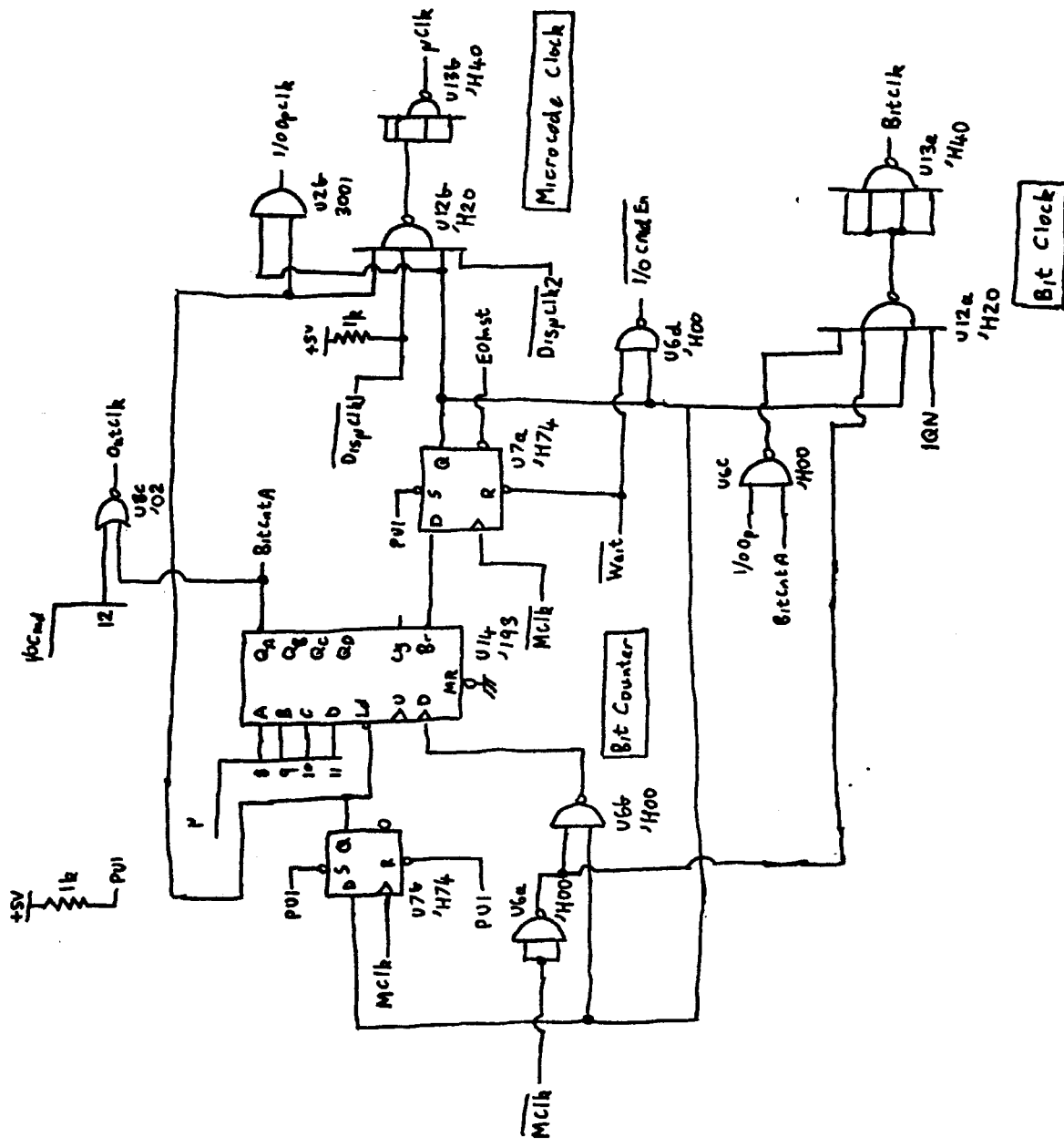


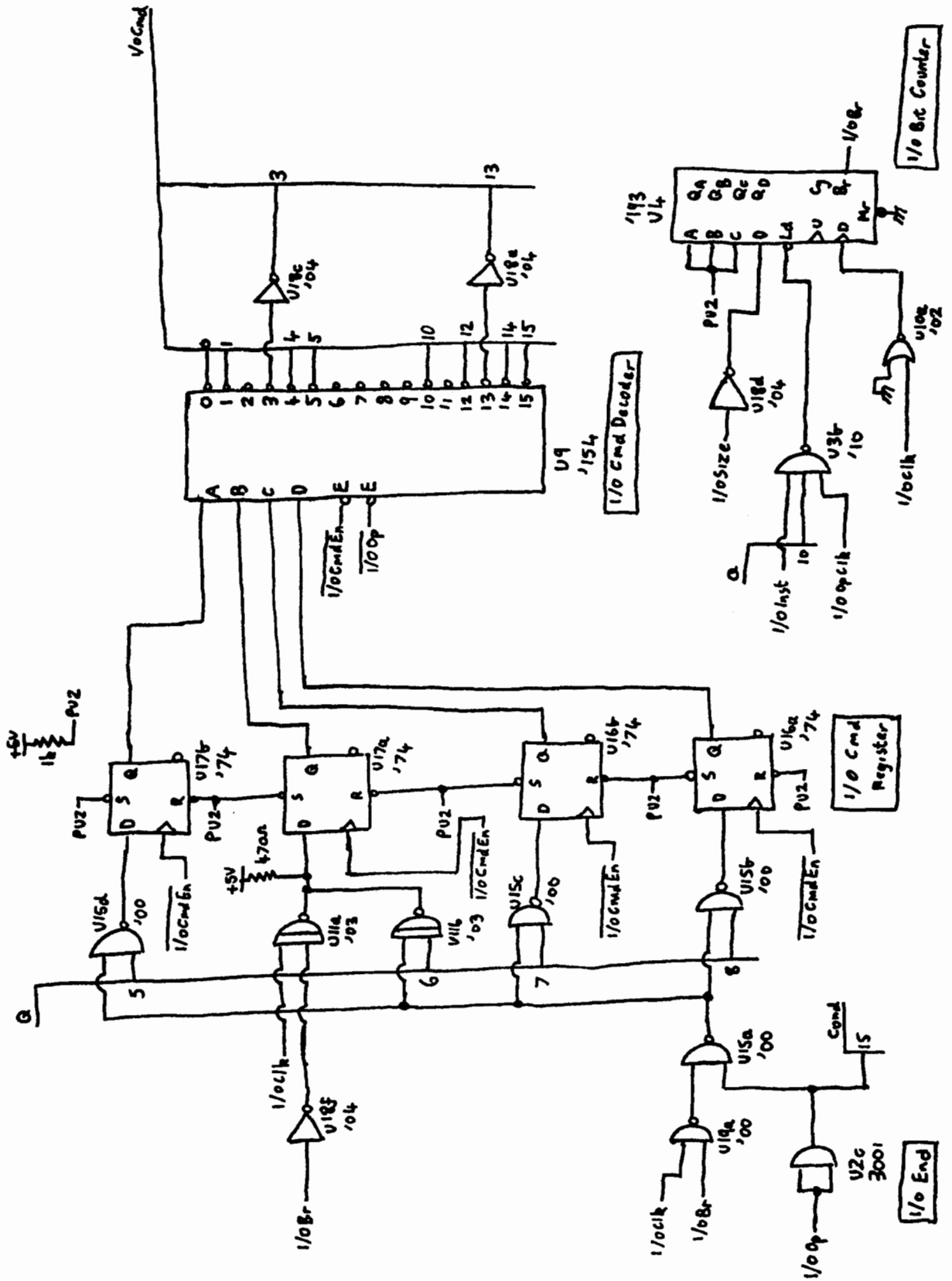


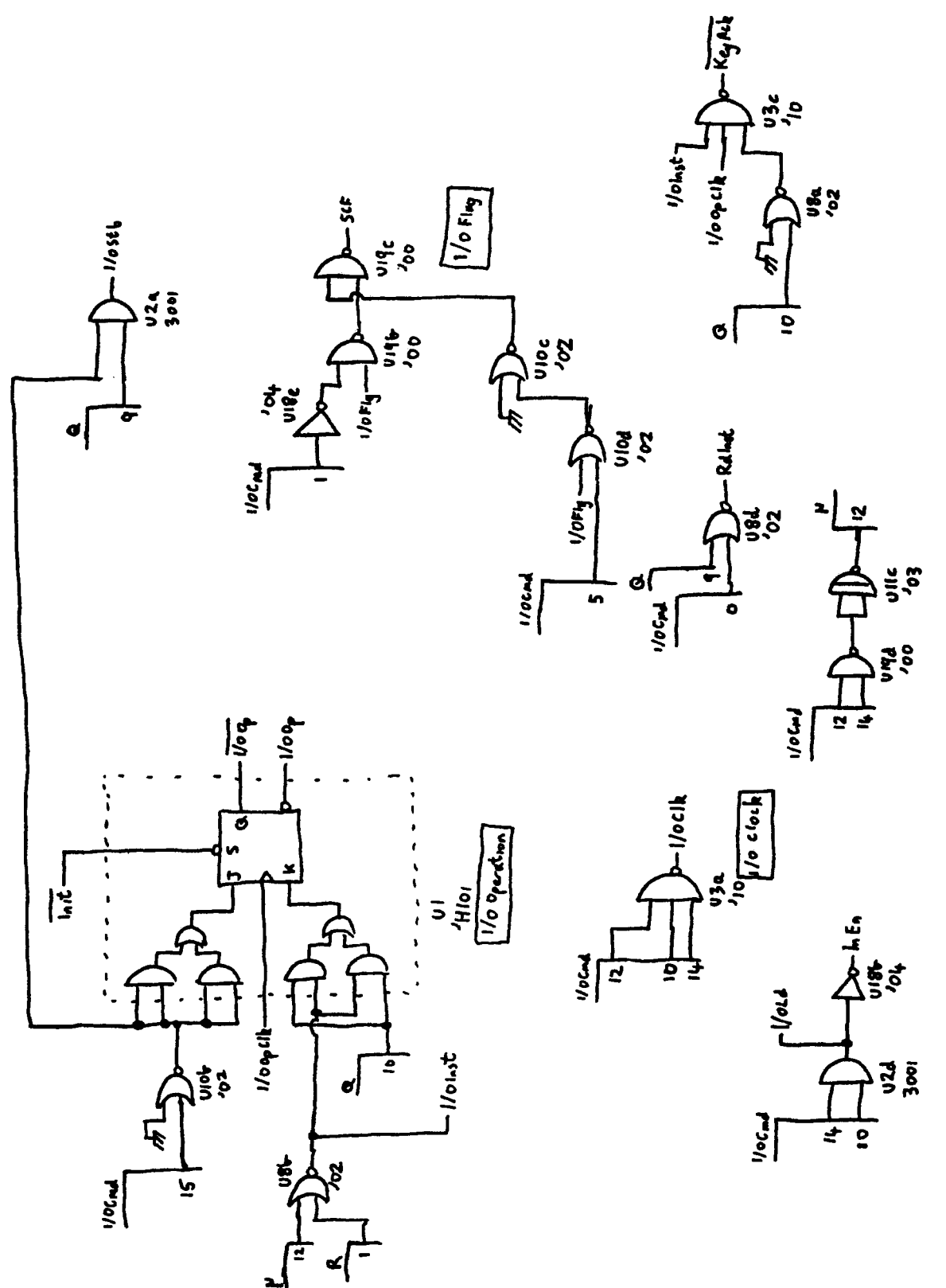


Master Clock



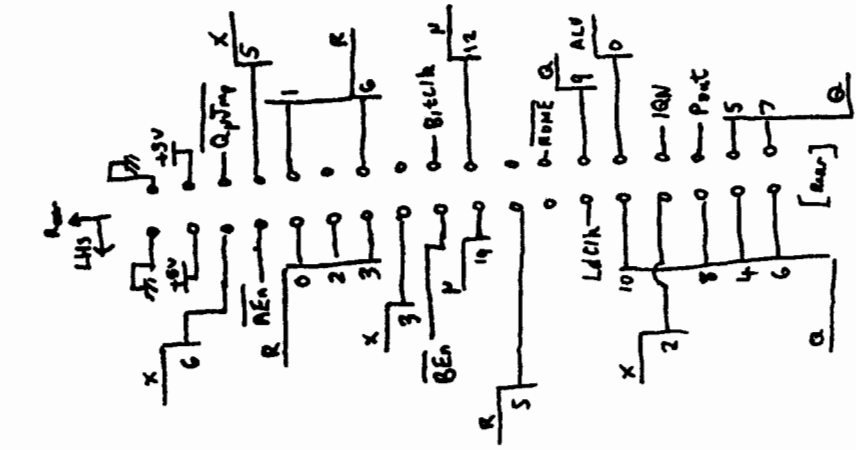
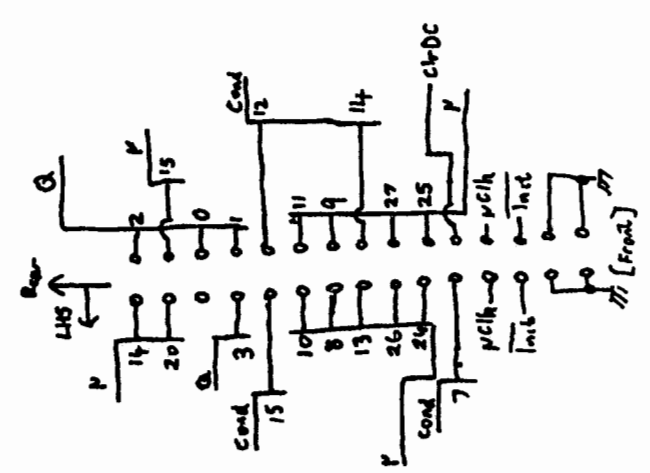
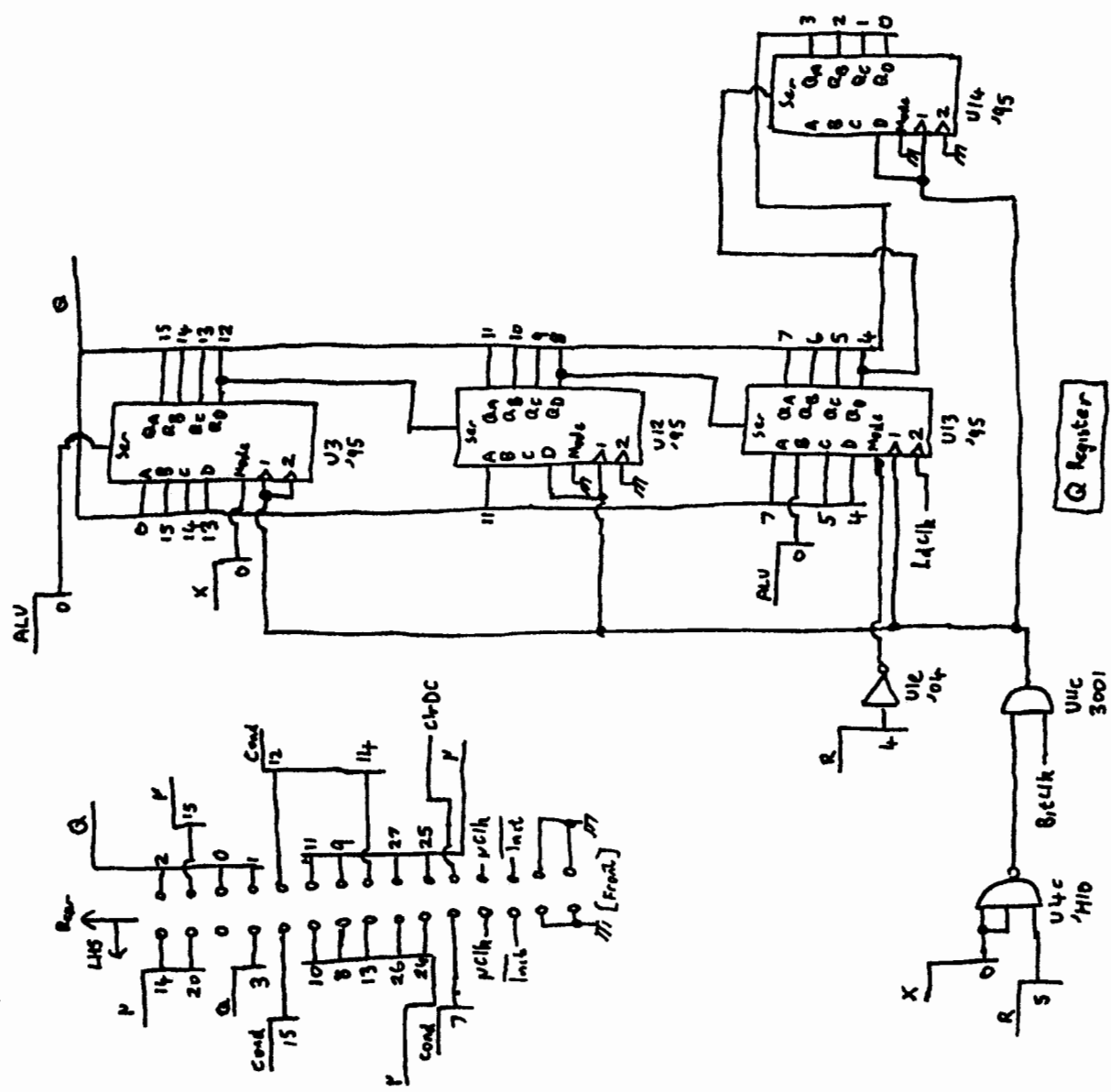


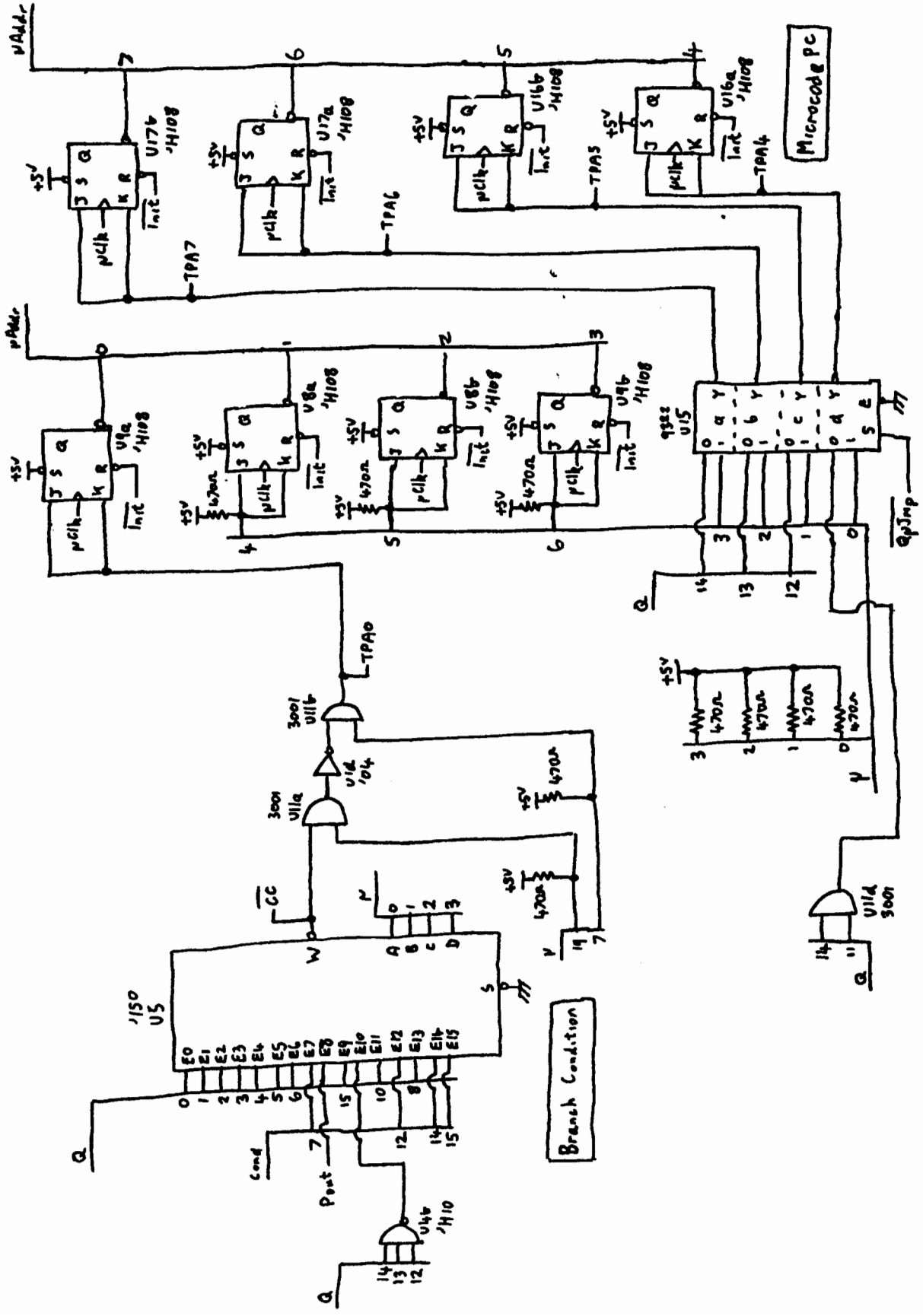


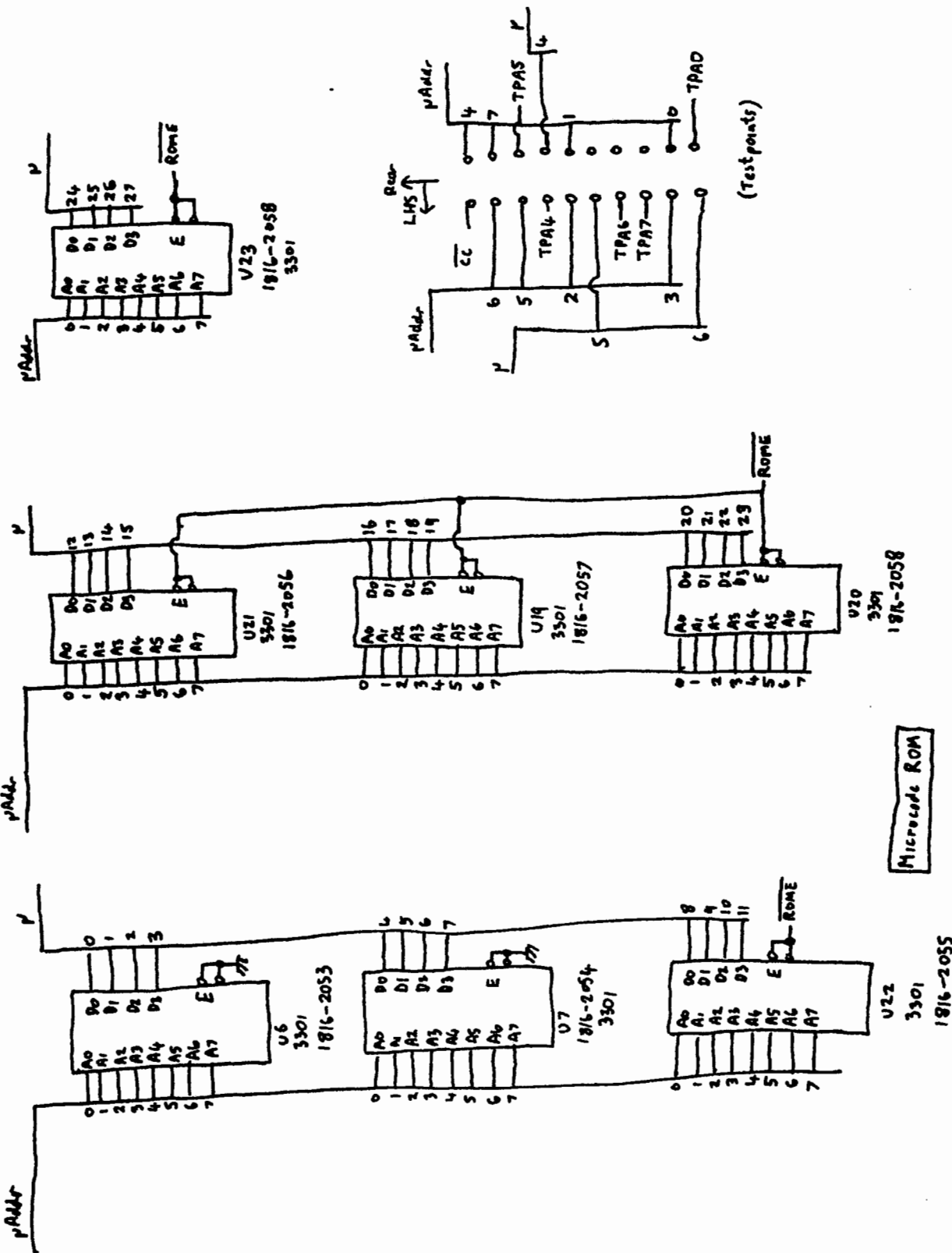


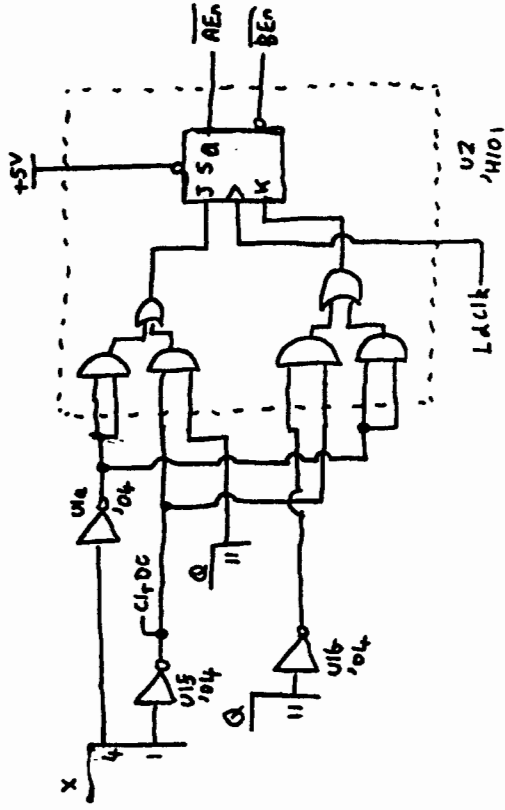
09810-66512

HP1810 clock PCB sheet 4 (Br/R)

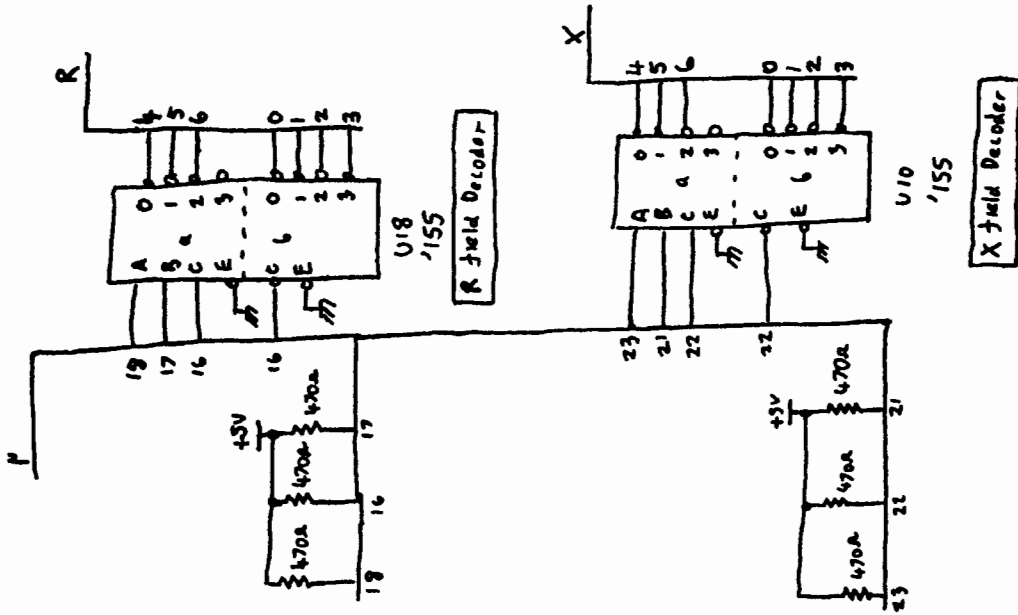
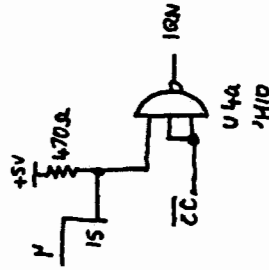






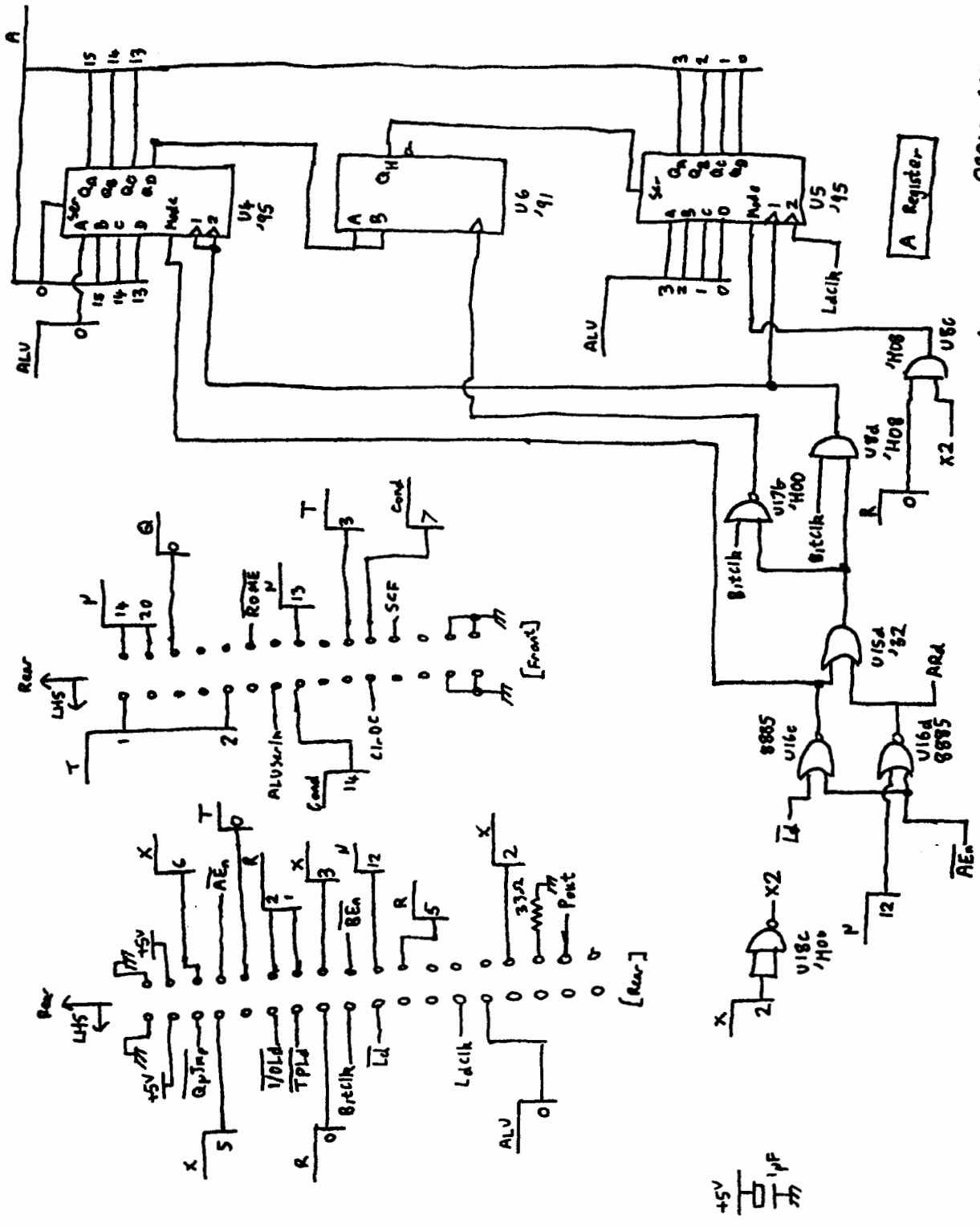


Register Select



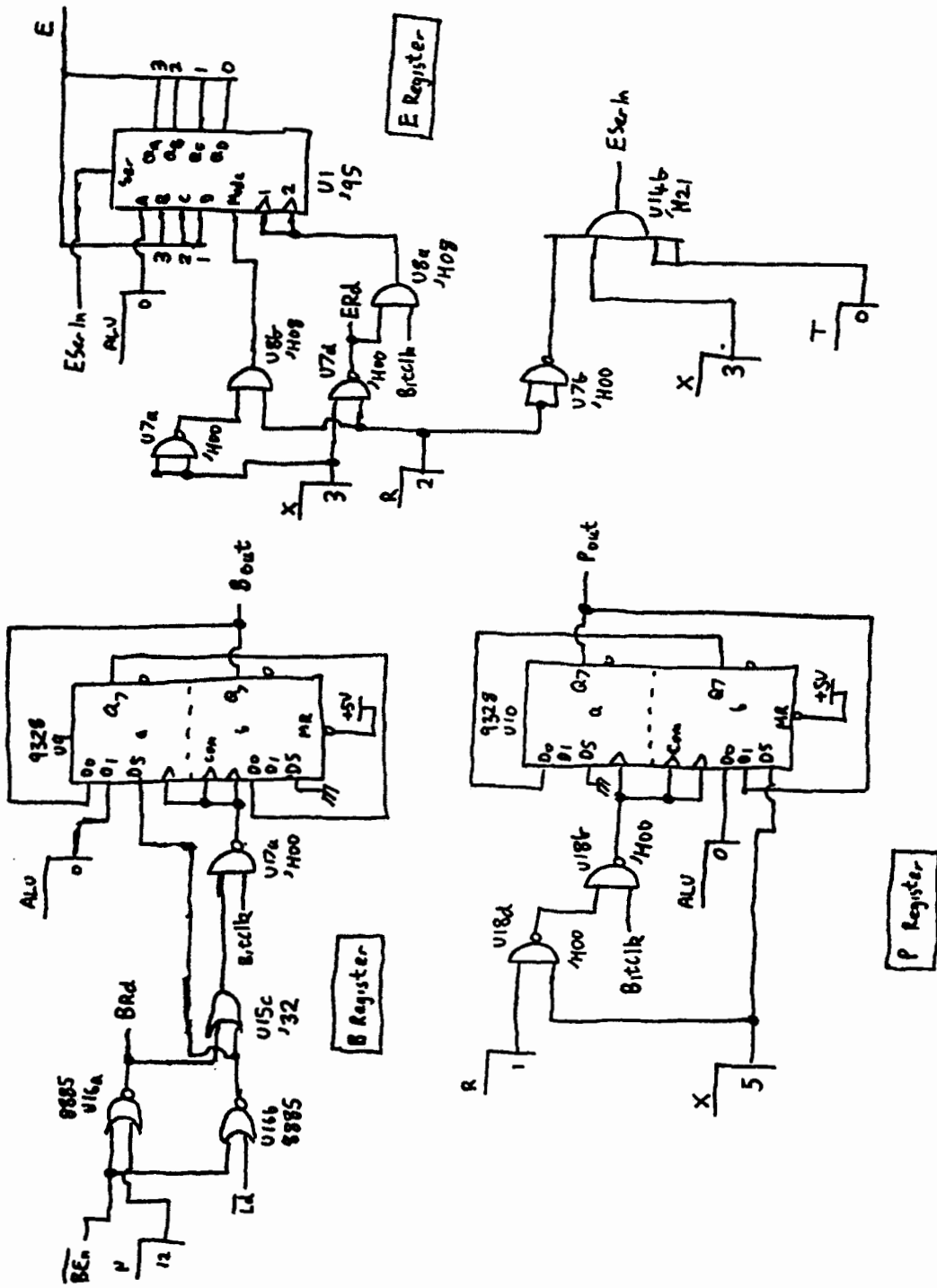
R Field Decoder

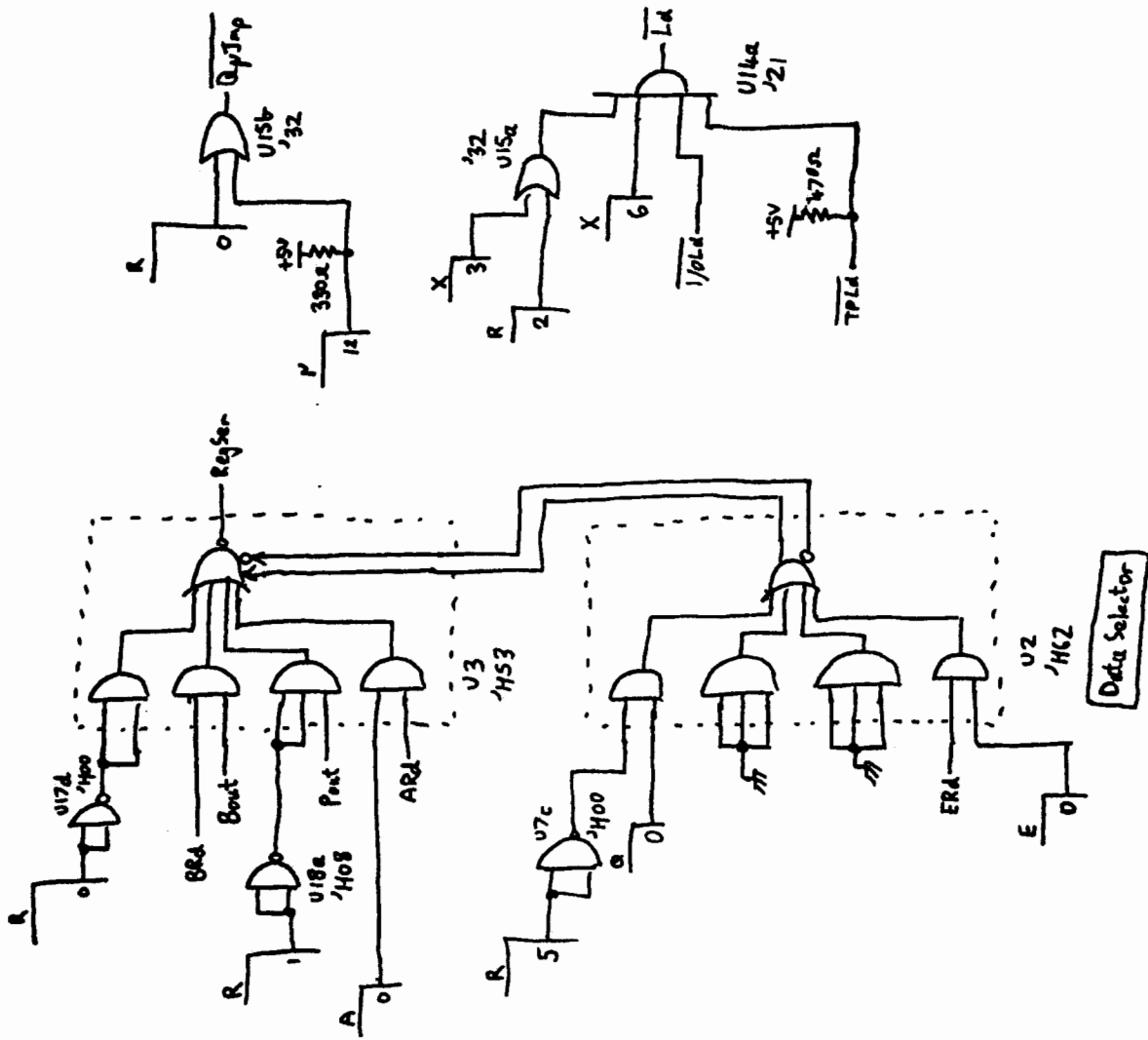
X Field Decoder

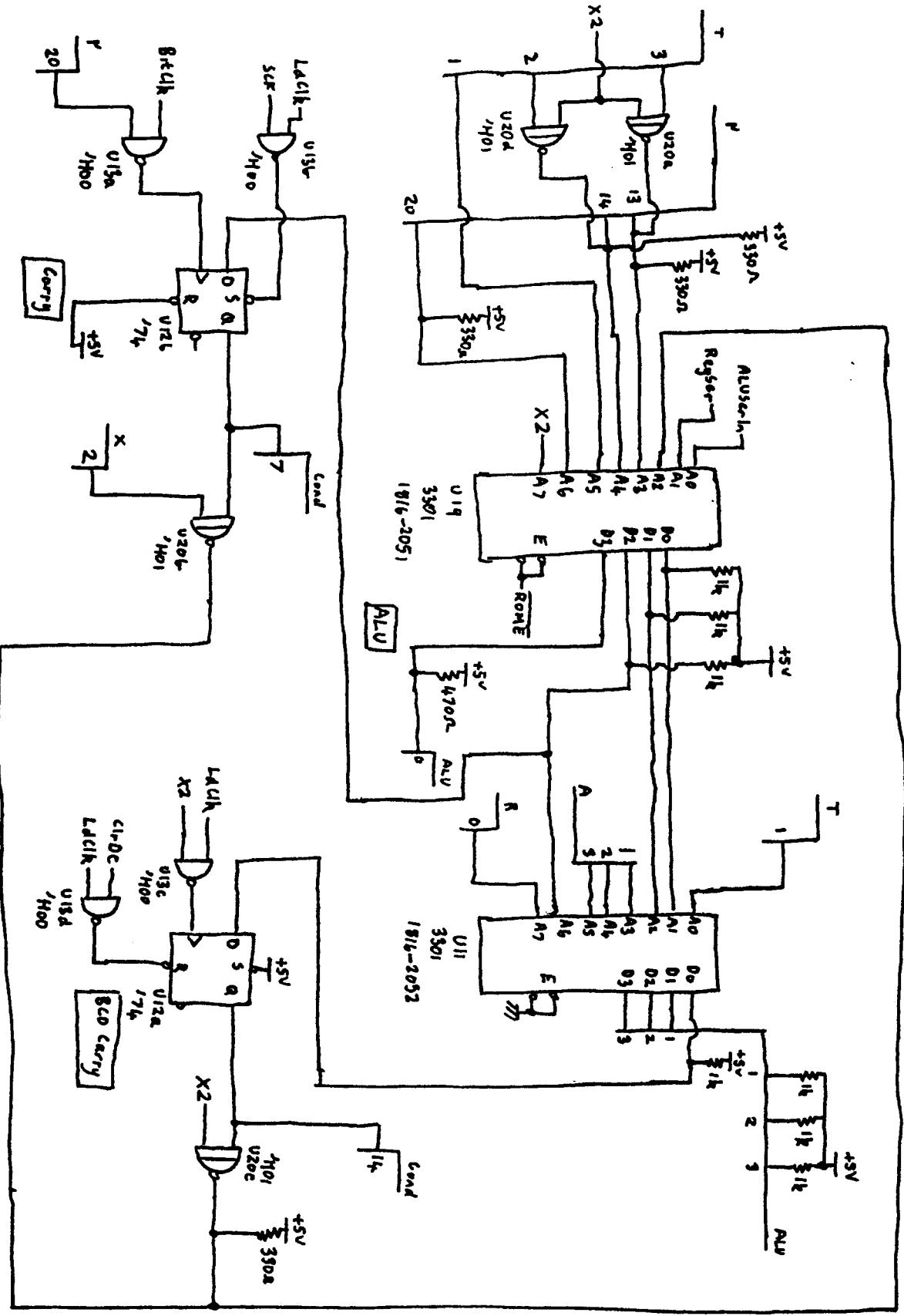


09810-66514

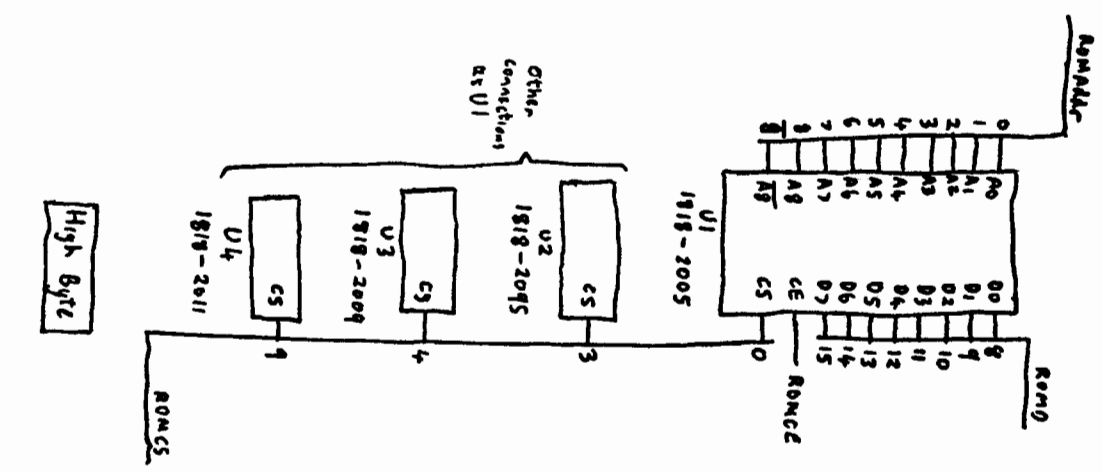
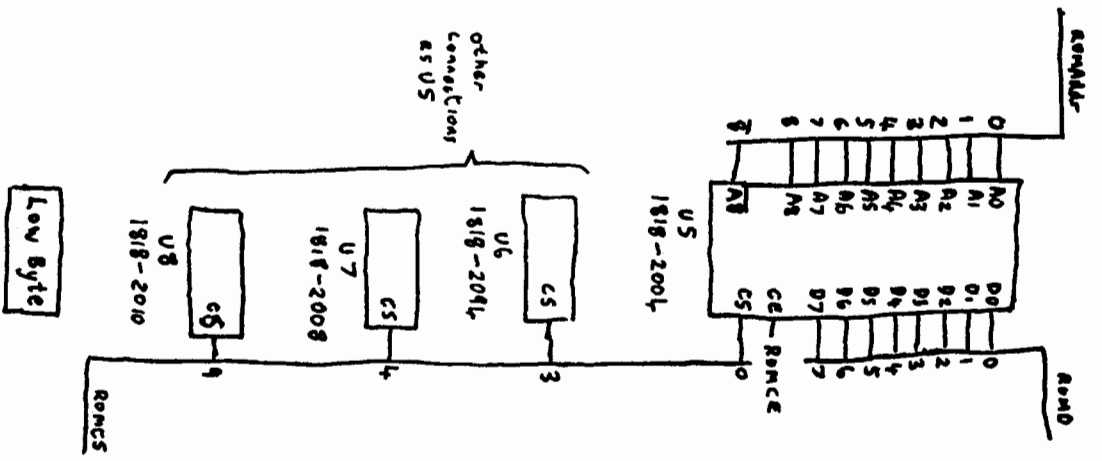
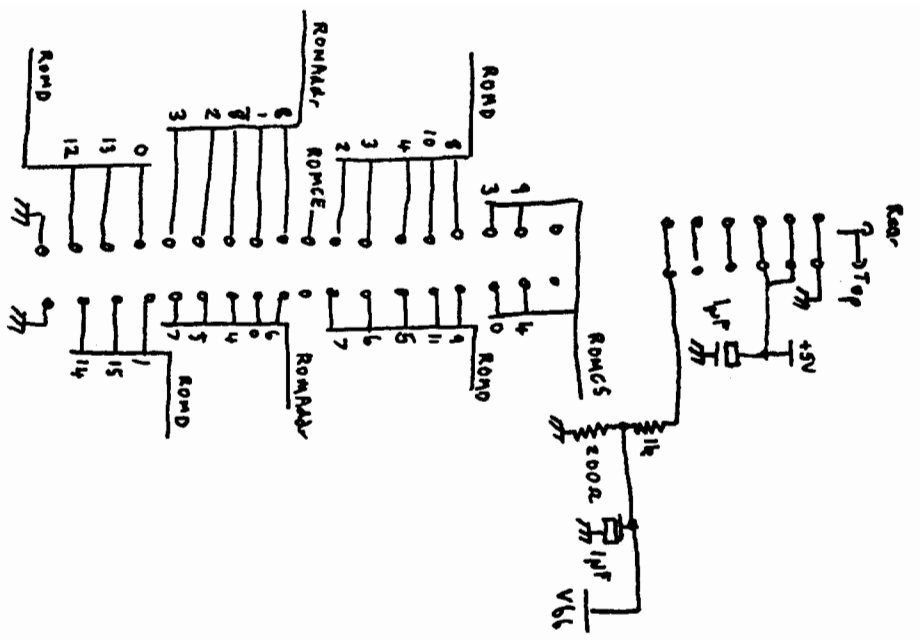
HP9810 Data Path Sheet 1 (Br/Y)



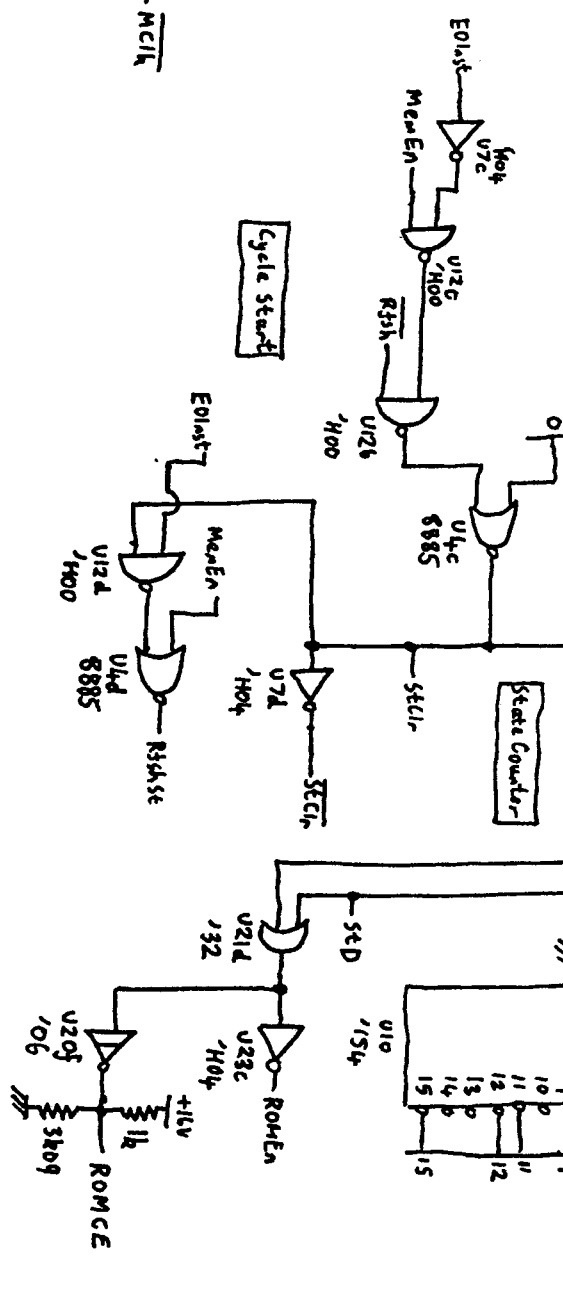
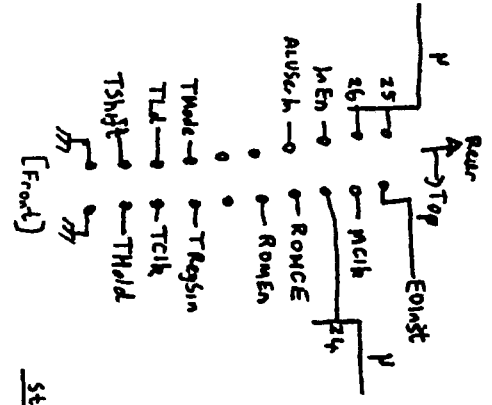
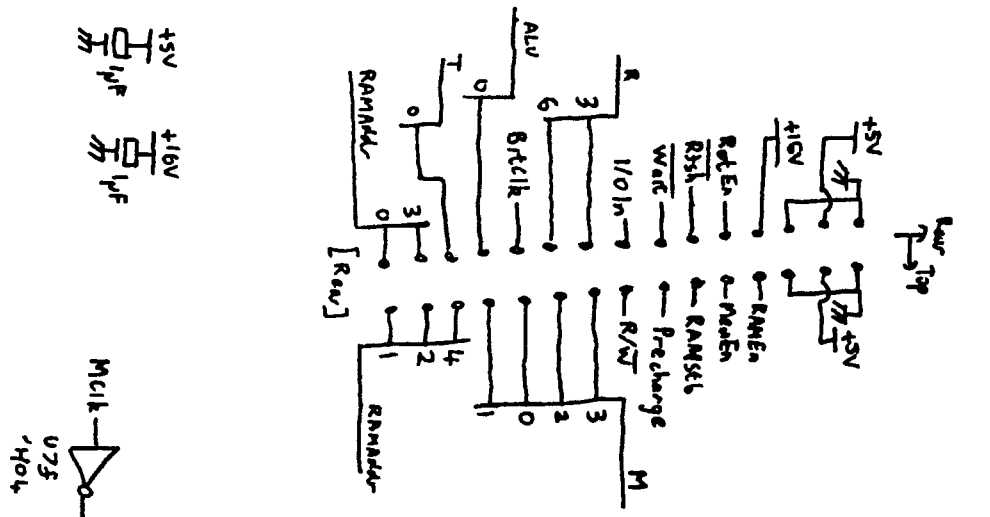




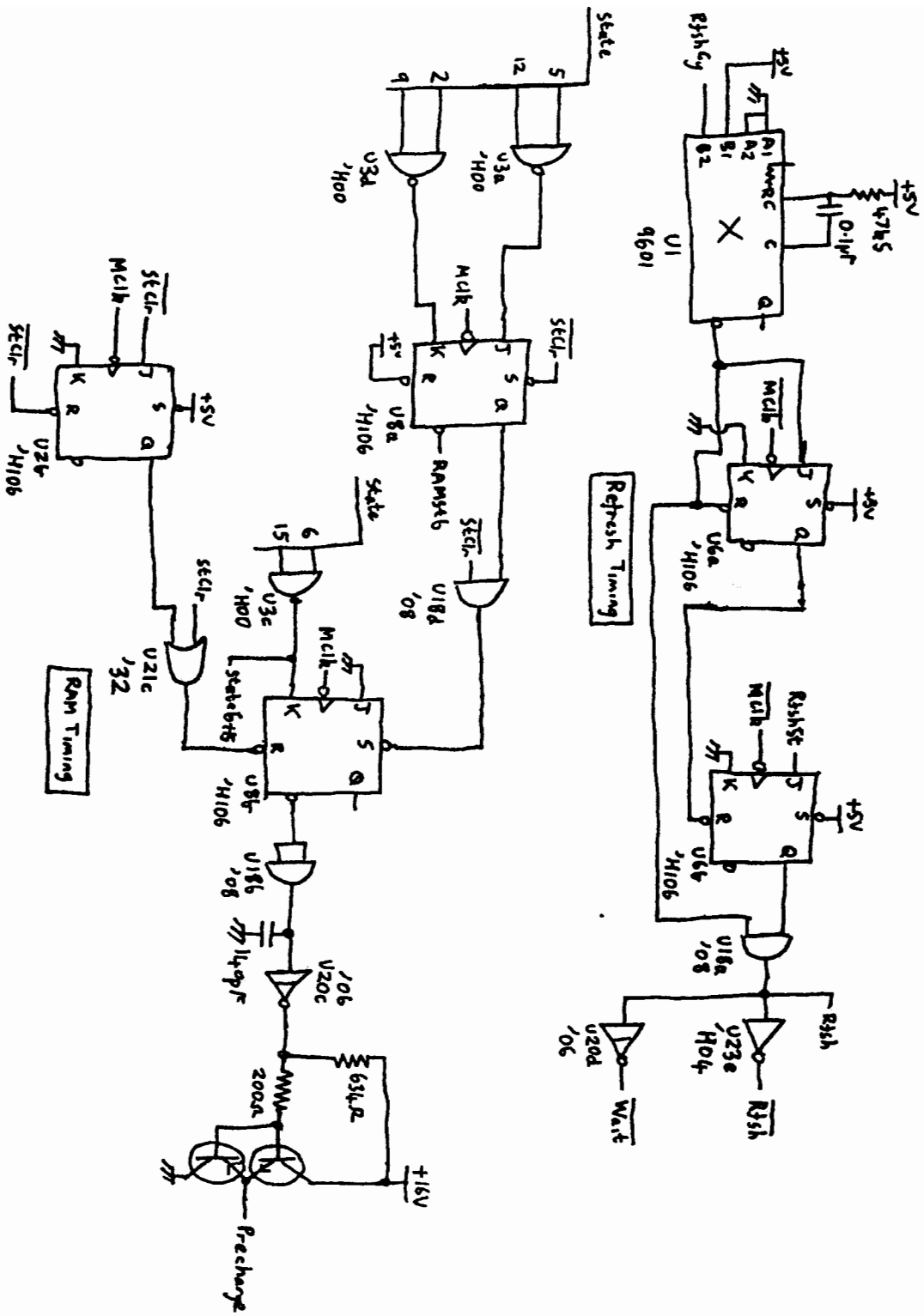
H Pq810 Data Path Sheet (4) (R/V) 09810-66514



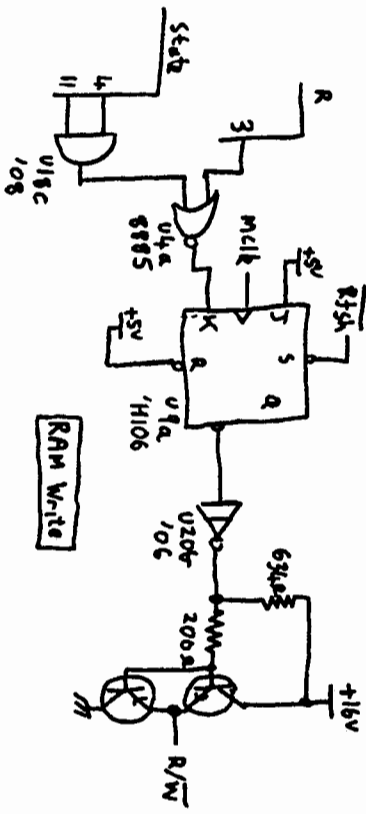
HP 9810 Rom PCB (R/R) 11216-66521



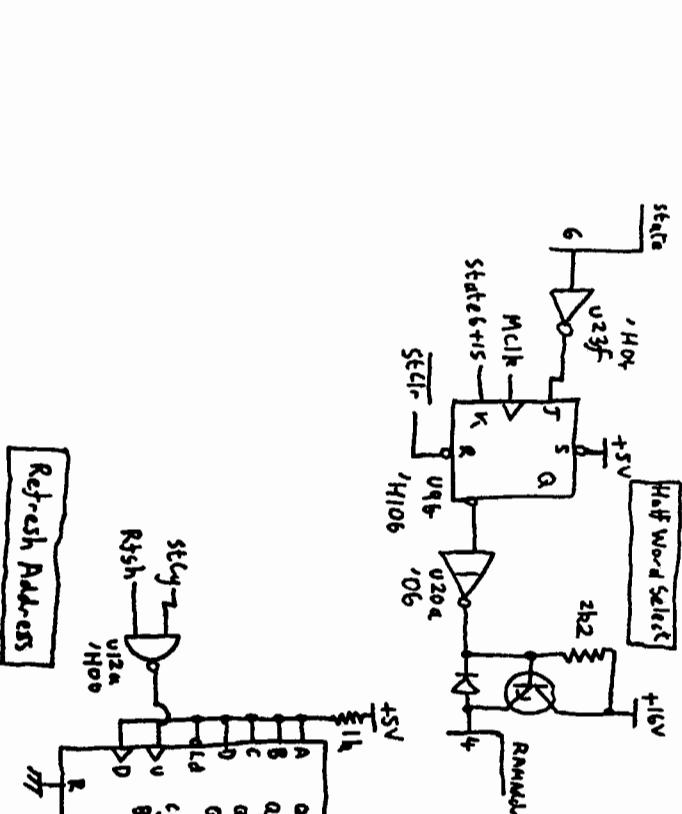
HP9810 Memory Timing PCB sheet (R/R) 09810-66522



HP9810 Memory Timing PCB Sheet ② (R/R) 09810-66522

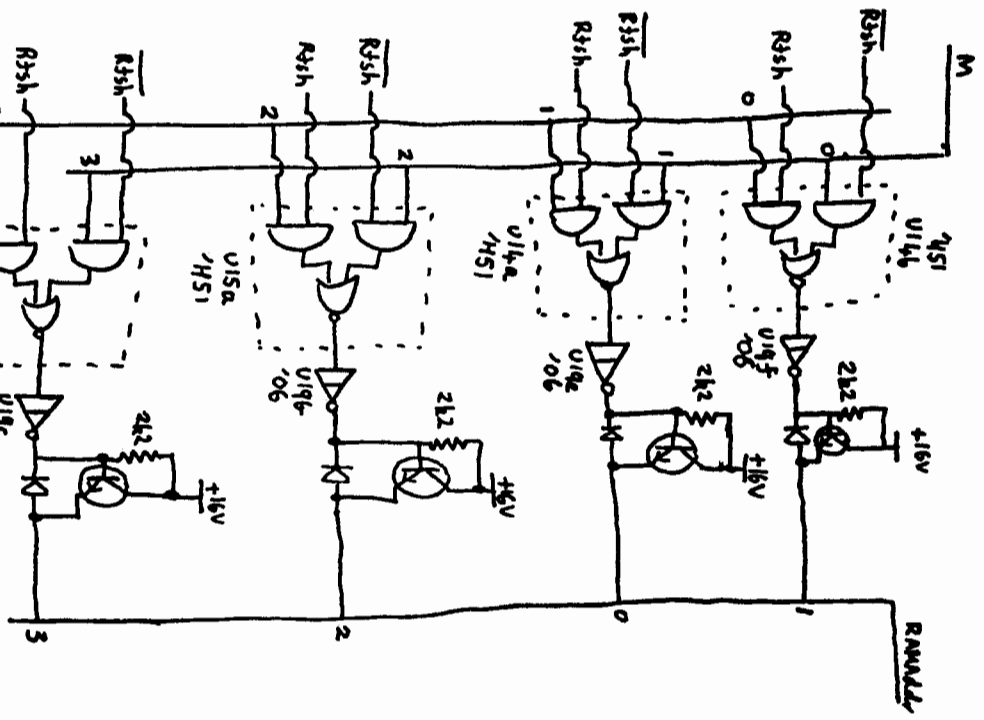


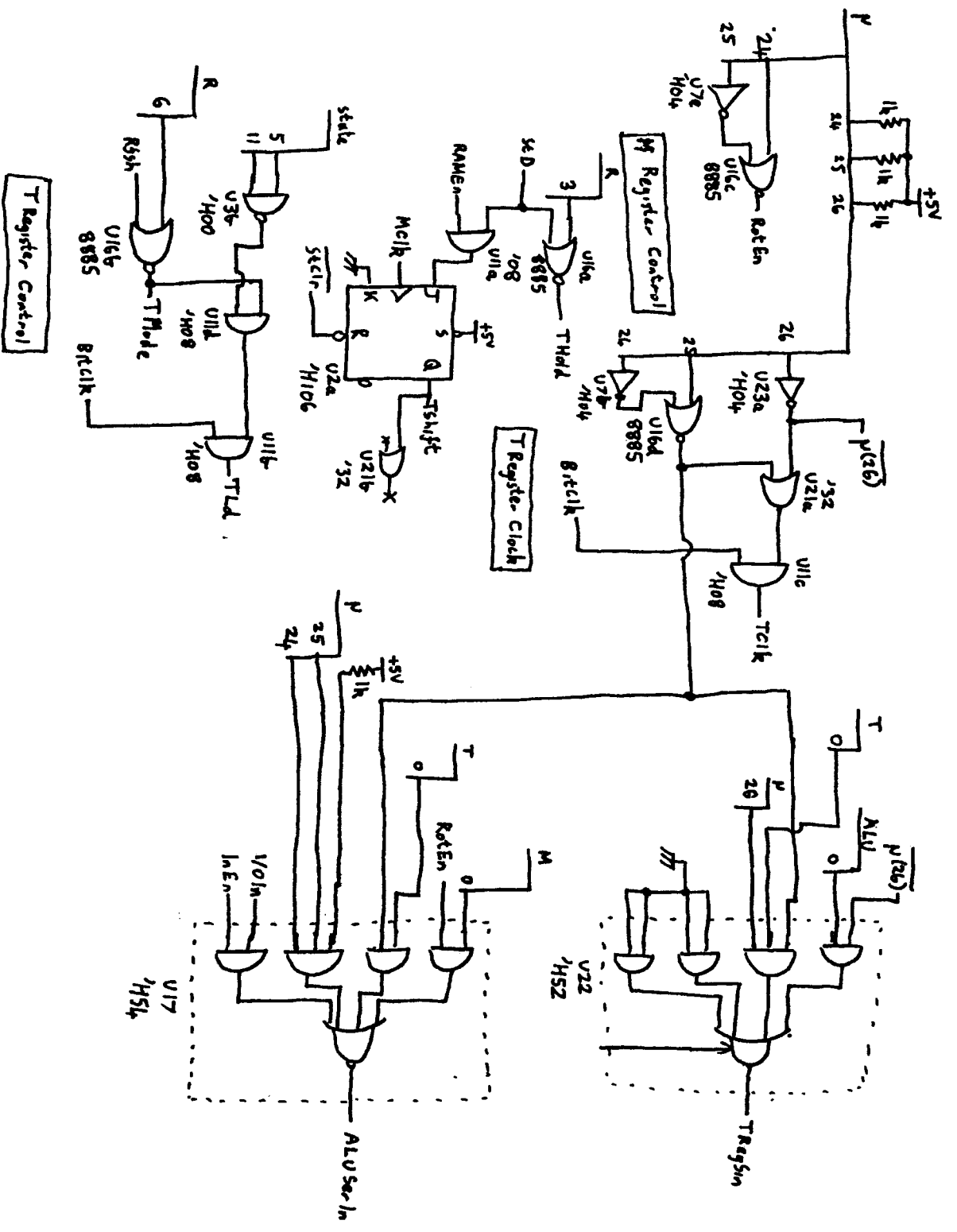
RAM Write



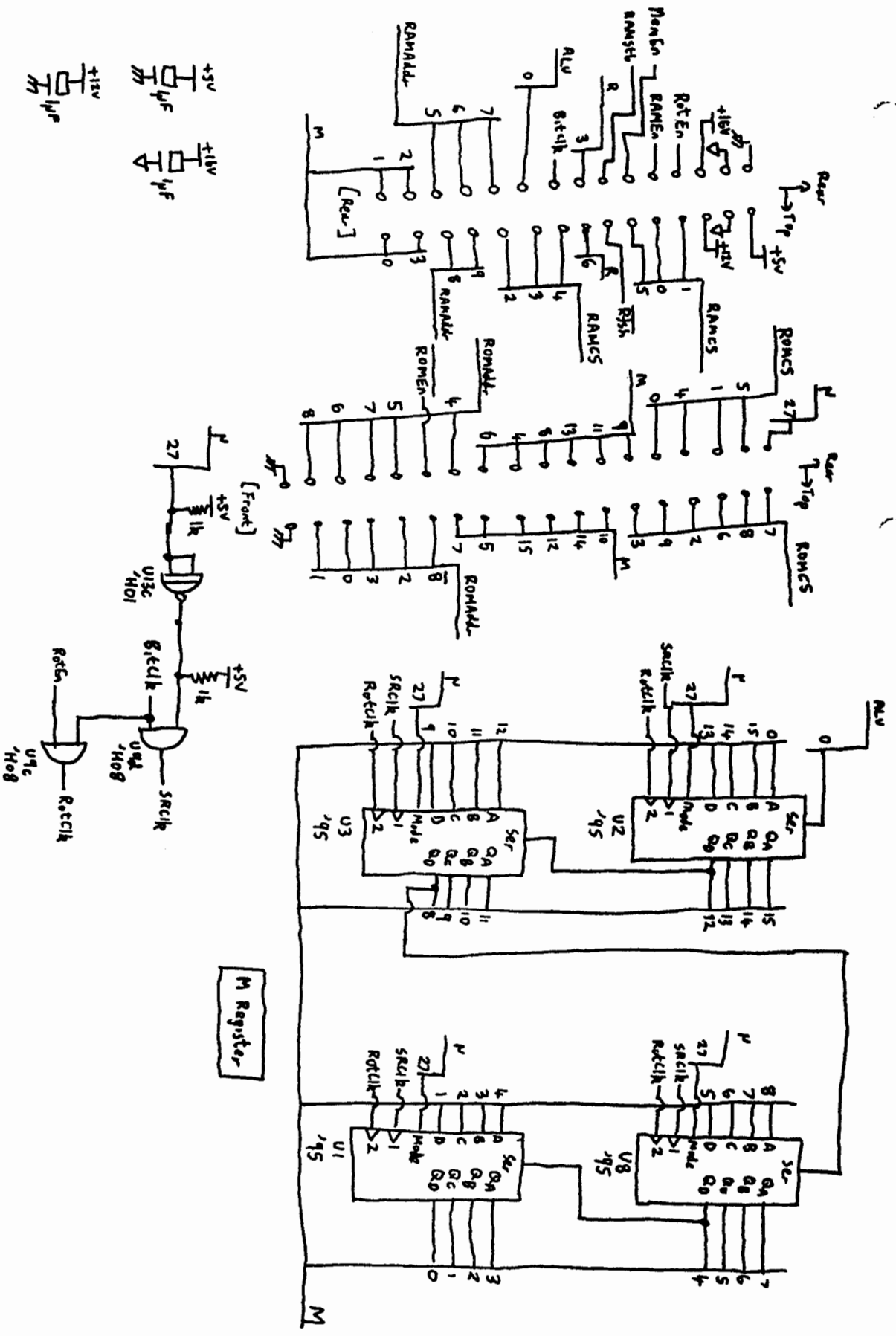
Refresh Address

RAM Address



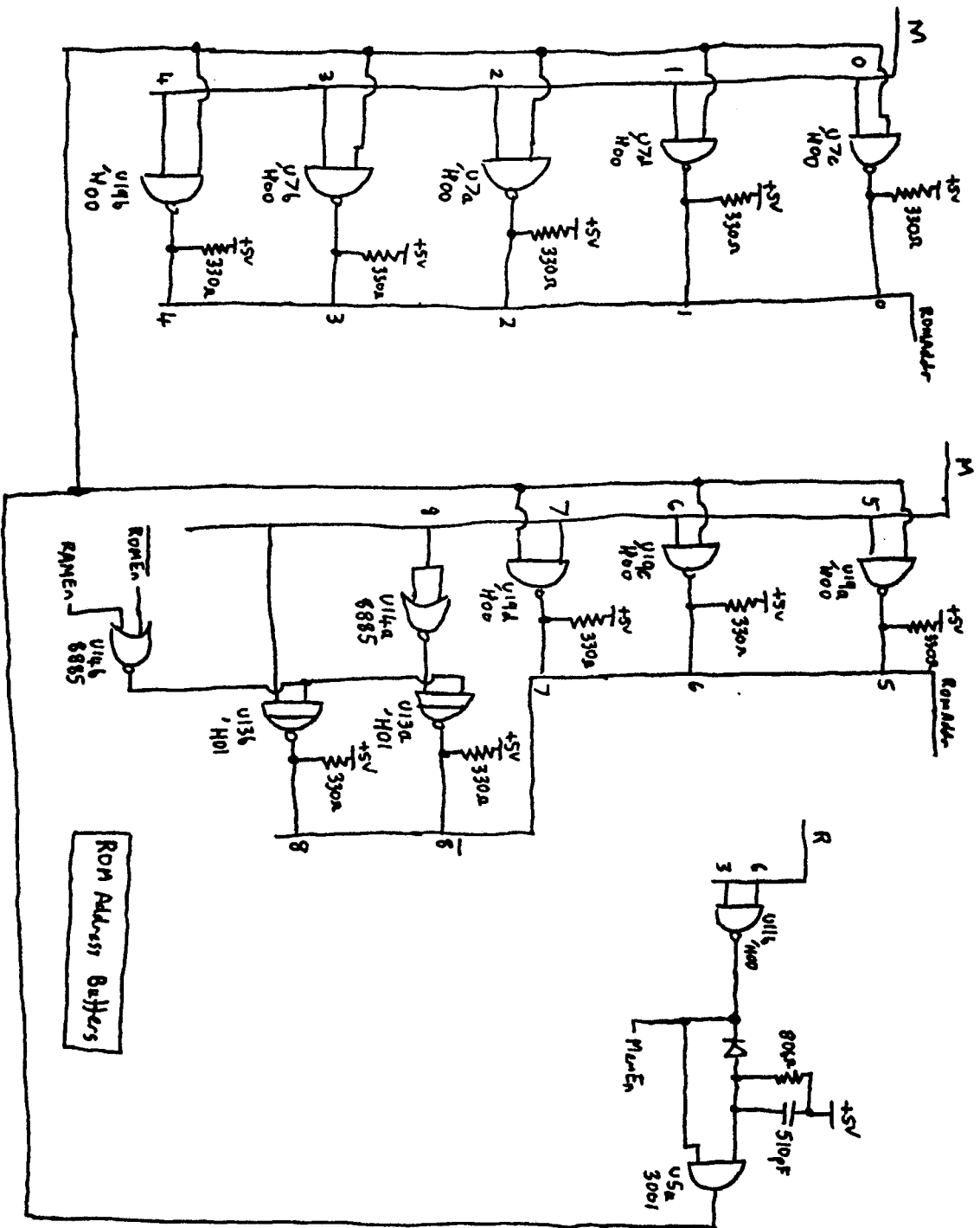


HP 9810 Memory Timing PCB sheet (4) (R/R) 09810-66522

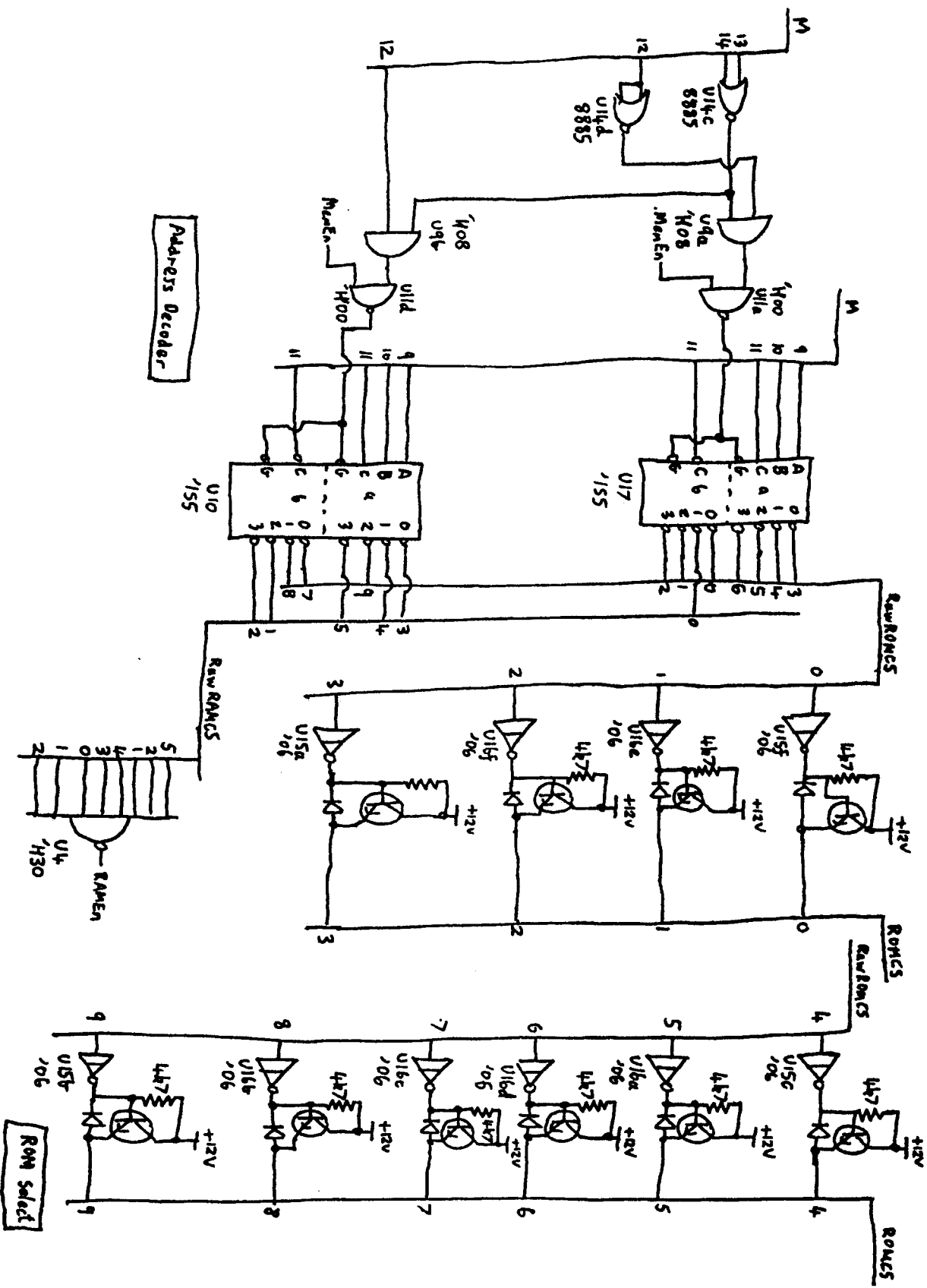


HP 9810 Memory Address PCB Skat ① (R/or)

09810-66523

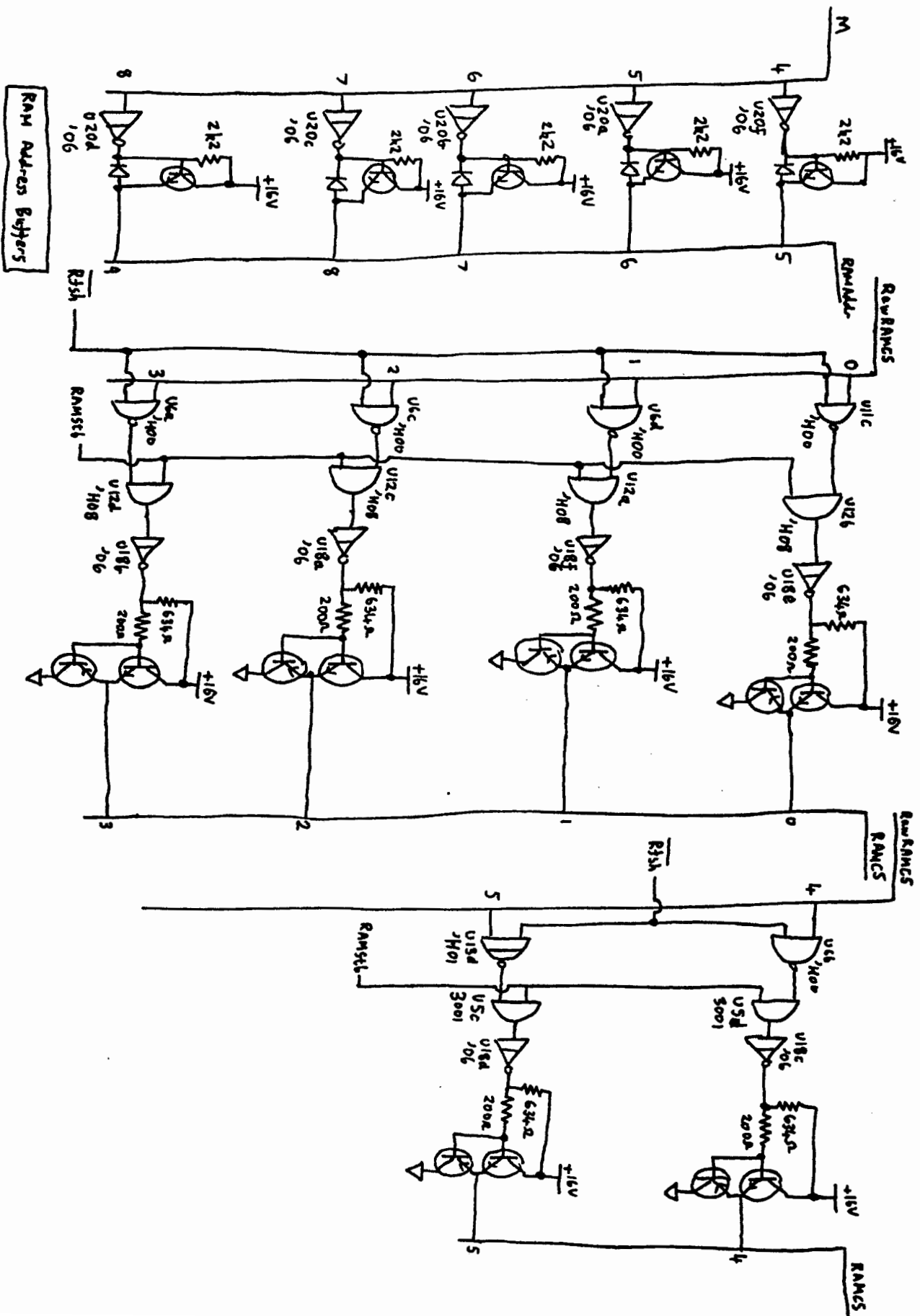


HP 9810 Memory Address PCB Sheet ② (R10r) 09810-66523

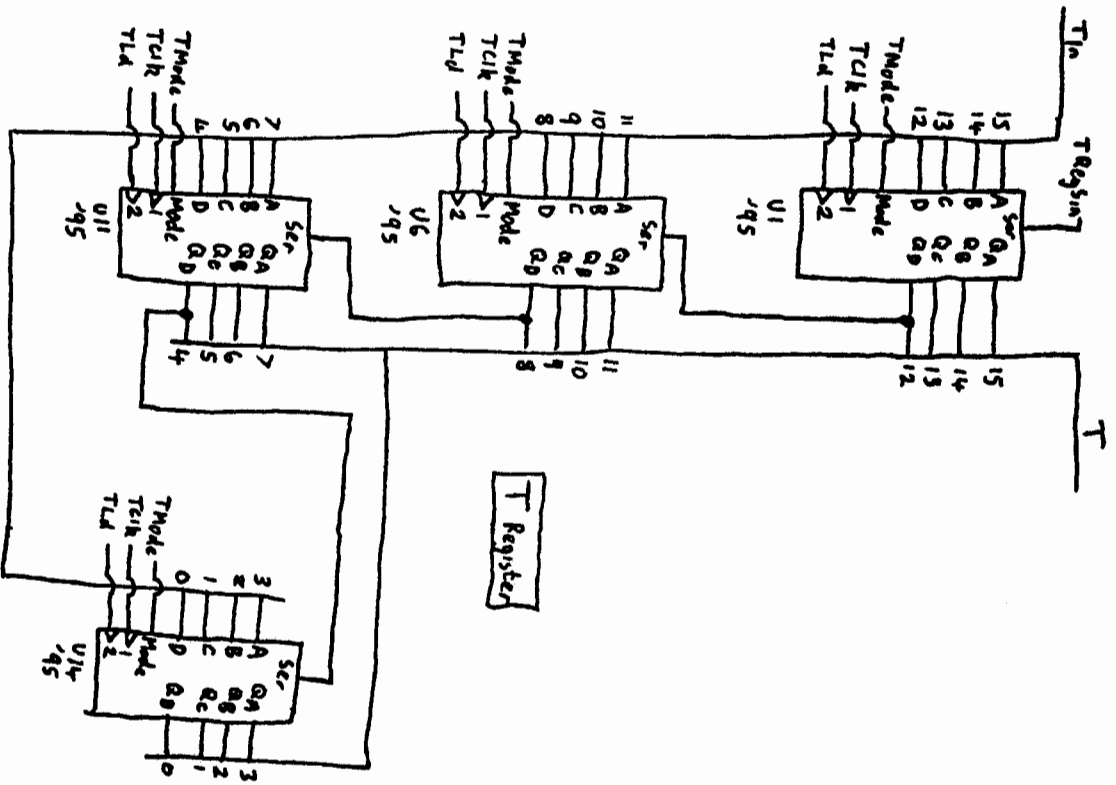
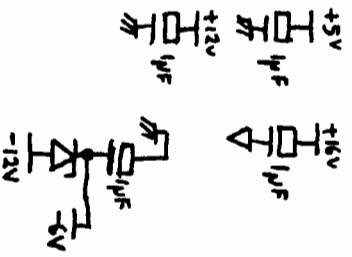
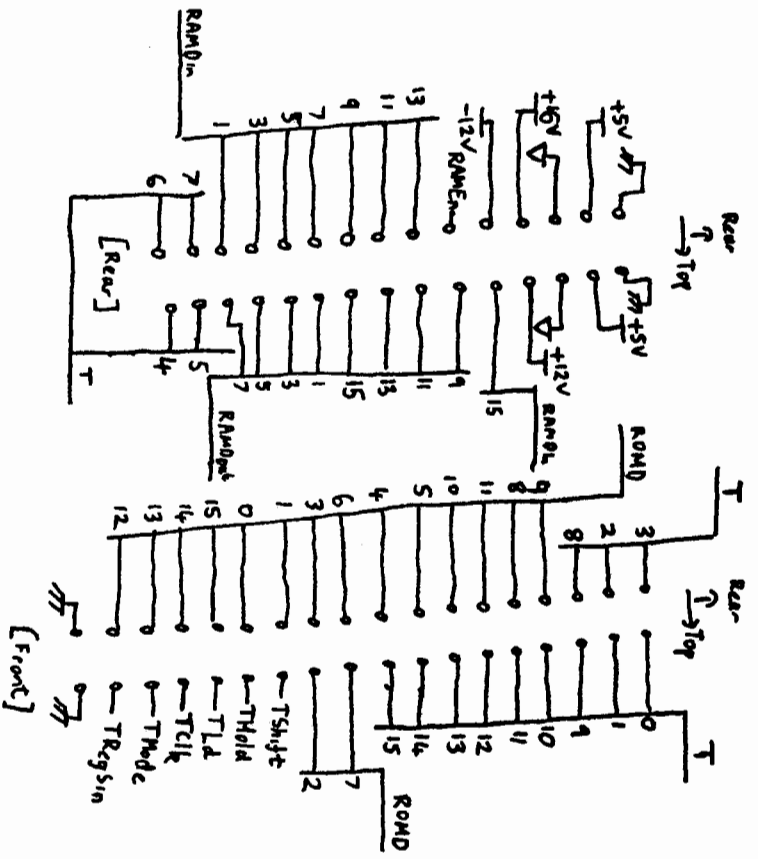


HP 9810 Memory Address PCB sheet 3 (R/O-)

09810-66523

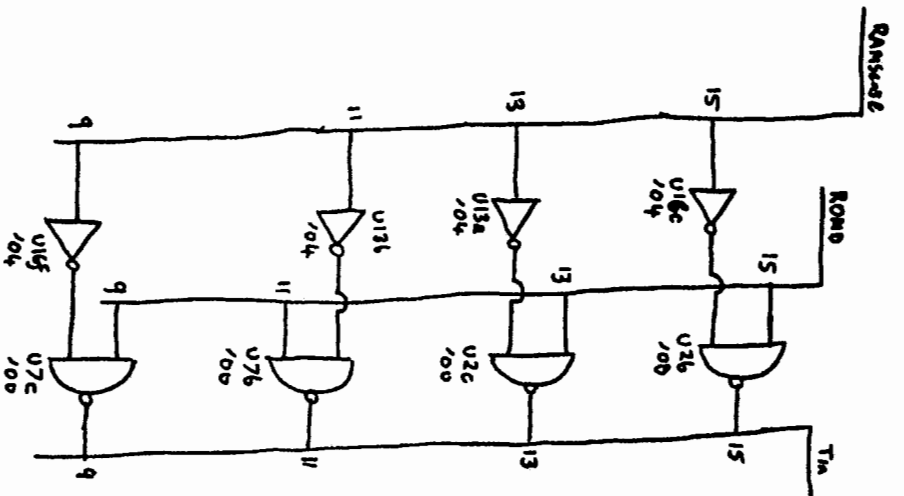


HP 9810 Memory Address PCB Sheet (4) (R/O.) 09810-66523

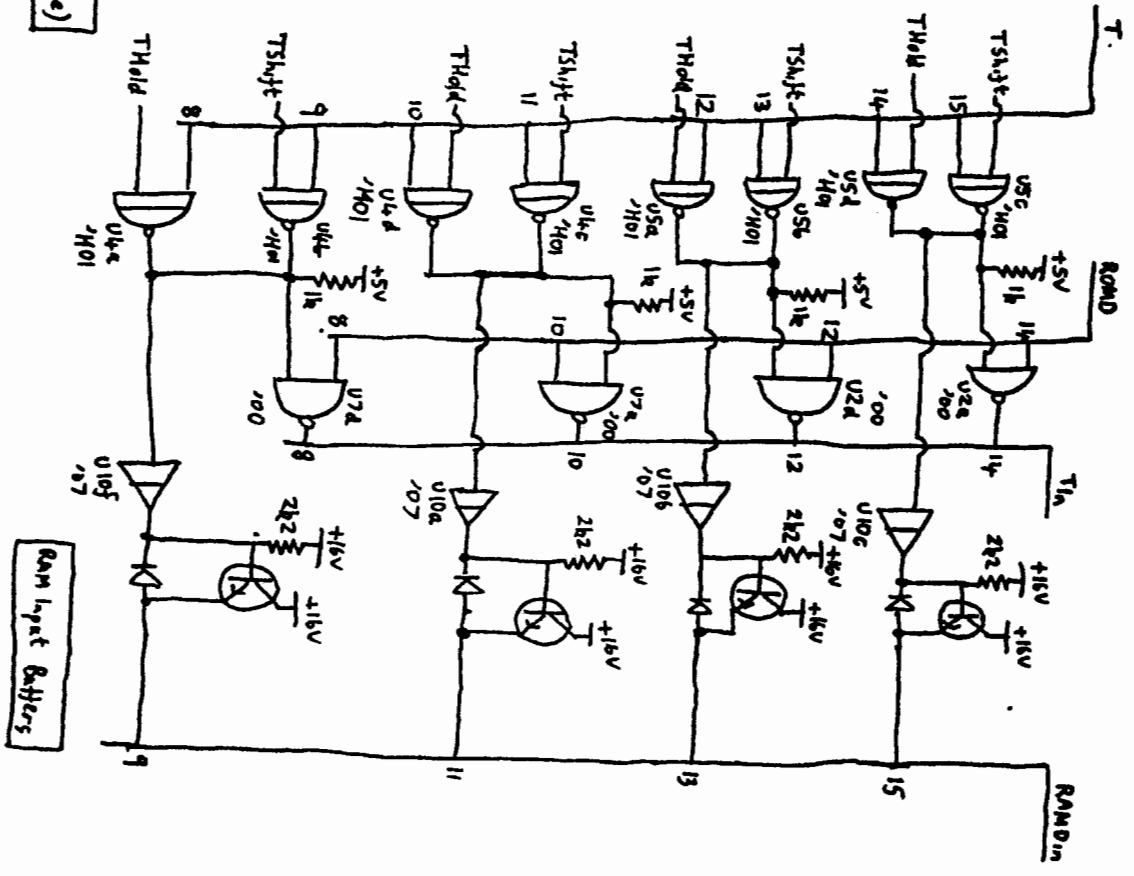


HP9810 Memory Data PCB Sheet ① (R/V)

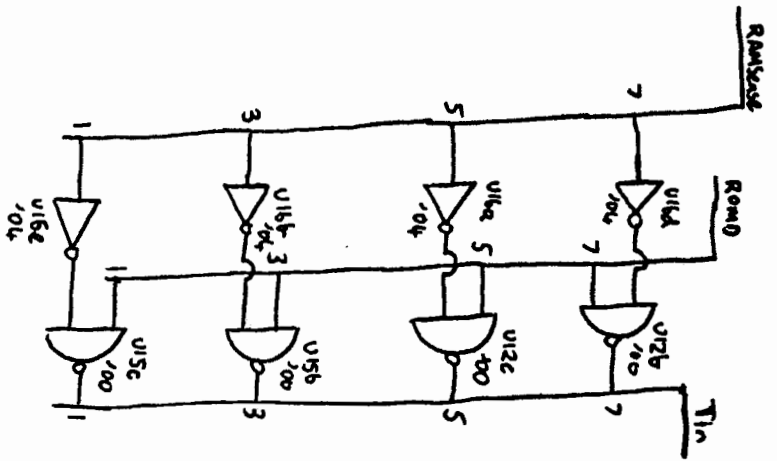
09810-66524



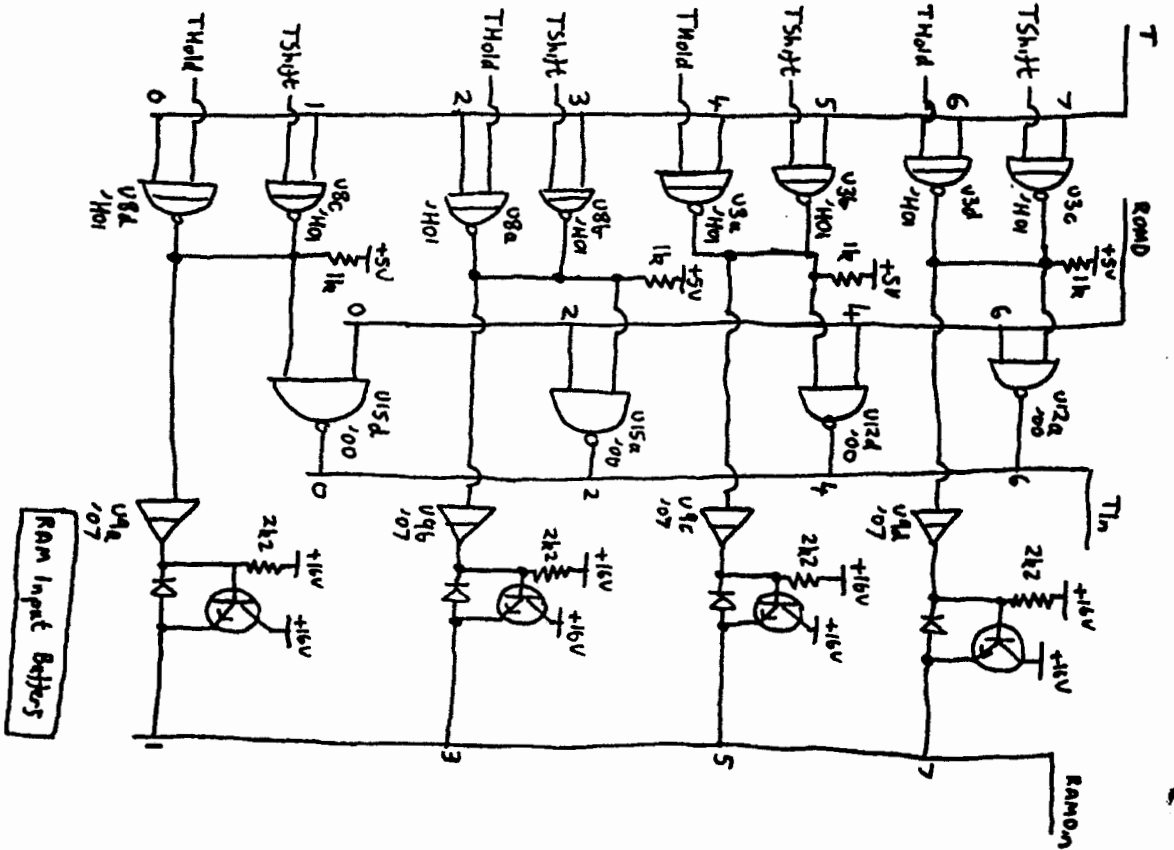
Read Data Gates (High Byte)



RAM Input Buffers

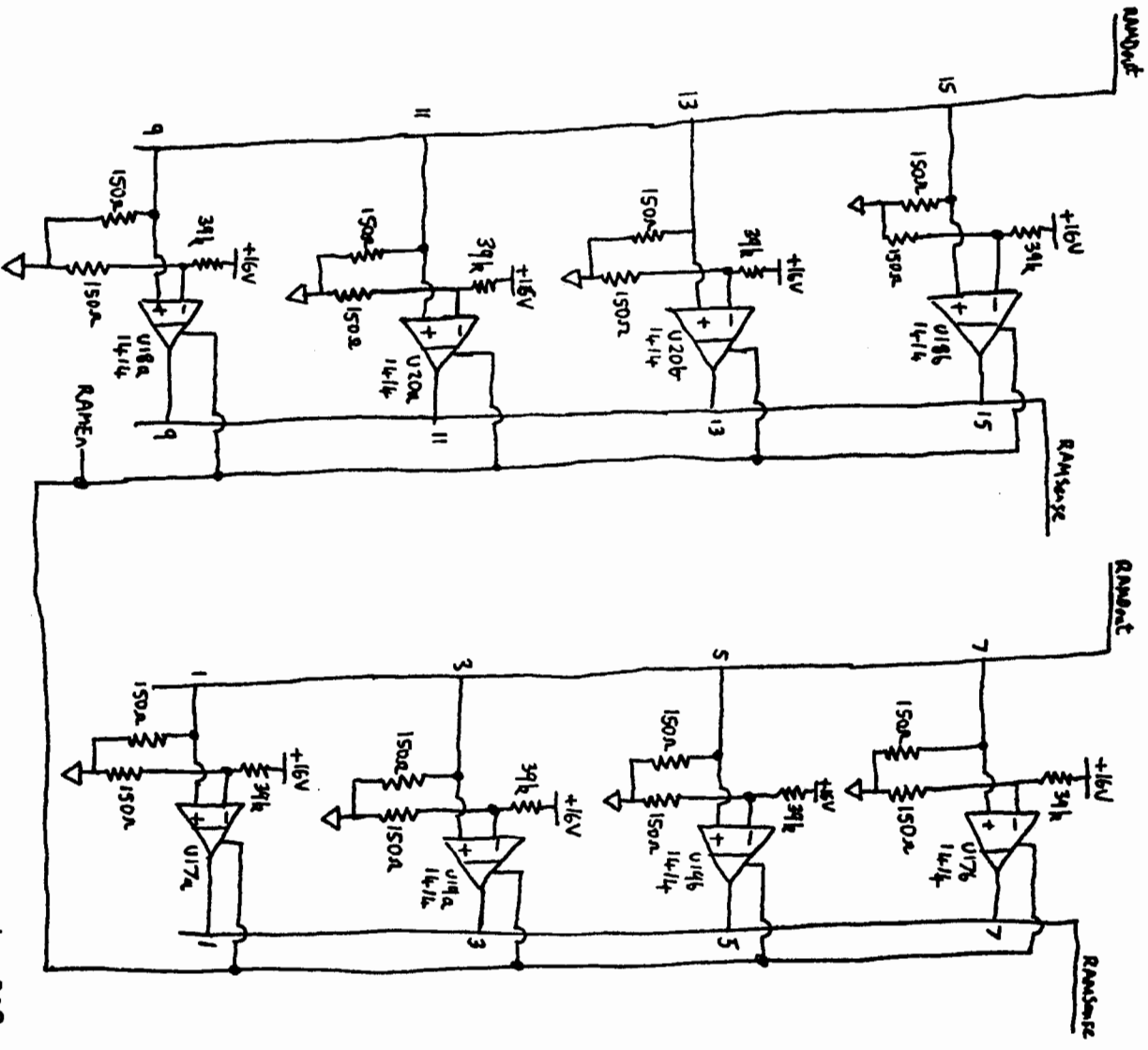


Read Data to RAMD (Low Byte)



RAM Input Buffers

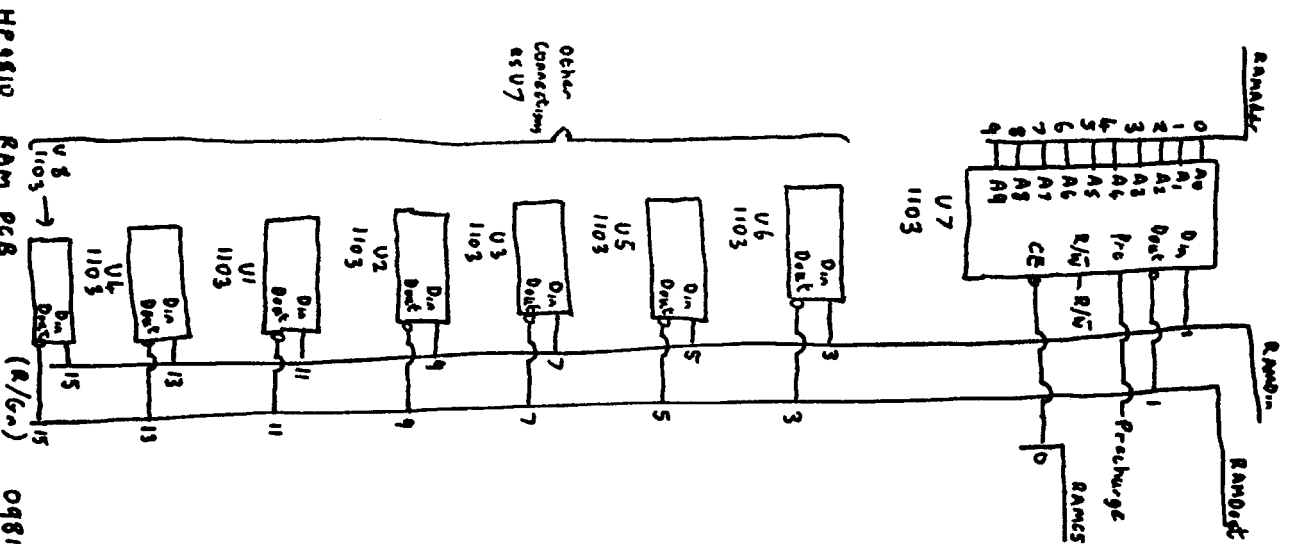
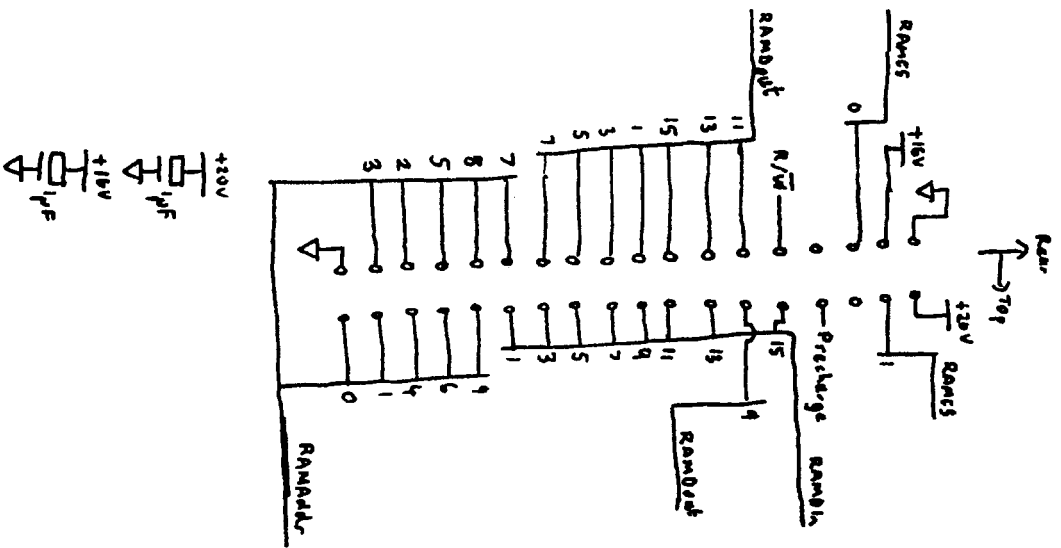
HP4810 Memory Data PCB Sheet 3 (RV)



RAM Read Buffers

HP9810 Memory Data PCB sheet ① (R/V)

09810-66524

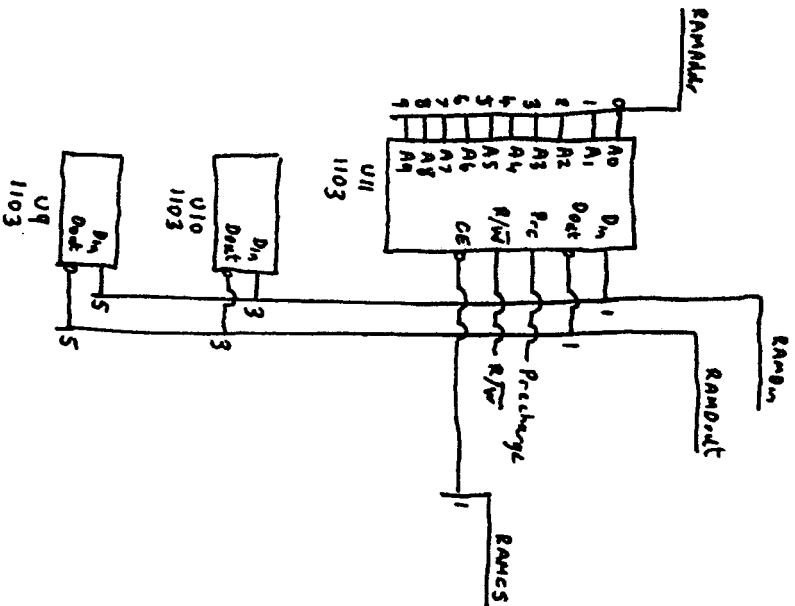


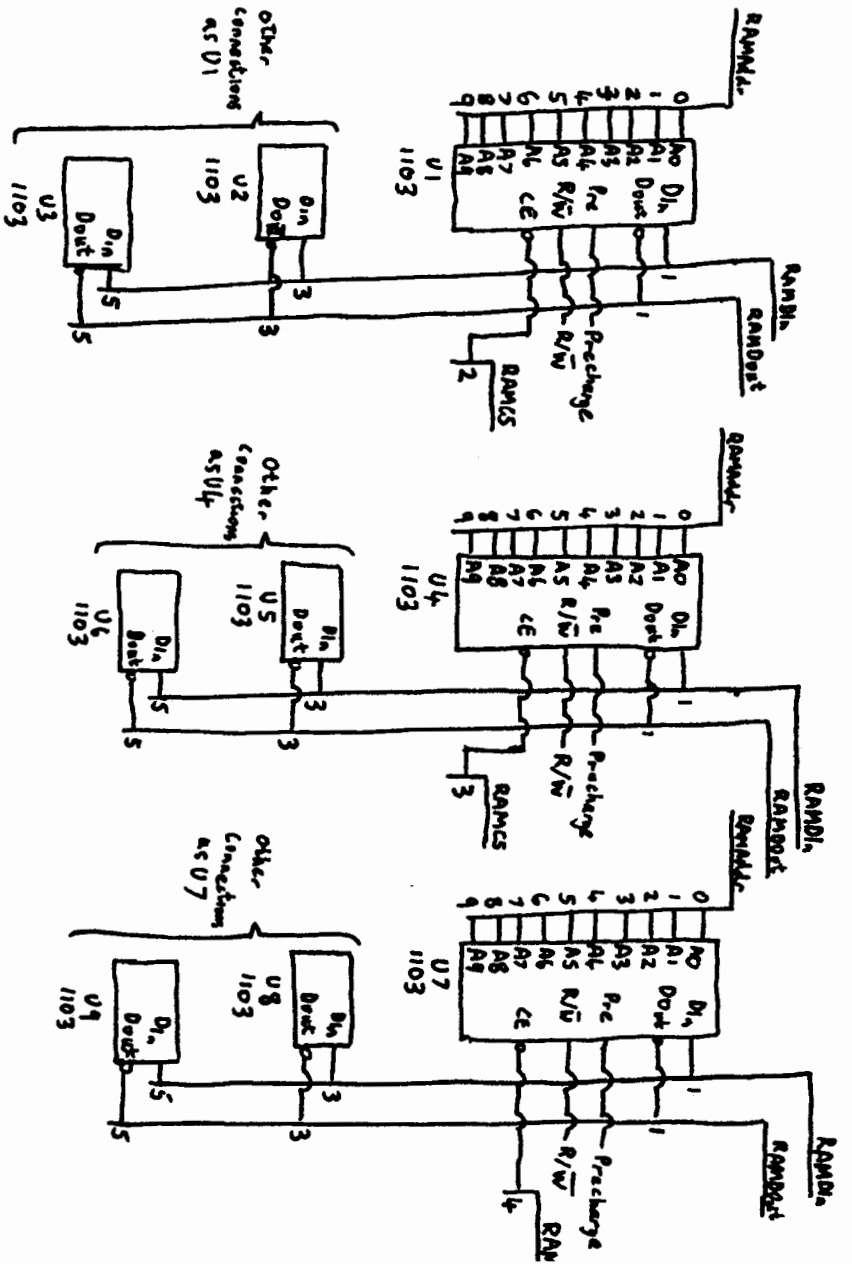
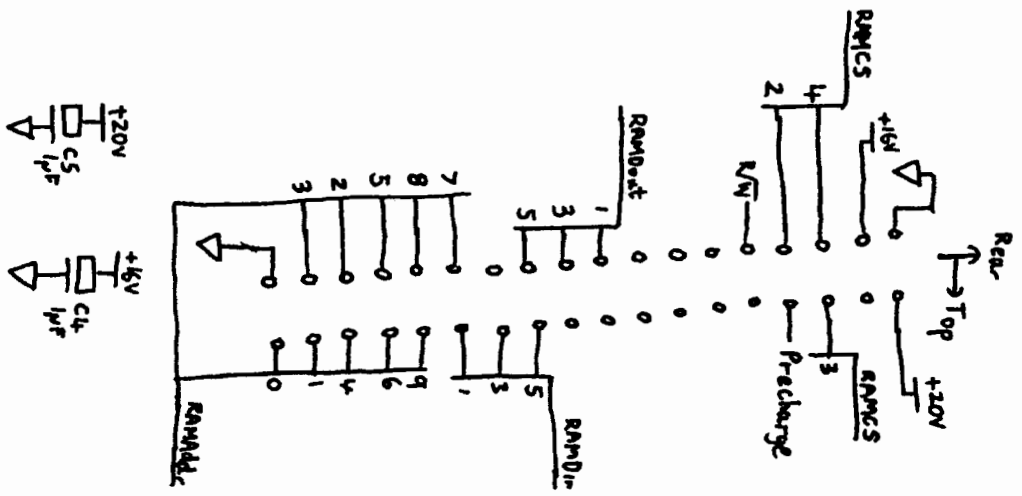
HP 9810

RAM PCB

(R/Cn)

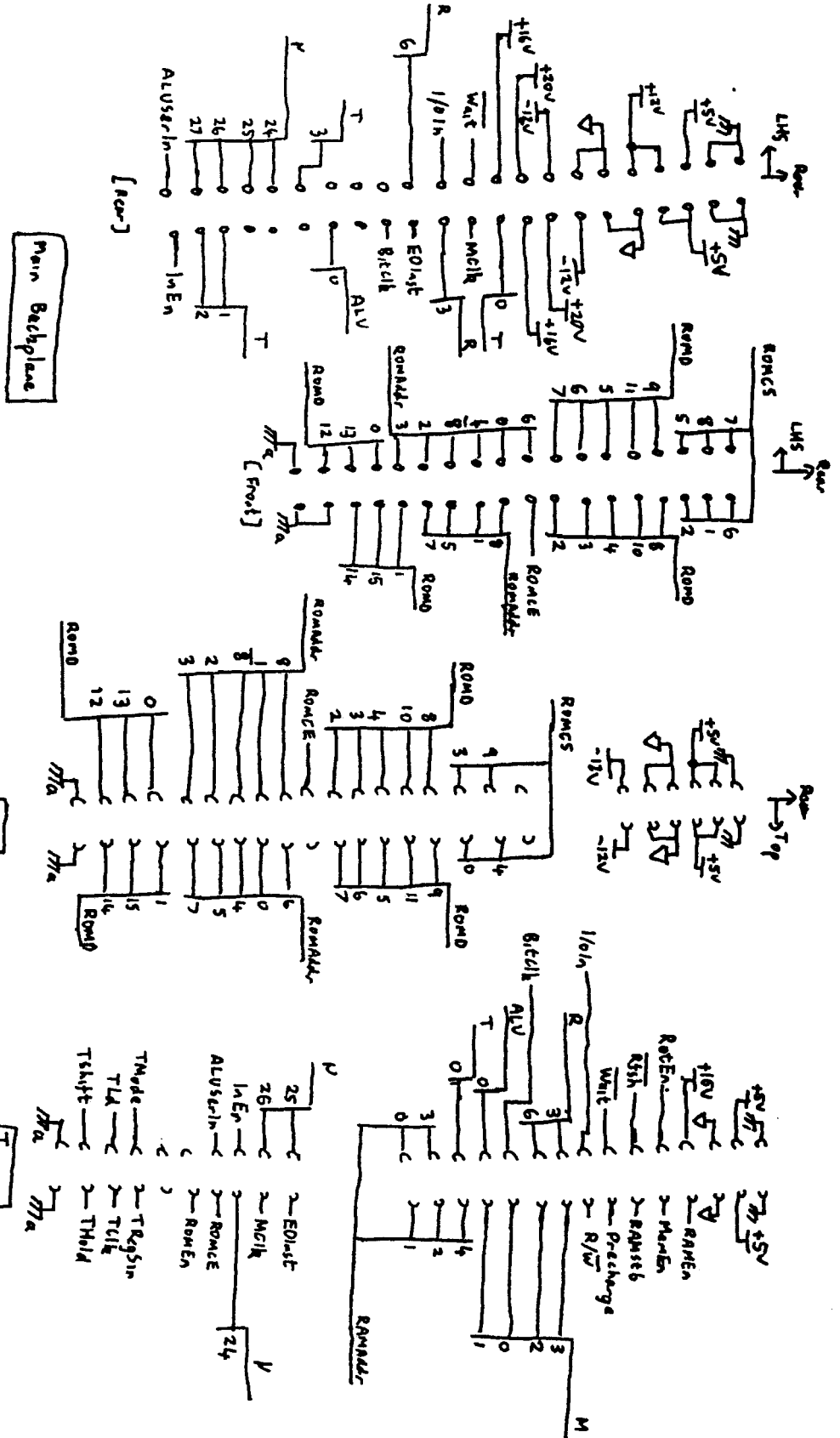
09810-66525





HP 9810 RAM PCB

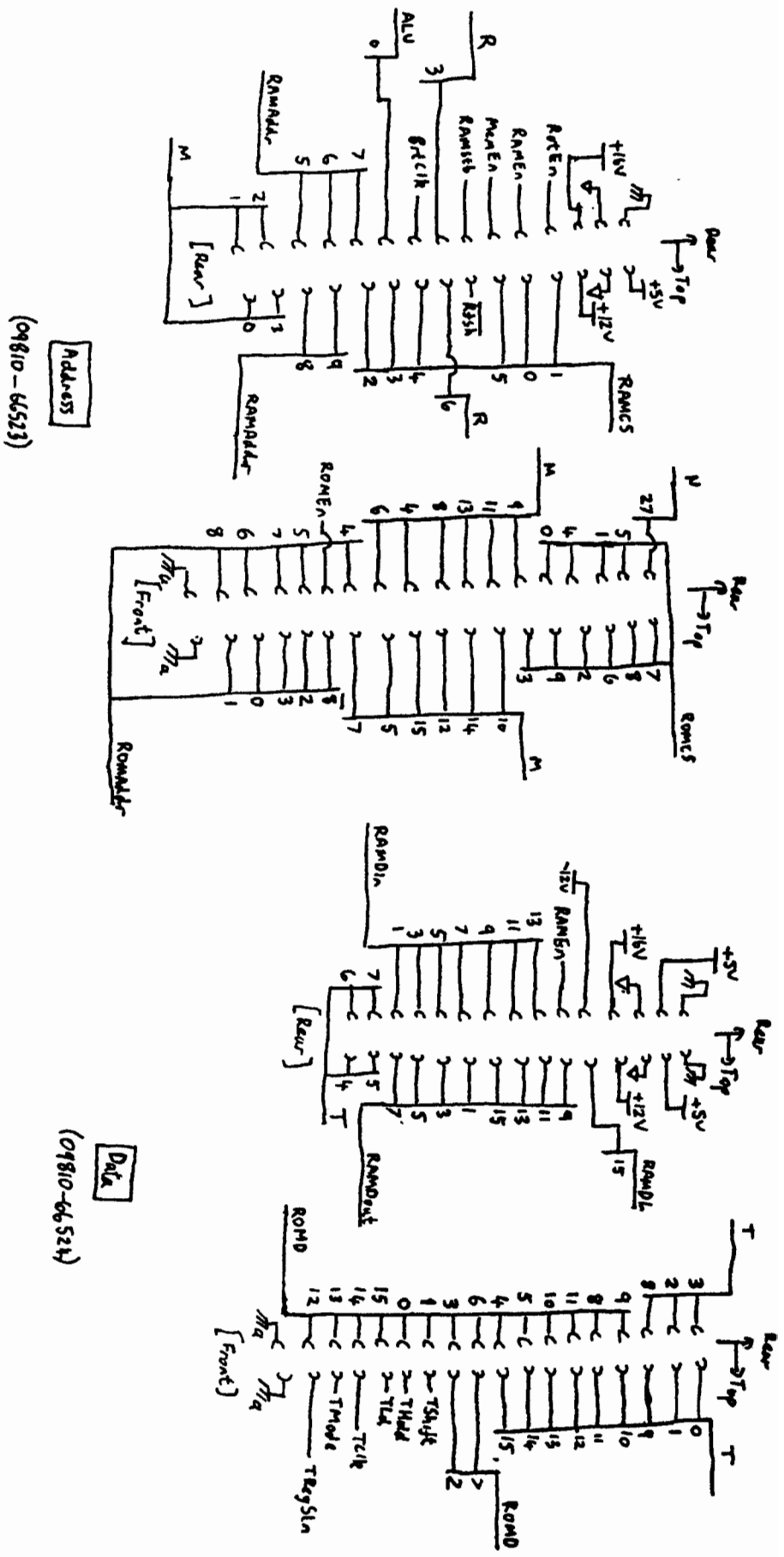
11218-66526 (R/B0)



(1121-66521)

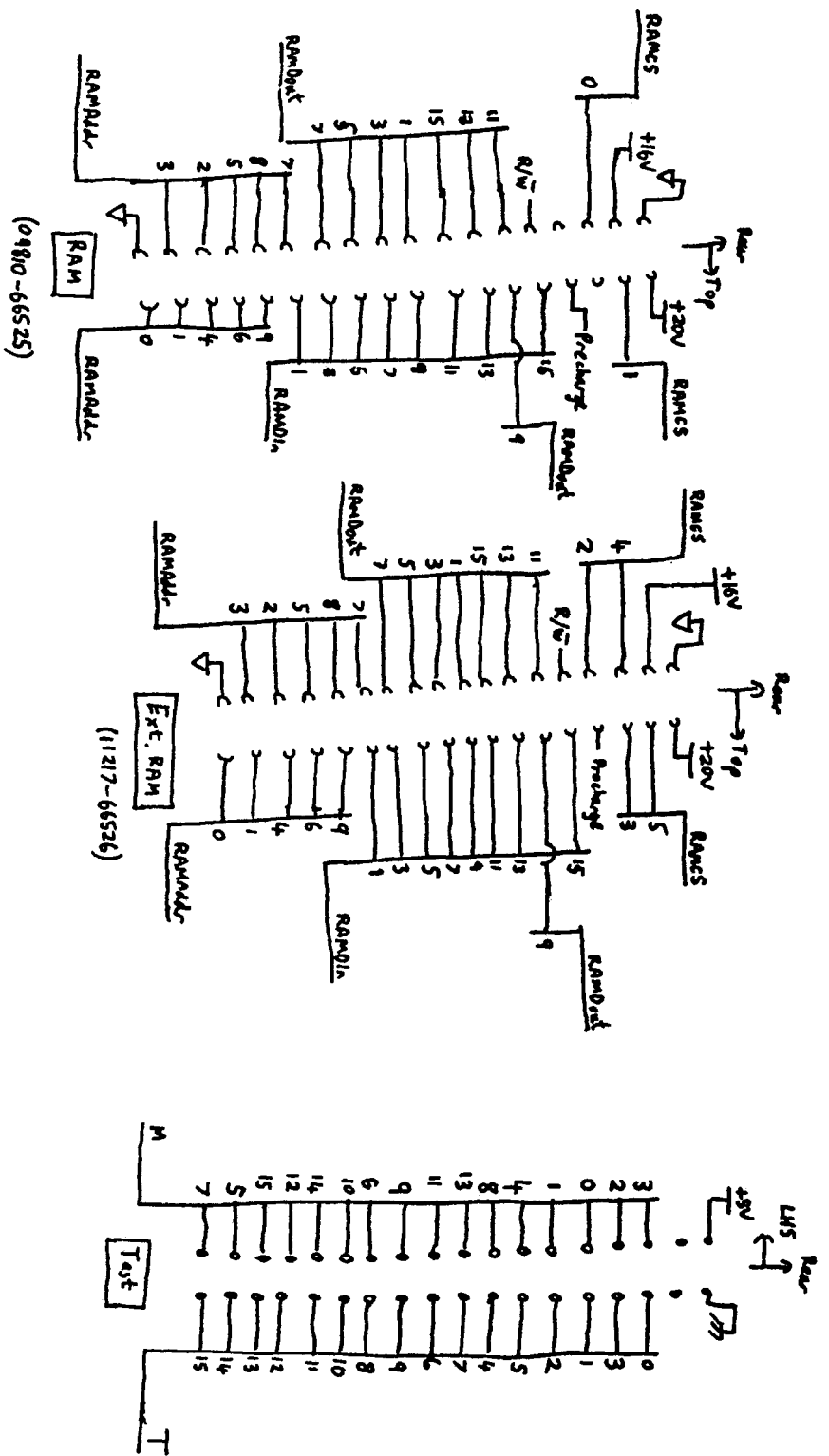
(09810-66522)

HP 9810 Memory Backplane sheet ① (R/Pd) 09810-66522



HP 9810 Memory Backplane sheet 2 (R/R)

09810-66527



Fluct Fix()

Run Prgm

Keylog List

Load

Recall

A F K

B C L

C N M

D J N

E J O

π	$\frac{1}{x}$	x^2
6	last ans	\uparrow Poll
a	last ans	\downarrow
yx()	yx()	xyy
x-y()	x-y()	\uparrow

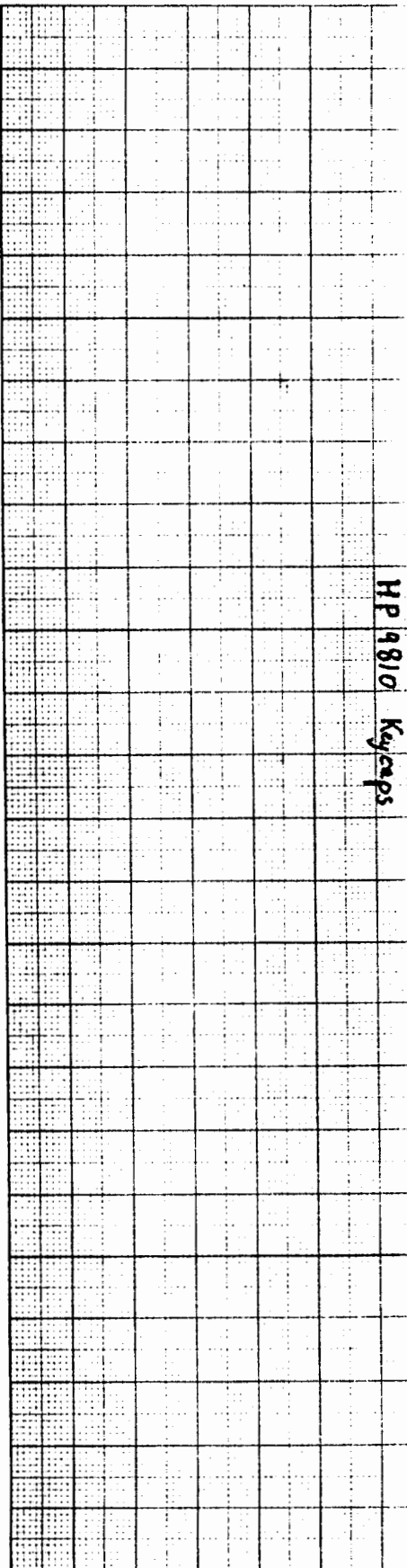
\sqrt{x}	CHS SIGN	ENTER EXP	CLEAR X
\div	7	8	9
X	4	5	6
-	1	2	3
+	0		.

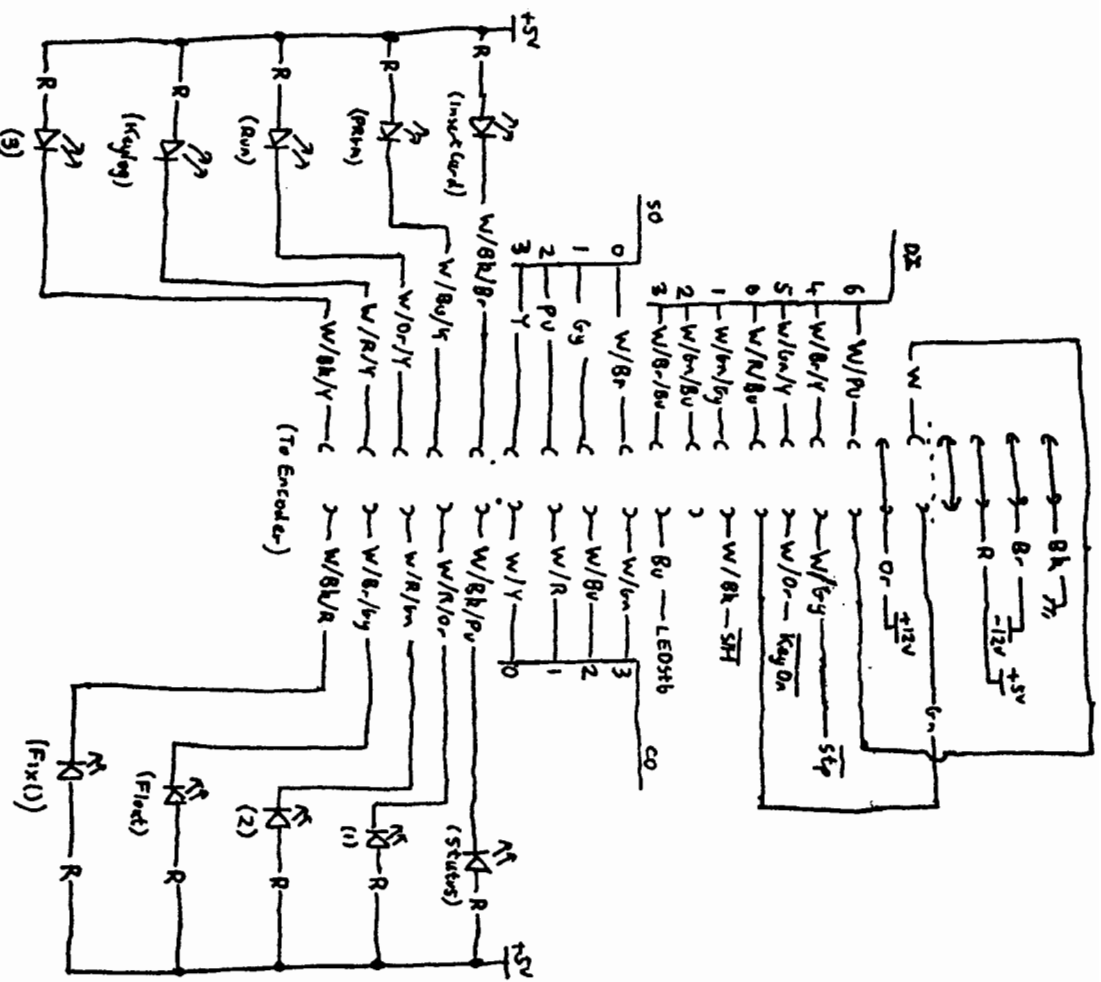
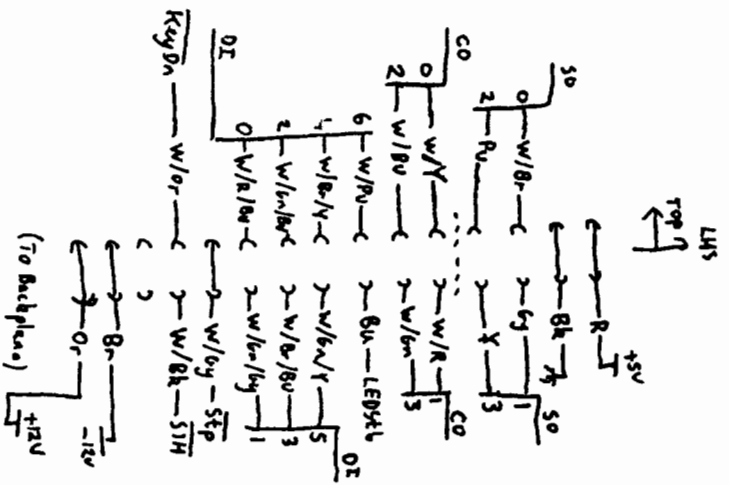
CLEAR

CONTINUE

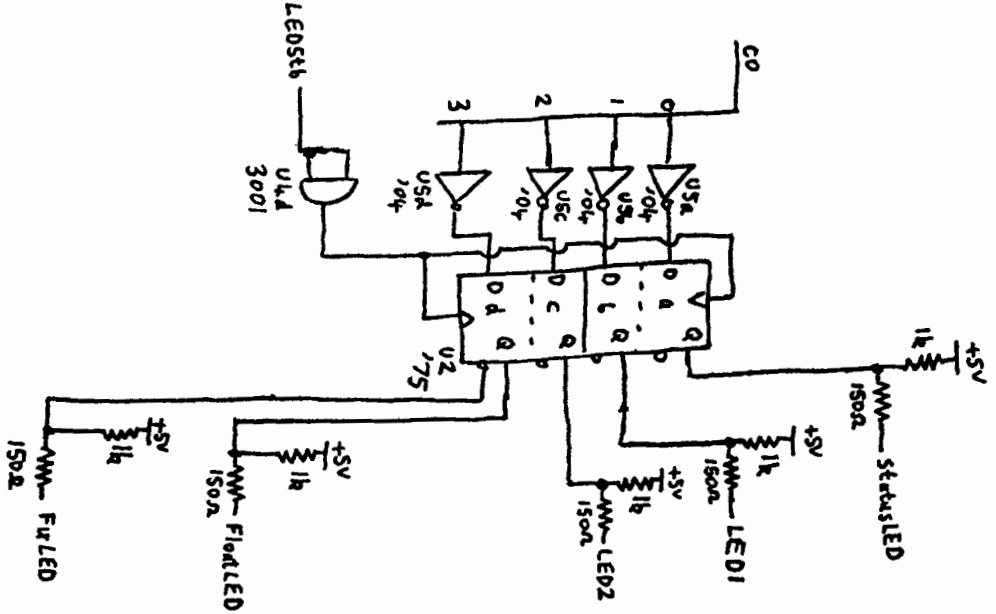
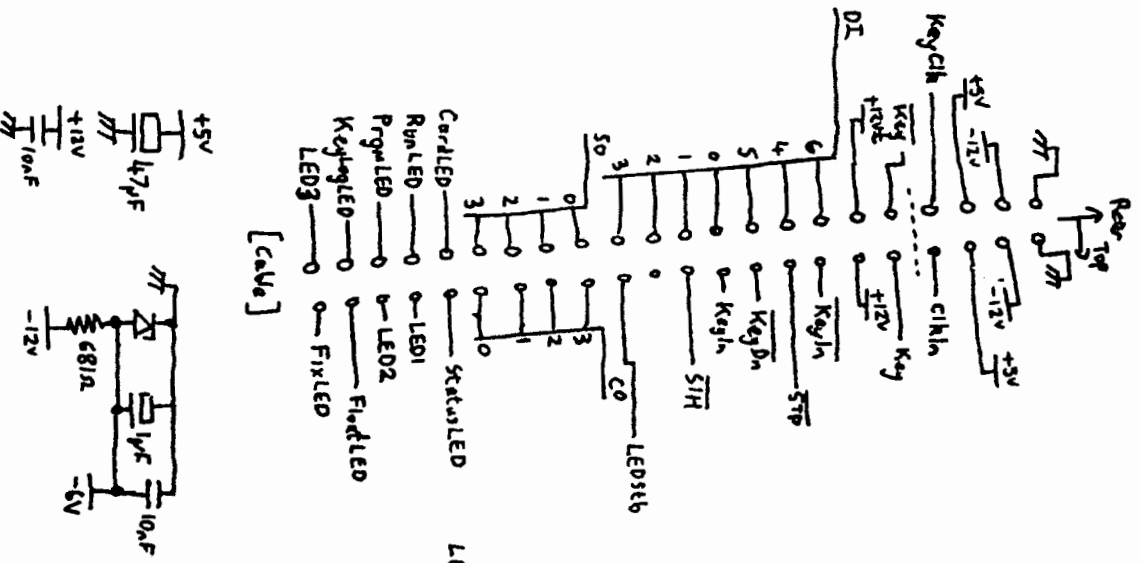
Set Flag	if Flag	End
Label	if X<Y	Pause
Font	if x=y	Stop
Font	if x>y	Auto Stop
Font Space	if x>y	Auto Stop
Sub Returns	if x=y	Stop Pgm

HP 9810 Keycaps

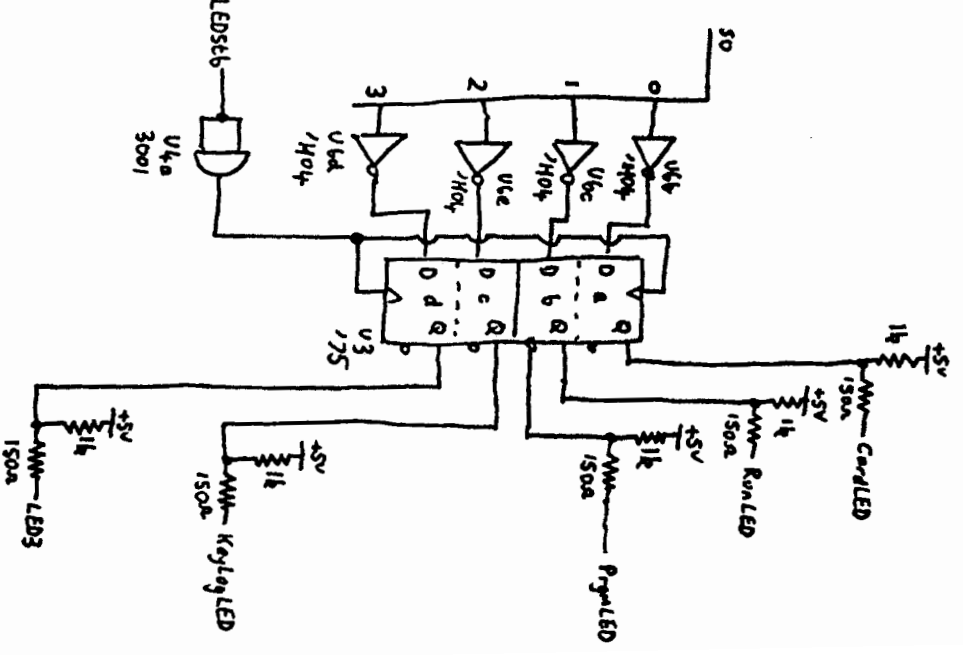


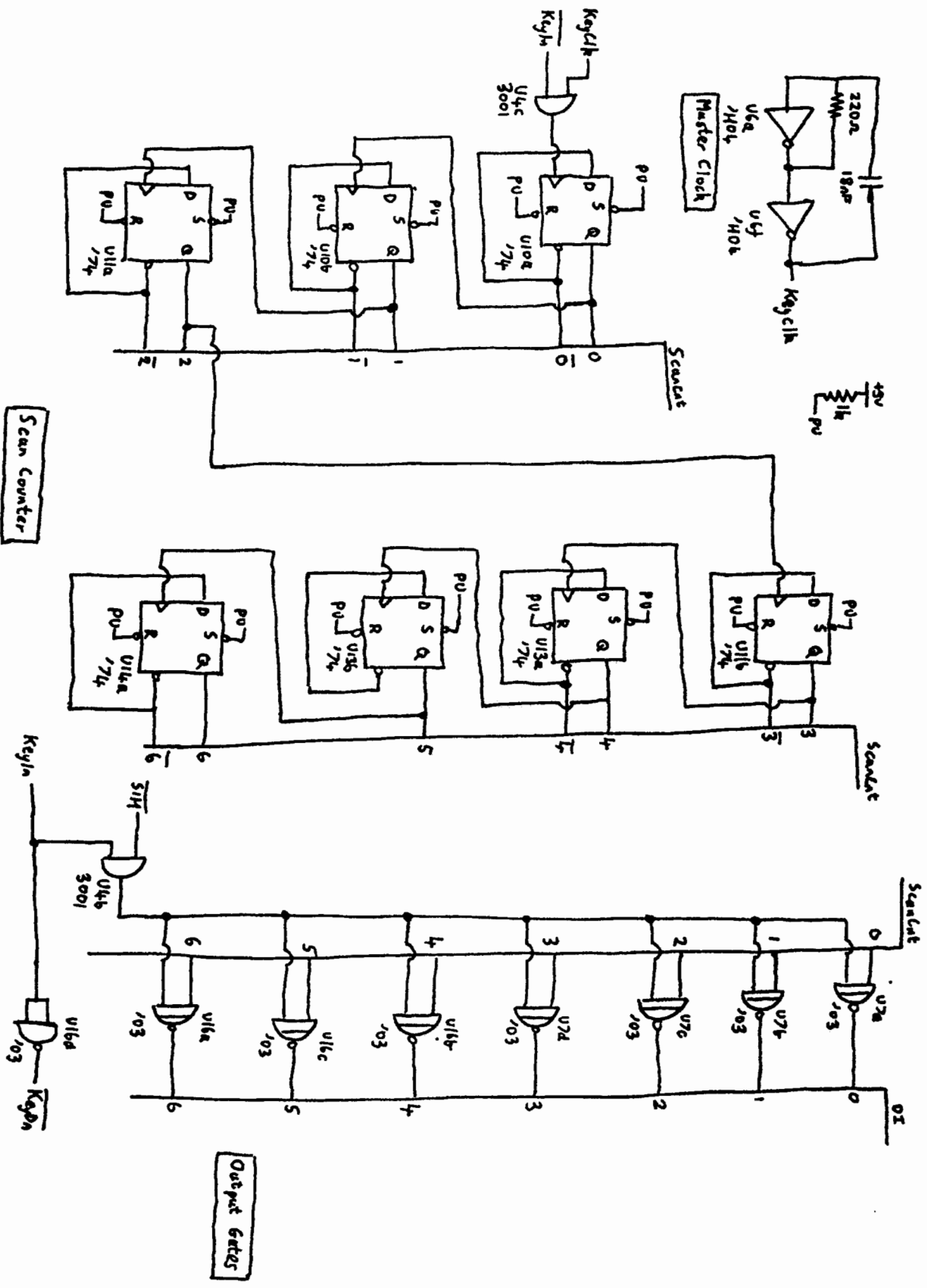


HP 4810 Keyboard Cable



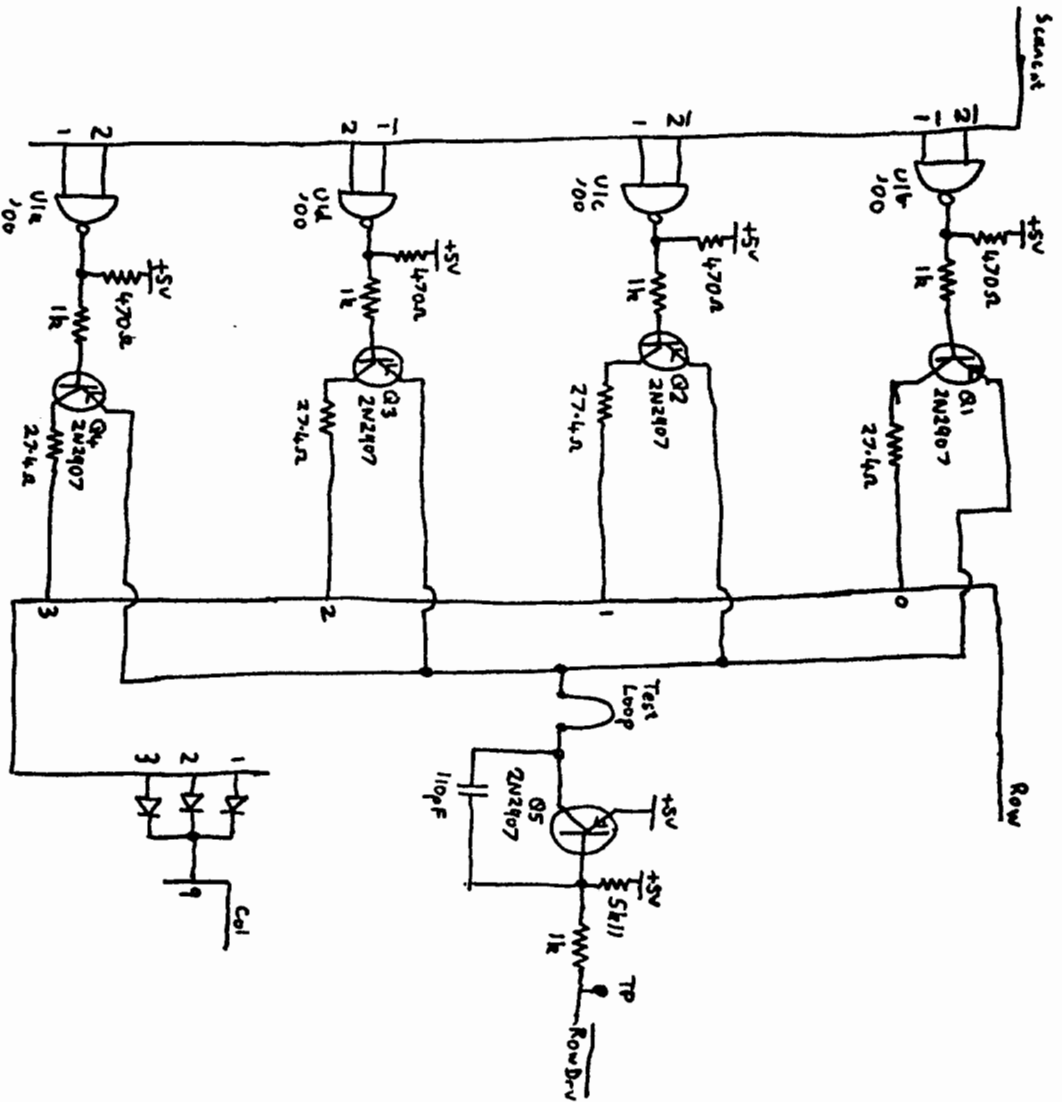
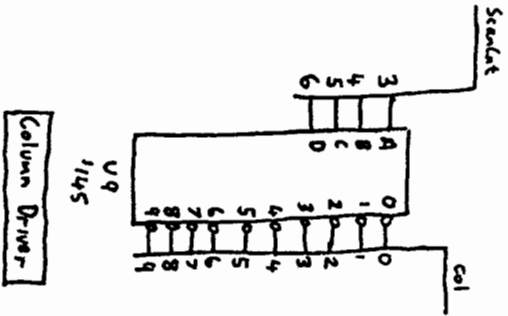
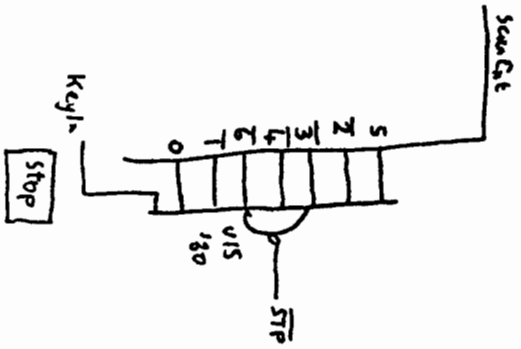
LED Register





HPQG10 Keyboard Encoder Sket 2

0810-6653Z



LHS
← ↑

R3 → C6 — B, x←()
 R1 → C6 — A, D
 R0 → C6 — C, E
 R2 → C7 — H, J
 R3 → C1 — F, 1/x
 R1 → C7 — L, N
 R0 → C7 — M, O

HP4810 Keyboard

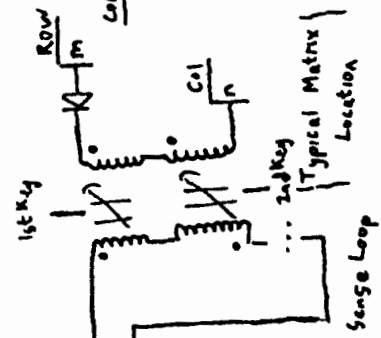
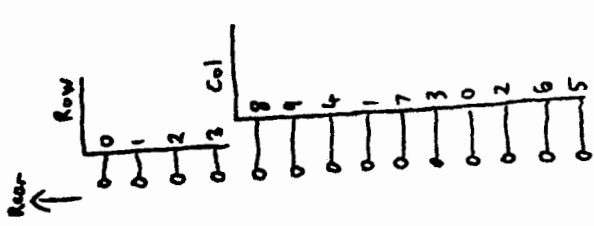
(04810-66533)

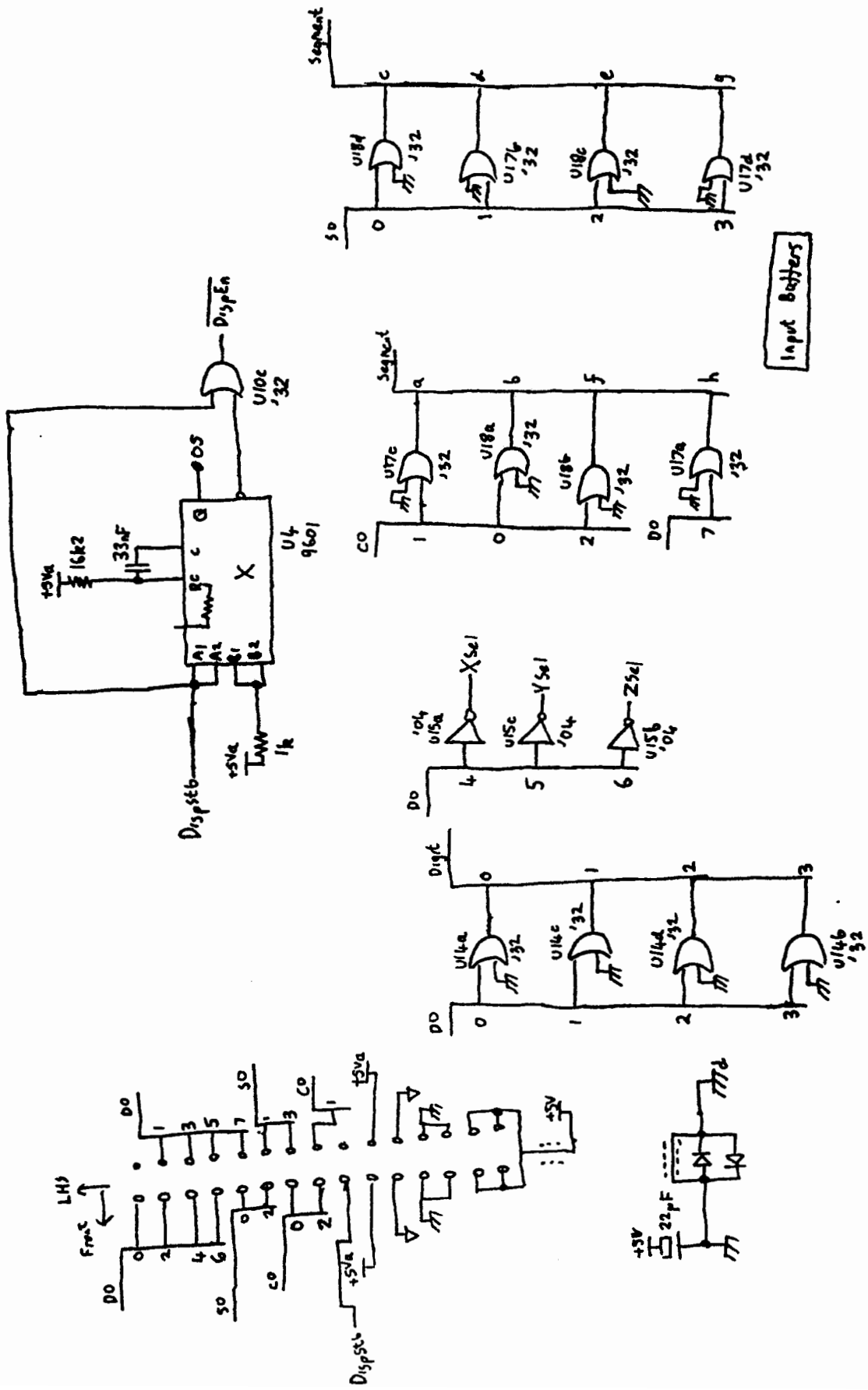
Diodes

Underlined names → LSB Set

R2 → C5 — K, Set Flag
 R2 → C1 — G, b
 R2 → C6 — I, int(x)
 R3 → C5 — π, Pause
 R0 → C6 — y → (), stop
 R1 → C1 — a, x²
 R0 → C3 — x²y, Indirect
 R2 → C2 — ↓, x y²()
 R1 → C2 — Roll ↑, x → ()
 R3 → C2 — ↑, Enter Exp
 R0 → C0 — 0, 1
 R2 → C0 — 4, 5
 R2 → C3 — ., -
 R3 → C7 — √x, SUB, Return
 R1 → C3 — +, Change Sign
 R3 → C3 — X, Clear X
 R0 → C1 — 8, 9
 R3 → C0 — 6, 7
 R1 → C0 — 2, 3
 R0 → C2 — Clear, o
 R3 → C4 — End, Continue
 R2 → C4 — Goto, Print, Space
 R1 → C4 — IF Flag, FMT
 R0 → C5 — IF x=y, Label
 R1 → C5 — IF x<y, IF x>y
 R0 → C8 — Back Step, Step Prgm
 R1 → C8 — Load, Record
 R2 → C8 — List, Keylog
 R3 → C8 — Run, Prgm
 R0 → C9 — Flout, F.x()

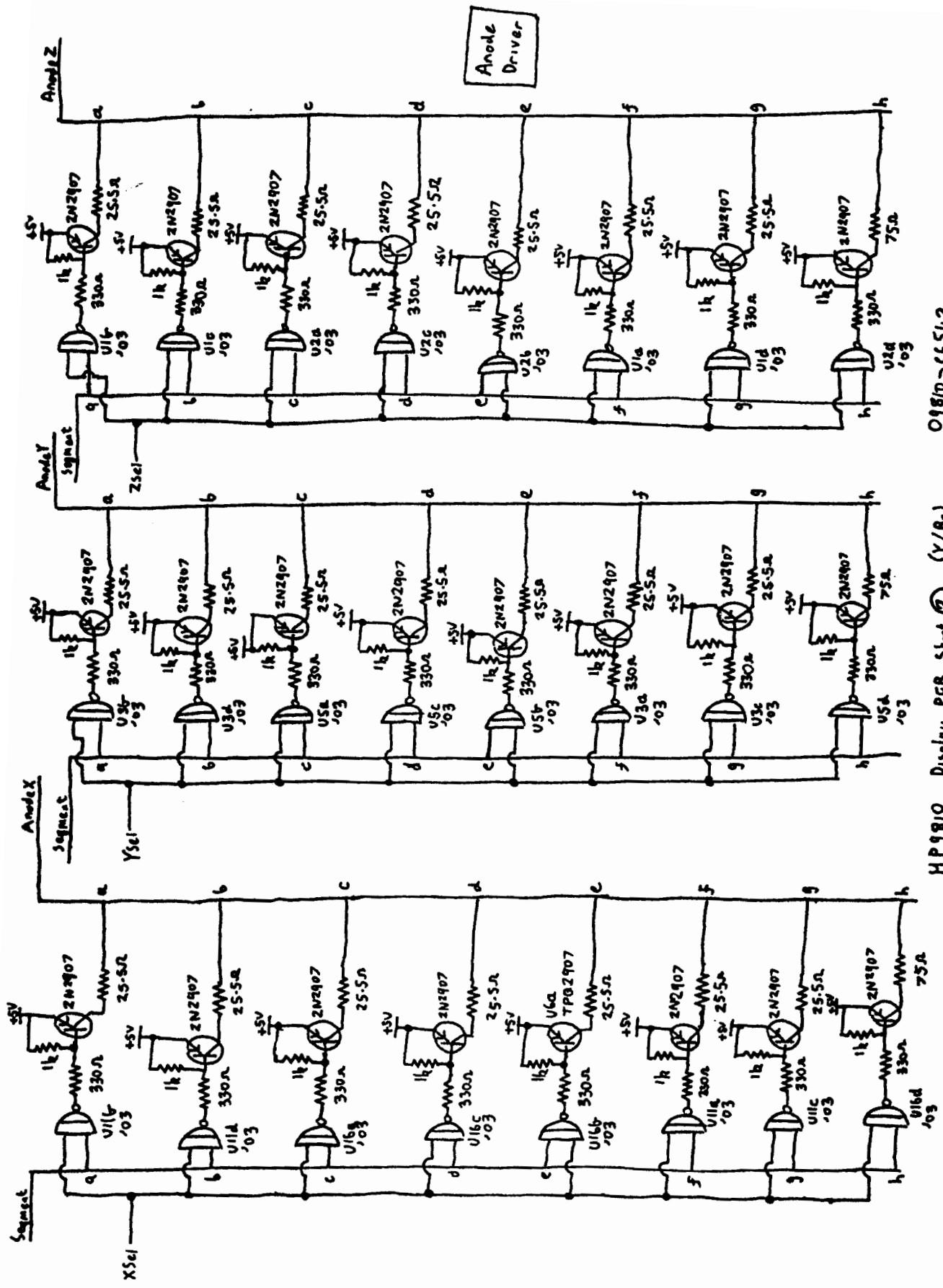
Row	0	1	2	3	4	5	6	7	8	9
0	0	8	Clear	$x \rightarrow y$ Indirect	y-x) Stop	if x=y Label	E	M	Stop Prgm Back Step	Fix() Float
1	1	9	RollP $x \rightarrow ()$	Change Sign +	Fmt if Flag	if x < y if x > y	A	L	Record Load	
2	2	x^2	$y \rightarrow ()$ ↓	- ÷	Go To Prese Space	Set Flag K	inc(x) I	H	List KeyLog	
3	3	0	Enter Exp ↑	X Clear X	End Continue	π Pause	B	\sqrt{x} Sub Return	Prgm Run	
4	4	6								
5	5	G								
6	6	F								
7	7	$1/x$								
8	8									
9	9									





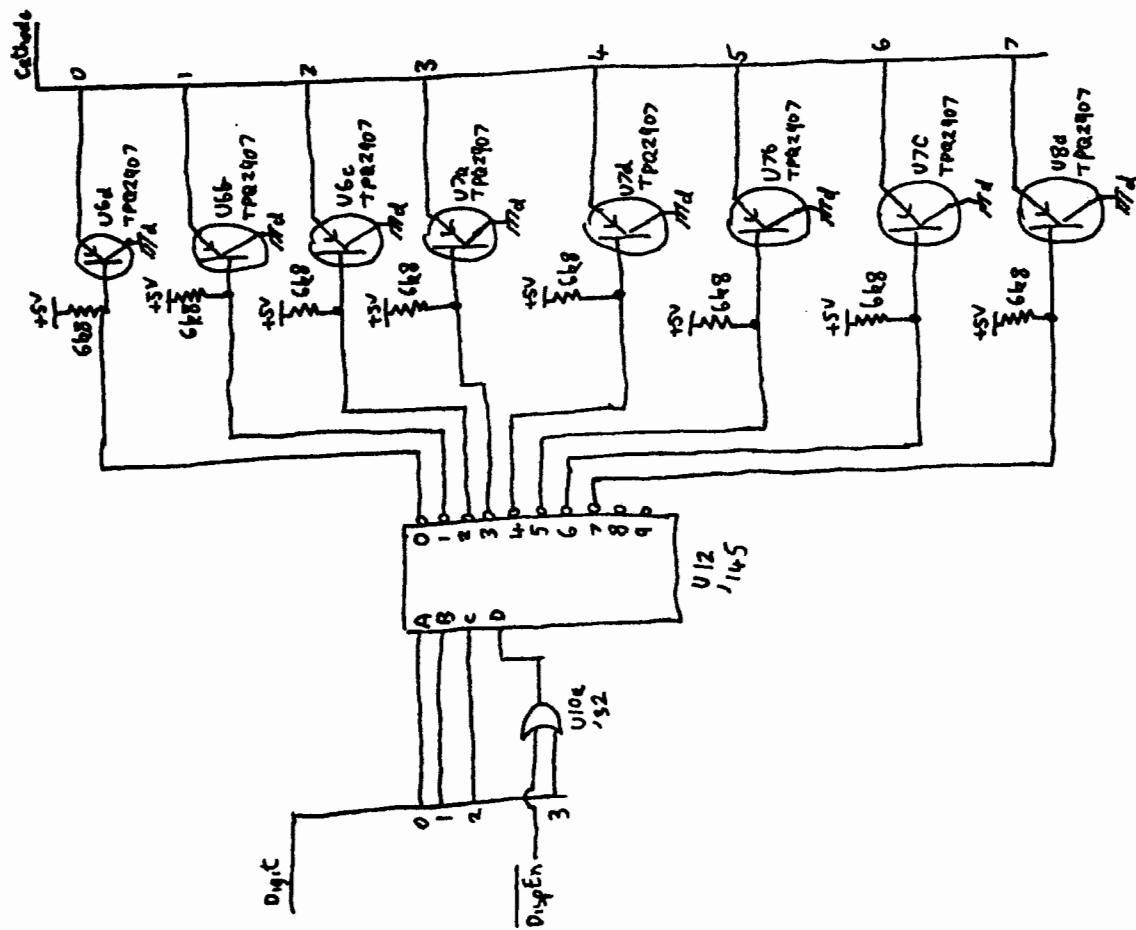
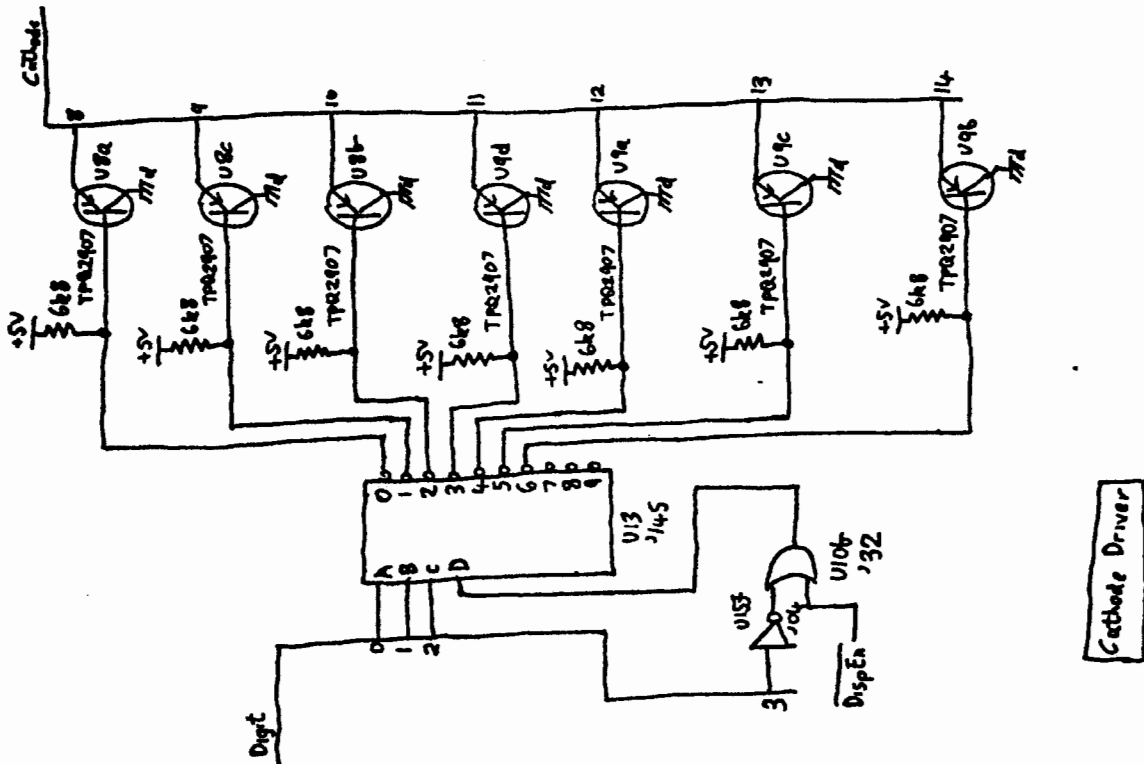
09810-66542

HP 9810 Display PCB Sheet 1 (V16r)

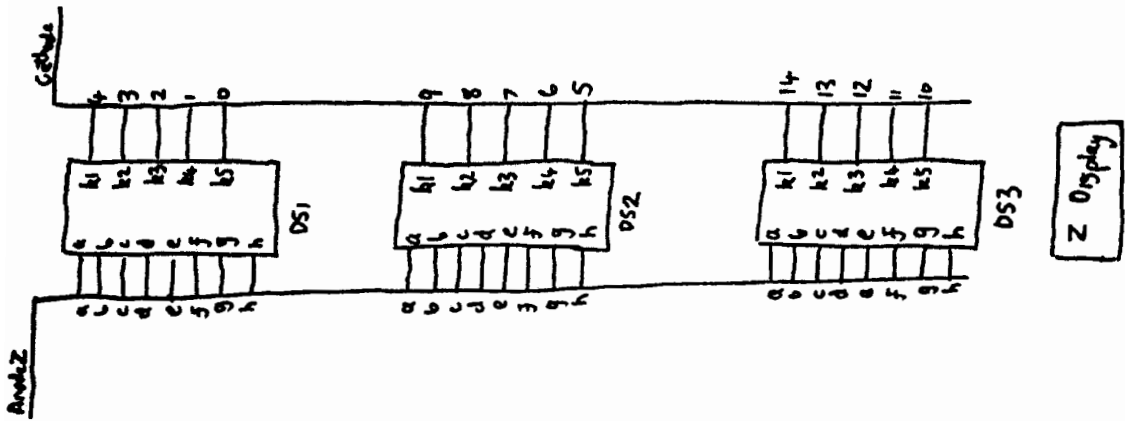


01870-66542

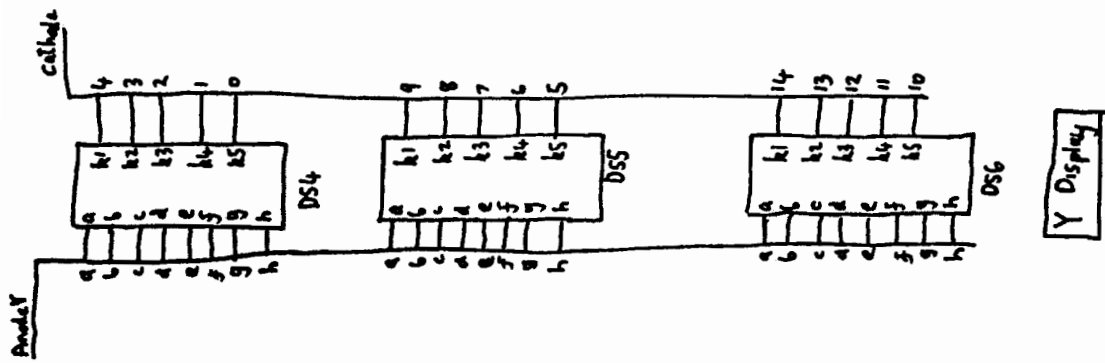
HP 9810 Display PCB Sheet 2 (Y/Gr)



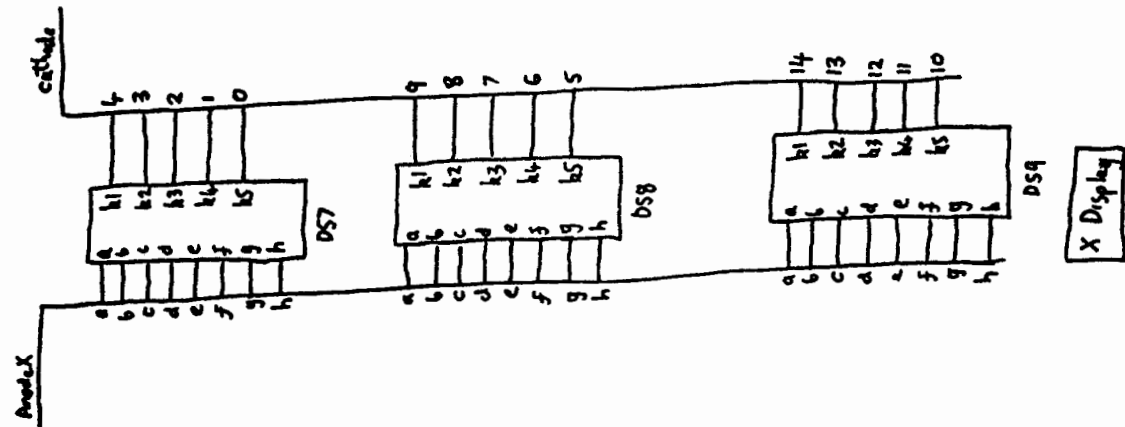
Cathode Driver



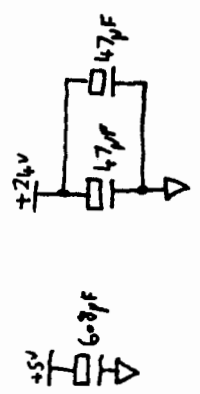
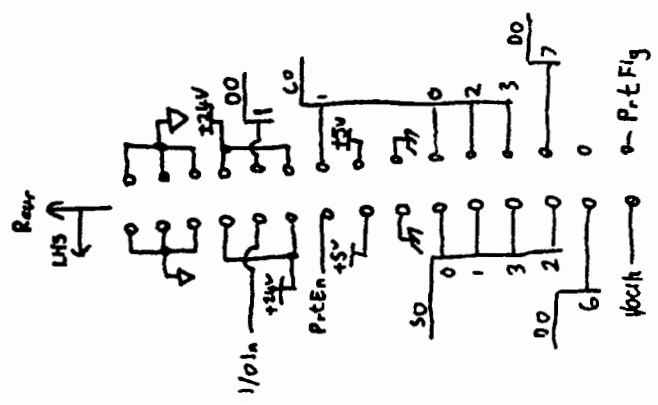
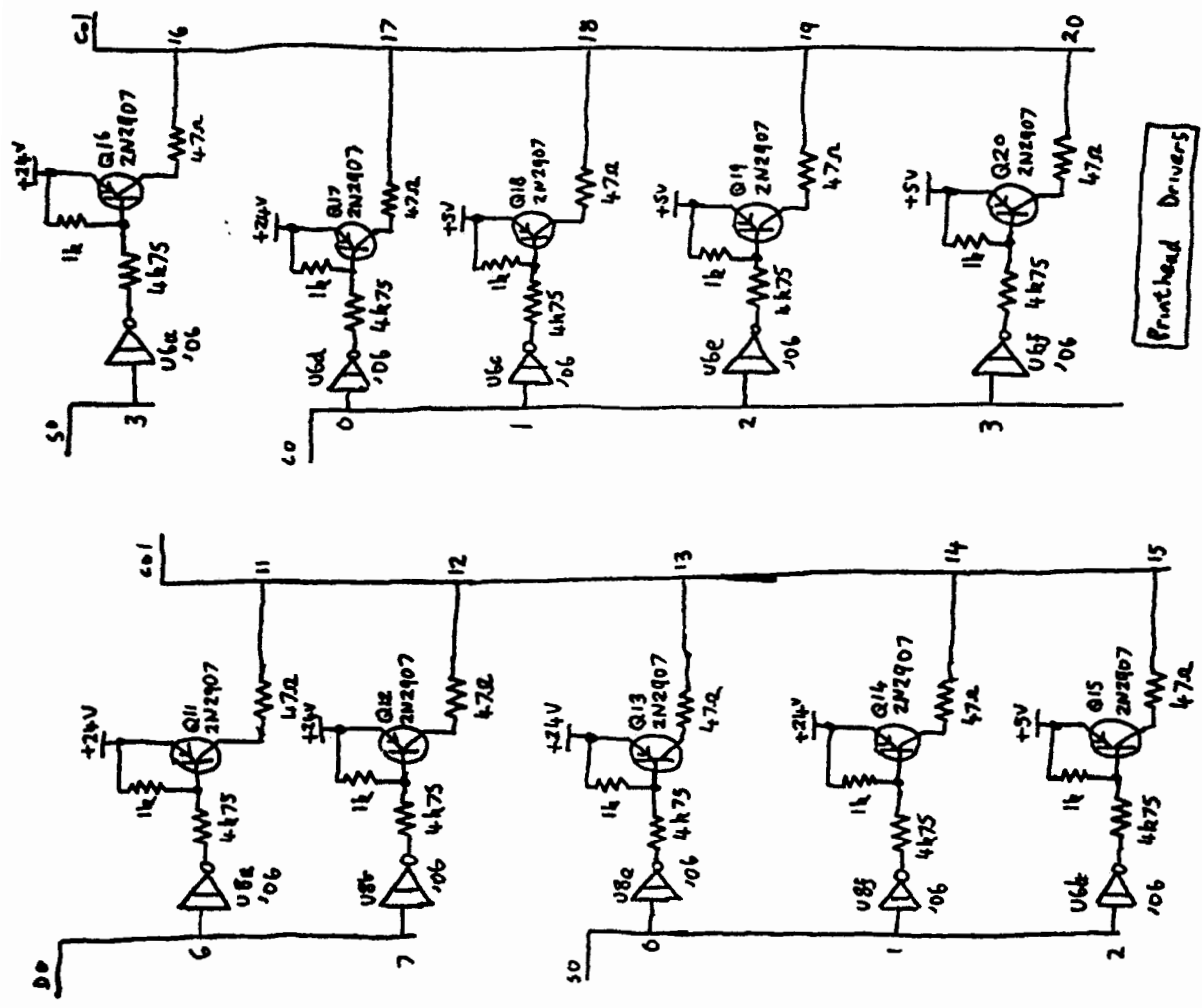
Z Display



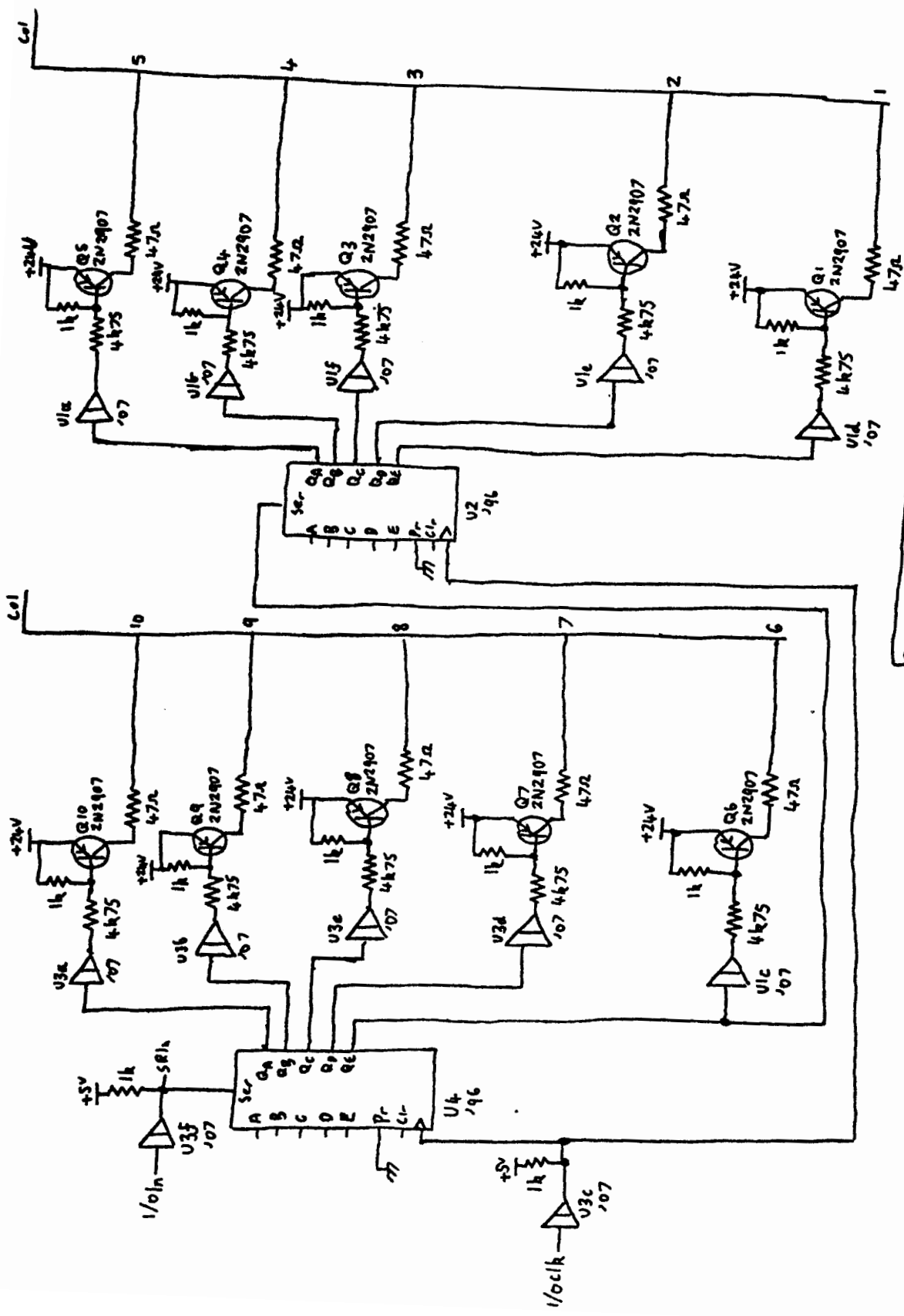
Y Display



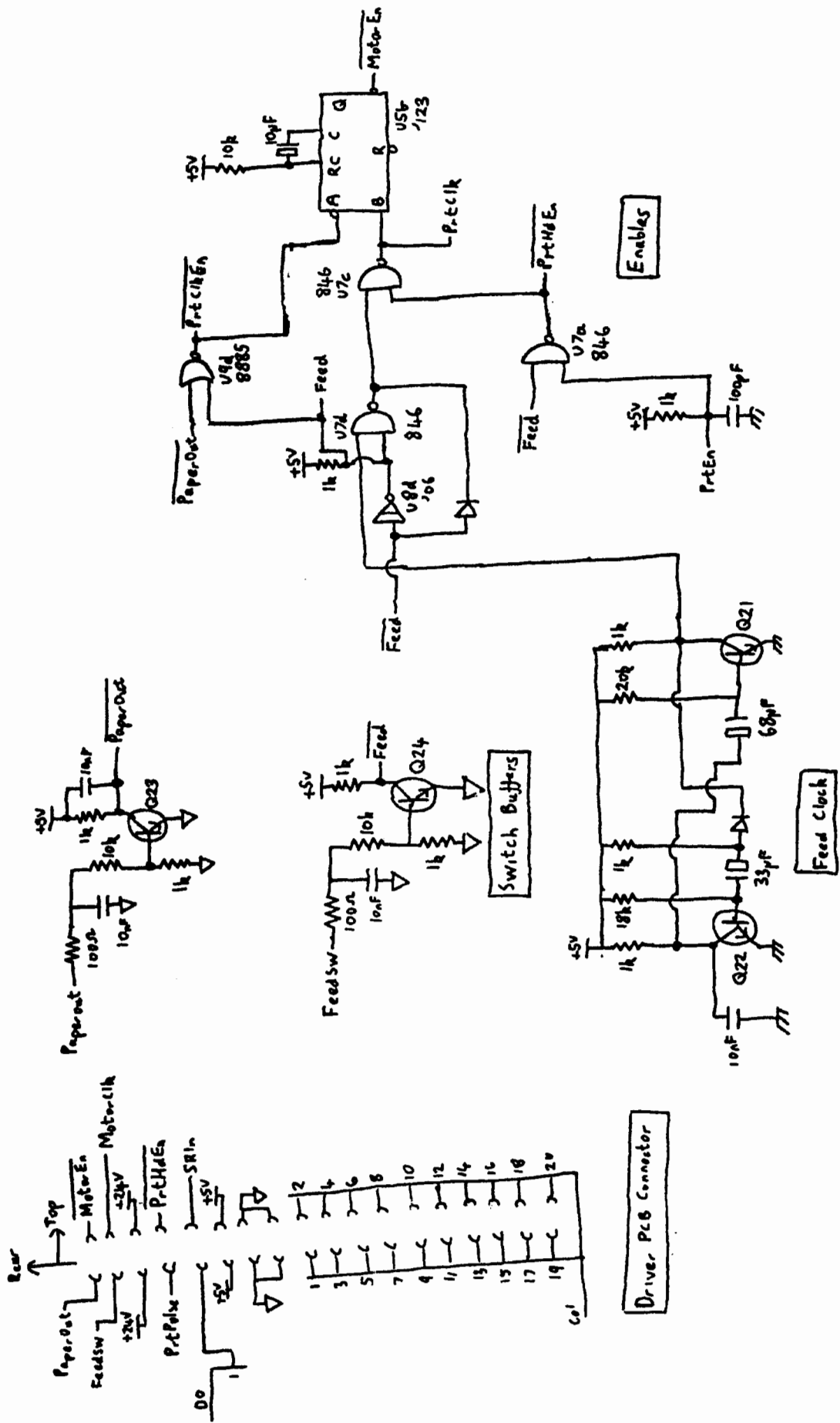
X Display

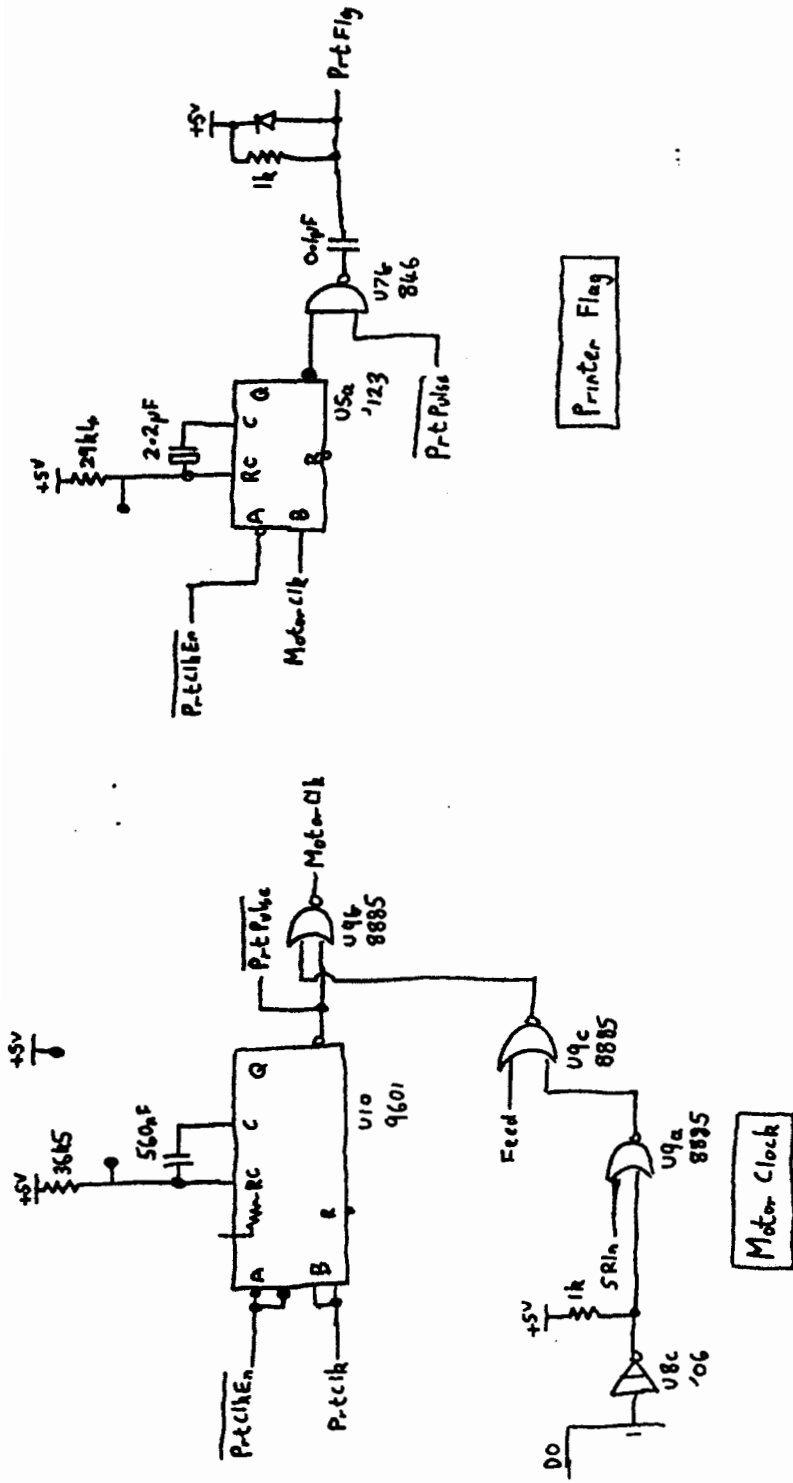


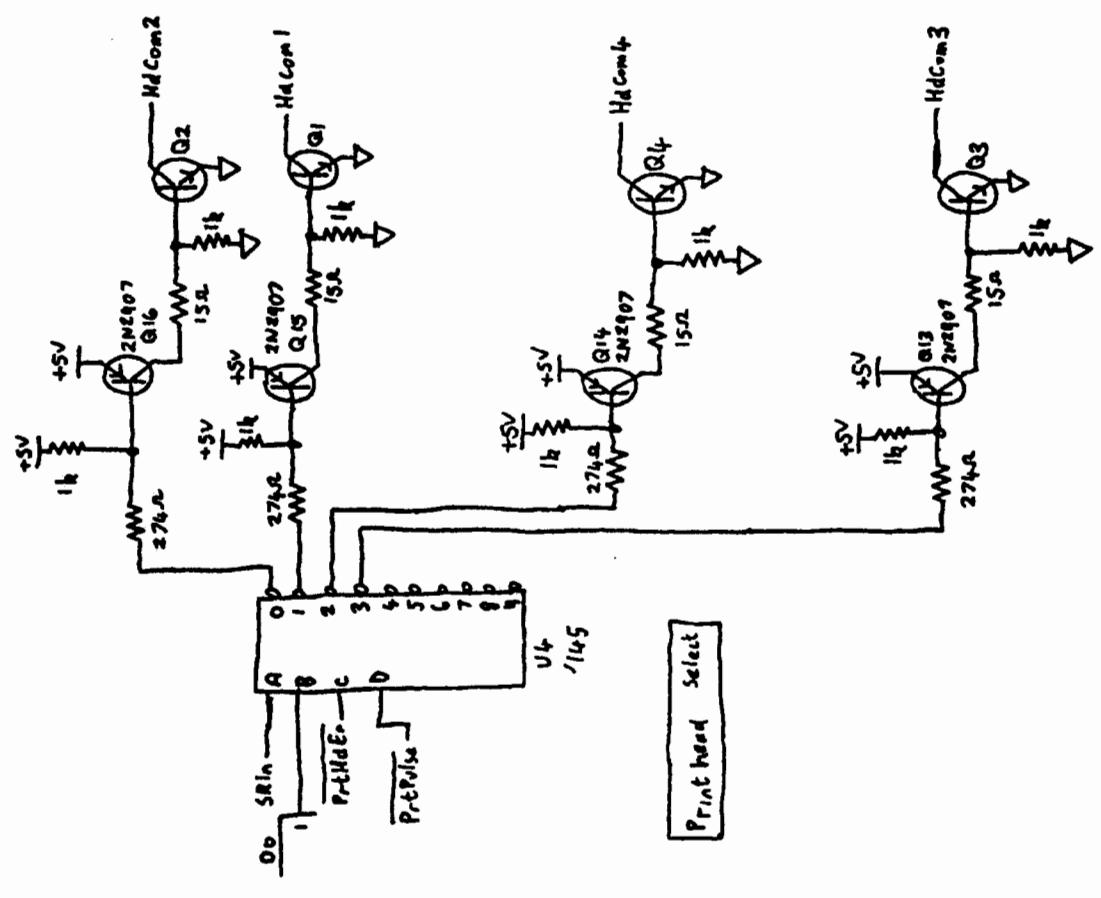
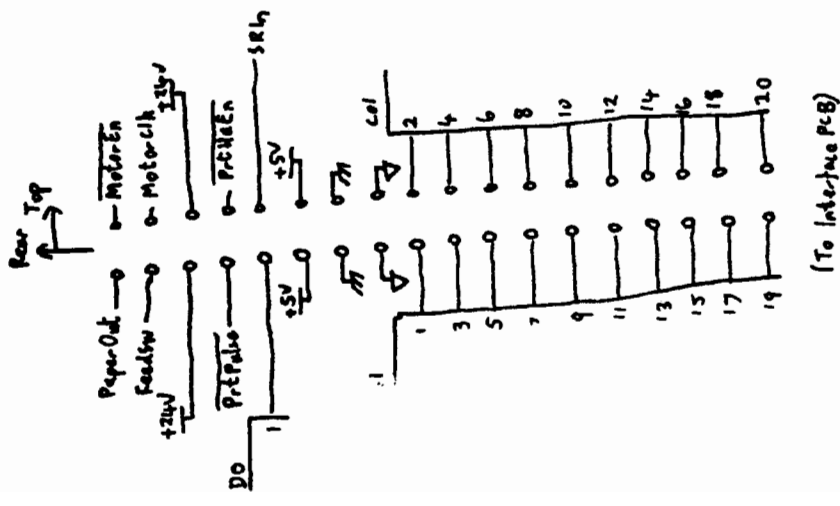
Printer Drivers

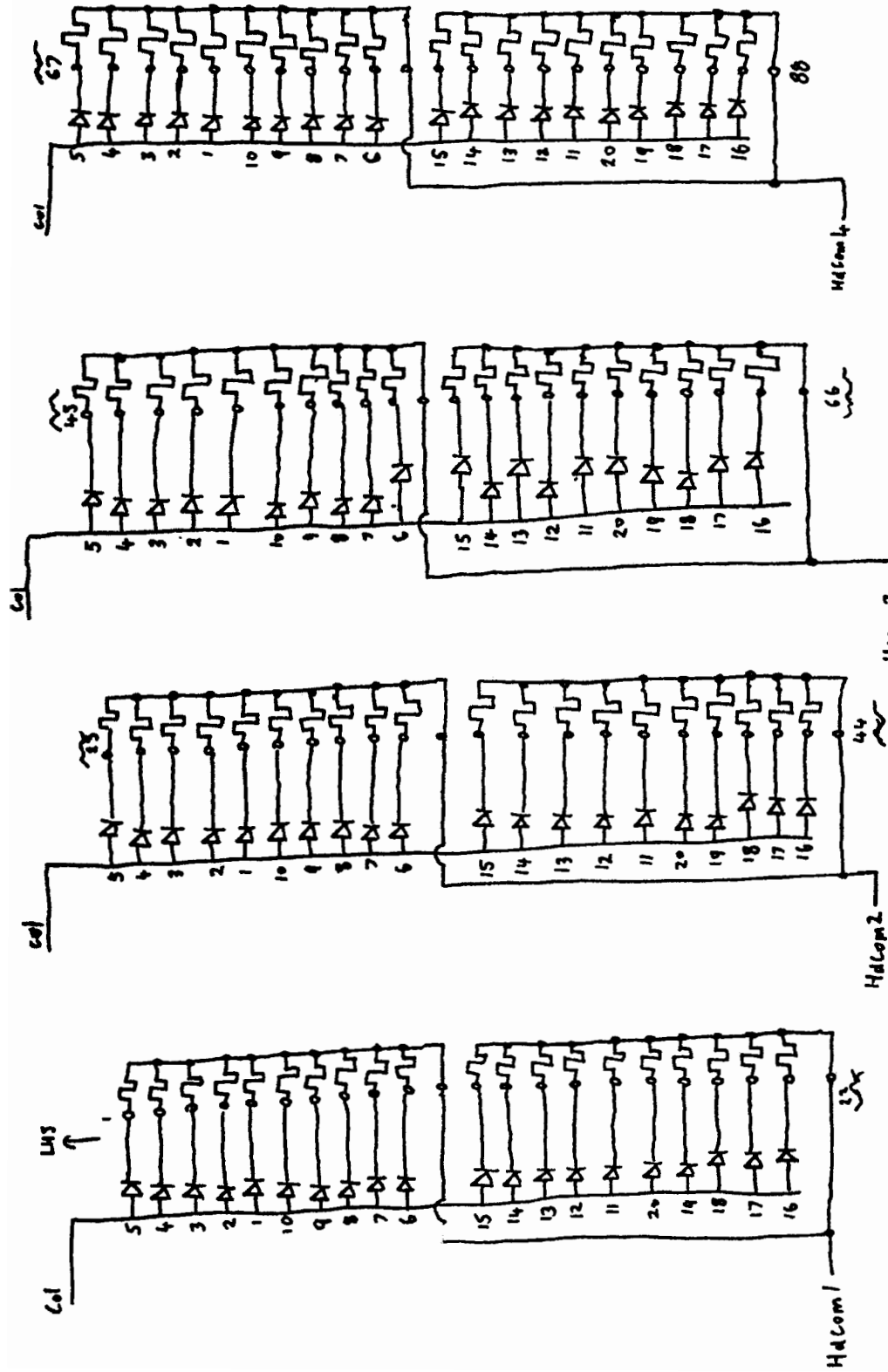


Print head Drivers

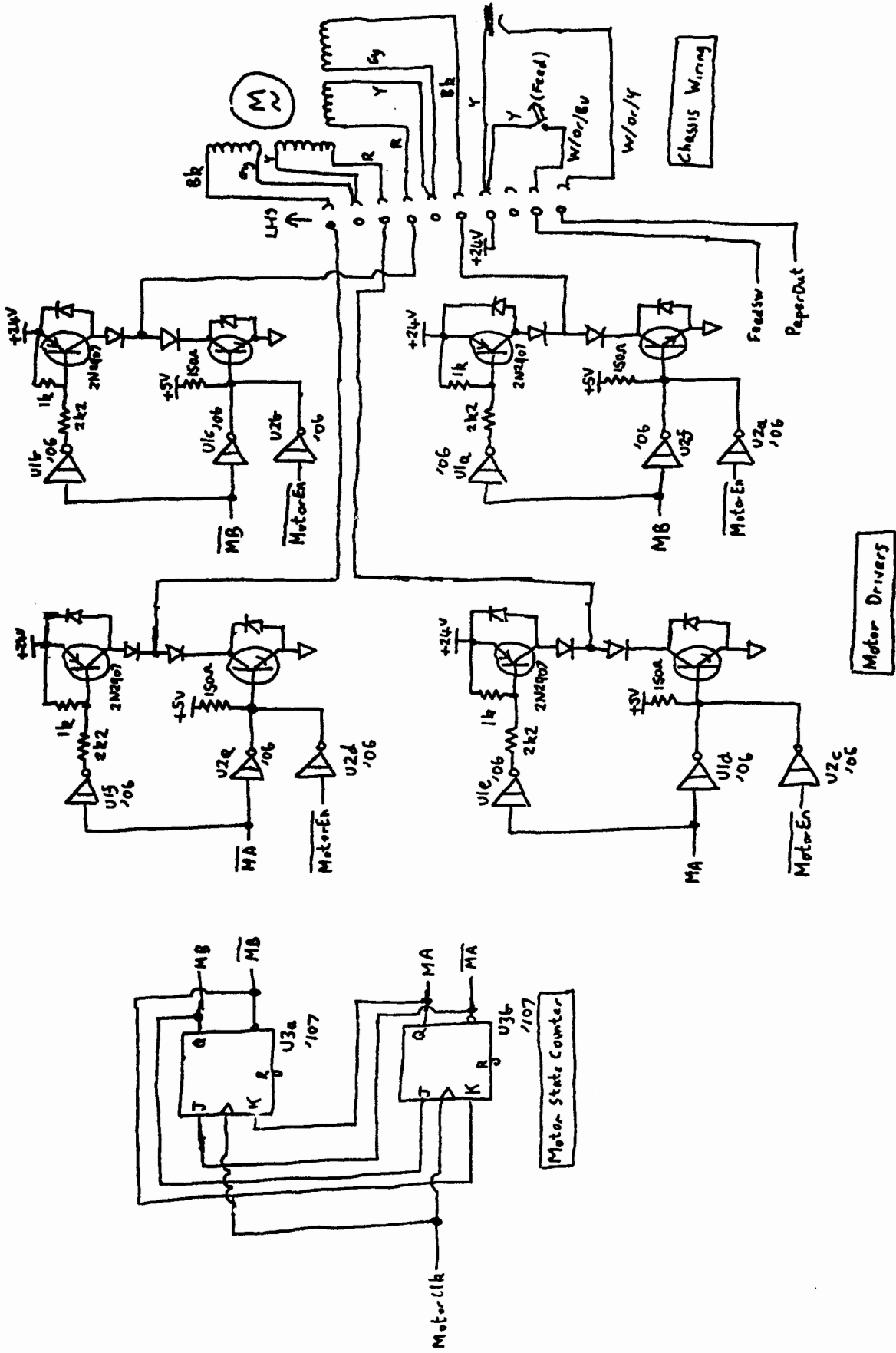


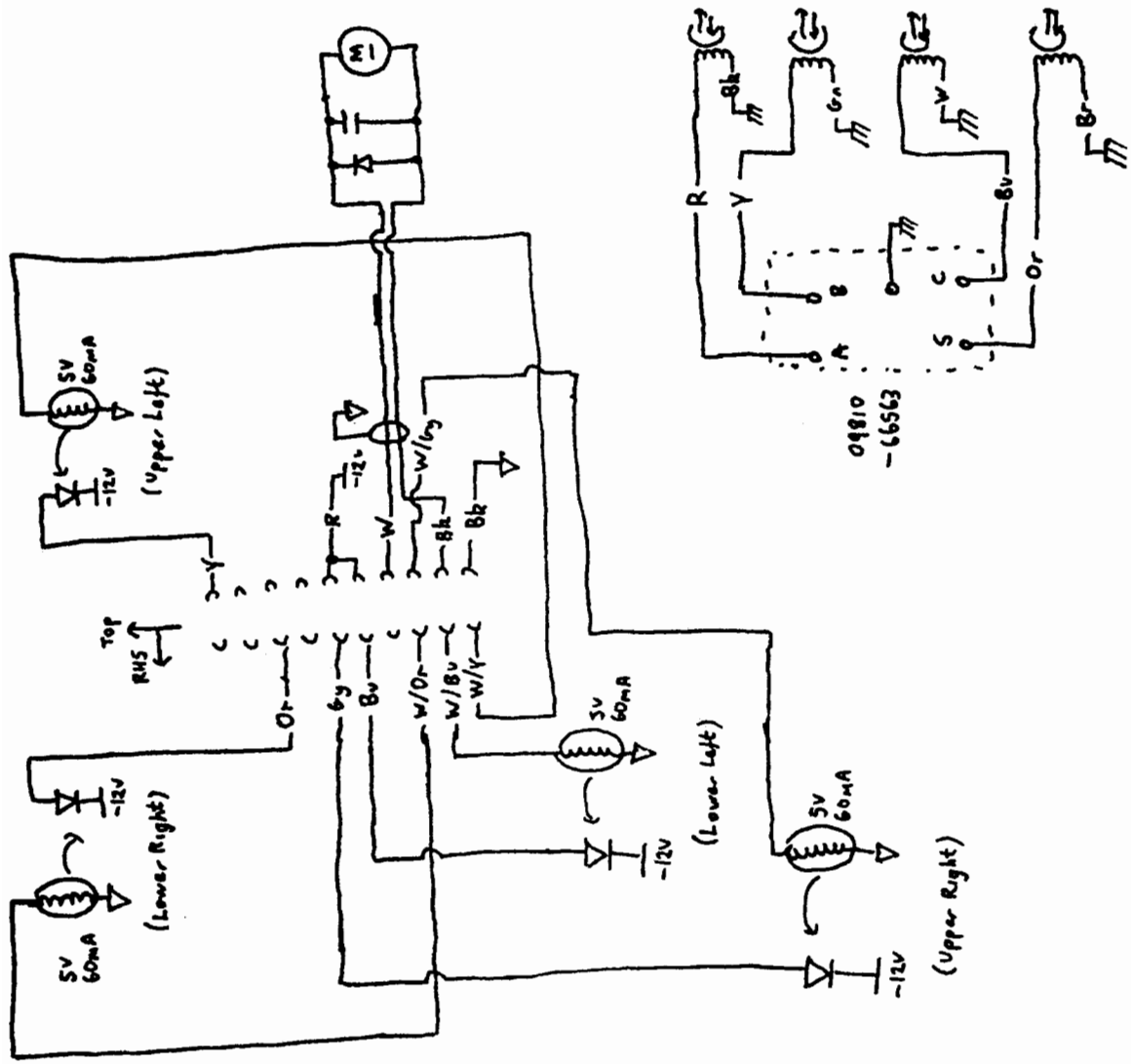




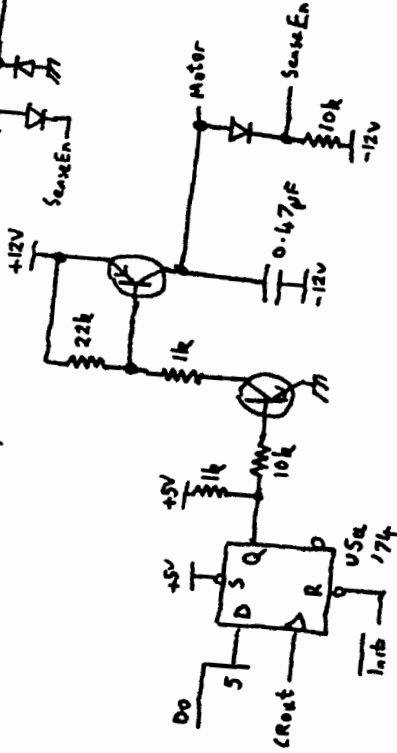
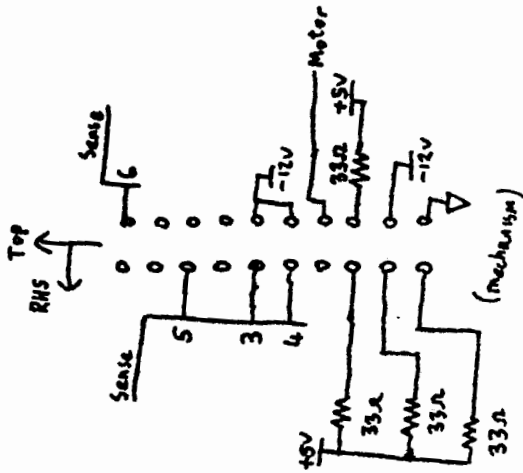
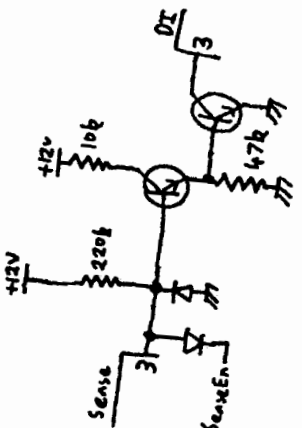
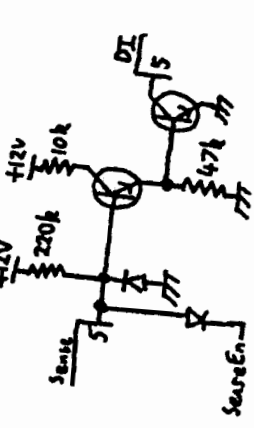
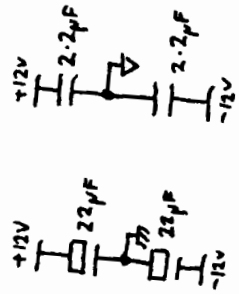
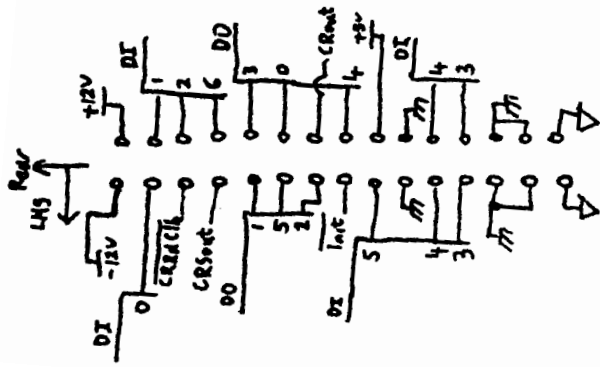


(1810-082
Print head)



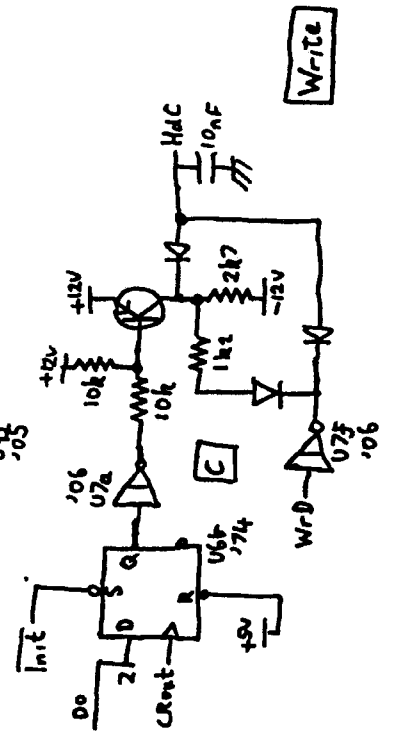
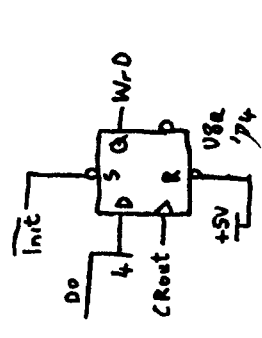
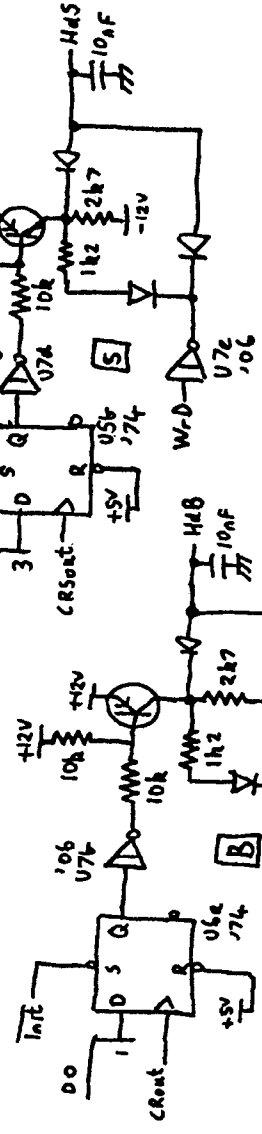
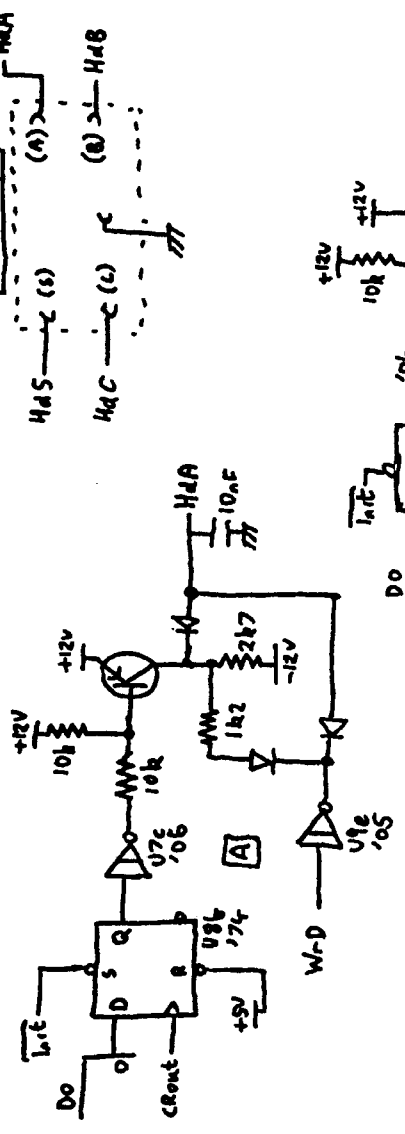
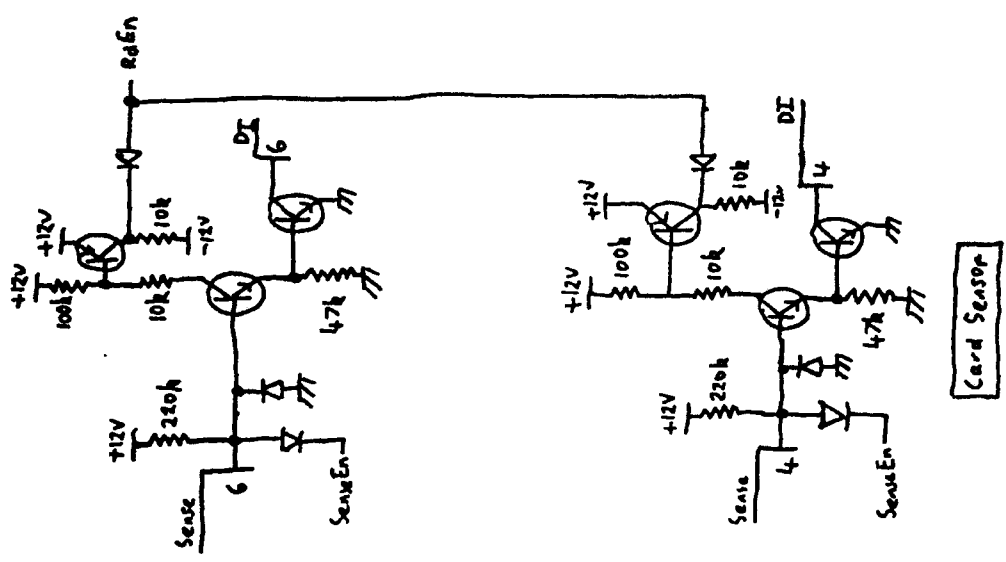
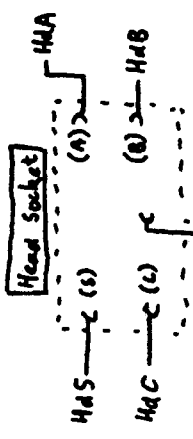


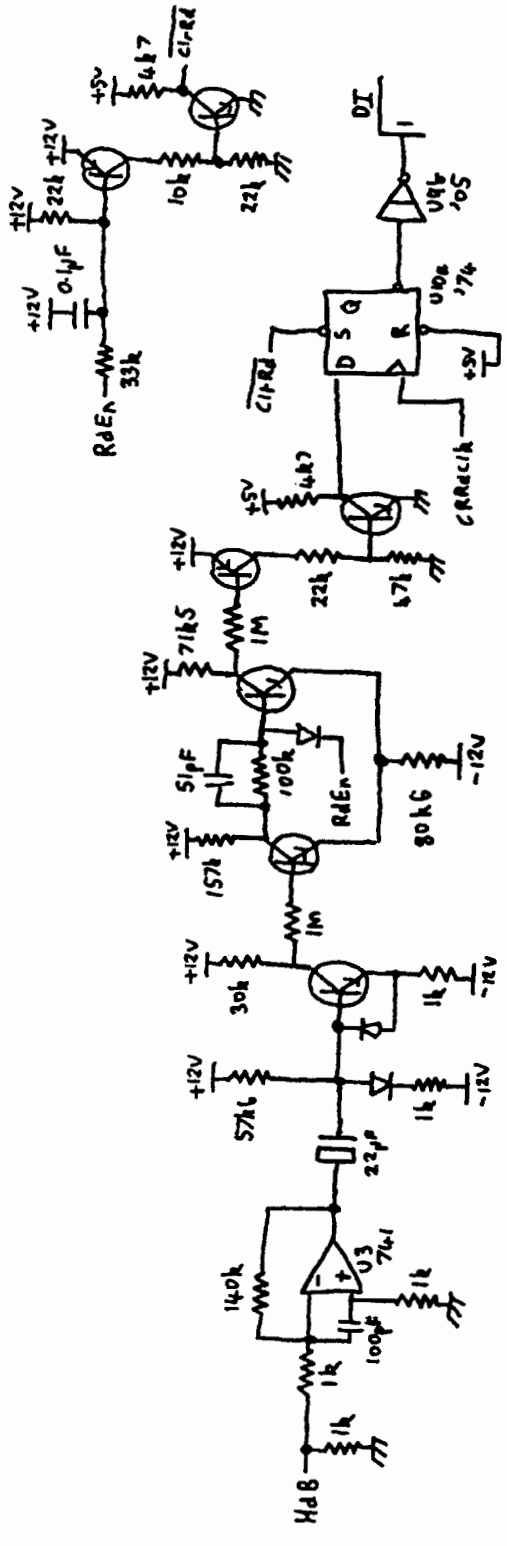
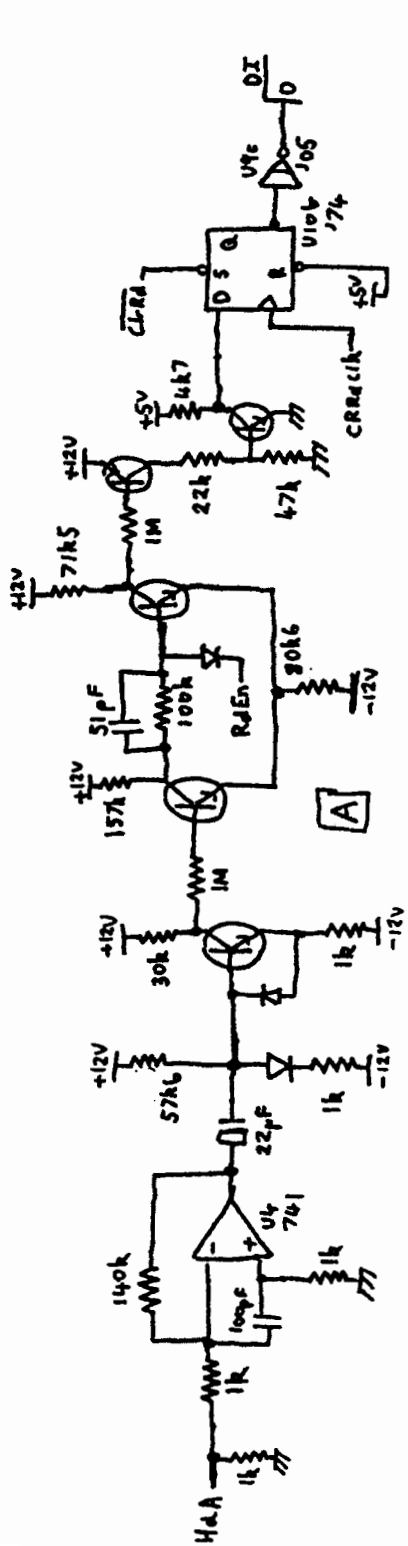
HP4810 Card Reader Wiring



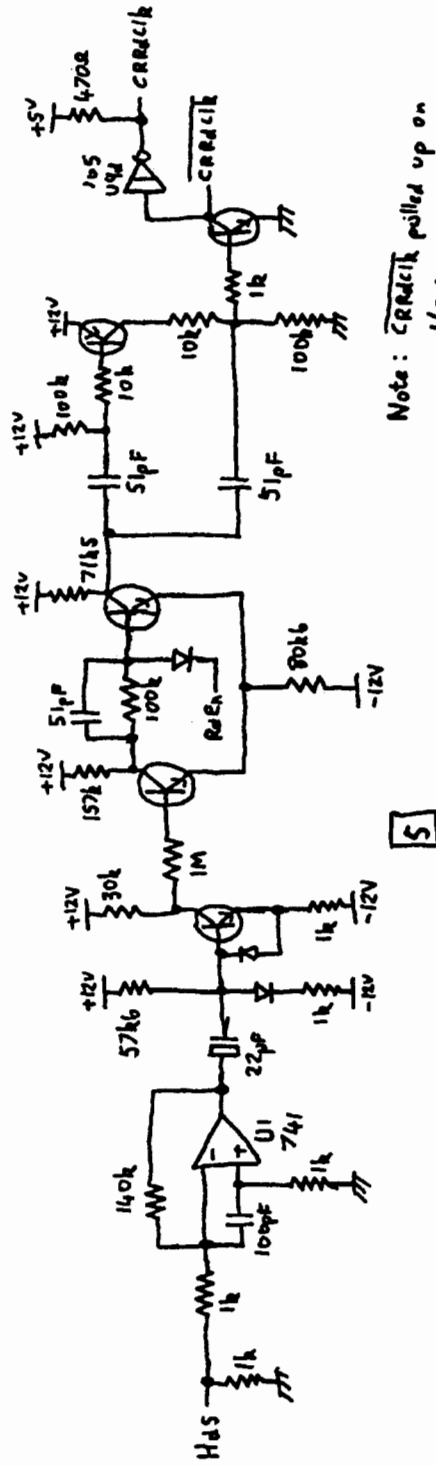
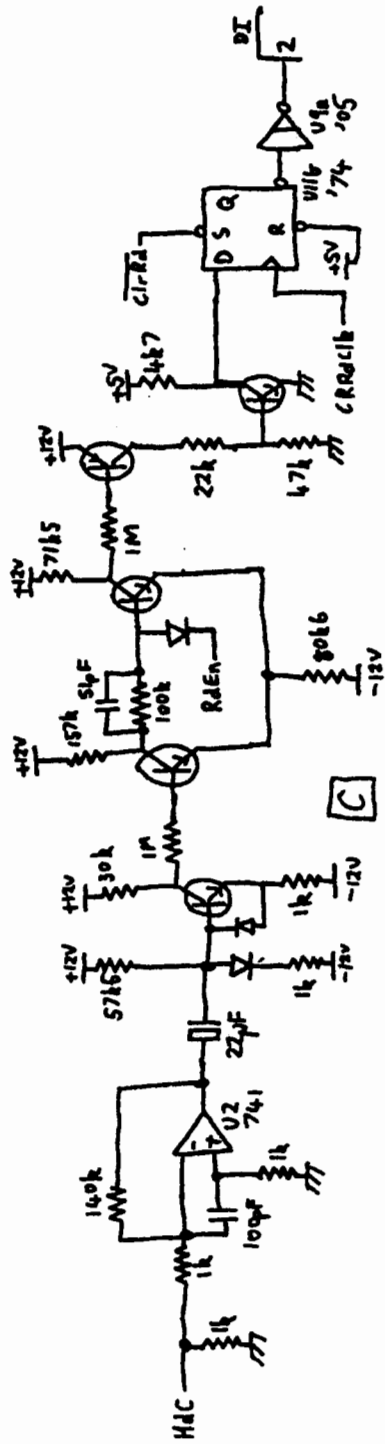
Motor Driver

Card Sensor

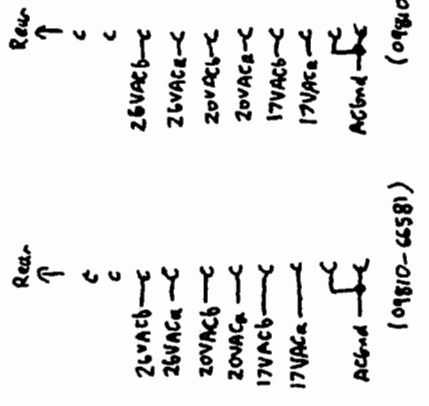
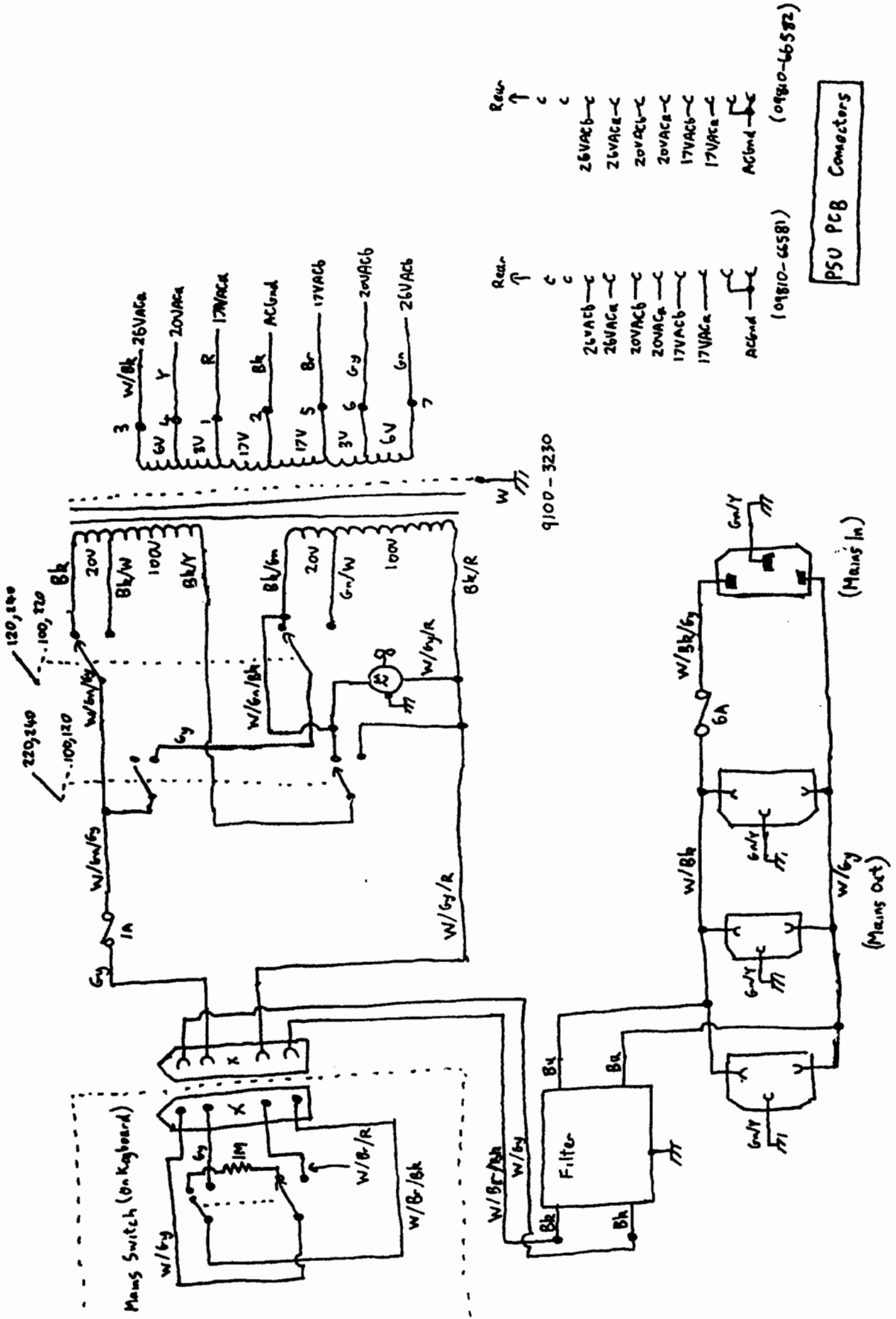




B **Read**

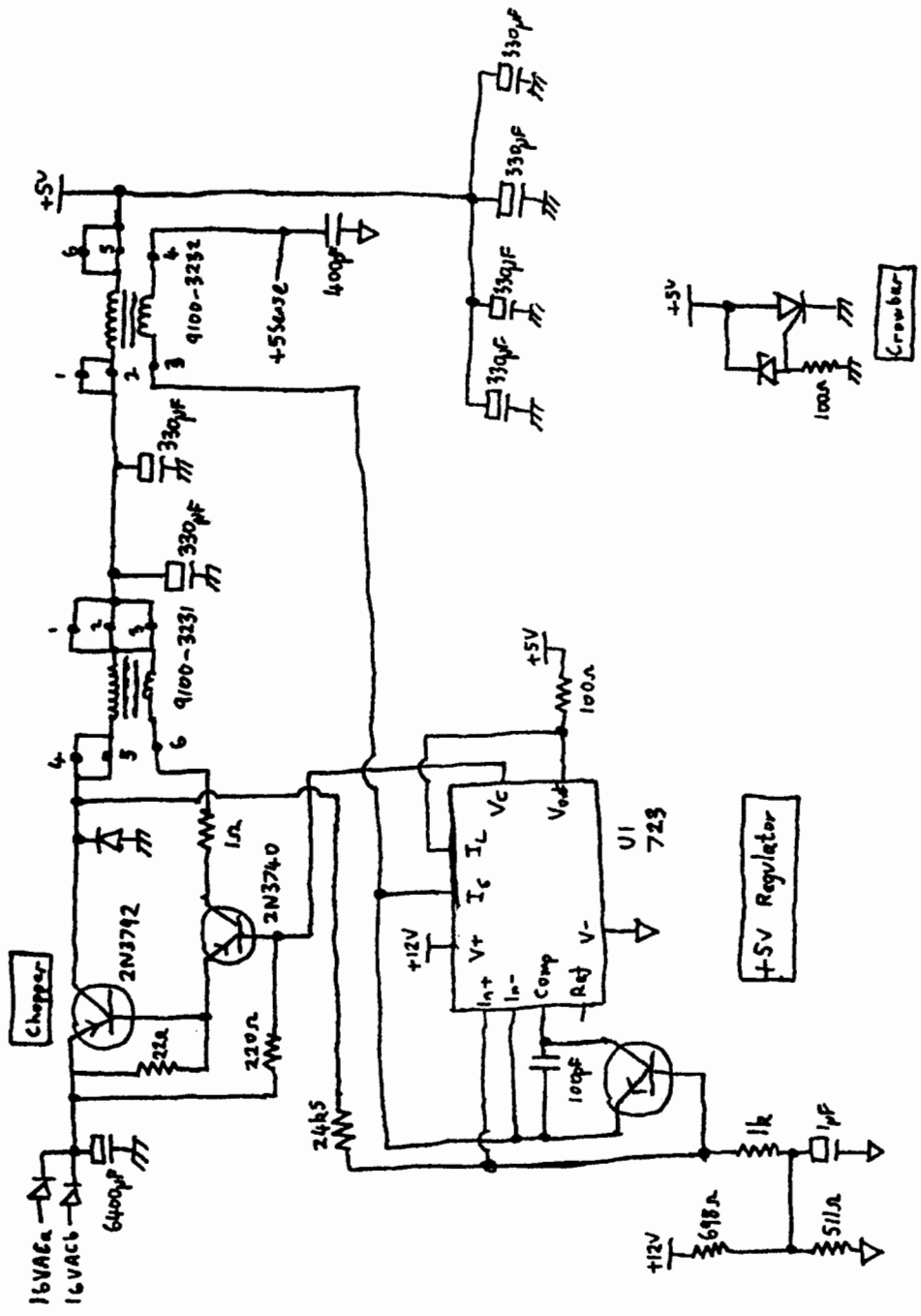
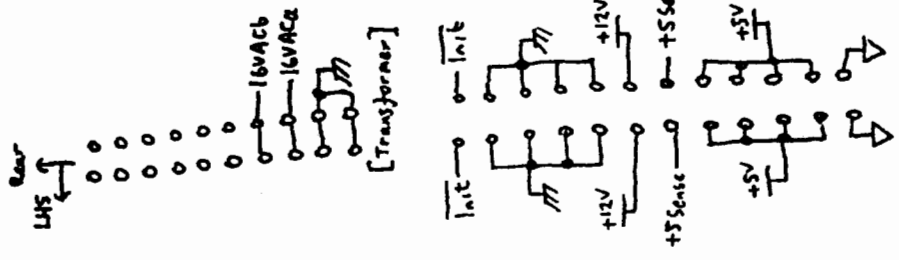


Note: CRADC1k pulled up on I/O Interface PCB (09810-66511)



PSU PCB Connectors

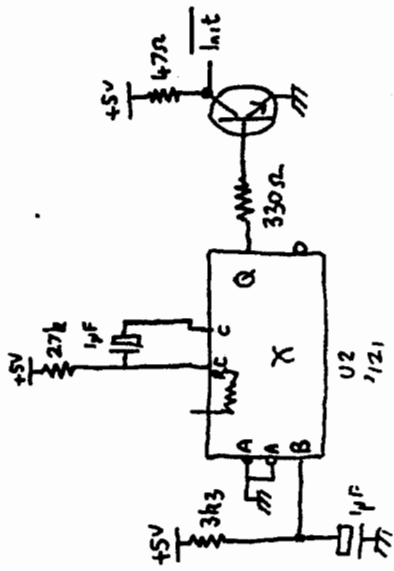
HP9810 Transformer Wiring



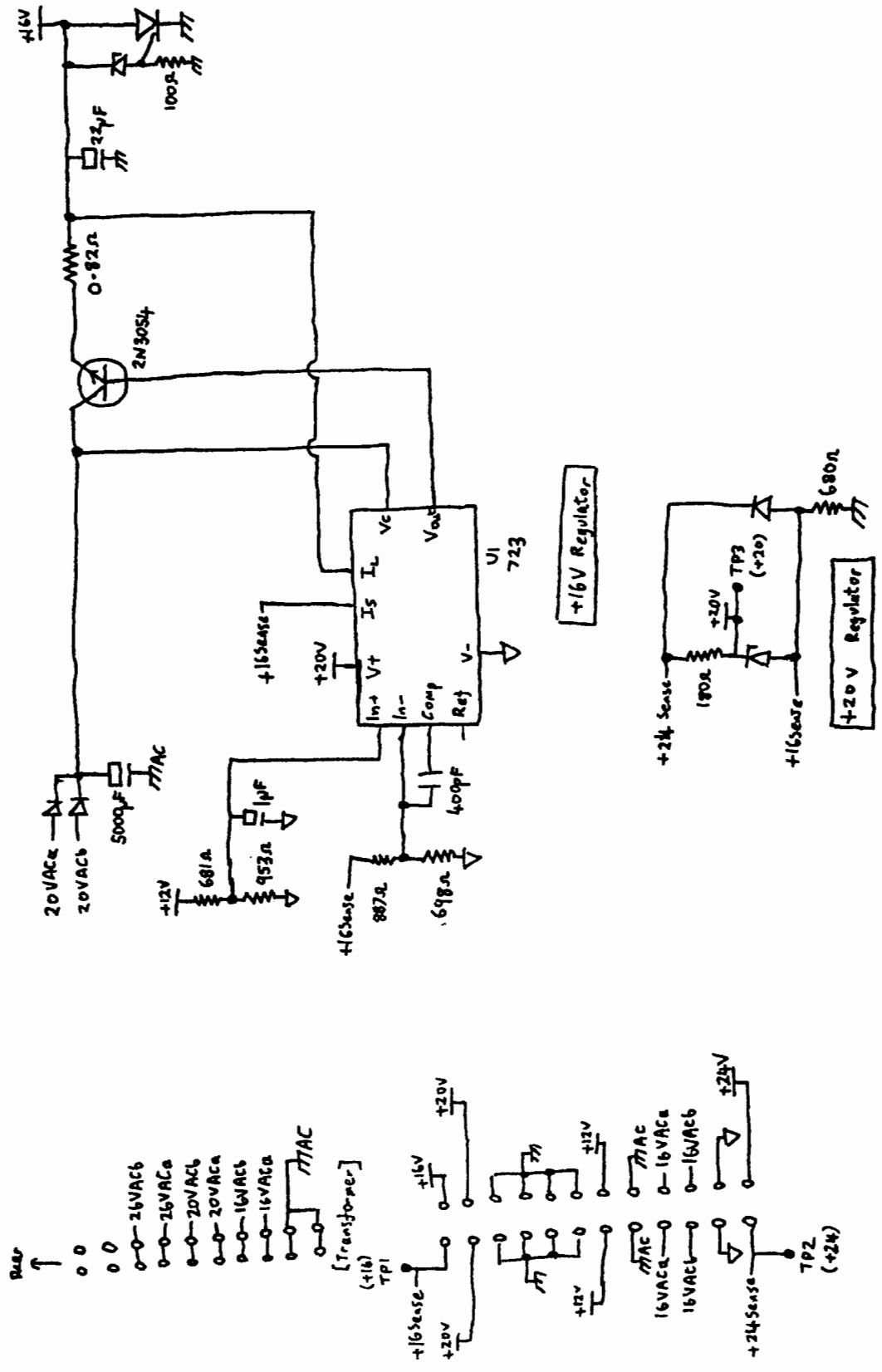
HP9810 +5V PSU sheet ①

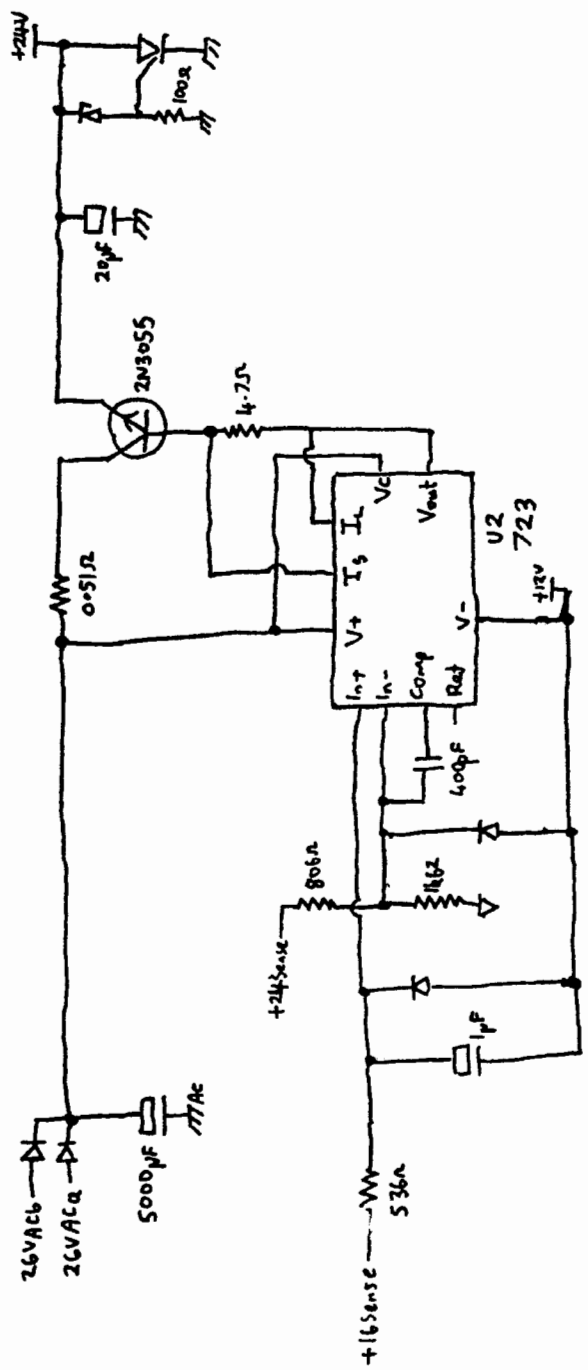
(5y/8r)

09810-66581

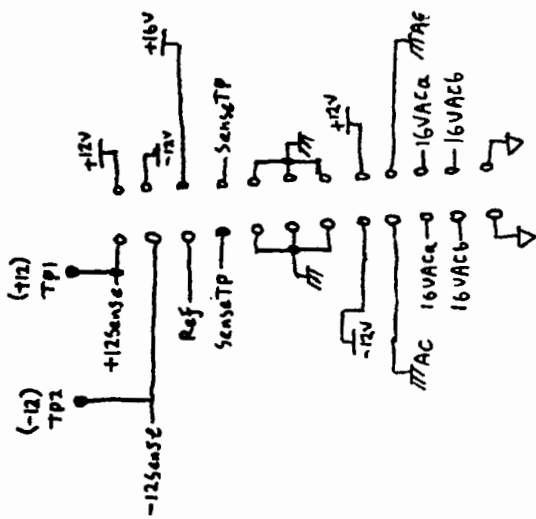
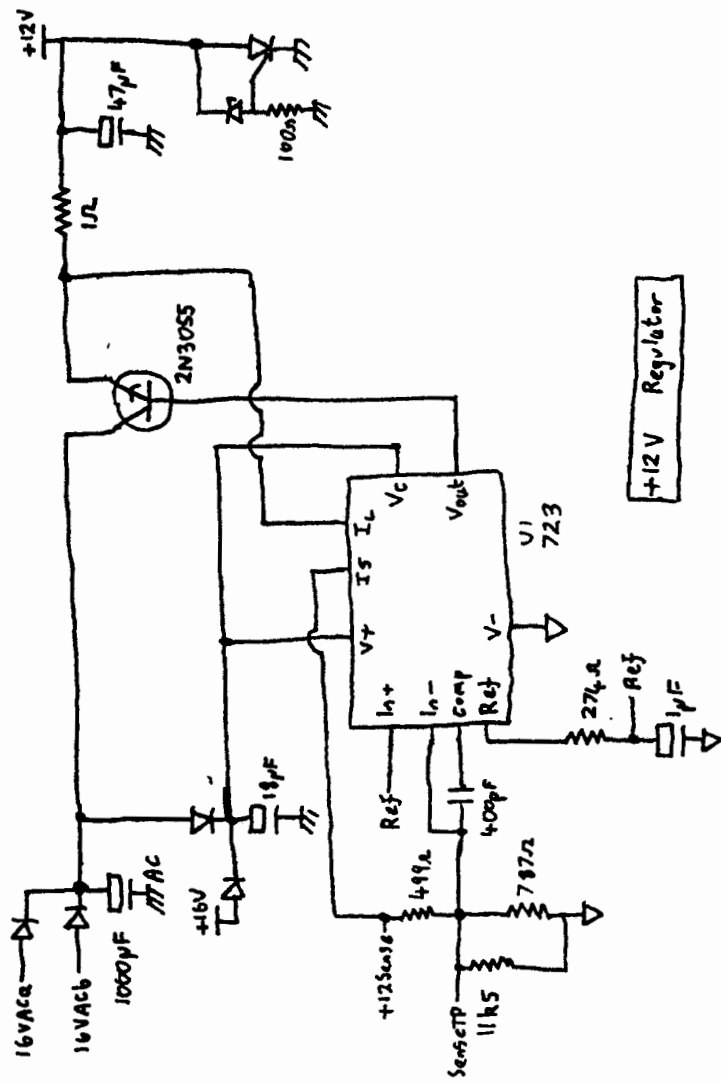


Power On Reset

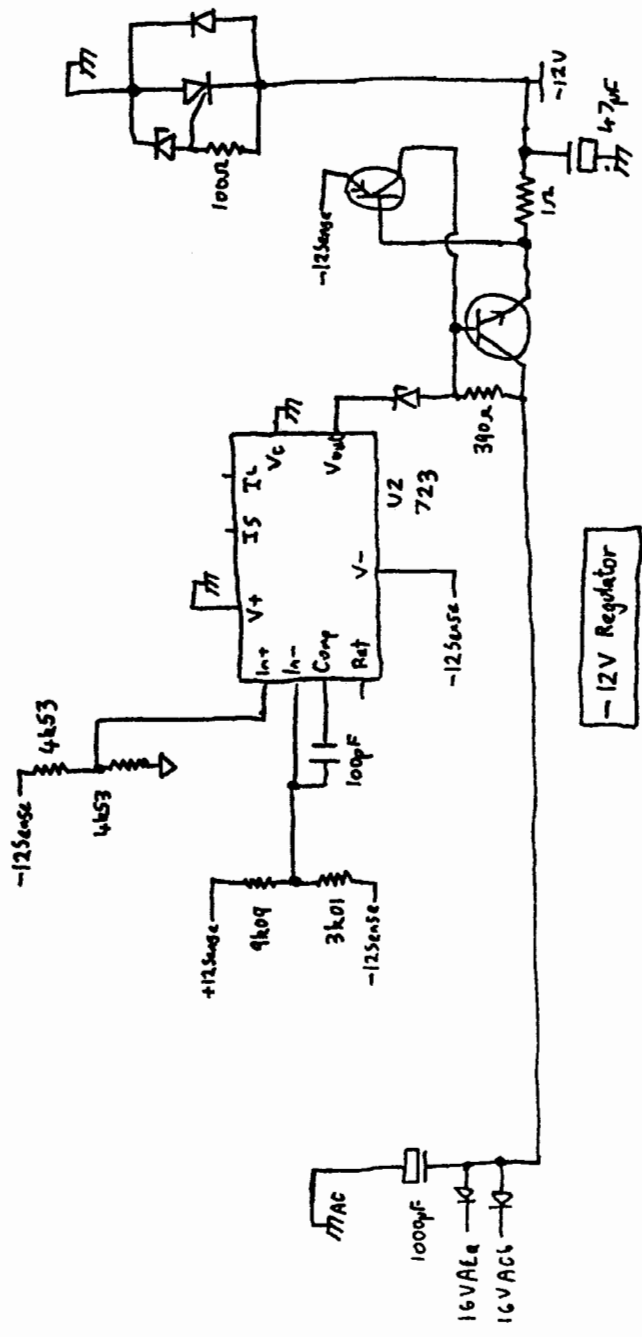


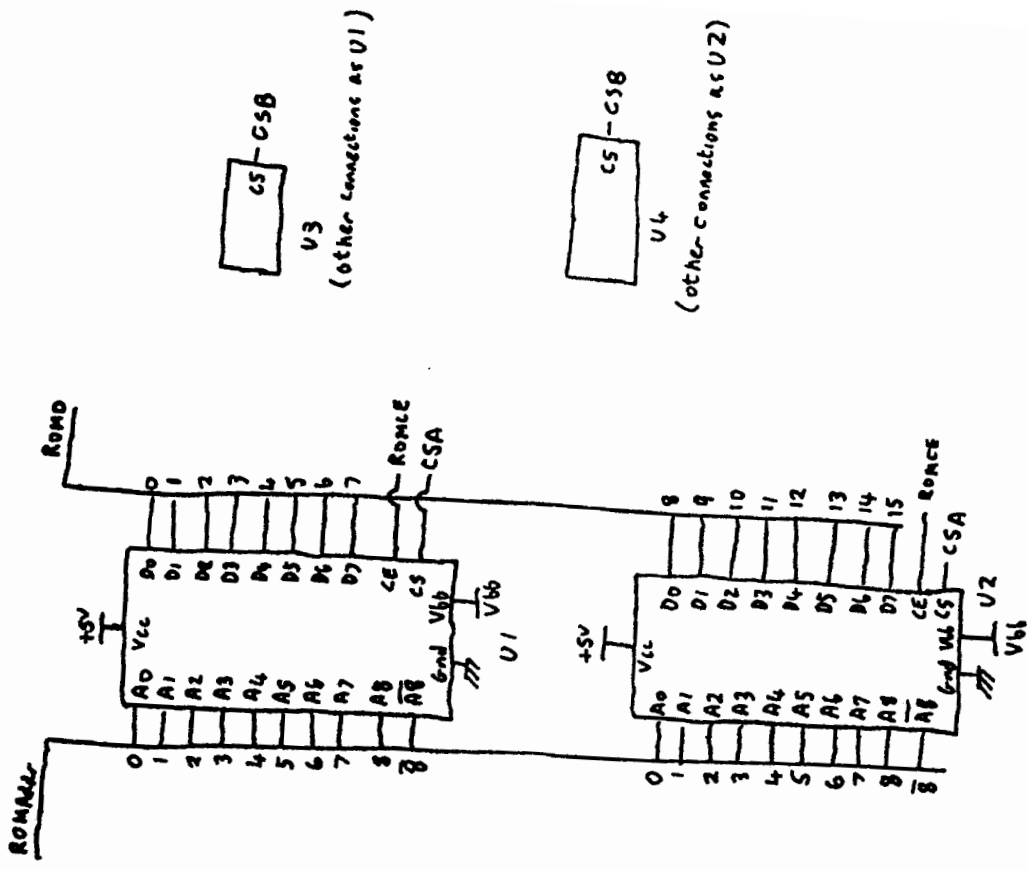


+24V Regulator

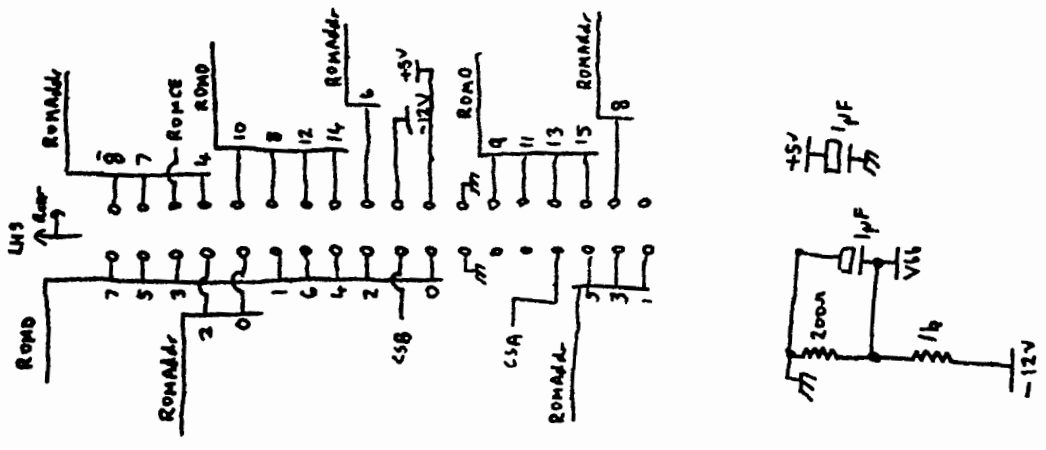


HP 9910 +/-12V PSU Sheet 0 (09/00) 09810-66593





U1-U6: HP 512x8 ROMs.



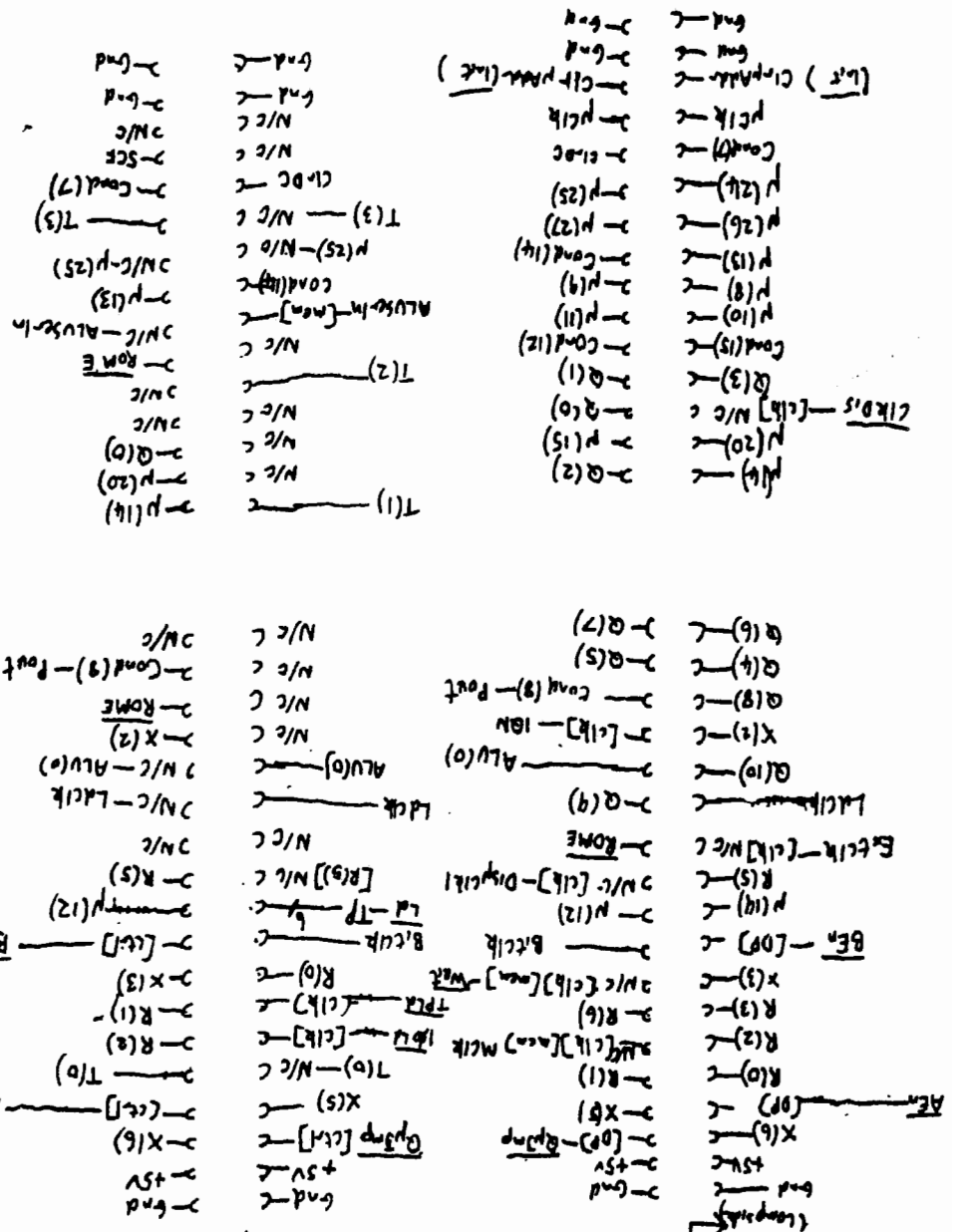
HP9810 ROM Module

2053 0:3
 2054 4:7
 2055 8:11
 2056 12:13
 2057 16:19
 2058 20:23
 2059 26:27

ROM

9810-66513
 connectors
 (CPU control)

09810-66514
 connectors
 (CPU Data Path)



9810

LHS
 Row