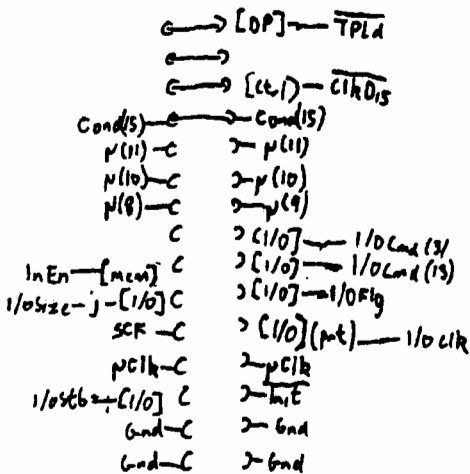
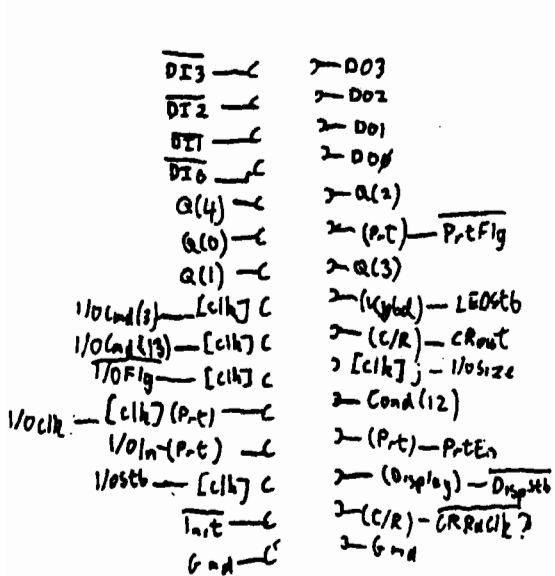
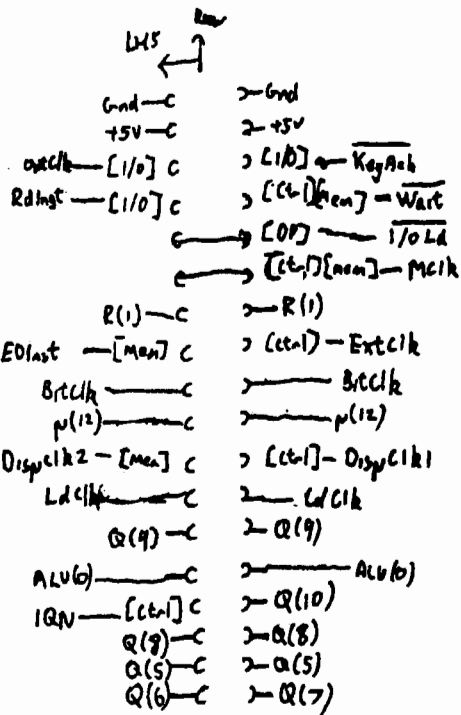
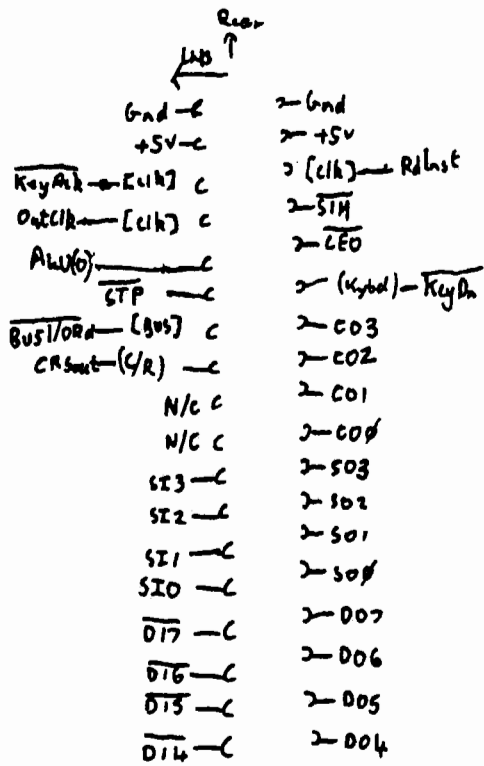


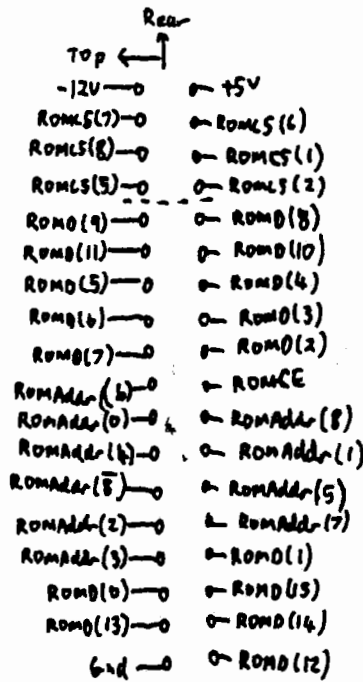
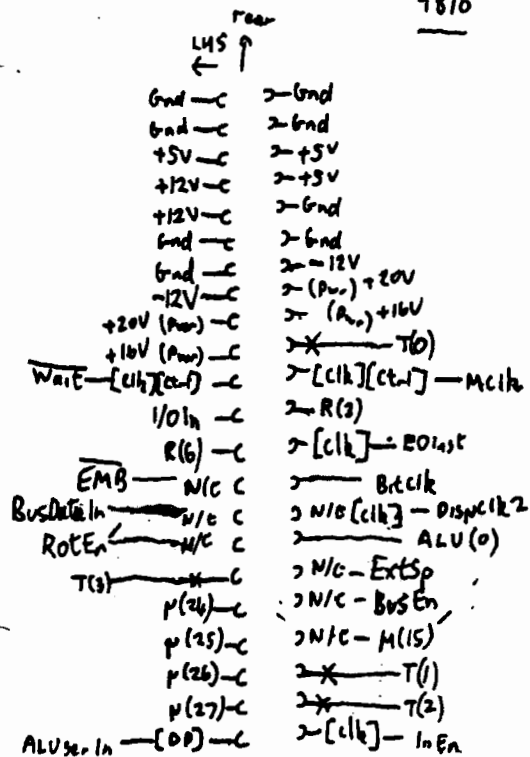
9810



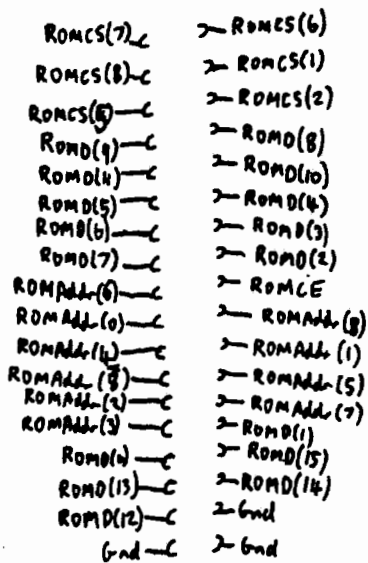
09810-66511
Connector
(I/O Interface)

09810-66512
Connector
(Clock)

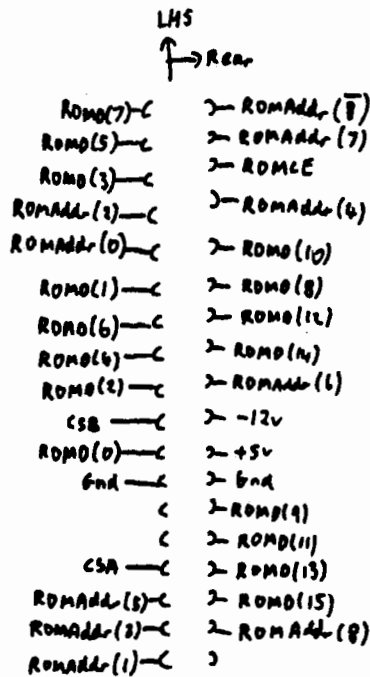
9810

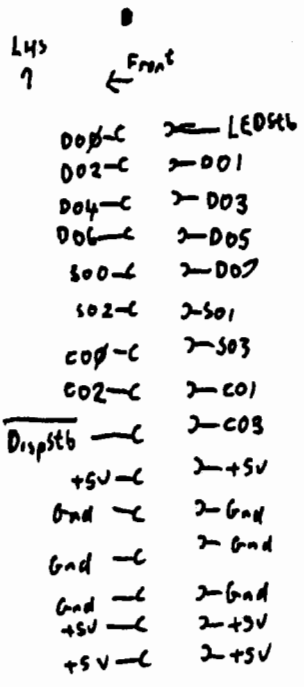


ROM Backplane Connector

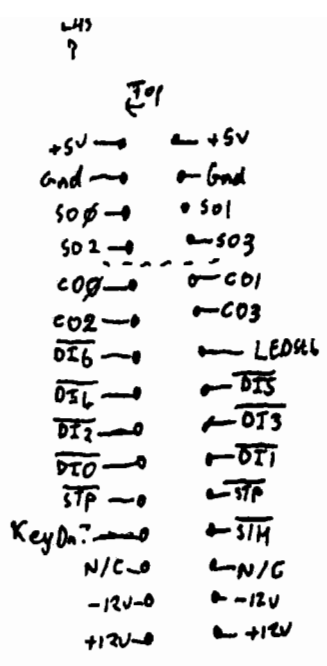


Memory box
connector

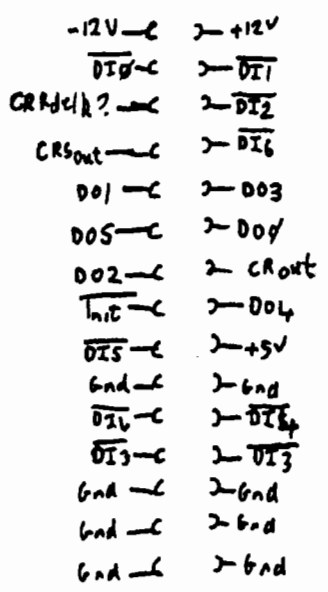




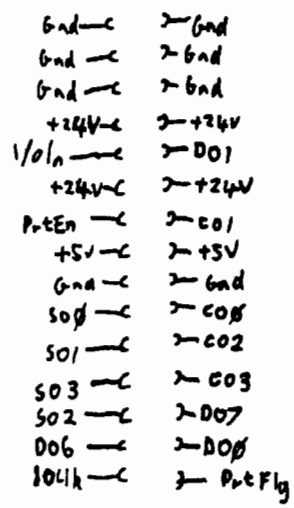
Display



Keyboard

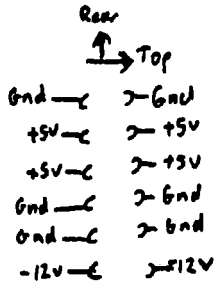


Card Reader

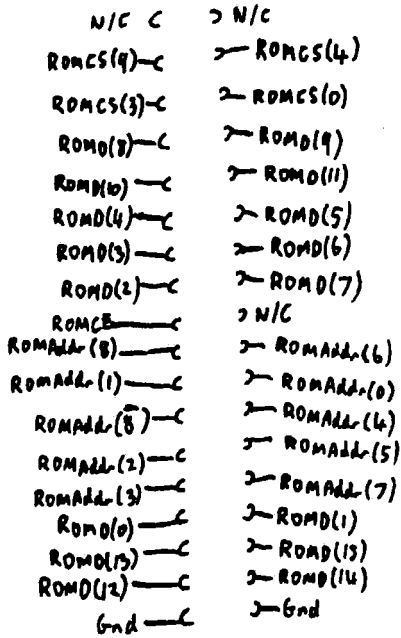
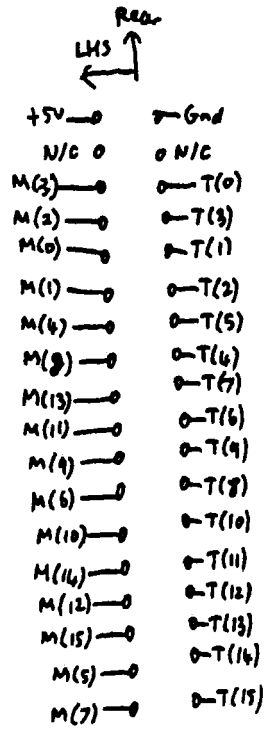


Printer

9810 Peripheral Connections
09810-66502 Backplane



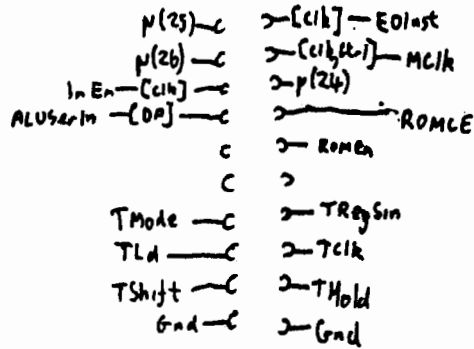
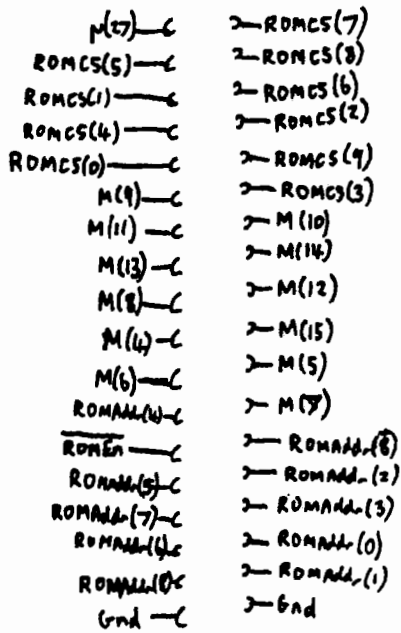
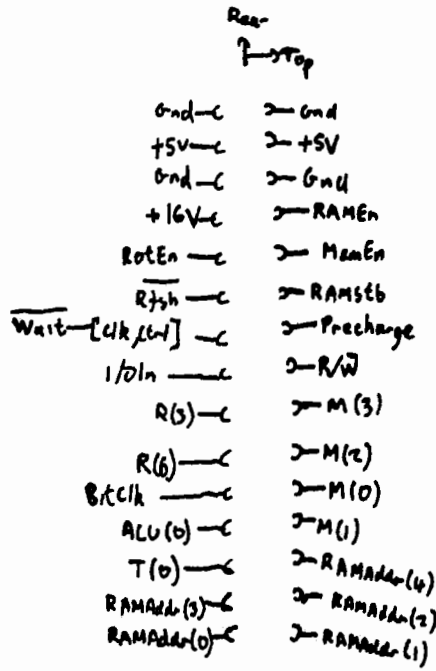
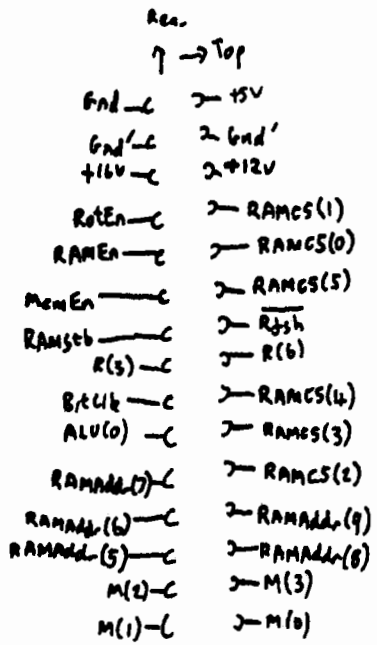
9810



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 - 01 - 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

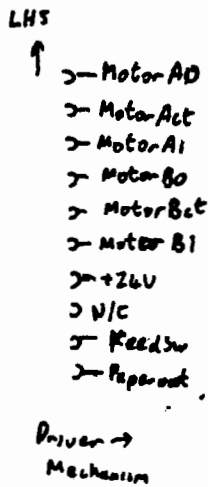
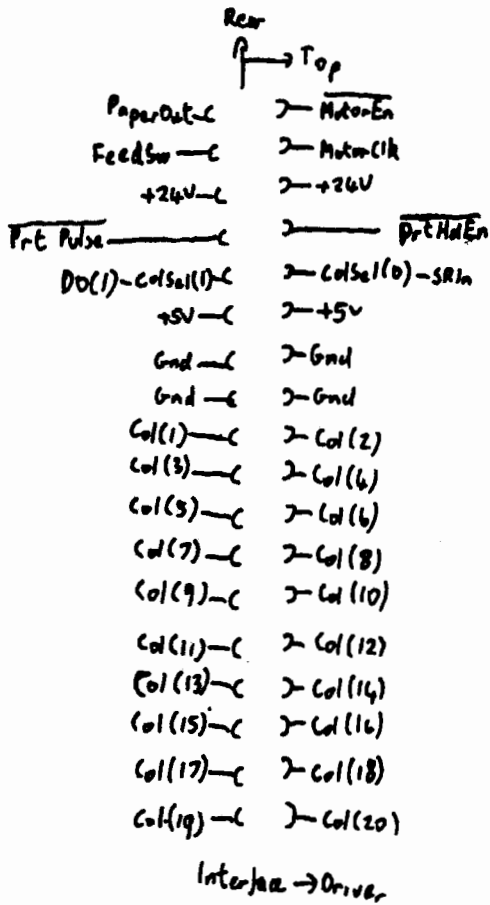
I/O slot

* Only on bottom slot

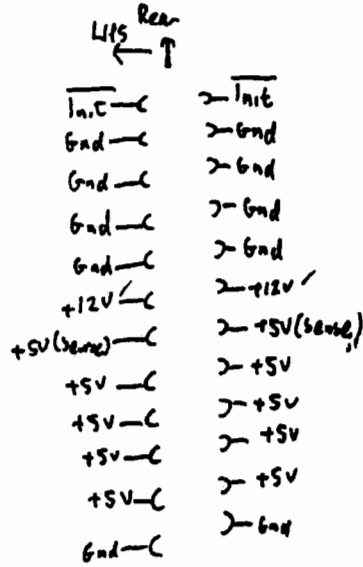
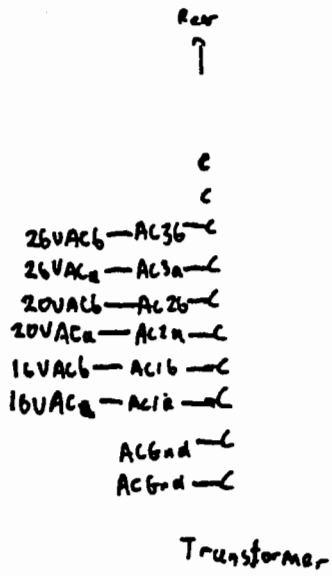
Rear
 STP - 0 - Gnd
 Bus10Rd - 0 - CEO
 S14 - 0 - KeyDn
 C03 - 0 - C02
 C01 - 0 - C00
 S13 - 0 - S03
 S12 - 0 - S02
 S11 - 0 - S01
 S10 - 0 - S00
 D17 - 0 - D07
 D16 - 0 - D06
 D15 - 0 - D05
 D14 - 0 - D04
 D11 - 0 - D12
 D03 - 0 - D13
 D02 - 0 - D01
 D00 - 0 - D10
 Bitclk - 0 - R(3)
 ExtSp N/c 0 - Mclk
 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

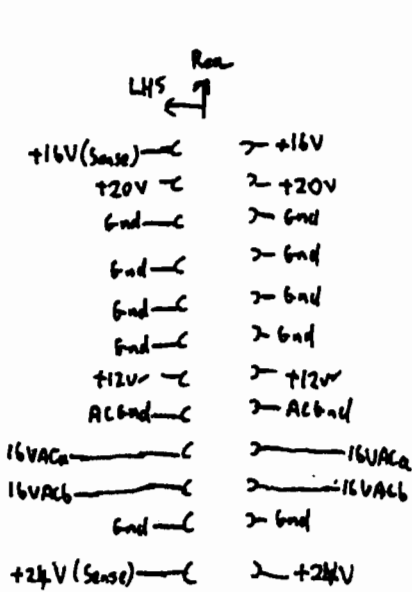
9810 Printer



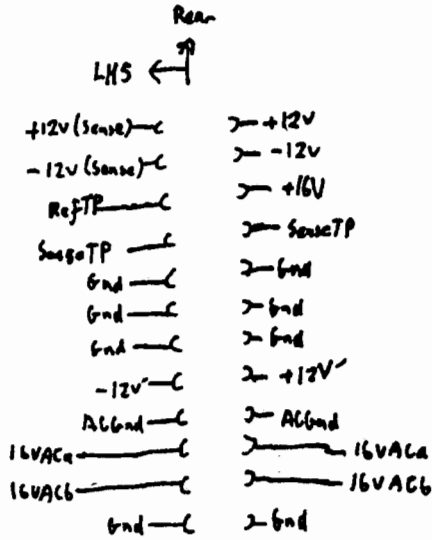
7810 PSU



09810-66581
(5V)

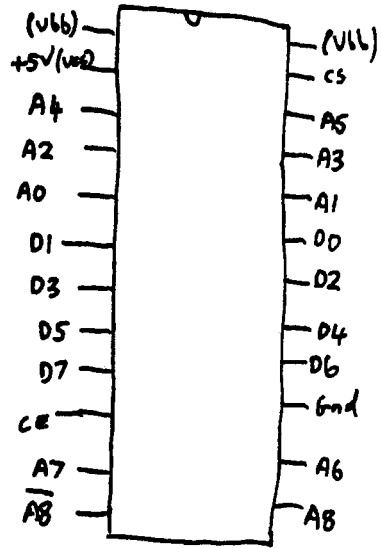


09810-66582
(+16V, +20V, +24V)

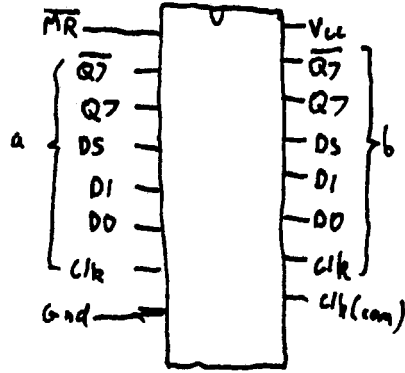


09810-66583
(±12V)

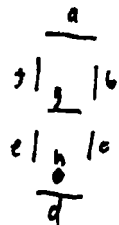
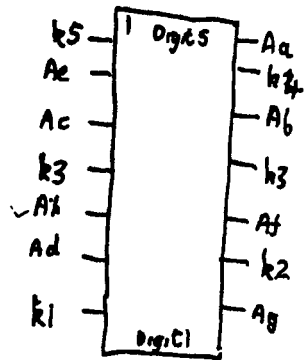
HP ROM (9810)

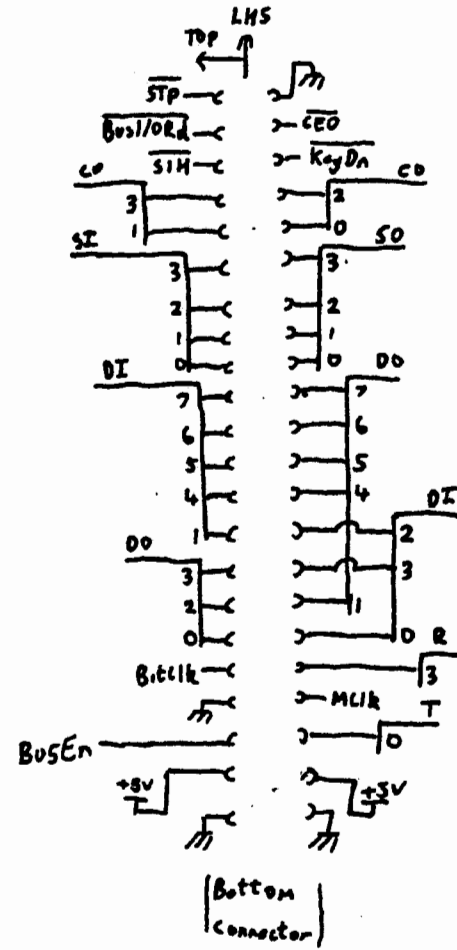
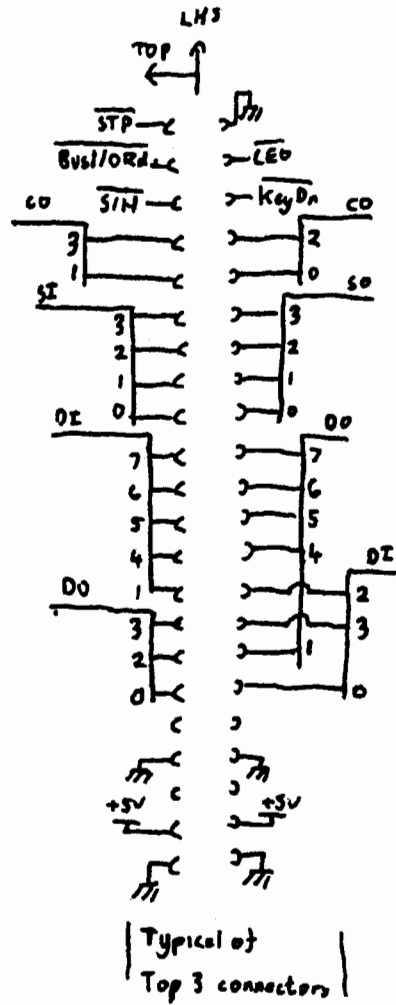
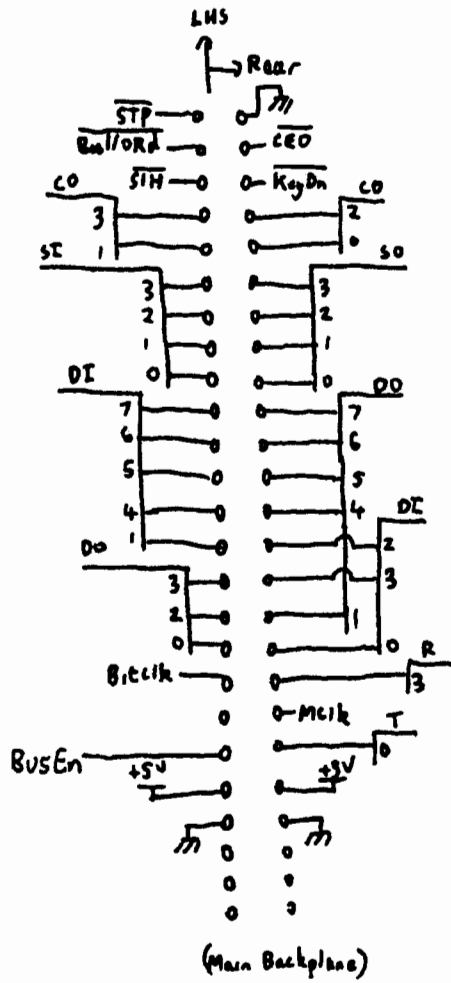


(Dual 8bit 510 S/R) 9328

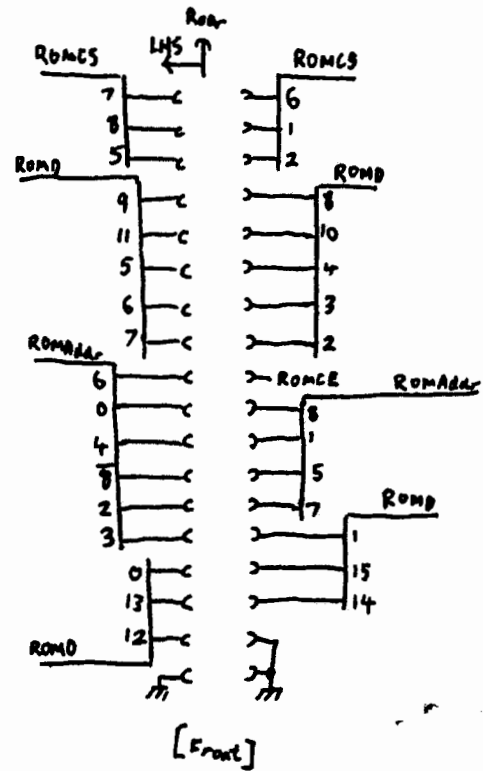
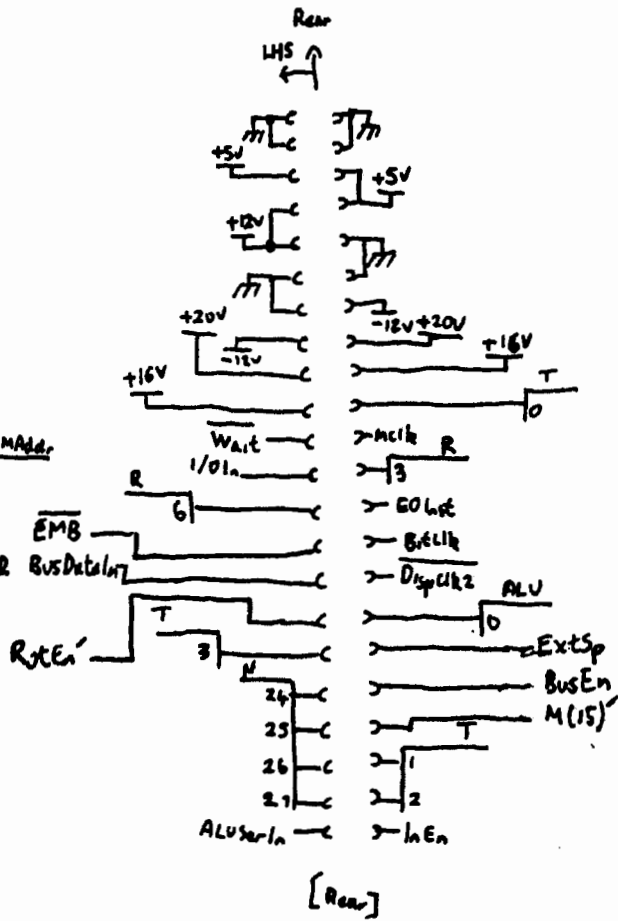
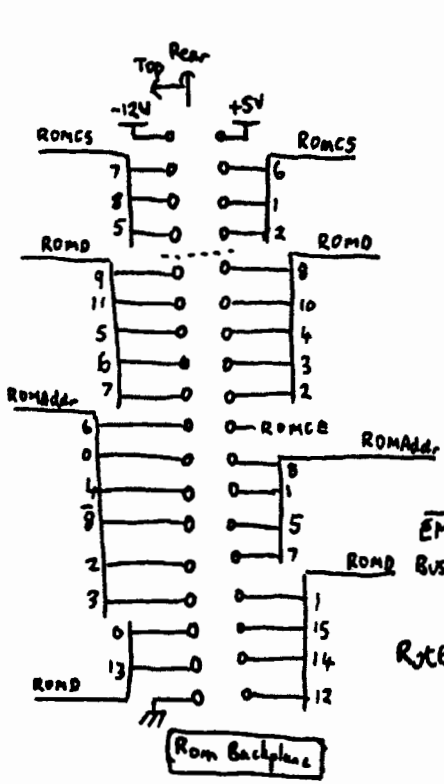


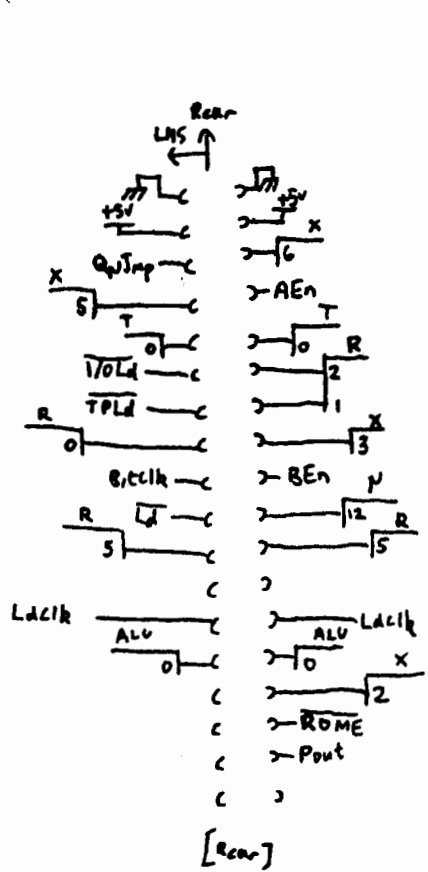
HP9810 Display → Top



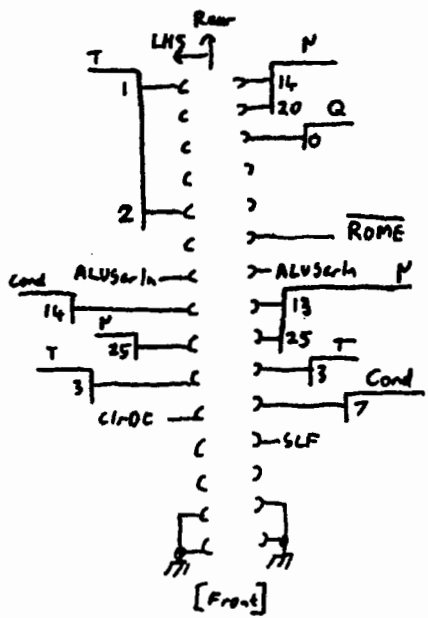


I/O Connectors

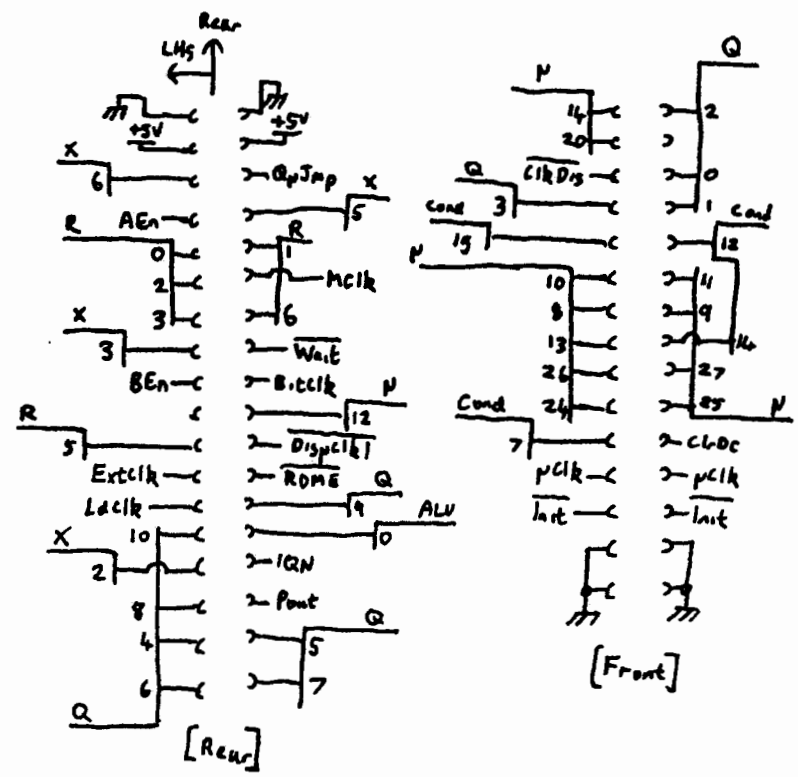


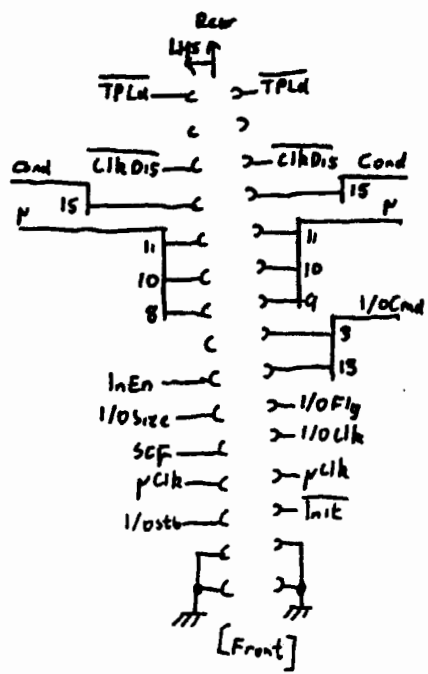
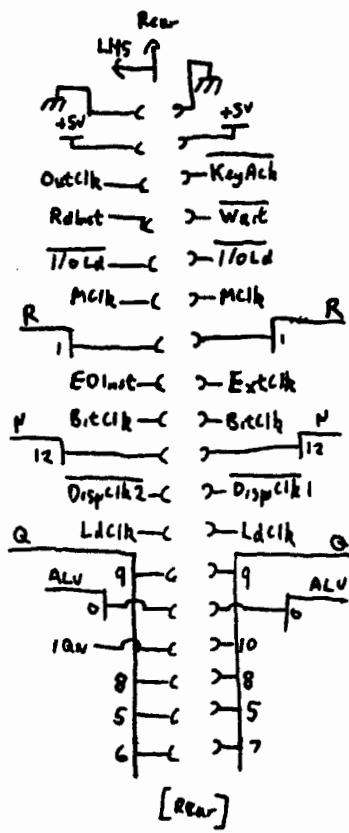


Data Path
(09810-66514)

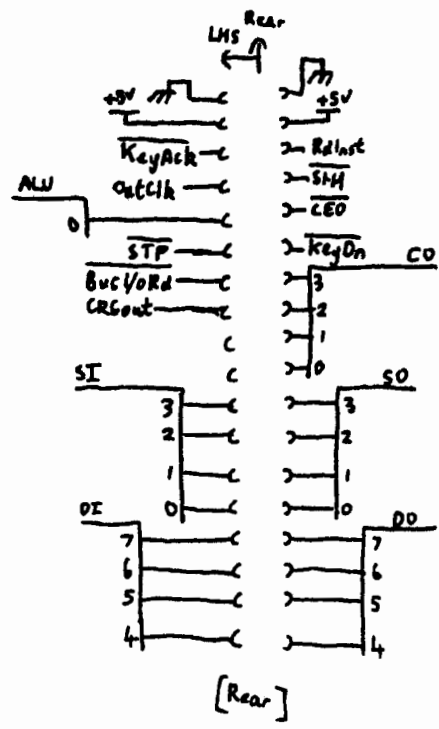


CPU Control
(09810-66513)

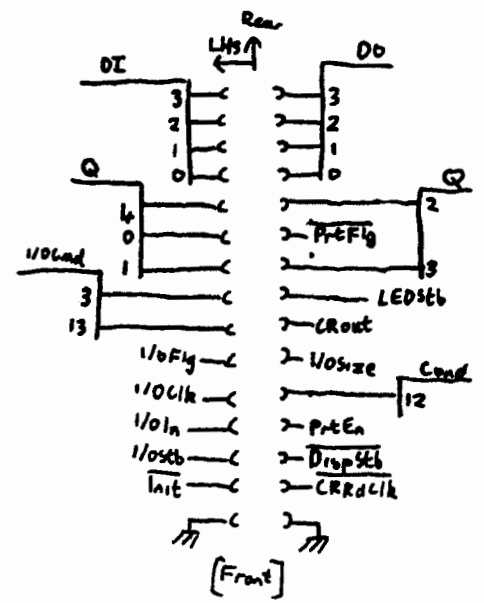


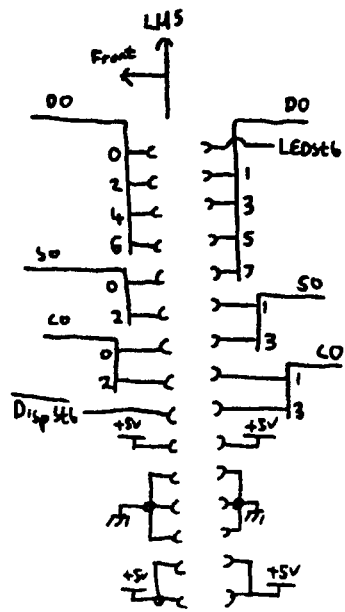


Clock
(09810-66512)

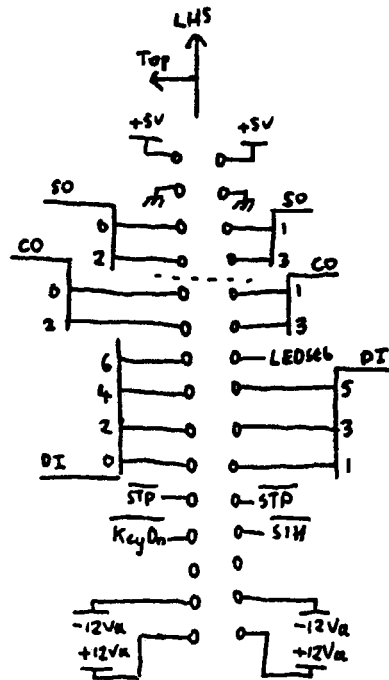


I/O Interface
(09810-66511)

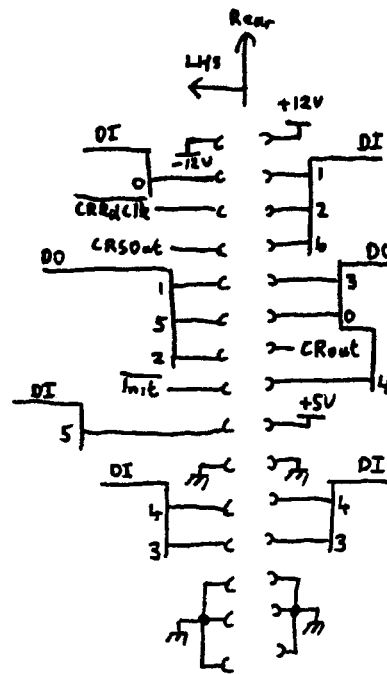




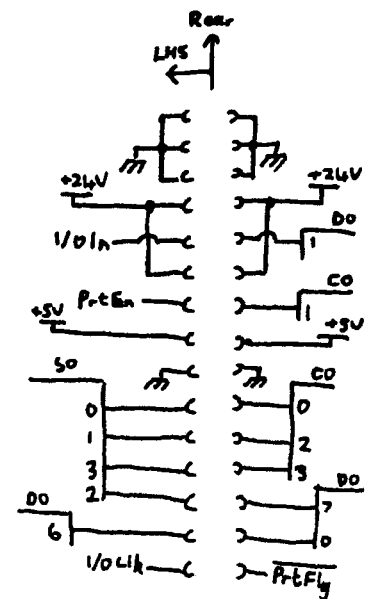
Display
(09810-66562)



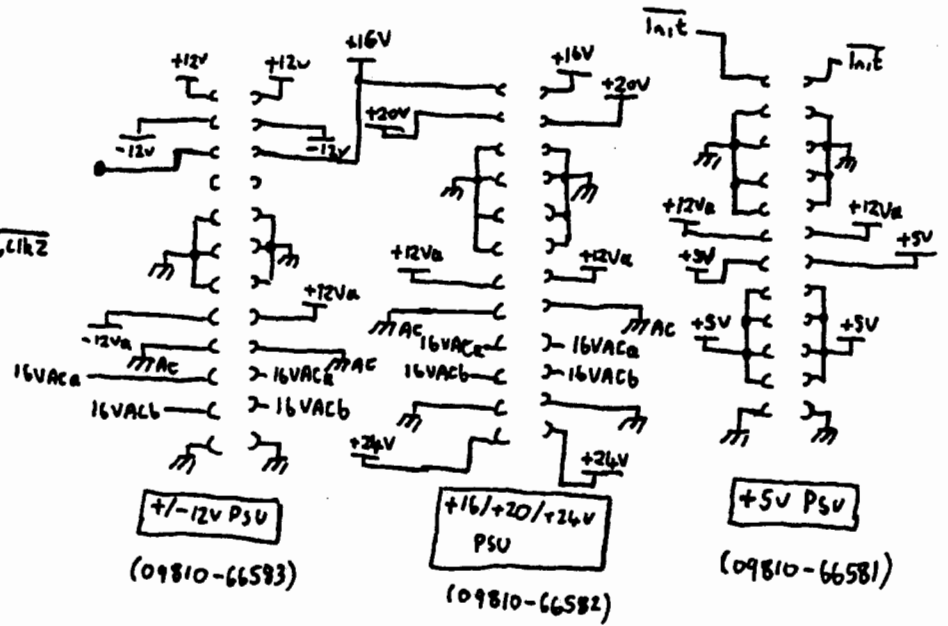
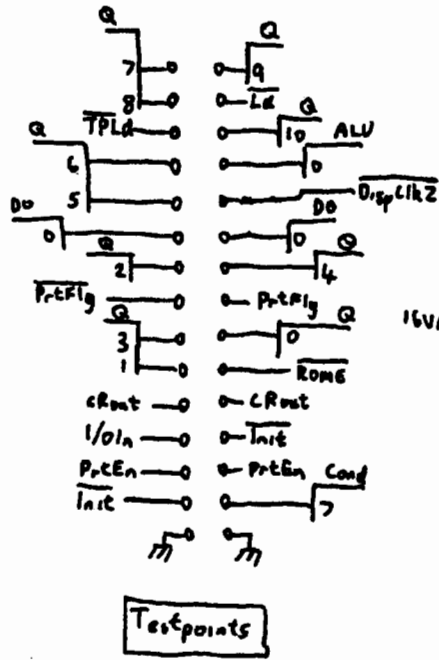
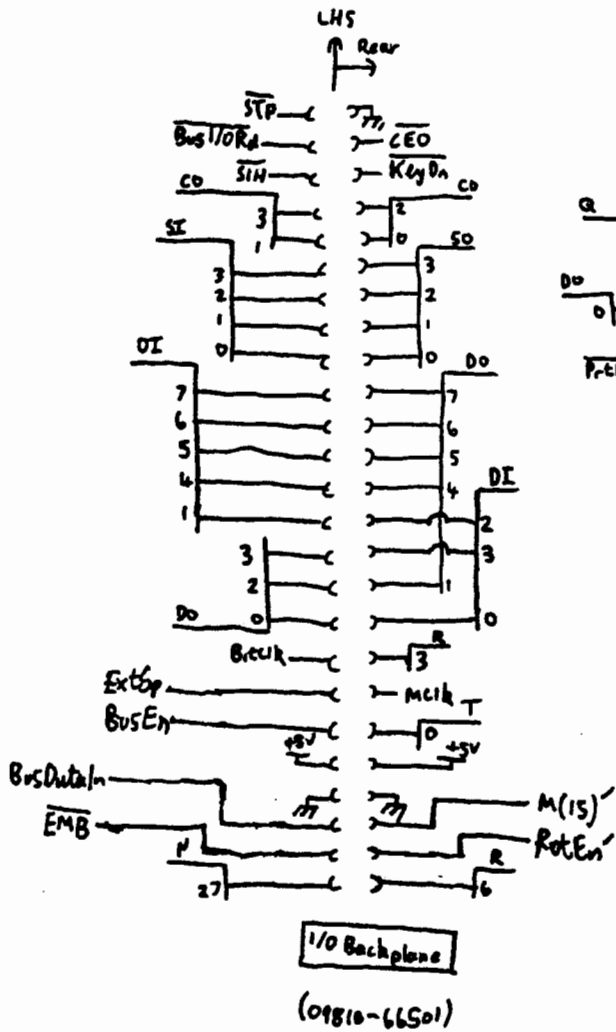
Keyboard

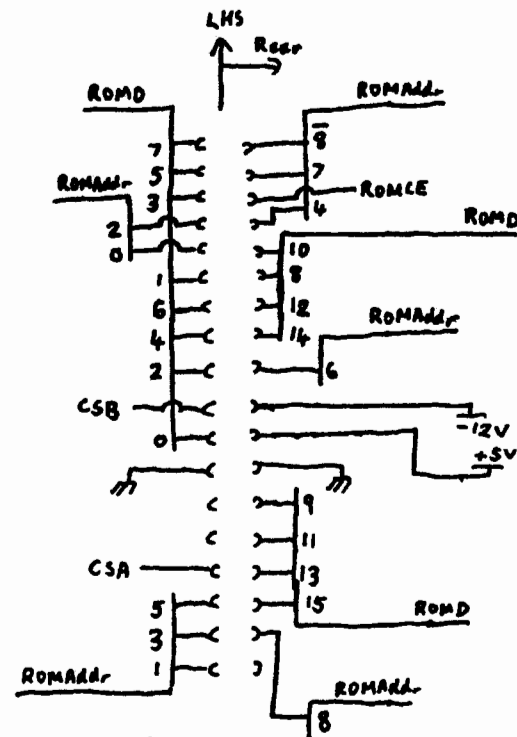
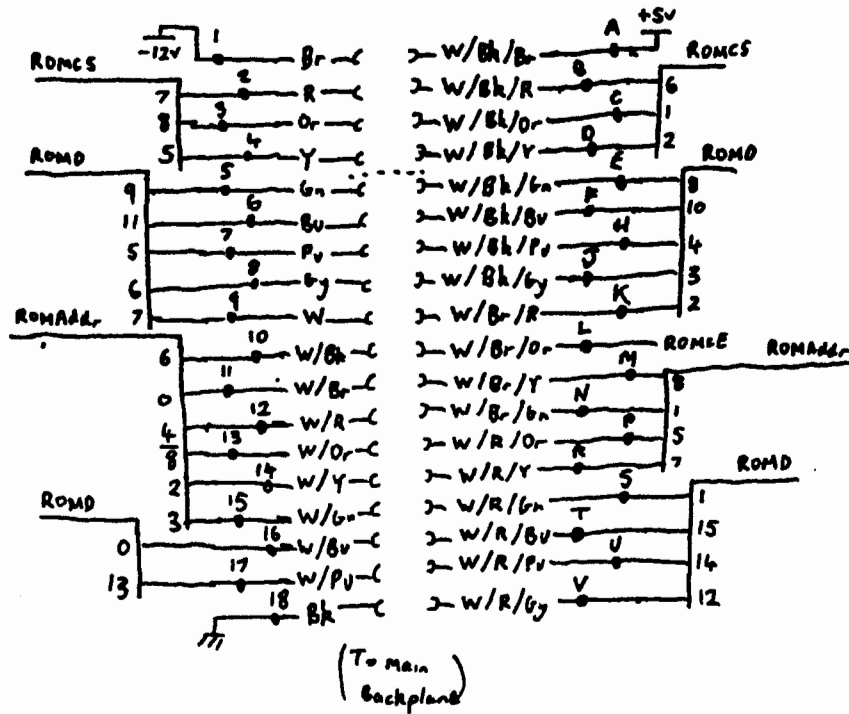


Card Reader Interface
(09810-66562)



Printer
(11214-66551)

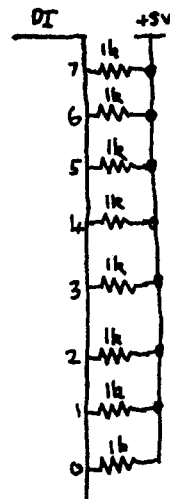
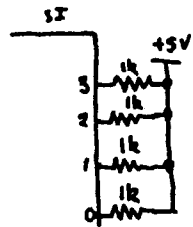
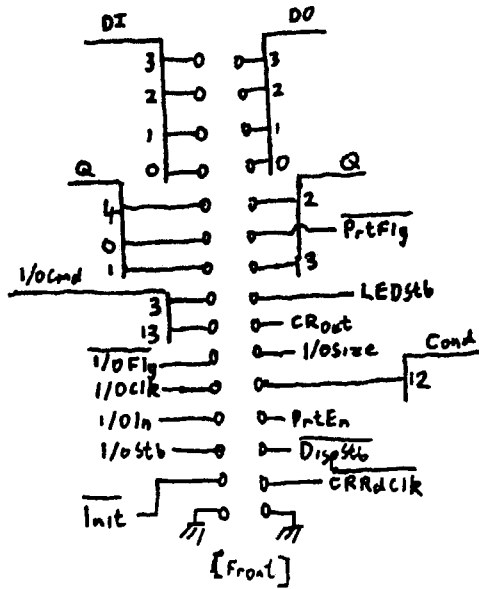
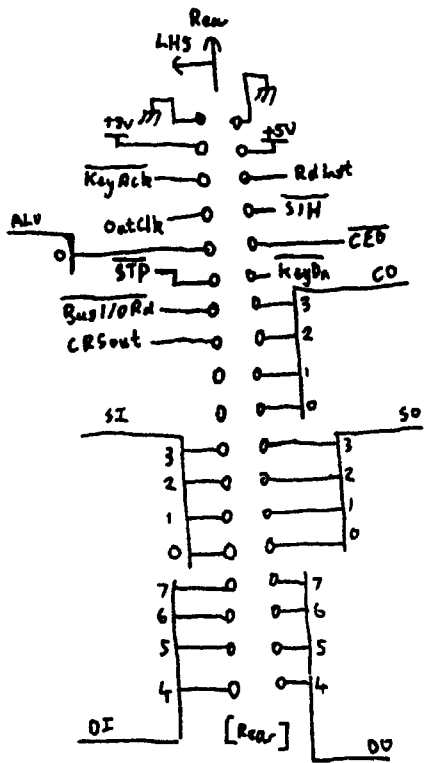




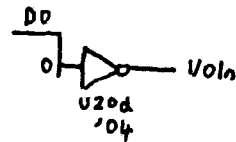
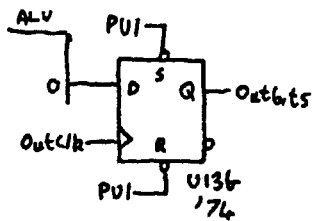
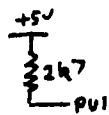
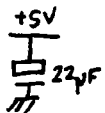
ROM Module

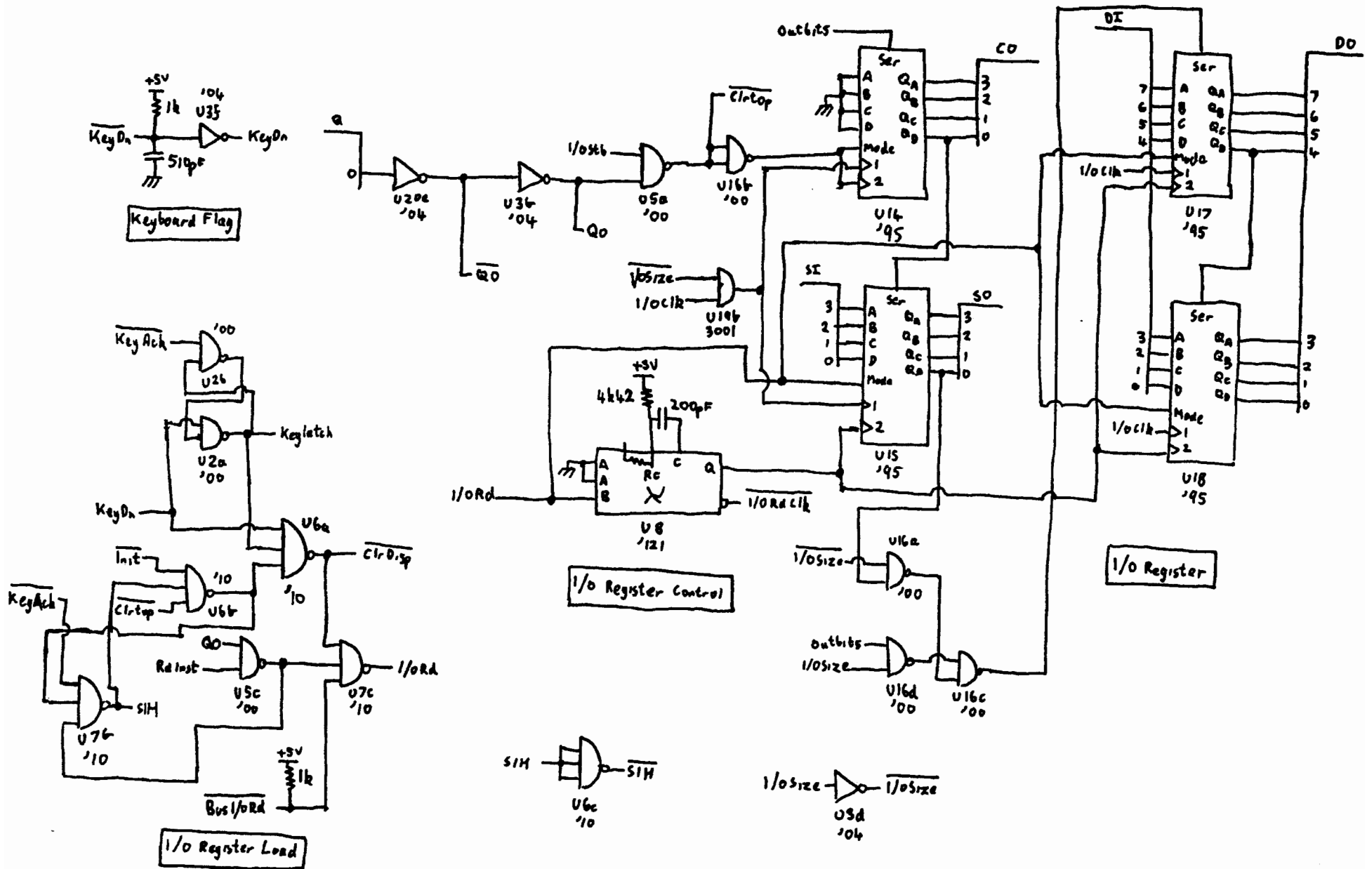
	1	2	3
CSA	ROMCS(1)	ROMCS(5)	ROMCS(7)
CSB	ROMCS(2)	ROMCS(6)	ROMCS(8)

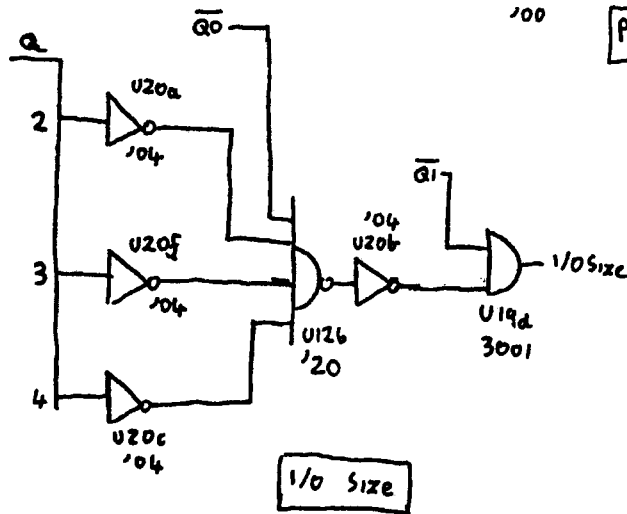
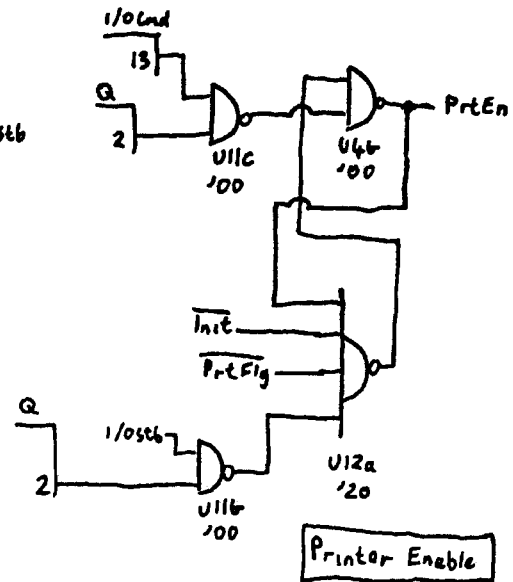
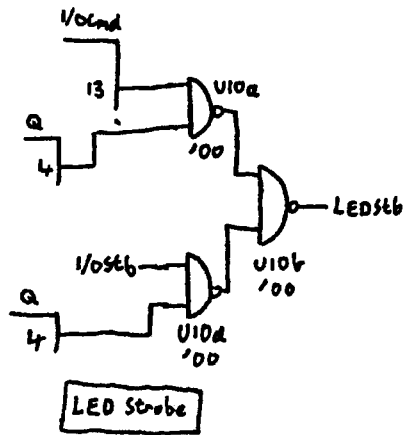
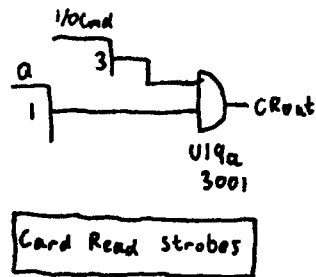
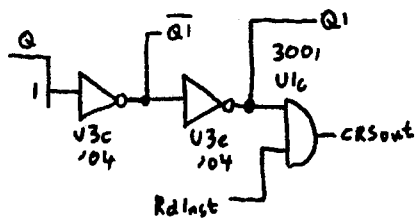
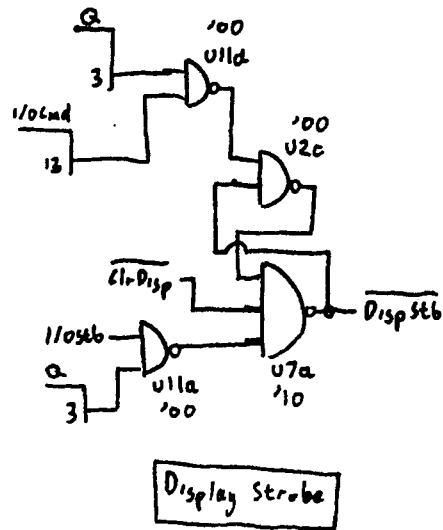
Chip Select Connections

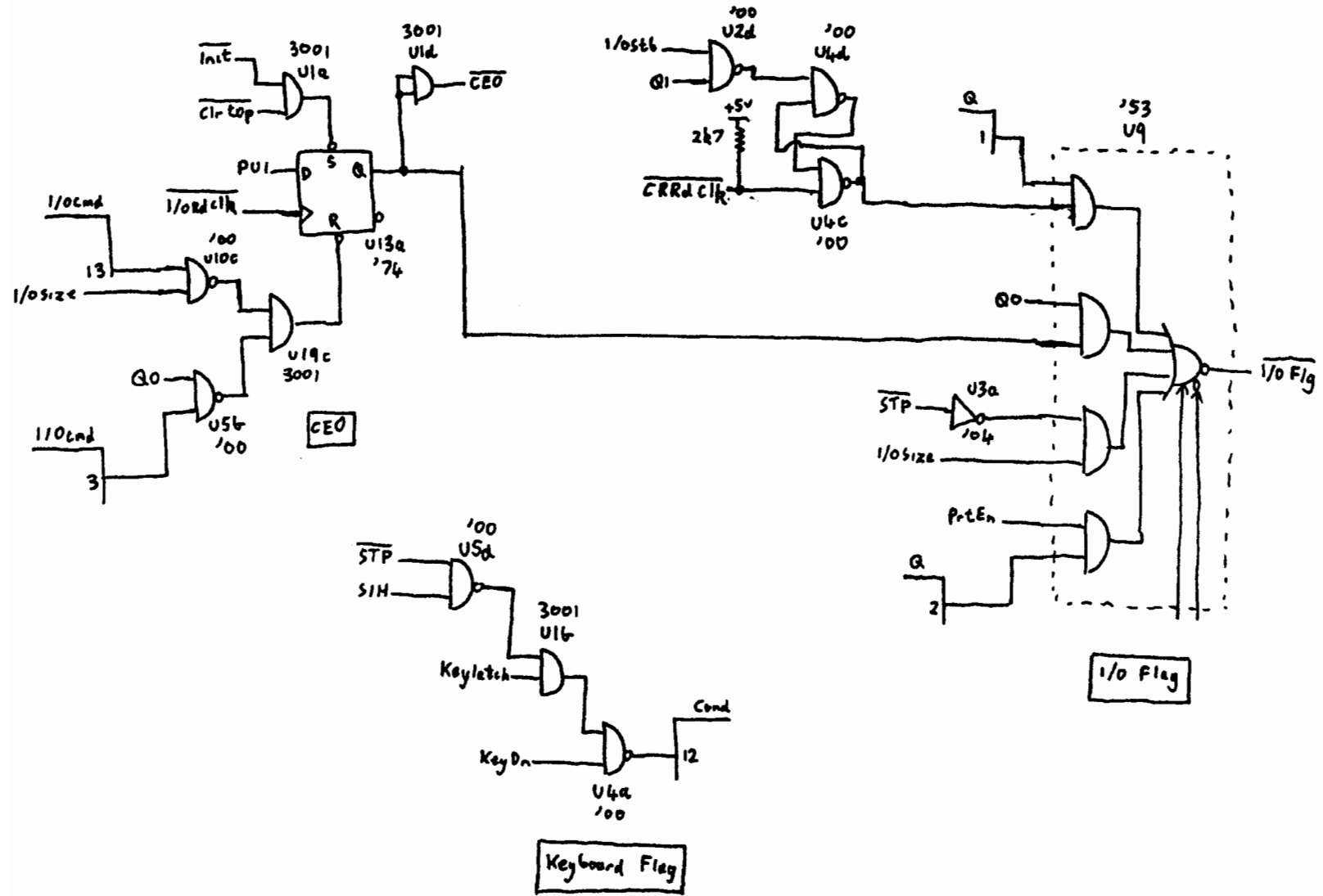


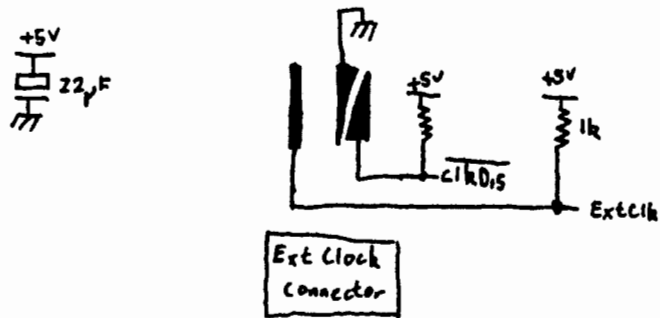
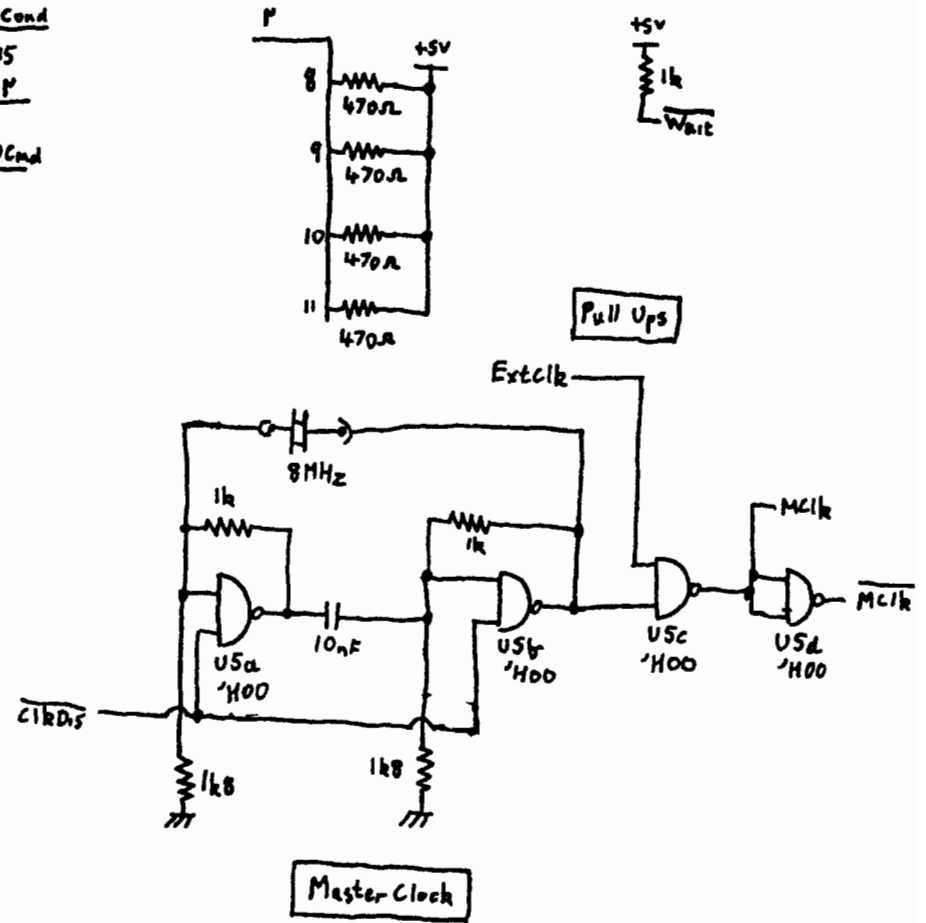
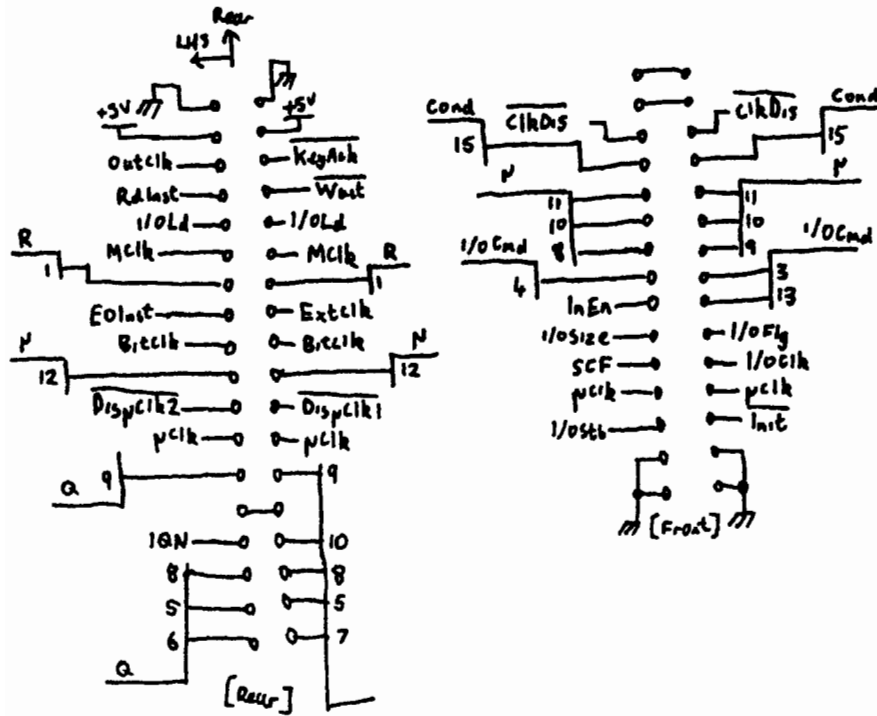
Bus Pull Ups

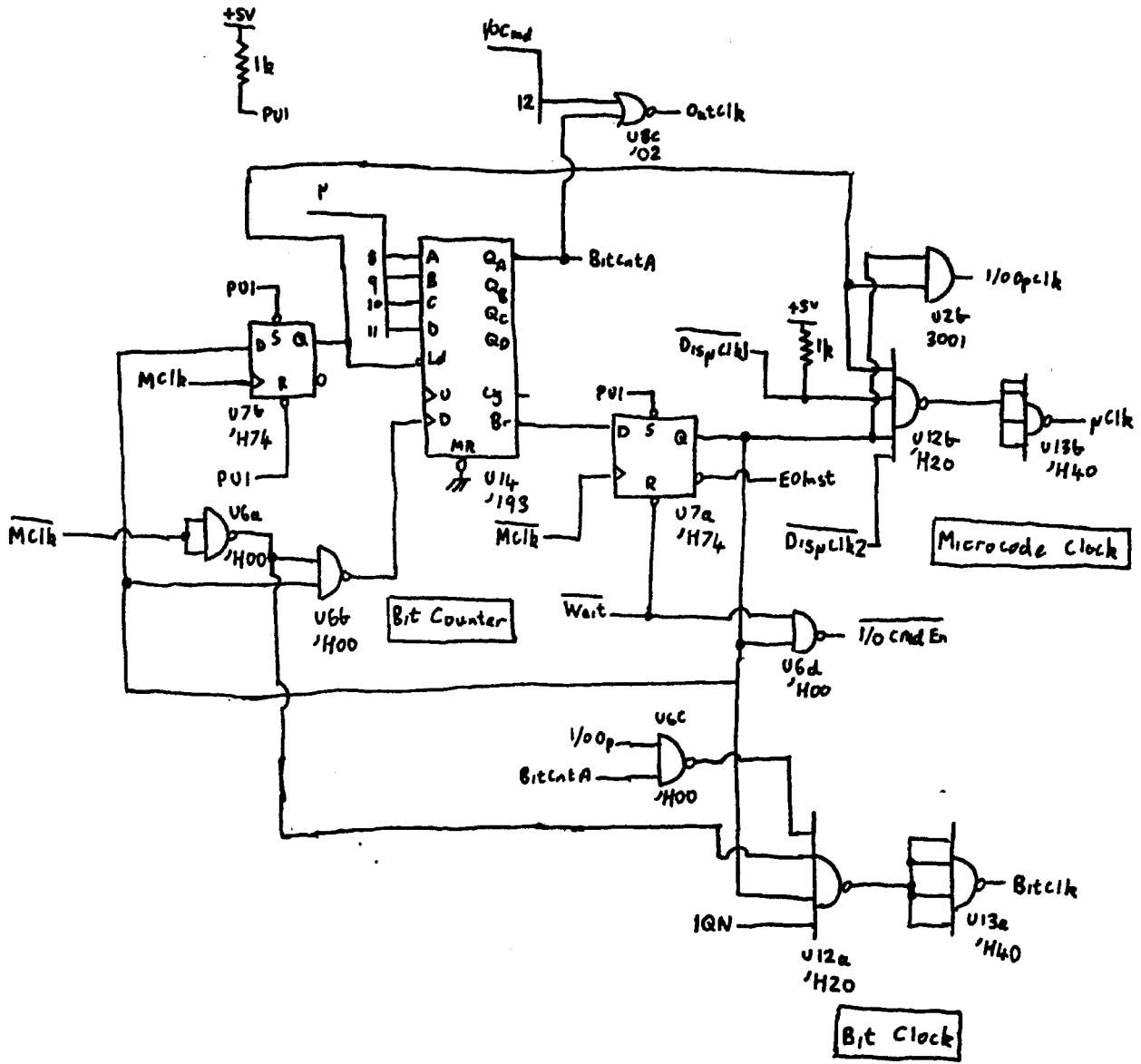


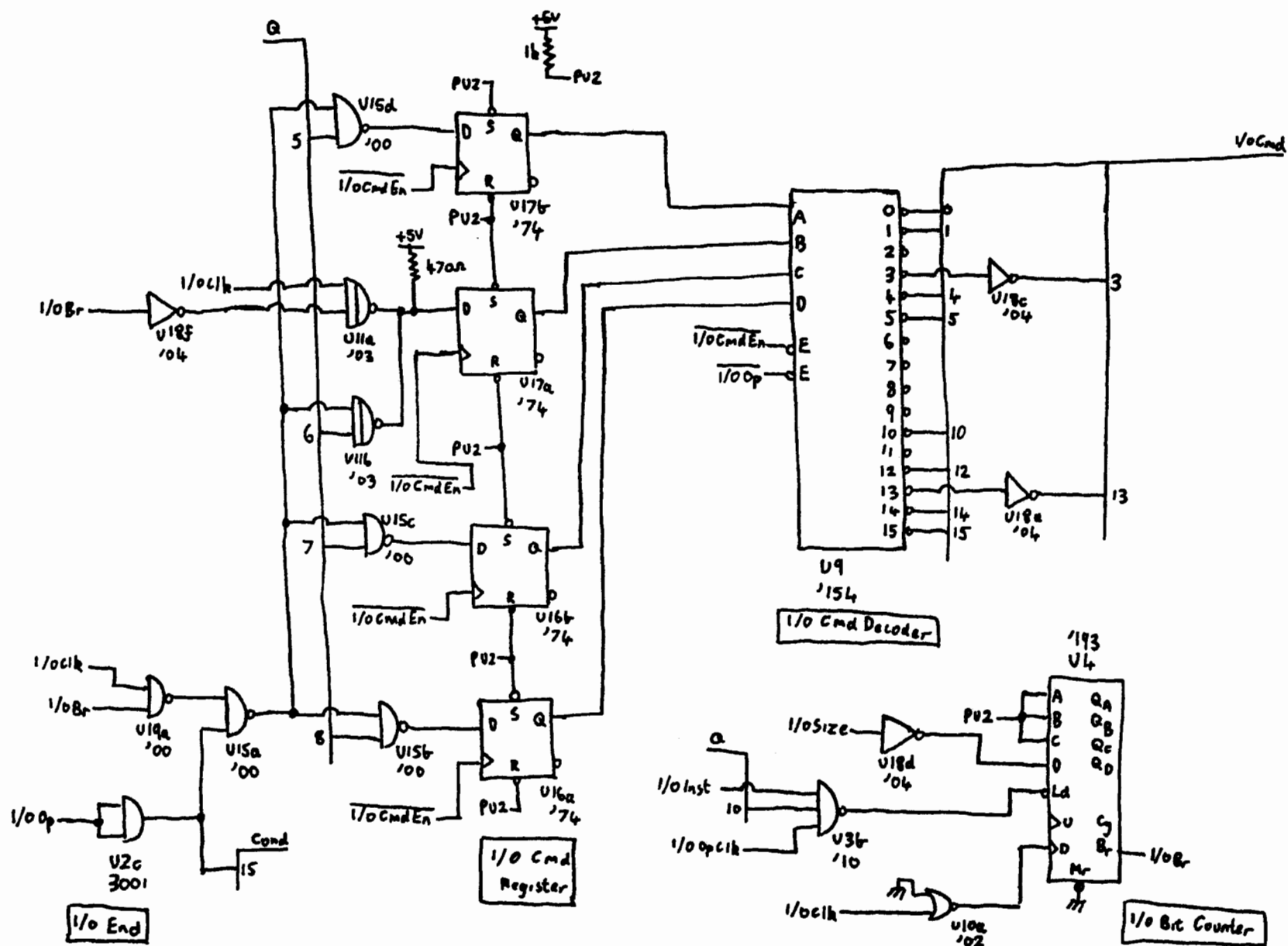


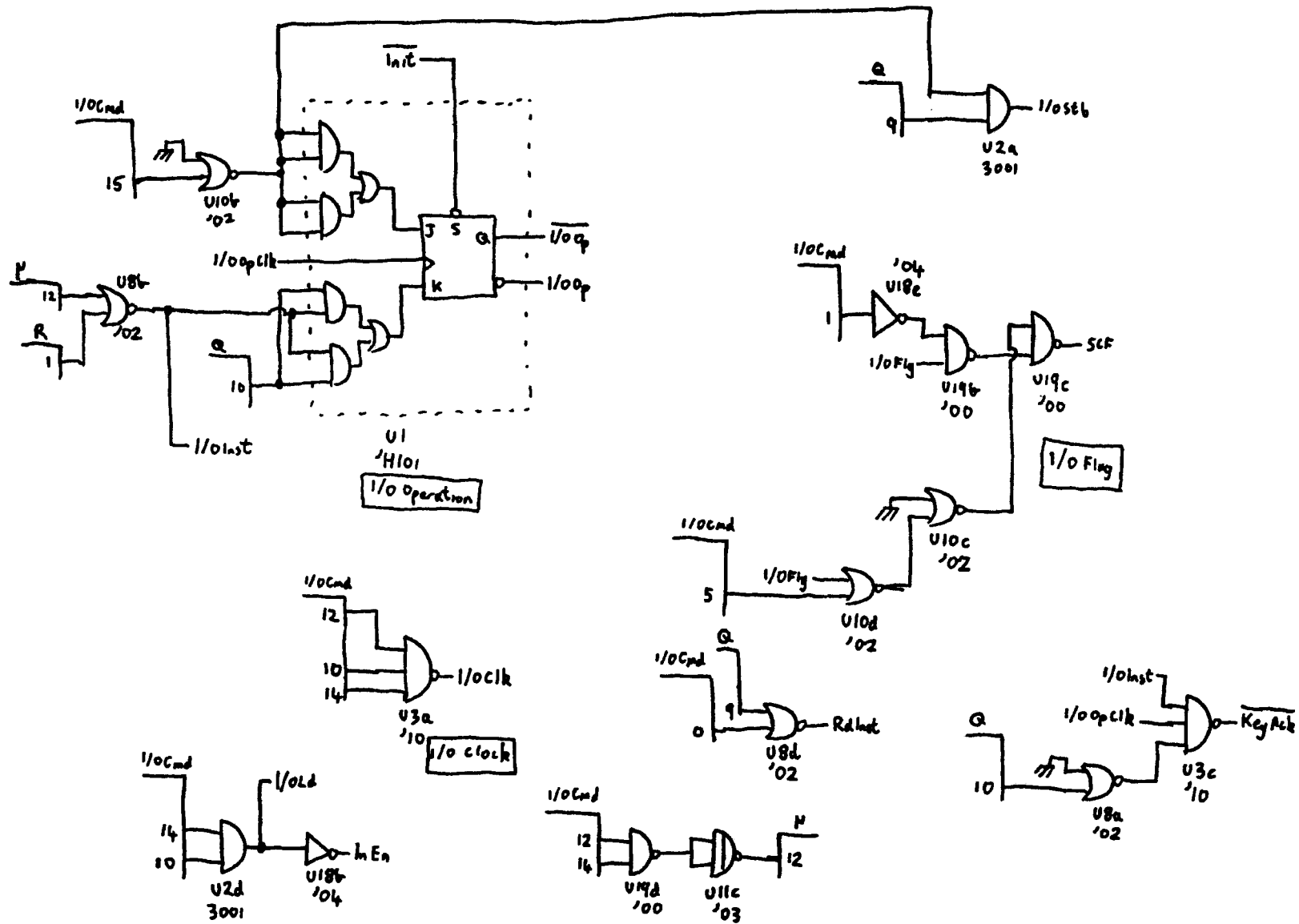


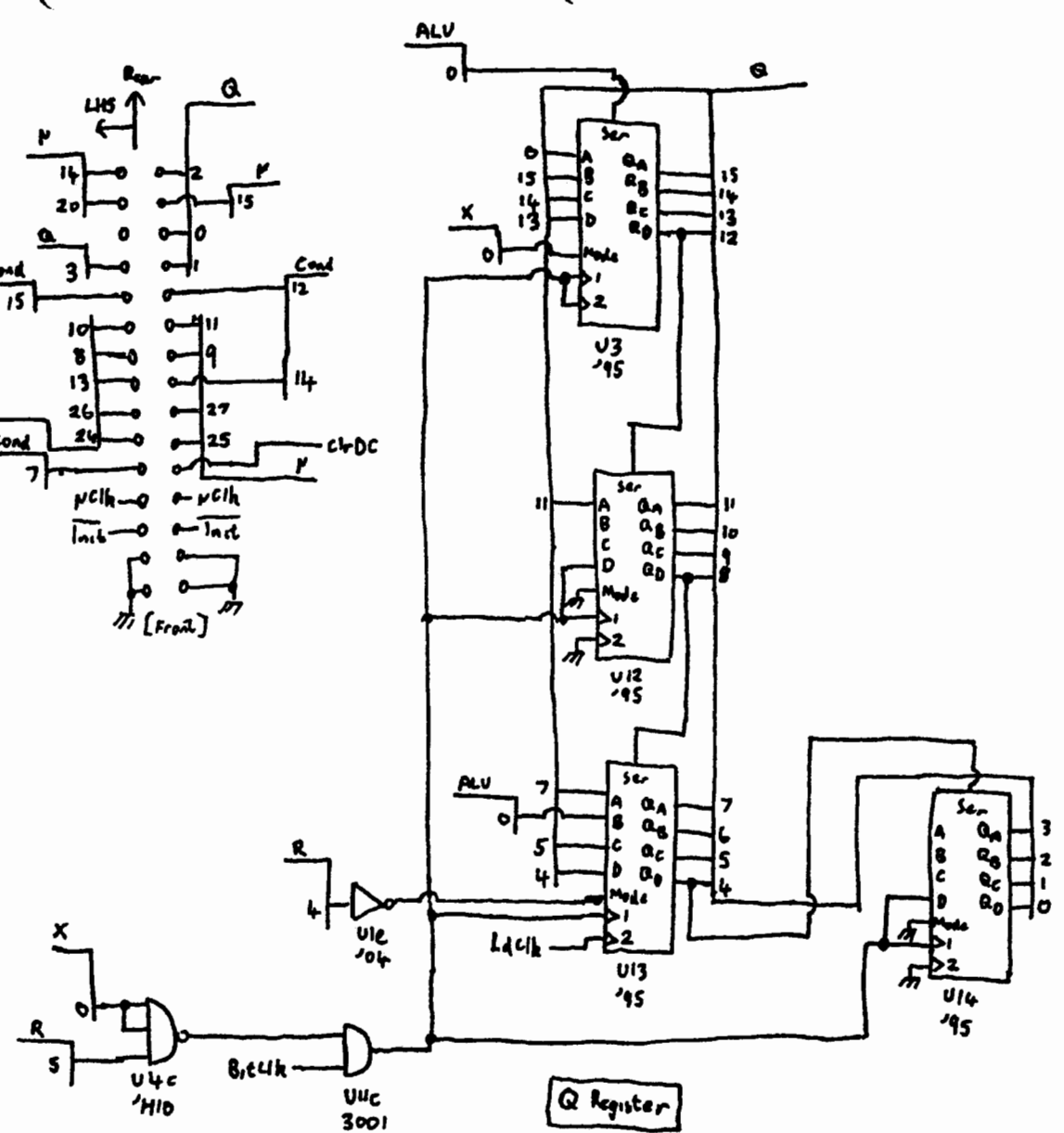
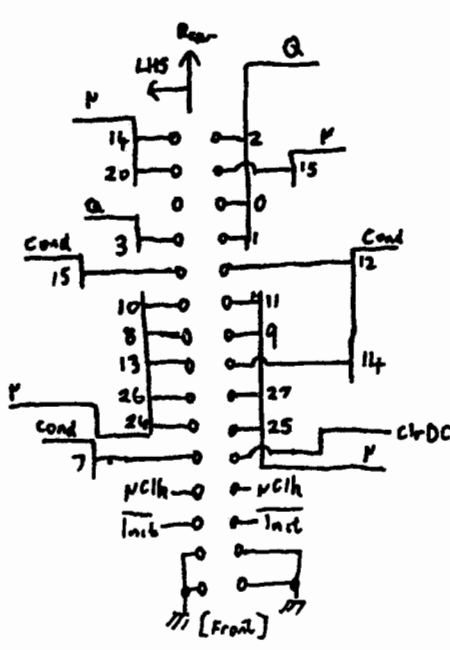
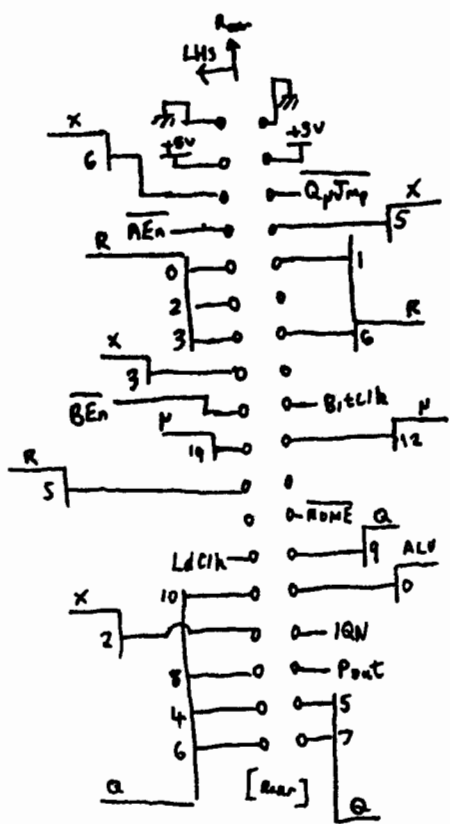


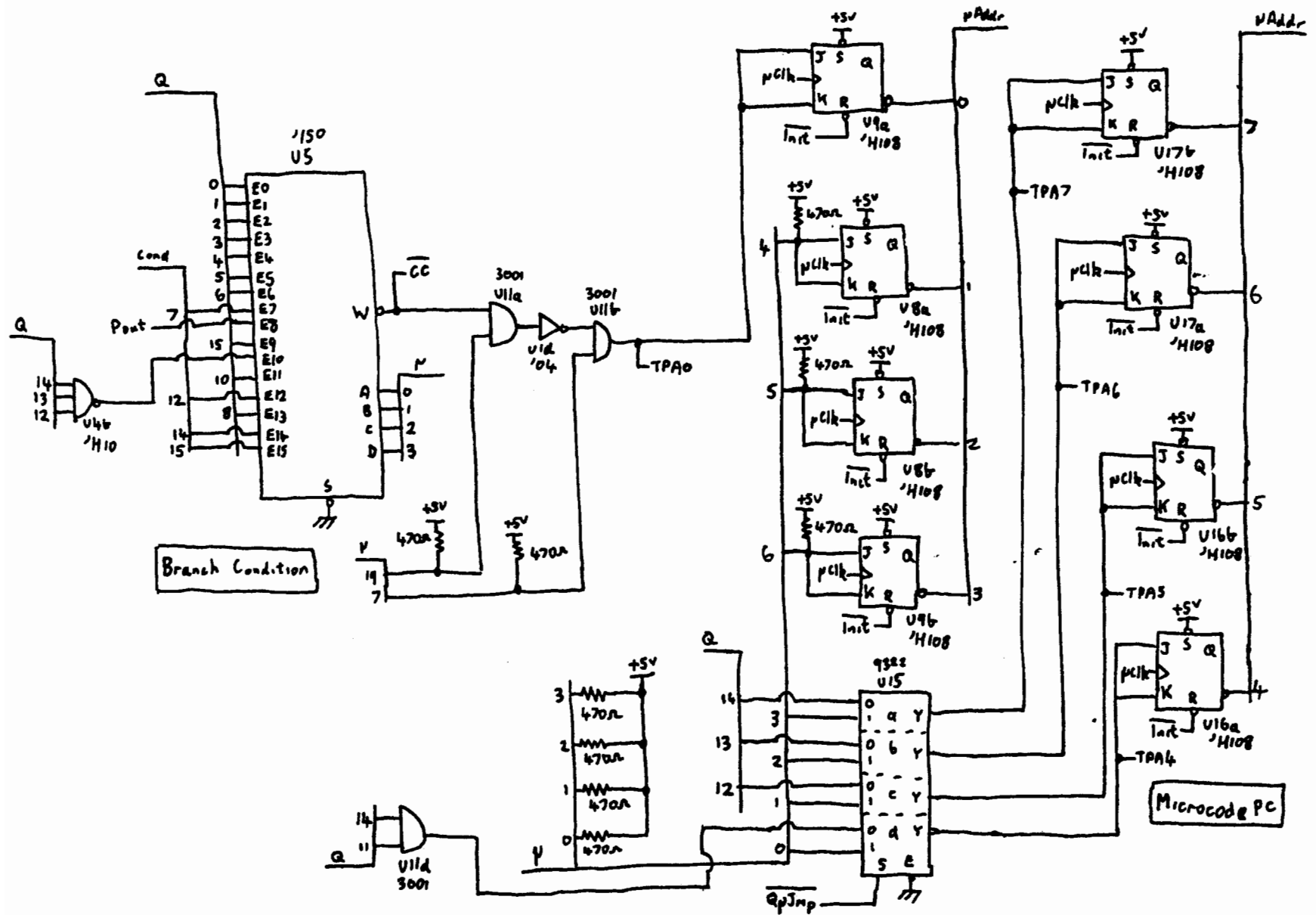


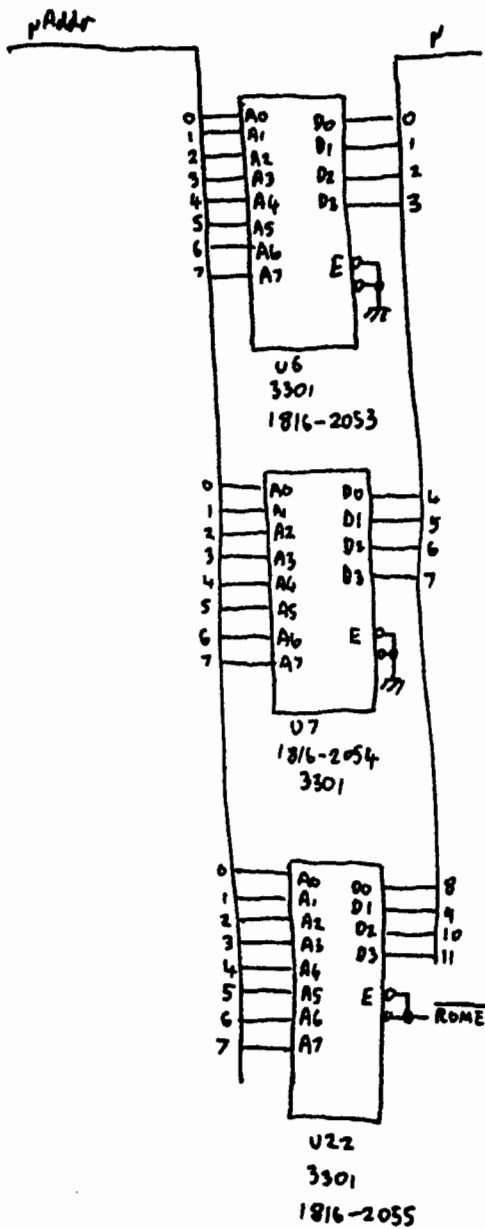




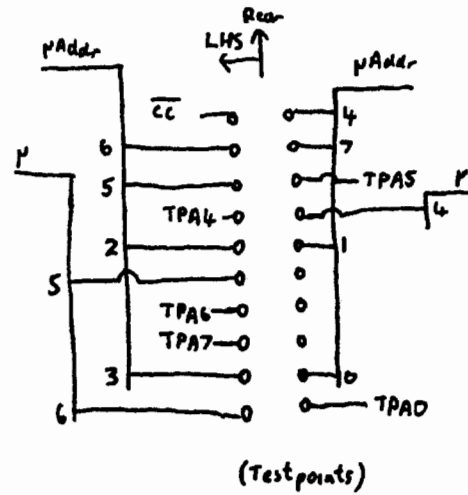
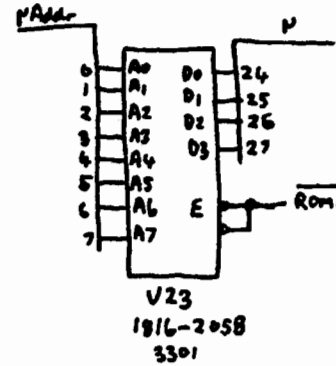
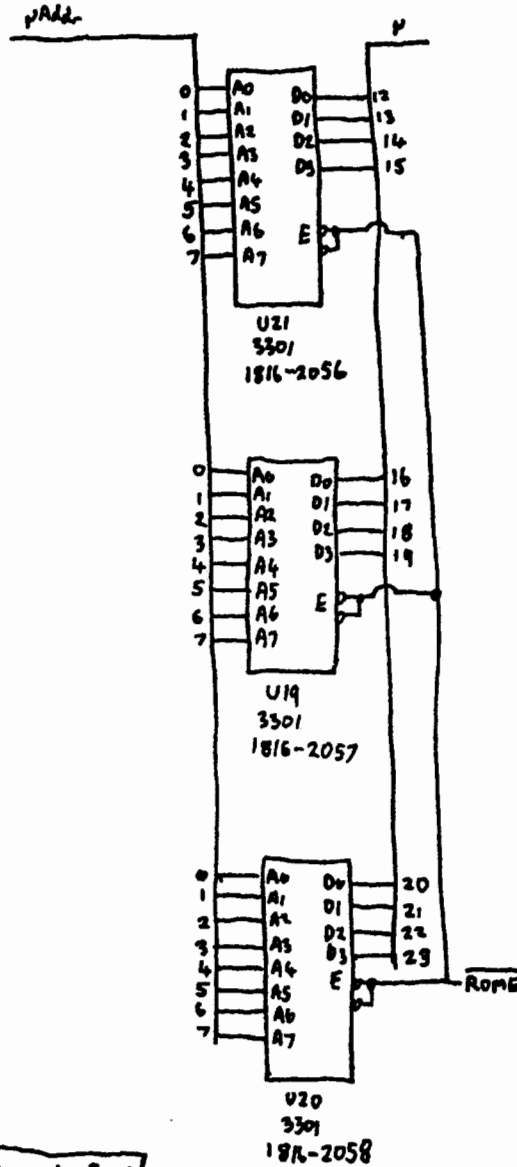


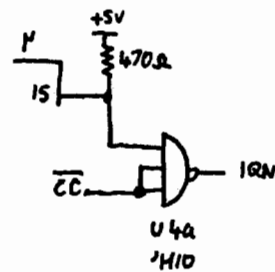
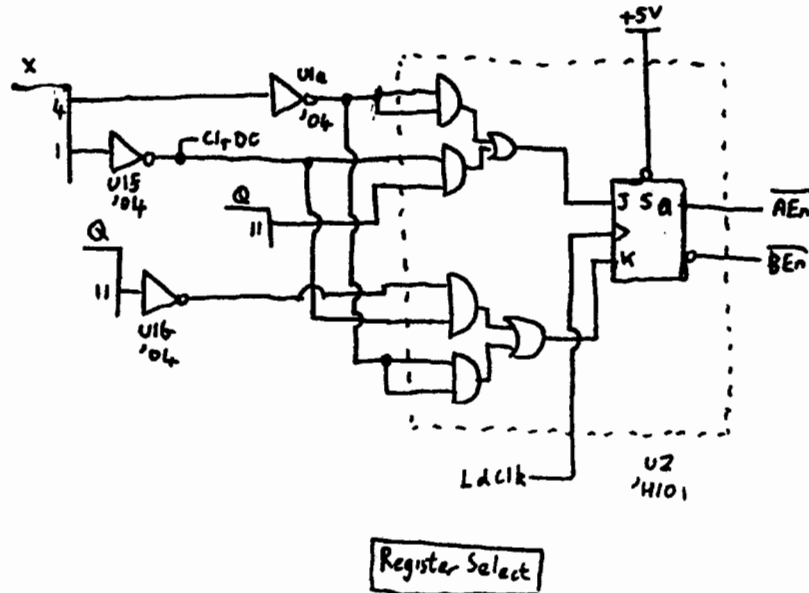
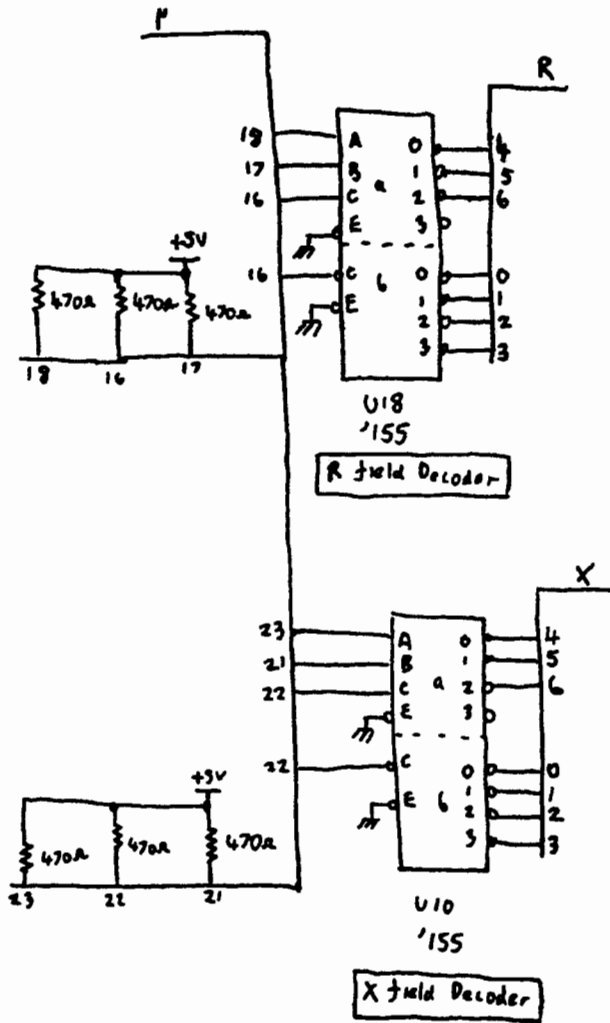


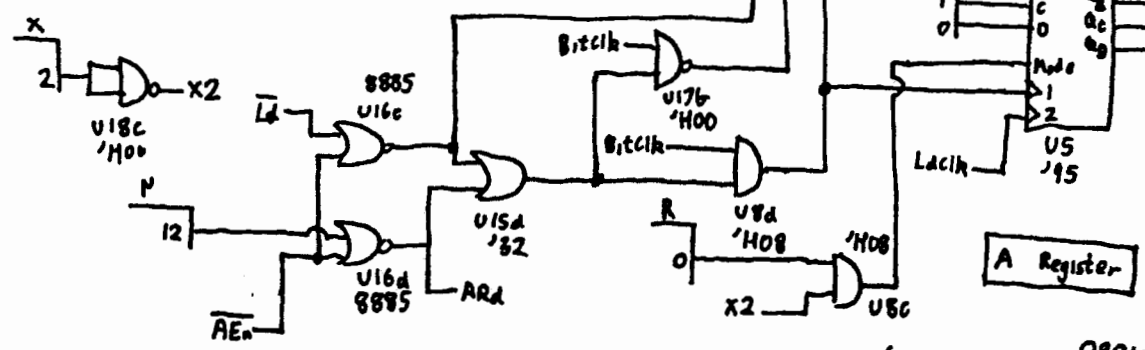
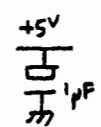
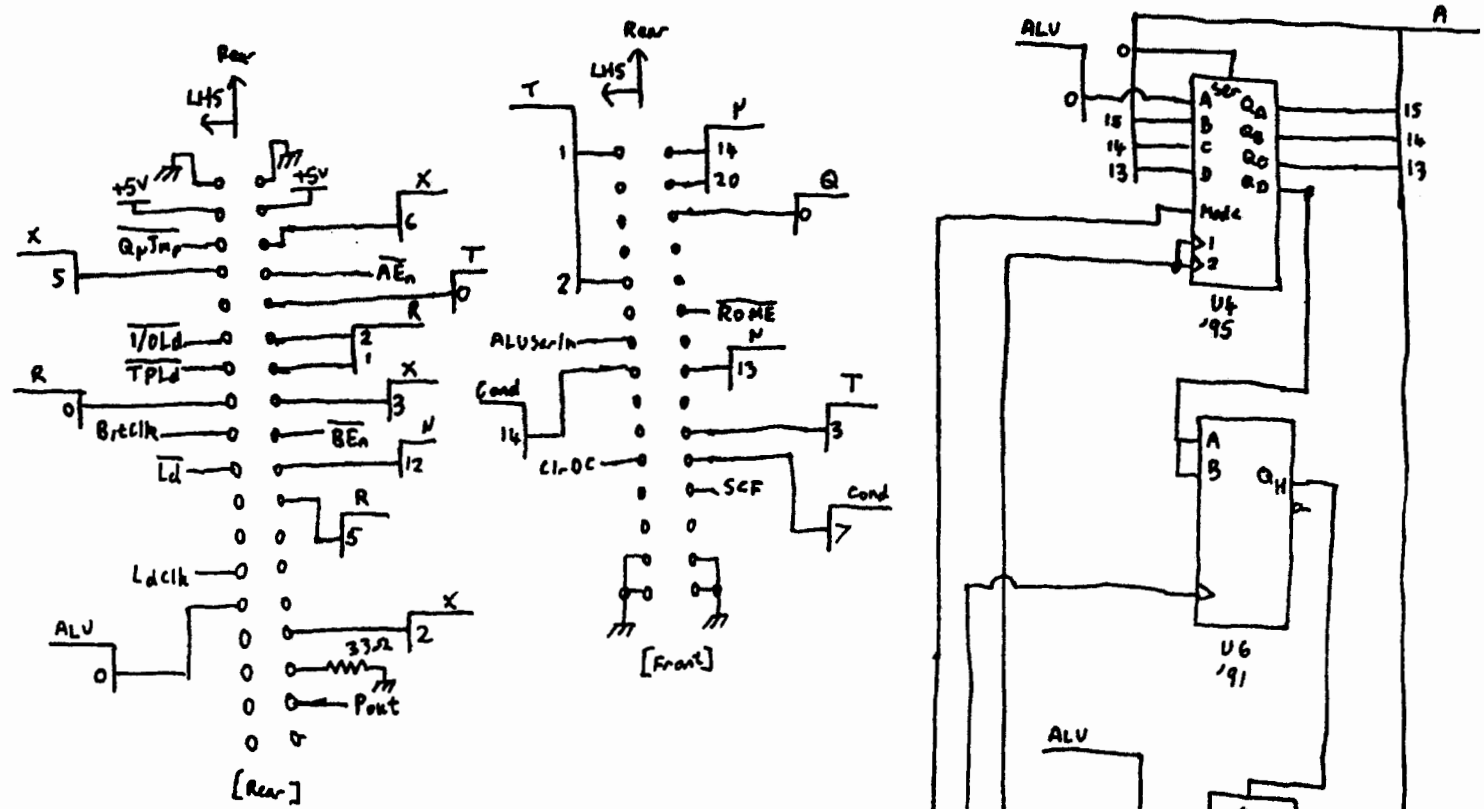


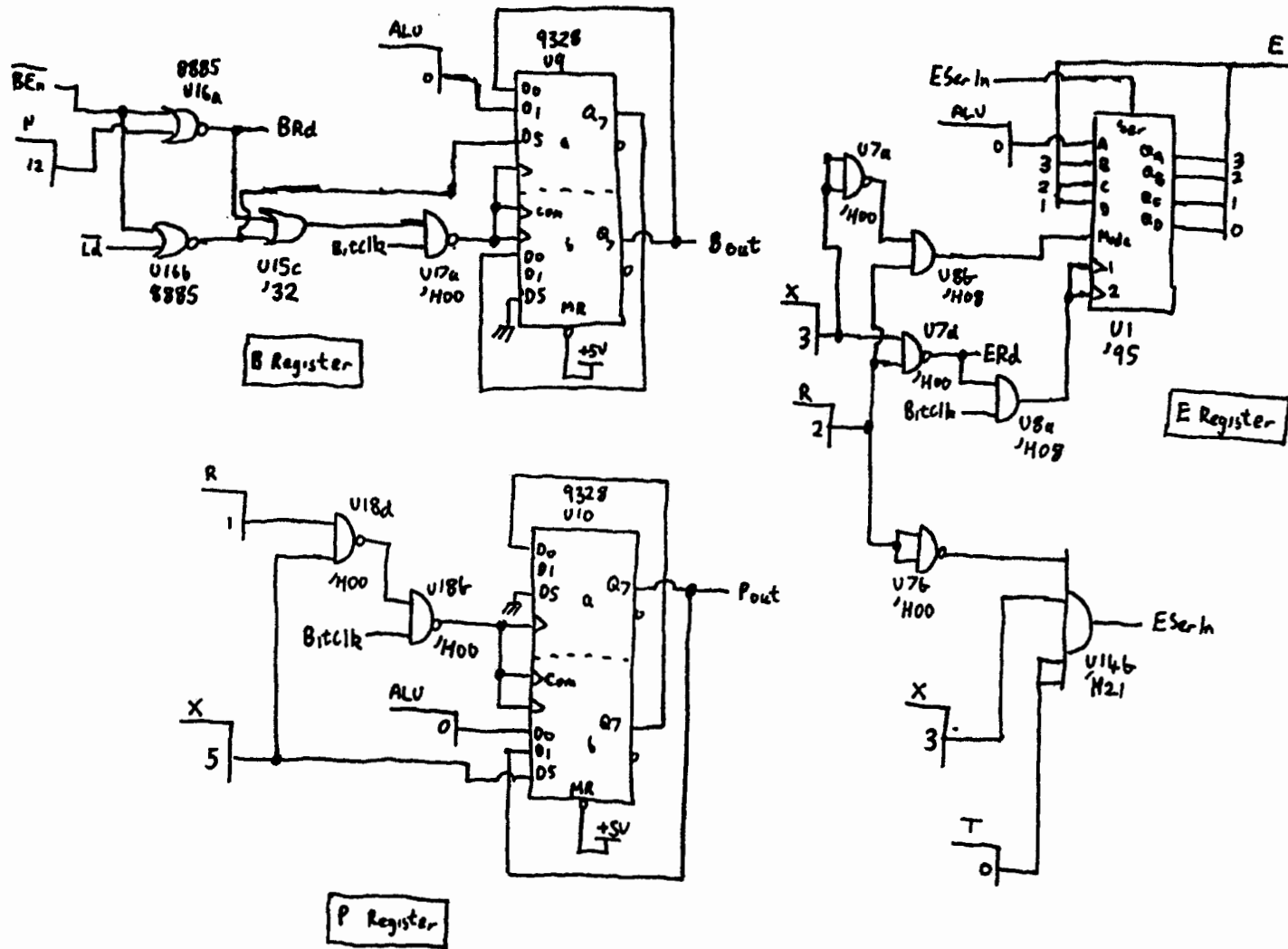


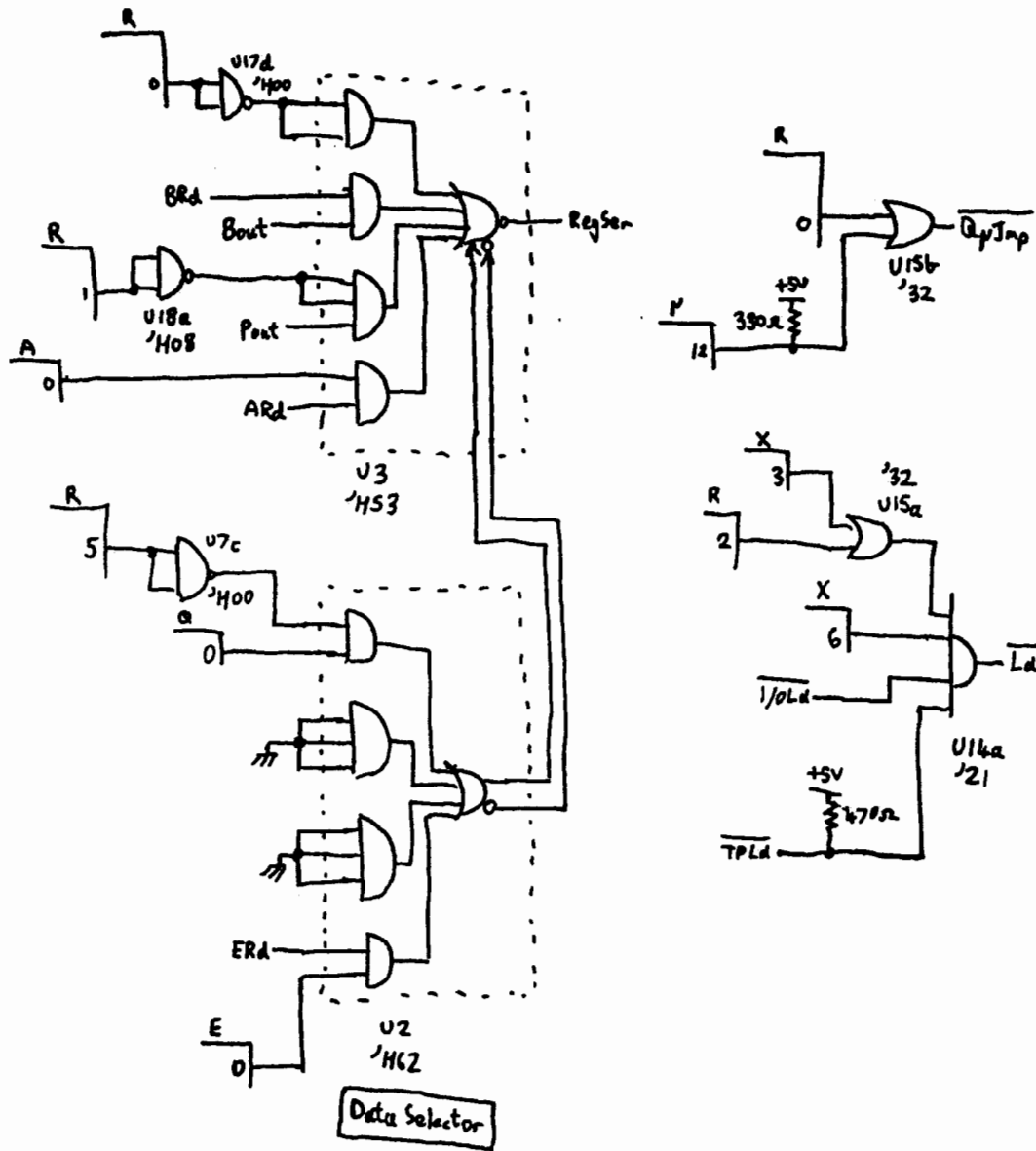
Microcode ROM

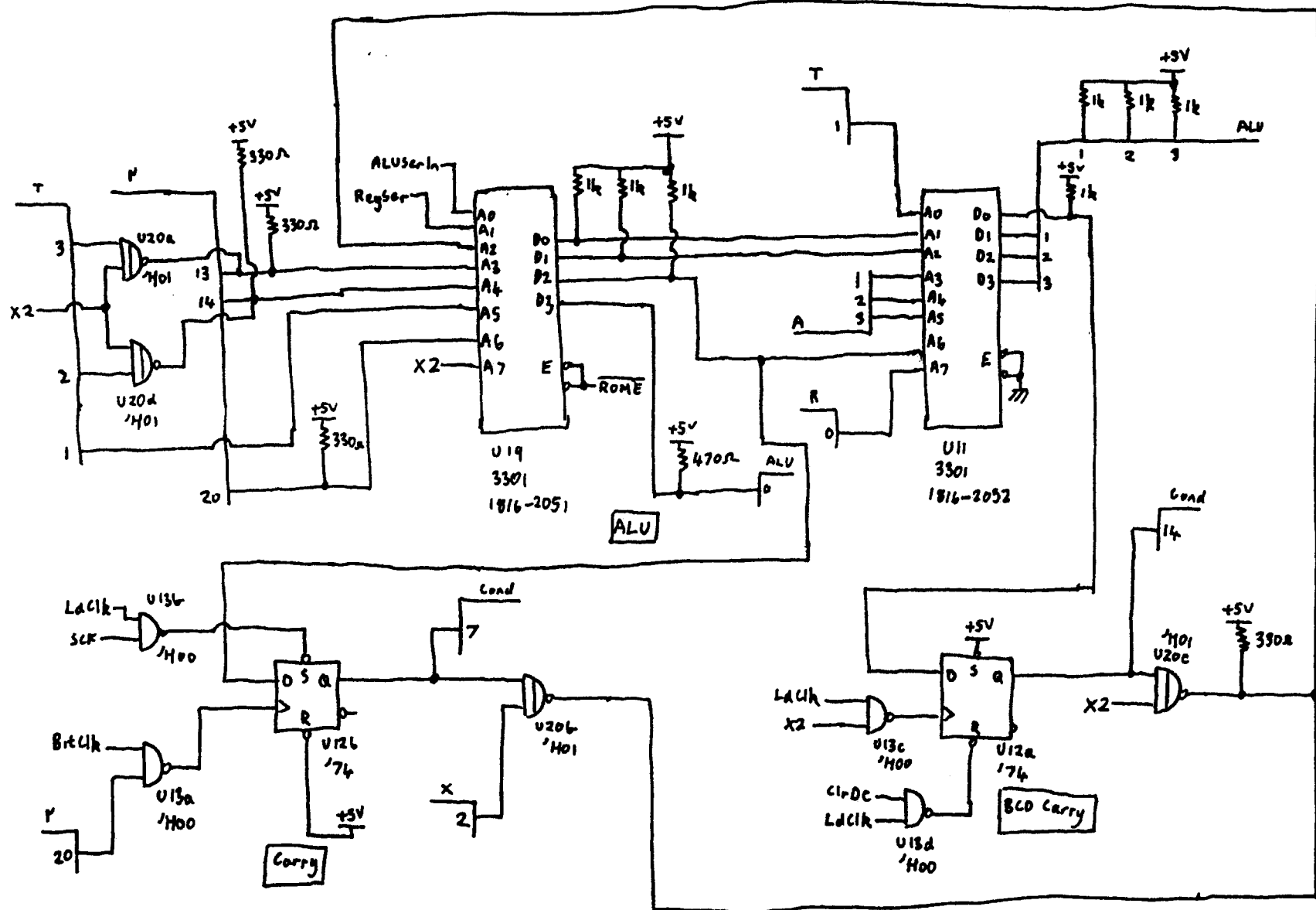




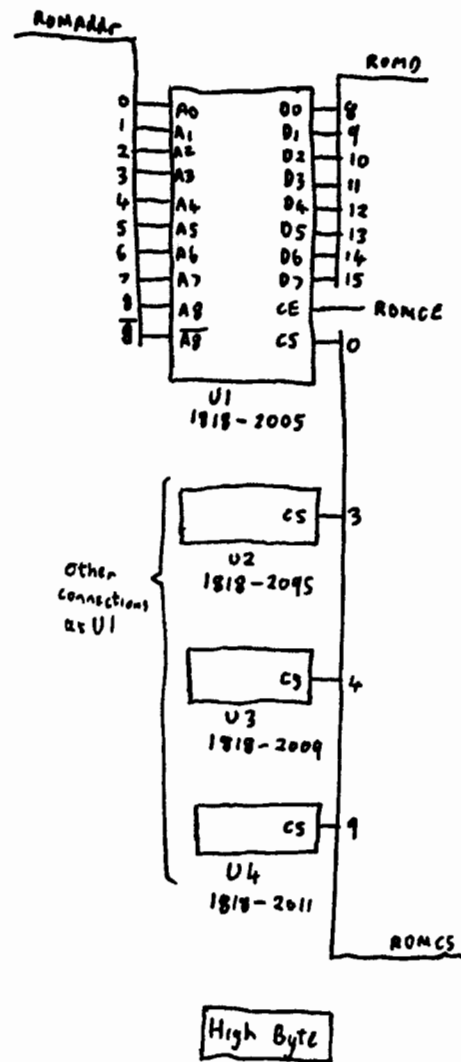
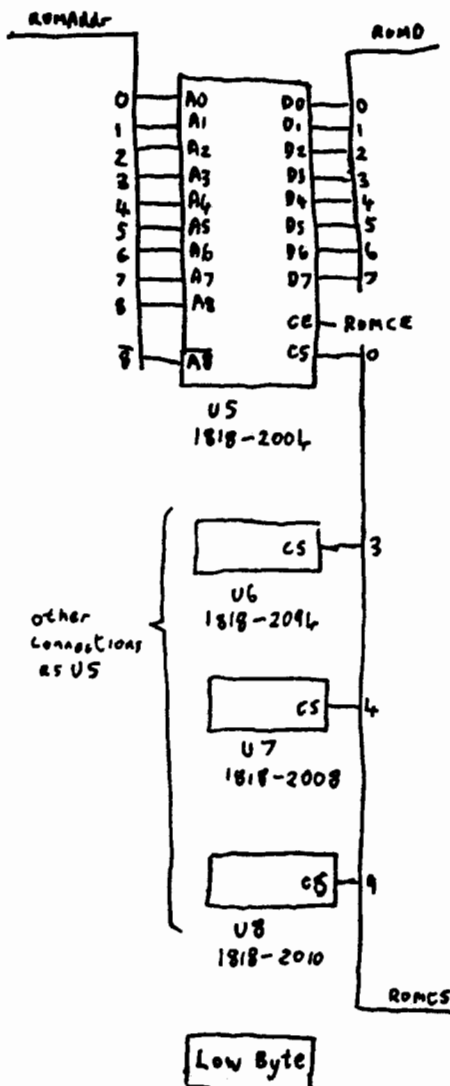
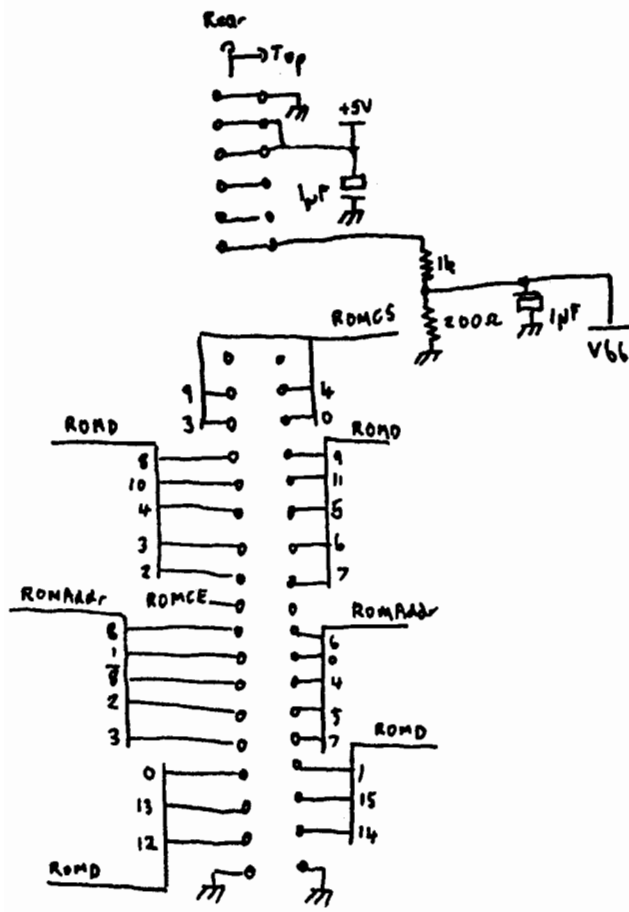


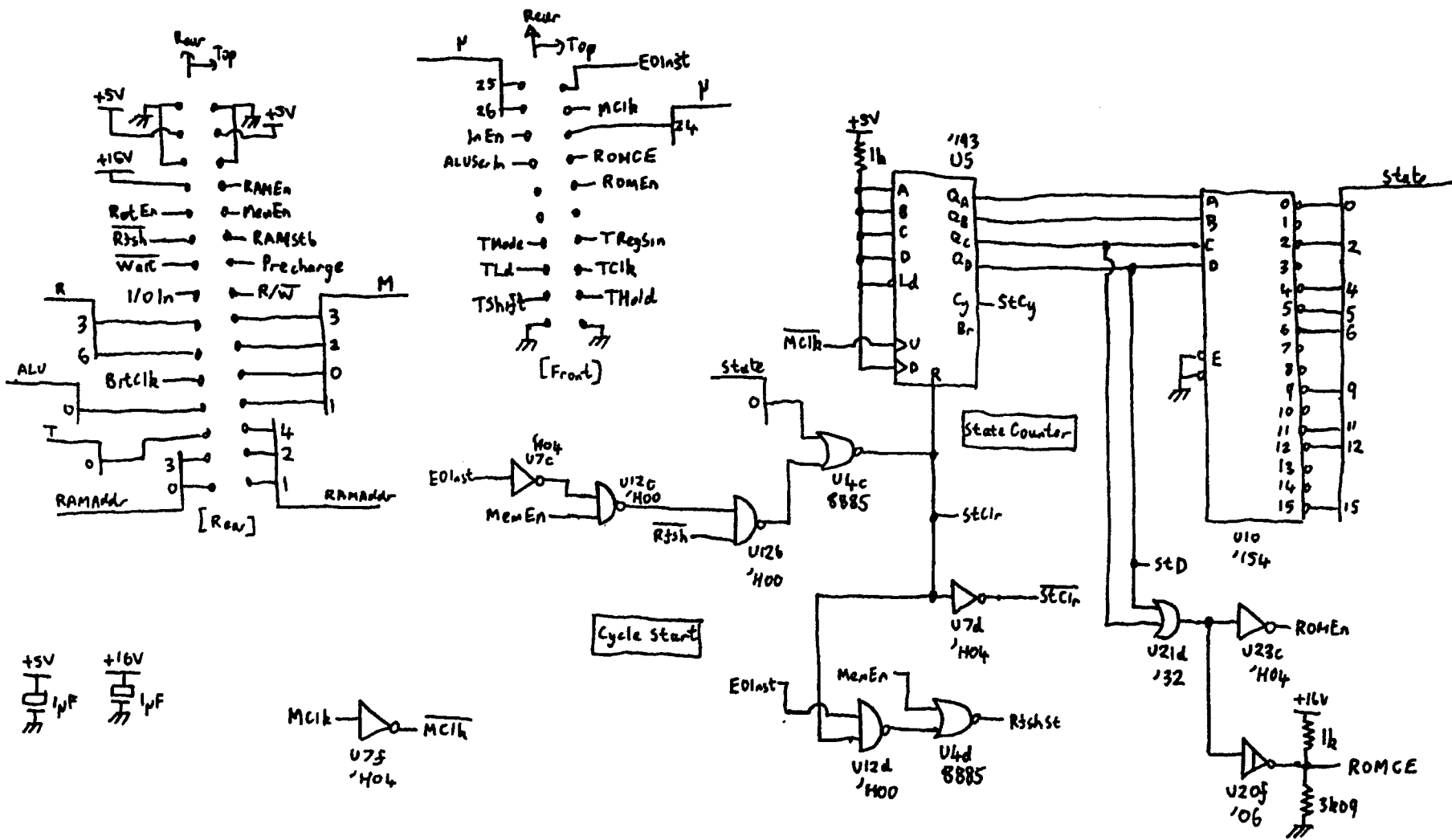


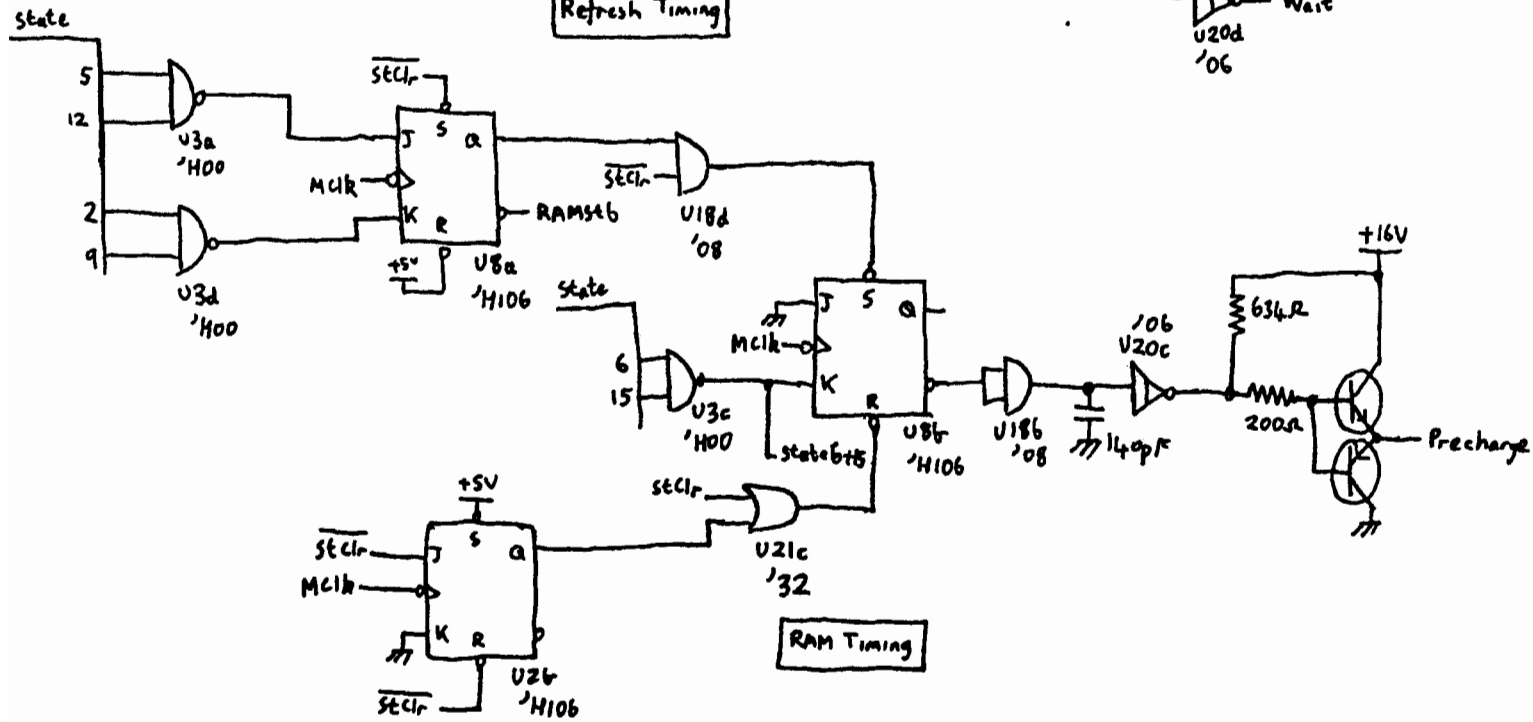
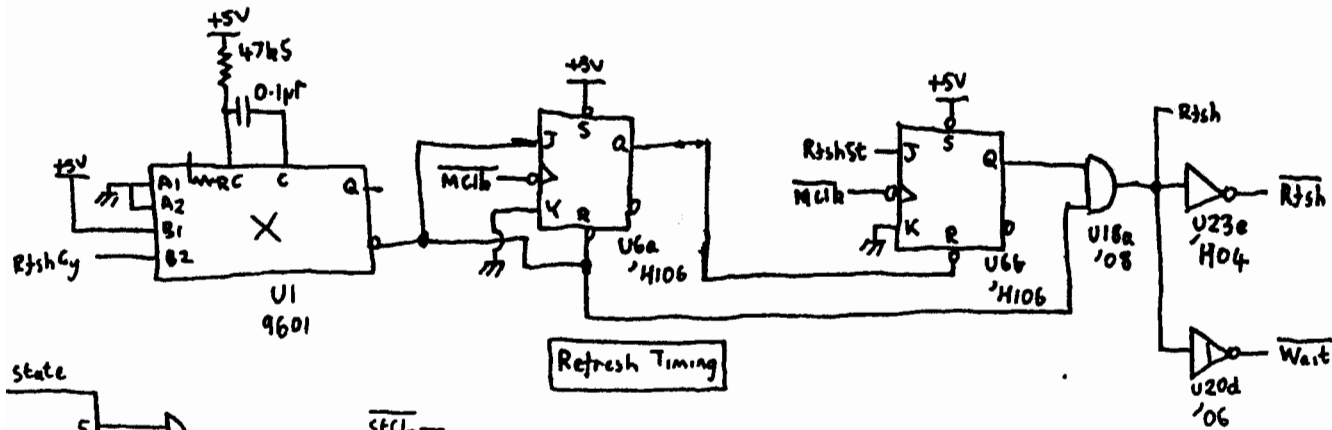


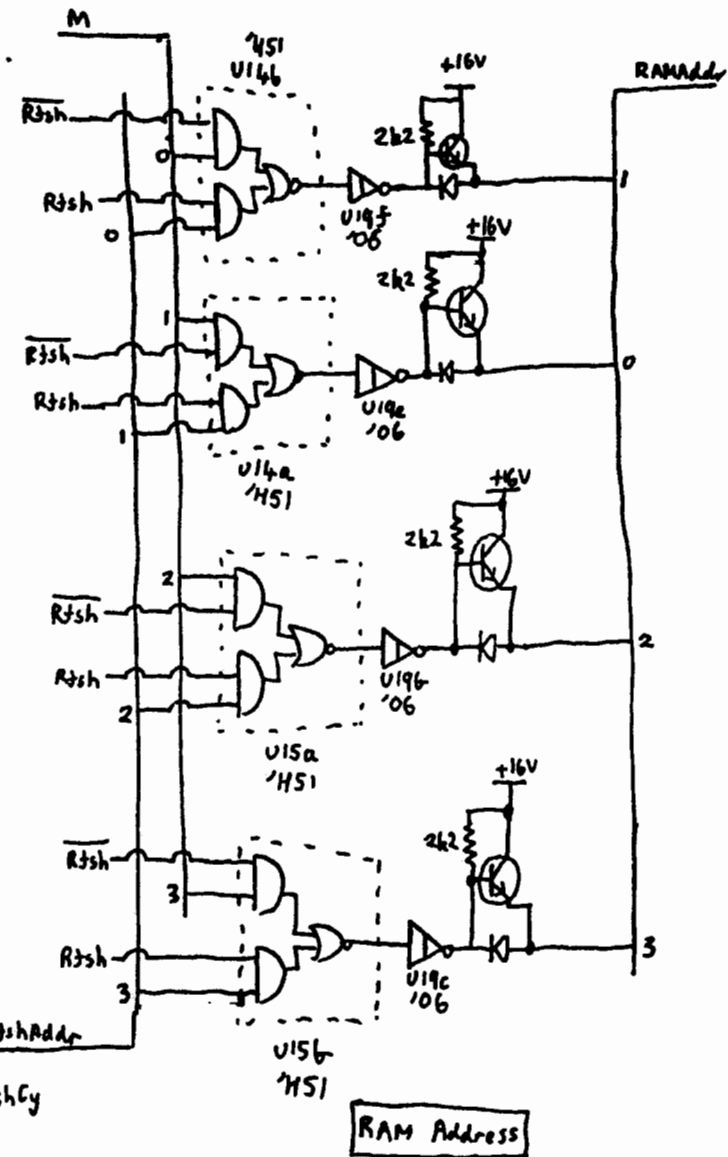
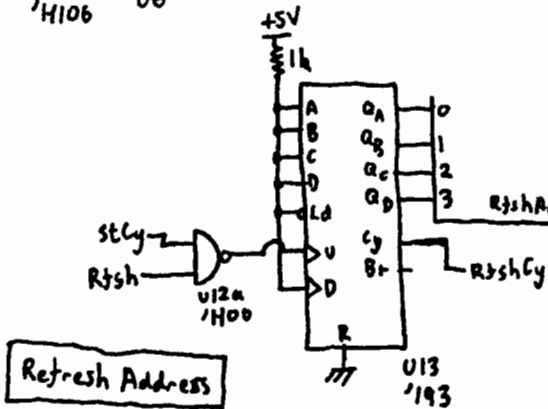
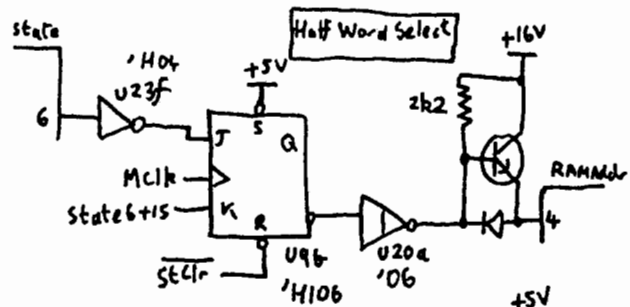
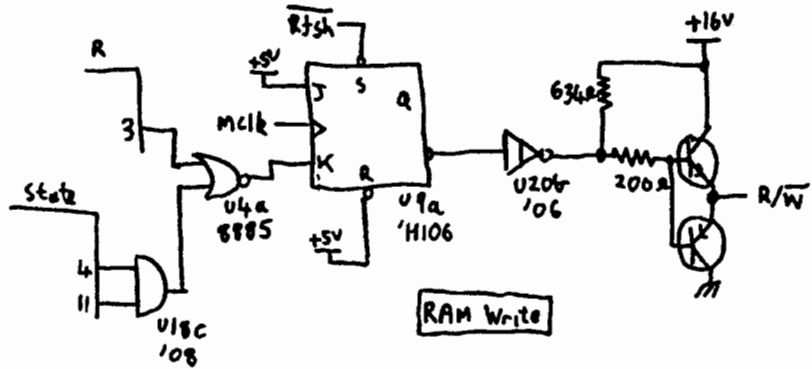


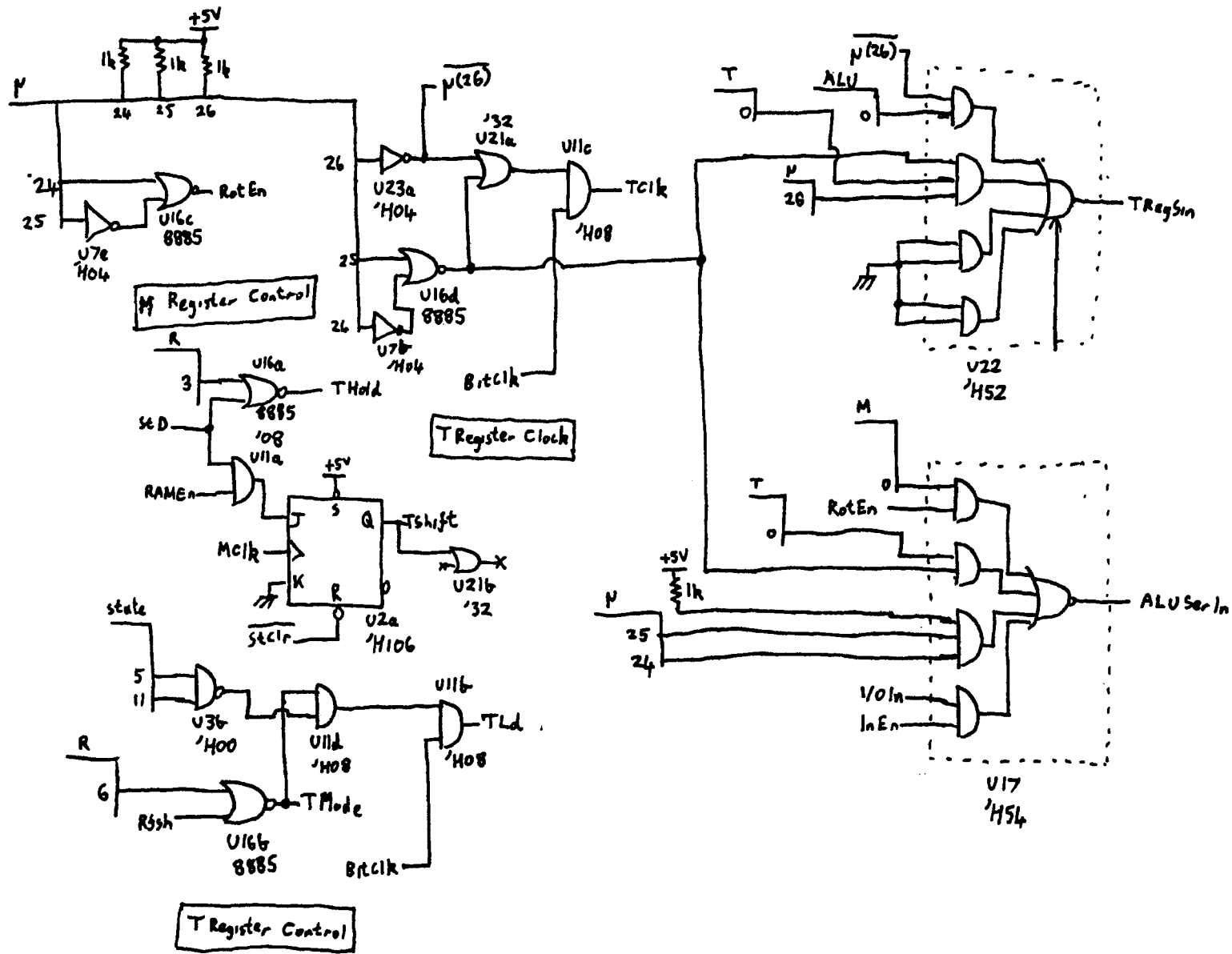
HP9810 Data Path Sheet (4) (R/Y) 04810-66514

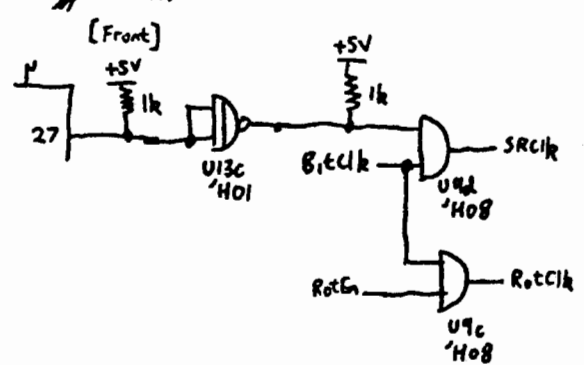
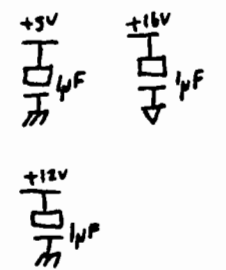
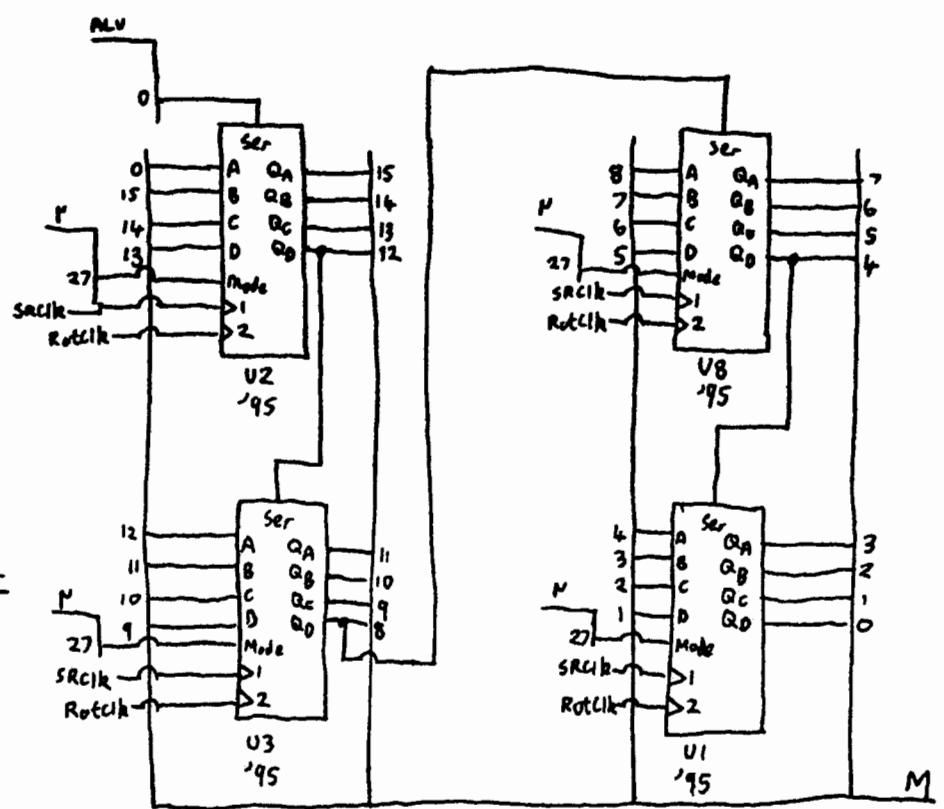
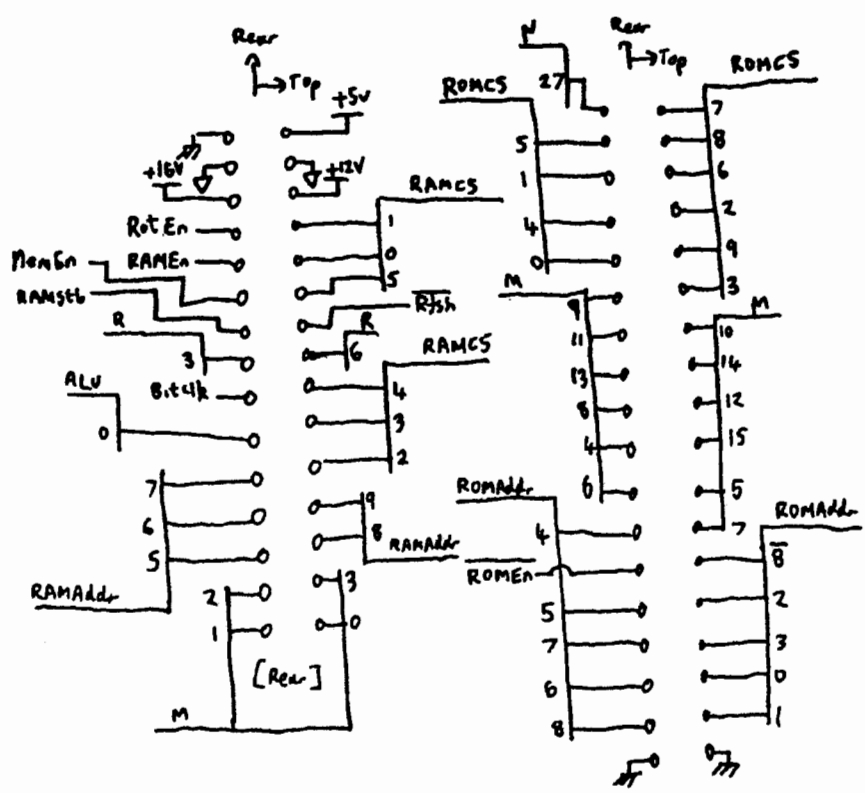




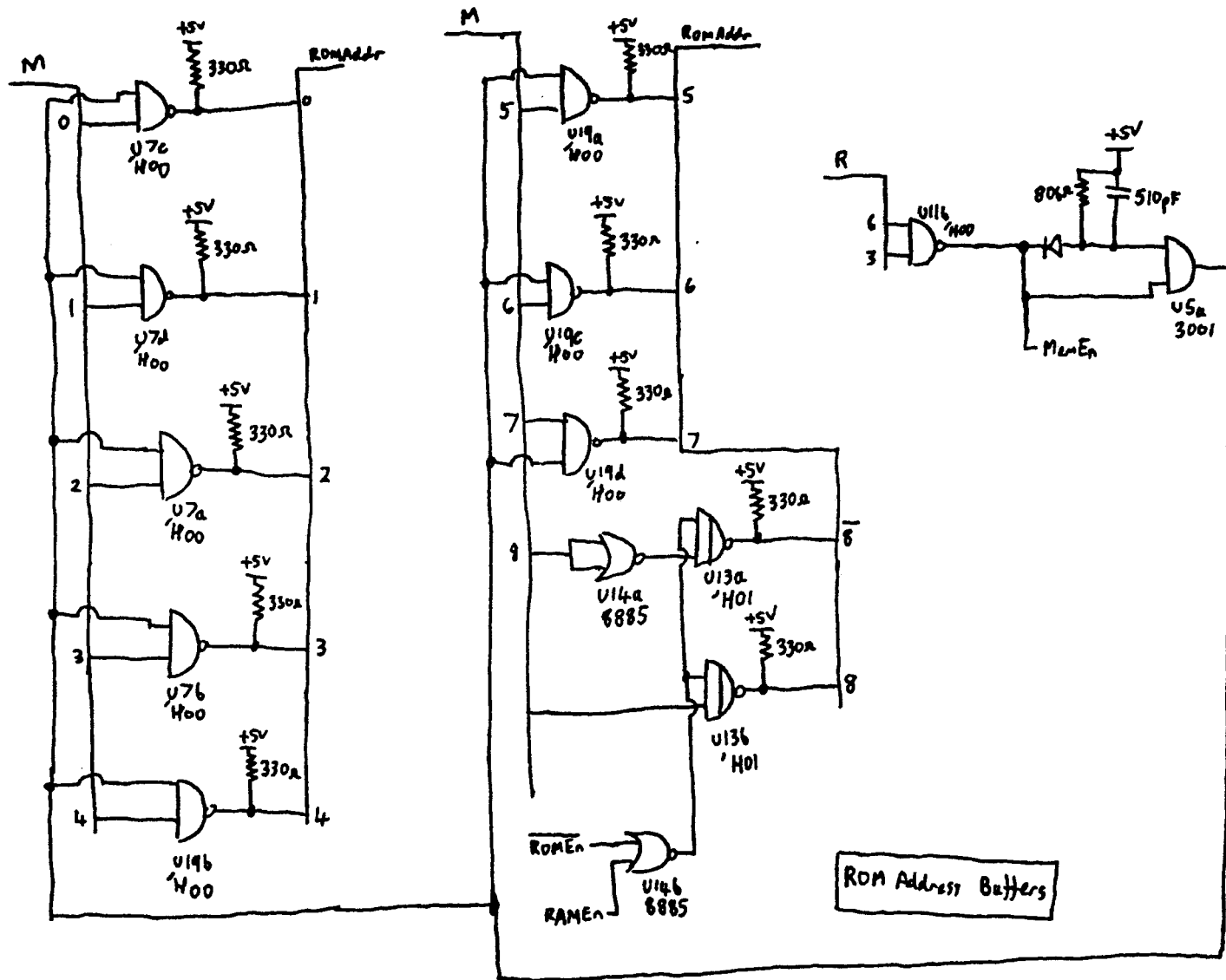


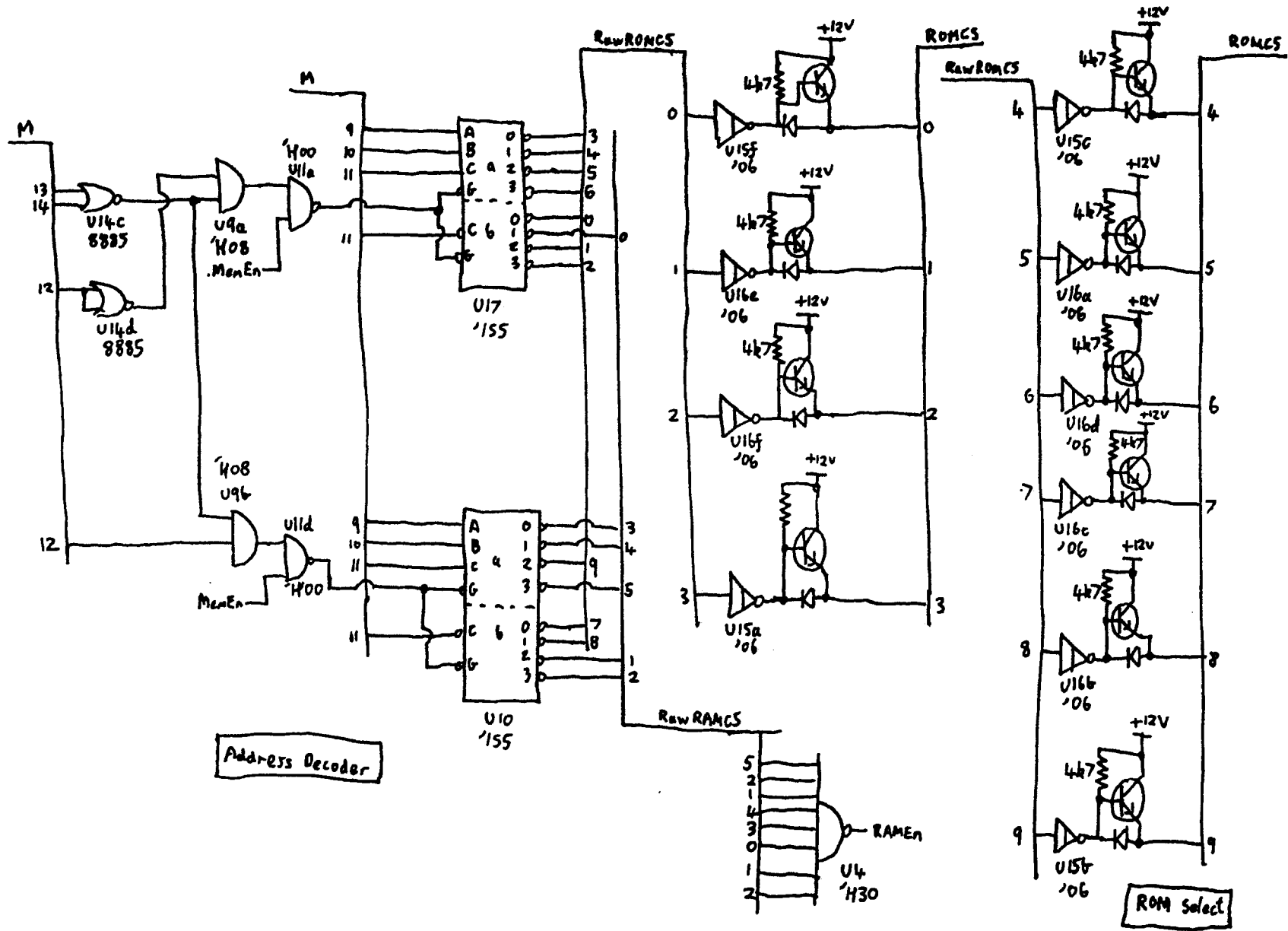


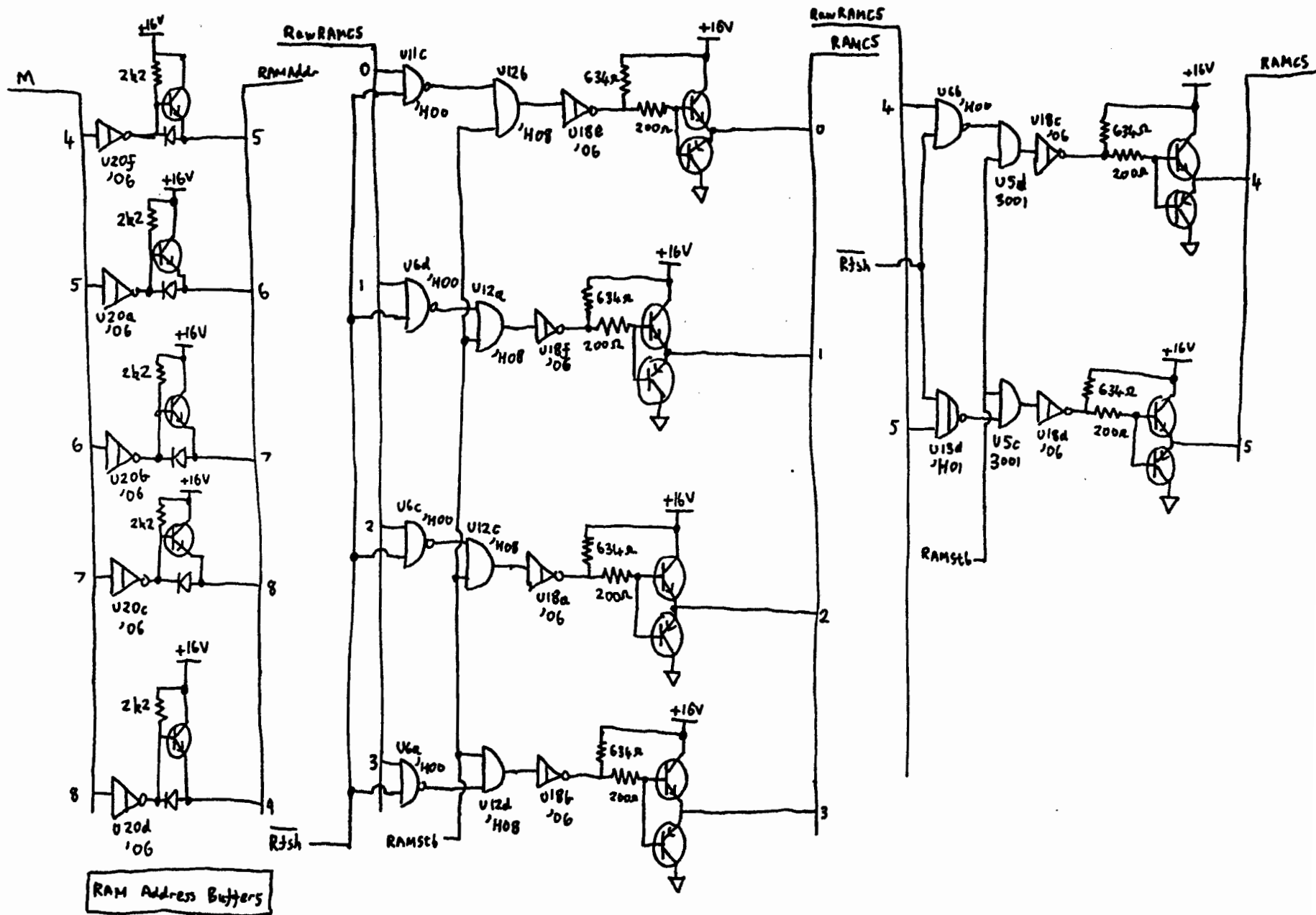




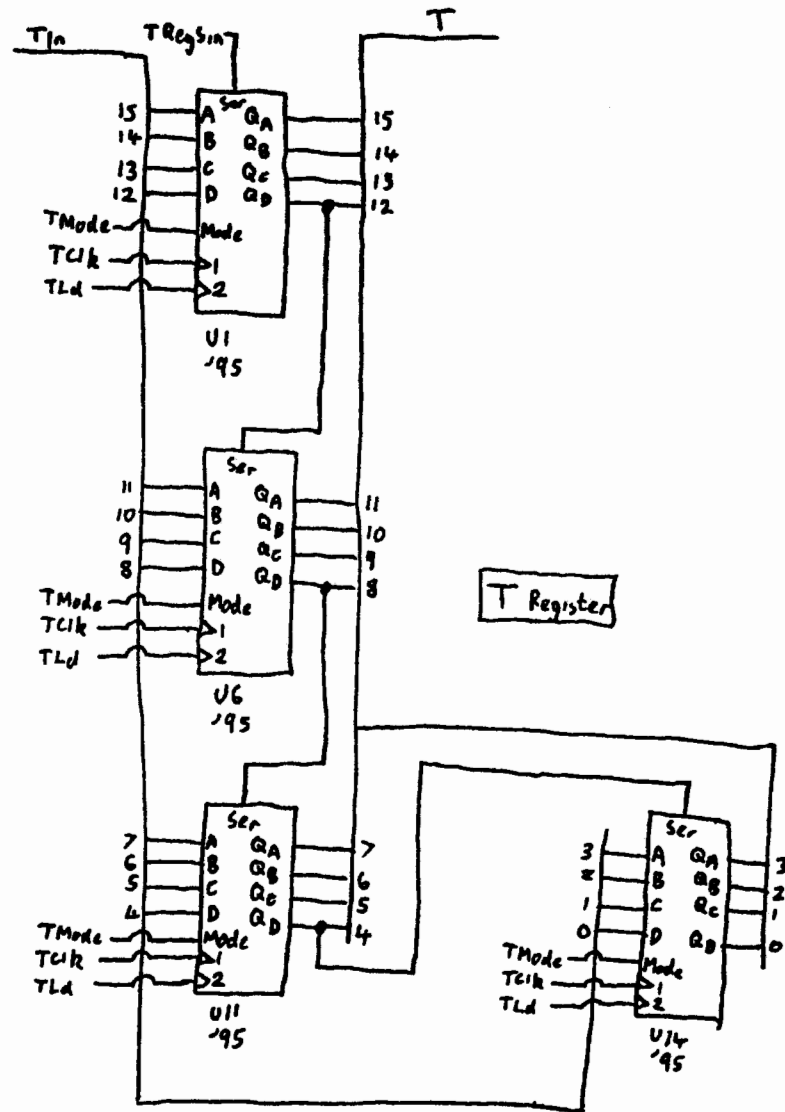
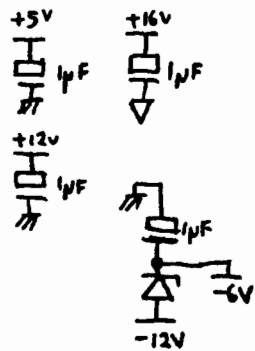
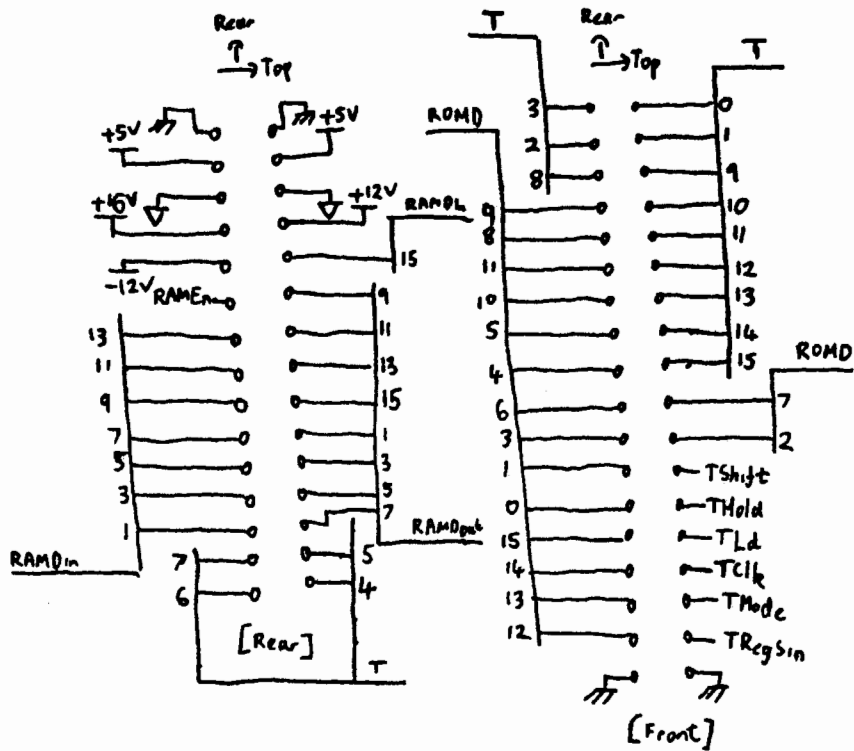
M Register

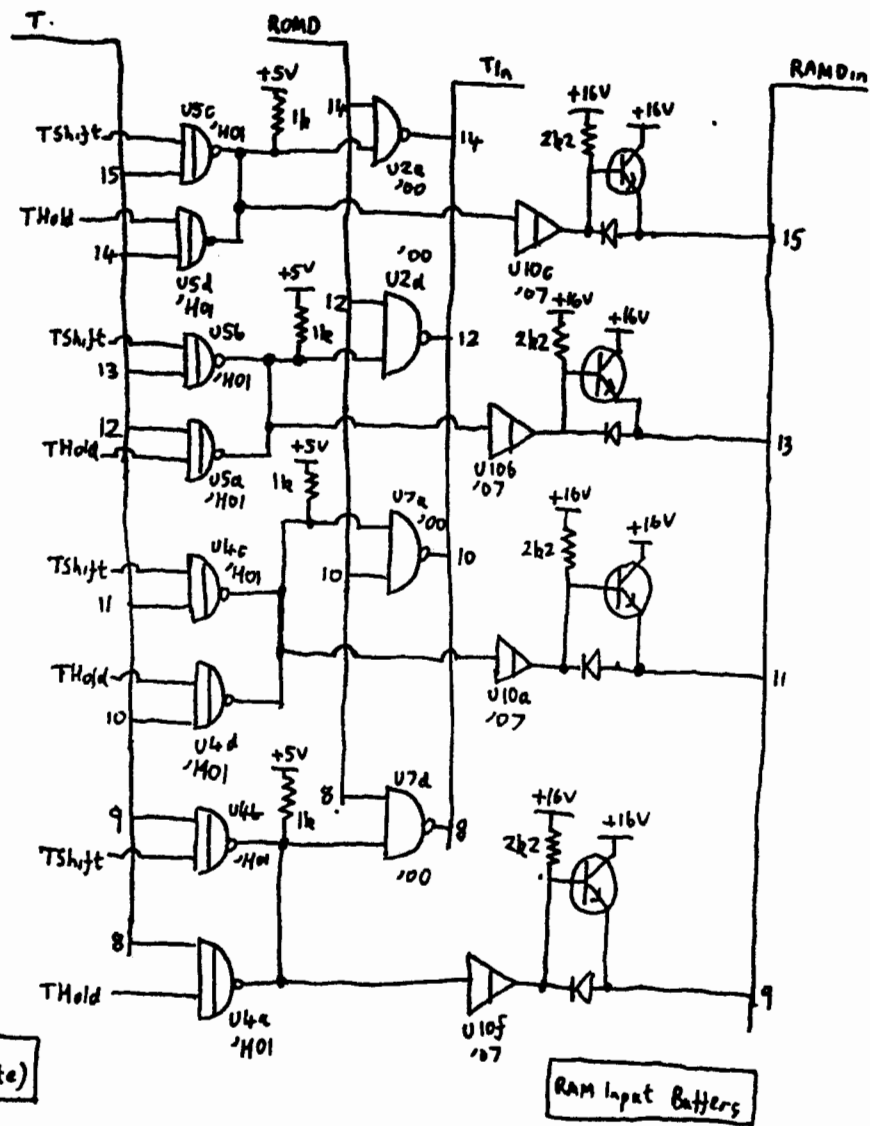
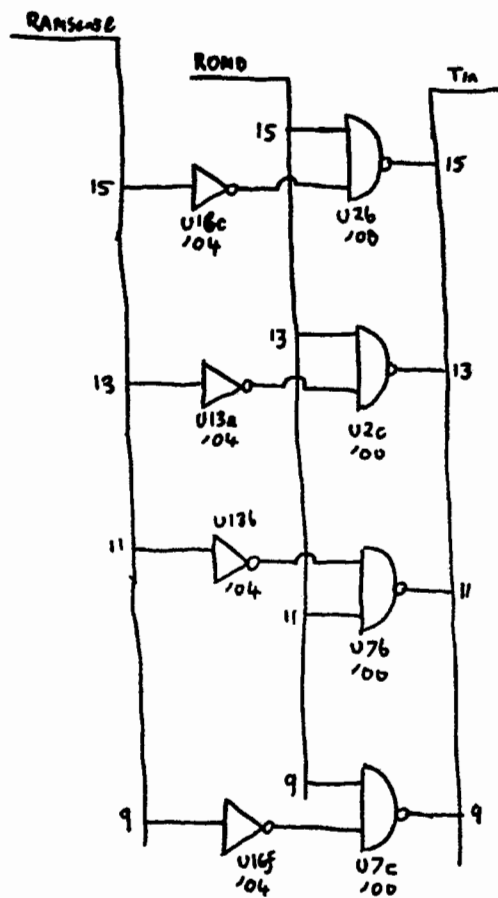


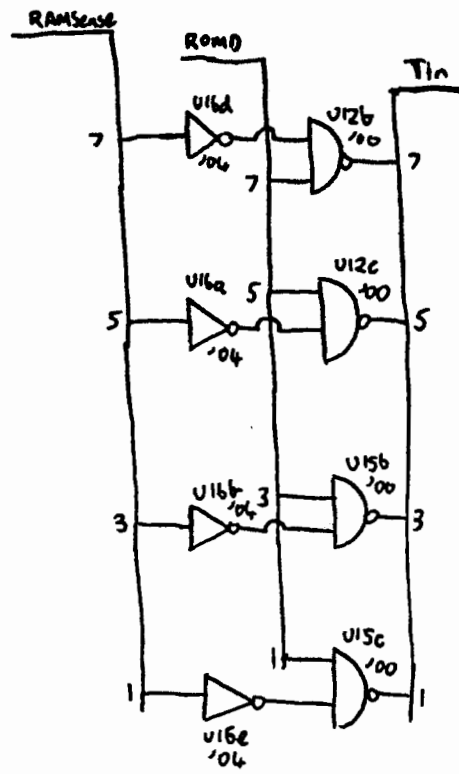




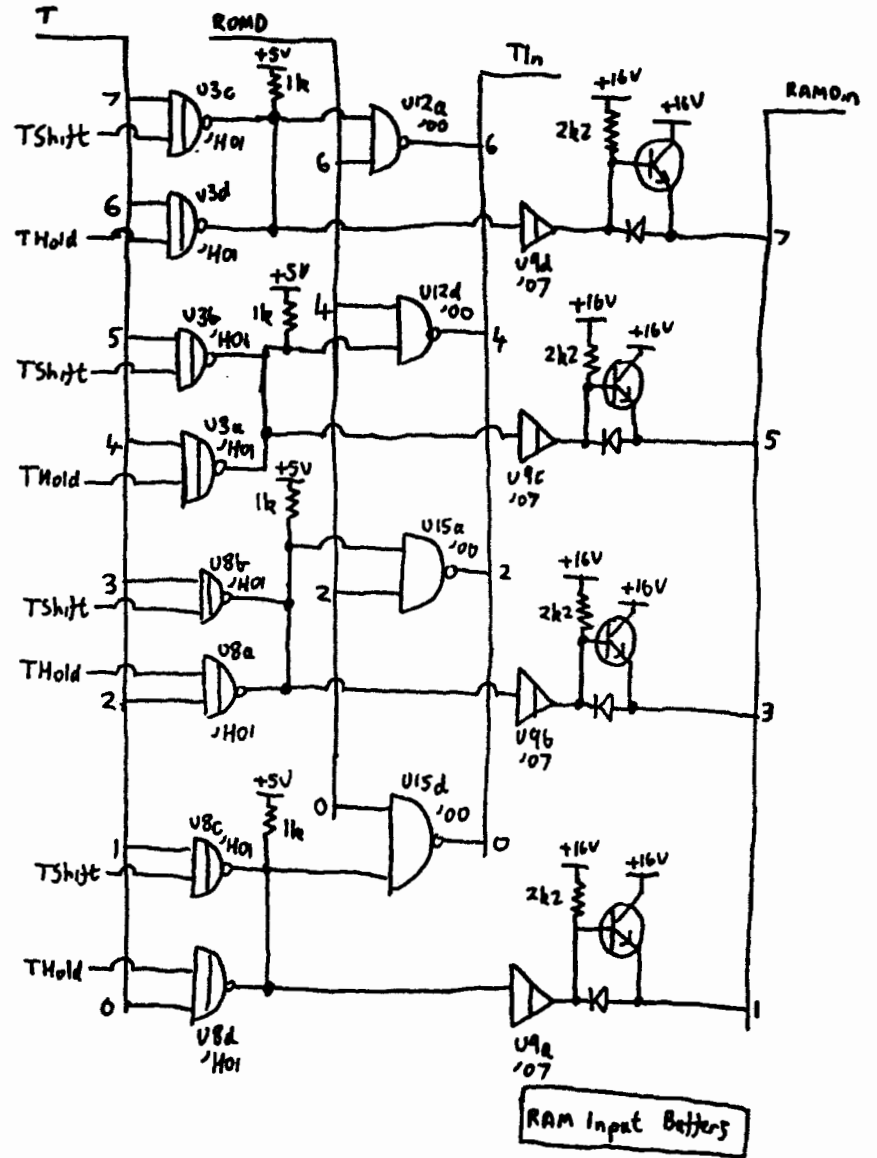
HP9810 Memory Address PCB sheet (4) (R/O) 09810-66523



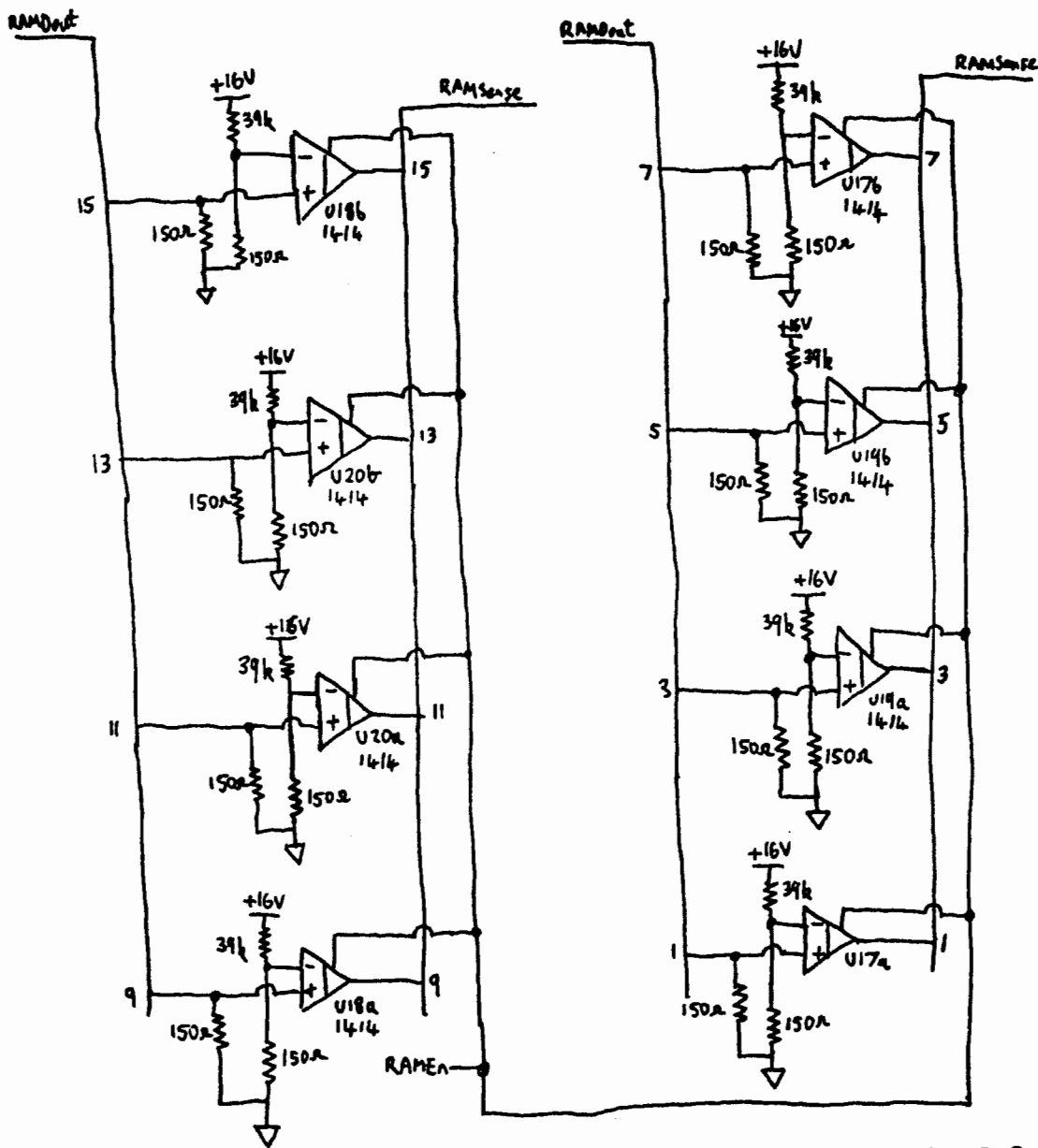




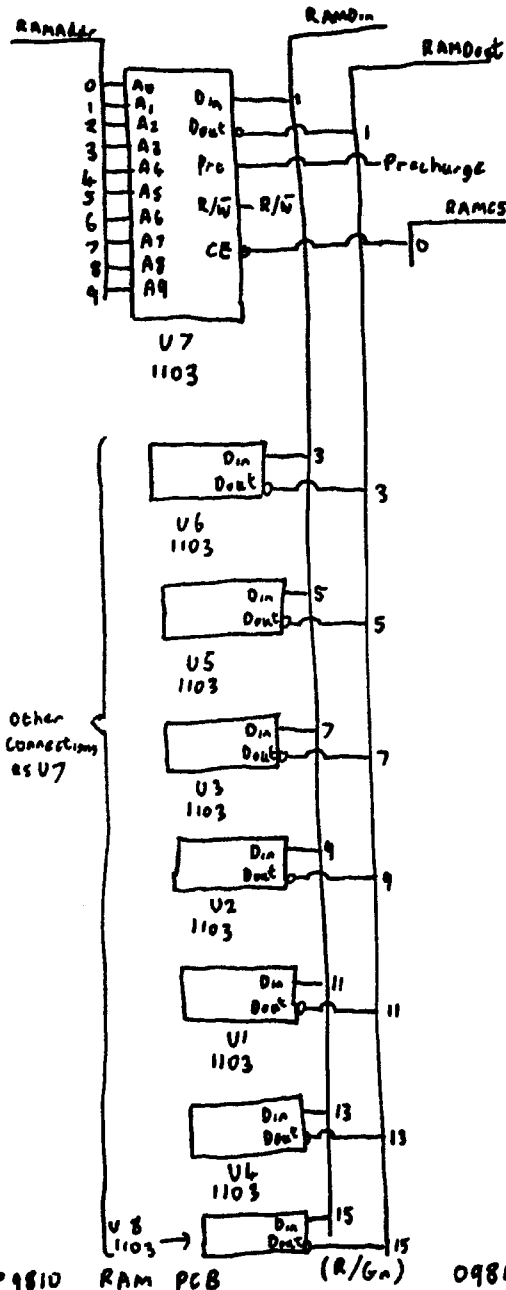
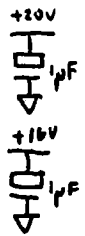
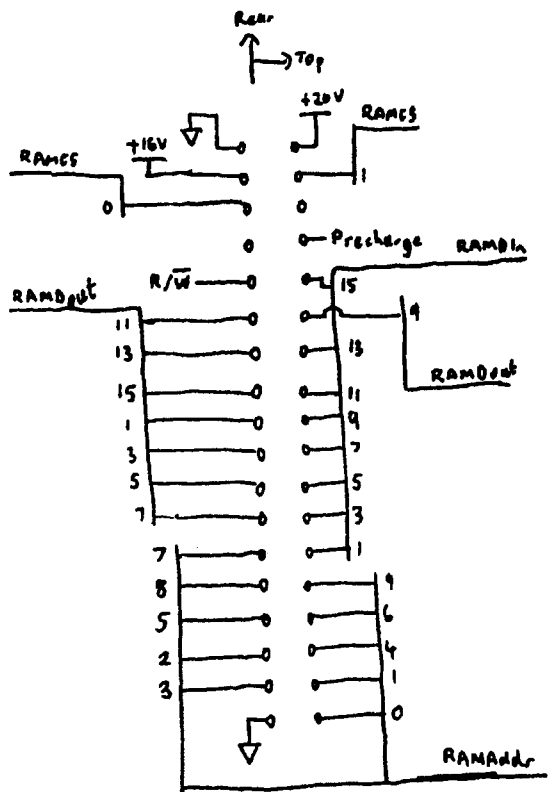
Read Data Gates (Low Byte)



RAM Input Buffers



RAM Read Buffers

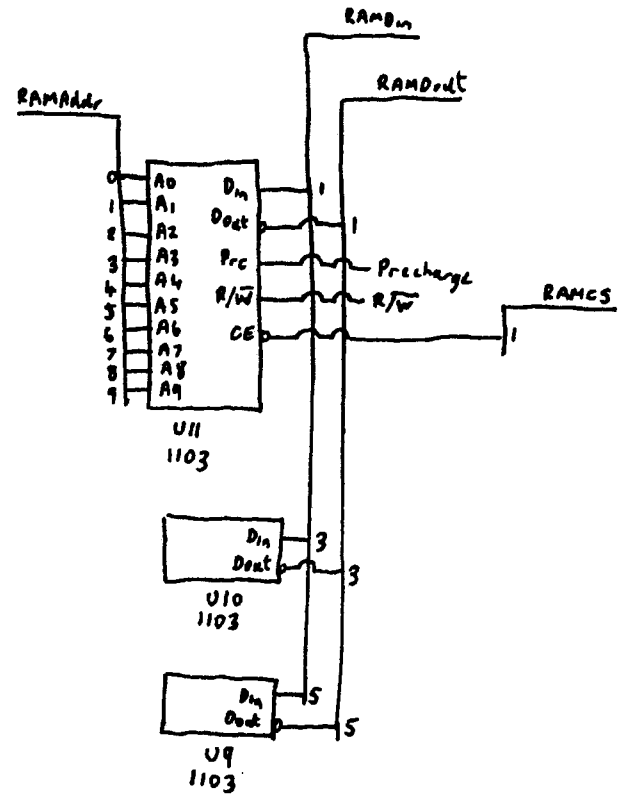


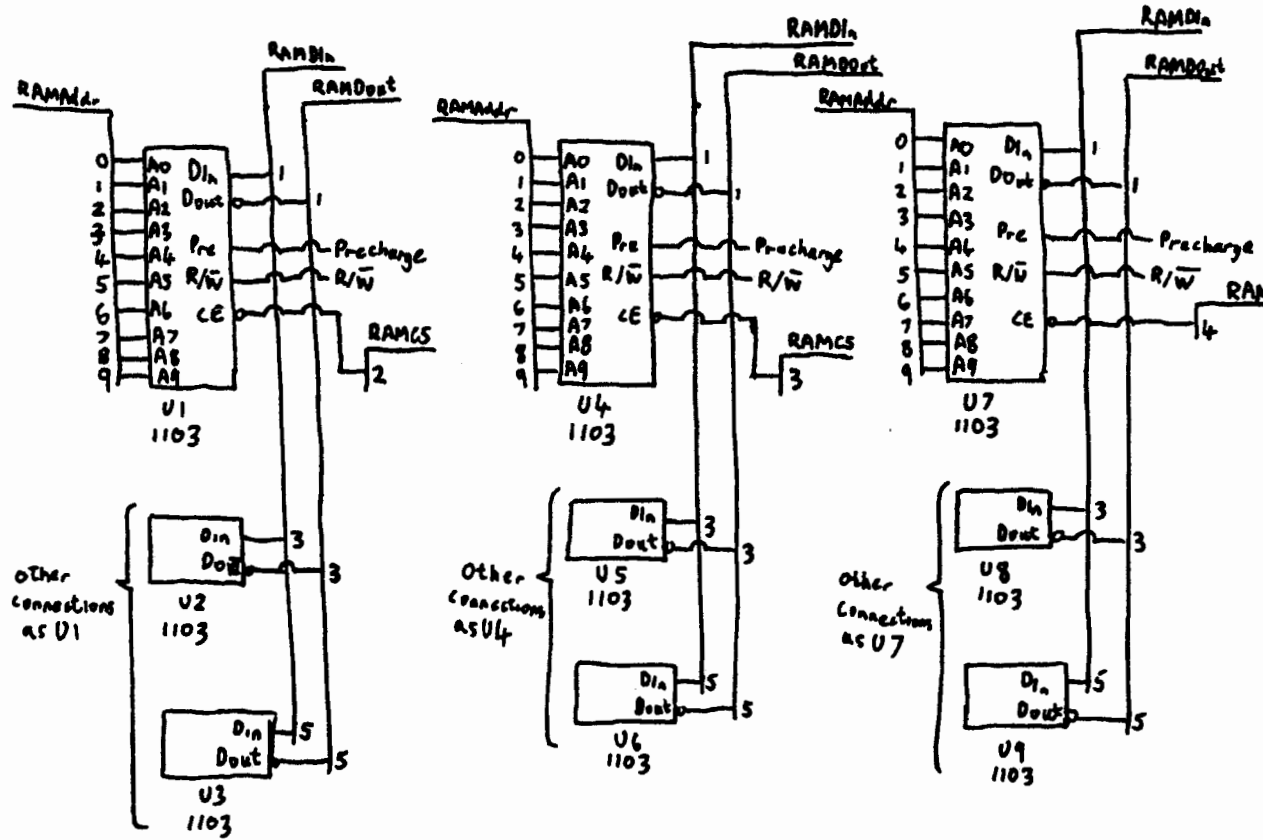
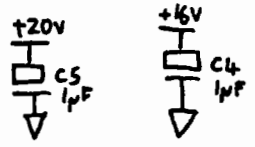
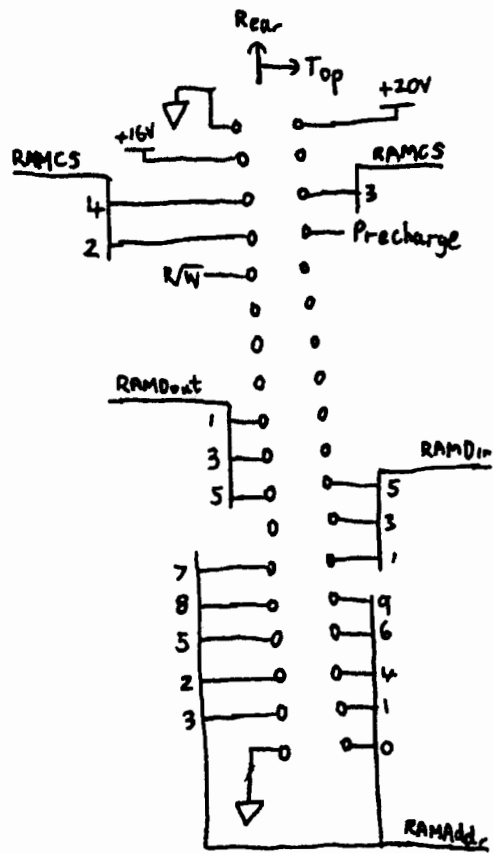
HP 9810

RAM PCB

(R/Gn)

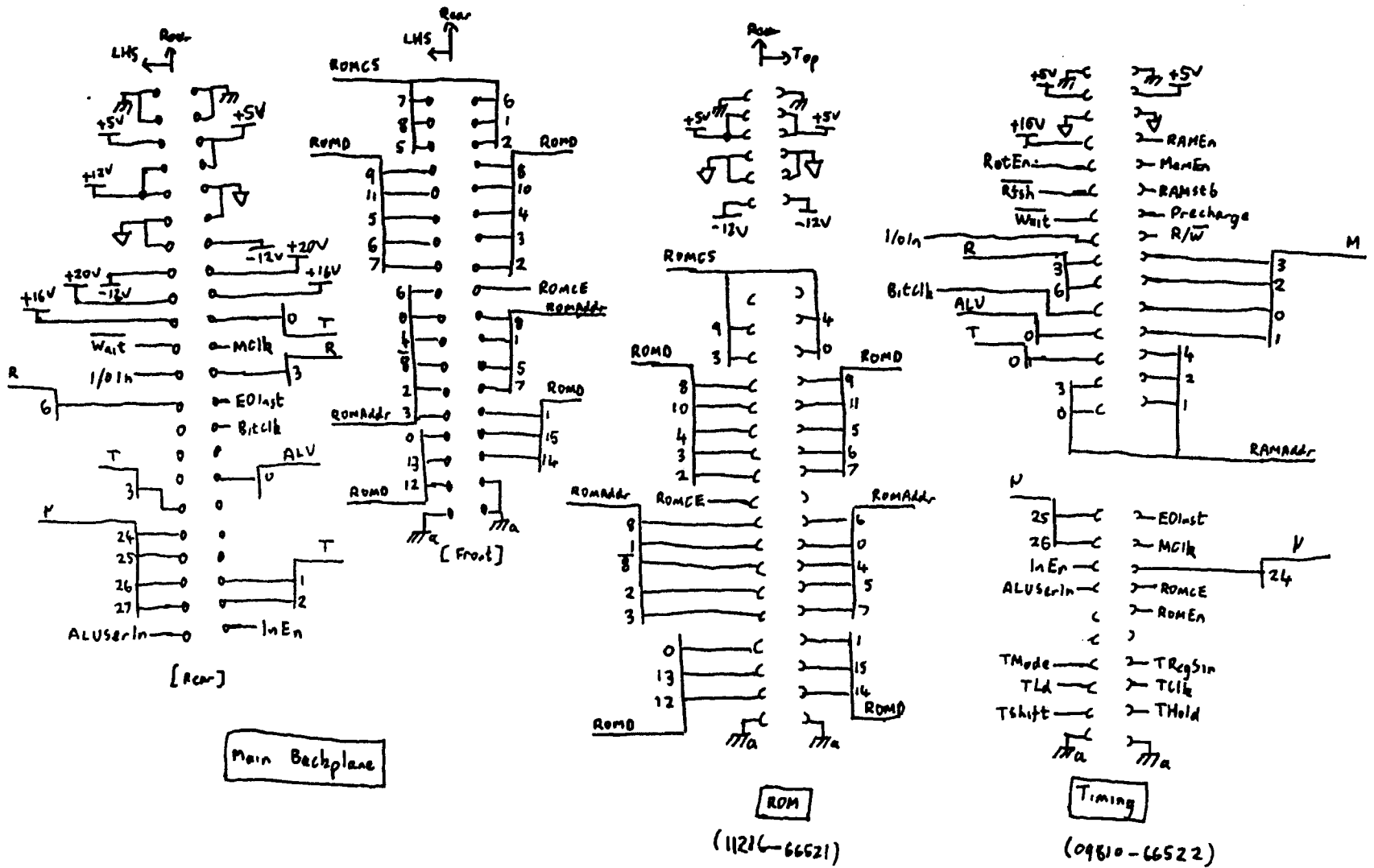
09810-66525

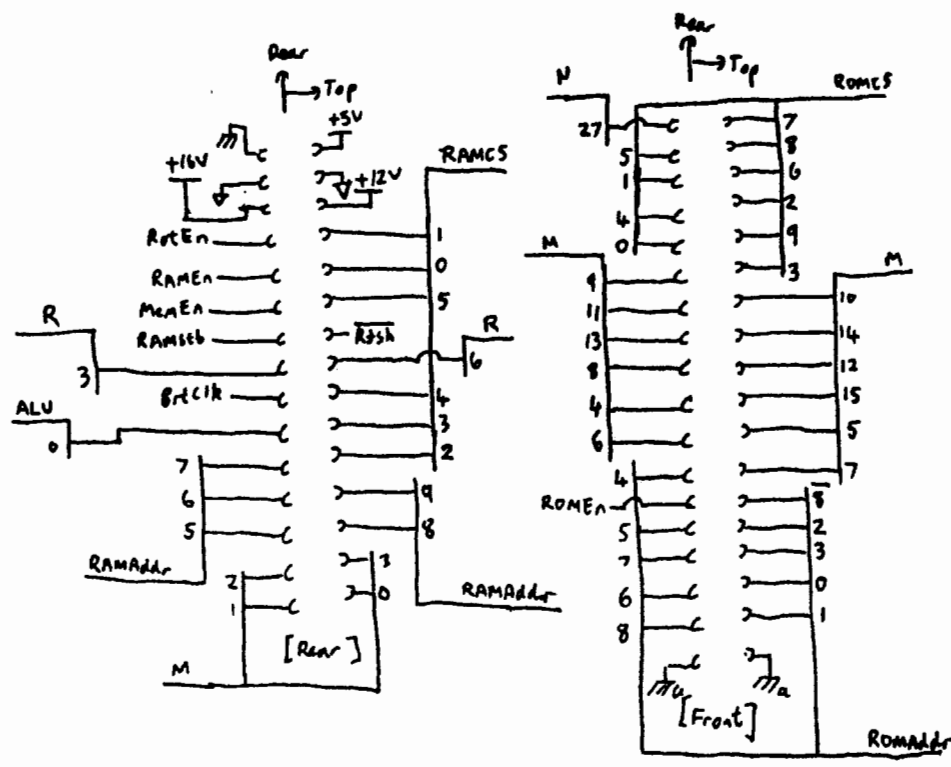




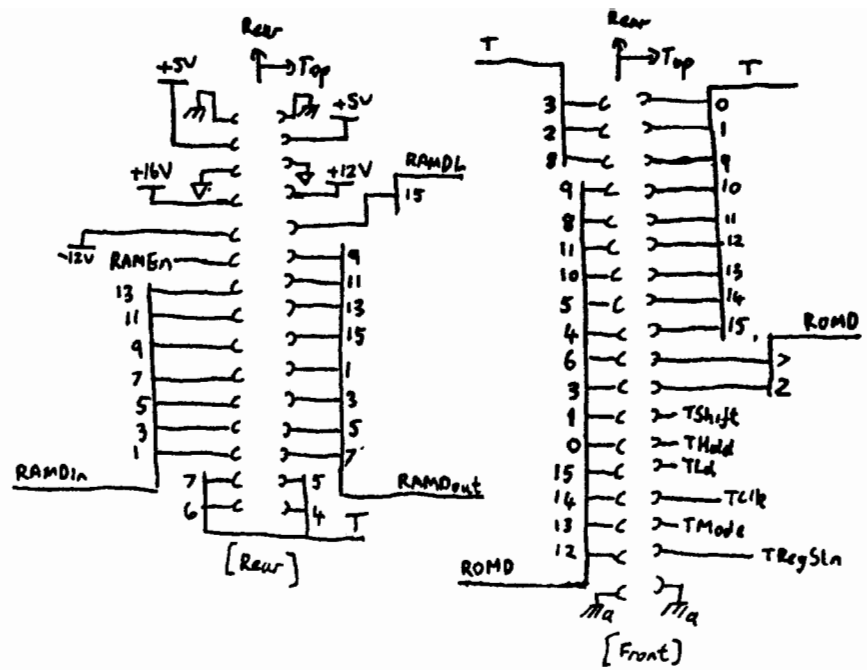
HP9810 RAM PCB

11218-66526 (R/Bu)

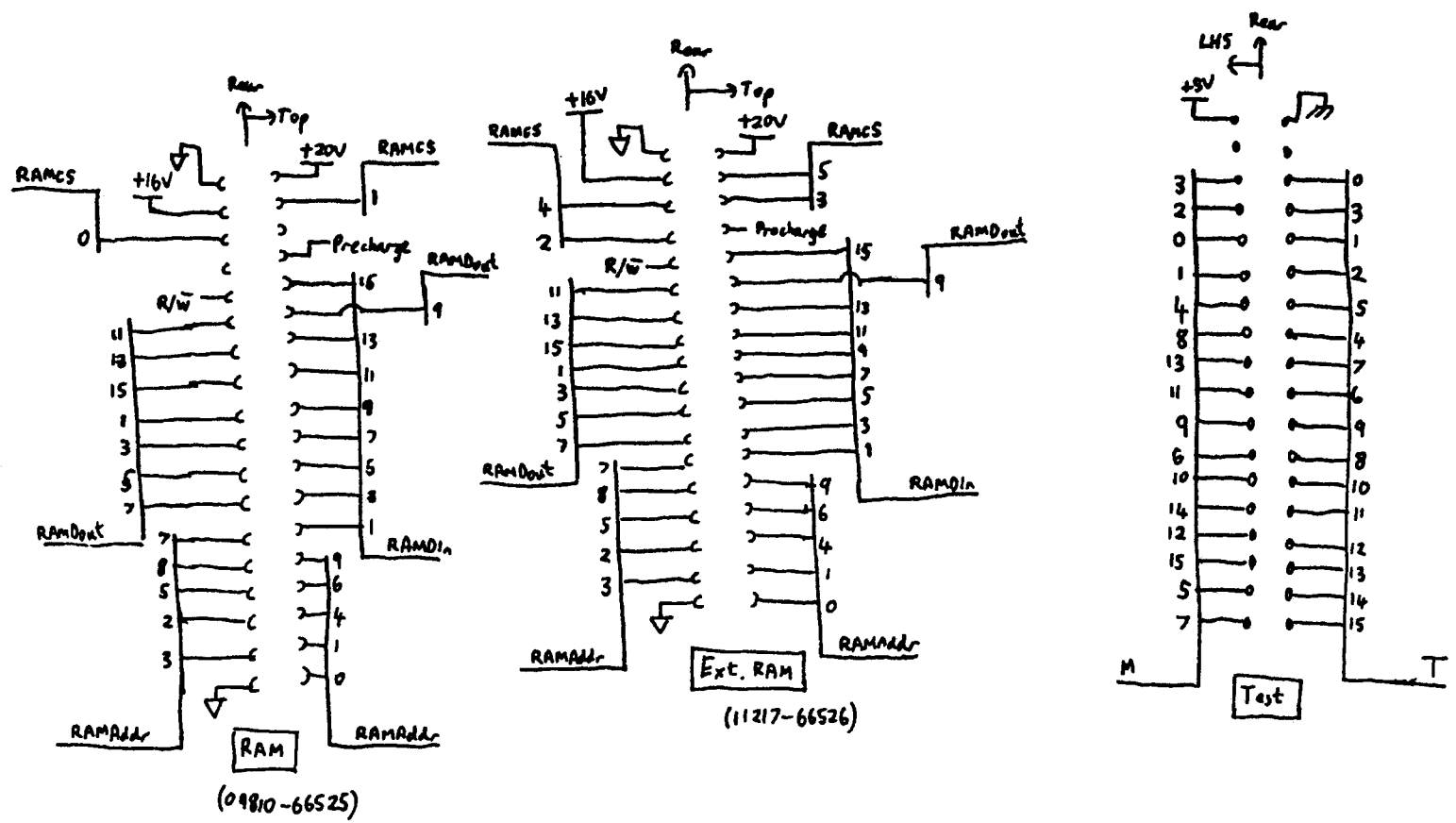




Address
(09810-66523)



Data
(09810-66524)





Float Fix()

Run Prgm

KeyLog List

Load

Recall

A F K

B G L

C H M

D I N

E J O

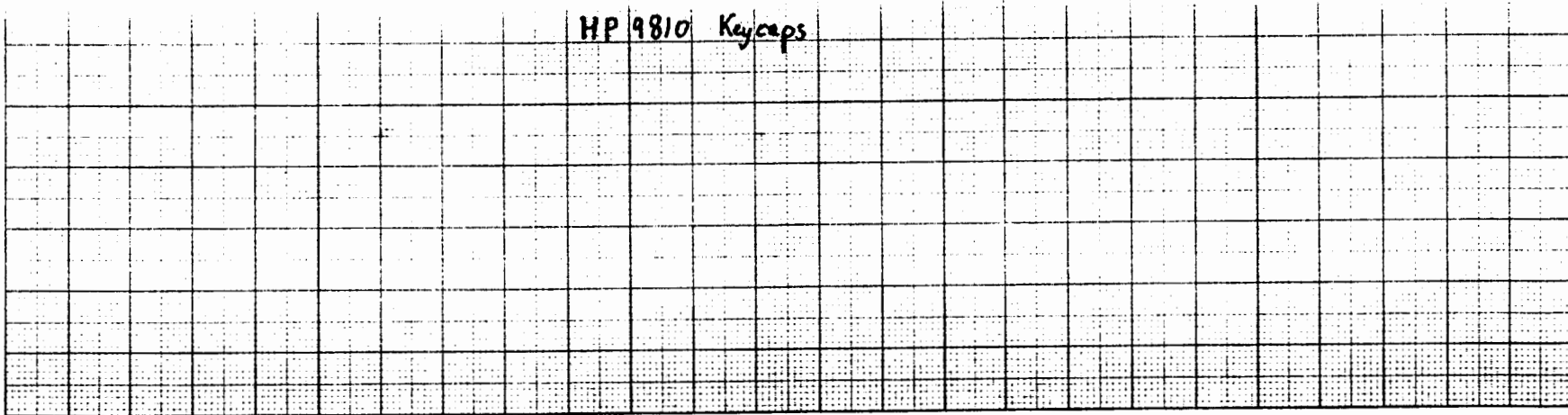
π	$1/x$	x^2
b	inv x	↑ ROLL
a	inv- direct	↓
y→()	y←()	$x \rightarrow y$
x→()	x←()	↑

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

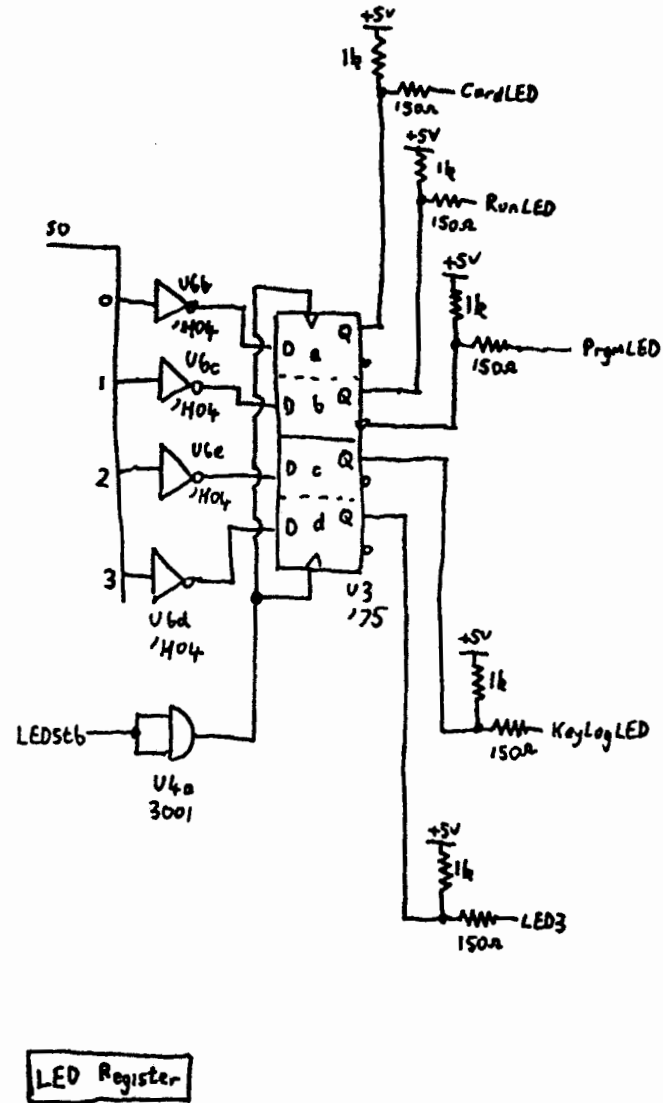
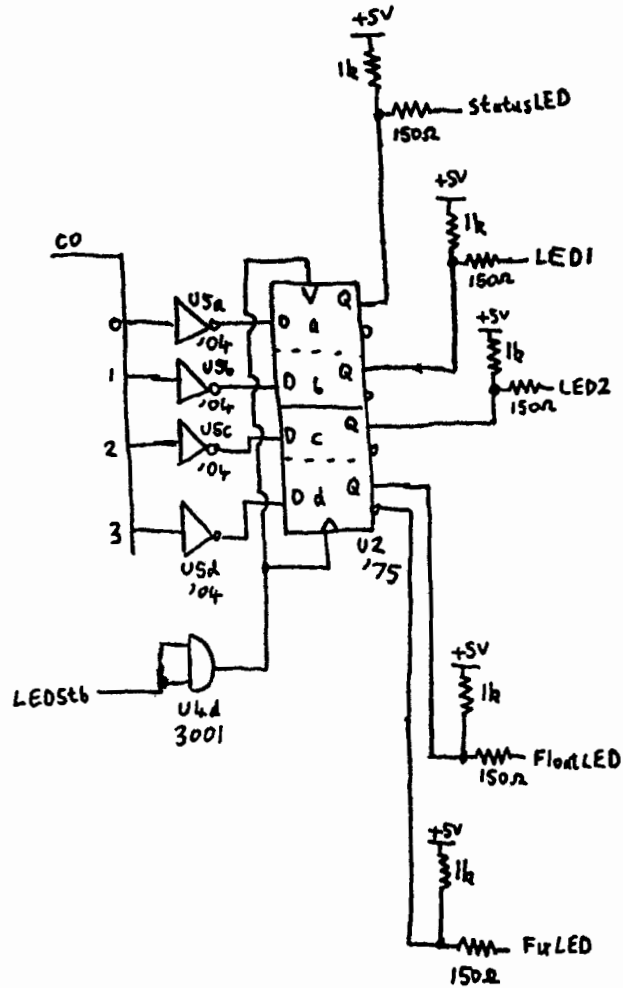
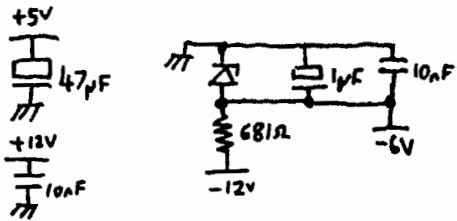
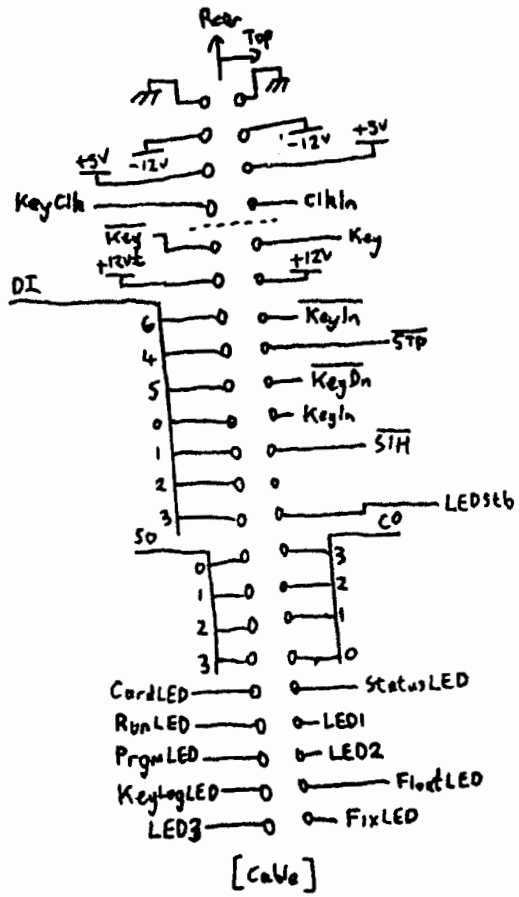
CLEAR

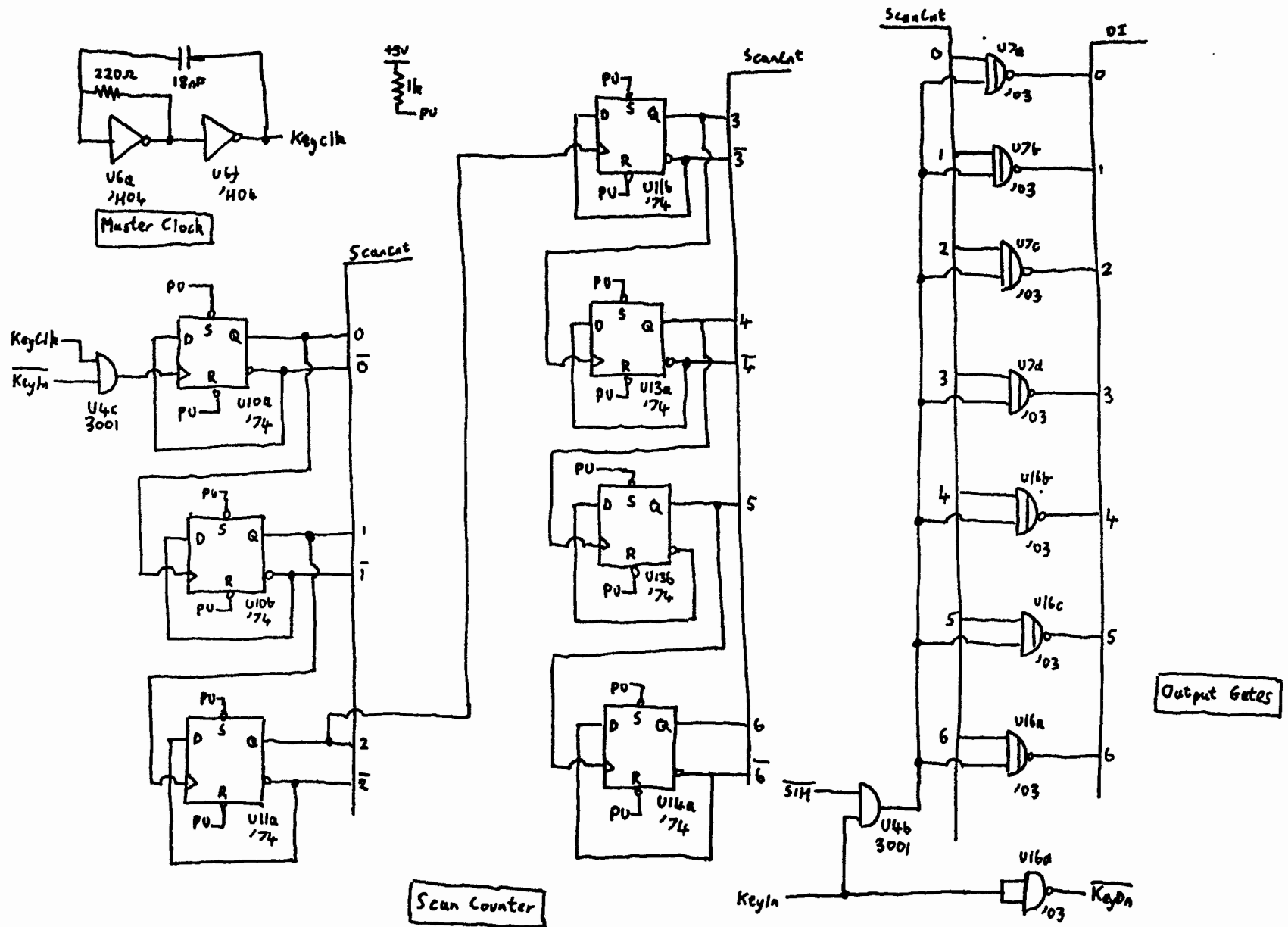
0021-23E

Set Flag	if Flag	End
Label	if $x < y$	Pause
Fact	if $x < y$	Stop
Print Space	if $x > y$	Back Step
Sub Return	GoTo	Stop Rgn



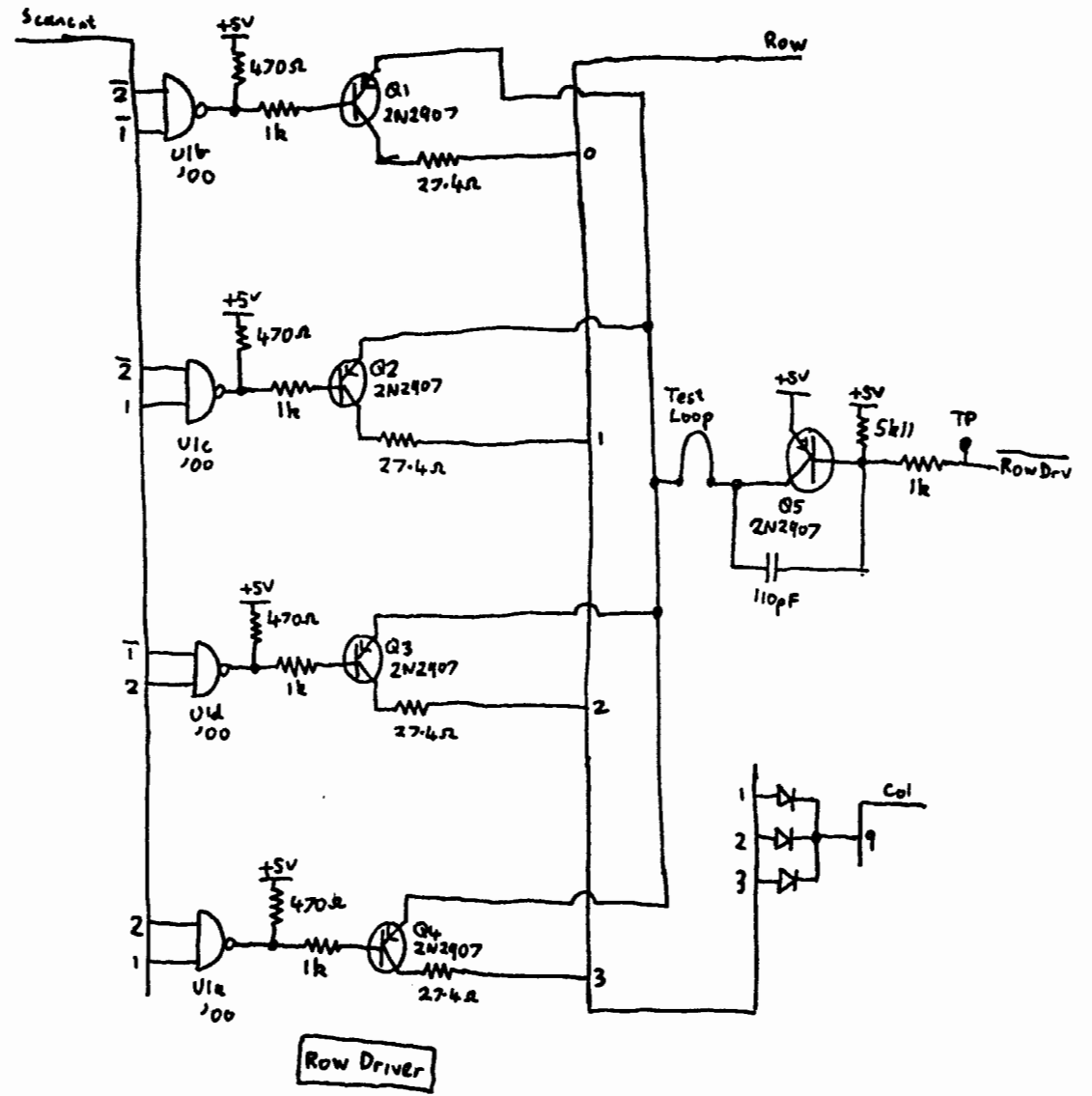
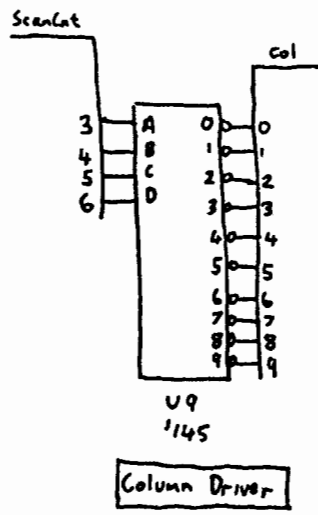
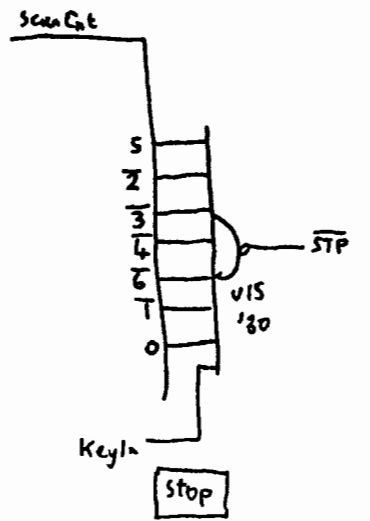
HP 9810 Keycaps





HP9810 Keyboard Encoder sheet (2)

09810-66532



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

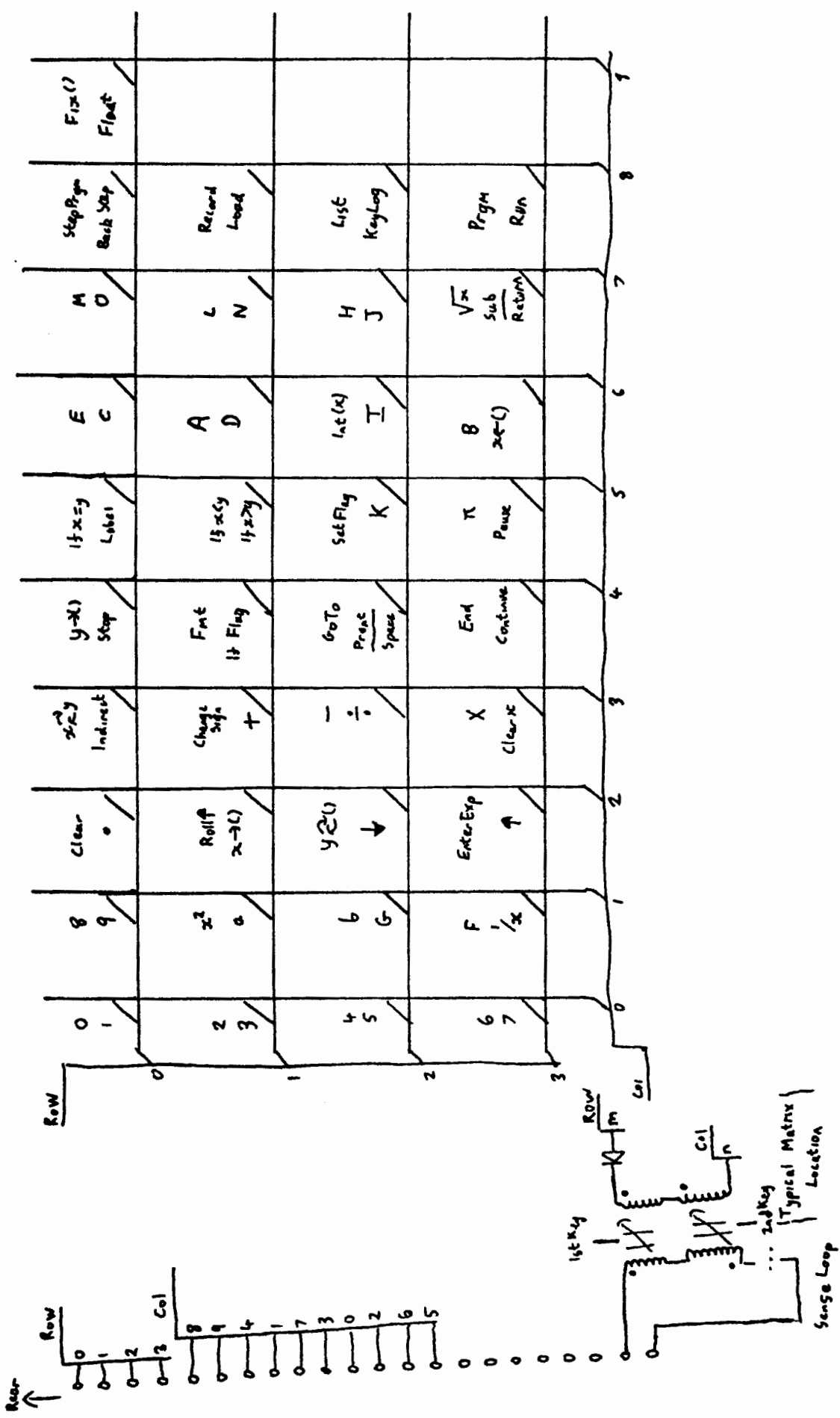
HP4810 Keyboard

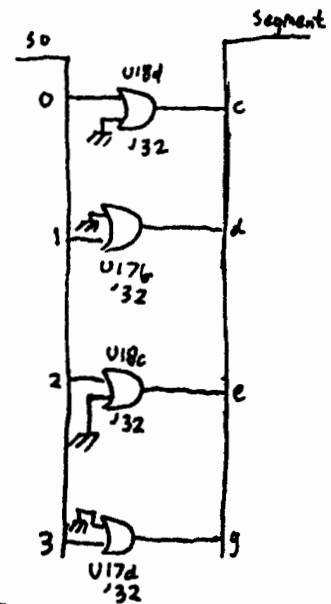
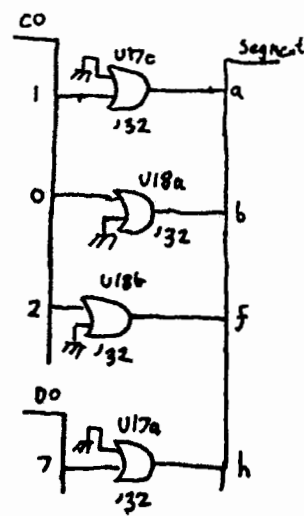
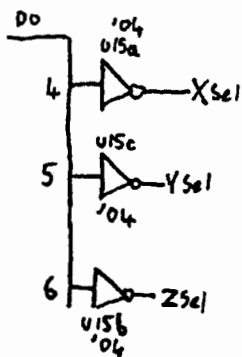
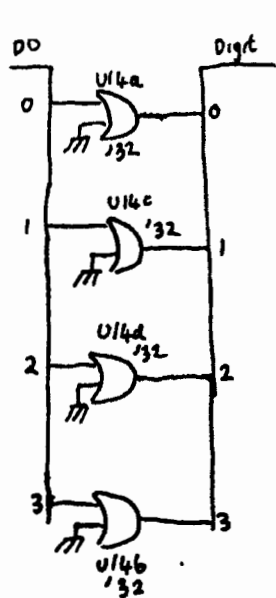
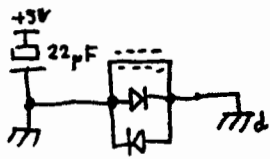
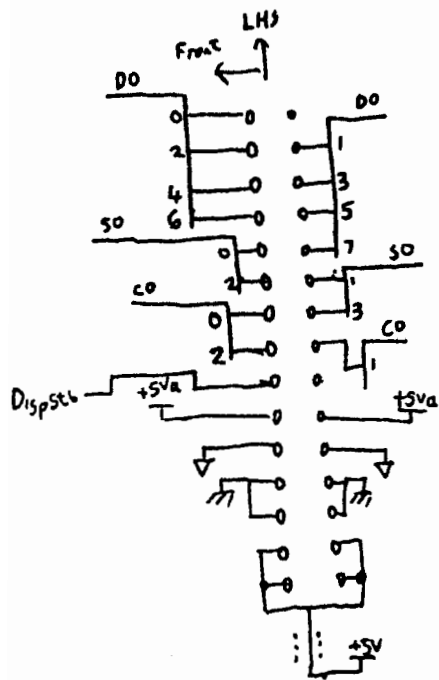
(04810-66533)

Diodes

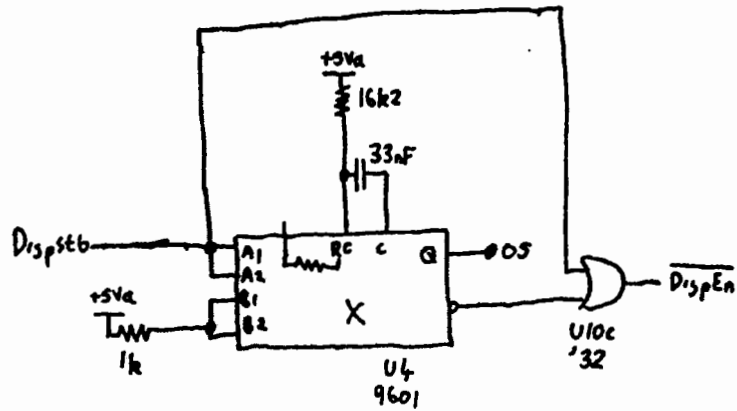
Underlined names → LSB Set

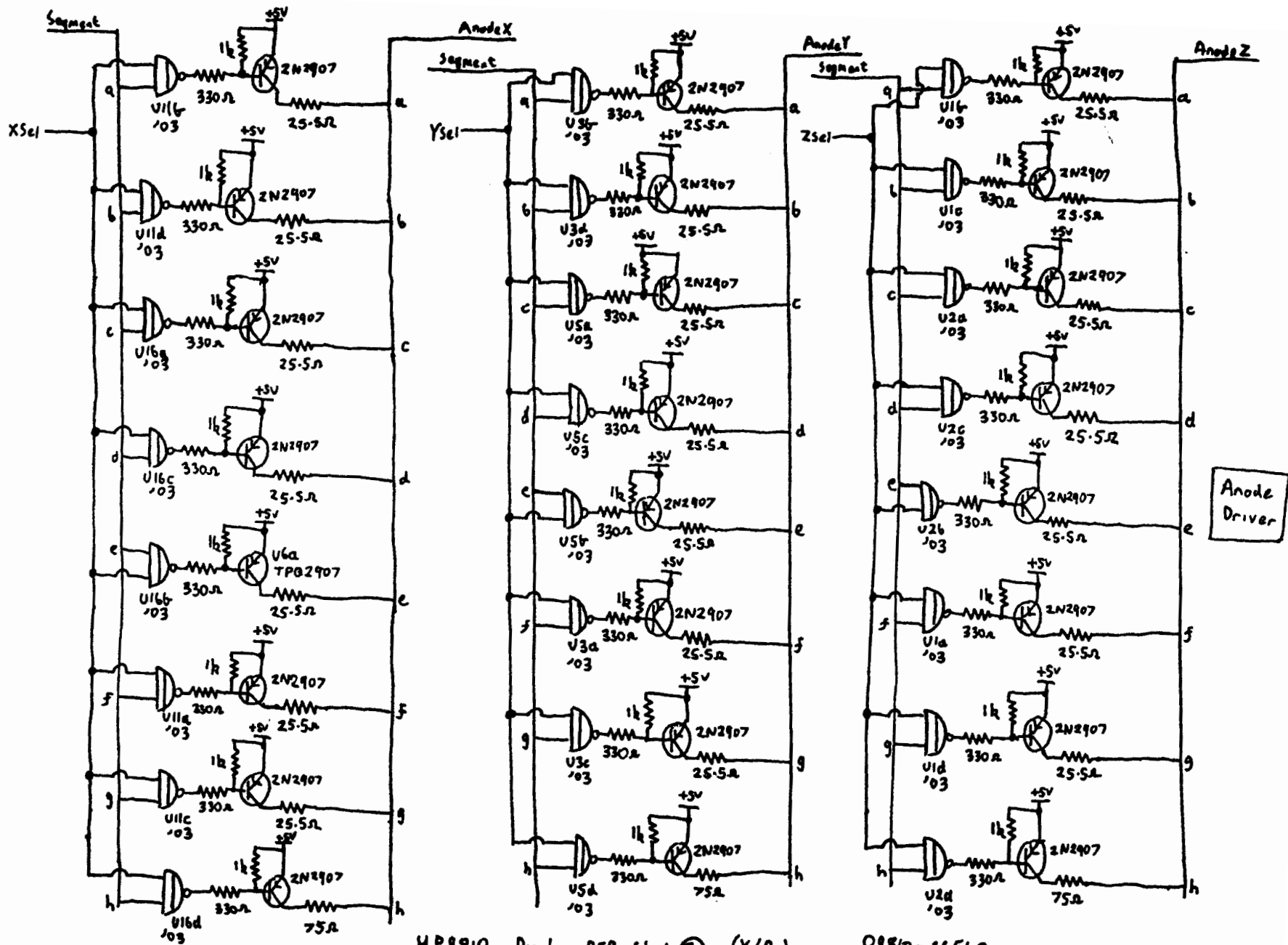
R2 → C5 — K, Set Flag
 R2 → C1 — G, b
 R2 → C6 — I, int(x)
 R3 → C5 — π, Pause
 R0 → C6 — y→(), stop
 R1 → C1 — a, x²
 R0 → C3 — x↔y, Indirect
 R2 → C2 — ↓, y↔()
 R1 → C2 — Roll↑, x→()
 R3 → C2 — ↑, Enter Exp
 R0 → C0 — 0, 1
 R2 → C0 — 4, 5
 R2 → C3 — ., -
 R3 → C7 — √x, SUB, Return
 R1 → C3 — +, CHange 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 — IFxy, 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()





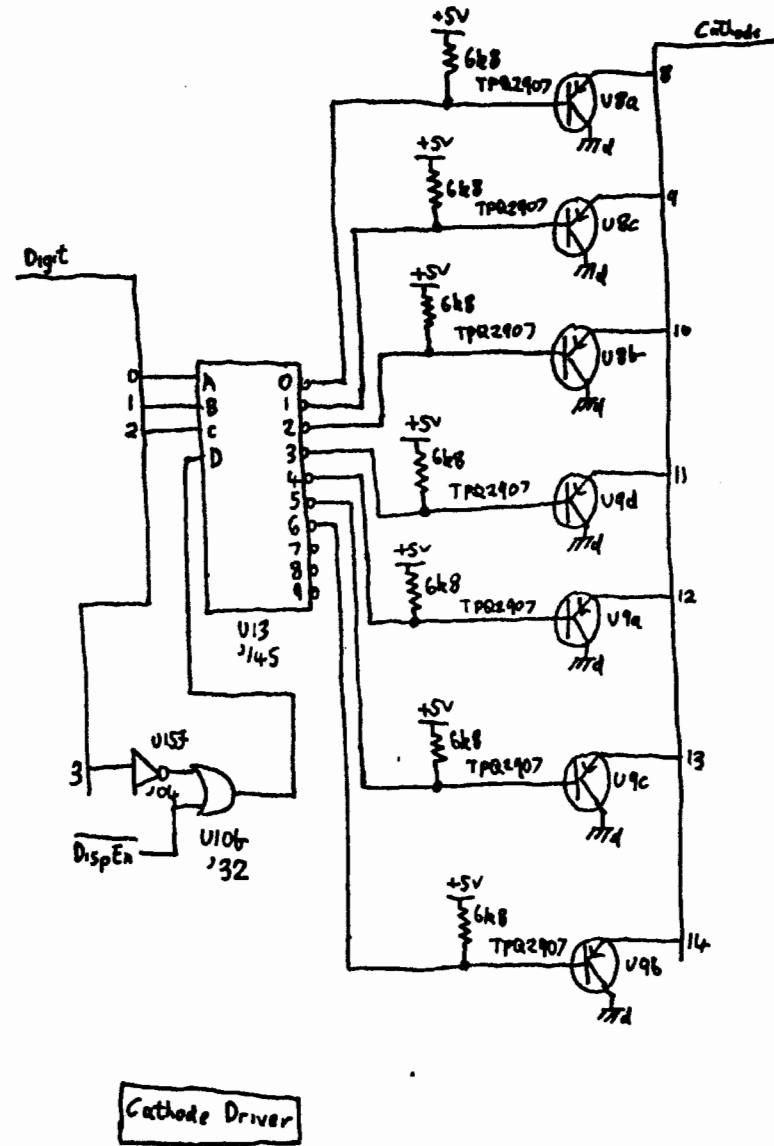
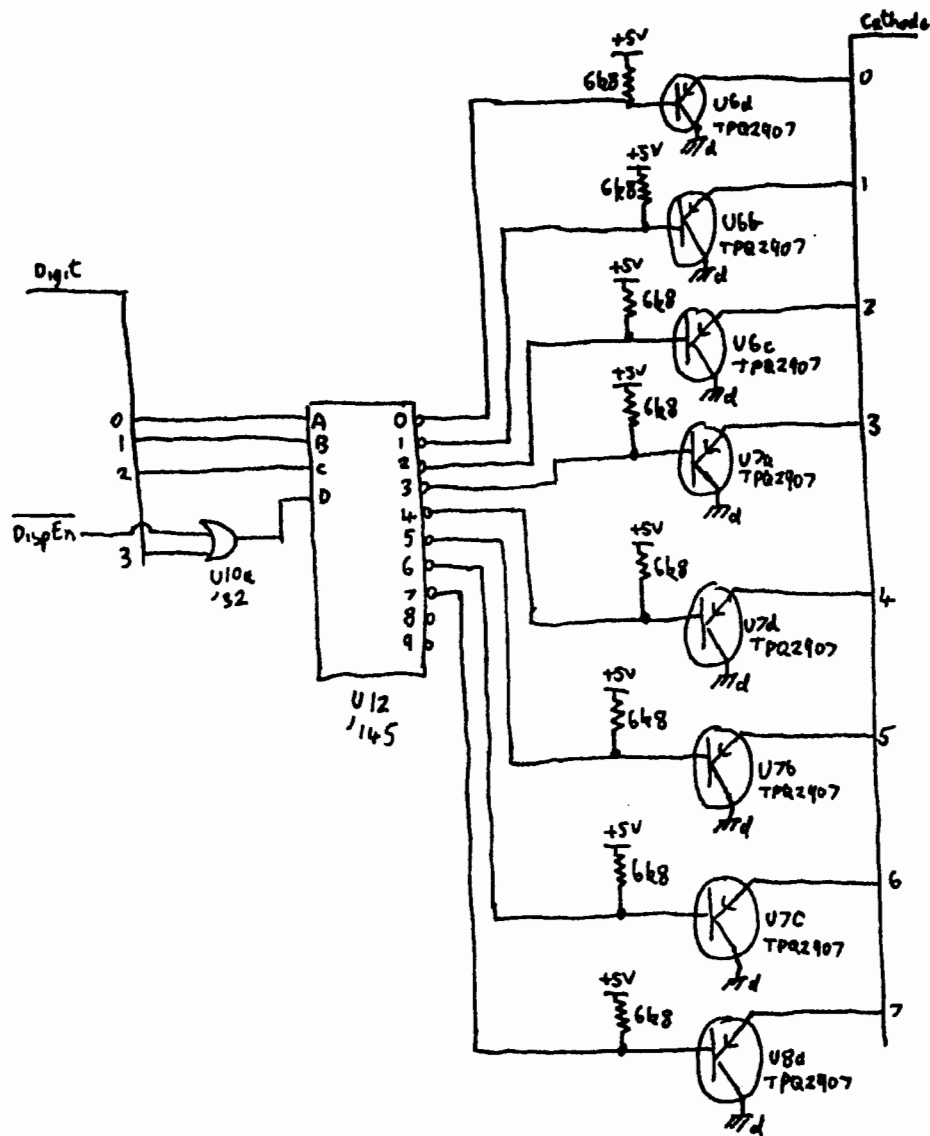
Input Buffers

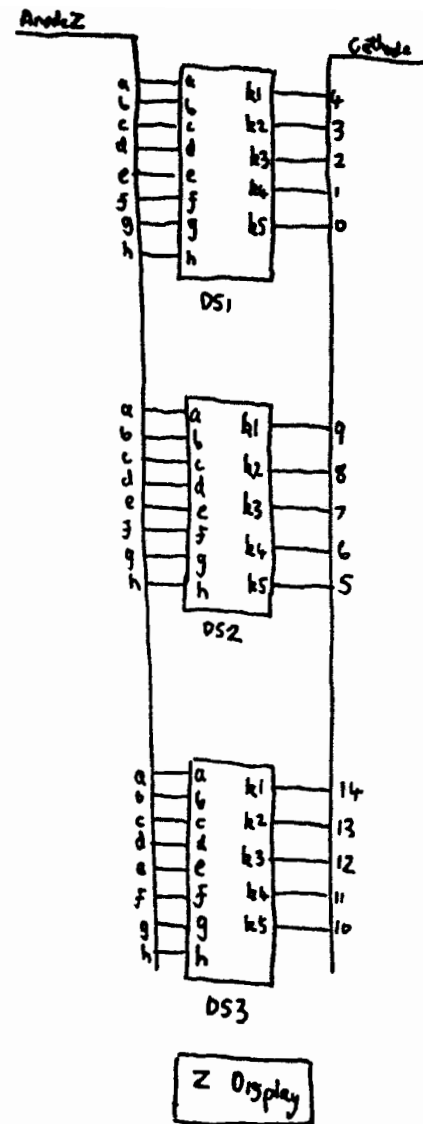
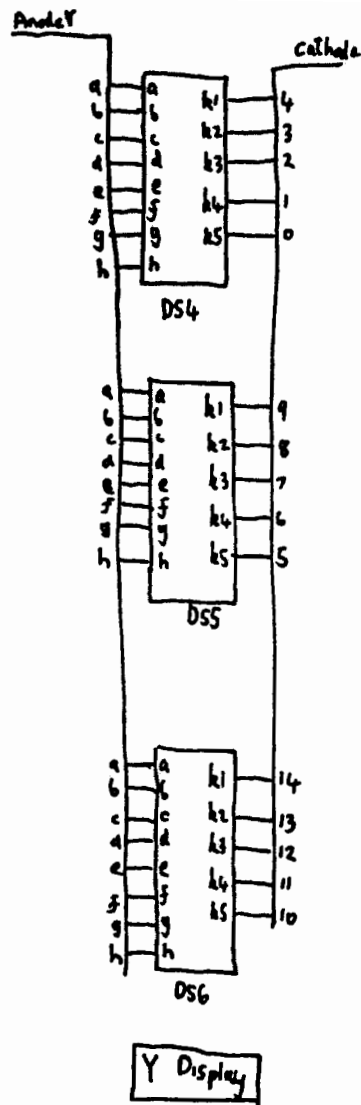
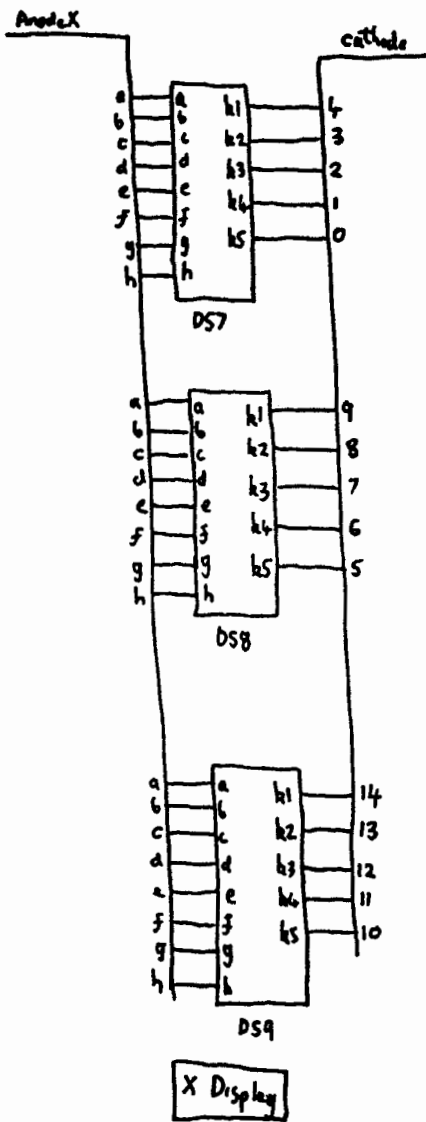


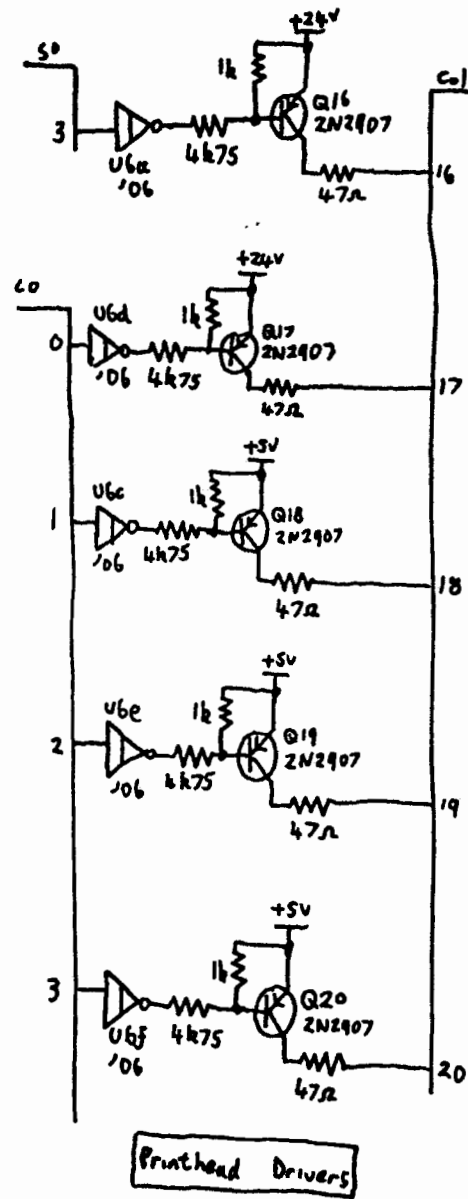
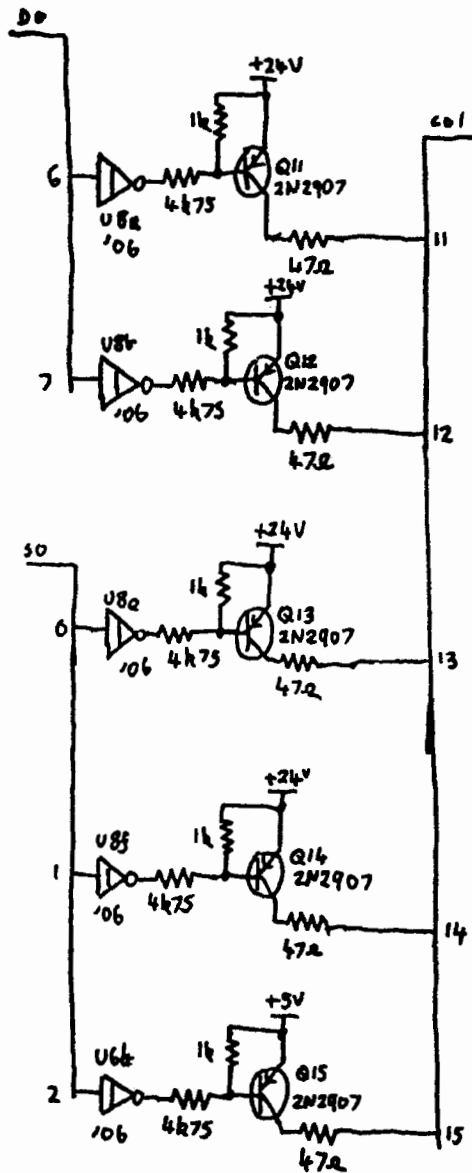
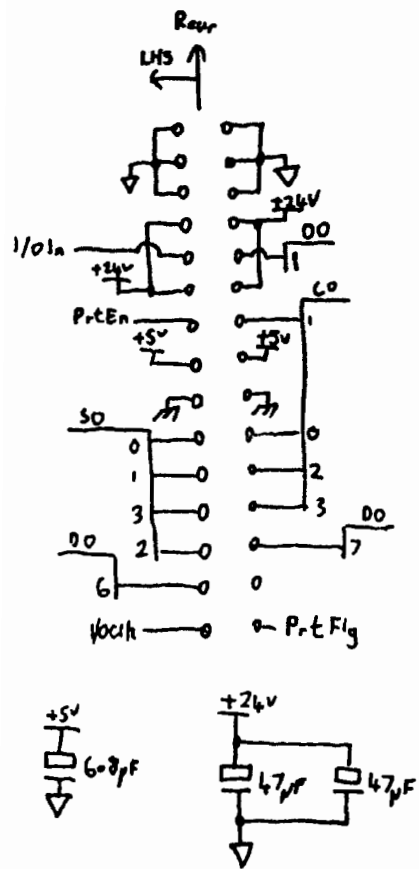


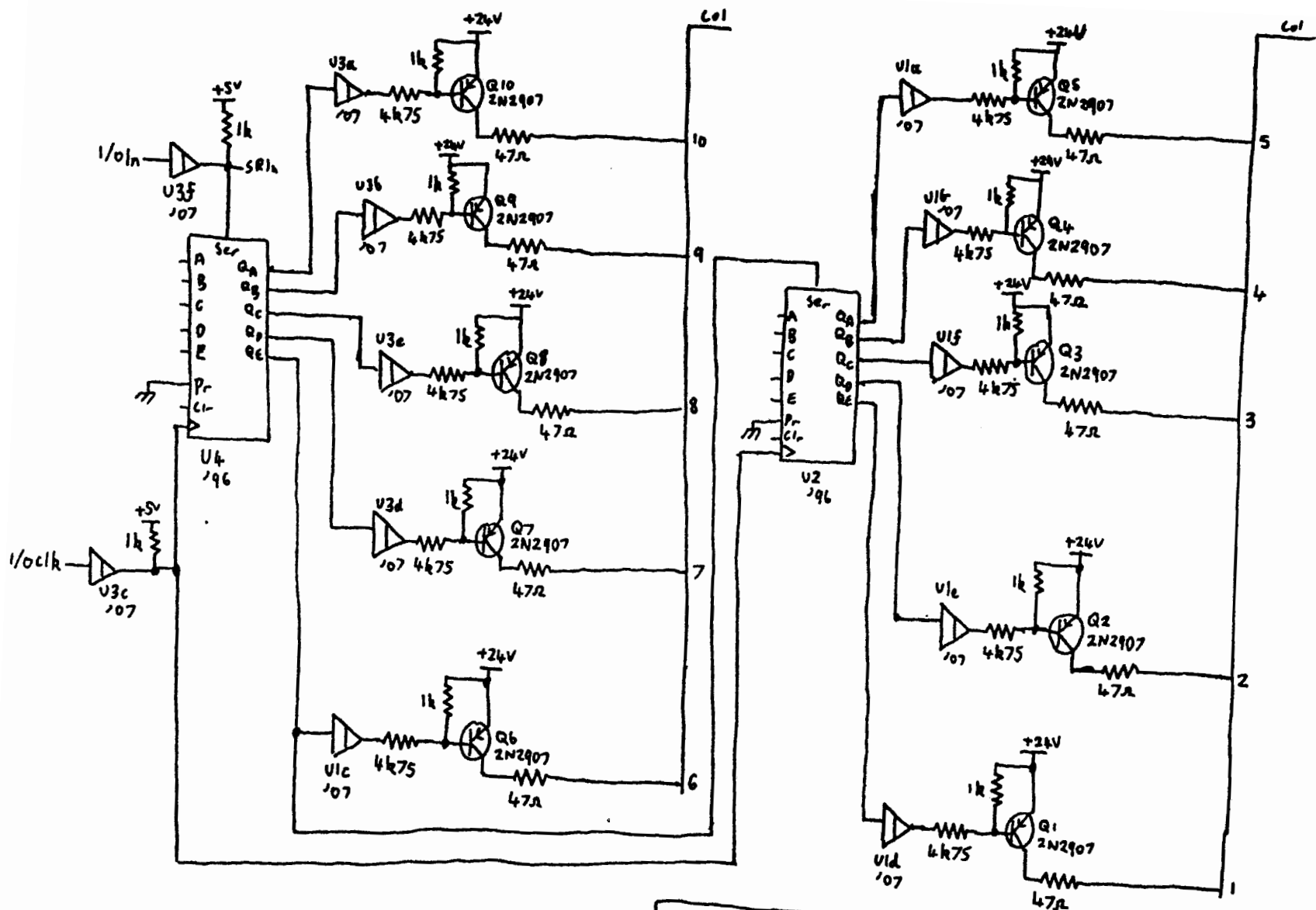
HP9810 Display PCB sheet ② (Y/B-r)

09810-66542

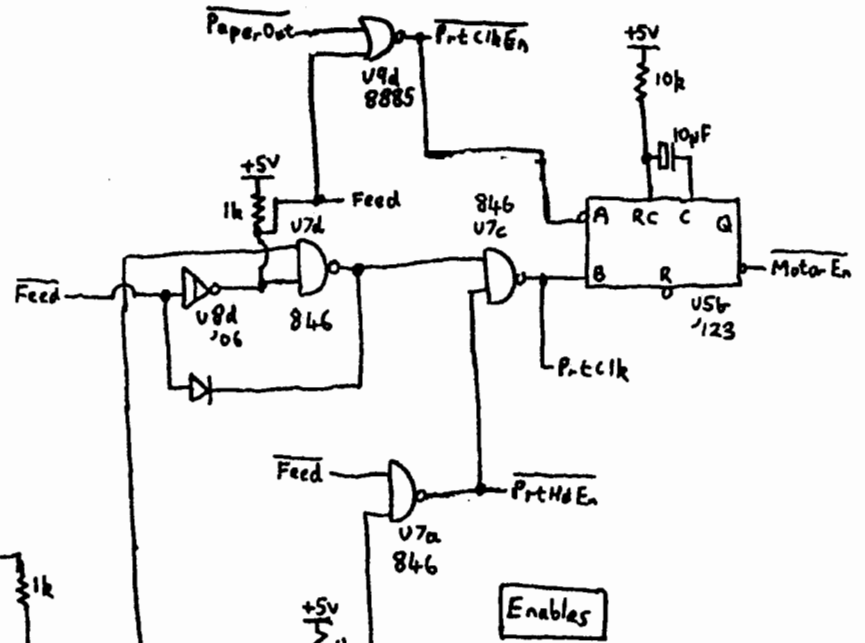
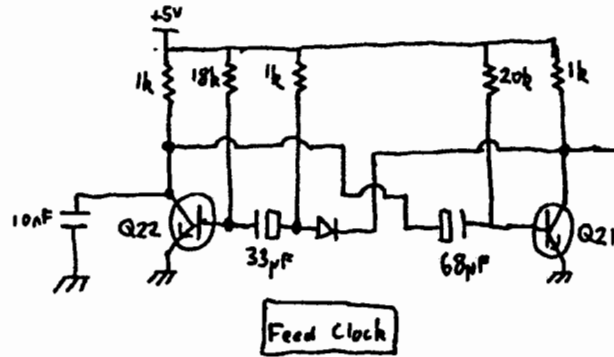
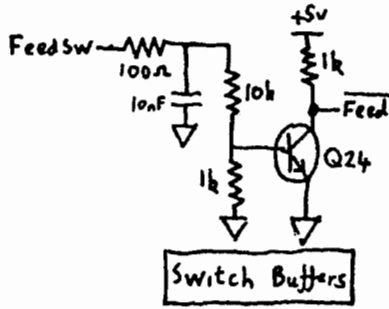
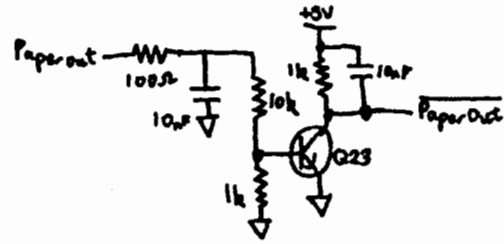
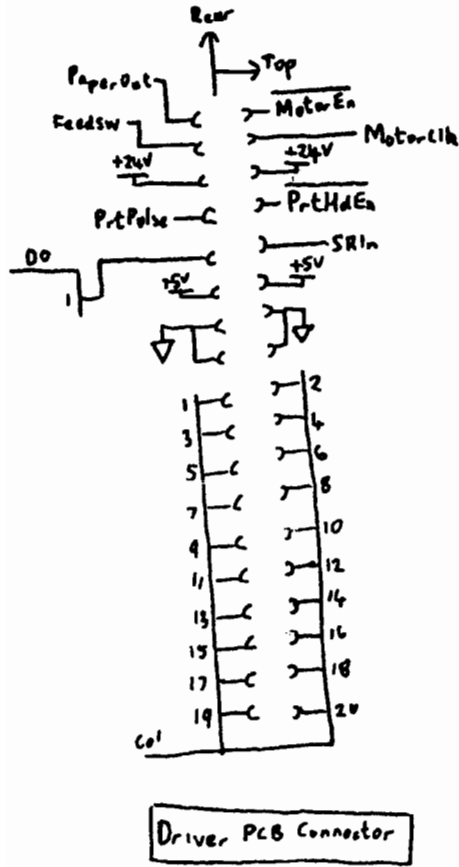


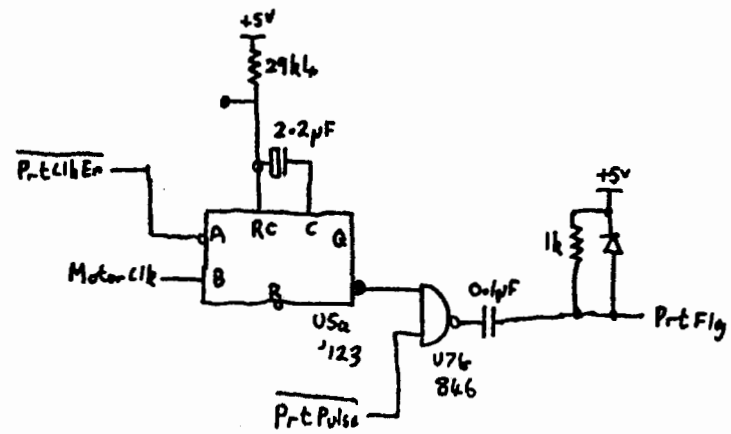
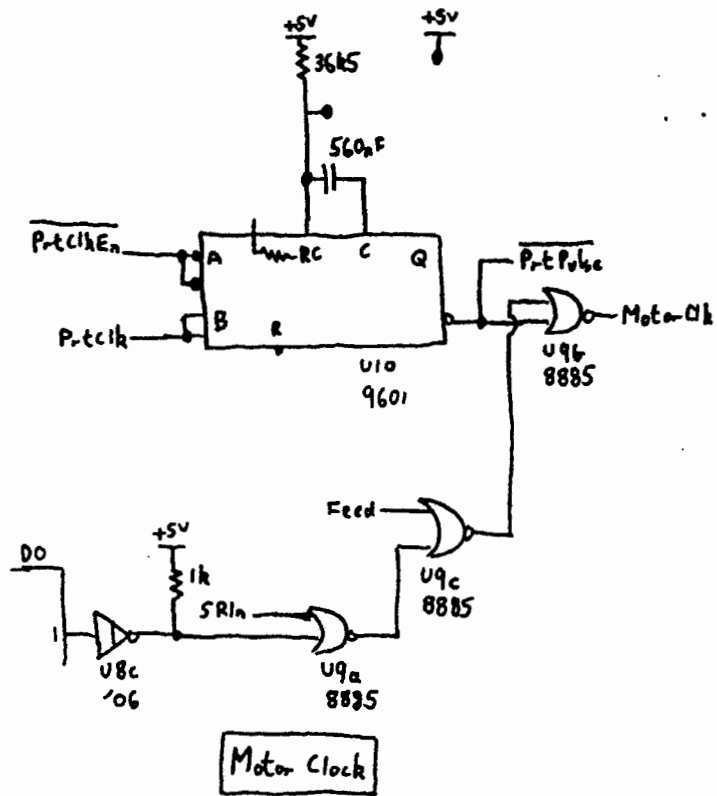


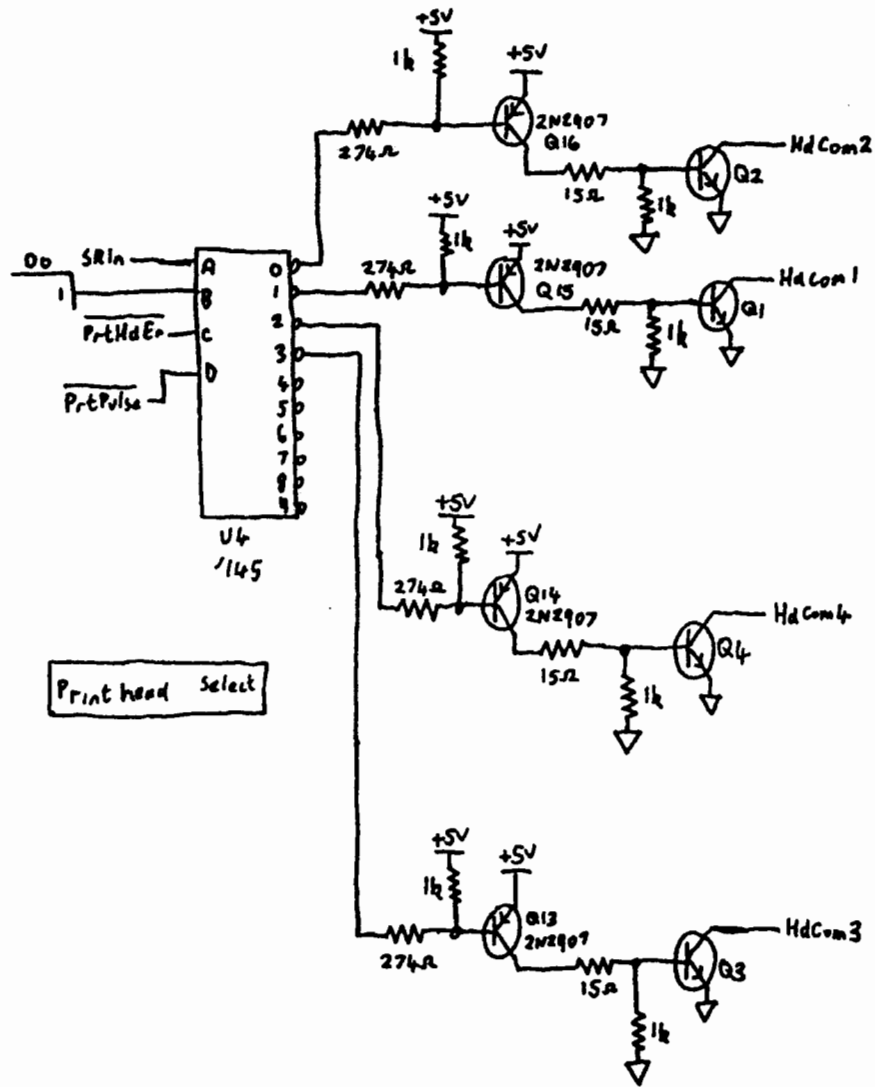
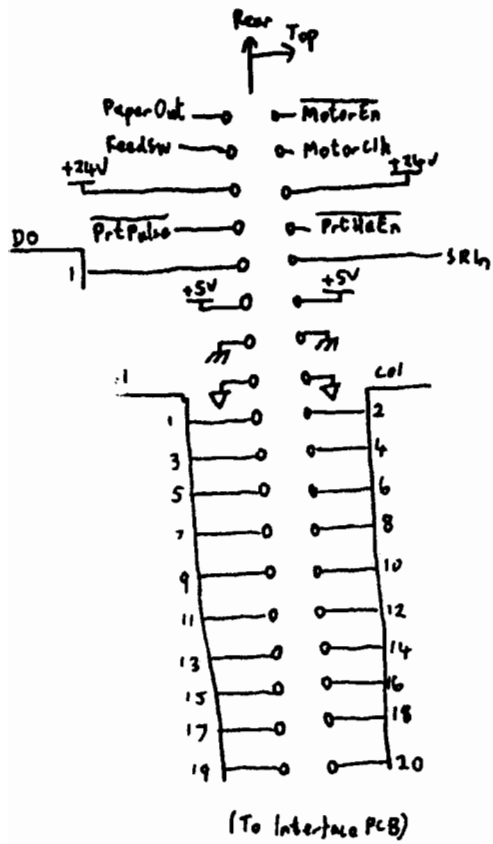


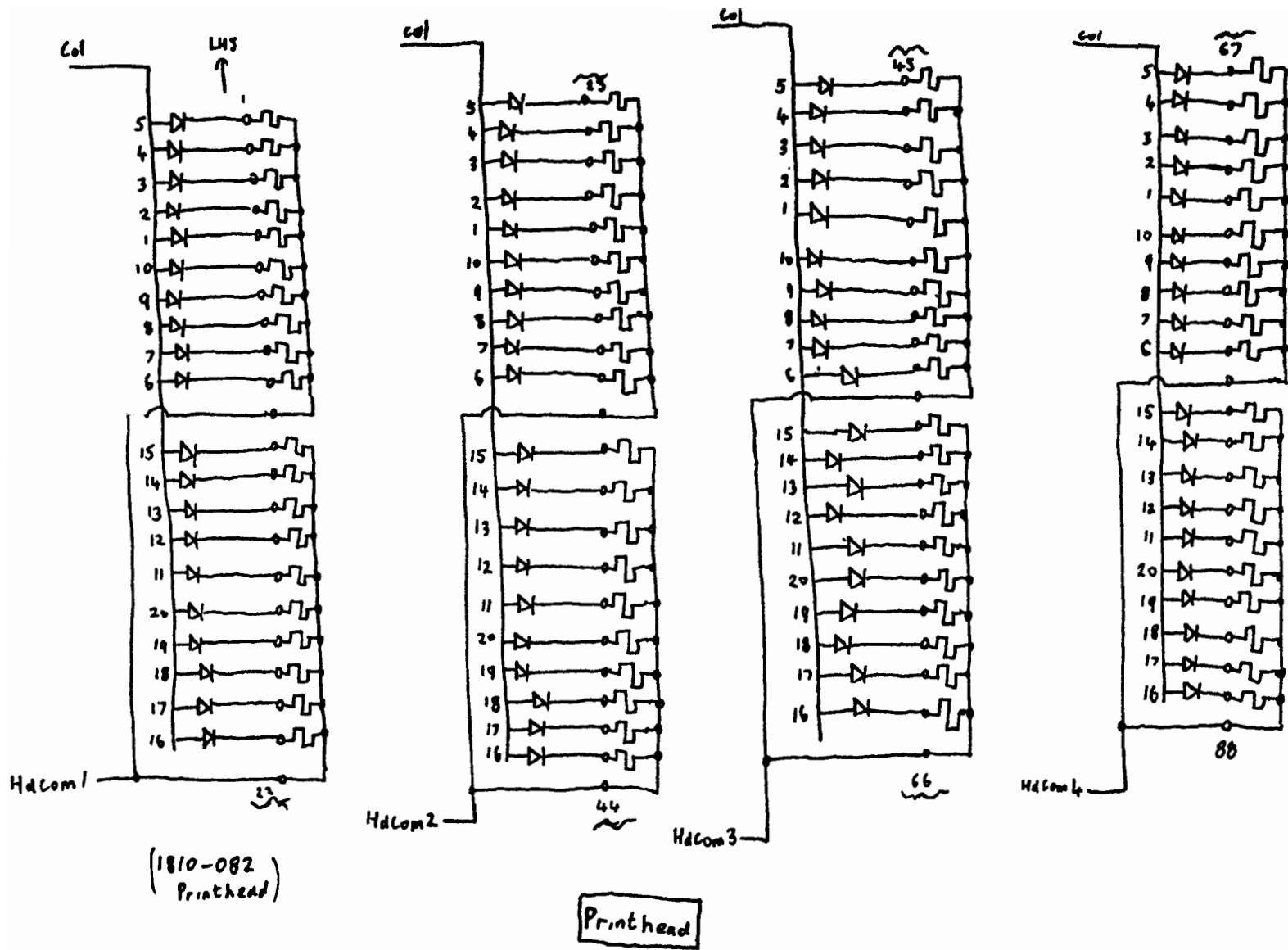


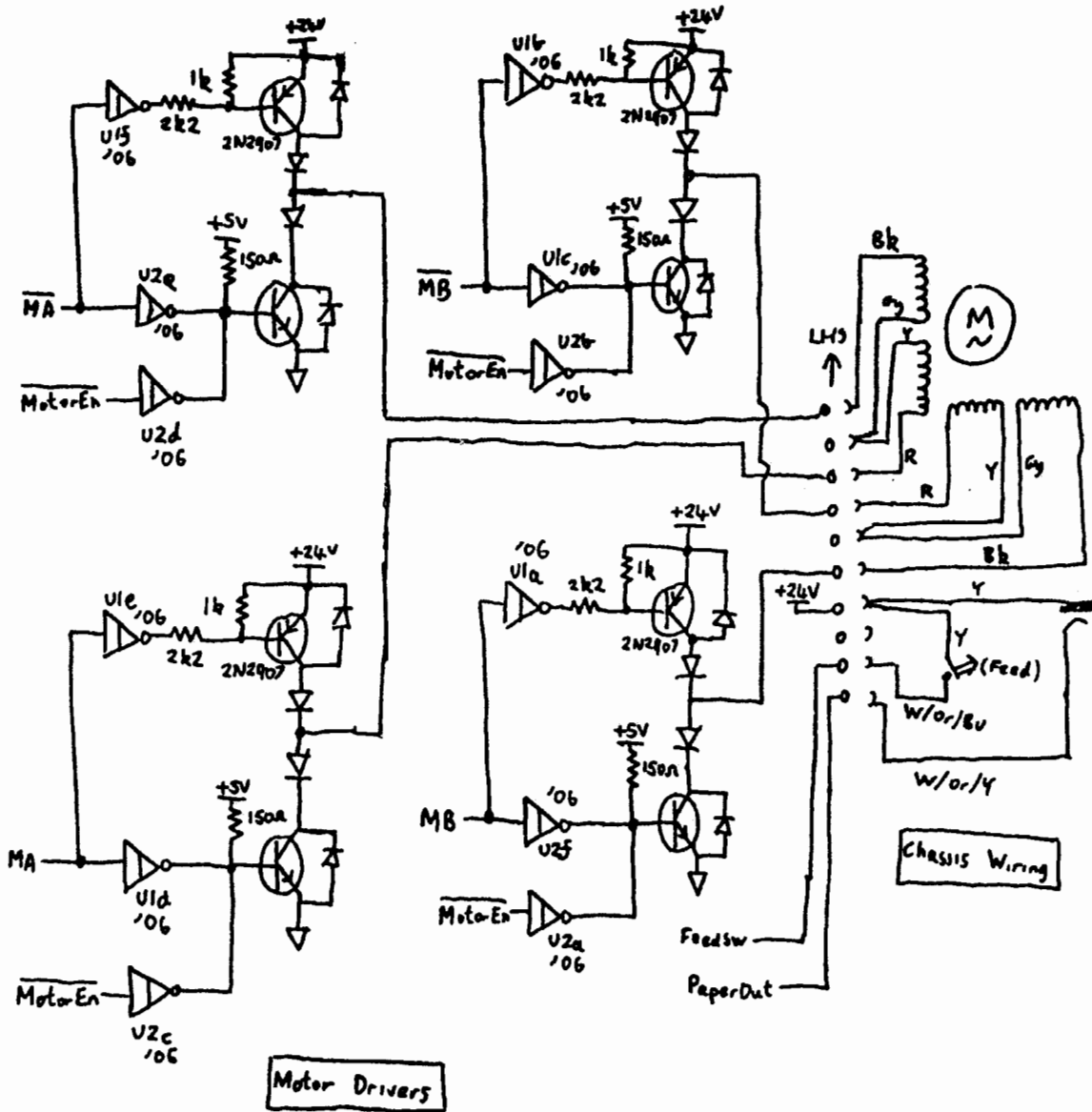
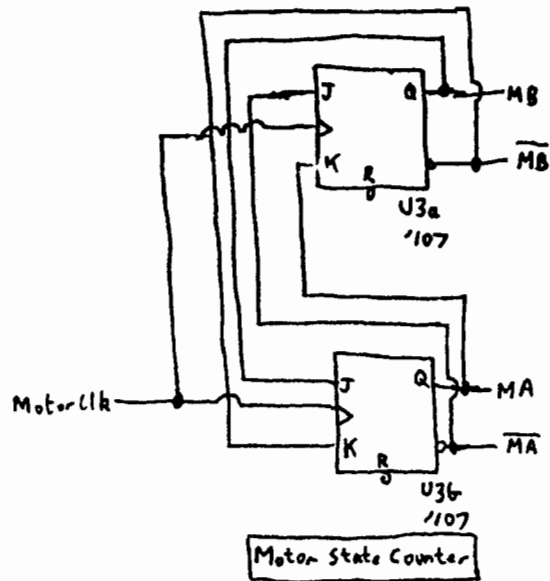
Printhead Drivers

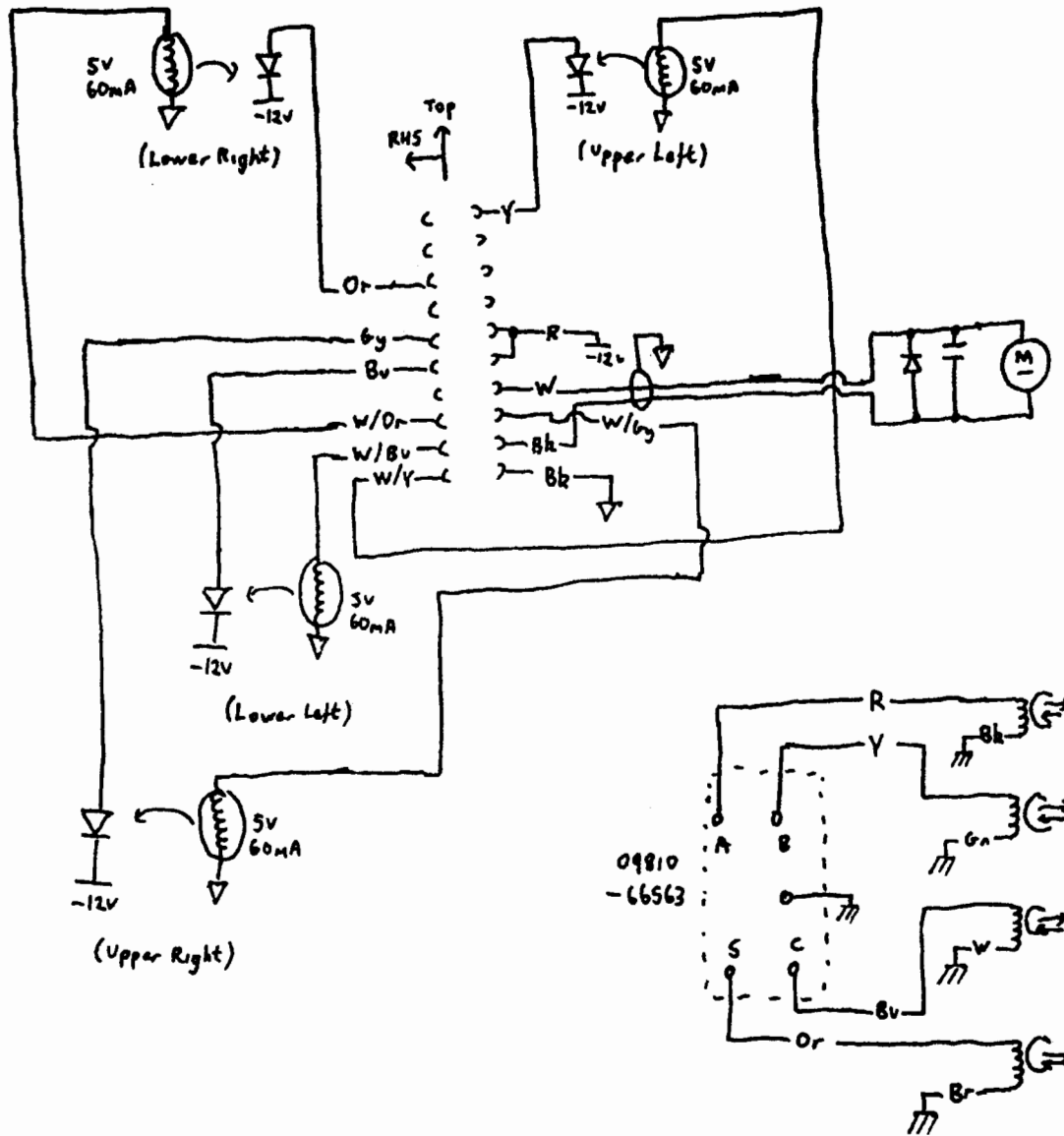




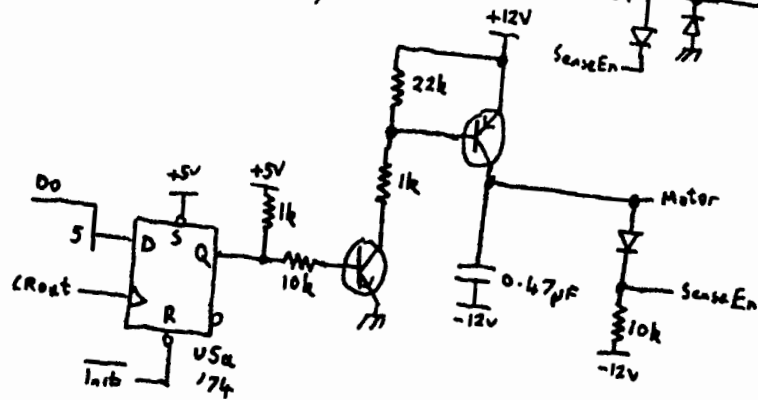
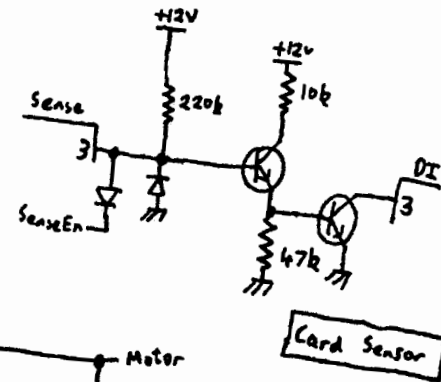
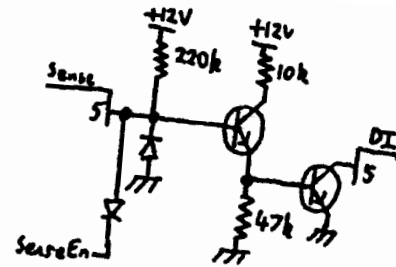
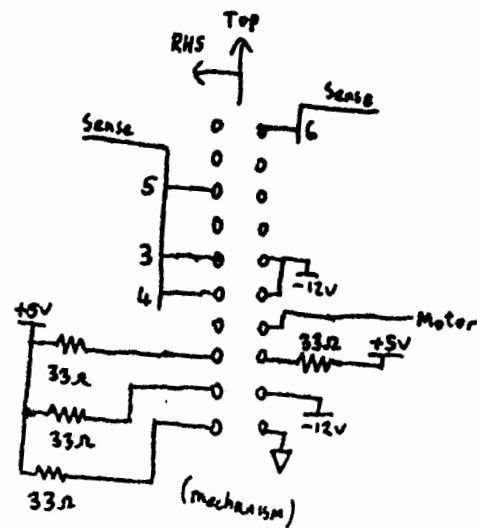
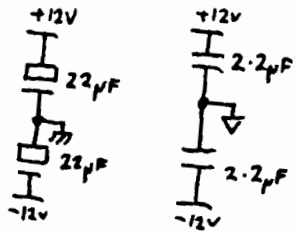
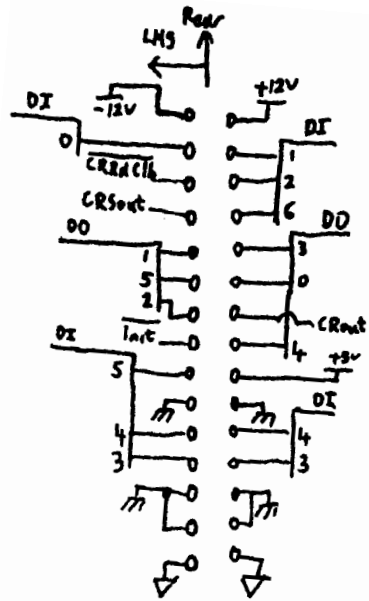


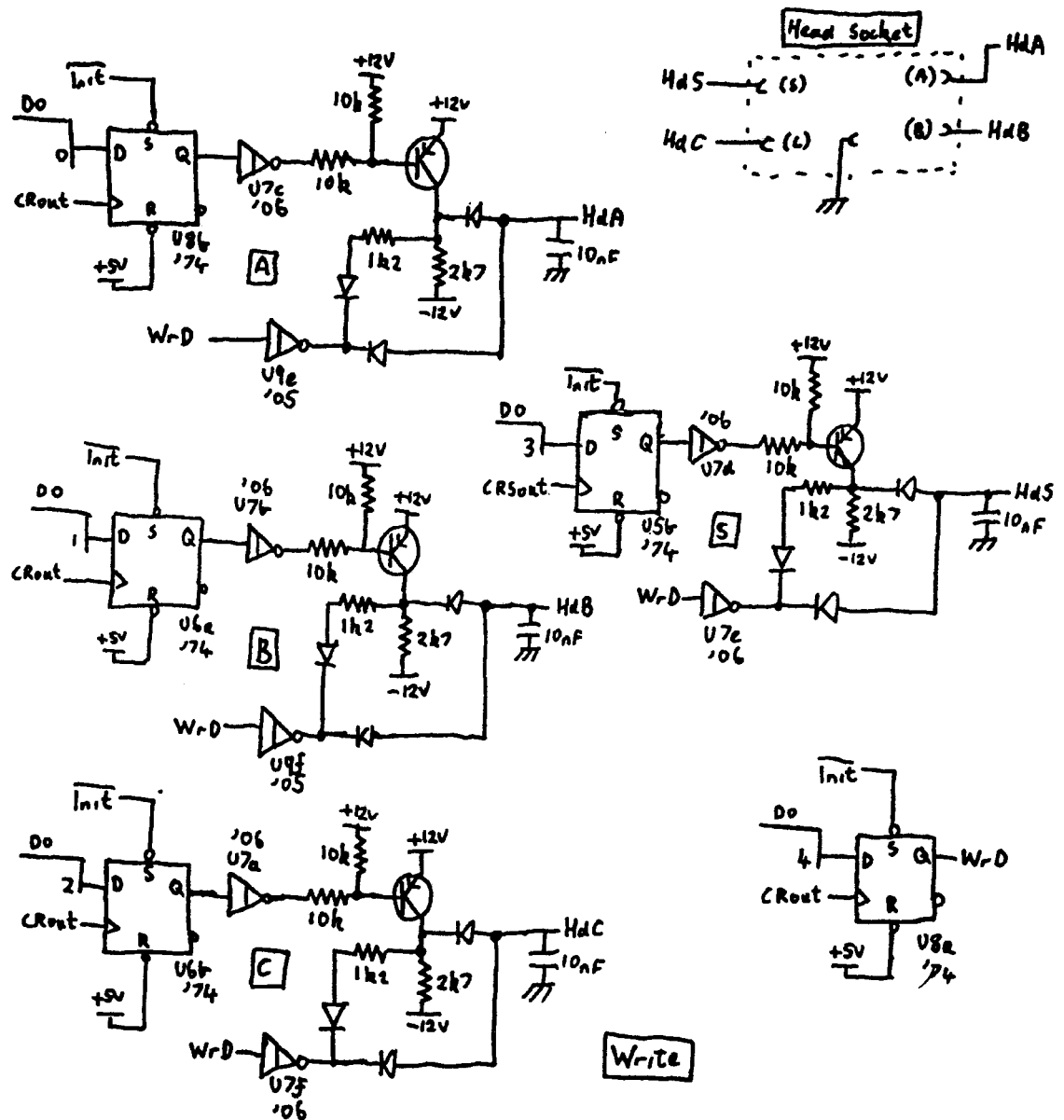
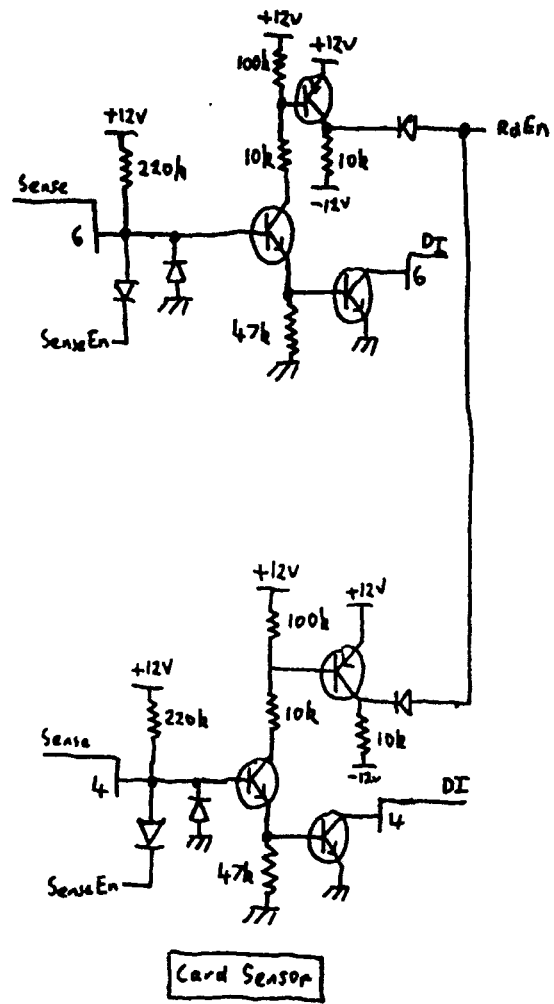


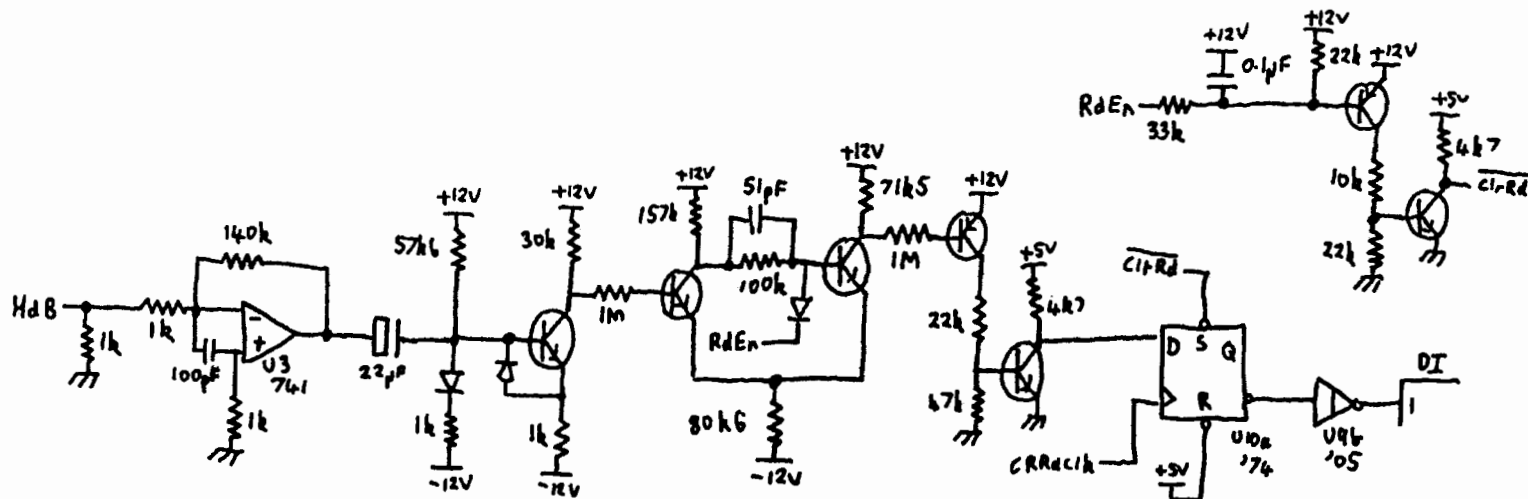
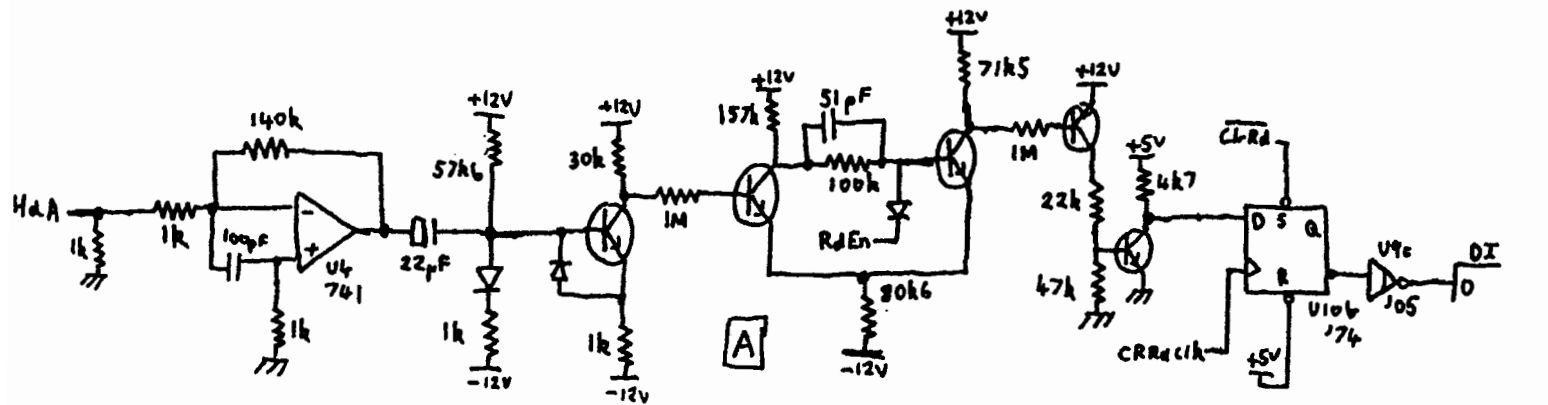




HP 9810 Card Reader Wiring

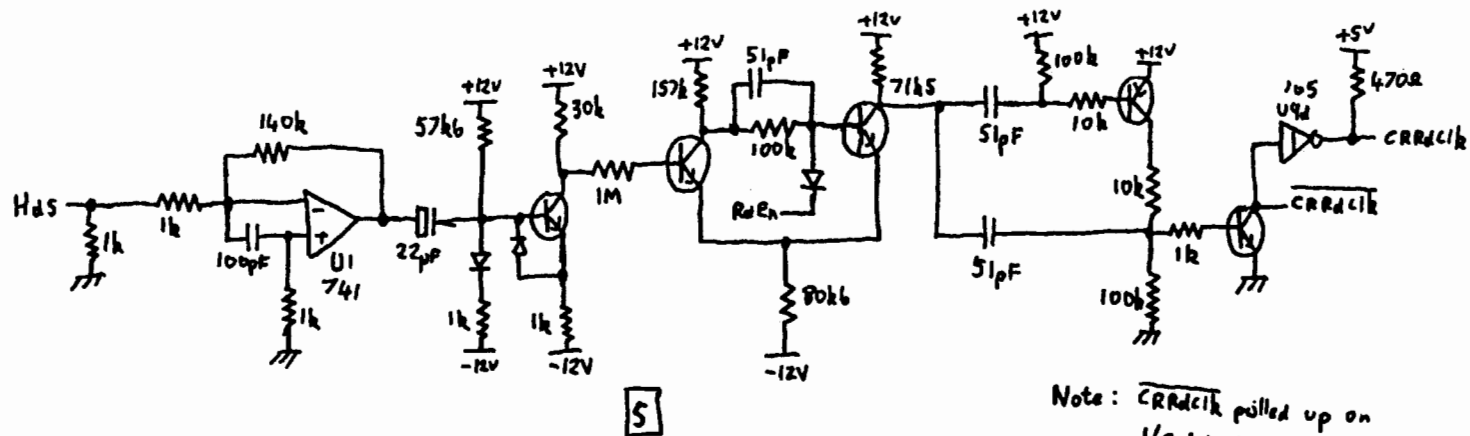
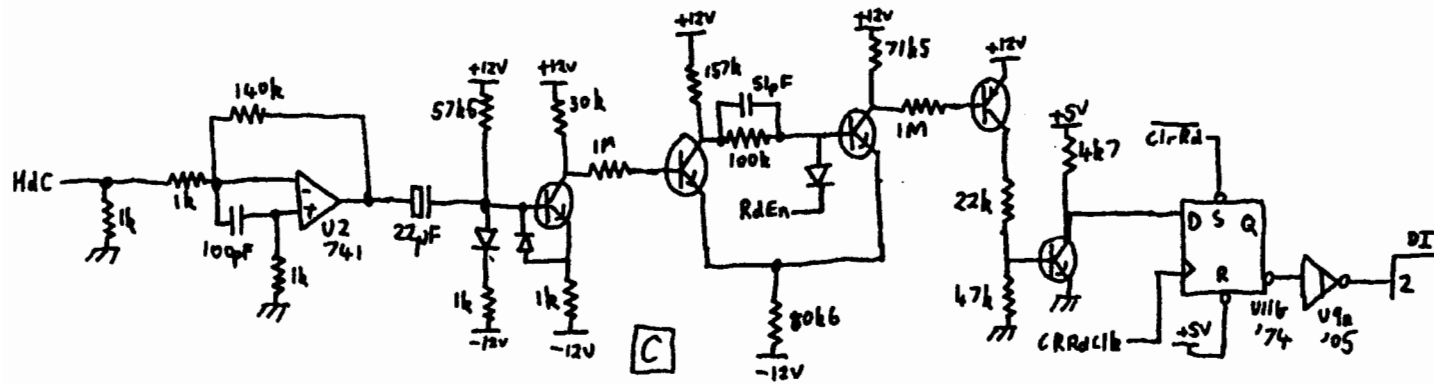




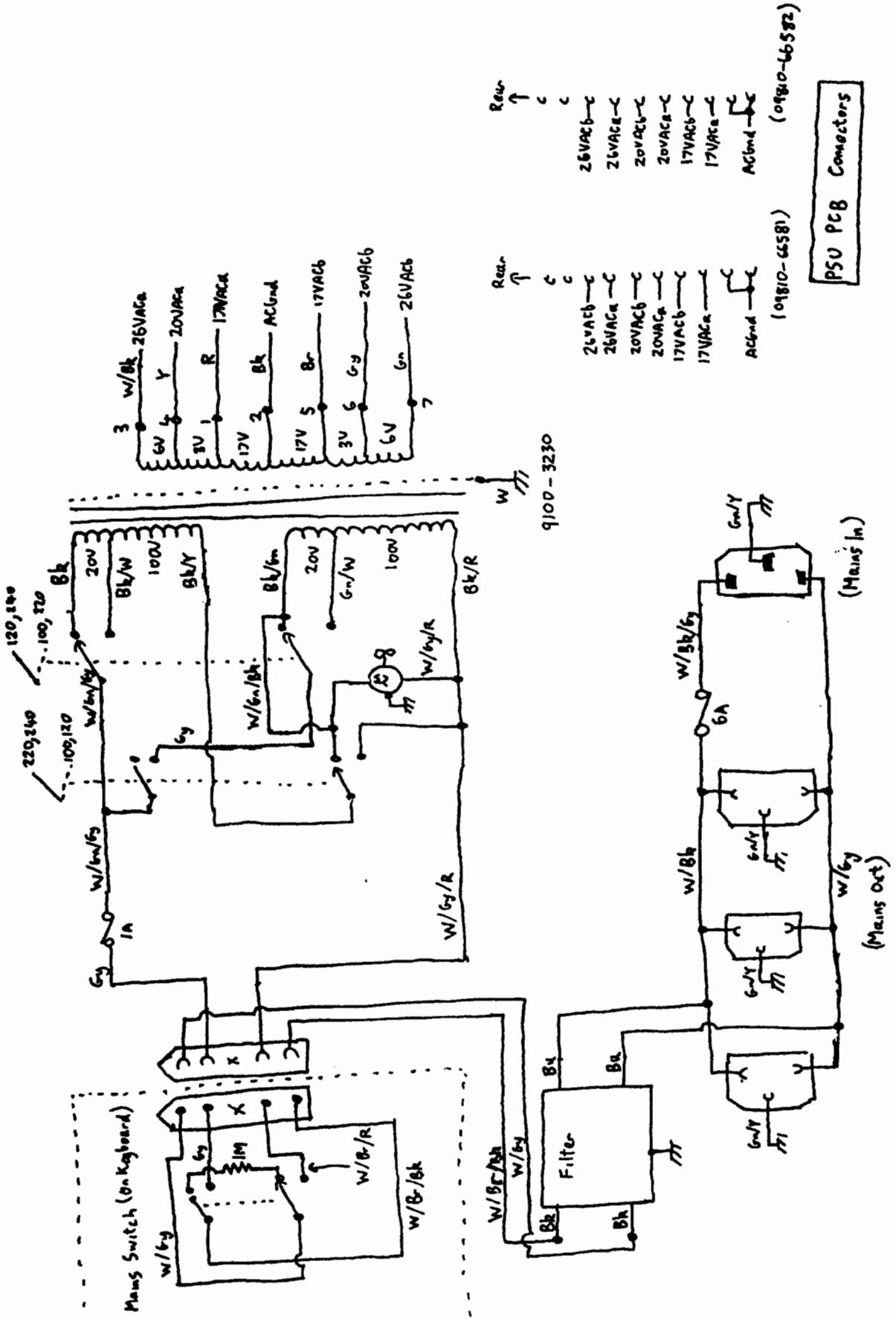


B

Read



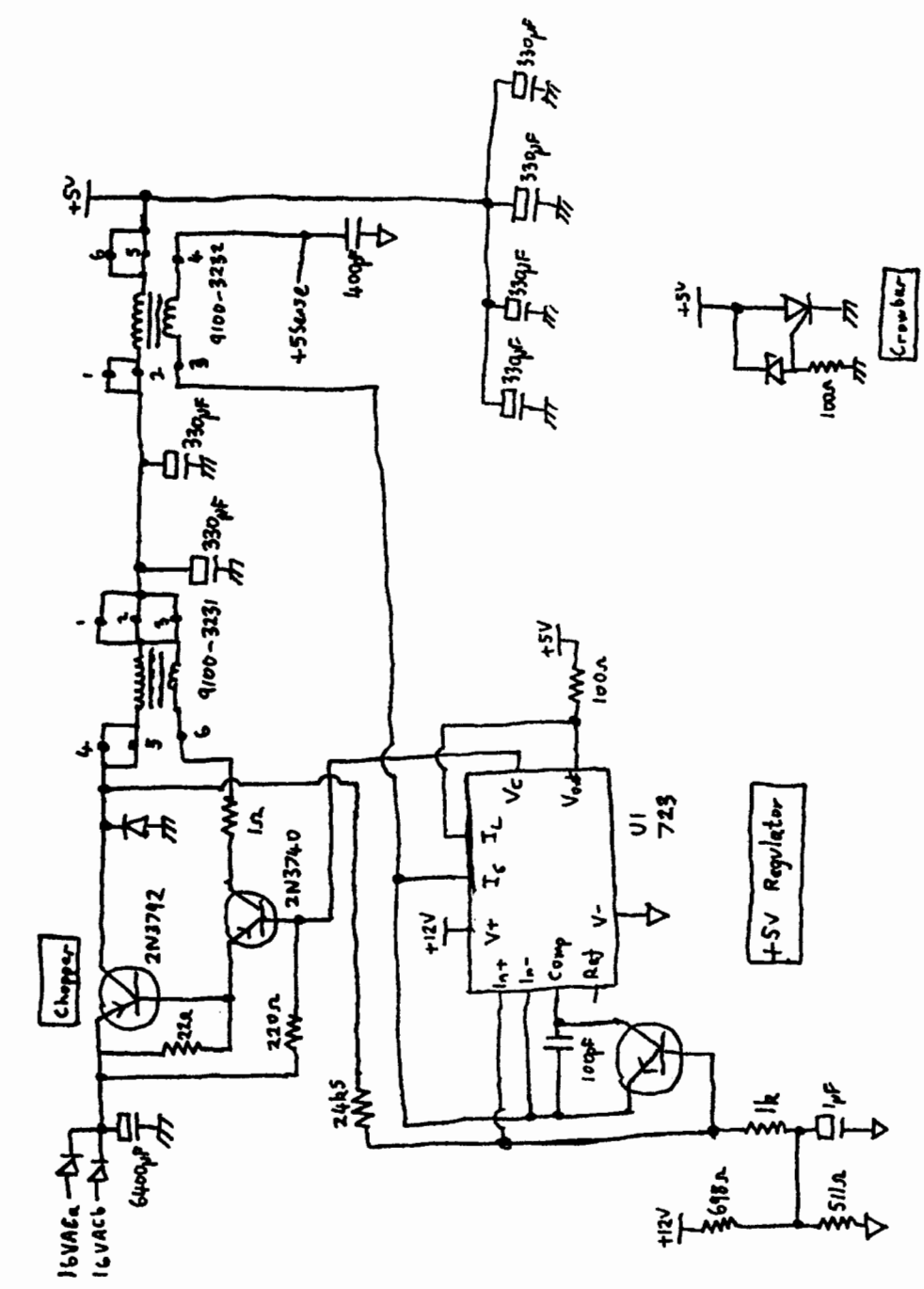
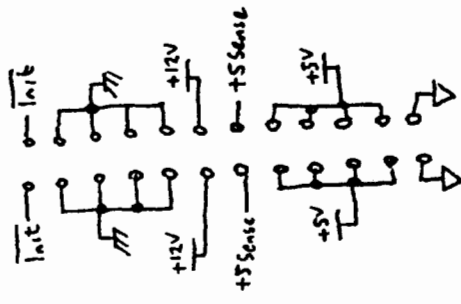
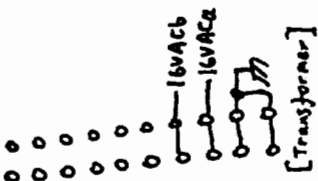
Note: CRRdclk pulled up on I/O Interface PCB (09810-66511)



HP9810 Transformer Wiring

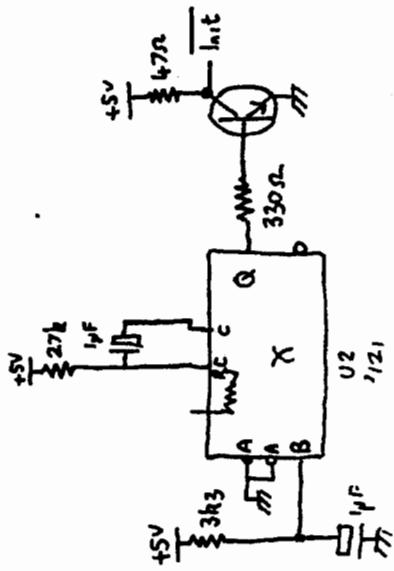
PSU PCB Connectors

near
LMS

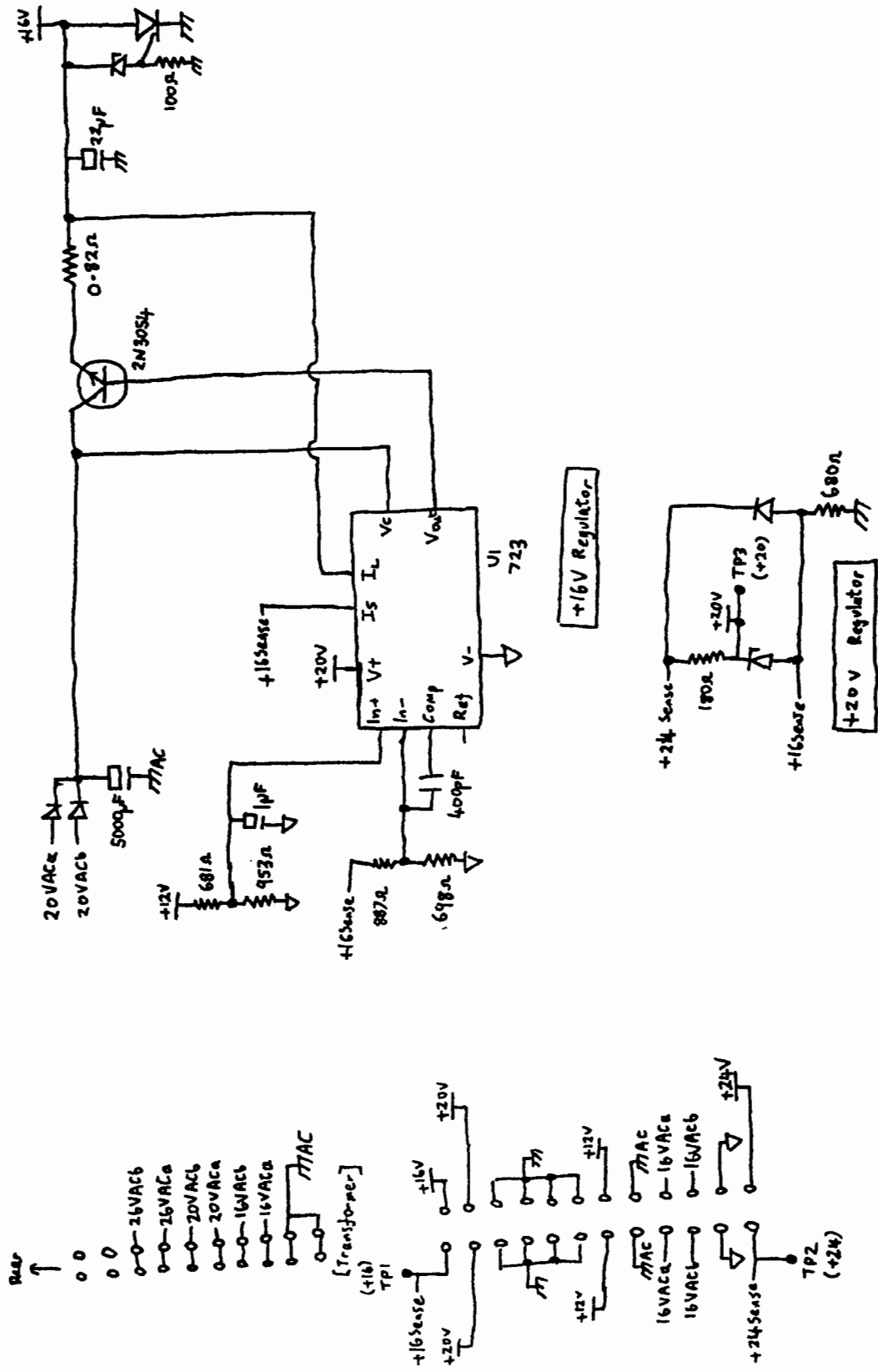


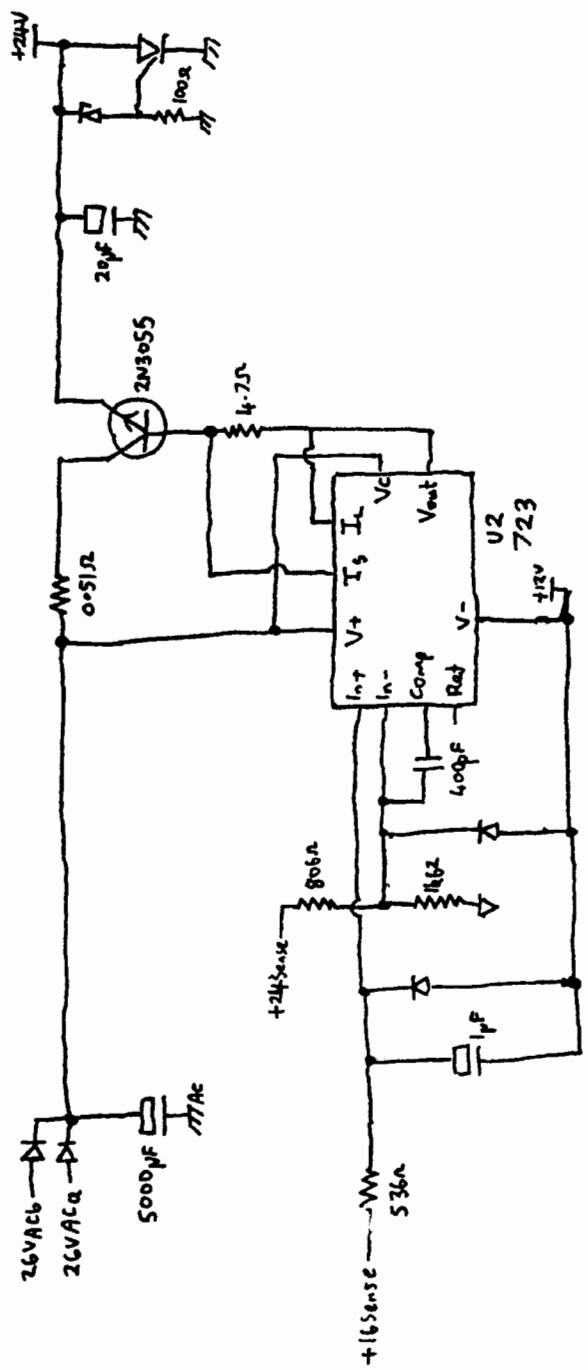
(Gy/Br) 09810-66581

HP9810 +5V PSU sheet ①

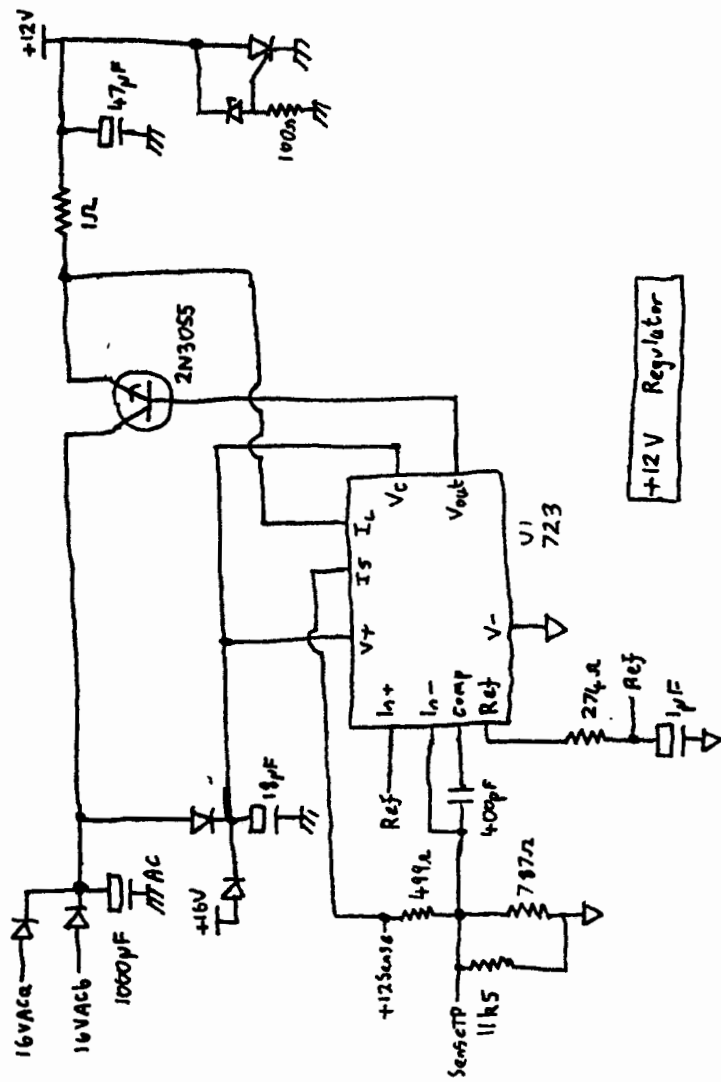


Power On Reset

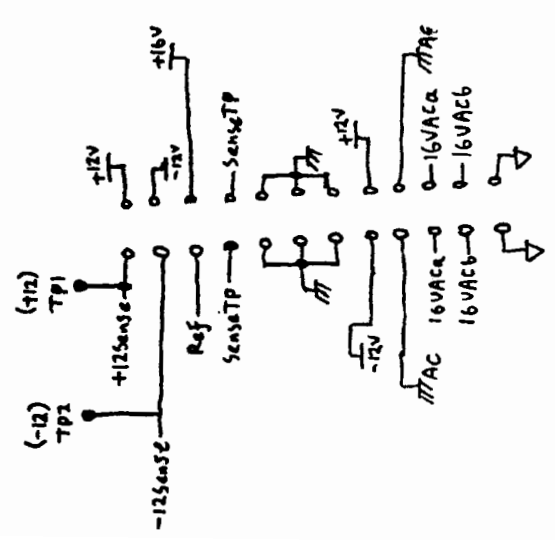


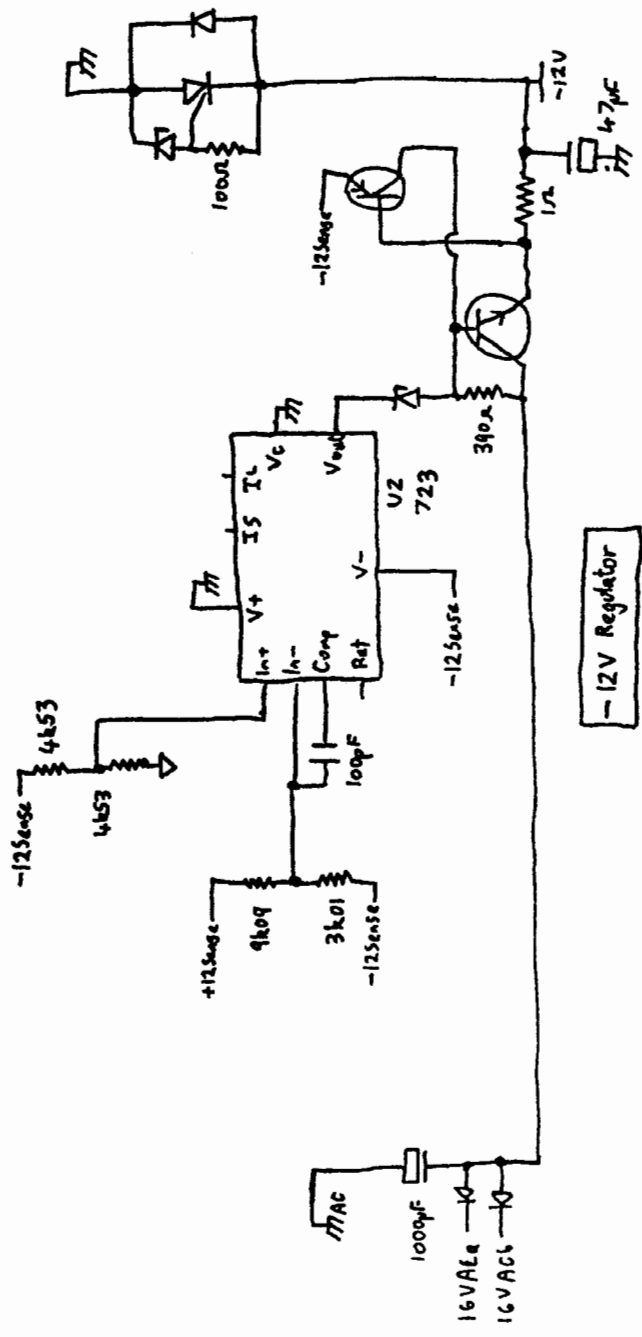


+24V Regulator

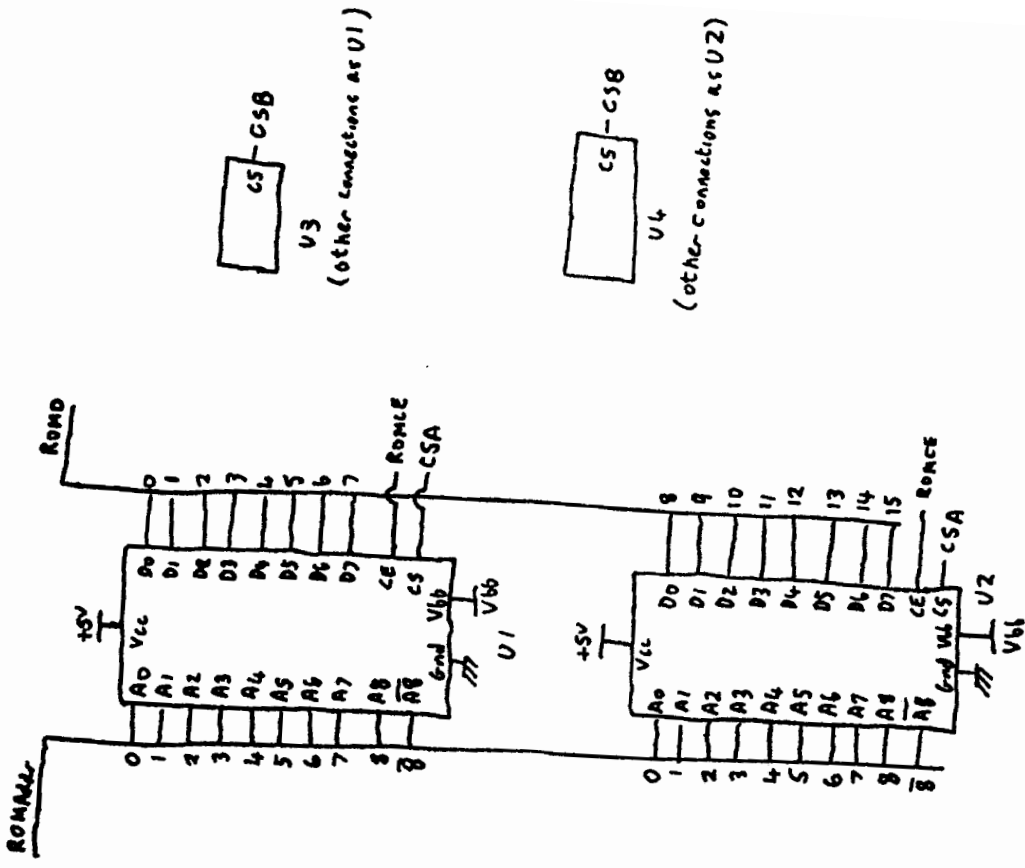


+12V Regulator

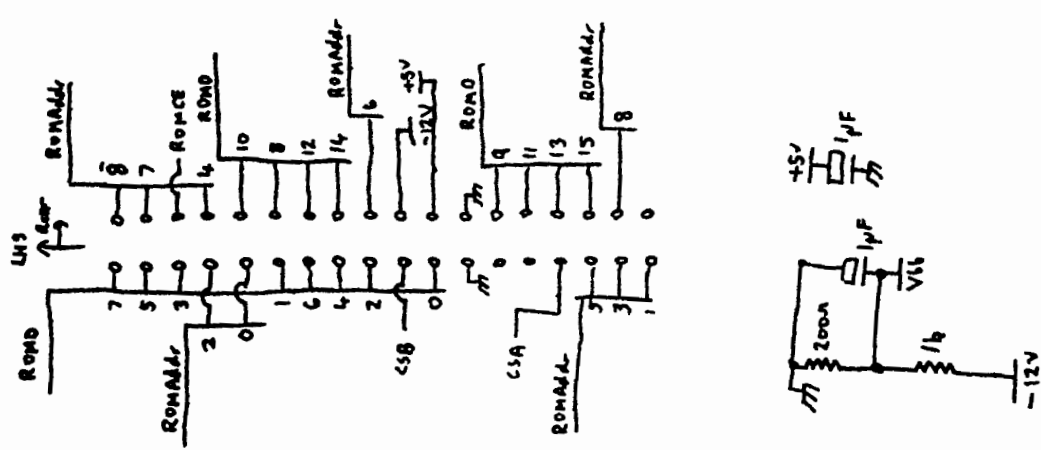




-12V Regulator



U1-U6 : HP 512x8 ROMs.



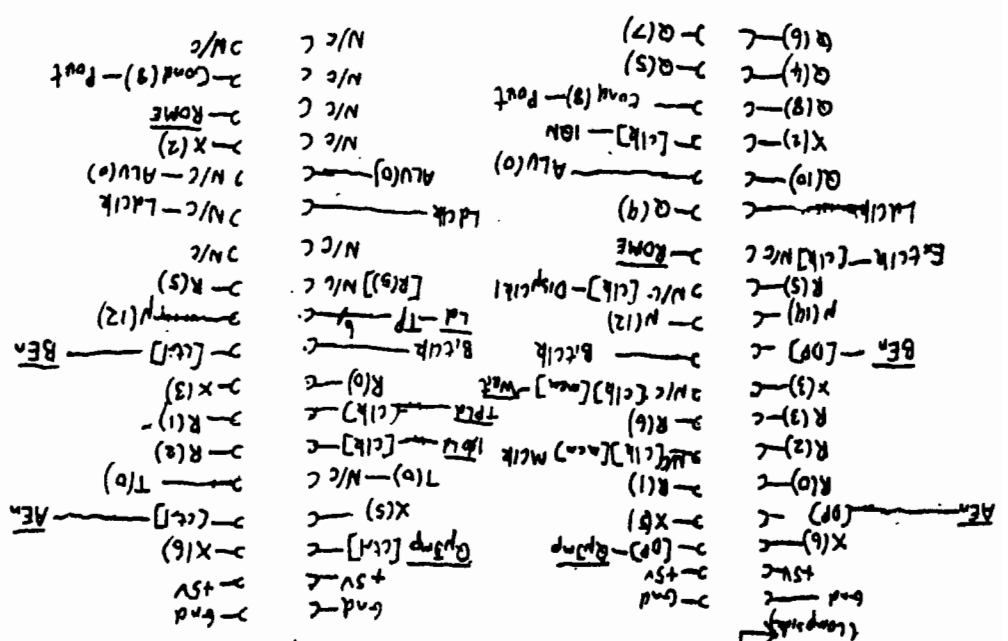
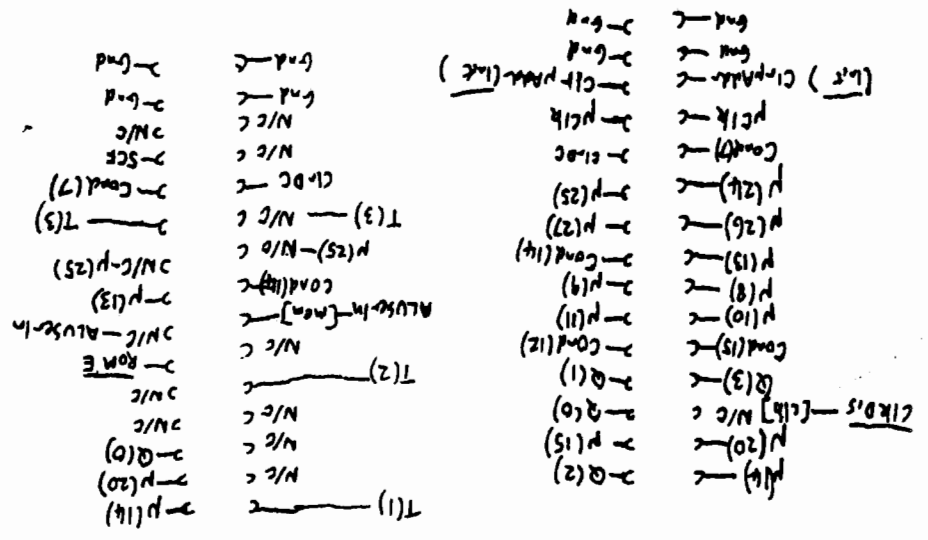
HP9810 ROM Module

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)



LHS
 Row

9810

LHS
 Row