

## HP9820 Diagrams

These Diagrams cover those sections that are different from the HP9810:

I/O Backplane 09820-66501  
Memory Box

ROM1 09820-66521  
ROM2 09820-66522  
Memory Timing 09820-66523  
Memory Address 09820-66524  
Memory Data 09820-66525  
RAM 09820-66526  
Memory Backplane 09820-66527

### Keyboard

Keyboard Cable  
Keyboard Encoder 09820-66532 (and 09810-66531)  
Keyboard 09820-66533

Display 09820-66541

For the following sections, please refer to the HP9810 Diagrams

Backplane 09810-66502  
ROM Module Backplane 09810-66503

### CPU

I/O Interface 09810-66511  
Clock 09810-66512  
CPU Control 09810-66513  
Data Path 09810-66514

### Printer

Printer Interface 11219-66551  
Printer Driver 11219-66552

### Card Reader

Card Reader Wiring  
Card Reader Interface 09810-66562

### PSU

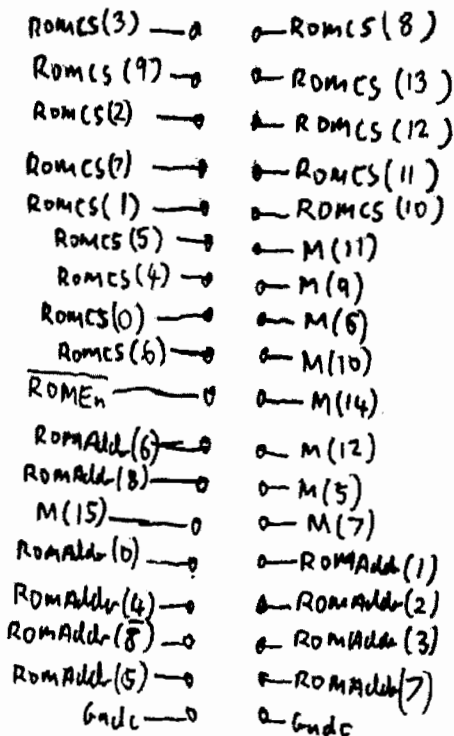
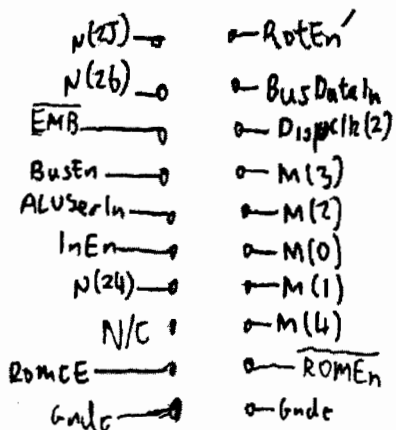
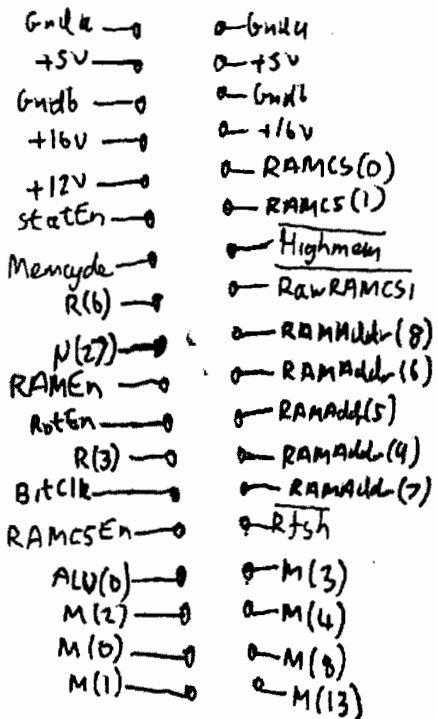
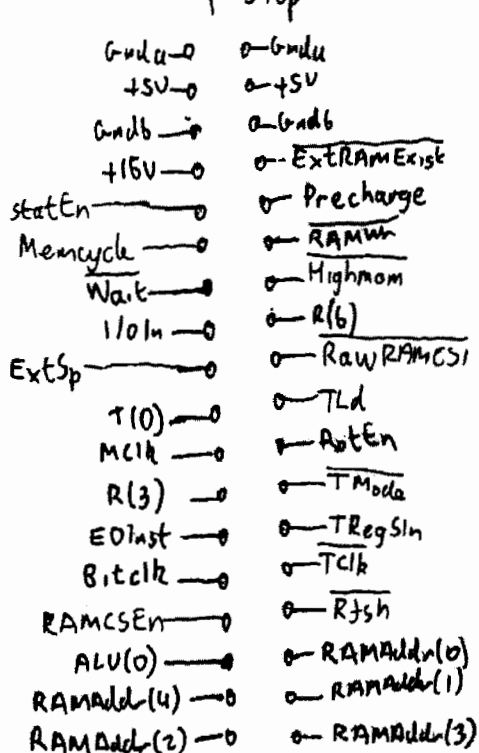
Transformer Wiring  
+5V PSU 09810-66581  
+16V/+20V/+24V PSU 09810-66582  
+/-12V PSU 09810-66583

### ROM Module

HP9820 Memory Box

Rear

↑ → Top



09820-66523  
Memory Timing  
(R/or)

09820-66524  
Memory Address  
(R/Y)

# HP 9820 Memory Box

Rear  
↑ → Top

Gnd a	→	0	+5V
Gnd b	→	0	Gnd b
+16V	→	0	-12V
stgTEn	→	0	+12V
ExtRAMEn	→	0	RAMDn(15)
RAMDout(11)	→	0	RAMDout(8)
RAMDout(5)	→	0	RAMDn(1)
RAMDout(15)	→	0	RAMDn(12)
RAMEn	→	0	RAMDout(9)
Tld	→	0	RAMDn(7)
Tmode	→	0	RAMDn(5)
TRegSlr	→	0	RAMDout(12)
Tclk	→	0	RAMDn(11)
RAMDout(7)	→	0	RAMDout(1)
RAMDn(8)	→	0	RAMDn(9)
T(3)	→	0	T(0)
T(4)	→	0	T(5)
T(2)	→	0	T(1)

T(6)	→	0	T(7)
T(8)	→	0	T(4)
T(11)	→	0	T(10)
T(13)	→	0	T(12)
T(15)	→	0	T(16)
ROMD(9)	→	0	ROMD(8)
ROMD(11)	→	0	RAMDout(4)
ROMD(10)	→	0	RAMDout(6)
ROMD(6)	→	0	RAMDout(2)
ROMD(7)	→	0	RAMDout(10)
ROMD(3)	→	0	ROMD(4)
ROMD(2)	→	0	ROMD(5)
RAMDn(4)	→	0	RAMDn(3)
RAMDn(0)	→	0	RAMDn(2)
RAMDn(14)	→	0	RAMDout(13)
RAMDn(13)	→	0	RAMDout(3)
RAMDn(6)	→	0	RAMDout(14)
RAMDn(10)	→	0	RAMDout(6)
ROMD(1)	→	0	ROMD(15)
ROMD(12)	→	0	ROMD(13)
ROMD(0)	→	0	ROMD(14)
Gnd c	→	0	Gnd c

09820-66525  
Memory Data  
(R/Gn)

# HP 9820 Memory Box

Rear  
↑ → Top

Gnd6 →	0 +20V
+16V →	0
RAMCS(0) →	0
N/C →	0 Precharge
RAMWn →	0 RAMDin(13)
RAMDout(11) →	0 RAMDout(18)
RAMDout(5) →	0 RAMDin(1)
RAMDout(15) →	0 RAMDin(12)
RAMDout(9) →	0 RAMDin(7)
RAMDout(7) →	0 RAMDin(5)
RAMDout(12) →	0 RAMDin(11)
RAMDout(1) →	0 RAMDin(8)
RAMAdd(5) →	0 RAMDin(9)
RAMAdd(4) →	0 RAMAdd(8)
RAMAdd(7) →	0 RAMAdd(6)
RAMAdd(1) →	0 RAMAdd(0)
RAMAdd(3) →	0 RAMAdd(4)
N/C →	0 RAMAdd(2)

Gnd6 →	0 +20V
+16V →	0 Gnd6
RAMCS(1) →	0 Ext RAM EXIST
N/C →	0 Precharge
RAMWn →	0 RAMDin(15)
RAMDout(11) →	0 RAMDout(8)
RAMDout(5) →	0 RAMDin(1)
RAMDout(5) →	0 RAMDin(12)
RAMDout(9) →	0 RAMDin(7)
RAMDout(7) →	0 RAMDin(5)
RAMDout(12) →	0 RAMDin(11)
RAMDout(1) →	0 RAMDin(8)
RAMAdd(5) →	0 RAMDin(4)
RAMAdd(9) →	0 RAMAdd(8)
RAMAdd(7) →	0 RAMAdd(6)
RAMAdd(1) →	0 RAMAdd(0)
RAMAdd(3) →	0 RAMAdd(4)
N/C →	0 RAMAdd(2)

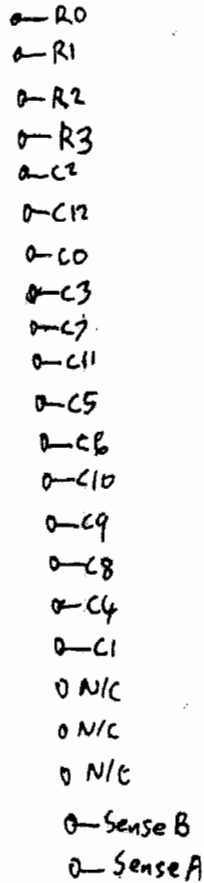
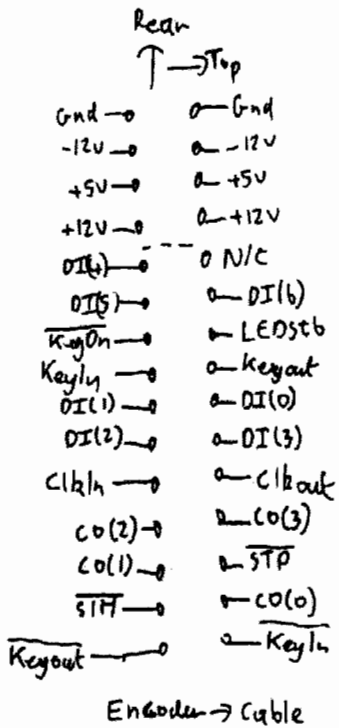
N/C →	0 N/C
RAMDout(8) →	0 RAMDout(4)
RAMDout(10) →	0 RAMDout(2)
RAMDin(2) →	0 RAMDin(3)
RAMDin(14) →	0 RAMDin(0)
RAMDin(4) →	0 RAMDout(13)
RAMDin(13) →	0 RAMDout(3)
RAMDin(6) →	0 RAMDout(14)
RAMDin(10) →	0 RAMDout(0)
Gnd6 →	0 Gnd6

N/C →	0 N/C
RAMDout(6) →	0 RAMDout(4)
RAMDout(10) →	0 RAMDout(2)
RAMDin(2) →	0 RAMDin(3)
RAMDin(14) →	0 RAMDin(0)
RAMDin(4) →	0 RAMDout(13)
RAMDin(13) →	0 RAMDout(3)
RAMDin(6) →	0 RAMDout(14)
RAMDin(10) →	0 RAMDout(0)
Gnd6 →	0 Gnd6

09820-66526  
Standard RAM  
(R/Bu)

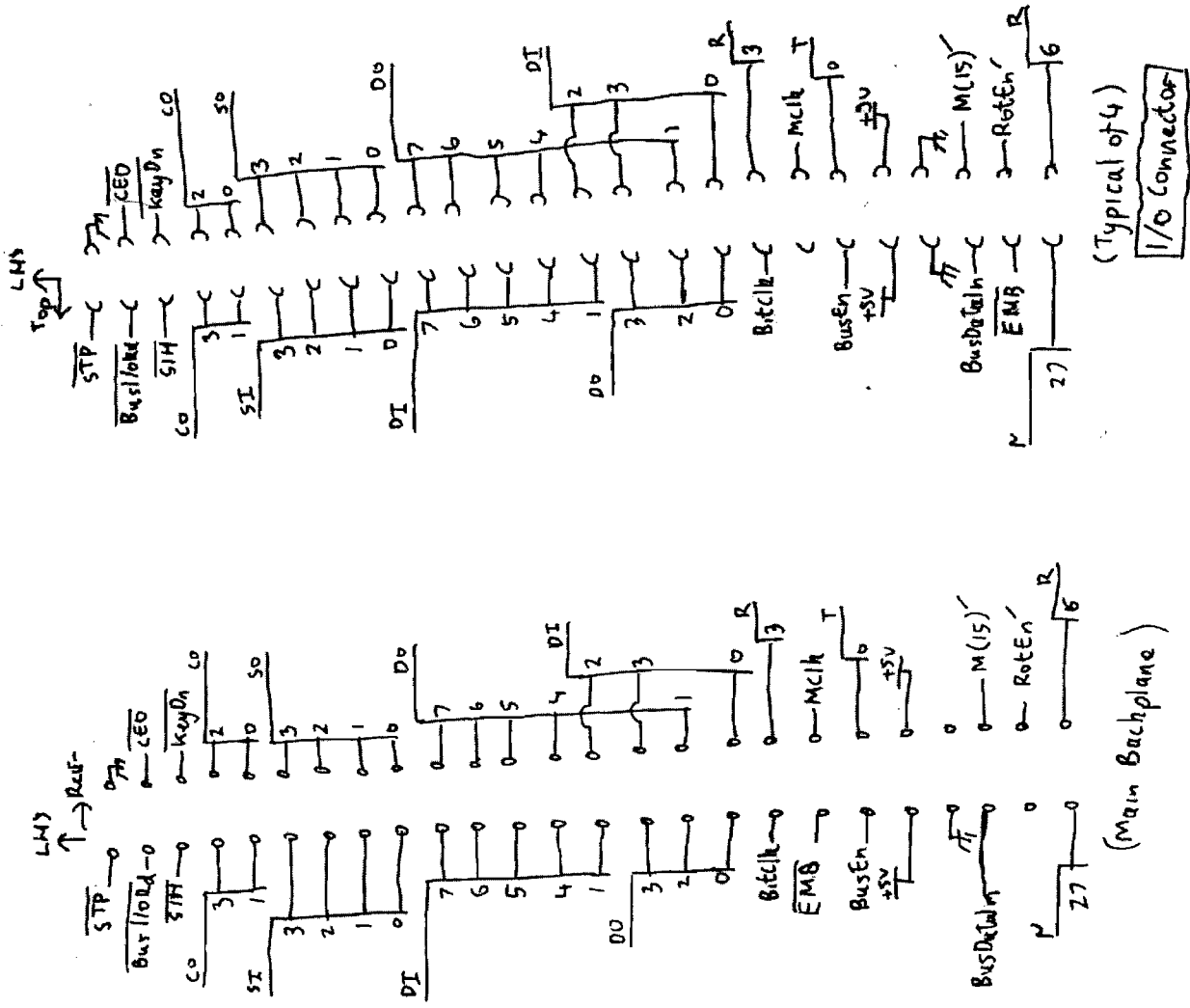
09820-66526  
Option RAM  
(R/Bu)

# HP9820 Keyboard

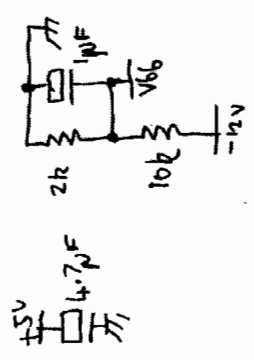
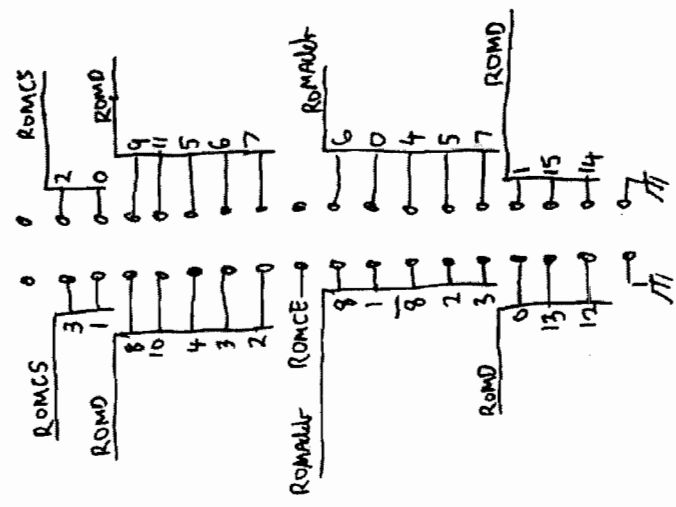
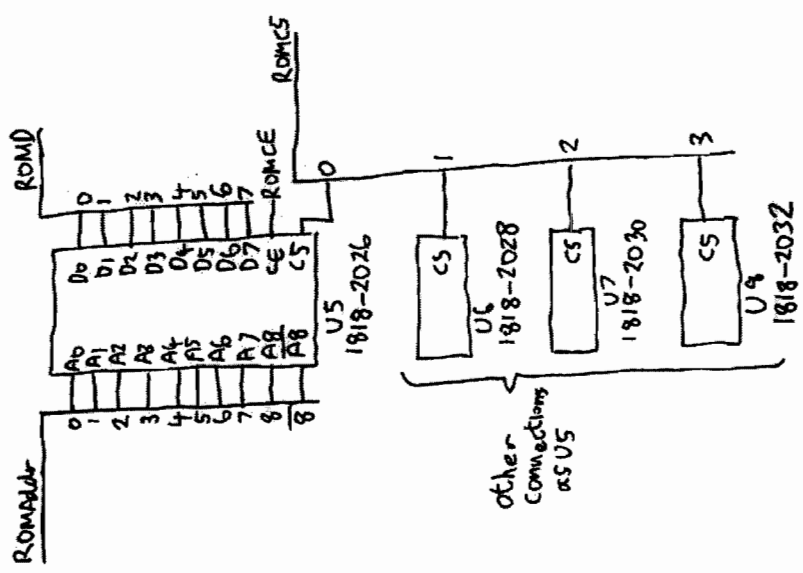
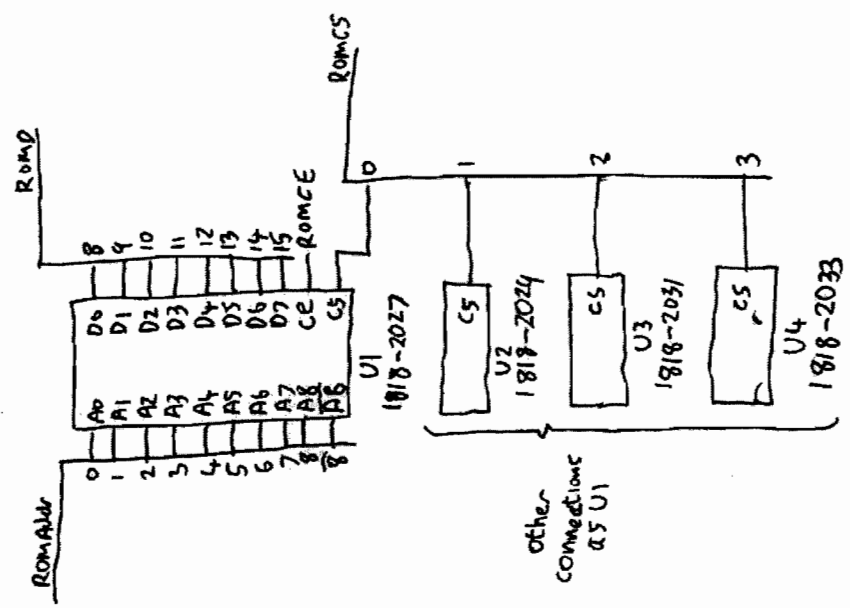
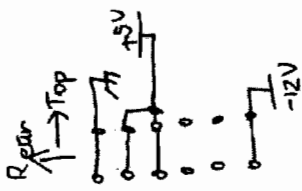


Encoder clock frequency (at  
V8f output) = 170 kHz

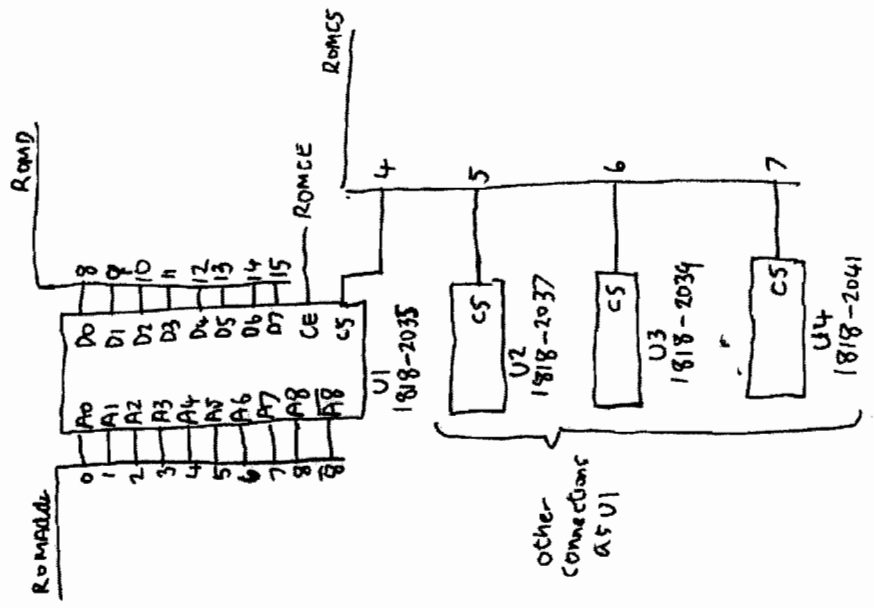
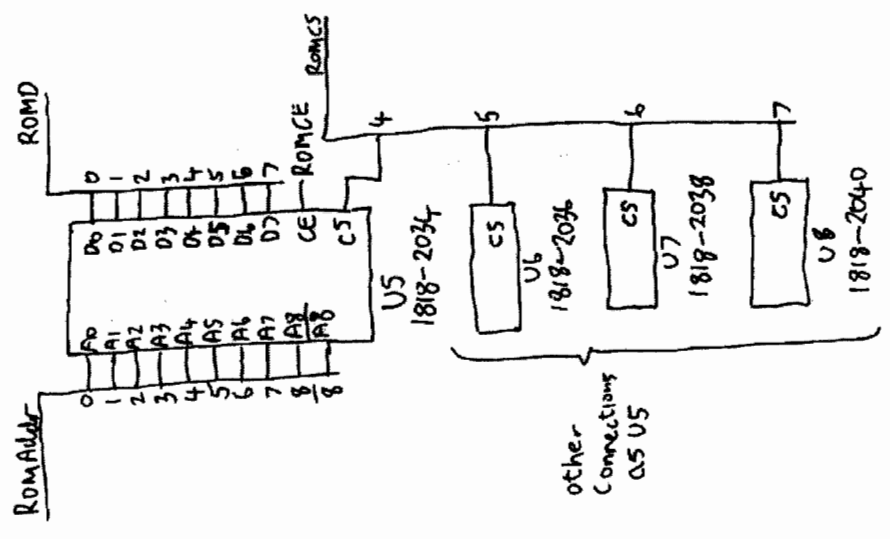
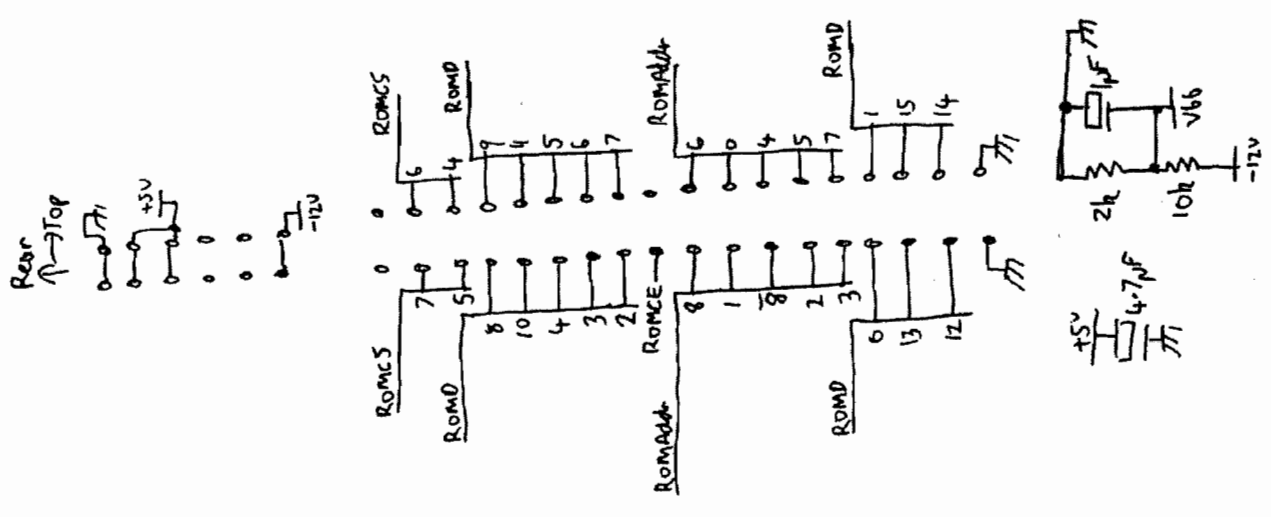
Encoder → Keyboard



HP9820 I/O Backplane 09820-66501



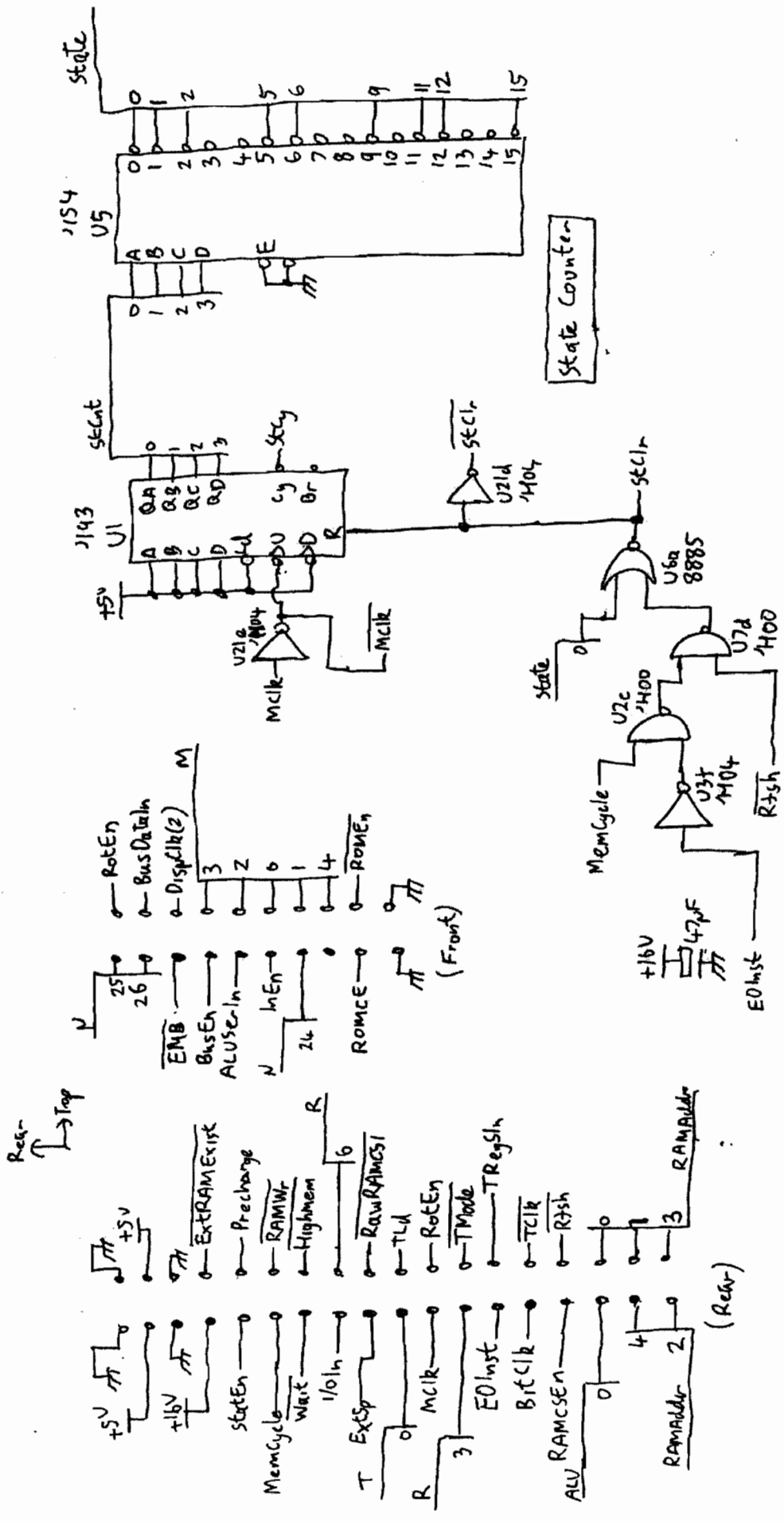
HP 9820 ROM 1 PCB (R/Bm) 09820-66521

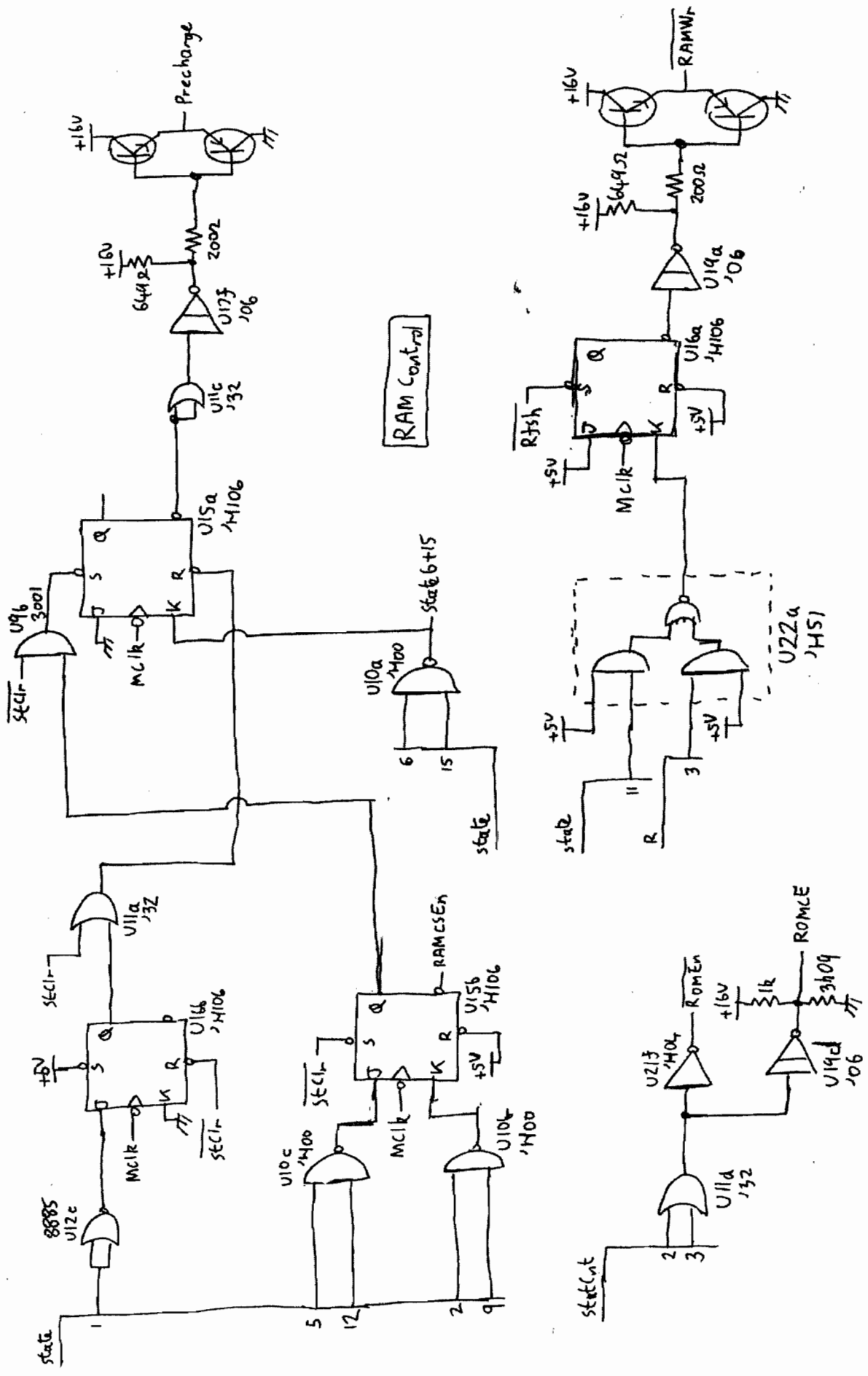


09820 - 66522

HP9820 ROM2 PCB (R/R)

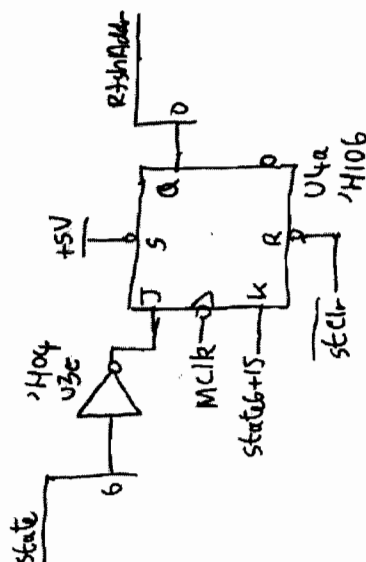
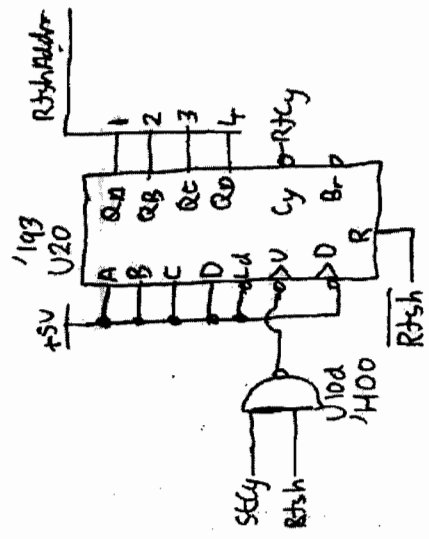
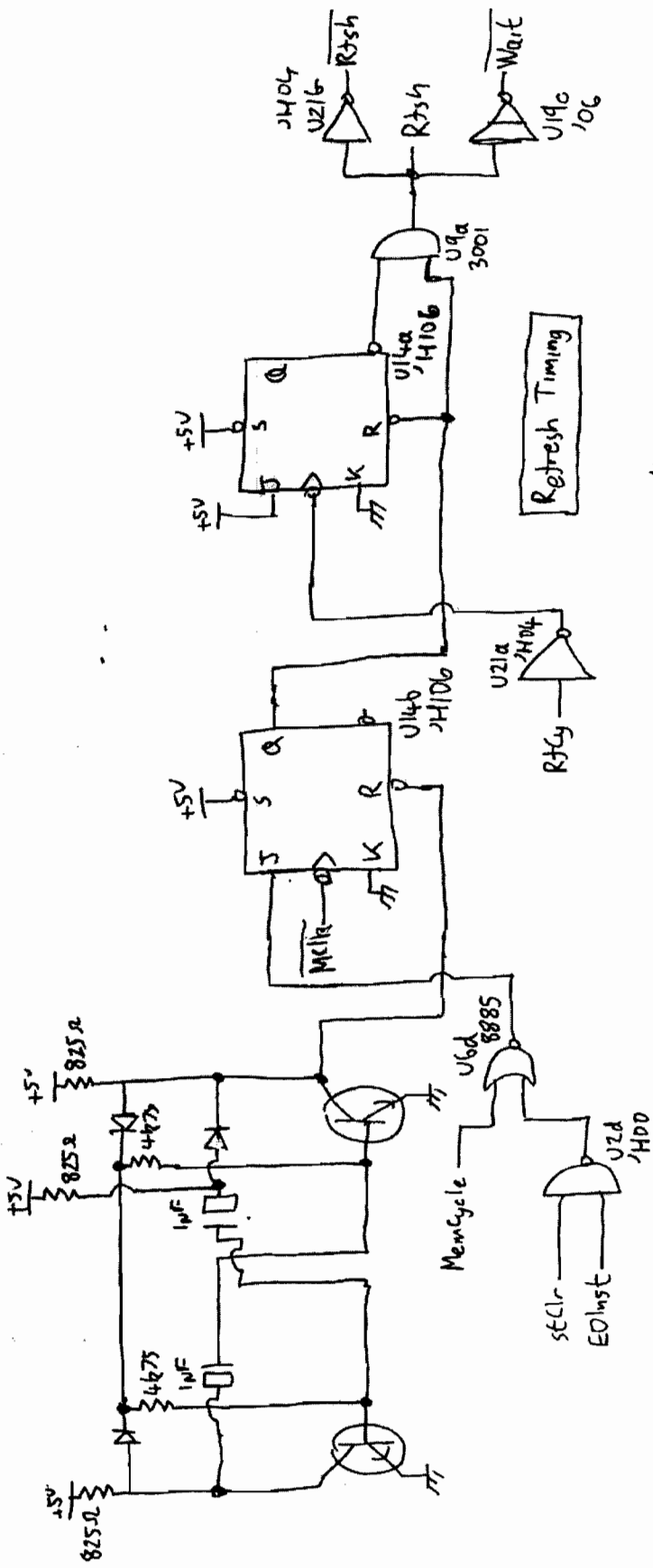


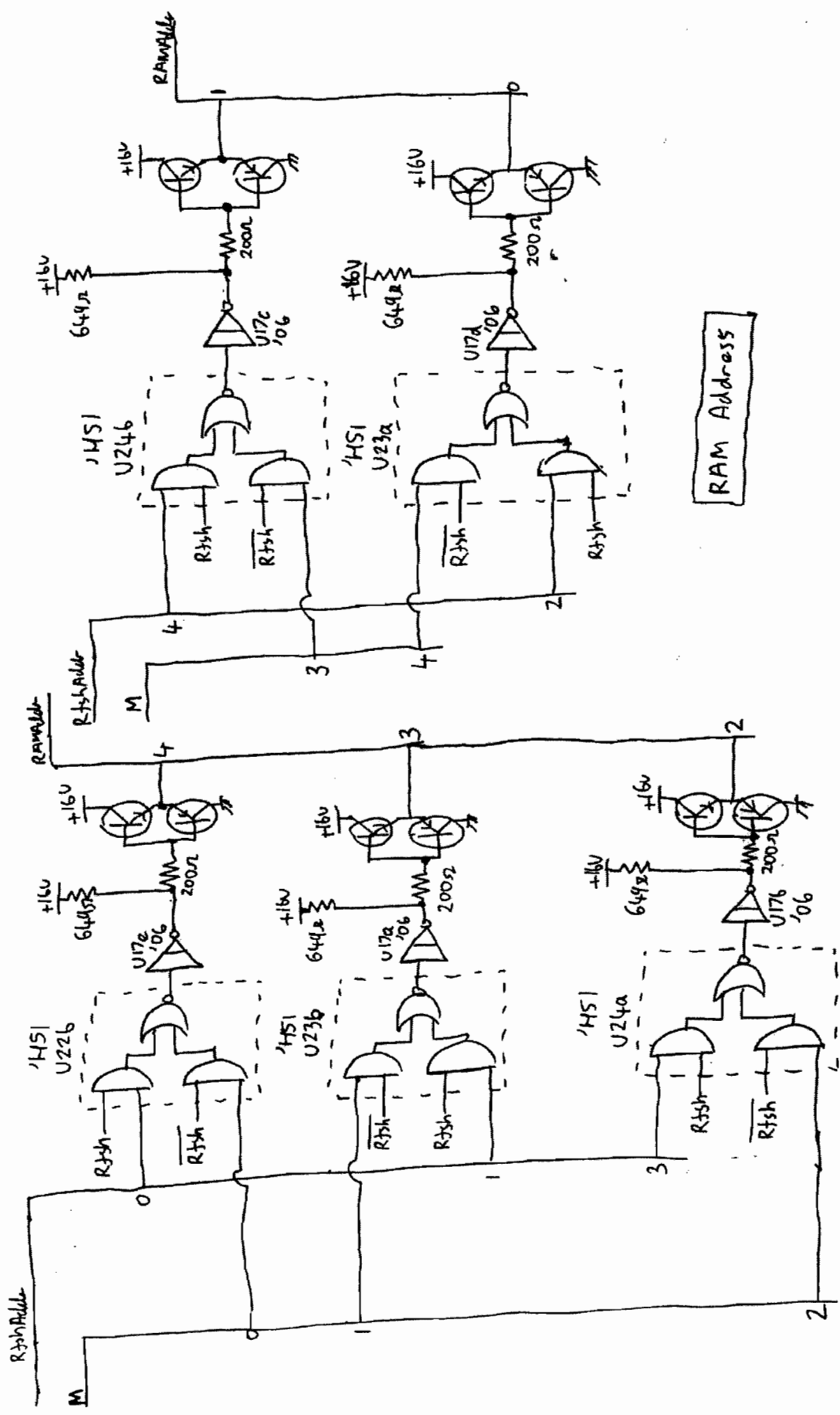




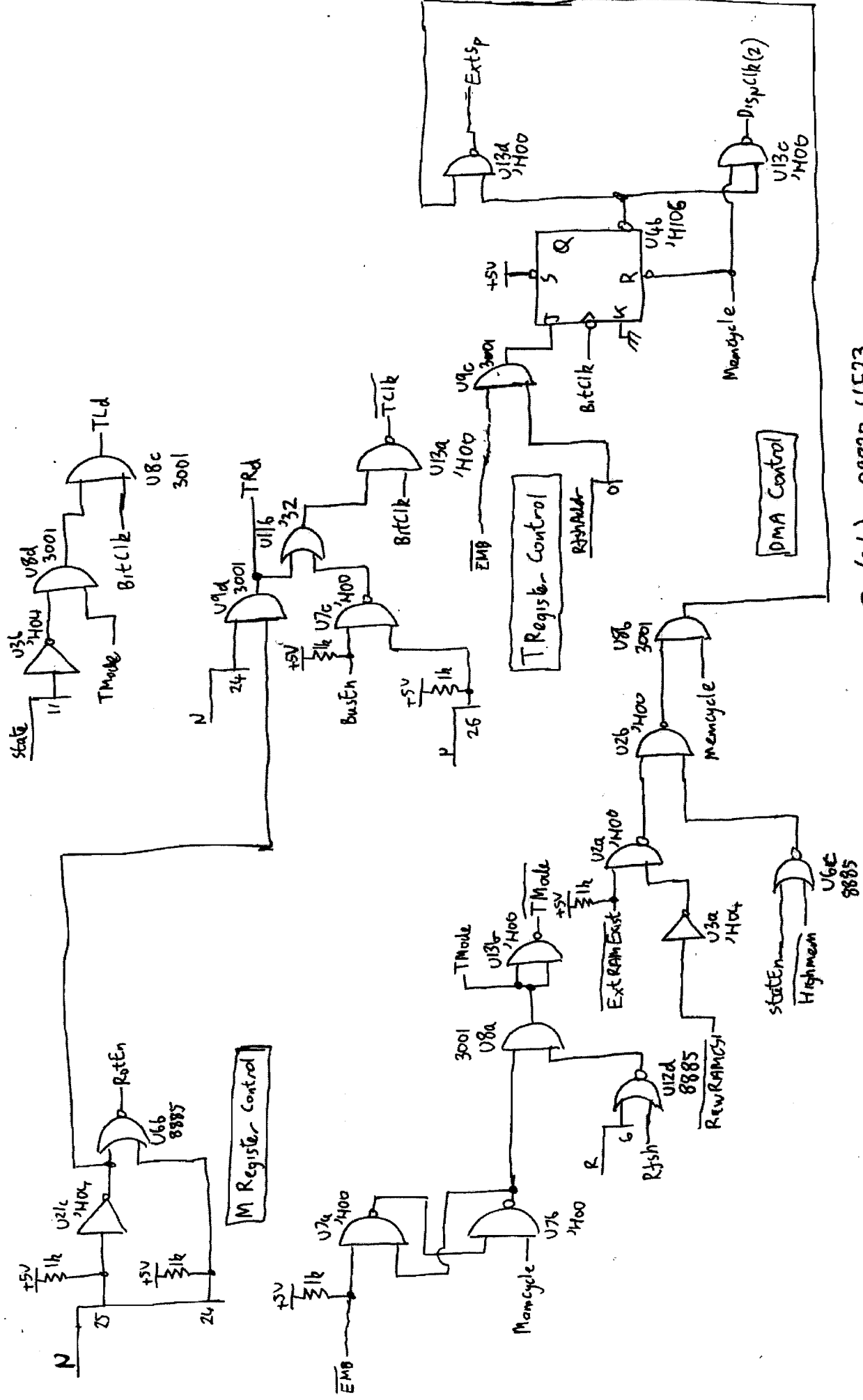
RAM Control

HP9820 Memory Timing PCB Sheet 2 (R/O) 09820-66523

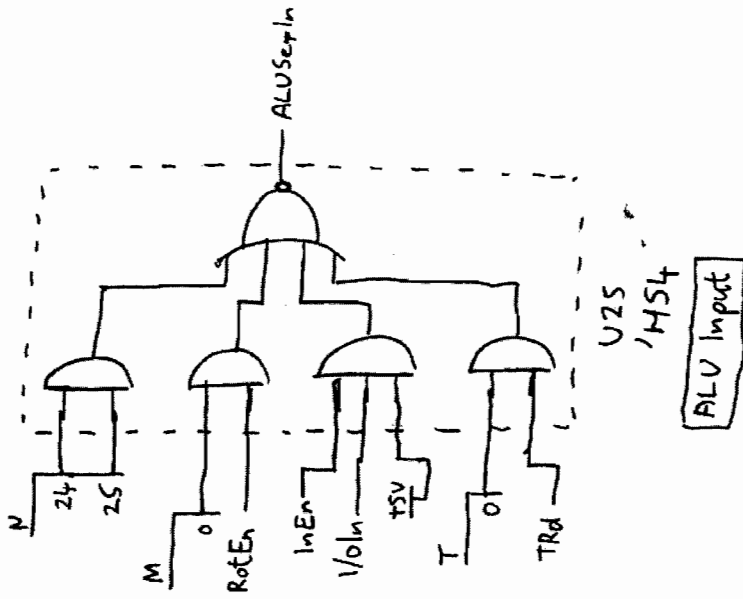
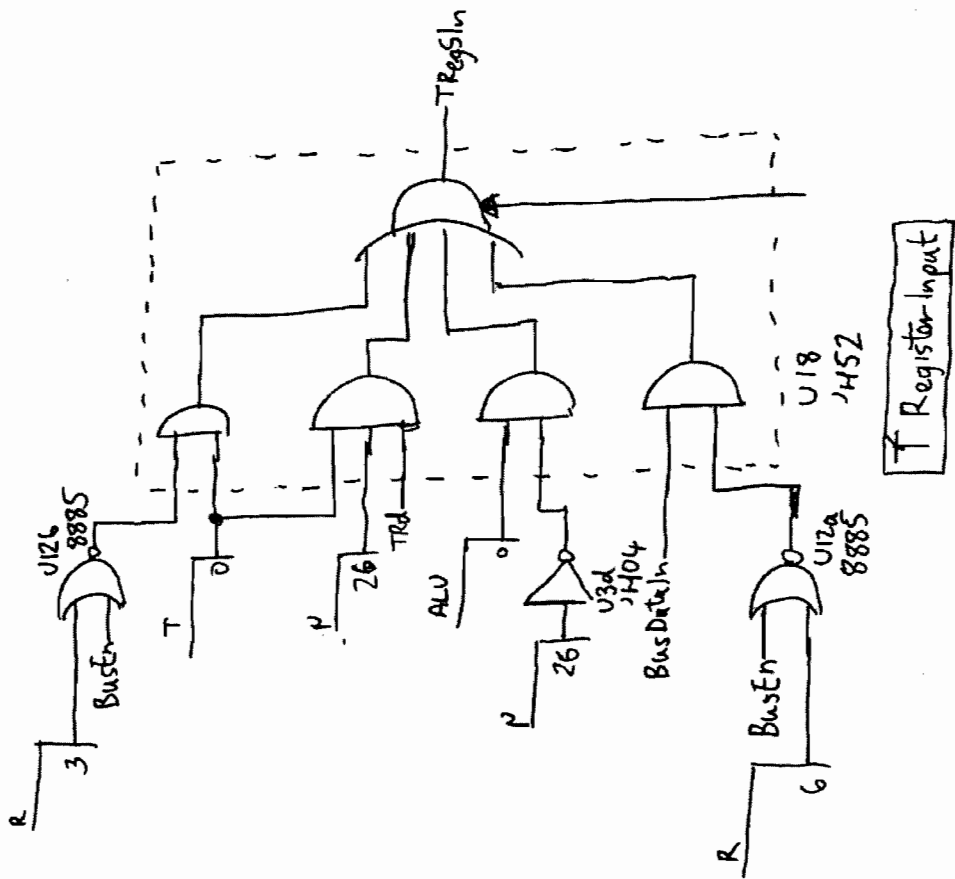


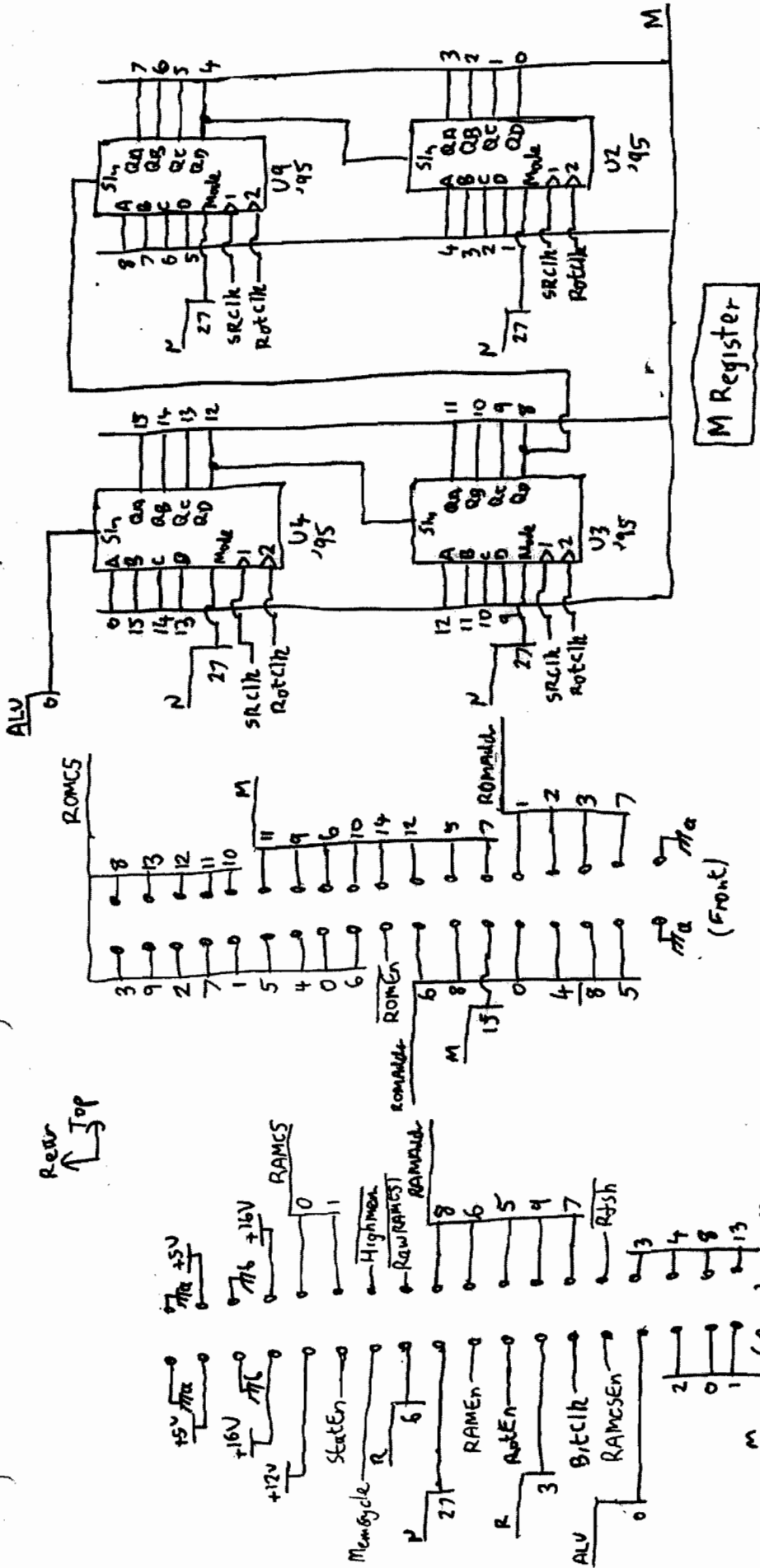


RAM Address

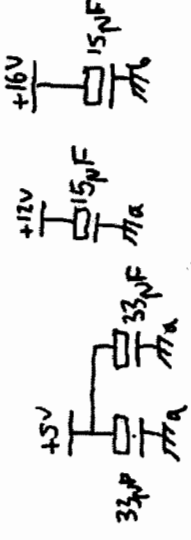
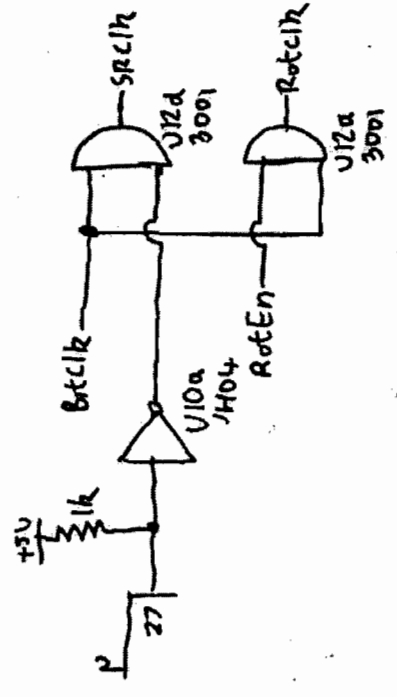
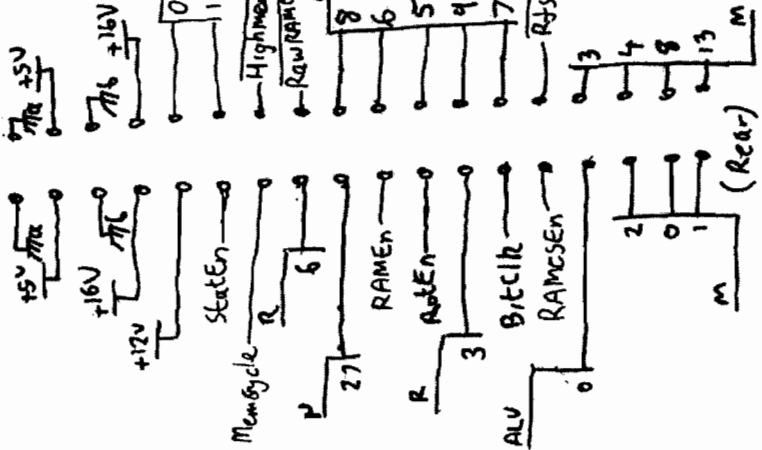


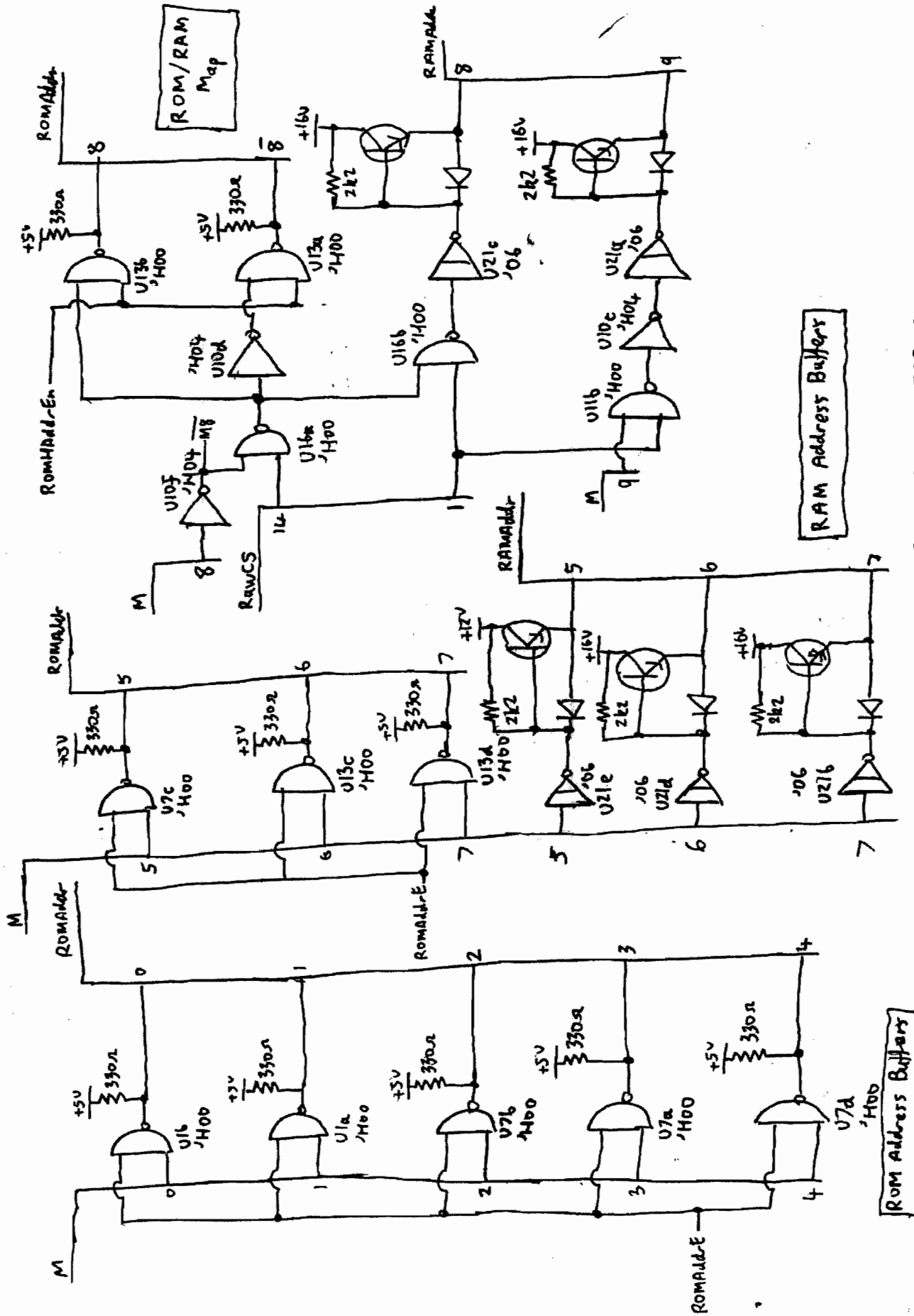
HP9820 Memory Timing PCB Sheet (R/O) 09820-66523



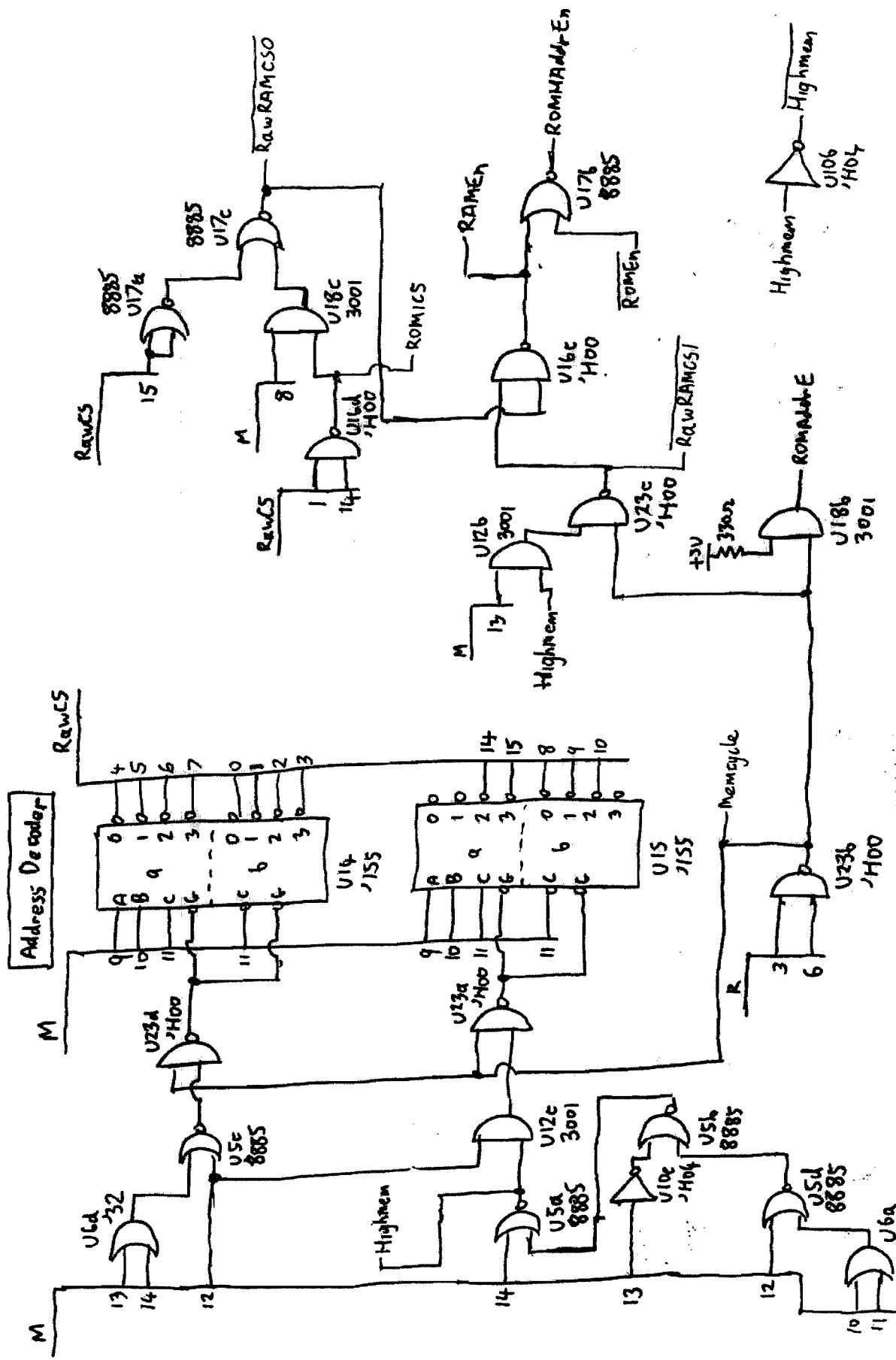


Rev  
↑ Jop

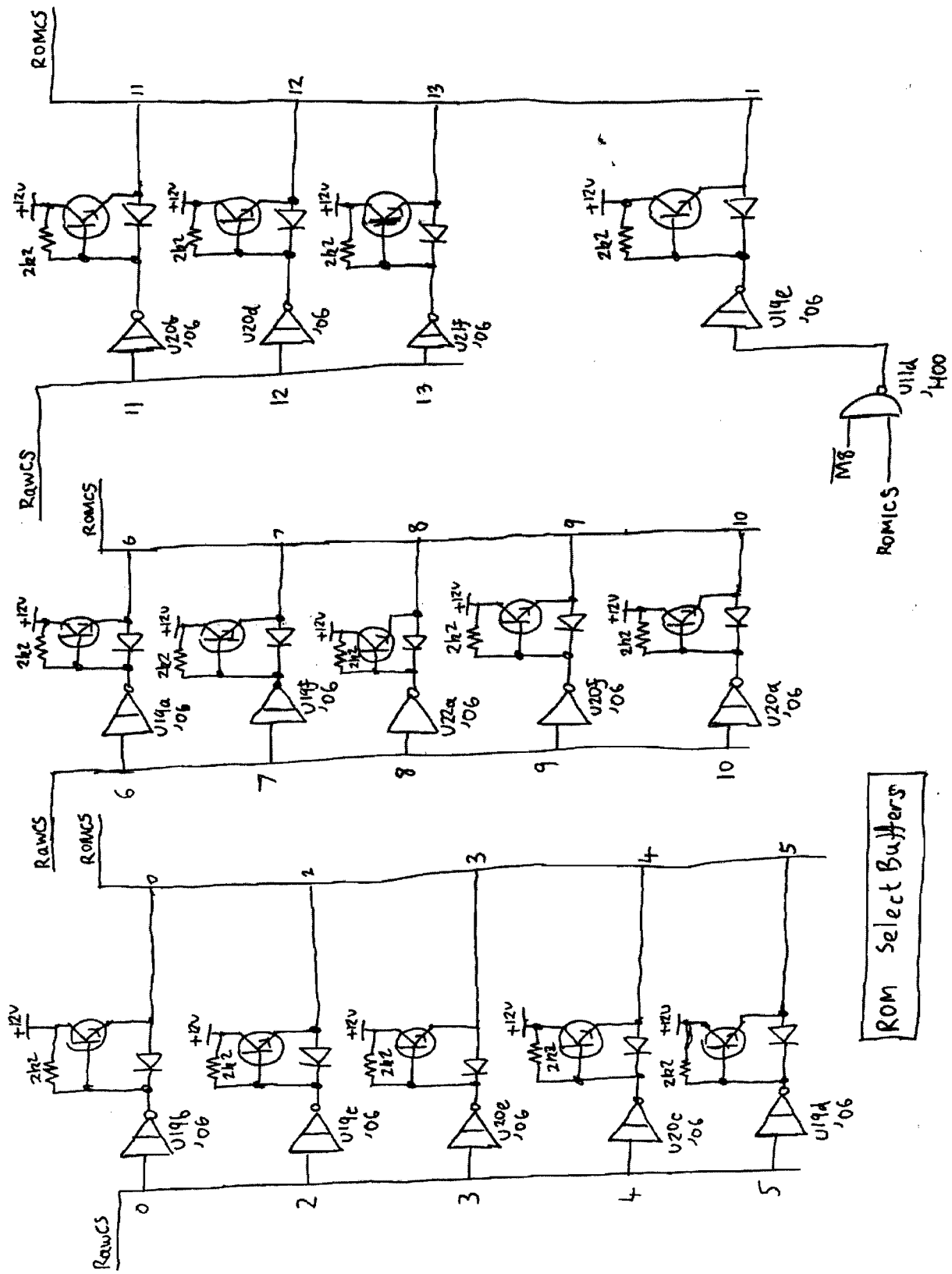




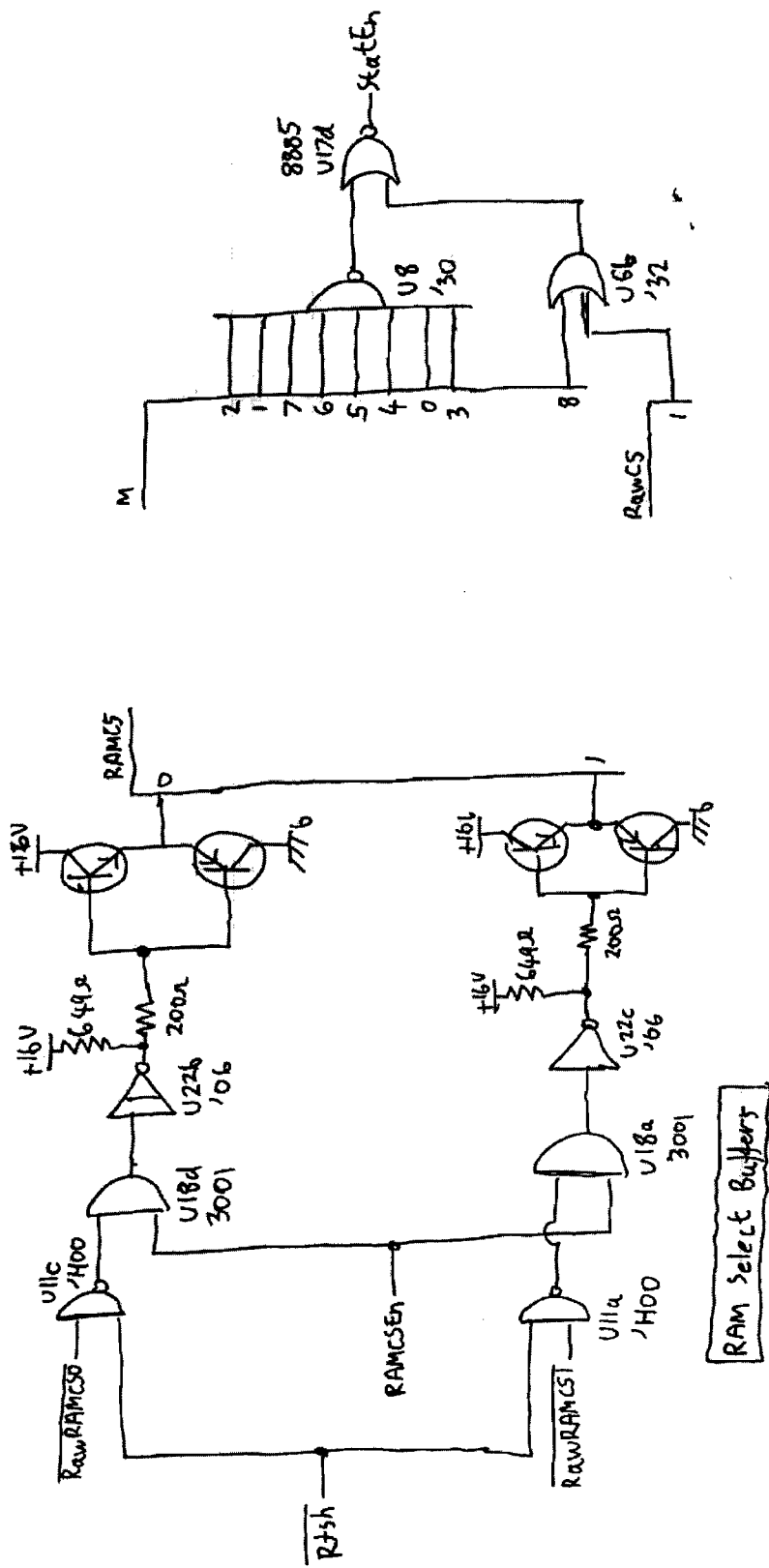




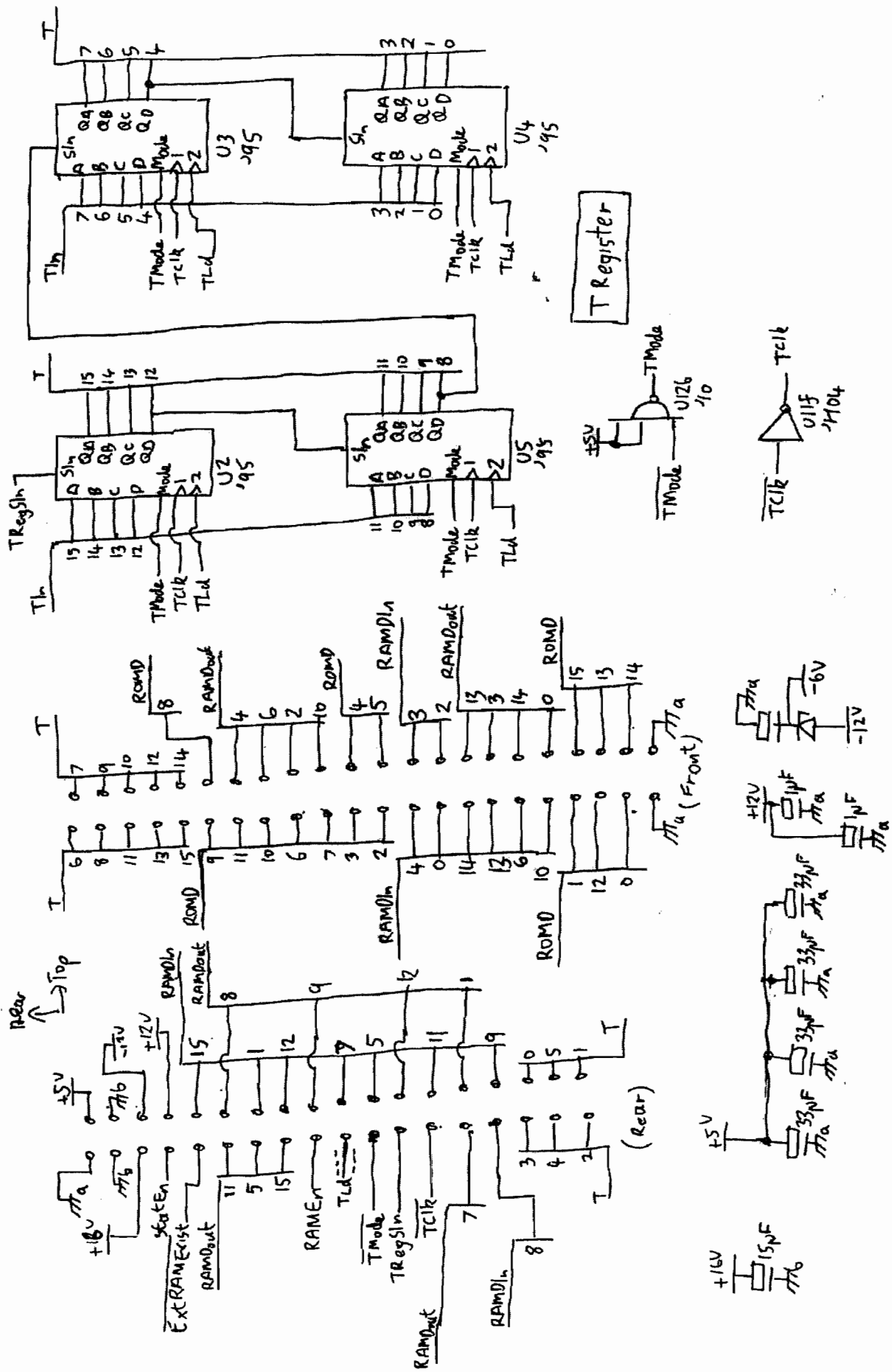
HP9820 Memory Address PCB Sheet ③ (R/Y) 09820-66524



ROM select Buffers



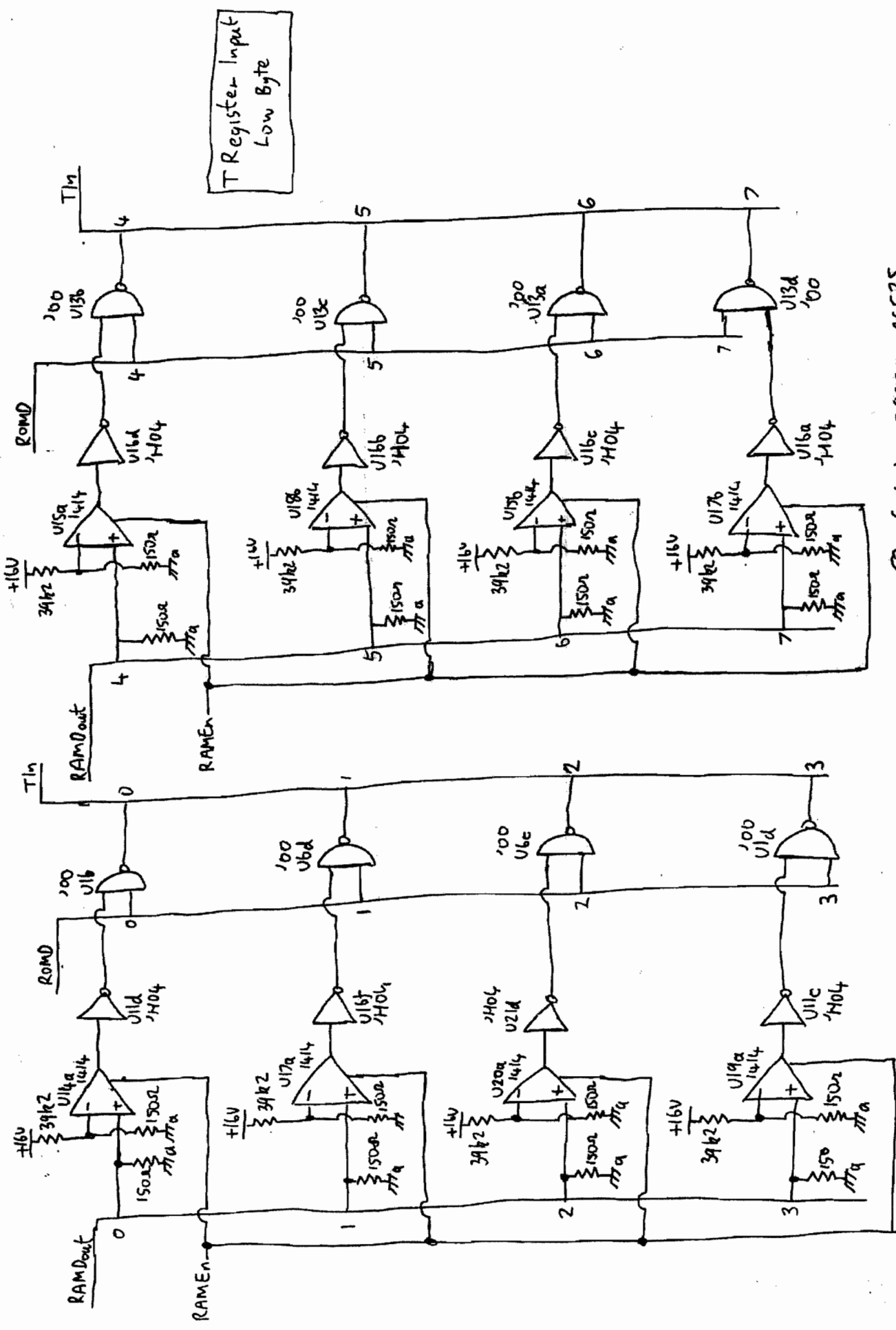
HP9820 Memory Address PCB sheet 5 (R/V) 09820-66524



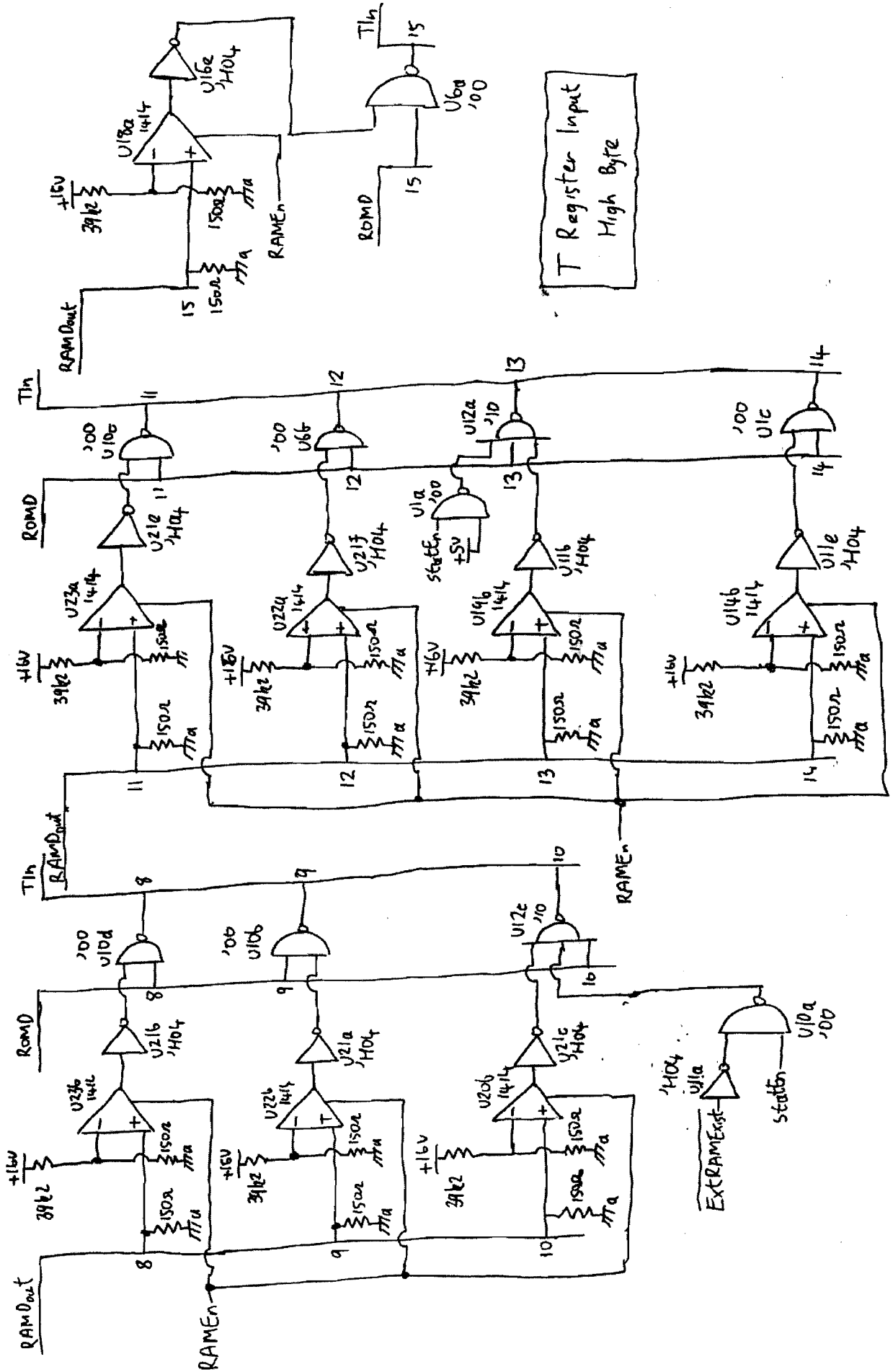
09820-66S25

Sheet 1 (R/GN)

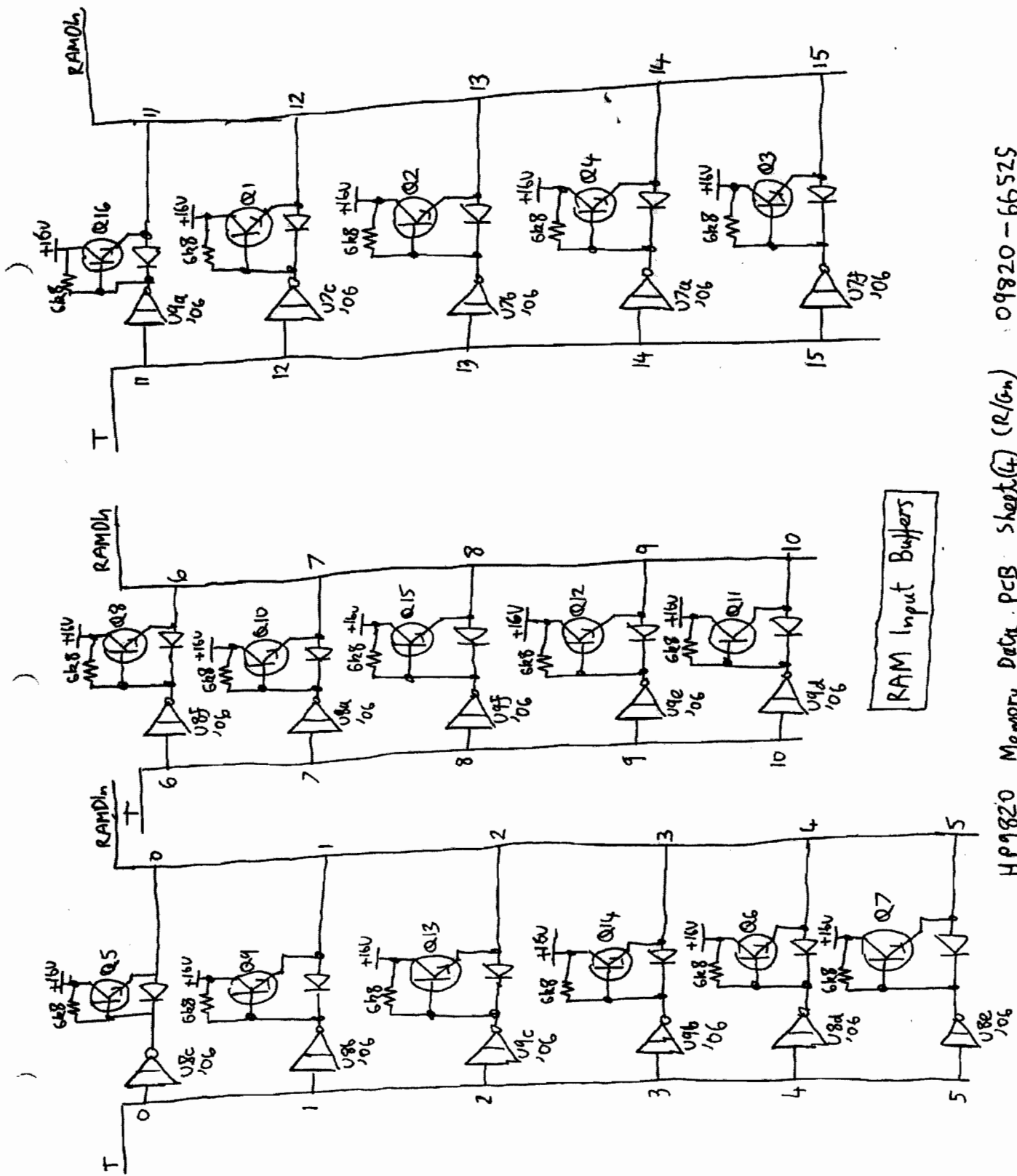
HP9820 Memory Data PCB

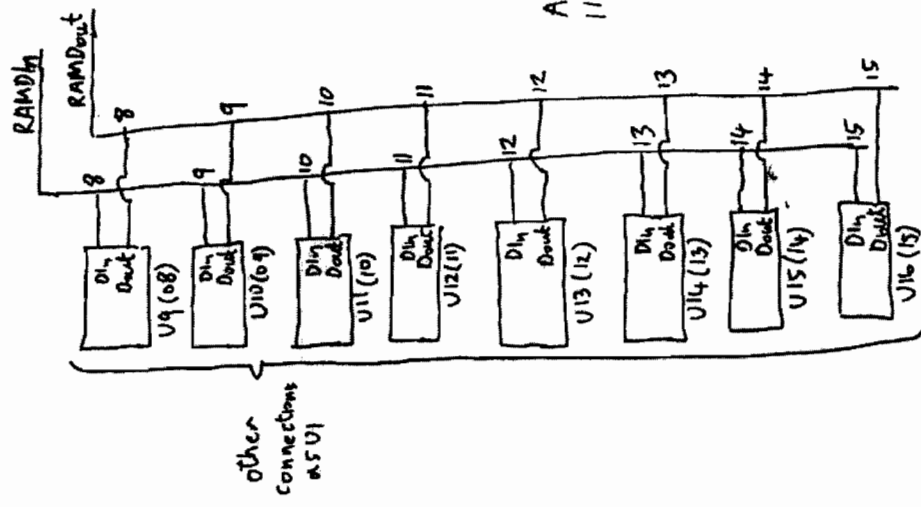
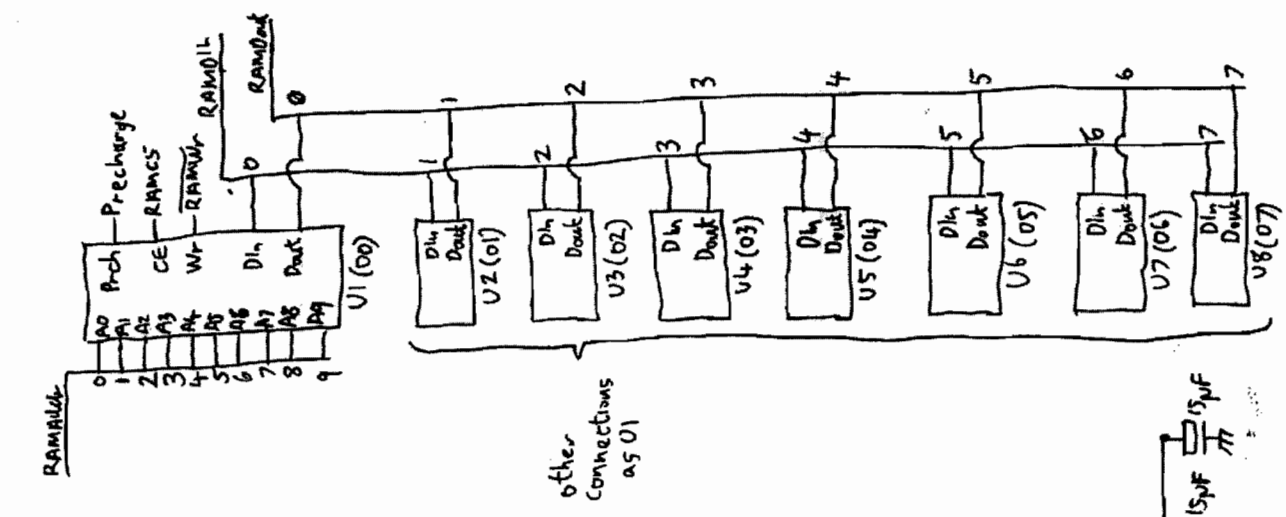
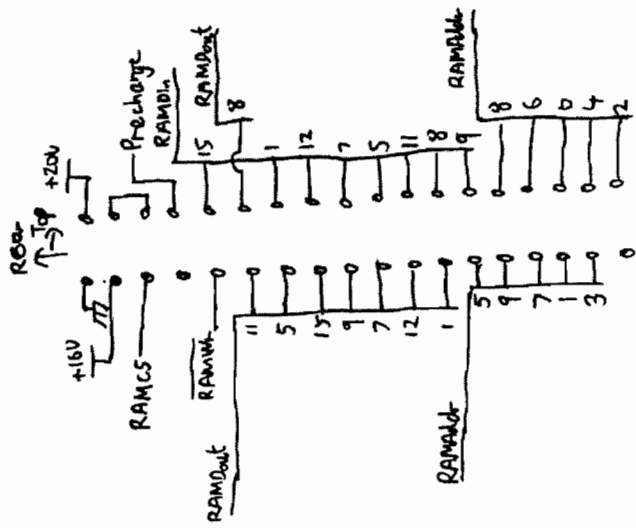


T Register Input  
Low Byte

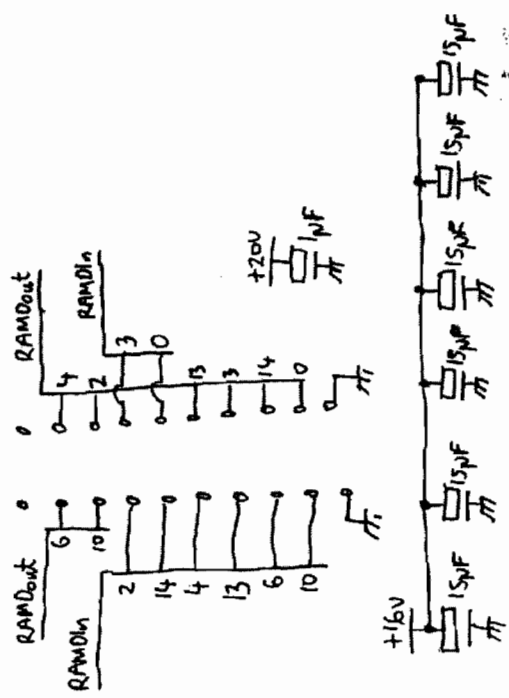
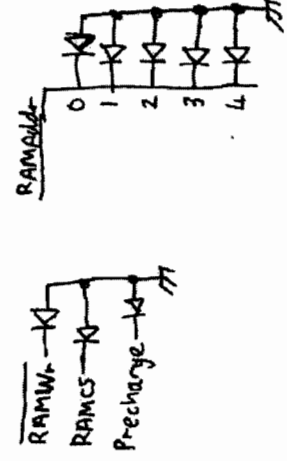


T Register Input  
High Byte





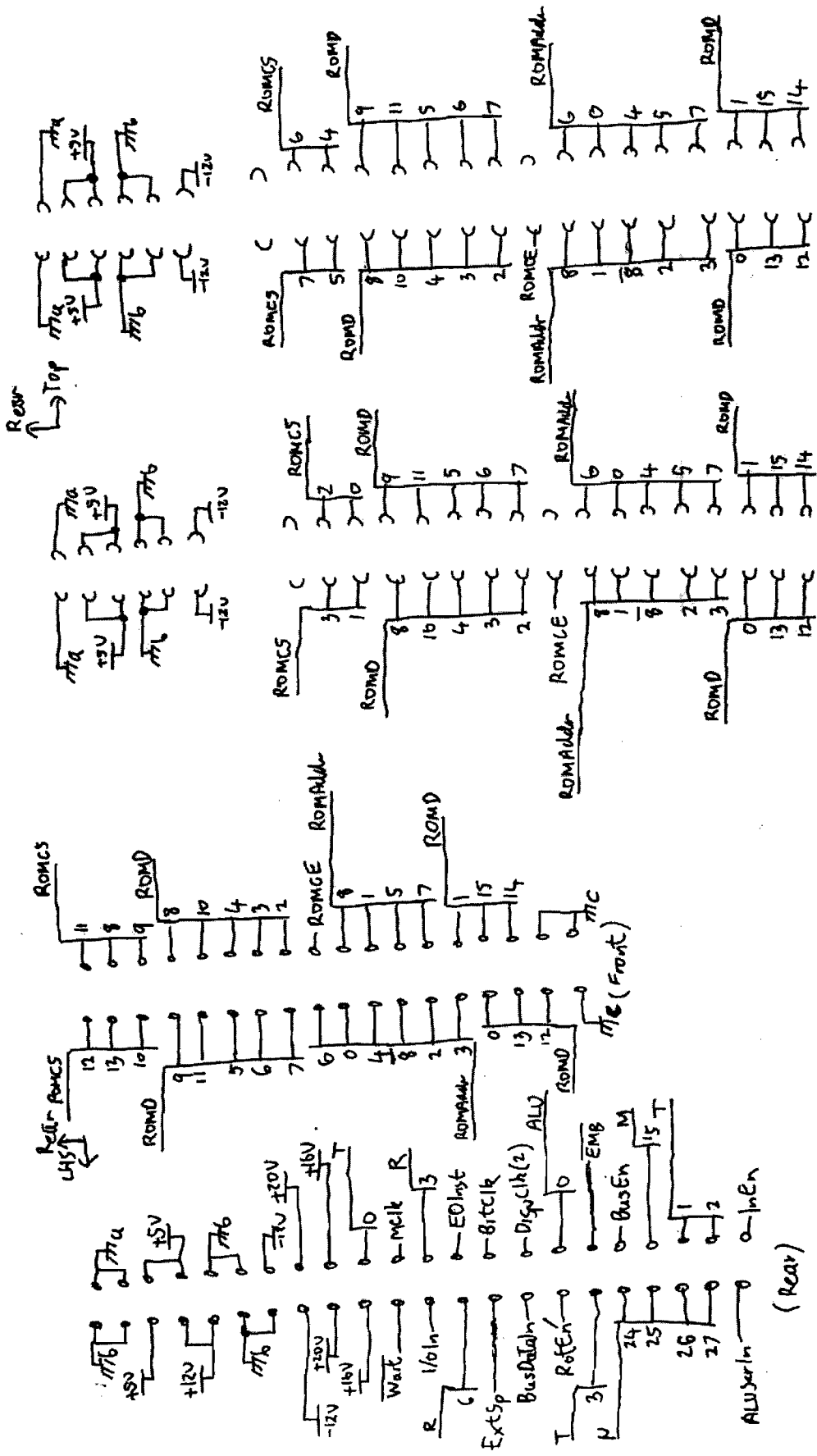
All IC's  
1103 1Kx1 DRAM



09820-66526

HP9820 RAM PCB (R/16u)

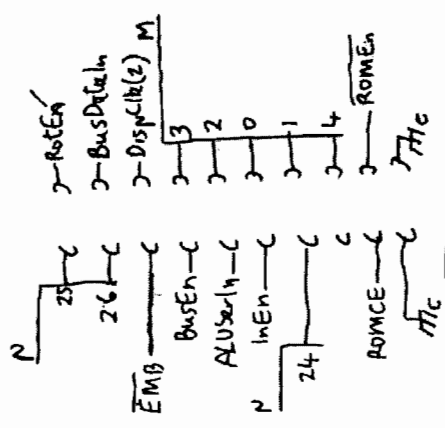
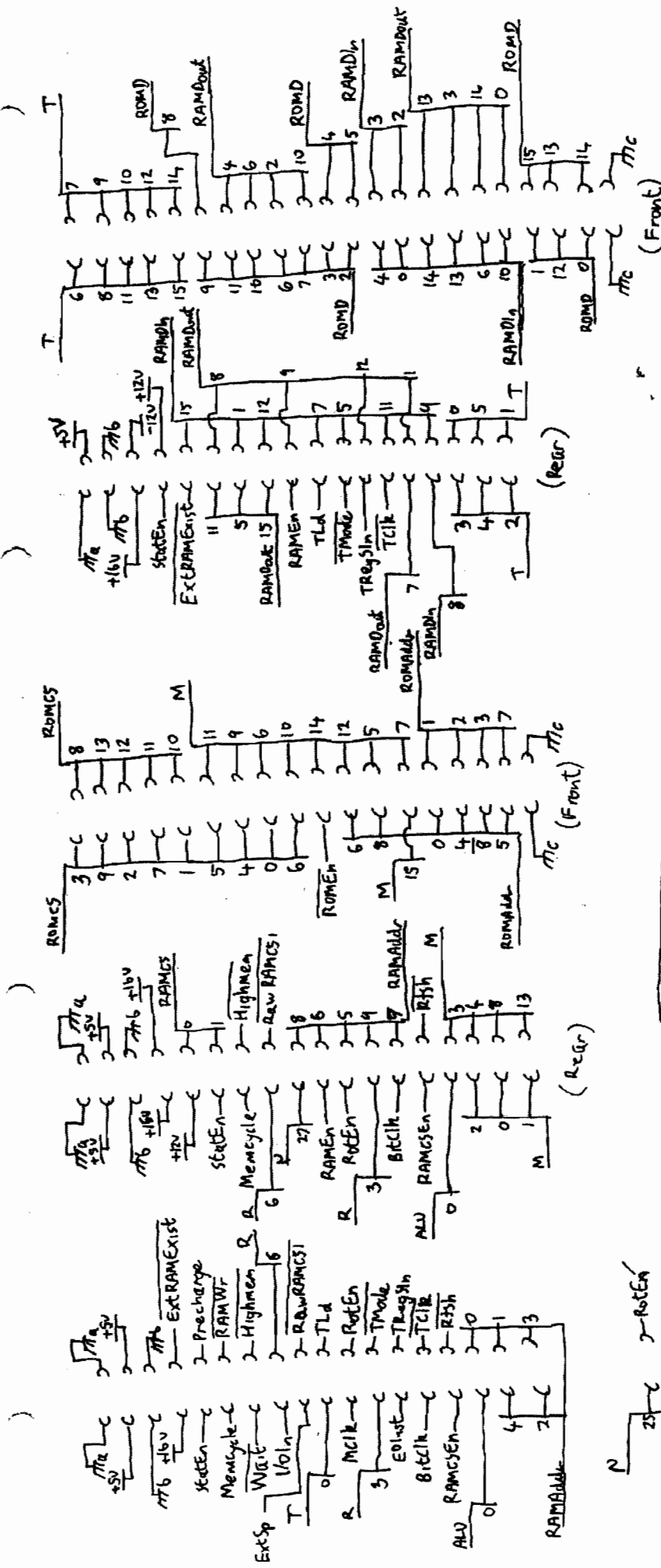




Main Backplane connector.

(09820-66521)

(09820-66522)

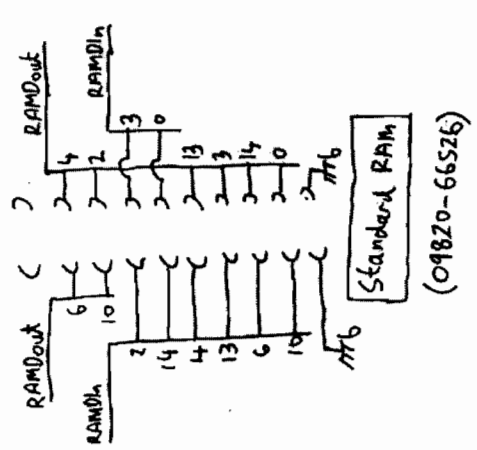
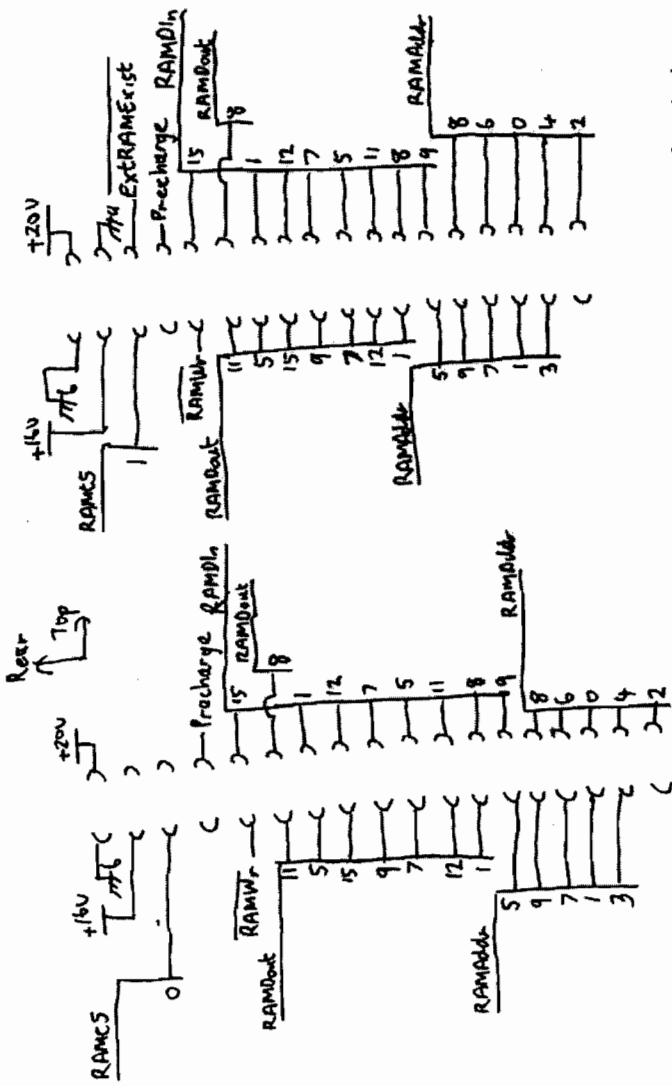


Memory Address  
(09820-66524)

Memory Timing  
(09820-66523)

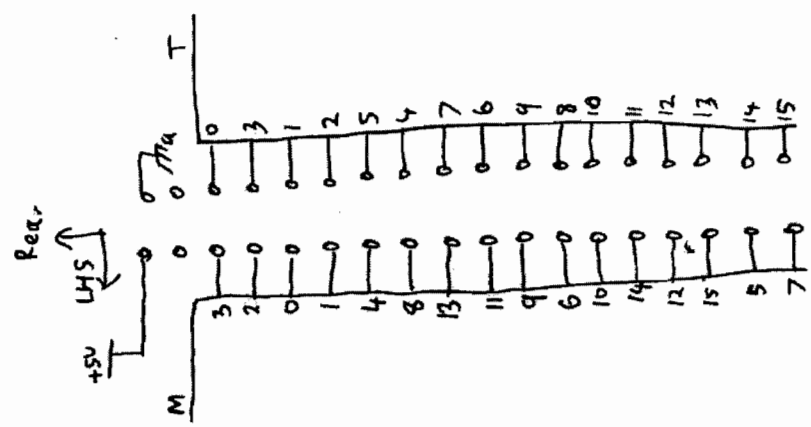


Memory Data  
(09820-66525)

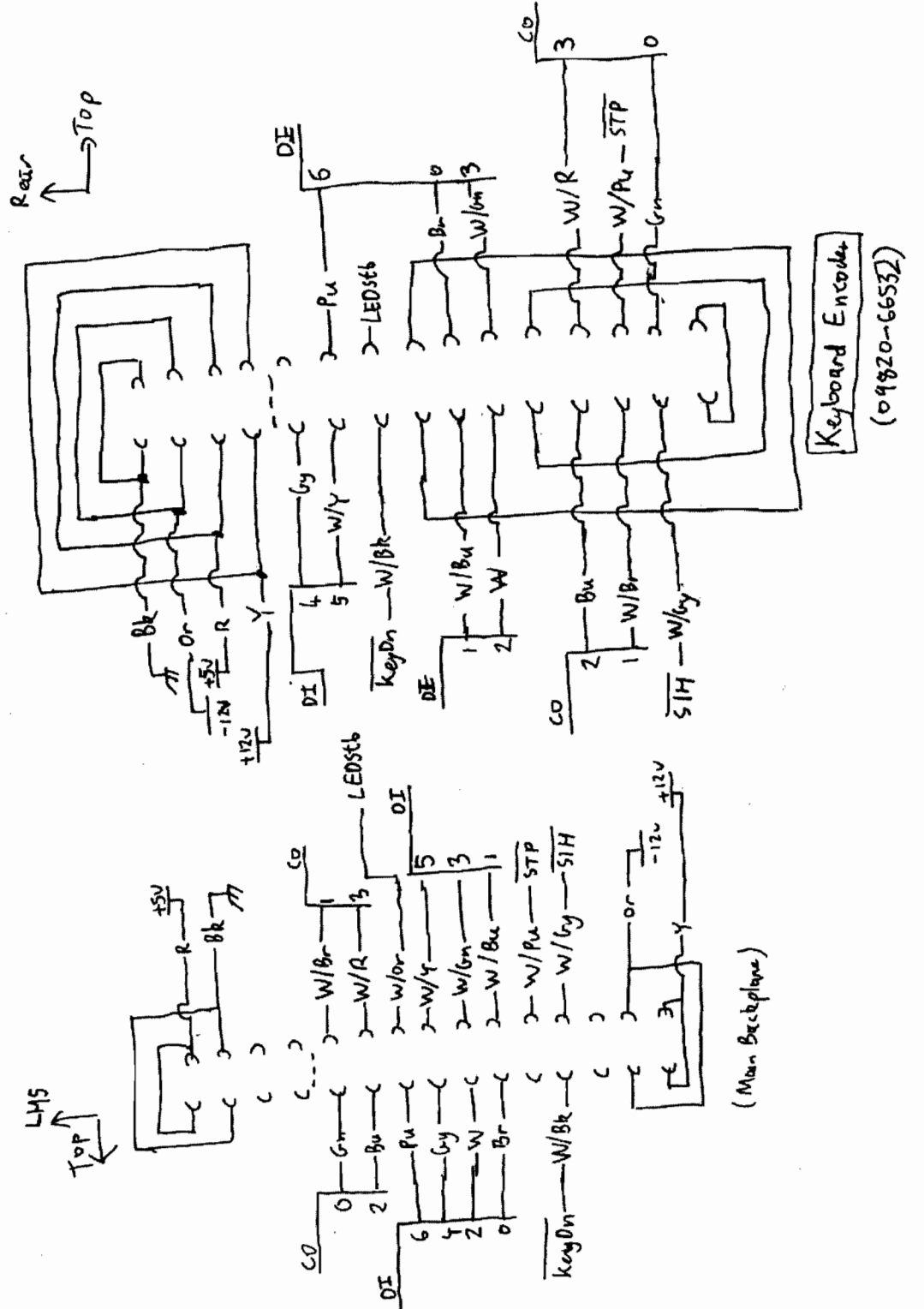


(09820-66526)

(09820-66526)

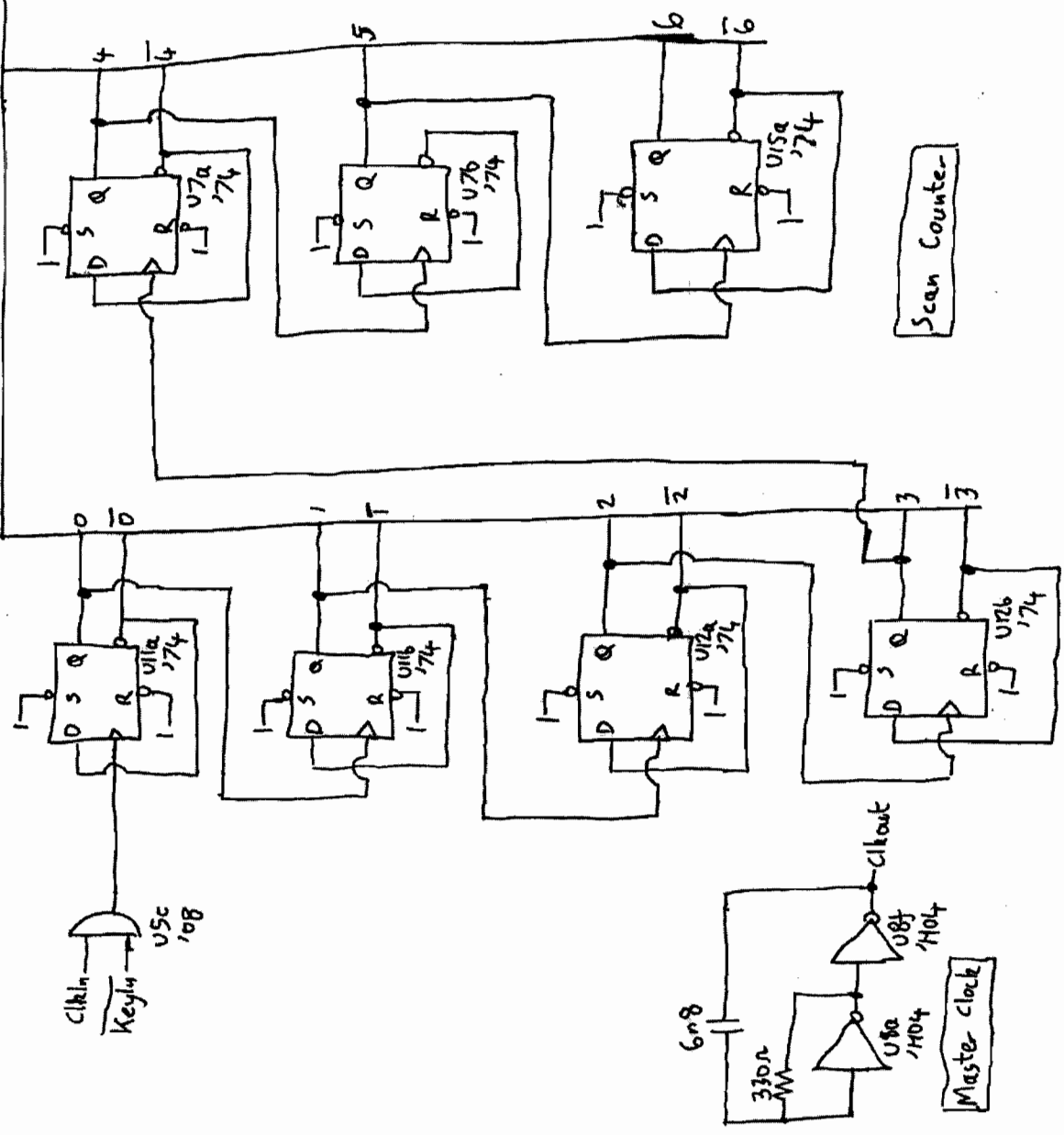
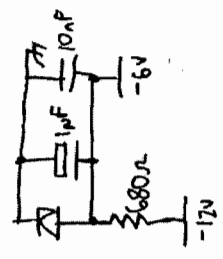
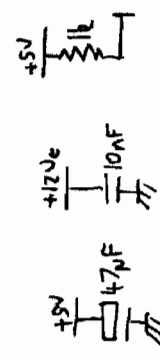
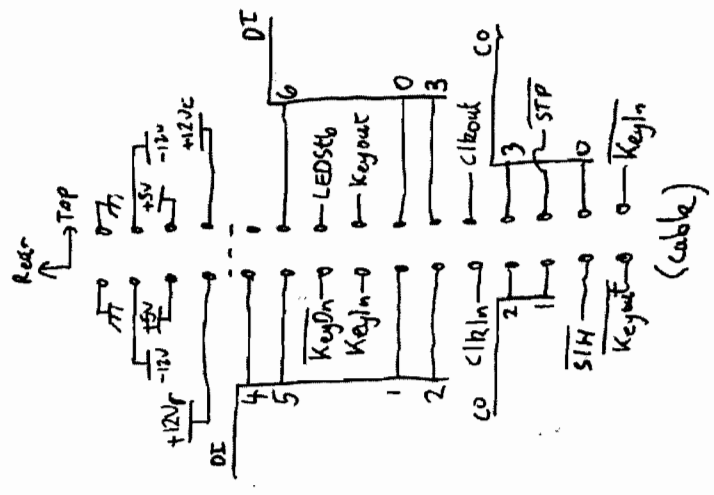


Test Connector

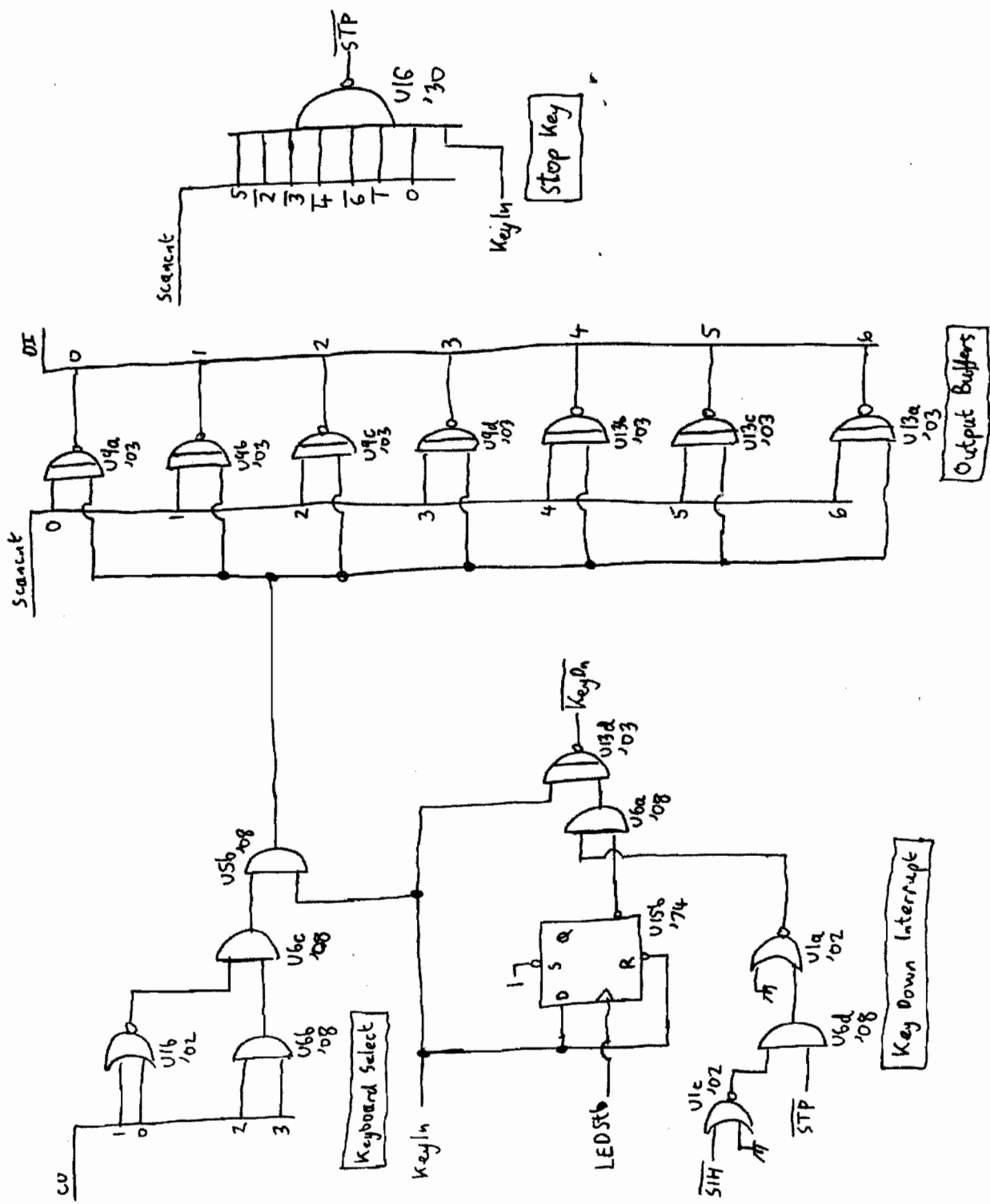


HP9820 Keyboard cable

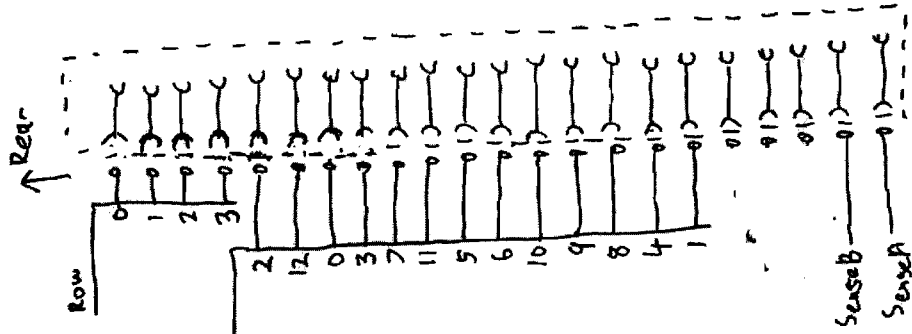
ScanCnt



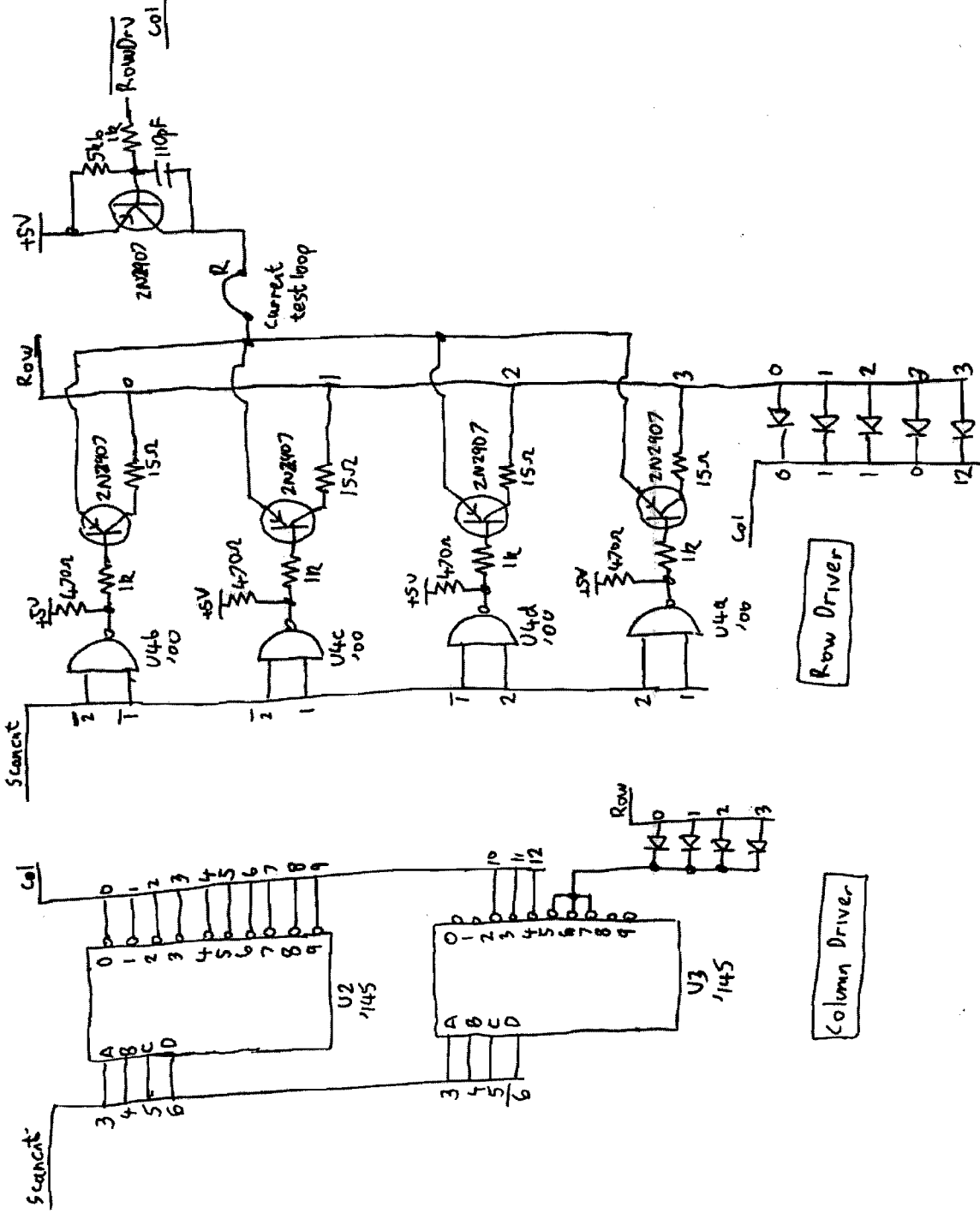
Scan Counter



HP9820 Keyboard Encoder Sheet 2 09820-66532

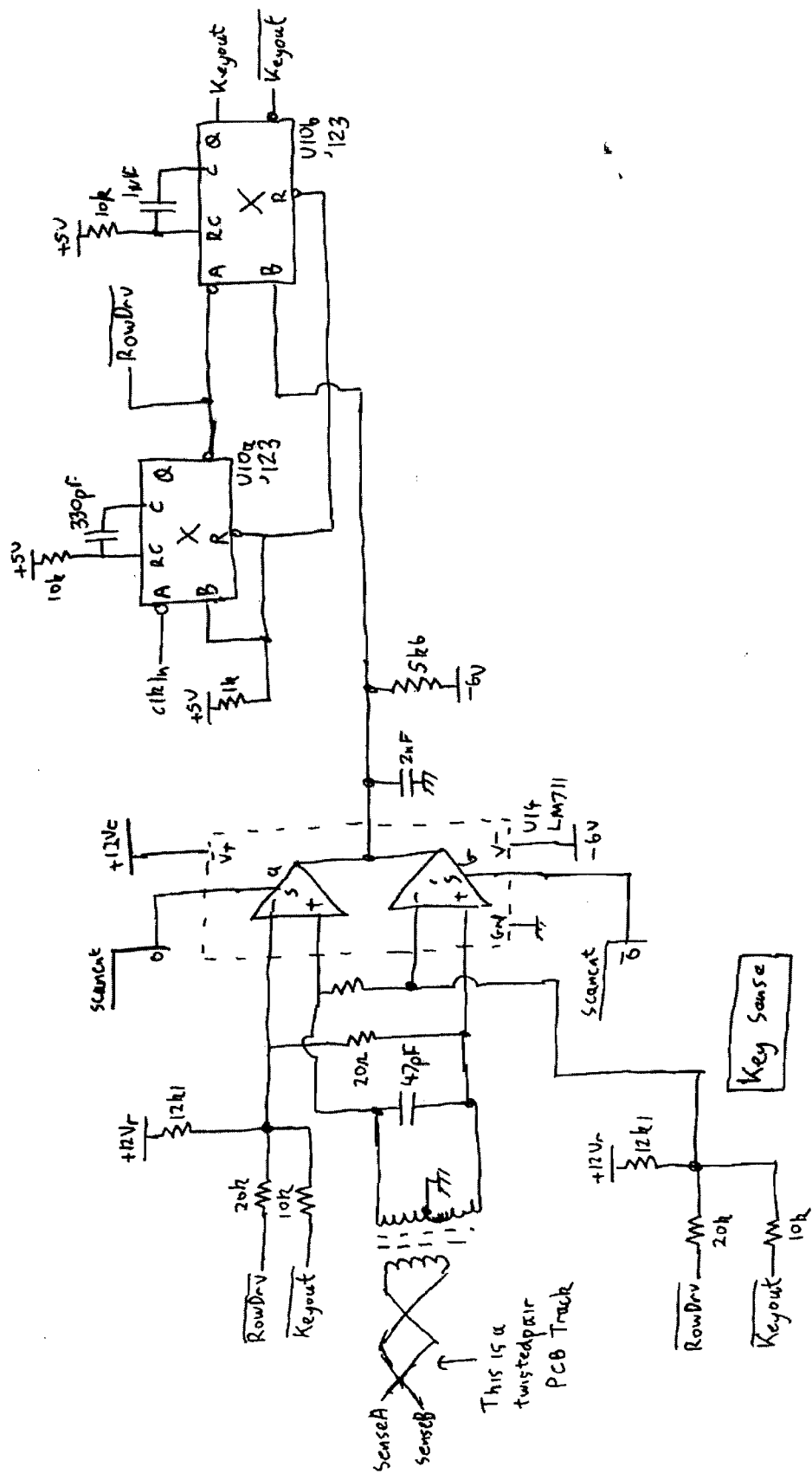


09910-66531  
Interconnect PCB



09820-66532

HP 9820 Keyboard Encoder Sheet (3)



09820-66532

HP9920 Keyboard Encoder Sheet (4)



ERASE	FIXED/FLOAT	DELETE	INSERT	RECALL	BACK	FORWARD	CLEAR	ENTER	DISK	PRINT	SPACE	LIST	COMP	RECALL
.		Q	I		N	S	/	ENTER EXP	(	)	A	X	>	END
%		R	J		O	T	*	7	8	9	B	Y	≤	GO TO SUB
R		F	K		P	U	-	4	5	6	C	Z	=	FLAG RECALL N
'		G	L		Q	V	+	1	2	3	→	R()	≠	SET CLEAR FLAG GO TO
? SPACE		H	M		R	W	0	,	EXECUTE		RUN PROGRAM	STOP	STORE	

### HP 9820 Keycaps

Note: These 4 keys are denoted by 'blanks' (top) to 'blanks' (bottom) in the schematic diagram



R0 -> C2 NORMAL, TRACE

BLANK0, BLANK1 R0 -> C1  
 BLANK2, BLANK3 R0 -> C1  
 \$, % R2 -> C4  
 &, ' R3 -> C4

R2 -> C8 D, E  
 R3 -> C8 F, G

R0 -> C12 DELETE, RECALL

R1 -> C12 INSERT, FORWARD

R2 -> C12 ERASE, BACK

R0 -> C9 H, I  
 R1 -> C9 J, K  
 R3 -> C9 N, O  
 R2 -> C10 T, U  
 R2 -> C9 L, M  
 R1 -> C10 R, S  
 R3 -> C10 V, W  
 R0 -> C10 P, Q

R3 -> C2 PRINT, SPACEN

R2 -> C2 ENTER, DISPLAY

R1 -> C2 FIXEDN, FLOATN

R2 -> C6 4, 5  
 R0 -> C6 0, 1

., / R3 -> C5  
 (, ) R0 -> C5  
 R3 -> C6 6, 7  
 R1 -> C5 +, \*  
 R2 -> C5 -, /

ENTER EXP, →

Z, RUN PROGRAM R1 -> C11

X, Y R0 -> C11

R0 -> C7 8, 9

R3 -> C7 >, ?  
 R0 -> C4 STOP, SPACE  
 R1 -> C4 =, " (EXECUTE, √)  
 R0 -> C8 GOTO, A  
 R1 -> C8 B, C

R1 -> C0 CLEAR, STORE

R2 -> C0 LIST, LOAD

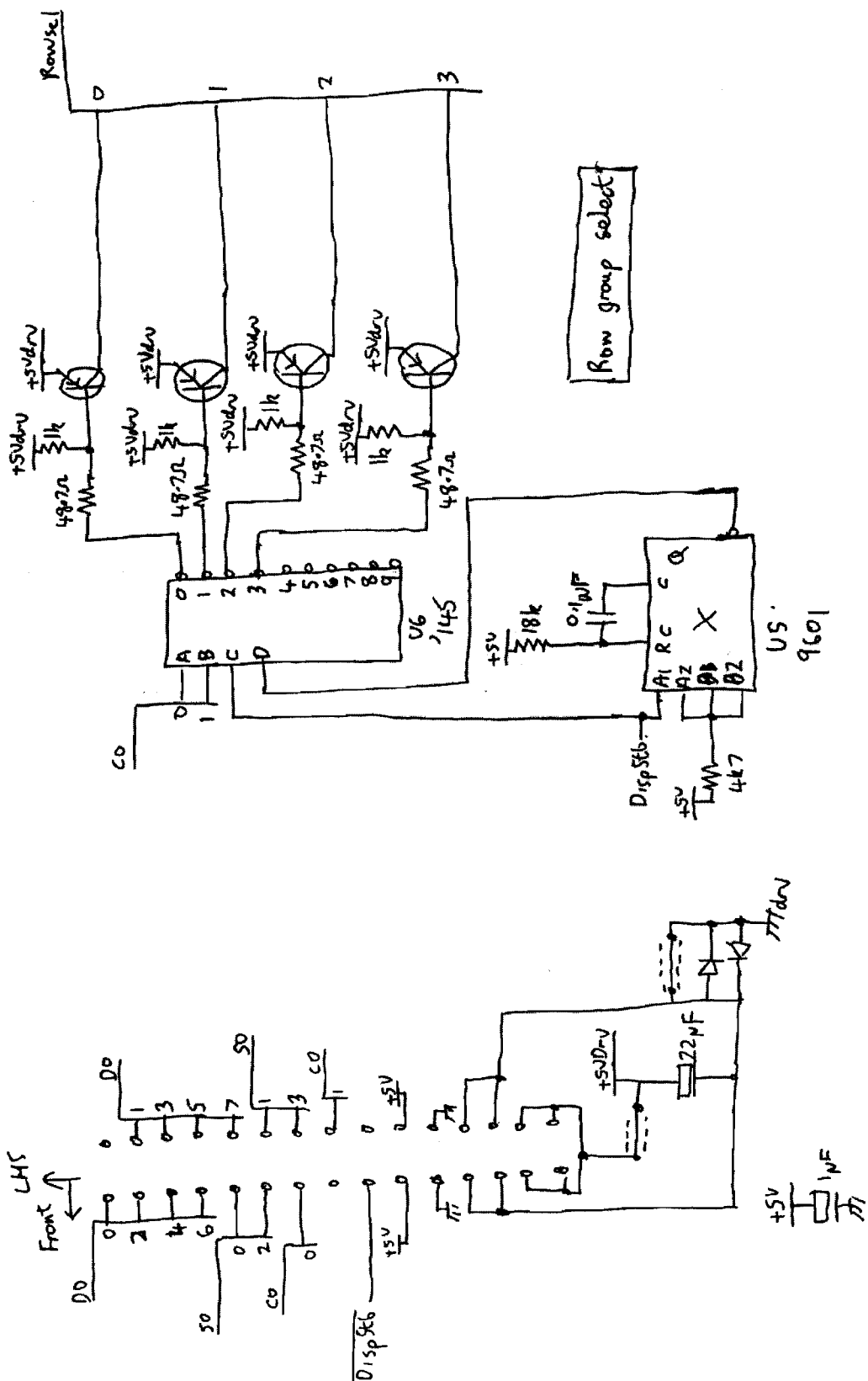
R2 -> C7 ≤, =

R2 -> C3 IF, GOTOSUB  
 R3 -> C3 FLAGN, SET/CLEAR FLAGN  
 R1 -> C3 END, RETURN

R0 -> C3 RECORD, JUMP

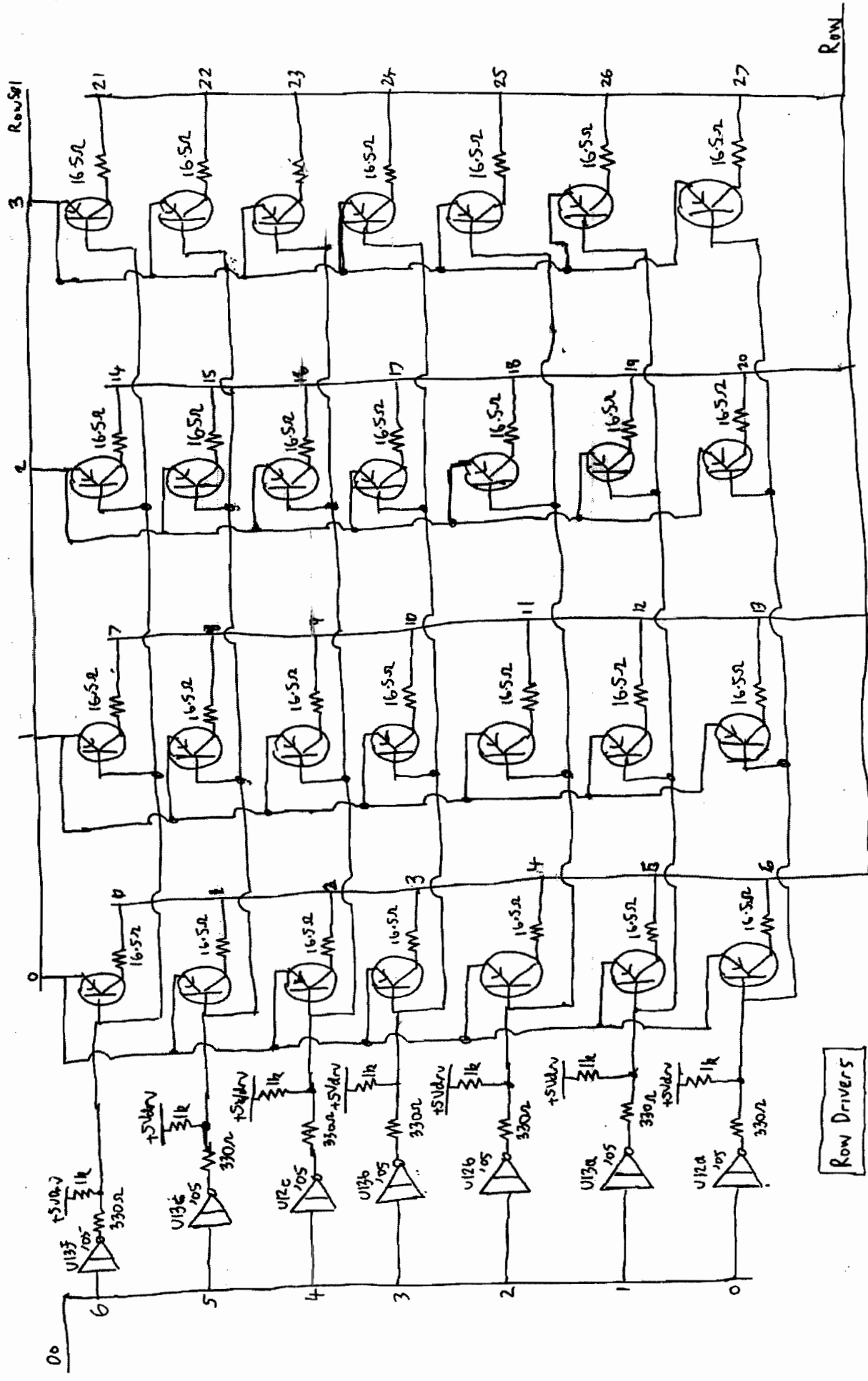
HP9820 Keyboard Diode Layout  
 (seen from under side)  
 09820-66533 PCB





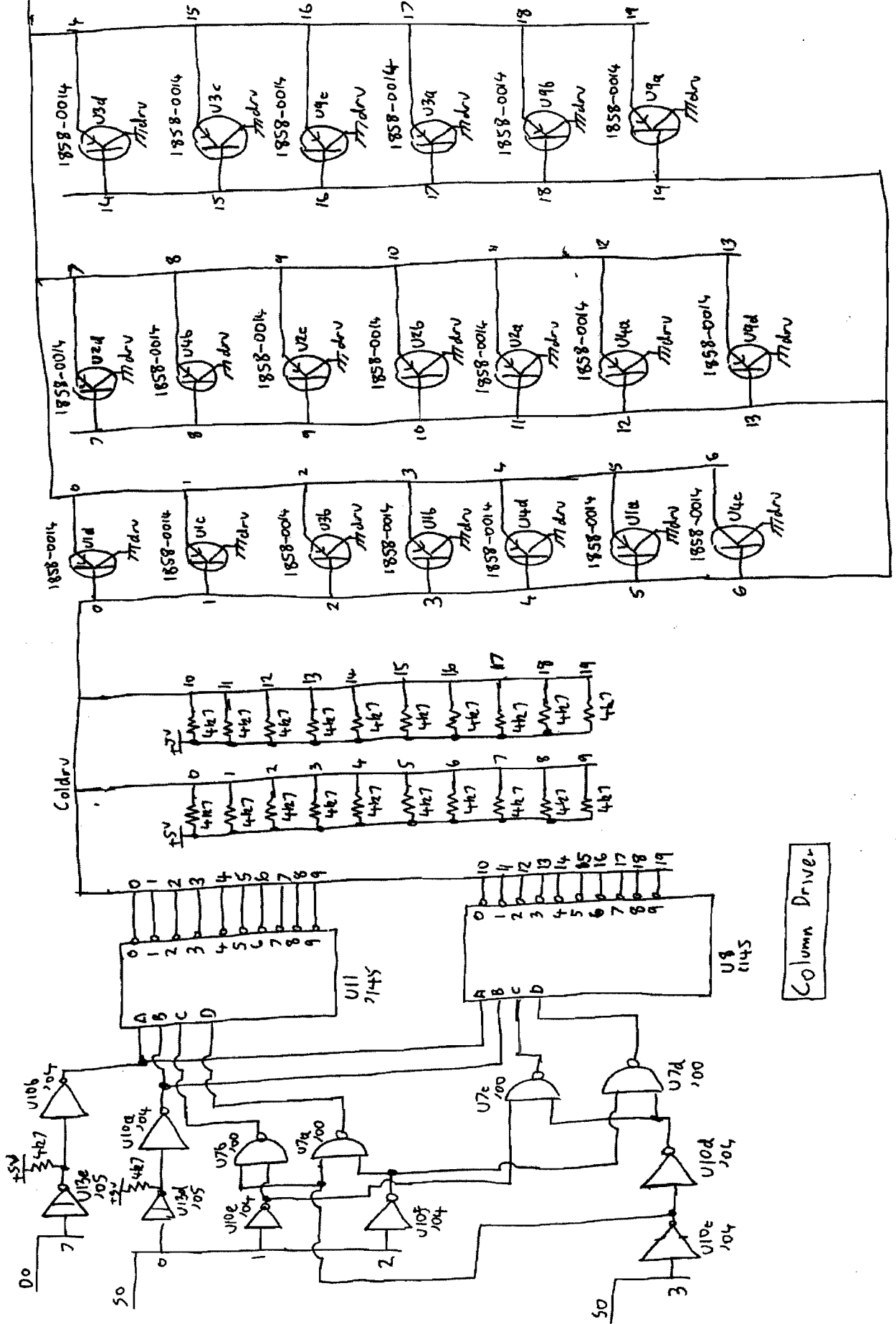
HP9820 Display PCB Sheet 1 (Y/B-)

09820-66541



HP9820 Display PCB sheet ② (Y/Br) 09820-66541

col



HP9820 Display PCB Sheet ③ (Y/B) 09820-66541

