REV C 7/17/80 SB
REV3 7/17/80 SB

PERQ MEMORY BOARD
12/15/79 Rap
1069

U1	74S374	4	✓
2	uPD416C2	20	
3	↑	20	
4		↑	
5	sub. parts		
6	(MK4116-3)(F16K4DC)		
7			
8	↓	↓	
9	uPD416C2	20	✓
10	74S241	3	✓
11	74S374	4	
12	uPD416C2	20	✓
13	↑	↑	
14			
15	sub. parts		
16	(MK4116-3)(F16K4DC)		
17			
18	↓	↓	
19	uPD416C2	20	✓
20	74LS166 (16 PIN SOCKET)	10	
21	74S374	5	
22	74S241	3	
23	uPD416C2	20	
24	↑	↑	
25			
26	sub. parts		
27	(MK4116-3)(F16K4DC)		
28			
29	↓	↓	
30	uPD416C2	20	
31	74S374	5	
32	uPD416C2	20	
33	↑	↑	
34			
35	sub. parts		
36	(MK4116-3)(F16K4DC)		
37			
38	↓	↓	
39	uPD416C2	20	
40	74LS166 (16 PIN SOCKET)	10	

4/3

Three Rivers Computer
MEM [illegible] PERQ MEM [illegible]
PL 7514 GI - 1 - 9

REV E 1/5/81 PIV
REV D 10/30/80 [illegible]

REV C 7/17/80 RB
REV B 7/17/80 RB

[illegible] Memory Board
12/15/79 Rap
2 of 9

41	74S374	8
42	uPD416C2	20
43	↑	↑
44		
45	sub parts	
46	(MK4116-3)(F16K4DC)	
47		↓
48	↓	20
49	uPD416C2	20
50	74S374	7
51	74S374	5
52	uPD416C2	20
53	↑	↑
54		
55	sub parts	
56	(MK4116-3)(F16K4DC)	
57		
58	↓	↓
59	uPD416C2	20
60	74LS166 (16 PIN SOCKET)	9
61	SPARE	
62	uPD416C2	20
63	↑	↑
64		
65	sub. parts	
66	(MK4116-3)(F16K4DC)	
67		
68	↓	↓
69	uPD416C2	20
70	74S374	7
71	74S374	14
72	uPD416C2	20
73	↑	↑
74		
75	sub. parts	
76	(MK4116-3)(F16K4DC)	
77		
78	↓	↓
79	uPD416C2	20
80	74LS166 (16 PIN SOCKET)	9

4/3

Three Rivers Computer
TITLE: MEM IC [illegible] — PROJECT: PERQ - MEM - C
DRAWN BY: [illegible] CHECKED BY: DRAWING NO. [illegible] PL-0515 PAGE 2 of 9

REV E 1/5/81

REV C 7/17/80 SB
REV B 7/17/80 SB

PERQ Memory Board
12/15/79 Rap

			1	2	3	4
81	74S280	6				
82	74S374	4				
83	uPD416C2	20				
84	↑	↑				
85						
86	sub. parts					
87	(MK4116-3)(F16K4DC)					
88						
89	↓	↓				
90	uPD416C2	20				
91	74LS166 (16 PIN SOCKET)	10				
92	74S374	8				
93	74S374	14				
94	74S374	4				
95	uPD416C2	20				
96	↑	↑				
97						
98						
99						
100						
101	sub. parts					
102	(MK4116-3)(F16K4DC)					
103						
104						
105						
106						
107						
108						
109	↓	↓				
110	uPD416C2	20				
111	74LS166 (16 PIN SOCKET)	10				
112	74S374	8				
113	74S374	5				
114	uPD416C2	20				
115	↑	↑				
116	sub. parts					
117	(MK4116-3)					
118	(F16K4DC)					
119	↓	↓				
120	uPD416C2	20				

4/3

Three Rivers Computer
TITLE MEM IC List — PROJECT PERQ MEM-C
DRAWN BY SB 7-17-80 — DRAWING PERQ-PL-05163 — PAGE 3 OF 9

REV C 7/17/80 SB
REV B 7/17/80 SB

PERQ Memory Board
12/15/79 Rap
4 of 9

121	µPD416C2 (F16K4DC) (MK4116-3)	20
122	74 S 374	7
123	µPD416C2	20
124	↑	↑
125		
126	sub. parts	
127	(MK4116-3)	
128	(F16K4DC)	
129	↓	↓
130	µPD416C2	20
131	74 LS 166 (16 PIN SOCKET)	9
132	74 S 374	7
133	74 S 74	14
134	74S374	5
135	µPD416C2	20
136	↑	↑
137		
138	sub parts	
139	(MK4116-3)	
140	(F16K4DC)	
141	↓	↓
142	µPD416C2	20
143	SPARE	
144	74 S 51	3,6
145	µPD416C2	20
146	↑	↑
147		
148	sub parts	
149	(MK4116-3)	
150	(F16K4DC)	
151	↓	↓
152	µPD416C2	20
153	74 LS 166 (16 PIN SOCKET)	9
154	74 S 280	6
155	µPD416C2	20
156	↑ sub. parts	↑
157	(MK4116-3)	
158	(F16K4DC)	
159	↓	↓
160	µPD416C2	20

4/3

Three Rivers Computer
TITLE: MEM IC LIST PROJECT: PERQ MEM - C
DRAWN BY: [illegible] CHECKED BY:
DRAWING No: 3RCC-PL-2517 G PAGE 4 OF 9

REV E 1/5/81 DIV

REV C 7/17/80 SB
REV B 7/17/80 SB

PERQ Memory Board
12/15/79 Rap

5 of 9

			1	2	3	4
161	uPD416C2 (MK4116-3) (F16K4DC)	20				
162	uPD416C2 (MK4116-3) (F16K4DC)	20				
163	74S175	6				
164	74S153	6				
165	74S258	14				
166	74S74	3				
167	uPD416C2	20				
168	↑	↑				
169	sub parts					
170	(MK4116-3)					
171	(F16K4DC					
172						
173	↓	↓				
174	uPD416C2	20				
175	74S139	6, 26				
176	74S74	3				
177	74S08	3				
178	Spare					
179	74S04	16				
180	↑	16				
181		16				
182		16				
183		17				
184		17				
185		17				
186		17				
187		18				
188		18				
189		18				
190		15				
191		19				
192		19				
193	↓	19				
194	74S04	19				
195	74S258	15				
196	↑	15				
197		14				
198	↓	14				
199	74S258	14				
200	Spare					

3

Three Rivers Computer
TITLE: MEM IC LIST | PROJECT: 4 MEM - C
DRAWN BY: SB 7-17-80 | DRAWING: 518-F | PAGE 5 of 9

REV C 7/17/80 SB
REV B 7/17/80 SB

PERQ Memory Board
12/15/79 Rap
6 of 9

201	74$112	24
2Ø2	74$112	24
2Ø3	74$112	25
2Ø4	74$ØØ	4, 5
2Ø5	74L$374	27
206	74$37	25
2Ø7	74$ØØ	14, 22, 26, 27
2Ø8	74L$163	22
2Ø9	74L$374	22
21Ø	74$Ø2	6, 14, 15, 23
211	74L$374	15
212	74L$197	14
213	74L$374	23
214	74$112	24
215	74$112	24, 25
216	74$112	25
217	74$Ø3	25, 27
218	HMI-7649-B5546 (AM27$29) (20 PIN SOCKET)	27
219	74$175	27
22Ø	74$32	22 23, 27
221	74L$374	22
222	74L$174	22
223	74$197	22
224	74L$393	15
225	74L$197	14,
226	74L$374	23
227	74$112	24
228	74$3Ø	24
229	74$32	25, 27
23Ø	HMI-7649-B5546 (AM27$29) (20PIN SOCKET)	27
231	74$1Ø	23, 25
232	74$74	22, 23
233	74L$163	22,
234	74L$240	23
235	74$197	22
236	74L$393	14
237	74$138	23
238	74$112	24
239	74$11	24, 25
240	74$112	25

7/3

Three Rivers Computer	
MEM IC LIST	MEM - C
7-12-80	Ø519G — 6 of 9

REV D 10/14/80 DIV
REV E 10/24/80 DIV

REV C 7/17/80 RB
REV B 7/17/80 RB

PERQ Memory Board
12/15/79 Rap
7 of 9

1	241	XTAL K1100A (14 PIN SOCKET)	29			1
2	242					2
3	243	74S04	26, 25			3
4	244	74LS163	26			4
5	245	HMI-7649-B5546 (AM27S29) (20 PIN SOCKET)	26			5
6	246	74S374	26			6
7	247	74S225	13			7
8	248	74S225	13			8
9	249	74S374	13			9
10	250	74S112	12			10
11	251	74S00	12, 23, 25			11
12	252	74S112	12			12
13	253	74S20	12			13
14	254	74S112	26			14
15	255	74S162	26			15
16	256	HMI-7649-B5546 (AM27S29) (20 PIN SOCKET)	26			16
17	257	74S374	26			17
18	258	74S374	11,			18
19	259	74S32	13, 25			19
20	260	Spare				20
21	261	7643-5 (18 PIN SOCKET)	11			21
22	262	7643-5 (18 PIN SOCKET)	11			22
23	263	7643-5 (18 PIN SOCKET)	11			23
24	264	74S374	11			24
25	265	74S225	11			25
26	266	74S225	11			26
27	267	74S32	11, 12			27
28	268	74S195	12			28
29	269	74S195	12			29
30	270	74S37	12, 25			30
31	271	Spare				31
32	272	74S74	26			32
33	273	74S08	26			33
34	274	74S74	26			34
35	275	74S280	3			35
36	276	74S280	3			36

7

Three Rivers Computer
MEM ... | PERQ MEM-C
0520F | 7 - 9

REV D 10/14/80 DIV
REV E 10/24/80 DIV

Resistor	Value		Page
R1	RC07GF102J	1K	3
R2	REMOVED ON ECO MEM-C-007		
R3	RC07GF102J	1K	3
R4	RC07GF470J	47Ω	9
R5	RC07GF102J	1K	6
R6	RC07GF102J	1K	14
R7	785-3-R33 (33Ω)	(4310R-102-330)(33Ω)	16
R8	↑		↑
R9			↑
R10			16
R11			17
R12			↑
R13			↑
R14			17
R15			18
R16			↑
R17			↑
R18			18
R19			19
R20			↑
R21	↓		↑
R22	785-3-R33 (33Ω)	(4310R-102-330)	19
R23	RC07GF102J	1K	25
R24	JA41J1	THERMISTOR	23
R25	RC07GF102J	1K	14
R26	↑		22
R27			22
R28			23
R29	↓		26
R30	RC07GF102J	1K	12
R31	RC07GF330J	33Ω	26
R32	RC07GF102J	1K	12
R33	RC07GF330J	33Ω	26
R35	RC07GF102J	1K	26
R36	↕		27
R37	RC07GF102J	1K	24
R38	RC07GF330J	33Ω	24
R39	RC07GF100J	10Ω	24
R40	CB4G75	4.7Ω	24

NOTE: ANOTHER SUITABLE SUBSTITUTE IS 785-3-R22 (22Ω)

△3

Three Rivers Computer
MEM RESISTORS | PRQ-MEM-C
D513E | 8 of 9

REV E 1/5/81 DIV

PRQ-PCB-MEM-C COMPONENTS

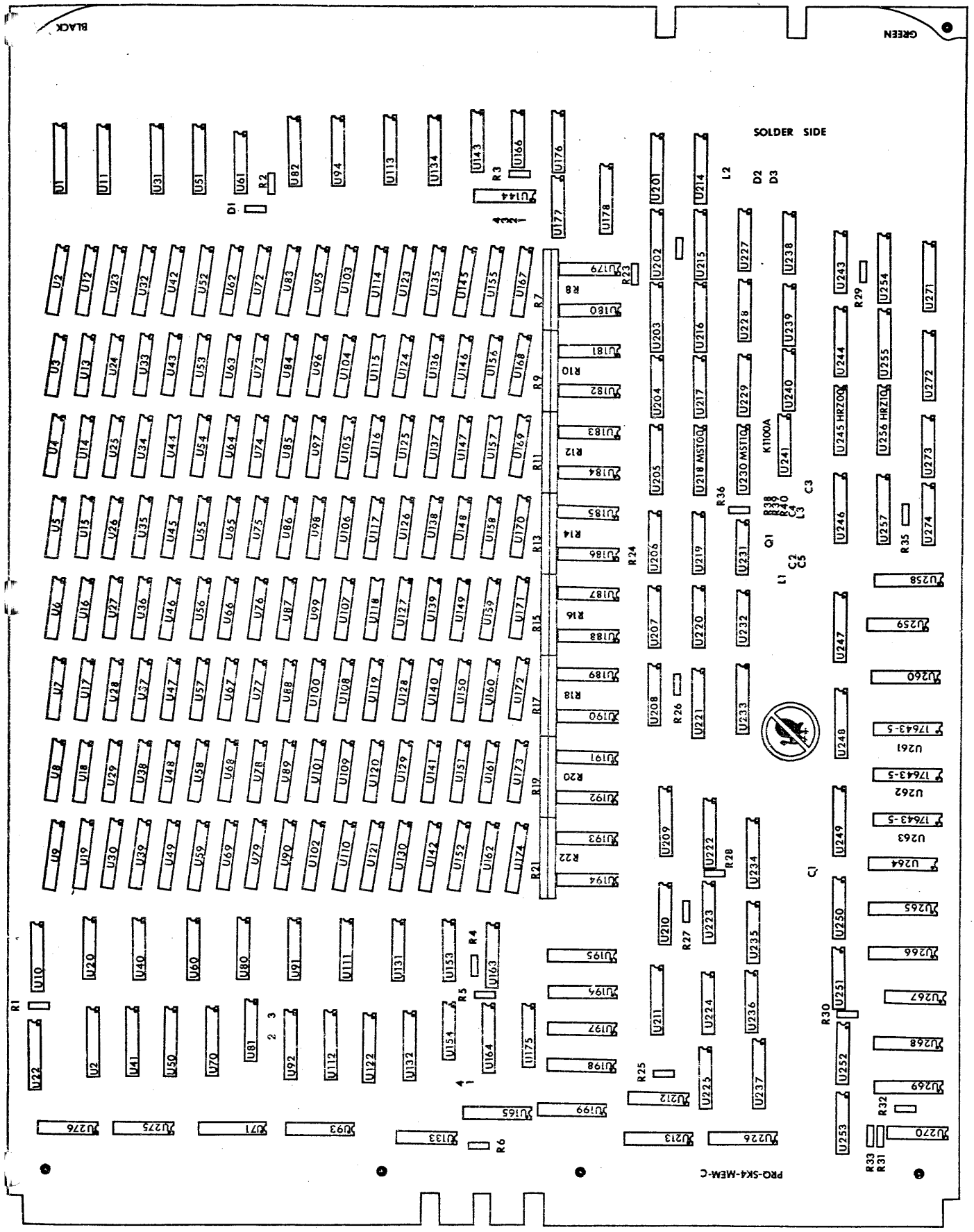
D1	REMOVED ON ECO. MEM-C-007			
D2	1N4004		24	
D3	1N4004		24	
C1	DD270	27pf	12	
C2	DD102	.001uf	24	
C3		.01uf	24	(THIS CAPACITOR IS ONE OF THE 169 BYPASS LISTED BELOW)
C4	DD101	100pf	24	
C5	DD181	180pf	24	
QTY	CAPACITOR			
154	202A00225M1	BYPASS 2.2 TANTULUM		
169	CY15C103M	BYPASS .01		
L1	WEE-1.0uH	1uH	24	
L2	WEE-1.0uH	1uH	24	
L3	6317-4	(coil)(0.08uH)	24	
Q1	2N3866		24	
Q2	LM79L05ACZ		20	
1	514AG37D or 814AG11D socket			U241
8	516AG37D or 816AG11D socket			U20, 40, 60, 80, 81, 111, 131, 153
3	518AG37D or 818AG11D socket			U261, 262, 263
4	520AG37D OR 820AG11D SOCKET			U218, 230, 245, 256
1	3041 SPACER			(METAL BODY TRANSISTOR [Q1] SPACER) INSULATED SPACER TO LIFT Q1 OFF TRACES OF BOARD.

3 (in triangle)

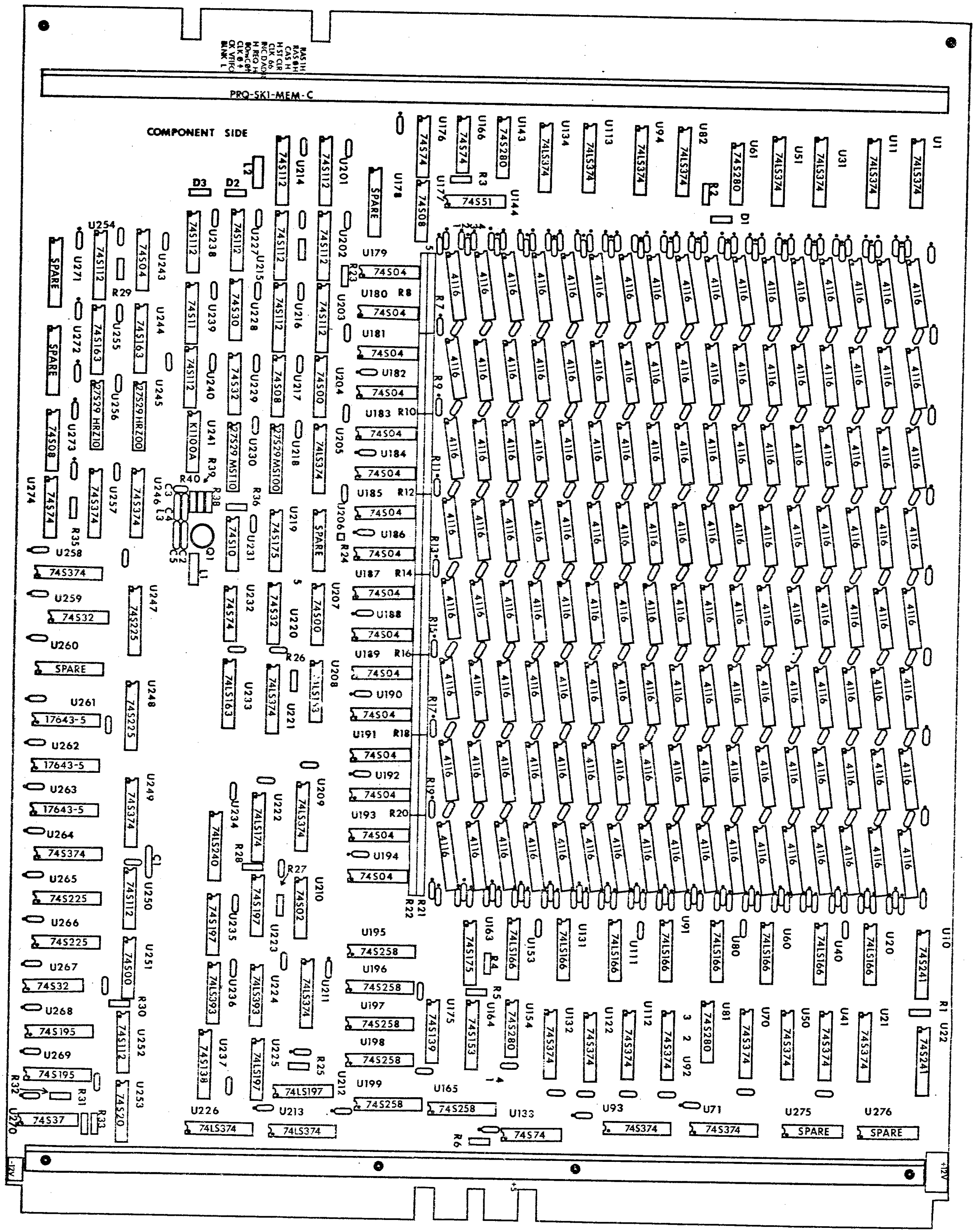
REV F 1/15/81 RAC
~~REV E 1/15/81 DIV~~
~~REV D 10/24/80 DIV~~

Three Rivers Computer

TITLE: MEM COMPONENT LIST | PROJECT: PRQ-MEM-C
DRAWN BY / CHECKED BY: [illegible] | 3ES-PL-0512 G | PAGE 9 of 9



	Three Rivers Computer	
	PRQ-SK4-MEM-C	PRQ-MEM-C
	PRQ-SK-0239-C	1 of 2



Three Rivers Computer

PRQ-SK1-MEM-C

PRQ-MEM-C

PRQ-SK-0238-C

2 of 2

18 July, 1980

PRQ-PCB-MEM-C

SUBASSEMBLY DIRECTORY

GATE UTILIZATION

PRQ-PCB-MEM-C

LEGEND

INPUT		OUTPUT
1, 2	–	3, 4

74S00	U251
1, 2-3	23
4, 5-6	
10, 9-8	25
13, 12-11	12

74S04	U243
1-2	
3-4	26
5-6	26
9-8	26
11-10	25
13-12	

74S32	U259
1, 2-3	
4, 5-6	25
10, 9-8	13
13, 12-11	

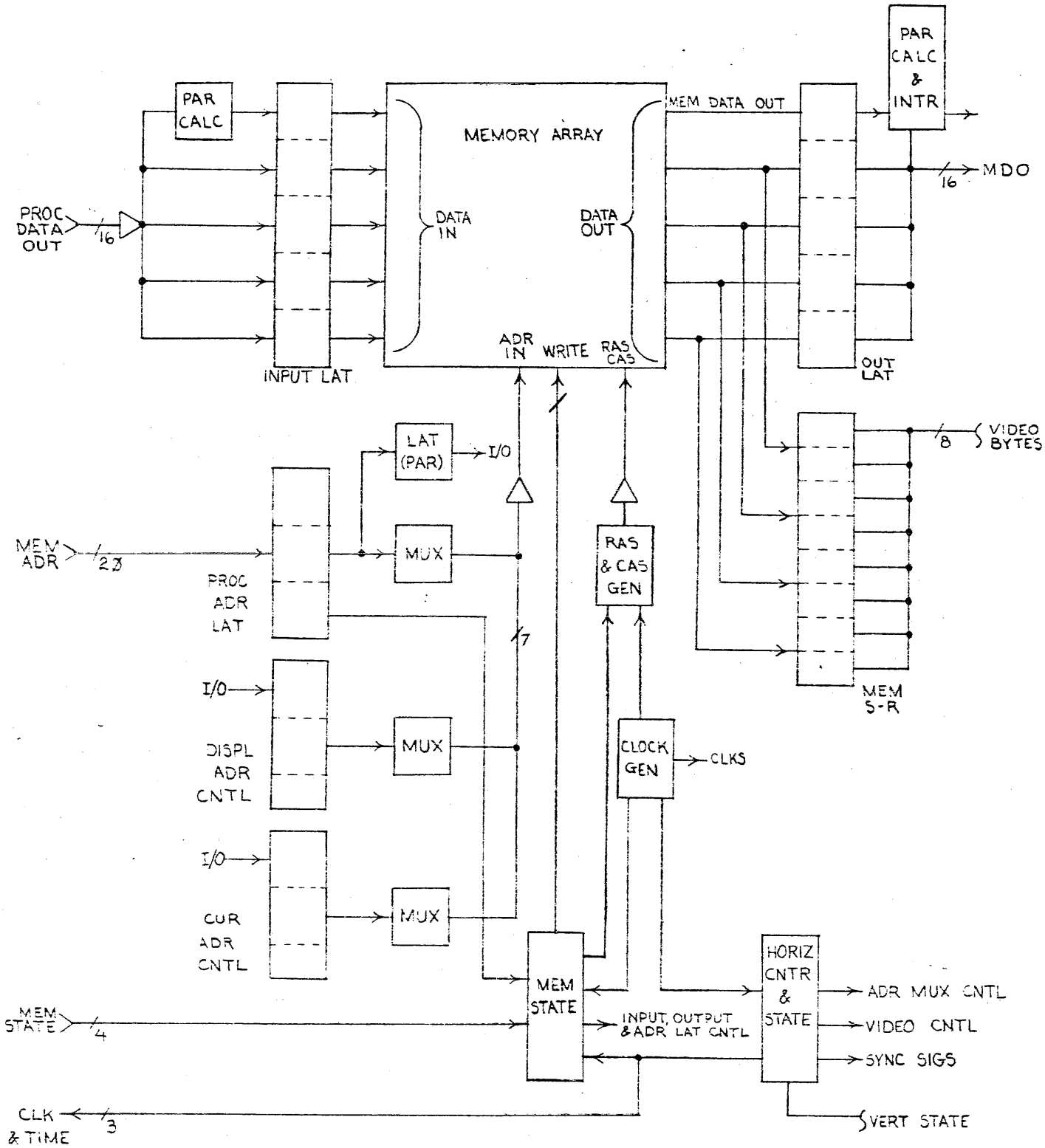
74S74	U274	U272
1, 2, 3, 4-5, 6		26
13, 12, 11, 10-9, 8	26	

C

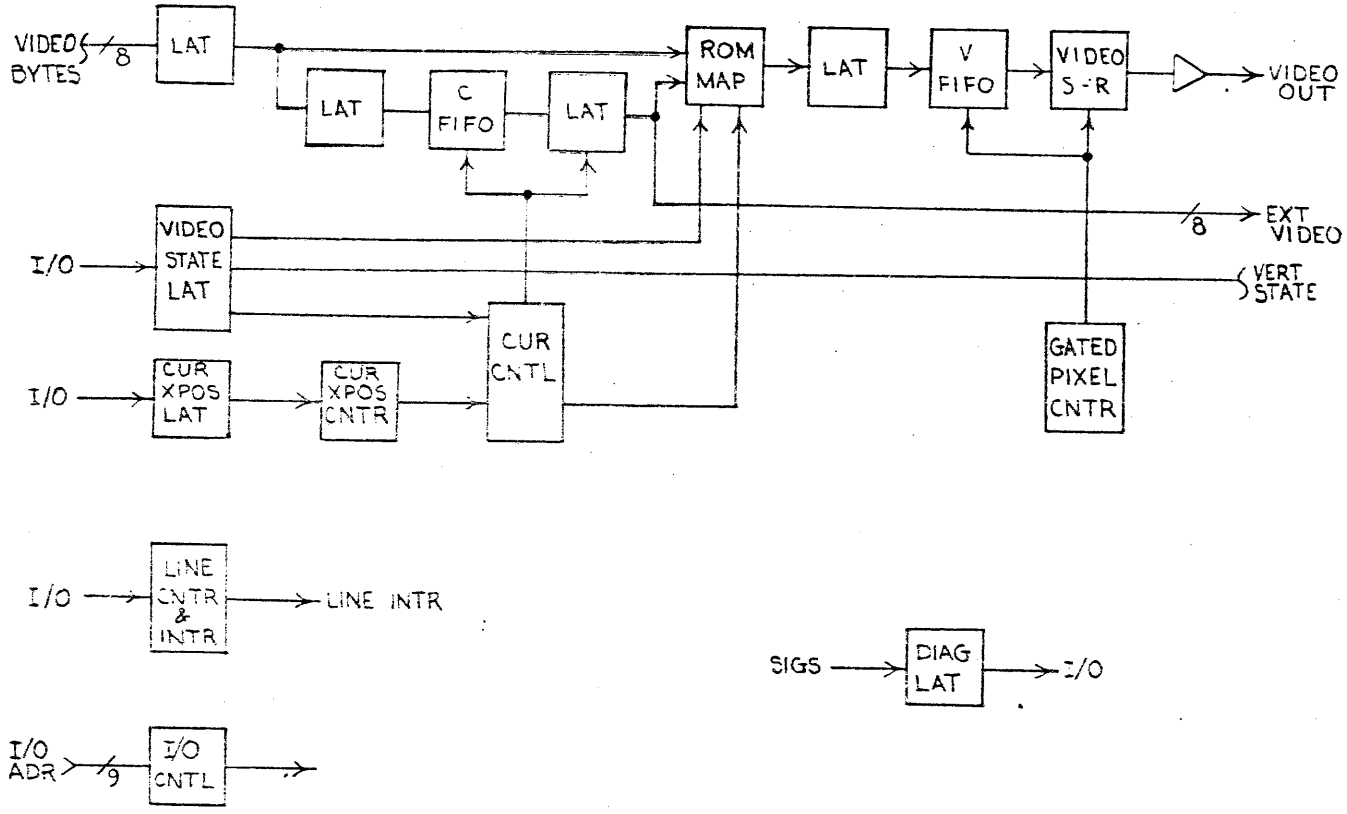
Three Rivers Computer

PERQ MEMORY (C) SCHEMATICS

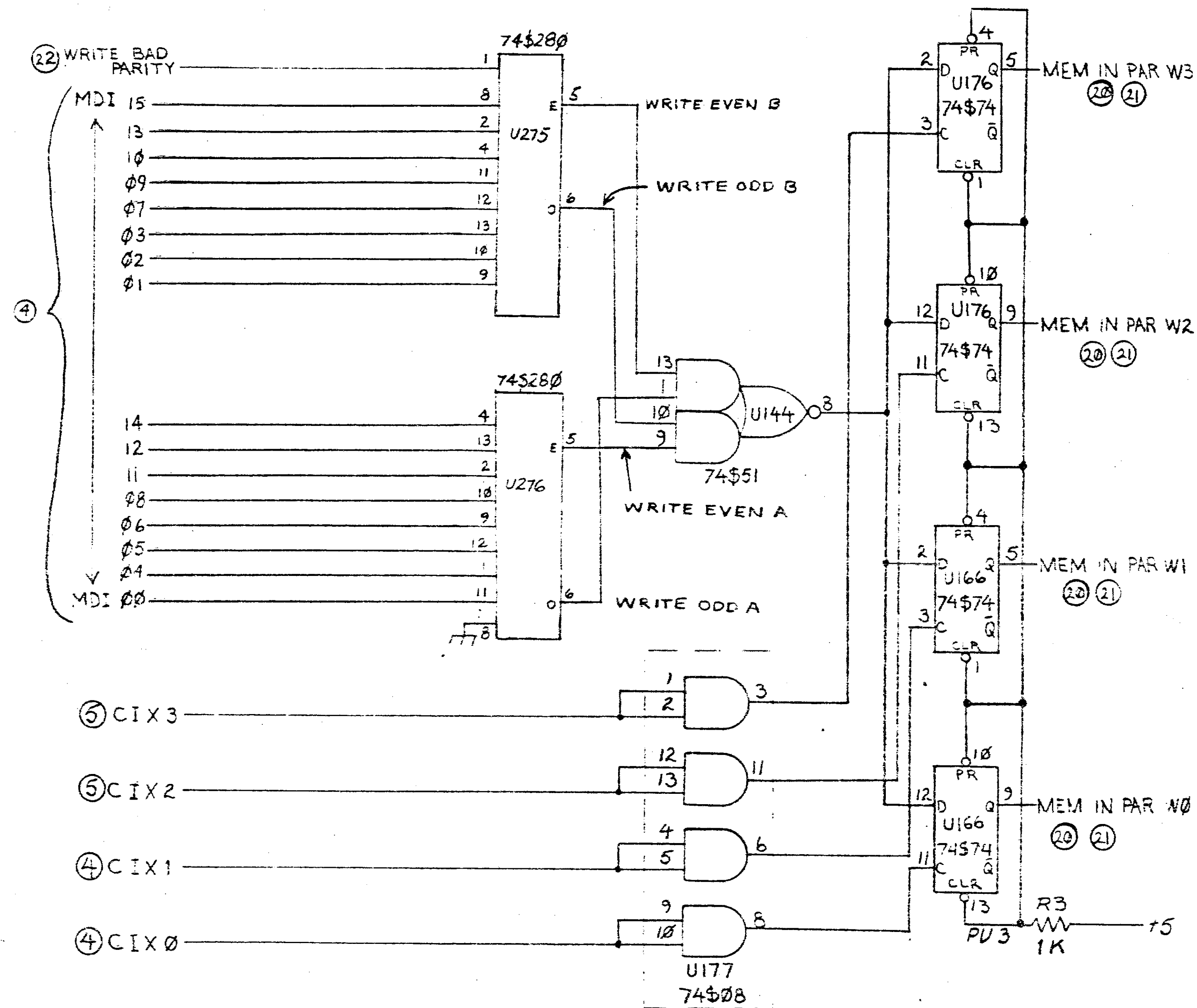
TABLE OF CONTENTS



Three Rivers Computer	
MEM BLOCK DIAG	PERQ - MEM-C
SBS 3C-0485-A	1 - 27

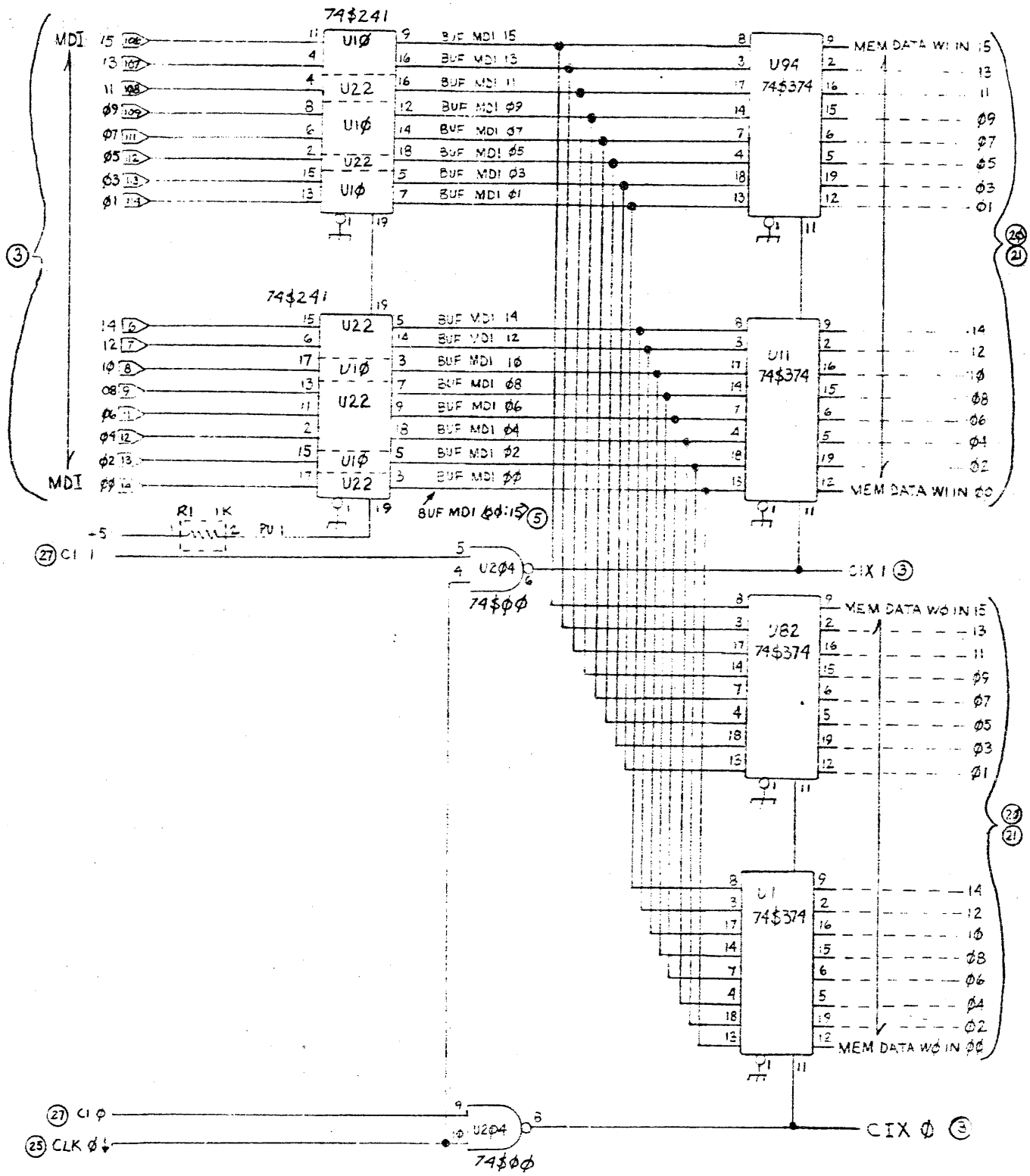


Three Rivers Computer	
MEM BLOCK DIAG	PERQ - MEM - C
	PRQ-3C-0456-A 2 - 27



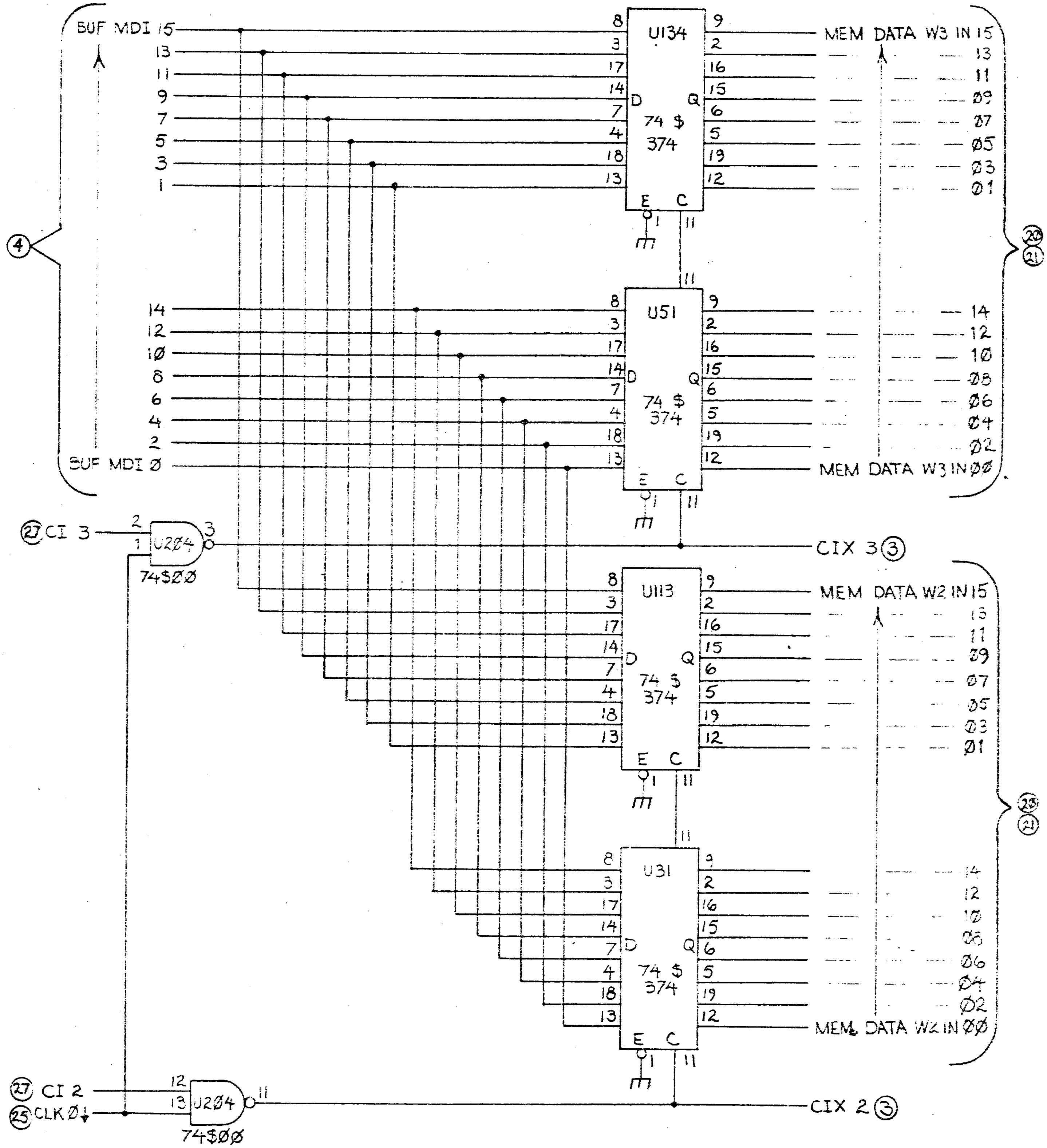
5/4/3

Three Rivers Computer		
DATA INPUT-PARITY	PERQ-MEM-C	
	PRQ 3C 0457-H	3 of 27



Three Rivers Computer		
DATA INPUT: WØ, WI	PROJECT PRQ-MEM-C	
DRAWN BY DW 9/81	DRAWING NO PRQ-SC-0098-E	SHEET 4 OF 27

5/4



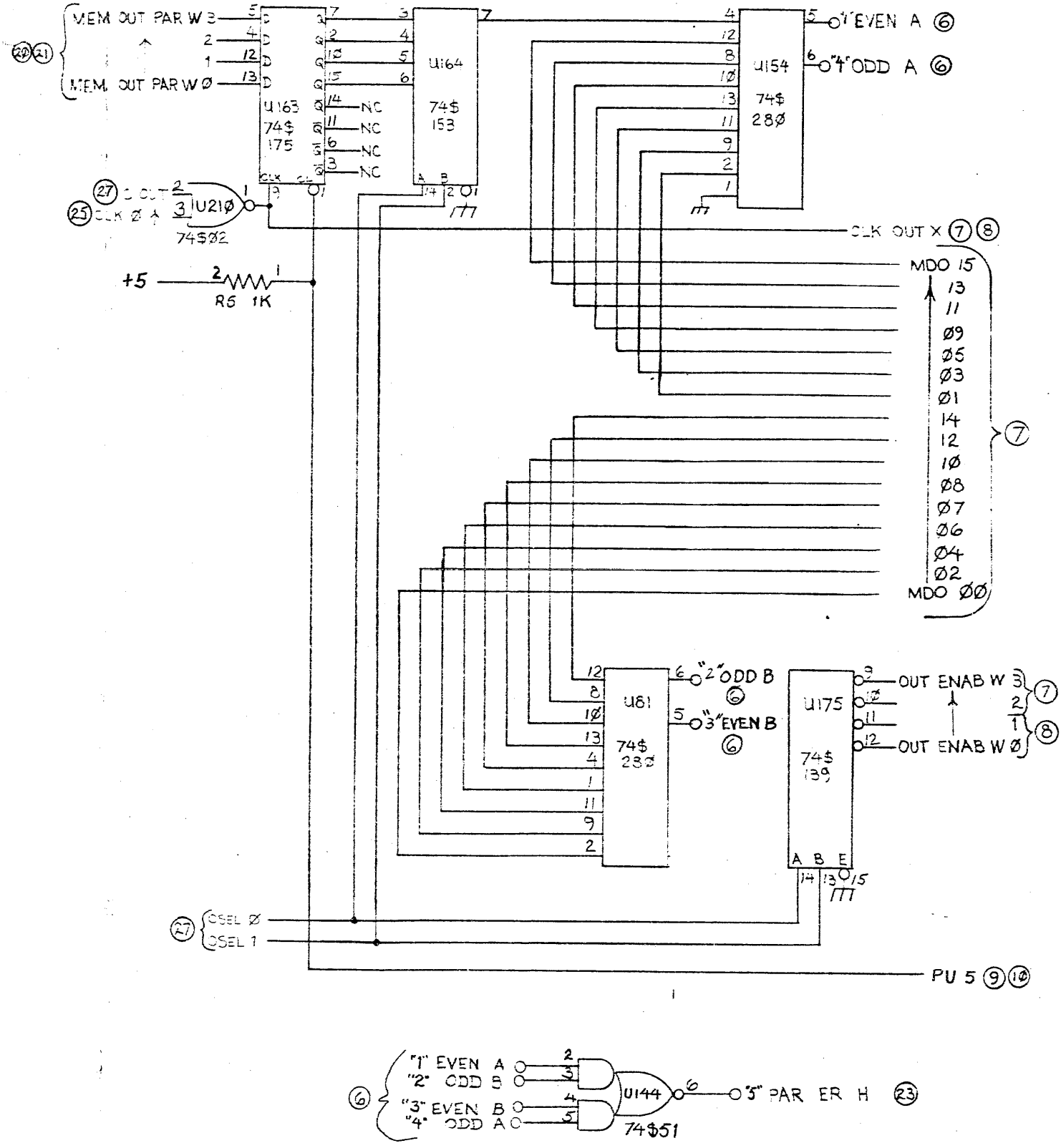
Three Rivers Computer

DATA INPUT

PERQ - MEM - C

REV. B 3/14/80

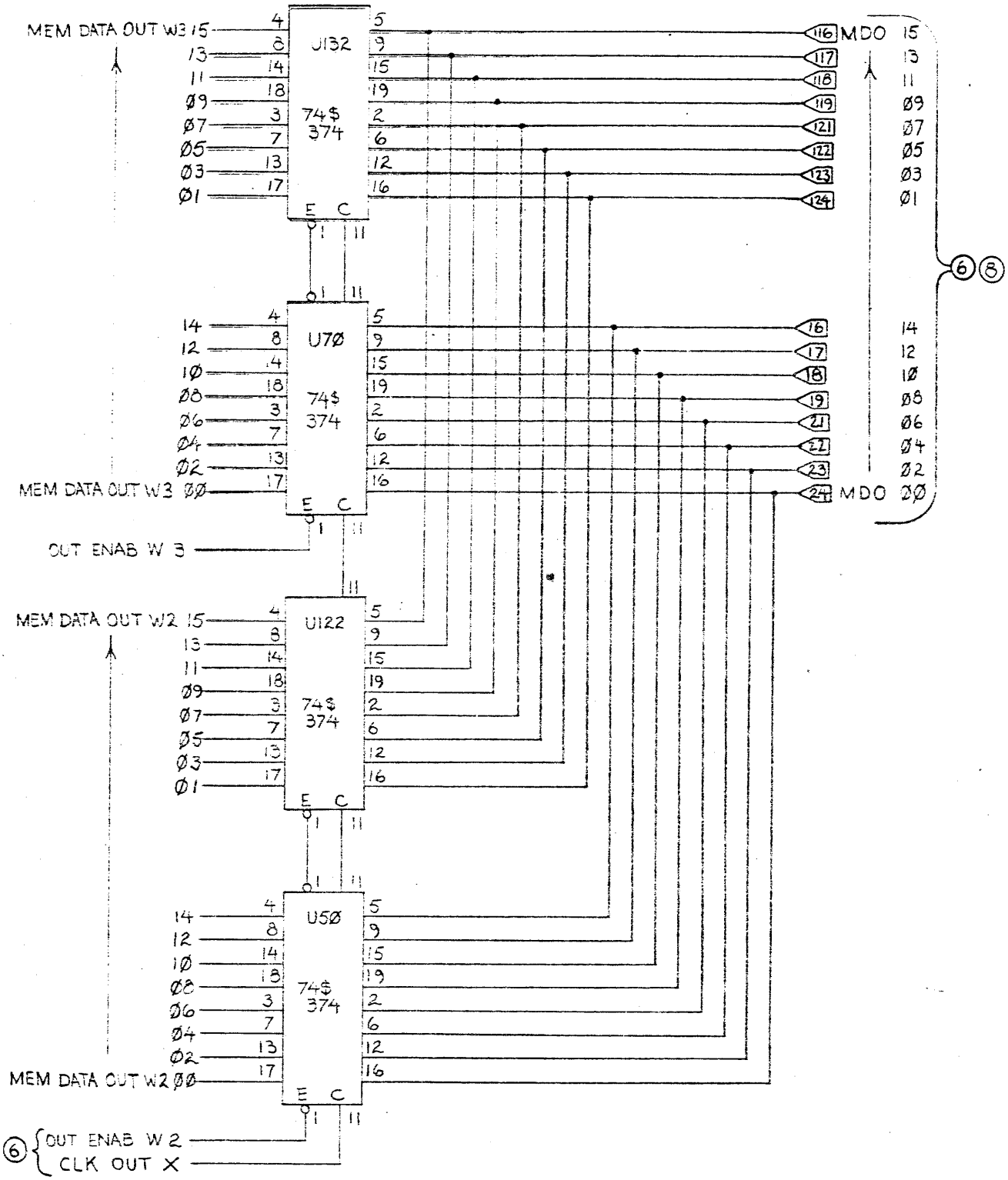
5



REV G 1/26/81 DIV
REV F 12/30/80
REV E 7/17/80
REV D 7/5/80
REV C 5/16/80
REV B 3/4/80

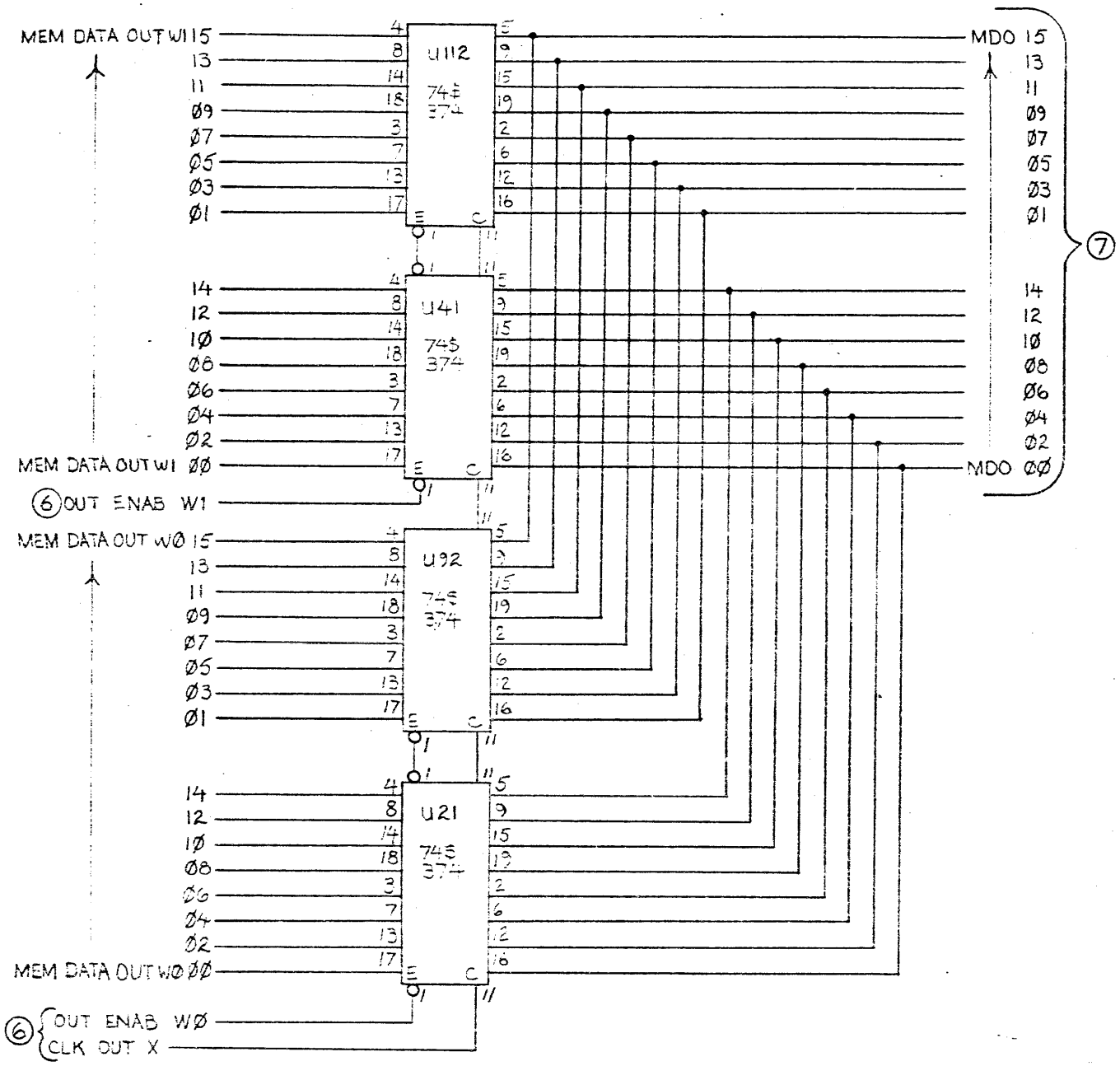
4/3

Three Rivers Computer	
DATA OUTPUT	PERQ-MEM-C
	PRQ-SC-0490-H | 6 of 27



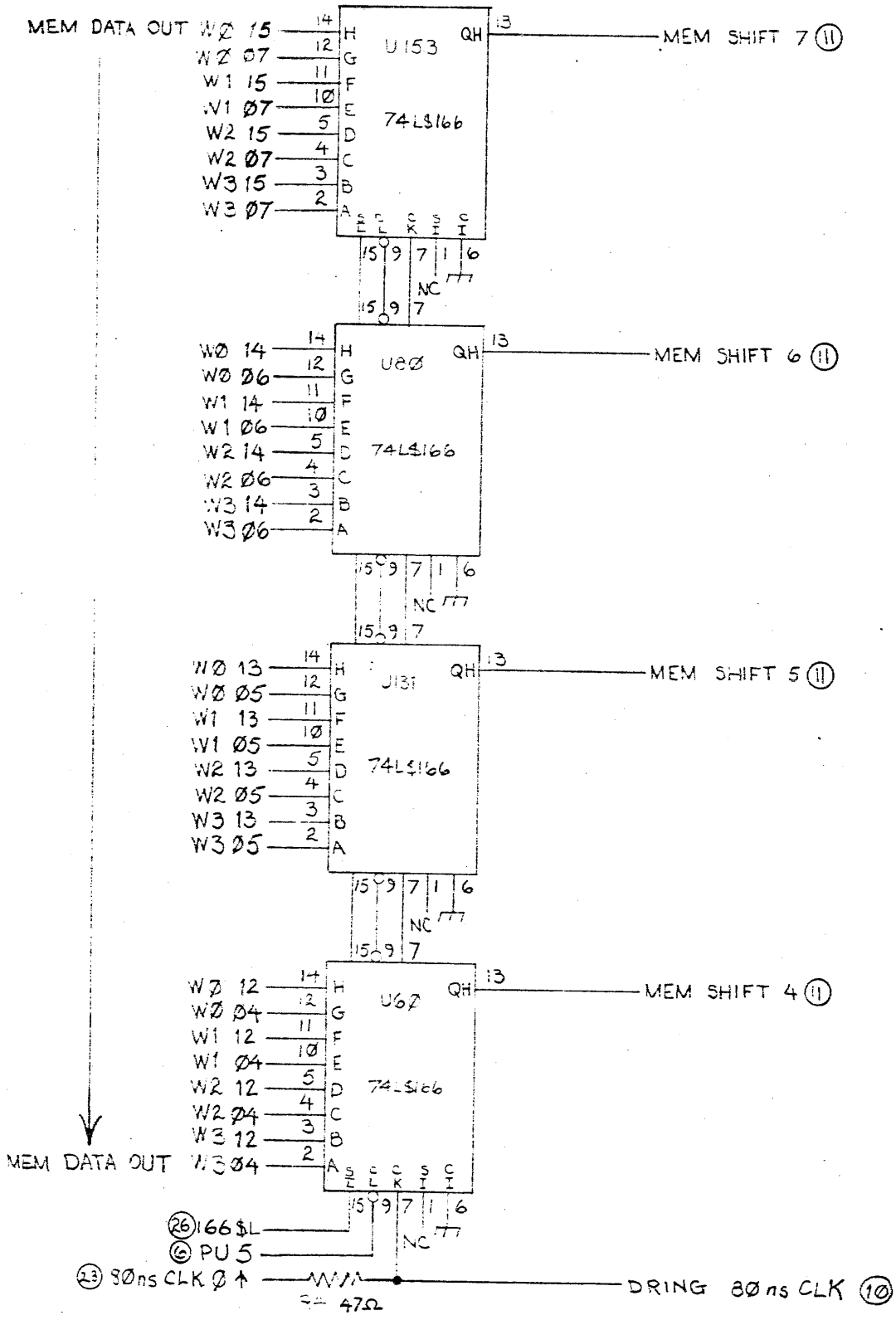
Three Rivers Computer	
DATA OUTPUT	PERQ MEM-C
	PEG-EC-0491-B 7 of 27

REV B 12/22/20 RAC



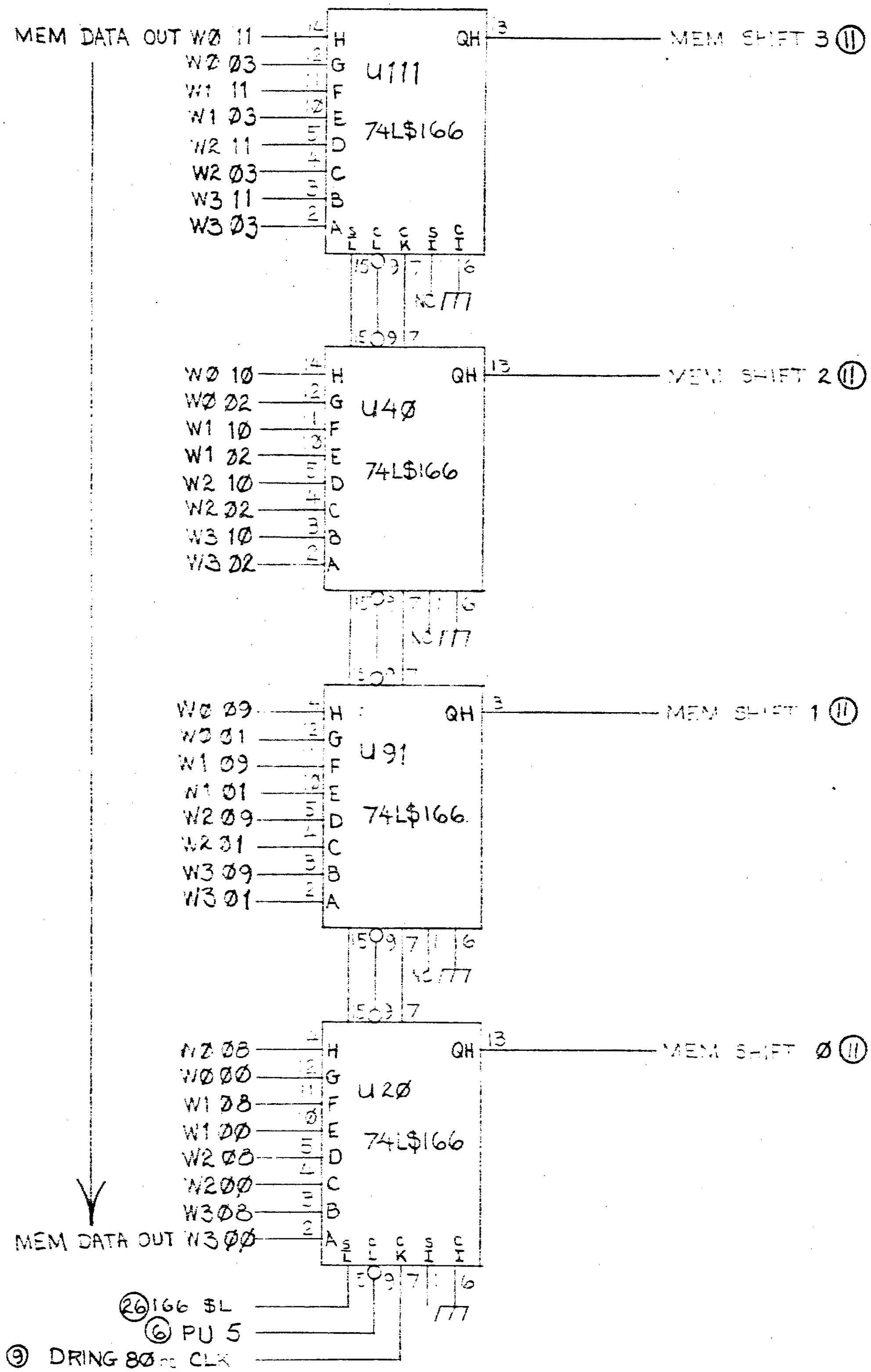
REV B 12/22/80 RAC

Three Rivers Computer	
DATA OUTPUT	PERQ-MEM-C
	ESD-SC-0492-B sheet 8 of 27



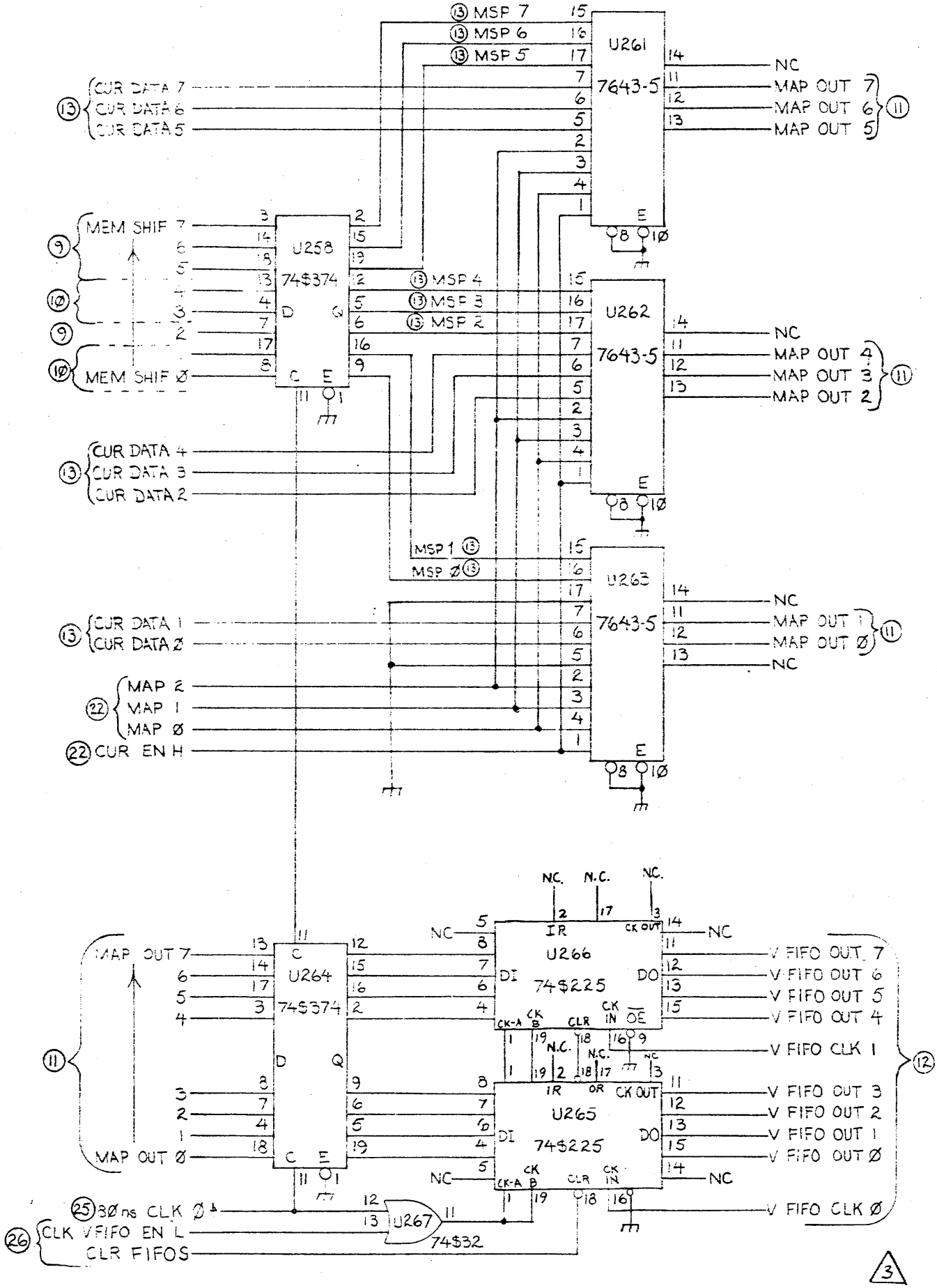
REV F 12/30/80 RAC
REV E 7/15/80
REV D 7/11/80
REV C 5/8/80
REV B 3/14/80

Three Rivers Computer	
MEMORY SHIFTER	PERQ-MEM
	SCH-0493F 9 - 27



REV. D 7/11/80
REV. C 5/8/80
REV. E 7/15/80 SB REV. B 3/4/80

Three Rivers Computer	
TITLE MEMORY SHIFTER	PROJECT PERQ-MEM-C
DRAWING NO. ...-0494 E	PAGE 12 of 27


(13) MSP 7
(13) MSP 6
(13) MSP 5
U261
7643-5
NC
MAP OUT 7
MAP OUT 6
MAP OUT 5
(11)
(13) CUR DATA 7
CUR DATA 6
CUR DATA 5
(9) MEM SHIF 7
(10) 6
5
4
3
(9) 2
(10) MEM SHIF Ø
U258
74$374
D
Q
C
E
(13) MSP 4
(13) MSP 3
(13) MSP 2
U262
7643-5
NC
MAP OUT 4
MAP OUT 3
MAP OUT 2
(11)
(13) CUR DATA 4
CUR DATA 3
CUR DATA 2
MSP 1 (13)
MSP Ø (13)
U263
7643-5
NC
MAP OUT 1
MAP OUT Ø
NC
(11)
(13) CUR DATA 1
CUR DATA Ø
(22) MAP 2
MAP 1
MAP Ø
(22) CUR EN H
MAP OUT 7
MAP OUT Ø
U264
74$374
D
Q
C
E
NC
U266
74$225
IR
CK OUT
DI
DO
CK-A
CK B
CLR
CK IN
OE
V FIFO OUT 7
V FIFO OUT 6
V FIFO OUT 5
V FIFO OUT 4
V FIFO CLK 1
U265
74$225
IR
OR
CK OUT
DI
DO
CK-A
CK B
CLR
CK IN
V FIFO OUT 3
V FIFO OUT 2
V FIFO OUT 1
V FIFO OUT Ø
NC
V FIFO CLK Ø
(12)
(25) 30 ns CLK Ø
(26) CLK V FIFO EN L
CLR FIFOS
U267
74$32
3
Three Rivers Computer
VIDEO OUTPUT
PERQ-MEM-C
PC-0495 E
11 = 27
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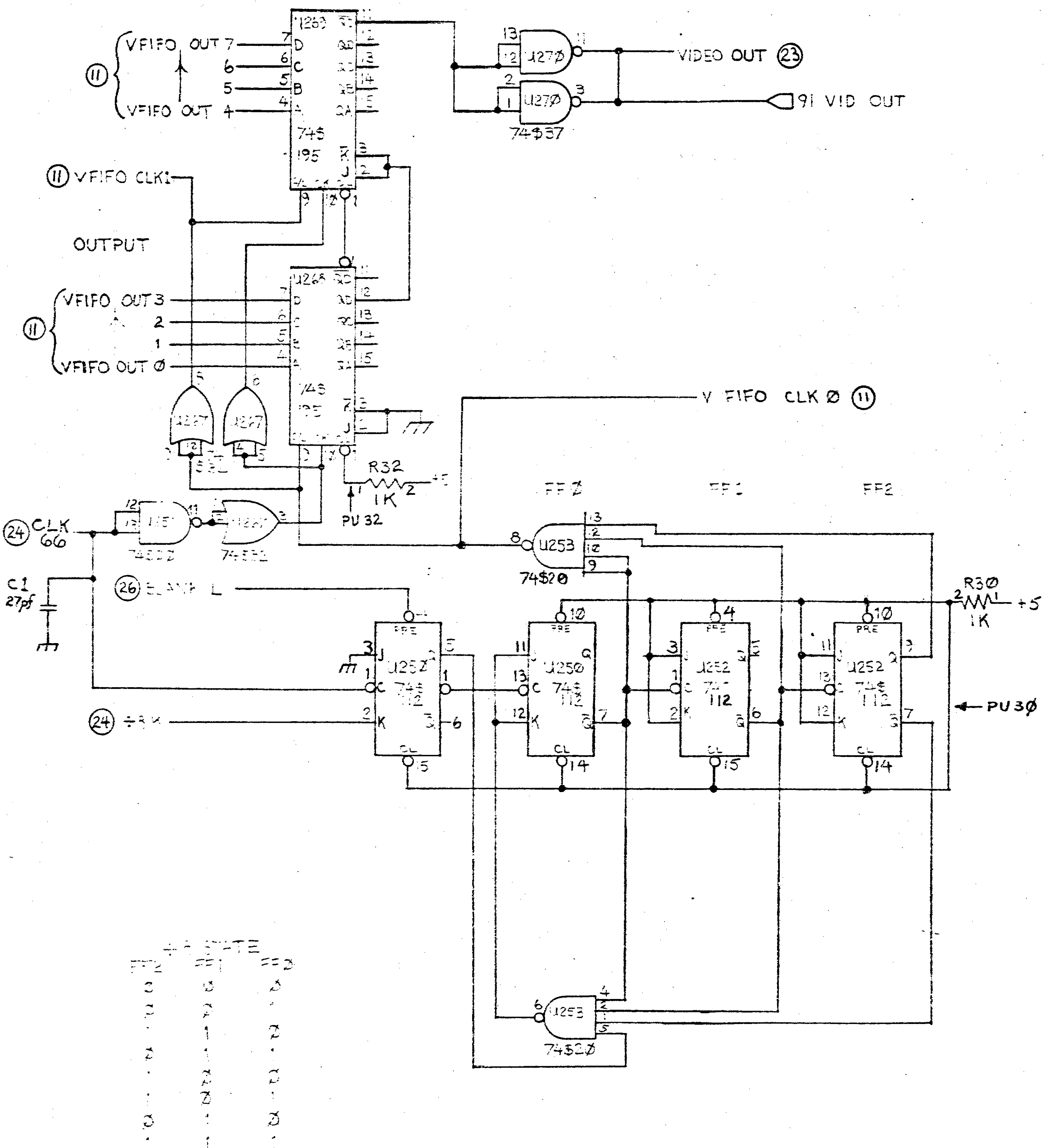
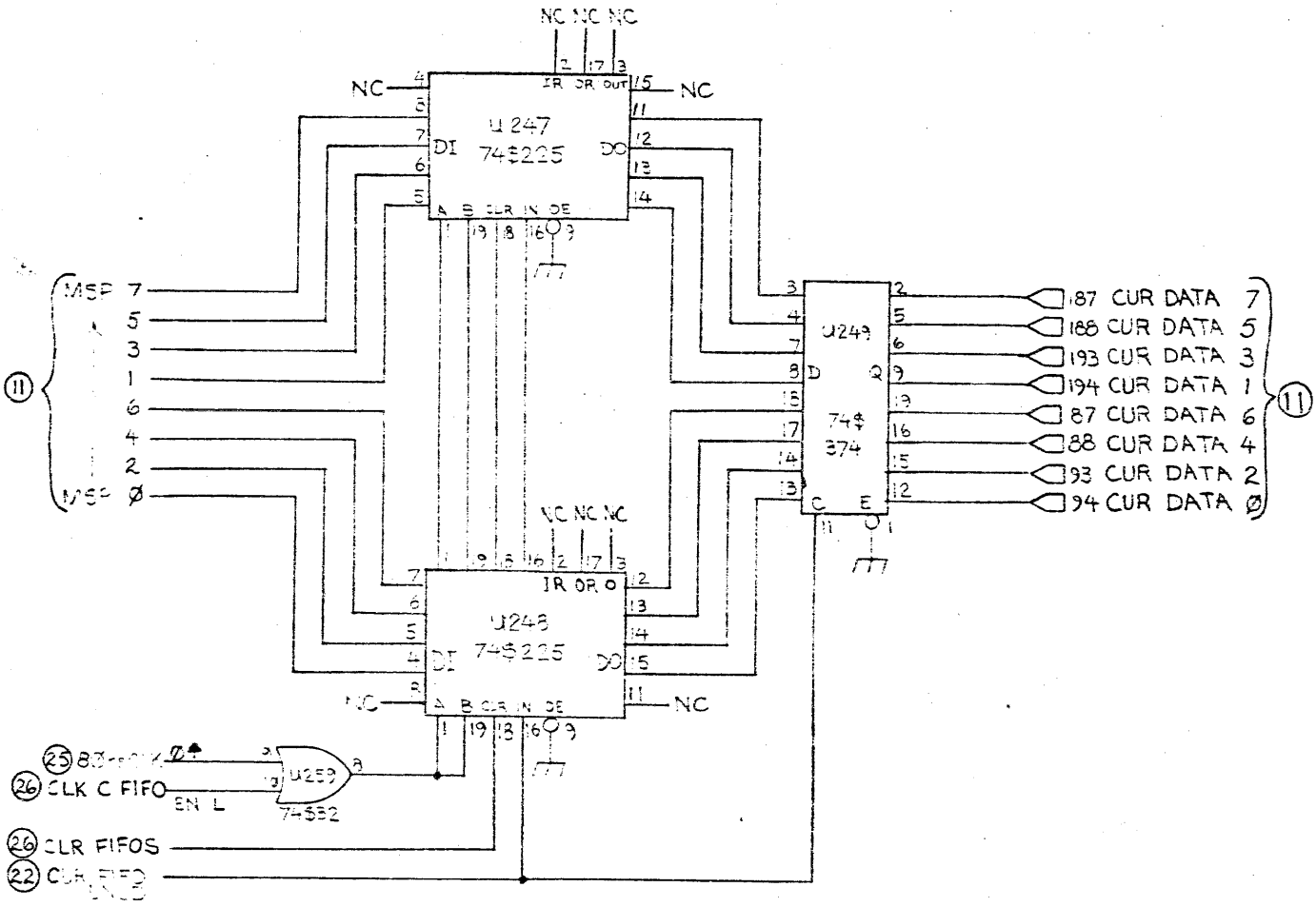
REV. B 3/14/80



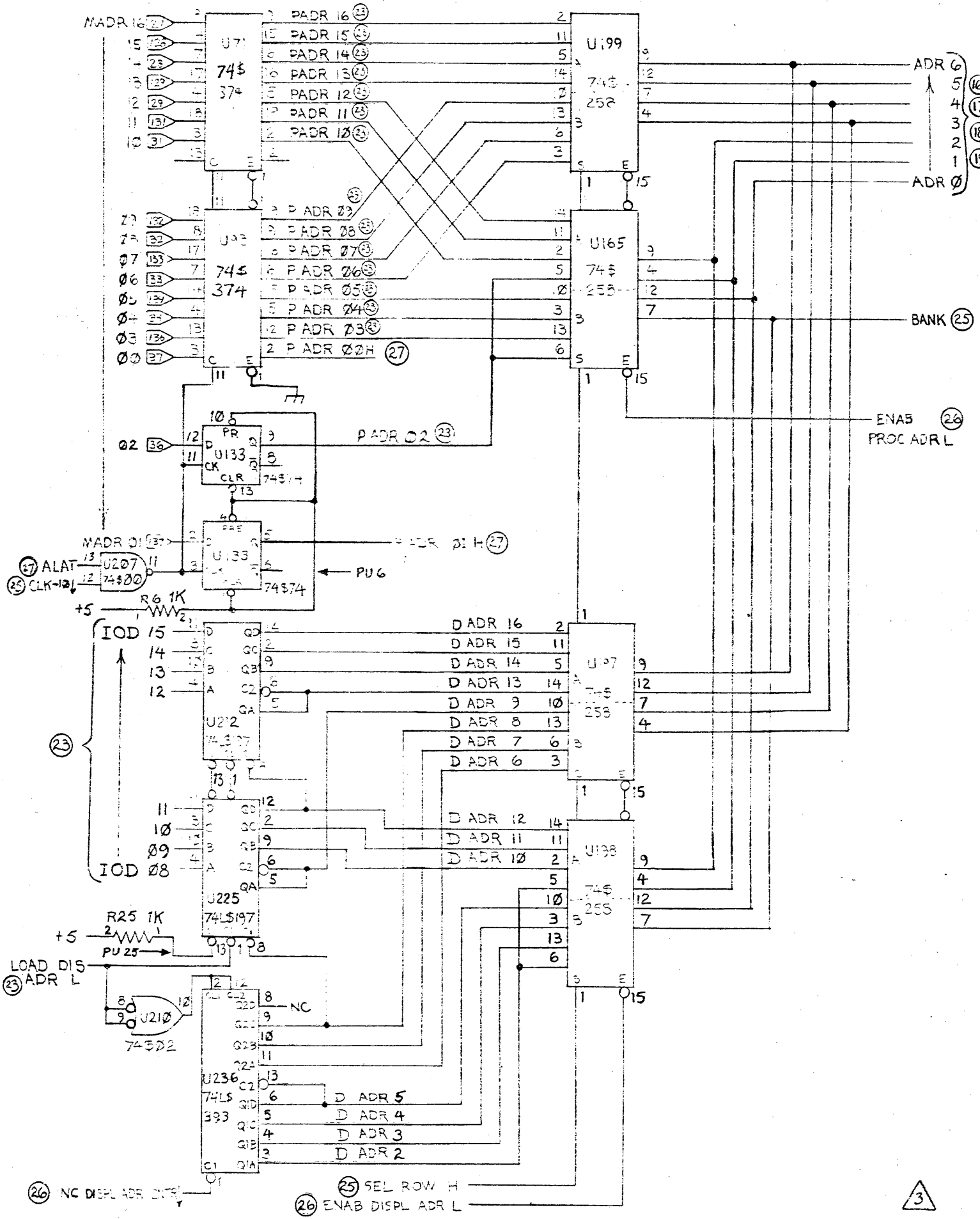
3

REV G 7/16/80 SB
REV F 7/14/80 SB
REV E 7/11/80 SB
REV D 5/16/80 SB
REV C 3/19/80 SB
REV B 3/14/80 SB

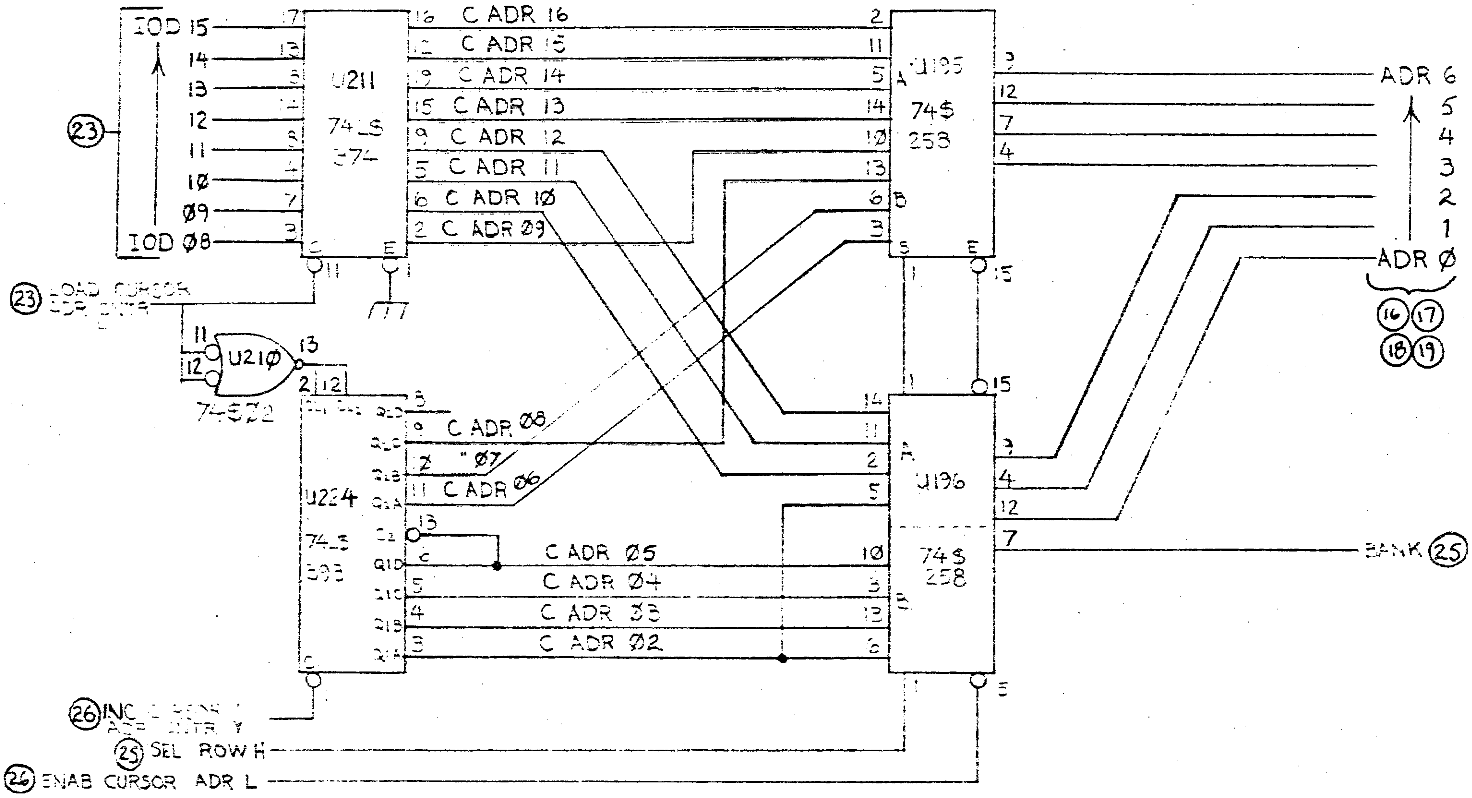
Three Rivers Computer
VIDEO OUTPUT
PERQ-MEM-C
PRQ-EC-0496-H
12 - 27

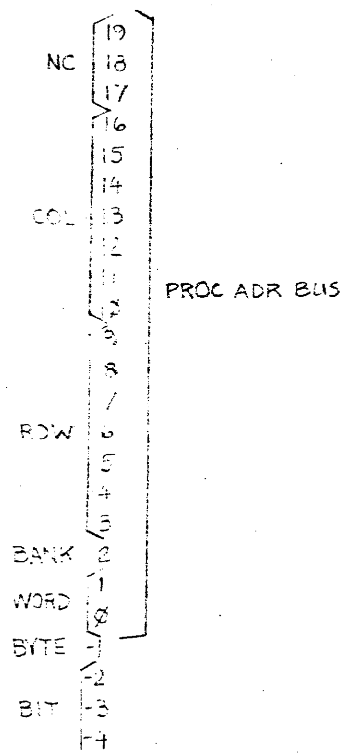


	Three Rivers Computer	
TITLE VIDEO OUTPUT		PROJECT PERQ-SYSTEM-C
DRAWN BY	DRAWING PRS-SC-0497-A	SHEET 13 OF 27

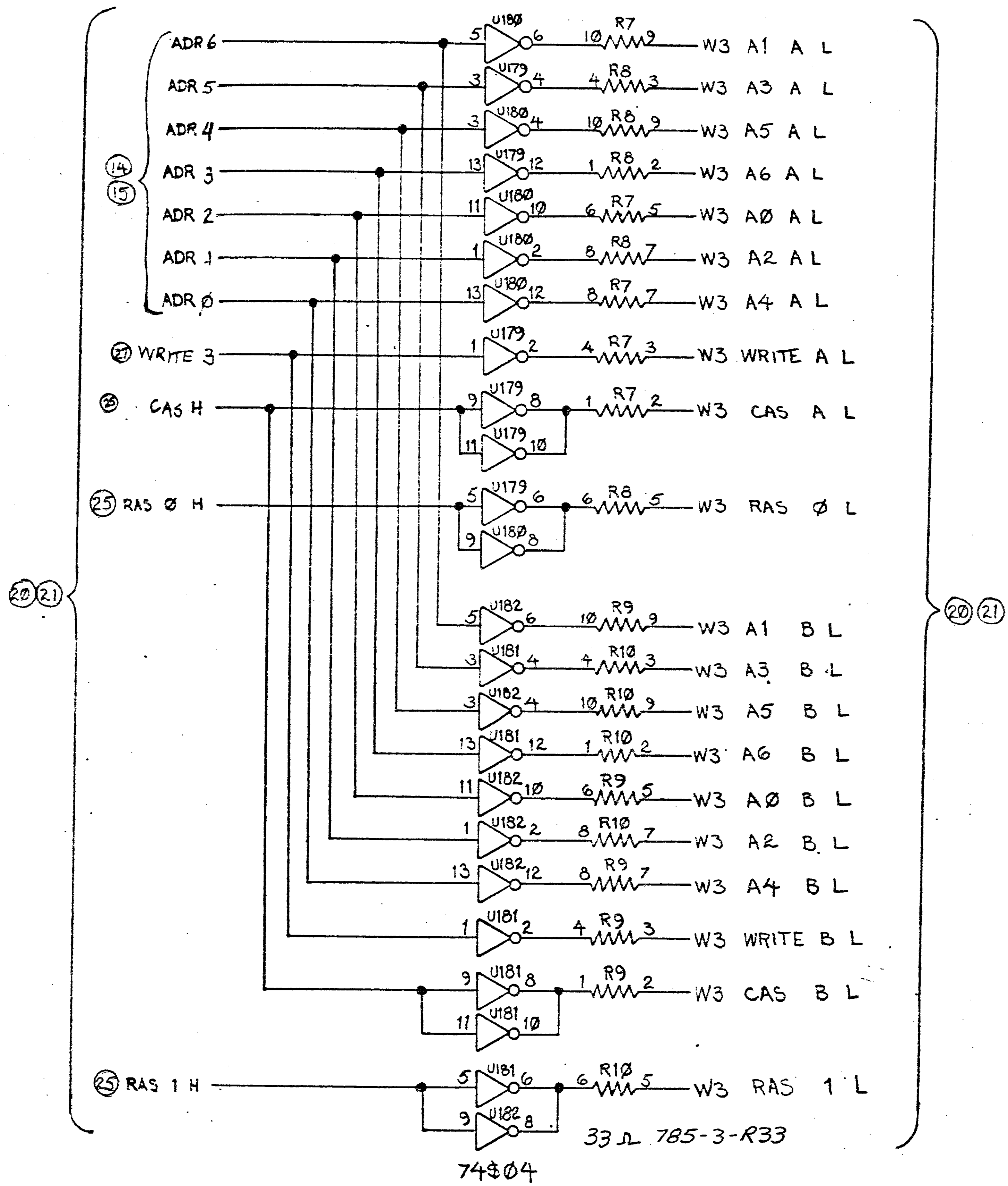


Three Rivers Computer		
MEM ADR SEL	PERQ - MEM - C	
SB	PRQ-EC-0496-G	14 - 27





Three Rivers Computer		
VSM ADR SEL	PERX-MEM-C	
	EC-0499-A1	15 • 27

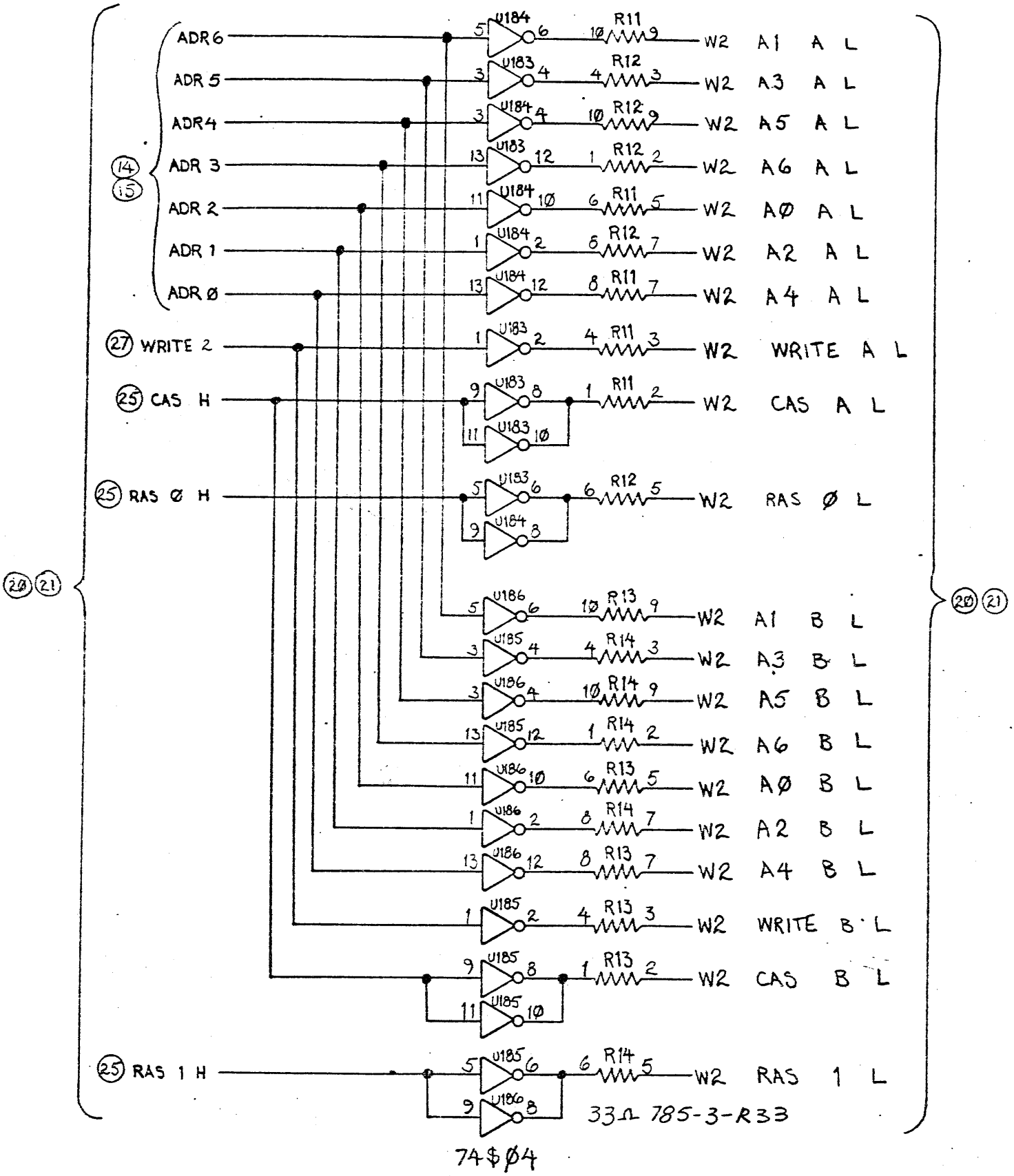


REV C 1/9/81 DW
REV B 3/14/80

Three Rivers Computer

MEM DRIVERS 3 | PERQ-MEM-C

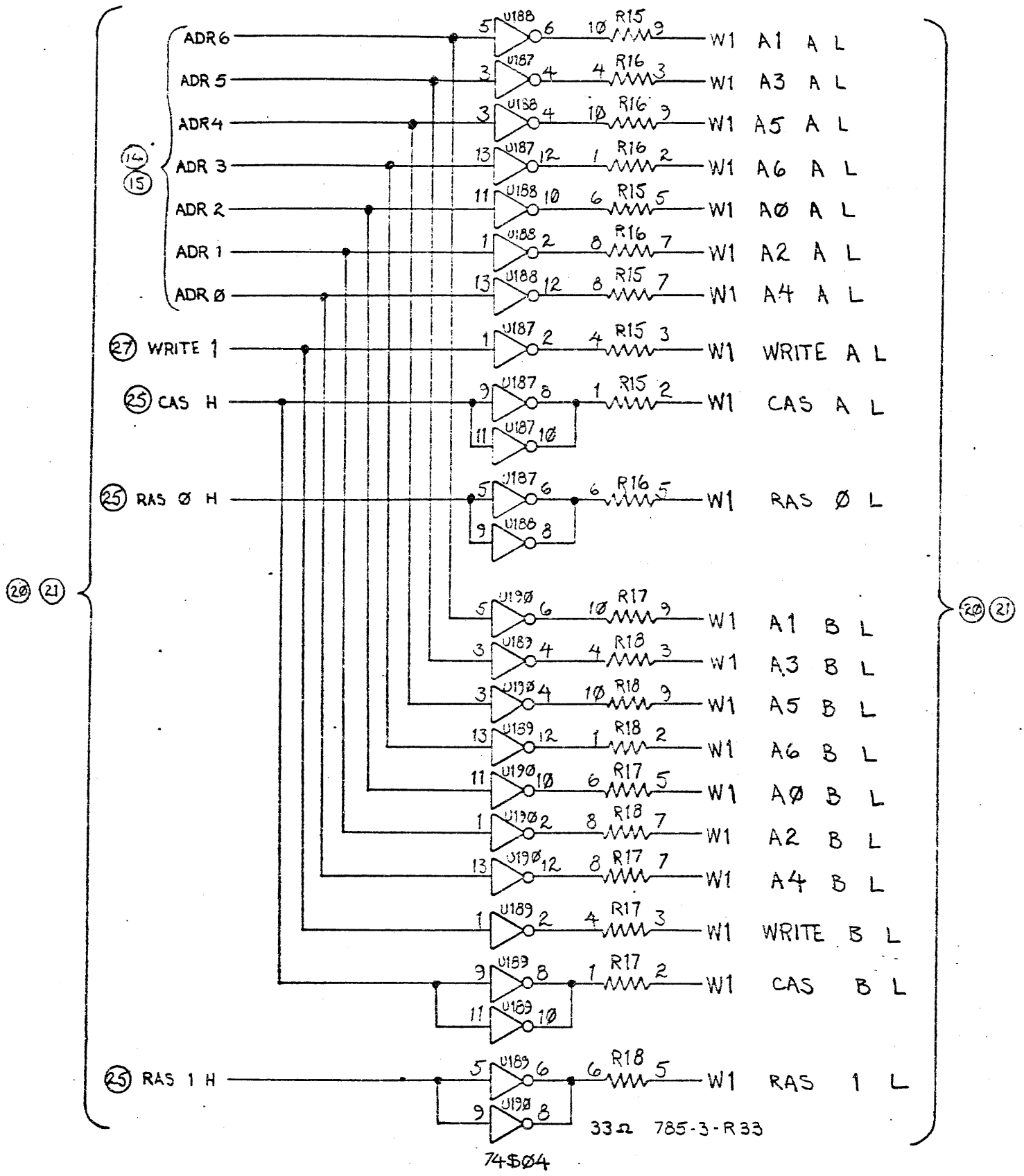
0500 C | 16-27

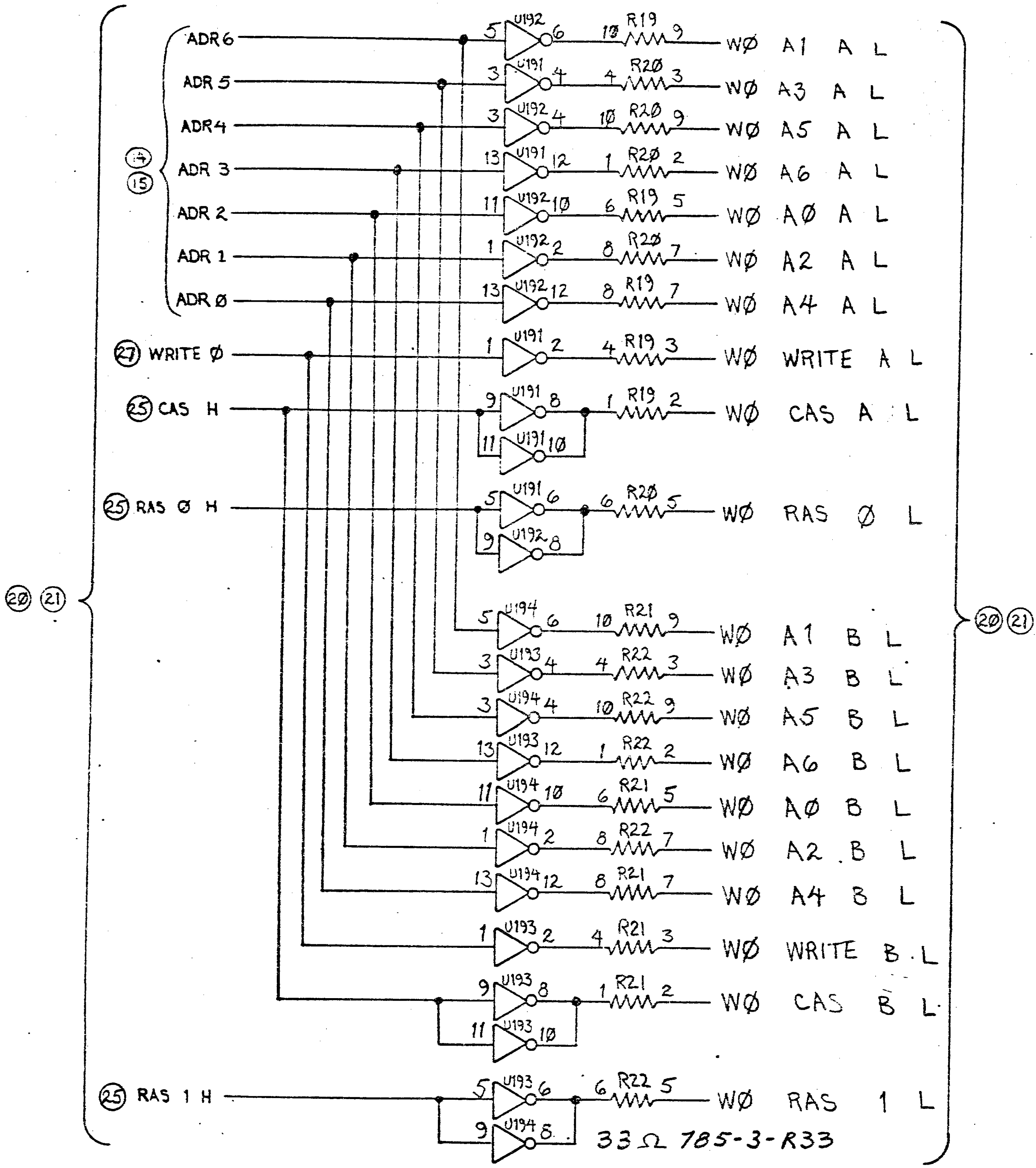


3

Three Rivers Computer		
MEM DRIVERS 2	PERQ-MEM-C	
SD UNITS	SSI-5C-0501-C	17 - 27

REV C 1/9/81 DW
REV B 3/14/80 SR


ADR 6
ADR 5
ADR 4
ADR 3
ADR 2
ADR 1
ADR Ø
(14) (15)
(27) WRITE 1
(25) CAS H
(25) RAS Ø H
(25) RAS 1 H
(20) (21)
U188
U187
U189
U190
R15
R16
R17
R18
W1
A1 A L
A3 A L
A5 A L
A6 A L
AØ A L
A2 A L
A4 A L
WRITE A L
CAS A L
RAS Ø L
A1 B L
A3 B L
A5 B L
A6 B L
AØ B L
A2 B L
A4 B L
WRITE B L
CAS B L
RAS 1 L
33Ω 785-3-R33
74S04



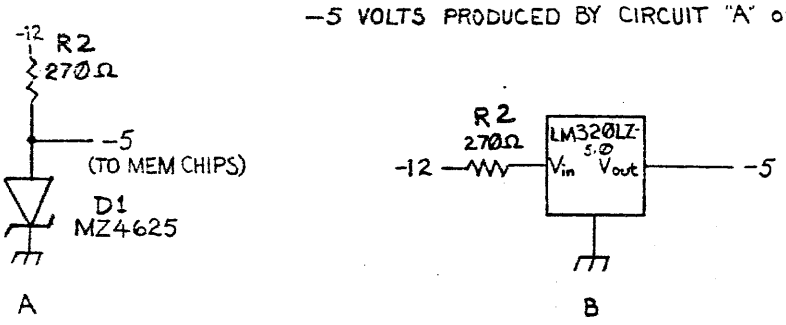
74SØ4

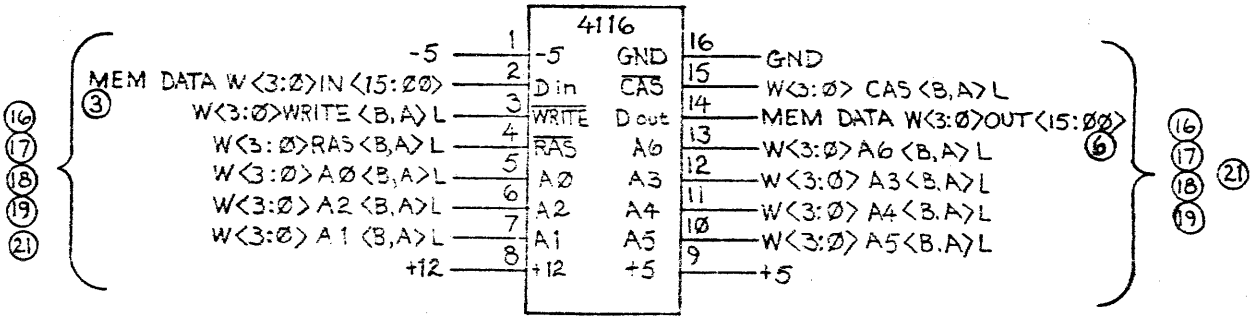
3

DIV REV C 1/25/81
REV.B 3/14/80

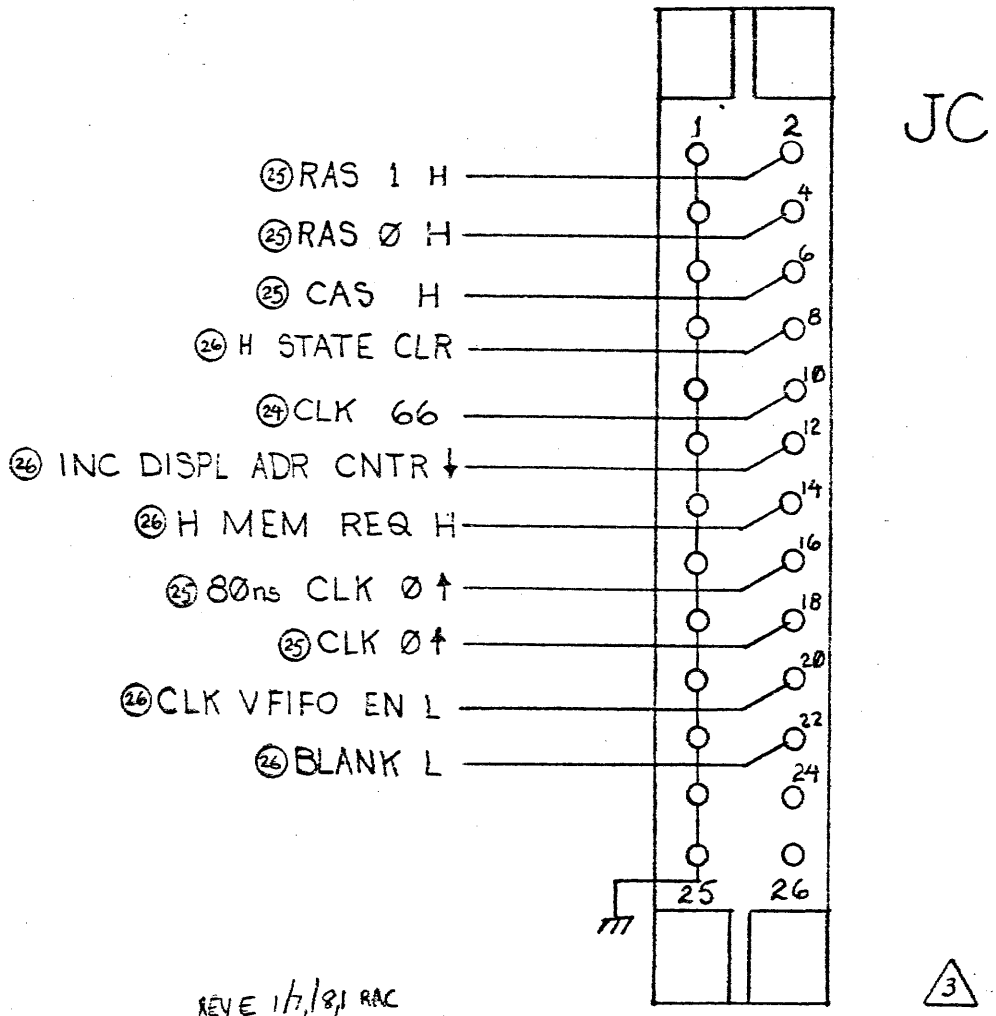
Three Rivers Computer	
MEM DRIVERS 1	PERQ - MEM - C
55 -179	PRO-TL-0503 C — 19 - 27

-5 VOLTS PRODUCED BY CIRCUIT "A" OR "B"





NOTE:
SEE PAGE (21) FOR RAM ARRAY

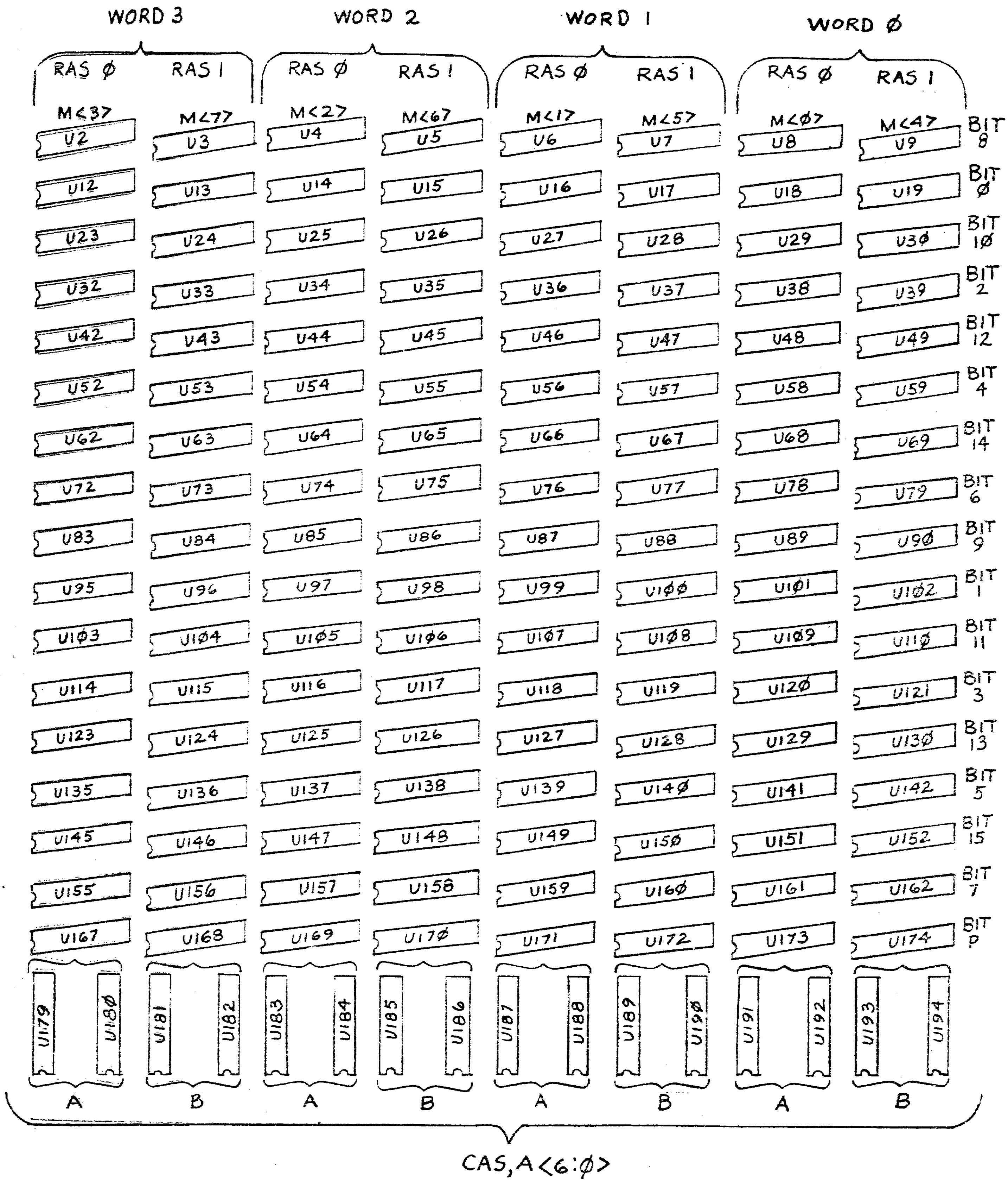


3

REV E 1/7/81 RAC
REV D 12/22/80 RAC
REV C 7/17/80 SB
REV B. 7/15/80 SAB

Three Rivers Computer	
TYP RAM + JC	PEPQ-MEM-C
	SCH-0504-B 20-27

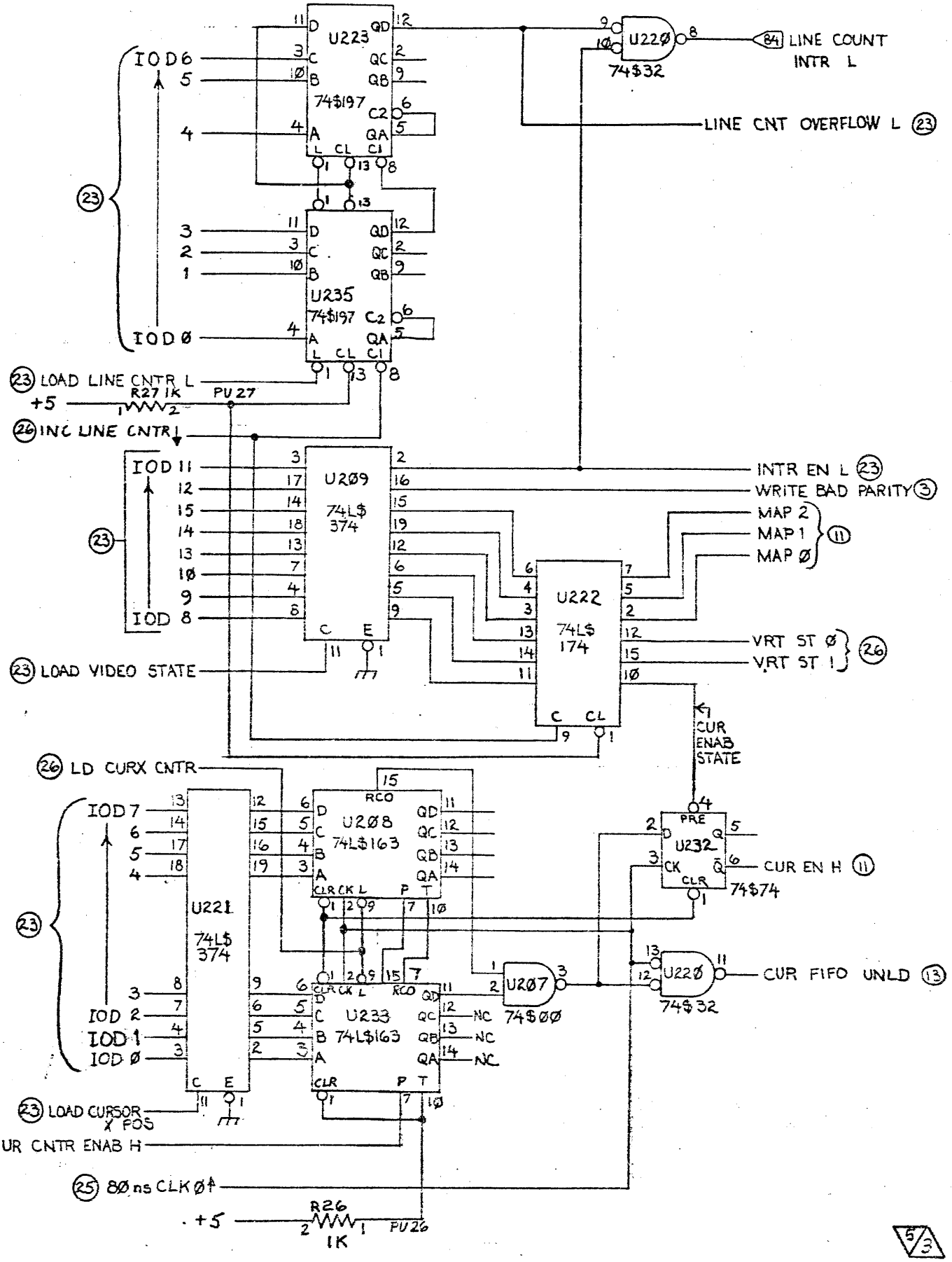
RAS 1 = BANK 1



3

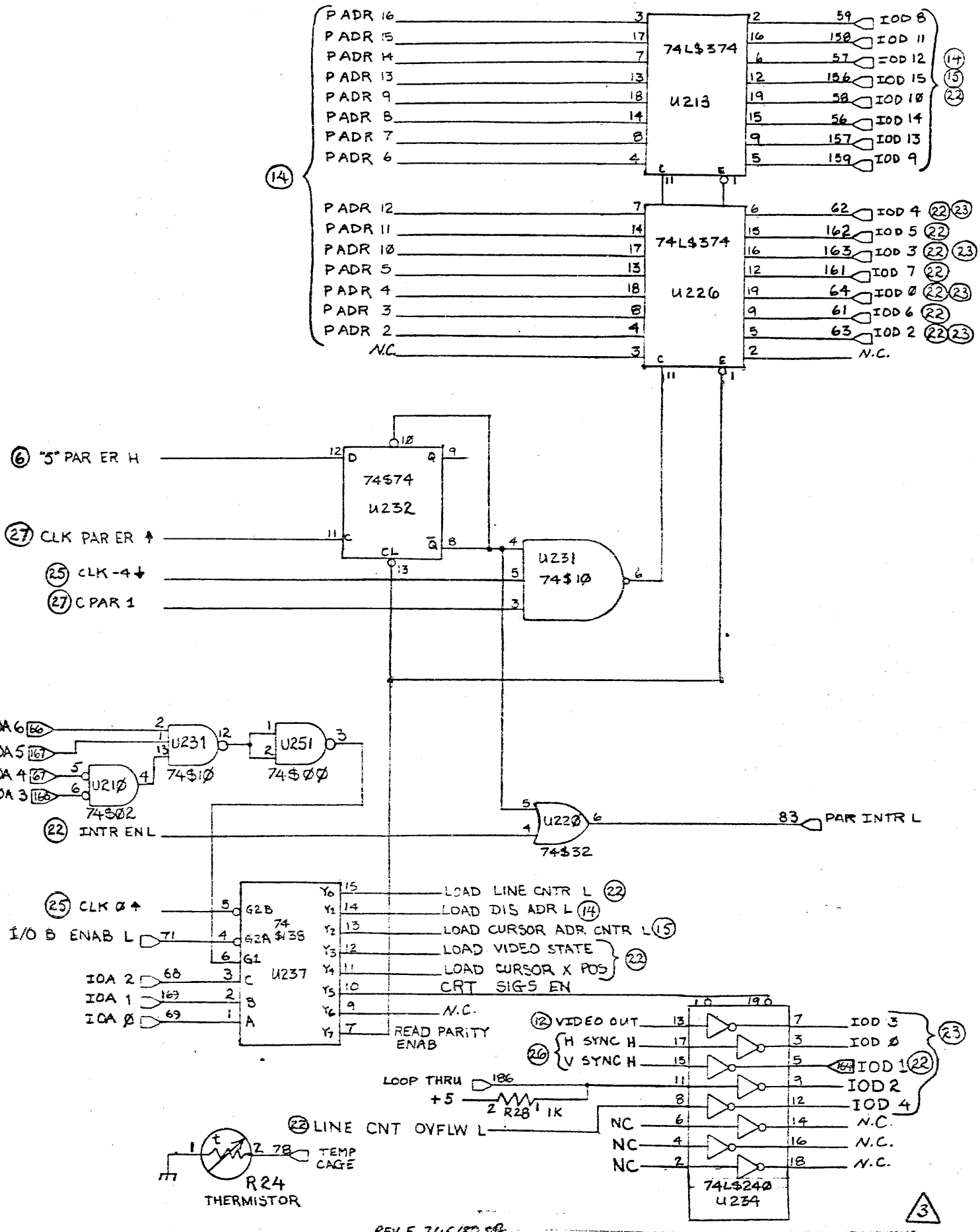
REV C DIV 1/28/81
REV B SB 3/14/80

Three Rivers Computer		
RAM ARRAY		PRQ-MEM-C
DIV 1/28/81	SC-0505C	21 - 27



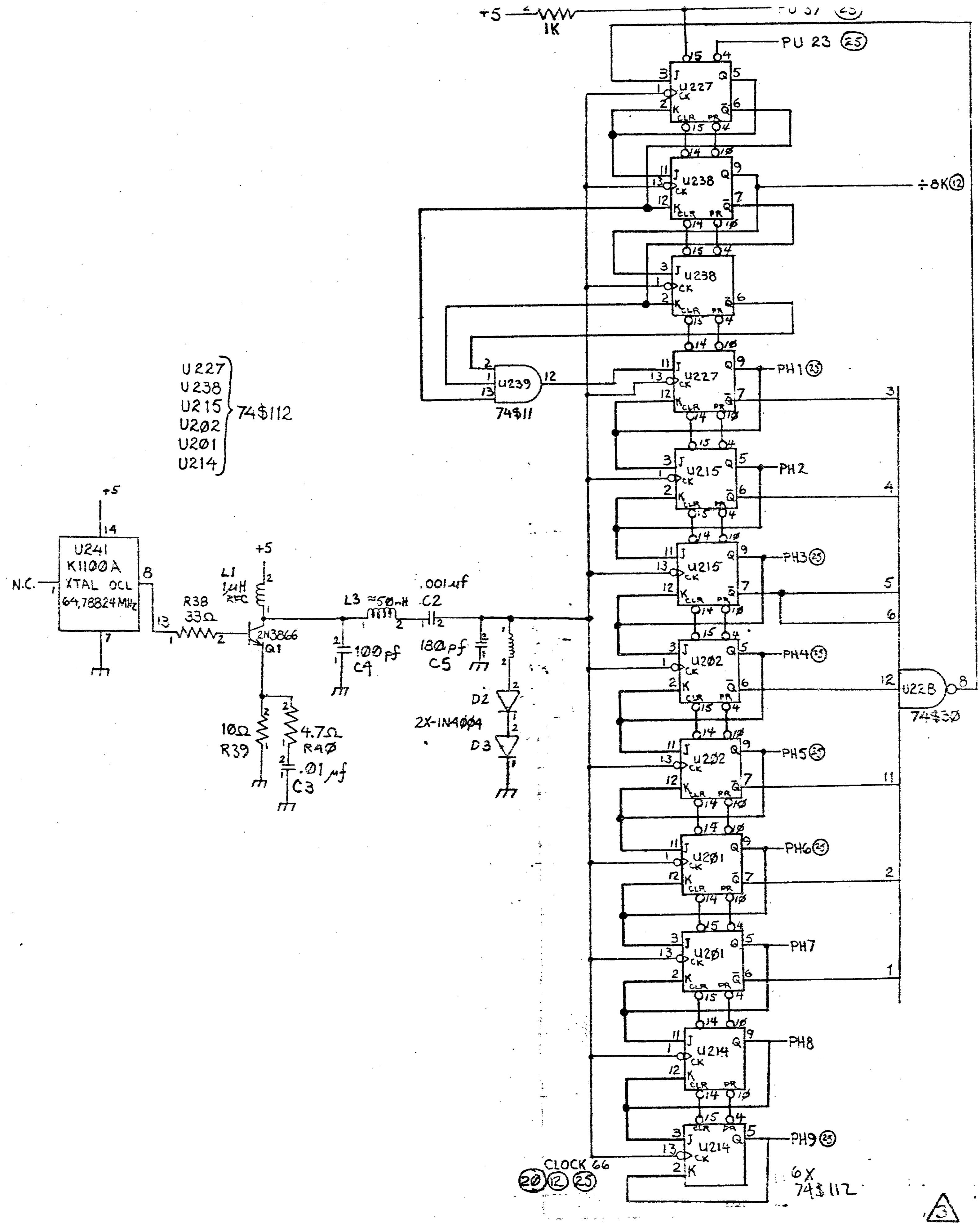
REV F 12/30/80 RAC
REV E 7/15/80 SB
REV. D 5/9/80 SB
REV C 4/6/80 SB
REV. B 3/4/80 SB

Three Rivers Computer	
I/O REGISTERS	PER 2-MEM-C
SEC-0506-11	22-27



REV.F 7/15/80 SB
REV.E 5/16/80 SB
REV.D 5/9/80 TB
REV.C 4/8/80 SB
REV.G 7/17/80
REV.B 3/14/80

Three Rivers Computer	
I/O REGISTERS	PERQ-MEM-C
PAP 11/79	MB-3C-0507-A -23-27

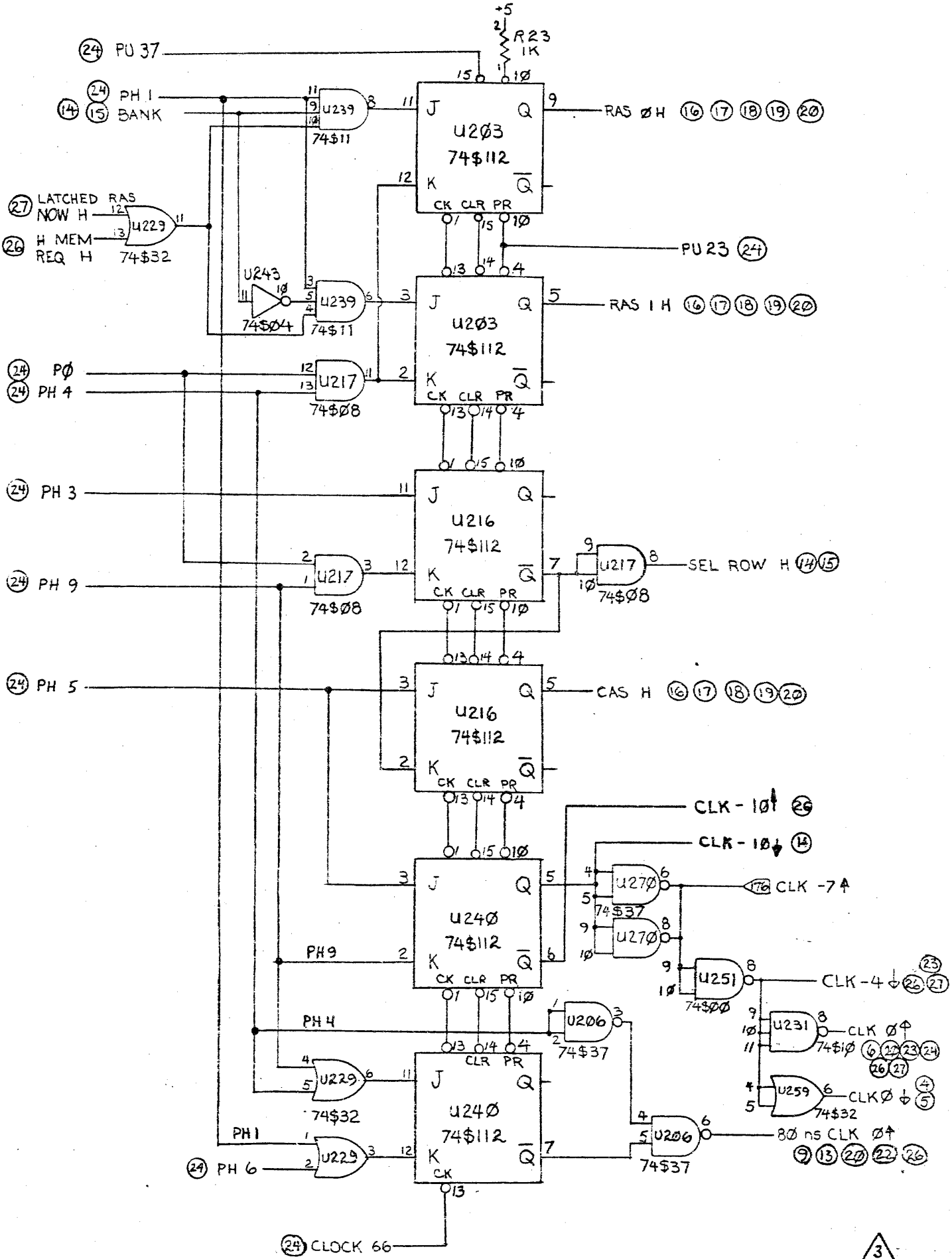


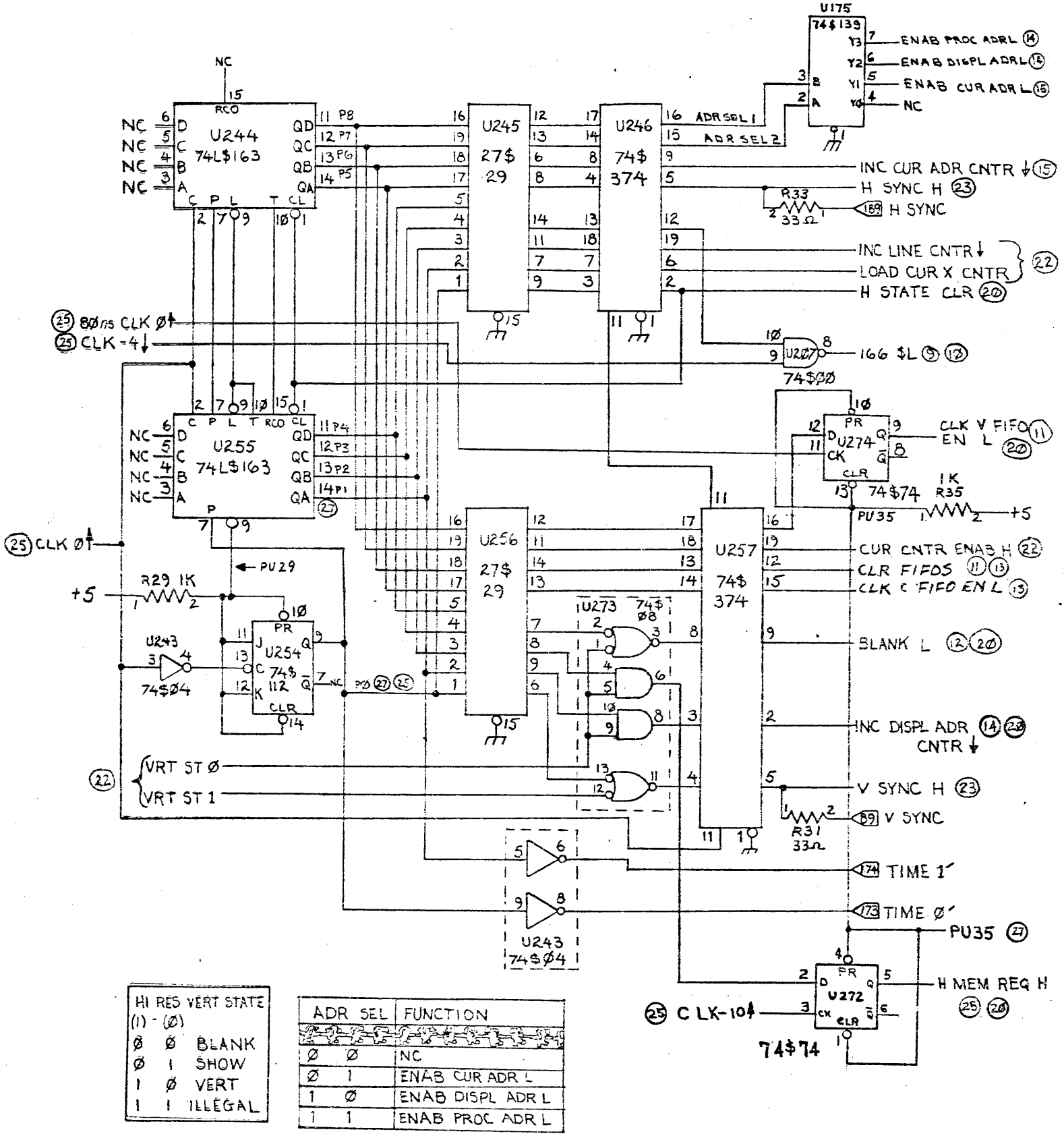
RAC REV I 12/3/80 REV.F 7/15/80 SKS
DIV REV H 11/10/80 REV.E 7-11-80 SKS

Three Rivers Computer

CLOCK GEN

PERQ - MEM - C


+5
R23
1K
24 PU 37
24 PH 1
14 15 BANK
U239
74$11
U2Ø3
74$112
RAS ØH 16 17 18 19 20
27 LATCHED RAS NOW H
26 H MEM REQ H
U229
74$32
PU 23 24
U243
74$Ø4
RAS 1 H 16 17 18 19 20
24 PØ
24 PH 4
U217
74$Ø8
24 PH 3
U216
74$112
SEL ROW H 14 15
24 PH 9
CAS H 16 17 18 19 20
24 PH 5
CLK - 1Ø↑ 26
CLK - 1Ø↓ 14
U27Ø
74$37
176 CLK -7↑
U24Ø
74$112
PH9
U251
74$ØØ
CLK -4↓ 23 26 27
U231
74$1Ø
CLK Ø↑ 6 22 23 24 26 27
U259
74$32
CLKØ↓ 4 5
PH 4
U206
74$37
80 ns CLK Ø↑ 9 13 20 22 26
PH1
24 PH 6
24 CLOCK 66
3
REV. F 12/16/80 T.T
REV. E 7/15/80 SB
REV. D 7/11/80 SB
REV. C 5/16/80 SB
REV. B 5/14/80 SB
Three Rivers Computer
CLK GEN
PERQ - MEM - C
PERQ-3C-0509 G
25-27



HI RES VERT STATE (1) - (Ø)	
Ø	Ø BLANK
Ø	1 SHOW
1	Ø VERT
1	1 ILLEGAL

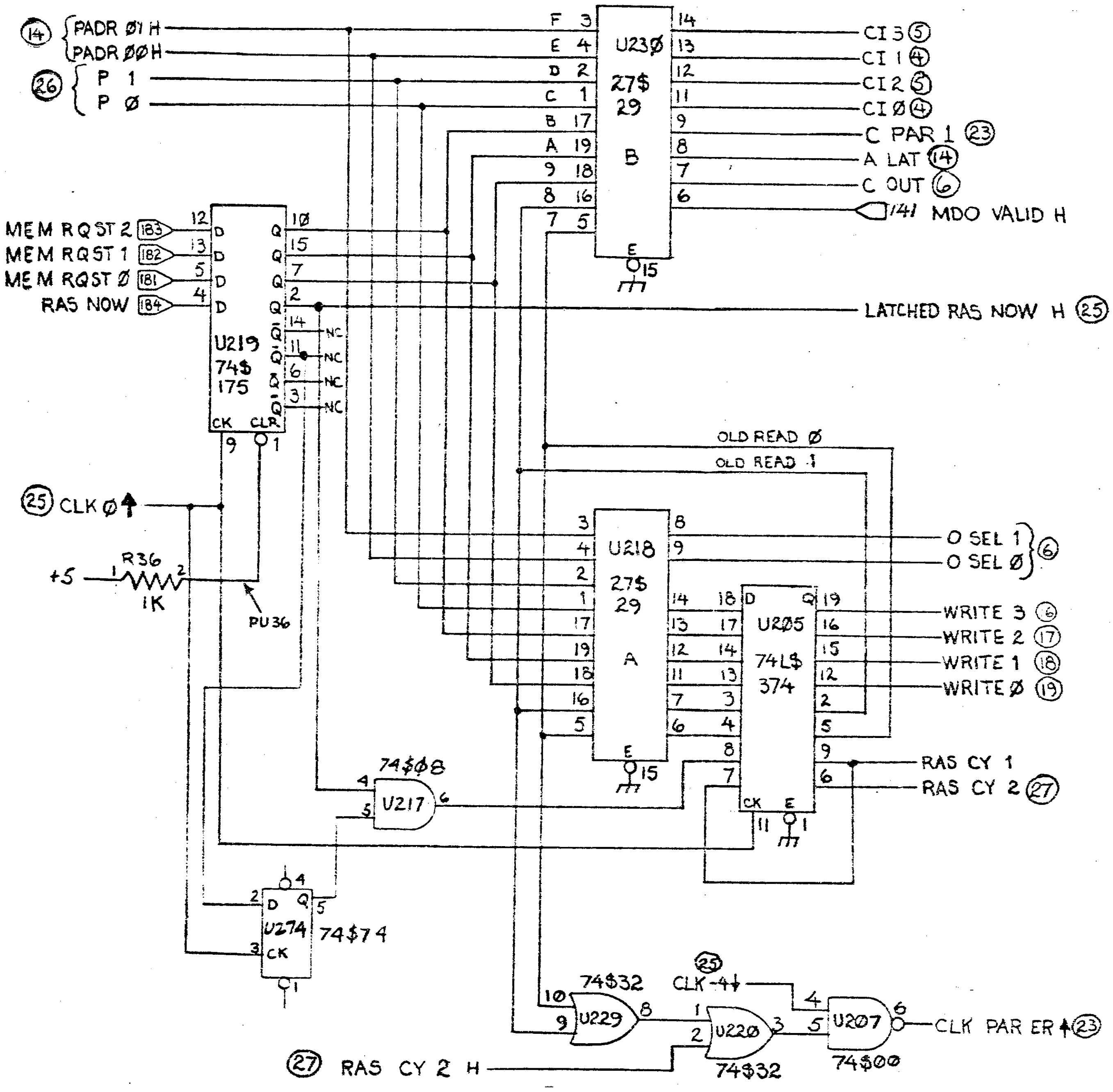
ADR SEL		FUNCTION
Ø	Ø	NC
Ø	1	ENAB CUR ADR L
1	Ø	ENAB DISPL ADR L
1	1	ENAB PROC ADR L

5 4 3

Three Rivers Computer

HORIZONTAL STATE | PERQ-MEM-C

PROJECT-0510 J | 26-27



3

REV E 7/15/80
REV.D 5/15/80
REV.C. 5/9/80
REV. B. 5/8/80

Three Rivers Computer	
MEM STATE	PERQ-MEM-C
3/19/79	PPG EC-Ø5IL E · 27-27