

## ALTO 2 CARD LAYOUT

SLOT	CARD
1	32Kx10 MOS MEMORY
2	32Kx10 MOS MEMORY
3	32Kx10 MOS MEMORY
4	32Kx10 MOS MEMORY
5	SPARE MEMORY SLOT
6	SPARE MEMORY SLOT
7	BUS TERMINATOR MODULE
8	MEMORY DATA INTERFACE
9	MEMORY ADDRESS INTERFACE
10	CRAM
11	CONTROL
12	ARITHMETIC UNIT
13	DISPLAY CONTROLLER
14	ETHERNET
15	SPARE I/O SLOT
16	SPARE I/O SLOT
17	SPARE I/O SLOT
18	SPARE I/O SLOT
19	SPARE I/O SLOT
20	SPARE I/O SLOT
21	DISK CONTROLLER
17	ORBIT CONTROL L
18	ORBIT INPUT
19	ORBIT MEMORY
20	ORBIT OUTPUT

KEYBOARD	✓D*	209972	Keyboard Assy
	✓F	216407	Keyboard (ADL) Cable (External)
	✓D	216408	Keyboard (ADL) Cable (Internal)
	✓D	216414	Keyboard Cable (Internal)
	✓GM	216420	Keyboard PWB
KEYSET	✓B	209962	Keyset
	B-	209919	Keyset Procurement Spec
MOUSE	B* -	209920	Mouse Procurement Spec.
DISK	✓B	216400	Disk Cable Assy (Internal)
	✓A	216401	Ribbon Cable Modification (Disk Internal)
ORBIT		216592	ORBIT Backwiring Board Assy
	B	216620	ORBIT Console
	D - B	216500	ORBIT Control
	D - B	216492	ORBIT Input
	C	216518	ORBIT Memory
	D - B	216508	ORBIT Output
	A	216578	ORBIT Adapter Cable
TRIDENT	G -	216468	TriCon Interface
	✓H	216621	TriCon Multiplexer
	C	216636	TriCon Multiplexer Cable (Internal)
	E	216480	TriCon Multiplexer Cable Radial (Ext)
	D	216542	TriCon Multiplexer Cable Radial (Ext)
	C	216483	TriCon Multiplexer Cable Bussed (Ext)
	B	216543	TriCon Multiplexer Cable Bussed (Ext)
TTL ROS ADAPTER	F - B	216554	Video Adapter
	D - C	216559	Command Adapter
	B	217145	Video Adapter (Dover II)
	A	217152	Command Adapter (Dover II)
	A	217165	Orbit Adapter Cable (Dover II)
		216572	MOTHER BOARD
	H	216564	ENGINE CONTROL

ALTO I KEYBOARD TO ALTO II ADAPTER CABLE

DDC-50S	TO	DDC-50P	SIGNAL	color
1		37	GONO	BLACK
2		17	KB0	RED
3		50	KB1	ORANGE
4		49	KB2	YELLOW
5		16	KB3	GREEN
6		32	KB4	BLUE
7		14	KB5	VIOLET
8		30	KB6	GRAY
9		45	KB7	BROWN
10		12	KB8	WHITE
11		28	KB9	BLACK/WHITE
12		43	KB10	RED/WHITE
13		10	KB11	ORANGE/WHITE
14		26	KB12	YELLOW/WHITE
15		41	KB13	GREEN/WHITE
16		8	KB14	BLUE/WHITE
17		24	KB15	VIOLET/WHITE
18		35	SEL0'	GRAY/WHITE
19		20	SEL1'	BROWN/WHITE
20		48	KS0	BLACK/YELLOW
21		15	KS1	RED/YELLOW
22		46	KS2	ORANGE/YELLOW
23		13	KS3	GREEN/YELLOW
24		29	KS4	BLUE/YELLOW
25		44	MS1	VIOLET/YELLOW
26		11	MS2	GRAY/YELLOW
27		27	MS3	BROWN/YELLOW
28		36	MX1	BLACK/ORANGE
29		21	MX2	RED/ORANGE
30		19	MY1	GREEN/ORANGE
31		3	MY2	BLUE/ORANGE
32		4	GONC	BROWN/ORANGE
35		2	+5 VOLT	WHITE #18
37		34	GND	BLACK #18

SLOT	BOARD NAME	ASSY# DRAWING NUMBERS			SEE NOTE
		NORMAL #S	EXTENDED OLD	MEM. NEW	
1-4	MEMORY - 10 BITS X 32K	216273	—	—	
1-4	MEMORY - 10 BITS X 64K	—	—	217187	
1-4	MEMORY - 10 BITS X 128K	—	216644	217188	
1-4	MEMORY - 10 BITS X 256K	—	—	217189	
5	BLANK } SOMETIMES USED	—	—	—	
6	BLANK } FOR RS-232 INTRFC.	—	—	—	
7	BUS TERMINATOR (MEAT)	216421	—	216646	
8	DATA MEM. INTRFC (DIM)	216312	217115	217174	
9	ADDRESS MEM. INTRFC (AIM)	216347	216645	217173	
10	RAM CONTROL CRAM	216365	216643	217176	
11	SYS CONTROL - 2K (SAND)	216373	216695	216695	NOTE 1
11	SYS CONTROL - 2K (SAND)	216484	216642	217175	NOTE 1
12	ARITH. LOG. UNIT (ALU)	216381	216381	216381	
13	DISPLAY CTRL + CLOCK	216339	216339	216339	
14	ETHERNET CONTRLR	216323	216323	216323	
15	BLANK	—	—	—	
16	BLANK	—	—	—	NOTE 2
16	TRIDENT CONTROLLER	216468	216468	216468	NOTE-3
17	BLANK	—	—	—	NOTE-2
17	BLANK TRIDENT	—	—	—	NOTE-3
17	ORBIT CONTROLLER	216500	216500	216500	NOTE-4
18	BLANK	—	—	—	NOTE-2
18	TRIDENT MULTIPLEXOR	21662	21662	21662	NOTE-3
18	ORBIT INPUT	216492	216492	216492	NOTE-4
19	BLANK	—	—	—	NOTE-2#3
19	ORBIT MEMORY	216518	216518	216518	NOTE-4
20	BLANK	—	—	—	NOTE-2#3
20	ORBIT OUTPUT	216508	216508	216508	NOTE-4
21	DISC CONTROLLER	216389	216389	216389	

1. WHEN SYSTEM IS CONFIGURED WITH TRIDENT (TRICON), A RAM CONTROL BOARD ~~MUST~~ WITH 2K ROM MUST BE USED. MOST NEW ALTO'S COME IN CONFIGURED WITH 2 K ROM.
2. UNDER NORMAL CONFIGURATION
3. FOR TRIDENT CONFIGURATION
4. FOR ORBIT CONFIGURATION

# ALTO II HARDWARE REVISION LEVELS

October 12, 1978

Filed on [IBIS] < Ludolph > Maint > AltoRevisionList.bravo  
 Recently revised drawings are indicated in bold face.  
 \* Previously distributed

	<u>LEVEL</u>	<u>DRAWING</u>	<u>DESCRIPTION</u>
ALTO	B -	216305	Backwiring Board Assy
	✓C	216273	Memory Storage Module
	✓B	216421	Terminator Module
	F* -	216381	Arithmetic Logic Unit
	✓D	216373	Control Board (1K)
	B -	216484	Control Board (2K)
	✓F	216365	CRAM
	✓C	216415	CRAM/RAM Cable Assy
	H* -	216389	Disk Control
	<del>C</del>	<del>216391</del>	<del>Disk Control PWB</del>
	<del>B</del>	<del>216577</del>	<del>Extender Board</del>
	✓G	216347	Memory Address Interface
	✓E	216312	Memory Data Interface
	✓D*	216339	Display Cont. Module
	E* -	216323	Ethernet Module
	<del>C</del>	<del>216325</del>	<del>Ethernet PWB</del>
	✓E	216302	Processor Chassis Assy
A -	216425	Power Supply Harnes Assy	
ALTO II XM	<del>C* -</del>	<del>217173 -</del>	<del>Memory Address Interface Module</del>
	<del>B</del>	<del>217123</del>	<del>Memory Address Interface PWB</del>
	D -	216645	Memory Address Interface Module (Converted)
	C* -	216652	Backwiring Board Assy
	A -	217113	Backwiring Board Wire List
	B* -	217174	Memory Data Interface Module
	<del>B</del>	<del>217117</del>	<del>Memory Data Interface PWB</del>
	B -	217115	Memory Data Interface Module (Converted)
	A* -	217175	2K Control Module
	B -	216642	2K Control Module (Converted)
	B -	216695	1K Control Module
	C* -	217176	CRAM
	<del>B</del>	<del>217125</del>	<del>CRAM PWB</del>
	B -	216643	CRAM (Converted)
	A	217187	64K Memory Storage Module
	A*	217188	128K Memory Storage Module
	B	216644	128K Memory Storage Module (Converted)
	A	217189	256K Memory Storage Module
	B* -	216646	Memory Expansion and Terminator
	C -	216647	Extended Memory Kit Assy
<del>A</del>	<del>217178</del>	<del>Control Cabinet Assy</del>	
<del>A</del>	<del>217179</del>	<del>Alto II System Assy</del>	
<del>A</del>	<del>217180</del>	<del>Processor Chassis Assy</del>	
DISPLAY	✓F*	209911	Display Assy
	✓C	216412	Display Cable Assy
	✓C	216410	Display Cable Assy (External)
ETHERNET	✓B*	209926	Ethernet Transceiver Procurement Spec
	D* -	216411	Ethernet Cable Assy, External
	✓C	216413	Ethernet Cable Assy, Internal
HY TYPE	✓C	216440	Hy Type Cable (External)
	F -	216416	Hy Type Cable (Internal)

LAL		Revisions			209926	B
Rev.	Description	Chk.	Date	Approved		
A	ENGRG RELEASE		3/3/76	G.W.		
B	DWG TITLE WAS "SPEC, PROCUREMENT- ETHERNET HEAD". ADDED SH 3 & 4 SCHEMATIC.	bn	8-6-76	E or nd		

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RELEASE**

3-5-76  
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	<p>1. Tolerances .XX ±.030      Angular .XXX ±.010      ±½°</p> <p>2. Break All Sharp Edges .010 Approx.</p> <p>3. Mach. Surfaces      ✓</p> <p>4. All Dim. In Inches</p>	Check <i>E. Wick</i> 3/3/76	ALTO II SPEC, PROCUREMENT - ETHERNET TRANSCEIVER			
Model No. First Use	Finish	Appr. <i>J. L. Wick</i> 2/3/76				Code Ident.
Next Assy. First Use		18338	A	209926	B	
216362		Scale -	Do Not Scale Drawing		Sheet	1 OF 4

NOTES : UNLESS OTHERWISE SPECIFIED

1. ETHERNET HEAD ASSY MAY BE PURCHASED FROM TAT LAM, 2717 PEACHWOOD COURT, SAN JOSE, CALIFORNIA 95132, VENDOR MODEL NO. 2000 ETHERNET TRANSCEIVER.

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Title

SPEC, PROCUREMENT-  
ETHERNET TRANSCEIVER

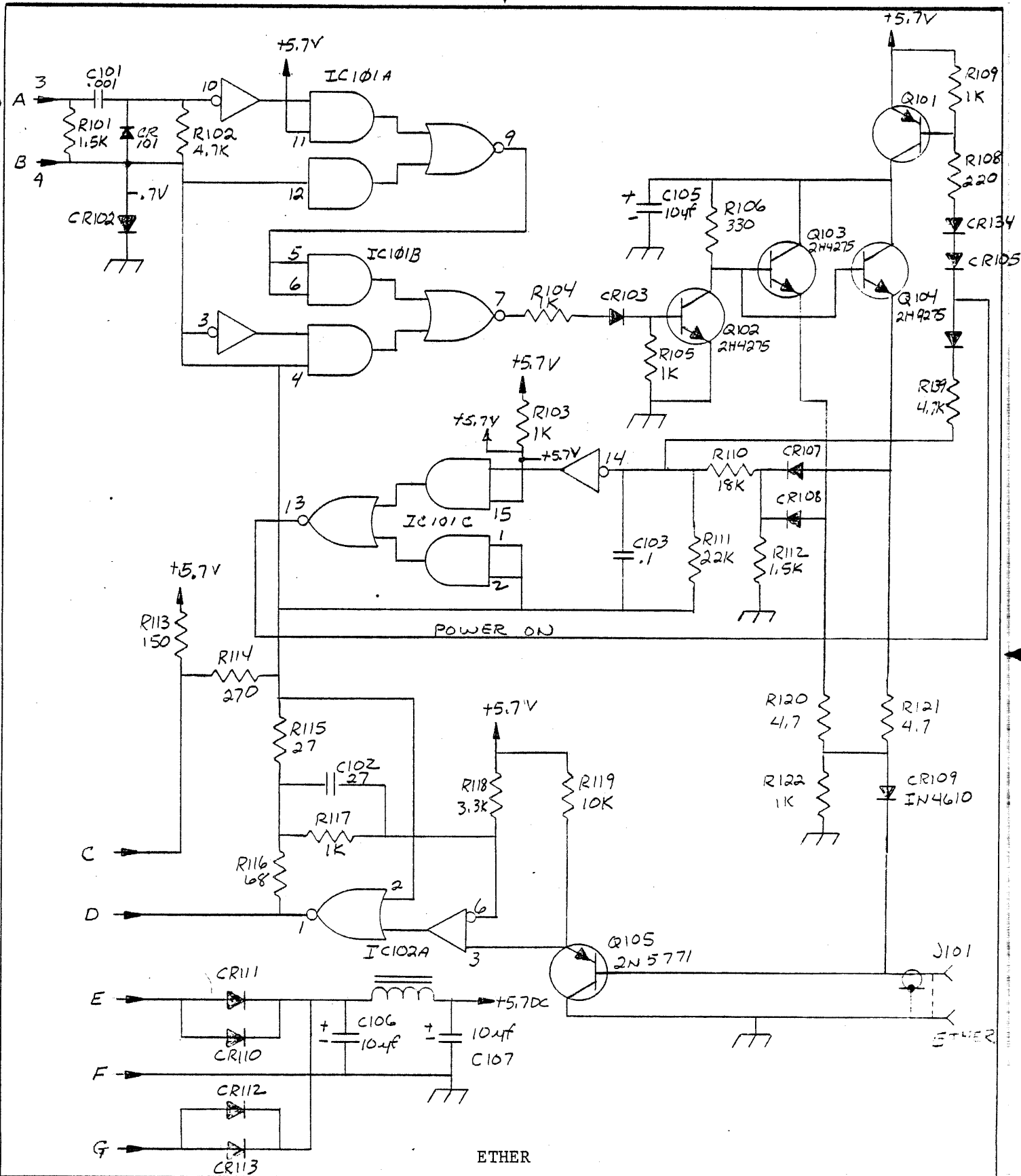
Xerox Corporation  
El Segundo, California

**XEROX**

209926

B

Sheet 2 of 4



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Title ALTO II  
 SPEC, PROCUREMENT-  
 ETHERNET TRANSCEIVER

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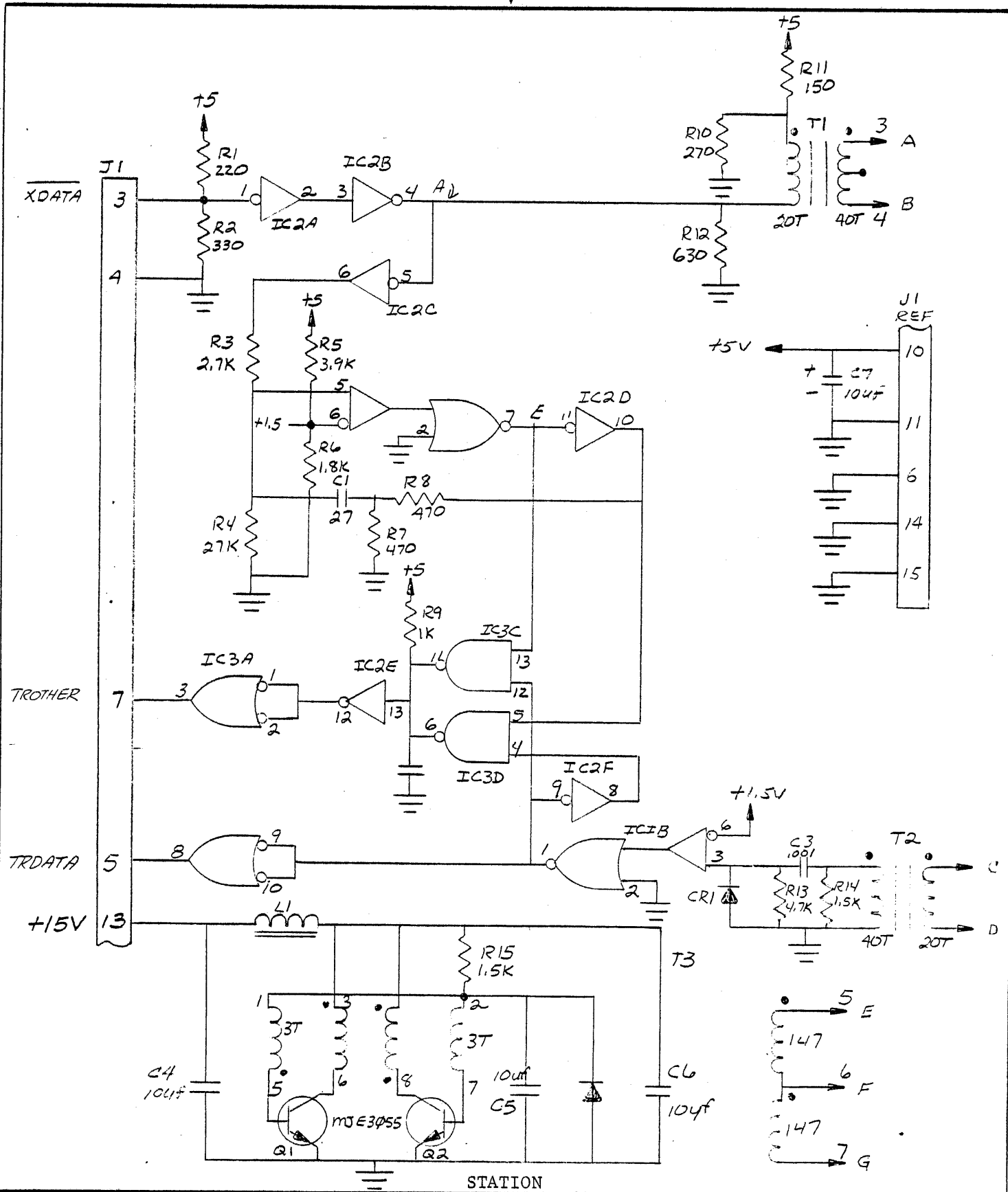
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209926

B

Sheet 3 of 4





STATION

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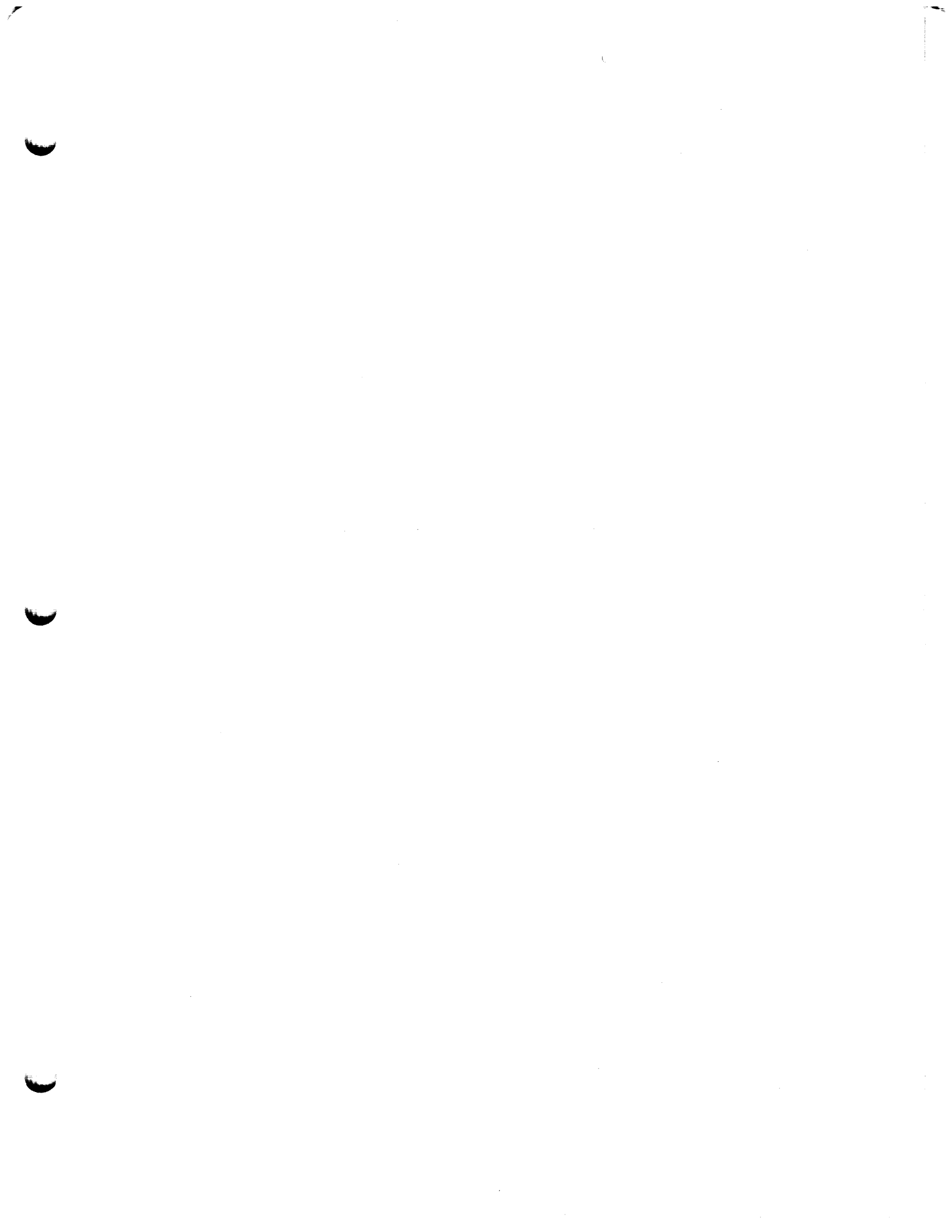
Title ALTO II  
 SPEC, PRO CUREMENT  
 ETHERNET TRANSCEIVER

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209926 B

Sheet 4 Of 4



LAL	Revisions			21	1	C
	Rev.	Description	Chk.	Date	Approved	
	A	ENGRG RELEASE	<i>J.W.</i>	3/15/76	<i>J.W.</i>	
	B	M/L ITEM 6 WAS QTY 2, M/L ITEM 7 WAS QTY 2, ADDED ITEM 9 & 10.	<i>SN</i>	4-19/76	<i>J.W.</i>	
	C	DELETED ITEMS 3,5,&8 FROM M/L & F/D	<i>SN</i>	4-13-77	<i>SN</i>	

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RELEASE**

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	<p>1. Tolerances            .XX ±.030           Angular            .XXX ±.010       ± 1/2°</p> <p>2. Break All Sharp Edges            .010 Approx.</p> <p>3. Mach. Surfaces       ✓</p> <p>4. All Dim. In Inches</p>	Check <i>J. W. ...</i>	Appr. <i>J. W. ...</i> 3/15/76	ALTO II  ASSEMBLY, CABLE- ETHERNET (EXTERNAL)			
Model No. <b>ALTO II</b> First Use <b>EWO 7YF92</b>	Finish	Code Ident.	Size	Dwg. No.		Change Letter	
Next Assy. First Use <b>216362</b>		<b>18338</b>	<b>A</b>	<b>216411</b>			<b>C</b>
		Scale <b>NONE</b>	Do Not Scale Drawing		Sheet <b>1</b> OF <b>5</b>		

NOTES: UNLESS OTHERWISE SPECIFIED

1. FABRICATE PER XEROX SPEC 209154.
2. MARK CHARACTERS .12 HIGH "NEWS GOTHIC".
3. MAY BE PURCHASED FROM BELDEN CORP, RICHMOND, INDIANA, VENDOR PART NUMBER.
4. MAY BE PURCHASED FROM CANNON ELECTRIC, SANTA ANA, CALIF, VENDOR PART NUMBER.

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Title

ALTO II

ASSEMBLY, CABLE - ETHERNET (EXTERNAL)

Xerox Corporation  
El Segundo, California

**XEROX**

216411

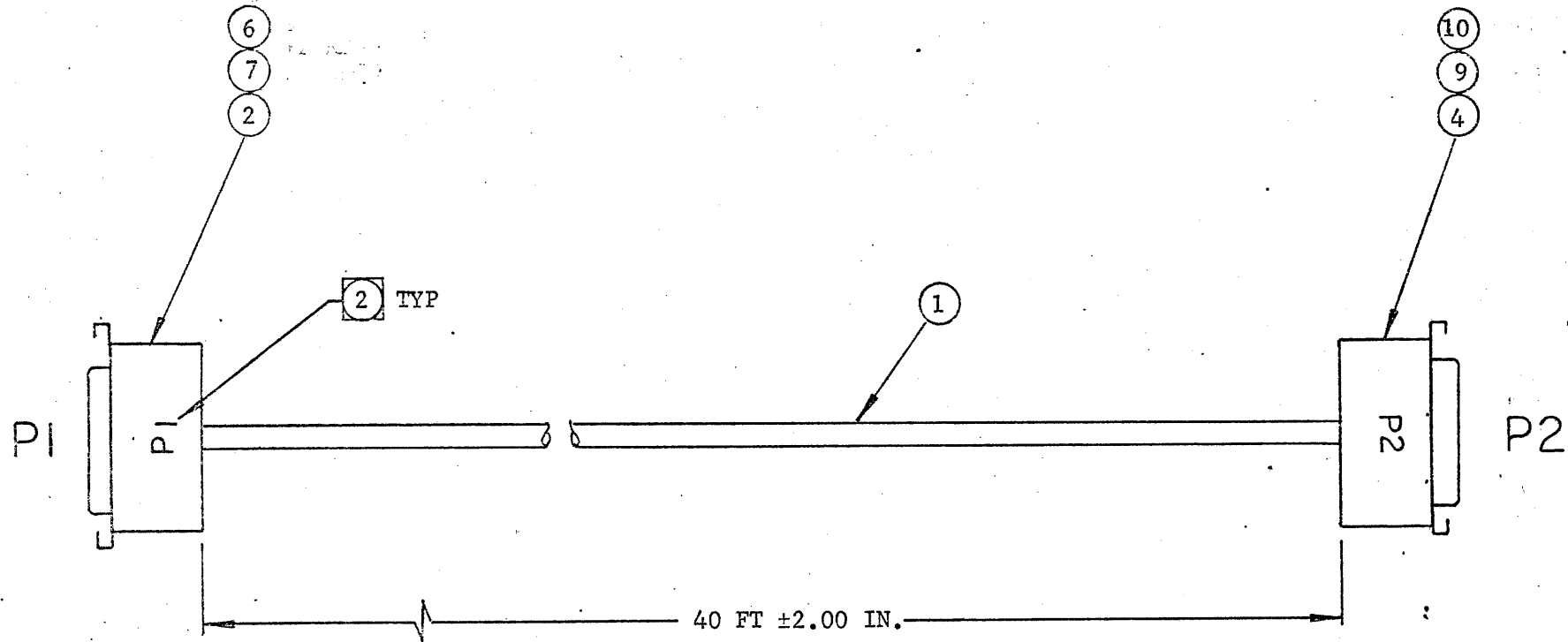
C

Sheet

2

of

5



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Title  
 ALTO II  
 ASSEMBLY, CABLE - ETHERNET (EXTERNAL)

Xerox Corporation El Segundo, California		<b>XEROX</b>
216411		
Sheet	3	Of 5





Revisions				216273	C
LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>Full</i>	<i>7-28</i> <i>76</i>	<i>N. TOROL</i>
	B	ADDED SCHEMATIC & SILKSCREENED BOARD DWG.	<i>BN</i>	<i>8-12</i> <i>76</i>	<i>N. TOROL</i>
	C	M/L ITEM 12 P/N WAS 516-AG10D, ITEM 13 P/N WAS 514-AG10D.	<i>BN</i>	<i>4-13</i> <i>77</i>	<i>BN</i>

**ENGINEERING  
RELEASE**

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	<p>1. Tolerances .XX ±.03      Angular ±½° .XXX ±.010</p> <p>2. Break All Sharp Edges .010 Approx.</p> <p>3. Mach. Surfaces <input checked="" type="checkbox"/></p> <p>4. All Dim. in Inches</p>	Check <i>N. TOROL</i>	<p>Title ALTO II  ASSEMBLY, PRINTED WIRING- 32K x 10 STORAGE MODULE</p>		
		Appr. <i>N. TOROL</i>			
		Material			
Model No. ALTO II First Use EWO 7YF92	Finish	Code Ident. <b>18338</b>	Size <b>A</b>	Dwg. No. 216273	Change Letter <b>C</b>
Next Assy. First Use 216302		Scale -	Do Not Scale Drawing		Sheet 1 OF 5



NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

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Title ALTO II  
ASSEMBLY, P.W.-  
32K x 10 STORAGE MODULE

Xerox Corporation  
El Segundo, California

**XEROX**

216273

C

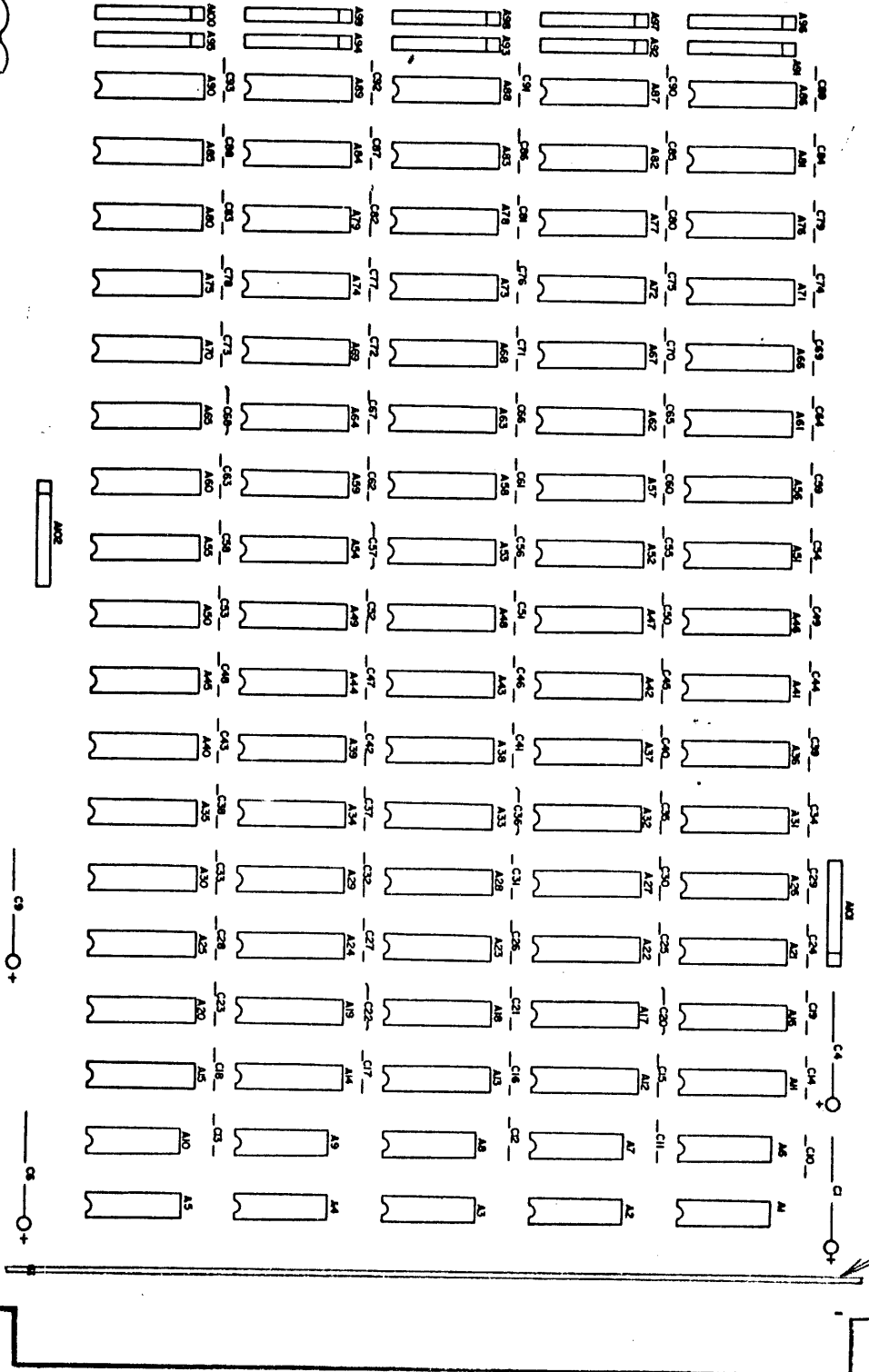
Sheet 2 Of 5

XEROX

ASSY NO. 216273

PWB NO. 216274

ALTO II 32K X 10 STORAGE MODULE



16 17

2 PLACES

1

15

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Title ALTO II  
 ASSEMBLY, P.W. -  
 32K x 10 STORAGE MODULE

Xerox Corporation El Segundo, California		<b>XEROX</b>	
216273			
Sheet	3	of	5



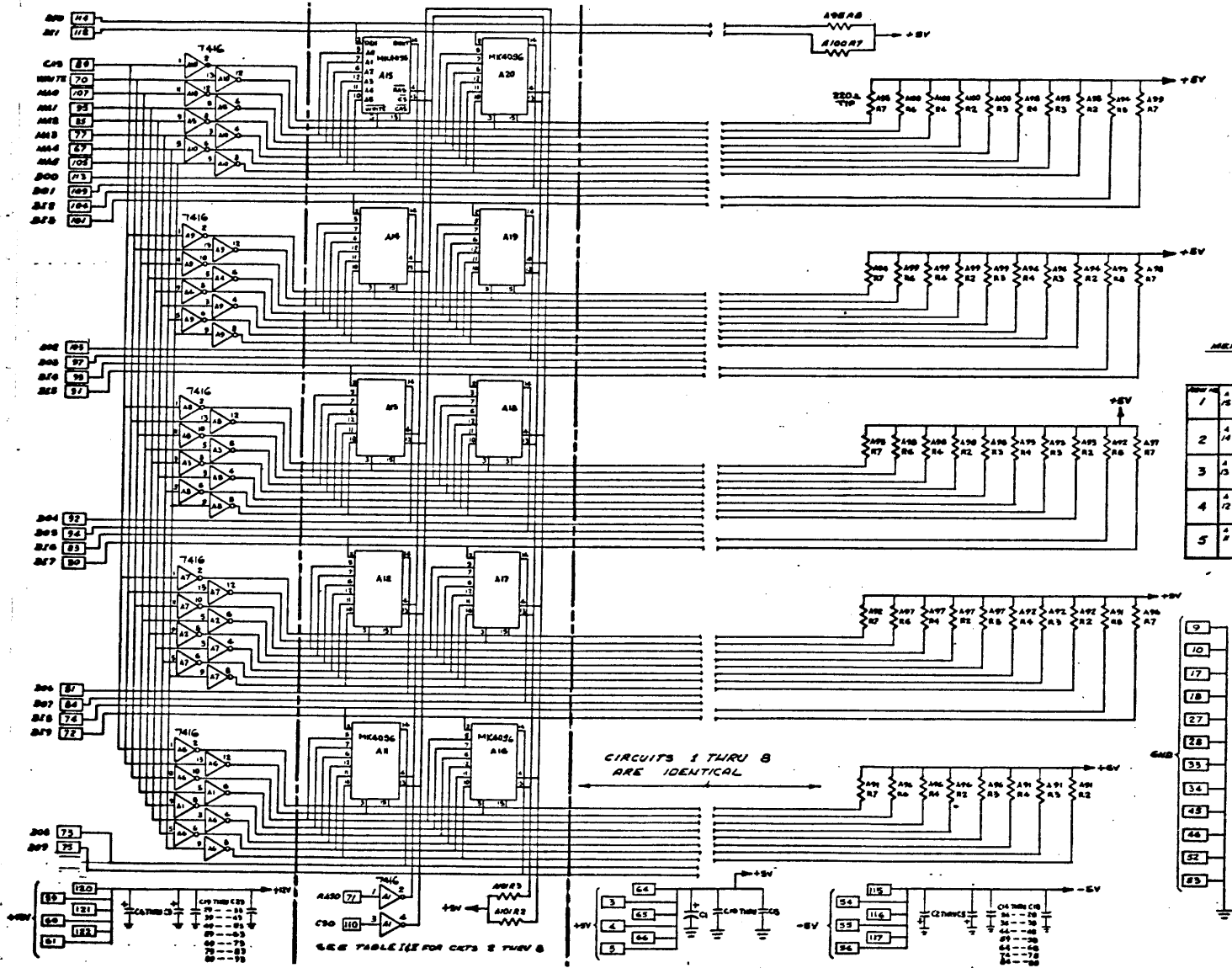


TABLE II  
MEMORY CHIP REFERENCE DESIGNATOR  
CIRCUIT NO.

	1	2	3	4	5	6	7	8
1	A 20	A 21	A 22	A 23	A 24	A 25	A 26	A 27
2	A 28	A 29	A 30	A 31	A 32	A 33	A 34	A 35
3	A 36	A 37	A 38	A 39	A 40	A 41	A 42	A 43
4	A 44	A 45	A 46	A 47	A 48	A 49	A 50	A 51
5	A 52	A 53	A 54	A 55	A 56	A 57	A 58	A 59

TABLE I

CIRCUIT NO.	INPUT	SIGNAL NAME	INVERTER	PU	RES-1/2/4
1	71	RAS0	A1	3	2 30/R2
2	110	CS0	A1	3	4 30/R2
3	90	RAS2	A1	2	2 30/R2
4	86	CS2	A1	3	4 30/R2
5	102	RAS4	A1	2	2 30/R2
6	104	CS4	A1	3	4 30/R2
7	111	RAS6	A1	2	2 30/R2
8	110	CS6	A1	3	4 30/R2

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Xerox Corporation  
El Segundo, California

Title ALTO II  
ASSEMBLY, P.W.-  
32K x 10 STORAGE MODULE

216273

Sheet 5 Of 5

Revisions				216312	E
LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>JM</i>		
	B	ADDED NOTE SHEET	<i>BN</i>	7-19 76	N. TOBOL
	C	ADDED SILKSCREENED BOARD DWG. (SH 3)	<i>BN</i>	8-9-76	N. TOBOL
	D	M/L ITEM 7 P/N 74H00 WAS: 74S132, M/L ITEM 6 A44 WAS: A34. M/L ITEM 26 P/N 514-AG11D WAS: 514-AG10D. M/L ITEM 27 P/N 516-AG11D WAS: 516-AG10D. SH 5 74H00 WAS 74S132, REMOVED SYMBOL "□" FROM ALL GATES.	<i>BN</i>	2-22 77	N. TOBOL
	E	ADDED NOTE 1 - G.	<i>BN</i>	4-19 77	<i>BN</i>

THIS DOCUMENT CONTAINS 14 SHEETS

Dist Code ALT

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	<p>1. Tolerances .XX ±.03      Angular .XXX ±.010    ±½°</p> <p>2. Break All Sharp Edges .010 Approx.</p> <p>3. Mach. Surfaces <input checked="" type="checkbox"/></p> <p>4. All Dim. in Inches</p>	Check <i>Nestor</i>	Title		
		Appr. <i>N. TOBOL</i>	ALTO II		
		Material	ASSEMBLY, PRINTED WIRING-MEMORY DATA INTERFACE		
Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter
ALTO II		18338	A	216312	E
Next Assy. First Use		Scale	Do Not Scale Drawing		Sheet
216302					1 OF

NOTES: UNLESS OTHERWISE SPECIFIED

1. CUT ETCH AND ADD JUMPERS AS FOLLOWS:
  - A. ADD JUMPER FROM A41 PIN 2 TO A41 PIN 4, (ETCH SIDE).
  - B. ADD JUMPER FROM A41 PIN 1 TO FEED-THRU PAD BETWEEN A4 AND A5 JUST ABOVE A4 & A5, (ETCH SIDE).
  - C. ADD JUMPER FROM A41 PIN 3 TO FEED-THRU PAD BETWEEN A15 AND A16, (ETCH SIDE).
  - D. CUT ETCH BETWEEN FEED-THRU PADS LOCATED BETWEEN A4 & A5 AND A15 & A16, (ETCH SIDE).
  - E. CUT TRACE TO PIN 6 OF A54. (ETCH SIDE).
  - F. ADD TRACE TO PIN 5 OF A54. (ETCH SIDE).
  - G. ADD WIRE FROM A87 PIN 4 TO A87 PIN 7 (ETCH SIDE).
2. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

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Title  
ALTO II  
ASSEMBLY, P.W.-  
MEMORY DATA INTERFACE

Xerox Corporation  
El Segundo, California

**XEROX**

216312

E

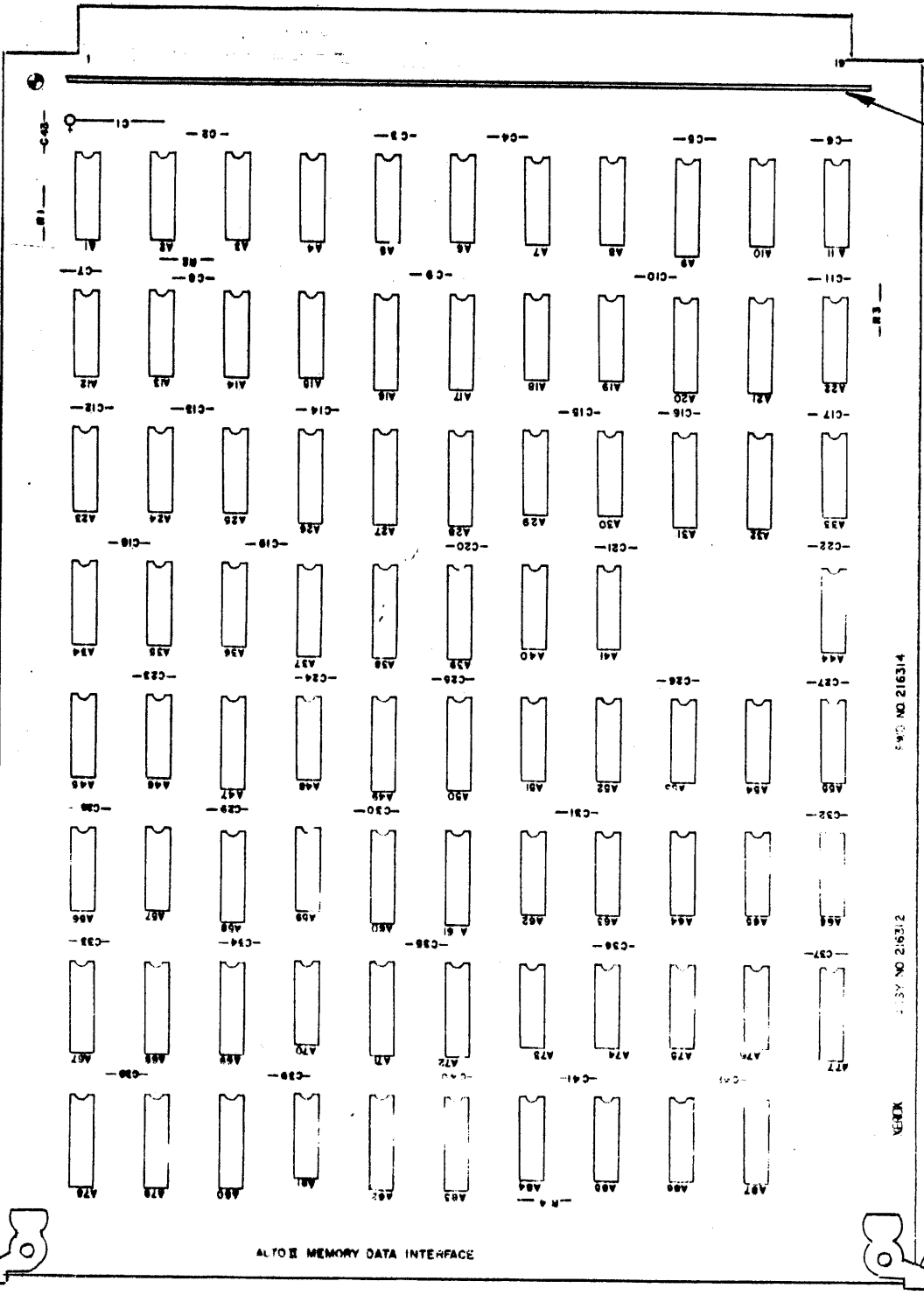
Sheet 2 Of

**Material List**

<b>ML</b>	Drawing No. <b>216312</b>	Rev. <b>E</b>
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Rev. <b>E</b>	Drawing Title <b>ASSEMBLY, P.W.</b>	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	<b>ALTO II</b>	Model No. <b>ALTO II</b>	Date <b>7/19/76</b>	Sheet <b>4</b> of
Drawing No. <b>216312</b>	<b>MEMORY DATA INTERFACE</b>			

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, P.W.	216314	1	
2	Procedure, Test	216313	Ref.	
3	Spec, Module Assembly	216207	Ref	
4	Microcircuit 7416		6	A29, 40, 51, 52, 53, 62
5	74H04		3	A5, 70, 81
6	7438		10	A4, 7, 8, 15, 18, 19, 33, 44, 48, 59
7	74H00		10	A1, 2, 3, 10, 11, 12, 13, 14, 23, 24
8	74H08		2	A73, 41
9	74S86		9	A25, 34, 35, 36, 45, 46, 55, 56, 57
10	74S138		5	A67, 68, 69, 78, 79
11	74S280		12	A54, 63, 64, 65, 66, 74, 75, 76, 84 thru 87
12	74H30		1	A22
13	74S158		8	A27, 28, 38, 39, 49, 50, 60, 61
14	74S157		6	A31, 26, 32, 37, 47, 58
15	74S135		1	A77
16	74S174		8	A9, 16, 17, 71, 72, 80, 82, 83
17	74S175		2	A20, 21
18	Microcircuit 74S02		2	A6, 30
19				
20	Rivet	156111-005	2	
21	Resistor, Film, 1K, +5%, 1/4w	116447-102	4	R1, R2, R3, R4
22	Capacitor, Tant, 22 $\mu$ F, +20%, 15V	187720-005	1	C1
23	Capacitor, Ceramic, .01 $\mu$ F, 50V	188483-001	42	C2 thru 43
24	Stiffener	216242	1	
25	Extractor	216250	2	
26	Socket, Microcircuit 14 Pin	514-AG11D	55	
27	Socket, Microcircuit 16 Pin	516-AG11D	30	



ALTO II MEMORY DATA INTERFACE

P.W. NO 216314

REV. NO 216312

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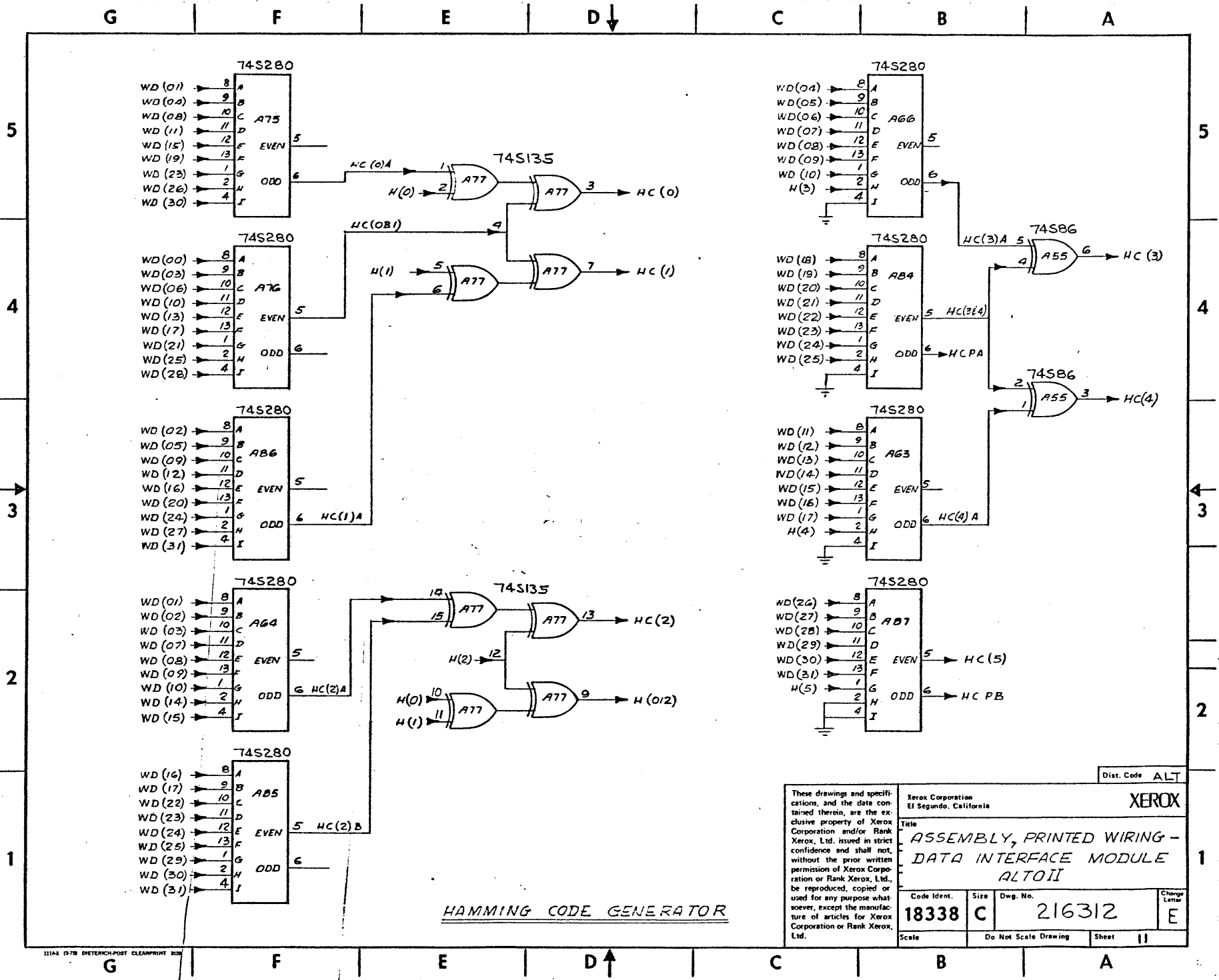
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Title  
**ALTO II**  
**ASSEMBLY, PW-**  
**MEMORY DATA INTERFACE**

Xerox Corporation El Segundo, California		<b>XEROX</b>
Sheet	216312	
3	Of	

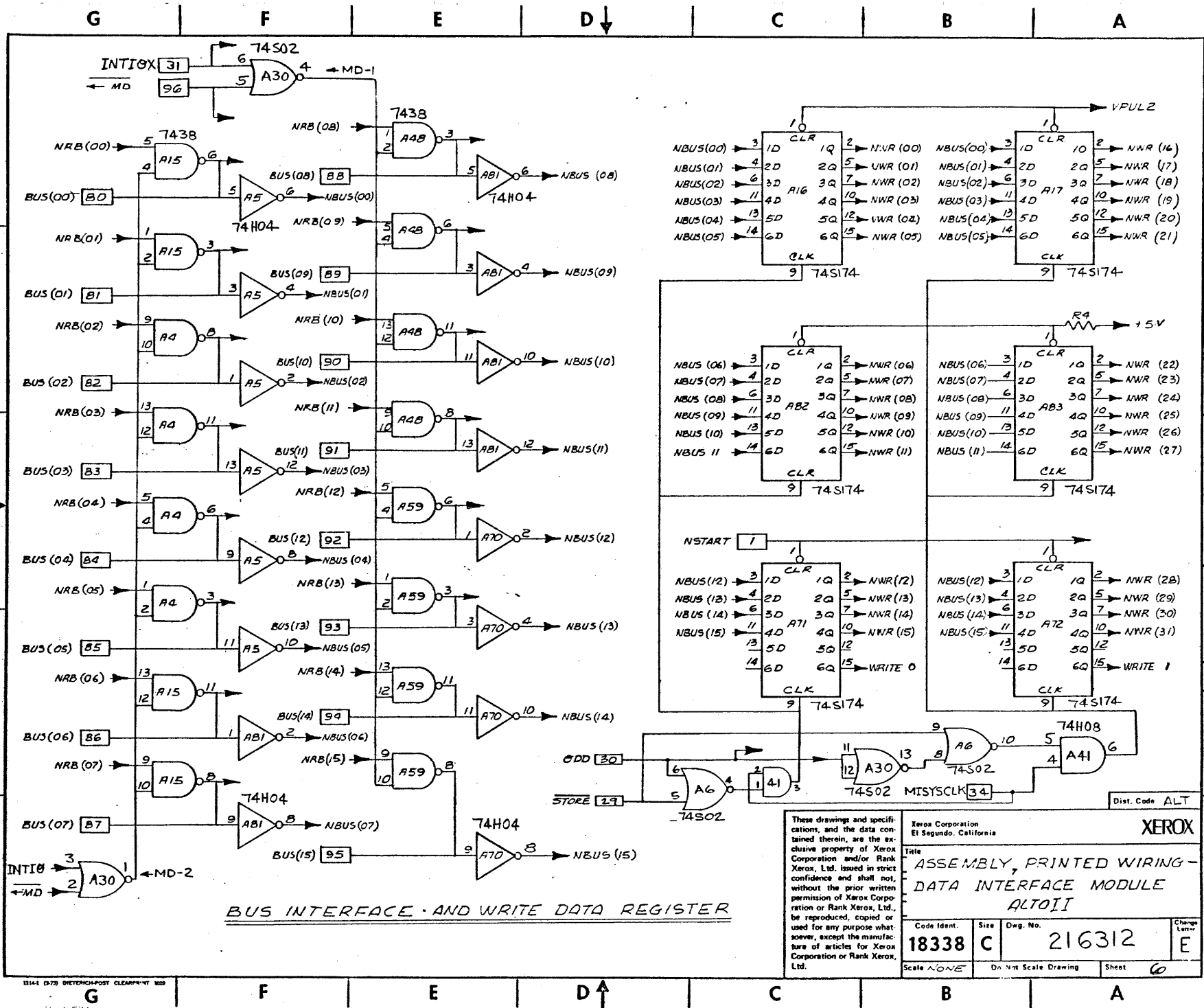




HAMMING CODE GENERATOR

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Title <b>ASSEMBLY, PRINTED WIRING - DATA INTERFACE MODULE ALTO II</b>					
Code Ident.	Size	Dwg. No.	Change Letter		
<b>18338</b>	<b>C</b>	<b>216312</b>	<b>E</b>		
Scale	Do Not Scale Drawing		Sheet		<b>11</b>

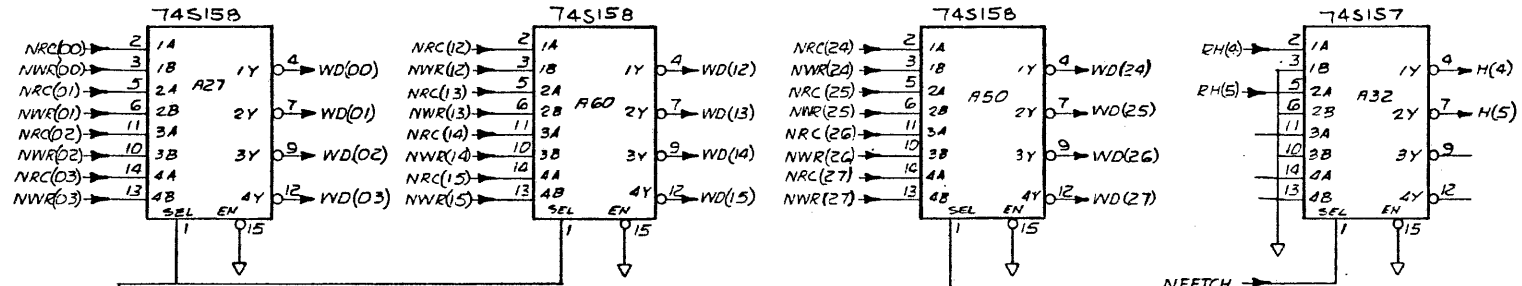




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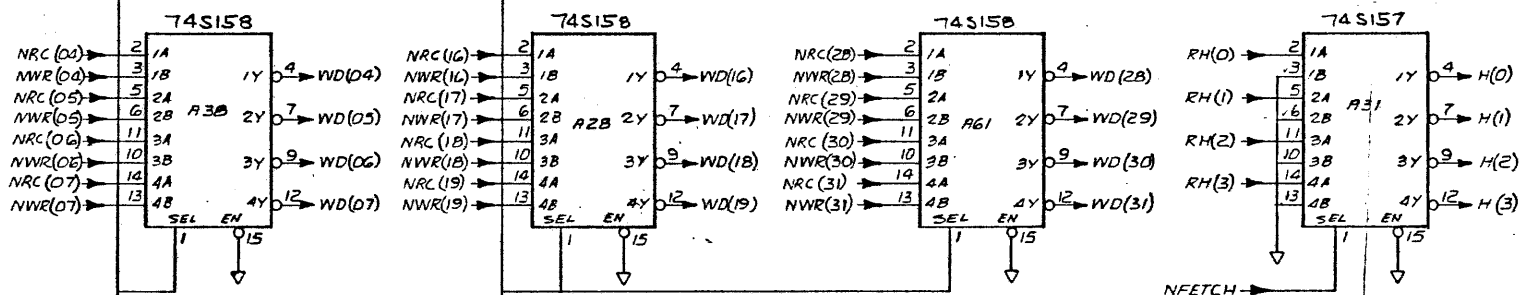
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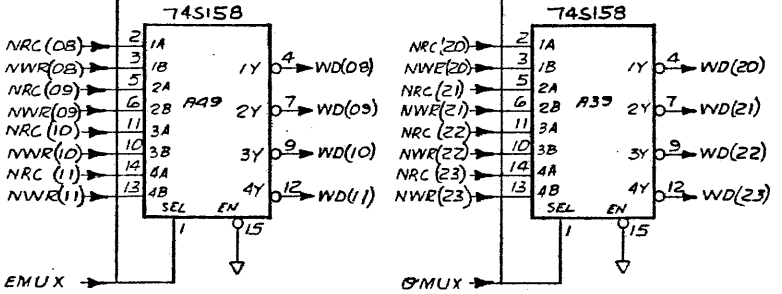
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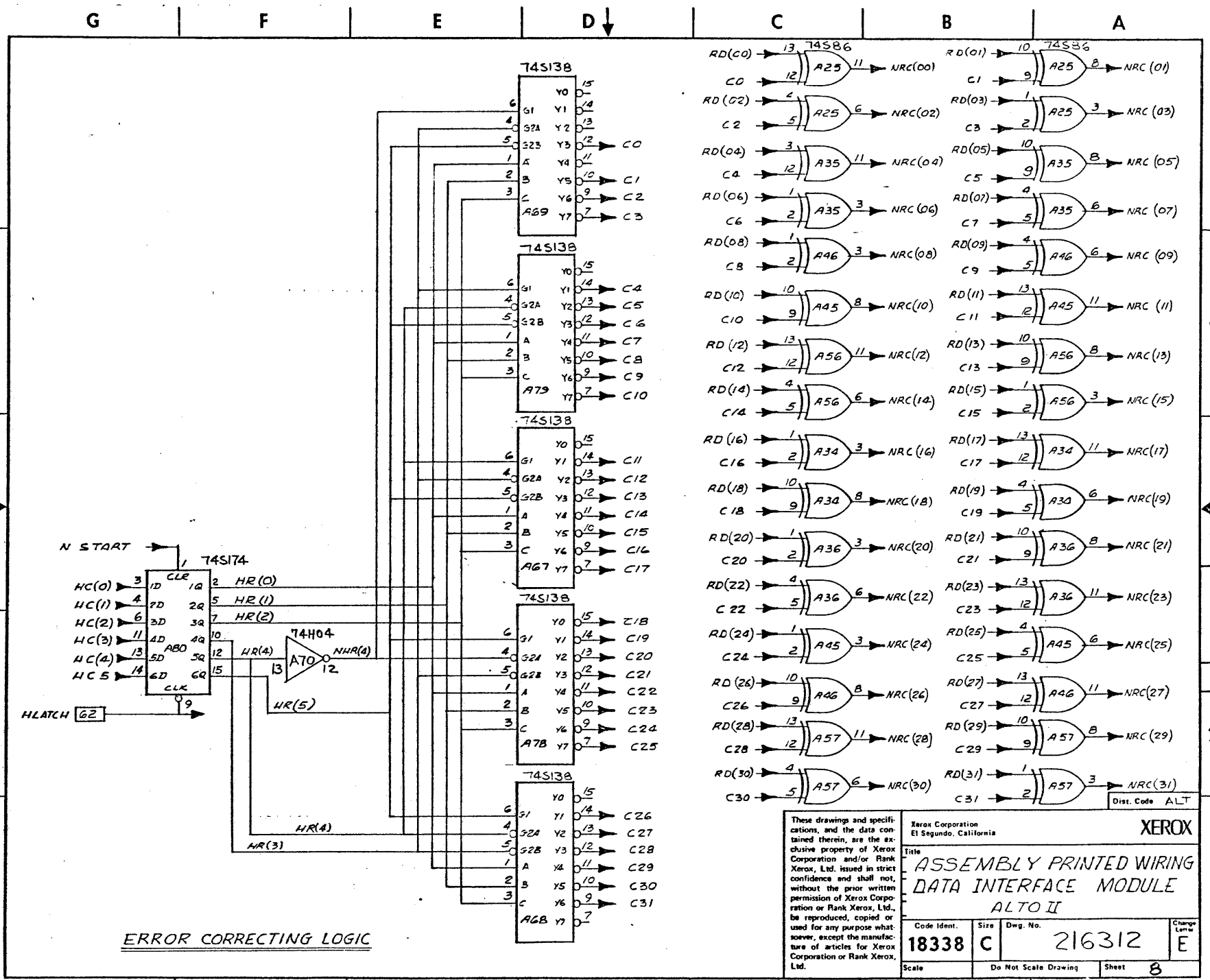
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WRITE DATA MUX

Dist. Code ALT

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Title <b>ASSEMBLY, PRINTED WIRING - DATA INTERFACE MODULE ALTO II</b>					
Code Ident.	Size	Dwg. No.	Change Letter		
<b>18338</b>	<b>C</b>	<b>216312</b>	<b>E</b>		
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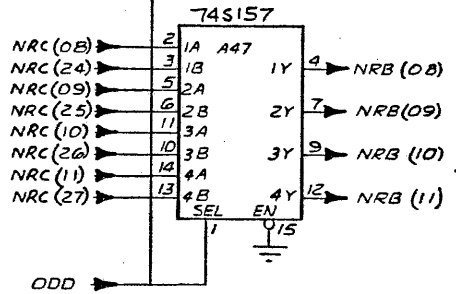
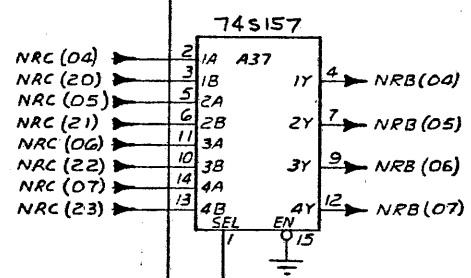
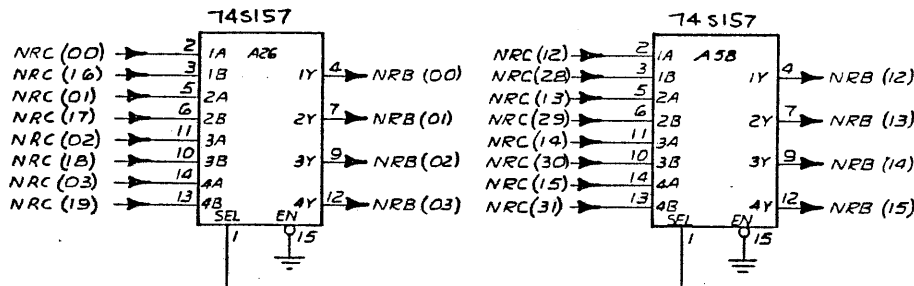
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Title <b>ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTO II</b>					
Code Ident.	Size	Dwg. No.		Change Level	
<b>18338</b>	<b>C</b>	<b>216312</b>		<b>E</b>	
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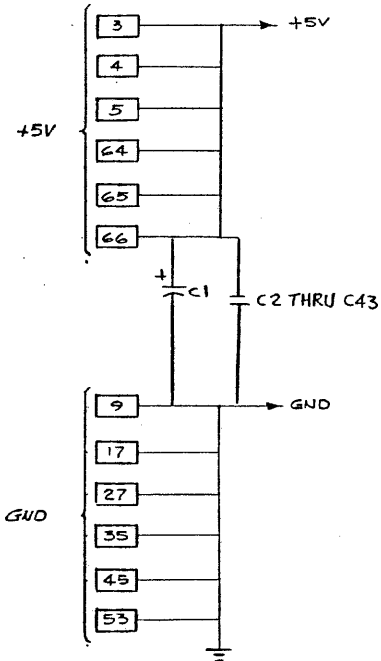
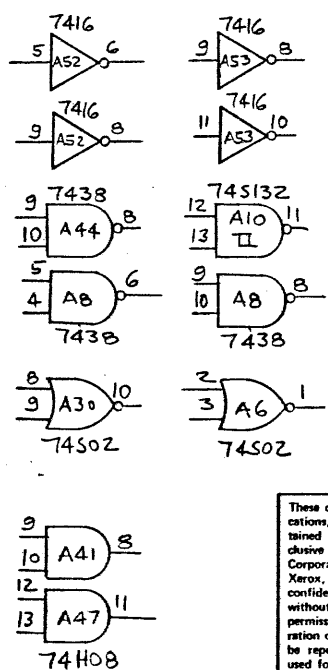
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INPUT DATA MUX



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Title <i>ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTO II</i>					
Code Ident.	Size	Dwg. No.	Change Letter		
<b>18338</b>	<b>C</b>	<b>216312</b>	<b>E</b>		
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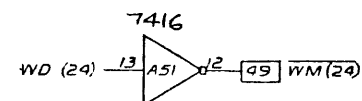
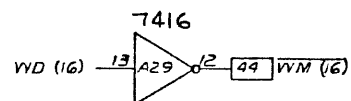
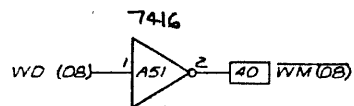
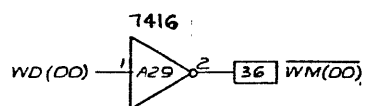
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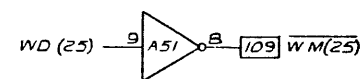
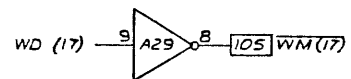
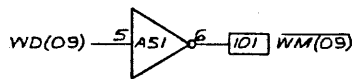
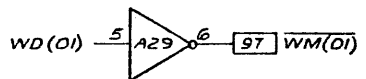
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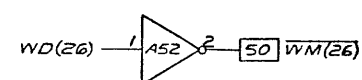
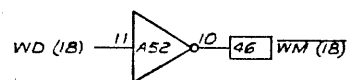
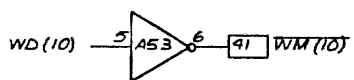
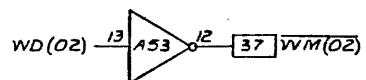
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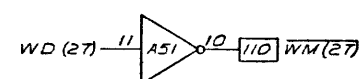
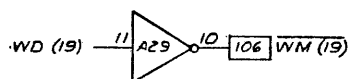
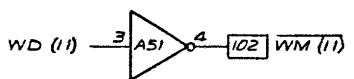
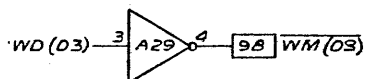
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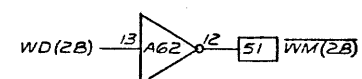
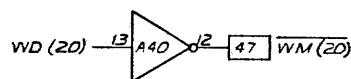
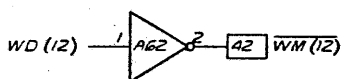
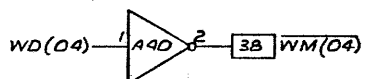
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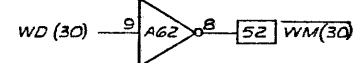
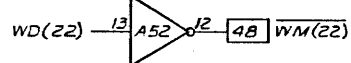
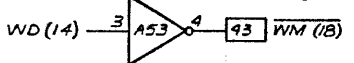
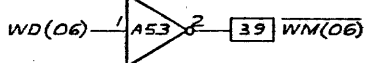
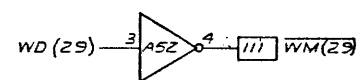
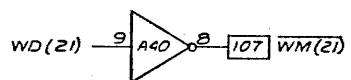
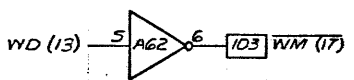
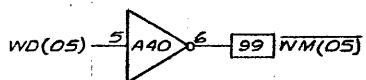
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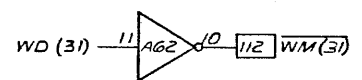
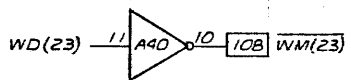
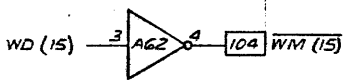
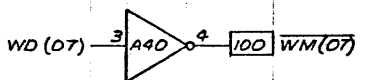
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DATA OUTPUT

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El Segundo, California

XEROX

Title  
ASSEMBLY PRINTED WIRING  
DATA INTERFACE MODULE  
ALTO II

Code Ident.	Size	Dwg. No.	Change Letter
18338	C	216312	E
Scale		Do Not Scale Drawing	Sheet 10

G

F

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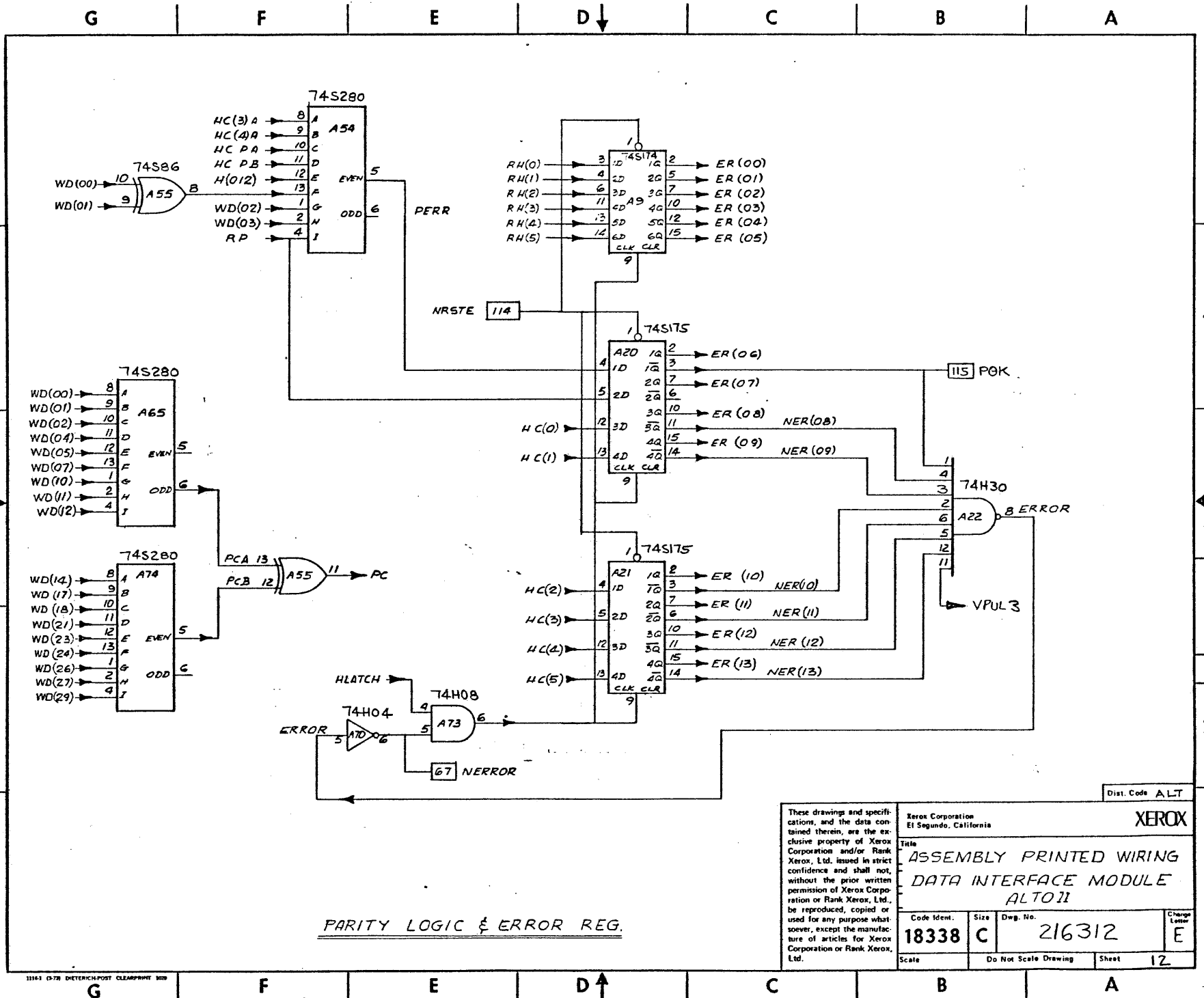
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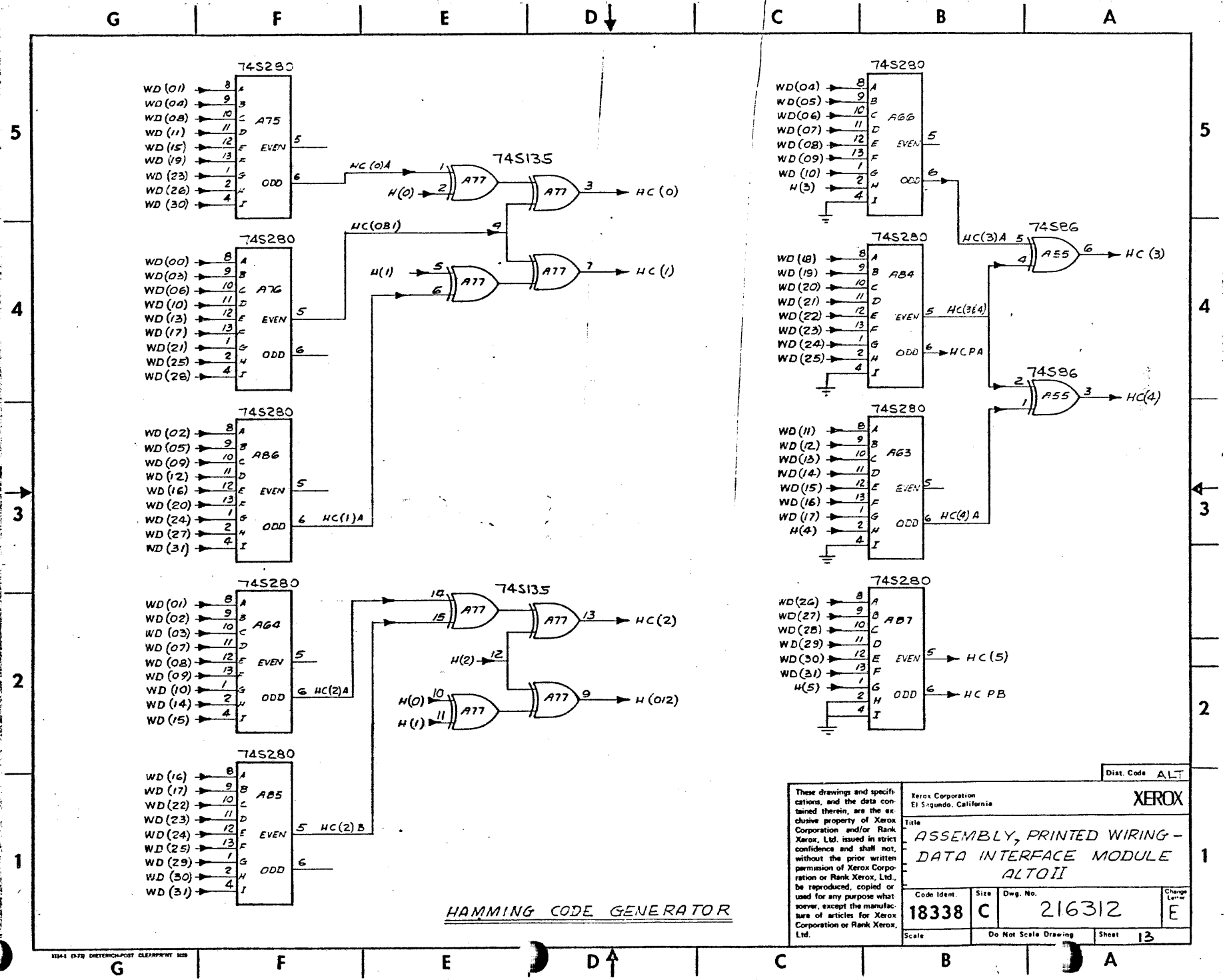


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Xerox Corporation El Segundo, California		<b>XEROX</b>	
Title <b>ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTO II</b>			
Code Ident. <b>18338</b>	Size <b>C</b>	Dwg. No. <b>216312</b>	Change Letter <b>E</b>
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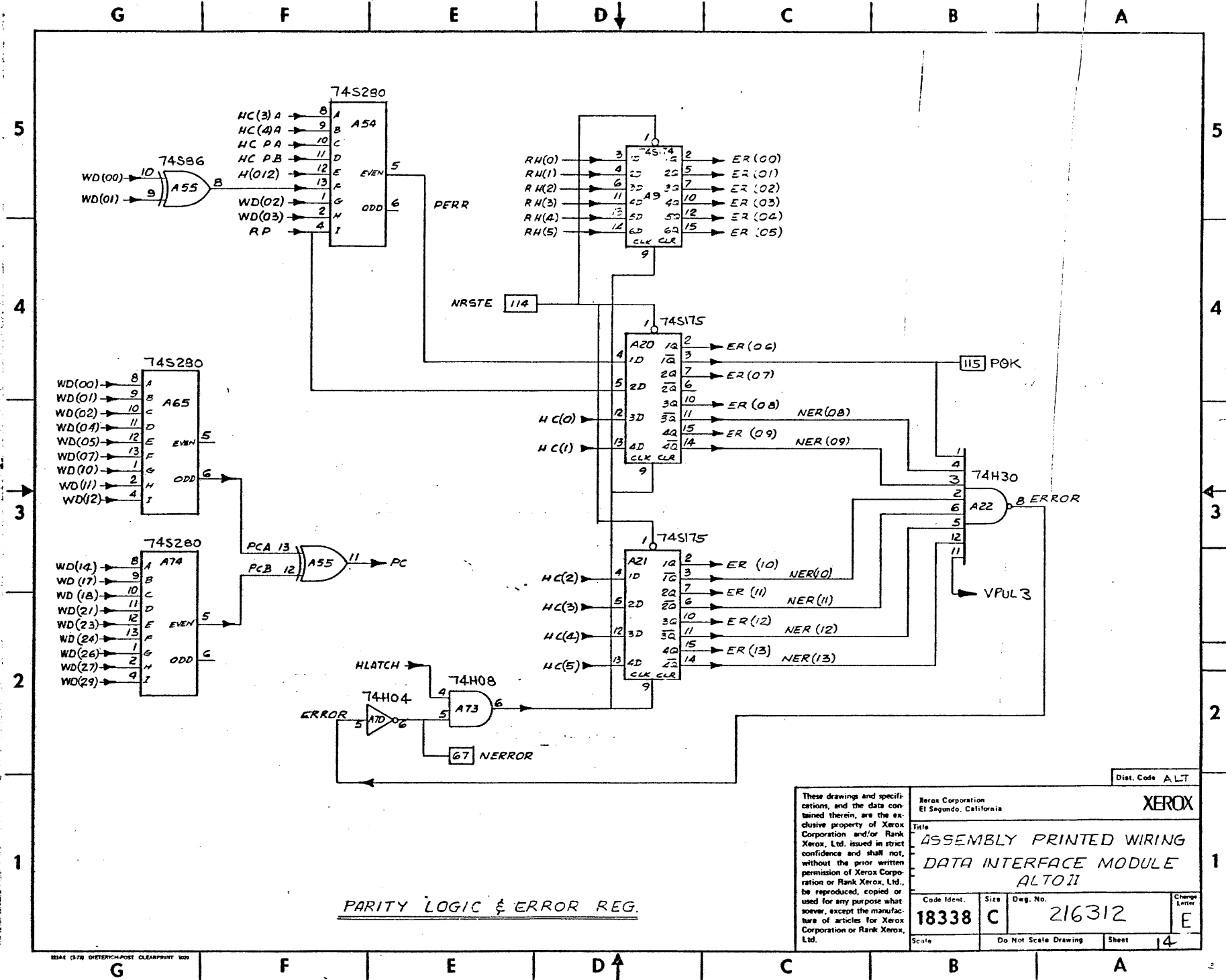




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Xerox Corporation El Segundo, California		XEROX	
Title <b>ASSEMBLY, PRINTED WIRING - DATA INTERFACE MODULE ALTO II</b>			
Code Ident. <b>18338</b>	Size <b>C</b>	Dwg. No. <b>216312</b>	Change Letter <b>E</b>
Scale	Do Not Scale Drawing		Sheet <b>13</b>



PARITY LOGIC & ERROR REG.

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Xerox Corporation El Segundo, California		<b>XEROX</b>	
Title <b>ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTO II</b>			
Code Ident. <b>18338</b>	Size <b>C</b>	Dwg. No. <b>216312</b>	Change Letter <b>E</b>
Scale	Do Not Scale Drawing		Sheet <b>14</b>

Revisions				216323	D
LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	RF	3-4-76	RF
	B	REVISED	BN	6-16-76	RF
	C	M/L ITEM 45 WAS 10K P/N 116447-103. SH 9 R1 WAS 10K.	BN	7-28-76	RF
X	D	M/L ITEM 20 P/N 74S86 WAS 7486, ITEM 37 2200 pF P/N DC-222K WAS 820 pF, P/N DC821. ADDED ITEM 45, 50, & 51. ITEM 57 P/N 514-AG11D WAS 514-AG10D, ITEM 58 P/N 516-AG11D WAS 516-AG10D. SH 9 REVISED LOGIC DIAGRAM. SH 2 ADDED NOTE 3.	BN	3-8-77	RF

ENGINEERING  
RELEASE

THIS DOCUMENT CONTAINS 23 SHEETS.

Dist Code ALT

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	1. Tolerances .XX ±.03      Angular .XXX ±.010    ±1/2°	Check <i>[Signature] 3-3-76</i>	<div style="font-size: 2em; font-weight: bold; margin-bottom: 10px;">XEROX</div> Title <b>ALTO II</b>  <b>ASSEMBLY, PRINTED WIRING- ETHERNET</b>			
	2. Break All Sharp Edges .010 Approx.      J	Appr. <i>[Signature] 3-3-76</i>				
	3. Mach. Surfaces      J	Material				
4. All Dim. in Inches						
Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter	
ALTO II EWO7YF92		<b>18338</b>	<b>A</b>	216323	D	
Next Assy. First Use	Scale -		Do Not Scale Drawing		Sheet I	
216302						

NOTES: UNLESS OTHERWISE SPECIFIED

1. THE FOLLOWING MODIFICATIONS HAVE TO BE MADE TO THIS ASSEMBLY USING "B" REVISION PRINTED WIRING BOARDS:

CUT ETCH BETWEEN

- 1) A47-12 AND A50-2
- 2) A50-2 AND A60-5
- 3) A50-13 AND A54-6

ADD WIRE FROM

- 1) A47-4 TO A60-5
- 2) A54-6 TO A60-5
- 3) A50-2 TO A64-6
- 4) A64-4 TO A77-7
- 5) A64-5 TO A75-6
- 6) A50-13 TO EC PIN 76

2. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

3. THE FOLLOWING MODIFICATIONS ARE REQUIRED ON THIS ASSEMBLY USING "B" REVISION PRINTED WIRING BOARDS:

- 1) CUT ETCH BETWEEN C104 AND FEED THRU (COMPONENT SIDE)(CONNECTS TO A67-3).
- 2) ADD 10 $\Omega$  RESISTOR (R18) FROM C104 TO FEED THRU (CONNECTS TO A67-3).
- 3) ADD 470 $\Omega$  RESISTOR (R19) FROM C104 TO END OF R13.

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Title  
 ASSY, PRINTED WIRING  
 ETHERNET

Xerox Corporation  
 El Segundo, California

**XEROX**

216323

D

Sheet 2 Of



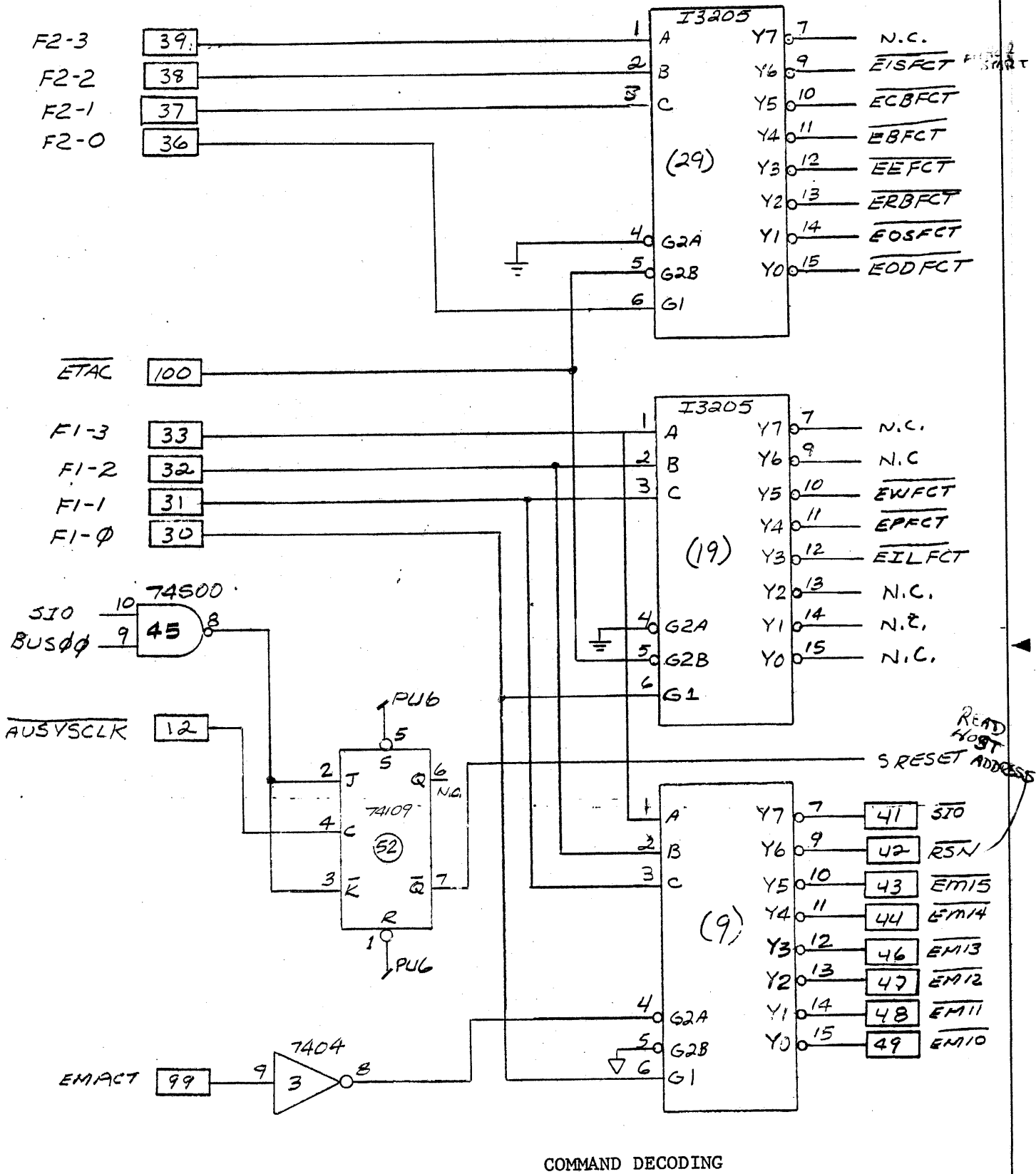
**Material List**

<b>ML</b>	Drawing No. 216323	Rev. D
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Drawing No. <b>216323</b>	Rev. <b>D</b>	Drawing Title <b>ALTO II</b>  <b>ASSEMBLY, PRINTED WIRING- ETHERNET</b>	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
		Model No. <b>EWO 7YF92</b>	Date <b>3-3-76</b>	Sheet <b>4</b> of	

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, P.W. Ethernet	216325	1	
2	Procedure, Test	216324	REF	
3	Spec, Module Assembly	216207	REF	
4	Microcircuit, 74H21		2	A1, 39
5	7408		3	A63,64,68
6	7404		3	A3, 44, 55
7	74H01		1	A30
8				
9	7437		1	A73
10	74LS298		4	A13,17,23,27
11	7400		2	A20,46
12	74164		2	A33,37
13	74165		2	A34,36
14	7402		2	A40,72
15	74174		1	A43
16	74157		2	A48,54
17	74123		2	A50,60
18	7410		2	A56,74
19	74161		2	A58,59
20	74S86		1	A67
21	74S08		1	A2
22	7438		8	A5,6,14,15,16,24,25,26
23	74S37		1	A11
24	74S00		3	A45,75,66
25	74S157		1	A76
26	898-1-R1.OK Beckman		3	A4,32,38
27	I3205 Intel		3	A9,19,29
28	I3101A Intel		4	A12,18,22,28
29	P3601 M.I.L. OR TN473		3	A41,42,49
30	Microcircuit, 9401 Fairchild		1	A53
31	Microcircuit, 74109		13	A10,21,31,35,47,51, 52,61,62,65,69,70,77





COMMAND DECODING

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Title ALTO II  
 ASSEMBLY, PRINTED WIRING  
 ETHERNET

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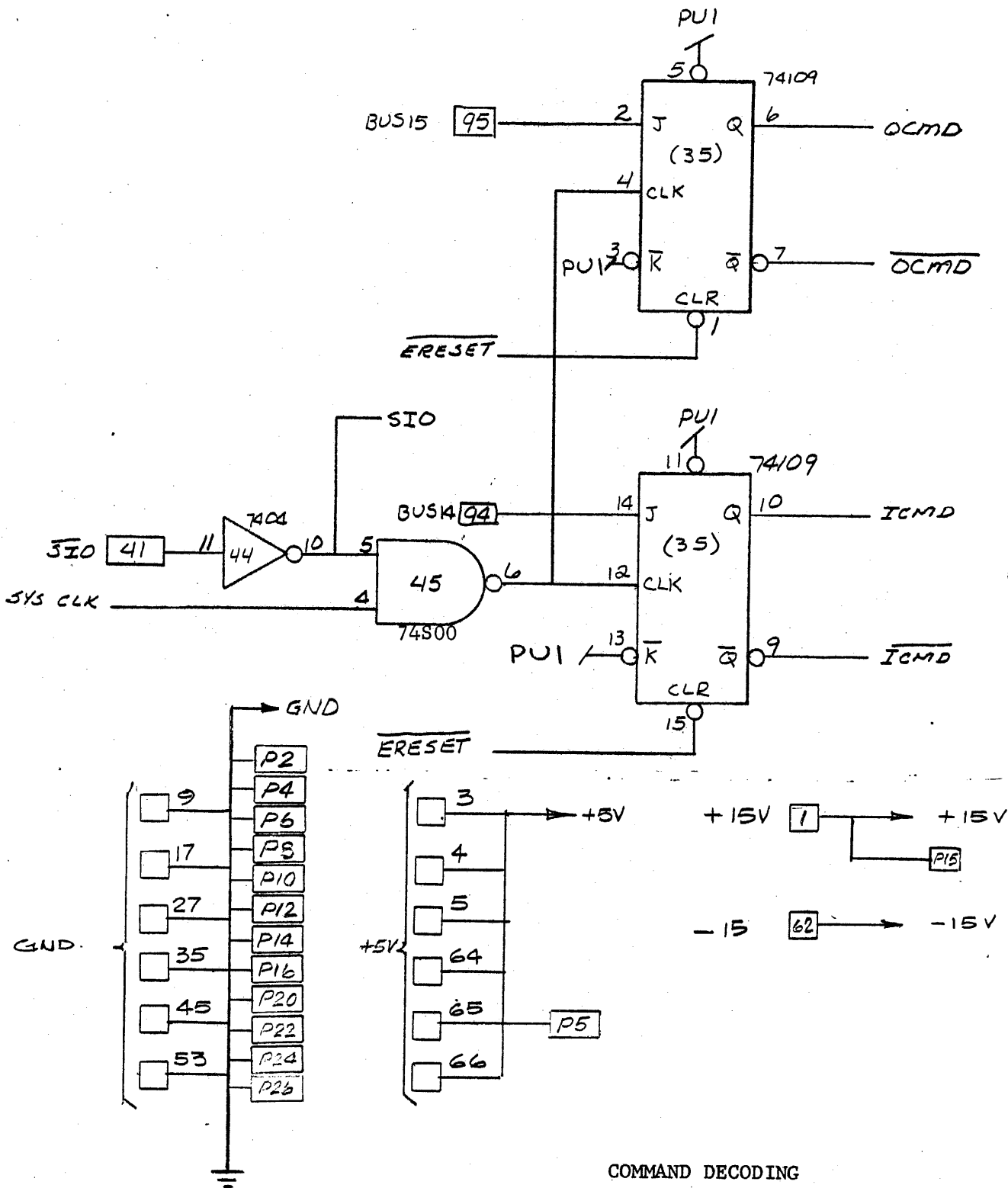
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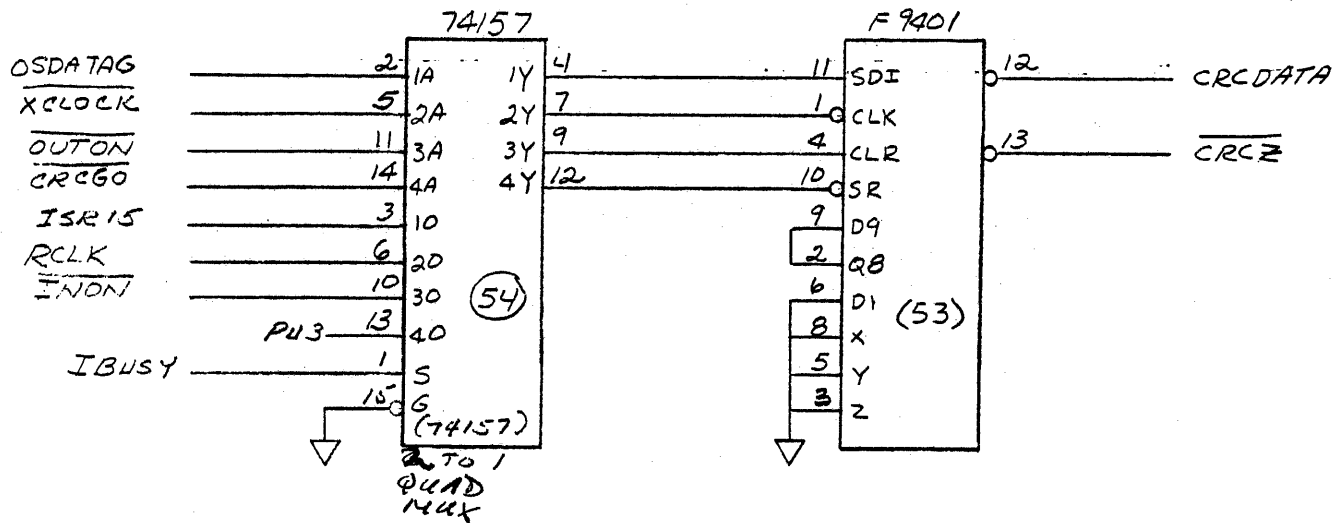
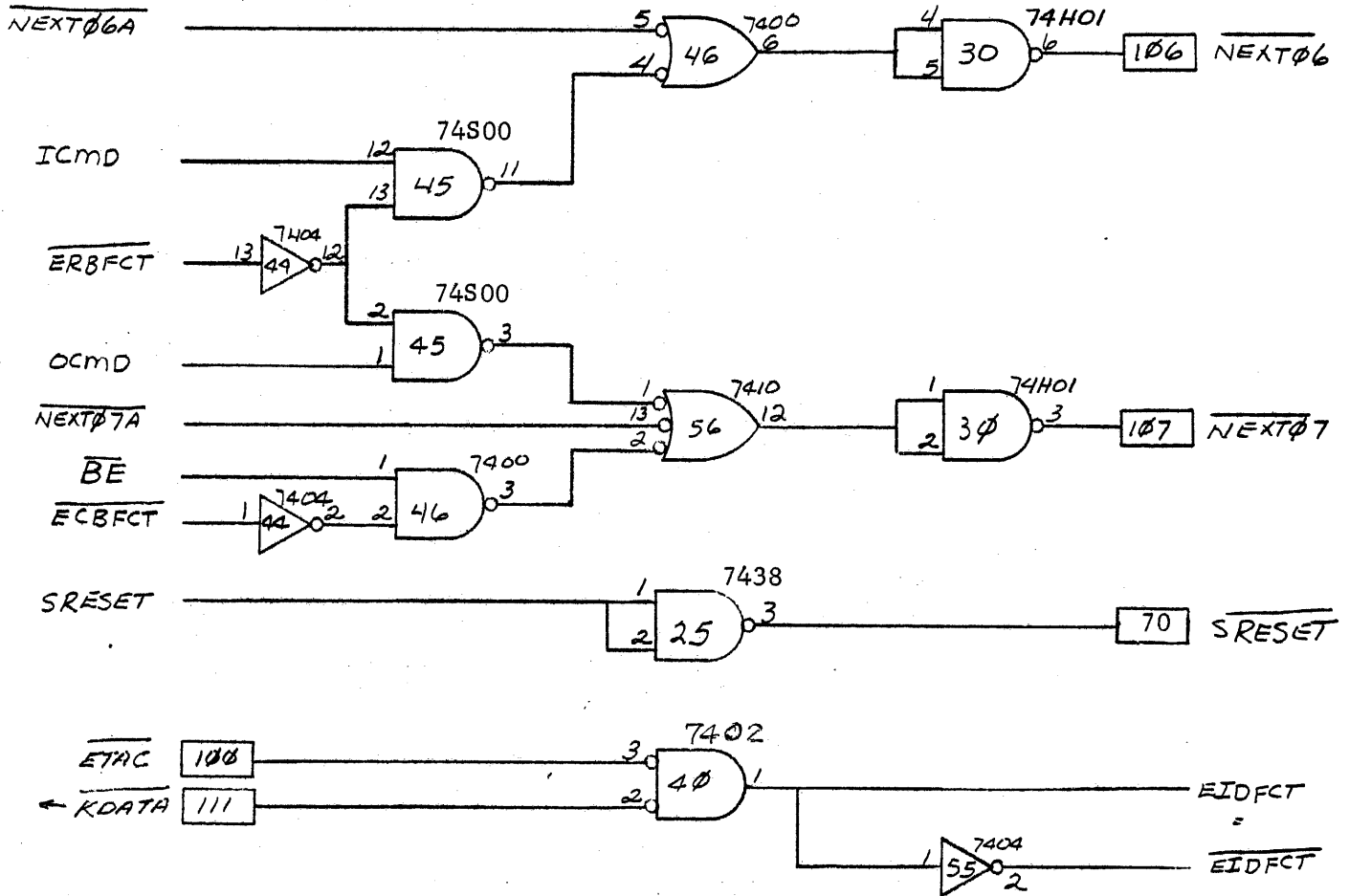
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BRANCH LOGIC

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ETHERNET

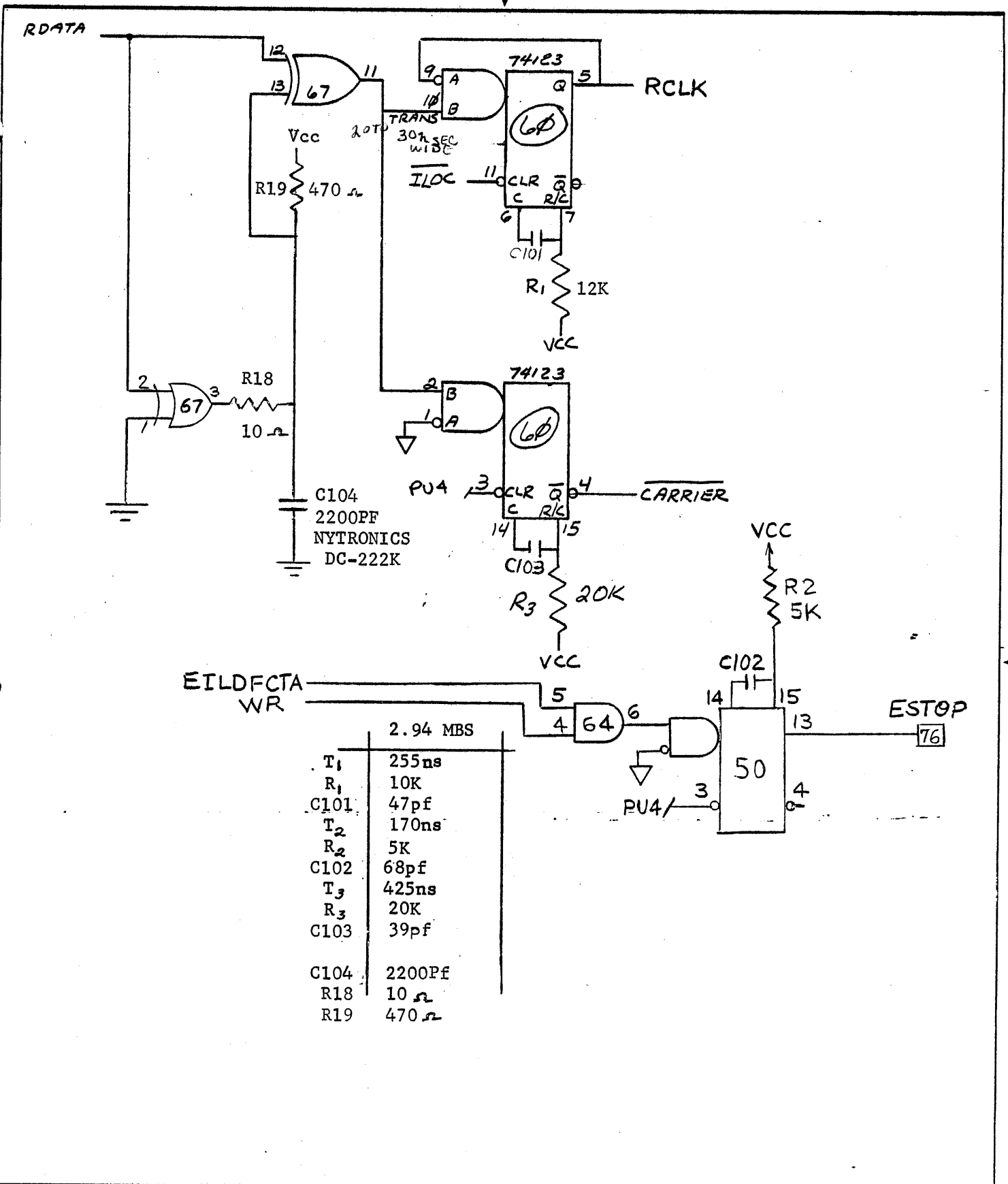
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El Segundo, California

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216323

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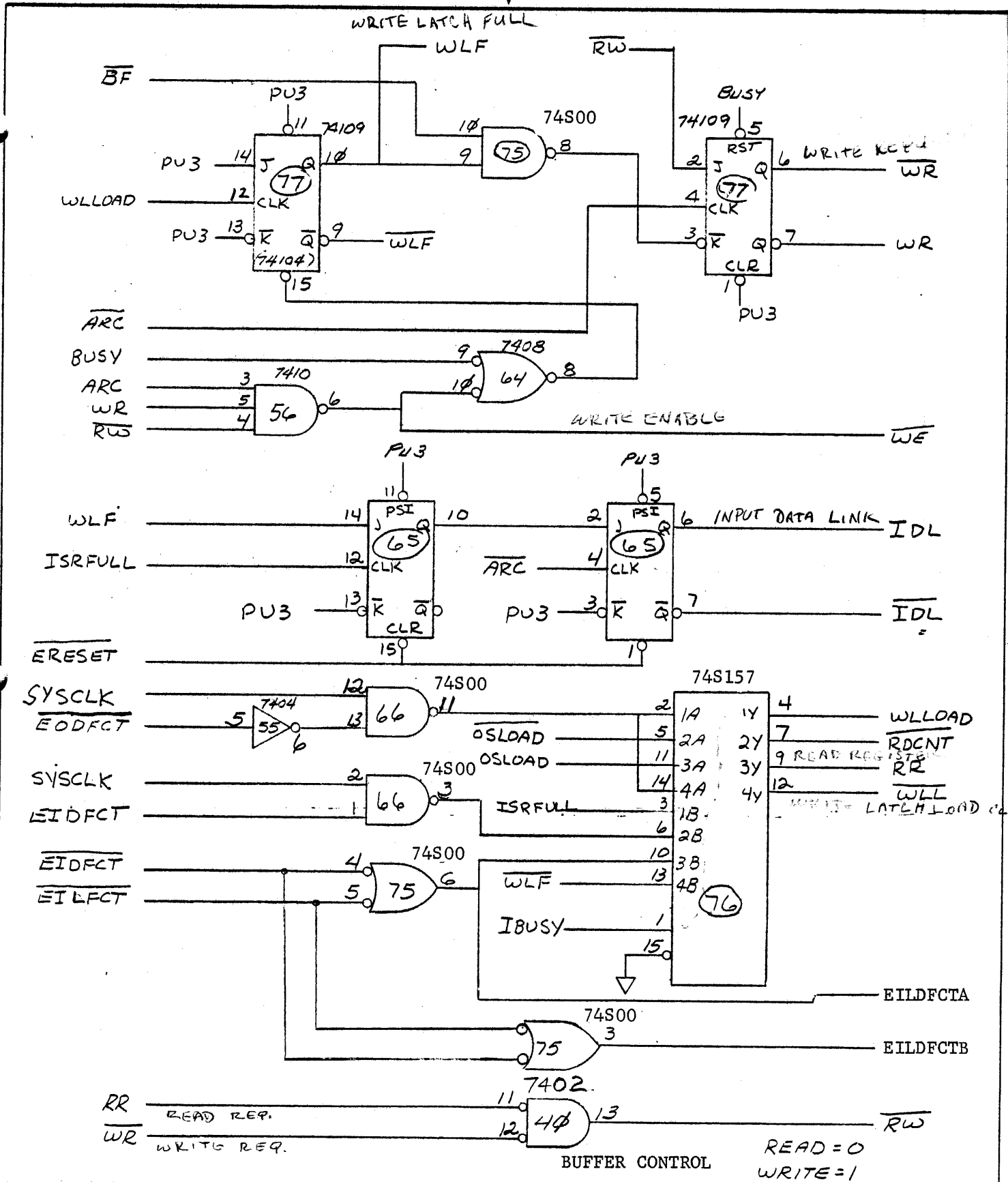
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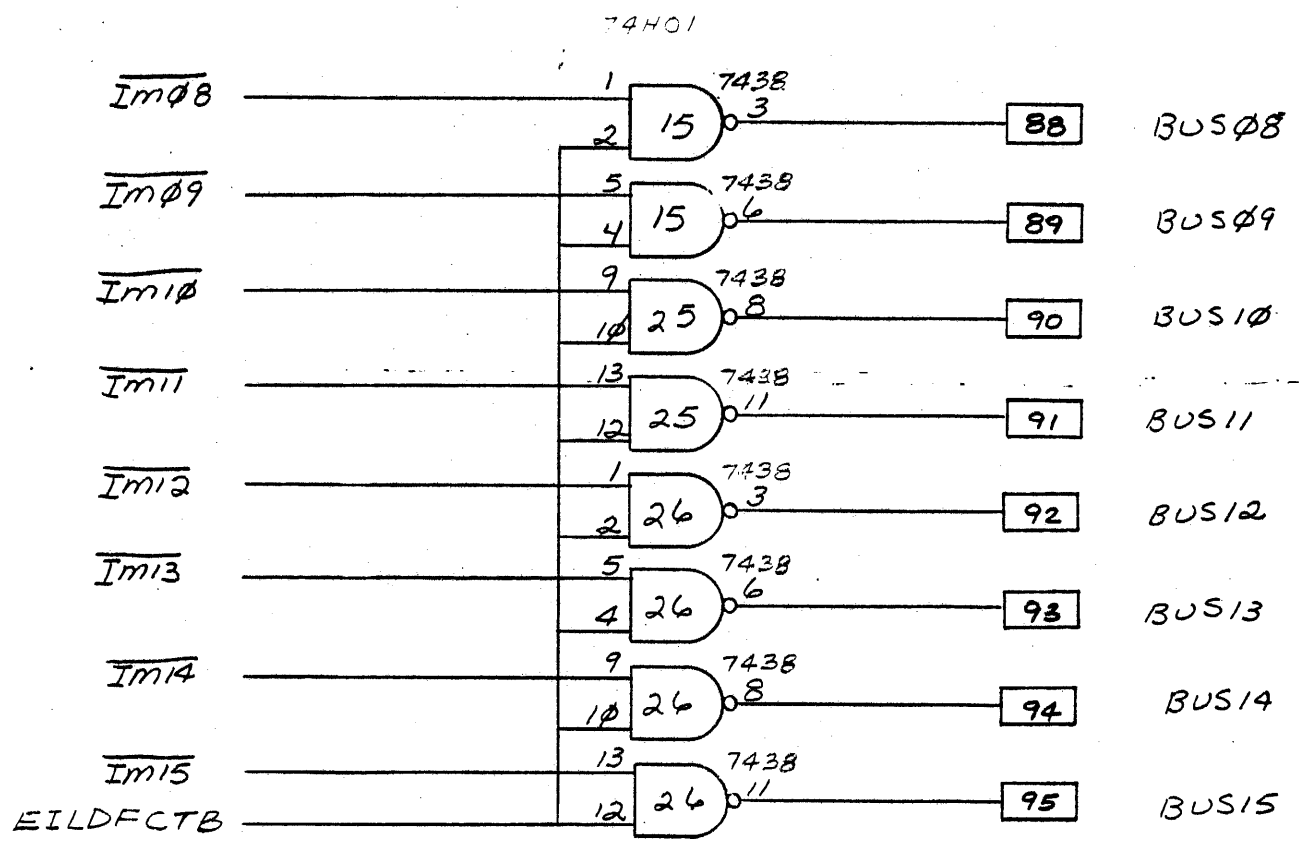
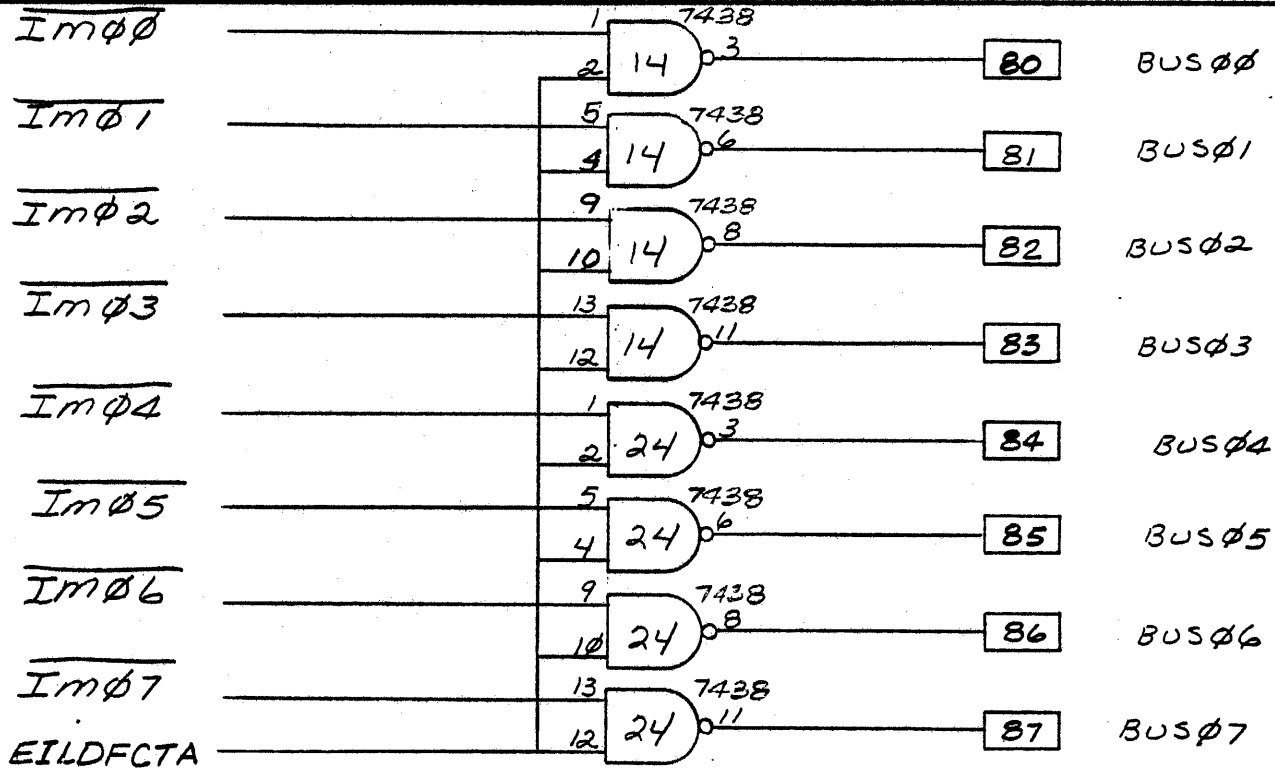
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 216323  
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 21632  
 Sheet 10 of  
 D

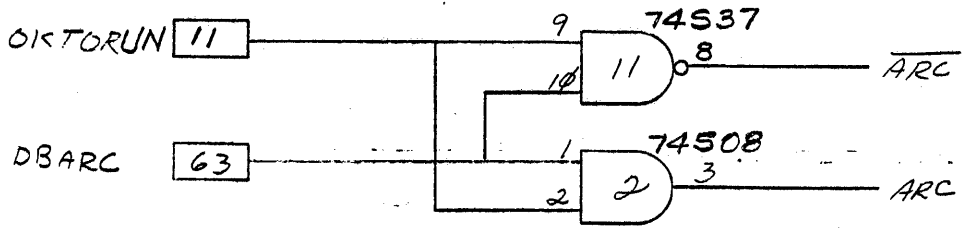
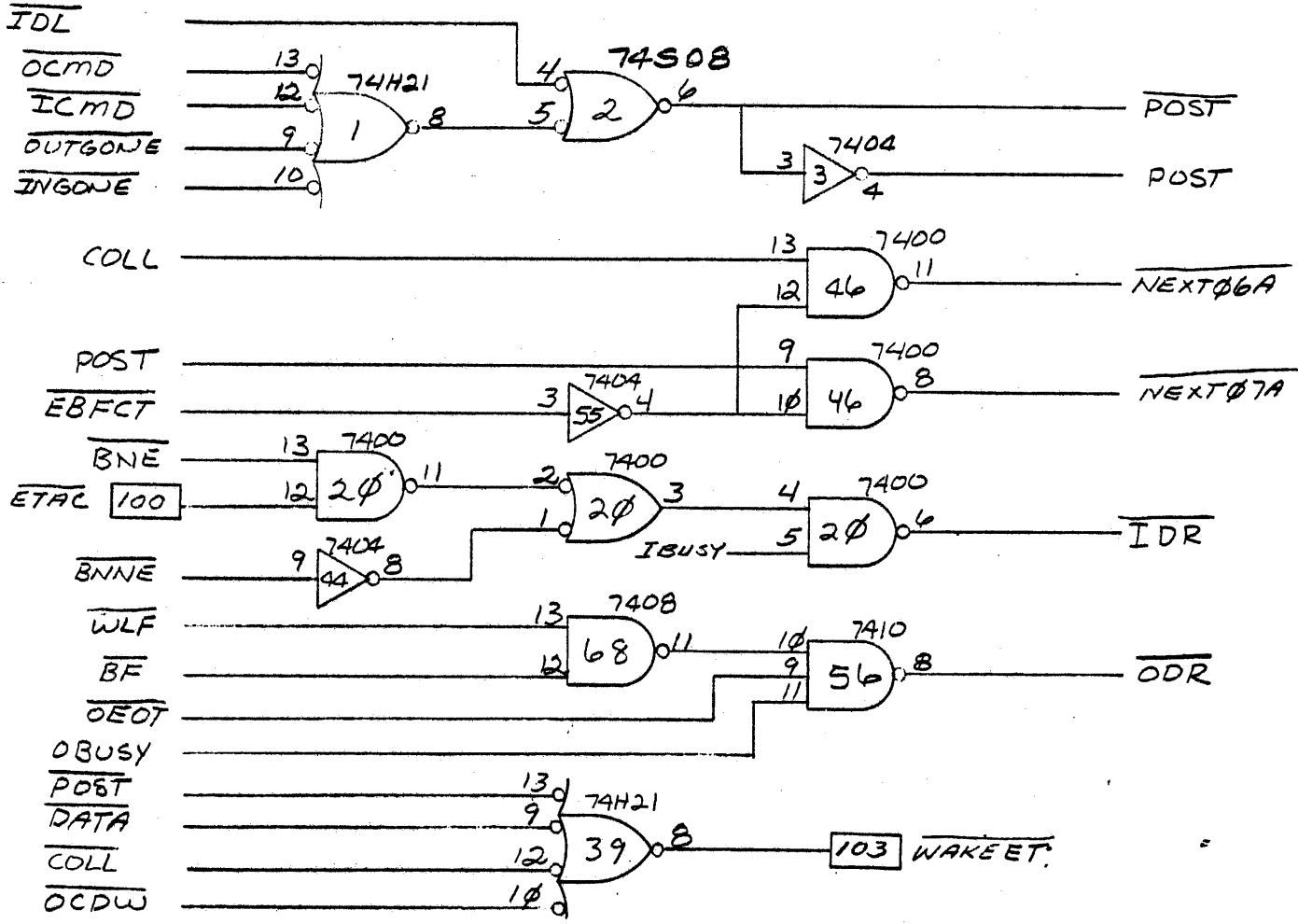


PROCESSOR BUS DRIVERS

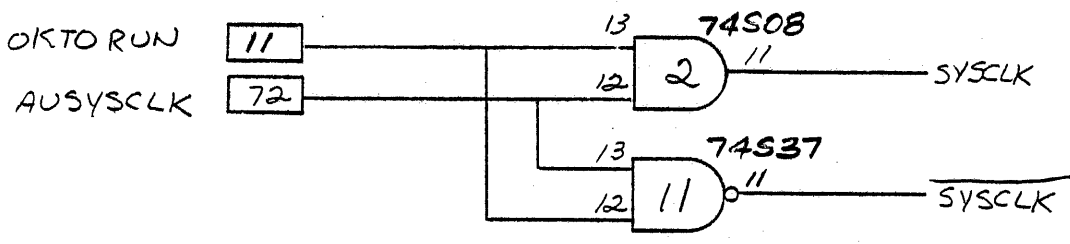
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NEXT 67	WAKEUP TYPE
00	DATA (CDW)
01	POST
10	COLL
11	POST

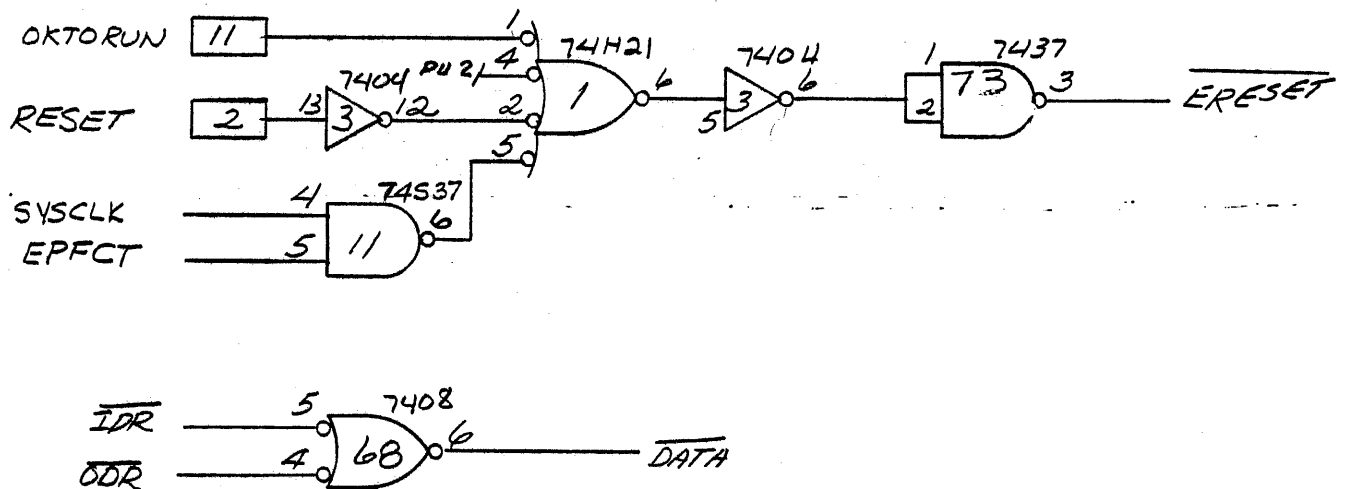
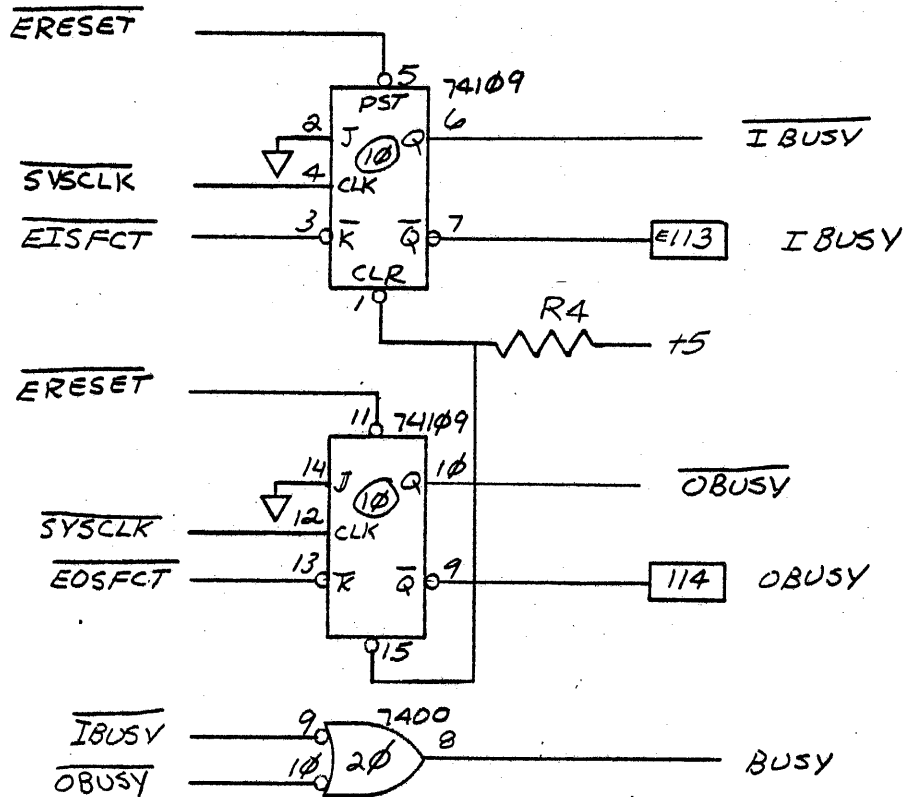


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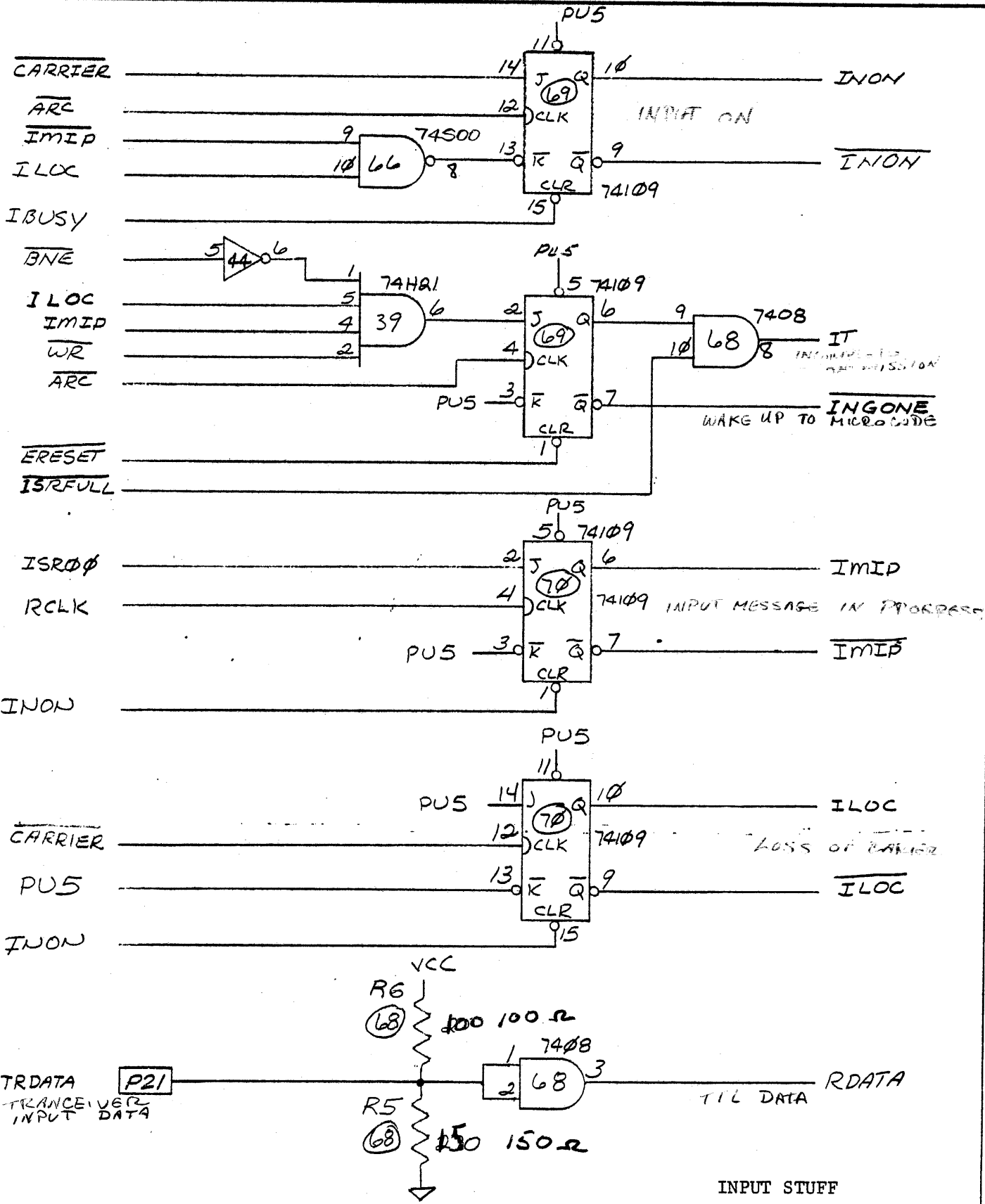
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Sheet 13 Of

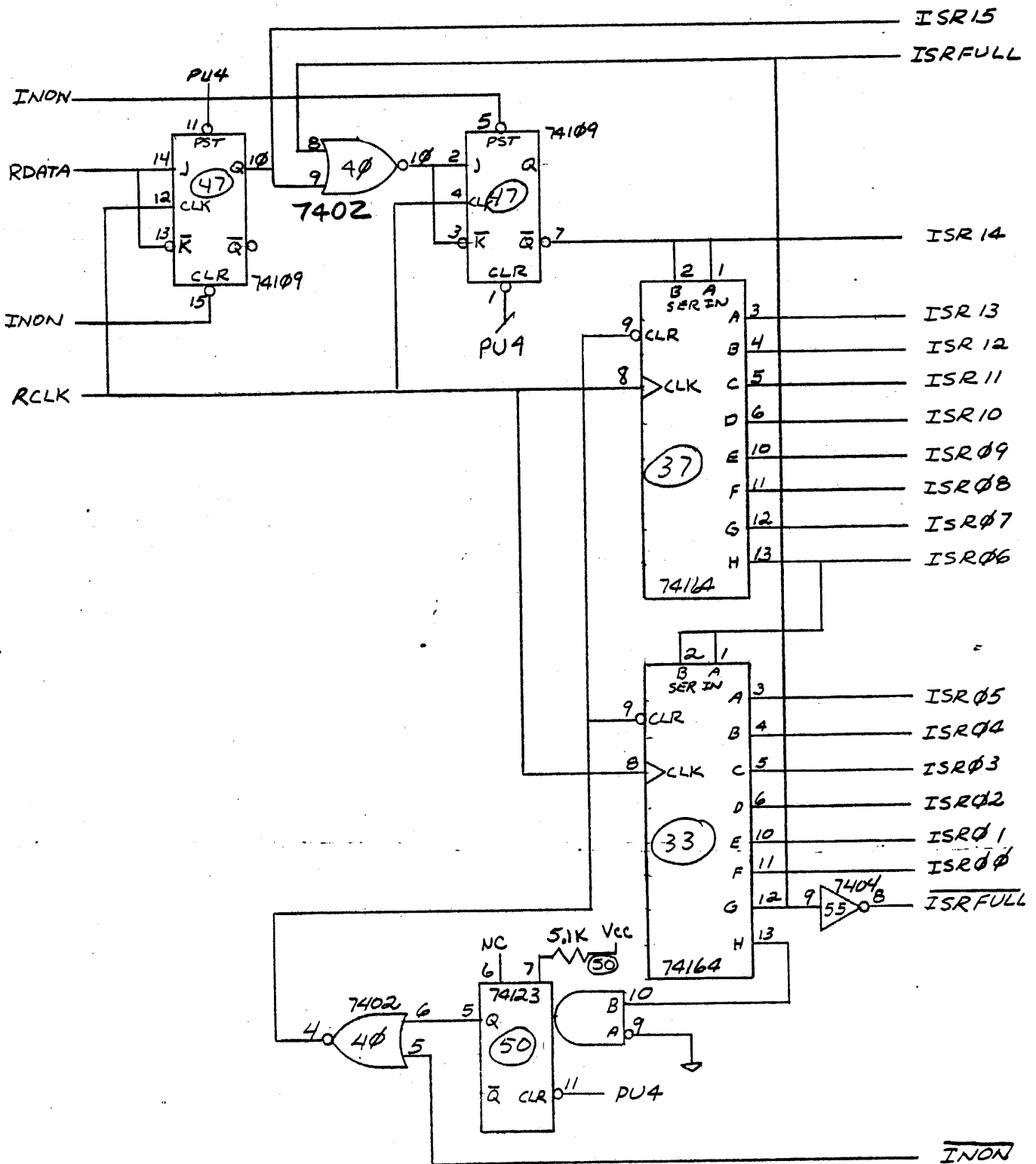


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INPUT SHIFT REGISTER

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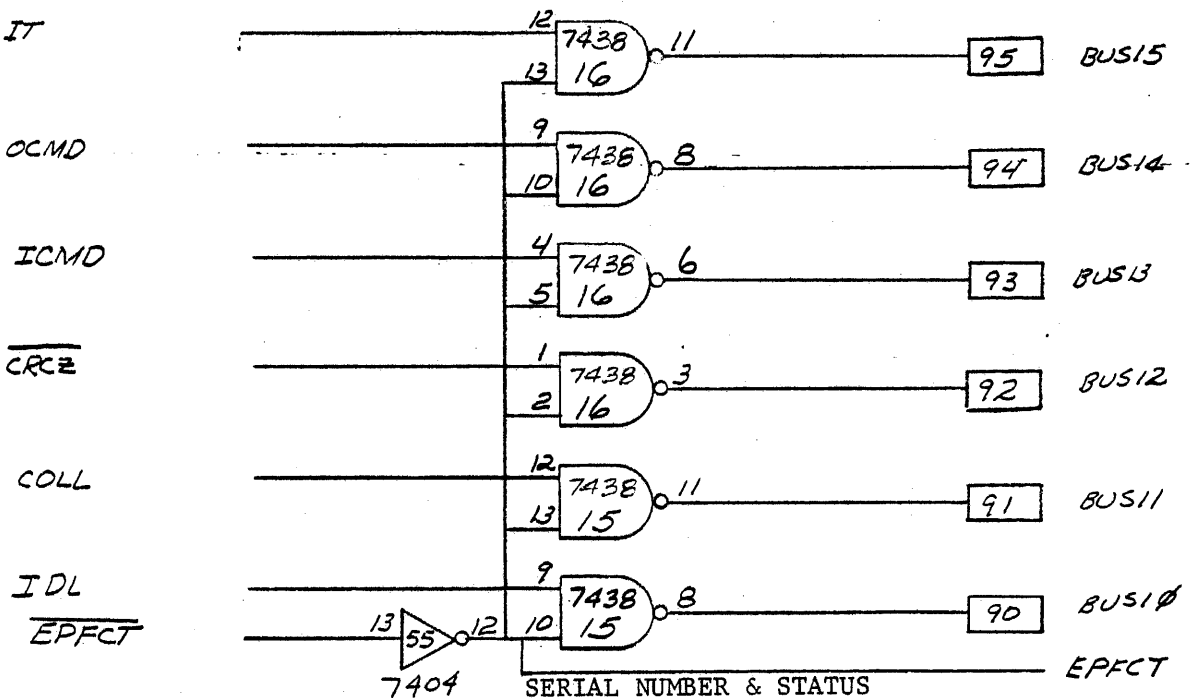
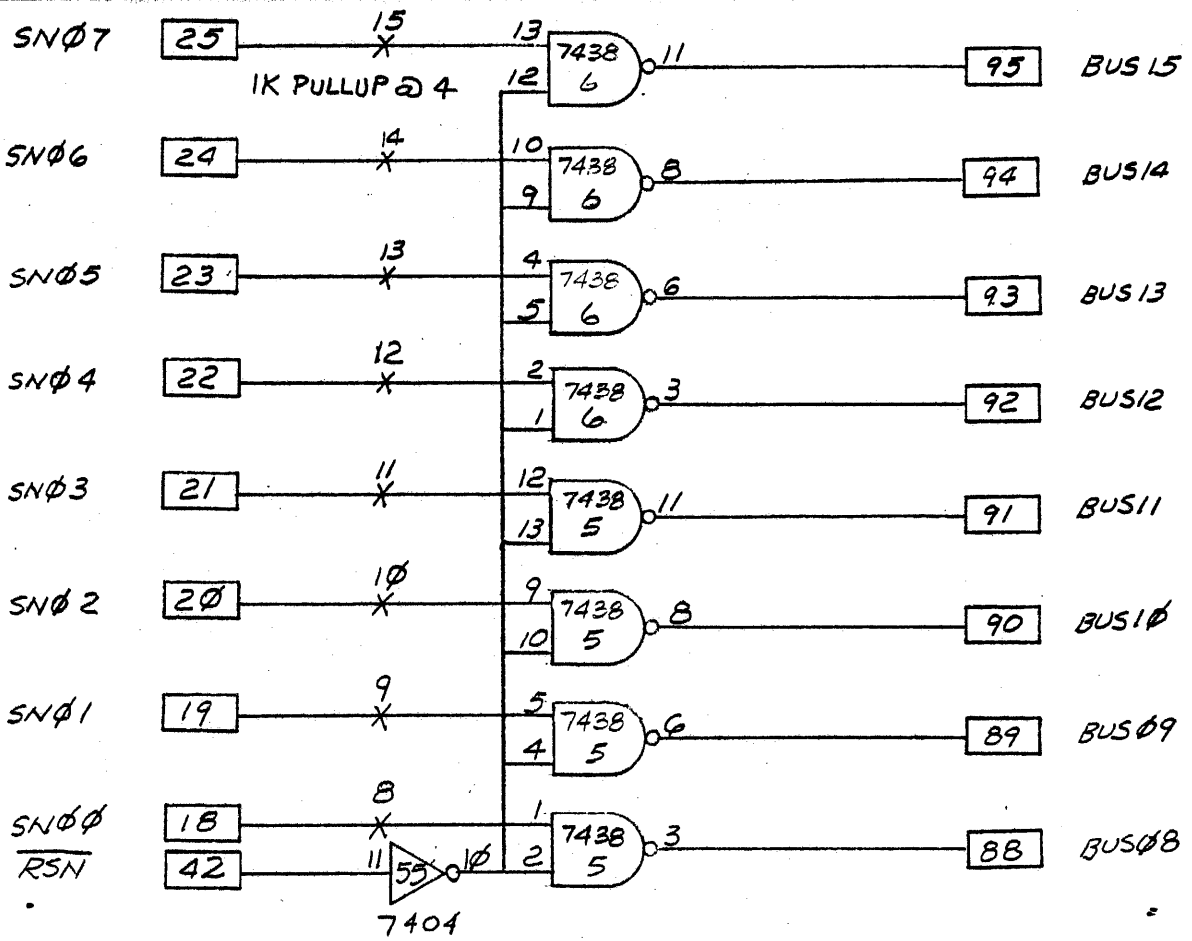
**XEROX**

216323

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Sheet 15 of

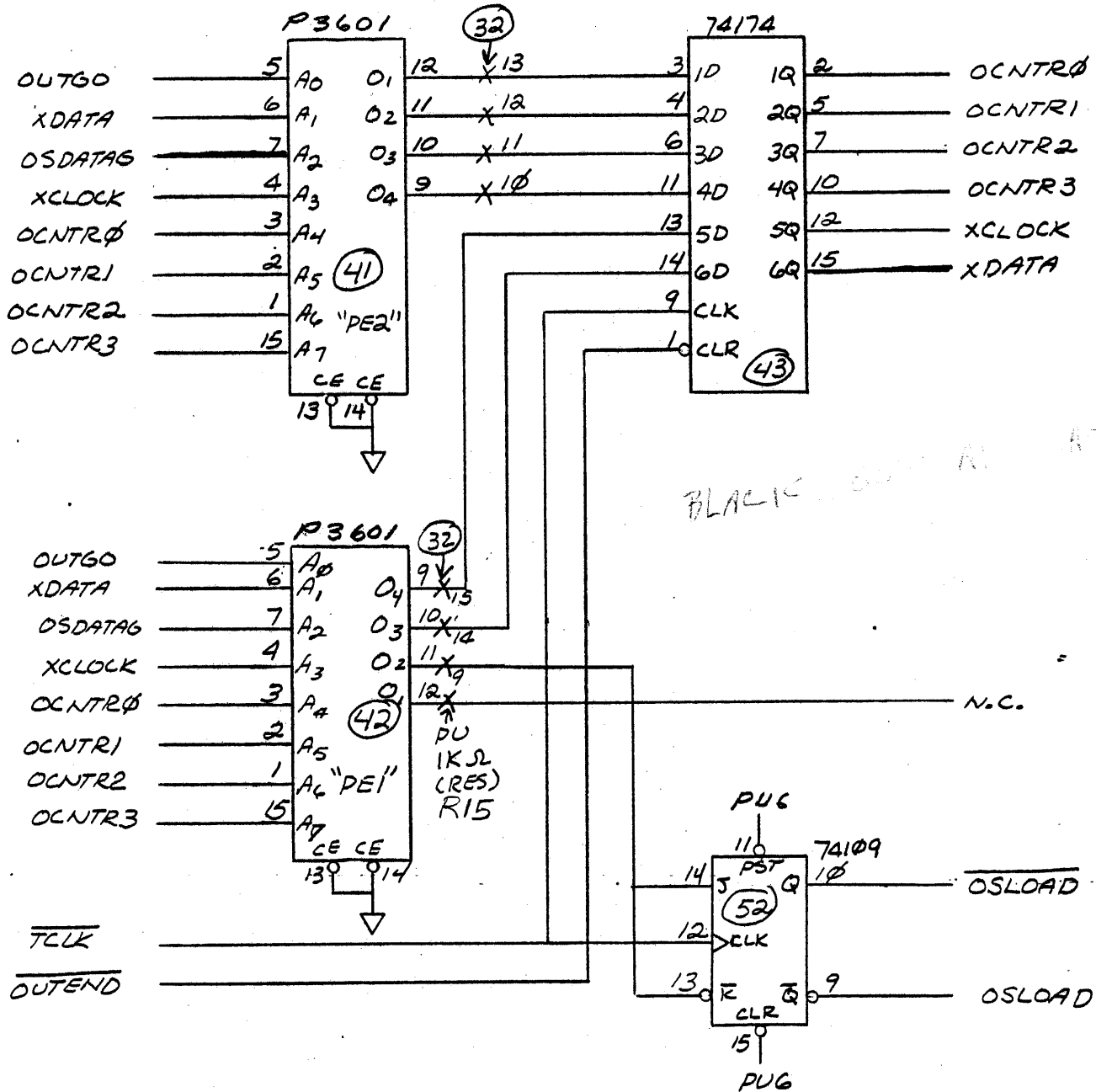
HOST ADDRESS



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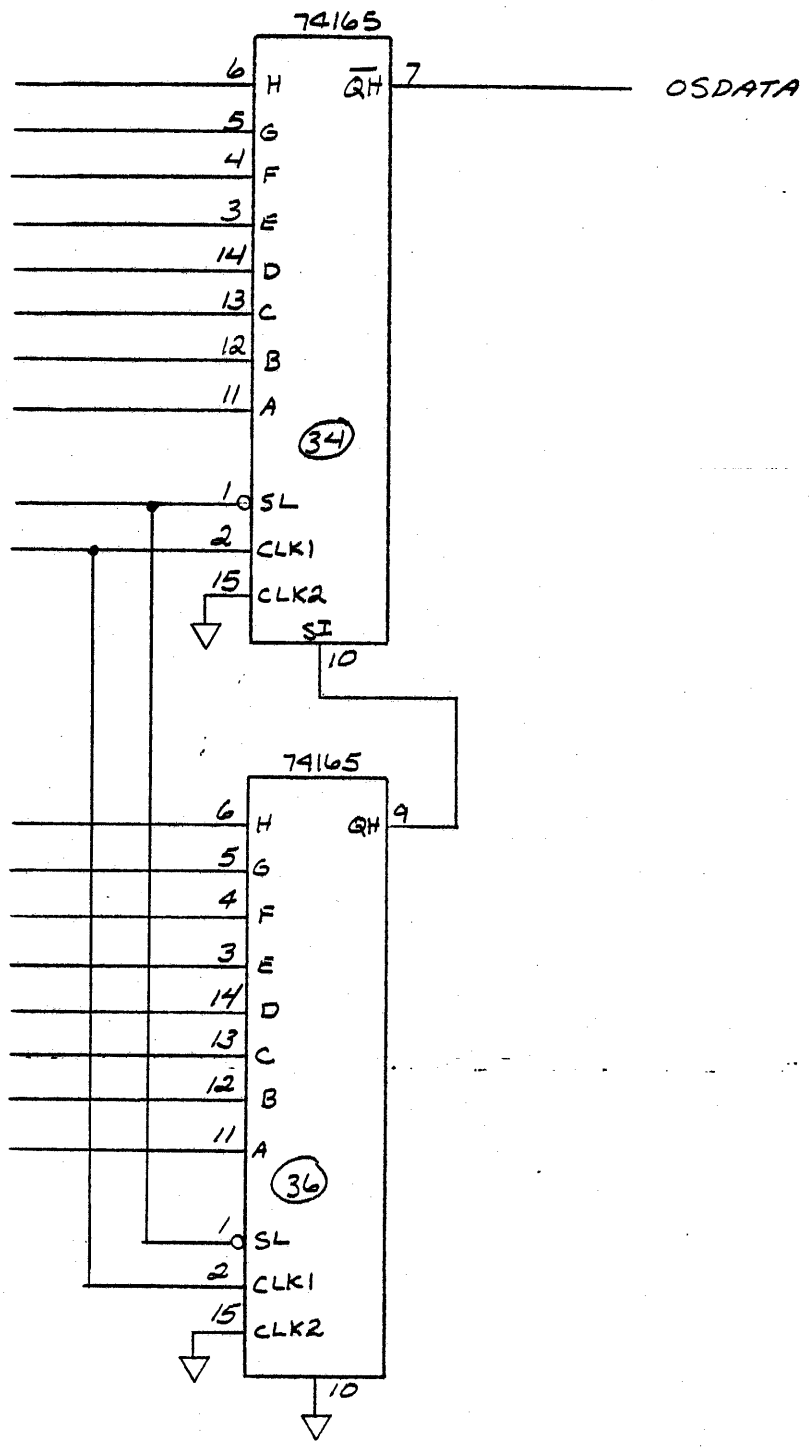
D

Sheet 17 of

IM00  
IM01  
IM02  
IM03  
IM04  
IM05  
IM06  
IM07

SHIFT WHEN HIGH  
 OSLOAD  
 XCLOCK

IM08  
IM09  
IM10  
IM11  
IM12  
IM13  
IM14  
IM15

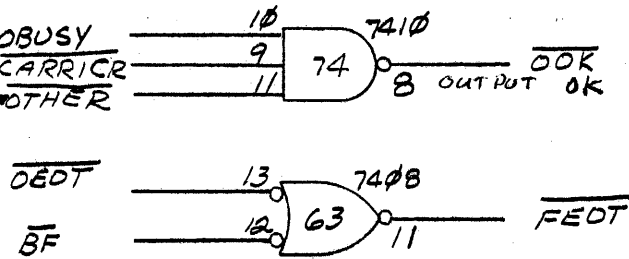
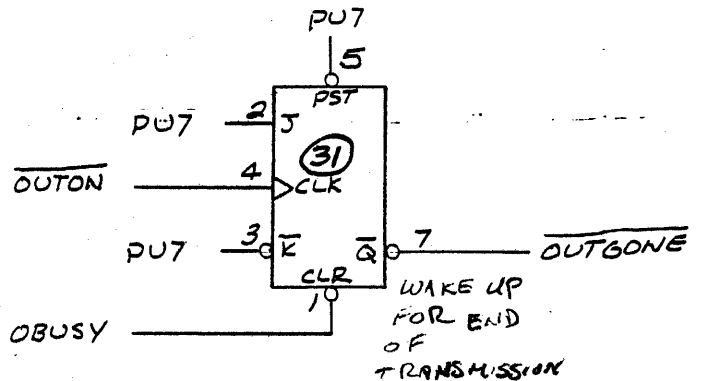
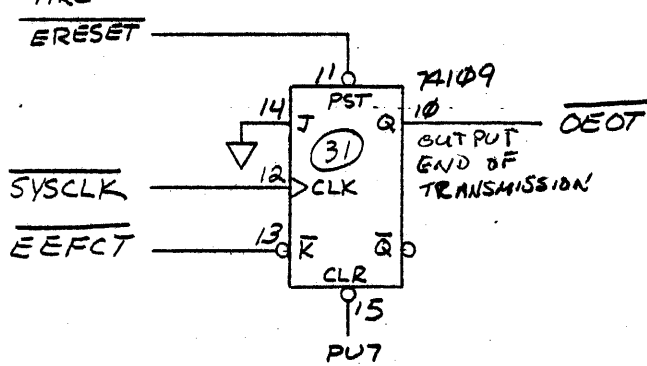
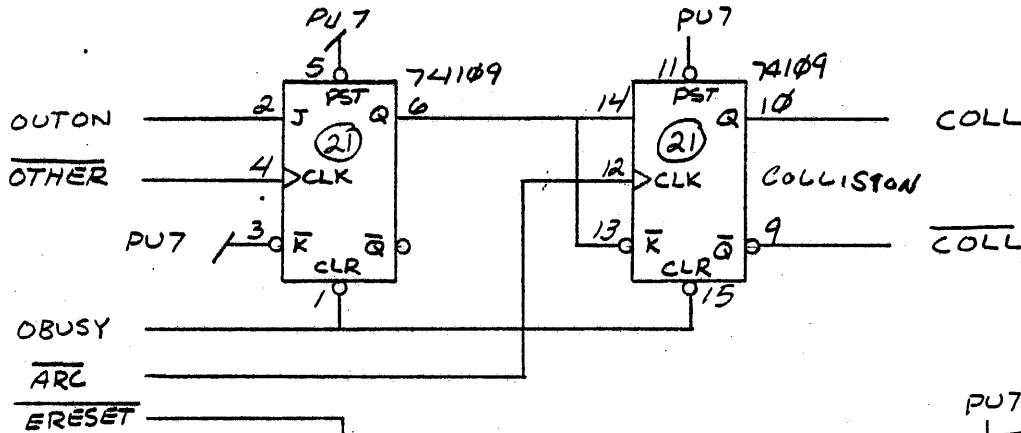
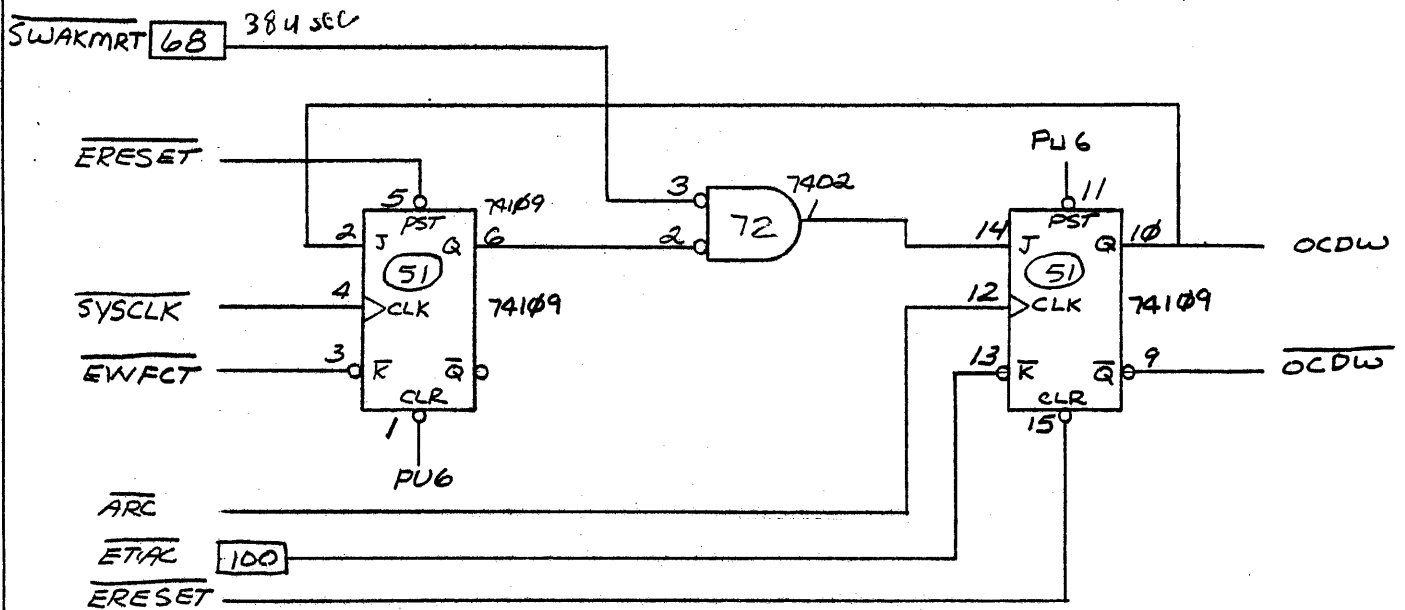


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**XEROX**

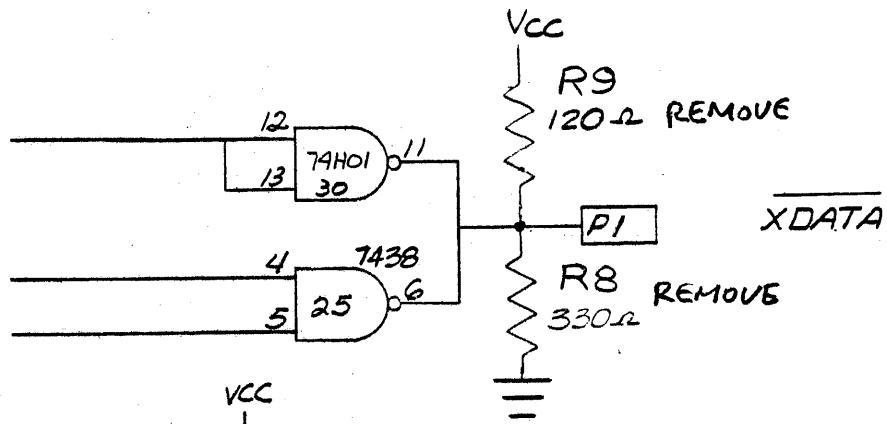
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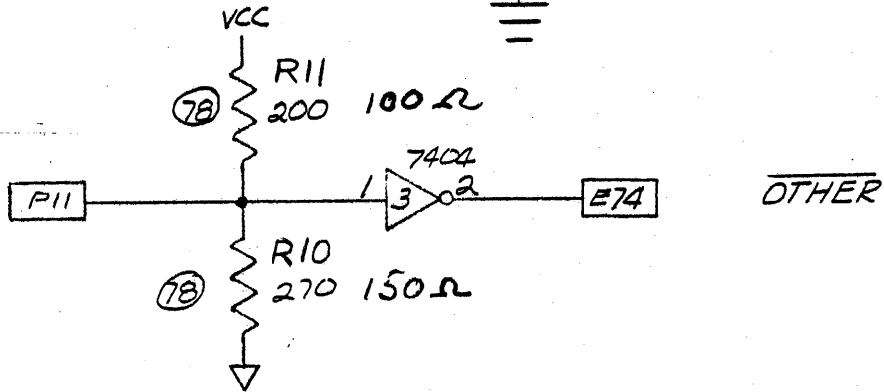
Sheet 19 of

COLL

XDATA  
COLL

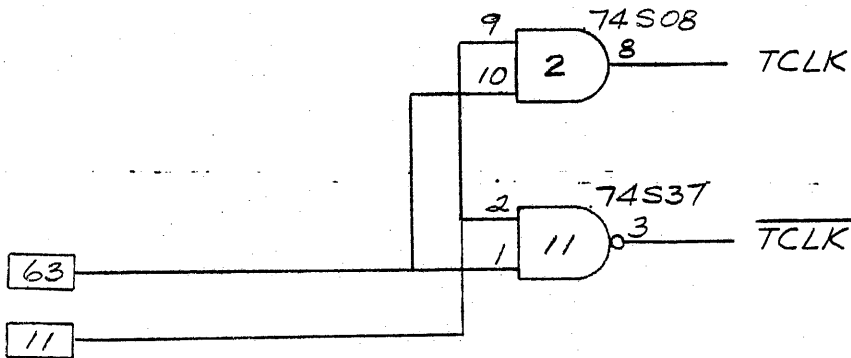


TROTHER



DBARC

OKTORUN



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ETHERNET

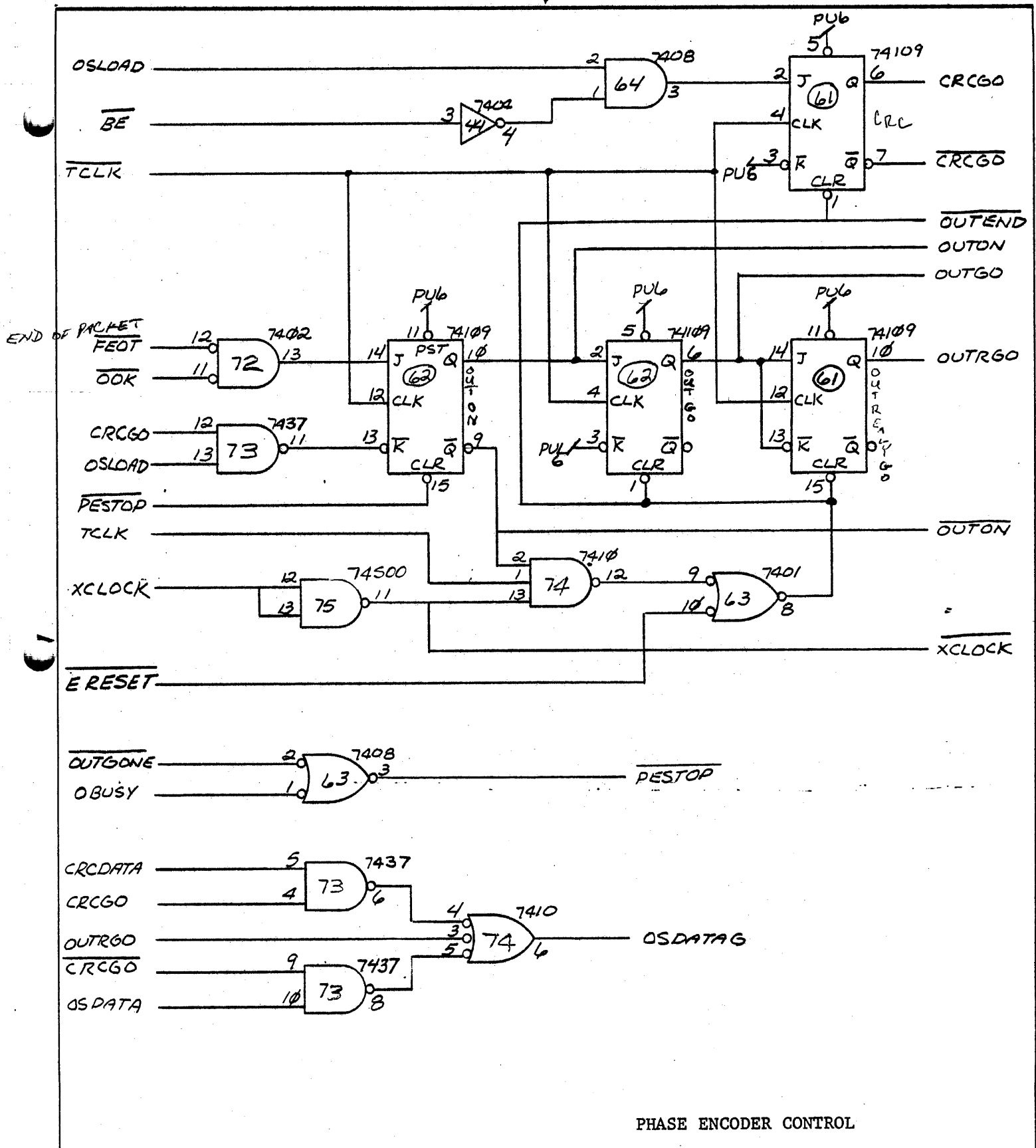
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216323

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Sheet 20 of

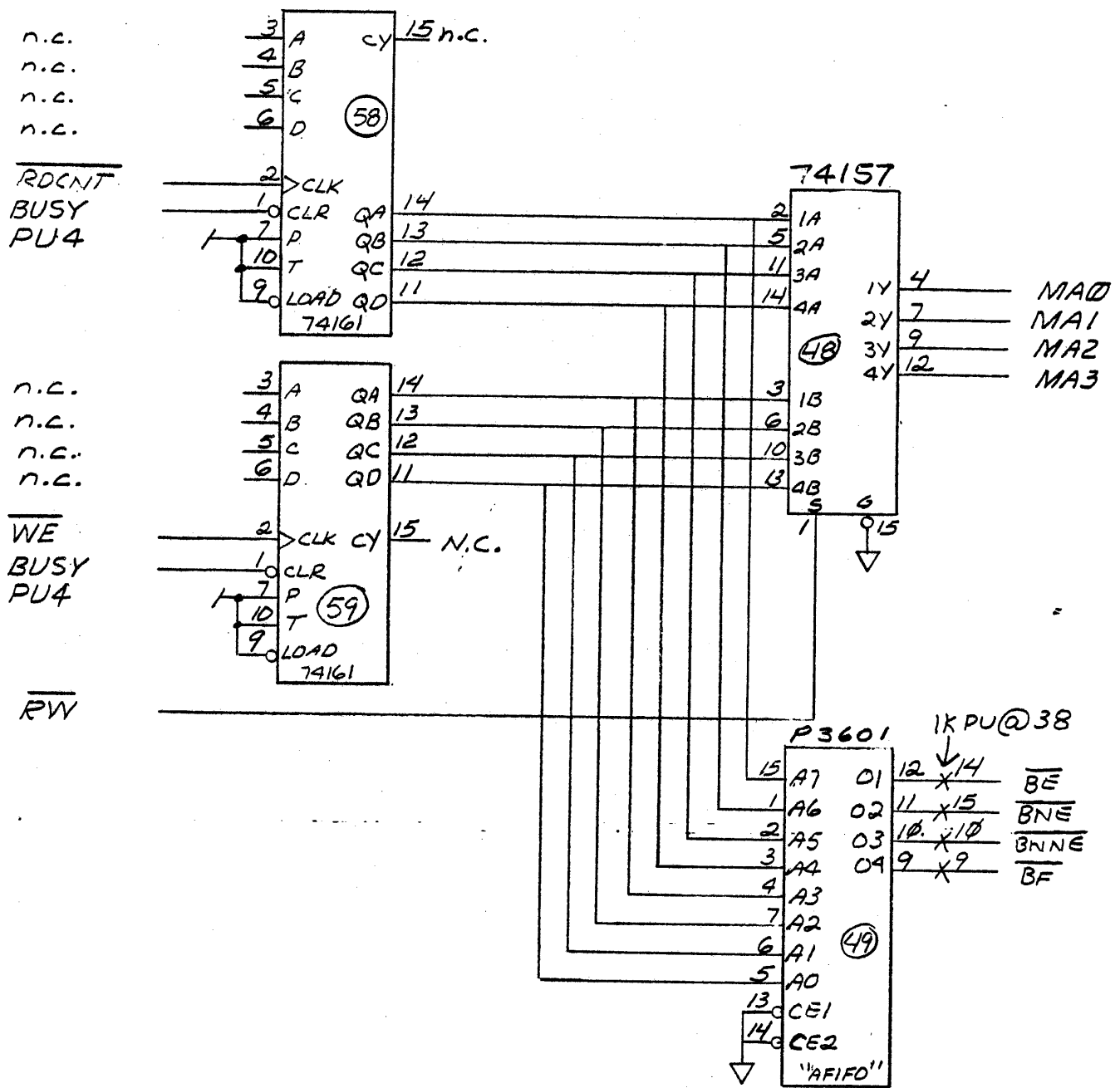


PHASE ENCODER CONTROL

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Title  
ALTO II  
ASSEMBLY, PRINTED WIRING  
ETHERNET

Xerox Corporation El Segundo, California		<b>XEROX</b>
216323	D	
Sheet	21	Of



HALF DUPLEX BUFFER  
FIFO CONTROL

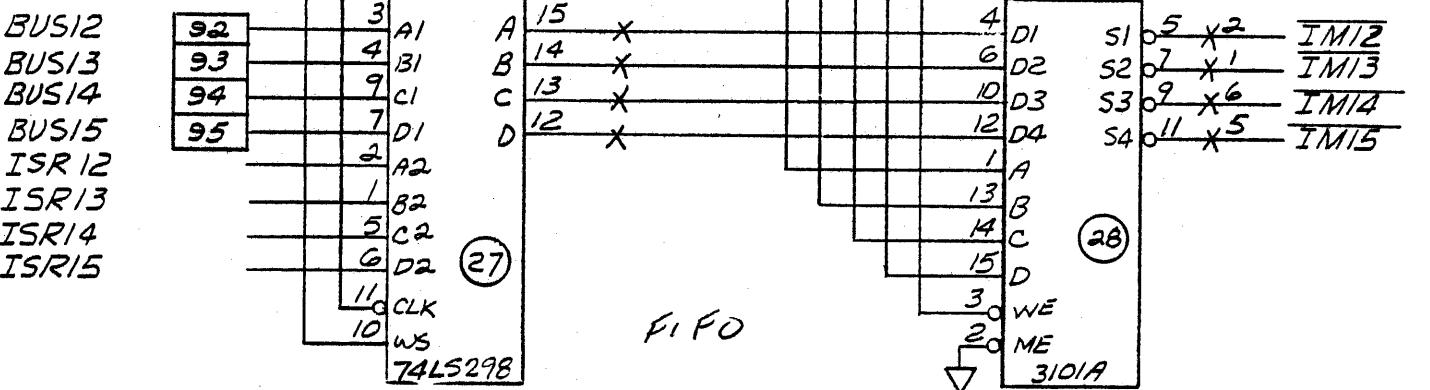
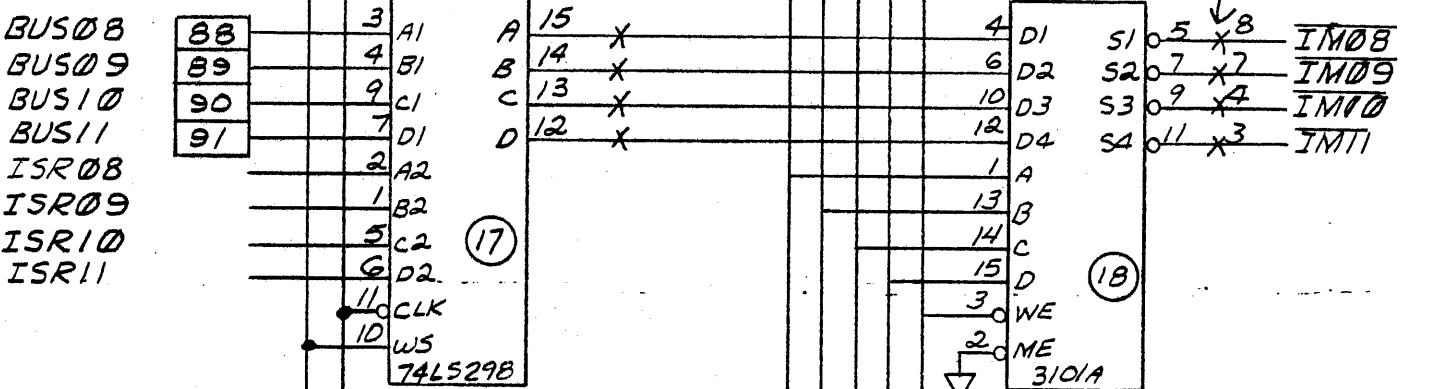
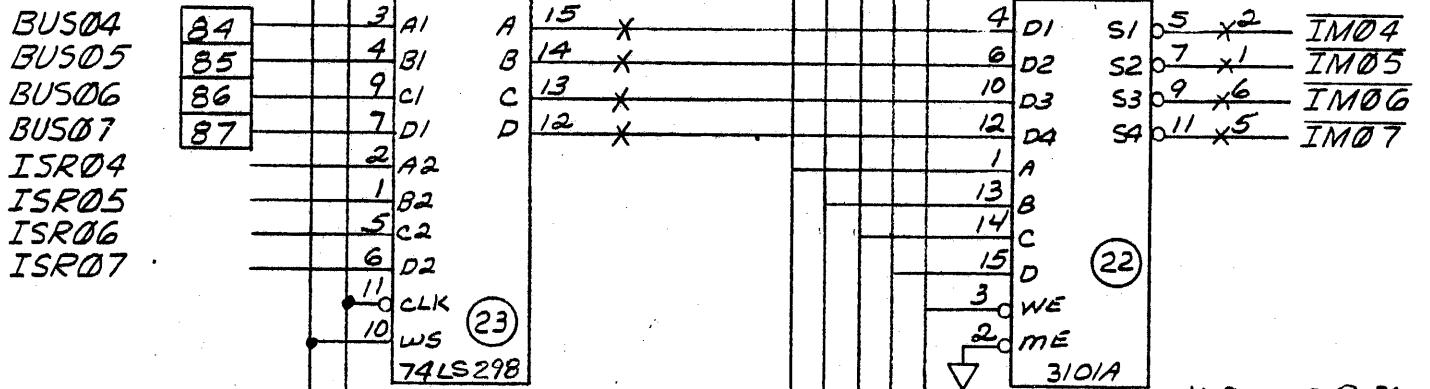
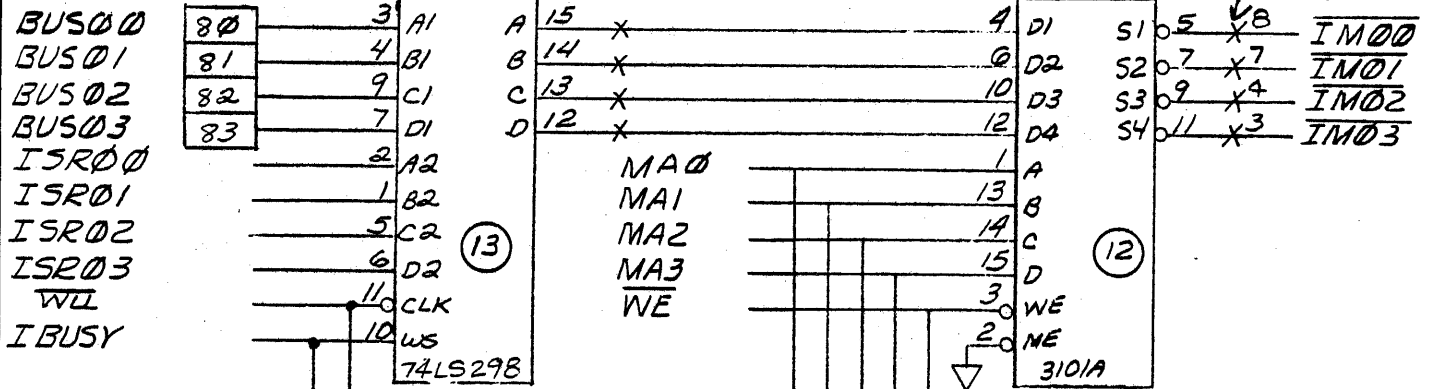
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	ASSEMBLY, PRINTED WIRING ETHERNET		216323	D	
	Sheet	22	of		



BUFFER

HOLDING

1K PULLUP @ 32



HALF DUPLEX BUFFER

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ETHERNET

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216323

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LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>bn</i>	3-8-76	<i>RF</i>
	B	REVISED; ADDED ITEM 27	<i>FM bn</i>	7-28-76	<i>bn RF</i>
	C	ADDED NOTE 2. SH 7 REVISED "WAKECURT" SCHEMATIC. SH 12 REVISED "SWKMRT" SCHEMATIC.	<i>bn</i>	10-4-76	<i>RF</i>
	D	M/L ITEM 38 P/N WAS P3601, ITEM 55 P/N WAS 514-AG10D, ITEM 56 P/N WAS 516-AG10D.	<i>bn</i>	4-13-77	<i>bn</i>

**ENGINEERING  
RELEASE**

THIS DOCUMENT CONTAINS 14 SHEETS.

Dist Code **ALT**

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	1. Tolerances .XX ±.03      Angular ±½° .XXX ±.010 2. Break All Sharp Edges .010 Approx. 3. Mach. Surfaces <input checked="" type="checkbox"/> 4. All Dim. in Inches	Check <i>Estimote</i>	Title <b>ALTO II</b>  ASSEMBLY, PRINTED WIRING -  DISPLAY CONTROL			
		Appr. <i>bn</i>				
		Material	XEROX			
Model No. First Use <b>ALTO II</b> <b>EWO 7YF92</b>	Finish	Code Ident. <b>18338</b>	Size <b>A</b>	Dwg. No. <b>216339</b>	Change Letter <b>D</b>	
Next Assy. First Use <b>216302</b>		Scale -	Do Not Scale Drawing		Sheet <b>1</b>	

NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.
2. CUT ETCH & ADD JUMPERS AS FOLLOWS: (FOR "B" REV ASSYS ONLY)
  - A. CUT ETCH BETWEEN A20-13 AND PIN 115 (CIRCUIT SIDE).
  - B. ADD JUMPER FROM A20-13 TO A18-13 (CIRCUIT SIDE).
  - C. ADD JUMPER FROM A18-12 TO PIN 115 (CIRCUIT SIDE).
  - D. CUT ETCH BETWEEN A18-14 AND FEEDTHRU BETWEEN A57 AND A58(CONNECTS TO A54-10) (CIRCUIT SIDE).
  - E. CUT ETCH BETWEEN A21-9 AND A62-6 (CIRCUIT SIDE)
  - F. ADD JUMPER:

	FROM:	TO:
1)	A8-9	A21-9
2)	A8-5	A8-11
3)	A8-11	A8-15
4)	A8-4	A8-12
5)	A18-14	A8-10
6)	A8-13	A8-14
7)	A8-13	A54-10 (FEED-THRU BETWEEN A57 & A58)

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Title ALTO II  
ASSEMBLY, P.W.-  
DISPLAY CONTROL

Xerox Corporation  
El Segundo, California

**XEROX**

216339

D

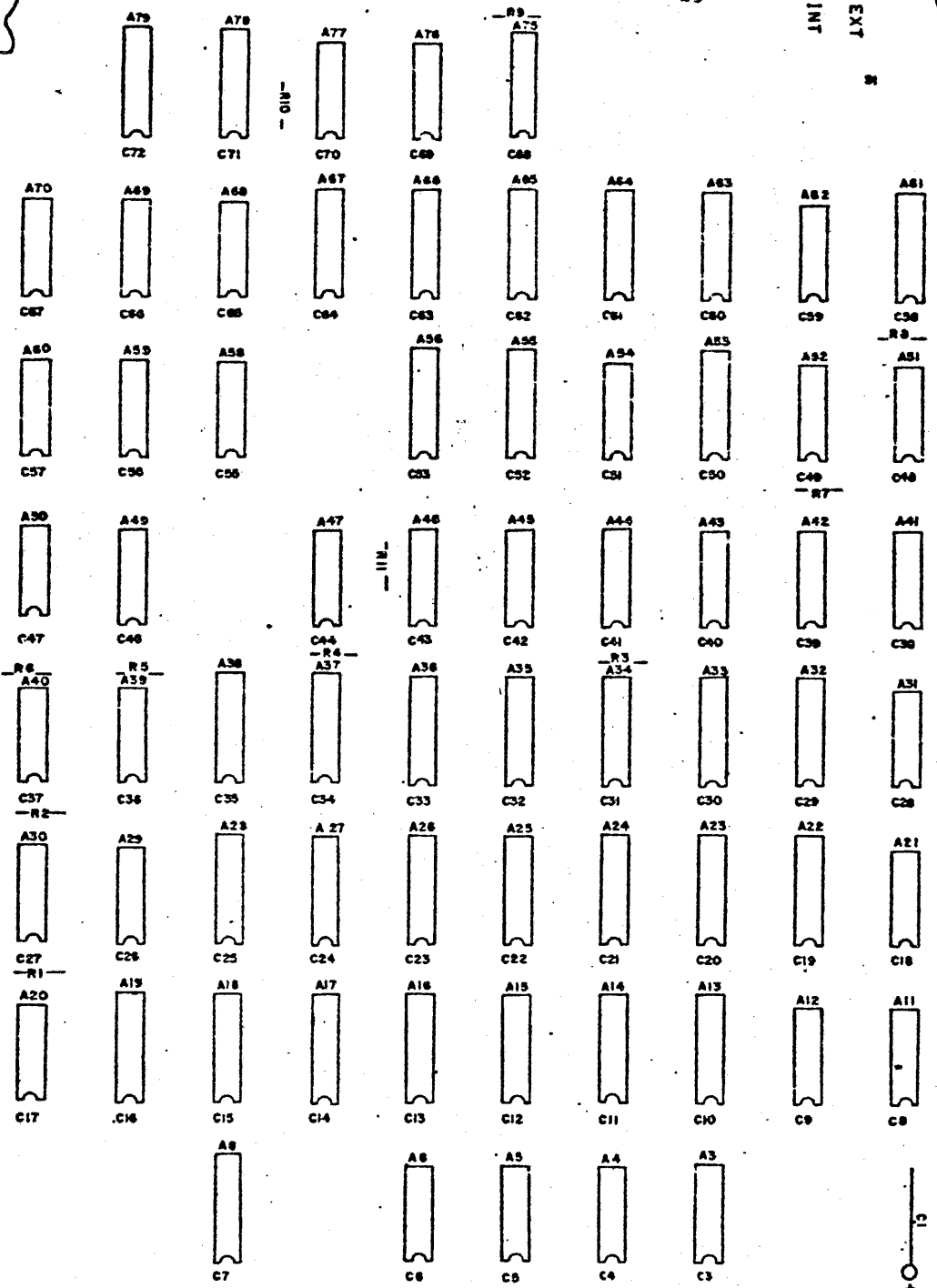
Sheet 2 Of

MAY or MAY NOT  
BE I-2 CONNECTOR

ALTO II DISPLAY CONTROL

ASSY NO. 216339

PWB NO. 216341



58  
59  
2 PLACES

57

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Title  
ASSY, PRINTED WIRING  
DISPLAY CONTROL

Xerox Corporation El Segundo, California		<b>XEROX</b>
216339	D	
Sheet	3	Of

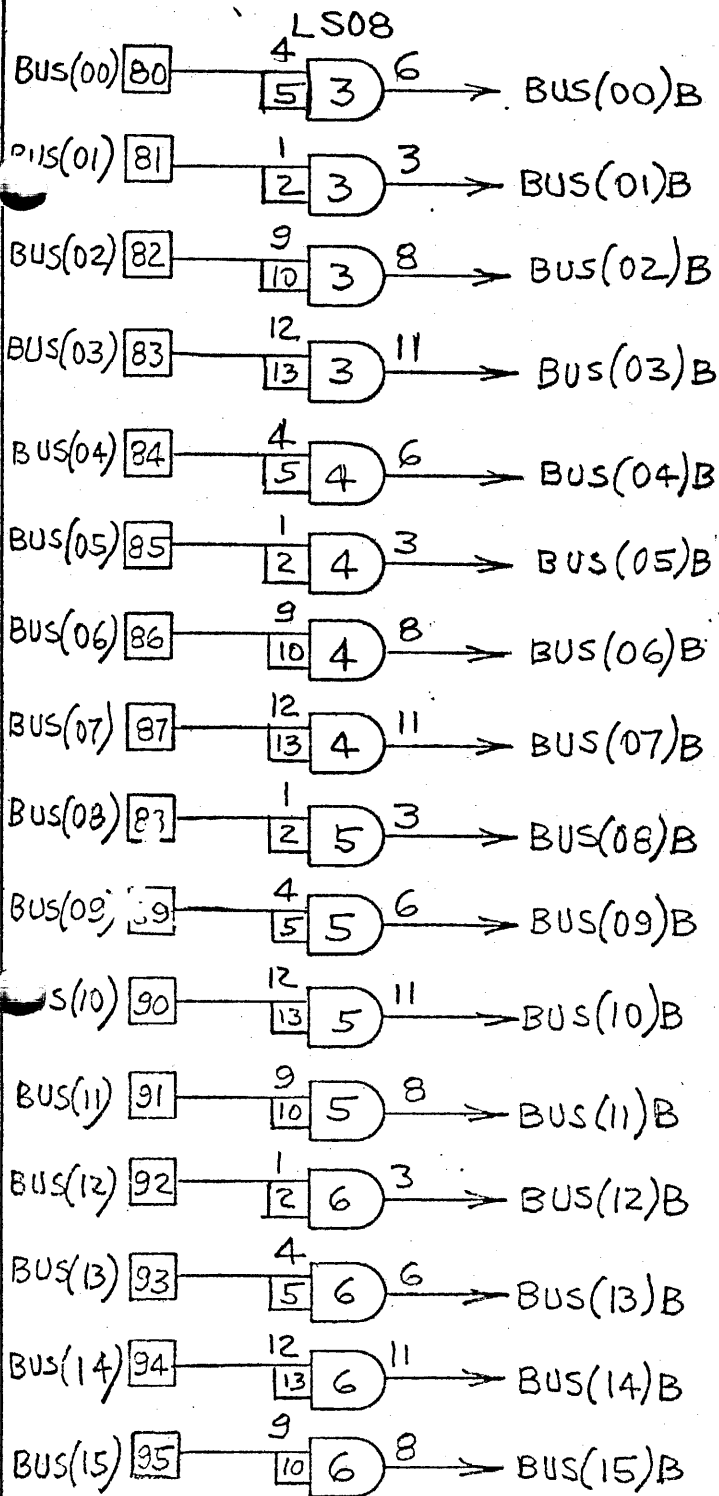
**Material List**

<b>ML</b>	Drawing No. 216339	Rev. D
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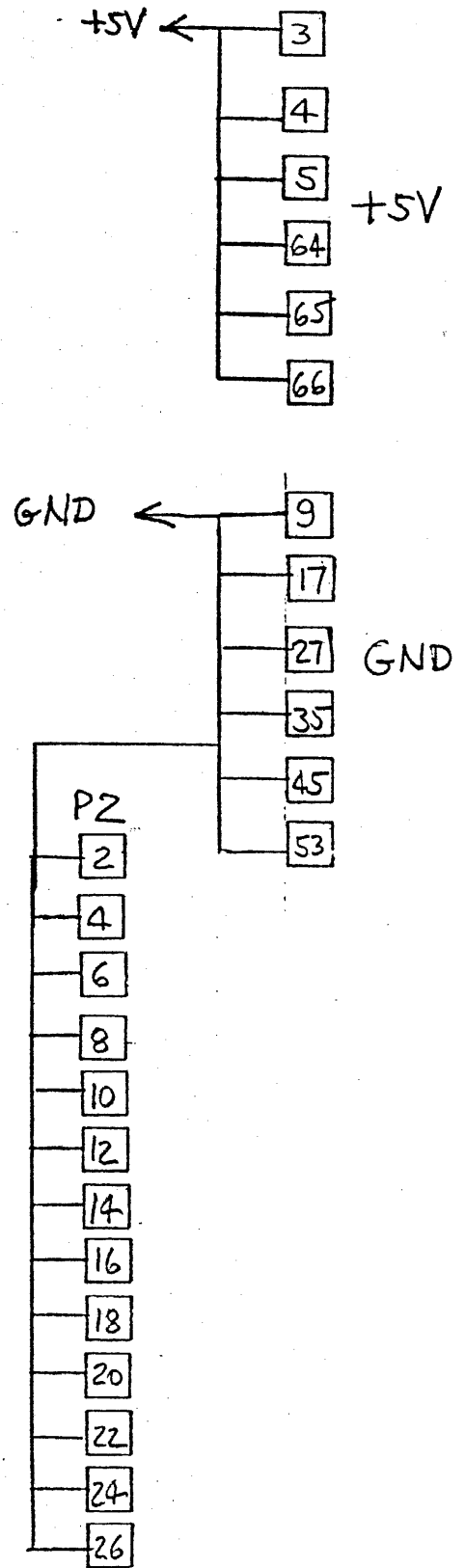
Rev. 216339	Drawing Title <b>ALTO II</b>	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	<b>ASSEMBLY, PRINTED WIRING- DISPLAY CONTROL</b>	Model No. <b>EWO 7YF92</b>	Date <b>3/4/76</b>	Sheet <b>4</b> Of

Drawing No. 216339 <b>ML</b>	Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
	1	Board, P.W., Display Control	216341	1	
	2	Procedure, Test	216340	REF	
	3	Spec, Module Assembly	216207	REF	<i>chip location</i>
	4	Microcircuit, 74H00		4	A29,30,43,58
	5	74H01		1	A40
	6	74H04		1	A42
	7	74H08		1	A31
	8	74H10		1	A21
	9	74H11		2	A11,12
	10	74H21		1	A46
	11	74H30		1	A76
	12	74H50		1	A52
	13	74H74		3	A44, 45, 47
	14	74157		1	A35
	15	74166		4	A17,22,28,32
	16	74174		2	A18,64
	17	74279		1	A19
	18	74298		1	A56
	19	74S02		2	A20,50
	20	74S04		4	A41,49,62,70
	21	74S10		1	A59
	22	74S163		3	A61,78,79
	23	74LS08		4	A3,4,5,6
	24	74S08		1	A39
	25	74S74		1	A68
	26	Microcircuit, 74S00		1	A69
	27	MICROCIRCUIT, 74109		1	A8
	28				
	29				
	30	Microcircuit, 13101A Intel		4	A14,15,24,25
	31	Microcircuit, 13404 Intel		3	A13,23,34
	32				
	33				





BUS BUFFERS



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Title  
ALTO II  
ASSEMBLY, P.W.-  
DISPLAY CONTROL

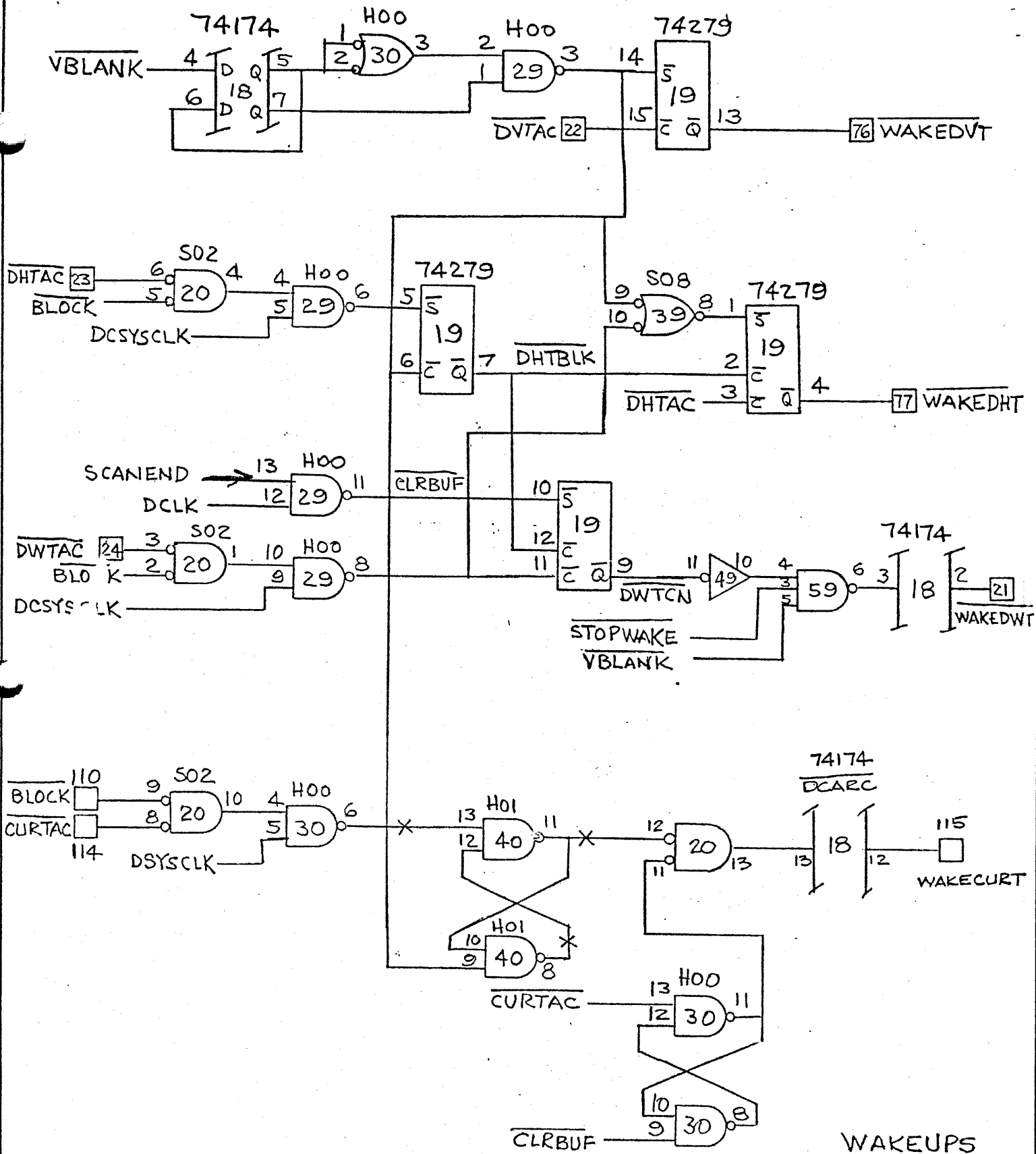
Xerox Corporation  
El Segundo, California

**XEROX**

216339

D

Sheet 6 of

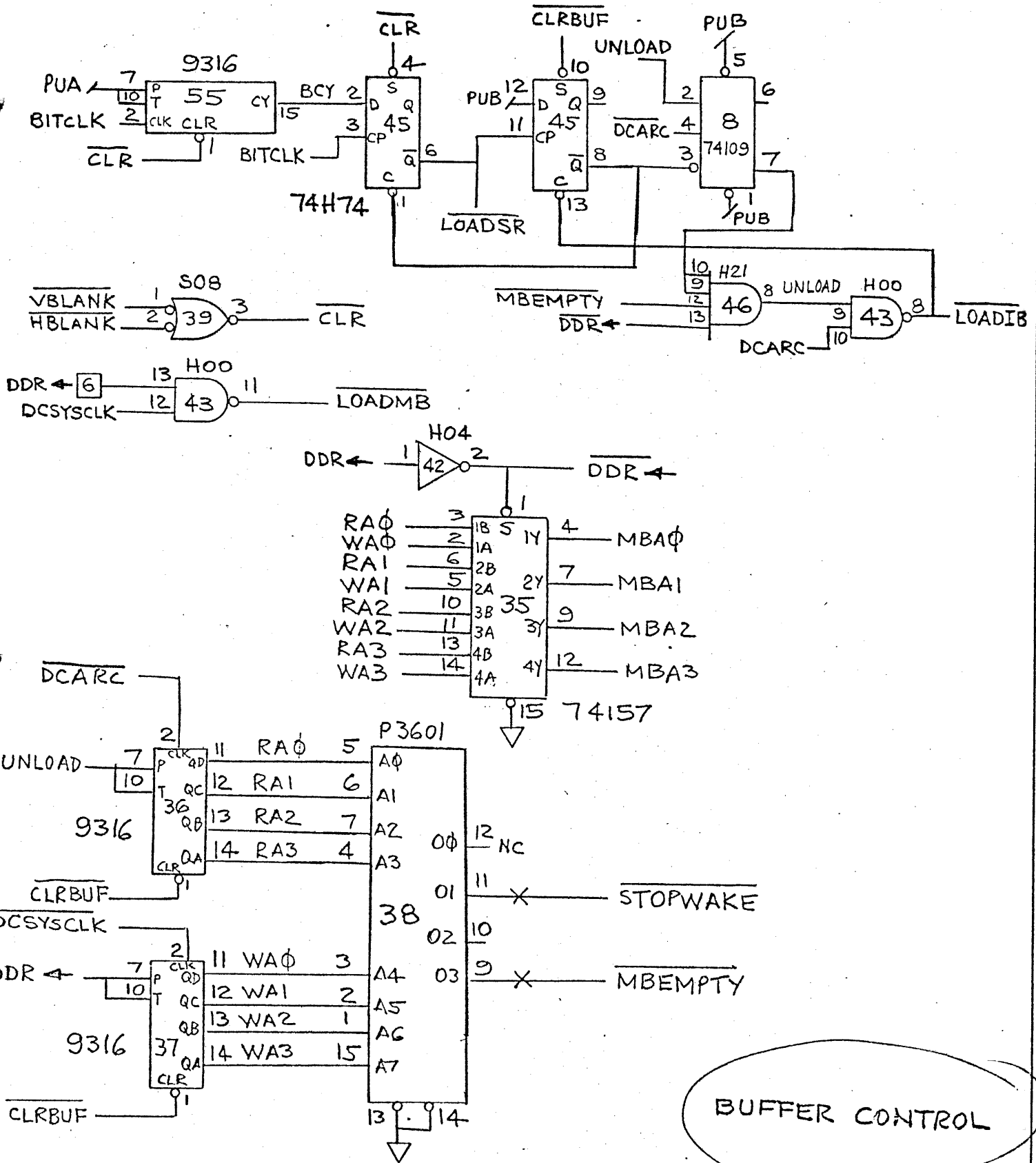


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Title  
**ALTO II**  
**ASSEMBLY, P.W.-**  
**DISPLAY CONTROL**

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216339	D	
Sheet	7 Of	





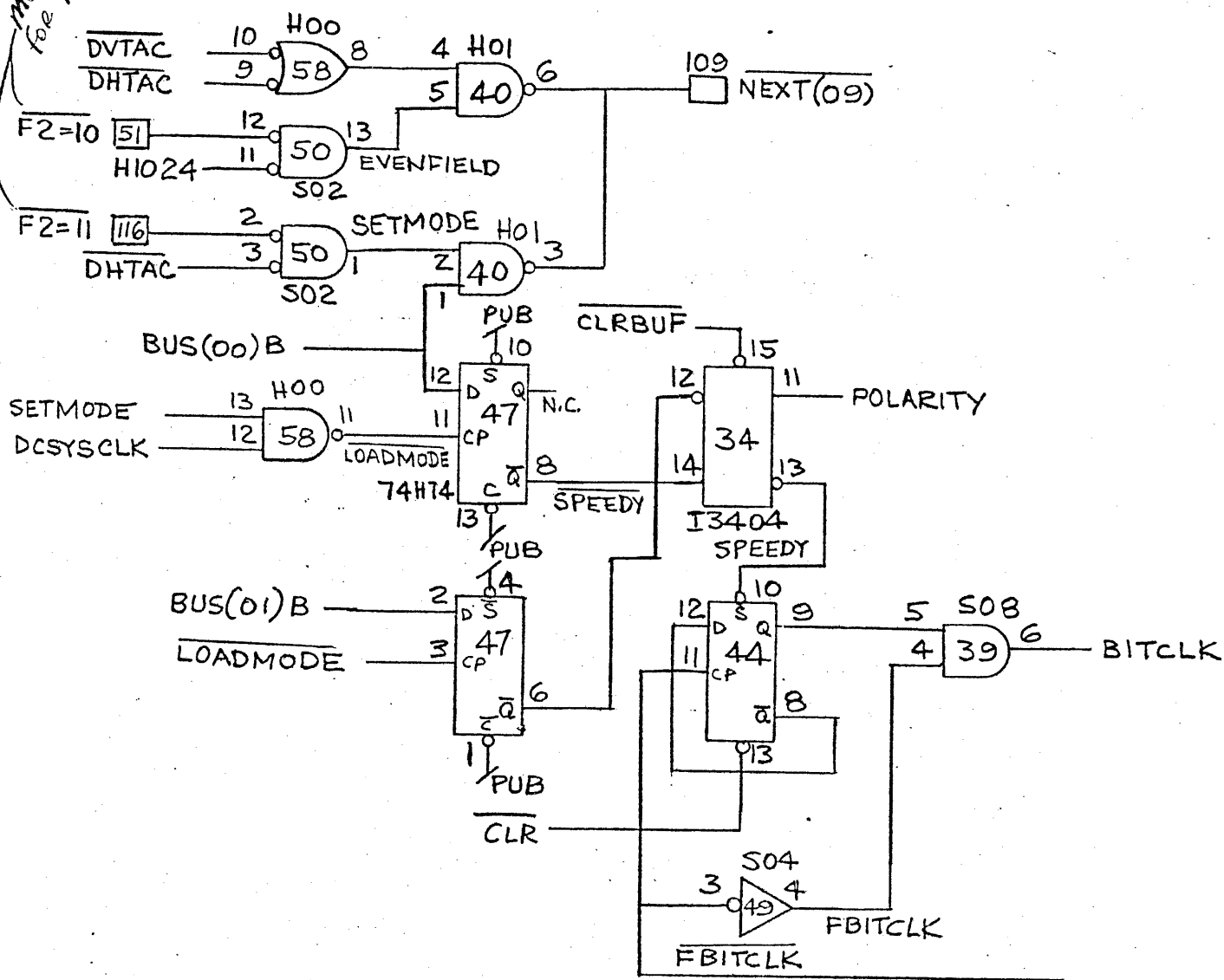
BUFFER CONTROL

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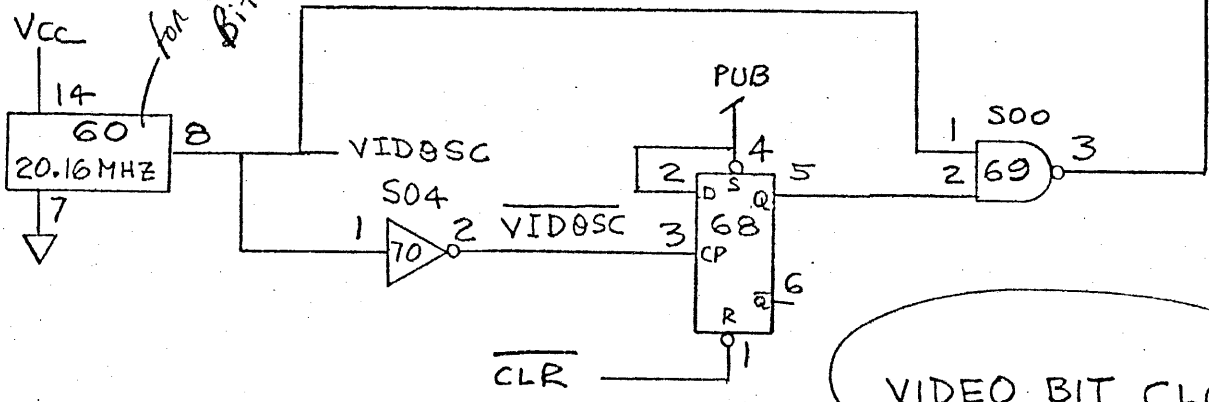
Title  
ALTO II  
ASSEMBLY, P.W.-  
DISPLAY CONTROL

Xerox Corporation El Segundo, California		XEROX
216339	D	
Sheet	8	of

Modify for Next Line



for Video Bit Clock



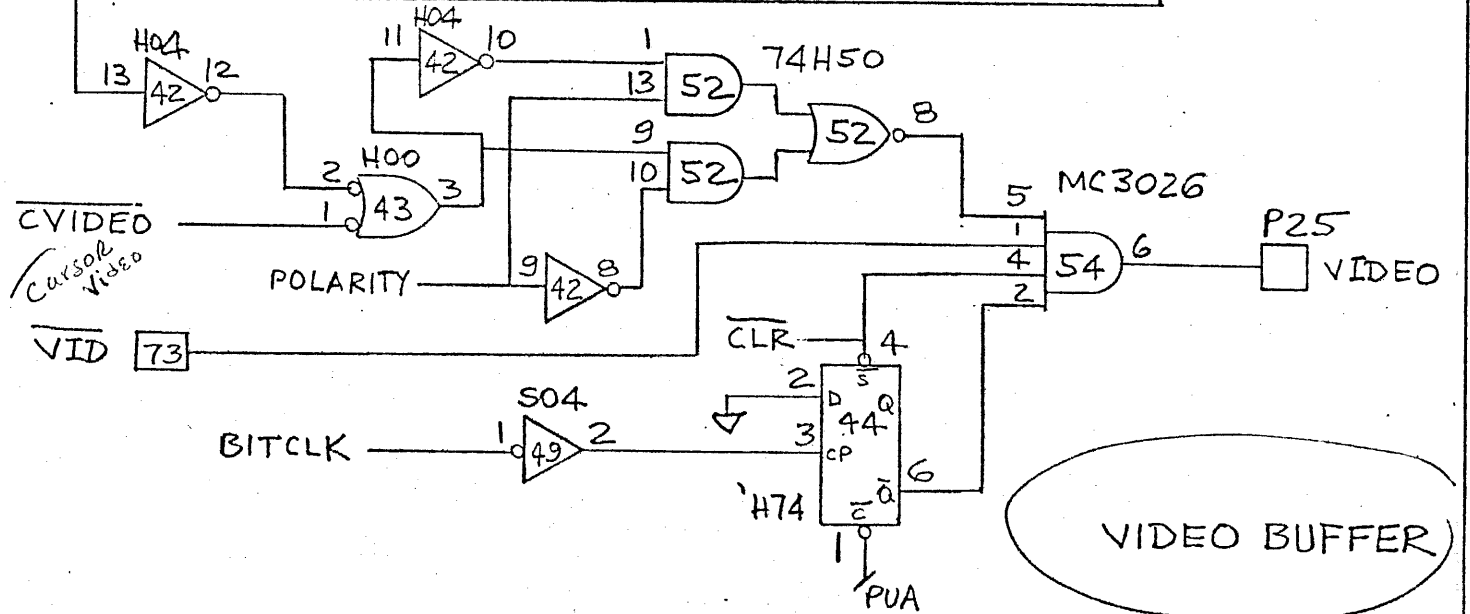
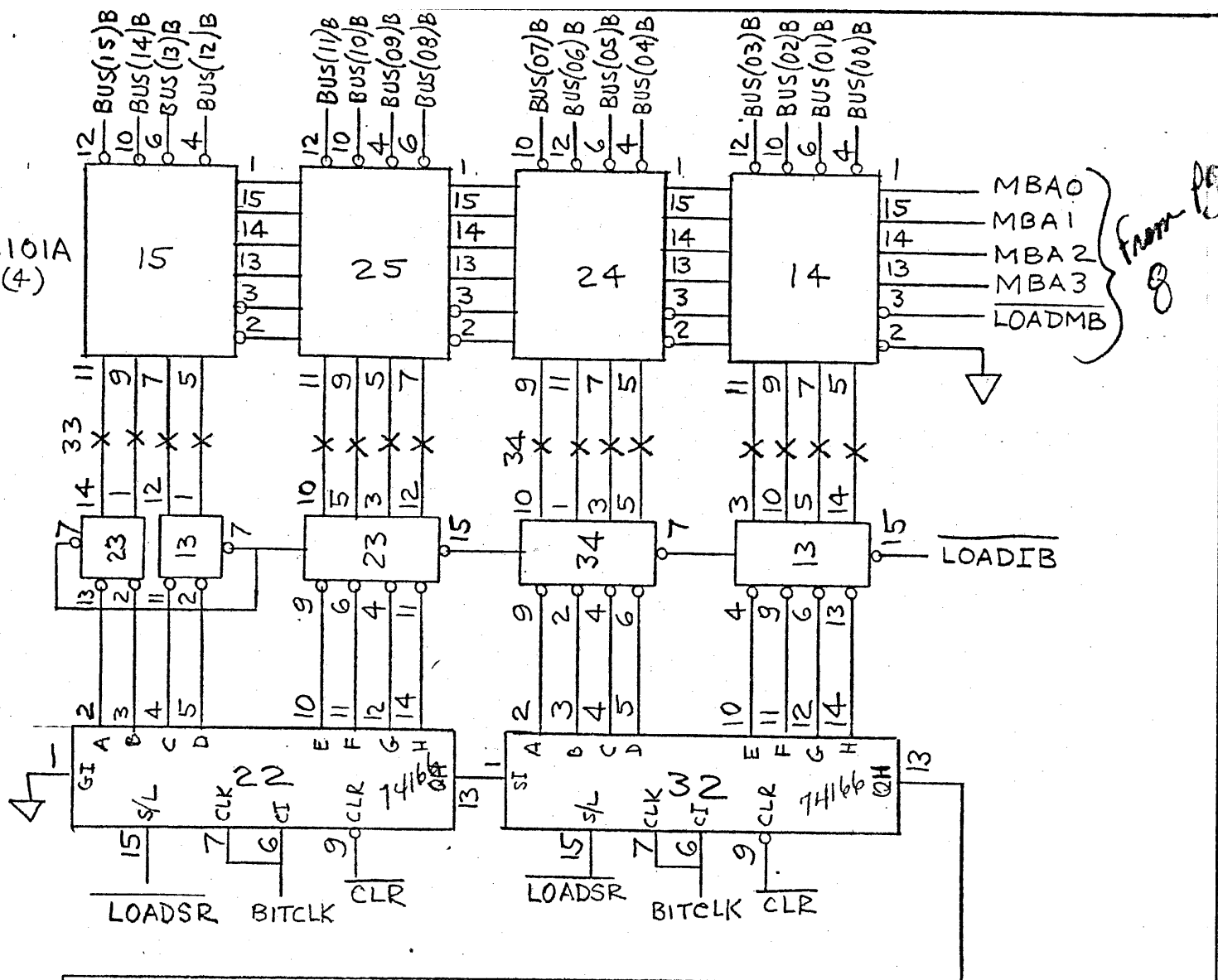
VIDEO BIT CLOCK

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Title  
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DISPLAY CONTROL

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**XEROX**  
216339  
Sheet 9 of D

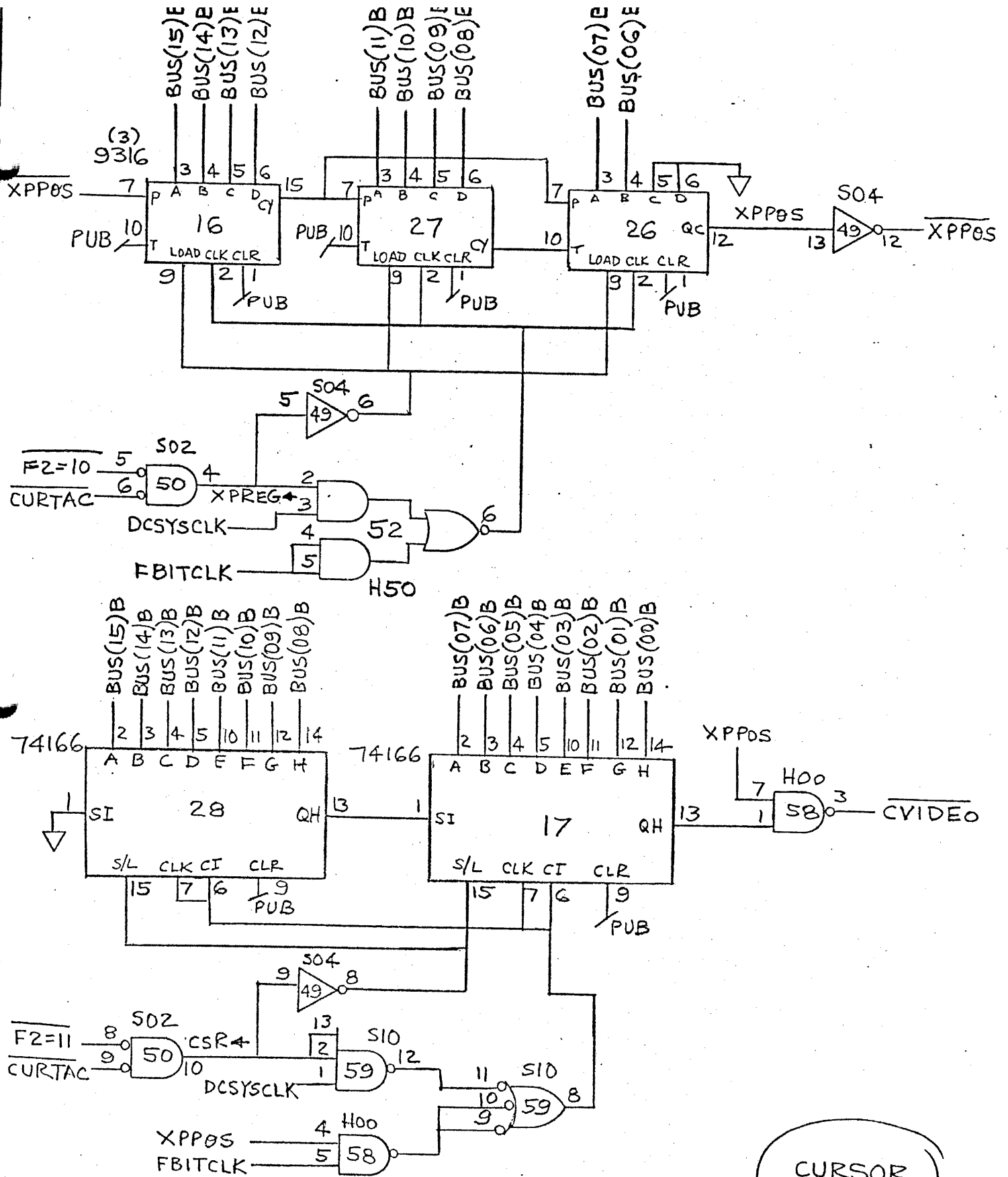
3101A  
(4)



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Title  
ALTO II  
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DISPLAY CONTROL

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216339 D  
Sheet 10 of

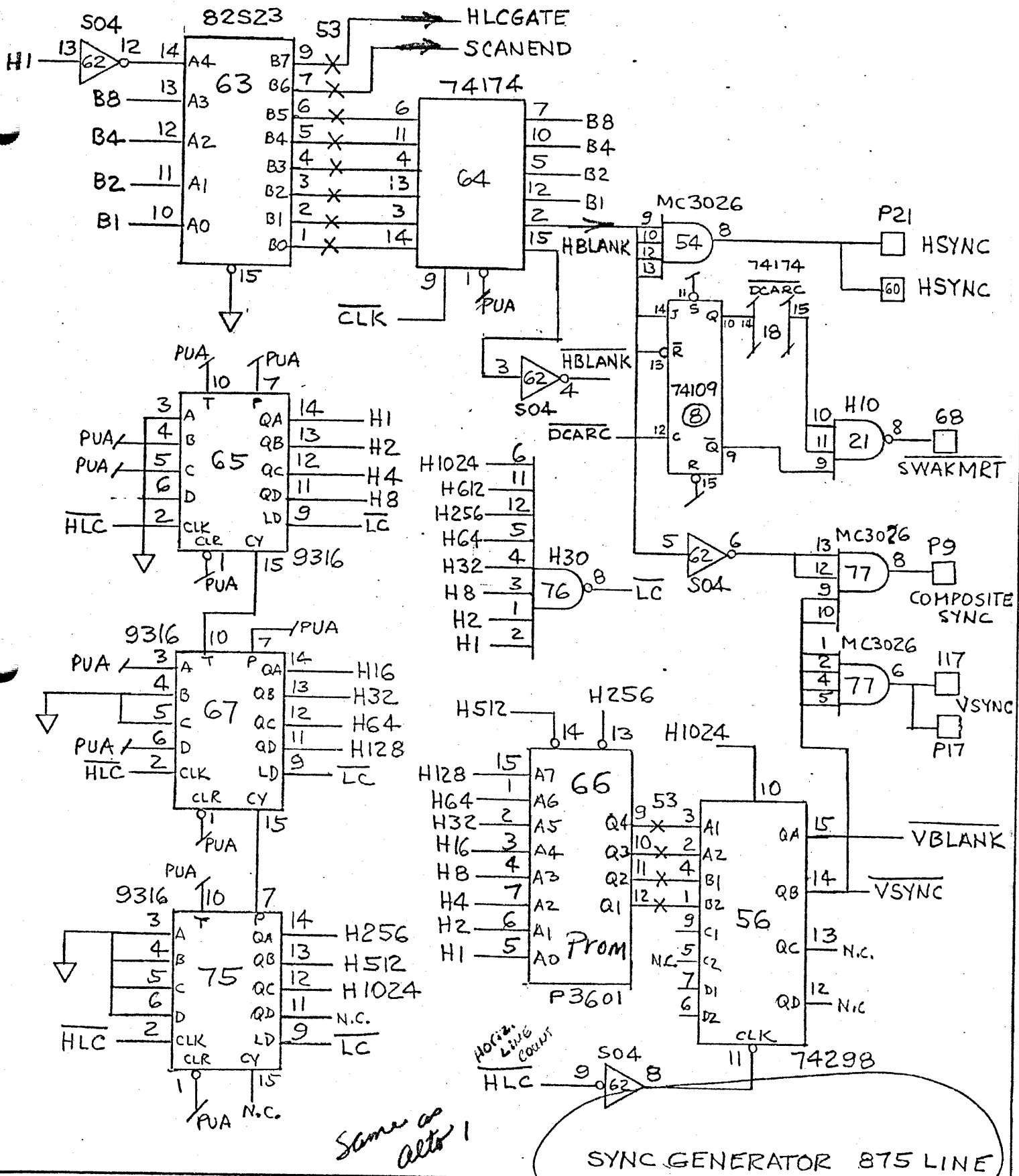


CURSOR  
CONTROL

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Title  
**ALTO II**  
**ASSEMBLY, P.W.-**  
**DISPLAY CONTROL**

Xerox Corporation El Segundo, California		<b>XEROX</b>
215339	D	
Sheet 11 of		



Same as alt 1

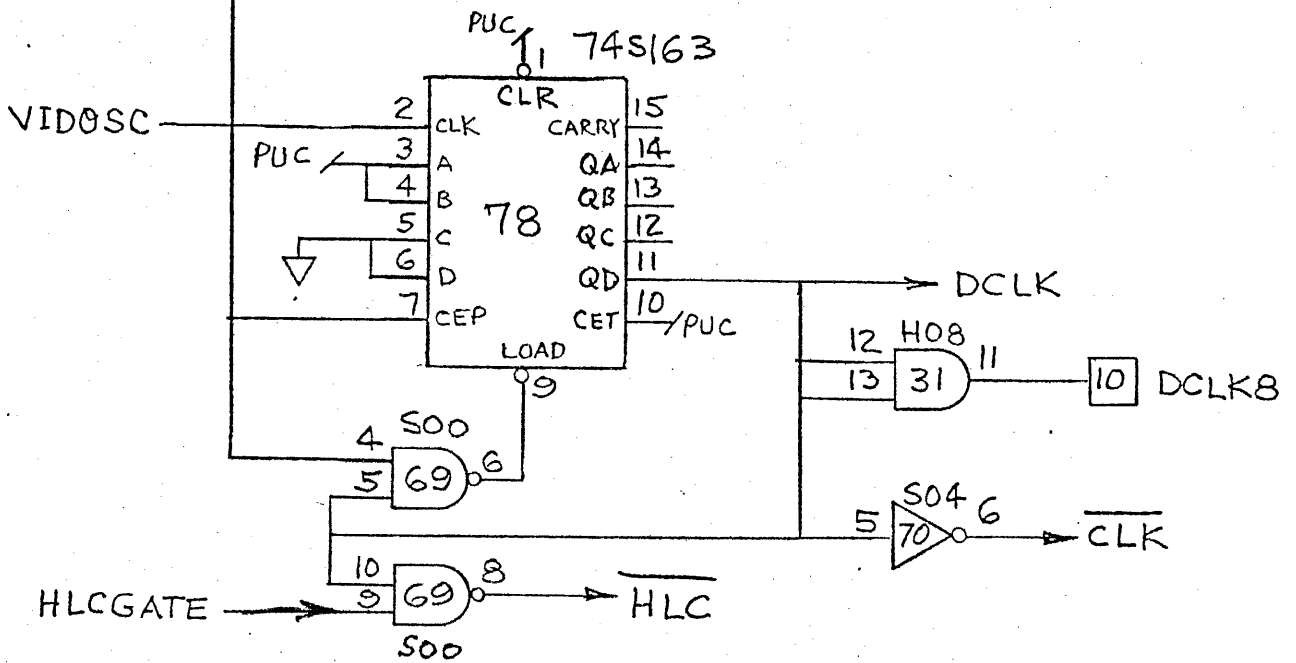
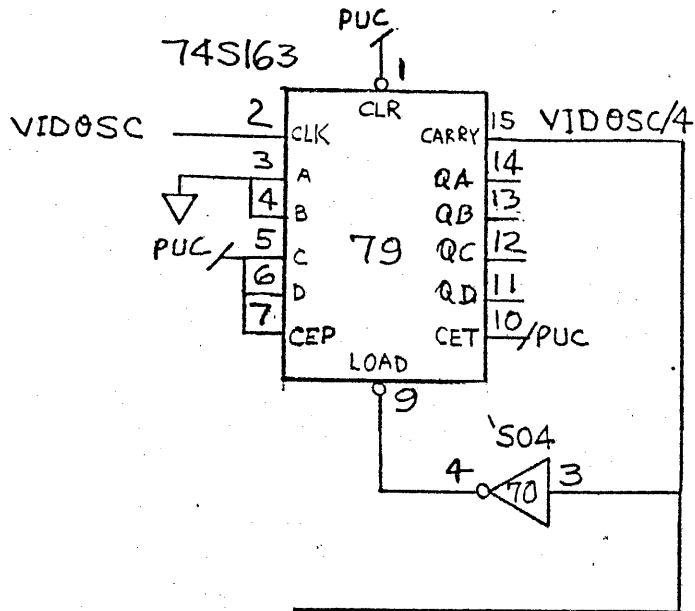
Horizontal Line Count

SYNC GENERATOR 875 LINE

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Title  
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ASSEMBLY, P.W. -  
DISPLAY CONTROL

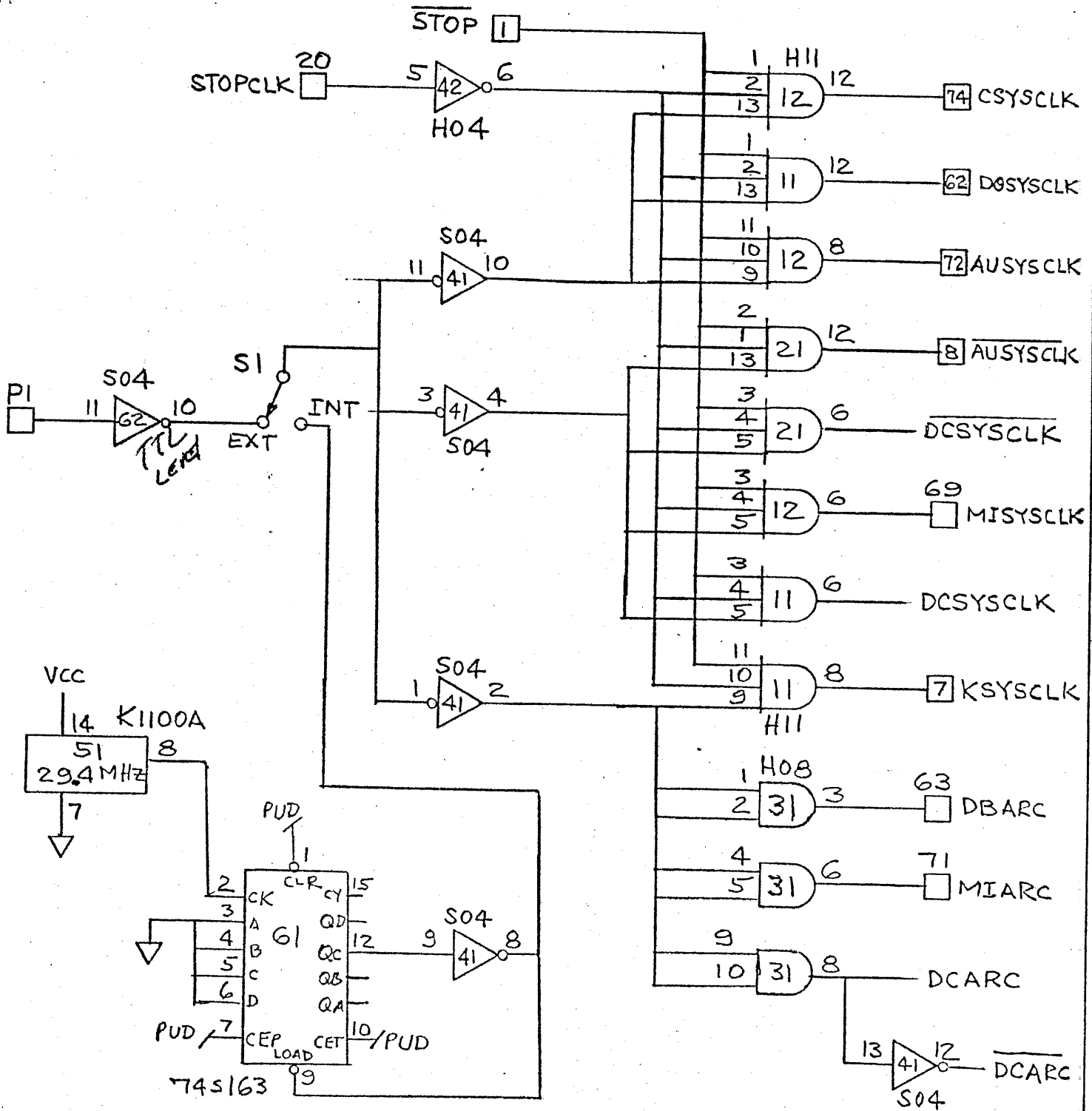
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Sheet 13 Of



### SYSTEM CLOCKS

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Title  
ALTO II  
ASSEMBLY, P.W.-  
DISPLAY CONTROL

Xerox Corporation  
El Segundo, California

**XEROX**

216339

D

Sheet 14 of

Revisions				216347	G
LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>BN</i>		
	B	ADDED NOTE SHEET, M/L ITEM 8 WAS QTY 8, ADDED ITEM 51.	<i>BN</i>	7-14 76	N. TOBOL
	C	M/L ITEM 20 P/N WAS 75457	<i>BN</i>	8-11 76	N. TOBOL
	D	ADDED SILKSCREENED BOARD DETAIL	<i>BN</i>	8-12 76	N. TOBOL
	E	DELETED NOTE 1-K. ADDED NOTES 1-L, 1-M, 1-N. M/L ITEM 4 MICROCIRCUIT 3601-1 WAS 3601. ITEM 47 P/N 516-AG11D WAS 516-AG10D. ITEM 48 P/N 514-AG11D WAS 514-AG10D. M/L ITEM 49 & ITEM 50 DELETED. SH 7 ADDED A21 TO LOGIG. SH 12 ADDED BAR (—) TO "STORE" (A7)	<i>BN</i>	2-22 77	N. TOBOL
	F	MICROCIRCUIT (KB) SIGNALS FROM A71 THRU 76, 84 THRU 89, 97 THRU 102 REVISED.	<i>BN</i>	4-15 77	N. TOBOL
	G	M/L ITEM 51 LOCATION A46 WAS A37.	<i>BN</i>	6-22 77	D.S. 7-25-77

**ENGINEERING  
RELEASE**

THIS DOCUMENT CONTAINS 15 SHEETS

Dist Code ALT

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	1. Tolerances .XX ±.03      Angular .XXX ±.010    ±1/2°	Check <i>N. Tobol</i>	Title <b>ALTO II</b> ASSEMBLY, PRINTED WIRING- MEMORY ADDRESS INTERFACE			
	2. Break All Sharp Edges .010 Approx.	Appr. <i>N. Tobol</i>				
	3. Mach. Surfaces <input checked="" type="checkbox"/>	Material				
4. All Dim. in Inches						
Model No. First Use <b>ALTO II</b>	Finish	Code Ident. <b>18338</b>	Size <b>A</b>	Dwg. No. <b>216347</b>	Change Letter <b>G</b>	
Next Assy. First Use <b>216302</b>		Scale	Do Not Scale Drawing		Sheet <b>1</b>	



NOTES: UNLESS OTHERWISE SPECIFIED

1. CUT ETCH AND ADD JUMPERS AS FOLLOWS:

- A. INSTALL (QTY 1) 8 LEAD 330 OHM RESISTOR PACK NEXT TO IC SOCKET A93, WITH PIN 1 DIRECTLY ACROSS FROM PIN 1 ON A93, (COMPONENT SIDE).
- B. ADD JUMPER FROM RESISTOR PACK PIN 2 TO A95 PIN 15. (ETCH SIDE)
- C. ADD JUMPER FROM RESISTOR PACK PIN 3 TO A96 PIN 15. (ETCH SIDE)
- D. ADD JUMPER FROM RESISTOR PACK PIN 4 TO A97 PIN 15. (ETCH SIDE)
- E. ADD JUMPER FROM RESISTOR PACK PIN 5 TO A82 PIN 15. (ETCH SIDE)
- F. ADD JUMPER FROM RESISTOR PACK PIN 6 TO A83 PIN 15. (ETCH SIDE)
- G. ADD JUMPER FROM RESISTOR PACK PIN 7 TO A84 PIN 15. (ETCH SIDE)
- H. ADD JUMPER FROM A27 PIN 2 TO FEED-THRU PAD LOCATED BETWEEN A27 PIN 14 AND A28. (ETCH SIDE).
- I. CUT ETCH BETWEEN TWO FEED-THRU LOCATED BETWEEN A27 AND A28 (FEED-THRU PADS ARE LOCATED TO THE RIGHT SIDE OF A27 PIN 14 AND A27 PIN 20). (ETCH SIDE).
- J. CUT ETCH TO A56 PIN 1. (ETCH SIDE).
- K. ~~ADD JUMPER BETWEEN A56 PIN 1 AND A42 PIN 11. (ETCH SIDE).~~
- L. ADD WIRE FROM A21 PIN 11 TO A56 PIN 1 (WRTCLK).
- M. ADD WIRE FROM A59 PIN 10 TO A21 PIN 12 (STORE).
- N. ADD WIRE FROM A21 PIN 2 TO A21 PIN 13 (MYSYSCLK).

2. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

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Title  
ALTO II  
ASSEMBLY, P.W.-  
MEMORY ADDRESS INTFC

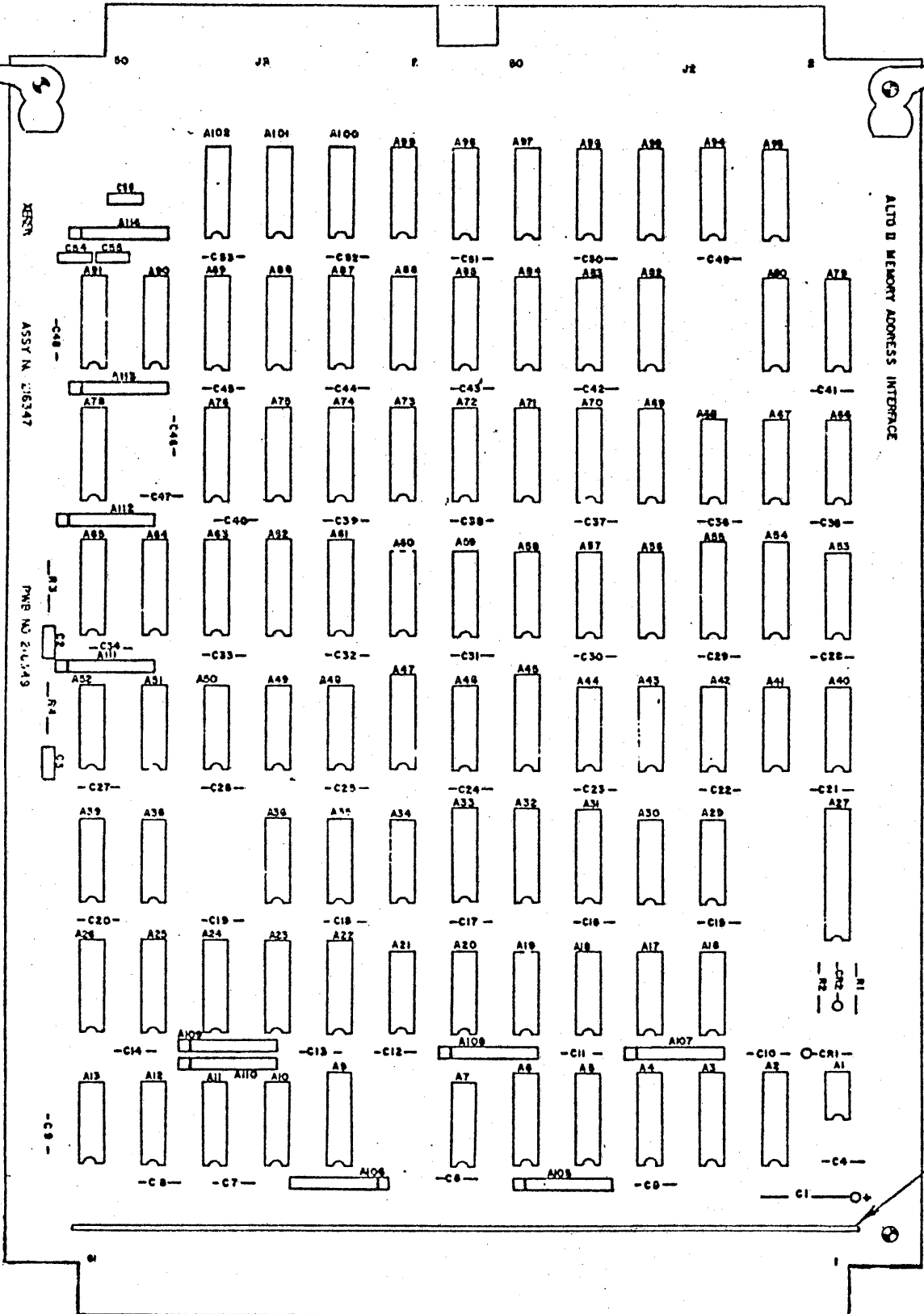
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El Segundo, California

**XEROX**

216347

G

Sheet 2 Of



45 46 2 PLACES

I

44

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Title  
**ASSEMBLY, PRINTED WIRING--  
 MEMORY ADDRESS INTERFACE**

Xerox Corporation El Segundo, California		<b>XEROX</b>
216347		
Sheet	3	Of

**Material List**

<b>ML</b>	Drawing No. 216347	Rev. G
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Rev. C	Drawing Title	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	<b>ASSEMBLY, P.W. - ALTO II MEMORY ADDRESS INTERFACE</b>	Model No. ALTO II	Date 7 - 19 - 76	Sheet 4 of

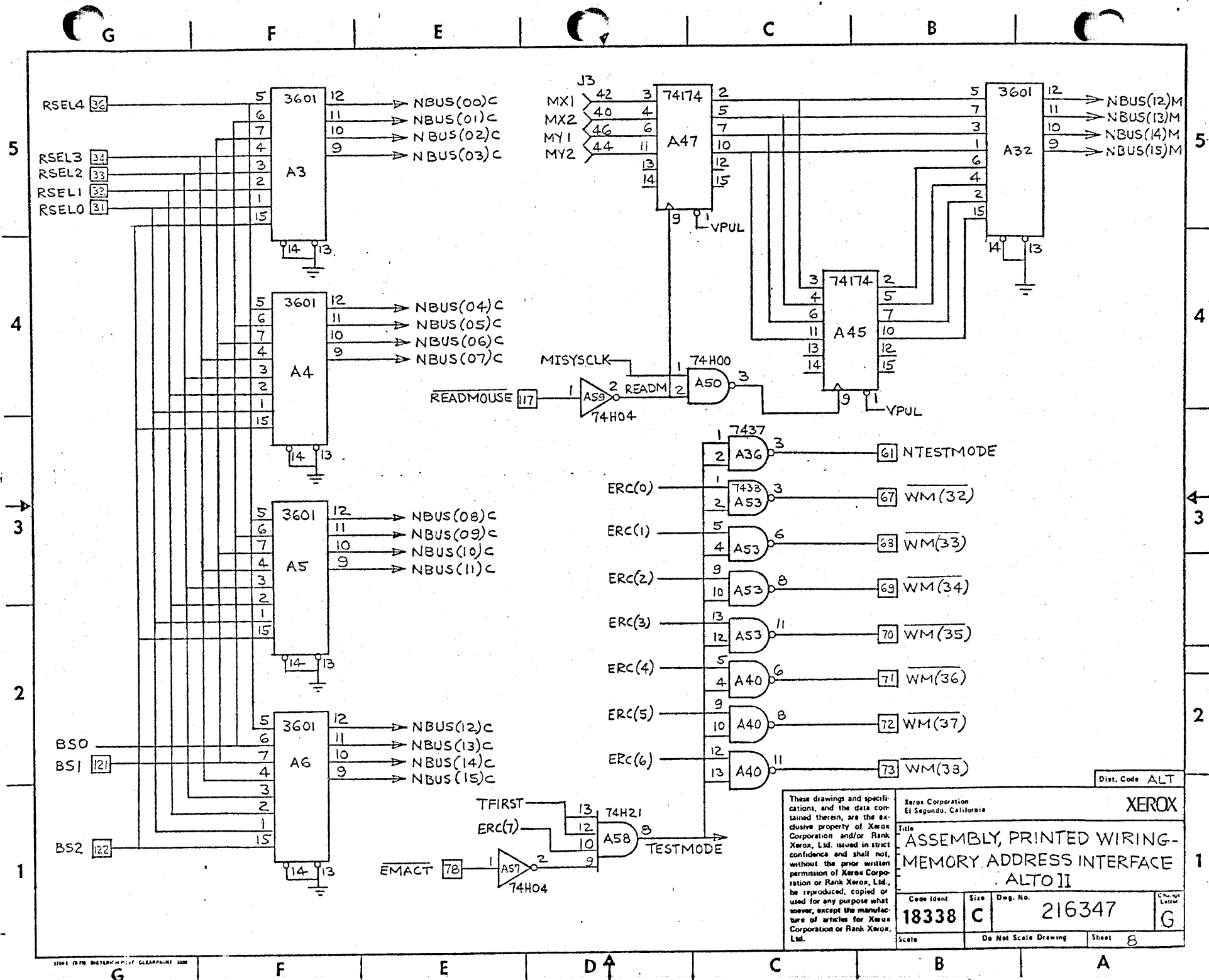
Drawing No. 216347  
**ML**

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, P.W.	216349	1	
2	Procedure, Test	216348	Ref.	
3	Spec, Module Assembly	216207	Ref	
4	Microcircuit 3601 -1		9	A3 thru A6, A32, A64 A65, A90, 91
5	7442		1	A78
6	9334		8	A69 thru A76
7	7438		7	A16 thru 20, 40, 53
8	7437		7	A10 thru 13, A35 A36, 39
9	74H04		5	A57, 59, 66, 67, 68
10	74S04		1	A34
11	74H00		2	A50, 56
12	74S00		3	A30, 38, 44
13	74H21		1	A58
14	74H10		1	A29
15	74H08		2	A21, 60
16	74S138		1	A9
17	74164		1	A42
18	74174		10	A22, 23, 24, 45, 47, 54, 55, 61, 62, 63
19	74279		2	A31, 33
20	75451		1	A1
21	74S260		1	A43
22	74109		1	A2
23	7486		1	A7
24	8T10		4	A79, 80, 93, 94
25	74S157		2	A25, A26
26	74S30		1	A48
27	74S02		2	A41, 52
28	7425		1	A49
29	Microcircuit 8121		16	A82 thru A89 A95 thru A102



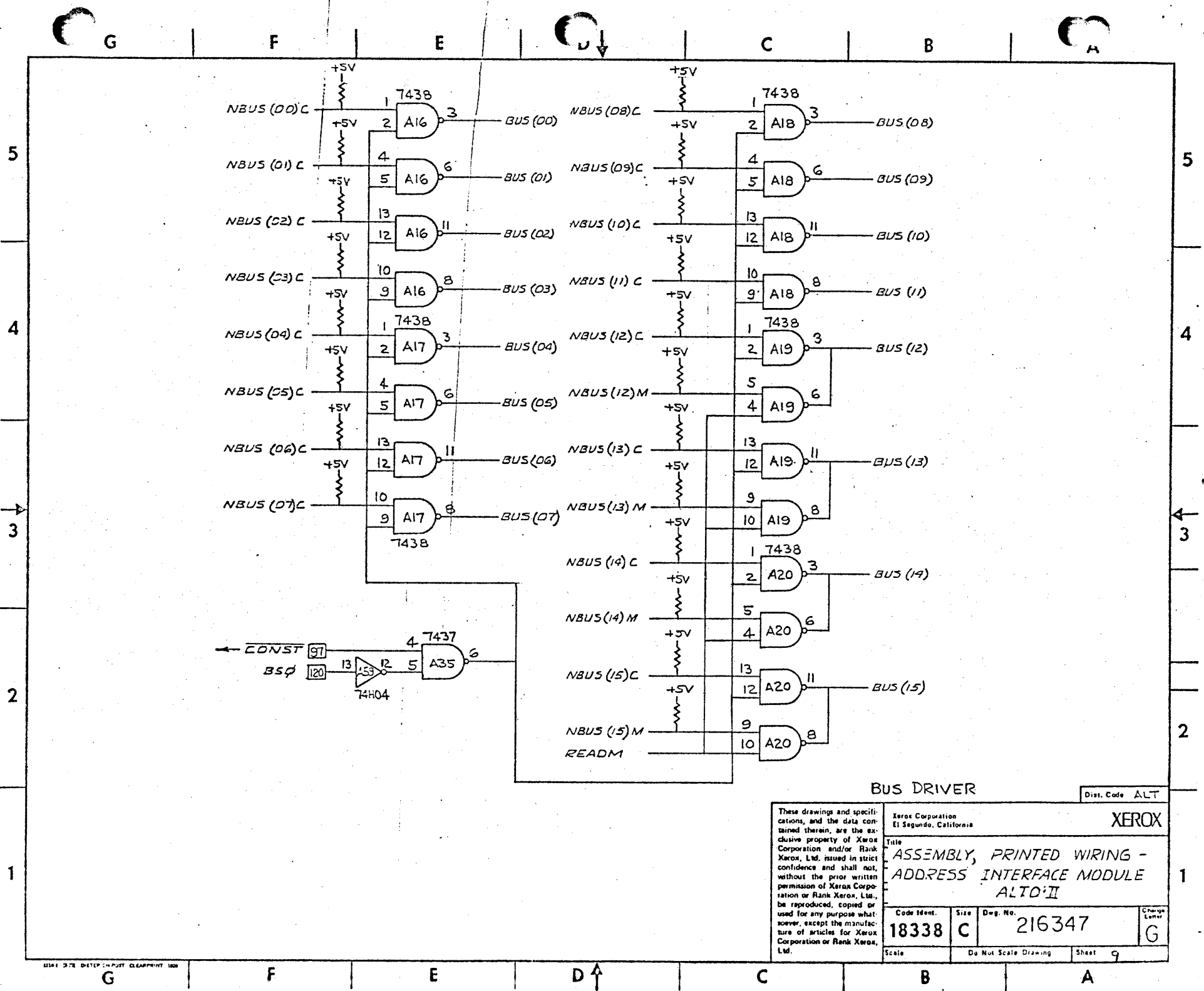






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Xerox Corporation El Segundo, California		<b>XEROX</b>	
Title <b>ASSEMBLY, PRINTED WIRING-MEMORY ADDRESS INTERFACE ALTO II</b>			
Code Ident <b>18338</b>	Size <b>C</b>	Dwg. No. <b>216347</b>	Change Letter <b>G</b>
Scale	Do Not Scale Drawing		Sheet <b>8</b>



**BUS DRIVER**

Dist. Code ALT

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El Segundo, California

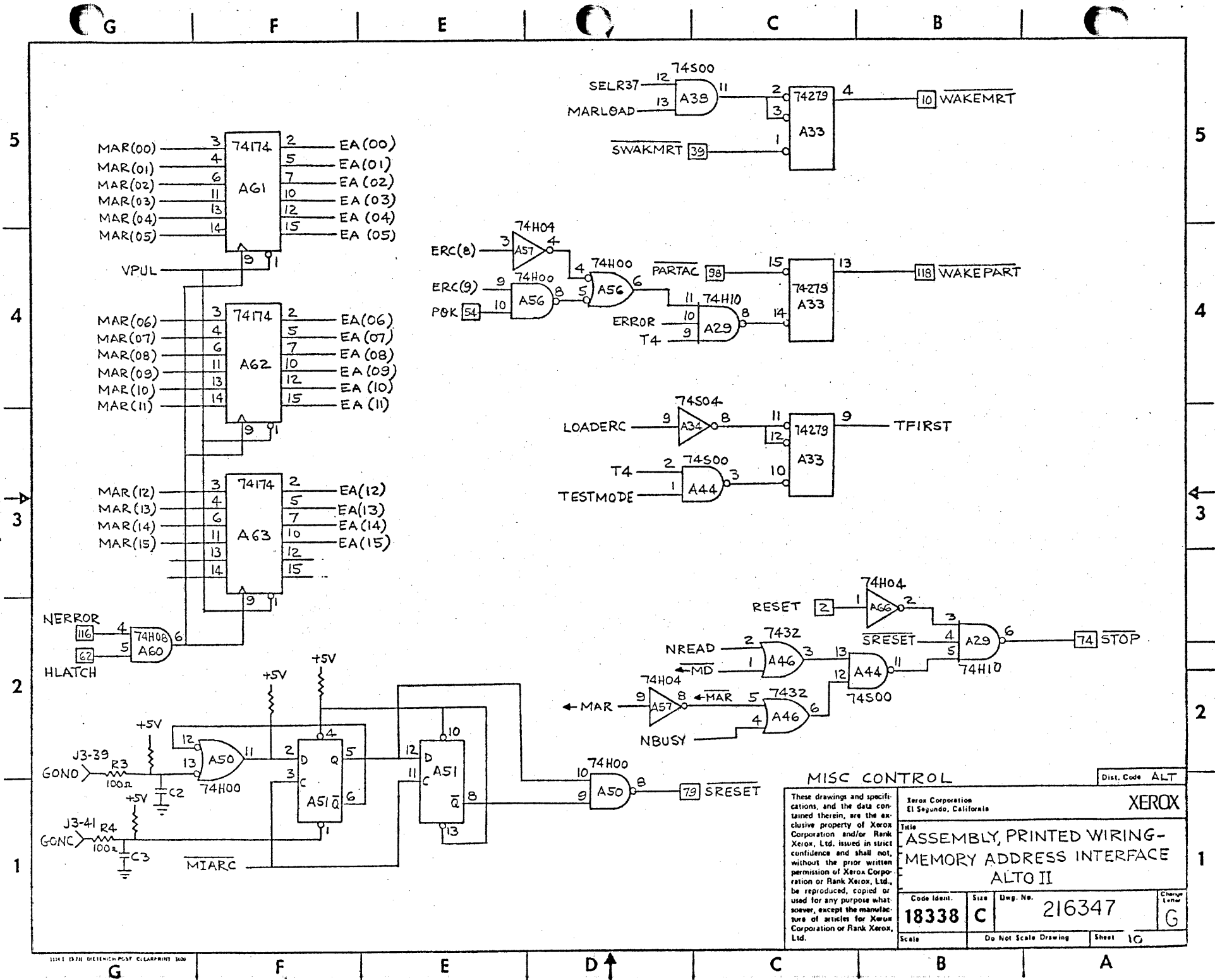
**XEROX**

Title  
**ASSEMBLY, PRINTED WIRING - ADDRESS INTERFACE MODULE ALTO II**

Code Ident.	Size	Dwg. No.	Change Letter
18338	C	216347	G

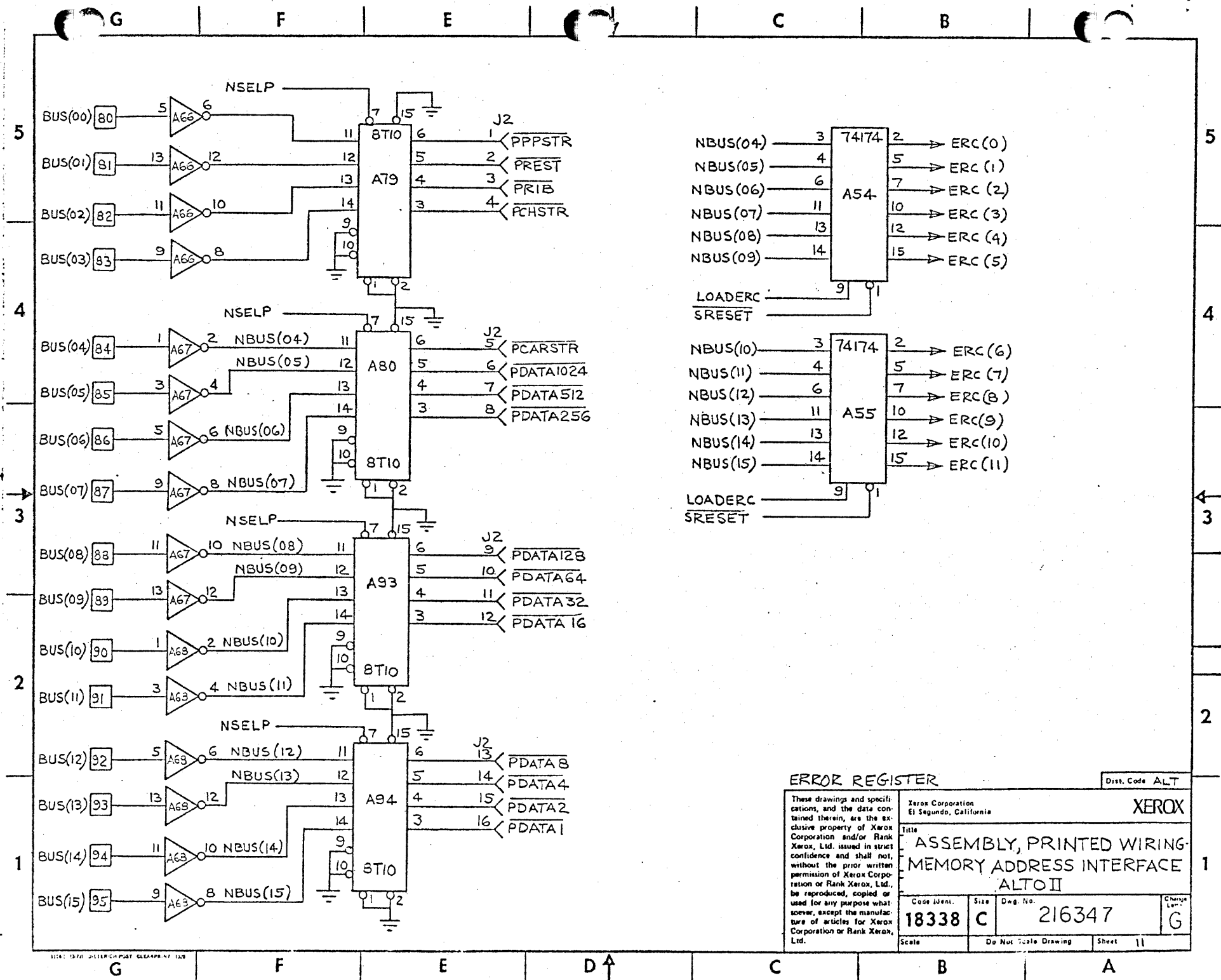
Scale Do Not Scale Drawing Sheet 9





MISC CONTROL

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<b>ASSEMBLY, PRINTED WIRING-MEMORY ADDRESS INTERFACE</b>					
<b>ALTO II</b>					
Code Ident.	Size	Dwg. No.	Change		
<b>18338</b>	<b>C</b>	<b>216347</b>	<b>G</b>		
Scale		Do Not Scale Drawing		Sheet 10	

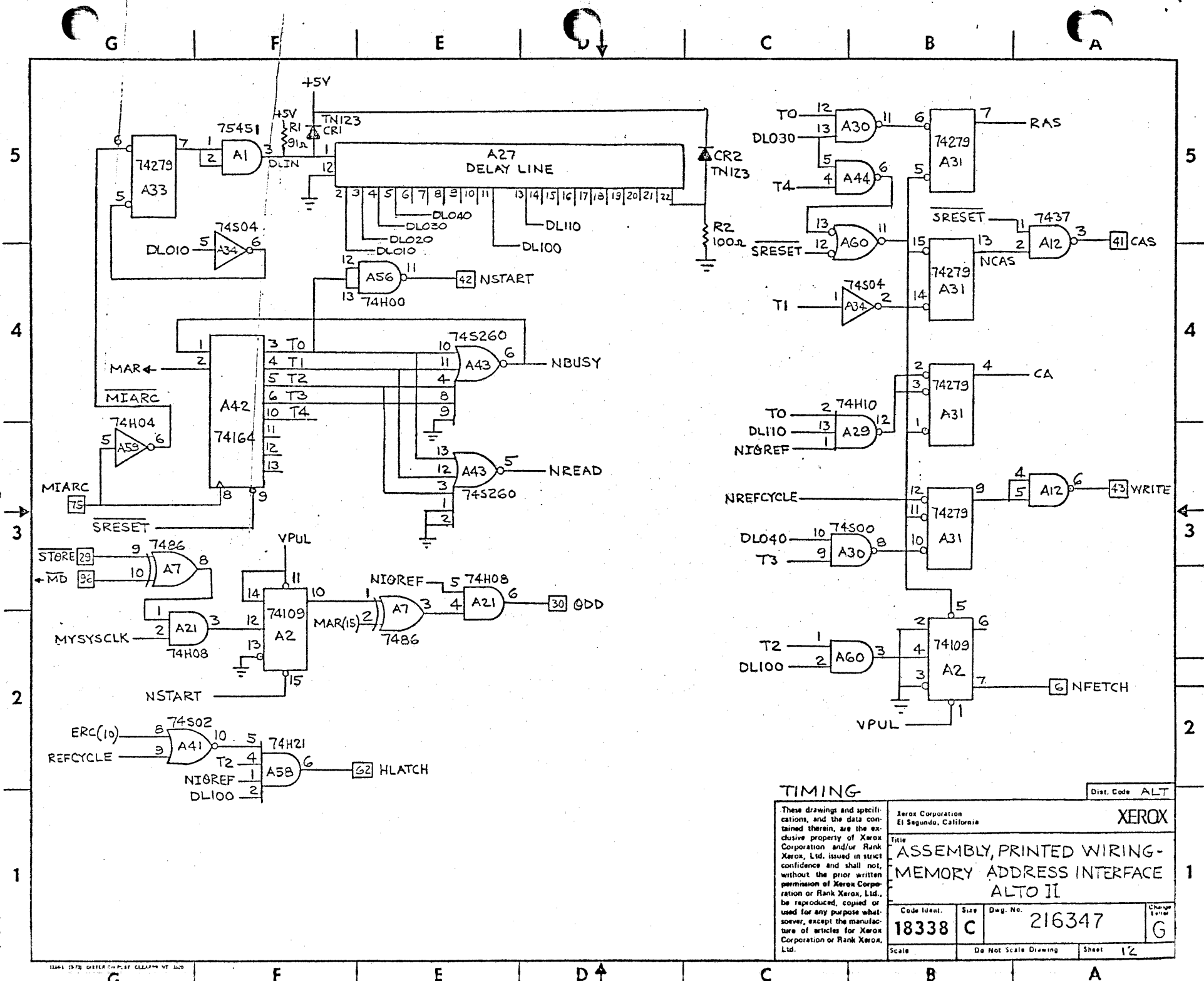


**ERROR REGISTER**

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Title <b>ASSEMBLY, PRINTED WIRING-MEMORY ADDRESS INTERFACE ALTO II</b>			
Code Ident.	Size	Dwg. No.	Change Let.
<b>18338</b>	<b>C</b>	<b>216347</b>	<b>G</b>
Scale		Do Not Scale Drawing	
Sheet		11	

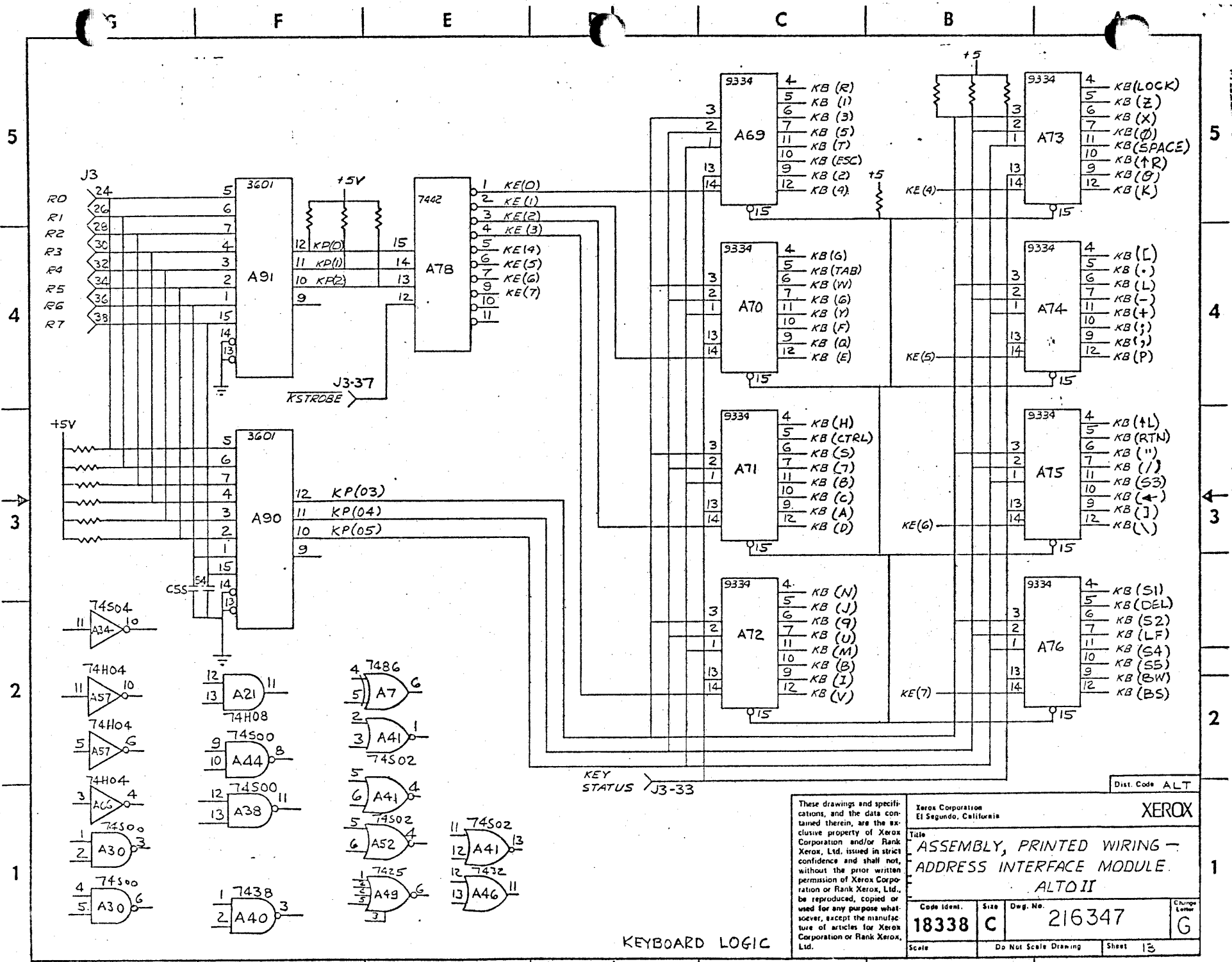
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**TIMING**

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Title <b>ASSEMBLY, PRINTED WIRING-MEMORY ADDRESS INTERFACE ALTO II</b>					
Code Ident.	Size	Dep. No.	Change Letter		
<b>18338</b>	<b>C</b>	<b>216347</b>	<b>G</b>		
Scale		Do Not Scale Drawing		Sheet 12	

Dist. Code ALT



KEYBOARD LOGIC

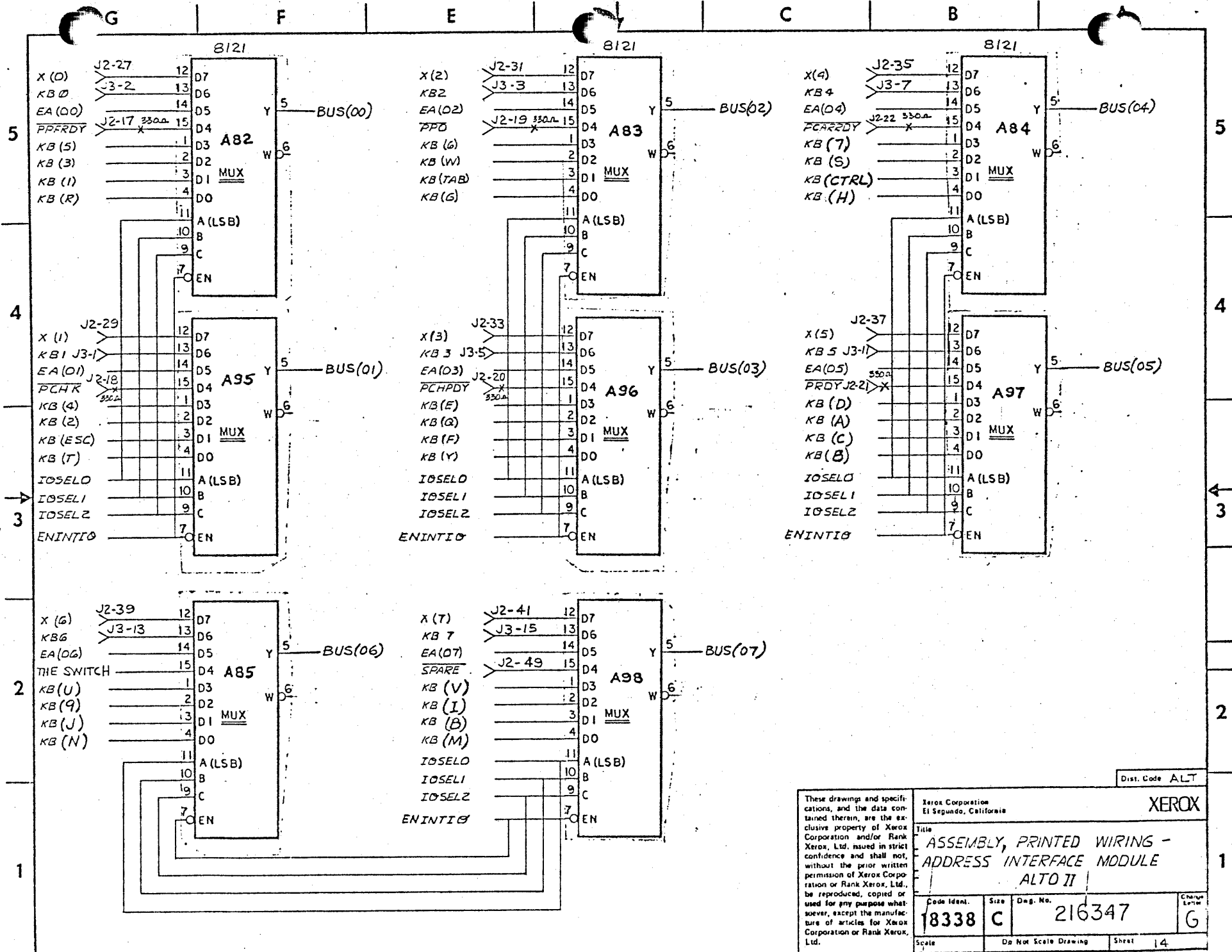
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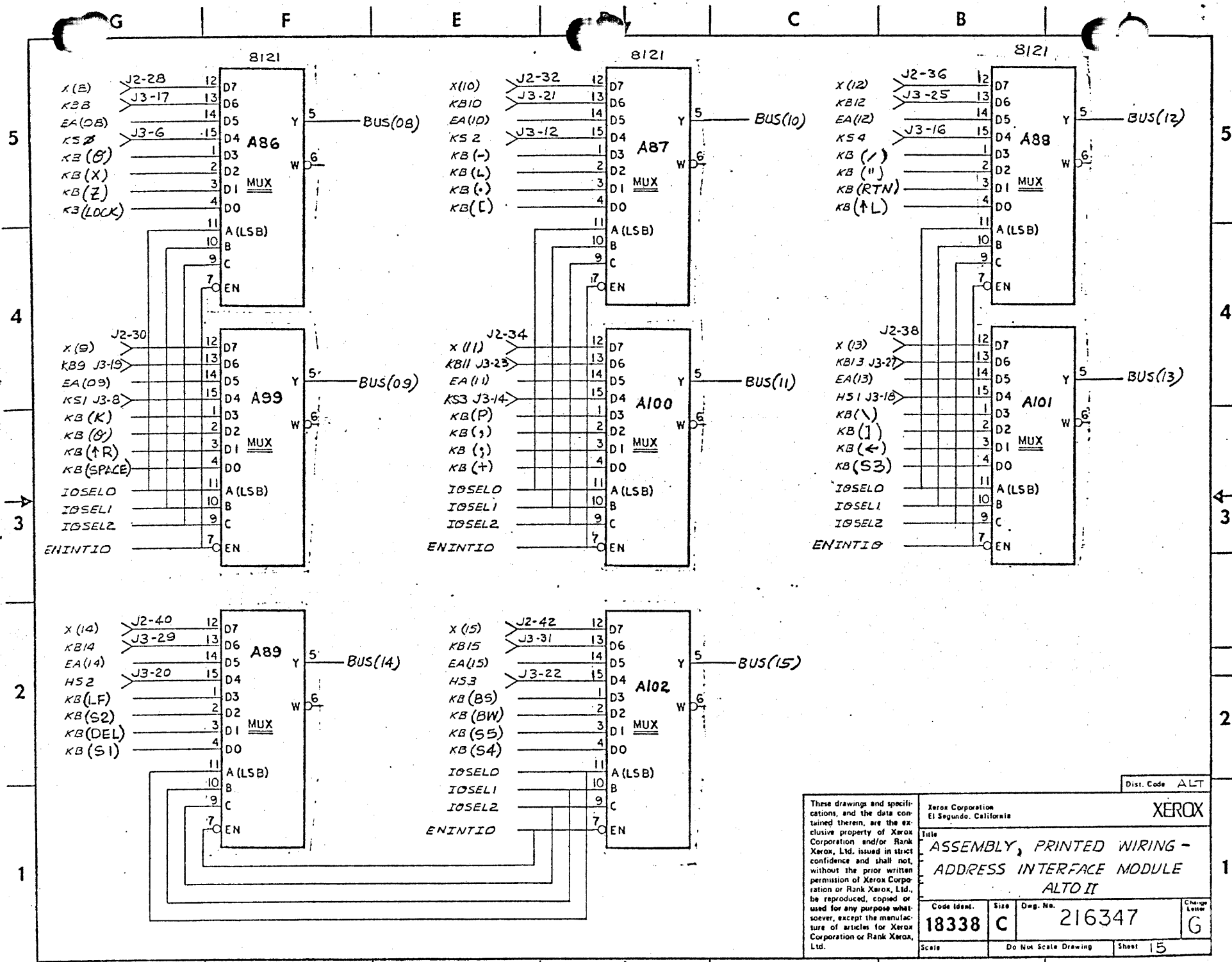
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Title  
**ASSEMBLY, PRINTED WIRING - ADDRESS INTERFACE MODULE - ALTO II**

Code Ident.	Size	Dwg. No.	Change Letter
18338	C	216347	G
Scale	Do Not Scale Drawing		Sheet 13



Dist. Code ALT			
Xerox Corporation El Segundo, California			
<b>XEROX</b>			
Title <b>ASSEMBLY, PRINTED WIRING - ADDRESS INTERFACE MODULE ALTO II</b>			
Code Ident. <b>18338</b>	Size <b>C</b>	Des. No. <b>216347</b>	Change Letter <b>G</b>
Scale	Do Not Scale Drawing		Sheet 14



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Title <b>ASSEMBLY, PRINTED WIRING - ADDRESS INTERFACE MODULE ALTO II</b>			
Code Ident. <b>18338</b>	Size <b>C</b>	Dwg. No. <b>216347</b>	Change Letter <b>G</b>
Scale	Do Not Scale Drawing		Sheet <b>15</b>

Revisions

216373

D

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>BN</i>	2-8-76	
	B	REVISED	<i>FW</i>	7-23-76	<i>BN</i>
	C	ADDED NOTE 2 (CUT ETCH & ADD JUMPER).	<i>BN</i>	4-13-77	<i>BN</i>
	D	ADDED NOTE 3 (INTERIM FIX)	<i>BN</i>	11-2-77	<i>BN</i>

ENGINEERING  
RELEASE

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Notes Unless Specified	Drawn <i>W. L. ... 2-8-76</i>
1. Tolerances .XX ±.03      Angular ±½° .XXX ±.010	Check <i>W. L. ... 7-23-76</i>
2. Break All Sharp Edges .010 Approx.	Appr. <i>R. ... 11-3-77</i>
3. Mach. Surfaces <input checked="" type="checkbox"/>	Material
4. All Dim. in Inches	

Xerox Corporation  
El Segundo, California

XEROX

Title  
ALTO II  
ASSEMBLY, PRINTED WIRING-  
CONTROL BOARD  
1K

Model No. ALTO II  
First Use EWO 7YF92

Next Assy. First Use 216302

Finish

Code Ident. 18338  
Size A

Dwg. No. 216373

Change Letter D

Do Not Scale Drawing

Sheet 1 OF

NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE SPEC, DWG NO. 216207.
2. THE FOLLOWING MODIFICATIONS ARE REQUIRED USING "B" REVISION PRINTED WIRING BOARDS.

- 1) CUT ETCH TO U10 PIN 4.
- 2) U36 PIN 1. (BOTH ETCH LINES).
- 3) U36 PIN 2.
- 4) U36 PIN 13.
- 5) U36 PIN 3.
- 6) CUT ETCH TO U41 PIN 1. (BOTH ETCH LINES).
- 7)
- 8)
- 9)
- 10)
- 11) ADD JUMPER FROM U36 PIN 1 TO U25 PIN 7.
- 12) U36 PIN 2 U25 PIN 5.
- 13) U36 PIN 3 U25 PIN 2.
- 14) U36 PIN 13 U25 PIN 10.
- 15) U36 PIN 5 U10 PIN 4.
- 16) U17 PIN 4 U7 PIN 3.
- 17) U7 PIN 4 U41 PIN 1.
- 18) U40 PIN 1 U43 PIN 1.
- 19) ADD JUMPER FROM U25 PIN 6 TO U38 PIN 10.

3. THIS MODIFICATION IS A VARIATION E.O. TO BE USED AS AN INTERIM FIX ONLY UNTIL 2K CONTROL BOARDS ARE AVAILABLE.

- 1) CUT ETCH BETWEEN BACKPLANE CONN. PIN 20 AND FEEDTHRU (CONNECTS TO T10).
- 2) CUT ETCH BETWEEN U84-12 AND T17. (ETCH SIDE).
- 3) CUT ETCH BETWEEN T18 FEEDTHRU AND FEEDTHRU NEAR U84-8 (CONNECTS TO U83-3).
- 4) ADD WIRE FROM U20-10 TO BACKPLANE CONN. PIN 20.
- 5) U1 -4 T19.
- 6) U16-7 T21.
- 7) U2 -13 T23.
- 8) U17-12 TO T25.
- 9) ADD WIRE FROM T16 TO T18 TO T20 TO T22 TO T24 TO T26.

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Title  
 ASSY, PRINTED WIRING-  
 CONTROL BOARD

Xerox Corporation  
 El Segundo, California

**XEROX**

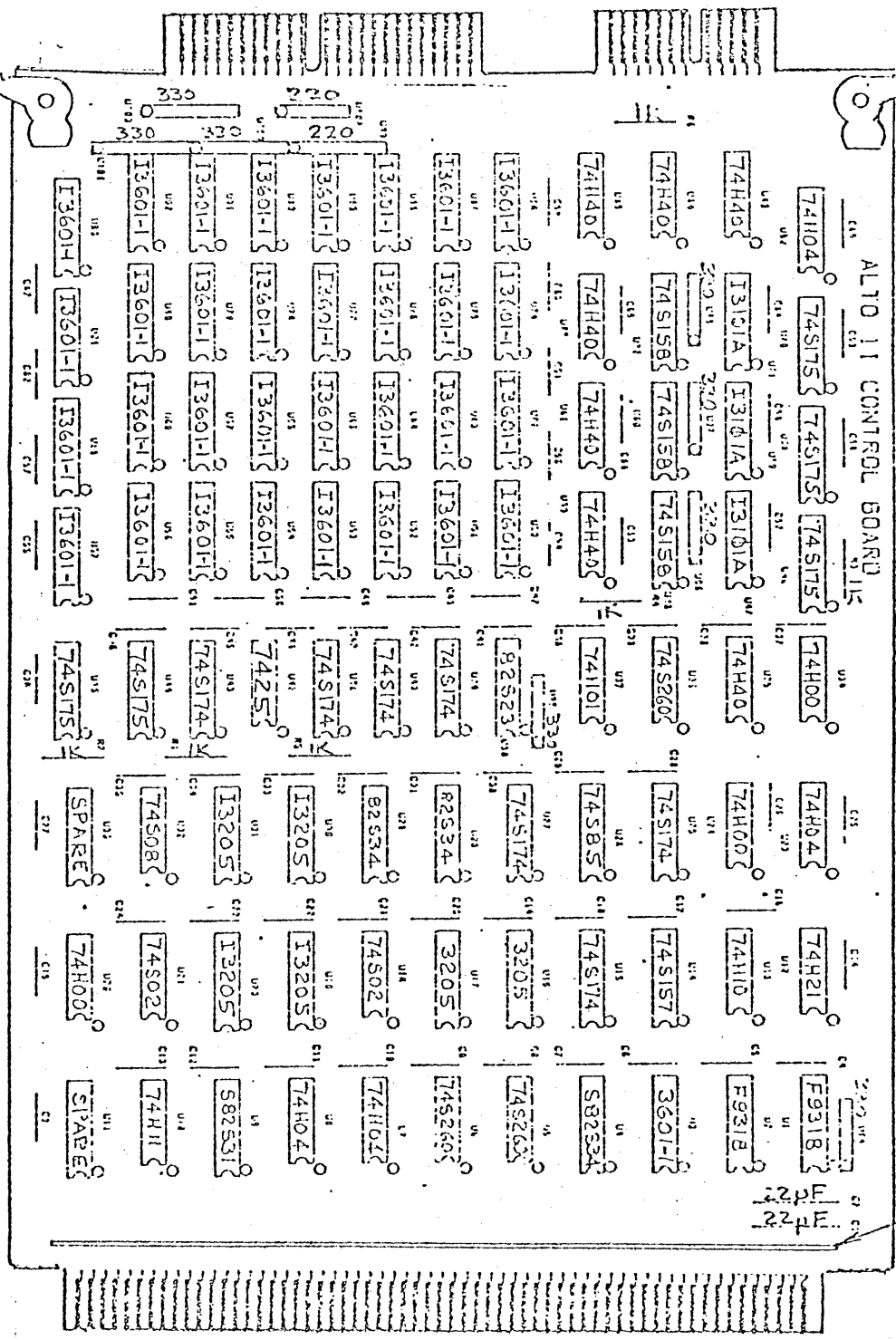
216373

D

Sheet 2 of



41 50  
2 PLACES



1

40

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File  
ASSY, P.W.-  
CONTROL BOARD

Xerox Corporation  
El Segundo, California

XEROX

216373

Sheet 3 of

**Material List**

<b>ML</b>	Drawing No. 216373	Rev. B
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Rev. 216373	Drawing Title <b>ALTO II</b>  <b>ASSEMBLY, PRINTED WIRING- CONTROL BOARD</b>		These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	Model No. EWO 7YF92		Date 3/5/76		Sheet 4 of

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, Printed Wiring- Control Board	216375	1	
2	Procedure, Test	216374	REF	
3	Spec, Module Assembly	216207	REF	
4				
5	Microcircuit, 74H00		3	U22,24,34
6	74H01		1	U37
7	74S02		2	U18,21
8	74H04		4	U7,8,23,82
9	74S08		1	U32
10	74H10		1	U13
11	74H11		1	U10
12	74H21		1	U12
13	74H40		7	U35,49,60,73,83,84,85
14	74S85		1	U26
15	74S157		1	U14
16	74S158		3	U48,60,72
17	74S174		7	U15,25,27,39,40,41,43
18	74S175		5	U44,45,46,58,70
19	74S260		3	U5,6,36
20	I3101A Intel		3	U47,59,71
21	I3205 Intel		6	U16,17,19,20,30,31
22	I3601-1 Intel		33	U3,50-57,62-69,74-81,
23				86-93,
24	7425		1	U42
25	82S23 Signetic		1	U38
26	82S31 Signetic		1	U9
27	82S34 Signetic		3	U4,28,29
28	Microcircuit, F9318 Fairchild		2	U1,2
29				
30				
31	Capacitor, .01 $\mu$ F, 50V	188483-002	70	C3-72
32	Capacitor, 22 $\mu$ F, 15V, Tant.	187720-005	2	C1,2



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Title  
ALTO II  
ASSEMBLY, PRINTED WIRING  
CONTROL BOARD

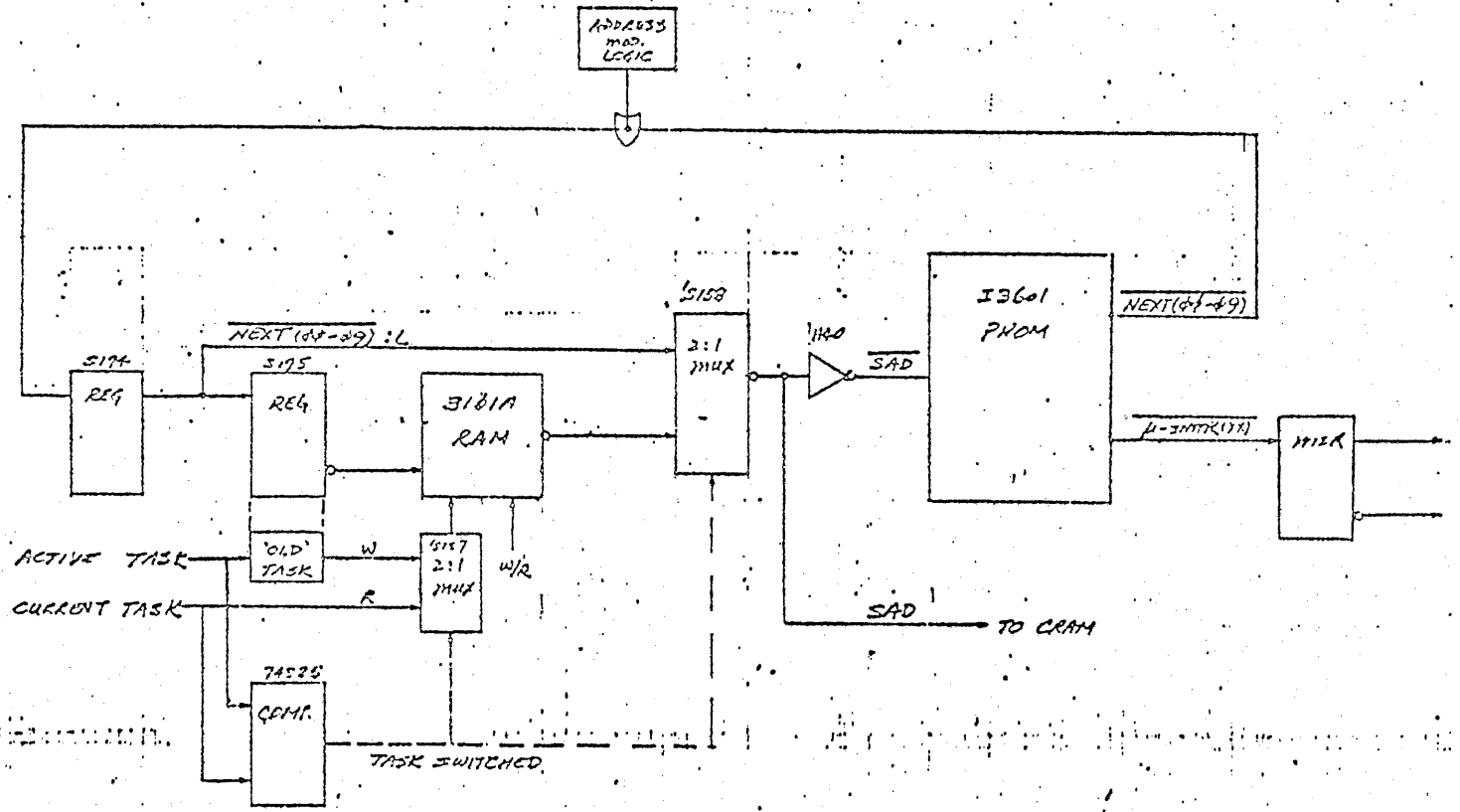
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Sheet 6 of 01

216373

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CONTROL BOARD

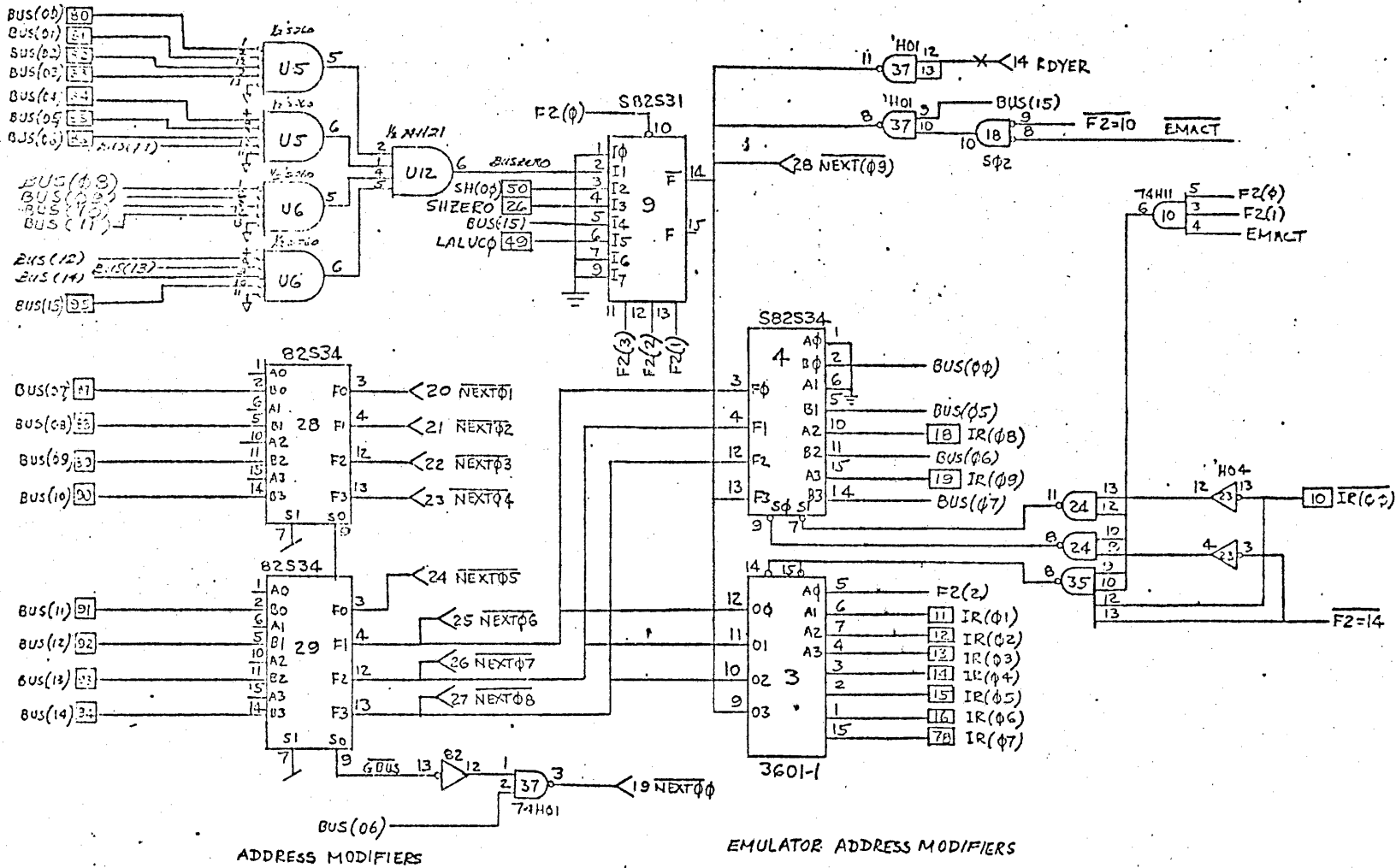
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El Segundo, California

216373

XEROX

B

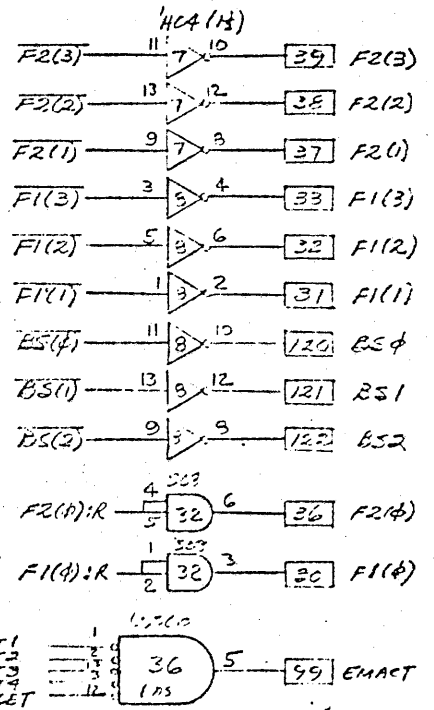
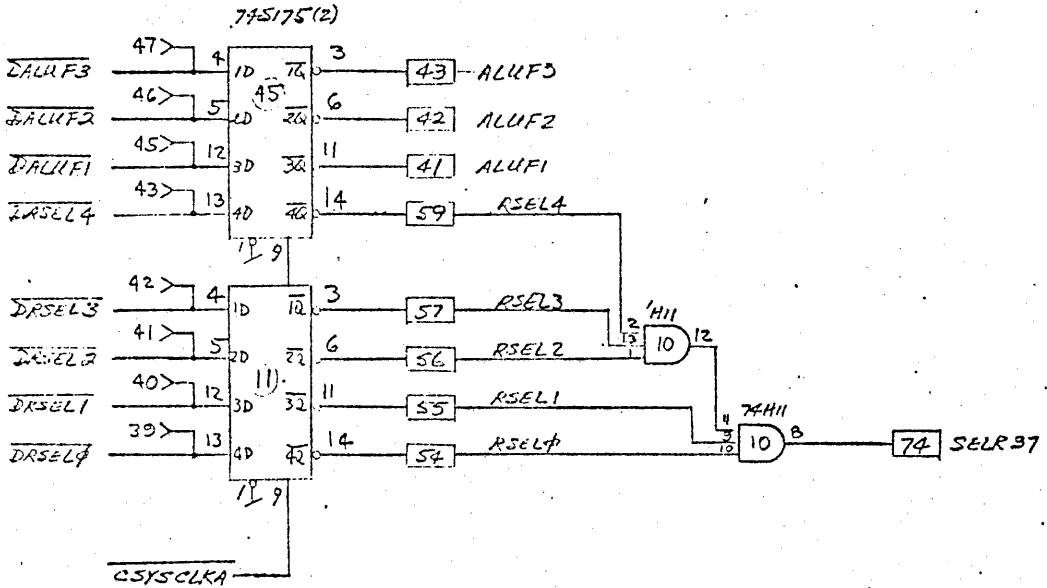
Sheet 7 of



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Title  
ALTO I I  
ASSEMBLY, P.W.-  
CONTROL BOARD

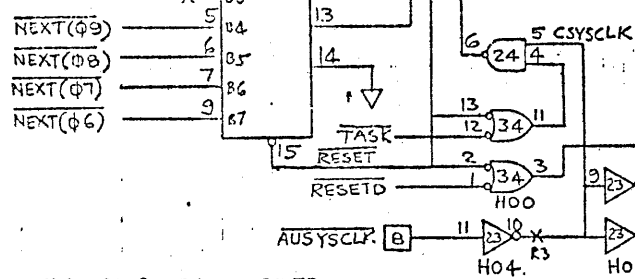
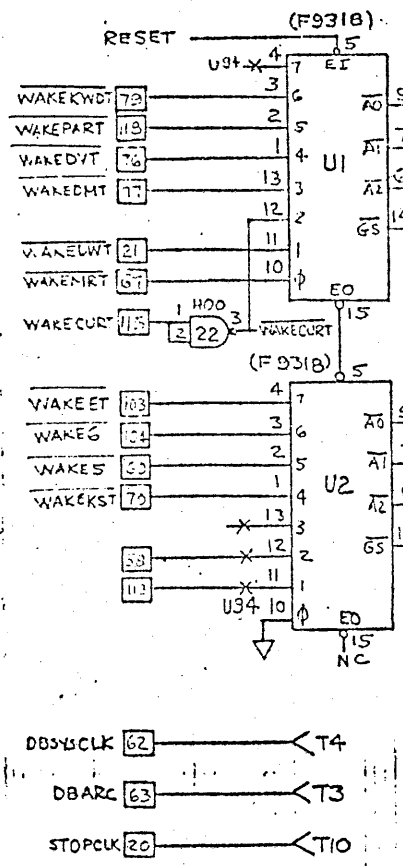
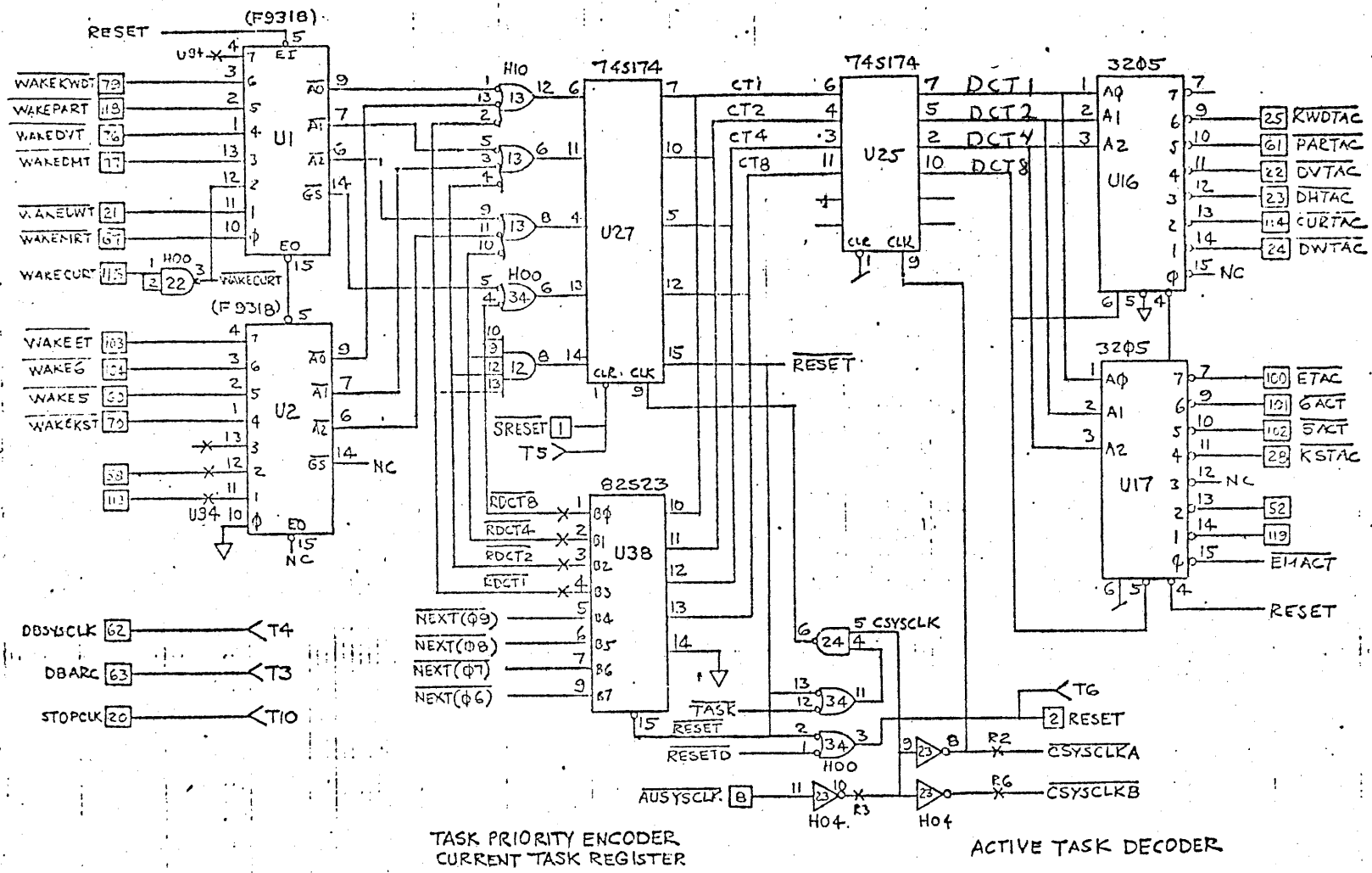
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El Segundo, California  
216373  
Sheet 8 of 01  
B  
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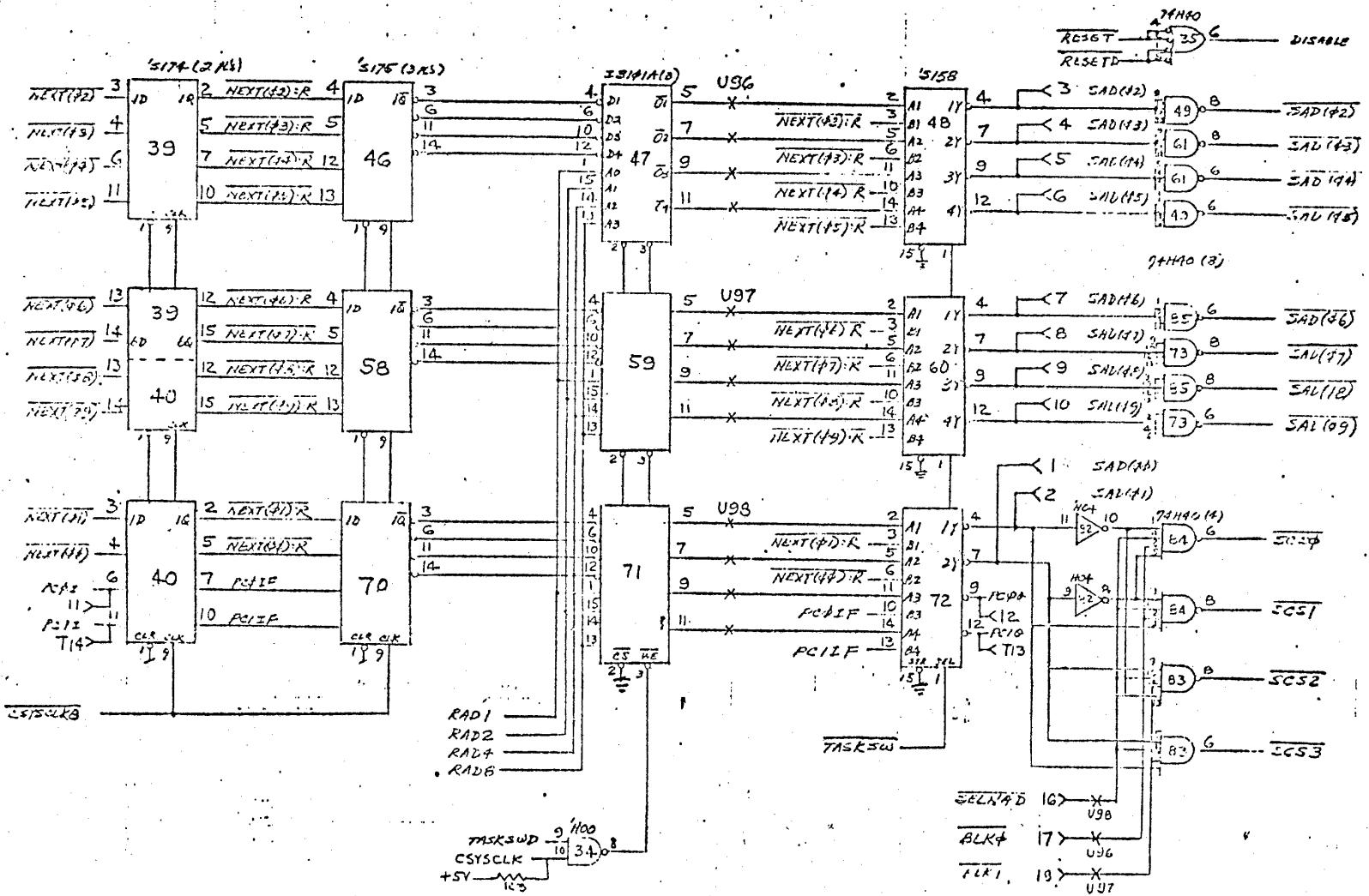
Title  
AUTO II  
ASSEMBLY, P.W.  
CONTROL BOARD

Xerox Corporation  
El Segundo, California  
216373  
Sheet 9 01  
B  
XEROX



TASK PRIORITY ENCODER  
CURRENT TASK REGISTER

ACTIVE TASK DECODER



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ASSEMBLY, P.W.-  
CONTROL BOARD

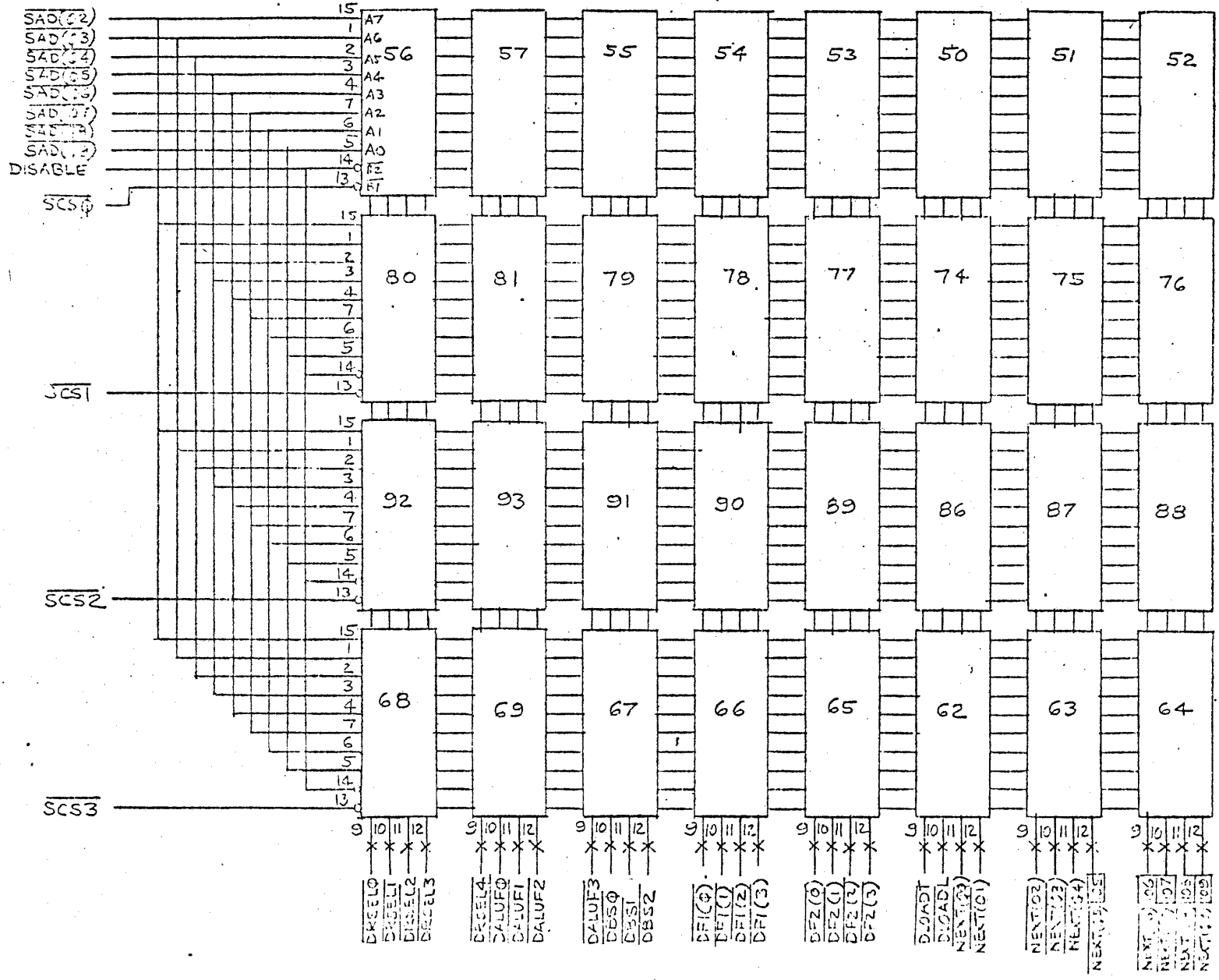
Xerox Corporation  
El Segundo, California  
216373  
B  
Sheet 10

1386(3/73)





I36Φ1-1 (32 PLACES)



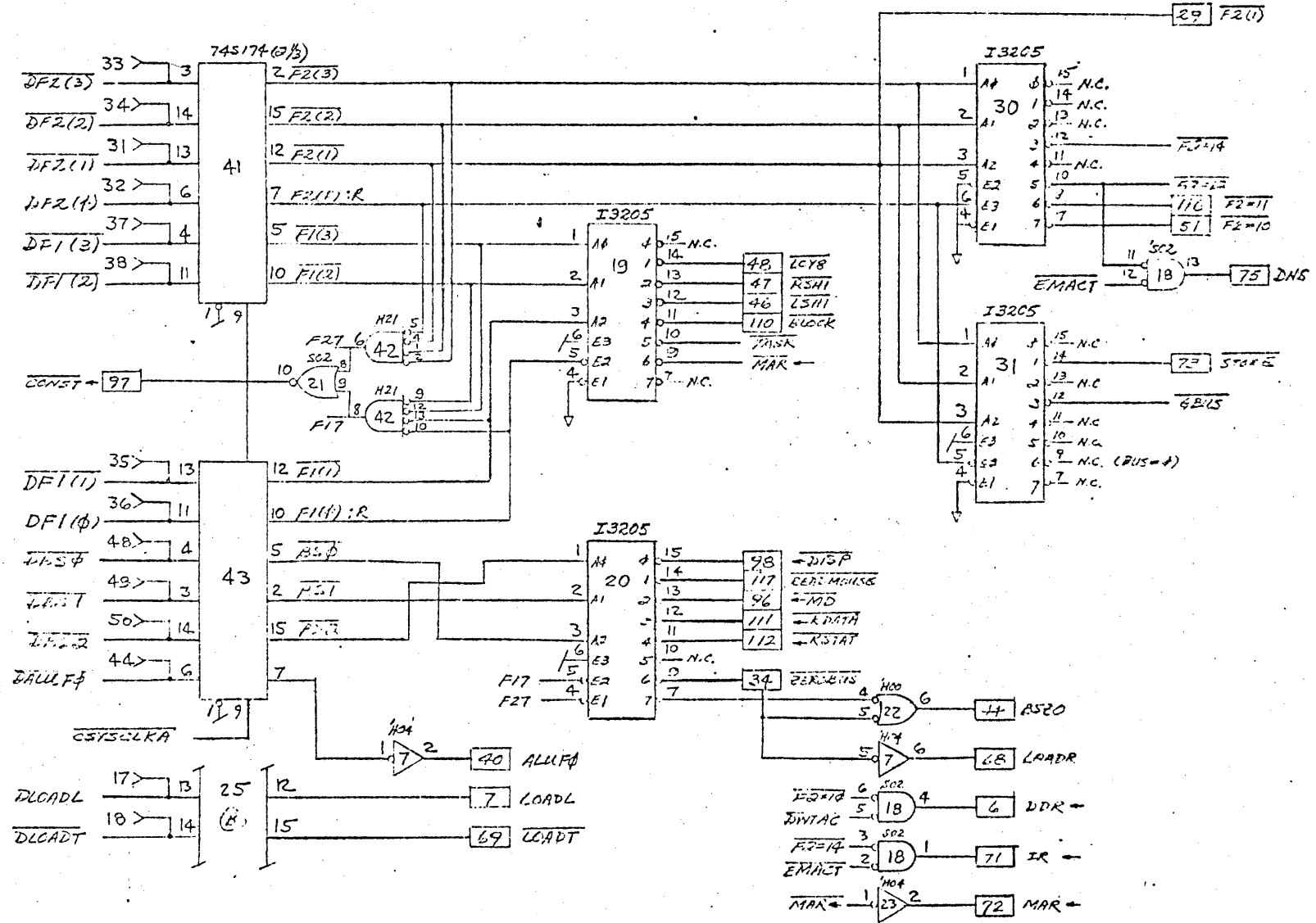
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ALTO II  
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CONTROL BOARD

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216373  
3  
Sheet 12 01

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ALTO II  
ASSEMBLY, P.W.-  
CONTROL BOARD



Revisions

216365

F

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG REL	<i>JM</i>		
	B	REVISED	<i>JM</i>	6-14	<i>BN</i>
	C	REVISED NOTE SHEET, ADDED SHEET 14	<i>BN</i>	7-19 76	<i>BN</i> 7-19
	D	DWG NO. WAS 216265. M/L ITEM 1 WAS 216267, ITEM 2 WAS 216266. ADDED SILKSCREENED BOARD DETAIL.	<i>BN</i>	8-12 76	<i>BN</i>
	E	M/L ITEM 17 P/N WAS SN74S298, ITEM 21 P/N WAS I3601, ITEM 23 P/N WAS 514-AG10D, ITEM 24 P/N WAS 516-AG10D.	<i>BN</i>	4-13 77	<i>BN</i>
X	F	ADDED NOTE 3. M/L ITEM 13 P/N IS: SN74S157 WAS: SN74157. LOGIC SH 11, U7,U17,U27,U37 WAS:74157.	<i>BN</i>	11-10 77	<i>BN</i>

ENGINEERING  
RELEASE

THIS DOCUMENT CONTAINS 15 SHEETS

Dist Code ALT

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Notes Unless Specified

1. Tolerances  
.XX ±.03      Angular ±½°  
.XXX ±.010
2. Break All Sharp Edges  
.010 Approx.
3. Mach. Surfaces
4. All Dim. in Inches

Drawn *Hitzhe*  
Check *McIntire*  
Appr.  
Material

Xerox Corporation  
El Segundo, California

XEROX

Title  
ALTO II  
ASSEMBLY, PRINTED WIRING-  
GRAM

Model No. First Use  
**ALTO II**

Next Assy. First Use  
216302

Finish

Code Ident.  
**18338**

Scale —

Size Dwg. No.  
**A**      **216365**

Do Not Scale Drawing

Change Letter  
**F**

Sheet 1

NOTES: UNLESS OTHERWISE SPECIFIED

1. CUT ETCH AND ADD JUMPERS AS FOLLOWS:
  - A. CUT ETCH TO U79 PIN 6.
  - B. ADD JUMPER FROM U79 PIN 7 TO FEED-THRU JUST OPPOSITE PINS 7 & 8 OF U79.
  - C. CUT ETCH TO U22 PIN 1.
  - D. ADD JUMPER FROM U22 PIN 1 TO U1 PIN 4.
  - E. CUT ETCH TO U54 PIN 13.
  - F. ADD JUMPER FROM R6 (NEXT TO PIN 9 OF U54) TO U54 PIN 13.
  - G. ADD JUMPER FROM U21 PIN 13 TO U11 PIN 13 (LRESET).
  - H. ADD JUMPER FROM U11 PIN 15 TO U12 PIN 1 (LRESETF).
  - I. ADD JUMPER FROM U2 PIN 12 TO U12 PIN 2 (LRESET).
  - J. ADD JUMPER FROM U12 PIN 12 TO EDGE CONN PIN 72.
  - K. CUT ETCH TO HOLE NEXT TO LABEL "R7".
  - L. ADD JUMPER FROM EYELET NEXT TO U77 PIN 6 & 7 TO U78 PIN 9.
  - M. CUT ETCH TO U66 PIN 1.
  - N. ADD JUMPER FROM U66 PIN 13 TO U66 PIN 1.
  
2. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

③

ITEM 22 TO BE PURCHASED ONLY FROM FAIRCHILD SEMICONDUCTOR DIV, HOLLYWOOD, CALIF PART NO. F93415A OR INTEL CORP, SANTA CLARA, CALIF PART NO. 2115A OR 2115AL.

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Title  
ALTO II  
ASSEMBLY, P.W. -  
GRAM

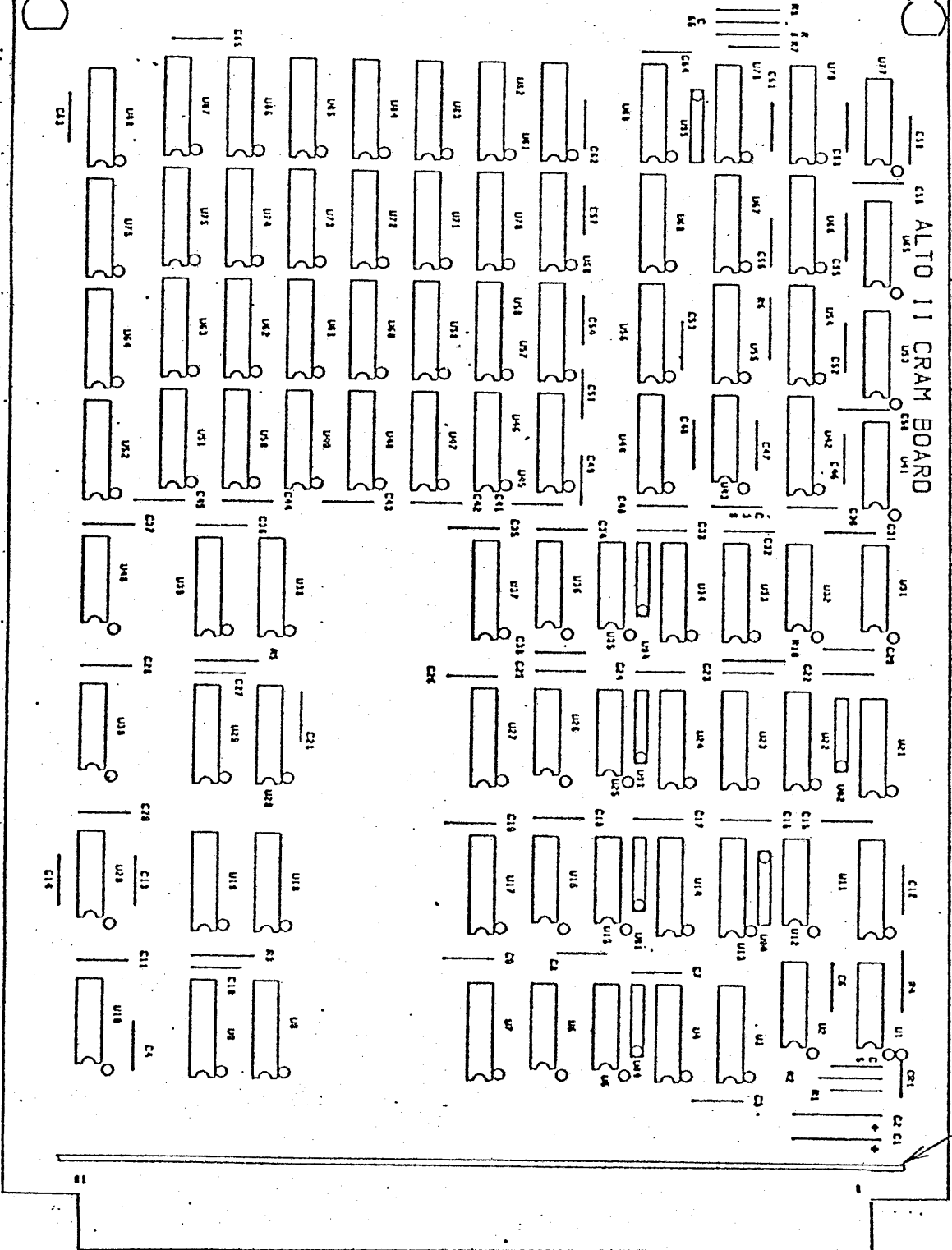
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El Segundo, California

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216365

F

Sheet 2 of



33 34  
2 PLACES

1

32

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Title  
ALTO II  
ASSEMBLY, PW-  
GRAM

Xerox Corporation El Segundo, California		<b>XEROX</b>
216365		
Sheet	3	OF

Material List

ML	Drawing No. 216365	Rev. F
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Rev. 216365	Drawing Title <b>ALTO II ASSEMBLY, PRINTED WIRING- GRAM</b>	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	Model No. <b>ALTO II</b>	Date 8 / 9 / 76	Sheet 4 of	

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	BOARD, P.W,	216367	1	
2	PROCEDURE, TEST	216366	REF	
3	SPEC, ASSEMBLY	216207	REF	
4				
5	MICROCIRCUIT, SN 74H00 T.I.		3	U2, 53, 77
6	SN 74H04		2	U1, 65
7	SN 74S04		4	U10, 20, 30, 40
8	SN 74H10		2	U12, 41
9	SN 74H21		1	U32
10	SN 74H30		2	U31, 43
11	SN 7438		8	U5, 6, 15, 16, 25, 26, 35, 36
12	SN 74153		1	U54
13	SN 74S157		7	U7, 17, 27, 37, 56, 68, 80
14	SN 74166		2	U66, 78
15	SN 74S174		2	U22, 44
16	SN 74S175		9	U9, 11, 19, 29, 39, 42, 55, 67, 79
17	SN 74298 T.I.		4	U8, 18, 28, 38
18				
19	I 3101A INTEL		8	U3, 4, 13, 14, 23, 24, 33, 34
20				
21	I 3601 -1 INTEL		1	U21
22	MICROCIRCUIT, F93415A FAIRCHILD (3)		32	U45-52, 57-64, 69-76, 81-88
23	SOCKET, 14 PIN DIP, AUGAT#514-AG 11D		22	
24	SOCKET, 16 PIN DIP, AUGAT#516-AG11D		66	
25				
26	DIODE, IN4148		1	CR1
27				
28				
29				
30				

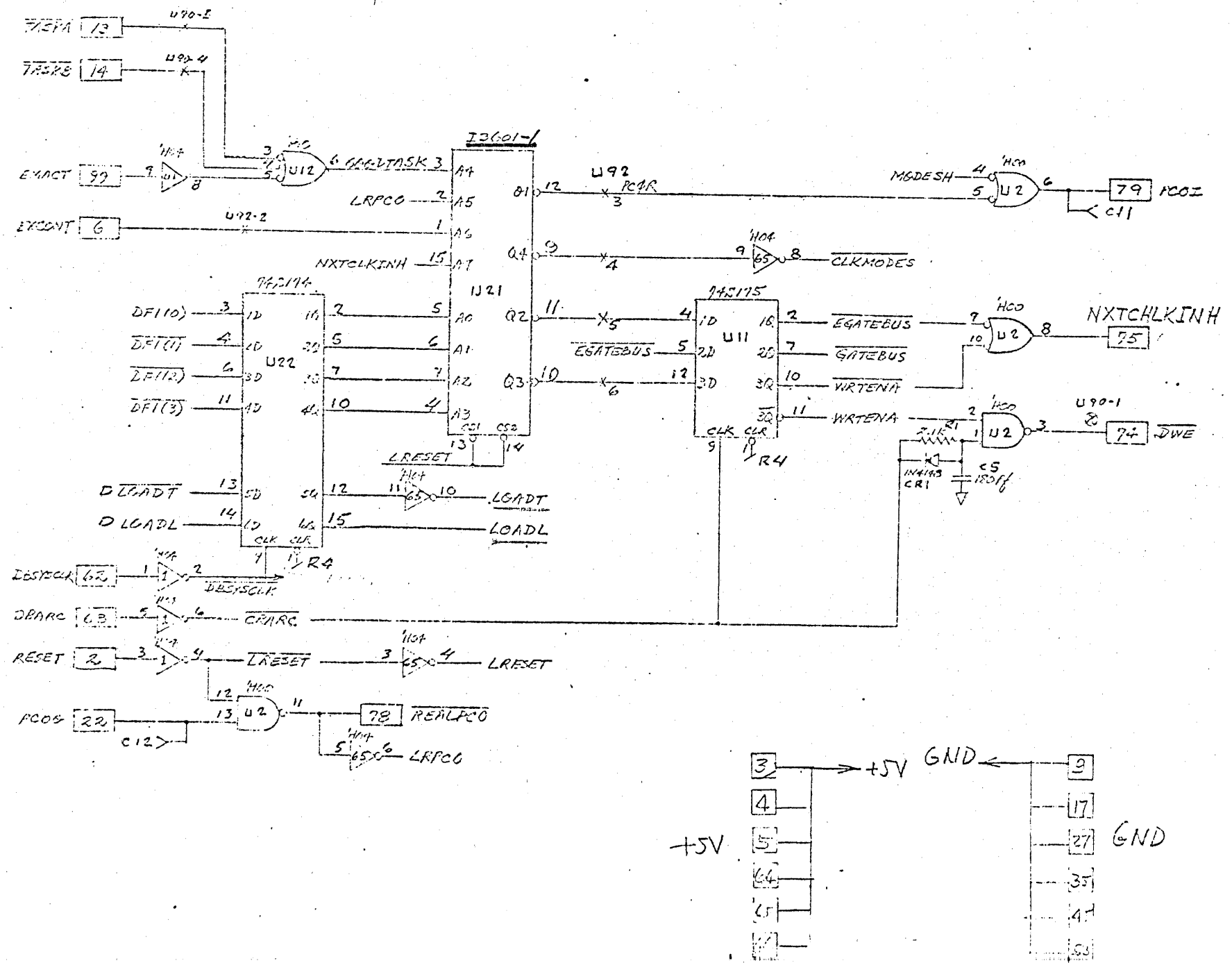


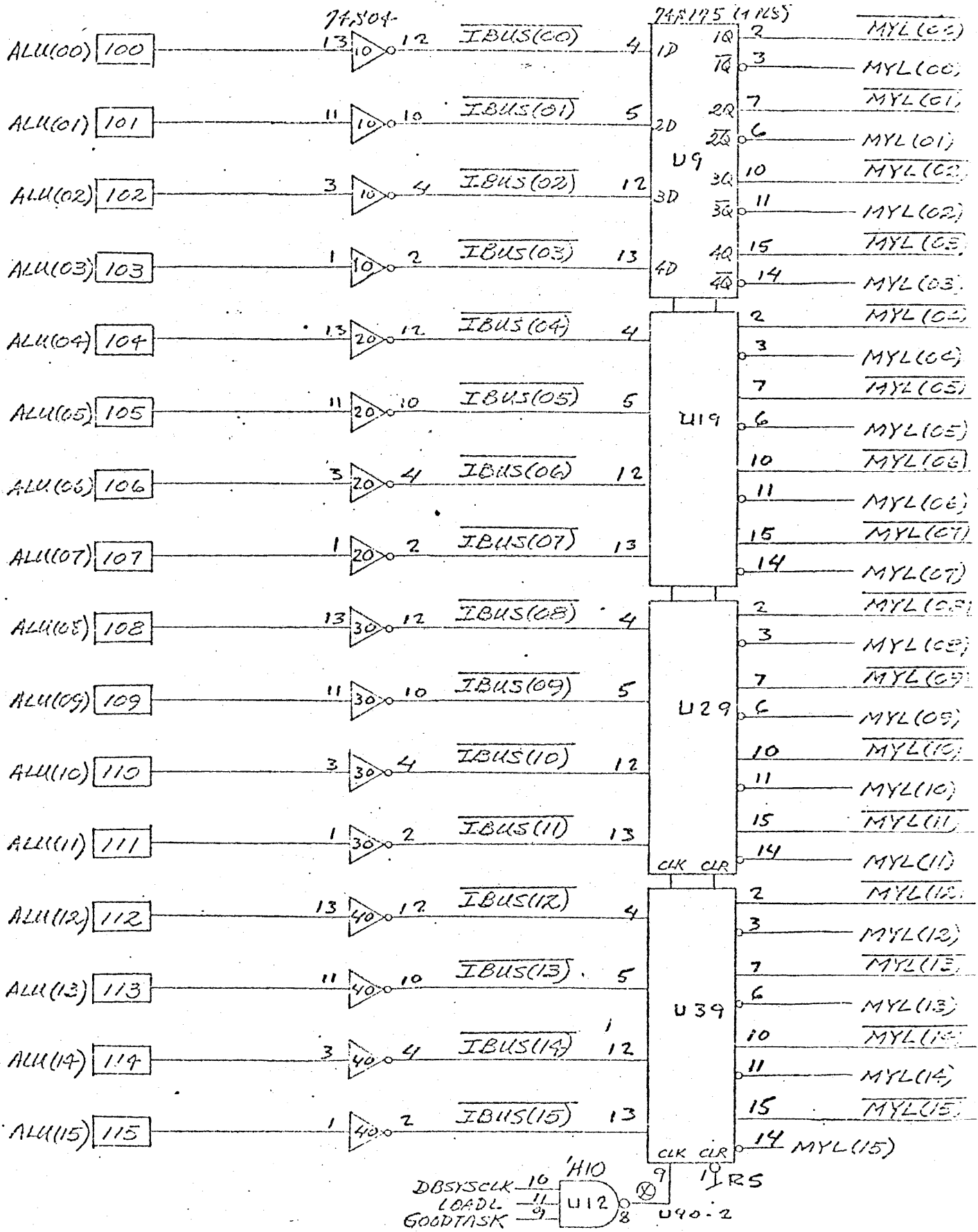


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ALIO II  
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GRAM

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216365  
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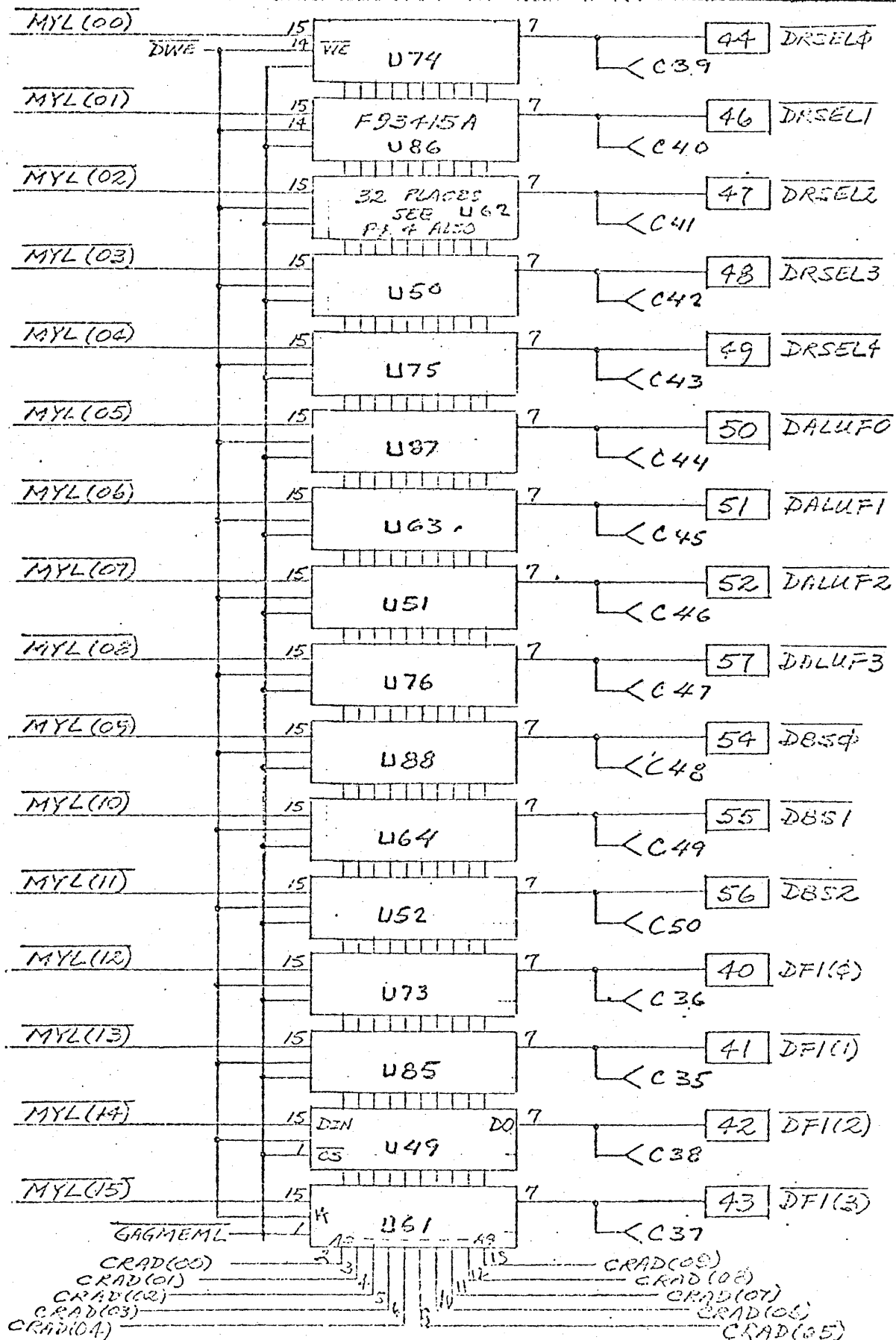




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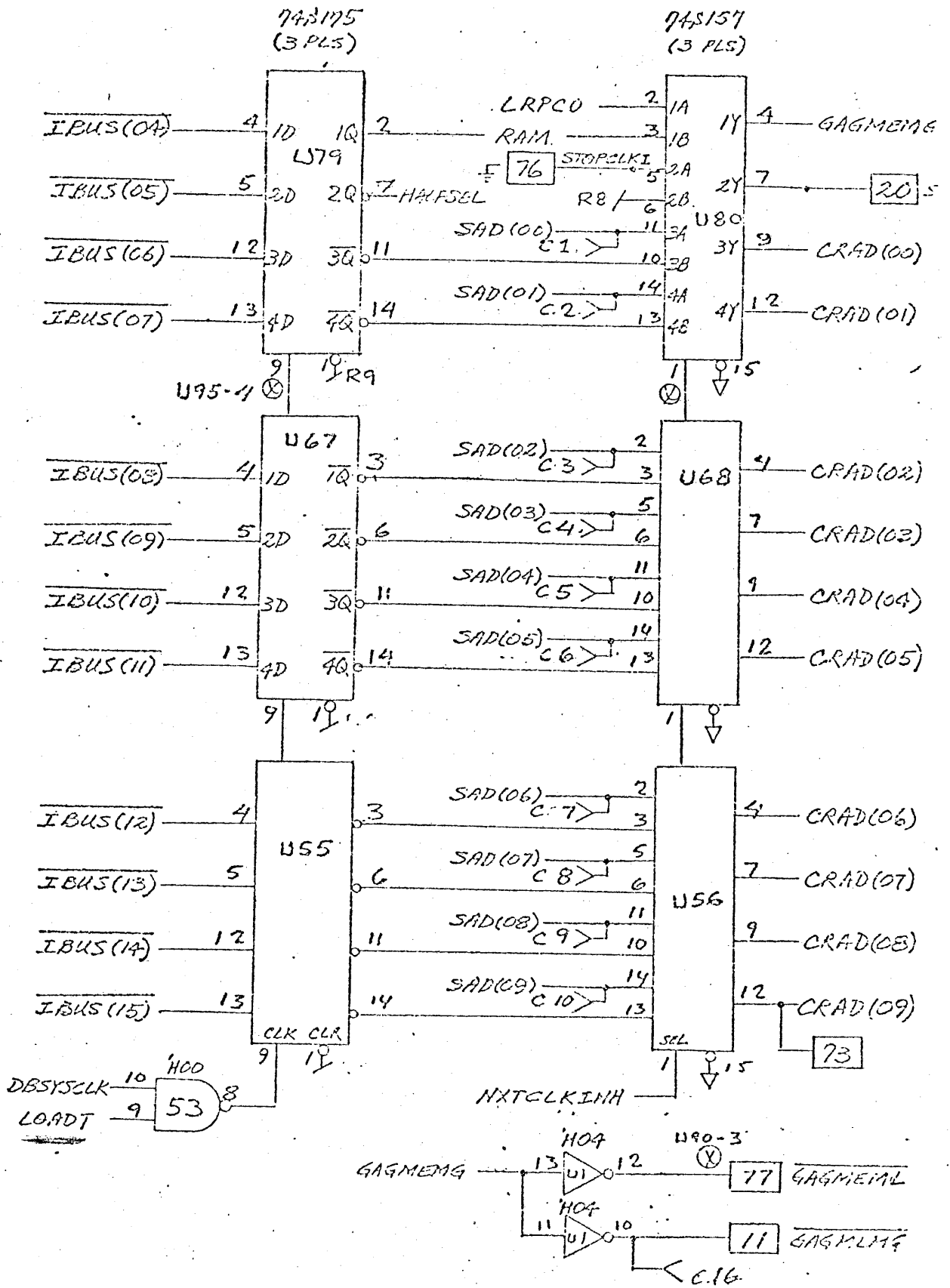
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216365  
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Title  
**ALTO II**  
**ASSEMBLY, P.W.-**  
**CRAM**

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**XEROX**  
 216365  
 Sheet 8 of

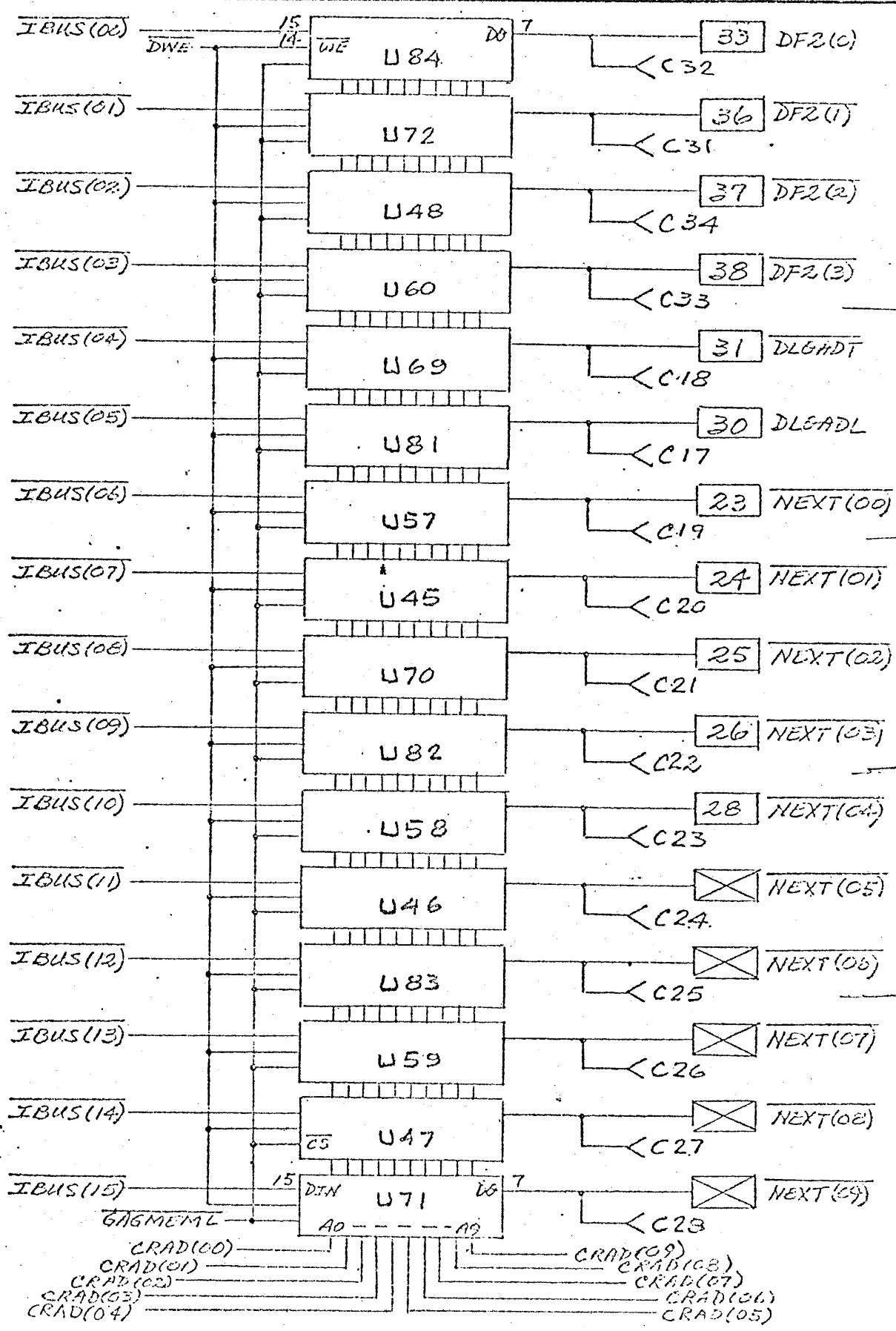


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Title  
ALTO II  
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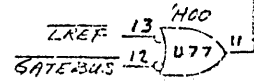
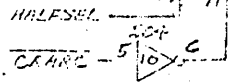
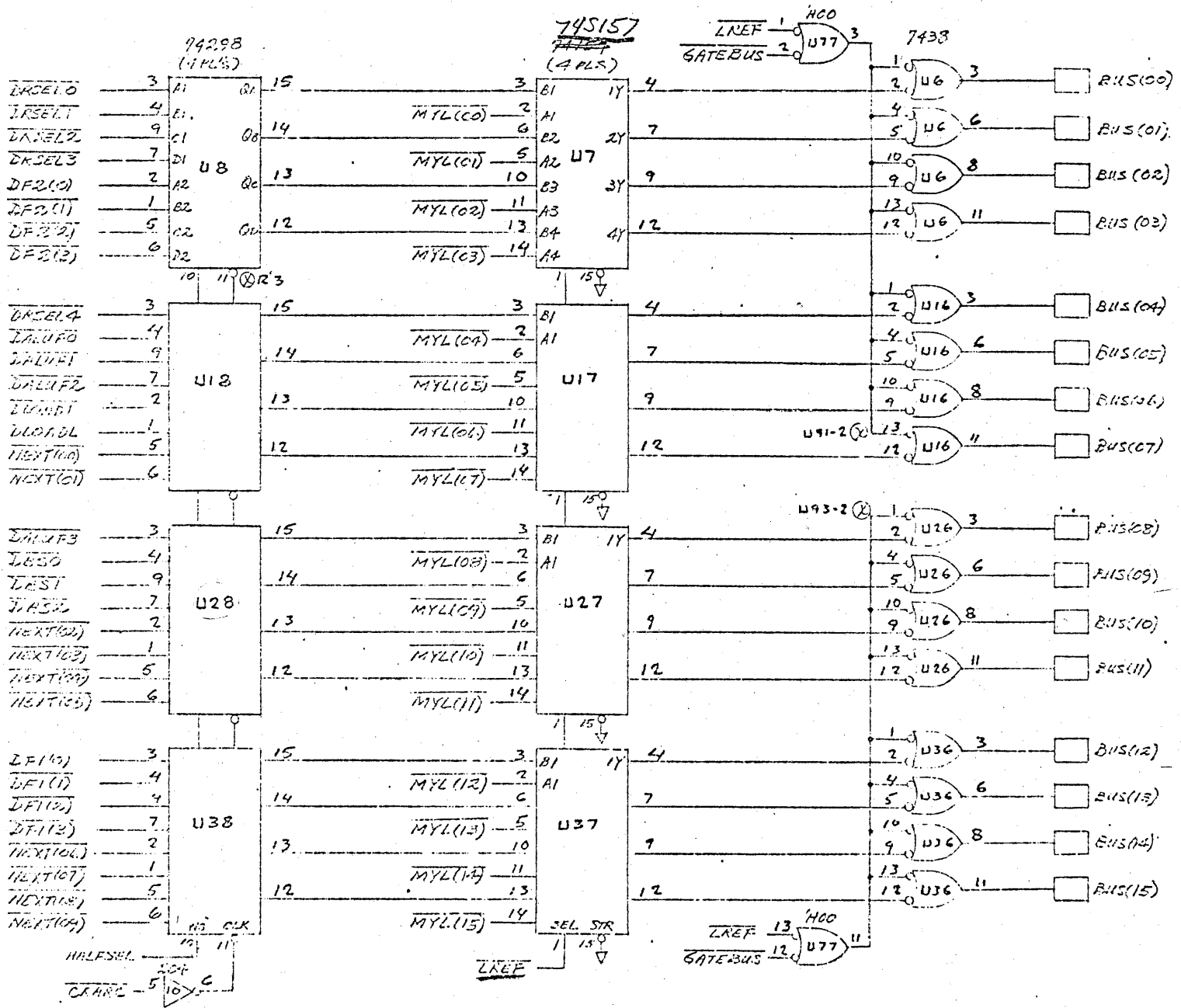
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ALTO II  
ASSEMBLY, P.W.-  
GRAM

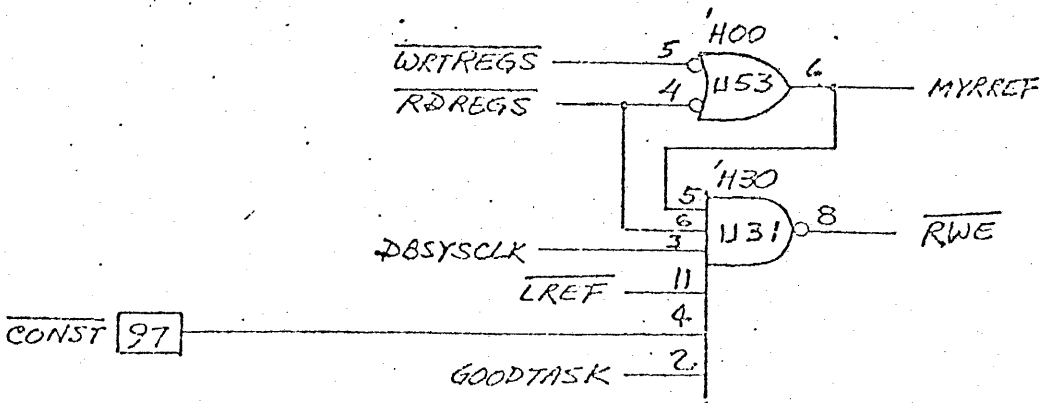
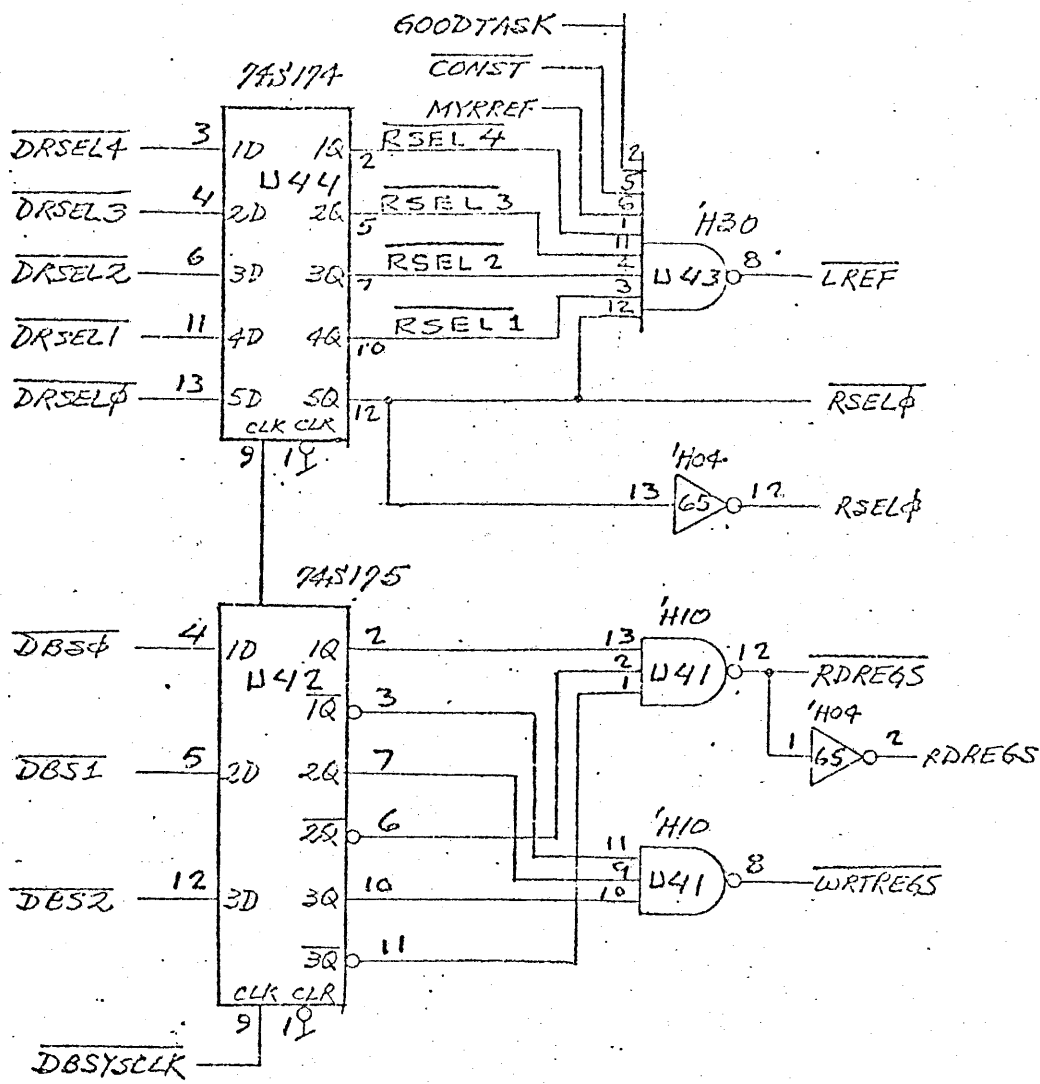
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216365	D	
Sheet	10	of

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Title  
ALTO II  
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GRAM

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216365  
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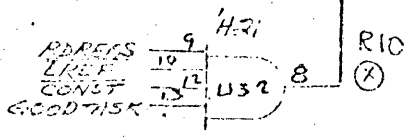
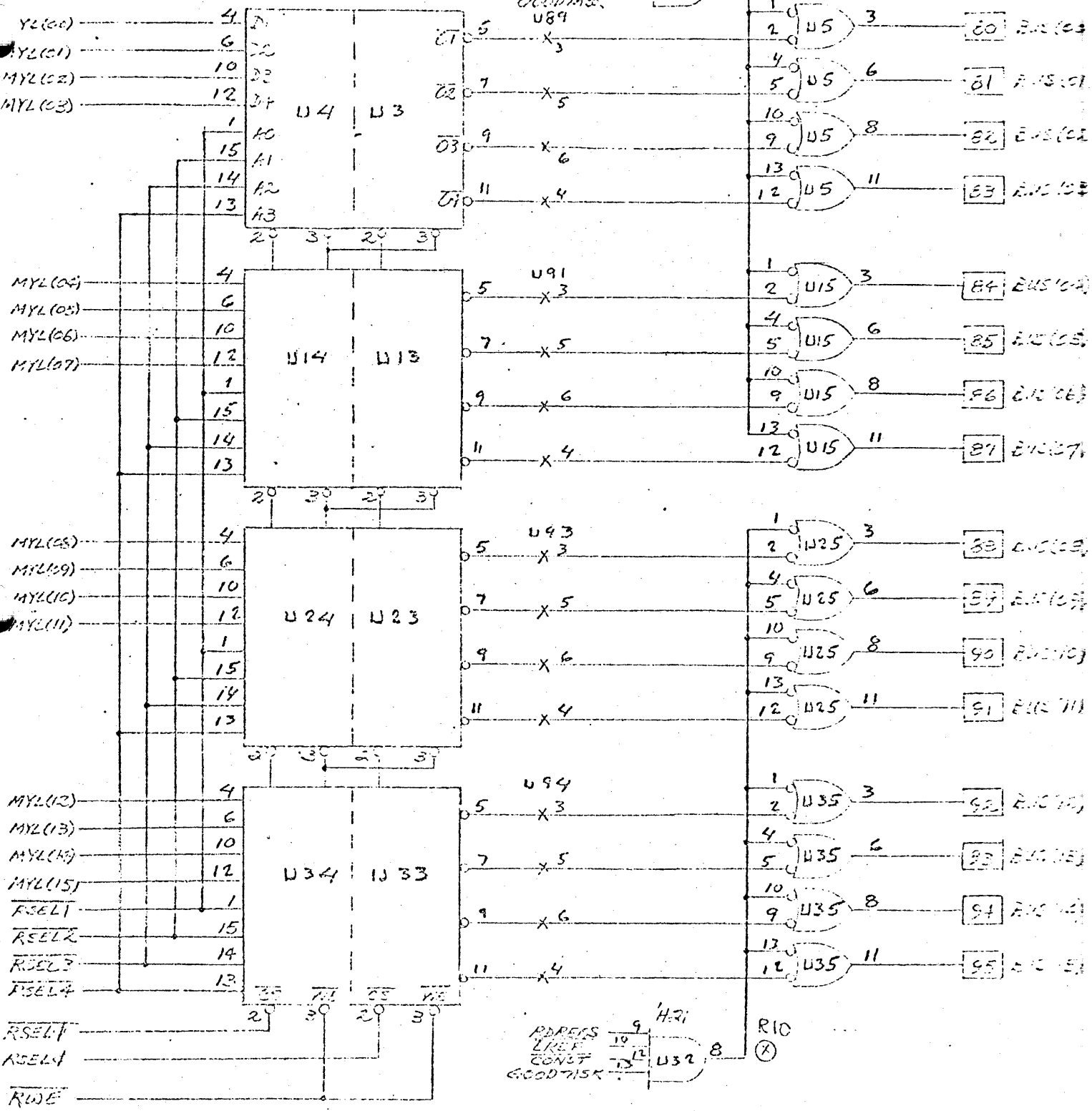
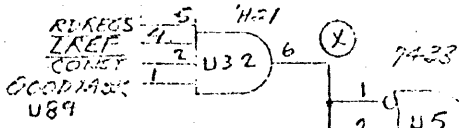
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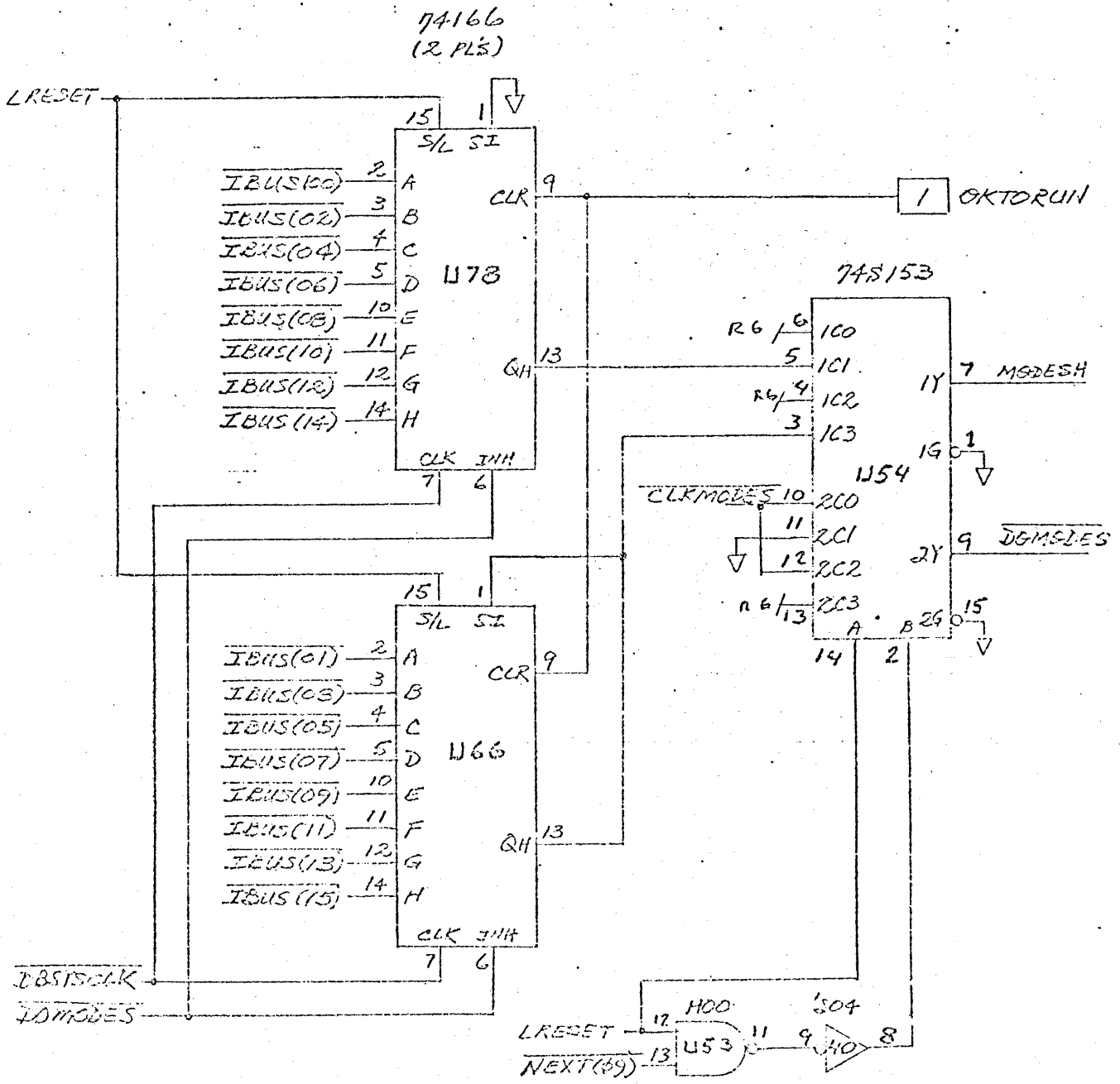
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ALTO II  
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216365  
Sheet 13 of





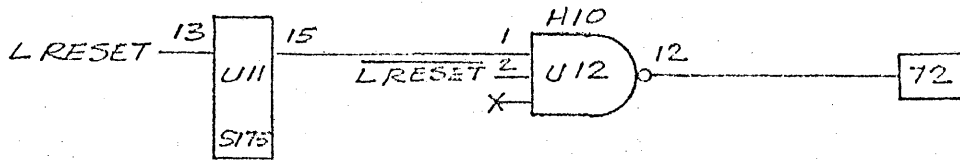


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Title  
ALTO II  
ASSEMBLY, P.W.-  
CRAM

Xerox Corporation El Segundo, California		<b>XEROX</b>
216365	D	
Sheet	14 of	





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Title  
ALTO II  
ASSEMBLY, P.W. -  
CRAM

Xerox Corporation  
El Segundo, California

**XEROX**

216365

D

Sheet 15 of

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	BN	3-8-76	
	B	REVISED; ITEM 5 QTY WAS 1	BN	7-28-76	BN
	C	ADDED BOARD SILKSCREEN DWG.	BN	8-9-76	BN
	D	M/L ITEM 38 P/N WAS 514-AG10D, ITEM 39 P/N WAS 516-AG10D ITEM 40 P/N WAS 524-AG10D.	BN	4-13-77	BN
X	E	ADDED NOTE 2 & FIG. I, II, III.	BN	7-14-77	BN
	F	RELEASED "C" REV ARTWORKS.	BN	11-2-77	RF

ENGINEERING  
RELEASE

THIS DOCUMENT CONTAINS 9 SHEETS.

Dist Code ALT

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Notes Unless Specified

- 1. Tolerances  
.XX ±.03      Angular ±1/2°  
.XXX ±.010
- 2. Break All Sharp Edges  
.010 Approx.
- 3. Mach. Surfaces
- 4. All Dim. in Inches

Drawn *Matsamara* 3-8-76

Check *Matsamara* 7-28-76

Appr. *BN*

Material

Xerox Corporation  
El Segundo, California

XEROX

Title  
ALTO II  
ASSEMBLY, PRINTED WIRING-  
ARITHMETIC LOGIC UNIT

Model No. ALTO II  
First Use EWO 7YF92

Finish

Code Ident.

18338

Size

A

Dwg. No.

216381

Change Letter

F

Next Assy. First Use  
216302

Scale

Do Not Scale Drawing

Sheet 1 OF



NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.
2. THE FOLLOWING MODIFICATIONS ARE REQUIRED USING "A" REVISION PRINTED WIRING BOARD:
  - A) CUT ETCH FROM A32 PIN 10 TO FEEDTHRU (COMPONENT SIDE), SEE FIG. I.
  - B) CUT ETCH FROM A32 PIN 13 (ETCH SIDE), SEE FIG. II.
  - C) ADD JUMPER FROM A32 PIN 13 TO FEEDTHRU NEXT TO A32 PIN 10 (ETCH SIDE) SEE FIG. II.
  - D) ADD JUMPER FROM A2 PIN 14 TO A32 PIN 10 (ETCH SIDE) SEE FIG. III.

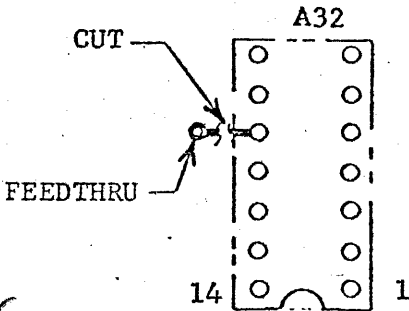


FIGURE I  
(COMPONENT SIDE)

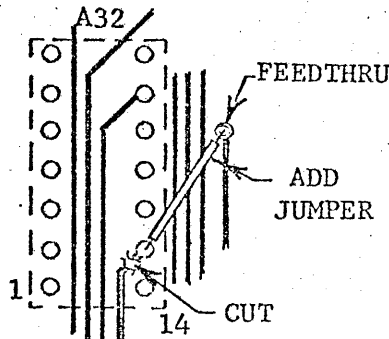


FIGURE II  
(ETCH SIDE)

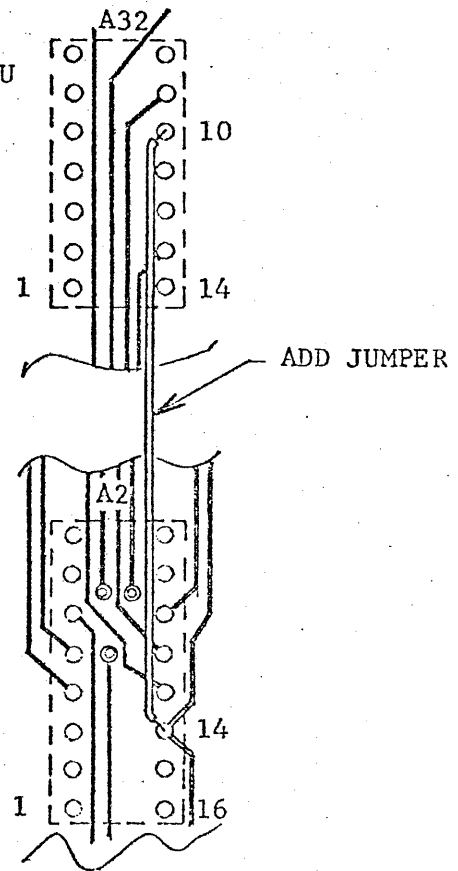


FIGURE III  
(ETCH SIDE)

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Title ALTO II  
ASSEMBLY, P.W.--  
ARITHMETIC LOGIC UNIT

Xerox Corporation  
El Segundo, California

**XEROX**

216381

F

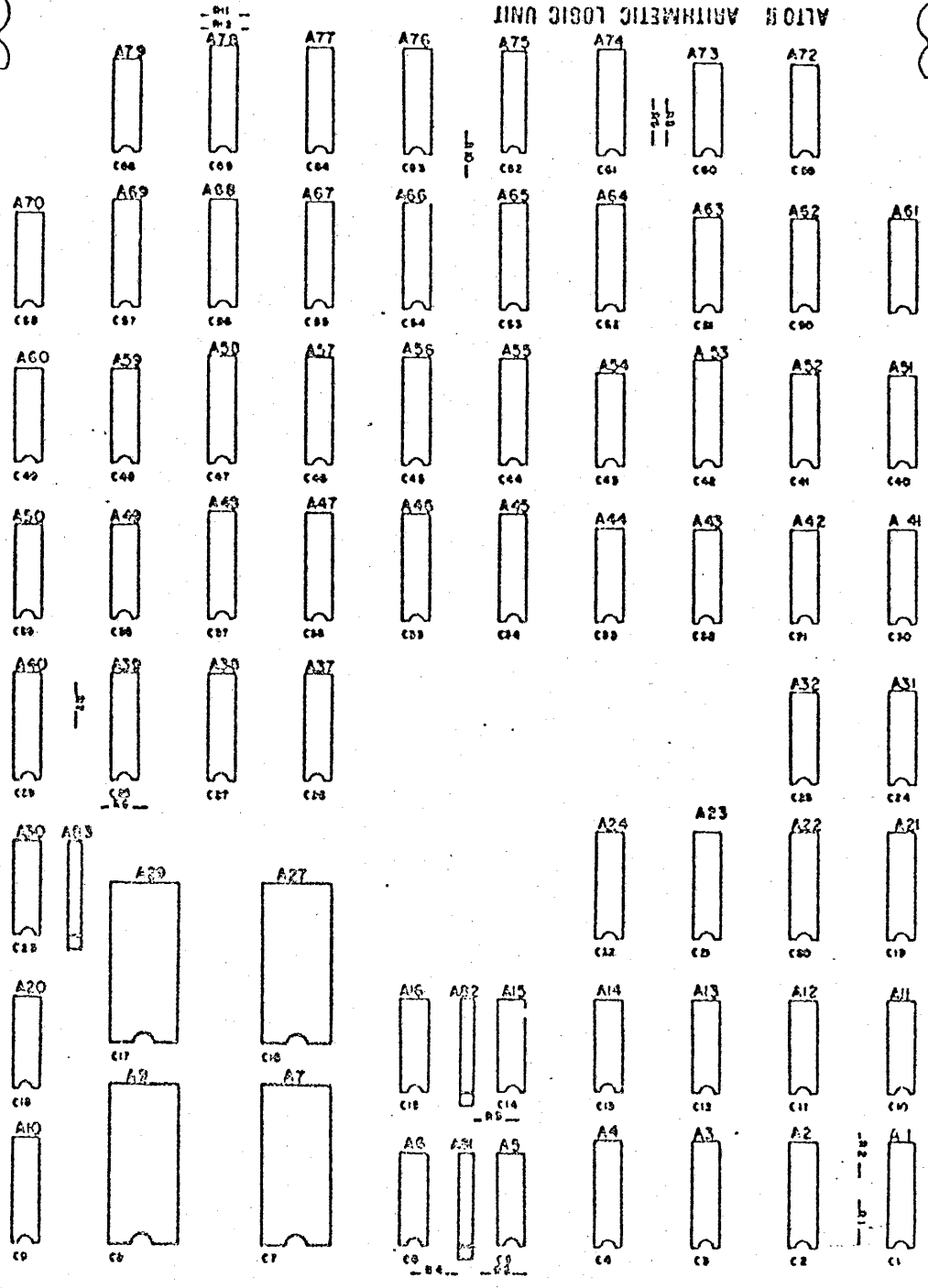
Sheet 2 of

ALTO II ARITHMETIC LOGIC UNIT

43 44  
2 PLACES

ASSY NO. 216381

PWB NO. 216383



45

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Title ALTO II  
ASSEMBLY, PW  
ARITHMETIC LOGIC UNIT

Xerox Corporation  
El Segundo, California  
216381  
C  
Sheet 3 OF

**Material List**

<b>ML</b>	Drawing No. <b>216381</b>	Rev. <b>F</b>
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Drawing Title  
**ALTO II**  
**ASSEMBLY, PRINTED WIRING-**  
**ARITHMETIC LOGIC UNIT**

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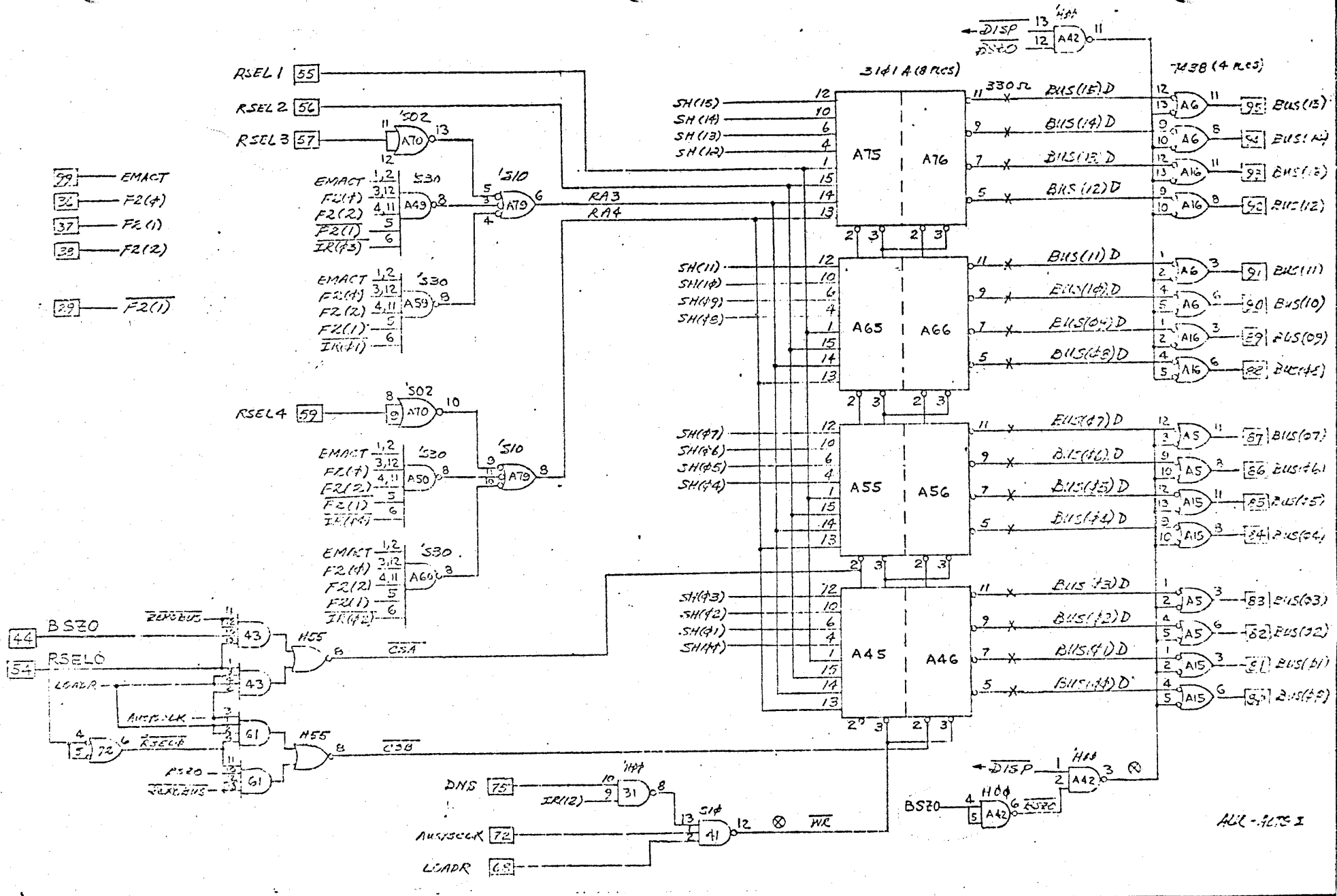
Model No. <b>EW07YF92</b>	Date <b>3/5/76</b>	Sheet <b>4 of</b>
------------------------------	-----------------------	----------------------

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, P. W. - ALU	216383	1	
2	Procedure, Test	216382	REF	
3	Spec, Module Assembly	216207	REF	
4	Microcircuit, 74H00		4	A31,42,52,72
5	74H55		2	A43, 61
6	74H01		2	A44,54
7	74S02		2	A51,70
8	74H04		2	A20,30
9	74S08		4	A11,12,13,14
10	74S10		2	A41,79
11	74S30		4	A49,50,59,60
12	7438		4	A5,6,15,16
13	74H50		1	A63
14	74H51		1	A32
15	74H74		1	A73
16	7486		1	A62
17	74S133		1	A69
18	74S174		3	A37,38,39
19	74S175		4	A1,2,3,4
20	74S181		4	A7,9,17,19
21	74S182		1	A40
22	74298		4	A21,22,23,24
23				
24				
25	I3101A Intel		8	A45,46,55,56,65,66, 75,76
26	F9309 Fairchild		9	A47,48,53,57,58,67, 68,77,78
27	82S23 Signetics		1	A10
28	Microcircuit, 82S34 Signetics		2	A64,74
29				
30				
31	Capacitor, .05 uF, 10V		66	Centralab #UK10-503
32				C1 thru C66
34	Capacitor, 22uF, 15V, Tantalum	187720-005	1	C67

Drawing No.  
**216381**

**ML**





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Title  
 ASSEMBLY, PRINTED WIRING-  
 ARITHMETIC LOGIC UNIT

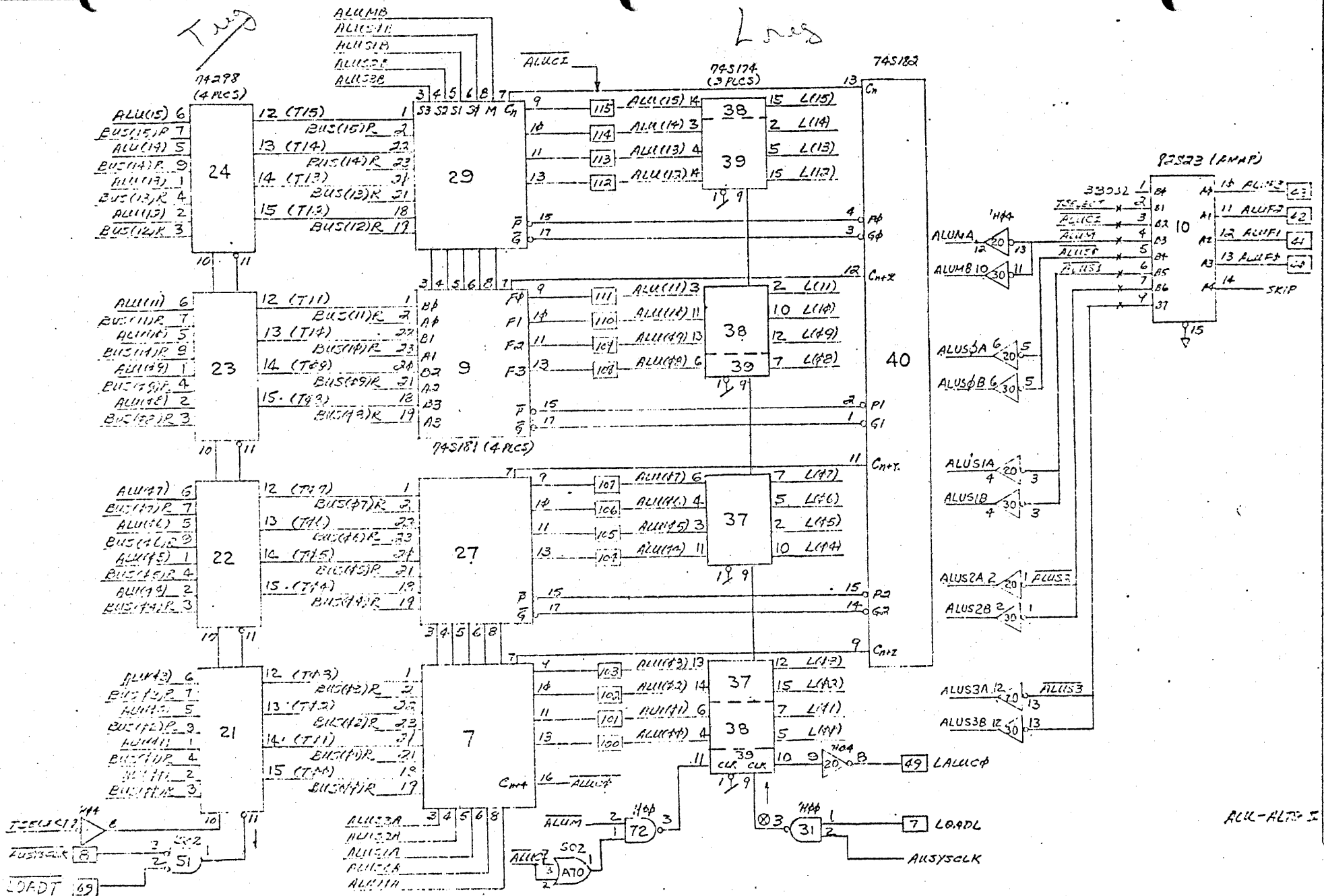
Xerox Corporation  
 El Segundo, California

**XEROX**

216381

Sheet 6 of





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Title  
**ASSEMBLY PRINTED WIRING-  
 ARITHMETIC LOGIC UNIT**

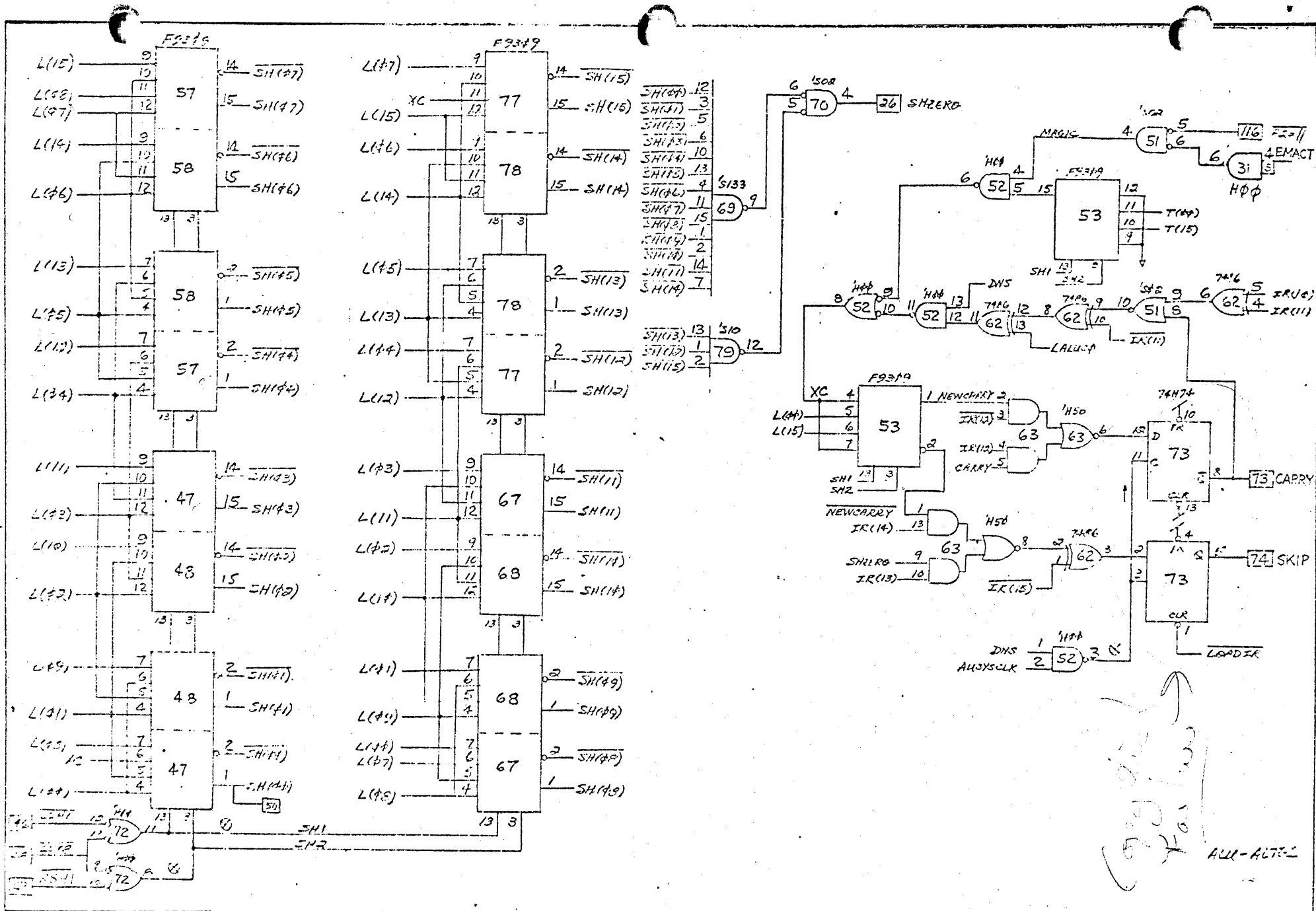
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 El Segundo, California

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216381

Sheet 7 of





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Title  
**ASSEMBLY, PRINTED WIRING-  
 ARITHMETIC LOGIC UNIT**

Xerox Corporation El Segundo, California		<b>XEROX</b>
216381	B	
Sheet	9	Of

ALTO II INTERNAL DISK CABLE

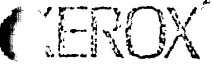
WINCHESTER	TO	ALTO	SIGNAL
A		2	READ CLOCK
B		3	WRITE DATA & CLOCK
C		38	READ DATA
D		1	GROUND
E		39	READ GATE
F		4	S/R/W
H		34	WRITE PROTECT INPUT, ATTENTION
J		37	CYL 8
K		35	ERASE GATE
L		5	SELECT LINE UNIT 1
M		36	HIGH DENSITY (OPTIONAL)
N		6	CYL 7
P		33	WRITE PROTECT IND
R		7	SELECT LINE UNIT 2
S		32	PSEUDO SECTOR MARK, ATTENTION
T		8	CYL2
U		31	FILE READY
V		9	SELECT LINE UNIT 3
W		30	SECTOR MARK
X		10	CYL 4
Y		29	INDEX MARK
Z		11	SELECT LINE UNIT 4
AA		28	HEAD SELECT
BB		12	CYL 1
CC		27	BIT SECTOR ADDX
DD		1	GROUND
EE		26	WRITE GATE
FF		13	CYL 3
HH		25	WRITE CHK
JJ		14	BIT 2
KK		24	BIT 4
LL		15	CYL 8
MM		23	BIT 8
NN		16	ADDX ACKNOWLEDGE
RR		19	CYL6
SS		22	STORBE
TT		17	SEEK INCOMPLETE
UU		21	BIT 16
VV		20	RESTORE
WW		1	GROUND
XX		18	LOG ADDX INTERLOCK (OPTIONAL)

Engineering Order

Drawing Title

ASSY, W-DISK CONTROL

Xerox Corporation  
El Segundo, California



EO Type Effectivity

Drawing Number

216389

Orig. Ltr.

F

- Revision
- Reserve
- Variation
- Immediate
- Serial No./Date
- Next Production

Dist. Code

SPG

DCR No.

DCR Date

1-13-78

Model No.

ALTO II

Next Assembly No.

216302

Sheet

1 of

Affected by This Change

Disposition of Existing Parts

	Yes	No	Dwg. No.	Other Dwgs.	Status	Return To Stock	Rework	Use	Scrap	Lowest Acceptable Revision Letter	F
Spare Parts	<input checked="" type="checkbox"/>	<input type="checkbox"/>			On Order		<input checked="" type="checkbox"/>			Mandatory Prior Revisions	
Tooling	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Process		<input checked="" type="checkbox"/>				
Test Procedures	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Stock		<input checked="" type="checkbox"/>				
Test Equipment	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Next Assy.		<input checked="" type="checkbox"/>			Field info. only - Lowest field usage level	
Programs	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Field						
Tech. Publications	<input type="checkbox"/>	<input checked="" type="checkbox"/>			Refurbishment						

Reason For Change (If reason is Design Error or Reliability, describe symptoms & conditions under which they occur.)

- Design Error
- Drawing Error
- Producibility
- Maintainability
- Reliability
- Cost Reduction

M/L ITEM 31 OSCILLATOR PART NO. NOT COMPLETE.

Drawing Change

Rework Instructions

M/L ITEM 31 PART NO.

IS: K1100A, 3.33 MH

WAS: K1100A

MFG. COMPLYING

*Completed*  
1-16-78

Test Procedure to Verify Change

*BRAD*

Draftsman	Date	Check	Date	Field/Mfg.	Date	Proj. Engr.	Date	DCB	Date
<i>Moham...</i>	1-13-78					<i>R. Hansen</i>	1-16-78		<i>...</i>

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>FW</i>		<i>R. Freeman</i>
	B	REVISED	<i>FW</i>	6-12 76	<i>R. Freeman</i>
	C	REVISED RESET MODE REGISTER LOGIC	<i>FW</i>	7-19 76	<i>R. Freeman</i>
	D	M/L ITEM 11 8T10 WAS 74173. SH 9 A14,15,16,17 8T10 WAS 74173. SH 11 A46, 47 8T10 WAS 74173.	<i>FW</i>	10-22 76	<i>R. Freeman</i>
	E	M/L ITEM 41 ADDED R20, QTY WAS 1.	<i>FW</i>	4-10 77	<i>R. Freeman</i>
X	F	M/L ITEM 31 P/N WAS K1100A.	<i>FW</i>	1-15 78	<i>R. Freeman</i>

THIS DOCUMENT CONTAINS 18 SHEETS

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	1. Tolerances .XX ±.03      Angular .XXX ±.010    ±½°	Check <i>M. S. ...</i>	Appr. <i>R. Freeman</i> 6-15-76			
	2. Break All Sharp Edges .010 Approx.	Material				
	3. Mach. Surfaces <input checked="" type="checkbox"/>					
4. All Dim. in Inches	Model No. First Use ALTO II EWO 7YF 92	Code Ident. <b>18338</b>	Size <b>A</b>	Dwg. No. 216389	Change Letter <b>F</b>	
	Finish	Scale	Do Not Scale Drawing		Sheet <b>1</b>	

NOTES: UNLESS OTHERWISE SPECIFIED

1. CUT ETCH AND ADD JUMPER AS FOLLOWS:
  - A. CUT ETCH BETWEEN A11-13 AND FEED THRU (NEAR C22), (COMPONENT SIDE), (FEED THRU CONNECTS TO PIN 70).
  - B. CUT ETCH BETWEEN A11-10 AND A11-13, (CIRCUITRY SIDE).
  - C. ADD JUMPER FROM A11-10 TO FEED THRU (NEAR C22), (FEED THRU CONNECTS TO PIN 70).
  - D. ADD JUMPER FROM PIN 73 TO A11-13.
2. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.

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Title  
ALTO II  
ASSEMBLY, P.W.  
DISK CONTROL

Xerox Corporation  
El Segundo, California

**XEROX**

216389

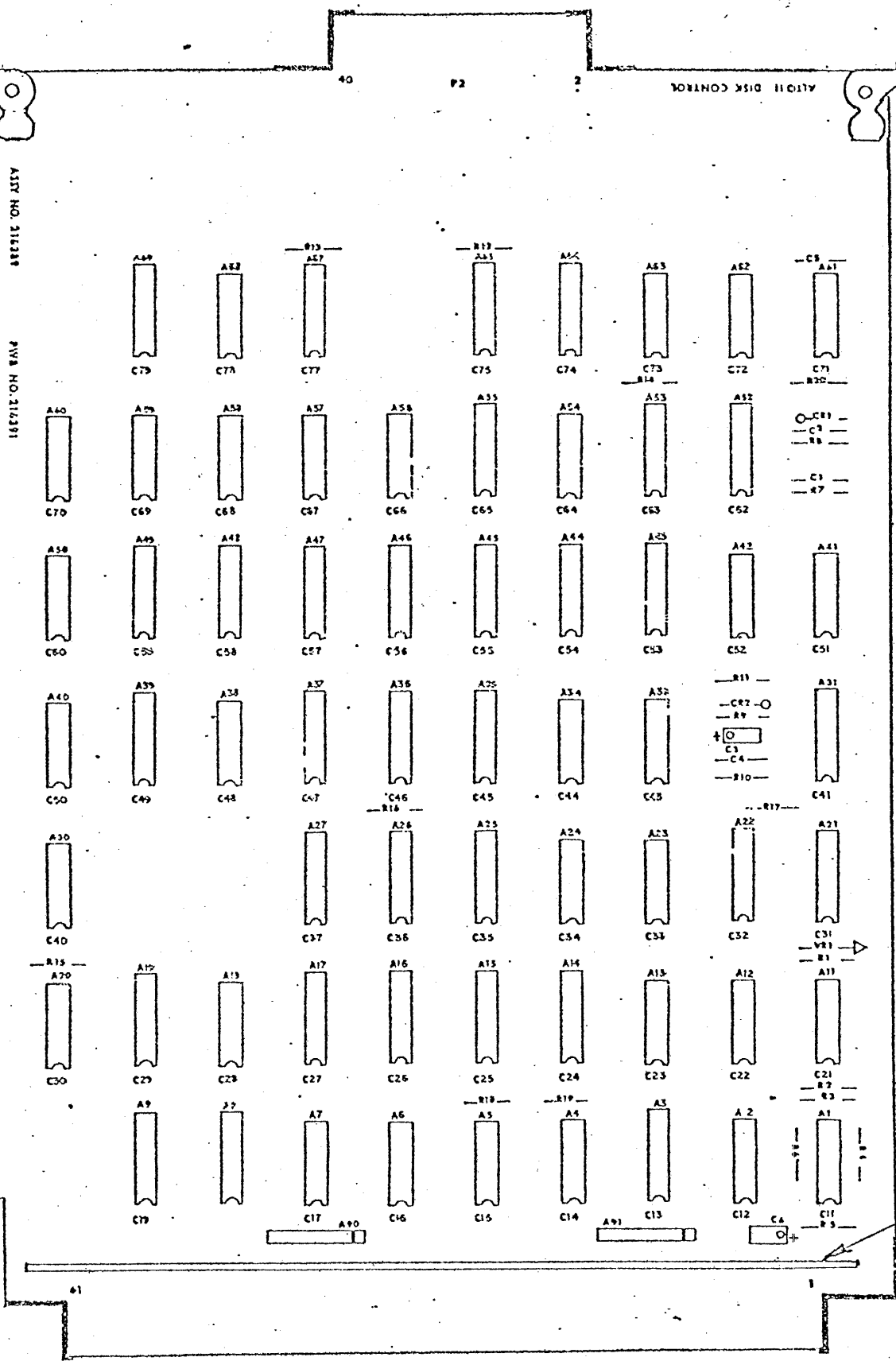
F

Sheet 2 Of

ASSY NO. 216389  
P.W. NO. 216381

ALTO II DISK CONTROL

59  
58  
2 PLACES



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Title  
**ASSY, P.W.-  
 DISK CONTROL**

Xerox Corporation El Segundo, California		<b>XEROX</b>
216389		
Sheet	3	OF



**Material List**

ML	Drawing No. 216389	Rev. F
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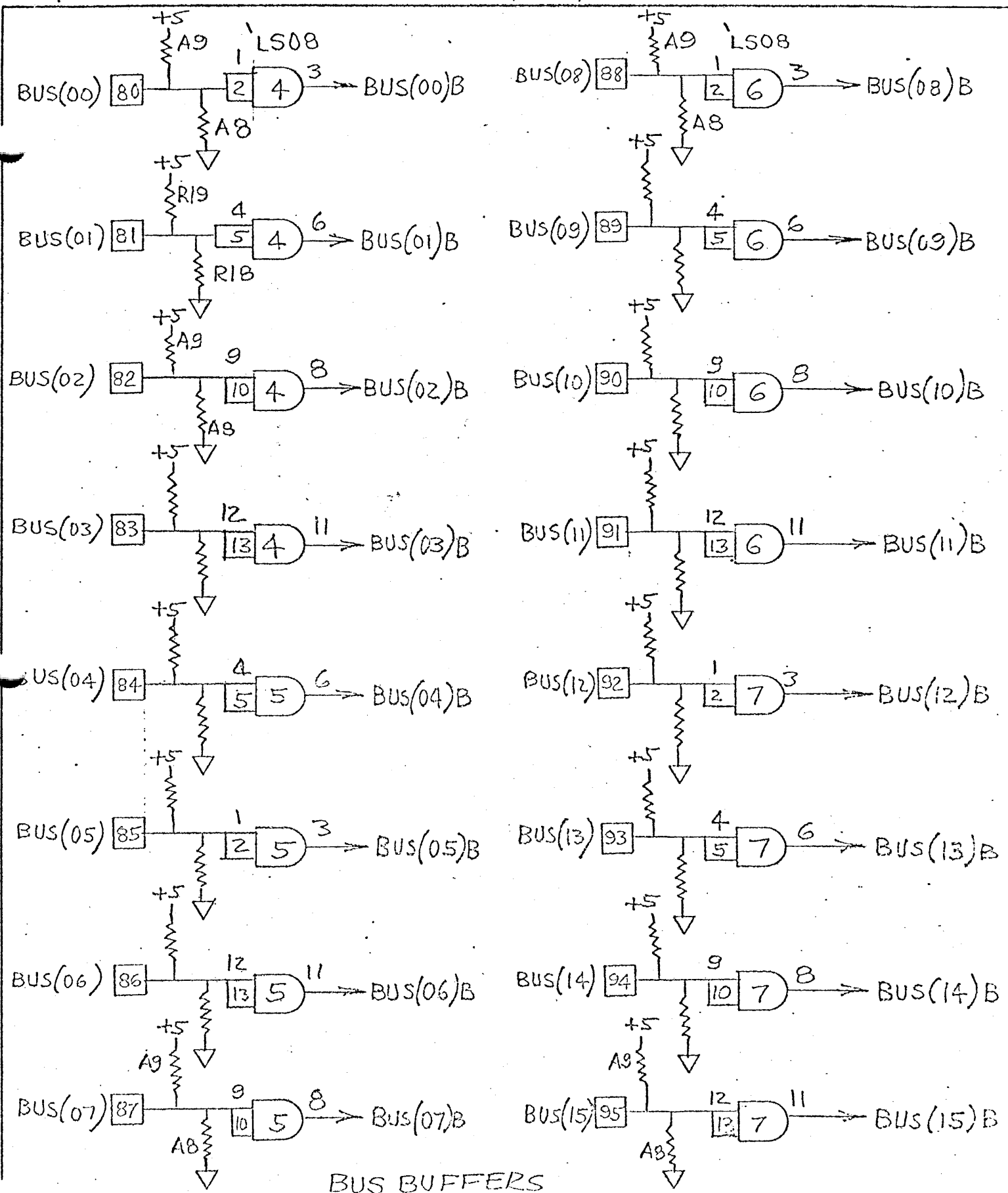
Rev.	Drawing Title <b>ALTO II</b>	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	<b>ASSEMBLY, PRINTED WIRING-DISK CONTROL</b>	Model No. <b>ALTO II</b>	Date 6/14/76	Sheet 4 of

Drawing No.  
ML 216389

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	BOARD, PRINTED WIRING	216391	1	
2	SPEC, TEST	216390	REF	
3	SPEC, MODULE ASSEMBLY	216207	REF	
4	MICROCIRCUIT, MPQ3303		1	A1
5	74H04		3	A2, 56, 59
6	3205		1	A3
7	74LS08		4	A4, 5, 6, 7
8	74H00		1	A11
9	74S04		1	A12
10	74164		2	A13, 18
11	8T10		6	A14, 15, 16, 17, 46, 47
12	74166		2	A19, 39
13	7437		5	A20, 30, 40, 58, 68
14	74109		8	A21, 22, 43, 44, 45, 53, 55, 67
15	74S32		2	A23, 57
16	7438		2	A24, 34
17	74174		3	A25, 26, 27
18	74123		2	A31, 52
19	7400		2	A33, 63
20	I3404		1	A35
21	74195		2	A36, 37
22	74H08		2	A38, 42
23	74H11		1	A41
24	8231		2	A48, 49
25	74H01		2	A50, 60
26	74S02		1	A54
27	7414		1	A61
28	74H106		1	A64
29	74153		1	A65
30	MICROCIRCUIT, 74161		1	A69
31	OSCILLATOR, K1100A 3.33 MH		1	A62
32				

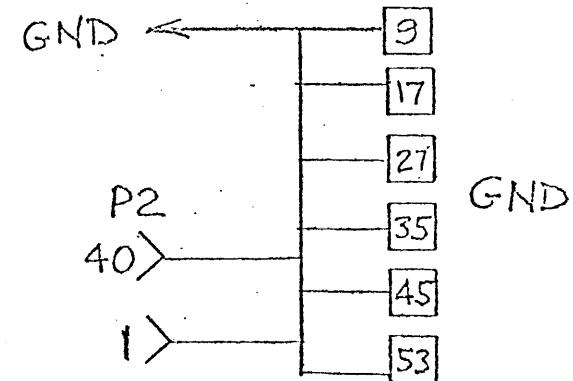
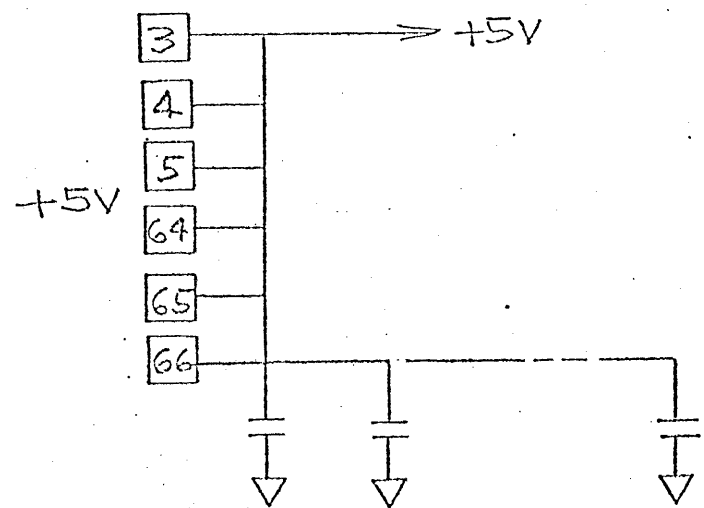
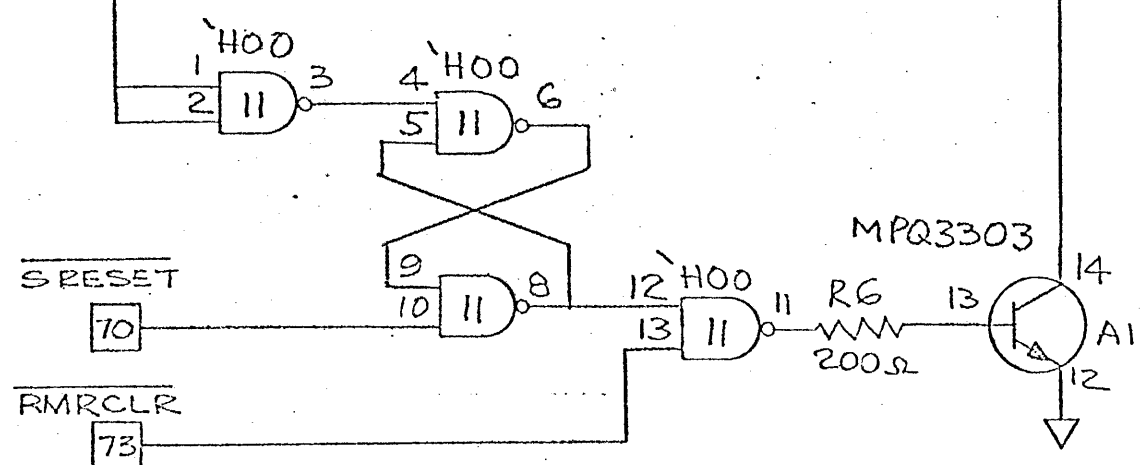
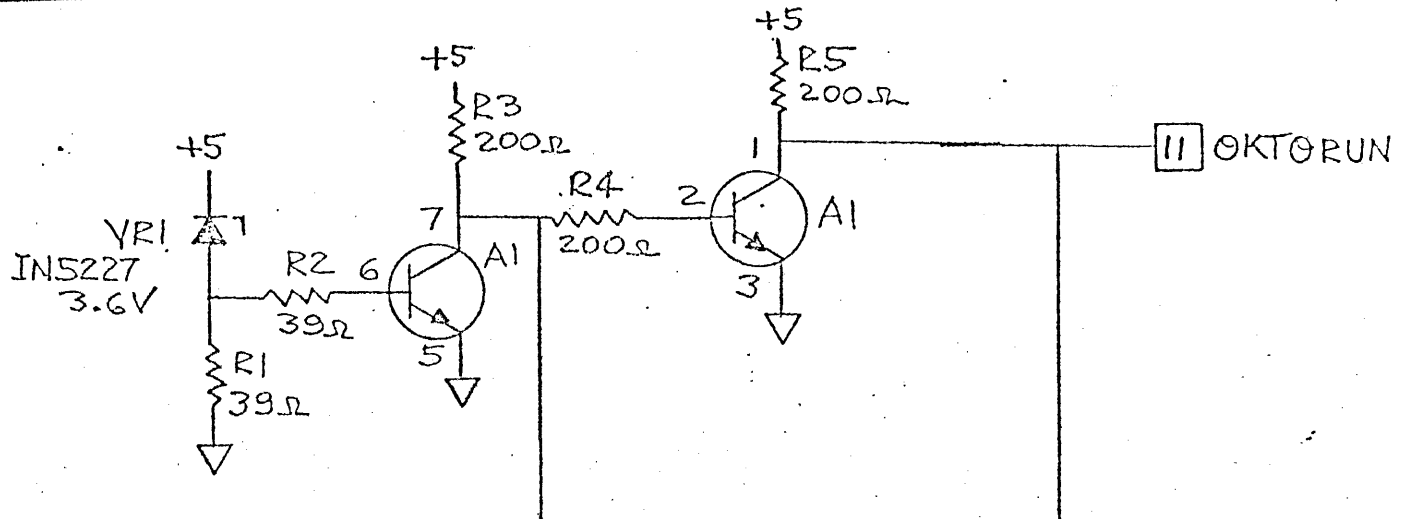
Material List

Rev. F	Drawing Title <b>ALTO II</b> <b>ASSEMBLY, PRINTED WIRING-</b> <b>DISK CONTROL</b>		These drawings and specifications, and the data contained there- in, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
	Model No. <b>ALTO II</b>		Date 6/14/76	Sheet 5 of	
Drawing No. 216389	Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
	33	RESISTOR, NETWORK, DIP, 270Ω (AB#316A271)		1	A9
ML	34	RESISTOR, NETWORK, DIP, 560Ω (AB#316A561)		1	A8
	35	RESISTOR, NETWORK, 470Ω, (CTS #750-81-R470)		2	A90, 91
	36	RESISTOR, FILM, 39Ω ±5%, 1/4W	116447-390	2	R1, R2
	37	200 Ω ±5%, 1/4W	116447-201	5	R3, 4, 5, 6, 12
	38	24K ±5%, 1/4W	116447-243	2	R7, 8
	39	15K ±5%, 1/4W	116447-153	1	R9
	40	30K ±5%, 1/4W	116447-303	1	R10
	41	330 Ω ±5%, 1/4W	116447-331	2	R11, R20
	42	560 Ω ±5%, 1/4W	116447-561	1	R18
	43	270 Ω ±5%, 1/4W	116447-271	1	R19
	44	RESISTOR, FILM, 1K ±5%, 1/4W	116447-102	5	R13, 14, 15, 16, 17
	45				
	46	DIODE, IN4148		2	CR1, CR2
	47	DIODE, ZENER, IN5227		1	VR1
	48				
	49	CAPACITOR, 150PF NYTRONICS DC151		1	C1
	50	CAPACITOR, .01μF		2	C2, C4
	51	CAPACITOR, .47μF ±20%, 50V	114491-474	1	C3
	52	CAPACITOR, 270PF NYTRONICS DC 271		1	C5
	53	CAPACITOR, TANT., 22μF ±20%, 15V	114491-226	1	C6
	54	CAPACITOR, .05μF, 10V CENTRALAB#UK10-503		62	C11-17, 19, 21-37, 40, 41, 43-60, 62-75, 77-79
	55				
	56	SOCKET, MICROCIRCUIT		31	AUGAT#514-AG10D
	57	SOCKET, MICROCIRCUIT		32	AUGAT#516-AG10D
	58	RIVET	156111-005	2	
	59	EXTRACTOR	216250	2	
	60	STIFFENER	216242	1	



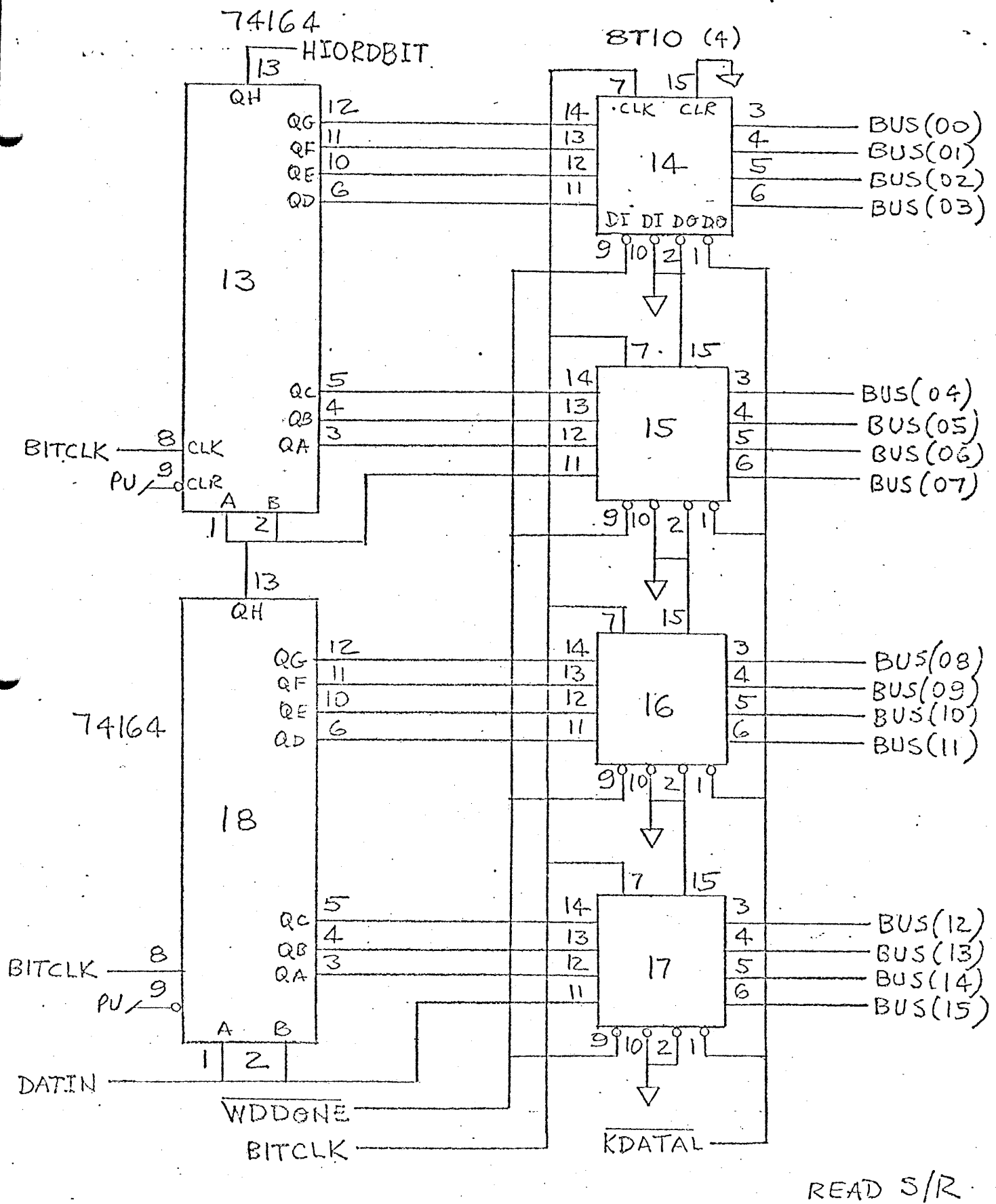
BUS BUFFERS

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		216389 F
	Sheet 6 of	



POWER ON RESET

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	216389	F
	Sheet 7 of	

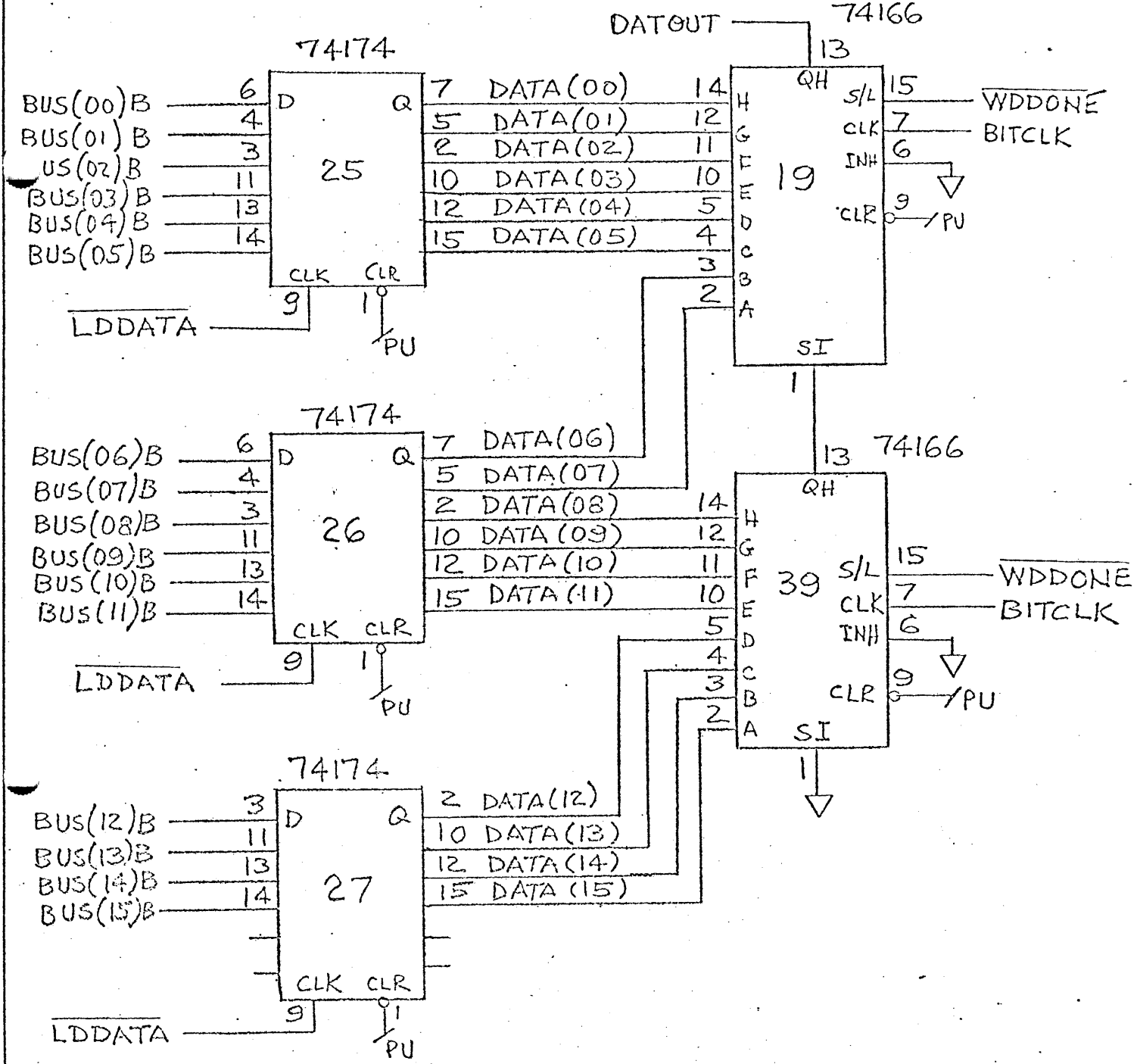


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Title  
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ASSEMBLY, PRINTED W.  
DISK CONTROL

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216389		F	
Sheet 9 of			

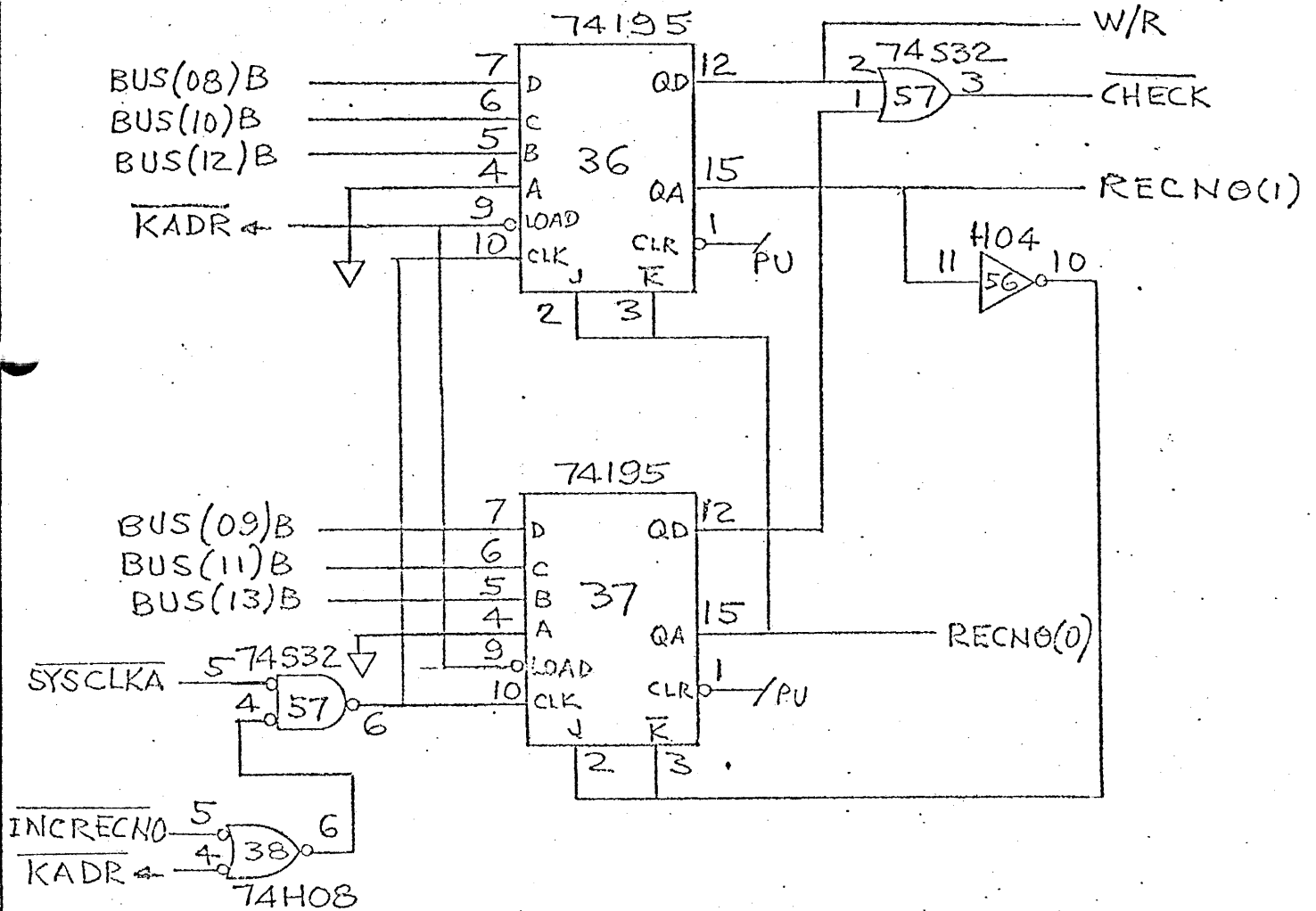
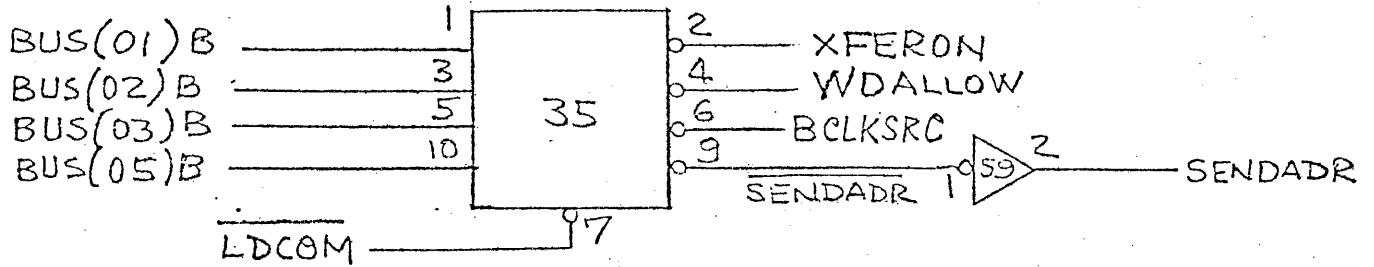
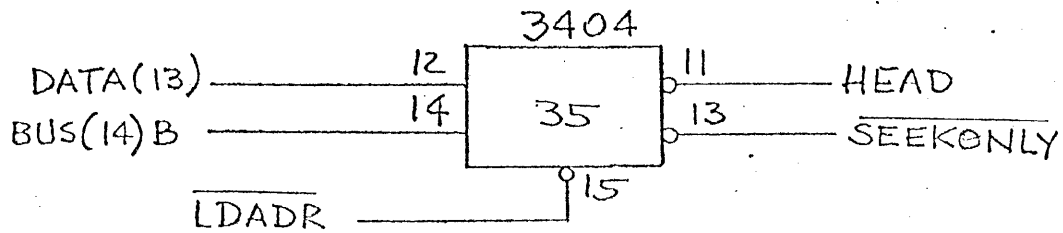


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ALTO II  
ASSEMBLY P.W. -  
DISK CONTROL

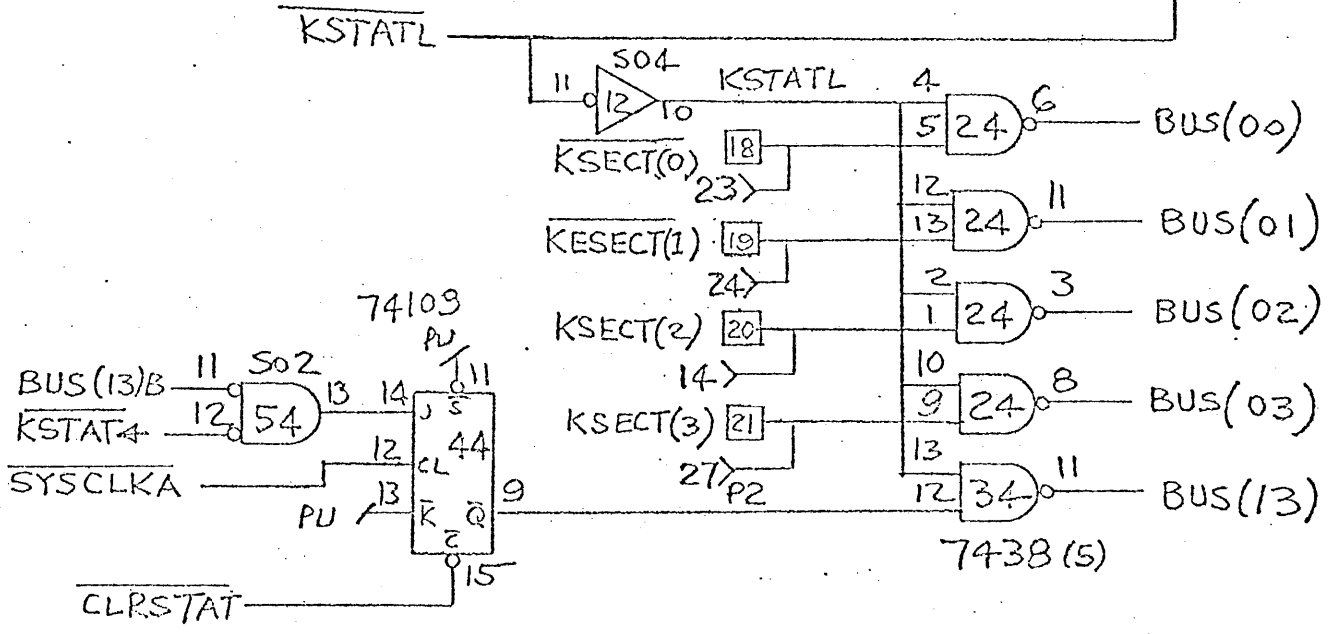
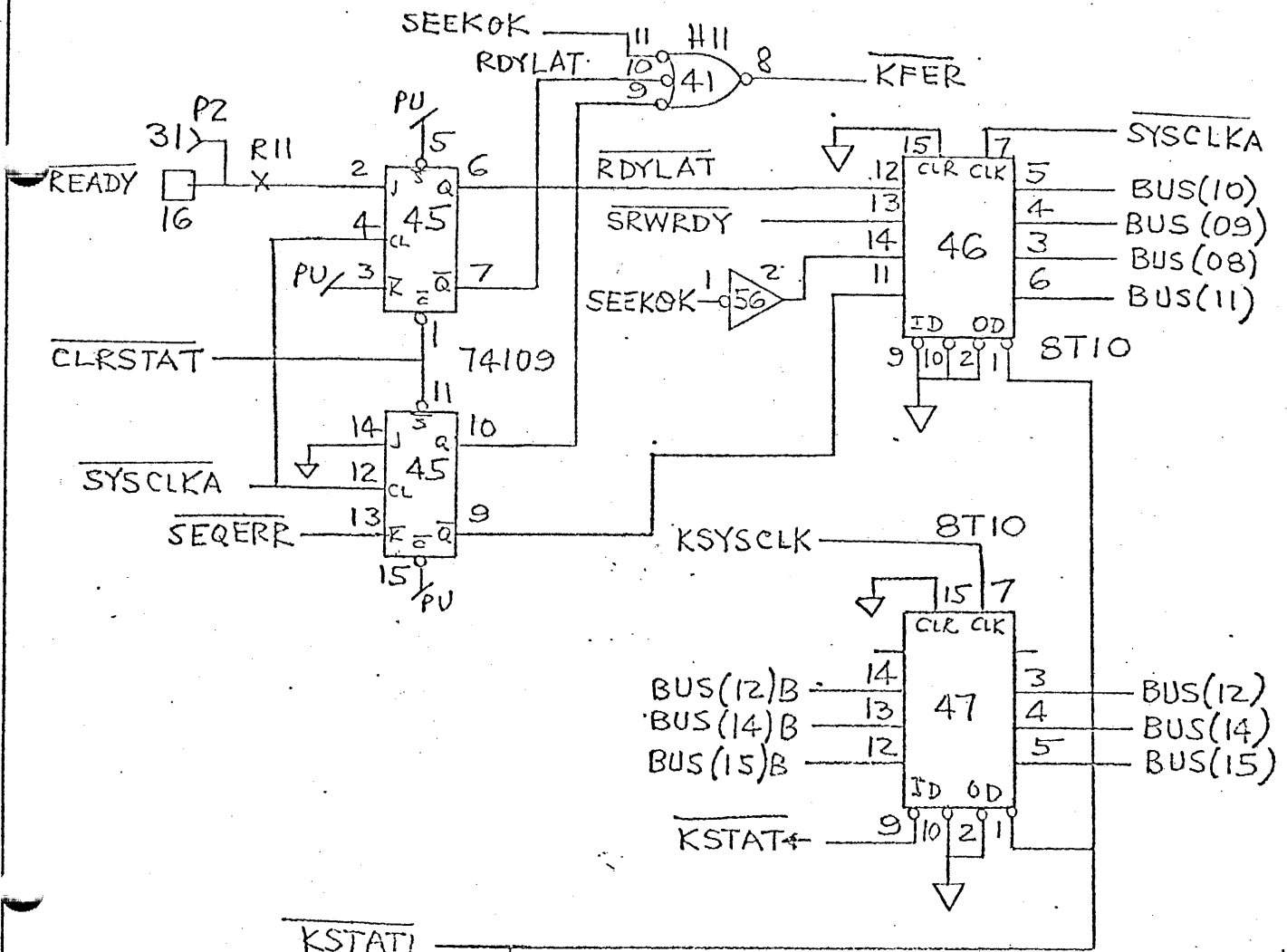
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El Segundo, California

**XEROX**

216389

F

Sheet 10 of

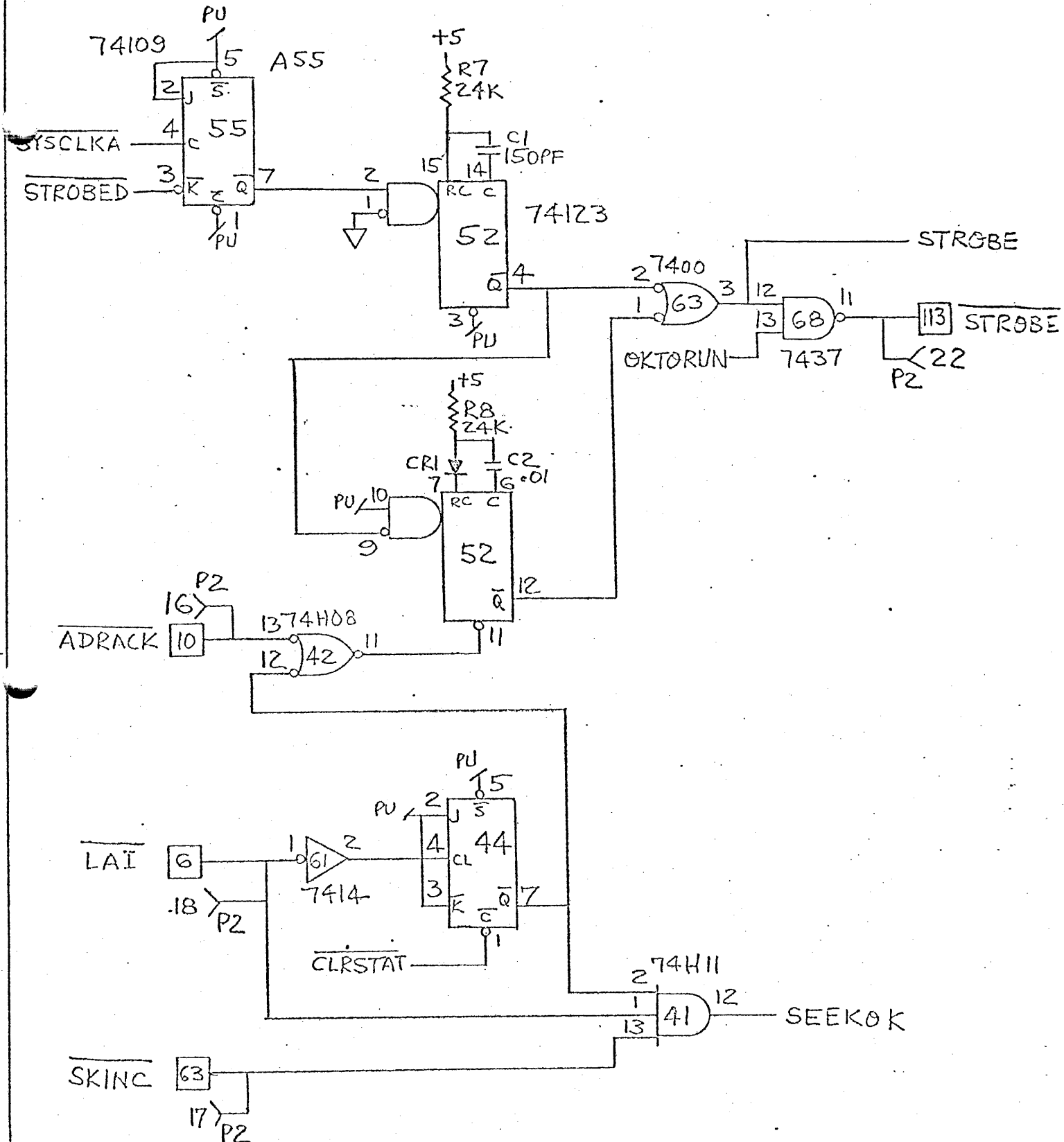


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			216389	F
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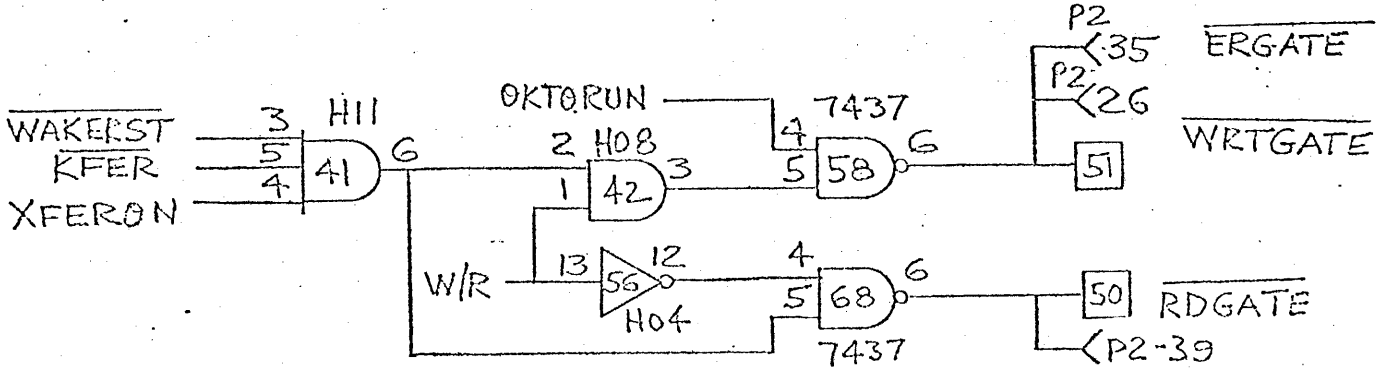
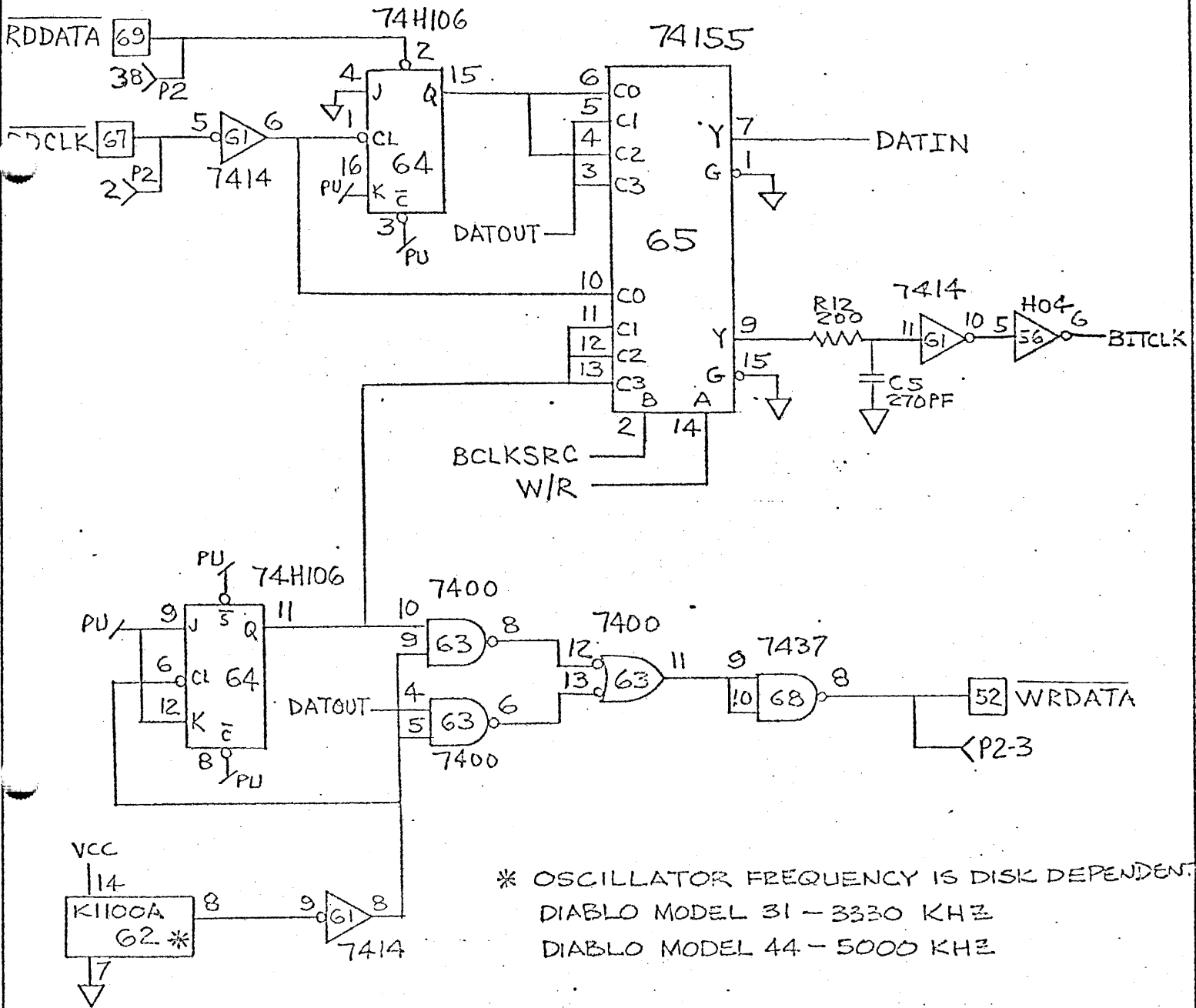


STROBE, SEEK ERRORS

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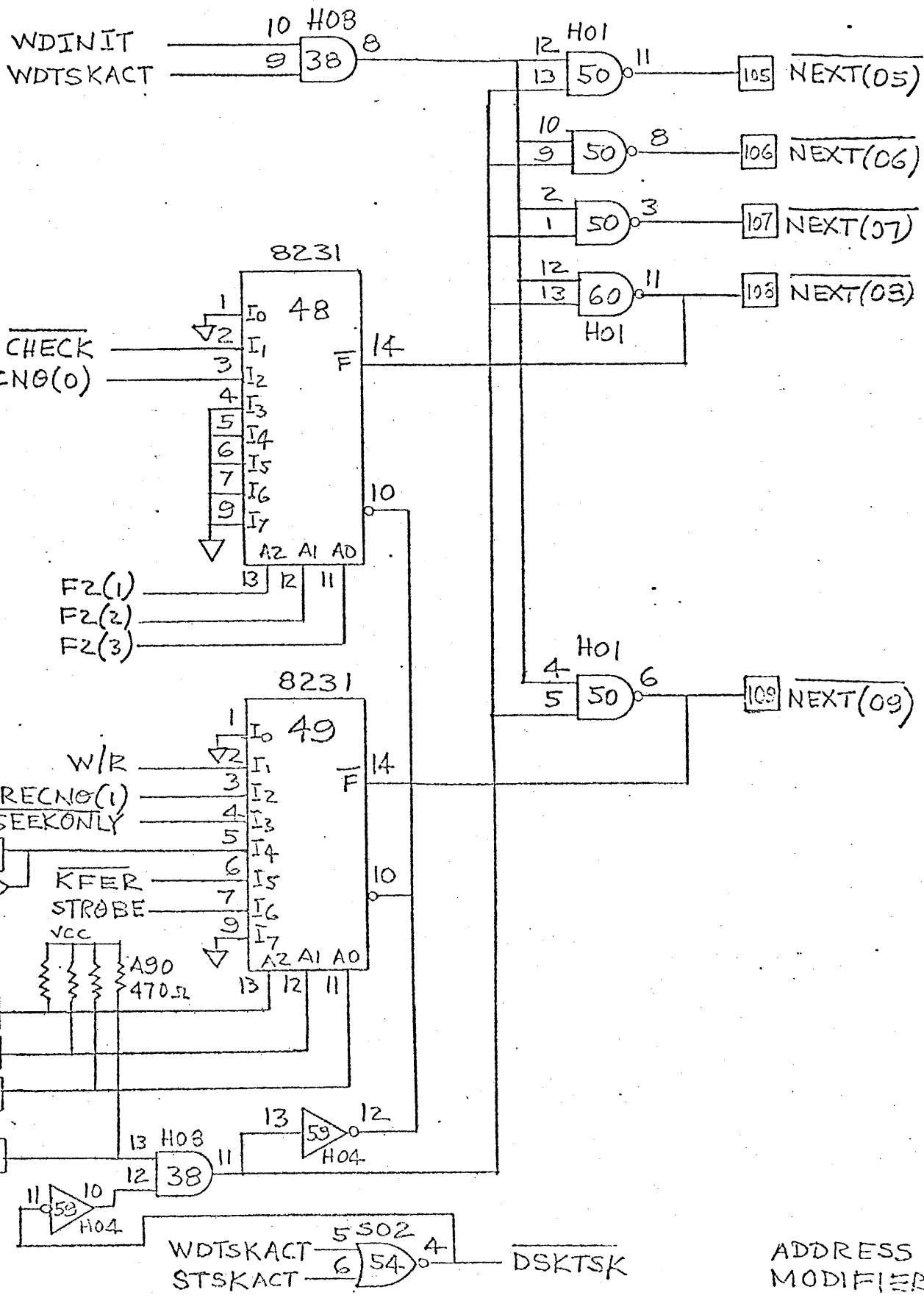


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ALTO II  
 ASSEMBLY, P.W.-  
 DISK CONTROL

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216389		
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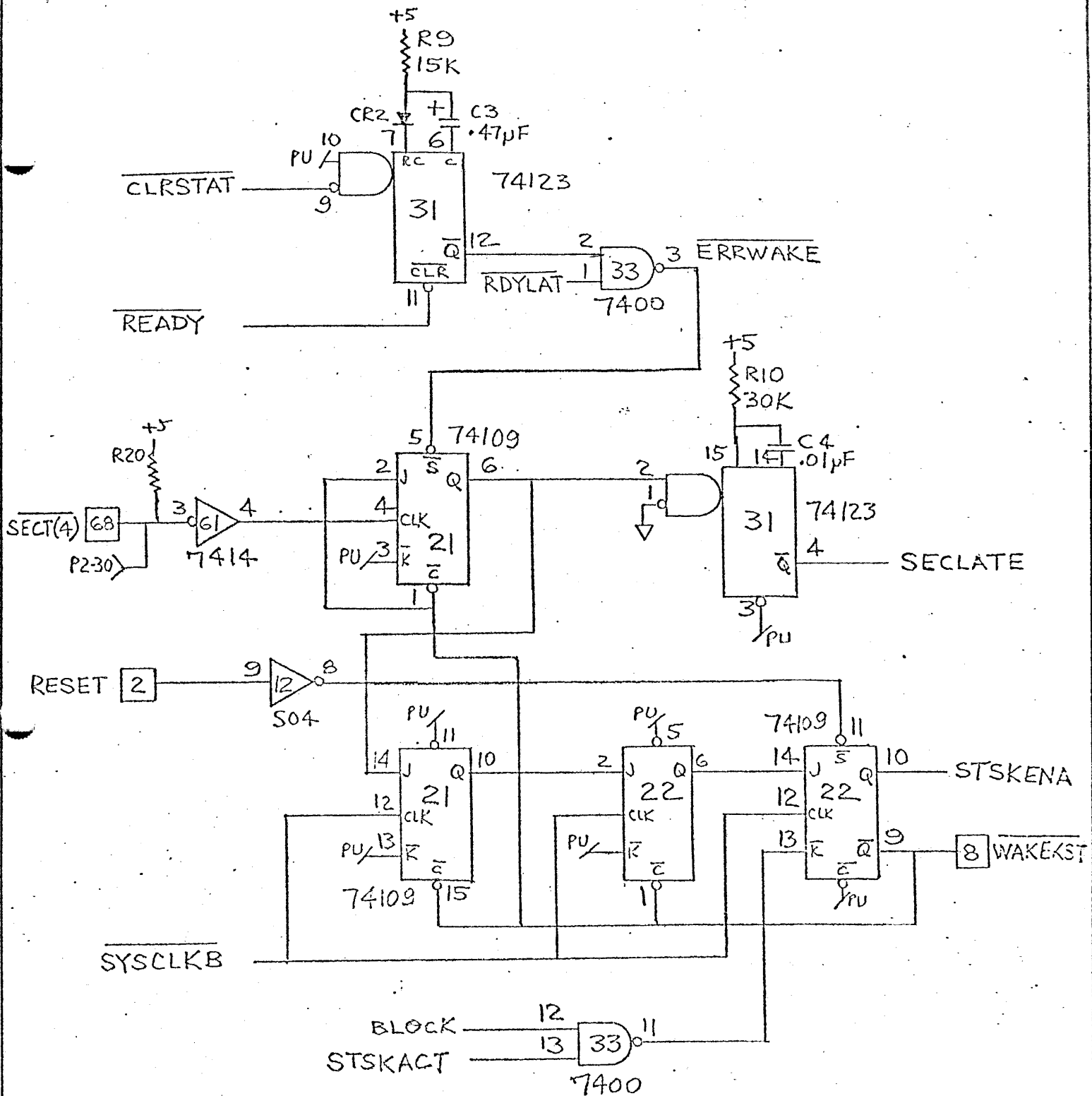


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ALTO II  
ASSEMBLY P.W.-  
DISK CONTROL

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**XEROX**  
216389  
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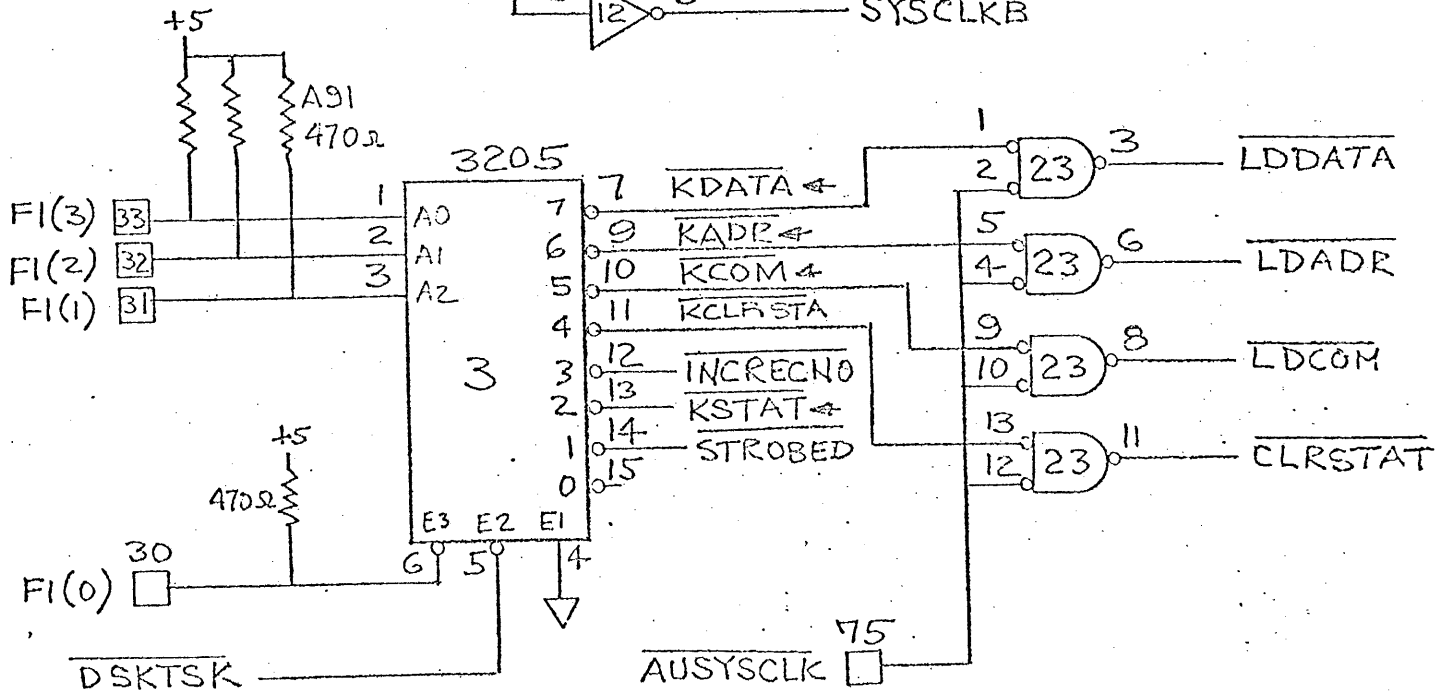
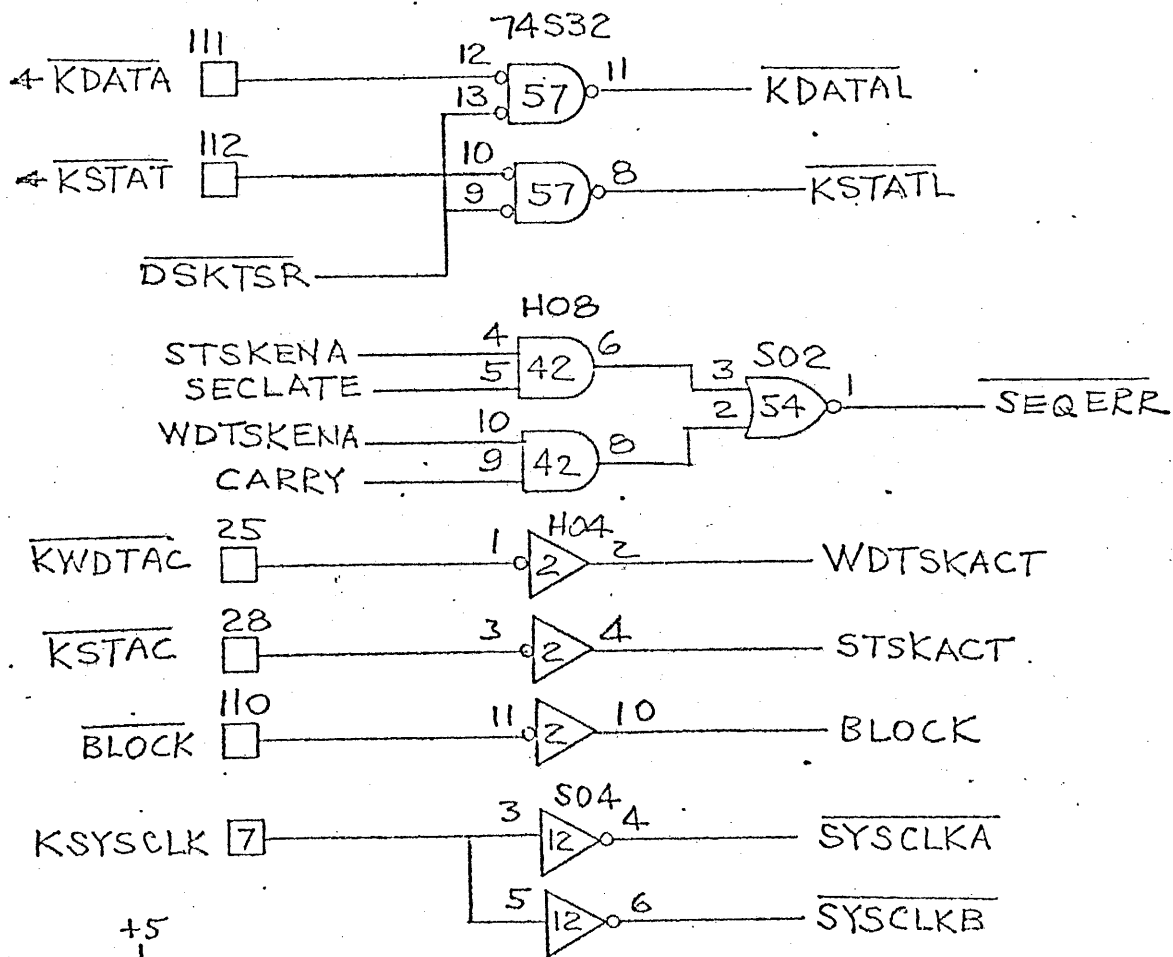


### SECTOR, ERROR WAKEUPS

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**ASSEMBLY, P.W. -**  
**DISK CONTROL**

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F DECODE, CLOCKS

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- ASSEMBLY, P.W. -  
DISK CONTROL

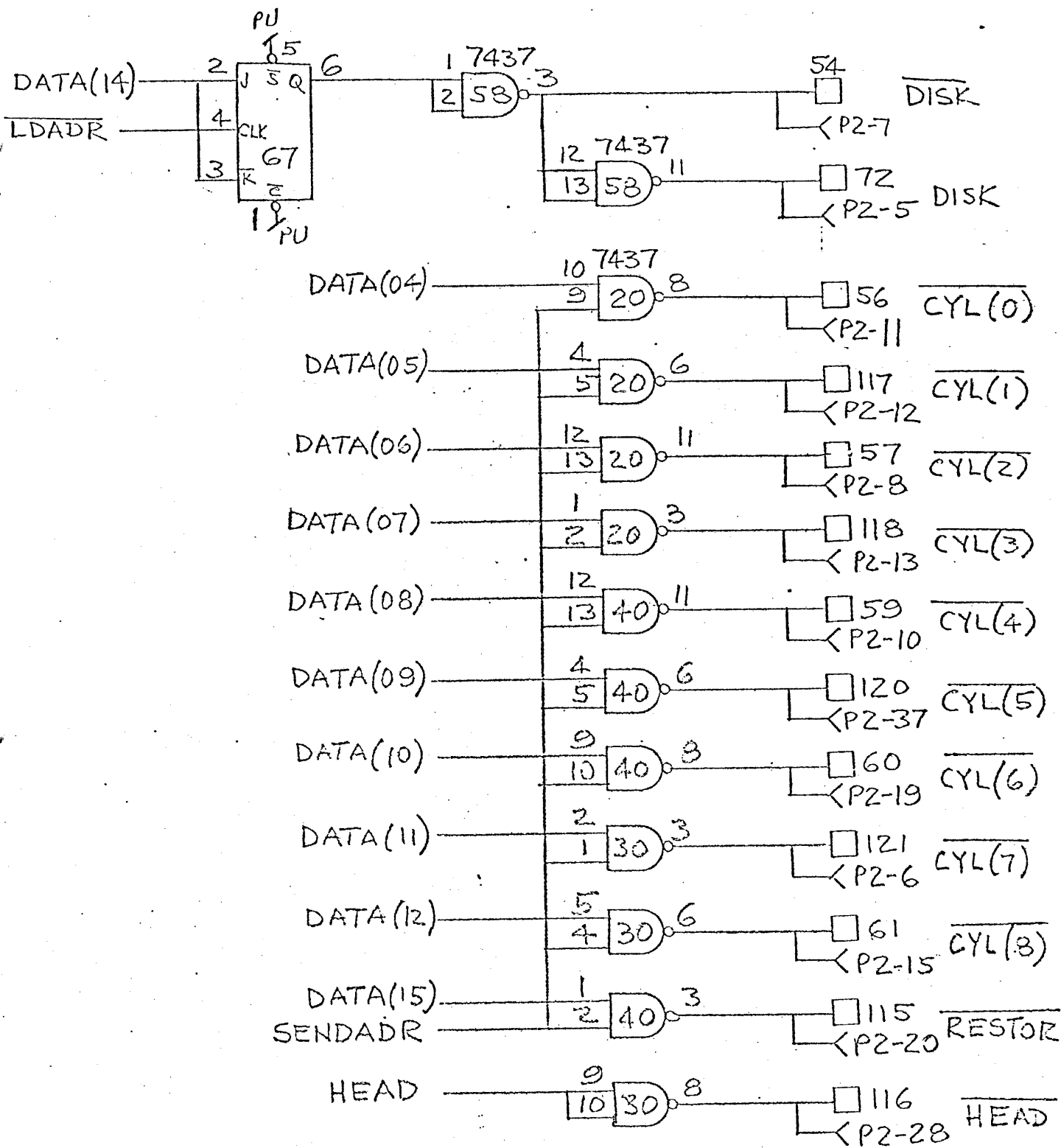
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El Segundo, California

XEROX

216389

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## DISK ADDRESSING

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DISK CONTROL

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**ALTO**

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LAL		Revisions			6421	B
Rev.	Description	Chk.	Date	Approved		
A	ENGRG RELEASE	<i>BN</i>	7-24-76	<i>[Signature]</i>		
B	ADDED BOARD ASSY DETAIL. ADDED SCHEMATIC	<i>BN</i>	8-11-76	<i>BN</i>		

**ENGINEERING  
RELEASE**

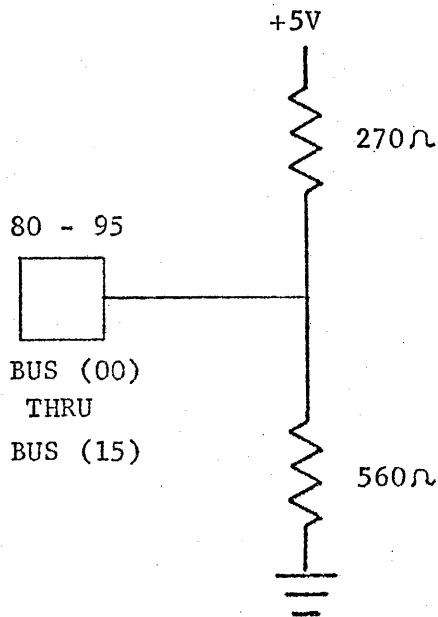
Dist. Code **ALT**

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	<p>1. Tolerances .XX ±.030      Angular ±½° .XXX ±.010</p> <p>2. Break All Sharp Edges .010 Approx.</p> <p>3. Mach. Surfaces      ✓</p> <p>4. All Dim. In Inches</p>	Check <i>M. Williams</i> 7-28-76			
		Appr. <i>[Signature]</i> 5-17-76			
		Material <i>[Signature]</i>			
<p>Model No. <b>ALTO II</b> First Use <b>EWO 7YF92</b></p> <p>Next Assy. <b>216302</b></p>	Finish	Code Ident. <b>18338</b>	Size <b>A</b>	Dwg. No. <b>216421</b>	Change Letter <b>B</b>
		Scale	Do Not Scale Drawing		Sheet <b>1 OF 4</b>



NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPEC, DWG NO. 216207.



SCHEMATIC, TERMINATOR MODULE

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Title ALTO II  
ASSEMBLY, P.W. -  
TERMINATOR MODULE

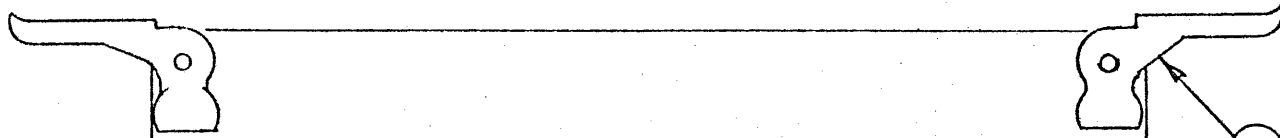
Xerox Corporation  
El Segundo, California

**XEROX**

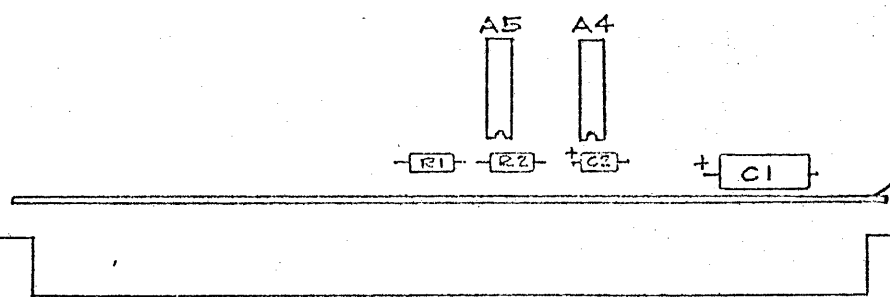
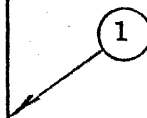
216421

B

Sheet 2 of 4



15 16  
2 PLACES



14

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Title ALTO II  
ASSEMBLY, P.W. -  
TERMINATOR MODULE

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216421		
Sheet	3	Of 4



Revisions				216484	A
* LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	<i>Am</i>	3-7-77	

**ENGINEERING  
RELEASE**

THIS DOCUMENT CONTAINS 14 SHEETS.

Dist Code ALT

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- Notes Unless Specified
- Tolerances  
 .XX ±.03      Angular  
 .XXX ±.010    ±½°
  - Break All Sharp Edges  
 .010 Approx.
  - Mach. Surfaces
  - All Dim. in Inches

Drawn *Hidmura* 2-22-77  
 Check  
 Appr. *Young* 3-7-77  
 Material

Xerox Corporation  
 El Segundo, California

**XEROX**

Title  
 ASSEMBLY, PRINTED WIRING-  
 CONTROL BOARD (2K)

Model No.  
 First Use      **ALTO II**

Next Assy.  
 First Use      **216302**

Finish

Code Ident.      **18338**

Size                **A**

Scale              -

Dwg. No.                **216484**

Change Letter            **A**

Do Not Scale Drawing    Sheet **1** OF **1**

NOTES: UNLESS OTHERWISE SPECIFIED

1. ASSEMBLE PER ALTO II MODULE ASSEMBLY SPECIFICATION, DWG NO. 216207.
2. THE FOLLOWING MODIFICATIONS ARE REQUIRED USING "A" REVISION PRINTED WIRING BOARDS:
  - 1) CUT ETCH TO U51 PIN 1  
 CUT ETCH TO U51 PIN 2  
 CUT ETCH TO U51 PIN 3  
 CUT ETCH TO U51 PIN 4
  - 2) ADD JUMPER FROM U47 PIN 2 TO U47 PIN 8  
 ADD JUMPER FROM U51 PIN 1 TO U43 PIN 10  
 ADD JUMPER FROM U51 PIN 2 TO U43 PIN 12  
 ADD JUMPER FROM U51 PIN 3 TO U41 PIN 10  
 ADD JUMPER FROM U51 PIN 4 TO U41 PIN 5
3. SPECIAL INSTRUCTIONS TO INSTALL 2ND K OF PROMS
  - A. THE ALTO II CONTROL MODULE (2K) IS SHIPPED WITH THE 1ST K OF PROM INSTALLED ONLY AND THE MODULE IS OPERATED WITH THE REST OF THE ALTO II SYSTEM EXACTLY THE SAME WAY AS THE OLD CONTROL MODULE.
  - B. A SET OF VIRGIN PROMS FOR THE 2ND K ADDRESS LOCATIONS ARE PROVIDED WITH THE MODULE AND PLACED IN THE IC LOCATION WHERE THE 2ND K PROM IS NORMALLY INSTALLED.
  - C. WHEN THE 2ND K OF PROM IS INSTALLED, THE "SW MODE. 1K" SWITCH MODE CONTROL PROM (U50) MUST BE REPLACED WITH THE CONTROL PROM "SW MODE. 2K" WHICH IS ALSO PROVIDED AND PLACED IN THE SPARE LOCATION U76.
  - D. THE PLACEMENT OF THE 2ND K PROM IS AS FOLLOWS:

BITS	LOCATION
0 - 3.....	U54
4 - 7.....	U74
8 - 11.....	U75
12 - 15.....	U73
16 - 19.....	U52
20 - 23.....	U70
24 - 27.....	U71
28 - 31.....	U72

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Title

ASSEMBLY, P. W. -  
CONTROL BOARD (2K)

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El Segundo, California

**XEROX**

216484

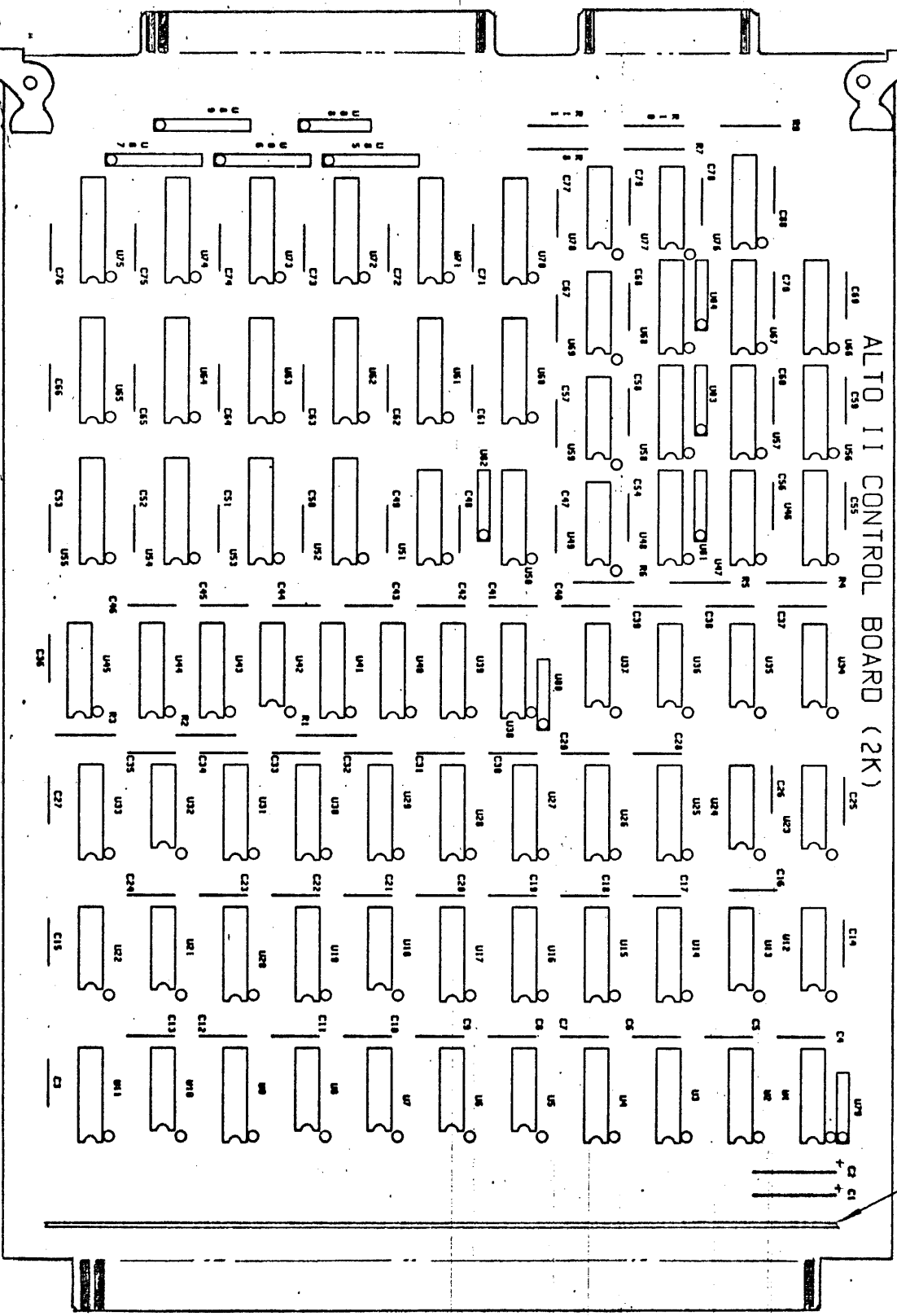
A

Sheet

2

Of

41 42  
2 REQD



40

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Title  
ASSEMBLY, P. W. -  
CONTROL BOARD (2K)

Xerox Corporation El Segundo, California		<b>XEROX</b>
216484	A	
Sheet	3	Of

**Material List**

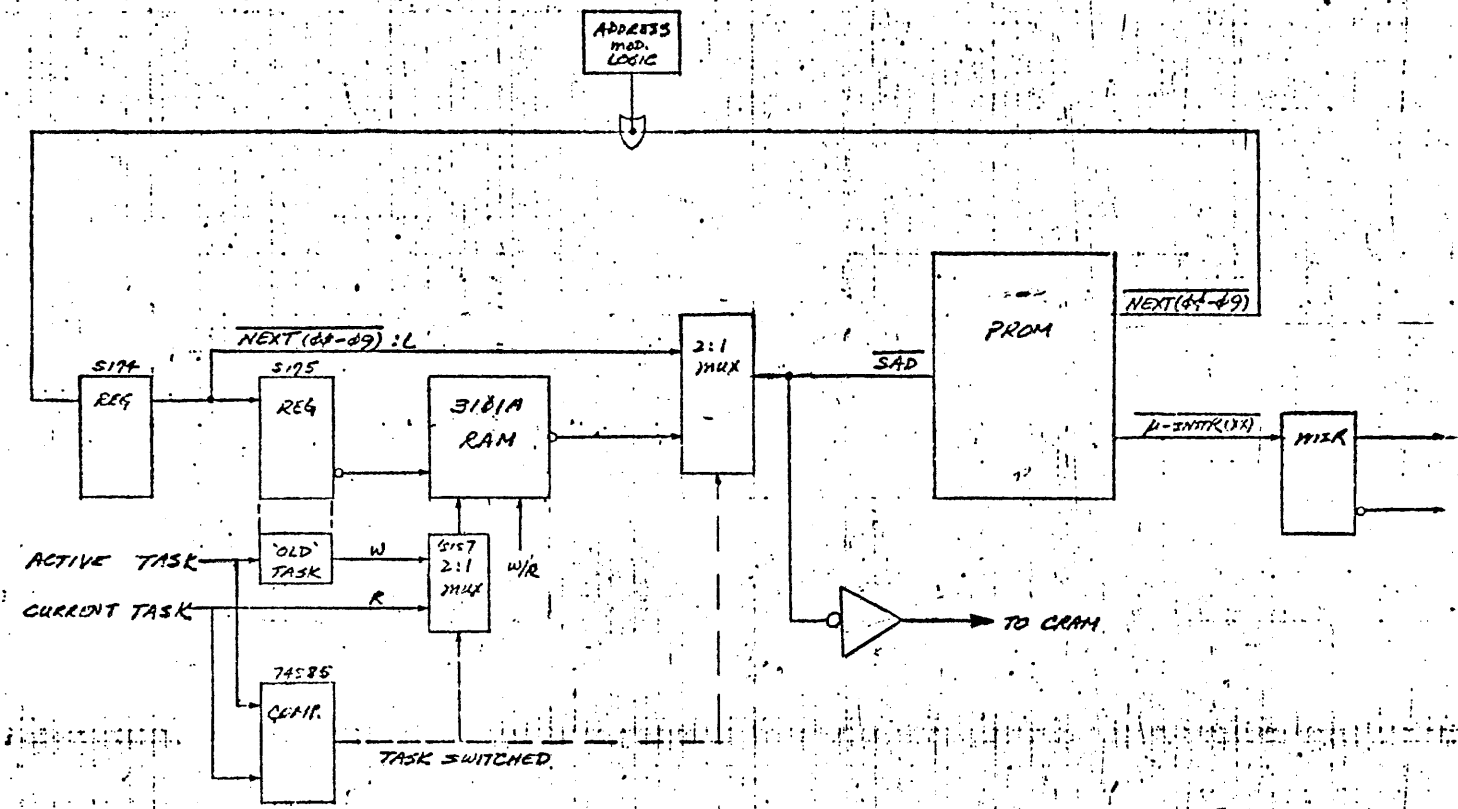
<b>ML</b>	Drawing No. 216484	Rev. A
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Rev. A	Drawing Title  ASSEMBLY, PRINTED WIRING-  CONTROL BOARD (2K)	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox Corporation or Rank Xerox, Ltd., be reproduced, copied or used for any purpose whatsoever, except the manufacture of articles for Xerox Corporation or Rank Xerox, Ltd.		
		Model No. ALTO II	Date 2/22/77	Sheet 4 Of

Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
1	Board, Printed Wiring- Control Board (2K)	216486	1	
2	Spec, Module Assembly	216207	REF	
3				
4				
5	Microcircuit, 74H00		3	U22, 24, 34
6	74H01		1	U37
7	74S02		3	U18, 21, 78
8	74H04		3	U7, 8, 23
9	74S08		1	U32
10	74H10		1	U13
11	74H11		1	U10
12	74H21		1	U12
13	74H40		2	U35, 77
14	74S85		1	U26
15	74S157		4	U14, 48, 58, 68
16	74S153		1	U50
17	74S174		7	U15, 25, 27, 39, 40, 41, 43
18	74S175		5	U44, 45, 46, 56, 66
19	74S260		3	U5, 6, 36
20	I3101A (Intel)		3	U47, 57, 67
21	I3205 (Intel)		6	U16, 17, 19, 20, 30, 31
22	I3601-1 (Intel)		2	U3, 51
23				
24	7425		1	U42
25	82S23 (Signetic)		1	U38
26	82S31 (Signetic)		1	U9
27	82S34 (Signetic)		3	U4, 28, 29
28	F9318 (Fairchild)		2	U1, 2
29	74S04		3	U49, 59, 69
30	Microcircuit, 82S136 (Signetic)		16	U52 thru 55, 60 - 65, 70 - 75
31	Capacitor, .01 $\mu$ F, 50 V	188483-002	78	C3 thru 80
32	Capacitor, 22 $\mu$ F, 15 V, Tant.	187720-005	2	C1, 2
33				





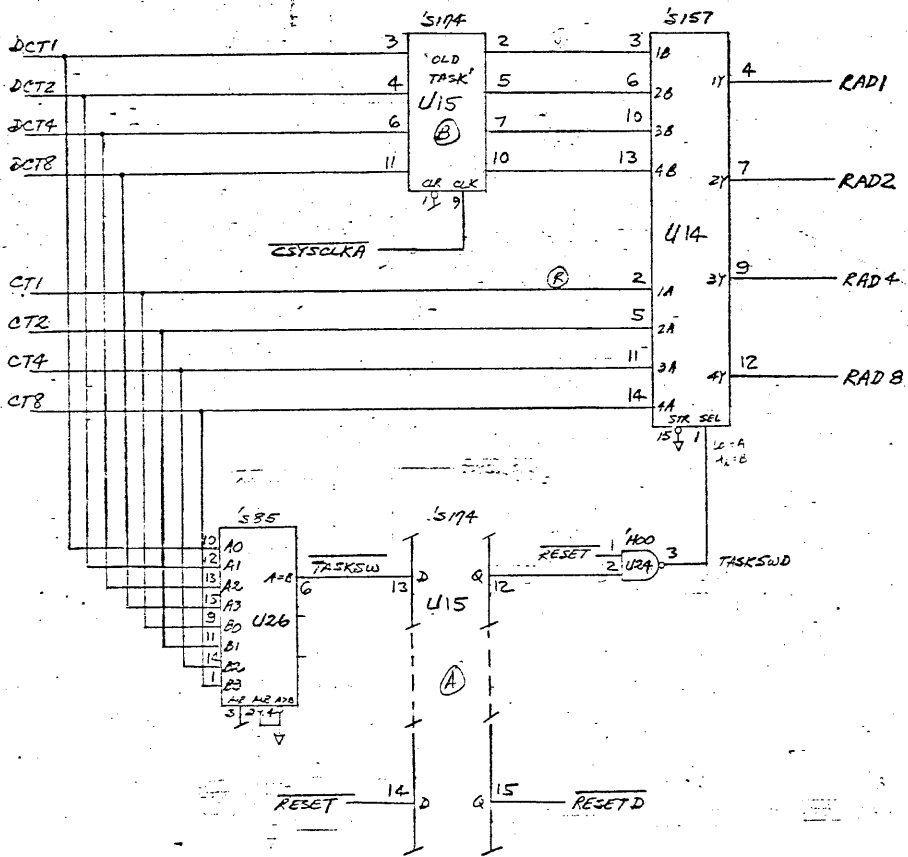


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Title  
 ASSY, P. W. -  
 CONTROL BOARD (2K)

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 El Segundo, California  
 216484  
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 XEROX  
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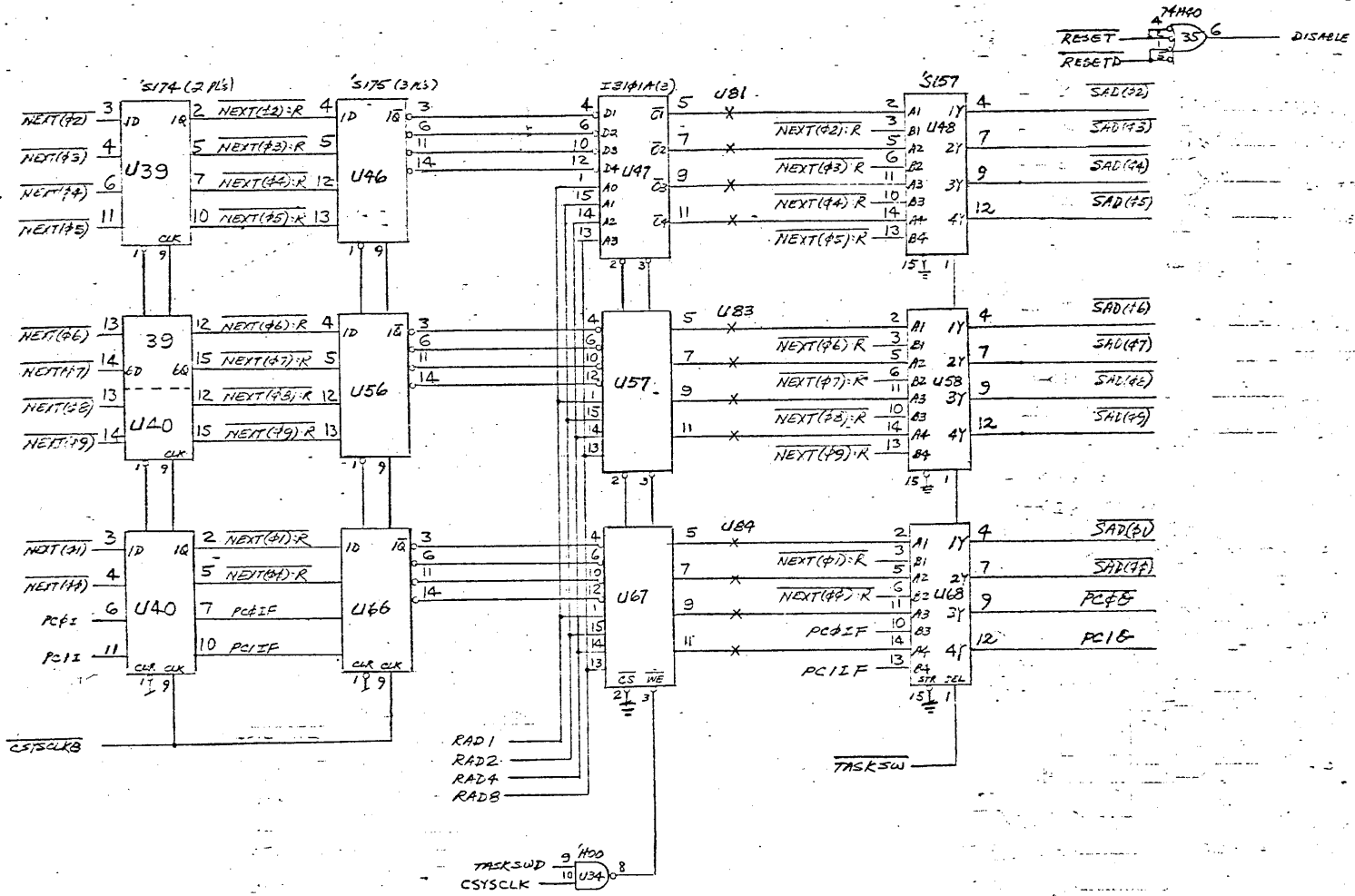


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Title  
**ASSEMBLY, P. W. -  
 CONTROL BOARD (2K)**

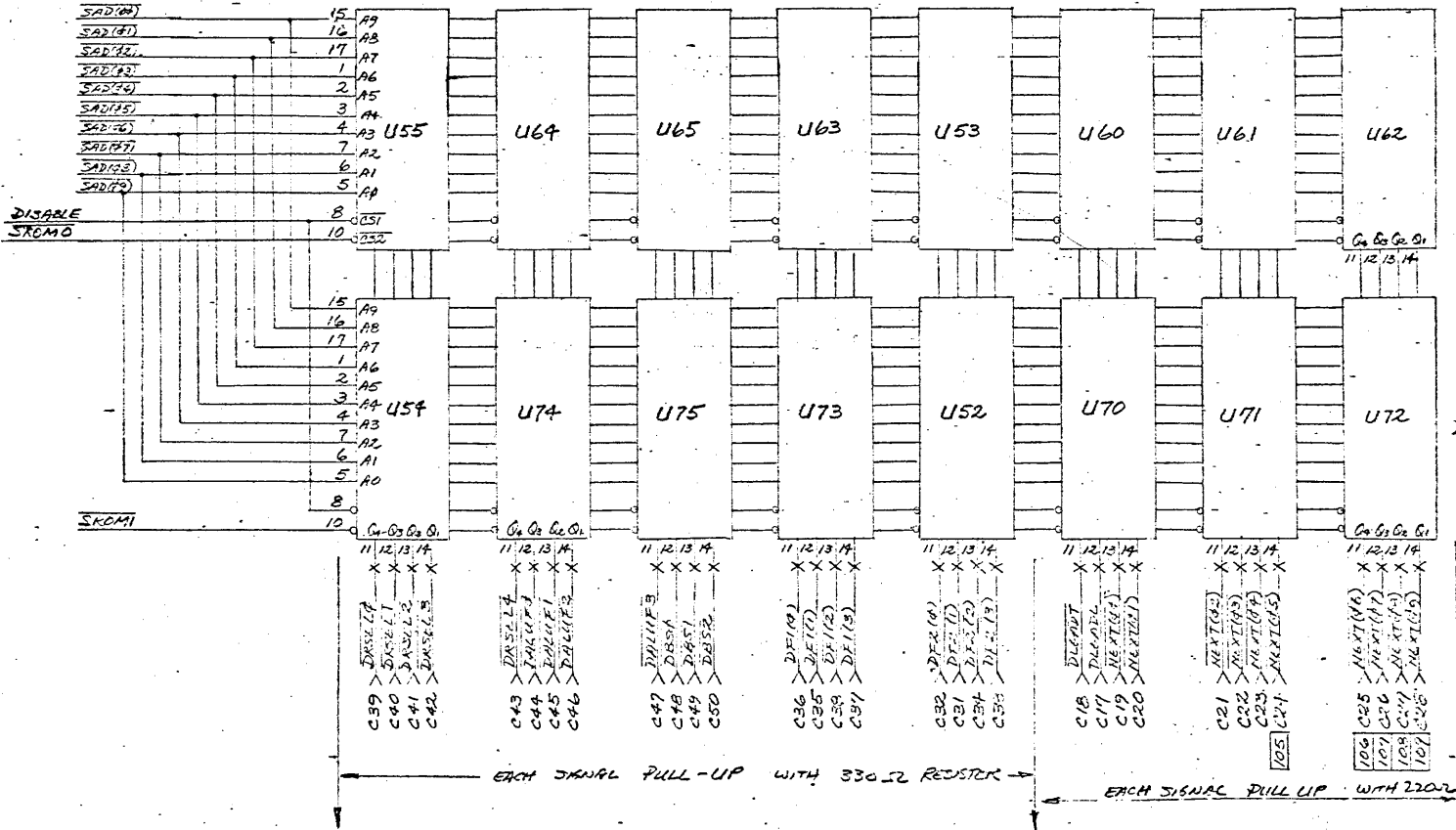
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 El Segundo, California  
 216484  
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**XEROX**





SIGNETICS - 825136 (16 PLS)



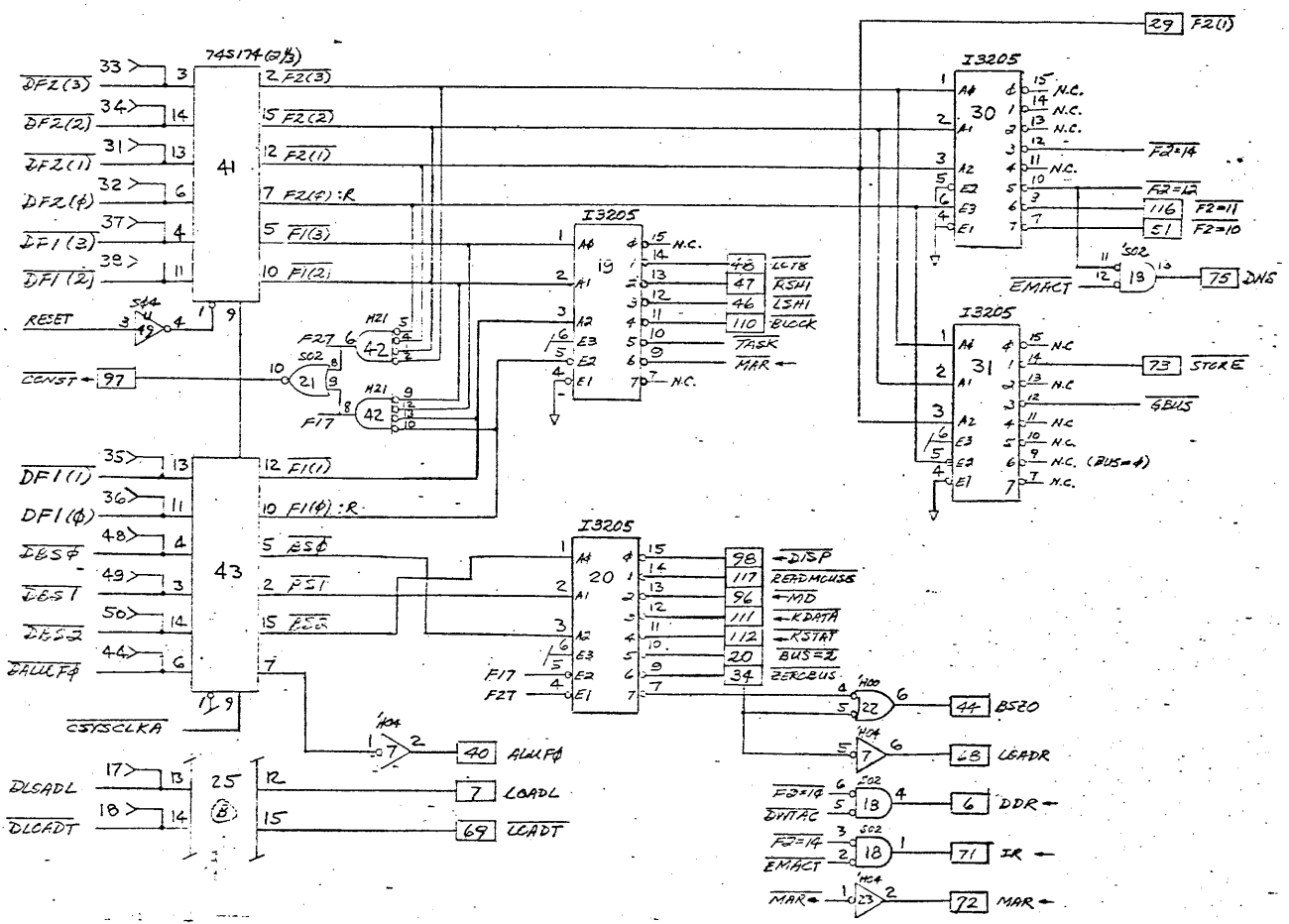
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Title  
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 CONTROL BOARD (2K)**

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Title

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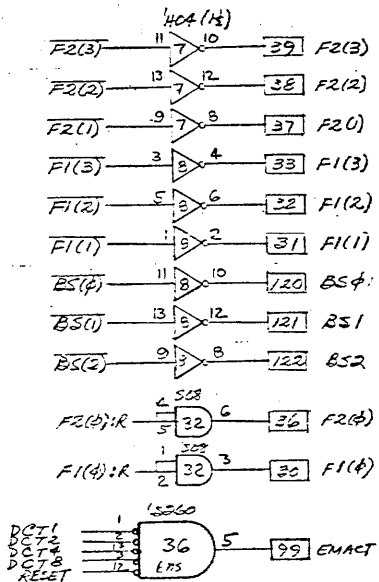
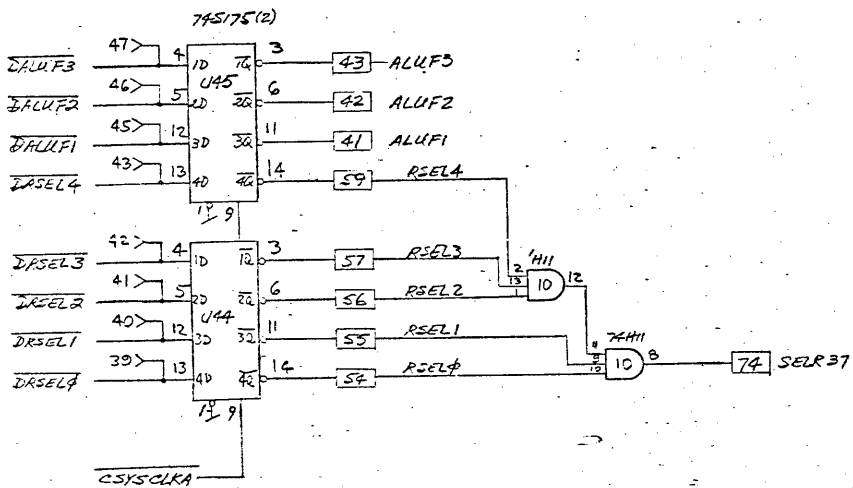
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Title  
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 CONTROL BOARD (2K)**

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 Sheet 13 of A





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CONTROL BOARD (2K)

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