

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
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)
	✓G~	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)
	H	216572	MOTHER BOARD
		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 #'	EXTENDED OLD	MEM. NEW	
1-4	MEMORY - 10BITS X 32K	216273	—	—	
1-4	MEMORY - 10BITS X 64K	—	—	217187	
1-4	MEMORY - 10BITS X 128K	—	216644	217188	
1-4	MEMORY - 10BITS X 256K	—	—	217189	
5	BLANK ^{7 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)	216847	216645	217173	
10	RAM CONTROL CRAM	216365	216643	217176	
11	S4SI CONTROL-1K	216373	216695	216695	NOTE 1
11	S4S CONTROL-2K	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	—	—	—	
16	TRIDENT CONTROLLER	216468	216468	216468	NOTE 2
17	BLANK	—	—	—	NOTE-3
17	BLANK TRIDENT	—	—	—	NOTE-2
18	ORBIT CONTROLLER	216500	216500	216500	NOTE-3
18	BLANK	—	—	—	NOTE-2
18	TRIDENT MULTIPLEXOR	21662	21662	21662	NOTE-3
18	ORBIT INPUT	216492	216492	216492	NOTE-4
19	BLANK	—	—	—	NOTE-2
19	ORBIT MEMORY	216518	216518	216518	NOTE-4
20	BLANK	—	—	—	NOTE-2
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 ~~WITH~~ 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
C	216391	Disk Control PWB
B	216577	Extender Board
G	216347	Memory Address Interface
E	216312	Memory Data Interface
D*	216339	Display Cont. Module
E*-	216323	Ethernet Module
C	216325	Ethernet PWB
E	216302	Processor Chassis Assy
A -	216425	Power Supply Harnes Assy
ALTO II XM		
C*	217173	Memory Address Interface Module
B	217123	Memory Address Interface PWB
D -	216645	Memory Address Interface Module (Converted)
C*	216652	Backwiring Board Assy
A -	217113	Backwiring Board Wire List
B*	217174	Memory Data Interface Module
B	217117	Memory Data Interface PWB
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
B	217125	CRAM PWB
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
A	217178	Control Cabinet Assy
A	217179	Alto II System Assy
A	217180	Processor Chassis Assy
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	Rev.	Revisions			209926	B
		Description	Chk.	Date	Approved	
	A	ENGRG RELEASE			3/3/76	Jd.W.
	B	DWG TITLE WAS "SPEC, PROCUREMENT- ETHERNET HEAD". ADDED SH 3 & 4 SCHEMATIC.			SD 8-6-76	S or JW

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3-3-76

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	1. Tolerances .XX ±.030 .XXX ±.010	Angular $\pm\frac{1}{2}^\circ$	Check <i>J. L. Clark</i> 3/3/76	ALTO II		
	2. Break All Sharp Edges .010 Approx.		Appr. <i>J. L. Clark</i> 3/3/76	SPEC, PROCUREMENT -		
	3. Mach. Surfaces	✓	Material	ETHERNET TRANSCEIVER		
	4. All Dim. In Inches					
Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter	
ALTO II		18338	A	209926	B	
Next Assy. First Use	Scale	Do Not Scale Drawing			Sheet	
216362	-				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

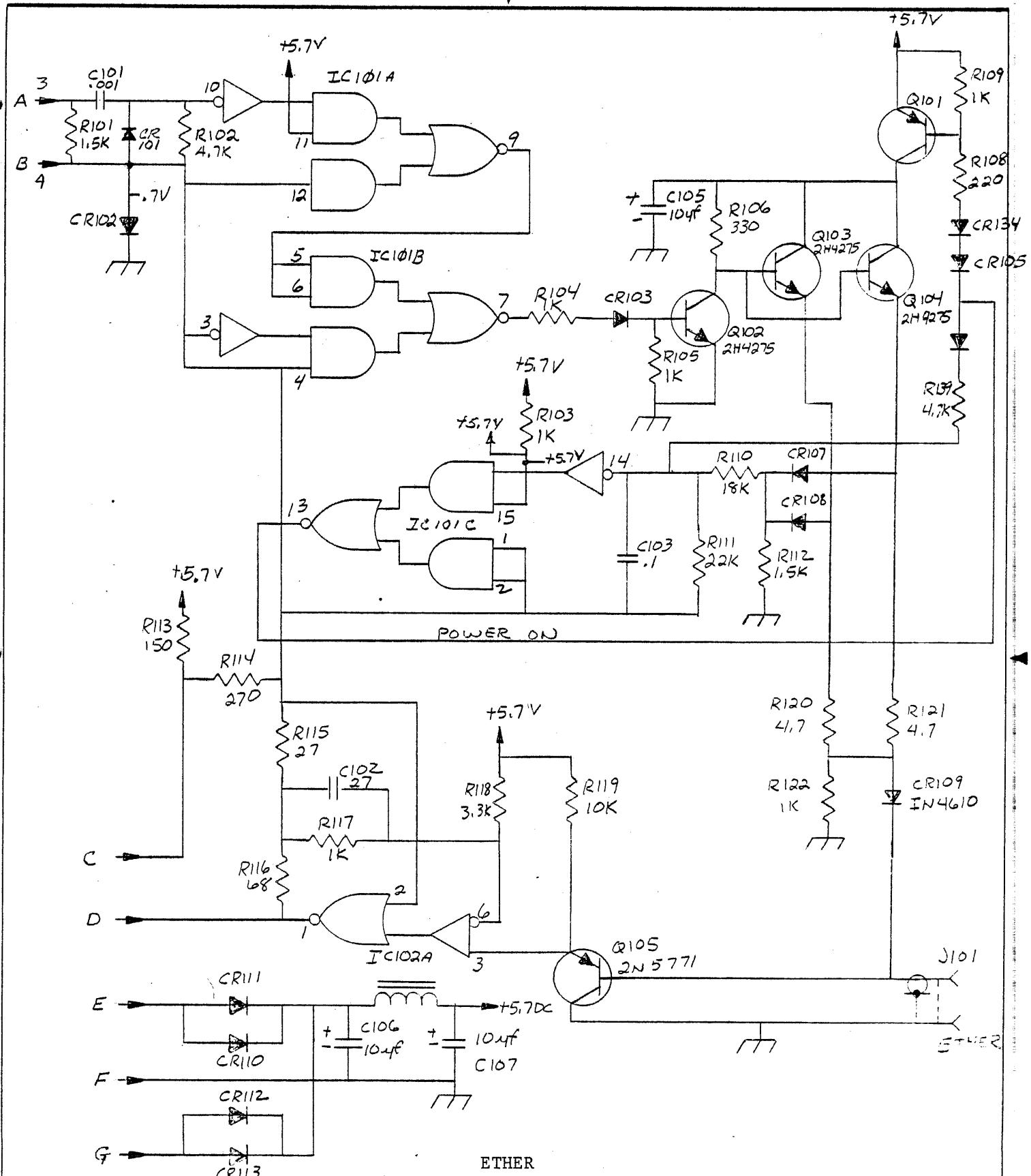
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209926

B

Sheet 2 Of 4



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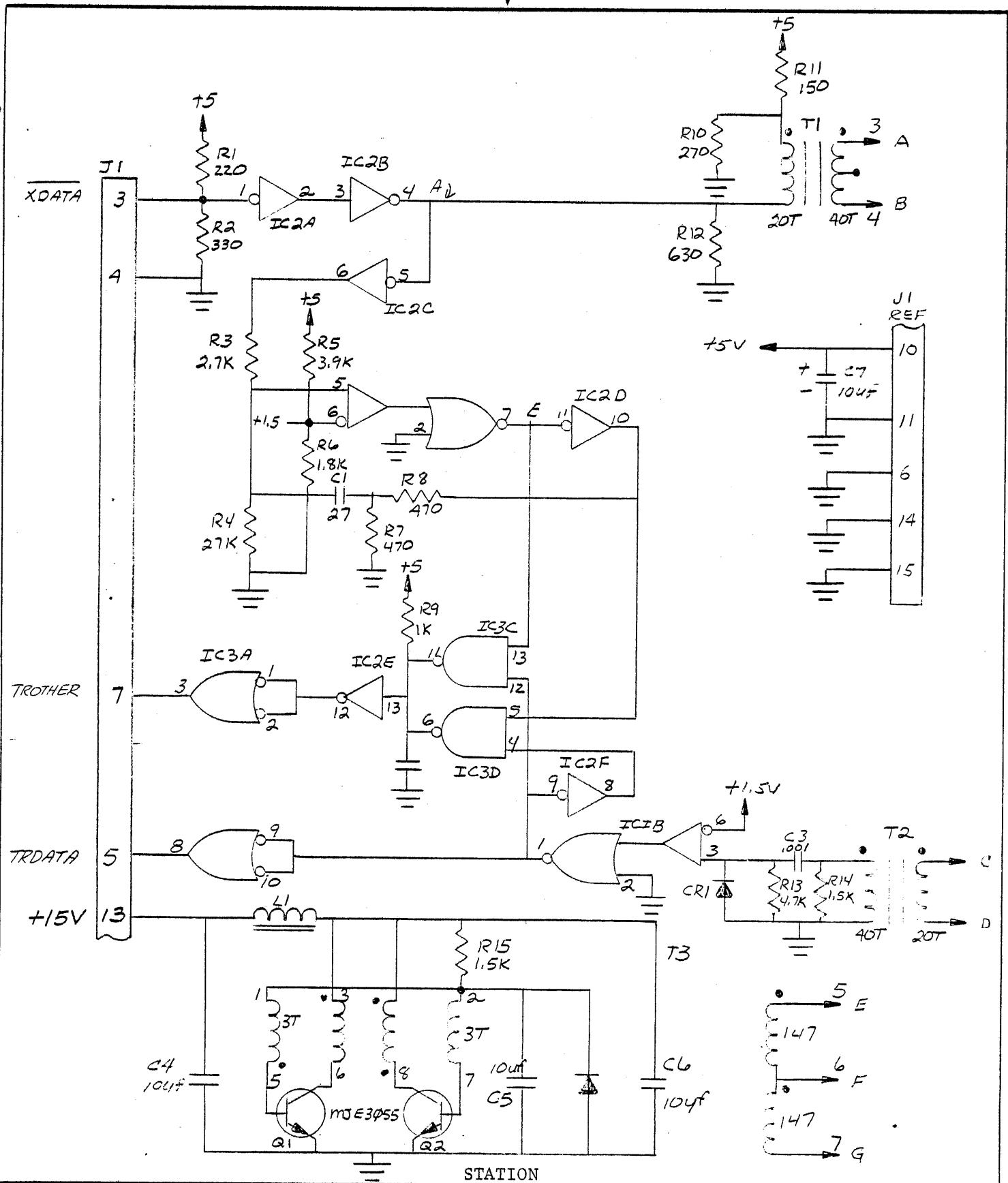
Title ALTO II
SPEC, PROCUREMENT-
ETHERNET TRANSCEIVER

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209926

B



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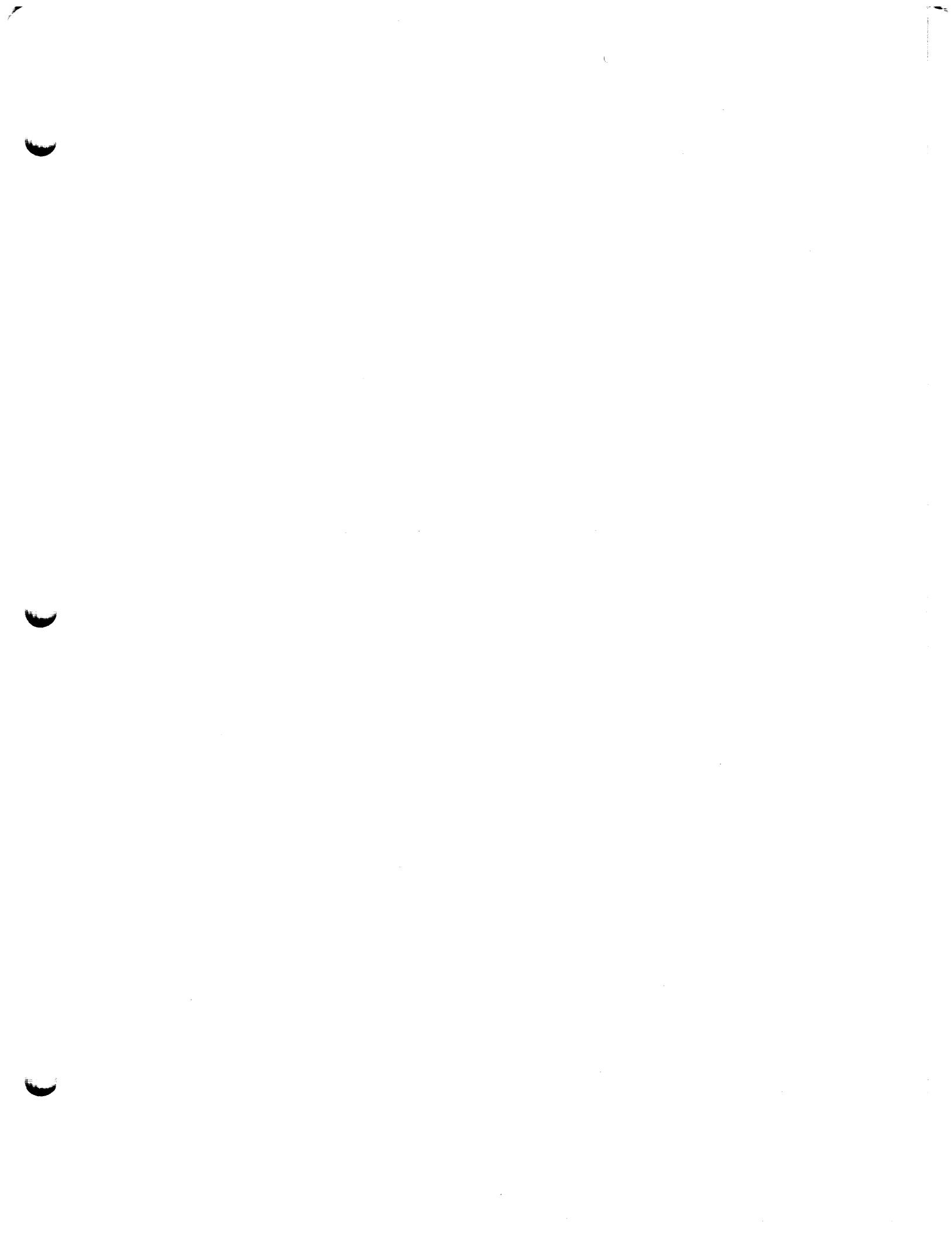
Title ALTO II
SPEC, PRO CUREMENT
ETHERNET TRANSCEIVER

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209926

B



LAL	Revisions				216	1	C
	Rev.	Description		Chk.	Date	Approved	
A	ENGRG RELEASE			E.W.	3/15/76	J.W.	
B	M/L ITEM 6 WAS QTY 2, M/L ITEM 7 WAS QTY 2, ADDED ITEM 9 & 10.			GW	4-19-76	J.W.	
C	DELETED ITEMS 3,5,&8 FROM M/L & F/D			GW	4-13-77	GW	

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Model No. ALTO II
First Use EWO 7YF92

Next Assy. 216362
First Use

FCA(3-73)

Notes Unless Specified	Drawn	Kohamura	3-15-76	Xerox Corporation El Segundo, California	ALTO II	ASSEMBLY, CABLE- ETHERNET (EXTERNAL)
	Check	J.W.				
1. Tolerances .XX ±.030 .XXX ±.010	Angular $\pm \frac{1}{8}^{\circ}$	Appr.	J.W.			
2. Break All Sharp Edges .010 Approx.		Material				
3. Mach. Surfaces	✓					
4. All Dim. In Inches						
Finish	Code Ident.	18338	Size	Dwg. No.	Change Letter	
	Scale	NONE		Do Not Scale Drawing	Sheet	1 OF 5

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)

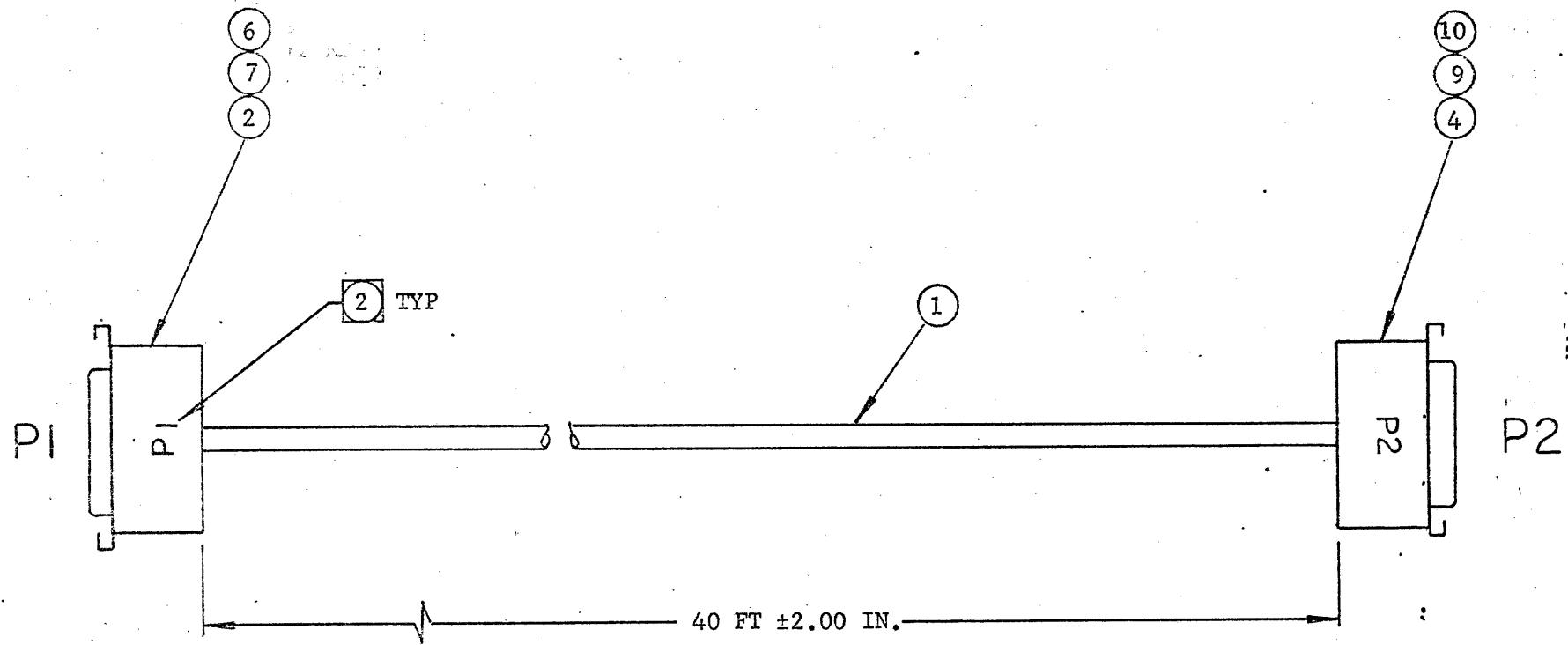
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El Segundo, California

XEROX

216411

C

Sheet 2 Of 5



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Title

ALTO II

ASSEMBLY, CABLE - ETHERNET (EXTERNAL)

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216411

C

Sheet 3 of 5

Material List

ML	Drawing No. 216411	Rev. C
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1. Ref Item No's in Applicable Material List.
2. Ref Designations Are Abbreviated. Prefix Each Designation With:

Title ALTO II
ASSEMBLY, CABLE -ETHERNET
(EXTERNAL)

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XEROX

216411

c

Sheet 5 of 5

Revisions

216273

C

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	JM	7-12 76	N. TOBOL
	B	ADDED SCHEMATIC & SILKSCREENED BOARD DWG.	BN	8-12 76	N. TOBOL
	C	M/L ITEM 12 P/N WAS 516-AG10D, ITEM 13 P/N WAS 514-AG10D.	BS	4-13 77	BN

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		1. Tolerances .XX ±.03 Angular .XXX ±.010 ±½°	Check <i>Holloman</i>	Title ALTO II	ASSEMBLY, PRINTED WIRING- 32K x 10 STORAGE MODULE
		2. Break All Sharp Edges .010 Approx. 3. Mach. Surfaces ✓ 4. All Dim. in Inches	Appr. <i>N. TOBOL</i>		
Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter
ALTO II EWO 7YF92		18338	A	216273	C
Next Assy. First Use		Scale -	Do Not Scale Drawing		Sheet 1 OF 5
2164-1(3/73)					

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

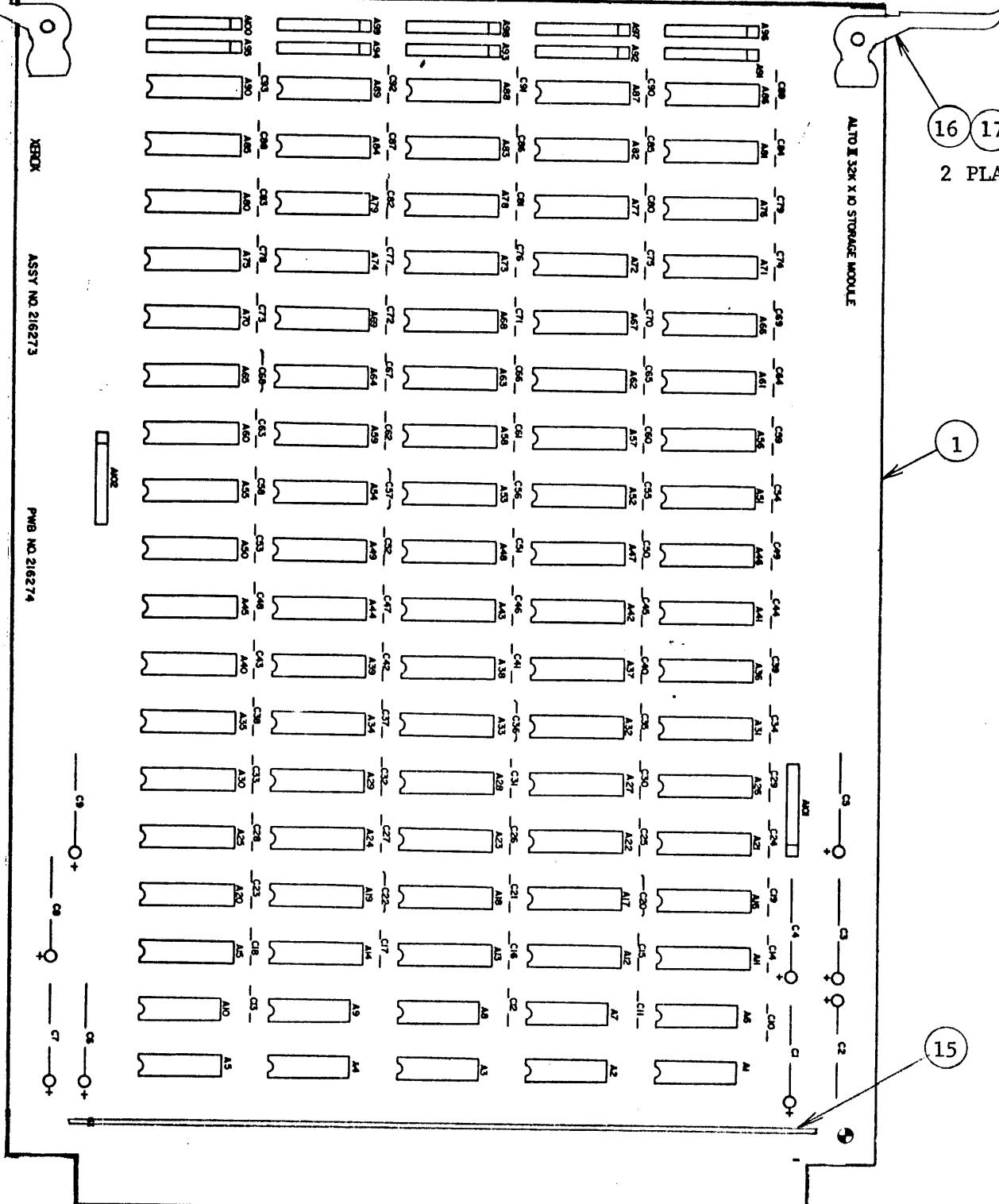
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216273

C

Sheet 2 Of 5



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

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216273

C

Sheet 3 Of 5

Material List

ML	Drawing No. 216273	Rev. C
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Drawing Title ALTO II
ASSEMBLY, PRINTED WIRING-
32K x 10 STORAGE MODULE

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Model No. EWO 7YF92	Date 10-22-75	Sheet 4 of 5
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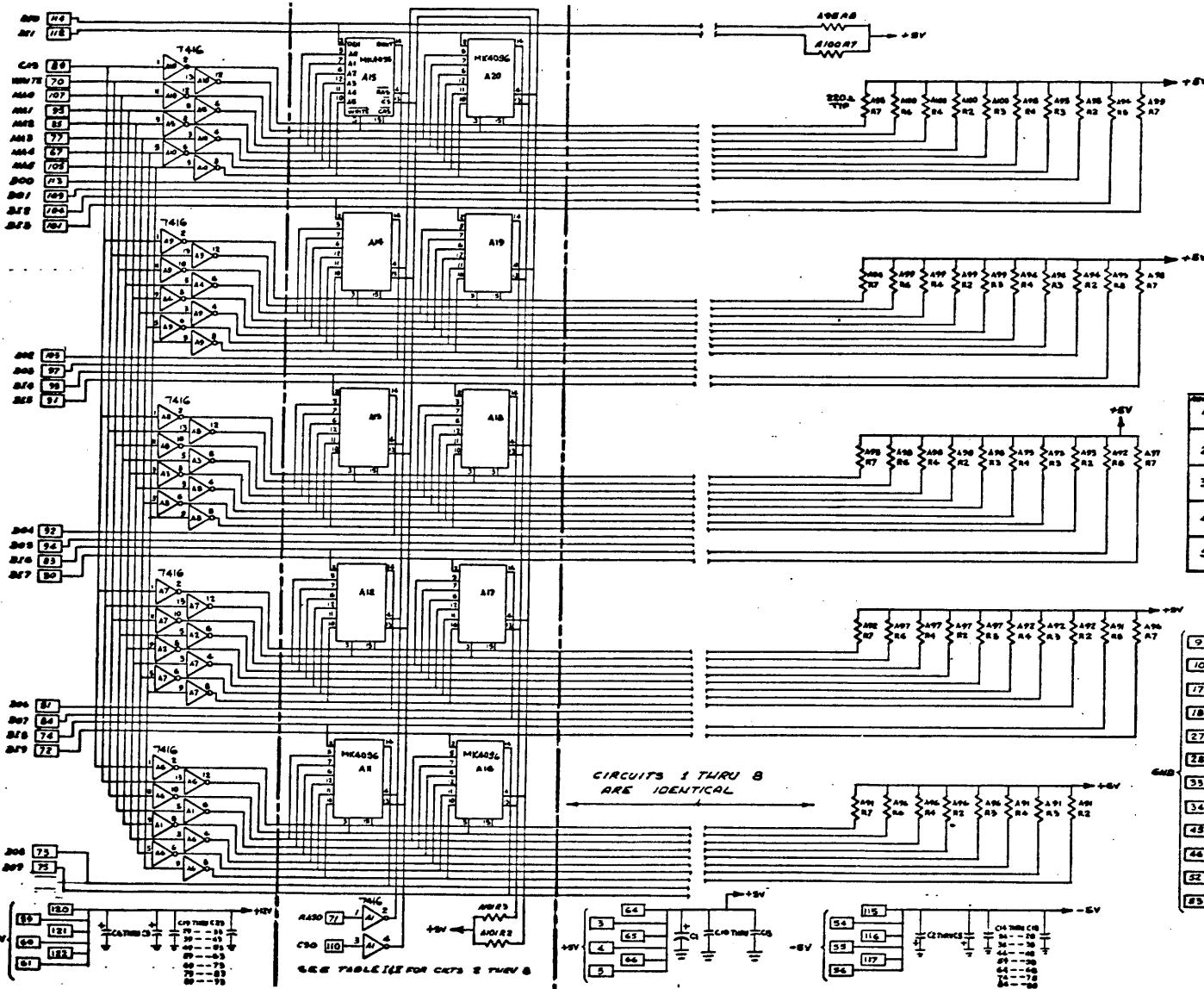


TABLE I
MEMORY CHIP REFERENCE DESIGNATOR

CIRCUIT NO.	1	2	3	4	5	6	7	8
1	A1							
2	A2							
3	A3							
4	A4							
5	A5							
6	A6							
7	A7							
8	A8							

TABLE II

CIRCUIT NO.	INPUT	SIGNAL NAME	INVERTER	NUMBER	P.V.
1	71	R450	A1	1-DN-2	2-0142
1	110	C60	A1	3-3	3-0142
2	79	R451	A2	1	2-0142
2	110	C61	A2	3	4-0142
3	90	R452	A3	1	2-0142
3	110	C62	A3	3	4-0142
4	86	R453	A3	X	2-0142
4	110	C63	A4	11	2-0142
5	105	R454	A4	1	2-0142
5	110	C64	A5	3	4-0142
6	106	R455	A5	4	2-0142
6	110	C65	A5	3	4-0142
7	110	C66	A5	7	2-0142
7	110	C67	A6	1	2-0142
8	99	R457	A6	75	1-2
8	110	C68	A6	4	4-0142

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Xerox Corporation El Segundo, California	216273	C
Sheet 5 Of 5		

Revisions					216312	E
LAL	Rev.	Description	Chk	Date	Approved	
	A	ENGRG RELEASE	JM			
	B	ADDED NOTE SHEET	BN	7-19 76	N.TOBOL	
	C	ADDED SILKSCREENED BOARD DWG. (SH 3)	BN	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 "TL" FROM ALL GATES.	BN	2-22 77	N.TOBOL	
	E	ADDED NOTE 1 - G.	BN	4-19 77	BN	

THIS DOCUMENT CONTAINS 14 SHEETS

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Notes Unless Specified

Drawn

Metske
Membrane

Xerox Corporation
El Segundo, California

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Title

ALTO II

ASSEMBLY, PRINTED WIRING-
MEMORY DATA INTERFACE

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

Check

Appr.

N.TOBOL

Material

Model No.
First Use

ALTO II

Finish

Code Ident.

Size

Dwg. No.

216312

Change
Letter

E

Next Assy.
First Use

216302

18338

A

Scale

Do Not Scale Drawing

Sheet

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

216312	E
Sheet	2 Of

XEROX

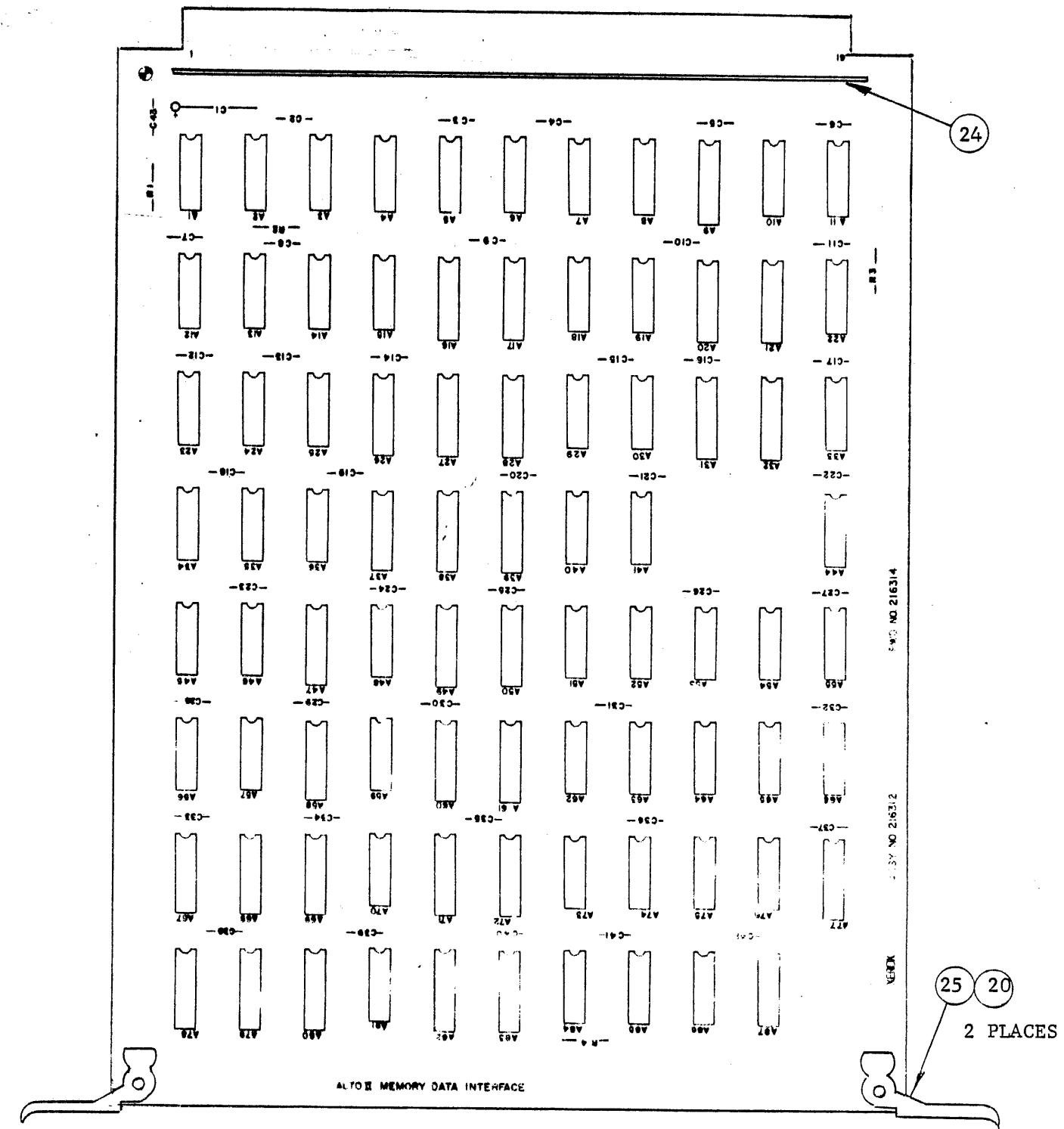
Xerox Corporation
701 South Aviation Boulevard
El Segundo, California 90245
213 679-4511

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Material List

ML	Drawing No. 216312	Rev. E
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Rev. E	Drawing No. 216312	Drawing Title ASSEMBLY, P.W. ALTO II MEMORY DATA INTERFACE	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 7/19/76	Sheet 4 Of
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 μ F, +20%, 15V	187720-005	1	C1	
23	Capacitor, Ceramic, .01 μ 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		



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Title
ALTO II
ASSEMBLY, PW-
MEMORY DATA INTERFACE

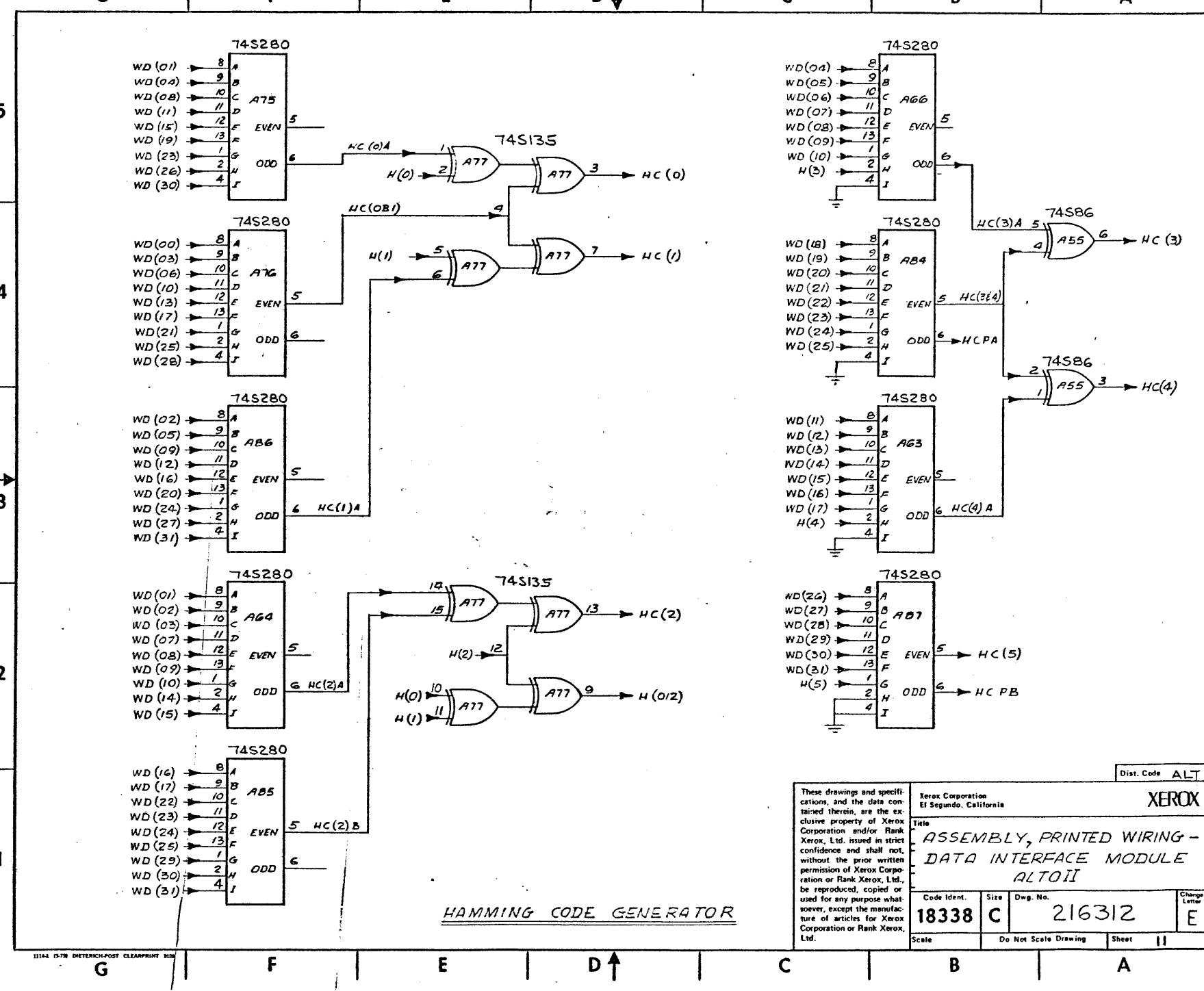
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El Segundo, California

XEROX

216312

E

Sheet 3 Of



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El Segundo, California

Title:

ASSEMBLY, PRINTED WIRING -
DATA INTERFACE MODULE
ALTOII

Code Ident.

18338

C

216312

E

Size

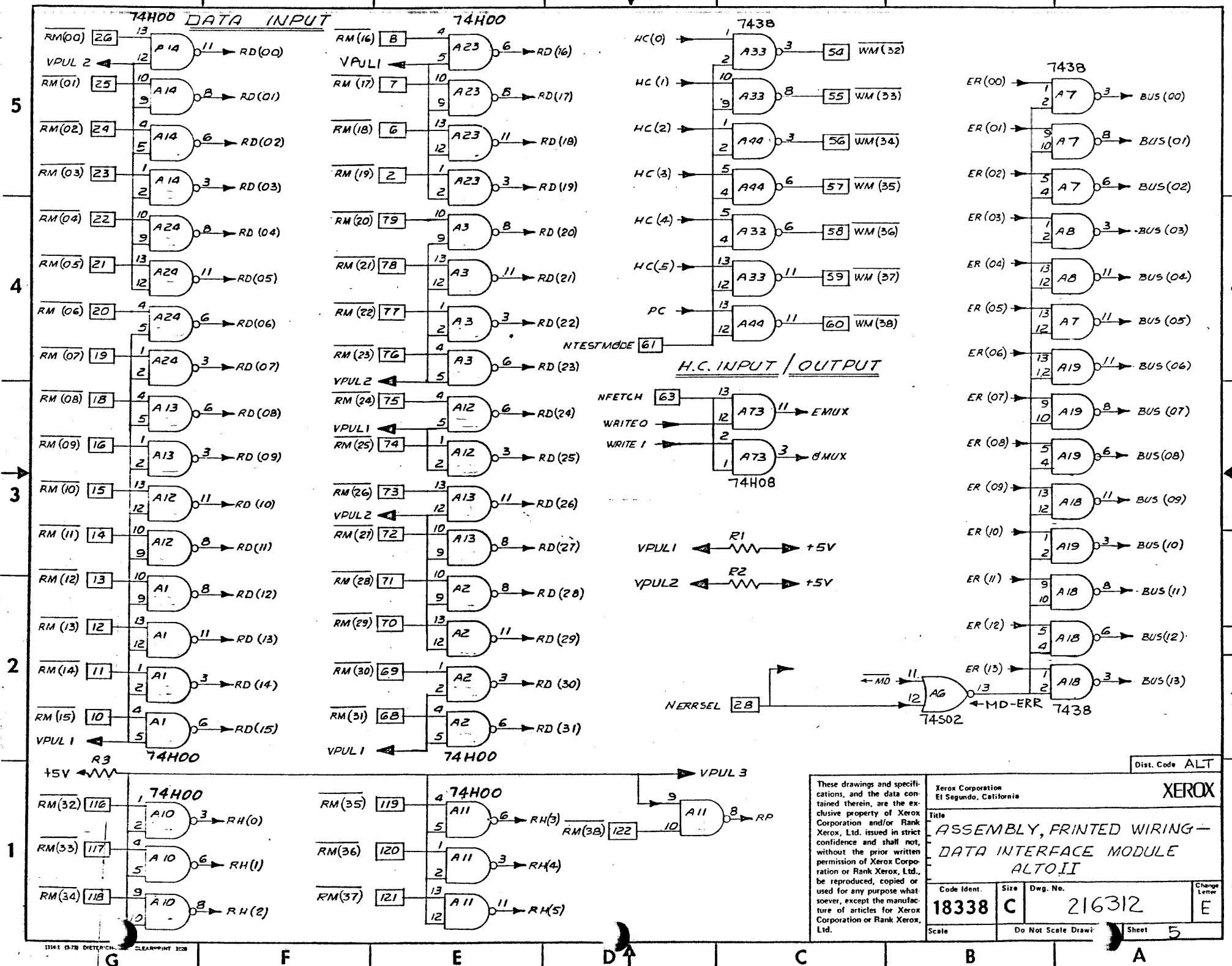
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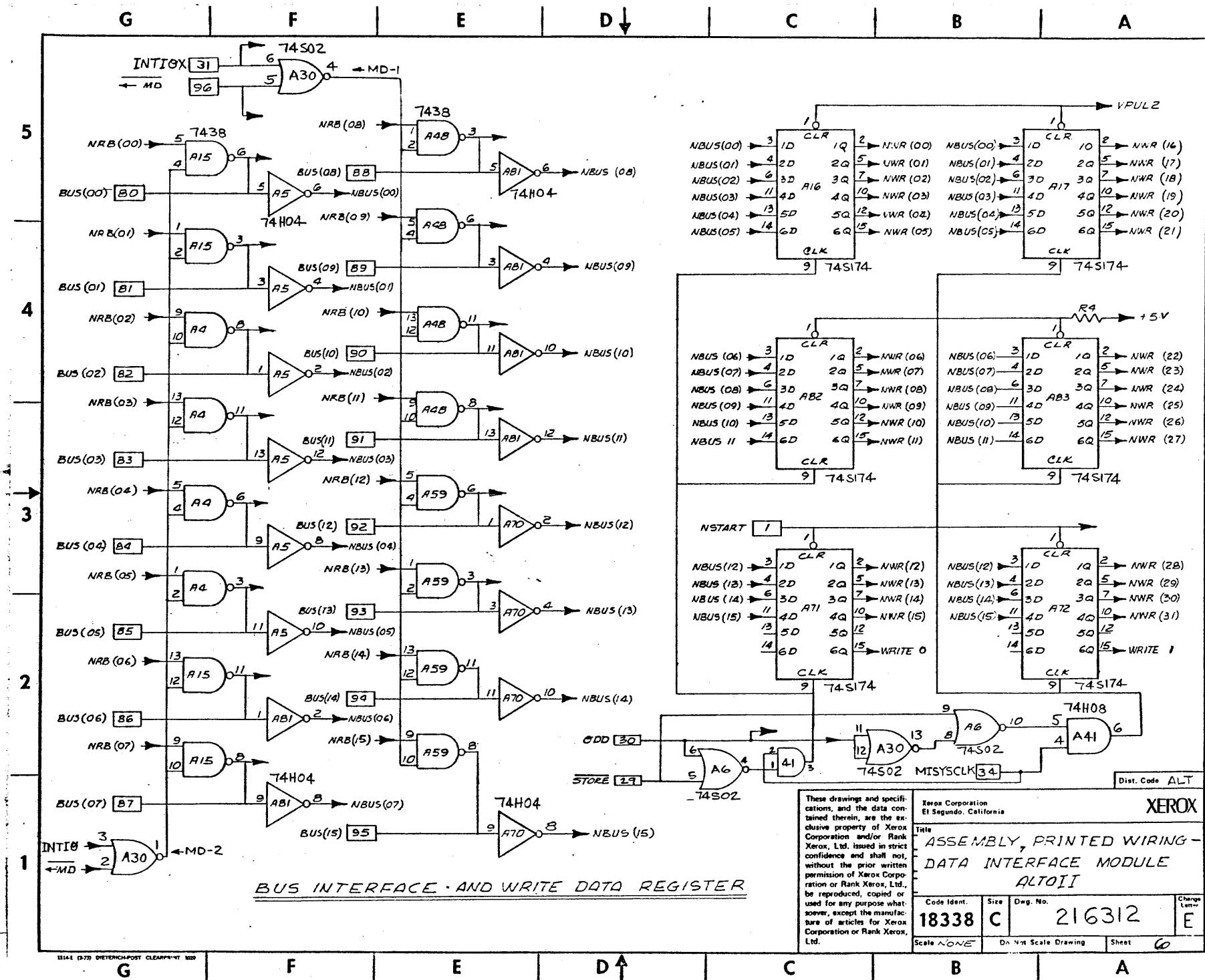
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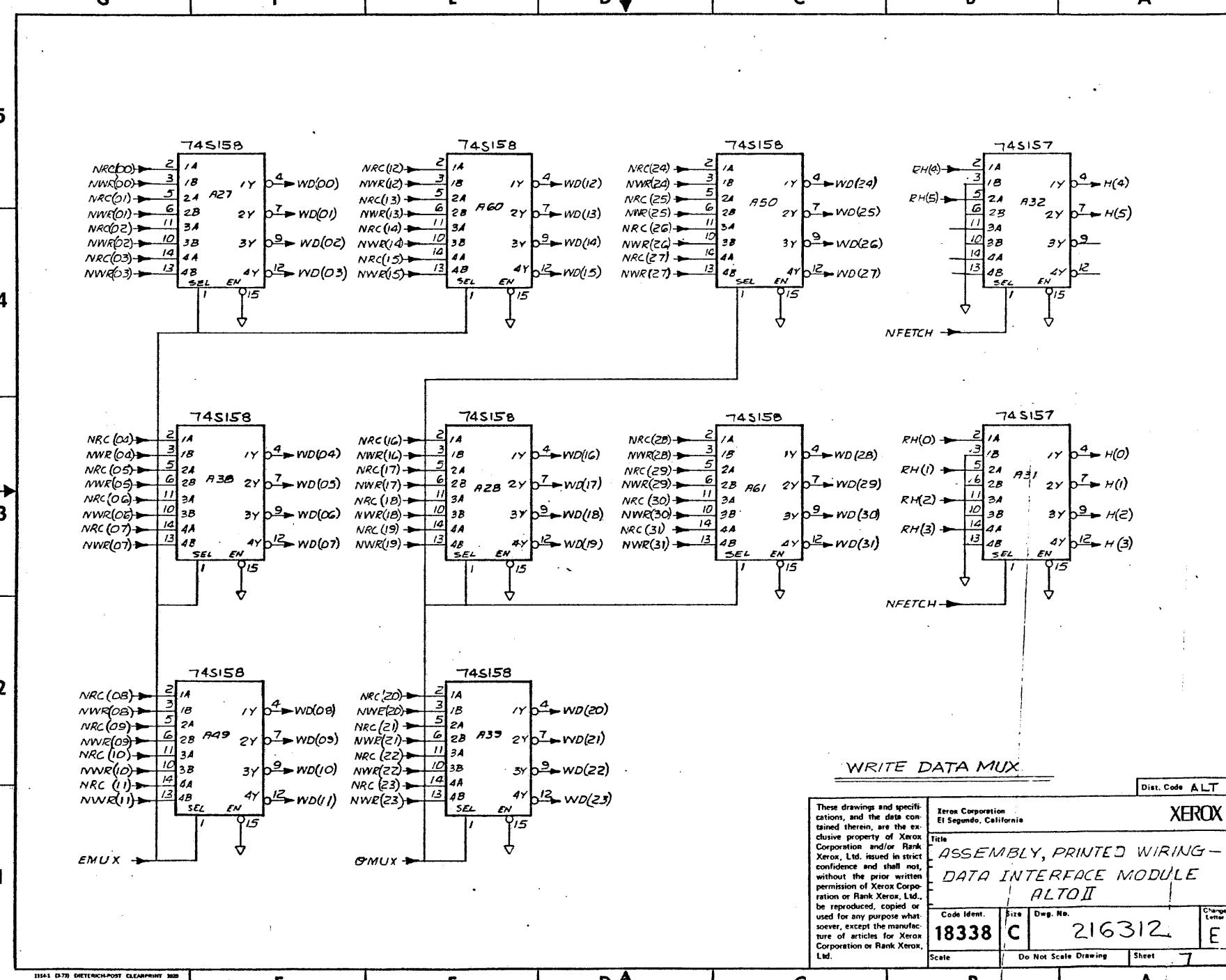
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Charge Letter

Dist. Code ALT
XEROX







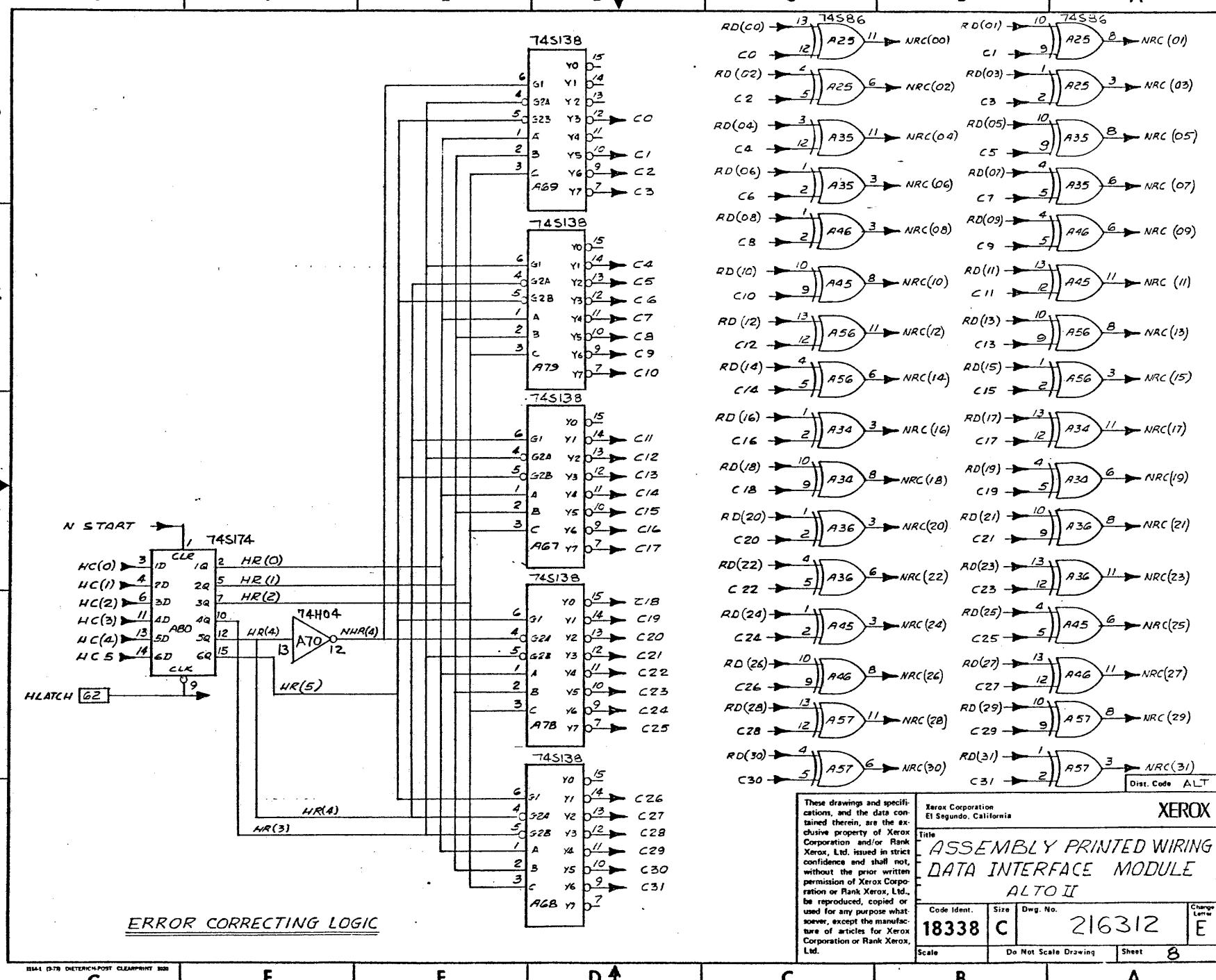
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Title:

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	7



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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 8

G

F

E

D ↓

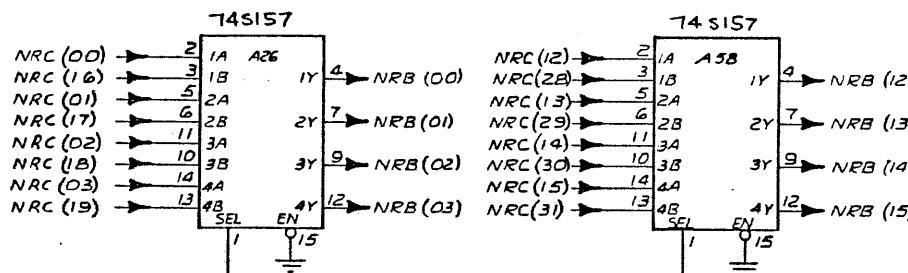
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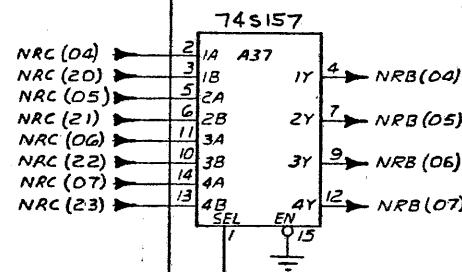
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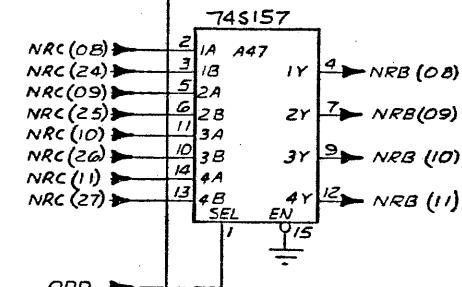
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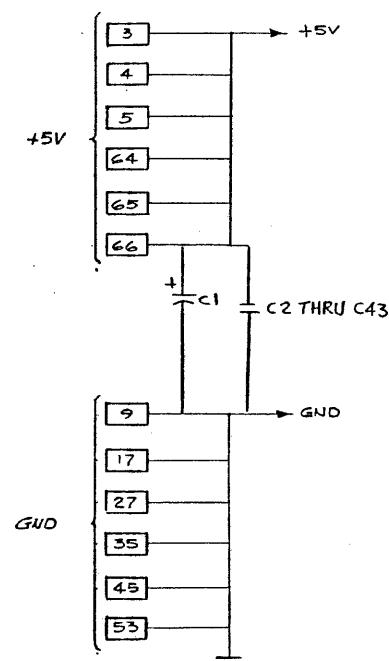
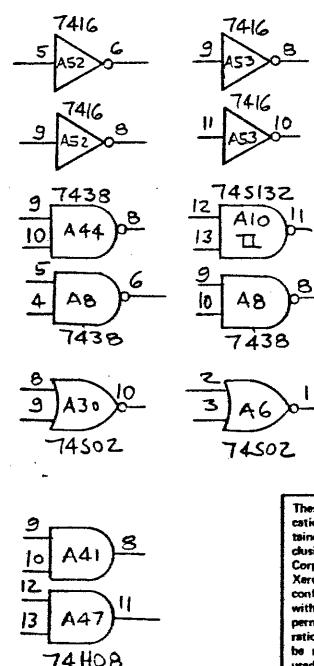
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INPUT DATA MUX

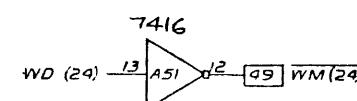
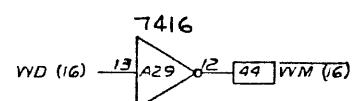
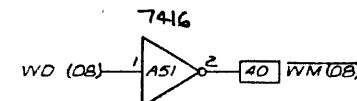
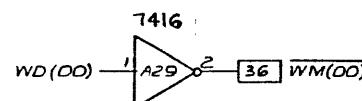


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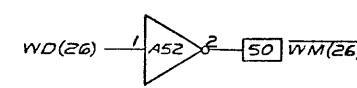
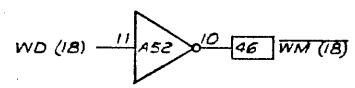
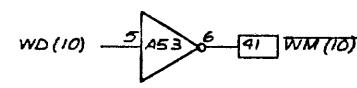
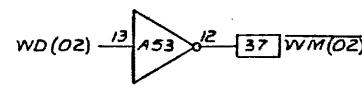
XEROX		
ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTOII		
Code Ident.	Size	Dwg. No.
18338	C	216312
Scale	Do Not Scale Drawing	
Sheet		9

G | F | E | D ↓ | C | B | A

5

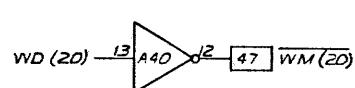


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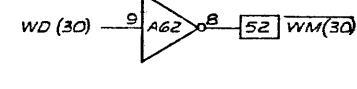
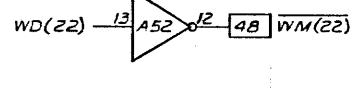
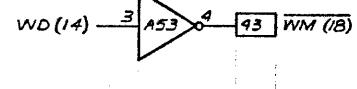
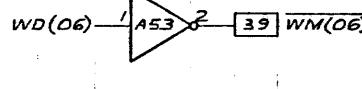
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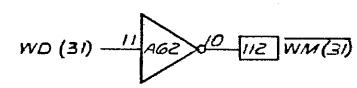
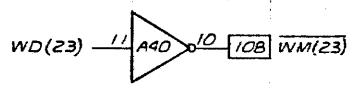
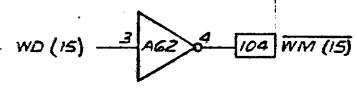
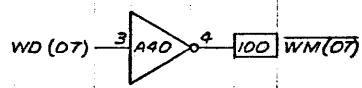
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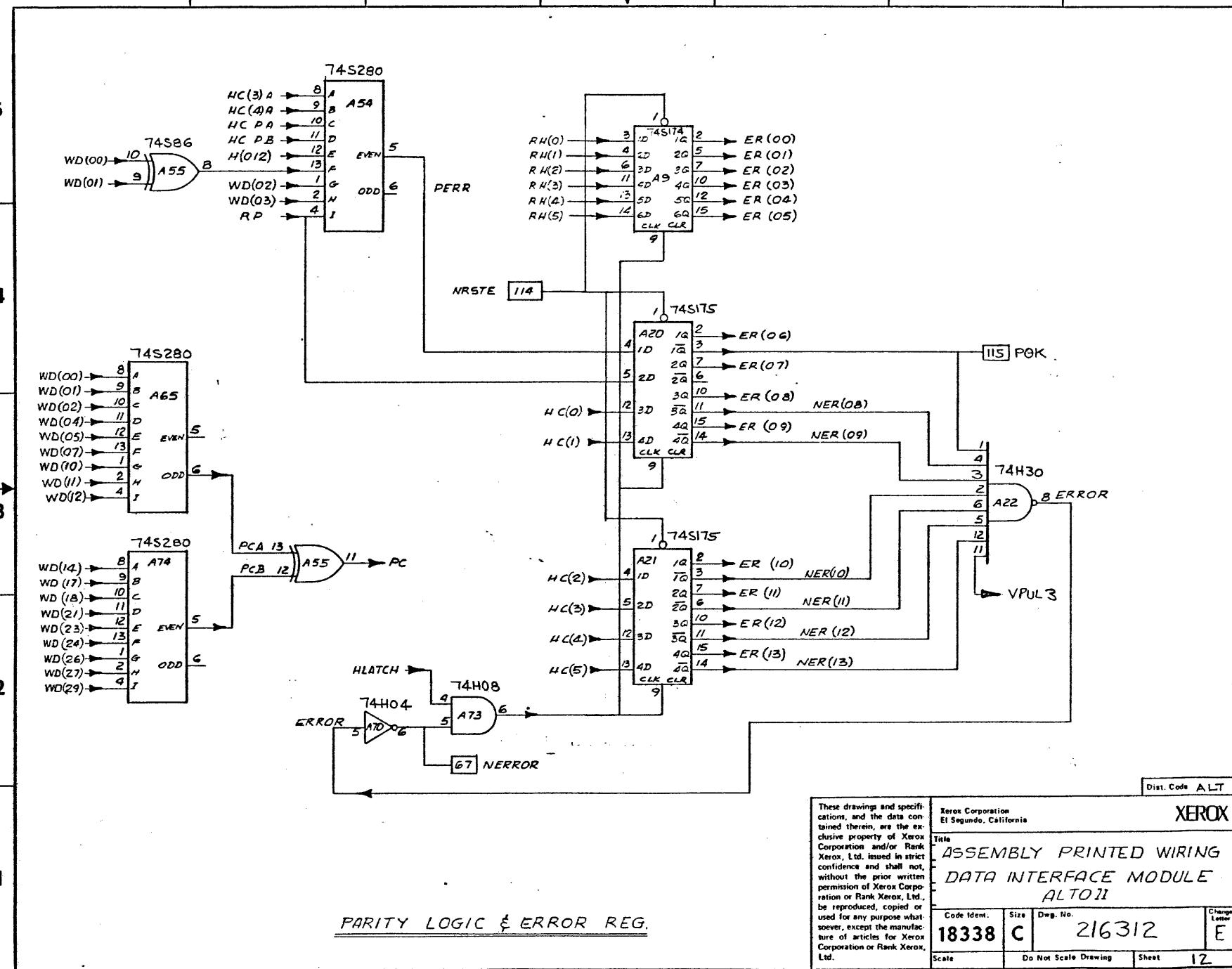


1

DATA OUTPUT

Dist. Code ALT		
XEROX		
Title: ASSEMBLY PRINTED WIRING DATA INTERFACE MODULE ALTO II		
Code Ident.	Size	Dwg. No.
18338	C	216312
Scale	Do Not Scale Drawing	
	Sheet 10	

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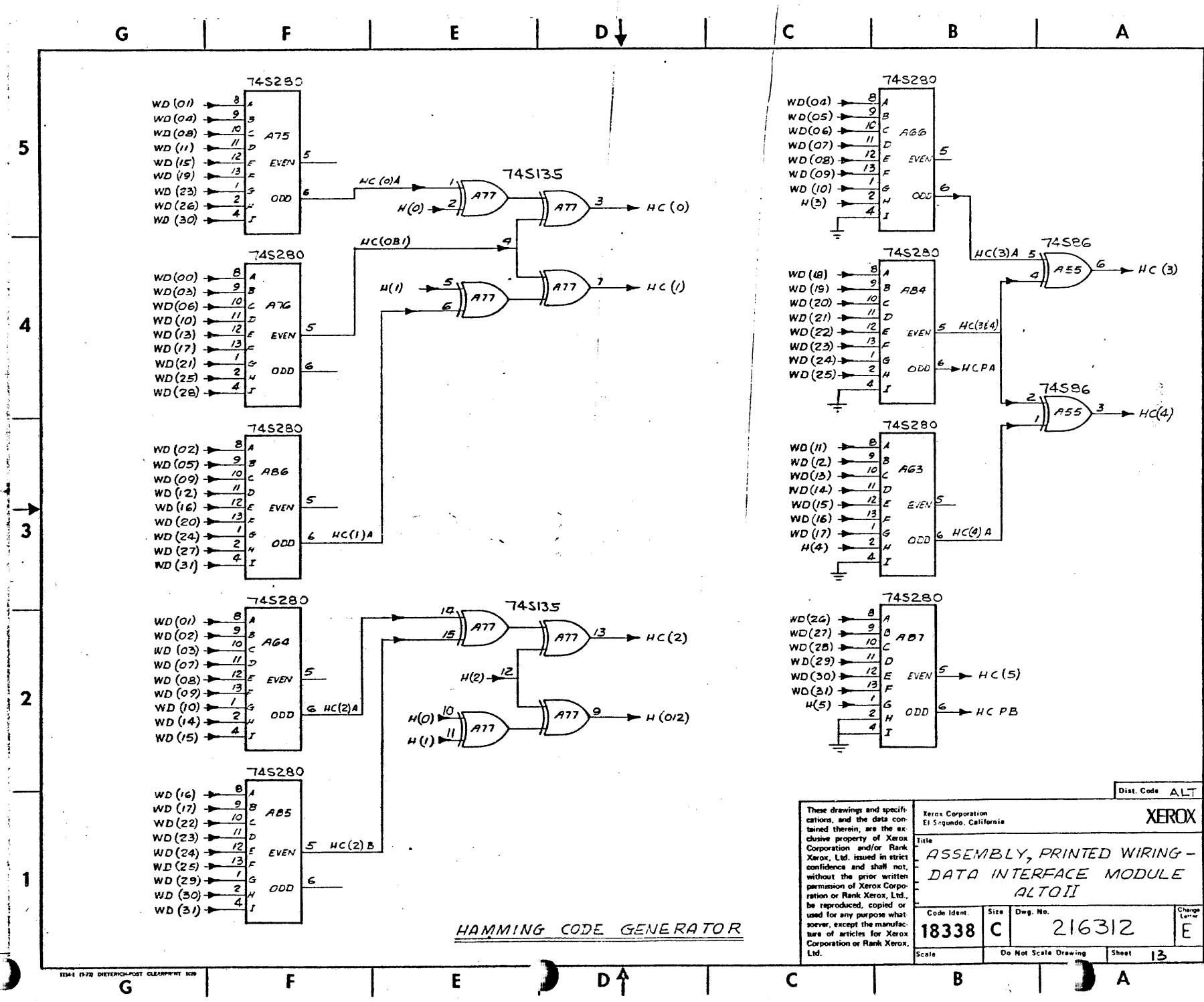
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Title: **ASSEMBLY PRINTED WIRING
DATA INTERFACE MODULE
ALTO II**

Code Ident.	Size	Dwg. No.
18338	C	216312
Change Letter		E
Scale	Do Not Scale Drawing	Sheet 12



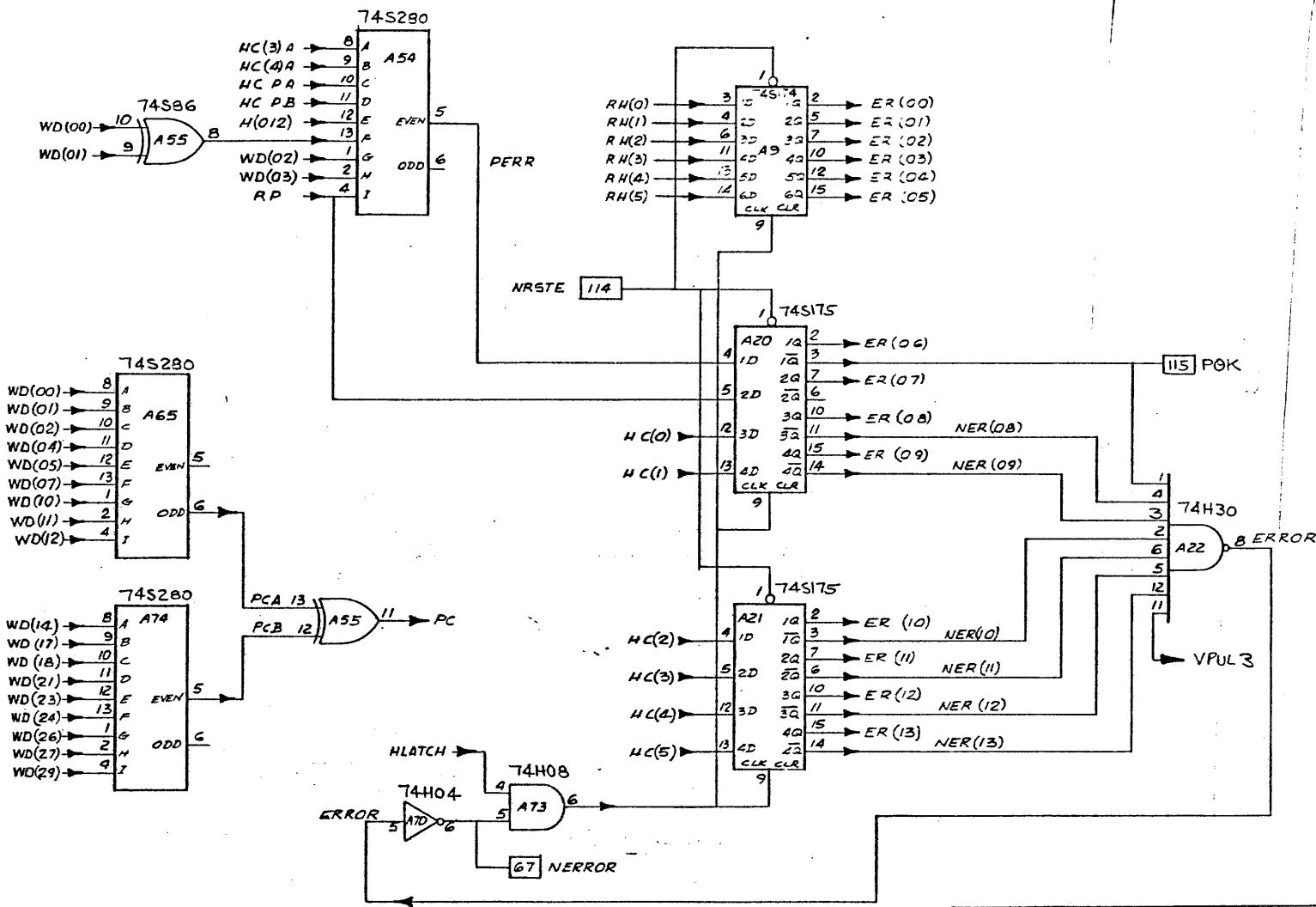
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Title

ASSEMBLY, PRINTED WIRING -
DATA INTERFACE MODULE
ALTOII

Code Ident.	Size	Deg. No.
18338	C	216312
Scale	Do Not Scale Drawing Sheet 13	



PARITY LOGIC & ERROR REG

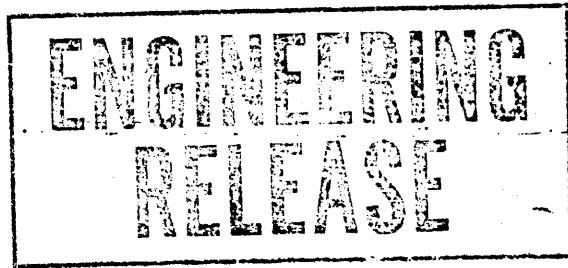
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**ASSEMBLY PRINTED WIRING
DATA INTERFACE MODULE
ALTO II**

Code Ident.	Size	Dwg. No.	Change Letter
18338	C	216312	E
Scale	Do Not Scale Drawing		Sheet 14

Revisions					216323	D
LAL	Rev.	Description	Chk	Date	Approved	
	A	ENGRG RELEASE	RF	3-4-76	RF	
	B	REVISED	SW	6-16 76	RF	
	C	M/L ITEM 45 WAS 10K P/N 116447-103. SH 9 R1 WAS 10K.	SW	9-28 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.	SW	3-8 77	RF	



THIS DOCUMENT CONTAINS 23 SHEETS.

Dist Code ALT

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		1. Tolerances .XX ±.03 Angular .XXX ±.010 ±½°	Appr. <i>R. L. Cleggman 3-3-76</i>	Material	Title ALTO II	
		2. Break All Sharp Edges .010 Approx.			ASSEMBLY, PRINTED WIRING-ETHERNET	
		3. Mach. Surfaces ✓				
		4. All Dim. in Inches				
Model No. First Use	ALTO II EW07YF92	Finish	Code Ident. 18338	Size A	Dwg. No. 216323	Change Letter D
Next Assy. First Use	216302		Scale -	Do Not Scale Drawing	Sheet I	

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 Ω RESISTOR (R18) FROM C104 TO FEED THRU (CONNECTS TO A67-3).
- 3) ADD 470 Ω RESISTOR (R19) FROM C104 TO END OF R13.

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Title
ASSY, PRINTED WIRING
ETHERNET

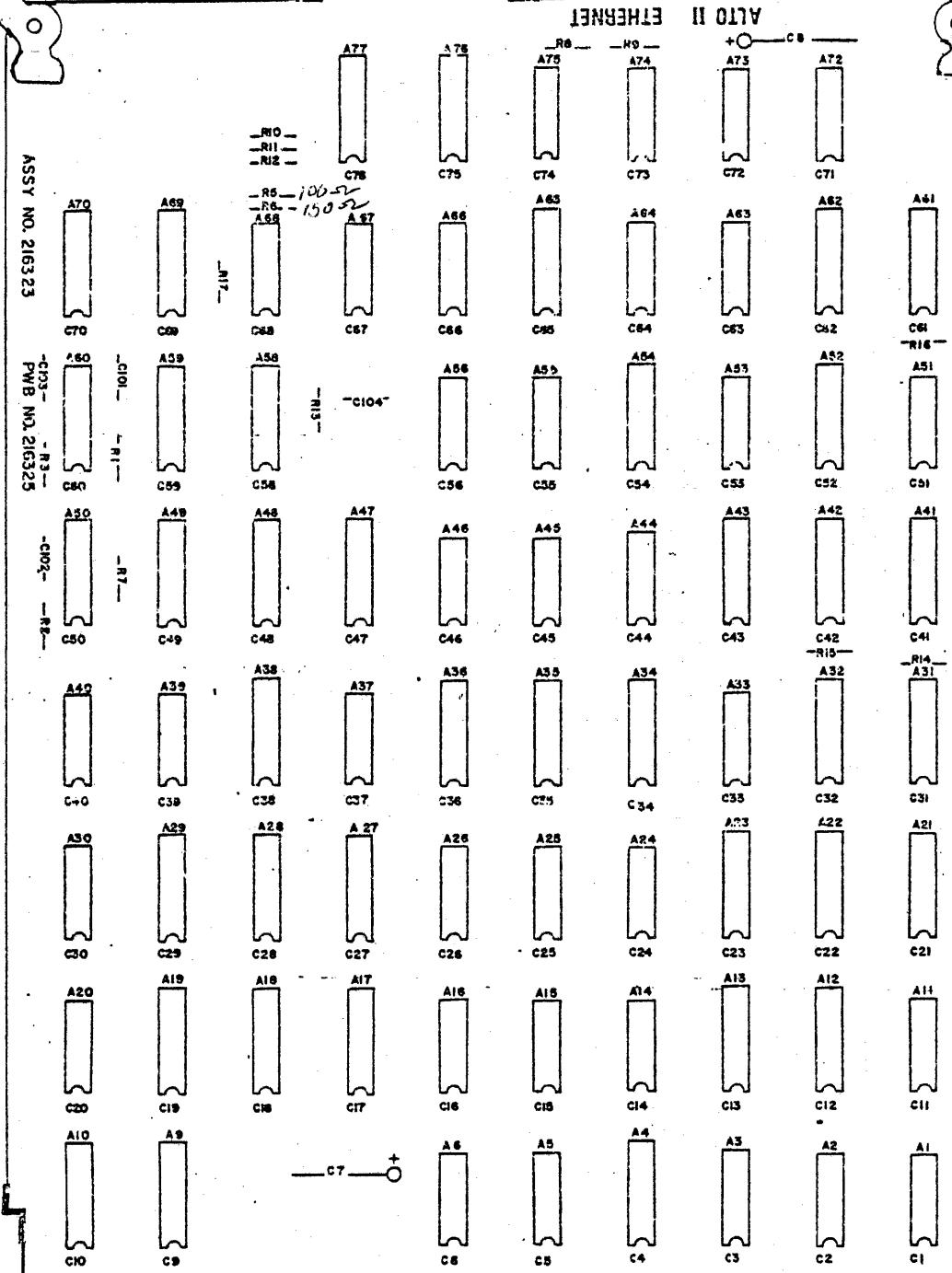
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D

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Title

ASSEMBLY, PRINTED
WIRING-
ETHERNET

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216323

D

Sheet 3 Of

Xerox Corporation
701 South Aviation Boulevard
El Segundo, California 90245
213 679-4511

XEROX

Material List

ML	Drawing No. 216323	Rev. D
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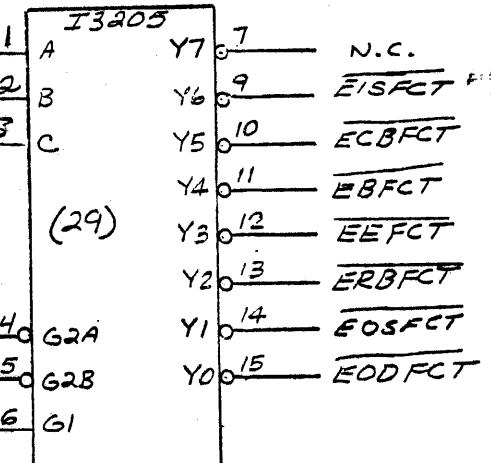
Drawing No. 216323	Drawing Title ALTO II ASSEMBLY, PRINTED WIRING- ETHERNET	These drawings and specifications, and the data contained therein, are the exclusive property of Xerox Corporation and/or Rank Xerox, Ltd. issued in strict confidence and shall not, without the prior written permission of Xerox 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 3-3-76	Sheet 4 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, ²⁶ 25
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

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Material List

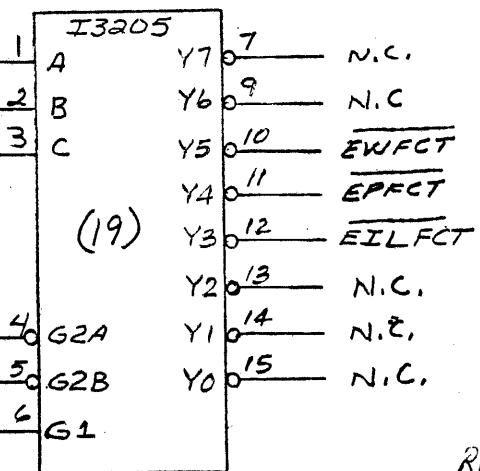
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F2-3 39
F2-2 38
F2-1 37
F2-0 36



ETAC 100

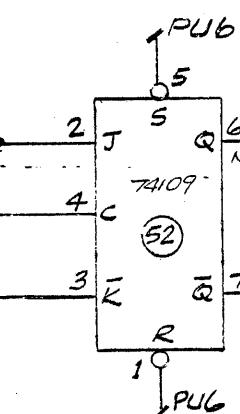
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F1-2 32
F1-1 31
F1-0 30



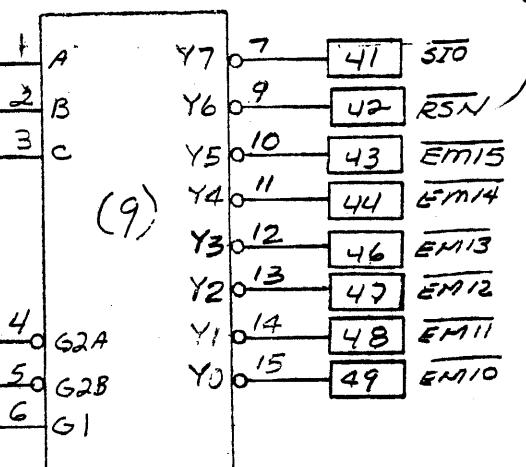
SIO 10 74500
BUSdφ 9 45

AUSYSCLK

12



EMACT 99 7404
9 3 8



COMMAND DECODING

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Title ALTO II
ASSEMBLY, PRINTED WIRING
ETHERNET

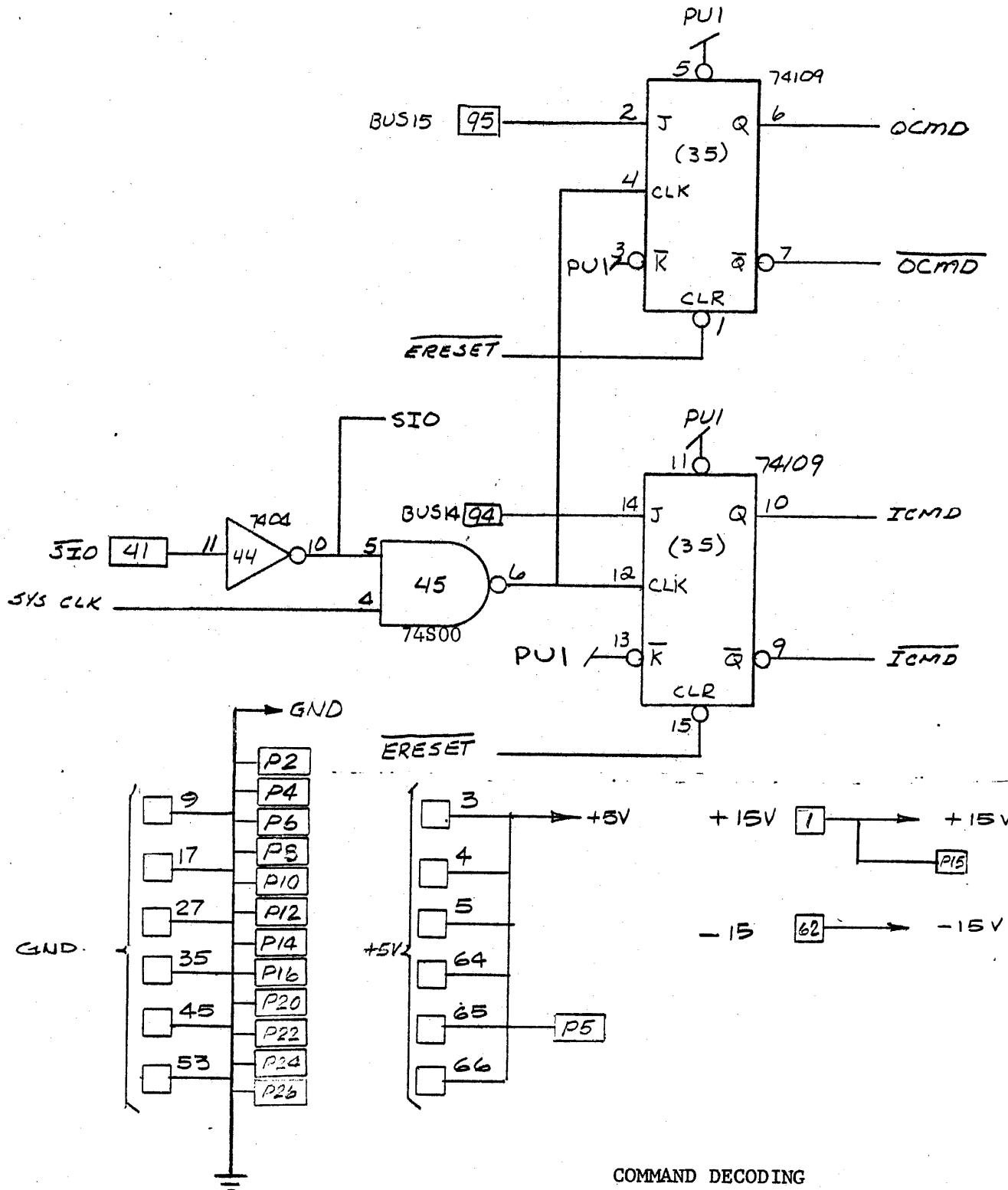
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Sheet 6 of



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ETHERNET

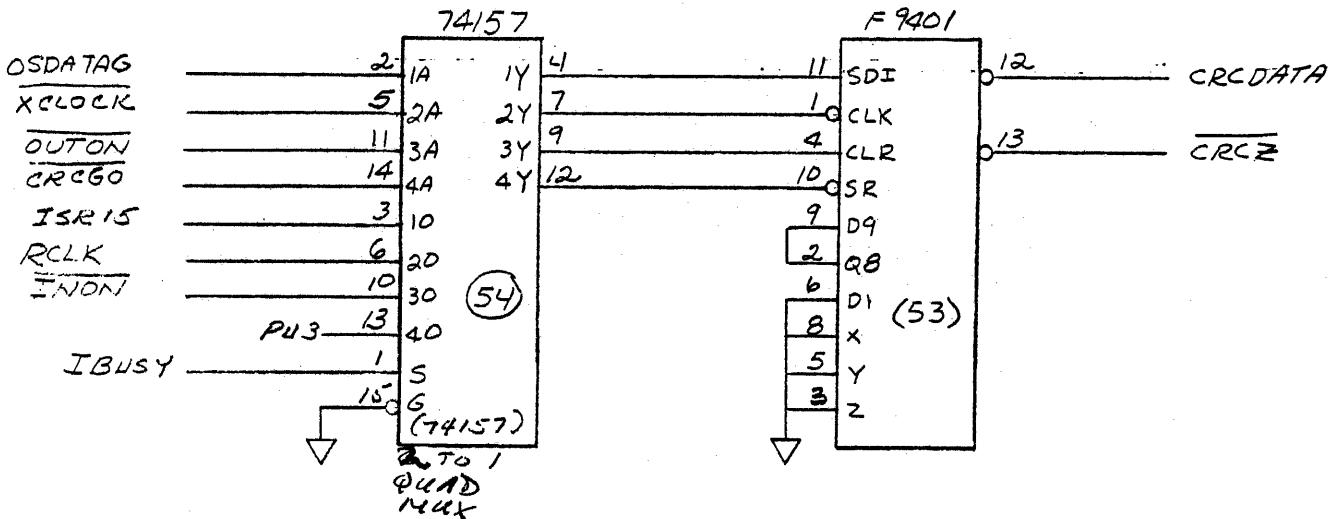
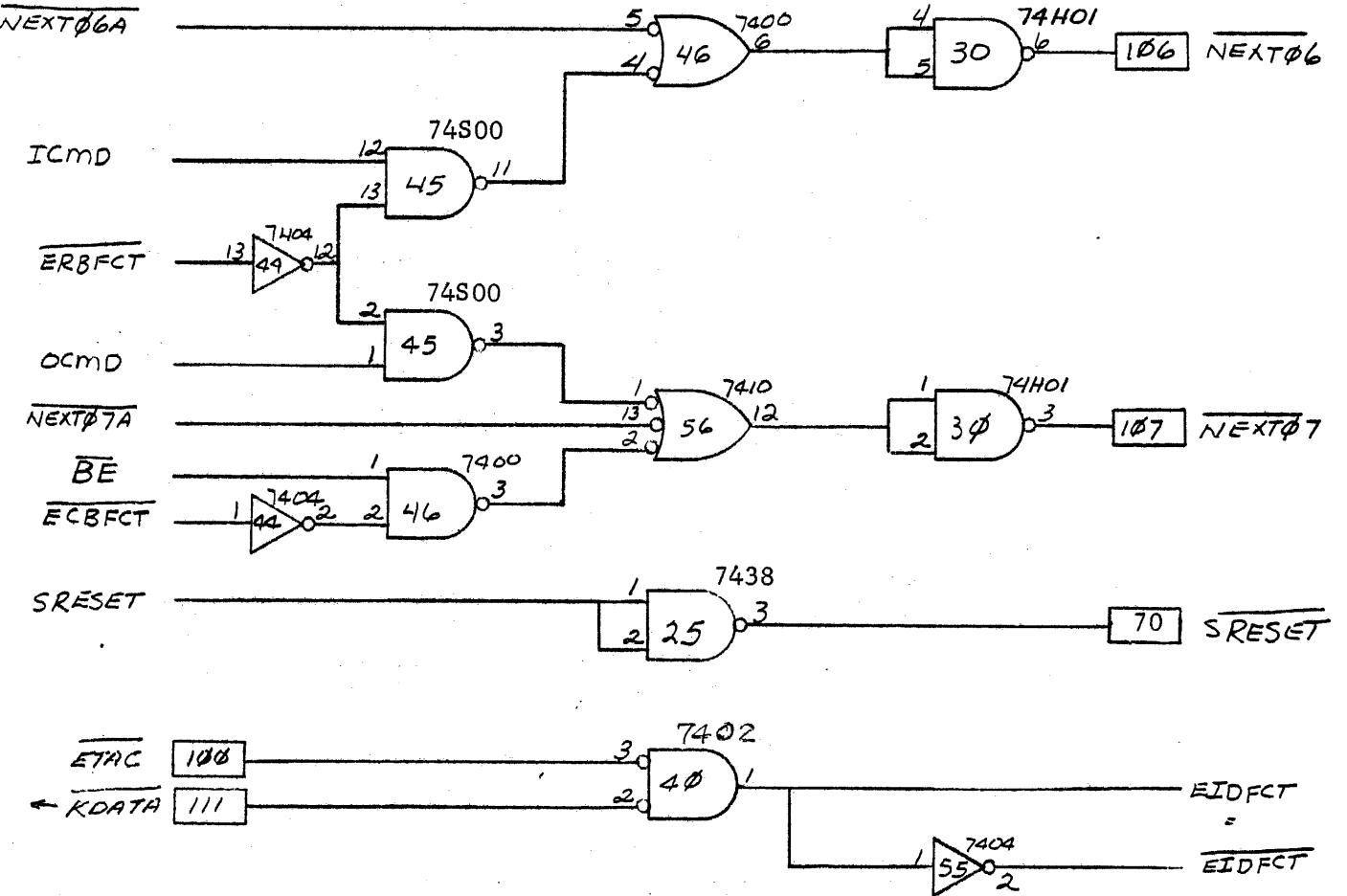
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BRANCH LOGIC

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Title
ALTO II
ASSEMBLY, PRINTED WIRING
ETHERNET

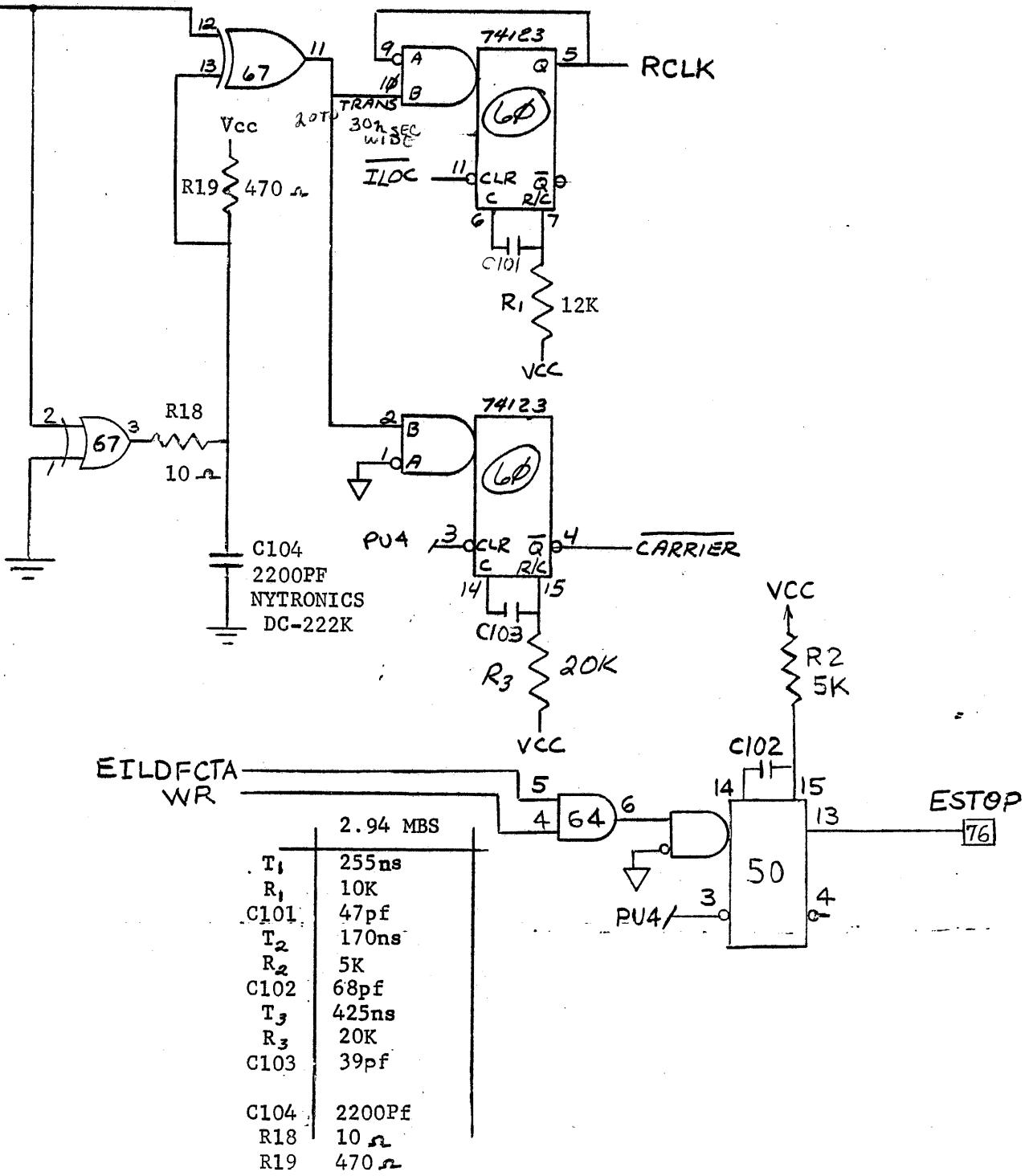
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ETHERNET

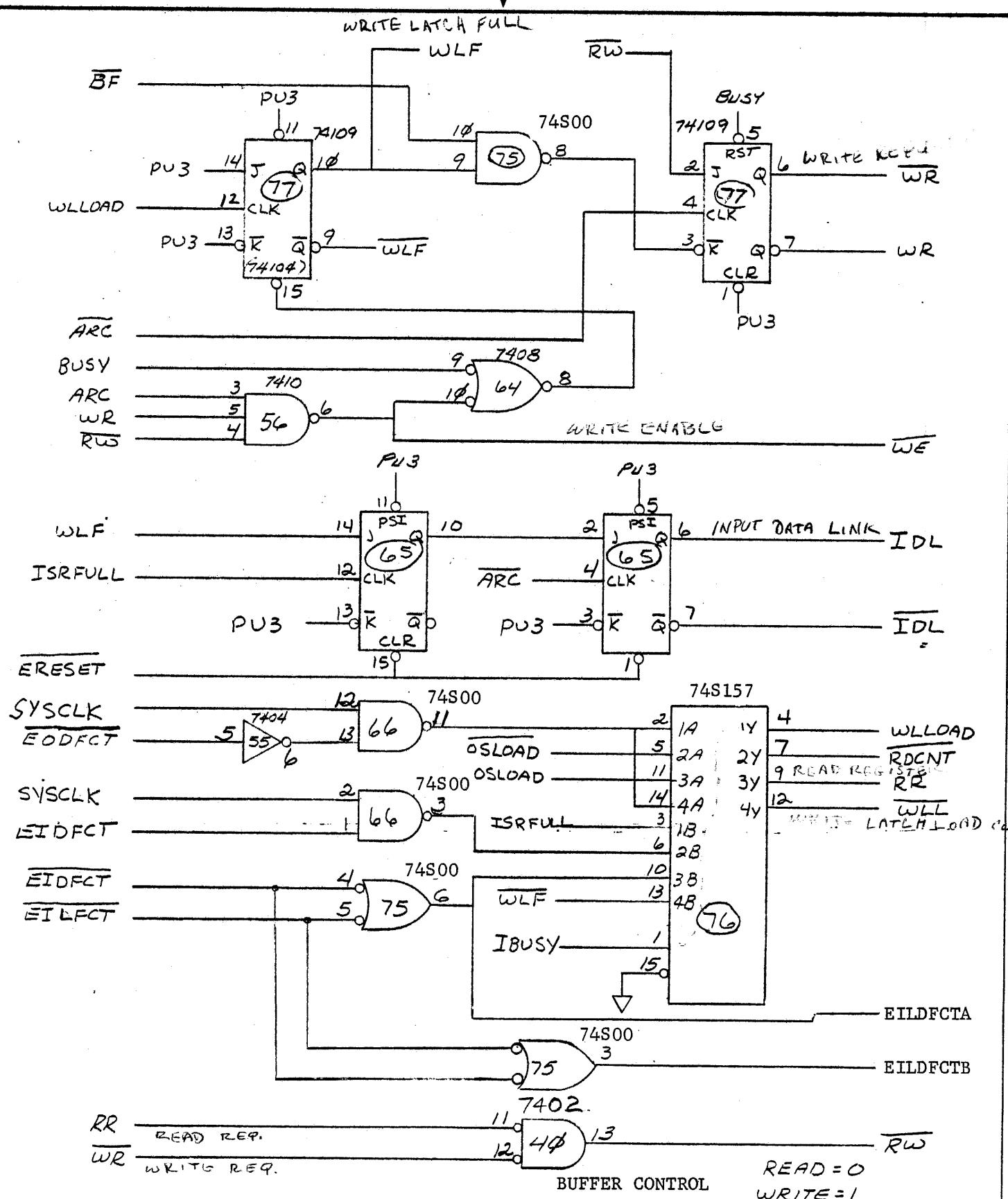
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Title
ALTO II
ASSEMBLY, PRINTED WIRING
ETHERNET

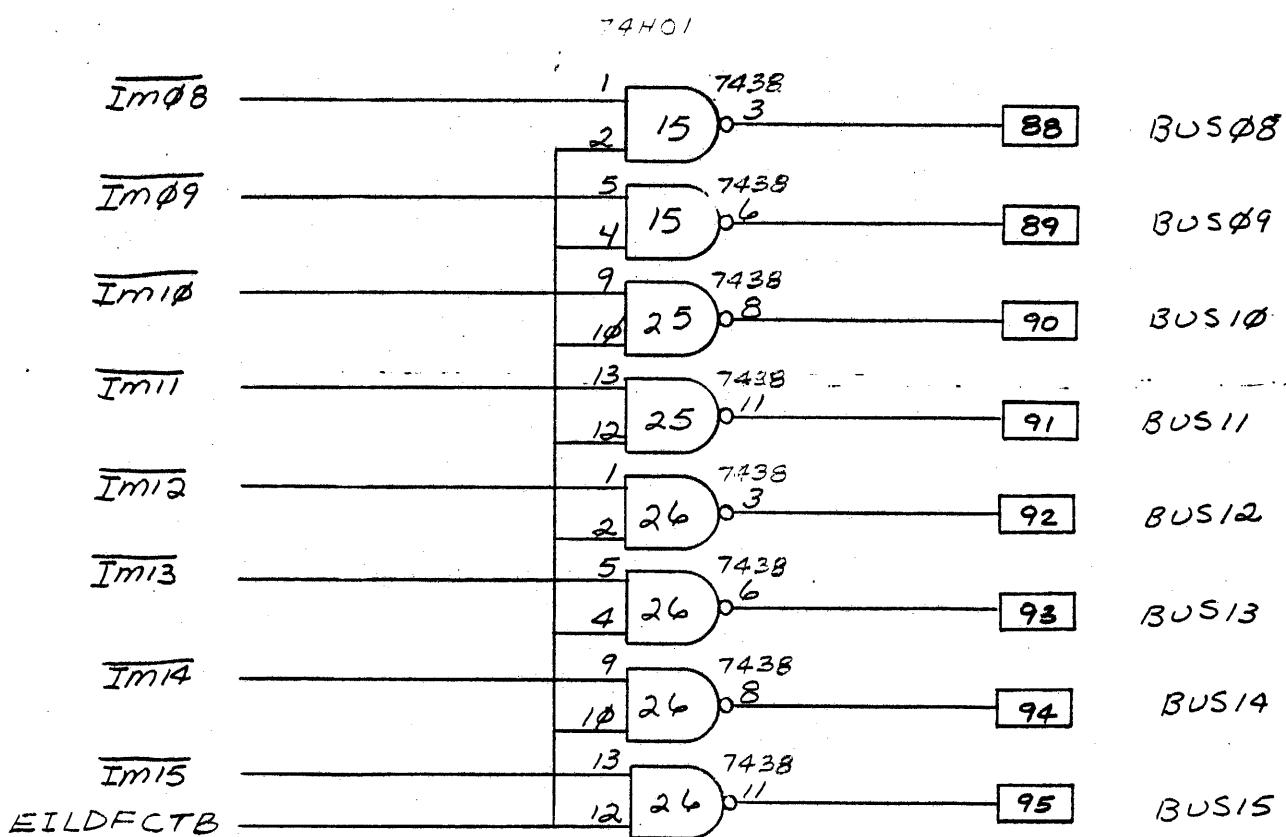
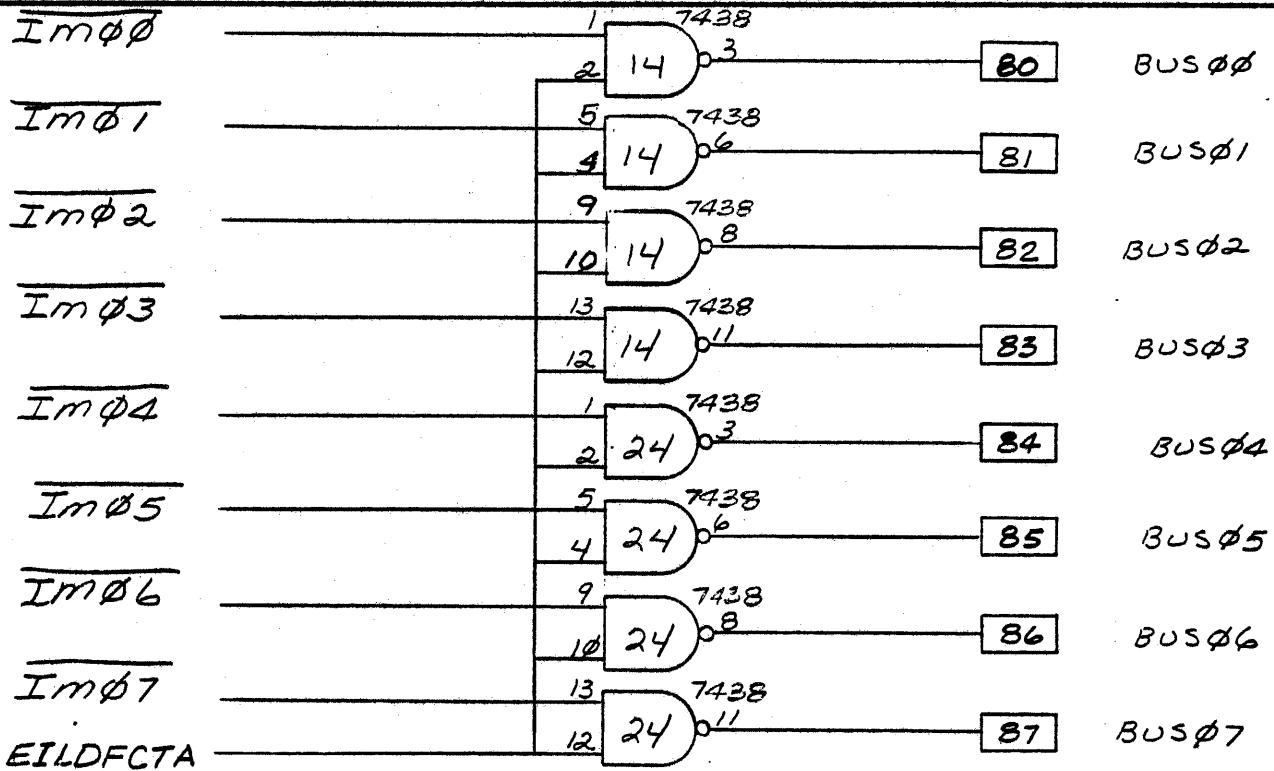
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PROCESSOR BUS DRIVERS

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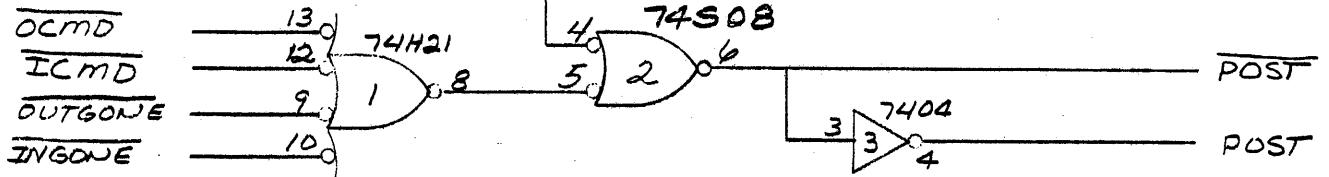
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Sheet	11 Of

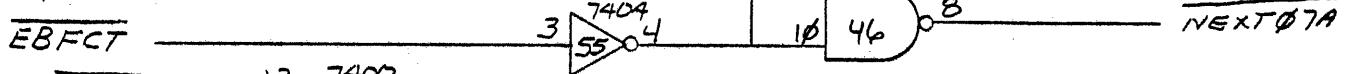
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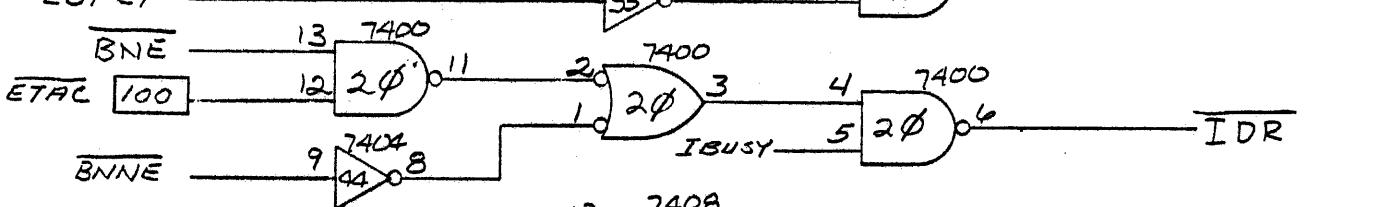
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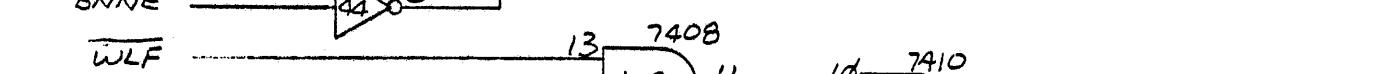
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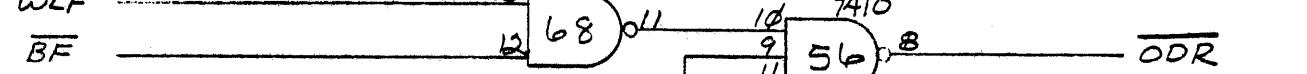
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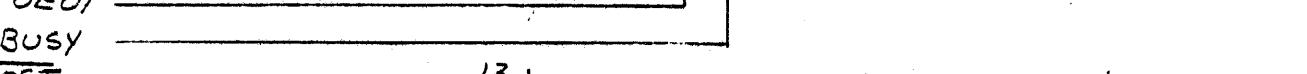
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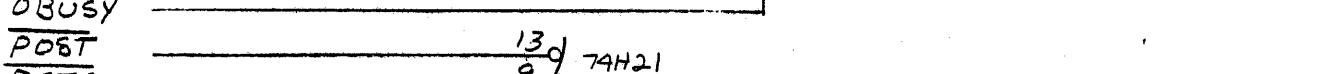
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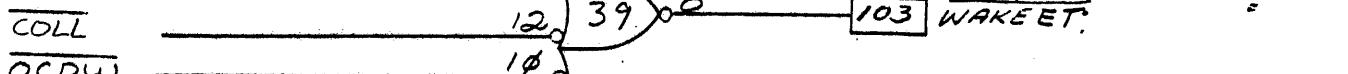
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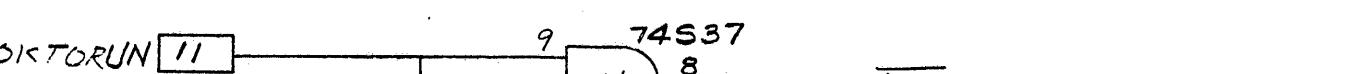
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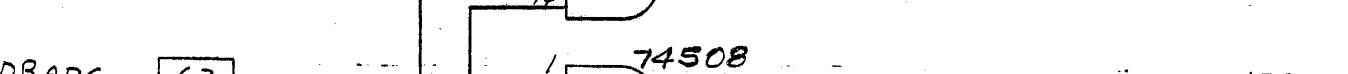
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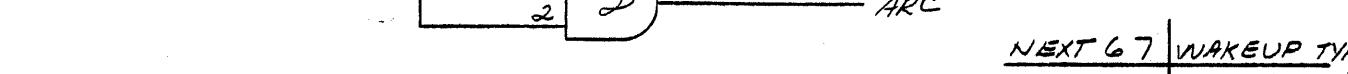
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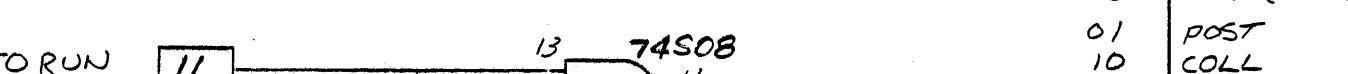
DATA



COLL



OCDW



OKTORUN [11]

74S37

[11] 8

ARC

DBARC

[63]

74S08

[2] 3

ARC

NEXT 67 WAKEUP TYPE

00 DATA(CDW)

01 POST

10 COLL

11 POST

OKTORUN

74S08

[2] 11

SYSCLK

AUSYSCLK

74S37

[11] 11

SYSCLK

ALTO INTERFACE

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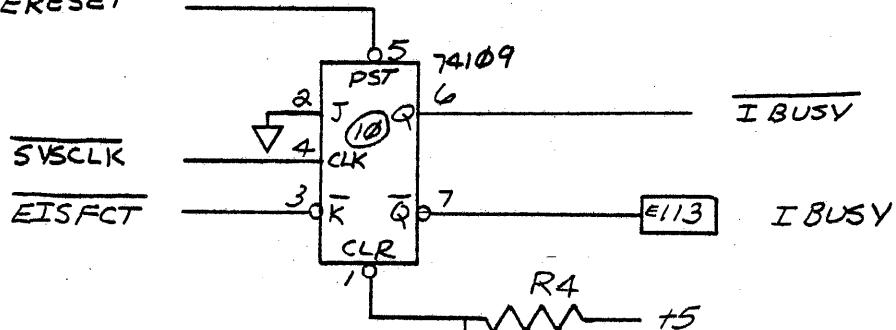
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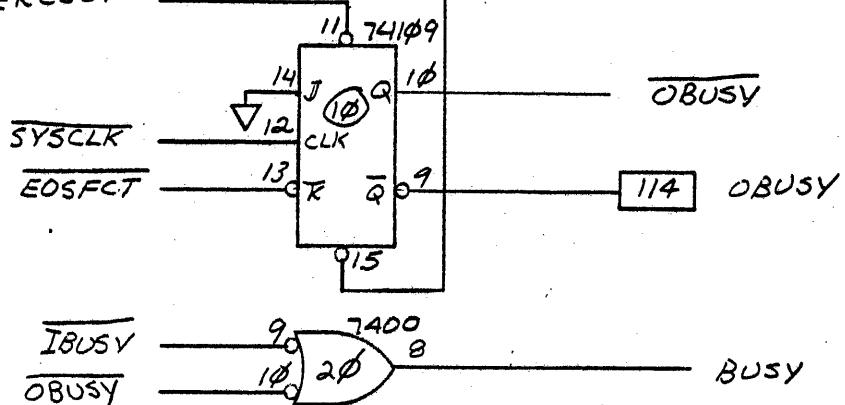
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Sheet 12 of

E RESET



E RESET



I BUSY
O BUSY

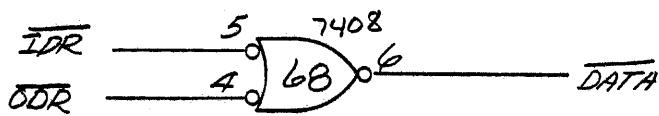
7400
20

BUSY

O KTORUN

RESET

SYSCLK
EPFCT



E RESET

IDR
ODR

7408
68

DATA

ALTO INTERFACE

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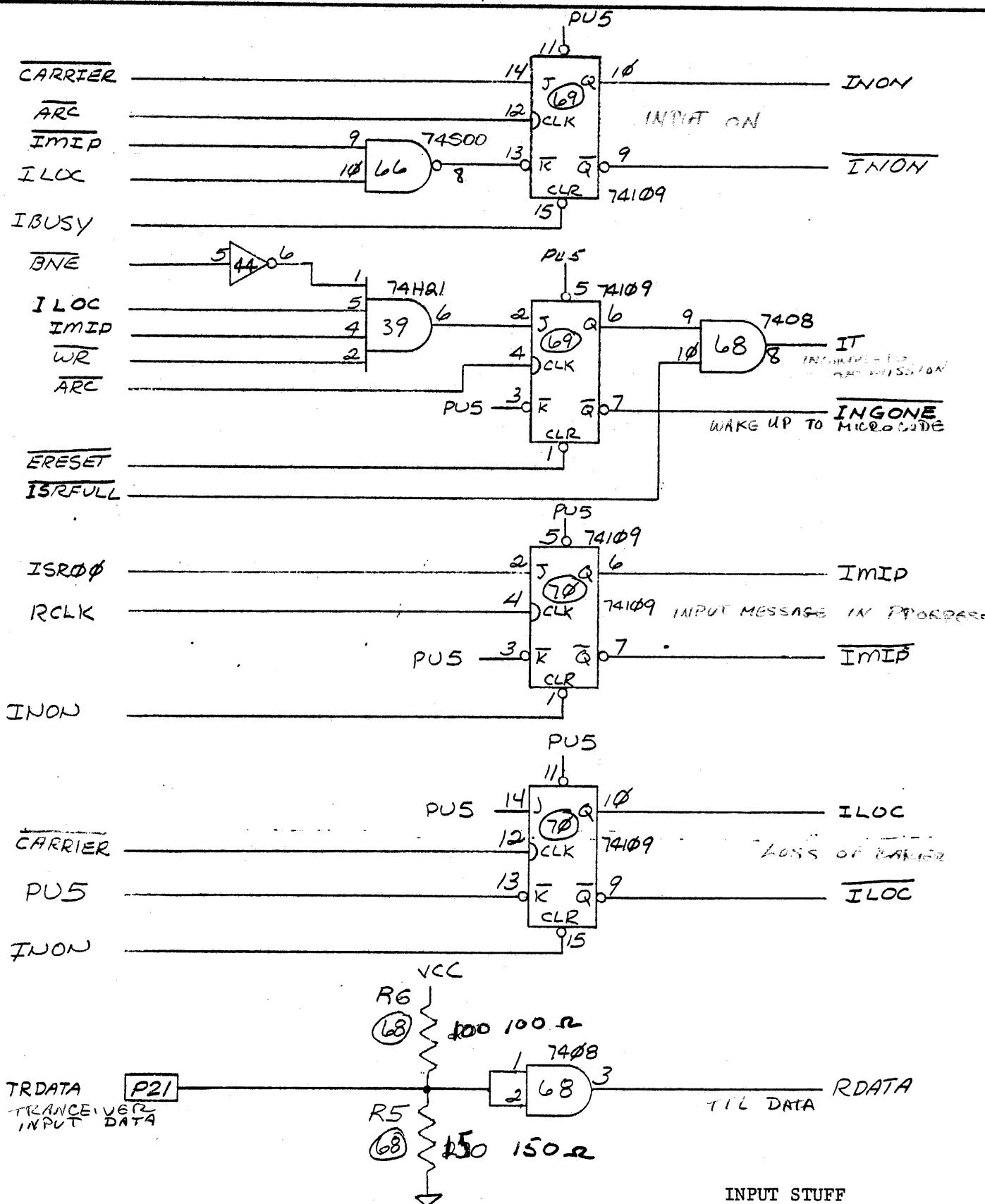
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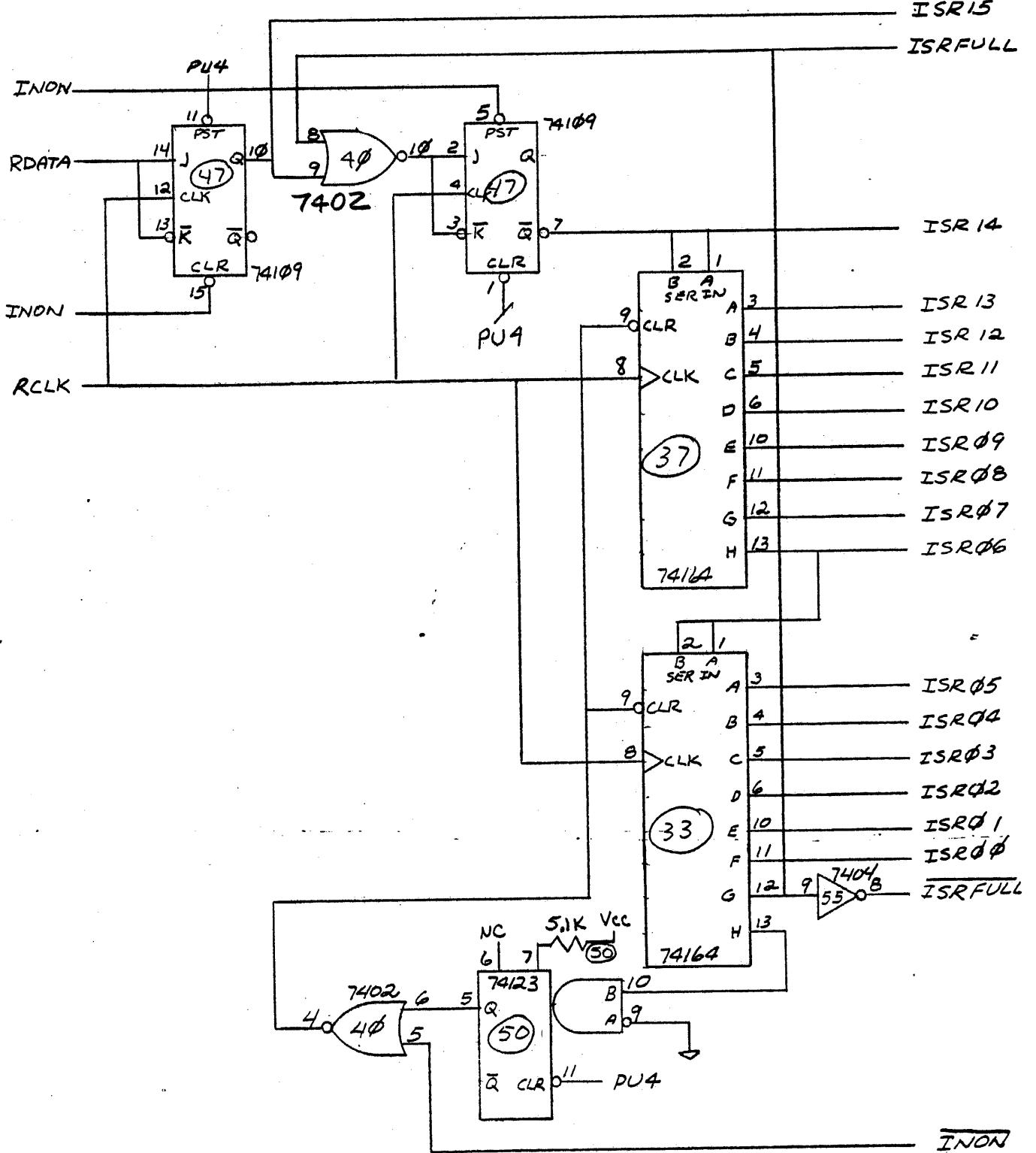
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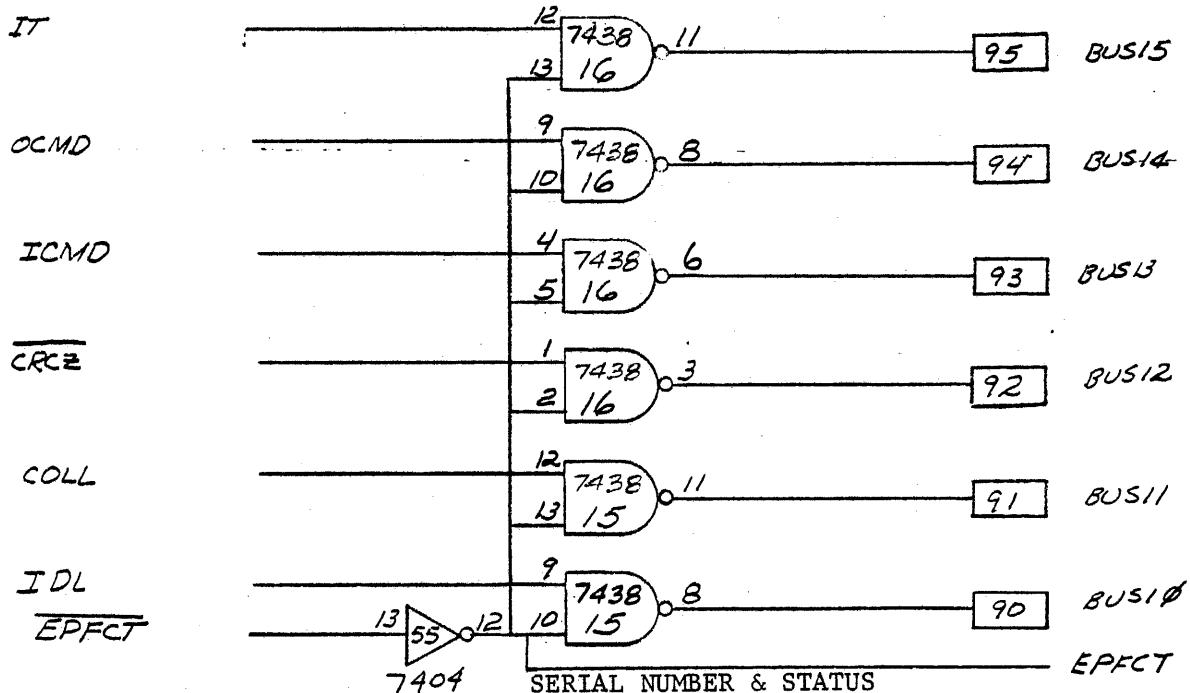
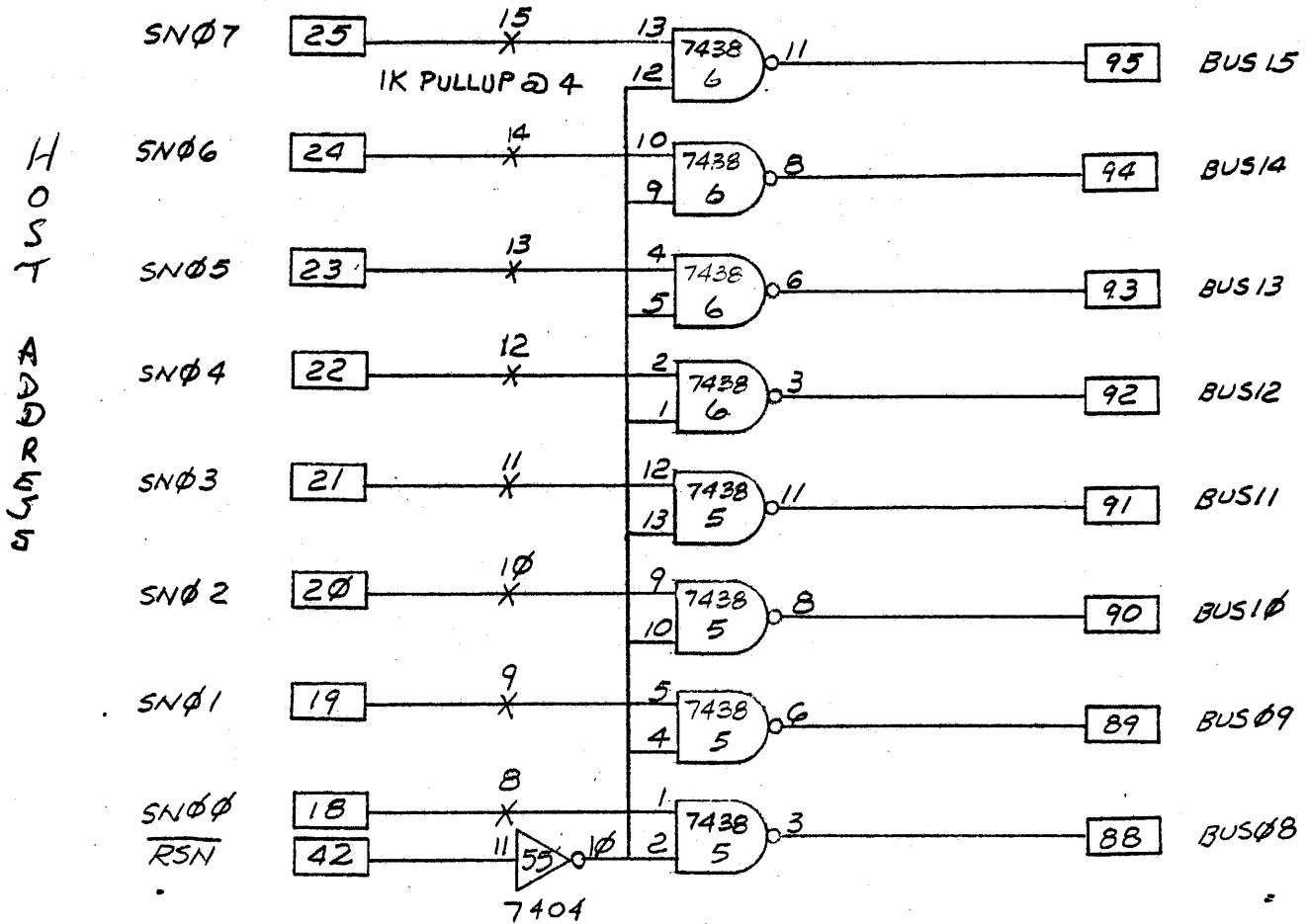
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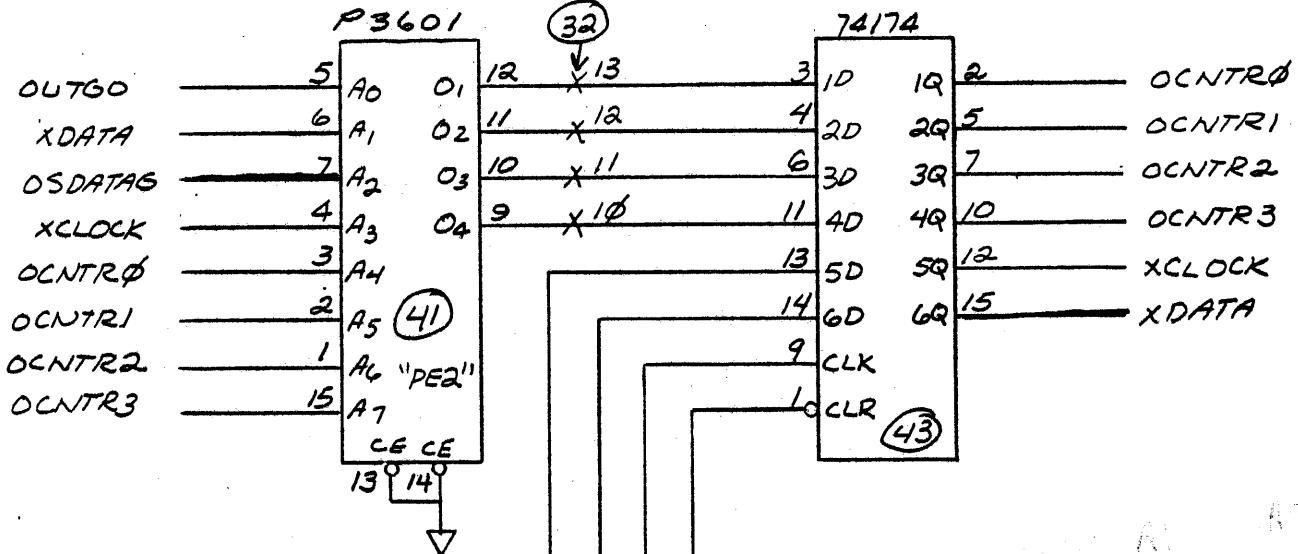
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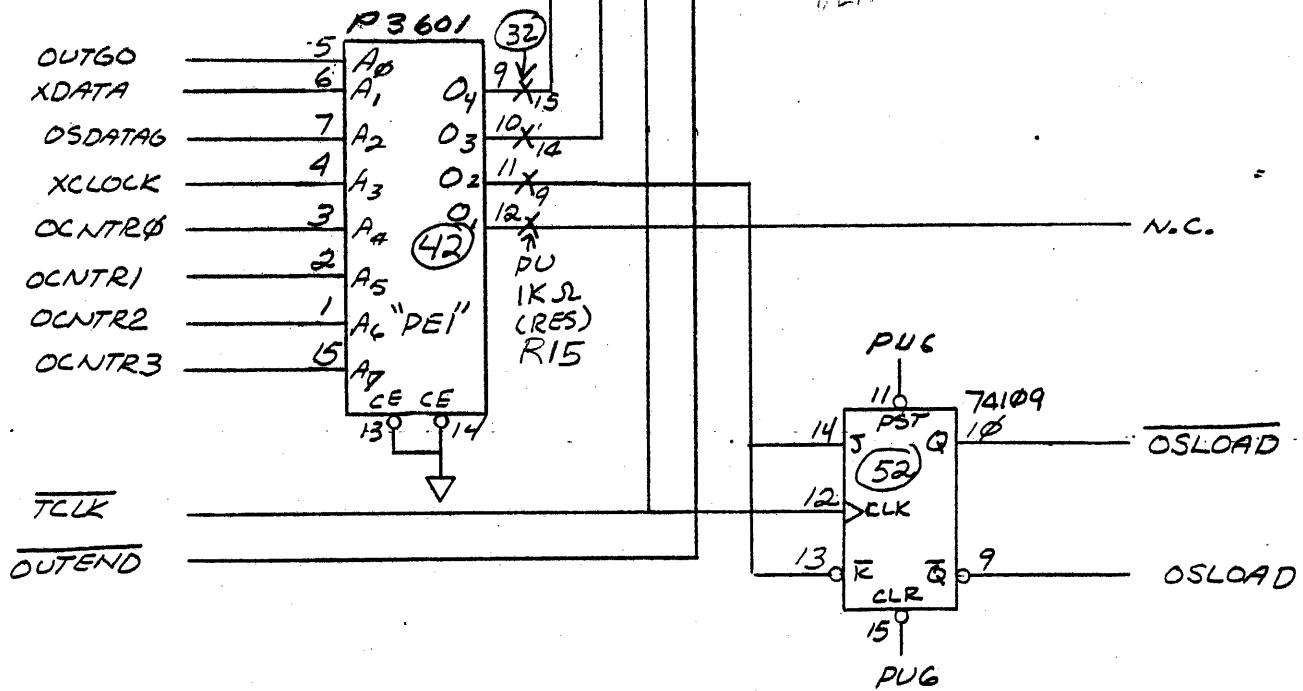
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PLACE



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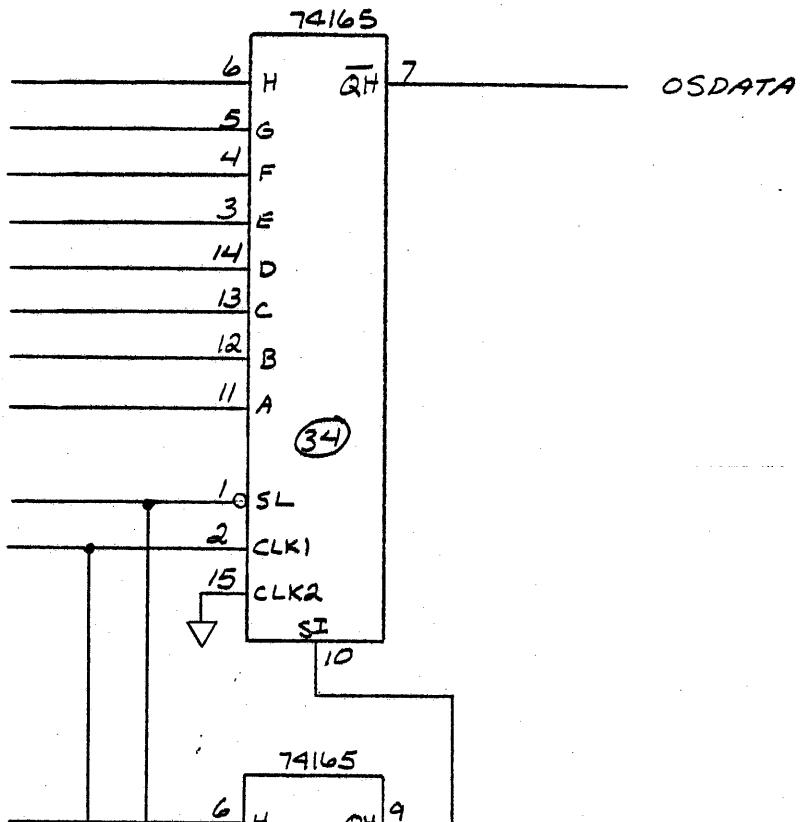
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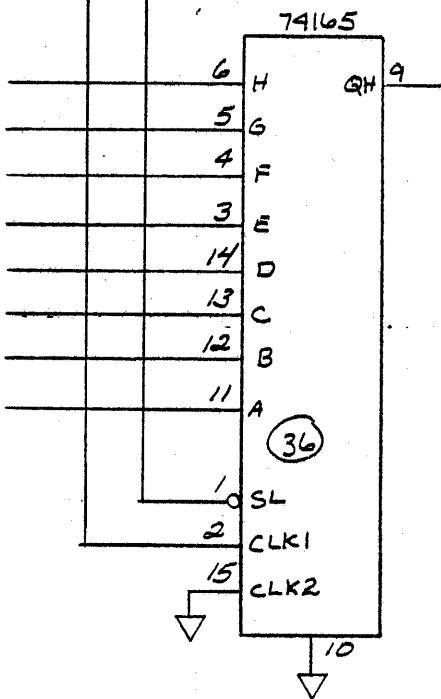
Sheet 17 Of

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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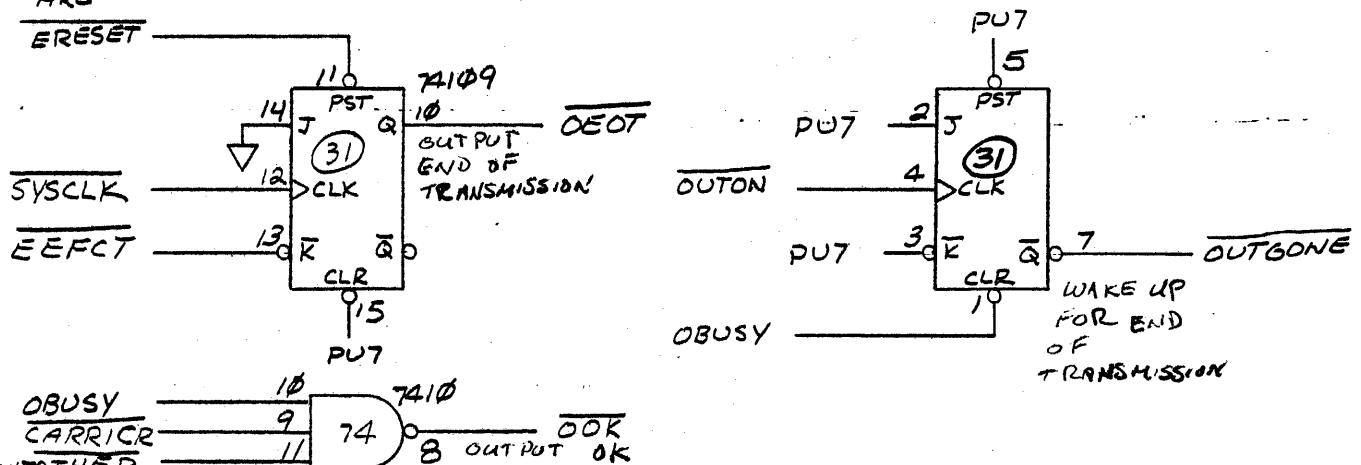
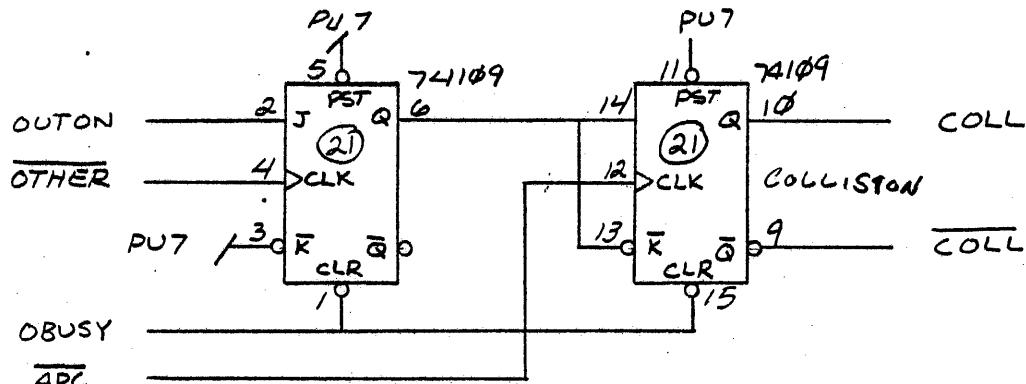
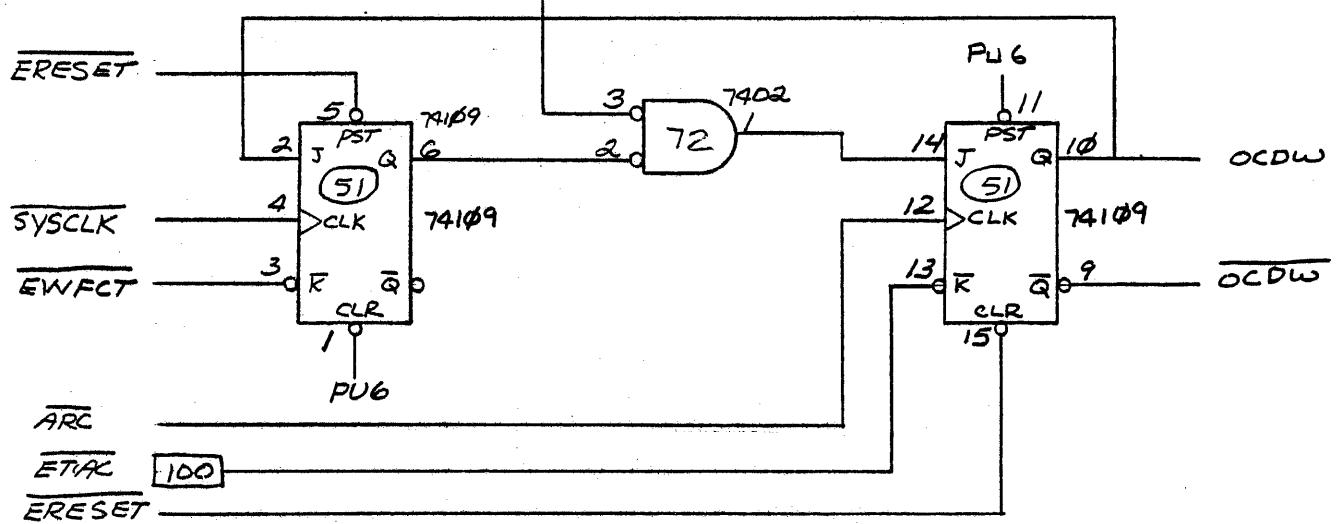
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Sheet 18

SWAKMRT 68 384 SEC



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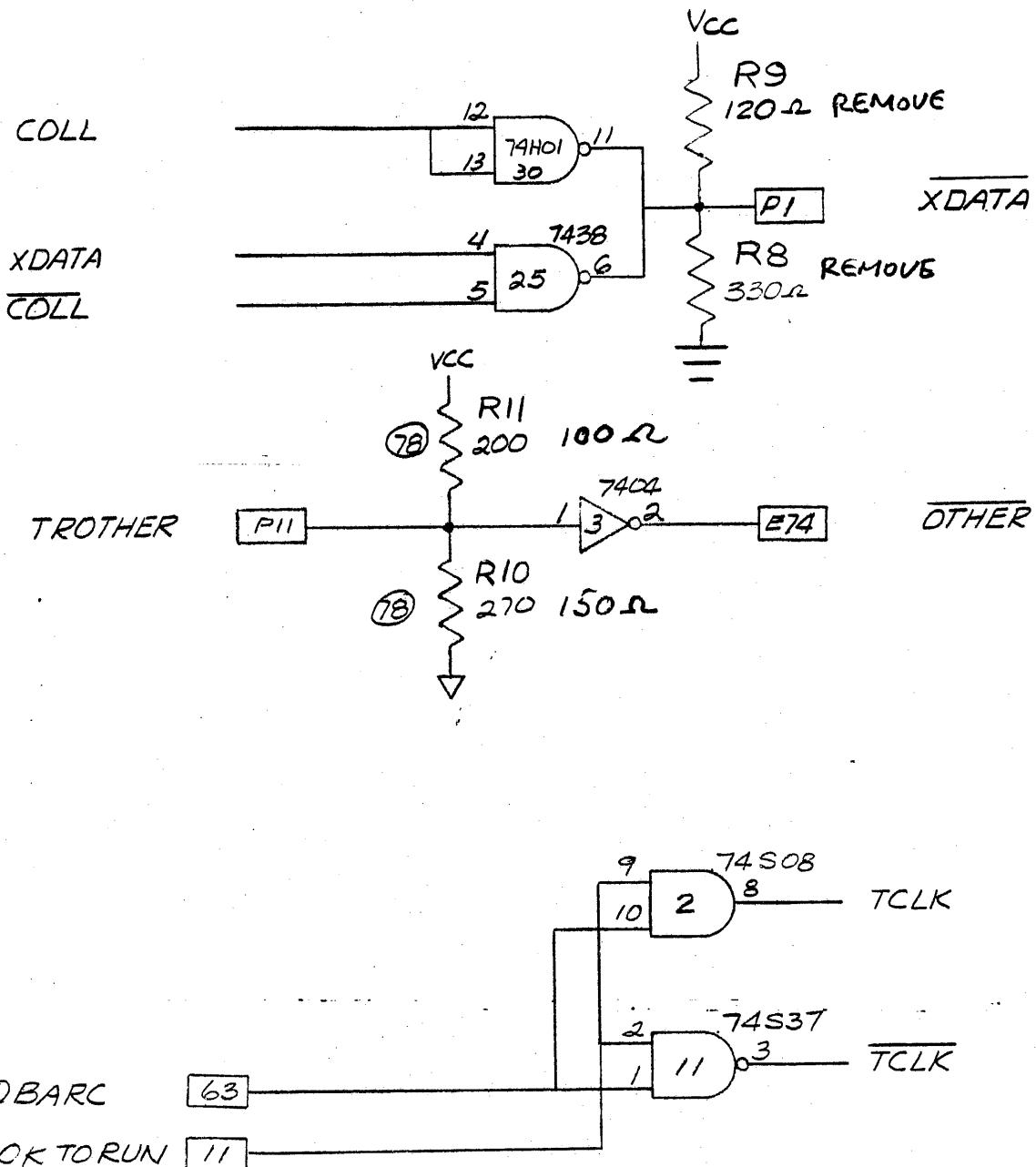
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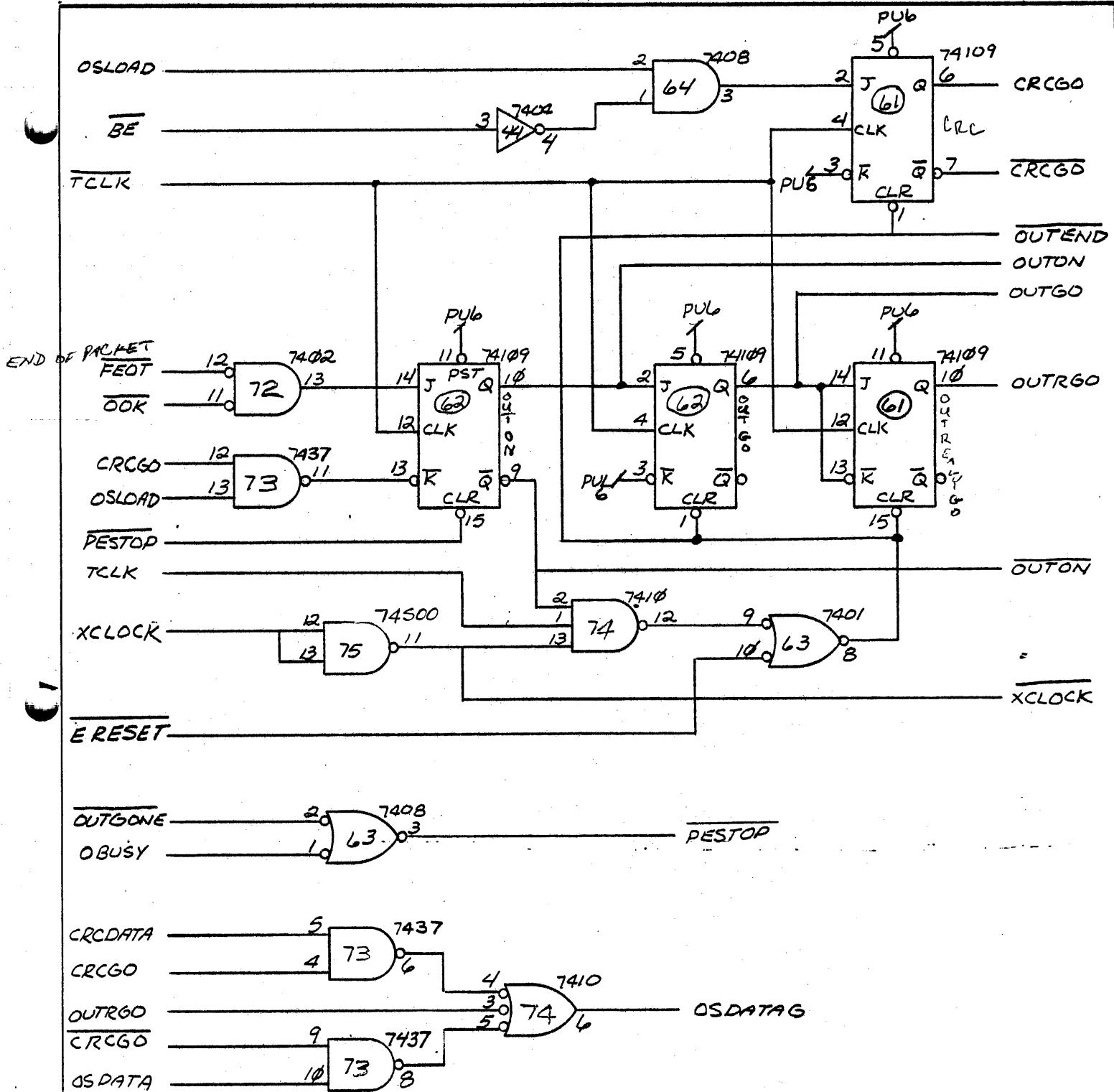
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PHASE ENCODER CONTROL

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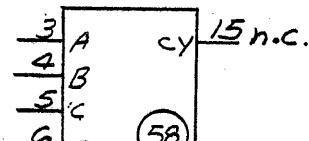
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Sheet 21 Of

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n.c.
n.c.
n.c.

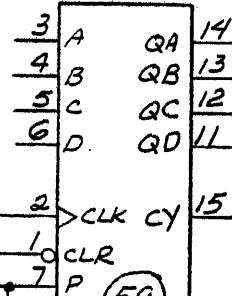
ROCNT
BUSY
PU4



(58)

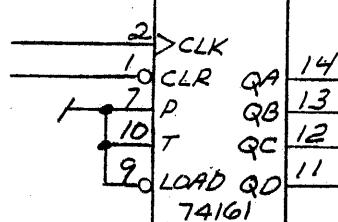
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n.c.
n.c.
n.c.

WE
BUSY
PU4

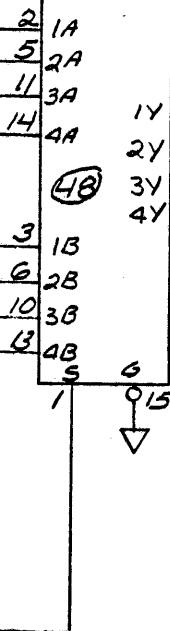


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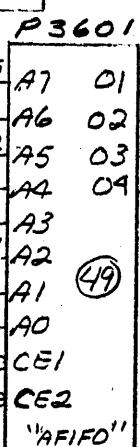
RW



74157



MA0
MA1
MA2
MA3



(49)

HALF DUPLEX BUFFER FIFO CONTROL

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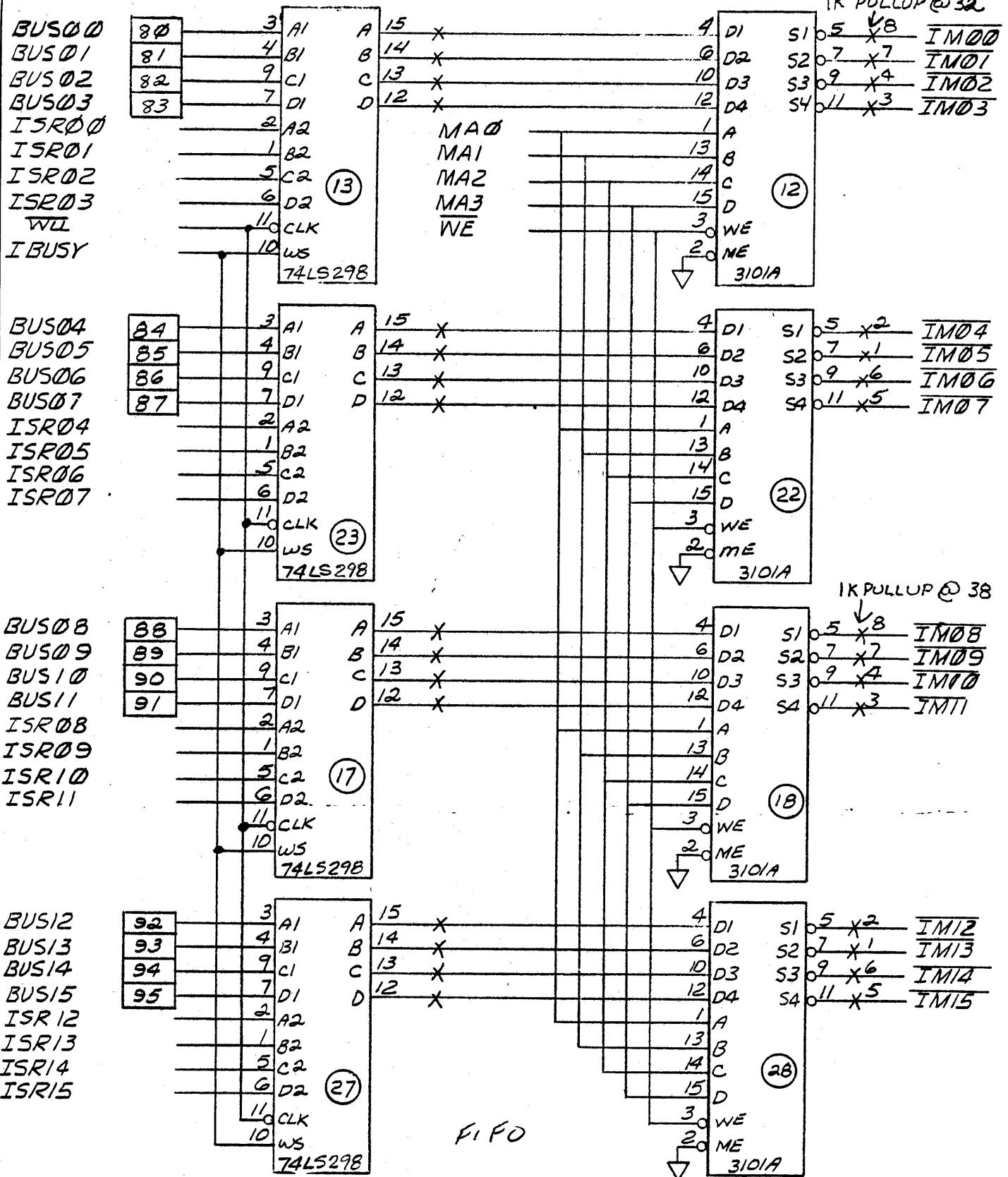
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BUFFER

HOLDING—



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1586(3/73)

Revisions

216339

D

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	SN	3-8-76	RF
	B	REVISED; ADDED ITEM 27	EM	7-78 76	SN RF
	C	ADDED NOTE 2. SH 7 REVISED "WAKECURT" SCHEMATIC. SH 12 REVISED "SWKMRT" SCHEMATIC.	SN	10-4 76	RF
	D	M/L ITEM 38 P/N WAS P3601, ITEM 55 P/N WAS 514-AG10D, ITEM 56 P/N WAS 516-AG10D.	SN	4-13 77	SN

**ENGINEERING
RELEASE**

THIS DOCUMENT CONTAINS 14 SHEETS.

Dist Code ALT

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		Check <i>Fishman</i>	Appr. <i>SN</i>	Title ALTO II	
		Material		ASSEMBLY, PRINTED WIRING -	
				DISPLAY CONTROL	
Model No. First Use	ALTO II EWO 7YF92	Finish	Code Ident. 18338	Size A	Dwg. No. 216339
Next Assy. First Use	216302		Scale -	Do Not Scale Drawing	Change Letter D

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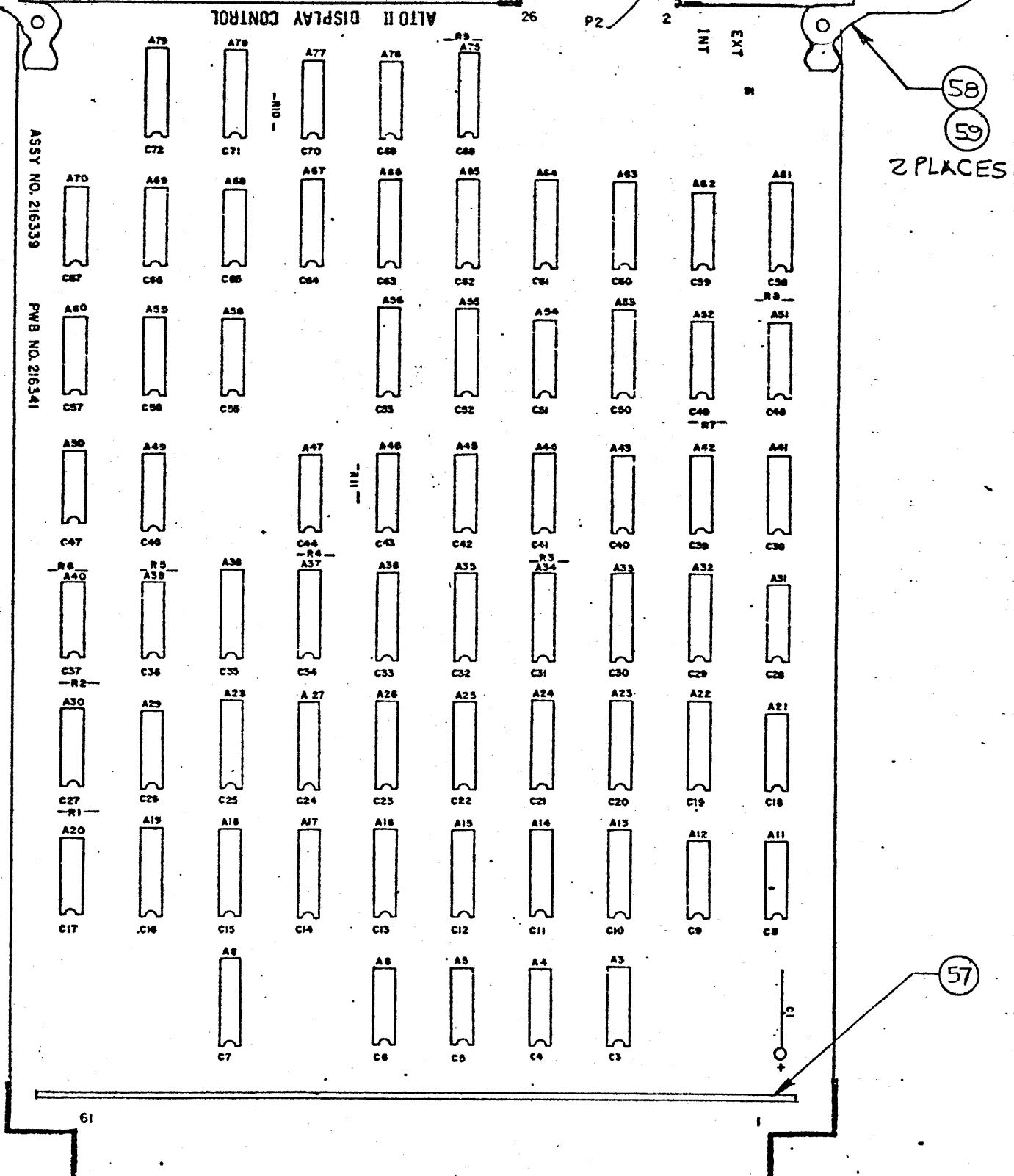
Title ALTO II
ASSEMBLY, P.W.-
DISPLAY CONTROL

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Sheet 2 Of



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Title
ASSY, PRINTED WIRING
DISPLAY CONTROL

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D

Sheet 3 Of

Material List

ML	Drawing No. 216339	Rev. D
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Rev. C	Drawing No. 216339	Drawing Title ALTO II	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.		
		ASSEMBLY, PRINTED WIRING- DISPLAY CONTROL	Model No. EWO 7YF92	Date 3/4/76	Sheet 4 Of
Item No.	Drawing Title	Drawing No.	No. Req.	Remarks	
1	Board, P.W., Display Control	216341	1		
2	Procedure, Test	216340	REF	<i>chip location</i>	
3	Spec, Module Assembly	216207	REF		
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					

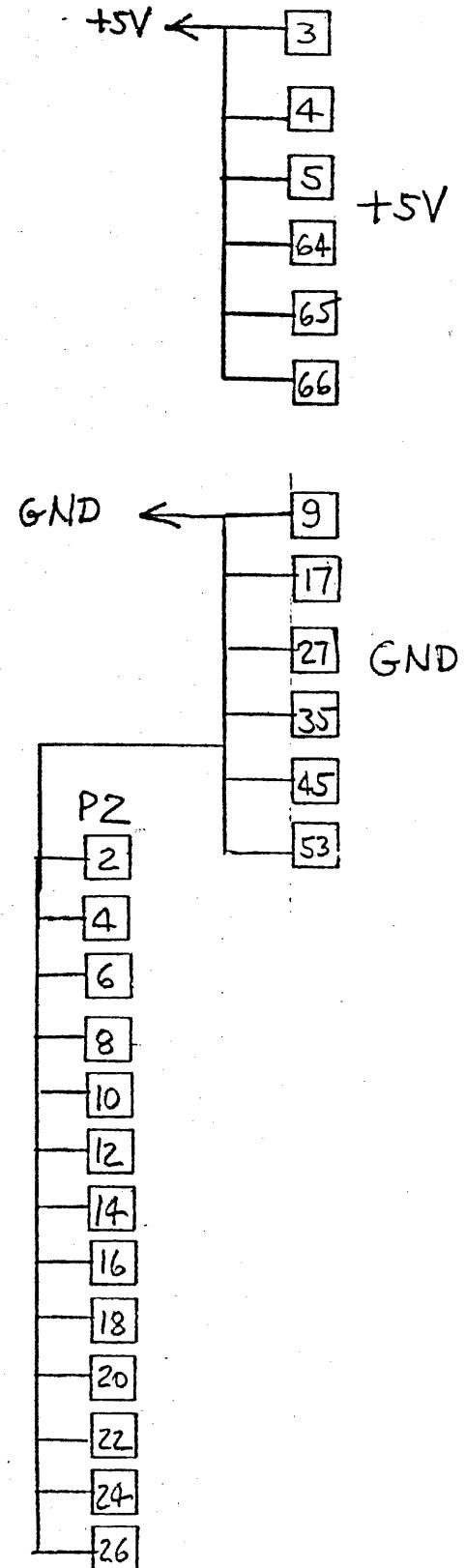
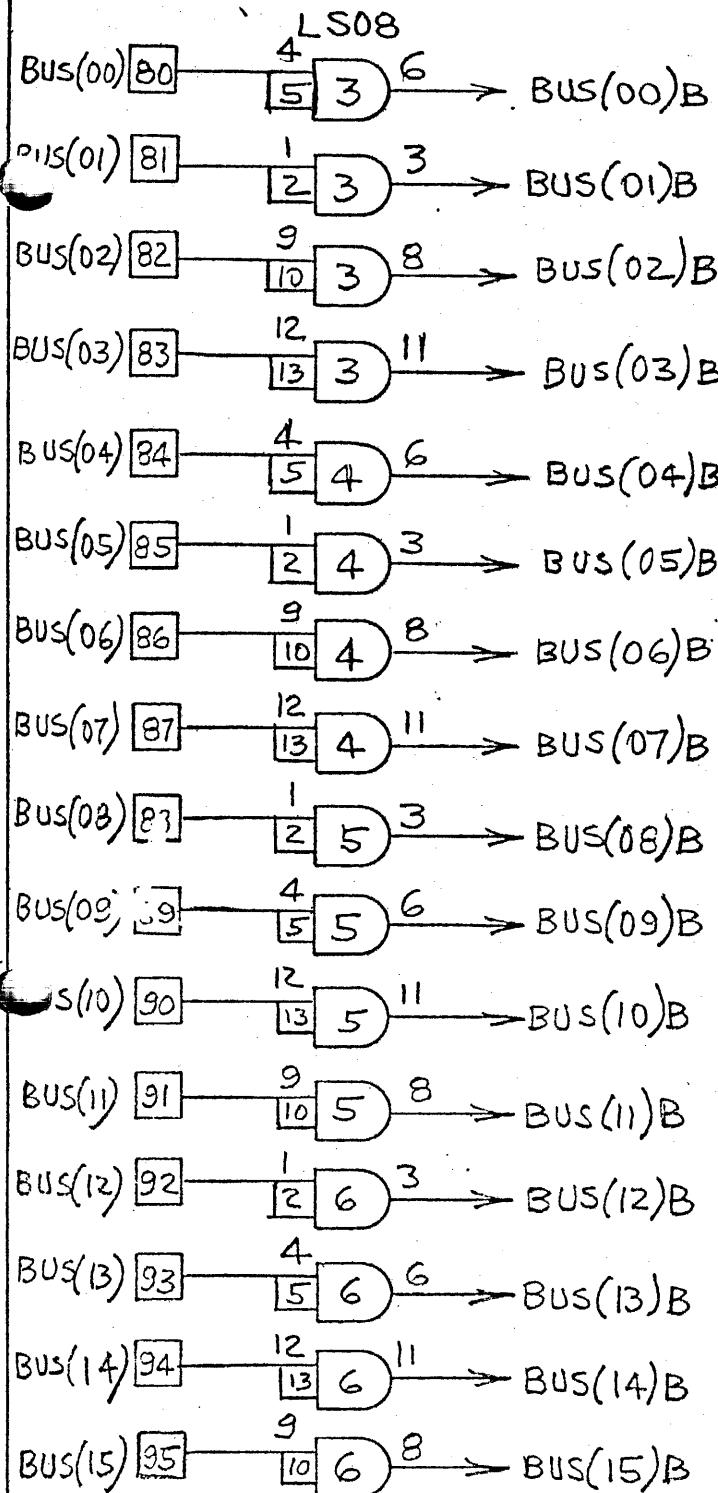
Material List

ML	Drawing No. 216339	Rev. D
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Drawing Title
Rev. C ALTO II
ASSEMBLY, PRINTED WIRING-
DISPLAY CONTROL

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Model No.	Date	Sheet
EWO 7YF92	3/4/76	5 of



BUS BUFFERS

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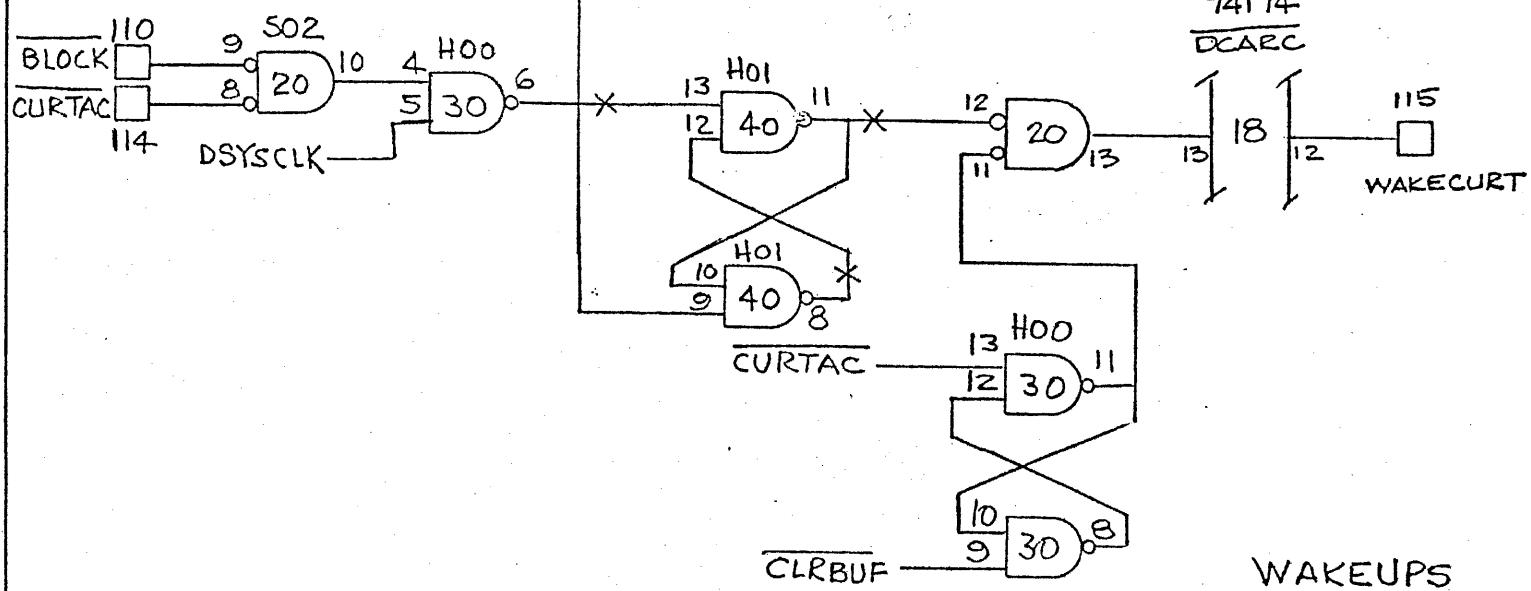
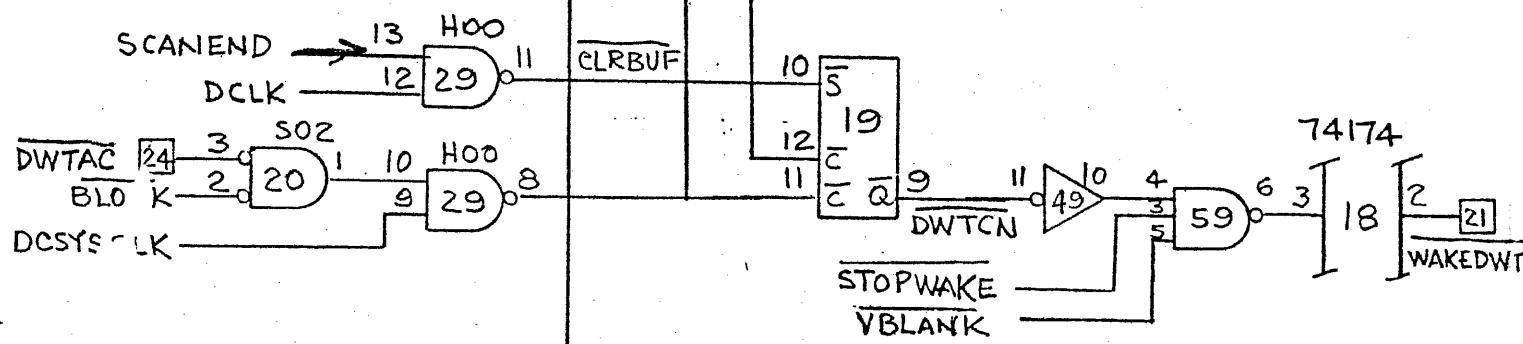
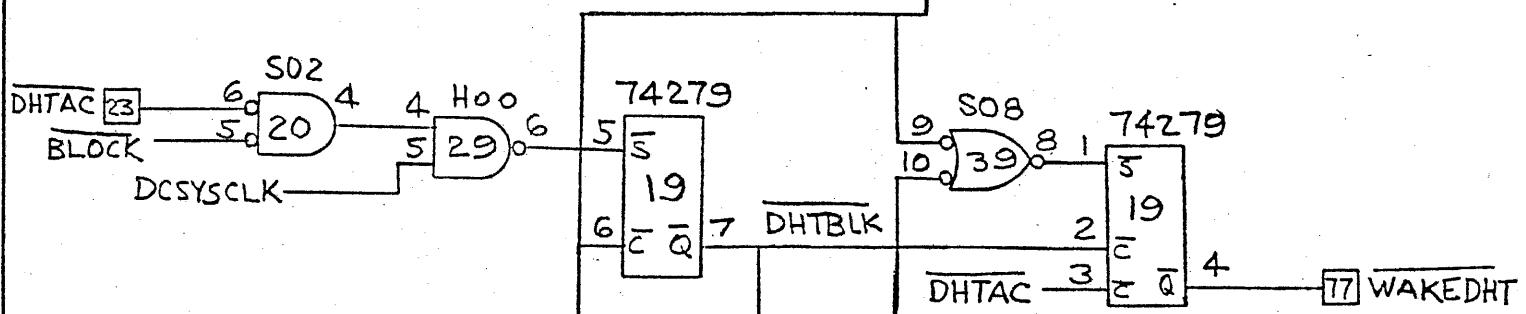
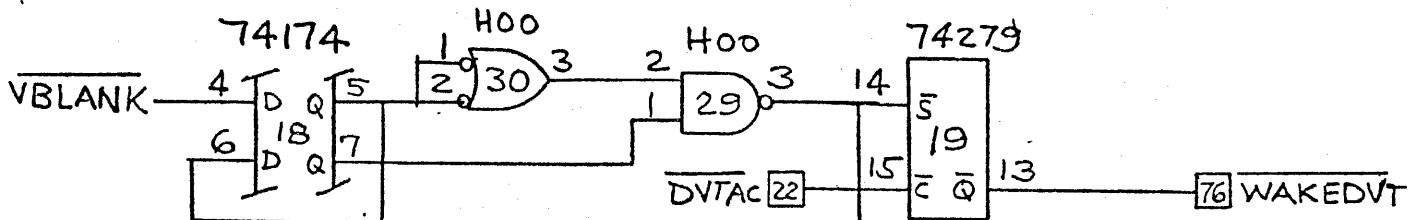
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ALTO II
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DISPLAY CONTROL

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

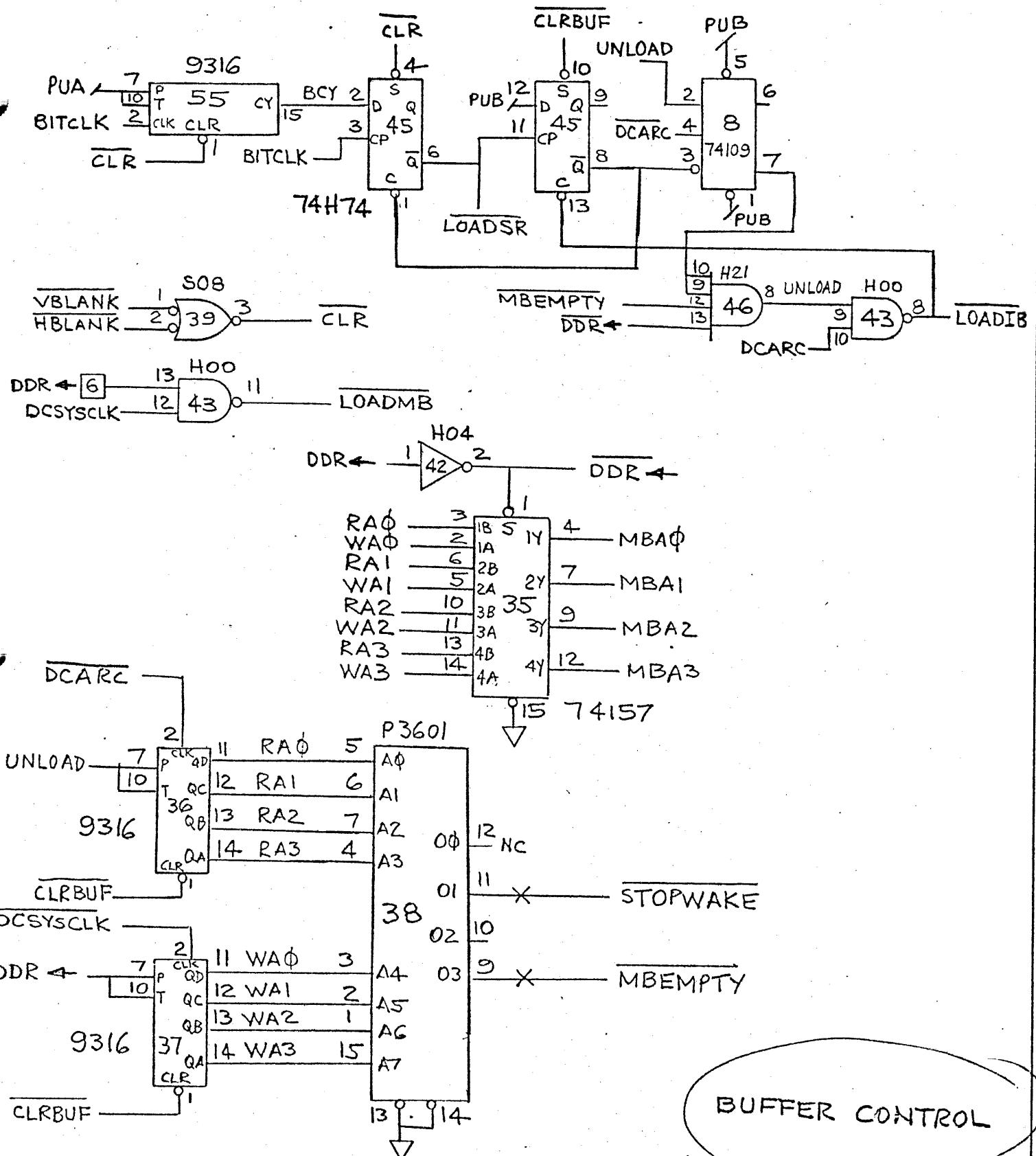
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El Segundo, California

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Sheet 7 Of



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

Xerox Corporation
El Segundo, California

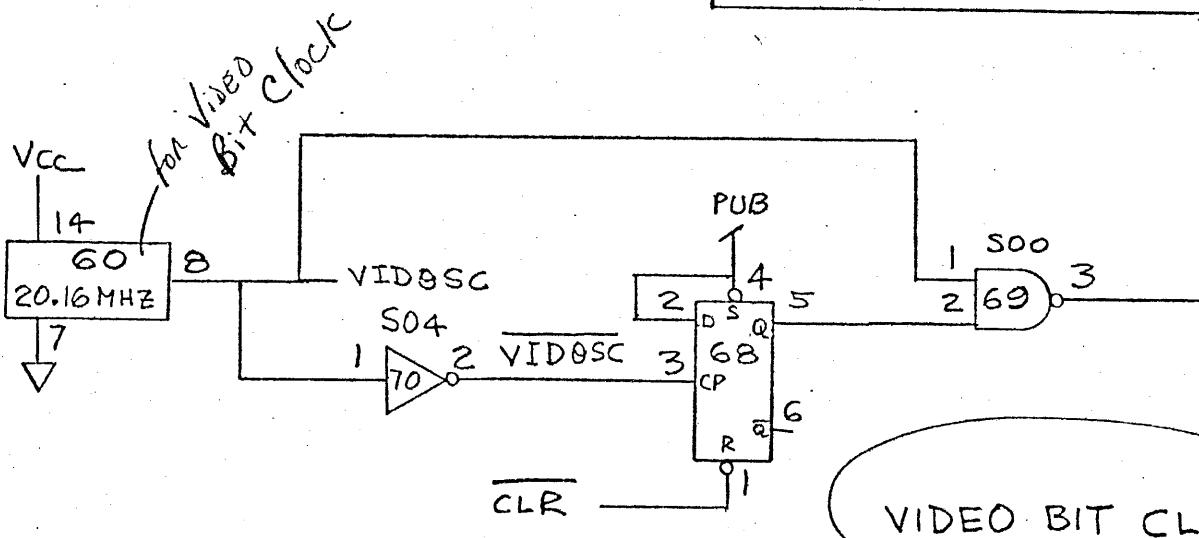
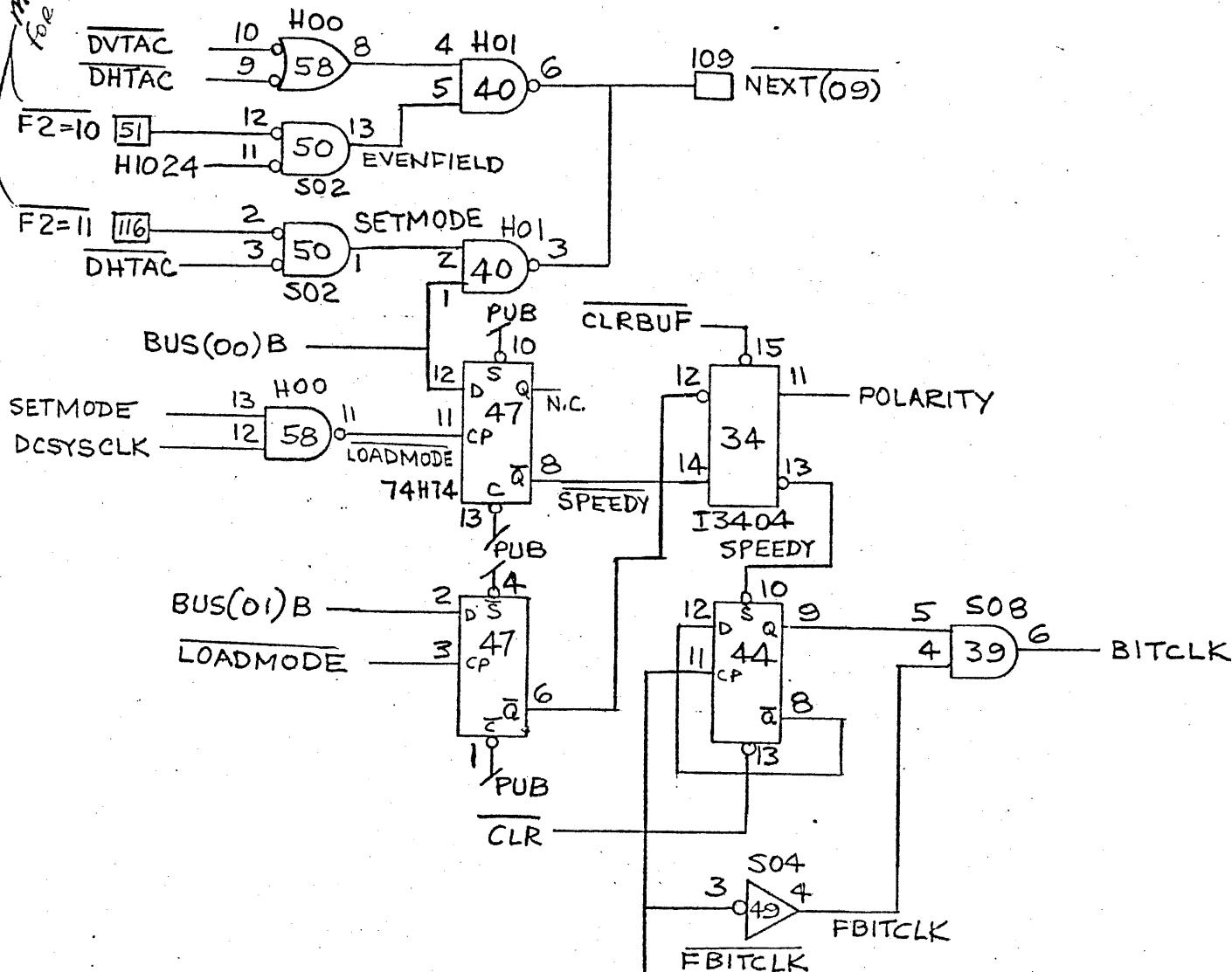
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Sheet 8 Of

Modify
for Next
Line



VIDEO BIT CLOCK

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

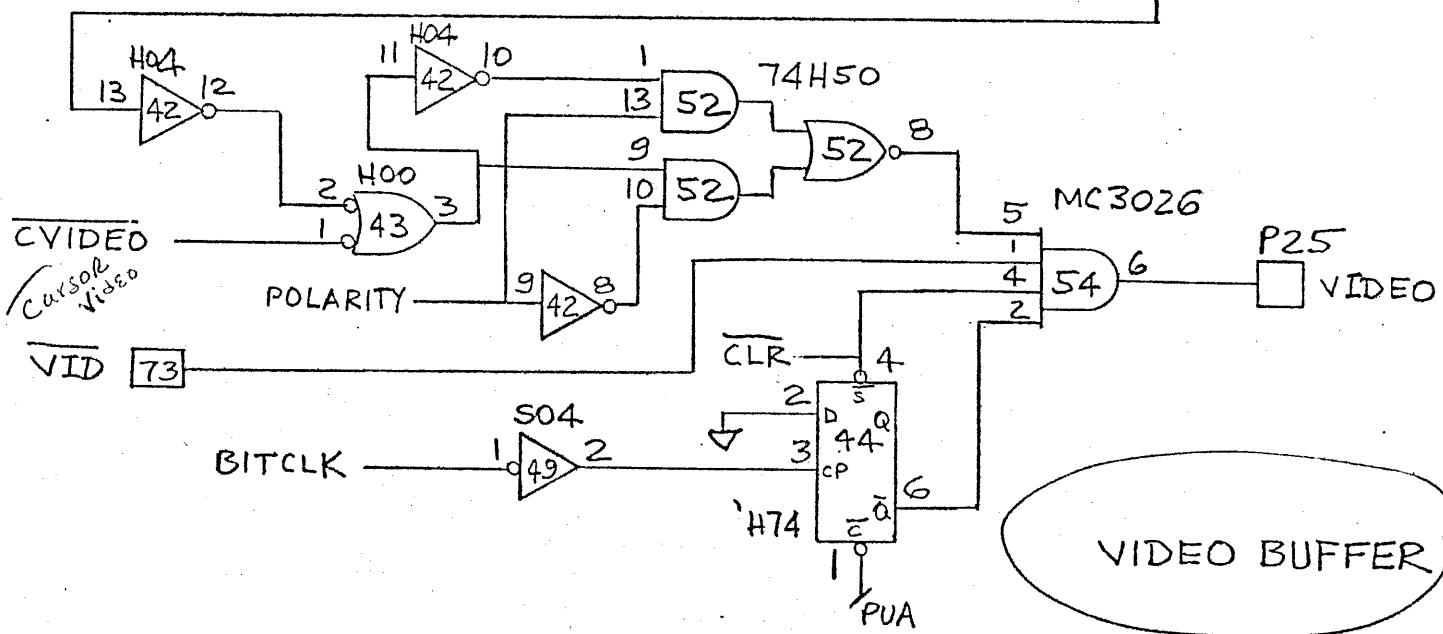
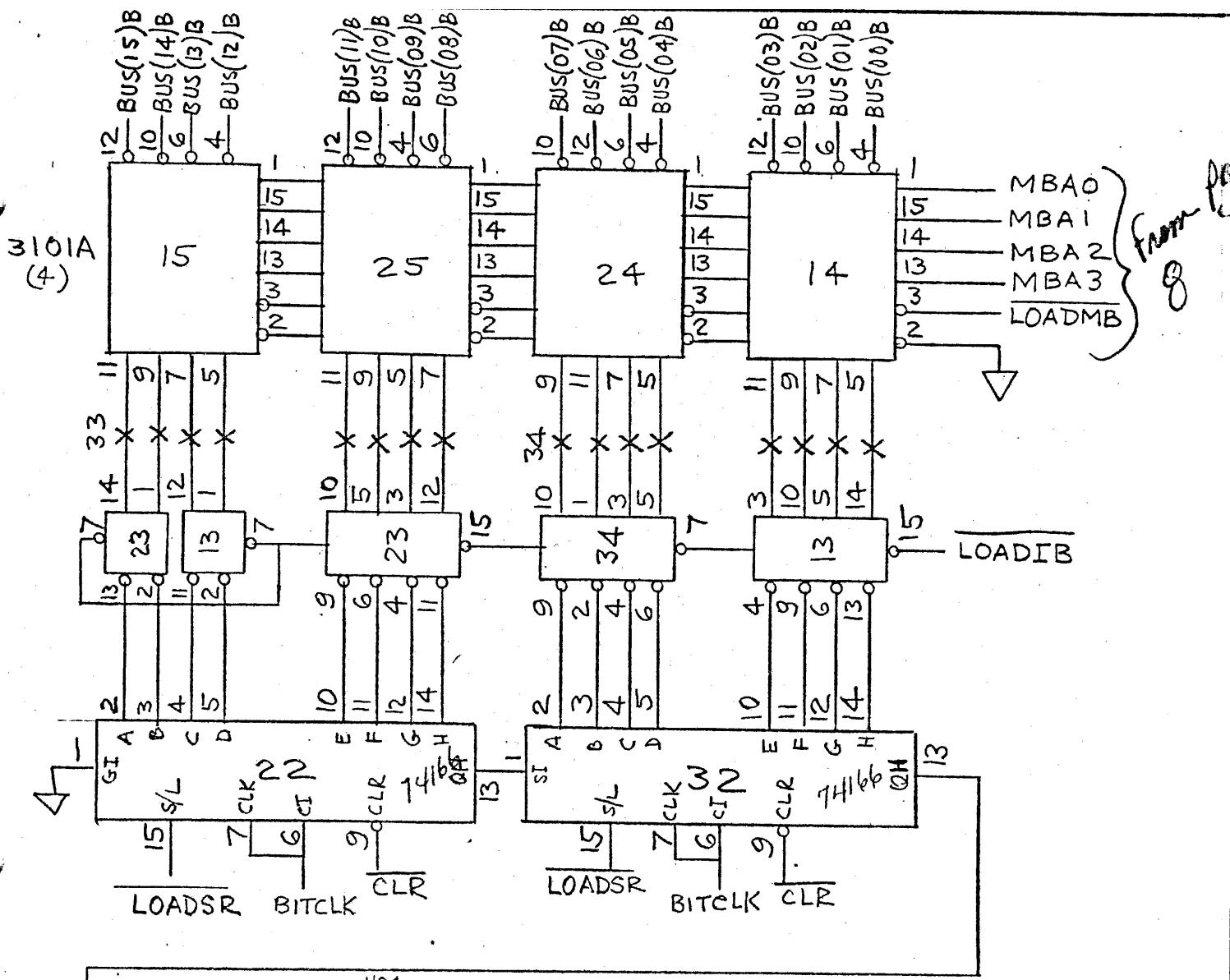
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Sheet 9 Of



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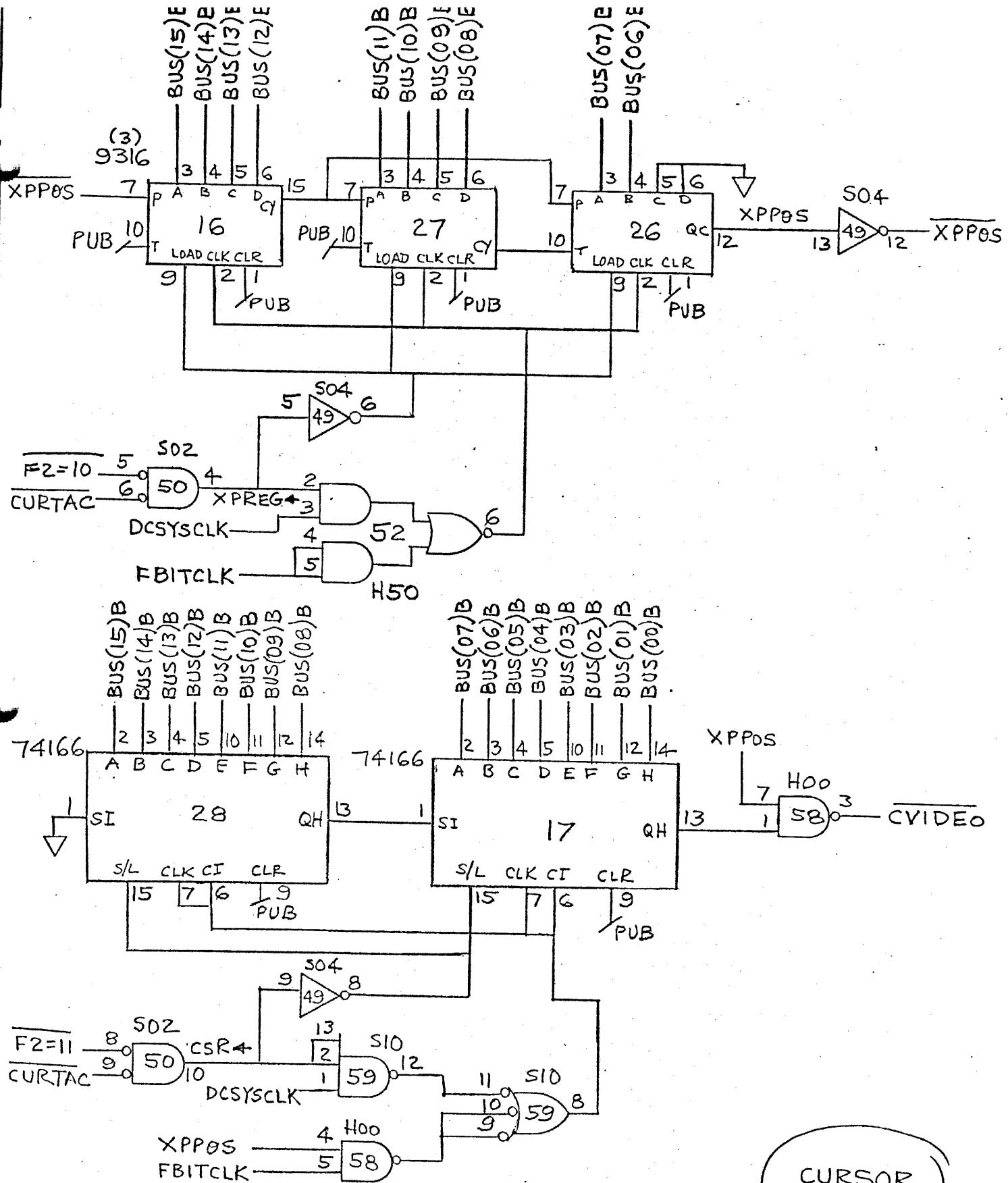
Title
ALTO II
ASSEMBLY, P.W.-
DISPLAY CONTROL

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

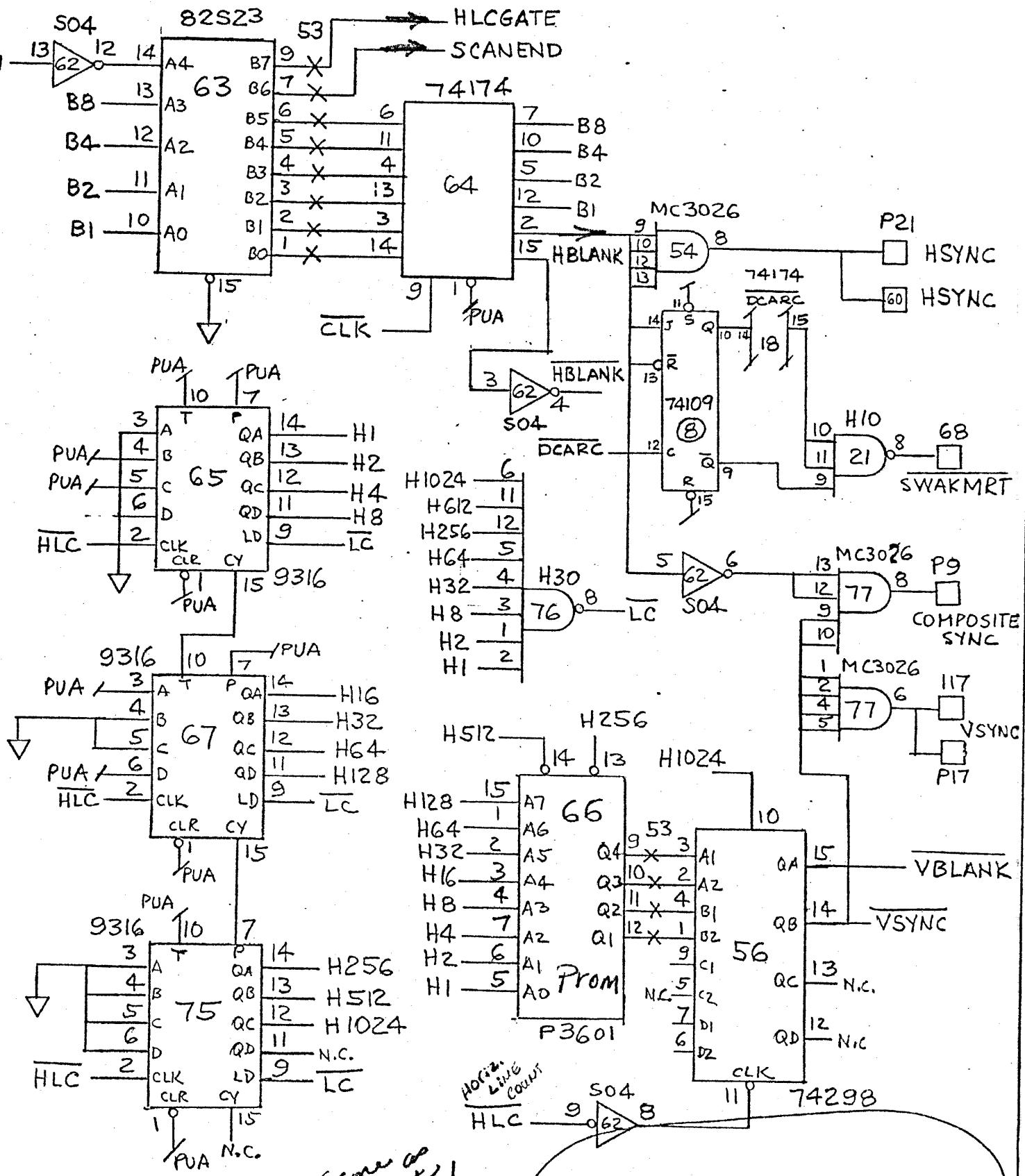
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Sheet 11 Of



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SYNC GENERATOR 875 LINE

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Title

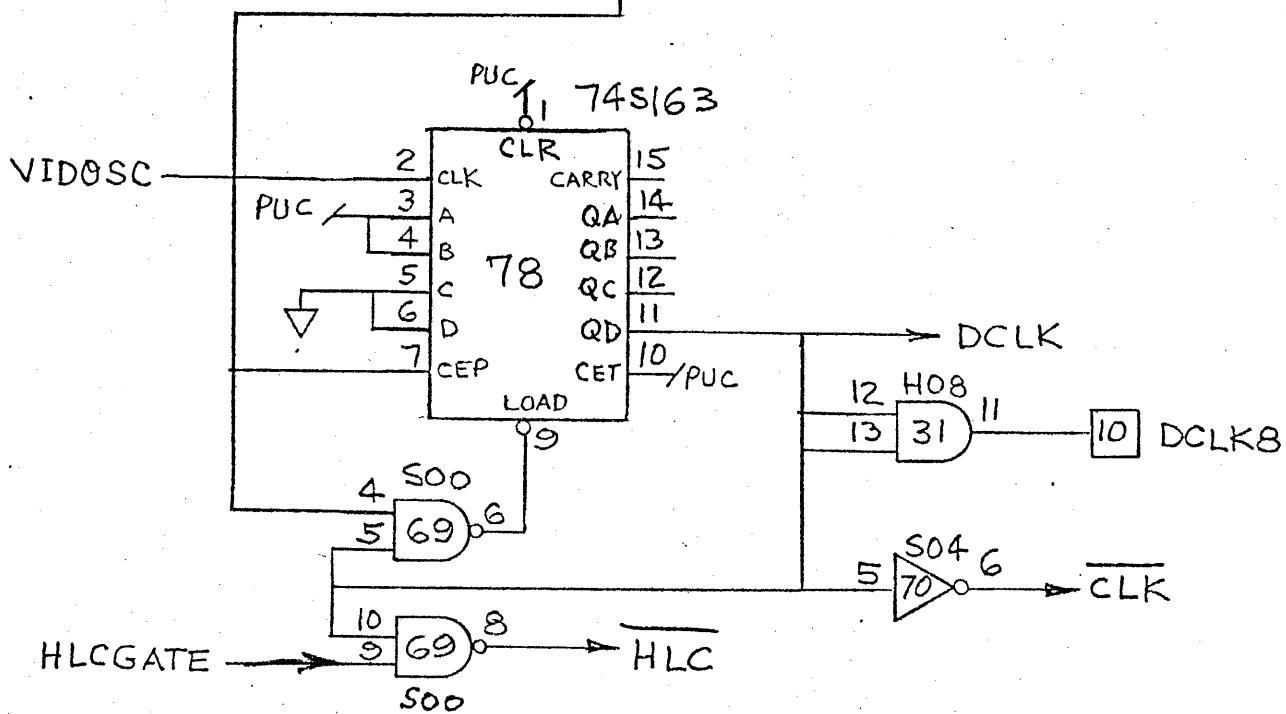
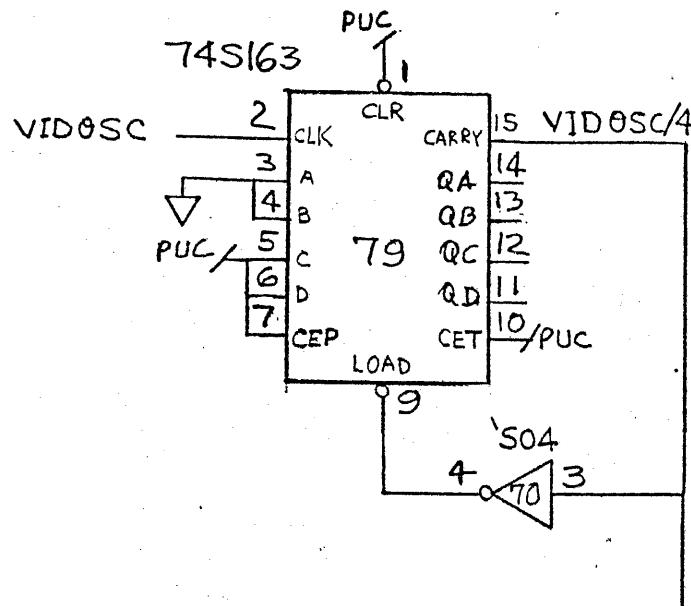
ALTO II
ASSEMBLY, P.W.-
DISPLAY CONTROL

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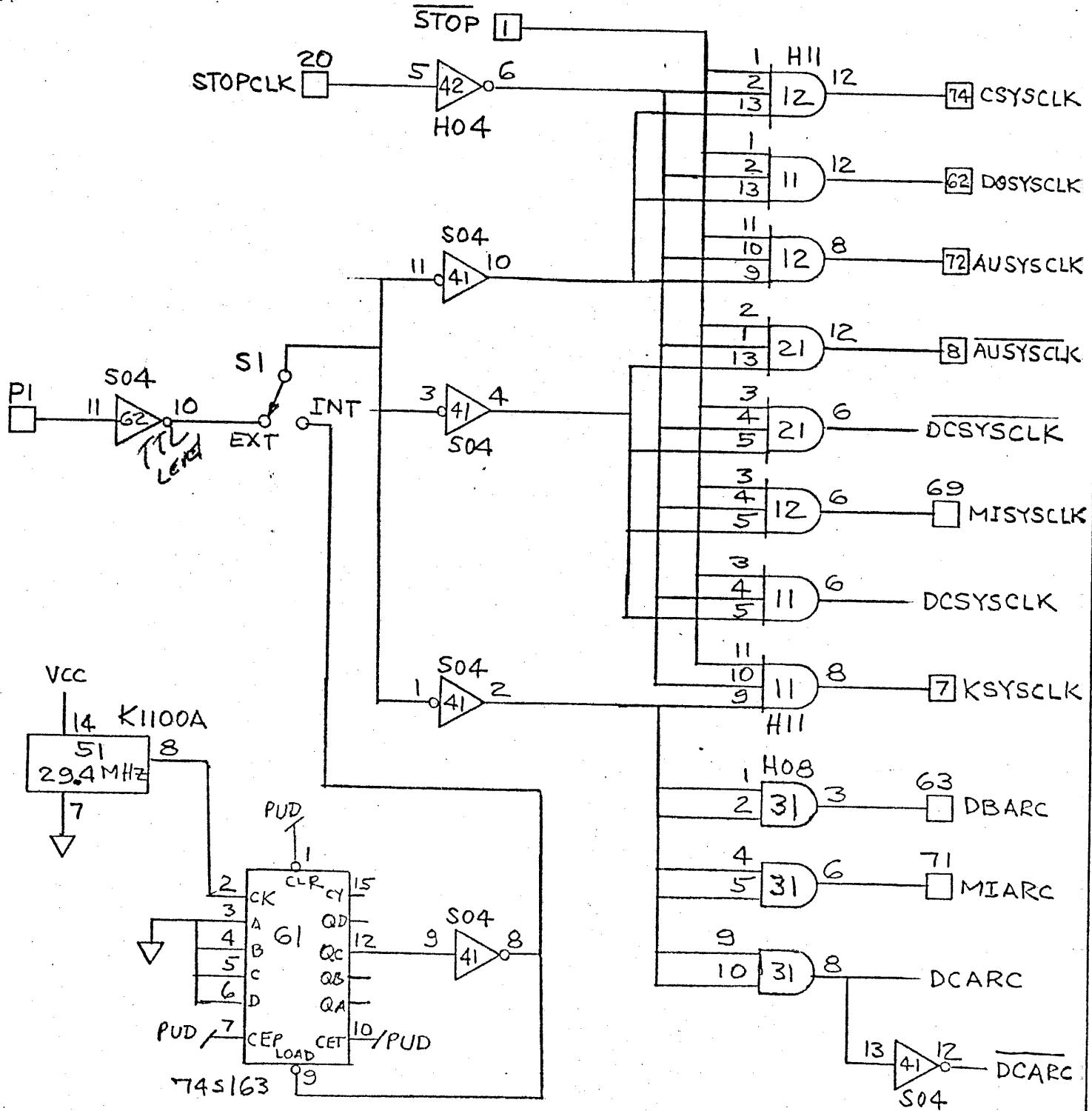
Title ALTO II
ASSEMBLY, P.W. -
DISPLAY CONTROL

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El Segundo, California

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SYSTEM CLOCKS

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

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El Segundo, California

XEROX

216339

D

Sheet 14 Of

Revisions					216347	G
LAL	Rev.	Description	Chk	Date	Approved	
	A	ENGRG RELEASE	BN			
	B	ADDED NOTE SHEET, M/L ITEM 8 WAS QTY 8, ADDED ITEM 51.	BN	7-14 76	N. TOBOL	
	C	M/L ITEM 20 P/N WAS 75457	BN	8-4- 76	N. TOBOL	
	D	ADDED SILKSCREENED BOARD DETAIL	BN	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)	BN	2-22 77	N. TOBOL	
	F	MICROCIRCUIT (KB) SIGNALS FROM A71 THRU 76, 84 THRU 89, 97 THRU 102 REVISED.	BN	4-15 77	N. TOBOL	
	G	M/L ITEM 51 LOCATION A46 WAS A37.	BN	6-22 77	DS. 7-25-77	

**ENGINEERING
RELEASE**

THIS DOCUMENT CONTAINS 15 SHEETS

Dist Code ALT

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Notes Unless Specified
 1. Tolerances .XX ±.03 Angular .XXX ±.010 ±½°
 Check *Not Specified*
 Appr. N. TOBOL
 2. Break All Sharp Edges .010 Approx.
 Material
 3. Mach. Surfaces ✓
 4. All Dim. in Inches

Xerox Corporation
El Segundo, California

XEROX

Title

ALTO II

ASSEMBLY, PRINTED WIRING-
MEMORY ADDRESS INTERFACE

Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter
ALTO II		18338	A	216347	G
Next Assy. First Use		Scale	Do Not Scale Drawing		Sheet 1
216302					

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

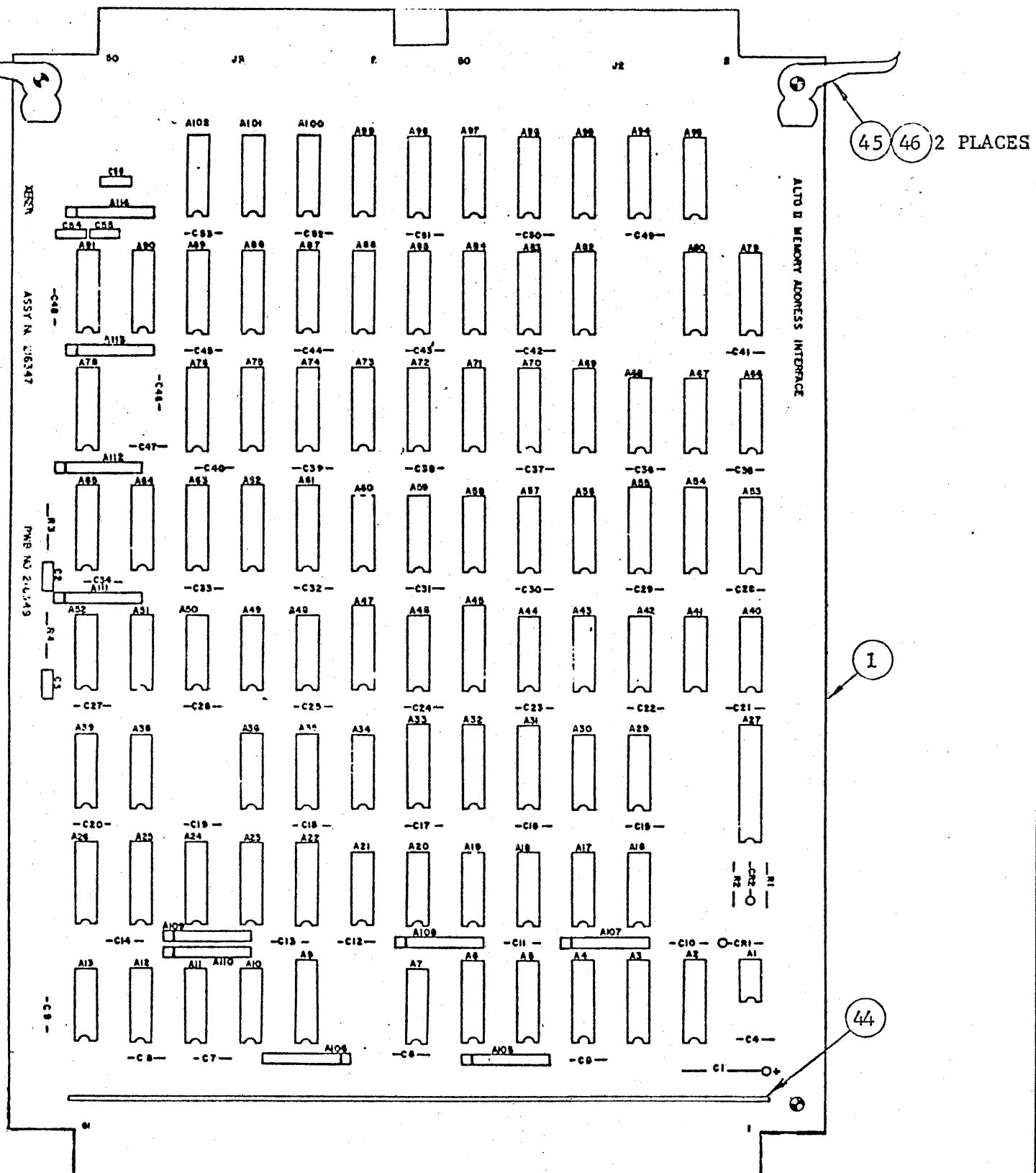
Xerox Corporation
El Segundo, California

216347

G

Sheet 2 Of

XEROX



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Title
ASSEMBLY, PRINTED WIRING
MEMORY ADDRESS INTERFACE

Xerox Corporation
El Segundo, California

XEROX

216347

G

Sheet 3 Of

Material List

ML	Drawing No. 216347	Rev. G
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Rev. G

Drawing No.
216347

ML

Drawing Title

ASSEMBLY, P.W. -

ALTO II

MEMORY ADDRESS INTERFACE

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Model No. ALTO II	Date 7 - 19 - 76	Sheet 4 of
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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

Material List

ML	Drawing No. 216347	Rev. G
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Drawing Title

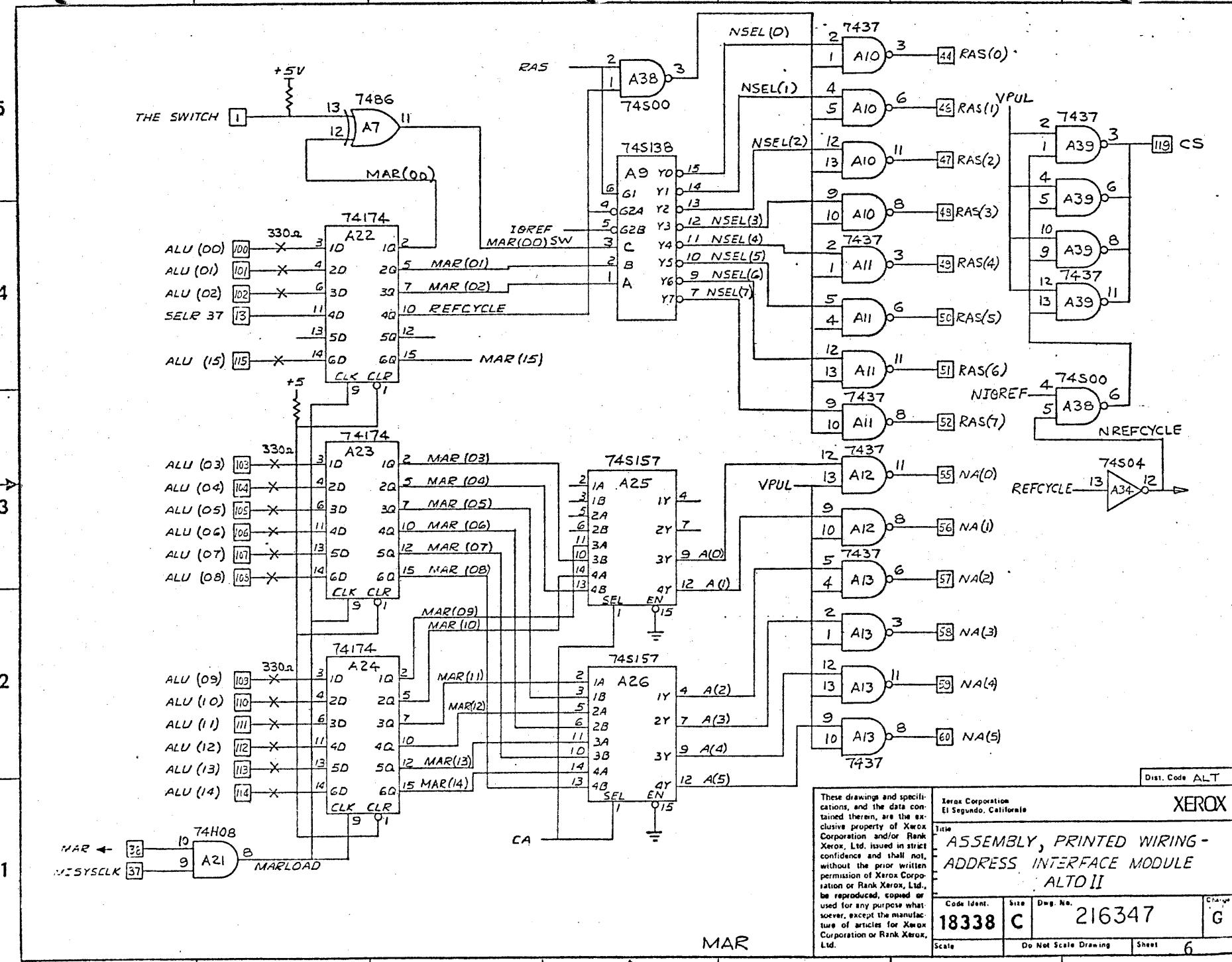
ASSEMBLY, P.W. -

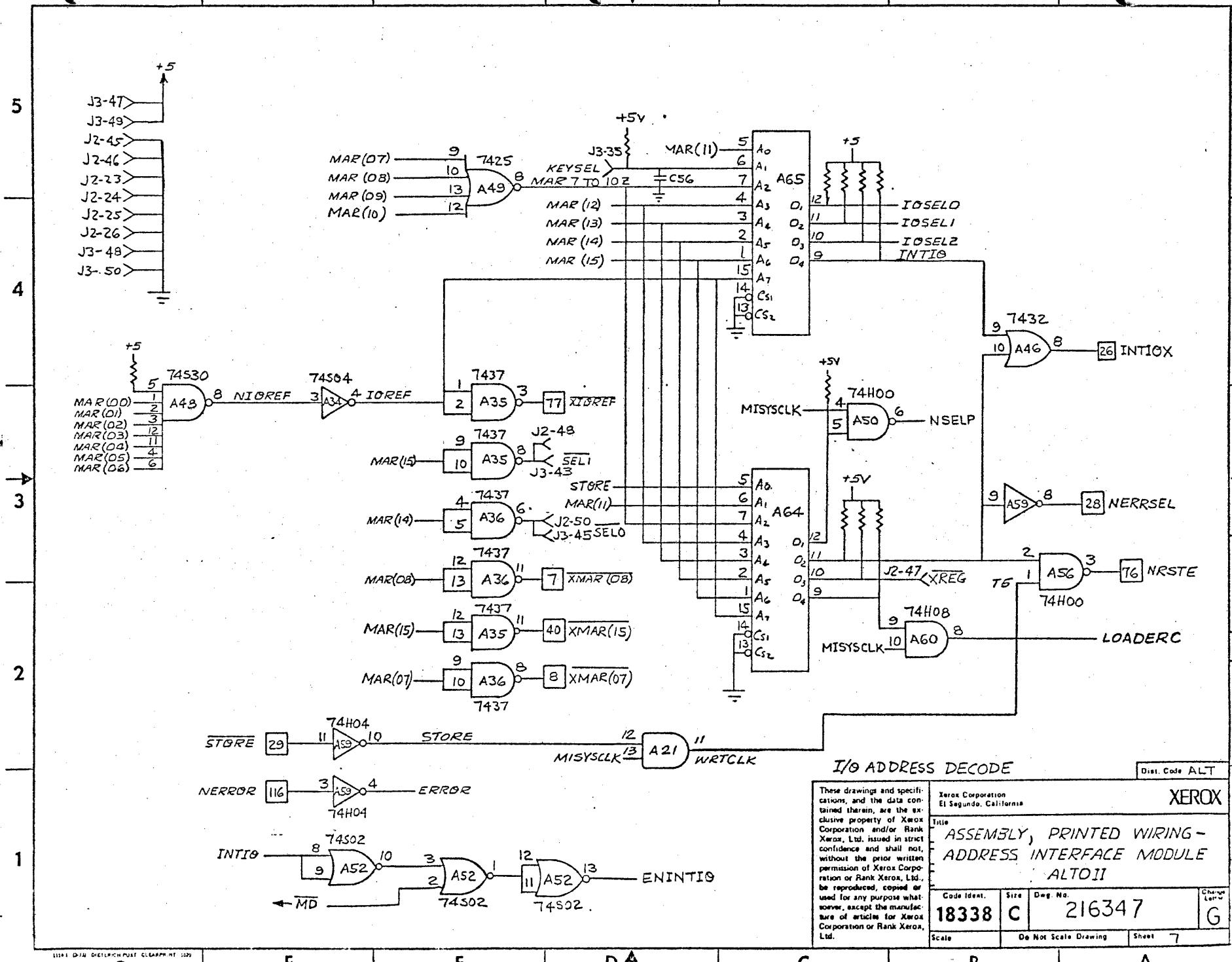
ALTO II

MEMORY ADDRESS INTERFACE

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Model No.	Date	Sheet
ALTO II	7 - 19 - 76	5 of





I/O ADDRESS DECODE

Dist. Code ALT

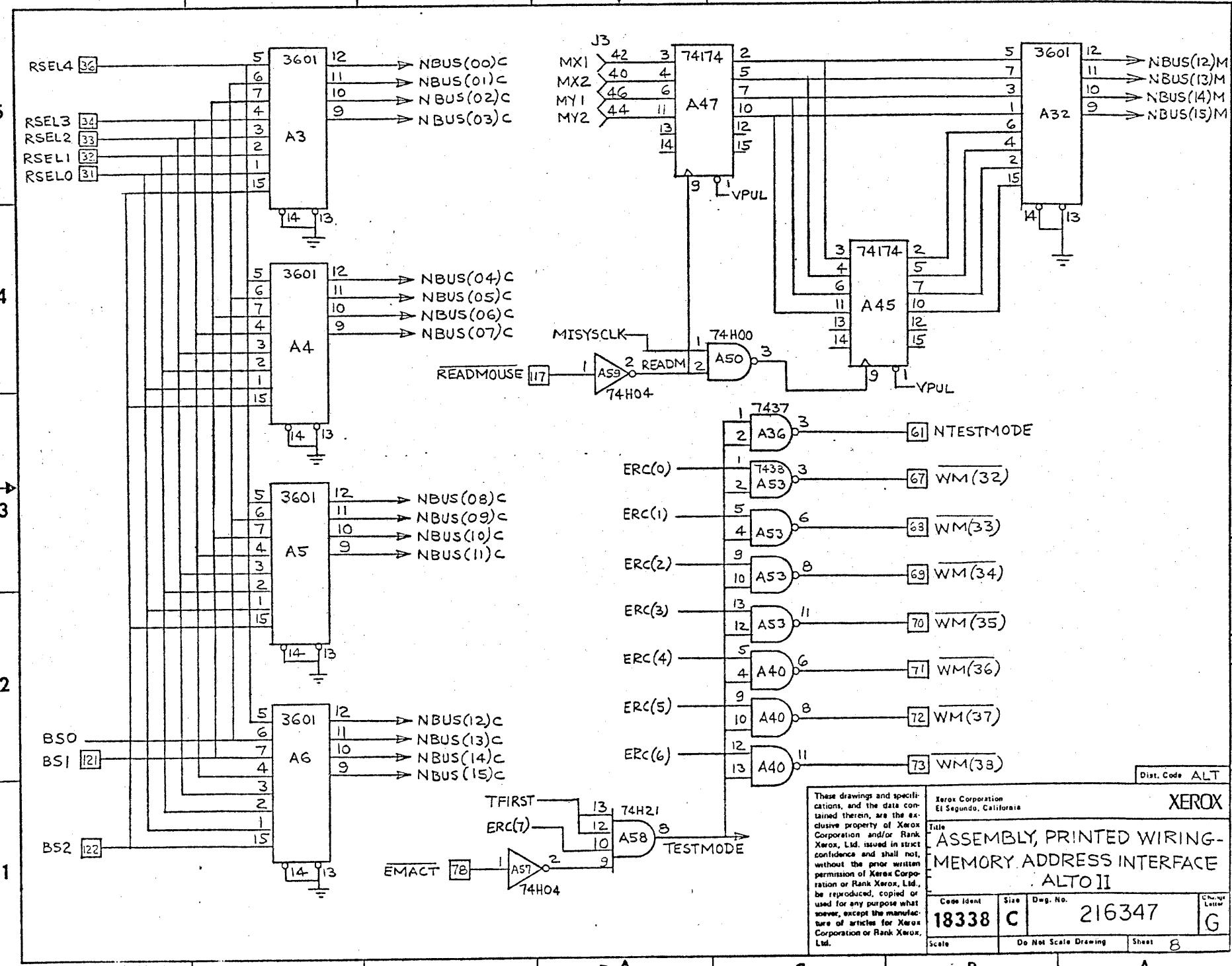
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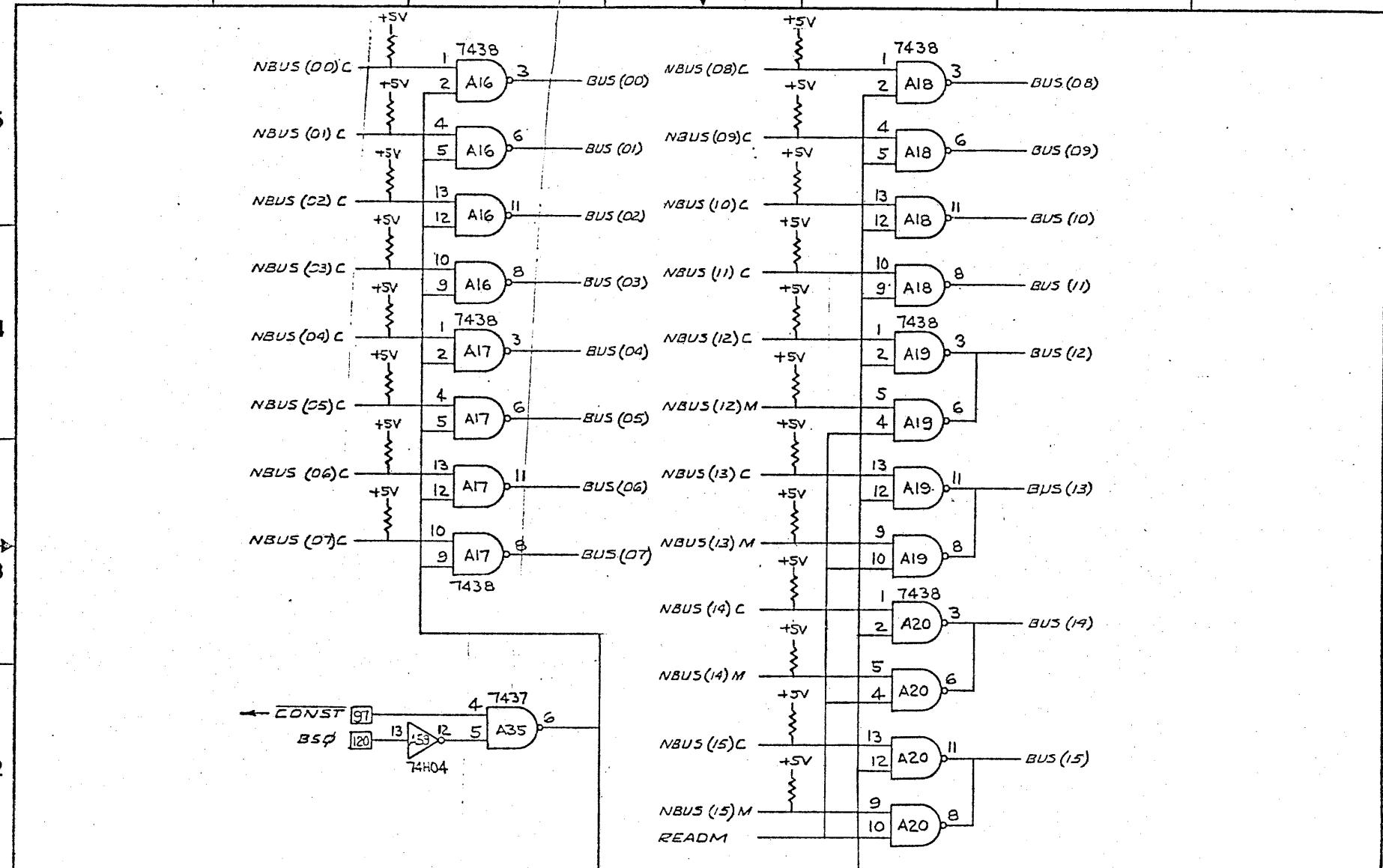
Xerox Corporation
El Segundo, California

XEROX

Title: ASSEMBLY, PRINTED WIRING -
ADDRESS INTERFACE MODULE
ALTOII

Code Ident.	Size	Dwg. No.	Change
18338	C	216347	G
Scale	Do Not Scale Drawing Sheet 7		





BUS DRIVER

Dist. Code ALT

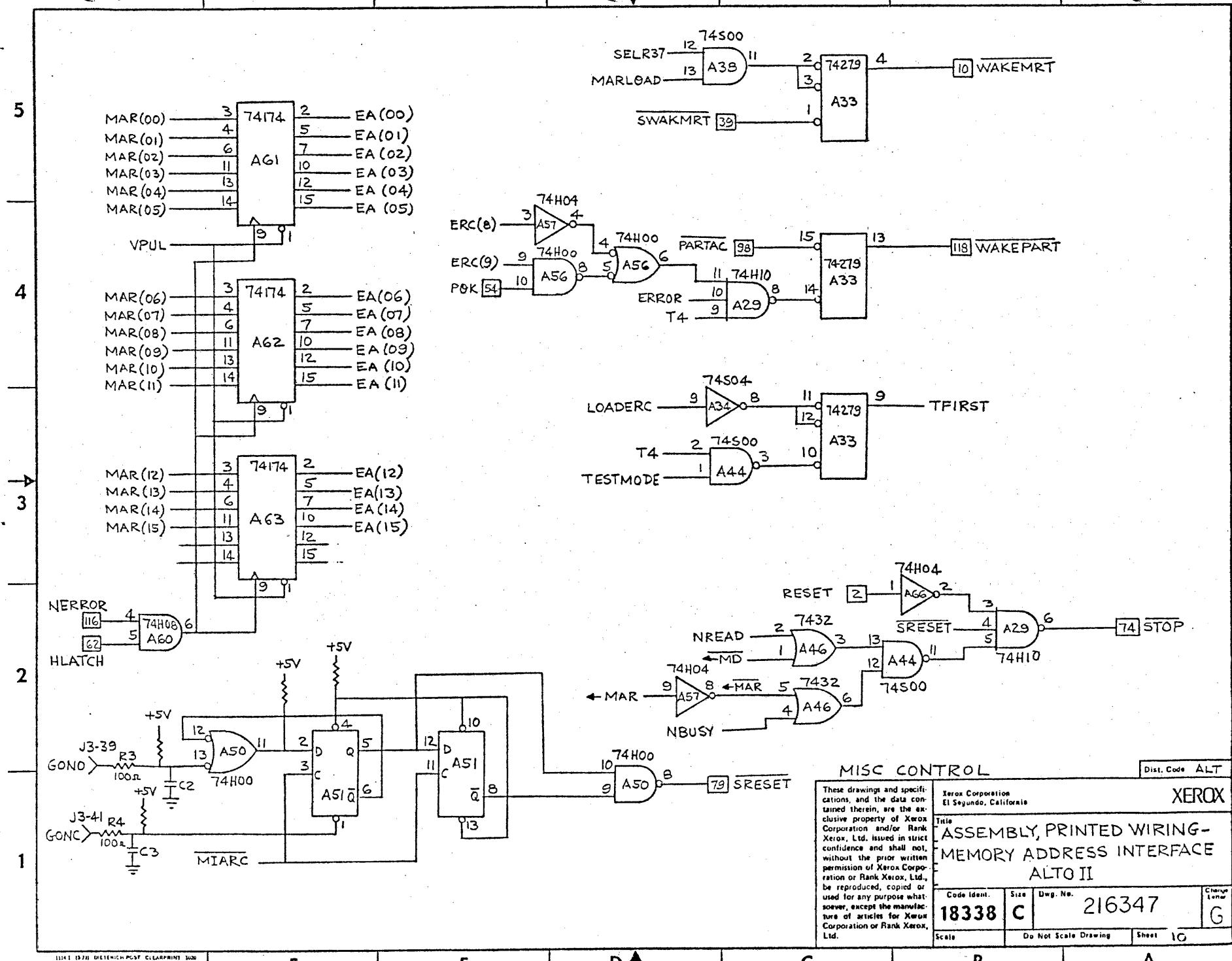
XEROX

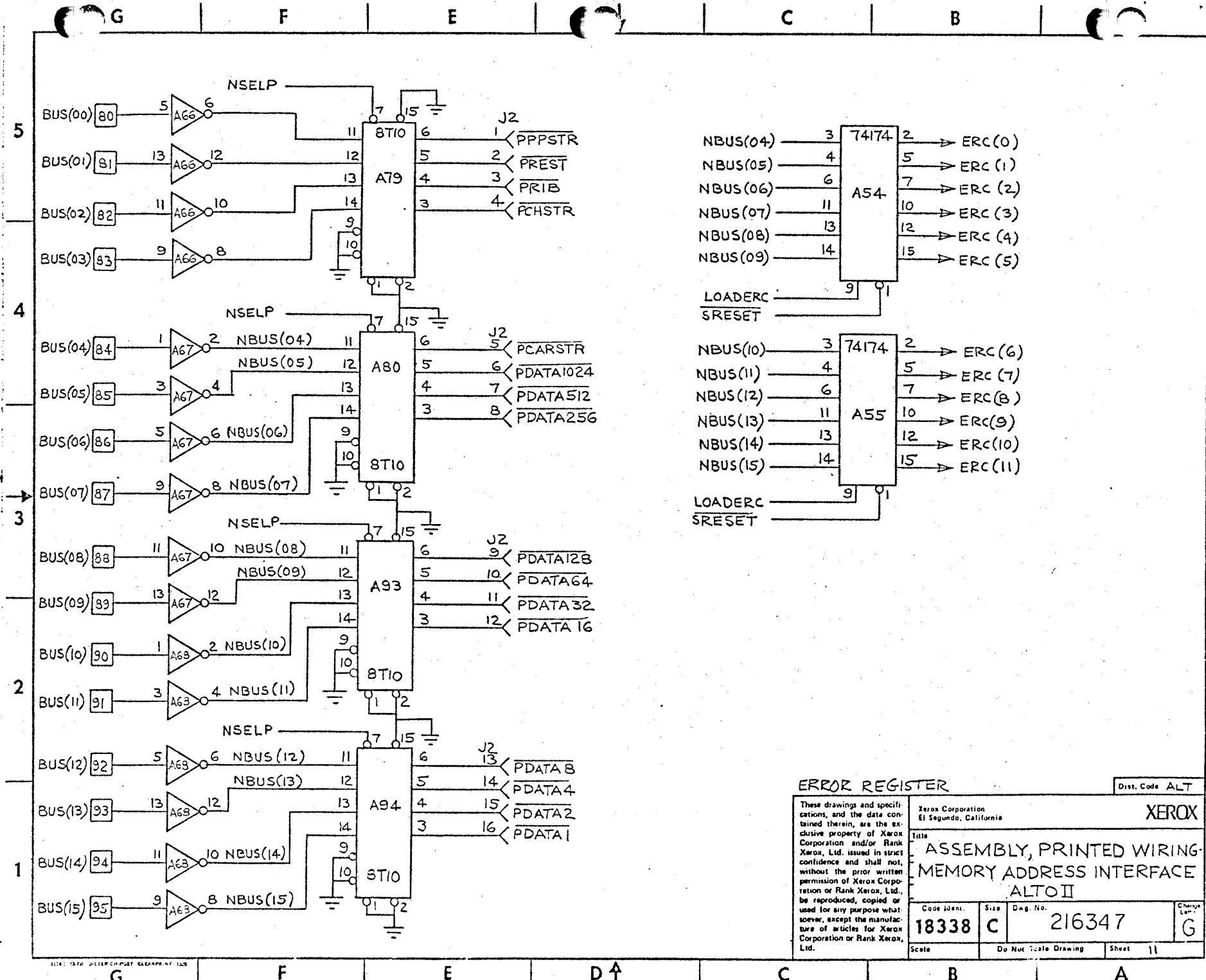
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Title: ASSEMBLY, PRINTED WIRING -
ADDRESS INTERFACE MODULE
ALTO:II

Code Ident.	Size	Dwg. No.
18338	C	216347
Scale	Do Not Scale	Drawing
G		Sheet 9





NETS: 1370, 2111FM, 5145FM, 103

6

F

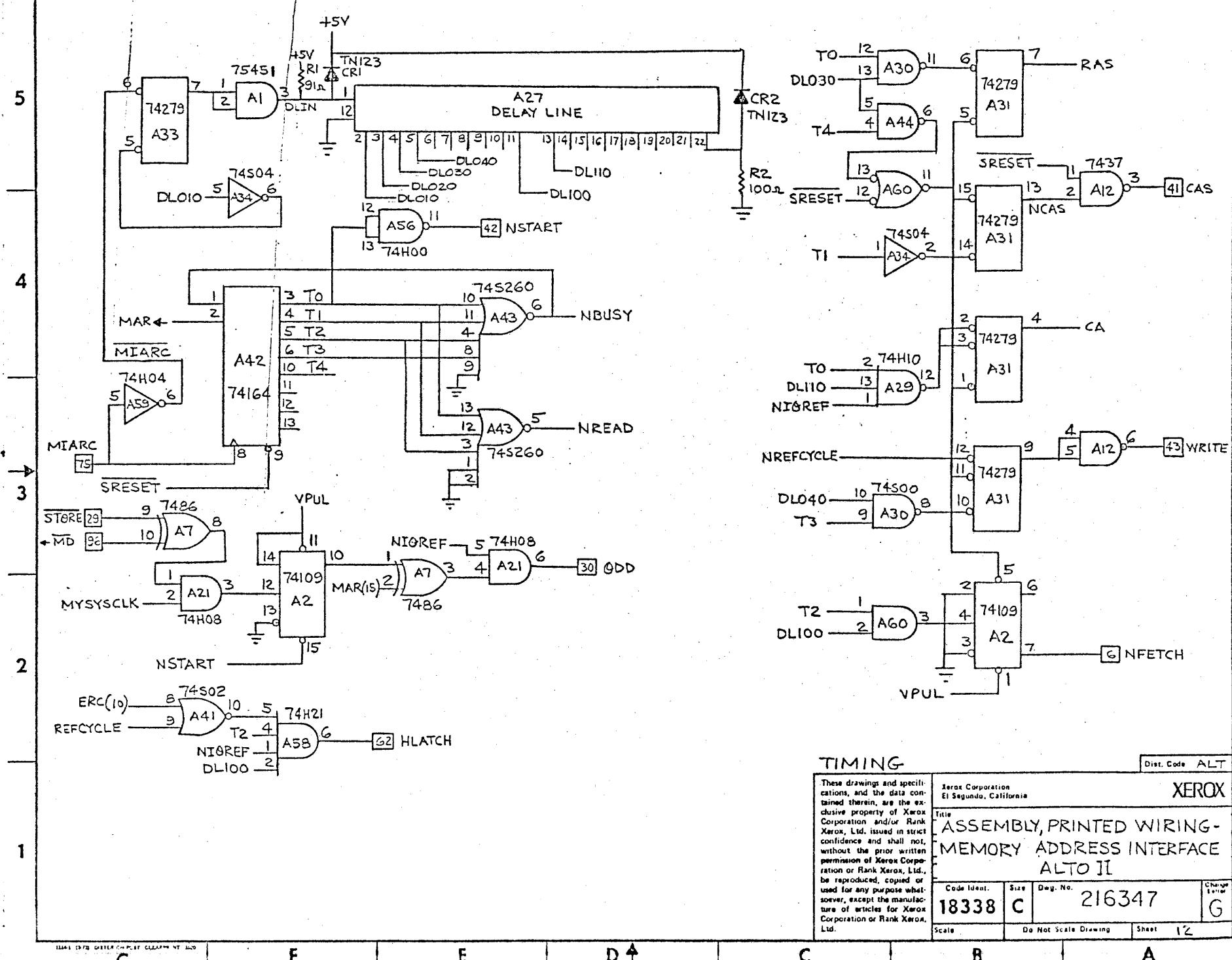
E

1

1

B

1



TIMING

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Title: ASSEMBLY, PRINTED WIRING-
MEMORY ADDRESS INTERFACE
ALTO II

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

Scale: Do Not Scale Drawing Sheet: 12

5

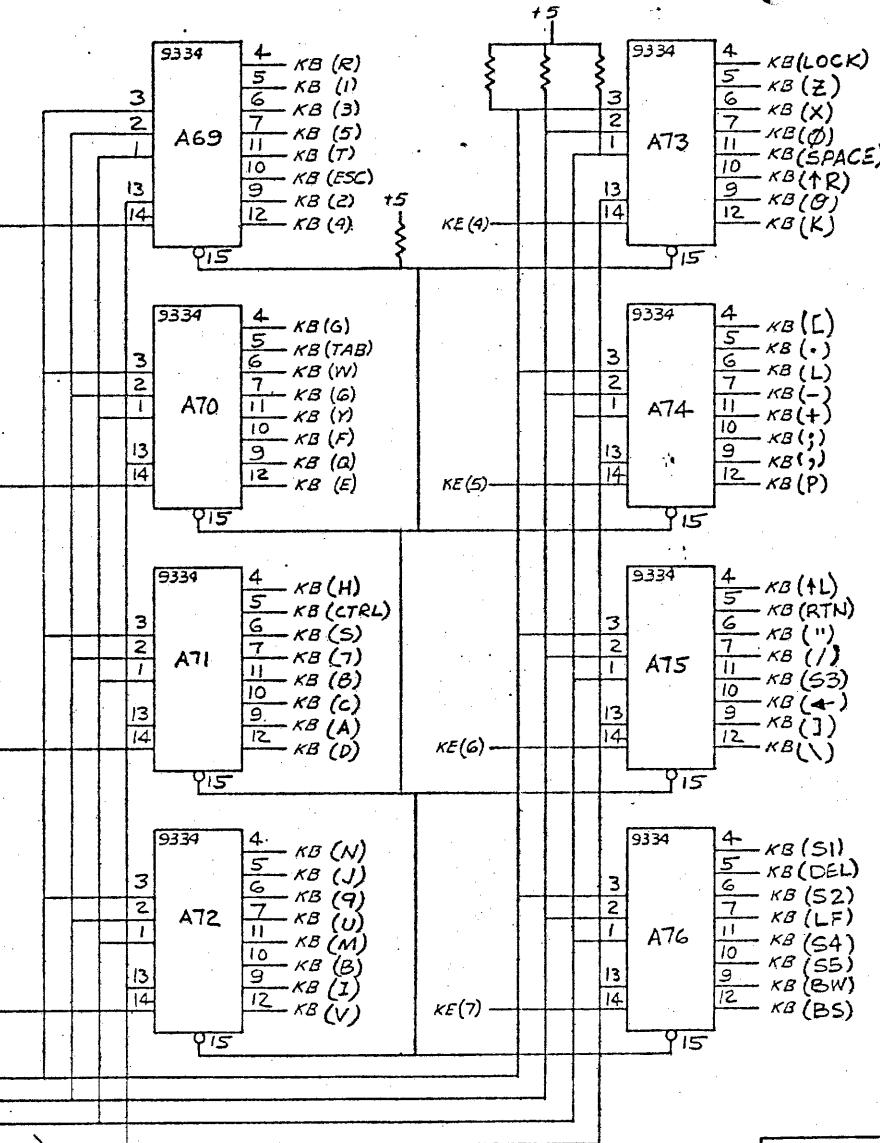
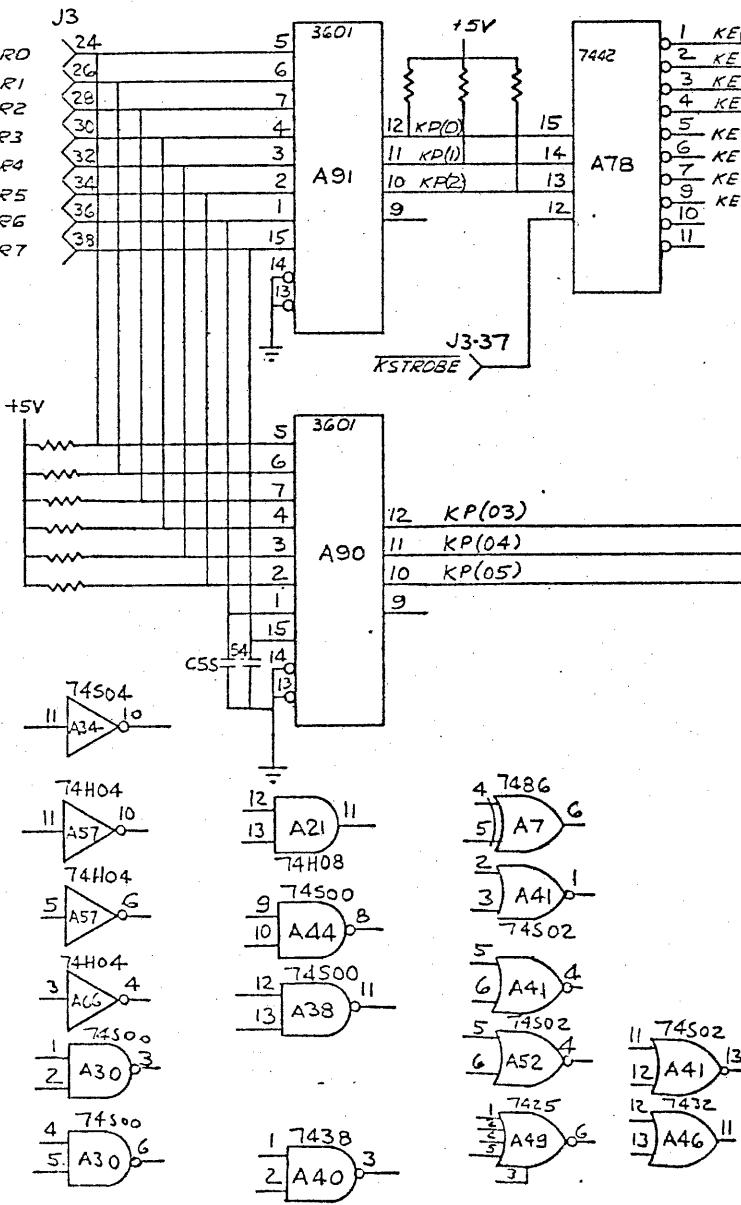
F

E

C

B

4



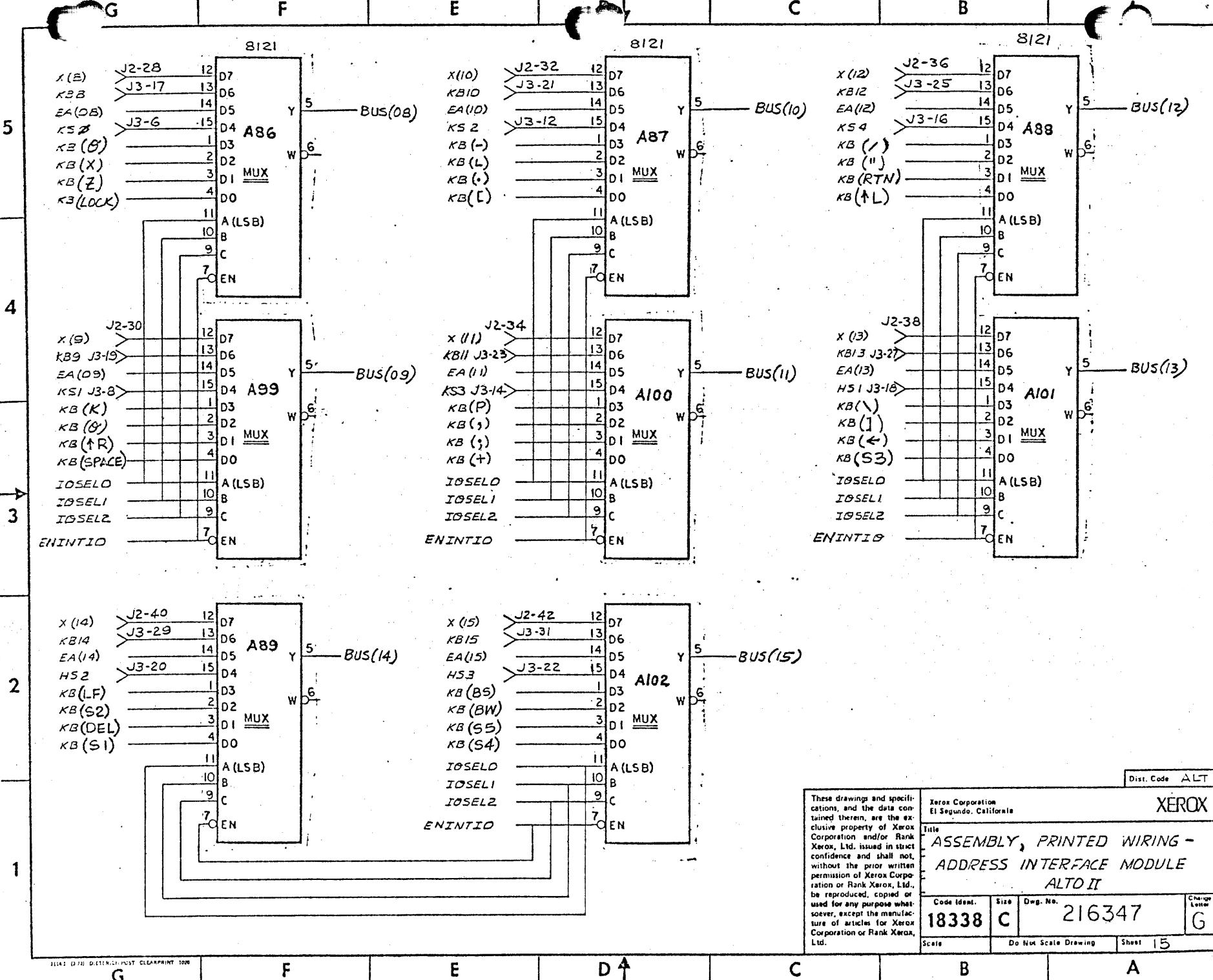
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El Segundo, California

Dist. Code ALT
XEROX

Title: ASSEMBLY, PRINTED WIRING —
ADDRESS INTERFACE MODULE
ALTOII

Code Ident.	Size	Doc. No.
18338	C	216347
Scale	Do Not Scale Drawing	
	Sheet 13	



Revisions

216373

D

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	JW	3-8-75	
	B	REVISED	JW	7-23-76	BSJ
	C	ADDED NOTE 2 (CUT ETCH & ADD JUMPER).	JW	4-13-77	BSJ
	D	ADDED NOTE 3 (INTERIM FIX)	JW	11-2-77	BSJ

**ENGINEERING
RELEASE**

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Notes Unless Specified

Drawn *K. Leeman 3-8-76*Xerox Corporation
El Segundo, California**XEROX**Check *K. Leeman 3-8-76*

Title ALTO II

Appr. *K. Leeman 11-3-77*ASSEMBLY, PRINTED WIRING-
CONTROL BOARD

1K

Material

1. Tolerances

.00 ±.03 Angular

.000 ±.010 ±½°

2. Break All Sharp Edges

.010 Approx.

3. Mach. Surfaces ✓

4. All Dim. in Inches

Model No. ALTO II
First Use EWO 7YF92

Next Assy.
First Use 216302

564-113-734

Finish

Code Ident.

18338

Size

A

Dwg. No.

216373

Change Letter

D

Scale

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

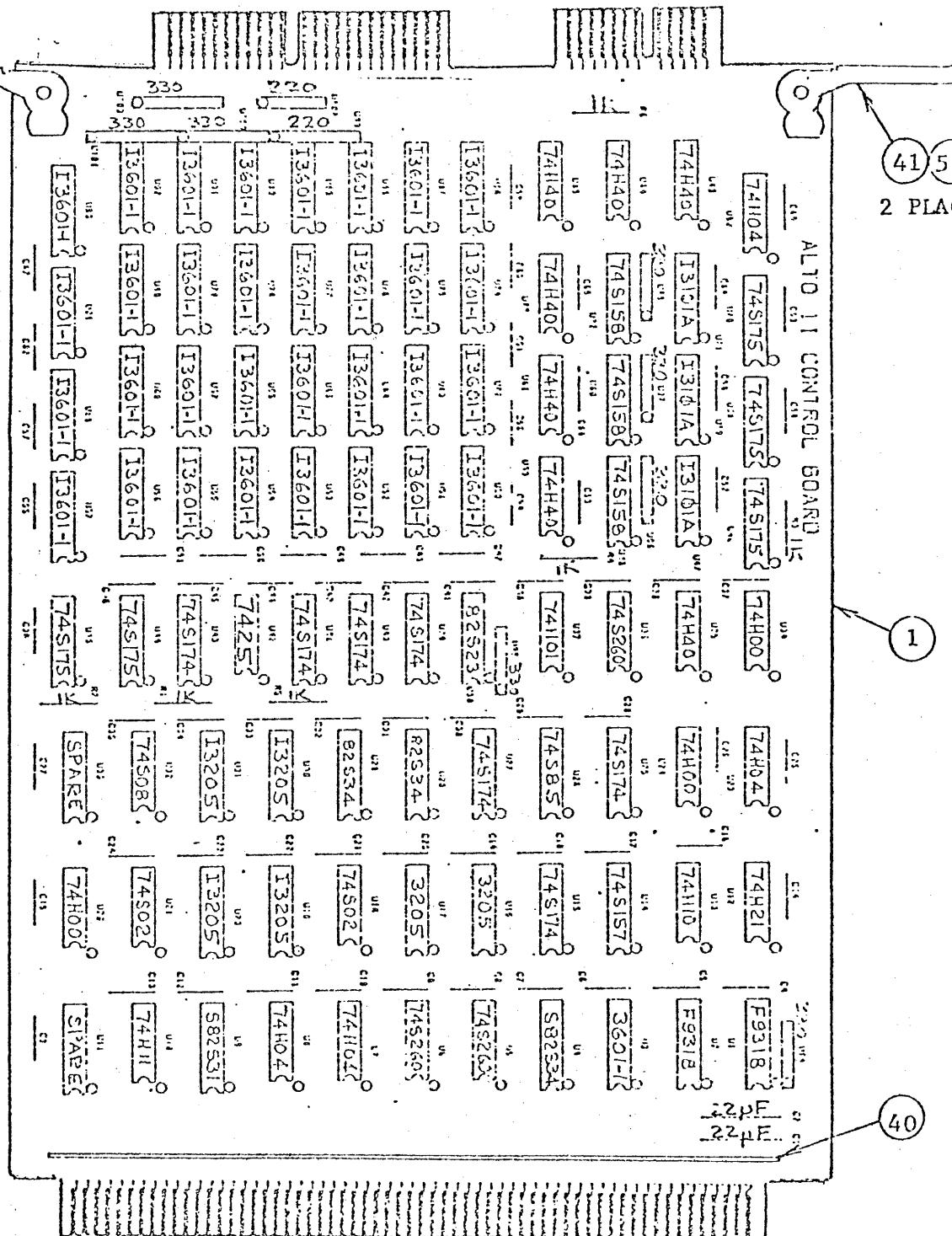
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216373

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Sheet 2 of



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Title
ASSY, P.W.-
CONTROL BOARD

Xerox Corporation
El Segundo, California

XEROX

216373

Sheet 3 Of

Material List

ML	Drawing No. 216373	Rev. B
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Drawing No. 216373	Drawing Title ALTO II ASSEMBLY, PRINTED WIRING- CONTROL BOARD	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	U15,17,19,20,30,31
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, .01μF, 50V	188483-002	70	C3-72
32	Capacitor, 22μF, 15V, Tant.	187720-005	2	C1,2

Material List

ML	Drawing No. 216373	Rev. B.
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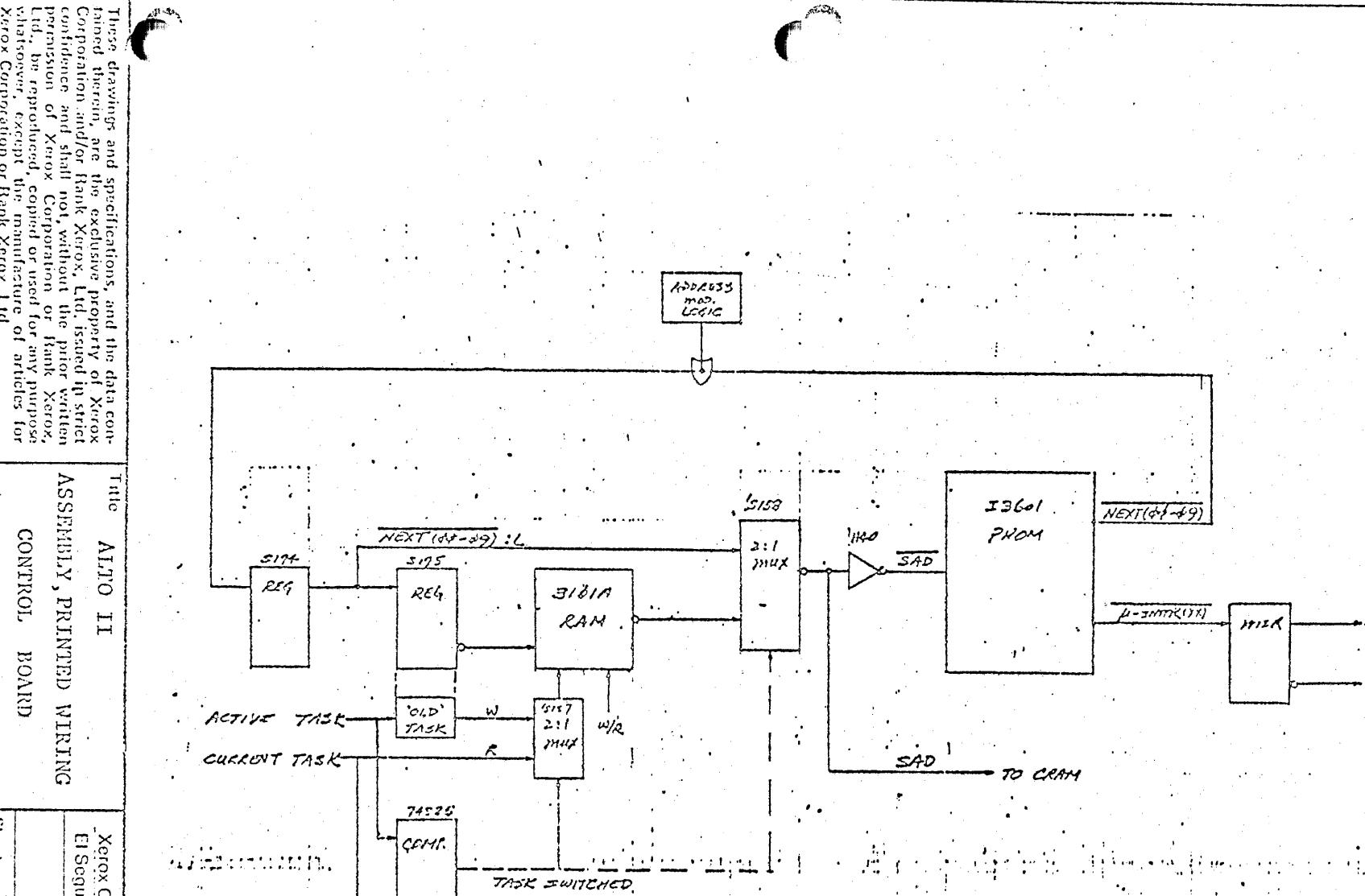
ALTO II

ASSEMBLY, PRINTED WIRING-

CONTROL BOARD

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Model No. EWO 7YF92	Date 3/8/76	Sheet 5 Of
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Title ALTO II
ASSMBLY, PRINTED WIRING
CONTROL BOARD

Xerox Corporation
El Segundo, California

XEROX

216373

D

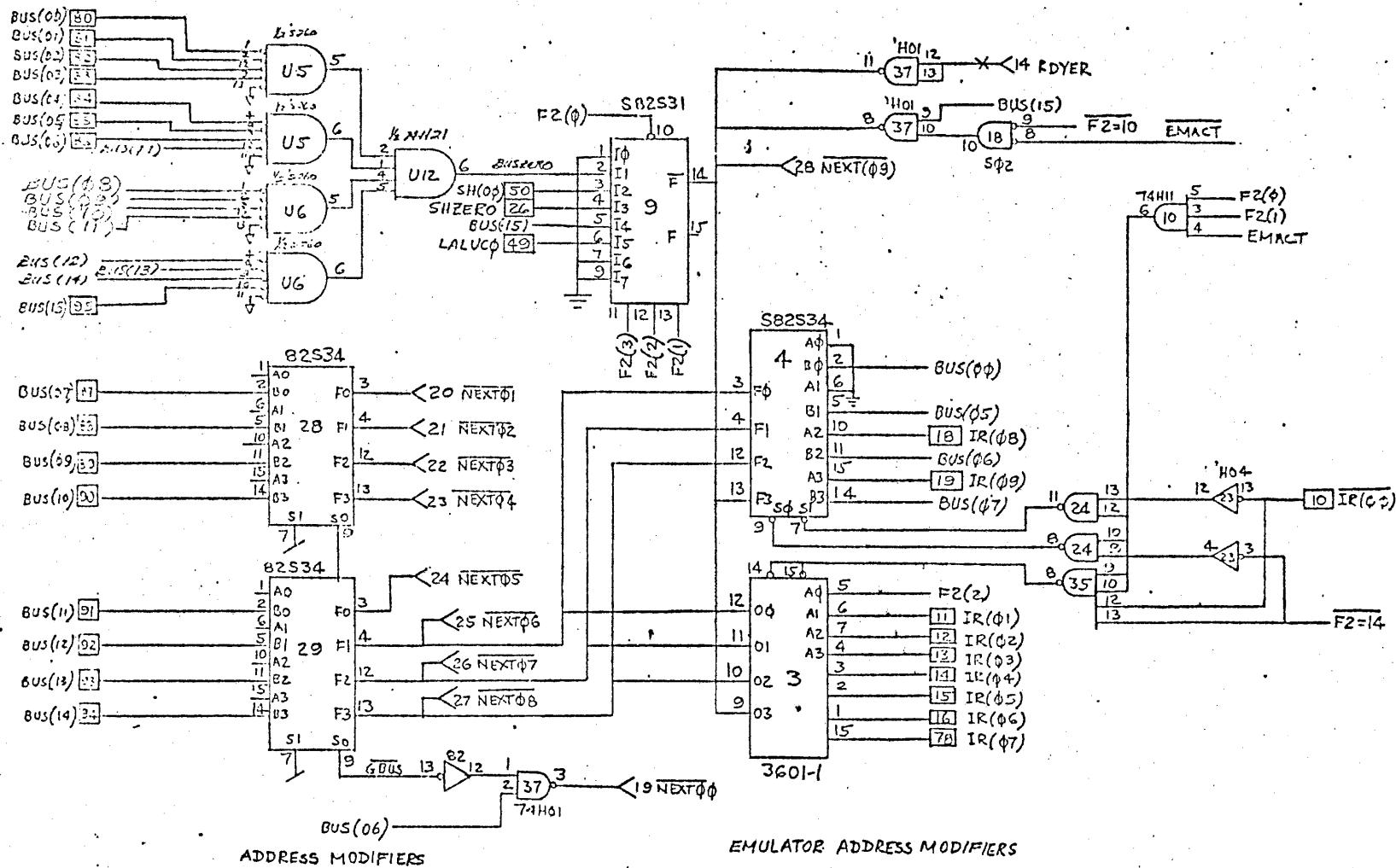
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¹ASSEMBLY P.W.
CONTOL BOARD

Xerox Corporation
El Segundo, California

XEROX



ADDRESS MODIFIERS

EMULATOR ADDRESS MODIFIERS

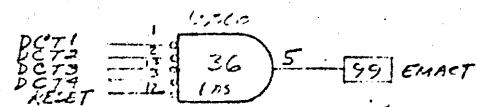
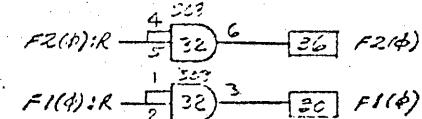
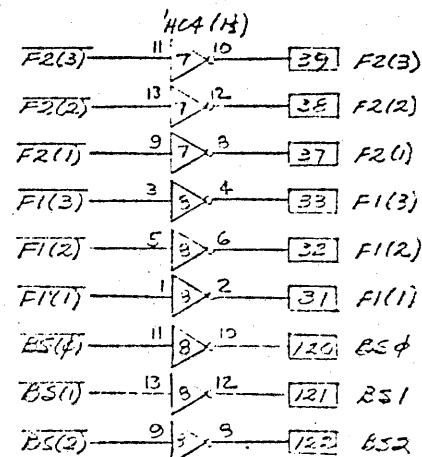
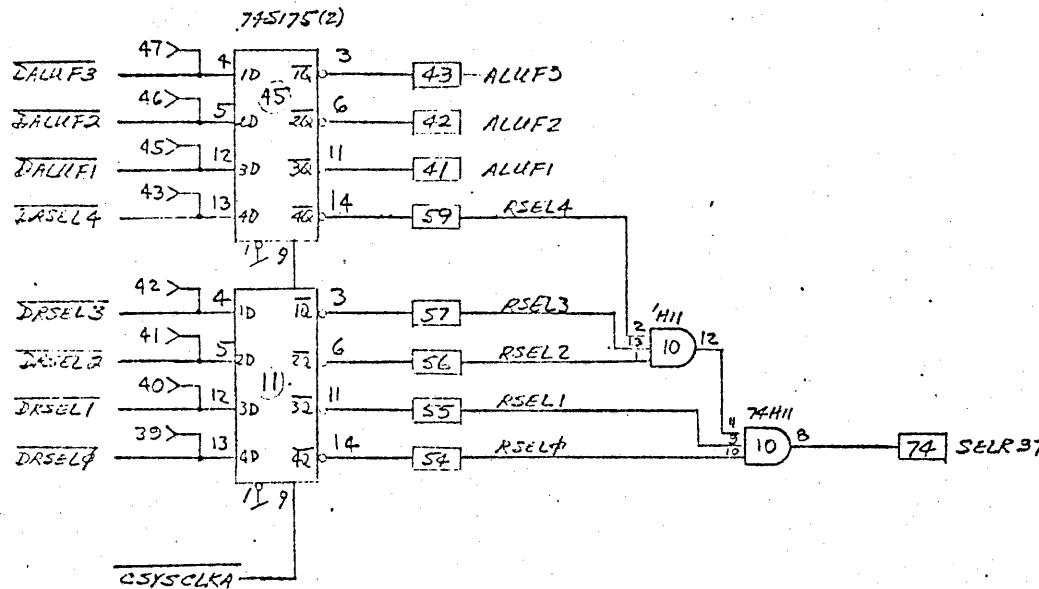
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Title ALTO II
ASSEMBLY, P.W.
CONTROL BOARD

Xerox Corporation
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Sheet 8 of

XEROX



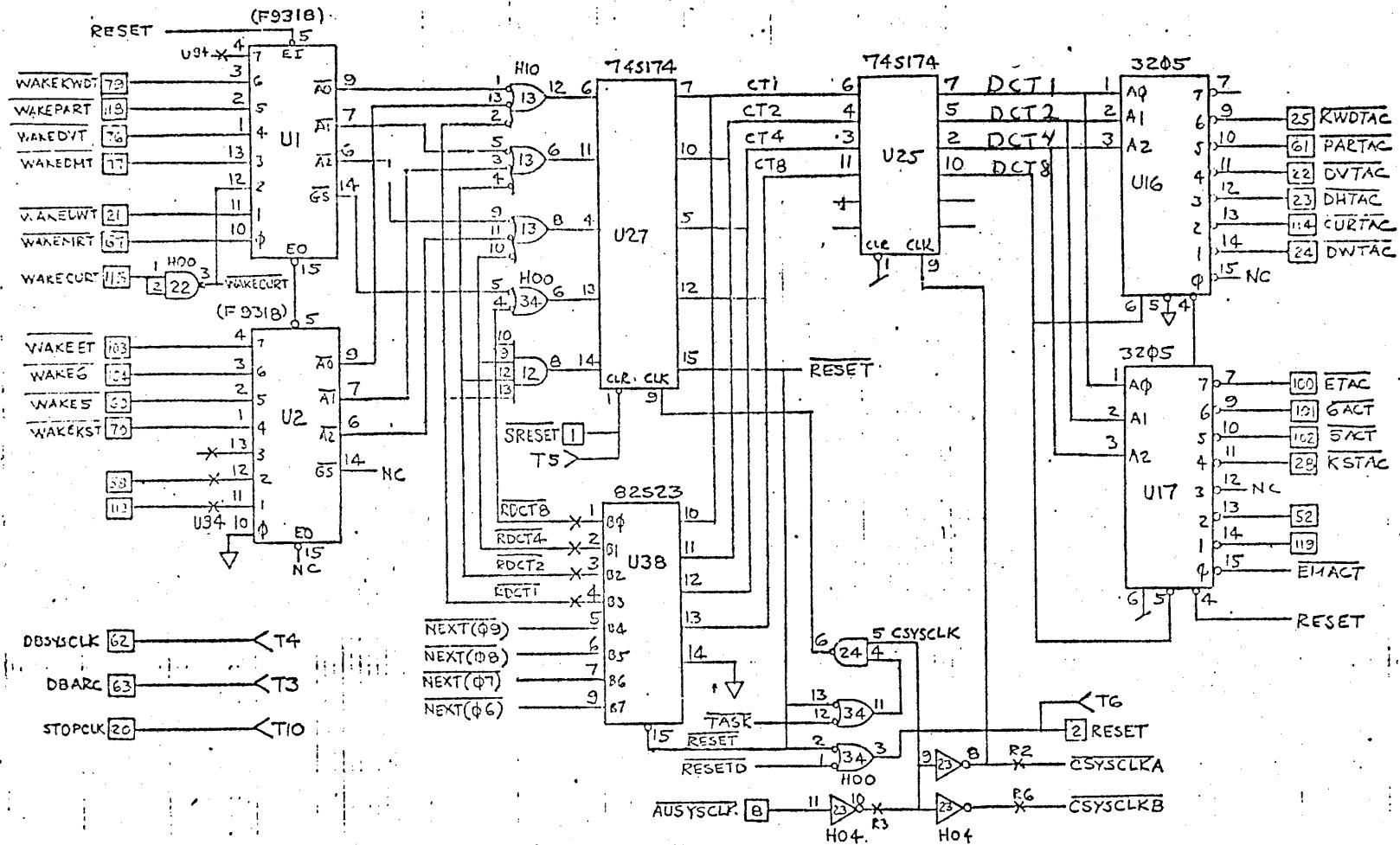
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ALTO II
ASSEMBLY, P.W.
CONTROL BOARD

Xerox Corporation
El Segundo, California

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California

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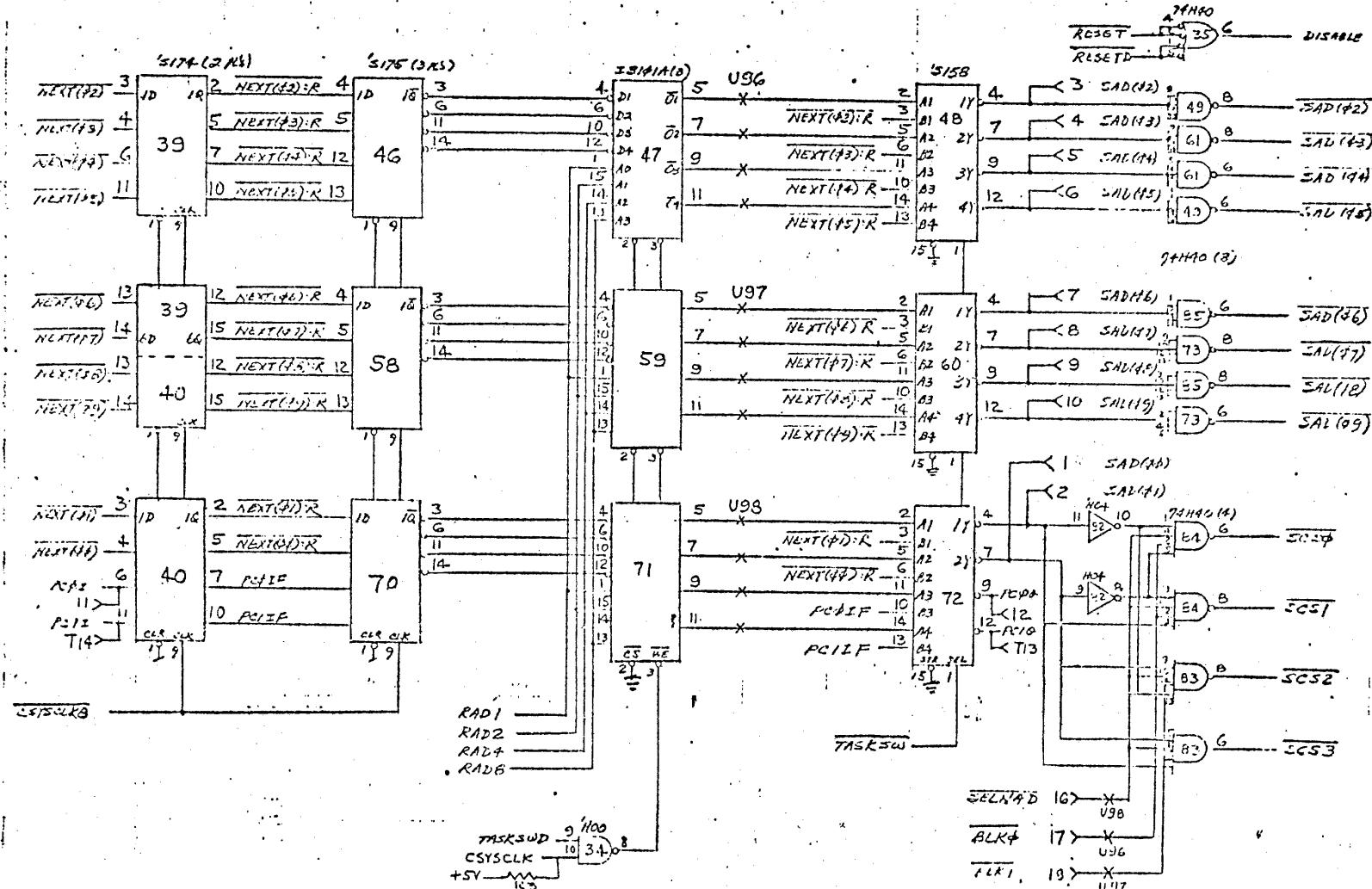
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title ALTO II
ASSEMBLY, P.W.
CONTROL BOARD

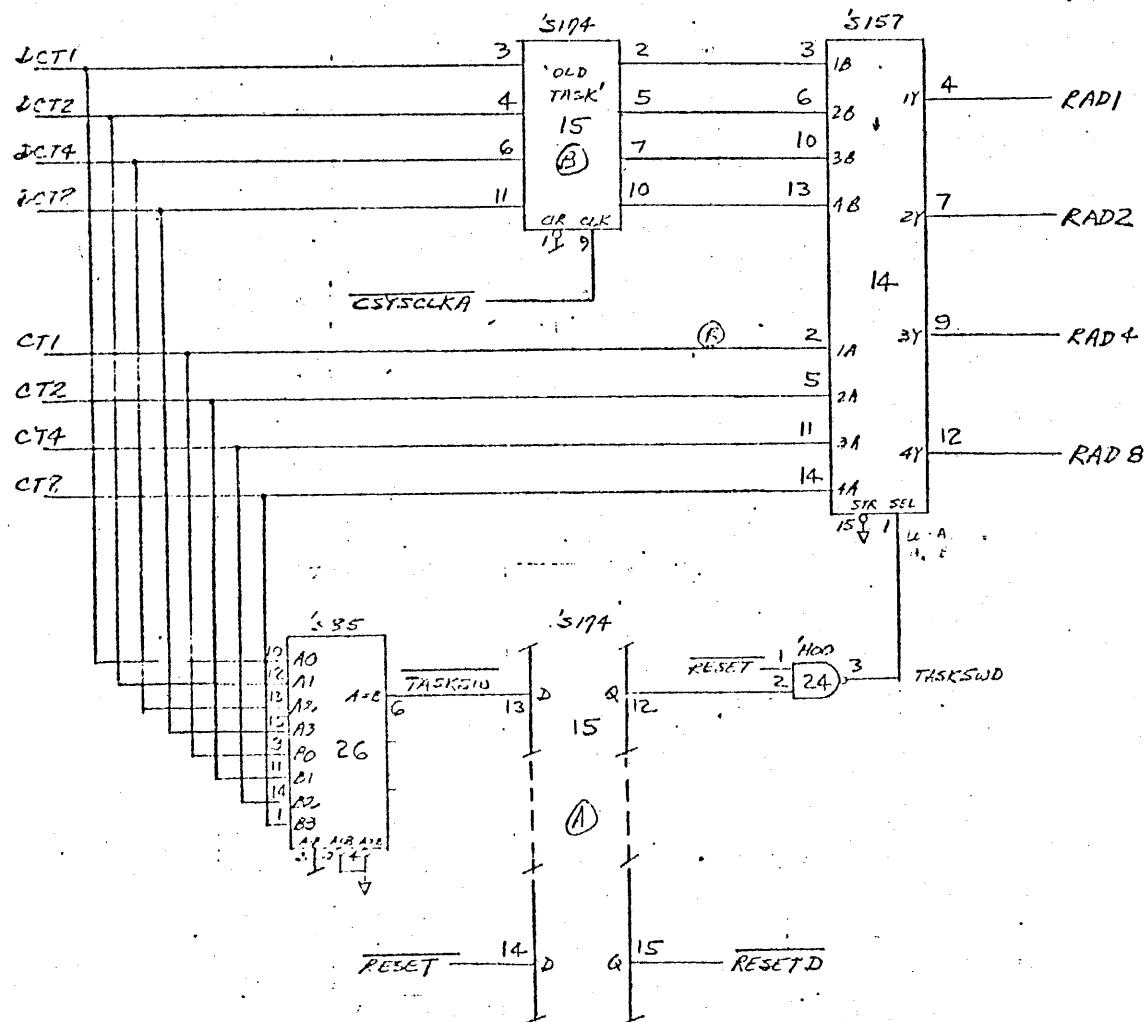
Xerox Corporation
El Segundo, California
Sheet 10

216373

XEROX



B



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Title

ALTO II
ASSEMBLY, P.W.-
CONTROL BOARD

Xerox Corporation
El Segundo, California

XEROX

216373

B

Sheet 11 of

I36#1-1 (32 PLACES)

4-377

400-777

1000-1377

1400-1777

Title

ALTO II

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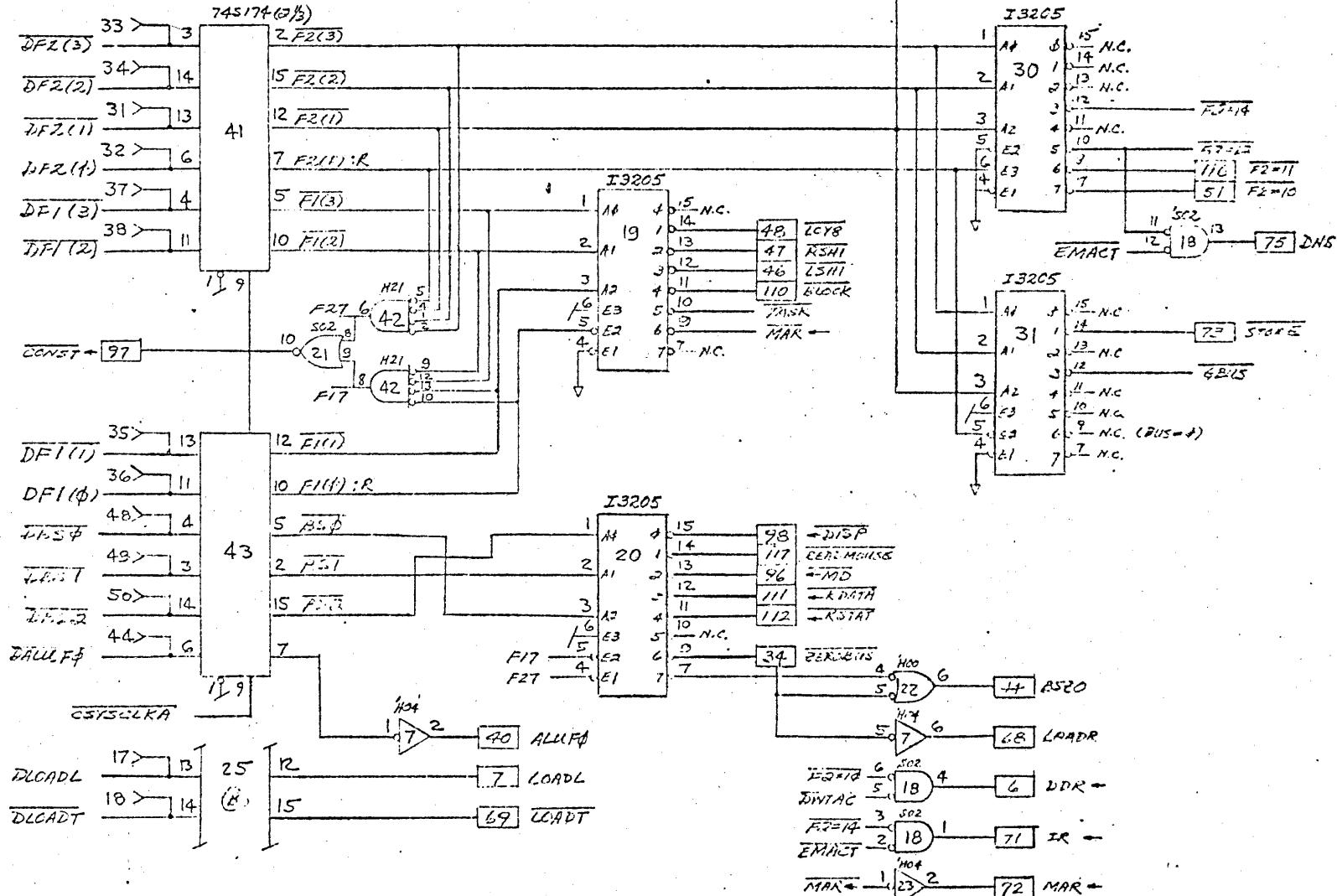
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ASSEMBLY, P.W.-
CONTROL BOARD

ALTO II

Xerox Corporation

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Revisions

216365

F

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG REL	Tur	pr	
	B	REVISED	Tur	En	6-14
C		REVISED NOTE SHEET, ADDED SHEET 14	En	7-19 76	7-19
D		DWG NO. WAS 216265. M/L ITEM 1 WAS 216267, ITEM 2 WAS 216266. ADDED SILKSCREENED BOARD DETAIL.	En	8-12 76	7-19
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.	En	4-13 77	pr
X	F	ADDED NOTE 3. M/L ITEM 13 P/N IS: SN74S157 WAS: SN74157. LOGIC SH 11, U7,U17,U27,U37 WAS:74157.	En	11-10 77	pr



THIS DOCUMENT CONTAINS 15 SHEETS

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Notes Unless Specified

Drawn MitchellXerox Corporation
El Segundo, California**XEROX**Check Performance

Title

ALTO II

ASSEMBLY, PRINTED WIRING-
CRAM

Appr.

Material

1. Tolerances
.XX ±.03 Angular
.XXX ±.010 ±½°2. Break All Sharp Edges
.010 Approx.

3. Mach. Surfaces ✓

4. All Dim. in Inches

Model No.
First Use

ALTO II

Next Assy.
First Use

216302

Finish

Code Ident.

Size

Dwg. No.

18338

A

216365

Change
Letter

F

Scale —

Do Not Scale Drawing

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.
CRAM

Xerox Corporation
El Segundo, California

216365

F

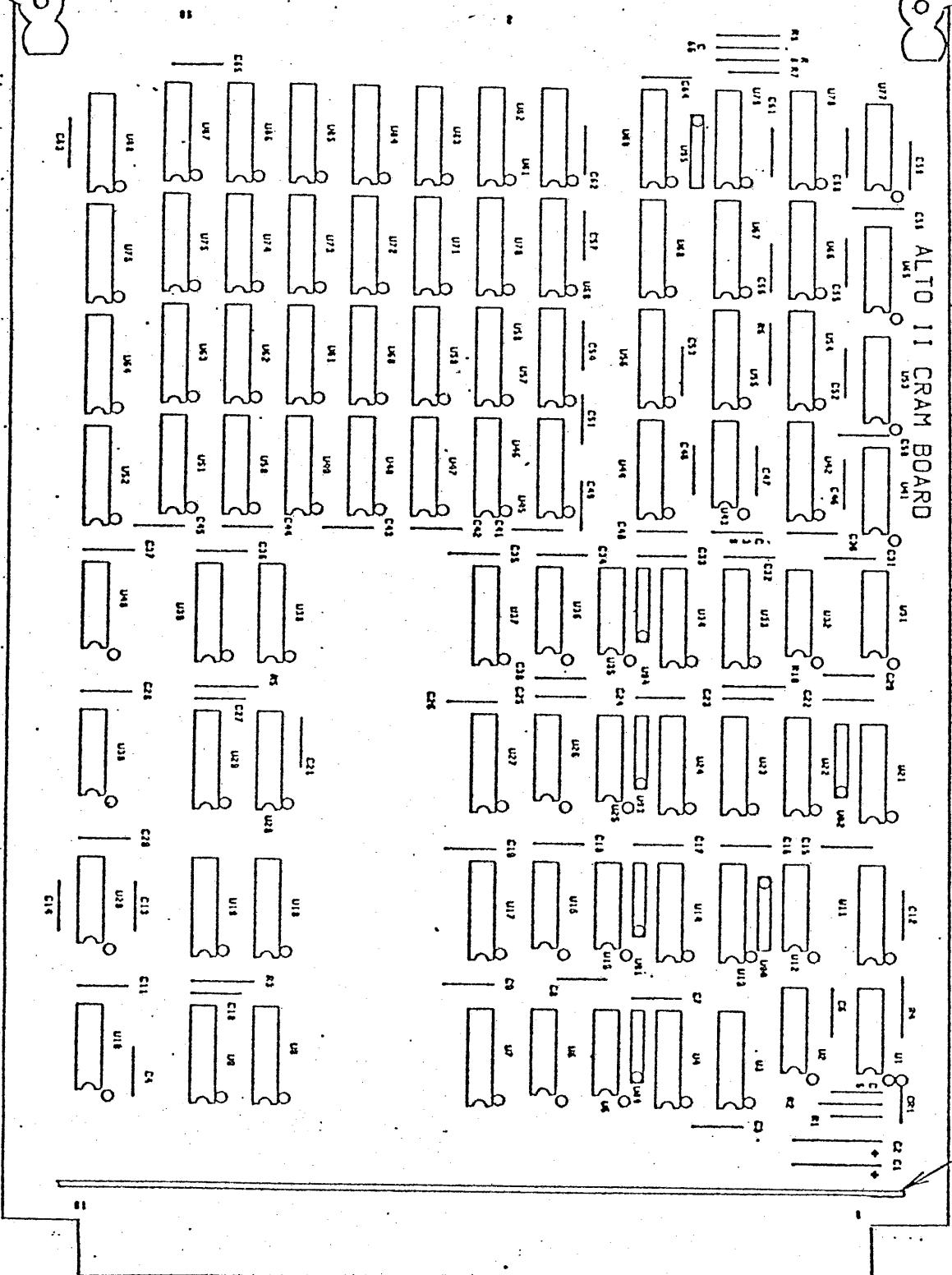
Sheet 2 Of

XEROX

33 34
2 PLACES

1

32



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Title

ALTO II
ASSEMBLY, PW-
CRAM

Xerox Corporation
El Segundo, California

XEROX

216365

F

Material List

Drawing Title ALTO II
ASSEMBLY, PRINTED WIRING--
CRAM

ML	Drawing No.	Rev. F
	216365	
	216365	
	216365	

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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-AG 11D		66	
25				
26	DIODE, IN4148		1	CR1
27				
28				
29				
30				

Material List

Drawing Title

ALTO II

ASSEMBLY, PRINTED WIRING-CRAM

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Model No

ALTO P

Date
8/9/7

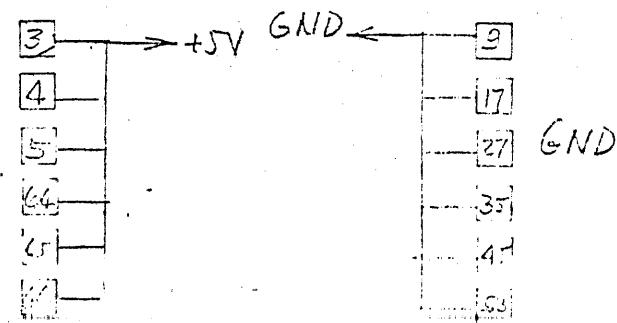
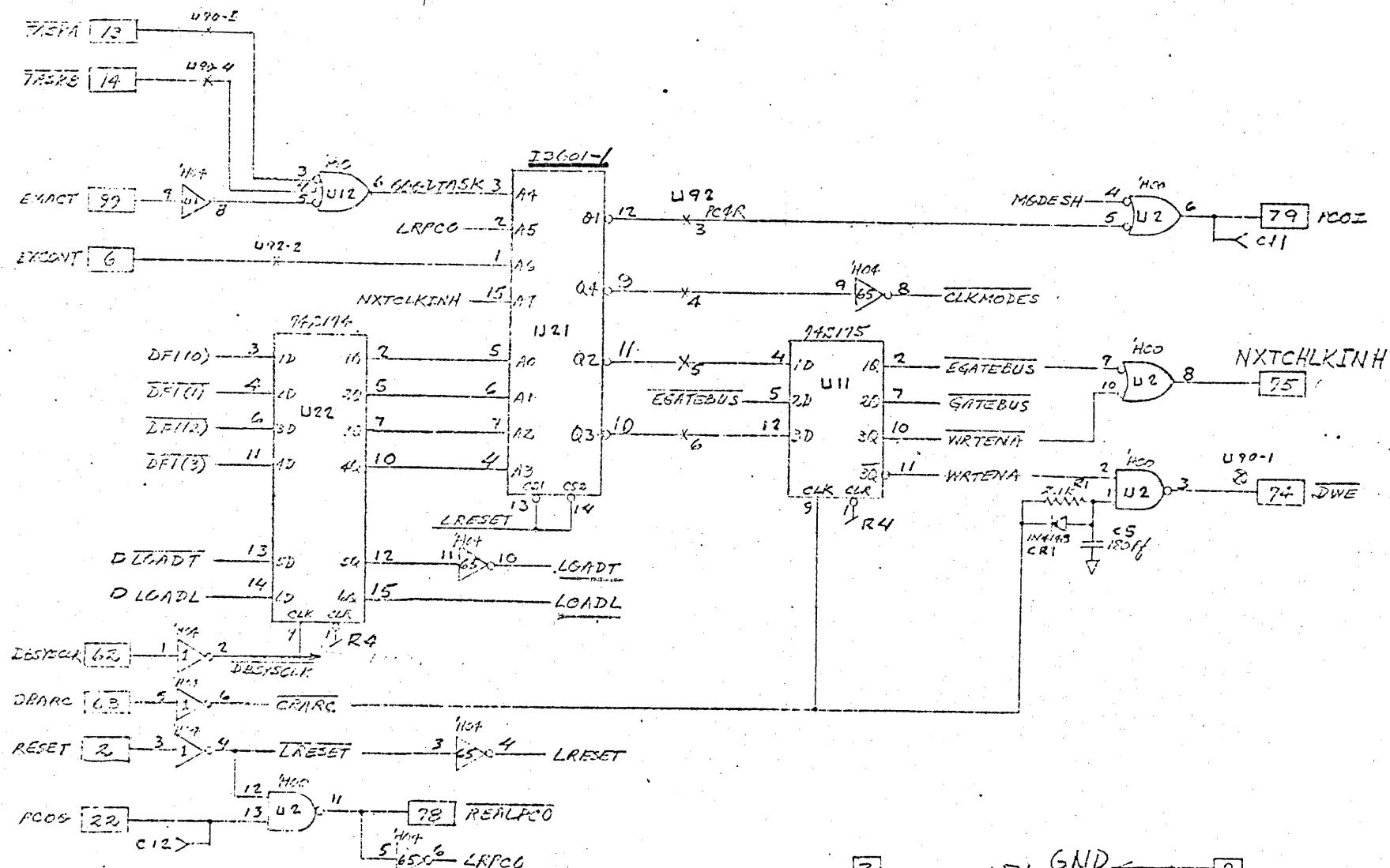
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216365

Rev.

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	Title	ALTO II
	Assembly, P.W.	ASSEMBLY, P.W. - CRAM
	Xerox Corporation El Segundo, California	XEROX
	216365	D
Sheet	6	Or



ALU(00) [100]

74S04
13 △ 10 12 IBUS(00)

74F195 (112S)

MYL(00)

ALU(01) [101]

11 △ 10 10 IBUS(01)

1D 10 2
7Q 3

MYL(00)

MYL(01)

ALU(02) [102]

3 △ 10 4 IBUS(02)

2D 20 7
2Q 6

MYL(01)

ALU(03) [103]

1 △ 10 2 IBUS(03)

U9 3Q 10
3Q 11

MYL(02)

ALU(04) [104]

13 △ 20 12 IBUS(04)

4D 4Q 15
4Q 14

MYL(03)

ALU(05) [105]

11 △ 20 10 IBUS(05)

2 2
3 0

MYL(04)

ALU(06) [106]

3 △ 20 4 IBUS(06)

U19 7 10
6 0

MYL(05)

ALU(07) [107]

1 △ 20 2 IBUS(07)

15 0
14 0

MYL(06)

ALU(08) [108]

13 △ 30 12 IBUS(08)

2 2
3 0

MYL(07)

ALU(09) [109]

11 △ 30 10 IBUS(09)

7 0
6 0

MYL(08)

ALU(10) [110]

3 △ 30 4 IBUS(10)

10 0
11 0

MYL(09)

ALU(11) [111]

1 △ 30 2 IBUS(11)

15 0
14 0

MYL(10)

ALU(12) [112]

13 △ 40 12 IBUS(12)

CLK CLR 2 2
3 0

MYL(11)

ALU(13) [113]

11 △ 40 10 IBUS(13)

7 0
6 0

MYL(12)

ALU(14) [114]

3 △ 40 4 IBUS(14)

10 0
11 0

MYL(13)

ALU(15) [115]

1 △ 40 2 IBUS(15)

15 0
14 0

MYL(14)

DBSYSCLK 10 H10
LOADL 11 9 U12
GOODTASK 8U39 9 10 RS
CLK CLR 14 MYL(15)

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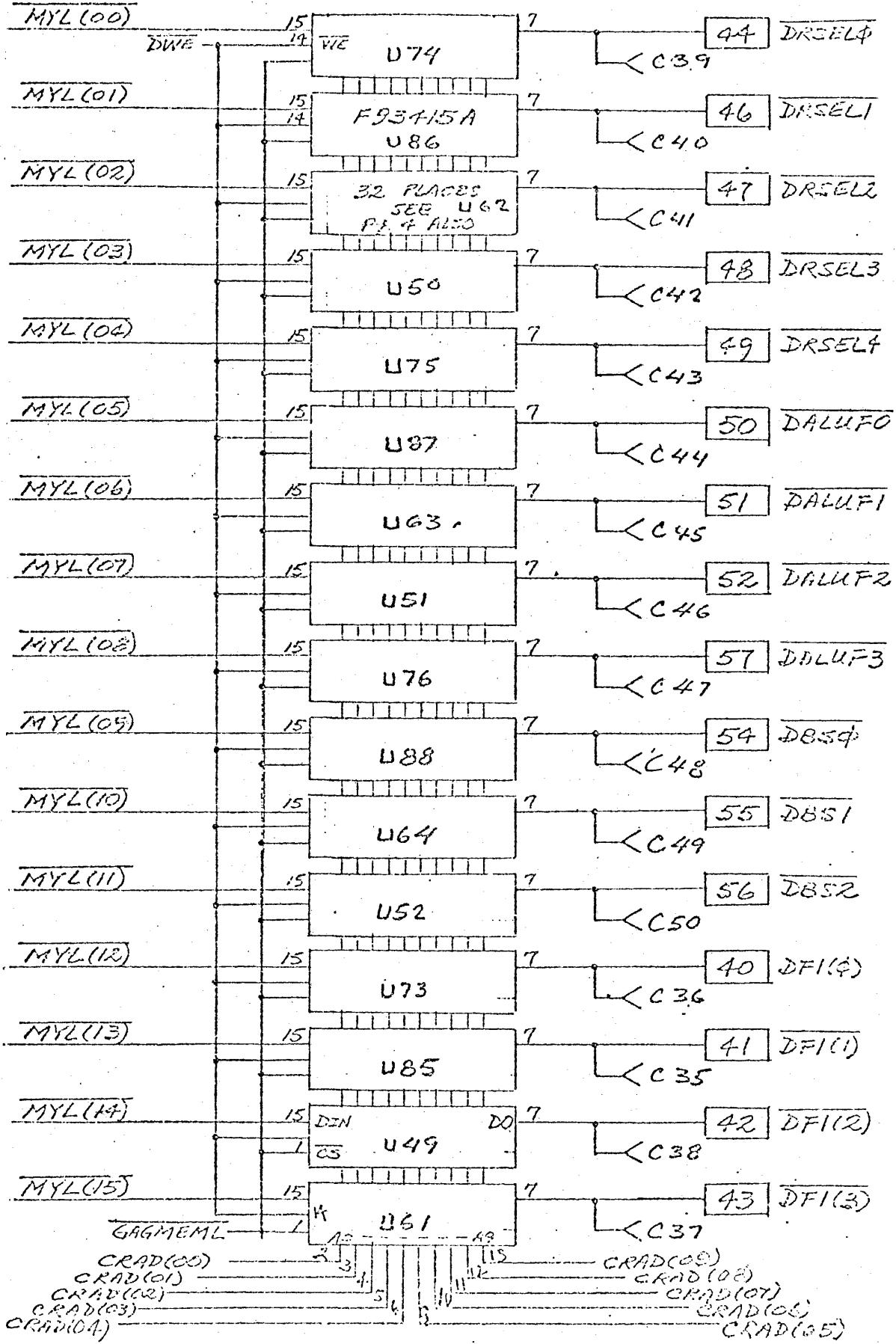
Title ALTO II
ASSEMBLY, P.W.-
CRAM

Xerox Corporation
El Segundo, California

216365

XEROX

Sheet 7 of



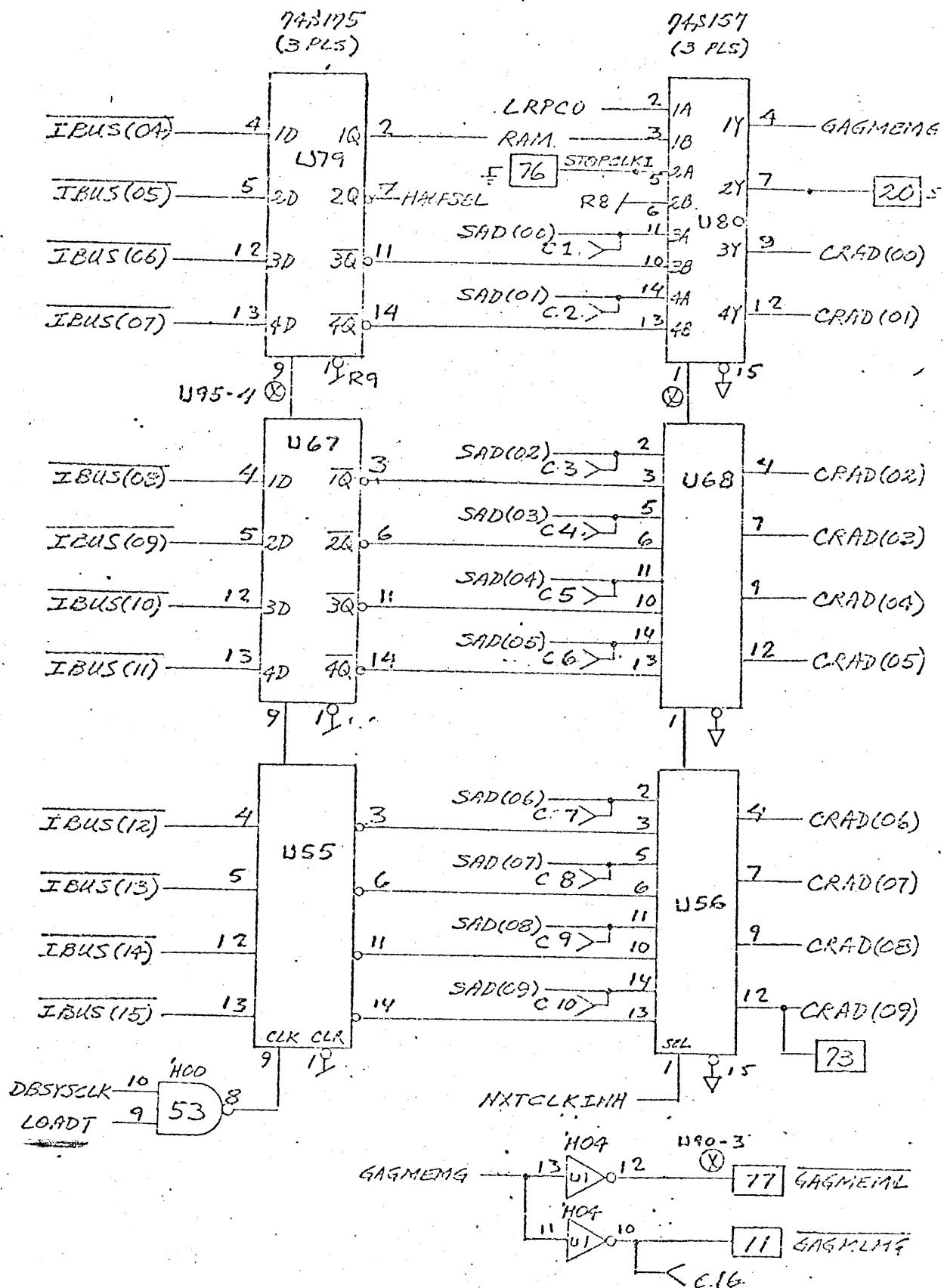
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Title

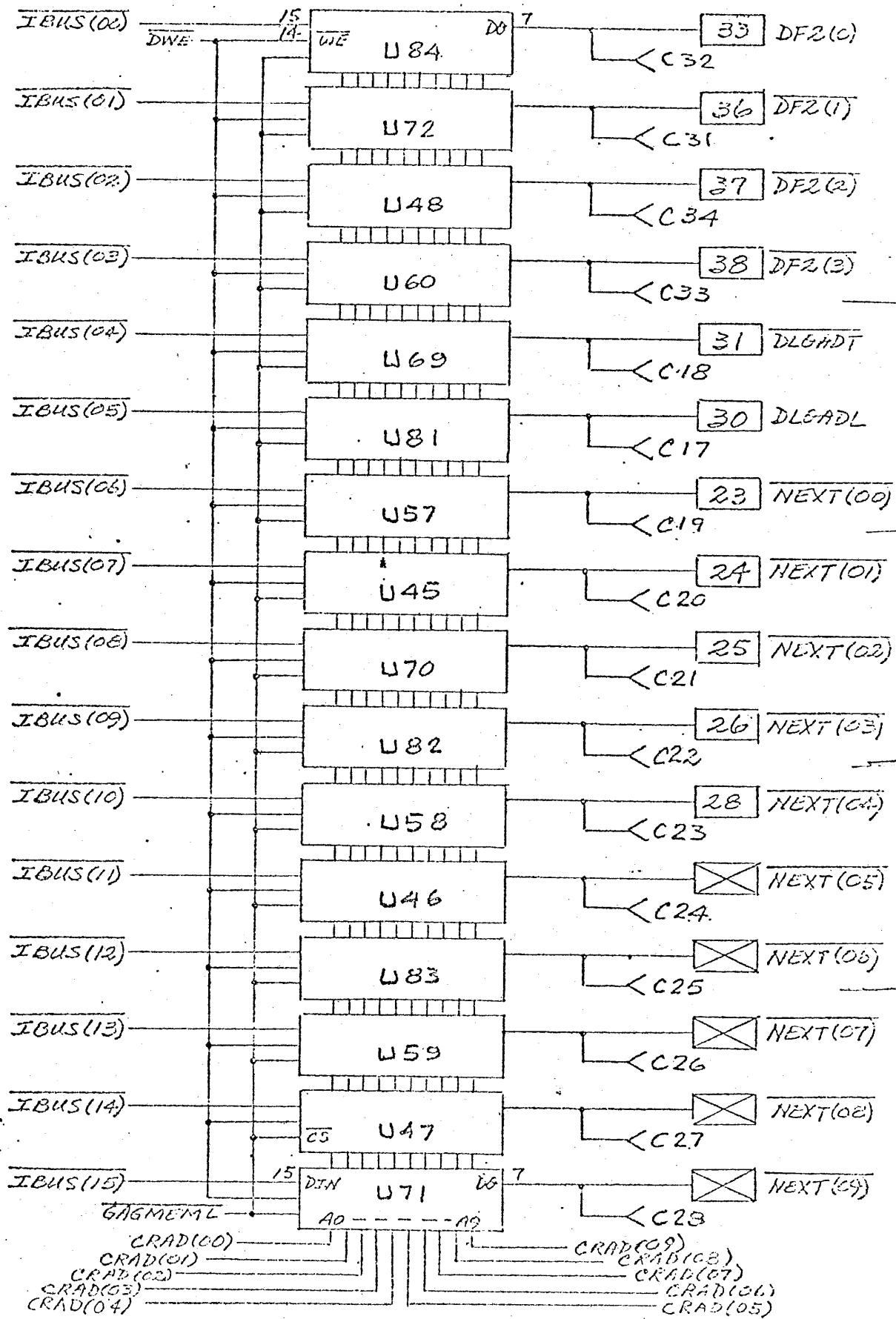
ALTO II
ASSEMBLY, P.W.-
CRAM

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El Segundo, California

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Sheet 9 of 1



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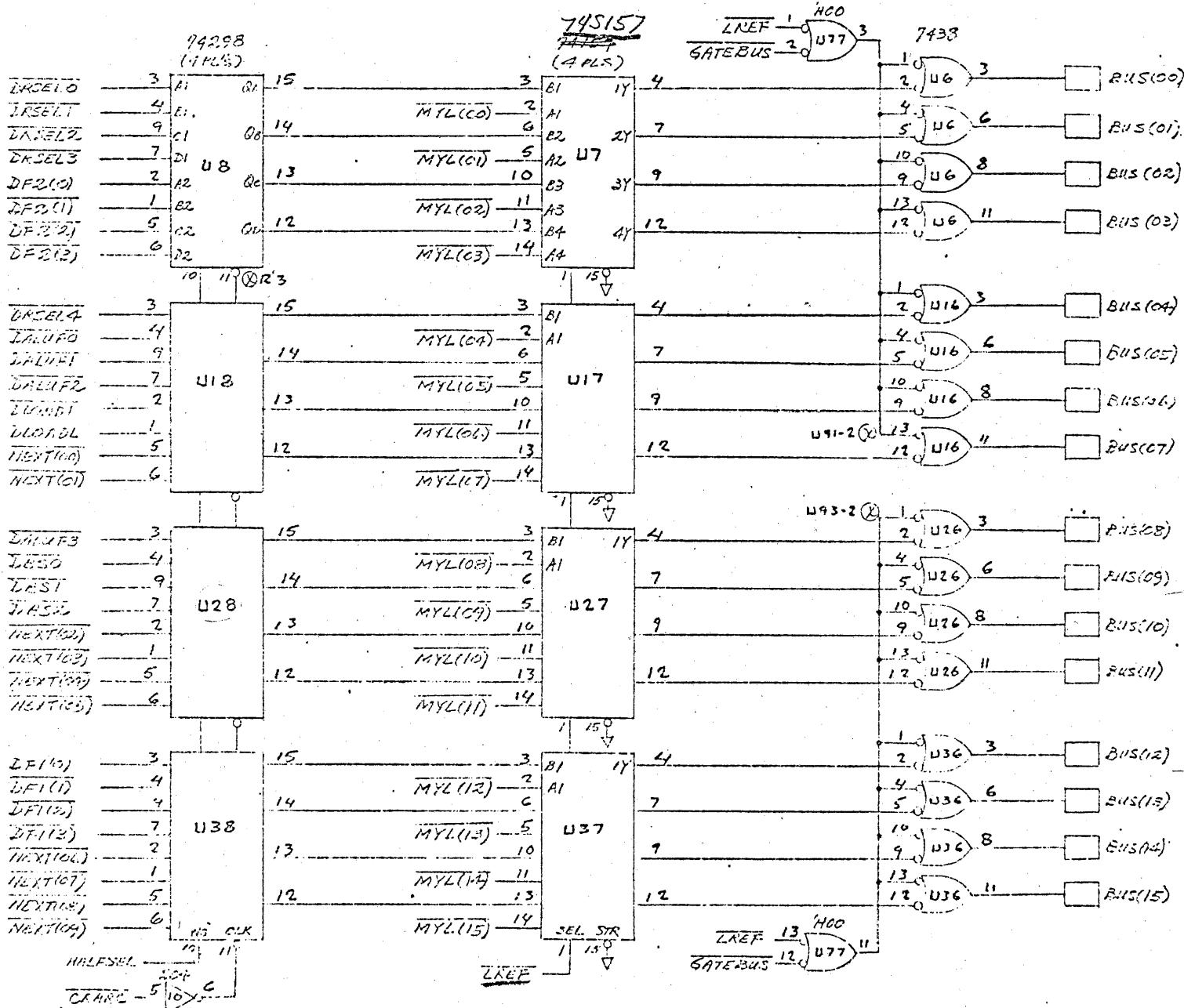
Title ALTO II

ASSEMBLY, P.W.-

CRAM

Xerox Corporation,
El Segundo, California

XEROX



Sheet 11 of 11

LREF 13 H00
GATEBUS 12 U77 11

LREF

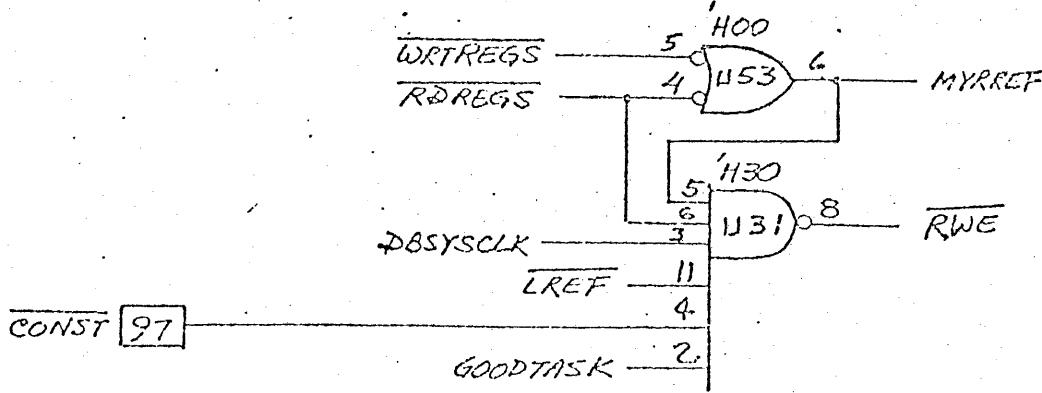
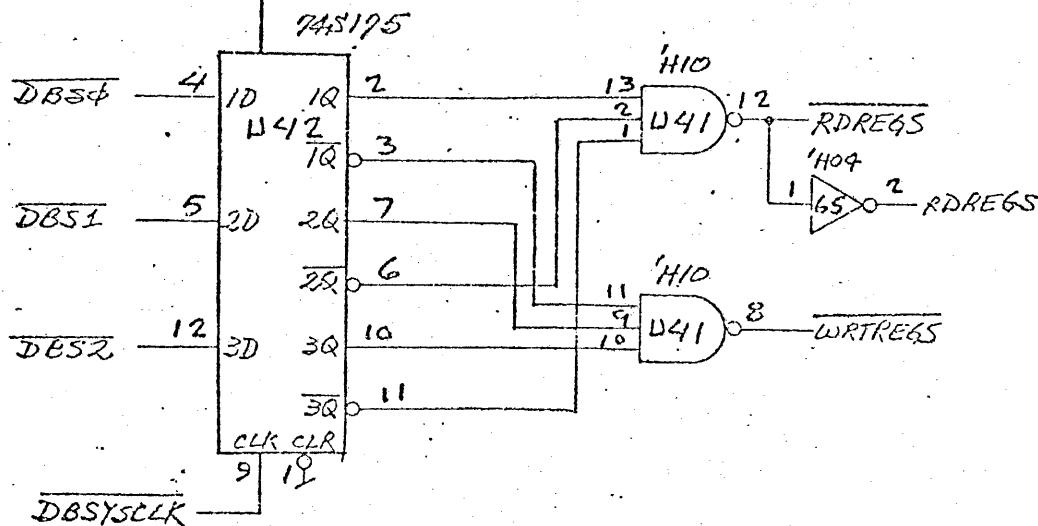
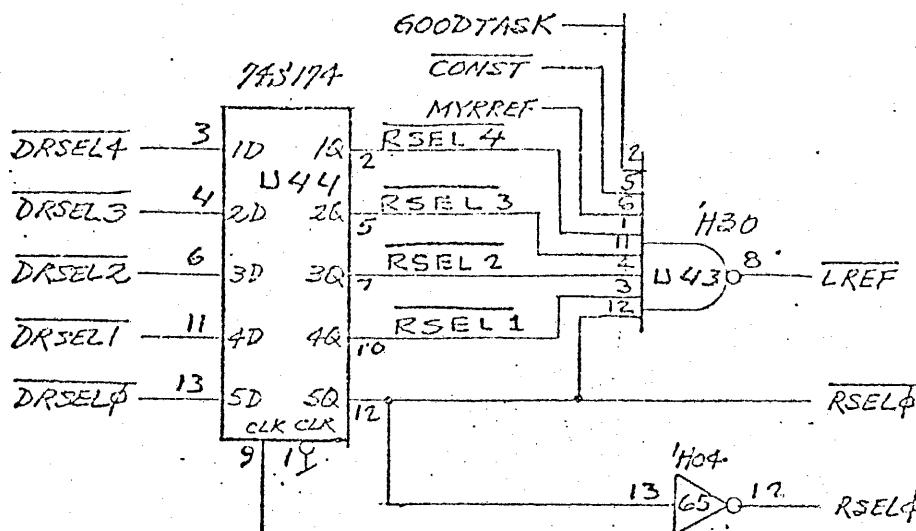
SEL STR 1 150

HALFSEL 10 11
CLK 10 11

CHARE - 5 10 6

216365

2



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Title
ALTO II
ASSEMBLY, P.W.-
CRAM

Xerox Corporation
El Segundo, California

XEROX

216365

D

REGISTRATION (SPLS)

RULES OF
REF ID: A
COMPT 1
OPIAEC 1
5 U32 6
H-21

Y2(00)	4	D	
Y2(01)	6	C	
Y2(02)	10	B	
Y2(03)	12	A	
	1	U4	U3
	15		
	14		
	13		
	20	30	20
MYL(04)	4		
MYL(05)	6		
MYL(06)	10		
MYL(07)	12	U14	U13
	1		
	15		
	14		
	13		
	20	30	20
MYL(08)	4		
MYL(09)	6		
MYL(10)	10		
MYL(11)	12	U24	U23
	1		
	15		
	14		
	13		
	20	30	20
MYL(12)	4		
MYL(13)	6		
MYL(14)	10		
MYL(15)	12	U34	U33
RSELT	1		
RELLR	15		
RSEL2	14		
RSEL4	13		
	20	30	20
RSELT			
RSEL4			

ADDRESS 9 H-21
LKF 10
CONY 11
GOODFISH 12 U32

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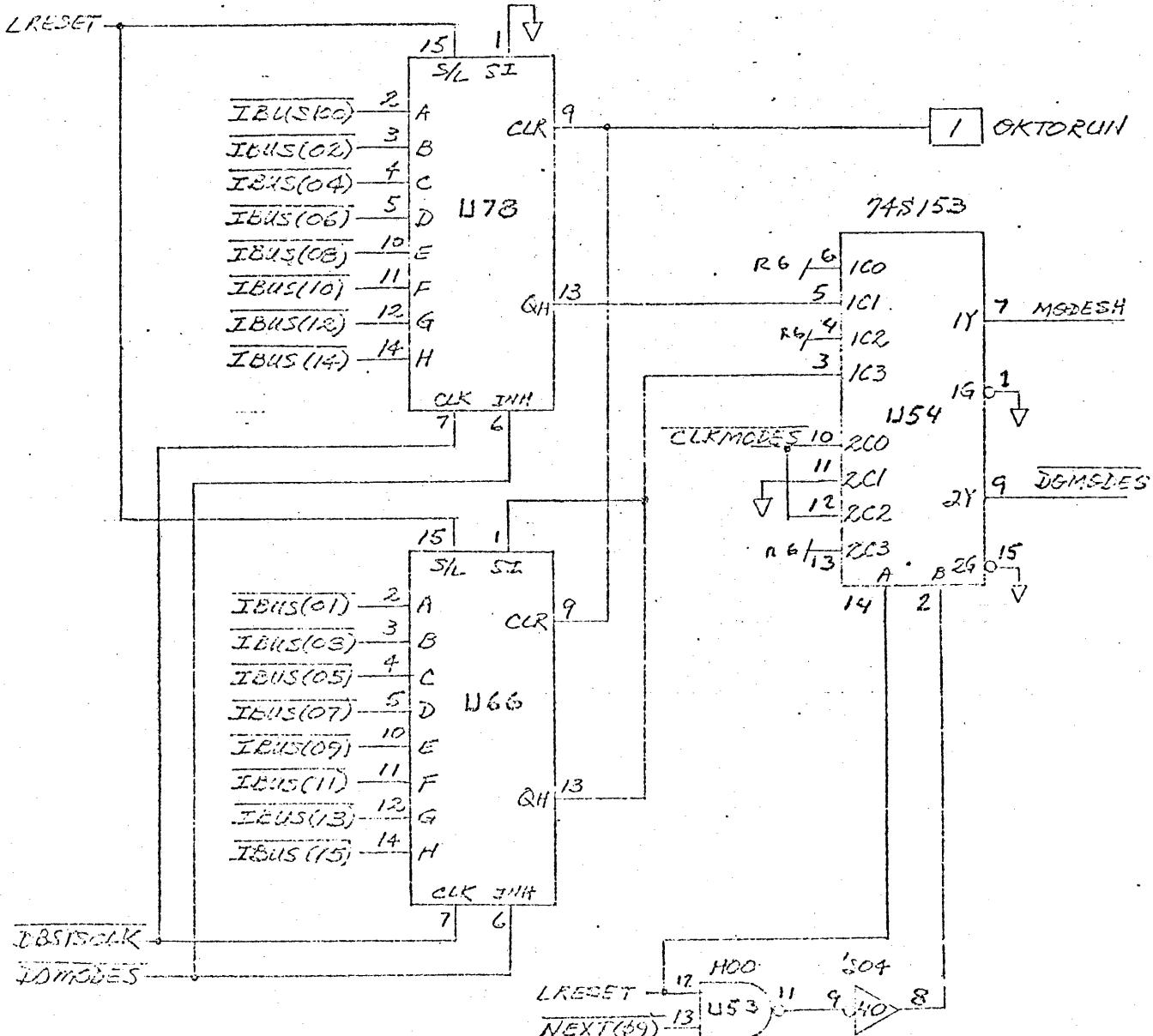
Title ALTO II
ASSEMBLY, P.W.-
CRAM

Xerox Corporation
El Segundo, California

216365

XEROX

74166
(2 PL'S)



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Title ALTO II
ASSEMBLY, P.W.-
CRAM

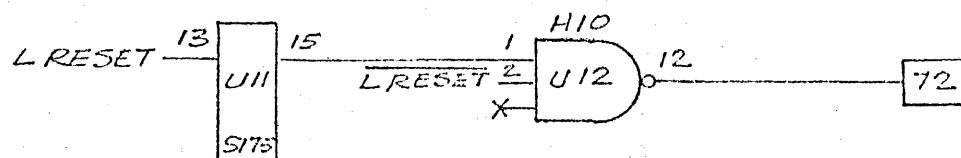
Xerox Corporation
El Segundo, California

Sheet 14 of

XEROX

216365

D



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Title ALTO II
ASSEMBLY, P.W.
CRAM

Xerox Corporation
El Segundo, California

Sheet 15 of 01

XEROX

216365

D

LAL	Rev.	Description	Chk	Date	Approved
	A	ENGRG RELEASE	BN	3-8-76	
	B	REVISED; ITEM 5 QTY WAS 1	JW	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	
X	E	ADDED NOTE 2 & FIG. I, II, III.	BN	7-14-77	GL
	F	RELEASED "C" REV ARTWORKS.	BN	11-2-77	RF

**ENGINEERING
RELEASE**

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Notes Unless Specified
 Drawn *M. L. Johnson* 3-8-76
 Check *M. L. Johnson* 7-28-76
 Appr. *BS*
 Material

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

Xerox Corporation
El Segundo, California

XEROX

Title ALTO II
ASSEMBLY, PRINTED WIRING-
ARITHMETIC LOGIC UNIT

Model No. ALTO II
First Use EWO 7YF92

Next Assy. 216302
First Use

Finish	Code Ident.	Size	Dwg. No.	Change Letter
	18338	A	216381	F
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.

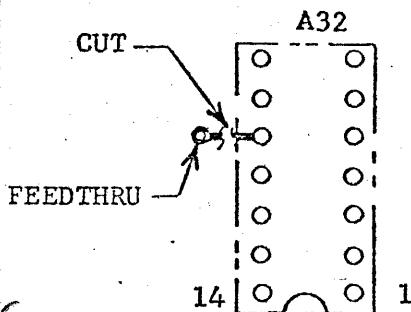


FIGURE I
(COMPONENT SIDE)

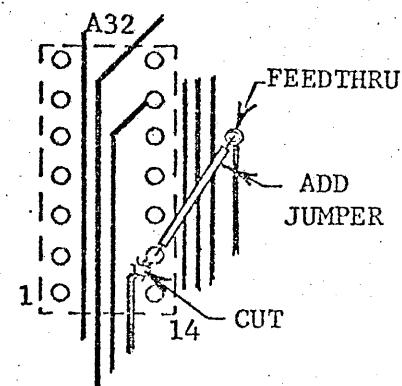


FIGURE II
(ETCH SIDE)

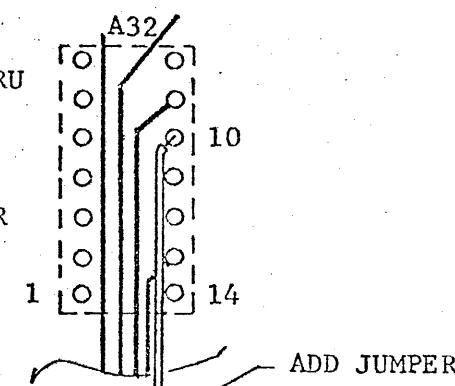


FIGURE III
(ETCH SIDE)

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

Xerox Corporation
El Segundo, California

216381

F

Sheet 2 of

XEROX

ALTO-8 ARITHMETIC LOGIC UNIT

2 PLACES

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Title ALTO II
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ARITHMETIC LOGIC UNIT

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El Segundo, California

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216381

6

Material List

ML	Drawing No. 216381	Rev. F
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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.		
ALTO II				
ASSEMBLY, PRINTED WIRING-				
ARITHMETIC LOGIC UNIT				
Item No.	Drawing Title	Model No. EW07YF92	Date 3/5/76	Sheet 4 Of
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

XERUX

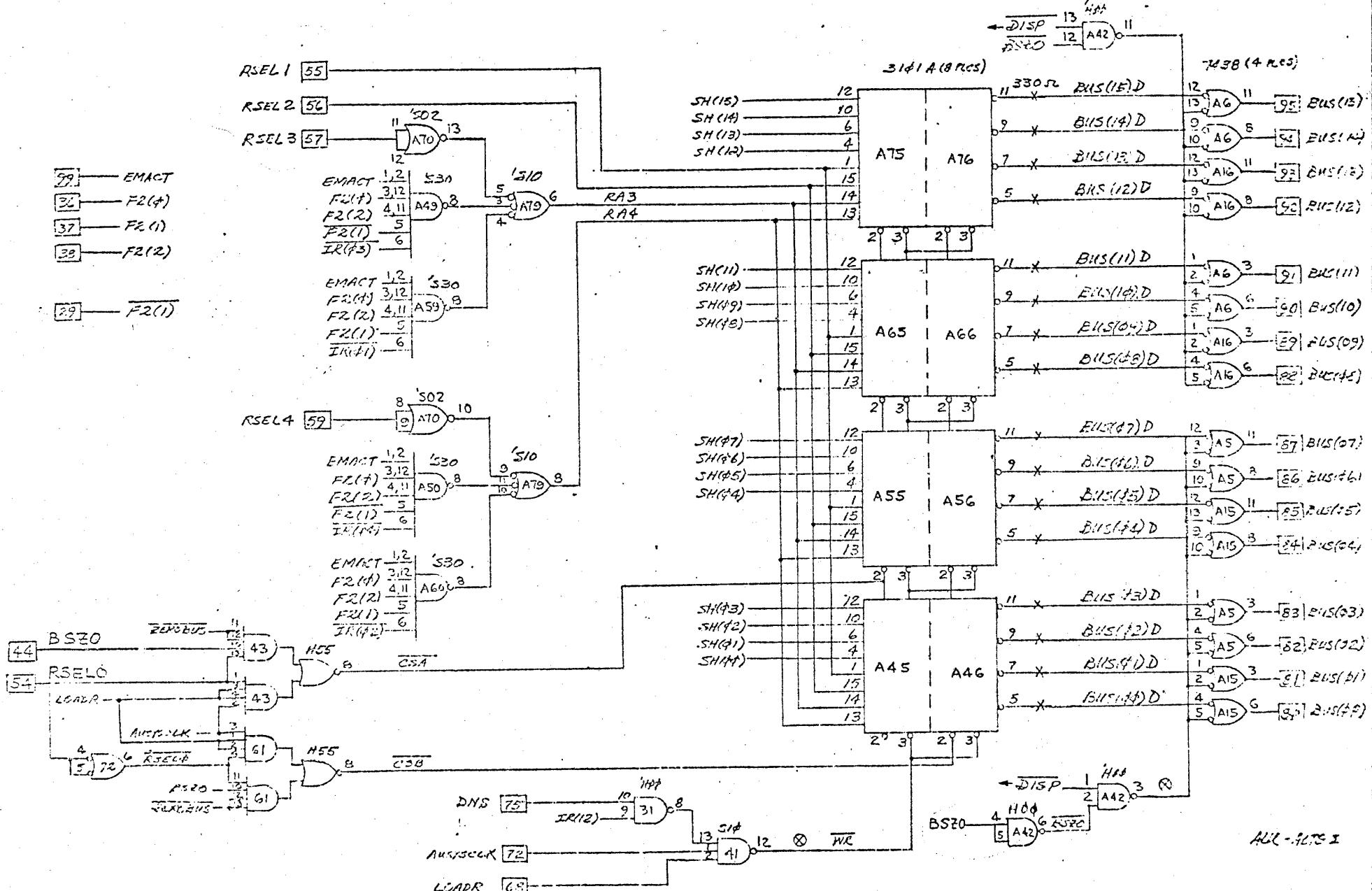
Material List

W

三

Drawing No.
216381

Rev
F



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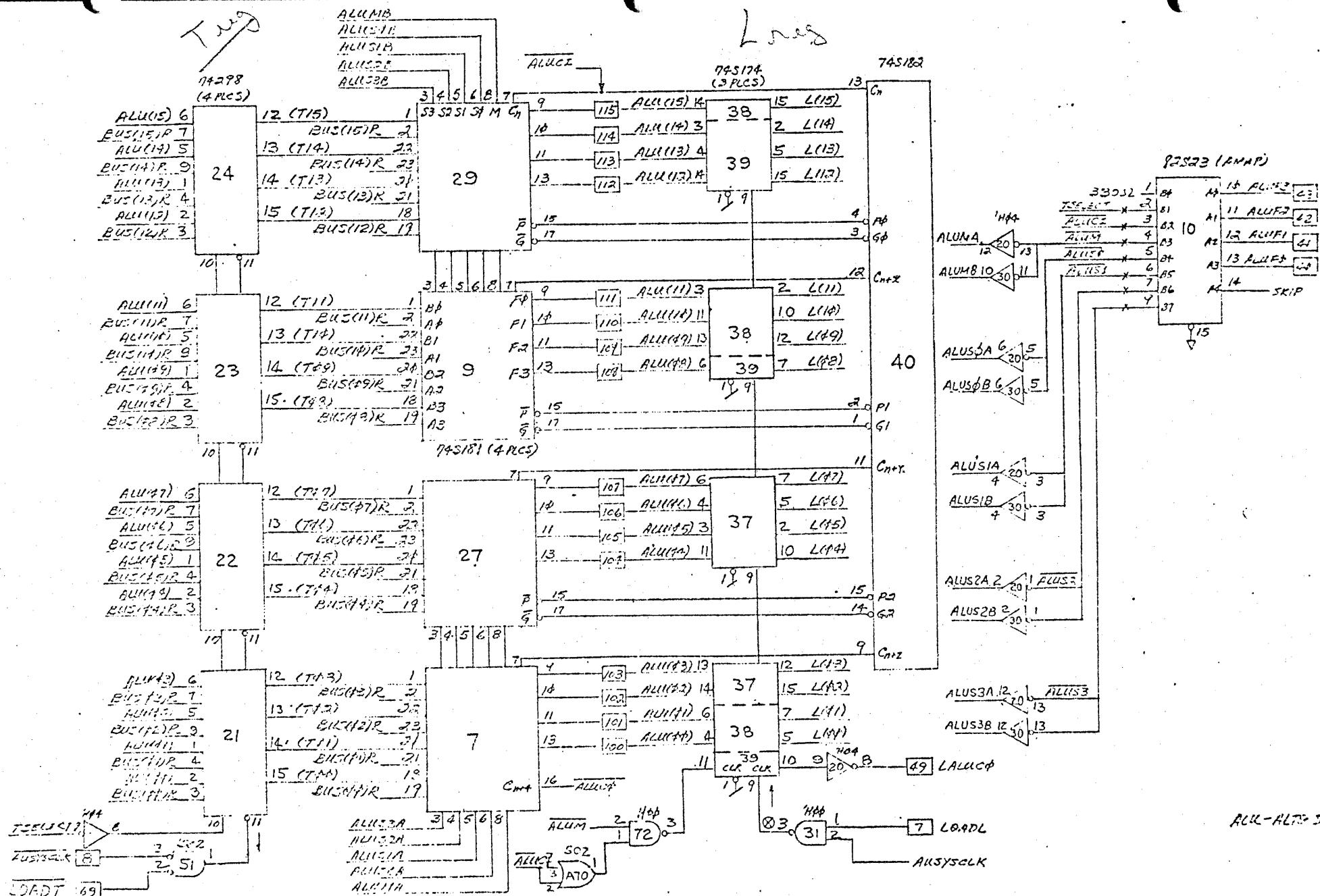
Title

ASSEMBLY, PRINTED WIRING-
ARITHMETIC LOGIC UNIT

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Title

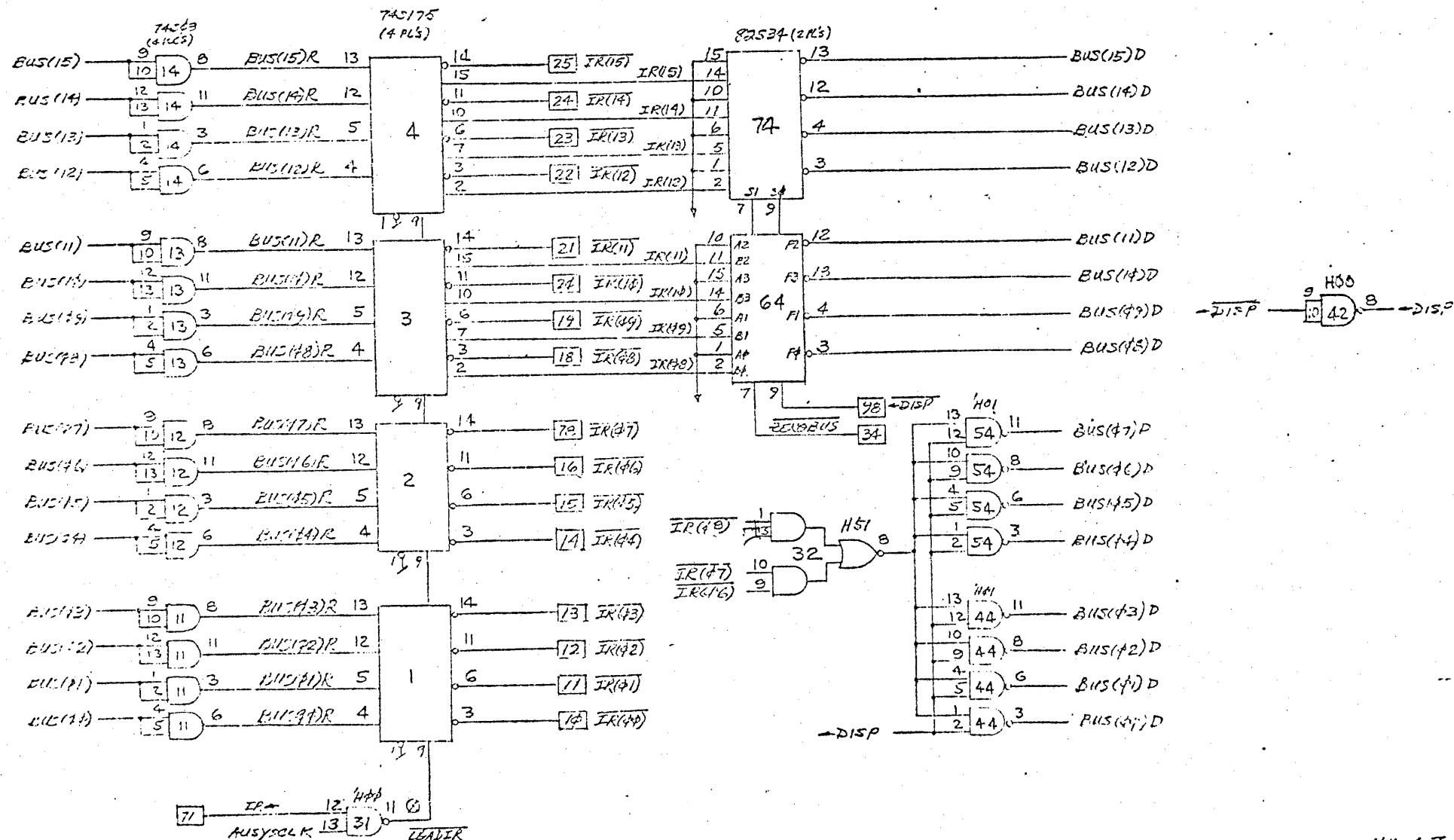
ASSEMBLY PRINTED WIRING-
ARITHMETIC LOGIC UNIT

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Title

ASSEMBLY, PRINTED WIRING-
ARITHMETIC LOGIC UNIT

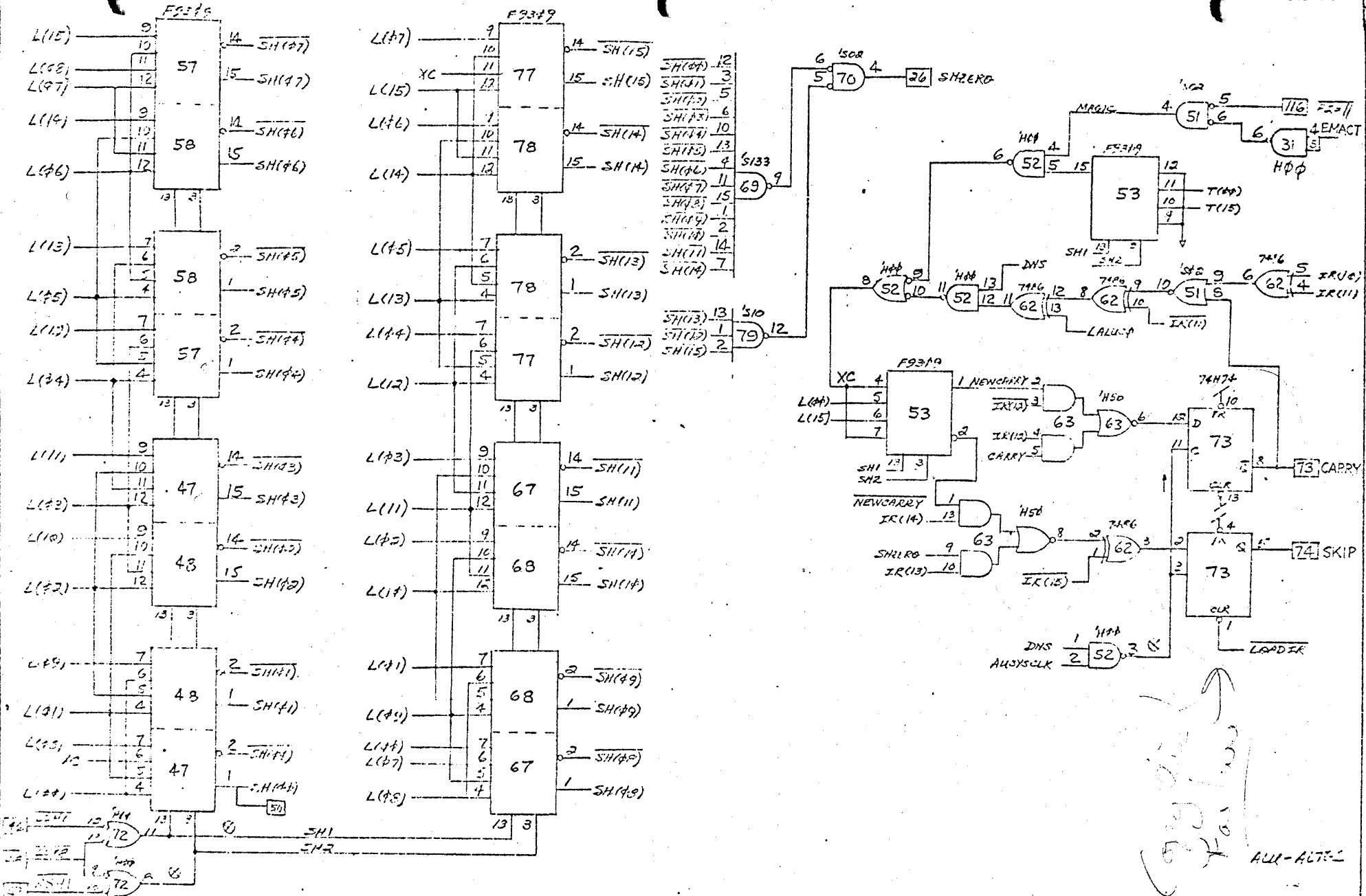
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B

Sheet 8 Of



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Title

ASSEMBLY, PRINTED WIRING- ARITHMETIC LOGIC UNIT

Xerox Corporation
El Segundo, California

XEROX

216381

B

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	Clig. Ltr.		
<input checked="" type="checkbox"/> Revision	<input checked="" type="checkbox"/> Immediate					216389	F		
<input type="checkbox"/> Reserve	<input type="checkbox"/> Serial No./Date								
<input type="checkbox"/> Variation	<input type="checkbox"/> Next Production								
Affected by This Change		Dist. Code SPG	DCR No. 1-13-78	DCR Date 1-13-78	Model No. ACTO II	Next Assembly No. 216302	Sheet 1 of		
		Disposition of Existing Parts				Lowest Acceptable Revision Letter F			
Spare Parts	<input checked="" type="checkbox"/>	No	Dwg. No.	Other Dwgs.	Status	Return To Stock	Rework	Use	Scrap
Tooling	<input type="checkbox"/>	<input checked="" type="checkbox"/>			On Order		<input checked="" type="checkbox"/>		
Test Procedures	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Process		<input checked="" type="checkbox"/>		
Test Equipment	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Stock		<input checked="" type="checkbox"/>		
Programs	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Next Assy.		<input checked="" type="checkbox"/>		
Tech. Publications	<input type="checkbox"/>	<input checked="" type="checkbox"/>			In Field				
					Refurbishment				
Reason For Change (If reason is Design Error or Reliability, describe symptoms & conditions under which they occur.)									
<input type="checkbox"/> Design Error M/L ITEM 31 OSCILLATOR PART NO. NOT COMPLETE. <input checked="" type="checkbox"/> Drawing Error <input type="checkbox"/> Producibility <input type="checkbox"/> Maintainability <input type="checkbox"/> Reliability <input type="checkbox"/> Cost Reduction									
Drawing Change		Rework Instructions							
<i>M/L ITEM 31 PART NO.</i> <i>IS: K1100A , 3.33 MH</i> <i>WAS: K1100A</i>		<i>MFG. COMPLYING</i> <i>Completed</i> <i>1-16-78</i>							
		Test Procedure to Verify Change							
Draftsman Hochman	Date 1-13-78	Check	Date	Field/Mfg.	Date	Proj. Engr. Hochman	Date 1-16-78	DCB	Date
1216-1012/74									

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

THIS DOCUMENT CONTAINS 18 SHEETS

Dist Code ALT

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		Check <i>M. Fletcher</i>	6-15-76	Title ALTO II	
		Appr. <i>P. C. Freeman</i>		ASSEMBLY, PRINTED WIRING-DISK CONTROL	
		Material			
Model No. First Use	Finish	Code Ident.	Size	Dwg. No.	Change Letter
ALTO II EWO 7YF 92		18338	A	216389	F
Next Assy. First Use		Scale	—	Do Not Scale Drawing	Sheet 1
216302					

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

216389
Sheet 2 Of

XEROX

ASSY NO. 216389

REV NO. 216389

40

P2

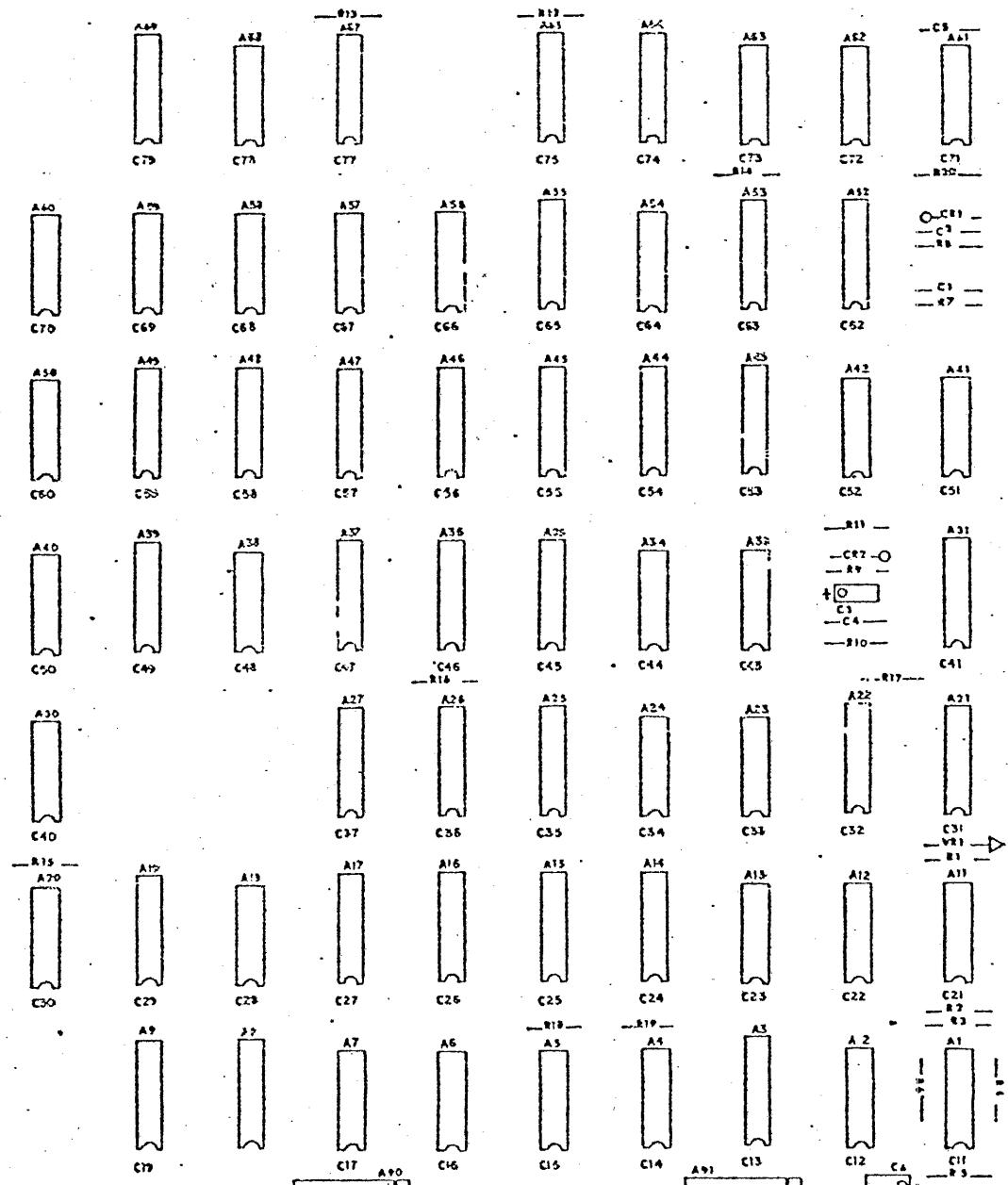
2

ALTO II DISK CONTROL

59

58

2 PLACES



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Title
ASSY, P.W.
DISK CONTROL

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El Segundo, California

216389

F

Sheet 3 Of

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Xerox Corporation
701 South Aviation Boulevard
El Segundo, California 90245
213 679-4511

Material List

ML	Drawing No. 216389	Rev. F
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Drawing No. 216389	Rev.	Drawing Title ALTO II ASSEMBLY, PRINTED WIRING- DISK CONTROL	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. ALTO II	Date 6/14/76	Sheet 4 of
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					

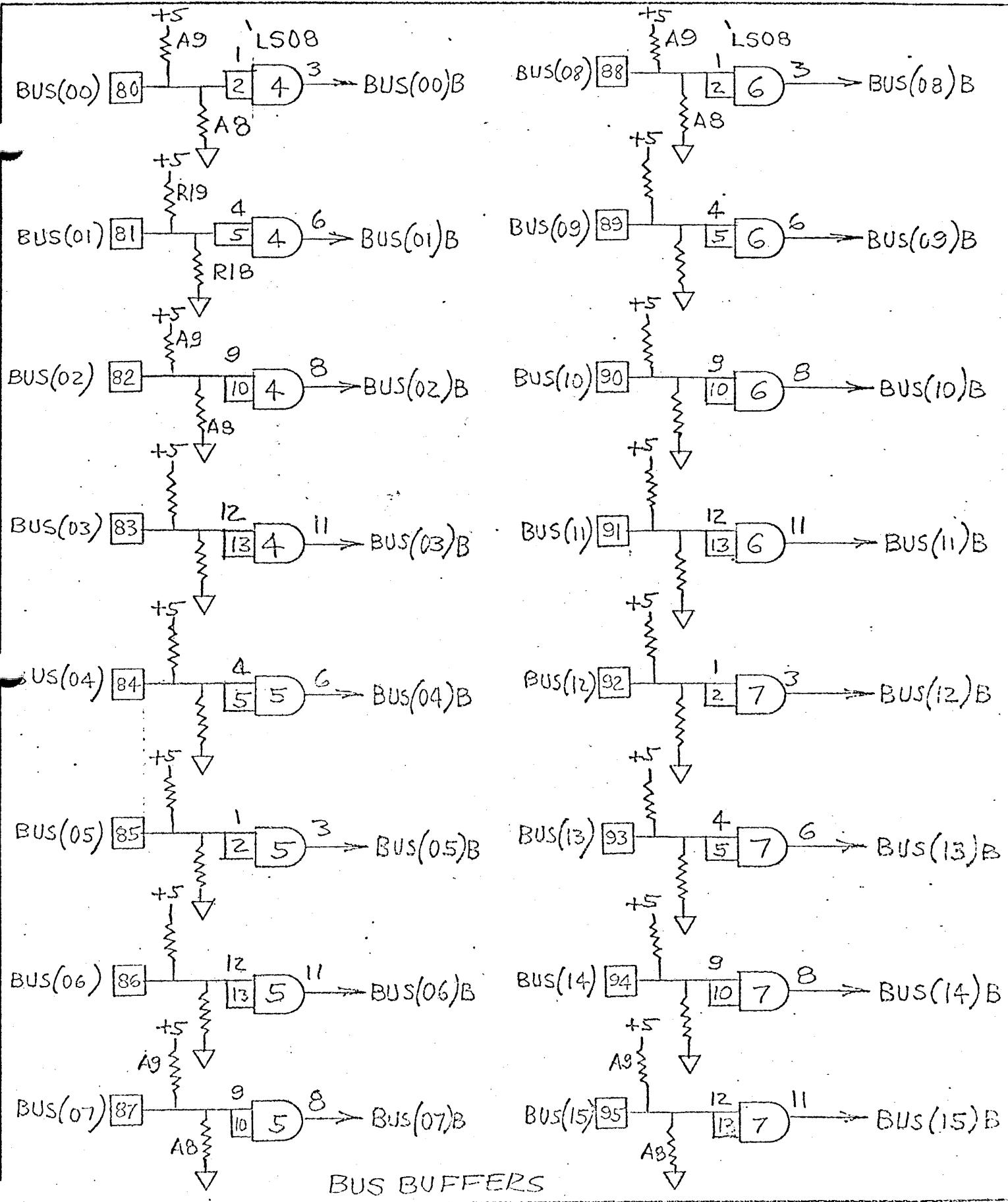
Material List

ML	Drawing No.	Rev F
	216389	
Model No.	Date	Sheet
ALTO II	6/14/76	5 of

Drawing Title
ALTO II
ASSEMBLY, PRINTED WIRING-
DISK CONTROL

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Item No.	Drawing Title	Drawing No.	No. Req.	Remarks
33	RESISTOR, NETWORK, DIP, 270Ω (AB#316A271)		1	A9
34	RESISTOR, NETWORK, DIP, 560Ω (AB#316A561)		1	A8
35	RESISTOR, NETWORK, 470Ω , (CTS #750-81-R470)		2	A90, 91
36	RESISTOR, FILM, $39\Omega \pm 5\%$, $1/4W$	116447-390	2	R1, R2
37	$200\Omega \pm 5\%$, $1/4W$	116447-201	5	R3, 4, 5, 6, 12
38	$24K \pm 5\%$, $1/4W$	116447-243	2	R7, 8
39	$15K \pm 5\%$, $1/4W$	116447-153	1	R9
40	$30K \pm 5\%$, $1/4W$	116447-303	1	R10
41	$330\Omega \pm 5\%$, $1/4W$	116447-331	2	R11, R20
42	$560\Omega \pm 5\%$, $1/4W$	116447-561	1	R18
43	$270\Omega \pm 5\%$, $1/4W$	116447-271	1	R19
44	RESISTOR, FILM, $1K \pm 5\%$, $1/4W$	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, $.01\mu F$		2	C2, C4
51	CAPACITOR, $.47\mu F \pm 20\%$, 50V	114491-474	1	C3
52	CAPACITOR, 270PF NYTRONICS DC 271		1	C5
53	CAPACITOR, TANT., $22\mu F \pm 20\%$, 15V	114491-226	1	C6
54	CAPACITOR, $.05\mu F$, 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	



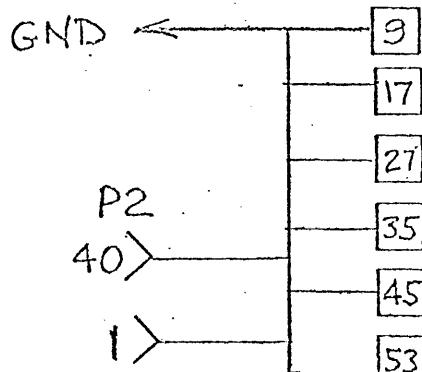
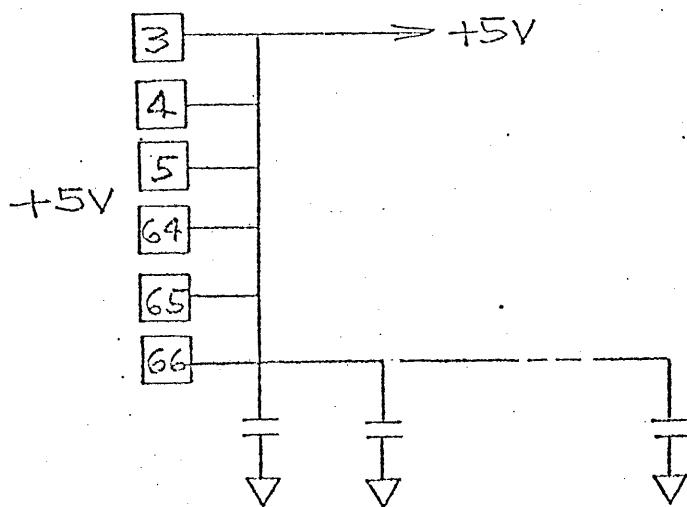
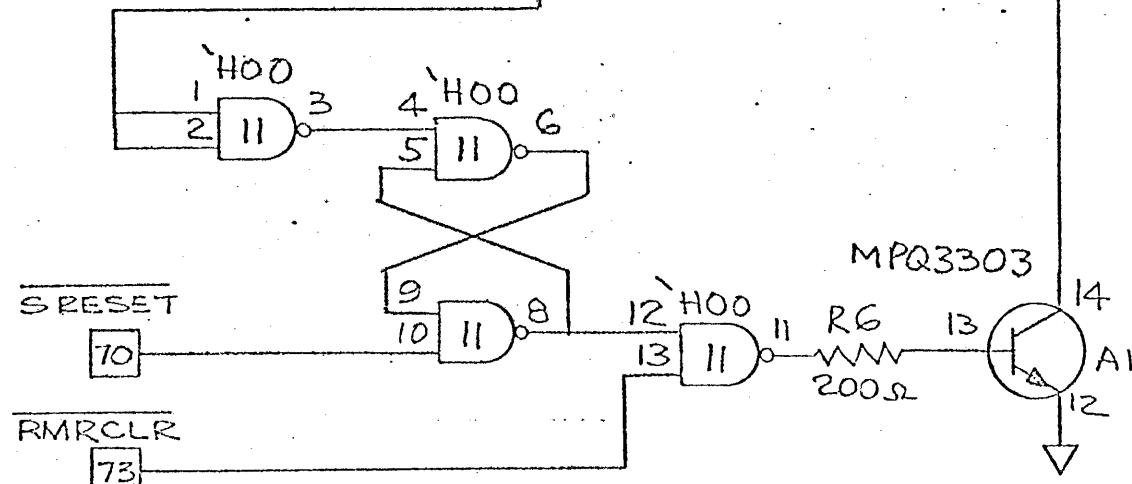
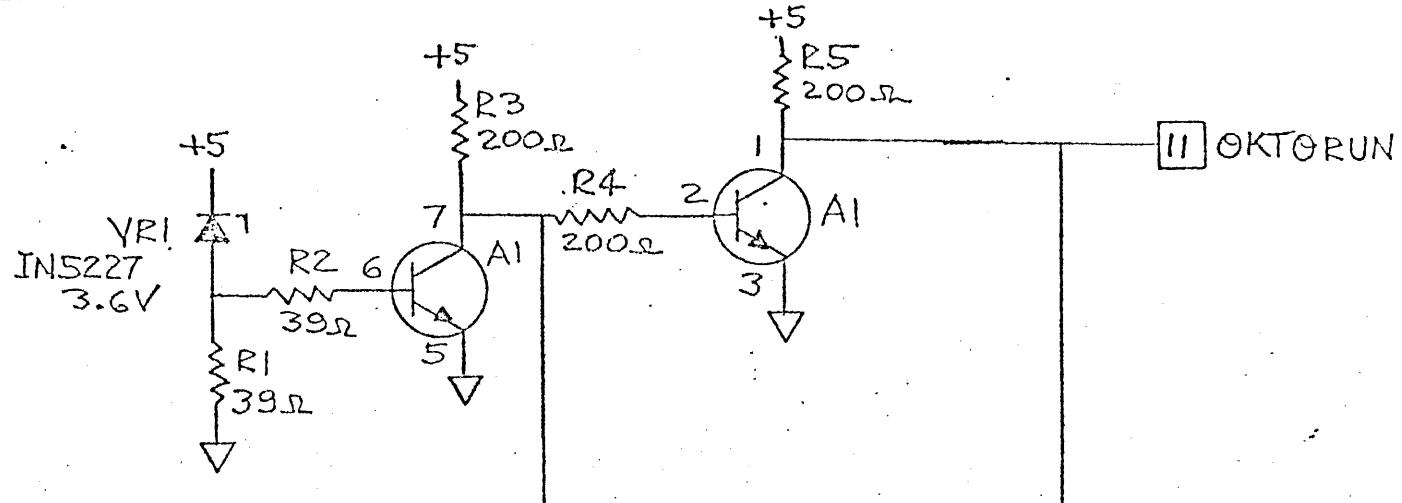
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Title ALTO II
ASSEMBLY, P.W.-
DISK CONTROL

Xerox Corporation
El Segundo, California

216389

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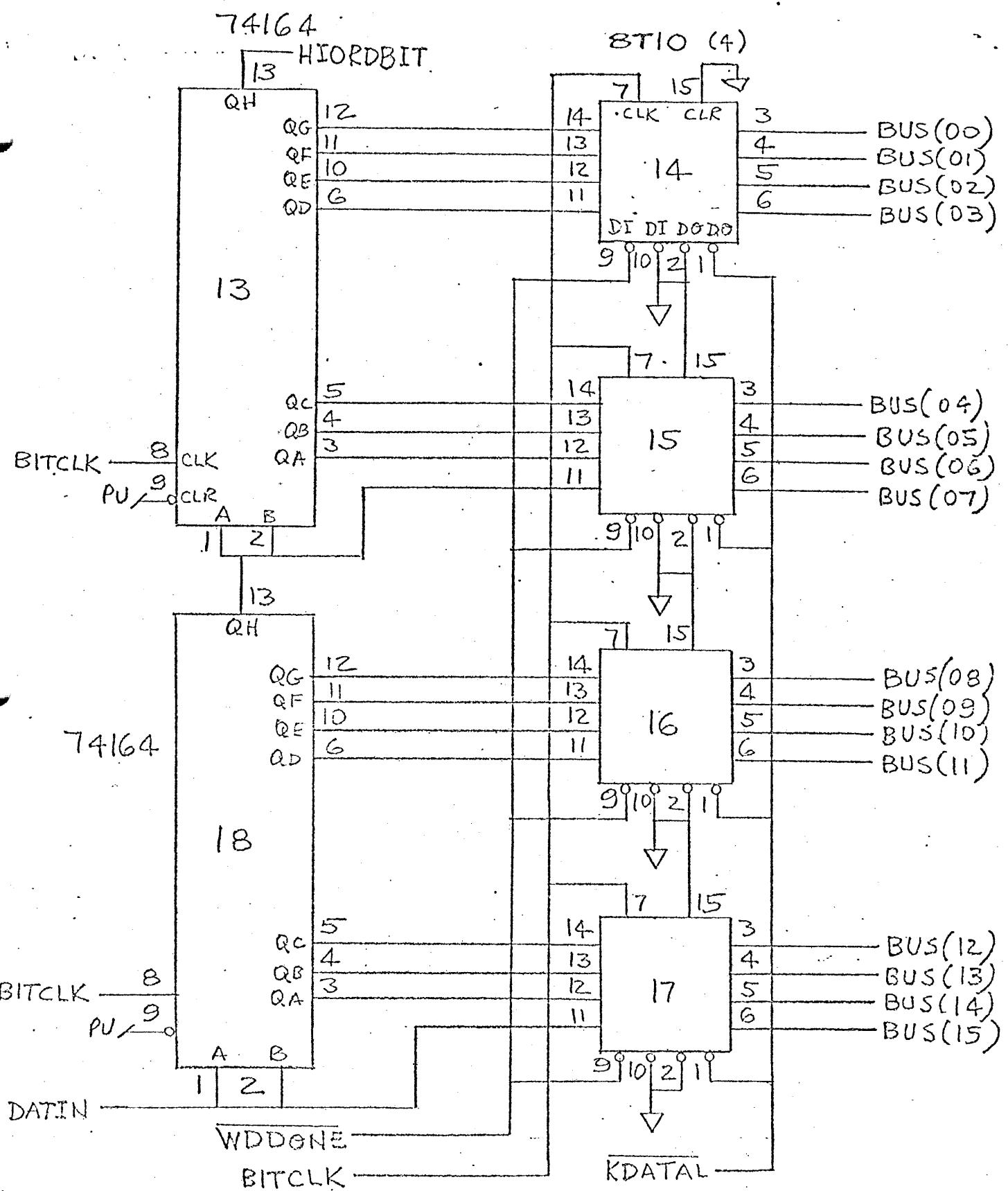
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Title
ALTO II
ASSEMBLY, P.W.
DISK CONTROL

Xerox Corporation El Segundo, California	
216389	F
Sheet	7 of

XEROX



READ S/R

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ALTO II
ASSEMBLY, PRINTED W.
DISK CONTROL

Xerox Corporation
El Segundo, California

VERDAD

216389

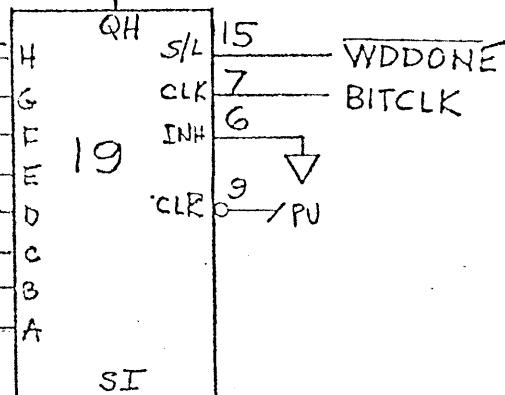
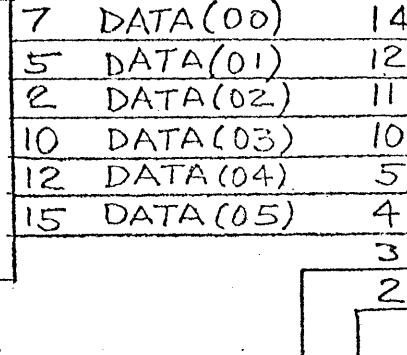
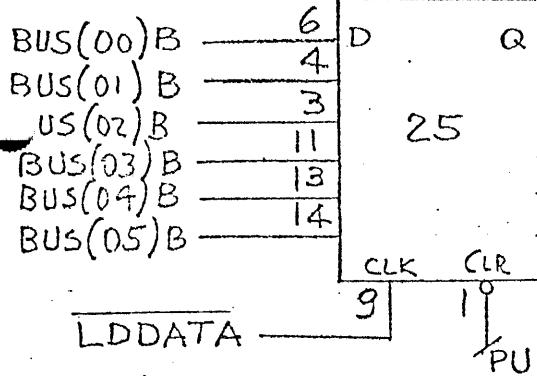
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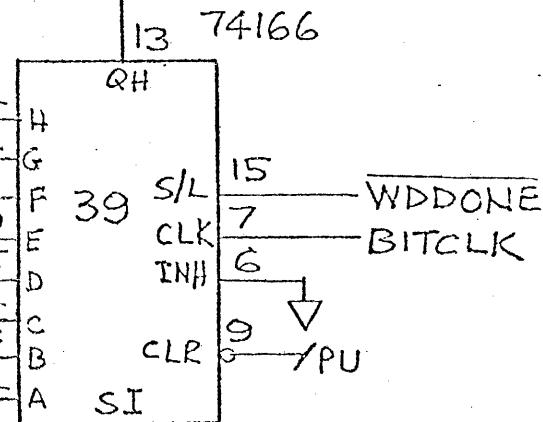
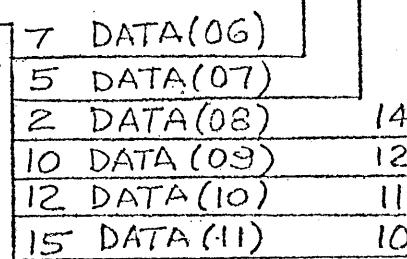
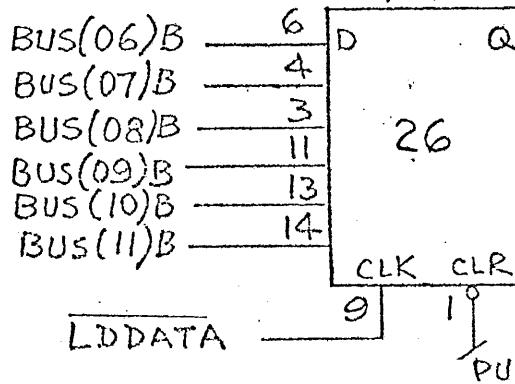
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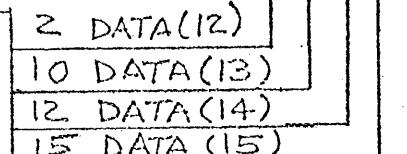
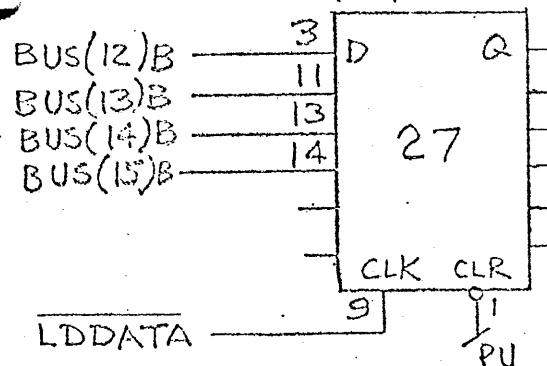
74166



74174



74174



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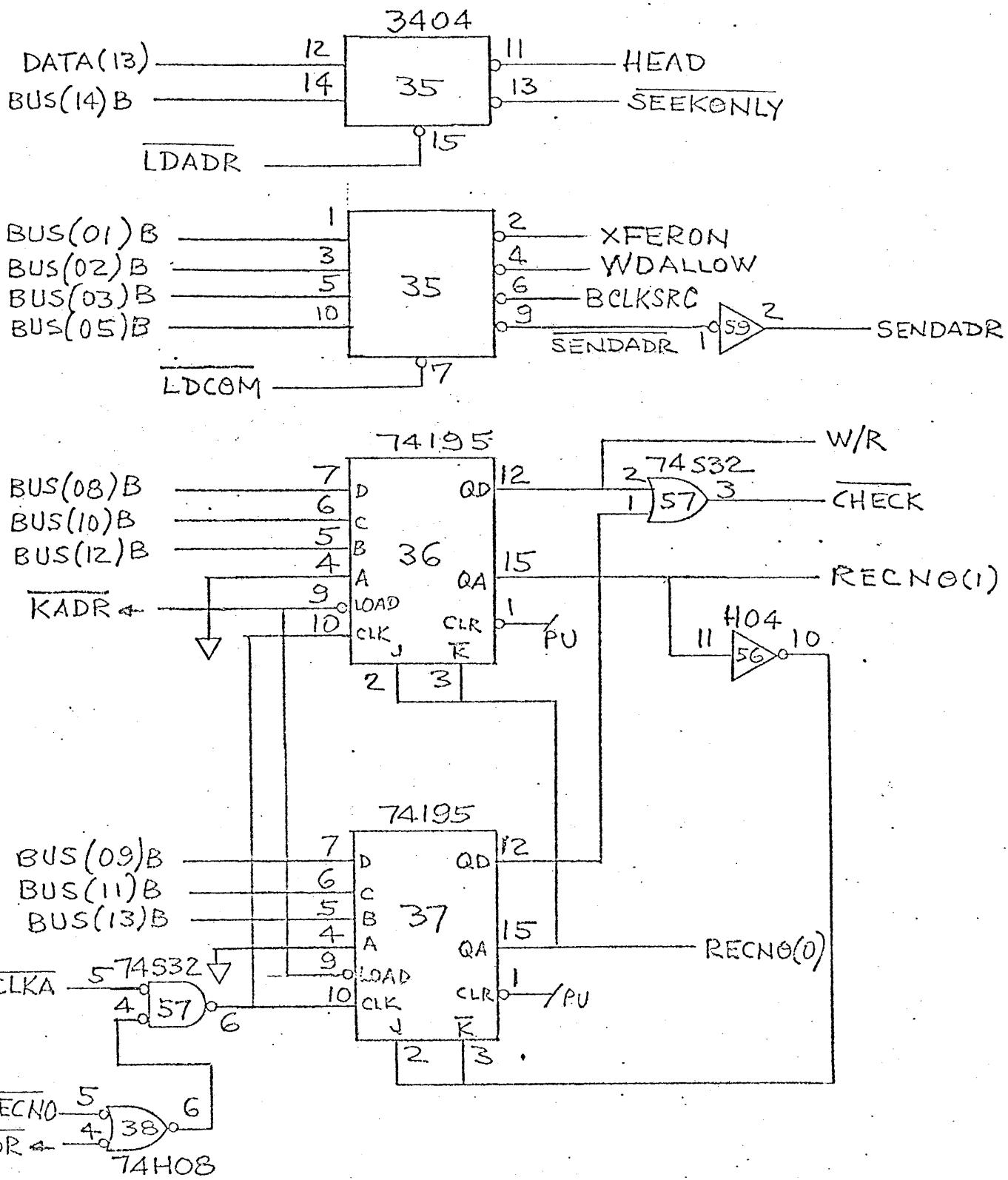
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Title ALTO II
ASSEMBLY, P.W.-
DISK CONTROL

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Sheet 8 of 216389 F

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Title ALTO II
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DISK CONTROL

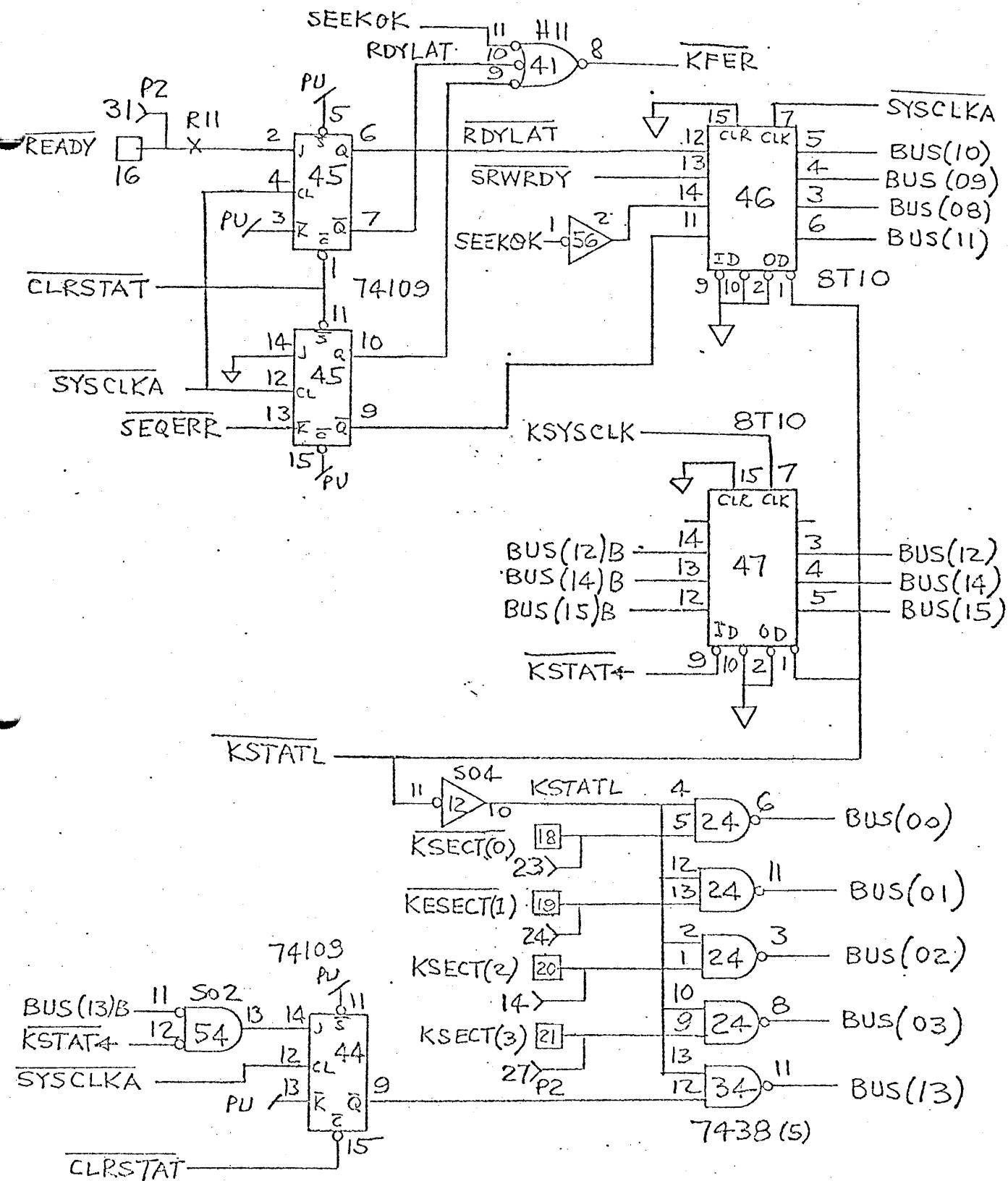
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Title: ALTO II
ASSEMBLY, P.W. ~
DISK CONTROL

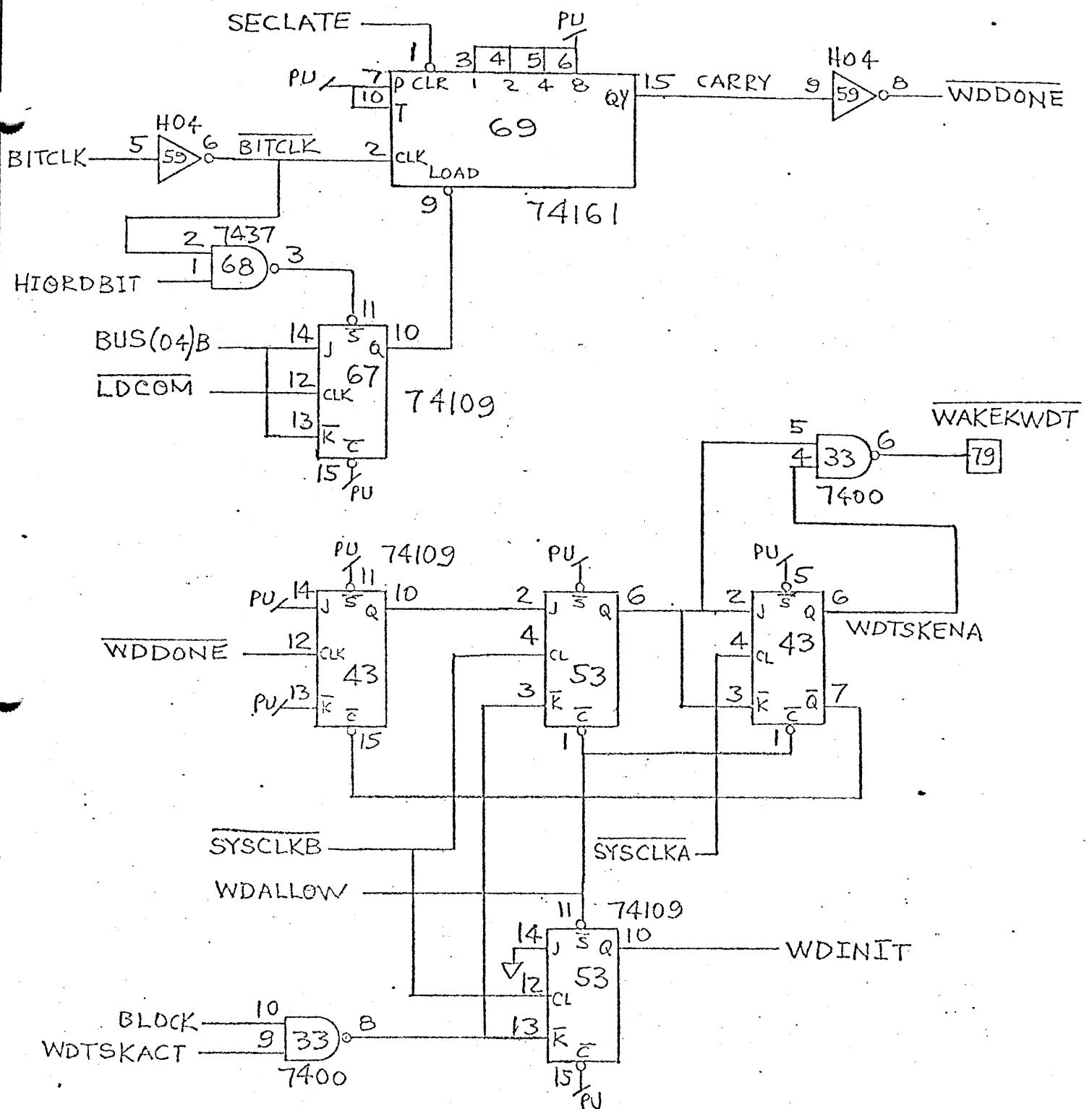
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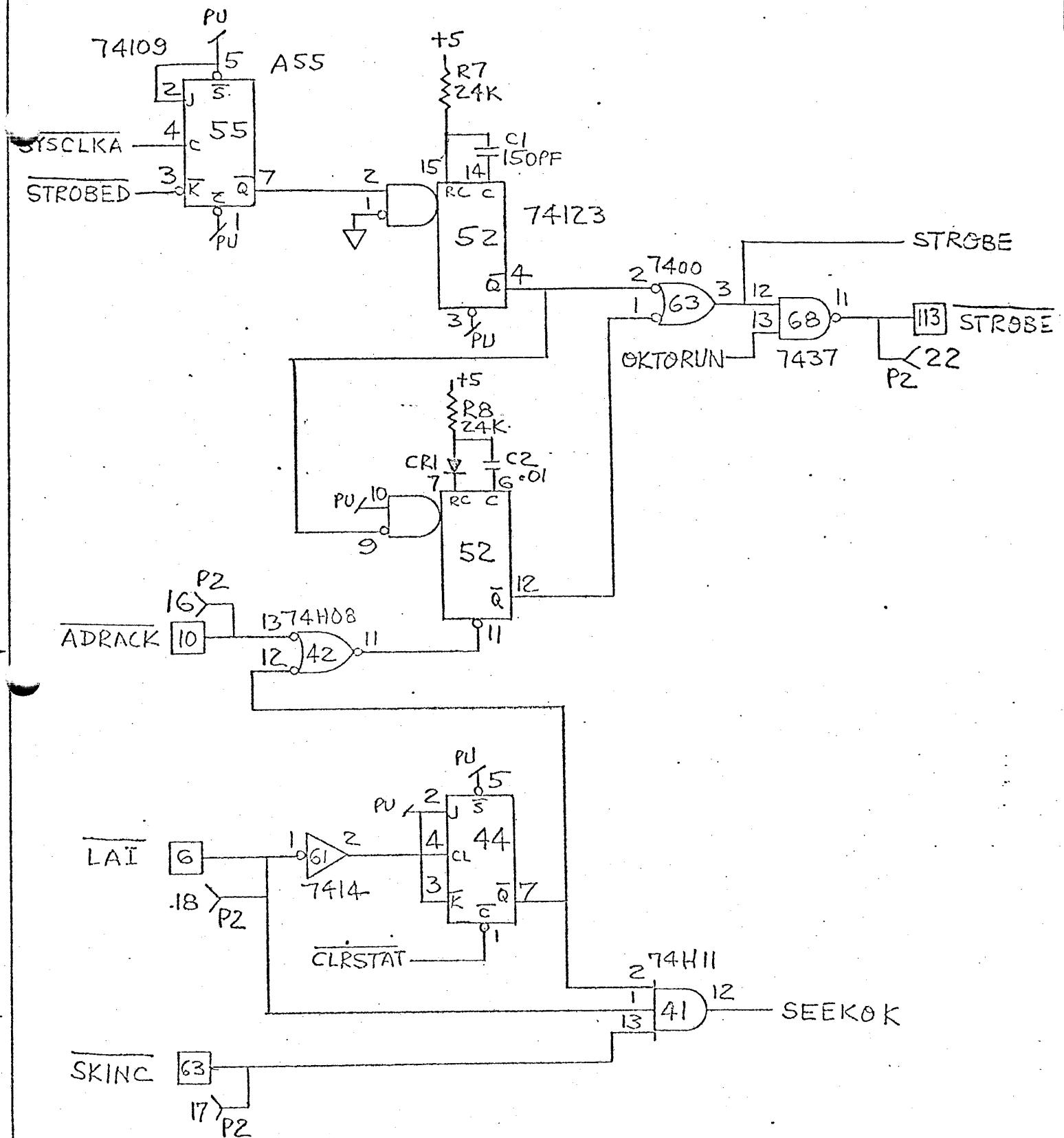
Line ALTO II
ASSEMBLY, PW.-
DISK CONTROL

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Title
ALTO II
ASSEMBLY P.W.-
DISK CONTROL

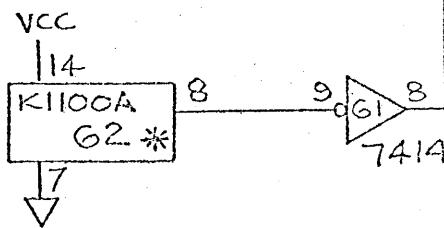
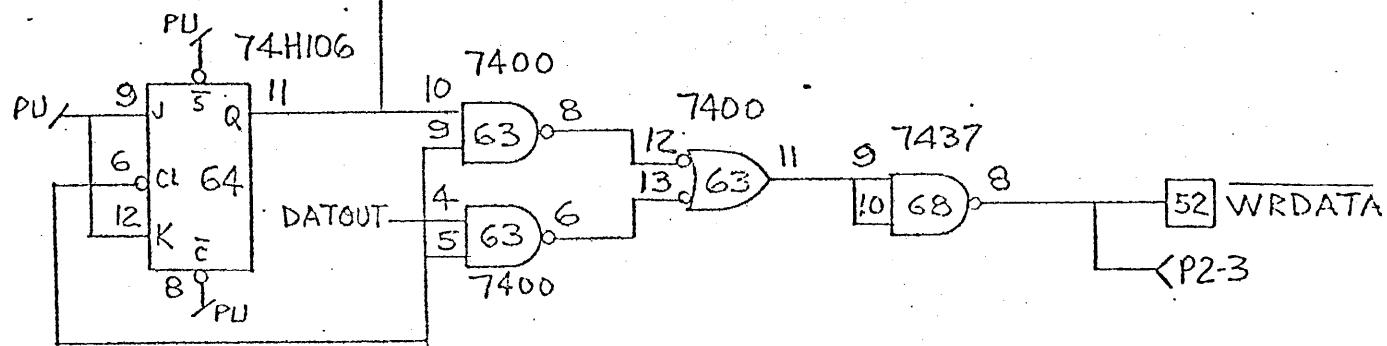
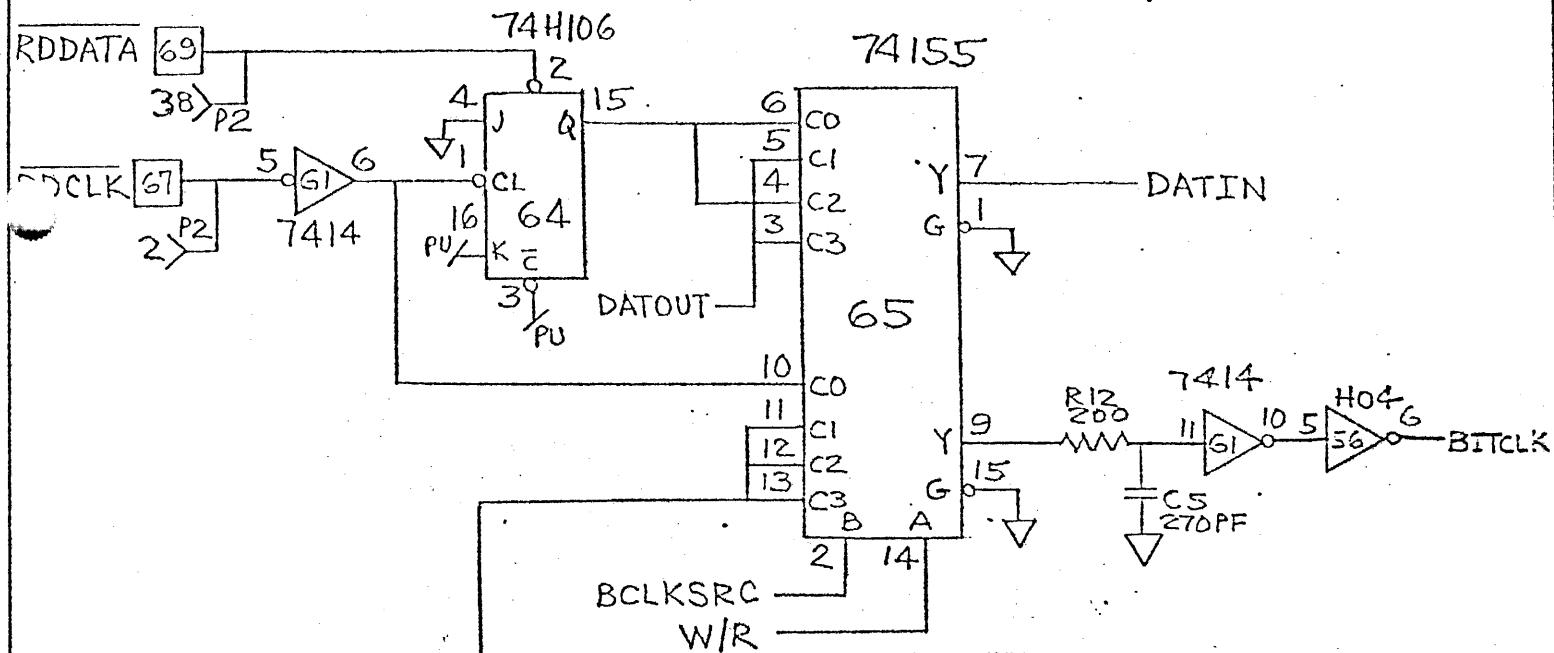
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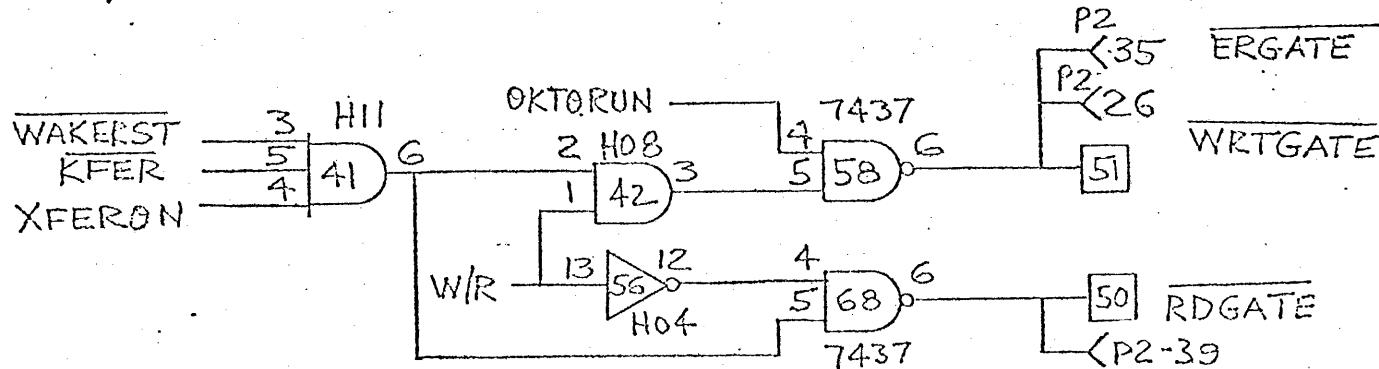
216389

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Sheet 13 of



* OSCILLATOR FREQUENCY IS DISK DEPENDENT.
DIABLO MODEL 31 - 3330 KHZ
DIABLO MODEL 44 - 5000 KHZ



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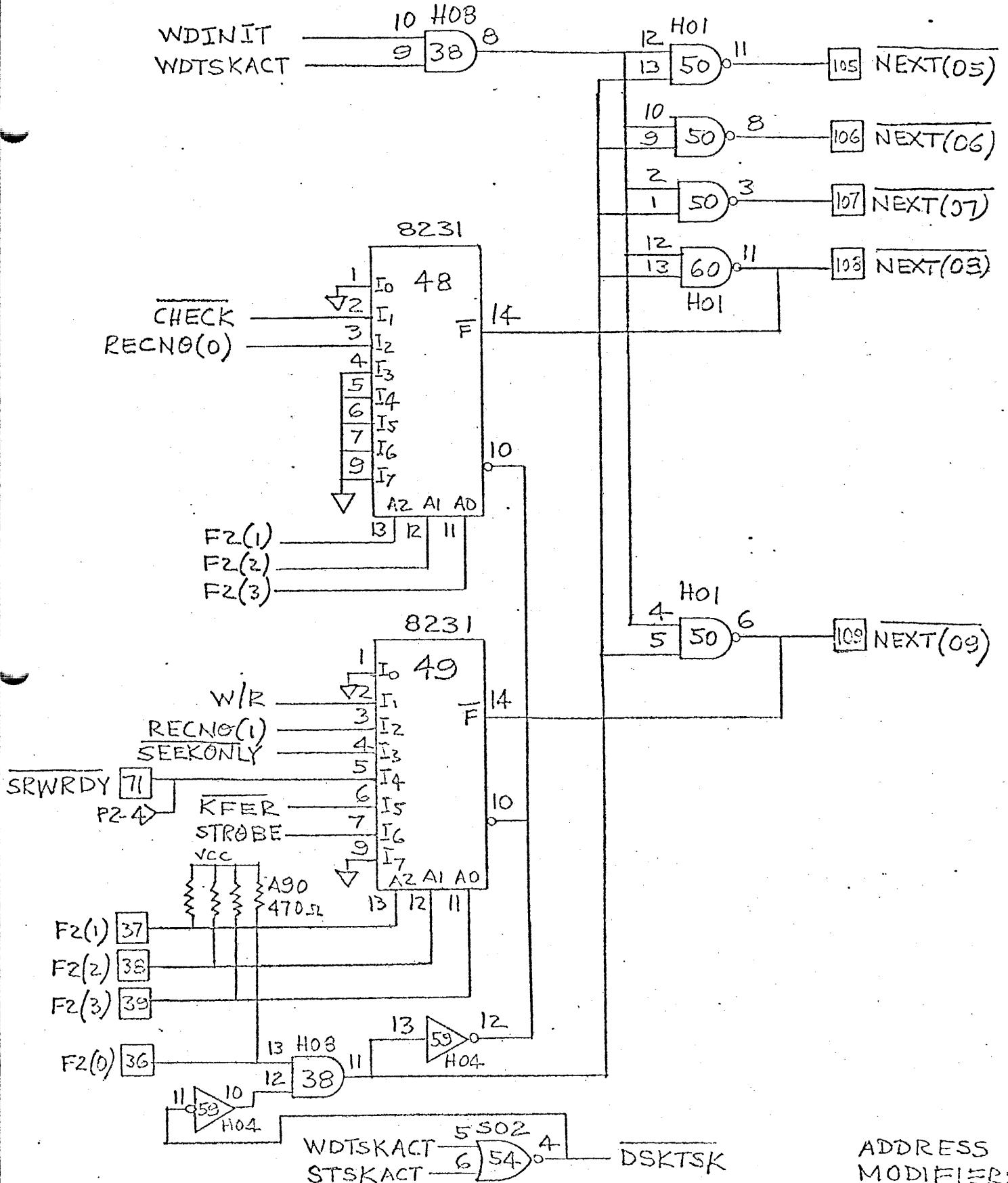
Title
ALTO II
ASSEMBLY, P.W.-
DISK CONTROL

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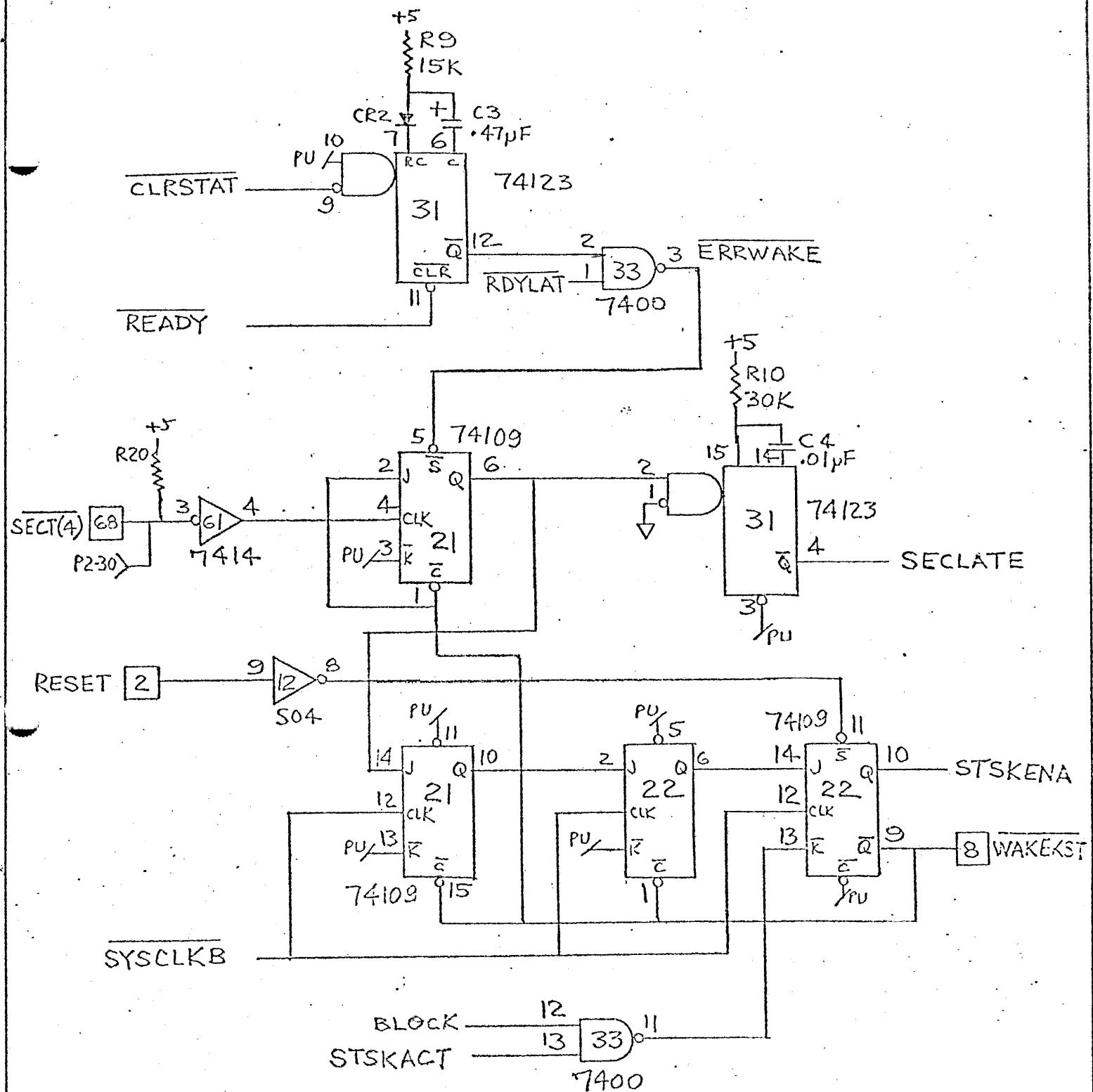
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DISK CONTROL

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Sheet 15 of



SECTOR, ERROR WAKEUPS

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ALTO II
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DISK CONTROL

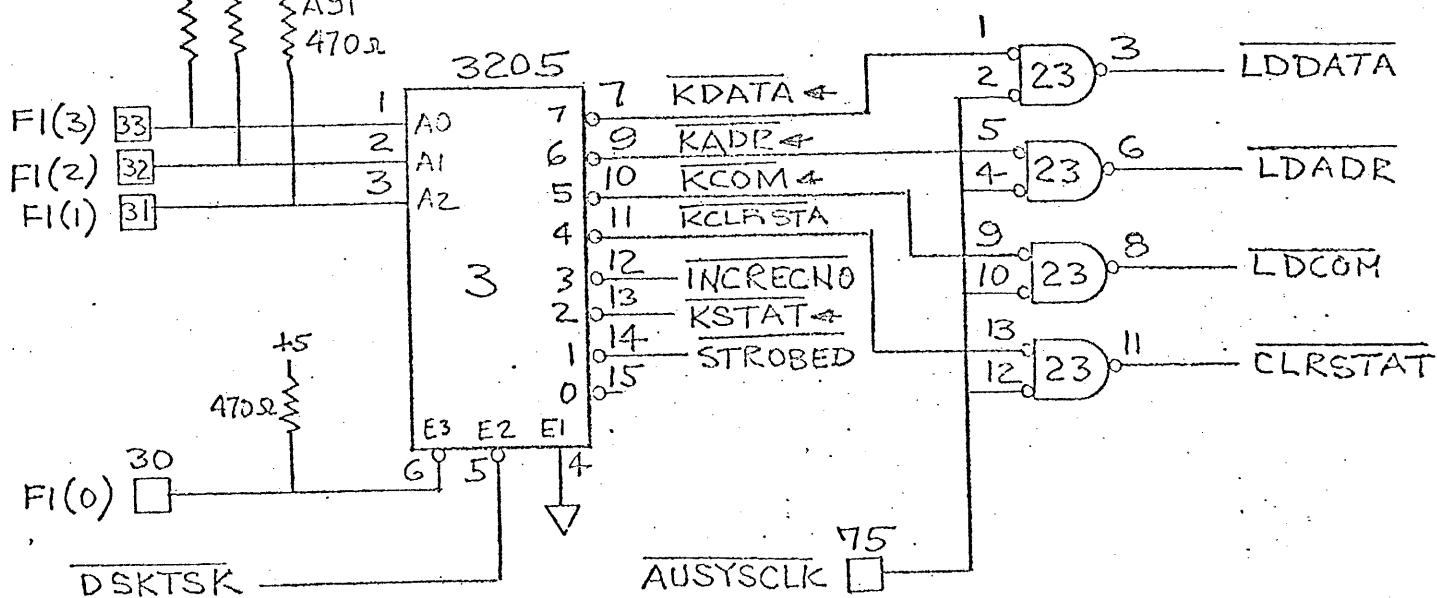
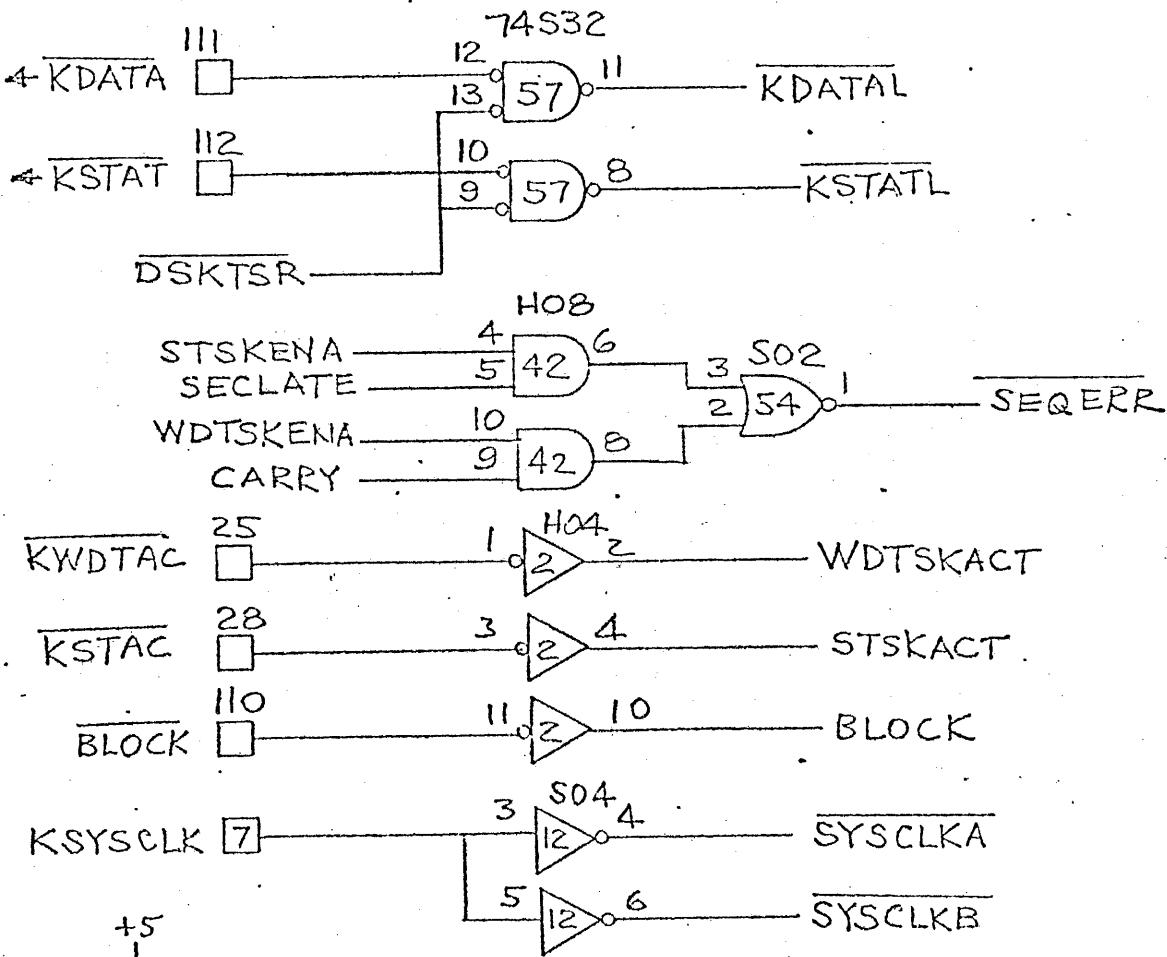
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Sheet 16 of



F DECODE, CLOCKS

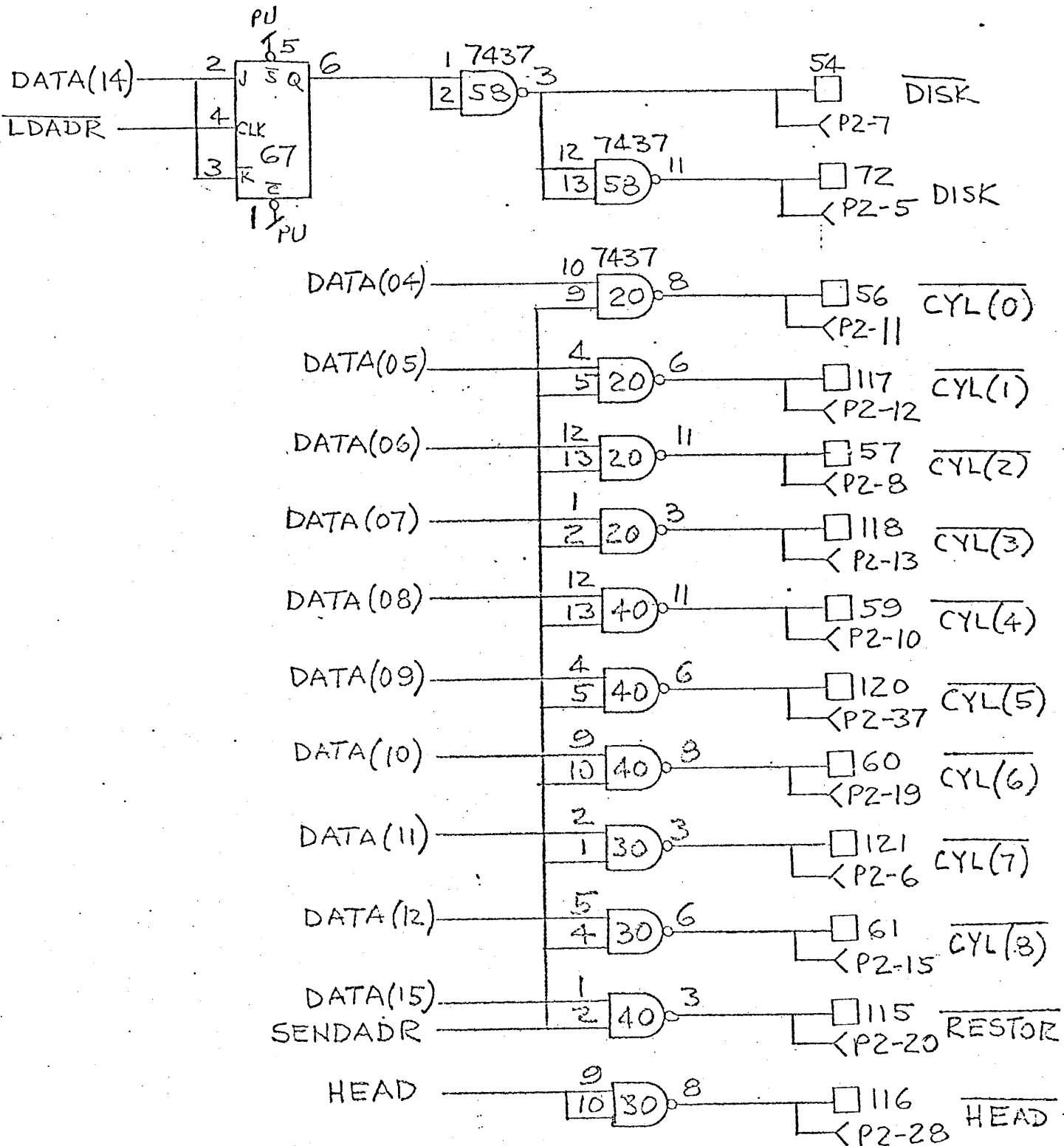
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DISK ADDRESSING

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Title
ALTO II
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DISK CONTROL

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Sheet 18 of

Revisions					6421	B
LAL	Rev.	Description		Chk.	Date	Approved
	A	ENGRG RELEASE		PN	7-76	CJ
	B	ADDED BOARD ASSY DETAIL. ADDED SCHEMATIC		PN	8-11-76	PN

Engineering
RELEASE

Dist. Code
ALT

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Model No. ALTO II
First Use EWO 7YF92

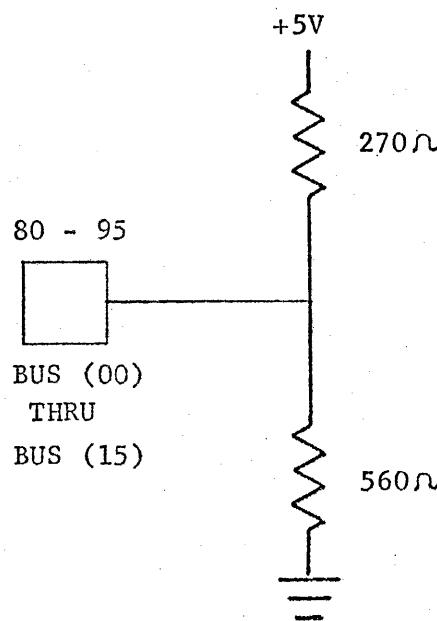
Next Assy.

Part No. 216302

Notes Unless Specified	Drawn <i>Mishimura</i> 5-17-76	Check <i>Mishimura</i> 7-28-76	Xerox Corporation El Segundo, California		
1. Tolerances .XX ±.030 Angular .XXX ±.010 ±½°	Appr. <i>✓</i> 5-17-76	Material <i>✓</i>	ALTO II		
2. Break All Sharp Edges .010 Approx.			ASSEMBLY, PRINTED WIRING-		
3. Mach. Surfaces	✓		TERMINATOR MODULE		
4. All Dim. In Inches			Size A	Dwg. No. 216421	Change Letter B
Finish	Code Ident. 18338	Scale -	Do Not Scale Drawing		Sheet 1 OF 4

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

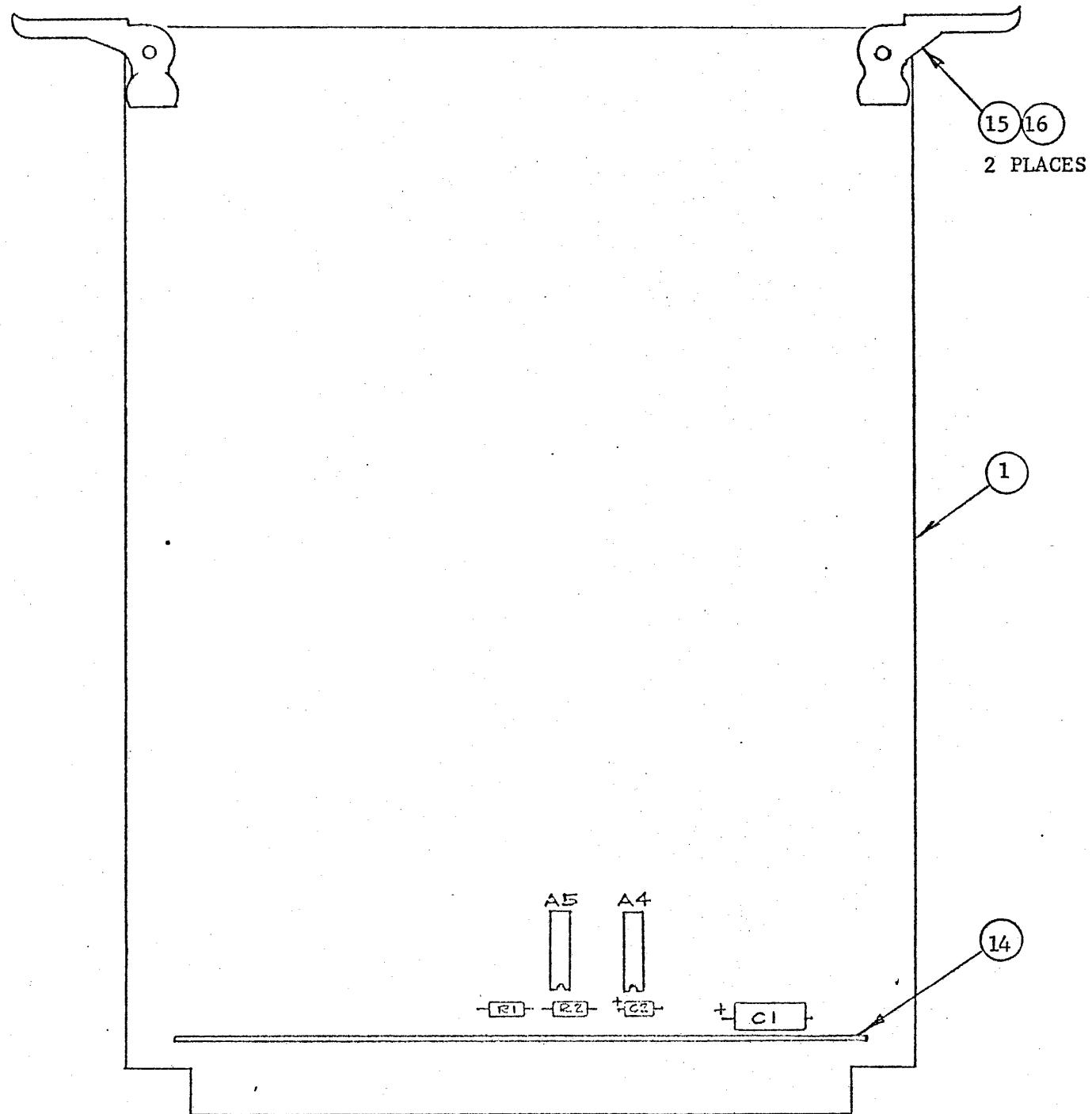
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XEROX

216421

B

Sheet 2 Of 4



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

Xerox Corporation
El Segundo, California

216421

B

Sheet 3 Of 4

XEROX

Material List

ML	Drawing No. 216421	Rev. B
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Revisions				216484		A
* LAL	* Rev.	Description	Chk	Date	Approved	
	A	ENGRG RELEASE	<i>Br</i>	3-7-77	<i>✓</i>	



THIS DOCUMENT CONTAINS 14 SHEETS.

Dist Code ALT

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	1. Tolerances .XX ±.03 Angular .XXX ±.010	Check	XEROX <i>Young 3-7-77</i> ASSEMBLY, PRINTED WIRING- CONTROL BOARD (2K)		
	2. Break All Sharp Edges .010 Approx.	Appr.			
	3. Mach. Surfaces <i>V</i>	Material			
	4. All Dim. in Inches				
Model No. First Use ALTO II	Finish	Code Ident. 18338	Size A	Dwg. No. 216484	Change Letter A
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 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" SWITH 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)

Xerox Corporation
El Segundo, California

XEROX

216484

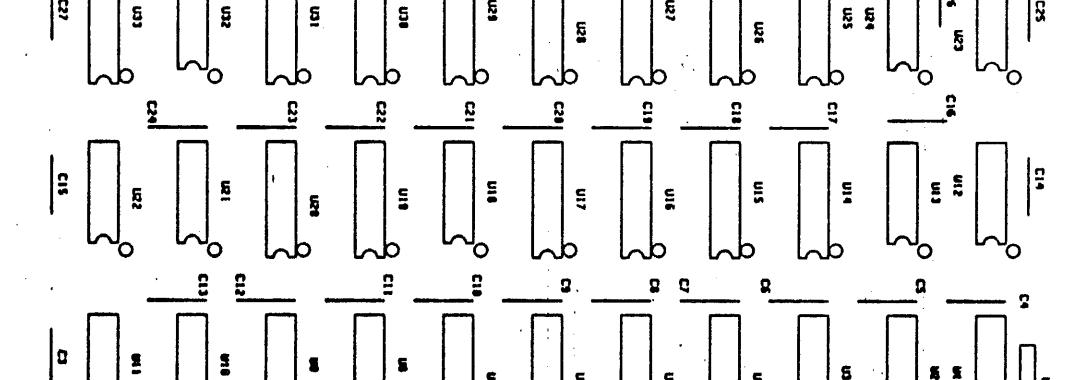
A

Sheet 2 Of

2 REQD

41 42

ALTO II CONTROL BOARD (2K)



40

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

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El Segundo, California

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216484

A

Sheet 3 Of

Material List

ML	Drawing No. 216484	Rev. A
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Drawing No. 216484	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 μ F, 50 V	188483-002	78	C3 thru 80	
32	Capacitor, 22 μ F, 15 V, Tant.	187720-005	2	C1, 2	
33					

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Material List

ML Drawing No. 216484 Rev. A

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

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Model No. ALTO II Date 2/22/77 Sheet 5 Of

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Title

ASSY, P. W. -

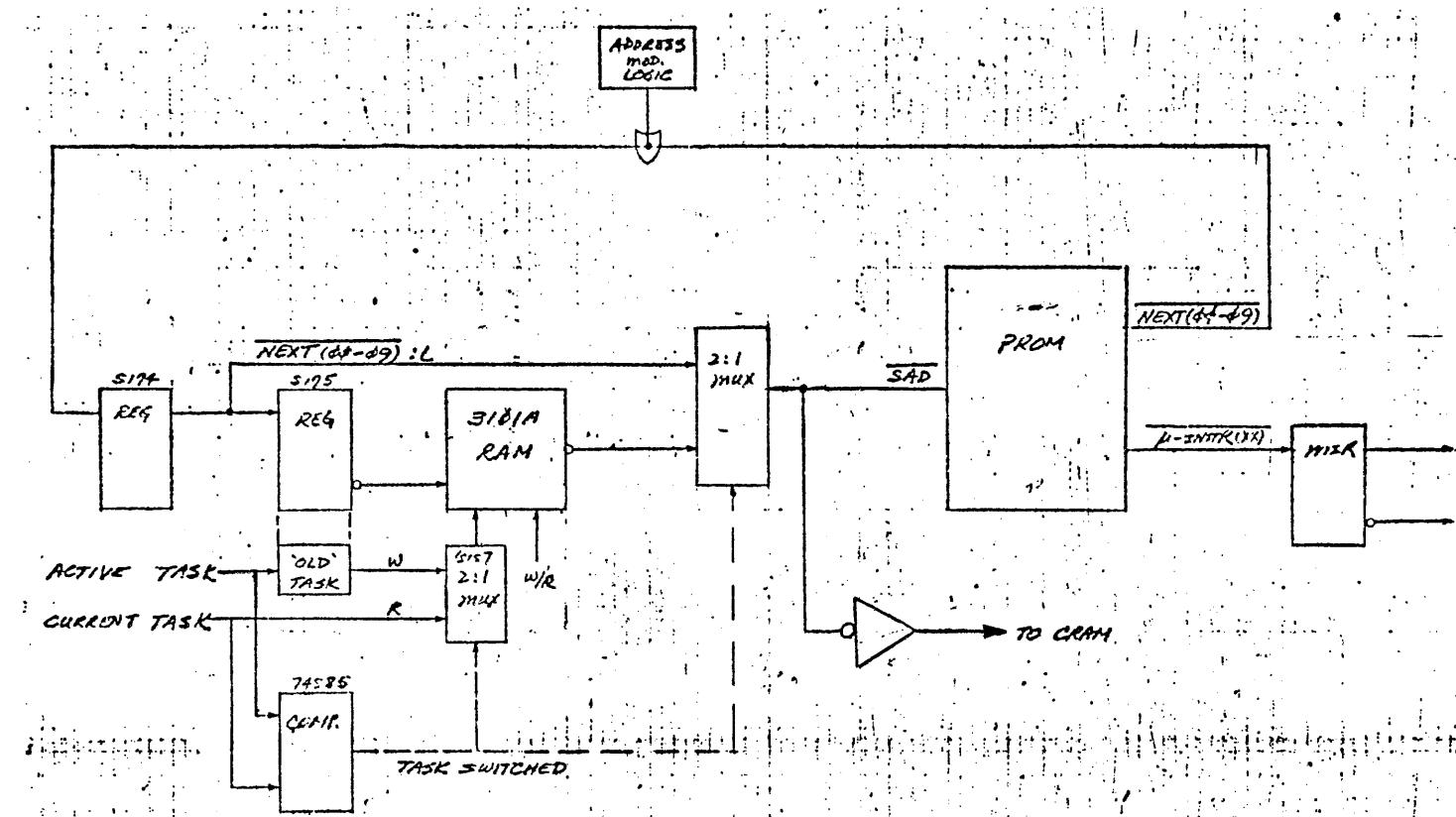
CONTROL BOARD (2K)

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El Segundo, California

XEROX

A

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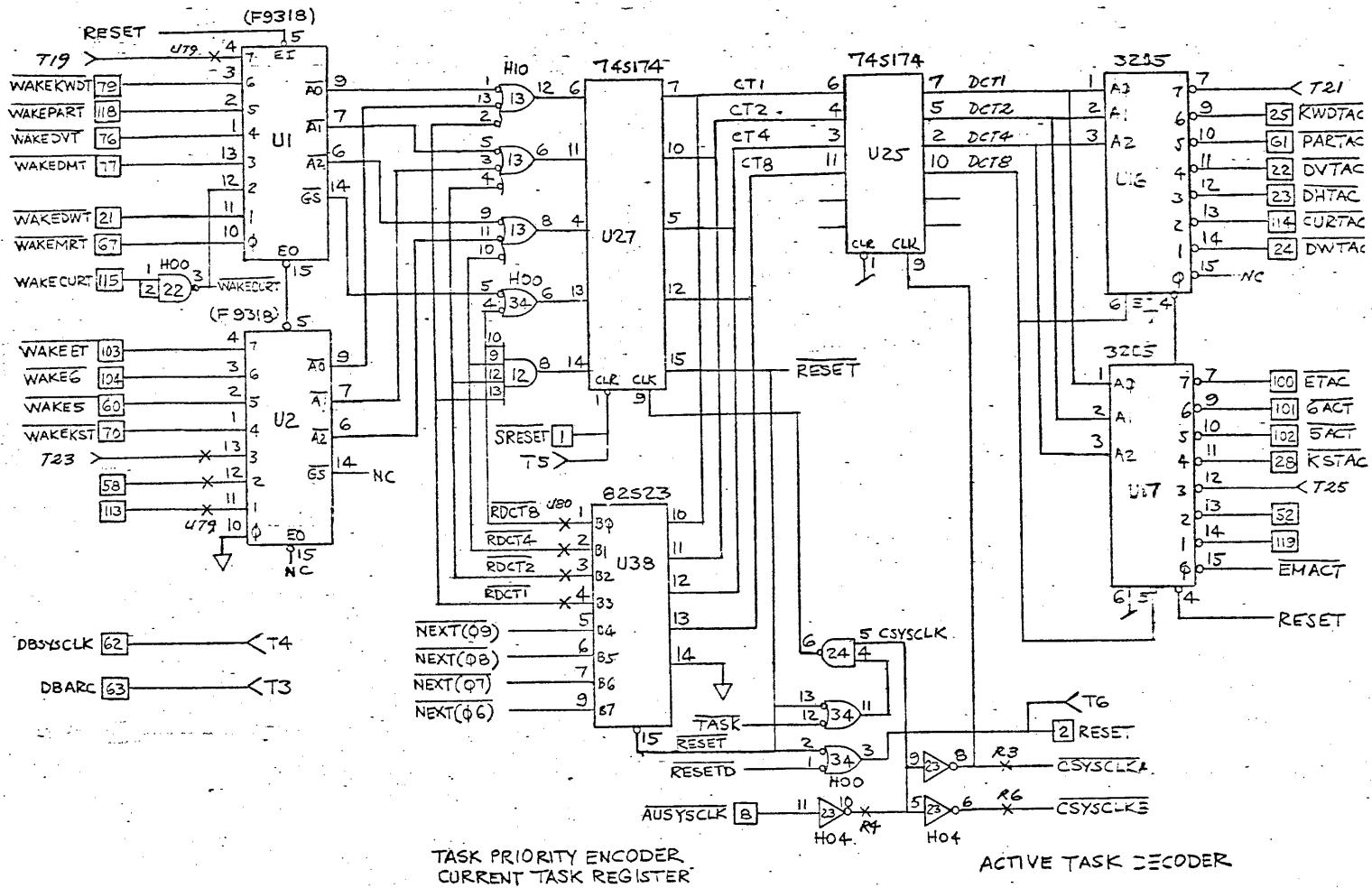


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ASSEMBLY, P. W. -
CONTROL BOARD (2K)
Little

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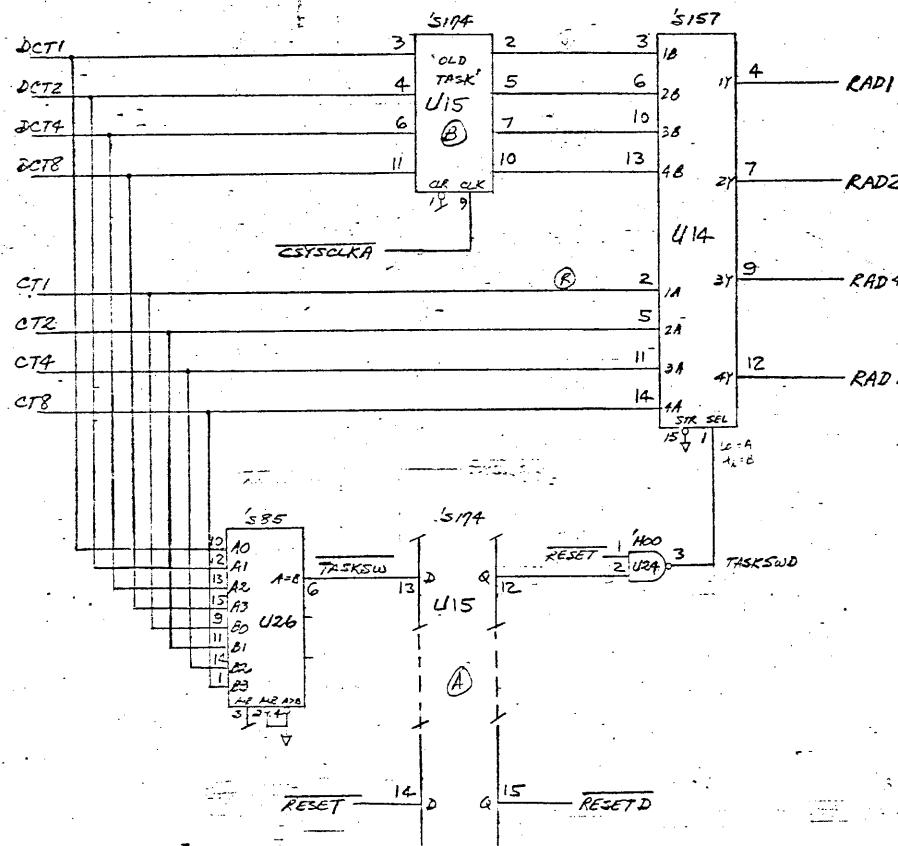
Title

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

Xerox Corporation
El Segundo, California

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Sheet 8 Of



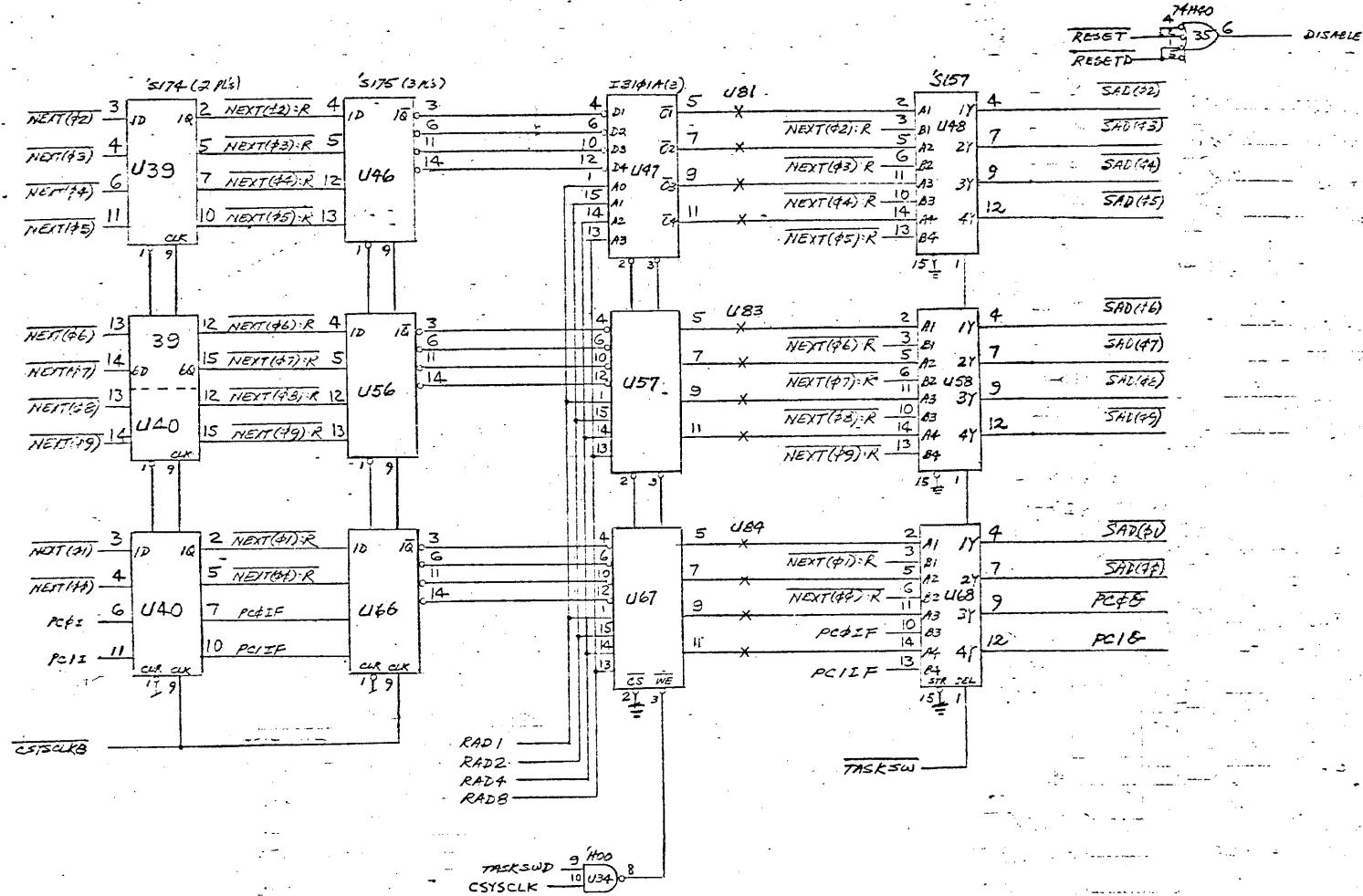
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Title
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CONTROL BOARD (2K)

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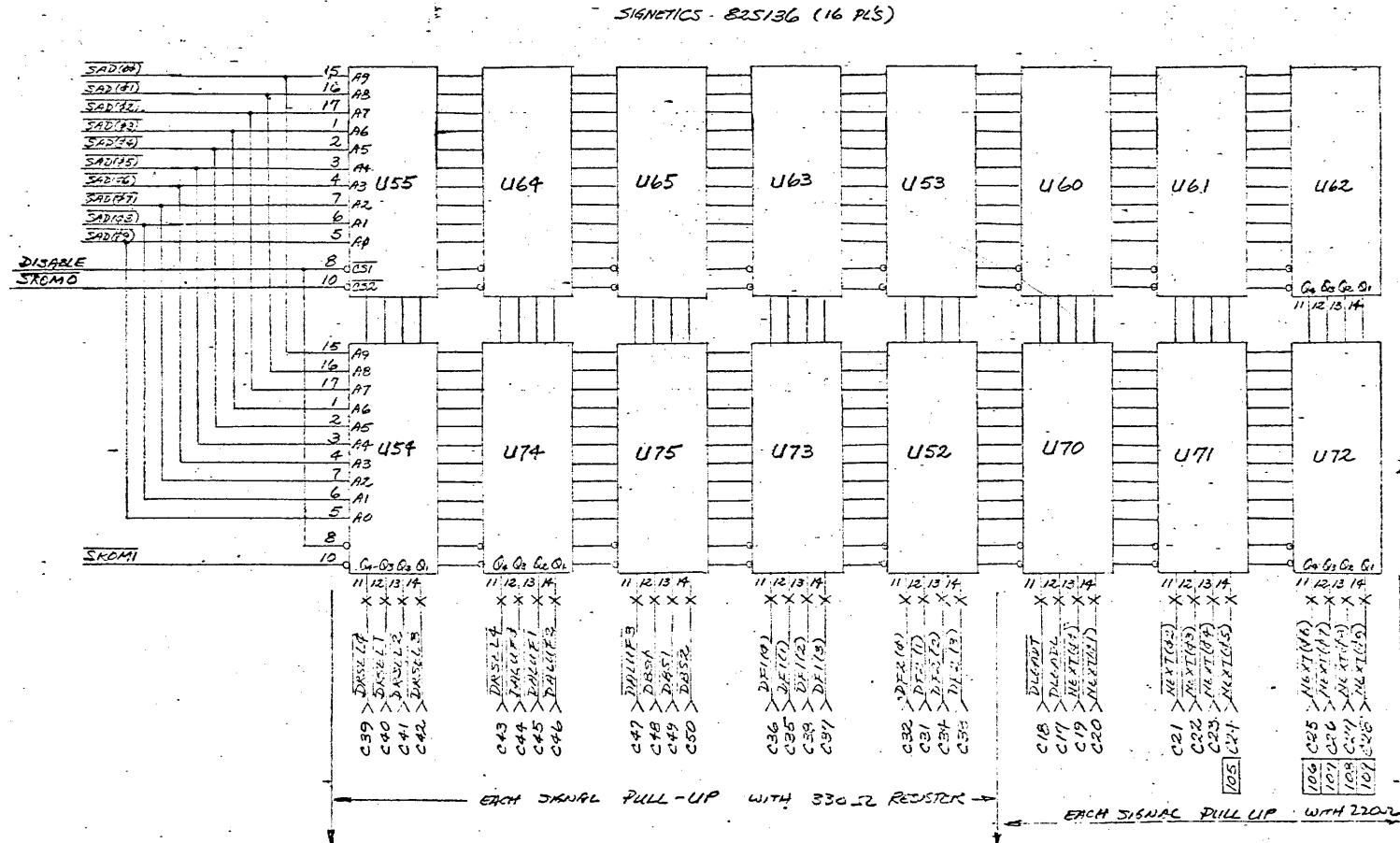
Title
ASSEMBLY, P. W. -

CONTROL BOARD (2K)

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Sheet 11 Of



EACH SIGNAL PULL-UP WITH 330Ω RESISTOR →

EACH SIGNAL PULL UP WITH 220Ω

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Title

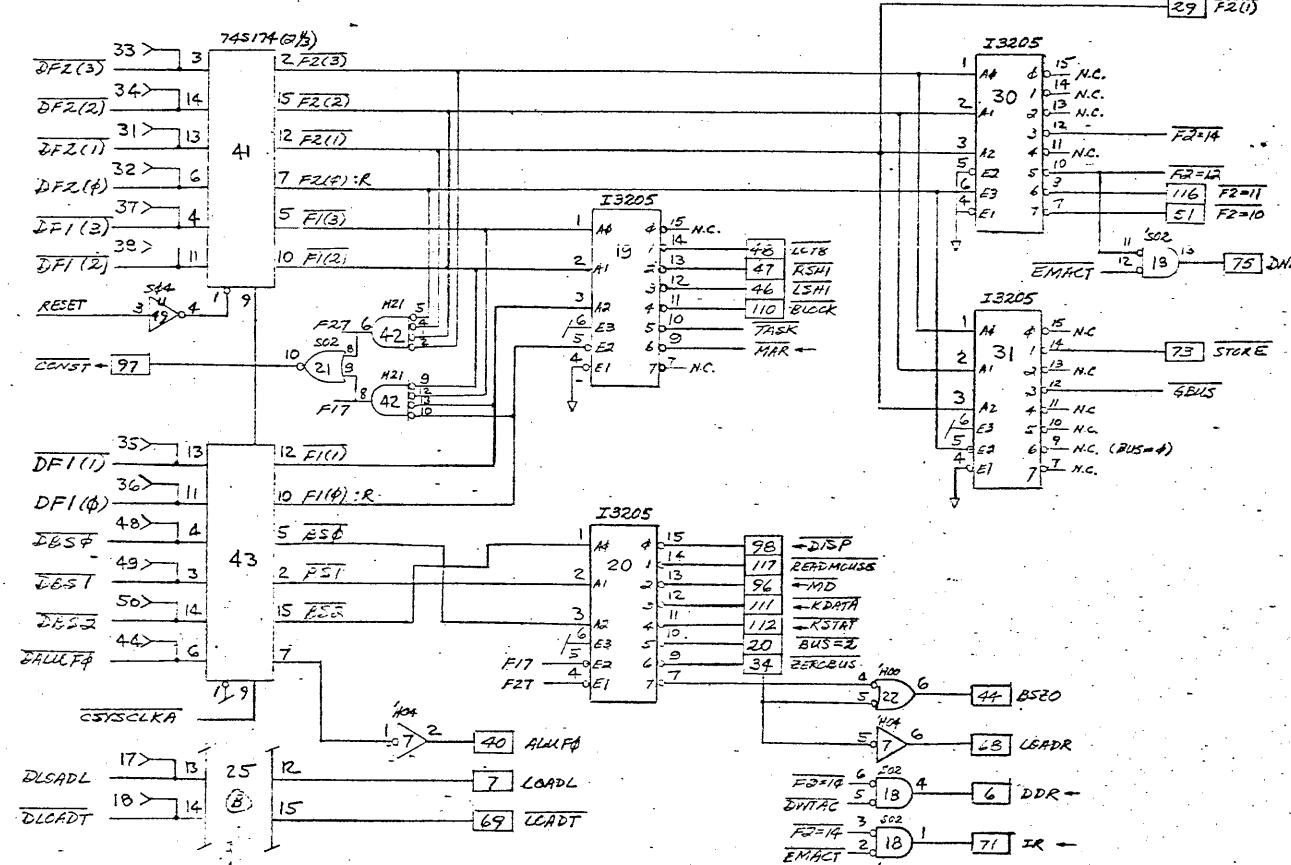
ASSEMBLY, P. W. -
CONTROL BOARD (2K)

Xerox Corporation
El Segundo, California

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216484

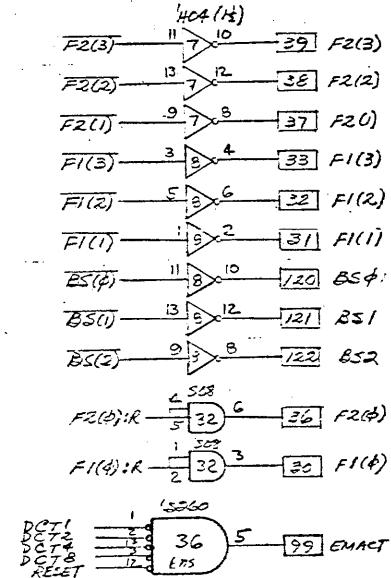
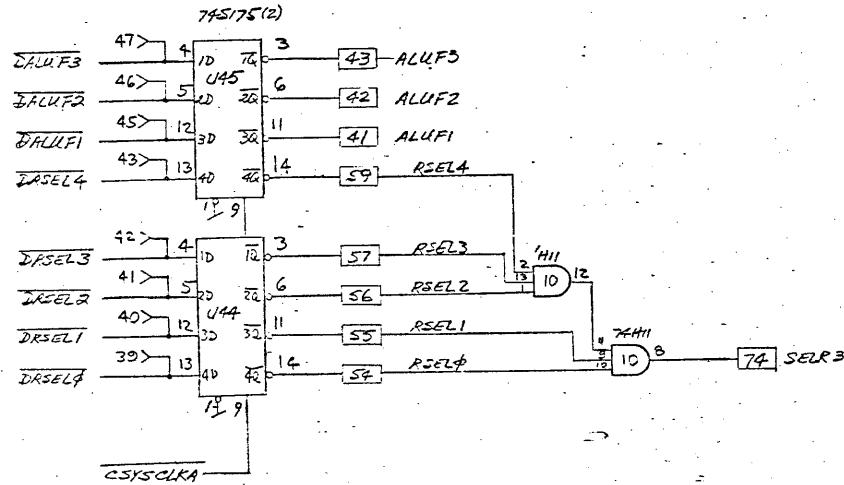
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CONTROL BOARD (2K)

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216484	A
Sheet	13 Of

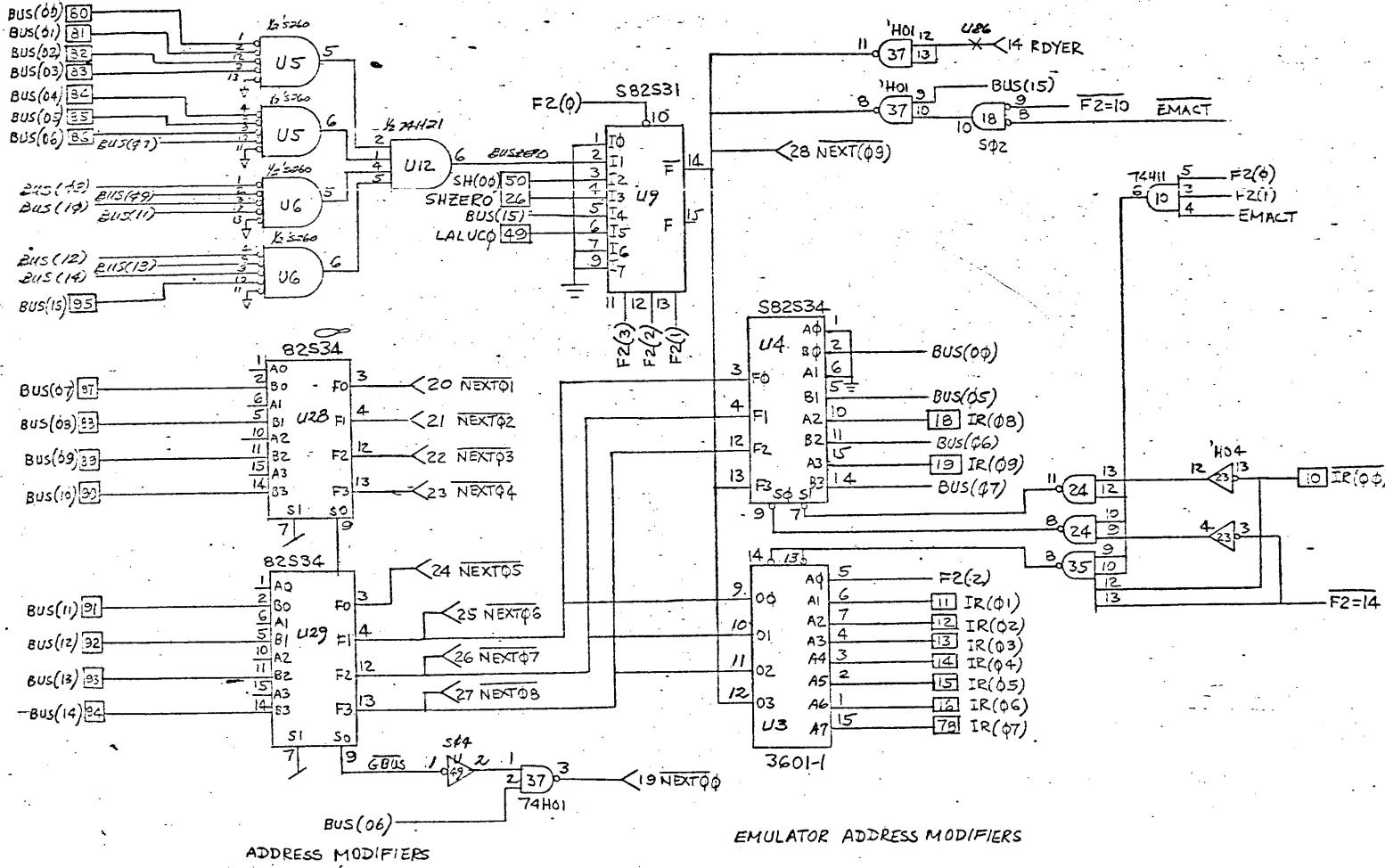


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CONTROL BOARD (2K)

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EMULATOR ADDRESS MODIFIERS