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IF	C (OBUS) LOADED INTO
WRITE A = H	A ACCUMULATOR SPECIFIED BY A LOC (3:4)
WRITE B = H	TEMPORARY SPECIFIED BY BWLOC (0:2)
DB CTRL 1 L = H AND DB CTRL 2 L = L	DATA BUFFER

SIGNAL PIN	CBS				FUNCTION
	ARITH 0	ARITH 1	ARITH 2	ARITH 3	
L	L	L	L	L	A+B+CARRY (15 BITS) TO OBUS
L	L	L	H	H	(A+B+CARRY)*2 + TO OBUS (2*B)
L	L	H	L	L	(A+B+CARRY) LOGICALLY RIGHT ROTATED 3 PL TO OBUS
L	L	H	H	H	(3*B+CARRY) (15 BITS) TO OBUS (3*B)
L	H	L	L	L	(3*B+CARRY)*2 + TO OBUS (6*B)
L	H	L	H	H	A+B+CARRY (12 BITS) TO OBUS
L	H	H	L	L	0 TO OBUS (15 BITS)
L	H	H	H	H	A SIGN (0000 OR 7777) TO OBUS
H	L	L	L	L	B TO OBUS (12 BITS)
H	L	L	H	H	A+B+CARRY (12 BITS) TO OBUS (A-B)
H	L	H	L	L	EXP SIZE
H	L	H	H	H	OVFLO RECOVERY (COMPLEMENT OF SIGN - SWN, SHIF RT)
H	H	L	L	L	(A+B+CARRY)*2 + SHIFT BIT X (12 BITS) TO OBUS
H	H	L	H	H	(A+B+CARRY) ÷ 2 + SHIFT BIT X (12 BITS) TO OBUS
H	H	H	L	L	DIV FINAL
H	H	H	H	H	MUL/DIV STEP

ADDRESS CALCULATION (15-BIT ARITHMETIC)

DATA MANIPULATION (12-BIT ARITHMETIC)

* A READ MUST BE LOW
 X SHIFT BIT IF EXTEND IS H; SIGN BIT IF EXTEND IS L AND RIGHT SHIFT; 0 IF EXTEND IS L AND LEFT SHIFT
 EXTEND = LOW: CARRY BIT TO ALU, ZERO OR SIGN TO VACATED BIT POSITION
 EXTEND = HIGH: CARRY FROM LAST OPERATION TO ALU, SHIFTED BIT FROM LAST OPERATION TO VACATED BIT
 A LOC (0:4) DEFINE ONE OF 32 15-BIT ACCUMULATORS USED FOR READ AND/OR WRITE, IF READ A=1, IF READ A=0, A INPUT TO ADDER = 0
 BR LOC (0:4) DEFINE ONE OF 8 TEMPORARIES, 0, ONE OF 3 WORDS FROM DB OR FIR, CONSTANTS AS INPUTS TO ALU.

ADDRESS	FILE ASSIGNMENTS	
	FILE A	FILE B
0	FPC	TEMP
1	X0	TEMP 1
2	BR	TEMP 2
3	OPADD	TEMP 3
4	APTP	TEMP 4
5	TEMA	TEMP 5
6	FIELD	TEMP 6
7		TEMP 7
10	FACE	
11	FAC M (FAC (0:11))	
12	FAC N (FAC (12:23))	
13	FAC P (FAC (24:35))	
14	FAC R (FAC (36:47))	
15	FAC S (FAC (48:59))	
16		
17	SC	
20	SCRATCH E	
21	SCRATCH M	
22	SCRATCH N	
23	SCRATCH P	
24	SCRATCH R	
25	SCRATCH S	
26	SCRATCH T	
27		
30	MQE	
31	MQM	
32	MQN	
33	MQP	
34	MGR	
35	MQS	
36		
37		

TRIANGLE INDICATES PIN 1

J1 - CABLE SIGNALS

12	GND	12	GND
13	CBS EXTEND H	13	DPA NMD H
14	CBS DB CTRL 2 L	14	DPA ONES L
15	DPA ZEROS L	15	DPA SEN L
16	CBS DB CTRL 1 L	16	DPA EXSGN H
17	CBS READ A H	17	GND
18	CBS BW LOC 2 L	18	GND
19	GND	19	CBS TICK H
20	GND	20	CBS BRK EQ H
21	CBS BR LOC 4 L	21	CBS BR LOC 3 L
22	CBS BW LOC 0 L	22	GND
23	CBS BW LOC 1 L	23	CBS CARRY BIT L
24	CBS BR LOC 2 L	24	DPA FP BREAK H
25	CBS A LOC 4 L	25	CBI FP TOT L
26	CBS A LOC 0 L	26	CBS BR LOC 0 L
27	CBS A LOC 2 L	27	CBS ARITH 0 H
28	DPA 2 IN H	28	CBS ARITH 3 H
29	CBS BK CMD 2 L	29	CBS WRITE 0 H
30	CBS BR LOC 1 L	30	CBS ARITH 2 H
31	CBS LOCK OUT H	31	CBS ARITH 1 H
32	CBS A LOC 3 L	32	CBS WRITE A H
33	DPA OVFLO H	33	CBS BK CMD 1 L
34	CBS PROT H	34	CBS A LOC 1 L
35	CBS BK CMD 2 L	35	CBI DB IN TOT H
36	GND	36	GND
37		37	

SIGNAL PIN	CBS					TO ALU
	BR0	BR1	BR2	BR3	BR4	
L	H	X	X	X	X	TEMPORARY DEFINED BY BR (2:4)
L	L	H	H	H	H	TEMP (1:3), DB
L	L	H	H	L	L	BITS (1:3) = 0, BITS (4:15) = DATA BUFFER
L	L	H	L	L	L	IF FIR 4 = 0: 0, FIR (9:11)
L	L	L	H	H	H	IF FIR 4 = 1: 0, FIR (5:11)
L	L	L	H	H	H	0, FIR (6:8)
L	L	L	L	L	L	NOT USED
L	L	L	L	L	L	NOT USED
L	L	L	L	L	L	BITS (1:3) OF A TO BITS (13:15)
L	L	L	L	L	L	BITS (1:3) OF A TO BITS (103 TO BITS (4:12)
H	H	H	H	H	H	0
H	H	H	H	L	L	+1
H	H	H	H	L	L	+2
H	H	H	L	L	L	+3
H	H	L	H	H	H	-1
H	H	L	H	L	L	-2
H	H	L	L	H	H	-27
H	H	L	L	L	L	-73
H	L	H	H	H	H	BITS (1:3) OF TEMP 0, OTHER BITS 0.
H	L	H	H	L	L	+19
H	L	H	L	H	H	-19
H	L	H	L	L	L	-5
H	L	L	H	H	H	-6
H	L	L	H	L	L	2000
H	L	L	L	L	L	4000
H	L	L	L	L	L	-30

DB CONTROL (CBG)

DB CTRL 1 L	DB CTRL 2 L	TO DB
H	H	NO OP
H	L	DB ← 0
L	H	DB ← ALU
L	L	DB ← MD

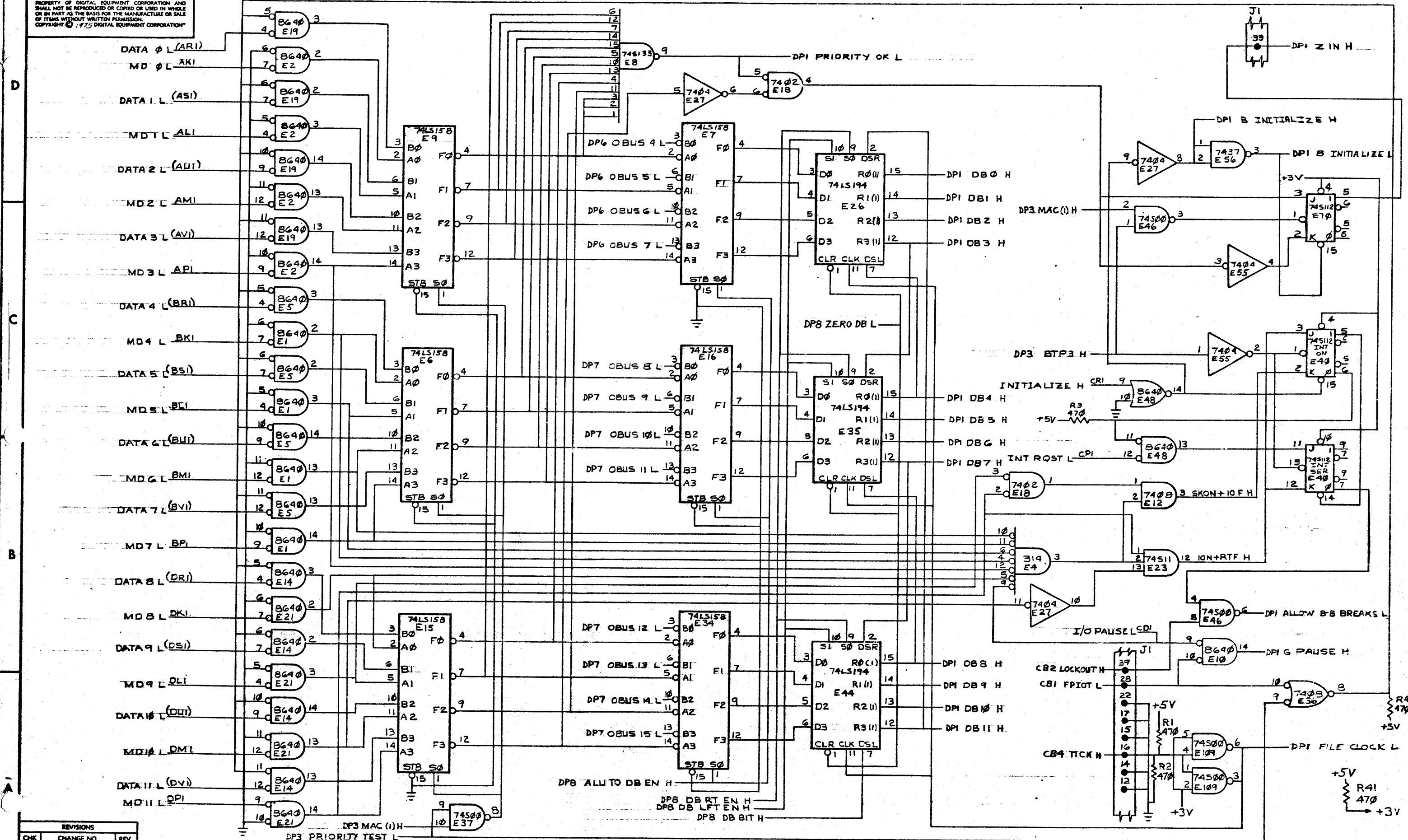
FIRST USED ON FPP8-A

TITLE FPP8-A DATA PATH BD.

SIZE CODE NUMBER D CS M8411-0-1

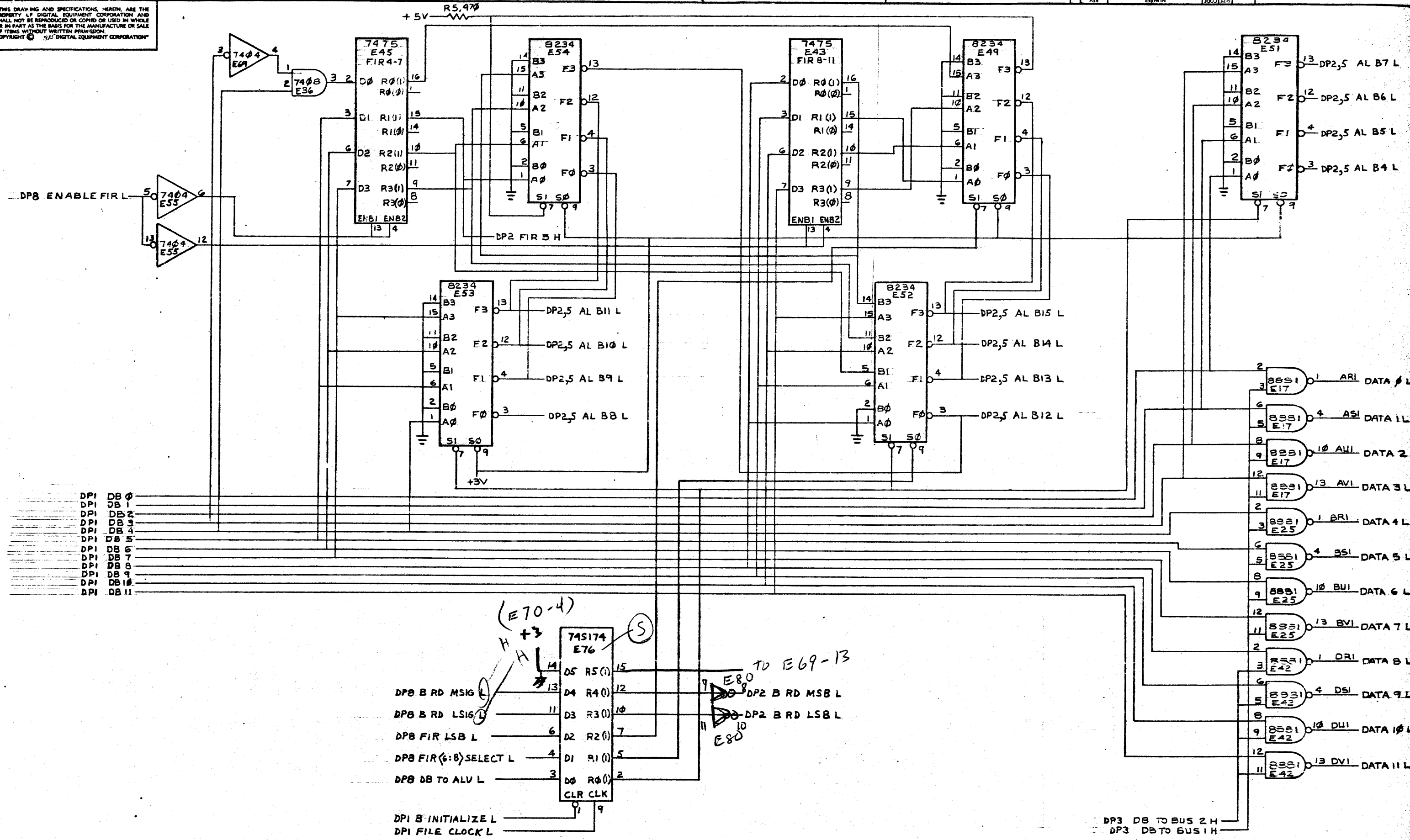
SHEET 1 OF 9

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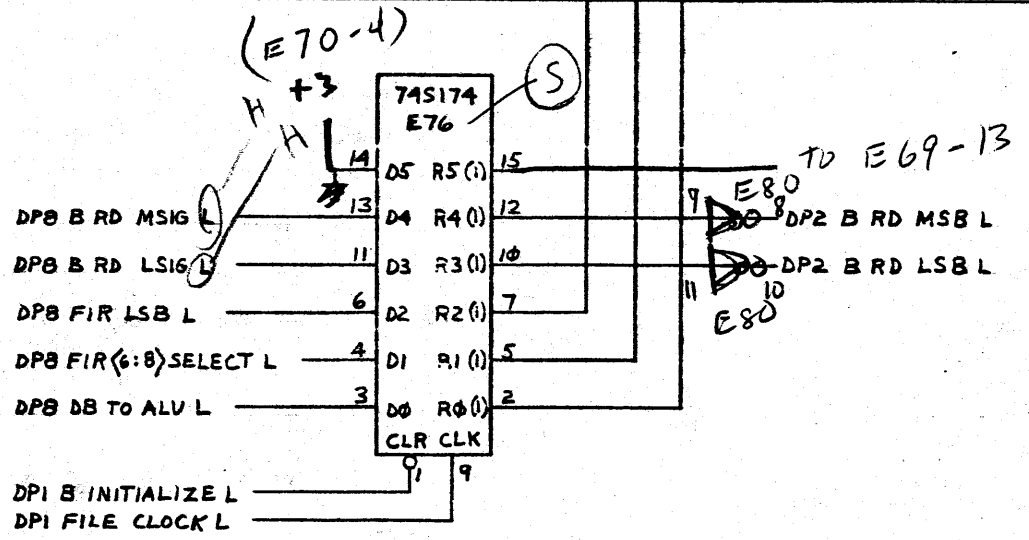


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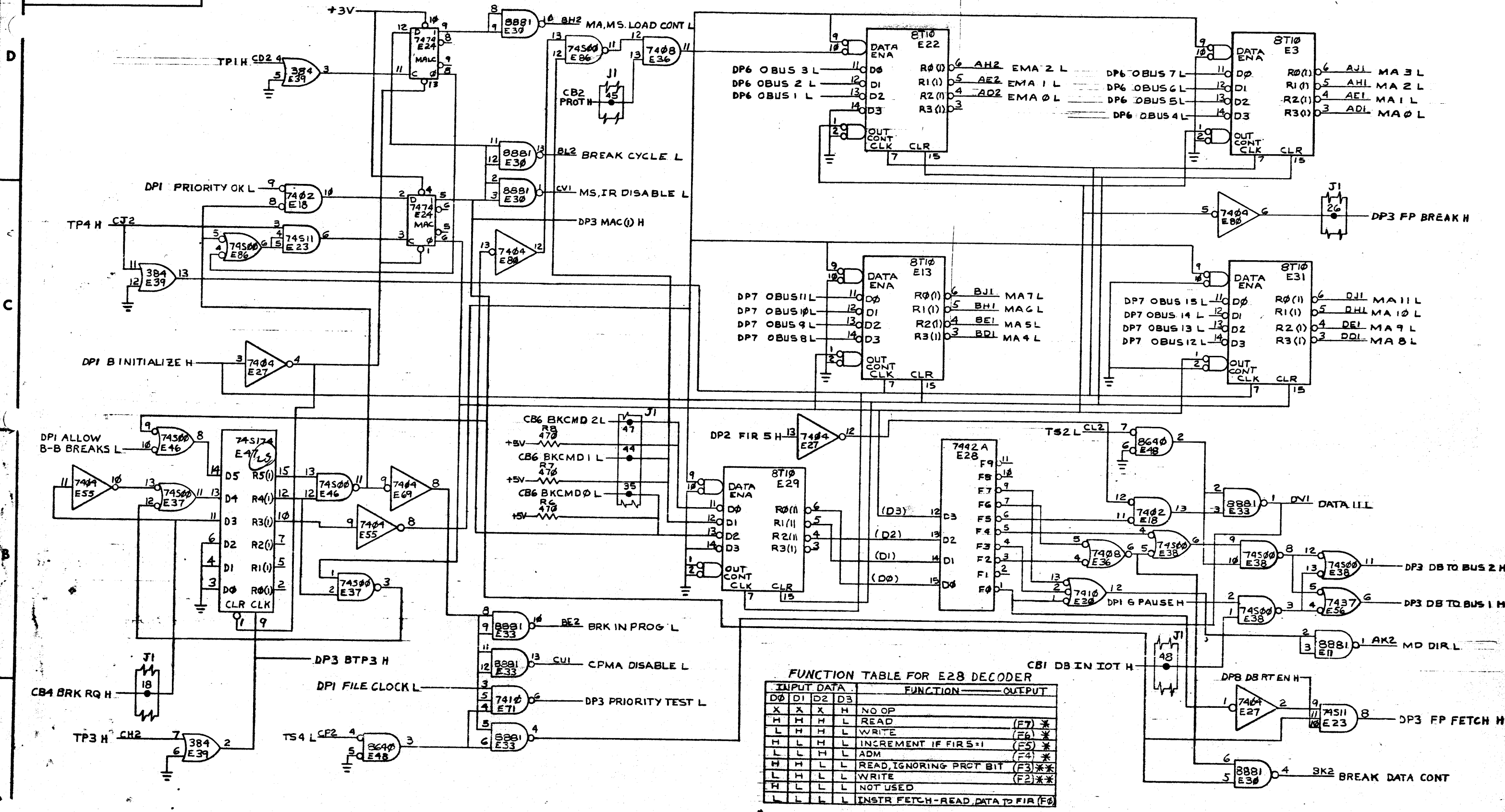
- DP1 DB 0
- DP1 DB 1
- DP1 DB 2
- DP1 DB 3
- DP1 DB 4
- DP1 DB 5
- DP1 DB 6
- DP1 DB 7
- DP1 DB 8
- DP1 DB 9
- DP1 DB 10
- DP1 DB 11



DP3 DB TO BUS 2 H
DP3 DB TO BUS 1 H

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FUNCTION TABLE FOR E28 DECODER

INPUT DATA				FUNCTION	OUTPUT
D0	D1	D2	D3		
X	X	X	H	NO OP	
H	H	H	L	READ	(F7) *
L	H	H	L	WRITE	(F6) *
H	L	H	L	INCREMENT IF FIRS=1	(F5) *
L	L	H	L	ADM	(F4) *
H	H	L	L	READ, IGNORING PROT BIT	(F3) **
L	L	L	L	WRITE	(F2) **
H	L	L	L	NOT USED	
L	L	L	L	INSTR FETCH-READ, DATA TO FIR (F0)	

* IF PROT=1, BK EMA NOT LOADED.
 ** USED FOR APT GET & PUT

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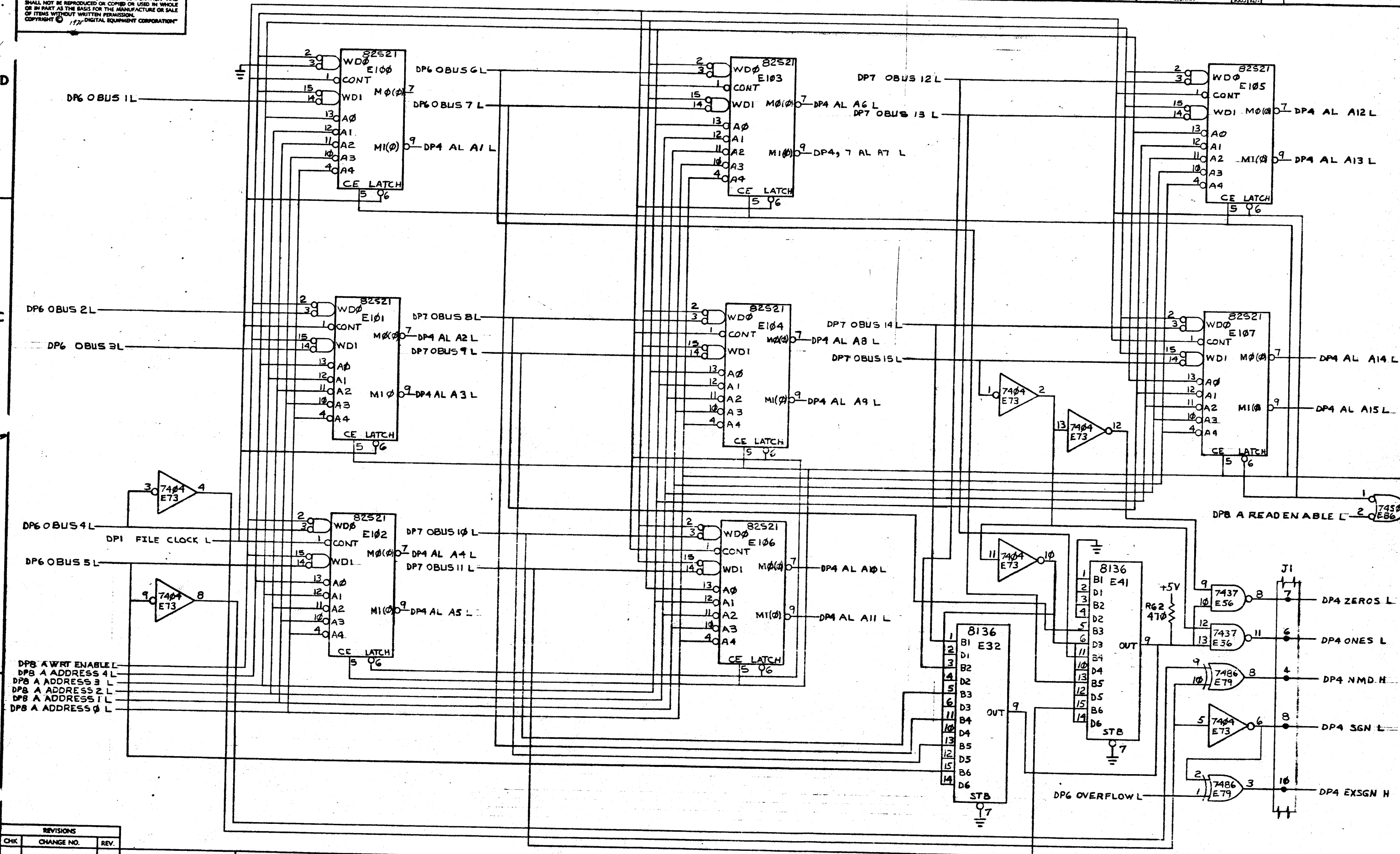
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D

C

B



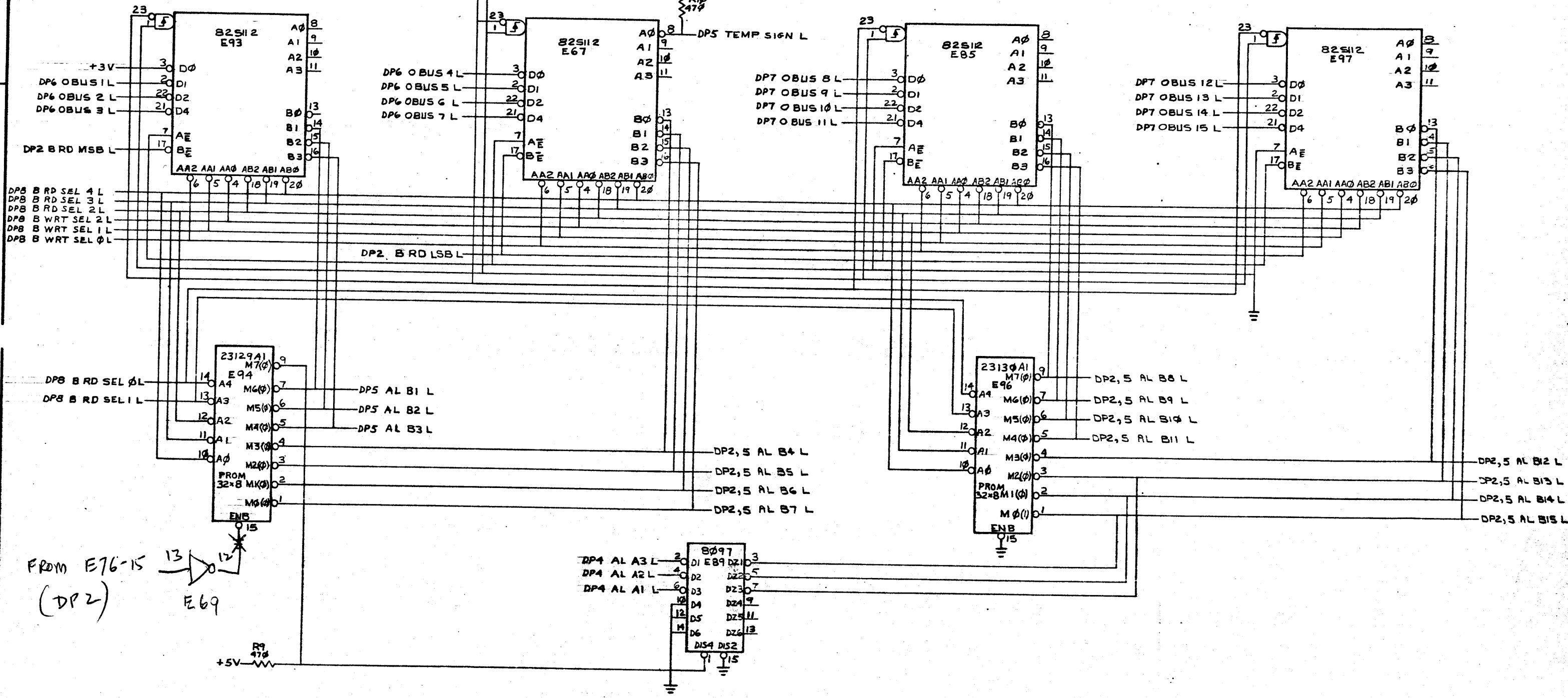
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DPI FILE CLOCK L \rightarrow 5 \rightarrow 7404 E69 \rightarrow 6 \rightarrow DPS FILE CLOCK H

DPB B WRT ENABLE L

+5V R18 470

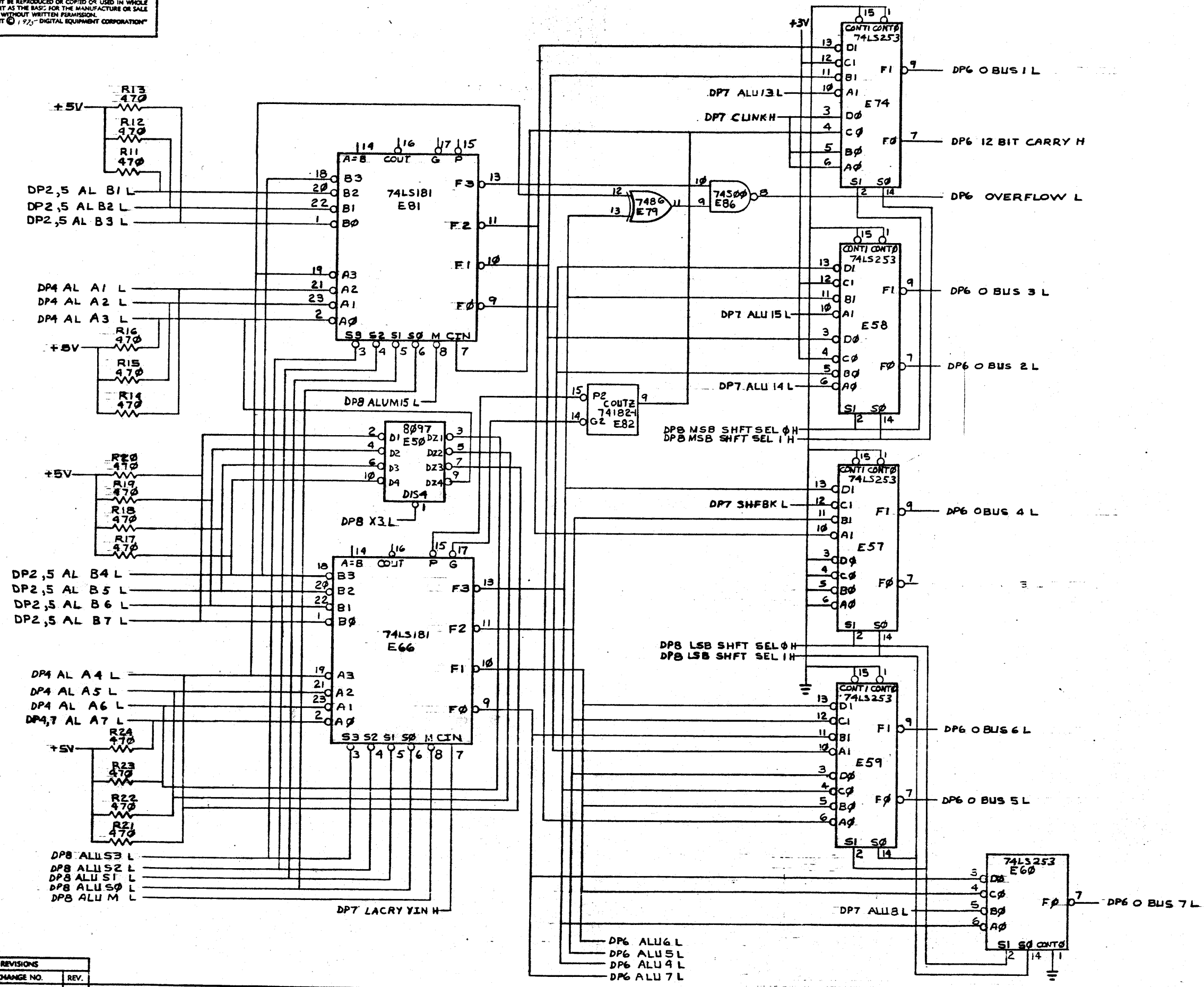


FROM E76-15
(DP2) \rightarrow E69

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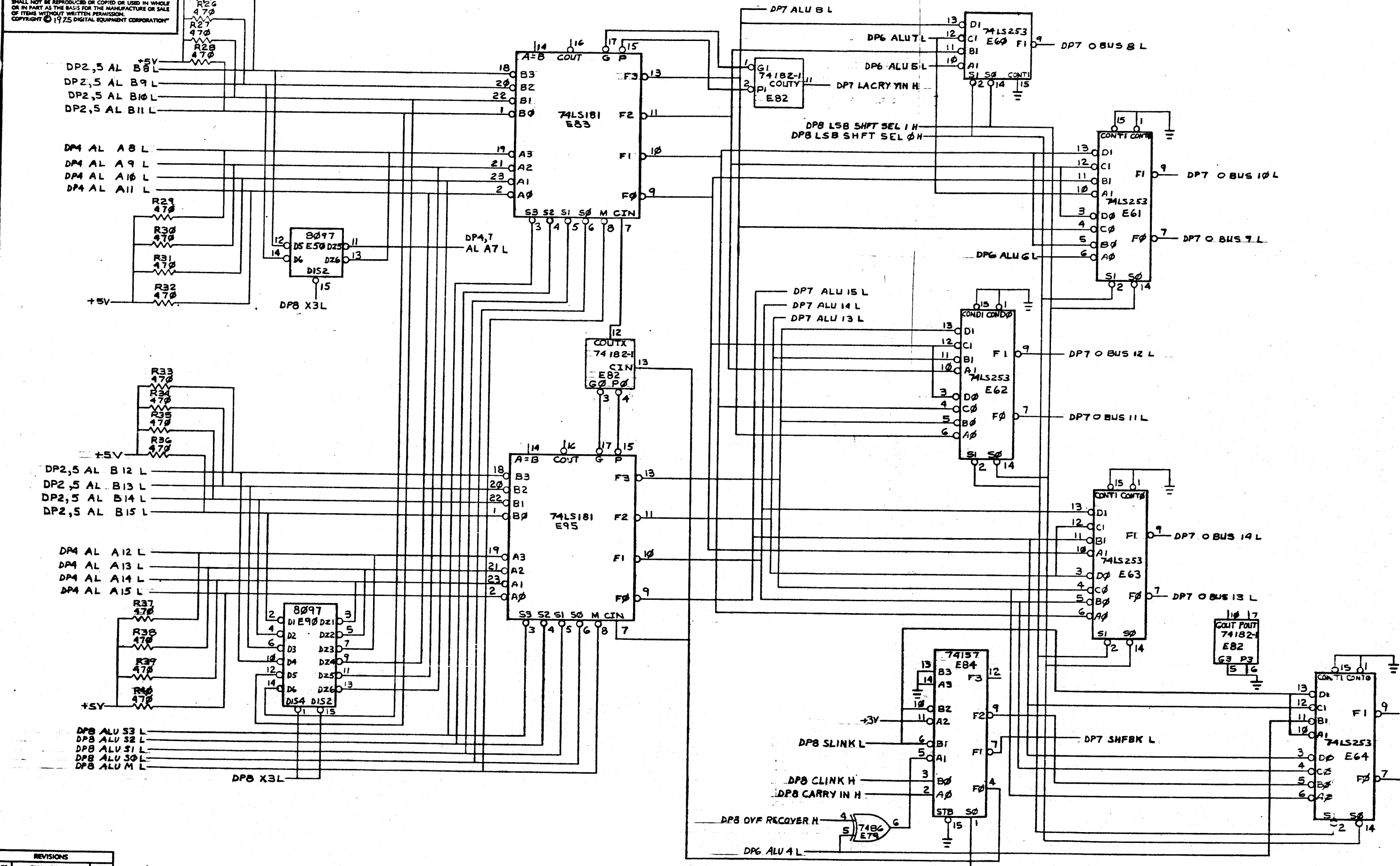
REVISIONS		
CHK	CHANGE NO.	REV.

(ALU & SHIFT 1)

TITLE	FRP8-A DATA PATH BD (DP6)	SIZE CODE	D CS	NUMBER	V8411-0-1	REV.	B
SCALE	/ /	SHEET	7 OF 9	DIST.			

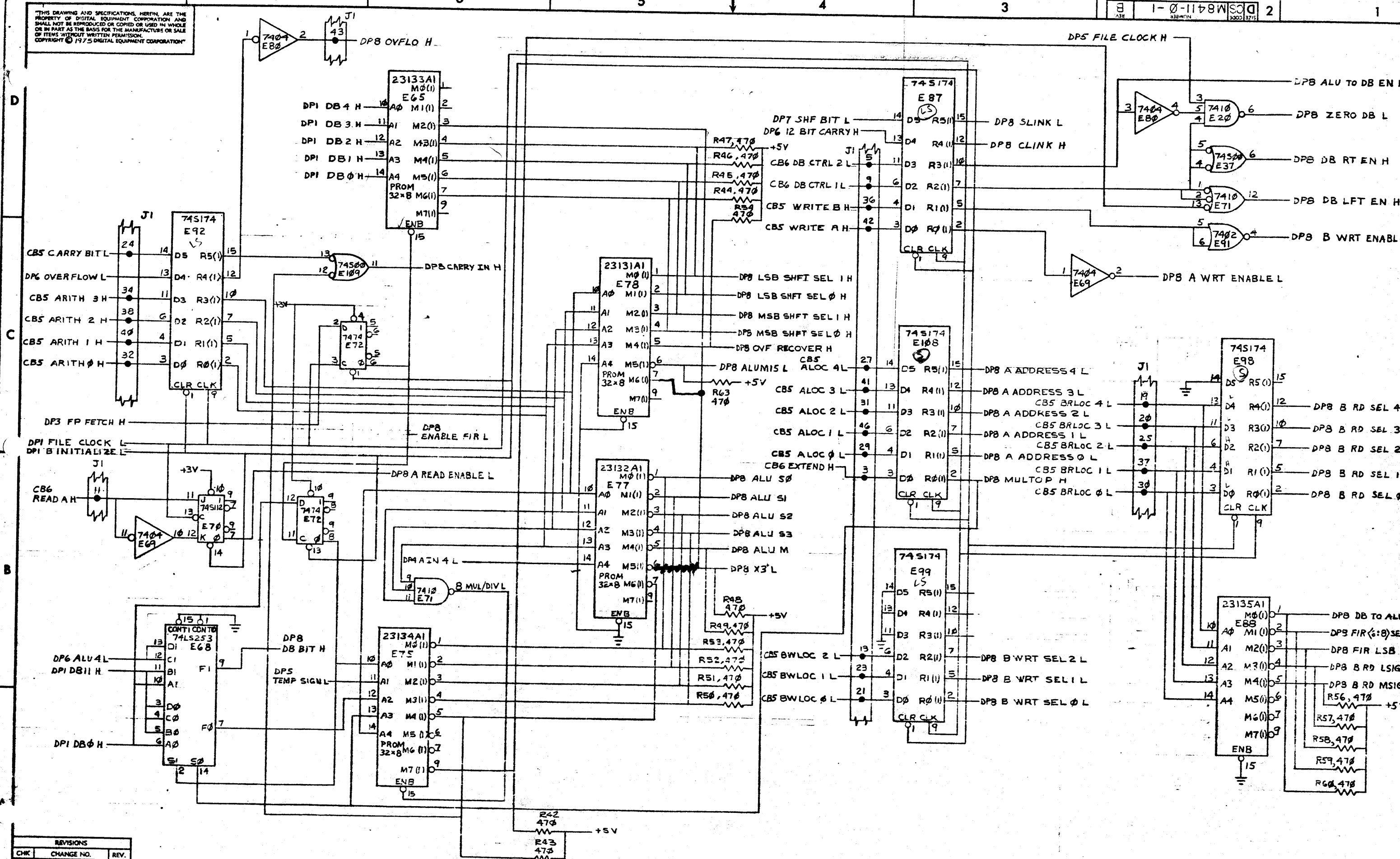
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CHK	CHANGE NO.	REV.

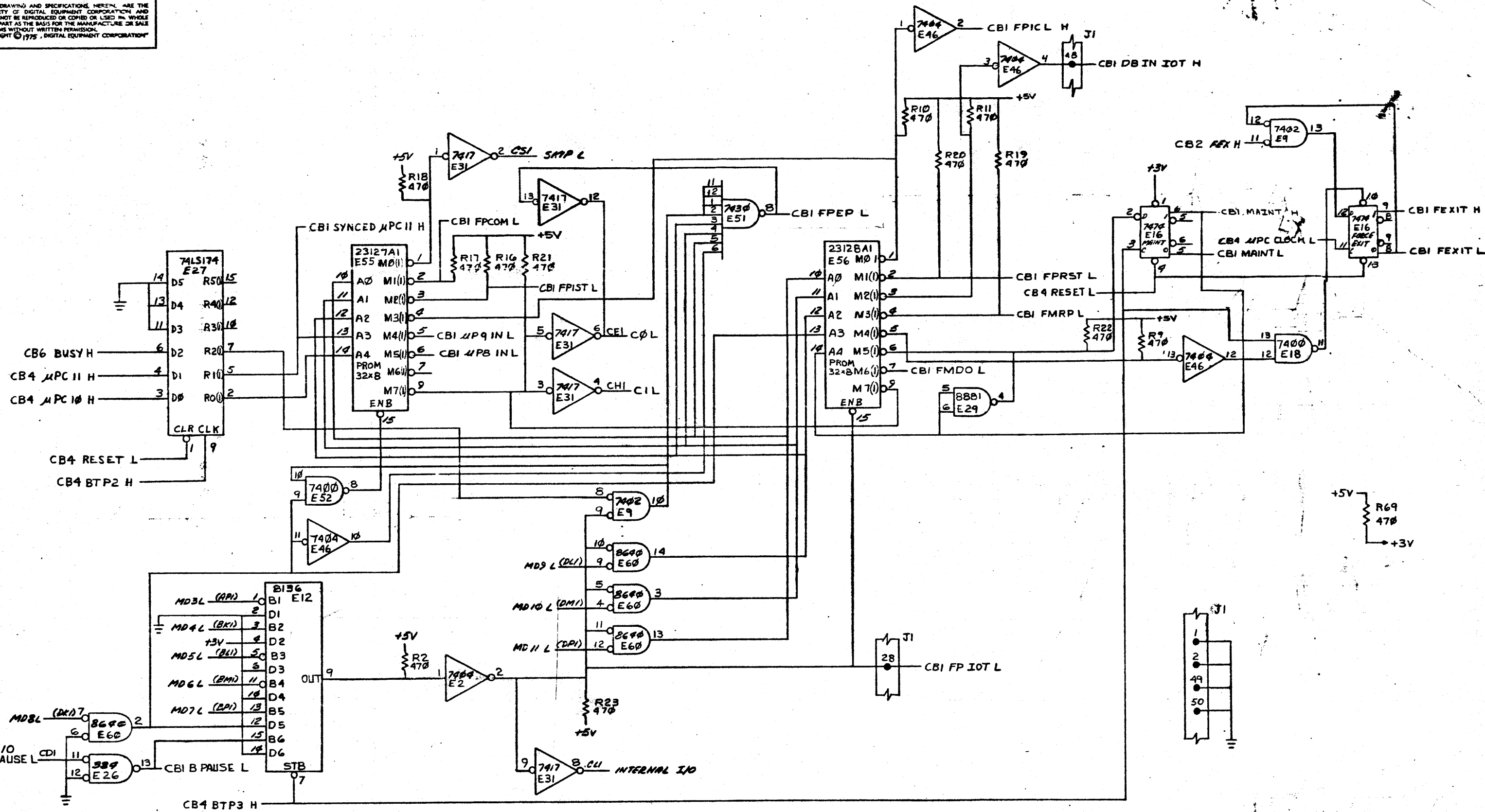
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CHK	CHANGE NO.	REV.

(PIPE LINE REGISTER)		SIZE	CODE	NUMBER	REV.
TITLE		D	CS	M8411-0-1	B
SCALE		SHEET 9 OF 9		DIST.	

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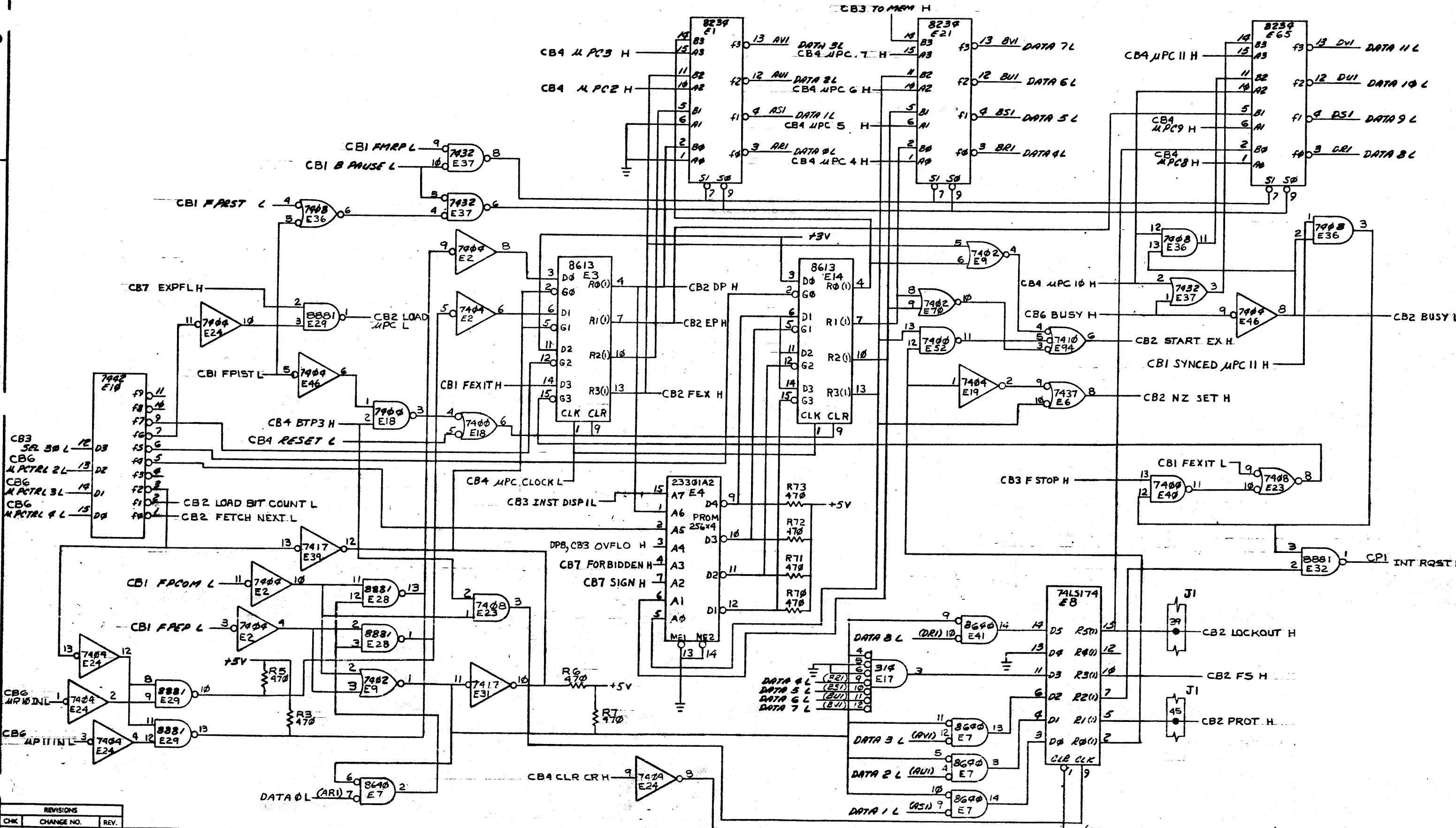
(I/O DECODERS)

DRN	NOV 6 1975	FIRST USED ON	FPP8-A	DIGITAL
CHK'D		TITLE	FPP8-A	
ENG.				
PROJ. ENG.				
PROD.				
NEXT HIGHER ASSY.				
D-UA-M8410-0-0	SIZE	CODE	NUMBER	REV.
SCALE	D	CS	M8410-0-1	A
SHEET	1	OR	7	DIST.

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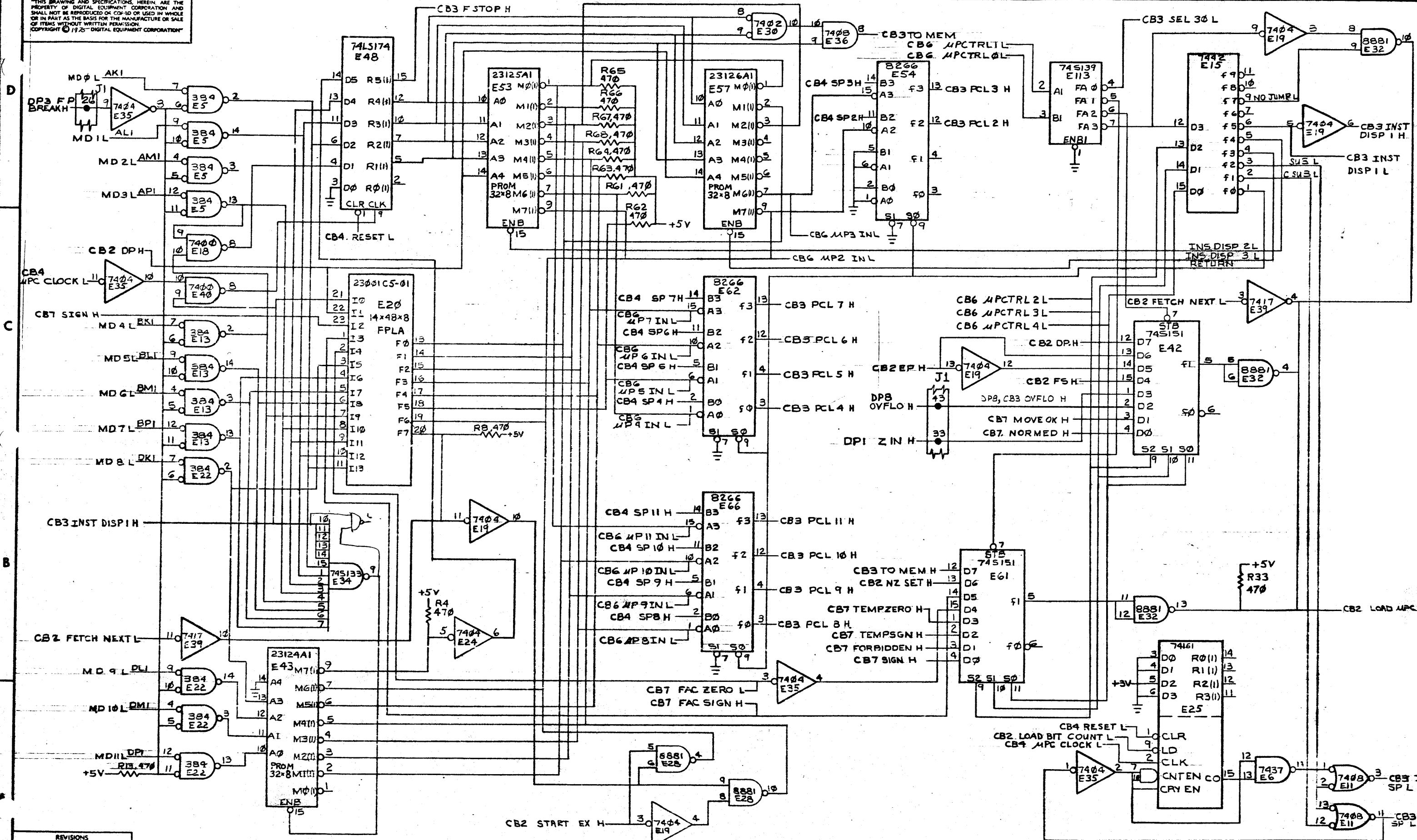
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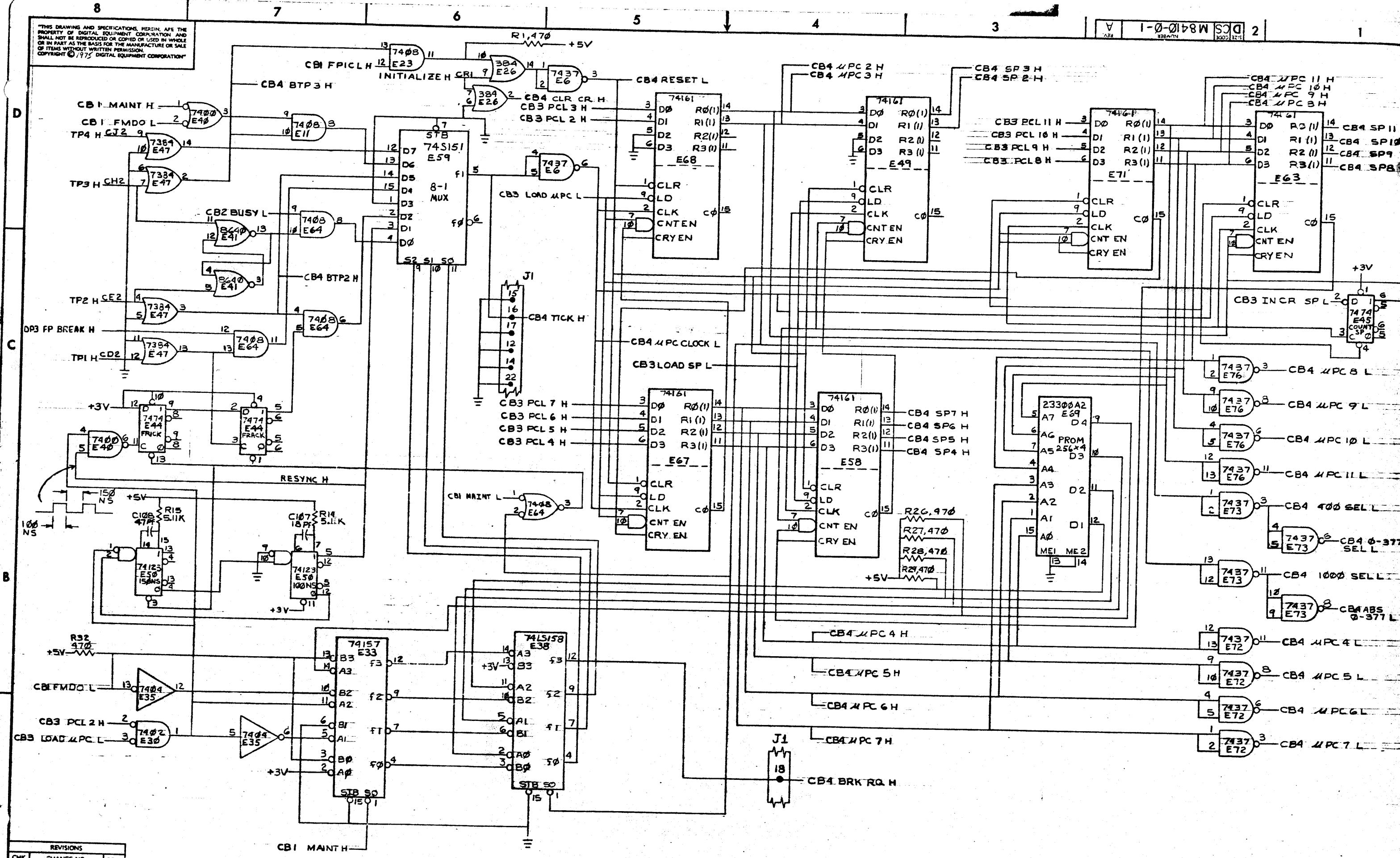
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FPP8-A CONTROL BD (CB2)		D CS	M8410-0-1	A
SCALE		SHEET	OF	DIST.
		2	7	

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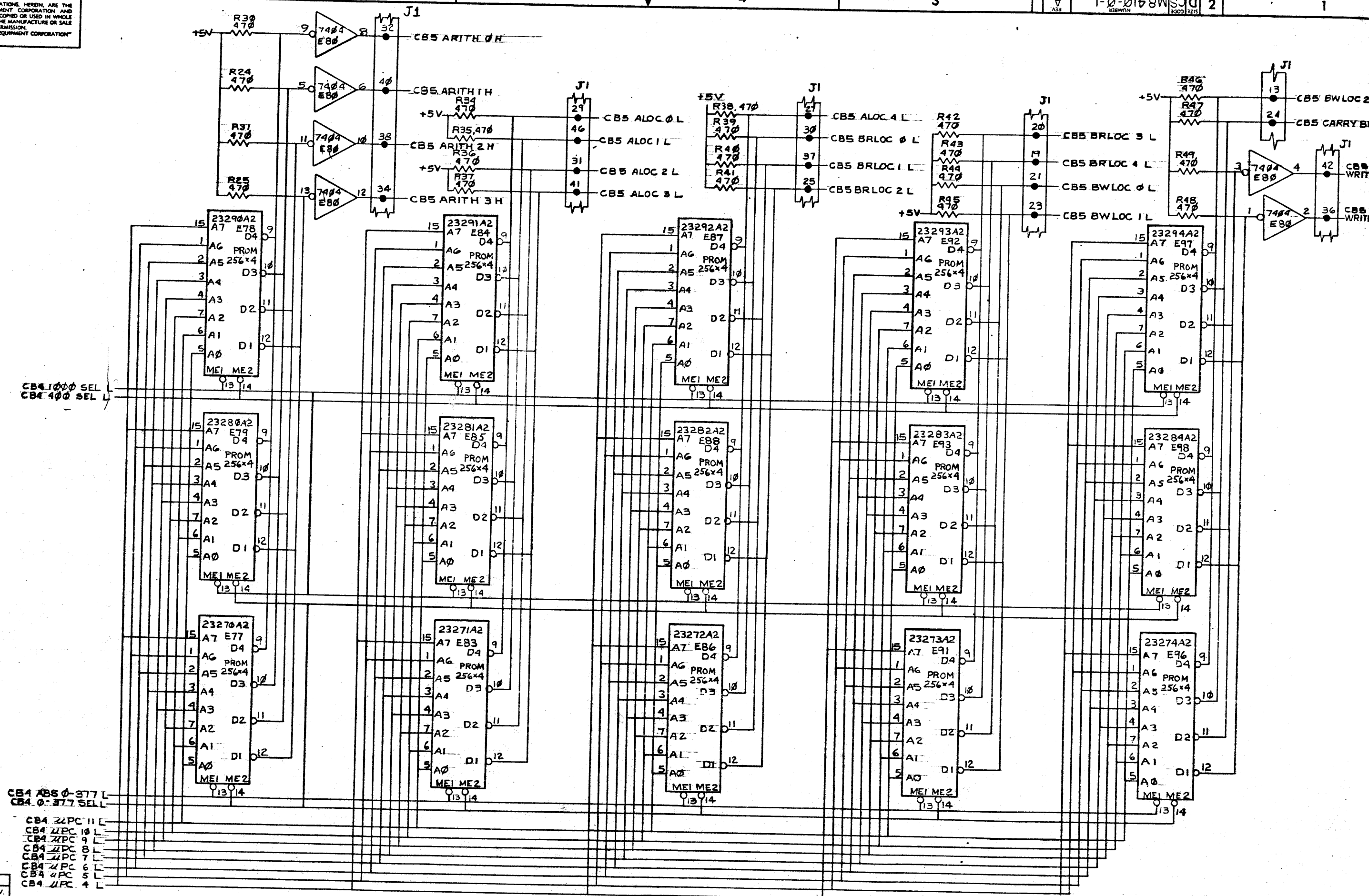
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(PULSE GATING & MPC)

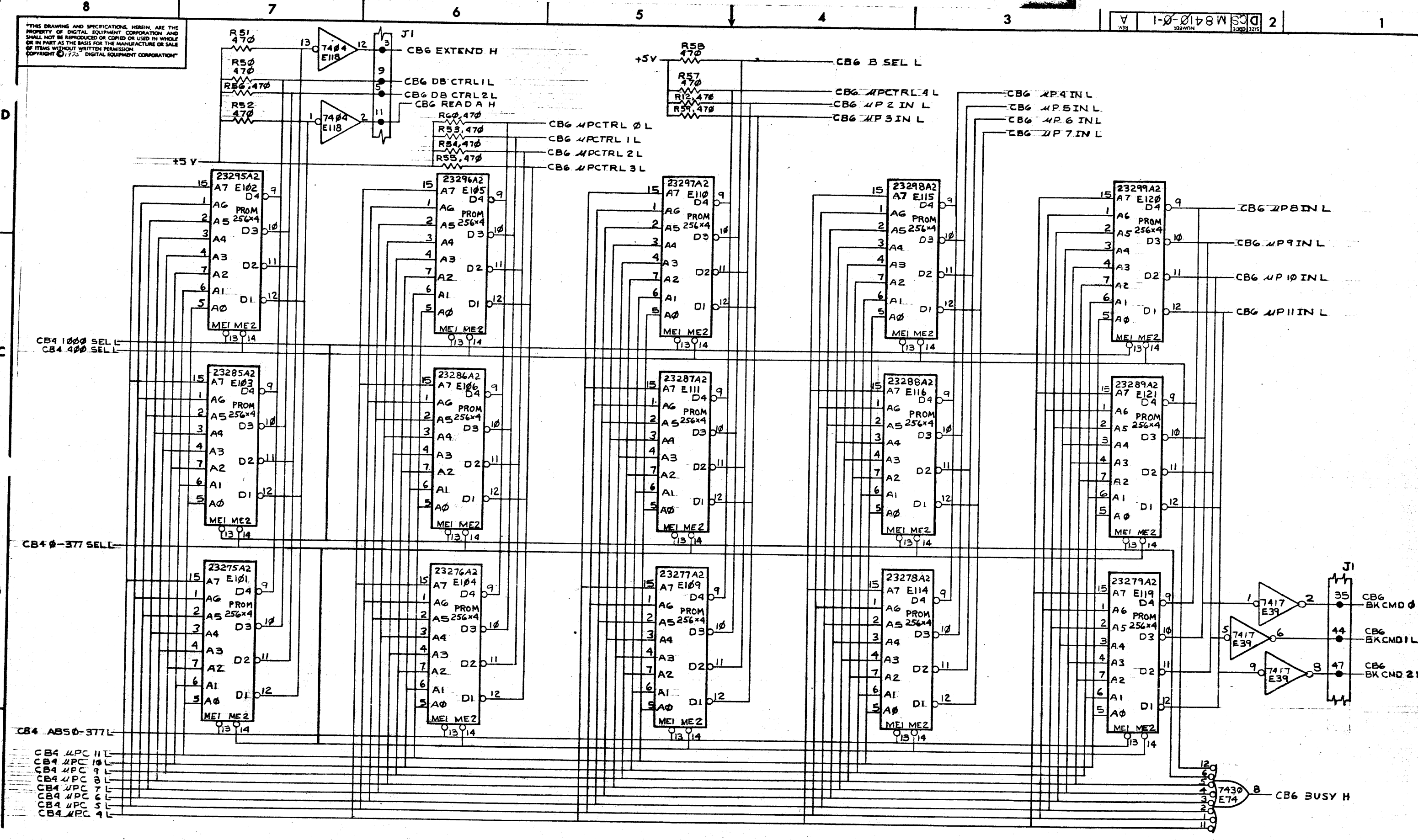
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- CB4 ZPC 11 L
- CB4 ZPC 10 L
- CB4 ZPC 9 L
- CB4 ZPC 8 L
- CB4 ZPC 7 L
- CB4 ZPC 6 L
- CB4 ZPC 5 L
- CB4 ZPC 4 L

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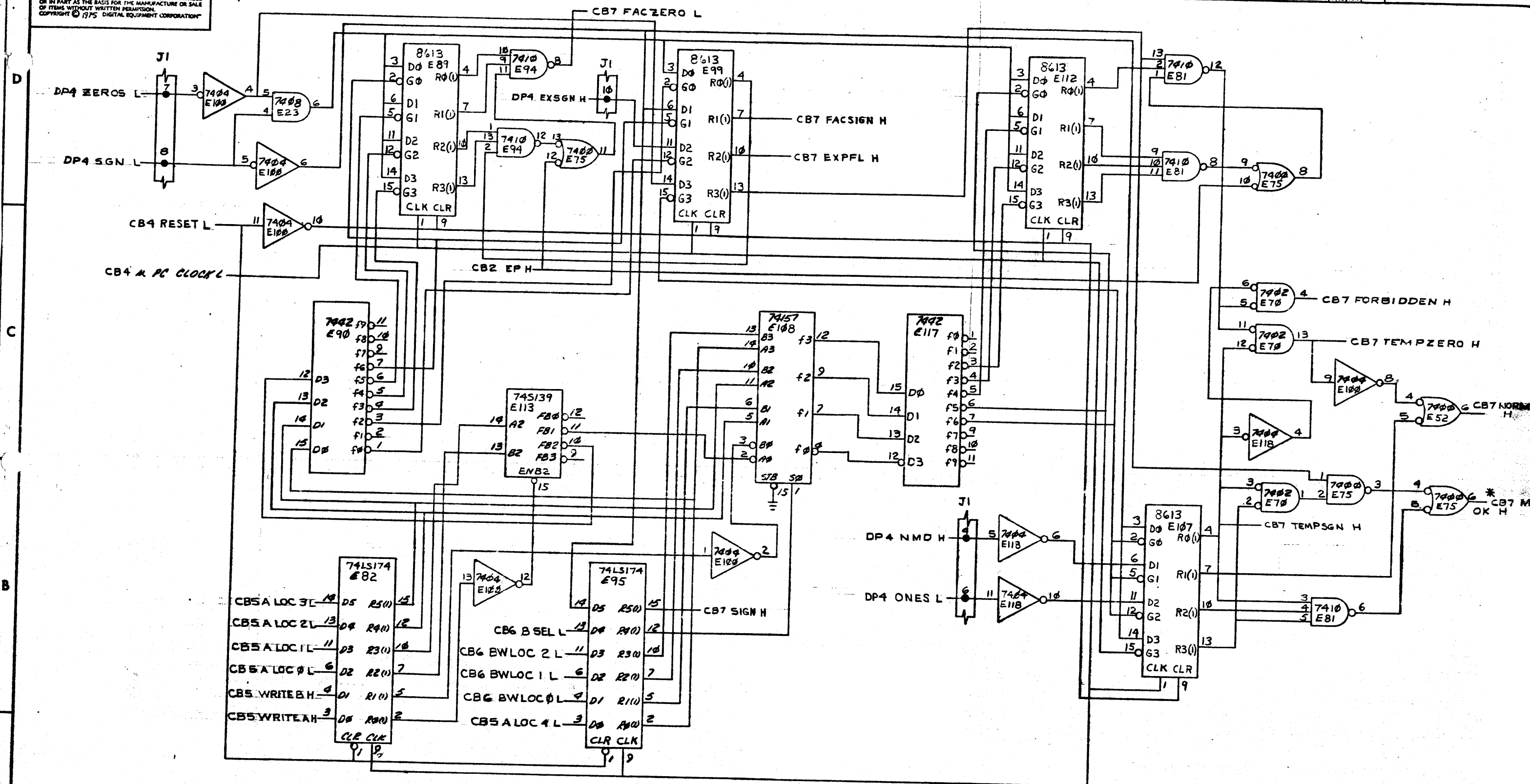


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(CONTROL ROM)

TITLE	FPP8-A CONTROL BD (CB6)	SIZE CODE	NUMBER	REV.
SCALE	7 / 7	DIST.	DCS M8410-0-1	A
SHEET 6 OF 7				

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* IE: BITS 0-12 OF FRACTION ARE ALL ZEROS OR ALL ONES

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