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**FIELD MAINTENANCE PRINT SET**

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**TABLE OF CONTENTS**

B-DD-KK11-B-0              Drawing Directory  
 B-BD-KK11-B-1            Block Diagram  
 B-TD-KK11-B-2            Timing Diagram  
 D-UA-M7097-0-0 (sheet 1 only) Cache Memory Module  
 K-PL-M7097-0-DBP        Parts List  
 D-CS-M7097-0-1            Circuit Schematic

UNIT VARIATIONS COVERED BY THIS PRINT SET
KK11-B

**Field Maintenance Print Set**  
 KK11-B  
**Digital Equipment Corporation**

MP00811

REVISIONS	REV	A	USED ON OPTION/MODEL	DRN.	E.H.	DATE	6/1/79	TITLE: CACHE MEMORY OPTION	digital	
	CHG. NO.	TW001		CHK'D	J. SULLIVAN	DATE	6/21/79			
	DATE	2-81		PROJ. ENG.	<i>[Signature]</i>	DATE	6-29-79			
				FIELD SERV.	<i>[Signature]</i>	DATE				
				SHEET 1 OF 1						
SIZE		CODE		NUMBER		REV.				
<b>B</b>		<b>TC</b>		KK11-B-3		<b>A</b>				
DIST.										

DRB 124

TW

REV. A  
 NUMBER KK-11-B-3  
 SIZE CODE B TC

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## DRAWING DIRECTORY

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FOR FIELD MAINTENANCE PRINT SET

REFER TO:

MPO0811

UNIT VARIATIONS	
VAR	TITLE
KK11-B	CACHE MEMORY

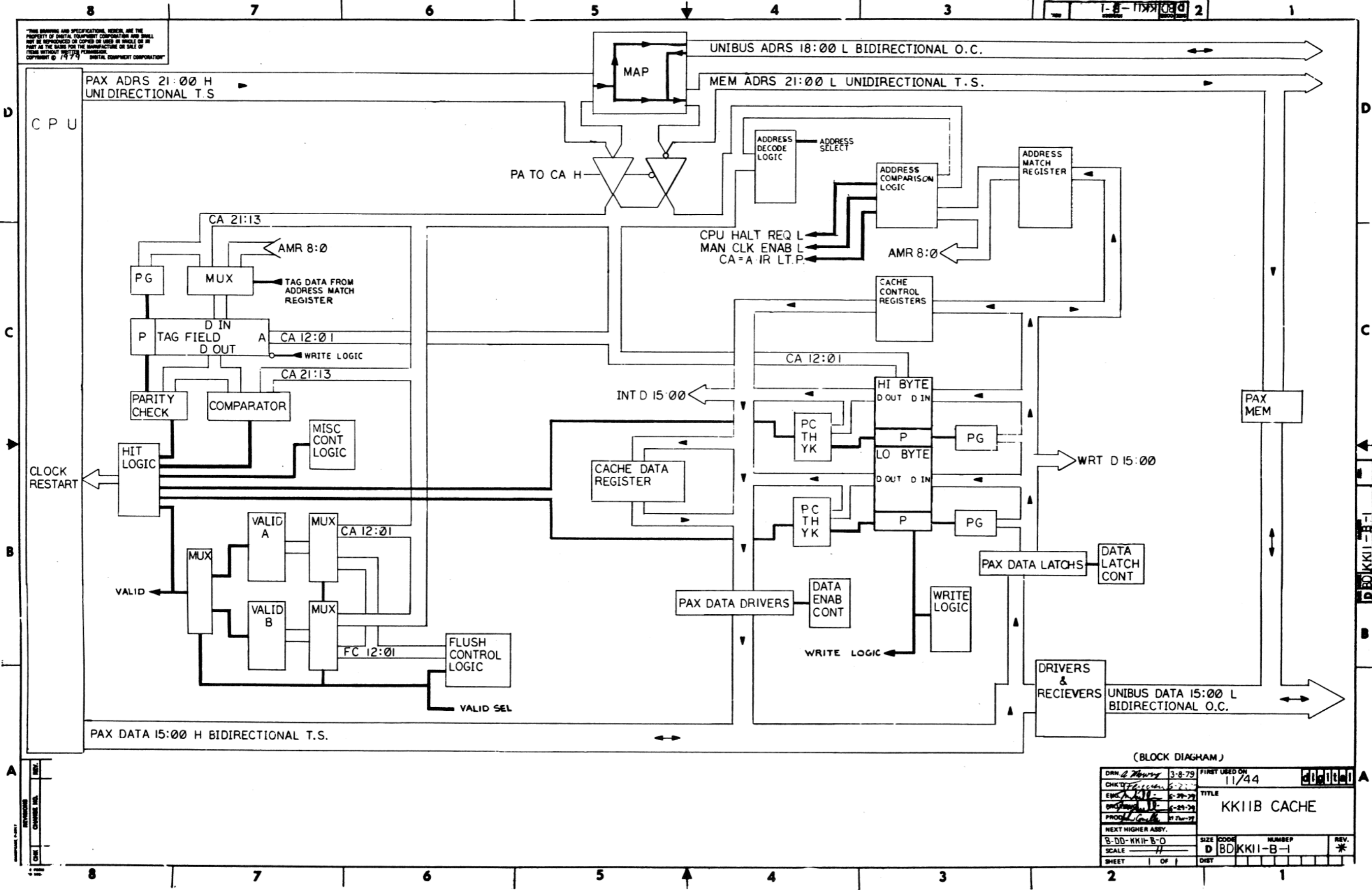
REV. NO.		USED ON OPTION/MODEL		DRN.	DATE	TITLE CACHE MEMORY <span style="border: 1px solid black; padding: 2px;">digital</span>													
			E.H.	6/1/79															
	CHANGE NO.					CHK'D.	DATE	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">SIZE</td> <td style="width: 5%;">CODE</td> <td style="width: 20%;">NUMBER</td> <td style="width: 5%;">REV</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">DD</td> <td style="text-align: center;">KK11-B-0</td> <td style="text-align: center;">*</td> </tr> </table>				SIZE	CODE	NUMBER	REV	B	DD	KK11-B-0	*
			SIZE		CODE	NUMBER	REV												
B		DD	KK11-B-0		*														
		J. SULLIVAN	6/21/79																
CHK				PROJ. ENG.	DATE	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">DIST.</td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> </tr> </table>				DIST.									
	DIST.																		
			6-27-79																
SHEET 1 OF 2				PROD.	DATE														

TW

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	
1								
	MP00811	Print Set Order Number						
	B-BD-KK11-B-1	Block Diagram						
	B-TD-KK11-B-2	Timing Diagram						
	A-PL-KK11-B-4	Shipping List						
2	B-DD-M7097-0-0	Cache Memory Module	E					
TYPE: E ELECTRICAL M MECHANICAL E/M ELECTRO/MECHANICAL	digital			TITLE	SHEET 2 OF 2	SIZE CODE B DD	NUMBER KK11-B-0	REV *

TW

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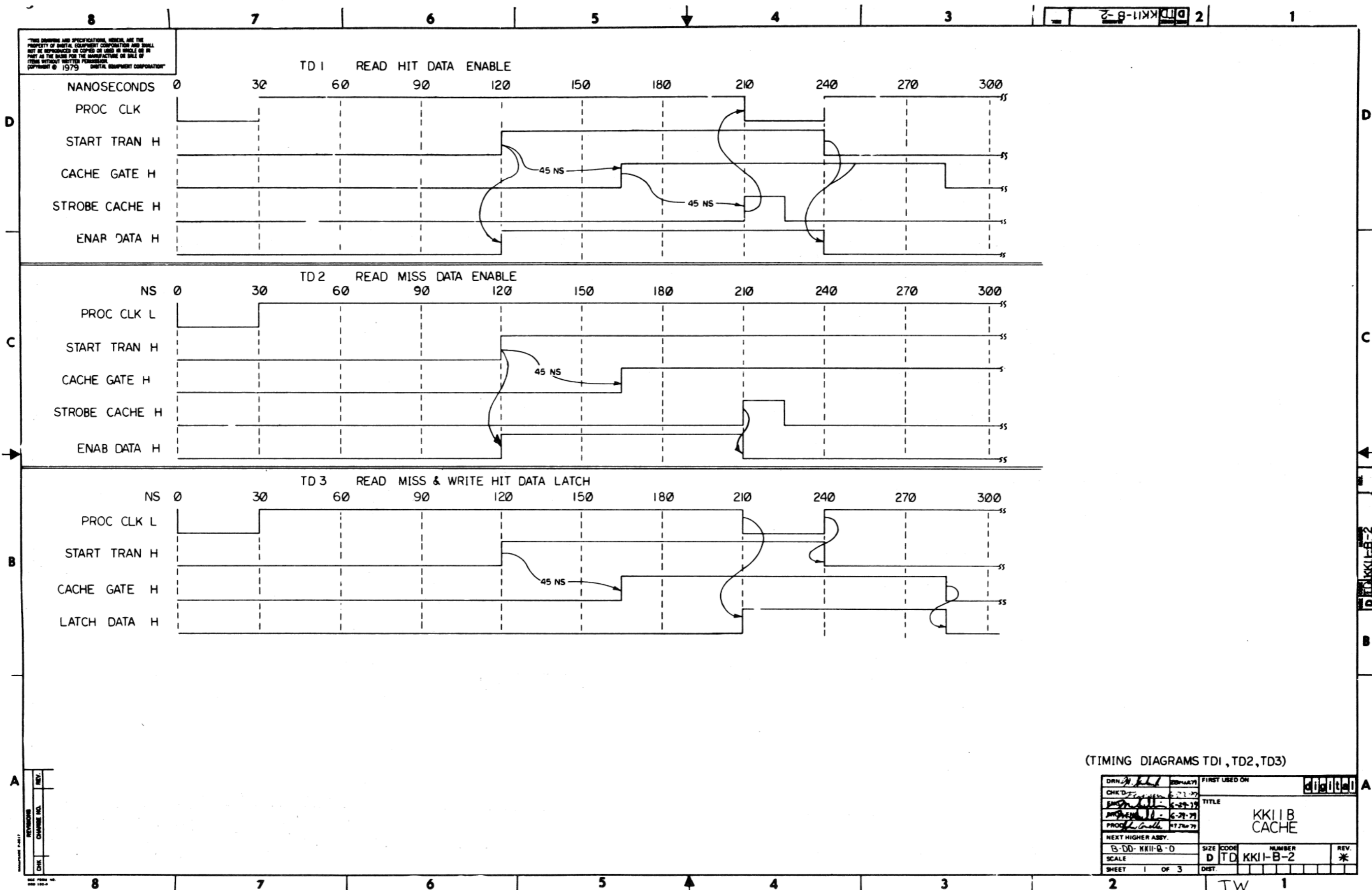


(BLOCK DIAGRAM)

DRN. <i>J. Hurry</i>	3-8-79	FIRST USED ON	11/44
CHK'D <i>F. Hurry</i>	5-22-79	TITLE	KKIIB CACHE
ENG'D <i>J. Hurry</i>	5-29-79	SIZE CODE	D BD KKIIB-1
PROG'D <i>J. Hurry</i>	5-29-79	NUMBER	
NEXT HIGHER ASSY.		REV.	*
B-DD-KKIIB-0		SCALE	H
SHEET	OF	DIST	

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2-8-KK11-B-2



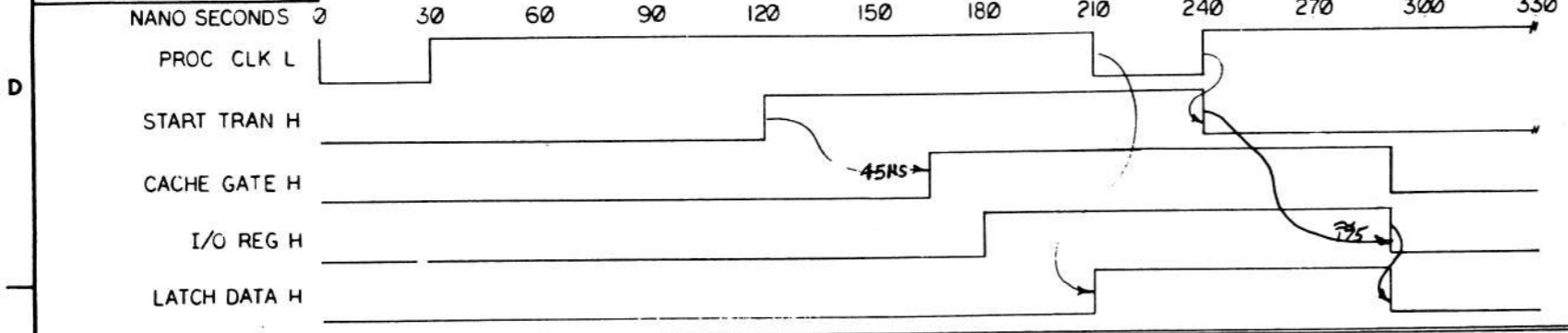
(TIMING DIAGRAMS TD1, TD2, TD3)

DRN: <i>[Signature]</i>	ED: <i>[Signature]</i>	FIRST USED ON: <i>[Date]</i>	
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APP'D: <i>[Signature]</i>	DATE: <i>[Date]</i>	SIZE: <b>D</b>	
PROJ: <i>[Signature]</i>	DATE: <i>[Date]</i>	NUMBER: <b>TD KK11-B-2</b>	
NEXT HIGHER ASSY: <b>B-00-KK11-B-0</b>		SCALE: <b>1 OF 3</b>	REV: <b>*</b>
SHEET: <b>1 OF 3</b>		DIST: <b>TW</b>	

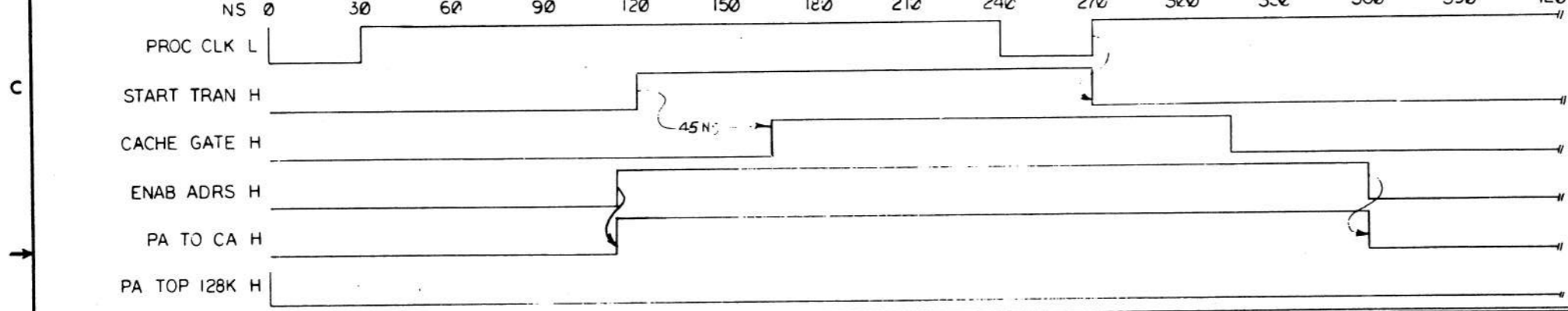
REVISIONS  
 CHANGE NO. REV.  
 1  
 2

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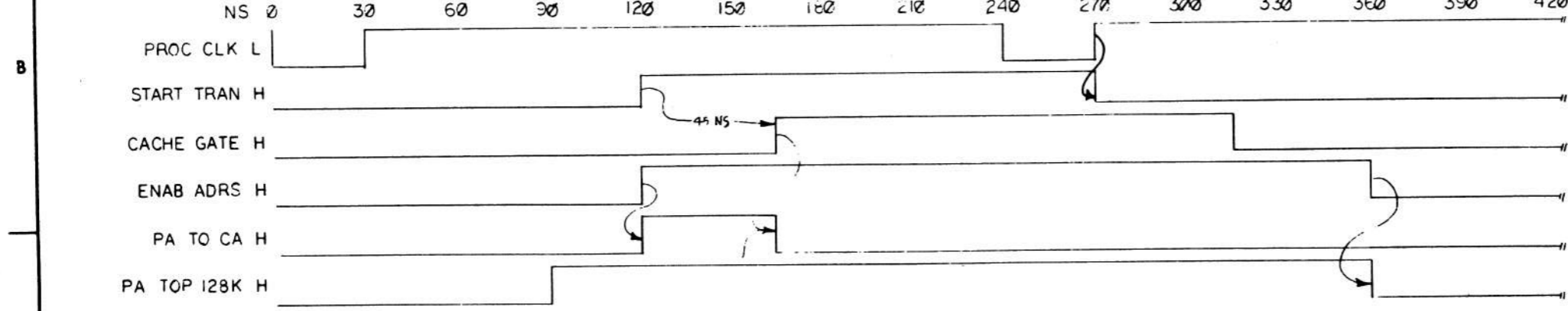
TD4 I/O WRITE DATA LATCH



TD5 ADDRESS STEERING NETWORK CPU READ/WRITE NOT TOP 128K



TD6 CPU READ/WRITE TOP 128K TRUE

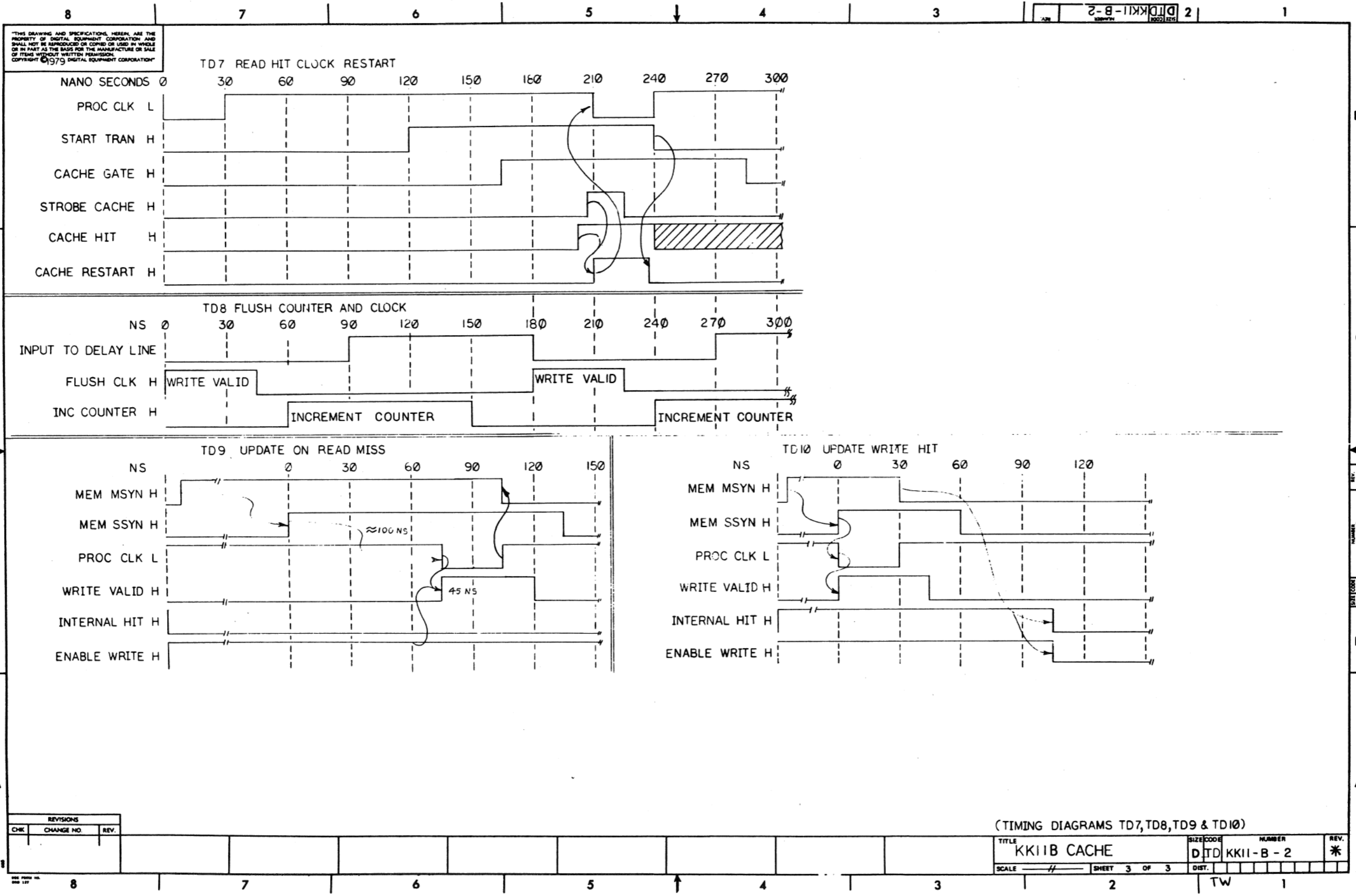


(TIMING DIAGRAMS TD4, TD5, TD6)

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE/COOR	NUMBER	REV.
KKIIB CACHE	D TD KKIIB-2		*
SCALE	SHEET	DIST.	
	2 OF 3		

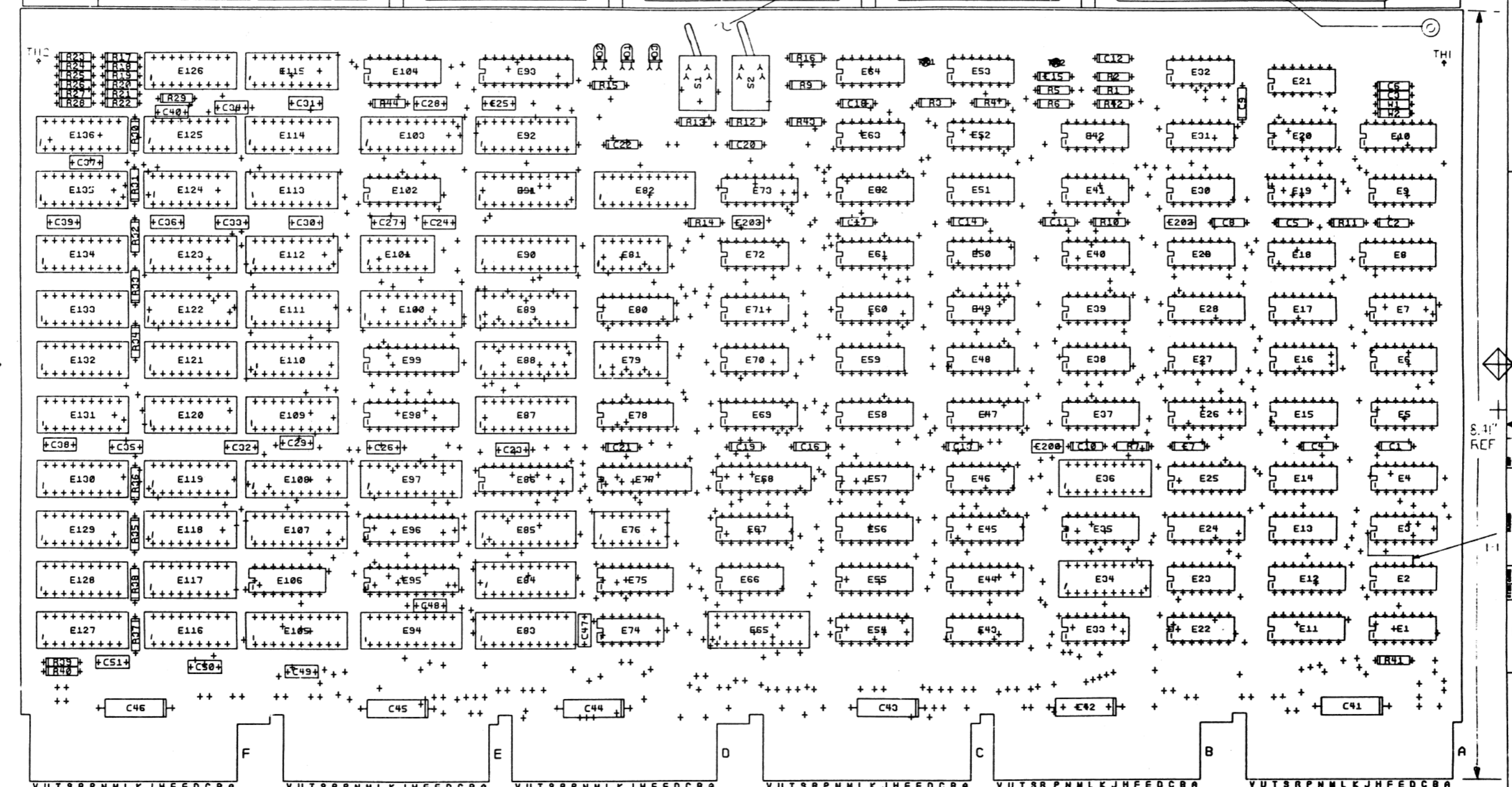
REV. DTD KKIIB-2



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SEE NOTE 1

COMPONENT SIDE VIEW



5.11" REF

NOTES:  
1. C40 AND W2 ARE NOT INSTALLED

CHANGE NO	REV	DATE
1	1	11-25-80
2	1	
3	1	
4	1	
5	1	
6	1	
7	1	
8	1	

ETCH REV.	N/P
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SIGNATURES		DATE	digital
DRN: [Signature]		11-25-80	
CHK'D: [Signature]			
RECH. ENG. [Signature]			
PROJ. ENG. [Signature]			
PROD. [Signature]			
SCALE	2-1		
SHT.	1 OF 2		
NEXT HIGHER ASSY. B.C.D.V70-7-0			
SIZE CODE	UA	NUMBER	M7037-0-0
REV			C

STEP	E	Y AXIS	0	STEP	0	TIMES
REPEAT		X AXIS	0	STEP	0	TIMES



LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY	PER VARIATION	REFERENCE DESIGNATOR
					00		
1	1		5013560-00	PTCH CIRCUIT BOARD	1		
2	2		1000021-00	220.0 MMF 100V 5%200PPM DM155	2		C200,C203
3	3		1000024-00	470.0 MMF 100V 5%200PPM DM155	1		C202
4	4		1005306-00	6.8MFD 35V 10% S.TANT	6		C41-C46
5	5		1010274-01	.22 MFD 50V -20+80 Z5U CER	22		C23-C39,C47-C51
6	6		1012784-00	.047 MFD 50V +80-20% CER	22		C1-C22
7	7		1210209-00	SW,TOG,SPDT,.01A@6V,ON/ON,SUBMIN	2		S1,S2
8	8		1210711-02	HANDLE,MODULF,HEX	1		
9	9		1110864-00	LED 2MCD@10MA	3		D1-D3
10	10		1300202-00	47.0 .25 W 5.0 % CC	1		R7
11	11		1300229-00	100.0 .25 W 5.0 % CC	13		R14,R18,R20,R21,R23,R25,R27,R29, R31,R33,R35,R37,R39
12	12		1300250-00	150.0 .25 W 5.0 % CC	13	CONT	R10,R17,R19,R22,R24,R26,R28,R30, R32,R34,R36,R38,R40
13	13		1300309-00	390.0 .25 W 5.0 % CC	4	CONT	R1,R2,R5,R6
14	14		1300316-00	470.0 .25 W 5.0 % CC	3		R9,R15,R16
15	15		1300365-00	1.0 K .25 W 5.0 % CC	8		R3,R4,R12,R13,R41-R44
16	16		1612463-00	DELAY= 150NS,10TAPS	2		E32,E53
17	17		1910018-00	DEC 74193 COUNTER,SYNCHR. JP/D	3		E26,E43,E54
18	18		1910532-00	74S00 NAND GATE-QUAD 2IN	8		E9,E13,E17,E18,E27,E33,E46,E49
19	19		1910533-00	74S03 NAND GATE-QUAD 2IN,0	1		E21
20	20		1910534-00	74S04 INVERTER GATE-HEX 1I	5		E22,E23,E31,E41,E51
21	21		1910536-00	74S10 NAND GATE-TRIPLE 3IN	3		E16,E30,E52
22	22		1910537-00	74S11 AND GATE-TRIPLE 3INP	3		E4,E5,E15
23	23		1910539-00	74S20 NAND GATE-DUAL 4INPU	3		E20,E29,E50
24	24		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	9		E1,E3,E6,E38,E39,E42,E63,E70,E71
25	25		1910548-00	74S157 MUX 1 OF 2 (QUAD)	10		E8,E10,E24,E25,E35,E37,E44,E45, E55,E56
26	26		1910550-00	74S174 FF-D HEX	1	CONT	E73
27	27		1910957-00	74S175 FF-D QUAD COMMON CLO	3		E47,E78,E80

REVISION HISTORY			BASIC PART NO:	M7097	DRN:	M.FUNARO	DATE:	16-FEB-79	D I G I T A L			
ENG:	ECO NUMBER	REV	SECTION A	OF A	CHK'D:	F.T.GERRY	DATE:	16-FEB-79	TITLE	PARTS LIST		
MS	TW001	C	(A)	00					KK11-B CACHE			
			(B)									
			(C)		DES.ENG:	M.SULLIVAN	DATE:	16-FEB-79				
			(D)									
			(E)									
			(F)		RFSP.ENG.:	M.SULLIVAN	DATE:	27-JUN-79		DOCUMENT NUMBER		
			(H)									
			(J)						SIZE	CODE	NUMBER	REV
			(K)		MFG.ENG.:	J.COMELLA	DATE:	27-JUN-79	K	PL	M7097-0-DBP	C
			(L)									
			(M)		ASSEMBLY NUMBER:		TOP DOCUMENT NUMBER:		FILE NAME:	EDIT #		
			(N)		ID-UA-M7097-0-0				Z0620C,PLS	17		

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TW

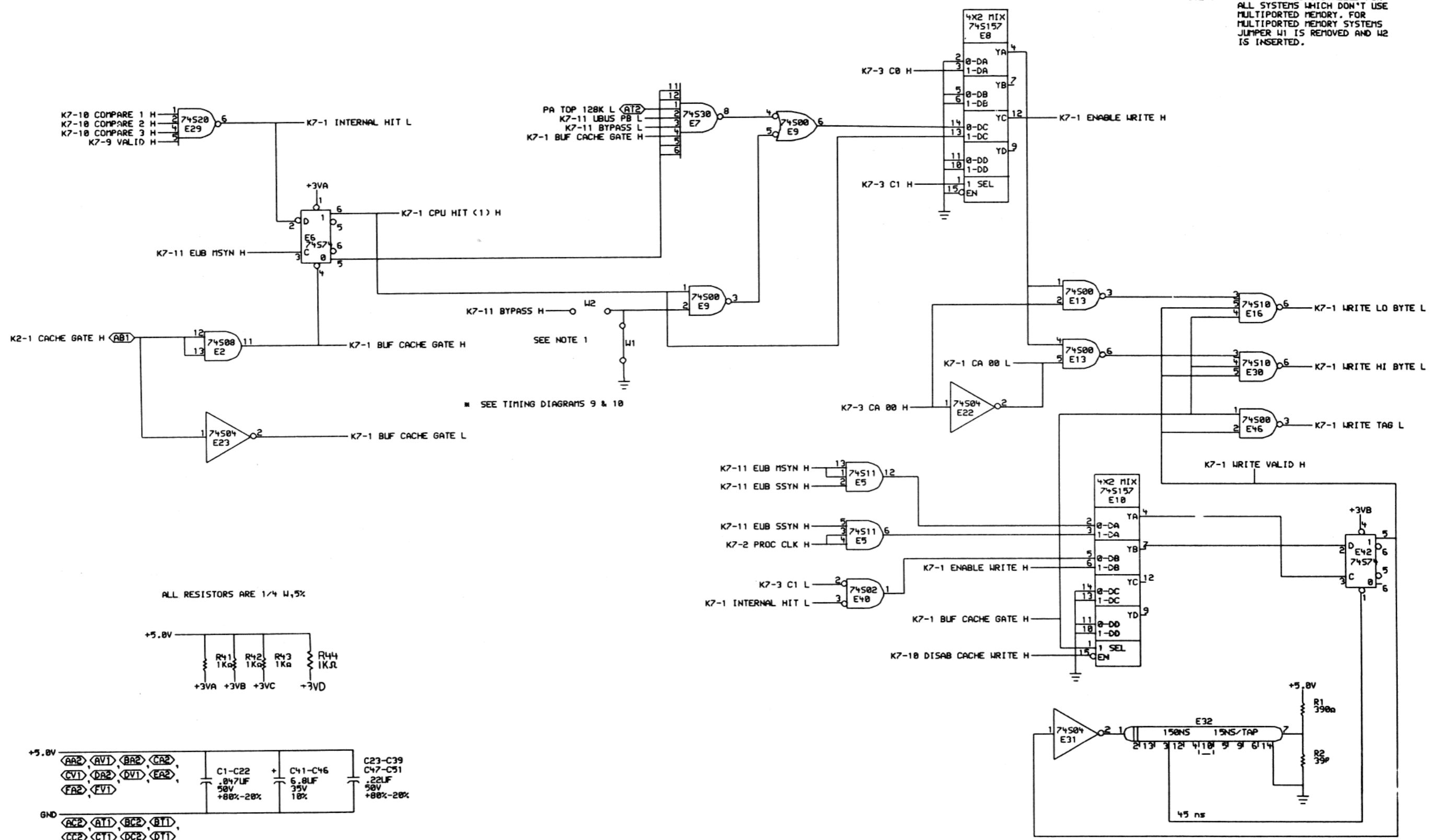
LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
28	28		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UN	1	E11
29	29		1911573-00	74S280 PARITY GEN/CHKR,9BIT	4	E76,E79,E81,E101
30	30		1911579-00	8641 TPANSCEIVER,BUS,QUA	1	E12
31	31		1911675-00	74S138 DECODER/DEMUX 3-8 LIN	1	E60
32	32		1911983-00	74S133 NAND GATE-POSITIVE 1	2	E28,E62
33	33		1912089-00	74S85 CMPRTR-4BIT MAGNITUD	7	E57,E61,E67,E69,E75,E104,E106
34	34		1912096-00	DEC 74S86 XOP GATE,QUAD 2IN	1	E64
35	35		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	5	E19,E40,E48,E59,E72
36	36		1912389-00	74S08 AND GATE-QUAD 2IN,PO	2	E2,E14
37	37		1913462-00	74S240 OCTAL BUFFER,INVERTI	3	E65,E84,E107
38	38		1913493-00	74S241 OCTAL BUFFER,TRI-STA	8	E83,E85,E87,E94,E97,E100,E103, E105
39	39		1913670-00	74S373 LATCH 8BIT TRASP TR	2	E68,E95
40	40		1913671-00	74S374 FF-D OCTAL TRISTATE	7	E77,E86,E89,E93,E96,E98,E99
41	41		1914086-00	74S30 NAND GATE-POS 8IN	3	E7,E66,E74
42	42		1914866-00	AM 93S48PCGEN/CHECK PARITY, 4B	2	E58,E102
43	43		1915193-00	LS244 DRIVER,LINE,OCTAL,T	6	E82,E88,E90-E92,E108
44	44		2114523-00	4K MOS RAM 55NS 18PIN	30	E34,E36,E109-E136
45	45		9000024-01	EYFLET, ROLLED FLANGE, .121 OD X	12	
46	46		9008085-00	TEPM PCB 1POS SOLDER TURRET	2	TP1,TP2
47	47		9009185-00	JUMPER, WIRE, INSUIATED, BLACK B	1	W1
48	48		9105740-55	WIRE(WRAP)30AWG UL1423	1	
49	49		1300295-00	330.0 .25 W 5.0 % CC	1	R11

CONT

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							KK11-B CACHE		K	PL	M7097-0-DBP	C

TW

NOTE 1: JUMPER W1 IS INSTALLED FOR ALL SYSTEMS WHICH DON'T USE MULTIPORTED MEMORY. FOR MULTIPORTED MEMORY SYSTEMS JUMPER W1 IS REMOVED AND W2 IS INSERTED.



(K7-1 WRITE CONTROL LOGIC)

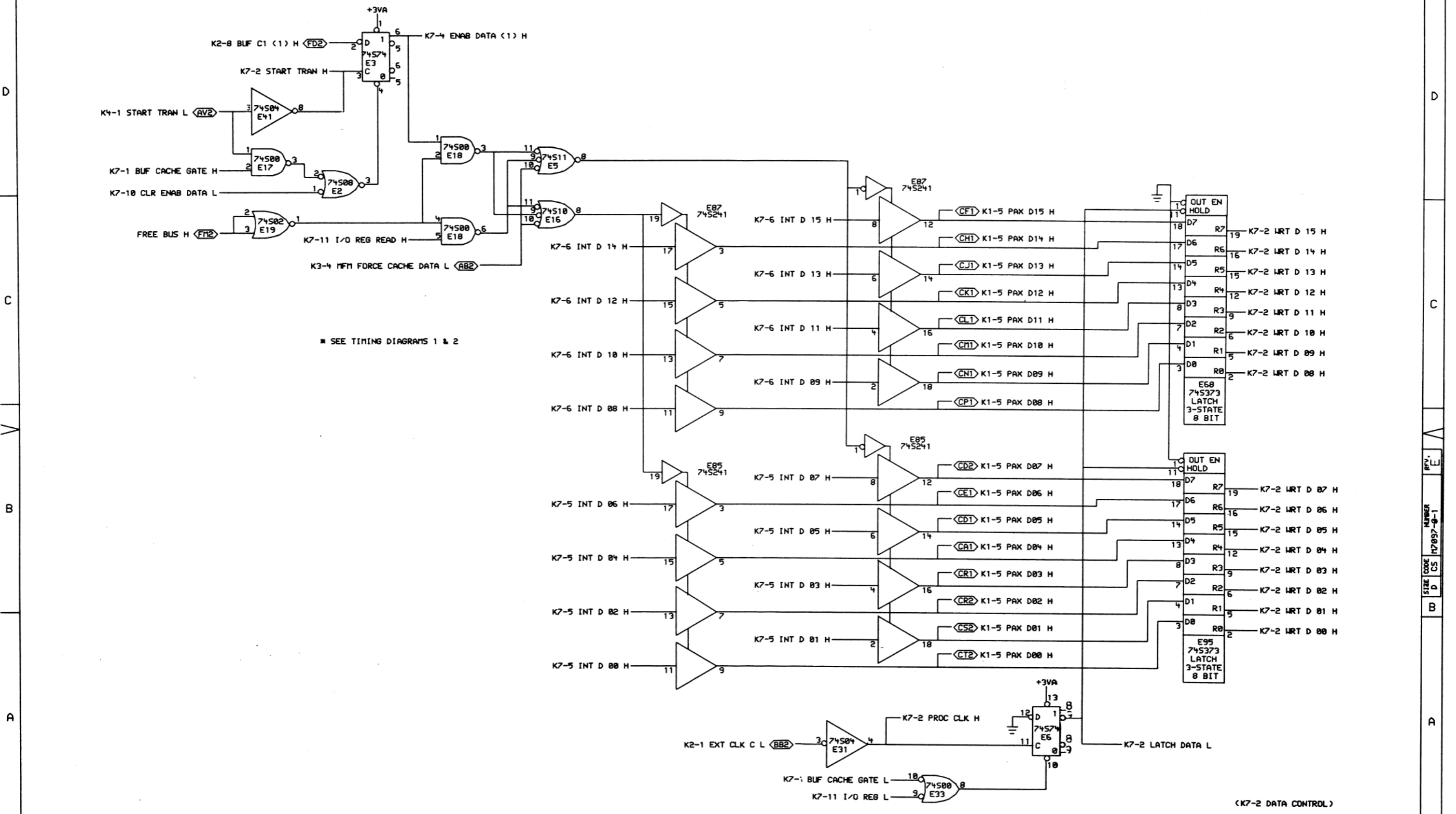
ALL RESISTORS ARE 1/4 W, 5%

+5.0V	R41 1KΩ	R42 1KΩ	R43 1KΩ	R44 1KΩ	+3VA	+3VB	+3VC	+3VD
-------	------------	------------	------------	------------	------	------	------	------

+5.0V	AA2, AV1, BA2, CA2, CV1, DA2, DV1, EA2, FA2, FV1	C1-C22 0.047UF 50V +80%-20%	C41-C46 6.8UF 35V 10%	C23-C39 C47-C51 .22UF 50V +80%-20%
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GND	AC2, AT1, BC2, BT1, CC2, CT1, DC2, DT1, EC2, ET1, FC2
-----	---

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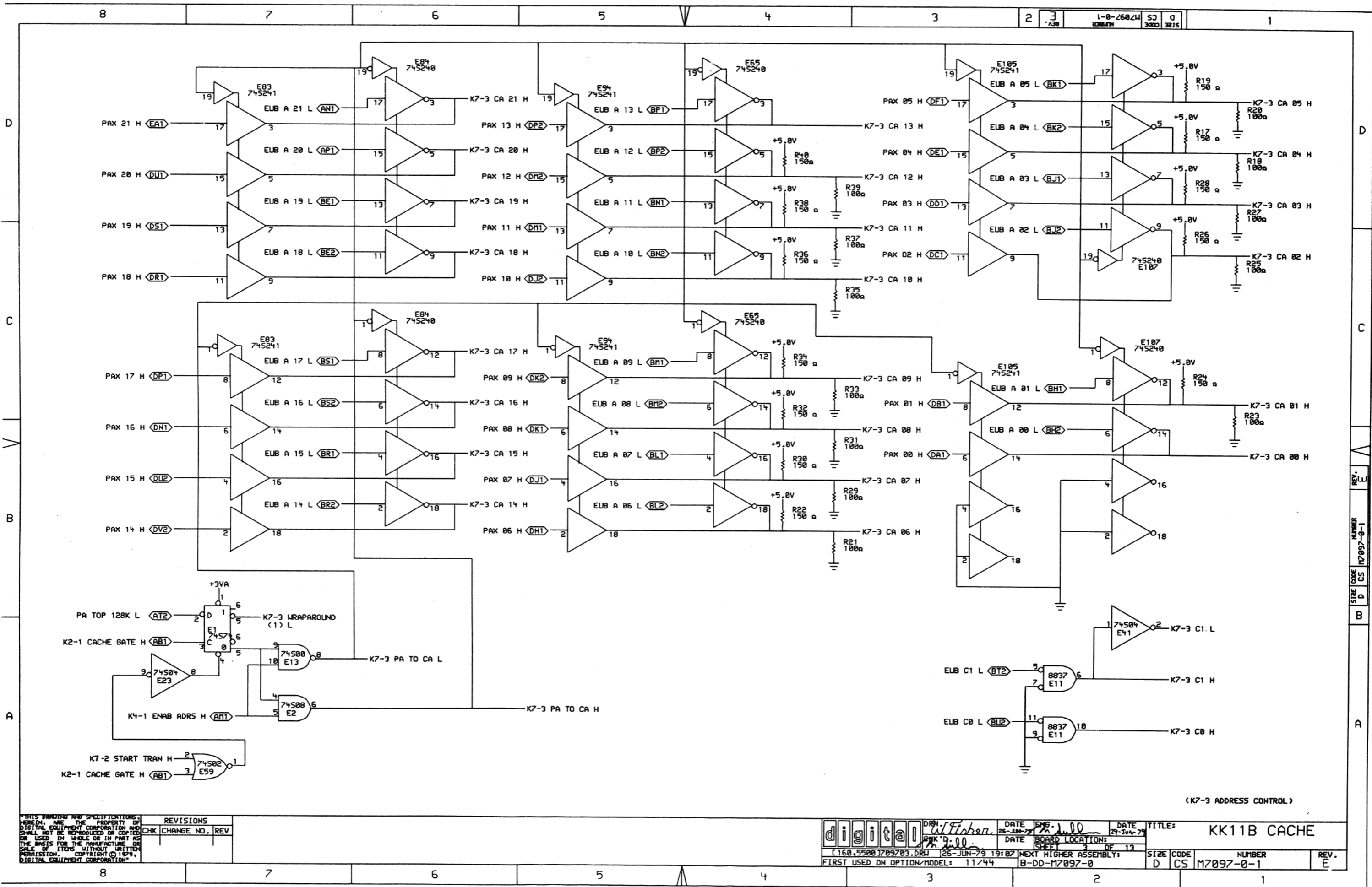


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REVISIONS	
CHK	CHANGE NO. REV

DATE	ENG	DATE	REV.	TITLE:
26-JUN-79	W. Fisher	29-JUN-79	1	KK11B CACHE
DATE	BOARD LOCATION:	DATE	BOARD LOCATION:	
29-JUN-79	2 OF 13	29-JUN-79	2 OF 13	
C 160,5500 1709702.DRW	26-JUN-79 19:02	NEXT HIGHER ASSEMBLY:		
FIRST USED ON OPTION/MODEL:	11/44	B-DD-M7097-0		

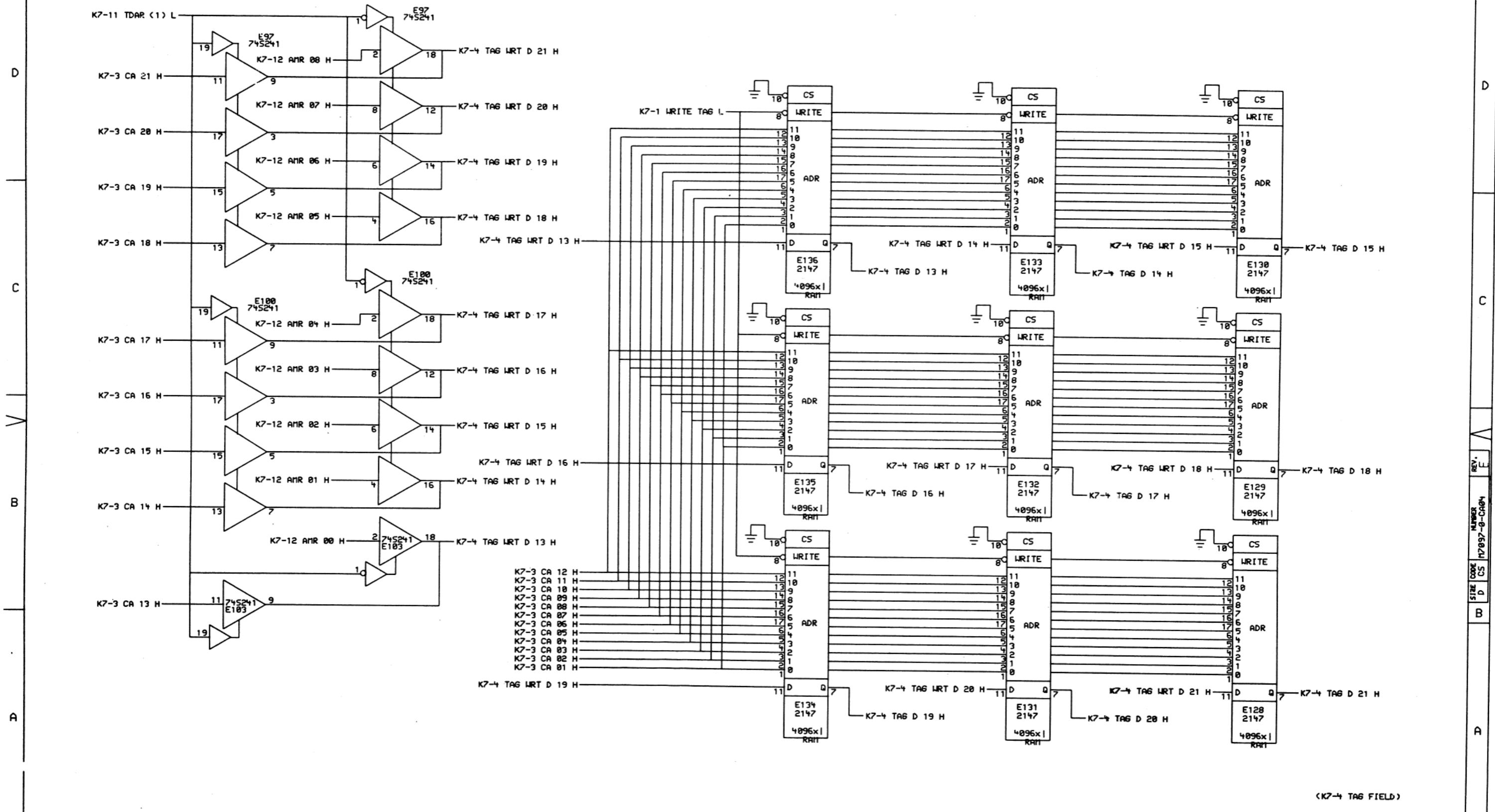
SIZE	CODE	NUMBER	REV.
D	CS	M7097-0-1	E



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REVISIONS	
CHK	CHANGE NO. / REV

digital	DRN	DATE	ENG	DATE	TITLE:
	W. Fisher	25-JUN-79	M. J. ...	29-JUN-79	KK11B CACHE
FIRST USED ON OPTION/MODEL: 11/44		NEXT HIGHER ASSEMBLY: B-DD-M7097-0		SIZE	CODE
				D	CS
				NUMBER	REV.
				M7097-0-1	E



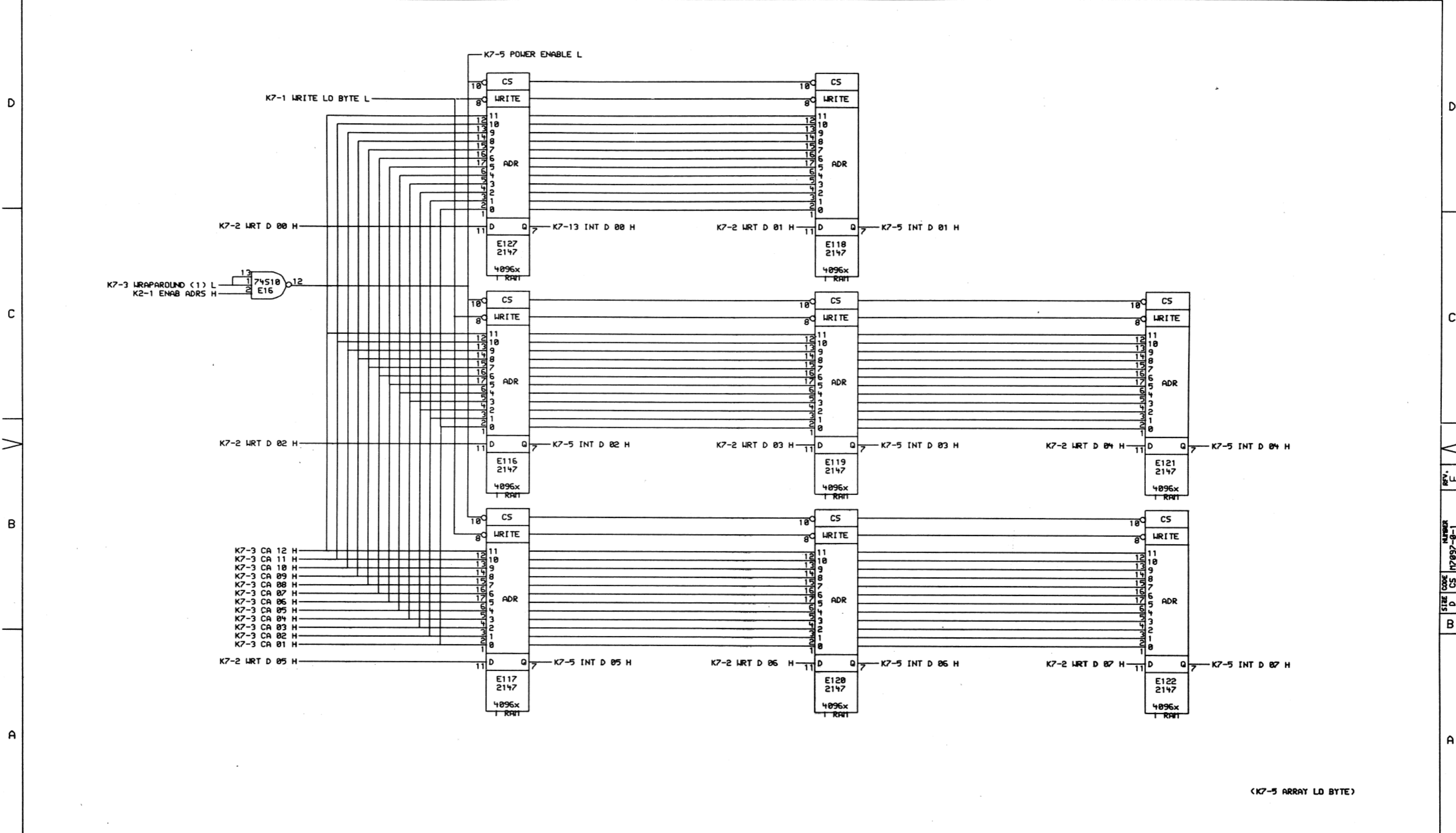
(K7-4 TAG FIELD)

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REVISIONS	
CHK	CHANGE NO. REV

digital	DRN	DATE	ENG	DATE	TITLE:
	CHK	26-JUN-79	A. J. Fisher	29-JUN-79	KK11B CACHE
FIRST USED ON OPTION/MODEL: 11/44		DATE	BOARD LOCATION:	SIZE CODE NUMBER REV.	
160,5500709704.DRW		26-JUN-79	19:08	D	CS M7097-0-1 E
NEXT HIGHER ASSEMBLY: B-DD-M7097-0		SHEET 4 OF 13			

REV. LL  
NUMBER M7097-0-C004  
SIZE CODE CS D B A

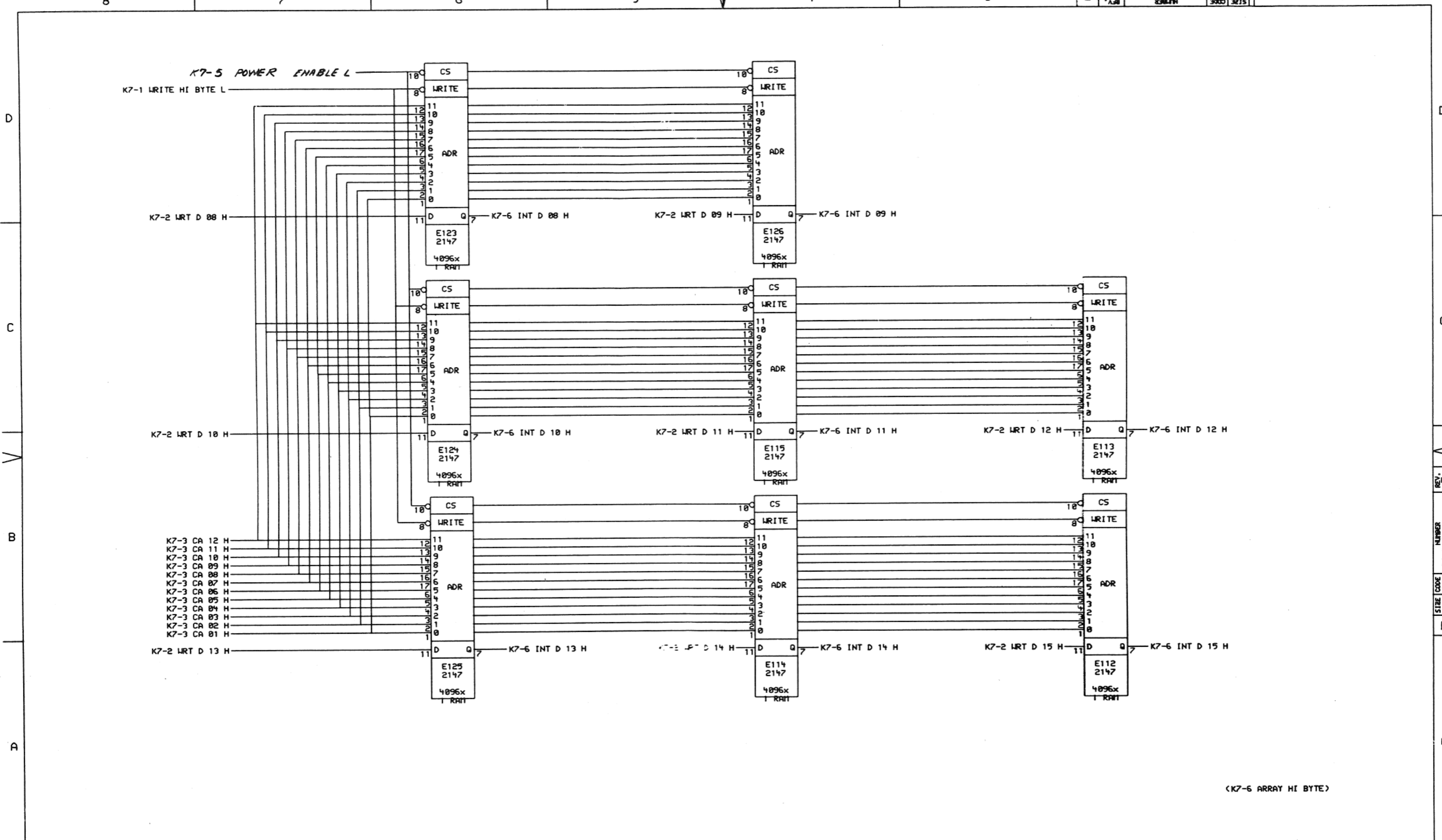


(K7-5 ARRAY LD BYTE)

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REVISIONS	
CHK	CHANGE NO. REV

digital	DRN <i>W. Fisher</i>	DATE ENG. <i>25-JUN-79</i>	DATE <i>27-JUN-79</i>	TITLE: <b>KK11B CACHE</b>
	CHK <i>9.16</i>	DATE BOARD LOCATION: <i>27-JUN-79</i>	SHEET <i>5</i> OF <i>13</i>	SIZE CODE NUMBER REV. D CS M7097-0-1 E
FIRST USED ON OPTION/MODEL: <i>11/44</i>		NEXT HIGHER ASSEMBLY: <i>B-DD-M7097-0</i>		



(K7-6 ARRAY HI BYTE)

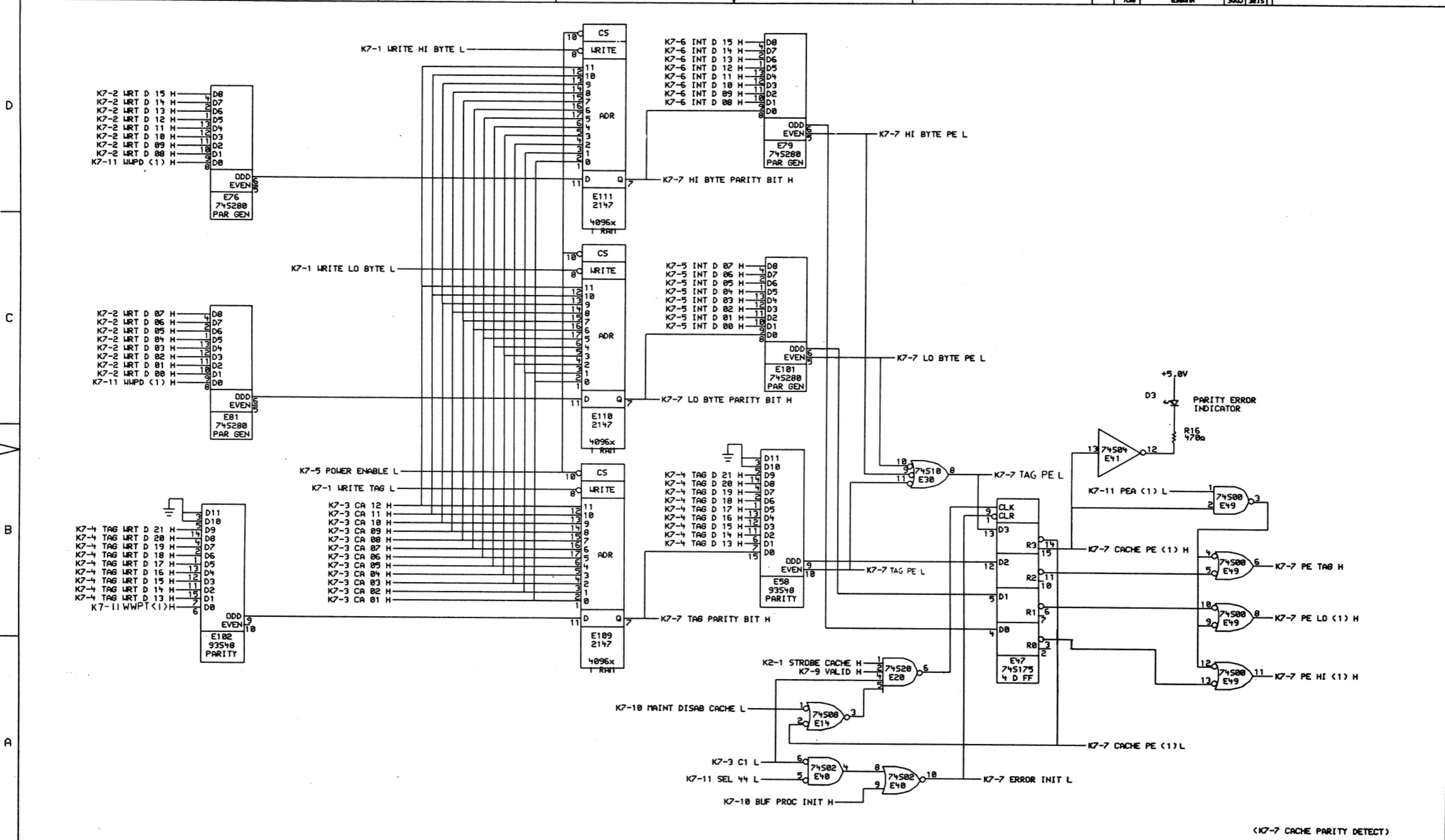
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REVISIONS		
CHK	CHANGE NO.	REV

digital	DRN <i>W. Fisher</i>	DATE <i>25-2-79</i>	ENG <i>M. Bull</i>	DATE <i>27-2-79</i>	TITLE: <b>KK11B CACHE</b>
	CHK <i>M. Bull</i>	DATE <i>27-2-79</i>	BOARD LOCATION: <i>6</i>	OF <i>13</i>	SIZE CODE NUMBER REV.
FIRST USED ON OPTION/MODEL: <i>11/44</i>		NEXT HIGHER ASSEMBLY: <i>B-DD-M7097-0</i>		D CS M7097-0-1 E	

SIZE CODE	NUMBER	REV.
D CS	M7097-0-1	E





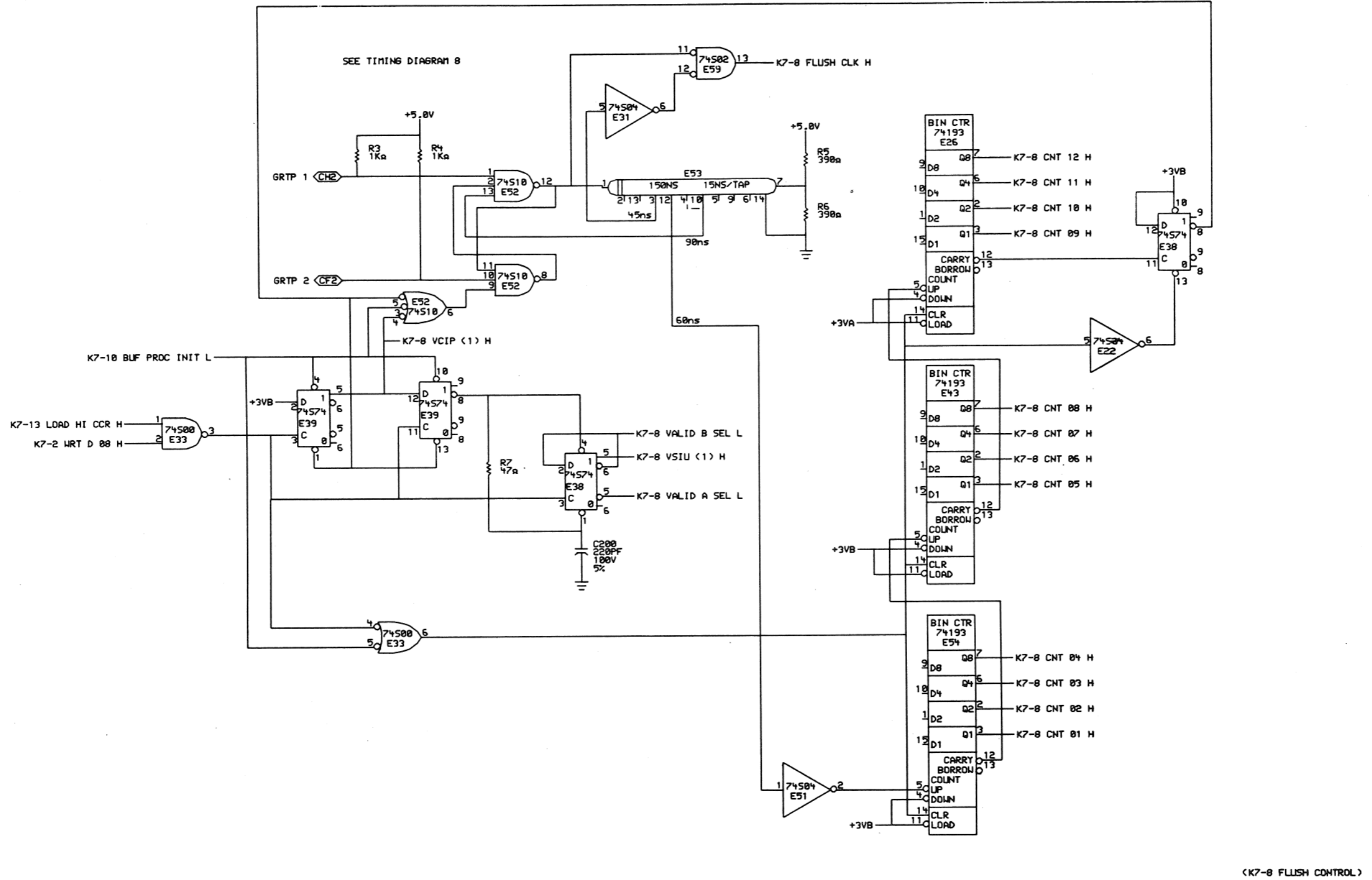
(K7-7 CACHE PARITY DETECT)

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REVISIONS		
CHK	CHANGE NO.	REV

	DRN: <i>W. Fisher</i>	DATE: 25-JUN-79	ENG: <i>M. Hill</i>	DATE: 27-JUN-79	TITLE: <b>KK11B CACHE</b>
	CHK: <i>M. Hill</i>	DATE: 27-JUN-79	BOARD LOCATION: 7	SHEET: 13	
FIRST USED ON OPTION/MODEL: 11/44			NEXT HIGHER ASSEMBLY: B-DD-M7097-0		SIZE CODE: D CS NUMBER: M7097-0-1 REV: E

EACH FLUSH CYCLE TAKES ABOUT 800 MICRO SECONDS



(K7-8 FLUSH CONTROL)

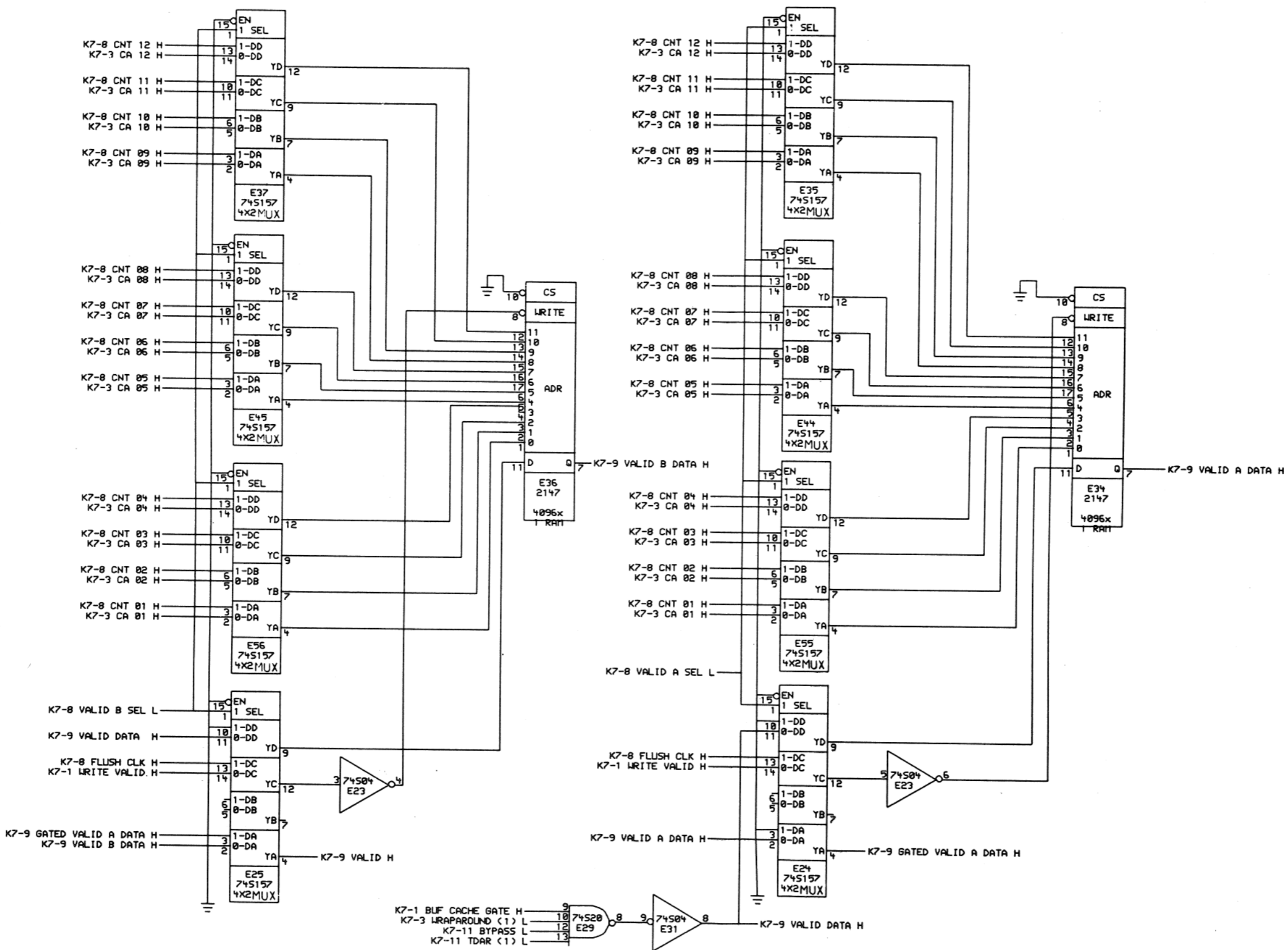
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REVISIONS		
CHK	CHANGE NO.	REV.

digital  
 (160,5500)709700.DRW  
 FIRST USED ON OPTION/MODEL: 11/44

DRN: *W. Fisher*  
 DATE: 26-JUN-79  
 DATE: 29-JUN-79  
 DATE: 29-JUN-79  
 BOARD LOCATION: 8 OF 13  
 NEXT HIGHER ASSEMBLY: B-DD-M7097-0

TITLE: KK11B CACHE  
 SIZE CODE: D CS  
 NUMBER: M7097-0-1  
 REV.: E



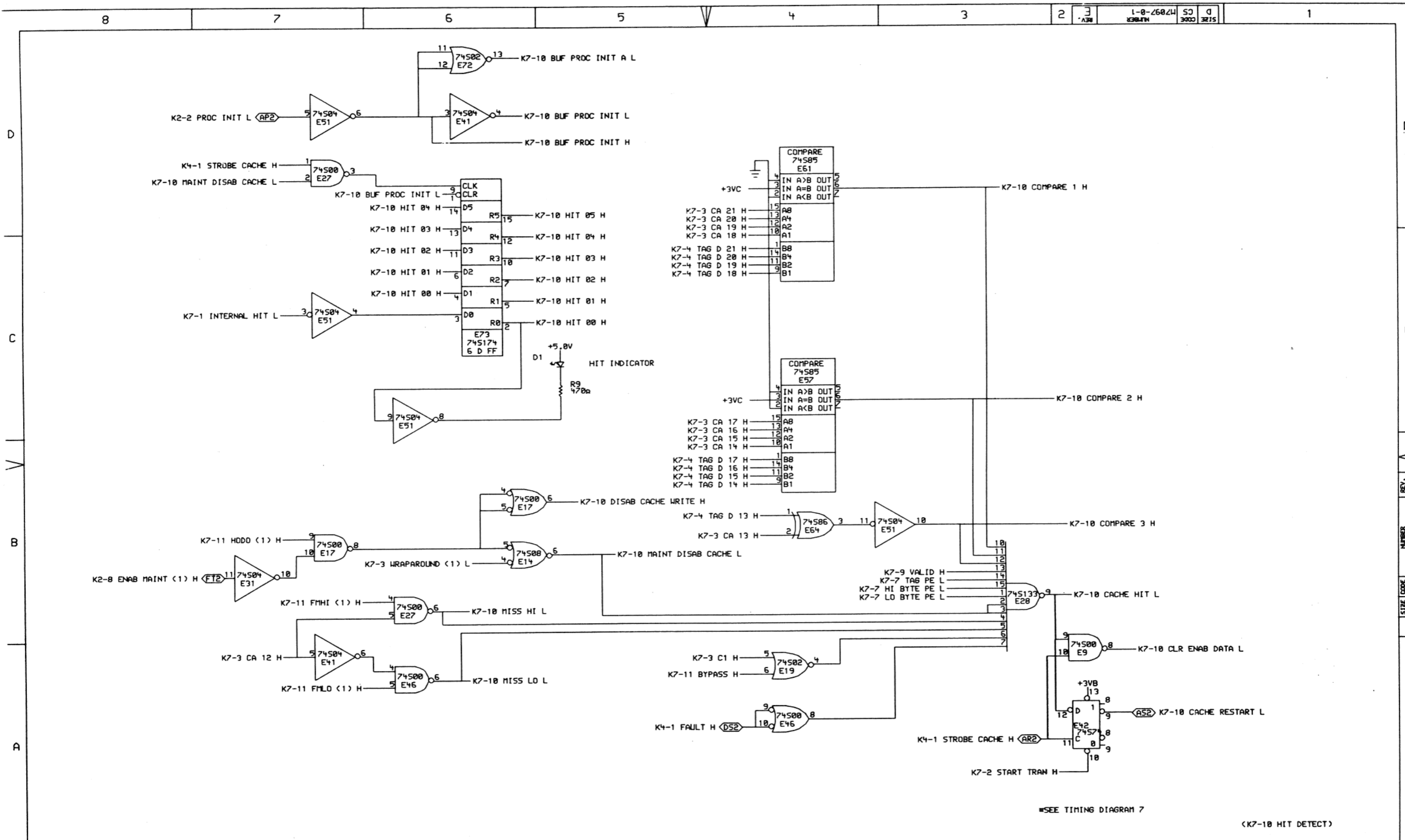
(K7-9 CACHE VALID BITS)

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REVISIONS	
CHK	CHANGE NO. REV

digital	DRN	W. Fisher	DATE ENG.	25-JUN-79	DATE	29-JUN-79	TITLE	KK11B CACHE
	CHK'D		DATE BOARD LOCATION	29-JUN-79	SHEET	9 OF 13		
FIRST USED ON OPTION/MODEL:		11/74	NEXT HIGHER ASSEMBLY:		B-DD-M7097-0		SIZE CODE	D CS
NUMBER		M7097-0-1		REV	E			

REV. E  
NUMBER M7097-0-1  
SIZE CODE CS  
D B A



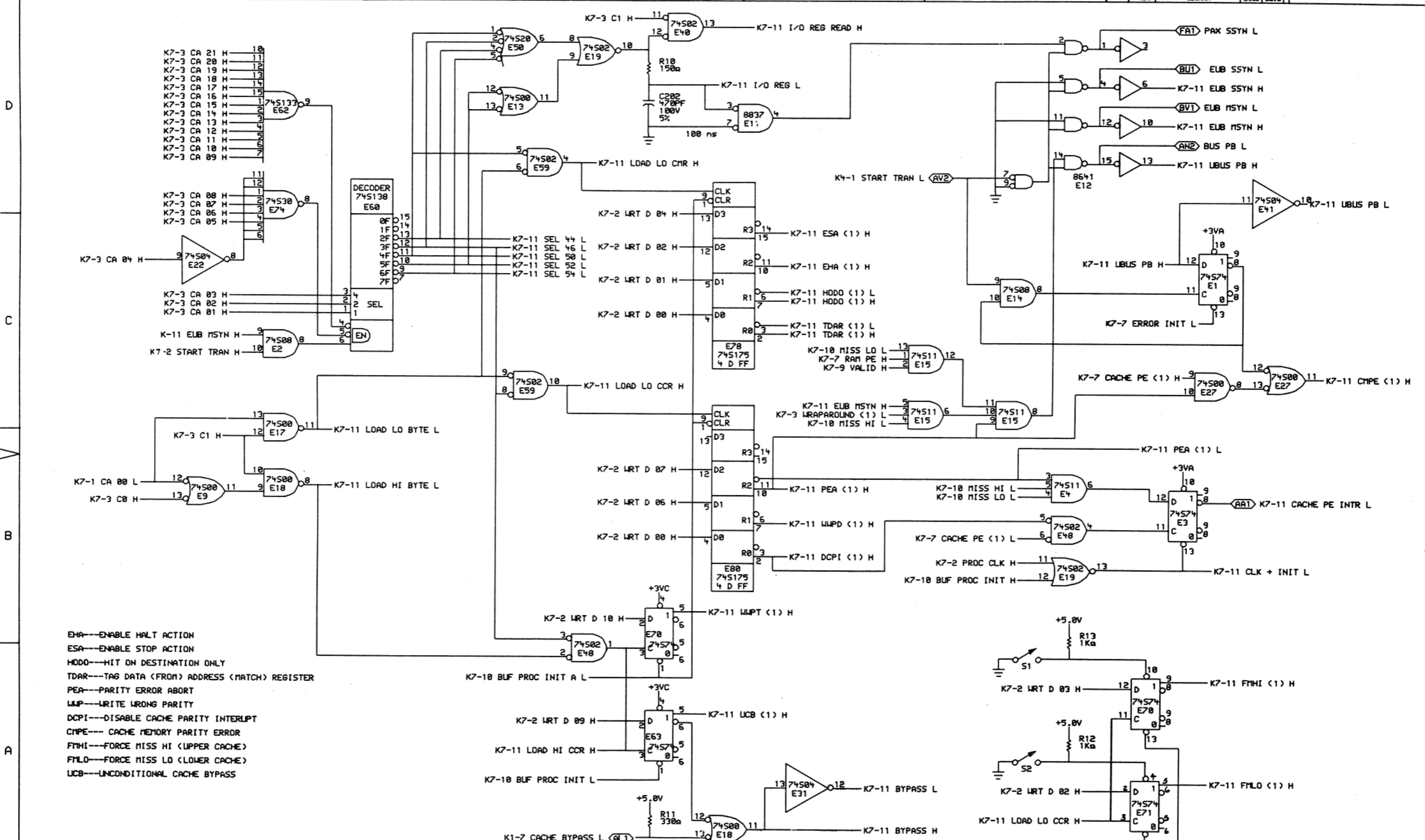
SEE TIMING DIAGRAM 7

(K7-10 HIT DETECT)

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REVISIONS	
CHK	CHANGE NO. REV.

digital	DATE	25-JUN-79	ENG.	M. Jull	DATE	29-JUN-79	TITLE:	KK11B CACHE	
	DRW	M. Jull	DATE	29-JUN-79	BOARD LOCATION:	18 OF 13	SIZE	CODE	NUMBER
[150,5500]709710.DRW		26-JUN-79 19:10	NEXT HIGHER ASSEMBLY:		B-DD-M7097-0	D	CS	M7097-0-1	E
FIRST USED ON OPTION/MODEL:		11/44							



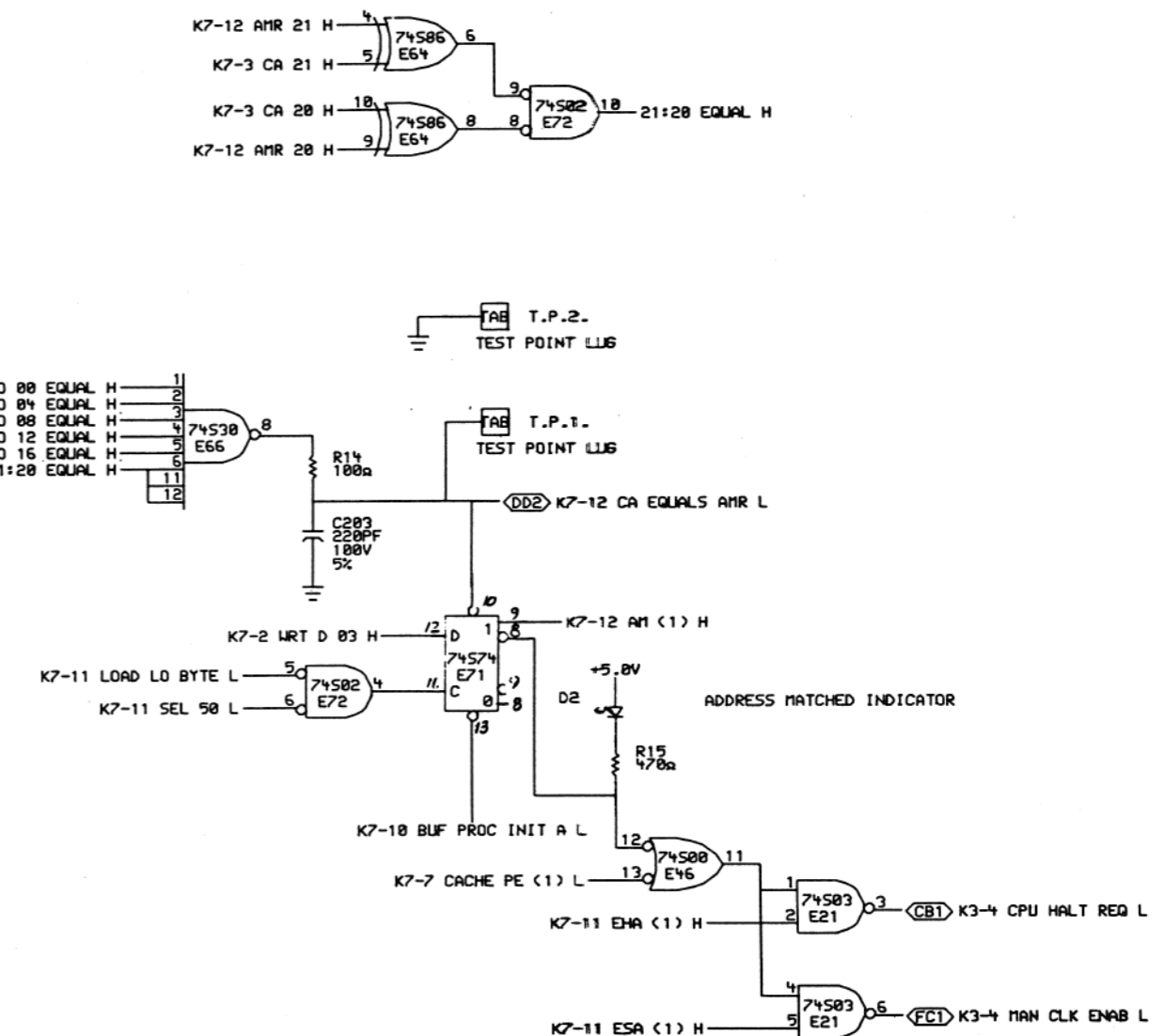
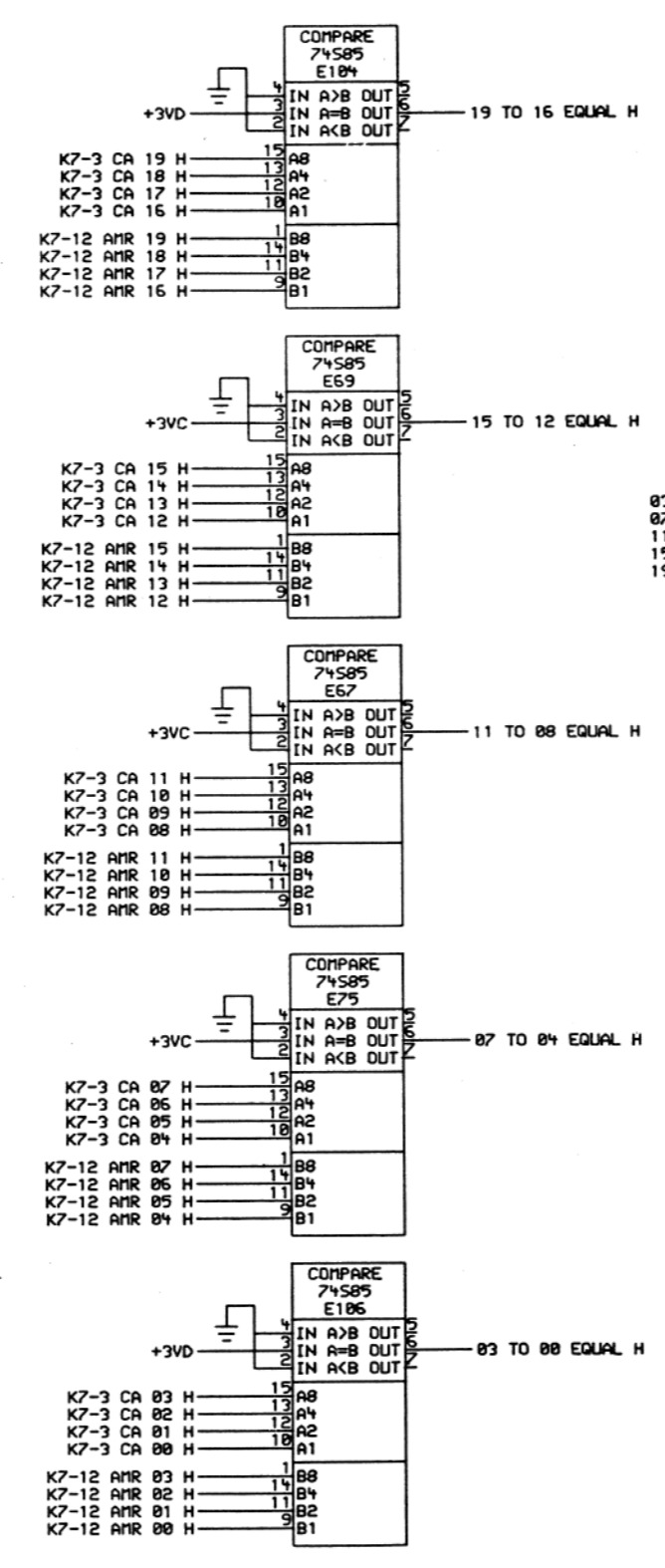
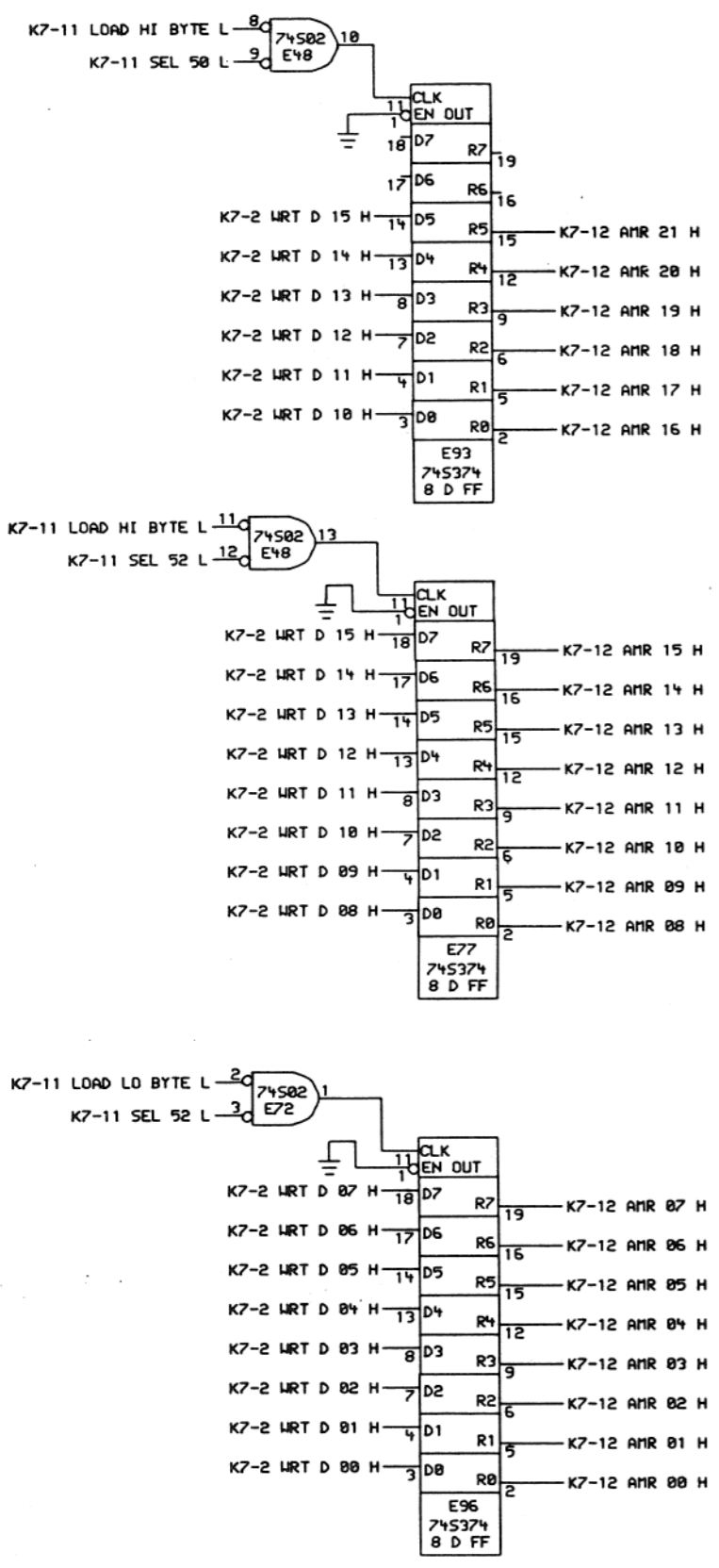
EHA---ENABLE HALT ACTION  
 ESA---ENABLE STOP ACTION  
 HODO---HIT ON DESTINATION ONLY  
 TDAR---TAG DATA (FROM) ADDRESS (MATCH) REGISTER  
 PEA---PARITY ERROR ABORT  
 WMP---WRITE WRONG PARITY  
 DCPI---DISABLE CACHE PARITY INTERRUPT  
 CMPE---CACHE MEMORY PARITY ERROR  
 FMHI---FORCE MISS HI (UPPER CACHE)  
 FMLO---FORCE MISS LO (LOWER CACHE)  
 LCB---UNCONDITIONAL CACHE BYPASS

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REVISIONS		
CHK	CHANGE NO.	REV

digital	DRN	DATE	ENG	DATE	TITLE
	CHK	26-JUN-79	M. Allen	27-JUN-79	KK11B CACHE
C160,5500709711.DRW		26-JUN-79 19:18	NEXT HIGHER ASSEMBLY:	SIZE	CODE
FIRST USED ON OPTION MODEL: 11/44		B-DD-M7097-0	SHEET 11 OF 13	D	CS
NUMBER			REV.		
M7097-0-1			E		

REV. L  
 NUMBER M7097-0-1  
 CS D B A

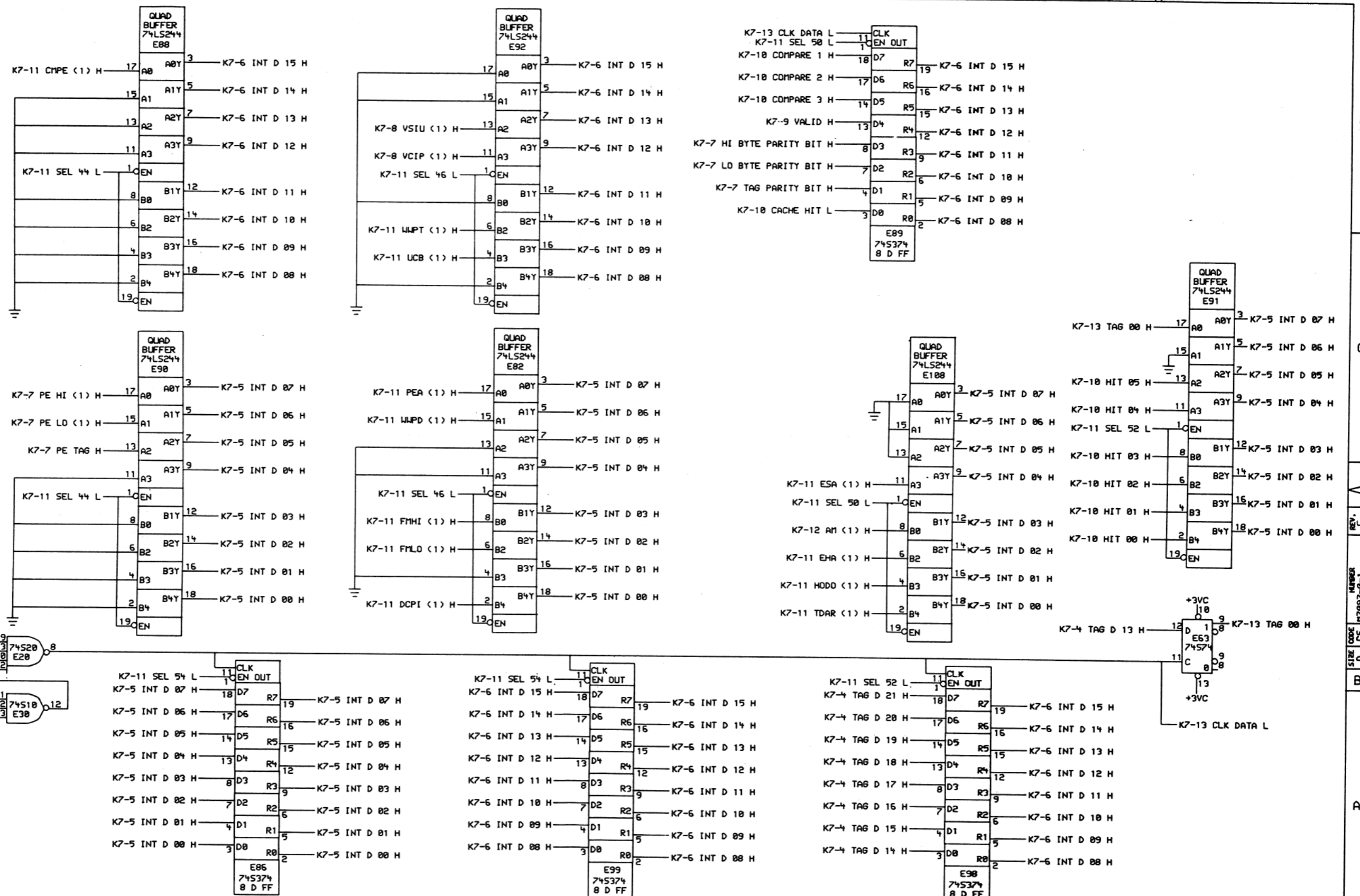


(K7-12 ADDR MATCH REGISTERS)

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REVISIONS	
CHK	CHANGE NO. REV.

digital	DRN	DATE	ENG	DATE	TITLE:
	CHK	26-JUN-79	M. Sullivan	19-JUN-79	KK11B CACHE
[150,5500]709712.DRW		26-JUN-79 19:11	NEXT HIGHER ASSEMBLY:		SIZE CODE
FIRST USED ON OPTION/MODEL: 11/44		B-DD-M7097-0		D CS	NUMBER
				M7097-0-1	REV.
					E



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REVISIONS	
CHK	CHANGE NO. REV

digital *W. Fisher* DATE ENG. 25-JUN-79 DATE 27-JUN-79 TITLE: KK11B CACHE

DATE BOARD LOCATION: 29-JUN-79 SHEET 13 OF 13

(150,5500)709713.DRW 26-JUN-79 19:11 NEXT HIGHER ASSEMBLY: B-DD-M7097-0 SIZE CODE NUMBER REV. D CS M7097-0-1 E