

FIELD MAINTENANCE PRINT SET

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B-TC-FP780-0-1	FP780 FLOATING POINT ACCELERATOR (TC)
B-DD-FP780-0	FP780 FLOATING POINT ACCELERATOR (DD)
E-UA-FP780-0-0	FP780 FLOATING POINT ACCELERATOR
D-BD-FP780-0-2	FP780 FLOAT. PT. ACCEL. (BLOCK DIAGRAM)
E-UA-M8285-0-0	FRACTION NORMALIZER (MODULE)
B-PL-M8285-0-0	FRACTION NORMALIZER (PARTS LIST)
D-CS-M8285-0-1	FRACTION NORMALIZER (SCHEMATIC)
E-UA-M8286-0-0	FRACTION MULTIPLIER HIGH (MODULE)
K-PL-M8286-0-0	FRACTION MULTIPLIER HIGH (PARTS LIST)
D-CS-M8286-0-1	FRACTION MULTIPLIER HIGH (SCHEMATIC)
E-UA-M8287-0-0	FRACTION MULTIPLIER LOW (MODULE)
K-PL-M8287-0-0	FRACTION MULTIPLIER LOW (PARTS LIST)
D-CS-M8287-0-1	FRACTION MULTIPLIER LOW (SCHEMATIC)
E-UA-M8288-0-0	FRACTION ADDER (MODULE)
B-PL-M8288-0-0	FRACTION ADDER (PARTS LIST)
D-CS-M8288-0-1	FRACTION ADDER (SCHEMATIC)
E-UA-M8289-0-0	FPA CONTROLLER (MODULE)
K-PL-M8289-0-0	FPA CONTROLLER (PARTS LIST)
D-CS-M8289-0-1	FPA CONTROLLER (SCHEMATIC)

UNIT VARIATIONS
COVERED BY THIS
PRINT SET

FP780-AA

FP780-AB

FP780
**Field Maintenance
Print Set**

Digital Equipment Corporation

PRINT SET ORDER NO.
MP00565

REVISIONS	REV.				USED ON OPTION/MODEL		DRN.	DATE	<div style="float: right; border: 1px solid black; padding: 2px;">digital</div> TITLE: FP780 FLOATING POINT ACCELERATOR						
	CHG. NO.						B. BLODGETT	JAN 78							
	DATE						CHK'D	DATE							
							D. Hoag	16 FEB 78							
							PROJ. ENG.	DATE							
							A. Helms	27 Feb 78							
						FIELD SERV.	DATE	SIZE	CODE	NUMBER	REV.				
						SHEET I OF 1	Bill Freeman	27 FEB 78	B	TC	FP780-0-1				
									DIST.						

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FOR FIELD MAINTENANCE PRINT SET SEE: B-TC-FP78Ø-Ø-1

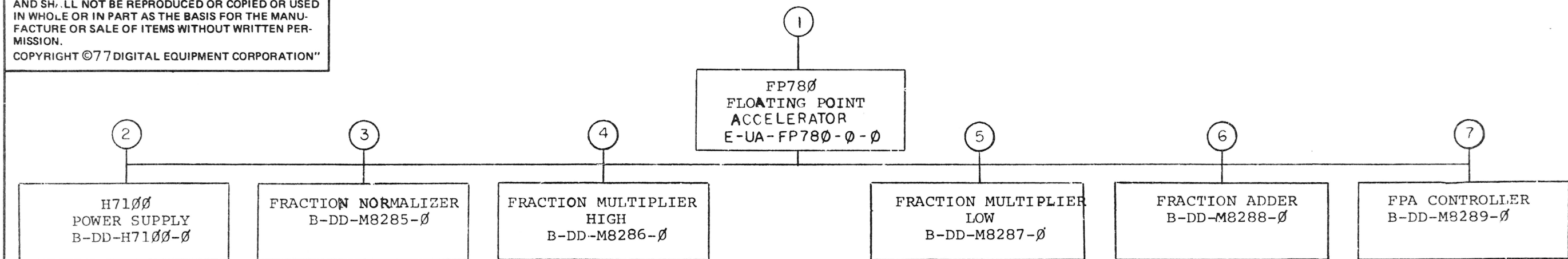
UNIT VARIATIONS

[illegible]

REVISIONS	REV.		USED ON OPTION/MODEL	DRN.	DATE	TITLE <div>digital</div>										
	CHANGE NO.			B. BLODGETT	01 DEC 77											
	CHK			11780 - C	CHK'D.	DATE	FP78Ø FLOATING POINT ACCELERATOR									
				11780 - D	<i>D. Hooley</i>	16 FEB 78										
					PROJ. ENG.	DATE										
					<i>A. Helms</i>	27 Feb 78										
					PROD.	DATE	SIZE	CODE	NUMBER				REV			
					B	DD	FP78Ø-Ø									
			SHEET 1 OF 3	<i>J. Rosen</i>	3/29/78	DIST.										

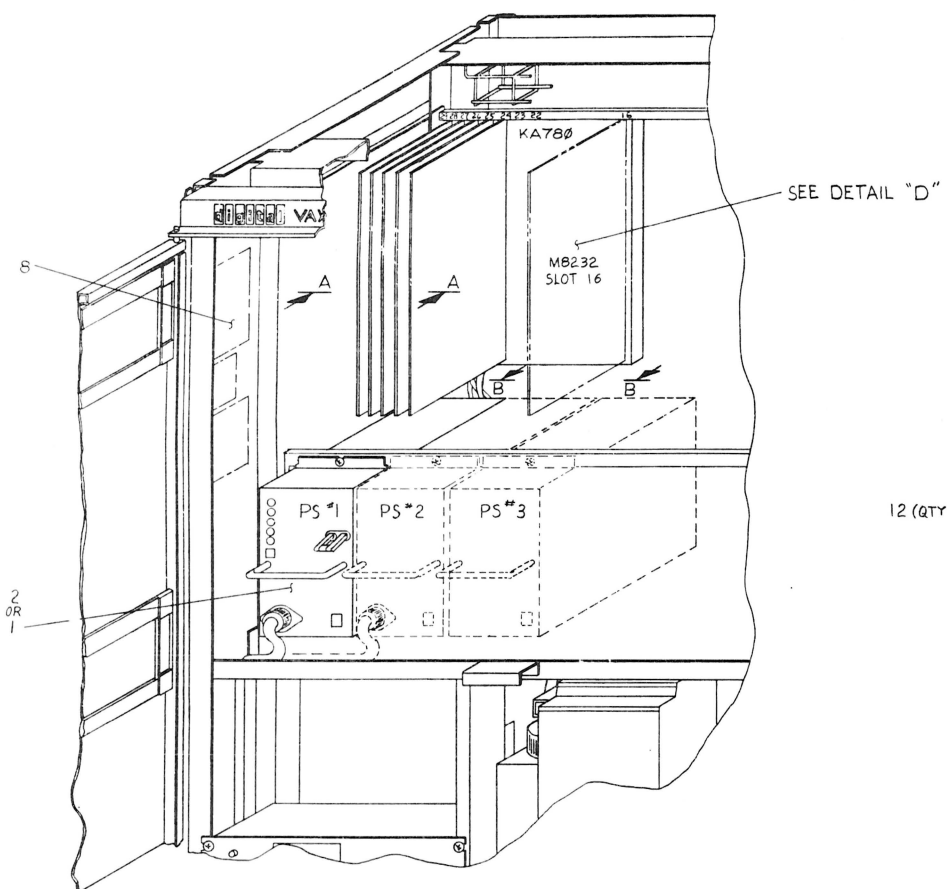
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REV.	NUMBER FP780-0	SIZE B	CODE DD
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TITLE	FP780 FLOATING POINT ACCELERATOR	SHEET 2 OF 3	SIZE B DD	CODE DD	NUMBER FP780-0	REV
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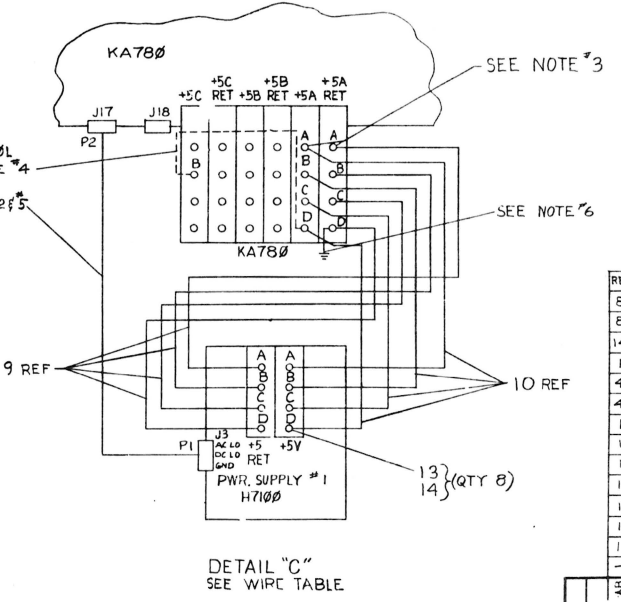
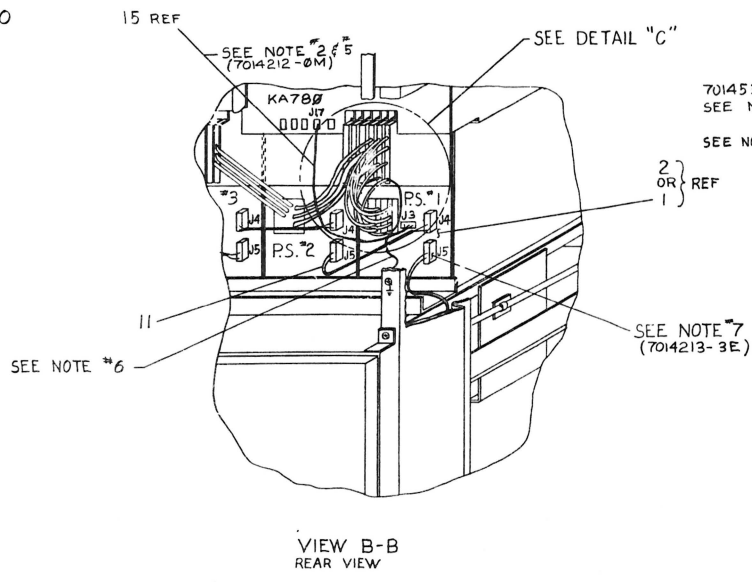
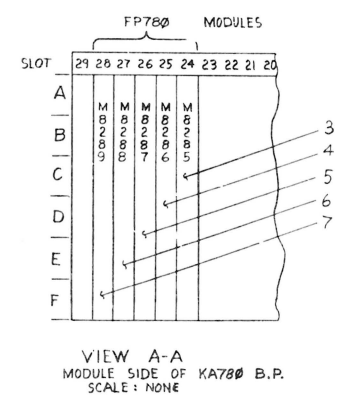
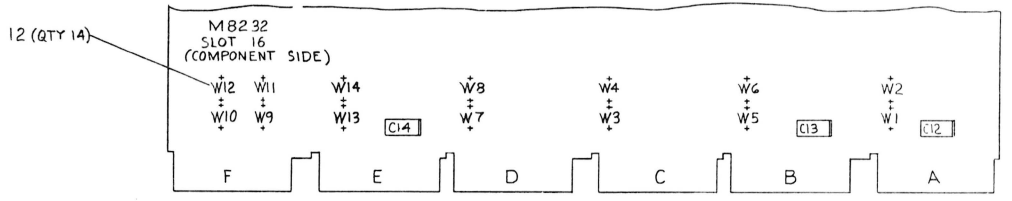
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WIRE TABLE					
ITEM NO	DESCRIPTION	FROM	TO	REMARKS	
10	B	RED	+5A-A	10-32 NUT	+5V-A
11	B	RED	+5A-B		+5V-B
12	B	RED	+5A-C		+5V-C
13	B	RED	+5A-D		+5V-D
14	B	RED	+5A-E		+5V-E
15	B	RED	+5A-F		+5V-F
16	B	RED	+5A-G		+5V-G
17	B	RED	+5A-H		+5V-H
18	B	RED	+5A-I		+5V-I
19	B	RED	+5A-J		+5V-J
20	B	RED	+5A-K		+5V-K
21	B	RED	+5A-L		+5V-L
22	B	RED	+5A-M		+5V-M
23	B	RED	+5A-N		+5V-N
24	B	RED	+5A-O		+5V-O
25	B	RED	+5A-P		+5V-P
26	B	RED	+5A-Q		+5V-Q
27	B	RED	+5A-R		+5V-R
28	B	RED	+5A-S		+5V-S
29	B	RED	+5A-T		+5V-T
30	B	RED	+5A-U		+5V-U
31	B	RED	+5A-V		+5V-V
32	B	RED	+5A-W		+5V-W
33	B	RED	+5A-X		+5V-X
34	B	RED	+5A-Y		+5V-Y
35	B	RED	+5A-Z		+5V-Z
36	B	RED	+5A-AA		+5V-AA
37	B	RED	+5A-AB		+5V-AB
38	B	RED	+5A-AC		+5V-AC
39	B	RED	+5A-AD		+5V-AD
40	B	RED	+5A-AE		+5V-AE
41	B	RED	+5A-AF		+5V-AF
42	B	RED	+5A-AG		+5V-AG
43	B	RED	+5A-AH		+5V-AH
44	B	RED	+5A-AI		+5V-AI
45	B	RED	+5A-AJ		+5V-AJ
46	B	RED	+5A-AK		+5V-AK
47	B	RED	+5A-AL		+5V-AL
48	B	RED	+5A-AM		+5V-AM
49	B	RED	+5A-AN		+5V-AN
50	B	RED	+5A-AO		+5V-AO
51	B	RED	+5A-AP		+5V-AP
52	B	RED	+5A-AQ		+5V-AQ
53	B	RED	+5A-AR		+5V-AR
54	B	RED	+5A-AS		+5V-AS
55	B	RED	+5A-AT		+5V-AT
56	B	RED	+5A-AU		+5V-AU
57	B	RED	+5A-AV		+5V-AV
58	B	RED	+5A-AW		+5V-AW
59	B	RED	+5A-AX		+5V-AX
60	B	RED	+5A-AY		+5V-AY
61	B	RED	+5A-AZ		+5V-AZ
62	B	RED	+5A-BA		+5V-BA
63	B	RED	+5A-BB		+5V-BB
64	B	RED	+5A-BB		+5V-BB
65	B	RED	+5A-BB		+5V-BB
66	B	RED	+5A-BB		+5V-BB
67	B	RED	+5A-BB		+5V-BB
68	B	RED	+5A-BB		+5V-BB
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95	B	RED	+5A-BB		+5V-BB
96	B	RED	+5A-BB		+5V-BB
97	B	RED	+5A-BB		+5V-BB
98	B	RED	+5A-BB		+5V-BB
99	B	RED	+5A-BB		+5V-BB
100	B	RED	+5A-BB		+5V-BB

LEGEND	
FP780-AA	115V, 60 HZ
FP780-AB	230V, 50 HZ

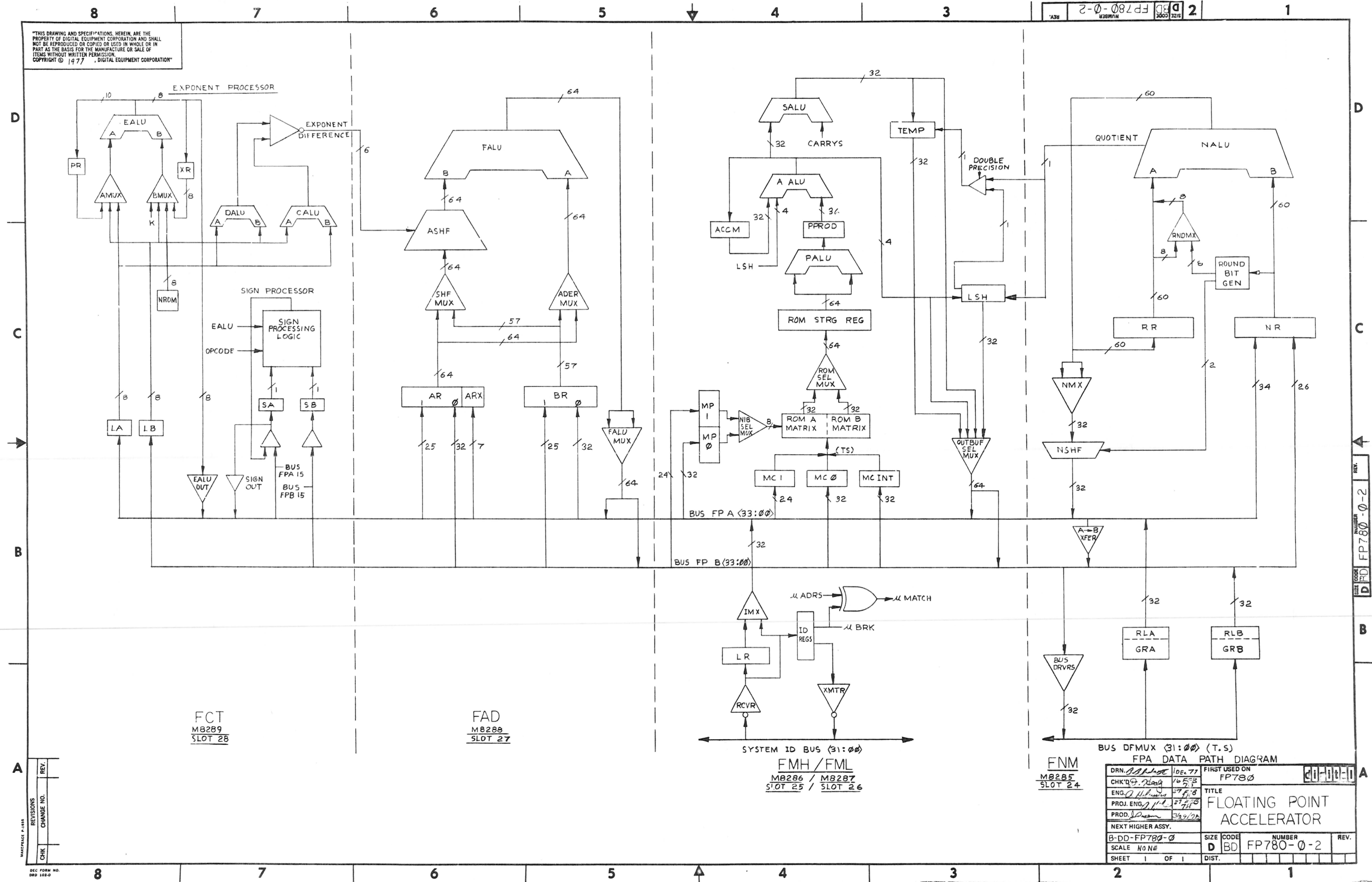
- NOTES:
- LOGIC JUMPERS (ITEM #12) ARE TO BE INSTALLED ON THE EXISTING CLOCK MODULE (MB232), SUPPLIED WITH THE CPU ASSY (KA780), IN THE LOCATIONS MARKED W1 THRU W14, USING SOLDER.
 - REFER TO 11780 SUB-SYSTEM INTERCONNECT DWG. # D-1C-11780-0-3 FOR CABLE CONNECTIONS.
 - MOUNTING HARDWARE (#10-32 NUT & PLASTIC RETAINER) FOR LOGIC POWER CABLES, IS SUPPLIED WITH THE KA780 BACK PLANE ASSY.
 - REMOVE JUMPER WHEN FP780 IS INSTALLED. REFER ALSO TO D-1C-11780-0-3 SHEETS 4 AND 5.
 - REMOVE END OF CABLE PLUGGED INTO J13 OF DW780 AND PLUG INTO J3 OF PWR. SUPPLY #1.
 - WHEN INSTALLATION OF WIRE FROM P.S. #1 (+5 RET-D) TO KA780 (+5A RET-D) IS COMPLETE, MAKE SURE THAT WIRE FROM KA780 (+5 RET-D) TO CABINET FRAME REMAINS CONNECTED.
 - REFER TO 11780 SYSTEM INTERCONNECT DIAGRAM # D-1C-11780-0-2 FOR CABLE CONNECTIONS AND D-1C-11780-0-1 FOR SYSTEM POWER DIAGRAM INFO.



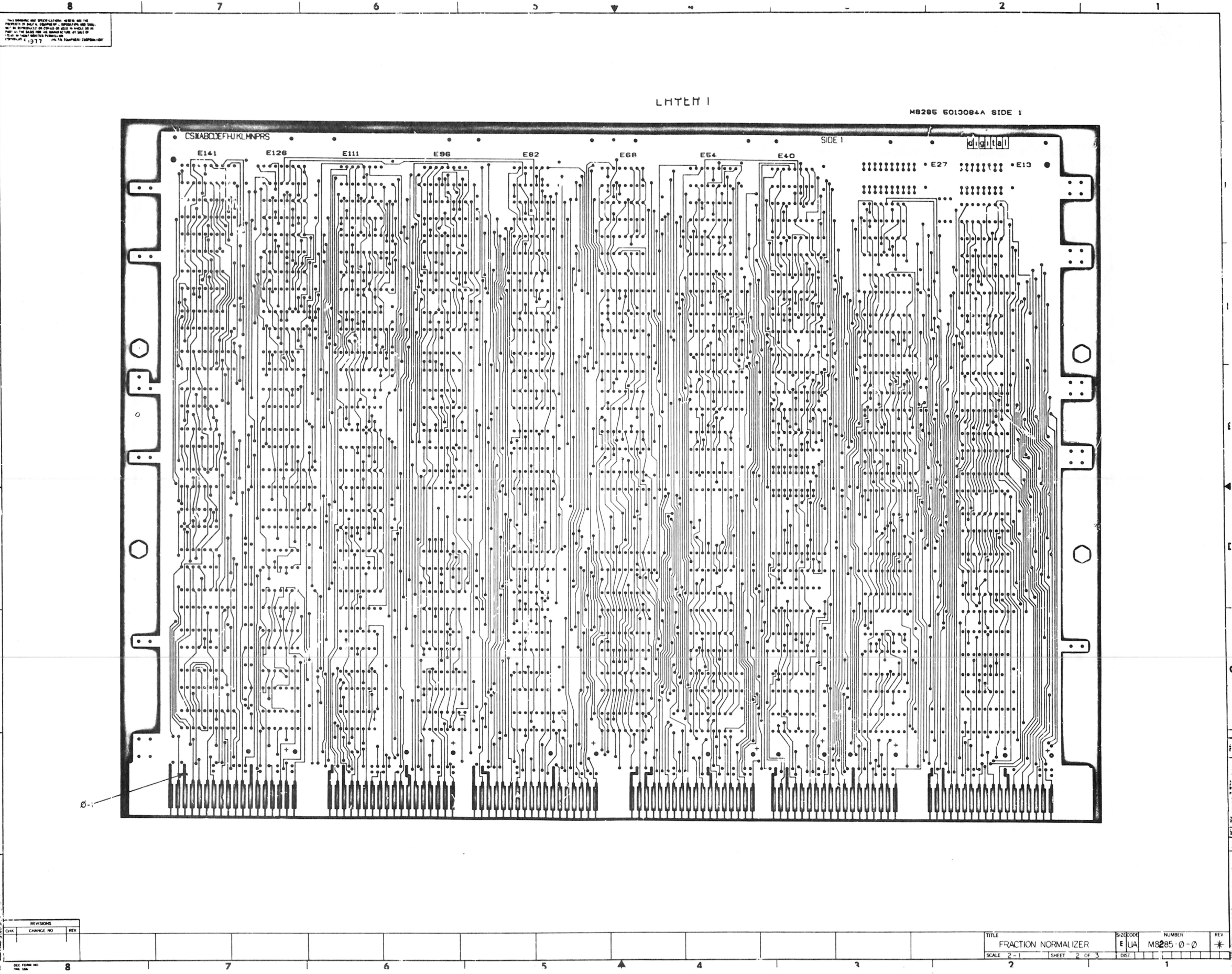
REF	11780 SUB-SYSTEM INTERCONNECT	D-1C-11780-0-3	15
8	B	WASHER, LOCK SPLIT	10
8	B	SCR, PH HD PAN #10-32X.50	9006073-01
14	14	JUMPER, INSULATED	9009185-00
1	1	OVER TEMP. CABLE	D-1A-7014213-0K0
4	4	LOGIC POWER CABLE (RED)	D-1A-7014530-0L0
4	4	LOGIC POWER CABLE (BLK)	D-1A-7014249-0L0
1	1	STICKER, MODULE UTILIZATION	3615084-00
1	1	FRA. CONTROLLER	D-1A-M8289-0-0
1	1	FRACTION ADDER	D-1A-M8288-0-0
1	1	FRACTION MULTIPLIER, LOW	D-1A-M8287-0-0
1	1	FRACTION MULTIPLIER, HIGH	D-1A-M8286-0-0
1	1	FRACTION NORMALIZER	D-1A-M8285-0-0
1	1	PWR. SUPPLY	230V, 50HZ-UA-H7100-0-0
1	1	PWR. SUPPLY	115V, 60HZ-UA-H7100-0-0

DESCRIPTION	DWG PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
ANGLES	30°	
SURFACE	30°	
QUALITY	30°	
IN	30°	
MICROMETERS	30°	
PERPENDICULAR	30°	
1.01	1.015	1.025
1.04	1.05	1.06
1.08	1.09	1.10
1.14	1.15	1.16
1.21	1.22	1.23
1.31	1.32	1.33
1.41	1.42	1.43
1.51	1.52	1.53
1.61	1.62	1.63
1.71	1.72	1.73
1.81	1.82	1.83
1.91	1.92	1.93
2.01	2.02	2.03
2.11	2.12	2.13
2.21	2.22	2.23
2.31	2.32	2.33
2.41	2.42	2.43
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15.71	15.72	15.73
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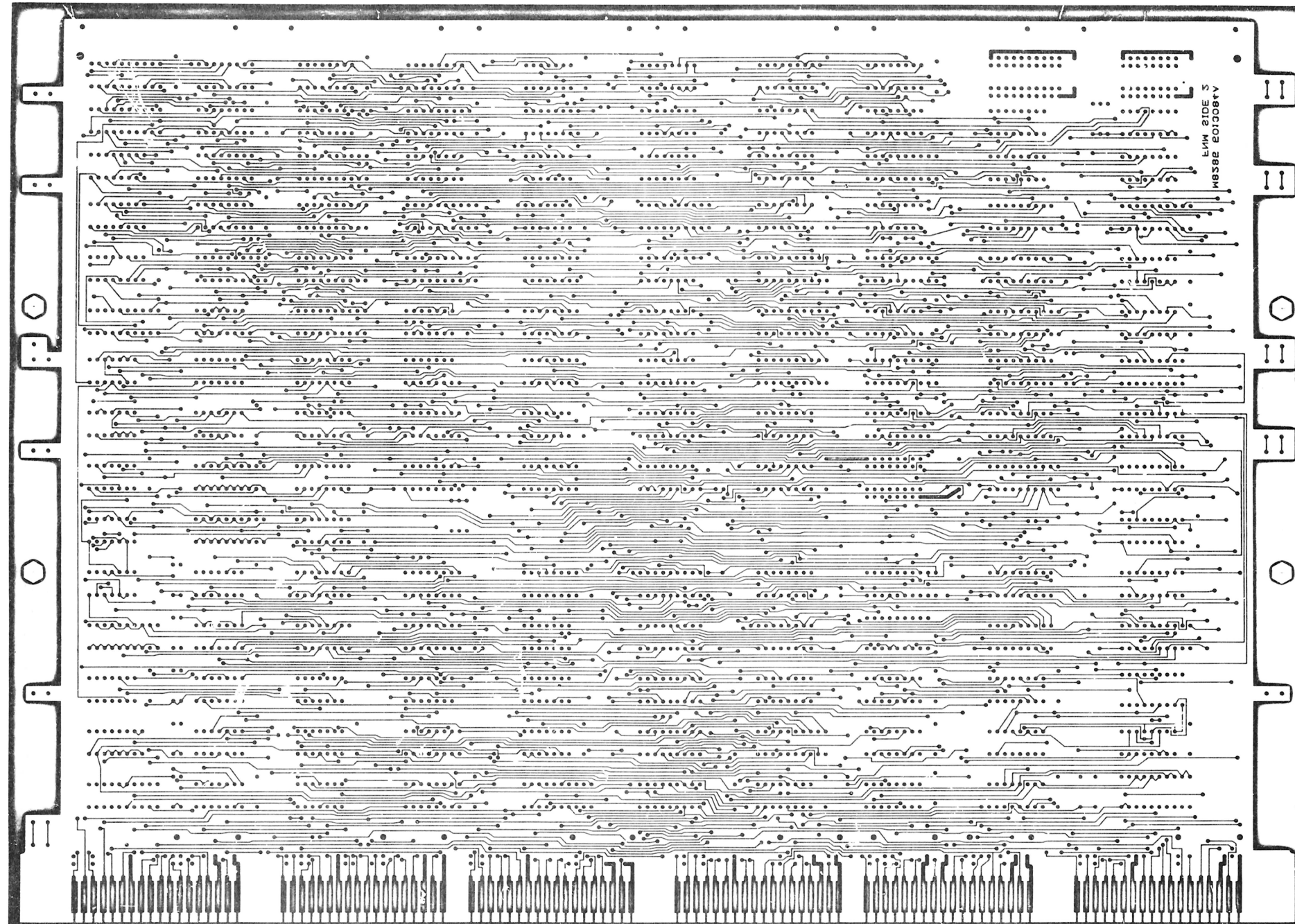
ALL DIMENSIONS AND SPECIFICATIONS ARE IN INCHES AND FRACTIONS OF INCHES UNLESS OTHERWISE SPECIFIED. THE DIMENSIONS OF THIS BOARD ARE BASED ON THE MANUFACTURE OF THIS BOARD BY THE MANUFACTURER OF THIS BOARD.

REVISIONS		
CHK	CHANGE NO	REV

TITLE		SIZE/COORD	NUMBER	REV
FRACTION NORMALIZER		E 1/4	M8285-0-0	*
SCALE	2-1	SHEET	2 OF 3	DIST

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LAYER 4



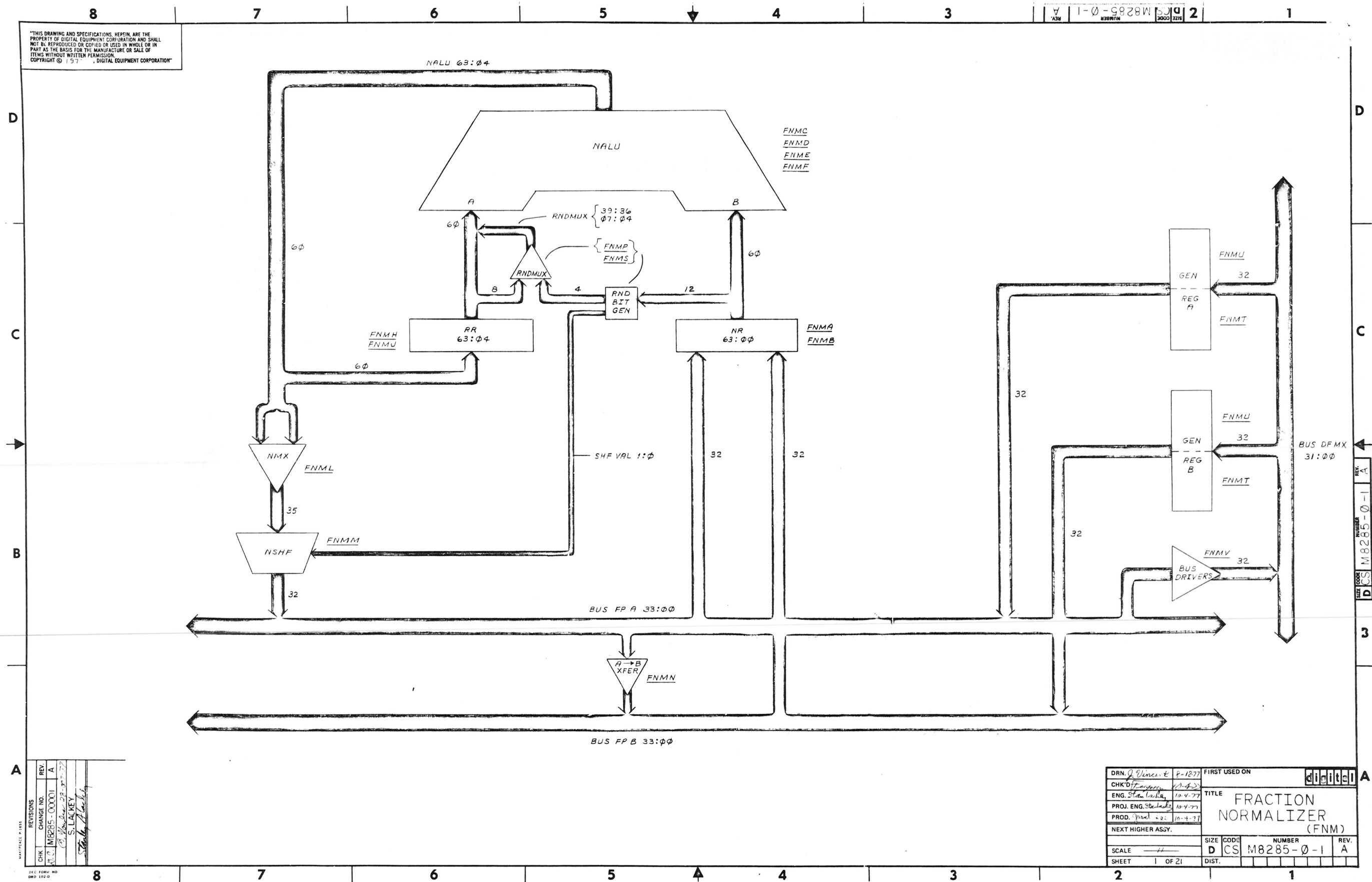
REVISIONS		
CHK	CHANG' NO	REV

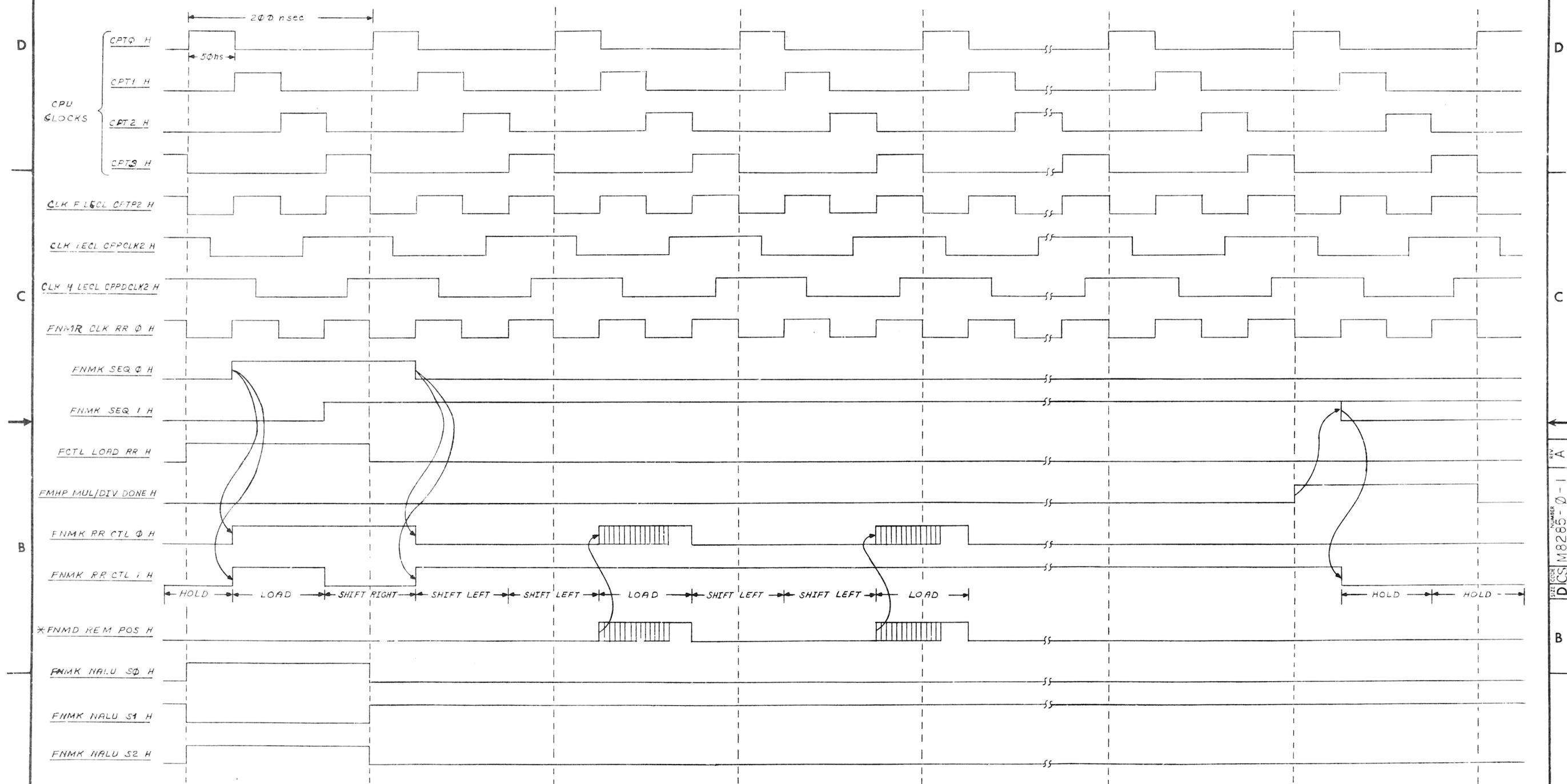
DEC FORM NO
REV 100

TITLE		SUB CODE	NUMBER	REV
FRACTION NORMALIZER		EUA	MB285-0-0	*
SCALE 2-1	SHEET 3 OF 3	DIST	1	

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION												NOTES:							
MADE BY DATE		M. FUNARO 20 JULY 77		CHECKED DATE		J. Giammarino 9-6-77		SECTION															
ENG DATE		Stan Lacher 4-Oct-77		PROD DATE		Mike Tenillo 9-27-77		ISSUED SECTION															
ITEM NO.		DRAWING NO.		PART NO.		DESCRIPTION		M8285-0-0															
										REF DESIGNATION													
1		D-MD-5013084-0-0		5013084		ETCH BOARD																	
2				1910532		I.C. DEC 74S00		3		E79, E85, E116													
3				1910534		I.C. DEC 74S04		4		E75, E97, E99, E133													
4				1912389		I.C. DEC 74S08		2		E98, E129													
5				1910539		I.C. DEC 74S20		1		E112													
6				1912746		I.C. DEC 74S37		3		E70, E82, E119													
7				1910541		I.C. DEC 74S40		1		E90													
8				1911712		I.C. DEC 74S51		3		E72, E91, E120													
9				1910542		I.C. DEC 74S64		7		E114, E115, E121, E131, E132, E134, E135													
10				1910544		I.C. DEC 74S74		3		E71, E80, E113													
11				1910548		I.C. DEC 74S157		11		E52, E53, E62, E63, E64, E76, E77, E78, E81, E95, E105													
12				1910549		I.C. DEC 74S158		2		E84, E83													
13				1912097		I.C. DEC 74S182		5		E37, E51, E94, E110, E139													
14				1910552		I.C. DEC 74S194		32		E8, E9, E11, E12, E39, E40, E41, E43, E44, E46, E54, E66, E67, E68, E86, E87, E88, E89, E96, E100, E101, E102, E103, E104, E107, E111, E123, E124, E125, E126, E137, E138													
15				1913493		I.C. DEC 74S241		1		E69													
16				1913670		I.C. DEC 74S373		8		E2, E10, E19, E22, E31, E34, E42, E59													
17				1913700		I.C. DEC 74S381		15		E36, E38, E48, E49, E50, E65, E92, E93, E106, E108, E109, E122, E136, E140, E141													
18				23034B1-00		I.C. 256 X 8 BI POLAR TRI-STATE PROM		1		E127													
E.C.O. NO.																							
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								SHEET 1 OF 2				INSERTION PARTS LIST DATA BASE REV A											

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:					
MADE BY DATE		M. FUNARO 20 JULY 77		CHECKED DATE		L. Giammarino 9-6-77		SECTION											
ENG DATE		Star Locking 4-Oct-77		PROD DATE		Mike Trucella 9-27-77		ISSUED SECTION											
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8285-0-0													REF DESIGNATION		
19		1912693	I.C. DEC 25S10	9													E25,E26,E35,E45,E47,E60,E61,E73,E74		
20		1912586	I.C. DEC 85S68	16													E3,E4,E5,E6,E7,E17,E18,E20,E21,E23,E24,E33,E55,E56,E57,E58		
21		1913888-00	I.C. DEC DC102	3													E117,E118,E130		
22		1913294	I.C. DEC 93S16	1													E128		
23		1911402	I.C. DEC 10105	1													E16		
24		1911403	I.C. DEC 10106	1													E15		
25		1911415-01	I.C. DEC 10125-1	3													E28,E29,E30		
26		1913220-00	I.C. DEC 10216	1													E14		
27		1911413	I.C. DEC 10121	1													E1		
28		1301972	RESISTOR, 270 OHM, 1/4W, 5%	6													R1,R3,R5,R7,R9,R40		
29		1301890	RESISTOR, 560 OHM, 1/4W 5%	6													R2,R4,R6,R8,R10,R41		
30		1300295	RESISTOR, 330 OHM, 1/4W, 5%	13													R15 thru R20,R29 thru R35		
31		1300247	RESISTOR, 120 OHM, 1/4W, 5%	8													R11,R12,R25,R26,R27,R28,R36,R37		
32		1300250	RESISTOR, 150 OHM, 1/4W, 5%	8													R13,R14,R21,R22,R23,R24,R38,R39		
33		1012084-01	CAPACITOR, 8 uf, 25 V	7													C3 thru C9		
34		1012784	CAPACITOR, .047 uf, 50 V	55													C1,C2,C10 thru C56,C62,C59,C60,C61		
35		1210711-02	HANDLE	1															
36		9000024-01	EYELETS	12															
37			SPARE ICS	3													E13,E27,E32		
E.C.O. NO.																			
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								SHEET 2 OF 2				INSERTION PARTS LIST DATA BASE REV A							





* REMAINDER POSITIVE IS A FUNCTION OF THE DIFFERENCE IN VALUE BETWEEN THE NR AND THE RR (RR MINUS NR).

REVISIONS		
CHK	CHANGE NO.	REV.

(DIVIDE SEQUENCER CONTROL) (SLOT 24)

TITLE	FRACTION NORMALIZER
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SIZE	CODE
D	CS

NUMBER	M8285 - Ø-1
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REV.
A

SCALE	1/4" = 1'-0"	SHEET	2 OF 21
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	DIST.
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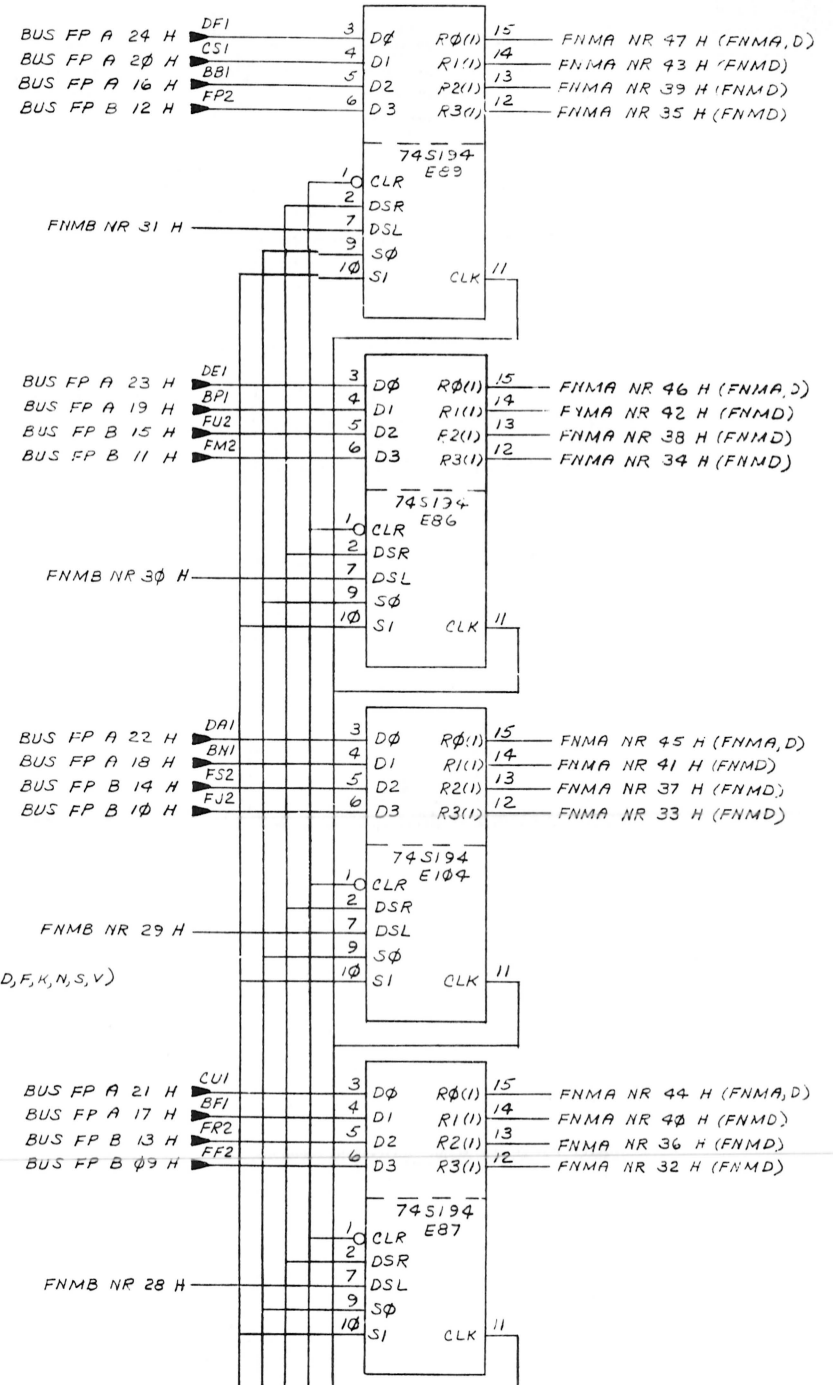
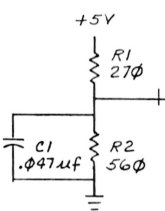
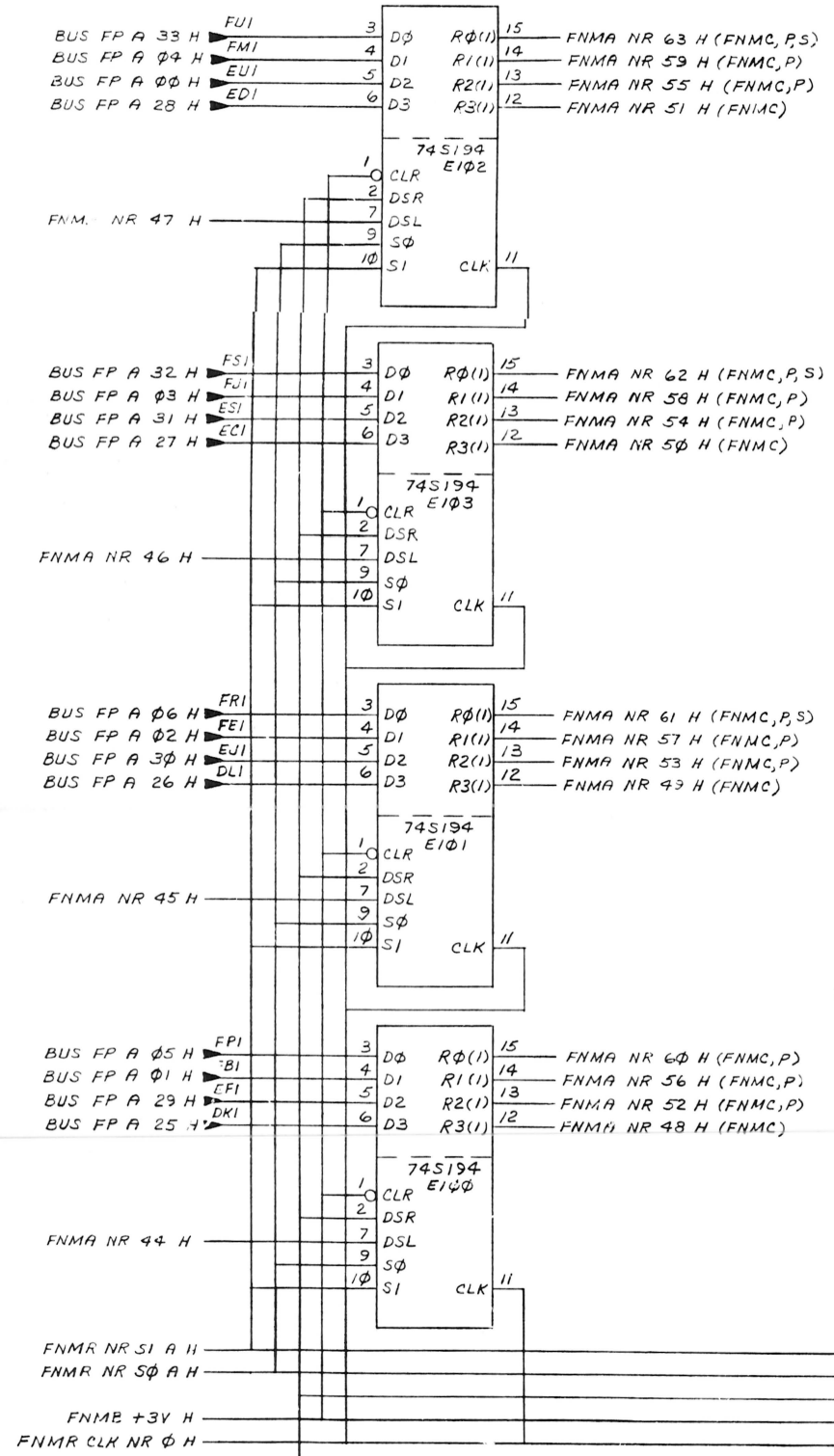
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1-0-9828W SCID 2

D
C
B
A

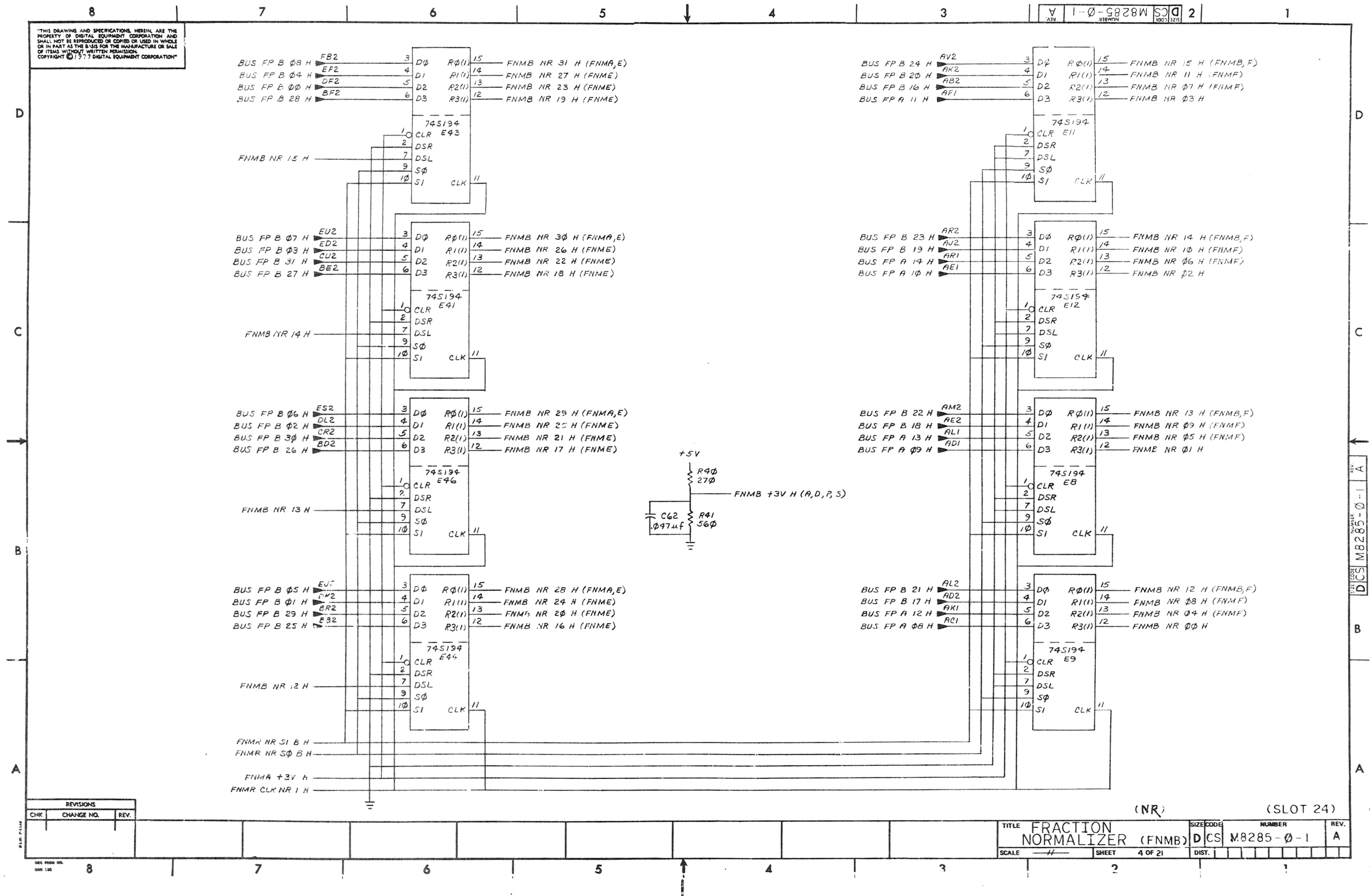
D
C
B
A



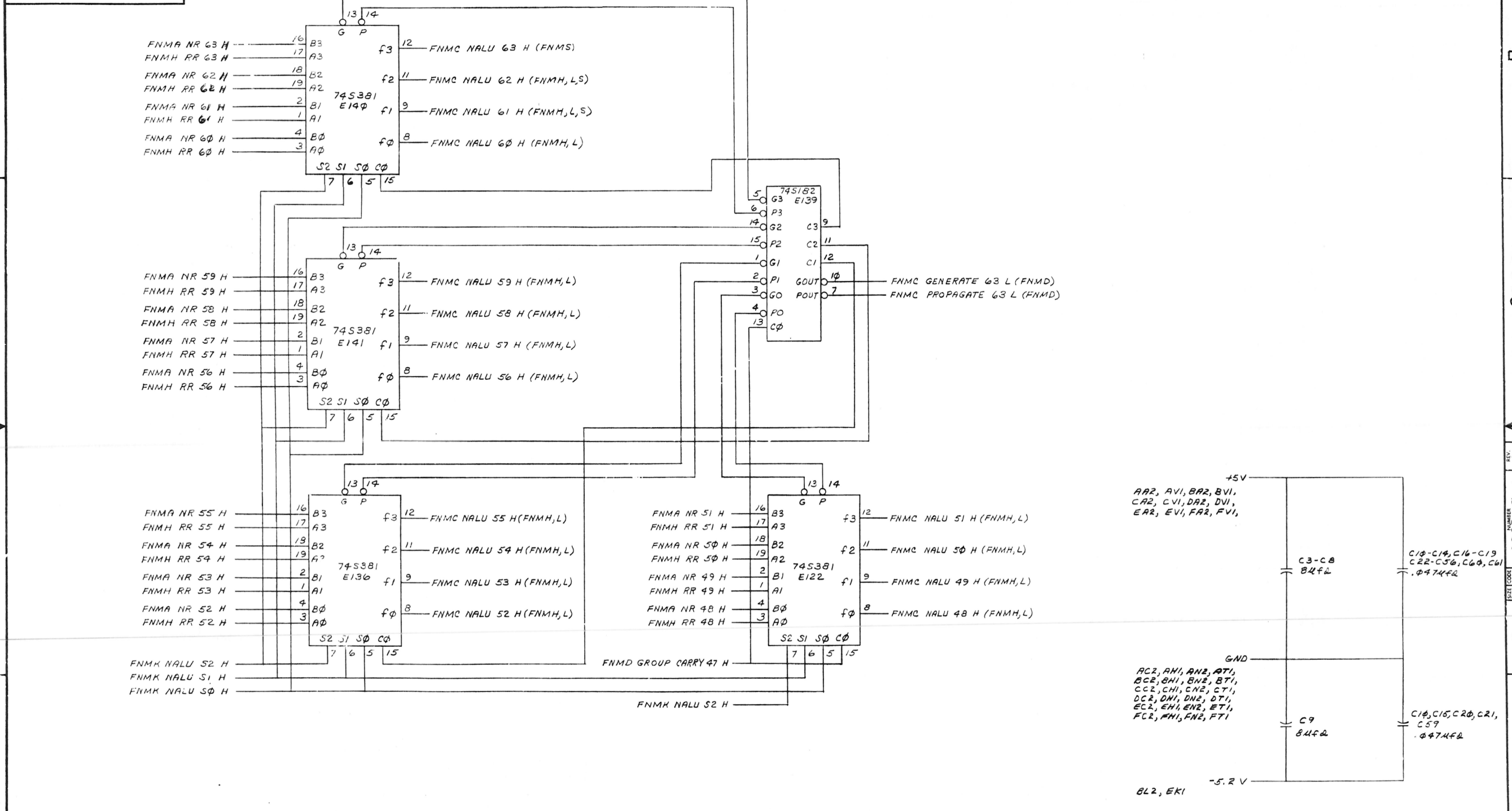
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE CODE		NUMBER		REV.	
FRACTION NORMALIZER (FNMA)		D CS		M8285-0-1		A	
SCALE		SHEET		3 OF 21		DIST.	

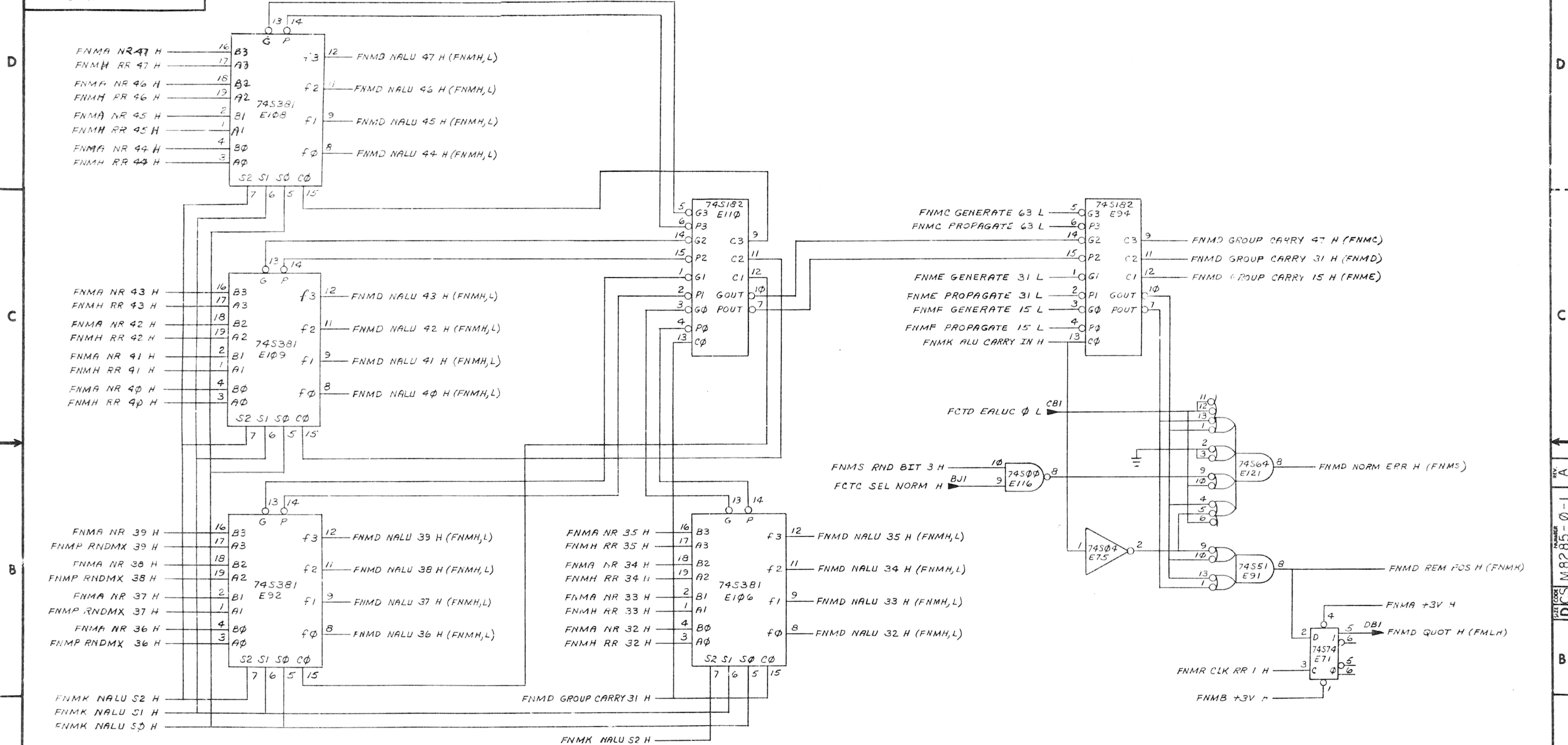
8 7 6 5 4 3 2 1



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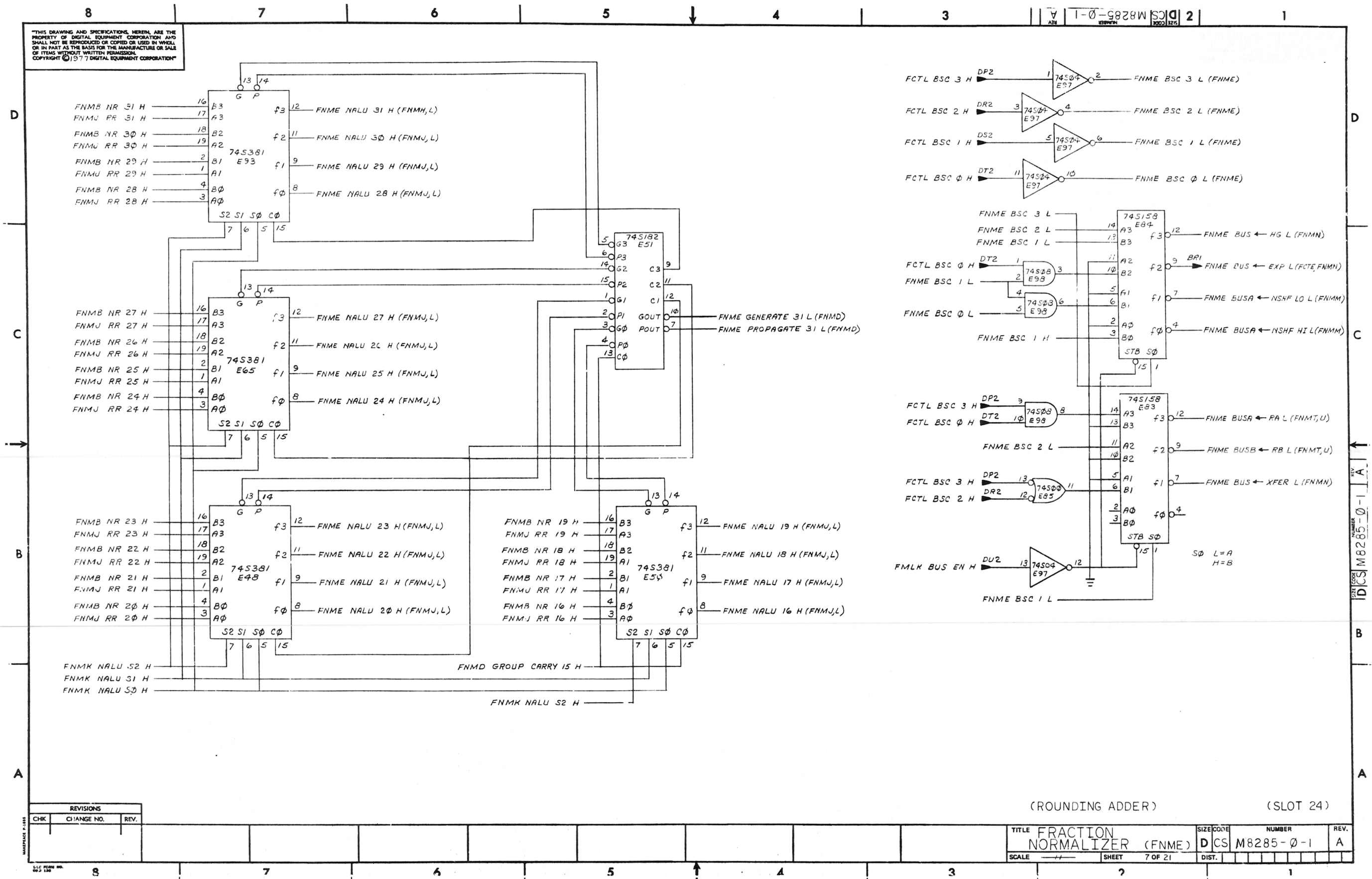


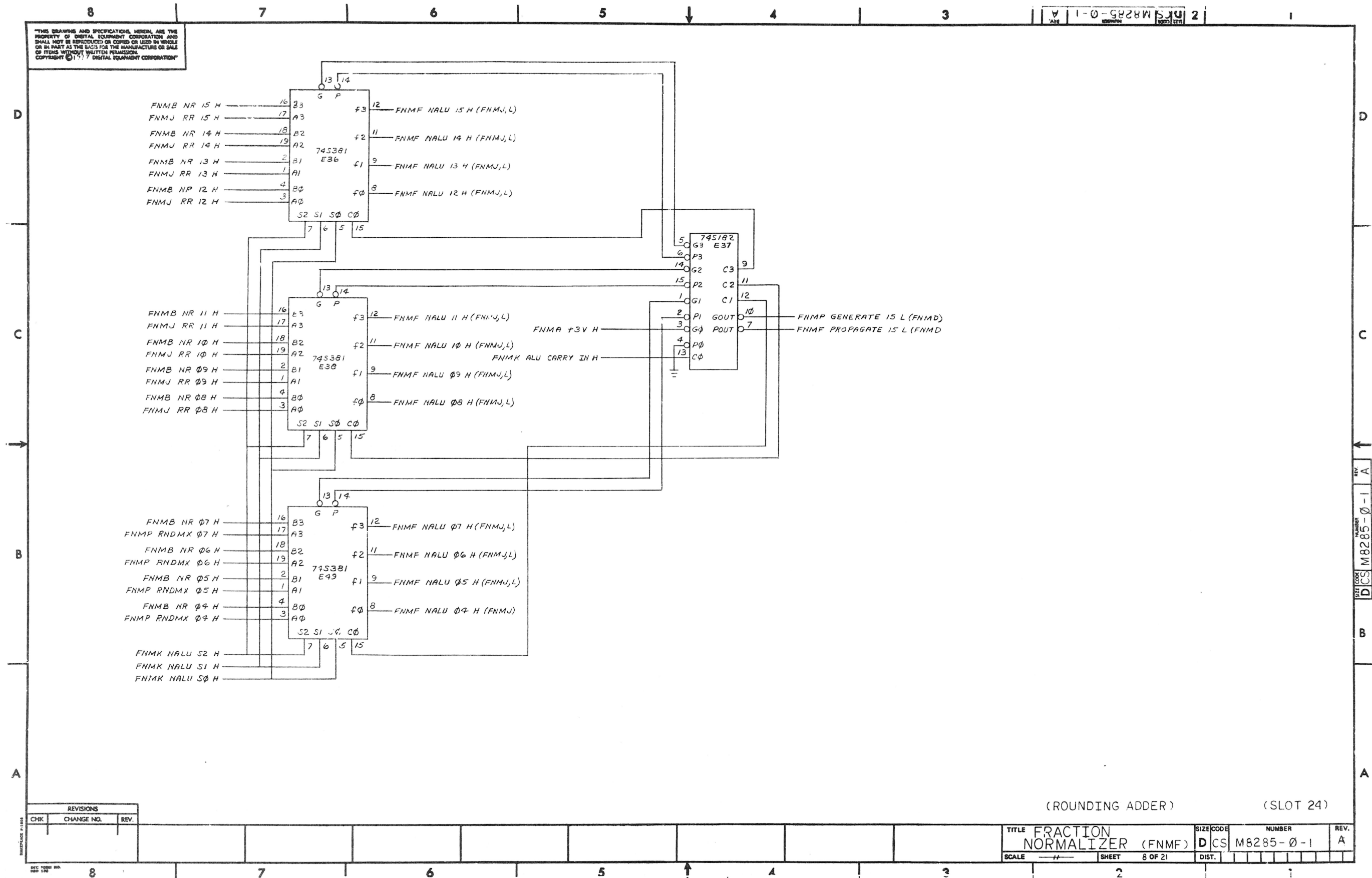
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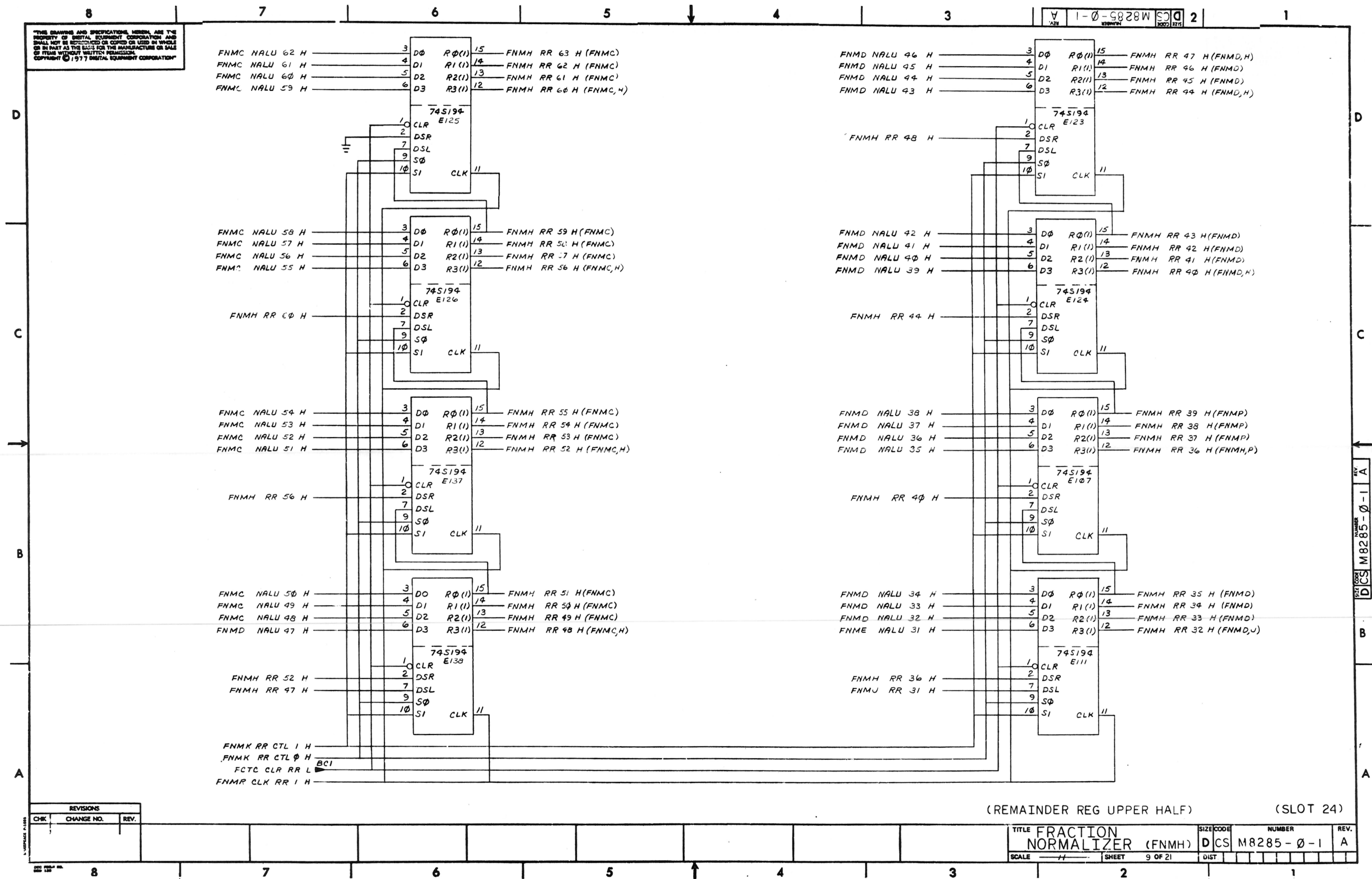
(SLOT 24)

REVISIONS		
CHK	CHANGE NO.	REV.

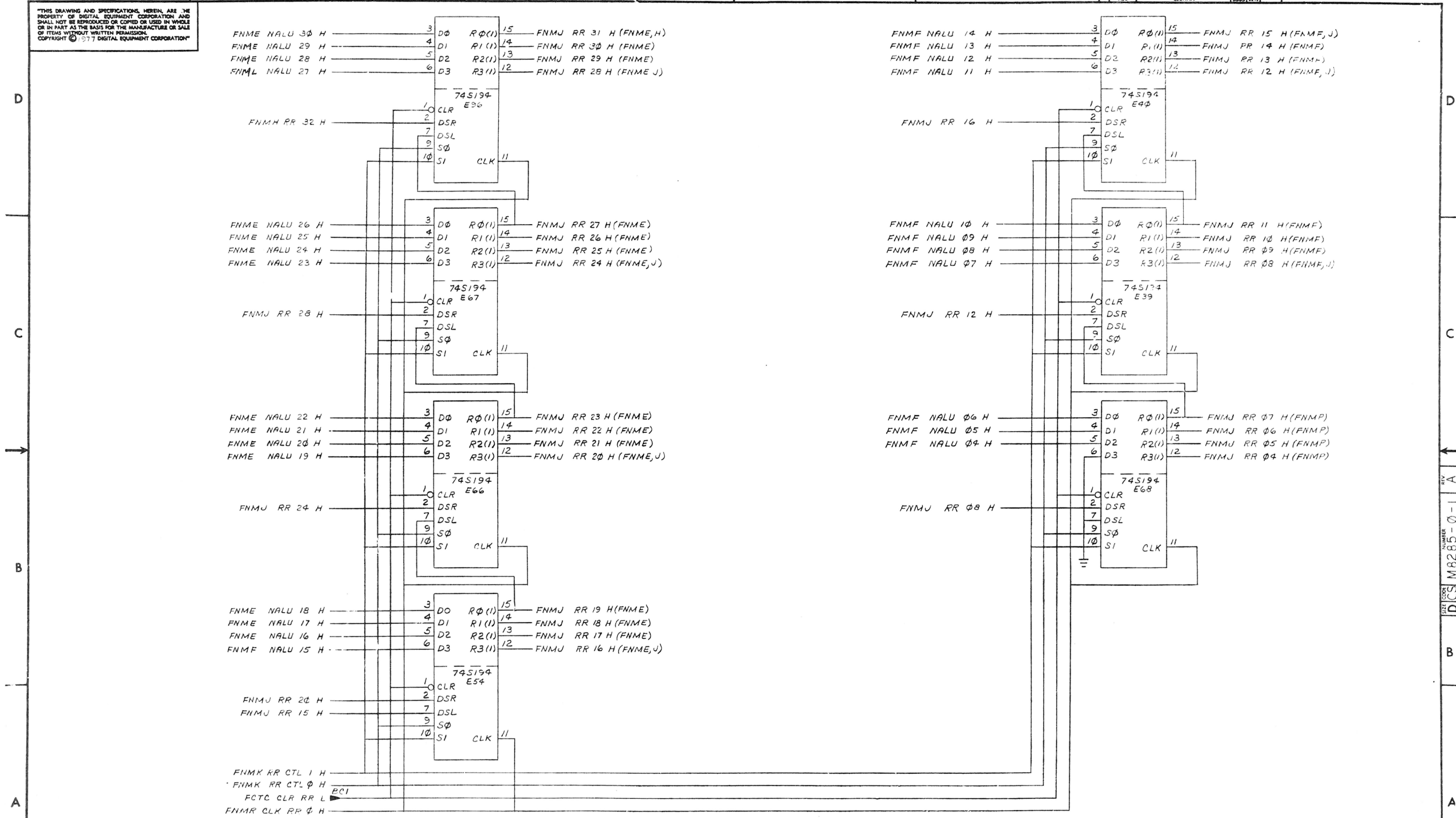
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FRACTION NORMALIZER (FNMD)		DCS	M8285-0-1	A
SCALE	SHEET	6 OF 21	DIST.	







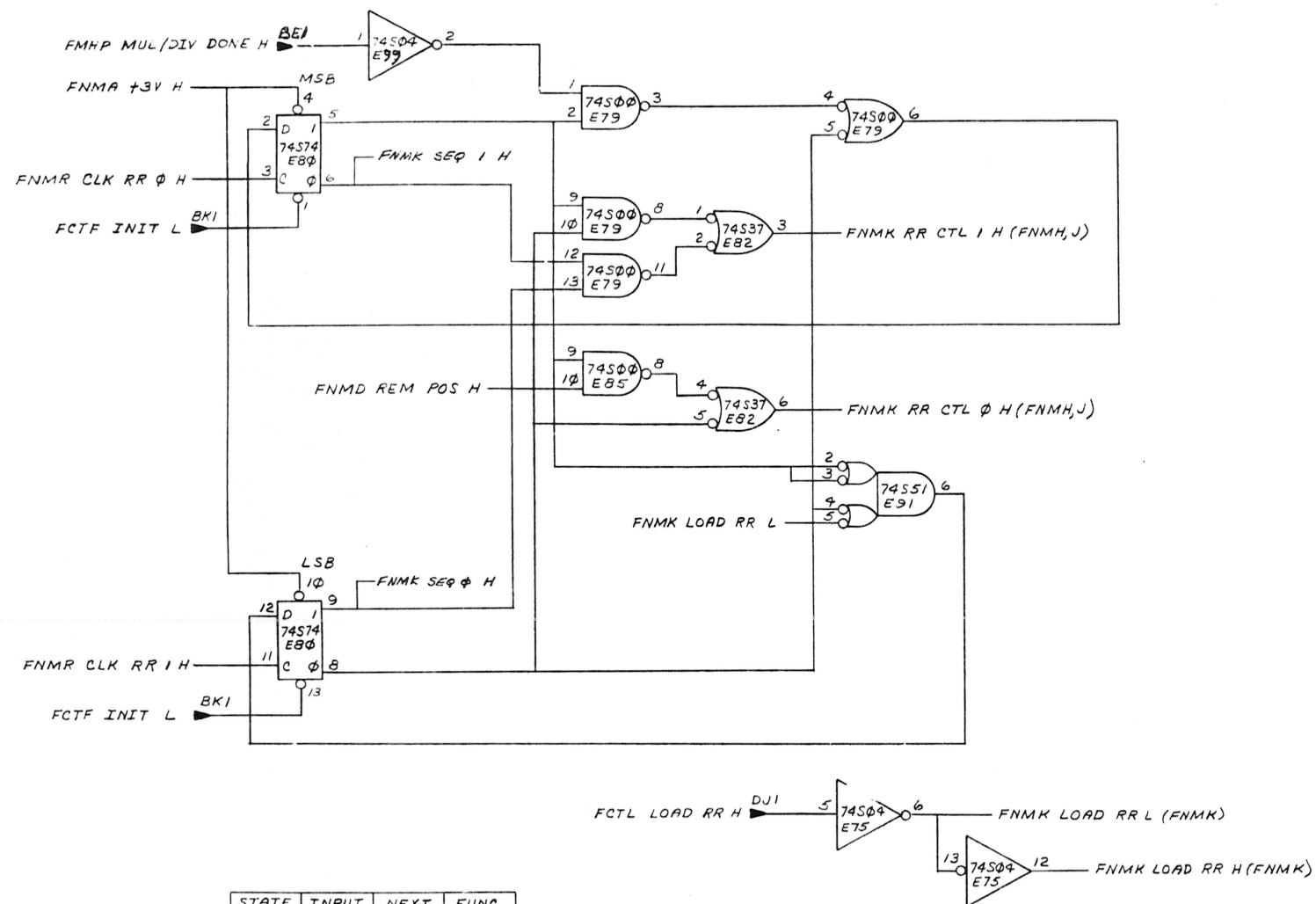
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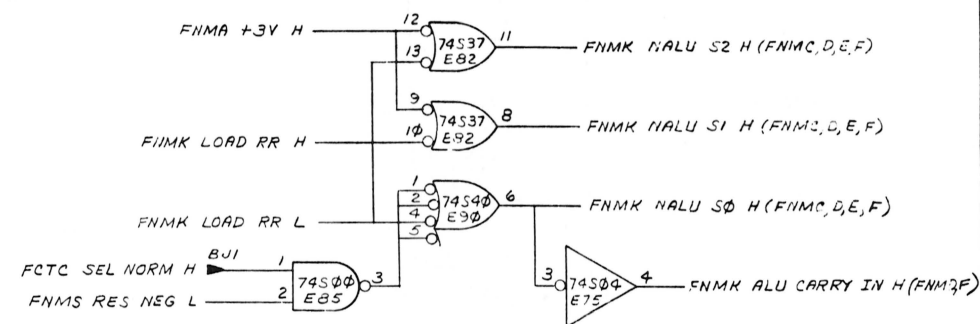
REVISIONS		
CHK	CHANGE NO.	REV.

(REMAINDER REG LOWER HALF)		(SLOT 24)	
TITLE FRACTION NORMALIZER (FNMJ)		SIZE COG. DCS	NUMBER M8285-0-1
SCALE	SHEET 10 OF 21	DIST.	REV. A

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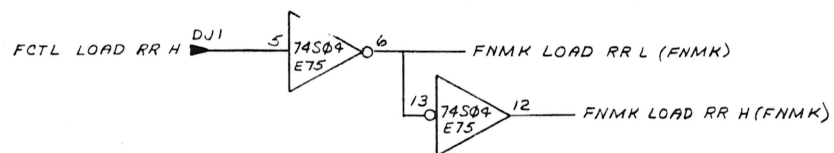


STATE	INPUT	NEXT	FUNC
Φ Φ	LD RR	Φ Φ	TOP
Φ Φ	LD RR	Φ I	TOP
Φ I	X	I I	LOAD
I I	X	I Φ	SHR
I Φ	DONE	I Φ	LD/SHL
I Φ	DONE	Φ Φ	LD/SHL



ALU CONTROL				
MICROCODE	ALU	S2	S1	S0
LOAD RR	A OR B	1	Φ	1
BMX NORM	A ± B	0	1	①
DIVIDE	A - 3	0	1	0

① SELECTED BY HARDWARE



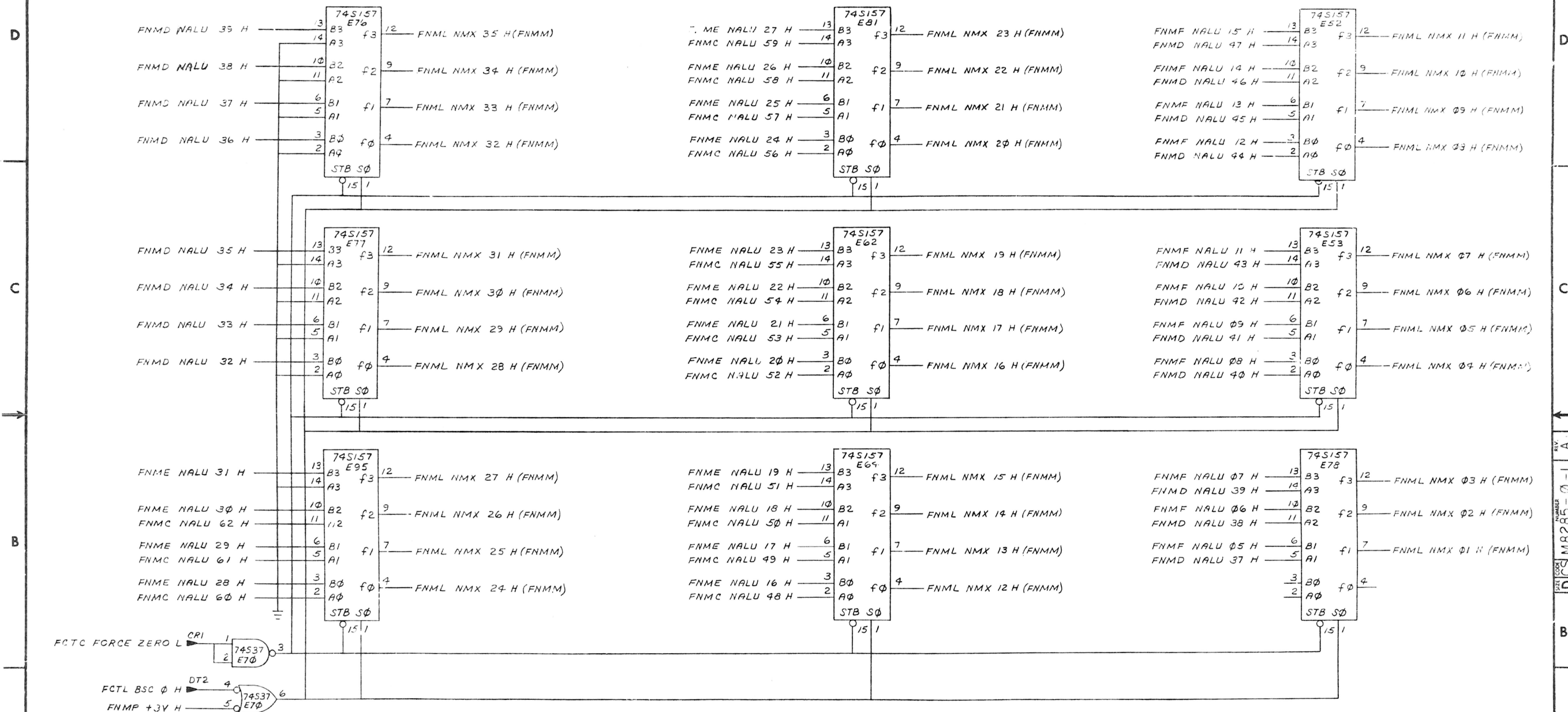
(RR & NALU OP CTL)

(SLOT 24)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	FRACTION NORMALIZER (FNMK)	SIZE CODE	DCS	NUMBER	M8285-0-1	REV.	A
SCALE	11	SHEET	11	OF 21	DIST.		

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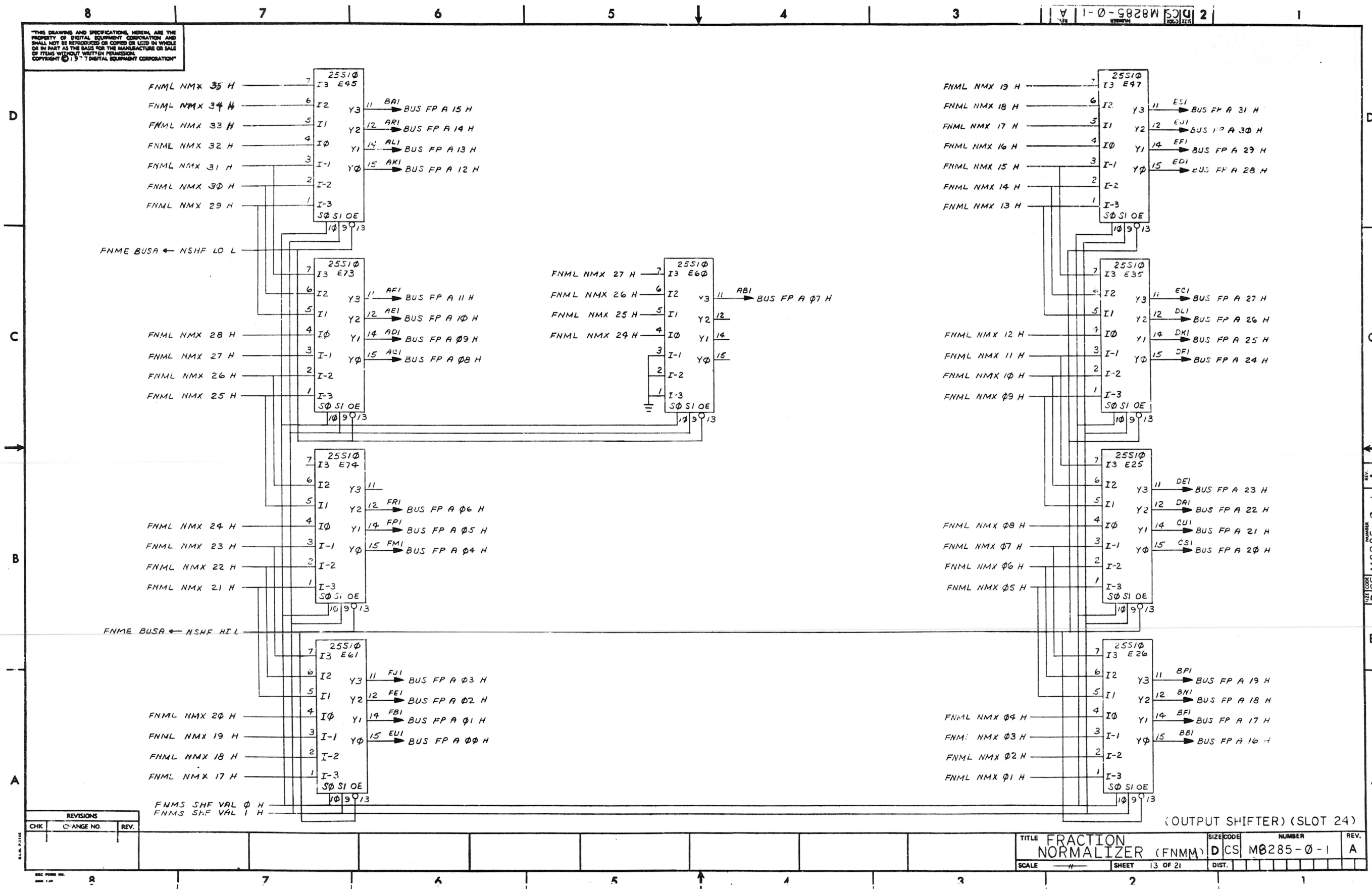
REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. 130

(SLOT 24)

TITLE		SIZE CODE	NUMBER	REV.
FRACTION NORMALIZER (FNML)		D	CS M8285-0-1	A
SCALE	1/2	SHEET	12 OF 21	DIST.

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1-0-0828W SC 2

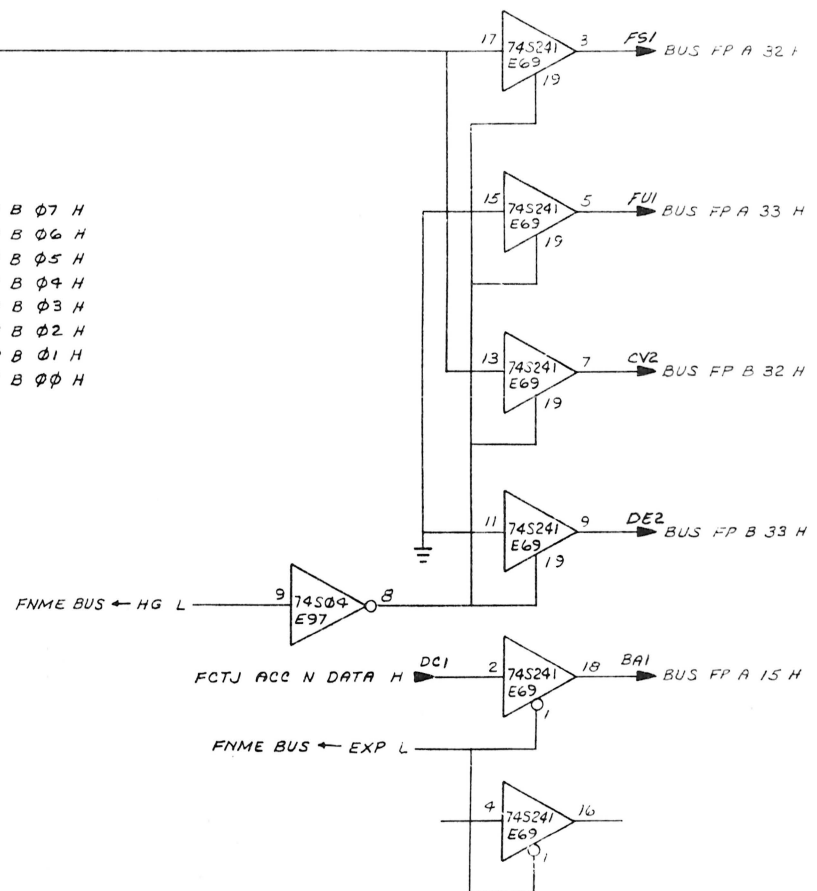
BUS FP A 31 H ESI 3 74S373 2 CU2 BUS FP B 31 H
BUS FP A 30 H EJI 4 D0 Q0 5 CP2 BUS FP B 30 H
BUS FP A 29 H FFI 7 D1 Q1 6 BP2 BUS FP B 29 H
BUS FP A 28 H EDI 8 D2 Q2 9 EP2 BUS FP B 28 H
BUS FP A 27 H ECI 17 D3 Q3 10 EE2 BUS FP B 27 H
BUS FP A 26 H DLI 13 D4 Q4 12 BD2 BUS FP B 26 H
BUS FP A 25 H DK1 14 D5 Q5 15 BB2 BUS FP B 25 H
BUS FP A 24 H DFI 18 D7 Q7 19 AV2 BUS FP B 24 H

FNMA +3V H
FNME BUS ← XFER L

BUS FP A 23 H DEI 3 74S373 2 AR2 BUS FP B 23 H
BUS FP A 22 H DAI 4 D0 Q0 5 AM2 BUS FP B 22 H
BUS FP A 21 H CUI 7 D1 Q1 6 AL2 BUS FP B 21 H
BUS FP A 20 H CSI 8 D2 Q2 9 AK2 BUS FP B 20 H
BUS FP A 19 H BPI 17 D3 Q3 10 AU2 BUS FP B 19 H
BUS FP A 18 H BNI 13 D4 Q4 12 AE2 BUS FP B 18 H
BUS FP A 17 H BFI 14 D5 Q5 15 AD2 BUS FP B 17 H
BUS FP A 16 H BBI 18 D7 Q7 19 AB2 BUS FP B 16 H

BUS FP A 15 H BAI 3 74S373 2 FU2 BUS FP B 15 H
BUS FP A 14 H ARI 4 D0 Q0 5 FS2 BUS FP B 14 H
BUS FP A 13 H ALI 7 D1 Q1 6 FR2 BUS FP B 13 H
BUS FP A 12 H AKI 8 D2 Q2 9 FP2 BUS FP B 12 H
BUS FP A 11 H AFI 17 D3 Q3 10 FM2 BUS FP B 11 H
BUS FP A 10 H AEI 13 D4 Q4 12 FJ2 BUS FP B 10 H
BUS FP A 09 H ADI 14 D5 Q5 15 FF2 BUS FP B 09 H
BUS FP A 08 H ACI 18 D7 Q7 19 FB2 BUS FP B 08 H

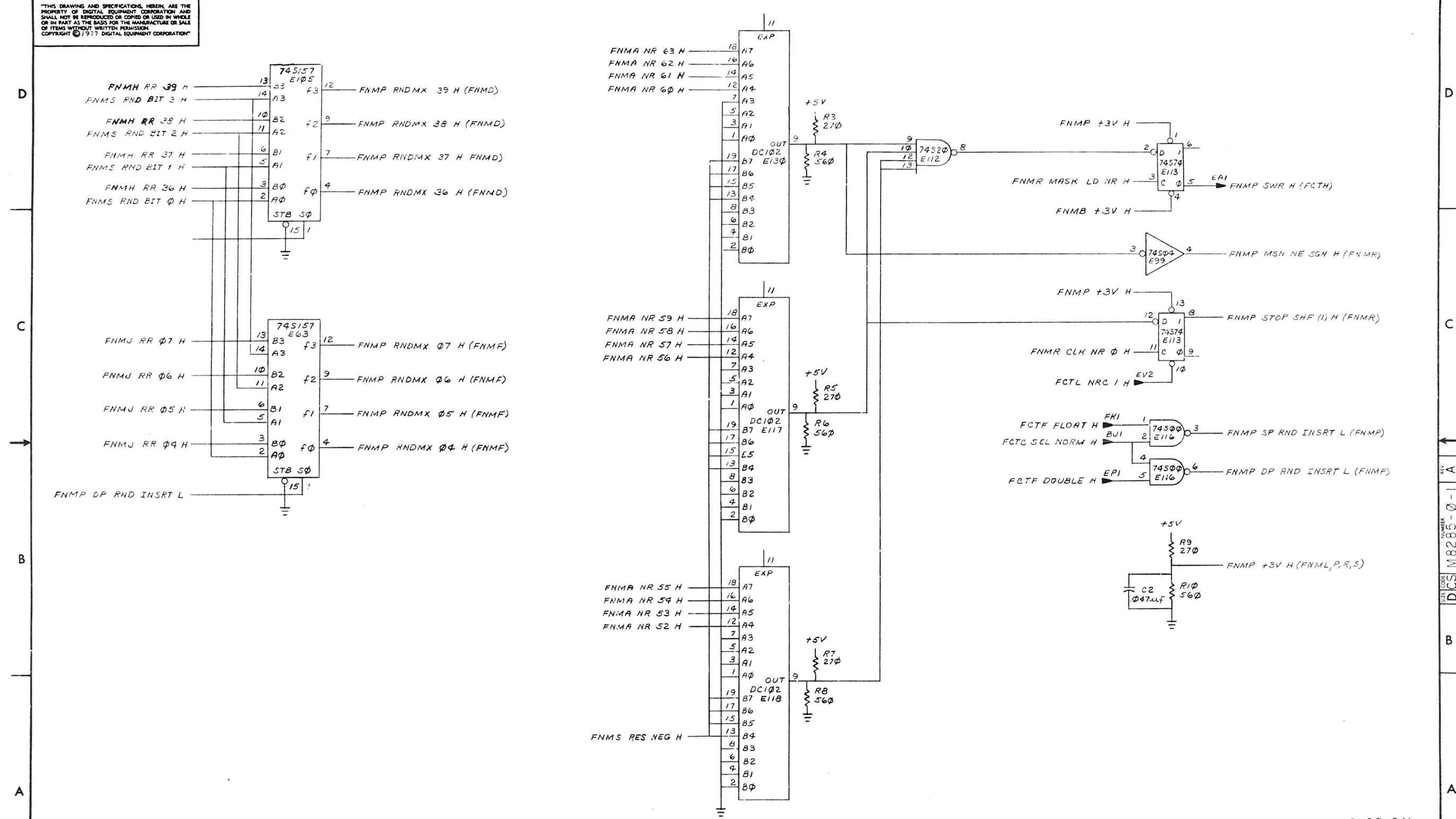
BUS FP A 07 H ABI 3 74S373 2 EU2 BUS FP B 07 H
BUS FP A 06 H FRI 4 D0 Q0 5 ES2 BUS FP B 06 H
BUS FP A 05 H FPI 7 D1 Q1 6 EJ2 BUS FP B 05 H
BUS FP A 04 H FMI 8 D2 Q2 9 EF2 BUS FP B 04 H
BUS FP A 03 H FJI 17 D3 Q3 10 ED2 BUS FP B 03 H
BUS FP A 02 H FFI 13 D4 Q4 12 DL2 BUS FP B 02 H
BUS FP A 01 H FBI 14 D5 Q5 15 DK2 BUS FP B 01 H
BUS FP A 00 H EUI 18 D7 Q7 19 DF2 BUS FP B 00 H



REVISIONS		
CHK	CHANGE NO.	REV.

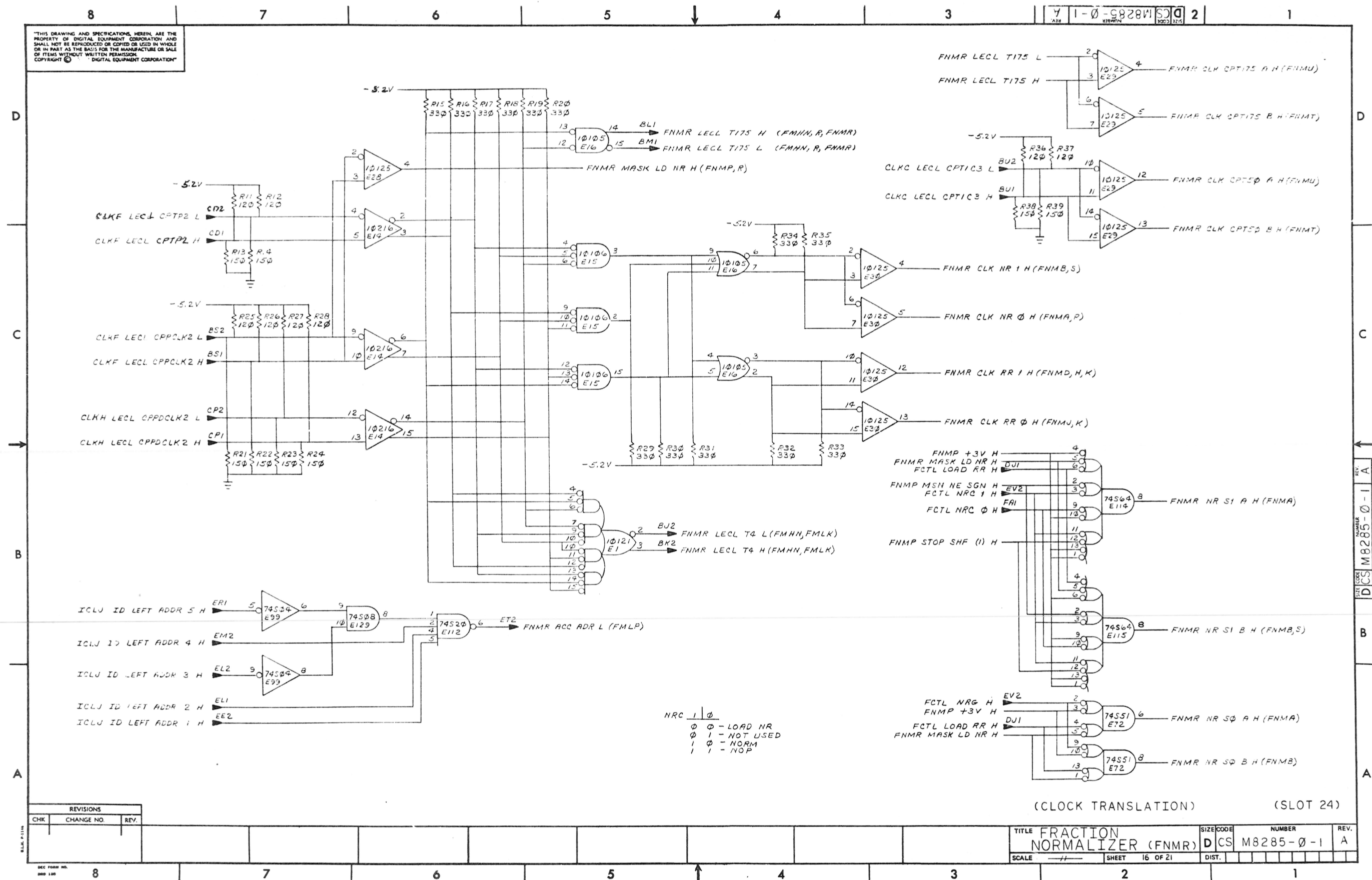
(BUS XFER)		(SLOT 24)	
TITLE FRACTION NORMALIZER (FNMN)		SIZE CODE DCS	NUMBER M8285-0-1
SCALE	SHEET 14 OF 21	DIST.	REV. A

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REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. 1-0

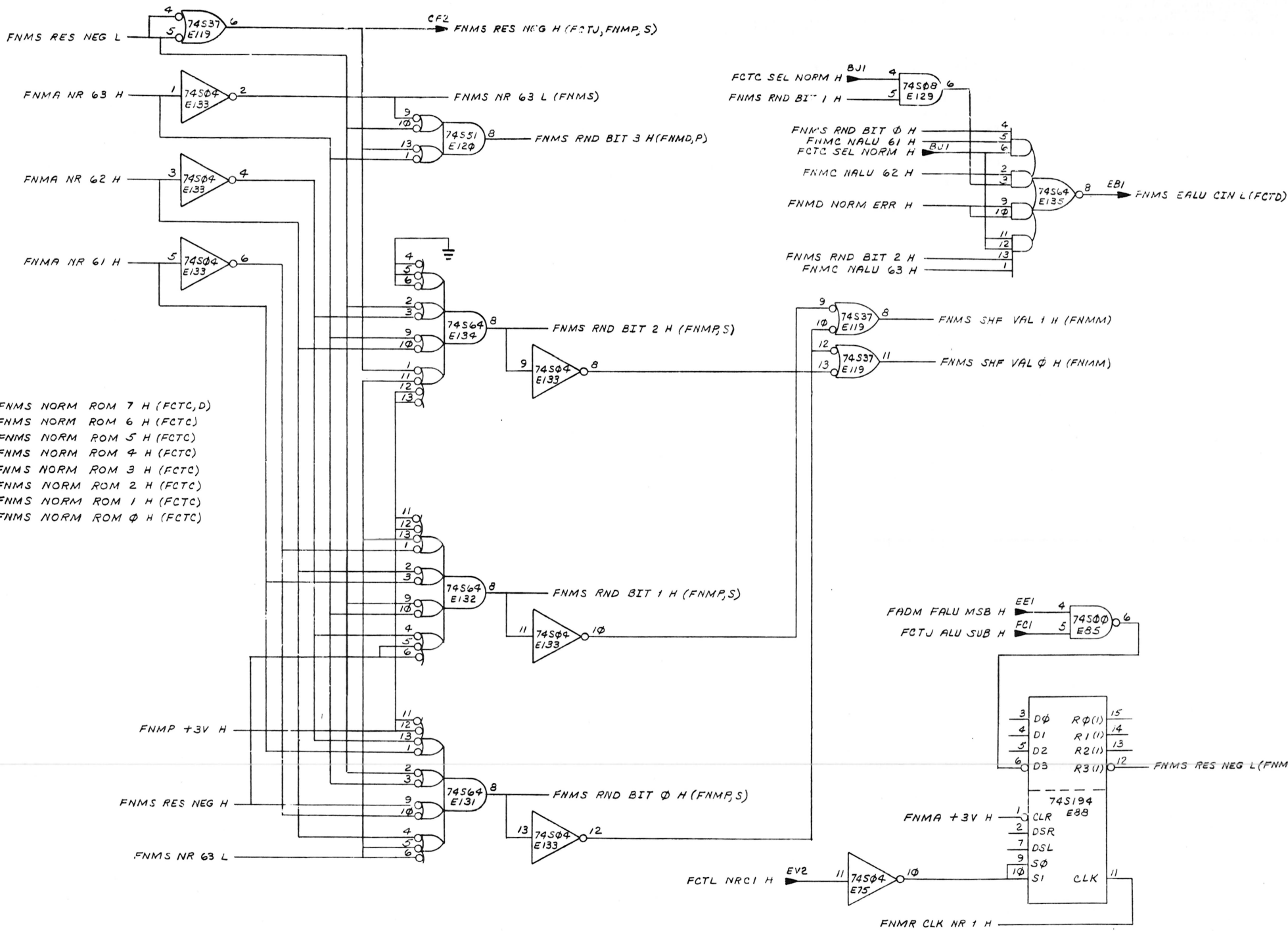
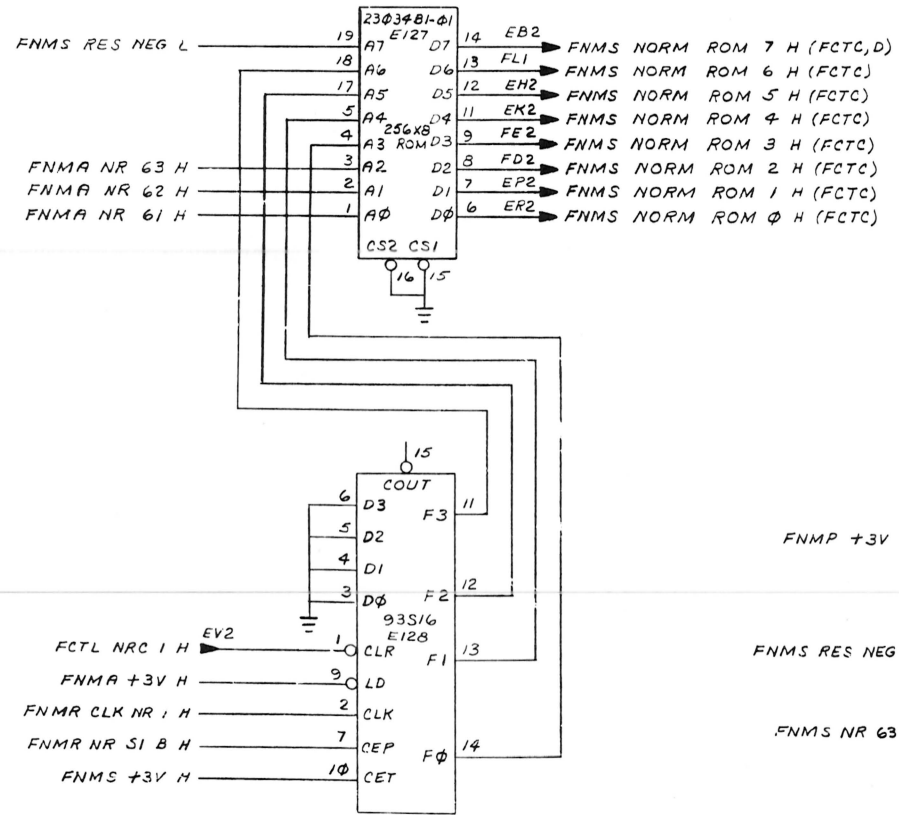


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D
C
B
A

REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. 000 136



D
C
B
A

REV. 1
NUMBER 1
DCS M8285-0-1

(SLOT 24)

TITLE		SIZE	CODE	NUMBER	REV.
FRACTION NORMALIZER (FNMS)		D	CS	M8285-0-1	A
SCALE	11	SHEET	17 OF 21	DIST.	

8

7

6

5

4

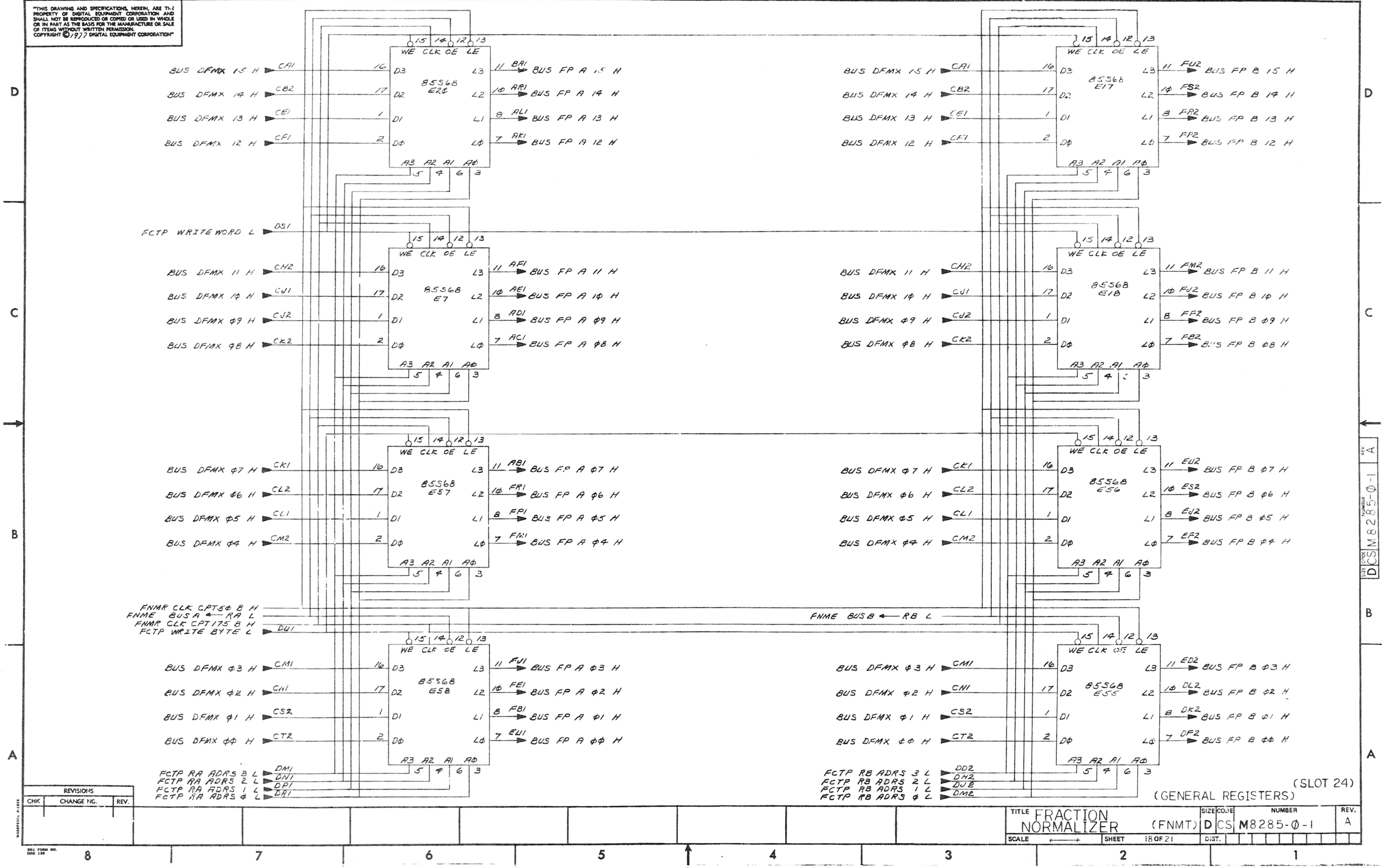
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2

1

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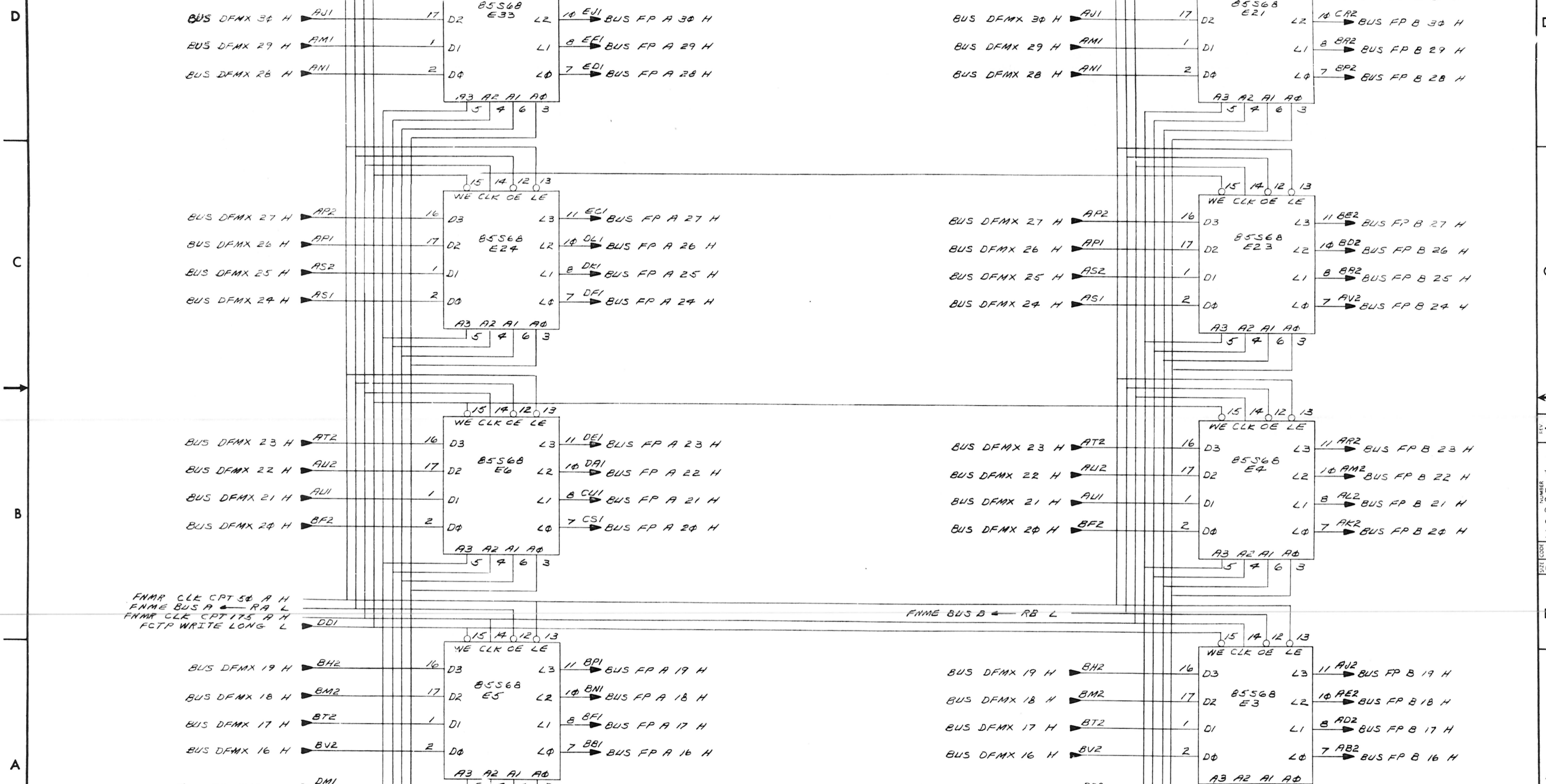
V 1-0-5828W CS D 2



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		FRACTION NORMALIZER (FNMT)		SIZE CODE		NUMBER		REV.	
SCALE		SHEET		18 OF 21		DCS M8285-0-1		A	

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REVISIONS		
CHK	CHANGE NO.	REV.

FC1 RA ADRS 3 L
FC1 RA ADRS 2 L
FC1 RA ADRS 1 L
FC1 RA ADRS 0 L

FC1 RB ADRS 3 L
FC1 RB ADRS 2 L
FC1 RB ADRS 1 L
FC1 RB ADRS 0 L

TITLE		SIZE CODE	NUMBER	REV.
FRACTION NORMALIZER (FNMU)		DCS	M8285-0-1	A

(GENERAL REGISTERS) (SLOT 24)

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NORMALIZATION ROM CONSTANTS

PROM DATA							
PROM ADDR	7	6	5	4	3	2	1 0
00	L	L	L	L	L	L	L
01	L	L	L	L	L	L	L
02	L	L	L	L	L	L	L
03	L	L	L	L	L	L	L
04	L	L	L	L	L	L	L
05	L	L	L	L	L	L	L
06	H	H	H	H	H	H	H
07	H	H	H	H	H	H	L
08	H	H	H	H	H	L	H
09	H	H	H	H	L	H	H
0A	H	H	H	H	L	H	H
0B	H	H	H	H	L	H	H
0C	H	H	H	H	L	L	L
0D	H	H	H	H	L	L	L
0E	H	H	H	H	L	L	L
0F	H	H	H	H	L	L	L
10	H	H	H	H	L	L	L
11	H	H	H	H	L	L	L
12	H	H	H	H	L	L	L
13	H	H	H	H	L	L	L
14	H	H	H	H	L	L	L
15	H	H	H	H	L	L	L
16	H	H	H	H	L	L	L
17	H	H	H	H	L	L	L
18	H	H	H	H	L	L	L
19	H	H	H	H	L	L	L
1A	H	H	H	H	L	L	L
1B	H	H	H	H	L	L	L
1C	H	H	H	H	L	L	L
1D	H	H	H	H	L	L	L
1E	H	H	H	H	L	L	L
1F	H	H	H	H	L	L	L
20	H	H	H	H	L	L	L
21	H	H	H	H	L	L	L
22	H	H	H	H	L	L	L
23	H	H	H	H	L	L	L
24	H	H	H	H	L	L	L
25	H	H	H	H	L	L	L
26	H	H	H	H	L	L	L
27	H	H	H	H	L	L	L
28	H	H	H	H	L	L	L
29	H	H	H	H	L	L	L
2A	H	H	H	H	L	L	L

PROM DATA							
PROM ADDR	7	6	5	4	3	2	1 0
2B	H	H	H	L	H	H	L
2C	H	H	H	L	H	H	L
2D	H	H	H	L	H	H	L
2E	H	H	H	L	H	H	L
2F	H	H	H	L	H	H	L
30	H	H	H	L	H	H	L
31	H	H	H	L	H	H	L
32	H	H	H	L	H	H	L
33	H	H	H	L	H	H	L
34	H	H	H	L	H	H	L
35	H	H	H	L	H	H	L
36	H	H	H	L	H	H	L
37	H	H	H	L	H	H	L
38	H	H	H	L	H	H	L
39	H	H	H	L	H	H	L
3A	H	H	H	L	H	H	L
3B	H	H	H	L	H	H	L
3C	H	H	H	L	H	H	L
3D	H	H	H	L	H	H	L
3E	H	H	H	L	H	H	L
3F	H	H	H	L	H	H	L
40	H	H	H	L	H	H	L
41	H	H	H	L	H	H	L
42	H	H	H	L	H	H	L
43	H	H	H	L	H	H	L
44	H	H	H	L	H	H	L
45	H	H	H	L	H	H	L
46	H	H	H	L	H	H	L
47	H	H	H	L	H	H	L
48	H	H	H	L	H	H	L
49	H	H	H	L	H	H	L
4A	H	H	H	L	H	H	L
4B	H	H	H	L	H	H	L
4C	H	H	H	L	H	H	L
4D	H	H	H	L	H	H	L
4E	H	H	H	L	H	H	L
4F	H	H	H	L	H	H	L
50	H	H	H	L	H	H	L
51	H	H	H	L	H	H	L
52	H	H	H	L	H	H	L
53	H	H	H	L	H	H	L
54	H	H	H	L	H	H	L
55	H	H	H	L	H	H	L

PROM DATA							
PROM ADDR	7	6	5	4	3	2	1 0
56	H	H	L	H	L	H	L
57	H	H	L	H	L	H	L
58	H	H	L	H	L	H	L
59	H	H	L	H	L	H	L
5A	H	H	L	H	L	H	L
5B	H	H	L	H	L	H	L
5C	H	H	L	H	L	H	L
5D	H	H	L	H	L	H	L
5E	H	H	L	H	L	H	L
5F	H	H	L	H	L	H	L
60	H	H	L	H	L	H	L
61	H	H	L	H	L	H	L
62	H	H	L	H	L	H	L
63	H	H	L	H	L	H	L
64	H	H	L	H	L	H	L
65	H	H	L	H	L	H	L
66	H	H	L	H	L	H	L
67	H	H	L	H	L	H	L
68	H	H	L	H	L	H	L
69	H	H	L	H	L	H	L
6A	H	H	L	H	L	H	L
6B	H	H	L	H	L	H	L
6C	H	H	L	H	L	H	L
6D	H	H	L	H	L	H	L
6E	H	H	L	H	L	H	L
6F	H	H	L	H	L	H	L
70	H	H	L	H	L	H	L
71	H	H	L	H	L	H	L
72	H	H	L	H	L	H	L
73	H	H	L	H	L	H	L
74	H	H	L	H	L	H	L
75	H	H	L	H	L	H	L
76	H	H	L	H	L	H	L
77	H	H	L	H	L	H	L
78	H	H	L	H	L	H	L
79	H	H	L	H	L	H	L
7A	H	H	L	H	L	H	L
7B	H	H	L	H	L	H	L
7C	H	H	L	H	L	H	L
7D	H	H	L	H	L	H	L
7E	H	H	L	H	L	H	L
7F	H	H	L	H	L	H	L
80	H	H	L	H	L	H	L

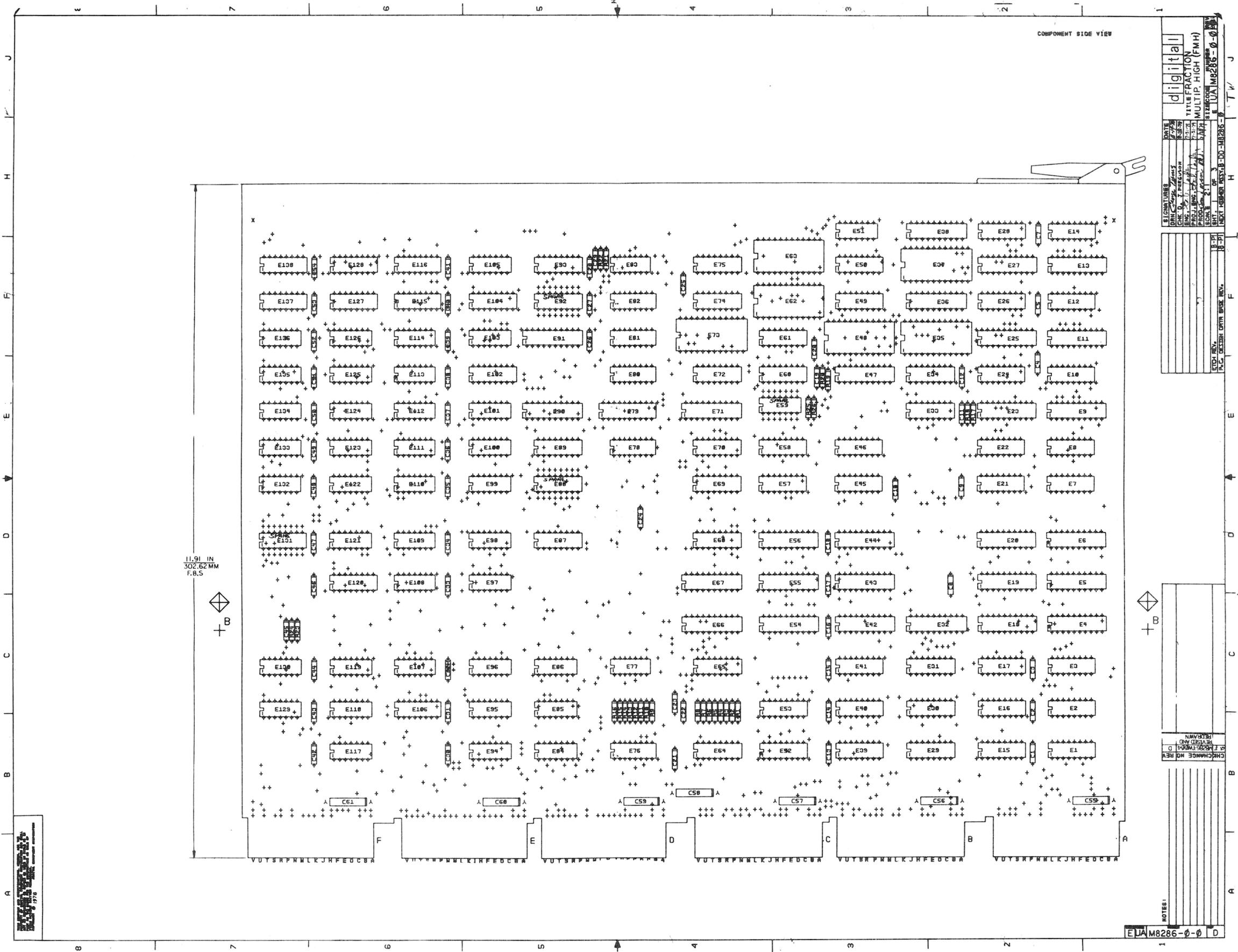
PROM DATA							
PROM ADDR	7	6	5	4	3	2	1 0
81	H	H	L	H	L	H	L
82	L	L	L	L	L	L	L
83	L	L	L	L	L	L	L
84	L	L	L	L	L	L	L
85	L	L	L	L	L	L	L
86	L	L	L	L	L	L	L
87	L	L	L	L	L	L	L
88	H	H	H	L	H	L	L
89	H	H	H	L	H	L	L
8A	H	H	H	L	H	L	L
8B	H	H	H	L	H	L	L
8C	H	H	H	L	H	L	L
8D	H	H	H	L	H	L	L
8E	H	H	H	L	H	L	L
8F	H	H	H	L	H	L	L
90	H	H	H	L	H	L	L
91	H	H	H	L	H	L	L
92	H	H	H	L	H	L	L
93	H	H	H	L	H	L	L
94	H	H	H	L	H	L	L
95	H	H	H	L	H	L	L
96	H	H	H	L	H	L	L
97	H	H	H	L	H	L	L
98	H	H	H	L	H	L	L
99	H	H	H	L	H	L	L
9A	H	H	H	L	H	L	L
9B	H	H	H	L	H	L	L
9C	H	H	H	L	H	L	L
9D	H	H	H	L	H	L	L
9E	H	H	H	L	H	L	L
9F	H	H	H	L	H	L	L
AA	H	H	H	L	H	L	L
AB	H	H	H	L	H	L	L
AC	H	H	H	L	H	L	L
AD	H	H	H	L	H	L	L
AE	H	H	H	L	H	L	L
AF	H	H	H	L	H	L	L
B0	H	H	H	L	H	L	L
B1	H	H	H	L	H	L	L
B2	H	H	H	L	H	L	L
B3	H	H	H	L	H	L	L
B4	H	H	H	L	H	L	L
B5	H	H	H	L	H	L	L
B6	H	H	H	L	H	L	L
B7	H	H	H	L	H	L	L
B8	H	H	H	L	H	L	L
B9	H	H	H	L	H	L	L
BA	H	H	H	L	H	L	L
BB	H	H	H	L	H	L	L
BC	H	H	H	L	H	L	L
BD	H	H	H	L	H	L	L
BE	H	H	H	L	H	L	L
BF	H	H	H	L	H	L	L
C0	H	H	H	L	H	L	L
C1	H	H	H	L	H	L	L
C2	H	H	H	L	H	L	L
C3	H	H	H	L	H	L	L
C4	H	H	H	L	H	L	L
C5	H	H	H	L	H	L	L
C6	H	H	H	L	H	L	L
C7	H	H	H	L	H	L	L
C8	H	H	H	L	H	L	L
C9	H	H	H	L	H	L	L
CA	H	H	H	L	H	L	L
CB	H	H	H	L	H	L	L
CC	H	H	H	L	H	L	L
CD	H	H	H	L	H	L	L
CE	H	H	H	L	H	L	L
CF	H	H	H	L	H	L	L
D0	H	H	H	L	H	L	L
D1	H	H	H	L	H	L	L
D2	H	H	H	L	H	L	L
D3	H	H	H	L	H	L	L
D4	H	H	H	L	H	L	L
D5	H	H	H	L	H	L	L
D6	H	H	H	L	H	L	L

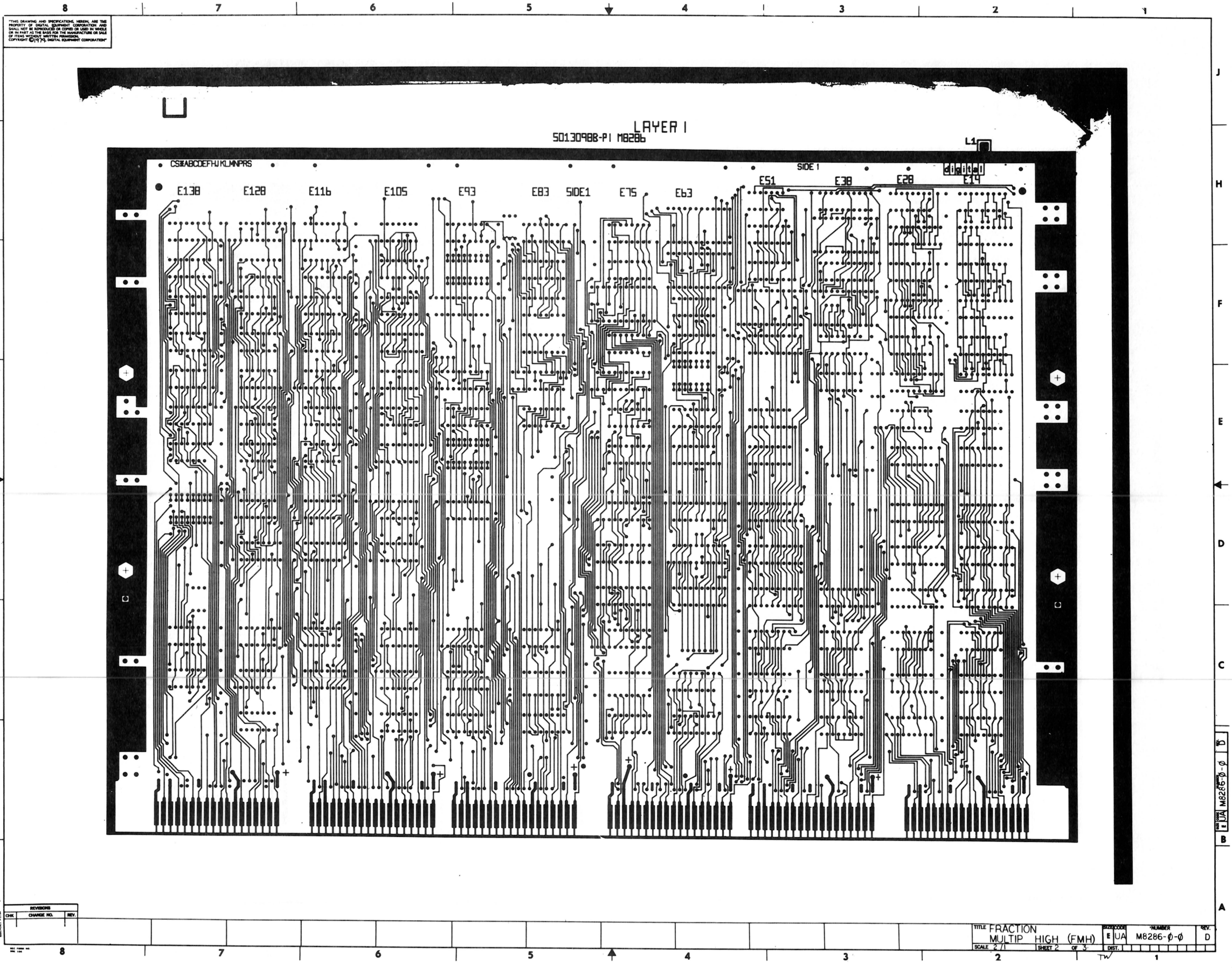
PROM DATA							
PROM ADDR	7	6	5	4	3	2	1 0
D7	H	H	L	H	L	H	L
D8	H	H	L	H	L	H	L
D9	H	H	L	H	L	H	L
DA	H	H	L	H	L	H	L
DB	H	H	L	H	L	H	L
DC	H	H	L	H	L	H	L
DD	H	H	L	H	L	H	L
DE	H	H	L	H	L	H	L
DF	H	H	L	H	L	H	L
E0	H	H	L	H	L	H	L
E1	H	H	L	H	L	H	L
E2	H	H	L	H	L	H	L
E3	H	H	L	H	L	H	L
E4	H	H	L	H	L	H	L
E5	H	H	L	H	L	H	L
E6	H	H	L	H	L	H	L
E7	H	H	L	H	L	H	L
E8	H	H	L	H	L	H	L
E9	H	H	L	H	L	H	L
EA	H	H	L	H	L	H	L
EB	H	H	L	H	L	H	L
EC	H	H	L	H	L	H	L
ED	H	H	L	H	L	H	L
EE	H	H	L	H	L	H	L
EF	H	H	L	H	L	H	L
F0	H	H	L	H	L	H	L
F1	H	H	L	H	L	H	L
F2	H	H	L	H	L	H	L
F3	H	H	L	H	L	H	L
F4	H	H	L	H	L	H	L
F5	H	H	L	H	L	H	L
F6	H	H	L	H	L	H	L
F7	H	H	L	H	L	H	L
F8	H	H	L	H	L	H	L
F9	H	H	L	H	L	H	L
FA	H	H	L	H	L	H	L
FB	H	H	L	H	L	H	L
FC	H	H	L	H	L	H	L
FD	H	H	L	H	L	H	L
FE	H	H	L	H	L	H	L
FF	H	H	L	H	L	H	L

NORM ROM
CONSTANTS
(23-034BI-01)

(SLOT 24)

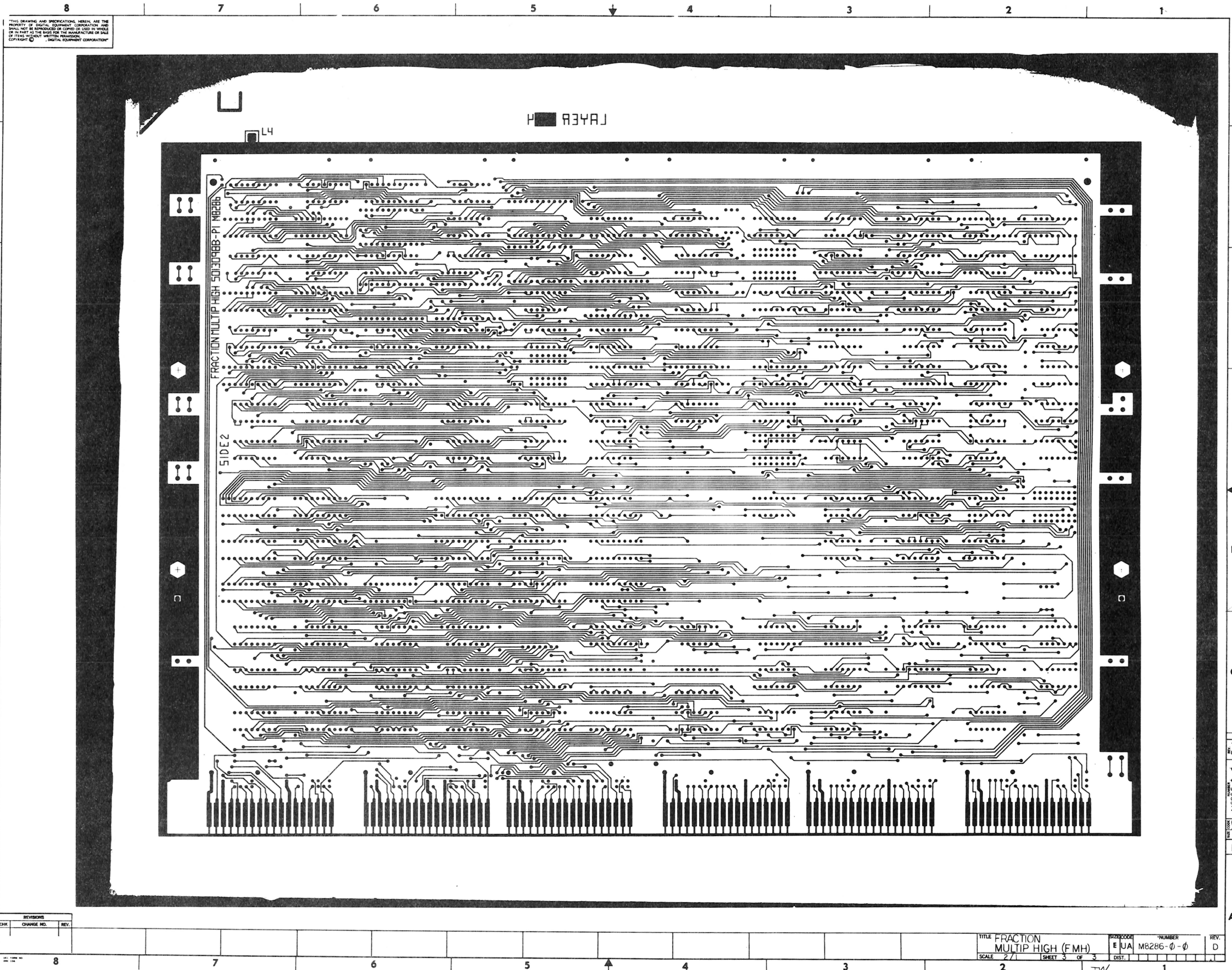
DRN.		FIRST USED ON	digital
CHK'D		TITLE	FRACTION NORMALIZER (FNM)
ENG.		PROJ. ENG.	
PROD.		PROD.	
NEXT HIGHER ASSY.		SIZE CODE</	





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REVISIONS		
CHK	CHANGE NO.	REV.



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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE FRACTION MULTIP HIGH (FMH)		SIZE CODE EUA	NUMBER M8286-0-0	REV. D
SCALE 2/1	SHEET 3 OF 3	DIST.	TW	

LINE ITEM	DOCUMENT NUMBR	PART NUMBER	DESCRIPTION	QTY PER VARIATION	REFERENCE DESIGNATOR
			00		
1	1	D-MD-5013098-0-0	5013098-00	M8286	1
2	2		1012784-00	.047 MFD 50V -20+80 CER	53
3	3		1012084-01	8 MFD 25V G% 300 AL EL	7
4	4		1300250-00	150 1/4W 5% CC	4
5	5		1300247-00	120 1/4W 5% CC	4
6	6		1300295-00	330 1/4W 5% CC	4
7	7		1301890-00	560 1/4W 5% CC	4
8	8		1913788-00	26S10 TRANSCEIVER,BUS,QUA	4
9	9		1910552-00	74S194 SHIFT REG.,4BIT RIGH	20
				CONT	E1,E15,E29,E39
				CONT	E2,E16,E30,E33,E34,E40,E49,E50,
					E52,E53,E60,E61,E70,E72,E74,E75,
					E78,E81,E82,E89
10	10		1911641-00	SN 74S257 MUX,QUAD 2 TO 1	7
11	11		1913670-00	74S373 LATCH 8BIT TRASP TR	13
				CONT	E3,E17,E31,E41,E65,E68,E69
					E4,E5,E6,E19,E18,E20,E32,E42,
				CONT	E43,E44,E54,E55,E56
					E7,E8,E21,E22,E45,E46,E57,E58,
				CONT	E104,F120
13	13		23012B1-00	B1-01 OR CUSTOM MASKED ROM (74S2	6
14	14		1910531-00	DEC 74S181 ALU-4BIT	6
15	15		1910548-00	74S157 MUX 1 OF 2 (QUAD)	6
16	16		1913671-00	74S374 FF-D OCTAL TRISTATE	4
17	17		1912389-00	74S08 AND GATE-QUAD 2IN,PO	3
18	18		1911415-00	10125 ECL TO TTL TRNSLTR	2
19	19		1913493-00	74S241 OCTAL BUFFER,TRI-STA	2
20	20		1913700-00	74S381 ALU-4BIT	3
21	21		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	5
22	22		1912097-00	SN 74S182 LOOK AND CARRY GEN	1
23	23		1910534-00	74S04 INVERTER GATE-HEX 1I	5
24	24		1910537-00	74S11 AND GATE-TRIPLE 3INP	2
25	25		1910957-00	74S175 FF-D QUAD COMMON CLO	5
26	26		1913294-00	93S16 COUNTER,SYNCH UP BIN	1
					E93

REVISION HISTORY			BASIC PART NO: M8286		DRN: F SMART		DATE: 14-OCT-77		D I G I T A L	
ENG	ECO NUMBER	REV	SECTION A OF A							
---	INIT	*	SECTION VARIATION INDEX		CHK'D: F SMART		DATE: 14-OCT-77		TITLE PARTS LIST	
WH	00001	D	[A] 00						FRACTION MULTIPLY HIGH	
			[B]		DES.ENG: STAN LACKEY		DATE: 21-OCT-77			
			[C]							
			[D]							
			[E]						DOCUMENT NUMBER	
			[F]		RESP.ENG.: STAN LACKEY		DATE: 21-OCT-77			
			[H]						SIZE CODE NUMBER REV	
			[J]							
			[K]		MFG.ENG.: MIKE TERELLA		DATE: 21-OCT-77		K	PL M8286-0-DBP D
			[L]							
			[M]		ASSEMBLY NUMBER:		TOP DOCUMENT NUMBER:		FILE NAME: EDIT #	
			[N]		D-UA-M8286-0-0		M8286		Z06300.PLS 12	
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TW

AUTOMATED BY PRTLST.1C(3)

PARTS LIST

SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION	REFERENCE DESIGNATOR
					00	
27	27		1910536-00	74S10 NAND GATE-TRIPLE 3IN	4	E94,E114,E124,E135
28	28		1910532-00	74S00 NAND GATE-QUAD 2INS	2	E95,E126
29	29	BLANK	1910651-00	*** THIS ITEM IS NOT USED ***	-	
30	30		1910542-00	74S64 A-O-I GATE 4-2-3-2	9	E99,E100,E109,E112,E113,E122,
					CONT	E123,E129,E130
31	31		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	3	E100,E132,E133
32	32		1910545-00	74S112 FF-JK DUAL,EDGE TRIG	1	E102
33	33		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	1	E103
34	34		1910550-00	74S174 FF-D HEX	2	E106,E116
35	35		1911712-00	74S51 AND-OR GATE-INVERT D	3	E121,E111,E97
36	36		1910539-00	74S20 NAND GATE-DUAL 4INPU	2	E125,E136
37	37		1911675-00	74S138 DECODER/DEMUX 3-8 LIN	1	E128
38	38		1910541-00	74S40 NAND GATE-DUAL 4IN,B	1	E134
39	39		1210711-02	HANDLE,MODULE,HEX	1	
40	40		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
41	41		1301972-00	270 1/4W 5% CC	8	R6,R8,R14,R15,R19,R22,R23,R17
42	42		1300309-00	390 1/4W 5% CC	1	R25
43	43		1301424-00	680 1/4W 5% CC	1	R26

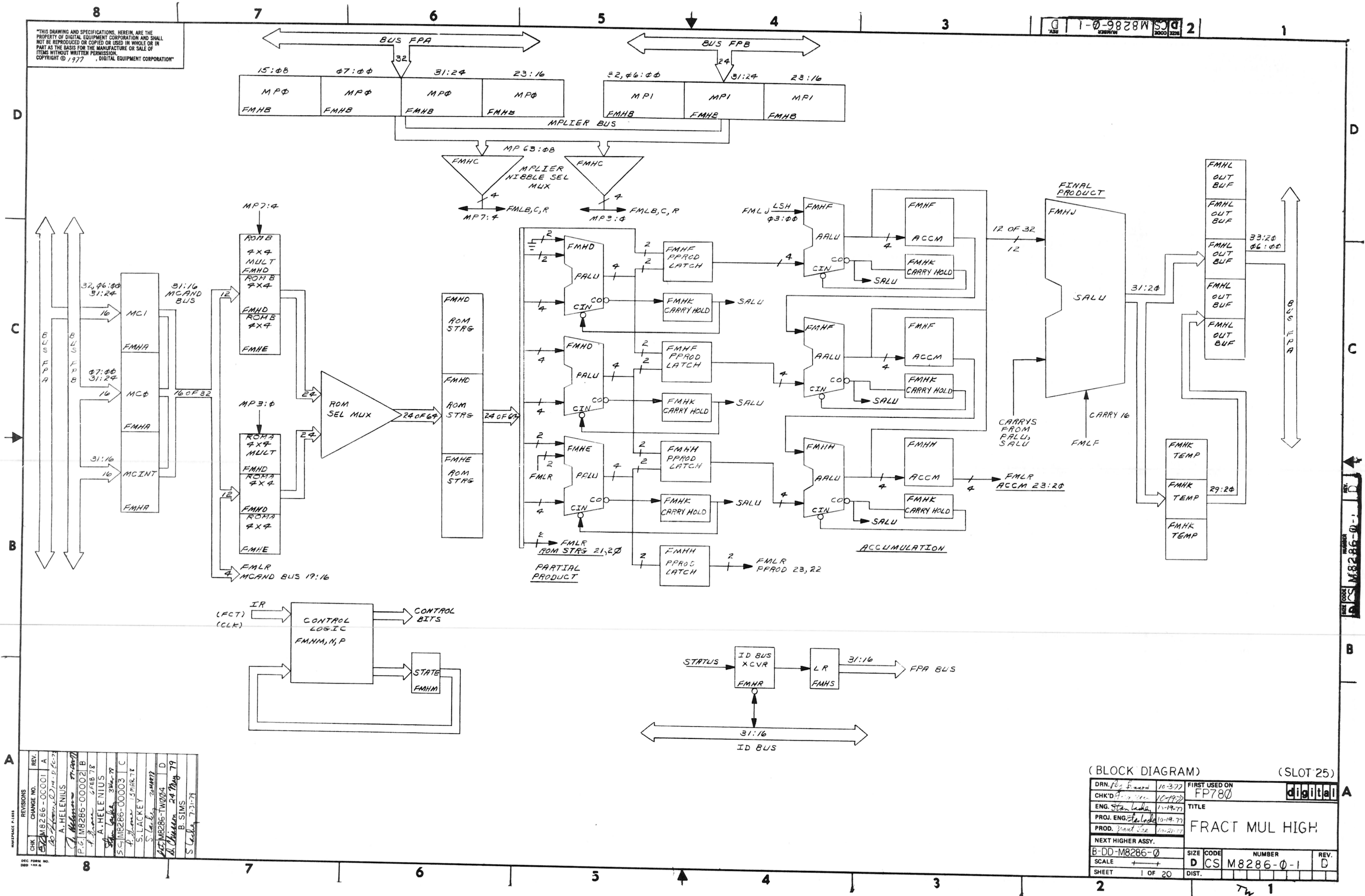
0 NOTE: IC SPARE LOCATIONS ARE E59,E131,E88,E92

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV.
							FRACTION MULTIPLY HIGH		K	PL	MA286-0-DHP	D

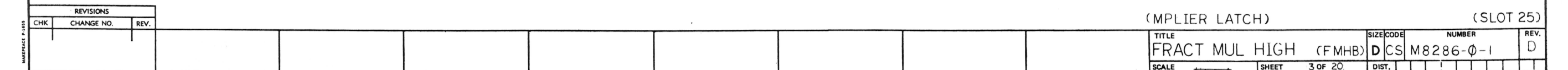
TW

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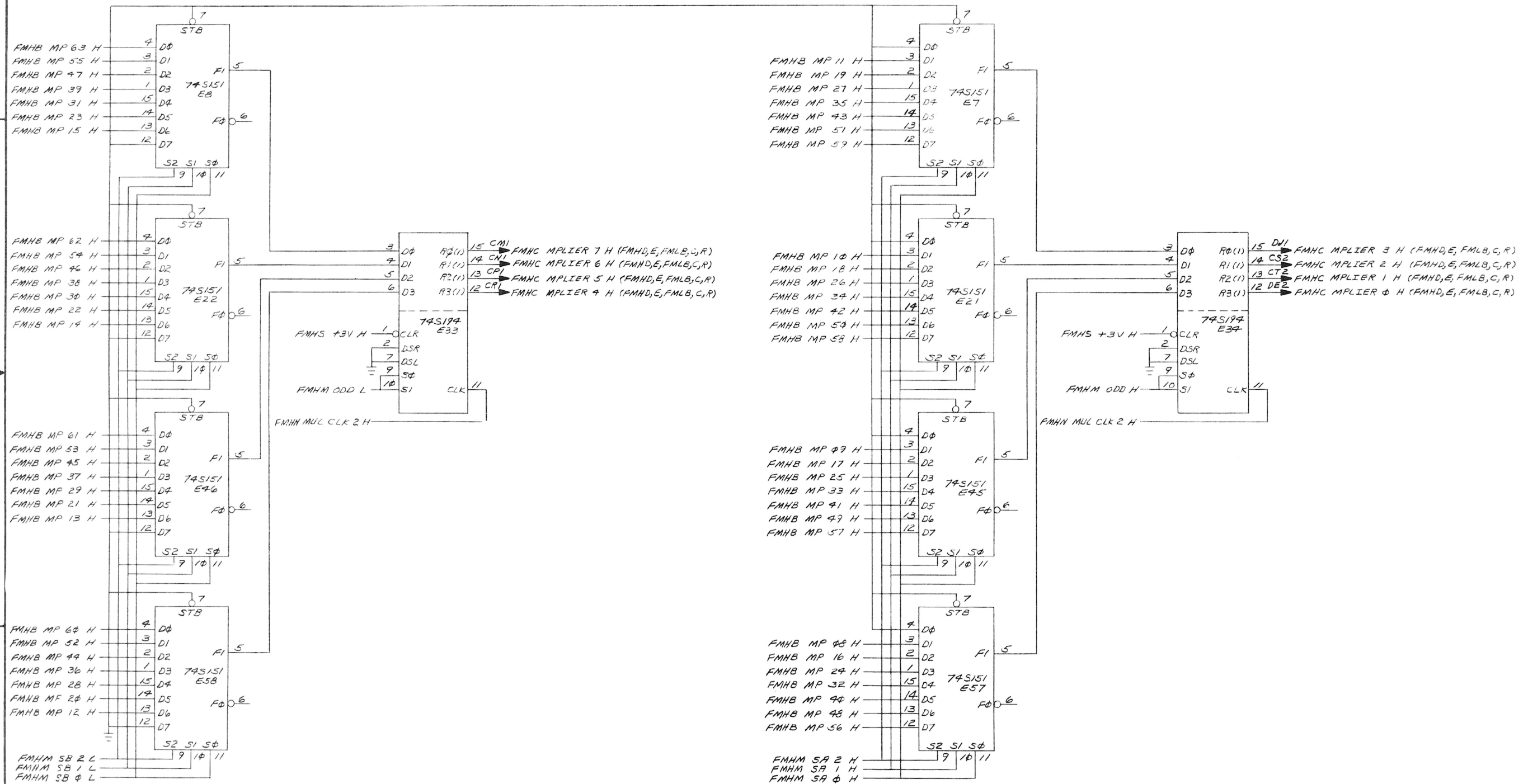
1-0-98286-0-1



(BLOCK DIAGRAM)			(SLOT 25)			
DRN. <i>Pkg. Board</i>	<i>10-377</i>	FIRST USED ON	<div>digital</div> A			
CHK'D <i>By</i>	<i>10-19-77</i>	FP780				
ENG. <i>Stan Lasky</i>	<i>11-19-77</i>	TITLE				
PROJ. <i>ENG. Stan Lasky</i>	<i>10-19-77</i>	FRACT MUL HIGH				
PROD. <i>Plant 552</i>	<i>11-21-77</i>					
NEXT HIGHER ASSY.						
B-DD-M8286-0			SIZE	CODE	NUMBER	REV.
SCALE <i>1/4" = 1"</i>			D	CS	M8286-0-1	D
SHEET 1 OF 20			DIST.			
2			7 1			



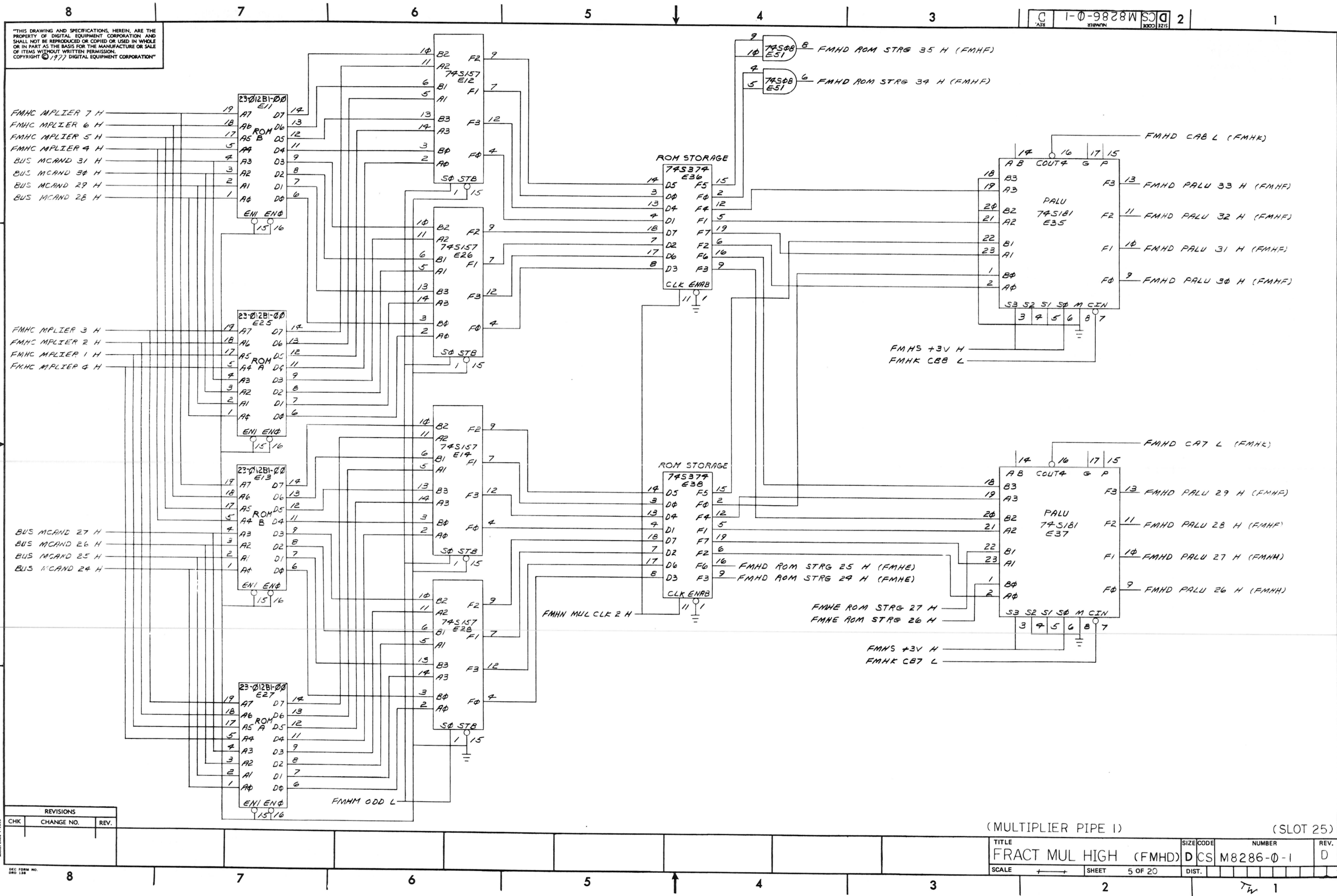
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(MULTIPLIER NIBBLE SELECT) (SLOT 25)

TITLE	SIZE	CODE	NUMBER	REV.
FRACT MUL HIGH (FMHC)	D	CS	M 8286-0-1	U
SCALE	SHEET	DIST.		
+	4 OF 20			

CHK	CHANGE NO.	REV.



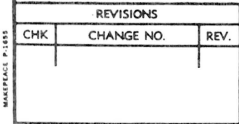
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1-0-9828W SCD 2

(MULTIPLIER PIPE 1) (SLOT 25)

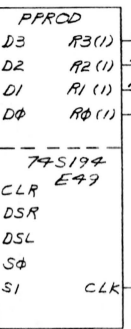
TITLE	FRACT MUL HIGH (FMHD)	SIZE CODE	DCS	NUMBER	M8286-0-1	REV.	D
SCALE	+	SHEET	5 OF 20	DIST.			

REVISIONS		
CHK	CHANGE NO.	REV.

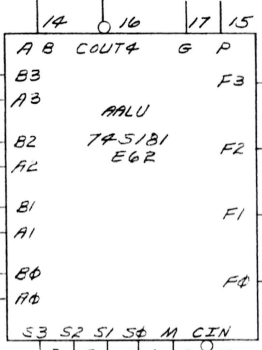


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FMHD ROM STRG 35 H
FMHD ROM STRG 34 H
FMHD PALU 33 H
FMHD PALU 32 H

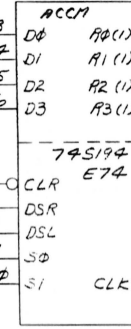


FMLU LSH 03 H
FMLU LSH 02 H
FMLU LSH 01 H
FMLU LSH 00 H



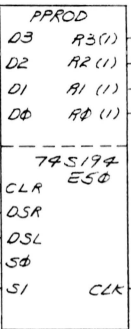
FMHF CC9 L (FMHK)

FMHF ALU 35 H (FMHU)
FMHF ALU 34 H (FMHU)
FMHF ALU 33 H (FMHU)
FMHF ALU 32 H (FMHU)

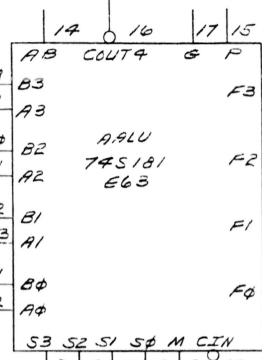


FMHF ACCM 31 H (FMHF)
FMHF ACCM 30 H (FMHF)
FMHF ACCM 29 H (FMHF)
FMHF ACCM 28 H (FMHF)

FMHD PALU 31 H
FMHD PALU 30 H
FMHD PALU 29 H
FMHD PALU 28 H

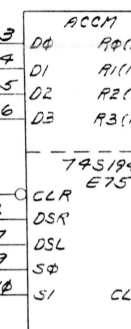


FMHF ACCM 31 H
FMHF ACCM 30 H
FMHF ACCM 29 H
FMHF ACCM 28 H



FMHF CC8 L (FMHK)

FMHF ALU 31 H (FMHU)
FMHF ALU 30 H (FMHU)
FMHF ALU 29 H (FMHU)
FMHF ALU 28 H (FMHU)



FMHF ACCM 27 H (FMHH)
FMHF ACCM 26 H (FMHH)
FMHF ACCM 25 H (FMHH)
FMHF ACCM 24 H (FMHH)

FMHP CLR UPPER L

FMHP PPROD CTL UPR H

FMHN MUL CLK 2 H

FMHE +3V H
FMHK CDB L

FMHP CLR UPPER L
FMHP CLR LOWER L

FMHP ACCM CTL 0 H
FMHP ACCM CTL 1 H

FMHN MUL CLK 3 H

REVISIONS		
CHK	CHANGE NO.	REV.

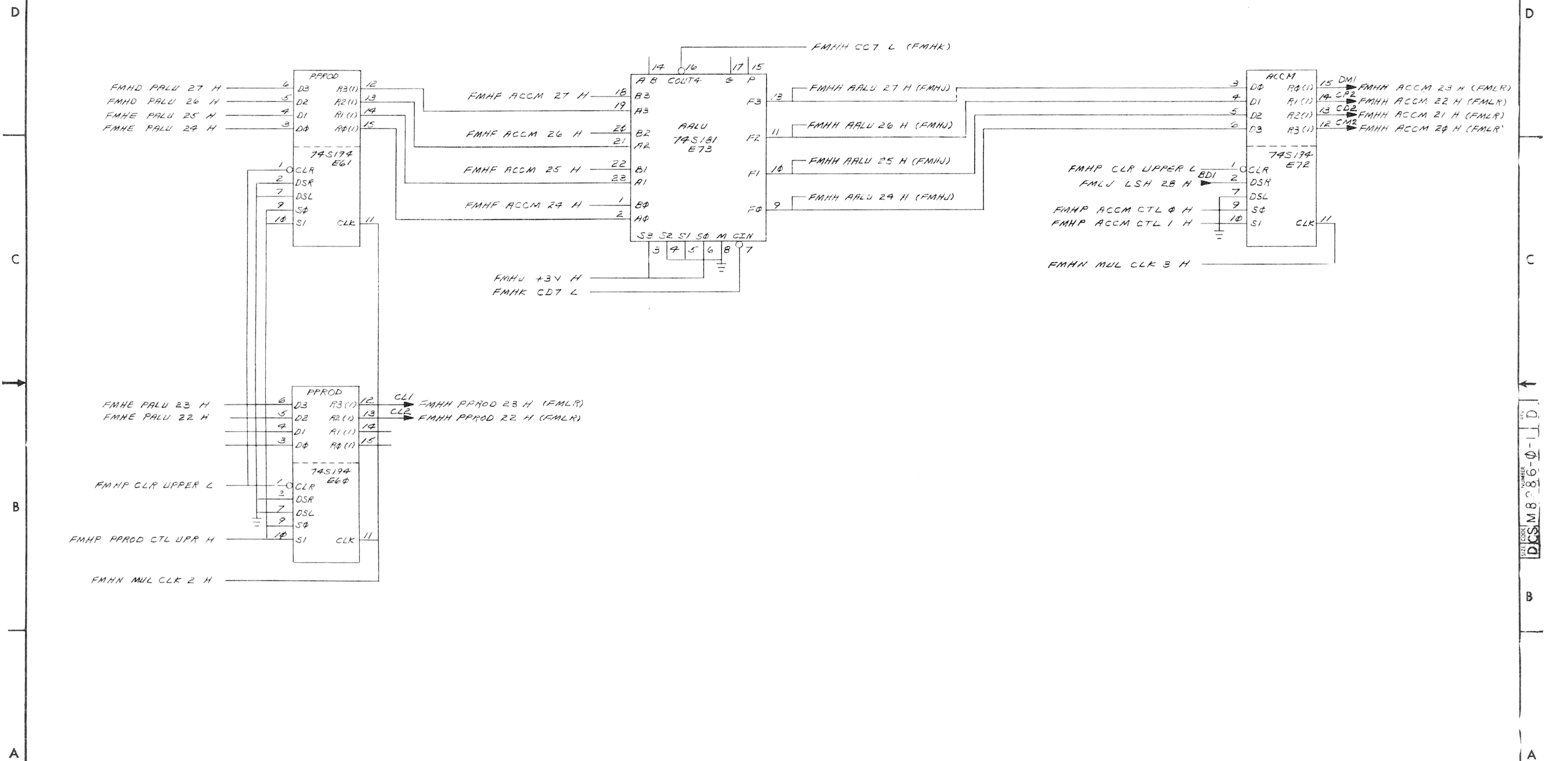
(MULTIPLIER PIPE 3)

(SLOT 25)

TITLE	SIZE CODE	NUMBER	REV.
FRACTMUL HIGH (FMHF)	DCS	M8286-0-1	D
SCALE	SHEET	DIST.	
	7 OF 20		

8 7 6 5 4 3 2 1

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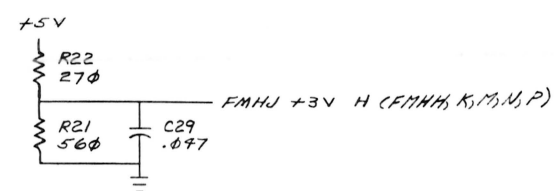
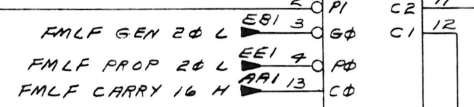
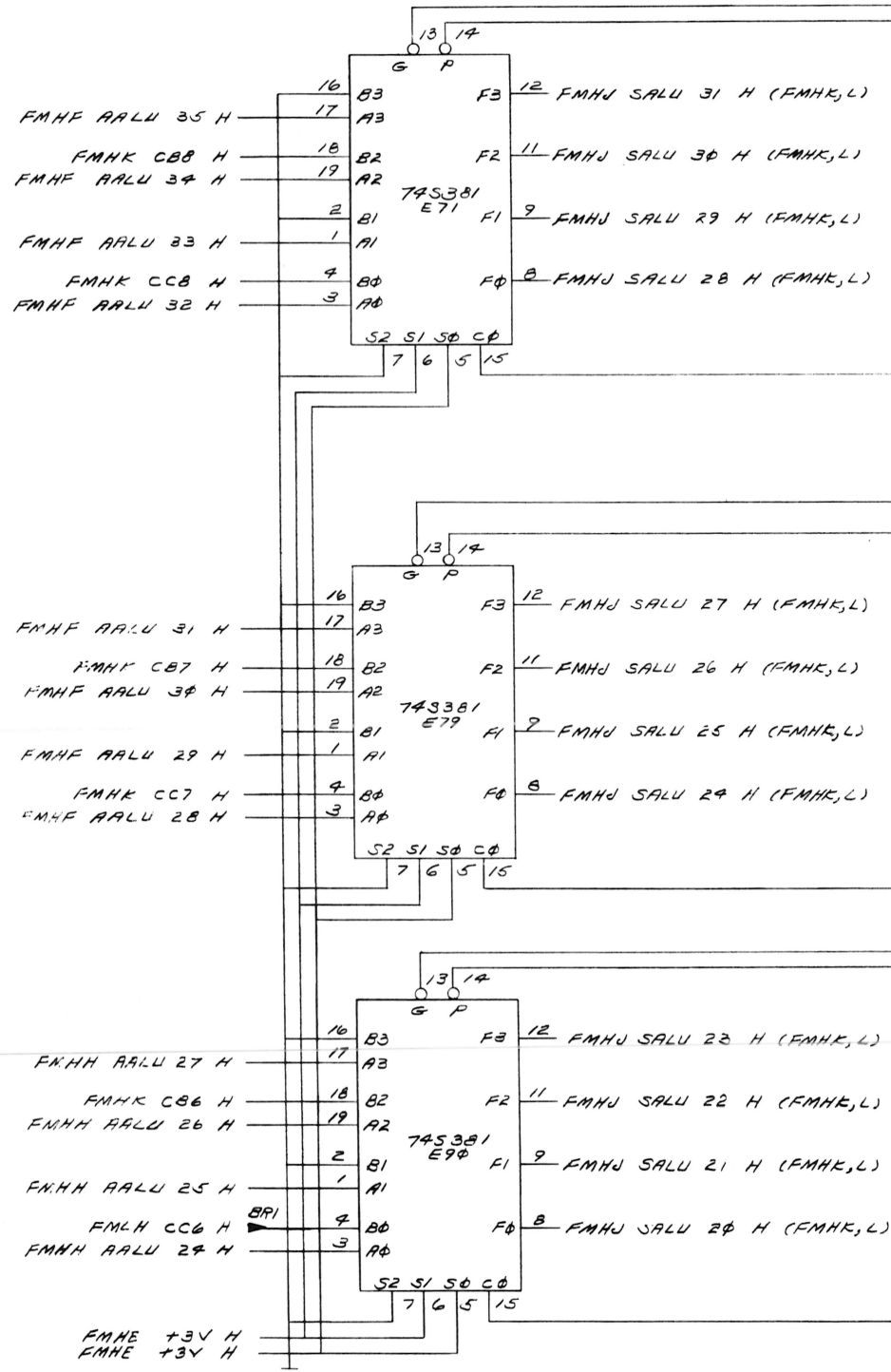


REVISIONS		
CHK	CHANGE NO.	REV.

(MULTIPLIER PIPE 4) (SLOT 25)

TITLE	SIZE CODE	NUMBER	REV.
FRACT MUL HIGH (FMHH)	DCS	M8286-0-1	D
SCALE	SHEET	DIST.	
	8 OF 20		

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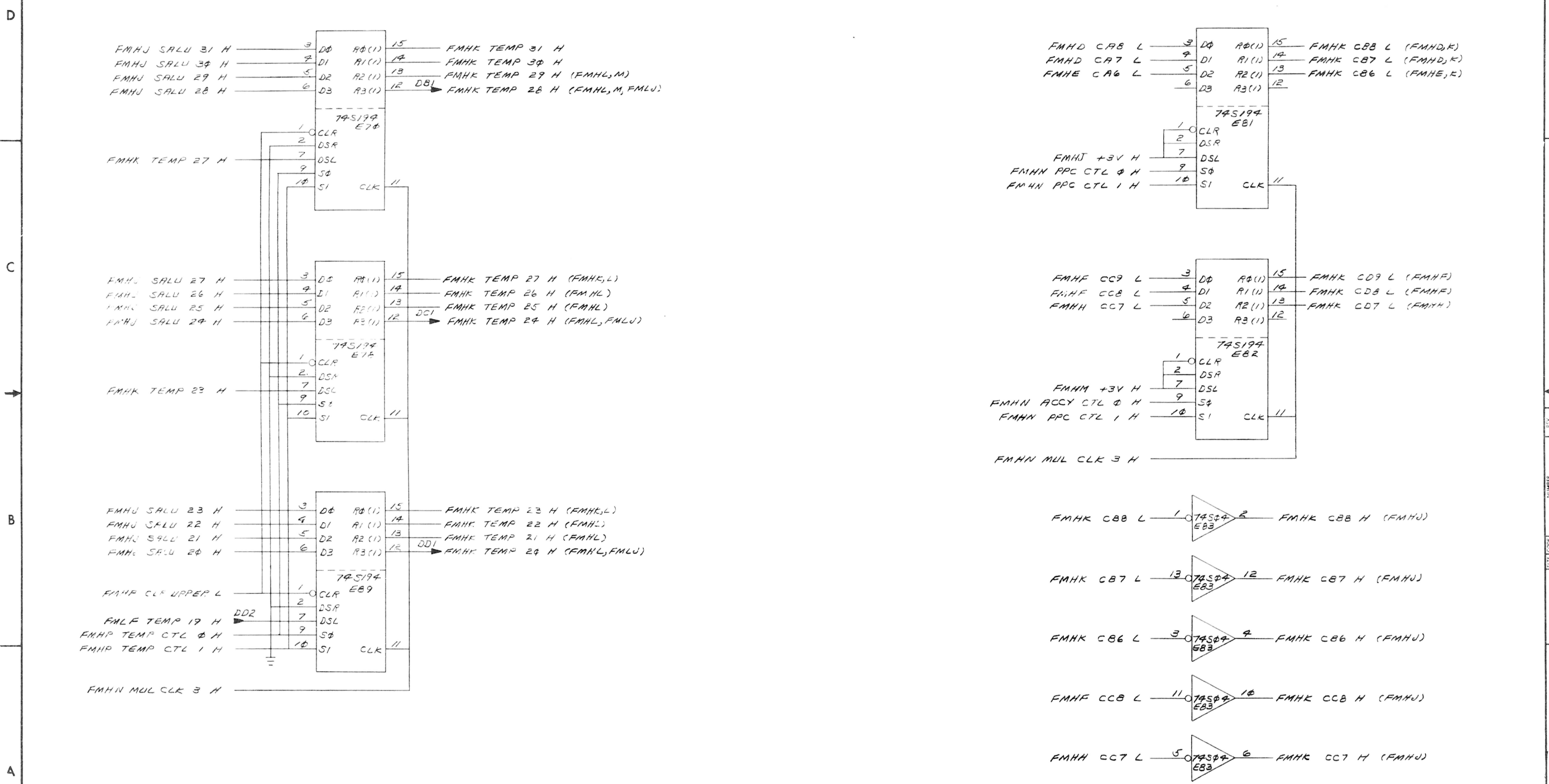


REVISIONS		
CHK	CHANGE NO.	REV.

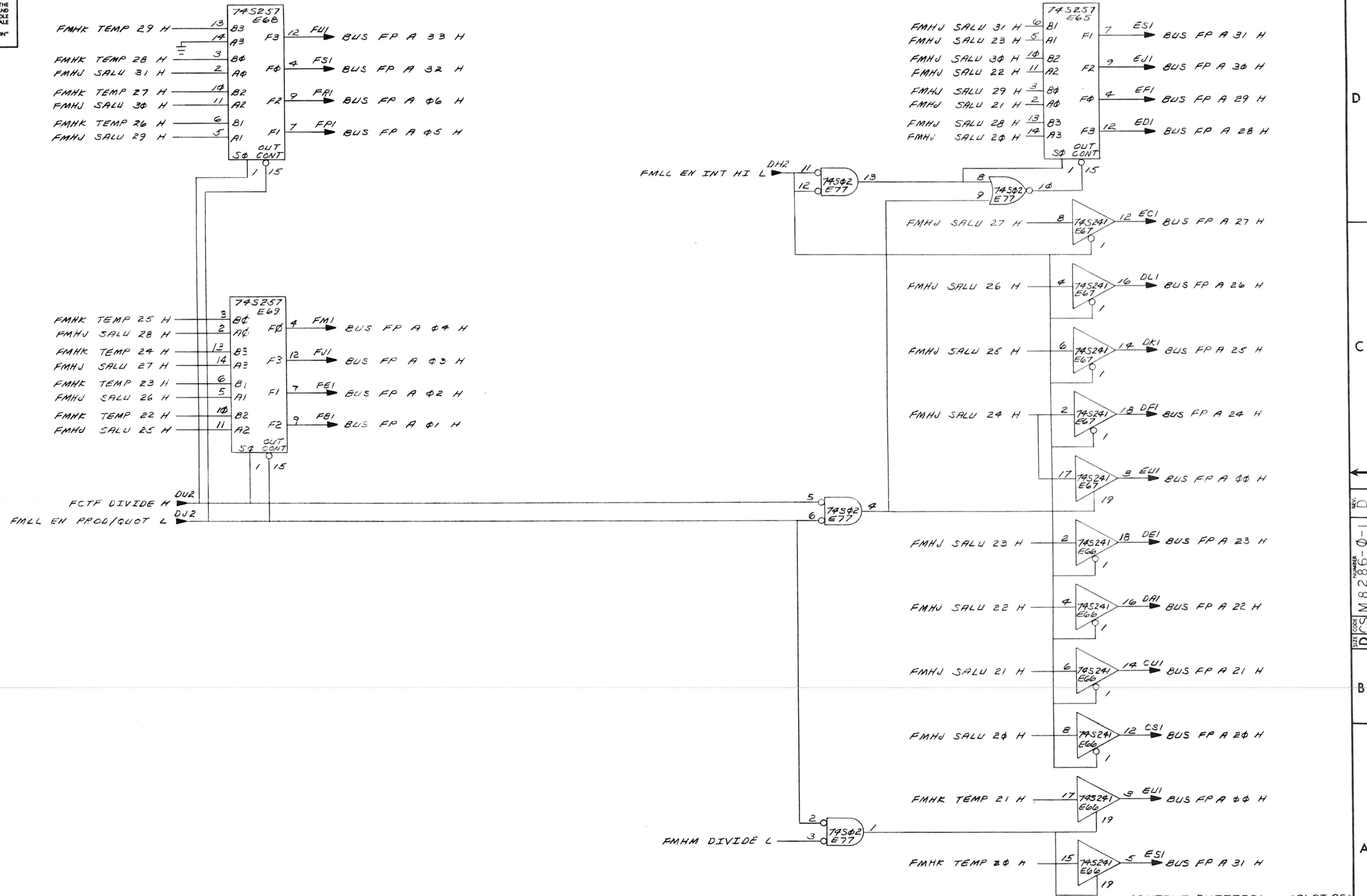
(MOST SIGNIF HALF OF ADDER) (SLOT 25)

TITLE	SIZE CODE	NUMBER	REV.
FRAC T MUL HIGH (FMHJ)	DCS	M8286-0-1	D
SCALE	SHEET	9 OF 20	DIST.

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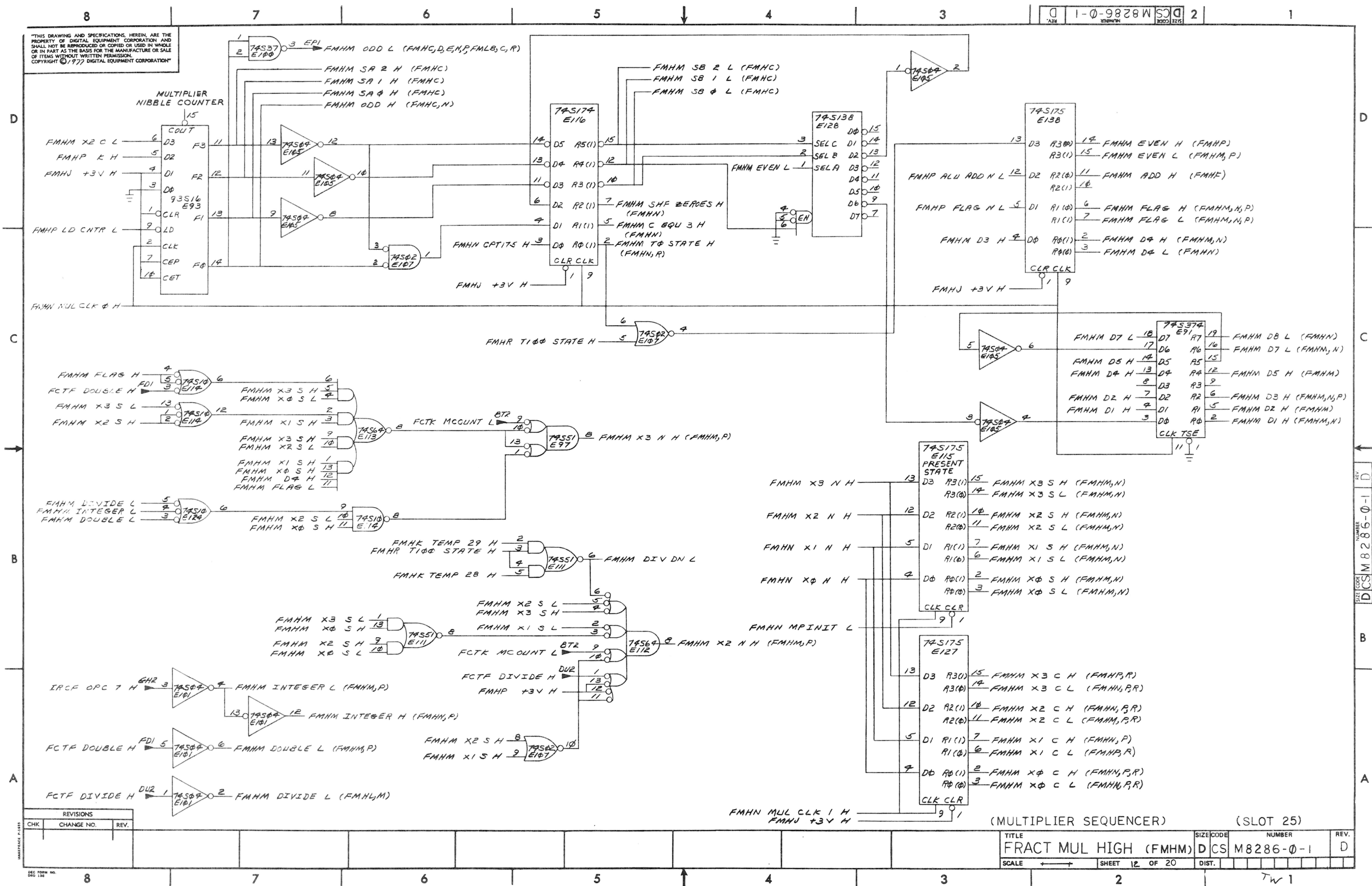


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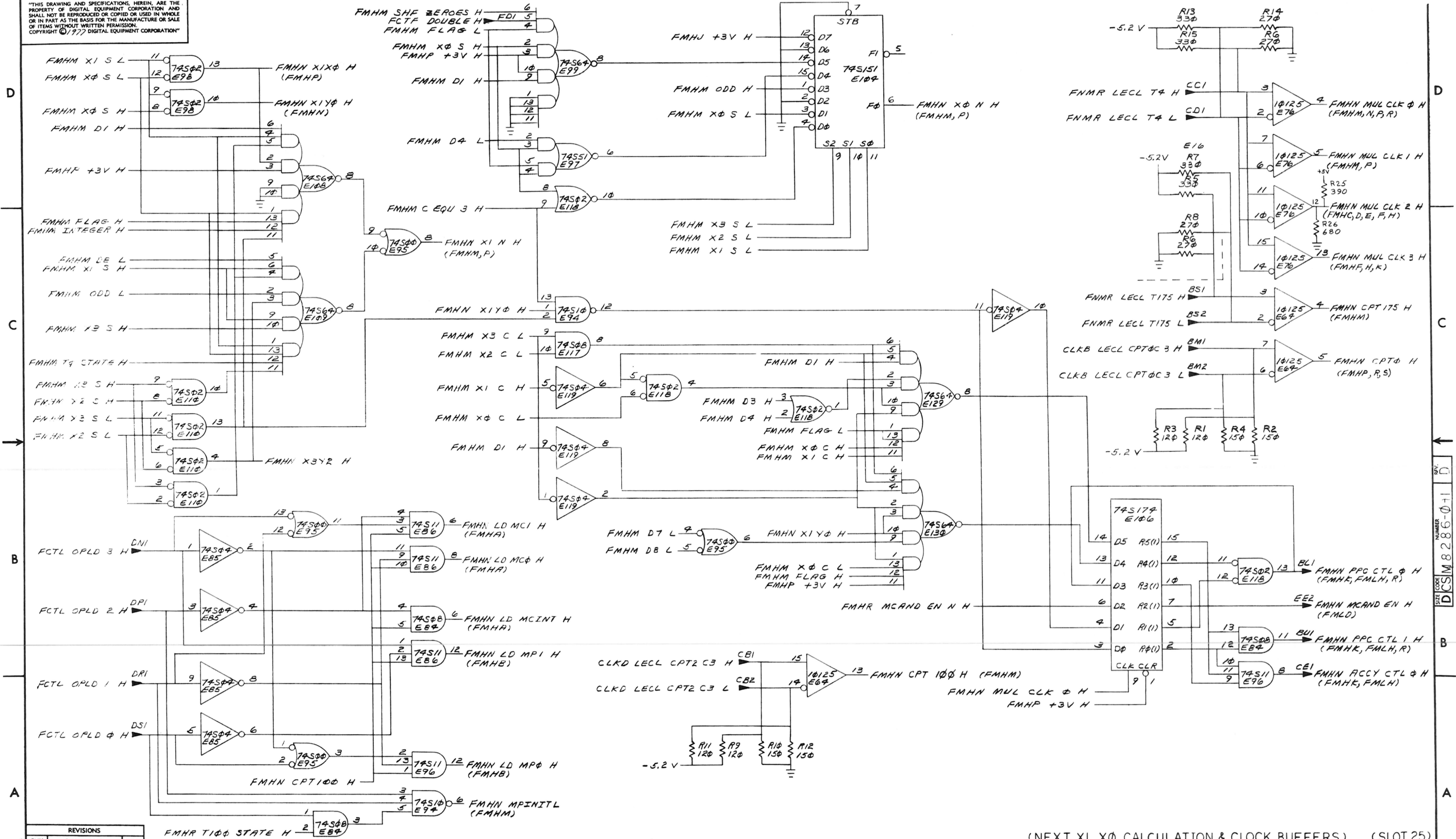


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER		REV.
FRACT MUL HIGH (FMHL)		D	CS	M8286-0-1		D
SCALE		SHEET 11 OF 20		DIST.		



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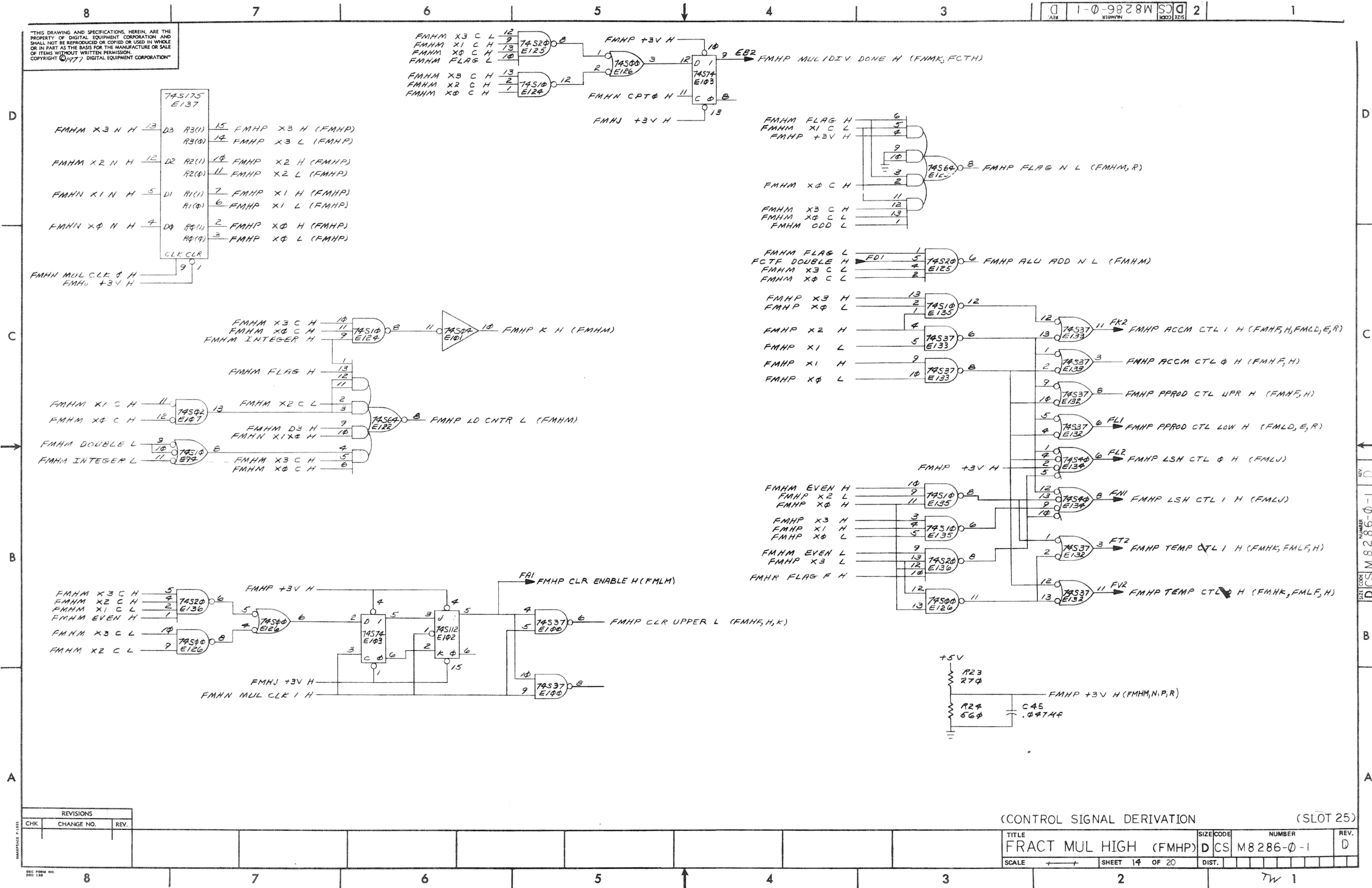


REVISIONS		
CHK	CHANGE NO.	REV.

(NEXT XI, XØ CALCULATION & CLOCK BUFFERS) (SLOT 25)

TITLE		SIZE CODE	NUMBER	REV.
FRACT MUL HIGH (FMHN)		D	CS M8286-0-1	D
SCALE		SHEET 13	OF 20	DIST.

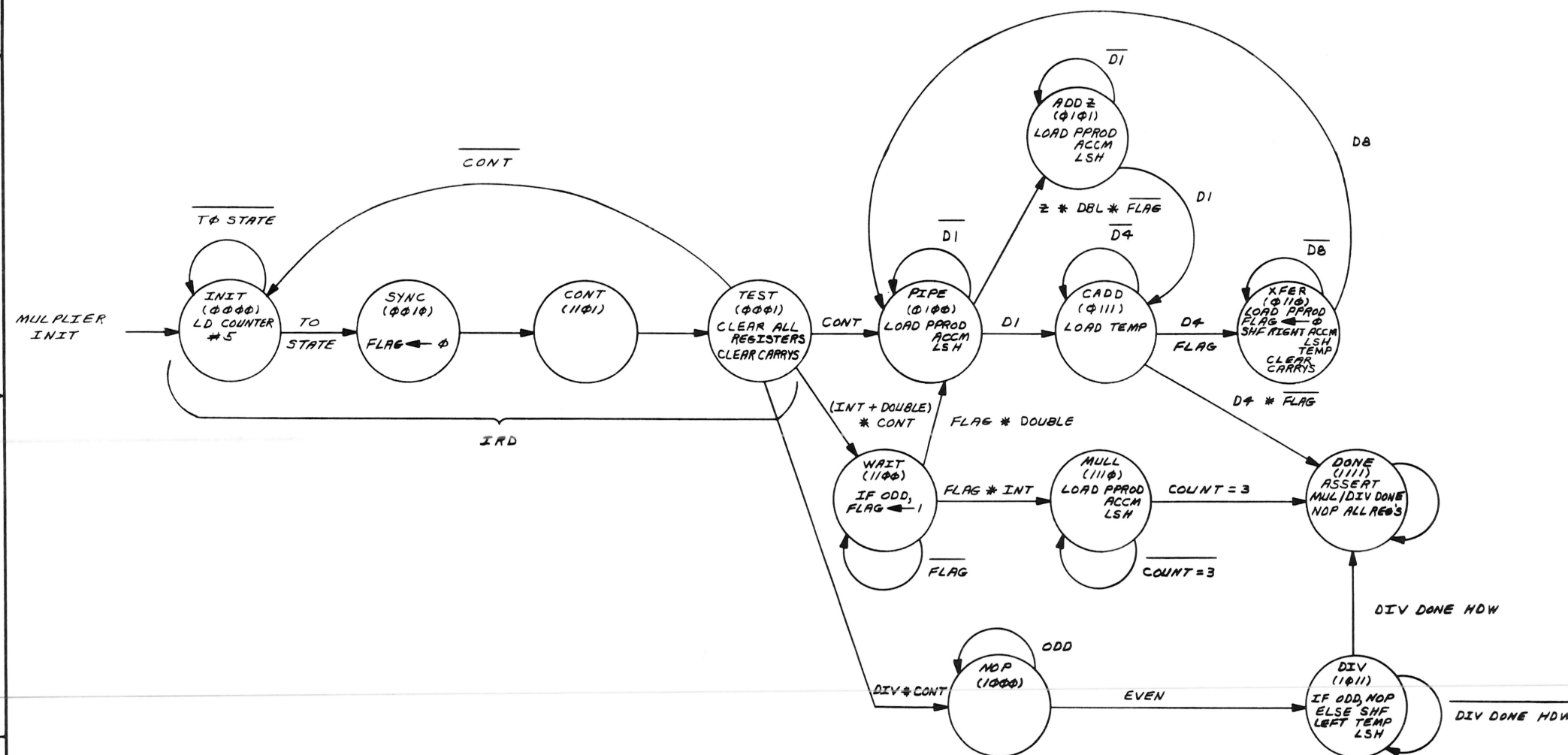
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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE CODE		NUMBER		REV.	
FRACT MUL HIGH (FMHP)		D CS		M8286-0-1		D	
SCALE		SHEET		OF		DIST.	
		14		20			

MULTIPLIER CONTROL STATE TRANSITION DIAGRAM)									
TITLE FRACT MUL HIGH (FMHT)				SIZE CODE D CS		NUMBER M8286-0-1		REV. D	
SCALE ←→		SHEET 17 OF 20		DIST.					
		2				TW 1			



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* DON'T CARE STATE

STATE VARIABLES				NAME	NEXT STATE	DEFINITION	OUTPUT CONTROL											
X3	X2	X1	X0	INIT	IF $\overline{T0}$, THEN 0000; ELSE 0010	RESULT OF MINIT SIGNAL FROM MICROCODE. PREPARES MPLIER NIBBLE SELECT COUNTER FOR MULF SEQUENCE.	LD CNTR	CNTR CONSTANT	NEXT TTH	NEXT ALU ADD	NEXT FLAG	NEXT CLR ALL	MUL/DIV DONE	PPRWD	ACOM	LSH	TEMP	
0	0	0	0				1	1010	0	*	1 IF FLAG AND DOUBLE	PREV FLAG	1	0	NOP	NOP	NOP	NOP
0	0	1	0	SYNC	11 01	ENTRY FROM STATE 0000 AT T90 TO PROVIDE SYNCHRONIZATION BETWEEN MULTIPLIERS 50 ns. CLOCK AND MICROCODES 200 ns. CLOCK.	0	1010 *	0	1 IF FLAG AND DOUBLE	0	1	0	LD	SR	SR	SR	
1	1	0	1	CONT	0001	NOP IF MULF OR ENMOD; LOAD MPLIER NIBBLE SELECT COUNTER IF MUL, MULD, OR ENMOD.	1 IF DOUBLE OR INT	0110 IF INT ELSE 0010	1 IF DOUBLE ELSE 0	0	PREV FLAG	0	1	LD	LD	NOP	NOP	
0	0	0	1	TEST	IF $\overline{\text{CONT}}$, THEN 0000 ELSE IF DIV, THEN 1000; ELSE IF DBL. OR INT. , 1100; ELSE 0100	TESTS OPCODE FOR FIRST EXECUTION STATE CALCULATION; CLEARS THE MULTIPLIER DATA PATH,	0	1010 *	PREV TTH	0	PREV FLAG	1	0	NOP	NOP	SL IF EVEN LD IF EVEN AND FLAG	LD	
1	0	0	0	NOP	IF $\overline{\text{EVEN}}$ THEN 1000; ELSE 1011	WAITS FOR FIRST QUOTIENT BIT TO BE FORMED IN THE NALL.	1 *	1010	0	0	PREV FLAG	0	0	NOP	NOP	NOP	NOP	
1	0	1	1	DIV	IF $\overline{\text{DIV DONE}}$, THEN 1011; ELSE 1111	SHIFTS LSH AND TEMP LEFT ONE BIT TO ACCEPT QUOTIENT BITS IN DIVIDE	1 IF D3 AND DBL OR INT *	110 IF INT ELSE 1010	1 IF DOUBLE ELSE PREV TTH	0	PREV FLAG	0	0	NOP	NOP	SL IF EVEN	SL IF EVEN	
1	1	0	0	WAIT	IF $\overline{\text{FLAG}}$, THEN 1100 ELSE IF DBL, THEN 0100; ELSE 1110	CLEAR DATA PATH AND CARRY REGISTERS FOR MULD, ENMOD, AND MULL. WAITS FOR FIRST ROM LOOK UP.	1 IF INT AND FLAG	0010	PREV TTH	0	1 IF EVEN ELSE PREV FLAG	1 IF EVEN	0	LD	LD	LD	NOP	
1	1	1	0	MULL	IF COUNT=3, THEN 1110 ELSE 1111	RUNS MULTIPLIER PIPE FOR MULL.	0	0010 *	PREV TTH *	0	0	0	0	LD	LD	LD	SR	
0	1	0	0	PIPE	IF SHF ZEROES, AND DBL. AND $\overline{\text{FLAG}}$ THEN 0101 ELSE IF D1, THEN 0111; ELSE 0100	RUNS MULTIPLIER PIPE FOR FLOATING POINT MULTIPLY OPERATIONS. ADDS LSH'S 4 LSB'S TO ACOM'S 4 MSB'S IF SECOND TIME THROUGH DBL MULTIPLY.	1 IF INT AND FLAG	0010 *	PREV TTH	1 IF $\overline{\text{FLAG}}$ AND DOUBLE	PREV FLAG	0	0	LD	LD	LD	NOP	
0	1	1	1	CADD	IF $\overline{D4}$, THEN 0111 ELSE IF FLAG, THEN 0110 ELSE 1111	STOPS PIPE TO ADD FINAL STORED, CARRYS TO FINAL ACCUMULATION. LOADS TEMP.	1 IF D3	0010	0	0	PREV FLAG	0	1 IF $\overline{\text{FLAG}}$	NOP	NOP	LD IF EVEN AND FLAG	LD	
0	1	1	0	XFER	IF $\overline{D0}$, THEN 0110 ELSE 0100	SHIFTS ACOM, TEMP, AND LSH RIGHT TO TRANSFER.	0	0010 *	PREV TTH	1 IF DOUBLE	0	0	0	LD	SR	SR	SR	
0	1	0	1	ADDZ	IF $\overline{D1}$, THEN 0101 ELSE 0111	ADDS ZEROES TO ACOM'S 4 MSB'S.	0	0010	0	0	PREV FLAG	0	0	LD	LD	LD	LD	
1	1	1	1	DONE	1111	STOPS ALL REGISTERS FROM CHANGING TO ALLOW NR OR CPU D REG. TO ACCEPT FINAL RESULT.	1 IF D3 AND DOUBLE OR INT *	0110 IF INT ELSE 0010	1 IF DOUBLE	0	PREV FLAG	0	1	NOP	NOP	NOP	NOP	

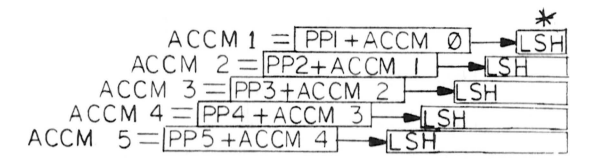
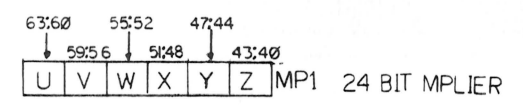
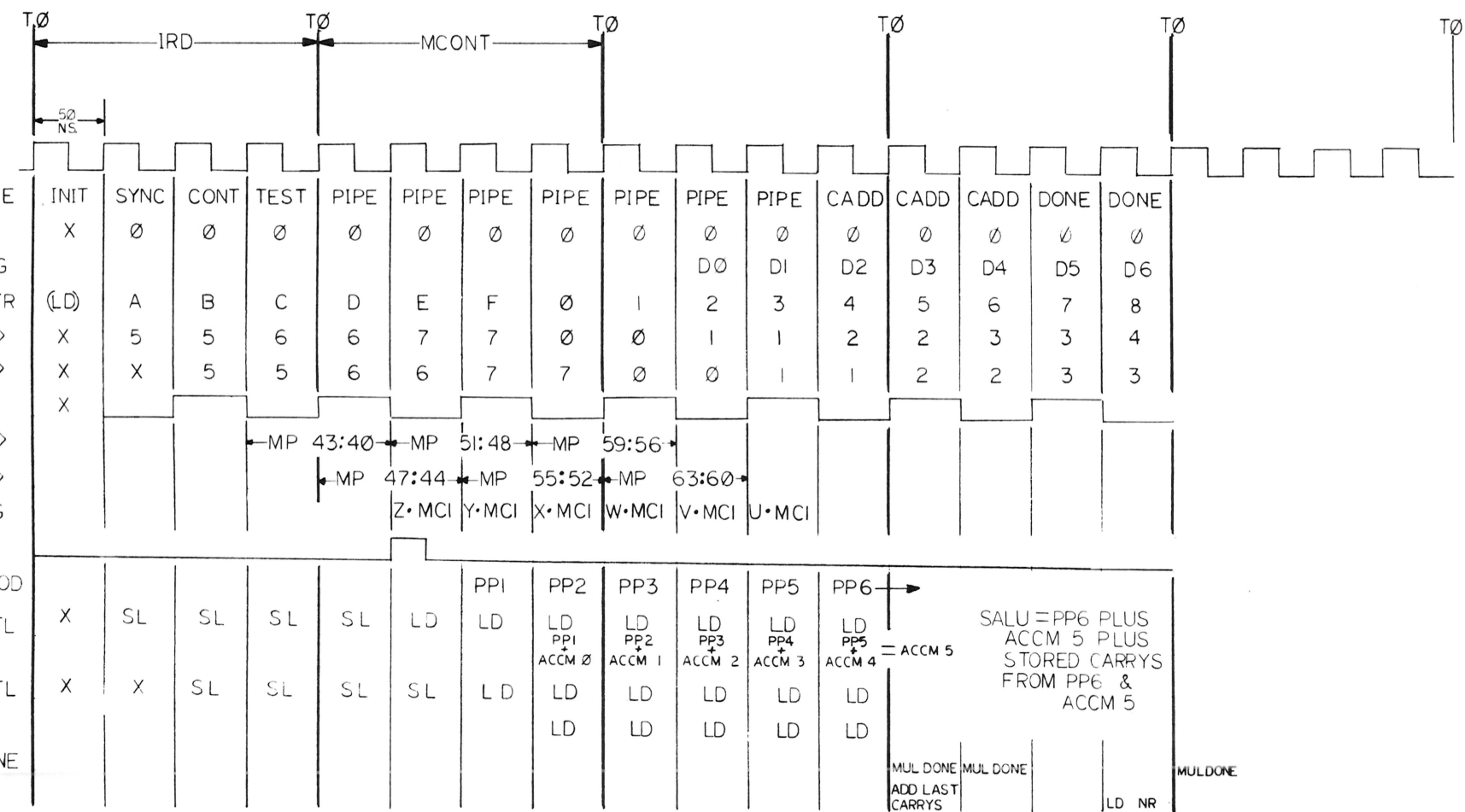
REVISIONS		
CHK	CHANGE NO.	REV.

(MULTIPLIER CONTROL SIGNALS) (SLOT 25)

TITLE	FRAC MUL HIGH (FMHU)	SIZE CODE	DCS	NUMBER	M8286-0-1	REV.	D
SCALE	+	SHEET	18	OF 20	DIST.		

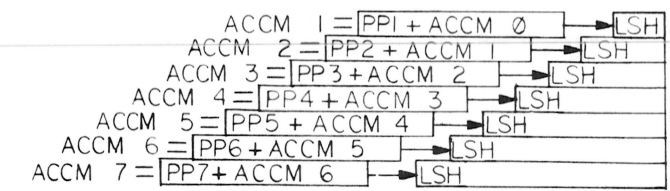
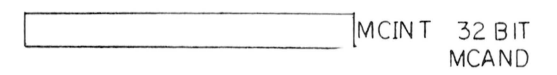
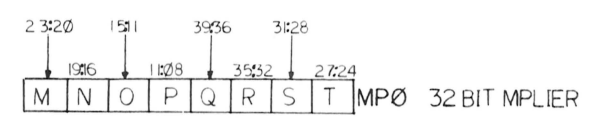
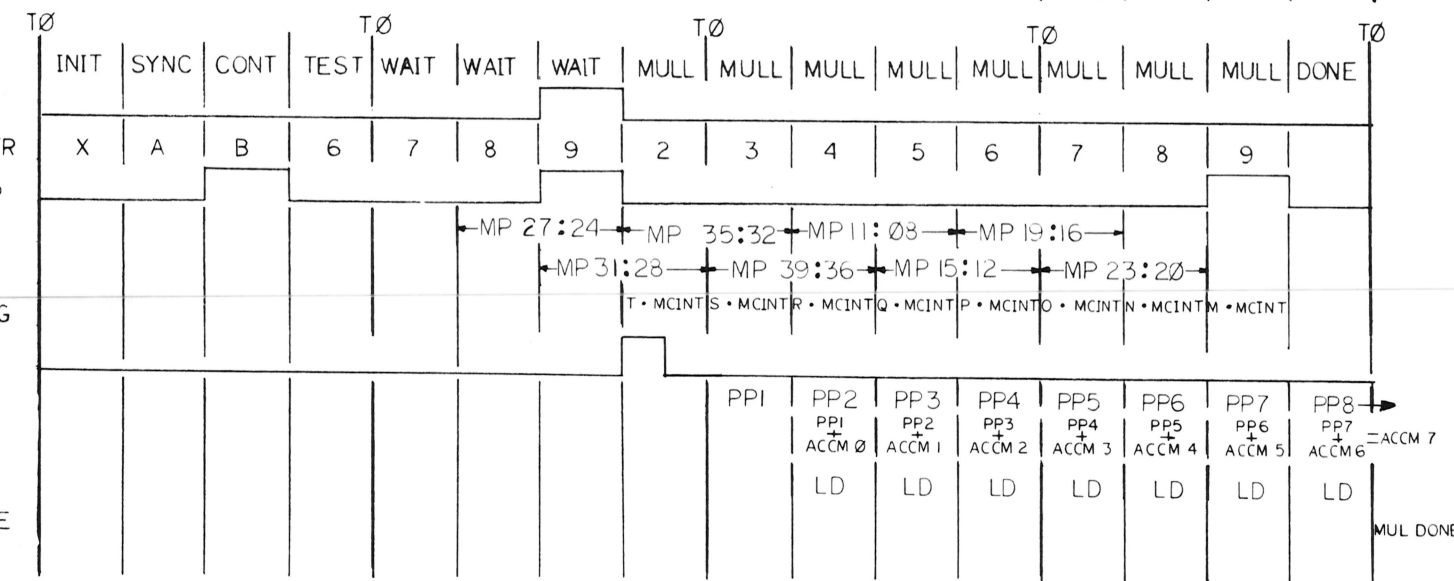
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MULF TIMING



* AFTER EACH ADDITION OF THE PARTIAL PRODUCT AND ACCUMULATOR CONTENTS, THE 4 LEAST SIGNIFICANT BITS OF THE RESULT ARE LOADED INTO THE LSH REGISTER.

MULL TIMING



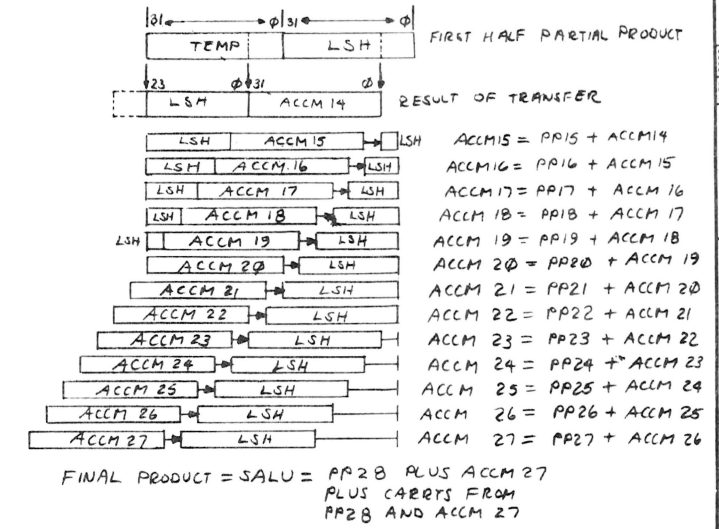
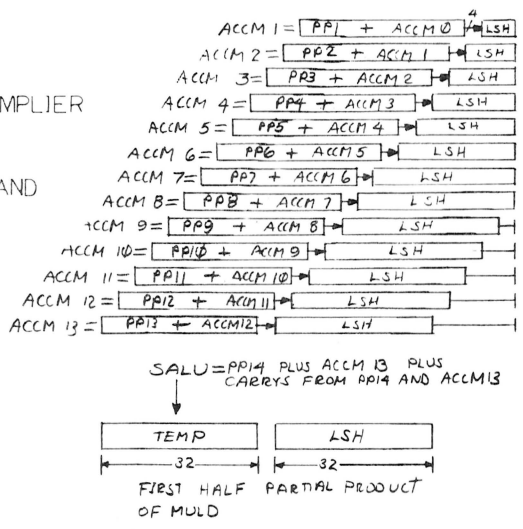
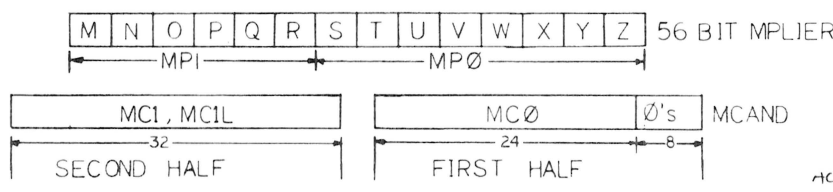
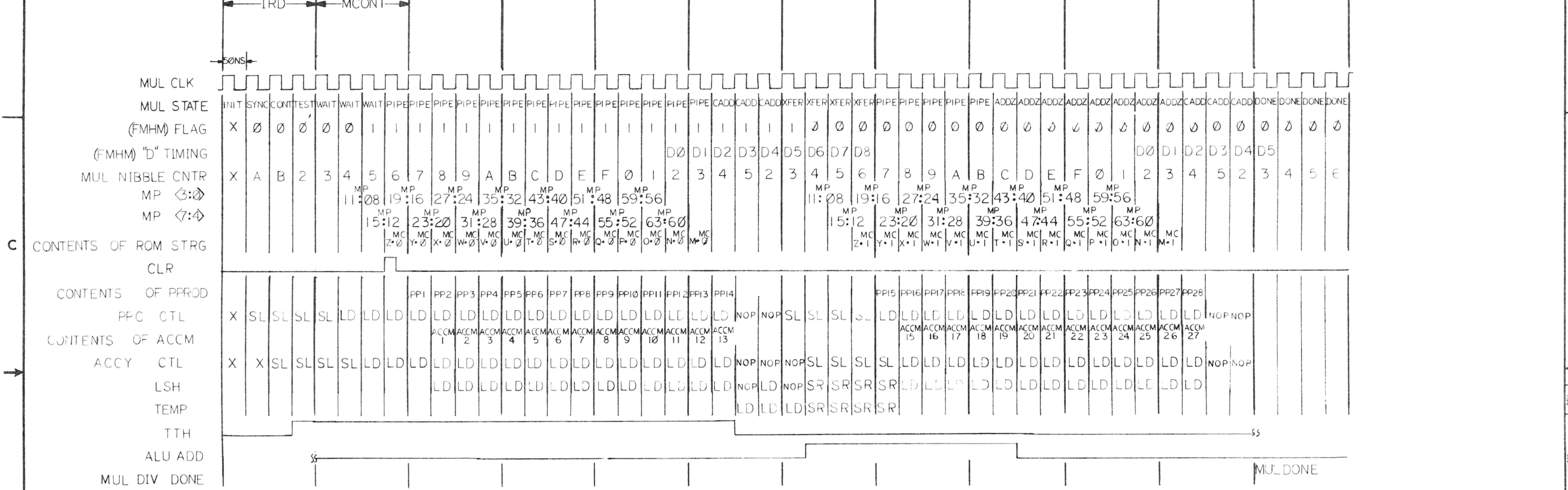
SALU = PP8 PLUS ACCM 7 PLUS STORED CARRYS FROM PP8 & ACCM 7

DRN. RLENNON	3-NOV-77	FIRST USED ON	VAX STAR
CHK'D FERGUSON	19-NOV-77	TITLE	MULF, MULL
ENG. S. LACKEY	19-NOV-77	TITLE	TIMING DIAGRAM
PROJ. ENGS. LACKEY	19-NOV-77		
PROD. G. LEE	21-NOV-77		
NEXT HIGHER ASSY.			
SCALE	1/1	SIZE	D
SHEET	19 OF 20	CODE	CS
		NUMBER	M8286-0-1
		REV.	D

REVISIONS	REV.
CHK	CHANGE NO.

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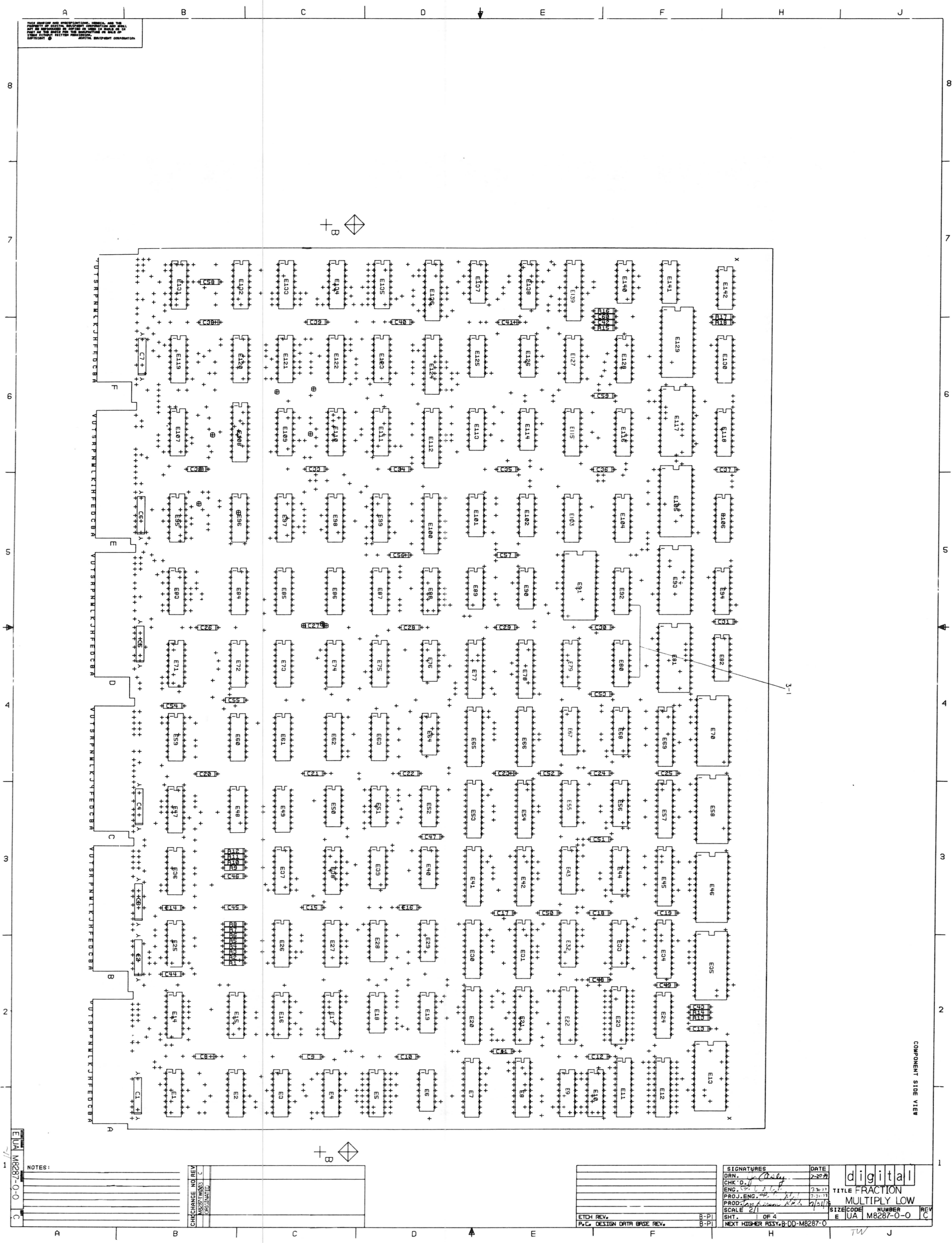
MULD TIMING



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE/CODE	NUMBER	REV.
MULD TIMING DIAGRAM		D CS	M8286-0-1	D
SCALE		SHEET 20 OF 20	DIST.	

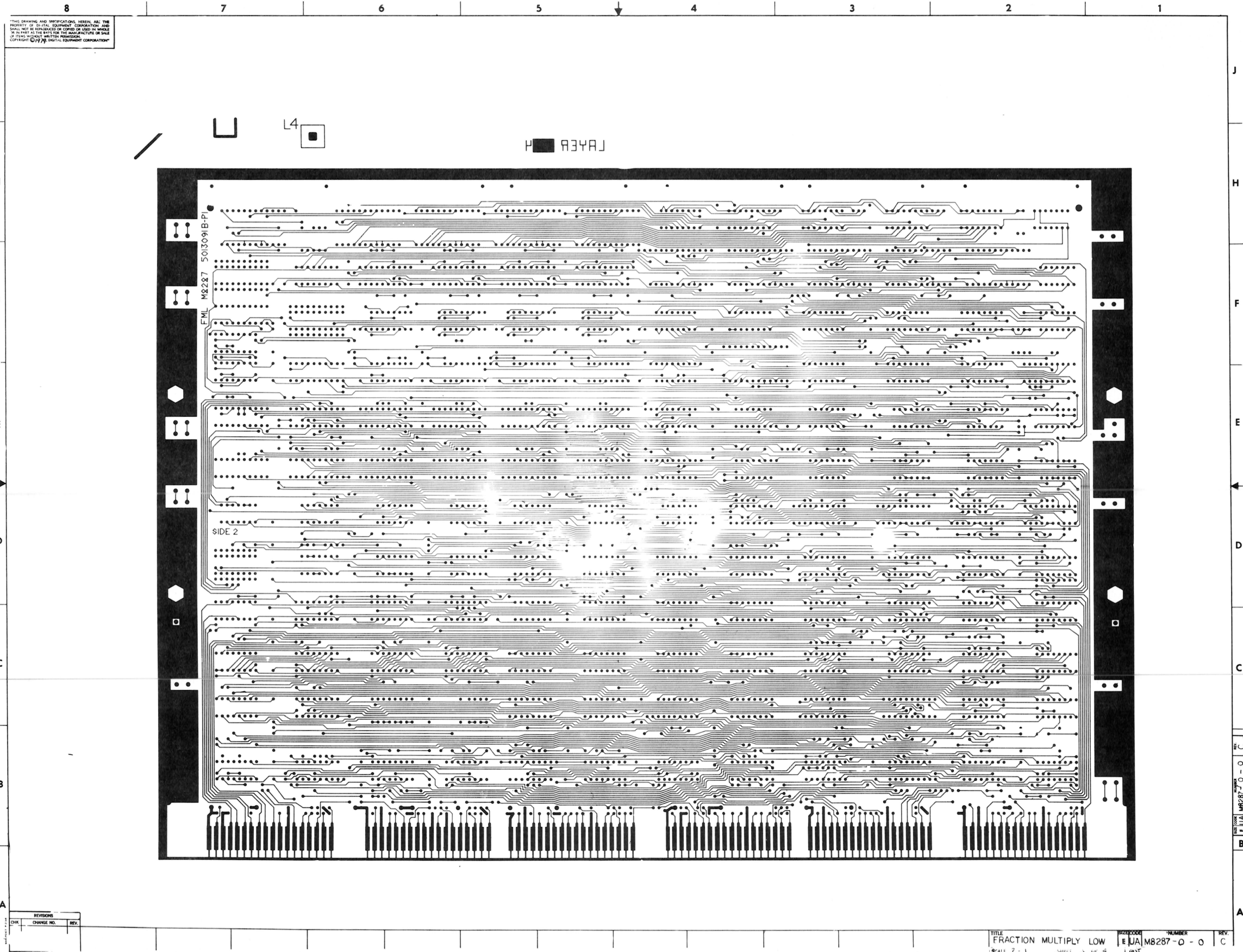
REV. D
NUMBER M8286-0-1
SHEET CODE D



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CHANGE NO	REV	DATE
1	C	7/1/79
2	C	7/1/79
3	C	7/1/79
4	C	7/1/79
5	C	7/1/79
6	C	7/1/79
7	C	7/1/79
8	C	7/1/79
9	C	7/1/79
10	C	7/1/79

SIGNATURES		DATE	TITLE FRACTION	MULTIPLY LOW	SIZE CODE	NUMBER	REV
DRN.	CHK.	7-20-79					
ENG.	PROJ. ENG.	7-31-79					
PROD.	SCALE	21					
SIT.	OF 4						
NEXT HIGHER ASSY.		B-DD-M8287-0					



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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE FRACTION MULTIPLY LOW
SCALE 2 - 1
SHEET 4 OF 4
PART
REV. C
NUMBER
EUA MB287-0-0
REV. C

REWORK INSTRUCTIONS

ECO #3

WIRE ADDS SIDE 1:

3-1 FROM E92-10 TO E80-10

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE FRACTION MULTIPLY LOW		PROJECT CODE EUA	NUMBER M8287-0-0	REV C
SCALE	SHEET 4 OF 4	DIST.		
2		TA	1	

LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION	REFERENCE DESIGNATOR
				00	
1	1	D-MD-5013091-0-0	5013091-00 FML	1	
2	2		1012084-01 8 MFD 75V G% 30D AT EL	7	C1-C7
3	3		1012784-00 .047 MFD 50V -20+80 CER	53	C8-C60
4	4		1300247-00 120 1/4W 5% CC	4	R2,R4,R6,R8
5	5		1300250-00 150 1/4W 5% CC	4	R1,R3,R5,R7
6	6		1301972-00 270 1/4W 5% CC	4	R9,R11,R13,R15
7	7		1300295-00 330 1/4W 5% CC	2	R10,R12
8	8		1301890-00 560 1/4W 5% CC	2	R14,R16
9	9		1910532-00 74S00 NAND GATE-QUAD 2INS	3	E19,E102,E125
10	10		1910534-00 74S04 INVERTER GATE-HEX 1I	6	E51,E76,E89,E126,E140,E141
11	11		1912389-00 74S08 AND GATE-QUAD 2IN,PO	4	E6,E64,E113,E137
12	12		1910536-00 74S10 NAND GATE-TRIPLE 3IN	3	E40,E50,E101
13	13		1910537-00 74S11 AND GATE-TRIPLE 3INP	2	E52,E114
14	14		1910539-00 74S20 NAND GATE-DUAL 4INPU	4	E28,E29,E39,E90
15	15		1912746-00 DEC 74S37 NAND GATE-QUAD 2IN	2	E18,E142
16	16		1910548-00 74S157 MUX 1 OF 2 (QUAD)	10	E9,E10,E32,E33,E43,E44,E55,E56, CONT E67,E68
17	17		1910531-00 DEC 74S181 FLU-4BIT	11	E13,E35,E46,E58,E70,E81,E91,E93, CONT E105,E117,E129
18	18		1912097-00 SN 74S182 LOOK AND CARRY GEN	1	E88
19	19		1910552-00 74S194 SHIFT REG.,4BIT RIGH	36	E3,E16,E24,E26,E37,E49,E61,E67, CONT E63,E73,E74,E79,E80,E82,E85,E86, CONT E92,E94,E97,E99,E103,E104,E106, CONT E109,E111,E115,E116,E118,E121, CONT E123,E127,E128,E130,E133,E135, CONT E138
20	20		1913493-00 74S241 OCTAL BUFFER,TRI-STA	1	E108
21	21		1911641-00 SN 74S257 MUX,QUAD 2 TO 1	23	E1,E2,E4,E14,E15,E17,E27,E38, CONT E48,E60,E72,E84,E95,E96,E98, CONT E107,E110,E119,E120,E122,E131.

REVISION HISTORY		BASIC PART NO: M8287		DRN: F SMART	DATE: 19-OCT-77	D I G I T A L			
ENG	ECO NUMBER	REV	SECTION A OF A			TITLE PARTS LIST			
---	INITIAL	C	SECTION VARIATION INDEX	CHK'D: F SMART	DATE: 19-OCT-77	FRACTION MULITPLY LOW			
			[A] 00						
			[B]						
			[C]	DES.ENG: S LACKEY	DATE: 21-OCT-77				
			[D]						
			[E]			DOCUMENT NUMBER			
			[F]	RESP.ENG.: S LACKEY	DATE: 21-OCT-77				
			[H]			SIZE CODE NUMBER REV			
			[J]						
			[K]	MFG.ENG.: M TERELLA	DATE: 21-OCT-77	K	PL	M8287-0-DRP	C
			[L]						
			[M]	ASSEMBLY NUMBER:	TOP DOCUMENT NUMBER:	FILE NAME:		EDIT *	
			[N]	D-UA-M8287-0-0		M8287.PLS		4	
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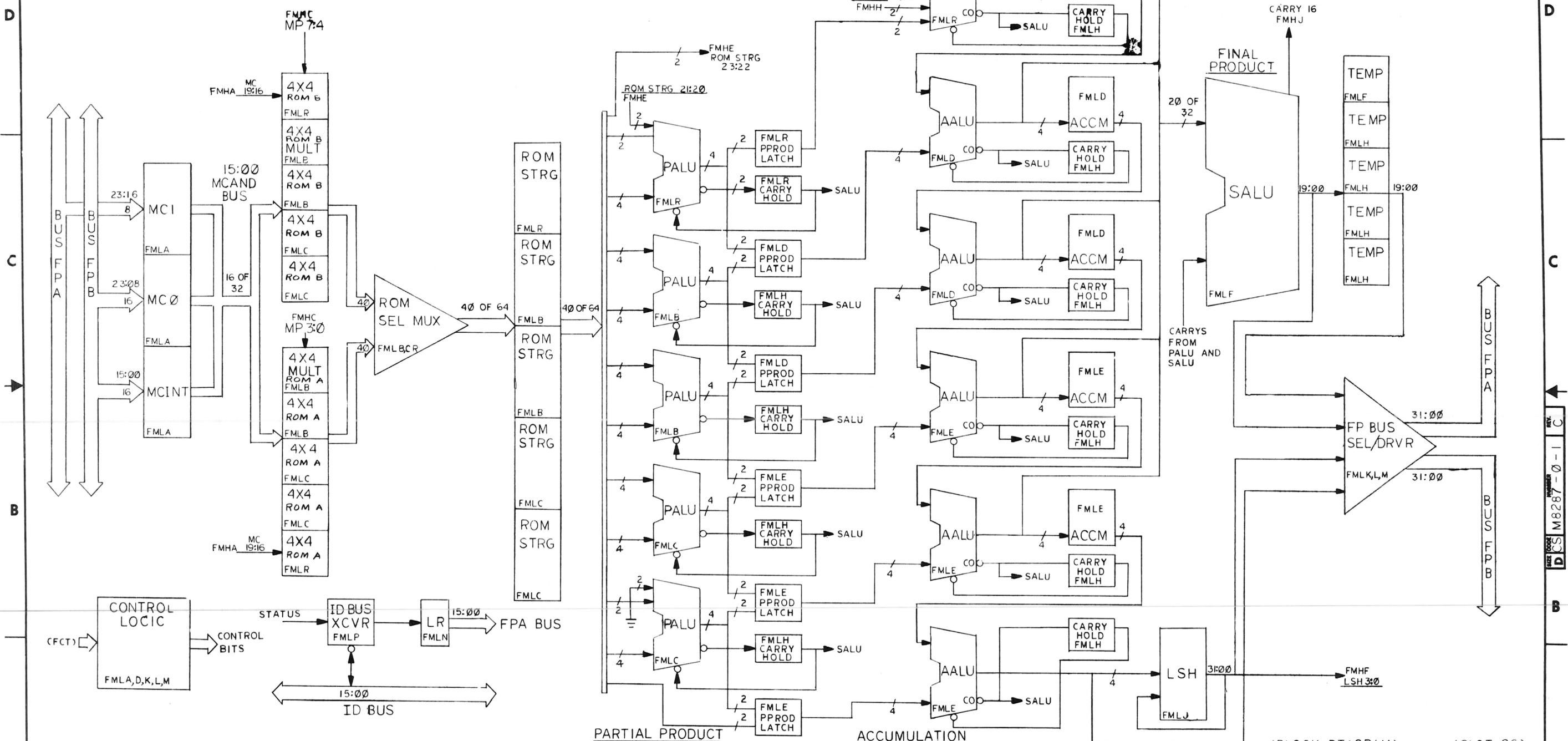
LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
22	22	23012B1-00	B1-01 OR CUSTOM MASKED ROM (74S2	10	CONT E132,E134 E7,E8,E30,E31,E41,E42,E53,E54.
23	23	1913670-00	74S373 LATCH 8BIT TRASP TR	5	CONT E65,E66
24	24	1913671-00	74S374 F-D OCTAL TRISTATE	5	E20-E22,E77,E78
25	25	1913700-00	74S381 FLN-4BIT	5	E11,E34,E45,E57,E69
26	26	1912828-00	LS85 COMPARATOR,4BIT MAGN	2	E100,E112,E124,E136,E139
27	27	1911415-00	10125 PC TO TTL TRNSLTR	2	E75,E87
28	28	1913788-00	26S10 TRANSCEIVER,BUS,QUA	4	E25,E36
29	29	1210711-02	HANDLE,MODULE,TEX	1	E47,E59,E71,E83
30	30	9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
31	31	9105740-55	WIRE(WRAP)30AWG UL1423	A/R	
32	32	1300309-00	390 1/4W 5% CC	1	R17
33	33	1301424-00	680 1/4W 5% CC	1	R18

Ø NOTE: I.C. SPARE LOCATIONS ARE E5,E12,E23

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							FRACTION MULITPLY LOW		K	PL	M8287-0-DRP	C

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FML - CPU SIGNAL NAME TRANSLATION TABLE	
SIGNAL NAME	C.S. PAGE USED ON
ICLW ID LEFT ADDR 0 H	FMLP
ICLW ID LEFT WRITE L	FMLP

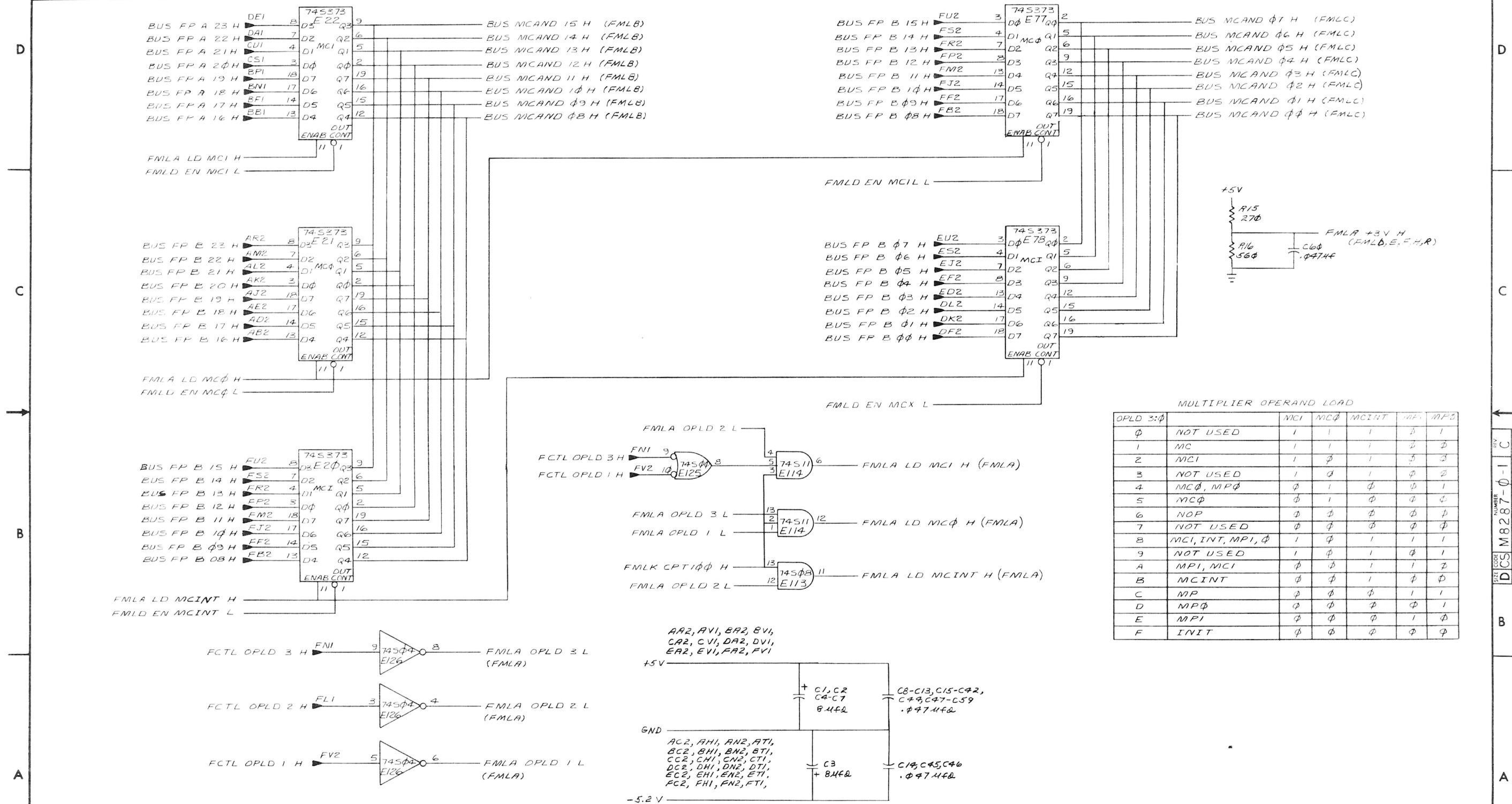


REV.	CHG.	NO.	DATE	BY	CHK.
1	1	1	10/1/77	A. HELENUS	
2	2	2	10/1/77	S. LACKY	
3	3	3	10/1/77	S. LACKY	
4	4	4	10/1/77	S. LACKY	
5	5	5	10/1/77	S. LACKY	
6	6	6	10/1/77	S. LACKY	
7	7	7	10/1/77	S. LACKY	
8	8	8	10/1/77	S. LACKY	

REVISIONS		TITLE	
REV.	CHG.	NO.	DATE
1	1	1	10/1/77
2	2	2	10/1/77
3	3	3	10/1/77
4	4	4	10/1/77
5	5	5	10/1/77
6	6	6	10/1/77
7	7	7	10/1/77
8	8	8	10/1/77

DRN. J. Vincent	9-22-77	FIRST USED ON	FP780
CHK'D J. Vincent	10-19-77	TITLE	FRACT MUL LOW
ENG. J. Vincent	10-19-77	PROD. J. Vincent	10-24-77
PROJ. ENG. J. Vincent	10-24-77	NEXT HIGHER ASSY.	
B-DD-M8287-0-0	SIZE	CODE	NUMBER
SCALE	D	CS	M8287-0-1
SHEET 1 OF 15	DIST.		

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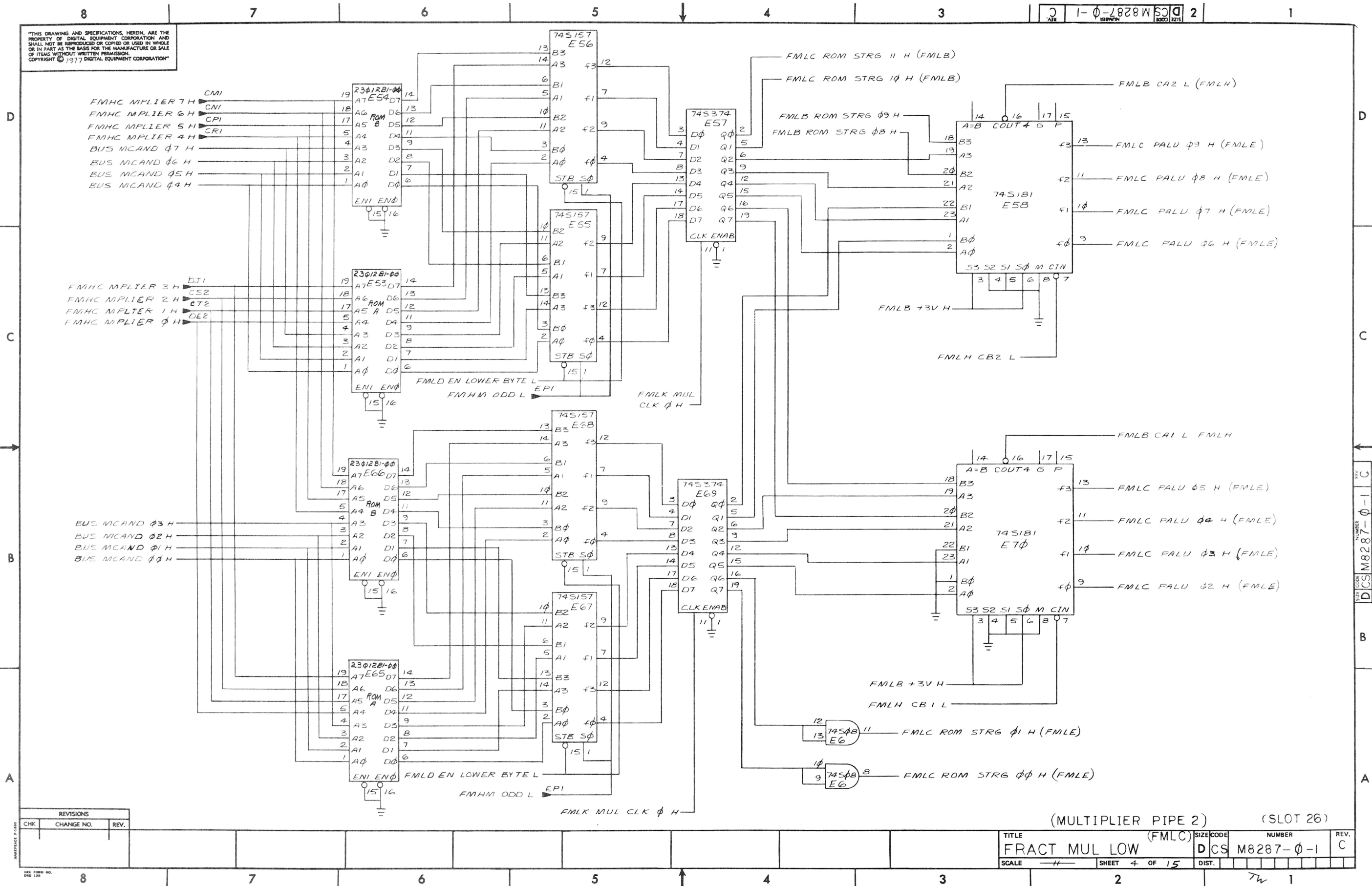
REVISIONS		
CHK	CHANGE NO.	REV.

MULTIPLIER OPERAND LOAD					
OPLD 3:φ		MCI	MCφ	MCINT	MPI, MPφ
φ	NOT USED	1	1	1	φ
1	MC	1	1	1	φ
2	MCI	1	φ	1	φ
3	NOT USED	1	φ	1	φ
4	MCφ, MPφ	φ	1	φ	φ
5	MCφ	φ	1	φ	φ
6	NOP	φ	φ	φ	φ
7	NOT USED	φ	φ	φ	φ
8	MCI, INT, MPI, φ	1	φ	1	1
9	NOT USED	1	φ	1	φ
A	MPI, MCI	φ	φ	1	φ
B	MCINT	φ	φ	1	φ
C	MP	φ	φ	φ	1
D	MPφ	φ	φ	φ	1
E	MPI	φ	φ	φ	1
F	INIT	φ	φ	φ	φ

(MCAND LATCH) (SLOT 26)

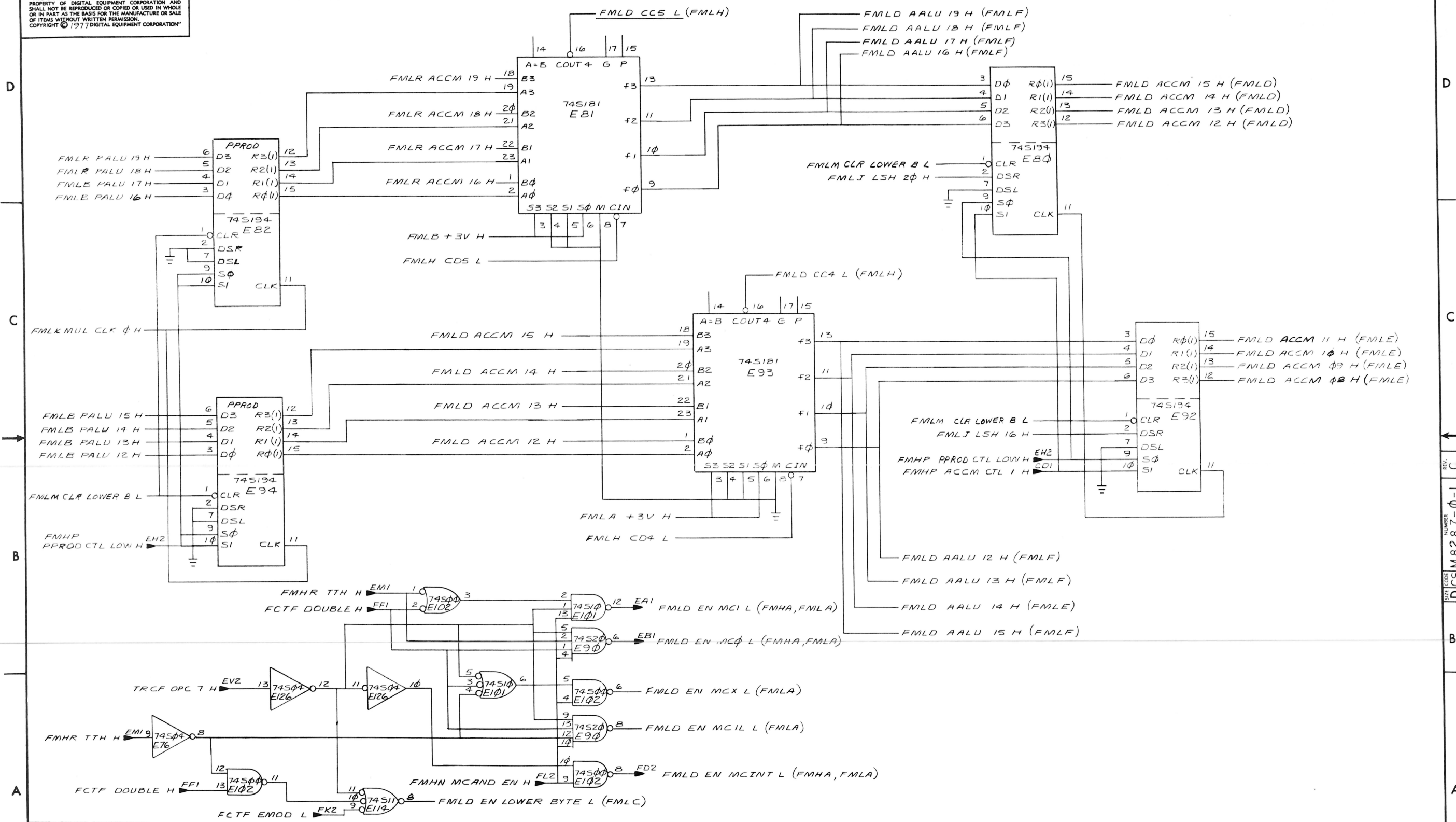
TITLE	FRACT MUL LOW (FMLA)	SIZE CODE	D	NUMBER	M8287-0-1	REV.	C
SCALE	1/8"	SHEET	2	OF	15	DIST.	

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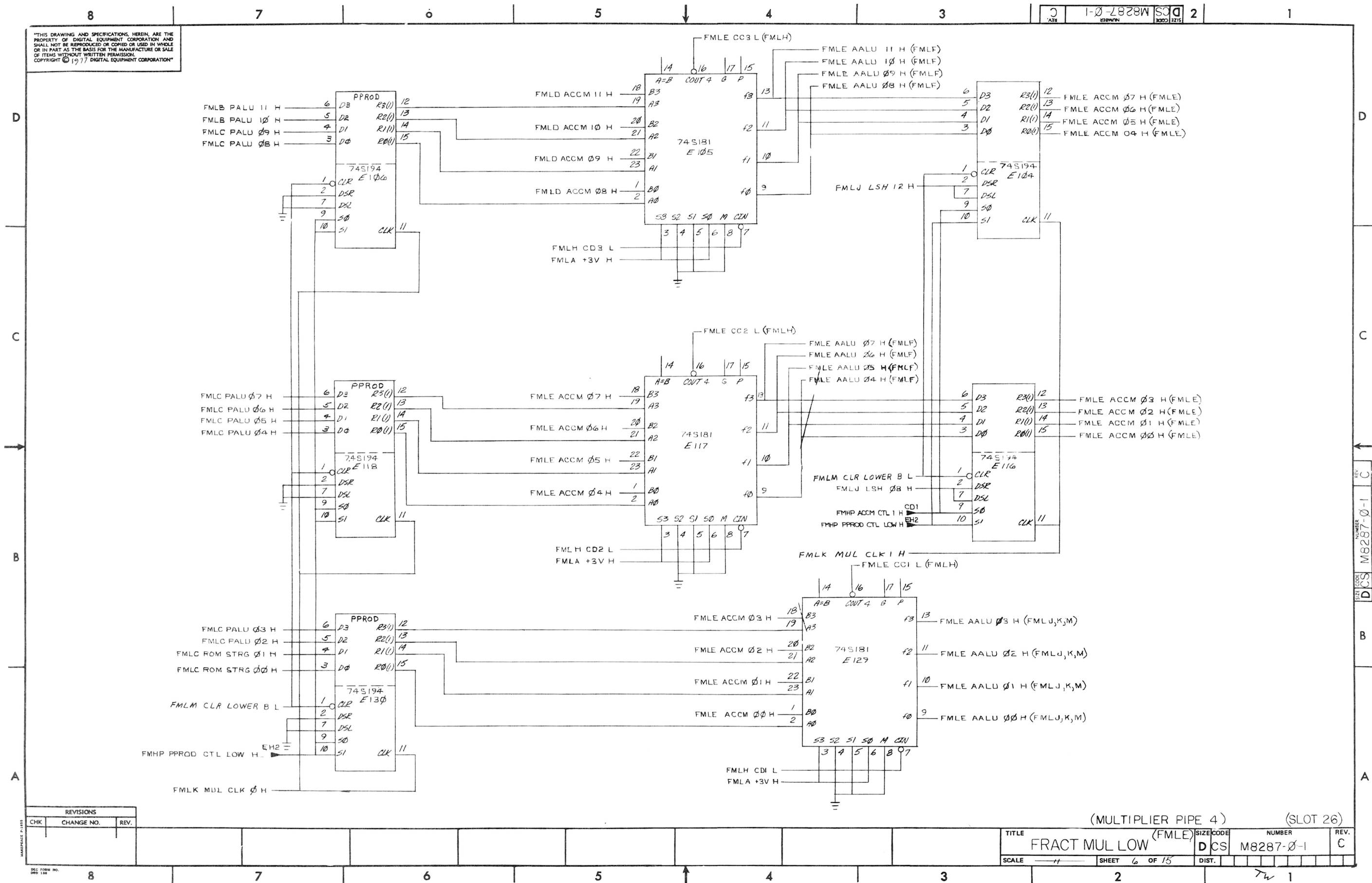
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REV. 1-0-1
NUMBER 8287-0-1
SIZE CODE DCS

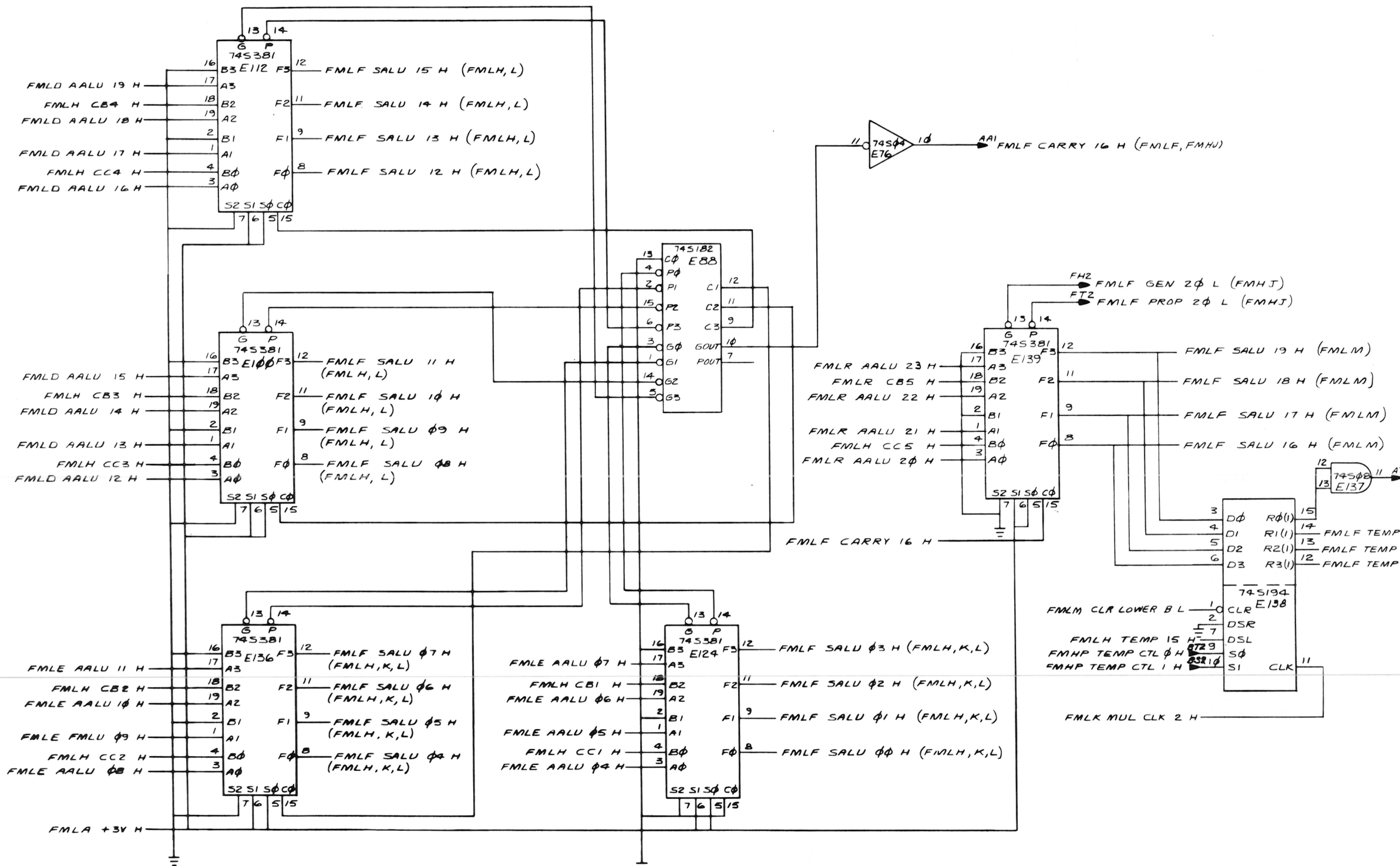


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE (MULTIPLIER PIPE 3) (FMLD) (SLOT 26)		SIZE CODE	NUMBER	REV.
FRACT MUL LOW		DCS	M8287-0-1	C
SCALE	SHEET	OF	DIST.	
1/8"	5	15		



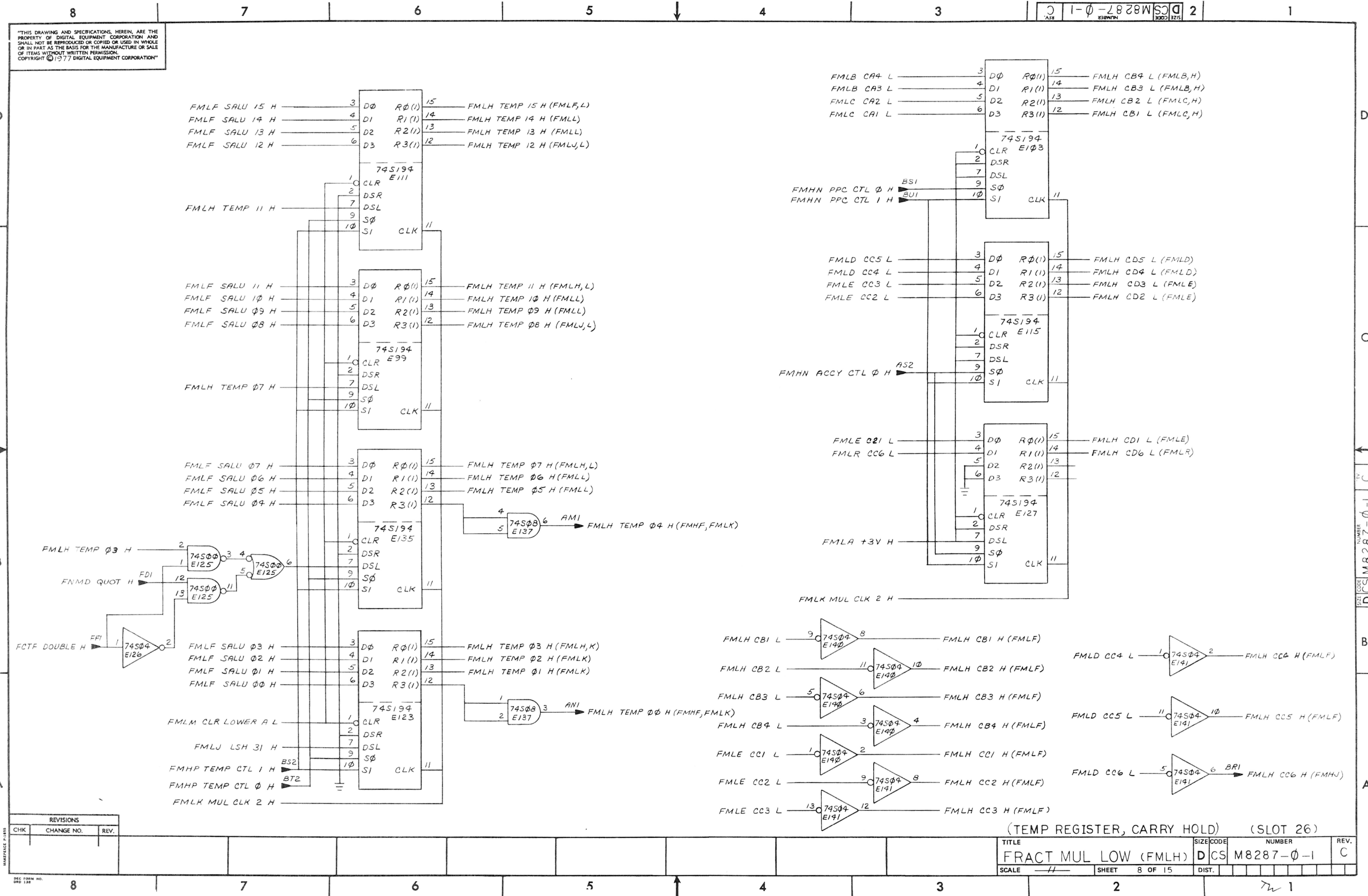
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REVISIONS		
CHK	CHANGE NO.	REV.

(LEAST SIGNIFICANT HALF OF ADDER) (SLOT 26)

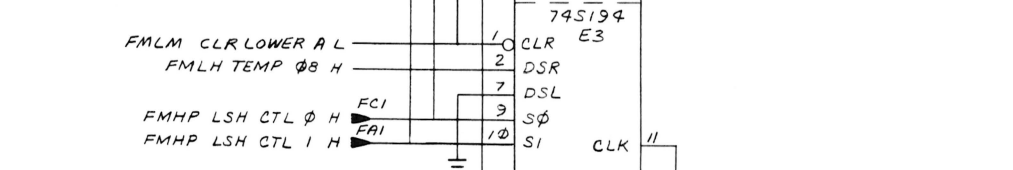
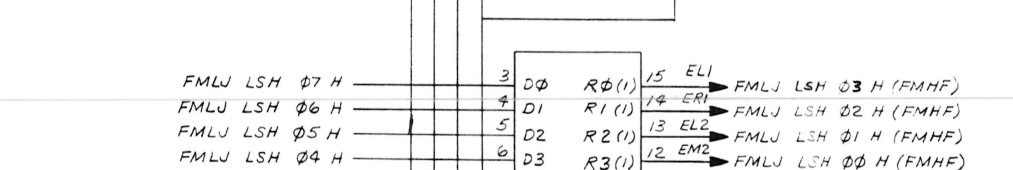
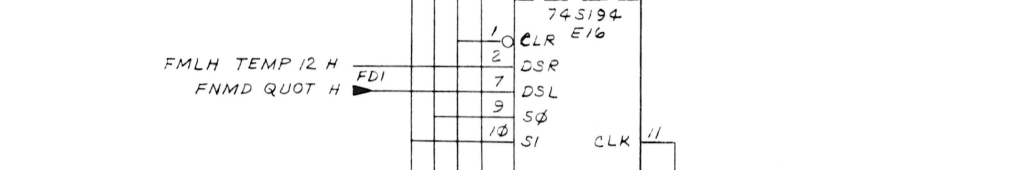
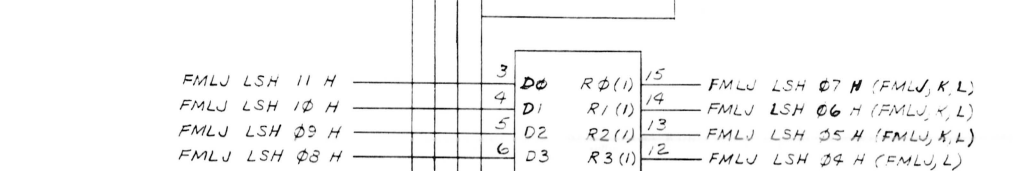
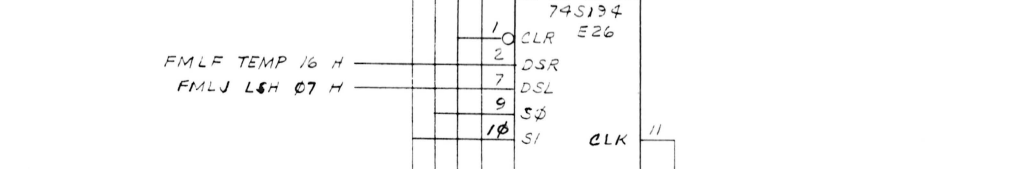
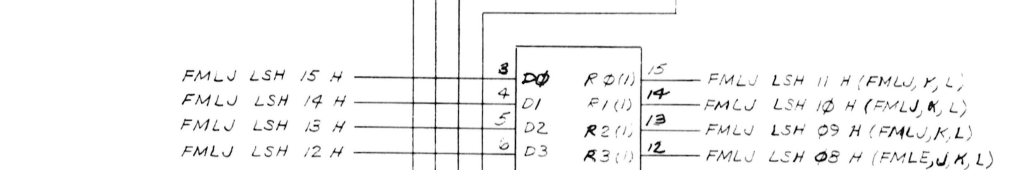
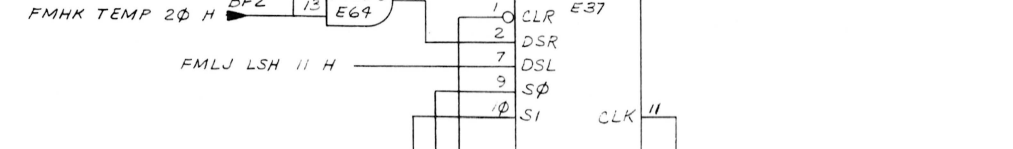
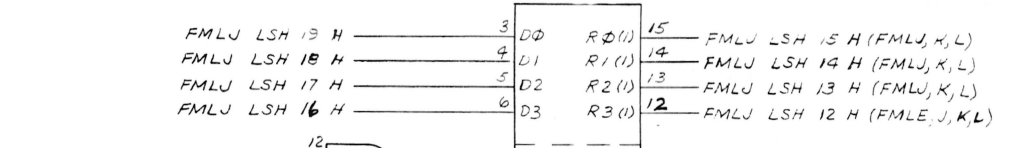
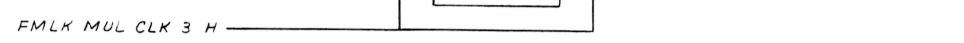
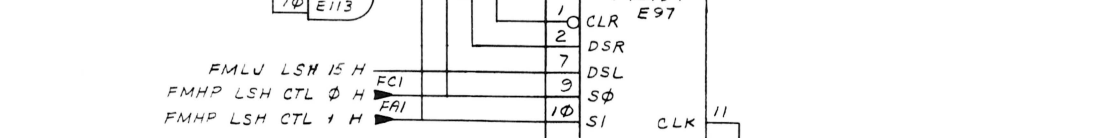
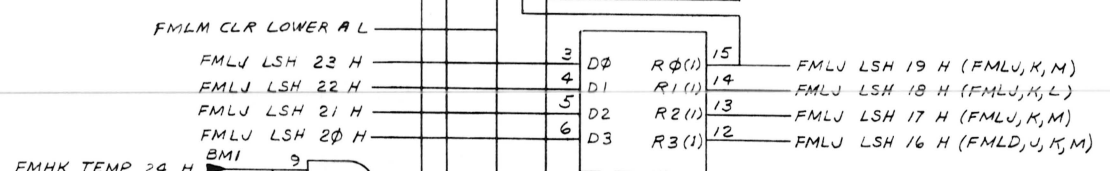
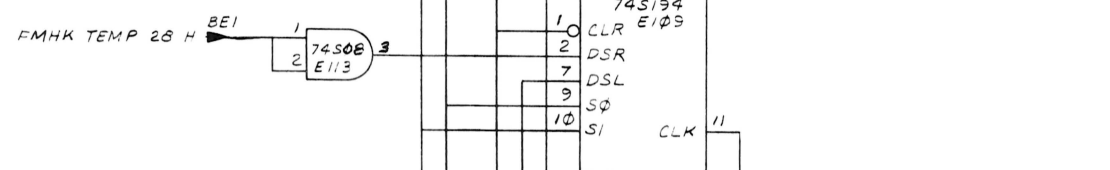
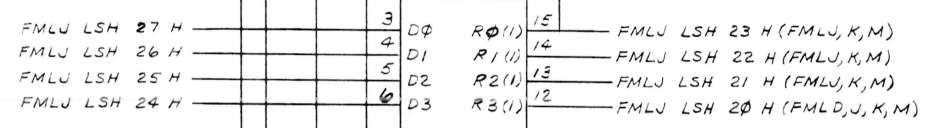
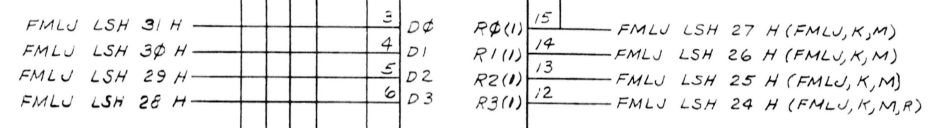
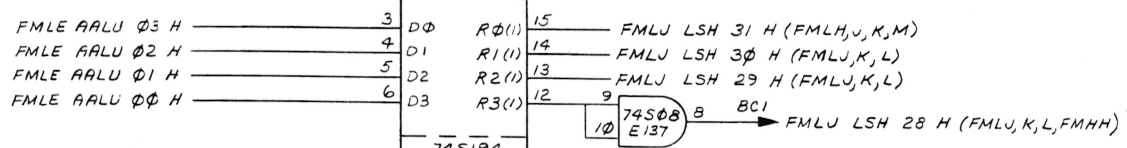
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FRACT MUL LOW (FMLF)	DCS	M8287-0-1	1
SCALE	SHEET	7 OF 15	DIST.



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D
C
B
A

D
C
B
A

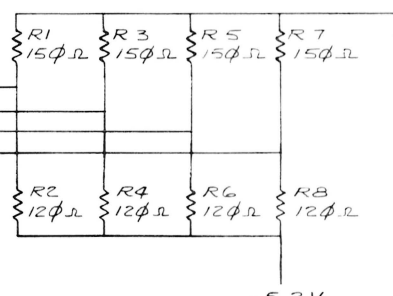


(LSH REGISTERS) (SLOT 26)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE CODE	NUMBER	REV.
FRACT MUL LOW (FMLJ)		D CS	M8287-0-1	C
SCALE		SHEET	DIST.	
9 OF 15				

76-1



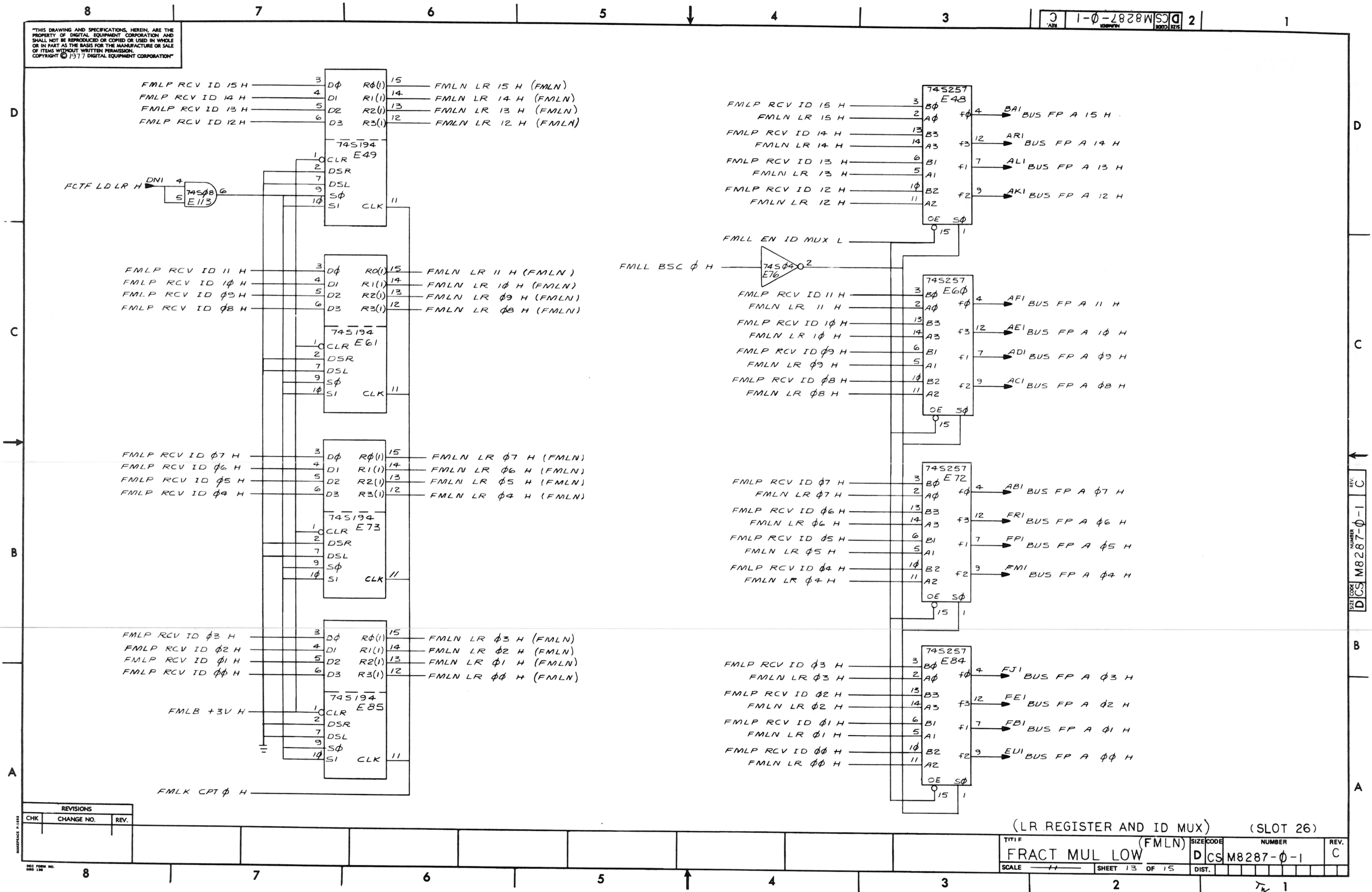
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SIZE	CS	NUMBER	REV.
D	CS	M8287-0-1	C



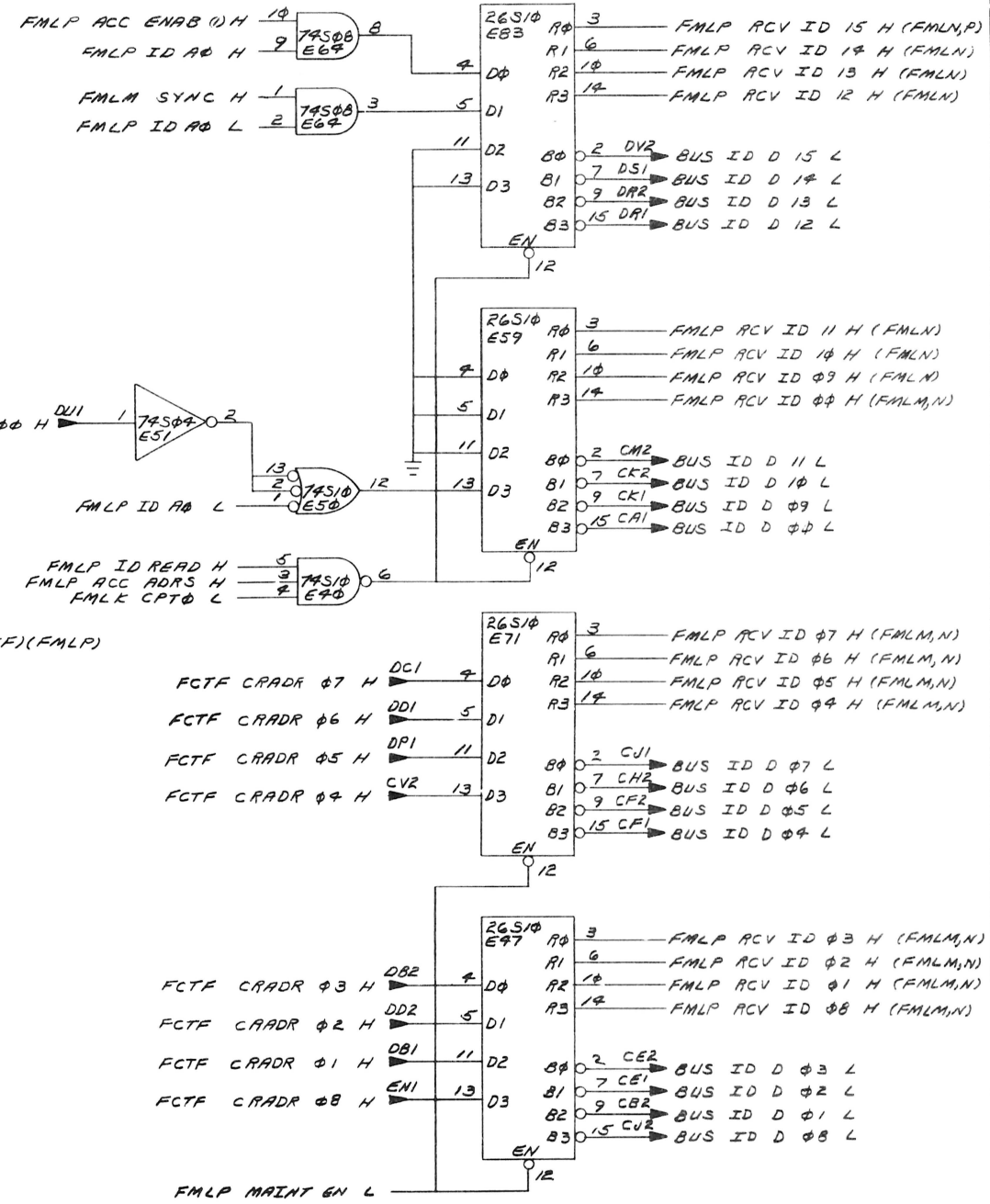
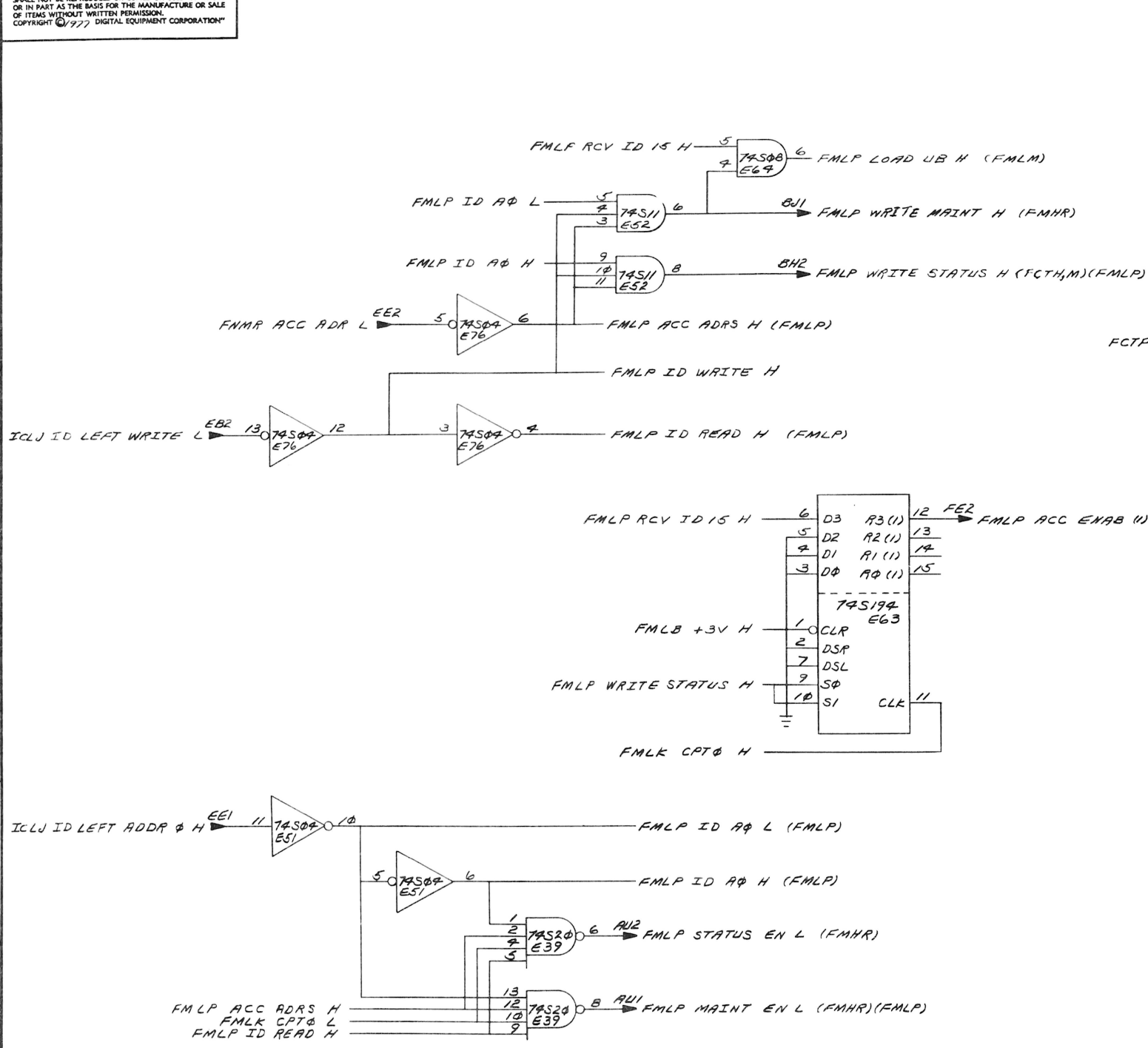
(OUTPUT BUFFERS)				(SLOT 26)			
TITLE (FMLL)			SIZE	CODE	NUMBER		REV.
FRACT MUL LOW			D	CS	M8287-0-1		C
SCALE	11	SHEET 11	OF 15	DIST.			

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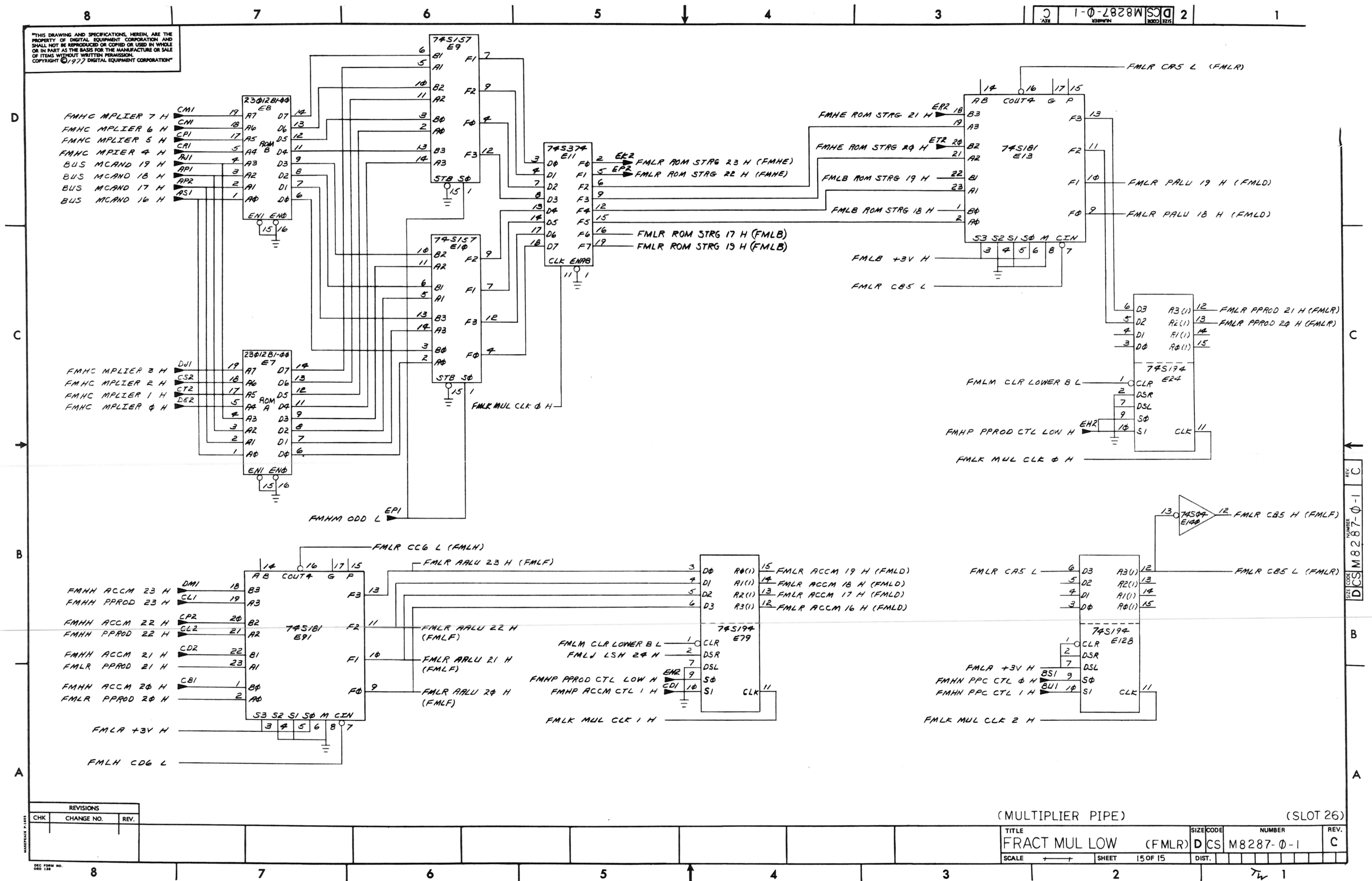
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D
C
B
A

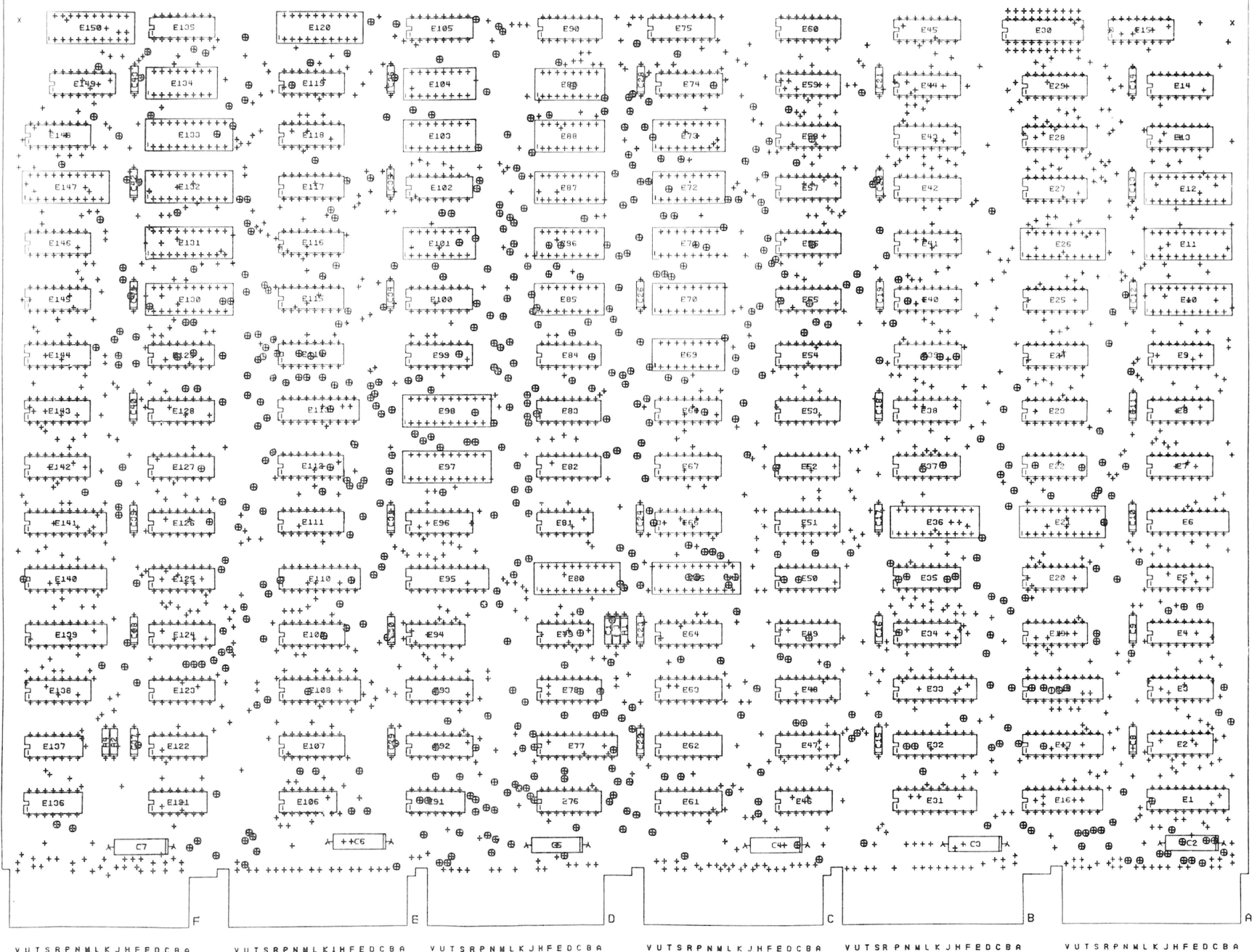


REVISIONS		
CHK	CHANGE NO.	REV.

(ID BUS INTERFACE)		(SLOT 26)	
TITLE	FRACT MUL LOW (FMLP)	SIZE CODE	NUMBER
SCALE	14 OF 15	DIST.	REV.



COMPONENT SIDE VIEW



DATE	7/20/77	TITLE	digital
DESIGNED BY	J. J. J.	PROJ. NO.	7-1
ENGINEER	J. J. J.	PROJ. NO.	7-1
SCALE	1/1	SIZE CODE	1/1
REV.	1	NUMBER	1
REV.	1	NUMBER	1

DESIGNED BY	J. J. J.	PROJ. NO.	7-1
ENGINEER	J. J. J.	PROJ. NO.	7-1
SCALE	1/1	SIZE CODE	1/1
REV.	1	NUMBER	1
REV.	1	NUMBER	1

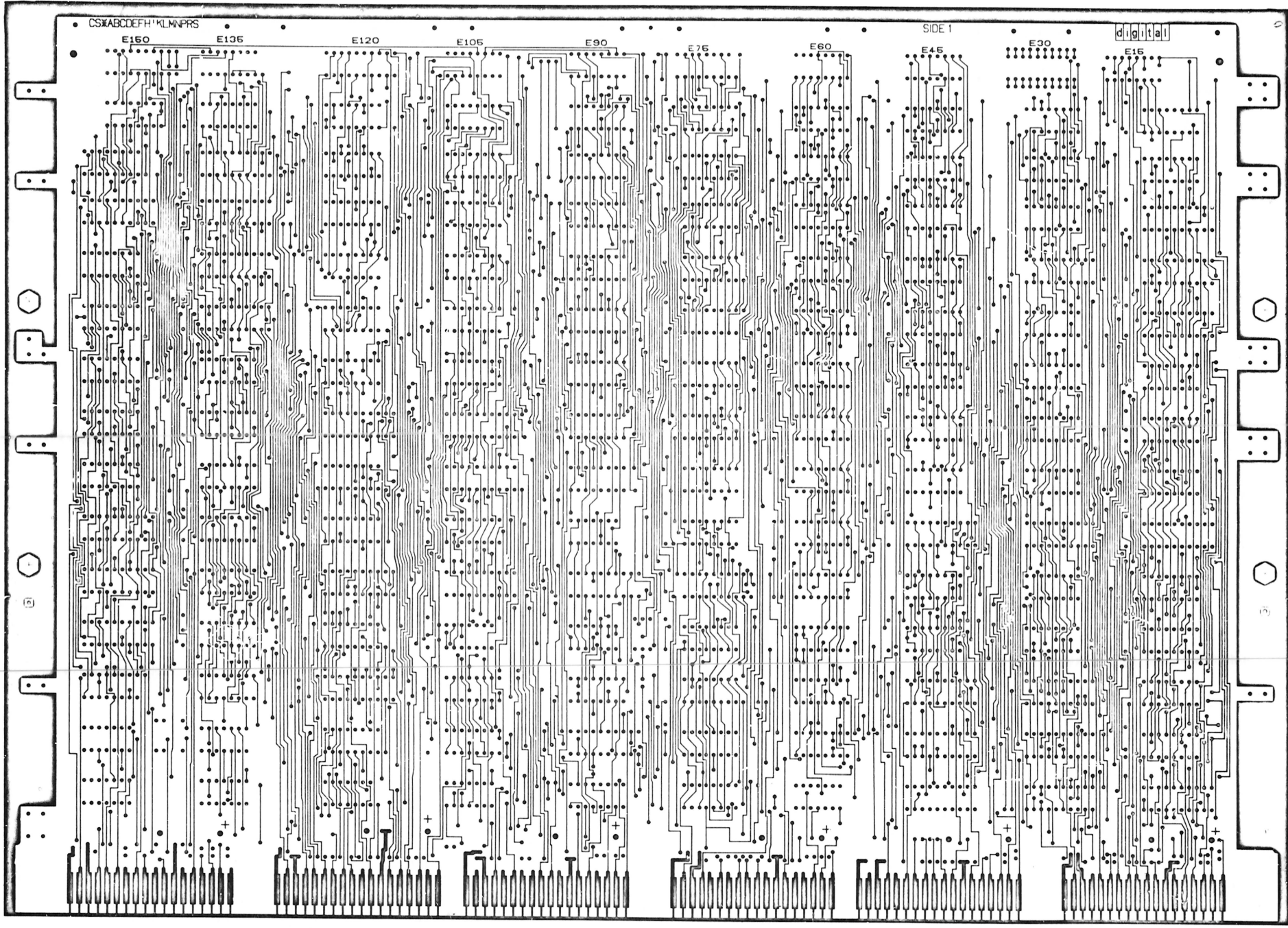
DESIGNED BY	J. J. J.	PROJ. NO.	7-1
ENGINEER	J. J. J.	PROJ. NO.	7-1
SCALE	1/1	SIZE CODE	1/1
REV.	1	NUMBER	1
REV.	1	NUMBER	1

DESIGNED BY	J. J. J.	PROJ. NO.	7-1
ENGINEER	J. J. J.	PROJ. NO.	7-1
SCALE	1/1	SIZE CODE	1/1
REV.	1	NUMBER	1
REV.	1	NUMBER	1

NOTES:

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5013085A
M8288A LAYER 1



REVISIONS		
CHG	CHANGE NO.	REV

DEC FORM NO. 108

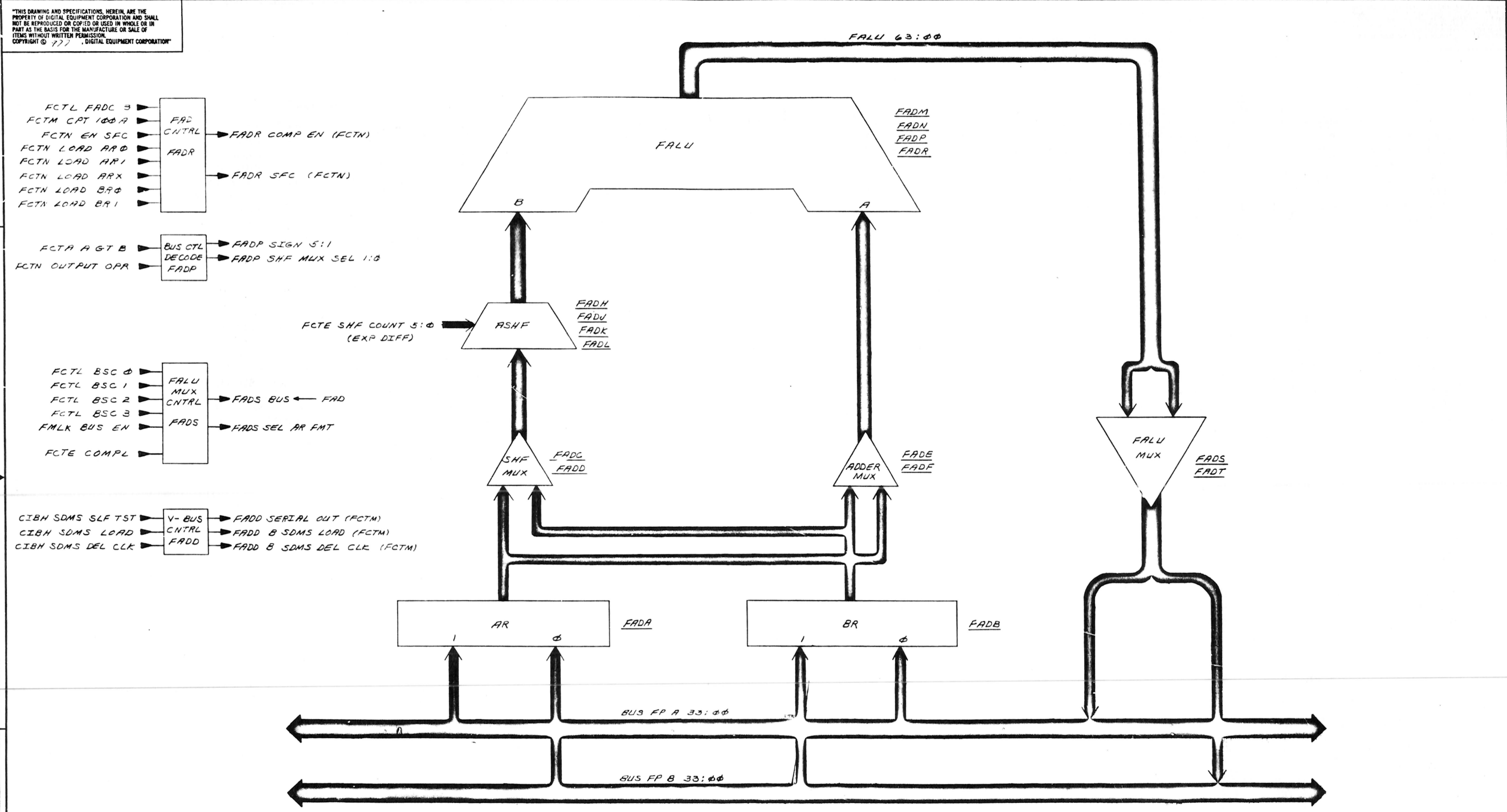
TITLE
FRACTION ADDER
SCALE 1:1 SHEET 27 OF 3

SIZE/COOL NUMBER
EUA M8288 0-0
DIST

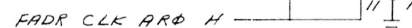
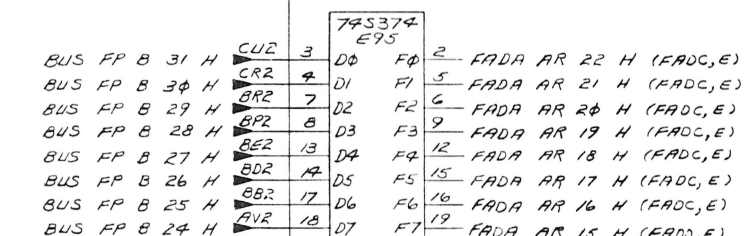
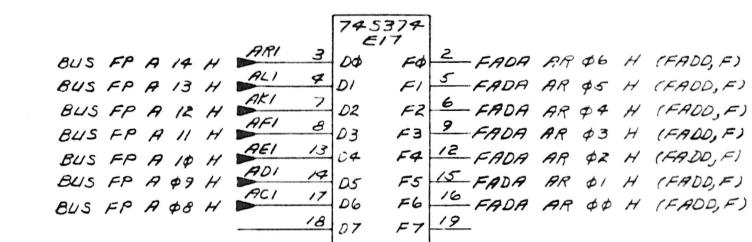
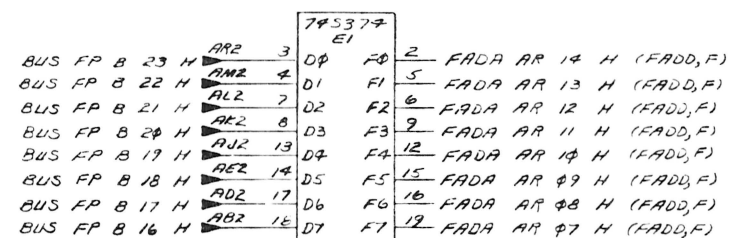
REV
*

DIGITAL EQUIPMENT CORPORATION																			
PARTS LIST																			
MADE BY D. BILODEAU		CHECKED <i>Frank Smart</i>		SECTION															
DATE 27 JUNE 77		DATE 9-27-77																	
ENG <i>Slackey</i> 9-30-77		PROD <i>Mike Tulla</i> 9-27-77		ISSUED SECTION															
DATE		DATE																	
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8288-0-0													REF DESIGNATION		
1	D-MD-5013085-0-0	5013085	ETCH BOARD																
2		1012784	CAPACITOR, .047 uf 50V	33													C1,C8 thru C24,C26,C28 thru C31,C34 thru C43		
3		1012084-01	CAPACITOR, 8 uf 25 W	6													C2 thru C7		
4		1301890	RESISTOR, 560 OHM, 1/4W, 5%	2													R3,R4		
5		1301972	RESISTOR, 270 OHM, 1/4W, 5%	2													R1,R2		
6		1910532	I.C. DEC 74S00	3													E106, E121, E137		
7		1910534	I.C. DEC 74S04	1													E91		
8		1912389	I.C. DEC 74S08	1													E136		
9		1910536	I.C. DEC 74S10	1													E94		
10		1912746	I.C. DEC 74S37	2													E79,E81		
11		1910541	I.C. DEC 74S40	1													E122		
12		1910545	I.C. DEC 74S112	1													E76		
13		1910548	I.C. DEC 74S157	32													E2,E3,E9,E19, E20, E22 thru E25,E34,E35, E39, E47,E49,E62,E64,E82,E90, E96,E99,E105,E111, E112,E114,E125 thru E129,E145,E146, 142		
14		1913839	I.C. DEC 74LS165	3													E107,E109,E115		
15		1912097	I.C. DEC 74S182	5													E13,E66, E86, E117,E135		
16		1911641	I.C. DEC 74S257	17													E5, E7,E8,E4,E48, E61,E63,E74, E75, E78, E93, E92,E123,E124,E138, E144, E143		
17		1913671	I.C. DEC 74S374	17													E1, E6, E16,E17,E18, E31,E32, E33, E77, E95, E98, E110, E113, E108, E139, E140, E141		
18		1913700	I.C. DEC 74S381	16													E10, E11, E12, E21, E26, E36, E80, E97, E65, E120, E130 thru E133, E147, E150		
E.C.O. NO.																			
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				SHEET 1 OF 2				INSERTION PARTS LIST DATA BASE REV											

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION												NOTES:									
MADE BY DATE		D. BILODEAU 27 JUNE 77		CHECKED DATE		Frank Smart 9-27-77		SECTION																	
ENG DATE		S Lachay 9-30-77		PROD DATE		Mike Tuller 9-27-77		ISSUED SECTION														REF DESIGNATION			
ITEM NO.		DRAWING NO.		PART NO.		DESCRIPTION		M8288-0-0																	
19				1911469		I.C. DEC 8640		1														E46 E14,E15,E27,E28,E29,E37,E38,E40,E41,E42, E43,E45,E44,E50 thru E60,E67 thru E73 E83,E84,E85,E87,E88,E89,E100 thru E104 E116,E118,E119,E134,E148,E149			
20				1912693		I.C. DEC 25S10		48																	
21				1210711-02		HANDLE		1																	
22				900002401		EYE LET		12																	
E.C.O. NO.																									
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												SHEET 2 OF 2				INSERTION PARTS LIST DATA BASE REV									

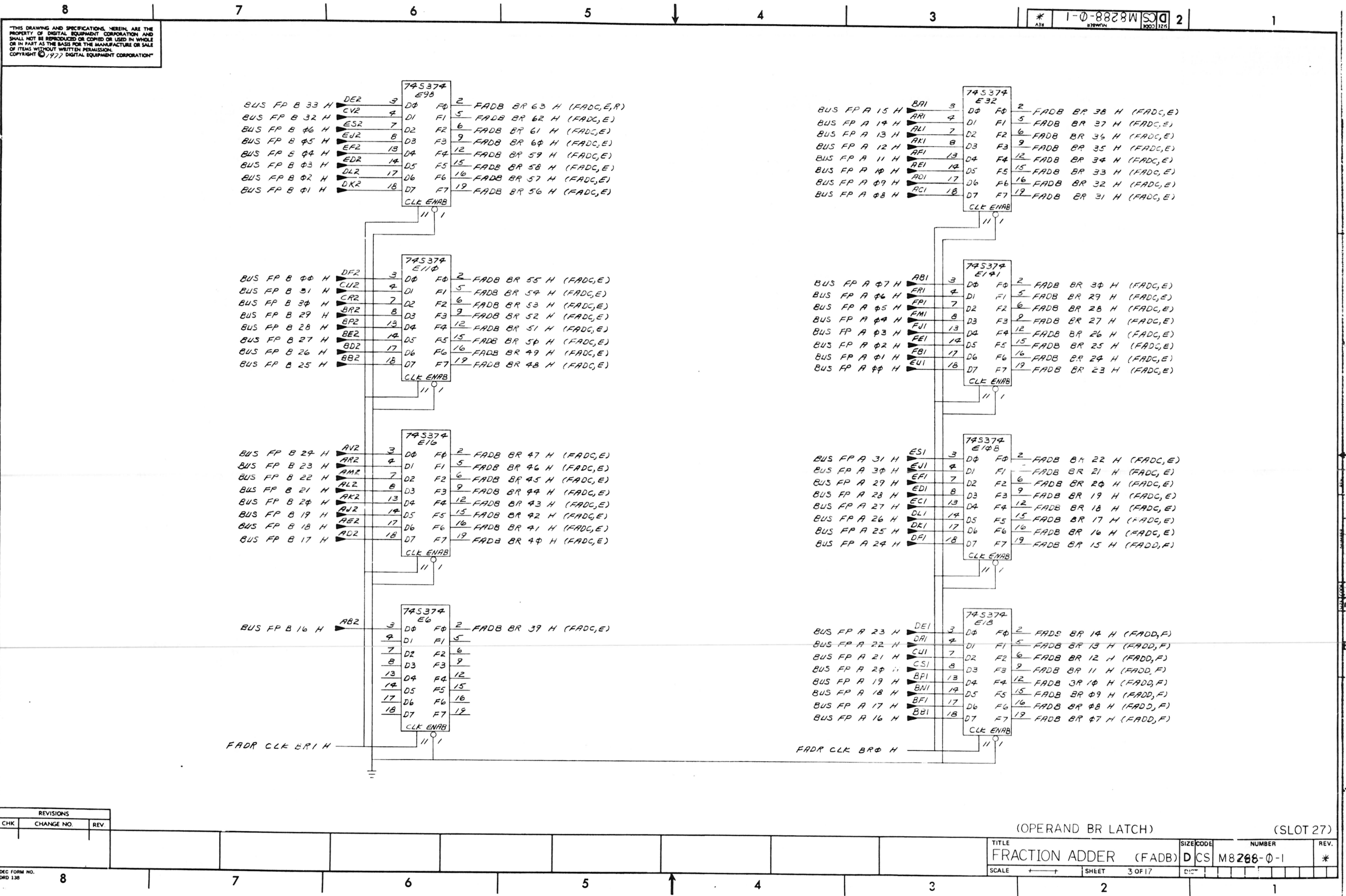


D	CS	M8289-0-1	*
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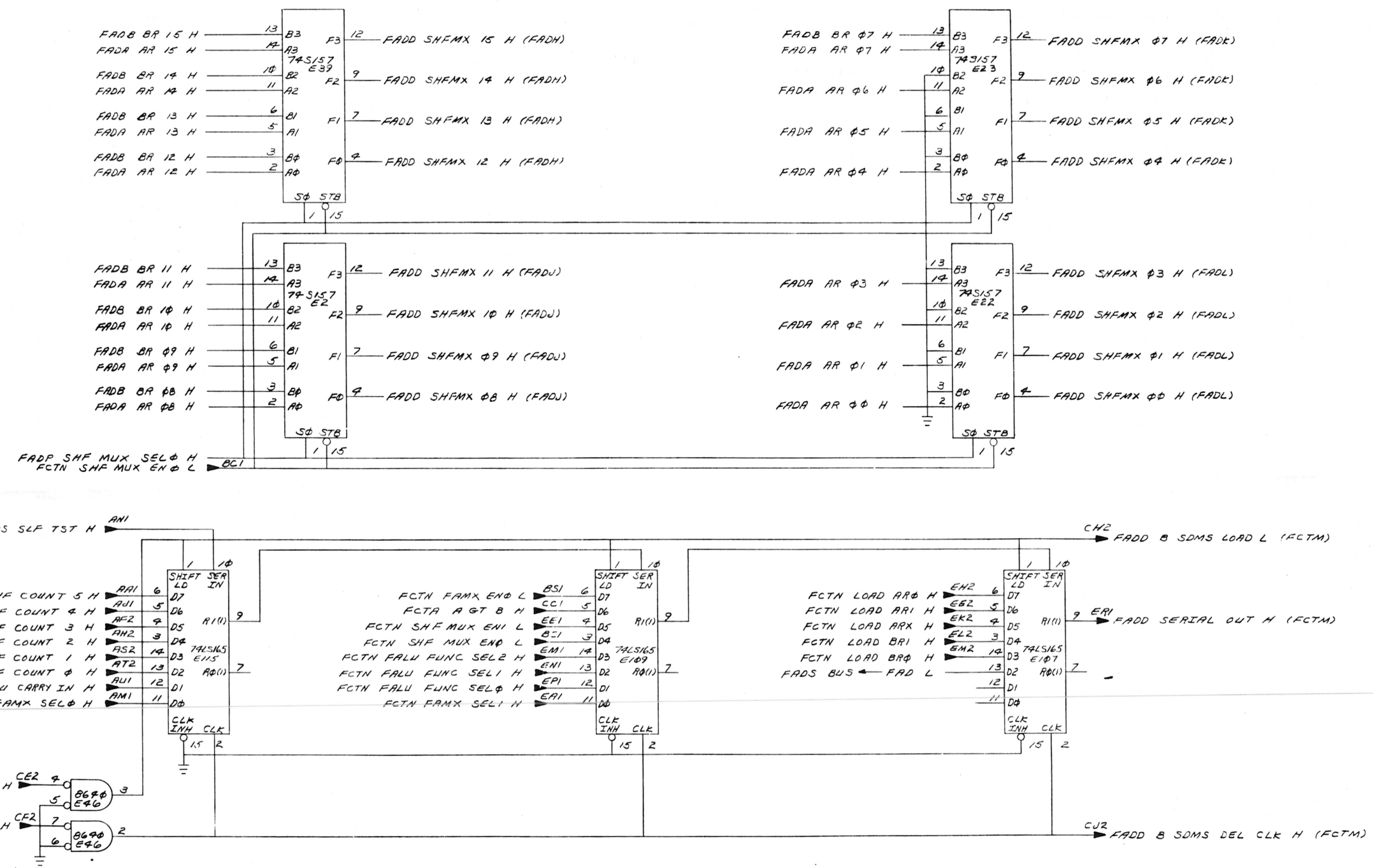


(SLOT 27)

DEC FORM NO.
ORD 138



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REVISIONS													(SHIFTER INPUT SELECTOR B)		(SLOT 27)	
CHK	CHANGE NO.	REV.											TITLE	SIZE CODE	NUMBER	REV.
													FRACTION ADDER (FADD)	DCS	M8288-0-1	*
													SCALE	SHEET	5 OF 17	DIST.

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FADA AR 63 H — 13 B3 F3 12 — FADE FAMX 63 H (FADM)
FADB BR 63 H — 14 A3 74S157 9 — FADE FAMX 62 H (FADM)
FADA AR 62 H — 10 B2 E142 9 — FADE FAMX 62 H (FADM)
FADB BR 62 H — 11 A2 7 — FADE FAMX 61 H (FADM)
FADA AR 61 H — 6 B1 F1 7 — FADE FAMX 61 H (FADM)
FADB BR 61 H — 5 A1 4 — FADE FAMX 60 H (FADM)
FADA AR 60 H — 3 B0 F0 4 — FADE FAMX 60 H (FADM)
FADB BR 60 H — 2 A0

FADA AR 47 H — 13 B3 F3 12 — FADE FAMX 47 H (FADM)
FADB BR 47 H — 14 A3 74S157 9 — FADE FAMX 46 H (FADM)
FADA AR 46 H — 10 B2 E35 9 — FADE FAMX 46 H (FADM)
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FADA AR 45 H — 6 B1 F1 7 — FADE FAMX 45 H (FADM)
FADB BR 45 H — 5 A1 4 — FADE FAMX 44 H (FADM)
FADA AR 44 H — 3 B0 F0 4 — FADE FAMX 44 H (FADM)
FADB BR 44 H — 2 A0

FADA AR 31 H — 13 B3 F3 12 — FADE FAMX 31 H (FADM)
FADB BR 31 H — 14 A3 74S157 9 — FADE FAMX 30 H (FADM)
FADA AR 30 H — 10 B2 E140 9 — FADE FAMX 30 H (FADM)
FADB BR 30 H — 11 A2 7 — FADE FAMX 29 H (FADM)
FADA AR 29 H — 6 B1 F1 7 — FADE FAMX 29 H (FADM)
FADB BR 29 H — 5 A1 4 — FADE FAMX 28 H (FADM)
FADA AR 28 H — 3 B0 F0 4 — FADE FAMX 28 H (FADM)
FADB BR 28 H — 2 A0

FADA AR 59 H — 13 B3 F3 12 — FADE FAMX 59 H (FADM)
FADB BR 59 H — 14 A3 74S157 9 — FADE FAMX 58 H (FADM)
FADA AR 58 H — 10 B2 E105 9 — FADE FAMX 58 H (FADM)
FADB BR 58 H — 11 A2 7 — FADE FAMX 57 H (FADM)
FADA AR 57 H — 6 B1 F1 7 — FADE FAMX 57 H (FADM)
FADB BR 57 H — 5 A1 4 — FADE FAMX 56 H (FADM)
FADA AR 56 H — 3 B0 F0 4 — FADE FAMX 56 H (FADM)
FADB BR 56 H — 2 A0

FADA AR 43 H — 13 B3 F3 12 — FADE FAMX 43 H (FADM)
FADB BR 43 H — 14 A3 74S157 9 — FADE FAMX 42 H (FADM)
FADA AR 42 H — 10 B2 E20 9 — FADE FAMX 42 H (FADM)
FADB BR 42 H — 11 A2 7 — FADE FAMX 41 H (FADM)
FADA AR 41 H — 6 B1 F1 7 — FADE FAMX 41 H (FADM)
FADB BR 41 H — 5 A1 4 — FADE FAMX 40 H (FADM)
FADA AR 40 H — 3 B0 F0 4 — FADE FAMX 40 H (FADM)
FADB BR 40 H — 2 A0

FADA AR 27 H — 13 B3 F3 12 — FADE FAMX 27 H (FADM)
FADB BR 27 H — 14 A3 74S157 9 — FADE FAMX 26 H (FADM)
FADA AR 26 H — 10 B2 E129 9 — FADE FAMX 26 H (FADM)
FADB BR 26 H — 11 A2 7 — FADE FAMX 25 H (FADM)
FADA AR 25 H — 6 B1 F1 7 — FADE FAMX 25 H (FADM)
FADB BR 25 H — 5 A1 4 — FADE FAMX 24 H (FADM)
FADA AR 24 H — 3 B0 F0 4 — FADE FAMX 24 H (FADM)
FADB BR 24 H — 2 A0

FADA AR 55 H — 13 B3 F3 12 — FADE FAMX 55 H (FADM)
FADB BR 55 H — 14 A3 74S157 9 — FADE FAMX 54 H (FADM)
FADA AR 54 H — 10 B2 E127 9 — FADE FAMX 54 H (FADM)
FADB BR 54 H — 11 A2 7 — FADE FAMX 53 H (FADM)
FADA AR 53 H — 6 B1 F1 7 — FADE FAMX 53 H (FADM)
FADB BR 53 H — 5 A1 4 — FADE FAMX 52 H (FADM)
FADA AR 52 H — 3 B0 F0 4 — FADE FAMX 52 H (FADM)
FADB BR 52 H — 2 A0

FADA AR 39 H — 13 B3 F3 12 — FADE FAMX 39 H (FADM)
FADB BR 39 H — 14 A3 74S157 9 — FADE FAMX 38 H (FADM)
FADA AR 38 H — 10 B2 E62 9 — FADE FAMX 38 H (FADM)
FADB BR 38 H — 11 A2 7 — FADE FAMX 37 H (FADM)
FADA AR 37 H — 6 B1 F1 7 — FADE FAMX 37 H (FADM)
FADB BR 37 H — 5 A1 4 — FADE FAMX 36 H (FADM)
FADA AR 36 H — 3 B0 F0 4 — FADE FAMX 36 H (FADM)
FADB BR 36 H — 2 A0

FADA AR 21 H — 13 B3 F3 12 — FADE FAMX 23 H (FADM)
FADB BR 23 H — 14 A3 74S157 9 — FADE FAMX 22 H (FADM)
FADA AR 22 H — 10 B2 E114 9 — FADE FAMX 22 H (FADM)
FADB BR 22 H — 11 A2 7 — FADE FAMX 21 H (FADM)
FADA AR 21 H — 6 B1 F1 7 — FADE FAMX 21 H (FADM)
FADB BR 21 H — 5 A1 4 — FADE FAMX 20 H (FADM)
FADA AR 20 H — 3 B0 F0 4 — FADE FAMX 20 H (FADM)
FADB BR 20 H — 2 A0

FADA AR 51 H — 13 B3 F3 12 — FADE FAMX 51 H (FADM)
FADB BR 51 H — 14 A3 74S157 9 — FADE FAMX 50 H (FADM)
FADA AR 50 H — 10 B2 E126 9 — FADE FAMX 50 H (FADM)
FADB BR 50 H — 11 A2 7 — FADE FAMX 49 H (FADM)
FADA AR 49 H — 6 B1 F1 7 — FADE FAMX 49 H (FADM)
FADB BR 49 H — 5 A1 4 — FADE FAMX 48 H (FADM)
FADA AR 48 H — 3 B0 F0 4 — FADE FAMX 48 H (FADM)
FADB BR 48 H — 2 A0

FADA AR 35 H — 13 B3 F3 12 — FADE FAMX 35 H (FADM)
FADB BR 35 H — 14 A3 74S157 9 — FADE FAMX 34 H (FADM)
FADA AR 34 H — 10 B2 E64 9 — FADE FAMX 34 H (FADM)
FADB BR 34 H — 11 A2 7 — FADE FAMX 33 H (FADM)
FADA AR 33 H — 6 B1 F1 7 — FADE FAMX 33 H (FADM)
FADB BR 33 H — 5 A1 4 — FADE FAMX 32 H (FADM)
FADA AR 32 H — 3 B0 F0 4 — FADE FAMX 32 H (FADM)
FADB BR 32 H — 2 A0

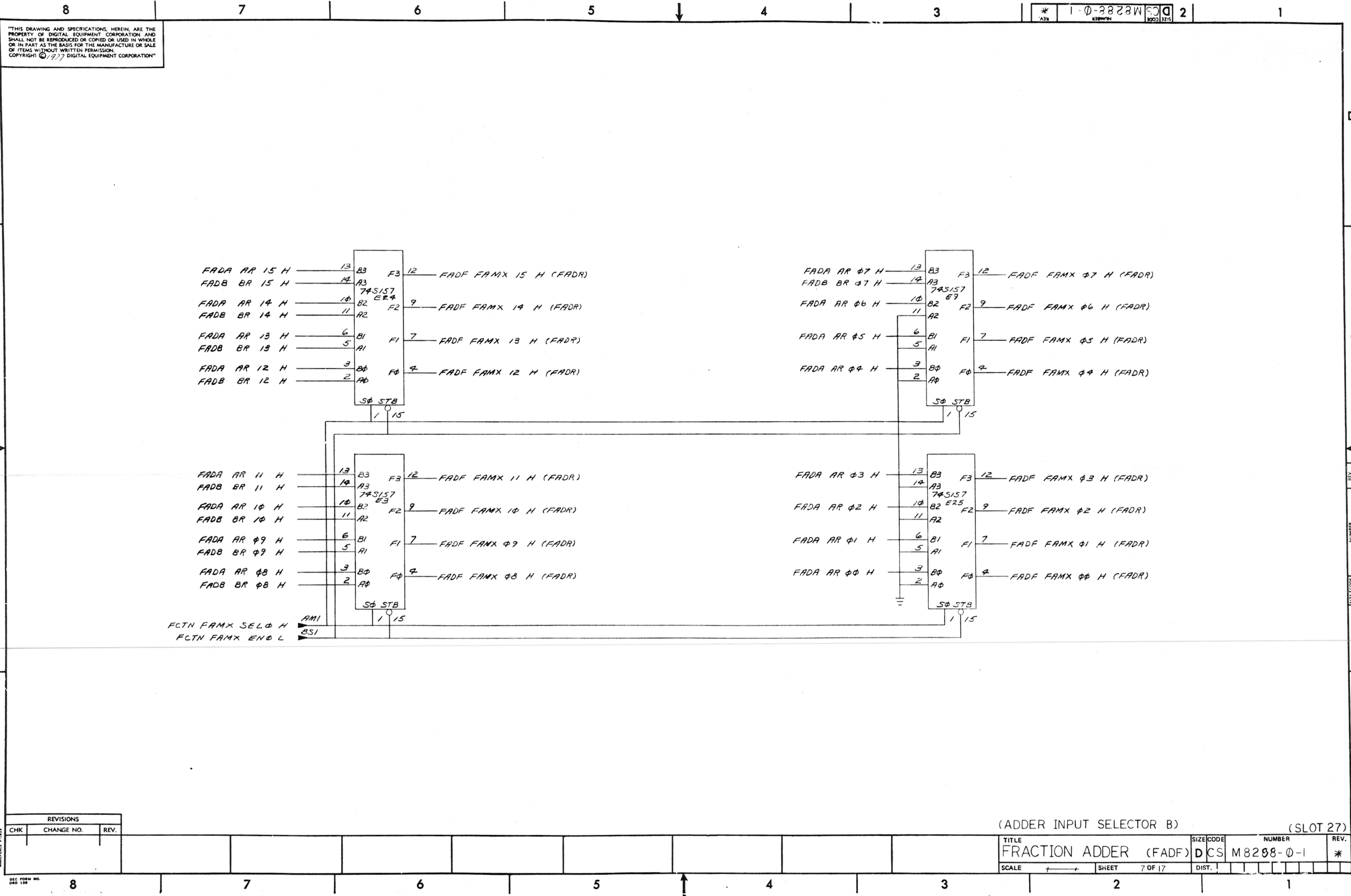
FADA AR 19 H — 13 B3 F3 12 — FADE FAMX 19 H (FADM)
FADB BR 19 H — 14 A3 74S157 9 — FADE FAMX 18 H (FADM)
FADA AR 18 H — 10 B2 E111 9 — FADE FAMX 18 H (FADM)
FADB BR 18 H — 11 A2 7 — FADE FAMX 17 H (FADM)
FADA AR 17 H — 6 B1 F1 7 — FADE FAMX 17 H (FADM)
FADB BR 17 H — 5 A1 4 — FADE FAMX 16 H (FADM)
FADA AR 16 H — 3 B0 F0 4 — FADE FAMX 16 H (FADM)
FADB BR 16 H — 2 A0

FCTN FAMX SEL 1 H

FCTN FAMX SEL 0 H
FCTN FAMX ENP L

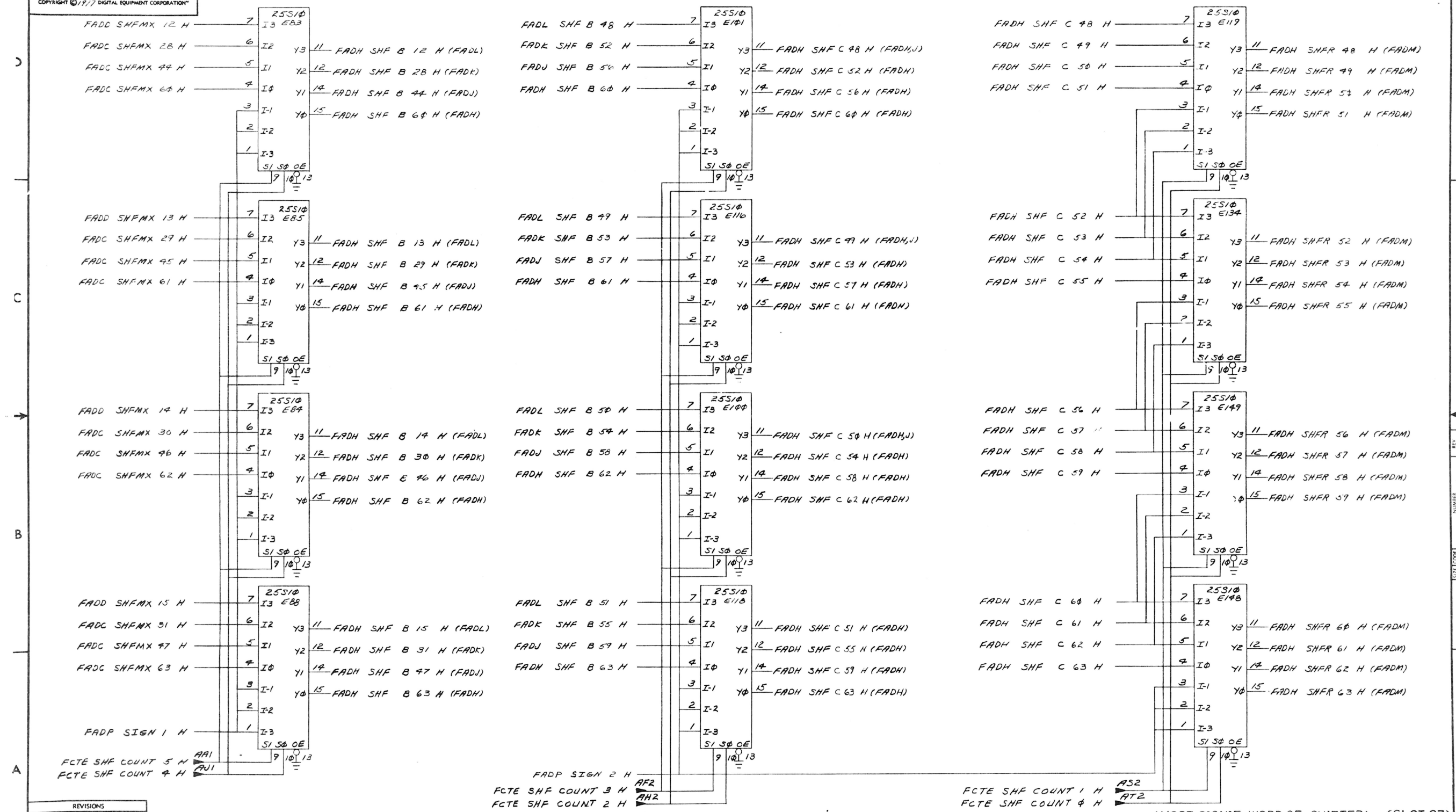
REVISIONS		
CHK	CHANGE NO.	REV

TITLE		SIZE CODE		NUMBER		REV.
FRACTION ADDER (FADE)		D CS		M8288-0-1		*
SCALE		SHEET		6 OF 17		DIST.



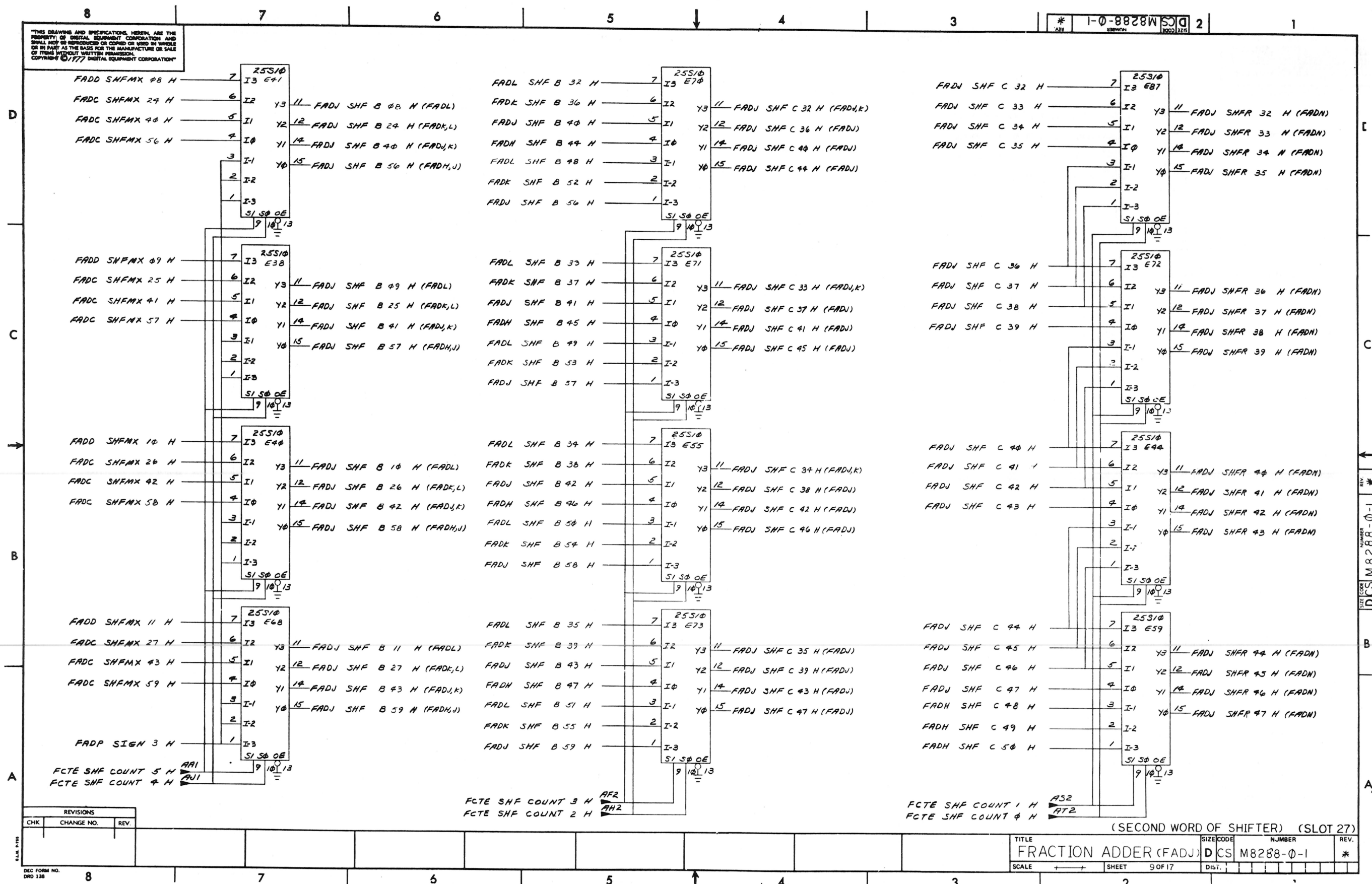
REVISIONS		
CHK	CHANGE NO.	REV.

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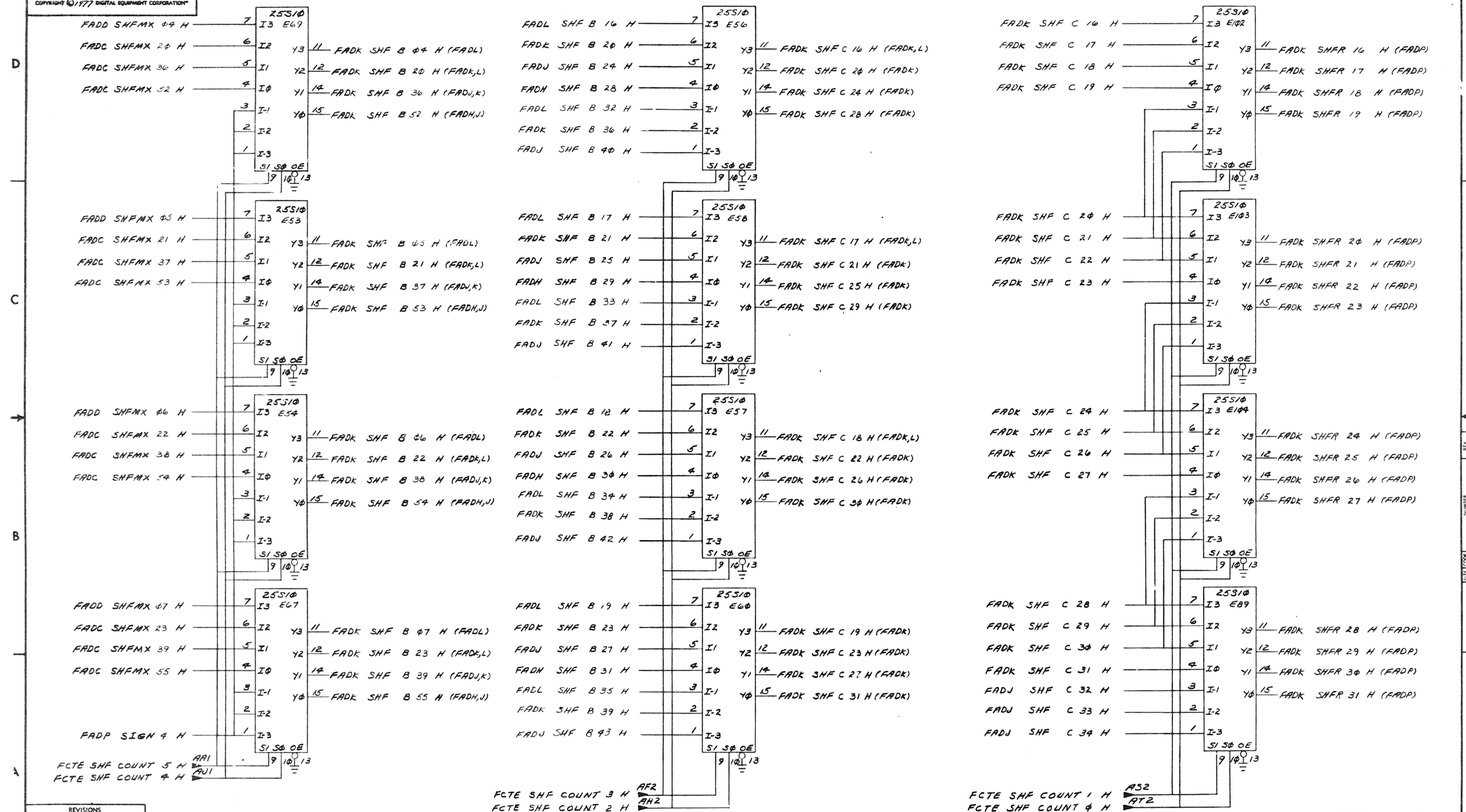


REVISIONS		
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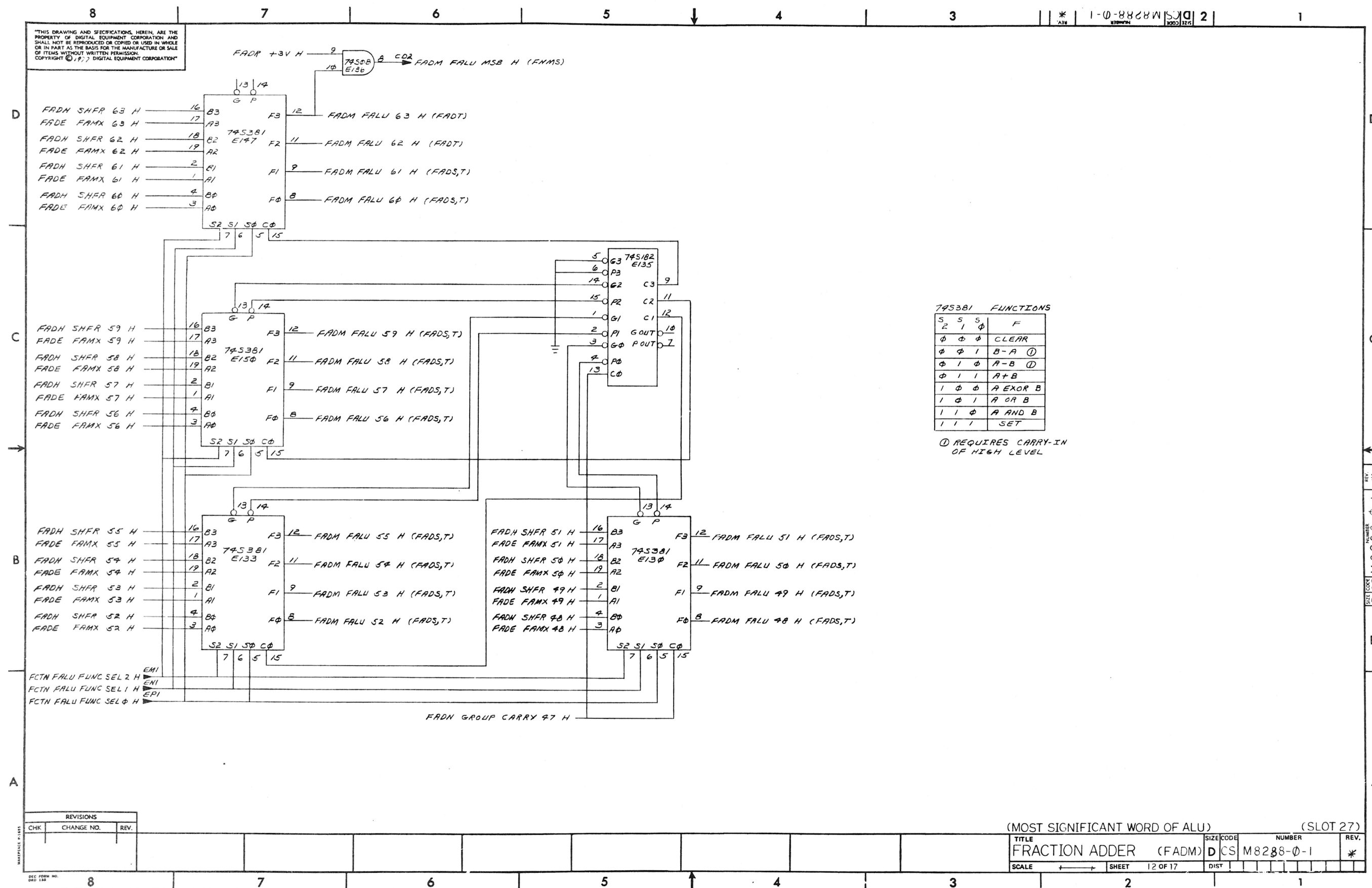
TITLE		SIZE CODE	NUMBER	REV.
FRACTION ADDER (FADH)		DCS	M8288-0-1	*
SCALE	SHEET	DIST.		
	8 OF 17			



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REVISIONS			TITLE		SIZE CODE		NUMBER		REV.	
CHK	CHANGE NO.	REV.	FRACTION ADDER (FADK)		DCS		M8288-0-1		*	
			SCALE		SHEET		100F 17		DIST.	



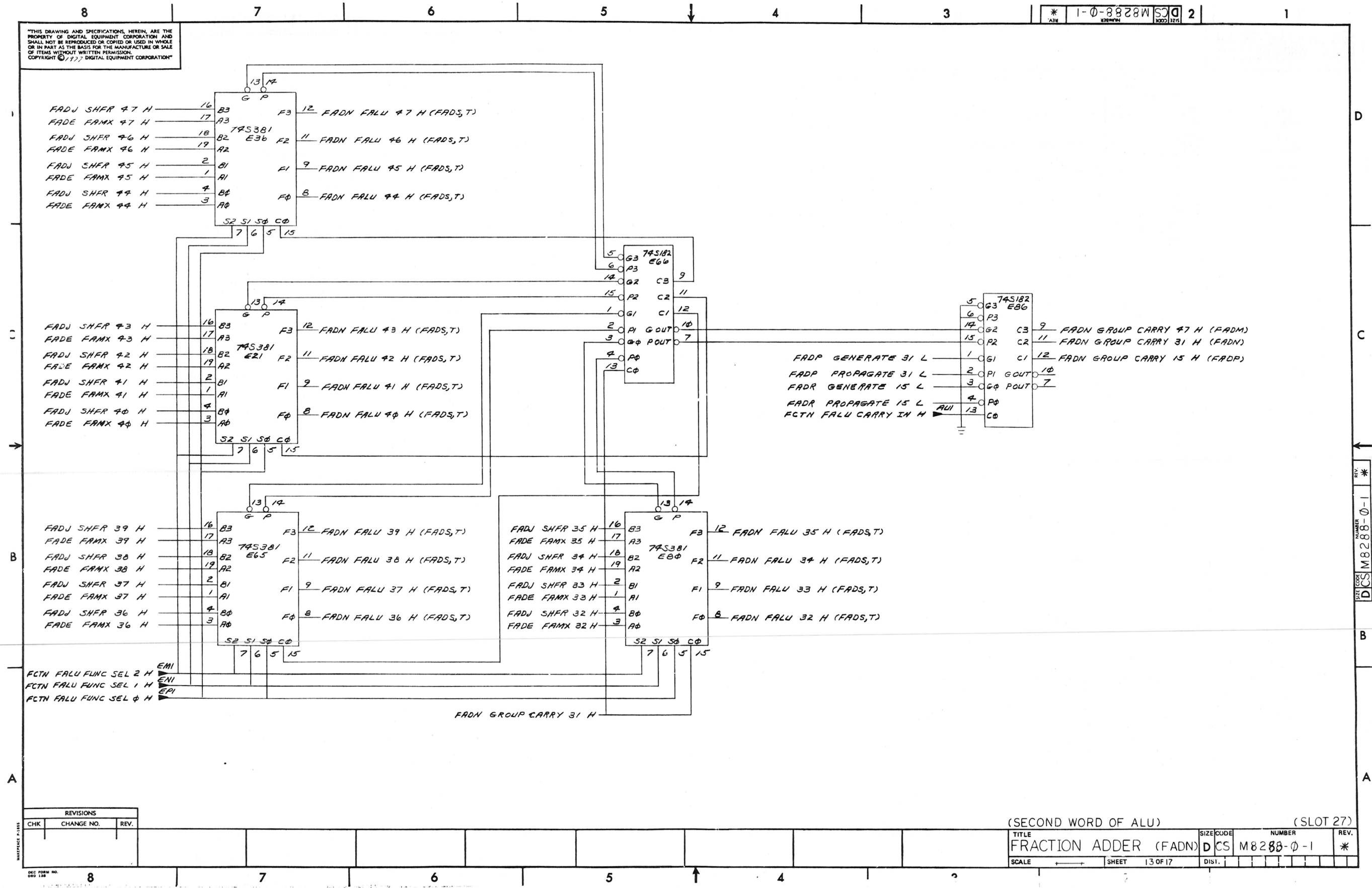
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74S381 FUNCTIONS					
S	S	S			F
2	1	0			
0	0	0			CLEAR
0	0	1			B-A ①
0	1	0			A-B ①
0	1	1			A+B
1	0	0			A EXOR B
1	0	1			A OR B
1	1	0			A AND B
1	1	1			SET

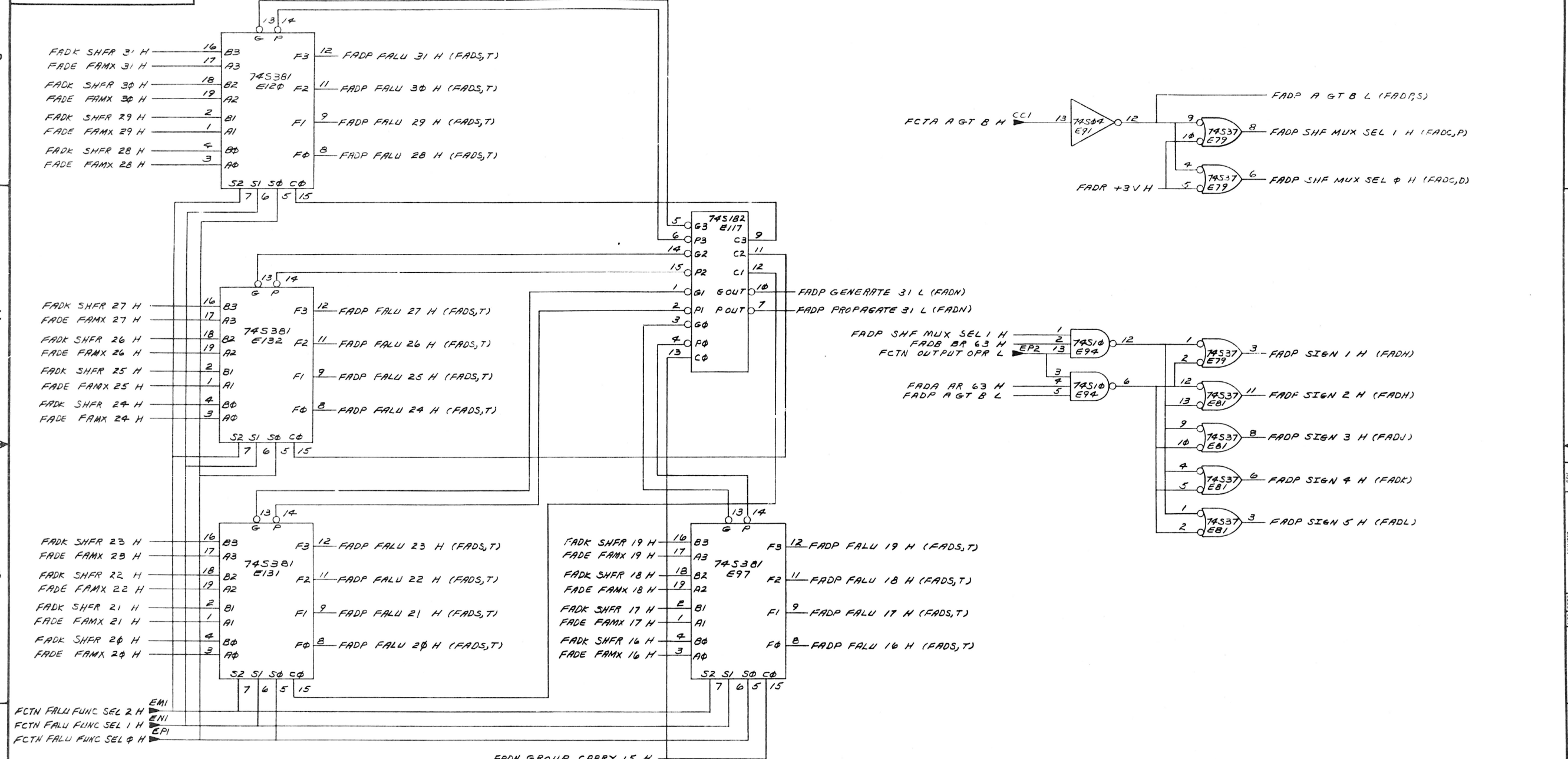
① REQUIRES CARRY-IN OF HIGH LEVEL

REVISIONS		
CHK	CHANGE NO.	REV.

(MOST SIGNIFICANT WORD OF ALU)				(SLOT 27)			
TITLE	SIZE CODE	NUMBER	REV.	TITLE	SIZE CODE	NUMBER	REV.
FRACTION ADDER (FADM)	D CS	M8288-0-1	*	FRACTION ADDER (FADM)	D CS	M8288-0-1	*
SCALE	SHEET	12 OF 17	DIST	SCALE	SHEET	12 OF 17	DIST



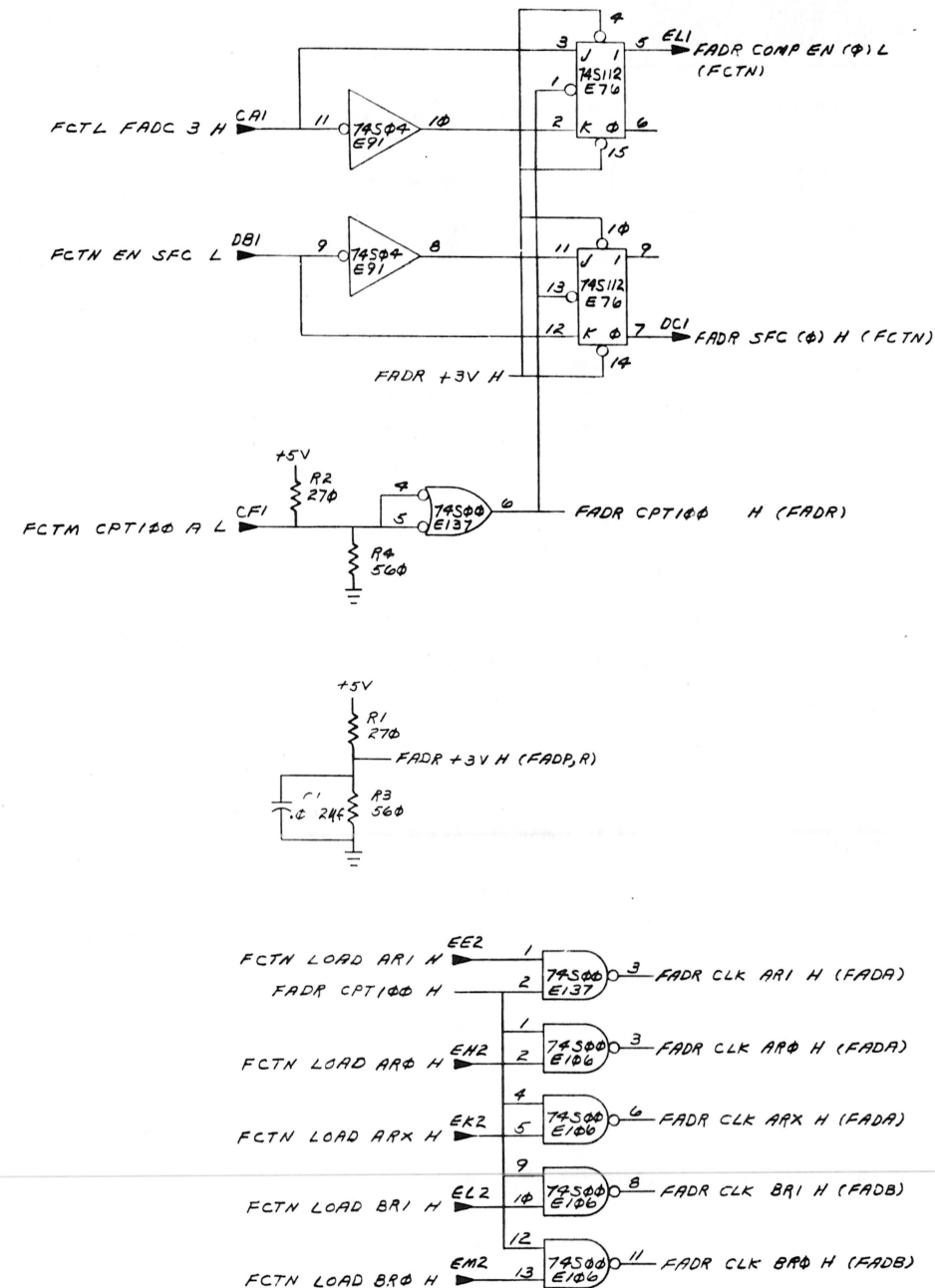
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REVISIONS		
CHK	CHANGE NO.	REV.

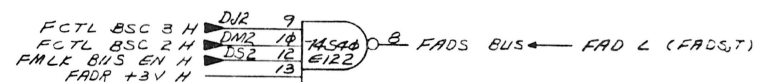
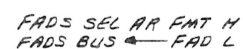
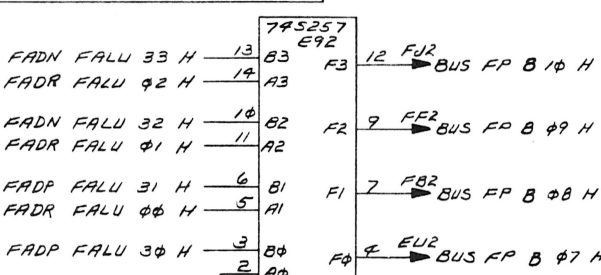
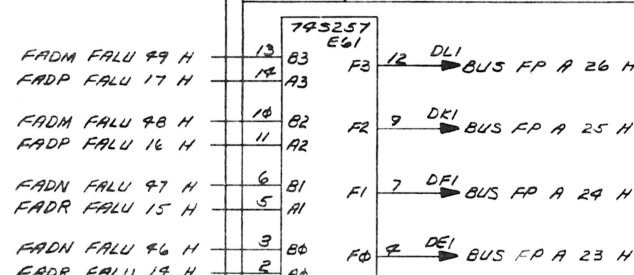
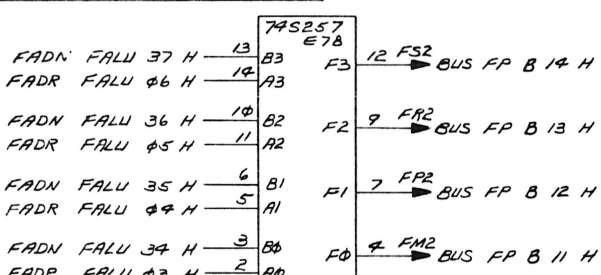
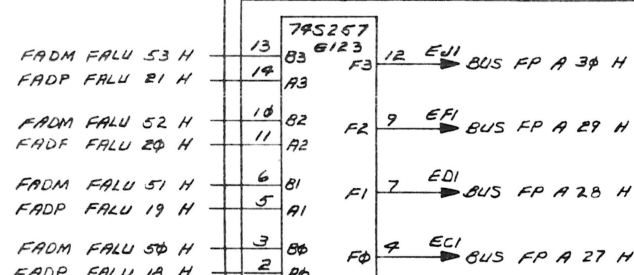
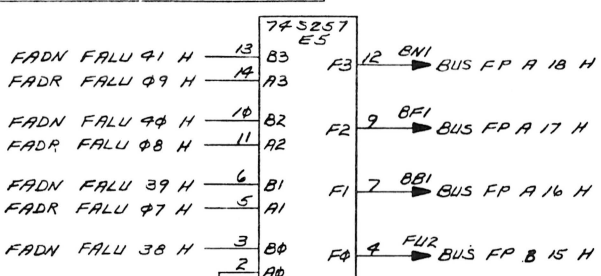
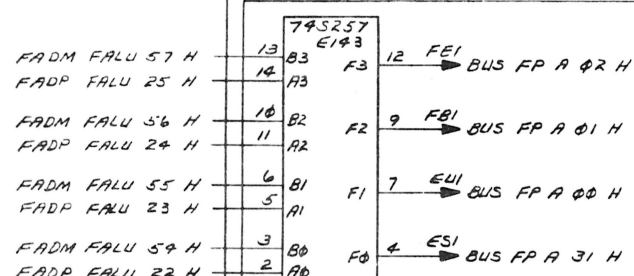
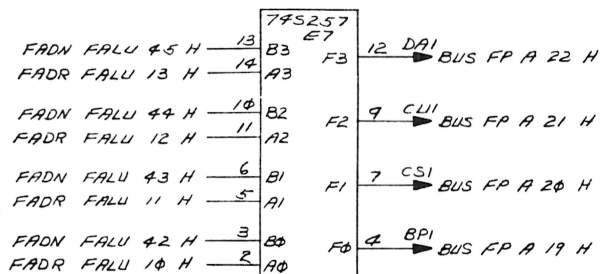
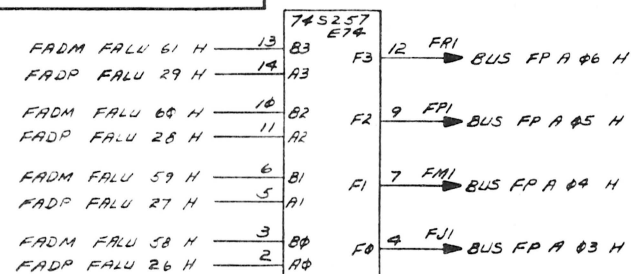
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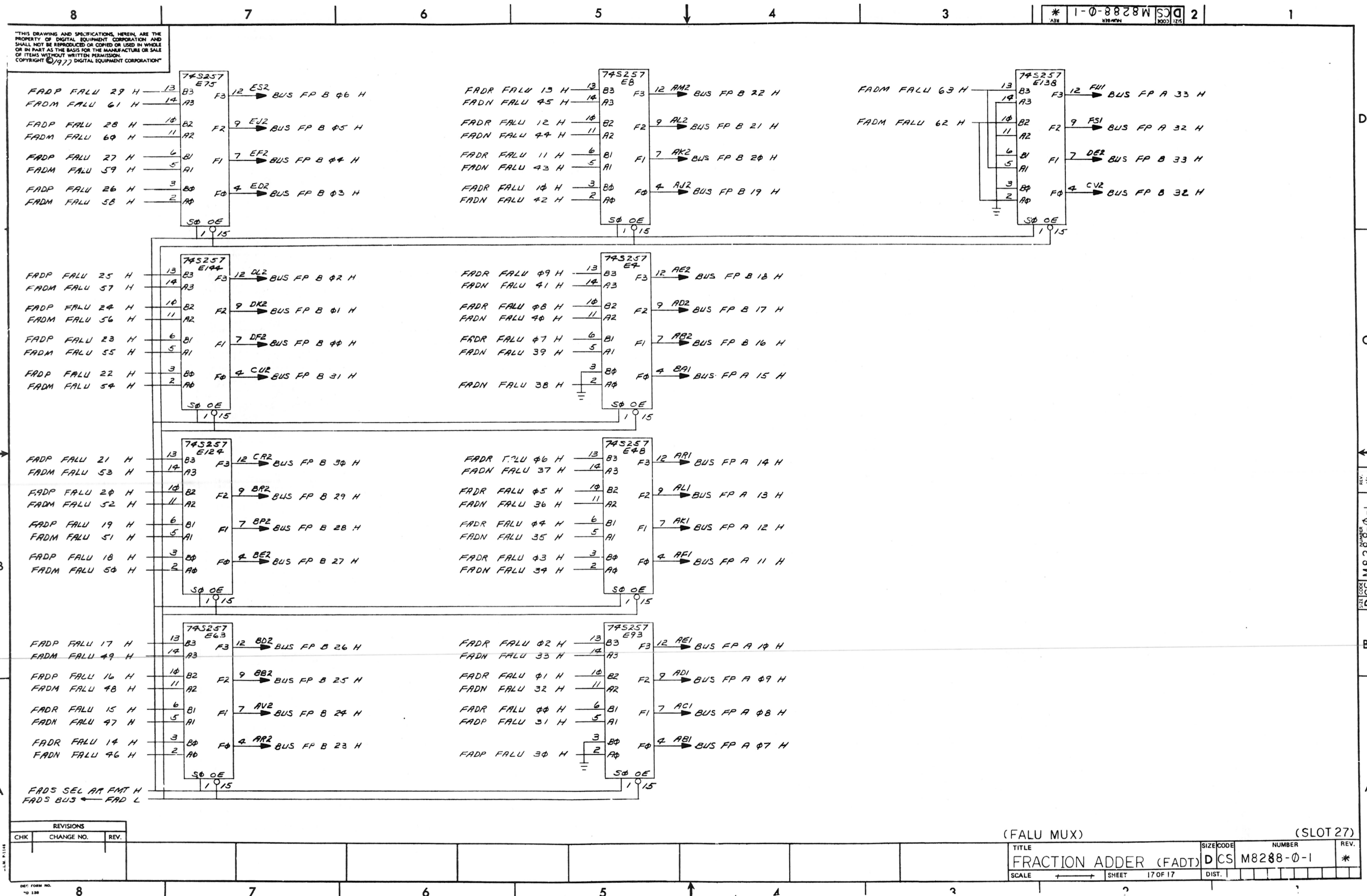
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SCALE	SHEET	14 OF 17	DIST.



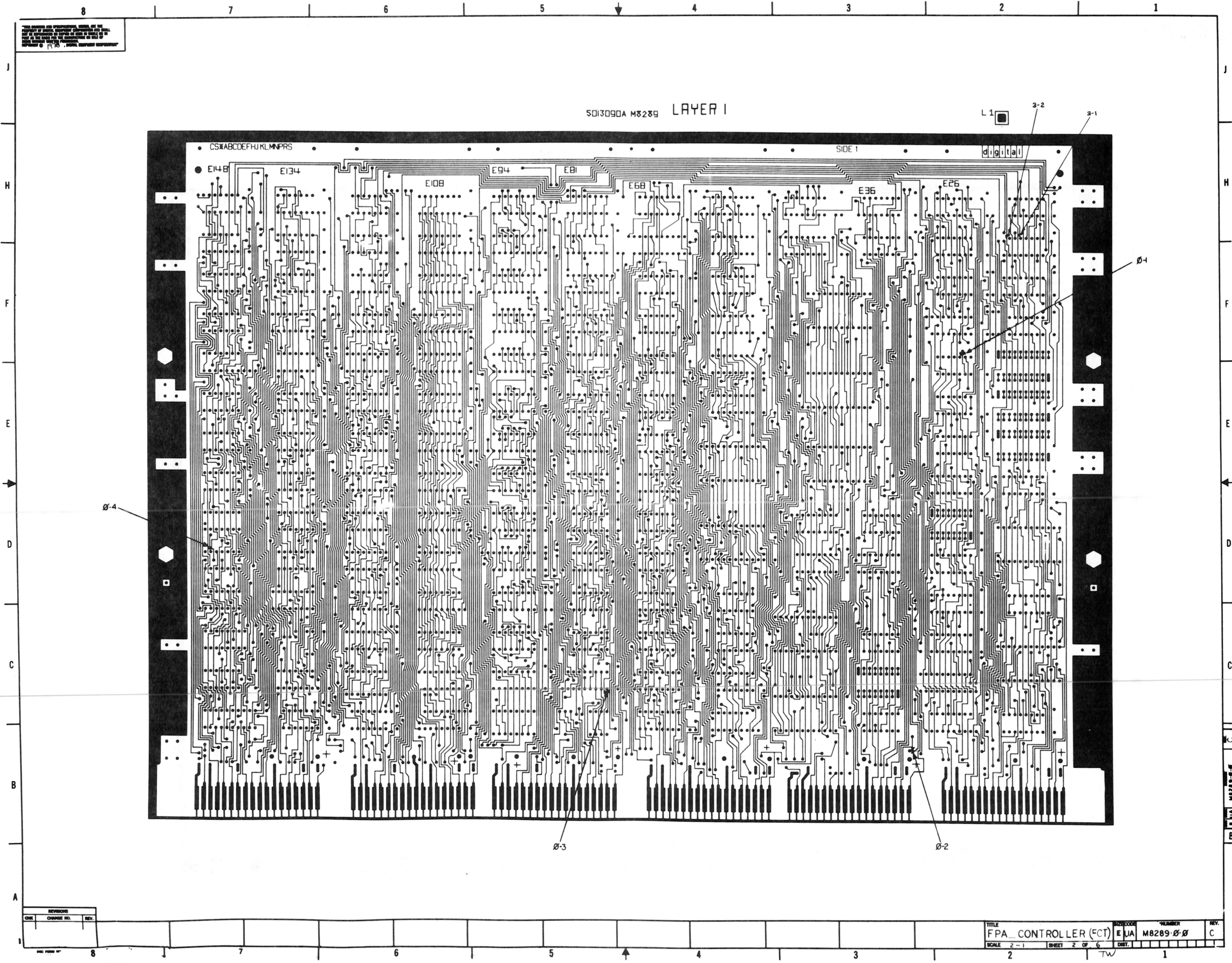
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SCALE	SHEET	15 OF 17	DISC.				

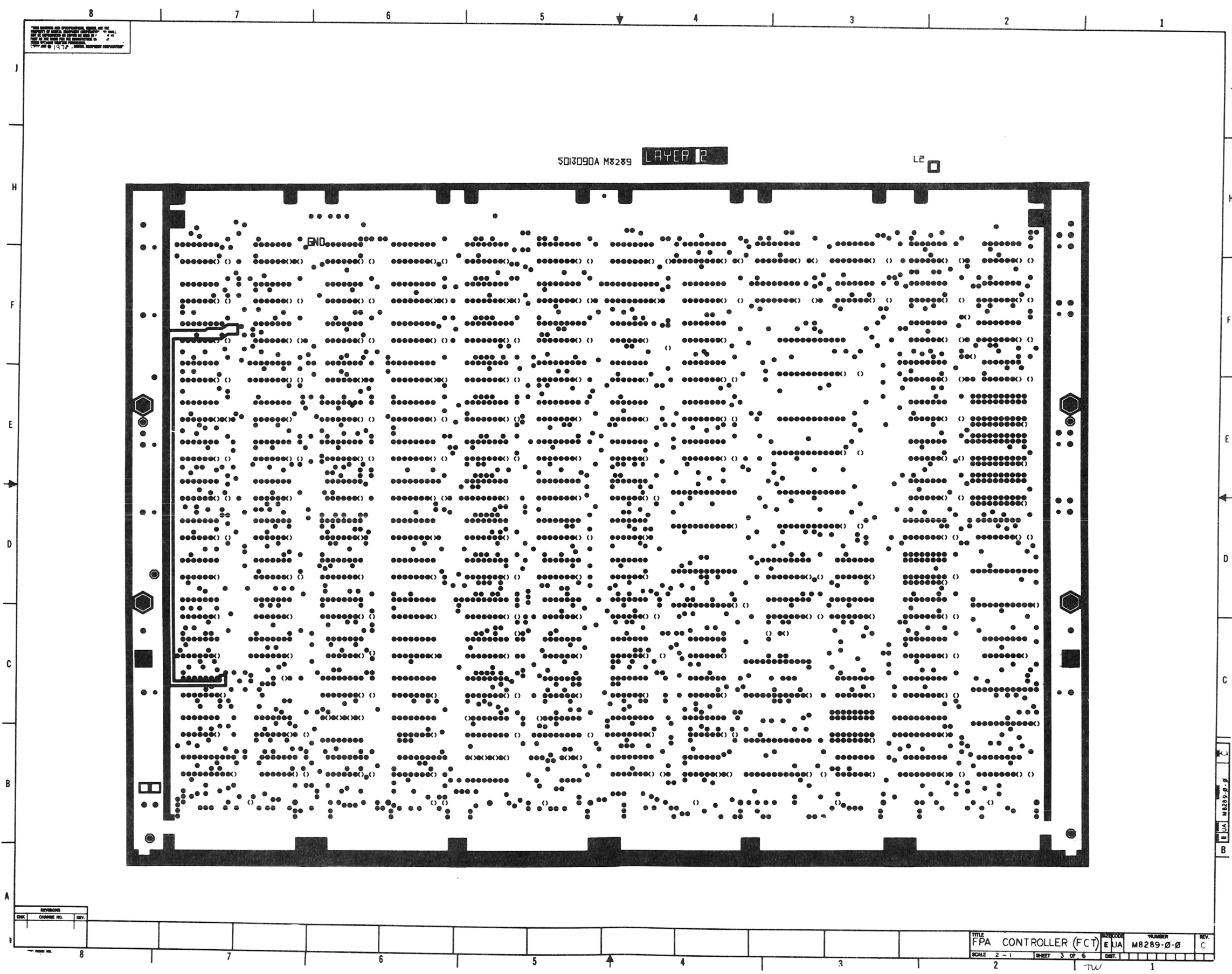
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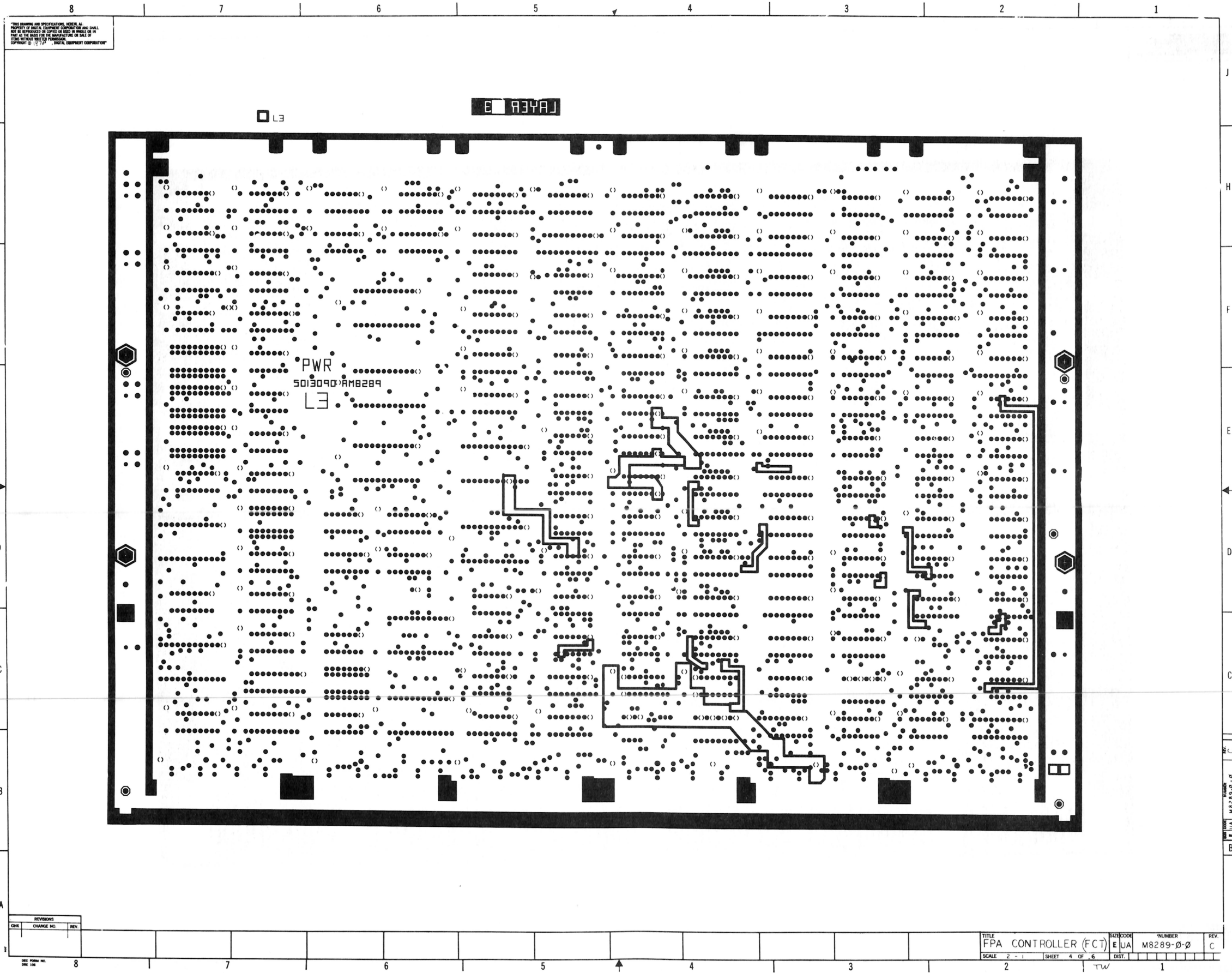


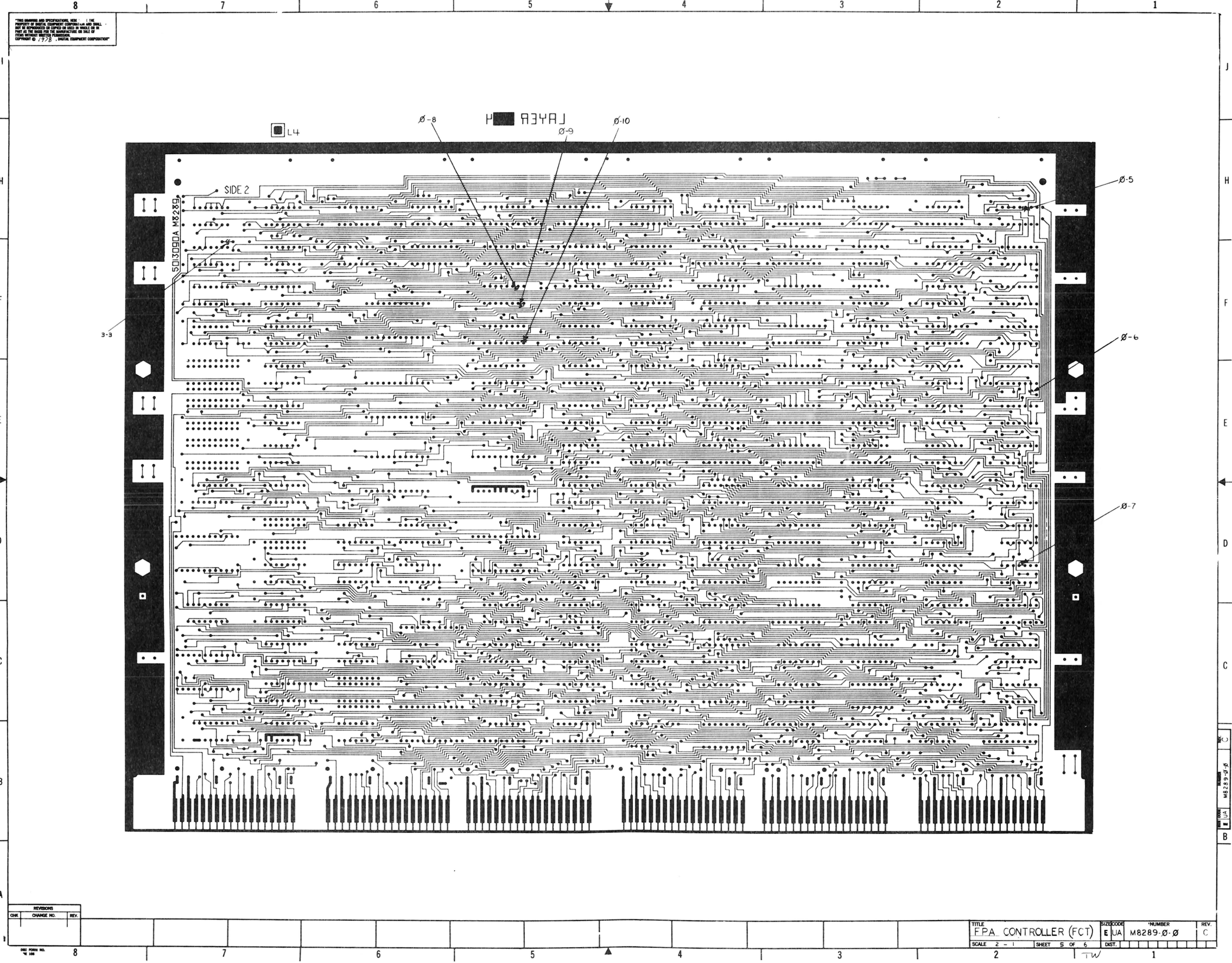
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REVISIONS		
QTY	CHANGE NO.	REV.

TITLE	FPA CONTROLLER (FCT)	ALU CODE	EUA	NUMBER	M8289-0-0	REV.	C
SCALE	2 - 1	SHEET	3 OF 6	DIST.			

tw





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REVISIONS		
NO.	DESCRIPTION	DATE
1	INITIAL DESIGN	10/1/78
2	REVISED FOR MANUFACTURING	10/1/78
3	REVISED FOR MANUFACTURING	10/1/78
4	REVISED FOR MANUFACTURING	10/1/78
5	REVISED FOR MANUFACTURING	10/1/78
6	REVISED FOR MANUFACTURING	10/1/78
7	REVISED FOR MANUFACTURING	10/1/78
8	REVISED FOR MANUFACTURING	10/1/78

TITLE		FPA CONTROLLER (FCT)		DRAWING NO.		M8289-0-0		REV	
SCALE		2 - 1		SHEET		5 OF 6		C	
DATE		10/1/78		BY		TW			

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M8299 (FCT)

ETCH CUTS SIDE 1

1. CUT ETCH ABOVE E22-9, 10
2. CUT ETCH JUST TO RIGHT OF PTH LOCATED JUST ABOVE POSITIVE (+) LEAD OF R 100d CAP C97
3. CUT ETCH BELOW E89-A
4. CUT ETCH JUST ABOVE E139-13

ETCH CUTS SIDE 2

5. CUT ETCH AT E148-12
6. CUT ETCH JUST BELOW E144-2
7. CUT ETCH AT E139-11
8. CUT ETCH WHICH CONNECTS E52-12 TO E52-15
9. CUT ETCH WHICH CONNECTS E52-1 TO E52-4
10. CUT ETCH AT E51-1

COMPONENT ADDS

11. ADD 74S00 (1910532) TO SPARE IC LOCATION E28

WIRE ADDS SIDE 1

12. ADD WIRE FROM E9-8 TO PTH LOCATED ABOVE E22-9, 10
13. ADD WIRE FROM E9-9 TO E22-5
14. ADD WIRE FROM E9-10 TO E22-4
15. ADD WIRE FROM E35-3 TO PTH BELOW E29-1
16. ADD WIRE FROM PTH BELOW E28-3 TO PTH LOCATED DIRECTLY ABOVE POSITIVE (+) LEAD OF 8 μ fd CAP C97
17. ADD WIRE FROM PTH BELOW E28-2 TO PTH LOCATED DIRECTLY BELOW E37-12
18. ADD WIRE FROM PTH BELOW E28-7 TO PTH TO RIGHT OF PTH BELOW E28-7
19. ADD WIRE FROM E122-3 TO PTH LOCATED DIRECTLY BELOW E122-1, 2 AND ABOVE 8 μ fd CAP C192
20. ADD WIRE FROM E139-13 TO PTH LOCATED BELOW AND TO THE LEFT OF E138-1
21. ADD WIRE FROM E128-8 TO E128-9
22. ADD WIRE FROM PTH LOCATED ABOVE E141-11, 12, TO PTH LOCATED ABOVE E140-10
23. ADD WIRE FROM E139-11 TO PTH LOCATED JUST TO RIGHT OF E144-7
24. ADD WIRE FROM E128-8 TO E119-8
25. ADD WIRE FROM E148-12 TO PTH LOCATED BETWEEN E143-14 AND E144-1
26. ADD WIRE FROM E128-10 TO E51-1
27. ADD WIRE FROM E51-1 TO E51-15
28. ADD WIRE FROM E52-1 TO E52-15
29. ADD WIRE FROM E42-15 TO E68-15
30. ADD WIRE FROM E52-4 TO E52-8
31. ADD WIRE FROM E52-15 TO E42-1
32. ADD WIRE FROM PTH LOCATED ABOVE AND TO RIGHT OF C25, TO PTH LOCATED BETWEEN C24 AND E25 WHICH IS CONNECTED TO E35-10
33. ADD WIRE FROM E9-11 TO E35-1

ECO*1

COMPONENT DELETES SIDE 1:

- 1-1 E98 (P/N 23604A9-00)
1-2 E107 (P/N 23601A9-00)
1-3 E106 (P/N 23600A9-00)
COMPONENT ADDS SIDE 1:
1-4 E98 (P/N 23750A9-00)
1-5 E107 (P/N 23749A9-00)
1-6 E106 (P/N 23748A9-00)

ECO # 2

COMPONENT DELETES SIDE 1:

- 2-1. E99 (P/N 23605A9-00)
2-2. E100 (P/N 23597A9-00)
2-3. E101 (P/N 23598A9-00)
2-4. E103 (P/N 23606A9-00)

COMPONENT ADDS SIDE 1:

- 2-5. E99 (P/N 23780A9-00)
2-6. E100 (P/N 23778A9-00)
2-7. E101 (P/N 23779A9-00)
2-8. E103 (P/N 23781A9-00)

ECO#3

ETCH CUTS SIDE 1.

- 3-1. CUT ETCH CONNECTED TO E11-12.
3-2. CUT ETCH TO LEFT OF E11-14.

ETCH CUTS SIDE 2.

- 3-3.CUT ETCH ABOVE E11-14

COMPONENT ADDS SIDE 1

- 3-4. ADD 74S09 (1910534) TO SPARE IC LOCATION E7.
3-5. ADD 74S151 (1910956) TO SPARE IC LOCATION E8.
3-6. ADD 74S74 (1910544) TO SPARE IC LOCATION E18.

WIRE ADDS SIDE 1.

- 3-7. ADD WIRE FROM PTH ABOVE E7-10 TO PTH BELOW E8-7
- 3-8. ADD WIRE FROM E118-6 TO PTH ABOVE E7-11.
- 3-9. ADD WIRE FROM E120-3 TO PTH ABOVE E8-15.
- 3-10. ADD WIRE FROM PTH ABOVE E120-11,10 TO PTH ABOVE E8-14.
- 3-11. ADD WIRE FROM PTH BELOW E78-2,3 TO PTH ABOVE E8-13.
- 3-12. ADD WIRE FROM PTH ABOVE E8-13 TO PTH BELOW E8-2.
- 3-13. ADD WIRE FROM PTH BELOW E8-2 TO PTH BELOW E8-4.
- 3-14. ADD WIRE FROM PTH ABOVE E8-11 TO E21-4.
- 3-15. ADD WIRE FROM PTH ABOVE E8-10 TO PTH ABOVE E37-16,15.
- 3-16. ADD WIRE FROM PTH ABOVE E8-9 TO PTH ABOVE E28-11.
- 3-17. ADD WIRE FROM PTH ABOVE E28-13 TO PTH LOCATED RIGHT OF E77-9.
- 3-18. ADD WIRE FROM PTH ABOVE E28-12 TO PTH BELOW E78-6.
- 3-19. ADD WIRE FROM PTH BELOW E18-4 TO PTH BELOW E18-1.
- 3-20. ADD WIRE FROM PTH BELOW E18-1 TO PTH BELOW E39-1.
- 3-21. ADD WIRE FROM PTH BELOW E18-3 TO PTH ABOVE E28-8.
- 3-22. ADD WIRE FROM PTH BELOW E18-7 TO PTH RIGHT OF PTH BELOW E18-7.
- 3-23. ADD WIRE FROM PTH BELOW E8-8 TO SECOND PTH RIGHT OF PTH BELOW E8-8.
- 3-24. ADD WIRE FROM PTH ABOVE E28-10 TO E67-8.
- 3-25. ADD WIRE FROM PTH ABOVE E28-9 TO E73-10.
- 3-26. ADD WIRE FROM PTH BELOW E18-2 TO PTH ABOVE CONNECTOR PINS BM1 AND BM1.
- 3-27. ADD WIRE FROM PTH BELOW E8-6 TO PTH ABOVE E11-13.
- 3-28. ADD WIRE FROM PTH ABOVE E11-13 TO E11-12.
- 3-29. ADD WIRE FROM E11-12 TO E11-1.
- 3-30. ADD WIRE FROM PTH ABOVE E8-15 TO PTH ABOVE E7-13.
- 3-31. ADD WIRE FROM PTH BELOW E7-7 TO THIRD PTH RIGHT OF PTH BELOW E7-7.
- 3-32. ADD WIRE FROM PTH ABOVE E7-12 TO PTH BELOW E8-3.

LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION	REFERENCE DESIGNATOR
			00		
1	1	D-MD-501309A-0-0	5013090-00	M8289	1
2	2		1012784-00	.047 MFD 50V -20+80 CER	91
3	3		1012084-01	8 MFD 25V 6% 30D AL EL	7
4	4		1301775-00	820 1/4W 5% CC	5
5	5		1300295-00	330 1/4W 5% CC	5
6	6		1300247-00	120 1/4W 5% CC	6
7	7		1300250-00	150 1/4W 5% CC	6
8	8		1301890-00	560 1/4W 5% CC	3
9	9		1301972-00	270 1/4W 5% CC	3
10	10		1300365-00	1 K 1/4W 5% CC	1
11	11		1910552-00	74S194 SHIFT REG.,4BIT RIGH	19
12	12		1910531-00	DEC 74S181 ALU-4BIT	9
13	13		1910547-00	74S153 MUX 1 OF 4 (DUAL)	12
14	14		1910537-00	74S11 AND GATE-TRIPLE 3INP	3
15	15		1910542-00	74S64 A-O-I CATE 4-2-3-2	10
16	16		1913670-00	74S373 LATCH 8BIT TRASP TR	2
17	17		1911641-00	SN 74S257 MUX,QUAD 2 TO 1	2
18	18		1910534-00	74S04 INVERTER GATE-HEX 1I	9
19	19		1912389-00	74S08 AND GATE-QUAD 2IN,PO	5
20	20		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	5
21	21		1913839-00	74LS165 SHIFT REG.,8BIT	3
22	22		1910532-00	74S00 NAND GATE-QUAD 2IN\$	10
23	23		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	5
24	24		1910549-00	74S158 MUX 1 OF 2 (QUAD)	5

!	REVISION HISTORY	!	BASIC PART NO: M8289	!	DRN: F SMART	!	DATE: 01-NOV-77	!	D	!	I	!	G	!	I	!	T	!	A	!	L
!	ENG! ECO NUMBER	!	REV	!	SECTION A OF A	!	CHK'D: F SMART	!	DATE: 01-NOV-77	!	TITLE	!	PARTS LIST	!		!		!		!	
!	---	!	INIT	!	* SECTION, VARIATION INDEX	!	CHK'D: F SMART	!	DATE: 01-NOV-77	!		!		!		!		!		!	
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!	P.G!00002	!	B	!	[B]	!		!		!		!		!		!		!		!	
!	J.F!00003	!	C	!	[C]	!	DES.ENG: STAN LACKEY	!	DATE: 02-NOV-77	!		!		!		!		!		!	
!		!		!	[D]	!		!		!		!		!		!		!		!	
!		!		!	[E]	!		!		!	DOCUMENT NUMBER	!		!		!		!		!	
!		!		!	[F]	!	RESP.ENG.: STAN LACKEY	!	DATE: 02-NOV-77	!		!		!		!		!		!	
!		!		!	[H]	!		!		!	SIZE!CCDE! NUMBER	!	REV	!		!		!		!	
!		!		!	[J]	!		!		!		!		!		!		!		!	
!		!		!	[K]	!	MFG.ENG.: MIKE TERELLA	!	DATE: 02-NOV-77	!	K	!	PL	!	M8289-0-DBP	!	C	!		!	
!		!		!	[L]	!		!		!		!		!		!		!		!	
!		!		!	[M]	!	ASSEMBLY NUMBER:	!	TOP DOCUMENT NUMBER:	!	FILE NAME:	!	EDIT #	!		!		!		!	
!		!		!	[N]	!	D-UA-M8289-0-0	!	M8289	!	M8289C.PLS	!	20	!		!		!		!	

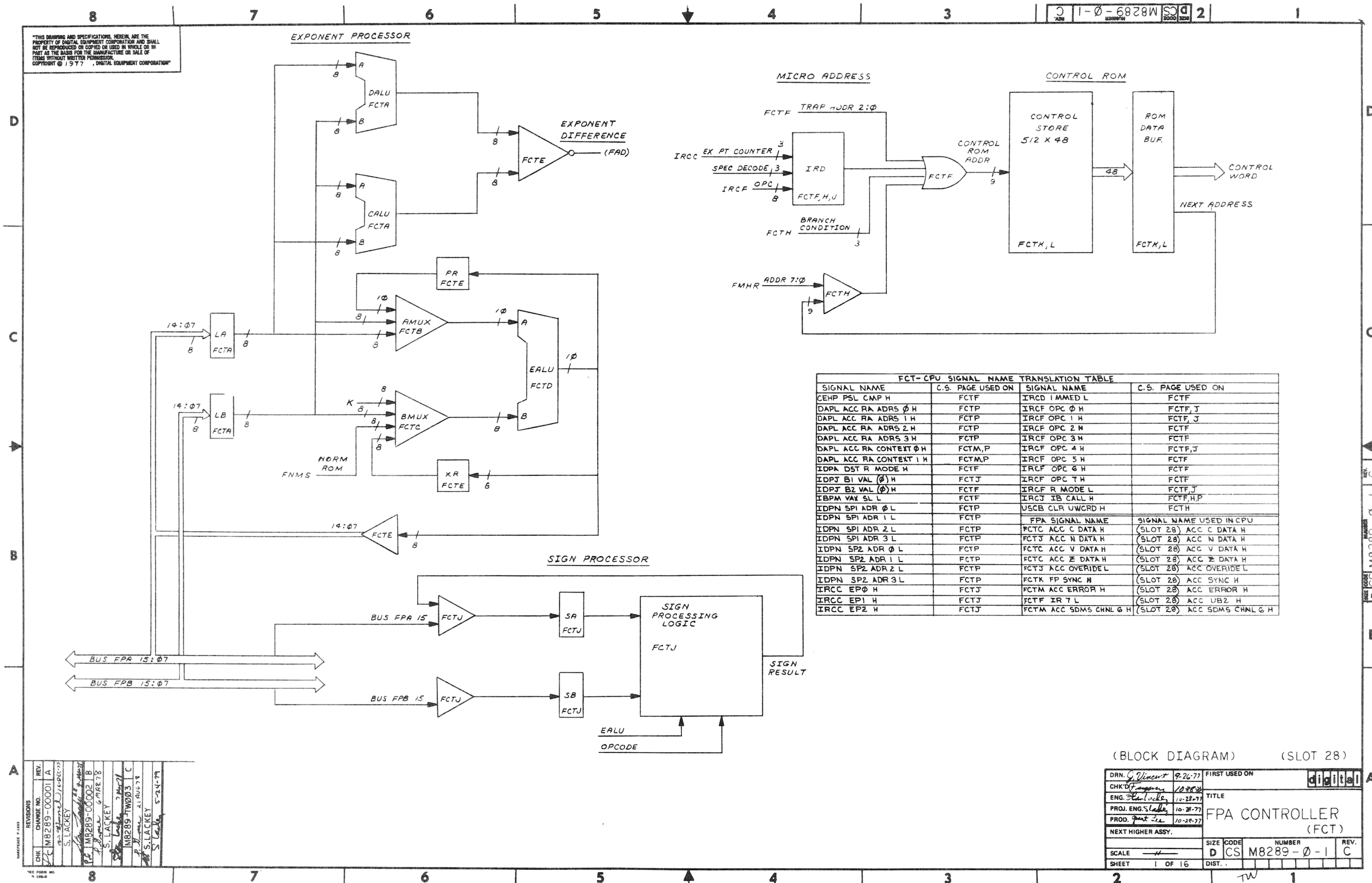
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SHEET A2 OF A2

0 NOTE: IC SPARE LOCATIONS ARE E6

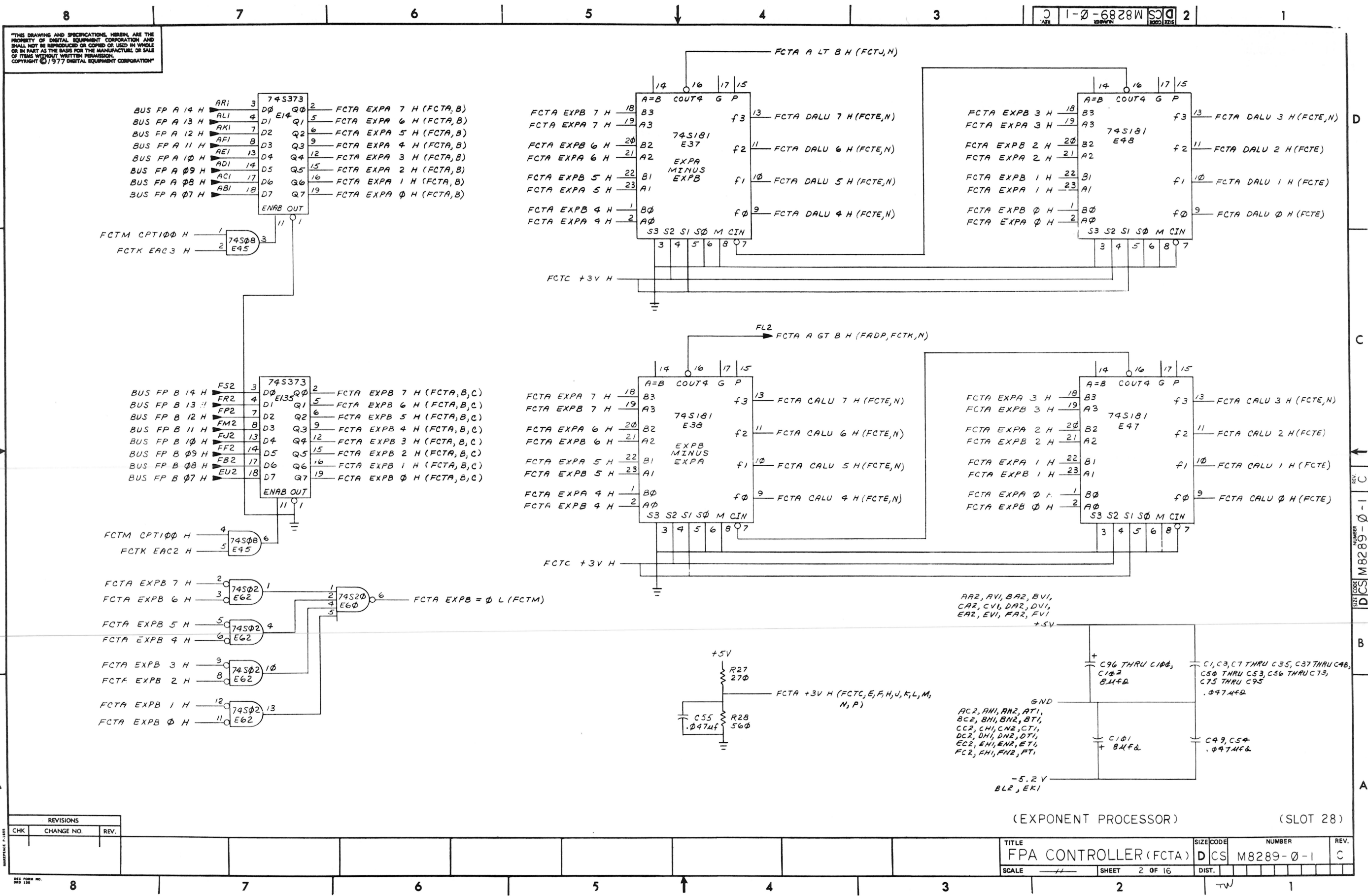
! D	! I	! G	! I	! T	! A	! L	! TITLE	! SECTION A	! OF A	! SIZE	! CODE	! DOCUMENT NUMBER	! REV
							FPA CONTROLLER						
										K	PL	M8289-0-DBP	C

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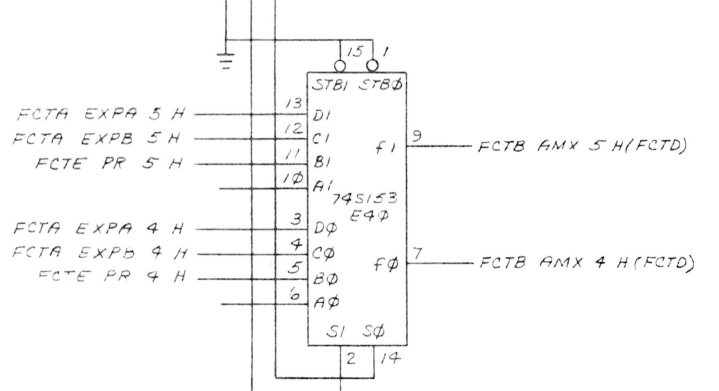
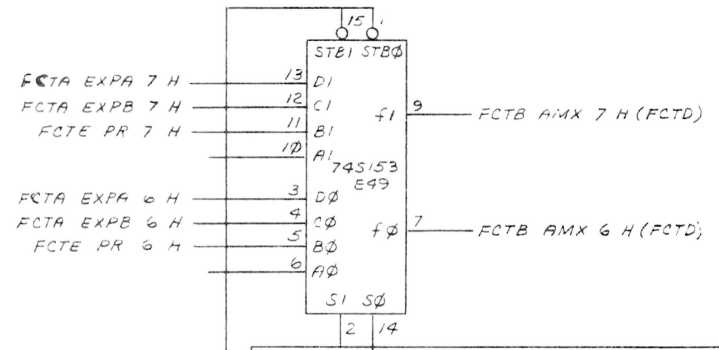
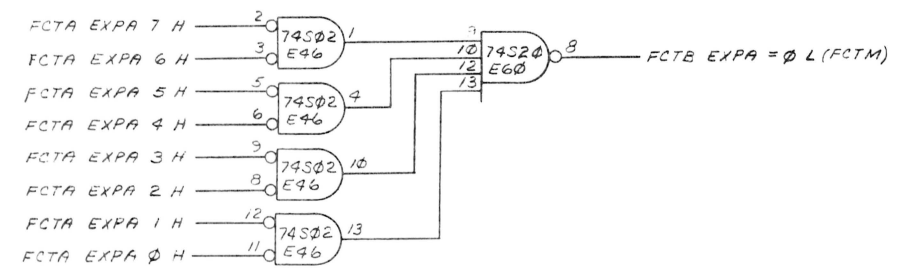


(BLOCK DIAGRAM) (SLOT 28)

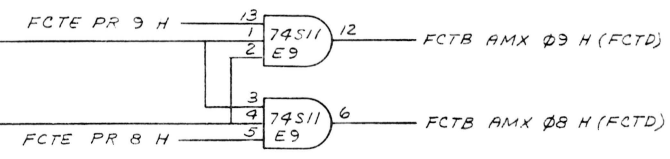
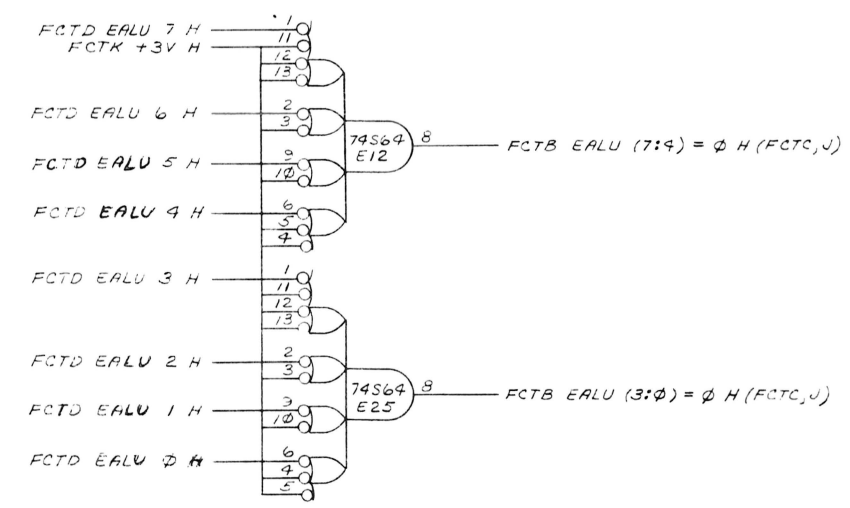
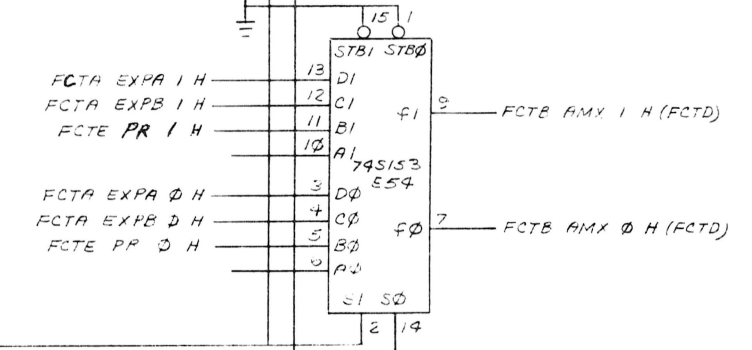
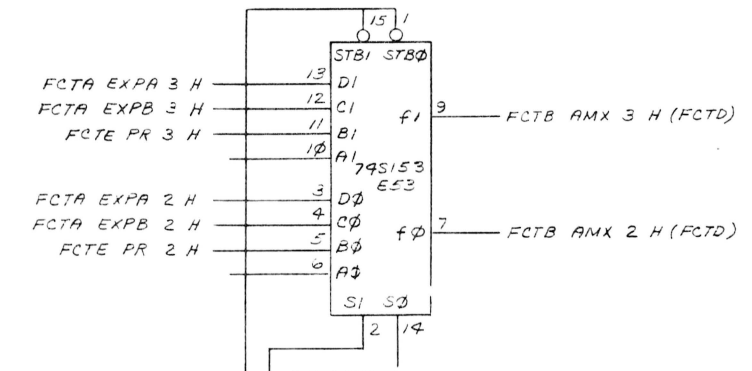
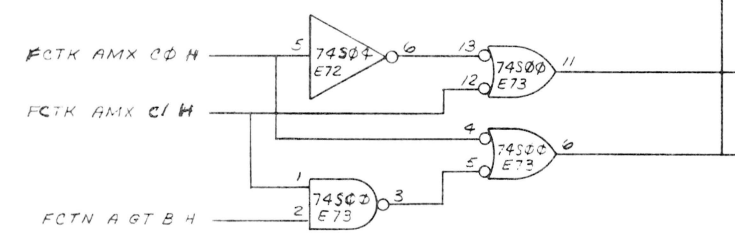
DRN. <i>C. Vincent</i>	9-26-77	FIRST USED ON	digital
CHK'D <i>By J. J. J.</i>	10-28-77	TITLE	FPA CONTROLLER (FCT)
ENG. <i>Stall</i>	10-28-77		
PROJ. ENG. <i>Stall</i>	10-28-77		
PROD. <i>Stall</i>	10-28-77		
NEXT HIGHER ASSY.			
SCALE <i>1/2</i>	SIZE	CODE	NUMBER
SHEET	D	CS	M8289-0-1
	1 OF 16	DIST.	REV. C



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AMX C		
1	0	EXPA
0	0	EXPB
1	0	PR
1	1	ADD/SUB

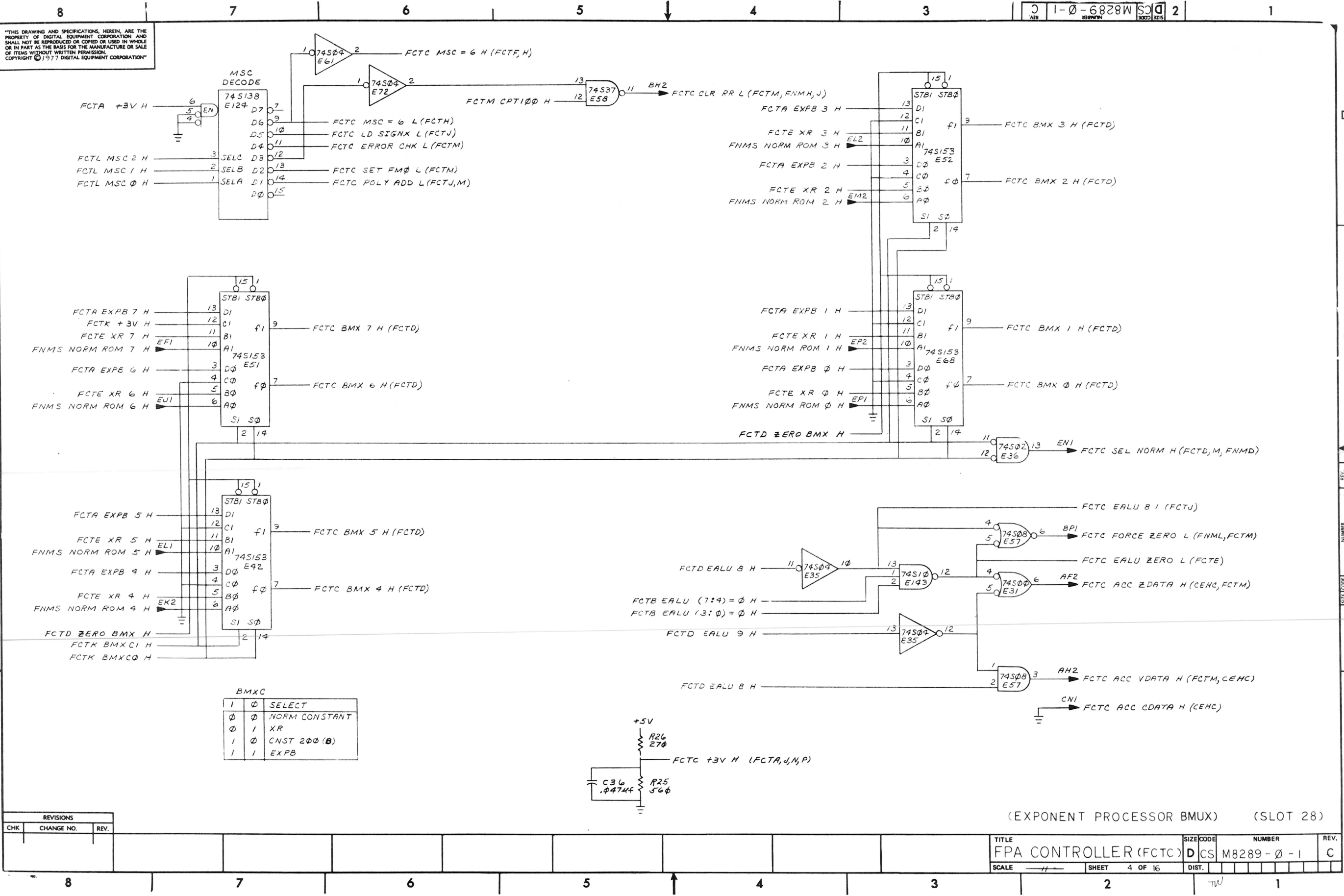


(EXPONENT PROCESSOR AMUX) (SLOT 28)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
FPA CONTROLLER (FCTB)	D CS	M8289-0-1	C
SCALE	SHEET	3 OF 16	
	DIST.		

REV. C
NUMBER M8289-0-1
SIZE CODE DCS



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BMUX		
I	Φ	SELECT
Φ	Φ	NORM CONSTANT
Φ	1	XR
1	Φ	CNST 2ΦΦ (B)
1	1	EXPB

(EXPONENT PROCESSOR BMUX) (SLOT 28)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
FPA CONTROLLER (FCTC)	D CS	M8289-0-1	C
SCALE	SHEET	4 OF 16	DIST.

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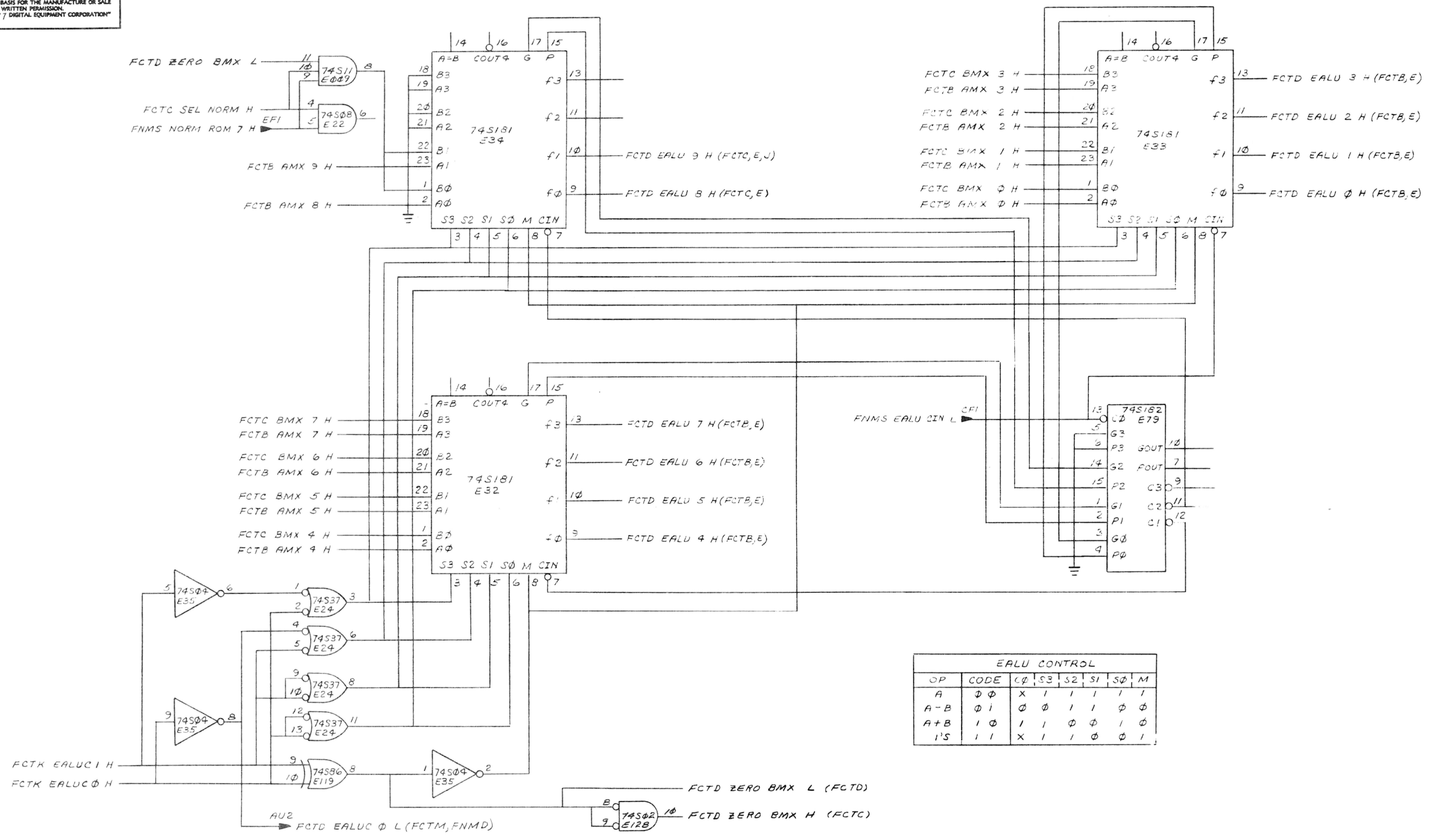
C

B

B

A

A



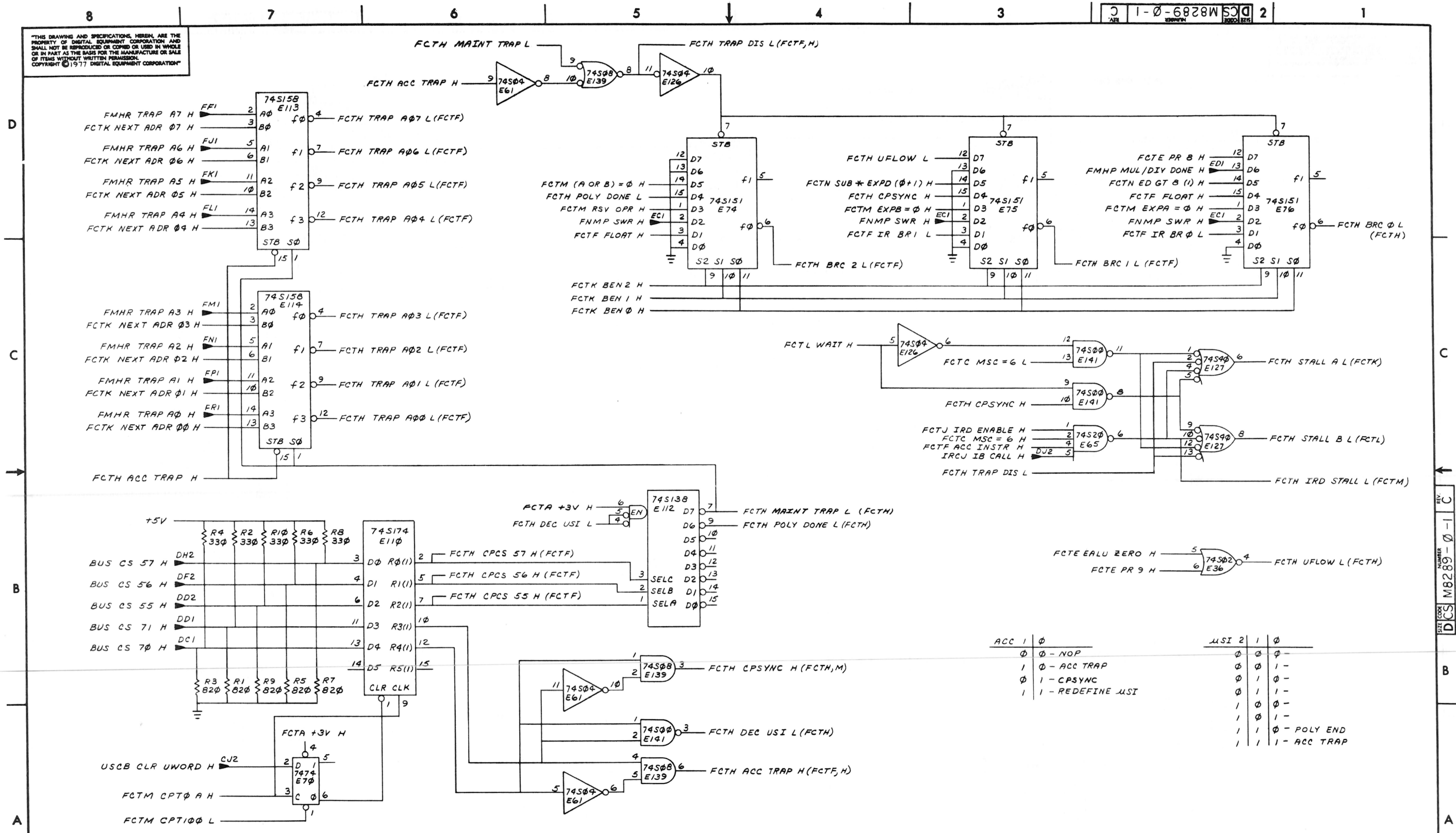
EALU CONTROL							
OP	CODE	C ϕ	S3	S2	S1	S ϕ	M
A	$\phi\phi$	X	1	1	1	1	1
A-B	$\phi 1$	ϕ	ϕ	1	1	ϕ	ϕ
A+B	1 ϕ	1	1	ϕ	ϕ	1	ϕ
1'S	1 1	X	1	1	ϕ	ϕ	1

REVISIONS		
CHK	CHANGE NO.	REV.

(EXPONENT ALU) (SLOT 28)

TITLE	SIZE CODE	NUMBER	REV.
FPA CONTROLLER (FCTD)	D CS	M8289-0-1	C
SCALE 1/1	SHEET 5 OF 16	DIST.	

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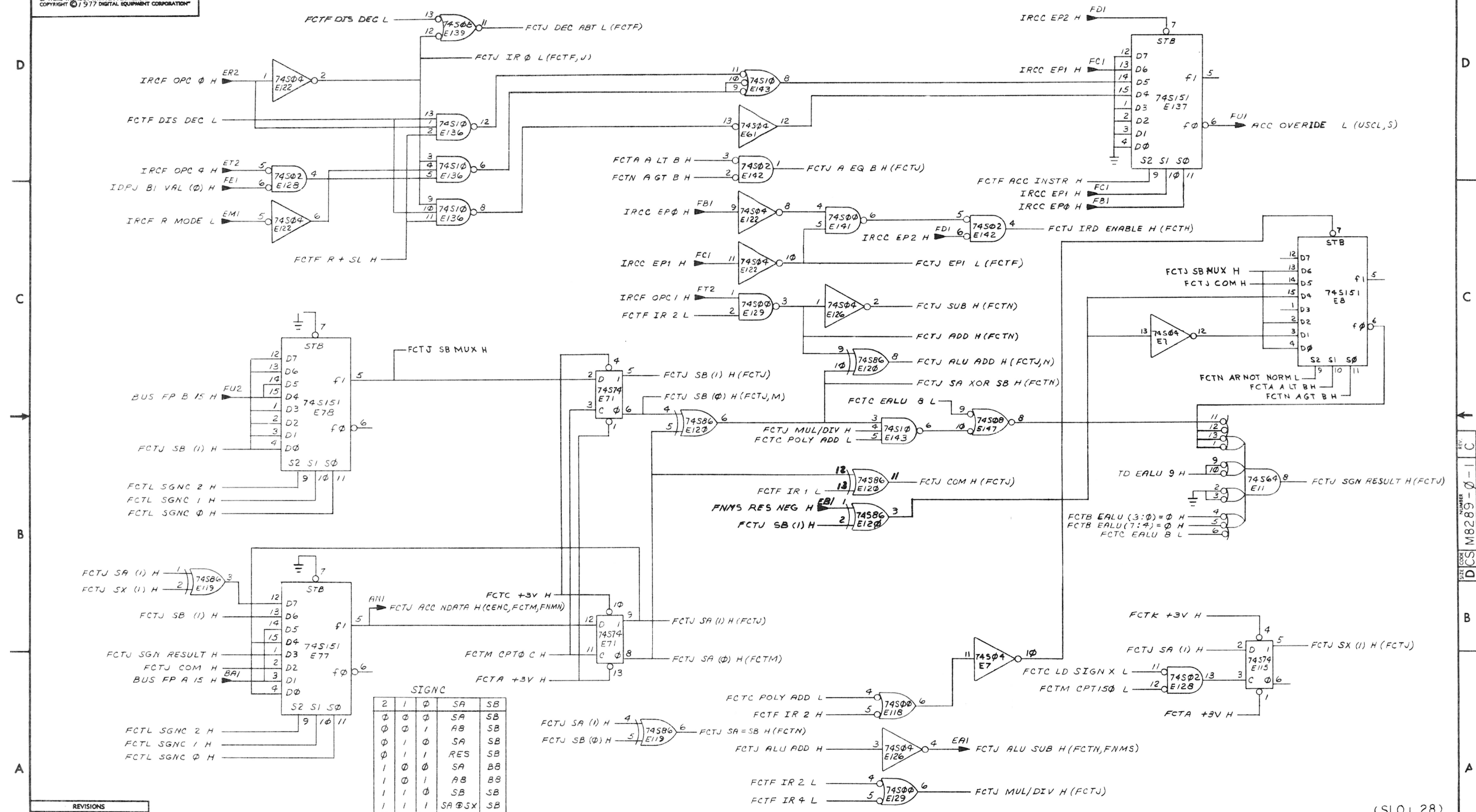


REVISIONS		
CHK	CHANGE NO.	REV.

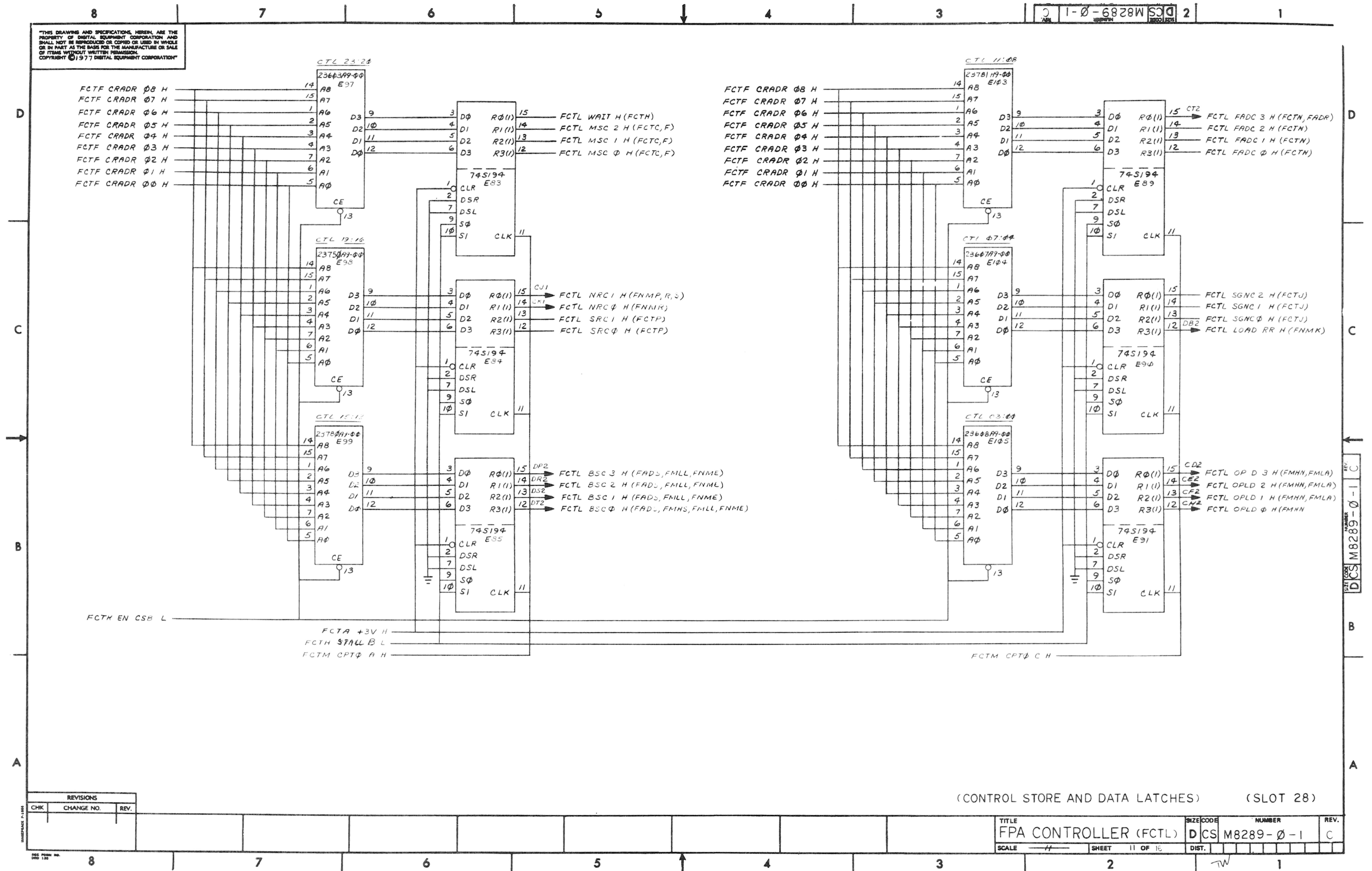
TITLE		SIZE CODE	NUMBER	REV.
FPA CONTROLLER (FCTH)		D CS	M8289-0-1	C
SCALE		SHEET	8 OF 16	
		DIST.		

REV. C
M8289-0-1
D CS

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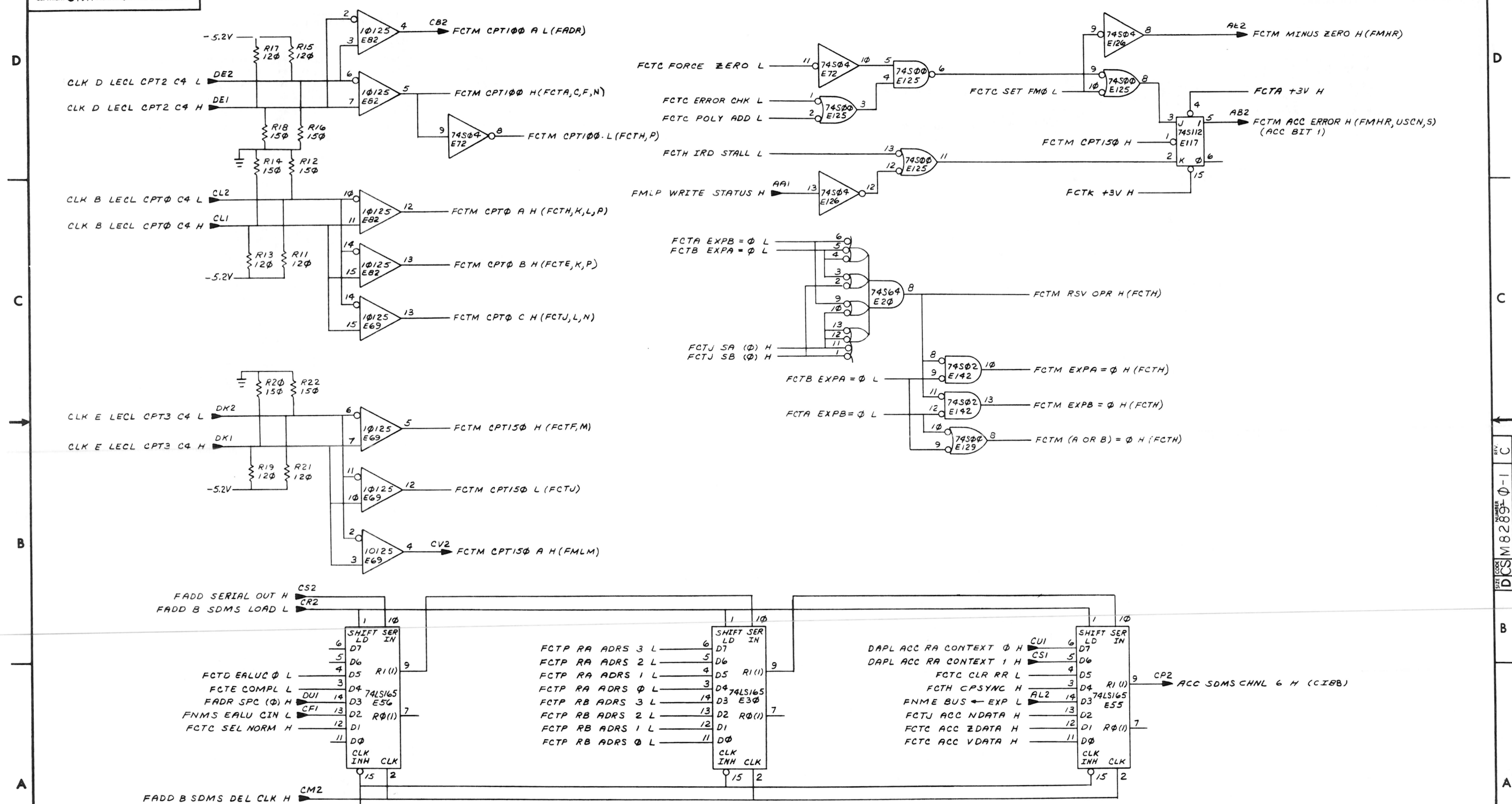
REVISIONS		
CHK	CHANGE NO.	REV.



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1-0-6828W

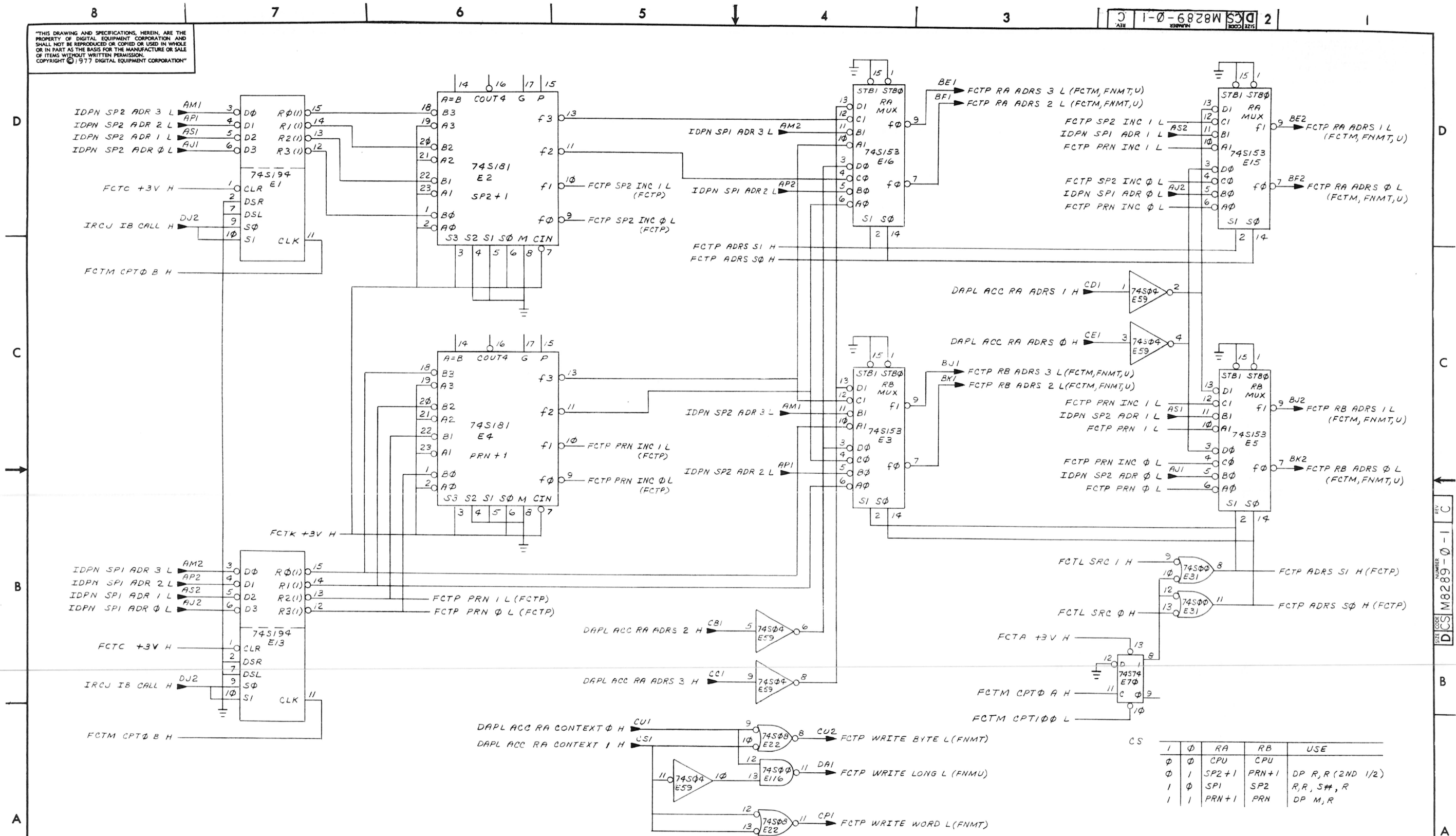
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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER		REV.
FPA CONTROLLER (FCTM)		D	CS	M8289-0-1	C	
SCALE		1/4"		SHEET	12 OF 16	DIST.

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		RA	RB	USE
0	0	CPU	CPU	
0	1	SP2+1	PRN+1	DP R, R (2ND 1/2)
1	0	SPI	SP2	R, R, S#, R
1	1	PRN+1	PRN	DP M, R

(REGISTER ADDRESSES) (SLOT 28)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
FPA CONTROLLER (FCTP)		D	CS	M8289-0-1	C
SCALE		SHEET		DIST.	
— H —		14 OF 16			

9138

REV C
M8289-0-1
D CS

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FAD CONTROL PROM DECODE (23036BI-00)

				EN 5FC		LOAD BR1		LOAD BRØ		LOAD AR1		LOAD ARØ		LOAD ARX	
		FROM DATA													
PROM ADDR	FAD CTL	DT	D6	D5	D4	D3	D2	D1	DØ						
ØØ	ØØ	Y	X	H	L	L	H	H	H						
Ø1	Ø1	X	X	H	H	L	L	L	L						
Ø2	Ø2	X	X	H	L	L	H	L	L						
Ø3	Ø3	X	X	H	H	L	H	L	L						
Ø4	Ø4	X	X	H	H	H	L	L	L						
Ø5	Ø5	X	X	H	L	H	L	L	L						
Ø6	Ø6	X	X	H	L	L	L	H	L						
Ø7	Ø7	X	X	H	L	H	L	H	L						
Ø8	Ø8	X	X	H	H	H	H	H	H						
Ø9	Ø9	X	X	L	L	L	L	L	L						
ØA	ØA	X	X	L	L	L	H	H	H						
ØB	ØB	X	X	L	L	L	L	L	L						
ØC	ØC	X	X	H	L	L	L	L	L						
ØD	ØD	X	X	H	L	L	L	L	L						
ØE	ØE	X	X	L	L	L	L	L	L						
ØF	ØF	X	X	L	L	L	L	L	L						
1Ø	ØØ	X	X	H	L	L	H	H	H						
11	Ø1	X	X	H	H	L	L	L	L						
12	Ø2	X	X	H	L	L	H	L	L						
13	Ø3	X	X	H	H	L	H	L	L						
14	Ø4	X	X	H	H	H	L	L	L						
15	Ø5	X	X	H	L	H	L	L	L						
16	Ø6	X	X	H	L	L	L	H	L						
17	Ø7	X	X	H	L	H	L	H	L						
18	Ø8	X	X	H	H	H	H	H	H						
19	Ø9	X	X	L	L	L	L	L	L						
1A	ØA	X	X	L	H	H	L	L	L						
1B	ØB	X	X	L	L	L	L	L	L						
1C	ØC	X	X	H	L	L	L	L	L						
1D	ØD	X	X	H	L	L	L	L	L						
1E	ØE	X	X	L	L	L	L	L	L						
1F	ØF	X	X	L	L	L	L	L	L						

FROM ADDR	FAD CTL	PROM DATA							
		D7	D6	D5	D4	D3	D2	D1	D0
20	00	X	X	H	L	L	H	H	H
21	01	X	X	H	L	L	L	L	L
22	02	X	X	H	L	L	H	L	L
23	03	X	X	H	H	L	H	L	L
24	04	X	X	H	H	H	L	L	L
25	05	X	X	H	L	H	L	L	L
26	06	X	X	H	L	L	L	H	L
27	07	X	X	H	L	H	L	H	L
28	08	X	X	H	H	H	H	H	H
29	09	X	X	L	L	L	L	L	L
2A	0A	X	X	H	L	L	L	L	L
2B	0B	X	X	L	L	L	L	L	L
2C	0C	X	X	H	L	L	L	L	L
2D	0D	X	X	H	L	L	L	L	L
2E	0E	X	X	L	L	L	L	L	L
2F	0F	X	X	L	L	L	L	L	L
30	10	X	X	H	L	L	H	H	H
31	11	X	X	H	H	L	L	L	L
32	12	X	X	H	L	L	H	L	L
33	13	X	X	H	H	L	H	L	L
34	14	X	X	H	H	L	L	L	L
35	15	X	X	H	L	H	L	L	L
36	16	X	X	H	L	L	L	H	L
37	17	X	X	H	L	H	L	H	L
38	18	X	X	H	H	H	H	H	H
39	19	X	X	L	L	L	L	L	L
3A	1A	X	X	H	L	L	L	L	L
3B	1B	X	X	L	L	L	L	L	L
3C	1C	X	X	H	L	L	L	L	L
3D	1D	X	X	H	L	L	L	L	L
3E	1E	X	X	L	L	L	L	L	L
3F	1F	X	X	L	L	L	L	L	L

REVISIONS		
CHK	CHANGE NO.	REV.

FAD PROM DECODE TRUTH TABLE (SLOT 28)

TITLE		SIZE	CODE	NUMBER		REVISION
FPA CONTROLLER (FCT)		D	CS	M8289 - Ø - 1		C
SCALE	$\frac{\quad}{\quad}$	SHEET	15	OF	16	DIST.

