

**FP11-B  
floating-point  
processor  
engineering drawings**





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ALUC  
 0 A  
 1 A (A v B)  
 2 A MINUS B  
 3 B  
 4 (A, B)  
 5 B  
 6 A MINUS B MINUS 1  
 7 A v B  
 8 A PLUS B PLUS 1  
 9 A PLUS B  
 10 B  
 11 A, B  
 12 A  
 13 A, B  
 14 1  
 15 A MINUS 1  
 16 A v B  
 17 A

CNST  
 0 200  
 1 TO 10 1 TO 10  
 11 100000  
 12 TO 14 12 TO 14  
 15 100004  
 16&17 16&17  
 20 220  
 21 TO 31 21 TO 31  
 32 70  
 33 71  
 34 TO 35 34 TO 35  
 36 74  
 37 75

RDFN CNSTF (1)  
 CNSTF0  
 0 TRAP & WAIT FOR ACKN  
 1 NOP  
 CNSTF1  
 0 WAIT FOR ATTN  
 1 NOP  
 CNSTF2  
 0 NOT USED  
 1 NOP  
 CNSTF3  
 0 DATI  
 1 NOP  
 CNSTF4  
 0 TRAP IF -0  
 1 NOP

FCC  
 0 LD FN&FZ CLR FV&FC  
 1 LD FN,FZ&FV&CLR FC  
 2 LD FN&FZ,CLR FV&SET FC  
 3 NOP

SYNC  
 0 ENABLE  
 1 NOP

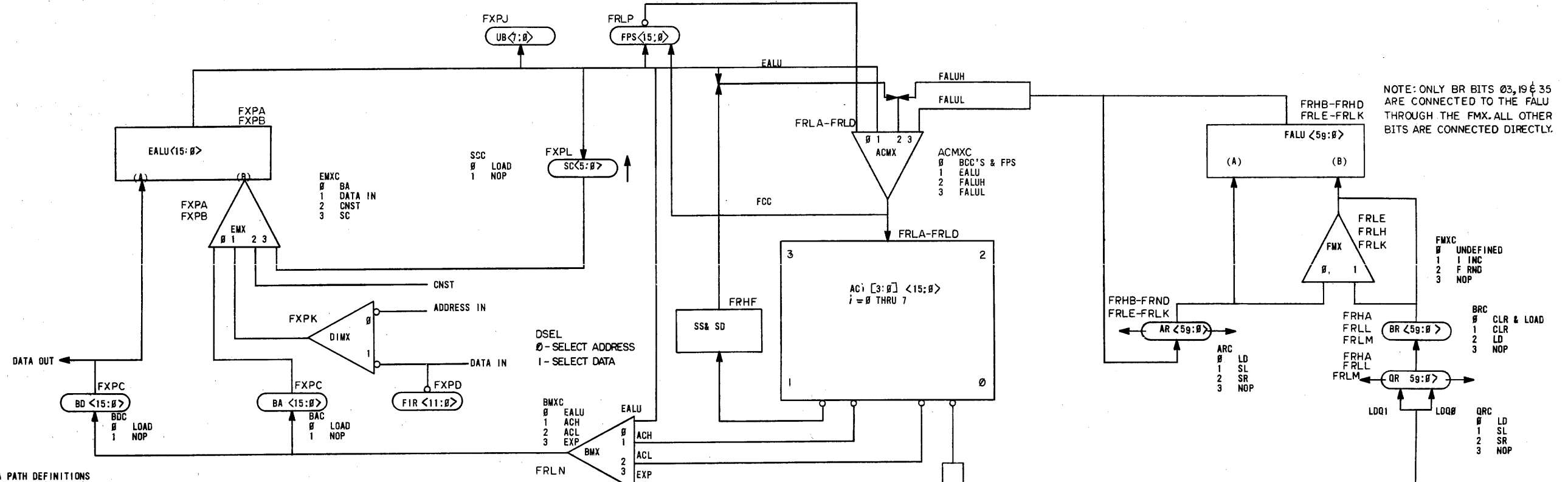
ADDR INCR  
 0 ADD 2 TO ADDRESS  
 1 ADD 0 TO ADDRESS

DISBL0  
 0 CLR INITF & ABORTF  
 1 NOP

DISBL1  
 0 CLR FP REQ  
 1 NOP

CONTROL SEL  
 0 LD FPS  
 1 LD UB  
 2 REG WRITE  
 3 DISABLE SYNC  
 4 DISABLE SC  
 5 FIR CLK  
 6 NOT USED  
 7 NOP

CSB  
 0 FRAC-MUL  
 1 FRAC-DIV  
 2 RS-AR-SC  
 3 LS-AR-NORM  
 4 RS-QR-SC (0 IN)  
 5 LS-QR-SC  
 6 RS-QR-SC (1 IN)  
 7 NOP



NOTE: ONLY BR BITS 03, 19 & 35 ARE CONNECTED TO THE FALU THROUGH THE FMX. ALL OTHER BITS ARE CONNECTED DIRECTLY.

DATA PATH DEFINITIONS

ACMX ← FPS = ACMX <31> ← BN; ACMX <30> ← BZ; ACMX <29:16> ← 7777; ACMX <15:0> ← FPS <15:0>  
 ACMX ← EALU = ACMX <31:16> ← EALU <15:0>; ACMX <15:0> ← EALU <15:0>  
 ACMX ← FALU = ACMX <31:0> ← SD; ACMX <30:23> ← EALU <7:0>; ACMX <22:0> ← FALU <57:35>  
 ACMX ← FALU = ACMX <31:0> ← FALU <34:3>  
 BMX ← EALU = BMX <15:0> ← EALU <15:0>  
 BMX ← ACH = BMX <15:0> ← ACI [3] <15:0> OR ACI [1] <15:0>  
 BMX ← ACL = BMX <15:0> ← ACI [2] <15:0> OR ACI [0] <15:0>  
 BMX ← EXP = BMX <15:0> ← BMX <7:0> ACI [3:2] <30:23>  
 EMX ← BA = EMX <15:0> ← BA <15:0>  
 EMX ← DATA IN = EMX <15:0> ← DIMX <15:0>  
 EMX ← CNST = EMX <15:0> ← CNST <15:0>  
 EMX ← SC = EMX <15:0> ← SC <5:0>  
 FMX ← BR = FMX <2> ← BR <35>; FMX <1> ← BR <19>; FMX <0> ← BR <3>  
 FMX ← F-RND = FMX <2> ← AR <34> IF ~FD ELSE FMX <2> ← BR <35>; FMX <1> ← BR <19>; FMX <0> ← AR <2> IF FD ELSE FMX <0> ← BR <3>  
 FMX ← I-INC = FMX <2> ← IL; FMX <1> ← IL; FMX <0> ← BR <3>  
 LDQ1 = QR <59> ← 0; QR <58> ← 1 IF ACI [3:2] <30:23> ≠ 0 ELSE QR <58> ← 0; QR <57:35> ← ACI [3:2] <22:0>  
 LDQ0 = QR <34:3> ← ACI [1:0] <31:0>; QR <2:0> ← 0

SIGNC  
 0 SD ← SS IF SUB ELSE SD ← SS  
 1 SD ← SS, SD  
 2 SS ← 1  
 3 NOP

ACF  
 0 ACS  
 1 ACSy1  
 2 ACD  
 3 ACDy1  
 4 AC6  
 5 AC7  
 6 NOT USED  
 7 NOT USED

ACC  
 0 3:2  
 1 3  
 2 2  
 3 1:0  
 4 0  
 5 0  
 6 0  
 7 NOP

ACRE  
 0 WRITE  
 1 READ

FMXC  
 0 UNDEFINED  
 1 INC  
 2 F-RND  
 3 NOP

BRC  
 0 CLR & LOAD  
 1 CLR  
 2 LD  
 3 NOP

QRC  
 0 LD  
 1 SL  
 2 SR  
 3 NOP

REV	CHANGE NO.

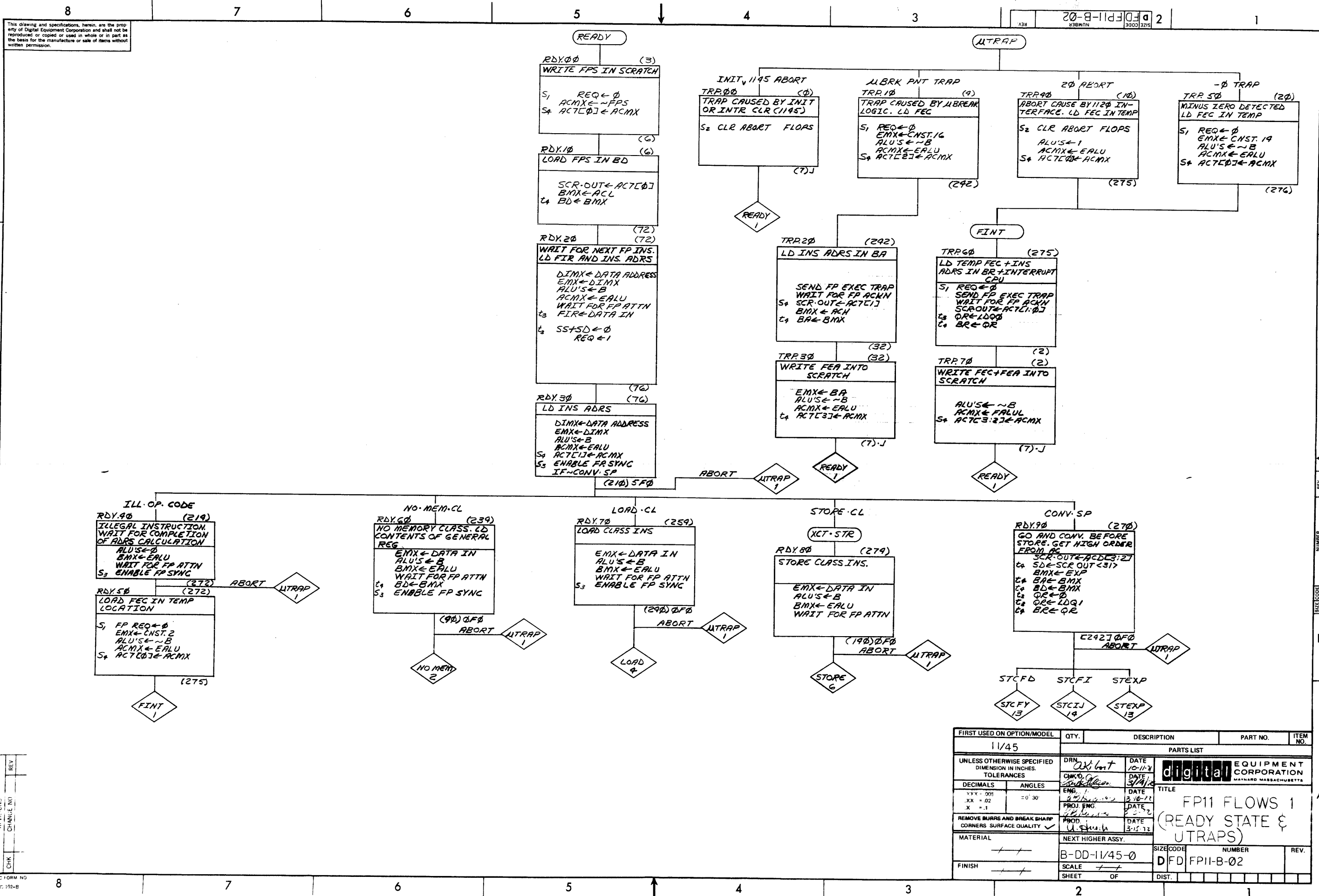
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>alint</i>	DATE 12-2-71	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
DECIMALS	ANGLES	CHKD. <i>[Signature]</i>	DATE 3/1/72	
XXX + .005	± 0° 30'	ENG. <i>[Signature]</i>	DATE 3-10-72	
.XX = .02		PROJ. ENG. <i>[Signature]</i>	DATE 3-10-72	
X = .1		PROD. <i>[Signature]</i>	DATE 3-15-72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		TITLE FP DATA PATHS		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-11/45-0	DFD	FP11-B-01	
	SCALE	SHEET	OF	

REVISIONS

CHK

101-102-B

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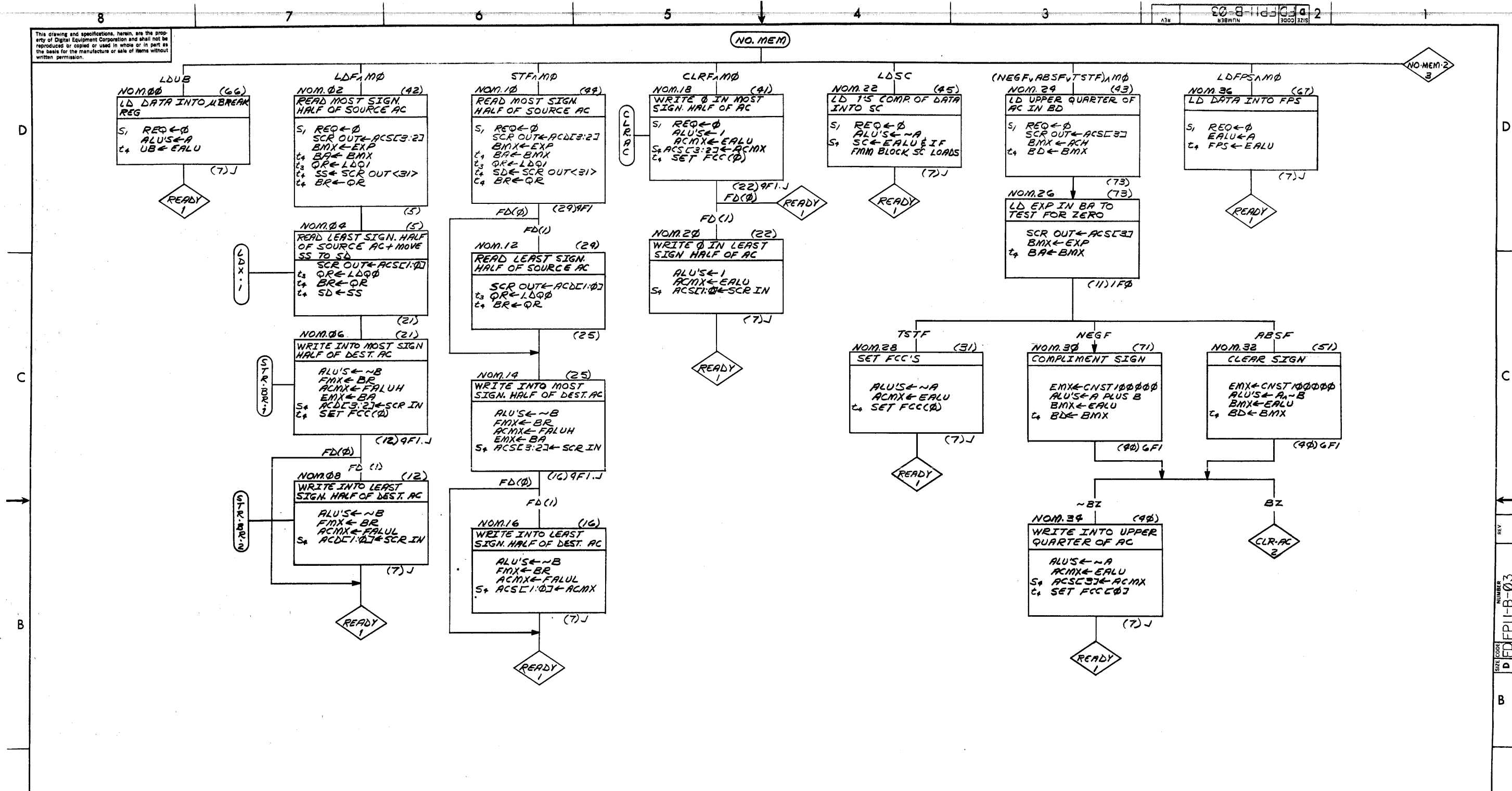


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>OK</i>	DATE 10-11-77	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHKD. <i>OK</i>	DATE 3/14/78	TITLE	
ANGLES	ENG. <i>OK</i>	DATE 3-10-78	FP11 FLOWS 1 (READY STATE & UTRAPS)	
XXX - 005	PROJ. ENG. <i>OK</i>	DATE 2-2-78	SIZE CODE NUMBER REV.	
XX - 02	PROD. <i>OK</i>	DATE 3-15-78	D FD FPII-B-02	
X - .1			SHEET OF	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY			DIST.	
MATERIAL				
FINISH				

REV. NO. \_\_\_\_\_  
 CHANGE NO. \_\_\_\_\_  
 CHK. \_\_\_\_\_

REV. NO. \_\_\_\_\_  
 CHANGE NO. \_\_\_\_\_  
 SIZE CODE NUMBER DFD FPII-B-02

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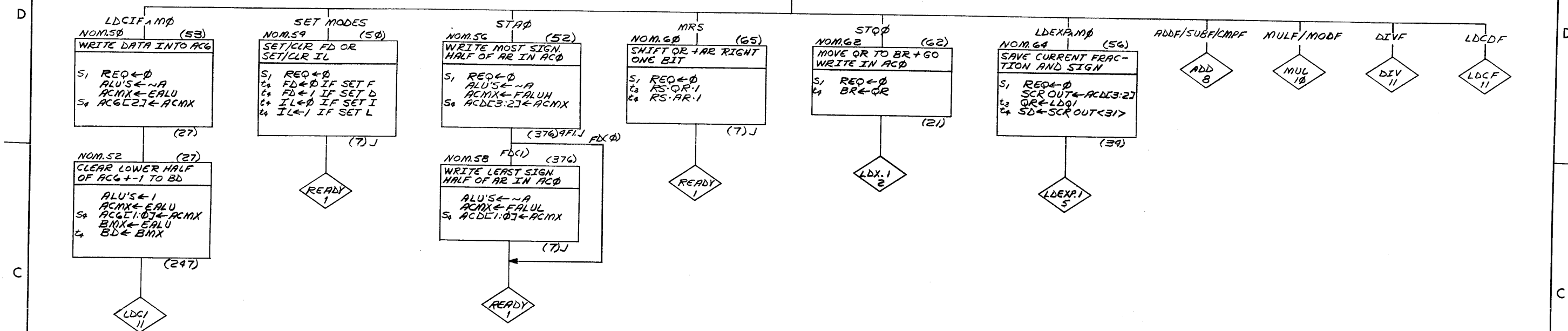


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED, DIMENSION IN INCHES. TOLERANCES	DRN. <i>A. Kibart</i>	DATE 10-12-71	<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX = .005 .XX = .02 .X = .1	CHKD. <i>[Signature]</i>	DATE 1/11/72		
ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 2-10-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. <i>[Signature]</i>	DATE 2-10-72		
MATERIAL	PROD. <i>[Signature]</i>	DATE 3-15-72	TITLE FP11 FLOWS 2 (NO MEM CLASS)	
FINISH	NEXT HIGHER ASSY.		SIZE CODE B-DD-11/45-0	NUMBER DFD FP11-B-03
	SCALE			REV.
	SHEET	OF	DIST.	

REV	CHANGE NO.

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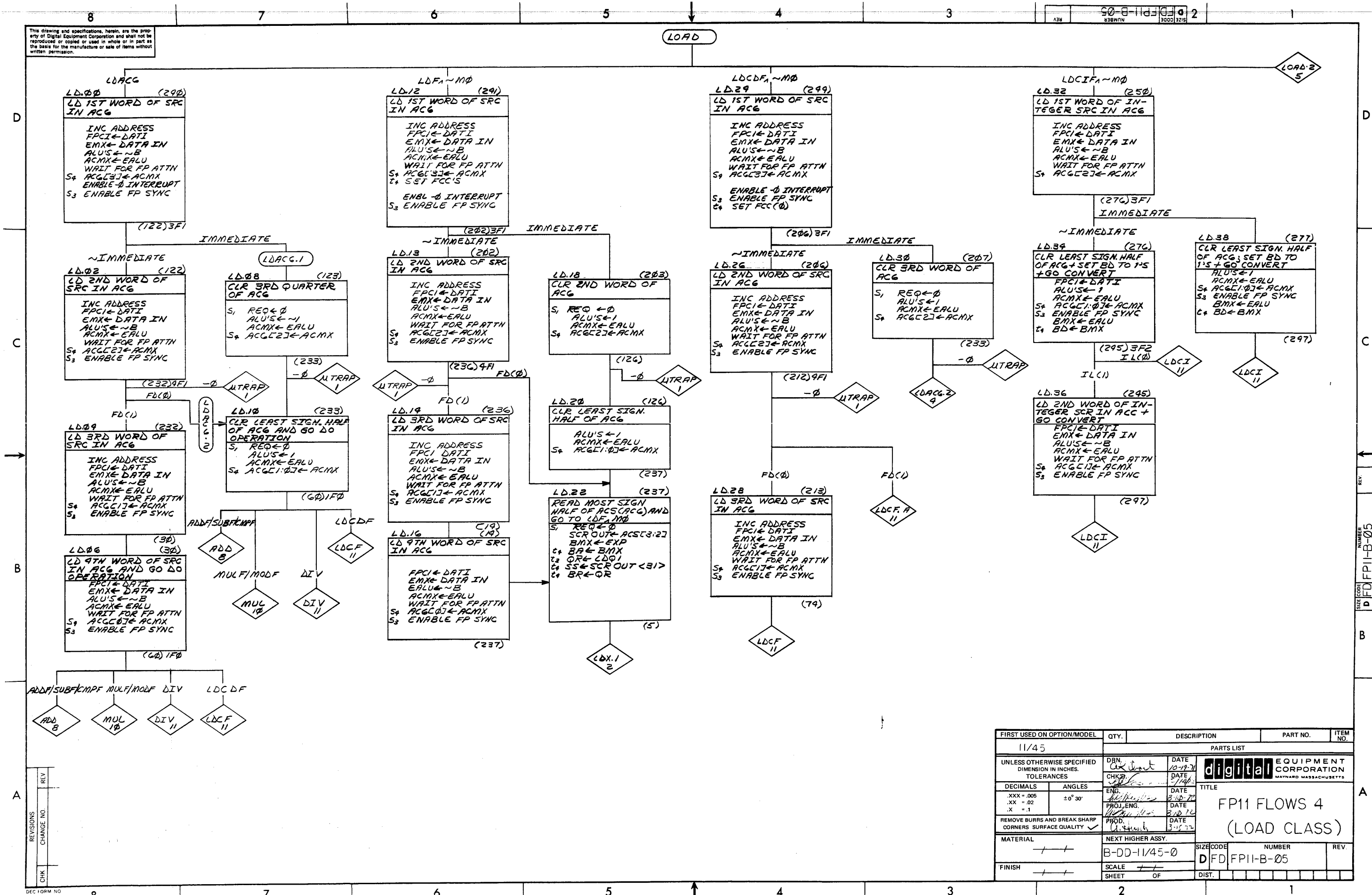
REV. NUMBER  
 2  
 DFD FPII-B-04



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>[Signature]</i>	DATE 10/13/71	<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .005 .XX = .02 X = .1	CHK. <i>[Signature]</i>	DATE 3/14/72		
ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 5/10/72	TITLE FP11 FLOWS 3 (NO MEM CLASS)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. <i>[Signature]</i>	DATE 2/2/72		
MATERIAL	PROD. <i>[Signature]</i>	DATE 2-15-72	NEXT HIGHER ASSY. B-DD-11/45-0	
FINISH				
		SCALE	SIZE CODE DFD	NUMBER FPII-B-04
		SHEET OF	DIST.	REV

DEC FORM NO. DRD 102-B

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REV	NO.
CHK	NO.
CHG	NO.
REV	NO.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>Carroll</i>	DATE 10-19-71	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS  TITLE FP11 FLOWS 4 (LOAD CLASS)	
DECIMALS .XXX = .005 .XX = .02 .X = .1	CHKD. <i>Carroll</i>	DATE 1-14-72		
ANGLES ±0° 30'	ENG. <i>W. Sullivan</i>	DATE 3-10-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>W. Sullivan</i>	DATE 3-10-72		
MATERIAL	NEXT HIGHER ASSY.	PROD. <i>Carroll</i>	DATE 3-16-72	
FINISH	SCALE			
	SHEET OF			
			SIZE CODE	NUMBER
			D F D	FP11-B-05
				REV.

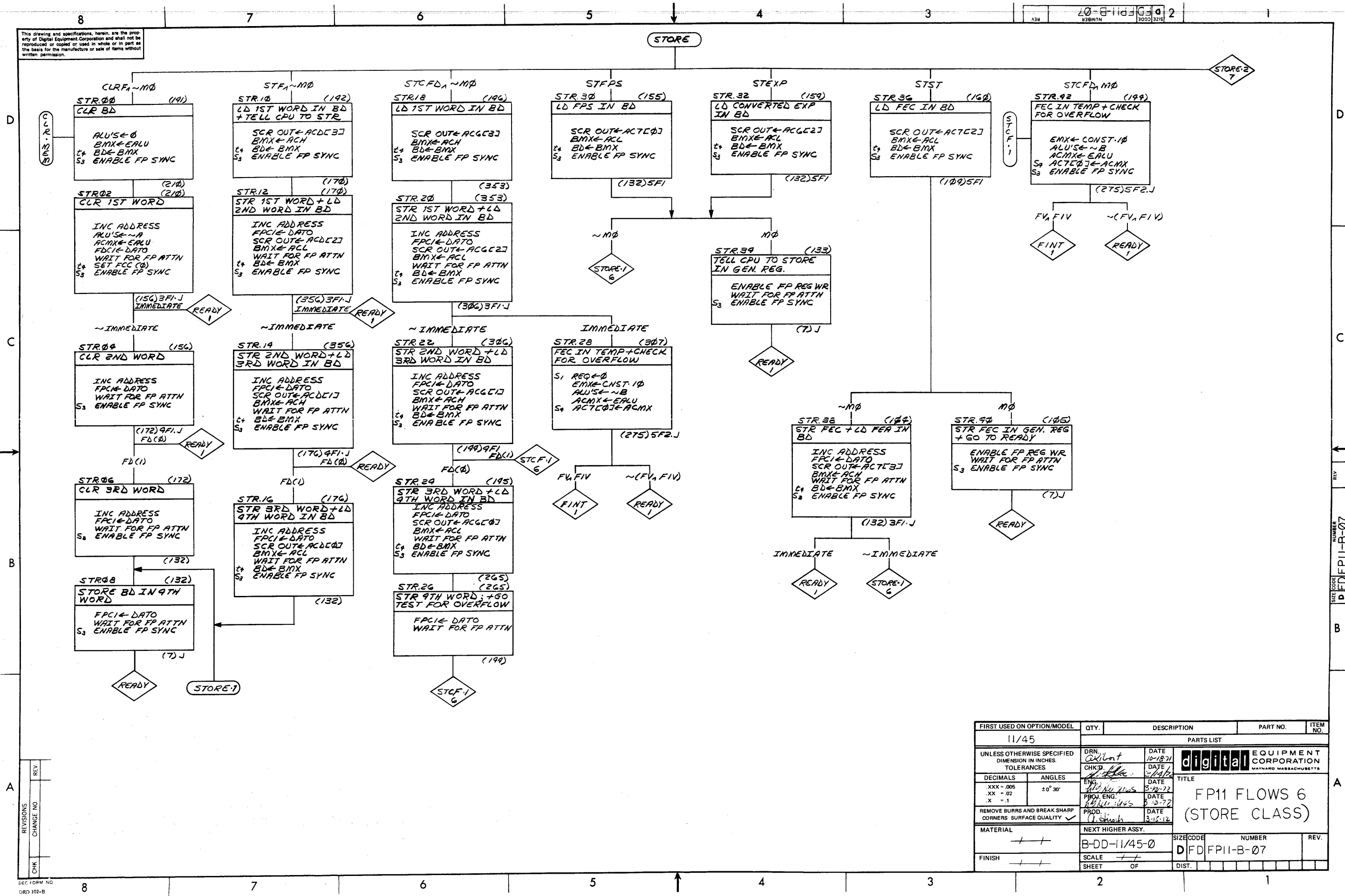
REV. NUMBER 11/45

B

A



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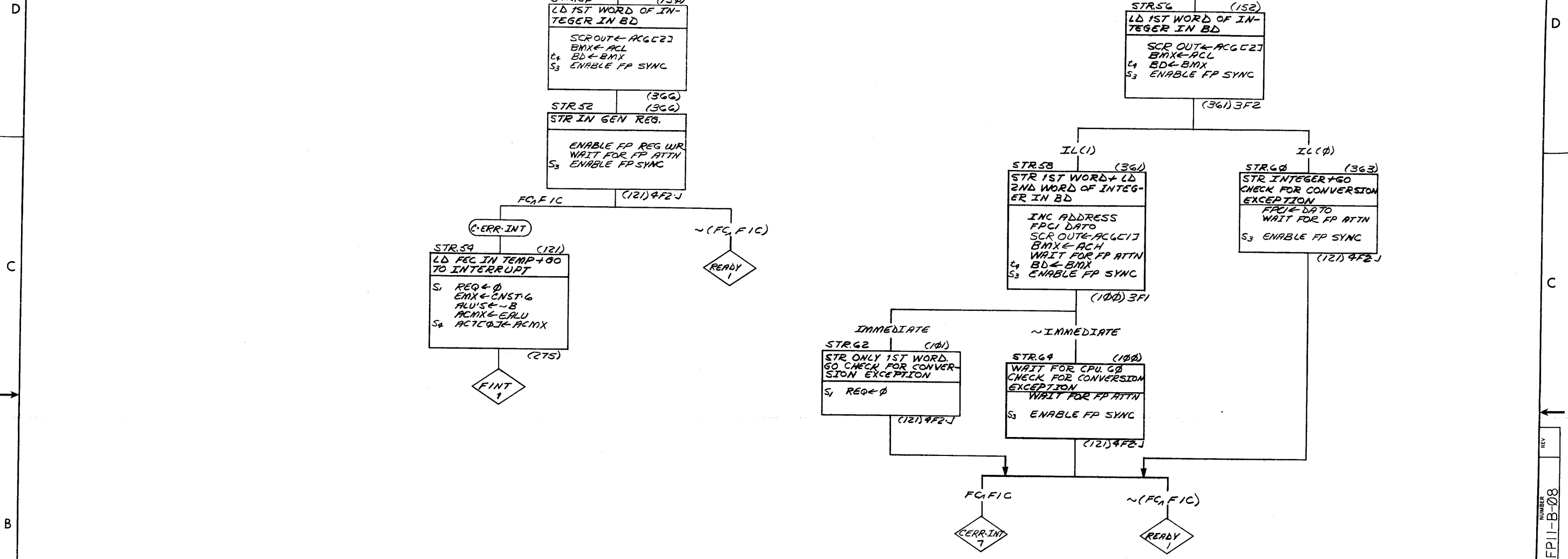
REV	NO
CHG	NO
CHK	NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>ad/ant</i>	DATE 10-18-71	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS ANGLES	CHK'D. <i>ad/ant</i>	DATE 11/16/71		
.xxx = .005 .xx = .02 .x = .1	ENG. <i>ad/ant</i>	DATE 3-10-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>ad/ant</i>	DATE 5-12-72		
MATERIAL	PROD. <i>ad/ant</i>	DATE 3-15-72	TITLE	
FINISH	NEXT HIGHER ASSY.		FP11 FLOWS 6 (STORE CLASS)	
	B-DD-11/45-0	SIZE CODE	NUMBER	REV.
	SCALE	D	DFD	FP11-B-07
	SHEET OF	DIST.		

REV. NO. DFD/FP11-B-07

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REV. NUMBER DFD FPII-B-08



REV.	
CHANGE NO.	
CHK	

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK'D	DATE	TITLE	
ANGLES	ENG.	DATE	FP11 FLOWS 7	
XXX = .005	PROJ. ENG.	DATE	(STORE CLASS)	
.XX = .02	PROD.	DATE		
X = .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓				
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
++	B-DD-11/45-Ø	DFD	FPII-B-Ø8	
FINISH	SCALE	SHEET	OF	DIST.
++	++			

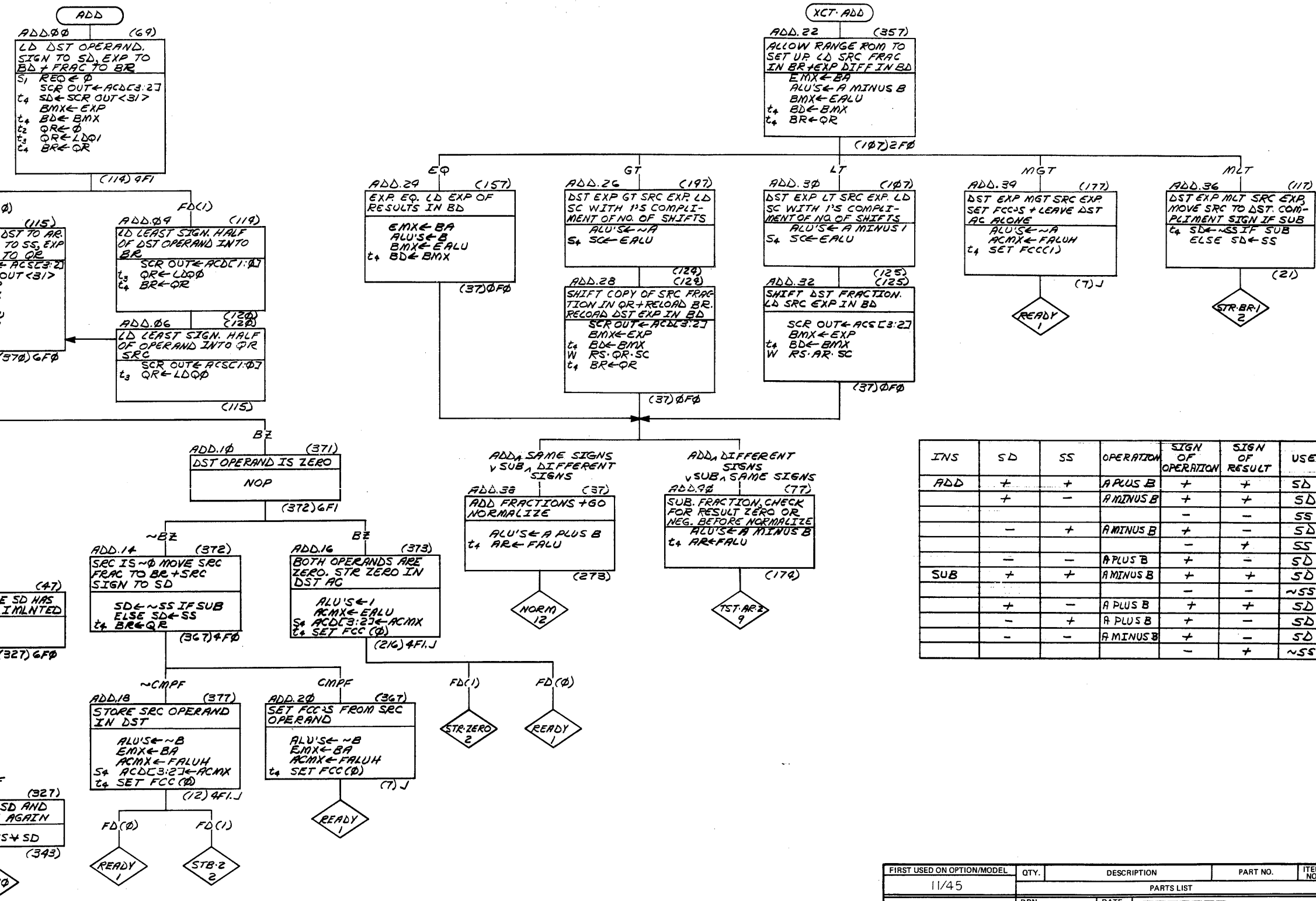
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D

C

B

A

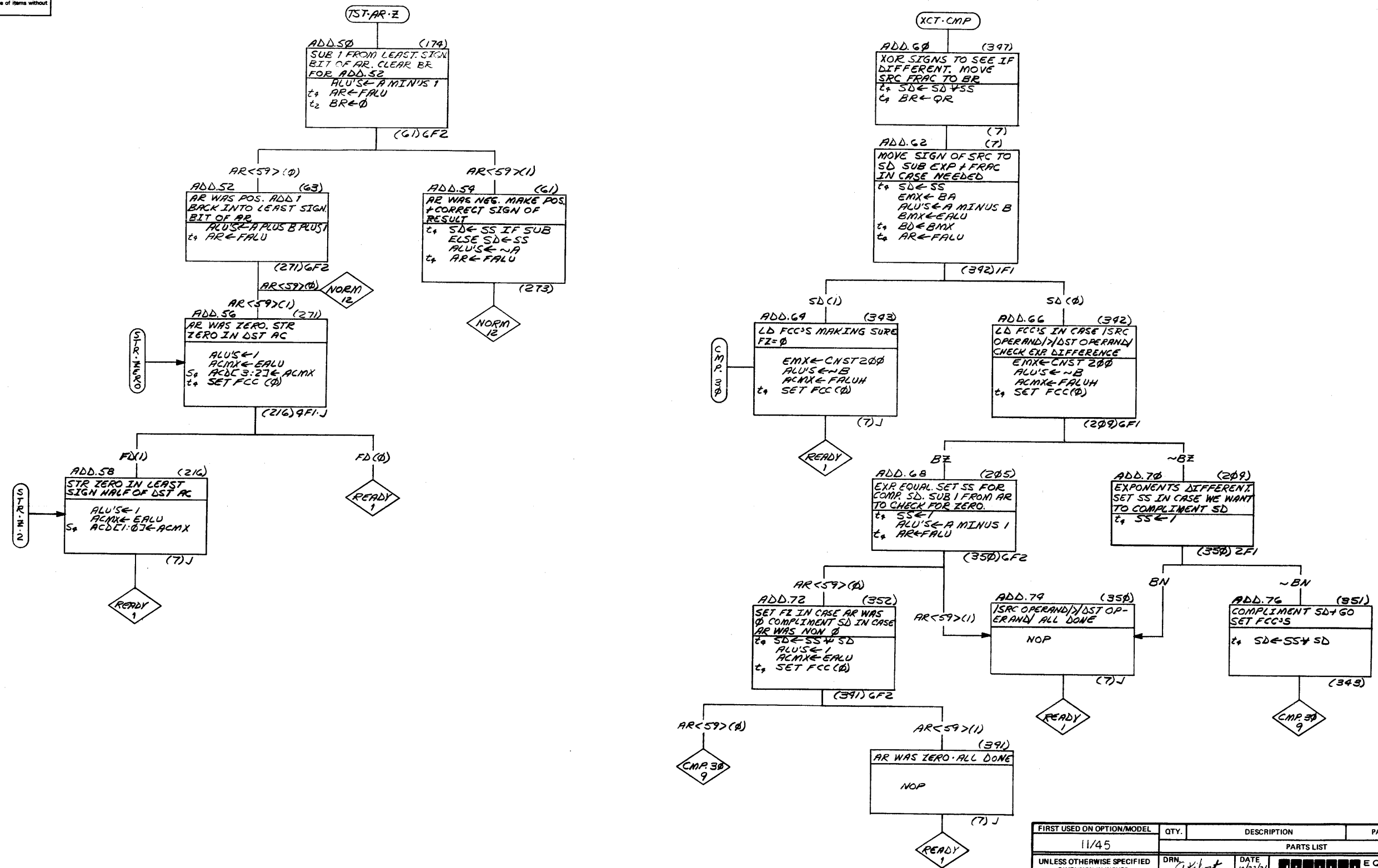


INS	SD	SS	OPERATION	SIGN OF OPERATION	SIGN OF RESULT	USE
ADD	+	+	A PLUS B	+	+	SD
	+	-	A MINUS B	+	+	SD
	-	+	A MINUS B	+	-	SD
	-	-	A PLUS B	+	-	SD
SUB	+	+	A MINUS B	+	+	SD
	+	-	A PLUS B	+	+	SD
	-	+	A PLUS B	+	-	SD
	-	-	A MINUS B	+	-	SD
	-	+		-	+	SS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.																		
11/45																						
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES																						
DECIMALS	ANGLES	TITLE																				
.XXX = .005	± 0° 30'	FP11 FLOWS 8 (EXECUTE ADD, SUB, OR CMP)																				
.XX = .02		PARTS LIST																				
.X = .1		<table border="1"> <tr> <th>DRN</th> <th>DATE</th> <th>DATE</th> </tr> <tr> <td>AKK</td> <td>12/21/71</td> <td></td> </tr> <tr> <td>CHK'D</td> <td></td> <td>5/14/72</td> </tr> <tr> <td>ENG</td> <td></td> <td>5-18-72</td> </tr> <tr> <td>PROJ. ENG.</td> <td></td> <td>6-18-72</td> </tr> <tr> <td>PROD.</td> <td></td> <td>3-15-73</td> </tr> </table>			DRN	DATE	DATE	AKK	12/21/71		CHK'D		5/14/72	ENG		5-18-72	PROJ. ENG.		6-18-72	PROD.		3-15-73
DRN	DATE	DATE																				
AKK	12/21/71																					
CHK'D		5/14/72																				
ENG		5-18-72																				
PROJ. ENG.		6-18-72																				
PROD.		3-15-73																				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY																						
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.																		
+	B-DD-11/45-0	D	FD	FP11-B-09																		
FINISH	SCALE	SHEET	OF	DIST.																		
+																						

REV	CHANGE NO.

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REV.	
CHANGE NO.	
CHK	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN <i>W. H. ...</i>	DATE 10/24/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK'D <i>...</i>	DATE 3/1/72	TITLE FP11 FLOWS 9 (EXECUTE ADD SUB OR CMP)	
ANGLES	ENG. <i>...</i>	DATE 3-9-72	SIZE CODE NUMBER REV. D F D / F P I I - B - 1 0	
XXX = .005 .XX = .02 X = .1	PROJ. ENG. <i>...</i>	DATE 3-2-72	SCALE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>...</i>	DATE 3-15-72	SHEET OF	
MATERIAL	FINISH	NEXT HIGHER ASSY.	DIST.	
++	++	B-DD-11/45-0		

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D

C

B

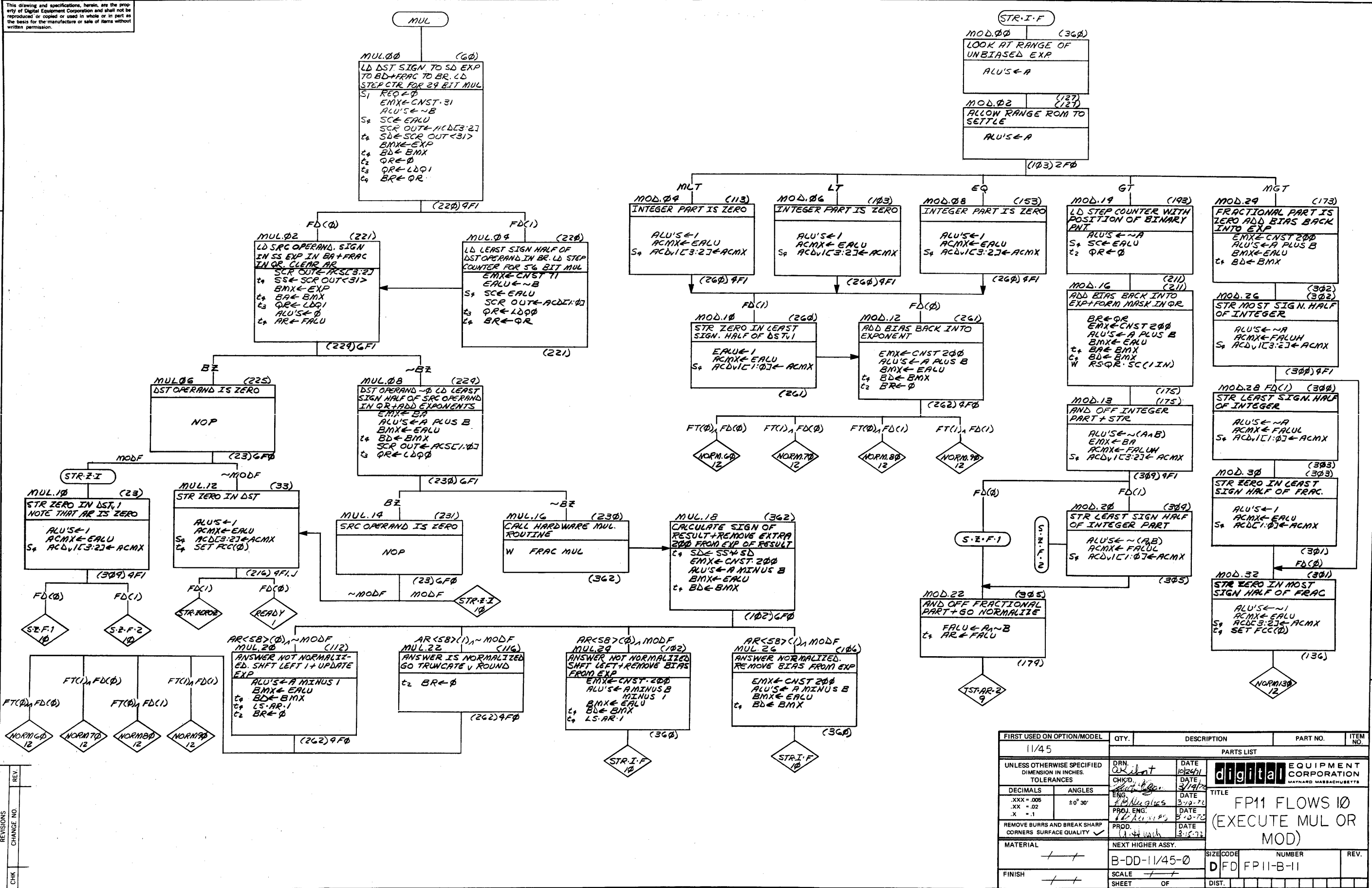
A

D

C

B

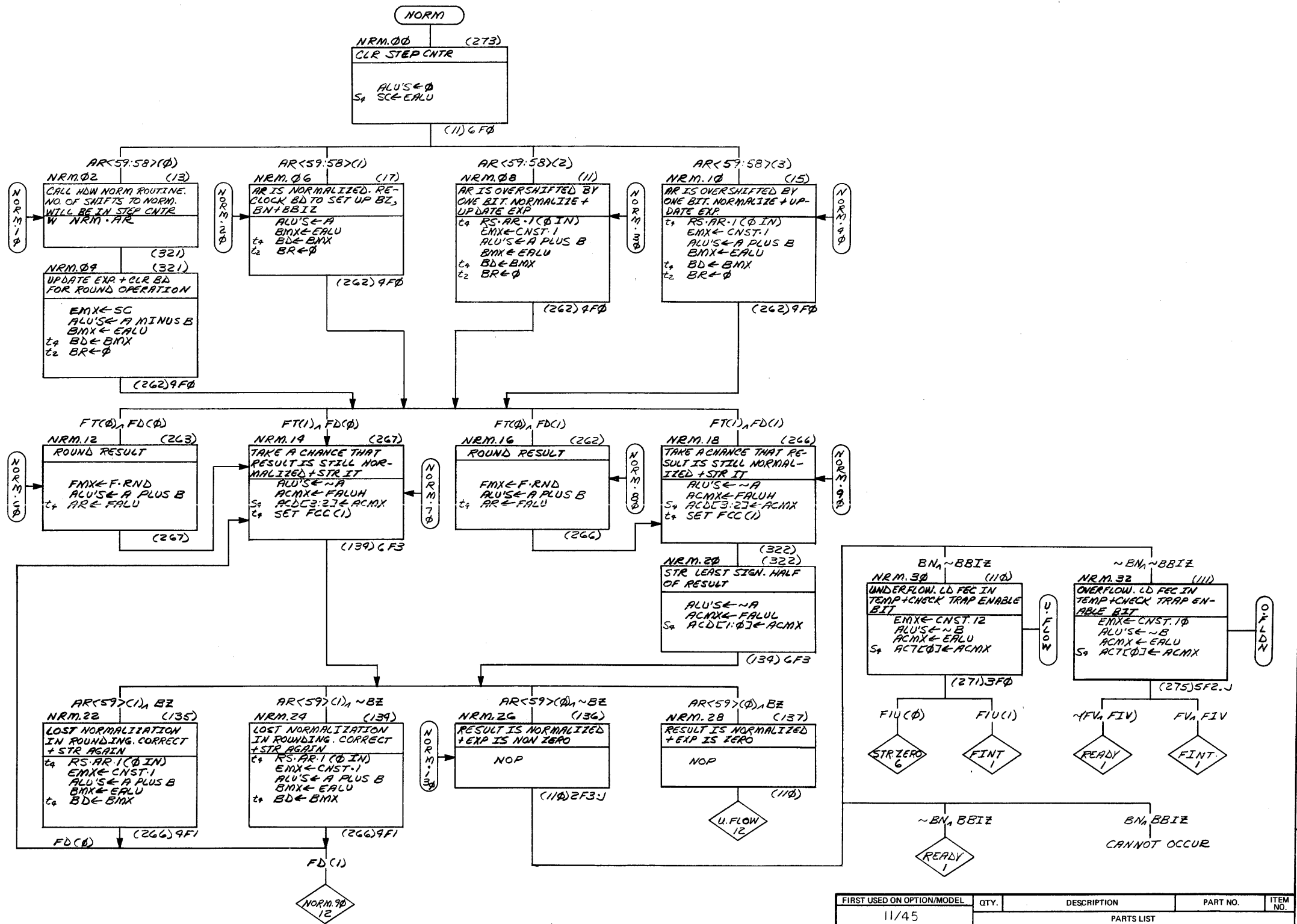
A



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.	DRN <i>OK</i>	DATE 10/24/71	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
TOLERANCES	CHKD. <i>OK</i>	DATE 3/19/72		
DECIMALS .XXX = .005	ENG. <i>OK</i>	DATE 3/19/72	TITLE <b>FP11 FLOWS 10</b> <b>(EXECUTE MUL OR MOD)</b>	
ANGLES 50' 30"	PROJ. ENG. <i>OK</i>	DATE 3/19/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>OK</i>	DATE 3/19/72	MATERIAL B-DD-11/45-0	
FINISH	SCALE	SHEET	OF	DIST.



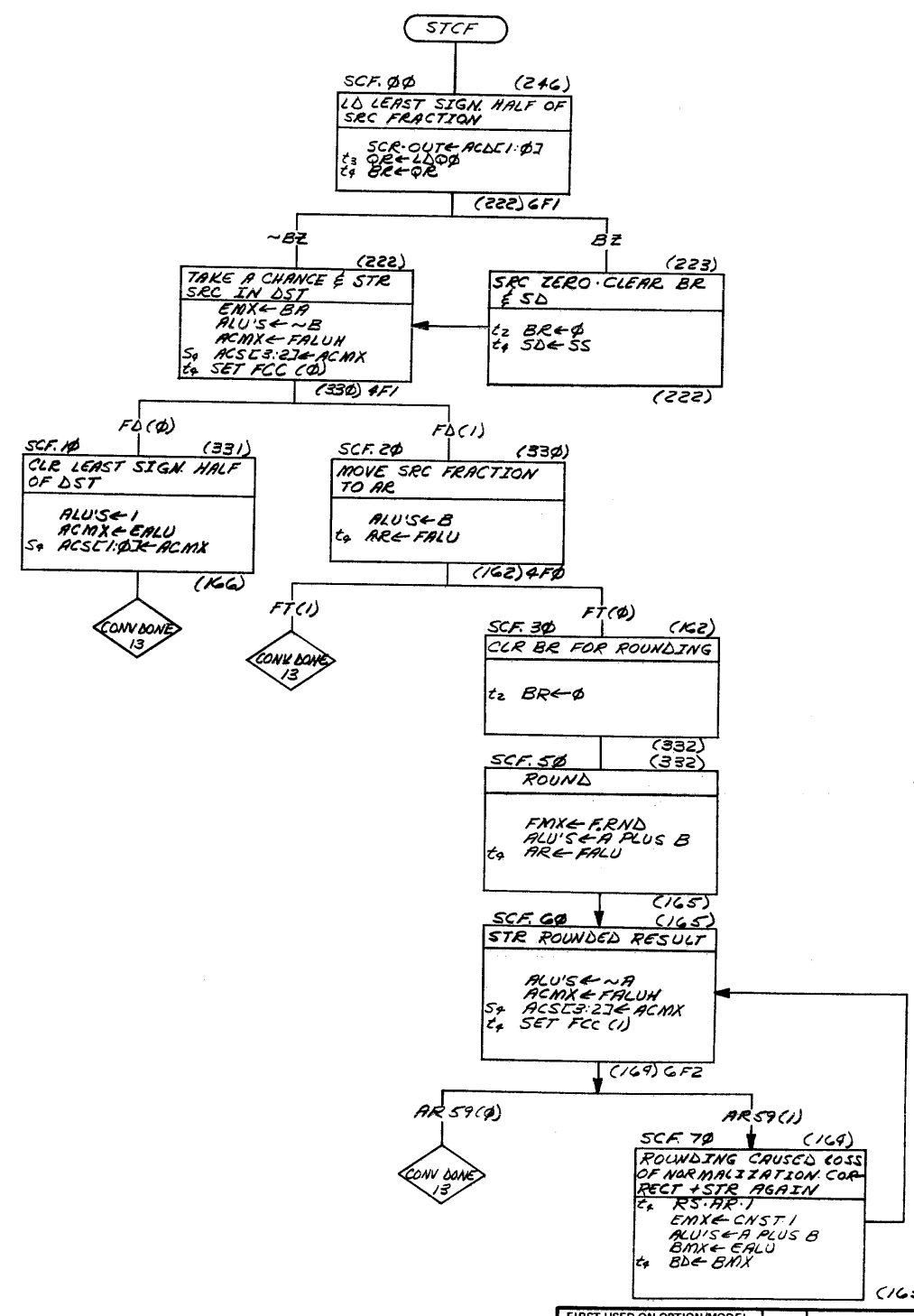
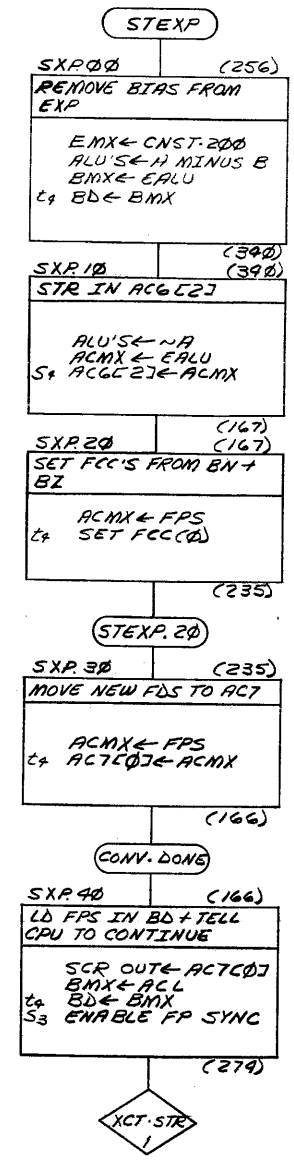
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REV	CHANGE NO.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>Admitt</i>	DATE 10/28/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS ANGLES	CHKD. <i>[Signature]</i>	DATE 3/19/72	TITLE FP11 FLOWS 12 (NORMALIZE & ROUND)	
.XXX = .005 .XX = .02 .X = .1	ENG. <i>[Signature]</i>	DATE 3/19/72	SIZE CODE D F D F P I I - B - 13	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>[Signature]</i>	DATE 3/10/72	NUMBER	
	PROD. <i>[Signature]</i>	DATE 3-15-72	REV.	
MATERIAL	NEXT HIGHER ASSY.	SCALE		
FINISH		SHEET OF		

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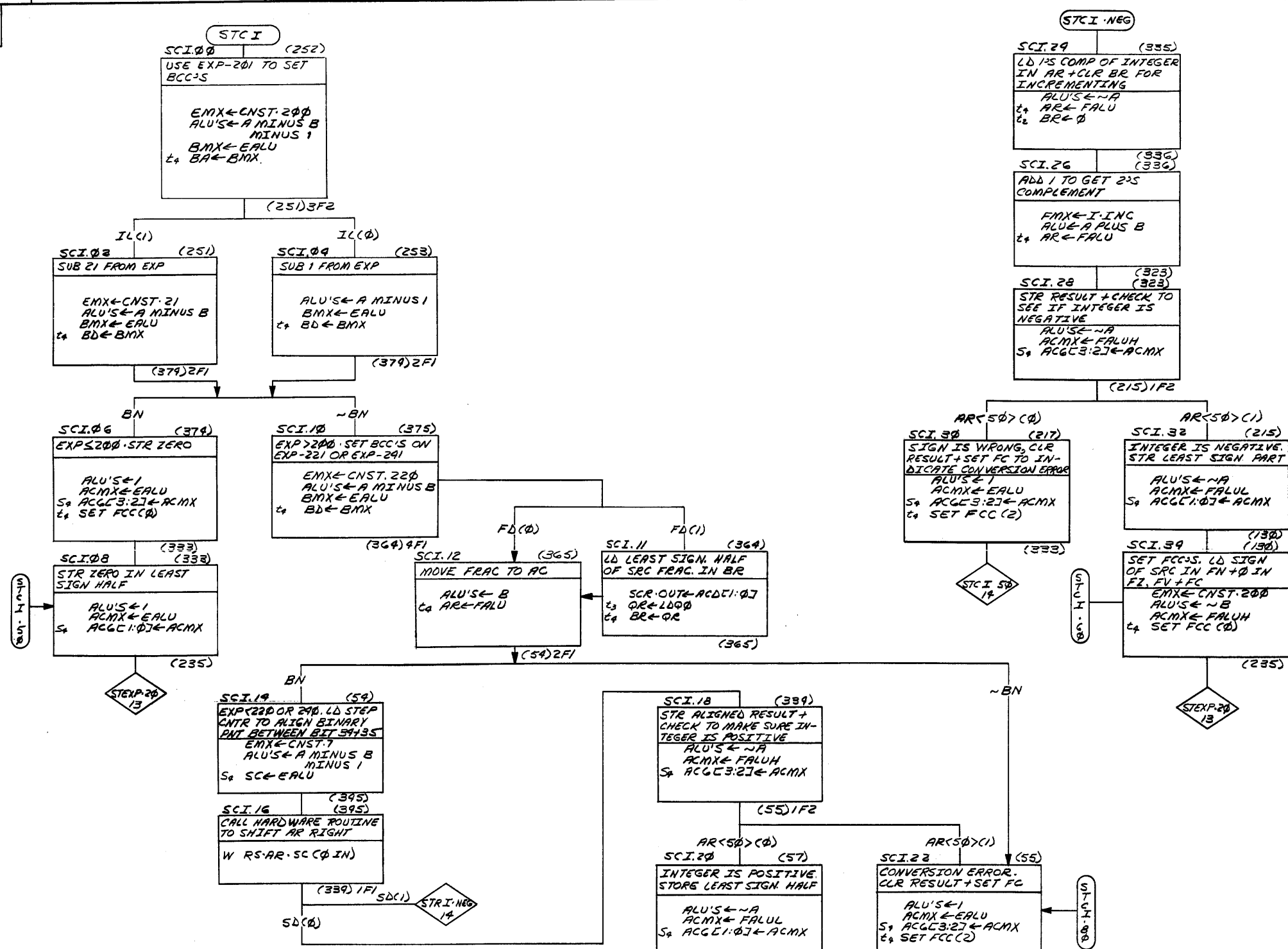


REV	
CHANGE NO	
CHK	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN <i>Okilnt</i> DATE 10-29-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	DATE 3/4/72	TITLE	
XXX = .005		DATE 8-20-72	FP11 FLOWS 13	
XX = .02	±0° 30'	DATE 3-5-73	(EXECUTE STEXP & STCF)	
X = .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE		
MATERIAL	NEXT HIGHER ASSY.	DATE		
FINISH	B-DD-11/45-0	DATE		
	SCALE	DATE		
	SHEET OF	DATE		
	DIST	DATE		

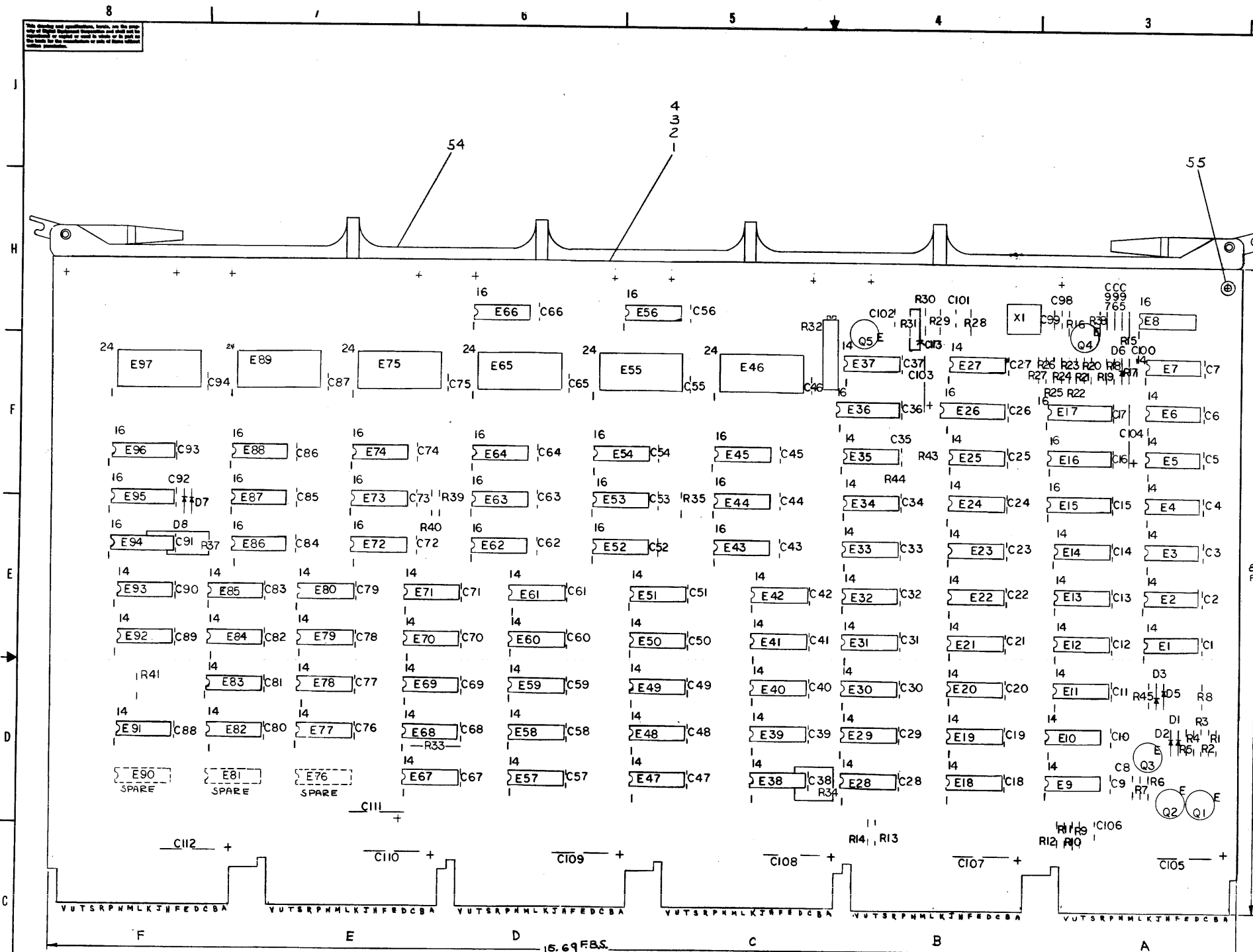
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REV NUMBER SIZE CODE  
 2 15-B-15 DFD



REV	CHANGE NO.

FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN <i>Edlent</i>	DATE 10/24/74	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK'D <i>W.D. Ogan</i>	DATE 3/14/72	TITLE FP11 FLOWS 14 (EXECUTE STCI)	
ANGLES	ENG <i>H.B. Hughes</i>	DATE 2/18/72	SIZE CODE D	
.XXX = .005 .XX = .02 .X = .1	PROJ. ENG. <i>W.D. Ogan</i>	DATE 3/22/72	NUMBER FP11-B-15	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PRD. <i>A. Smith</i>	DATE 3/15/72	REV	
MATERIAL	NEXT HIGHER ASSY.		SCALE	
FINISH	B-DD-11/45-0	SHEET OF		DIST.

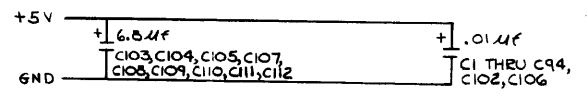


QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
1	E10	IC DEC74574-45	1910950	59
1	C113	CAPACITOR .01UF 100V 5%	1002608	58
1	C101	CAPACITOR 47PF 100V 5%	1000011	57
1	X1	CRYSTAL 20MC	1809880	56
12		EYELET	9006732	55
1		HANDLE MODULE	E-PS-120711-2	54
1	Q1	TRANSISTOR DEC 4258	1505321	53
4	Q2, Q3, Q4, Q5	TRANSISTOR DEC 3009B	1503100	52
1	E24	IC DEC 74565	1910543	51
6	E46, E55, E65, E75, E89, E97	IC DEC 74181	1909982	50
6	E44, E53, E63, E73, E87, E95	IC DEC 74175	1910651	49
12	E43, E45, E52, E54, E62, E64, E72, E74, E86, E88, E94, E96	IC DEC 74194	1910623	48
1	E84	IC DEC 74174	1909667	47
1	E77	IC DEC 74150	1909060	46
3	E61, E80, E85	IC DEC 74140	1905586	45
2	E5, E82	IC DEC 74111	1909267	44
3	E27, E79, E91	IC DEC 74110	1909057	43
1	E78	IC DEC 74104	1909431	42
2	E71, E92	IC DEC 74100	1909056	41
2	E56, E66	IC DEC 74182-1	1910551	40
8	E7, E18, E19, E20, E37, E42, E47, E93	IC DEC 745140	1910546	39
5	E15, E16, E17, E26, E36	IC DEC 745112	1910545	38
8	E25, E28, E33, E39, E41, E68, E69, E9	IC DEC 74574	1910544	37
3	E4, E32, E38	IC DEC 74564	1910542	36
2	E40, E48	IC DEC 74520	1910539	35
6	E1, E11, E22, E30, E35, E49	IC DEC 74511	1910537	34
6	E12, E29, E34, E51, E57, E60	IC DEC 74510	1910536	33
1	E13	IC DEC 74505	1910535	32
9	E3, E14, E21, E31, E50, E58, E59, E67, E83	IC DEC 74500	1910532	31
2	E23, E70	IC DEC 74504	1910534	30
1	E6	IC DEC 7404	199686	29
1	E8	IC DEC 7400	195575	28
4	R33, R35, R37, R41	RESISTOR 100Ω, 1/4W, 5%	1300229	26
1	R32	RESISTOR VARIABLE, 5K, 1/4W	1309143-09	25
4	R1 THRU R4	RESISTOR 1.2K, 1/4W, 5%	1301320	24
5	R8 THRU R12	RESISTOR 1K, 1/4W, 5%	1300365	23
7	R13, R20, R22, R24, R26, R39, R44	RESISTOR 680Ω, 1/4W, 5%	1301424	22
1	E16	RESISTOR 10K, 1/4W, 10%	1300481	21
1	E19	RESISTOR 3.3K, 1/4W, 5%	1300439	20
2	R5, R38	RESISTOR 82Ω, 1/4W, 10%	1300224	19
10	R14, R21, R23, R25, R27, R29, R30, R31, R40, R43	RESISTOR 330Ω, 1/4W, 5%	1300295	18
2	R15, R34	RESISTOR 220Ω, 1/4W, 5%	1300271	17
3	R17, R18, R45	RESISTOR 470Ω, 1/4W, 5%	1300316	16
2	R6, R7	RESISTOR 22Ω, 1/4W, 5%	1301969	15
1	R28	RESISTOR 10Ω, 1/4W, 5%	1301317	14
5	D1, D2, D3, D5, D6	DIODE D662	1100113	13
2	D7, D8	DIODE FD777	1103041	12
1	C98	CAPACITOR 33PF, 00V, 5%	1000009	11
1	C96	CAPACITOR 68PF, 100V, 5%	1000014	10
1	C99	CAPACITOR 10PF, 100V, 5%	1000006	9
9	C103, C104, C105, C07, C08, C09, C10, C11, C12	CAPACITOR 6.8UF, 35V, 20%	1000067	8
96	C1 THRU C94, C102, C106	CAPACITOR .01UF, 100V, 20% DISC	1001610	7
1	C97	CAPACITOR 100PF, 00V, 5% DISC	1000016	6
2	C95, C100	CAPACITOR .047UF, 16V, 5202	1009678	5
1		ETCHED CIRCUIT BOARD	5009863	4
REF		MODULE ECO HISTORY	B-MH-M814-0-4	3
REF		ASSY/DRILLING HOLE LAYOUT	F-AH-M814-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M814-0-4	1

NOTES:  
 1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICO FARADS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD.

AAZ, AV1, CAZ, CV1,  
 BAZ, BV1, DAZ, DV1,  
 EAZ, EV1, FAZ, FV1

ACZ, ANZ, AHI, ATI,  
 BCZ, BHZ, BHI, BTI,  
 CCZ, CNZ, CHI, CTI,  
 DCZ, DNZ, DHI, DTI,  
 ECZ, ENZ, EHI, ETI,  
 FCZ, FNZ, FHI, FTI



IC TYPE	QTY	REF	DESCRIPTION	QTY	REF	DESCRIPTION
DEC 74181	12	Z4				
DEC 74175	6	16				
DEC 74194	6	16				
DEC 745182	6	16				
DEC 745112	6	16				

SEMICONDUCTOR CONVERSION CHART

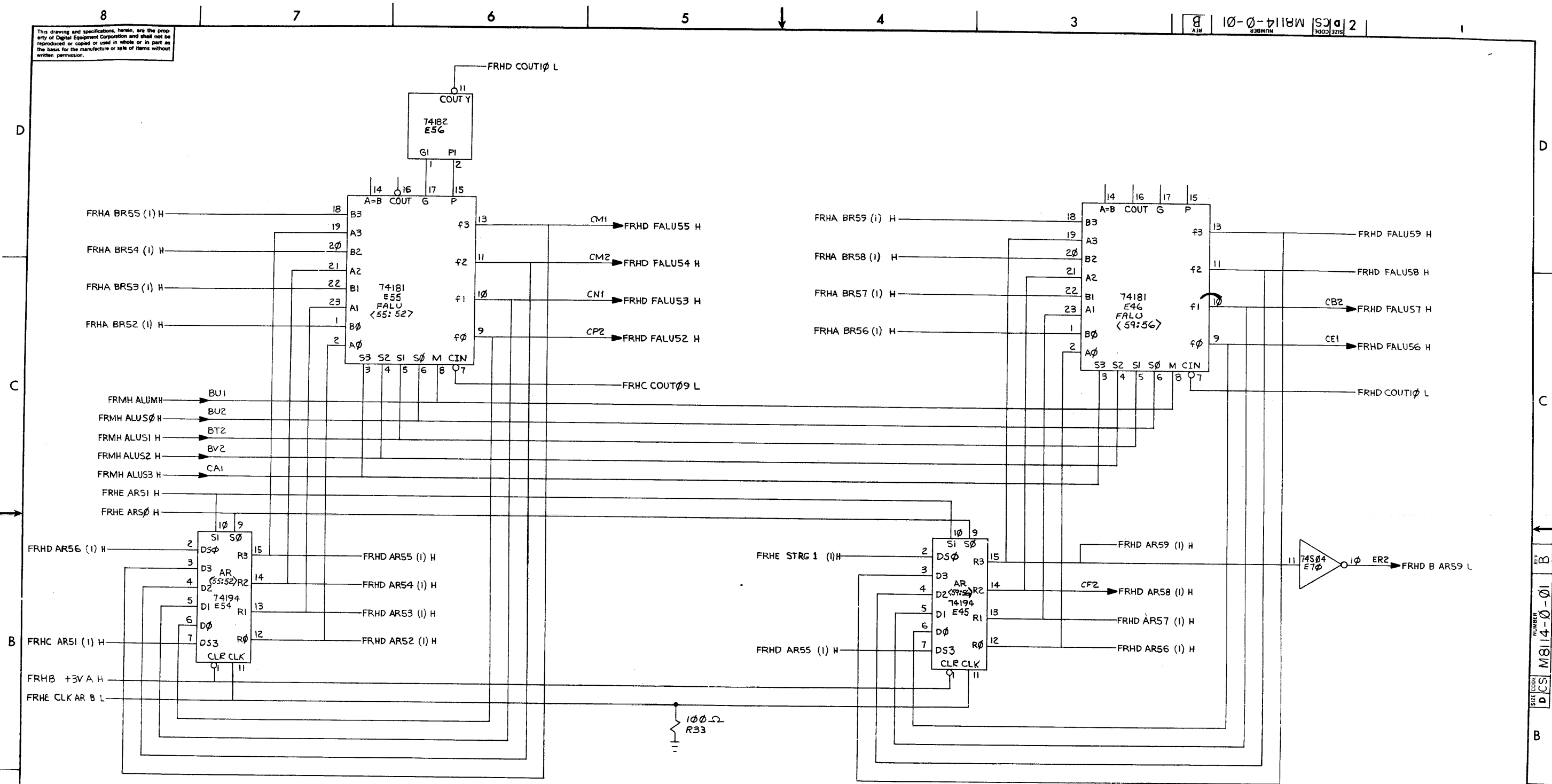
DEC 4258	N.A.
DEC 3009 B	ZN3646
FD 777	SAME
D662	1NG45

EQUIPMENT CORPORATION  
 FRACTION DATA PATH  
 HIGH ORDER

SCALE 2/1  
 SHEET 2 OF 9

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10-0-118W SCS 2



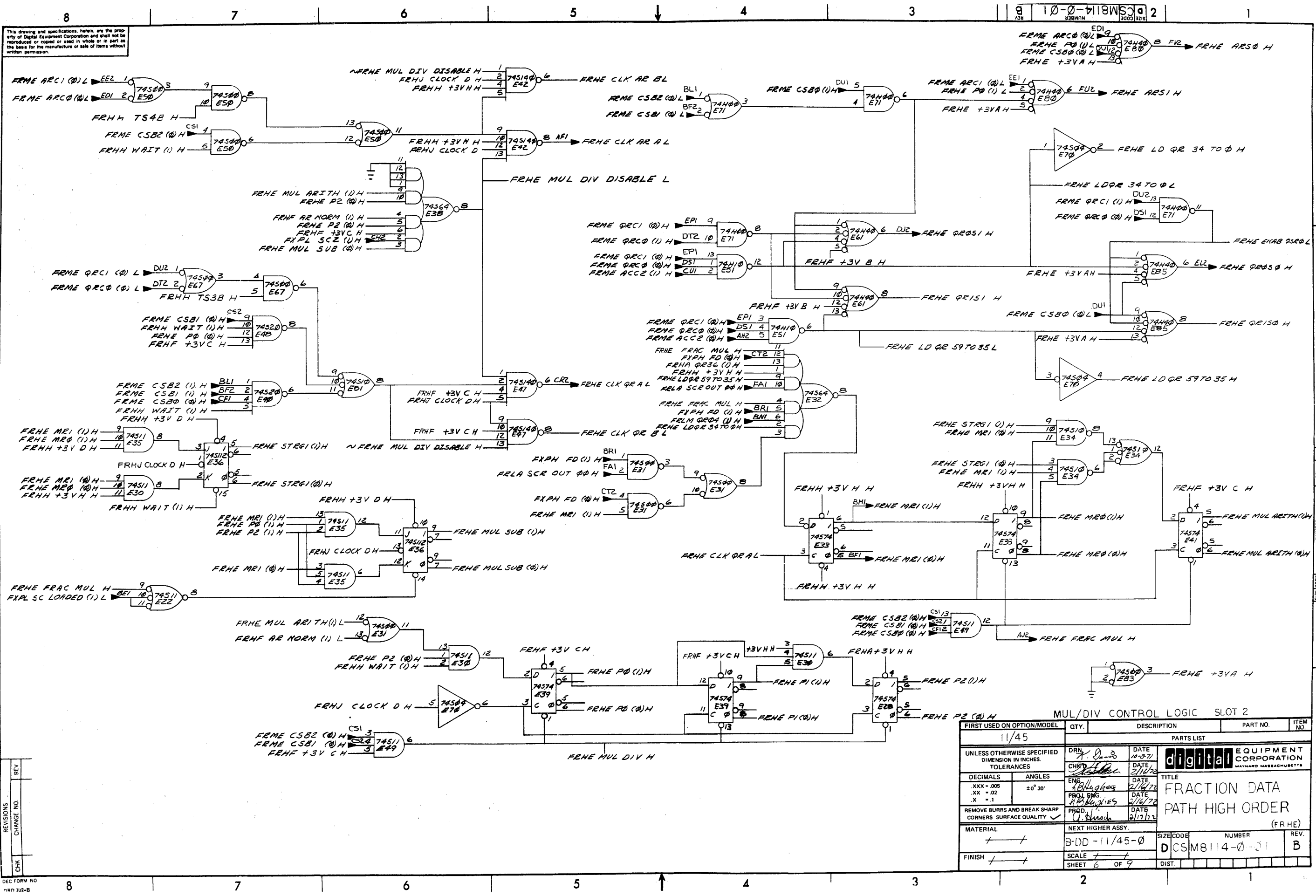
REV	
CHANGE NO	
CHK	

DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		PARTS LIST			
DECIMALS	ANGLES	DRN	DATE	digital EQUIPMENT CORPORATION	
.XXX = .005	± 0° 30'	CHK	DATE	MATTAPAN MASSACHUSETTS	
.XX = .002		ENG	DATE	TITLE	
.X = .001		PROJ. ENG	DATE	FRACTION DATA	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD.	DATE	PATH HIGH ORDER	
MATERIAL	NEXT HIGHER ASSY.			(FRHD)	
FINISH				SIZE CODE	NUMBER
				B-DD-11/45-0	DCS M8114-0-01
				SCALE	REV.
				SHEET 5 OF 9	B
				DIST.	

REV B  
NUMBER  
DCS M8114-0-01

A



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10-0-1145-01 2

FRHE ARCO (0) L  
FRHE ARCO (1) L  
FRHE CSB0 (0) L  
FRHE +3VA H

FRHE ARS0 H  
FRHE ARS1 H  
FRHE +3VA H

FRHE LD QR 34 TO 0 L  
FRHE LD QR 34 TO 0 H  
FRHE QRC1 (1) H  
FRHE QRC0 (0) H

FRHE QRS1 H  
FRHE QRS0 H  
FRHE +3VA H

FRHE QRS1 H  
FRHE QRS0 H  
FRHE +3VA H

FRHE LD QR 59 TO 35 L  
FRHE LD QR 59 TO 35 H  
FRHE +3VA H

FRHE LD QR 59 TO 35 H  
FRHE +3VA H

FRHE STG1 (1) H  
FRHE MRI (0) H  
FRHE STG1 (0) H  
FRHE MRI (1) H

FRHE MRI (1) H  
FRHE MRI (0) H  
FRHE +3V C H

FRHE MRI (1) H  
FRHE MRI (0) H  
FRHE +3V C H

FRHE MUL ARITH (0) H  
FRHE MUL ARITH (1) H  
FRHE +3V C H

FRHE MUL ARITH (0) H  
FRHE MUL ARITH (1) H  
FRHE +3V C H

FRHE MUL ARITH (0) H  
FRHE MUL ARITH (1) H  
FRHE +3V C H

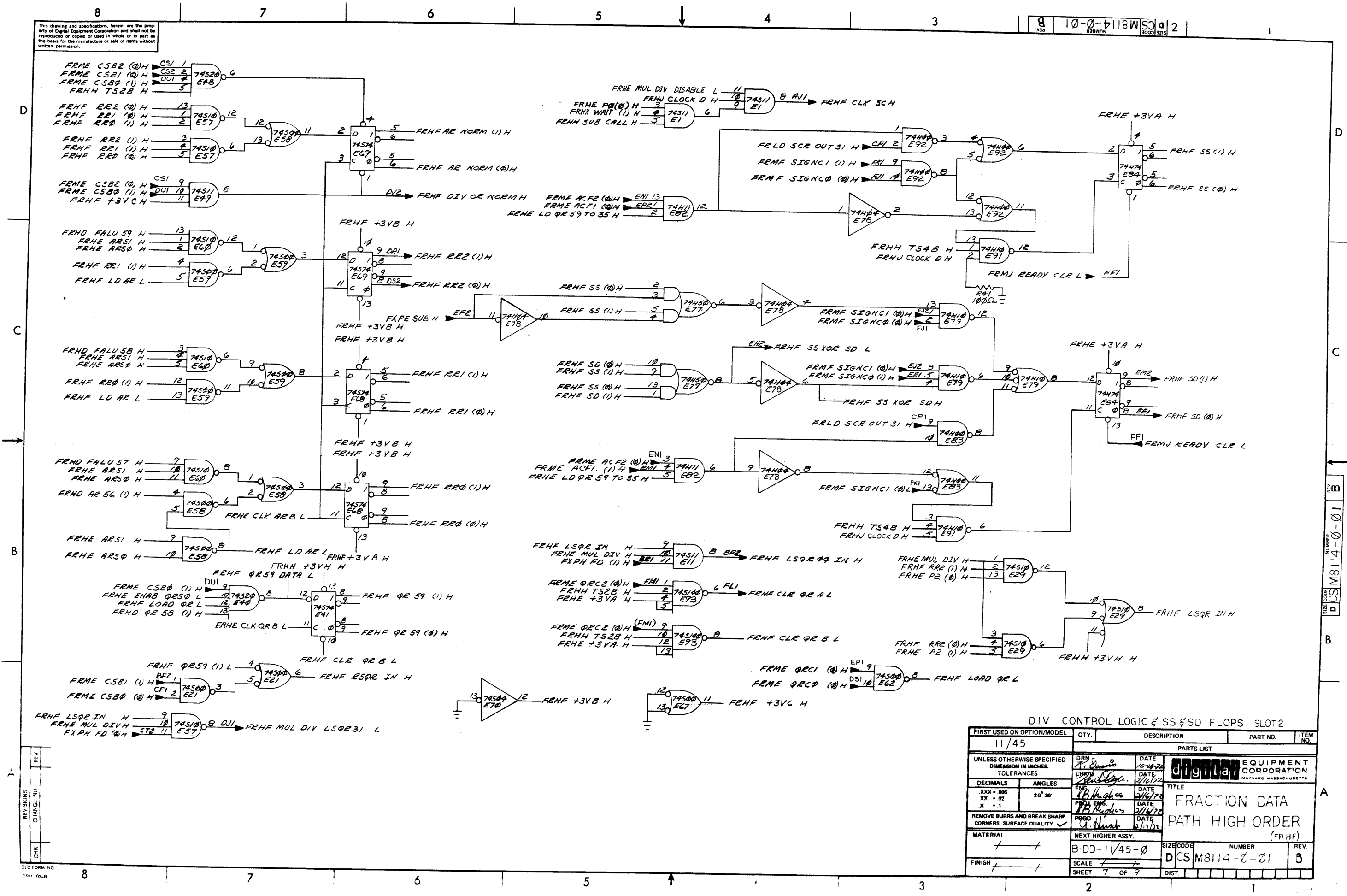
FRHE +3VA H

MUL/DIV CONTROL LOGIC SLOT 2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX = .005	±0° 30'	FRACTION DATA		
.XX = .02		PATH HIGH ORDER		
.X = .1		(FRHE)		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
SCALE		SIZE CODE		REV.
SHEET 6 OF 9		D C S M 8 1 1 4 - 0 - 0 1		B

REV.	CHANGE NO.

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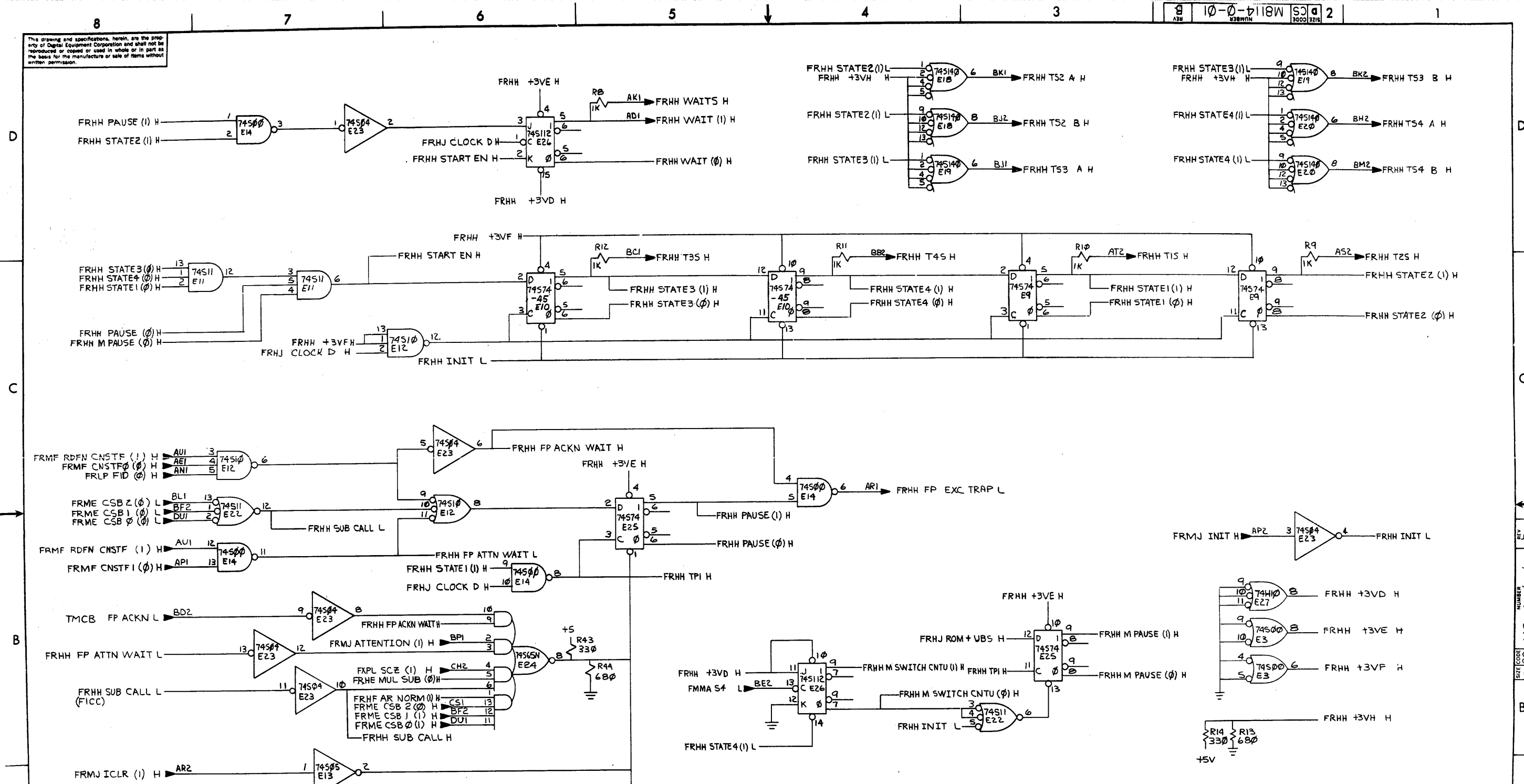
DIV CONTROL LOGIC & SS & SD FLOPS SLOT2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN <i>R. J. ...</i>	DATE 10-18-72	 EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS .XXX ± .005 ANGLES 30° ± 30'	CHKD <i>R. B. Hughes</i>	DATE 2/16/78		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	ENG <i>R. B. Hughes</i>	DATE 2/16/78		
MATERIAL	PRD <i>G. ...</i>	DATE 2/17/78		
FINISH	NEXT HIGHER ASSY.		TITLE <b>FRACTION DATA PATH HIGH ORDER (FRHF)</b>	
	B-DD-11/45-0	SCALE	SIZE CODE D	NUMBER CS M8114-0-01
	SHEET 7 OF 9			REV. B

REV.	CHANGE NO.

DWG FORM NO. 100-107-R

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TIME STATE GENERATOR SLOT 2

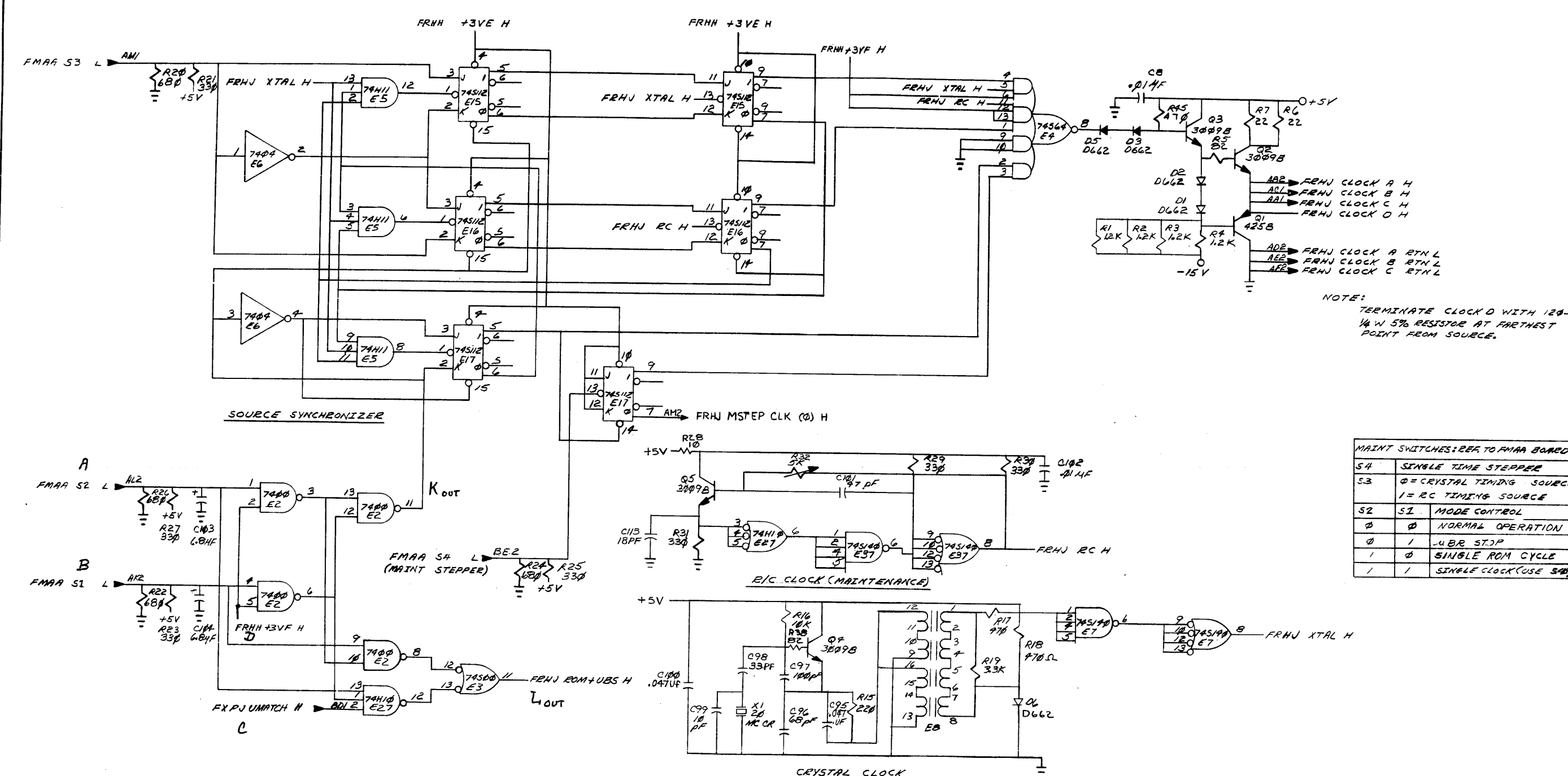
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX = .005	±0° 30'	FRACTION DATA PATH HIGH ORDER (FRHH)		
.XX = .02				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
FINISH				
NEXT HIGHER ASSY.		SIZE CODE	NUMBER	REV.
B DD-11/45-0		D CS	M8114-0-01	B
SCALE		DIST.		
SHEET 8 OF 9				

REV	CHANGE NO.

DEC FORM NO. 8

REV. B  
NUMBER M8114-0-01  
SIZE CODE DCS

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NOTE:  
TERMINATE CLOCK D WITH 120-Ω  
¼ W 5% RESISTOR AT FARTHEST  
POINT FROM SOURCE.

MAINT SWITCHES: REF TO FMAA BOARD

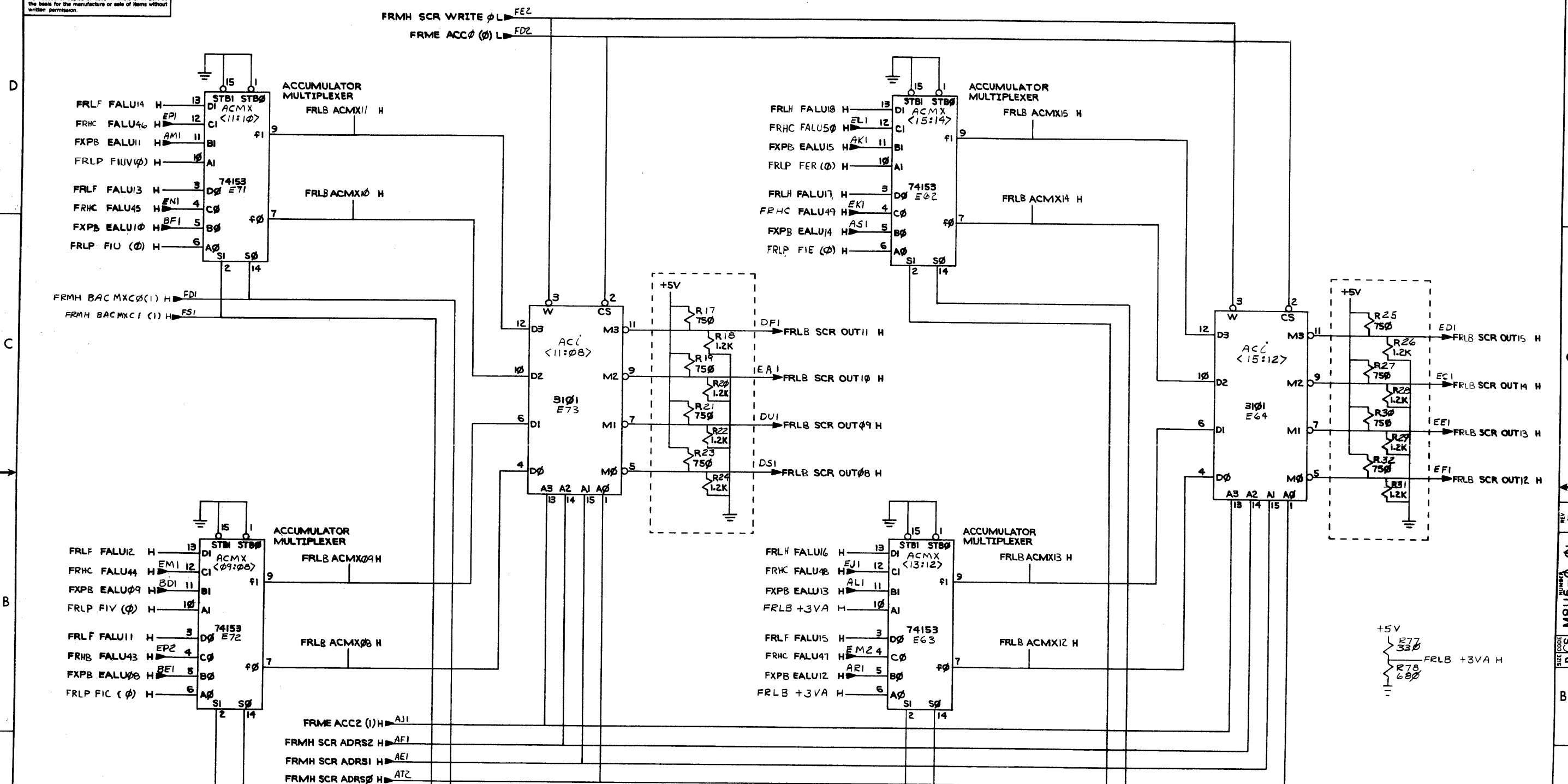
S4	SINGLE TIME STEPPER
S3	0 = CRYSTAL TIMING SOURCE 1 = RC TIMING SOURCE
S2	S1 MODE CONTROL
0	0 NORMAL OPERATION
0	1 CLR STJP
1	0 SINGLE ROM CYCLE
1	1 SINGLE CLOCK (USE S4)

CLOCKS & CLOCK SYNCHRONIZER SLOT 2

FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN A. D. S.	DATE 10-17-77	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX - .005 .XX - .02 .X - .1	ANGLES ±0° 30'	DATE 2/16/78	TITLE FRACTION DATA PATH HIGH ORDER (FRHJ)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. C. N. S.	DATE 2/17/78	NEXT HIGHER ASSY. B-DD-11/45-0	
MATERIAL ++	FINISH ++	SCALE SHEET 9 OF 9	SIZE CODE D	NUMBER CSM8114-0-01
			REV. B	

REV.	
CHANGE NO.	
CHK	

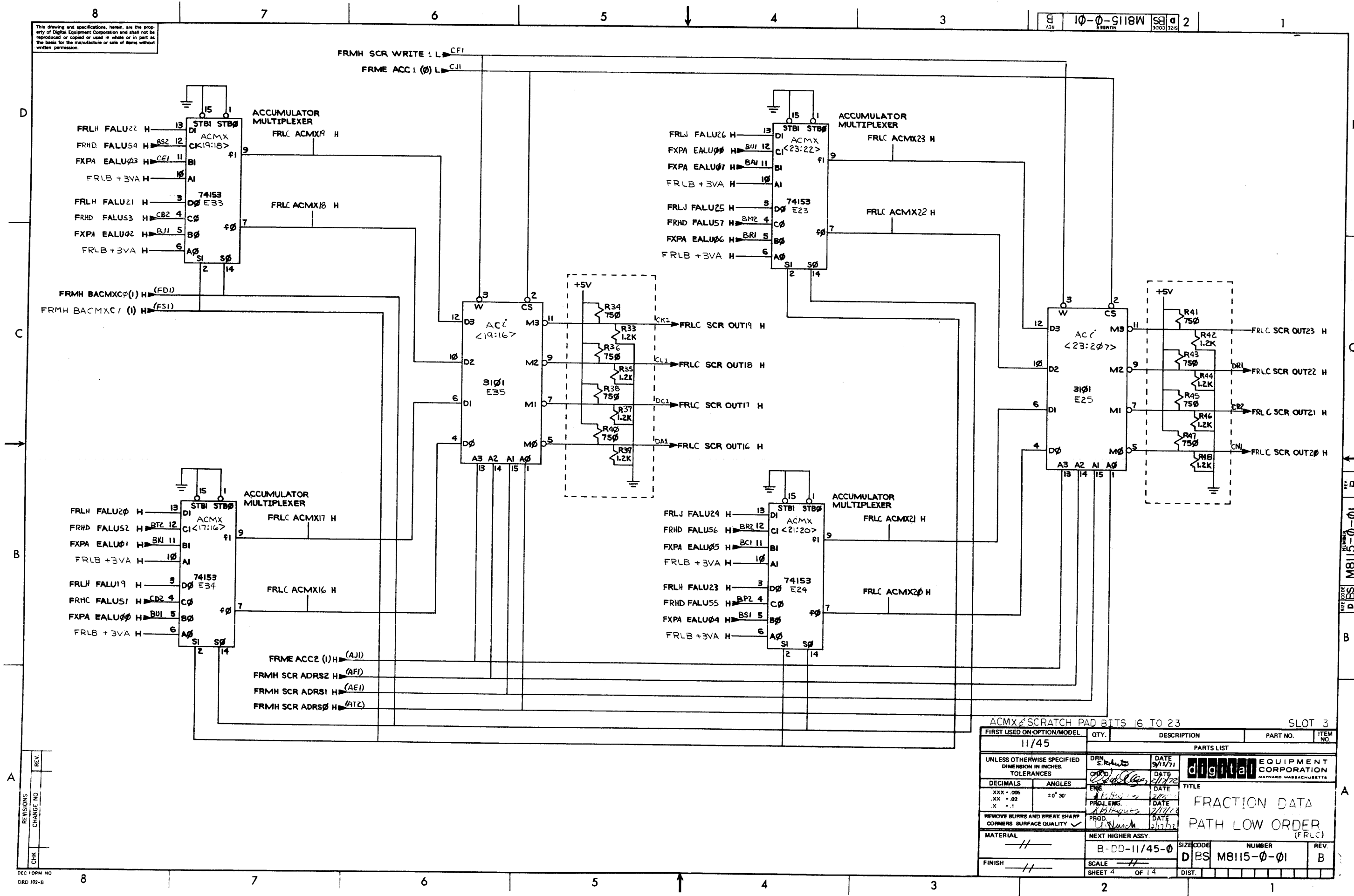
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REV.	
CHK	
CHANGE NO.	

FIRST USED ON OPTION/MODEL 11/45		QTY.	DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES:					
DECIMALS	ANGLES	PARTS LIST			
.XXX = .005	±0° 30'	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
.XX = .02		TITLE FRACTION DATA PATH LOW ORDER (FRLR)			
.X = .1		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓			
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE NUMBER			
FINISH		SCALE			
		SHEET 3 OF 14			
		DICS M8115-0-01			
		REV. B			

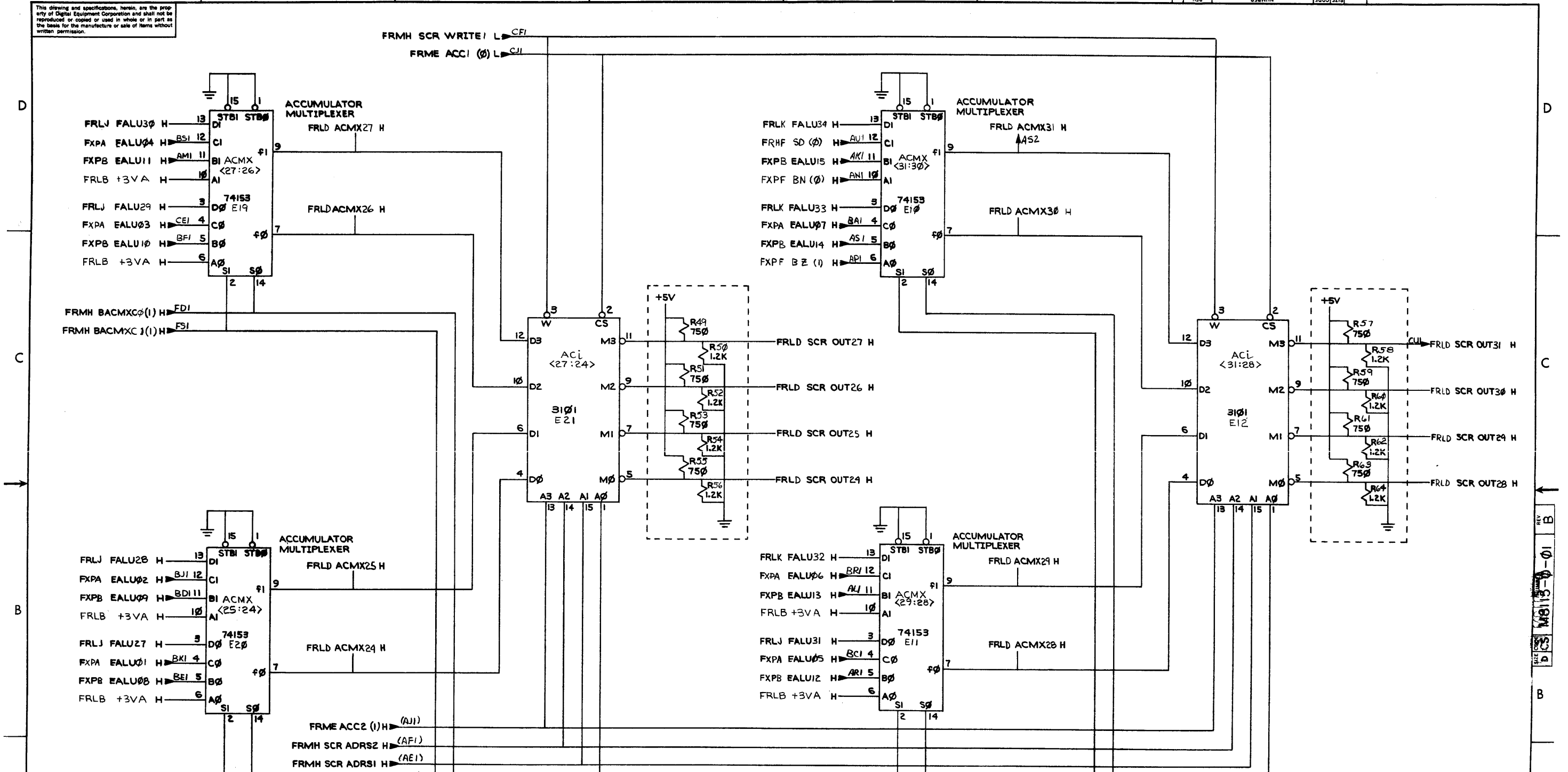
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FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES					
DECIMALS	ANGLES	PARTS LIST			
.XXX - .005	±0° 30'	DRN	DATE	digital EQUIPMENT CORPORATION	
.XX - .02		CHKD	DATE	MAYNARD, MASSACHUSETTS	
.X - .1		ENG	DATE	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROL ENG.	DATE	FRACTION DATA	
		PROD	DATE	PATH LOW ORDER	
		NEXT HIGHER ASSY.		(FRLC)	
MATERIAL		B-DD-11/45-0		SIZE CODE	NUMBER
FINISH		SCALE		D BS	M8115-0-01
		SHEET 4 OF 14		DIST.	REV B

REVISIONS	REV
CHANGE NO.	
CHK	

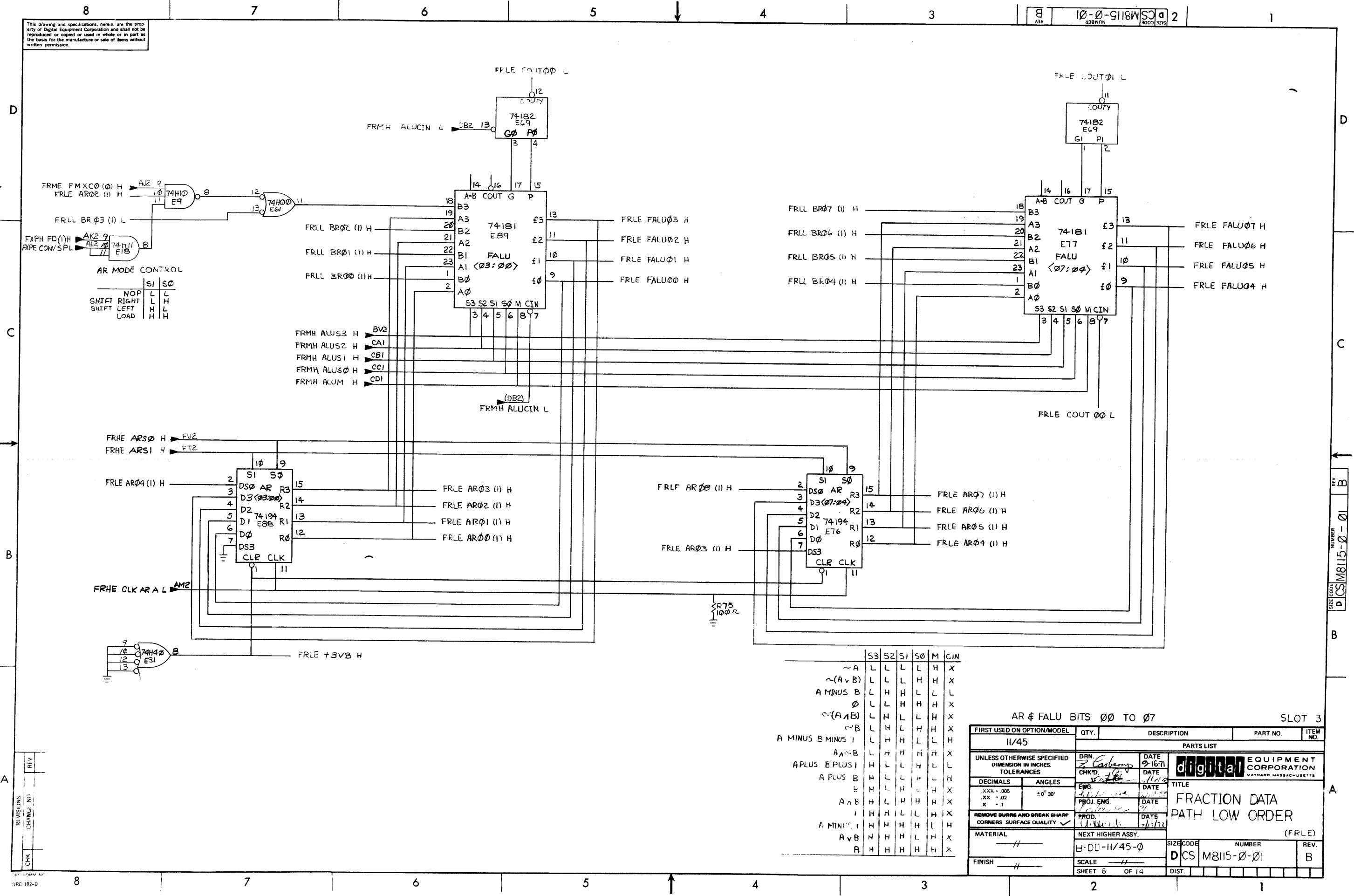
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REVISIONS	REV
CHANGE NO.	
CHK	

ACMX AND SCRATCH PAD BITS 24 TO 31		SLOT 3	
FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO. ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN S. <i>S. R. Lewis</i>	DATE 9/13/71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS .XXX = .005 .XX = .02 .X = .1	ENG <i>R.B. Hughes</i>	DATE 2/17/72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>R.B. Hughes</i>	DATE 2/17/72	TITLE FRACTION DATA PATH LOW ORDER (FRLD)
MATERIAL //	NEXT HIGHER ASSY.	SIZE CODE B-DD-11/45-0	NUMBER D CS M8115-0-01
FINISH //	SCALE SHEET 5 OF 14	DIST.	REV. B

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AR MODE CONTROL

	SI	S0
NOP	L	L
SHIFT RIGHT	L	H
SHIFT LEFT	H	L
LOAD	H	H

	S3	S2	S1	S0	M	CIN
~A	L	L	L	L	H	X
~(A v B)	L	L	L	H	H	X
A MINUS B	L	H	H	L	L	L
0	L	L	H	H	H	X
~(A ^ B)	L	H	L	L	H	X
~B	L	H	L	H	H	X
A MINUS B MINUS 1	L	H	H	L	L	H
A ^ B	L	H	H	H	H	X
A PLUS B PLUS 1	H	L	L	H	L	L
A PLUS B	H	L	L	H	L	H
0	H	L	H	H	H	X
A ^ B	H	L	H	H	H	X
1	H	H	L	L	L	H
A MINUS 1	H	H	H	H	L	H
A v B	H	H	H	L	H	X
A	H	H	H	H	H	X

AR & FALU BITS 00 TO 07 SLOT 3

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				

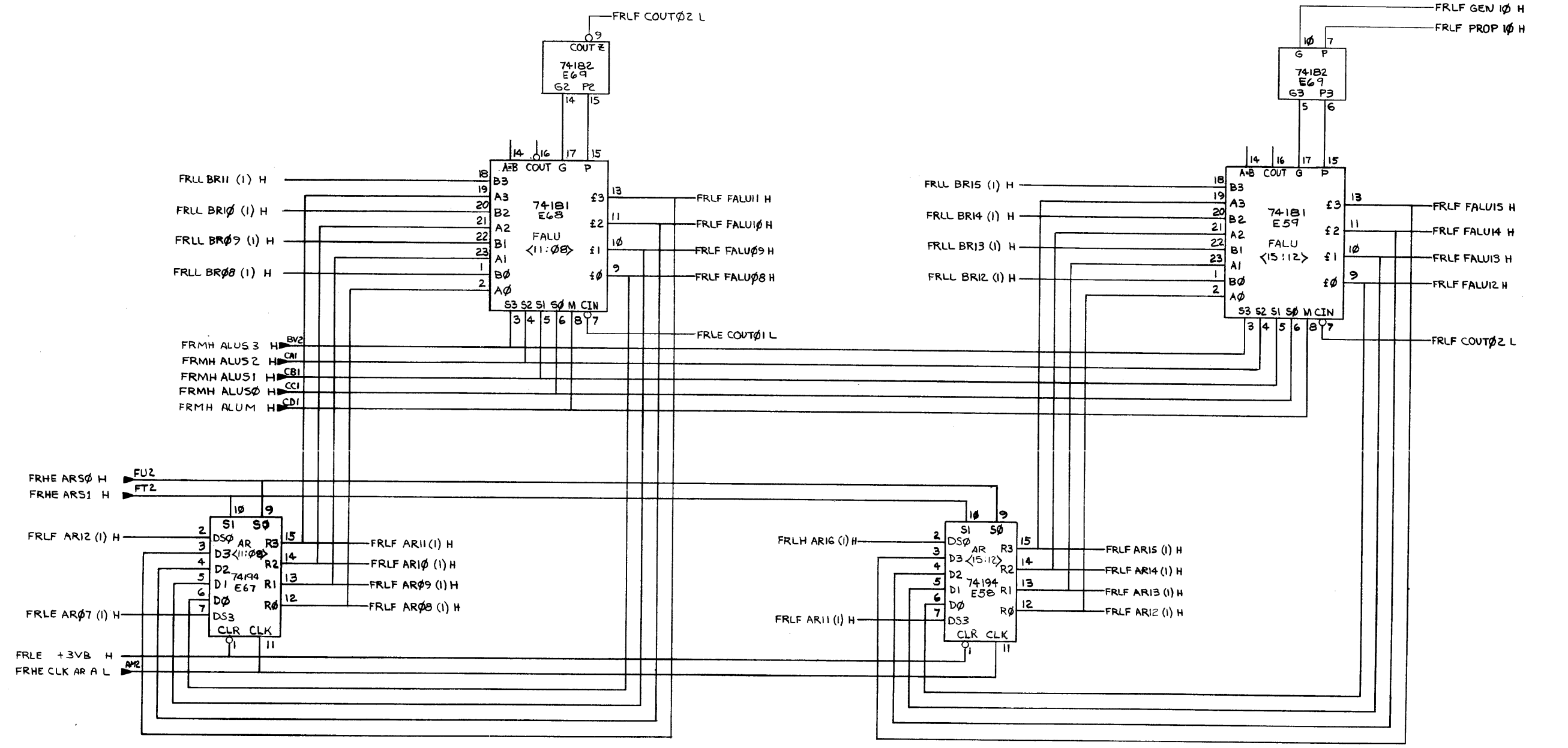
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN 2/16/71	DATE 2-16-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS .XXX = .005 .XX = .02 X = .1	CHK'D 11/73	DATE 11/73	
ANGLES = 0° 30'	ENG. 11/73	DATE 11/73	TITLE FRACTION DATA PATH LOW ORDER
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. 11/73	DATE 11/73	(FRLE)
MATERIAL	NEXT HIGHER ASSY.		
FINISH	B-DD-11/45-0	SCALE	SIZE CODE DCS M8115-0-01
	SHEET 6 OF 14	DIST.	NUMBER M8115-0-01
			REV. B

REV	
CHG	
REV	
CHG	

REV B  
NUMBER DCS M8115-0-01

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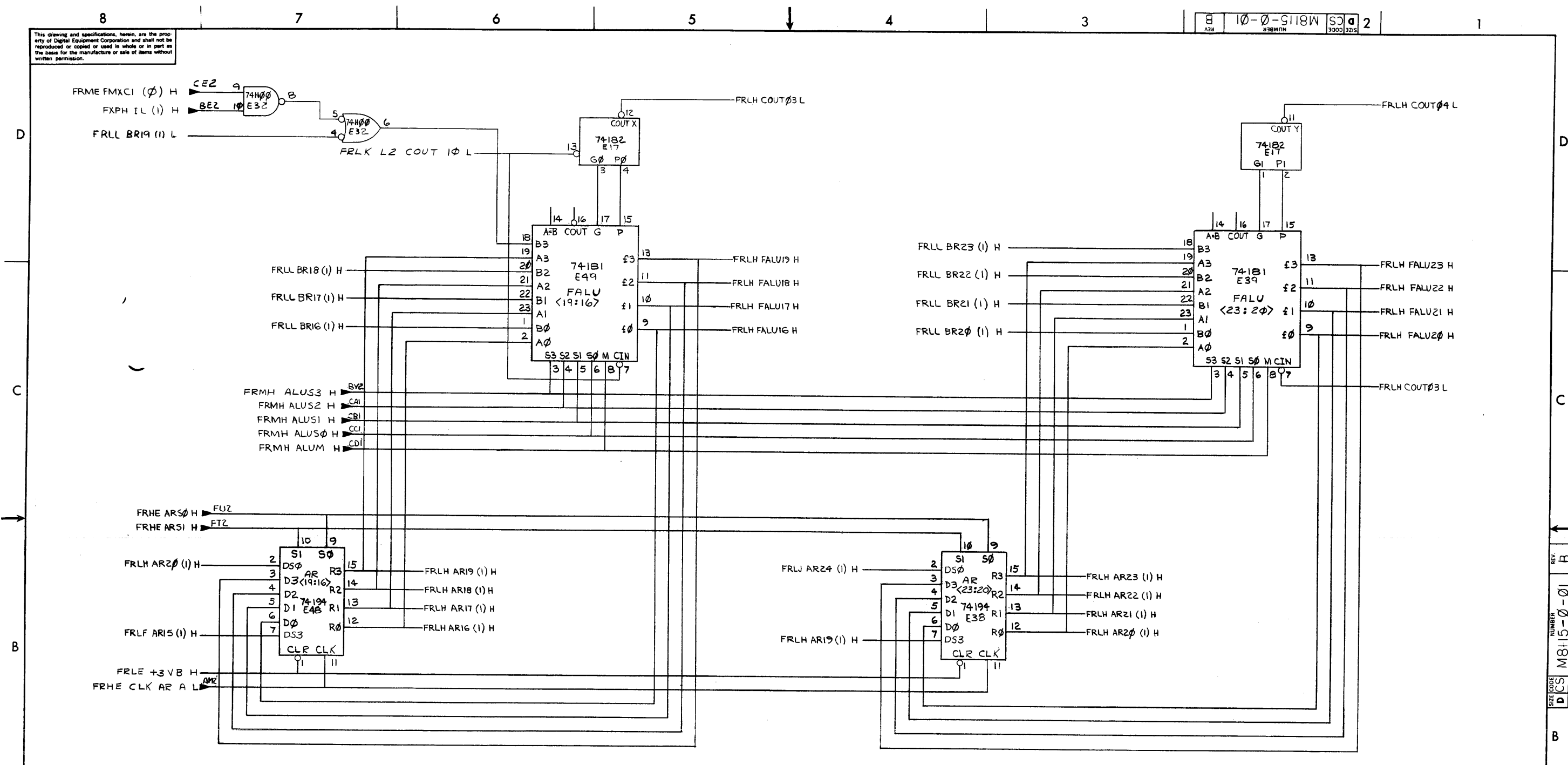
REV	
CHANGE NO.	
CHK	

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES					
DECIMALS	ANGLES	TITLE			
.XXX = .005	±0° 30'	FRACTION DATA PATH			
.XX = .02		LOW ORDER			
.X = .1		(FRLF)			
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
—		B-DD-11/45-0		DCS	M8115-0-01
FINISH		SCALE		REV.	
—		—		B	
		SHEET 7 OF 14		DIST.	

AR & FALU BITS 08 TO 15 SLOT 3

REV B  
NUMBER M8115-0-01  
SIZE CODE DCS

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REVISIONS	REV
CHANGE NO	
CHK	

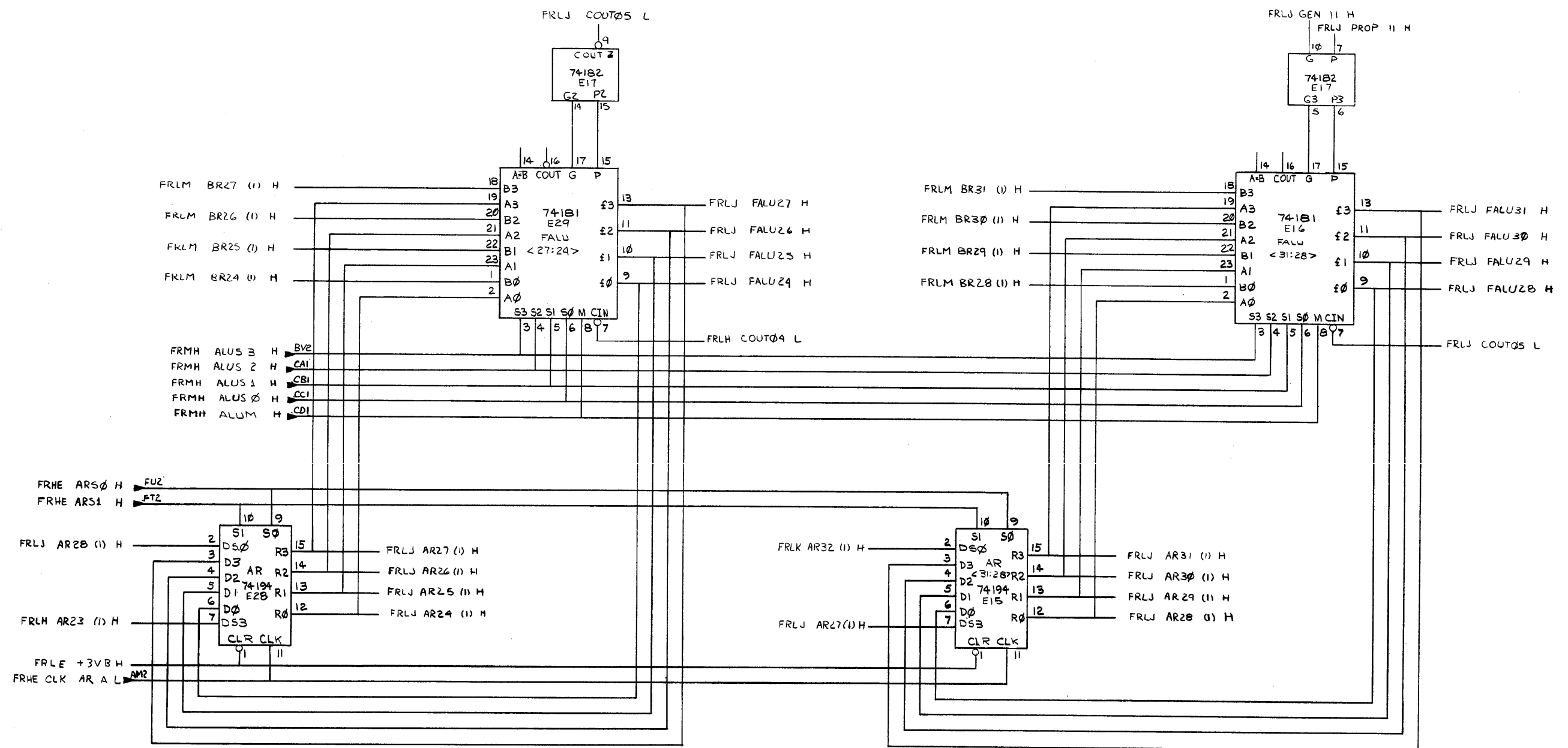
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>Z. Carberry</i>	DATE 2-16-71	digital EQUIPMENT CORPORATION MAYFORD, MASSACHUSETTS	
DECIMALS ANGLES		CHKD. <i>H. Hughes</i>	DATE 2/17/71	TITLE	
.XX = .005 .XX = .02 .X = .1		ENG. <i>H. Hughes</i>	DATE 2/17/71	FRACTION DATA PATH LOW ORDER (FRLH)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROL. ENG. <i>H. Hughes</i>	DATE 2/17/71	NEXT HIGHER ASSY.	
MATERIAL		PROD. <i>H. Hughes</i>	DATE 2/17/71	B DD-11/45-0	
FINISH		SCALE 1/4		SIZE CODE	NUMBER
		SHEET 3 OF 14		D CS	M8115-0-01
					REV. B

REV. B  
NUMBER M8115-0-01  
SIZE CODE DCS

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10-0-518 W 50 2  
A28 #38W1N 3000 2215



REV	NO.

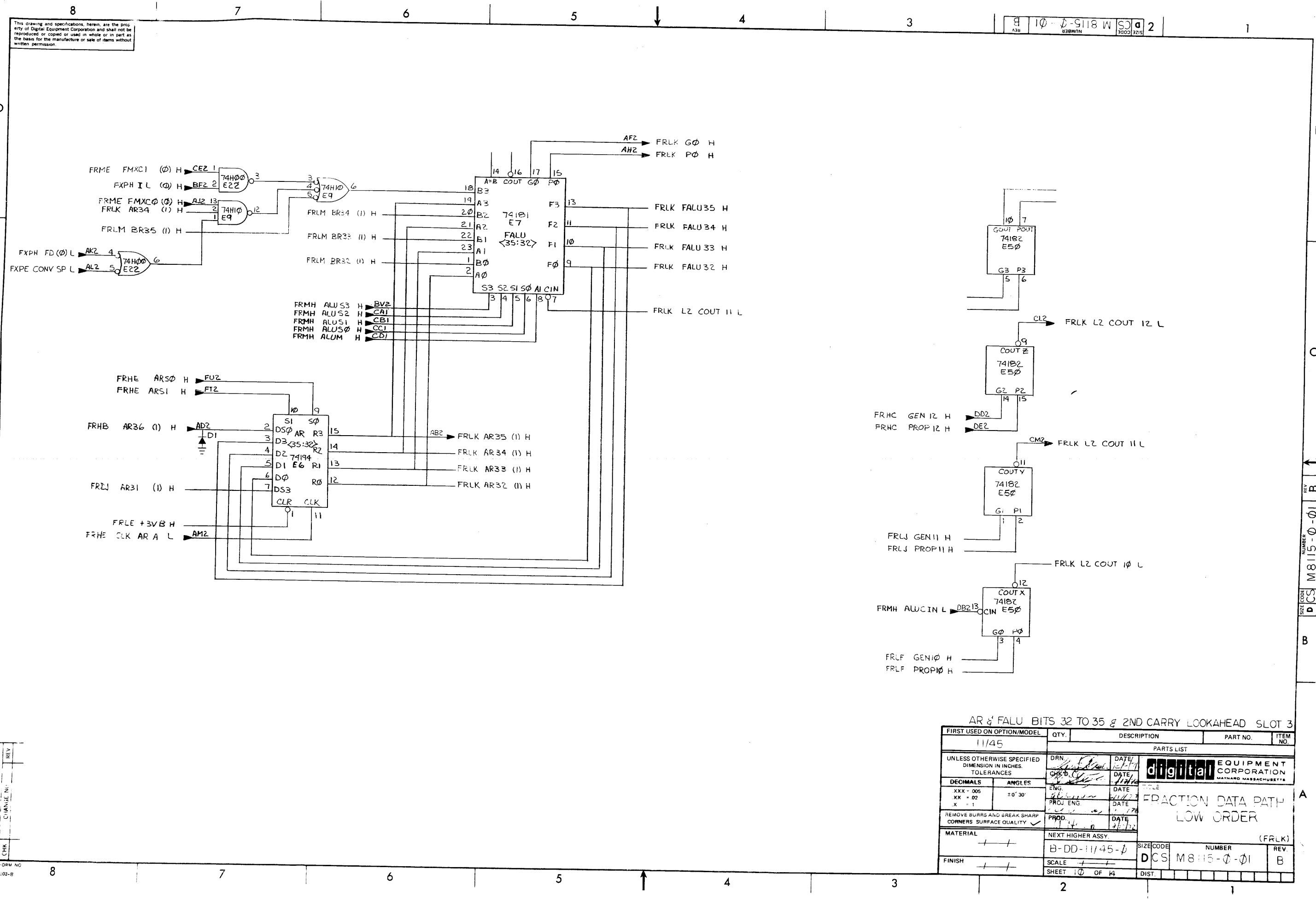
DEC FORM NO DRD 102-B

AR & FALU BITS 24 TO 31		SLOT 3	
FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO. ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>[Signature]</i>	DATE 2/16/71	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
DECIMALS	ANGLS	DATE 2/17/71	
.XXX = .005 .XX = .02 .X = .1	±0° 30'	DATE 2/17/71	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2/17/71	
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER
FINISH	B-DD-11/45-0	DCS	M8115-0-01
	SCALE		REV. B
	SHEET 9 OF 14	DIST.	

REV B  
NUMBER DCS M8115-0-01

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D  
 C  
 B  
 A



AR & FALU BITS 32 TO 35 & 2ND CARRY LOOKAHEAD SLOT 3

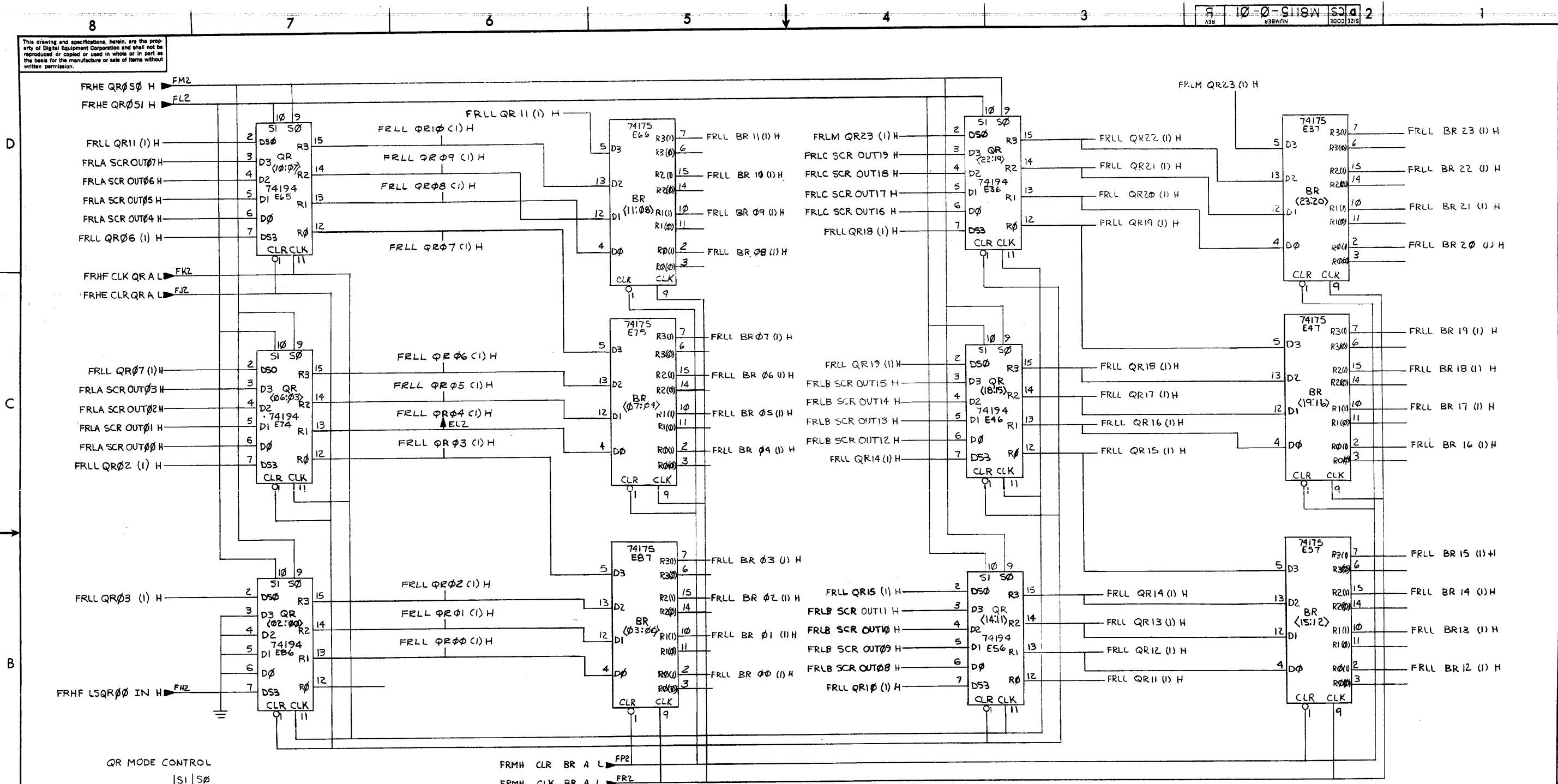
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. DATE	DATE	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK. DATE	DATE		
ANGLES	ENG. DATE	DATE		
XXX - 005 XX - 02 X - 1	PROJ. ENG. DATE	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. DATE	DATE	FRACTION DATA PATH LOW ORDER	
MATERIAL	NEXT HIGHER ASSY.		(FRLK)	
FINISH	B-DD-11/45-φ	SCALE	SIZE CODE	NUMBER
			DCS	M8115-φ-01
	SHEET 10 OF 14	DIST.		

BRUNING 40-522 1964  
 DEC. ORM NO.  
 DRD 102-B

REV. NO. 2  
 SIZE CODE DCS  
 NUMBER M8115-φ-01

A

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QR MODE CONTROL

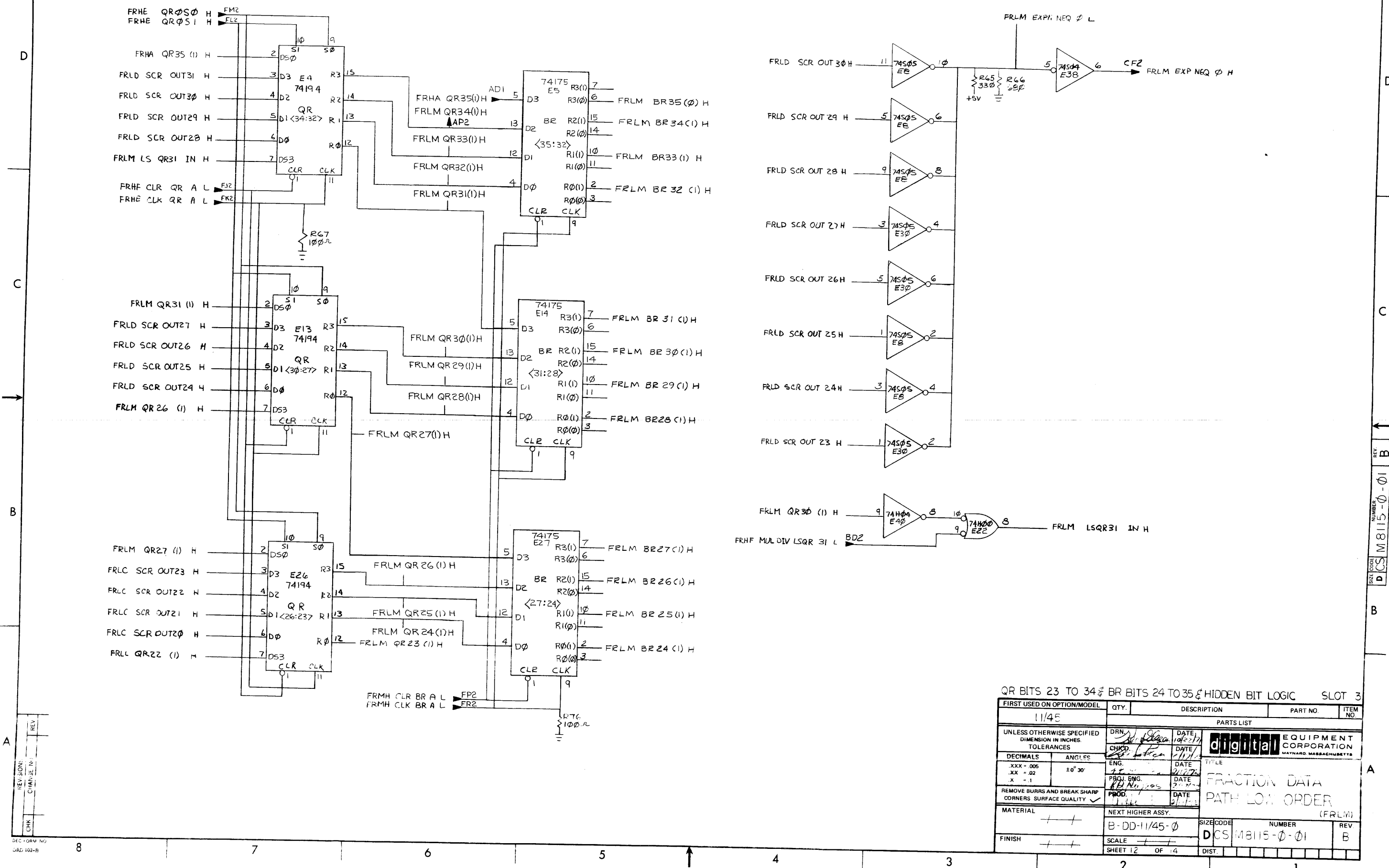
	S1	S0
NOP	L	L
SHIFT RIGHT	L	H
SHIFT LEFT	H	L
LOAD	H	H

FRMH CLR BR A L → FP2  
FRMH CLK BR A L → FR2

QR BITS 00 TO 22 & BR BITS 00 TO 23 SLOT 3

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>[Signature]</i>	DATE 10/22/71	 <b>digital</b> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS .XXX = .005	CHKD. <i>[Signature]</i>	DATE 11/22/71		
ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 11/22/71		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>[Signature]</i>	DATE 11/22/71		
MATERIAL //	PROD. <i>[Signature]</i>	DATE 11/22/71	TITLE	
FINISH //	NEXT HIGHER ASSY.		FRACTION DATA PATH LOW ORDER (FRL)	
	B-DD-11/45-0	SIZE CODE	NUMBER	REV.
	SCALE //	D CS	M8115-0-01	B
	SHEET 11 OF 14	DIST.		

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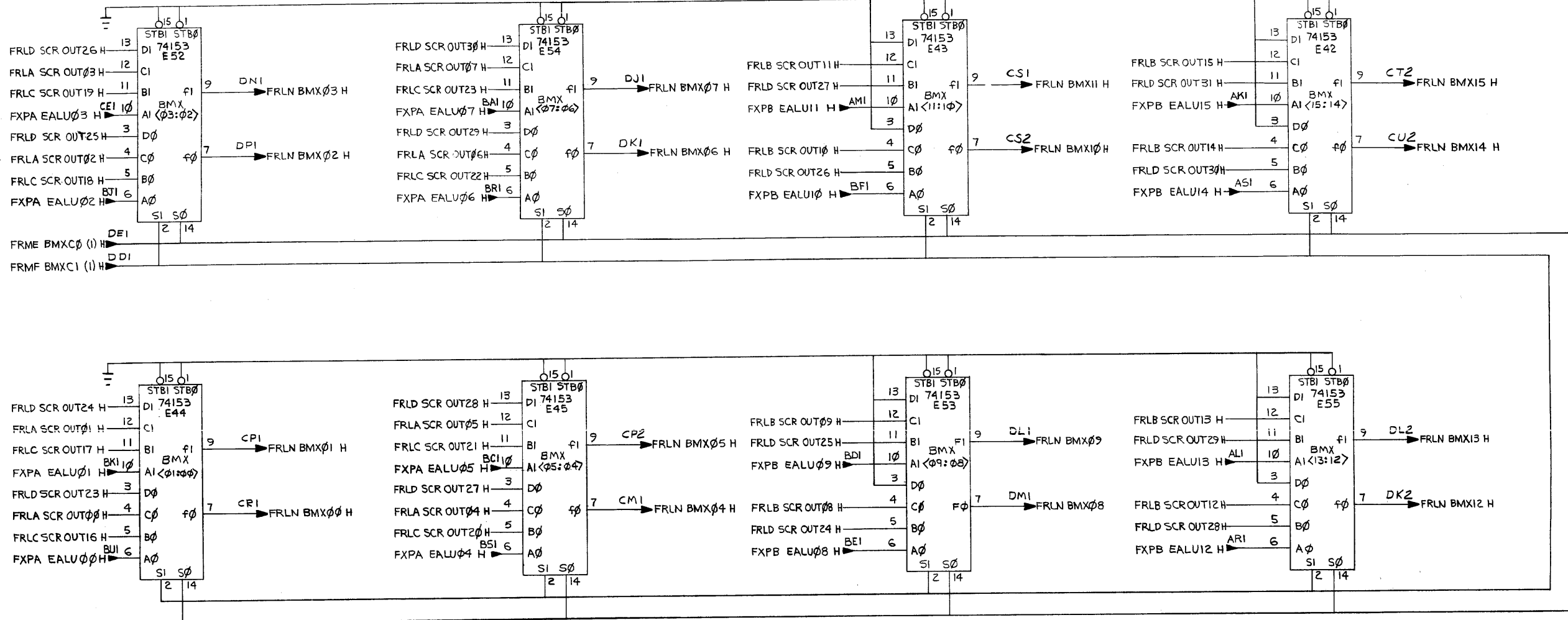


FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES					
DECIMALS	ANGLES	DRN	DATE	PARTS LIST	
.XXX = .005	±0° 30'	CHKD	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
.XX = .02		ENG	DATE	TITLE	
.X = .1		PROJ. ENG.	DATE	FRACTION DATA PATH LOW ORDER	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD.	DATE	MATERIAL	
				NEXT HIGHER ASSY.	
				B-DD-11/45-0	
				FINISH	
				SCALE	
				SHEET 12 OF 14	
				SIZE CODE NUMBER REV	
				DCS M8115-0-01 B	
				DISTRIBUTION	

REV. B  
 NUMBER 8115-0-01  
 SIZE CODE 300/2715

REV. 1  
 CHK  
 DEC 1976  
 QRD 102-B

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BMX CONTROL

	SI	SØ
EALU	L	L
ACH	L	H
ACL	H	L
EXP	H	H

REV	CHANGE NO.

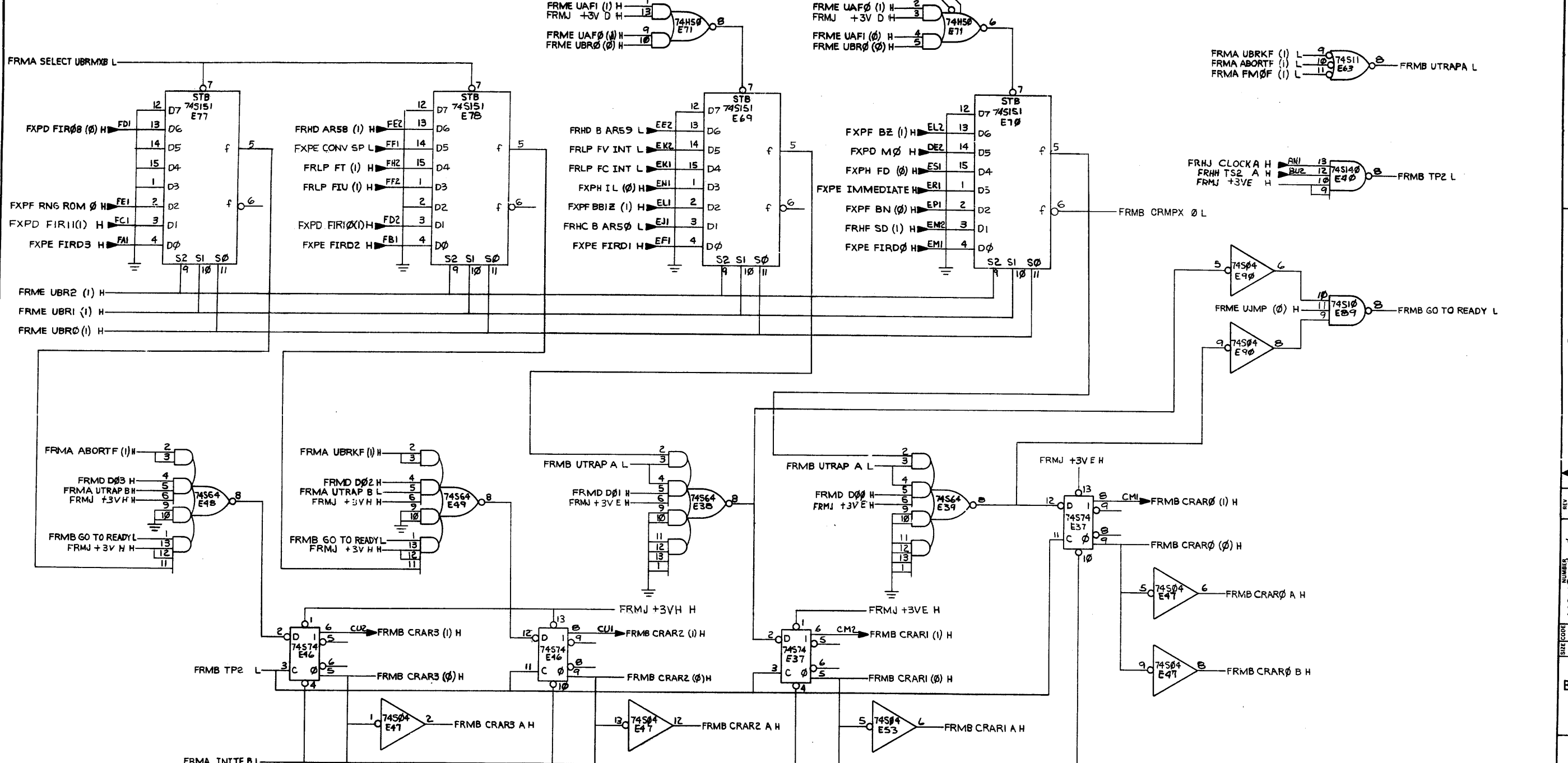
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE	 <b>digital</b> EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	
DECIMALS	ANGLES	CHK'D	DATE		
.XXX = .005	±0° 30'	ENG.	DATE		
.XX = .02		PROJ. ENG.	DATE		
.X = .1		PROD.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.		TITLE <b>FRACTION DATA PATH LOW ORDER</b> (FRLN)	
MATERIAL	B-DD-11/45-Ø		SIZE CODE		
FINISH	SCALE		DCS M8115-Ø-Ø1		REV.
SHEET		13 OF 14		B	







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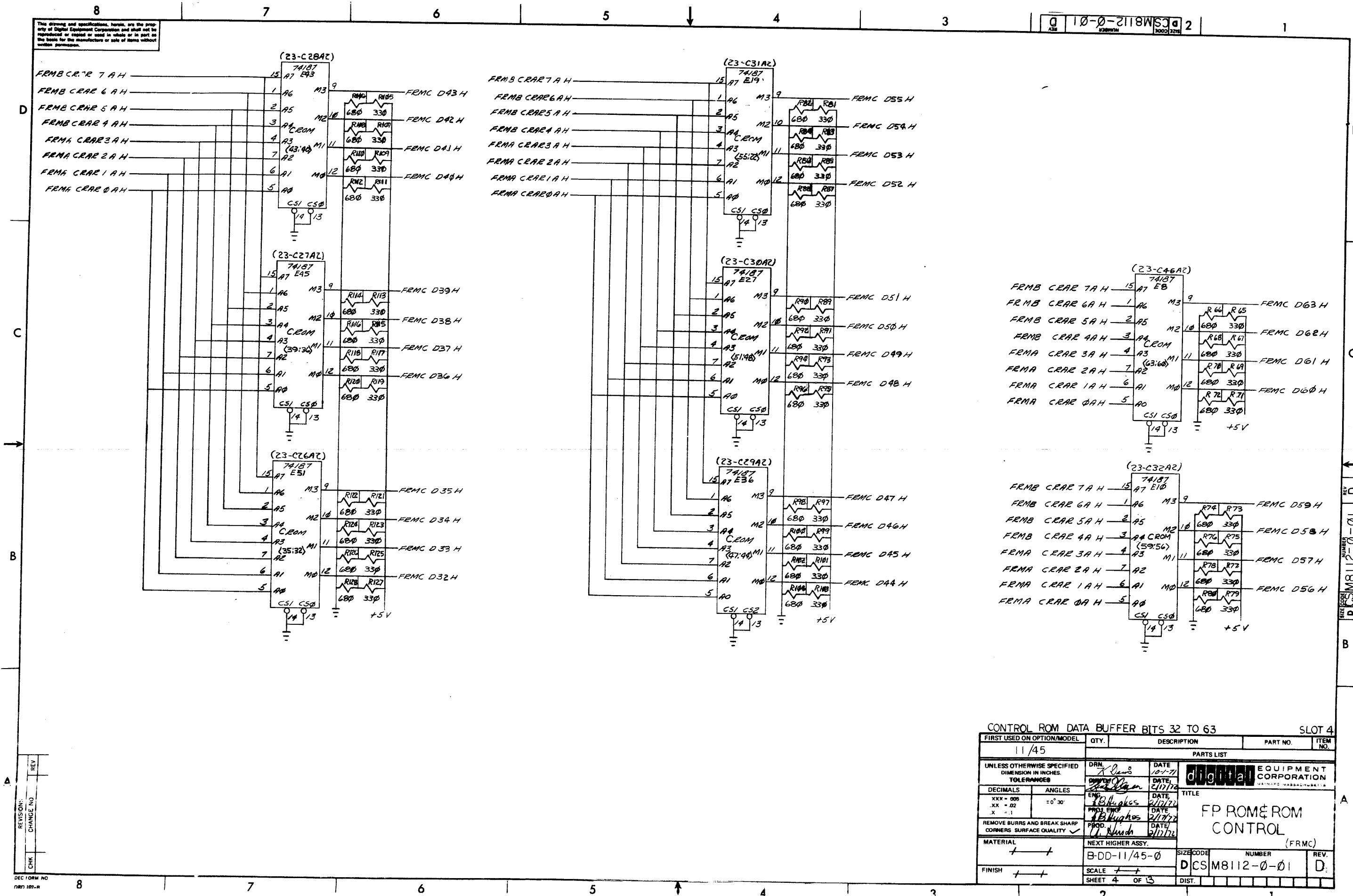
CONTROL ROM ADDRESS REGISTER BITS 0 THRU 3 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN <i>J. Roberts</i>	DATE 10/5/71	<p><b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS</p> <p>TITLE <b>F.P. ROM &amp; ROM CONTROL (FRMB)</b></p>
DECIMALS ANGLES		CHKD <i>[Signature]</i>	DATE 2/1/72	
.XXX = .006	±0° 30'	ENG <i>[Signature]</i>	DATE 2/17/72	
.XX = .02		PROJ. ENG. <i>[Signature]</i>	DATE 2/17/72	
.X = .1		PROP. <i>[Signature]</i>	DATE 2/17/72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓				
MATERIAL		NEXT HIGHER ASSY.		
FINISH		B-DD-11/45-0	SCALE	
		SHEET 3 OF 12	DIST.	

REVISIONS	REV
CHANGE NO.	
CHK	

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Q 10-0-2118WCSJ 2

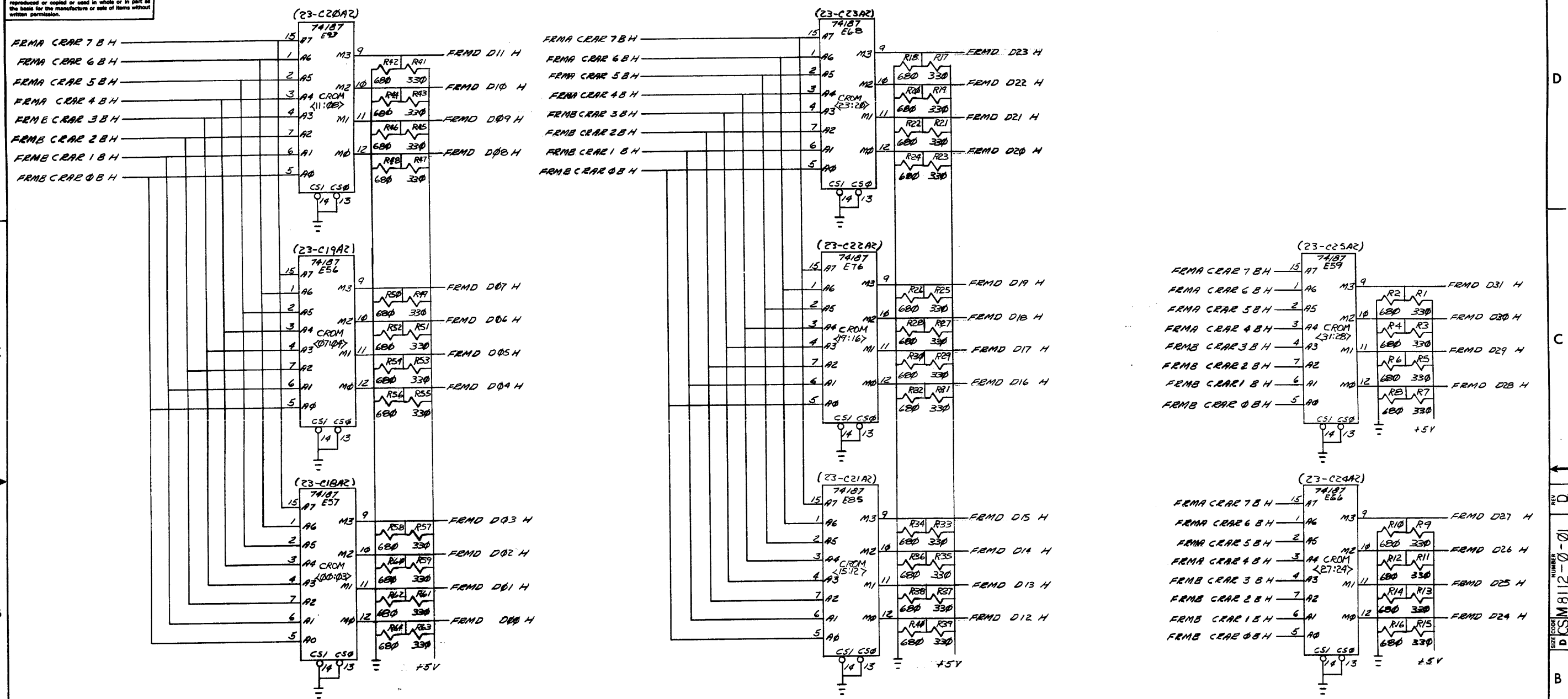


REVISION:	REV
CHANGE NO.	
CHK	

CONTROL ROM DATA BUFFER BITS 32 TO 63		SLOT 4	
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO. ITEM NO.
11/45			
PARTS LIST			
UNLESS OTHERWISE SPECIFIED	DRN	DATE	DIGITAL EQUIPMENT CORPORATION
DIMENSION IN INCHES.	<i>X</i>	10/1/77	
TOLERANCES	<i>Handwritten</i>	DATE	
DECIMALS		2/17/78	
ANGLES		DATE	
XXX = .005		2/17/78	
.XX = .02		DATE	
X = .1		2/17/78	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	
	<i>Handwritten</i>	2/17/78	
MATERIAL	NEXT HIGHER ASSY.	TITLE	
+		FP ROM & ROM CONTROL (FRMC)	
FINISH	B-DD-11/45-0	SIZE CODE	NUMBER
+	SCALE 1 +	DCSM8112-0-01	REV. D
	SHEET 4 OF 13	DIST.	

DEC FORM NO 107 102-R

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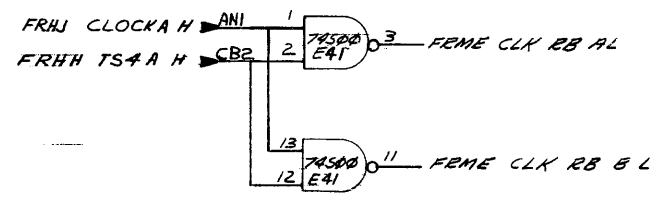
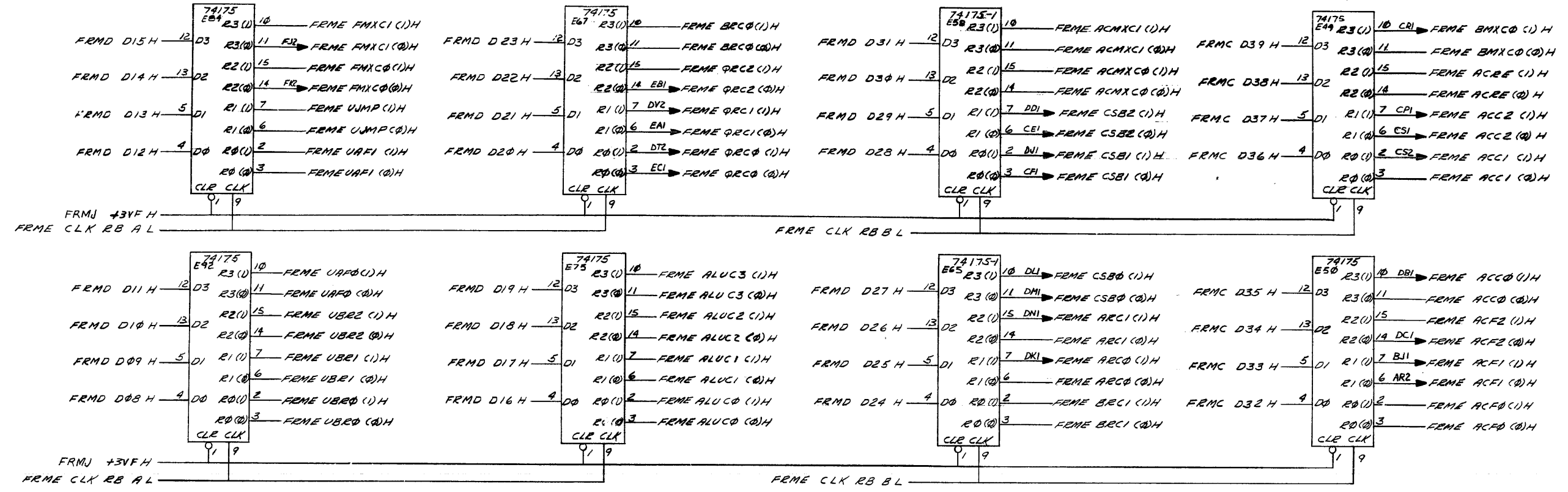
REV	
CHG	

CONTROL ROM BITS 00 TO 31 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	DATE	TITLE	
.XXX = .006	±0° 30'	12-8-71	F.P. ROM & ROM CONTROL	
.XX = .02		2/17/72		
.X = .1		2/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE		
		2/17/72		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
+	B-DD-11/45-0	DCSM8112-0-01		D
FINISH	SCALE	DIST.		
+	SHEET 5 OF 15			

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10-0-2118W 2



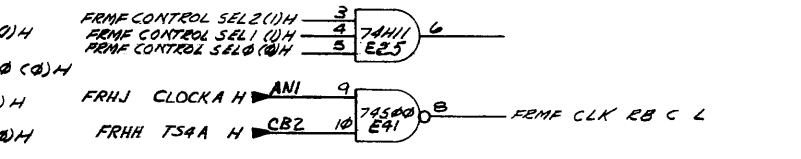
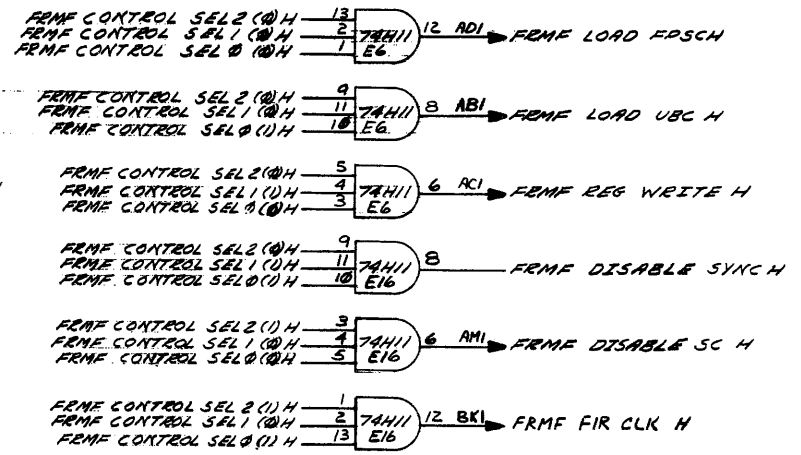
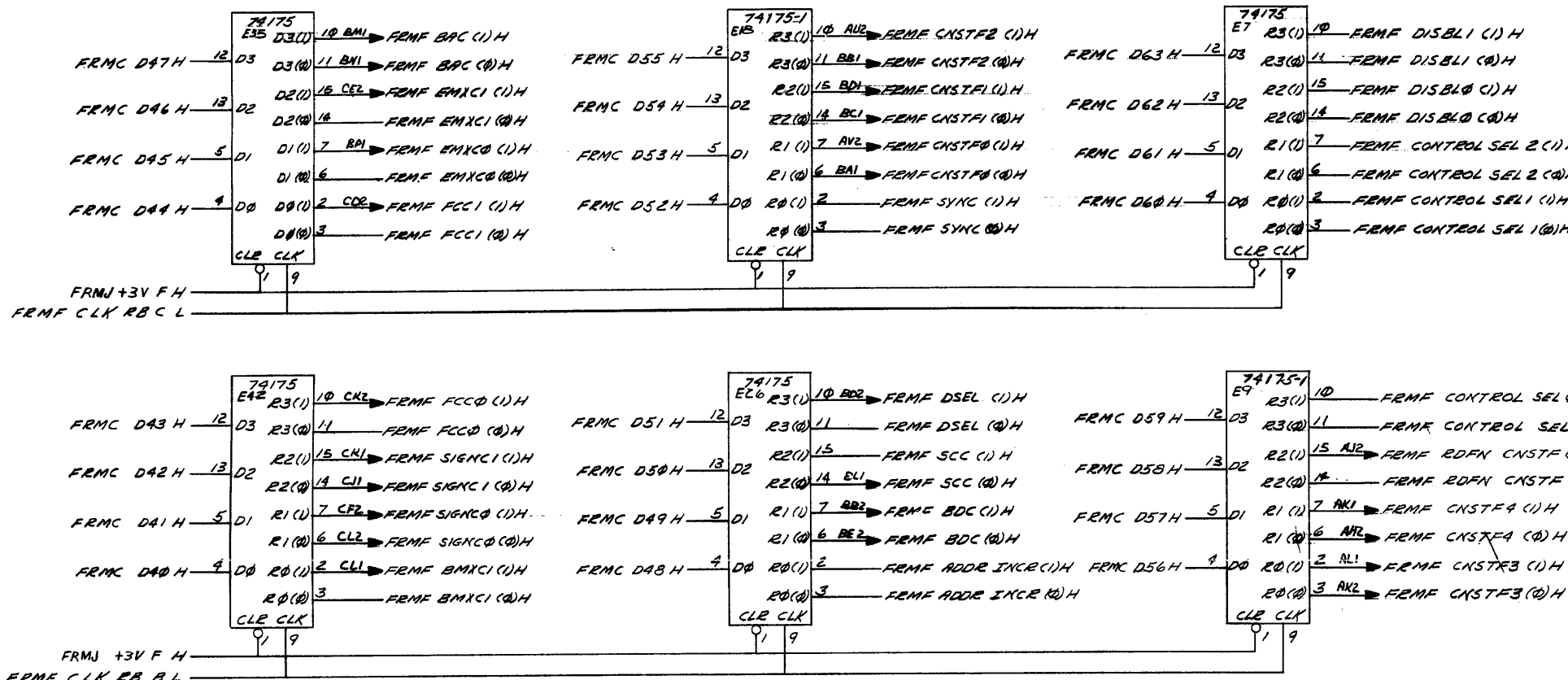
CONTROL ROM DATA BUFFER BITS 08 TO 39 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN <i>A. B. Nichols</i>	DATE 10-4-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
DECIMALS .XXX - .005	ANGLES ±0° 30'	CHK <i>A. B. Nichols</i>	DATE 2/17/72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		ENR <i>A. B. Nichols</i>	DATE 2/17/72	FR. ROM ROM CONTROL (FRME)
		PROJ. ENGR. <i>A. B. Nichols</i>	DATE 2/17/72	
MATERIAL	NEXT HIGHER ASSY.	PROD. <i>A. B. Nichols</i>	DATE 2/17/72	
FINISH	B-DD-11/45-0			
	SCALE	SIZE CODE DCSM8112-0-01	NUMBER	REV. D
	SHEET 6 OF 13	DIST.		

REV	
CHK	
REVISIONS	
CHANGE NO.	

DEC FORM NO. DRD 100-B

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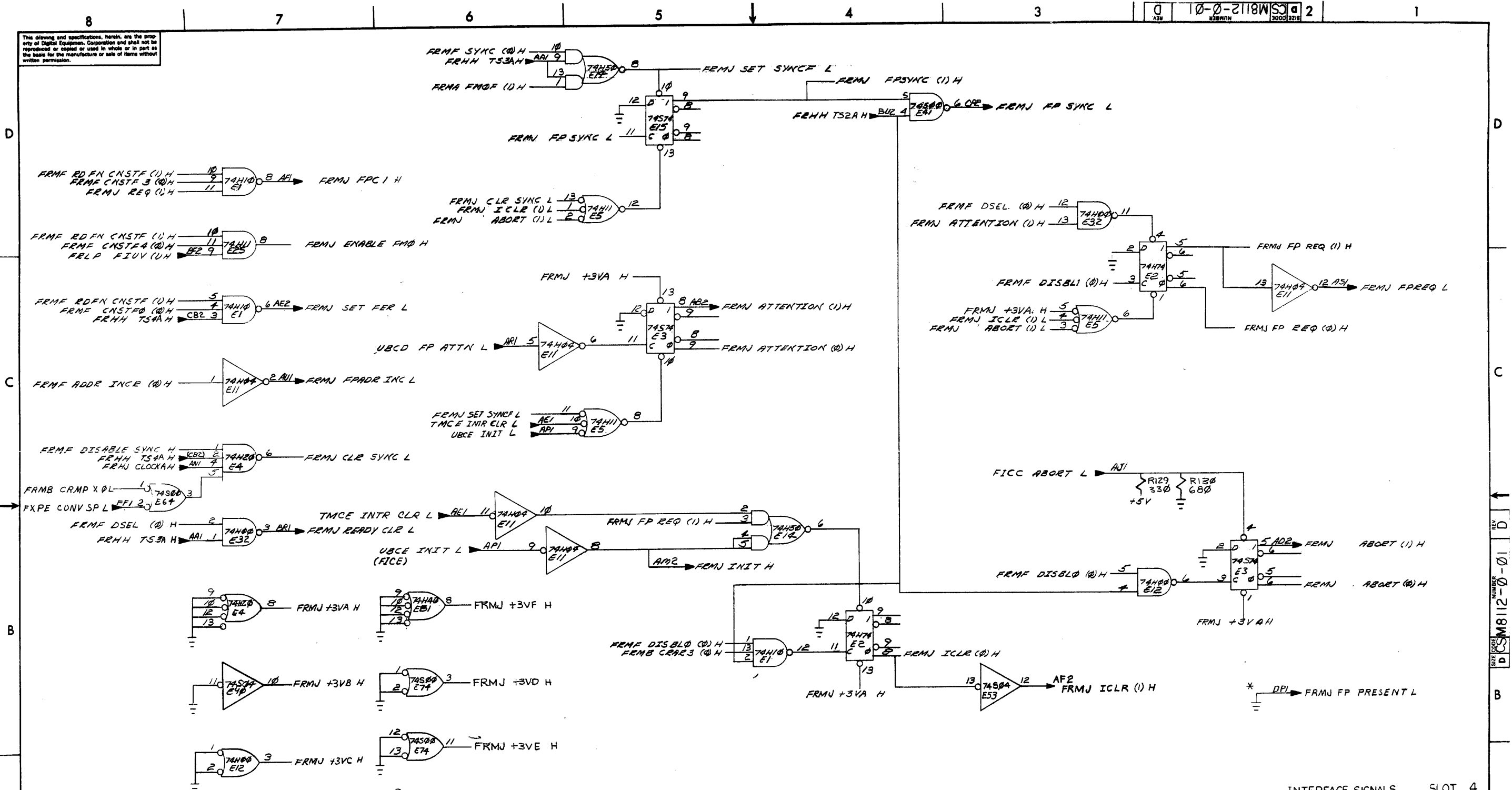
CONTROL ROM DATA BUFFER BITS 40 TO 63 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. DATE 10-5-71	 <b>Digital Equipment Corporation</b> MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	ENG. DATE 8/17/72		
.XXX = .006	±0° 30'	P.O.L. ENG. DATE 8/17/72		
.XX = .02		PRD. DATE 8/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. DATE 8/17/72	TITLE <b>F.P. ROM &amp; ROM CONTROL</b> (FRMF)	
MATERIAL		NEXT HIGHER ASSY.		
FINISH		SCALE		
		SHEET 7 OF 13		
		SIZE CODE	NUMBER	REV.
		D	DCS M8112-0-01	D
		DIST.		

REV	
CHANGE NO.	
CHK	



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NOTE  
\* THIS GROUND IS GENERATED  
ON FRM BOARD

INTERFACE SIGNALS SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	PARTS LIST		
.XXX - .005	±0° 30'	DRN	DATE	<b>digital</b> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS TITLE <b>F.P. ROM &amp; ROM CONTROL</b> (FRMJ) NEXT HIGHER ASSY. B-DD-11/45-0 SCALE SHEET 9 OF 13 SIZE CODE NUMBER DCS M8112-0-01 REV. D
.XX - .02		CHKD	DATE	
.X - .1		ENG	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROL ENG	DATE	
		PROD	DATE	
MATERIAL		NEXT HIGHER ASSY.		
FINISH		SCALE		
		SHEET 9 OF 13		

REV	
CHANGE NO.	
CHK	

FLWS STATE	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SEC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ADM	CSB	ARC	BRC	QRC	ALU	FMX	UJP	UAF	UBR	NAD
01 TRP,00	000	1	0	7	1	37	1	1	1	1	1	1	1	0	0	0	1	7	7	3	7	3	3	7	17	3	0	3	7 007	
11 DIV,12	001	1	1	7	0	00	1	1	1	1	1	1	2	0	0	0	1	7	7	3	7	3	2	7	11	3	1	3	7 320	
01 TRP,70	002	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	05	0	0	3	7 007	
01 RDY,00	003	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	6	5	0	7	3	3	7	17	3	1	3	7 006	
01 TRP,10	004	0	1	7	0	16	1	1	1	1	1	1	2	0	0	0	2	2	5	1	7	3	3	7	05	3	1	3	7 242	
02 NOM,04	005	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	4	0	3	7	3	2	4	17	3	1	3	7 021	
01 RDY,10	006	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	6	5	3	7	3	3	7	17	3	1	3	7 072	
09 ADD,02	007	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	02	3	1	3	7 342	
01 TRP,40	010	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	6	5	1	7	3	3	7	14	3	1	3	7 275	
12 NRM,00	011	1	1	7	0	01	1	1	1	1	1	1	2	0	0	0	1	7	7	3	7	2	1	7	11	3	1	0	4 262	
02 NOM,08	012	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	4	4	0	3	7	3	3	7	05	3	0	3	7 007	
12 NRM,02	013	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	4	2	3	7	3	3	7	05	3	0	3	7 007	
12 NRM,02	014	1	1	7	1	25	0	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	17	3	1	3	7 321	
04 LD,10	014	1	1	7	1	01	1	1	1	1	1	1	12	0	0	0	6	6	4	1	7	3	3	7	05	3	1	3	7 237	
12 NRM,10	015	1	1	7	0	01	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	2	1	7	11	3	1	0	4 262	
02 NOM,10	015	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	4	4	0	3	7	3	3	7	05	3	0	3	7 007	
12 NRM,06	017	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	1	7	17	3	1	0	4 262	
01 TRP,50	020	0	1	7	0	14	1	1	1	1	1	1	2	0	0	0	6	6	5	1	7	3	3	7	05	3	1	3	7 275	
02 NOM,06	021	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	6	5	1	7	3	3	7	05	3	0	0	1 4 012	
02 NOM,20	022	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	4	4	0	3	7	3	3	7	05	3	0	3	7 007	
10 MUL,10	023	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	4	4	0	3	7	3	3	7	14	3	1	1	4 304	
02 NOM,12	024	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	4	2	3	7	3	2	4	17	3	1	3	7 025	
02 NOM,14	025	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	0	0	2	7	3	3	7	05	3	0	1	4 016	
05 LD,50	026	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	1	4	4	3	7	3	7	05	3	0	1	7 075	
03 NOM,52	027	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	1	4	4	3	7	3	7	14	3	1	3	7 247	
04 LD,72	030	1	1	7	1	25	0	1	1	1	1	1	1	1	1	0	6	6	4	1	7	3	3	7	05	3	1	0	1 060	
02 NOM,28	031	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	3	1	7	7	3	3	3	7	00	3	0	3	7 007	
01 TRP,30	032	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	3	0	1	5	1	7	3	7	05	3	0	3	7 007	
10 MUL,12	033	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	1	2	1	7	3	3	7	14	3	0	1	4 216	
05 LD,70	034	0	1	7	0	00	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	2	7	11	3	1	3	7 035	
05 LD,72	035	1	1	7	1	37	1	1	1	1	1	1	1	0	0	0	0	6	6	4	1	7	3	3	7	05	3	1	1	6 226
11 LCI,40	036	1	1	7	0	17	1	1	1	1	1	1	1	2	0	0	1	7	7	3	5	3	2	7	11	3	1	3	7 326	
08 ADD,38	037	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	11	3	1	3	7 273	

FLWS STATE	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SEC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ADM	CSB	ARC	BRC	QRC	ALU	FMX	UJP	UAF	UBR	NAD
02 NOM,34	040	1	1	7	1	37	1	1	1	1	1	1	1	0	0	0	1	7	7	3	7	3	3	7	00	3	0	3	7 007	
02 NOM,18	041	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	0	0	0	7	3	3	7	14	3	0	1	4 022	
02 NOM,02	042	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	2	4	17	3	1	3	7 075	
02 NOM,24	043	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	0	0	3	7	3	3	7	17	3	1	3	7 075	
02 NOM,10	044	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	0	2	3	7	3	2	4	17	3	1	1	4 024	
02 NOM,22	045	0	1	4	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	00	3	0	3	7 007	
08 ADD,12	046	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	02	3	1	0	6 347	
08 ADD,11	047	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	17	3	1	0	6 327	
03 NOM,54	050	0	1	7	0	1	37	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	17	3	0	3	7 007	
02 NOM,32	051	1	1	7	0	11	1	1	1	1	1	1	2	0	0	0	1	7	7	3	7	3	3	7	07	3	1	1	6 040	
03 NOM,56	052	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	0	2	2	7	3	3	7	00	3	0	1	4 376	
03 NOM,50	053	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	2	4	1	7	3	3	7	00	3	1	3	7 027	
14 SCI,14	054	1	1	7	0	07	1	1	1	1	1	1	2	0	0	0	1	7	7	3	7	3	3	7	06	3	1	3	7 345	
14 SCI,22	055	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	14	3	1	3	7 335	
03 NOM,64	056	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	0	2	3	7	3	3	7	14	3	1	3	7 355	
14 SCI,20	057	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	4	4	3	7	3	3	7	00	3	1	3	7 130	
10 MUL,00	060	0	1	7	0	31	1	1	1	1	1	1	2	0	0	0	0	2	3	7	7	3	2	0	05	3	1	1	4 280	
09 ADD,54	061	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	00	3	1	3	7 273	
03 NOM,62	062	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	17	3	1	3	7 021	
09 ADD,52	063	1	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	10	3	1	2	6 291	
08 ADD,00	064	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	0	2	3	7	3	3	2	0	17	3	1	1	4 114	
03 NOM,68	065	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	2	0	17	3	0	3	7 007	
02 NOM,00	066	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	6	17	3	0	3	7 007	
02 NOM,36	067	0	1	7	1	37	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	17	3	0	3	7 007	
11 DIV,00	070	0	1	7	0	35	1	1	1	1	1	1	2	0	0	0	1	0	2	3	7	3	2	0	05	3	1	1	4 310	
02 NOM,30	074	1	1	7	0	11	1	1	1	1	1	1	0	0	0	0	1	7	7	3	7	3	3	7	11	3	1	1	6 040	
01 RDY,20	072	1	1	7	1	35	1	1	1	1	1	1	0</																	

AD	DL1	DL0	CSL	R0F	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ADR	ACC	ACF	AGM	CSB	ARC	BRC	ORC	ALU	FMX	UJP	UAF	UBR	NAD
07 STR	64	100	1	7	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	2	4 121
07 STR	62	101	0	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	2	4 121
10 MUL	24	102	1	7	0	00	1	1	0	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	06	3	1	3	7 300
10 MOD	06	103	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	14	3	1	1	4 200
06 STR	38	104	1	7	1	35	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	1	1 3 132
06 STR	40	105	1	2	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	3	7 007
10 MUL	26	106	1	7	0	00	1	1	0	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	02	3	1	3	7 300
08 ADD	30	107	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	15	3	1	3	7 125
12 NRM	30	110	1	7	0	12	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	15	3	1	0	3 271
12 NRM	32	111	1	7	0	10	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	05	3	0	2	5 275
10 MUL	20	112	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	15	3	1	0	4 202
10 MOD	04	113	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	14	3	1	1	4 200
08 ADD	04	114	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 120
08 ADD	02	115	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	12	3	1	1	6 300
10 MUL	22	116	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	0	4 202
08 ADD	36	117	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 021
08 ADD	06	120	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 115
07 STR	34	121	0	7	0	06	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	05	3	1	3	7 275
04 LD	02	122	1	7	1	25	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	05	3	1	1	4 232
04 LD	08	123	0	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	05	3	1	3	7 275
08 ADD	28	124	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	0	0 037
08 ADD	32	125	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	0	0 037
04 LD	08	126	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	14	3	1	3	7 237
10 MOD	02	127	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	0	2 103
14 SCI	34	130	1	7	0	00	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	05	3	1	3	7 235
05 LD	00	131	1	7	1	37	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	00	3	0	3	7 007
06 STR	08	132	1	7	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	3	7 007
06 STR	34	133	1	7	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	3	7 007
12 NRM	34	134	1	7	0	01	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	1	4 206
12 NRM	32	135	1	7	0	01	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	1	4 206
12 NRM	26	136	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	3	2 110
12 NRM	28	137	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	3	7 110

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05 LD	56	140	1	7	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	00	3	0	3	7 007
06 STR	00	141	1	7	1	37	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	03	3	1	3	7 210
06 STR	10	142	1	7	1	37	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 170
10 MOD	14	143	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	00	3	1	3	7 211
06 STR	42	144	0	7	0	10	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	05	3	0	2	5 275
06 STR	24	145	1	7	1	35	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	3	7 205
06 STR	18	146	1	7	1	37	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 353
08 ADD	26	147	1	7	1	37	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	00	3	1	3	7 124
07 STR	50	150	1	7	1	37	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	3	7 366
05 LD	04	151	1	7	0	11	0	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	07	3	1	1	6 140
07 STR	56	152	1	7	1	37	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	2	3 361
10 MOD	08	153	1	7	1	37	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	14	3	1	1	4 200
06 STR	32	154	1	7	1	37	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	1	5 132
06 STR	30	155	1	7	1	37	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	1	5 132
06 STR	04	156	1	7	1	35	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	0	1	4 172
08 ADD	24	157	1	7	1	37	1	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	12	3	1	0	0 037
06 STR	36	158	1	7	1	37	0	1	1	0	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	1	1	5 104
11 LCI	30	161	1	7	0	20	1	1	1	0	1	2	2	2	2	1	7	7	3	7	3	3	7	7	12	3	1	3	7 036
13 SCF	30	162	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	3	7 332
11 LCI	10	163	1	7	0	20	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	3	7 326
13 SCF	70	164	1	7	0	01	1	1	1	0	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	3	7 165
13 SCF	00	165	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	00	3	1	2	6 164
13 SCF	40	166	1	7	1	37	0	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	17	3	1	3	7 274
13 SCF	20	167	1	7	1	37	1	1	1	1	1	2	2	2	2	1	7	7	3	7	3	3	7	7	17	3	1	3	7 335
06 STR	12	170	1	7	1	35	0	1	1	1	1	3	3	3	3	2	7	7	3	7	3	3	7	7	17	3	0	1	3 356
05 LD	02	171	1	3	0	11	0	1	1	0	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	1	6 140
06 STR	04	172	1	7	1	35	0	1	1	0	1	3	3	3	3	1	7	7	3	7	3	3	7	7	17	3	1	3	7 132
10 MOD	24	173	1	7	0	00	1	1	1	0	1	2	2	2	2	1	7	7	3	7	3	3	7	7	11	3	1	3	7 302
09 ADD	00	174	1	7	1	37	1	1	1	1	1	2	2	2															

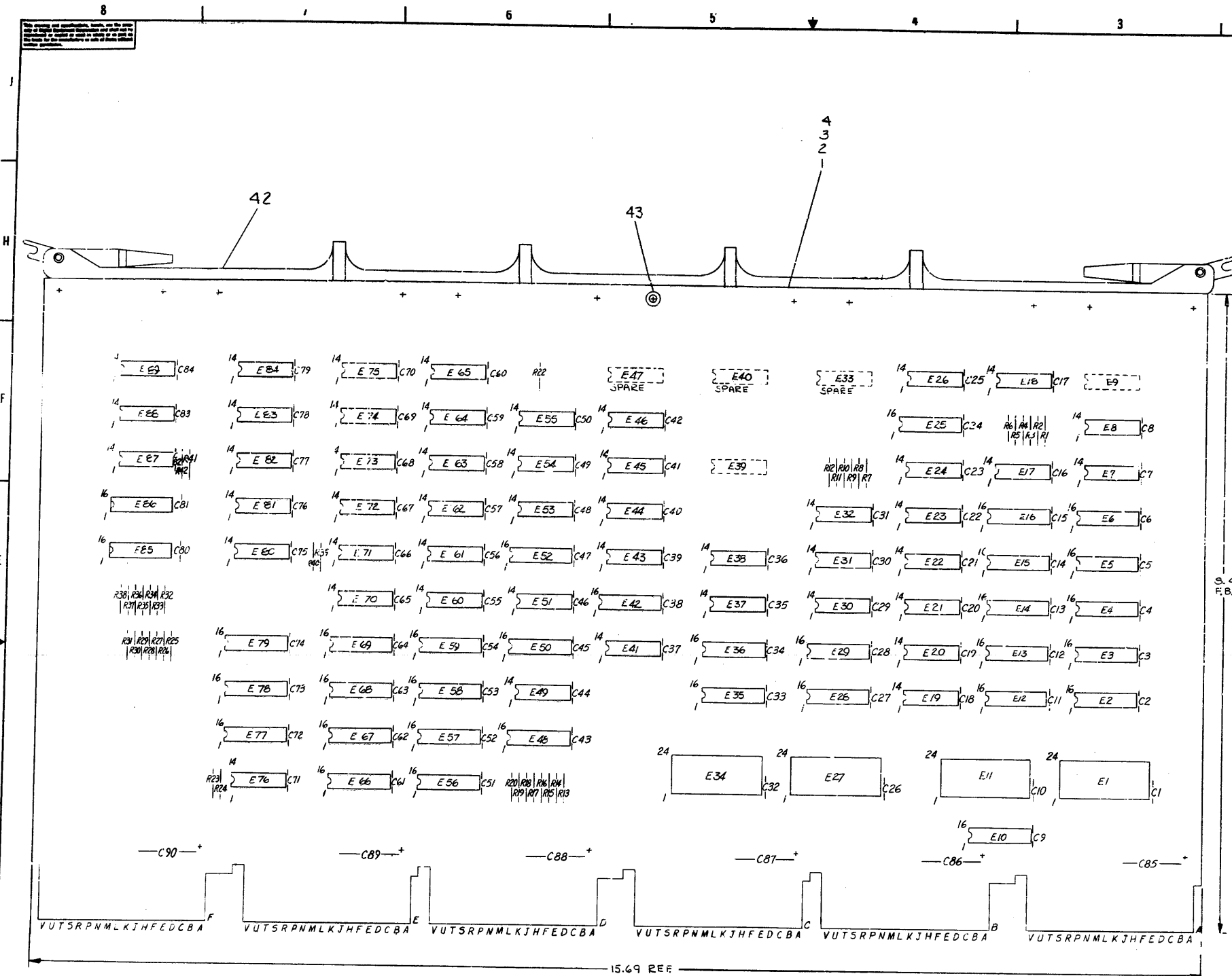
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XX XXX,XX	200	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	17	3	1	3	7 377	
XX XXX,XX	201	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	17	3	1	3	7 377	
04 LD,13	202	1	1	7	1	25	0	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	1	4 236	
04 LD,16	203	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	14	3	1	3	7 126	
09 ADD,70	204	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	14	3	1	3	2 350	
09 ADD,68	205	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	0	7	15	3	1	2	6 350	
04 LD,26	206	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	1	4 212	
04 LD,30	207	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	3	7 233	
06 STR,02	210	1	1	7	1	35	0	1	1	1	1	1	1	1	3	3	1	7	7	3	7	00	7	00	3	0	1	5 156	
10 MOD,16	211	1	1	7	1	00	1	1	1	1	1	1	1	1	3	3	1	7	7	3	6	2	7	11	3	1	3	7 175	
11 LCF,10	212	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	0	0	3	7	2	0	17	3	1	1	4 324	
04 LD,28	213	1	1	7	1	35	0	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	3	7 074	
01 RDY,40	214	1	1	7	1	35	0	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	3	7 272	
14 SCI,32	215	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	00	3	1	3	7 130	
09 ADD,58	216	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	14	3	1	3	7 007	
14 SCI,30	217	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	14	3	1	3	7 333	
10 MUL,04	220	1	1	7	0	33	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	14	3	1	3	7 333	
10 MUL,02	221	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	2	4	05	3	1	3	7 221	
13 SCF,05	222	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	2	4	05	3	1	1	6 224	
13 SCF,15	223	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	2	4	05	3	1	1	4 330	
10 MUL,08	224	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	17	3	1	3	7 222	
10 MUL,06	225	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	11	3	1	1	6 230	
05 LD,74	226	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	17	3	1	1	6 023	
05 LD,76	227	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	17	3	1	3	2 110	
10 MUL,16	228	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	0	3	7	14	3	1	3	7 110	
10 MUL,14	231	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	0	3	7	14	3	1	3	7 362	
04 LD,04	232	1	1	7	1	25	0	1	1	1	1	1	1	1	3	3	1	7	7	3	7	3	7	17	3	1	0	6 023	
04 LD,10	233	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	3	7 030	
01 RDY,60	234	1	1	7	1	35	0	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	14	3	1	0	1 060	
13 SXP,30	235	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	12	3	1	0	0 040	
04 LD,20	236	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	17	3	1	3	7 166	
04 LD,22	237	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	2	4	1	7	3	7	05	3	1	3	7 014	

FLOWS STATE	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	AGR	ACC	ACF	ACM	CSB	ARC	BRC	ALU	FMX	UJP	UAF	UBR	NAD
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04 LD,12	241	1	1	7	1	05	0	1	1	1	1	1	1	1	3	3	0	1	4	1	7	3	3	7	05	3	1	1	3 202
01 TRP,20	242	1	1	7	1	36	1	1	1	1	1	1	1	1	3	3	0	1	5	3	7	7	17	3	3	1	3	7 032	
05 LD,54	243	1	1	7	1	05	0	1	1	1	1	1	1	1	3	3	0	1	4	1	7	3	3	7	05	3	1	3	7 026
04 LD,24	244	1	1	7	1	05	0	1	1	1	1	1	1	1	3	3	0	1	4	1	7	3	3	7	05	3	1	1	3 206
04 LD,36	245	1	1	7	1	25	0	1	1	1	1	1	1	1	3	3	0	1	4	1	7	3	3	7	05	3	1	3	7 247
13 SCF,00	246	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	1	7	7	3	7	2	4	17	3	1	1	6 222	
11 LCF,00	247	0	1	7	0	30	1	1	1	1	1	1	1	1	3	3	0	1	4	2	3	7	0	06	3	1	2	3 161	
04 LD,32	250	1	1	7	1	25	1	1	1	1	1	1	1	1	3	3	0	1	4	2	3	7	0	06	3	1	1	2 374	
14 SCI,02	251	1	1	7	0	21	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	02	3	1	1	1	2 374	
14 SCI,00	252	1	1	7	0	00	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	06	3	1	2	2	3 251	
14 SCI,04	253	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	15	3	1	1	1	2 374	
01 RDY,70	254	1	1	7	1	35	0	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	12	3	1	1	0	0 240	
05 LD,68	255	1	1	7	1	25	0	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	12	3	1	1	3	7 034	
13 SXP,00	256	1	1	7	0	00	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	02	3	1	3	7	7 034	
05 LD,50	257	1	1	7	1	25	0	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	12	3	0	3	7	7 007	
10 MOD,10	260	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	4	3	7	3	7	14	3	1	3	7 261	
10 MOD,12	261	1	1	7	0	00	1	1	1	1	1	1	1	1	3	3	0	1	4	3	7	3	7	11	3	1	0	4 262	
12 NRM,16	262	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	11	2	1	3	7	7 266	
12 NRM,12	263	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	11	2	1	3	7	7 267	
05 LD,52	264	0	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	17	3	0	3	7	7 007	
06 STR,26	265	1	1	7	1	35	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	17	3	0	3	7	7 007	
12 NRM,18	266	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	17	3	1	3	7	7 144	
12 NRM,14	267	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	00	3	1	3	7	7 322	
01 RDY,90	268	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	00	3	1	3	6	6 134	
09 ADD,56	271	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	2	0	17	3	1	0	0 242	
01 RDY,50	272	1	1	7	0	02	1	1	1	1	1	1	1	1	3	3	0	1	2	1	7	3	7	14	3	0	1	4 216	
12 NRM,00	273	1	1	7	1	37	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	05	3	1	3	7	275	
01 RDY,80	274	1	1	7	1	35	1	1	1	1	1	1	1	1	3	3	0	1	7	7	3	7	05	3	1	0	6	0 11	
01 TRP,60	275	0	1	7	1	36	1																						

FLWS	STATE	ADR	DL1	DL0	CBL	RBF	CST	SYN	DSL	S6C	BDC	AIC	BAC	EMX	P6C	SGN	BMX	ADR	ACC	ACF	AGM	CSB	ARC	BRC	ORC	ALU	FMX	UJP	UAF	UBR	NAD
10	MOD,20	300	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	4	3	3	7	3	3	7	00	3	1	3	7	303
10	MOD,32	301	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	3	3	7	3	3	7	14	3	1	3	7	336
10	MOD,26	302	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	3	3	7	3	3	7	00	3	1	3	4	308
10	MOD,30	303	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	3	3	7	3	3	7	14	3	1	3	7	301
10	MOD,20	304	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	3	3	7	3	3	7	04	3	1	3	7	305
10	MOD,22	305	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	3	3	7	07	3	1	3	7	174
06	STR,22	306	1	1	7	1	35	0	1	1	0	1	1	1	3	3	3	3	1	7	7	3	3	3	7	17	3	1	1	4	134
06	STR,28	307	0	1	7	1	10	1	1	1	1	1	1	1	3	3	3	3	6	5	1	7	3	3	7	05	3	0	2	5	275
11	DIV,04	310	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	4	2	3	3	3	4	05	3	1	3	7	306
11	DIV,02	311	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	0	2	3	3	3	4	12	3	1	1	6	312
11	DIV,08	312	1	1	7	1	37	1	1	1	0	1	1	1	3	3	3	3	7	7	3	3	2	7	02	3	1	1	1	6	314
11	DIV,16	313	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	17	3	1	1	1	6	316
11	DIV,10	314	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	17	3	1	1	3	7	081
11	DIV,14	315	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	6	5	1	7	3	7	05	3	1	3	7	295
11	DIV,22	316	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	2	1	7	3	3	7	14	3	0	1	4	216
11	DIV,20	317	1	1	7	1	04	1	1	1	1	1	1	1	2	3	3	3	0	6	3	1	7	3	7	05	3	1	3	7	295
11	DIV,14	320	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	12	3	1	3	7	273	
12	NRM,04	321	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	1	7	02	3	1	0	4	262	
12	NRM,20	322	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	4	2	2	7	3	3	7	00	3	1	3	6	134
14	SCI,20	323	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	4	7	3	3	7	00	3	1	2	1	215
11	LCF,20	324	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	12	3	1	1	6	354	
11	LCF,30	325	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	7	3	3	3	7	11	3	1	3	7	165	
11	LCI,20	326	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	4	4	1	7	3	3	7	14	3	1	3	7	324
08	ADD,13	327	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	12	3	1	3	7	174	
13	SCI,20	330	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	17	3	1	3	7	343	
13	SCF,10	331	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	4	0	1	7	3	7	14	3	1	3	7	166
13	SCF,50	332	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	11	3	1	3	7	165	
14	SCI,08	333	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	14	3	1	3	7	324	
14	SCI,18	334	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	4	2	7	3	3	7	12	3	1	3	7	174
14	SCI,24	335	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	17	3	1	3	7	343	
14	SCI,26	336	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	7	7	3	3	7	12	3	1	0	4	162	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	14	3	1	3	7	166	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	11	3	1	3	7	165	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	14	3	1	3	7	235	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	4	2	7	3	7	00	3	1	2	1	055
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	00	3	1	3	7	000	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	7	7	3	3	7	00	3	1	3	7	336	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	3	3	7	11	1	1	3	7	323	
08	ADD,18	337	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	4	2	3	3	7	05	3	0	1	4	012	

ECC

FLWS	STATE	ADR	DL1	DL0	CBL	RBF	CST	SYN	DSL	S6C	BDC	AIC	BAC	EMX	P6C	SGN	BMX	ADR	ACC	ACF	AGM	CSB	ARC	BRC	ORC	ALU	FMX	UJP	UAF	UBR	NAD
13	SXP,20	340	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	2	4	1	7	3	7	00	3	1	3	7	167
09	ADD,28	341	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	3	7	17	3	0	3	7	007
09	ADD,66	342	1	1	7	1	00	1	1	1	1	1	1	1	3	3	3	3	7	7	7	2	7	3	7	05	3	1	1	6	204
09	ADD,64	343	1	1	7	1	00	1	1	1	1	1	1	1	3	3	3	3	7	7	7	2	7	3	7	05	3	0	3	7	007
XX	XXX,XX	344	1	1	7	1	00	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	7	3	7	17	3	1	3	7	377
14	SCI,16	345	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	2	3	7	17	3	1	1	1	334
11	DIV,06	346	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	3	7	3	3	4	17	3	1	3	7	311
09	ADD,60	347	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	2	7	17	3	1	3	7	007
09	ADD,94	350	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	3	7	17	3	0	3	7	007
09	ADD,76	351	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	3	7	17	3	1	3	7	343
09	ADD,72	352	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	3	7	14	3	1	2	6	361
06	STR,20	353	1	1	7	1	35	0	1	1	1	1	1	1	3	3	3	3	1	2	4	3	7	3	7	17	3	1	1	3	306
11	LCF,40	354	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	1	7	17	3	1	0	4	262
11	LCF,20	355	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	2	1	7	3	7	14	3	0	1	4	216
06	STR,14	356	1	1	7	1	35	0	1	1	1	1	1	1	3	3	3	3	1	5	2	3	7	3	7	17	3	0	1	4	176
08	ADD,22	357	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	7	7	7	3	3	2	7	02	3	0	2	2	107
10	MOD,00	358	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	3	3	7	02	3	1	0	2	107
07	STR,50	361	1	1	7	1	35	0	1	1	1	1	1	1	3	3	3	3	7	7	4	3	3	3	7	17	3	1	3	7	127
10	MUL,18	362	1	1	7																										



NOTES:  
 1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICO FARADS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	TER. NO.
43	EYELET		19006732	43
1	HANDLE MODULE		E-PS-821011-2	42
41	C1 THRU C84	CAPACITOR .01MFD, 100V, 20%	1001610	41
40	C85 THRU C90	CAPACITOR 4.8MFD, 35V, 20%	1000067	40
39	E86	IC DEC DM 8598 ROM	23-C05A1	39
38	E85	IC DEC DM 8598 ROM	23-C04A1	38
37	E84	IC DEC 74187 ROM	23-C17A2	37
36	E5, E6, E15, E16	IC DEC 74174	1910652	36
35	E4, E14, E25, E58, E59, E77, E78, E79	IC DEC 74175	1910651	35
34	E10	IC DEC 74182-1	1910551	34
33	E66, E67, E68, E69	IC DEC 74515B	1910549	33
32	E42, E52	IC DEC 745112	1910545	32
31	E61	IC DEC 74565	1910543	31
30	E91, E82	IC DEC 74564	1910542	30
29	E37, E45, E72, E87	IC DEC 74520	1910539	29
28	E30, E32, E49, E65, E73	IC DEC 74511	1910537	28
27	E23, E24, E31, E43, E71, E83	IC DEC 74510	1910536	27
26	E7, E8, E17, E76	IC DEC 74505	1910535	26
25	E26, E38, E53, E88	IC DEC 74504	1910534	25
24	E51, E62, E89	IC DEC 74500	1910532	24
23	E56, E57	IC DEC 7485	1910224	23
22	E50	IC DEC 74191	1910096	22
21	E80	IC DEC 74422	1910055	21
20	E1, E11, E27, E54	IC DEC 74181	1909982	20
19	E2, E3, E12, E13, E28, E29, E35, E36	IC DEC 745153	1910547	19
18	E10	IC DEC 74404	1909931	18
17	E19, E20, E21, E22, E49	IC DEC 74401	1909849	17
16	E46, E60, E74	IC DEC 74474	1909667	16
15	E18, E81	IC DEC 74411	1909267	15
14	E63, E75	IC DEC 74410	1909057	14
13	E54, E64, E84	IC DEC 74400	1909056	13
12	E55	IC DEC 74420	1905635	12
11	E12	RESISTOR 270Ω, 1/4W, 5%	1301972	11
10	R28, R30, R34, R36, R38	RESISTOR 2.4K, 1/4W, 5%	1303177	10
9	R1, R3, R5, R7, R9, R13, R15, R17, R19, R24, R26, R32, R40, R41	RESISTOR 680Ω, 1/4W, 5%	1301424	9
8	R2, R4, R6, R8, R10, R14, R16, R18, R20, R23, R25, R33, R39, R42	RESISTOR 330Ω, 1/4W, 5%	1300295	8
7	R27, R29, R31, R35, R37	RESISTOR 1.2K, 1/4W, 5%	1301320	7
6	R11	RESISTOR 470Ω, 1/4W, 5%	1300316	6
5	R22	RESISTOR 100Ω, 1/4W, 5%	1300229	5
4		ETCHED CIRCUIT BOARD	5009860	4
3		MODULE ECO HISTORY	B-MH-MB13-0-4	3
2		ASSY/DRILLING HOLE LAYOUT	F-MH-MB13-0-5	2
1		X-Y COORDINATE HOLE LOCATION	K-CO-MB13-0-4	1

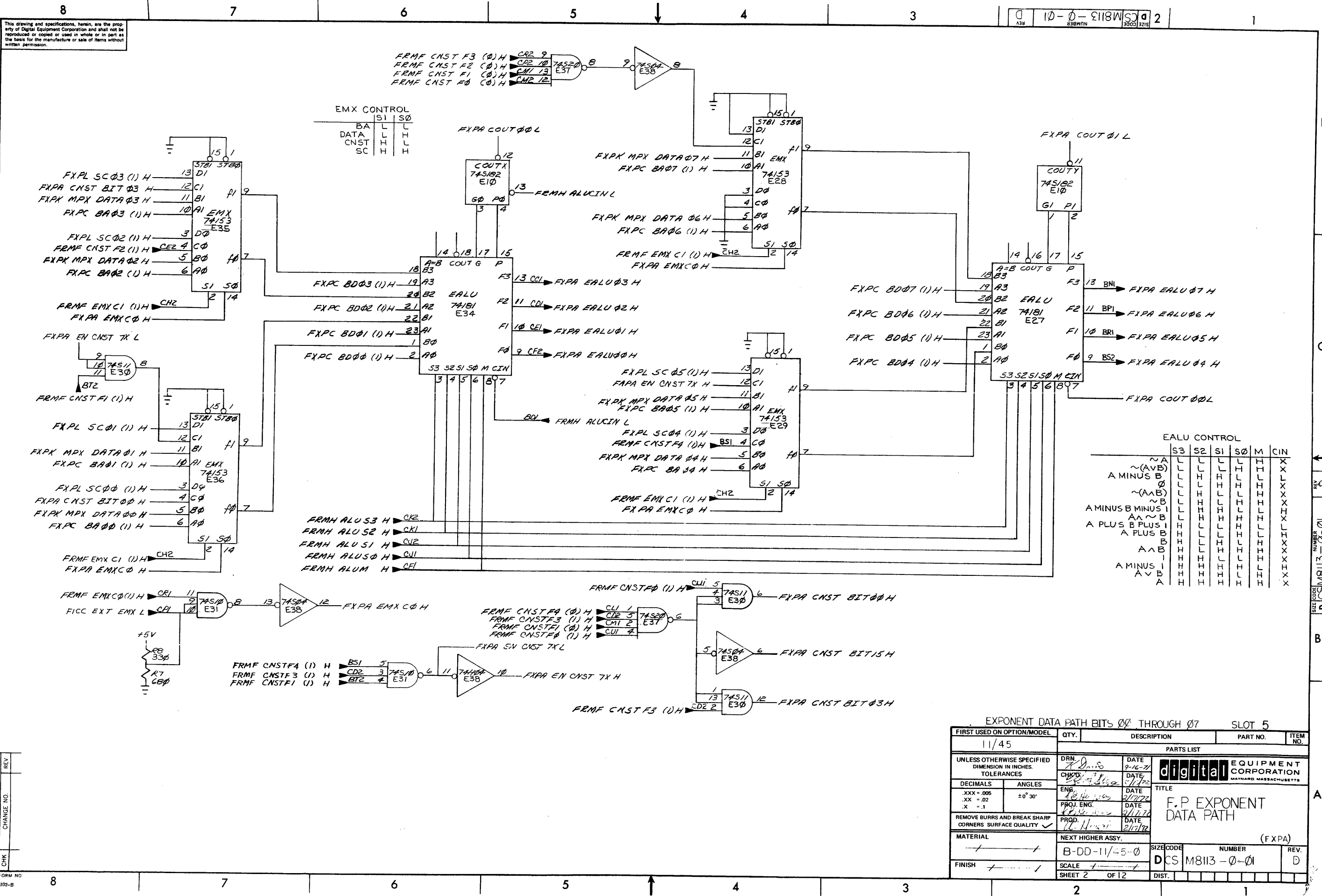
IC TYPE	QTY	REF	TER. NO.
DEC DM8598	8	16	
DEC 74187	8	16	
DEC 74174	8	16	
DEC 74175	8	16	
DEC 745182	8	16	
DEC 74515B	8	16	
DEC 745112	8	16	
DEC 7485	8	16	
DEC 74191	8	16	
DEC 74181	12	24	
DEC 7453	8	16	

AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV1 +5V  
 AC2, AN2, AH1, AT1, BC2, BN2, BH1, BT1, CC2, CN2, CH1, CT1, DC2, DN2, DH1, DT1, EC2, EN2, EH1, ET1, FC2, FN2, FH1, FT1  
 GND  
 +5V  
 .01MFD  
 C85 THRU C90  
 C1 THRU C84

SEMICONDUCTOR CONVERSION CHART

DATE: 11/15/74  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 TITLE: F.P. EXPONENT DATA PATH  
 PART NO.: ECSI MB13-0-1  
 SHEET 1 OF 12

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EMX CONTROL

BA	L	L
DATA	L	L
CNST	H	H
SC	H	H

EALU CONTROL

	S3	S2	S1	S0	M	CIN
~A	L	L	L	L	H	X
~(A+B)	L	L	L	L	H	X
A MINUS B	L	L	L	L	H	X
0	L	L	L	L	H	X
~(A-B)	L	L	L	L	H	X
~B	L	L	L	L	H	X
A MINUS B MINUS 1	L	L	L	L	H	X
A ~ B	L	L	L	L	H	X
A PLUS B PLUS 1	L	L	L	L	H	X
A PLUS B	L	L	L	L	H	X
A ^ B	L	L	L	L	H	X
A ^ B	L	L	L	L	H	X
A MINUS 1	L	L	L	L	H	X
A v B	L	L	L	L	H	X
A	L	L	L	L	H	X

EXPONENT DATA PATH BITS 00 THROUGH 07 SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS		ANGLES		
.XXX = .005		±0° 30'		
.XX = .02				
.X = .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL NEXT HIGHER ASSY.				
FINISH				

digital EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE: F.P. EXPONENT DATA PATH (FXPA)

SIZE CODE: B-DD-11/45-0  
NUMBER: DCS M8113-0-01  
REV. D

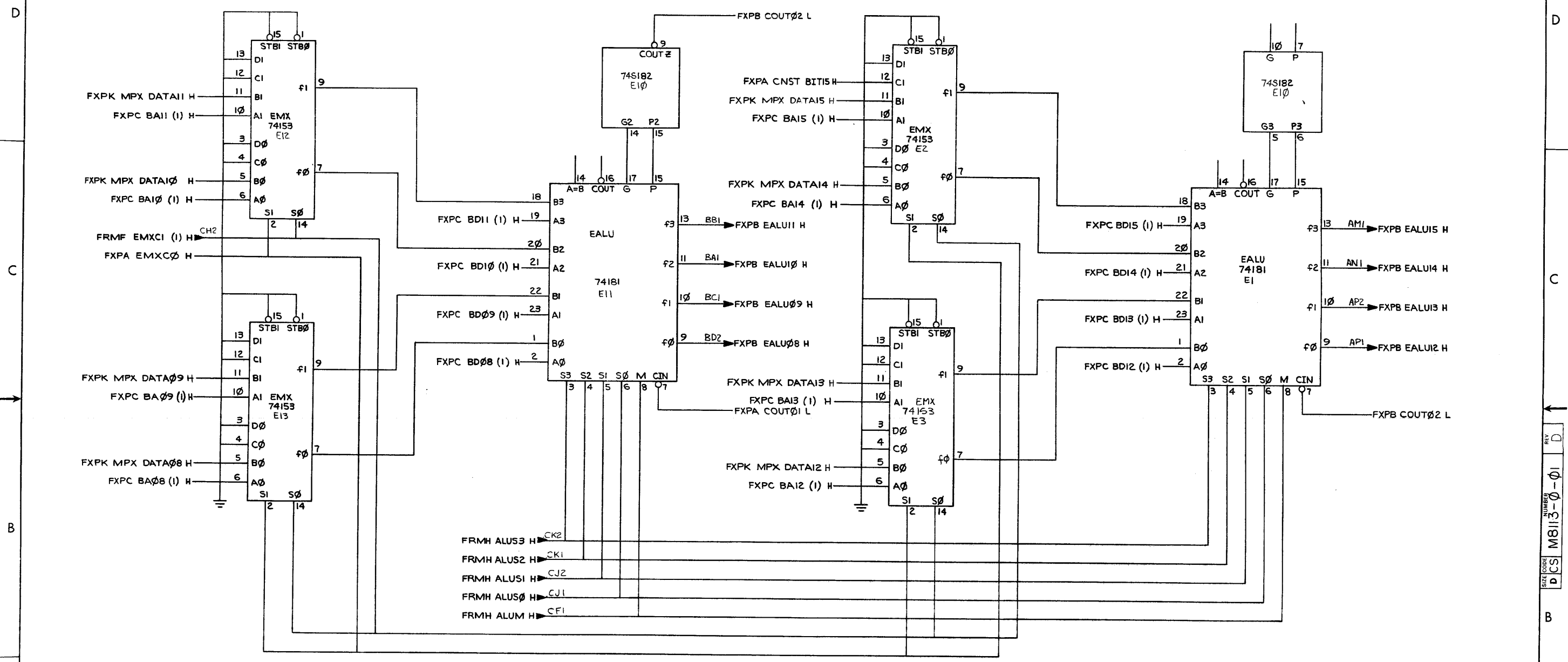
SHEET 2 OF 12

REVISIONS

REV	CHANGE NO.

DEC FORM NO. DRD 102-B

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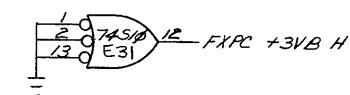
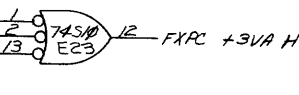
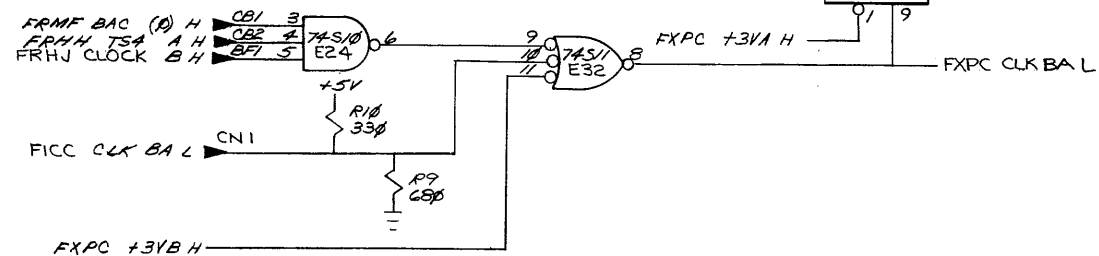
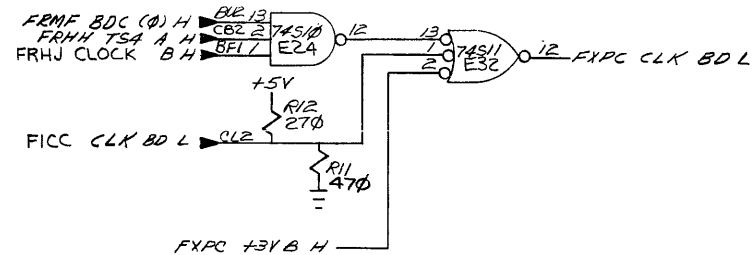
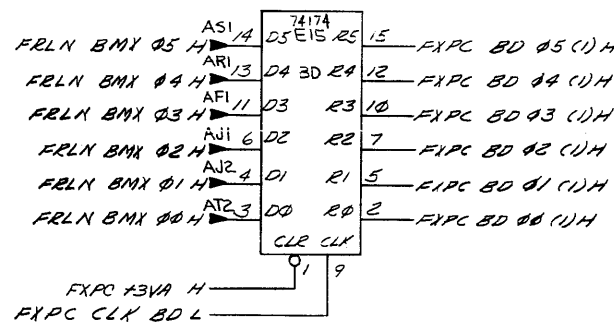
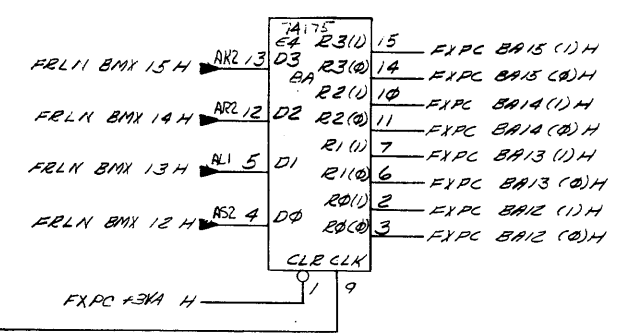
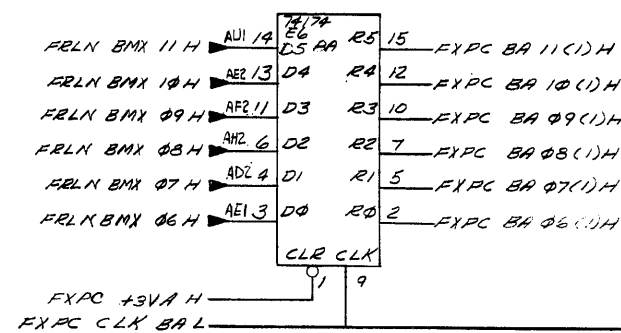
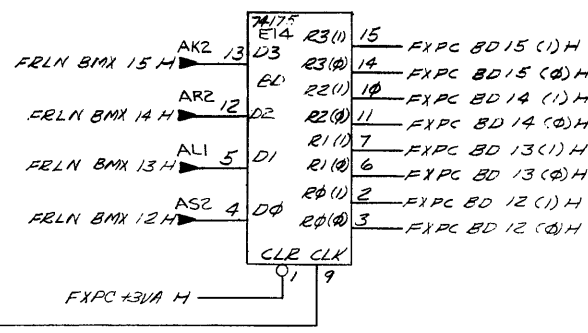
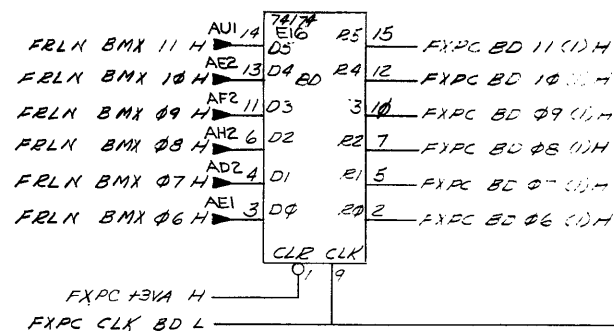


REV	
CHK	
DESIGN	
CHANGE	
NO	

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.		DRN. S. R. ...	DATE 9/23/71		
TOLERANCES		CHK'D. ...	DATE		
DECIMALS	ANGLES	ENG. ...	DATE	TITLE F.P. EXPONENT DATA PATH	
.XXX - .005	= 0° 30'	PROJ. ENG. ...	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. ...	DATE 4/1/72	(X1B) SIZE CODE NUMBER DCS M8113-0-01	
MATERIAL		NEXT HIGHER ASSY.			
FINISH		SCALE		REV. 0	
		SHEET 3 OF 12		DIST.	

REV D  
 NUMBER M8113-0-01  
 SIZE CODE DCS  
 B

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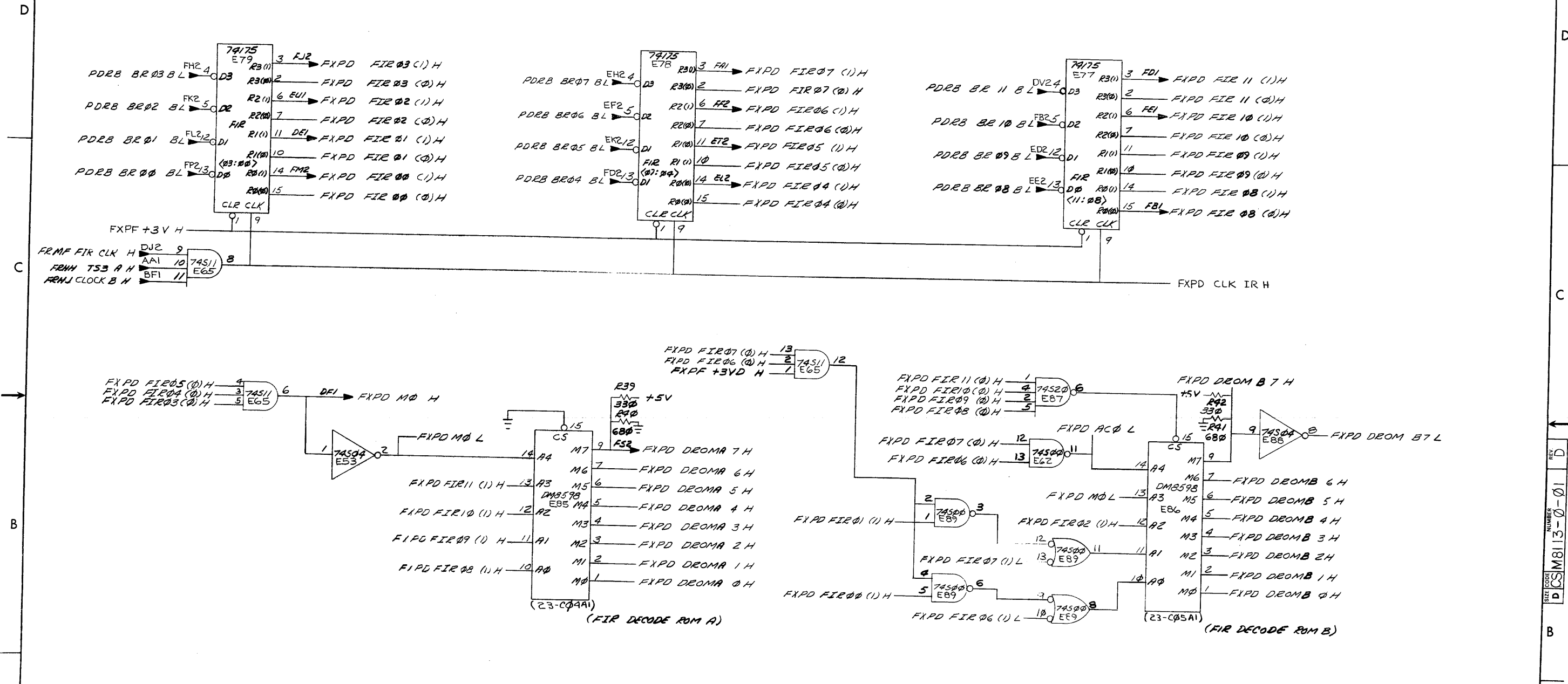


BD & BA REGISTERS SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.		DRN. <i>A. Davis</i>	DATE 9-17-71	<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
TOLERANCES		CHK'D <i>[Signature]</i>	DATE 2/1/72	
DECIMALS .XXX = .005 .XX = .02 .X = .1	ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 2/17/72	TITLE F.P. EXPONENT DATA PATH
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		PROJ. ENG. <i>[Signature]</i>	DATE 8/17/72	
		PRG'D. <i>[Signature]</i>	DATE 2/17/72	
MATERIAL	NEXT HIGHER ASSY.	(FXPC)		
FINISH	B·C·D-11/45-0	SIZE CODE DCS	NUMBER M8113-0-01	REV D
SCALE		SHEET 4 OF 12		
		DIST.		

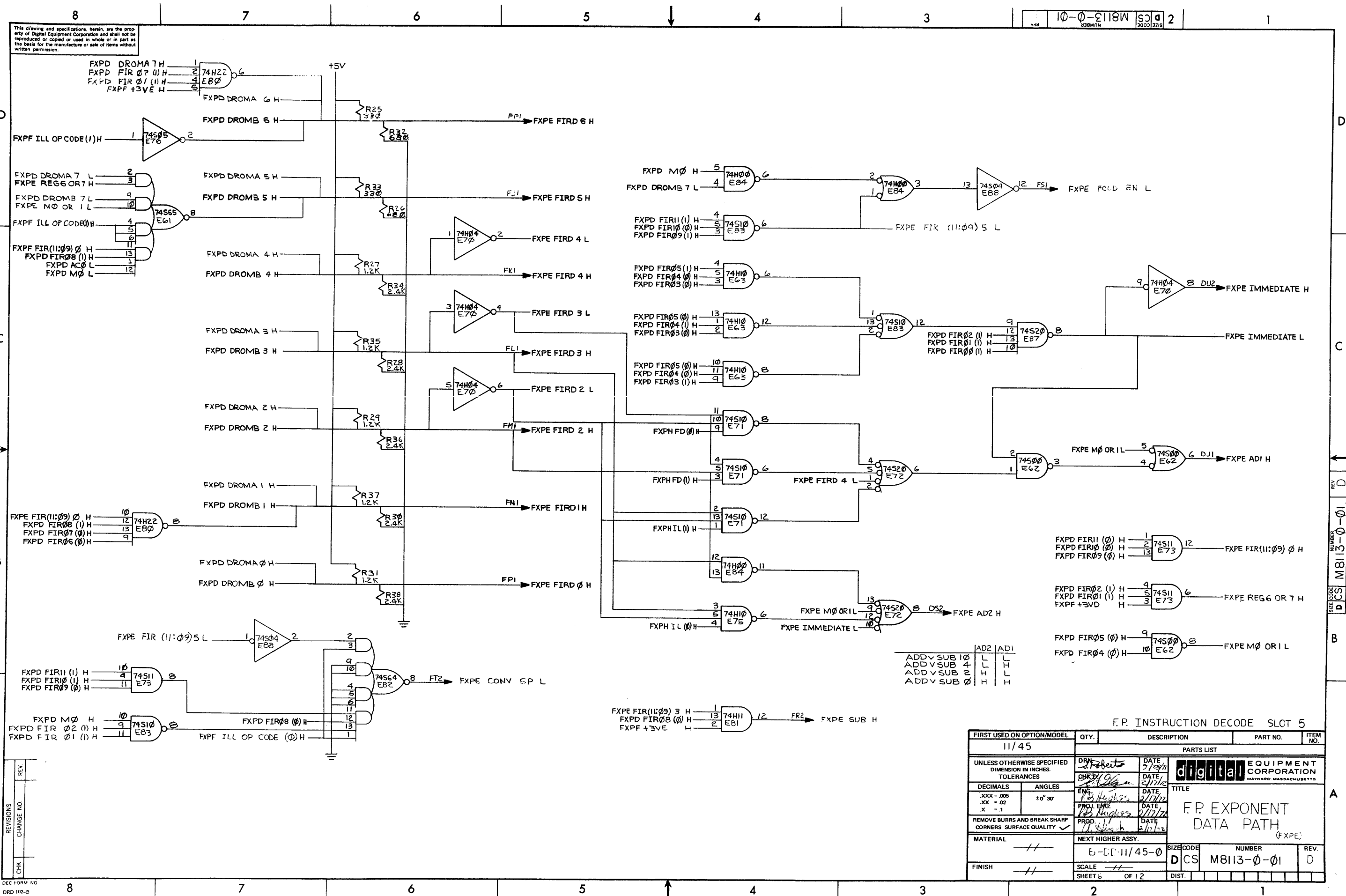
REVISIONS	NO.	REV.
CHANGE NO.		
CHK		

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FIRST USED ON OPTION/MODEL				QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45							
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				PARTS LIST			
DECIMALS	ANGLES	DRN	DATE				
.XXX = .005	±0° 30'	CHKD	DATE				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG.	DATE	DATE	TITLE			
	PROD.	DATE	DATE	F.P. EXPONENT DATA PATH (FXPD)			
MATERIAL	NEXT HIGHER ASSY.	SCALE		SIZE CODE	NUMBER	REV.	
		B-03-11/45-0		DCSM8113-0-01			
FINISH	SHEET 5 OF 12	DIST.					

REV	DATE	BY	CHK



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10-0-2118W SC 2

REV.	CHANGE NO.

DEC FORM NO DRD 102-B

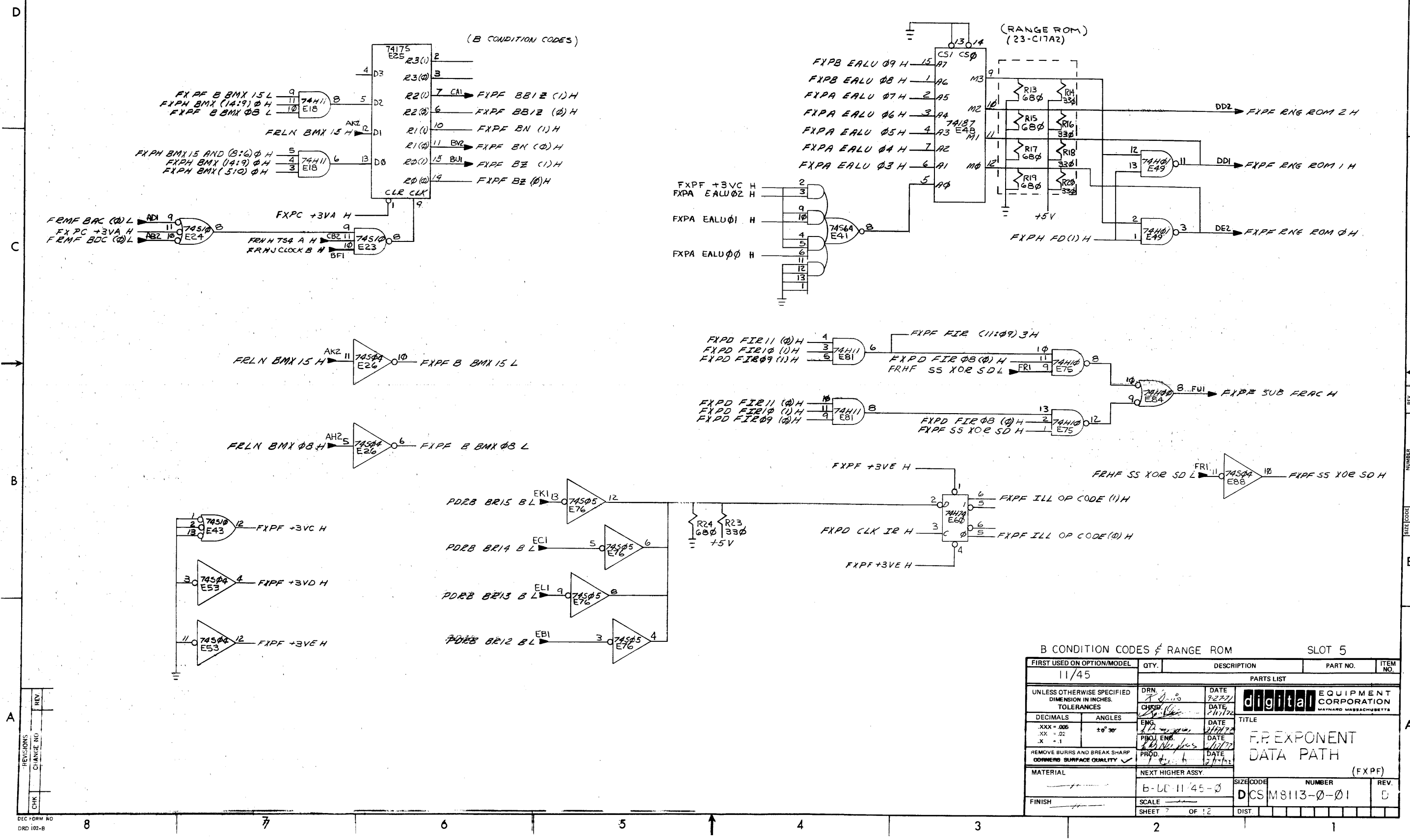
AD2	AD1
ADDV SUB 10	L L
ADDV SUB 4	L H
ADDV SUB 2	H L
ADDV SUB 0	H H

F.P. INSTRUCTION DECODE SLOT 5

FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX = .005	±0°30'	F.P. EXPONENT DATA PATH (FXPE)		
.XX = .02		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		
.X = .1		NEXT HIGHER ASSY.		
MATERIAL		SCALE		
FINISH		SHEET 6 OF 12		
		SIZE CODE	NUMBER	REV.
		D CS	M8113-0-01	D
		DIST.		

REV. D  
NUMBER M8113-0-01  
SIZE CODE D CS

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B CONDITION CODES & RANGE ROM SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN CHKD	DATE DATE	<b>digital</b> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	EMC	DATE		
ANGLES	PROJ. ENG.	DATE	TITLE <b>F.P. EXPONENT DATA PATH (FXPF)</b>	
.XXX = .005 .XX = .02 .X = .1	PROD.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	SCALE		DCS M8113-0-01	D
	SHEET 7 OF 12	DIST.		

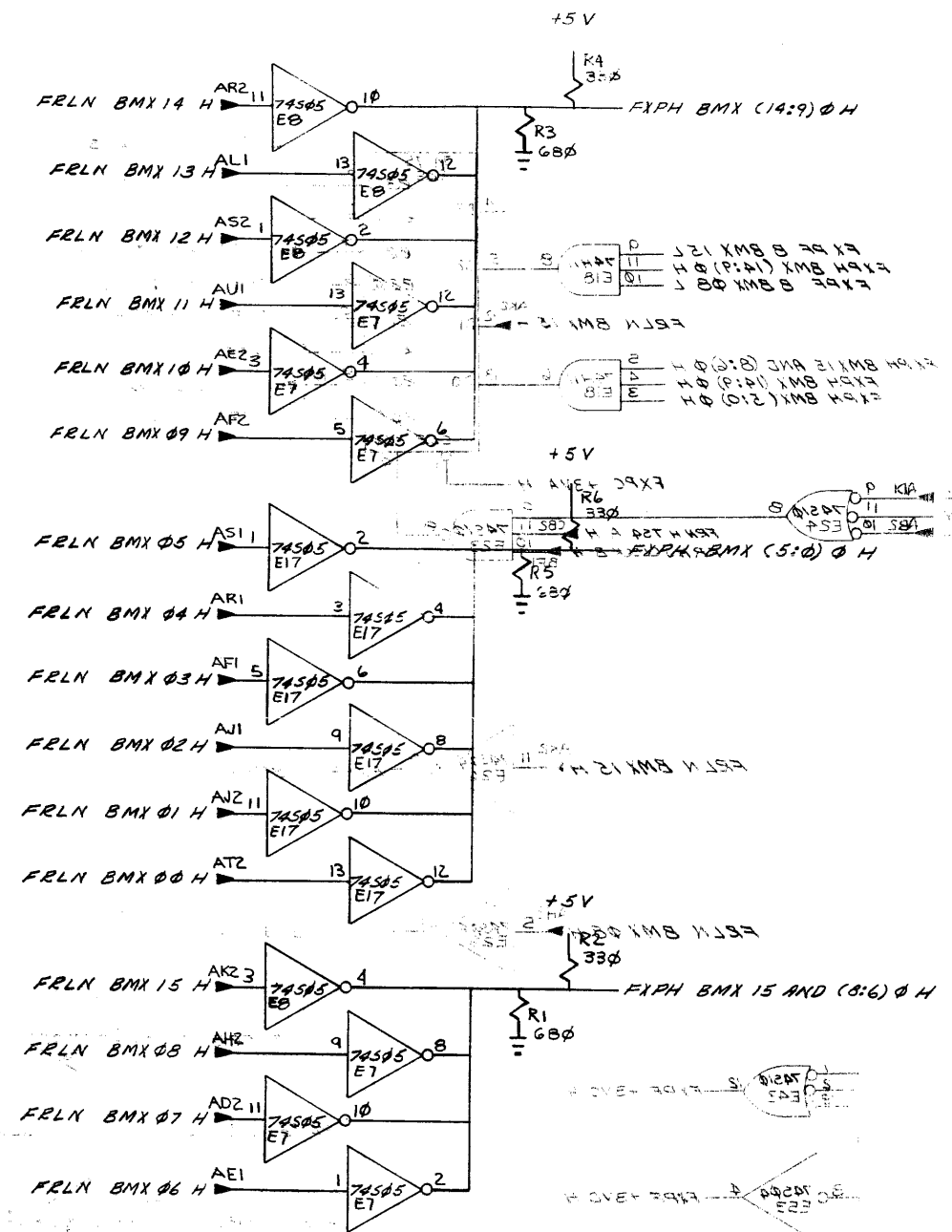
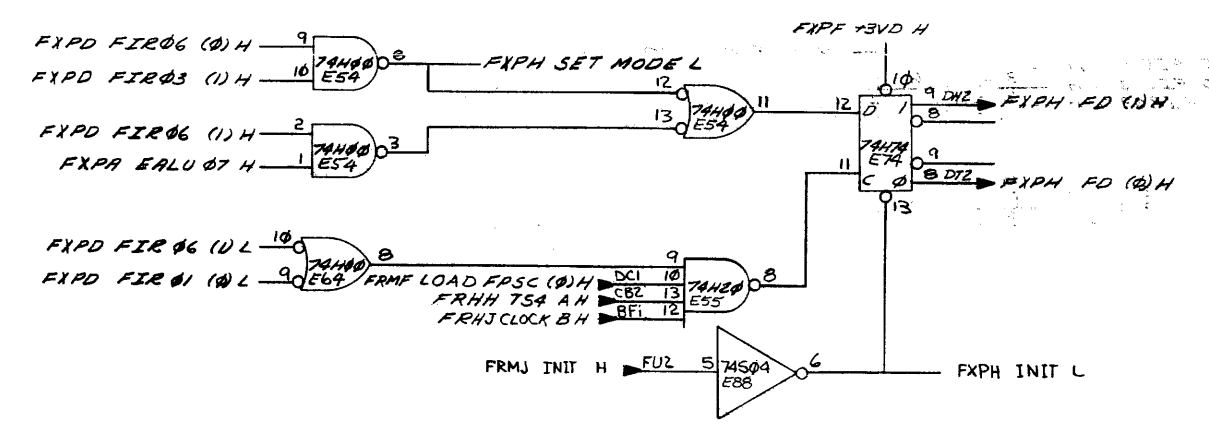
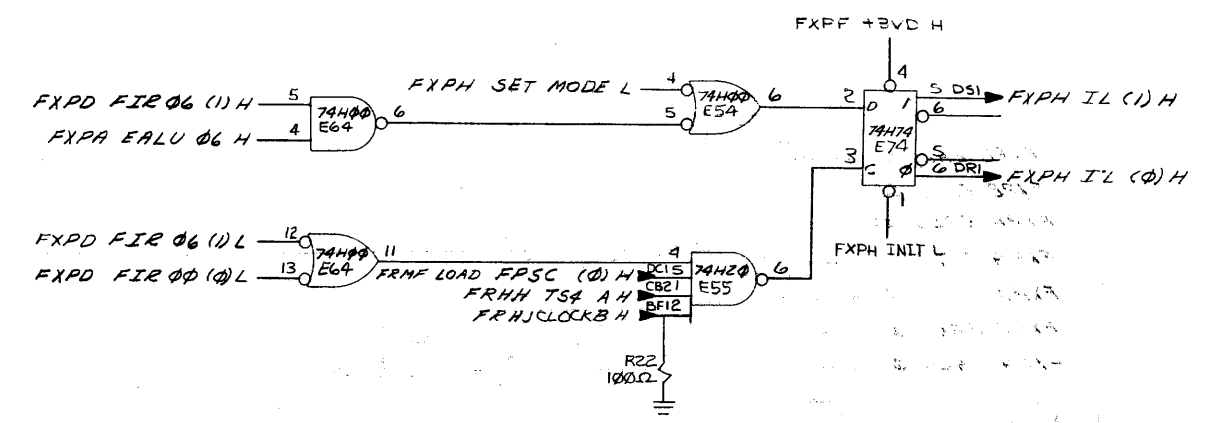
REVISIONS  
CHANGE NO.  
REV.

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DATE: 11/17/72  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 APPROVED BY: [Signature]

D  
C  
B  
A

D  
C  
B  
A

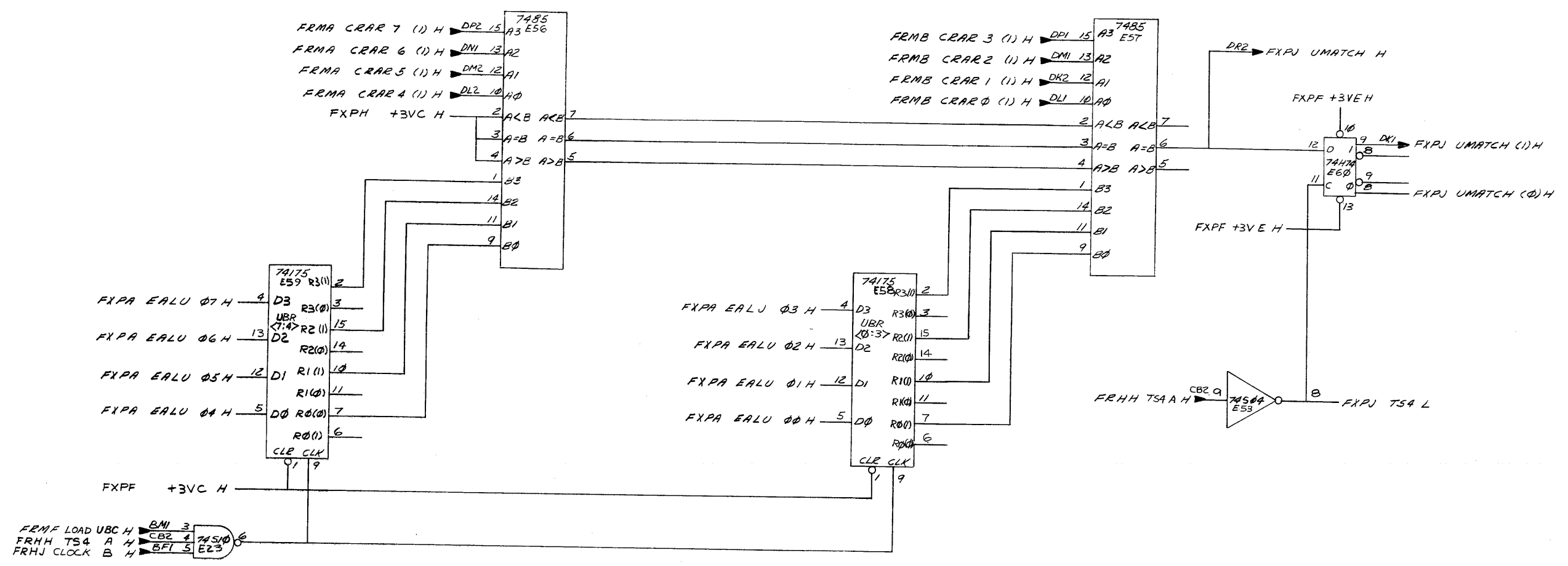


FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	CHKD.	DATE	TITLE	
.xxx = .005	±0° 30'	ENG.	DATE	F.P. EXPONENT DATA PATH (FXPH)	
.xx = .02		PROJ. ENG.	DATE	SIZE CODE NUMBER REV.	
.x = .1		PROD.	DATE	DCS M8113-0-01 D	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.		SCALE	
		C-LL-11/45-0		SHEET 5 OF 12	
FINISH		SCALE		DIST.	

REV. D  
 NUMBER DCS M8113-0-01

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10-0-8118WSD 2



FIRST USED ON OPTION/MODEL				QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45							
PARTS LIST							
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN.	DATE	 <b>digital</b> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS			
DECIMALS		CHKD.	DATE				
ANGLES		ENG.	DATE				
XXX - .005		PROJ. ENG.	DATE				
XX - .02		PROD.	DATE	F R EXPONENT DATA PATH (EXP.1)			
X - .1							
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				MATERIAL		NEXT HIGHER ASSY.	
				FINISH			
				SCALE		B-DD-11/45-0	SIZE CODE
				SHEET		9 OF 12	NUMBER
				DIST.		D C S M 8113-0-01	REV.
							D

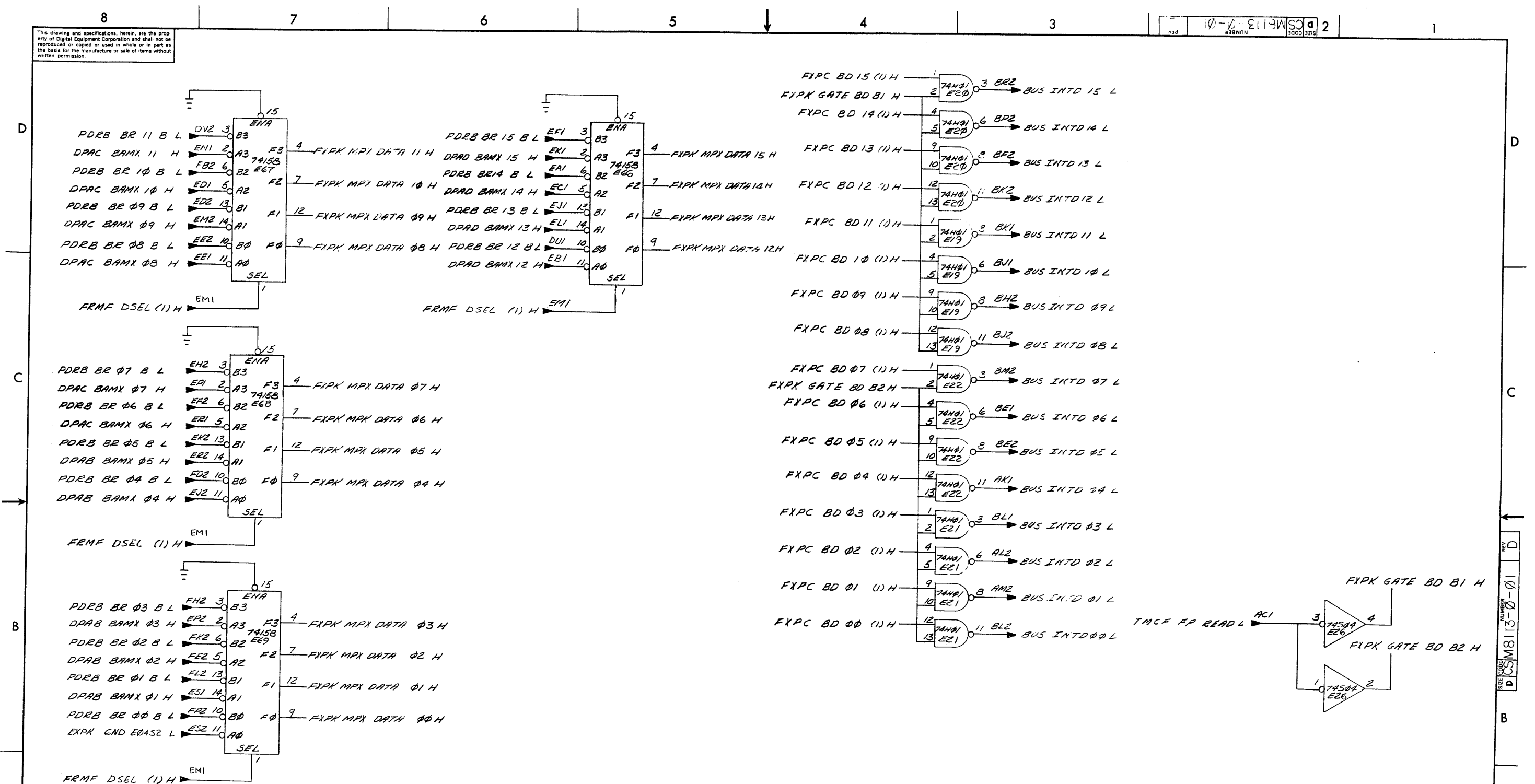
REV.	CHANGE NO.

FORM NO. 102-B

REV. D  
ITEM NO. 01  
NUMBER 8113-0-01  
SHEET 9 OF 12

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10-13118W SCD 2



F. P. DATA RECEIVERS AND DRIVERS SLOT 5

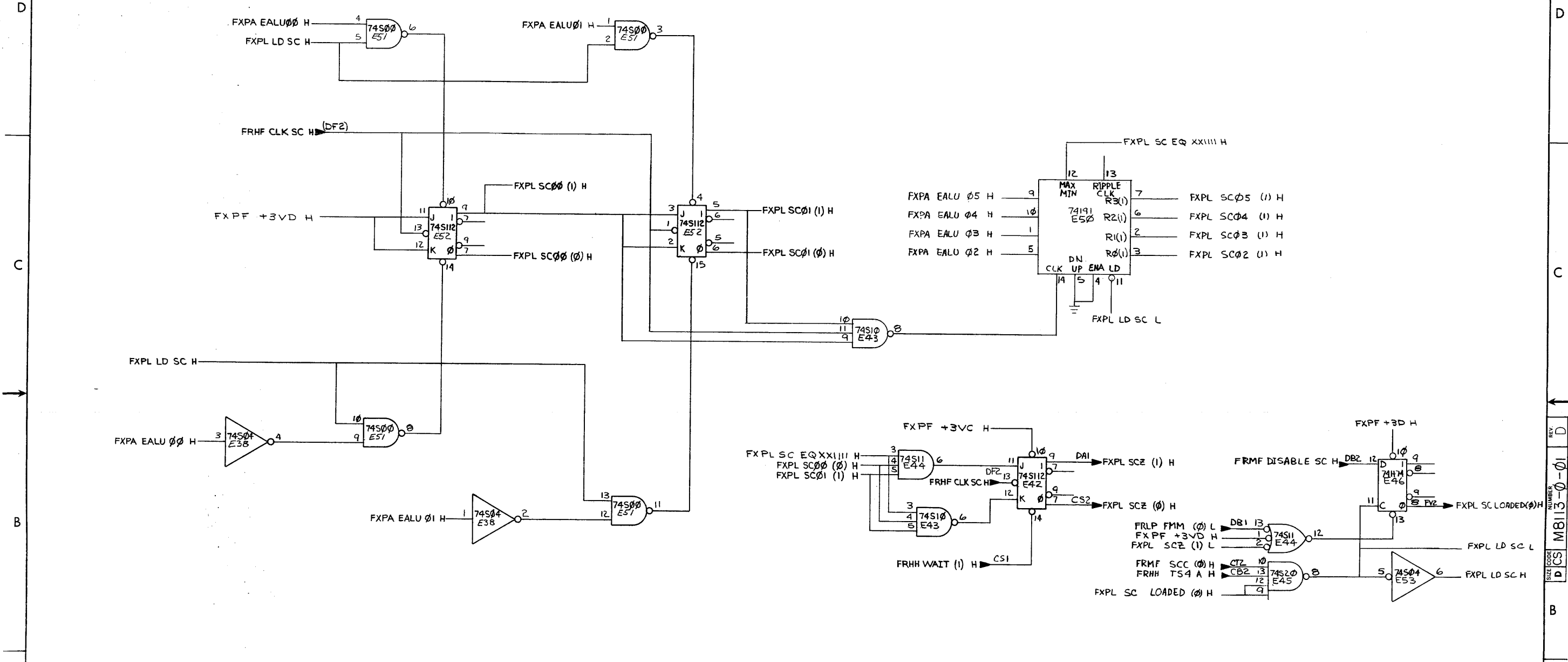
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	DRN	DATE	 <b>digital</b> EQUIPMENT CORPORATION <small>WATYARD MASSACHUSETTS</small>
.XXX = .005	±0° 30'	CHK'D	DATE	
.XX = .02		ENG.	DATE	
.X = .1		PROJ. ENG.	DATE	
		PRGD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.	TITLE		
FINISH	B-DD 11/45-0	F. P. EXPONENT DATA PATH		
		SIZE CODE	NUMBER	REV.
		D C S M 8113-0-01	D	D
		SCALE		
		SHEET 10 OF 12		
		DIST.		

REV	CHANGE NO.

DEC FORM NO DRD 102-B

REV D  
NUMBER DCSM8113-0-01  
REV B

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STEP COUNTER SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN <i>J. Roberts</i>	DATE 9/29/71	<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHK'D <i>[Signature]</i>	DATE		
ANGLES	ENG <i>[Signature]</i>	DATE	TITLE <b>F.P. EXPONENT DATA PATH</b> (EXPL)	
XXX = .005 XX = .02 X = .1	PROJ. ENG.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>[Signature]</i>	DATE 2/2/72		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-11/45-0	D/CS	M8113-0-01	D
	SCALE	SHEET 11	OF 12	

REV	
CHG	
CHK	

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CONTENTS OF DECODE ROM A (DROMA)

ADDRESS	DATA				INSTRUCTION
	7	6	5	4	
0	0	1	1	1	FOP, CODE 0 (CLR, TSTF, ABSF, NEGF)
1	1	0	1	0	MULF
2	1	0	1	1	MODF
3	1	0	1	0	ADDF
4	1	0	1	1	LDIF
5	1	0	1	0	SUBF
6	1	0	1	1	CMPF
7	1	0	1	0	STF
8	1	0	1	1	DIVF
9	1	0	1	0	STEXP
10	1	0	1	1	STCF1
11	1	0	1	0	STCFD
12	1	0	1	1	LDEXP
13	1	0	1	0	LDCIF
14	1	0	1	1	LDCDF
15	0	1	1	1	FOP, CODE 1 (CLR, TSIF, ABSF, NEGF)
16	0	1	1	0	MULF
17	0	1	1	1	MODF
18	0	1	1	0	ADDF
19	0	1	1	1	LDIF
20	0	1	1	0	SUBF
21	0	1	1	1	CMPF
22	0	1	1	0	STF
23	0	1	1	1	DIVF
24	0	1	1	0	STEXP
25	0	1	1	1	STCF1
26	0	1	1	0	STCFD
27	0	1	1	1	LDEXP
28	0	1	1	0	LDCIF
29	0	1	1	1	LDCDF
30	0	1	1	0	FOP, CODE 2 (CLR, TSTF, ABSF, NEGF)
31	0	1	1	1	MULF
32	0	1	1	0	MODF
33	0	1	1	1	ADDF
34	0	1	1	0	LDIF
35	0	1	1	1	SUBF
36	0	1	1	0	CMPF
37	0	1	1	1	STF

NOTE:

- FOP CODE 0 ALSO ENABLES DROMB. DATA BITS <6:0> OF DROMB ARE COLLECTOR OR'D WITH DATA BITS <6:0> OF DROMA.
- DATA BIT 7 IS USED TO DECODE F<sub>A</sub> CLASS MB. F CLASS CONTAINS ALL INSTRUCTIONS THAT REFERENCE AN AC FOR ADDRESS MODE 0.
- DATA BITS <6:5> ENCODE THE INSTRUCTIONS INTO 4 CLASSES.
  - 0 ILL-OP-CODE; UNDEFINED FOR CODES
  - 1 NO-MEM-CL; THESE REQUIRE NO MEMORY CYCLES
  - 2 LOAD-CL; THESE REQUIRE DAT1'S
  - 3 STORE-CL; THESE REQUIRE DAT0'S
 ONE LEG OF THE AND-OR-INVERT GATE THAT IS COLLECTOR OR'D WITH DATA BIT 5 FORCES TSTF, ABSF & NEGF & MB INTO THE LOAD CLASS. THE REMAINING INPUTS TO THIS GATE FORCE AN ILLEGAL OP CODE.
- DATA BITS <4:0> ENCODE THE INSTRUCTIONS INTO 6 CLASSES. THIS GROUPING DEFINES THE CONSTANT THAT IS ADDED TO OR SUBTRACTED FROM THE GENERAL REGISTER FOR ADDRESSING MODES 2 OR 4.
  - 0 CLASS 0; USE 4 (FD(0)) OR 8 (FD(1))
  - 1 CLASS 1; USE 8(FD(0)) OR 4 (FD(1))
  - 2 CLASS 2; USE 2 (1L(0)) OR 4 (1L(1))
  - 3 CLASS 3; USE 2
  - 4 CLASS 4; USE 4
  - 5, 6, 7 CLASS 5; DON'T CARE (MB ONLY)

CONTENTS OF DECODE ROM B (DROMB)

ADDRESS	DATA				INSTRUCTION
	7	6	5	4	
0	0	1	0	1	CFCC
1	1	0	1	0	SETD
2	1	0	1	1	SETL
3	1	0	1	0	LDUB
4	1	0	1	1	LDSC
5	1	0	1	0	STAB
6	1	0	1	1	MPS
7	1	0	1	0	STOB
8	1	0	1	1	ILLEGAL OP CODE
9	1	0	1	0	SETD
10	1	0	1	1	SETL
11	1	0	1	0	ILLEGAL OP CODE
12	1	0	1	1	ILLEGAL OP CODE
13	1	0	1	0	ILLEGAL OP CODE
14	1	0	1	1	ILLEGAL OP CODE
15	1	0	1	0	ILLEGAL OP CODE
16	1	0	1	1	ILLEGAL OP CODE
17	1	0	1	0	ILLEGAL OP CODE
18	X	X	X	X	NOT USED
19	1	0	1	0	LDFPS
20	1	1	1	0	STFPS
21	1	1	1	1	STST
22	X	X	X	X	NOT USED
23	1	0	1	0	LDFPS
24	1	1	1	0	STFPS
25	1	1	1	1	STST
26	X	X	X	X	NOT USED
27	1	1	1	0	LDFPS
28	1	1	1	1	STFPS
29	1	1	1	0	STST
30	X	X	X	X	NOT USED
31	1	1	1	0	LDFPS
32	1	1	1	1	STFPS
33	1	1	1	0	STST
34	X	X	X	X	NOT USED
35	1	1	1	0	LDFPS
36	1	1	1	1	STFPS
37	1	1	1	0	STST

NOTE:

- FOP CODE 0 ENABLES DROMB.
- FIR <07:06>(0) MB CAUSES THE LOWER QUARTER OF DROMB TO BE ADDRESSED BY THE LOWER 3 BITS OF THE FIR. ALL OF THESE OP CODES ARE USED. DATA BIT 7 IS USED TO DECODE CFCC FOR THE GENERATION OF FOLD EN.
- FIR <07:06>(0) MB CAUSES THE SECOND QUARTER OF DROMB TO BE ADDRESSED BY THE LOWER 3 BITS OF THE FIR. ONLY TWO OP CODES ARE USED (SET D & SET L). DATA BIT 7 IS USED TO FORCE AN ILL OP CODE IF ADDRESSES 11 & 12 ARE ACCESSED & FIR <05:03> IS NOT 1.
- FIR <07:06>(1), (2) OR (3) CAUSE THE UPPER HALF OF DROMB TO BE ADDRESSED. THE INSTRUCTIONS LDFPS, STFPS, & STST USE ALL OF THIS OP CODE SPACE. NOTE THAT FIR 06 & FIR 07 ARE ALSO USED AS THE LEAST SIGNIFICANT TWO BITS OF THE ADDRESS.

CONTENTS OF RANGE ROM

ADDRESS	DATA				OUTPUT OF EALU	RANGE FD(0)	RANGE FD(1)
	3	2	1	0			
0	0	1	0	0	1 TO 7	GT	GT
1	0	1	0	1	0	EQ	EQ
2 TO 5	0	1	0	0	10 TO 27	GT	GT
6	1	1	1	1	31 TO 37	MGT	GT
7	0	1	0	0	30	GT	GT
10 TO 15	1	1	1	1	41 TO 67	MGT	GT
16	0	1	1	1	71 TO 77	MGT	MGT
17	1	1	1	1	70	MGT	GT
20 TO 177	0	1	1	1	100 TO 777	MGT	MGT
200 TO 361	0	0	0	1	-71 TO -1000	MLT	MLT
362 TO 371	1	0	0	1	-31 TO -70	MLT	LT
372 TO 377	0	0	0	0	-1 TO -30	LT	LT

NOTE:

DATA BITS <2:0> ARE USED TO PERFORM THE MLT, LT, EQ, GT & MGT BRANCH. DATA BIT 3, WHEN TRUE IS USED TO ENABLE HARDWARE THAT MODIFIES MLT TO LT AND MGT TO GT IF FD(1).

REV	
CHK	

DEC FORM NO. DRD 102-B

AUX ROM MAPS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. DATE 10/1/72	DATE 10/1/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS ANGLES	CHK'D. DATE 10/1/72	DATE 10/1/72	TITLE F. P. EXPONENT DATA PATH	
XXX = .005 XX = .02 X = .1	ENG. DATE 10/1/72	DATE 10/1/72	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	
MATERIAL	PROJ. ENG. DATE 10/1/72	DATE 10/1/72	NEXT HIGHER ASSY.	
FINISH	PROD. DATE 10/1/72	DATE 10/1/72	SCALE	
			SHEET 12 OF 12	
			SIZE CODE DCS	NUMBER M8113-0-01
				REV. D

BRUNING 40-522 15840

REV. D  
NUMBER M8113-0-01  
SIZE CODE DCS

A

