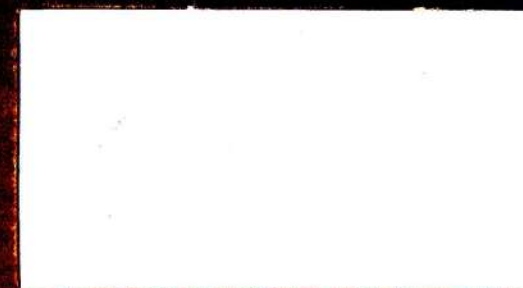




pdp11



digital

DIP SHIT

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

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

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UNIT VARIATIONS		PRINT SET TYPE				
VARIATION	TITLE	FP11-T				
FP11-B	FLOATING POINT PROCESSOR					

REVISIONS	CHG. NO.	REV
DATE	7-72 <i>PC</i>	A
7-72 <i>PC</i>		

USED ON OPTION/MODEL	11/45	DRN.	R. COOK	DATE	2/24/72	TITLE	FLOATING POINT PROCESSOR					
		CHK'D.	R. COOK	DATE	4/19/72							
		PROJ ENG	<i>P. Hinch</i>	DATE	4/29/72							
		PROD.	<i>P. Hinch</i>	DATE	5/1/72	SIZE CODE						
		FIELD SERV.	<i>Ch. Jones</i>	DATE	5/1/72	B DD						
		SHEET	1	OF	3	DIST			NUMBER	FP11-B	REV	A

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10-B-1145-02

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

- CNST (57:5)
- 0 1 TO 15 200
 - 1 1 TO 15 10000
 - 2 12 TO 14 12 TO 14
 - 3 15 100004
 - 4 16 100004
 - 5 16 100004
 - 6 21 TO 31 21 TO 31
 - 7 22 229
 - 8 22 229
 - 9 32 78
 - 10 33 71
 - 11 34 TO 35 34 TO 35
 - 12 36 74
 - 13 37 75

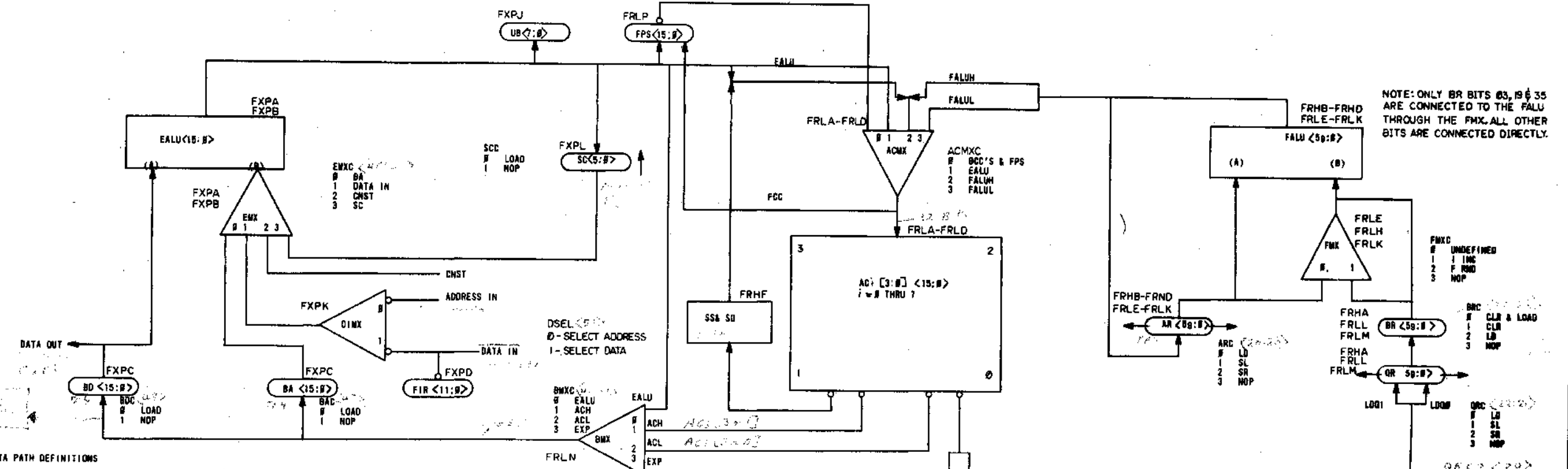
- RDPN CNSTF (1)
- 0 TRAP & WAIT FOR ACKN
 - 1 NOP
 - 2 WAIT FOR ATTN
 - 3 NOT USED
 - 4 NOT USED
 - 5 DATI
 - 6 NOT USED
 - 7 TRAP IF -B
 - 8 NOT USED

- FCC (11:0)
- 0 LD FN&FZ CLR FVEFC
 - 1 LD FN&FZ CLR FVECLR FC
 - 2 LD FN&FZ CLR FVESET FC
 - 3 NOP

- SYNC (52)
- 0 ENABLE
 - 1 NOP
- ADDR INCR (11:0)
- 0 ADD 2 TO ADDRESS
 - 1 ADD B TO ADDRESS
 - 2 NOT USED
 - 3 NOT USED
 - 4 NOT USED
 - 5 NOT USED
 - 6 NOT USED
 - 7 NOT USED
- DISBLF (11:0)
- 0 CLR INITF & ABORTF
 - 1 NOP
- DISBLI (11:0)
- 0 CLR FP REQ
 - 1 NOP

- CONTROL SEL (11:0)
- 0 LD FPS
 - 1 LD UB
 - 2 REG WRITE
 - 3 DISABLE SYNC
 - 4 DISABLE SC
 - 5 FIR CLK
 - 6 NOT USED
 - 7 NOT USED

- CSB (11:0)
- 0 FRAC-MUL
 - 1 FRAC-DIV
 - 2 RS-AR-SC
 - 3 LS-AR-NORW
 - 4 RS-OR-SC (B IN)
 - 5 LS-OR-SC
 - 6 RS-OR-SC (I IN)
 - 7 NOP



DATA PATH DEFINITIONS

ACMX ← FPS = ACMX (31) ← BN; ACMX (30) ← BZ; ACMX (29:18) ← 3777; ACMX (15:0) ← FPS (15:0)
 ACML ← EALU = ACMX (31:16) ← EALU (15:0); ACMX (15:0) ← EALU (15:0)
 ACML ← FALUL = ACMX (31:0) ← SD; ACMX (30:23) ← EALU (7:0); ACMX (22:0) ← FALU (57:35)
 ACML ← FALUL = ACMX (31:0) ← FALU (34:3)
 BMX ← EALU = BMX (15:0) ← EALU (15:0)
 BMX ← ACH = BMX (15:0) ← AC1 (3) (15:0) OR AC1 (1) (15:0) ← AC1 (3) (15:0) OR AC1 (1) (15:0)
 BMX ← ACL = BMX (15:0) ← AC1 (3) (15:0) OR AC1 (0) (15:0)
 BMX ← EXP = BMX (15:0) ← B; BMX (7:0) ← AC1 (3:2) (30:23) OR AC1 (3:2) (30:23) OR AC1 (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) ← B; EMX (5:0) ← SC (5:0)

FMX ← BR = FMX (2) ← BR (35); FMX (1) ← BR (18); 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)

LDQI = QR (59) ← B; QR (58) ← 1 IF AC1 (3:2) (30:23) OR QR (58) ← B; QR (57:35) ← AC1 (3:2) (22:0)
 LDQ0 = QR (34:3) ← AC1 (1:0) (31:0); QR (2:0) ← B

B coord. codes are all numbers BC = BA is checked

$BZ = BMX (15:0) = 0$

$BU = BMX (15:0) = 1$

$BRIZ = BMX (15:08) = 0$

FICC must use B

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

- SIGNC (11:0)
- 0 SD ← SS IF SUB ELSE SD ← SS
 - 1 SD ← SS, PSD
 - 2 SS ← 1
 - 3 NOP

- ACF (11:0)
- 0 ACS
 - 1 ACS₁
 - 2 ACS₂
 - 3 ACS₃
 - 4 ACS₄
 - 5 ACS₅
 - 6 ACS₆
 - 7 NOT USED

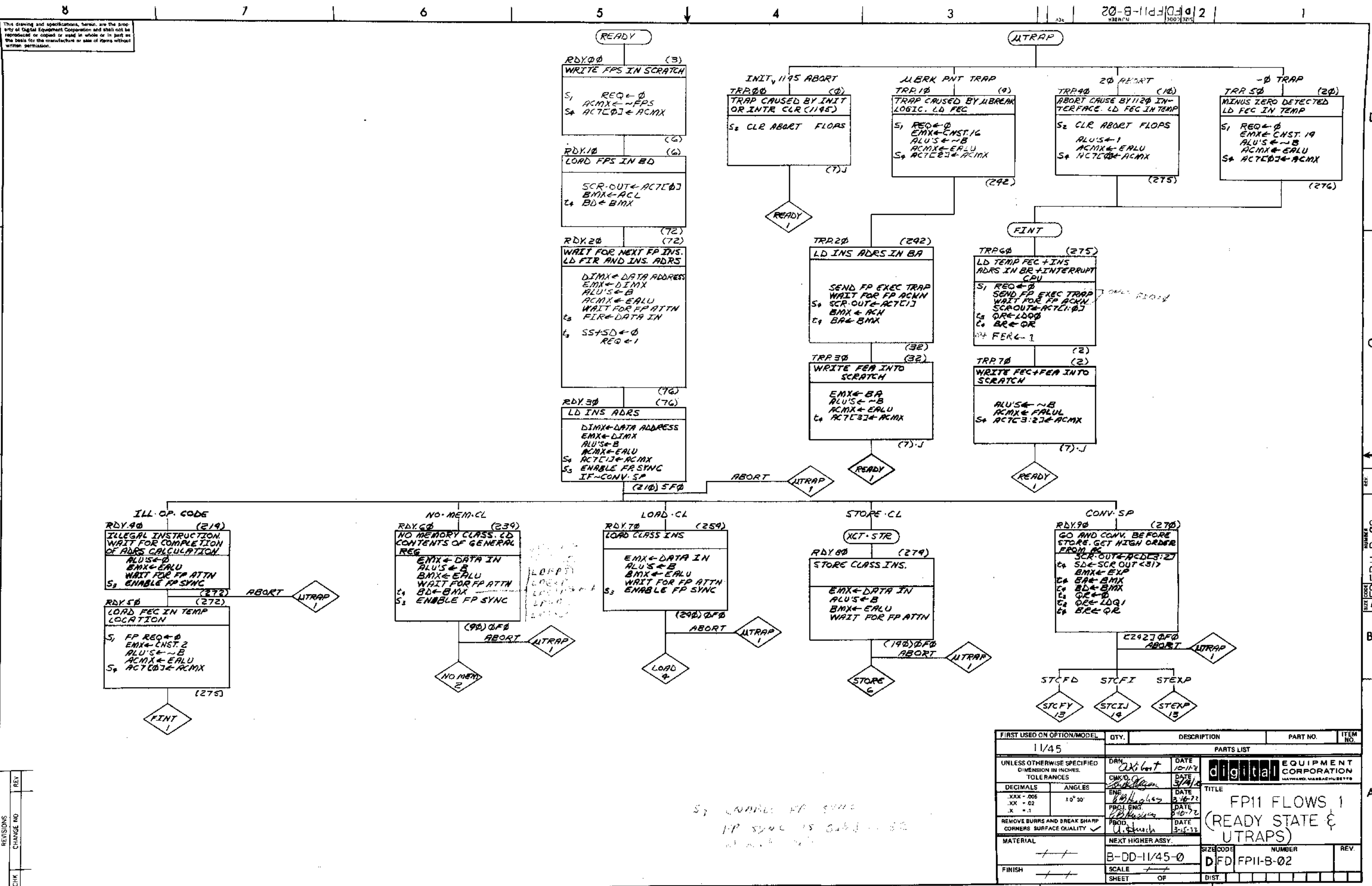
- ACC (11:0)
- 0 (3:2)
 - 1 (2)
 - 2 (1)
 - 3 (0)
 - 4 (0)
 - 5 (0)
 - 6 (0)
 - 7 NOT USED

- ACRE (11:0)
- 0 WRITE
 - 1 READ
 - 2 NOT USED
 - 3 NOT USED
 - 4 NOT USED
 - 5 NOT USED
 - 6 NOT USED
 - 7 NOT USED

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN	DATE		
DECIMALS ANGLES	CHKD	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	ENGR	DATE	FP DATA PATHS	
MATERIAL	PRD	DATE		
FINISH	PROD	DATE	B-DD-11/45-0 SIZE CODE: DFD NUMBER: FP11-B-0 REV.	

DRAWING NO. 11/45-02
 REV. 1
 DATE 11-18-72
 BY: [Signature]
 CHECKED: [Signature]
 APPROVED: [Signature]

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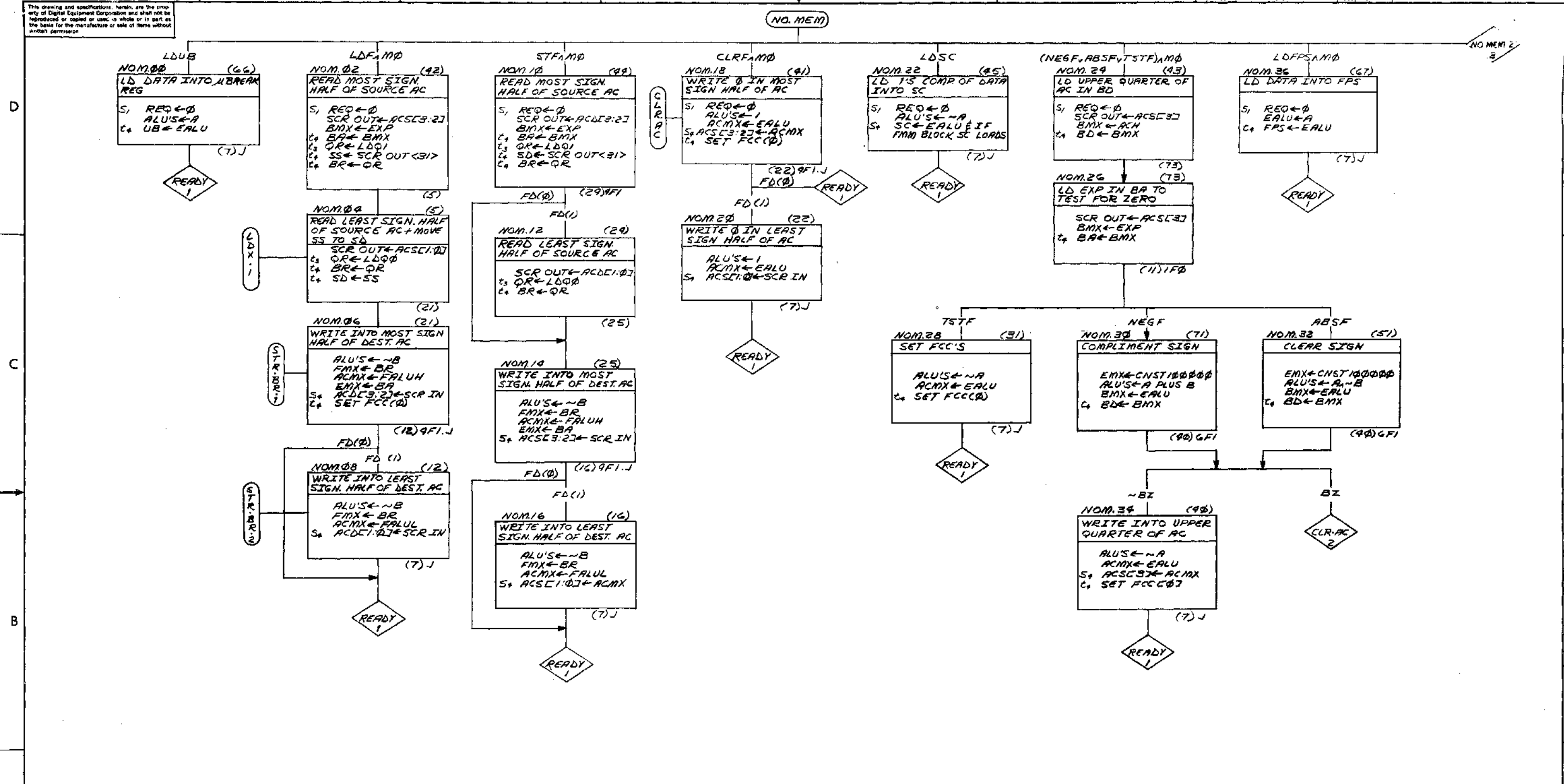


S; UTRAP: FP SYNC IS CHANGED TO 1195

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN: <i>oxigent</i>	DATE: 10-11-72	<p>digital EQUIPMENT CORPORATION MAYFORD, MASSACHUSETTS</p> <p>TITLE: FP11 FLOWS 1 (READY STATE & UTRAPS)</p>	
DECIMALS .XXX - .005	CHKD: <i>[Signature]</i>	DATE: 3/14/72		
ANGLES 10° 30'	ENG: <i>[Signature]</i>	DATE: 5-16-72		
.X = .1	PROJ. ENG: <i>[Signature]</i>	DATE: 8-10-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PBOD: <i>[Signature]</i>	DATE: 3-15-72		
MATERIAL	NEXT HIGHER ASSY.	SCALE: <i>++</i>	SIZE CODE: B-DD-11/45-0	NUMBER: DFD FP11-B-02
FINISH: <i>++</i>		SHEET: <i>++</i>	OF: <i>++</i>	DIST.

REVISIONS
CHANGE NO. REV.
CHK

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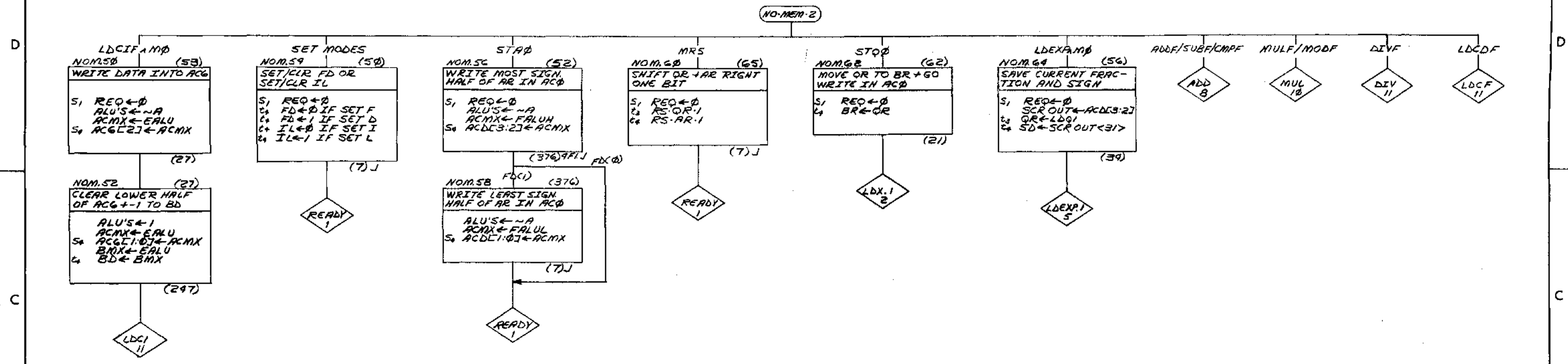


REV	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	TITLE		
XXX = .005	± 0° 30'	FP11 FLOWS 2		
XX = .02		(NO MEM CLASS)		
X = .1		REMOVES BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE		
FINISH		NUMBER		
		REV.		
		SCALE		
		SHEET OF		
		DIST		

DFD FP11-B-03
 NUMBER
 REV.

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REV	
CHANGE NO.	
CHK	

DEC FORM NO. 002-8

2 316

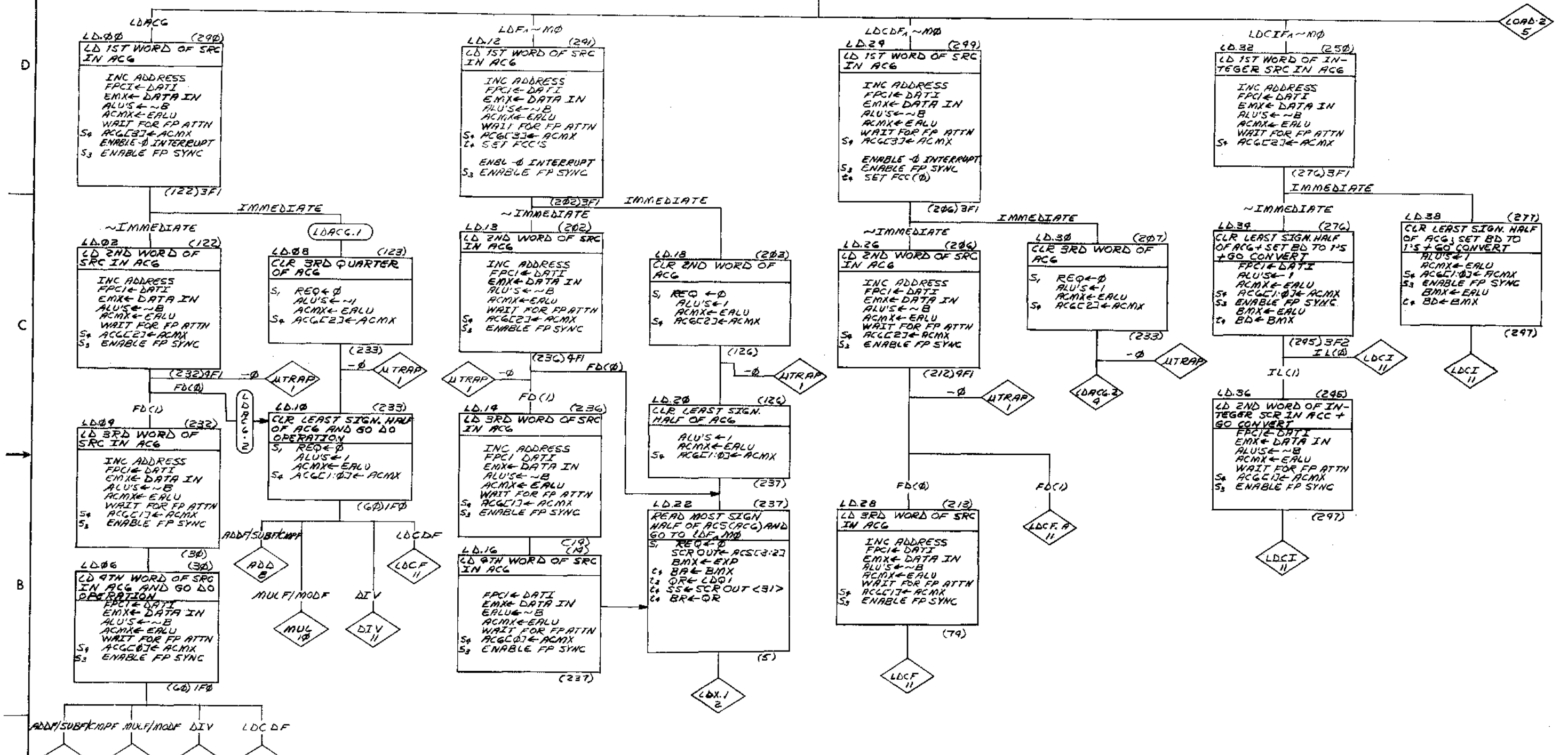
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. DATE 10/19/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	CHK'D. DATE 3/19/72	TITLE	
.XXX - .008	± 0° 30'	ENG. DATE 3-10-72	FP11 FLOWS 3	
.XX - .02		PROJ. ENG. DATE 3-9-72	(NO MEM CLASS)	
.X - .1		PROD. DATE 3-15-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓				
MATERIAL		NEXT HIGHER ASSY.	SIZE CODE	NUMBER
++		B-DD-11/45-0	D	FD FP11-B-04
FINISH		SCALE		REV.
++		OF		
		SHEET		
		OF		

REV. NUMBER DDFP11-B-04

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90-8-111-05 2

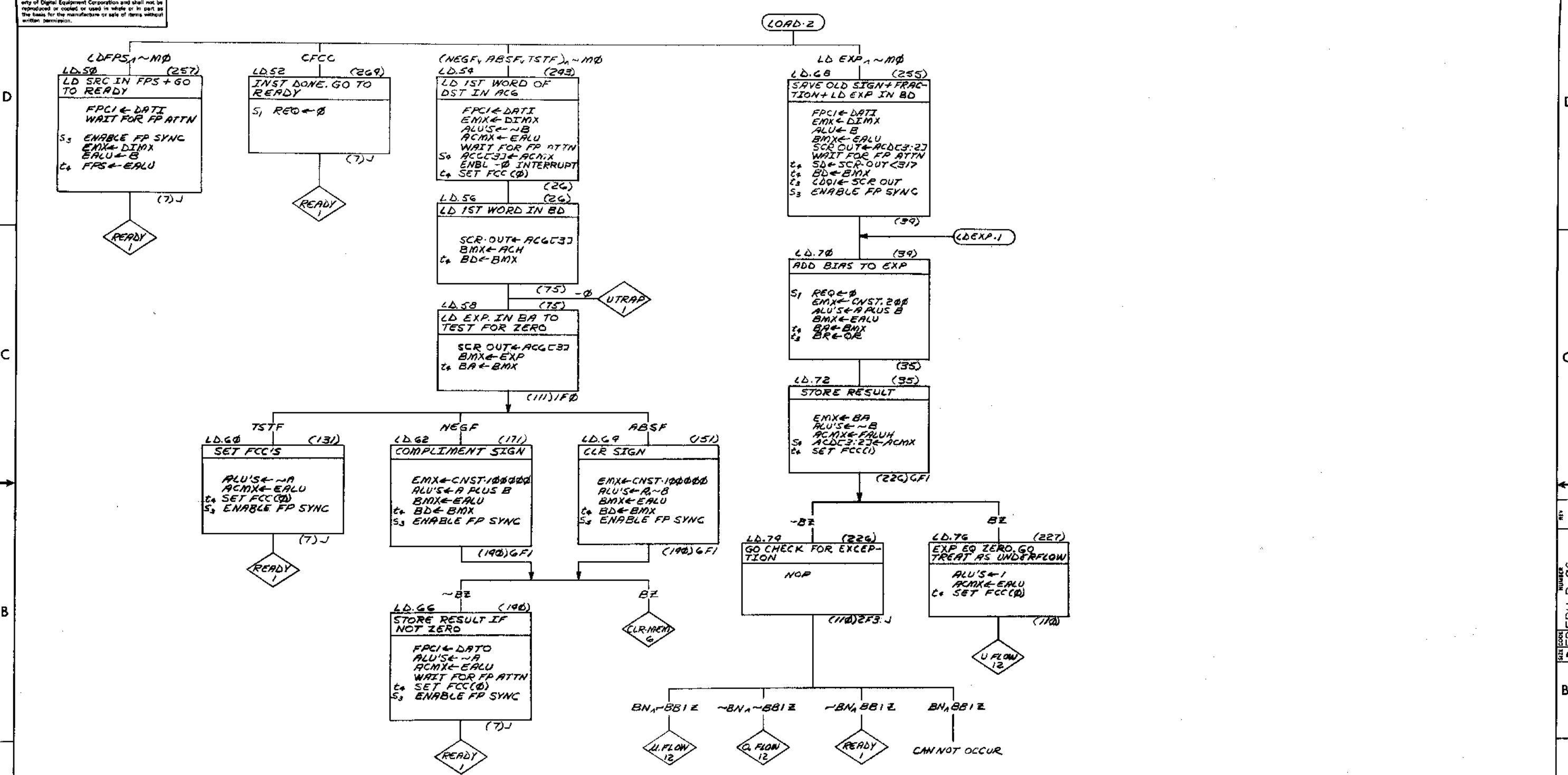
LOAD



REV.	CHG.	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>[Signature]</i>	DATE: 10-19-72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS: .005	CHK: <i>[Signature]</i>	DATE: 3/1/74	TITLE: FP11 FLOWS 4 (LOAD CLASS)	
ANGLES: 10° 30'	ENG: <i>[Signature]</i>	DATE: 8-10-72	SIZE CODE: B-DD-11/45-0	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROB: <i>[Signature]</i>	DATE: 3-15-72	NUMBER: DFD/FPII-B-05	
MATERIAL: + +	NEXT HIGHER ASSY.	SCALE: + +	REV.	
FINISH: + +		SHEET: OF	DIST.	

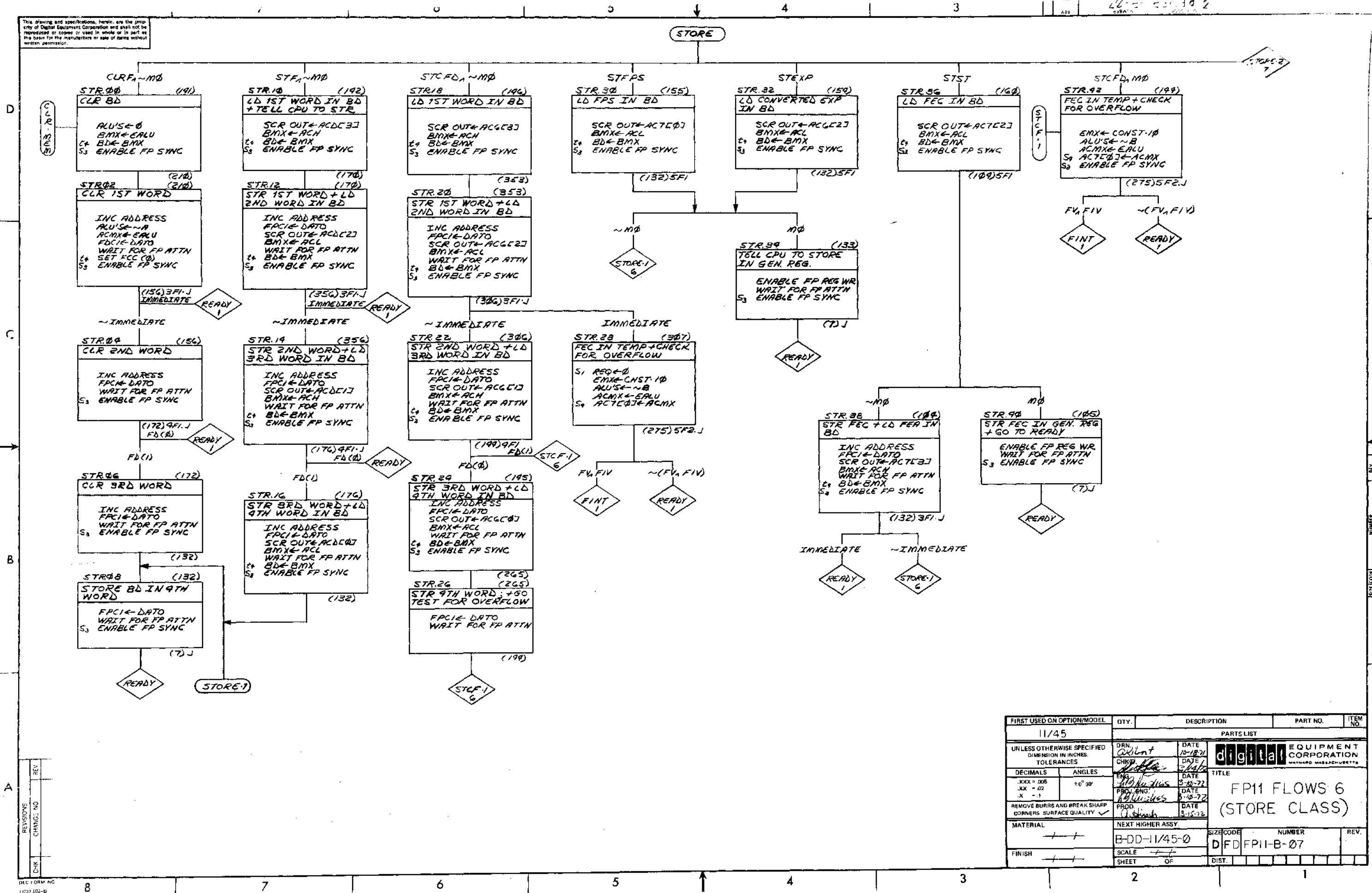
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REVISIONS
CHANGE NO
REV

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. <i>G. Kilant</i>	DATE 10-15-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX - .006	CHK'D <i>[Signature]</i>	DATE 3/11/72	TITLE FP11 FLOWS 5 (LOAD CLASS)	
ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 3-16-72	MATERIAL B-DD-11/45-0	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>[Signature]</i>	DATE 3-16-72	FINISH ++	
	PROD. <i>[Signature]</i>	DATE 3-15-72	SIZE CODE D	NUMBER FD FPII-B-06
			SHEET OF	REV.

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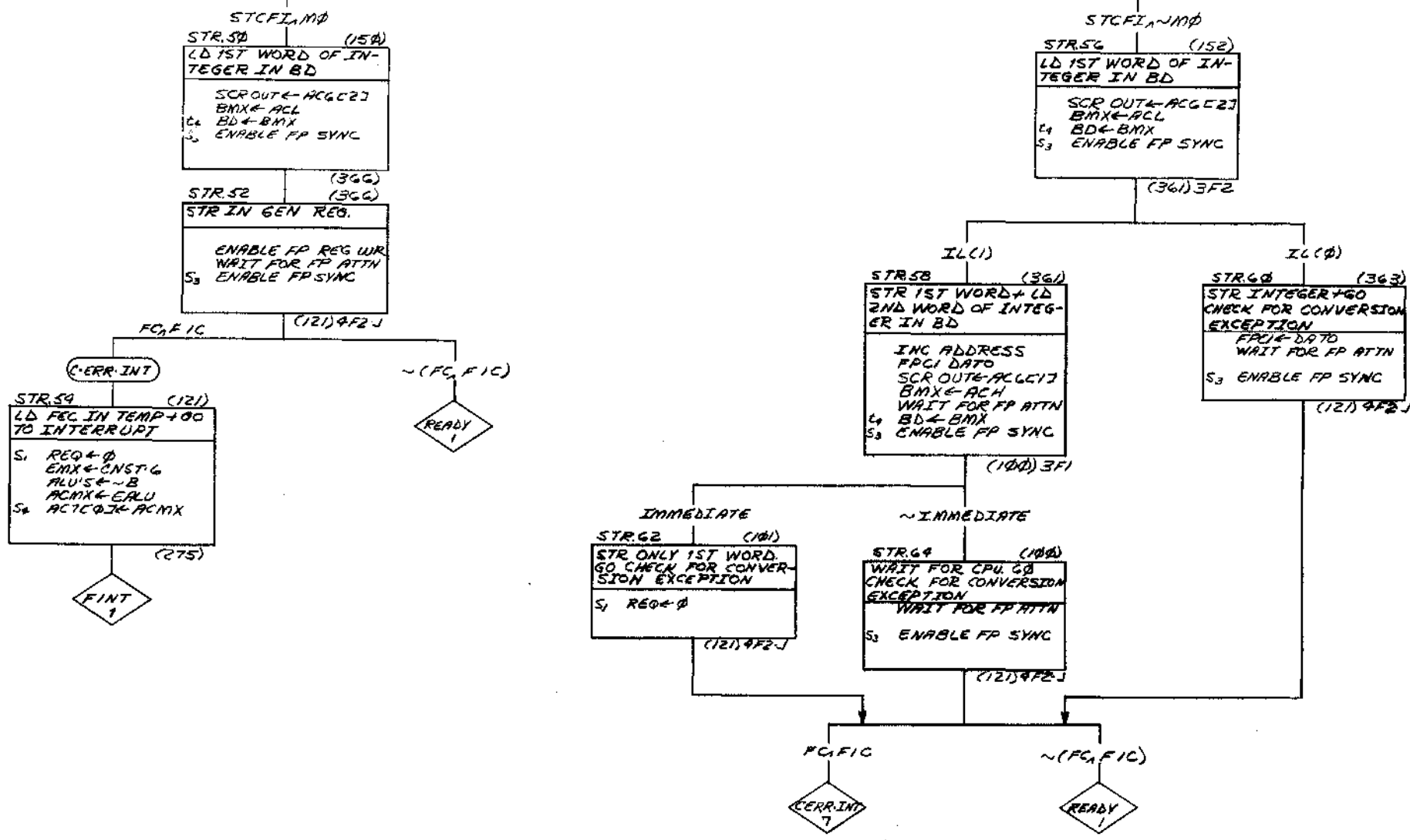


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE 10-18-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS ANGLES		DATE 3-14-72	TITLE FP11 FLOWS 6 (STORE CLASS)	
.XXX = .005 .XX = .02 .X = .1		DATE 3-14-72	SIZE CODE NUMBER REV.	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 3-15-72	D F D F P I I - B - 07	
MATERIAL		NEXT HIGHER ASSY.	SCALE	
FINISH		B-DD-11/45-0	SHEET OF	

REV	CHANGE NO.	REVISIONS

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STORE 2



REVISIONS	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 CHK'D ENG PROJ. ENG. PROD.	DATE DATE DATE DATE DATE	digital EQUIPMENT CORPORATION MAYFORD, MASSACHUSETTS	
DECIMALS	ANGLES	±0° 30'	TITLE FP11 FLOWS 7 (STORE CLASS)	
XXX - .006			NEXT HIGHER ASSY.	
.XX - .02			B-DD-11/45-0	
.X - .1			SCALE	
MATERIAL	FINISH	++	SIZE CODE	NUMBER
			DFD	FPII-B-08
			SHEET	OF

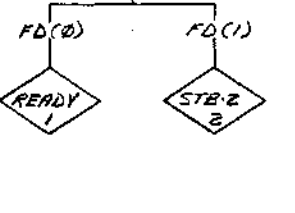
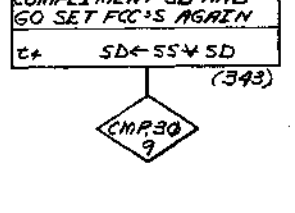
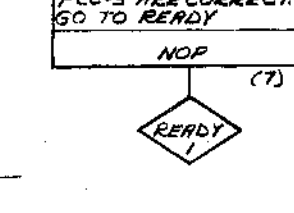
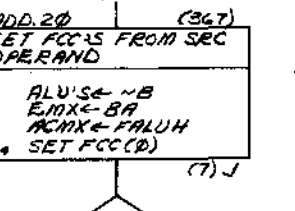
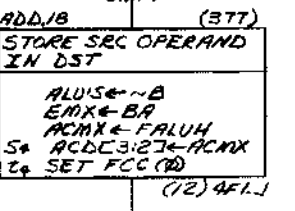
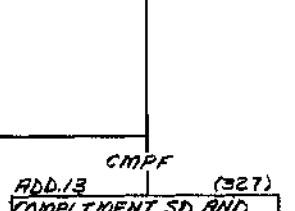
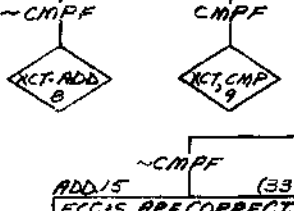
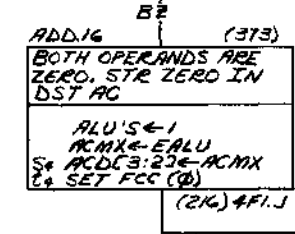
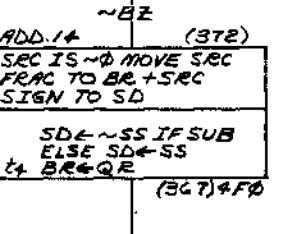
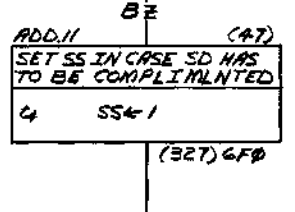
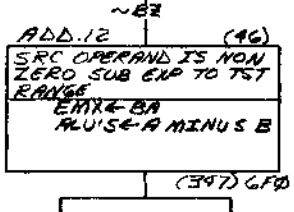
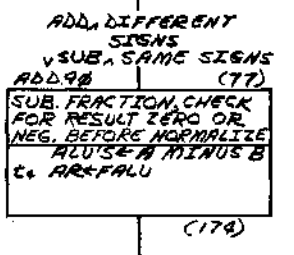
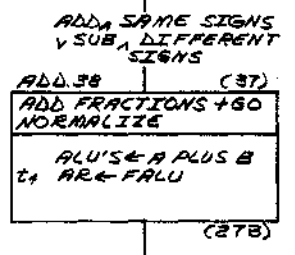
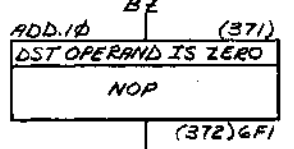
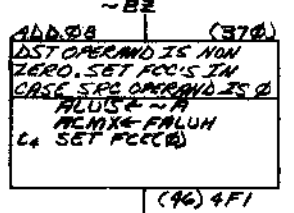
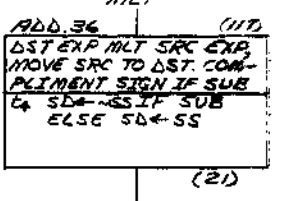
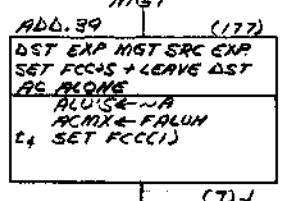
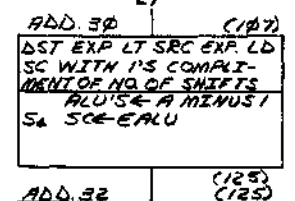
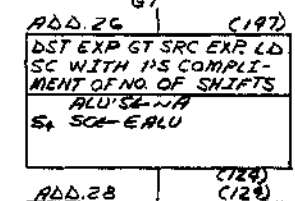
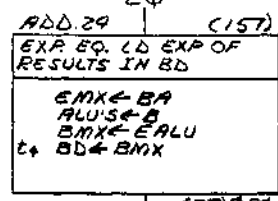
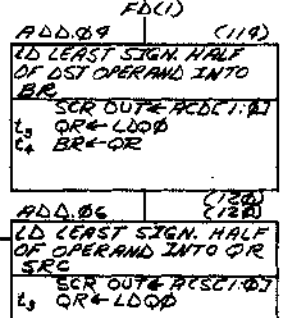
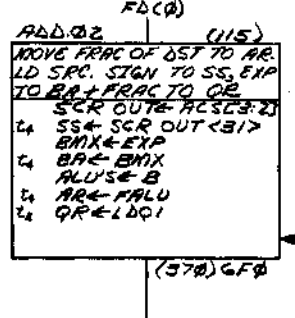
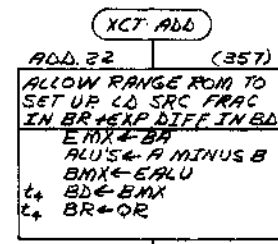
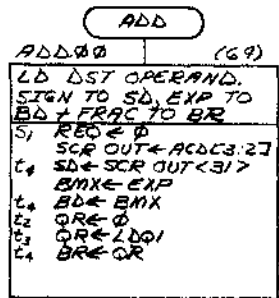
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D

C

B

A



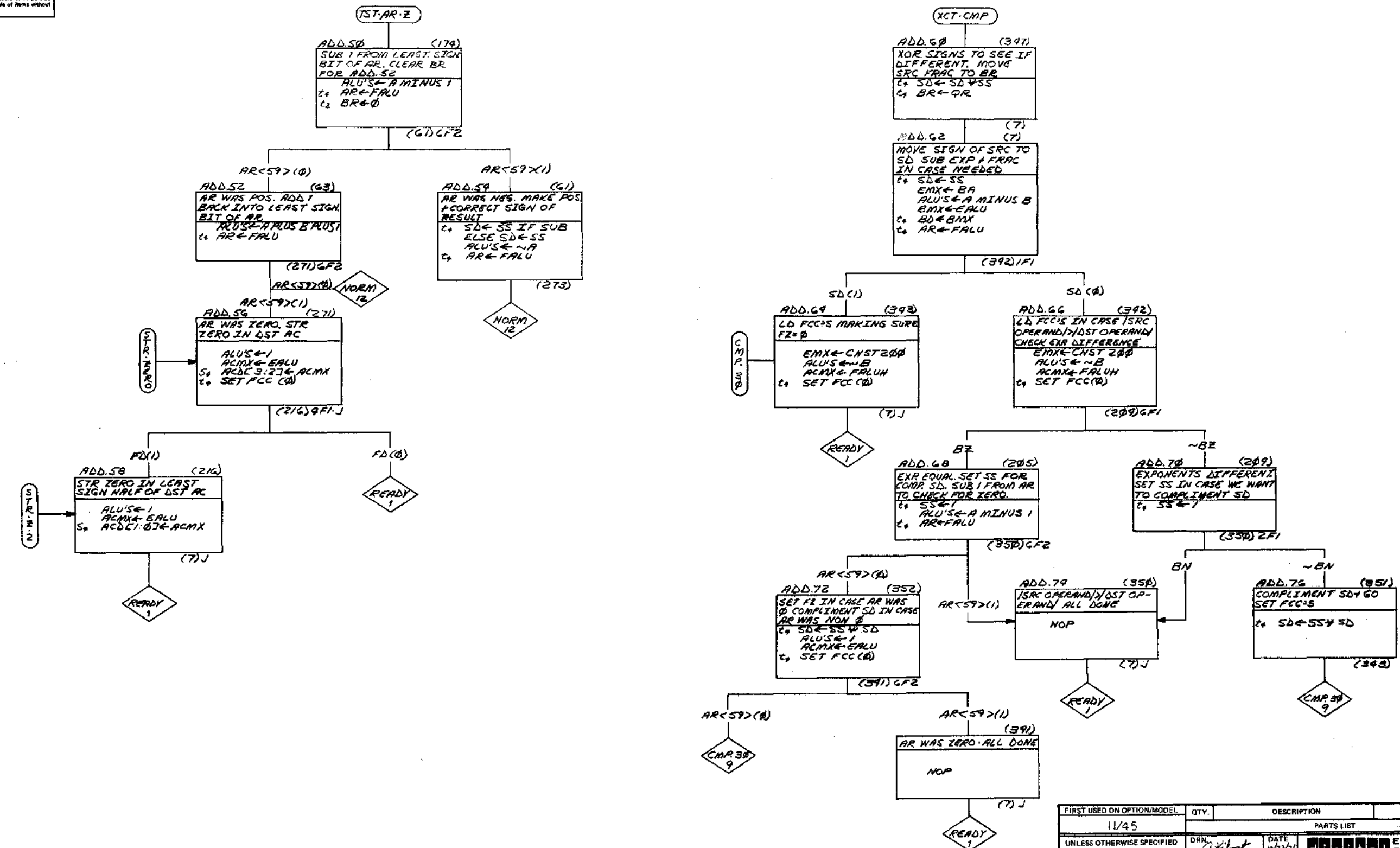
INS	SD	SS	OPERATION	SIGN OF OPERATION	SIGN OF RESULT	USE
ADD	+	+	A PLUS B	+	+	SD
	+	-	A MINUS B	+	+	SD
	-	+	A MINUS B	-	-	SD
	-	-	A PLUS B	-	-	SD
SUB	+	+	A MINUS B	+	+	SD
	+	-	A PLUS B	-	-	SS
	-	+	A PLUS B	+	+	SD
	-	-	A MINUS B	+	-	SD
				-	+	SS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN <i>akut</i>	DATE <i>2/1/72</i>	DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
DECIMALS .XXX ± .005	ANGLES 10' 30"	CHK'D <i>W. G. G.</i>	DATE <i>3/1/72</i>	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		ENG. <i>W. G. G.</i>	DATE <i>3/10/72</i>	TITLE FP11 FLOWS 8 (EXECUTE ADD, SUB, OR CMP)
MATERIAL		PRD. <i>W. G. G.</i>	DATE <i>3/15/72</i>	
FINISH		NEXT HIGHER ASSY.		SIZE CODE
		B-DD-11/45-0		NUMBER
		SCALE <i>1/1</i>		REV.
		SHEET OF		DIST.

REVISIONS
 CHANGE NO.
 REV.

DFD-FP11-B-09

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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>Extent</i>	DATE 10/23/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XXX - .006	CHKD <i>William</i>	DATE 3/14/72	TITLE FP11 FLOWS 9 (EXECUTE ADD SUB OR CMP)	
ANGLES .XX - .02	ENG <i>W. Hughes</i>	DATE 2-18-72	SIZE CODE B-DD-11/45-0	
.X = 1	PROJ. ENG. <i>W. Hughes</i>	DATE 2-18-72	NUMBER DFD-FP11-B-10	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PRD. <i>W. Hughes</i>	DATE 2-18-72	REV. 9	
MATERIAL ++	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	
FINISH ++	SCAF ++	SHEET	OF	

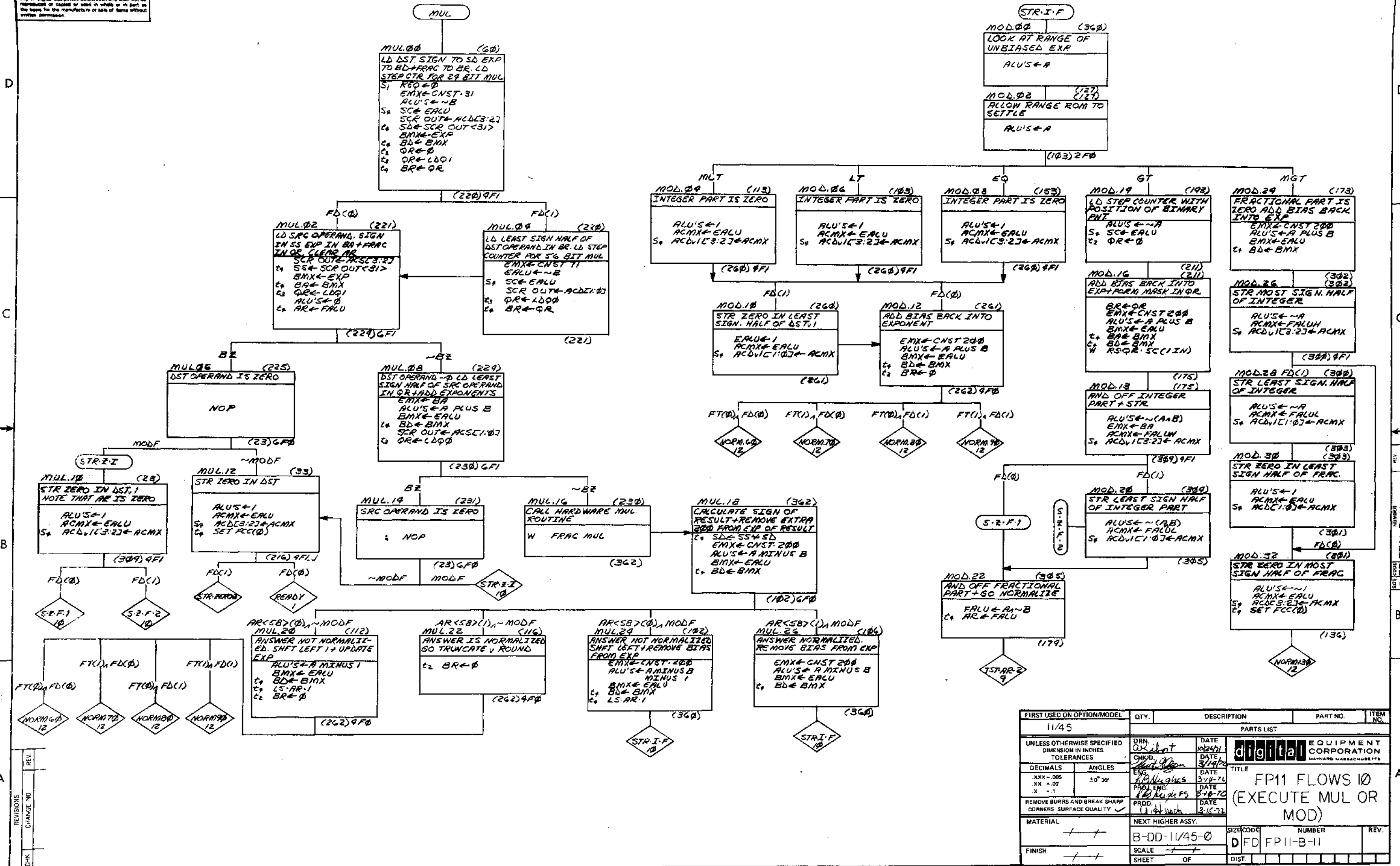
REV	CHANGE NO.	REVISIONS

REV NUMBER DFD-FP11-B-10

A

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11-8-1103 103 2

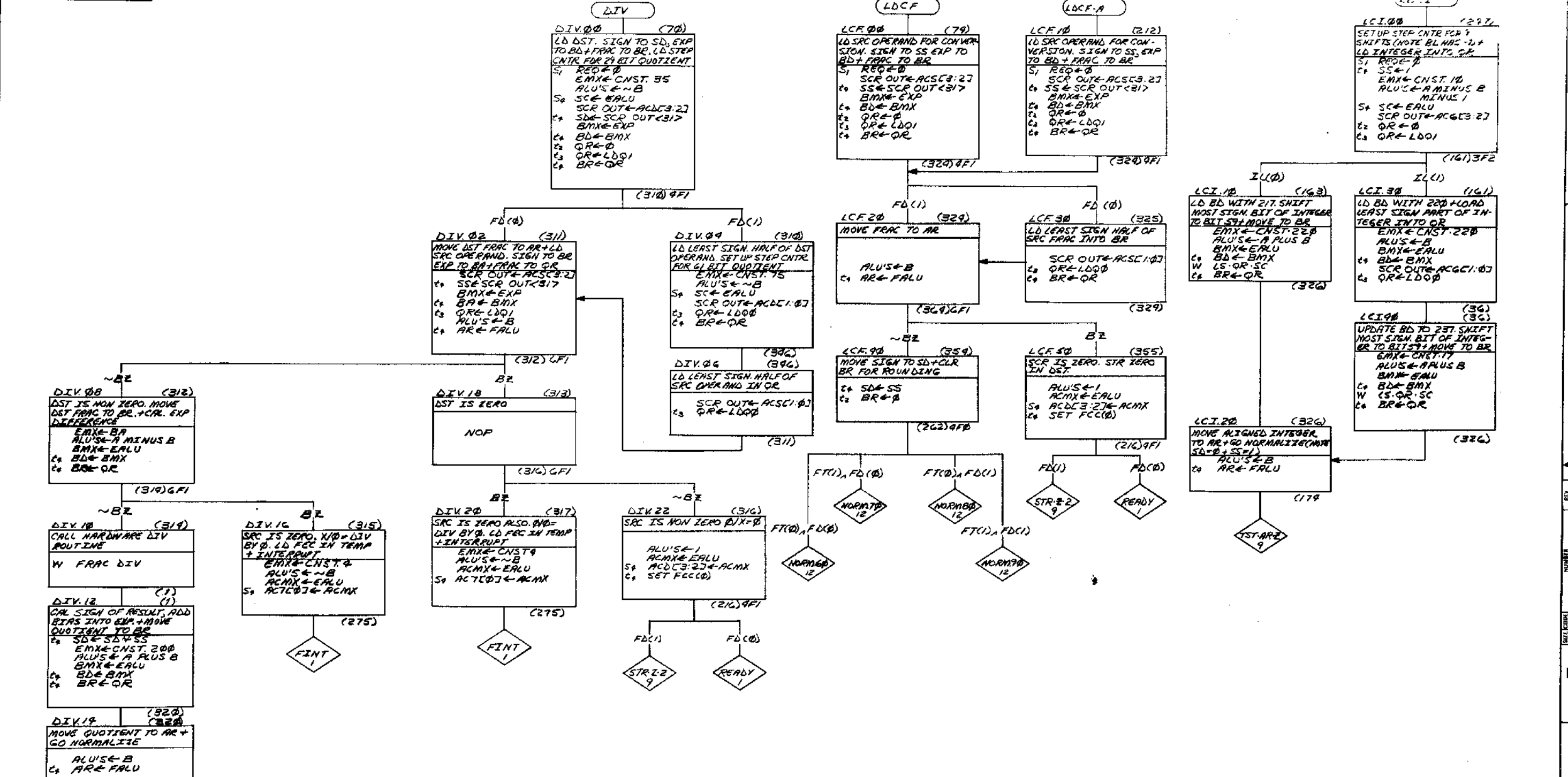


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN CHKD ENG PRD. ENG. PRDD.	DATE DATE DATE DATE DATE	digital EQUIPMENT CORPORATION MAYFIELD MASSACHUSETTS	
DECIMALS .xxx-.005 ANGLES .xx-.02 X -1	DATE DATE DATE	TITLE FP11 FLOWS 10 (EXECUTE MUL OR MOD)		
REMOVE BURS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	DATE DATE	MATERIAL NEXT HIGHER ASSY. B-DD-11/45-0		
FINISH	SCALE SHEET OF	SIZE CODE DIFD	NUMBER FP11-B-11	REV.

REVISIONS
CHANGE NO.
CHK

REV. NO. 1
DIFD FP11-B-11

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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
1/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN CHKD ENG PROG	DATE DATE DATE DATE		
DECIMALS	ANGLES	±0° 30'	TITLE	
XXX + .005			FP11 FLOWS 11	
XX + .02			(EXECUTE DIV, LDCF OR LDCI)	
X + .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.		SIZE CODE	NUMBER
FINISH			DFD	FP11-B-12
			SHEET	OF

REV	CHG	NO

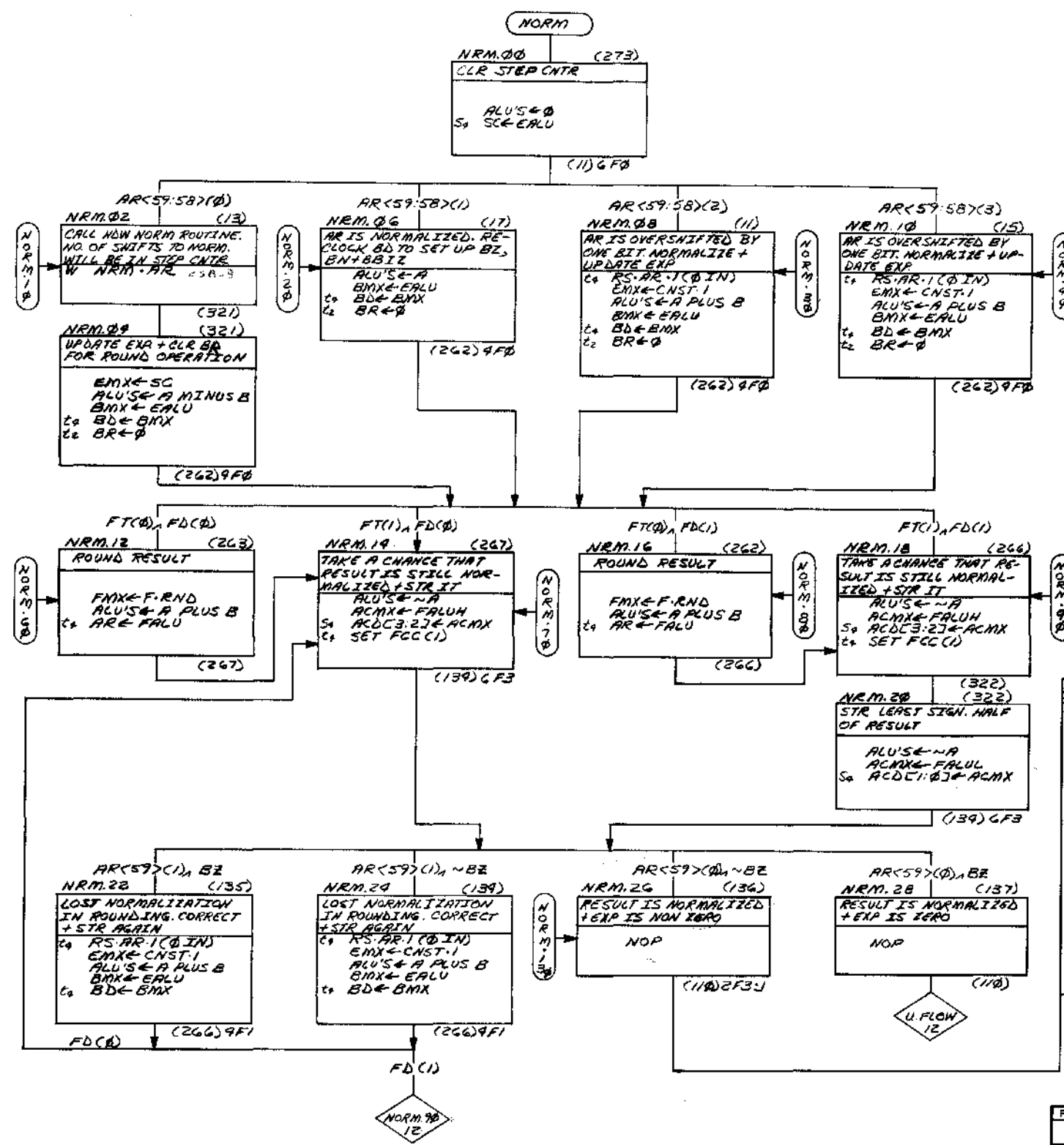
DEC FORM NO
DRD 102-B

REV. NO. DFD FP11-B-12

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D
C
B
A

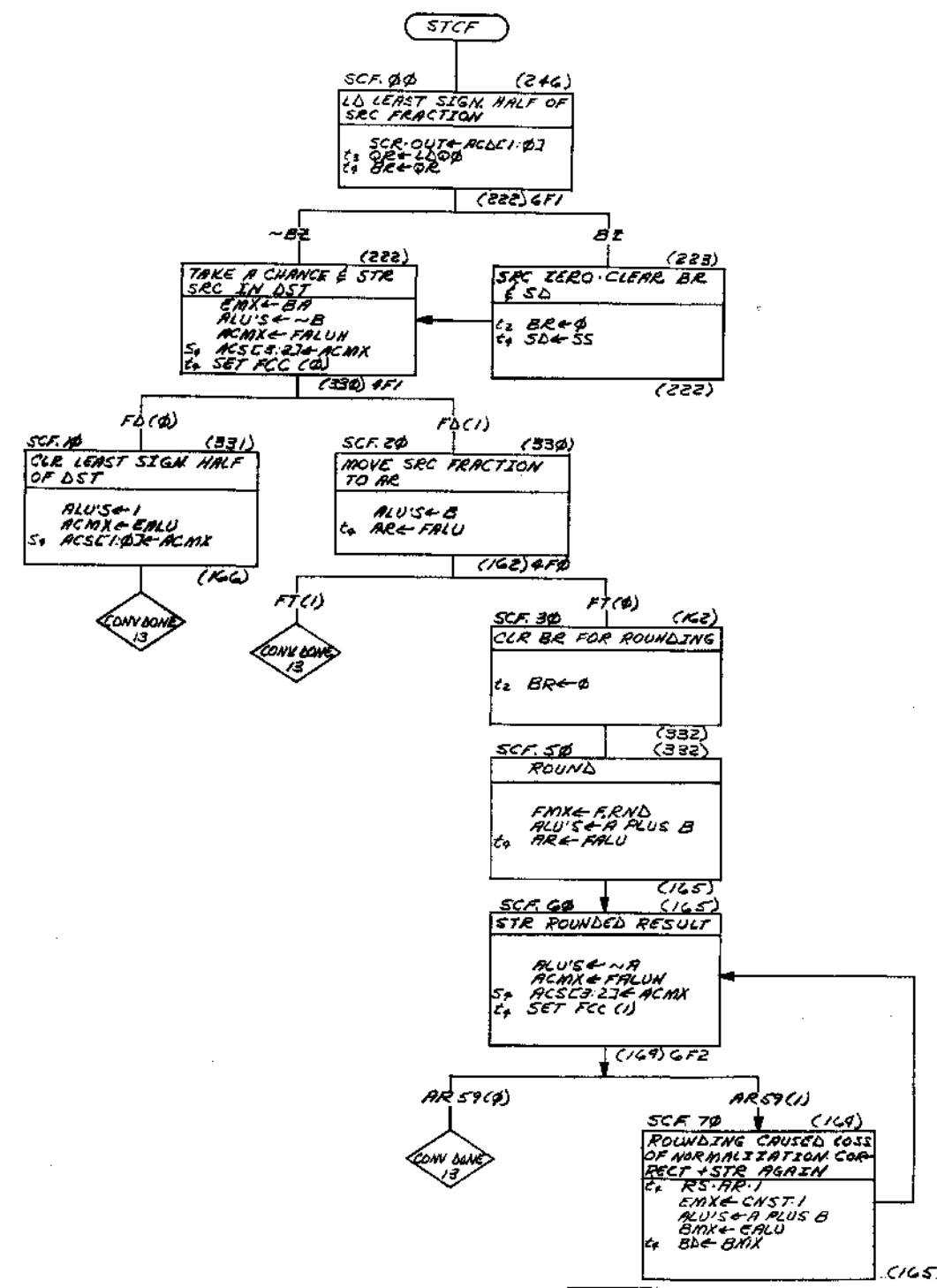
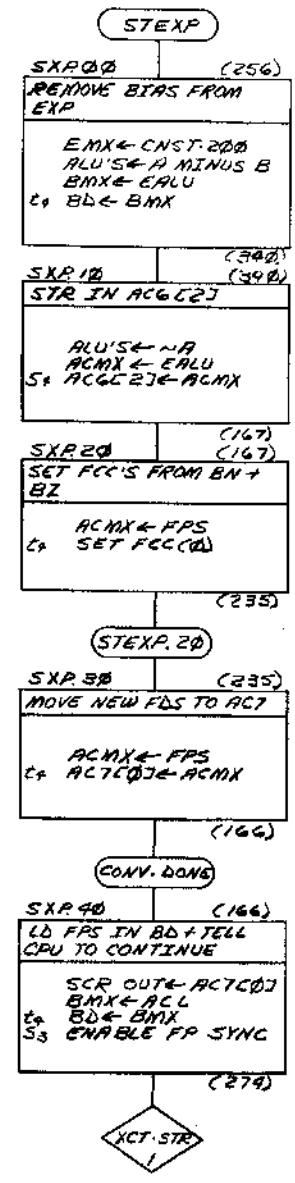
D
C
B
A



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	DATE		
.XXX = .005	±0° 30'	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
.XX = .02		DATE	TITLE	
.X = .1		DATE	FP11 FLOWS12 (NORMALIZE & ROUND)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	SIZE CODE NUMBER REV.	
MATERIAL	NEXT HIGHER ASSY.	DATE	D F D F P I I - B - 13	
FINISH		DATE	SHEET OF DIST.	

REVISIONS	CHANGE NO	REV
CHK		

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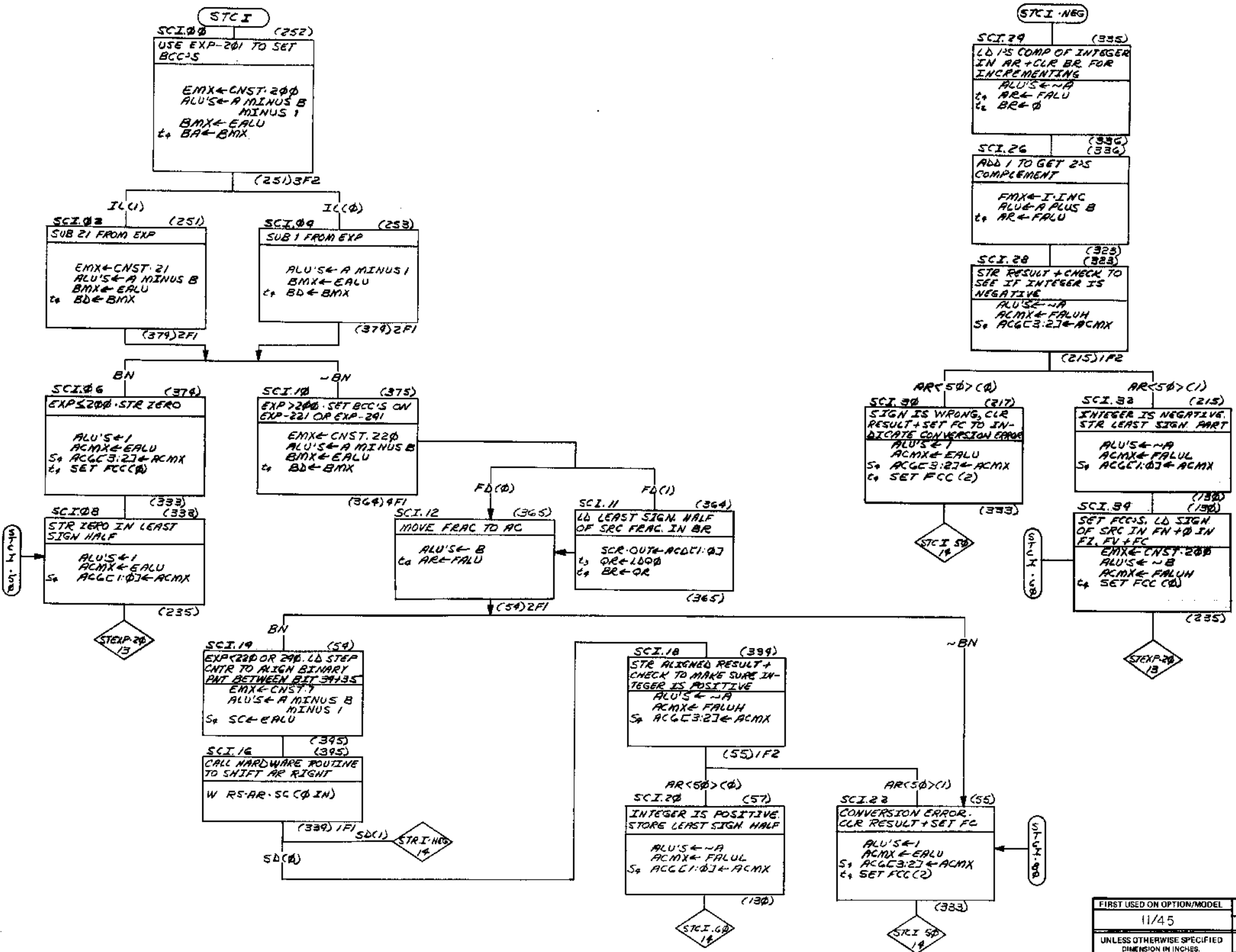


REV.	CHANGE NO.

FIRST USED ON OPTION/MODEL 11/45	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN <i>Okint</i>	DATE 10-28-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS .XXX = .000 .XX = .02 .X = .1	ENG <i>Blugus</i>	DATE 3-22-72	TITLE FP11 FLOWS 13 (EXECUTE STEXP & STCF)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>Blugus</i>	DATE 3-22-72	MATERIAL ++	
	PROD. <i>Blugus</i>	DATE 3-22-72	NEXT HIGHER ASSY. B-DD-1145-0	
FINISH ++	SCALE ++	SHEET OF	SIZE CODE D FD	NUMBER FP11-B-14

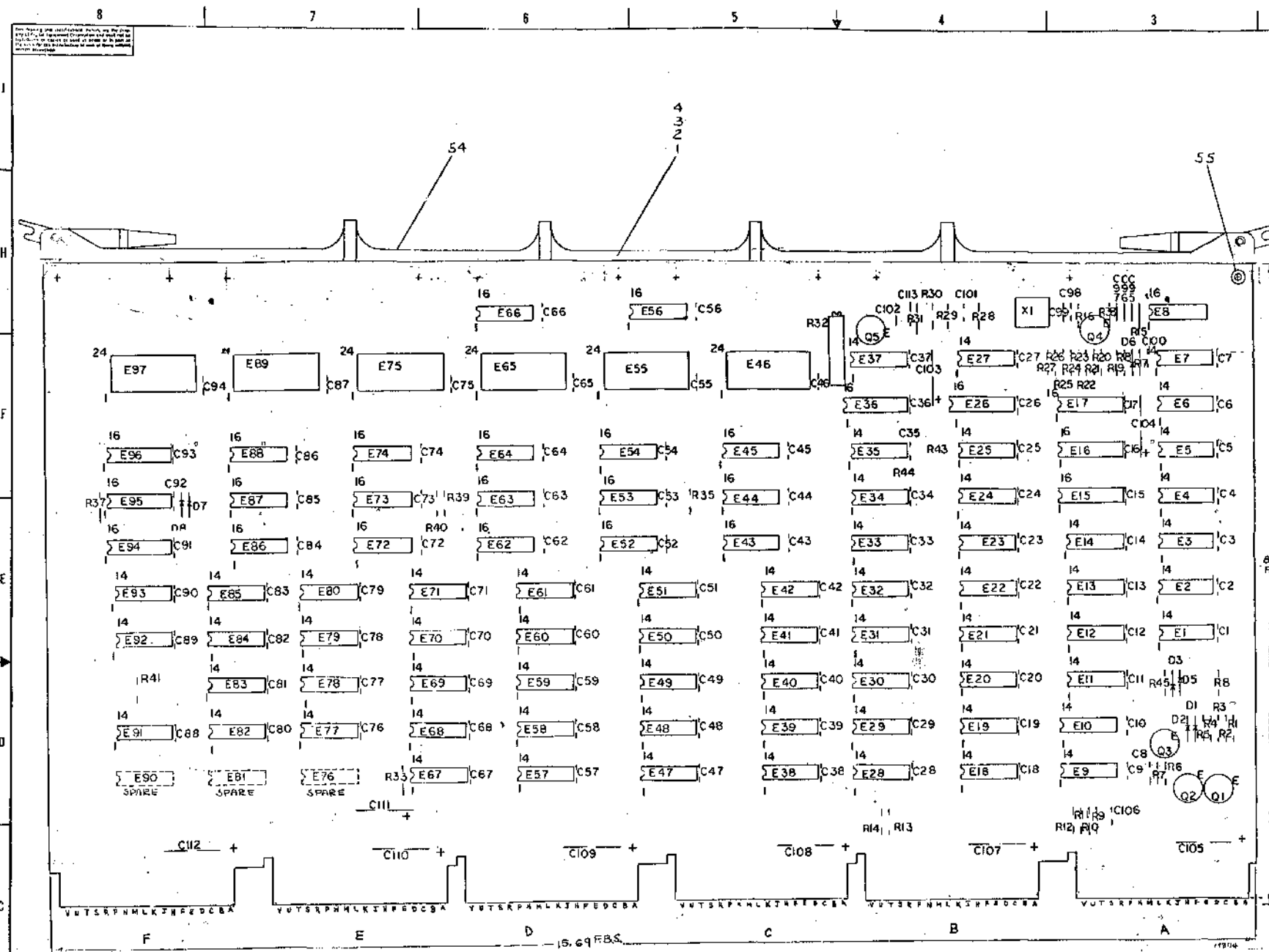
REV. NUMBER B DD FP11-B-14

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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	DRAWN <i>Edlund</i>	DATE 1/20/74	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	DATE 3/14/74	TITLE FP11 FLOWS 14 (EXECUTE STCI)	
.XXX - .005	20° 30'	DATE 2-18-74	PROJ. ENG. <i>W. Hughes</i>	
.XX - .02		DATE 3-10-77	PROD. <i>A. Shuch</i>	
.X - .1		DATE 3-15-72	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	
MATERIAL	NEXT HIGHER ASSY.	SCALE	SIZE CODE	NUMBER
FINISH	B-DD-11/45-0	SHEET	D	FD FP11-B-15

REV.	CHANGE NO.



NOTES:
 1. UNLESS OTHERWISE NOTED RESISTANCE IS IN OHMS AND CAPACITANCE IS IN PICOSECONDS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD.

A42, A41, C42, C41, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99
 +5V
 GND

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	TEMP. COEFF.
1	E10	IC DEC74574-45	110950	60
1	C113	CAPACITOR 18PF 100V 5%	1002608	18
1	C101	CAPACITOR 47PF 50V 5%	1000911	57
1	X1	CRYSTAL 18MHz	1809880-6	54
12		BYELET	9006732	55
1		HANDLE MODULE	8-312071-2	54
1	Q1	TRANSISTOR DEC 4255	1505321	53
4	Q2, Q3, Q4, Q5	TRANSISTOR DEC 3009B	1505100	52
1	E24	IC DEC 74565	1910543	51
6	E4, E55, E65, E75, E84, E97	IC DEC 74181	1909482	50
6	E44, E53, E63, E73, E81, E95	IC DEC 74175	1910651	49
12	E43, E45, E52, E54, E62, E64, E72, E74, E86, E88, E94, E96	IC DEC 74194	1910683	48
1	E84	IC DEC 74474	1909667	47
1	E77	IC DEC 74450	1909060	46
3	E61, E80, E85	IC DEC 74440	1905566	45
2	E5, E82	IC DEC 74411	1909267	44
3	E27, E79, E91	IC DEC 74410	1909037	43
1	E16	IC DEC 74404	1909431	42
2	E71, E92	IC DEC 74400	1909036	41
2	E56, E66	IC DEC 74182-1	1910551	40
8	E7, E18, E19, E20, E37, E42, E47, E93	IC DEC 745140	1910544	39
5	E15, E16, E17, E24, E36	IC DEC 745112	1910545	38
8	E41, E48, E49, E91	IC DEC 74374	1910544	37
3	E4, E32, E35	IC DEC 74564	1910542	36
2	E40, E46	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	190686	29
1	E2	IC DEC 7400	195575	28
1	E8	TRANSFORMER, PULSE	1609651	27
4	R33, R35, R37, E41	RESISTOR 100Ω, 1/4W, 5%	1300224	26
1	R32	RESISTOR VARIABLE 50kΩ	1301143-09	25
4	R1 THRU E4	RESISTOR 1.2kΩ, 1/4W, 5%	1301320	24
5	R6 THRU R12	RESISTOR 1kΩ, 1/4W, 5%	1300345	23
7	R13, R20, R22, R24, R26, R39, E44	RESISTOR 680Ω, 1/4W, 5%	1301424	22
1	E16	RESISTOR 10kΩ, 1/4W, 10%	1300481	21
1	E19	RESISTOR 3.3kΩ, 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%	1300245	18
7	R15	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%	1301964	15
1	R28	RESISTOR 10Ω, 1/4W, 5%	1301317	14
5	D1, D2, D3, D5, D6	DIODE D662	1100113	13
2	D7, D8	DIODE FD 777	1103041	12
1	C98	CAPACITOR 33PF, 100V, 5%	1000009	11
1	C96	CAPACITOR 68PF, 100V, 5%	1000014	10
1	C99	CAPACITOR 0.01PF, 100V, 5%	1000006	9
9	C103, C104, C105, C101, C102, C109, C110, C111, C112	CAPACITOR 6.8nF, 55V, 20%	1000067	8
36	C1 THRU C14, C102, C106	CAPACITOR .01uF, 100V, 20% DR	1001610	7
1	C97	CAPACITOR 100PF, 100V, 5% DR	1000016	6
2	C95, C100	CAPACITOR .047uF, 50V, 20%	009678	5
1		ETCHED CIRCUIT BOARD	5002863	4
REF		MODULE ECO HISTORY	8-MH-1814-04	3
REF		ASSY/DRILLING HOLE LAYOUT	8-MH-1814-05	2
REF		X-Y COORDINATE HOLE LOCATION	8-MH-1814-04	1

IC TYPE	QTY	REF	FROM PT	TO PT
DEC 74181	12	24		
DEC 74175	6	16		
DEC 74194	6	16		
DEC 74512	6	16		
DEC 74512	6	16		

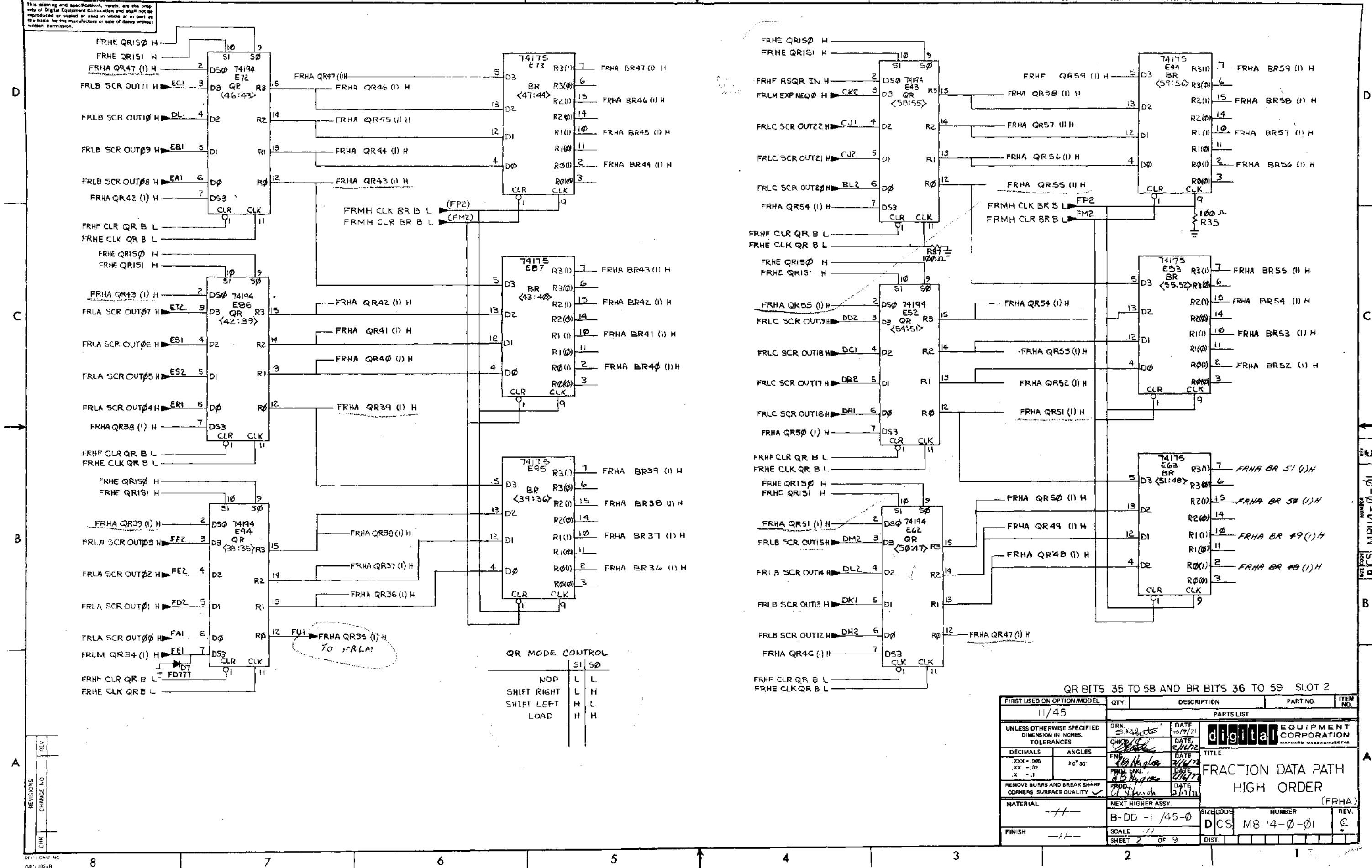
SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.
DEC 4255	N.A.	DEC 3009 B	2N3676
FD 777	SAME	D662	1N245

FRACITION DATA PATH
HIGH ORDER

8-MH-1814-04

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QR MODE CONTROL

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

QR BITS 35 TO 58 AND BR BITS 36 TO 59 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	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS TITLE FRACTION DATA PATH HIGH ORDER (FRHA)		
XXX - DIM	10' 30"			
XX - .02				
X - .1				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD -11/45-0	D	CS	M8114-0-01
SCALE		SHEET 2 OF 9		

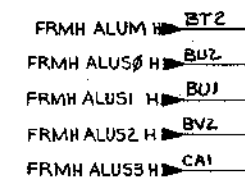
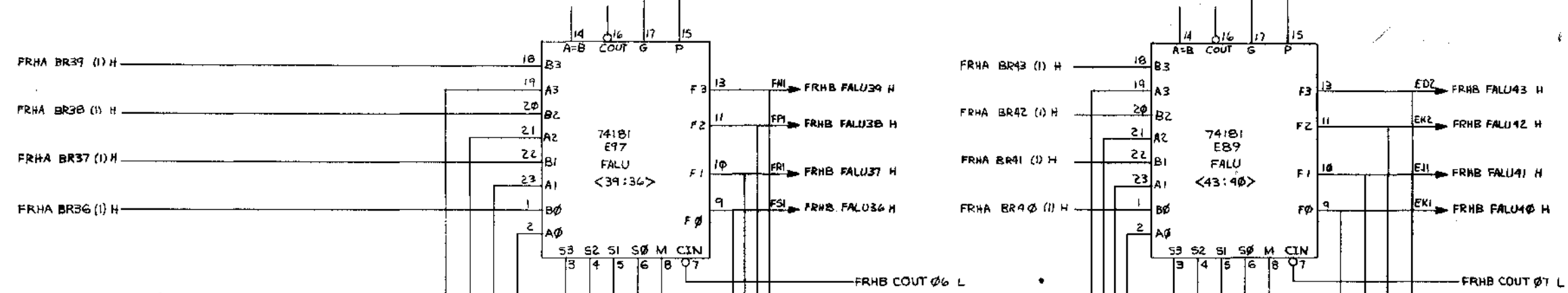
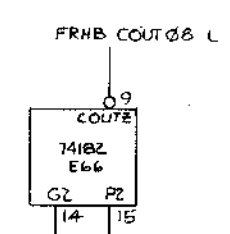
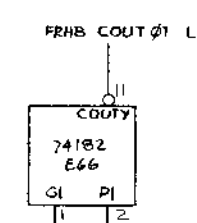
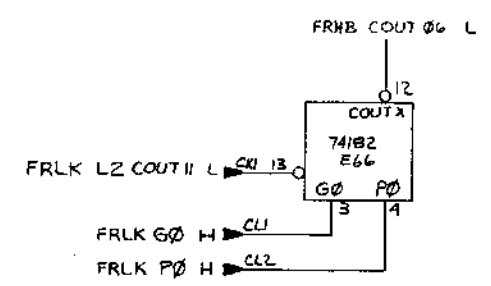
REVISIONS

NO.	DATE	BY	CHK	REV.
1				
2				
3				
4				
5				
6				
7				
8				

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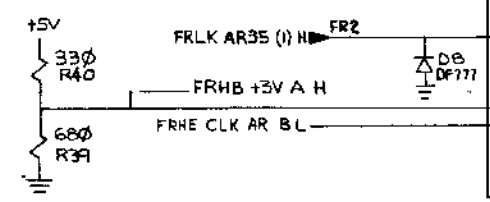
FALU CONTROL

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



AR MODE CONTROL

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

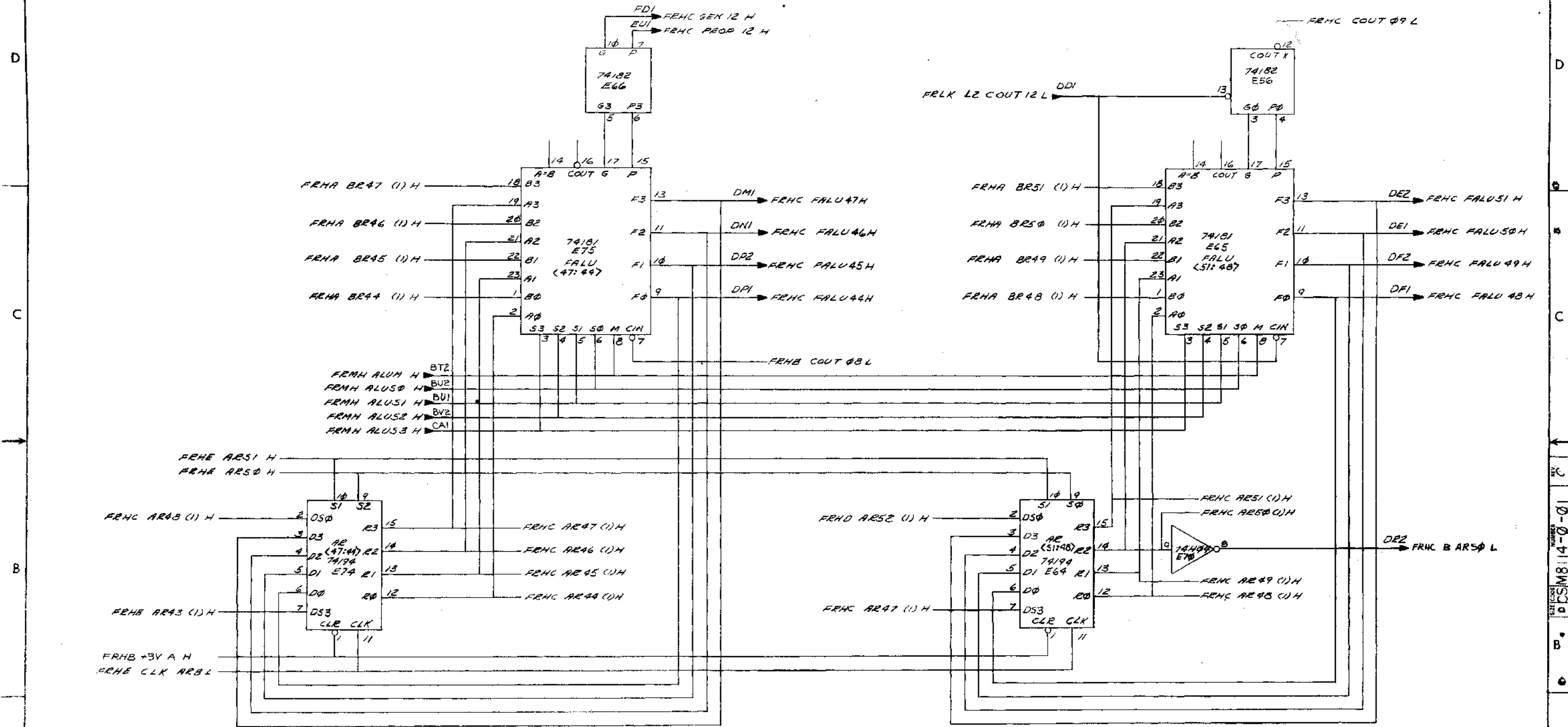


AR & FALU BITS 36 TO 43 SLOT 2

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 = .006	±0° 30'	digital EQUIPMENT CORPORATION		
XX = .02		MAYNARD MERRIMACKVILLE		
X = .1		TITLE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		FRACTION DATA PATH HIGH ORDER (FRHB)		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-11/45-0	DCS	M8114-0-01	C
SCALE		SHEET 3 OF 9		
DIST.				

PART NO. M8114-0-01

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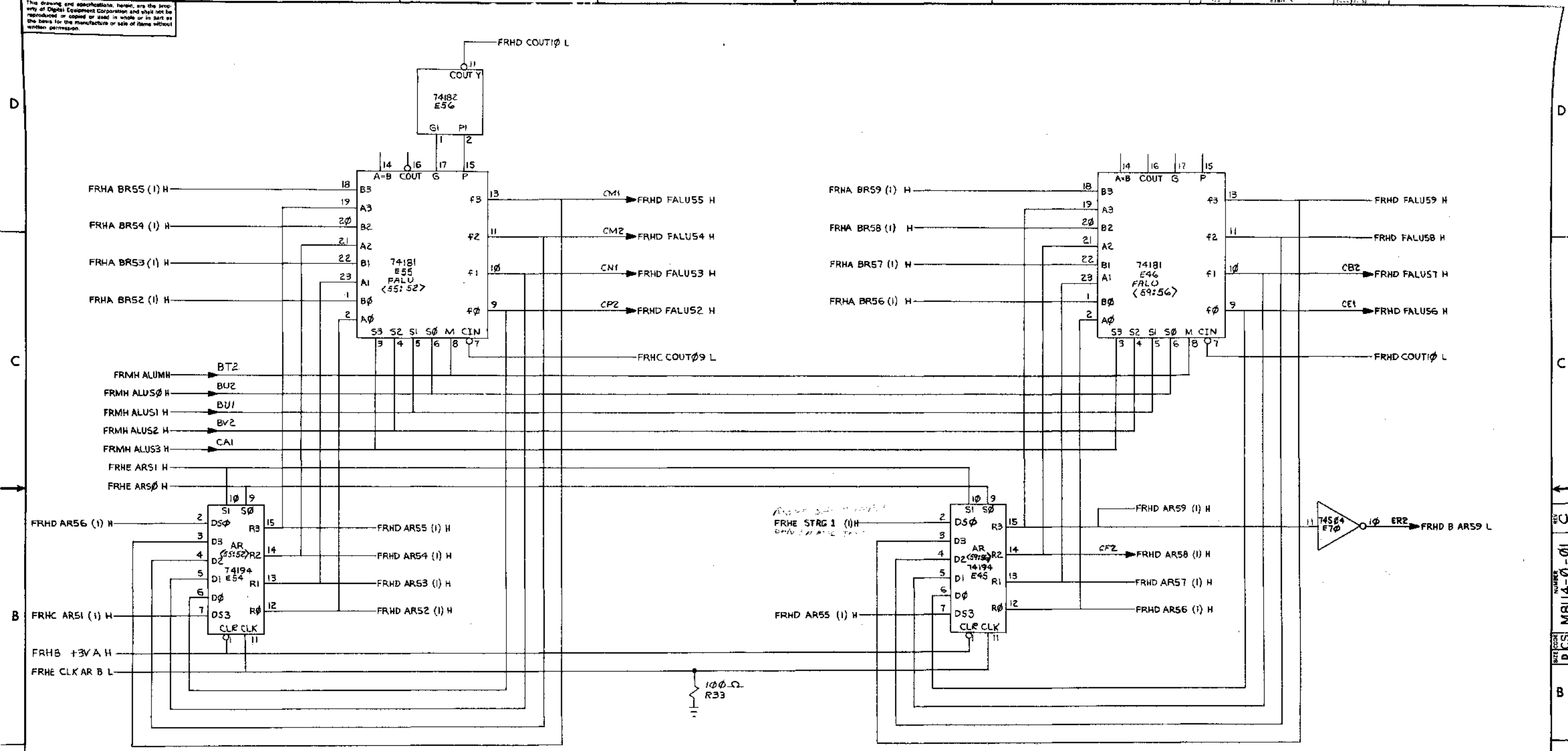


AR & FALU BITS 44 TO 51 SLOT 2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN	DATE	 digital EQUIPMENT CORPORATION <small>MAYNARD MASSACHUSETTS</small>
DECIMALS	ANGLES	CHKD	DATE	
.XX - .06	± 0° 30'	ENG	DATE	
.XX - .02		PROJ. ENG.	DATE	
.X - .1		PRD.	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		TITLE FRACTION DATA PATH HIGH ORDER (FRHC)		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE NUMBER REV. DCS M8114-0-01 C		
FINISH	SCALE	SHEET 4 OF 9		

REV.	CHANGE NO.	REVISIONS

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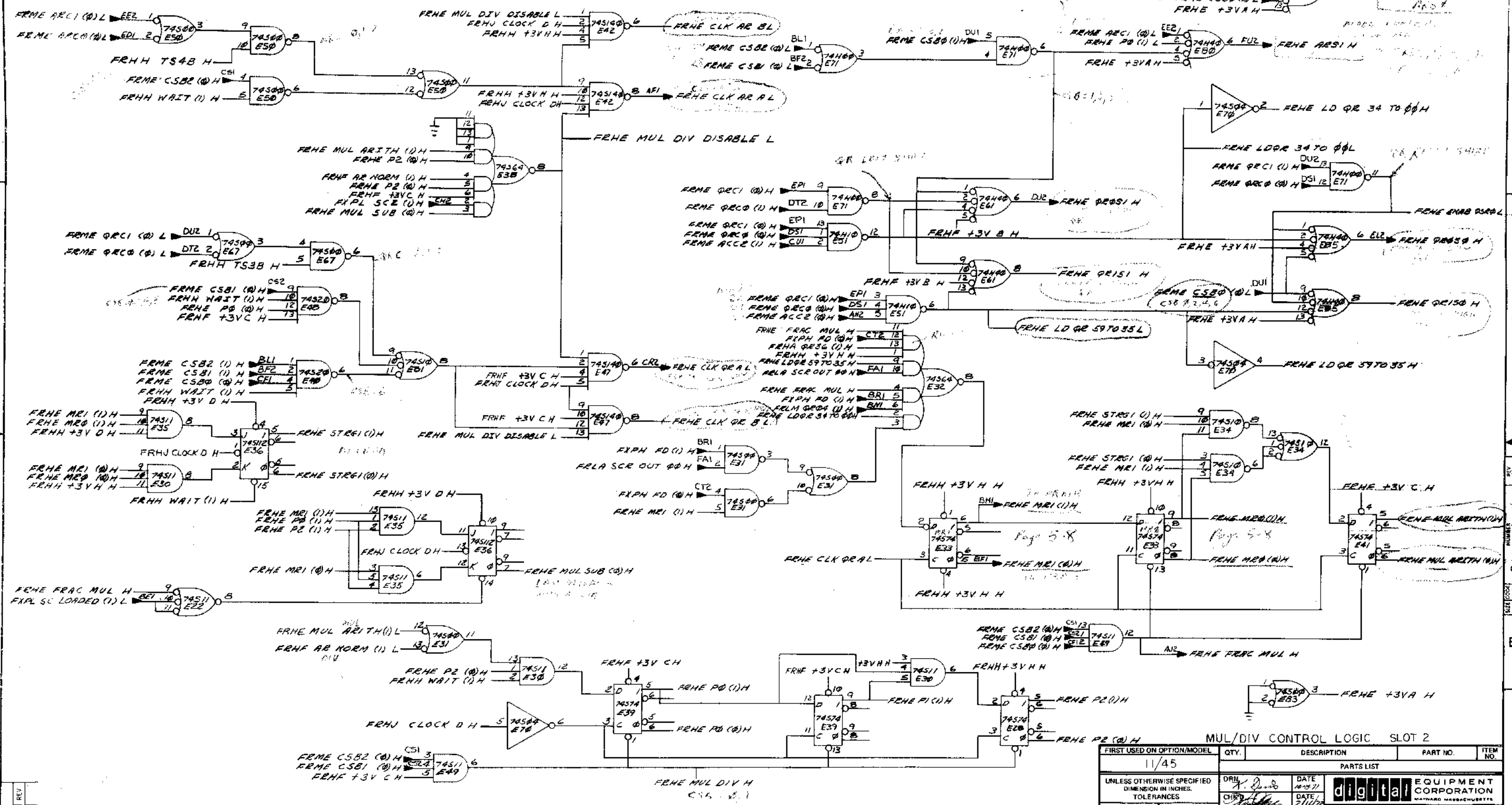
REV	
CHG	
NO	

DEC FORM NO. ORU 102-B

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 - .006	±0° 30'	DRN	DATE	digital EQUIPMENT CORPORATION	
.XX - .02		CHK	DATE	MAYNARD, MASSACHUSETTS	
.X - .1		ENG	DATE	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG.	DATE	FRACTION DATA	
		PROD.	DATE	PATH HIGH ORDER	
		NEXT HIGHER ASSY.		(FRHD)	
MATERIAL		B-DD	11/45-0	SIZE CODE	NUMBER
FINISH		SCALE		DCS	MB114-0-01
		SHEET	5 OF 9	DIST.	

REV. C
ITEM NO. 01
PART NO. MB114-0-01
DCS

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MUL/DIV CONTROL LOGIC SLOT 2

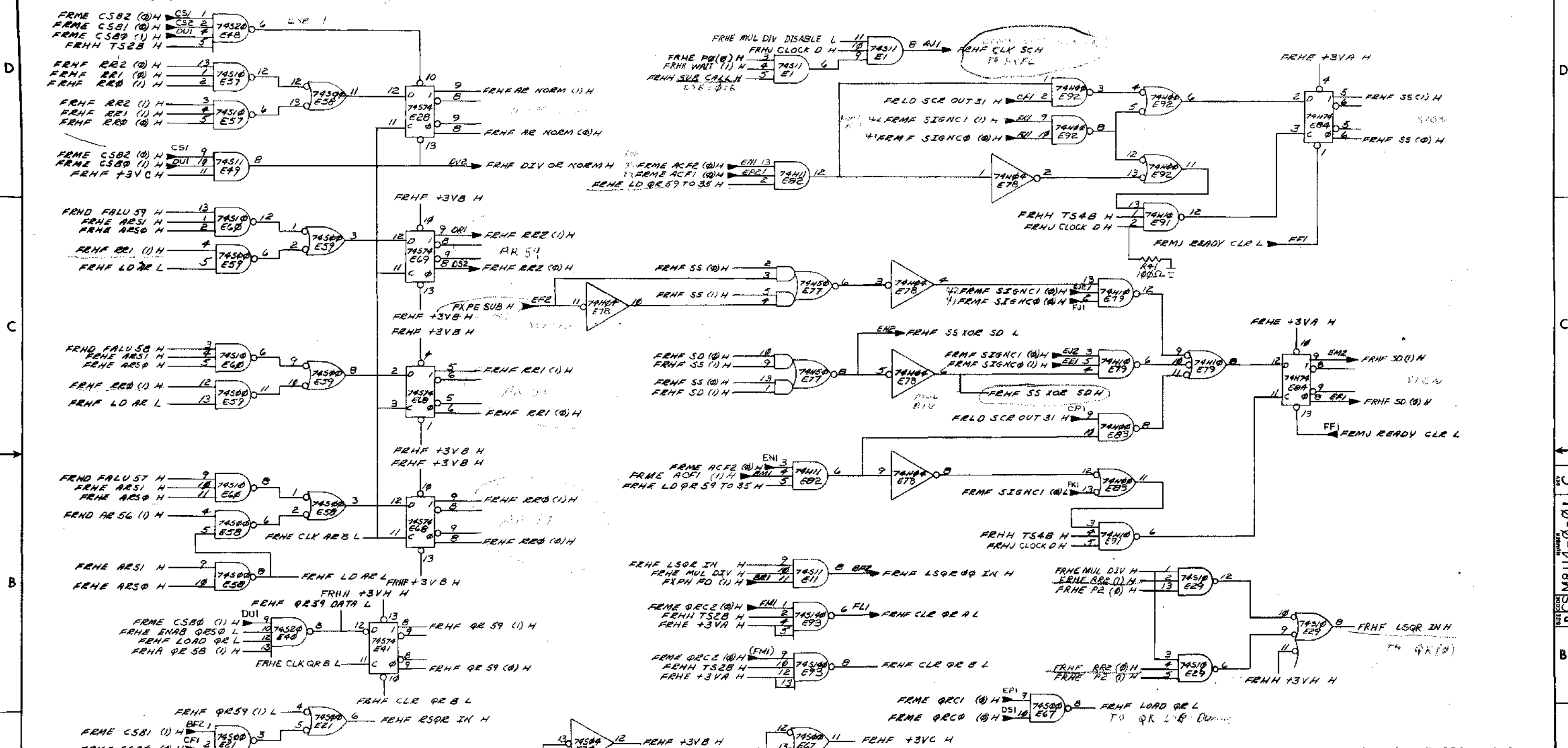
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN	DATE	PARTS LIST	
DECIMALS .XXX ± .02	CHK	DATE	digital EQUIPMENT CORPORATION	
ANGLES 20° 30'	ENG	DATE	TITTLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ ENG	DATE	FRACTION DATA	
MATERIAL	PROD.	DATE	PATH HIGH ORDER	
	NEXT HIGHER ASSY.		(FR HE)	
	B-DD-11/45-0	SIZE CODE	NUMBER	REV.
FINISH	SCALE	D	CSM8114-0-01	C
	SHEET 6 OF 9	DIST.		

REVISIONS
CHANGE NO.
REV.
CHK
DEC FORM NO. DRD 107-B

A

Page 5-16 of 20

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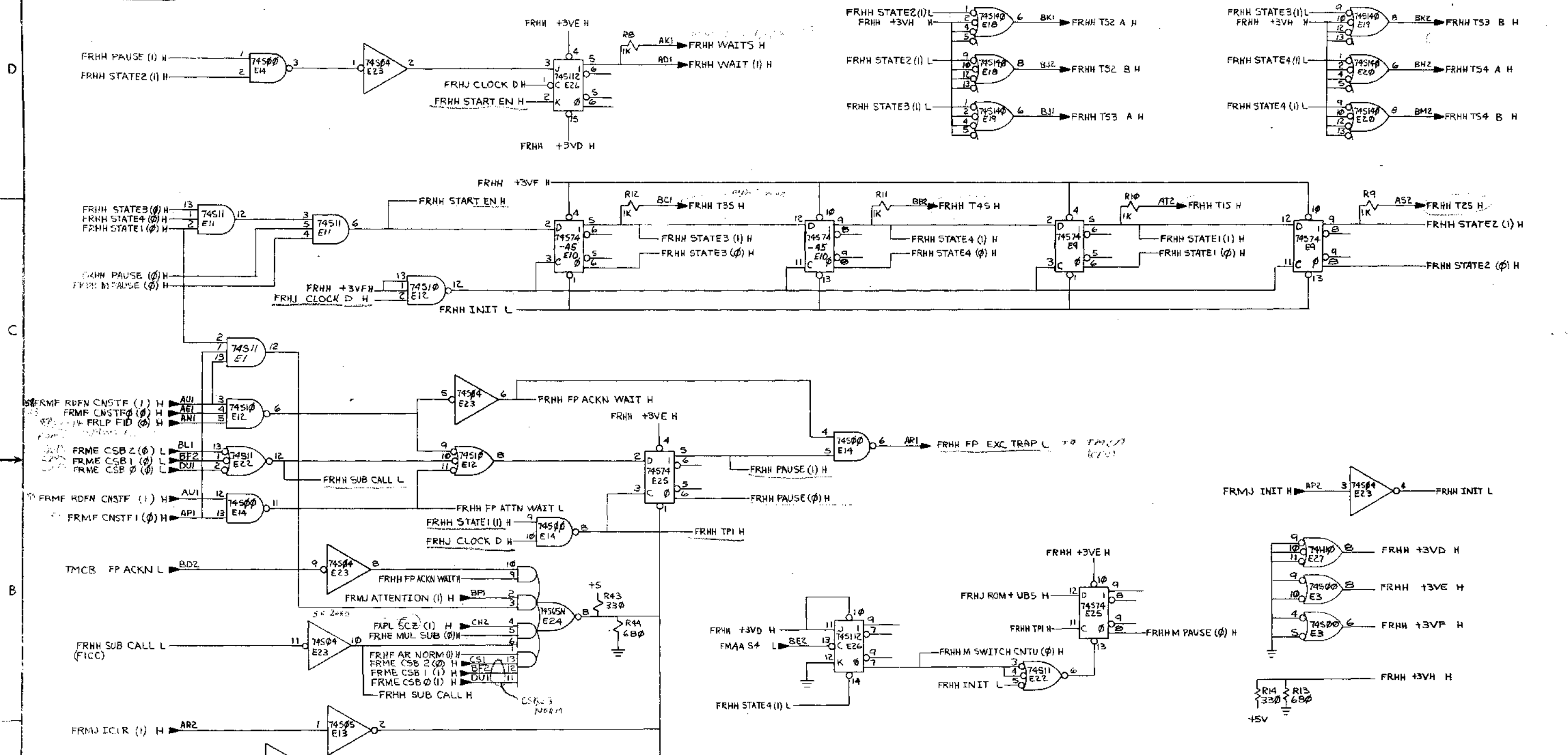
DIV CONTROL LOGIC & SS & SD FLOPS SLOT 2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DATE 10-18-77	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DECIMALS	DATE 7/16/72			
ANGLES	DATE 11/16/72	TITLE FRACTION DATA PATH HIGH ORDER (FRHF)		
.XXX - .009	DATE 3/11/72			
.XX - .02	DATE 3/11/72	MATERIAL NEXT HIGHER ASSY.		
.X - .1	DATE 3/11/72			
REMOVE BLURS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE 3/11/72	FINISH SCALE		
		SHEET 7 OF 9		
		DISTRIBUTION		

REVISIONS

REV	CHANGE NO

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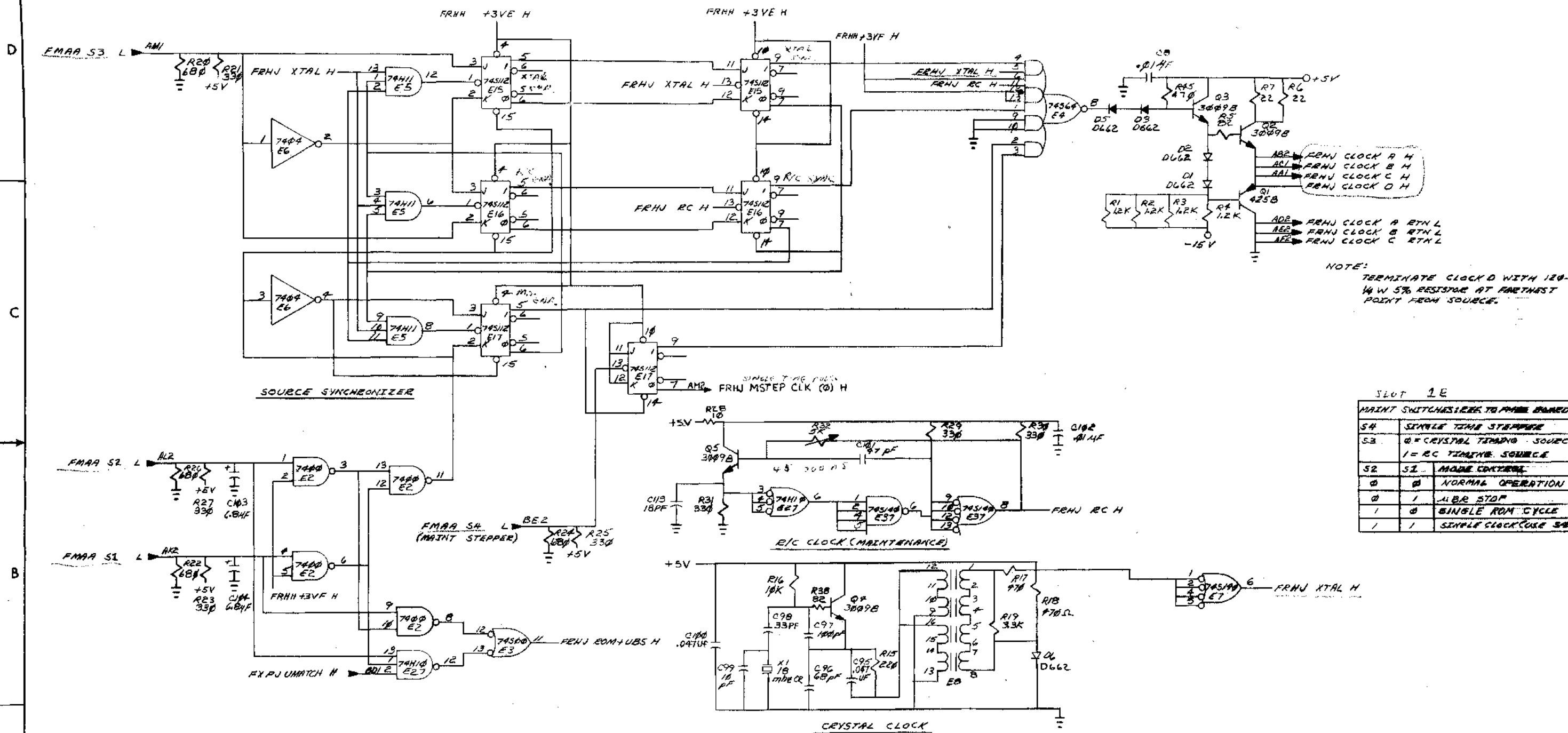
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN	DATE	digital EQUIPMENT CORPORATION <small>MAYNARD MASSACHUSETTS</small>	
DECIMALS ANGLES		DATE	DATE		
.XXX + .005 ± 0° 30'		ENG	DATE	TITLE FRACTION DATA PATH HIGH ORDER (FRHH)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG.	DATE		
MATERIAL		PROD.	DATE	NEXT HIGHER ASSY. B DD-11/45-0	
FINISH		SCALE	SIZE CODE D CS		NUMBER M814-0-01
		SHEET 8 OF 9	DIST.		REV. C

REV.	CHANGE NO.

SHEET NUMBER
DCS M814-0-01

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10-0-1118WES-01



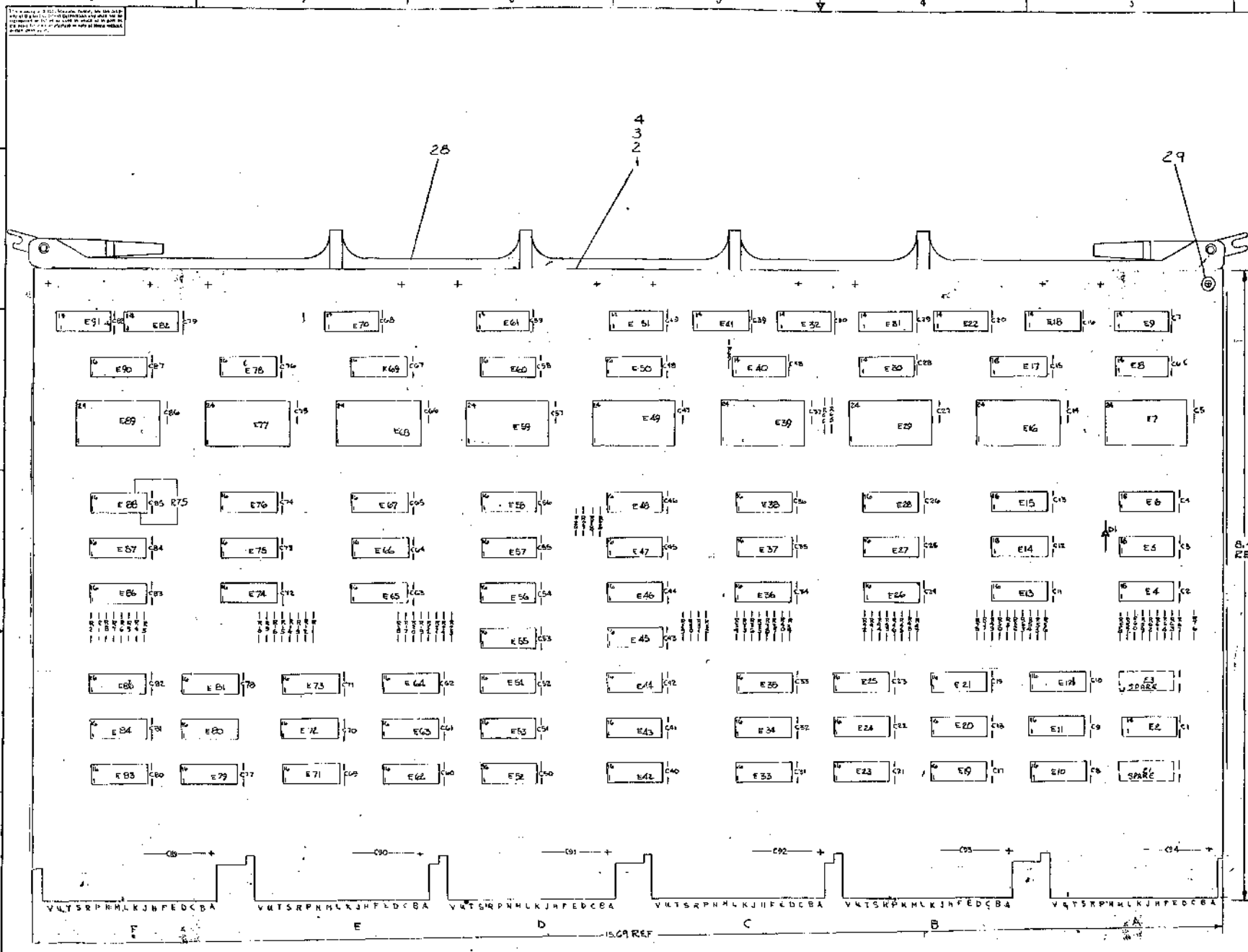
NOTE:
TERMINATE CLOCK D WITH 120- Ω W 5% RESISTOR AT FURTHEST POINT FROM SOURCE.

SLOT 2E		MAINT SWITCHES REFER TO FRAME BOARD	
S4	0	0	SINGLE TIME STEPPER
S3	0	0	CRYSTAL TIMING SOURCE
	1	0	RC TIMING SOURCE
S2	0	0	MODE CONTROL
	0	0	NORMAL OPERATION
	0	1	1/2 R STOP
	1	0	SINGLE ROM CYCLE
	1	1	SINGLE CLOCK CYCLE (S4)

CLOCKS & CLOCK SYNCHRONIZER SLOT 2

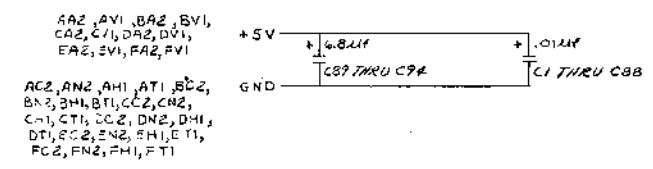
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE	 digital EQUIPMENT CORPORATION <small>WALTHAM MASSACHUSETTS</small>
DECIMALS	ANGLES	CHK'D	DATE	
.XXX + .006	$\pm 0^{\circ} 30'$	ENG	DATE	
.XX - .02		PROJ. ENG.	DATE	
.X - .1		PROD.	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.		FRACTION DATA PATH HIGH ORDER (FRHJ)
MATERIAL	B-DD-11/45-0		SIZE CODE	
FINISH	DCSM8114-0-01		NUMBER	
SCALE		SHEET 9	OF 9	REV. C

REVISIONS
CHANGE NO.
REV.



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

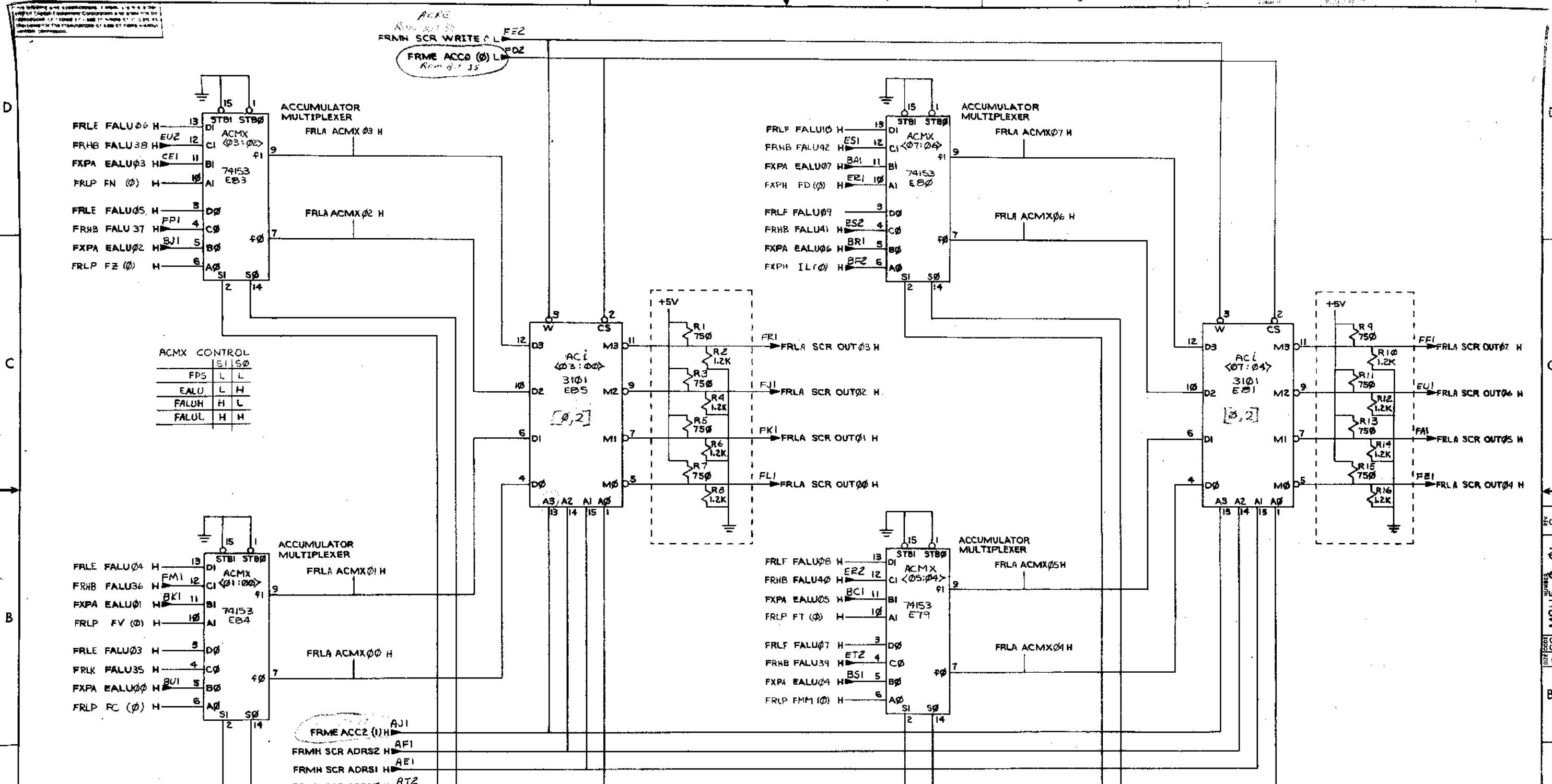
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	REV
1	MODULE	MODULE	9006732	29
1	E10	IC DEC 74H11	1909267	27
2	E8, E30	IC DEC 74305	1910535	24
1	E61	IC DEC 74H74	1909667	25
3	E32, E61, E22	IC DEC 74400	909056	24
2	E9, E41	IC DEC 74H10	1909057	23
2	E40, E70	IC DEC 74504	1910534	22
2	E82, E91	IC DEC 74H50	909060	21
1	E2	IC DEC 74H30	1909059	20
12	E14, E27, E37, E47, E57, E60, E64, E75, E78, E85, E87, E90	IC DEC 74175	1910651	19
3	E17, E50, E64	IC DEC 74182-7	1910551	18
9	E7, E14, E23, E34, E40, E59, E65, E73, E84	IC DEC 74181	909982	17
10	E4, E6, E13, E15, E26, E28, E36, E38, E44, E48, E56, E58, E65, E67, E74, E76, E86, E88	IC DEC 74194	1910623	16
8	E12, E21, E25, E35, E64, E73, E81, E85	IC DEC 74101A	1910653	15
24	E10, E11, E19, E20, E23, E24, E33, E34, E42, E43, E44, E45, E52, E53, E54, E55, E62, E63, E71, E72, E79, E80, E83, E84	IC DEC 74153	909937	14
1	E31	IC DEC 74H40	1905586	13
32	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32, R34, R36, R38, R40, R42, R44, R46, R48, R50, R52, R54, R56, R58, R60, R62, R64	RESISTOR 12K, 1/4W, 5%	1301320	12
32	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23, R25, R27, R29, R31, R33, R35, R37, R39, R41, R43, R45, R47, R49, R51, R53, R55, R57, R59, R61, R63	RESISTOR 750 Ω , 1/4W, 5%	1301401	11
2	R65, R70	RESISTOR 330 Ω , 1/4W, 5%	300295	10
2	R66, R77	RESISTOR 680 Ω , 1/4W, 5%	1301424	9
4	R67, R69, R76, R75	RESISTOR 100 Ω , 1/4W, 5%	1300229	8
1	D1	DIODE FD777	1103041	7
88	C1 THRU C88	CAPACITOR .01 μ F, 100V, 20%	1001610	6
4	C89 THRU C94	CAPACITOR 6.8 μ F, 35V, 20%	000067	5
1		ETCHED CIRCUIT BOARD	5004861	4
REF		MODULE ECO HISTORY	5004861-0-6	3
REF		ASSY/CELLING LAYOUT	5004861-0-5	2
REF		KEY CODED RATE	5004861-0-4	1



IC TYPE	QTY	REV
DEC 74153	8	16
DEC 74175	8	16
DEC 74194	8	16
DEC 74181	12	24
DEC 74182-7	8	16

ITEM NO.	ANG	FROM	TO
JUMPER LIST			

REV	DATE	BY	CHKD	APP'D	DESCRIPTION
1					FRACON DATA PATH LOW ORDER
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					

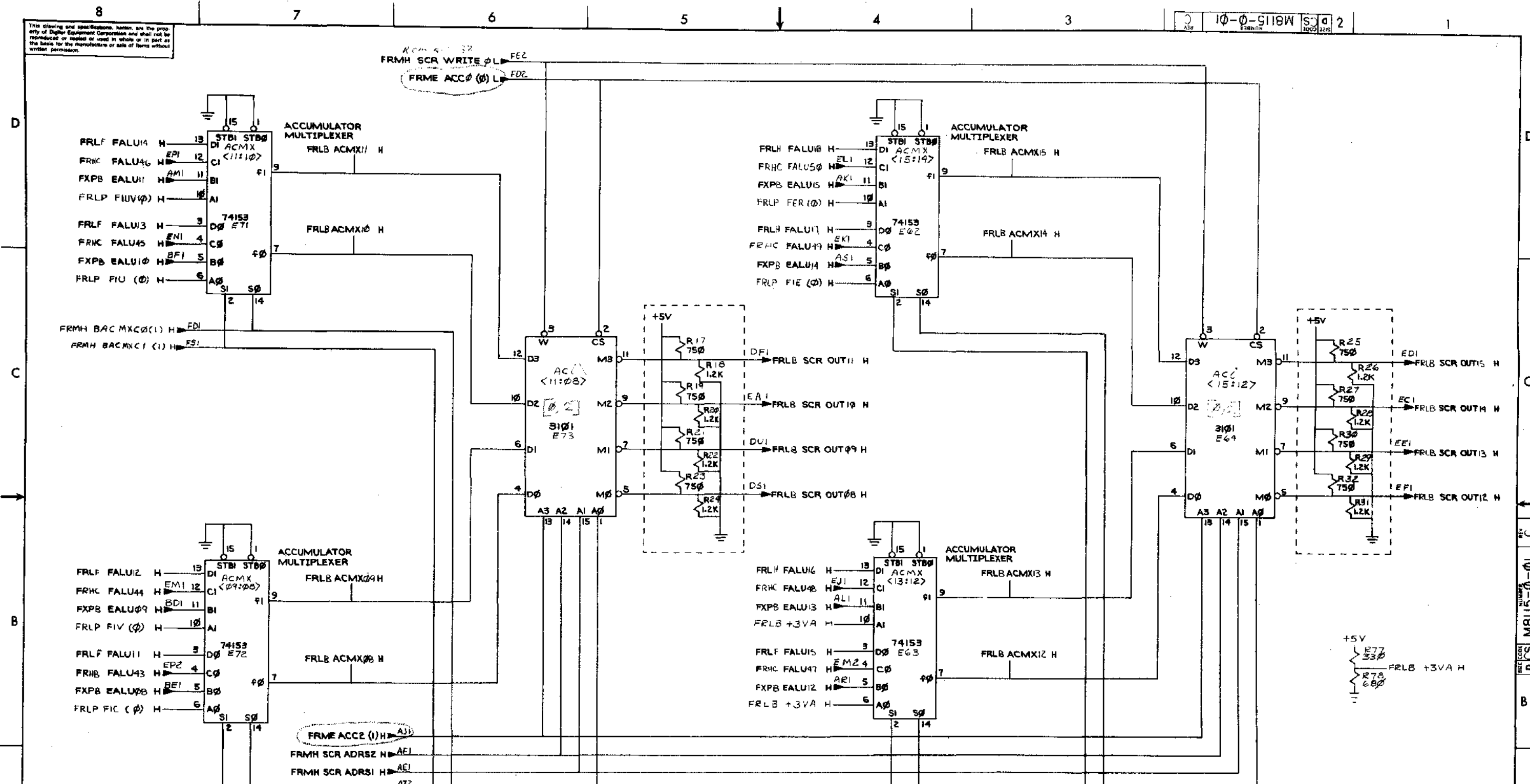


ACMX & SCRATCH PAD BITS 04 TO 07 SLOT 3

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.	
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN S. R. L. B.	DATE 9/17/71	digital EQUIPMENT CORPORATION WATYARD MASSACHUSETTS	
DECIMALS	ANGLES	CHKD S. R. L. B.	DATE 2/17/72		
.XXX = .005	±0° 30'	ENGR S. R. L. B.	DATE 9/17/72		
.XX = .02		PROJ. ENGR S. R. L. B.	DATE 2/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD S. R. L. B.	DATE 2/17/72	TITLE FRACTION DATA PATH LOW ORDER (FRLA)	
MATERIAL	NEXT HIGHER ASSY.	B-DD-11/45-0			
FINISH	SCALE	SIZE CODE	NUMBER	REV.	
	SHEET 2 OF 14	DCS	M8115-0-01	C	

REV.	CHANGE NO.

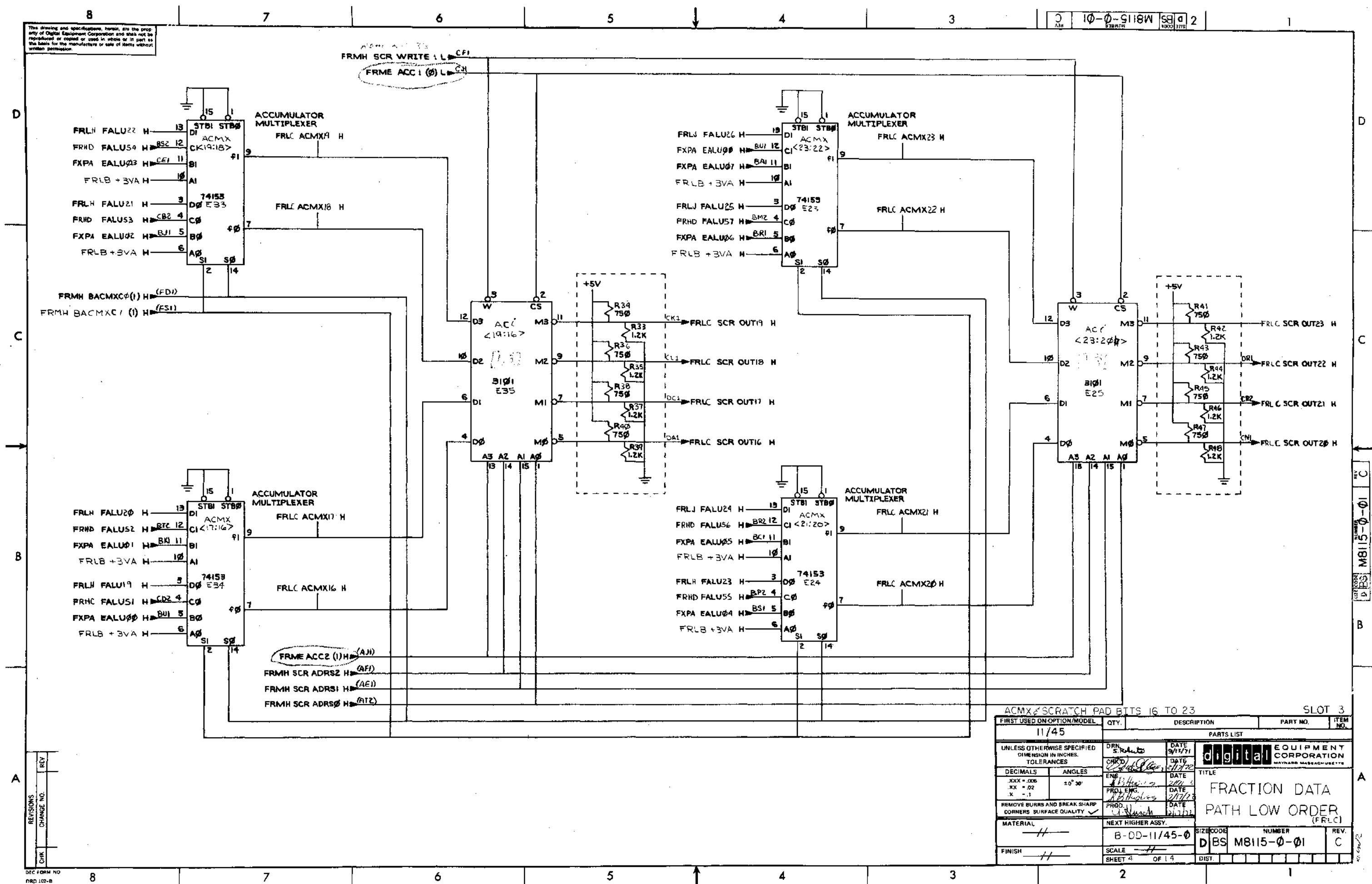
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REV	CHANGE NO.	DESCRIPTION

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DRN	DATE	digital EQUIPMENT CORPORATION	
TOLERANCES					
DECIMALS	ANGLES			TITLE	
.XXX - .008	±0° 30'			FRACTION DATA	
.XX - .02				PATH LOW ORDER	
.X - .1				(FRLB)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY					
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
				B-D2-11/45-0	D CS M8115-0-01
FINISH		SCALE	SHEET	OF	DIST.
			3	14	

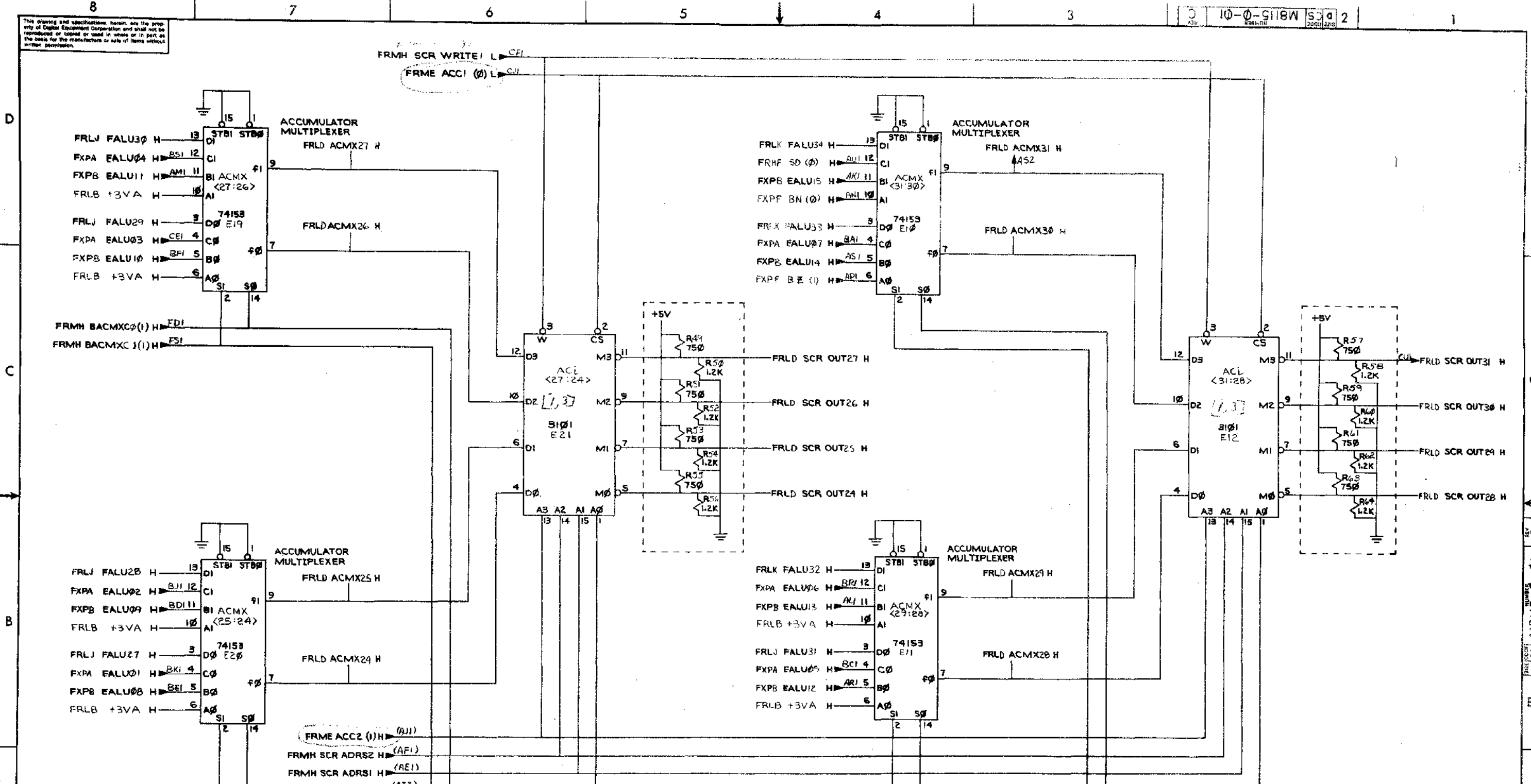
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FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE	PARTS LIST	
DECIMALS	ANGLES	CHKD	DATE	digital EQUIPMENT CORPORATION	
.XXY = .006	±0°30'	ENG	DATE	MAYNARD MASSACHUSETTS	
.XX = .02		PROL ENG	DATE	TITLE	
.X = .1		PRD	DATE	FRACTION DATA	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				PATH LOW ORDER (FRLC)	
MATERIAL	NEXT HIGHER ASSY.			REV. C	
FINISH	B-DD-11/45-0			SIZE CODE	
	SCALE			NUMBER	
	SHEET 4 OF 14			DBS M8115-0-01	
				DIST.	

REV.	CHANGE NO.	DESCRIPTION

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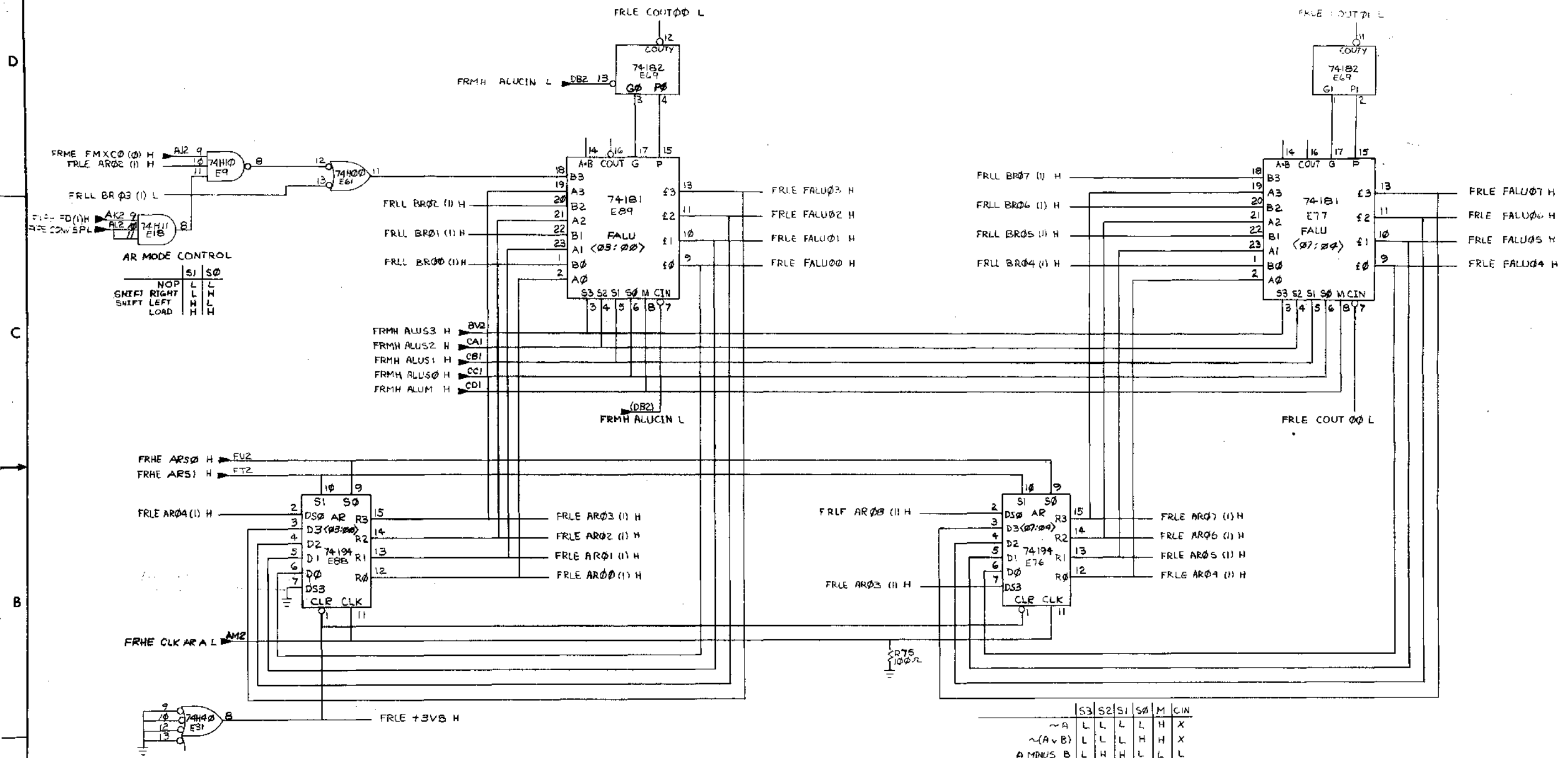
REV.	CHANGE NO.

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES			DATE 9/17/71		
DECIMALS	ANGLES	±0° 30'	DATE 2/1/72		
.XXX ± .005			DATE 2/17/72		
.XX ± .02			DATE 2/17/72		
.X ± .1			DATE 2/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY			DATE 2/17/72		
MATERIAL		NEXT HIGHER ASSY.			
FINISH		SCALE		SHEET 5 OF 7	

digital EQUIPMENT CORPORATION
 TITLE: FRACTION DATA PATH LOW ORDER (FRLD)
 SIZE CODE: B-DD-11/45-0
 NUMBER: DCS M8115-0-01
 REV. C

DCS M8115-0-01

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AR MODE CONTROL

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

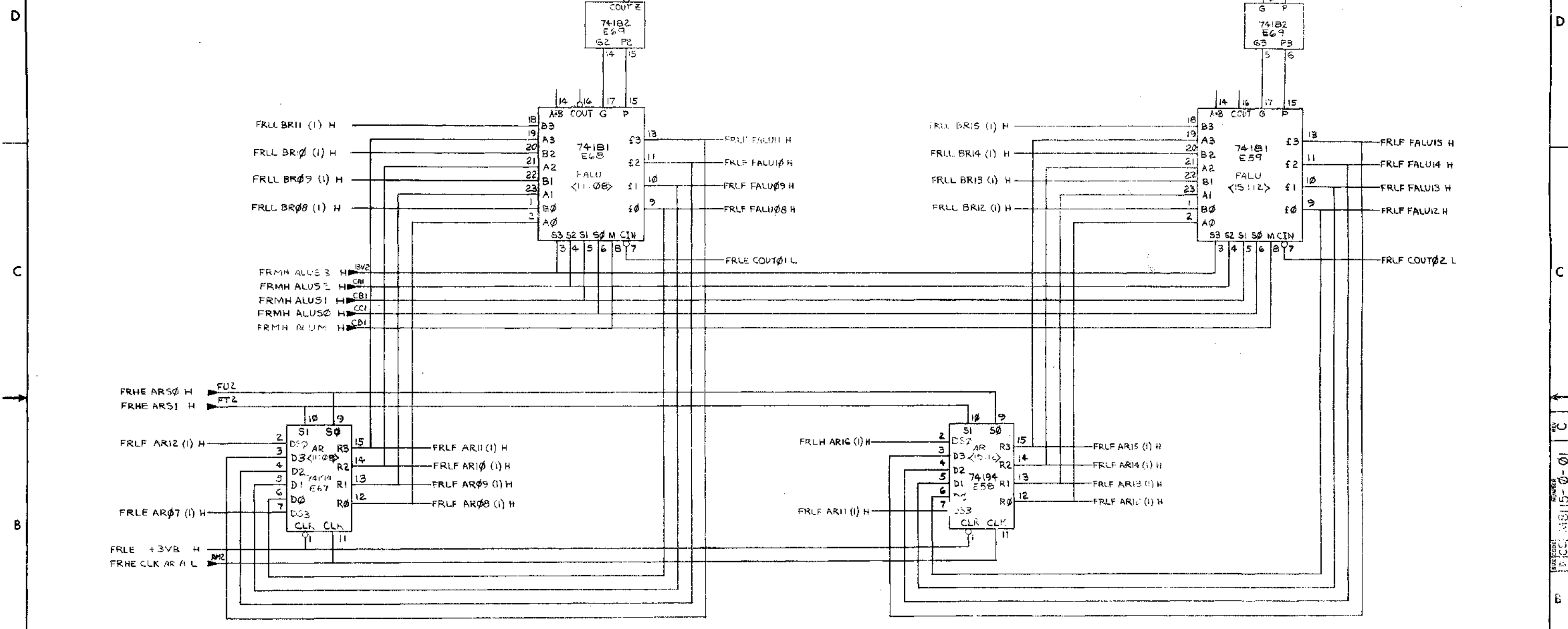
	S3	S2	S1	S0	M	CIN
~A	L	L	L	L	H	X
~(A∨B)	L	L	L	H	H	X
A MINUS B	L	H	H	L	L	L
∅	L	L	H	H	H	X
~(A∧B)	L	H	L	L	H	X
~B	L	H	L	H	H	X
A MINUS B MINUS 1	L	H	H	L	L	H
A∧B	L	H	H	H	H	X
A PLUS B PLUS 1	H	L	L	L	H	L
A PLUS B	H	L	L	H	L	H
B	H	L	H	L	H	X
A∧B	H	L	H	H	H	X
I	H	H	L	L	H	X
A MINUS 1	H	H	H	H	L	H
A∨B	H	H	H	L	H	X
A	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: <i>R. Adams</i> DATE: 2-16-71	<p>digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS</p>	
DECIMALS	ANGLES	CHKD: <i>[Signature]</i> DATE: 2/17/71		
.XXX - .006	±0° 30'	ENG: <i>[Signature]</i> DATE: 2/17/71		
.XX - .02		PROJ. ENGR: <i>[Signature]</i> DATE: 2/17/71		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD. I: <i>[Signature]</i> DATE: 2/17/71	TITLE: FRACTION DATA PATH LOW ORDER (FRLE)	
MATERIAL: <i>H</i>		NEXT HIGHER ASSY.	SIZE CODE: B-DD-11/45-0	NUMBER: DCS M8115-0-01
FINISH: <i>H</i>			SCALE: <i>H</i>	REV. C
		SHEET 6 OF 14	DIST.	

REV.	CHANGE NO.	NO.

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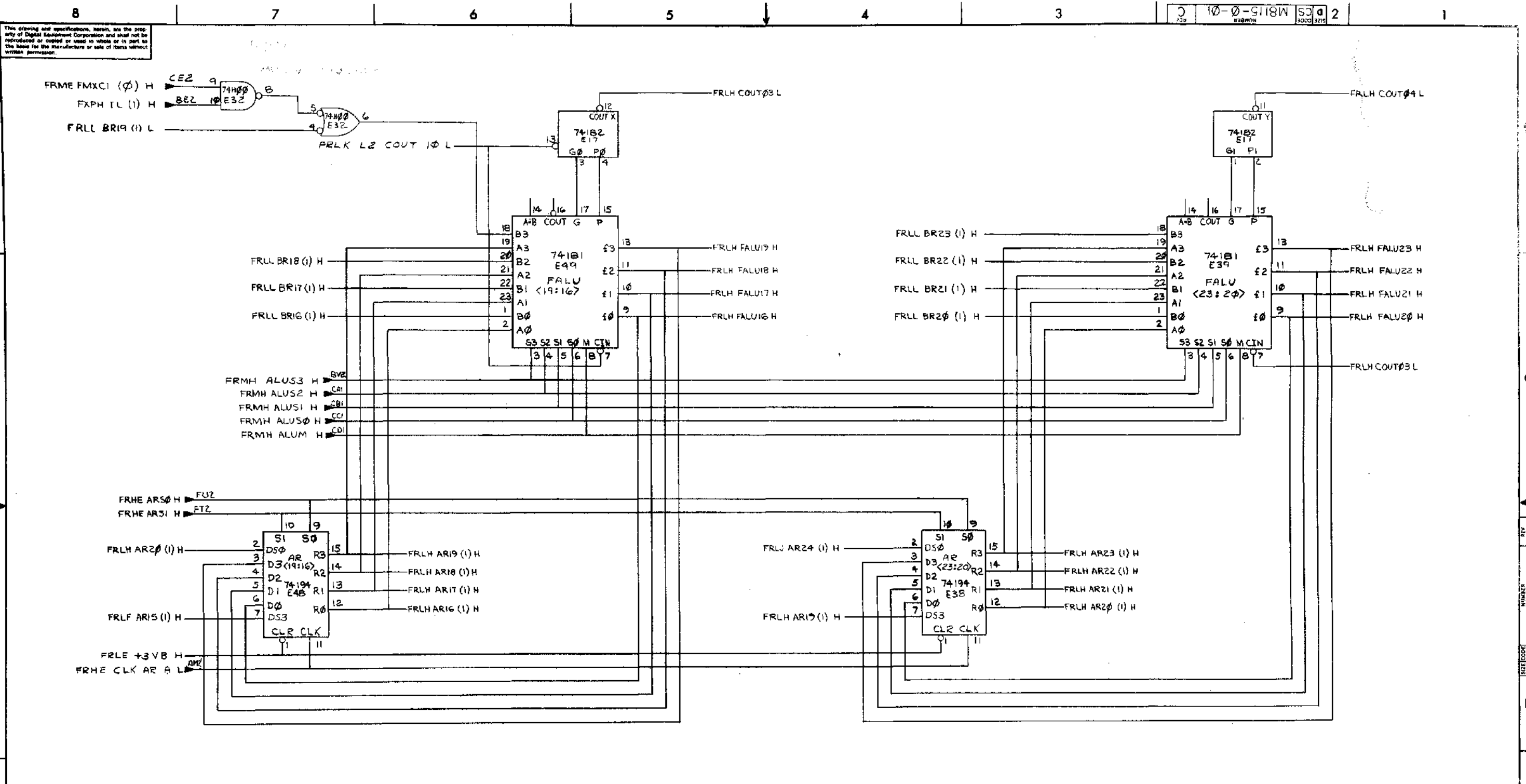


REV	NO
CHK	

FIRST USED ON OPTION/MODEL 11/45		QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. 2 Carberry	DATE 2-16-71		
DECIMALS .XXX ± .006 XX - .02 X - .1		CHKD 2/17/72	DATE 2/17/72		
ANGLES ± 0° 30'		ENG. B. Hughes	DATE 2/17/72	TITLE FRACTION DATA PATH LOW ORDER (FRLF)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG. B. Hughes	DATE 2/17/72		
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
FINISH		SCALE		DCS	M315-0-01
SHEET 7 OF 14		DIST.		REV.	C

10-0-5115-W 50 2
 10-0-5115-W 50 2

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REVISIONS	NO.	REV.
CHK	CHANGE NO.	

DEC FORM NO. DRD 102-B

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		DATE	DATE	MAYFORD MASSACHUSETTS	
TOLERANCES		DATE	DATE	TITLE	
DECIMALS	ANGLES	DATE	DATE	FRACTION DATA	
.XXX - .005	10° 30'	DATE	DATE	PATH LOW ORDER	
.XX - .02		DATE	DATE	(FRLH)	
.X - .1		DATE	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD.	DATE	MATERIAL	
		DATE	DATE	NEXT HIGHER ASSY.	
		DATE	DATE	B-DD-11/45-0	
		DATE	DATE	SCALE	
		DATE	DATE	SHEET 8 OF 14	
		DATE	DATE	SIZE CODE NUMBER	
		DATE	DATE	DCS M8115-0-01	
		DATE	DATE	REV.	
		DATE	DATE	C	

8 7 6 5 4 3 2 1

REV. C
M8115-0-01
DCS

REV. C

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D

C

B

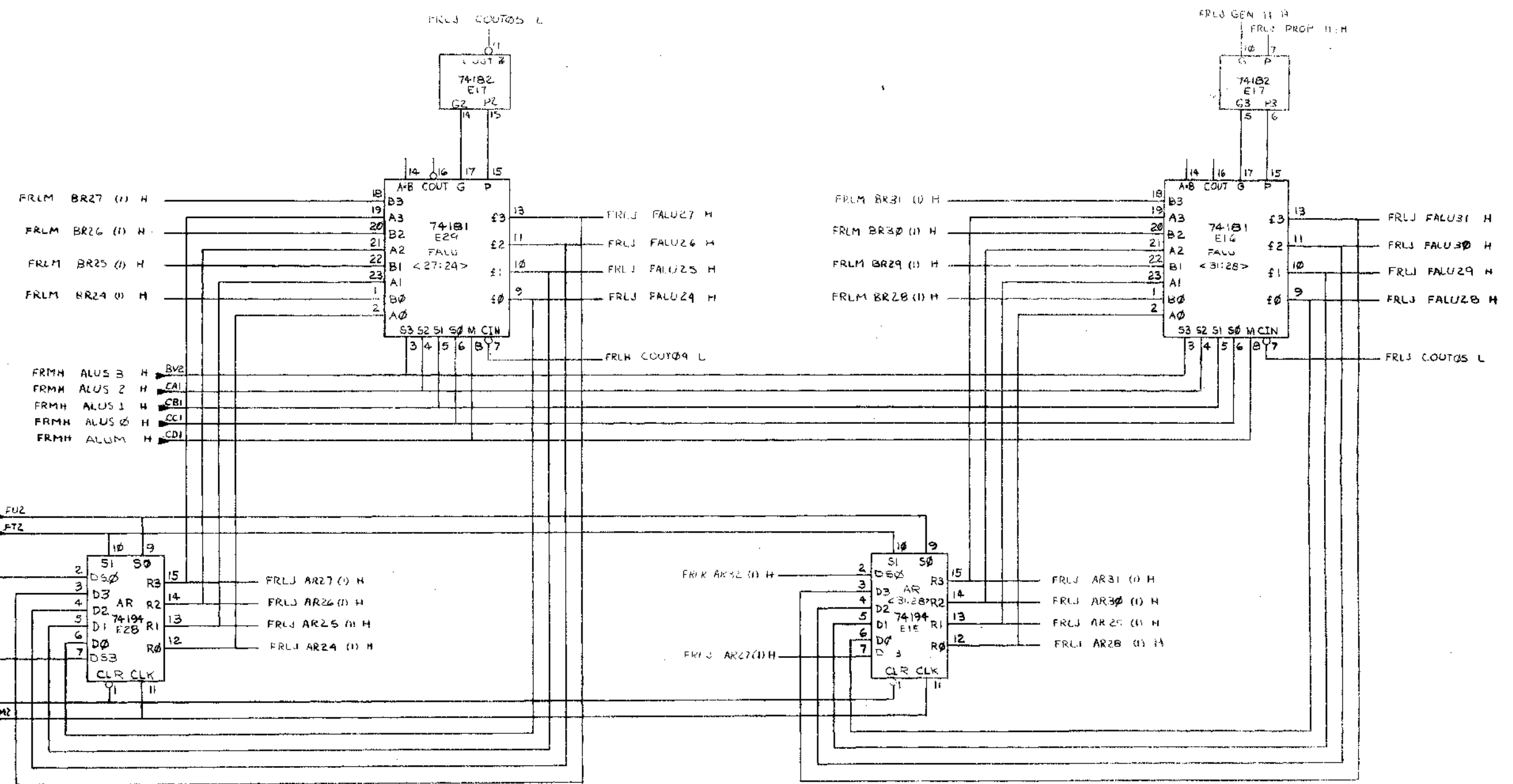
A

D

C

B

A



REV	NO	DATE	BY	CHK

DRG ONLY NO FRD 102-B

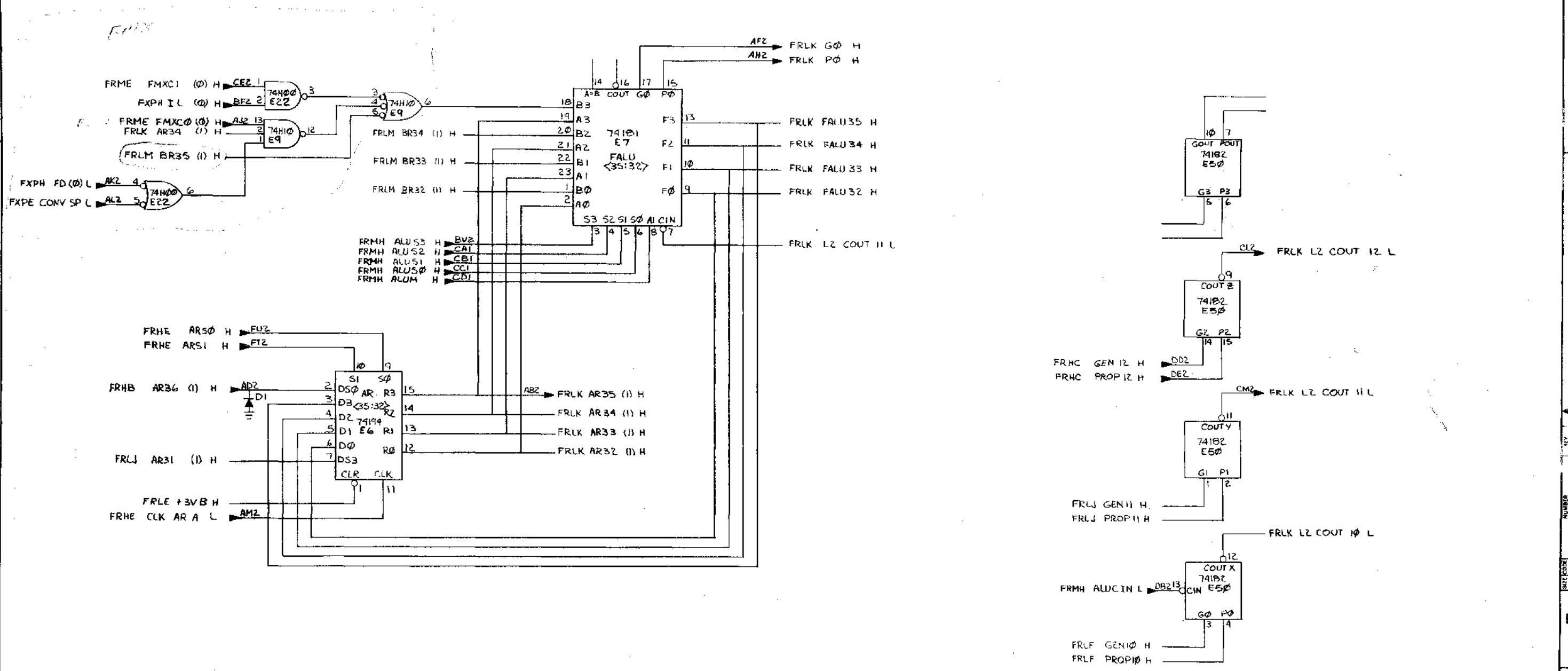
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>R. Adams</i>	DATE 2-16-71	digital EQUIPMENT CORPORATION MAYFORD MASSACHUSETTS	
DECIMALS .XXX - .006	ANGLES 10° 30'	DATE 2/17/72	TITLE FRACTION DATA		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2/17/72	PATH LOW ORDER (FRLJ)		
MATERIAL	NEXT HIGHER ASSY.	DATE 2/17/72	SIZE CODE	NUMBER	REV.
	B-DD-11/45-0		D CS	M8115-0-01	C
FINISH	SCALE	DATE	SHEET	OF	
			9	14	

REV. C
M8115-0-01

AR & FALU BITS 24 TO 31

SLOT 3

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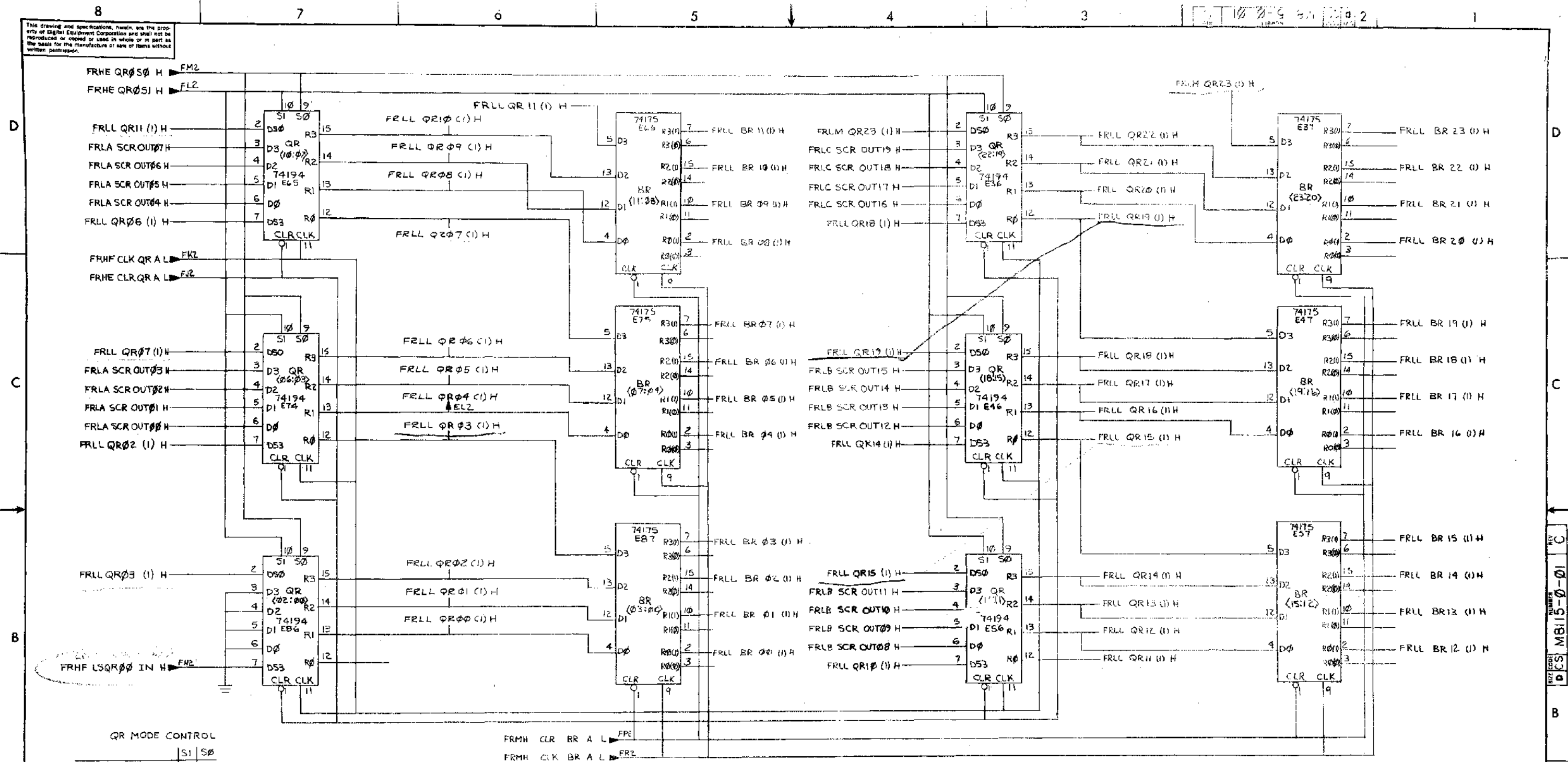


REV	CHG	NO.	DATE

AR & FALU BITS 32 TO 35 & 2ND CARRY LOOKAHEAD SLOT 3			
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.
11/45			
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE
DECIMALS	ANGLES		
XXX + 006	= 0° 30'		
XX + 02			
X + 1			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE DUALITY			
MATERIAL		NEXT HIGHER ASSY.	
		B-DD-11/45-0	
FINISH		SCALE	
		SHEET 10 OF 14	
TITLE		SIZE CODE	NUMBER
FRACTION DATA PATH LOW ORDER (FRLK)		DCS	M8115-0-01
		DIST	
		REV.	C

BRUNING 00-522 15840

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QR MODE CONTROL

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

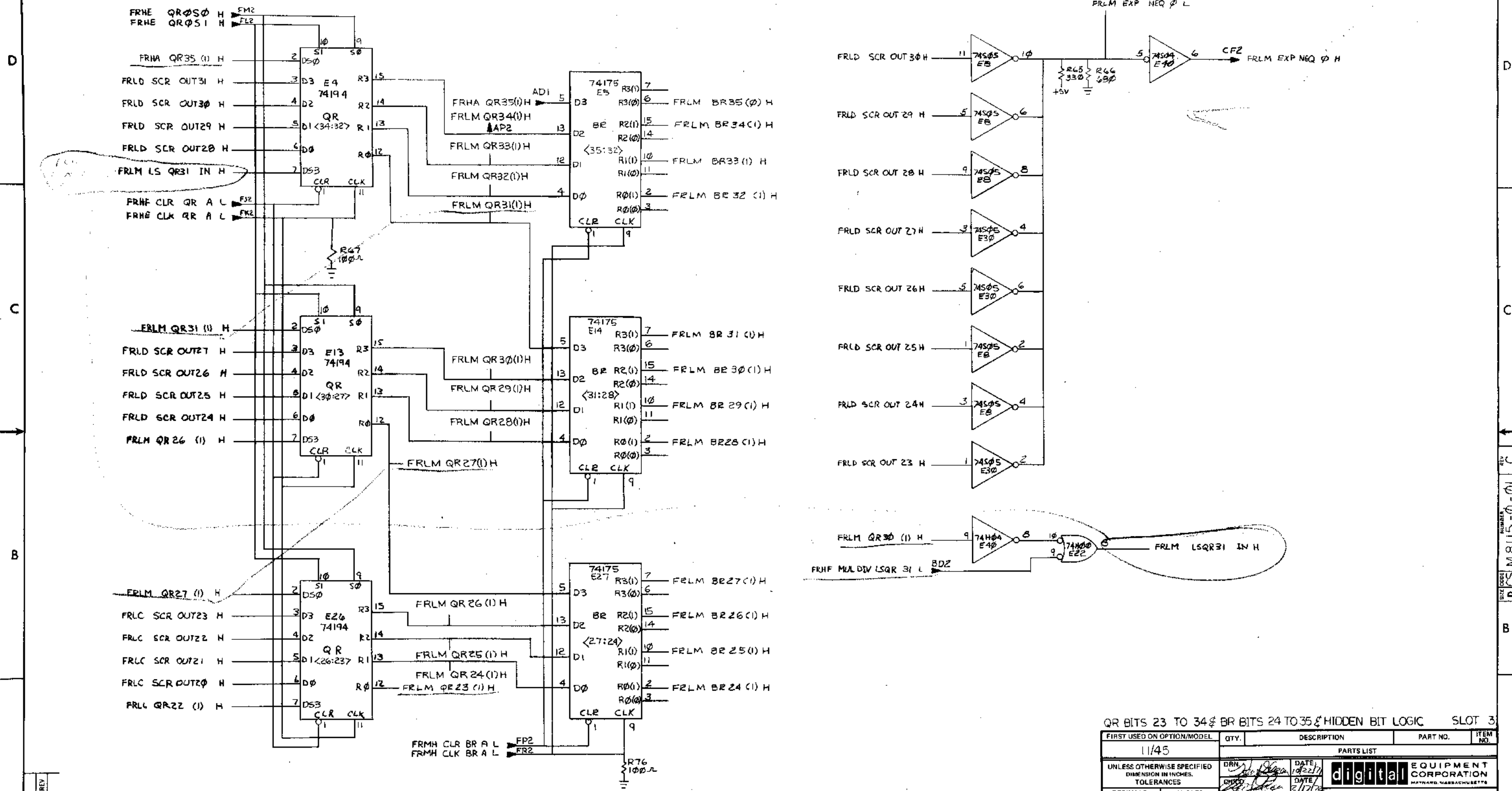
FRMH CLR BR A L FRL

FRMH CLK BR A L FRL

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		DATE 12/22/71	digital EQUIPMENT CORPORATION		
DECIMALS .XXX - .005	ANGLES 10° 30'	DATE 1/16/72	TITLE FRACTION DATA PATH LOW ORDER (FRL)		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2/14/72	SIZE CODE B-DD-11/45-0		
MATERIAL --11--	NEXT HIGHER ASSY.	DATE 2/14/72	NUMBER M8115-0-01		
FINISH --11--	SCALE --11--	DATE 2/14/72	REV. C		
SHEET 1 OF 14		D CS M8115-0-01			

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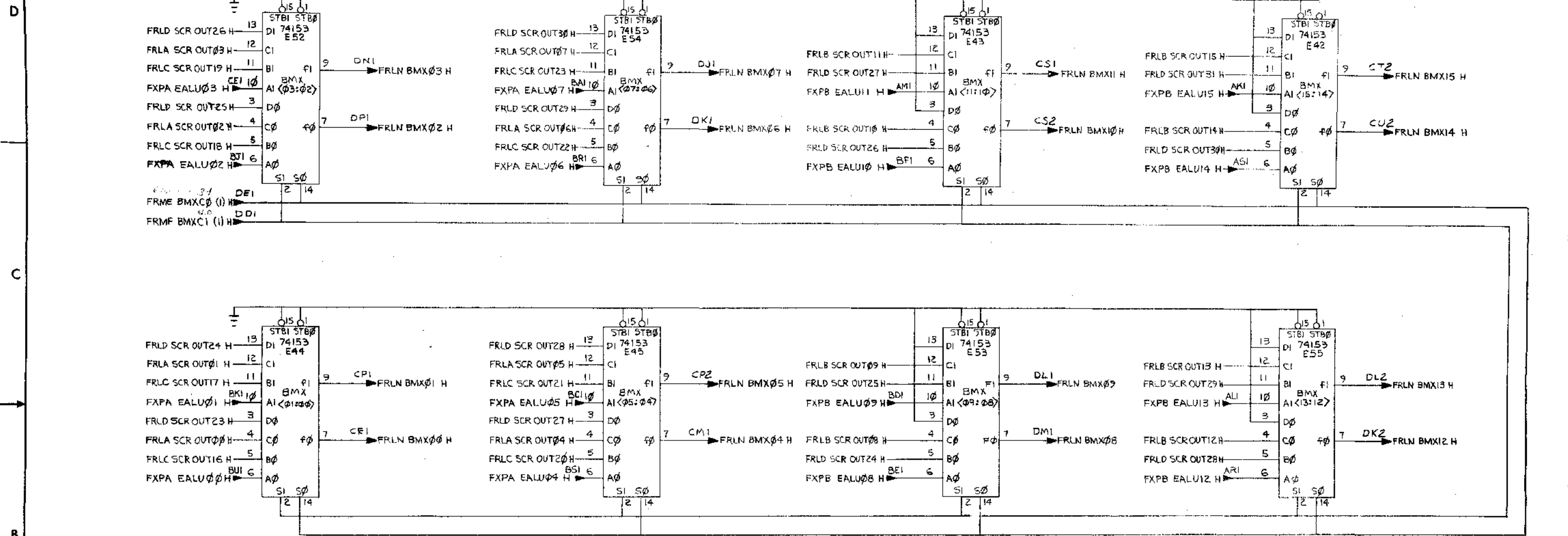
FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.		DRN	DATE	digital EQUIPMENT CORPORATION MAYFIELD, MASSACHUSETTS	
TOLERANCES		CHKD	DATE		
DECIMALS	ANGLES	ENG.	DATE	TITLE FRACTION DATA PATH LOW ORDER (FRLM)	
.XXX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

REVISIONS	REV
CHANGE NO.	
CHK	

DCS M8115-0-01

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10 0-9118W 53 a 2



BMX CONTROL

	SI	Sφ
EALU	L	L
ACH	L	H
ACL	H	L
EXP	H	H

REVISIONS

REV.	CHANGE NO.

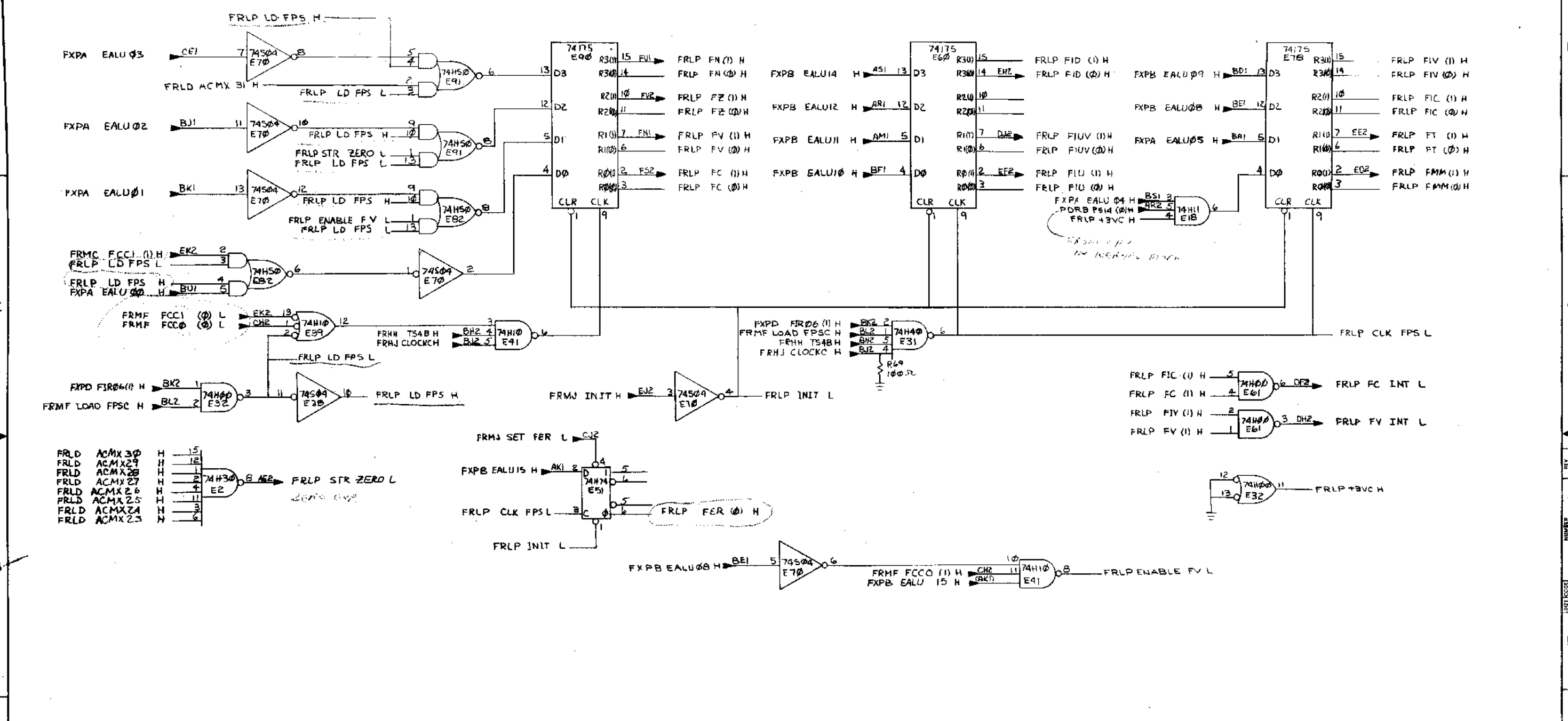
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. <i>[Signature]</i>	DATE 10/26/71	digital CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .XX - .005	CHK'D. <i>[Signature]</i>	DATE 2/17/72		
ANGLES ±0° 30'	ENG. <i>[Signature]</i>	DATE 2/27/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>[Signature]</i>	DATE 2/17/72		
MATERIAL	NEXT HIGHER ASSY.	SCALE	SIZE CODE	NUMBER
FINISH	B-DD-11/45-φ	11	DICS	M8115-φ-φ1
	SHEET 13 OF 14		DIST.	

TITLE
FRACTION DATA
PATH LOW ORDER
(FRLN)

SIZE CODE
DICS M8115-φ-φ1

NUMBER
REV. C

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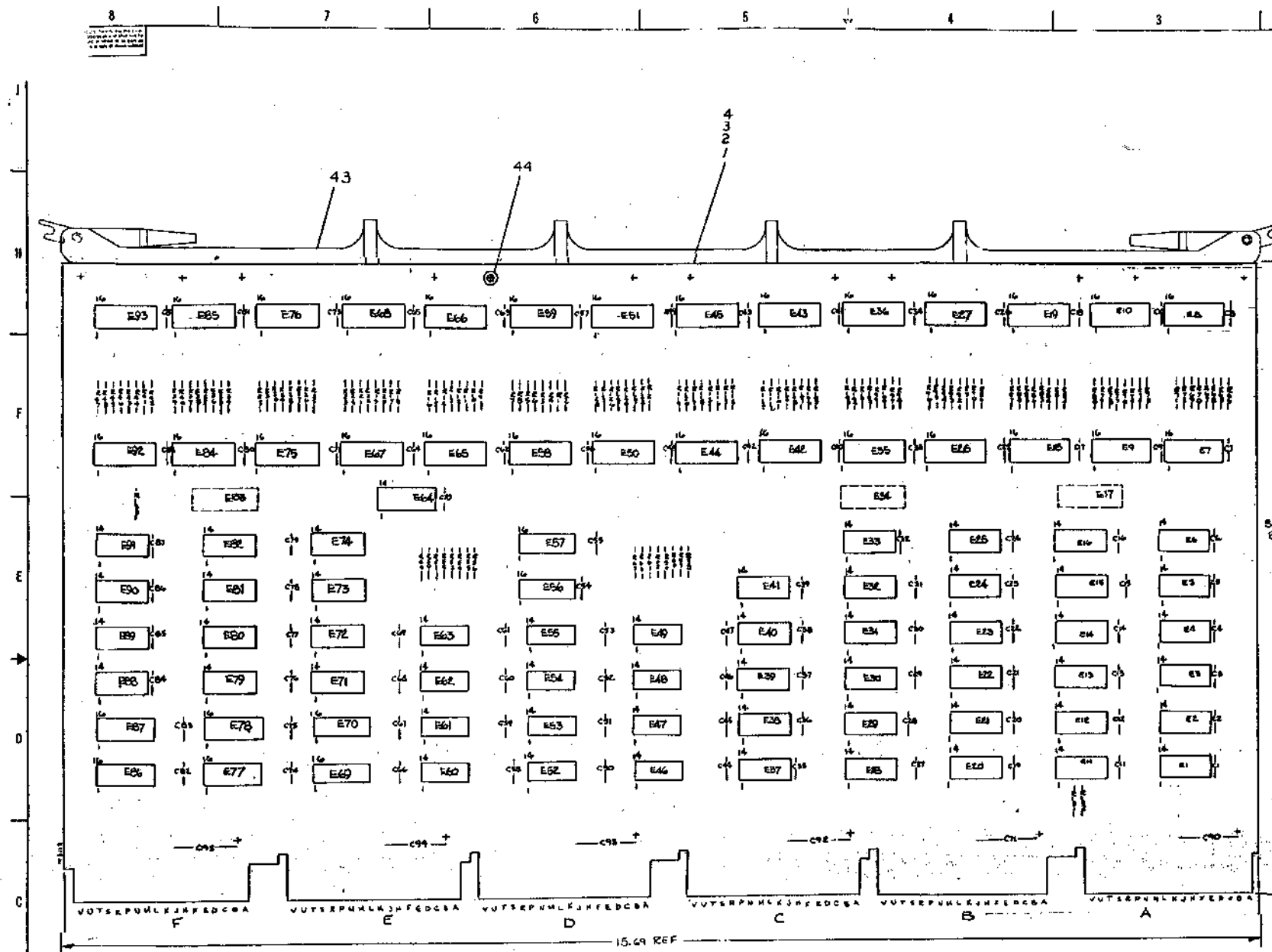


FIRST USED ON OPTION/MODEL		QTY	DESCRIPTION	PART NO.	ITEM NO.
11/45					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DATE 2/17/72	digital EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>		
DECIMALS	ANGLES	DATE 2/17/72			
.XXX = .005 .XX = .02 .X = .1	±0° 30'	DATE 2/17/72			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2/17/72			
MATERIAL	NEXT HIGHER ASSY.	DATE 2/17/72	TITLE FRACTION DATA PATH LOW ORDER (FRLP)		
FINISH					
SCALE		SIZE CODE	NUMBER	REV.	
SHEET 1 OF 1		B-DD-11/45-0	DCS M-8115-0-01	C	

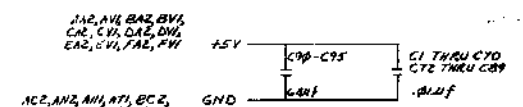
REV	
CHANGE NO	
CHK	

FORM NO. 007-102-B





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



AC2, AH2, AH1, AT1, BC2, BN2, BN1, BT, CC2, CA2, CH1, CH, DC2, DN2, DN1, DT1, EC2, EN2, EN1, ET1, FC2, FN2, FN1, FT1

IC TYPE	QTY	IC
DEC 74187	8	IC
DEC 745151	8	IC

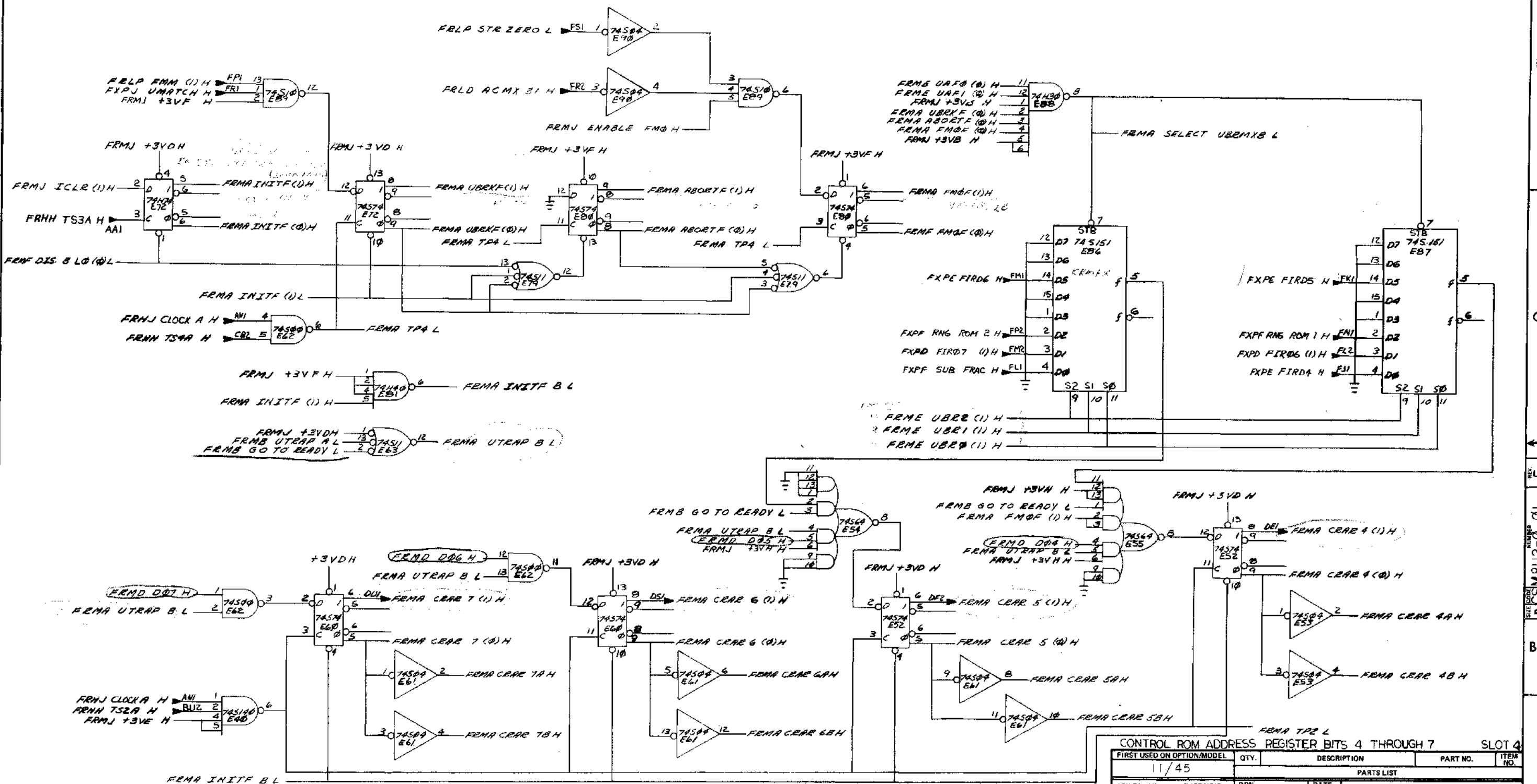
REF DESIGNATION	DESCRIPTION	PART NO.	QTY
E1, E18, E58, R65	I.C. DEC 745175	190957	46
E87	I.C. DEC 74518	190958	23
E2	EYELET	9004732	44
1	HANDLE MODULE	FPS-107H-E	43
1	E57	I.C. DEC 74187 ROM	23-C18A2
1	E56	I.C. DEC 74187 ROM	23-C19A2
1	E93	I.C. DEC 74187 ROM	23-C20A2

REF DESIGNATION	DESCRIPTION	PART NO.	QTY
1	E85	I.C. DEC 74187 ROM	23-C21A2
1	E76	I.C. DEC 74187 ROM	23-C22A2
1	E68	I.C. DEC 74187 ROM	23-C23A2
1	E66	I.C. DEC 74187 ROM	23-C24A2
1	E59	I.C. DEC 74187 ROM	23-C25A2
1	E61	I.C. DEC 74187 ROM	23-C26A2
1	E45	I.C. DEC 74187 ROM	23-C27A2
1	E43	I.C. DEC 74187 ROM	23-C28A2
1	E36	I.C. DEC 74187 ROM	23-C29A2
1	E27	I.C. DEC 74187 ROM	23-C30A2
1	E19	I.C. DEC 74187 ROM	23-C31A2
1	E10	I.C. DEC 74187 ROM	23-C32A2
1	E8	I.C. DEC 74187 ROM	23-C44A2
1	E2	I.C. DEC 74174	190967
4	E5, E4, E14, E25	I.C. DEC 74111	190967
4	E12, E13, E30, E32	I.C. DEC 74100	190966
4	E4, E22, E23, E31	I.C. DEC 74120	190968
10	E7, E35, E26, E42, E44, E50, E67, E75, E84, E92	I.C. DEC 74175	1910681
3	E14, E33, E71	I.C. DEC 74150	190960
1	E11	I.C. DEC 74104	1909931
5	E20, E28, E29, E73, E81	I.C. DEC 74140	1908884
3	E1, E21, E24	I.C. DEC 74110	1909057
2	E63, E79	I.C. DEC 74511	1910837
3	E90, E82, E81	I.C. DEC 745140	1910846
4	E41, E42, E74, E64	I.C. DEC 74500	1910832
4	E47, E53, E61, E98	I.C. DEC 74504	1910834
1	E88	I.C. DEC 74130	1909059
4	E69, E70, E73, E76, E84, E87	I.C. DEC 745151	1910956
6	E38, E39, E46, E49, E54, E55	I.C. DEC 74564	1910842
8	E15, E37, E44, E52, E60, E72, E80, E83	I.C. DEC 74574	1910844
1	E133	RESISTOR 100Ω, 1/4W, 5%	1300229
45	E2, E4, E6, E8, E10, E12, E14, E16, E18, E20, E22, E24, E26, E28, E30, E32, E34, E36, E38, E40, E42, E44, E46, E48, E50, E52, E54, E56, E58, E60, E62, E64, E66, E68, E70, E72, E74, E76, E78, E80, E82, E84, E86, E88, E90, E92, E94, E96, E98, E100, E102, E104, E106, E108, E110, E112, E114, E116, E118, E120, E122, E124, E126, E128, E130, E132	RESISTOR 680Ω, 1/4W, 5%	1301424
65	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23, R25, R27, R29, R31, R33, R35, R37, R39, R41, R43, R45, R47, R49, R51, R53, R55, R57, R59, R61, R63, R65, R67, R69, R71, R73, R75, R77, R79, R81, R83, R85, R87, R89, R91, R93, R95, R97, R99, R101, R103, R105, R107, R109, R111, R113, R115, R117, R119, R121, R123, R125, R127, R129, R131	RESISTOR 330Ω, 1/4W, 5%	1300295
88	C1 THRU C70, C72 THRU C89	CAPACITOR -0104G, 100V, 20%	1001610
4	C90 THRU C95	CAPACITOR -SMT, 35V, 20%	1000067
1	ETCHED CIRCUIT BOARD	5009662	4
1	MODULE ECO HISTORY	5009662-06	3
1	ASSY/DRILLING HOLE LAYOUT	2-44-MB12-0-8	2
1	KEY COORDINATE HOLE LOCATION	2-44-MB12-0-4	1

REF DESIGNATION	DESCRIPTION	PART NO.	QTY
1	ETCH BOARD KEY	D	1
1	EQUIPMENT CORPORATION		
1	F P ROM & ROM CONTROL		
1	B-00-1145-0		
1	SEMICONDUCTOR CONVERSION CHART		



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REV	NO.	DATE	BY	CHK

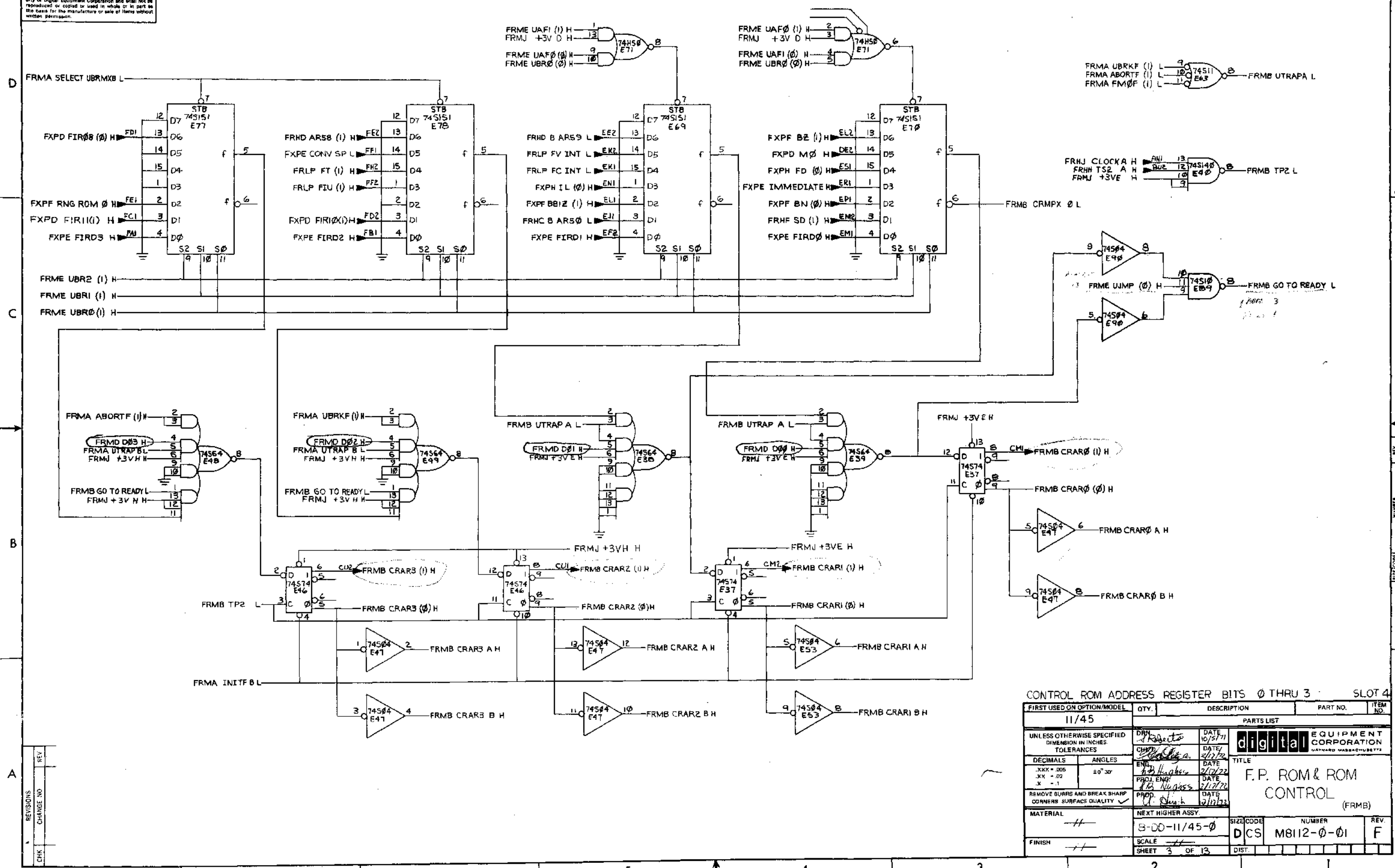
DEC FORM NO. DRD 102-B

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

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
TOLERANCES	11/45	9/30/71	
DECIMALS	11/45	9/17/70	
ANGLES	11/45	9/17/70	
.XX - .005	11/45	9/17/70	TITLE F.P. ROM # ROM CONTROL (FRMA)
.XX - .02	11/45	9/17/70	
X - .1	11/45	9/17/70	
MATERIAL	11/45	9/17/70	NEXT HIGHER ASSY. B-DD-11/45-0
FINISH	11/45	9/17/70	SCALE SHEET 2 OF 13

SIZE NUMBER
 DCS M8112-0-01

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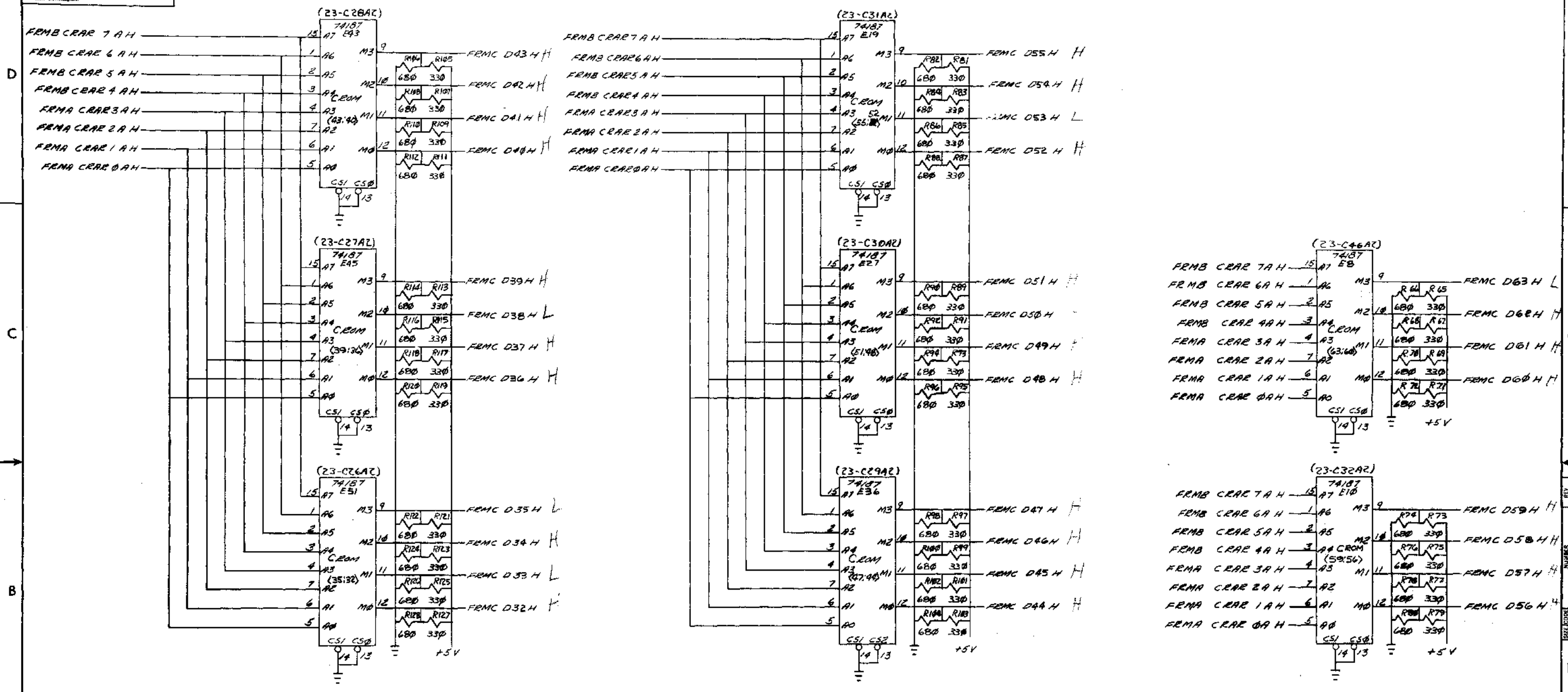


REV	CHANGE NO

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES					
DECIMALS	ANGLES				
.XXX = .005	.XX = .02				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY					
MATERIAL					
NEXT HIGHER ASSY.					
FINISH					
CONTROL ROM ADDRESS REGISTER BITS 0 THRU 3			SLOT 4		
PARTS LIST			TITLE		
digital EQUIPMENT CORPORATION			F.P. ROM & ROM CONTROL (FRMB)		
B-00-11/45-0			D.C.S. M8112-0-01		
SCALE			SHEET 3 OF 13		
DIST.			REV. F		

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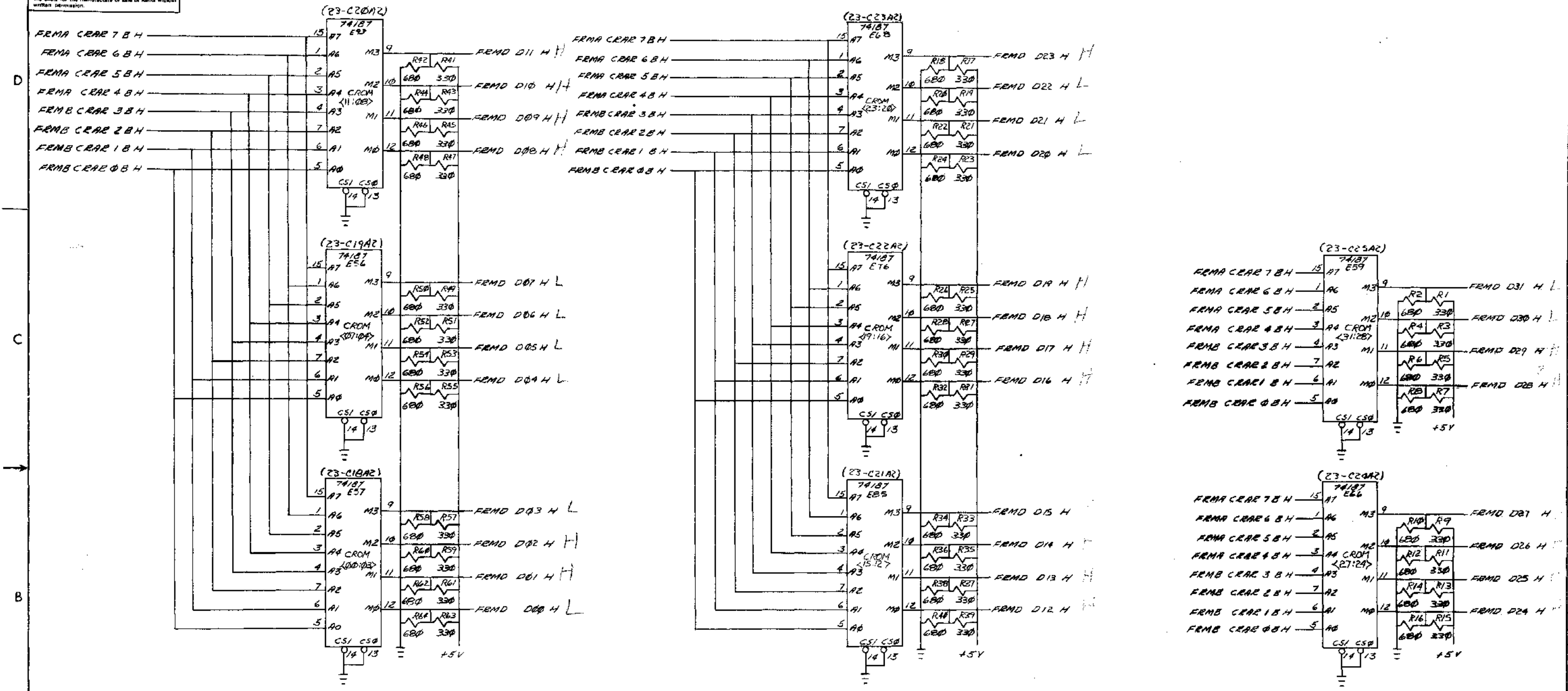
11/45 23624



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 DIMENSION IN INCHES.	DRN.	DATE	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
TOLERANCES	CHKD.	DATE	
DECIMALS	ENG.	DATE	
ANGLES	PROJ. ENG.	DATE	
XXX - .006 XX - .02 X - .1	PROD.	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	TITLE		
	FP ROM & ROM CONTROL (FRMC)		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER
+ +	B-DD-11/45-0	D	CS M8112-0-01
FINISH	SCALE	SHEET	REV.
+ +	4 OF 13	4	F

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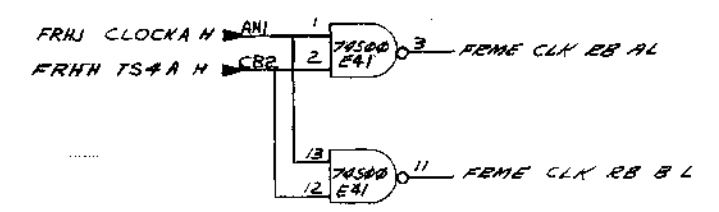
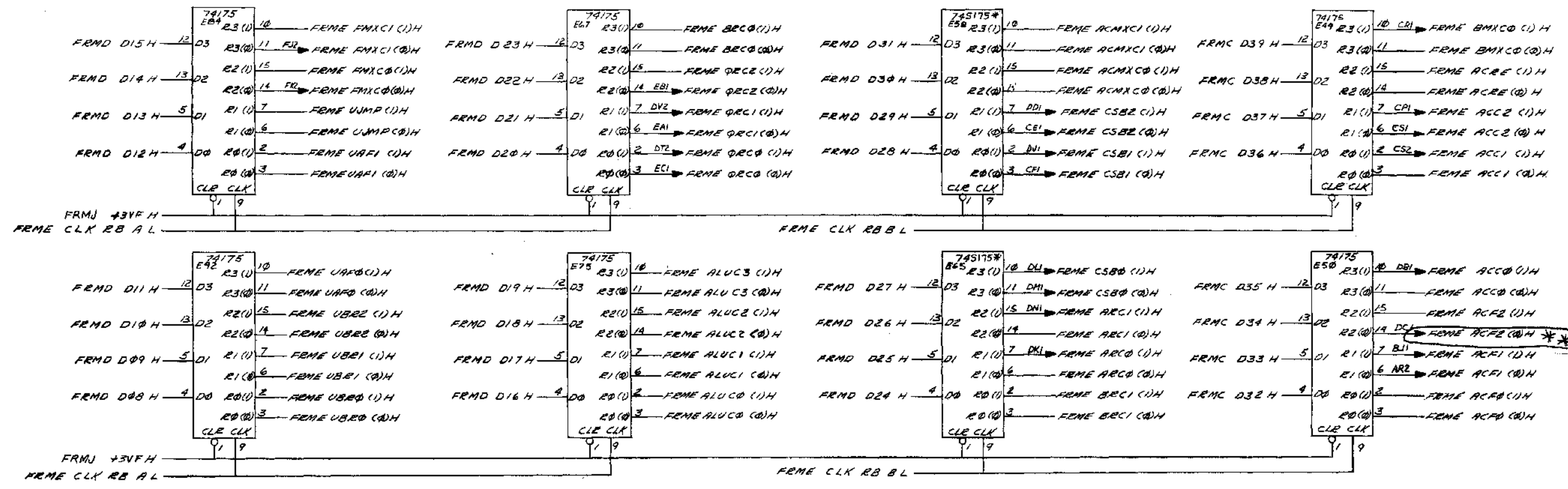


CONTROL ROM BITS 00 TO 31 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN DATE 2/11/72	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	DATE 2/11/72		
.XXX - .005	± 0° 30'	DATE 2/11/72		
.XX - .02		DATE 2/11/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG. DATE 2/11/72	TITLE F.P. ROM & ROM CONTROL (FRM)	
		PROP. DATE 2/11/72		
MATERIAL	NEXT HIGHER ASSY.	SCALE	SIZE CODE	NUMBER
FINISH	B-DD-11/45-0	5 OF 13	DCS M8112-0-01	F

REV.	CHG.	NO.

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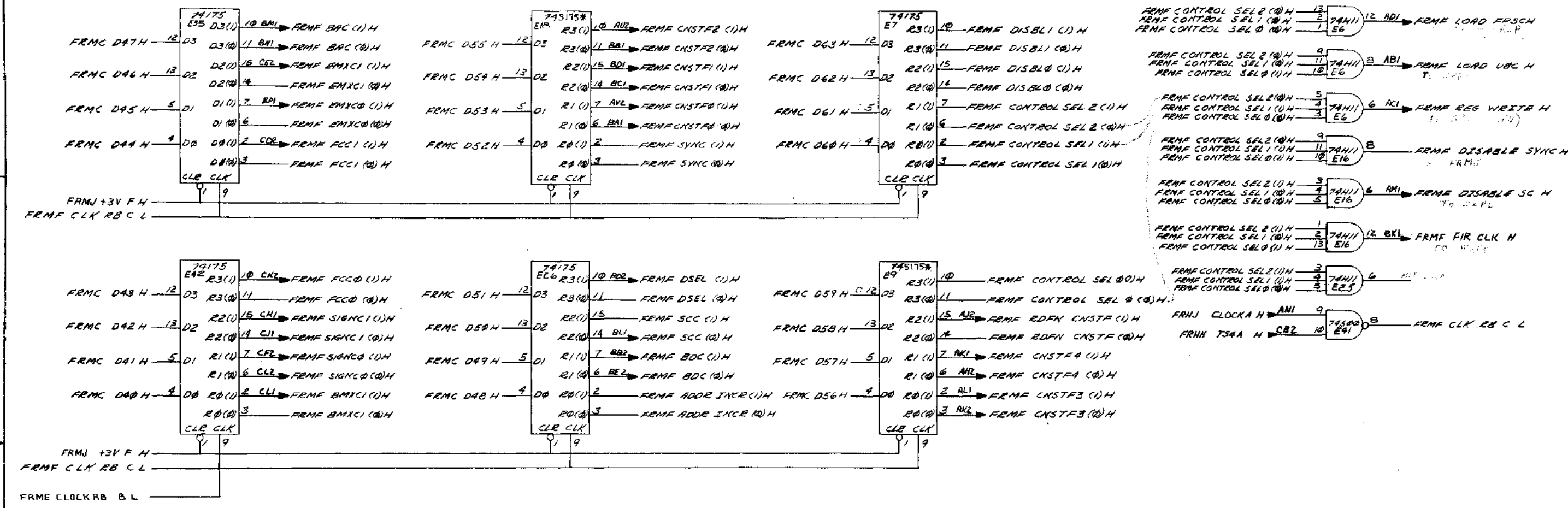


* NOTE: THE 74S175 AND 74175-1 ARE INTERCHANGEABLE.

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45			CONTROL ROM DATA BUFFER BITS 08 TO 39		SLOT 4
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>A. Davis</i>	DATE 10-9-77	 digital EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	
DECIMALS	ANGLES	DATE 2/17/72	TITLE		
.XXX ± .005	± 0° 30'	ENG. <i>H. Hughes</i>	DATE 2/17/72		
.XX ± .02		PROJ. ENG. <i>H. Hughes</i>	DATE 2/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY		PHGD. <i>H. Hughes</i>	DATE 2/17/72	F.P. ROM ROM CONTROL (FRME)	
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
FINISH		SCALE		D	CSMB112-0-01
		SHEET 6 OF 13		DIST.	

REV.	CHANGE NO.	CHK.

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*NOTE: THE 745175 AND 74175-1 ARE INTERCHANGEABLE.

REV.	CHG.	NO.

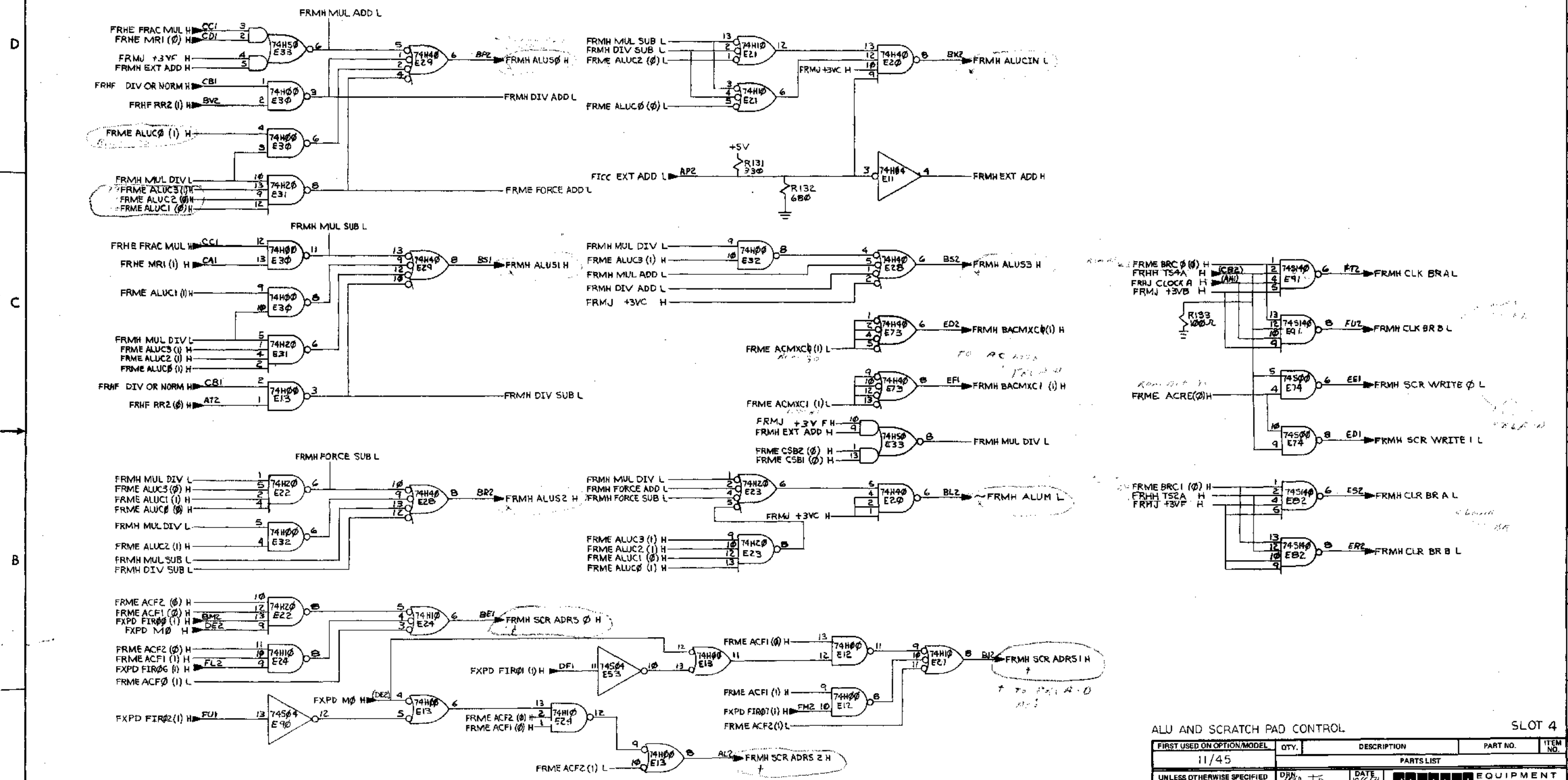
CONTROL ROM DATA BUFFER BITS 40 TO 63 SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN	DATE	digital EQUIPMENT CORPORATION <small>WATYARD MASSACHUSETTS</small>
DECIMALS	ANGLES	ENG.	DATE	
.XXX = .006	±0° 30'	PROJ. ENG.	DATE	
.XX = .02		PROD.	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROG.	DATE	FR ROM & ROM CONTROL (FRMF)
MATERIAL		NEXT HIGHER ASSY.		
FINISH		SCALE	SIZE CODE	NUMBER
		SHEET	DCS	M8112-0-01
		7 OF 13	DIST.	REV. F

REV. 11/77 DCS M8112-0-01

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17-10-0101 (SU) 2

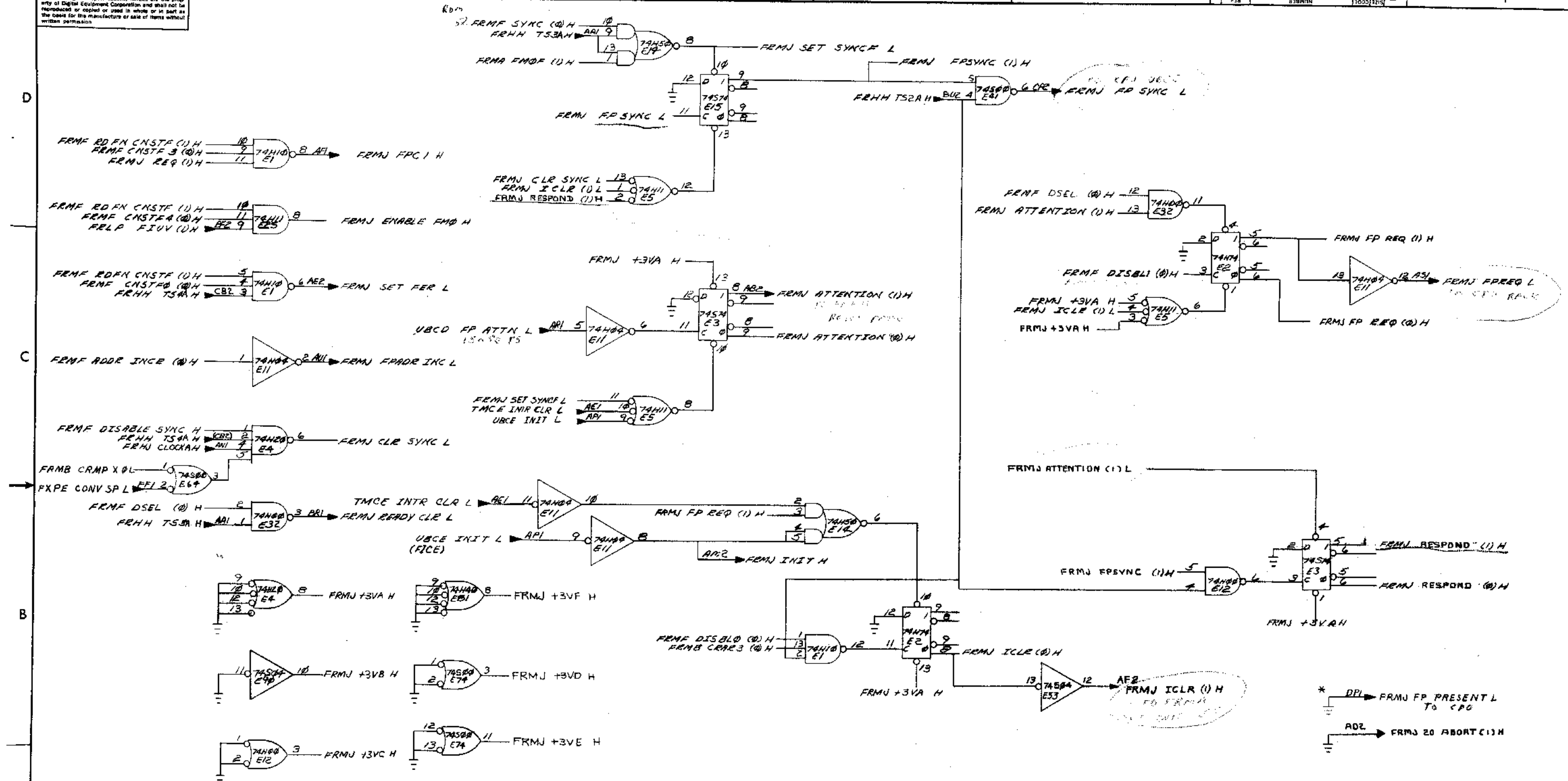


ALU AND SCRATCH PAD CONTROL SLOT 4

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DATE 12/6/71	digital EQUIPMENT CORPORATION NATHAN MASSACHUSETTS	
DECIMALS	ANGLES	DATE 2/17/72	TITLE F.P. ROM & ROM CONTROL (FRMH)	
.XXX - .006	± 0° 30'	DATE 2/27/72		
.XX - .02		DATE 2/27/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 2/27/72	REV. NO. E	
MATERIAL	NEXT HIGHER ASSY.	SCALE	SIZE CODE	NUMBER
---	B-DD-11/45-0	---	DCS	M8112-0-01
FINISH		SHEET	DIST.	
---		8 OF 13		

REV.	CHANGE NO.	NO.

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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 - .006	±0°30'	DRM	DATE	DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
.XX - .02		CHND	DATE	
.X - .1		ENG	DATE	
		PROL ENG	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
TITLE		REV.		
F.P. ROM & ROM CONTROL (FRMJ)		F		
B-DD-11/45-0		SIZE CODE		NUMBER
SCALE		DCS M8112-0-01		
SHEET 9 OF 13		DIST.		

REV.	CHANGE NO.	DATE

FLWS STATE	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACH	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	3	3	3	3	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	3	1	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	3	3	3	3	0	0	5	3	7	3	3	7	05	3	0	3	7	007
01 RDY, 00	003	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	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	3	3	3	0	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	3	3	3	3	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	0	1	1	3	3	3	2	1	6	5	3	7	3	3	7	17	3	1	3	7	072
09 ADD, 62	007	1	1	7	1	37	1	1	1	0	1	1	0	3	0	0	1	7	7	3	7	0	3	7	02	3	1	3	1	342
01 TRP, 40	010	1	0	7	1	37	1	1	1	1	1	1	3	3	3	3	0	6	5	1	7	3	3	7	14	3	1	3	7	275
12 NRM, 08	011	1	1	7	0	01	1	1	1	0	1	1	2	3	3	0	1	7	7	3	7	2	1	7	11	3	1	0	4	262
02 NOM, 02	012	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	2	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	3	3	3	3	1	7	7	3	3	3	3	7	17	3	1	3	7	321
04 LD, 16	014	1	1	7	1	25	0	1	1	1	1	1	1	3	3	3	0	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	0	1	1	2	3	3	0	1	7	7	3	7	2	1	7	11	3	1	0	4	262
02 NOM, 16	016	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	0	3	7	3	3	7	05	3	0	3	7	097
12 NRM, 06	017	1	1	7	1	37	1	1	1	0	1	1	3	3	3	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	3	3	3	0	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	3	3	0	0	2	2	7	3	3	7	05	3	0	1	4	012
02 NOM, 20	022	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	0	1	7	3	3	7	14	3	0	3	7	007
10 MUL, 10	023	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	0	3	1	7	3	3	7	14	3	1	1	4	394
02 NOM, 12	024	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	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	3	3	3	0	0	0	2	7	3	3	7	05	3	0	1	4	016
05 LD, 36	026	1	1	7	1	37	1	1	1	0	1	1	3	3	3	1	1	4	3	7	3	3	3	7	17	3	1	3	7	075
03 NOM, 52	027	1	1	7	1	37	1	1	1	0	1	1	3	3	3	0	0	4	4	1	7	3	3	7	14	3	1	3	7	247
04 LD, 06	030	1	1	7	1	25	0	1	1	1	1	1	1	3	3	3	0	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	3	0	3	3	1	7	7	1	7	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	3	3	3	0	1	5	1	7	3	3	7	05	3	0	3	7	007
10 MUL, 12	033	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	0	0	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	0	2	3	3	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	0	1	3	3	0	0	2	2	7	3	3	7	05	3	1	1	6	226
11 LCI, 40	036	1	1	7	0	17	1	1	1	0	1	1	2	3	3	0	1	7	7	3	5	3	2	7	11	3	1	3	7	326
08 ADD, 30	037	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	11	3	1	3	7	273

FLWS STATE	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACH	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	3	0	3	3	0	1	0	1	7	3	3	7	00	3	0	3	7	007
02 NOM, 10	041	0	1	7	1	37	1	1	1	1	1	1	3	0	3	3	0	0	0	1	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	3	3	3	1	0	0	3	7	3	2	4	17	3	1	3	7	025
02 NOM, 24	043	0	1	7	1	37	1	1	1	0	1	1	3	3	3	1	1	1	0	3	7	3	3	7	17	3	1	3	7	073
02 NOM, 10	044	0	1	7	1	37	1	1	1	1	1	1	0	3	3	3	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	0	1	1	1	3	3	3	3	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	3	3	3	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	3	3	2	3	1	7	7	3	7	3	3	7	17	3	1	0	6	327
03 NOM, 54	050	0	1	0	1	37	1	1	1	1	1	1	3	3	3	3	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	0	1	1	2	3	3	0	1	7	7	3	7	3	3	7	07	3	1	1	6	040
03 NOM, 54	052	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	0	2	2	7	3	3	7	00	3	0	1	4	376
03 NOM, 00	053	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	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	0	1	1	1	2	3	3	3	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	3	2	3	3	0	0	4	1	7	3	3	7	14	3	1	3	7	333
03 NOM, 64	056	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	0	2	3	7	3	3	4	17	3	1	3	7	334
14 SCI, 20	057	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	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	0	0	1	1	2	3	3	3	1	0	2	3	7	3	2	0	05	3	1	1	4	220
09 ADD, 54	061	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	1	7	7	3	7	0	3	7	00	3	1	3	7	273
03 NOM, 62	062	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	2	7	17	3	1	3	7	021
09 ADD, 02	063	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	10	3	1	2	6	271
08 ADD, 00	064	0	1	7	1	37	1	1	1	0	1	1	3	3	3	3	1	0	2	3	7	3	2	0	17	3	1	1	4	114
03 NOM, 60	065	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	2	3	6	17	3	0	3	7	007
02 NOM, 00	066	0	1	1	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007
02 NOM, 36	067	0	1	0	1	37	1	1	1	1	1	1	3	3	3	3	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	0	0	1	1	2	3	3	3	1	0	2	3	7	3	2	0	05	3	1	1	4	310
02 NOM, 30	071	1	1	7	0	11	1	1	1	0	1	1	2	3	3	0	1	7	7	3	7	3	3	7	11	3	1	1	6	040
01 RDY, 2																														

Flows	State	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACM	CSB	ARC	BRC	QRC	ALU	FMX	UJP	UAF	UBR	NAD		
07	STR,64	100	1	1	7	1	35	0	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	2	4	121	
07	STR,62	101	0	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	2	4	121	
10	MUL,24	102	1	1	7	0	00	1	1	1	0	1	1	1	2	3	3	0	1	7	7	3	7	1	3	7	06	3	1	3	7	360	
10	MOD,06	103	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	3	1	7	3	3	7	14	3	1	1	4	260	
06	STR,38	104	1	1	7	1	35	0	1	1	0	0	1	3	3	3	3	1	1	1	5	3	7	3	3	7	17	3	0	1	3	132	
06	STR,40	105	1	1	2	1	35	0	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007	
10	MUL,26	106	1	1	7	0	00	1	1	1	0	1	1	1	2	3	3	3	0	1	7	7	3	7	3	3	7	02	3	1	3	7	360
08	ADD,30	107	1	1	7	1	37	1	1	0	1	1	1	1	2	3	3	3	1	7	7	3	7	3	3	7	15	3	1	3	7	125	
12	NRM,30	110	1	1	7	0	12	1	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	1	0	3	271	
12	NRM,32	111	1	1	7	0	10	1	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	0	2	5	275	
10	MUL,20	112	1	1	7	1	37	1	1	1	0	1	1	1	3	3	3	0	1	7	7	3	7	1	1	7	15	3	1	0	4	262	
10	MOD,04	113	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	3	1	7	3	3	7	14	3	1	1	4	260	
08	ADD,04	114	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	4	2	3	7	3	2	4	17	3	1	3	7	120	
08	ADD,02	115	1	1	7	1	37	1	1	1	1	1	1	0	3	3	3	3	1	0	0	3	7	0	3	4	12	3	1	1	6	370	
10	MUL,22	116	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	1	7	17	3	1	0	4	262	
08	ADD,36	117	1	1	7	1	37	1	1	1	1	1	1	1	3	3	0	3	1	7	7	3	7	3	3	7	17	3	1	3	7	021	
08	ADD,06	120	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	4	0	3	7	3	3	4	17	3	1	3	7	115	
07	STR,04	121	0	1	7	0	06	1	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	1	3	7	275	
04	LD,,02	122	1	1	7	1	25	0	1	1	1	0	1	1	3	3	3	0	2	4	1	7	3	3	7	05	3	1	1	4	232		
04	LD,,08	123	0	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	2	4	1	7	3	3	7	14	3	1	3	7	233	
08	ADD,28	124	1	1	7	1	37	1	1	1	0	1	1	1	3	3	3	3	1	0	2	3	4	3	2	7	17	3	1	0	0	037	
08	ADD,32	125	1	1	7	1	37	1	1	1	0	1	1	1	3	3	3	3	1	0	0	3	2	3	3	7	17	3	1	0	0	037	
04	LD,,20	126	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	4	4	1	7	3	3	7	14	3	1	3	7	237	
10	MOD,02	127	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	0	2	103	
14	SCI,34	130	1	1	7	0	00	1	1	1	1	1	1	1	2	0	3	3	1	7	7	2	7	3	3	7	05	3	1	3	7	235	
05	LD,,60	131	1	1	7	1	37	0	1	1	1	1	1	1	3	0	3	3	1	7	7	1	7	3	3	7	00	3	0	3	7	007	
06	STR,08	132	1	1	7	1	35	0	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007	
06	STR,34	133	1	1	2	1	35	0	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007	
12	NRM,24	134	1	1	7	0	01	1	1	1	0	1	1	1	2	3	3	0	1	7	7	3	7	2	3	7	11	3	1	1	4	266	
12	NRM,22	135	1	1	7	0	01	1	1	1	0	1	1	1	2	3	3	0	1	7	7	3	7	2	3	7	11	3	1	1	4	266	
12	NRM,26	136	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	2	110	
12	NRM,28	137	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	110	

Flows	State	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACM	CSB	ARC	BRC	QRC	ALU	FMX	UJP	UAF	UBR	NAD	
05	LD,,66	140	1	1	7	1	35	0	1	1	1	1	1	1	3	0	3	3	1	7	7	1	7	3	3	7	00	3	0	3	7	007
06	STR,00	141	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	0	1	7	7	3	7	3	3	7	03	3	1	3	7	210
06	STR,10	142	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	1	1	1	2	3	7	3	3	7	17	3	1	3	7	170
10	MOD,14	143	1	1	7	1	37	1	1	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	3	00	3	1	3	7	211
06	STR,42	144	0	1	7	0	10	0	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	0	2	5	275
06	STR,24	145	1	1	7	1	35	0	1	1	0	0	1	1	3	3	3	2	1	6	4	3	7	3	3	7	17	3	1	3	7	265
06	STR,18	146	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	1	1	1	4	3	7	3	3	7	17	3	1	3	7	393
08	ADD,26	147	1	1	7	1	37	1	1	0	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	00	3	1	3	7	124
07	STR,00	150	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	2	1	2	4	3	7	3	3	7	17	3	1	3	7	366
05	LD,,64	151	1	1	3	0	11	0	1	1	0	1	1	1	2	3	3	0	1	7	7	3	7	3	3	7	07	3	1	1	6	140
07	STR,56	152	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	2	1	2	4	3	7	3	3	7	17	3	1	2	3	361
10	MOD,08	153	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	0	0	3	1	7	3	3	7	14	3	1	1	4	260
06	STR,32	154	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	2	1	2	4	3	7	3	3	7	17	3	1	1	5	132
06	STR,30	155	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	2	1	6	5	3	7	3	3	7	17	3	1	1	5	132
06	STR,04	156	1	1	7	1	35	0	1	1	1	0	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	1	4	172
08	ADD,24	157	1	1	7	1	37	1	1	1	0	1	1	0	3	3	0	1	7	7	3	7	3	3	7	12	3	1	0	0	037	
06	STR,36	160	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	2	1	2	5	3	7	3	3	7	17	3	1	1	5	104
11	LCI,30	161	1	1	7	0	20	1	1	1	0	1	1	1	2	3	3	0	1	4	4	3	7	3	3	4	12	3	1	3	7	036
13	SCF,30	162	1	1	7	1	37	1	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	1	7	17	3	1	3	7	332
11	LCI,10	163	1	1	7	0	20	1	1	1	0	1	1	1	2	3	3	0	1	7	7	3	5	3	2	7	11	3	1	3	7	326
13	SCF,70	164	1	1	7	0	01	1	1	1	0	1	1	1	2	3	3	0	1	7	7	3	7	2	3	7	11	3	1	3	7	165
13	SCF,60	165	1	1	7	1	37	1	1	1	1	1	1	1	3	1	3	3	0	0	0	2	7	3	3	7	00	3	1	2	6	144
13	SXP,40	166	1	1	7	1	37	0	1	1	0	1	1	1	3	3	3	3	1	6	5	3	7	3	3	7	17	3	1	3	7	274
13	SXP,20	167	1	1	7	1	37	1	1	1	1	1	1	1	3	0	3	3	1	7	7</											

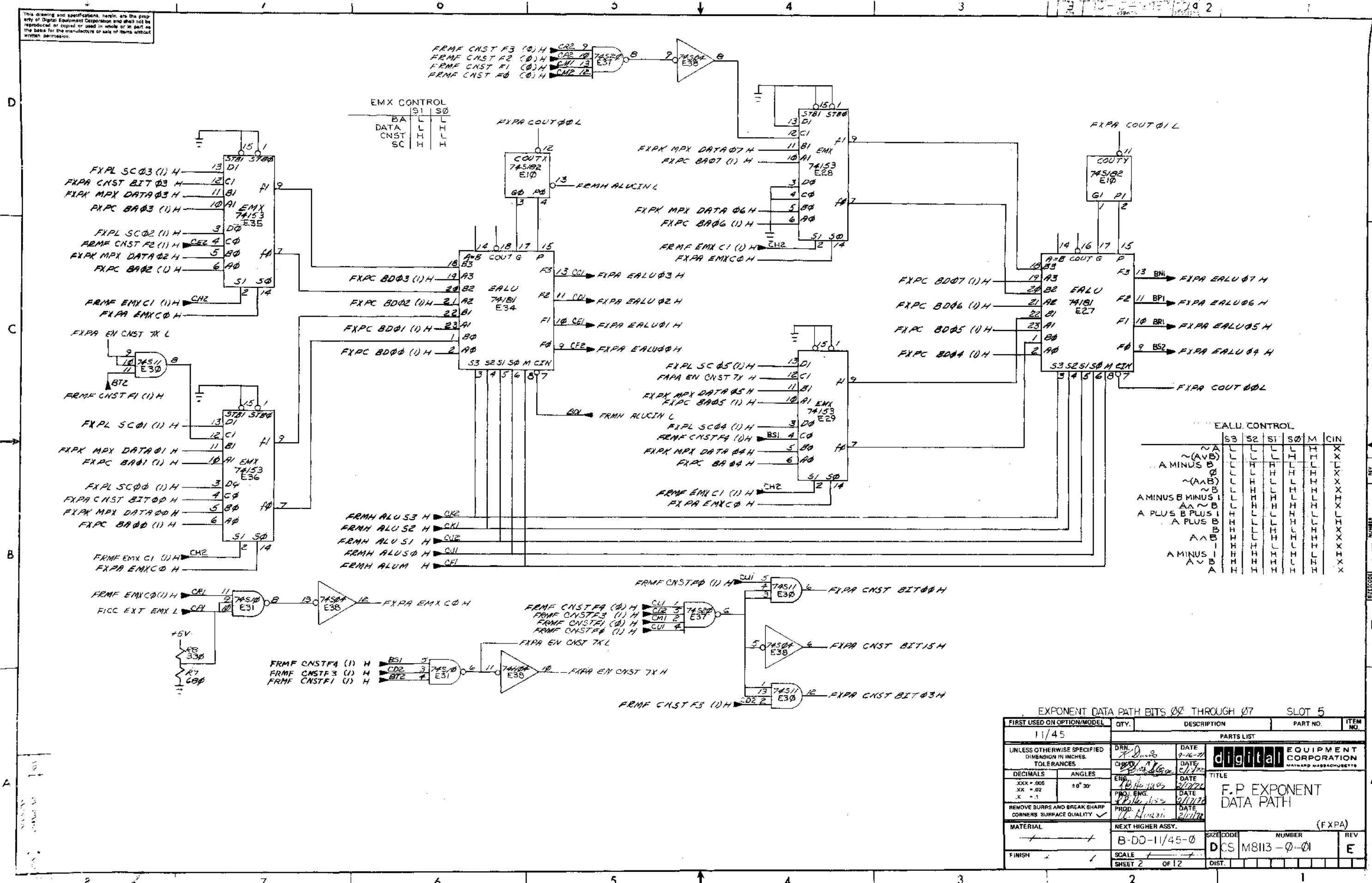
FLWS STATE	ADR	DL1	DL2	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACM	CSB	ARC	BRC	GRC	ALU	FMX	UJP	UAF	UBR	NAD
XX XXX,XX	200	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	377
XX XXX,XX	201	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	377
04 LD,,13	202	1	1	7	1	25	0	1	1	1	0	1	3	3	3	3	0	2	4	1	7	3	3	7	05	3	1	1	4	236
04 LD,,18	203	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	2	4	1	7	3	3	7	14	3	1	3	7	126
09 ADD,,70	204	1	1	7	1	37	1	1	1	1	1	1	3	3	2	3	1	7	7	3	7	3	3	7	17	3	1	1	2	350
09 ADD,,60	205	1	1	7	1	37	1	1	1	1	1	1	3	3	2	3	1	7	7	3	7	0	3	7	15	3	1	2	6	350
04 LD,,26	206	1	1	7	1	25	0	1	1	1	0	1	3	3	3	3	0	2	4	1	7	3	3	7	05	3	1	1	4	212
04 LD,,30	207	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	2	4	1	7	3	3	7	14	3	1	3	7	233
06 STR,,02	210	1	1	7	1	35	0	1	1	1	0	1	3	0	3	3	1	7	7	1	7	3	3	7	00	3	0	1	3	156
10 MOD,,16	211	1	1	7	0	00	1	1	1	0	1	0	2	3	3	0	1	7	7	3	6	3	2	7	11	3	1	3	7	175
11 LCF,,10	212	0	1	7	1	37	1	1	1	0	1	1	3	3	3	3	1	0	0	3	7	3	2	0	17	3	1	1	4	324
04 LD,,28	213	1	1	7	1	25	0	1	1	1	0	1	3	3	3	3	0	5	4	1	7	3	3	7	05	3	1	3	7	074
01 RDY,,40	214	1	1	7	1	35	0	1	1	1	1	1	3	3	3	0	1	7	7	3	7	3	3	7	03	3	1	3	7	272
14 SCI,,32	215	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	4	3	7	3	3	7	00	3	1	3	7	130
09 ADD,,98	216	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	2	1	7	3	3	7	14	3	0	3	7	007
14 SCI,,30	217	1	1	7	1	37	1	1	1	1	1	1	3	2	3	3	0	0	4	1	7	3	3	7	14	3	1	3	7	333
10 MUL,,04	220	1	1	7	0	33	1	1	0	1	1	1	2	3	3	3	1	4	2	3	7	3	2	4	05	3	1	3	7	221
10 MUL,,02	221	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	0	0	3	7	0	3	4	03	3	1	1	6	224
13 SCF,,05	222	1	1	7	1	37	1	1	1	1	1	1	0	0	3	3	0	0	0	2	7	3	3	7	05	3	1	1	4	330
13 SCF,,13	223	1	1	7	1	37	1	1	1	1	1	1	3	3	0	3	1	7	7	3	7	3	1	7	17	3	1	3	7	222
10 MUL,,00	224	1	1	7	1	37	1	1	1	0	1	1	0	3	3	0	1	4	0	3	7	3	3	4	11	3	1	1	6	230
10 MUL,,06	225	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	0	6	023
05 LD,,74	226	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	2	110
05 LD,,74	227	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	1	7	7	1	7	3	3	7	14	3	1	3	7	110
10 MUL,,16	230	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	0	3	3	7	17	3	1	3	7	362
10 MUL,,14	231	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	0	6	023
04 LD,,04	232	1	1	7	1	25	0	1	1	1	0	1	3	3	3	3	0	5	4	1	7	3	3	7	05	3	1	3	7	030
04 LD,,10	233	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	4	1	7	3	3	7	14	3	1	0	1	060
01 RDY,,40	234	1	1	7	1	35	0	1	1	0	1	1	3	3	0	3	0	1	7	7	3	7	3	7	12	3	1	0	0	040
13 SXP,,30	235	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	6	5	0	7	3	3	7	17	3	1	3	7	166
04 LD,,20	236	1	1	7	1	25	0	1	1	1	0	1	3	3	3	3	0	5	4	1	7	3	3	7	05	3	1	3	7	214
04 LD,,22	237	0	1	7	1	37	1	1	1	1	1	0	3	3	3	3	1	0	0	3	7	3	2	4	17	3	1	3	7	005

FLWS STATE	ADR	DL1	DL2	CSL	RDF	CST	SYN	DSL	SCC	BDC	AIC	BAC	EMX	FCC	SGN	BMX	ACR	ACC	ACF	ACM	CSB	ARC	BRC	GRC	ALU	FMX	UJP	UAF	UBR	NAD
04 LD,,00	240	1	1	7	1	05	0	1	1	1	0	1	3	3	3	3	0	1	4	1	7	3	3	7	05	3	1	1	3	122
04 LD,,12	241	1	1	7	1	05	0	1	1	1	0	1	3	3	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	0	3	3	3	1	1	5	4	3	7	3	3	7	17	3	1	3	7	032	
05 LD,,54	243	1	1	7	1	05	1	1	1	1	1	1	0	3	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	0	1	0	3	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	3	3	3	3	0	5	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	3	3	3	3	1	4	2	3	7	3	2	4	17	3	1	1	6	222
11 LCF,,00	247	0	1	7	0	10	1	1	0	1	1	1	2	3	2	3	1	0	4	3	7	3	3	0	06	3	1	2	3	161
04 LD,,32	250	1	1	7	1	25	1	1	1	1	0	1	3	3	3	3	0	2	4	1	7	3	3	7	05	3	1	1	3	276
14 SCI,,02	251	1	1	7	0	21	1	1	1	0	1	1	2	3	3	0	1	7	7	3	7	3	3	7	02	3	1	1	2	374
14 SCI,,00	252	1	1	7	0	00	1	1	1	0	1	0	2	3	3	0	1	7	7	3	7	3	3	7	06	3	1	2	3	251
14 SCI,,04	253	1	1	7	1	37	1	1	1	0	1	1	3	3	3	3	0	1	7	7	3	3	3	7	15	3	1	1	2	374
01 RDY,,70	254	1	1	7	1	35	0	1	1	1	1	1	3	3	3	0	1	7	7	3	7	3	3	7	12	3	1	0	0	240
05 LD,,60	255	1	1	7	1	25	0	1	1	0	1	1	3	3	3	0	1	0	2	3	7	3	3	4	12	3	1	3	7	034
13 SXP,,00	256	1	1	7	0	00	1	1	1	0	1	1	2	3	3	0	1	7	7	3	7	3	3	7	02	3	1	3	7	340
05 LD,,90	257	1	1	0	1	25	0	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	12	3	0	3	7	007
10 MOD,,10	260	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	3	1	7	3	3	7	14	3	1	3	7	261
10 MOD,,12	261	1	1	7	0	00	1	1	1	0	1	1	2	3	3	3	0	1	7	7	3	3	1	7	11	3	1	0	4	262
12 NRM,,16	262	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	11	2	1	3	7	266
12 NRM,,12	263	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	11	2	1	3	7	267
05 LD,,52	264	0	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007
06 STR,,26	265	1	1	7	1	35	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	144
12 NRM,,00	266	1	1	7	1	37	1	1	1	1	1	1	3	1	3	3	0	0	2	2	7	3	3	7	00	3	1	3	7	322
12 NRM,,14	267	1	1	7	1	37	1	1	1	1	1	1	3	1	3	3	0	0	2	2	7	3	3	7	00	3	1	3	6	134
01 RDY,,90	270	1	1	7	1	37	1	1	1	0	1	0	3	3	3	3	1	0	2	3	7	3	2	0	17	3	1	0	0	242
09 ADD,,94	271	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	0	0	2	1	7	3	3	7	14	3	0	1	4	216
01 RDY,,90	272	0	1	7	0	02	1	1	1	1	1	1	2	3	3	3	0	0	5	1	7	3	3	7	05	3	1	3	7	275
12 NRM,,00	27																													

Flows State	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SEC	BDC	AIC	BAC	EMX	FCC	SGN	BHX	ACR	ACC	ACF	ACH	CSB	ARC	BRC	QRC	ALU	PMX	UJP	UAF	UBR	NAD
10 MOD,28	300	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	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	3	0	3	3	0	0	2	1	7	3	3	7	14	3	1	3	7	136
10 MOD,26	302	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	0	3	2	7	3	3	7	00	3	1	1	4	300
10 MOD,30	303	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	2	1	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	3	3	3	3	0	4	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	3	3	3	3	1	7	7	3	7	0	3	7	07	3	1	3	7	174
06 STR,22	306	1	1	7	1	35	0	1	1	0	0	1	3	3	3	1	1	5	4	3	7	3	3	7	17	3	1	1	4	144
06 STR,28	307	0	1	7	0	10	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	0	2	5	275
11 DIV,04	310	1	1	7	0	37	1	1	0	1	1	1	2	3	3	3	1	4	2	3	7	3	2	4	05	3	1	3	7	346
11 DIV,02	311	1	1	7	1	37	1	1	1	1	1	0	3	3	3	3	1	0	0	3	7	0	3	4	12	3	1	1	6	312
11 DIV,08	312	1	1	7	1	37	1	1	1	0	1	1	0	3	3	0	1	7	7	3	7	3	2	7	02	3	1	1	6	314
11 DIV,18	313	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	1	6	316
11 DIV,10	314	1	1	7	0	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	1	3	3	7	17	3	1	3	7	001
11 DIV,16	315	1	1	7	0	04	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	1	3	7	275
11 DIV,22	316	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	0	0	2	1	7	3	3	7	14	3	0	1	4	216
11 DIV,20	317	1	1	7	0	04	1	1	1	1	1	1	2	3	3	3	0	6	5	1	7	3	3	7	05	3	1	3	7	275
11 DIV,14	320	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	12	3	1	3	7	273
12 NRM,04	321	1	1	7	1	37	1	1	1	0	1	1	3	3	3	0	1	7	7	3	7	3	1	7	02	3	1	0	4	262
12 NRM,20	322	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	2	3	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	3	3	3	3	0	0	4	2	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	3	3	3	3	1	7	7	3	7	0	3	7	12	3	1	1	6	354
11 LCF,30	325	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	4	0	3	7	3	2	4	17	3	1	3	7	324
11 LCI,20	326	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	12	3	1	3	7	174
08 ADD,13	327	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	343
13 SCF,20	330	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	12	3	1	0	4	162
13 SCF,10	331	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	0	1	7	3	3	7	14	3	1	3	7	166
13 SCF,50	332	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	11	2	1	3	7	165
14 SCI,08	333	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	4	4	1	7	3	3	7	14	3	1	3	7	235
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14 SCI,26	336	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	11	1	1	3	7	323
08 ADD,19	337	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007

Flows State	ADR	DL1	DL0	CSL	RDF	CST	SYN	DSL	SEC	BDC	AIC	BAC	EMX	FCC	SGN	BHX	ACR	ACC	ACF	ACH	CSB	ARC	BRC	QRC	ALU	PMX	UJP	UAF	UBR	NAD
13 SXP,10	340	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	0	2	4	1	7	3	3	7	00	3	1	3	7	167
09 ADD,78	341	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007
09 ADD,66	342	1	1	7	0	00	1	1	1	1	1	1	2	0	3	3	1	7	7	2	7	3	3	7	05	3	1	1	6	204
09 ADD,64	343	1	1	7	0	00	1	1	1	1	1	1	2	0	3	3	1	7	7	2	7	3	3	7	05	3	0	3	7	007
XX XXX,XX	344	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	377
14 SCI,16	345	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	2	3	3	7	17	3	1	1	1	334
11 DIV,06	346	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	4	0	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	3	3	3	3	1	7	7	3	7	3	2	7	17	3	1	3	7	007
09 ADD,74	350	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	3	7	007
09 ADD,76	351	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	343
09 ADD,72	352	1	1	7	1	37	1	1	1	1	1	1	3	0	1	3	1	7	7	1	7	3	3	7	14	3	1	2	6	341
06 STR,20	353	1	1	7	1	35	0	1	1	0	0	1	3	3	3	2	1	2	4	3	7	3	3	7	17	3	1	1	3	306
11 LCF,40	354	1	1	7	1	37	1	1	1	1	1	1	3	3	0	3	1	7	7	3	7	3	1	7	17	3	1	0	4	262
11 LCF,50	355	1	1	7	1	37	1	1	1	1	1	1	3	0	3	3	0	0	2	1	7	3	3	7	14	3	0	1	4	216
06 STR,14	356	1	1	7	1	35	0	1	1	0	0	1	3	3	3	1	1	5	2	3	7	3	3	7	17	3	0	1	4	176
08 ADD,22	357	1	1	7	1	37	1	1	1	0	1	1	0	3	3	0	1	7	7	3	7	3	2	7	02	3	1	0	2	107
10 MOD,00	360	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	3	7	127
07 STR,58	361	1	1	7	1	35	0	1	1	0	0	1	3	3	3	1	1	5	4	3	7	3	3	7	17	3	1	1	3	100
10 MUL,18	362	1	1	7	0	00	1	1	1	0	1	1	2	3	3	1	0	1	7	7	3	7	3	7	02	3	1	0	6	102
07 STR,60	363	1	1	7	1	35	0	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	2	4	121
14 SCI,11	364	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	4	2	3	7	3	2	4	17	3	1	3	7	365
14 SCI,12	365	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	0	3	7	12	3	1	1	2	054
07 STR,52	366	1	1	2	1	35	0	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	0	2	4	121
08 ADD,20	367	1	1	7	1	37	1	1	1	1	1	1	0	0	3	3	1	7	7	2	7	3	3	7	05	3	0	3	7	007
08 ADD,28	370	1	1	7	1	37	1	1	1	1	1	1	0	0	3	3	1	7	7	2	7	3	3	7	00	3	1	1	6	046
08 ADD,10	371	1	1	7	1	37	1	1	1	1	1	1	3	3	3	3	1	7	7	3	7	3	3	7	17	3	1	1	6	372
08 ADD,14	372	1	1	7	1	37	1	1	1	1	1																			

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EMX CONTROL

BA	S1	S0
DATA	L	L
CNST	H	H
SC	H	L

EALU CONTROL

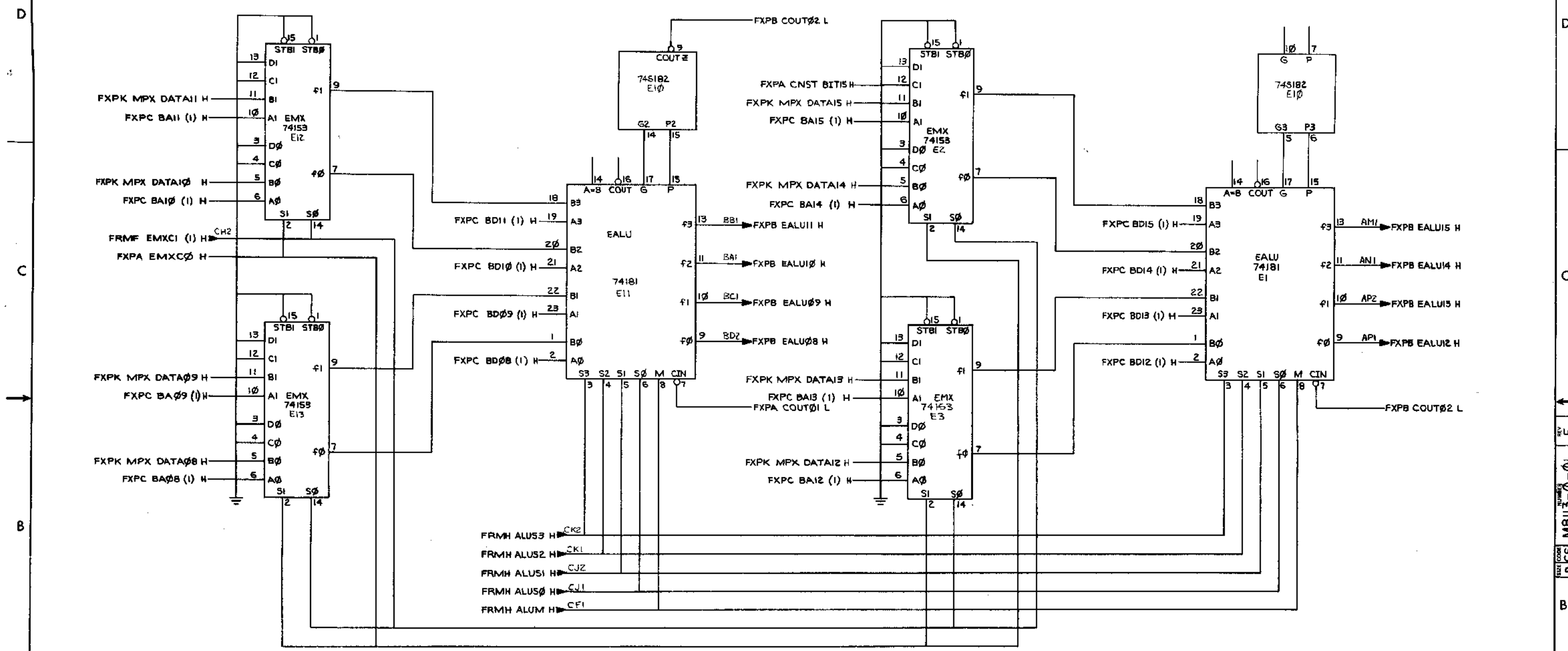
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A MINUS B	L	L	L	L	L	L
~(A∧B)	L	L	L	L	L	L
A MINUS B MINUS I	L	L	L	L	L	L
A∧~B	L	L	L	L	L	L
A PLUS B PLUS I	L	L	L	L	L	L
A∧B	L	L	L	L	L	L
A MINUS I	L	L	L	L	L	L
A∨B	L	L	L	L	L	L
A	L	L	L	L	L	L

EXPONENT DATA PATH BITS 02 THROUGH 07 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>A. Dinn</i>	DATE 9-16-71	digital EQUIPMENT CORPORATION	
DECIMALS .XXX ±.008 ANGLES ±0° 30'	CHKD <i>W. H. Housh</i>	DATE 9/17/71	TITLE F.P. EXPONENT DATA PATH	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	ENG <i>W. H. Housh</i>	DATE 9/17/71	MATERIAL NEXT HIGHER ASSY. (FXPA)	
	PROJ. ENG. <i>W. H. Housh</i>	DATE 9/17/71	FINISH 1	
	PROD. <i>W. H. Housh</i>	DATE 9/17/71	SCALE 1	
			SHEET 2 OF 12	

DCSMB113-0-01
 REV E

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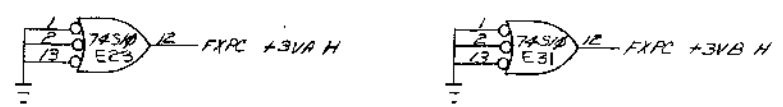
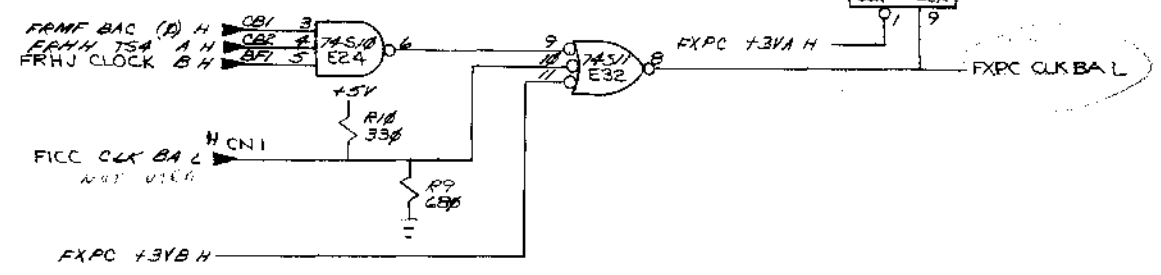
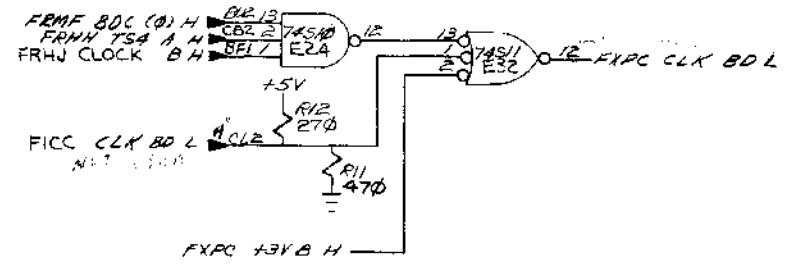
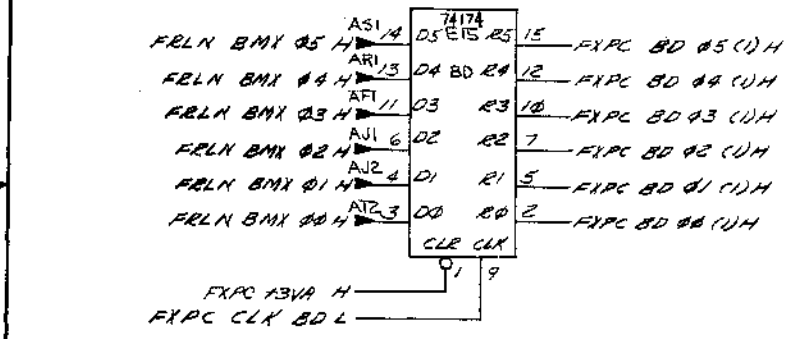
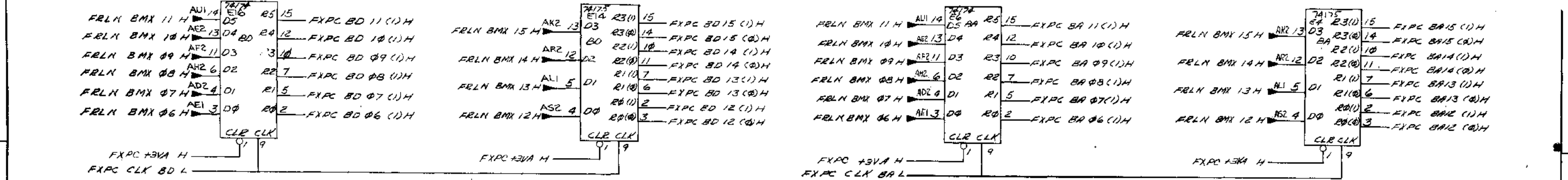


EXPONENT DATA PATH BITS 08 THROUGH 15 SLOT 5

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 - .006	10° 30'	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
.XX - .02		TITLE F.P. EXPONENT DATA PATH (FXPB)		
.X - .1		MATERIAL NEXT HIGHER ASSY.		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		FINISH --		
MATERIAL		SCALE		REV.
--		--		E
FINISH		SHEET 3 OF 12		
--		DIST.		

REV. E
 M8113-0-01
 DCS

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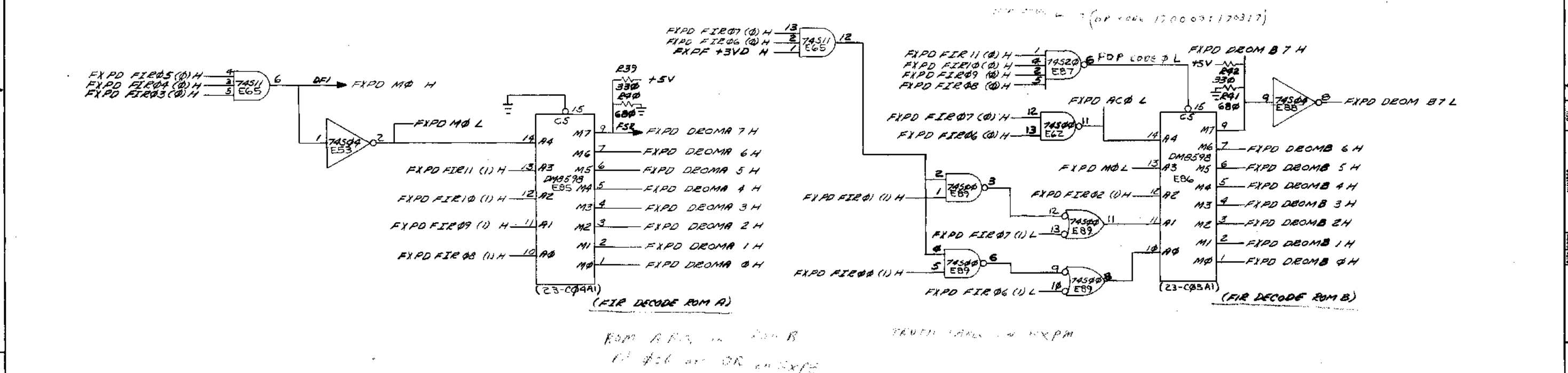
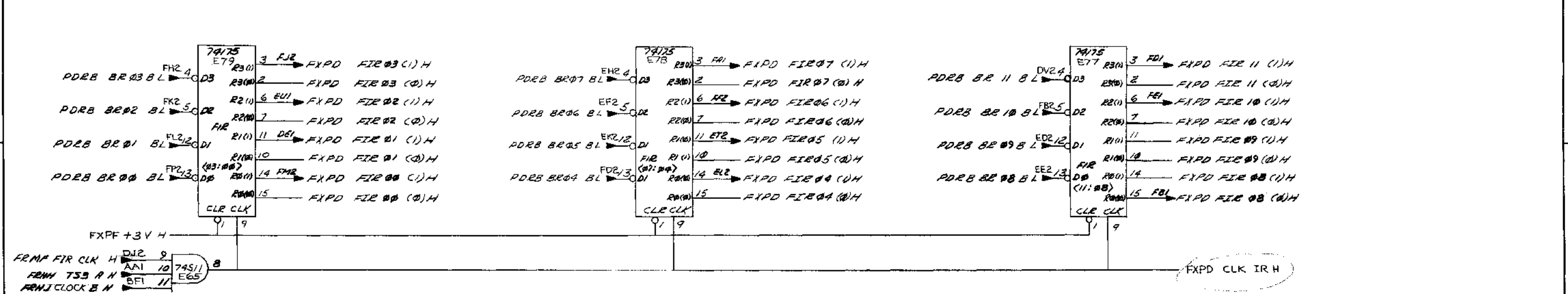
REV	DATE	BY

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	
DECIMALS		CHKD	DATE	MAY 1960, MASSACHUSETTS	
.XXX - .005	ANGLES	ENG	DATE	TITLE	
.XX - .02	±0° 30'	PROJ. ENG.	DATE	F.P. EXPONENT DATA PATH	
.X - .1		PRG.	DATE	(FXPC)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PRG.	DATE		
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
FINISH		B-DD-11/45-0		DCS	M8113-0-01
		SCALE		DIST.	REV
		SHEET 4	OF 12		E

NUMBER M8113-0-01

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10-0-8113-0-01 2



ROM A AND ROM B
 10 pin 10 pin
 10 pin 10 pin

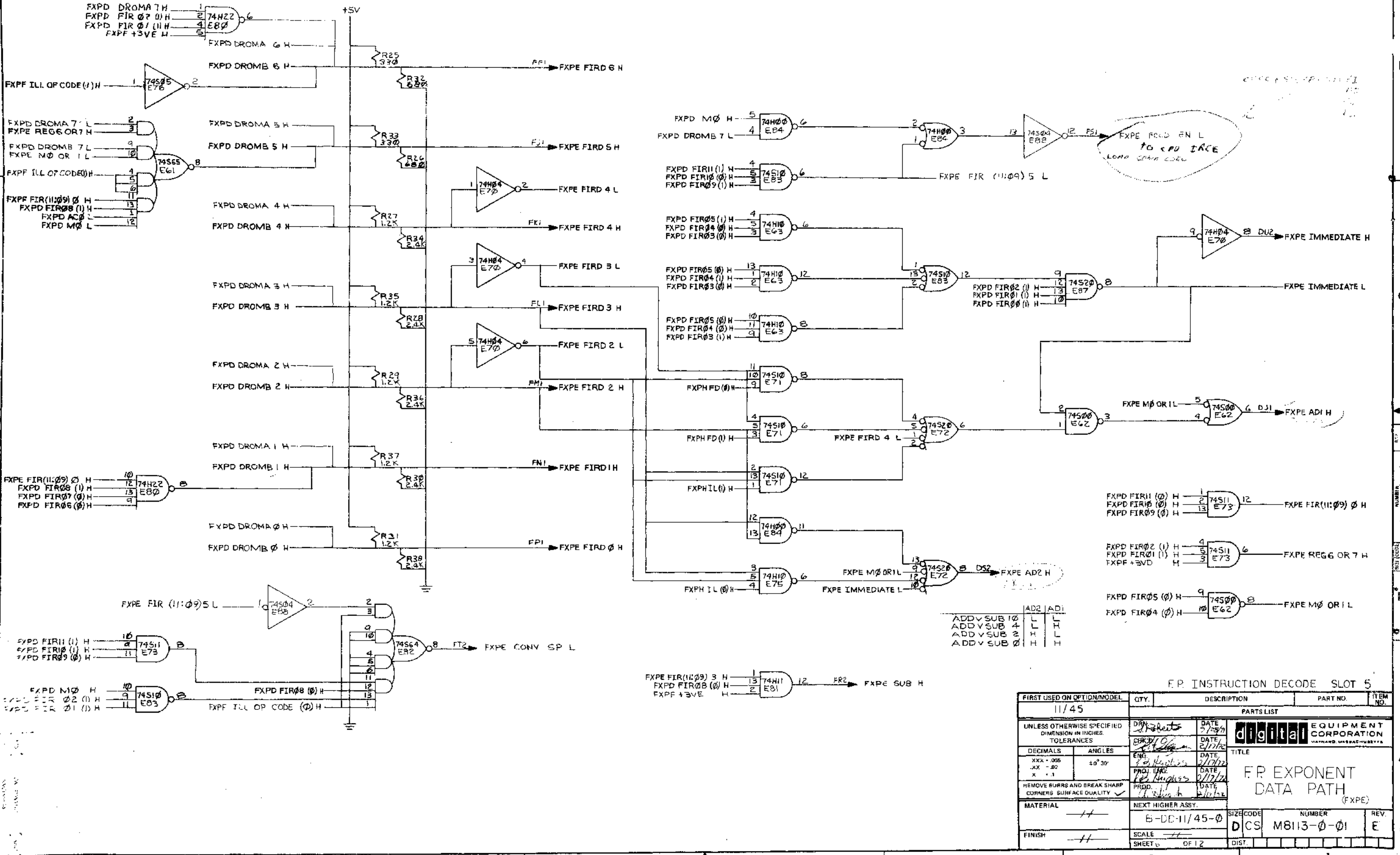
F.P. INSTRUCTION REGISTER SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX = .006	±0° 30'	F.P. EXPONENT DATA PATH (FXPD)		
.XX = .02		REMOVED BURRE AND BREAK SHARP CORNERS SURFACE QUALITY		
.X = .1		MATERIAL		
FINISH		NEXT HIGHER ASSY.		
		B-DD-11/45-0		
SCALE		SIZE CODE		
SHEET 5 OF 12		NUMBER		
		DCS:M8113-0-01		
		REV. E		

REV.	CHANGE NO.	REVISIONS
1		
2		
3		
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REV. E
 NUMBER 01
 DCS:M8113-0-01

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EXPE CONV SP L
TO CPU TRACE
LOAD CONV E82

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

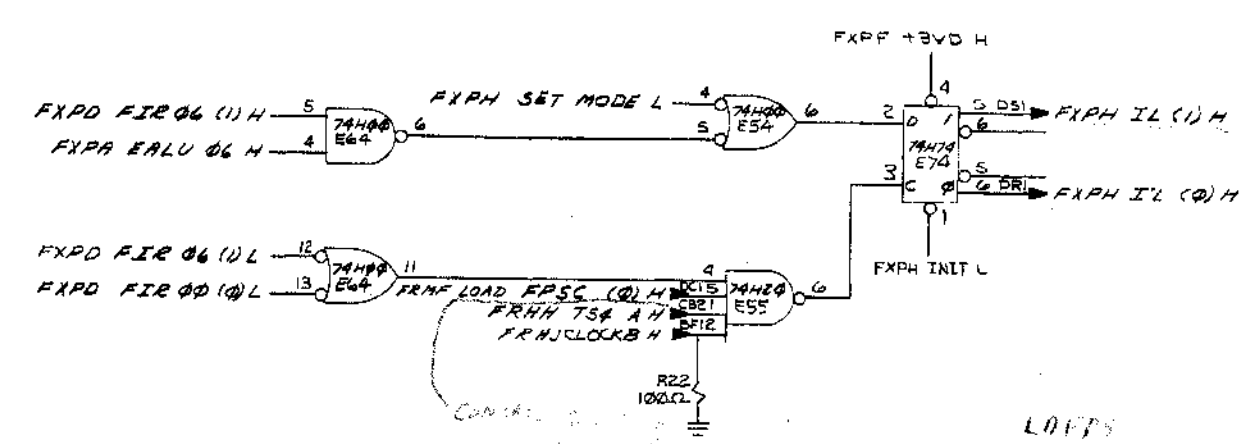
- FXPD FIR11 (0) H — 1 74S11 E73 — FXPE FIR(11:09) 0 H
- FXPD FIR10 (0) H — 2 74S11 E73 — FXPE FIR(11:09) 0 H
- FXPD FIR09 (0) H — 13 74S11 E73 — FXPE FIR(11:09) 0 H
- FXPD FIR02 (1) H — 4 74S11 E73 — FXPE REG6 OR 7 H
- FXPD FIR01 (1) H — 5 74S11 E73 — FXPE REG6 OR 7 H
- FXPD +3VE H — 3 74S11 E73 — FXPE REG6 OR 7 H
- FXPD FIR05 (0) H — 9 74S00 E62 — FXPE M0 OR 1 L
- FXPD FIR04 (0) H — 10 74S00 E62 — FXPE M0 OR 1 L

F.P. INSTRUCTION DECODE SLOT 5

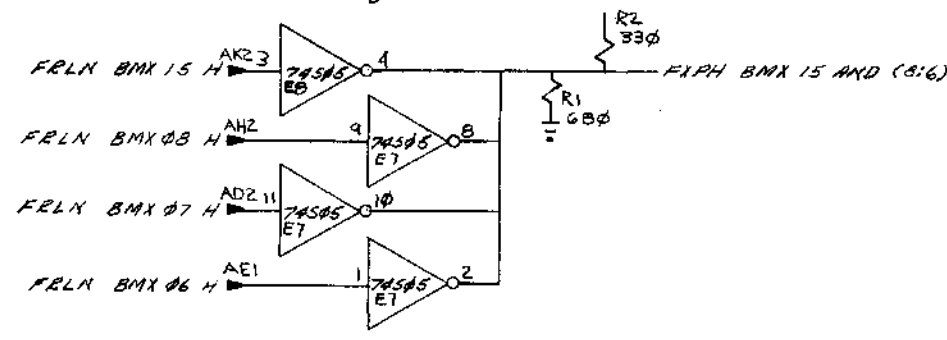
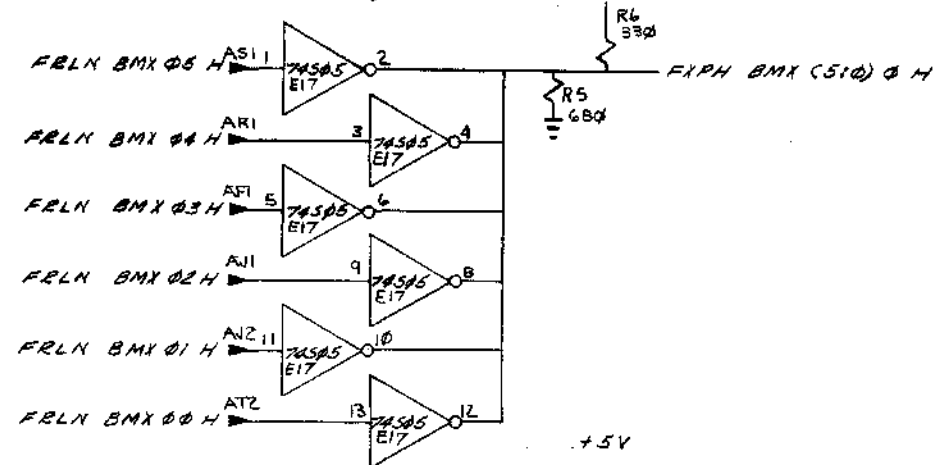
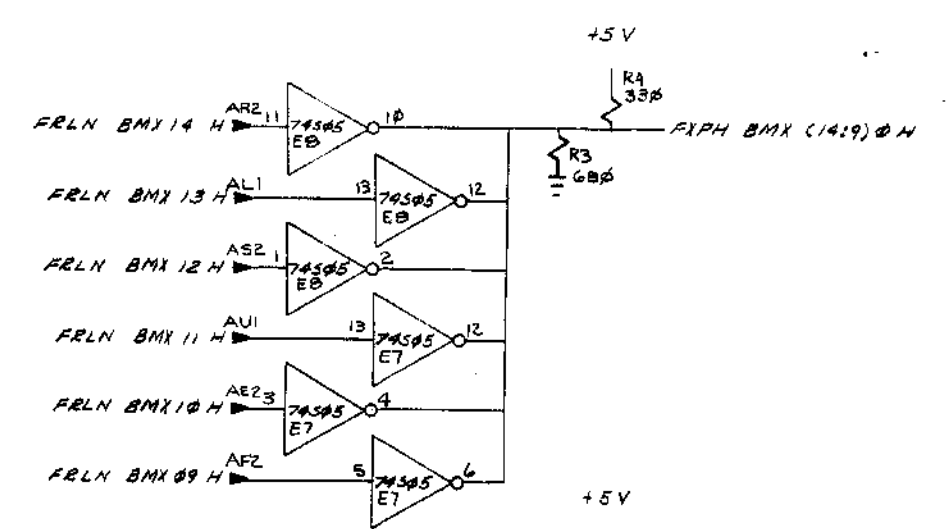
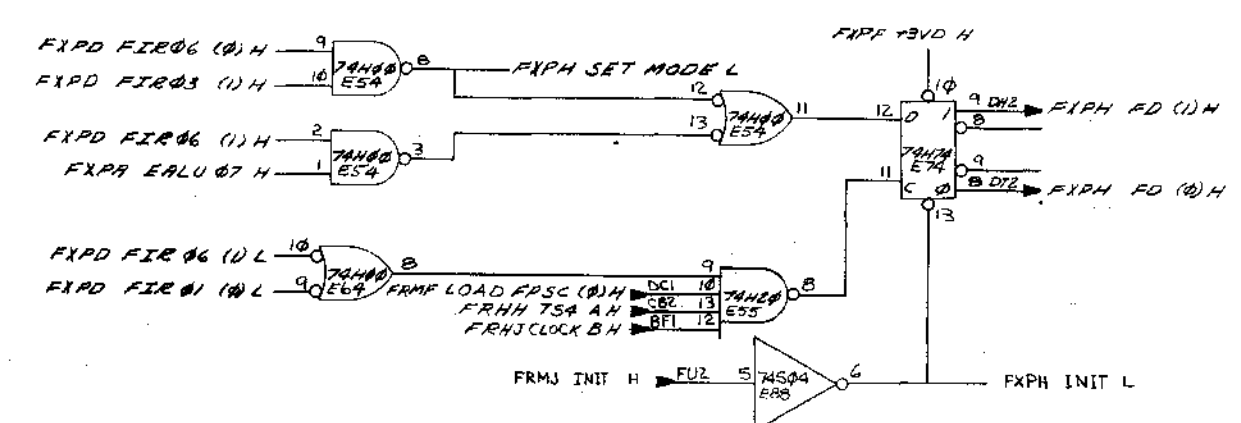
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DATE 2/1/75	DATE 2/1/75	 DIGITAL EQUIPMENT CORPORATION NATHAN MASSACHUSETTS	
DECIMALS	DATE 2/1/75	DATE 2/1/75		
ANGLES	DATE 2/1/75	DATE 2/1/75		
XXX - .005 .XX - .02 X - .1	DATE 2/1/75	DATE 2/1/75		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE 2/1/75	DATE 2/1/75	F.P. EXPONENT DATA PATH (FXPE)	
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-11/45-0	DCS	MB113-0-01	E
SHEET 6	OF 12	DIST.		

DCS MB113-0-01

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LOOPS
SET I
SET L
SET F
SET D

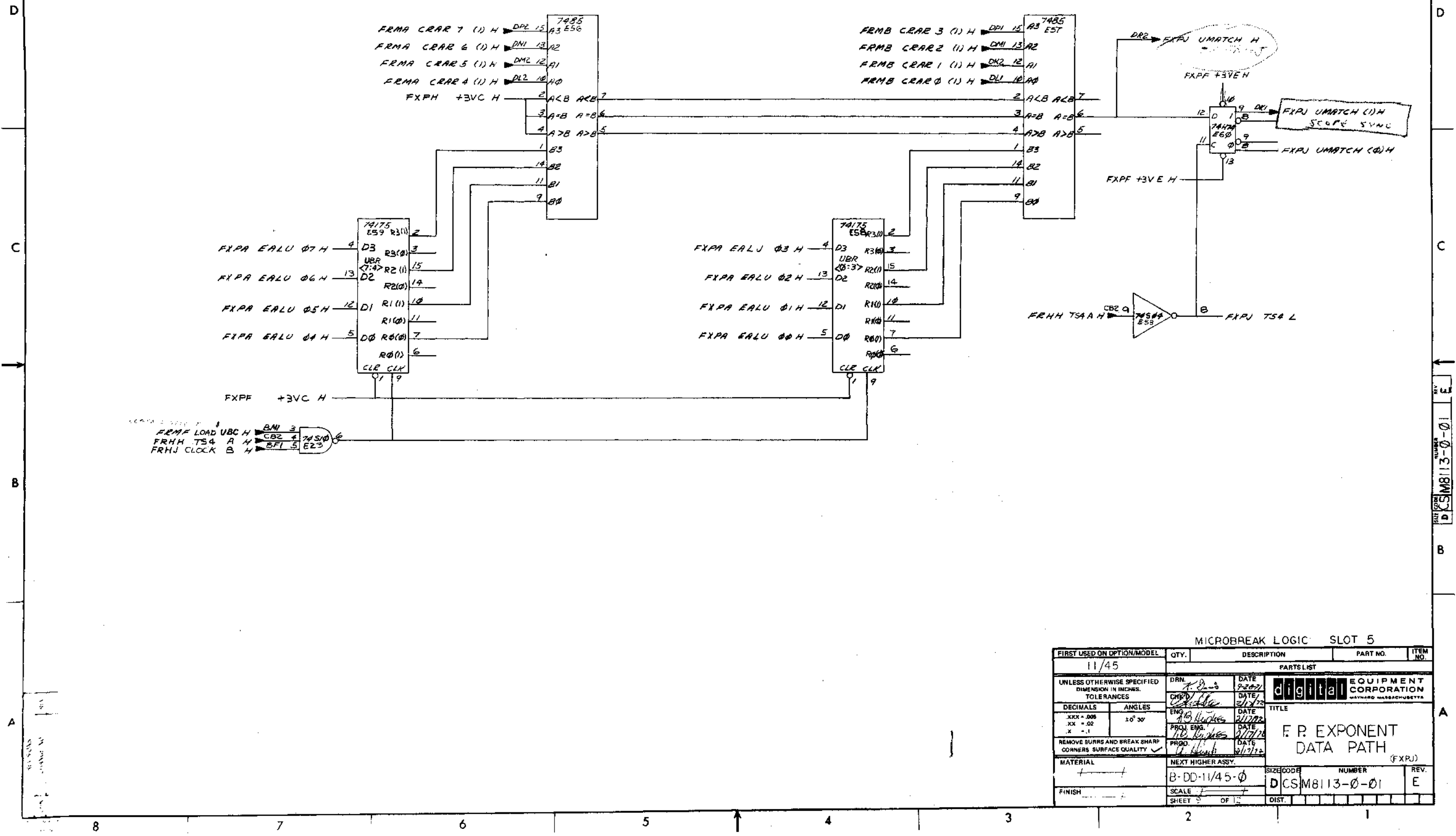


B LOOP CODE
EXP

FD IL MODE BITS BMX DECODE 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	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DECIMALS	DATE	TITLE			
ANGLES	DATE				
XXX + .005 .XX + .02 .X + .1	DATE				
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG.	DATE	F.P. EXPONENT DATA PATH (FXPH)		
MATERIAL	PROD.	DATE			
FINISH	NEXT HIGHER ASSY.		SIZE CODE	NUMBER	REV.
	B-DL-11/45-0		D	CSM8113-0-01	E
	SCALE		SHEET 8	OF 12	DIST.

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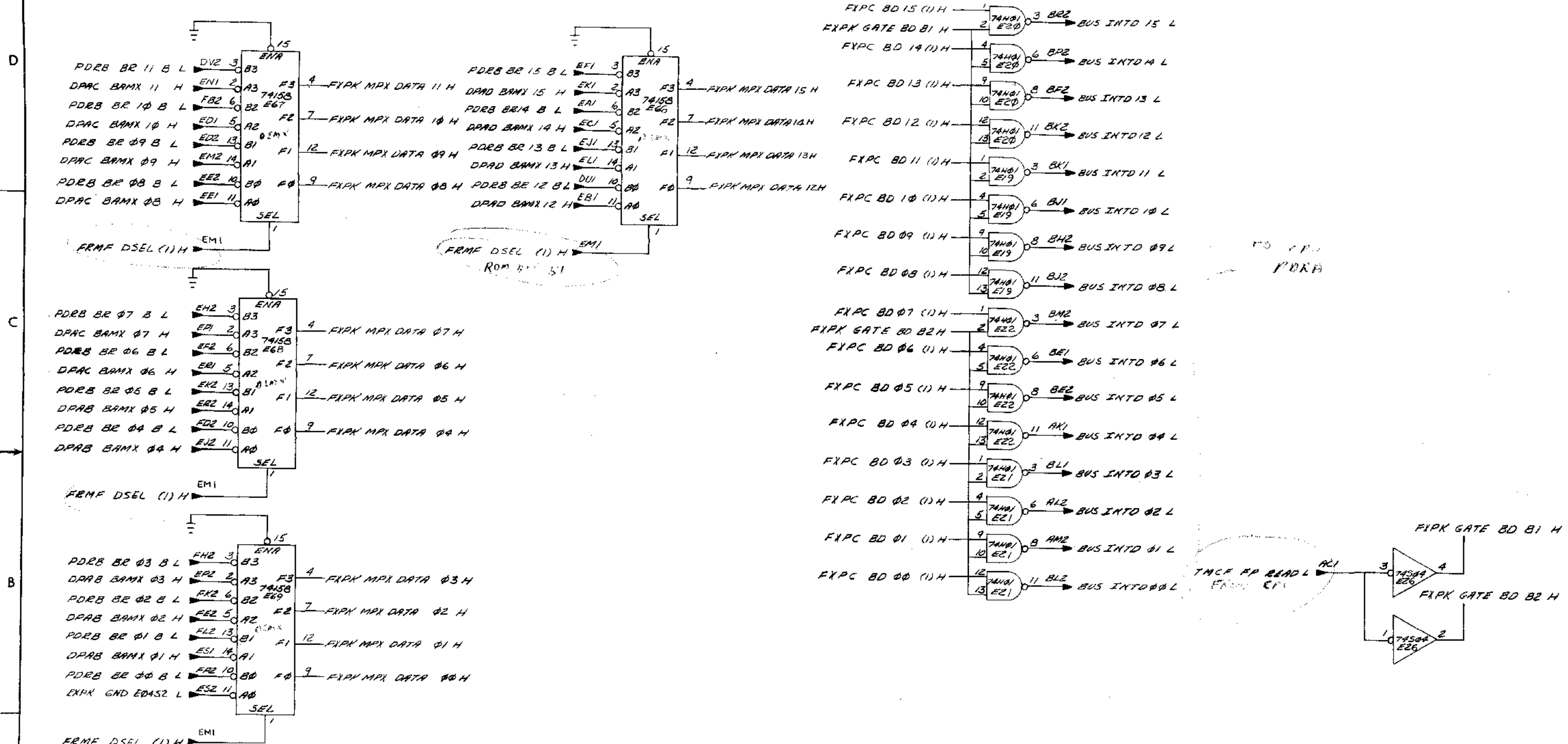


MICROBREAK LOGIC SLOT 5

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. Davis</i> DATE 8/24/72	 digital EQUIPMENT CORPORATION <small>WATFORD MASSACHUSETTS</small>	
DECIMALS .XXX ± .005	ANGLES 10° 30'	CHKD. <i>[Signature]</i> DATE 2/12/73		
.XX ± .02		ENG. <i>[Signature]</i> DATE 2/17/72		
.X ± .1		PROJ. ENG. <i>[Signature]</i> DATE 2/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PRD. <i>[Signature]</i> DATE 2/17/72	F. P. EXPONENT DATA PATH <small>(FXPJ)</small>	
MATERIAL	NEXT HIGHER ASSY.			
FINISH	SCALE	SIZE CODE	NUMBER	REV.
	SHEET 5 OF 12	B-DD-11/45-0	D CSM8113-0-01	E

REV. E
NUMBER
D CSM8113-0-01
B

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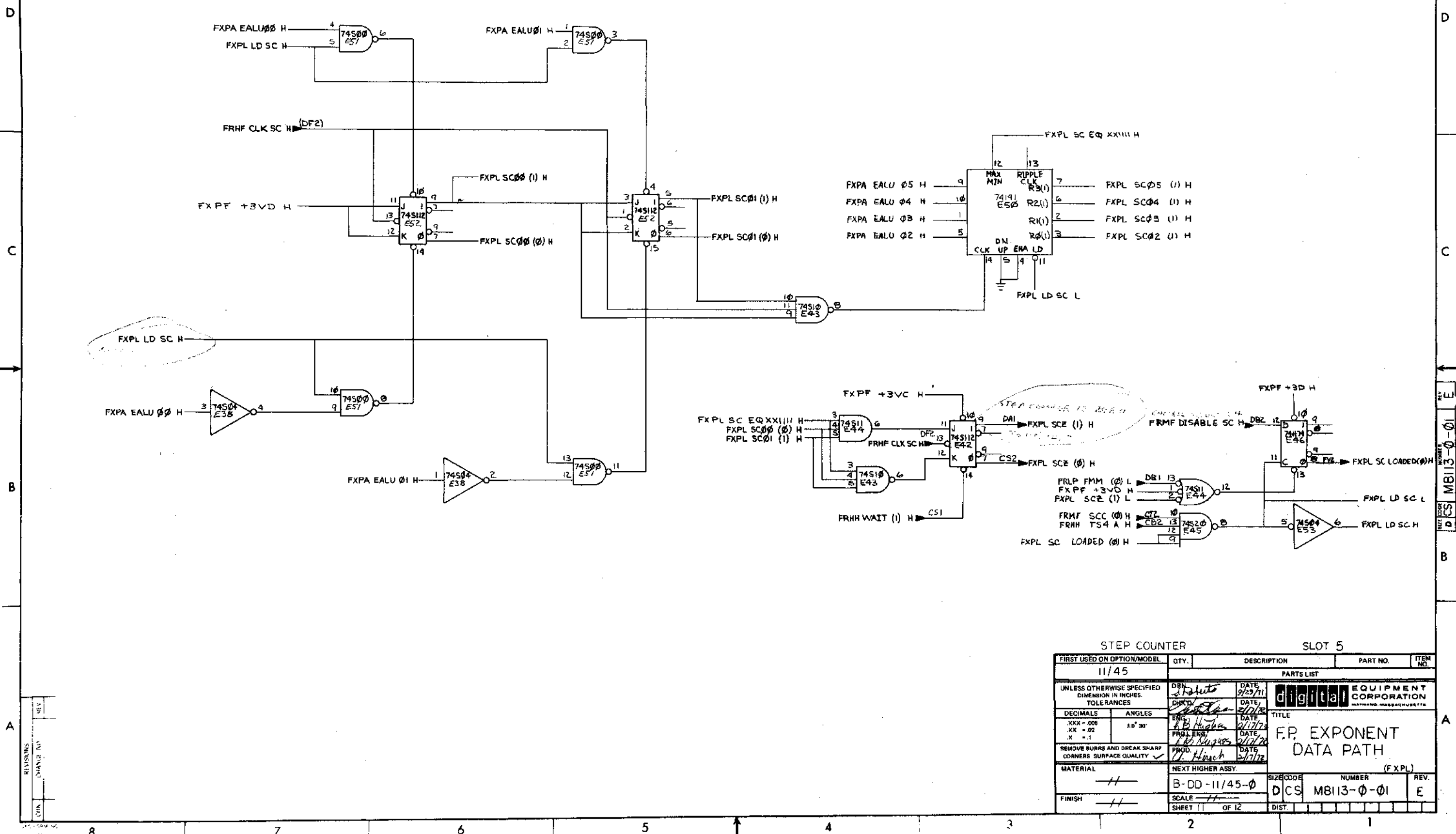
F.R. DATA RECEIVERS AND DRIVERS SLOT 5

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN. <i>J. Domb</i>	DATE 1/28/72	 digital EQUIPMENT CORPORATION <small>MATHEW MANUFACTURING</small>
DECIMALS	ANGLES	CHKD. <i>J. Domb</i>	DATE 2/1/72	
.XXX = .005	± 0° 30'	ENG. <i>J. P. Healey</i>	DATE 2/17/72	
.XX = .02		PROJ. ENG. <i>J. P. Healey</i>	DATE 2/17/72	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PRD. <i>J. Domb</i>	DATE 2/17/72	TITLE
				F.R. EXPONENT DATA PATH (FXPK)
MATERIAL	NEXT HIGHER ASSY.	SCALE	SIZE CODE	NUMBER
FINISH	B-DD-11/45-0	10	D	DCS M8113-0-01
		SHEET 10	OF 12	REV. E

REV.	CHG.	NO.	DATE

REV. E
DCS M8113-0-01

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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.		DRN	DATE	digital EQUIPMENT CORPORATION MAYFORD, MASSACHUSETTS	
TOLERANCES		CHK'D	DATE		
DECIMALS	ANGLES	ENG.	DATE	TITLE F.P. EXPONENT DATA PATH (FXPL)	
.XXX - .005	±0° 30'	PRG. ENG.	DATE		
.XX - .02		PROD.	DATE	SIZE CODE NUMBER REV. DCS MB113-0-01 E	
.X - .1					
REMOVE BURRS AND BREAK SHARP EDGERS SURFACE QUALITY				SCALE 11 OF 12	
MATERIAL	NEXT HIGHER ASSY.			SHEET 11 OF 12	
FINISH					

REV. 1
2
3
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REV. 1
2
3
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7
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CONTENTS OF DECODE ROM A (DROMA)

ADDRESS	DATA								INSTRUCTION
	7	6	5	4	3	2	1	0	
0	0	1	1	1	1	1	1	1	FOP_CODE (CLR,TSIF,ABSIF,NEGF)
1	0	1	1	0	0	0	1	1	MULF
2	1	0	1	1	0	0	0	0	MODF
3	1	0	1	1	0	0	0	0	ADDIF
4	1	0	1	1	0	0	0	0	LDF
5	0	0	0	0	0	0	1	0	SUBF
6	1	0	1	1	0	0	0	0	CMPE
7	1	0	1	1	0	0	0	0	STF
8	0	1	1	0	0	0	0	0	DIVF
9	0	1	1	0	0	0	0	0	STEXP
10	0	1	1	0	0	0	0	0	STCF1
11	0	1	1	0	0	0	0	0	STCFD
12	0	1	1	0	0	0	0	0	LDEXP
13	0	1	1	0	0	0	0	0	LDCIF
14	0	1	1	0	0	0	0	0	LDCDF
15	0	1	1	0	0	0	0	0	FOP_CODE (CLR,TSIF,ABSIF,NEGF)
16	0	1	1	0	0	0	0	0	MULF
17	0	1	1	0	0	0	0	0	MODF
18	0	1	1	0	0	0	0	0	ADDIF
19	0	1	1	0	0	0	0	0	LDF
20	0	1	1	0	0	0	0	0	SUBF
21	0	1	1	0	0	0	0	0	CMPE
22	0	1	1	0	0	0	0	0	STF
23	0	1	1	0	0	0	0	0	DIVF
24	0	1	1	0	0	0	0	0	STEXP
25	0	1	1	0	0	0	0	0	STCF1
26	0	1	1	0	0	0	0	0	STCFD
27	0	1	1	0	0	0	0	0	LDEXP
28	0	1	1	0	0	0	0	0	LDCIF
29	0	1	1	0	0	0	0	0	LDCDF
30	0	1	1	0	0	0	0	0	FOP_CODE (CLR,TSIF,ABSIF,NEGF)
31	0	1	1	0	0	0	0	0	MULF
32	0	1	1	0	0	0	0	0	MODF
33	0	1	1	0	0	0	0	0	ADDIF
34	0	1	1	0	0	0	0	0	LDF
35	0	1	1	0	0	0	0	0	SUBF
36	0	1	1	0	0	0	0	0	CMPE
37	0	1	1	0	0	0	0	0	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 CLASS NO. 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 TSIF, ABSIF & 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 8 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 0 (FD(1))
 - 1 CLASS 1; USE 6 (FD(0)) OR 4 (FD(1))
 - 2 CLASS 2; USE 2 (FL(0)) OR 4 (FL(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	3	2	1	0	
0	0	1	0	1	0	1	0	0	CFCC
1	1	0	1	0	1	0	0	0	SETF
2	1	0	1	0	1	0	0	0	SETI
3	1	0	1	0	1	0	0	0	LDS
4	1	0	1	0	1	0	0	0	LDC
5	1	0	1	0	1	0	0	0	STAB
6	1	0	1	0	1	0	0	0	MRS
7	1	0	1	0	1	0	0	0	STQB
8	1	0	1	0	1	0	0	0	ILLEGAL OP CODE
9	1	0	1	0	1	0	0	0	SETD
10	0	0	1	0	1	0	0	0	SETL
11	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
12	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
13	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
14	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
15	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
16	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
17	0	0	1	0	1	0	0	0	ILLEGAL OP CODE
18	X	X	X	X	X	X	X	X	NOT USED
19	1	0	1	0	1	0	0	0	LDFPS
20	1	0	1	0	1	0	0	0	STFPS
21	1	0	1	0	1	0	0	0	STST
22	1	0	1	0	1	0	0	0	NOT USED
23	X	X	X	X	X	X	X	X	NOT USED
24	X	X	X	X	X	X	X	X	NOT USED
25	1	0	1	0	1	0	0	0	LDFPS
26	1	0	1	0	1	0	0	0	STFPS
27	1	0	1	0	1	0	0	0	STST
28	X	X	X	X	X	X	X	X	NOT USED
29	1	0	1	0	1	0	0	0	LDFPS
30	1	0	1	0	1	0	0	0	STFPS
31	1	0	1	0	1	0	0	0	STST
32	1	0	1	0	1	0	0	0	NOT USED
33	1	0	1	0	1	0	0	0	NOT USED
34	X	X	X	X	X	X	X	X	NOT USED
35	1	0	1	0	1	0	0	0	LDFPS
36	1	0	1	0	1	0	0	0	STFPS
37	1	0	1	0	1	0	0	0	STST

NOTE:

- FOP_CODE 0 ENABLES DROMB.
- FIR <07:06>(0) A 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 FCLD EN.
- FIR <07:06>(0) A 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 <06:05> 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 EQ(0)	RANGE EQ(1)
	3	2	1	0			
0	0	1	0	0	1 TO 7	GT	GT
1	0	1	0	0	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
18 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
26 TO 177	0	1	1	1	100 TO 777	MGT	MGT
288 TO 361	0	0	0	1	-71 TO -1000	MLT	MLT
382 TO 371	1	0	0	0	-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).

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	digital EQUIPMENT CORPORATION	
DECIMALS: ANGLES	CHK'D	DATE	NAYNARD MASSACHUSETTS	
.XXX - .005 ±0° 30'	ENG.	DATE	TITLE	
.XX - .02	PRM. ENG.	DATE	EXPONENT DATA PATH	
.X - .1	PROD.	DATE	(FXPM)	
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
FINISH	B-DD-11/45-0	D	M 8113-0-01	E
	SCALE	SHEET	OF	
	12	12		

REVISIONS
 CHANGE NO. PLY

PART NUMBER
 M 8113-0-01

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND		QUANTITY / VARIATION							
ACCESSORY LIST				D	DOCUMENT							KIT CHECK BY _____ DATE _____	INSTALLATION CHECK BY _____ DATE _____
				DN	DOCUMENT CHANGE NOTICE								
MADE BY <u>[Signature]</u>		CHECKED <u>[Signature]</u>		SECTION _____									
DATE <u>6-15-72</u>		DATE <u>6-15-72</u>		ISSUED SECT. _____									
ENG <u>[Signature]</u>		PROD <u>[Signature]</u>											
DATE <u>6-2-72</u>		DATE <u>6-20-72</u>											
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION										KIT CHECK BY _____ DATE _____	INSTALLATION CHECK BY _____ DATE _____
	FP11-B	Print Set		1									
	Lib Kit11-FPP11-A-K	Software Kit		1									
	Dec11-HFPA-D	Maint. Manual (FP11B)		1									
TITLE Floating Point Processor				ASSY. NO.		SIZE CODE A AL		NUMBER FP11-B - 16		REV.		ECO NO	
SHEET / OF				DIST.									



digital

**DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS 01754**