

digital		ORIGINATOR Tom Orr 1.2		ECO NO. <u>M7254-0001</u>																					
ENGINEERING CHANGE ORDER <u>9167</u>		TEL EXT 2791 DATE 11/17/72		SHEET <u>1</u> OF <u>1</u>																					
		DISC PROJ NO E20-06734		DATE RECEIVED <u>11-30-72</u>																					
		COST CENTER NO. <u>378</u>		FIRST ISSUE <u>12-14-72</u>																					
				FINAL ISSUE <u>12-17-72</u>																					
PROBLEM				UNIT TO BE CHANGED																					
1) RK11-D samples word count overflow at sector end time to determine if a transfer is complete. This gives premature termination of write and write check functions during short sectors.				M7254																					
2) Temporary availability problems with T.I.7427 #19-10870				Etch																					
CORRECTION				Rev. C																					
1) Use file done signal from M7256 instead of word count overflow for sample at sector end.				DISC CODE 03																					
2) Add 8875 #19-10647 to parts list as an alternative to 7427.				OPTIONS AFFECTED																					
BREAK-IN/EFFECTIVITY				RK11-D,E																					
Rework all M7254 Rev C boards.				PRODUCT LINES AFFECTED																					
				PDP-11																					
ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DISP CODE	DESCRIPTION OF CHANGE																				
1.	D-CS-M7254-C-1	B	A	06	Sheets 1, 2, 4, & 6 -See final release drawing.																				
2.	B-MH-M7254-0-6	*	A	06	See final release drawing.																				
3.	XXXXXXXXXX	*	D	03	Make the following etch changes: 1) Delete: AP1-E0204, E02 13 2) Delete: E0602-AJ1 3) Add: AP1-E0602																				
4.	D-AH-M7254-0-5	B	C	06	Make corrections listed above																				
5.	8875) 19 10647	-	-	07	Add to Sheet 2 of D-CS-M7254-0-1																				
<table border="0"> <tr> <td>DOCUMENTATION AFFECTED</td> <td><input checked="" type="checkbox"/> MODEL</td> </tr> <tr> <td><input type="checkbox"/> DIAGNOSTICS</td> <td><input type="checkbox"/> TECH MANUAL</td> </tr> <tr> <td><input type="checkbox"/> TESTER</td> <td><input type="checkbox"/> TEST PROG</td> </tr> <tr> <td><input type="checkbox"/> TOOLING</td> <td><input type="checkbox"/> PKG INST</td> </tr> <tr> <td><input type="checkbox"/> ENG SPEC</td> <td><input type="checkbox"/> PURCH SPEC</td> </tr> <tr> <td>FIELD SERVICE AFFECTED</td> <td><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</td> </tr> <tr> <td><input type="checkbox"/> Customer Charge</td> <td><input type="checkbox"/> Product Line Charge</td> </tr> <tr> <td>TYPE OF CHANGE</td> <td><input type="checkbox"/> ELECTRICAL</td> </tr> <tr> <td><input type="checkbox"/> MECHANICAL</td> <td><input checked="" type="checkbox"/> MODULE</td> </tr> <tr> <td>ORDER PR MODEL</td> <td><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</td> </tr> </table>						DOCUMENTATION AFFECTED	<input checked="" type="checkbox"/> MODEL	<input type="checkbox"/> DIAGNOSTICS	<input type="checkbox"/> TECH MANUAL	<input type="checkbox"/> TESTER	<input type="checkbox"/> TEST PROG	<input type="checkbox"/> TOOLING	<input type="checkbox"/> PKG INST	<input type="checkbox"/> ENG SPEC	<input type="checkbox"/> PURCH SPEC	FIELD SERVICE AFFECTED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> Customer Charge	<input type="checkbox"/> Product Line Charge	TYPE OF CHANGE	<input type="checkbox"/> ELECTRICAL	<input type="checkbox"/> MECHANICAL	<input checked="" type="checkbox"/> MODULE	ORDER PR MODEL	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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DISPOSITION CODES			APPROVAL SIGNATURES																						
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - Rework IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)																						

M 7254-00001

PAGE REVISION CONTROL SHEET										
SH NO.	PAGE REVISIONS	REVISIONS	DATE	ENG.	ETCH REV.	ECO NO.	REVISIONS	REVISIONS	REVISIONS	REVISIONS
1		C	12-11-72		C	00001				
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100		C								

DRN: *[Signature]* DATE: *[Date]*

CHK'D: *[Signature]* DATE: *[Date]*

ENG: *[Signature]* DATE: *[Date]*

PROJ. ENG. DATE: *[Date]*

PROD. DATE: *[Date]*

REVISIONS: (S11), (S12), (S13), (S14)

FIRST USED ON OPTION/MODEL: RK11-D

TITLE: STATUS CONTROL (RK11-D)

digital EQUIPMENT CORPORATION
MANNING MASSACHUSETTS

SIZE CODE: B CS NUMBER: M7254-0-1 REV. C

SCALE: DIST. SHEET 1 OF 6

NEXT HIGHER ASSY.

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A 9-0-7522W B MH 321
 NUMBER M7254-0-6

PRODUCT LINE PDP 11
 DATE RELEASED 9-25-72
 RELEASED BY T. ORR

MODULE ECO HISTORY
 PAGE 1 OF 1

RELEASED CS REV B
 RELEASED ETCH BD REV C

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-17-72	C	C	✓			✓			USE FILE DONE INSTEAD OF WORD COUNT. OVER = LOW.	1	0


REVISIONS
 CHG NO. REV.
 00001 A

DRN [Signature] DATE 10-3-72
 CHG'D [Signature] DATE 10-3-72
 ENG [Signature] DATE 11-2-72
 PROD [Signature] DATE 11-2-72

EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS
 TITLE: MODULE ECO HISTORY
 SIZE: B CODE: MH NUMBER: M7254-0-6 REV: A

DEC 16 (200) 100-7071
 DRB 104

M7254-00001

		ORIGINATOR Dick Lewis 1-2 TEL EXT 2814 DATE 1/30/73 DISC PROJ NO. 320-06734 COST CENTER NO. 378		ECO NO. <u>M7254-0002</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>2-2-73</u> FIRST ISSUE <u>2-5-73</u> FINAL ISSUE <u>7/14/73</u>																																																									
ENGINEERING CHANGE ORDER <u>9307</u>				UNIT TO BE CHANGED M7254 Status Control DESP CODE <u>03</u>																																																									
PROBLEM 1. "New Fun" and "0-MSR" one-shots too short. 2. "Last word done" needs a pull-up resistor. 3. Clk puses need to be standardized throughout control. 4. Poor +B*network.				OPTIONS AFFECTED RK11-D E																																																									
CORRECTION 1. Lengthen one-shot times. 2. Add pull-up to "Last word done". 3. Bring in external CLK signal from pins CE1 and DUL. 4. Add jumper connection between branches of +B*run.				PRODUCT LINES AFFECTED PDP-11																																																									
BREAK-IN/EFFECTIVITY Rework all M7254 boards (item 7 below).				DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PEG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC																																																									
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PAGE REVISION CONTROL SHEET									
PAGE REVISIONS									REMARKS
SH NO.									
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191	B	C	D						
192	B	C	D						
193	B	C	D						

B REV. M7254-0-6

MODULE ECO HISTORY																	
PRODUCT LINE <u>PDP 11</u>			DATE RELEASED <u>9-25-72</u>			RELEASED BY <u>T. ORR</u>			PAGE <u>1</u> OF <u>1</u>			RELEASED CS REV. <u>B</u>			RELEASED ETCH BD REV. <u>C</u>		
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED				
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)							
0001	T. ORR	11-17-72	C	C	✓			✓			USE FILE DONE INSTEAD OF WORD COUNT OVER FLOW.	1	0				
0002	R. LEWIS	1-29-73	D	C	✓			✓			INCREASE LENGTH OF NEW FUN +0 - MS 3 ONE SHOTS. ADD PULL-UP RES. TO LAST WORD DONE. STANDARDIZE CLK. PULSES.	3	2				

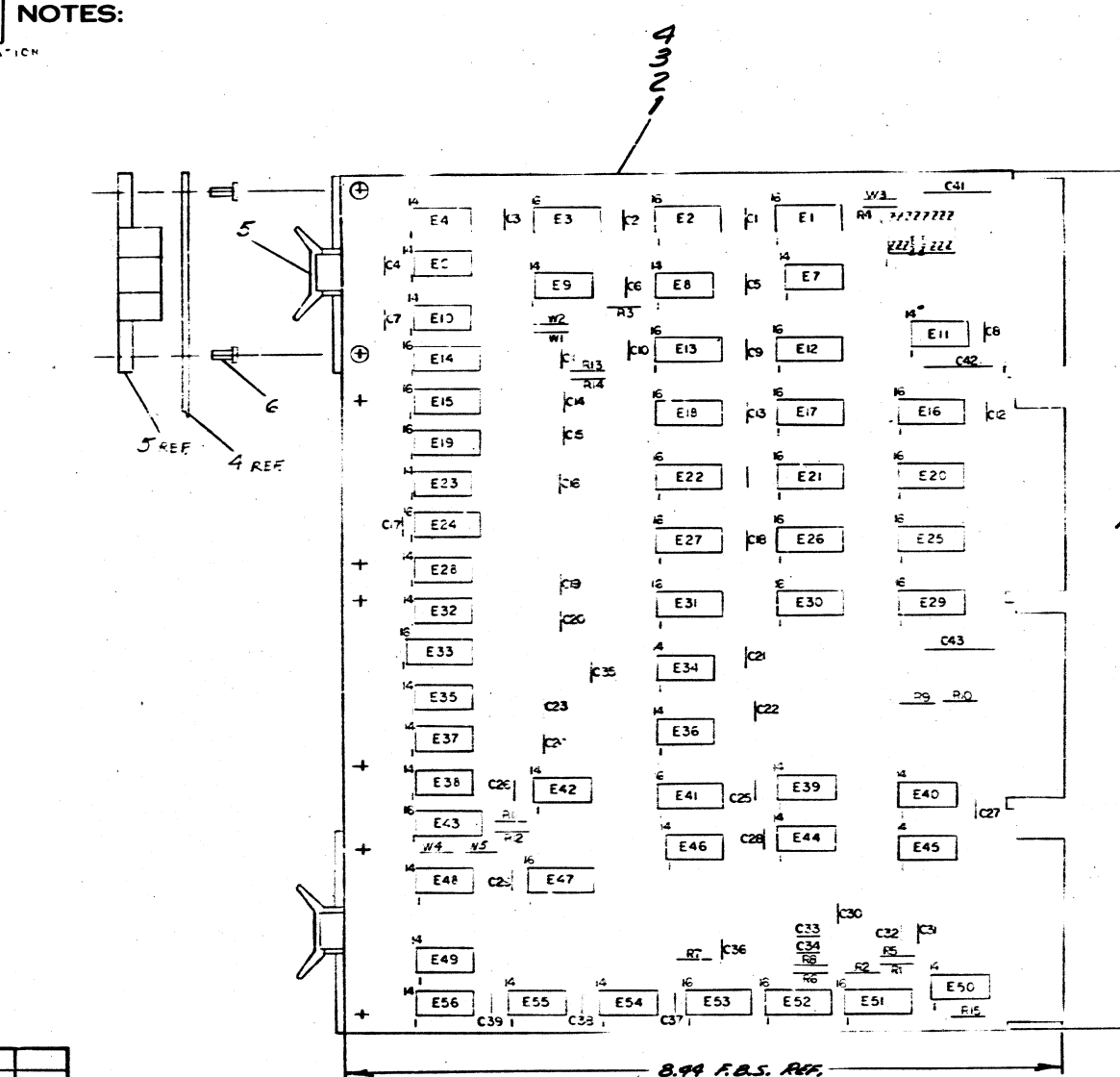
DRN. <u>T. Orr</u>	DATE <u>10-3-72</u>	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE <u>MODULE ECO HISTORY</u>	
CHKD. <u>T. Orr</u>	DATE <u>10-3-72</u>		SIZE <u>B</u>	CODE <u>4H</u>
ENG. <u>T. Orr</u>	DATE <u>10-3-72</u>		NUMBER <u>M7254-0-6</u>	REV. <u>B</u>
PROD. <u>T. Orr</u>	DATE <u>10-3-72</u>			

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7254-00002

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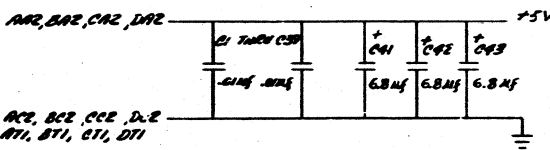


PIN NOMENCLATURE
 MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
2	C34 C36	CAP 100PF .30V 5% DM	1000016	50
1	E5	IC SOCKET	1209838	49
5	W1-W5	INSULATED JUMPER I-2007-1	5009135	48
1	E2	I.C. DEC 74125	1905050	47
2	E1, E2	I.C. DEC 74125	1910651	46
1	E56	I.C. DEC 8815	1903713	45
1	E92	I.C. DEC 74125	1905063	44
2	E4, E6	I.C. DEC 74123	1905062	43
1	E85	I.C. DEC 7408	1910155	42
1	E85	I.C. DEC 74111	1905267	41
5	E13, E16, E20, E25, E29	I.C. DEC 74153	1910018	40
4	E4, E15, E19, E43	I.C. DEC 74161	1910650	39
1	E38	I.C. DEC 74174	1903667	38
3	E1, E46, E48	I.C. DEC 74174	1903547	37
1	E37	I.C. DEC 74152	1905061	35
2	E50, E54	I.C. DEC 74157	1910071	34
2	E4, E36	I.C. DEC 7354	190333	33
1	E8	I.C. DEC 8881	1905705	32
3	E81, E82, E83	I.C. DEC 74123	1910436	31
3	E29, E33, E47	I.C. DEC 4015	1910047	30
2	E10, E34	I.C. DEC 7420	1905577	29
1	E35	I.C. DEC 7410	1905576	28
3	E23, E28, E44	I.C. DEC 7400	1903575	27
2	E32, E49	I.C. DEC 7402	1905004	26
8	E11, E12, E18, E19, E21, E22, E24, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36, E37, E38, E39, E40, E41, E42, E43, E44, E45, E46, E47, E48, E49, E50, E51, E52, E53, E54, E55, E56	I.C. DEC 74153	1905537	25
1	E40	I.C. DEC 7456	1910363	24
1	E39	I.C. DEC 7427	1910878	23
2	E3, E40	I.C. DEC 7404	1903686	22
1	E3	I.C. DEC 7442	1910046	21
3	R10, R12, R14	RES. 390 Ω 1/4 W 5%	1300529	20
3	R9, R11, R13	RES. 180 Ω 1/4 W 5%	1301322	19
3	R3, R15, R16	RES. 1K Ω 1/4 W 5%	1300365	18
1	R1	RES. 47K Ω 1/4 W 5%	1302177	17
1	R4	RES. 3K Ω 1/4 W 5%	1300432	16
1	R2	RES. 10K Ω 1/4 W 5%	1300479	15
3	R5, R6, R7	RES. 5.6K Ω 1/4 W 5%	1301874	14
1	R8	RES. 20K Ω 1/4 W 5%	1302391	13
1	C33	CAP 47PF 100V 5% DM	1000011	12
1	C31	CAP 390PF 100V 5% DM	1001631	11
1	C30	CAP 56PF 100V 5% DM	1300012	10
1	C32	CAP 27PF 100V 5% DM	1001239	9
3	C1, C2, C3, C10, C18, C30	CAP. 0.1MF 10V 20% DISC	1001610	8
3	C41, C42, C43	CAP. 6.8MF 35V 10% TANT	1005306	7
8		EYELET #55-4-7) STAMPSCN	9006732	6
4		HANDLE (RIP-CHIP) MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5007385	4
207		MODULE ECO HISTORY	B-44-M7254-0-6	3
107		RES/DRAWING HOLE LAYOUT	D-M-M7254-0-5	2
207		X-Y COORDINATE HOLE LOCATION	K-00-M7254-0-4	1

IC TYPE	GND	+5V
I.C. DEC 74123	8	16
I.C. DEC 74153	8	16
I.C. DEC 74123	8	16
I.C. DEC 74125	12	5
I.C. DEC 7442	8	16

IC PIN LOCATIONS



REVISIONS

NO.	DATE	DESCRIPTION
1		ORIGINAL
2		CHANGE NO. 1 REV

PARTS LIST

ETCH BOARD REV	C	DATE	DATE	DATE

SEMICONDUCTOR CONVERSION CHART

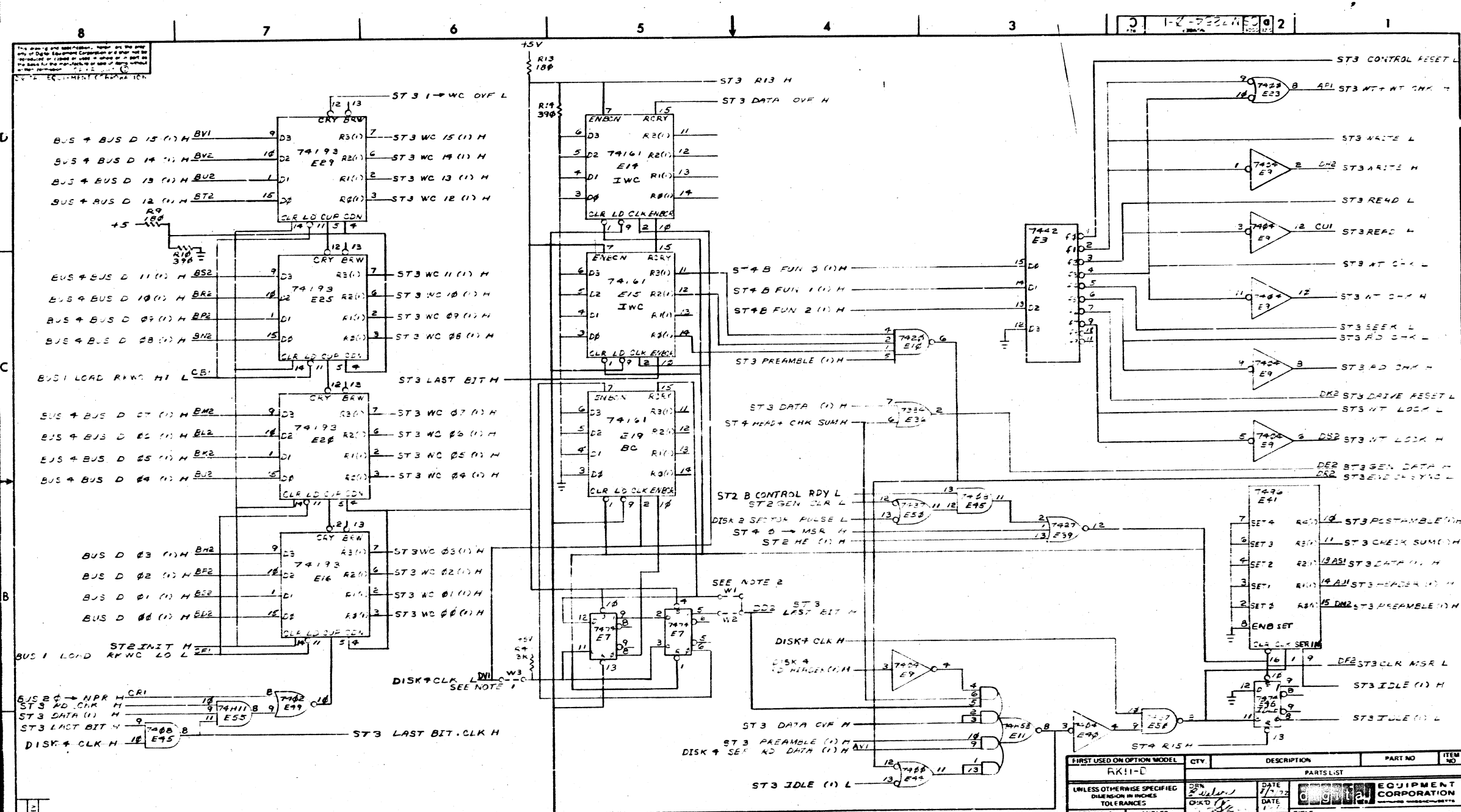
DEC NO.	EIA NO.	DEC NO.	EIA NO.

STATUS CONTROL
 RK11-D

DATE: 10-72
 DRAWN: [Signature]
 CHECKED: [Signature]
 PROD. DATE: 10-72

SIZE CODE: DCS
 NUMBER: M7254-0-1
 SHEET: 2 OF 2

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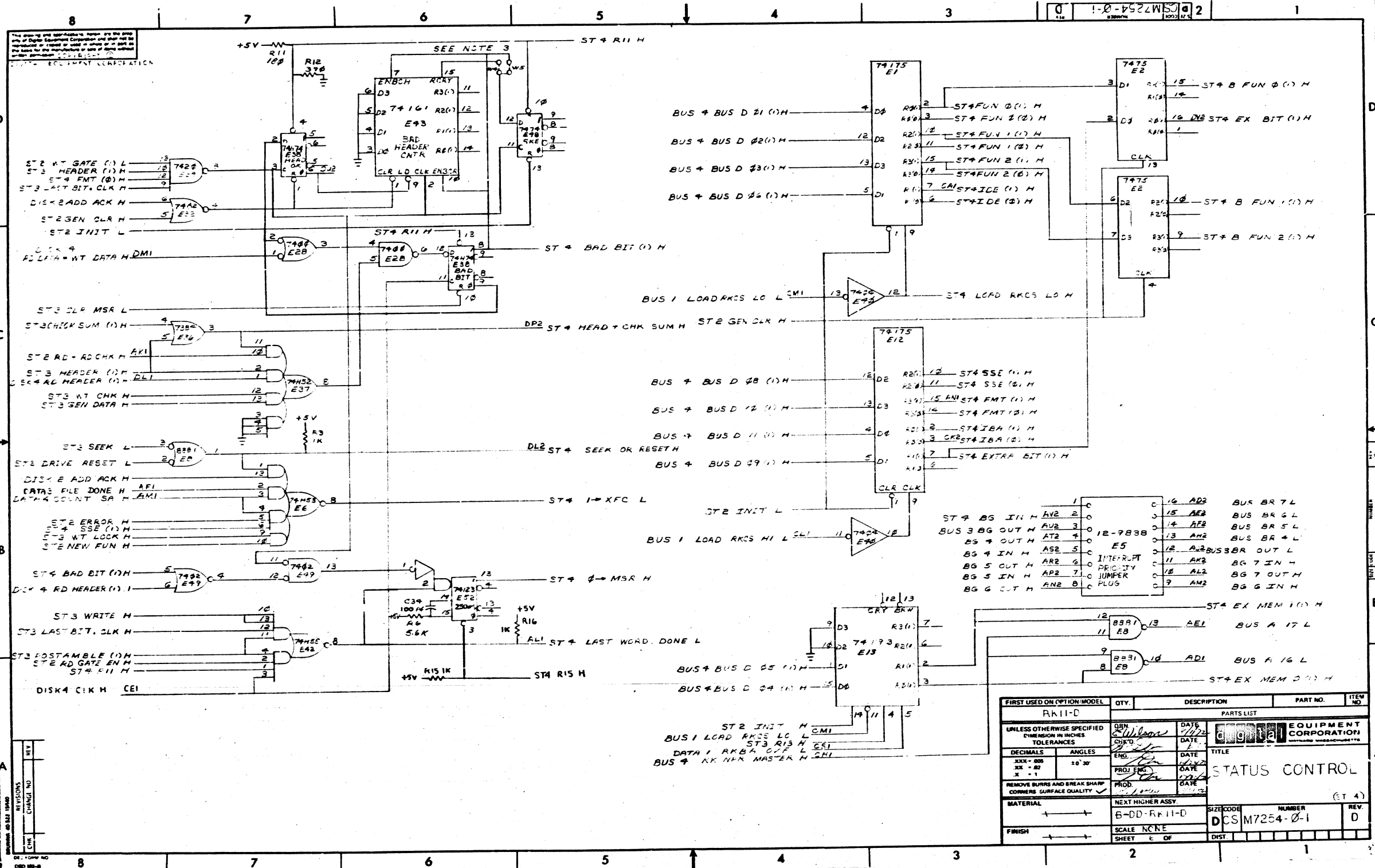


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REV	DATE	BY

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
AK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	EQUIPMENT CORPORATION	
X.XX	10 30	DATE	TITLE	
X.X		DATE	STATUS CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY.				
FINISH				
SCALE		SIZE CODE	NUMBER	REV
SHEET 5 OF		DIST	DCS M7254-2-1	C

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FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	QSN DATE	DATE	DIGITAL EQUIPMENT CORPORATION	
DECIMALS	ANGLES	ENG.	DATE	TITLE
XXX - 000	10 30	PROJ. ENG.	DATE	STATUS CONTROL
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG.	DATE	DATE	(ET 4)
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV.
FINISH	SCALE NONE	B-DD-RK11-D	DCS M7254-0-1	D
	SHEET E OF			

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digital ENGINEERING CHANCE ORDER 9541		ORIGINATOR Dick Lewis, 1-2 TELEXT 3055 DATE 5/25/73 DISC PROJ NO E20-06734 COST CENTER NO 378	ECO NO M7254-0003 SHEET 1 OF 2 DATE RECEIVED 5-29-73 FIRST ISSUE 5-31-73 FINAL ISSUE 6/20/73			
PROBLEM M7254 module layout has no spare IC locations and has some long etch runs.		STATUS M7254 Status Critical DISP CODE 02				
CORRECTION Relayout board to high density standards to add spare IC locations and shorten the long etch runs.		RK11-D,E				
BREAK-IN EFFECTIVITY All old rev etch boards in W.I.P by 5/25 may be completed. Only new rev boards may be put into W.I.P after 5/29.		PRODUCT LINE AFFECTED PDP-11				
ITEM NO.	DOCUMENT PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1.	D-CS-M7254-0-1 Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6	D D B D C D	E E C E D E	06 06 06 06 06 06	See final release drawing. Replace old rev with new rev print supplied. Replace old rev with new rev print supplied. Replace old rev with new rev print supplied. Replace old rev with new rev print supplied. Replace old rev with new rev print supplied. Replace old rev with new rev print supplied.	<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
2.	D-AH-M7254-0-5	D	E	06	Replace old rev with new rev print supplied.	<input type="checkbox"/> FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Charge
3.	B-MH-M7254-0-6	B	C	06	See final release drawing.	TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE <input type="checkbox"/> ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
4.	5009985	*C	E	02	Phase in new etch board as shown above.	
* REV D BOARD NEVER BUILT.						
DISPOSITION CODES			APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS COMPANY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Type-written / (Max. 1 Signature) DESIGN ENGR FOR ORG ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)			

DEC 14-13251-107, N971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

DNH-111C

ECO M7254-0003
4 2 8 2

M7254/ ECO #00003

Supplemental Information

As of 5/25 there are 384 etch boards in W.I.P., 208 boards in S.R. #50, and some 200 to 400 on order from Puerto Rico. Board fabrication (Don Snow) has been asked to finish all boards in W.I.P., but all lots on order must be of new etch revision. An adequate supply of old rev. circuit schematics should be stockpiled at Westfield, Ireland, and world support to cover the phase-out period of old rev. etch boards as new circuit schematics should reach production before new boards.

70

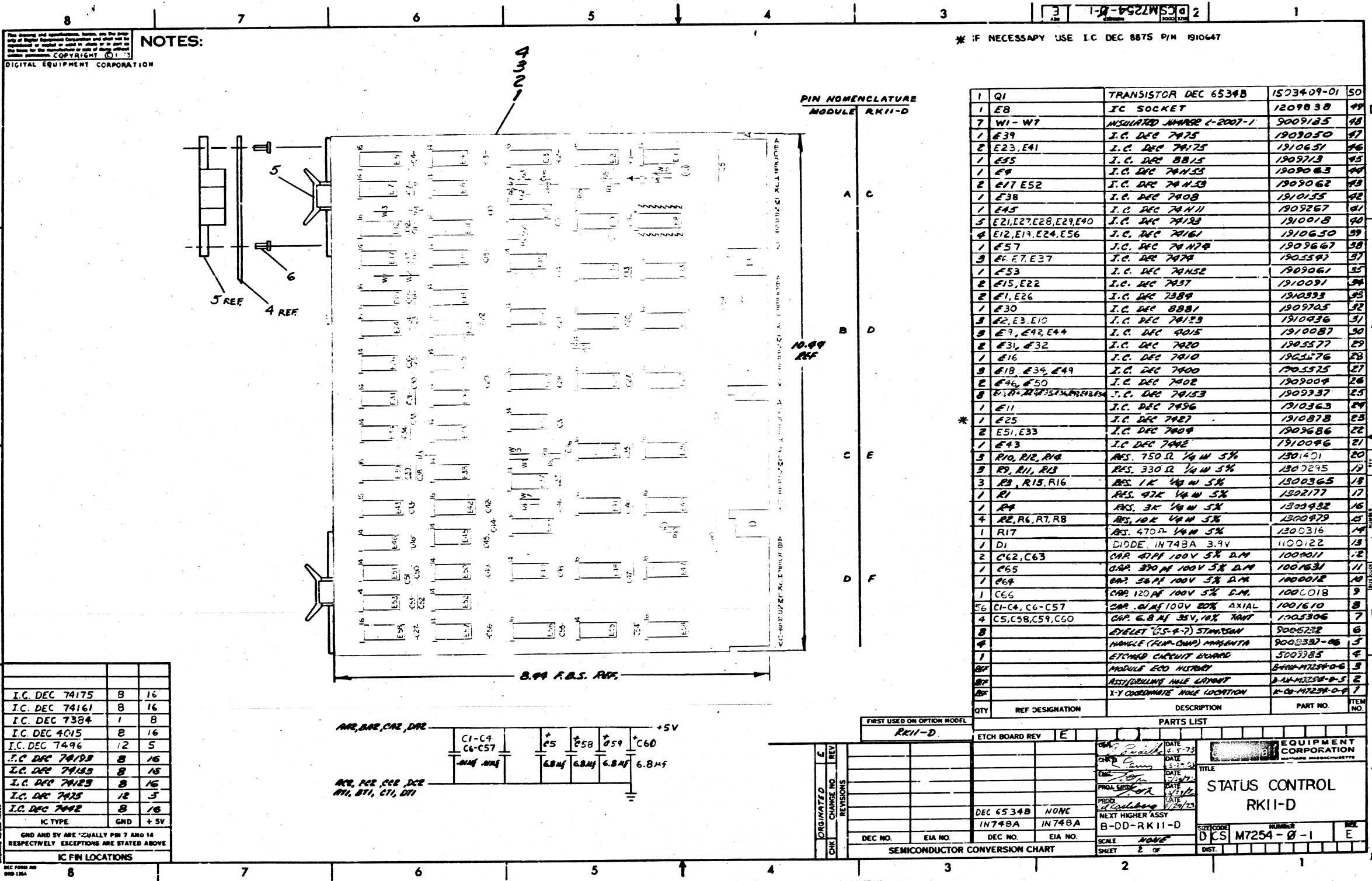
2 OF 2

PAGE REVISION CONTROL SHEET										
SH NO.	DATE	ETCH REV. NO.	ENG. REV.	ENG.	DATE	DATE	DATE	DATE	DATE	REMARKS
1										(S T 1) (S T 2) (S T 3) (S T 4) ETCH REV. "D" NOT TO BE USED.
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M 7254-00003

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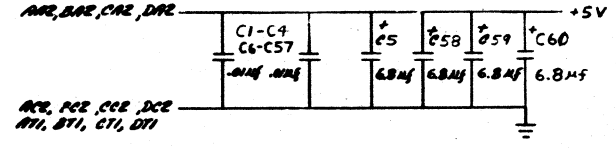
NOTES:
 DIGITAL EQUIPMENT CORPORATION

* IF NECESSARY USE I.C. DEC 8875 P/N 1910647

PIN NOMENCLATURE
 MODULE RKII-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	Q1	TRANSISTOR DEC 6534B	1503409-01	50
1	E8	I.C. SOCKET	1209838	49
7	W1-W7	INSULATED WARRIOR L-2007-1	9009185	48
1	E39	I.C. DEC 74175	1909050	47
2	E23, E41	I.C. DEC 74175	1910651	46
1	E55	I.C. DEC 8815	1909713	45
1	E9	I.C. DEC 74175	1909063	44
2	E7, E52	I.C. DEC 74175	1909062	43
1	E38	I.C. DEC 7408	1910155	42
1	E45	I.C. DEC 74111	1909267	41
5	E21, E27, E28, E29, E40	I.C. DEC 74183	1910018	40
4	E12, E19, E24, E56	I.C. DEC 74161	1910650	39
1	E57	I.C. DEC 74174	1909667	38
3	E67, E37	I.C. DEC 7474	1905591	37
1	E53	I.C. DEC 74152	1909061	36
2	E15, E22	I.C. DEC 7437	1910091	35
2	E1, E26	I.C. DEC 7384	190993	34
1	E30	I.C. DEC 8881	1909705	33
3	E2, E3, E10	I.C. DEC 74183	1910436	32
3	E9, E42, E44	I.C. DEC 4015	1910087	31
2	E31, E32	I.C. DEC 7420	1905577	30
1	E16	I.C. DEC 7410	1905576	29
3	E18, E39, E49	I.C. DEC 7400	1905575	28
2	E46, E50	I.C. DEC 7402	1909009	27
3	E11, E25, E28, E34, E35, E36, E38	I.C. DEC 74153	1909337	26
1	E11	I.C. DEC 7496	1910363	25
1	E25	I.C. DEC 7427	1910878	24
2	E51, E33	I.C. DEC 7409	1909686	23
1	E43	I.C. DEC 7442	1910096	22
3	R10, R12, R14	RES. 750 Ω 1/4W 5%	1901401	20
3	R9, R11, R13	RES. 330 Ω 1/4W 5%	1902295	19
3	R3, R15, R16	RES. 1K 1/4W 5%	1900365	18
1	R1	RES. 47K 1/4W 5%	1902177	17
1	R4	RES. 3K 1/4W 5%	1900929	16
4	R2, R6, R7, R8	RES. 10K 1/4W 5%	1900979	15
1	R17	RES. 470 Ω 1/4W 5%	1900316	14
1	D1	DIPDE IN748A 3.9V	1100122	13
2	C62, C63	CAP. 47PF 100V 5% D.M.	1009011	12
1	C65	CAP. 370PF 100V 5% D.M.	1001631	11
1	C64	CAP. 56PF 100V 5% D.M.	1000012	10
1	C66	CAP. 120PF 100V 5% D.M.	1000018	9
56	C1-C4, C6-C57	CAP. 0.1μF 100V 20% AXIAL	1001610	8
4	C5, C58, C59, C60	CAP. 6.8μF 35V, 10% TANT	1905906	7
3		EYELET (S.S.-7) STANTON	9006732	6
4		WASHER (RIP-ON) MAGENTA	9003327-06	5
1		ETCHED CIRCUIT BOARD	5003985	4
1		MODULE ECO HISTORY	B-44-M7254-0-6	3
1		ASSY/DRAWING HOLE LOCUST	B-44-M7254-0-5	2
1		X-Y COORDINATE HOLE LOCATION	K-02-M7254-0-1	1

I.C. TYPE	QTY	LOC.
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 7384	1	8
I.C. DEC 4015	8	16
I.C. DEC 7496	12	5
I.C. DEC 74183	8	16
I.C. DEC 74183	8	15
I.C. DEC 74175	8	16
I.C. DEC 7415	12	5
I.C. DEC 7442	8	16
I.C. DEC 8875	8	16
I.C. DEC 8875	8	16



SEMICONDUCTOR CONVERSION CHART

ORIGINATED BY: [Signature]
 CHECKED BY: [Signature]
 DATE: 4-5-73

STATUS CONTROL
 RKII-D

DEC NO. EIA NO. DEC NO. EIA NO.

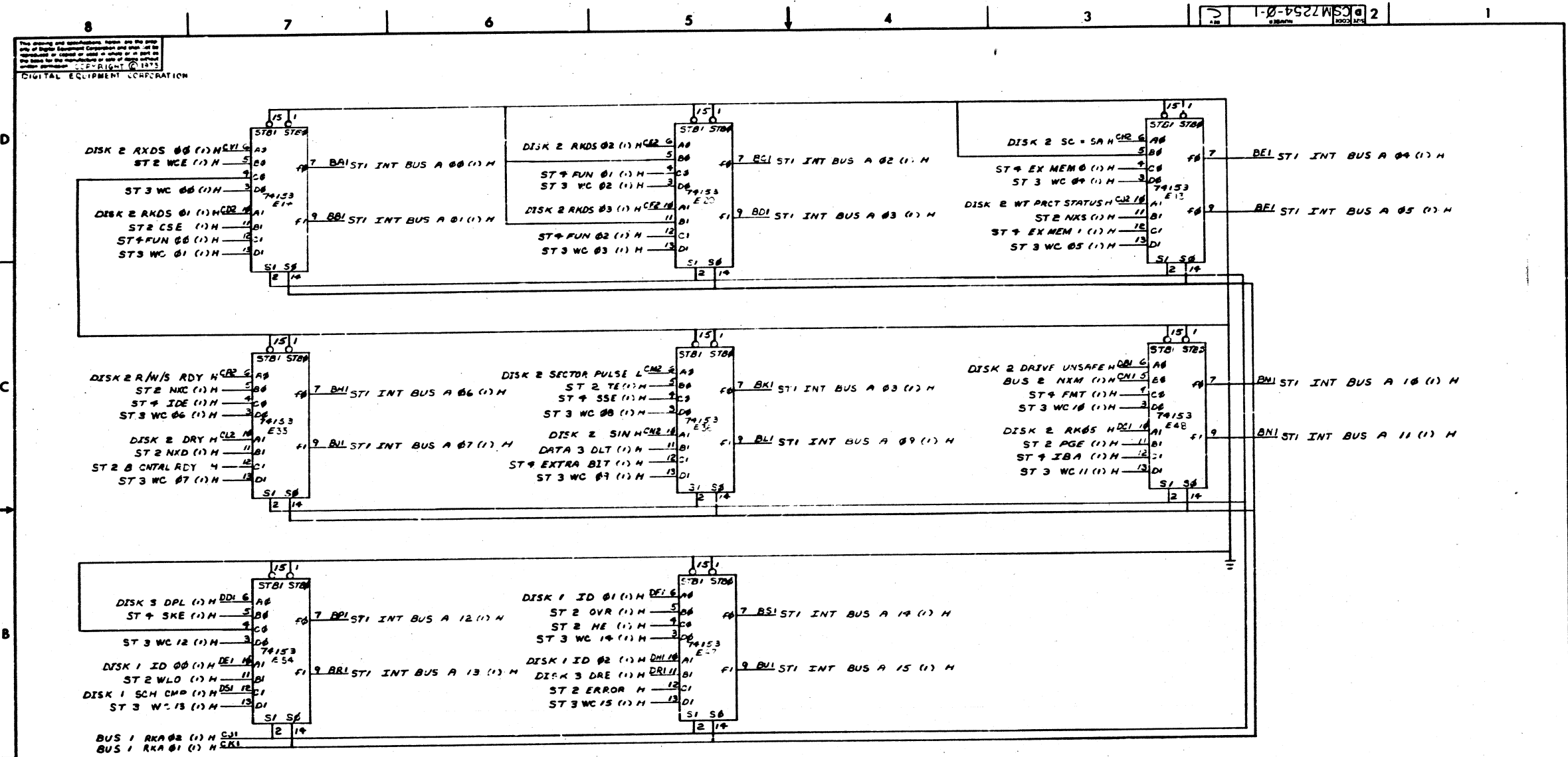
SCALE: NONE

SHEET 2 OF 2

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M7254-00003

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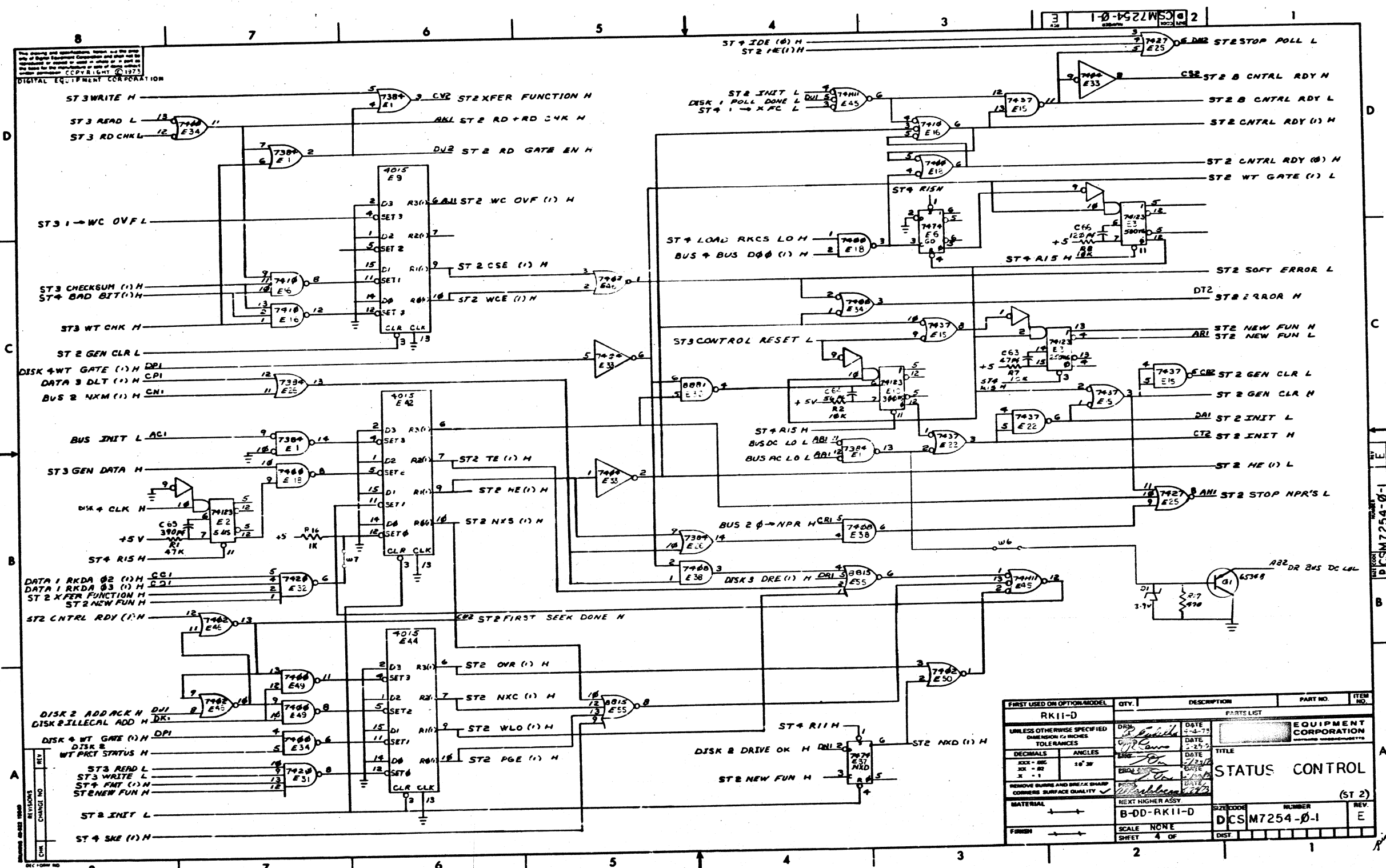
NOTES:
 1. CUT W3 FOR 15 BIT OPERATION (RK11-D)
 2. CUT W1 FOR 18 BIT OPERATION (RK11-E)
 CUT W2 FOR 16 BIT OPERATION (RK11-D)
 3. CUT W5 FOR NORMAL OPERATION (CHECKS HEADER
 16 TIMES BEFORE FLAGGING SEEK ERROR)
 CUT W4 FOR RK11-C COMPATIBILITY
 (CHECKS HEADER ONCE)

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES		DATE	EQUIPMENT CORPORATION	
DECIMALS	ANGLES	4-3-75	STATUS CONTROL	
1/16	10' 30"	DATE	(ST 1)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	REV.	
MATERIAL		DATE	C	
NEXT HIGHER ASSY.		B-DD-RK11-D		
FINISH		SCALE	DCS M7254-0-1	
		SHEET	3 OF	

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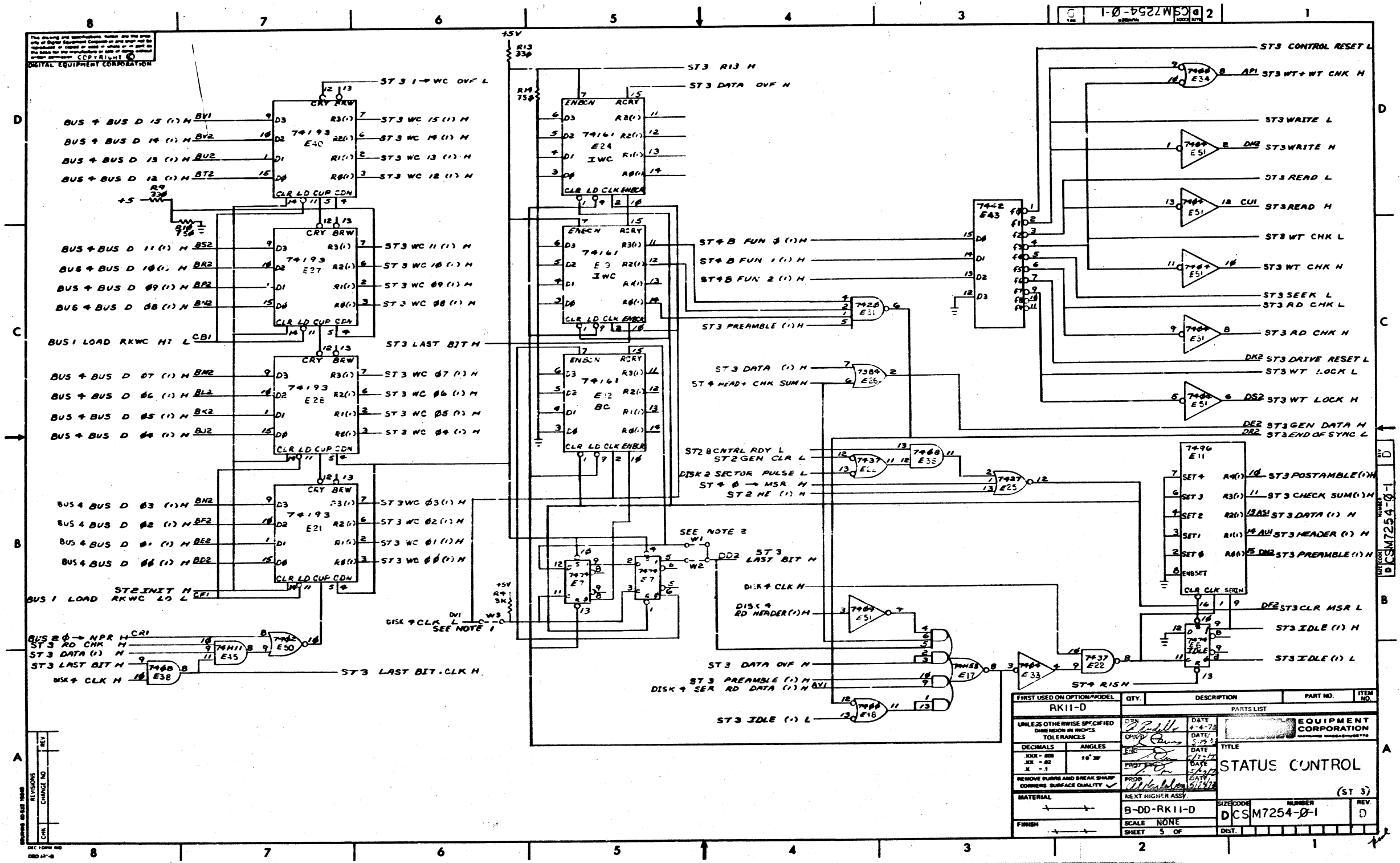


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED				
DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE	EQUIPMENT CORPORATION	
FRACTIONS	16° 30'	DATE	CORPORATION	
FINISH		DATE	TITLE	
		DATE	STATUS CONTROL	
		DATE	(ST 2)	
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV.
		B-DD-RK11-D	DCSM7254-0-1	E
	SCALE NONE	SHEET	DIST	
	SHEET 4 OF			

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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D		STATUS CONTROL		

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES	DATE	DATE	DATE
TOLERANCES	4-72	5-72	11-72
DECIMALS			
ANGLES			
XXX - 800			
XX - 82			
X - 1			

MATERIAL	SCALE	FINISH	REVISIONS
B-DD-RK11-D	NONE		
SIZE CODE	NUMBER	REV.	
DCSM7254-0-1		D	
SHEET 5 OF	DIST.		

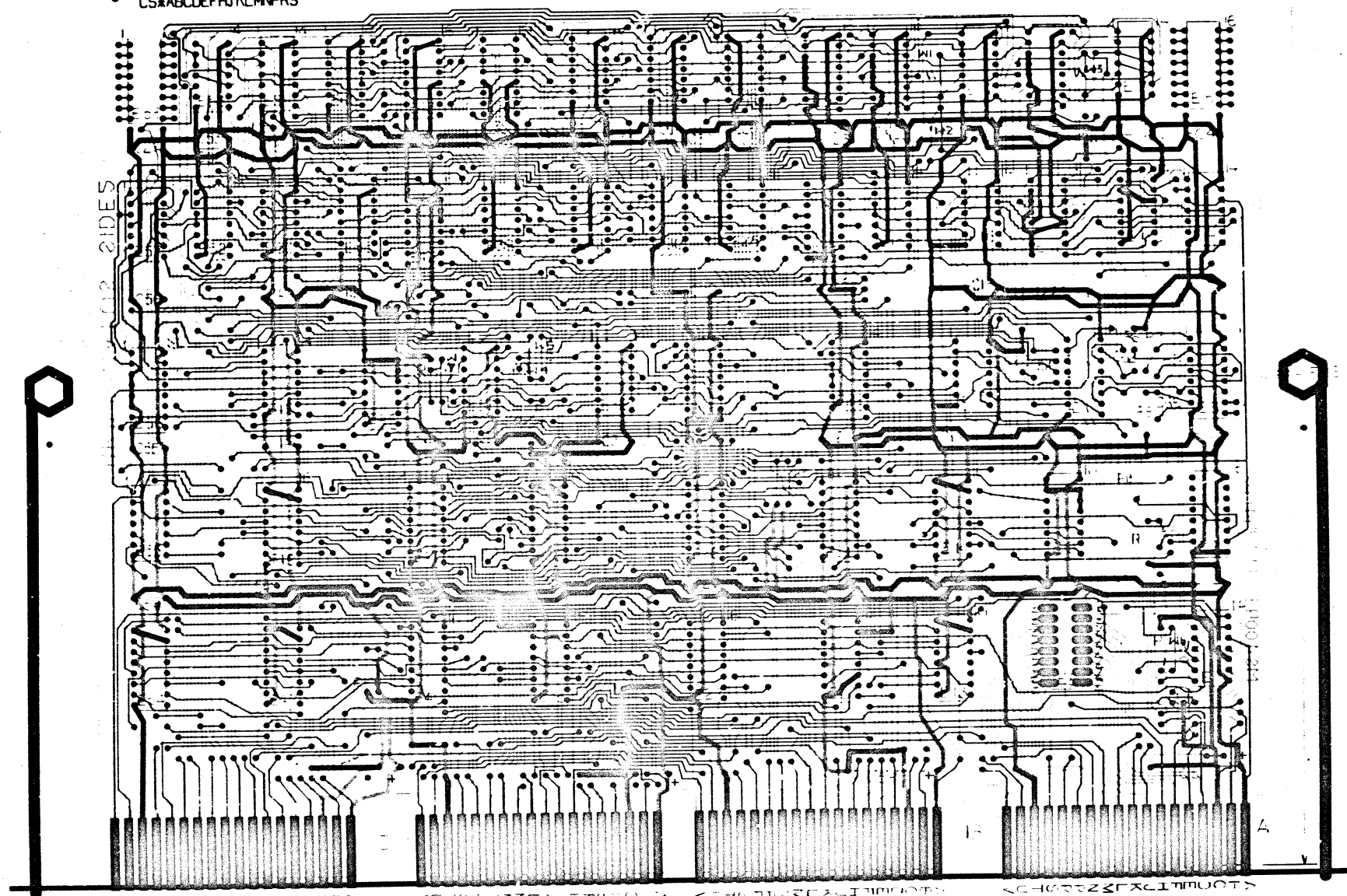
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MS 40043 M/7234 EPC

CS*ABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP ®



NOTES:

DRILLING DATA				
HOLE LETTER	DRILL SIZES		CAN TAKE BRIPLETS	QTY OF HOLES
	FOR PTH BOARDS	BEFORE/ AFTER PLATE		
NONE	61.239 (A)	X		
	3.175 (Z)	Z		

BOARD FABRICATION INFORMATION

BOARD SIZE 11.750 x 11.750
 BOARD MATERIAL 1.6mm FR-4
 EYELET PLATED THRU
 SMD MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

CHKD	DATE		TITLE STATUS CONTROL
ENG	DATE		
PROJ ENG	DATE		
PROD	DATE		
FIRST USED ON	DATE		
SCALE	SIZE CODE	NUMBER	REV
E-P2	D/AH	7254-0-5	E
		MS 40093	

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digital ENGINEERING CHANGE ORDER 9776		ORIGINATOR Dick Lewis 1-3 TEL EXT 4629 DATE 9/14/73 DESC PROJ NO. E26-06734 COST CENTER NO. 395		ECO NO. M7254- 0000 4 SHEET 1 OF 1 DATE RECEIVED 9-21-73 FIRST ISSUE 9-28-73 FINAL ISSUE 11/2/73		
PROBLEM 1. ECO #M7255- 0000 added BUS AC LO signal to the M7255 module. This results in an extra load on this Unibus line because BUS AC LO is also used on the M7254. 2. The parts list specifically calls out 7384's for E26 (Rev. E) and E36 (Rev. C). However, any speed 384 may be used in these locations.				UNIT TO BE CHANGED M7254 Status Control DISP CODE 06		
CORRECTION 1. BUS AC LO is removed from the M7254 since its function there was only as a precautionary measure. Note that there is no physical change to the M7254, the change being made to the RK11-D backpanel. See ECO #RK11-D- 0000 10 2. Add a note to the parts list allowing substitution of any type 384 for this 7384. Note: Do not affect any other 7384.				OPTIONS AFFECTED RK11-D, E		
BREAK-IN/EFFECTIVITY Document update only				PRODUCT LINES AFFECTED PDP-11 PDP-15		
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	D-SS-M7254-0-1 Sheet 1 Sheet 4 Sheet 4 Sheet 2 Sheet 2	- E D E D E	- F D-1 F D-1 F	- 06 06 06 06 06	Update rev. Change input pin 12 of E4(7384) from BUS AC LO L to EXT GND LO Change input pin 12 of E1(7384) from BUS AC LO L to EXT GND LO Add a note to the parts list allowing the substitute of any type 384 for the 7384 in E36. Add a note to the parts list allowing the substitute of any type 384 for the 7384 in E26.	<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENJ SPEC <input type="checkbox"/> PURCH SPEC
2	B-ME-M7254-0-6	C	D	06	See final release drawing	FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Change
3	D-AE-M7254-0-5	E	F	06	Update rev.	TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE <input type="checkbox"/> ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
4	L-AE-M7254-0-5	D	D-1	06	Update rev.	
				11 CENTRAL ECO COMMITTEE		
DISPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (REWORK) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				APPROVAL SIGNATURES Designation Head Signature DESIGN ENGR TOR OIT <i>[Signature]</i> ENGR MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>		

PAGE REVISION CONTROL SHEET									
SH. NO.	DATE	ENG.	ETCH	ECO	NO.	REVISIONS	REMARKS	FIRST USED ON OPTION/MODEL	
1	12-11-72	C			00001				RK11-D
2	2-16-73	C			00002				RK11-D
3	5-5-73	E			00003				RK11-D
4	10-10-73	C			00004				RK11-D
5	10-10-73	E			00004		(ST1) (ST2) (ST3) (ST4) ETCH REV. "D" NOT TO BE USED.		RK11-D
6									
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THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7254-00004

NOT TO BE USED FOR PRODUCTION

D 9-0-5521W MH B
 138 NUMBER 3000 325

PRODUCT LINE PDP 11 MODULE ECO HISTORY
 DATE RELEASED 9-25-72 PAGE 1 OF 1
 RELEASED BY T. ORR RELEASED CS REV. B
 RELEASED ETCH BD REV. C

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-17-72	C	C	✓			✓			USE FILE DONE INSTEAD OF WORD COUNT OVER FLOW.	1	0
00002	R. LEWIS	1-29-73	D	C	✓			✓			INCREASE LENGTH OF NEW FUN +0 → MSR ONE SHOTS. ADD PULL-UP RES. TO LAST WORD DONE. STANDARDIZE CLK. PULSES.	3	2
00003	R. LEWIS	5-22-73	E	E NOTE: D REV DOES NOT EXIST.		✓		✓			NEW ETCH LAYOUT.	0	0
00004	R. LEWIS	9-14-73	F	E		✓		✓			DOCUMENTATION UPDATE	0	0

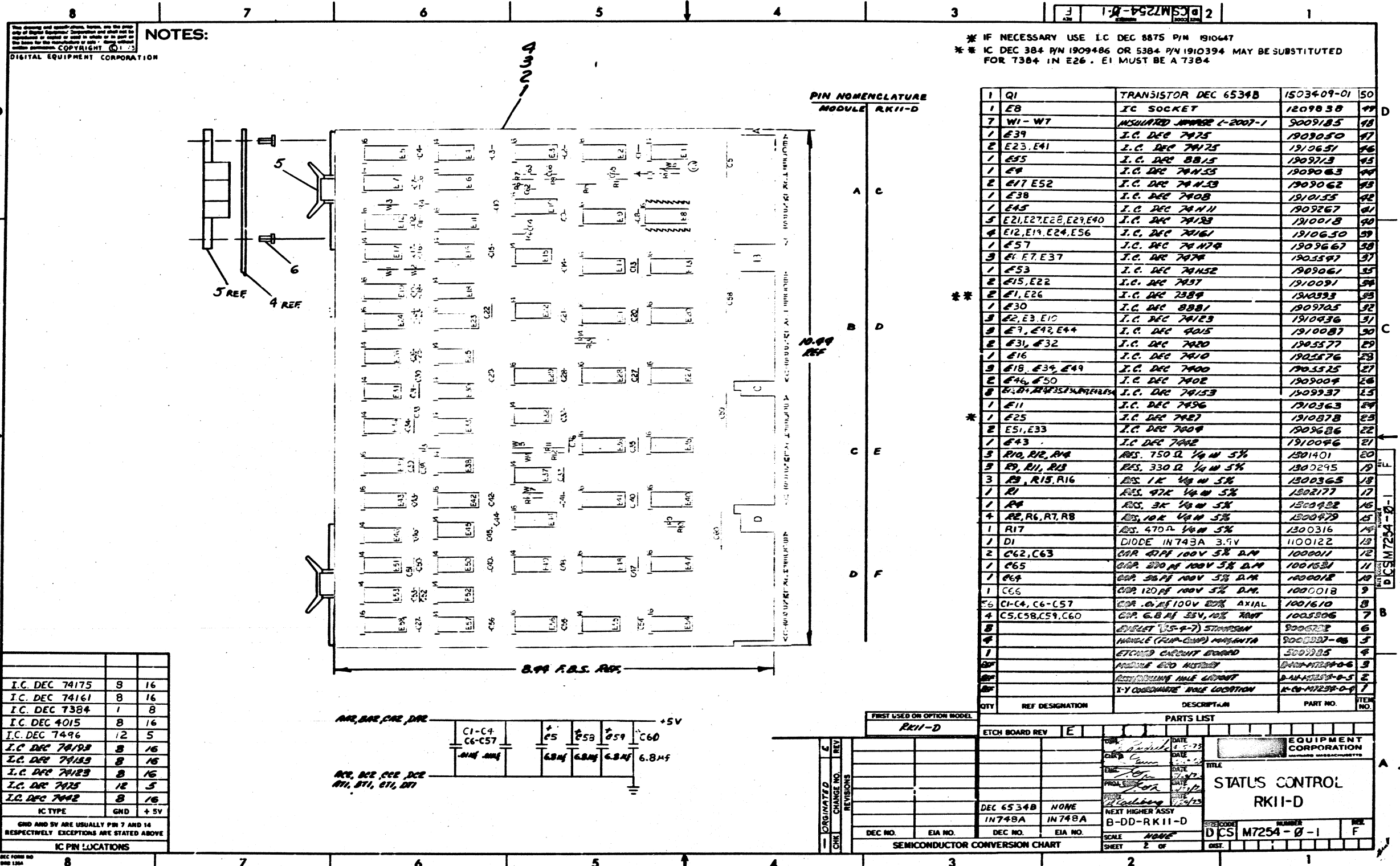
REV. NO.	DATE	BY
00001		
00002		
00003		
00004		

DRN: [Signature] DATE: 10-3-72
 CHD: [Signature] DATE: 10-3-72
 DATE: 10-3-72
 DATE: 10-3-72
 DATE: 10-3-72

ORION
 EQUIPMENT CORPORATION
 MATHUEN, MASSACHUSETTS

TITLE: MODULE ECO HISTORY
 SIZE: B CODE: MH NUMBER: M7254-0-6 REV: D

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NOTES:
 DIGITAL EQUIPMENT CORPORATION
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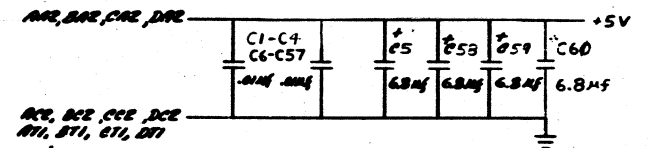
* IF NECESSARY USE IC DEC 8875 P/N 1910647
 ** IC DEC 384 P/N 1909486 OR 5384 P/N 1910394 MAY BE SUBSTITUTED FOR 7384 IN E26. E1 MUST BE A 7384

PIN NOMENCLATURE
 MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	Q1	TRANSISTOR DEC 6534B	1503409-01	50
1	E8	IC SOCKET	1209838	49
7	W1-W7	INSULATED WIRE L-2007-1	9009185	18
1	E39	I.C. DEC 74175	1909050	17
2	E23, E41	I.C. DEC 74175	1910651	16
1	E45	I.C. DEC 8815	1909713	15
1	E4	I.C. DEC 74153	1909063	14
2	E17, E52	I.C. DEC 74153	1909062	13
1	E38	I.C. DEC 7408	1910155	12
1	E48	I.C. DEC 74111	1909267	11
5	E21, E27, E28, E29, E40	I.C. DEC 74183	1910018	10
4	E12, E19, E24, E56	I.C. DEC 74161	1910650	9
1	E57	I.C. DEC 74178	1909667	8
3	E1, E7, E37	I.C. DEC 7474	1903597	37
1	E53	I.C. DEC 74152	1909061	35
2	E15, E22	I.C. DEC 7437	1910091	34
2	E1, E26	I.C. DEC 7384	1909593	33
1	E30	I.C. DEC 8881	1909705	32
3	E2, E3, E10	I.C. DEC 74123	1910436	31
3	E7, E42, E44	I.C. DEC 4015	1910087	30
2	E31, E32	I.C. DEC 7420	1905577	29
1	E16	I.C. DEC 7410	1905876	28
3	E18, E34, E49	I.C. DEC 7400	1903325	27
2	E46, E50	I.C. DEC 7402	1909004	26
8	E3, E4, E5, E6, E11, E13, E14, E15, E16, E17, E18, E19, E20, E21, E22, E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36, E37, E38, E39, E40, E41, E42, E43, E44, E45, E46, E47, E48, E49, E50, E51, E52, E53, E54, E55, E56, E57, E58, E59, E60	I.C. DEC 74153	1909937	15
1	E11	I.C. DEC 7456	1910363	24
1	E25	I.C. DEC 7427	1910878	23
2	E51, E33	I.C. DEC 7409	1909686	22
1	E43	I.C. DEC 7442	1910046	21
3	R10, R12, R14	RES. 750 Ω 1/4 W 5%	1901401	20
3	R9, R11, R13	RES. 330 Ω 1/4 W 5%	1902295	19
3	R3, R15, R16	RES. 1K 1/4 W 5%	1903665	18
1	R1	RES. 47K 1/4 W 5%	1902177	17
1	R2	RES. 3K 1/4 W 5%	1900832	16
4	R4, R6, R7, R8	RES. 10K 1/4 W 5%	1900979	15
1	R17	RES. 470 Ω 1/4 W 5%	1900316	14
1	D1	DIODE IN748A 3.9V	1100122	13
2	C62, C63	CAP. 47PF 100V 5% D.M.	1000011	12
1	C65	CAP. 220PF 100V 5% D.M.	1001631	11
1	C64	CAP. 56PF 100V 5% D.M.	1000012	10
1	C66	CAP. 120PF 100V 5% D.M.	1000018	9
26	C1-C4, C6-C57	CAP. 0.01 100V 20% AXIAL	1001610	8
4	C5, C58, C59, C60	CAP. 6.8MF 35V, 10% TANT	1003906	7
8		SOCKET (5-4-7) STANDARD	900622	6
4		HANDLE (FIP-COND) MAGENTA	9000007-05	5
1		ETCHED CIRCUIT BOARD	5009985	4
2		ANDROID 600 METER	94004724-06	3
2		CONDUCTIVE GELE COATING	D-4145359-0-5	2
2		X-Y COORDINATE BOLT LOCATION	M-CO-M7254-0-1	1

IC TYPE	GND	+5V
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 7384	1	8
I.C. DEC 4015	8	16
I.C. DEC 7496	12	5
I.C. DEC 74198	8	16
I.C. DEC 74183	8	16
I.C. DEC 74123	8	16
I.C. DEC 7425	12	5
I.C. DEC 7442	8	16

IC PIN LOCATIONS



FIRST USED ON OPTION MODEL: RK11-D

ETCH BOARD REV: E

DATE: 1-5-73

DESIGNED BY: [Signature]

DATE: 1-5-73

ENGINEER: [Signature]

DATE: 1-5-73

PROJ. NO.: 1000011

DATE: 1-5-73

SCALE: NONE

SHEET: 2 OF 2

SEMICONDUCTOR CONVERSION CHART

DEC NO. EIA NO. DEC NO. EIA NO.

DEC 6534B NONE

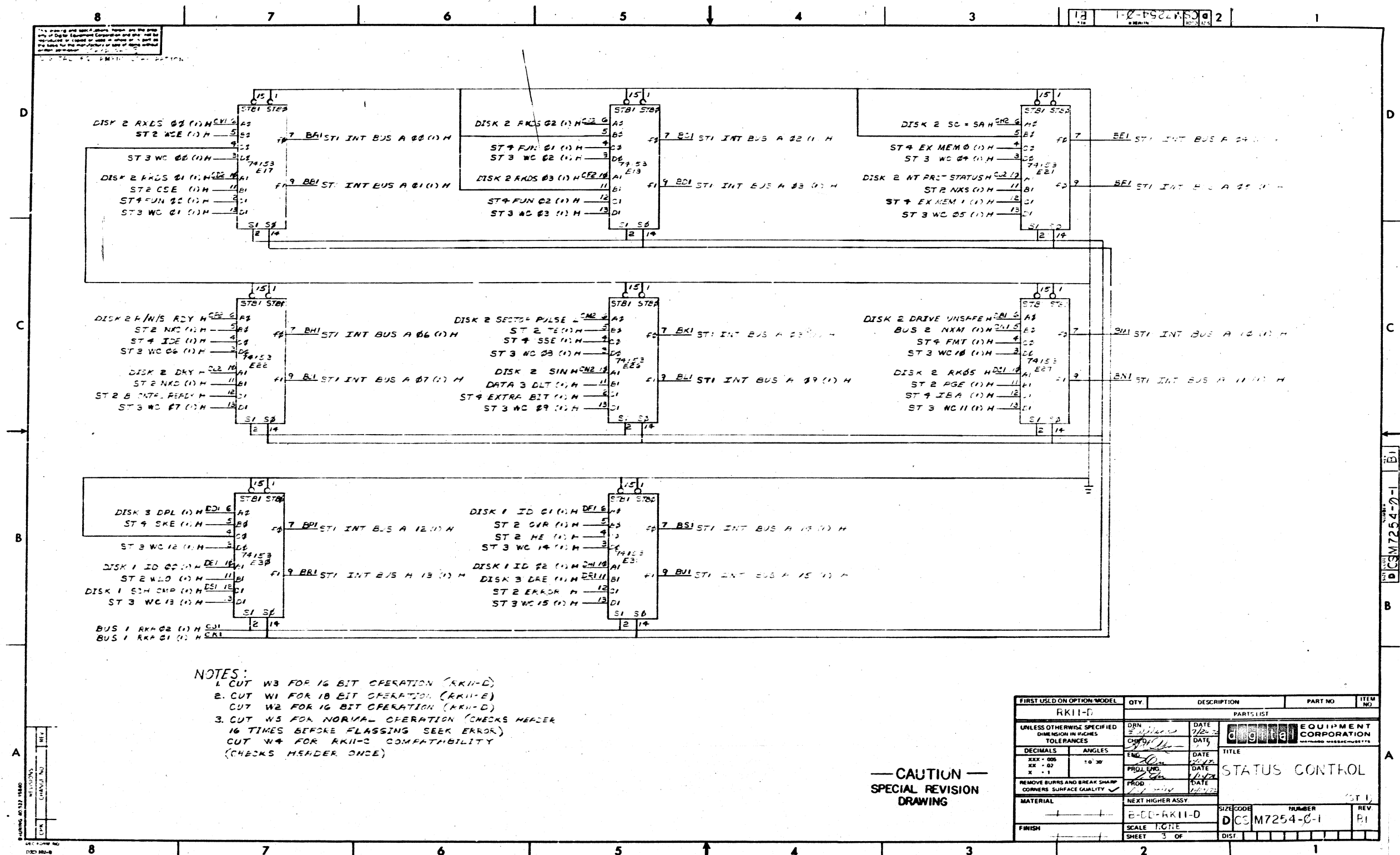
IN748A IN748A

B-DD-RK11-D

STATUS CONTROL RK11-D

DCS M7254-0-1

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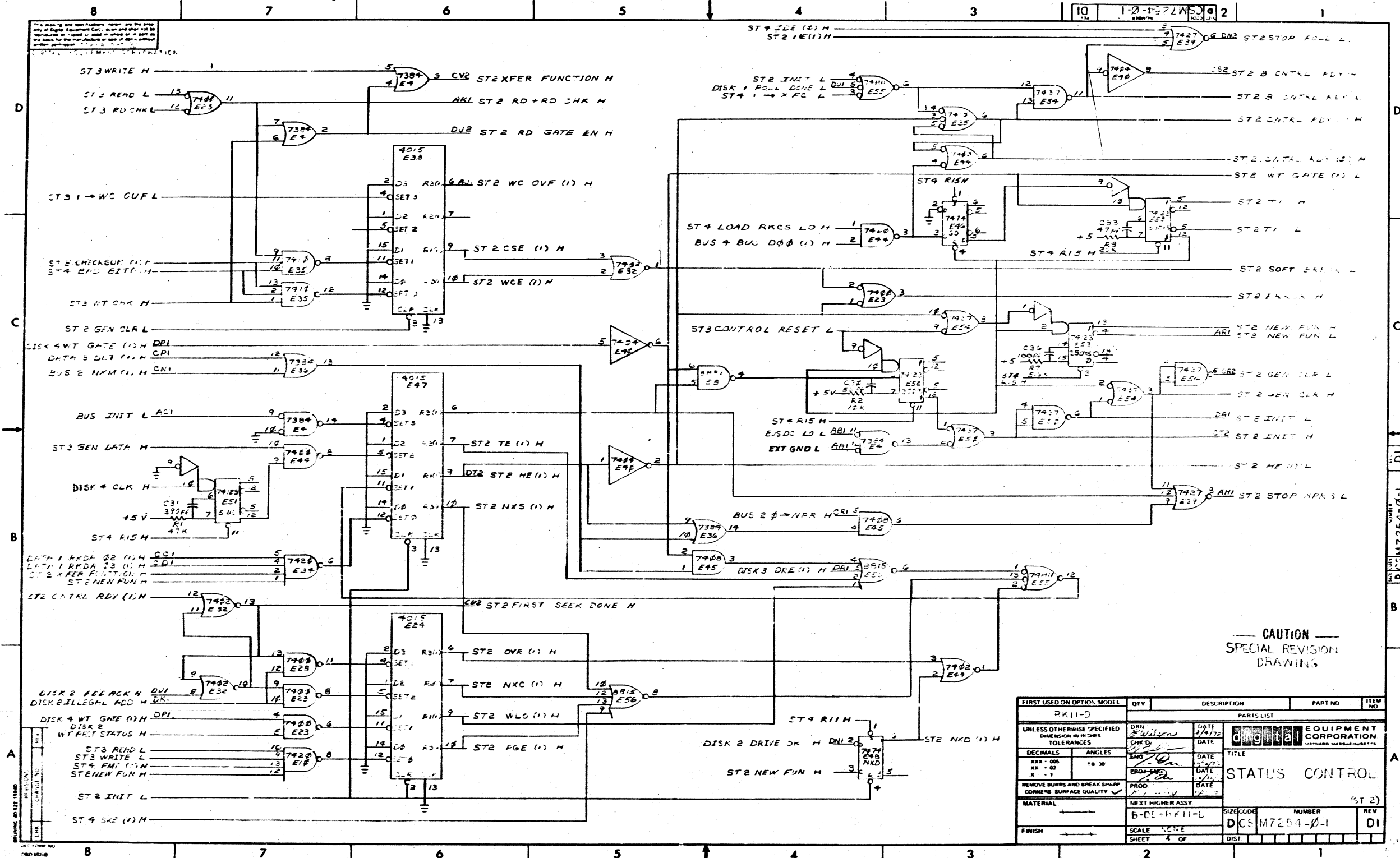


NOTES:
 1. CUT W3 FOR 16 BIT OPERATION (RKII-D)
 2. CUT W1 FOR 18 BIT OPERATION (RKII-E)
 CUT W2 FOR 16 BIT OPERATION (RKII-D)
 3. CUT W5 FOR NORMAL OPERATION (CHECKS HEADER
 16 TIMES BEFORE FLASSING SEEK ERROR)
 CUT W4 FOR RKII-C COMPATIBILITY
 (CHECKS HEADER ONCE)

— CAUTION —
 SPECIAL REVISION
 DRAWING

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RKII-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	PARTS LIST	
XXX - 008	10 30	DATE	digital EQUIPMENT CORPORATION	
X - 1		DATE	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	STATUS CONTROL	
MATERIAL	NEXT HIGHER ASSY	DATE	SIZE CODE	NUMBER
FINISH	E-00-RKII-D	DATE	DCS	M7254-0-1
	SCALE 1:07E	DATE		REV
	SHEET 3 OF	DATE		B1

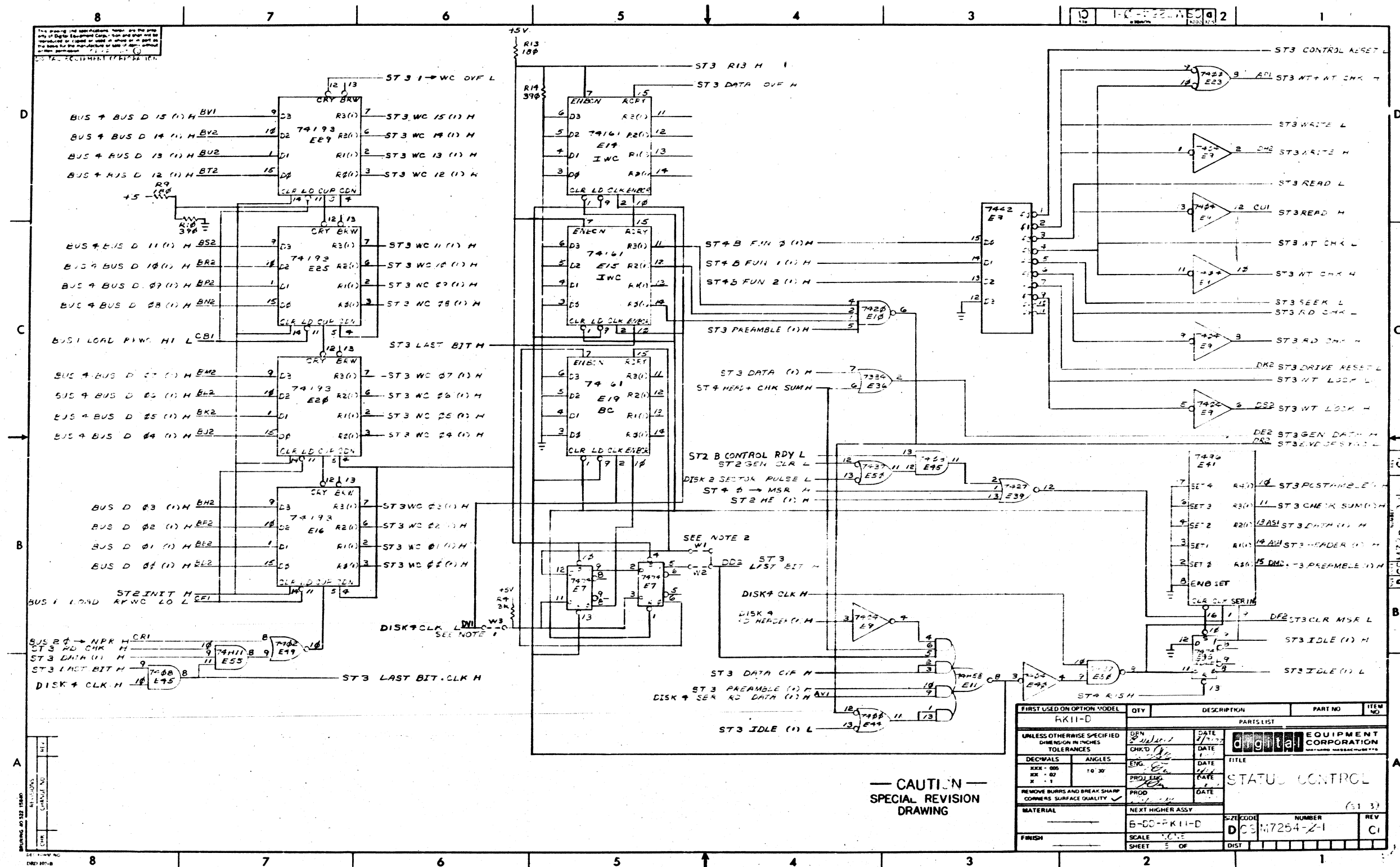
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CAUTION
SPECIAL REVISION
DRAWINGS

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
PK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES				
DECIMALS	ANGLES	TITLE		
XXX - 005	10 30	STATUS CONTROL (ST 2)		
XX - 00		DATE		
X - 1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY				
FINISH				
B-DE-PK11-D		SIZE CODE	NUMBER	REV
SCALE 1:1		DIST	DCSM7254-0-1	DI
SHEET 4 OF				

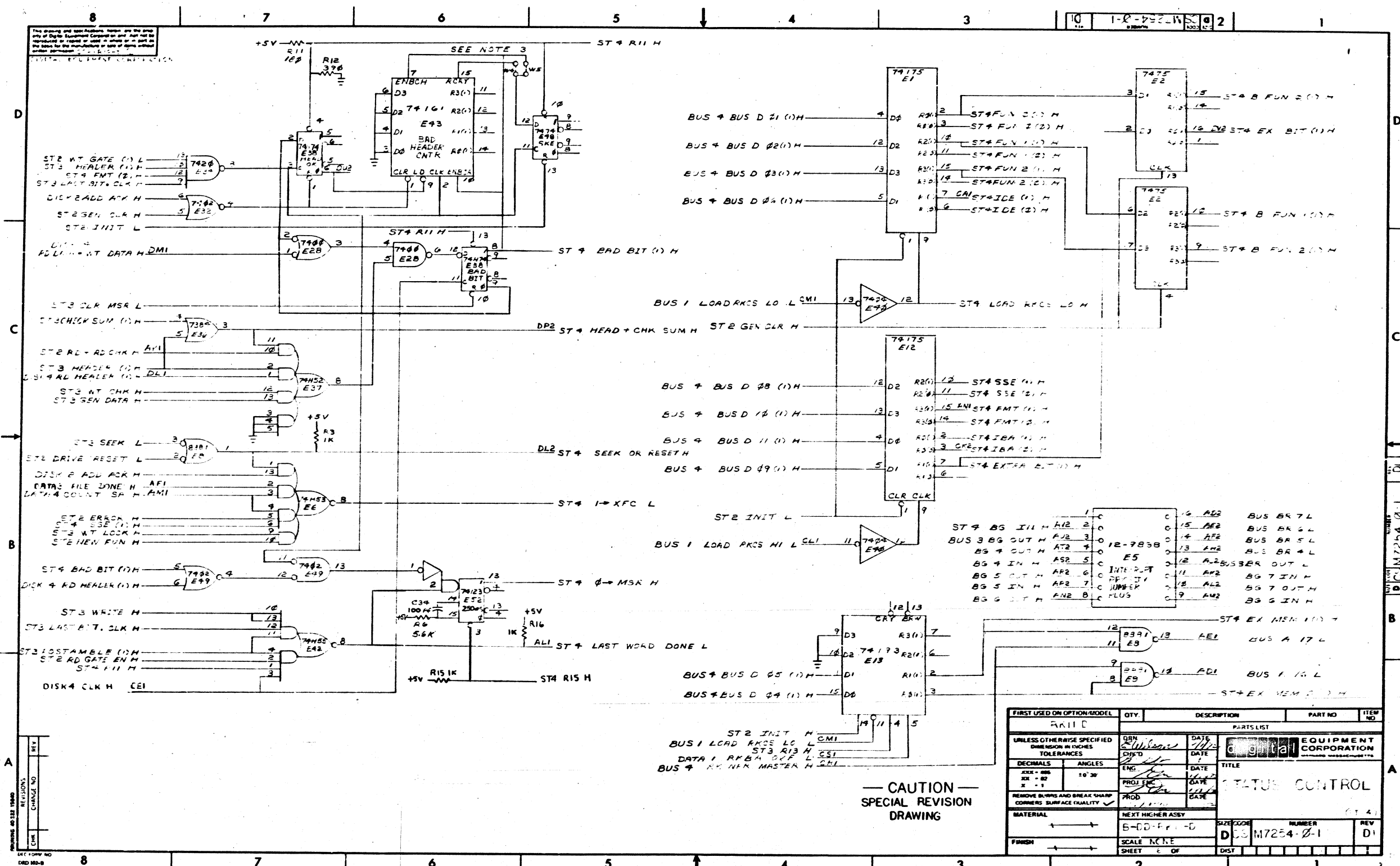
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FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
AK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DATE	DATE	DIGITAL CORPORATION	
DECIMALS	1/16	1/32	EQUIPMENT	
ANGLES	1/16	1/32	CORPORATION	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE	DATE	TITLE	
MATERIAL	DATE	DATE	STATUS CONTROL	
NEXT HIGHER ASSY	DATE	DATE	REV (31 3)	
FINISH	DATE	DATE	REV	
B-DD-PK11-D	SCALE	SCALE	REV	
SHEET 5 OF	DIST	DIST	REV	

CAUTION
SPECIAL REVISION
DRAWING

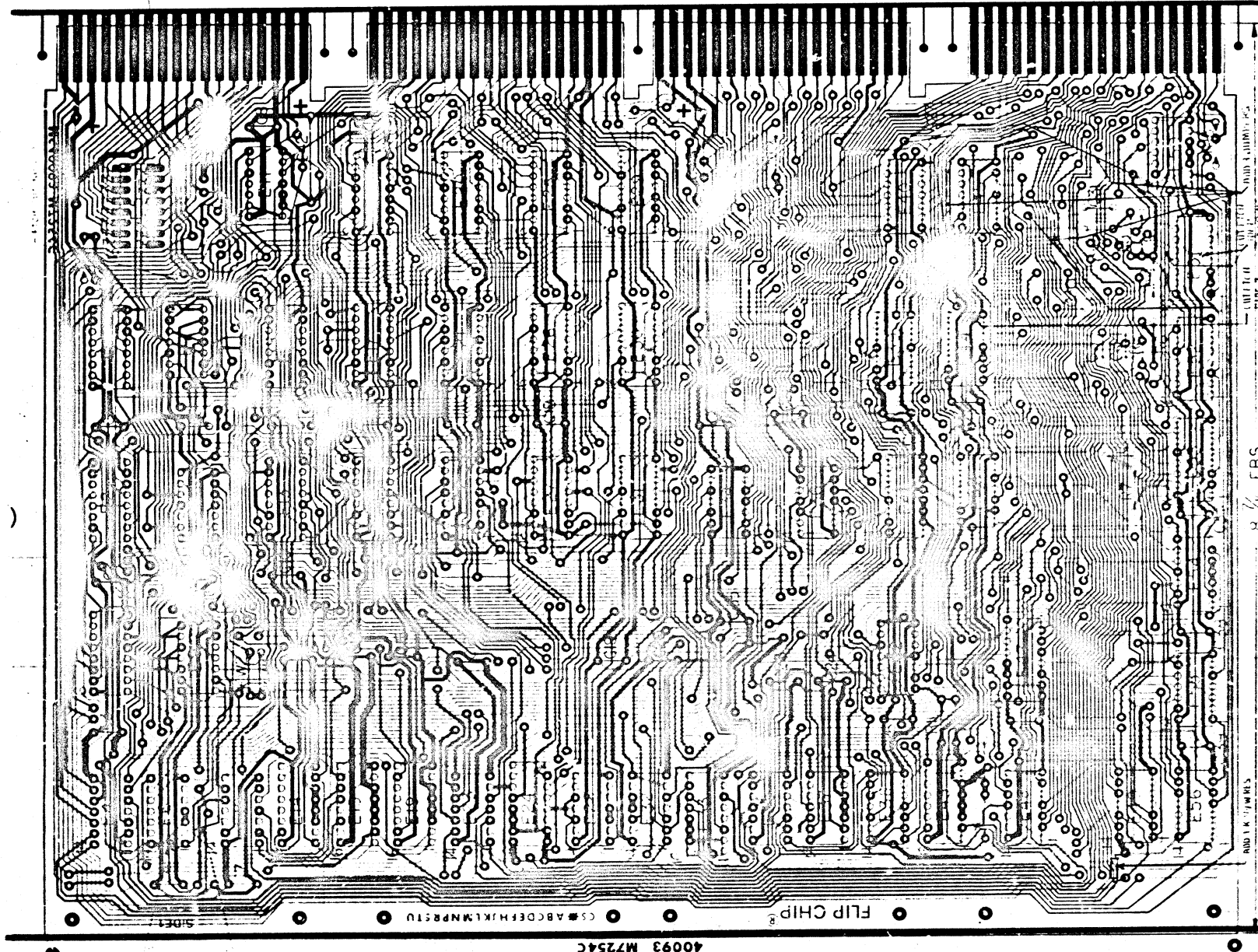
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RA11C				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	QBN	DATE	EQUIPMENT CORPORATION	
DECIMALS	DJKT	DATE	TITLE	
ANGLES	ENG	DATE	STATUS CONTROL	
XXX - 000	PROJ ENG	DATE	SIZE CODE	
XXX - 00	PROD	DATE	NUMBER	
XXX - 0			REV	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY			D 33 M7254-0-1	
MATERIAL	NEXT HIGHER ASSY		D 1	
FINISH	B-DD-FR-10		SCALE NONE	
	SHEET 5 OF		DST	

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CAUTION
SPECIAL REVISION
DRAWING



BOARD FABRICATION INFORMATION
 BOARD SIZE 9.500 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL 2 SIDE NOTCH BEFORE GOLD PLATING NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA				CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE	FOR NON-PTH BOARDS	YES	NO		
NONE	1/16 DRILL (0.465 DIA)	X					
Z	#2 DRILL (0.33)	X					16

DATE	DATE	DATE	DATE	DATE
TRAD	TRAD	TRAD	TRAD	TRAD
DESIGNER	DESIGNER	DESIGNER	DESIGNER	DESIGNER
DRAFTSMAN	DRAFTSMAN	DRAFTSMAN	DRAFTSMAN	DRAFTSMAN
CHECKER	CHECKER	CHECKER	CHECKER	CHECKER
FIRST USED ON M7254				
SCALE 2:1				
SHEET 271 OF 271				
REV M7254-0-5				
DI				

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD
DRAFTSMAN	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD
CHECKER	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD

TITLE RK11-D STATUS CONTROL PROD. NO. M7254
 CHARGE NO. E11-66734 DATE 5-11-72 C.S. REV DI
 ETCH REV C
 ENGINEER TOM ORR EXTENSION 2791 MS NO. 40093

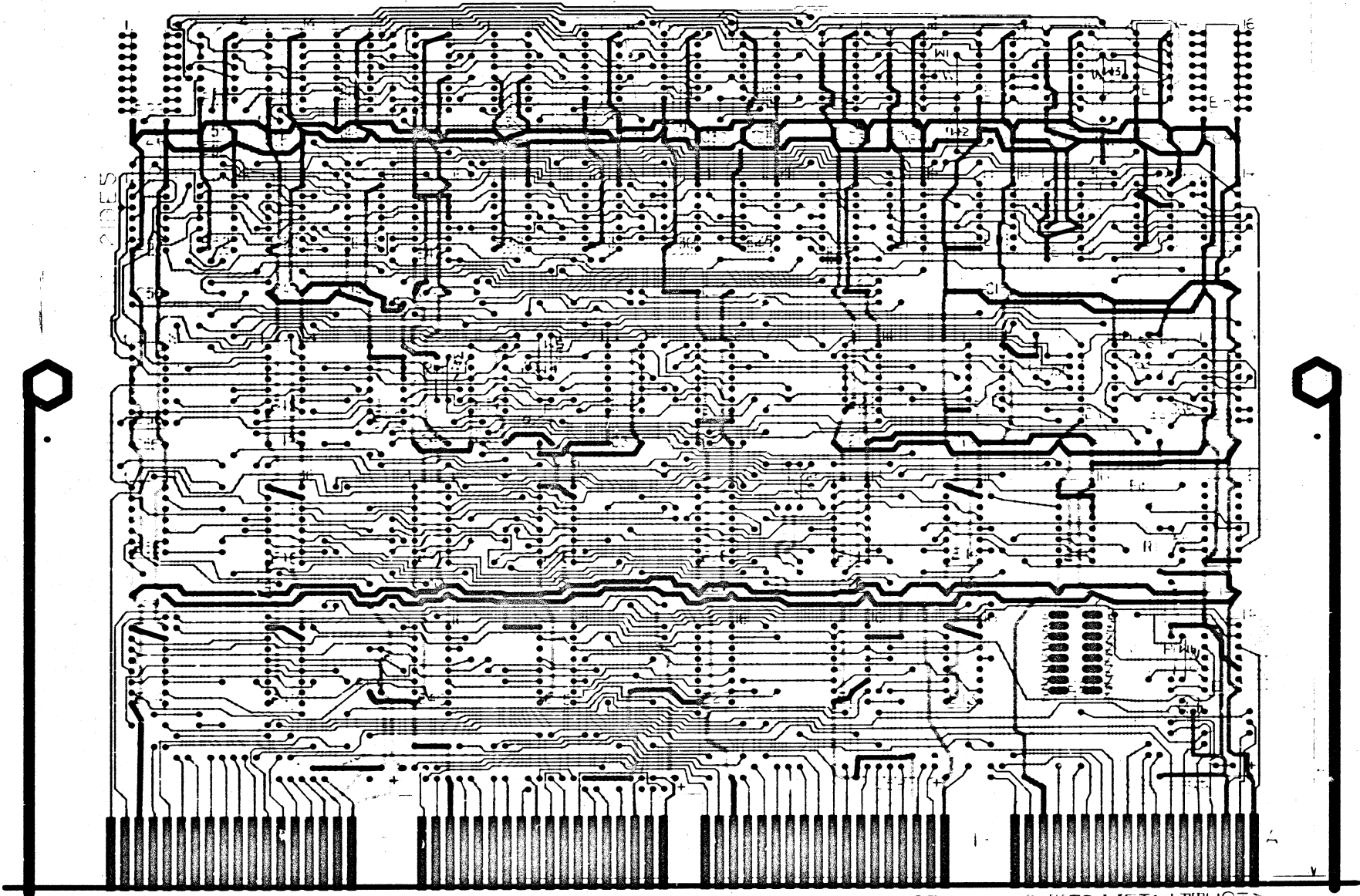
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MS 40043 11/234 EP2

CSXABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP ®



NOTES:

DRILLING DATA				
HOLE LETTER FOR PTH BOARDS	DRILL SIZES		CAN TAKE BRIPLETS	QTY OF HOLES
	BEFORE PLATE	AFTER PLATE		
NONE				

BOARD FABRICATION INFORMATION

BOARD SIZE: 10.000 x 11.750
 BOARD MATERIAL: FR-4
 EYELET PLATED THRU
 SMD MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DRW	DATE	 EQUIPMENT CORPORATION <small>WALTHAM, MASSACHUSETTS</small>
CHWD	DATE	
ENR	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	
FIRST USED ON		TITLE I/O CONTROL
SCALE	D/AH	SIZE CODE: 17254-5 NUMBER: 5 REV: F
ETCH REV	E-2	MS 40043

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M1254-00004

NOT TO BE USED FOR PRODUCTION

**THIS DRAWING IS PART
OF E.G.O. PACKAGE #**

M 7254-00005

**NOT TO BE USED
FOR PRODUCTION**

PAGE REVISION CONTROL SHEET		REMARKS
1	B	(ST 1) (ST 2) (ST 3) (ST 4) ETCH REV'D NOT TO BE USED
2	C	
3	B	
4	B	
5	B	
6	B	
7	D	
8	D	
9	D	
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11	D	
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E 9-0-7522 W HW B
REV. NUMBER SIZE CODE

PRODUCT LINE PDP 11 MODULE ECO HISTORY
 DATE RELEASED 9-25-72 PAGE 1 OF 1
 RELEASED BY T. ORR RELEASED CS REV. B
 RELEASED ETCH BD REV. C

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-17-72	C	C	✓			✓			USE FILE DONE INSTEAD OF WORD COUNT OVER FLOW.	1	0
00002	R. LEWIS	1-29-73	D	C	✓			✓			INCREASE LENGTH OF NEW FUN + 0 → MSR ONE SHOTS. ACC. PULL-UP RES. T. LAST WORD DONE. STANDARDIZE CLK. PULSES.	3	2
00003	R. LEWIS	5-22-73	E	E		✓		✓			NEW ETCH LAYOUT.	0	0
00004	R. LEWIS	9-14-73	F	E		✓		✓			DOCUMENTATION UPDATE	0	0
00005	R. LEWIS	5-10-74	H	E		✓		✓			CLR IDLE F/E WITH PREAMBLE	0	0

REVISIONS: CS 00001 A, CS 00002 B, CS 00003 C, CS 00004 D, CS 00005 E

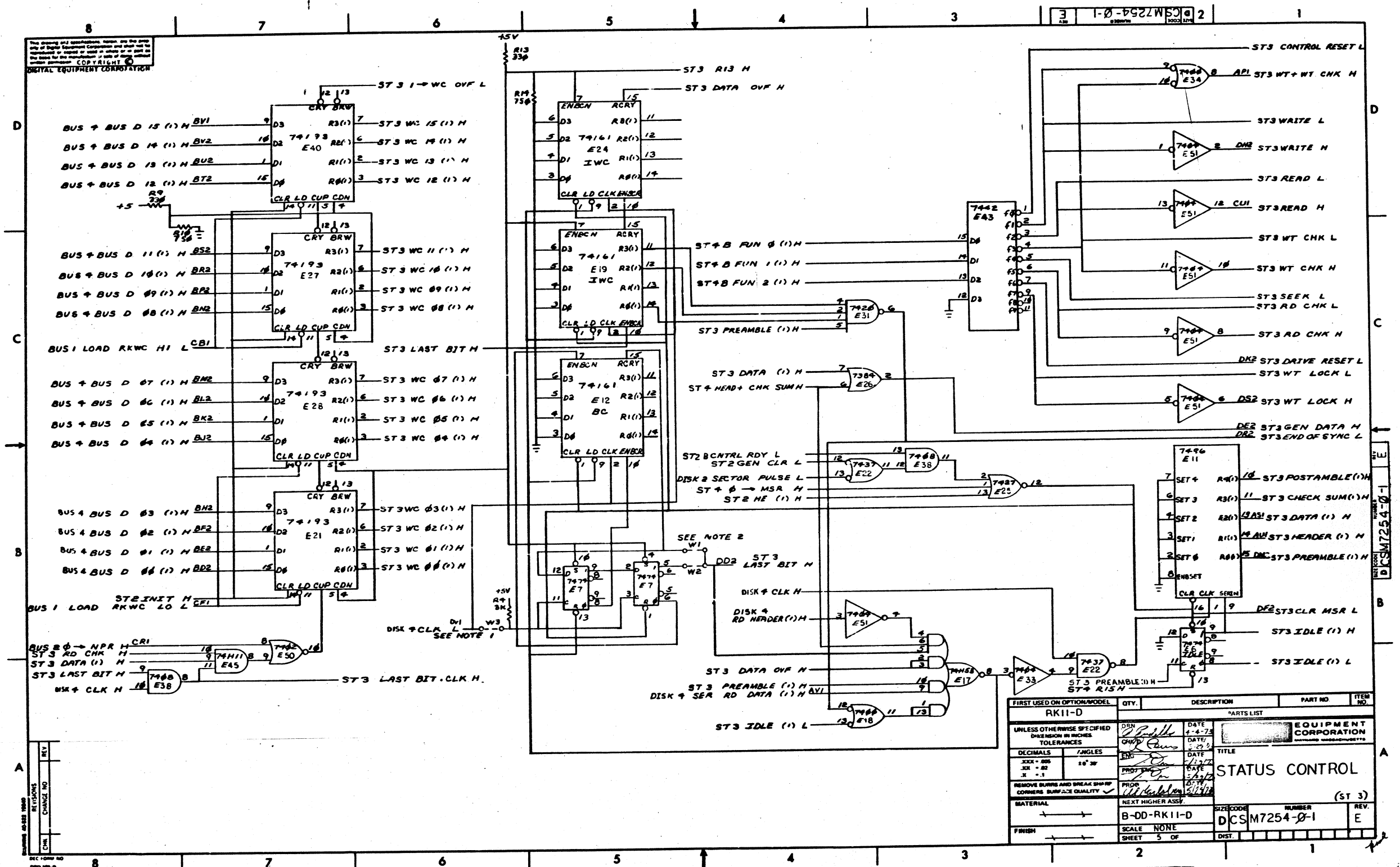
DATE: 10-3-72, 10-3-72, 11-2-72, 11-2-72
 PROD. DATE: 11-2-72

EQUIPMENT CORPORATION, MARYLAND, MASSACHUSETTS

TITLE: MODULE ECO HISTORY
 SIZE: B, CODE: M, NUMBER: M7254-0-6, REV: E

DEC 14 1972
 DRB 104

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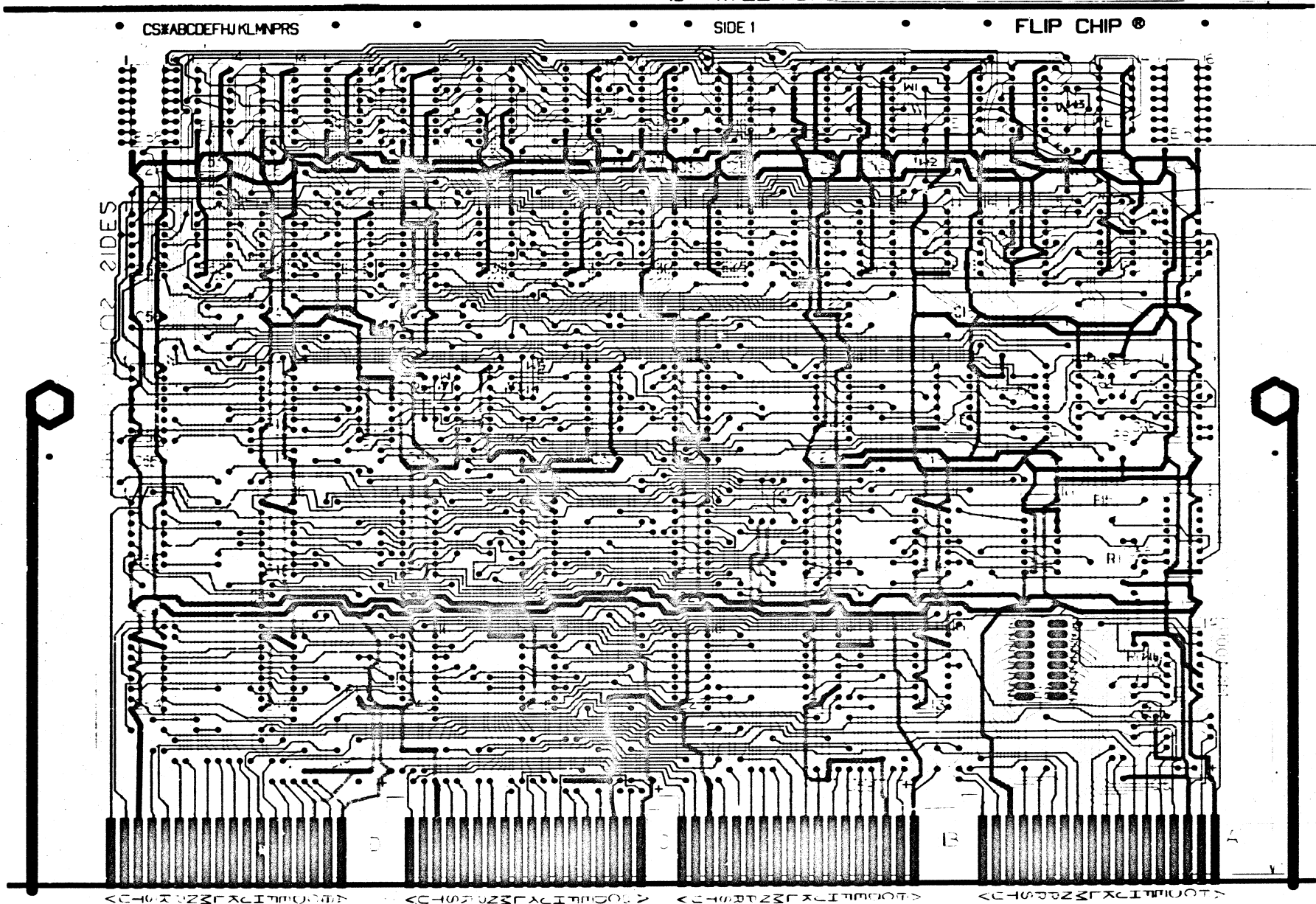
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REV	NO.	DATE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES				
DECIMALS	FRACTIONS	DATE		
.XX - .005	1/16"	DATE	EQUIPMENT CORPORATION	
.XX - .01	1/32"	DATE	TITLE	
.XX - .015	3/64"	DATE	STATUS CONTROL	
.XX - .02	1/16"	DATE	(ST 3)	
.XX - .03	3/32"	DATE	REV	
.XX - .04	1/8"	DATE	E	
.XX - .05	5/16"	DATE	SIZE CODE	
.XX - .06	3/8"	DATE	B-DD-RK11-D	
.XX - .07	7/16"	DATE	NUMBER	
.XX - .08	1/2"	DATE	DCSM7254-0-1	
.XX - .09	9/16"	DATE	REV	
.XX - .10	5/8"	DATE	E	
.XX - .125	3/4"	DATE	SCALE	
.XX - .15	7/8"	DATE	NONE	
.XX - .2	1"	DATE	SHEET	
.XX - .25	1 1/8"	DATE	5 OF	
.XX - .3	1 1/4"	DATE	DIST.	
.XX - .375	1 3/8"	DATE		
.XX - .45	1 7/8"	DATE		
.XX - .5	2"	DATE		
.XX - .6	2 1/4"	DATE		
.XX - .75	3"	DATE		
.XX - .9	3 3/4"	DATE		
.XX - 1.0	4"	DATE		
.XX - 1.25	5"	DATE		
.XX - 1.5	6"	DATE		
.XX - 1.75	7"	DATE		
.XX - 2.0	8"	DATE		
.XX - 2.25	9"	DATE		
.XX - 2.5	10"	DATE		
.XX - 3.0	12"	DATE		
.XX - 3.5	14"	DATE		
.XX - 4.0	16"	DATE		
.XX - 4.5	18"	DATE		
.XX - 5.0	20"	DATE		
.XX - 5.5	22"	DATE		
.XX - 6.0	24"	DATE		
.XX - 6.5	26"	DATE		
.XX - 7.0	28"	DATE		
.XX - 7.5	30"	DATE		
.XX - 8.0	32"	DATE		
.XX - 8.5	34"	DATE		
.XX - 9.0	36"	DATE		
.XX - 9.5	38"	DATE		
.XX - 10.0	40"	DATE		

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MS 40043 11/234 EPC



CS#ABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP

ADD JUMPER

CUT ETCH SIDE ONE

2 SIDES

NOTES:

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE/ AFTER PLATE	YES	NO	
NONE	6/32 (1.6)	X		X	15
	3/32 (0.9)				

BOARD FABRICATION INFORMATION

BOARD SIZE 8.502 x 11.750
 END-7405-10
 BOARD MATERIAL 1/16" THK
 102% COPPER 2 SIDES
 EYELET PLATED THRU
 2 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DRN	DATE	digital EQUIPMENT CORPORATION
CHK'D	DATE	
ENG	DATE	TITLE
PROJ. ENG.	DATE	STAT. CONTROL
PROD.	DATE	
FIRST USED ON		
SCALE	SIZE CODE	NUMBER
ETCH REV	D AH	17254-5
		REV
		M
		MS 40043

THIS DRAWING IS PART OF E.Q.O. PACKAGE # *M 7254-00005* **NOT TO BE USED FOR PRODUCTION**

digital ENGINEERING CHANGE ORDER <i>78303</i>		ORIGINATOR Dick Lewis (1-3) TEL EXT 4620 DATE 6/27/74 DISC PROJ NO. E-20-06734 COST CENTER NO. 395		ECO NO. <i>M7254-0006</i> SHEET <i>1</i> OF <i>1</i> DATE RECEIVED <i>7/1/74</i> FIRST ISSUE FINAL ISSUE <i>N/A</i>				
PROBLEM The M7254 is built with all jumpers installed. However, to be tested the module must be configured for the RK11-D which requires cutting out several of the jumpers.				UNIT TO BE CHANGED M7254 Status Control DESP CODE 02				
CORRECTION Correct documentation to allow boards to be built with only the necessary jumpers installed. (W1, W4, W6, W7)				OPTIONS AFFECTED RK11-D,E				
BREAK-IN/EFFECTIVITY Phase-in to module build areas by 8/1/74. (Etch rev E only affected)				PRODUCT LINES AFFECTED PDP 11 PDP 15				
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED	FIELD SERVICE AFFECTED	TYPE OF CHANGE
1	<i>B</i> D-CS-M7254-0-1 Sheet 1 Sheet 2 Sheet 5 Sheet 6	I F	J H	06 06	Update revisions per this ECO correct parts list (Item #48) to call out 4 jumpers (W1, W4, W6, W7). On overlay show jumpers W2, W3, and W5 as broken lines.	<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Change <input type="checkbox"/> Product Line Change	<input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE
2	D-AH-M7254-0-5	H	J	06	Show jumpers W2, W3, W5, as broken lines.			
3	B-MH-M7254-0-6	E	F	06	Update per this ECO			
4	2009185	-	-	00	Delete three jumpers			
11 CENTRAL ENG. ECO COMMITTEE				JUN 28 1974		ORDER FOR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
DISPOSITION CODES					APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - RETIRE IMMEDIATELY (REWORK) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY					Typewritten Design Engr. <i>Dick Lewis</i> Eng MGR (OPT) Field Service (OPT) Chief Engr (MODULES ONLY)			

B SIZE CODE NUMBER
MH M7254-0-6 F

MODULE ECO HISTORY

PRODUCT LINE PDP 11 RELEASED CS REV B
 DATE RELEASED 9-25-72 PAGE 1 OF 1 RELEASED ETCH BD REV C
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-17-72	C	C	✓			✓			USE FILE DONE INSTEAD OF WORD COUNT OVER FLOW.	1	0
00002	R. LEWIS	1-29-73	D	C	✓			✓			INCREASE LENGTH OF NEW FUN + 0 → MSR ONE SHOTS. ADD PULL-UP RES. TO LAST WORD DONE. STANDARDIZE CLK. PULSES.	3	2
00003	R. LEWIS	5-22-73	E	E NOTE: D REV DOES NOT EXIST.		✓		✓			NEW ETCH LAYOUT.	0	0
00004	R. LEWIS	9-14-73	F	E		✓		✓			DOCUMENTATION UPDATE	0	0
00005	R. LEWIS	5-10-74	H	E		✓		✓			CLR IDLE F/F WITH PREAMBLE	0	0
00006	R. LEWIS	6-28-74	J	E		✓		✓			DELETE OPTIONAL JUMPERS	0	3

REVISIONS

CHG NO	REV
00001	A
00002	B
00003	C
00004	D
00005	E
00006	F

DRN	DATE	DRN	DATE
10-5-72	10-5-72		
10-5-72	10-5-72		
10-5-72	10-5-72		
10-5-72	10-5-72		

TITLE: MODULE ECO HISTORY

SIZE CODE NUMBER: B MH M7254-0-6

REV: F

EQUIPMENT CORPORATION

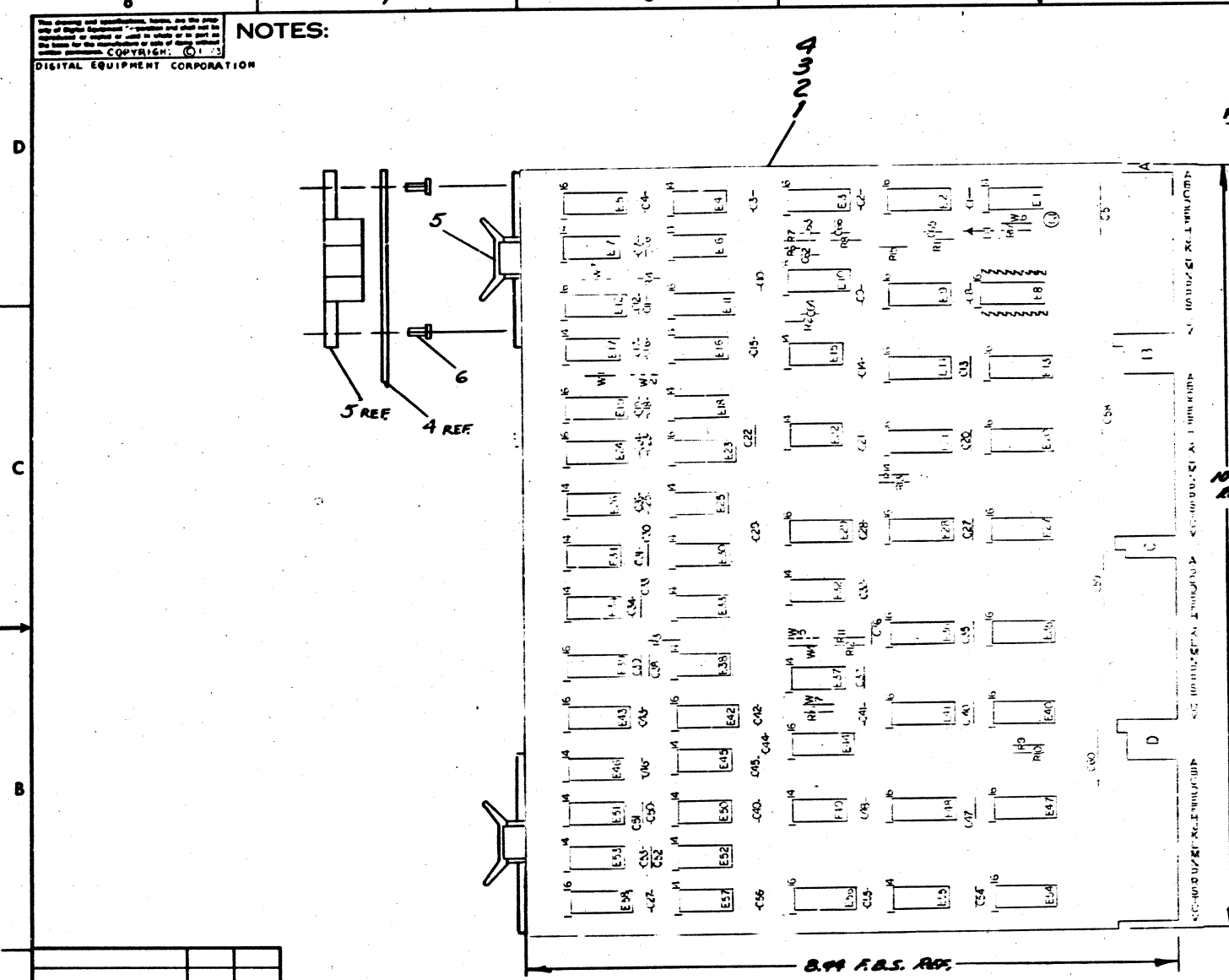
WATUWAT, MASSACHUSETTS

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PAGE REVISION CONTROL SHEET		REMARKS	
PAGE REVISIONS		(ST 1) (ST 2) (ST 3) (ST 4) ETCH REV. "D" NOT TO BE USED.	
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NOTES:
 DIGITAL EQUIPMENT CORPORATION

* IF NECESSARY USE I.C. DEC 8875 P/N 1910647
 ** IC DEC 384 P/N 1909486 OR 5384 P/N 1910394 MAY BE SUBSTITUTED FOR 7384 IN E26. E1 MUST BE A 7384

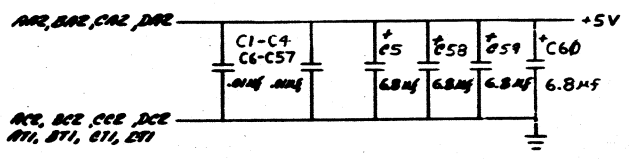


PIN NOMENCLATURE
 MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E1	TRANSISTOR DEC 6534B	1503409-01	50
1	E8	IC SOCKET	1209838	49
4	W1, W4, W6, W7	INSULATED WIRE 1-2007-1	5009185	48
1	E39	I.C. DEC 7475	1903050	47
2	E23, E41	I.C. DEC 74175	1910651	46
1	E35	I.C. DEC 8815	1907713	45
1	E9	I.C. DEC 74155	1909063	44
2	E17, E52	I.C. DEC 74153	1909062	43
1	E38	I.C. DEC 7408	1910155	42
1	E45	I.C. DEC 74111	1909267	41
5	E21, E27, E28, E29, E40	I.C. DEC 74183	1910018	40
4	E12, E19, E24, E56	I.C. DEC 74161	1910650	39
1	E57	I.C. DEC 74174	1909667	38
3	E1, E7, E37	I.C. DEC 7474	1905597	37
1	E53	I.C. DEC 74152	1909061	35
2	E15, E22	I.C. DEC 7437	1910091	34
2	E1, E26	I.C. DEC 7384	1910393	33
1	E30	I.C. DEC 8881	1909705	32
3	E2, E3, E10	I.C. DEC 74123	1910336	31
3	E7, E42, E44	I.C. DEC 4015	1910087	30
2	E31, E32	I.C. DEC 7420	1905577	29
1	E16	I.C. DEC 7410	1905576	28
3	E18, E34, E49	I.C. DEC 7400	1905525	27
2	E46, E50	I.C. DEC 7402	1909004	26
8	E3, E4, E11, E12, E13, E14, E15, E16, E17, E18, E19, E20, E21, E22, E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36, E37, E38, E39, E40, E41, E42, E43, E44, E45, E46, E47, E48, E49, E50, E51, E52, E53, E54, E55, E56, E57	I.C. DEC 74153	1909937	25
1	E11	I.C. DEC 7436	1910363	24
1	E25	I.C. DEC 7427	1910878	23
2	E51, E33	I.C. DEC 7409	1909686	22
1	E43	I.C. DEC 7442	1910096	21
3	R10, R12, R14	RES. 750 Ω 1/4 W 5%	1901401	20
3	R9, R11, R13	RES. 330 Ω 1/4 W 5%	1900245	19
3	R3, R15, R16	RES. 1K Ω 1/4 W 5%	1900365	18
1	R1	RES. 47K Ω 1/4 W 5%	1902177	17
1	R4	RES. 3K Ω 1/4 W 5%	1900432	16
4	R2, R6, R7, R8	RES. 10K Ω 1/4 W 5%	1900479	15
1	R17	RES. 470 Ω 1/4 W 5%	1900316	14
1	D1	DIODE IN748A 3.9V	1100122	13
2	C62, C63	CAP. 47PF 100V 5% D.M.	1000011	12
1	C65	CAP. 330PF 100V 5% D.M.	1001631	11
1	C64	CAP. 56PF 100V 5% D.M.	1000012	10
1	C66	CAP. 120PF 100V 5% D.M.	1000018	9
26	C1-C4, C6-C57	CAP. 0.1μF 100V 20% AXIAL	1001610	8
4	C5, C53, C59, C60	CAP. 6.3μF 35V, 10% TANT	1005306	7
8		EYELET (5-4-7) STANDARD	9006232	6
4		HANDLE (FLIP-CLAMP) MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009985	4
1		MODULE ECO INSTRUCTIONS	8-444-11224-06	3
1		RES/DRAWING HOLE LOCATOR	8-444-11224-05	2
1		X-Y COORDINATE HOLE LOCATION	8-444-11224-04	1

IC TYPE	GND	+5V
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 7384	1	8
I.C. DEC 4015	8	16
I.C. DEC 7496	12	5
I.C. DEC 74175	8	16
I.C. DEC 74183	8	16
I.C. DEC 74123	8	16
I.C. DEC 7475	12	5
I.C. DEC 7442	8	16

IC PIN LOCATIONS



FIRST USED OR OPTION MODEL: RK11-D

ETCH BOARD REV: E

DATE: 11-25-73

TITLE: STATUS CONTROL RK11-D

DESIGNER: [Signature]

DATE: 11-25-73

PROJ. ENG. [Signature]

DATE: 11-25-73

PREP. [Signature]

DATE: 11-25-73

DEC NO. N748A IN748A

EIA NO. EIA NO.

DEC NO. DEC NO.

EIA NO. EIA NO.

SCALE: NONE

SHEET: 2 OF

SEMICONDUCTOR CONVERSION CHART

REVISIONS:

INITIATED: [Signature]

CHANGE NO. []

REV. []

DATE []

DESCRIPTION []

APPROVED: [Signature]

DATE []

DESCRIPTION []

APPROVED: [Signature]

DATE []

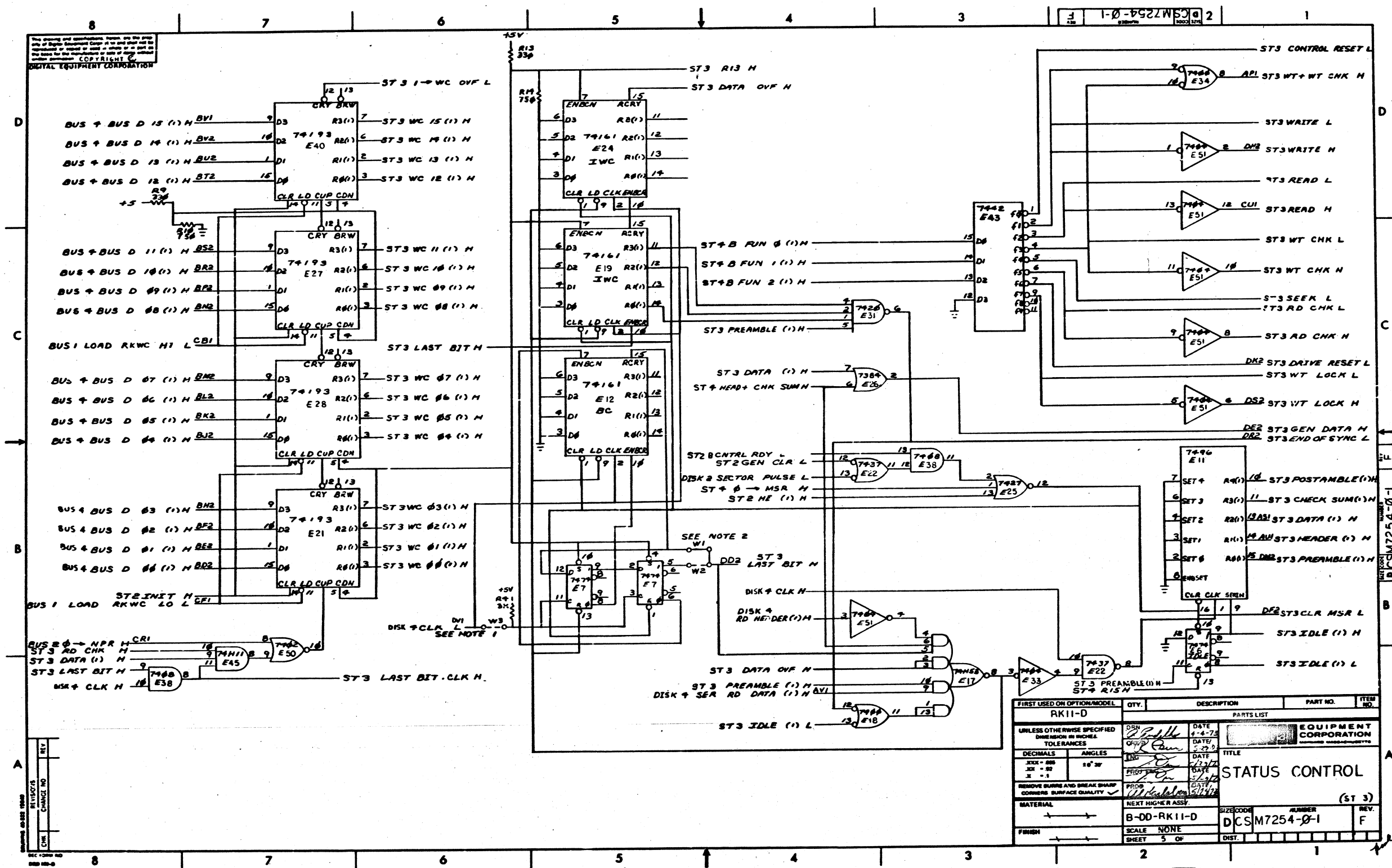
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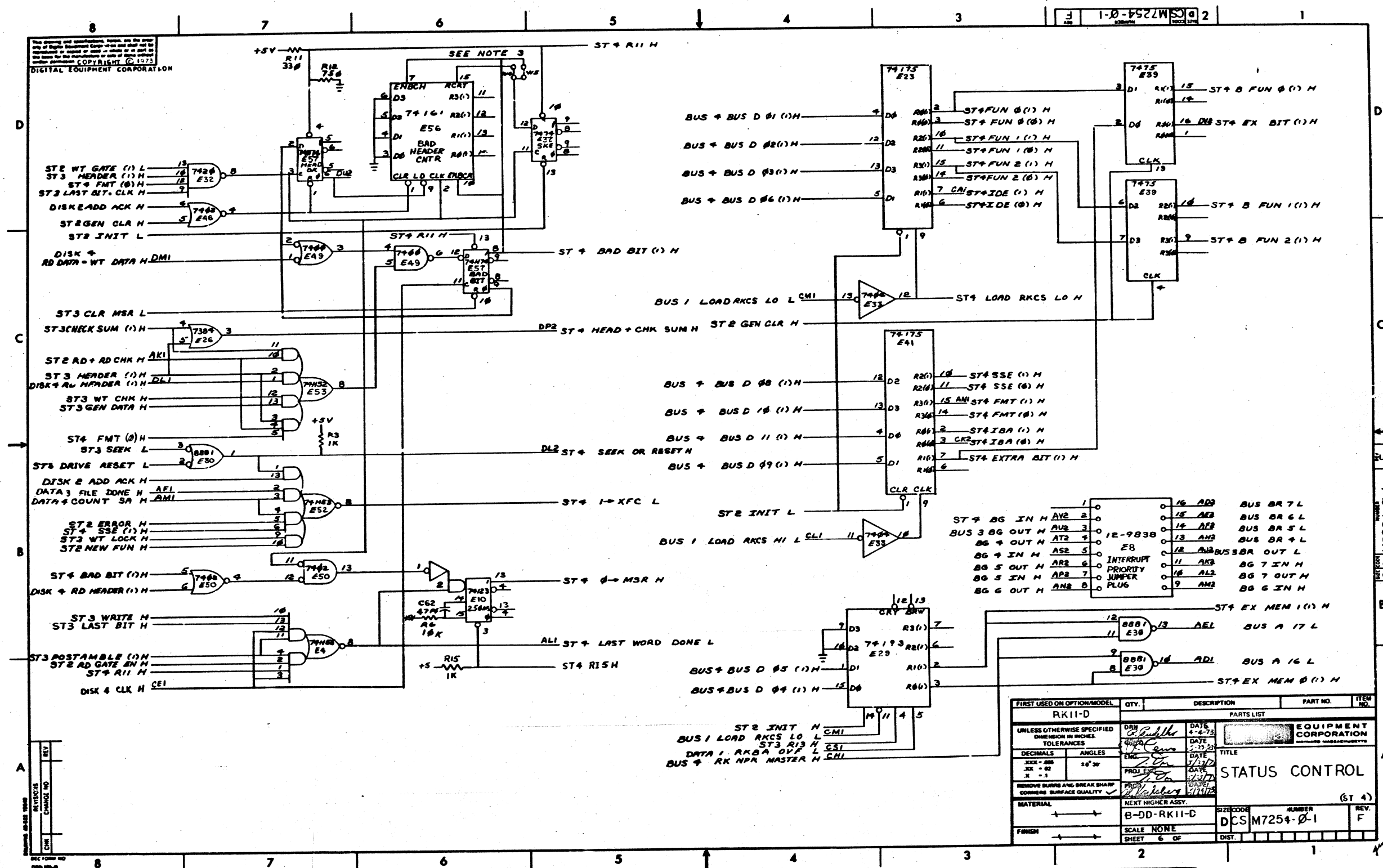
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DESCRIPTION []

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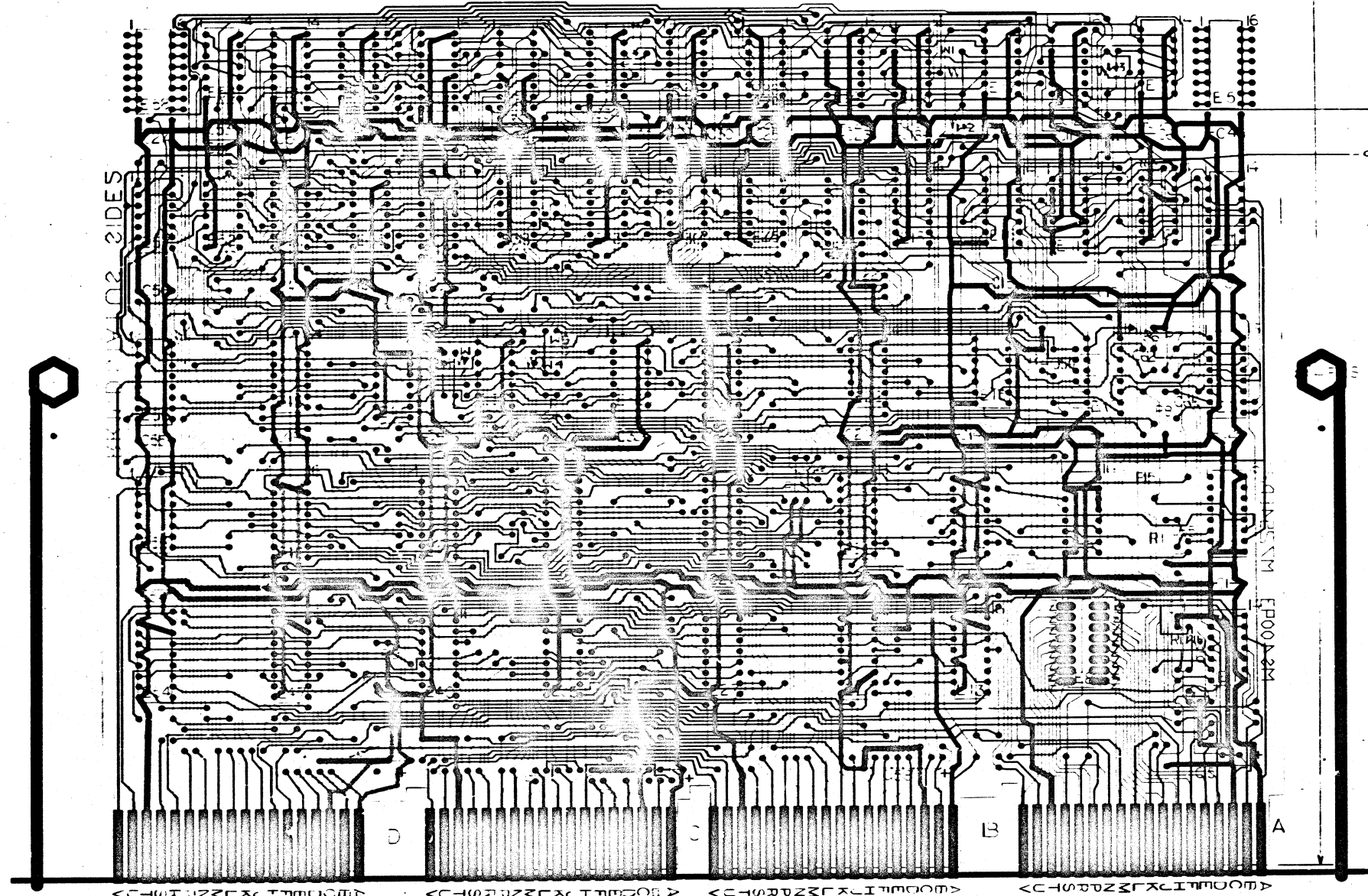
FIRST USED OR OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED				
DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE		
.0005	10° 30'	4-2-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE		
		5-15-73		
MATERIAL		TITLE		
NEXT HIGHER ASSY.		STATUS CONTROL		
FINISH		(ST 4)		
SCALE NONE		SIZE CODE	NUMBER	REV.
SHEET 6 OF		B-DD-RK11-D	DCSM7254-0-1	F

MS 40093 1/234 E2

CSXABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP



ADD JUMPER

CUT ETCH SIDE ONE

2 SIDES

NOTES:

HOLE LETTER	DRILLING DATA		FOR NON-PTH BOARDS	CAN TAKE DRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE/AFTER PLATE		YES	NO	
NONE	61 (39.1A)	X			X	15
		7				


BOARD FABRICATION INFORMATION

BOARD SIZE 8.562 x 11.750
 MID-705413
 BOARD MATERIAL 2353 THK
 LOZ. COPPER 2 SIDES

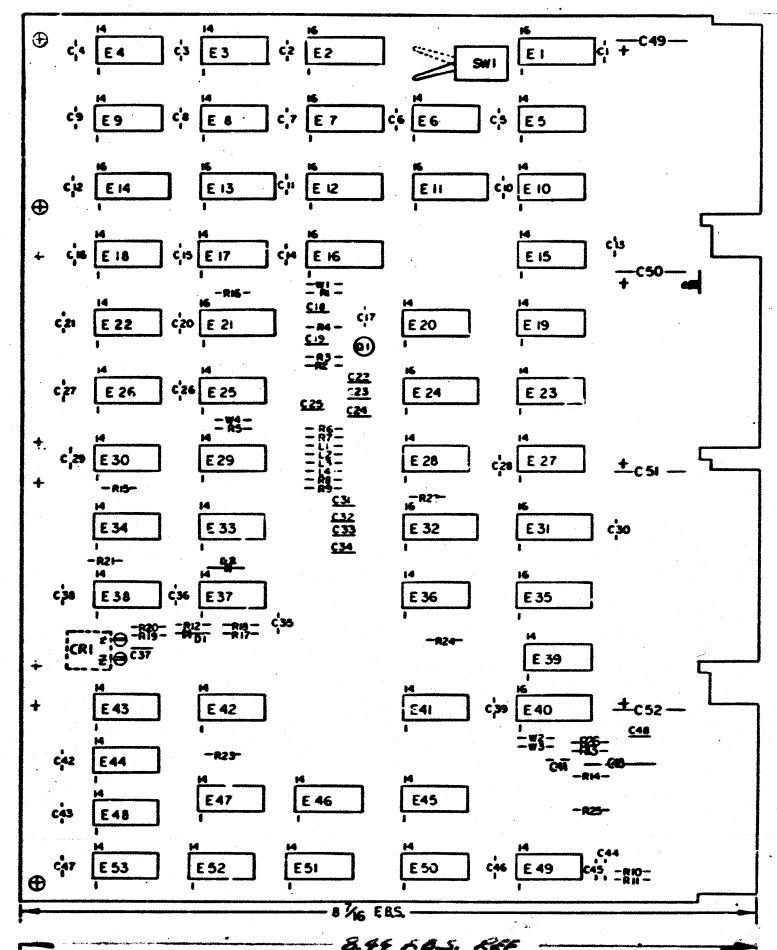
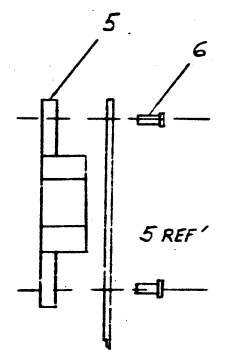
EYELET PLATED THRU
 2 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DRILL	AVTAL	DATE	12-73	EQUIPMENT CORPORATION
CHECKED	Can	DATE	6-79-73	
ENG.	Da	DATE	2-77	
PROD. ENG.	Da	DATE	3-77	
PROD.	Da	DATE	3-77	
FIRST USED ON				TITLE
				STATUS CONTROL
SCALE				SIZE CODE
E-P2				DWH 17254-5
				MS40093

THIS DRAWING IS PART OF E.G.O. PACKAGE # M7254-00006 NOT TO BE USED FOR PRODUCTION

		ORIGINATOR Dick Lewis 1-2 TEL EXT 2814 DATE 10/9/72 DESC PROJ NO. 9606807 COST CENTER NO. 387		ECO NO. M7255-0001 SHEET 1 OF 1 DATE RECEIVED 10-13-72 FIRST ISSUE 10-15-72 FINAL ISSUE 11-11-72		
ENGINEERING CHANGE ORDER 7067				UNIT TO BE CHANGED M7255 etch rev C DESK CODE #3 OPTIONS AFFECTED RK11-D		
PROBLEM 1. Errors in etch runs as shown below. 2. Producibility check requests use of .040 tape instead of .031 where possible and move R19 further from adjacent split-lug.				BREAK-IN/EFFECTIVITY Immediately rework all M7255 rev C boards. Item 3 only.		
CORRECTION Update M7255 artwork.				PRODUCT LINES AFFECTED PDP-11		
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PEG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Change <input type="checkbox"/> Product Line Change TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE ORDER FR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
1	D-CS-M7255-0-1	B	C	#6	Update revision of SW 1 & 2 only	DEPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (LEASE IN) 03 - Rework IMMEDI/TELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY
2	B-MEL-M7255-0-6	B	C	#6	See final release drawing..	
3	M7255 500 7986 (Rework instructions)	C	D	#3	Make following changes to etch runs (1) delete DN2 → E4813 delete E511# → E341# delete E43#3 → E26#5 (2) add DN2 → E26#5 add E46#3 → E341# add E511# → E4813 add E17#1 → E1712	
4	D-AH-M7255-0-5	B	C	#6	(1) Use .040 tape instead of .031 tape wherever possible (2) Move R19 further from split-lug. (3) Make corrections listed in item 3 above.	
DEPOSITION CODES				APPROVAL SIGNATURES Designation DESIGN ENGR Tom Oxt ENG MGR (OPT) S. F. Johns 10/11/72 FIELD SERVICE (OPT) R. F. Fulkerson CHIEF ENGR (MODULES ONLY) J. P. Reed		

NOTES:
DIGITAL EQUIPMENT CORPORATION



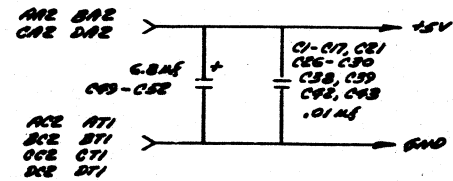
PIN NOMENCLATURE
MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E18	I.C. DEC 8815	1909713	91
2	E2, E14	I.C. DEC 7442	1910046	90
1	E50	I.C. DEC 7473	1905587	39
1	E32	I.C. DEC 74174	1910652	38
1	E53	I.C. DEC 7482	1905584	37
1	E41	I.C. DEC 74421	1909058	36
1	E43	I.C. DEC 74150	1909060	35
1	E42	I.C. DEC 7450	1905580	34
1	E27	I.C. DEC 8242	1909712	33
3	E15, E20, E28	I.C. DEC 380	1909485	32
1	E17	I.C. DEC 7493	1909054	31
2	E12, E16	I.C. DEC 74157	1910655	30
1	E13	I.C. DEC 74151	1909336	29
1	E7	I.C. DEC 74175	1910651	28
1	R26	RES. 31.6K 1/8 W 1%	1309416	27
1	R13	RES. 18.2K 1/8 W 1%	1309412	26
1	R14	RES. 33K 1/8 W 10%	1300570	25
3	E1, E4, E29	RES. PPACK	131003-01	24
1	R12	RES. 100Ω 1/8 W 5%	1300229	23
3	R2, R10, R11	RES. 390Ω 1/8 W 5%	1300309	22
8	R15, R16, R21, R25	RES. 1K 1/8 W 5%	1300365	21
2	R19, R20	RES. 470Ω 1/8 W 5%	1300316	20
1	R4	RES. 12K 1/8 W 5%	1300998	19
1	R5	RES. 3K 1/8 W 5%	1300932	18
4	R6-R9	RES. 910Ω 1/8 W 5%	1305374	17
2	R17, R18	RES. 10K 1/8 W 5%	1300979	16
1	R3	RES. 20K 1/8 W 5%	1302391	15
5	C10, C22, C25, C27, C34	CAP. 39 PF 100V 5% DM	1000010	14
1	C18	CAP. 15 PF 100V 5% DM	1000007	13
2	C23, C27	CAP. .047UF 50V 10% CAP	1000576	12
1	C36	CAP. 330 PF 100V 5% DM	1000023	11
4	C23, C24, C32, C33	CAP. 270 PF 100V 5% DM	1000022	10
23	C1, C17, C26, C30, C20, C21, C28, C29, C39	CAP. .01UF 100V 20% DISC	1001610	9
4	C49-C52	CAP. 6.8UF 35V 10% TANT	1003506	8
1	C41	CAP. 1000 PF 100V 5% DM	1000042	7
8		EYELET (GS-8-7) SIMPSON	9006732	6
4		HANDLE CLIP-CHD #1079	900537-06	5
1		ETCHED CIRCUIT BOARD	5009986	4
1		PROBING GND HISTROY	5004723-0-6	3
1		ASSY/COILING WIRE CARBOAT	5004723-0-5	2
1		X-Y COORDINATE HOLE LOCATION	5004723-0-4	1

IC TYPE	GND	+5V
I.C. DEC 74151	8	16
I.C. DEC 74157	8	16
I.C. DEC 7493	10	5
I.C. DEC 380	1	8
I.C. DEC 7482	11	4
I.C. DEC 74174	8	16
I.C. DEC 7475	11	4
I.C. DEC 7442	8	16
I.C. DEC 74153	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



FIRST USED ON OPTION MODEL: RK11-D

ETCH BOARD REV: D

REVISIONS:

REV	CHANGE NO.	REV

SEMICONDUCTOR CONVERSION CHART

DEC. NO.	EIA NO.	DEC. NO.	EIA NO.

DISK CONTROL RK11-D

EQUIPMENT CORPORATION

SCALE: NONE

SHEET 2 OF 2

SIZE CODE: D CS M7255-0-1

NUMBER: C

digital ENGINEERING CHANGE ORDER 9115		ORIGINATOR TOM O'Y 1-2 TEL EXT 2791 DATE 11/3/72 DESC PROJ NO: 20-06734 98-018-0 COST CENTER NO. 387	ECO NO. M7255-1A SHEET 1 OF 1 DATE RECEIVED 11-3-72 FIRST ISSUE 11-3-72 FINAL ISSUE			
PROBLEM Tolerance too loose on capacitor and resistor for one shot at 470 EVO .			UNIT TO BE CHANGED M7255 REPL-01 DISK CTRL			
CORRECTION Replace .01 cap., 47K res. and 30K res. with .015 cap., 18.2K res. and 31.6K res.			DESIGN CODE 03 OPTIONS AFFECTED AKI-DE M7255			
BREAK-IN/EFFECTIVITY			PRODUCT LINES AFFECTED PDP-11			
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	B-MH-M7255-0-6	A	B	06	Update per this ECO.	<input checked="" type="checkbox"/> MODEL
2	D-CS-M7255-0-1 (Sheet 3, 7 only)	B	C	06	UPDATE PER ABOVE	<input type="checkbox"/> DIAGNOSTICS
3	1309416	-	-	07	Res. 31.6K 1/8W 1% m.f.	<input type="checkbox"/> TECH MANUAL
4	1309412	-	-	07	Res. 18.2K 1/8W 1% m.f.	<input type="checkbox"/> TESTER
5	10010646	-	-	07	.015uf 2% polycarb.	<input type="checkbox"/> TEST PROG
						<input type="checkbox"/> TOOLING
						<input type="checkbox"/> PKG INST
						<input type="checkbox"/> ENG SPEC
						<input type="checkbox"/> PURCH SPEC
						FIELD SERVICE AFFECTED
						<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
						<input type="checkbox"/> Customer Charge
						<input type="checkbox"/> Product Line Charge
						TYPE OF CHANGE
						<input type="checkbox"/> ELECTRICAL
						<input type="checkbox"/> MECHANICAL
						<input checked="" type="checkbox"/> MODULE
						ORDER PR MODEL
						<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DISPOSITION CODES			APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (REWORK) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			DESIGN ENGR TOM O'Y <i>[Signature]</i> ENG MGR (OPT) <i>[Signature]</i> FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>			

digital ENGINEERING CHANGE ORDER 9306		ORIGINATOR Dick Lewis 1-2 TEL EXT 2814 DATE 1/30/73 DISC PROJ NO. E20-06734 COST CENTER NO. 378		ECO NO. M7255-000 2 SHEET 1 OF 1 DATE RECEIVED 2-2-73 FIRST ISSUE 2-5-73 FINAL ISSUE 3/2/73	
PROBLEM Clk pulses need to be standardized throughout control.				UNIT TO BE CHANGED M7255 Disk Control	
CORRECTION Replace ST4 Clk H with disk 4 clk 4.				DESP CODE 03 OPTIONS AFFECTED RK11-D, E	
BREAK-IN/EFFECTIVITY Rework all M7255 Boards (item 4 below).				PRODUCT LINES AFFECTED PDP-11	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESP CODE	DESCRIPTION OF CHANGE
1.	D-CS-M7255-0-1 SH 1, SH 7	C	D	06	See final release drawing.
2.	B-MH-M7255-0-6	B	C	06	See final release drawing.
3.	D-AH-M7255-0-5	C	D	06	See final release drawing.
4.	5009906 Rework NOTE.			03	Rework boards as shown on AH drawing. (Add ware from E4810 to E5112).
5.	D-CS-M7255-0-1 SH 6	B	C	06	SEE FINAL RELEASE DRAWING
DEPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			APPROVAL SIGNATURES DESIGN ENGR TOR OFF <i>[Signature]</i> ENG MGR (OPT) <i>[Signature]</i> FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>		

REV. 0
 NUMBER M7255-0-6
 B MH

PRODUCT LINE PDP11
 DATE RELEASED 9-25-72
 RELEASED BY T. ORR

MODULE ECO HISTORY
 PAGE 1 OF 1

RELEASED CS REV. B
 RELEASED ETCH BD REV. C

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D.LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS	—	—
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R.LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES	—	—

REVISIONS	DATE	BY
00001		
00002		

DATE 10-7-72
 DATE 12-1-72
 DATE 1-29-73

ENGINEER
 PROD. DATE

EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE
 MODULE ECO HISTORY

SIZE B
 CODE MH
 NUMBER M 7255-0-6
 REV. C

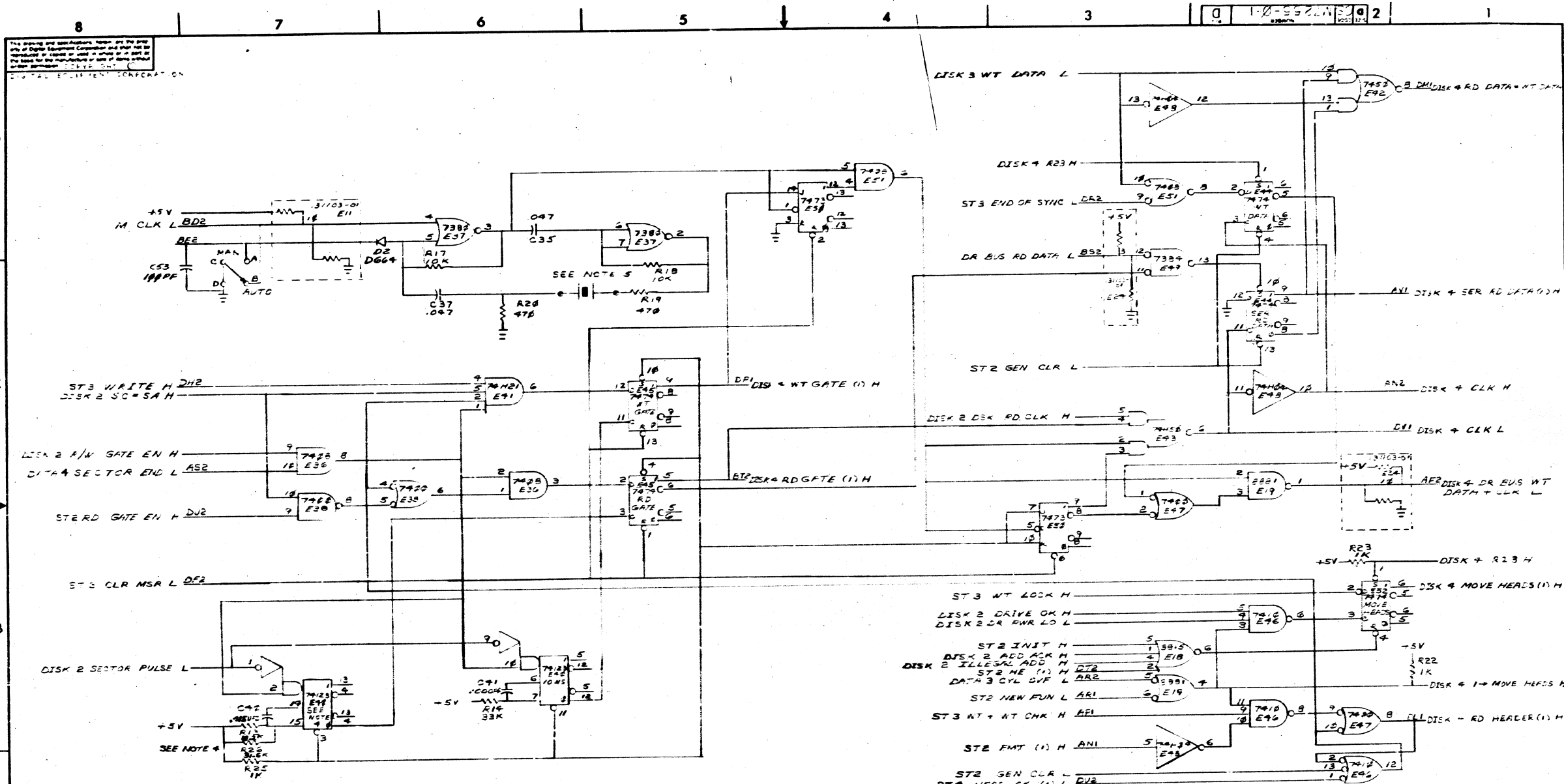
DRB 104

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M7255-00002

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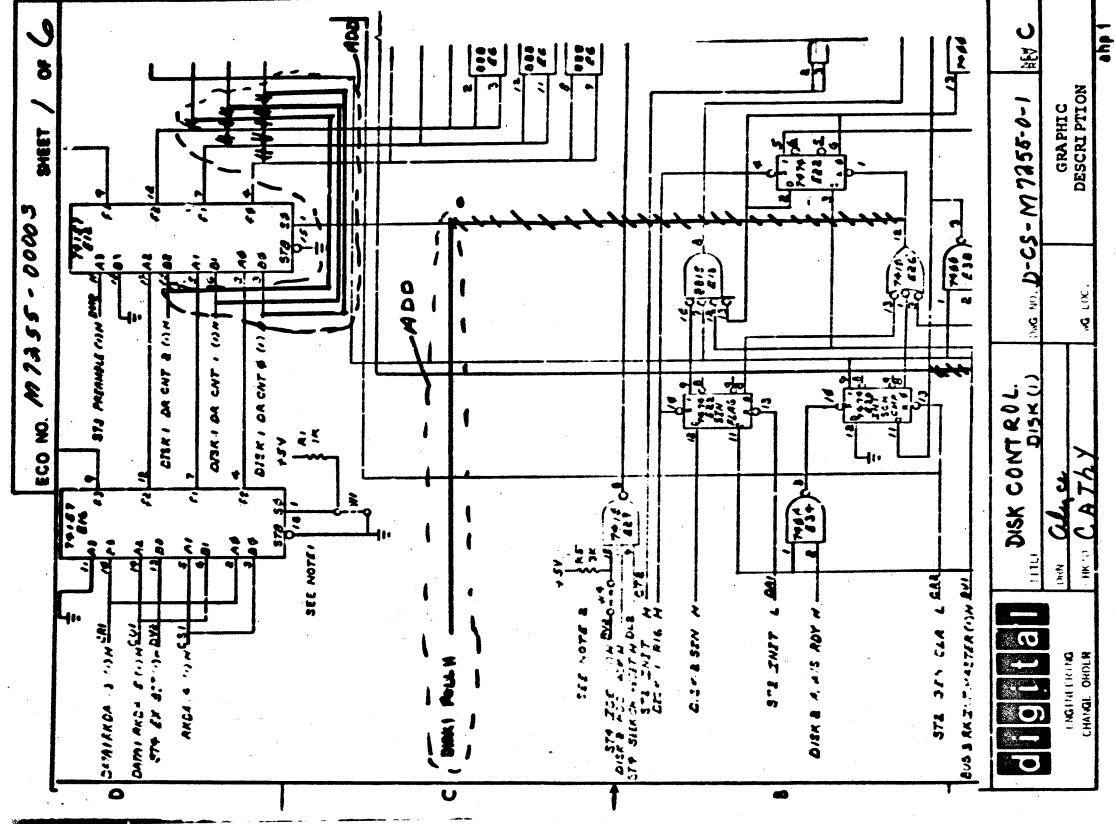
- NOTES:
1. INSTALL FOR RK05
 2. CUT FOR RK11-C COMPATIBILITY (NORMAL OPERATION)
 3. FOR RK11-D (RK05) CUT JUMPER W3 FOR RK11-E (18 BIT RK05) CUT JUMPER W2.
 4. FOR RK11-D (RK05) CUT R26 FOR 85 NS DELAY
 5. INSTALL PROPER CRYSTAL IN SPLIT LUGS AS OUTLINED IN TABLE 1.

	DISK	BITS/SEC	MHZ	DES. #/H
RK11-D	RK05	16	2.892	18-10672-3
RK11-E	RK05	18	3.070	18-10674-4

FIRST USED ON OF LION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN	DATE	EQUIPMENT CORPORATION	
TOLERANCES	CHK'D	DATE	MILITARY MANUFACTURE	
DECIMALS	ENG	DATE	TITLE	
XXX - 000	BRN	DATE	DISK CONTROL	
XX - 00	BRN	DATE	(DISK 4)	
X - 0	BRN	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD	DATE		
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV
	B-DD-RK11-D	D	M7255-C-1	D
FINISH	SCALE	SHEET	OF	
	1/8"	7	OF	

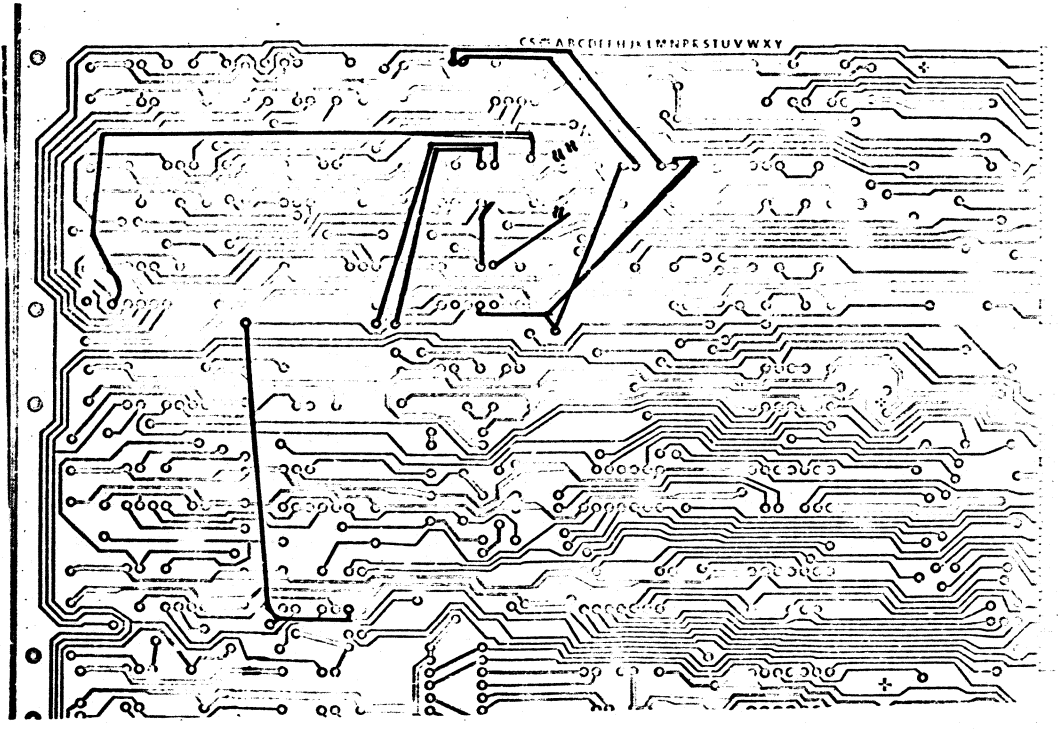
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		ECO NO. M7255-0003 SHEET 1 OF 6 DATE RECEIVED 3/22/73 PRINT ISSUE 3-2-73 FINAL ISSUE 5-3-73	
ORIGINATOR Dick Lewis, 1-2 TEL EXT 3055 DATE 3/22/73 DUC PROJ NO E20-06734 COMP CENTER NO 378		UNIT TO BE CHANGED M7255 Display Control DISCORD # 3	
PROBLEM If an interrupt request has been made as a result of a hardware poll, but not yet granted and an attempt is made to examine the status of a disk drive other than the drive requesting the interrupt, the status received will be that of the interrupting drive, not the drive thought to be under examination.			
CORRECTION Unlike the RK1-C, the RK1-D/E changes the I.D. bits with the occurrence of any interrupt. To fix this problem, we must make the RK1-D/E operate as does the RK1-C. Rework boards and change spec to reflect this. Note: Future x3v boards will be capable of either method; jumper selectable.			
BREAKING EFFECTIVITY Rework all module-level machines immediately. Rework all system-level and field machines as needed or as convenient. Rework all M7255 modules shipping after April 15.			
ITEM NO. 1. D-CS-M7255-0-1 Sheet 1 Sheet 4 2. B-MH-M7255-0-6 C D 3. D-AH-M7255-0-5 D E 4. Rework Instructions	OLD NEW DWP REV D E R C C D D E	DESCRIPTION OF CHANGE See final release drawing. See final release drawing. See final release drawing. Rework boards as shown on AH drawing.	PRODUCT LINES AFFECTED PDP-11
DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC		DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Customer Change <input checked="" type="checkbox"/> Product Line Change TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input type="checkbox"/> MODULE <input type="checkbox"/> ORDER PR MODIFL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
APPROVAL SIGNATURES DESIGN ENGR. TOM O'NEILL FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR. (MODULER) (M/S) <i>[Signature]</i>		APPROVAL SIGNATURES <i>[Signature]</i>	
DEC 1123911071-071 USE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY) DRA-111C			



		ECO NO. M7255-0003 PAGE 1 OF 1	
FIELD INSTALLATION AND TEST PROCEDURE			
REWORK PROCEDURE			
Side One Etch Cuts between: 1. E7-05 and the feed through 2. E7-12 and E06-12 3. E7-13 and E06-09 Add wires between: 1. E06-08 and E12-04 2. E06-09 and E02-15 3. E06-11 and E02-14 4. E06-12 and the feed through from E12-07 5. E07-05 and E12-13 6. E07-13 and the feed through from E12-03 7. E07-12 and the feed through from E12-06 8. E12-01 and E25-06 9. E12-12 and the feed through from E06-02 10. E07-09 and E12-12			
Side Two Etch Cuts between: 1. E02-14 and E07-12 2. E02-15 and E07-13 3. E07-09 and the feed through 4. E07-12 and the feed through 5. E07-13 and E12-04 6. E07-05 and E12-12 7. The feed through from the etch run leading to E06-12 and the feed through from the etch run leading to E12-01.			
DEC 12 12/01 (FORM 101)			

		ECO NO. M7255-0003 PAGE 1 OF 1	
FIELD CHANGE ORDER			
FIELD INITIATION Rework all M7255's in all RK1-D and RK1-E with two or more disk drives.			
FIELD DELAY IN ANTICIPATION OF: 30 DAYS OF UNITS DELAYED ABOVE			
<input checked="" type="checkbox"/> NOT CHANGE TO CUSTOMER ALL DEL. INSTALLATION LABOR AND MATERIAL ARE TO BE REPAID UNDER A "W" CHANGE CODE			
<input type="checkbox"/> STANDARD AFTER ABILITY THIS FCOR IS TO BE INSTALLED AT NO CHARGE TO THE CUSTOMER AND MAINTENANCE PERSONNEL SHALL BE RESPONSIBLE FOR THE REPAIR OF THE ORIGINAL DEFECTIVE UNIT. THIS FCOR IS TO BE INSTALLED AT THE CUSTOMER'S RISK.			
DOCUMENTATION: 3 PARTS: 1 DEC ON SITE LABOR: 1 DEC'S MINIMUM BILLING APPLIES IF THIS FCOR IS INSTALLED BY DEC. THE DEC LABOR CHARGE INCLUDES TO INSTALLATION, REPAIR, TESTING, AND REWORKING. THE LATEST VERSION OF THE FCOR WILL APPLY.			
FIELD ORDER: NO RESUBMITTER CODE			
<input type="checkbox"/> F IMMEDIATE ECO DISTRIBUTION TO ALL DEC FIELD OFFICES <input type="checkbox"/> F IMMEDIATE ECO DISTRIBUTION TO REGIONAL PRODUCT SUPPORT			
FCOR NOT DISTRIBUTION			
MATERIAL OF THIS FIELD CHANGE ORDER MAY BE ORDERED AS REQUIRED:			
CONTENTS OF AN FCOR INITIATED BY:			
FCOR NO. 1 PARTS 1			
CONTENTS OF A FIELD CHANGE ORDER:			
FCOR NO. 1 PARTS 1			
INSTALLATION AND TEST PRELIMINARIES			
NOTES			
PARTS REQUIRED			
LAST PREVIOUS FCOR: None RELATED TO THIS REQUEST FCOR:			
<input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS APPLIED REPLICATION MANAGER			
FIELD SERVICE APPROVAL Lester Libby			
DEC 12 12/01 (FORM 101)			

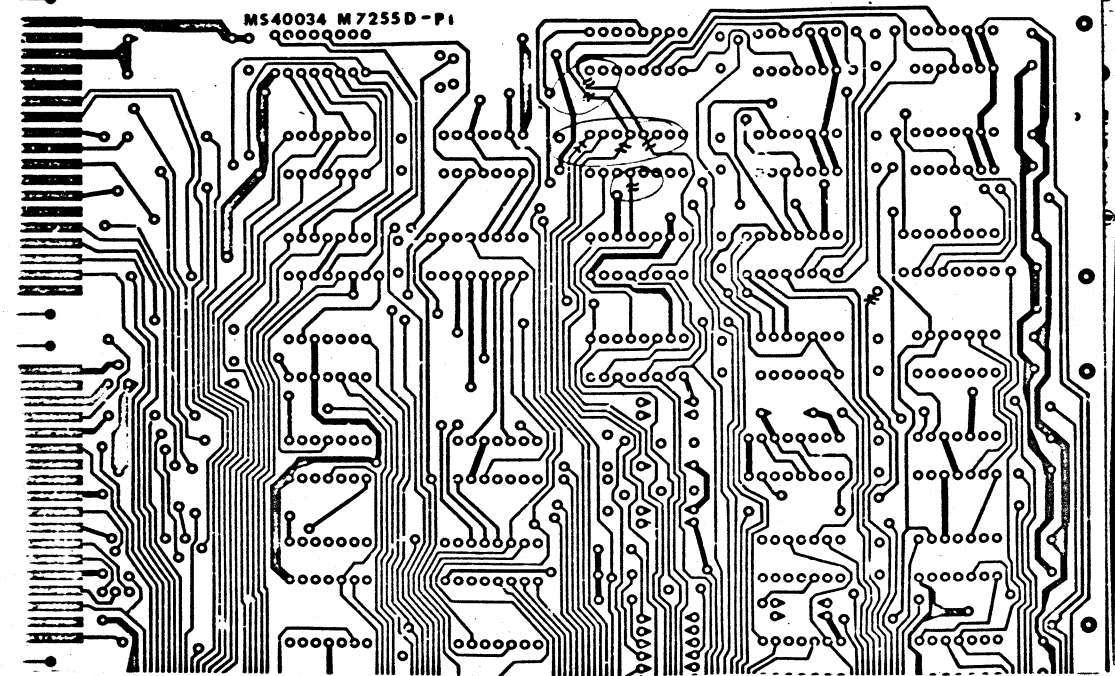


ADD TEN JUMPERS
AS SHOWN

THREE ETCH CUTS
SIDE ONE

SHEET 192

digital ENGINEERING CHANGE ORDER	ASSY/DRILLING HOLE LAYOUT	D-AM-7255-05	E
	<i>Alper</i>		GRAPHIC DESCRIPTION



SEVEN ETCH CUTS
SIDE TWO

SHEET 2012

digital	ASSY/DRILLING	D-AH-107255-0-5	E
	HOLE LAYOUT		
NOT TO BE CHANGE ORDER	<i>Cathy</i> CATHY		GRAPHIC DESCRIPTION

PAGE REVISION CONTROL SHEET										REMARKS	
PAGE REVISIONS										DISK1 DISK2 DISK3 DISK4	
SH NO	DATE	ENG.	REV.	ETCH	ECO	NO.	DESCRIPTION	BY	DATE		
1	10-27	—	C	—	—	—	10-27	—	20	10001-1A	
2	2-15-73	—	D	—	—	—	2-15-73	—	20	00002	
3	4/4/74	—	D	—	—	—	4/4/74	—	20	00003	
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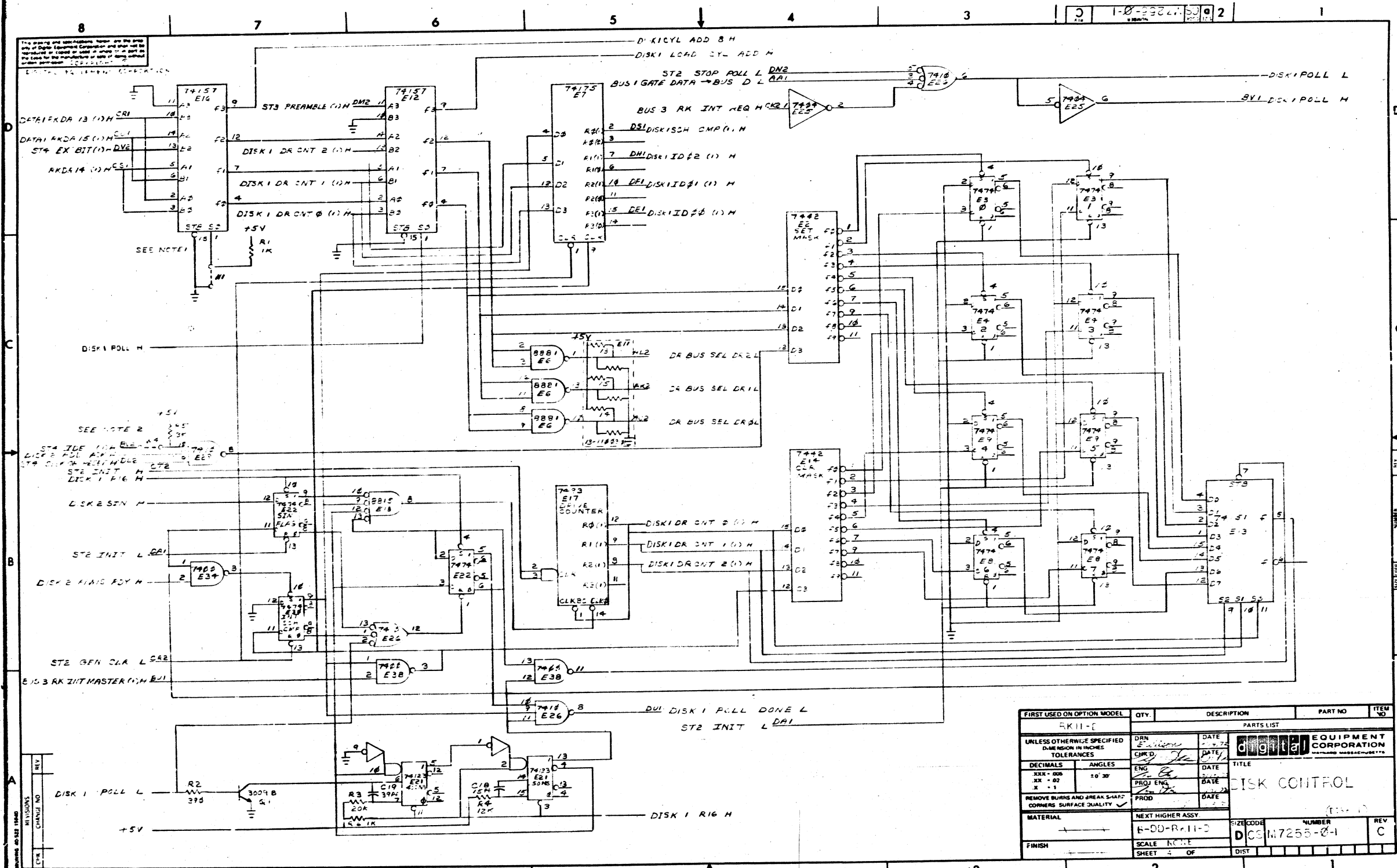
Q 9-0-55-0-6 HW B
 NUMBER CODE SIZE

MODULE ECO HISTORY													
PRODUCT LINE <u>PDP11</u>				PAGE <u>1</u> OF <u>1</u>				RELEASED CS REV. <u>B</u>					
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV. <u>C</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D.LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS	—	—
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R.LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSE	—	—
00003	R.LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAMINE	—	—

REVISIONS	DATE	DATE	TITLE
CHKD	DATE	DATE	MODULE ECO HISTORY
ENG	DATE	DATE	EQUIPMENT CORPORATION
PROD	DATE	DATE	SIZE CODE NUMBER REV.
			B H M 7255-0-6 D

DEC 74-130-102-4971
 URB 104

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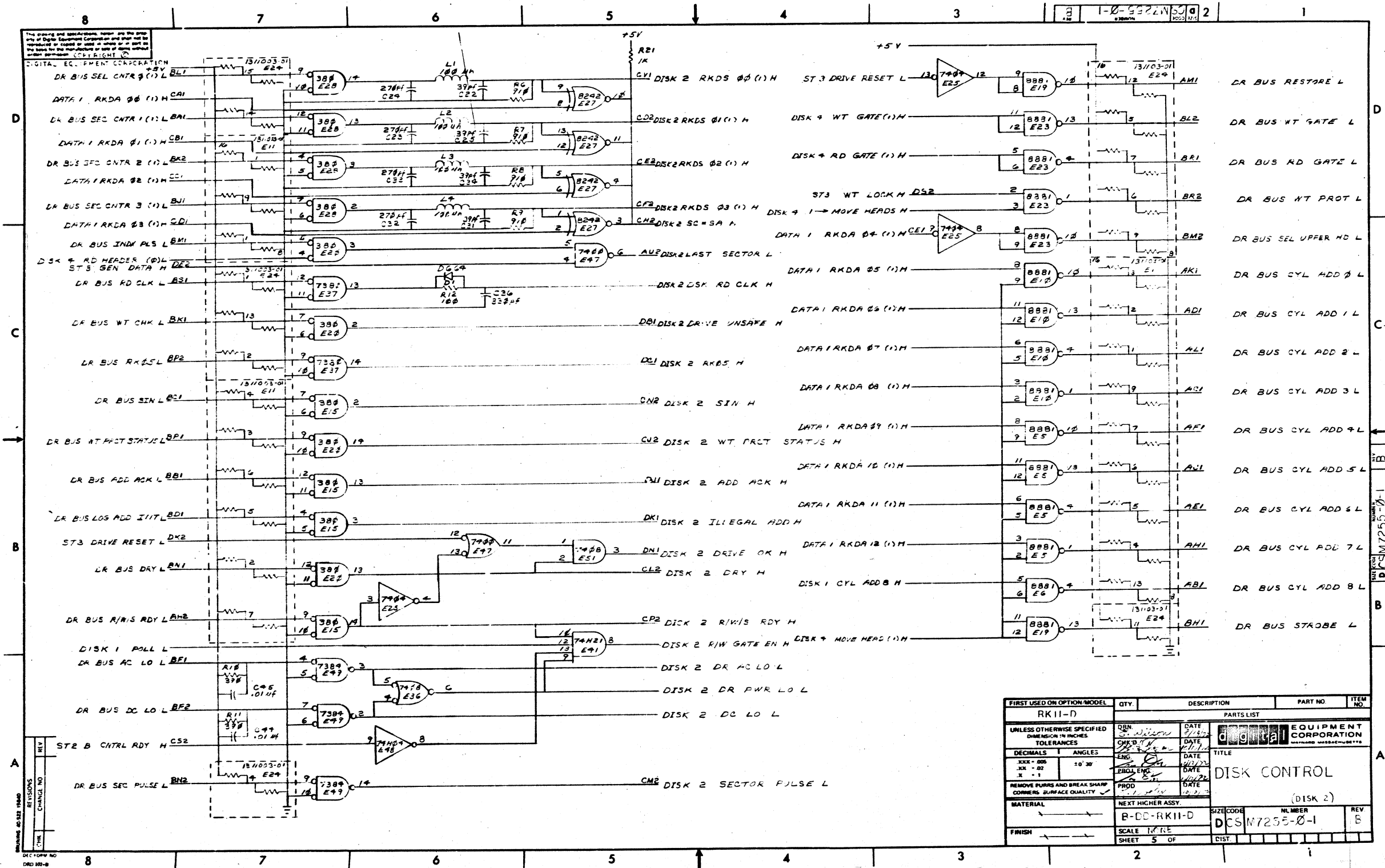


FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
SK11-C		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN CHK'D	DATE DATE	DIGITAL EQUIPMENT CORPORATION	
DECIMALS	ANGLES	ENG	TITLE	
XXX - 005	10' 30"	PROJ. ENG.	DISK CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	DATE	
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV
FINISH	E-00-R-11-D	D	CSM7255-0-1	C
	SCALE NONE	SHEET	OF	

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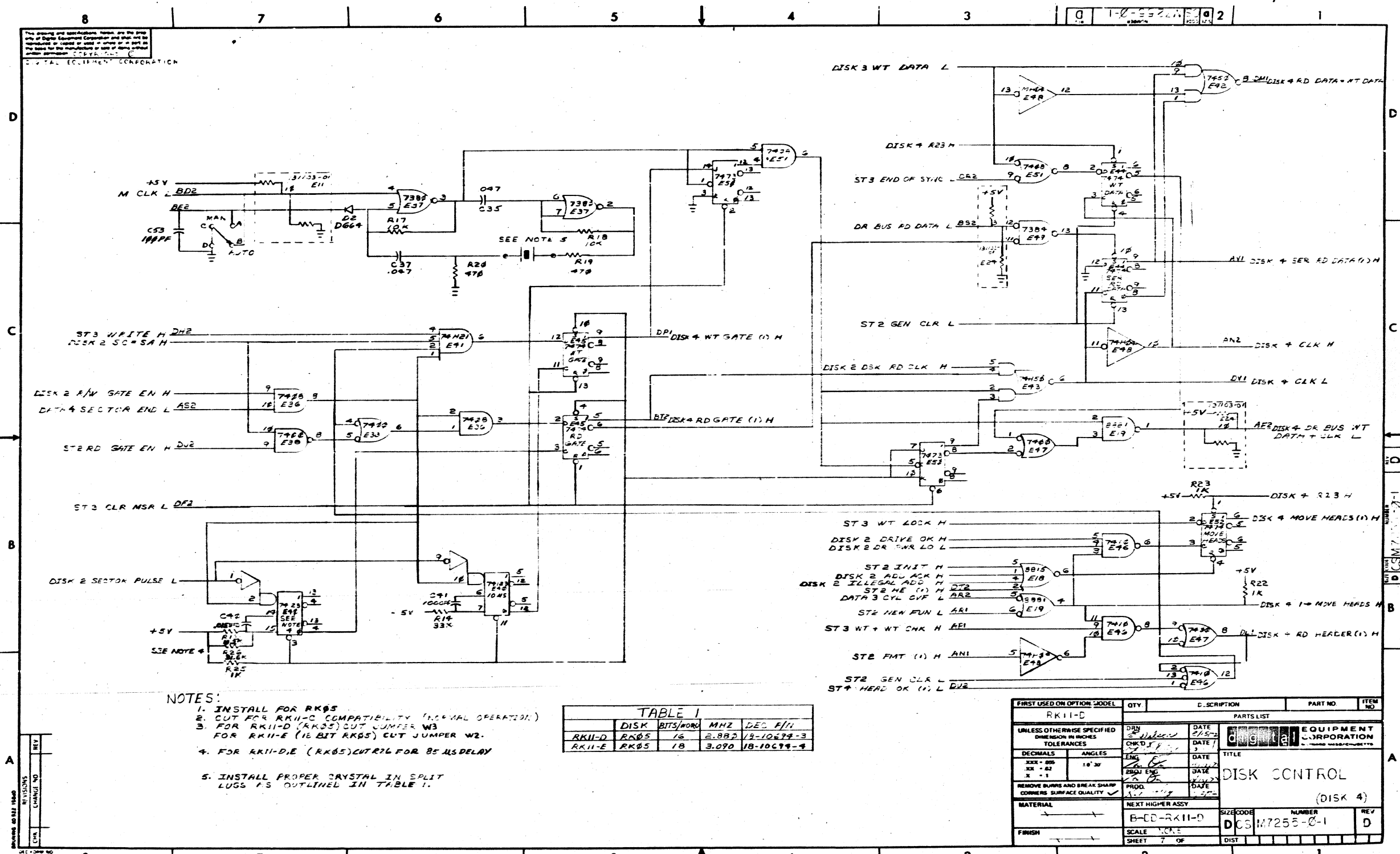
REV. NO. 1
 CHANG. NO. 1
 DATE 10/22/68
 BY J. J. W.

PART NO. CSM7255-0-1
 SHEET 1 OF 1



THIS DRAWING IS PART M7255-00003 NOT TO BE USED FOR PRODUCTION

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	PARTS LIST	
XXX - 000	10' 30"	CHK'D	DIGITAL EQUIPMENT CORPORATION	
X - 1		ENG	TITLE	
		PROL ENG	DISK CONTROL	
REMOVE PURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL		NEXT HIGHER ASSY		
FINISH		R-DD-RK11-D		
		SCALE	NUMBER	REV
		SHEET 5 OF	DCS M7255-0-1	B

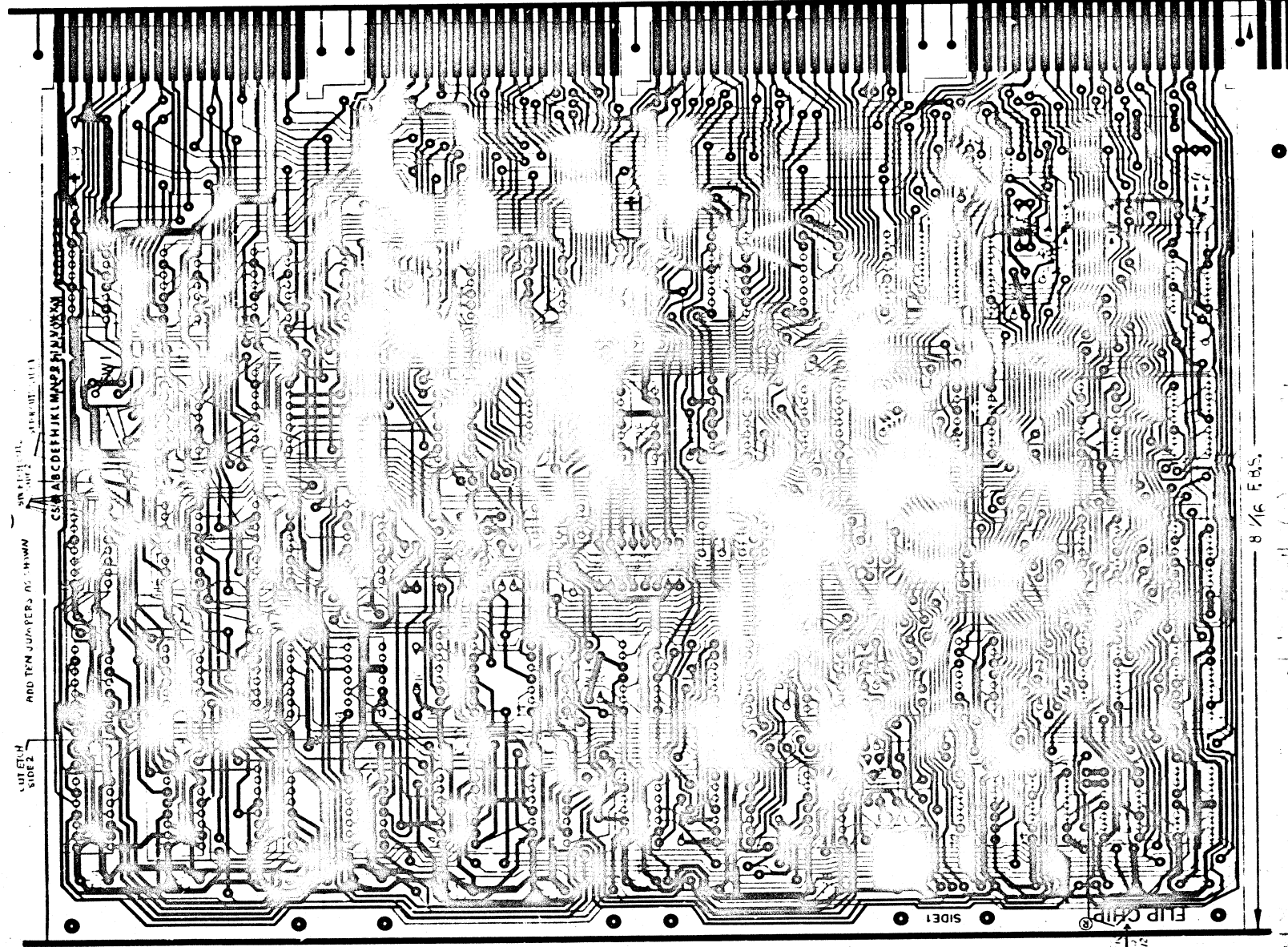


- NOTES:
1. INSTALL FOR RK05
 2. CUT FOR RK11-C COMPATIBILITY (NORMAL OPERATION)
 3. FOR RK11-D (RK05) CUT JUMPER W3 FOR RK11-E (16 BIT RK05) CUT JUMPER W2.
 4. FOR RK11-D/E (RK05) CUT R76 FOR 85 US DELAY
 5. INSTALL PROPER CRYSTAL IN SPLIT LUGS AS OUTLINED IN TABLE 1.

	DISK	BITS/WORD	MHZ	DEC F/11
RK11-D	RK05	16	2.882	18-10679-3
RK11-E	RK05	16	3.070	18-10679-4

FIRST USED ON OPTION MODEL	QTY	D. DESCRIPTION	PART NO	ITEM NO
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	ENG	DATE	TITLE
XXX - 000	XX - 00	18 30	2/5/52	DISK CONTROL
X - 1				(DISK 4)
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY				
B-00-RK11-D				
SCALE				
SHEET 7 OF				

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.50 x 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL 0.52 THK. 1.0Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA		CAN TAKE		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE	GRIPLETS	FOR NON-PTH BOARDS	
			YES	NO	
NONE		X			
Z		X			2

NOTE: CRI IS OPTIONAL

DATE	REV.	BY	CHKD.	DATE	REV.	BY	CHKD.
digital EQUIPMENT CORPORATION MILFORD, MASSACHUSETTS				ASSY/ DRILLING HOLE LAYOUT			
SCALE	DRAWN	NUMBER	REV.	DATE	REV.	BY	CHKD.
		M7255-0-5	E				

REVISIONS	A	B	C	D	E	F	H	J	K	TITLE	PROD. NO.
DESIGNER	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	RK11-D DISK CONTROL	M7255
DRAFTSMAN	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	CHARGE NO. E96-06807	C.S. REV. E
CHECKER	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	DATE 5-11-72	ETCH REV. D
										ENGINEER TOM ORR	MS NO. 40034
										EXTENSION 2791	

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M7255-00003

NOT TO BE USED FOR PRODUCTION

PAGE REVISION CONTROL SHEET										REMARKS		
PAGE REVISIONS										DISK 1 DISK 2 DISK 3 DISK 4		
SH NO.	DATE	ENG.	REV.	ETCH	E.C.O.	NO.	DATE	ENG.	REV.	ETCH	E.C.O.	NO.
1	10-27-72	—	—	—	—	—	10-27-72	—	—	—	—	—
2	11-15-73	—	—	—	—	—	11-15-73	—	—	—	—	—
3	12-13-73	—	—	—	—	—	12-13-73	—	—	—	—	—
4	0000-1A	—	—	—	—	—	0000-1A	—	—	—	—	—
5	0000-2	—	—	—	—	—	0000-2	—	—	—	—	—
6	0000-3	—	—	—	—	—	0000-3	—	—	—	—	—
7	0000-4	—	—	—	—	—	0000-4	—	—	—	—	—
8	0000-5	—	—	—	—	—	0000-5	—	—	—	—	—
9	0000-6	—	—	—	—	—	0000-6	—	—	—	—	—
10	0000-7	—	—	—	—	—	0000-7	—	—	—	—	—
11	0000-8	—	—	—	—	—	0000-8	—	—	—	—	—
12	0000-9	—	—	—	—	—	0000-9	—	—	—	—	—
13	0000-10	—	—	—	—	—	0000-10	—	—	—	—	—
14	0000-11	—	—	—	—	—	0000-11	—	—	—	—	—
15	0000-12	—	—	—	—	—	0000-12	—	—	—	—	—
16	0000-13	—	—	—	—	—	0000-13	—	—	—	—	—
17	0000-14	—	—	—	—	—	0000-14	—	—	—	—	—
18	0000-15	—	—	—	—	—	0000-15	—	—	—	—	—
19	0000-16	—	—	—	—	—	0000-16	—	—	—	—	—
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21	0000-18	—	—	—	—	—	0000-18	—	—	—	—	—
22	0000-19	—	—	—	—	—	0000-19	—	—	—	—	—
23	0000-20	—	—	—	—	—	0000-20	—	—	—	—	—
24	0000-21	—	—	—	—	—	0000-21	—	—	—	—	—
25	0000-22	—	—	—	—	—	0000-22	—	—	—	—	—
26	0000-23	—	—	—	—	—	0000-23	—	—	—	—	—
27	0000-24	—	—	—	—	—	0000-24	—	—	—	—	—
28	0000-25	—	—	—	—	—	0000-25	—	—	—	—	—
29	0000-26	—	—	—	—	—	0000-26	—	—	—	—	—
30	0000-27	—	—	—	—	—	0000-27	—	—	—	—	—
31	0000-28	—	—	—	—	—	0000-28	—	—	—	—	—
32	0000-29	—	—	—	—	—	0000-29	—	—	—	—	—
33	0000-30	—	—	—	—	—	0000-30	—	—	—	—	—
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37	0000-34	—	—	—	—	—	0000-34	—	—	—	—	—
38	0000-35	—	—	—	—	—	0000-35	—	—	—	—	—
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40	0000-37	—	—	—	—	—	0000-37	—	—	—	—	—
41	0000-38	—	—	—	—	—	0000-38	—	—	—	—	—
42	0000-39	—	—	—	—	—	0000-39	—	—	—	—	—
43	0000-40	—	—	—	—	—	0000-40	—	—	—	—	—
44	0000-41	—	—	—	—	—	0000-41	—	—	—	—	—
45	0000-42	—	—	—	—	—	0000-42	—	—	—	—	—
46	0000-43	—	—	—	—	—	0000-43	—	—	—	—	—
47	0000-44	—	—	—	—	—	0000-44	—	—	—	—	—
48	0000-45	—	—	—	—	—	0000-45	—	—	—	—	—
49	0000-46	—	—	—	—	—	0000-46	—	—	—	—	—
50	0000-47	—	—	—	—	—	0000-47	—	—	—	—	—
51	0000-48	—	—	—	—	—	0000-48	—	—	—	—	—
52	0000-49	—	—	—	—	—	0000-49	—	—	—	—	—
53	0000-50	—	—	—	—	—	0000-50	—	—	—	—	—
54	0000-51	—	—	—	—	—	0000-51	—	—	—	—	—
55	0000-52	—	—	—	—	—	0000-52	—	—	—	—	—
56	0000-53	—	—	—	—	—	0000-53	—	—	—	—	—
57	0000-54	—	—	—	—	—	0000-54	—	—	—	—	—
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60	0000-57	—	—	—	—	—	0000-57	—	—	—	—	—
61	0000-58	—	—	—	—	—	0000-58	—	—	—	—	—
62	0000-59	—	—	—	—	—	0000-59	—	—	—	—	—
63	0000-60	—	—	—	—	—	0000-60	—	—	—	—	—
64	0000-61	—	—	—	—	—	0000-61	—	—	—	—	—
65	0000-62	—	—	—	—	—	0000-62	—	—	—	—	—
66	0000-63	—	—	—	—	—	0000-63	—	—	—	—	—
67	0000-64	—	—	—	—	—	0000-64	—	—	—	—	—
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69	0000-66	—	—	—	—	—	0000-66	—	—	—	—	—
70	0000-67	—	—	—	—	—	0000-67	—	—	—	—	—
71	0000-68	—	—	—	—	—	0000-68	—	—	—	—	—
72	0000-69	—	—	—	—	—	0000-69	—	—	—	—	—
73	0000-70	—	—	—	—	—	0000-70	—	—	—	—	—
74	0000-71	—	—	—	—	—	0000-71	—	—	—	—	—
75	0000-72	—	—	—	—	—	0000-72	—	—	—	—	—
76	0000-73	—	—	—	—	—	0000-73	—	—	—	—	—
77	0000-74	—	—	—	—	—	0000-74	—	—	—	—	—
78	0000-75	—	—	—	—	—	0000-75	—	—	—	—	—
79	0000-76	—	—	—	—	—	0000-76	—	—	—	—	—
80	0000-77	—	—	—	—	—	0000-77	—	—	—	—	—
81	0000-78	—	—	—	—	—	0000-78	—	—	—	—	—
82	0000-79	—	—	—	—	—	0000-79	—	—	—	—	—
83	0000-80	—	—	—	—	—	0000-80	—	—	—	—	—
84	0000-81	—	—	—	—	—	0000-81	—	—	—	—	—
85	0000-82	—	—	—	—	—	0000-82	—	—	—	—	—
86	0000-83	—	—	—	—	—	0000-83	—	—	—	—	—
87	0000-84	—	—	—	—	—	0000-84	—	—	—	—	—
88	0000-85	—	—	—	—	—	0000-85	—	—	—	—	—
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92	0000-89	—	—	—	—	—	0000-89	—	—	—	—	—
93	0000-90	—	—	—	—	—	0000-90	—	—	—	—	—
94	0000-91	—	—	—	—	—	0000-91	—	—	—	—	—
95	0000-92	—	—	—	—	—	0000-92	—	—	—	—	—
96	0000-93	—	—	—	—	—	0000-93	—	—	—	—	—
97	0000-94	—	—	—	—	—	0000-94	—	—	—	—	—
98	0000-95	—	—	—	—	—	0000-95	—	—	—	—	—
99	0000-96	—	—	—	—	—	0000-96	—	—	—	—	—
100	0000-97	—	—	—	—	—	0000-97	—	—	—	—	—
101	0000-98	—	—	—	—	—	0000-98	—	—	—	—	—
102	0000-99	—	—	—	—	—	0000-99	—	—	—	—	—
103	0000-100	—	—	—	—	—	0000-100	—	—	—	—	—

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M7255-00004

NOT TO BE USED FOR PRODUCTION

REV. E 9-0-552LW HW B
 NUMBER M7255-0-6

MODULE ECO HISTORY													
PRODUCT LINE <u>PDP11</u>				PAGE <u>1</u> OF <u>1</u>				RELEASED CS REV. <u>B</u>					
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV. <u>C</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE, DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D. LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R. LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAMINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT(2D) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		

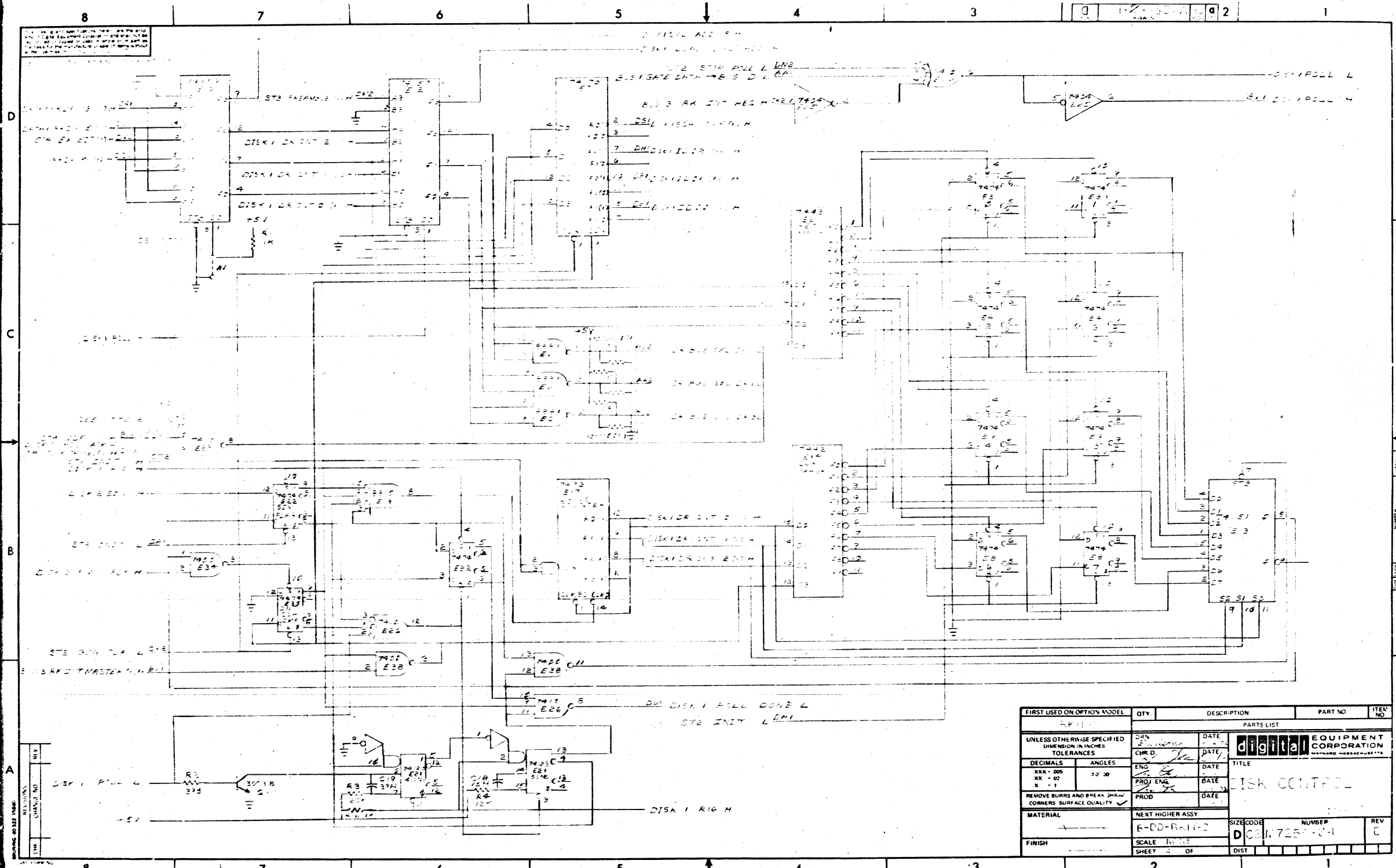
REVISIONS	CHK	NO	REV	A	H	C	D	E
00001								
00002								
00003								
00004								

DATE	10-7-72	DATE	10-7-72	DATE	10-7-72
CHK		CHK		CHK	
ENG		ENG		ENG	
PROD		PROD		PROD	
EQUIPMENT CORPORATION			TITLE: MODULE ECO HISTORY		
SIZE	B	CODE	MH	NUMBER	M7255-0-6
REV.					E

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-00004

NOT TO BE USED FOR PRODUCTION



FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN	DATE	PARTS LIST	
DECIMALS	CHK'D	DATE	digital EQUIPMENT CORPORATION	
ANGLES	ENG	DATE	TITLE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD ENG	DATE	DISK CONTROL	
MATERIAL	PROD	DATE	NEXT HIGHER ASSY	
FINISH	R-00-R-11-0	SCALE	SIZE CODE	NUMBER
	SHEET	OF	D03117257-04	REV
			DIST	

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00004 NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER #611		ORIGINATOR Dick Lewis 1-2 TEL EXT 3055 DATE 6/29/73 DISC PROJ NO. E-20-06734 COST CENTER NO. 378		ECO NO. M7255-0005 SHEET 1 OF 2 DATE RECEIVED June 2, 73 FIRST ISSUE 7-5-73 FINAL ISSUE 7/3/73	
PROBLEM M7255 module has no spare IC locations, some long etch runs and poor capability of XOR testing of the hardware poll logic				UNIT TO BE CHANGED M7255 Disk Control	
CORRECTION Relayout board to high density standards to add spare IC locations, shorten the long etch runs, and to incorporate new design for hardware poll timing.				DISP CODE 02* OPTIONS AFFECTED RK11-D E	
BREAK-IN/EFFECTIVITY All rev D and earlier etch boards in W.I.P. by 7/2 may be completed. (Do not scrap any boards.) Only Rev E boards may be etched after 7/2				PRODUCT LINES AFFECTED PDP 11	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1	D-CS-M7255-0-1	-	-	-	See Final release drawing
	Sheet 1	F	H	06	Replace old rev with new rev print supplied
	Sheet 2	C	D	06	Replace old rev with new rev print supplied
	Sheet 3	C	D	06	Replace old rev with new rev print supplied
	Sheet 4	D	E	06	Replace old rev with new rev print supplied
	Sheet 5	B	C	06	Replace old rev with new rev print supplied
	Sheet 6	C	D	06	Replace old rev with new rev print supplied
	Sheet 7	D	E	06	Replace old rev with new rev print supplied
2	D-AH-M7255-0-5	F	H	06	Replace old rev with new rev print supplied
3	B-MH-M7255-0-6	E	F	06	See Final release drawing
4	500 9986	D	E	02	Phase in new etch board as shown above
DISPOSITION CODES			APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Typewritten / Hand Signature DESIGN ENGR. Tom O'K ENG MGR (OPT) [Signature] FIELD SERVICE (OPT) [Signature] CHIEF ENGR (MODULES ONLY) [Signature]		

DEC 16-13251-1071-0971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

DRA - 11/C

ECO M7255-0005
Sheet 2 of 2

SUPPLEMENTAL INFORMATION

As of 6/27 there are 100 boards in W.I.P. in Maynard, 100 boards in W.I.P. in Puerto Rico and 350 etch boards in the board shop. Board Fabrication (Don Snow) has been asked to finish all boards in W.I.P., but all lots on order must be of new etch revision (rev E).

An adequate supply of old rev circuit schematics should be stock-piled at Westfield, Ireland and world support to cover the phase-out period of old rev etch boards as new circuit schematics should reach production before new boards.

ksl

PAGE REVISION CONTROL SHEET		REMARKS
PAGE REVISIONS		DISK1 DISK2 DISK3 DISK4
SH NO.		
1	B	
2	B	
3	B	
4	B	
5	B	
6	F	
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7-0-5521W B
M7255-0-6

MODULE ECO HISTORY													
PRODUCT LINE <u>PDP11</u>				PAGE <u>1</u> OF <u>1</u>				RELEASED CS REV. <u>B</u>					
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV. <u>C</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D.LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R.LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R.LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAVINE		
00004	R.LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT(E2D) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		
00005	R.LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REVISIONS	CHKD	DATE
00007 A		10-2-72
00008 H		12-4-72
00009 C		
00010 D		
00011 E		
00012 F		

DRB	DATE	TITLE
CHKD	DATE	MODULE ECO HISTORY
ENG	DATE	
PROG.	DATE	
EQUIPMENT CORPORATION		SIZE CODE NUMBER REV.
MAYNARD, MASSACHUSETTS		B MH M7255-0-6 F

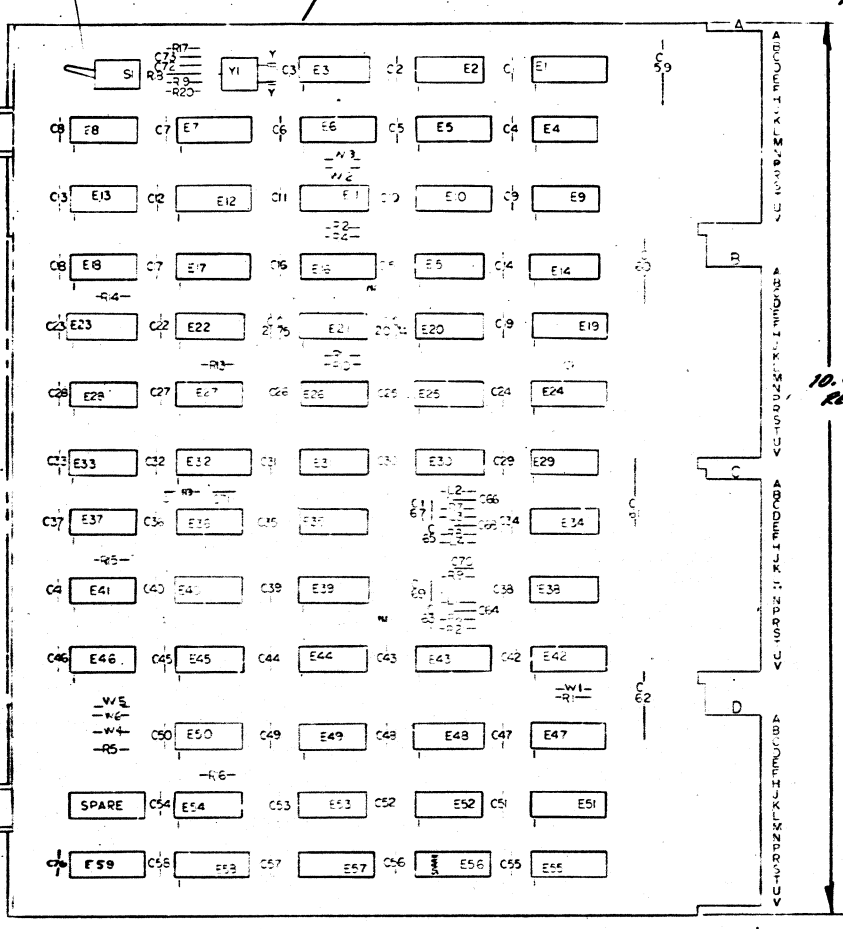
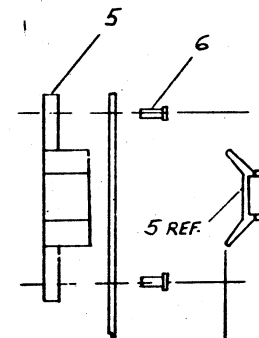
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M7255-00005

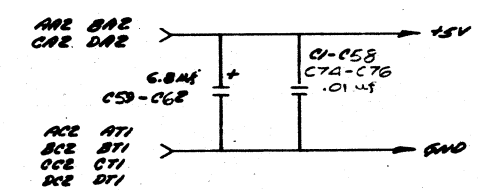
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1. IF 11380'S (ITEM#33) ARE NOT AVAILABLE, USE THE STANDARD 380'S, PART NO. 19-09485.

NOTES:
1. IF 11380'S (ITEM#33) ARE NOT AVAILABLE, USE THE STANDARD 380'S, PART NO. 19-09485.



I.C. DEC 11380	1	8
I.C. DEC 7380	1	8
I.C. DEC 74193	8	16
I.C. DEC 74175	8	16
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 74151	8	16
I.C. DEC 74157	8	16
I.C. DEC 7496	5	12
I.C. DEC 314	1	8
I.C. DEC 7482	11	4
I.C. DEC 74174	8	16
I.C. DEC 7476	5	13
I.C. DEC 7492	8	16
I.C. DEC 74123	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.		
IC PIN LOCATIONS		



PIN NOMENCLATURE
MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
3	W1, W2, W6	INSULATED JUMPER W2007-1	9009185	53
2		SPLIT LUGS	9006735	52
2		SWAGE LUGS	9007791	51
1	S1	SWITCH TOGGLE SPDT	1210209	50
4	L1-L4	INDUCTOR 100UH, 165MA 10%	1610662	49
1	Y1	CRYSTAL (SEE TABLE 1)		48
10	E11, E16, E22, E27, E31, E48, E49, E52-E59	I.C. DEC - 474	1905547	47
1	E50	I.C. DEC 74HC4	1909931	46
2	E13, E46	I.C. DEC 7402	1910155	45
1	E59	I.C. DEC 314	1909704	44
1	E55	I.C. DEC 74161	1910650	43
1	E31	I.C. DEC 8815	1909713	42
1	E43	I.C. DEC 7442	1910046	41
1	E7	I.C. DEC 7476	1905585	40
1	E6	I.C. DEC 74174	1910652	39
1	E25	I.C. DEC 7482	1905584	38
1	E18	I.C. DEC 74821	1905058	37
1	E36	I.C. DEC 74H50	1909060	36
1	E37	I.C. DEC 7450	1905580	35
1	E34	I.C. DEC 8242	1909118	34
6	E20, E21, E25, E27, E30, E38	I.C. DEC 11380	1911113	33
2	E12, E17	I.C. DEC 74193	1910651	32
2	E42, E47	I.C. DEC 74157	1910655	31
1	E57	I.C. DEC 74157	1909936	30
2	E51, E58	I.C. DEC 74175	1910651	29
1	E3	I.C. DEC 7380	1910651	28
5	E2, E4, E9, E19, E15	I.C. DEC 8811	1909705	27
1	E32	I.C. DEC 74123	1910436	26
1	E35	I.C. DEC 7420	1905577	25
3	E23, E39, E45	I.C. DEC 7410	1905576	24
3	E5, E40, E44	I.C. DEC 7400	1905575	23
2	E5, E10	I.C. DEC 7476	1910363	22
2	E26, E33	I.C. DEC 7404	1905576	21
7	R1, R9, R12, R13, R15, R16, R21	RES. 1K 1/4W 5%	1300325	20
1	R5	RES. 3K 1/4W 5%	1300435	19
4	R6-R9	RES. 910R 1/4W 5%	1305374	18
2	R17, R18	RES. 10K 1/4W 5%	1300479	17
1	R3	RES. 5.6K 1/4W 5%	1301574	16
3	R10, R11, R14	RES. 390R 1/4W 5%	1300309	15
2	R19, R20	RES. 470R 1/4W 5%	1300316	14
3	E1, E14, E24	RES. PACK	1311003-01	13
2	C72, C73	CAP. 0.05UF 100V 20%	1001725	12
4	C63, C65, C67, C69	CAP. 270PF 100V 5% DM	1000022	11
4	C64, C66, C68, C70	CAP. 39PF 100V 5% DM	1000010	10
61	C1-C58, C74-C76	CAP. 0.1UF 100V 20% AXIAL	1001610	9
4	C59-C62	CAP. 6.8UF 35V 10% TANT	1005306	8
1	C71	CAP. 27PF 100V 5%	1001734	7
8		EYELET (GS-9-7) STAMPAN	9006732	6
4		HANDLE FLIP-CMP MARRNTH	9008337-08	5
1		ETCHED CIRCUIT BOARD	5009986	4
1		PADDED ECO HISTORY	BYM-M7255-0-3	3
1		ASSEMBLING HOLE LAYOUT	DIM-M7255-0-5	2
1		X-Y COORDINATE HOLE LOCATION	ECO-M7255-0-4	1

REV	CHANGE NO.	DESCRIPTION	DATE
1			
2			
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DEC NO.	EIA NO.	DEC NO.	EIA NO.

SIZE CODE	NUMBER	REV.
D CS	M7255-0-1	D

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NOTES:

- 1) INSTALL W1 FOR RK05.
- 2) CUT W4 FOR RKII-C COMPATIBILITY (NORMAL OPERATION)
- 3) FOR RKII-D (RK05) CUT JUMPER W3 FOR RKII-E (18 BIT RK05) CUT JUMPER W2.
- 4) FOR NORMAL OPERATION INSTALL W6 (CHANGES ID BITS ONLY FOR SEARCH COMPLETE INTERRUPT). INSTALL W5 TO CHANGE ID BITS FOR ANY INTERRUPT.
- 5) INSTALL PROPER CRYSTAL IN SPLIT LUGS AS OUTLINED IN TABLE I.

	DISK	BITS/WORD	MHZ	DEC P/N
RKII-D	RK05	16	2.850	18-12694-3
RKII-E	RK05	18	3.090	18-12694-4

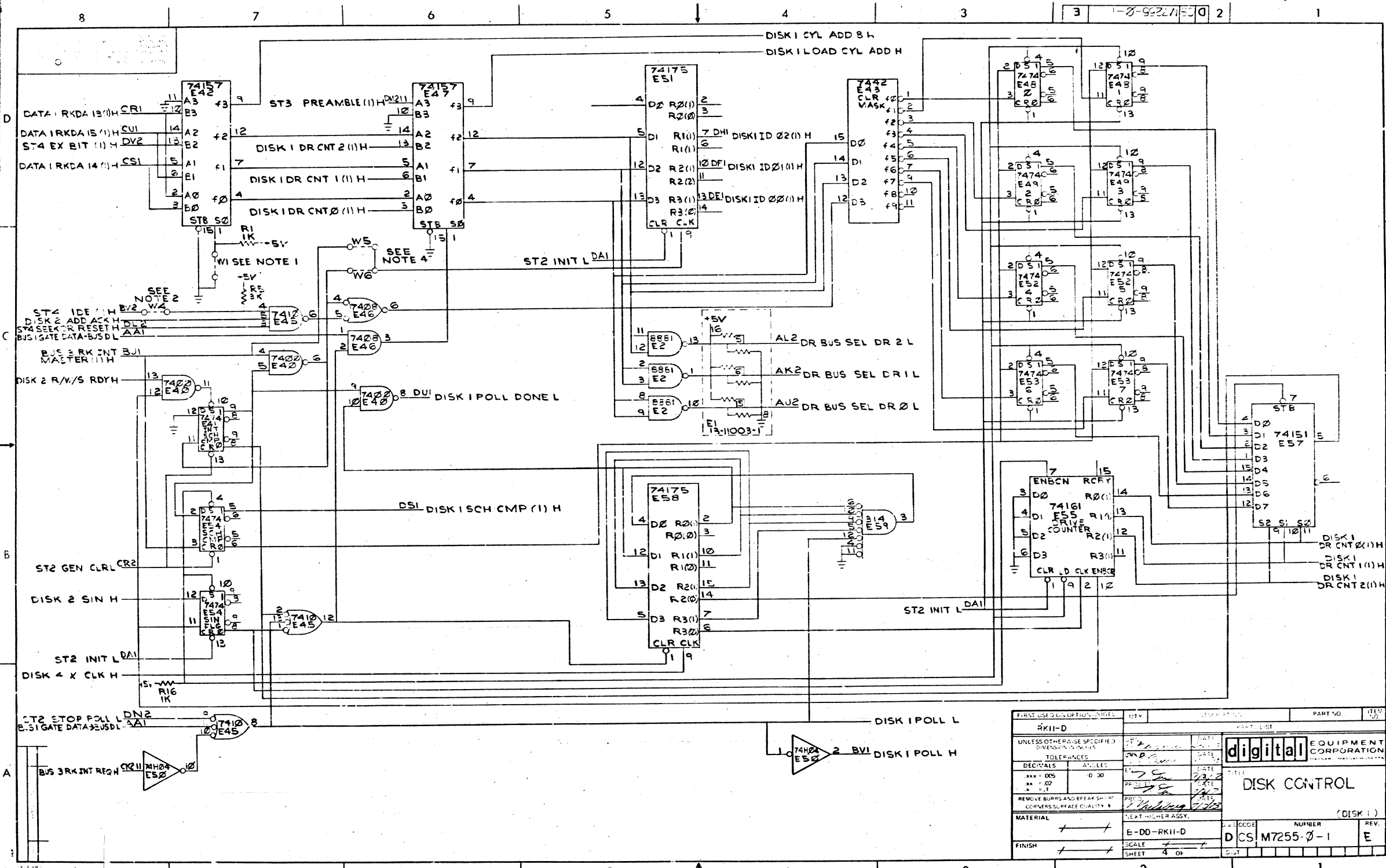
REV	
CHANGE NO	
CHK	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RKII-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRN. DATE	digital EQUIPMENT CORPORATION MAYLAND MASSACHUSETTS		
TOLERANCES	CHK'D. DATE	TITLE		
DECIMALS ANGLES	ENG. DATE	DISK CONTROL		
.XXX = .005	PROB'G. DATE	RKII-D		
.XX = .02	PROD. DATE	NEXT HIGHER ASSY.		
.X = .1		B-DD-RKII-D		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1		SIZE CODE	NUMBER	REV.
MATERIAL		D CS	M7255-0-1	D
FINISH		SCALE	NONE	
		SHEET	3 OF	

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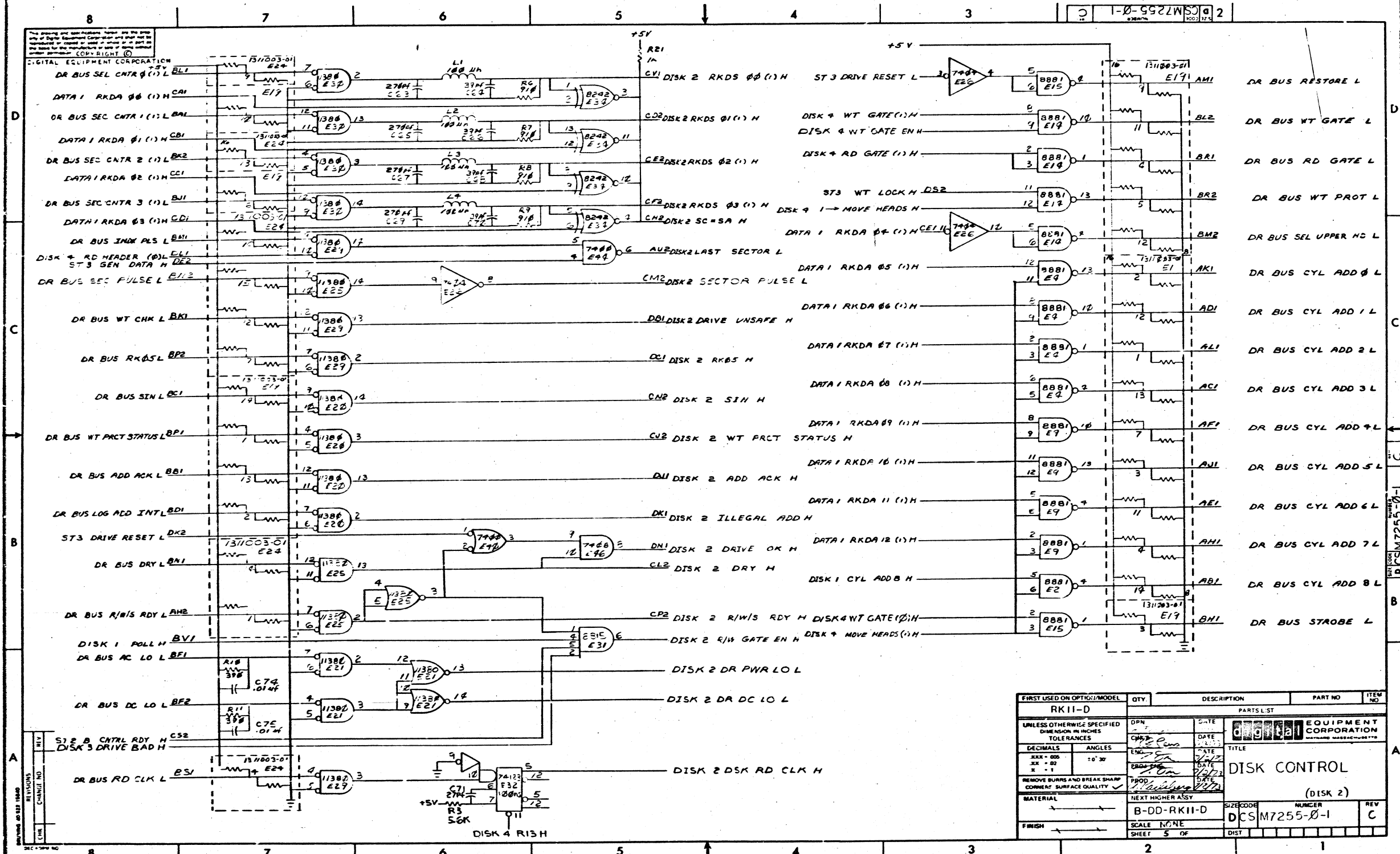
M7255-00005

NOT TO BE USED FOR PRODUCTION



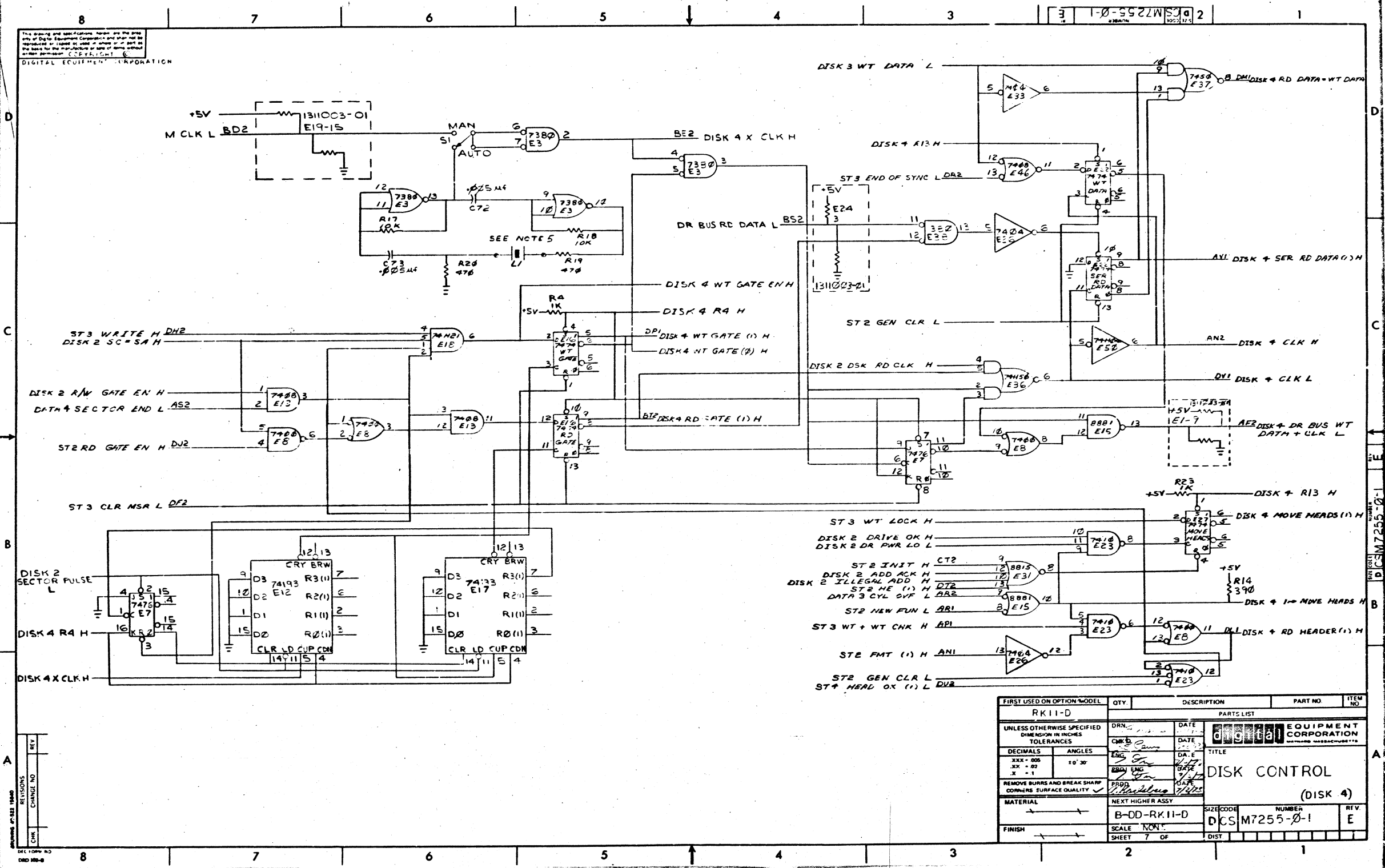
FIRST USE OF SYMBOL, MODEL, CITY, STATE, PART NO., REV. NO.		DATE		BY	
RKII-D		7/2/73		[Signature]	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DATE		BY	
TOLERANCES		7/2/73		[Signature]	
DECIMALS	FRACTIONS	DATE		BY	
XXX + .005	0/30	7/2/73		[Signature]	
REMOVE BURRS AND BREAK SHARP CORNERS TO RAISE QUALITY		DATE		BY	
MATERIAL		7/2/73		[Signature]	
FINISH		DATE		BY	
E-DD-RKII-D		7/2/73		[Signature]	
SCALE		DATE		BY	
SHEET 4 OF 4		7/2/73		[Signature]	
PART NO. M7255-0-1		REV. NO. E		TITLE	
DISK CONTROL		(DISK 1)		DRAWN BY	

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M7255-00005
NOT TO BE USED FOR PRODUCTION

FIRST USED ON OPTIC/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	TITLE		
.XXX - .005	± 0° 30'	DISK CONTROL (DISK 2)		
.XX - .02		NEXT HIGHER ASSY		
.X - .1		B-DD-RK11-D		
FINISH	SCALE NONE	SIZE CODE	NUMBER	REV
	SHEET 5 OF	DCS	M7255-0-1	C



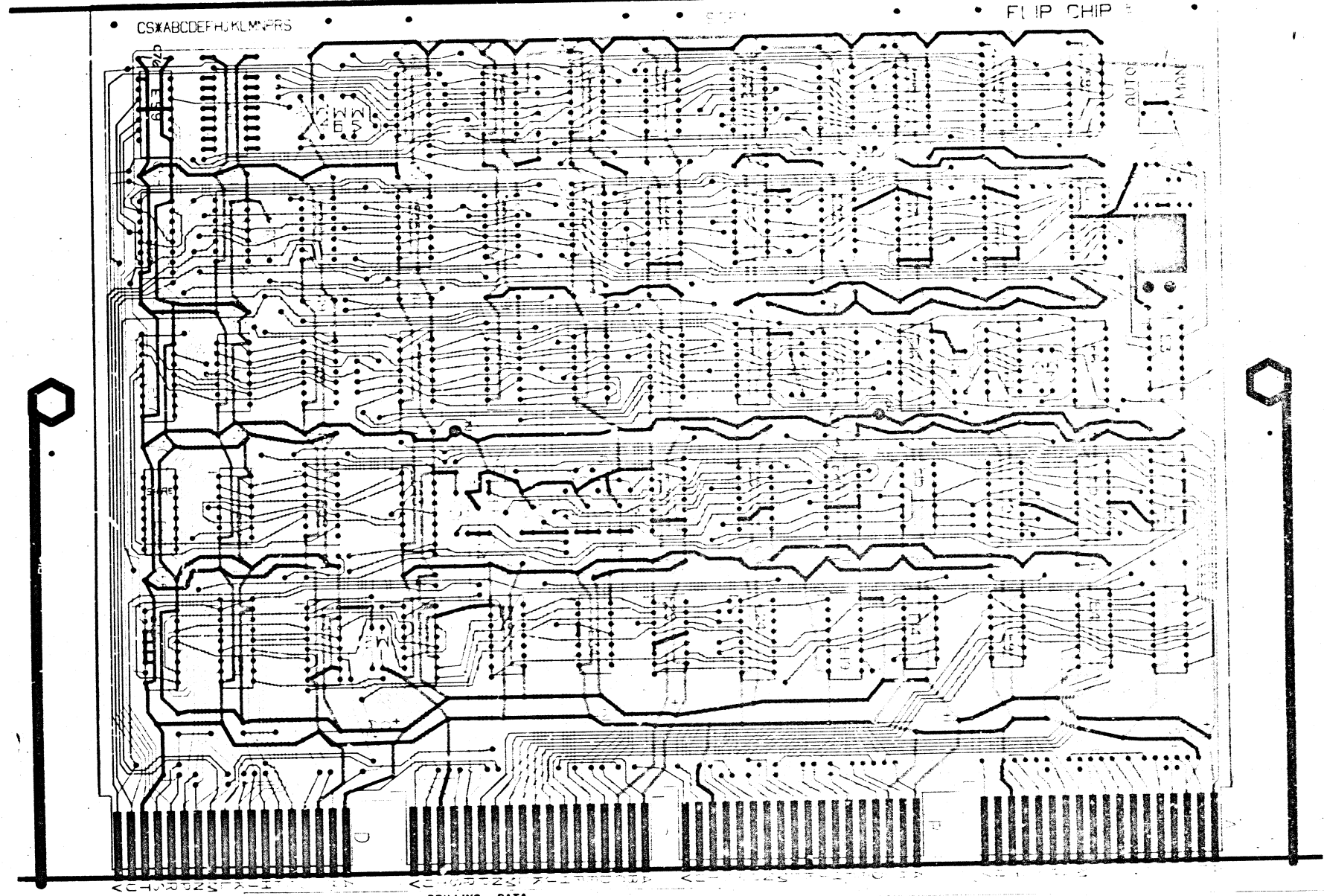
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DIGITAL EQUIPMENT CORPORATION

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DRN.	DATE	
.XX - .005	10' 30"	ENG	DATE	
.XX - .02		BRN	DATE	
.XX - .1		PRD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY	TITLE		
		DISK CONTROL		
		(DISK 4)		
FINISH	SCALE	SIZE CODE	NUMBER	REV.
		B-DD-RK11-D	DCS M7255-0-1	E
	SHEET 7 OF	DIST		

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M7255E-P2MS40187



CSXABCDEFGHIJKLMNPRS

FLIP CHIP

NOTES:

HOLE LETTER	DRILL SIZES		FOR NON-PTH BOARDS	CAN TAKE GRIPLETS YES NO	QTY OF HOLES
	FOR PTH BOARDS BEFORE PLATE	AFTER PLATE			
NONE	61 (.39 DIA.)	X			
Y	49 (.073 DIA.)	X			2
Z	41 (.060 DIA.)	X			2

BOARD FABRICATION INFORMATION

BOARD SIZE 5.625 x 11.750
 BOARD MATERIAL 2000-100-0000
 LAYER 2 SIDES
 E-LEET PLATED THRU
 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE	2/13	DESIGNED BY	DAH
REV	1	CHECKED BY	
PROJ	MS	DATE	2/13
FIRST USED ON		SCALE	1:1
ETCH REV		DATE	2/13
		SCALE	1:1
		DATE	2/13

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-00005

NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER 7775	ORIGINATOR Dick Lewis 1-3 TEL EXT 4620 DATE 9-14-73 DISC PROJ NO. E-20-06734 COST CENTER NO. 395	ECO NO. M7255-0-1 SHEET 1 OF 3 DATE RECEIVED 9-21-73 FIRST ISSUE 9-28-73 FINAL ISSUE 10/26/73
--	---	---

PROBLEM

During a power fail sequence it is possible for WT GATE to be on while an INLT (from M7254) caused by BUS DC IO is issued. This will damage the data being written on the disk.

CORRECTION
Replace DR BUS AC LO with BUS AC IO in the R/W GATE EN circuit and remove its terminator. If BUS AC LO is asserted at sector pulse time, then WT GATE is not turned on. DR BUS AC IO is not required for proper operation of the control.

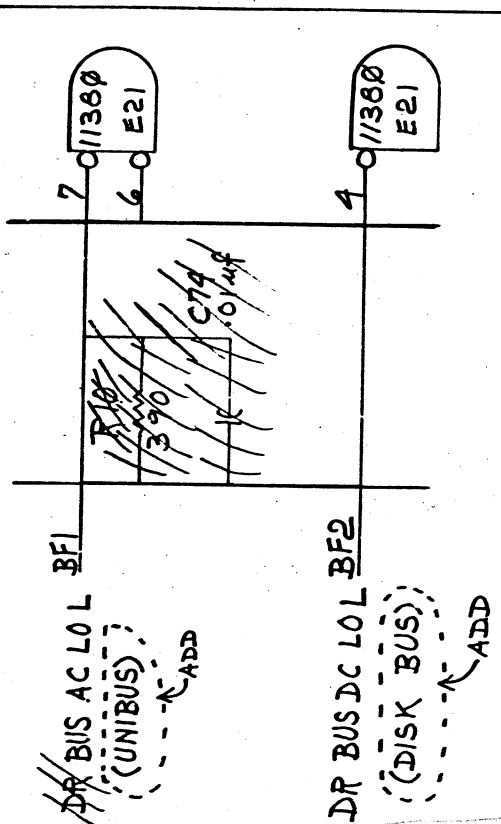
BREAK INEFFECTIVITY: Retrofit all units leaving Puerto Rico and Westfield after October 15. Retrofit all others as required at Westfield after October 15. NOTE: This ECO must be installed on all M7255 B in R/W and B in B.

ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE
1	D-CS-M7255-0-1			Update rev. Delete R10 and C45 from parts list and overlay Delete R10 and C74 from parts list and overlay Change signal name on E49 pin 4 from DR BUS AC LO L to BUS AC IO L and delete R10 and C45 Change signal name on E21 pin 7 from DR BUS AC LO L to BUS AC IO L, delete R10 and C74 and add bubbles to input pins 1,2,4,5 of 8815 in E31 Update rev and delete I10 and C45 Update rev and delete R10 and C74 See final release drawing Delete one 390 resistor Delete one .01 capacitor
2	D-AH-M7255-0-5			
3	D-AH-M7255-0-5			
4	B-ME-M7255-0-6			
5	1000308			

<input type="checkbox"/> RETURN TO STOCK <input type="checkbox"/> USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) <input type="checkbox"/> REWORK IMMEDIATELY (RETROFIT) <input type="checkbox"/> HOLD (LTD) <input type="checkbox"/> DOCUMENT CORRECTION <input type="checkbox"/> NEW ITEM (THIS COMPANY) <input type="checkbox"/> SCRAP IMMEDIATELY	DESIGN ENGR Tom Oxx ENG MOR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)	APPROVAL SIGNATURE APPROVAL DATE APPROVAL COMMITTEE
--	--	---

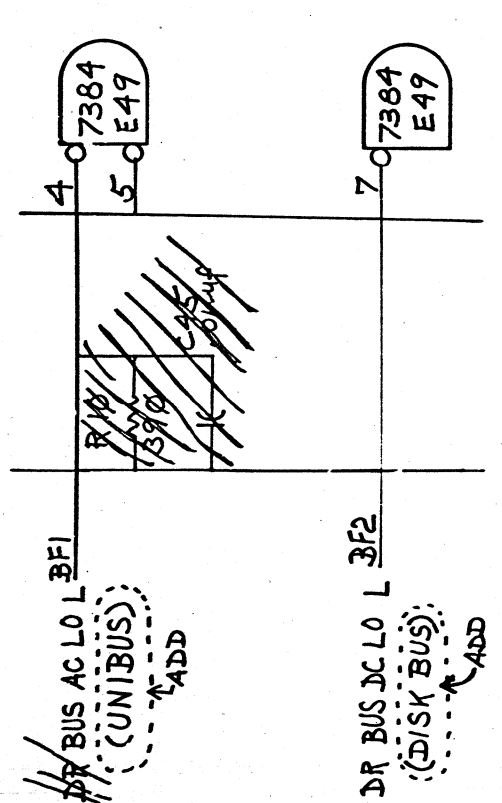
DEC 10 1973 10710971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY) DRA-111C

ECO NO. M7255-00006 SHEET 2 OF 15

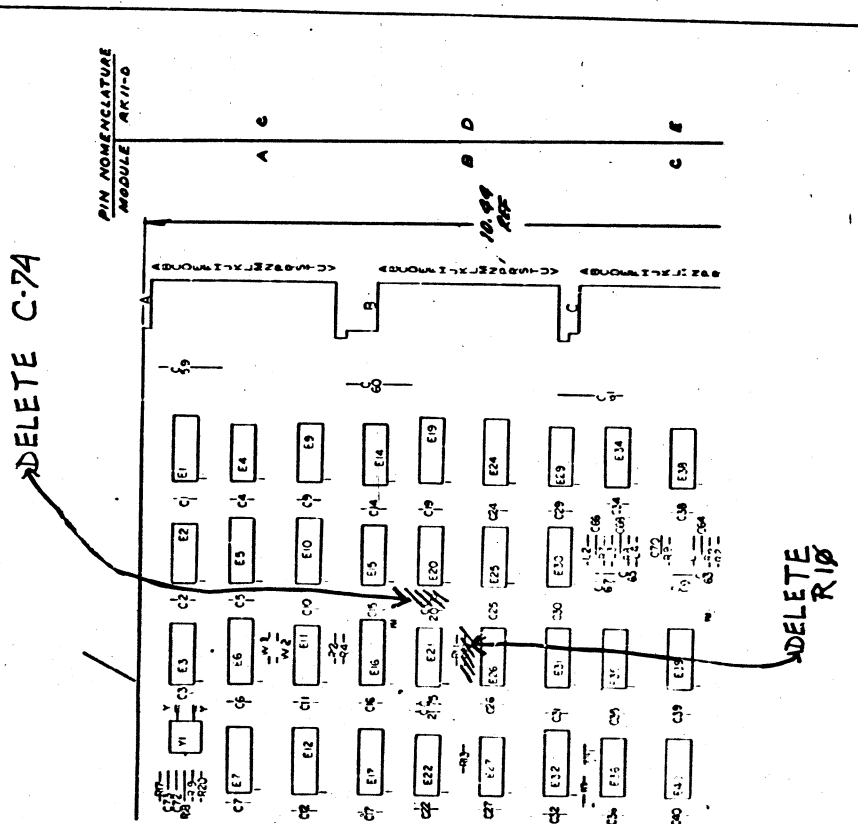


digital	DISK CONTROL (DISK 2)	D-CS-M7255-0-1	SHEET 5	D
Y. ADAMS	A-7	GRAPHIC DESCRIPTION		

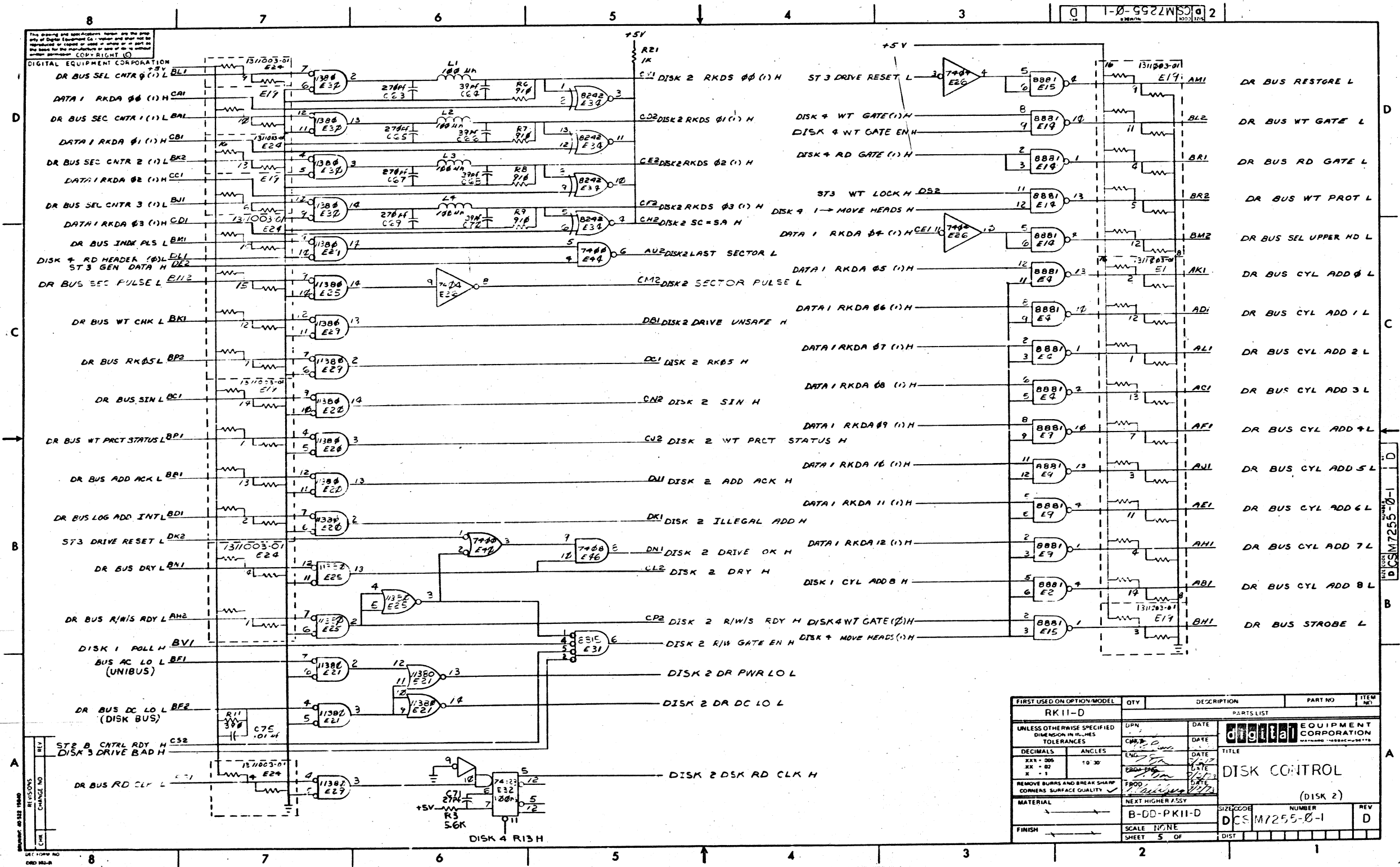
ECO NO. M7255-00006 SHEET 3 OF 15



digital	DISK CONTROL (DISK 2)	D-CS-M7255-0-1	SHEET 5	B1
Y. ADAMS	A-7	GRAPHIC DESCRIPTION		

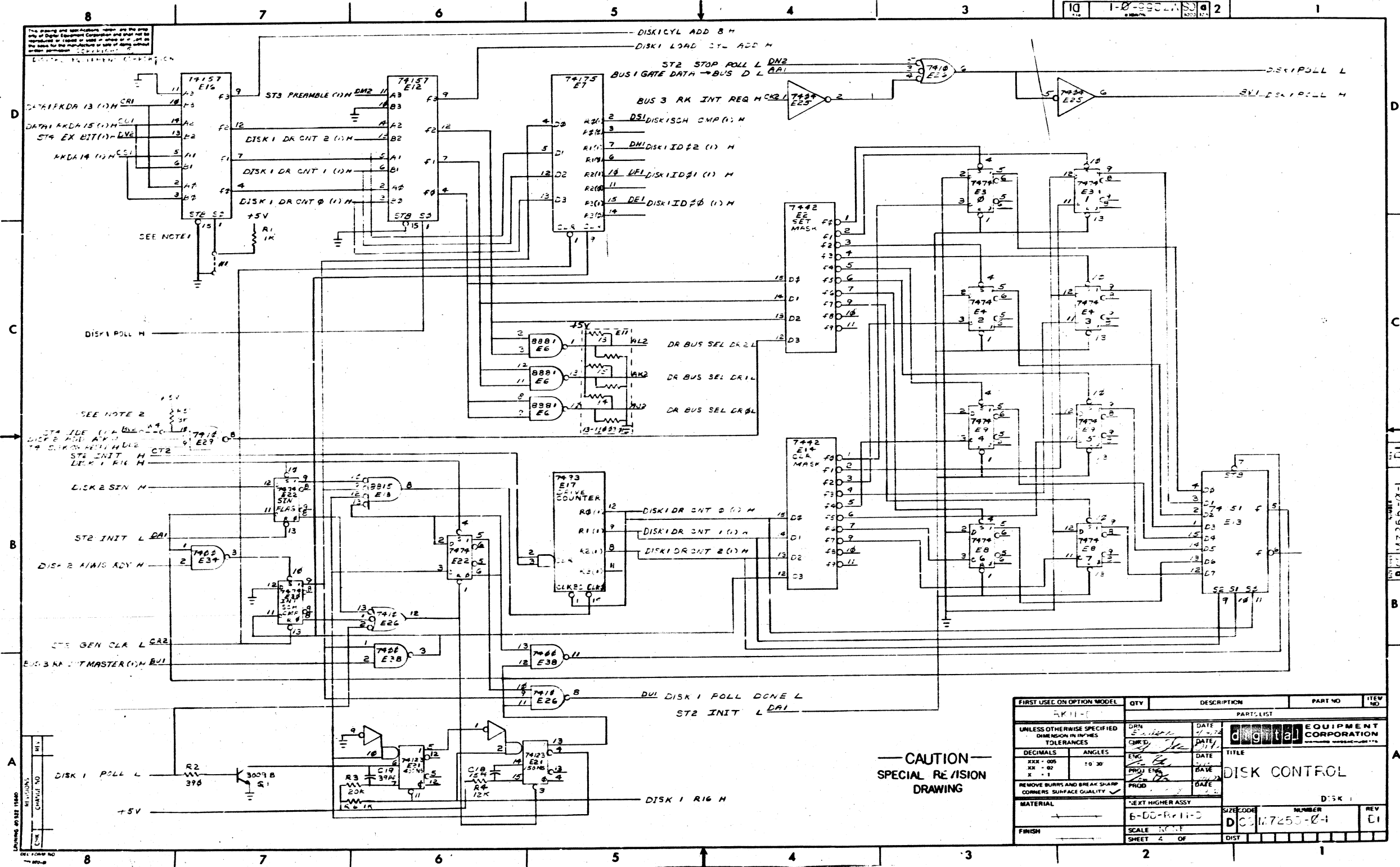


digital	DISK CONTROL (DISK 2)	D-CS-M7255-0-1	SHEET 2	E
Y. ADAMS	C-5	GRAPHIC DESCRIPTION		



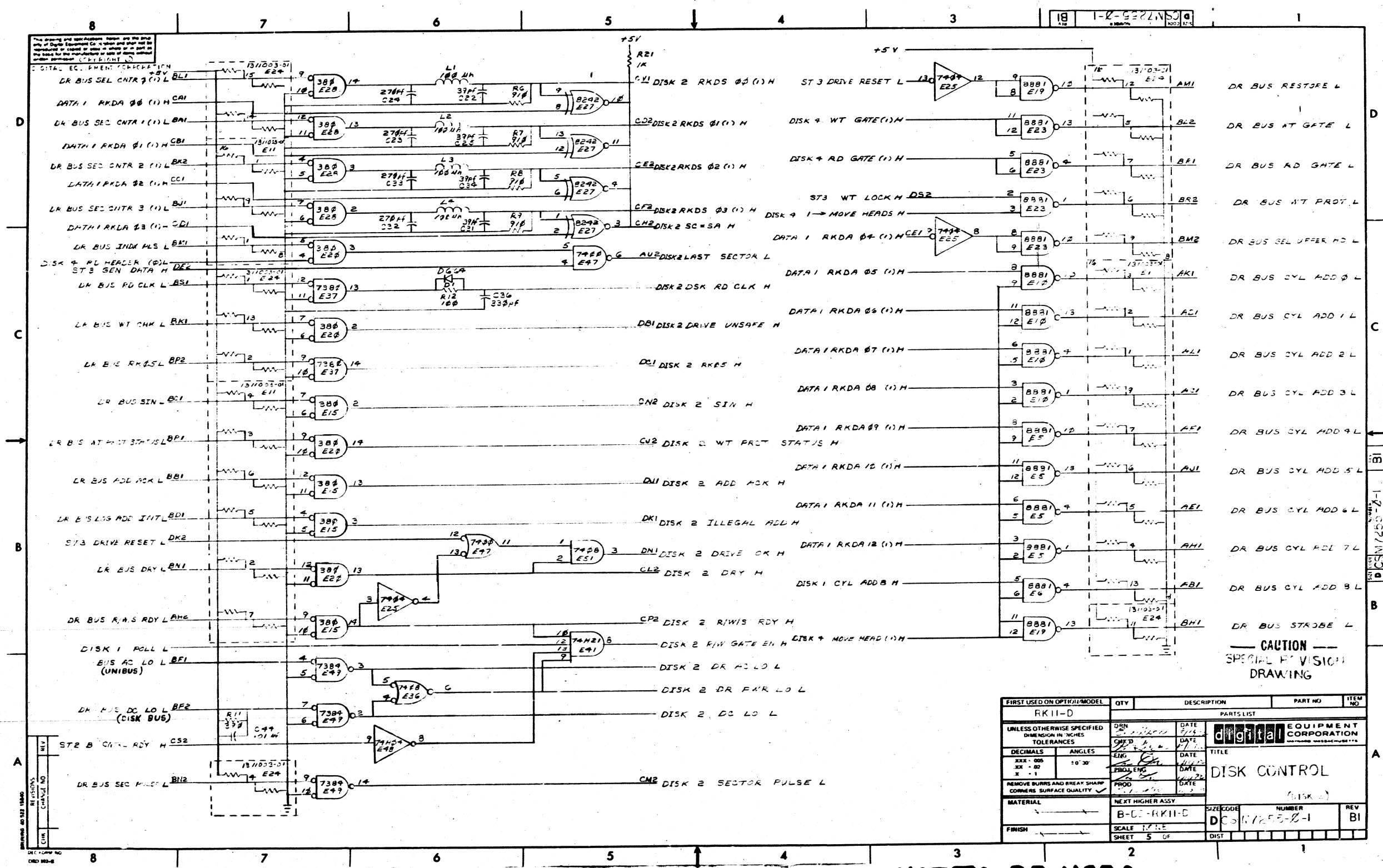
FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DATE	digital EQUIPMENT CORPORATION		
TOLERANCES	DATE	TITLE		
DECIMALS ANGLES	DATE	DISK CONTROL		
XXX - .006 XX - .01 X - .1	DATE	(DISK 2)		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	DATE	NEXT HIGHER ASSY		
MATERIAL	DATE	B-DD-PK11-D		
FINISH	DATE	SCALE NONE		
	DATE	SHEET 5 OF		
	DATE	DIST		
	DATE	NUMBER		
	DATE	REV		
	DATE	D		

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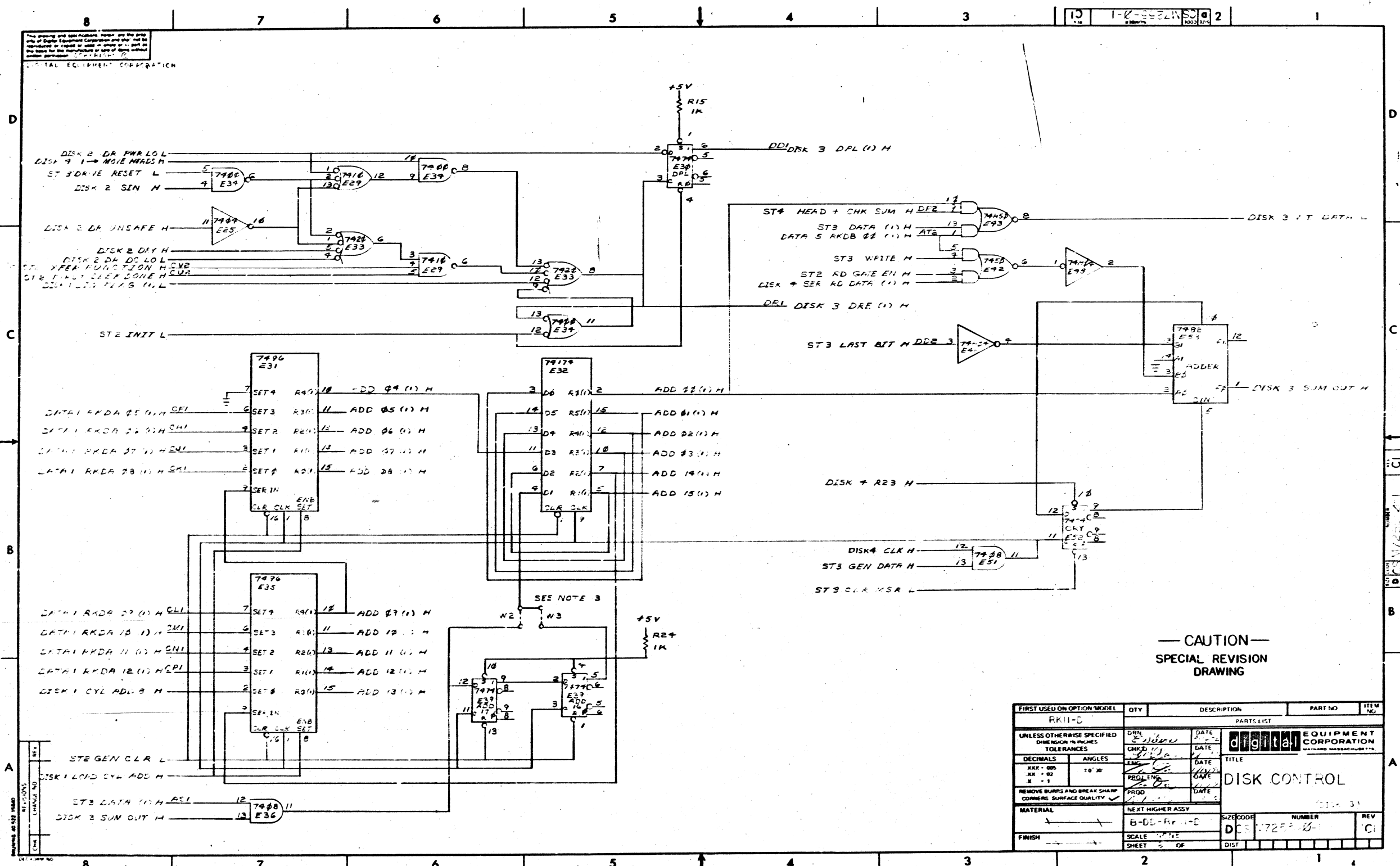
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FIRST USE ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
AK11-1				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES		PARTS LIST		
DECIMALS	ANGLES	DATE	DIGITAL EQUIPMENT CORPORATION	
XXX - 005	10 30	DATE	TITLE	
XX - 02		DATE	DISK CONTROL	
X - 1		DATE	DISK 1	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	REV	
MATERIAL	EXT HIGHER ASSY	DATE	D1	
FINISH	E-00-Rel 11-0	DATE	D1	
	SCALE NONE	DATE	D1	
	SHEET 4 OF	DATE	D1	



FIRST USED ON OPTI/II/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN DATE 5/1/71	DATE 5/1/71	PARTS LIST	
DECIMALS	ANGLES	ENG DATE 5/1/71	TITLE	
XXX - 000 XX - 00 X - 1	10 30	PROB ENG DATE 5/1/71	DISK CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD DATE 5/1/71	DATE 5/1/71	NUMBER	
MATERIAL	NEXT HIGHER ASSY	DATE 5/1/71	SIZE CODE	REV
FINISH	B-D-RK11-D	DATE 5/1/71	D0317255-0-1	B1
	SCALE 1/16"	DATE 5/1/71	DIST	
	SHEET 5 OF	DATE 5/1/71		

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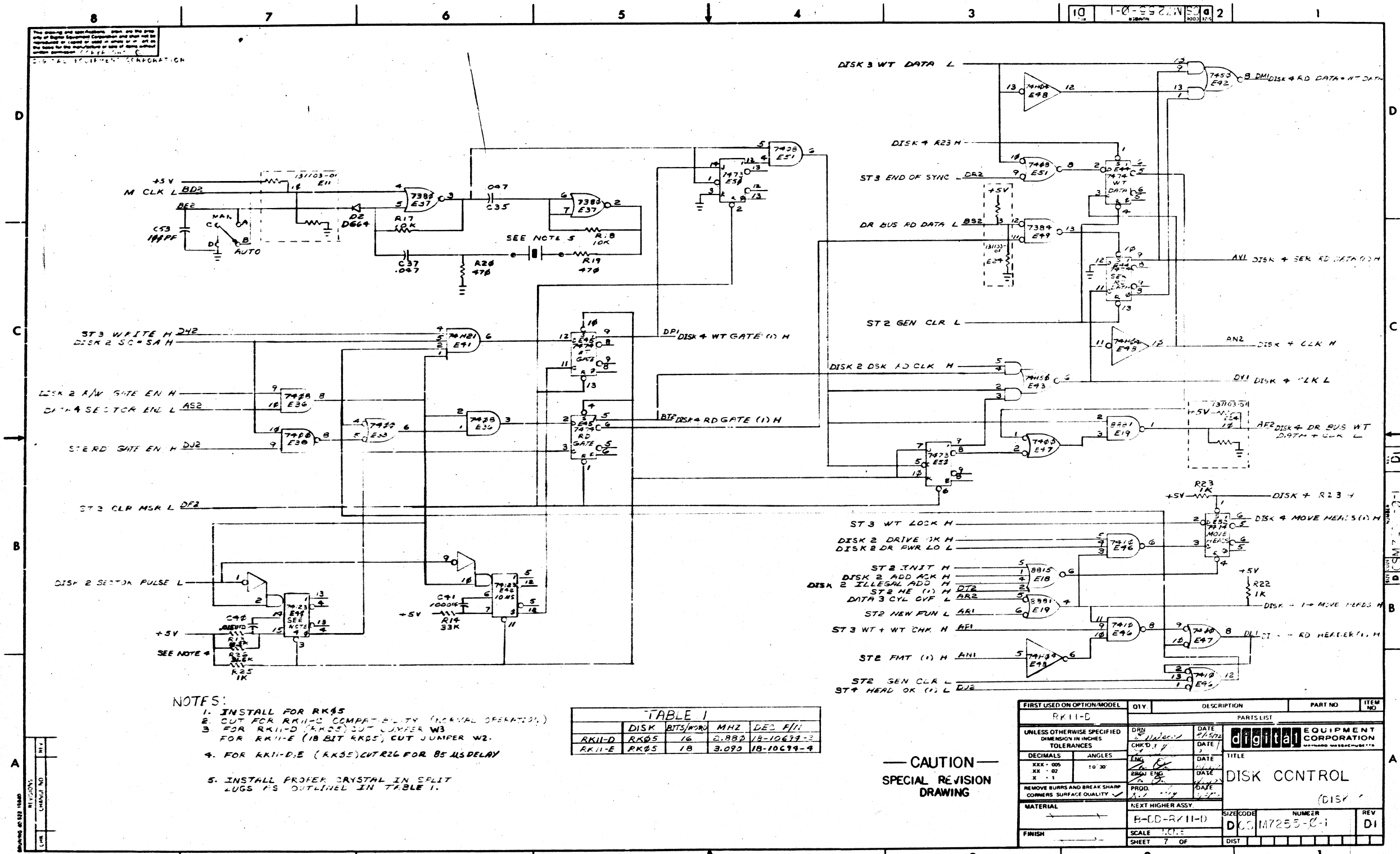


— CAUTION —
SPECIAL REVISION
DRAWING

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-C		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN	DATE	digital EQUIPMENT CORPORATION TITLE DISK CONTROL SHEET 31
DECIMALS	ANGLES	CHKD	DATE	
1/16 - .005	10' 30"	ENG	DATE	
1/32 - .001		PROLEM	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROD	DATE	
MATERIAL	NEXT HIGHER ASSY	SIZE CODE NUMBER REV		
	B-05-RK11-C	D05 17255-01-01 C1		
FINISH	SCALE	SHEET 2 OF DIST		

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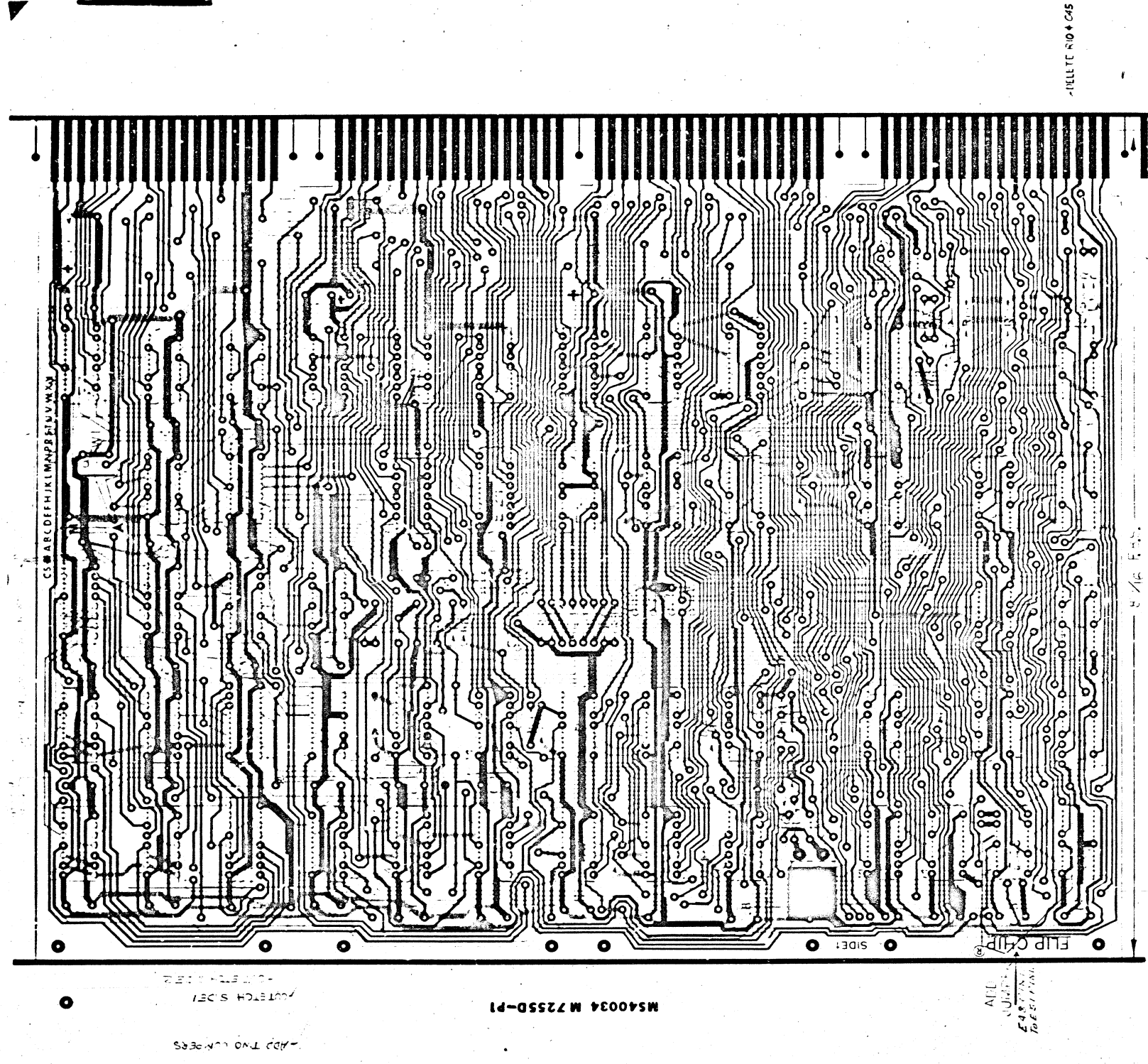
- NOTES:
1. INSTALL FOR RK45
 2. CUT FOR RK11-D COMPATIBILITY (NORMAL OPERATION)
 3. FOR RK11-D (KK05) CUT JUMPER W3
 4. FOR RK11-E (18 BIT KK05) CUT JUMPER W2
 5. INSTALL PROPER CRYSTAL IN SPLIT LUGS AS OUTLINED IN TABLE 1.

DISK	BITS/WORD	MHZ	DEC #/11
RK11-D	RK05	16	2.882 18-10639-2
RK11-E	RK05	18	3.092 18-10639-4

CAUTION
SPECIAL REVISION
DRAWING

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES				
DECIMALS	ANGLES	DATE	digital EQUIPMENT CORPORATION	
XXX - 000	10 30	2/1/72	TITLE	
X - 02			DISK CONTROL (DISK)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
NEXT HIGHER ASSY				
MATERIAL		SCALE	SIZE CODE	NUMBER
		1:1	DCC	M7255-C-1
FINISH		SHEET	DIST	REV
		7 OF		D1

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 x 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL 0.02 IN. 1.02 COPPER 2 SIDES NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA				CAN TAKE STRIPLETS YES NO	FOR NON-PTH BOARDS	QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE	AFTER PLATE				
NONE							
	*56 HALL (0465-3A)	X					
	*49 HALL (073 D.A.)	X					

NOTE: DRILL IS OPTIONAL

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	DAVID	ALL							
DRAFTSMAN		ALL							
CHECKER									

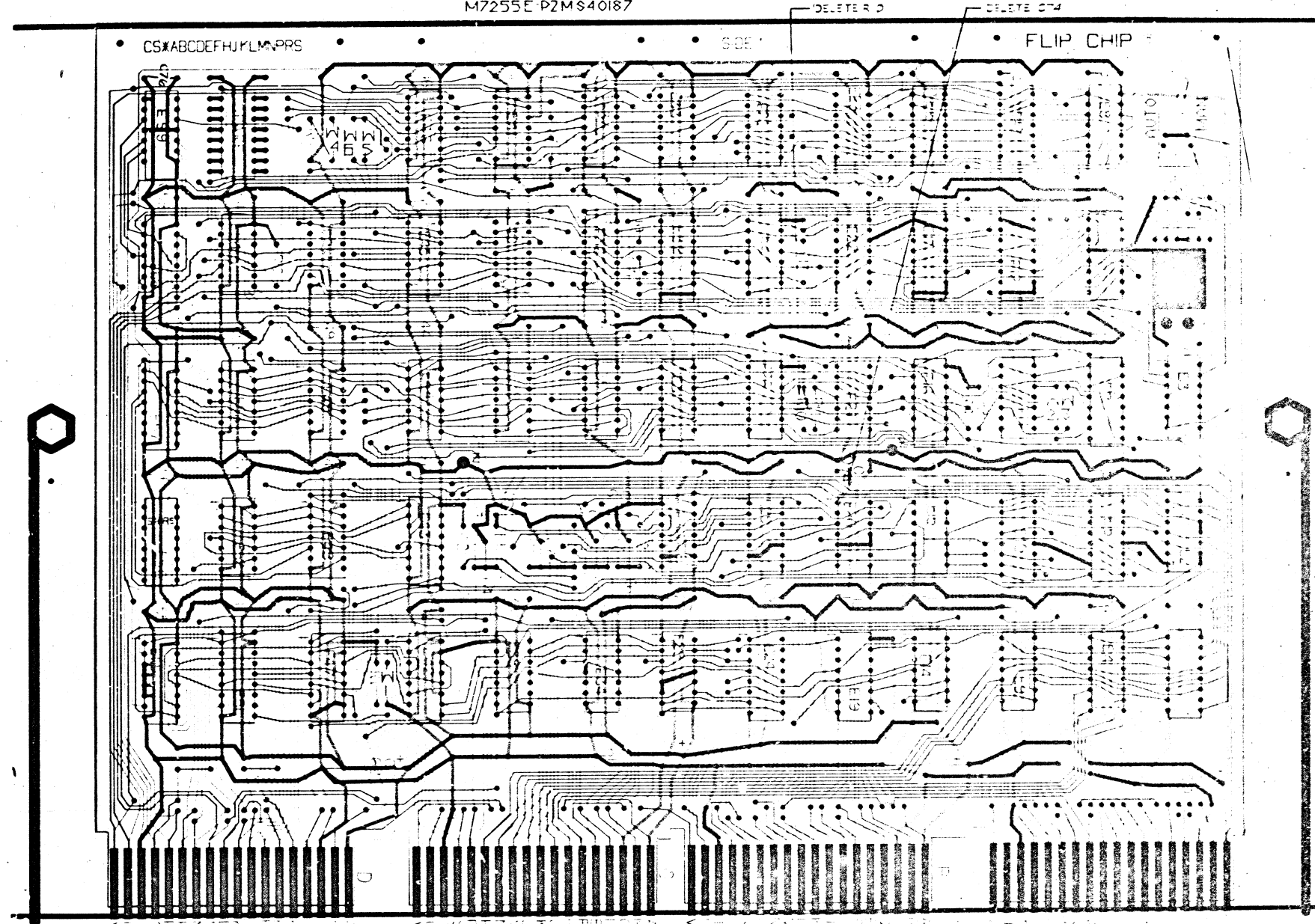
TITLE	SKILL-DISK CONTROL	PROD. NO.	M7255
DESIGNER		C.S. REV	F1
DRAFTSMAN		ETCH REV	D
CHECKER			

digital EQUIPMENT CORPORATION
 TITLE: Assembly Drawing
 H.C.F. 1 AUGUST
 SHEET: 1 OF 1
 NUMBER: M7255-0-5
 REV: F1
 SCALE: 1:1
 DRAWN BY: AH
 DATE: 8/1/55

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NOT TO BE USED FOR PRODUCTION

M7255E P2MS40187



NOTES:

HOLE LETTER - FOR PTH BOARDS	DRILLING DATA		CAN TAKE GRIPLETS YES NO	QTY OF HOLES
	DRILL SIZES BEFORE PLATE	DRILL SIZES AFTER PLATE		
NONE	61 (39)	X		
Y	45 (27.3 DIA.)	X		
Z	41 (25.6 DIA.)	X		2

BOARD FABRICATION INFORMATION

BOARD SIZE 57.62 x 114.30
 BOARD MATERIAL COPPER 2 SDR
 EYELET PLATED THRU X
 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING X

DATE	DESIGNER
7/1/84	
PCB USED ON	
ETCH REV	J

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M7255-00006

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digital ENGINEERING CHANGE ORDER 9793		ORIGINATOR Dick Lewis 1-3 TEL EXT 4620 DATE 10/5/73 DISC PROJ NO. E20-06734 COST CENTER NO. 395		ECO NO. <u>M7255-6A</u> SHEET 1 OF 1 DATE RECEIVED <u>10-9-73</u> FIRST ISSUE <u>10-10-73</u> FINAL ISSUE	
PROBLEM The break in/effectivity of ECO #M7255-0006 stated that the ECO was to be installed on all M7255's in RK11's with ECO #RK11D-00010. This was in error. The FK11D ECO referenced should be RK11D-00009.				UNIT TO BE CHANGED M7255 Disk Control DISP CODE <u>06</u> OPTIONS AFFECTED RK11D, E.	
CORRECTION Install ECO #M7255-0006 on all M7255's in RK11's with ECO #RK11D-00009. Supplement ECO				PRODUCT LINES AFFECTED PDP11 PDP15	
BREAK-IN/EFFECTIVITY					
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1	B-MH-M7255-0-6	H	J	06	RECALL THIS ECO.
SUPPLEMENT ECO					
DOCUMENTATION AFFECTED <input type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC				FIELD SERVICE AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Custom vs Change <input checked="" type="checkbox"/> Product Line Change	
TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE				ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
DISPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			APPROVAL SIGNATURES Typewritten / Hand Signature DESIGN ENGR Tom Orr (1-3) _____ ENGR (OPT) _____ FIELD SERVICE (OPT) _____ CHIEF ENGR (MODULES ONLY) _____		

digital ENGINEERING CHANGE ORDER 4901		ORIGINATOR Dick Lewis, 1-3 TEL EXT 4620 DATE 10/12/73 DISC PROJ NO E-20-06734 COST CENTER NO 395	ECO NO. <u>M7255-6B</u> SHEET <u>1</u> OF <u>2</u> DATE RECEIVED <u>10-18-73</u> FIRST ISSUE <u>10-18-73</u> FINAL ISSUE	
PROBLEM The Break In/Effectivity of ECO #M7255-00006 is unreasonable SUPPLEMENT ECO		UNIT TO BE CHANGED M7255 disk control	DISP CODE <u>03*</u> OPTIONS AFFECTED RK11-D,E	
CORRECTION Change the first sentence of the break-in/effectivity to read "retrofit all units built in Westfield after October 15 and all units leaving Puerto Rico after October 15." Supplement ECO		PRODUCT LINES AFFECTED PDP11 PDP15		
BREAK-IN/EFFECTIVITY See Sheet 2 this ECO for corrected break-in/effectivity				
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW DISP REV CODE	DESCRIPTION OF CHANGE
1	B-MH-M7255-0-6	J	K 06	Update per this ECO SUPPLEMENT ECO
DISPOSITION CODES		APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE 1S) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY		DESIGN ENGR <u>Tom Orr 1-3</u> ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY) <u>AV</u>		

DEC 14 (325)-1071-0971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

DNA-111C

digital ENGINEERING CHANGE ORDER		CONTINUATION SHEET		ECO NO. <u>M7255-0006B</u> SHEET <u>2</u> OF <u>2</u>
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW DISP REV CODE	DESCRIPTION OF CHANGE
				Break-In/Effectivity Retrofit all units built in Westfield after October 15 and all units leaving Puerto Rico after October 15. Retrofit all others as required or as convenient. NOTE: This ECO must be installed on all M7255's in RK11-D,E with ECO RK11-L-0009 (Rev C) Reference ECO #M7255-00006.

DRA-111C-2

digital ENGINEERING CHANGE ORDER 9937		ORIGINATOR Tom Orr (1-) TEL EXT 2791 DATE 12/20/73 DISC PROJ NO. 29-76734 COST CENTER NO. 395	ECO NO. <u>M7255-0007</u> SHEET 1 OF 1 DATE RECEIVED <u>12-21-73</u> FIRST ISSUE <u>1-4-73</u> FINAL ISSUE <u>2/1/74</u>			
PROBLEM Power and ground distribution is very poor which results in high susceptibility to conducted and induced noise. This may show up as intermittent data, check sum or write check errors.			UNIT TO BE CHANGED M7255 Etch Rev. D RK11-D Disk Control DISP CODE C3*			
CORRECTION Add 4 ground and 4 power jumpers to side 1 of the board to improve the network of power and ground distribution. Rework only etch Rev. D and earlier.			OPTIONS AFFECTED RK11-D RK11-E			
BREAK-IN/EFFECTIVITY Rework all units to be shipped from Puerto Rico, Ireland, and Westminster after 1/15/74. Rework all units built in Westfield after 1/15/74. Rework any field machine suspected of having noise related problems.			PRODUCT LINES AFFECTED PDP-11 PDP-15			
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	B-CS-M7255-0-1 Sheet 1	F1	F2	06	Update revision per this ECO.	<input checked="" type="checkbox"/> MODEL
2	D-AR-M7255-0-5	J	K	06	Update revision per this ECO	<input type="checkbox"/> DIAGNOSTICS
		F1	F2	06	Add 8, 30 AWG wires to power and ground distribution. Update revision per this ECO.	<input type="checkbox"/> TECH MANUAL
3	D-AR-M7255-0-5	J	K	06	Update revision per this ECO.	<input type="checkbox"/> TESTER
4	D-MR-M7255-0-6	K	L	06	Update revision per this ECO.	<input type="checkbox"/> TEST PROG
Rework Instructions: Etch Rev. D only Ground Runs: Add wire from: 1. E50 Pin 3 to GND side of C46. 2. GND feed thru adjacent to E45 Pin 1 to GND feed thru adjacent to E41 Pin 7. 3. GND side of C31 to GND side of C38. 4. GND side of C22 to GND side of C17. +5 Runs: Add wire from: 1. E35 Pin 5 to +5v side of C30. 2. E23 Pin 14 to +5v side of C50. 3. +5v side of C13 to +5v side of C10. 4. +5v side of C17 to +5v side of R1.						<input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
DISPOSITION CODES 01 - RETURN TO STOCK 02 - (DELETED) 03 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 04 - REWORK IMMEDIATELY (RETROFIT) 05 - (DELETED) 06 - (DELETED) 07 - DOCUMENT CORRECTION 08 - NEW ITEM (THIS ASSEMBLY) 09 - NEW ITEM (THIS COMPANY) 10 - SCRAP IMMEDIATELY						FIELD SERVICE AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input checked="" type="checkbox"/> Product Line Charge TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
APPROVAL SIGNATURES DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)					11 CENTRAL ENG. ECO CONTROL	

DEC 16-(325)-1071-8971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

digital	FIELD CHANGE ORDER	ECO <u>M7255</u> <u>B</u> <u>0007</u> PAGE 1 OF 1
FIELD EFFECTIVITY Rework M7255's in all RK11-D's at next PM or service call and verify in all new installations.		*LEVEL OF URGENCY CODE A - MAINTENANCE HIGH PRIORITY B - MAINTENANCE LOW PRIORITY C - MAINTENANCE DEFERRED (HARDWARE, SOFTWARE, OR SYSTEMS ARE PRESENT) D - SOFTWARE SPECIFIC (HARDWARE, SOFTWARE, OR SYSTEMS ARE DEFERRED) E - PRODUCT IMPROVEMENT (OPTIONAL LOW PRIORITY)
FIELD EFFECTIVITY <input checked="" type="checkbox"/> ARE TO BE REPORTED UNDER A "WARRANTY CHARGE CODE" <input type="checkbox"/> STANDARD AFTER SERVICE. THIS ECO IS TO BE INSTALLED AT NO CHARGE FOR WARRANTY AND MAINTENANCE CONTRACT CUSTOMERS. A CHARGE WITH THE TECHNICAL EFFECTIVITY ABOVE, OTHERWISE AT CUSTOMER EXPENSE. DOCUMENTATION \$ PARTS \$ DISCOUNT \$		DISC. PRODUCT NUMBER DISC. EST. SERVICE REPORT NO. PARTS AVAILABILITY DELAY NO PARTS X STATED QUANTITY FOR INSTALLATION AND TESTING 2.0 HOURS SPECIAL TEST EQUIPMENT, TOOLS, OR SUPPLIES
FIELD EFFECTIVITY DISTRIBUTION CODE <input checked="" type="checkbox"/> F IMMEDIATE ECO DISTRIBUTION TO ALL DEC FIELD OFFICES <input type="checkbox"/> IN IMMEDIATE ECO DISTRIBUTION TO REGIONAL PRODUCT SUPPORT		LAST PREVIOUS ECO'S <u>C06, C04, C03</u> RELATED OR PRE-REQUISITE ECO'S <input type="checkbox"/> WANTED CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED
ECO KIT DISTRIBUTION <input checked="" type="checkbox"/> KITS AS DEFINED BELOW MAY BE ORDERED AS REQUIRED		VERIFICATION MANDECS DZRKB PARTS REQUIRED
CONTENTS OF AN ECO INITIATED KIT FIG. ECO PARTS PARTS CONTENTS OF A KIT AS ORDERED FIG. KIT PARTS PARTS		NOTES
INSTALLATION AND TEST PROCEDURES		FIELD SERVICE APPROVAL Jim Barclay (x) 1-17 (375/223) 600

DEC 12 (752) 1095 N1071

1 2-0-552LW HW 8
 M7255-0-6

MODULE ECO HISTORY

PRODUCT LINE PDP11 RELEASED CS REV. B
 DATE RELEASED 9-25-72 PAGE 1 OF 2 RELEASED ETCH BD REV. C
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D. LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R. LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAMINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT (E2) WHEN NOT POLLING TO PREVENT FALSE SCH. CMP'S		
00005	R. LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REV.	CHG. NO.	REV.	DATE

DRW	DATE	10-1-72
CHK'D	DATE	10-1-72
ENG	DATE	10-1-72
PROD.	DATE	10-1-72

EQUIPMENT CORPORATION				SIZE	CODE	NUMBER	REV.
MATHARD, MASSACHUSETTS				B	MH	M 7255-0-6	L

DRB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00007 NOT TO BE USED FOR PRODUCTION

7 9-0-566W MW B
A32 NUMBER 3300 3715

MODULE ECO HISTORY														
PRODUCT LINE <u>PDP11</u>				PAGE <u>2</u> OF <u>2</u>				RELEASED CS REV. <u>B</u>						
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV. <u>C</u>						
RELEASED BY <u>T. ORR</u>														
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED	
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)				
00006	R. LEWIS	9-14-73	J F1	E	X				X			REPLACE DR BUS AC LO WITH BUS AC LO	-	2
00006A	R. LEWIS	10-9-73	-	-	-	-	-	-	-	-	-	CORRECT REF INFO	-	-
0006B	R. LEWIS	10-16-73	-	-	-	-	-	-	-	-	-	CHANGE BREAK-IN DATE	-	-
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED		X			ADD +5 AND GND JUMPER TO REDUCE POWER NOISE	-	-

REVISIONS
CHK'D
DATE

DRN: D. SMITH DATE: 10/4/72
CHK'D: D. SMITH DATE: 10/4/72
ENG: T. ORR DATE: 10/12/72
PROD: P. DOOLEY DATE: 10/12/72

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: MODULE ECO HISTORY
SIZE: B CODE: MH NUMBER: M7255-0-6 REV: L

DEC 16 - 29-1026-N971
DRB 104

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PAGE REVISION CONTROL SHEET

SH NO.	PAGE REVISIONS										REMARKS	
	B	C	D	E	F	H	I	J	K	L		
1	B	C	D	E	F	H	I	J	K	L		DISK1 DISK2 DISK3 DISK4
2	B	C	C	C	C	D	C	C	C	C		
3	B	C	C	C	C	D	C	C	C	C		
4	F	B	B	B	B	C	B	B	B	B		
5	F	B	B	B	B	C	B	B	B	B		
6	F	B	B	B	B	C	B	B	B	B		
7	F	C	D	D	D	D	D	D	D	D		

FIRST USED ON OPTION/MODEL
RK11-D

DRN	DATE	DATE	DATE	DATE	DATE
W. Wilson	10/27	11/12	11/22	12/12	1/12
CHK'D.	DATE	DATE	DATE	DATE	DATE
ENG.	DATE	DATE	DATE	DATE	DATE
PROJ. ENG.	DATE	DATE	DATE	DATE	DATE
PROD.	DATE	DATE	DATE	DATE	DATE
NEXT HIGHER ASSY.					
B-DD-RK11-D					
SCALE					
SHEET 1 OF 1					

digital EQUIPMENT CORPORATION
NORWOOD MASSACHUSETTS

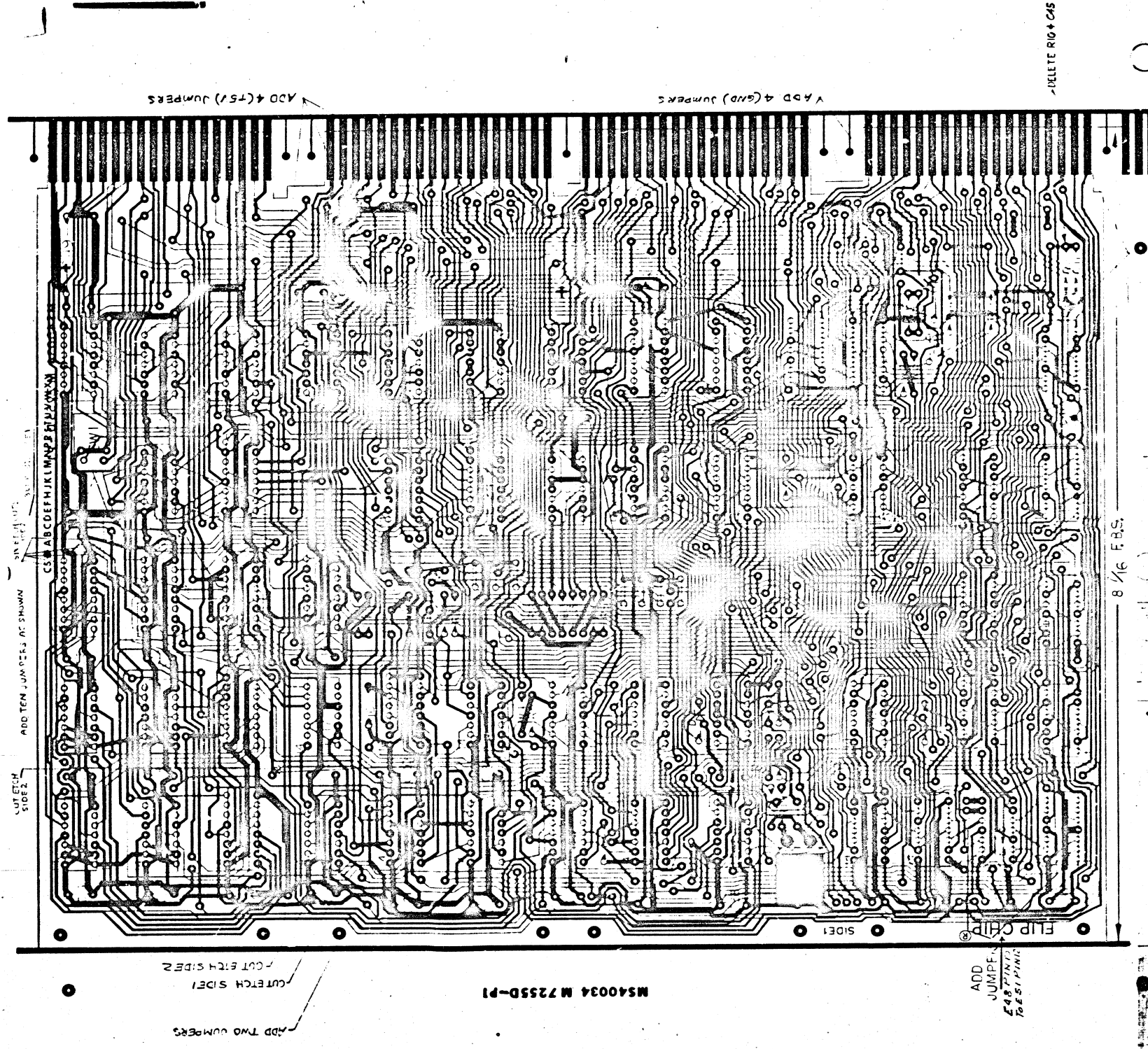
TITLE
DISK CONTROL
RK11-D

SIZE CODE NUMBER REV.
B CS M7255-0-1 K

DISK CONTROL
RK11-D

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 x 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL 0.52 THK 1.0Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

DRILLING DATA

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE	YES	NO	
NONE	*55 DRILL (0.465 DIA)	X			2
?	*49 DRILL (0.73 D.A.)	X			

NOTE: GRI IS OPTIONAL

CAUTION

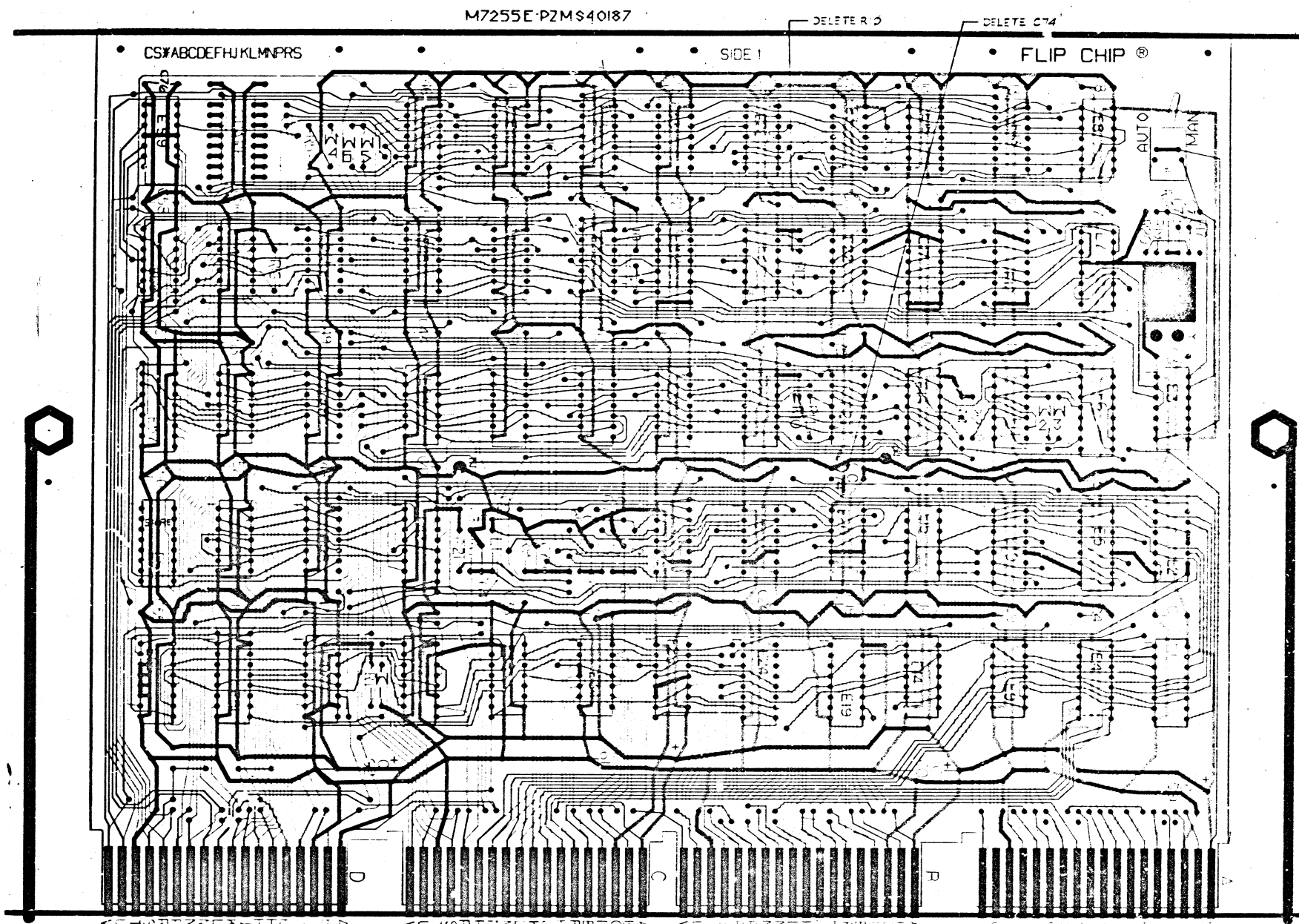
DATE	DATE	DATE	DATE	DATE	DATE
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	DATE	REV.
FIRST USED ON			NUMBER	REV.	
SCALE	DIAH	M7255-0-5	F2		
SHEET	OF				

Equipment Corporation
 TITLE: ASSY DRILLING HOLE LAYOUT
 PROD. NO. M7255

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIMAD	ALL							
DRAFTSMAN	TRIMAD	ALL							
CHECKER	TRIMAD								

TITLE: PK11-D DISK CONTROL
 CHARGE NO. E.96-06807 DATE 5-11-72
 ENGINEER: TOM CPR EXTENSION: 2791 MS NO. 40034
 PROD. NO. M7255
 C.S. REV. F2
 ETCH REV. D

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NOTES:

DRILLING DATA					
HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	61 (.39 DIA)	X			
Y	45 (.07301A)	X			2
Z	41 (.06031A)	X			


BOARD FABRICATION INFORMATION

BOARD SIZE 5.62 X 11.75
 BOARD MATERIAL 22-7K JZ
 COPPER 2 SIDES
 EYELET PLATED THRU
 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE	2/11/79	
CHKD	1/1/79	
ENG	2/2/79	
PROJ ENG	3/2/79	
PROD	3/2/79	IF I CONTROL
FIRST USED ON		
SCALE	D 1/4" = 1"	NUMBER 215-05
ETCH REV	E	MS 40187

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SUPPLEMENT ECO

 ENGINEERING CHANGE ORDER /0000		ORIGINATOR Tom Orr (1-3) TEL EXT 2791 DATE 1/23/74 DISC PROJ NO. E20-06734 COST CENTER NO. 395		ECO NO. <u>M7255-0007A</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>JAN 28 74</u> FIRST ISSUE <u>2-4-74</u> FINAL ISSUE <u>2/1/74</u>		
PROBLEM M7255 ECO #00007 contains a typographical error in the rework instructions under "ground runs". Item #3 adds a wire from the GND side of C31 to the GND side of C38. C38 should be C28.				UNIT TO BE CHANGED M7255 Etch Rev. D. RK11-D Disk Control DISP CODE 03*		
CORRECTION Pictoral rework documentation (D-AH-M7255-0-5 Rev. F2) contains correct information. A wire is shown from C31 to C28. Change rework instructions to read "C28" instead of "C38". If actual rework is performed to "C38" no hard failure will occur; the system will merely be incrementally more susceptible to the kind of problem described on M7255 ECO #00007.				OPTIONS AFFECTED RK11-D RK11-E		
BREAK-IN/EFFECTIVITY *This is a supplement to M7255 ECO #00007.				PRODUCT LINES AFFECTED PDP-11 PDP-15		
SUPPLEMENT ECO						
11 CENTRAL ENG. ECO COMMITTEE						
SUPPLEMENT ECO						
ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	B-MH-M7255-0-6	L	M	06	Update revision and add a note explaining the change.	<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
DISPOSITION CODES			APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - Rework IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Typewritten / Hand Signature DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)			

M 7255-0-6
REV. B
CODE MH
NUMBER M

MODULE ECO HISTORY

PRODUCT LINE PDP11 DATE RELEASED 9-25-72 RELEASED BY T. ORR

PAGE 1 OF 2

RELEASED CS REV. B
RELEASED ETCH BD REV. C

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D. LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R. LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAMINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT (E2D) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		
00005	R. LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REV. NO.	DATE	BY
00001	10-9-72	D. LEWIS
0001A	11-3-72	ORR
00002	1-29-73	R. LEWIS
00003	3-21-73	R. LEWIS
00004	4-26-73	R. LEWIS
00005	6-25-73	R. LEWIS

DRN: [Signature] DATE: 10-1-72

CHKD: [Signature] DATE: 10-1-72

ENG: [Signature] DATE: 10-1-72

PROD: [Signature] DATE: 10-1-72

EQUIPMENT CORPORATION				MATHARD, MASSACHUSETTS			
SIZE	CODE	NUMBER	REV.				
B	MH	M 7255-0-6	M				

DHB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-0007A NOT TO BE USE FOR PRODUCTION

W 9-25-72 HW B
A3M NUMBER 3001 321

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY				DATE RELEASED <u>9-25-72</u>		PAGE <u>2</u> OF <u>2</u>		RELEASED CS REV. <u>B</u>		RELEASED ETCH BD REV. <u>C</u>	
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X				X				2
00006A	R. LEWIS	10-9-73											
0006BR	R. LEWIS	10-16-73											
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED.		X				
0007A	T. ORR	1-23-74											

REVISIONS
CHK'D (Circled No.) (REV.)

DRN D. SMITH DATE 0472
CHK'D D. SMITH DATE 0472
ENG T. ORR DATE 01272
PROD R. DOOLEY DATE 01272

000002
EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE MODULE ECO HISTORY
CODE MH NUMBER M7255-0-6 REV. M

DEC 16 20-1026-0971
DRB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-0007A

NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER 10072		ORIGINATOR Tom Orr (1-3) TEL EXT 2791 DATE 2/28/74 D'SC PROJ NO. E20-06734 COST CENTER NO. 395		ECO NO. <u>M7255-0008</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>3-1-74</u> FIRST ISSUE <u>3-6-74</u> FINAL ISSUE <u>4/24/74</u>																																																																									
<p>PROBLEM The 100 ns one shot at E32 is sensitive to adjacent circuit noise and occasionally retriggers. Texas instrument chips seem most reliable with others failing. This circuit was designed as a precaution because an upcoming revision to the RK05 was expected to produce wide variation in the read clock pulse width. This never did and will not happen. This noise sensitive circuit is therefore not necessary.</p> <p>CORRECTION The other half of this one shot is not used. Remove the 74123 at E32, its associated timing components R3 and C71 and tie the FEED-THRU holes formally occupied by E32 Pin 10 (former Input) to Pin 5 (former Output). The problem may show as intermittent data, check sum, write check or read format errors.</p> <p>BREAK-IN/EFFECTIVITY Rework any field unit suspected of having a read problem. Rework all units leaving Puerto Rico and Westfield after 3/22/74. Rework all others as required or as is convenient. Rework XOR equipment at Puerto Rico, Ireland, and Westfield.</p>																																																																													
<p>UNIT TO BE CHANGED M 7255 Etch Rev E and later RK11-D/E Disk contro. DISP CODE 03*</p> <p>OPTIONS AFFECTED RK11-D RK11-E</p> <p>PRODUCT LINES AFFECTED PDP-11 PDP-15</p>																																																																													
<table border="1"> <thead> <tr> <th>ITEM NO.</th> <th>DOCUMENT/PART NO.</th> <th>OLD REV</th> <th>NEW REV</th> <th>DISP CODE</th> <th>DESCRIPTION OF CHANGE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>D-CS-M7255-0-1</td> <td></td> <td></td> <td>06</td> <td></td> </tr> <tr> <td></td> <td>Sheet 1</td> <td>K</td> <td>L</td> <td>06</td> <td>Update revision.</td> </tr> <tr> <td></td> <td>Sheet 2</td> <td>E</td> <td>F</td> <td>06</td> <td>Remove E32, R3 and C71 from Part List.</td> </tr> <tr> <td></td> <td>Sheet 5</td> <td>D</td> <td>E</td> <td>06</td> <td>Remove E32, R3 and C71 from Circuit Schematic.</td> </tr> <tr> <td>2</td> <td>D-AH-M7255-0-5</td> <td></td> <td></td> <td>06</td> <td></td> </tr> <tr> <td></td> <td></td> <td>K</td> <td>L</td> <td>06</td> <td>Add notes showing deletion of E32, C71 and R3 and addition of Jumper between Pins 5 and 10 of slot formally occupied by E32.</td> </tr> <tr> <td>3</td> <td>B-MH-M7255-0-6</td> <td></td> <td></td> <td>06</td> <td></td> </tr> <tr> <td></td> <td></td> <td>M</td> <td>N</td> <td>06</td> <td>Update revision and description of change.</td> </tr> <tr> <td>4.</td> <td>19-10436</td> <td></td> <td></td> <td>00</td> <td>Delete E32 74123 Qty. 1 Item #26.</td> </tr> <tr> <td>5.</td> <td>10-C1739</td> <td></td> <td></td> <td>00</td> <td>Delete C71 27 pf 5% Qty 1 Item #7</td> </tr> <tr> <td>6.</td> <td>13-01874</td> <td></td> <td></td> <td>00</td> <td>Delete R3 5.6K 5% Qty. 1 Item #15.</td> </tr> </tbody> </table>						ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	1	D-CS-M7255-0-1			06			Sheet 1	K	L	06	Update revision.		Sheet 2	E	F	06	Remove E32, R3 and C71 from Part List.		Sheet 5	D	E	06	Remove E32, R3 and C71 from Circuit Schematic.	2	D-AH-M7255-0-5			06				K	L	06	Add notes showing deletion of E32, C71 and R3 and addition of Jumper between Pins 5 and 10 of slot formally occupied by E32.	3	B-MH-M7255-0-6			06				M	N	06	Update revision and description of change.	4.	19-10436			00	Delete E32 74123 Qty. 1 Item #26.	5.	10-C1739			00	Delete C71 27 pf 5% Qty 1 Item #7	6.	13-01874			00	Delete R3 5.6K 5% Qty. 1 Item #15.
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<p>APPROVAL SIGNATURES</p> <p>DESIGN ENGR <u>Tom Orr</u> ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)</p>																																																																													
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DEC 16-(325)-107-1-N971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

digital		FIELD CHANGE ORDER		ECO <u>M7255-0008</u> PAGE <u>1</u> OF <u>1</u>	
<p>FIELD EFFECTIVITY Rework M7255's in RK11-D and -E which exhibit random read problems.</p> <p>FIELD RETROFIT IS ANTICIPATED IN <u>100</u> OF UNITS DEFINED ABOVE</p> <p><input checked="" type="checkbox"/> ARE TO BE REPORTED UNDER A "A" CHARGE CODE</p> <p><input type="checkbox"/> STANDARD APPLICABILITY THIS ECO IS TO BE INSTALLED AT NO CHARGE FOR WARRANTY AND MAINTENANCE CONTRACT CUSTOMERS IN ACCORDANCE WITH THE TECHNICAL EFFECTIVITY ABOVE, OTHERWISE AT CUSTOMER EXPENSE</p> <p>DOCUMENTATION \$ _____ PARTS \$ _____ DECOR SITE LABOR \$ _____</p> <p>DEC'S MINIMUM BILLING APPLIES IF THIS ECO IS INSTALLED BY DEC THE DEC LABOR CHARGE ASSUMES ECO INSTALLATION DURING REGULAR WORKING HOURS IF INSTALLATION OUTSIDE OF REGULAR WORKING HOURS IS ORDERED, DELAY LATEST SCHEDULE THE HOURLY RATES WILL APPLY</p> <p>FIELD OFFICE ECO DISTRIBUTION CODE <input type="checkbox"/> F IMMEDIATE ECO DISTRIBUTION - ALL DEC FIELD OFFICES <input type="checkbox"/> DE IMMEDIATE ECO DISTRIBUTION TO REGIONAL PRODUCT SUPPORT</p> <p>ECO NOT DISTRIBUTION <input checked="" type="checkbox"/> KITS, AS DEFINED BELOW MAY BE ORDERED AS REQUIRED</p> <p>CONTENTS OF AN FSI INITIATED KIT ECO: _____ PARTS: _____ KIT: _____</p> <p>CONTENTS OF A FIELD ORDERED KIT ECO: _____ PARTS: _____ KIT: _____</p> <p>INITIATED ECO'S WILL BE DISTRIBUTED FOR ALL UNITS LISTED ON THE FORD. INITIATED ECO'S WITH THE FOLLOWING SERVICE STATUS CODES:</p> <p>INSTALLATION AND INST PROCEDURES</p> <p>NOTES</p>				<p>DATA PROCESSING AND DEC ECOS LOGS WILL POST THIS ECO WITH THE LEVEL OF URGENCY CODE REPLACING THE LEAD NO. ZERO</p> <p>LEVEL OF URGENCY CODE A MANDATORY - HIGH PRIORITY B MANDATORY C HIGH PRIORITY IF SPECIFIC HARDWARE, SOFTWARE, OR SYMPTOMS ARE PRESENT D APPLICABLE IF SPECIFIC HARDWARE, SOFTWARE, OR SYMPTOMS ARE PRESENT E PRODUCT IMPROVEMENT - OPTIONAL - LOW PRIORITY</p> <p>DISKRITE PROJECT NUMBER FOR FIELD SERVICE REPORTING</p> <p>AVAILABILITY DELAY NO PARTS PARTS <input checked="" type="checkbox"/></p> <p>ESTIMATED DOWNTIME FOR INSTALLATION AND TESTING <u>1.0</u> HOURS</p> <p>SPECIAL TEST EQUIPMENT, TOOLS, OR SUPPLIES</p> <p>LAST PREVIOUS ECOS <u>R07, C06, C04</u> RELATED OR PREVIOUS SITE ECOS</p> <p><input type="checkbox"/> MAINTENANCE CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED</p> <p>VERIFICATION MAINDECS <u>RK11 Disc Data Test</u></p> <p>PARTS REQUIRED</p>	
<p>FIELD SERVICE APPROVAL <u>Jim Barclay</u></p>				<p><u>OK</u> NF1214 (616) 3-18 (350/350) 700</p>	

DEC 12-(752)-1-95-N1071

PAGE REVISION CONTROL SHEET									
SH. NO.	PAGE REVISIONS							REMARKS	FIRST USED ON OPTION/MODEL
	DATE	ENG.	ETCH	ECO	NO.	REV.	NO.		
1	R	C							
2	H	C							
3	F	C							
4	F	B							
5	F	B							
6	F	C							
7	F	C							
8	E	C							
9	E	C							
10	E	C							
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15	E	C							
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97	E	C							
98	E	C							
99	E	C							
100	E	C							

THIS DRAWING IS PART OF E.C.O. PACKAGE # **M7255-00008** **NOT TO BE USED FOR PRODUCTION**

M 7255-0-6 HW B

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>B</u>											
DATE RELEASED <u>9-25-72</u>		PAGE <u>1</u> OF <u>2</u>		RELEASED ETCH BD REV. <u>C</u>											
RELEASED BY <u>T. ORR</u>															
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED		
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)					
00001	D. LEWIS	10-9-72	C	D	X				X				TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X				X			3	TOLERANCE TOO CLOSE	3	
00002	R. LEWIS	1-29-73	D	D	X				X				STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED			X			TO SELECT PROPER DRIVE FOR EXAMINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED			X			DISABLE ONE SHOT (E2) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		
00005	R. LEWIS	6-25-73	H	E		X			X				NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

FOR LOW TO COR REVISIONS SYSTEM FILE REC REVISIONS W/O ANI AS

REV. NO.	DATE	BY	DESCRIPTION
00001			
00002			
00003			
00004			
00005			
00006			
00007			
00008			
00009			
00010			

DRN	DATE	10-4-72	TITLE	MODULE ECO HISTORY
CHKD	DATE	12-4-72	SIZE	B
ENG	DATE		CODE	MH
PROD.	DATE		NUMBER	M 7255-0-6
			REV	N

DHB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE # *M 7255-00008* **NOT TO BE USED FOR PRODUCTION**

SIZE CODE NUMBER 1000 1215

MODULE ECO HISTORY														
PRODUCT LINE <u>PDP11</u>				PAGE <u>2</u> OF <u>2</u>				RELEASED CS REV. <u>B</u>						
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV. <u>C</u>						
RELEASED BY <u>T. ORR</u>														
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED	
					YES	NC	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)				
00006	R. LEWIS	9-14-73	J F1	E	X			X				REPLACE DR BUS AC LO WITH BUS AC LO	—	2
00006A	R. LEWIS	10-9-73	—	—	—	—		—	—			CORRECT REF INFO	—	—
0006B	R. LEWIS	10-16-73	—	—	—	—		—	—			CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X				ADD +5 AND GND JUMPERS TO REDUCE POWER NOISE	—	—
0007A	T. ORR	1-23-74	—	—	—	—		—	—			CORRECT RE-WORK INSTRUCTION	—	—
00008	T. ORR	2-27-74	L F2	—		X		X				REMOVE E32, C71, R3, ADD JUMPER	—	3

REVISIONS
CHG. (C) (S) (M) (REV.)

DRN D. SMITH DATE 10-4-72
CHK'D D. SMITH DATE 10-4-72
ENG. T. ORR DATE 12-27-74
PROD. R. DOOLEY DATE 12-27-74

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

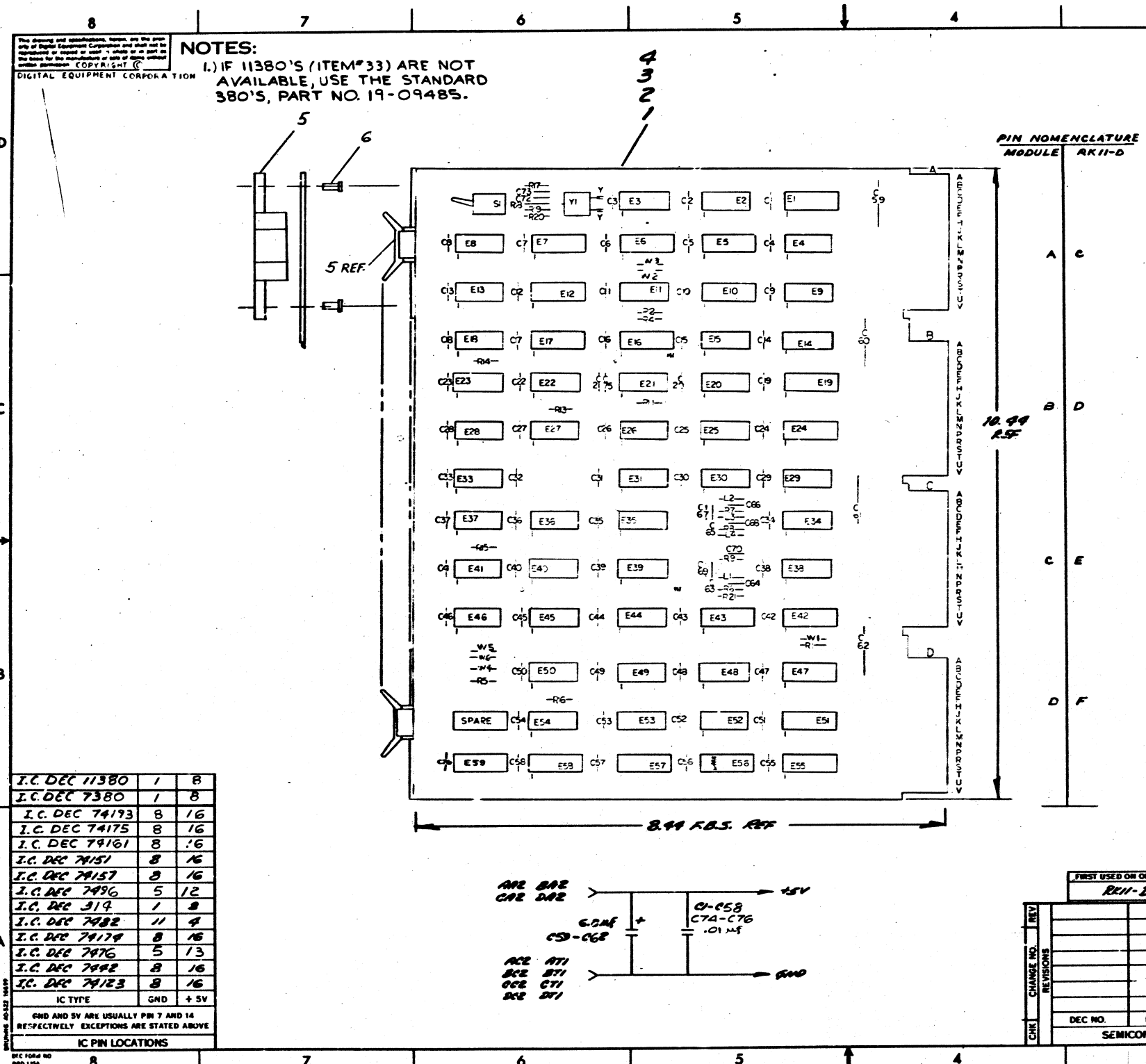
TITLE MODULE ECO HISTORY
SIZE CODE B MH NUMBER M7255-0-6 REV N

DEC 16 1974 1026-N971
DRB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-00008

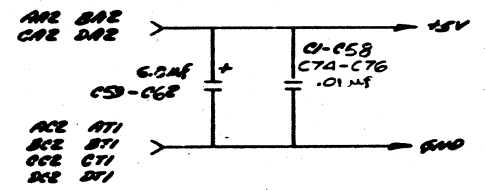
NOT TO BE USED FOR PRODUCTION



I.C. DEC 11380	1	8
I.C. DEC 7380	1	8
I.C. DEC 74173	8	16
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 74151	8	16
I.C. DEC 74157	8	16
I.C. DEC 74196	5	12
I.C. DEC 319	1	8
I.C. DEC 74182	11	4
I.C. DEC 74179	8	16
I.C. DEC 74176	5	13
I.C. DEC 74192	8	16
I.C. DEC 74123	8	16
I.C. TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

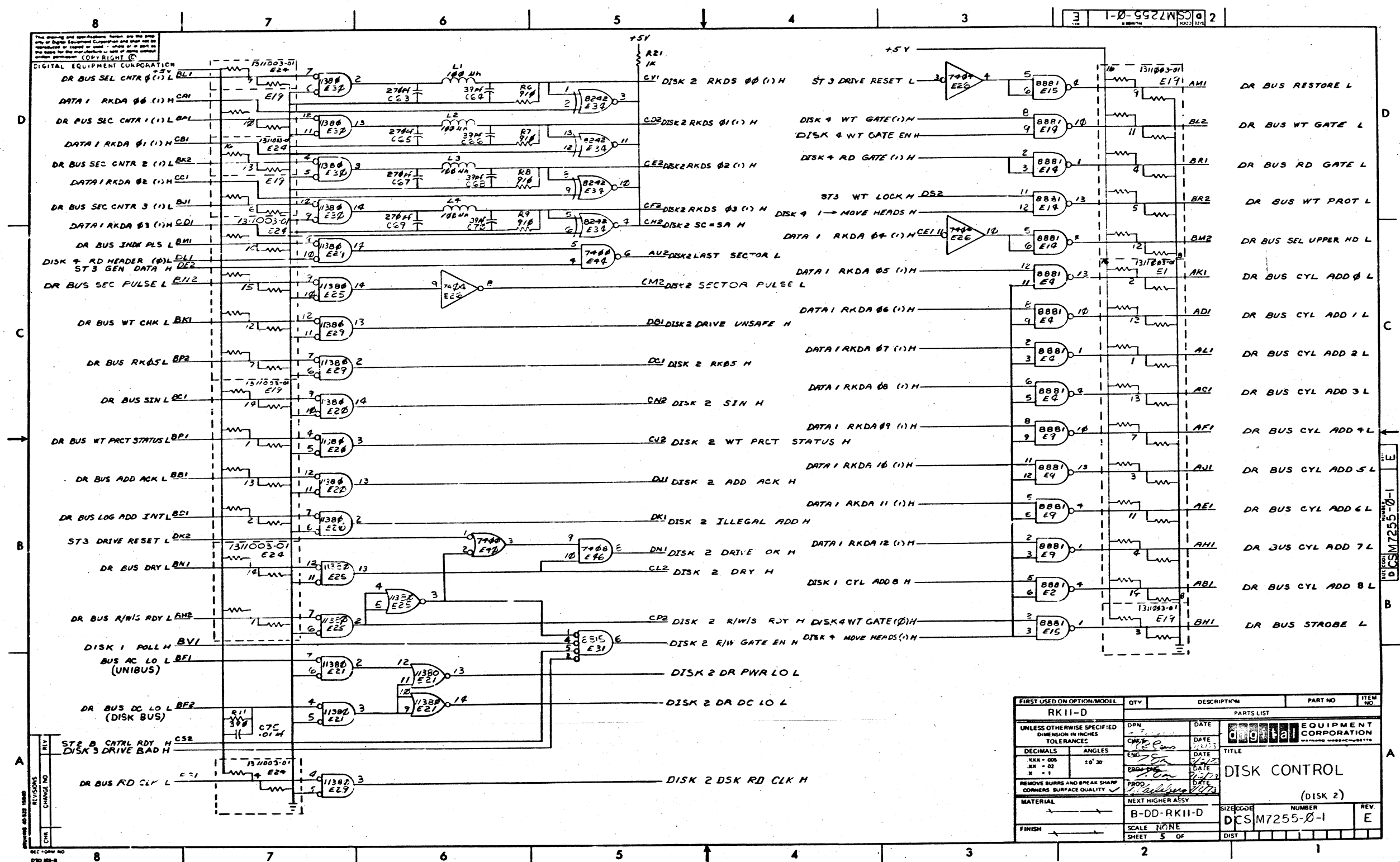
I.C. PIN LOCATIONS



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
3	W1, W2, W6	INSULATED JUMPER L2007-1	9009185	53
2		SPLIT LUGS	9006735	52
2		SWAGE LUGS	9007791	51
1	S1	SWITCH TOGGLE SPD7	1210209	50
4	L1-L4	INDUCTOR 100UH, 165MA 10%	1610662	49
1	Y1	CRYSTAL (SEE TABLE 1)		48
10	E11, E16, E22, E27, E41, E48, E49, E52-E59	I.C. DEC 7474	1905547	47
1	E50	I.C. DEC 74104	1909931	46
2	E13, E46	I.C. DEC 7408	1910155	45
1	E59	I.C. DEC 319	1909704	44
1	E55	I.C. DEC 74161	1910650	43
1	E31	I.C. DEC 8815	1909718	42
1	E43	I.C. DEC 7442	1910046	41
1	E7	I.C. DEC 7476	1905585	40
1	E6	I.C. DEC 74174	1910652	39
1	E28	I.C. DEC 7482	1905384	38
1	E18	I.C. DEC 74121	1909058	37
1	E36	I.C. DEC 74150	1909060	36
1	E37	I.C. DEC 7450	1905580	35
1	E34	I.C. DEC 8242	1909718	34
6	E20, E21, E25, E29, E30, E38	I.C. DEC 11380	151113	33
2	E12, E17	I.C. DEC 74193	1910018	32
2	E22, E27	I.C. DEC 74157	1910655	31
1	E57	I.C. DEC 74151	1909936	30
2	E51, E58	I.C. DEC 74175	1910651	29
1	E3	I.C. DEC 7380	1910390	28
5	E2, E4, E9, E14, E15	I.C. DEC 8231	1909705	27
1	E35	I.C. DEC 7420	1905577	26
3	E23, E39, E45	I.C. DEC 7410	1905576	24
3	E5, E40, E44	I.C. DEC 7400	1905575	23
2	E5, E10	I.C. DEC 7496	1910323	22
2	E26, E33	I.C. DEC 7404	1909656	21
7	R1, R4, R12, R13, R15, R16, R21	RES. 1K 1/4W 5%	1300365	20
1	R5	RES. 3K 1/4W 5%	1300433	19
4	R6-R9	RES. 910Ω 1/4W 5%	1305274	18
2	R17, R18	RES. 10K 1/4W 5%	1300479	17
2	R11, R14	RES. 390Ω 1/4W 5%	1300309	15
2	R19, R20	RES. 470Ω 1/4W 5%	1300316	14
3	E1, E7, E24	RES. PACK	1311003-01	13
2	C72, C73	CAP. 205PF 100V 20%	1001765	12
4	C63, C65, C67, C69	CAP. 270PF 100V 5% DM	1000022	11
4	C64, C66, C68, C70	CAP. 39PF 100V 5% DM	1000010	10
60	C1-C58, C75, C76	CAP. 0.01UF 100V 20% AXIAL	1001610	9
4	C59-C62	CAP. 6.8UF 35V 10% TANT	1003306	8
8		EYELET (GS-8-7) SIMPSON	9006732	6
4		HANDLE FLIP-CHIP MOUNT	9008337-08	5
1		ETCHED CIRCUIT BOARD	5009986	4
1		PROOF FOR HISTORY	5009986-0-3	3
1		ASSEMBLY MAKE LABEL	5009986-0-2	2
1		X-Y COORDINATE MAKE LOCATION	5009986-0-1	1

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
8		EYELET (GS-8-7) SIMPSON	9006732	6
4		HANDLE FLIP-CHIP MOUNT	9008337-08	5
1		ETCHED CIRCUIT BOARD	5009986	4
1		PROOF FOR HISTORY	5009986-0-3	3
1		ASSEMBLY MAKE LABEL	5009986-0-2	2
1		X-Y COORDINATE MAKE LOCATION	5009986-0-1	1

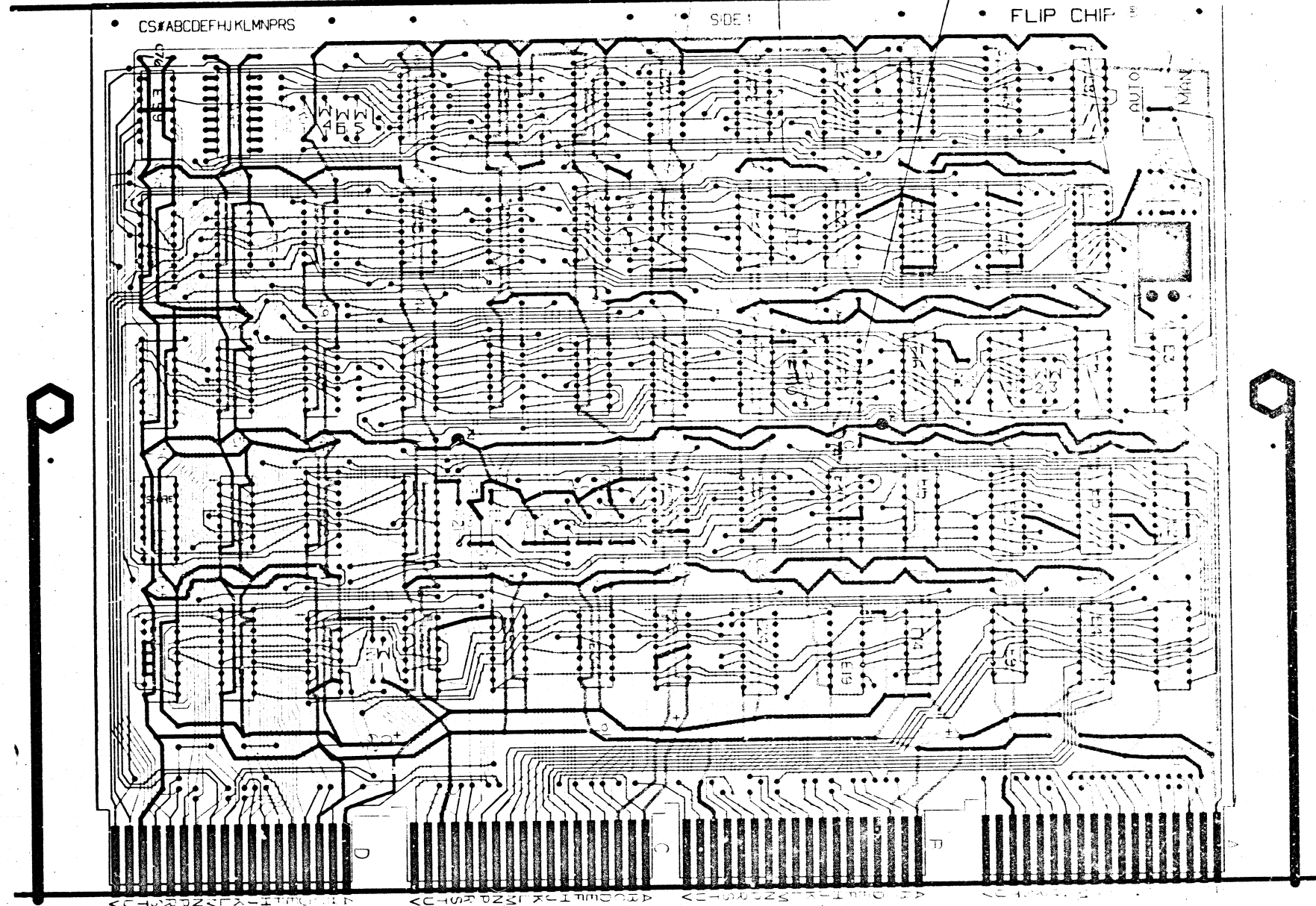
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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DPN	DATE	DIGITAL EQUIPMENT CORPORATION MAYFIELD MASSACHUSETTS	
DECIMALS	ANGLES	DATE	TITLE	
1/16 - .006	±0°30'	DATE	DISK CONTROL	
1/32 - .01		DATE	(DISK 2)	
1/64 - .02		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE		
MATERIAL	NEXT HIGHER ASSY.	DATE		
FINISH	B-DD-RK11-D	DATE	SIZE CODE	NUMBER
	SCALE NONE	DATE	DCS M7255-0-1	REV
	SHEET 5 OF	DATE	DIST	E

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DELETE C71 M7255E-P2MS40187-DELETE3 -DELETE BOARD -DELETE D -DELETE C74



NOTES:

HOLE LETTER	DRILLING DATA		CAN TAKE GRIPLETS YES NO	QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE AFTER PLATE PLATE		
NONE	61 (.39 DIA.)	X		
Y	48 (.073 DIA.)	X		2
Z	41 (.060 DIA.)	X		2

BOARD FABRICATION INFORMATION

BOARD SIZE 5.62 X 11.750
 BOARD MATERIAL 22-K 22
 COPPER 2 SIDES
 EYELET PLAT'D THRU
 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE	DATE	DATE	DATE
1/1/75	1/1/75	1/1/75	1/1/75
DRG	CHKD	ENG	PRD
FIRST USED ON	SCALE	ETCH REV	
	DIAH. 22-500-5	E	MS 40187

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00008 NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER

ECO NO. M7255-009 SHEET 1 OF 3

ORIGINATOR: Dick Lewis 1-2 DATE: 9/20/74
 TEL EXT: 4620 DATE RECEIVED: 9-25-74
 DPC PROJ NO: E-20-07534 FIRST ISSUE: 8-25-74
 COST CENTER NO: 395 FINAL ISSUE: 8-25-74

UNIT TO BE CHANGED: M7255 Disk Control
 Etch Rev. E
 DISK CODE: 03*

PROBLEM: A race condition exists in the hardware poll circuitry if R/W/S RDY occurs near the extreme end of the sampling pulse. The internal search complete (INT SCH CMP) flip can set after the leading edge of the pulse that increments the drive counter. The result is that when INT SCH CMP sets, the counter still increments and points to the wrong drive, giving an erroneous interrupt.

CORRECTION: Use a spare gate (7410, E39) to gate the former increment pulse with X CLK L. This allows the INT SCH CMP flip about 175 nsec. to disable the counter before the leading edge of the increment pulse. X CLK L is a formerly unnamed inversion of DISK 4 X CLK H. Note: Etch rev. E boards only are affected.

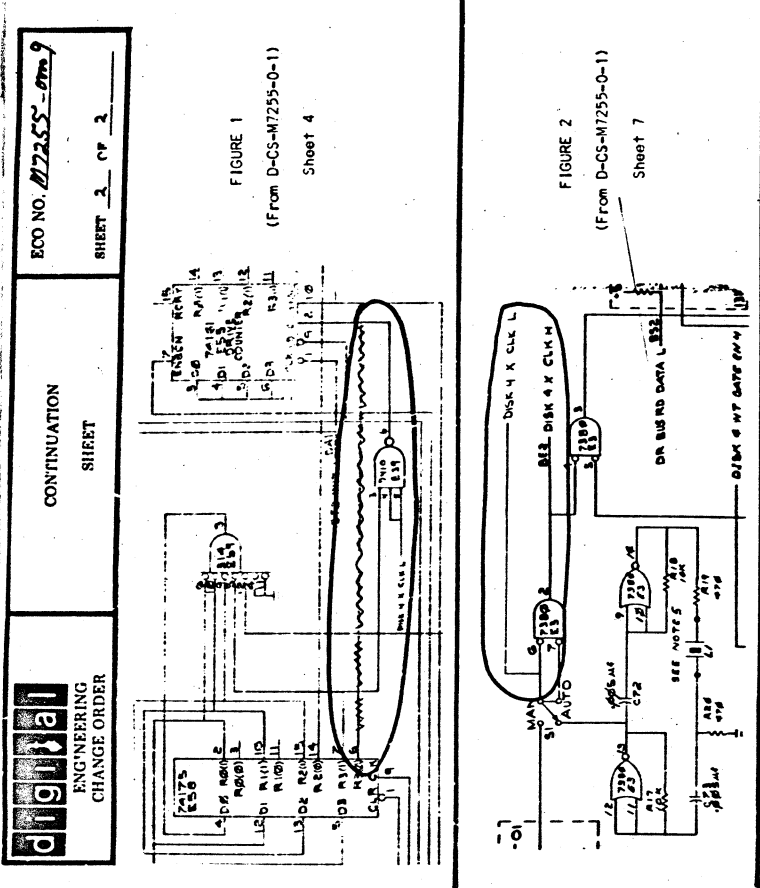
BREAK-IN/EFFECTIVITY: * Retrofit all units in Ireland immediately. Retrofit all units leaving PR and WF after 10/15/74. Retrofit in WM and the field all units in systems whose system software utilizes overlapped seeks.

ITEM NO.	DOCUMENT/PART NO.	OLD REV CODE	NEW REV CODE	DESCRIPTION OF CHANGE
1	D-CS-M7255-0-1 Sheet 1 Sheet 4 Sheet 7	L E E	M F F	Update revisions per this ECO Update per Figure 1, this ECO Update per Figure 2, this ECO
2	D-AH-M7255-0-5	L	M	Update per rework instructions, this ECO
3	B-WH-M7255-0-6	N	P	Update per this ECO

APPROVAL SIGNATURES: DESIGN ENGR: Tom [Signature] ENG MGR (OPT): [Signature] FIELD SERVICE (OPT): [Signature] CHIEF ENGR (MODULES ONLY): [Signature]

DISPOSITION CODES: 00 - RETURN TO STOCK, 01 - IDENTIFY, 02 - REWORK, 03 - REWORK IMMEDIATELY (RETROFIT), 04 - IDENTIFY, 05 - UNLIMITED, 06 - UNLIMITED, 07 - NEW ITEM (THIS ASSEMBLY), 08 - NEW ITEM (THIS COMPANY), 09 - SCRAP IMMEDIATELY

DEC 16 13:25 1073 8971 NERK RHYBERG FOR INSTRUCTIONS IN ORDER TO FILL OUT FORM PROPERLY



- REWORK INSTRUCTIONS (ETCH REV. E ONLY)
1. Cut etch slide two between E55 pin 2 and E58 pin 6.
 2. Add a wire from E03 pin 7 to E39 pin 5.
 3. Add a wire from E39 pin 4 to E39 pin 5.
 4. Add a wire from E58 pin 7 to E39 pin 3.
 5. Add a wire from E39 pin 6 to E55 pin 2.

ECO NO. M7255-009 SHEET 3 OF 3

digital ENGINEERING CHANGE ORDER

FIELD EFFECTIVITY: REWORK etch revision "E" M7255's from CS revision "L" to "M"; only multi-drive systems using the polling feature are affected.

FIELD NO. PART IS AFFECTED BY: 100 DISK DRIVE MODULES

AM TO BE REORDERED UNDER A "B" ORDER CODE: STANDARD AFTER ABILITY: THIS ECO IS TO BE OBSERVED BY ALL ORDERING FOR WARRANTY AND SUPPORT. CONTACT YOUR LOCAL SALES OFFICE FOR THE TECHNICAL SUPPORT AND ORDERING INFORMATION. DOCUMENTATION: 500 PARTS DECISION LABOR: DECISION LABOR HOURS: THIS ECO IS INSTALLED BY THE DECISION LABOR CHARGE ASSUMES THE ACTION DURING ALL WORKING HOURS. LATEST RELEASE DATE OF THE WORKING HOURS IS USED IN THIS CASE. FIELD EFFECTIVITY: FIELD EFFECTIVITY TO BE OBSERVED: IMMEDIATE FIELD DISTRIBUTION TO REGIONAL PRODUCT SUPPORT: FIELD NO. INSTRUCTIONS: THIS ECO IS TO BE OBSERVED BY ALL ORDERING FOR WARRANTY AND SUPPORT. CONTACT YOUR LOCAL SALES OFFICE FOR THE TECHNICAL SUPPORT AND ORDERING INFORMATION. DOCUMENTATION: 500 PARTS DECISION LABOR: DECISION LABOR HOURS: THIS ECO IS INSTALLED BY THE DECISION LABOR CHARGE ASSUMES THE ACTION DURING ALL WORKING HOURS. LATEST RELEASE DATE OF THE WORKING HOURS IS USED IN THIS CASE. FIELD EFFECTIVITY: FIELD EFFECTIVITY TO BE OBSERVED: IMMEDIATE FIELD DISTRIBUTION TO REGIONAL PRODUCT SUPPORT: FIELD NO. INSTRUCTIONS: THIS ECO IS TO BE OBSERVED BY ALL ORDERING FOR WARRANTY AND SUPPORT. CONTACT YOUR LOCAL SALES OFFICE FOR THE TECHNICAL SUPPORT AND ORDERING INFORMATION. DOCUMENTATION: 500 PARTS DECISION LABOR: DECISION LABOR HOURS: THIS ECO IS INSTALLED BY THE DECISION LABOR CHARGE ASSUMES THE ACTION DURING ALL WORKING HOURS. LATEST RELEASE DATE OF THE WORKING HOURS IS USED IN THIS CASE.

INSTALLATION AND TEST PRETERRIS

NOTES

FIELD SERVICE APPROVAL: Jim Baroley (NFI 358 5NW) (1657) 10-16 (350/330) 700

DEC 16 13:25 1073 8971 NERK RHYBERG FOR INSTRUCTIONS IN ORDER TO FILL OUT FORM PROPERLY

digital FIELD CHANGE ORDER

ECO: M7255-0009 PART: 1 OR: 1 (*)

LEVEL OF EMERGENCY CARE: MAINTENANCE - HIGH PRIORITY, MAINTENANCE - MEDIUM PRIORITY, MAINTENANCE - LOW PRIORITY, MAINTENANCE - CRITICAL, MAINTENANCE - EXTREMELY CRITICAL, MAINTENANCE - UNCLASSIFIED, MAINTENANCE - UNKNOWN.

DESCRIPTION: REWORK ETCH REVISION "E" M7255'S FROM CS REVISION "L" TO "M"; ONLY MULTI-DRIVE SYSTEMS USING THE POLLING FEATURE ARE AFFECTED.

FIELD NO. PART IS AFFECTED BY: 100 DISK DRIVE MODULES

AM TO BE REORDERED UNDER A "B" ORDER CODE: STANDARD AFTER ABILITY: THIS ECO IS TO BE OBSERVED BY ALL ORDERING FOR WARRANTY AND SUPPORT. CONTACT YOUR LOCAL SALES OFFICE FOR THE TECHNICAL SUPPORT AND ORDERING INFORMATION. DOCUMENTATION: 500 PARTS DECISION LABOR: DECISION LABOR HOURS: THIS ECO IS INSTALLED BY THE DECISION LABOR CHARGE ASSUMES THE ACTION DURING ALL WORKING HOURS. LATEST RELEASE DATE OF THE WORKING HOURS IS USED IN THIS CASE. FIELD EFFECTIVITY: FIELD EFFECTIVITY TO BE OBSERVED: IMMEDIATE FIELD DISTRIBUTION TO REGIONAL PRODUCT SUPPORT: FIELD NO. INSTRUCTIONS: THIS ECO IS TO BE OBSERVED BY ALL ORDERING FOR WARRANTY AND SUPPORT. CONTACT YOUR LOCAL SALES OFFICE FOR THE TECHNICAL SUPPORT AND ORDERING INFORMATION. DOCUMENTATION: 500 PARTS DECISION LABOR: DECISION LABOR HOURS: THIS ECO IS INSTALLED BY THE DECISION LABOR CHARGE ASSUMES THE ACTION DURING ALL WORKING HOURS. LATEST RELEASE DATE OF THE WORKING HOURS IS USED IN THIS CASE.

INSTALLATION AND TEST PRETERRIS

NOTES

FIELD SERVICE APPROVAL: Jim Baroley (NFI 358 5NW) (1657) 10-16 (350/330) 700

DEC 16 13:25 1073 8971 NERK RHYBERG FOR INSTRUCTIONS IN ORDER TO FILL OUT FORM PROPERLY

RK11-D, RK11-E DISK CONTROL

PDP-11 Family, PDP-15

M7255

ECO HISTORY -		M7255																							
ETCH BOARD REVISION		C						D						E											
ECO NUMBER		001	002	C03	C04	C06	B07	001	002	C03	C04	C06	B07	005	C06	B07	C08	C09							
ECO DATE		9-72	10-72	1-73	3-73	4-73	9-73	12-73	10-72	1-73	3-73	4-73	9-73	12-73	6-73	9-73	12-73	2-74	9-74						
PRODUCTION CS		B	C	D	E	F	F1	F2	C	D	E	F	F1	F2	H	J	K	L	M						
DOCUMENTATION CS																									
FIELD REWORK CS				E	F	F1	F2					F	F1	F2		J	K	L	M						
NOTES:		<i>Alt Simms</i> 10-16-74																							

7-0-552L N 111 B
1000 375

MODULE ECO HISTORY

PRODUCT LINE PDP11 PAGE 1 OF 2 RELEASED CS REV. B
 DATE RELEASED 9-25-72 RELEASED ETCH BD REV. C
 RELEASED BY T. ORR

ECO NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D. LEWIS	10-3-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	
00002	F. LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES, REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PALPER DRIVE FOR EXAMINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES, REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE THE SHOT (E2) WHEN NOT POLLING TO PREVENT FALSE SCH. CHGS		
00005	R. LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REV. NO.	DATE	BY	DESCRIPTION
00001	10-3-72	D. LEWIS	
0001A	11-3-72	ORR	
00002	1-29-73	F. LEWIS	
00003	3-21-73	R. LEWIS	
00004	4-26-73	R. LEWIS	
00005	6-25-73	R. LEWIS	

DATE: 10-11-72
 DATE: 12-1-72
 DATE: 12-1-72
 DATE: 12-1-72

EQUIPMENT CORPORATION
 WATUARD, MASSACHUSETTS

TITLE: **MODULE ECO HISTORY**
 SIZE: B CODE: MH NUMBER: M 7255-0-6 REV: P

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M 7255-00009

NOT TO BE USED FOR PRODUCTION

4 1/2" x 11" 100 3215

MODULE ECO HISTORY

PRODUCT LINE PP11 RELEASED CS REV. B
 DATE RELEASED 7-25-73 PAGE 2 OF 3
 RELEASED BY T. L. R. RELEASED ETCH BD REV. C

ECO. NO	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X			X			REPLACE DR BUS AC LG WITH BUS AC LG	—	2
00006A	R. LEWIS	10-9-73	—	—	—	—	—	—	—	—	CORRECT REF PIFO	—	—
00006B	R. LEWIS	10-16-73	—	—	—	—	—	—	—	—	CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X			ADD +5 AND GND CUMBERS TO REDUCE POWER NOISE	—	—
00007A	T. ORR	1-23-74	—	—	—	—	—	—	—	—	CORRECT REWORK INSTRUCTION	—	—
00008	T. ORR	2-27-74	L F2	—		X	—	X			REMOVE E32, C71 R3, ADD JUMPER	—	3
00009	R. LEWIS	9 18 74	M	—		X	REWORK ETCH REV. E ONLY	X			CORRECT RACE CONDITION IN HARDWARE POLL	—	—

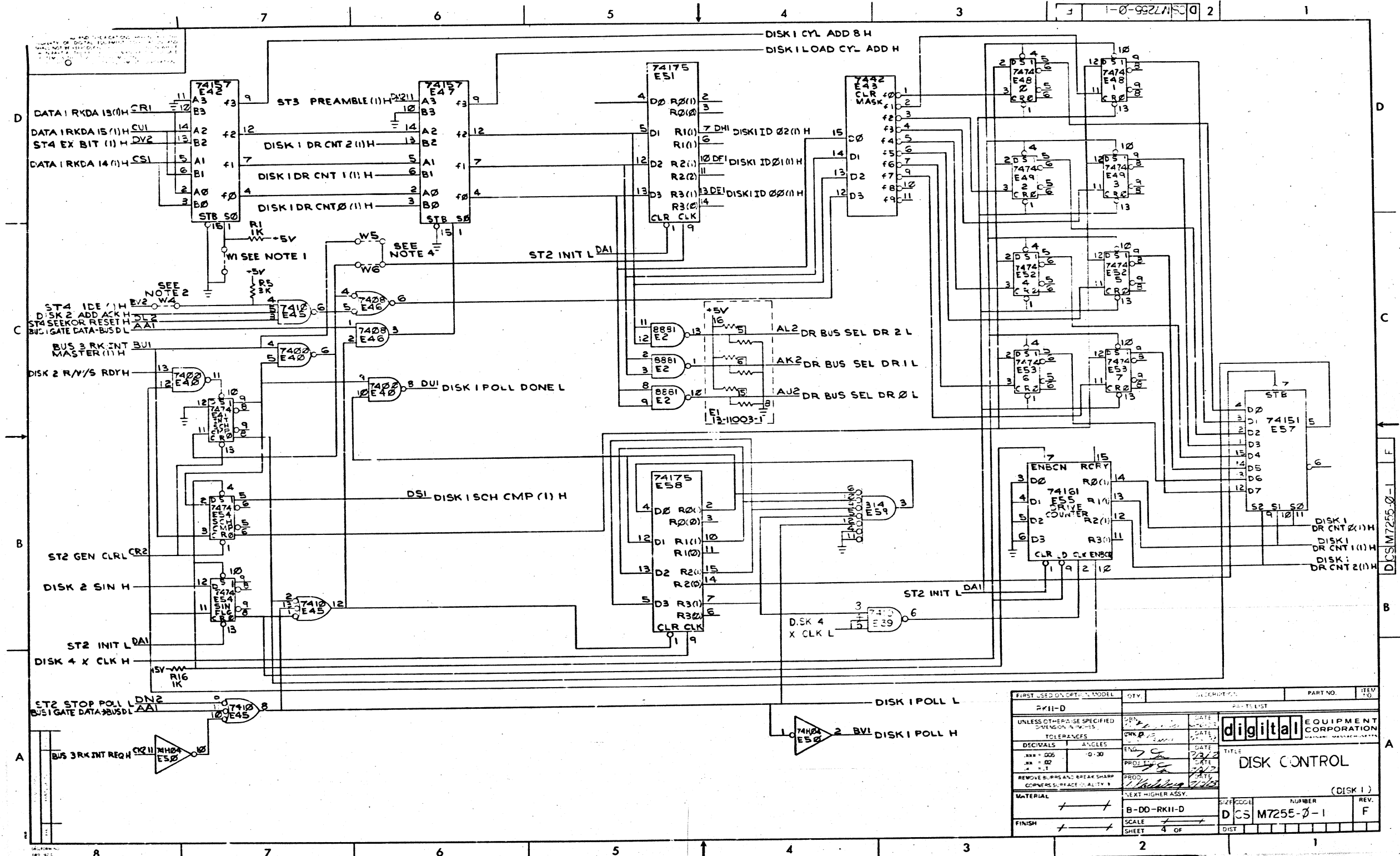
DESIGNED BY: D. SMITH
 CHECKED BY: D. SMITH
 DATE: 10-4-72
 DATE: 10-4-72
 DATE: 10-12-72
 DATE: 10-12-72

TITLE: MODULE ECO HISTORY
 SIZE: B CODE: MH NUMBER: M7255-0-6 P: P

THIS DRAWING IS PART OF E.C.O. PACKAGE #

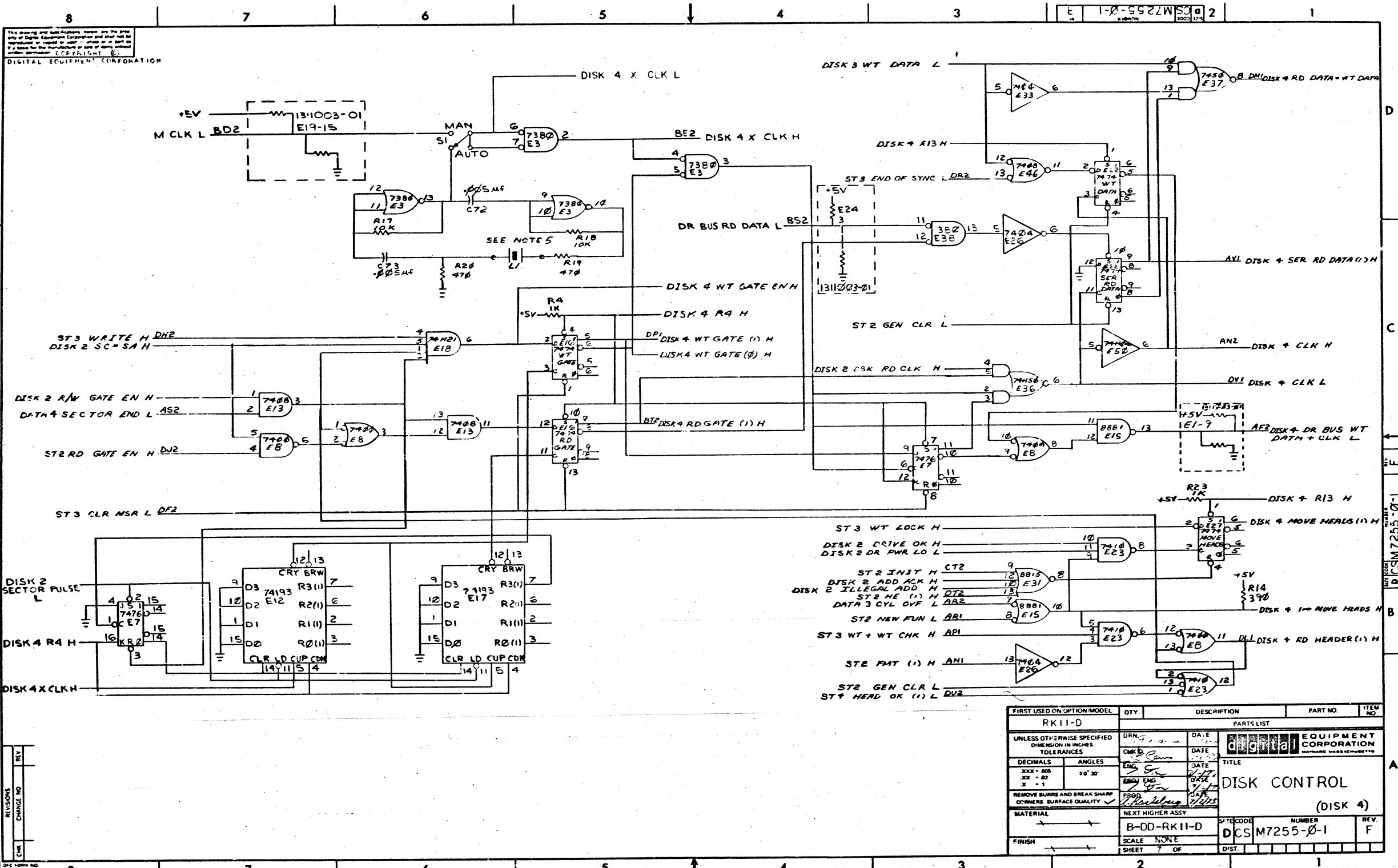
M 7255-00009

NOT TO BE USED FOR PRODUCTION



FIRST USED ON OPT. MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
R111-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES.				
TOLERANCES				
DECIMALS	ANGLES	DATE	digital EQUIPMENT CORPORATION	
XXX = 0.05	0-30	2/2/72	TITLE	
PROJ. NO. 11-1		DATE	DISK CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 4		DATE	(DISK 1)	
MATERIAL		DATE	NEXT HIGHER ASSY.	
FINISH		DATE	SIZE CODE NUMBER	
B-DD-RK11-D		DATE	D CS M7255-0-1 F	
SCALE		DATE	DIST	
SHEET 4 OF 4		DATE		

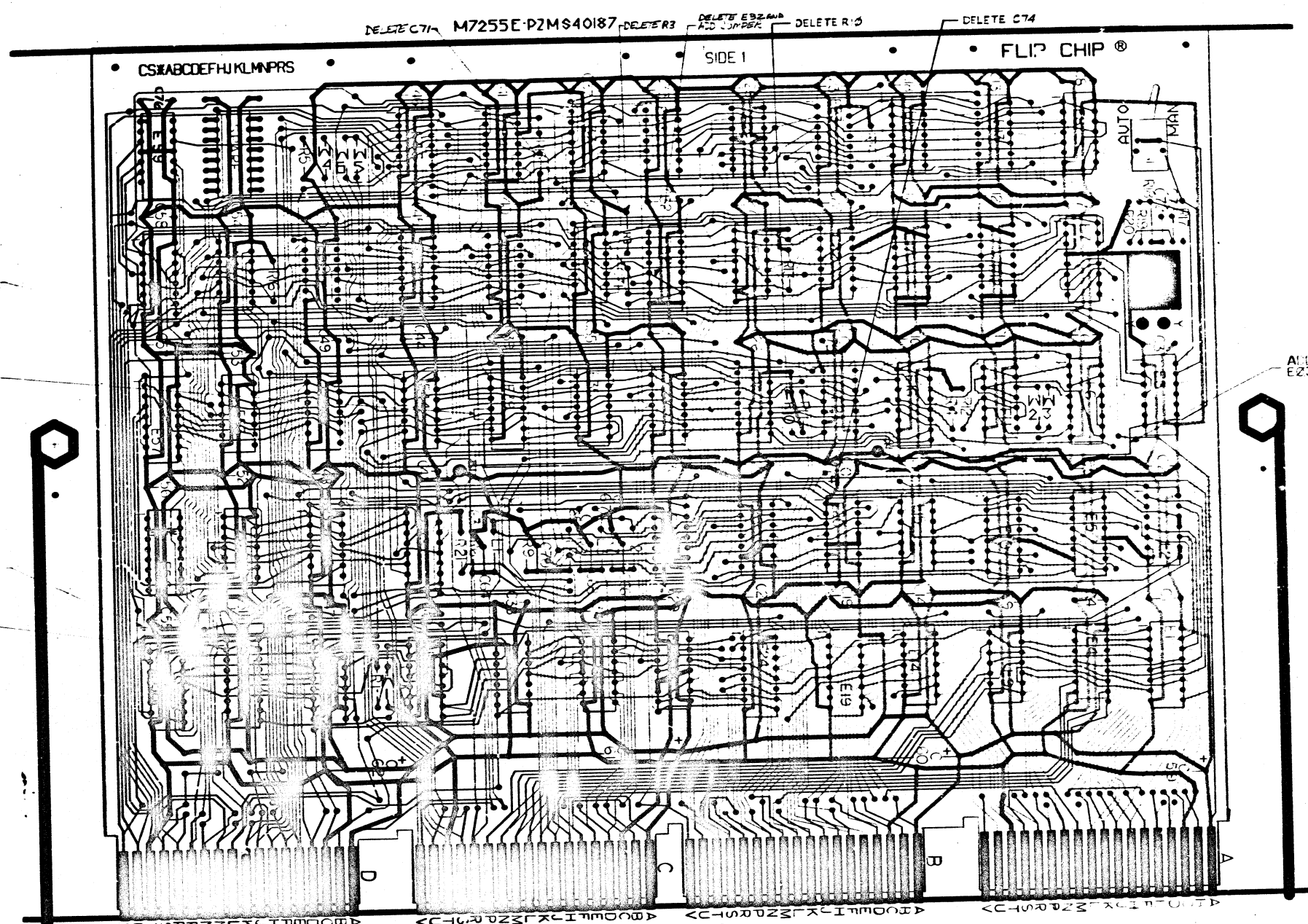
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THIS DRAWING IS PART OF E.C.O. PACKAGE # *M7255-00009* **NOT TO BE USED FOR PRODUCTION**

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN	DA E	 DIGITAL EQUIPMENT CORPORATION <small>MILWAUKEE MASSACHUSETTS</small>	
DECIMALS ANGLES	CHK	DATE		
.XXX - .005 10' 30"	ENG	DATE	DISK CONTROL (DISK 4)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	BRN	DATE		
MATERIAL	NEXT HIGHER ASSY	SITE CODE	NUMBER	REV.
FINISH	B-DD-RK11-D	DIST.	DCS M7255-0-1	F
	SCALE NONE			
	SHEET 7 OF			

REVISIONS
 CHANGE NO.
 DATE



ADD WIRE FROM
E3307 TO E3313

ADD WIRE FROM
E3302 TO E3306

ADD WIRE FROM
E3302 TO E3306

ADD WIRE FROM
E2307 TO E3925

NOTES:

HOLE LETTER	DRILLING DATA		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE/AFTER PLATE PLATE	YES	NO	
NONE	61 (0.39 DIA)	X			2
Y	49 (0.73 DIA)	X			2
Z	41 (0.96 DIA)	X			

BOARD FABRICATION INFORMATION

BOARD SIZE 6.562 X 11.750
 BOARD MATERIAL 0.02 THK 1 OZ. COPPER, 2 SIDES
 EYELET FLATED THRU
 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE	DATE	digital EQUIPMENT CORPORATION
DATE	DATE	
DATE	DATE	TITLE
DATE	DATE	REKID DISK CONTROL
DATE	DATE	SIZE CODE
DATE	DATE	NUMBER
DATE	DATE	REV
DATE	DATE	MS 40187

THIS DRAWING IS PART OF E.C.O. PACKAGE # *M 7255-00009* **NOT TO BE USED FOR PRODUCTION**

digital ENGINEERING CHANGE ORDER 451	ORIGINATOR Dick Lewis 1-1 TELEXT 4620 DATE 9/27/74 DISC PROJ NO E-20-07534 COST CENTER NO 395	ECO NO. <u>M7255-0010</u> SHEET 1 OF 2 DATE RECEIVED <u>10-3-74</u> FIRST ISSUE <u>10-7-74</u> FINAL ISSUE <u>N/A</u>				
	PROBLEM 1. Several wires and etch cuts must be added to the M7255 during module build resulting in additional production costs. 2. DEC IC 11380 bus receivers should be replaced by DEC IC 8640's.					
CORRECTION 1. Relay etch board to eliminate wires and etch cuts. 2. Use D2C IC 8640 as a replacement for DEC IC 11380.		UNIT TO BE CHANGED M7255 Disk Control DISP CODE C2 OPTIONS AFFECTED RK11-D RK11-E				
BREAK IN/EFFECTIVITY Phase in etch rev. F modules when new etch boards are available. Phase in 8640's as production quantities become available. <i>By FEB. 10, 1974.</i>		PRODUCT LINES AFFECTED PDP-11 PDP-15				
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1.	D-CS-M7255-0-1 Sheet 1	M	N	06	Update revisions per this ECO.	<input checked="" type="checkbox"/> MODEL
	Sheet 2	F	H	06	Delete quantity of six 11380's (1911113) from parts list. Add quantity of six 8640's (1911469). Update etch board revision.	<input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
	Sheet 5	E	F	06	Change all 11380 logic gates to 8640.	<input type="checkbox"/> FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Change
	Sheet 7	F	H	06	Change 11380 logic gate to 8640.	<input type="checkbox"/> TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE <input type="checkbox"/> ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
2.	D-AH-M7255-0-5	M	N	06	Update per new item 4, this ECO.	
3.	B-MH-M7255-0-6	P	R	06	Update per th's ECO.	
4.	5009986	E	F	02	Correct artwork to eliminate wires and etch cuts. Make E32 (presently unused) a spare IC location.	
DISPOSITION CODES			APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (REWORK) 04 - (DELETED) 05 - (DELETED) 06 - (DELETED) 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			10-7-74 DM 11 CENTRAL ENG. ECO COMMITTEE 320 DESIGN ENGR Tom Orr 1-3 ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)			

DEC 16 (325) 1071 N711 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

digital ENGINEERING CHANGE ORDER	CONTINUATION SHEET	ECO NO. <u>M7255-0010</u> SHEET 2 OF 2			
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
5.	1911113	-	-	00	Delete six 11380's.
6.	1911469	-	-	07	Add six 8640's.

DRA-111C-2

SIZE CODE B MH NUMBER M7255-0-6 REV R

MODULE ECO HISTORY													
PRODUCT LINE <u>PDP11</u>				PAGE <u>1</u> OF <u>2</u>				RELEASED CS REV <u>B</u>					
DATE RELEASED <u>9-25-72</u>								RELEASED ETCH BD REV <u>C</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS DESIGN LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDICATIVELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D. LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R. LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAVINE		
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT(E2D) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		
00005	R. LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REV	DATE	BY	CHKD	DATE	BY
00001	10-9-72	D. LEWIS			
0001A	11-3-72	ORR			
00002	1-29-73	R. LEWIS			
00003	3-21-73	R. LEWIS			
00004	4-26-73	R. LEWIS			
00005	6-25-73	R. LEWIS			

DRY	DATE	TITLE	SIZE	CODE	NUMBER	REV
CHKD	DATE	MODULE ECO HISTORY	B	MH	M7255-0-6	R
ENG	DATE	EQUIPMENT CORPORATION				
PROD.	DATE	MAYNARD, MASSACHUSETTS				

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H 9-25-73 MW E
 SIZE CODE NUMBER HWI E

MODULE ECO HISTORY

PRODUCT LINE PDP11 PAGE 2 OF 2 RELEASED CS REV. B
 DATE RELEASED 9-25-73 RELEASED ETCH BD REV. C
 RELEASED BY T. ORR

ECO. NO	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X			X			REPLACE DR BUS AC LO WITH BUS AC LO	—	2
00006A	R. LEWIS	10-9-73	—	—	—	—	—	—	—	—	CORRECT REF INFO	—	—
0006B	R. LEWIS	10-16-73	—	—	—	—	—	—	—	—	CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X			ADD +5 AND GND JUMPEWS TO REDUCE POWER NOISE	—	—
0007A	T. ORR	1-23-74	—	—	—	—	—	—	—	—	CORRECT RE-WORK INSTR. C-TION	—	—
00008	T. ORR	2-27-74	L F2	—		X	—	X			REMOVE E32, C71 R3, ADD JUMPER	—	3
00009	R. LEWIS	9-18-74	M	—		X	REWORK ETCH REV. E ONLY	X			CORRECT RACE CONDITION IN HARDWARE POLL	—	—
00010	R. LEWIS	9-27-74	N	F		X	—	X			UP DATE ETCH TO INCORPORATE WIRES, REPLACE 11380'S WITH 8540'S	6	6

REVISIONS
 CONT. (END NO. REV.)

DRN: D. SMITH DATE: 10-4-73
 CHK'D: D. SMITH DATE: 10-4-73
 ENG: T. ORR DATE: 10-12-73
 PROD: R. DOOLEY DATE: 10-2-73

TITLE: MODULE ECO HISTORY
 EQUIPMENT CORPORATION
 MATHARD, MASSACHUSETTS

SIZE: B CODE: MH NUMBER: M7255-0-6
 P/V: R

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PAGE REVISION CONTROL SHEET												FIRST USED ON OPTION/MODEL		
PAGE REVISIONS										REMARKS		RK11-D		
SH. NO.	REV.	DATE	ENG.	ETCH	ECO	NO.	BY	DATE	DESCRIPTION	REVISIONS	REMARKS			
1	B													
2	B	10-27-70			D	0001-1A								
3	B	12-15-73			D	0002								
4	B	11/77			D	0003								
5	B	5/24/78			C	0004								
6	B	1-17-78			E	0005								
7	B	4/14/77			C&D	00006								
8	B	11/27/72			E	00006								
9	B	11/27/72			C&E	00007								
10	B	11/27/72			E	00007								
11	B	11/27/72			E	00008								
12	B	12/11/72			E	00009								
13	B	5/24/77			F	00010								
14	B	5/24/77			F	00010								
15	B	5/24/77			F	00010								
											DISK1			
											DISK2			
											DISK3			
											DISK4			
<div style="display: flex; justify-content: space-between;"> digital EQUIPMENT CORPORATION WATKINS MANUFACTURING </div>												TITLE		
DISK CONTROL												RK11-D		
NEXT HIGHER ASSY.												B-DD-RK11-D		
SCALE												B CS M7255-0-1		
SHEET												OF		
DIST.														
RFV.												N		

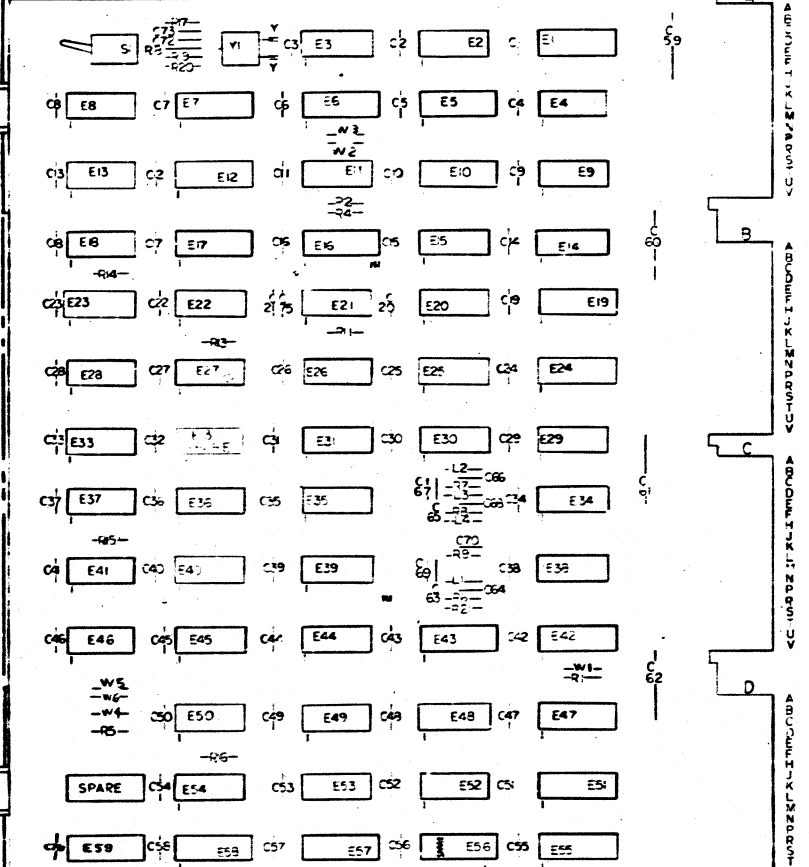
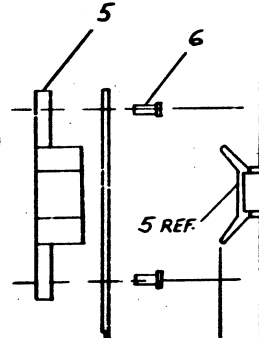
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M7255-00010

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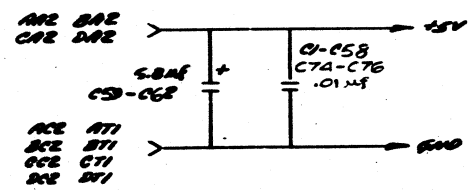
NOTES:
1.) IF 8640'S (ITEM#33) ARE NOT AVAILABLE, USE 11380'S PART NO. 19-11113



PIN NOMENCLATURE MODULE RKII-D

I.C. DEC	1	8
I.C. DEC 8640	1	8
I.C. DEC 7380	1	8
I.C. DEC 74193	8	16
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 74151	8	16
I.C. DEC 74157	8	16
I.C. DEC 7496	5	12
I.C. DEC 314	1	8
I.C. DEC 7482	11	4
I.C. DEC 74174	8	16
I.C. DEC 7476	5	13
I.C. DEC 7492	8	16
I.C. DEC 74123	8	16

IC TYPE GND +5V

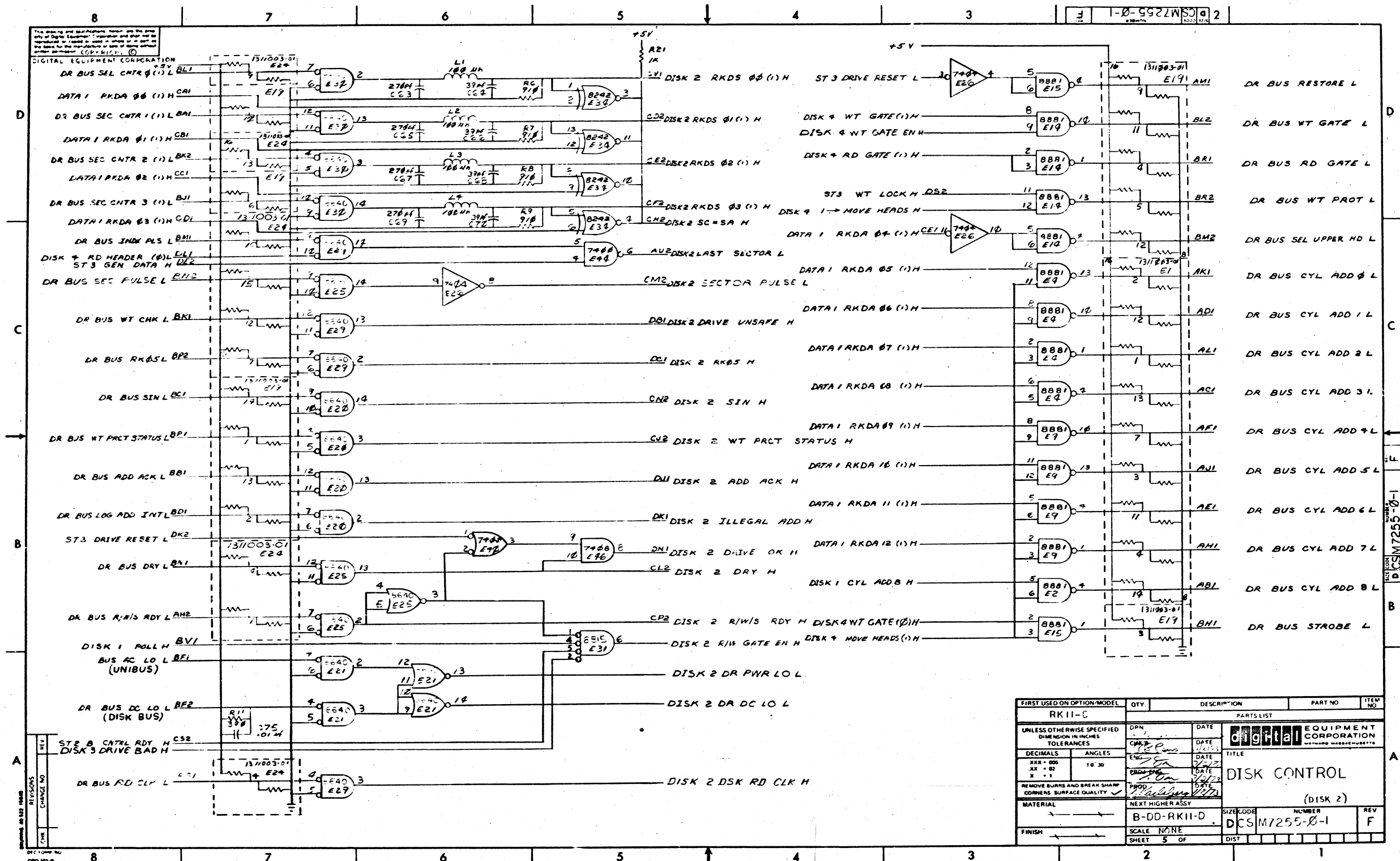


QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
3	W1, W2, W6	INSULATED JUMPER (2007-1)	9009185	53
2		SPLIT LUGS	9006735	52
1	S1	SWAGE LUGS	9007791	51
1	L1-L4	SWITCH TOGGLE SPDT	1210209	50
4	LI-L4	INDUCTOR 100UH 65MA 10%	1610662	49
1	Y1	CRYSTAL (SEE TABLE 1)		48
10	E11, E16, E22, E27, E31, E48, E49, E52-E59	I.C. DEC 7474	1905547	47
1	E50	I.C. DEC 74H04	1909931	46
2	E13, E46	I.C. DEC 7408	1910155	45
1	E59	I.C. DEC 314	1909704	44
1	E55	I.C. DEC 74161	1910650	43
1	E31	I.C. DEC 8815	1909713	42
1	E43	I.C. DEC 7442	1910046	41
1	E7	I.C. DEC 7476	1905585	40
1	E6	I.C. DEC 74174	1910652	39
1	E28	I.C. DEC 7482	1905584	38
1	E18	I.C. DEC 74H01	1909058	37
1	E36	I.C. DEC 74H50	1909060	36
1	E37	I.C. DEC 7450	1905580	35
1	E34	I.C. DEC 8242	1909718	34
6	E20, E21, E25, E29, E30, E38	I.C. DEC 7419	1911463	33
2	E12, E17	I.C. DEC 74123	1910118	32
2	E92, E47	I.C. DEC 74157	1910655	31
1	E57	I.C. DEC 74151	1909936	30
2	E51, E58	I.C. DEC 74175	1910651	29
1	E3	I.C. DEC 7380	1910290	28
5	E2, E4, E9, E14, E15	I.C. DEC 8281	1909705	27
1	E35	I.C. DEC 7420	1905577	26
3	E23, E39, E45	I.C. DEC 7410	1905576	24
3	E3, E90, E44	I.C. DEC 7400	1905575	23
2	E5, E10	I.C. DEC 7496	1910363	22
2	E26, E33	I.C. DEC 7404	1909256	21
7	R1, R4, R12, R13, R15, R16, R21	RES. 1K 1/4W 5%	1300365	20
1	R5	RES. 3K 1/4W 5%	1300432	19
4	R6-R9	RES. 910R 1/4W 5%	1305574	18
2	R17, R18	RES. 10K 1/4W 5%	1300479	17
2	R11, R4	RES. 390R 1/4W 5%	1300309	15
2	R19, R20	RES. 470R 1/4W 5%	1300316	14
3	E1, E19, E24	RES. PACK	1311003-01	13
2	C72, C73	CAP. 0.05UF 100V 20%	1001765	12
4	C63, C65, C67, C69	CAP. 270PF 100V 5% DM	1000022	11
4	C64, C66, C68, C70	CAP. 39PF 100V 5% DM	1000010	10
60	C1-C58, C75, C76	CAP. 0.1UF 100V 20% AXIAL	1001610	9
4	C59-C62	CAP. 6.8UF 35V 10% TANT	1005306	8
8		EYELET (63-8-7) STANLEIGH	9006732	6
4		HANDLE FLIP-CHIP MOUNTING	9008337-08	5
1		ETCHED CIRCUIT BOARD	5009986	4
REF		FRAGILE ESD HISTORY	8-24-1125-0-8	3
REF		AST/DRAWING HALF LOCATION	8-24-1125-0-8	2
REF		Y-Y COMPANIMITE HALF LOCATION	8-24-1125-0-8	1

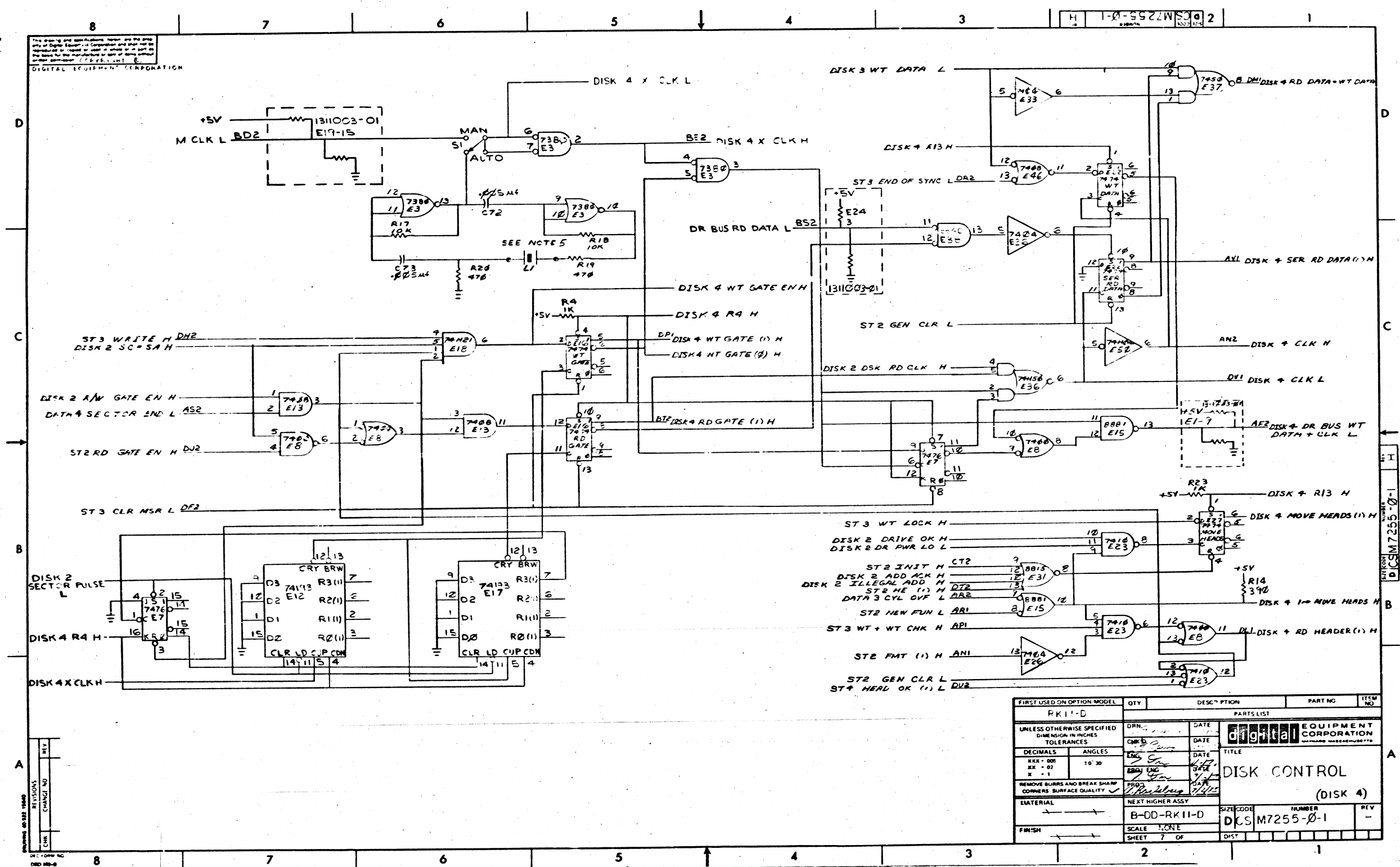
IC PIN LOCATIONS
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

FIRST USED ON OPTION MODEL		ETCH BOARD REV F		PARTS LIST		EQUIPMENT CORPORATION	
REV	CHANGE NO.	DATE	BY	DATE	BY	TITLE	
1		2/11/73	J. Johnson	2/11/73	J. Johnson	DISK CONTROL	
						RKII-D	
						B-DD-RKII-D	
						SCALE NONE	
						SHEET 2 OF	
						DIST	

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00010 NOT TO BE USED FOR PRODUCTION

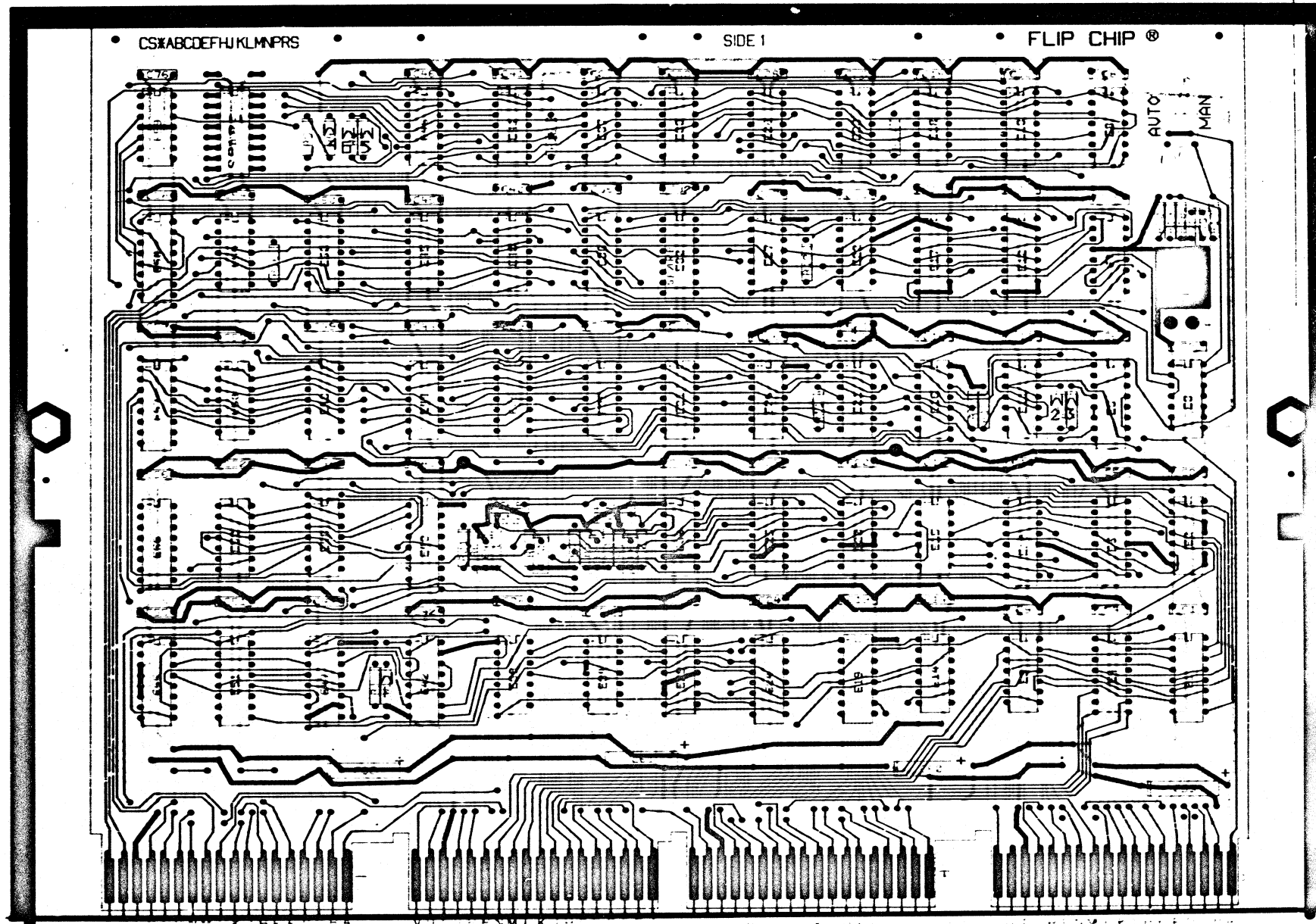


THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00010 NOT TO BE USED FOR PRODUCTION



FIRST USED ON OPTION MODEL	QTY	DESC'N	PART NO.	ITEM NO.
RK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN	DATE	DIGITAL EQUIPMENT CORPORATION	
DECIMALS	CHK'D	DATE	TITLE	
ANGLES	ENG	DATE	DISK CONTROL (DISK 4)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	BRN/ENG	DATE	MATERIAL	
	PRD	DATE	NEXT HIGHER ASSY	
			B-DD-RK11-D	
			SIZE CODE	NUMBER
			DKS M7255-0-1	REV
			SHEET 7 OF	

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LETTER	PTH BOARD		FOR NON-PTH BOARDS	IN TAKE QUANTITY	
	BEFORE PLATE	AFTER PLATE		OF SAMPLERS	OF HOLES
NONE	61 (0.39 DIA)	X			
Y	45 (0.75 DIA)	X			
Z	41 (0.60 DIA)	X			2

BOARD FABRICATION INFORMATION

BOARD SIZE 5.00 X 10.00

BOARD MATERIAL 100% FR-4

CORNER RADIUS

EYELET PLATED THRU X

SIDED MULTI-LAYER

NOTCH BEFORE GOLD PLATING

NOTCH AFTER GOLD PLATING X

DATE		REV. #	
11/11/75	1		
12/20/75	2		
12/10/75	3		
FIRST USED ON		SCALE	
		D 1/2" = 1"	
ETCH REV		MS 40187	

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-00010 NOT TO BE USED FOR PRODUCTION

SUPPLEMENT ECO

digital
ENGINEERING
CHANGE ORDER

ORIGINATOR	Dick Lewis	ECO NO	M7255-00010A
TEL EXT	4620	DATE	2/27/75
LOCATION	ML/E65	DATE RECEIVED	3-5-75
COST CENTER NO	39C	ISSUE DATE	3-17-75
		FINAL RELEASE	

PROBLEM There is a documentation error in the M7255 parts list. The part number is incorrect for R5 (3K 1/2W res.)	UNIT TO BE CHANGED M7255 Disk Control
CORRECTION Correct parts list and bill of materials per this ECO.	PRODUCT AFFECTED PDP-11 PDP-15
BRFAK-IN/EFFECTIVITY Document correction only. Model is correct and boards are being built with correct part.	TYPE OF ECO <input checked="" type="checkbox"/> HARDWARE <input type="checkbox"/> SOFTWARE <input type="checkbox"/> PURCHASE SPEC.
QUICK-CHECK FEB 28 1975	FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> D.P.R.D.STR <input type="checkbox"/> L.O.U CODE
TEST	WHERE USED RK11-D RK11-E

11 CENTRAL ENG.
ECO COMMITTEE

ITEM NO	DOCUMENT PART NO	OLD REV	NEW REV	DESCRIPTION OF CHANGE/ DISPOSITION OF MATERIAL
1	D-CS-M7255-0-1	--	--	Change the part number for R5, 3K 1/2W res., from 1300433 to 1300432.
2	B-MH-M7255-0-6	R	S	Update per this ECO.

SUPPLEMENT ECO

APPROVAL SIGNATURE (TYPE NAME AND SIGN) PROJECT ENGR. Dick Lewis <i>[Signature]</i> ENG. MGR. Doug Rothenberg <i>[Signature]</i> TEL. EXT. 6530 COST CENTER NO. 39C DISC PROJ. NO. E-20-07534 DATE 2/27/75	REVIEW SIGNATURES (SEE INSTRUCTIONS FOR APPLIC.) FIELD SERVICE _____ DIAGNOSTIC ENGR. _____ COORD. E. Pina 3-18-75
COORD. NO. MD 1589 REF. NO. _____	

S 9-0-552LW B MH 7255-0-6

MODULE ECO HISTORY

PRODUCT LINE PDP11 PAGE 1 OF 3 RELEASED CS REV. B
 DATE RELEASED 9-25-72 RELEASED ETCH BD REV. C
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	D.LEWIS	10-9-72	C	D	X			X			TO CORRECT ETCH ERRORS		
0001A	ORR	11-3-72	C	D	X			X			TOLERANCE TOO CLOSE	3	3
00002	R.LEWIS	1-29-73	D	D	X			X			STANDARDIZE CLK. PULSES		
00003	R.LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		TO SELECT PROPER DRIVE FOR EXAMINE		
00004	R.LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED		X		DISABLE ONE SHOT(E2D) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S		
00005	R.LEWIS	6-25-73	H	E		X		X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING		

REV.	DATE	BY	DESCRIPTION

DRG	DATE		
CHK'D	DATE		
ENGR	DATE		
PROD.	DATE		

EQUIPMENT CORPORATION			
SIZE	CODE	NUMBER	PRT
B	MH	M 7255-0-6	3

DHB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-0010A

NOT TO BE USED FOR PRODUCTION

S 9-25-72 MW B
 3300 3275

PRODUCT LINE PDP11 MODULE ECO HISTORY RELEASED CS REV. B
 DATE RELEASED 9-25-72 PAGE 2 OF 3 RELEASED ETCH BD REV. C
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X			X			REPLACE DR BUS AC LO WITH BUS AC LO	—	2
00006A	R. LEWIS	10-9-73	—	—	—	—	—	—	—	—	CORRECT REF INFO	—	—
0006B	R. LEWIS	10-16-73	—	—	—	—	—	—	—	—	CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X			ADD #5 AND GND JUMPER TO REDUCE POWER NOISE	—	—
0007A	T. ORR	1-23-74	—	—	—	—	—	—	—	—	CORRECT REWORK INSTRUCTION	—	—
00008	T. ORR	2-27-74	L F2	—		X	—	X			REMOVE E32, C71 R3, ADD JUMPER	—	3
00009	R. LEWIS	9-18-74	M	—		X	REWORK ETCH REV. E ONLY	X			CORRECT TRACE CONDITION IN HARDWARE PULL	—	—
00010	R. LEWIS	9-27-74	N	F		X	—	X			UPDATE ETCH TO INCORPORATE WIRES, REPLACE 11380'S WITH 8640'S	6	6

REVISIONS
 CHG NO. REV.

DRN D. SMITH DATE 10-27-72
 CHG D. SMITH DATE 10-27-72
 ENG. T. ORR DATE 10-27-72
 PROD. R. BOOLEY DATE 10-27-72
 EQUIPMENT CORPORATION
 NAYARD, MASSACHUSETTS
 MODULE ECO HISTORY
 SIZE CODE NUMBER
 B III M7255-0-6

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7255-0010A

NOT TO BE USED FOR PRODUCTION

S 738 9-25-72 B 3215

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>B</u>										
DATE RELEASED <u>9-25-72</u>		PAGE <u>3</u> OF <u>3</u>		RELEASED ETCH BD REV. <u>C</u>										
RELEASED BY <u>T.C.P.P.</u>														
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED	
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)				
0010A	RLEWIS	2-27-75	N	F		X			X			CORRECT PRINT ERROR IN F/L	-	-

REVISIONS
CHK'G NO REV

DRN.	DATE
CHK'D	DATE
ENG.	DATE
PROD.	DATE

EQUIPMENT CORPORATION		MIDDLEBURY, MASSACHUSETTS	
TITLE	MODULE ECO HISTORY	SIZE	EDGE
NUMBER	REV.		

DEC 10-1970 10-2-70
DWB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-0010A NOT TO BE USED FOR PRODUCTION

digital

ECO IMPLEMENTATION/COST SUMMARY

To be entered by Maynard ECO Admin.
ECO No. M7255-00010 R
SHEET _____ of _____
V98 No. NONE
Discrete Project No. E20-07334

Build Level	Area (s)	Effect. Date	No. of Units	Cost/Unit	Total Cost	Persons Contacted	Comments
Field Service (Systems Units)	N/A				Z		
Diagnostic Programming	N/A				F		
Units in Customer/ Hold Areas	N/A				Z		
Other							
Systems/Units in or Complete thru Acceptance	N/A				F		
Other							
Systems/Units In Test Area(s)	N/A				S		
Other							
Units In System Assembly or FA&T Stock	N/A				C		
Other							
Options in Volume Manufacturing	N/A				B		
Other							
Units in Sub-Asy Areas	N/A				C		
Other							
Modules in Module Manufacturing	N/A				Q		
Other							
P.C. Board Production	N/A				Q		
Vendor							
Metal Fabrication	N/A				Q		
Vendor							
Availability of Test Equipment/ Method	N/A				C		
Availability of Tooling	N/A				Z		

CONFIDENTIAL
COST INFO.
To be issued with L...
only on request

11 CENTRAL ENG.
ECO COMMITTEE
FEB 28 1975

TOTAL COST = 0 CHARGE (S) TO DISCRETE PROJECT NO. Z

Does this ECO alter the Standard Cost of the product? Yes No
If Yes, by how much? \$ _____ Increase (Decrease)

*Detail (in parentheses) the cost to be charged to the Discrete Project Number

Doug Rottenberg
3/3/75

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE PAGE WHICH PRESENTS IMPLEMENTATION DETAIL.
DEC 3 (496) 1831 N175

digital
ENGINEERING
CHANGE ORDER

ORIGINATOR Bruce Cramm
TEL EXT 5970 DATE 19 May 76
LOCATION ML21-1/E81
COST CENTER NO. 367

ECO NO. M7255-00011
SHEET 1 OF 1
DATE RECEIVED 5-24-76
ISSUE DATE 6-9-76
FINAL RELEASE

PROBLEM
1. IC number E3, 738 ϕ is not available.

UNIT TO BE CHANGED
M7255

CORRECTION
1. Change IC number E3 to a 38 ϕ part number 1912549.

PRODUCT AFFECTED
RK11-D, E

TYPE OF ECO
 HARDWARE
 SOFTWARE
 PURCHASE SPEC.

BREAK-IN/EFFECTIVITY
Phase-in by 31 July 1976 or as soon as part is available.

FIELD SERVICE AFFECTED
 YES NO
 D, P, R DISTR.
 L.O.U. CODE

QUICK-CHECK
Check E3; it should be a 380.

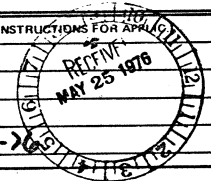
WHERE USED
PDP-11

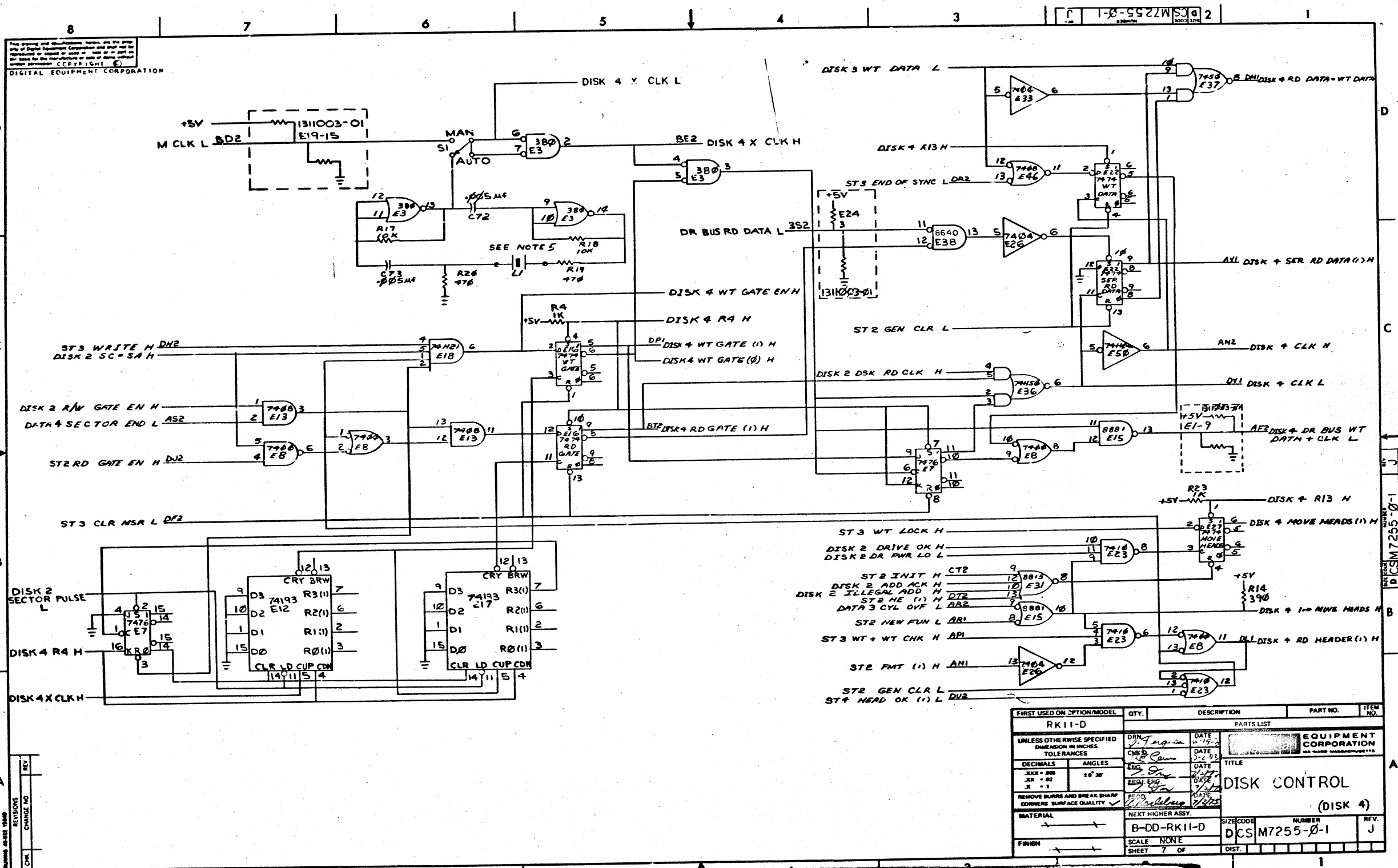
TEST
N/A

ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	B-CS-M7255- β -1	N	P	1. Update drawings number REV letters per this ECO. 2. Update CS rev letters per this ECO. 3. Change item number 28 from 738 ϕ to 38 ϕ part number 1912549.
2.	B-MH-M7255- β -6	S	T	Update per this ECO.
3.	D-AH-M7255-0-5	N	P	UPDATE PER THIS ECO

APPROVAL SIGNATURE (TYPE NAME and SIGN)
PROJECT ENGR. R. Gruda
ENG. MGR. R. Testa
TEL. EXT. 4431 COST CENTER NO. 367
DISC. PROJ. NO. E20-08673 DATE 19 May 76
COORD. NO. MD5615 REF. NO.

REVIEW SIGNATURES (SEE INSTRUCTIONS FOR APPLICATION)
FIELD SERVICE
DIAGNOSTIC ENGR.
W. Wood 6-2-76





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REV	CHG	NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES.				
TOLERANCES	DRN	DATE	EQUIPMENT CORPORATION	
DECIMALS	CHK	DATE		
ANGLES	ENG	DATE	TITLE	
3/16 - .001			DISK CONTROL	
1/8 - .002			(DISK 4)	
1/4 - .005				
1/2 - .010				
1 - .020				
2 - .040				
3 - .060				
4 - .080				
5 - .100				
6 - .120				
7 - .140				
8 - .160				
9 - .180				
10 - .200				
11 - .220				
12 - .240				
13 - .260				
14 - .280				
15 - .300				
16 - .320				
17 - .340				
18 - .360				
19 - .380				
20 - .400				
21 - .420				
22 - .440				
23 - .460				
24 - .480				
25 - .500				
26 - .520				
27 - .540				
28 - .560				
29 - .580				
30 - .600				
31 - .620				
32 - .640				
33 - .660				
34 - .680				
35 - .700				
36 - .720				
37 - .740				
38 - .760				
39 - .780				
40 - .800				
41 - .820				
42 - .840				
43 - .860				
44 - .880				
45 - .900				
46 - .920				
47 - .940				
48 - .960				
49 - .980				
50 - 1.000				
51 - 1.020				
52 - 1.040				
53 - 1.060				
54 - 1.080				
55 - 1.100				
56 - 1.120				
57 - 1.140				
58 - 1.160				
59 - 1.180				
60 - 1.200				
61 - 1.220				
62 - 1.240				
63 - 1.260				
64 - 1.280				
65 - 1.300				
66 - 1.320				
67 - 1.340				
68 - 1.360				
69 - 1.380				
70 - 1.400				
71 - 1.420				
72 - 1.440				
73 - 1.460				
74 - 1.480				
75 - 1.500				
76 - 1.520				
77 - 1.540				
78 - 1.560				
79 - 1.580				
80 - 1.600				
81 - 1.620				
82 - 1.640				
83 - 1.660				
84 - 1.680				
85 - 1.700				
86 - 1.720				
87 - 1.740				
88 - 1.760				
89 - 1.780				
90 - 1.800				
91 - 1.820				
92 - 1.840				
93 - 1.860				
94 - 1.880				
95 - 1.900				
96 - 1.920				
97 - 1.940				
98 - 1.960				
99 - 1.980				
100 - 2.000				

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To be entered by Maynard ECO Admin.

ECO No. M7255-00011

SHEET 1 of 1

MSB No. _____

Discrete Project No. E20-02673

ECO IMPLEMENTATION/COST SUMMARY

Build Level	Area (s)	Effect. Date	No. of Units	Cost/Unit	Total* Cost	Persons Contacted	Comments
Field Service (Systems/Units)					0		
Diagnostic Programming					0		
Units in Customer/ Hold Area					0		
Other:							
Systems/Units in or Complete thru Acceptance					0		
Other:							
Systems/Units In Test Area(s)					0		
Other:							
Units in System Assembly or FA&T Stock					0		
Other:							
Options in Volume Manufacturing					0		
Other:							
Units in Sub-Asy Area					0		
Other:							
Modules in Module Manufacturing					0		
Other:							
P.C. Board Production					0		
Vendor:							
Metal Fabrication					0		
Vendor:							
Availability of Test Equipment/ Method					0		
Availability of Tooling					0		

CONFIDENTIAL COST INFO.
To be issued with ECO only on request

TOTAL COST = CHARGE (\$) TO DISCRETE PROJECT NO.

Does this ECO alter the Standard Cost of the product? Yes No
If Yes, by how much? \$ _____ Increase (Decrease)

*Detail (in parentheses) the cost to be charged to the Discrete Project Number.

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE PAGE WHICH PRESENTS IMPLEMENTATION DETAIL.
DEC 3-1986-1831-N175

digital
ENGINEERING
CHANGE ORDER

ORIGINATOR Pete Morell
TEL EXT 2983 DATE 8 JUNE 76
LOCATION ML/4-5
COST CENTER NO. 496

ECO NO. M7255-00011A
SHEET 1 OF 1
DATE RECEIVED 6-8-76
ISSUE DATE 6-11-76
FINAL RELEASE

PROBLEM Previous ECO did not update certain pages of CS document.	UNIT TO BE CHANGED M7255
CORRECTION Update CS properly and reflect these changes on module history.	PRODUCT FAMILIES AFFECTED RK11-D, E
BREAK-IN/EFFECTIVITY Supplement ECO. Documentation change. SUPPLEMENT ECO	TYPE OF ECO <input checked="" type="checkbox"/> HARDWARE <input type="checkbox"/> SOFTWARE <input type="checkbox"/> PURCHASE SPEC. FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> D. P. R. DISTR. <input type="checkbox"/> L.O.U. CODE
QUICK-CHECK	WHERE USED PDP-11
TEST	

ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	B-CS-M7255-0-1	H	J	Update per this ECO to bring into phase with previous ECO. PAGES TWO AND SEVEN
2.	B-MH-M7255-0-6	T	U	Update to reflect these changes.

APPROVAL SIGNATURE (TYPE NAME and SIGN) PROJECT ENGR. ENG. MGR. <u>Nancy Moore</u> TEL. EXT. <u>3172</u> COST CENTER NO. <u>496</u> DISC. PROJ. NO. <u>E97-06686</u> DATE	REVIEW SIGNATURES (SEE INSTRUCTIONS FOR SIGNATURES) FIELD SERVICE DIAGNOSTIC ENGR. <u>P. Morell 6-8-76</u>
COORD. NO. <u>MD5758</u> REF. NO.	

9-25-73 10472 10472

MODULE ECO HISTORY
PAGE 2 OF 3

PRODUCT LINE PP11 RELEASED CS REV. B
 DATE RELEASED 9-25-73 RELEASED ETCH BD REV. C
 RELEASED BY T. URR

ECO. NO	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X			X			REPLACE DR BUS AC LO WITH BUS AC LO	—	2
00008	R. LEWIS	10-9-73	—	—	—	—	—	—	—	—	CORRECT REF INFO	—	—
00008	R. LEWIS	10-16-73	—	—	—	—	—	—	—	—	CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X			ADD +5 AND GND JUMPER TO REDUCE POWER NOISE	—	—
0007A	T. ORR	1-23-74	—	—	—	—	—	—	—	—	CORRECT REWORK INSTRUCTION	—	—
00008	T. ORR	2-27-74	L F2	—		X	—	X			REMOVE E32, C71, R3, ADD JUMPER	—	3
00009	R. LEWIS	9-18-74	M	—		X	REWORK ETCH REV E ONLY	X			CORRECT RACE CONDITION IN HARDWARE POLL	—	—
00010	R. LEWIS	9-27-74	N	F		X	—	X			UPDATE ETCH TO INCORPORATE WIRES, REPLACE 11380'S WITH 8640'S	6	6

REVISIONS CHECKED BY
 DEC 16 10-1026-N971
 DRB 104

DRN D. SMITH DATE 10-4-72
 CHK'D D. SMITH DATE 10-4-72
 ENG T. ORR DATE 10-12-72
 PROD R. DOOLEY DATE 10-12-72

TITLE MODULE ECO HISTORY
 EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

SIZE B CODE MH NUMBER M7255-0-6
 U

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7255-0011A

NOT TO BE USED FOR PRODUCTION

9-25-72 11/11 8
3000 3275

MODULE ECO HISTORY													
PRODUCT LINE <u>DDP11</u>				RELEASED CS REV. <u>B</u>				RELEASED ETCH BD REV. <u>C</u>					
DATE RELEASED <u>9-25-72</u>				PAGE <u>3</u> OF <u>3</u>				RELEASED BY <u>T. CBB</u>					
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0010A	R LEWIS	2-27-75	N	F		X		X			CORRECT PRINT ERROR IN D1 CHANGE 7360 TO 360	1	1
0011	S RYAN	5-APR-76	P	F		X		X			SUPPLEMENT DOCUMENT CHANGE	0	0
0011A	B MORELL	8-JUNE-76	J										

DATE: 9-25-72
 BY: T. CBB
 EQUIPMENT CORPORATION
 177255-3-6

177255-0011A



ORIGINATOR BRUCE CRAMM
 TEL EXT 5970 DATE 9-16-77
 LOCATION ML-21-1/EB1
 COST CENTER NO. 30A

M98 00379 69035

ECO NO. M7255-000/2
 SHEET 1 OF 3
 ISSUE DATE 20 SEPT 77
 FINAL RELEASE 20 SEPT 77



ENGINEERING CHANGE ORDER

PROBLEM SCHE M7255 S ARE EXPERIENCING CROSS TALK ON THE DISK 3 DRE(1)H LINE, ESPECIALLY THOSE WORKING WITH THE 11/34 AND 11/70 PROCESSORS.
 SYMPTOM; DIAGNOSTIC MD-11-DZRRK FAILS WITH HARD ERROR SET IN THE RKCS WITH NO ERRORS INDICATED IN THE RKER. HIGHER +5 VOLTAGE TO THE RK11-D BACKPLANE AGGRAVATES THIS PROBLEM.
 IE FAILURES AT 5.25V AND NONE AT 4.75V.

CORRECTION
 REROUTE THE DISK 3 DRE(1) H SIGNAL.

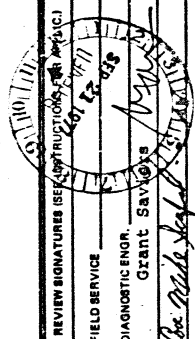
BREAK-IN/EFFECTIVITY
 SG: REMORK ALL ETCH REV F BOARDS (CS REV P).
 DERRY: REMORK THE UNITS IN STOCK.
 WF: REMORK THOSE THAT SHOW THE PROBLEM, ESPECIALLY THOSE 11/34 BASED SYSTEMS.

QUICK-CHECK
 VISUAL: LOOK FOR WIRE ON PTH THAT GOES TO PIN 71L.

TEST
 RUN RK LOGIC TEST 2 AT 5.25V.

ITEM NO.	DOCUMENT/PART NO.	OLD NEW REV REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	B-MH-M7255-0-6	U	UPDATE REV. AND RECORD THIS ECO.
2.	D-AH-M7255-0-5	V P	UPDATE REV. 1. CUT ETCH SIDE 2 THAT CONNECTS PTH TO PIN DRI. 2. CUT ETCH SIDE 1 AT THE PTH BETWEEN C41 AND C-6.
3.	B-CS-M7255-0-1 (SHEET 1)	P	ADD JUMPER SIDE 1 FROM PTH CONNECTED TO DRI TO PTH LOCATED BETWEEN C41 AND C46. RECORD DRAWING REVS.

APPROVAL SIGNATURE (TY'S NAME AND SIGNATURE)
 PROJECT ENGR. JOSE SOTO
 ENG. MGR. K. SRIVASTAVA
 TEL. EXT. 7600 COST CENTER NO. 370
 DFC. PROJ. NO. E9806117 DATE 16-sept-77
 COORD. NO. 26210Z IEF. NO. AID



ENGINEERING CHANGE ORDER

ECO NO. M7255-000/2
 SHEET 2 OF 3

CONTINUATION SHEET

DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL

ITEM NO. DOCUMENT/PART NO. OLD NEW REV REV

J K

4. D-CS-M7255-0-1 (SHEET 2)
 5. 9105740-55

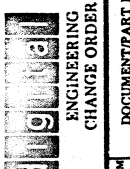
UPDATE REV. AND PARTS LIST PER ITEM 5 THIS ECO.
 ADD QTY. A/R (# 30 AWG. GREEN WIRE) TO THE PARTS LIST.

REWORK (See next sheet for pictorial)

Add jumper from PTH connected to DRI to PTH located between C41 and C46.
 Cut etch, side 2, at PTH located between C41 and C46.
 Cut Etch, side 2, at PTH connected to pin DRI.

EN-10718-16-11025-1327

EN-10718-16-16276(48)



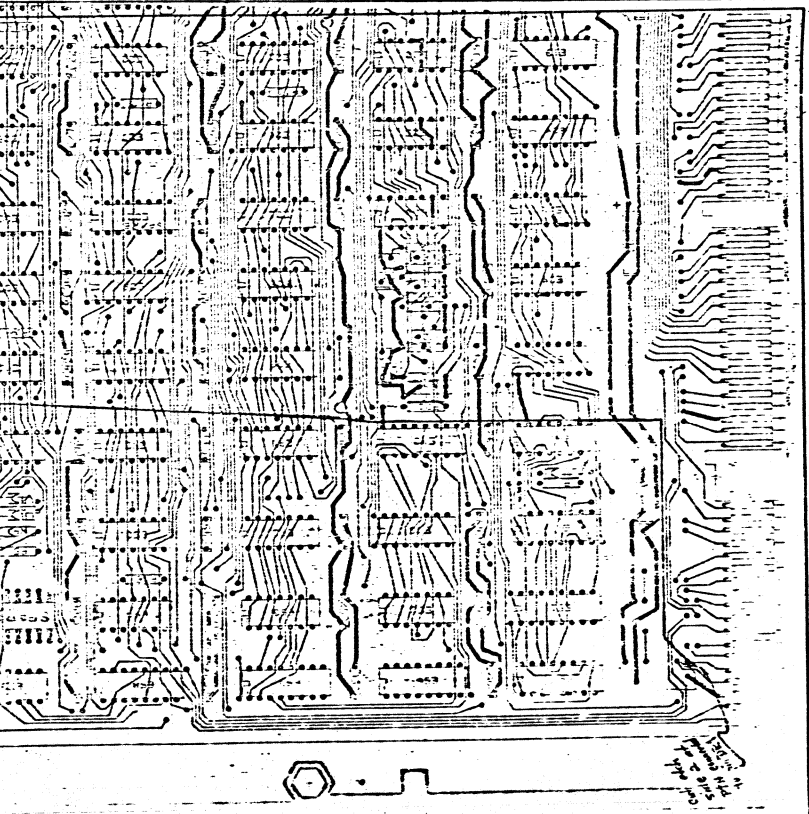
ENGINEERING CHANGE ORDER

CONTINUATION SHEET

ECO NO. M7255-000/2
 SHEET 3 OF 3

DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL

REWORK INSTRUCTIONS:
 Add jumper from PTH connected to DRI to PTH located between C41 and C46.
 Cut etch, side 2, at PTH connected to pin DRI.
 Cut etch, side 2, at PTH connected to pin DRI.



EN-10718-16-16276(48)

SIZE B CODE 2275 HW 8
 NUMBER M7255-0-6
 REV A

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>B</u>										
DATE RELEASED <u>9-25-72</u>		PAGE <u>1</u> OF <u>3</u>		RELEASED ETCH BD REV. <u>C</u>										
RELEASED BY <u>T. ORR</u>														
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED	
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)				
00001	D. LEWIS	10-9-72	C	D	X				X			TO CORRECT ETCH ERRORS	—	—
0001A	ORR	11-3-72	C	D	X				X			TOLERANCE TOO CLOSE	3	3
00002	R. LEWIS	1-29-73	D	D	X				X			STANDARDIZE CLK. PULSES	—	—
00003	R. LEWIS	3-21-73	E	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED			X		TO SELECT PROPER DRIVE FOR EXAMINE	—	—
00004	R. LEWIS	4-26-73	F	D		X	REWORK ALL MODULE LEVEL MACHINES. REWORK SYSTEM LEVEL AND FIELD MACHINES AS REQUIRED			X		DISABLE ONE-SHOT (E21) WHEN NOT POLLING TO PREVENT FALSE SCH CMP'S	—	—
00005	R. LEWIS	6-25-73	H	E		X			X			NEW LAYOUT WITH SHORTER ETCH RUNS SPARE IC LOCATIONS, BETTER XOR TESTING	—	—

REVISIONS NO. REV. A B C D E F G H I J K L M N O P Q R S T U V 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	DATE 10-1-72 DATE 10-4-72	TITLE MODULE ECO HISTORY	EQUIPMENT CORPORATION	SIZE CODE NUMBER REV B M7255-0-6 IV
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THIS DRAWING IS PART
 OF E.C.O. PACKAGE NO.

M7255-00012

NOT TO BE USED
 FOR PRODUCTION

A 9-25-72 HW B
A38 3000 3228

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY					RELEASED CS REV <u>B</u>						
DATE RELEASED <u>9-25-72</u>		PAGE <u>2</u> OF <u>3</u>					RELEASED ETCH BD REV <u>C</u>						
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW? CAN BE MIXED INDISCRIMINATELY?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00006	R. LEWIS	9-14-73	J F1	E	X			X			REPLACE DR BUS AC LO WITH BUS AC LO	—	2
00006A	R. LEWIS	10-9-73	—	—	—	—	—	—	—	—	CORRECT REF INFO	—	—
00006B	R. LEWIS	10-16-73	—	—	—	—	—	—	—	—	CHANGE BREAK-IN DATE	—	—
00007	T. ORR	12-20-73	F2 K	D		X	REWORK OLDER MODULES IF NOISE IS SUSPECTED	X			ADD +5 AND GND JUMPERS TO REDUCE POWER NOISE	—	—
0007A	T. ORR	1-23-74	—	—	—	—	—	—	—	—	CORRECT REWORK INSTRUCTION	—	—
00008	T. ORR	2-27-74	L F2	—		X		X			REMOVE E32, C71 R3, ADD JUMPER	—	3
00009	R. LEWIS	9-18-74	M			X	REWORK ETCH REV. E ONLY	X			CORRECT RACE CONDITION IN HARDWARE POLL	—	—
00010	R. LEWIS	9-27-74	N	F		X		X			UPDATE ETCH TO INCORPORATE WIRES. REPLACE 11380'S WITH 8640'S	6	6

THIS DRAWING IS PART OF E.C.O. PACKAGE NO.

M7255-00012

NOT TO BE USED FOR PRODUCTION

DRM D. SMITH	DATE 10-4-72	TITLE MODULE ECO HISTORY
CHK'D D. SMITH	DATE 10-4-72	
EQUIPMENT CORPORATION		REV CV

REV. B
 NUMBER M7255-0-6
 SIZE CODE NH

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY				RELEASED CS REV. <u>B</u>							
DATE RELEASED <u>2-25-72</u>		PAGE <u>3</u> OF <u>3</u>				RELEASED ETCH BD REV. <u>C</u>							
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0010A	R. LEWIS	2-27-75	N	F		X		X			CORRECT PRINT ERROR IN P/L	-	-
00011	B. CRANE	5-APR-76	P	F		X		X			CHANGE 7380 TO 350.	1	1
0011A	P. MORELL	8-JUNE-76	P	F							SUPPLEMENT DOCUMENT CHANGE	Ø	Ø
00012	B. GRAMM	16-SEP-77	R	F		X		X			2 ETCH CUT 1 WIRE	1	Ø
0012A	B. GRAMM	27-SEP-77	R	F							CHANGED REWORK INSTRUCTIONS	Ø	Ø
0012B	J. SOTO	29-SEP-77	R	F							CHANGE WF TO WM ON BREAK-IN EFFECTIVITY	Ø	Ø

DESIGNED BY <u>D. SMITH</u>	DATE <u>12-4-72</u>	EQUIPMENT CORPORATION MAYFIELD, MASSACHUSETTS	TITLE MODULE ECO HISTORY
CHECKED BY <u>D. SMITH</u>	DATE <u>12-4-72</u>		
ENGINEER <u>T. ORR</u>	DATE <u>12-12-72</u>	SIZE B	CODE NH
DRAWN BY <u>T. ORR</u>	DATE <u>12-12-72</u>	NUMBER M7255-0-6	REV. V

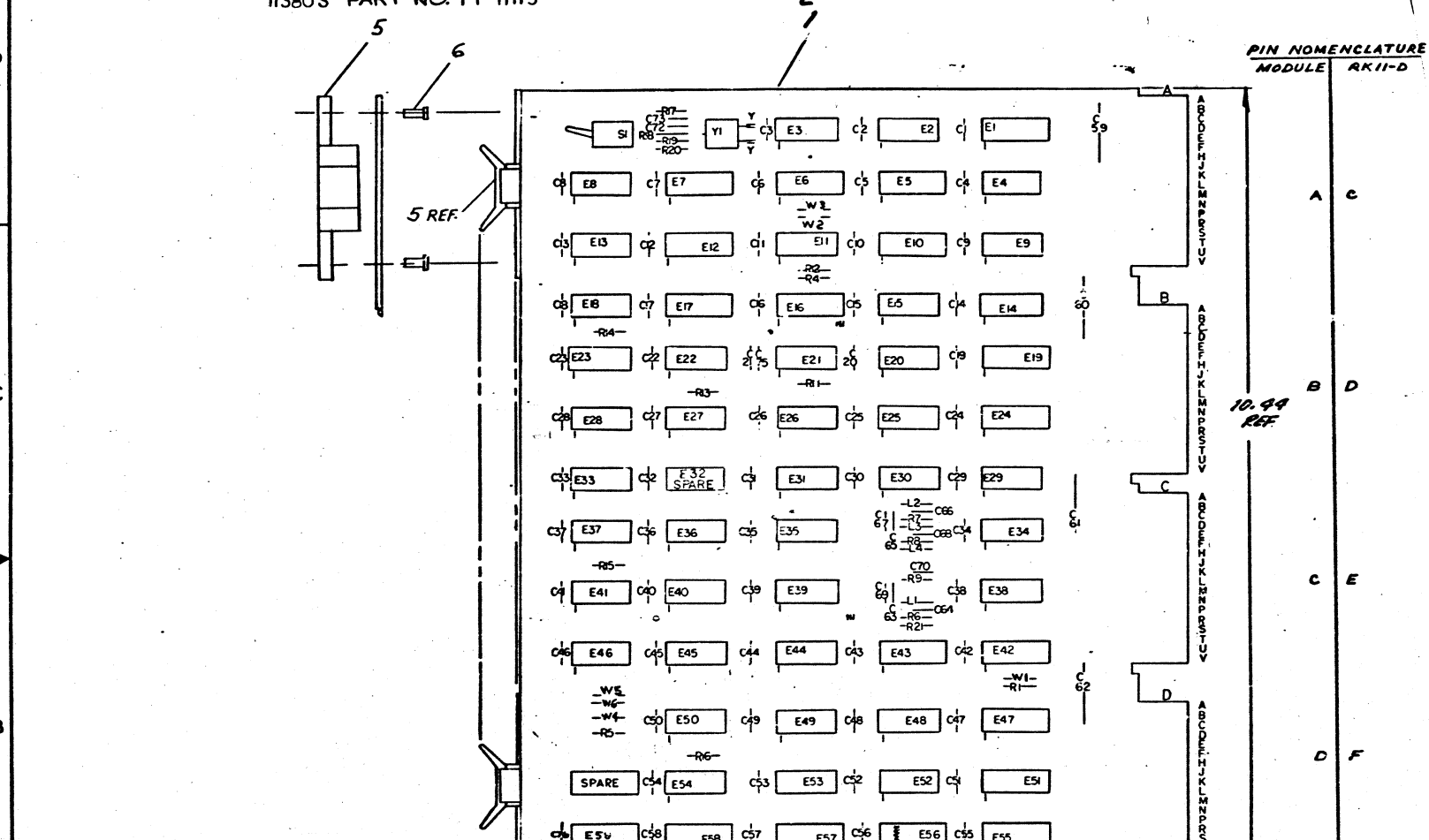
THIS DRAWING IS PART OF E.C.O. PACKAGE NO.

M7255-00012

NOT TO BE USED FOR PRODUCTION

NOTES:
 1.) IF 8640'S (ITEM#33) ARE NOT AVAILABLE, USE I1380'S PART NO. 19-11113

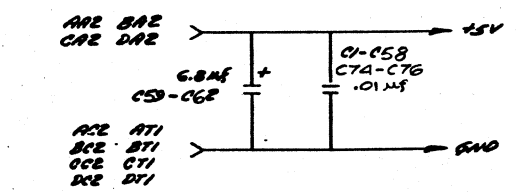
DIGITAL EQUIPMENT CORPORATION



I.C. DEC 8640	1	8
I.C. DEC 380	1	8
I.C. DEC 74193	8	16
I.C. DEC 74175	8	16
I.C. DEC 74161	8	16
I.C. DEC 74151	8	16
I.C. DEC 74157	8	16
I.C. DEC 7496	5	12
I.C. DEC 314	1	8
I.C. DEC 7482	11	4
I.C. DEC 74174	8	16
I.C. DEC 7476	5	13
I.C. DEC 7482	8	16
I.C. DEC 74123	8	16
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
47				
1/4		30 AWG GREEN	9105740-55	54
3	W1, W2, W6	INSULATED JUMPER W2007-1	9009185	53
2		SPLIT LUGS	9006735	52
2		SWAGE LUGS	9007791	51
1	S1	SWITCH TOGGLE SPD7	1210209	50
4	L1-L4	INDUCTOR 100UH, 165MA 10%	1610662	49
1	Y1	CRYSTAL (SEE TABLE I)		48
10	E11, E16, E22, E27, E41, E48, E49, E52-E54	I.C. DEC 7474	1905547	47
1	E50	I.C. DEC 74804	1909931	46
2	E13, E46	I.C. DEC 7408	1910155	45
1	E59	I.C. DEC 314	1909704	44
1	E55	I.C. DEC 74161	1910650	43
1	E31	I.C. DEC 8815	190713	42
1	E43	I.C. DEC 7492	1910046	41
1	E7	I.C. DEC 7476	1903585	40
1	E6	I.C. DEC 7474	1910652	39
1	E28	I.C. DEC 7482	1903584	38
1	E18	I.C. DEC 74821	1909058	37
1	E36	I.C. DEC 74150	1909060	36
1	E37	I.C. DEC 7450	1903580	35
1	E34	I.C. DEC 8242	1909714	34
6	E20, E21, E25, E29, E30, E38	I.C. DEC 8440	1911469	33
2	E12, E17	I.C. DEC 74193	1910018	32
2	E42, E47	I.C. DEC 74157	1910635	31
1	E57	I.C. DEC 74151	1909936	30
2	E51, E58	I.C. DEC 74175	1910651	29
1	E3	I.C. DEC 380	192549	28
5	E2, E4, E9, E14, E15	I.C. DEC 8881	1909705	27
				26
1	E35	I.C. DEC 7420	1905577	25
3	E23, E39, E45	I.C. DEC 7410	1905576	24
3	E8, E40, E44	I.C. DEC 7400	1905575	23
2	E5, E10	I.C. DEC 7496	1910363	22
2	E26, E33	I.C. DEC 7404	1909286	21
7	R1, R4, R12, R13, R15, R16, R21	RES. 1K 1/4W 5%	1300365	20
1	R5	RES. 3K 1/4W 5%	1300432	19
4	R6-R9	RES. 910Ω 1/4W 5%	1305374	18
2	R17, R18	RES. 10K 1/4W 5%	1300979	17
				16
2	R11, R14	RES. 390Ω 1/4W 5%	1300309	15
2	R19, R20	RES. 470Ω 1/4W 5%	1300316	14
3	E1, E19, E24	RES. PACK	1311003-01	13
2	C72, C73	CAP. D05M 100V 20%	1001765	12
4	C63, C65, C67, C69	CAP. 270 PF 100V 5% DM	1000022	11
4	C64, C66, C68, C70	CAP. 39 PF 100V 5% DM	1000010	10
60	C1-C58, C75, C76	CAP. GILF 100V 20% AXIAL	1001610	9
4	C57-C62	CAP. 6.8µF 35V 10% TANT	1003906	8
				7
8		EYELET (G5-B-7) SIMPSON	9006732	6
4		HANDLE FLIP-CHIP MOUNT	9008537-06	5
1		ETCHED CIRCUIT BOARD	5009986	4
4		PLATE ECO ALUMINUM	5444765-6	3
4		ASTROLENS W/LEAD CARBOT	5444765-0-5	2
4		X-Y COORDINATE HOLE LOCATION	5444765-0-4	1

FIRST USED ON OPTION MODEL
RK11-D

CHANGE NO.	REVISIONS	DATE	BY	APPROVED

ETCH BOARD REV F

DATE 6-10-72
 DATE 7-7-73
 DATE 7-17-73
 DATE 7-17-73

TITLE DISK CONTROL RK11-D

NEXT HIGHER ASST B-DD-RK11-D
 B-DD-RK11-D

DEC NO. EIA NO. DEC NO. EIA NO. SCALE NONE SHEET 2 OF 7

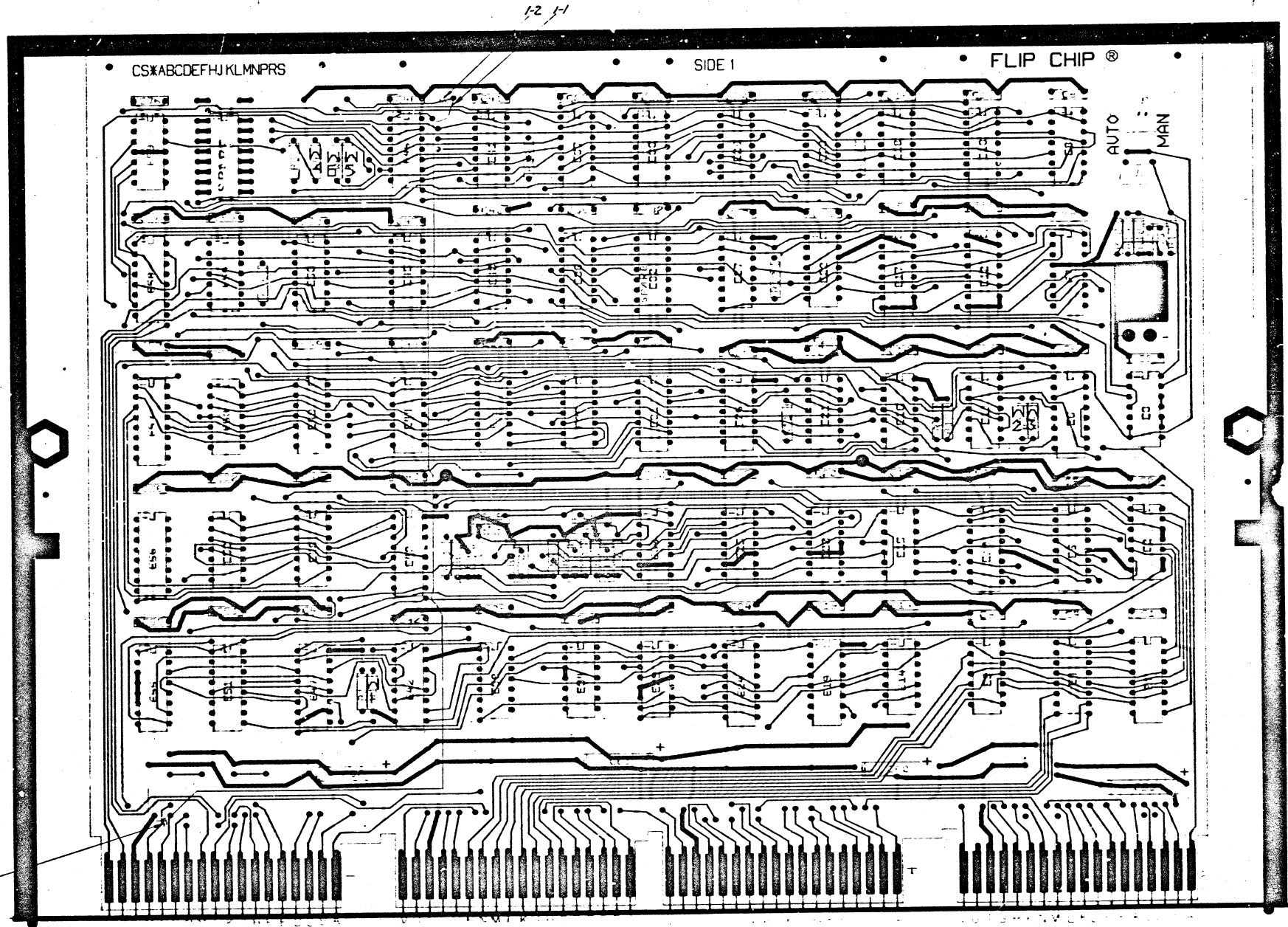
SEMICONDUCTOR CONVERSION CHART

SIZE CODE D DIST. NUMBER M7255-0-1 REV. K

THIS DRAWING IS PART OF E.C.O. PACKAGE NO. M7255-00012

NOT TO BE USED FOR PRODUCTION

REWORK INSTRUCTIONS:
 ECC #1
 #1 ADD JUMPER FROM PTH CONNECTED TO DRI TO PTH LOCATED BETWEEN C41 AND C46.
 #2 CUT ETCH, SIDE 1, AT PTH LOCATED BETWEEN C41 AND C46.
 #3 CUT ETCH, SIDE 2, AT PTH CONNECTED TO P11J DRI



LETTER	FOR PTH BOARDS	BEFORE ETCH	FOR NON PTH BOARDS	IN TAKE	OF
		PLATE PLATE	BOARDS	HOLES	HOLES
NONE	Ø1 (039 DIA)	X			
Y	49 (073 DIA)	X			
Z	41 (060 DIA)	X			

BOARD FABRICATION INFORMATION
 BOARD SIZE 51.02 X 117.00
 BOARD MATERIAL 2 LAYER
 COPPER 2 SIDES
 EYELET PLATED THRU
 SIDED MULTI-LAYER
 HOYCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE		3-20-95	
BY		R. Caw	
CHECKED		3-20-95	
APPROVED		R. Caw	
FIRST USED ON		D AH V72 5-0-5	
SCALE		REV	
ETCH REV		MS 0197	

THIS DRAWING IS PART
 OF E.C.O. PACKAGE NO. M7255-000/2

NOT TO BE USED
 FOR PRODUCTION



To be entered by Maynard ECO Admin.
 ECO No. M7255-00012
 SHEET 1 of 1
 MBS No. M980037969035
 Discrete Project No. E9806117

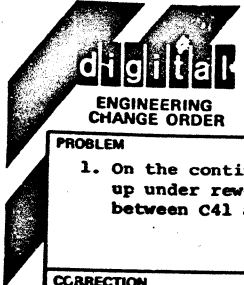
ECO IMPLEMENTATION/COST SUMMARY

Built Level	Area (s)	Effect. Date	No. of Units	Cost/ Unit	Total* Cost	Persons Contacted	Comments
Field Service (Systems/Units)							
Diagnostic Programming							
Units in Customer/ Hold Area							
Other:							
Systems/Units in or Complete thru Acceptance							
Other:							
Systems/Units in Test Areas							
Other:							
Units in System Assembly or FAB Stock							
Other:							
Options in Volume Manufacturing							
Other:							
Units in Sub-Assembly Areas							
Other:							
Modules in Module Manufacturing	SG 9/77 2040 DERRY 9/77 487			\$1.20 \$5.50	\$2468.40 \$2678.50	(TOM LARSEN) (BRENDA CARLEY)	(\$2468.40) (ENGINEERING WILL PAY ONLY \$1.75 BD. (\$852.25))
Other:	WF 9/77 100			\$1.75	\$175.	(JOSE SOTO)	(\$175)
Metal Fabrication							
Vendor:							
Availability of Test Equipment/ Method							
Availability of Tooling							

To be issued with ECO only on request.
 CONFIDENTIAL
 COST MFG.

TOTAL COST = \$5321.90 CHARGE (S) TO DISCRETE PROJECT NO. 3495.65
 Does this ECO alter the Standard Cost of the product? Yes No
 If Yes, by how much? \$ _____ Increase (Decrease)
 *Detail (in parentheses) the cost to be charged to the Discrete Project Number.

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE PAGE WHICH PRESENTS IMPLEMENTATION DETAIL.
 DEC 3-14861-1831-4175



ORIGINATOR BRUCE CRAMM ECO NO. M7255-0012A
 TEL EXT 5970 DATE 9-27-77 SHEET 1 OF 1
 LOCATION ML 21-1/E81 DATE RECEIVED 9-27-77
 COST CENTER NO. 39A ISSUE DATE 9-27-77
 FINAL RELEASE 18 Oct 77

PROBLEM
 1. On the continuation sheets 2of3 and 3of3 and the AH mark up under rework it says cut etch, side 2, at PTH located between C41 and C46, this is incorrect.

CORRECTION
 1. Change from Cut etch, side 2, at PTH located between C41 and C46 to Cut etch, side 1, at PTH located between C41 and C46.

BREAK-IN/EFFECTIVITY
 Same as E.C.O. M7255-00012.

SUPPLEMENT ECO

QUICK-CHECK Same as E.C.O. M7255-00012.

TEST Same as E.C.O. M7255-00012.

UNIT TO BE CHANGED
 M7255
 DISK CONTROL

PRODUCT FAMILIES AFFECTED
 PERIPHERAL

TYPE OF ECO
 HARDWARE
 SOFTWARE
 PURCHASE SPEC.

FIELD SERVICE AFFECTED
 YES NO
 D. P. R. DISTR.
 L.O.J. CODE

WHERE USED
 RK11-D, E
 RKV11-D

ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	B-MH-M7255-0-6	-	-	Update per this E.C.O.

APPROVAL SIGNATURE (TYPE NAME and SIGN)
 PROJECT ENGR. JOSE SOTO *JS*
 ENG. MGR. K. SRIVASTAVA *KS*
 TEL. EXT. 7600 COST CENTER NO. 379
 DISC. PROJ. NO. E9806117 DATE 9-27-77
 COORD. NO. 260852 REF. NO. MD

REVIEW SIGNATURES (SEE INSTRUCTIONS FOR FIELD SERVICE)
 FIELD SERVICE
 DIAGNOSTIC ENGR. *Am. Mike Sep 30*





ECO IMPLEMENTATION/COST SUMMARY

To be entered by Maynard ECO Admin.
 ECO No. M7255- 00012A
 SHEET 1 of 1
 M98 No. M9800379 69035
 Discrete Project No. E9806117

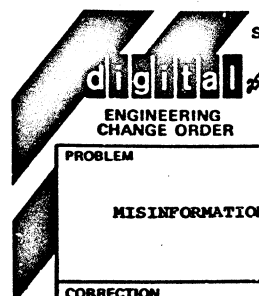
Build Level	Area (s)	Effect. Date	No. of Units	Cost/ Unit	Total Cost	Persons Contacted	Comments
Field Service (Systems/Units)							
Diagnostic Programming							
Units in Customer/ Hold Areas							
Other:							
Systems/Units in or Complete thru Acceptance							
Other:							
Systems/Units in Test Areas							
Other:							
Units in System Assembly or FA&T Shop							
Other:							
Options in Volume Manufacturing							
Other:							
Units in Sub-Assembly Areas							
Other:							
Modules in Module Manufacturing	SG DERRY	9/77	2040	\$1.20	\$2448.00	(TOM LARSEN)	(\$2468.40)
		9/77	487	\$5.50	\$2678.50	(BRENDA CARLEY)	(ENGINEERING WILL PAY ONLY \$1.75 BD. (\$52.2
Unit	WIP	9/77	100	\$1.75	\$175.00	(JOSE SOTO)	(\$175)
Metal Fabrication							
Vendor:							
Availability of Test Equipment/ Method							
Availability of Tooling							

TOTAL COST = \$5321.90 CHARGE ISI TO DISCRETE PROJECT NO. \$495.65

Does this ECO alter the Standard Cost of the product? Yes No
 If Yes, by how much? \$ Increase (Decrease)

*Detail (in parenthesis) the cost to be charged to the Discrete Project Number.

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE SHEET WHICH PRESENTS IMPLEMENTATION DETAIL.
 DEC 3-4881-1031-1175



SUPPLEMENT ECO

ENGINEERING CHANGE ORDER

ORIGINATOR JOSE M. SOTO
TEL EXT 7600 DATE 9-29-77
LOCATION ML 1-3/ESB
COST CENTER NO. 379

ECO NO. M7255-0012KB
SHEET 1 OF 1
DATE RECEIVED 4 OCT 77
ISSUE DATE 10-2-77
FINAL RELEASE 18 Oct 77

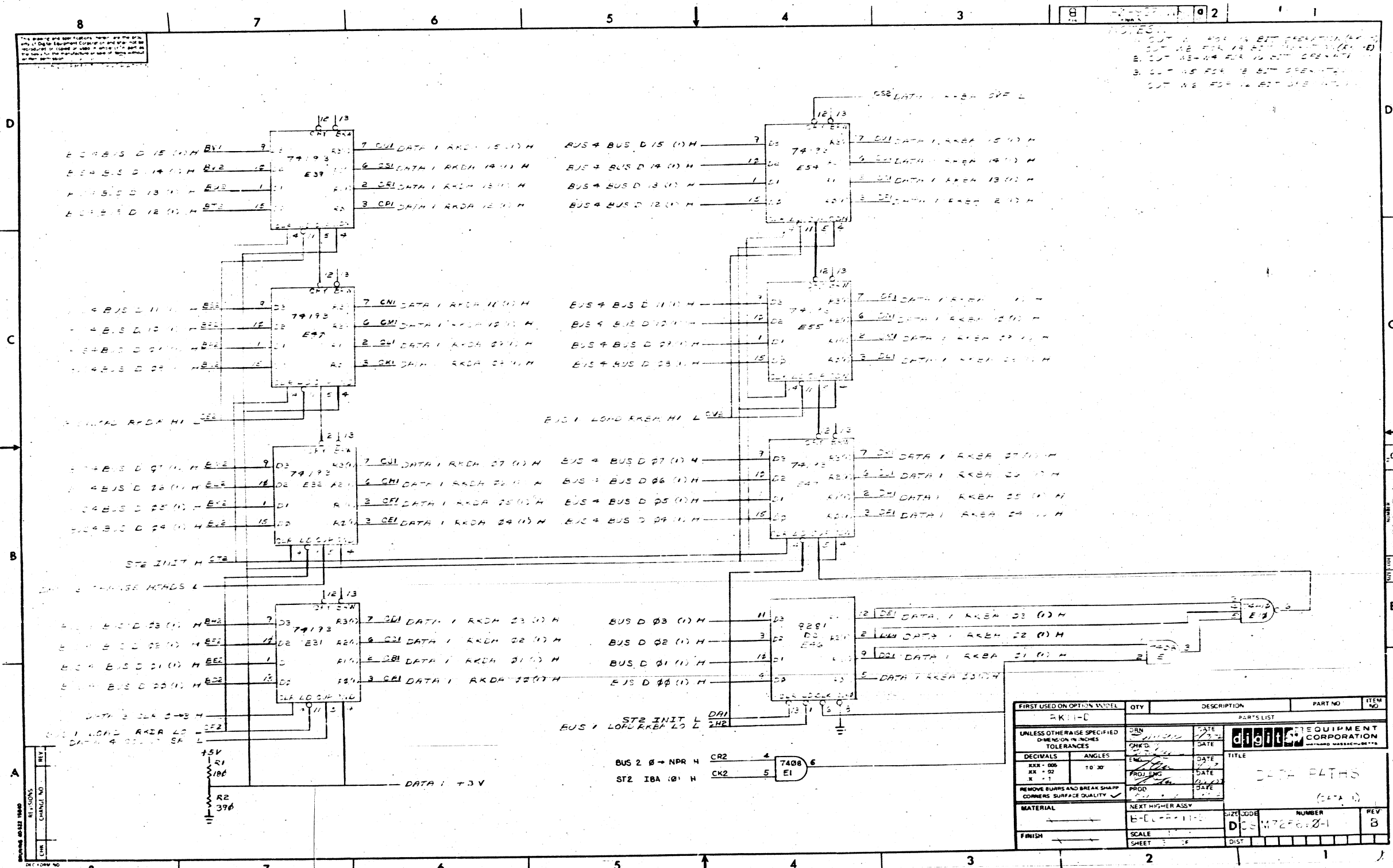
PROBLEM M980037969035 MISINFORMATION ON BREAK-IN EFFECTIVITY AND COST SHEET.	UNIT TO BE CHANGED M7255 DISK CONTROL
CORRECTION CHANGE WF TO WM ON BREAK-IN EFFECTIVITY AND COST SHEET. ECO NO. M7255-0012A WAS ERRONEOUSLY ASSIGNED TO THIS SUPPLEMENT. IT SHOULD HAVE BEEN M7255-0012B	PRODUCT FAMILIES AFFECTED PFRIPHERAL
BREAK-IN/EFFECTIVITY PER ABOVE CORRECTION. SUPPLEMENT ECO	TYPE OF ECO <input checked="" type="checkbox"/> HARDWARE <input type="checkbox"/> SOFTWARE <input type="checkbox"/> PURCHASE SPEC.
QUICK-CHECK	FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> D.P. R DISTR. <input type="checkbox"/> L.O.U. CODE
TEST	WHERE USED RK11-D,E RKV11-D

ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
				(NO DRAWINGS)

APPROVAL SIGNATURE (TYPE NAME AND SIGNATURE)
 PROJECT ENGR. JOSE M. SOTO
 ENGR. MGR. K. SRIVASTAVA
 TEL. EXT. 7600 COST CENTER NO. 379
 DISC. PROJ. NO. E9806117 DATE 9-29-77

REVIEW SIGNATURES (SEE INSTRUCTIONS FOR APPLIC.)
 FIELD SERVICE _____
 DIAGNOSTIC ENGR. _____
 COORD. NO. 260925 REF. NO. MD

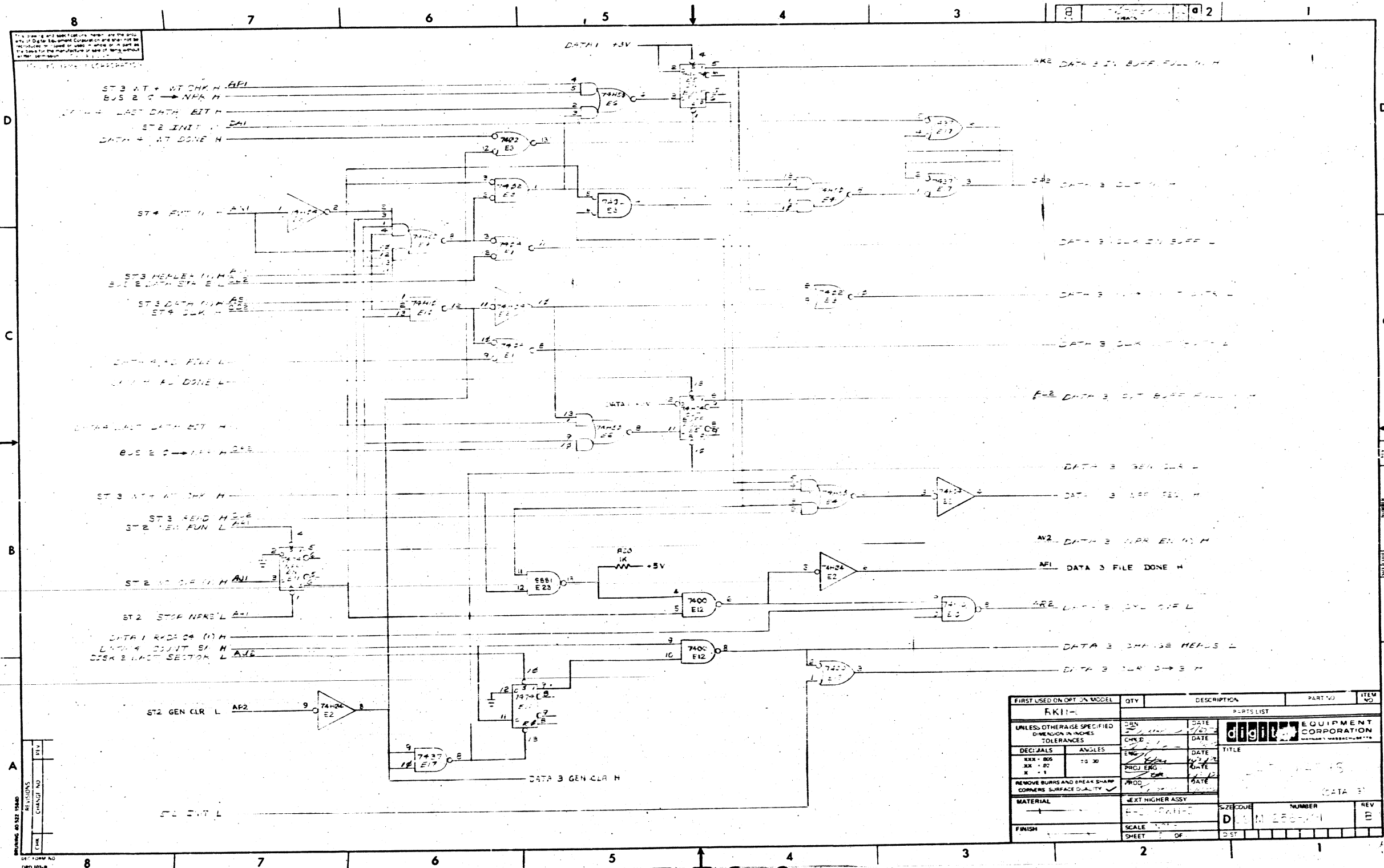
digital ENGINEERING CHANGE ORDER 9155		ORIGINATOR Dick Lewis 1-2 TEL EXT 2814 DATE 11/21/72 DISC PROJ NO. E-20-06-34 COST CENTER NO. 378		ECO NO. M7256-0001 SHEET 1 OF 1 DATE RECEIVED 11-28-72 FIRST ISSUE 11-28-72 FINAL ISSUE 12-12-72		
PROBLEM RK11-D samples word count overflow at sector end time causing premature termination of write and write check functions when transferring short sectors.				UNIT TO BE CHANGED M7256 DATA PATH		
CORRECTION Create a "File Done" condition that can be sampled instead of WORD COUNT OVERFLOW.				DISP CODE 03 OPTIONS AFFECTED RK11-D,E		
BREAK-IN/EFFECTIVITY Immediately rework all M7256 rev B boards (Item 3 & 4 below)				PRODUCT LINES AFFECTED PDP-11		
ITEM NO.	DOCUMENT PART NO	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1.	D-CS-M7256-0-1 <i>SN 1,3,5,6,7</i>	A	B	06	Sheets 1,2,3,5,6,7 only See final release print	<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
2.	B-MH-M7256-0-6	*	A	06	See final release print	<input type="checkbox"/> FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Change
3.	D-AH-M7256-0-5	A	B	06	Make etch correction per marked up schematics.	<input type="checkbox"/> TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE
4.	5009987 (M7256)	B	C	03	Rework boards as shown on marked up D-AH-M7256-0-5	ORDER FR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
5.	1304854	-	-	06	Delete 5.1K resistor (R6)	
6.	1301874	-	-	07	Add 5.6K resistor (R6)	
7.	1300365	-	-	07	Add 1k resistor (R20)	
DISPOSITION CODES				APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - DELETED 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - DELETED 05 - DELETED 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				27, Typewriter / Hand Signature DESIGN ENGR. TOR OFF <i>[Signature]</i> ENG MGR (OPT) <i>[Signature]</i> FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>		



NOTES:
 1. OUT 14 FOR 14 BIT OPERATION
 2. OUT 15 FOR 15 BIT OPERATION
 3. OUT 16 FOR 16 BIT OPERATION
 4. OUT 17 FOR 17 BIT OPERATION
 5. OUT 18 FOR 18 BIT OPERATION
 6. OUT 19 FOR 19 BIT OPERATION
 7. OUT 20 FOR 20 BIT OPERATION
 8. OUT 21 FOR 21 BIT OPERATION
 9. OUT 22 FOR 22 BIT OPERATION
 10. OUT 23 FOR 23 BIT OPERATION
 11. OUT 24 FOR 24 BIT OPERATION
 12. OUT 25 FOR 25 BIT OPERATION
 13. OUT 26 FOR 26 BIT OPERATION
 14. OUT 27 FOR 27 BIT OPERATION
 15. OUT 28 FOR 28 BIT OPERATION
 16. OUT 29 FOR 29 BIT OPERATION
 17. OUT 30 FOR 30 BIT OPERATION
 18. OUT 31 FOR 31 BIT OPERATION
 19. OUT 32 FOR 32 BIT OPERATION
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 21. OUT 34 FOR 34 BIT OPERATION
 22. OUT 35 FOR 35 BIT OPERATION
 23. OUT 36 FOR 36 BIT OPERATION
 24. OUT 37 FOR 37 BIT OPERATION
 25. OUT 38 FOR 38 BIT OPERATION
 26. OUT 39 FOR 39 BIT OPERATION
 27. OUT 40 FOR 40 BIT OPERATION
 28. OUT 41 FOR 41 BIT OPERATION
 29. OUT 42 FOR 42 BIT OPERATION
 30. OUT 43 FOR 43 BIT OPERATION
 31. OUT 44 FOR 44 BIT OPERATION
 32. OUT 45 FOR 45 BIT OPERATION
 33. OUT 46 FOR 46 BIT OPERATION
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 53. OUT 66 FOR 66 BIT OPERATION
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 55. OUT 68 FOR 68 BIT OPERATION
 56. OUT 69 FOR 69 BIT OPERATION
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 68. OUT 81 FOR 81 BIT OPERATION
 69. OUT 82 FOR 82 BIT OPERATION
 70. OUT 83 FOR 83 BIT OPERATION
 71. OUT 84 FOR 84 BIT OPERATION
 72. OUT 85 FOR 85 BIT OPERATION
 73. OUT 86 FOR 86 BIT OPERATION
 74. OUT 87 FOR 87 BIT OPERATION
 75. OUT 88 FOR 88 BIT OPERATION
 76. OUT 89 FOR 89 BIT OPERATION
 77. OUT 90 FOR 90 BIT OPERATION
 78. OUT 91 FOR 91 BIT OPERATION
 79. OUT 92 FOR 92 BIT OPERATION
 80. OUT 93 FOR 93 BIT OPERATION
 81. OUT 94 FOR 94 BIT OPERATION
 82. OUT 95 FOR 95 BIT OPERATION
 83. OUT 96 FOR 96 BIT OPERATION
 84. OUT 97 FOR 97 BIT OPERATION
 85. OUT 98 FOR 98 BIT OPERATION
 86. OUT 99 FOR 99 BIT OPERATION
 87. OUT 100 FOR 100 BIT OPERATION

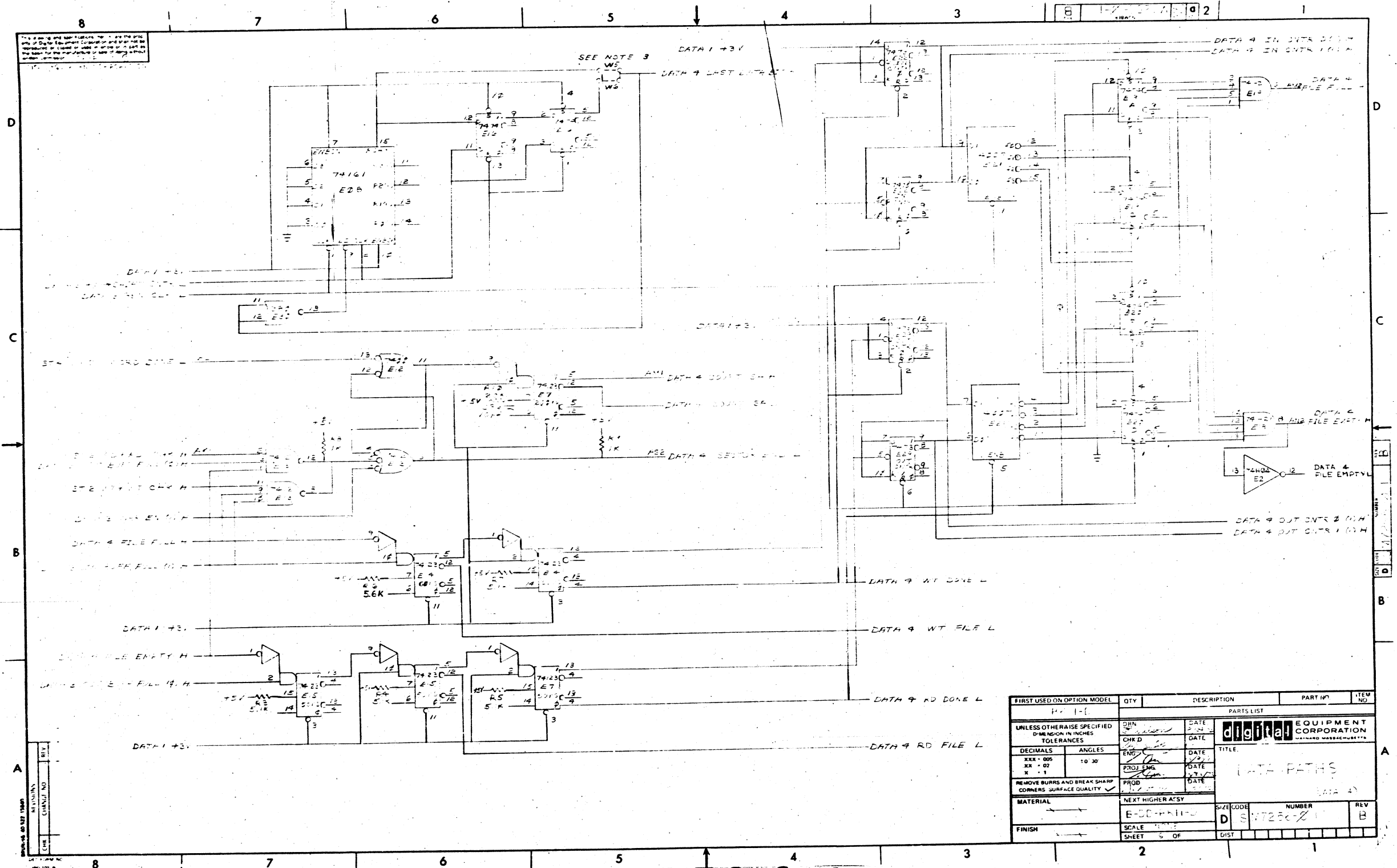
FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
AK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE		
XXX - 00	10 30'	DATE	TITLE	
XX - 02		DATE	PROJECT	
X - 1		DATE	PROD.	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL		NEXT HIGHER ASSY		
FINISH		B-C-111111		
		SIZE CODE	NUMBER	REV
		D55	M7256-00001	8
		SCALE	DIST	
		SHEET		

M7256-00001



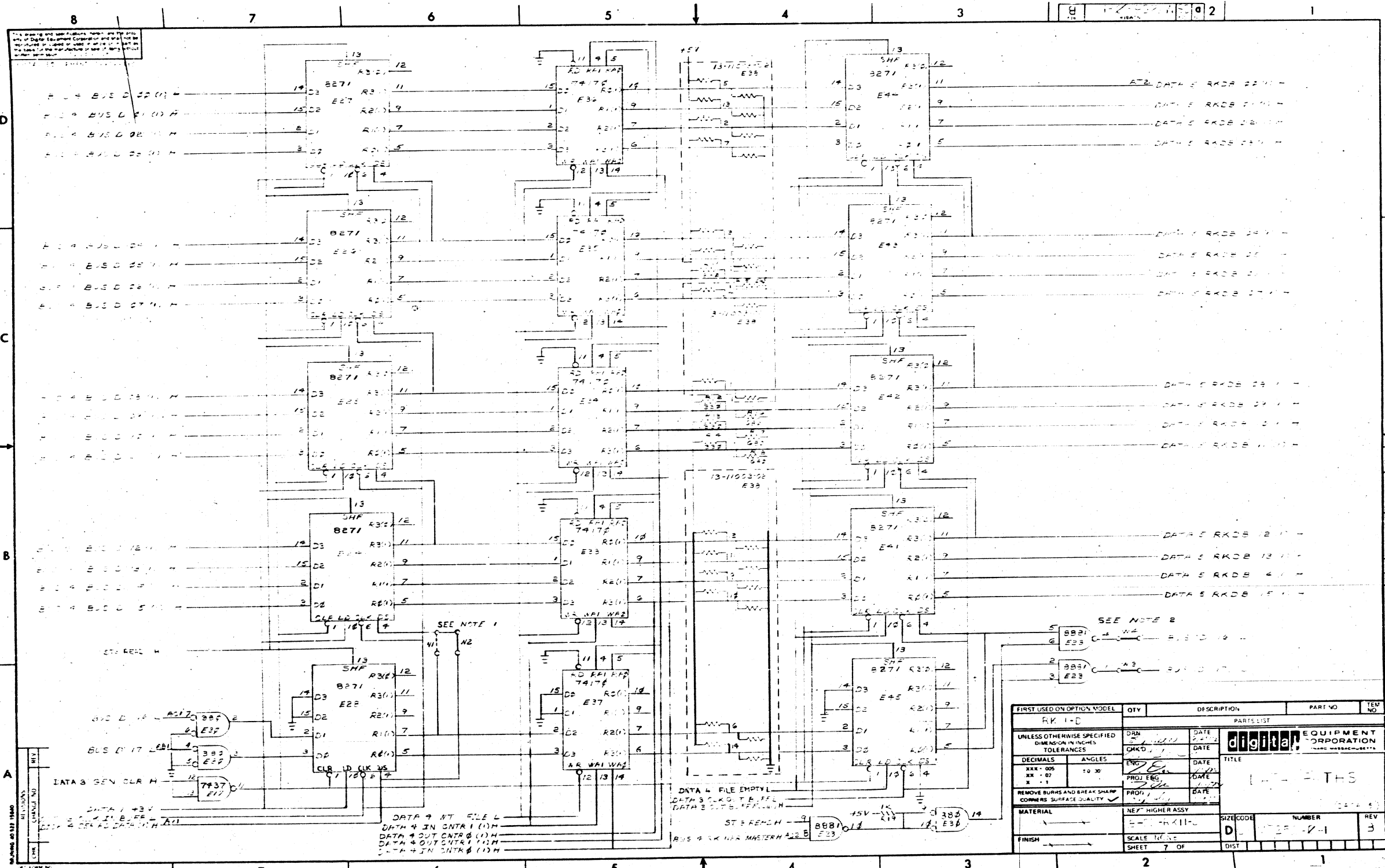
FIRST USED ON OPT. MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
FK11-				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	QTY	DESCRIPTION	PART NO.	ITEM NO.
DECIMALS	ANGLES	DATE	DATE	
XXX - 005	10 30	DATE	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG.	DATE	DATE	
MATERIAL	NEXT HIGHER ASSY.	SCALE	NUMBER	REV.
FINISH	SCALE	SHEET	OF	

M7256-00001



FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
4-1-1				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		QTY	DATE	digital EQUIPMENT CORPORATION <small>WARRIOR WARRIOR-WARRIOR</small>
DECIMALS	ANGLES	CHK'D	DATE	
KR - 005	TO 30	ENG	DATE	TITLE: DATA PATHS DATA 4
KR - 02		PROJ ENG	DATE	
K - 1		PROD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ATSY		
MATERIAL		E-00-01111		SIZE/SCALE
FINISH		D		NUMBER
		SCALE		REV
		SHEET 6 OF		
		DIST		

M7256-00001



FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	TEM NO
AK 1-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	digital EQUIPMENT CORPORATION	
XX - 005	±0.30	DATE	TITLE	
XX - 02		DATE	LITH	
XX - 1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV
FINISH	SCALE 1/16"	D	175-2-1	3
	SHEET 7 OF	DIST		

M7256-00001

digital ENGINEERING CHANGE ORDER		ORIGINATOR Dick Lewis 1-2 TEL EXT 2814 DATE 1/25/73 DISC PROJ NO E20-06734 COST CENTER NO 378		ECO NO <u>M7256-0112</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>2-2-73</u> FIRST ISSUE <u>3-5-73</u> FINAL ISSUE <u>4/4/73</u>																																			
PROBLEM Print errors on M7256 schematics.				UNIT TO BE CHANGED M7256 Data Paths																																			
CORRECTION Correct schematics per attached prints.				DISP CODE 06 OPTIONS AFFECTED RK11-D,E																																			
BREAK-IN/EFFECTIVITY Documentation correction only.				PRODUCT LINES AFFECTED PDP-11																																			
ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DISP CODE	DESCRIPTION OF CHANGE																																		
1.	D-CS-M7256-0-1 Sheets 1, 5	B	C	06	See final release drawing.																																		
2.	B-MH-M7256-0-6	A	B	06	See final release drawing.																																		
3.	D-AN-M7256-0-5	B	C	06	UPDATE REV																																		
<table border="0"> <tr> <td>DOCUMENTATION AFFECTED</td> <td><input type="checkbox"/> MODEL</td> </tr> <tr> <td></td> <td><input type="checkbox"/> DIAGNOSTICS</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TECH MANUAL</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TESTER</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TEST PROG</td> </tr> <tr> <td></td> <td><input type="checkbox"/> TOOLING</td> </tr> <tr> <td></td> <td><input type="checkbox"/> PKG INST</td> </tr> <tr> <td></td> <td><input type="checkbox"/> ENG SPEC</td> </tr> <tr> <td></td> <td><input type="checkbox"/> PURCH SPEC</td> </tr> <tr> <td>FIELD SERVICE AFFECTED</td> <td><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Customer Charge</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Product Line Charge</td> </tr> <tr> <td>TYPE OF CHANGE</td> <td><input type="checkbox"/> ELECTRICAL</td> </tr> <tr> <td></td> <td><input type="checkbox"/> MECHANICAL</td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/> MODULE</td> </tr> <tr> <td></td> <td><input type="checkbox"/> ORDER PR MODEL</td> </tr> <tr> <td></td> <td><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</td> </tr> </table>						DOCUMENTATION AFFECTED	<input type="checkbox"/> MODEL		<input type="checkbox"/> DIAGNOSTICS		<input type="checkbox"/> TECH MANUAL		<input type="checkbox"/> TESTER		<input type="checkbox"/> TEST PROG		<input type="checkbox"/> TOOLING		<input type="checkbox"/> PKG INST		<input type="checkbox"/> ENG SPEC		<input type="checkbox"/> PURCH SPEC	FIELD SERVICE AFFECTED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		<input type="checkbox"/> Customer Charge		<input type="checkbox"/> Product Line Charge	TYPE OF CHANGE	<input type="checkbox"/> ELECTRICAL		<input type="checkbox"/> MECHANICAL		<input checked="" type="checkbox"/> MODULE		<input type="checkbox"/> ORDER PR MODEL		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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DISPOSITION CODES			APPROVAL SIGNATURES																																				
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Typewritten DESIGN ENGR Tom Orr ENG MGR (OPT) <i>[Signature]</i> FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>																																				

PAGE REVISION CONTROL SHEET														
SI NO.	PAGE REVISIONS												REMARKS	
	DATE	ENG.	ETCH	ECO	NO.	REV.	DATE	ENG.	ETCH	ECO	NO.	REV.		
1	A													(DATA 1)
2	A													(DATA 2)
3	A													(DATA 3)
4	A													(DATA 4)
5	A													(DATA 5)
6	V													
7	V													
8	A													
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digital EQUIPMENT CORPORATION

DATE 1/11/15

TITLE (UNITED)

DRN. DATE DATE DATE DATE DATE DATE DATE

CHK'D.

ENG. DATE DATE DATE DATE

PROJ. ENG. DATE DATE DATE DATE

PROD. DATE DATE DATE DATE

NEXT HIGHER ASSY. (UNITED)

U-111-11111

SCALE 1/1

SHEET 1 OF 1

REV. C

NUMBER M7256-0-1

SIZE CODE B C S

DIST.

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M 7256-00002

NOT TO BE USED FOR PRODUCTION

9-0-952LW
 NUMBER M7256-0-6
 SIZE CODE B MH E

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY				PAGE <u>1</u> OF <u>1</u>		RELEASED CS REV. <u>A</u>					
DATE RELEASED <u>9-27-72</u>		RELEASED BY <u>T. ORR</u>		RELEASED ETCH BD REV. <u>B</u>									
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE WITH EARLIER REVISIONS? (MAY BE MIXED INDISCRIMINATELY)			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0001	DICKLEWS	11-20-72	B	C	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		CREATE A "FILE DONE" CONDITION THAT C-B SAMPLED INSTEAD OF WC OVF	1301874 (1) 1303365 (1)	1304854 (1)
0002	DICKLEWS	1-24-73	C	C	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		CORRECTS PRINT ERRORS ONLY	0	0

REV. A	REV. B

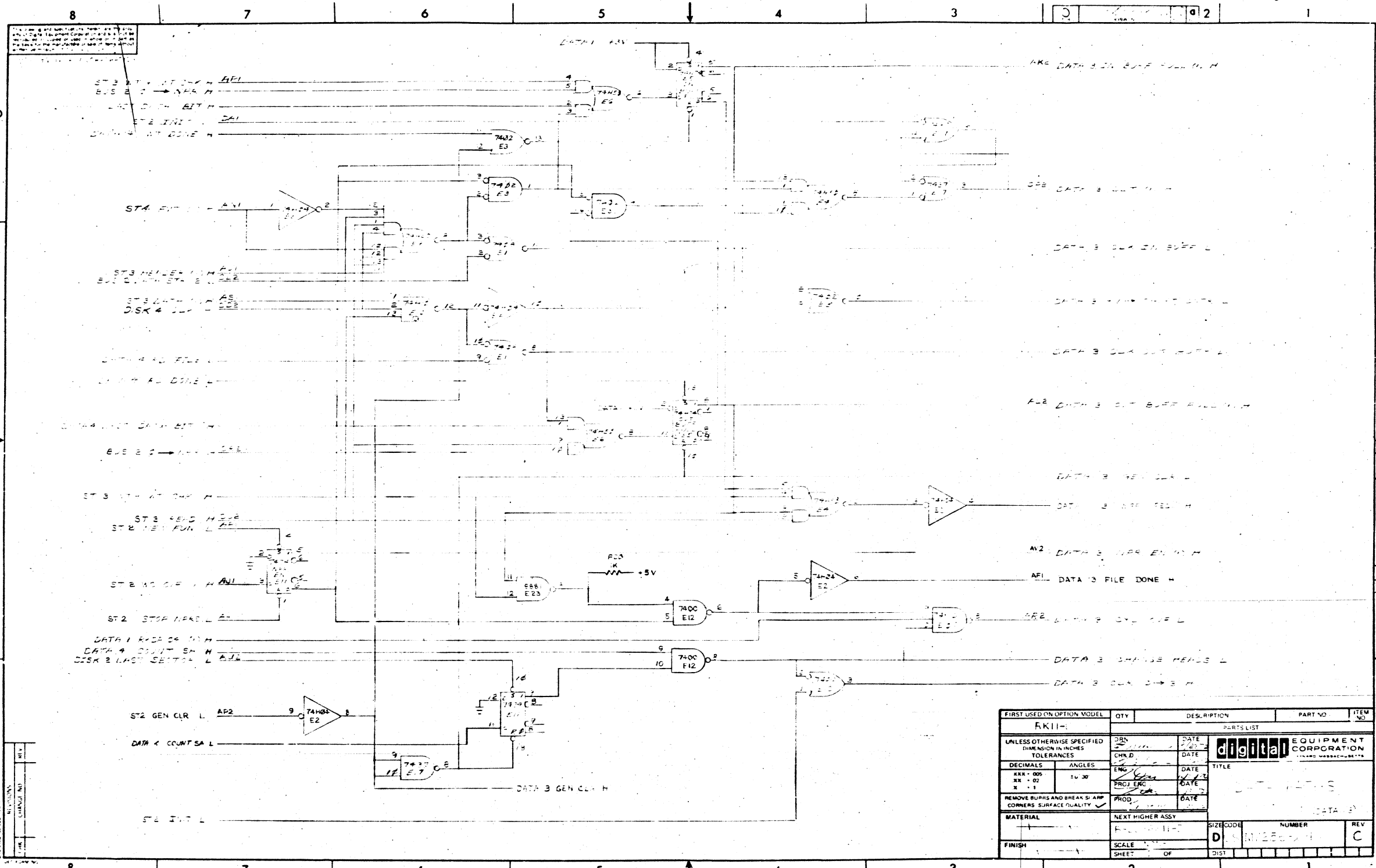
DRN	DATE
CHK'D	DATE
ENG	DATE
PROD.	DATE

TITLE
 MODULE ECO HISTORY
 EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS
 SIZE CODE NUMBER REV
 B MH M7256-0-6 E

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7256-00002

NOT TO BE USED FOR PRODUCTION

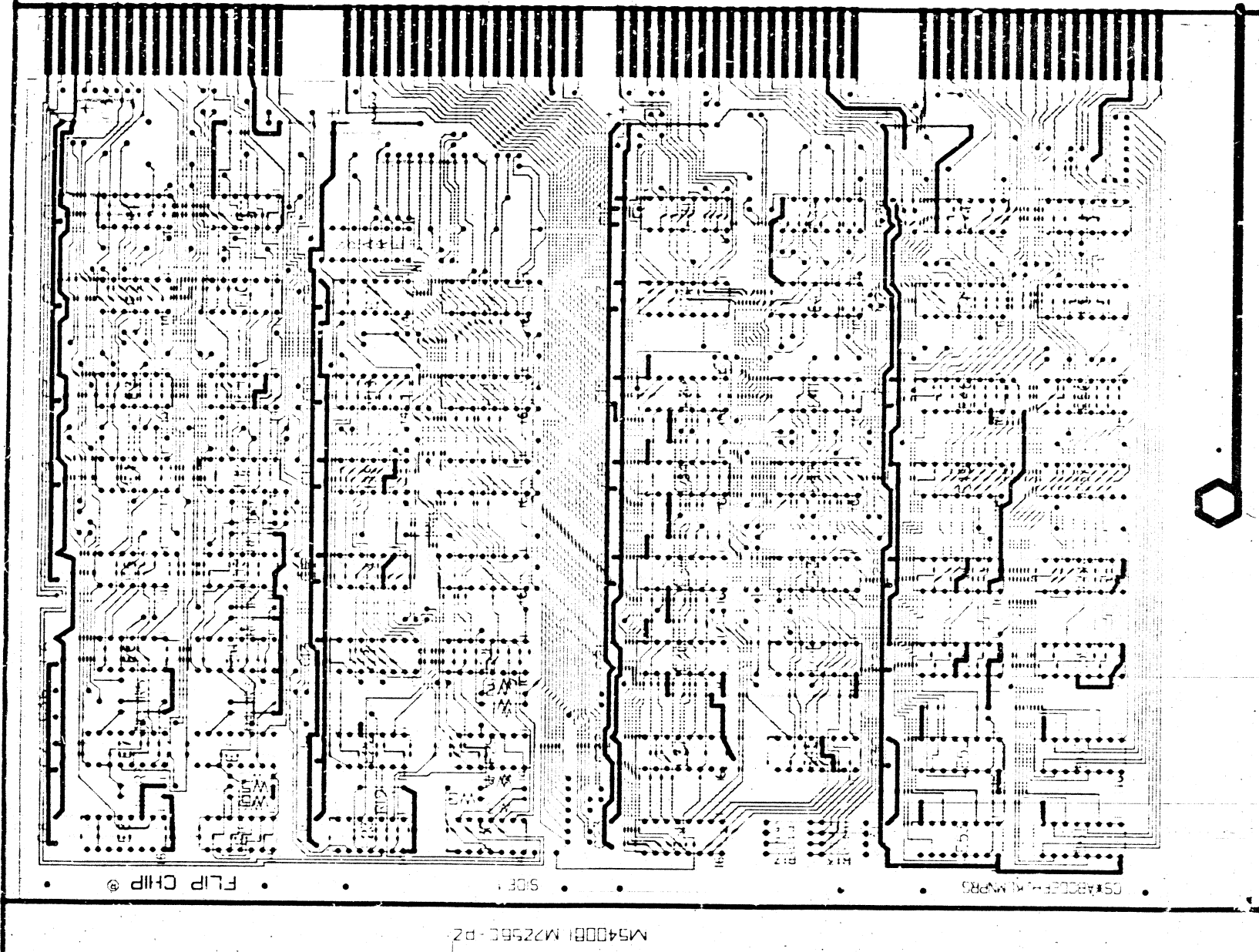


**THIS DRAWING IS PART
OF E.C.O. PACKAGE #**

M 7256-00002

**NOT TO BE USED
FOR PRODUCTION**

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK11-				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
DECIMALS	ANGLES	ENG	DATE	TITLE
XXX - 000	XX - 02	XX - 01	XX - 01	DATA 3
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY				
FINISH				
SCALE				
SHEET OF				
PARTS LIST			NUMBER	REV
digital EQUIPMENT CORPORATION			D	C



BOARD FABRICATION INFORMATION

BOARD SIZE 8.50 X 11.75 D-50-70-05819 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK. 1 OZ. NOTCH BEFORE GOLD PLATING
 COPPER 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE AFTER PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	#61 DIA (.032 DIA.)	X			

DATE	7/72	DESIGNED BY	TRAD	digital EQUIPMENT CORPORATION 100 FEDERAL STREET CAMBRIDGE, MASSACHUSETTS
APPROVED BY		CHECKED BY	TRAD	
TITLE	ASSY/ DRILLING HOLE LAYOUT			
PROJECT NO.	M 7256	REV		
SHEET	77	OF		
DRAWN BY		DATE		

REVISIONS	A	B	C	D	E	F	H	J	K	TITLE	PK11-D DATA PATHS	PROD. NO.	M7256
DESIGNER	TRAD									CHARGE NO.	E20 - 06734	C.S. REV	
DRAFTSMAN	TRAD									DATE	5-12-72	ETCH REV	C
CHECKER	TRAD									ENGINEER	TOM ORR	EXTENSION	2791
												MS NO.	40081

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7256-00002

NOT TO BE USED FOR PRODUCTION

digital		ENGINEERING CHANGE ORDER 1578		ORIGINATOR Dick Lewis 1-2 TEL EXT 3055 DATE 6-8-73 DISC PROJ NO E 20-06734 COST CENTER NO. 378	ECO NO. M7256-0003 SHEET 1 OF 1 DATE RECEIVED 6-18-73 FIRST ISSUE 6-21-73 FINAL ISSUE 7/23/73
PROBLEM If Bus D16 is asserted while writing the last word of a short sector on an RK11-D in a system with parity memory, the rest of the sector will be filled with ones instead of zeros because the file in buffer fills with parity information (BUS D16)				UNIT TO BE CHANGED M7256 Data Paths DISP CODE 03*	
CORRECTION Correct the M7256 module so that BUS D16 cannot be clocked into the file in buffer.				RK11-D	
*BREAK-IN/EFFECTIVITY All M7256's in RK11-D's on systems with parity memory must be reworked immediately. Rework in systems area. Begin rework in module production by 7/1/73. RK11-E's must not have this ECO installed.				PRODUCT LINES AFFECTED PDP-11	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1.	D-CS-M7256-0-1 Sheet 1 Sheet 3 Sheet 7	C	D	06	See final release drawing.
2.	D-AH-M7256-0-5	B	C	06	See final release drawing.
3.	B-MH-M7256-0-6	B	C	06	See final release drawing.
4.	Rework Instructions				a. Cut etch side one between E28 pin 6 and E27 pin 6. b. Add a wire between E28 pin 6 and E27 pin 10.
				DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input checked="" type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC	
				FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input checked="" type="checkbox"/> Product Line Charge	
				TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE	
				ORDER FOR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
DISPOSITION CODES			APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			DESIGN ENG: I. Orr ENG MGR (OPT): <i>[Signature]</i> FIELD SERVICE (OPT): <i>[Signature]</i> CHIEF ENGR (MODULES ONLY): <i>[Signature]</i>		

DCC 16-1325; 1071-0971 SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

DRA-111C

digital	FIELD CHANGE ORDER		ECO M7256-0003 PAGE 1 OF 1
FIELD EFFECTIVITY Rework all M7256's in RK11-D's with parity memory			OTHER: (OPTIONAL) RECORD THIS ECO WITH THE FIELD OF URGENCY CODE RELATING TO THE PROBLEM *LEVEL OF URGENCY CODE A - MAJOR (HIGH PRIORITY) B - MODERATE C - MINOR (FIELD CHARGABLE SOFTWARE OR HARDWARE PRESENT) D - APPROX. 10% (FIELD CHARGABLE SOFTWARE OR HARDWARE PRESENT) E - FIELD MAINTENANCE (OPTIONAL) (LOW PRIORITY)
<input checked="" type="checkbox"/> ARE TO BE REWORKED UNDER A FIELD CHANGE ORDER <input type="checkbox"/> STANDARD APPLICABILITY: THIS ECO IS TO BE INSTALLED AT THE DISCRETION OF THE FIELD SERVICE REPRESENTATIVE. IT IS NOT TO BE INSTALLED WITH THIS ECO UNLESS THE FIELD SERVICE REPRESENTATIVE HAS BEEN ADVISED BY THE ENGINEERING DEPARTMENT.			CONFLICT PROJECT NUMBER: _____ AVAILABILITY DELAY: _____ NO PARTS: <input checked="" type="checkbox"/> ESTIMATED LABOR HOURS: 0.5 ESTIMATED LABOR COST: _____ SPECIAL TEST EQUIPMENT, TOOLS OR SUPPLIES: _____
FIELD EFFECTIVITY DISTRIBUTION CODE <input checked="" type="checkbox"/> F - IMMEDIATE DISTRIBUTION TO ALL DISK EDC OFFICES <input type="checkbox"/> D - IMMEDIATE DISTRIBUTION TO REGIONAL PRODUCT OFFICES			ACT AFFECTED PARTS: None RELATED PARTS AND SYSTEMS: _____ <input type="checkbox"/> MAILED CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED
FIELD DISTRIBUTION <input checked="" type="checkbox"/> PARTS AS DEFINED BELOW MAY BE ORDERED AS REQUIRED			PER FLAT-PAID MANDECS: _____ PARTS REQUIRED: _____
CONTENTS OF AN ECO IN STATED UNIT FILE NO. PART NO. UNIT NO. CONTENTS OF AN ECO IN STATED UNIT FILE NO. PART NO. UNIT NO.			
INSTALLATION AND TEST PROCEDURES: _____			
NOTES This ECO must not be installed in RK11-E. Quick Check - Wire from E28 pin 6 to E27 pin 10			
FIELD SERVICE APPROVAL Lester Libby			<i>[Signature]</i> (x) 6-29 (450/200) 650

DCC 12-1752; 1995-110-1

PAGE REVISION CONTROL SHEET													
SH NO.	PAGE REVISIONS										REMARKS		
	A	B	C	D	E	F	G	H	I	J	(DATA 1)	(DATA 2)	(DATA 3)
1	A	B	C	D									(DATA 4)
2	A	H	B	P									(DATA 5)
3	A	B	B	C									
4	A	A	A	A									
5	A	H	C	C									
6	A	P	B	R									
7	A	H	B	C									

DATE	ENG.	ETCH	ECO	NO.
		D	C	00001
12-7-78				00002
5/6/78				00003
6-28-78				00004

DRN.	DATE	CHK'D.	DATE	ENG.	DATE	PROJ. ENG.	DATE	PROD.	DATE

FIRST USED ON OPTION/MODEL RK11-D		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE DATA PATHS	
			SIZE CODE H CS	NUMBER M7256-0-1

NEXT HIGHER ASSY. U-111-RK11-D	SCALE C/11	SHEET 1 OF 7	REV. D
-----------------------------------	---------------	--------------	--------

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M7256-00003

NOT TO BE USED FOR PRODUCTION

9-0-952LW
 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400

MODULE ECO HISTORY													
PRODUCT LINE <u>PDP 11</u>				PAGE <u>1</u> OF <u>1</u>				RELEASED CS REV. <u>A</u>					
DATE RELEASED <u>9-27-72</u>								RELEASED ETCH BD REV. <u>B</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	DICKLEWIS	11-20-72	B	C	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		CREATE A FILE DONE CONDITION THAT C-B SAMPLED IN-STEAD OF WC OVF	1301874 (1) 1300365 (1)	1304854 (1)
00002	DICKLEWIS	1-24-73	C	C	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		CORRECTS PRINT ERRORS ONLY	0	0
00003	DICKLEWIS	6-8-73	D	C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> REWORK ONLY NECESSARY ON M7256 USED IN RK11-D'S IN SYSTEMS WITH PARITY MEMORY	<input type="checkbox"/>	<input type="checkbox"/>	THIS ECO CANNOT BE INSTALLED ON M7256 IN RK11-E SYSTEMS	PREVENT BUS D IS FROM BEING Clocked INTO IN BUFFER	—	—

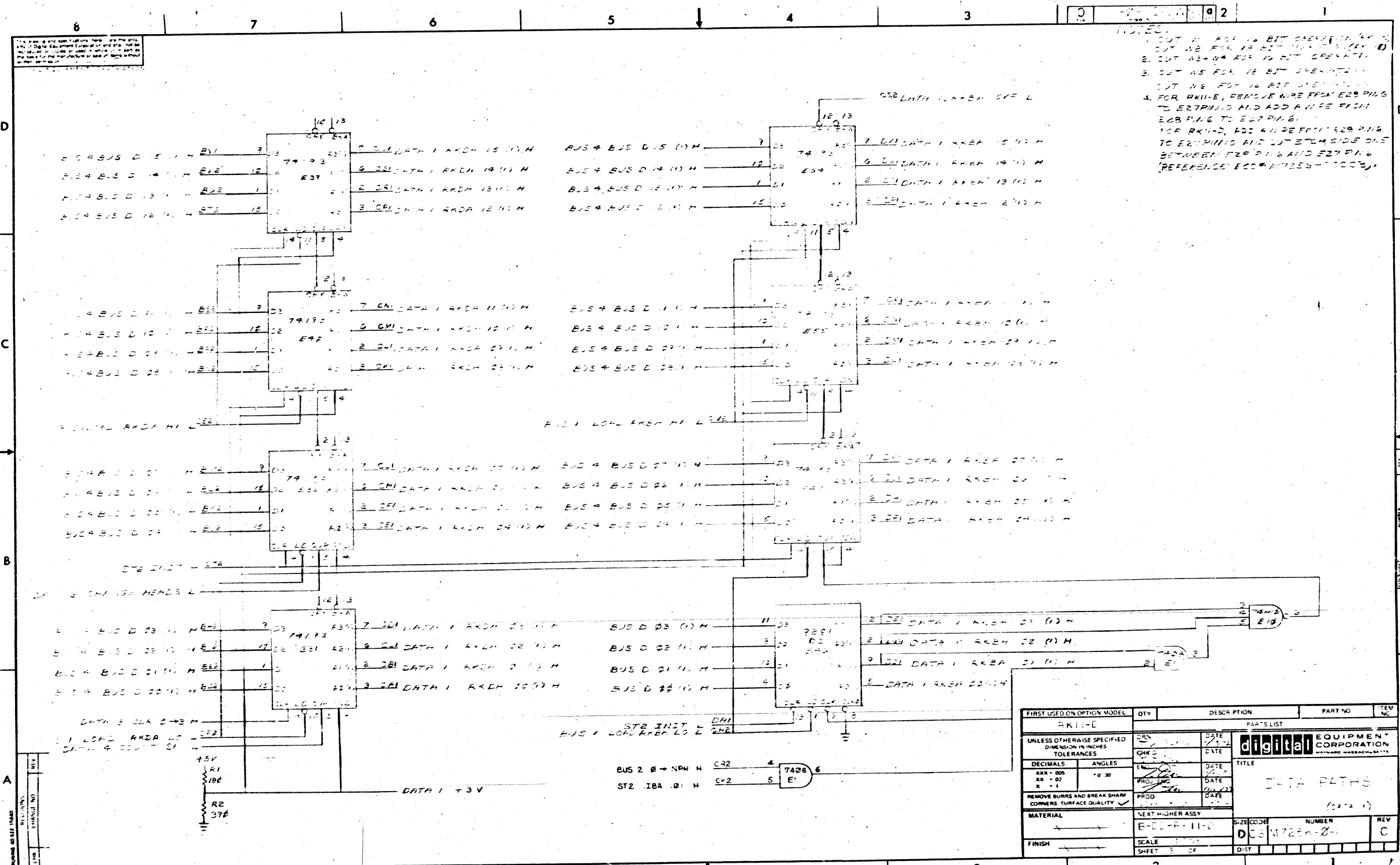
REV. NO.	DATE	BY
1		
2		
3		

DRN	DATE	TITLE
CHK'D	DATE	MODULE ECO HISTORY
ENG	DATE	EQUIPMENT CORPORATION
PRD	DATE	NUMBER M7256-0-6
		REV C

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7256-00003

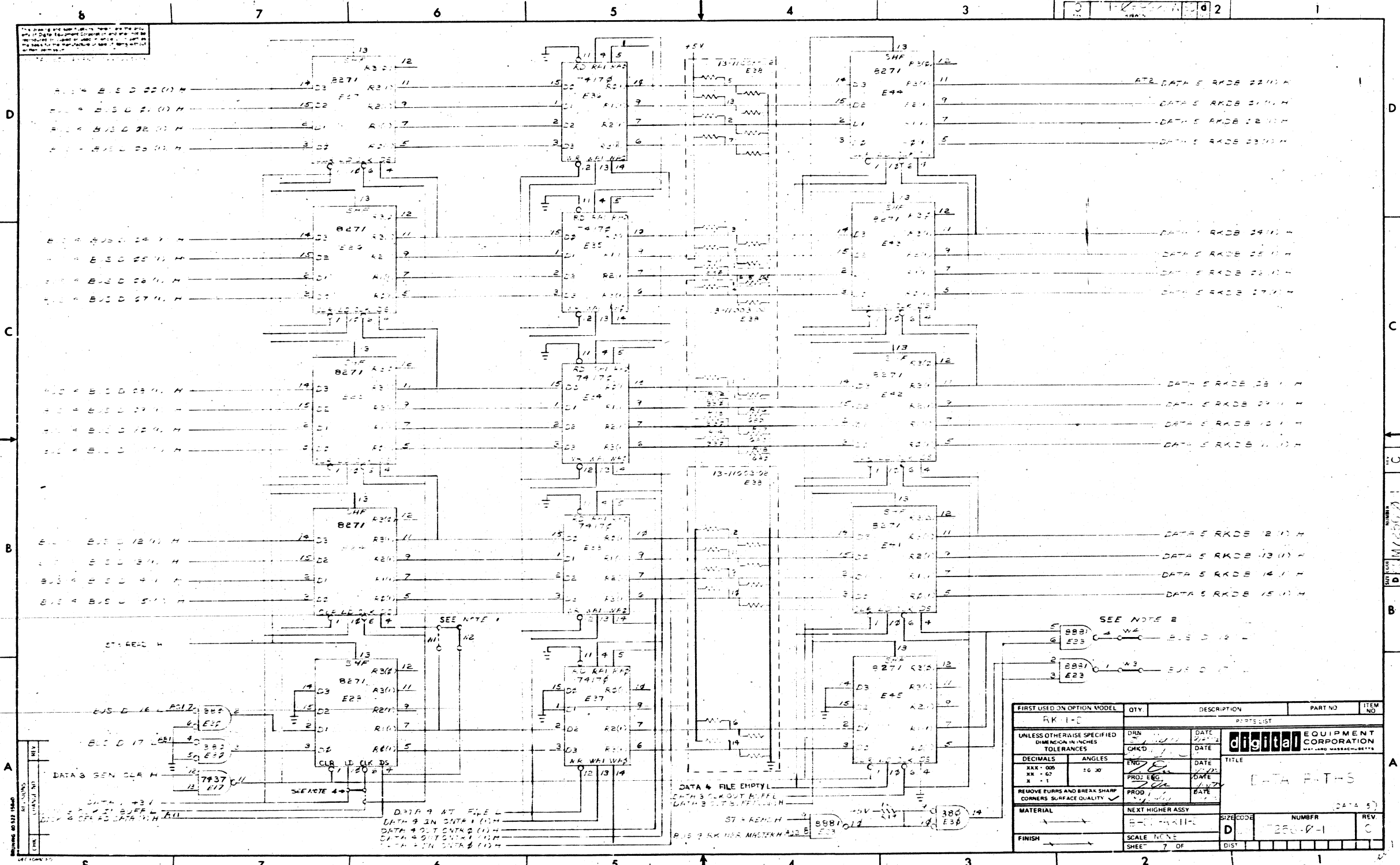
NOT TO BE USED FOR PRODUCTION



NOTES:
 1. CUT WIRE FOR 16 BIT OPERATION.
 2. CUT WIRE FOR 12 BIT OPERATION.
 3. CUT WIRE FOR 10 BIT OPERATION.
 4. CUT WIRE FOR 8 BIT OPERATION.
 5. FOR RK11-E, REMOVE WIRE FROM E28 PING TO E27 PING AND ADD A WIRE FROM E28 PING TO E27 PING.
 6. FOR RK11-D, ADD AN REFRON E28 PING TO E27 PING AND CUT FROM SIDE ONE BETWEEN E28 PING AND E27 PING (REFERENCE ECCM 17256-00003).

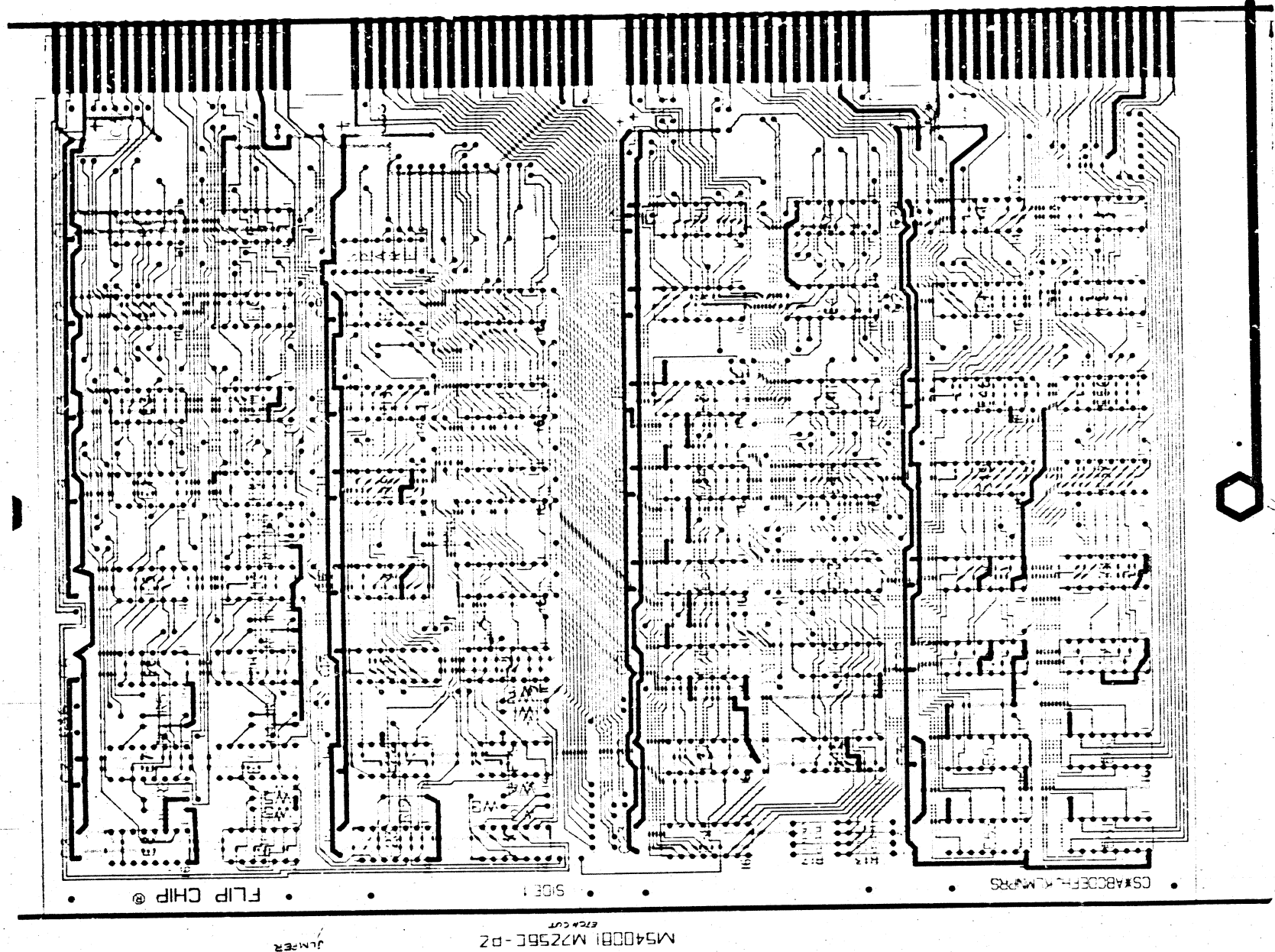
FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	REV NO
AK11-C				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	CHK	DATE	digital EQUIPMENT CORPORATION	
DECIMALS	ANGLES	ENG	DATE	TITLE
XXX - 005	+0.30	PROJ	DATE	DATA PATHS
XXX - 02		PROD	DATE	(DATE)
XXX - 01		PROD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		SEXT HIGHER ASSY	SIZE CODE	NUMBER
MATERIAL		E-01-F-11-C	DCS M7256-2-	REV
FINISH		SCALE	DIST	C
		SHEET 3 OF		

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FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RK 1-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		DWG DATE	DATE	digital EQUIPMENT CORPORATION 4400 WASHINGTON BLVD ANN ARBOR, MICHIGAN 48106
TOLERANCES		CHKD DATE	DATE	
DECIMALS	ANGLES	ENG DATE	DATE	TITLE
XXX - 006	XX - 60	PROJ ENG	DATE	DATA PARTS
X - 1	10 - 30	PROD	DATE	
REMOVE FILLS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMFR	REV
FINISH	SCALE NONE	D	250-0-1	C
	SHEET 7 OF	DIST		

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 D-143-76-05819 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK. 1 OZ. NOTCH BEFORE GOLD PLATING
 COPPER 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	# 61 DIA. (.031 DIA.)	X			

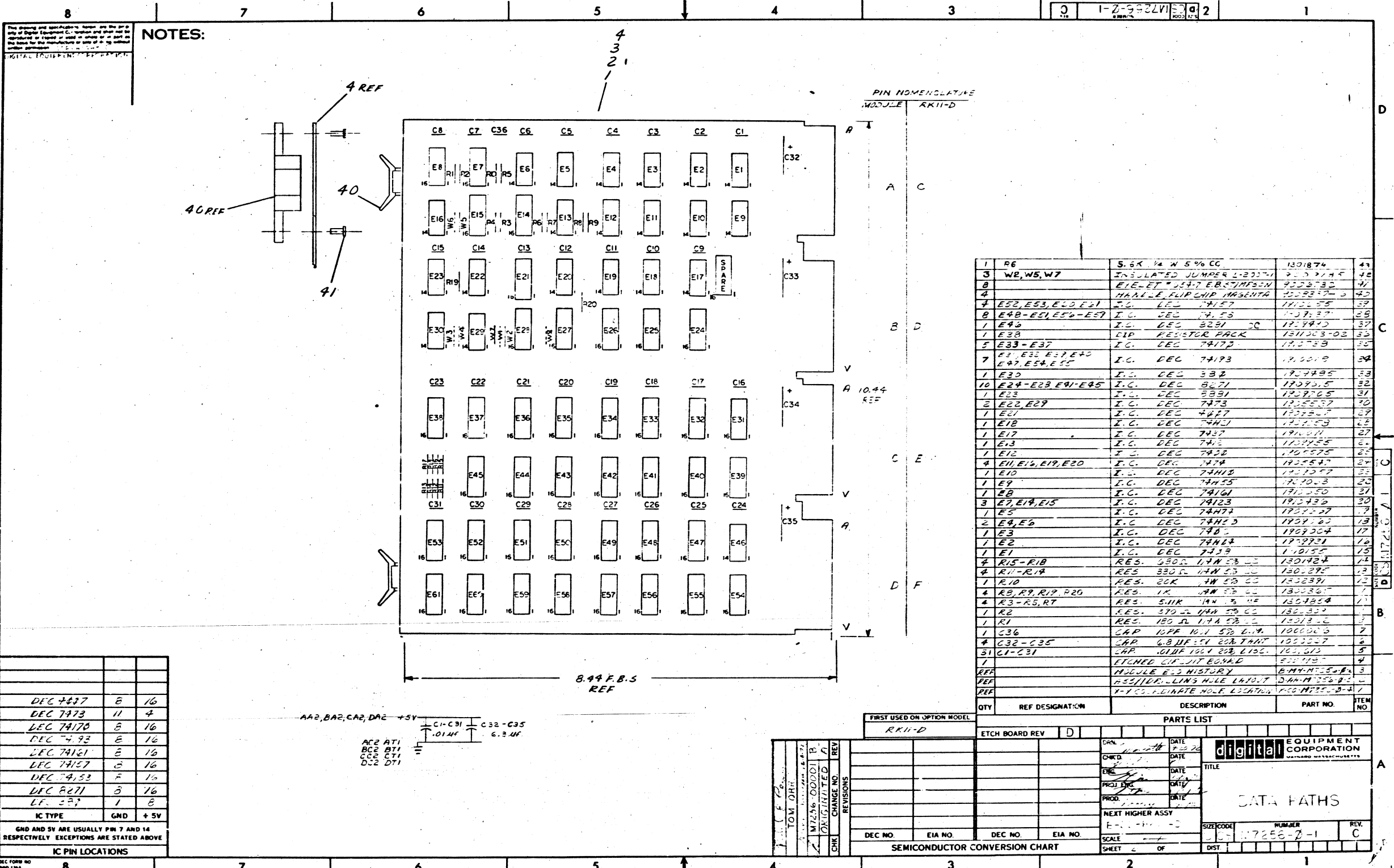
DATE	11/27/72	DESIGNED BY	
CHKD BY		DATE	
PROJ. LEADER		DATE	
PROJ. ENG.		DATE	
FIRST USED ON	M7256	DATE	
SCALE	2/1	OF	
SHEET		OF	
		TITLE ASSY/ DRILLING HOLE LAYOUT	
SIZE	00001	NUMBER	
DRAWN	01AH	M7256-0-5	REV.
			1

REVISIONS	A	B	C	D	E	F	H	J	K	TITLE	RK11-D DATA PATHS	PROD. NO.	M7256
DESIGNER	TRIAD									CHARGE NO.	E20-06734	C.S. REV	
DRAFTSMAN	TRIAD									DATE	5-12-72	ETCH REV	C
CHECKER	TRIAD									ENGINEER	TOM ORR	EXTENSION	2791
												MS NO.	40081

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digital ENGINEERING CHANGE ORDER 7666		ORIGINATOR Dick Lewis 1-2 TEL EXT 3055 DATE 7/13/73 DISC PROJ NO. E20-06734 COST CENTER NO. 395		ECO NO. M7256-0004 SHEET 1 OF 1 DATE RECEIVED Aug 30 73 FIRST ISSUE 8-1-73 FINAL ISSUE 11/27/73	
PROBLEM ECO #M7256-0003 was a retrofit ECO which added a wire and etch cut to the M7256 to prevent clocking BUS D16 into the file in buffer. The etch was not updated at that time. Also, boards are presently built with all jumpers installed which necessitates the cutting of some jumpers before testing.				UNIT TO BE CHANGED M7256 Data Paths	
CORRECTION Update M7256 etch rev to include jumpers to prevent clocking of BUS D16 for RK11-D or to allow clocking for RK11-E. Also, change parts list to install only those jumpers required for RK11-D operation.				DISP CODE 02 OPTIONS AFFECTED RK11-D, E	
BREAK-IN/EFFECTIVITY Use present stock until new rev (rev D) is available.				PRODUCT LINES AFFECTED PDP-11	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1.	D-CS-M7256-0-1 Sheet 1 Sheet 2 Sheet 3 Sheet 7	D B C C	E C D D	06 06 06 06	See final release drawing. See final release drawing. See final release drawing. See final release drawing.
2.	B-MH-M7256-0-6	C	D	06	See final release drawing.
3.	D-AH-M7256-0-5	D	E	06	Correct etch to include jumpers W8 and 7 as shown on D-CS-M7256-01, sheet 7.
4.	5009987	C	D	02	Correct etch to include jumpers W8 and 7 as shown on D-CS-M7256-0-1, sheet 7.
5.	9009185	-	-	-	INSULATED JUMPER. DELETE THREE FROM PARTS LIST
DISPOSITION CODES				APPROVAL SIGNATURES	
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (REUSE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				Type/Title: <u>DESIGN ENGR TOM OFF</u> Hand Signature: <u>[Signature]</u> 1-2 DESIGN ENGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY) <u>[Signature]</u>	



NOTES:

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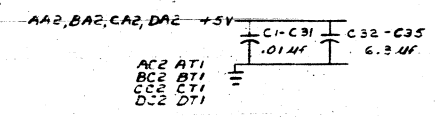
DEC NO.	REV.	DATE	BY
DEC 7477	B	16	
DEC 7473	11	4	
DEC 74170	B	16	
DEC 7493	E	16	
DEC 74121	E	16	
DEC 74157	B	16	
DEC 7453	F	16	
DEC 8271	B	16	
LF 527	1	8	

IC TYPE	GND	+5V
C1-C31		
C32-C35		

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

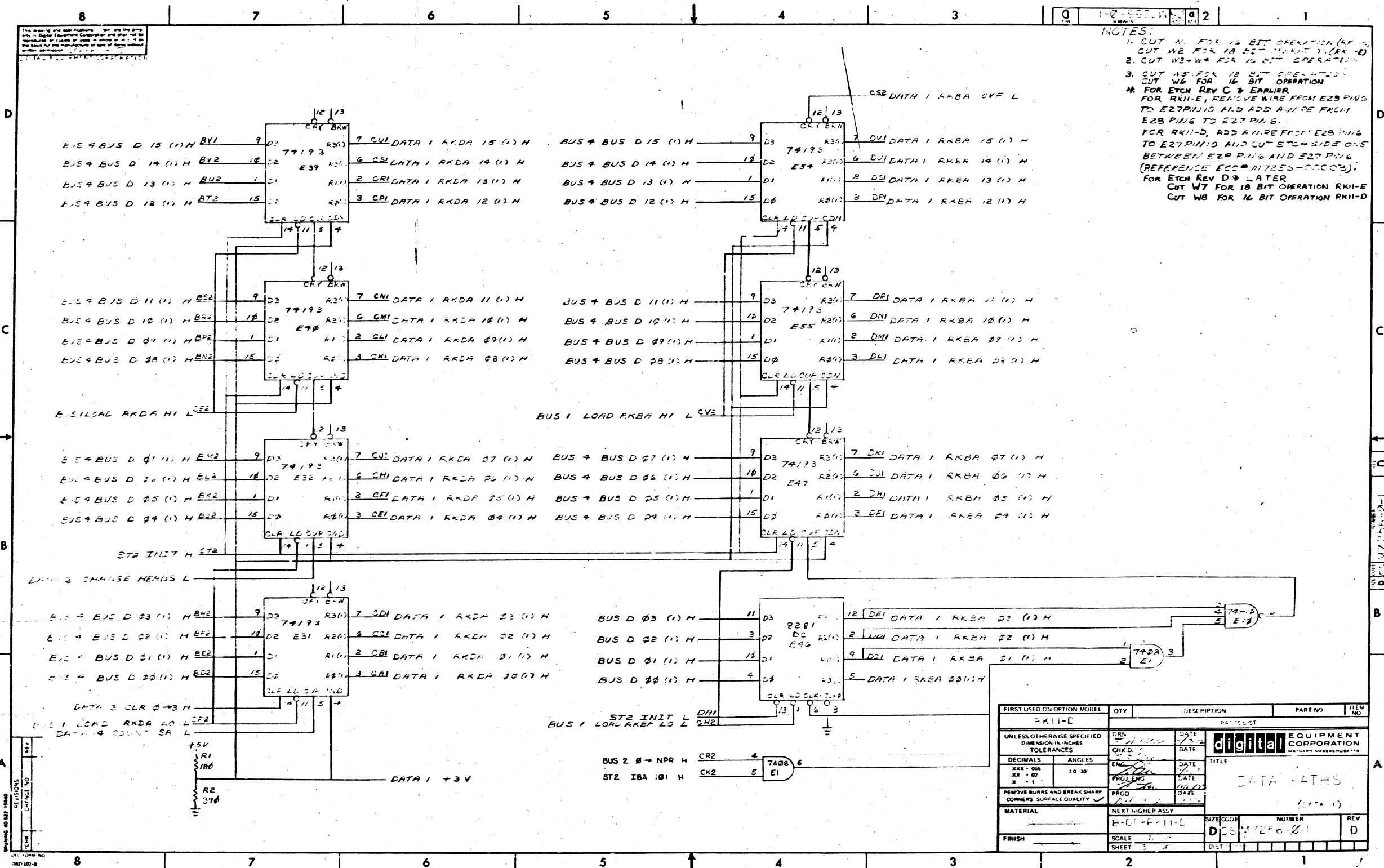
IC PIN LOCATIONS

DEC FORM NO. 100-1194



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R6	5.6K 1/4 W 5% CG	1301874	43
3	WE, W5, W7	INSULATED JUMPER L-2027	7223745	78
8		ELE-ET 747 E.B. STIMESON	7223730	79
4		HALL, FLIP CHIP MAGENTA	7223737	45
4	E52, E53, E54, E61	I.C. DEC 74157	1722555	39
8	E48-E51, E56-E59	I.C. DEC 7453	1722557	38
1	E46	I.C. DEC 8271	1722558	37
1	E38	ICP RESISTOR PACK	1311263-02	35
5	E33-E37	I.C. DEC 74170	1722553	36
7	E3, E32, E37, E40, E47, E54, E55	I.C. DEC 74173	1722559	34
1	E30	I.C. DEC 822	1722556	33
10	E24-E28, E41-E45	I.C. DEC 8271	1722555	32
1	E23	I.C. DEC 8271	1722555	31
2	E22, E29	I.C. DEC 7473	1722557	30
1	E21	I.C. DEC 7477	1722557	29
1	E18	I.C. DEC 7477	1722557	28
1	E17	I.C. DEC 7477	1722557	27
1	E13	I.C. DEC 7473	1722555	26
1	E12	I.C. DEC 7473	1722555	25
4	E11, E14, E19, E20	I.C. DEC 7474	1722547	24
1	E10	I.C. DEC 7474	1722547	23
1	E9	I.C. DEC 7473	1722550	22
1	E8	I.C. DEC 7476	1722550	21
3	E7, E19, E15	I.C. DEC 74123	1722550	20
1	E5	I.C. DEC 7477	1722557	19
2	E4, E6	I.C. DEC 7473	1722557	18
1	E3	I.C. DEC 7473	1722554	17
1	E2	I.C. DEC 7474	1722551	16
1	E1	I.C. DEC 7473	1722551	15
4	R15-R18	RES. 500 OHM 1/4 W 5% CG	1301874	14
4	R11-R14	RES. 300 OHM 1/4 W 5% CG	1301874	13
1	R10	RES. 20K 1/4 W 5% CG	1301874	12
4	R5, R9, R19, R20	RES. 1K 1/4 W 5% CG	1301874	11
1	R2	RES. 370 OHM 1/4 W 5% CG	1301874	10
1	R1	RES. 150 OHM 1/4 W 5% CG	1301874	9
1	C36	CAP. 100PF 10V 5% L.V.	1000003	2
4	C32-C35	CAP. 6.8UF 5V 20% TANT	1000002	1
31	C1-C31	CAP. 100PF 10V 5% L.V.	1000003	5
1		ETCHED CIRCUIT BOARD	5000004	4
REF		MODULE EIS HISTORY	6144175-01	3
REF		WELL/DRILLING HOLE LIST	2444175-01	2
REF		1-1/2" DIAMETER HOLE LOCATION	6100175-01	1

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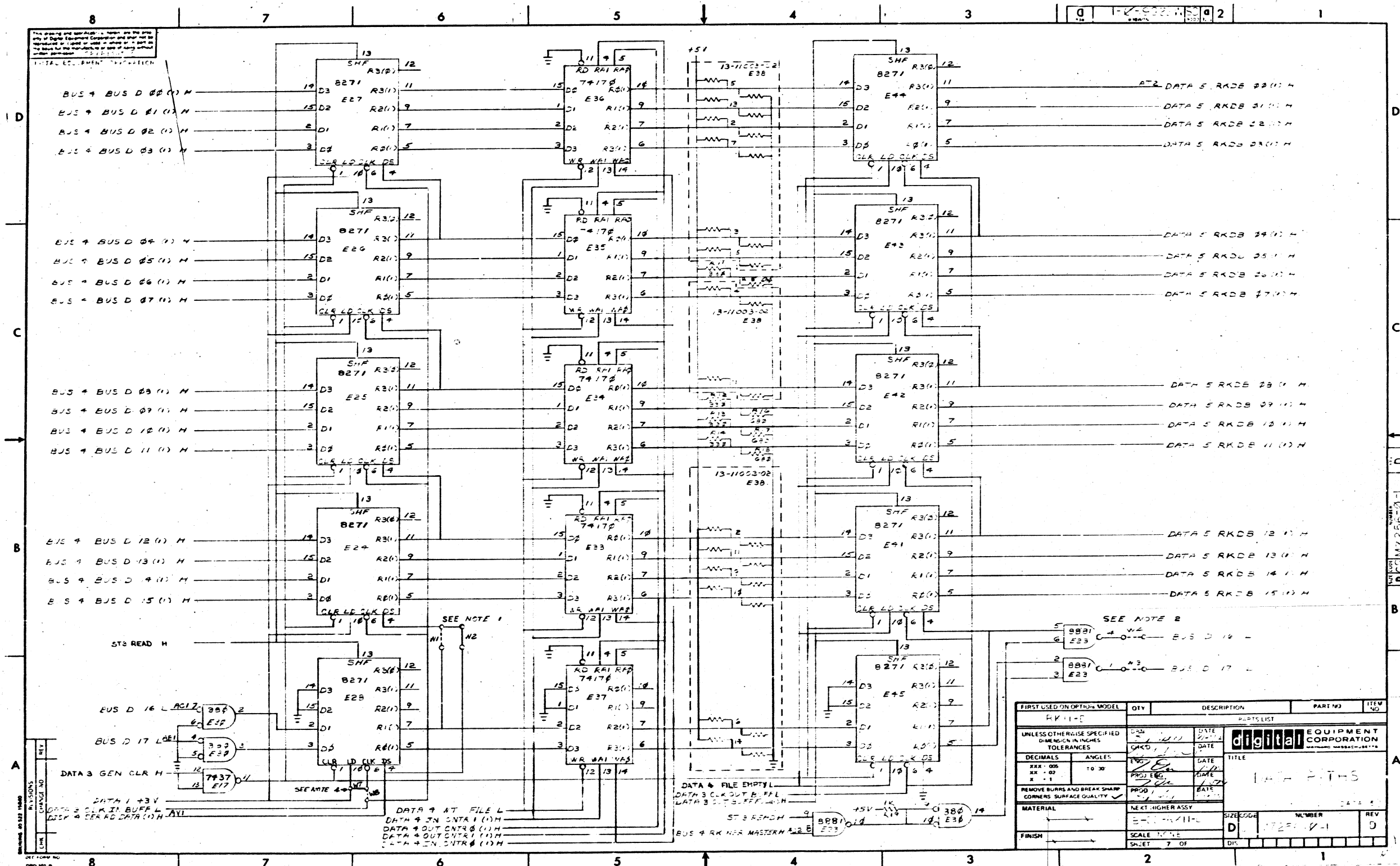


NOTES:

- CUT W1 FOR 16 BIT OPERATION (AK-E)
CUT W2 FOR 18 BIT OPERATION (AK-E)
- CUT W3-W4 FOR 16 BIT OPERATION
- CUT W5 FOR 16 BIT OPERATION
CUT W6 FOR 16 BIT OPERATION
- FOR ETCH REV C & EARLIER
FOR RKII-E, REMOVE WIRE FROM E25 PIN6
TO E27 PIN10 AND ADD A WIRE FROM
E28 PIN6 TO E27 PIN6.
FOR RKII-D, ADD A WIRE FROM E28 PIN6
TO E27 PIN10 AND CUT ETCH SIDE ONE
BETWEEN E28 PIN6 AND E27 PIN6.
(REFERENCE ECC # M7256-00004).
FOR ETCH REV D & LATER
CUT W7 FOR 18 BIT OPERATION RKII-E
CUT W8 FOR 16 BIT OPERATION RKII-D

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
PKII-C				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	PATENT LIST	
XXX - 006	10' 30"	ENGR.	digital EQUIPMENT CORPORATION	
XX - 02		PROJ. ENGR.	TITLE	
X - 1		PROD.	DATA PATHS	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY	DATE	SIZE/CLDR	NUMBER
	E-D-I-P-I-I-E	DATE	DCS M7256-001	REV
FINISH	SCALE	DATE	DIST	D
	SHEET 3 OF 3			

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REV. 1
CHG. NO. 1
DATE 11/1/72
DIB 102-8

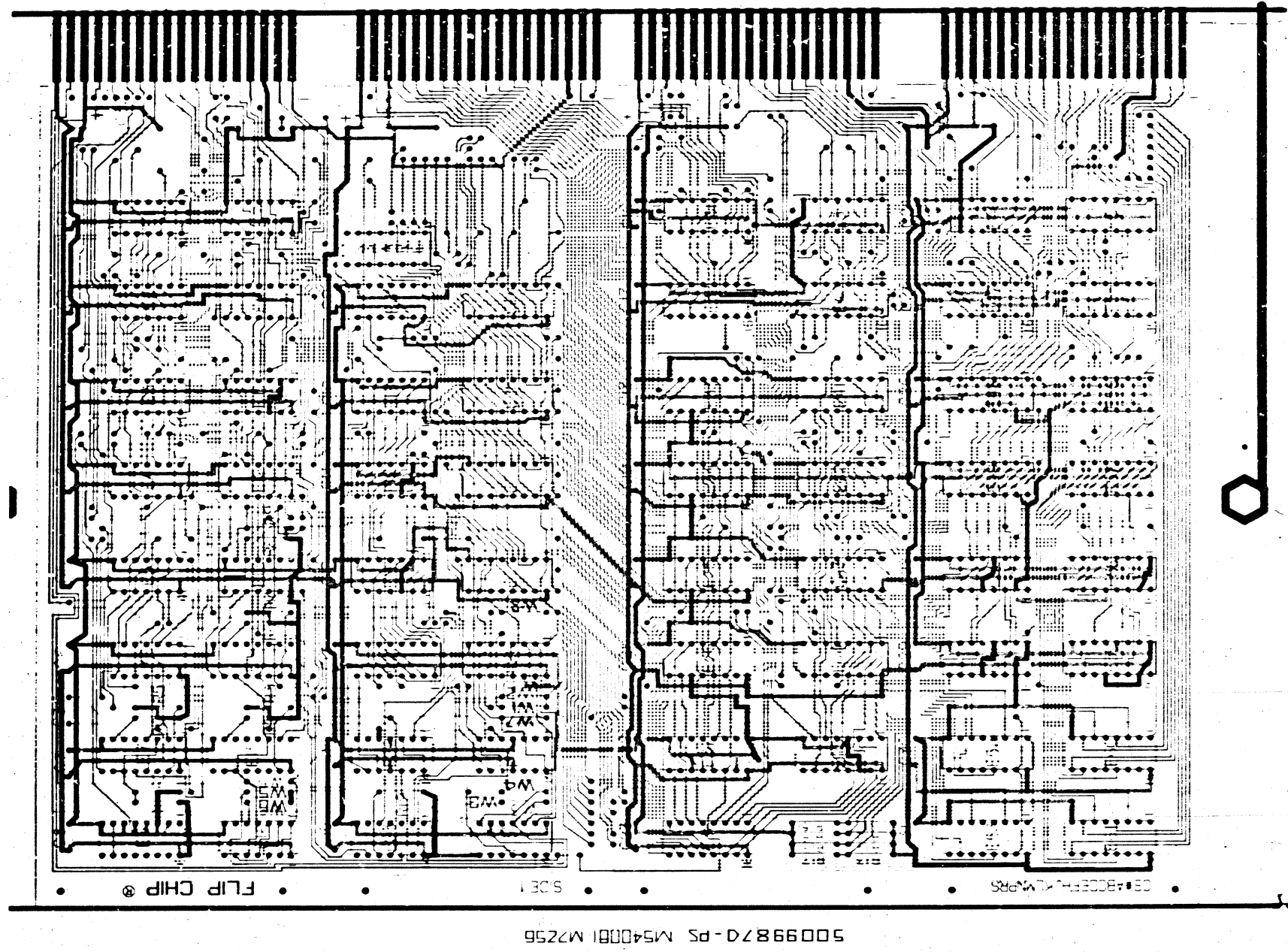
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M7256-00004

NOT TO BE USED FOR PRODUCTION

FIRST USED ON OPTIMUM MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
RY 11-1				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES				
DECIMALS	ANGLES	FRG	DATE	digital EQUIPMENT CORPORATION <small>MEMPHIS, TENNESSEE 38119</small>
XXX - 005	10 30	PROJ ENG	DATE	
XX - 02		PROD	DATE	
X - 1		PROD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NE ET. HIGHER ASSY	SIZE CODE	NUMBER	REV
FINISH	SCALE NONE	D	7256-00004	0
	SHEET 7 OF	DIS		

REV. 1
CHG. NO. 1
DATE 11/1/72
DIB 102-8



50099874-PS M540081 M7256

BOARD FABRICATION INFORMATION

BOARD SIZE 4.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .52 THK 1 OZ. NOTCH BEFORE GOLD PLATING
 COPPER 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	Ø .611 A (Ø .639 DIA.)	X			

DATE	REVISED	BY	CHKD	DATE
11/11/72				11/11/72
ASSY/DRILLING HOLE LAYOUT				
PROJECT	DATE	REV		
11AH	M7256	(-1)		
1	1	1		

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIAD								
DRAFTSMAN	TRIAD								
CHECKER	TRIAD								

TITLE RK11-D DATA PATHS PROD. NO. M7256
 CHARGE NO. E20-06734 DATE 5-12-72 C.S. REV E
 ENGINEER TOM CRR EXTENSION 2791 MS NO. 40

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digital ENGINEERING CHANGE ORDER		ORIGINATOR Dick Lewis 1-2 TEL EXT 3055 DATE 8/16/73 DISC PROJ NO. E-20-06734 COST CENTER NO. 395 926	ECO NO. M7256-0004A SHEET 1 OF 1 DATE RECEIVED 8-20-73 FIRST ISSUE 8-20-73 FINAL ISSUE 11/27/73			
PROBLEM ECO #M7256-00004 updated the parts list to specify which jumpers on the module should be installed and which are optional. Jumper W5 was called out to be installed, however it is shown as being optional on the circuit schematic (broken line)		UNIT TO BE CHANGED M7256 Data Paths DISP CODE 06 OPTIONS AFFECTED RK11-D,E				
CORRECTION Correct the circuit schematic to show W5 as being installed (solid line).		PRODUCT LINES AFFECTED PDP-11				
BREAK-IN/EFFECTIVITY Document correction only.						
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED <input type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PUPCH SPEC FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Charge TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
1	D-CS-M7256-0-1 sheet 6	B	C	06	See final release print	<div style="border: 1px solid black; padding: 5px; display: inline-block;">11 CENTRAL ENG. ECO COMMITTEE</div>
2	2-M7256-0-6	2	E	06	UPDATE PER THIS ECO	
DISPOSITION CODES			APPROVAL SIGNATURES			
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Typewritten / Hand Signature DESIGN ENGR TOM O'RI <i>[Signature]</i> ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>			

7-0-9521 W HWI B
 NUMBER 1300 3215

MODULE ECO HISTORY

PRODUCT LINE PDP 11 RELEASED CS REV. A
 DATE RELEASED 9-27-72 PAGE 1 OF 1 RELEASED ETCH BD REV. B
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	DICKLEWS	11-20-72	B	C	✓			✓			CREATE A FILE DONE CONDITION THAT C-1, B SAMPLED INSTEAD OF WC OVF	1301874 (1) 1300365 (1)	1304E54 (1)
00002	DICKLEWS	1-24-73	C	C							CORRECTS PRINT ERRORS ONLY	0	0
00003	DICKLEWS	6-2-73	D	C		✓	REWORK ONLY NECESSARY ON M7256 USED IN RK11-D'S IN SYSTEMS WITH PARITY MEMORY	✓		THIS ECO CANNOT BE INSTALLED ON M7256 IN RK11-E SYSTEMS			
00004	DICKLEWS	7-12-73	E	D		✓		✓			ETCH REVISION TO IMPLEMENT ECO #00003		3
0004A	DICKLEWS	8-16-73	E	D		✓		✓			DOCUMENTATION CORRECTION		

REVISIONS

CHR	CHG NO	REV
	00001	A
	00002	B
	00003	C
	00004	D
	0004A	E

DRN	DATE	10/5/72
CHKD	DATE	11/5/72
ENGR	DATE	12/1/72
PROD	DATE	12/1/72

EQUIPMENT CORPORATION
NATYARD, MASSACHUSETTS

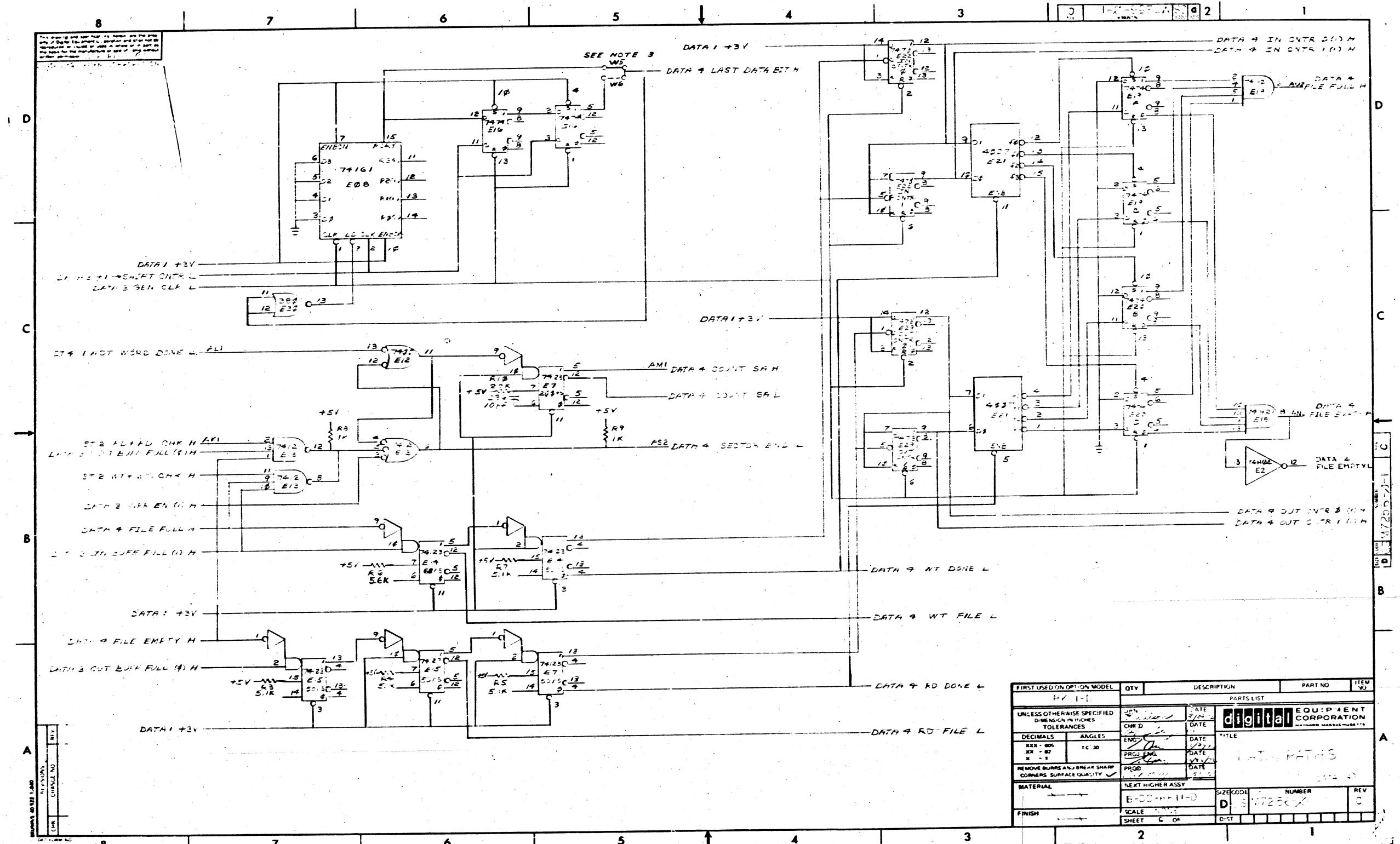
TITLE	MODULE ECO HISTORY		
SIZE	CODE	NUMBER	REV
B	MH	M7256-0-6	E

DEC 14-1973-1026-1091 ORB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

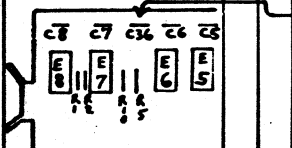
M7256-00004

NOT TO BE USED FOR PRODUCTION



FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
44-1-1				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE	PARTS LIST	
DECIMALS	ANGLES	CHK'D	digital EQUIPMENT CORPORATION	
XXX - 005	±0.00	ENG	TITLE	
XX - 02	±0.01	PROJ'G	DATA PATHS	
X - 0	±0.02	PROD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY	SCALE	SIZE CODE	NUMBER
	E-00-11-0	SHEET 6 OF 6	D	M7256-004A
FINISH				REV
				0

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7256-0004A
NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER 9935		ORIGINATOR Tom Orr (1-3) TEL EXT 2791 DATE 12/20/73 DISC PROJ NO. E20-06734 COST CENTER NO. 395	ECO NO. M7256-0005 SHEET 1 OF 1 DATE RECEIVED 12-21-73 FIRST ISSUE 1-2-74 FINAL ISSUE 2/9/74		
PROBLEM The pulse "Count SA" is currently 200 ns wide. When writing on the disk, the leading edge of "Count SA" stops write current and the trailing edge increments the RKDA register. If bit 5 of RKDA (surface select) changes from a "0" to a "1" a change in head selection may occur before write current has stopped, destroying the trailing edge of sector 13 on surface 1.			UNIT TO BE CHANGED M7256 RK11-D Data Path		
CORRECTION Increase "Count SA" to 590 ns by replacing the 10 pf. cap. in C36 with 56 pf. cap. The M7256 module contained within test equipment (XOR) in Ireland, Puerto Rico, and Westfield should be reworked.			DISP CODE 058 OPTIONS AFFECTED RK11-D RK11-E		
BREAK-IN/EFFECTIVITY Rework all boards to be shipped from Puerto Rico and Ireland module production after 1/15/74. Rework all field units exhibiting this symptom. Rework all units built in Westfield after 1/15/74. Rework all units leaving Westminster after 1/15/74.			PRODUCT LINES AFFECTED PDP11 PDP15		
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1.	D-CS-M7256-0-1 Sheet 1 Sheet 2 Sheet 6	-	-	-	Update revision per this ECO. Change C36 from 10 pf to 56 pf Item 7, qty 1. Increase Count SA to 500 ns.
2.	D-AH-M7256-0-5	-	-	-	Update revision per this ECO.
3.	D-MH-M7256-0-6	-	-	-	Update revision per this ECO.
4.	1000006	-	-	00	Delete cap 10 pf 100v 5Z D.M. Item #7, Qty 1 from C36.
5.	1000012	-	-	07	Add cap 56 pf 100v 5Z D.M. Item #7, Qty 1. (At C36)
					
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 11 CENTRAL ENG. ECO COMMITTEE </div>					
DISPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPONENT) 09 - SCRAP IMMEDIATELY			APPROVAL SIGNATURES Designated Hand Signature DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)		

digital	FIELD CHANGE ORDER	FCO M7256-0005 & 5A PAGE 1 OF 1
FIELD EFFECTIVITY Rework M7256's in all RK11-D's at next PM or service call, and verify its implementation in all new installations.		DATA PROCESSING AND DEC-ECOLOG WILL POST THIS FCO WITH THE LEVEL OF URGENCY CODE REPLACING THE LEADING ZERO. LEVEL OF URGENCY CODE A MANDATORY - HIGH PRIORITY B MANDATORY C HIGH PRIORITY IF SPECIFIC HARDWARE, SOFTWARE, OR SYMPTOMS ARE PRESENT D APPLICABLE IF SPECIFIC HARDWARE, SOFTWARE, OR SYMPTOMS ARE PRESENT E PRODUCT IMPROVEMENT - OPTIONAL - LOW PRIORITY
<input checked="" type="checkbox"/> ARE TO BE REPORTED UNDER A "W" CHARGE CODE. <input type="checkbox"/> STANDARD APPLICABILITY - THIS FCO IS TO BE INSTALLED AT NO CHARGE FOR WARRANTY AND MAINTENANCE CONTRACT CUSTOMERS IN ACCORDANCE WITH THE TECHNICAL EFFECTIVITY ABOVE, OTHERWISE AT CUSTOMER EXPENSE.		FIELD RETROFIT IS ANTICIPATED IN 100% OF UNITS DEFINED ABOVE. ALL DEC INSTALLATION LABOR AND MATERIAL DOCUMENTATION \$ PARTS \$ DEC ON-SITE LABOR \$ DEC'S MINIMUM BILLING APPLIES IF THIS FCO IS INSTALLED BY DEC. THE DEC LABOR CHARGE ASSUMES FCO INSTALLATION DURING REGULAR WORKING HOURS IF INSTALLATION OUTSIDE OF REGULAR WORKING HOURS IS ORDERED, DEC'S LATEST SCHEDULE OF HOURLY RATES WILL APPLY.
<input type="checkbox"/> FIELD OFFICE FCO DISTRIBUTION CODE <input type="checkbox"/> F IMMEDIATE FCO DISTRIBUTION TO ALL DEC FIELD OFFICES <input checked="" type="checkbox"/> IF IMMEDIATE FCO DISTRIBUTION TO REGIONAL PRODUCT SUPPORT		ESTIMATED DOWNTIME FOR INSTALLATION AND TESTING 1.5 HOURS SPECIAL TEST EQUIPMENT, TOOLS, OR SUPPLIES LAST PREVIOUS FCO'S C03 RELATED OR PREREQUISITE FCO'S <input type="checkbox"/> MAINTENANCE CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED
<input checked="" type="checkbox"/> FCO KIT DISTRIBUTION KITS, AS DEFINED BELOW, MAY BE ORDERED AS REQUIRED.		ESTIMATED DOWNTIME FOR INSTALLATION AND TESTING 1.5 HOURS SPECIAL TEST EQUIPMENT, TOOLS, OR SUPPLIES LAST PREVIOUS FCO'S C03 RELATED OR PREREQUISITE FCO'S <input type="checkbox"/> MAINTENANCE CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED
CONTENTS OF AN FSIC INITIATED KIT FIC FCO PRINTS PARTS CONTENTS OF A FIELD ORDERED KIT FIC FCO PRINTS PARTS		FSIC INITIATED FCO KITS WILL BE DISTRIBUTED FOR ALL UNITS LISTED ON THE EDP CONFIGURATION FILE WITH THE FOLLOWING SERVICE STATUS CODES D H K W VERIFICATION MAINTENANCE DZRKE PARTS REQUIRED Q1 10-00019 Capacitor, 150pf
INSTALLATION AND TEST PROCEDURES		
NOTES: The Problem and Correction text of both the ECO and the supplement must be read in order to fully understand this FCO.		
FIELD SERVICE APPROVAL Jim Berclay		PF1156 (x) 1-18 (260/290) 550

PAGE REVISION CONTROL SHEET

SH NO.	PAGE REVISIONS							REMARKS
	A	B	C	D	E	F		
1	A	B	C	D	E	F	(DATA 1)	
2	A	B	B	C	D		(DATA 2)	
3	A	B	B	C	D		(DATA 3)	
4	A	A	A	A	A		(DATA 4)	
5	A	B	C	C	C		(DATA 5)	
6	A	B	B	B	C			
7	A	B	B	C	D			

FIRST USED ON OPTION/MODEL
RK11-D

digital EQUIPMENT CORPORATION
WATKINSVILLE, MASSACHUSETTS

TITLE: DATA PATHS (RK11-D)

SIZE CODE: B CS NUMBER: M7256-0-1 REV. F

DATE: 12-7-72
 ENG. REV. B
 ETCH NO. C 0001
 3/6/73 C 0002
 6-25-73 C 0003
 8-6-73 D 0004
 1-10-74 D 545A

DRN. DATE: / /
 CHK'D. DATE: / /
 ENG. DATE: / /
 PROJ. ENG. DATE: / /
 PROD. DATE: / /

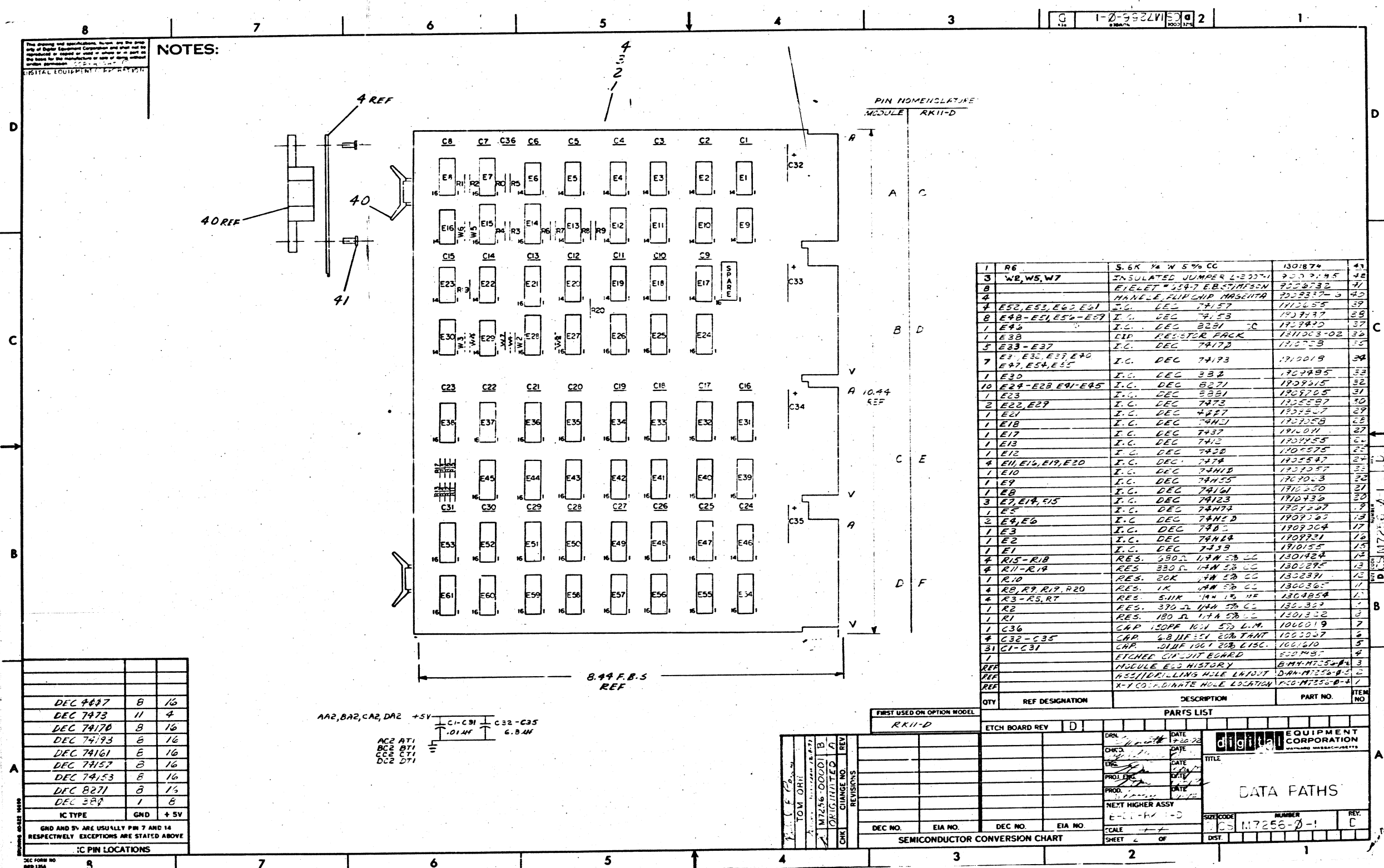
NEXT HIGHER ASSY:
 D-DD-RK11-D
 SCALE: *1/4" = 1"*
 SHEET 1 OF 7

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M7256-00005

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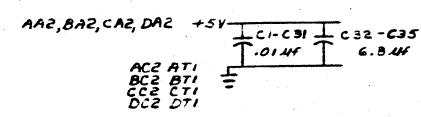


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IC TYPE	QTY	REF
DEC 4437	8	16
DEC 7473	11	4
DEC 74170	8	16
DEC 74193	8	16
DEC 74161	8	16
DEC 74157	8	16
DEC 74153	8	16
DEC 8271	8	16
DEC 388	1	8
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R6	5.6K 1/4 W 5% CC	1301874	43
3	WE, W5, W7	INSULATED JUMPER L-2337-1	9533195	46
8		EIELET *354-7 EB-571F5CN	9528732	47
4		MANULE FLIP LAMP MAGENTA	7528357	48
4	E50, E53, E60, E61	I.C. DEC 74157	1712659	39
8	E48-E51, E56-E57	I.C. DEC 74153	1712657	38
1	E49	I.C. DEC 8271	1712658	37
1	E38	EXP. RESISTOR PACK	1712653-02	36
5	E33-E37	I.C. DEC 74170	1712658	35
7	E3, E3C, E37, E40, E47, E54, E55	I.C. DEC 74173	1712659	34
1	E30	I.C. DEC 388	1709995	53
10	E29-E28, E41-E45	I.C. DEC 8271	1709915	52
1	E23	I.C. DEC 5881	1709905	31
2	E22, E29	I.C. DEC 7473	1709907	30
1	E21	I.C. DEC 4437	1709907	29
1	E18	I.C. DEC 74170	1709908	28
1	E17	I.C. DEC 7437	1710011	27
1	E13	I.C. DEC 74170	1709955	26
1	E12	I.C. DEC 7437	1709955	25
4	E11, E16, E19, E20	I.C. DEC 7474	1709957	24
1	E10	I.C. DEC 74170	1709957	23
1	E9	I.C. DEC 74155	1709903	30
1	E8	I.C. DEC 74161	1710050	31
3	E7, E14, E15	I.C. DEC 74123	1710436	30
1	E5	I.C. DEC 74174	1709907	19
2	E4, E6	I.C. DEC 74170	1709907	18
1	E3	I.C. DEC 7400	1709904	17
1	E2	I.C. DEC 74174	1709931	16
1	E1	I.C. DEC 7439	1710155	15
4	R15-R18	RES. 500Ω 1/4W 5% CC	1301924	14
4	R11-R14	RES. 330Ω 1/4W 5% CC	1305275	13
1	R10	RES. 20K 1/4W 5% CC	1302891	12
4	R8, R9, R17, R20	RES. 1K 1/4W 5% CC	1300365	11
4	R3-R5, R7	RES. 5.1K 1/4W 5% CC	1304854	10
1	R2	RES. 370Ω 1/4W 5% CC	1301329	9
1	R1	RES. 180Ω 1/4W 5% CC	1301332	8
1	C36	CAP. 150PF 10% 50V D.M.	1000019	7
4	C32-C35	CAP. 2.2UF 5% 25V TANT	1000057	6
31	C1-C31	CAP. 100PF 10% 25V D.M.	1000610	5
1		ETCHED CIRCUIT BOARD	5004937	4
REF		MODULE E-3 HISTORY	B.M. M7256-0-3	3
REF		R53/100PILLING HOLE LAYOUT	D.M. M7256-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	F.S. M7256-0-4	1

FIRST USED ON OPTION MODEL: RK11-D

ETCH BOARD REV: D

DATE: 12-22-72

DRN: [Signature]

CHK: [Signature]

ENG: [Signature]

PROL: [Signature]

PROD: [Signature]

NEXT HIGHER ASSY: E-11-H-1-D

SCALE: 1:1

SHEET: 1 OF 1

SEMICONDUCTOR CONVERSION CHART

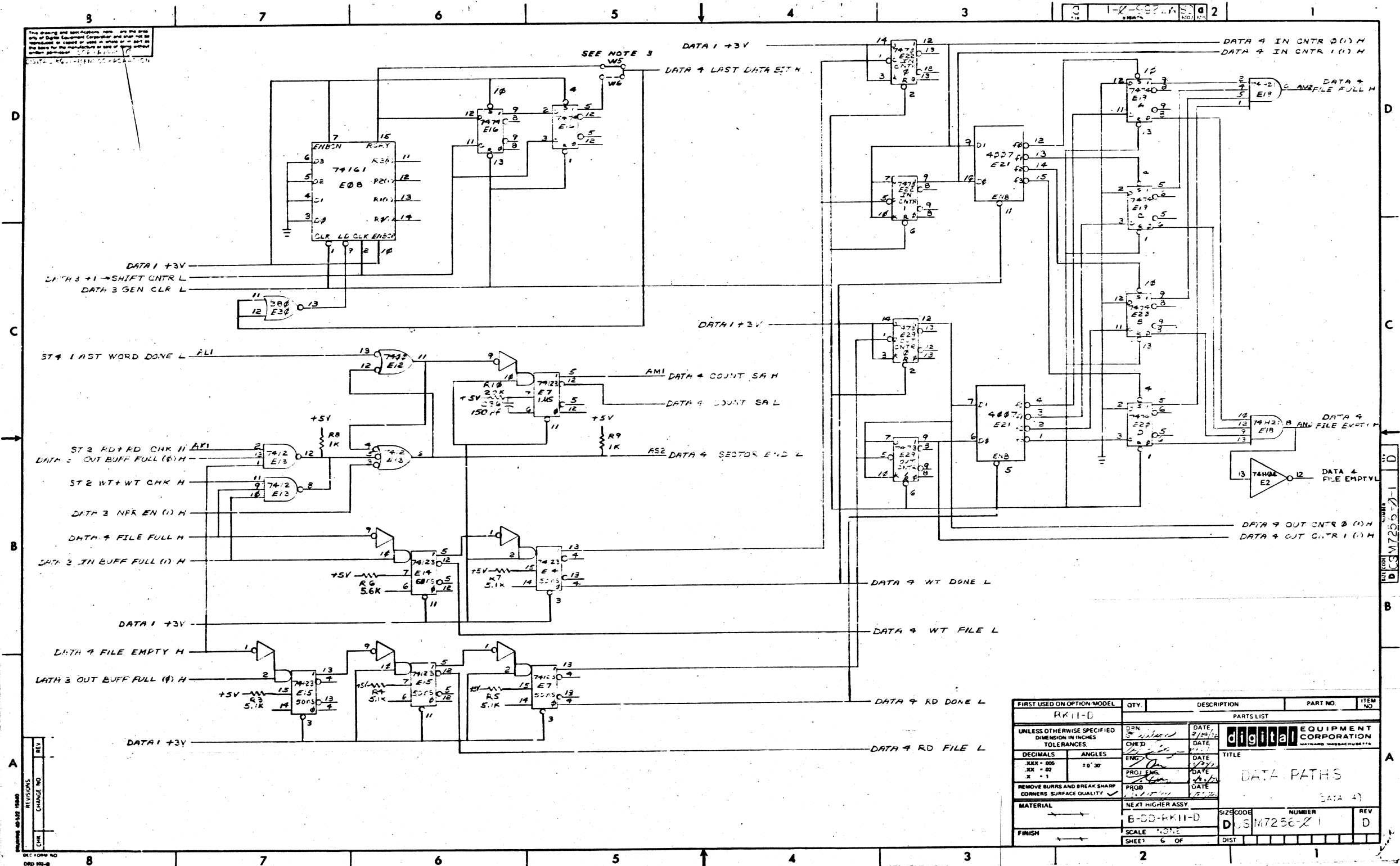
DATE: 12-22-72

TITLE: DATA PATHS

NUMBER: M7256-0-1

REV: C

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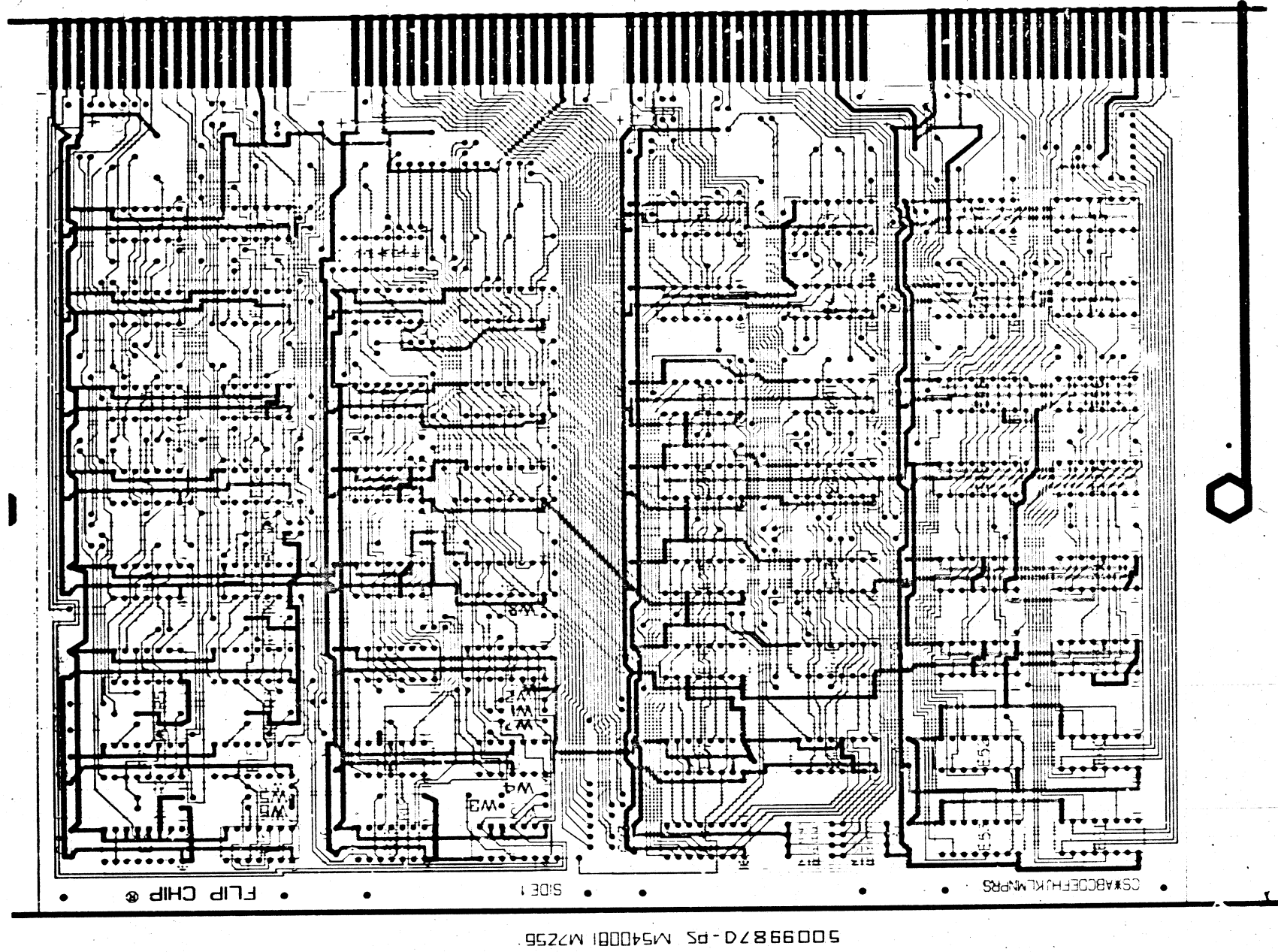


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REV	
CHG	
DATE	
BY	
CHK	
DATE	
BY	
CHK	
DATE	
BY	
CHK	
DATE	
BY	

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
AK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DSN	DATE	DIGITAL EQUIPMENT CORPORATION	
TOLERANCES	CHK D	DATE	MAYNARD MASSACHUSETTS	
DECIMALS	ENG	DATE	TITLE	
ANGLES	PROJ ENG	DATE	DATA PATHS	
XXX - 005	PROB	DATE	DATA 4)	
.XX - 02		DATE		
X - 1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEAT HIGHER ASSY	SIZE CODE	NUMBER	REV
	B-DD-KK11-D	D	USM7256-Z1	D
FINISH	SCALE NONE	SHEET	6 OF	DIST

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50099870-PS M540081 M7256

BOARD FABRICATION INFORMATION

BOARD SIZE 8.50X11.75 PLATED THRU EYELET SIDED
 BOARD MATERIAL 52 THK. 1 OZ. NOTCH BEFORE GOLD PLATING
 COPPER 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE AFTER PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	# 61 (EIA) (.039 DIA.)	X			


DATE	REV	BY
11/13/72	1	JAH
SUBJECT M7256-C-5		
TITLE ASSY/DRILLING HOLE LAYOUT		
SCALE	SHEET	OF
1:1	1	1

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIAD								
DRAFTSMAN	TRIAD								
CHECKER	TRIAD								

TITLE RKII-D DATA PATHS PROD. NO. M7256
 CHARGE NO. E20-06734 DATE 5-12-72 C.S. REV F
 ENGINEER TOM CRR EXTENSION 2791 MS NO. 40341 ETCH REV D

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SUPPLEMENT ECO

 ENGINEERING CHANGE ORDER 9948		ORIGINATOR Tom Orr (1-3) TEL EXT 2791 DATE 1/3/74 DISC PROJ NO. E-20-06734 COST CENTER NO. 395		ECO NO. M7256-0005A SHEET 1 OF 1 DATE RECEIVED 1-8-74 FIRST ISSUE 1-8-74 FINAL ISSUE 2/4/74		
PROBLEM M7256 ECO #00005 fixed a potential race condition in the RK11-D. Further investigation has shown that an extension of this same fix could resolve an inherent write recovery problem in the RK05 that would otherwise be expensive and time consuming.				UNIT TO BE CHANGED M7256 RK11-D DATA PATH DISP CODE *03 OPTIONS AFFECTED		
CORRECTION M7256 ECO #00005 lengthened the "COUNT SA" pulse from 200ns to 500ns by replacing the capacitor in C36 from 10pf to 56pf. Do not rework boards to ECO #00005; instead use a 150pf cap to lengthen "COUNT SA" to 1µs. Symptoms of this problem are the same as ECO #M7256-00005.				RK11-D RK11-E		
*BREAK-IN/EFFECTIVITY Rework all boards to be shipped from Puerto Rico and Ireland module production after 2/1/74. Rework all field units exhibiting this symptom. Rework all units built in Westfield after 2/1/74. Rework all units leaving Westminster after 2/1/74.				PRODUCT LINES AFFECTED PDP11 PDP15		
ITEM NO.	DOCUMENT/PART NO.	OLD RLV	NEW REV	DISP EDDL	DESCRIPTION OF CHANGE	
1	B-MH-M7256-0-6	F	H	06	Update revision per this ECO.	
2	1000012			00	Delete cap 56pf 100v 5%. D.M. Item #7, qty. 1 (at C36) from parts list.	
3	1000019			07	Add cap 150 pf 100v 5% D.M. Item #7, qty. 1 (at C36) to parts list.	
SUPPLEMENT ECO CENTRAL ENG. ECO COMMITTEE						
DISPOSITION CODES				APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - RWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				Typewritten / Hand Signed DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)		

9-0-2522 W

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>A</u>									
DATE RELEASED <u>9-27-72</u>		PAGE <u>1</u> OF <u>2</u>		RELEASED ETCH BD REV. <u>B</u>									
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0001	DICKLEWS	11-20-72	B	C	✓			✓			CREATE A FILE DONE CONDITION THAT IS SAMPLED INSTEAD OF WC OFF	1301977 (1) 1300355 (1)	1301851 (1)
0002	DICKLEWS	1-24-73	C	C							CORRECTS PRINT ERRORS ONLY	0	0
0003	DICKLEWS	5-2-73	D	C		✓	REWORK ONLY NECESSARY ON M7256 USED IN RKII-D'S IN SYSTEMS WITH PARITY MEMORY		✓	THIS ECO CANNOT BE INSTALLED ON M7256 IN RKII-E SYSTEMS	PREVENT BUS FROM BEING CLOCKED INTO IN BUFFER		
0004	DICKLEWS	7-12-73	E	D		✓			✓		ETCH REVISION TO IMPLEMENT ECO #0003		3
0004A	DICKLEWS	8-16-73	F	D		✓			✓		DOCUMENTATION CORRECTION		
0005	TOM ORR	12-20-73	F	D		✓	REWORK ONLY IF FAILURE OCCURS			ANY SYSTEM KNOWN TO FAIL SHOULD BE REWORKED	CHANGE C35 FROM 10pf TO 56pf	1	1

REV. NO.	DATE	BY	DESCRIPTION

DRN	DATE	TITLE
CHKD	DATE	MODULE ECO HISTORY
ENG	DATE	EQUIPMENT CORPORATION
PROD.	DATE	SIZE CODE NUMBER
		B MH M7256-0-1

DHB 104

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H 322 8
 300 375

MODULE ECO HISTORY

PRODUCT LINE EDP11 PAGE 2 OF 2 RELEASED CS REV. A
 DATE RELEASED 9-27-72 RELEASED ETCH BD REV. B
 RELEASED BY LORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0005A	LORR	1-3-74	F	D		<input checked="" type="checkbox"/>	REWORK FIELD UNITS ONLY AS NECESSARY OR CONVENIENT			ANY SYSTEMS WITH TO FAIL SHOULD BE REWORKED	CHANGE CSC FROM 56PF TO 150 PF	1	1

REVISIONS
 CHG/CSG/NO/REV

DRN. DATE
 CS SMITH 9-27-72
 CHKD DATE
 CS SMITH 9-27-72
 ENG. DATE
 LORR 10-27-72
 PRCD. DATE
 R. M. J. 10-27-72

TITLE
 MODULE ECO HISTORY
 SIZE CODE NUMBER REV.
 B M 117256-0-6 H

DEC 16-1320-1026 N971 DHB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7256-0005A

NOT TO BE USED FOR PRODUCTION

digital ENGINEERING CHANGE ORDER 892		ORIGINATOR Dick Lewis MS/E65 TEL EXT 4620 DATE 9/30/74 DISC PROJ NO. E-20-07534 COST CENTER NO. 395		ECO NO. <u>M7256-00006</u> SHEET 1 OF 1 DATE RECEIVED <u>12-4-74</u> FIRST ISSUE _____ FINAL ISSUE _____	
PROBLEM I.C. DEC 380 (19-09485) is obsolete and will no longer be available.				UNIT TO BE CHANGED M7256 Data Paths	
CORRECTION Phase-in I.C. DEC 8640 (19-11469) as a replacement for I.C. 380 into all module build areas. When I.C. failure occurs replace defective 380s with 8640s.				DISP CODE 02 * OPTIONS AFFECTED RK11-D RK11-E	
BREAK-IN/EFFECTIVITY * Phase-in 8640s as inventory of 380s is depleted. Use only 8640s for repair after 1/1/75.				PRODUCT LINES AFFECTED PDP-11 PDP-15	
ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DISP CODE	DESCRIPTION OF CHANGE
1	D-CS-M7256-0-1 Sheet 1 Sheet 2 Sheet 6 Sheet 7	F D D D	H E E E	06 06 06 06	Update revisions per this ECO. Delete one 380 from parts list. Add one 8640 to parts list. Change 390 logic gate to 8640 Change all 380 logic gates to 8640.
2	D-AH-M7256-0-5	F	H	06	Update revision.
3	B-MH-M7256-0-6	H	J	06	Update per this ECO.
4	1909485			02	Delete one 380
5	1911469			07	Add one 8640
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 11 CENTRAL ENG. ECO COMMITTEE OCT 4 1974 </div>					
DISPOSITION CODES				APPROVAL SIGNATURES	
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (REWORK) 04 - (DELETED) 05 - (DELETED) 06 - (DELETED) 07 - DOCUMENT CORRECTION 08 - NEW ITEM (THIS ASSEMBLY) 09 - NEW ITEM (THIS COMPANY) 10 - SCRAP IMMEDIATELY				DESIGN ENGR <u>Tom Orr</u> ENG MGR (OPT) _____ FIELD SERVICE (OPT) _____ CHIEF ENGR (MODULES ONLY) _____	

9-0-9621 W HWI B
 NUMBER CODE SIZE

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>A</u>									
DATE RELEASED <u>9-27-72</u>		PAGE <u>1</u> OF <u>2</u>		RELEASED ETCH BD REV. <u>B</u>									
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NEW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	DICKLEWIS	11-20-72	B	C	✓			✓			CREATE A "FILE DONE" CONDITION THAT C-1 B SAMPLED INSTEAD OF WC OVF	1301874 (1) 1300365 (1)	1304854 (1)
00002	DICKLEWIS	1-24-73	C	C							CORRECTS PRINT ERRORS ONLY	0	0
00003	DICKLEWIS	6-8-73	D	C		✓	REWORK ONLY NECESSARY ON M7256 USED IN RK11-D'S IN SYSTEMS WITH PARITY MEMORY	✓		THIS ECO CAN NOT BE INSTALLED ON M7256 IN RK11-E SYSTEMS	PREVENTS BUS D 16 FROM BEING CLOCKED INTO IN BUFFER	-	-
00004	DICKLEWIS	7-12-73	E	D		✓		✓			ETCH REVISION TO IMPLEMENT ECO #00003	-	3
00004A	DICKLEWIS	8-16-73	E	D		✓		✓			DOCUMENTATION CORRECTION	-	-
00005	TOM ORR	12-20-73	F	D		✓	REWORK ONLY IF FAILURE OCCURS			ANY SYSTEM KNOWN TO FAIL SHOULD BE REWORKED	CHANGE C36 FROM 10pf TO 56pf	1	1

REV. NO.	REV.
00001	A
00002	B
00003	C
00004	D
00005	E
00006	F
00007	G
00008	H
00009	I
00010	J

DRN	DATE
CHK'D	DATE
ENG'D	DATE
PROD.	DATE

EQUIPMENT CORPORATION		MAYNARD, MASSACHUSETTS	
TITLE	MODULE ECO HISTORY	SIZE	CODE
NUMBER	M7256-0-6	REV.	J

DEC 16 (375) 1020-7371
 DRB 104

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9-0-69224 B
 NUMBER 3000 3215

MODULE ECO HISTORY

PRODUCT LINE PDP11 RELEASED CS REV. A
 DATE RELEASED 9-27-72 PAGE 2 OF 2 RELEASED ETCH BD REV. B
 RELEASED BY T. ORR

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
0005A	T. ORR	1-3-74	F	D		✓	REWORK FIELD UNITS ONLY AS NECESSARY OR CONVENIENT			ANY SYSTEM KNOWN TO FAIL SHOULD BE REWORKED.	CHANGE C36 FROM 56PF TO 150 PF	1	1
0006	R. LEWIS	10-4-74	H	D		✓		✓			REPLACE 38C WITH 8640	1	1

REVISIONS
 CHG. (ENG. NO.) REV.

DRG. D. SMITH DATE 10-5-72
 CHKD. D. SMITH DATE 10-5-72
 ENG. T. ORR DATE 10-23-72
 PROD. P. DOOLEY DATE 10-3-72

TITLE: MODULE ECO HISTORY
 EQUIPMENT CORPORATION
 WATUARD, MASSACHUSETTS

SIZE: B CODE: MH NUMBER: M72 56-0-6 REV.: J

DEC 16(4326) 1026-9971 DRB 104

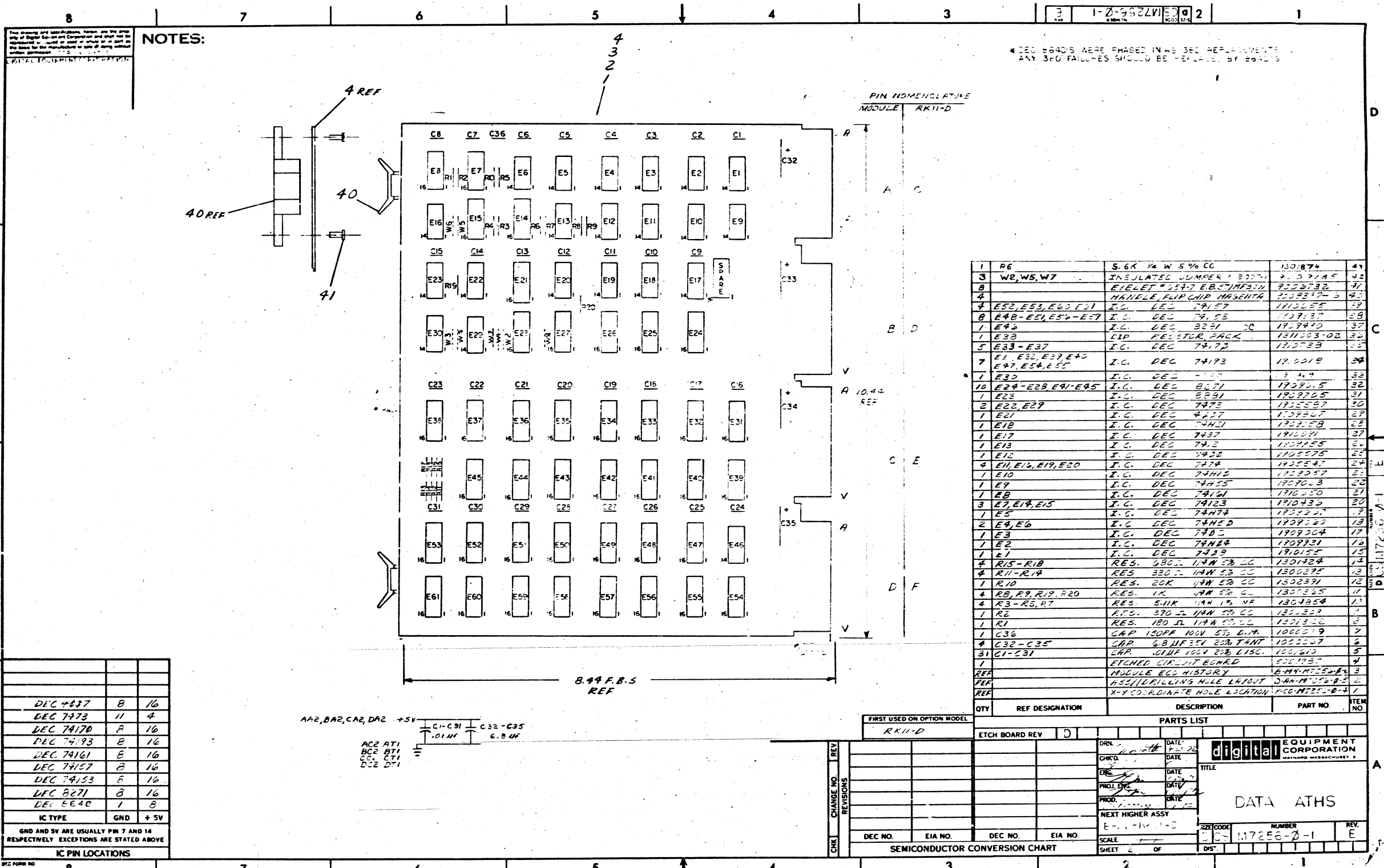
THIS DRAWING IS PART OF E.C.O. PACKAGE # M7256-00006 NOT TO BE USED FOR PRODUCTION

PAGE REVISION CONTROL SHEET		PAGE REVISIONS		REMARKS
SH NO.				
1	A			(DATA 1)
2	A	B		(DATA 2)
3	A	B	C	(DATA 3)
4	A	A	A	(DATA 4)
5	A	B	C	(DATA 5)
6	A	B	C	
7	A	B	C	
8	A	B	C	
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98	A	B	C	
99	A	B	C	
100	A	B	C	

FIRST USED ON OPTION/MODEL RK11-D		DATE 12-7-72	
digital EQUIPMENT CORPORATION <small>WATNARD MASSACHUSETTS</small>		DATE 8-6-73	
TITLE DATA PATHS (RK11-D)		DATE 6-23-73	
SIZE CODE B CS	NUMBER M7256-0-1	DATE 3/6/73	DATE 12-7-72
DIST. OF 7	REV. H	DATE 12-12-74	DATE 1-0-74

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NOTES:

* DEC 8640'S WERE PHASED IN AS 360 REPLACEMENTS. ANY 360 FAILURES SHOULD BE REPAIRED BY 8640'S

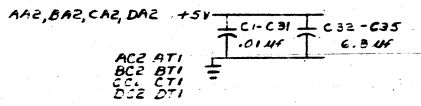
PIN NOMENCLATURE
MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R6	5.6K 1/4 W 5% CC	130874	41
3	W2, W5, W7	INSULATED JUMPER 1.000"	9229732	42
8		ELELET 154-7 EB-STAMPEN	2229732	43
4		HANDLE, FLIP CHIP MOUNT	2229732	44
4	E52, E53, E60 E61	I.C. DEC 74157	111255	47
8	E48-E51, E54-E57	I.C. DEC 74153	111255	48
1	E43	I.C. DEC 3271	1729720	49
1	E38	EEP RESISTOR PACK	1711303-02	50
5	E33-E37	I.C. DEC 74173	111255	51
7	E1, E32, E39, E40 E47, E54, E55	I.C. DEC 74173	1710019	52
1	E30	I.C. DEC 74173	1710019	53
10	E24-E28, E41-E45	I.C. DEC 8271	1729720	54
1	E23	I.C. DEC 8271	1729720	55
2	E22, E29	I.C. DEC 7473	1729720	56
1	E21	I.C. DEC 4257	1729720	57
1	E18	I.C. DEC 7473	1729720	58
1	E17	I.C. DEC 7473	1729720	59
1	E13	I.C. DEC 7473	1729720	60
1	E12	I.C. DEC 7473	1729720	61
4	E10, E14, E19, E20	I.C. DEC 7473	1729720	62
1	E10	I.C. DEC 7473	1729720	63
1	E9	I.C. DEC 7473	1729720	64
1	E8	I.C. DEC 7473	1729720	65
3	E7, E14, E15	I.C. DEC 7473	1729720	66
1	E5	I.C. DEC 7473	1729720	67
2	E4, E6	I.C. DEC 7473	1729720	68
1	E3	I.C. DEC 7473	1729720	69
1	E2	I.C. DEC 7473	1729720	70
1	E1	I.C. DEC 7473	1729720	71
4	R15-R18	RES. 680Ω 1/4W 5% CC	1301824	72
4	R11-R14	RES. 330Ω 1/4W 5% CC	1302275	73
1	R10	RES. 20K 1/4W 5% CC	1302371	74
4	R8, R9, R19, R20	RES. 1K 1/4W 5% CC	1303325	75
4	R3-R5, R7	RES. 511K 1/4W 5% NF	1304354	76
1	R2	RES. 390Ω 1/4W 5% CC	1304357	77
1	R1	RES. 180Ω 1/4W 5% CC	1304358	78
1	C36	CAP 150PF 100V 5% D.M.	1000019	79
4	C32-C35	CAP 6.8UF 35V 20% TANT	1000027	80
31	C1-C31	CAP. 0.1UF 100V 20% D.M.	1000012	81
1		ETCHED CIRCUIT BOARD	5001957	82
REF		MODULE ECG HISTORY	EM-M7256-B-3	83
REF		M55/DRILLING HOLE LAYOUT	EM-M7256-B-5	84
REF		X-Y COORDINATE HOLE LOCATION	EM-M7256-B-4	85

DEC NO.	REV.	DATE
DEC 4837	B	16
DEC 7473	11	4
DEC 74170	R	16
DEC 74193	B	16
DEC 74161	B	16
DEC 74157	B	16
DEC 74153	B	16
DEC 8271	B	16
DEC 8640	1	8
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14
RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS



FIRST USED ON OPTION MODEL
RK11-D

ETCH BOARD REV D

DATE: 8-22-73

DRN: [Signature]

CHKD: [Signature]

ENG: [Signature]

PROJ. ENGR: [Signature]

PROD. ENGR: [Signature]

NEXT HIGHER ASSY: [Signature]

SCALE: 1:1

SHEET 2 OF 2

SEMICONDUCTOR CONVERSION CHART

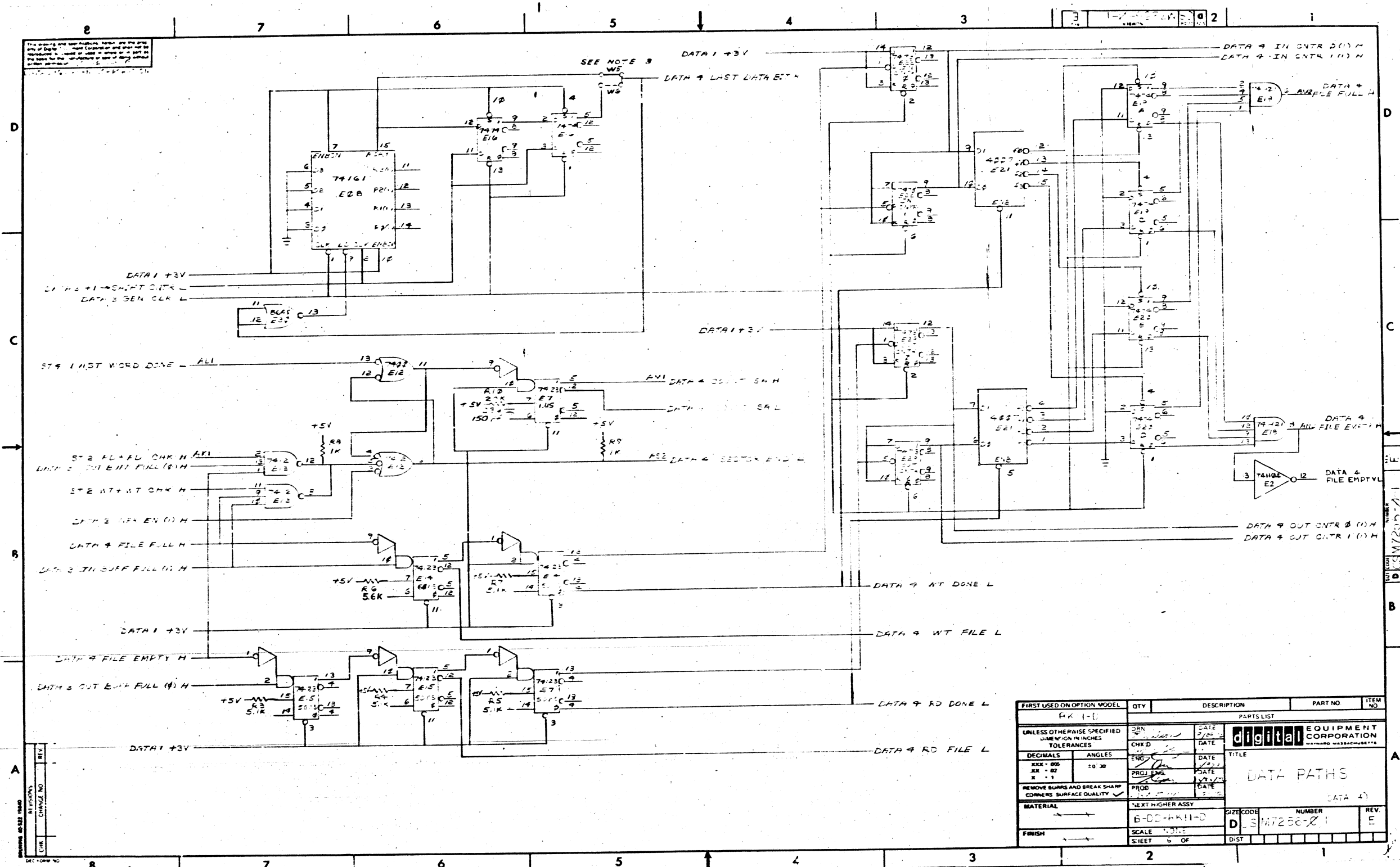
DATE: 8-22-73

TITLE: DATA ATHS

SIZE CODE: M7256-B-1

REV. 1

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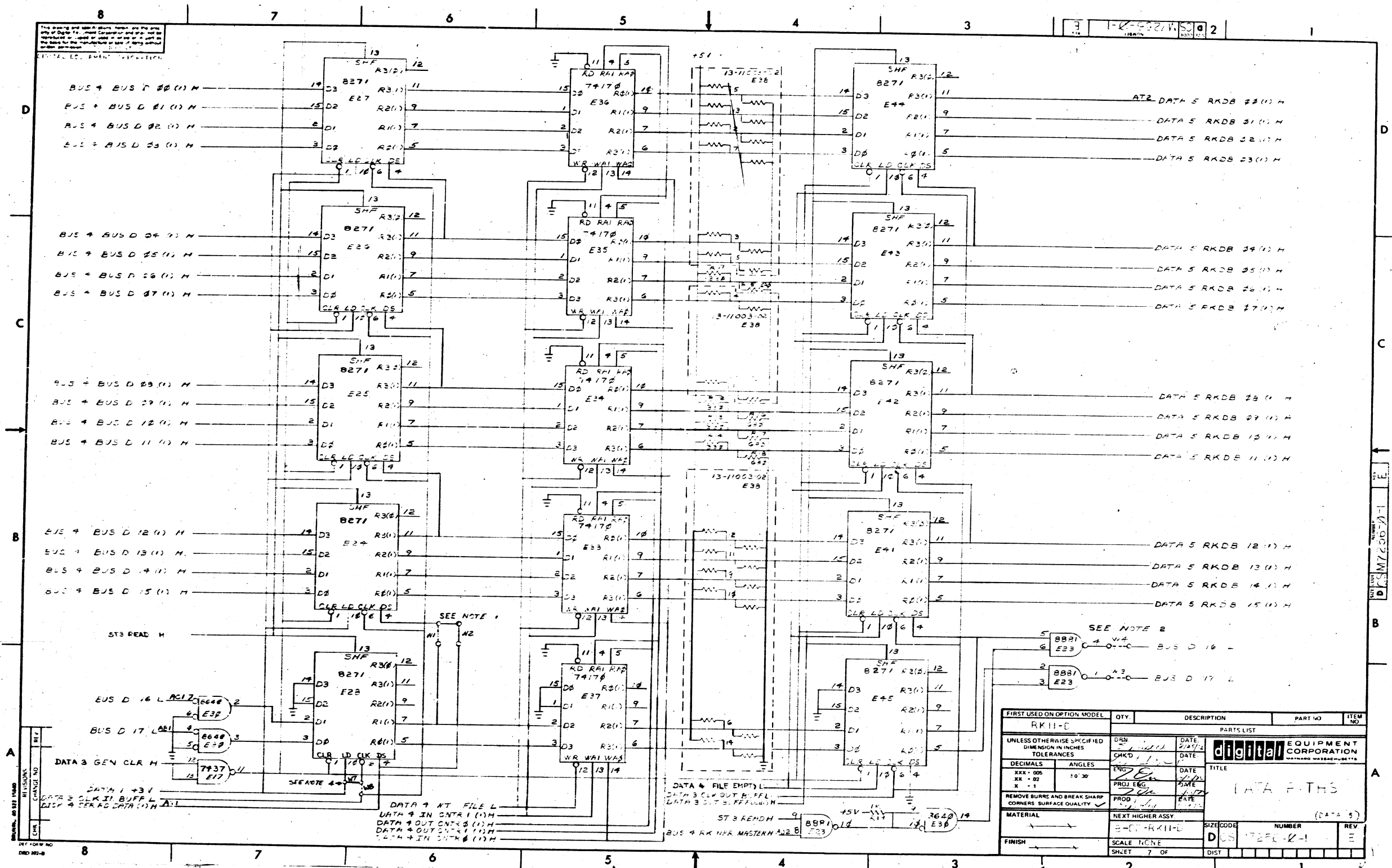


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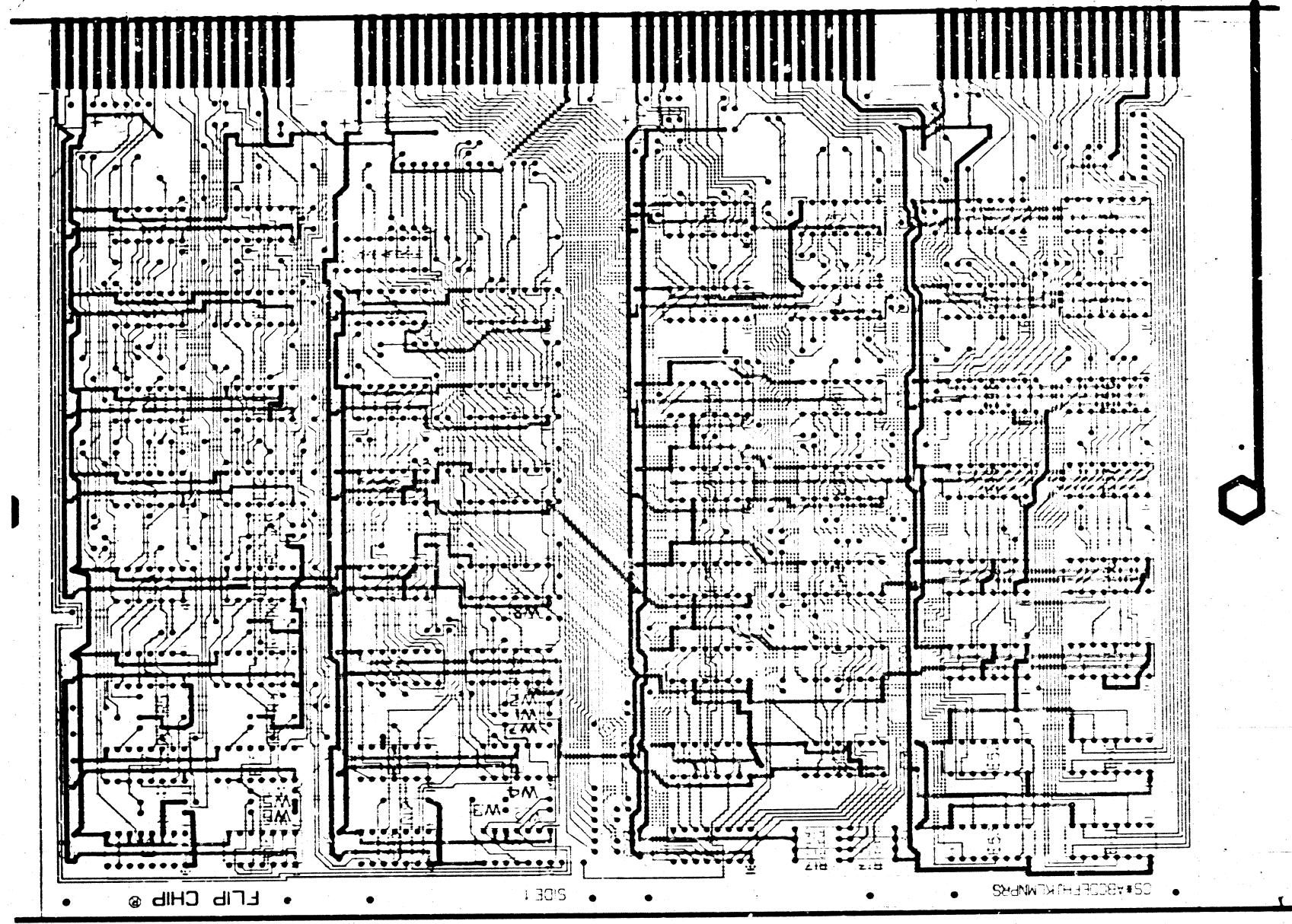
SEE NOTE 3

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
4X 1-1		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
DECIMALS	ANGLES	CHXD	DATE	TITLE
XXX - 005	10 30	ENG	DATE	DATA PATHS
XX - 02		PROJ ENG	DATE	
X - 1		PRGD	DATE	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY				
E-00-HK11-D		SIZE CODE	NUMBER	REV
		D	317256-Z-1	E
FINISH				
SCALE 1:1		SHEET 6 OF	DIST	

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50099870-PS M540081 M7256

FLIP CHIP

SIDE 1

CS#48CDEFFHJKLMPRS

BOARD FABRICATION INFORMATION

BOARD SIZE 6.50 X 11.75 PLATED THRU EYELET SIDED
 BOARD MATERIAL 52 THK 1 OZ. NOTCH BEFORE GOLD PLATING
 COPPER 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	# 61 DIA. (.039 DIA.)	X			

DATE	BY	CHKD	DATE	BY	CHKD
11/15/72	W. J. C.	W. J. C.	11/15/72	W. J. C.	W. J. C.
FIRST USED ON			REV		
M7256			M7256-C-5		
SHEET			DST		
OF			II		
digital EQUIPMENT CORPORATION					
ASSY/ DRILLING HOLE LAYOUT					

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIAD								
DRAFTSMAN	TRIAD								
CHECKER	TRIAD								

TITLE RK11-D DATA PATHS PROD. NO. M7256
 CHARGE NO. E20-06734 DATE 5-12-72 C.S. REV [H] [C]
 ENGINEER TOM CRR EXTENSION 2791 MS NO. 40091

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digital ENGINEERING CHANGE ORDER 9168		ORIGINATOR DICK LEWIS 1-2 TEL EXT 2814 DATE 11/16/72 DISC PROJ NO E2006734 COST CENTER NO 376	ECO NO. M7257-01001 SHEET 1 OF 1 DATE RECEIVED 12-30-72 FIRST ISSUE 12-4-72 FINAL ISSUE 12-18-72			
PROBLEM NPR REQ CAN GLITCH IN RK11-D WHEN USING INTERNAL SIGNALS AT THE END OF NPR SEQUENCE.			UNIT TO BE CHANGED 303 SWTRC M7257 ETCH REV B DESP CODE 03*			
CORRECTION BRING E4001 OUT TO PIN CM2 TO USE EXTERNAL SIGNAL TO CORRECT PROBLEM.			OPTIONS AFFECTED RK11-D,E			
BREAK-IN/EFFECTIVITY * IMMEDIATELY REWORK ALL M7257 REV B BOARDS			PRODUCT LINES AFFECTED FDP-11			
ITEM NO	DOCUMENT PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	D-CS-M7257-0-1 04 12 5	A	B	06	SHEET 1 & 2 - UPDATE REVISION SHEET 5 - SEE FINAL RELEASE DRAWING.	<input checked="" type="checkbox"/> MODEL
2	B-MH-M7257-0-6	*	A	06	SEE FINAL RELEASE DRAWING	<input type="checkbox"/> DIAGNOSTICS
3	SPRINGER-M7257 REWORK INSTRUCTIONS	B	E	03	MAKE FOLLOWING CHANGES TO ETCH: 1) DELETE CM2--E2905, E3903 2) DELETE E4001--E4704 3) ADD CM2--E4001	<input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PLANCH SPEC
4	D-AH-M7257-0-5	A	B	06	MAKE CORRECTIONS LISTED ABOVE.	<input type="checkbox"/> FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Change
DISPOSITION CODES					APPROVAL SIGNATURES	
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROF. I) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY					Typewritten / Hard Signature DESIGN ENGR TOM ORR ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)	

SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY) DRA-111C

PAGE REVISION CONTROL SHEET

SH NO.

PAGE REVISIONS

REMARKS

(BUS 1)
(BUS 2)
(BUS 3)
(BUS 4)

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SH NO.	DATE	ENG.	ETCH REV.	ECO NO.
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FIRST USED ON OPTION/MODEL
RK11-D

DRN. DATE

CHK'D. DATE

ENG. DATE

PROJ. ENG. DATE

PHOD. DATE

NEXT HIGHER ASSY.

B-DD-RK11-D

SCALE

SHEET 1 OF 6

TITLE

RUS CONTROL

(RK11-D)

SIZE CODE B

CS M7257-0-1

DIST.

NUMBER

REV. B

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M 7257-00001

REV. A
 NUMBER M7257-0-6
 SIZE CODE B

PRODUCT LINE PDP 11 MODULE ECO HISTORY
 DATE RELEASED 9-20-72 PAGE 1 OF 1
 RELEASED BY T. ORR RELEASED CS REV. A
 RELEASED ETCH BD REV. B

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			E40 01 TO CM2	0	0

REVISIONS
 CHG. NO. PREY
 000001A

DRN [Signature] DATE 9-21-72
 CHK'D [Signature] DATE 9-21-72
 ENG. [Signature] DATE 9-21-72
 PROD. [Signature] DATE 9-21-72

TITLE: MODULE ECO HISTORY
 EQUIPMENT CORPORATION SIZE CODE NUMBER REV.
 B MH M7257-0-6

DEC. 14-1971 (CS-497)
 DRB 104

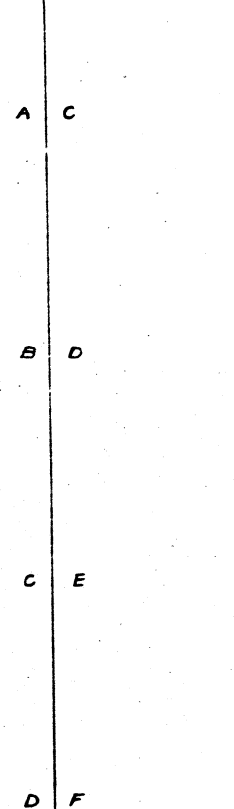
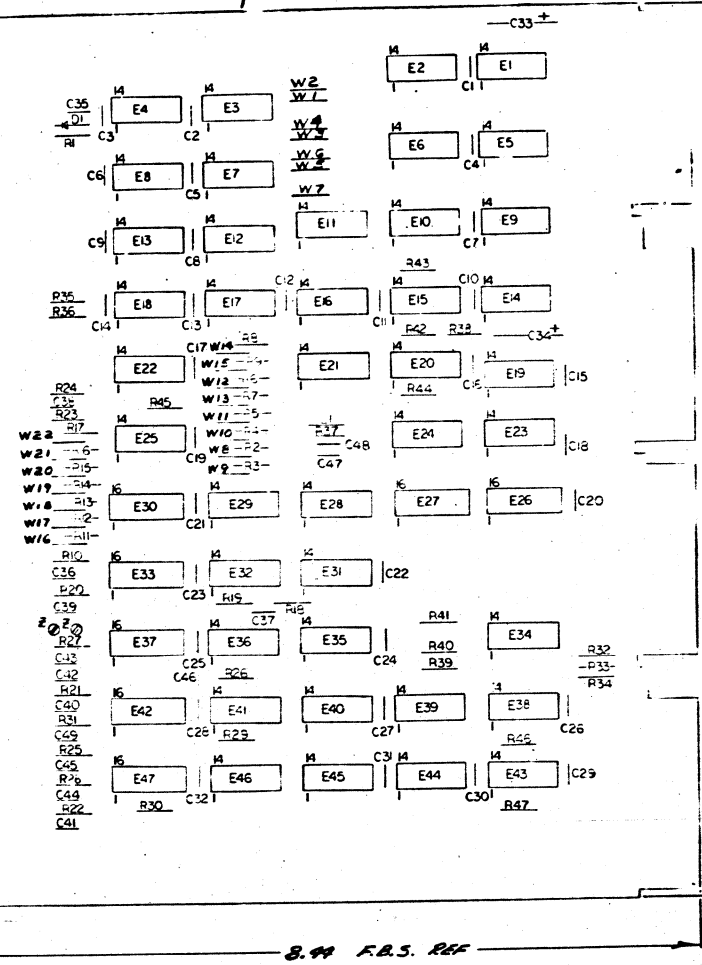
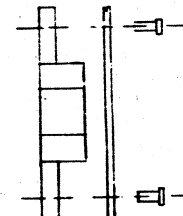
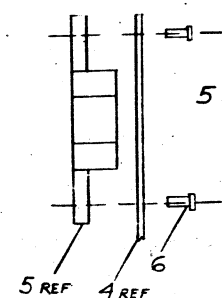
M 7257-00001

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NOTES:

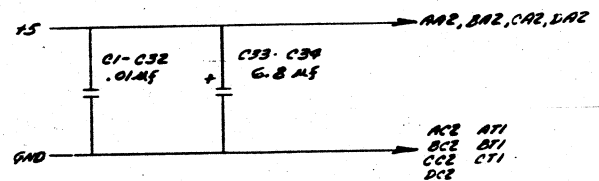
1-5-1

PIN NOMENCLATURE
MODULE RK11-D



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E1	OPAL 47MA	1610231	46
2		SR17 C005	9006735	45
22	W1-W22	INSULATED JUMPER (2007-1)	5005185	44
1	E21	I.C. DEC 7437	1910091	43
1	E20	I.C. DEC 7416	1905928	42
2	E22, E25	I.C. DEC 8242	1905712	41
7	E12, E13, E14, E15, E16, E17, E18	I.C. DEC 380	1905485	40
1	E9	I.C. DEC 314	1509704	39
1	E30	I.C. DEC 74151	1905936	38
4	E2, E35, E40, E45	I.C. DEC 7408	1910155	37
3	E38, E41, E44	I.C. DEC 74174	1905667	36
2	E31, E36	I.C. DEC 7474	1905547	35
3	E18, E19, E46	I.C. DEC 7384	1910393	34
12	R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47	I.C. DEC 5881	1907705	33
4	E23, E27, E42, E47	I.C. DEC 74123	1910436	32
1	E23	I.C. DEC 7420	1905377	31
1	E39	I.C. DEC 7400	1905375	30
2	E24, E43	I.C. DEC 7402	1905004	29
2	E26, E27	I.C. DEC 7492	1910046	28
2	R1, R18	RES. 100 Ω 1/4 W 5%	1900229	27
6	R9, R20, R21, R36, R41, R43	RES. 330 Ω 1/4 W 5%	1300309	26
6	R2, R23, R24, R35, R40, R42	RES. 180 Ω 1/4 W 5%	1301322	25
25	R2, R3, R11, R17, R19, R26, R28, R37, R38, R44, R46, R47	RES. 1K 1/4 W 5%	1300365	24
1	E27	RES. 47K 1/4 W 5%	1302177	23
7	R4, R20, R22, R25, R28, R31	RES. 5.6 K 1/4 W 5%	1301374	22
1	D1	DIODE D669	1100114	21
1	C48	CAP. 15 PF 100V 5% DM	1000007	20
2	C42, C46	CAP. 330 PF 100V 5% DM	1000023	19
1	C43	CAP. 1800 PF 100V 5% DM	1000424	18
1	C47	CAP. 100 PF 100V 5% DM	1000016	17
1	C36	CAP. 270 PF 100V 5% DM	1000022	16
1	C39	CAP. 33 PF 100V 5% DM	1000001	15
1	C40	CAP. 47 PF 100V 5% DM	1000011	14
1	C45	CAP. 18 PF 100V 5% DM	1002608	13
2	C49, C41	CAP. 10 PF 100V 5% DM	1000006	12
1	C44	CAP. 27 PF 100V 5% DM	1001739	11
33	C1-C32, C38	CAP. .01 μF 100V 20% DISC	1001610	10
2	C33, C34	CAP. 6.8 μF 35V 15% TANT	1005306	9
1	C37	CAP. 470 PF 100V 5% DM	1000024	8
1	C35	CAP. 1000 PF 100V 5% DM	1000042	7
1	B	EYELET (85-4-7) SIMPSON	9006732	6
1		HANDLE FLIP CHIP MARENTA	5008357-06	5
1		ETCHED CIRCUIT BOARD	5003530	4
1		MODULE ECO HISTORY	8-44-47257-4-6	3
1		ASYM-BELING HOLE LAYOUT	8-44-47257-0-5	2
1		X-Y COORDINATE HOLE LOCATION	8-44-47257-0-2	1

I.C. DEC 314	1	8	
I.C. DEC 7492	8	16	
I.C. DEC 74123	8	16	
I.C. DEC 74151	8	16	
I.C. DEC 380	1	8	
IC TYPE	GND	+5V	
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.			
IC PIN LOCATIONS			



FIRST USED ON OPTION MODEL: **RK11-D**

ETCH BOARD REV: **B**

REVISIONS

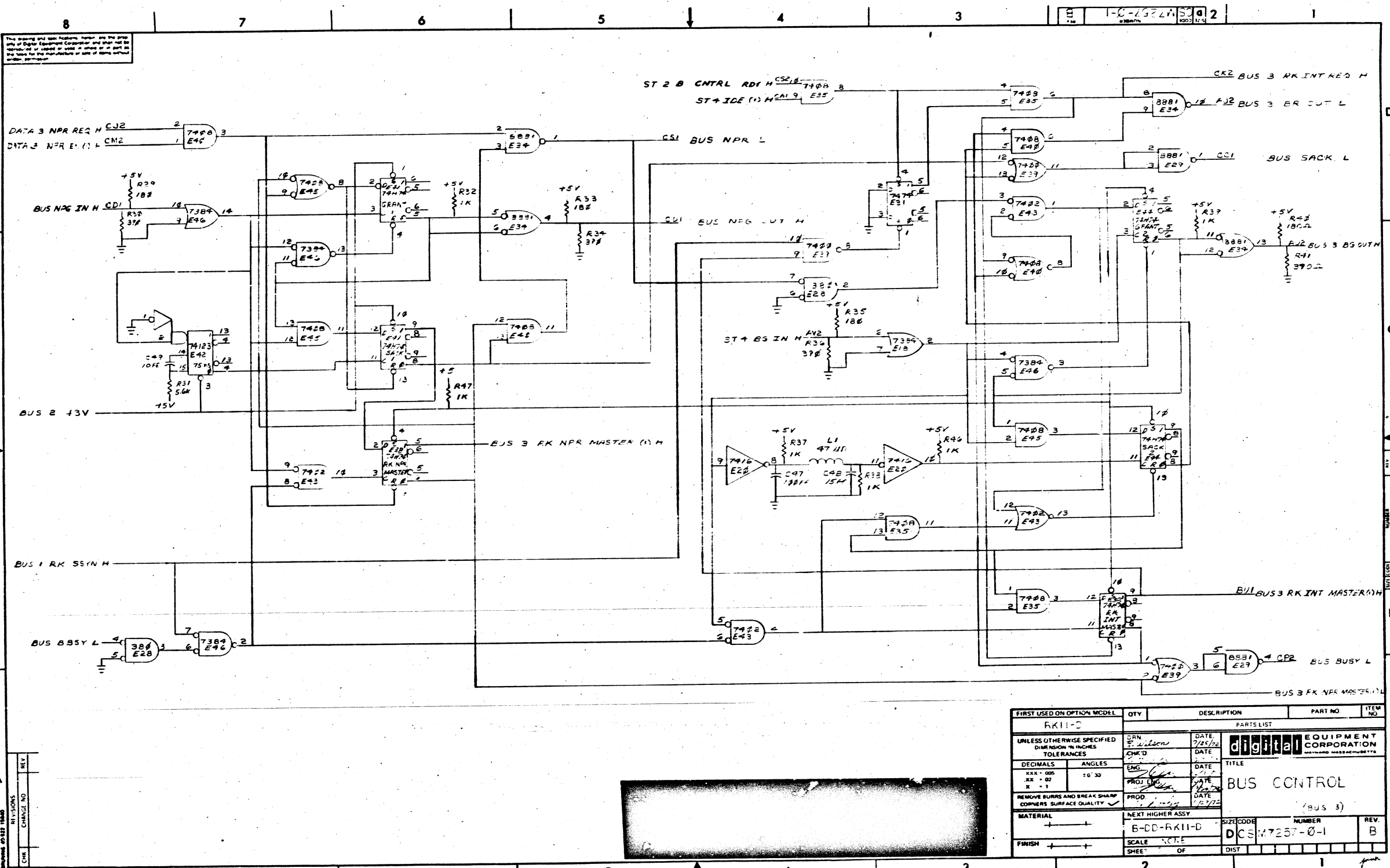
REV	DATE	DESCRIPTION
1	10/11/72	...
2	12/1/72	...
3	12/1/72	...
4	12/1/72	...
5	12/1/72	...
6	12/1/72	...
7	12/1/72	...
8	12/1/72	...
9	12/1/72	...
10	12/1/72	...

NEXT HIGHER ASSY: **B-DD-RK11-D**

SCALE: **NONE**

SHEET: **2 OF 2**

DIGITAL EQUIPMENT CORPORATION
BUS CONTROL
RK11-D
DICS M7257-0-1
REV. B

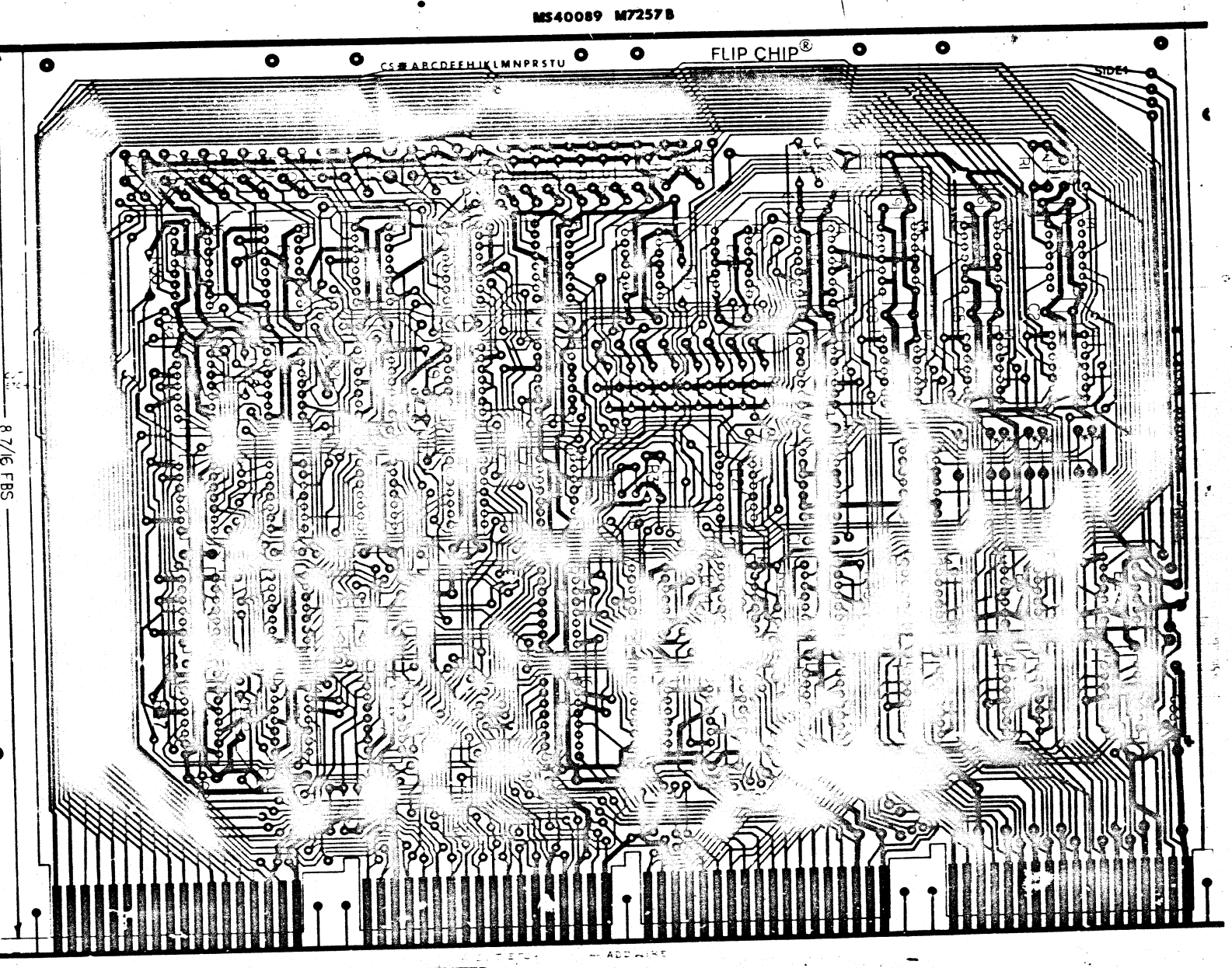


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FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN: <i>Wilson</i>	DATE: 7/25/70	DIGITAL EQUIPMENT CORPORATION	
DECIMALS: .005	CHK'D:	DATE:	TITLE: BUS CONTROL (BUS 3)	
ANGLES: $\pm 0^{\circ}30'$	ENG:	DATE:	NUMBER: DCSM7257-0-1	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG:	DATE: 8/27/70	REV: B	
MATERIAL:	PROD. DATE:	DATE: 8/27/70	SCALE: NONE	
FINISH:	DATE:	DATE:	SHEET: OF	
			DIST: 1	

REV. NO. CHANGE NO.

DCSM7257-0-1



BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 1OZ COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

DRILLING DATA

HOLE LETTER	FOR PTH BOARDS	DRILL SIZES		CAN TAKE GRIFLETS	QTY OF HOLES
		BEFORE AFTER PLATE	FOR NON-PTH BOARDS		
NONE	#56 DRILL (.065 DIA)	X	#54 DRILL (.055 DIA)	YES X NO	2
Z	#9 DRILL (.073 DIA)	X	#3 DRILL (.067 DIA)	X	

DRG. TRIAD	DATE	BY	CHKD.	DATE	BY
TR1AD	7/14/72	TR1AD	TR1AD	7/17/72	TR1AD
TITLE					
ASSY/DRILLING HOLE LAYOUT					
DRAWN BY					
SCALE 2/1					
PART USED ON					
DIA. M7257-0-5					
M7257					
M7257-0-5					

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRAD								
DR AFTSMAN	TRAD								
CHECKER	TRAD								

TITLE RKI-H BUS CONTROL
 CHANGE NO. EI-06734 DATE 5-12-72
 ENGINEER TOM ORR EXTENSION 2791
 PROD. NO. M7257
 C.S. REV.
 ETCH REV.
 MS NO. 40089

digital ENGINEERING CHANGE ORDER 9354		ORIGINATOR Dick Lewis, 1-2 TEL EXT 3006 DATE 2/20/73 DISC PROJ NO E20-06734 COST CENTER NO 378		ECO NO. M7257-000 2 SHEET 1 OF 1 DATE RECEIVED 2-21-73 FIRST ISSUE FINAL ISSUE 4/4/73	
PROBLEM The circuit used to filter bus MYSN causes glitches on the bus D lines during a DATO.				UNIT TO BE CHANGED M7257 Bus Control	
CORRECTION This filter is considered precautionary and should be removed.				DISP CODE 03 OPTIONS AFFECTED RK11-D,E	
BREAK-IN/EFFECTIVITY Immediate rework all M7257 (item #8 below).				PRODUCT LINES AFFECTED PDP-11	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1.	D-CS-M7257-0-1 Sheets 1 & 2 & 3	B	C	06	See final released drawings.
2.	D-AH-M7257-0-5	B	C	06	See final released drawings.
3.	B-MH-M7257-0-6	A	B	06	See final released drawings.
4.	1100114	-	-	00	Delete D664 (D1).
5.	1300229	-	-	00	Delete 100n resistor (R1).
6.	1000042	-	-	00	Delete 1000 pF cap (C35).
7.	9009185	-	-	00	Add insulated jumper.
8.	Rework instructions	-	-	03	Delete D1, R1, C35 and replace R1 with an insulated jumper.
DISPOSITION CODES				APPROVAL SIGNATURES	
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)	
DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PUP'H SPEC				FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input type="checkbox"/> Product Line Charge	
TYPE OF CHANGE				ORDER FR MODEL	
<input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

B 9-0-752LW B

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY				RELEASED CS REV. <u>A</u>							
DATE RELEASED <u>9-20-72</u>		PAGE <u>1</u> OF <u>1</u>				RELEASED ETCH BD REV. <u>B</u>							
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 OI TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3

REVISIONS	DATE	BY
00001 A		
00002 B		

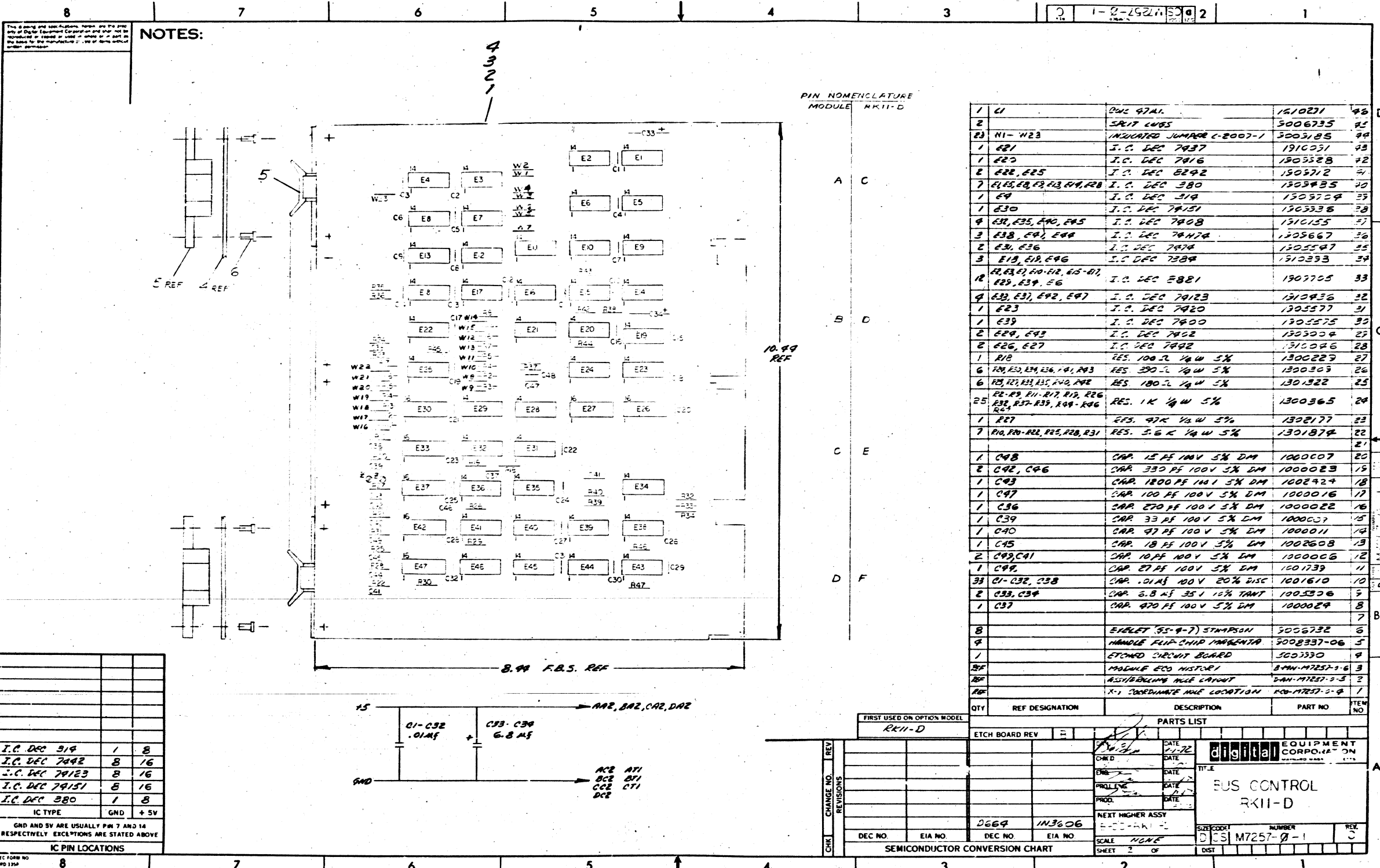
DRN	DATE
CHK'D	DATE
ENG	DATE
PROD	DATE

EQUIPMENT CORPORATION		MAYNARD, MASSACHUSETTS	
TITLE	MODULE ECO HISTORY	SIZE	CODE
NUMBER	M7257-0-6	REV.	B

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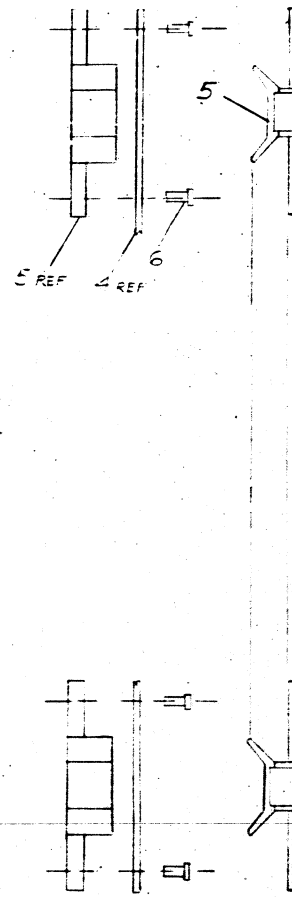
M7257-00002

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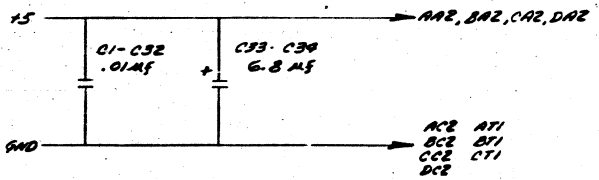
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NOTES:



IC TYPE	GND	+5V
I.C. DEC 319	1	8
I.C. DEC 7442	8	16
I.C. DEC 74123	8	16
I.C. DEC 74151	8	16
I.C. DEC 380	1	8

IC PIN LOCATIONS



PIN NOMENCLATURE
MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO	TEM NO
1	C1	DEC 97A1	1410271	48
2		SMT CAPS	5006735	45
23	N1-W23	INDICATED JUMPER C-2007-1	5003185	44
1	E21	I.C. DEC 7437	1910051	43
1	E22	I.C. DEC 7416	1905528	42
2	E22, E25	I.C. DEC 8242	1505712	41
7	E15, E18, E19, E23, E24, E28	I.C. DEC 380	1505735	40
1	E9	I.C. DEC 319	1505709	39
1	E30	I.C. DEC 74151	1505536	38
4	E31, E35, E40, E45	I.C. DEC 7408	1510155	37
3	E38, E41, E44	I.C. DEC 74174	1505667	36
2	E34, E36	I.C. DEC 7474	1505547	35
3	E16, E17, E46	I.C. DEC 7384	1510333	34
12	E1, E2, E7, E10, E12, E15, E17, E29, E39, E6	I.C. DEC 5881	1907705	33
4	E33, E37, E42, E47	I.C. DEC 74123	1510436	32
1	E23	I.C. DEC 7420	1505577	31
1	E39	I.C. DEC 7400	1505575	30
2	E49, E43	I.C. DEC 7402	1505009	29
2	E26, E27	I.C. DEC 7492	1510046	28
1	R18	RES. 100 Ω 1/4 W 5%	1300227	27
6	R14, R21, R24, R26, R41, R43	RES. 250 Ω 1/4 W 5%	1300303	26
6	R5, R22, R23, R25, R42, R46	RES. 180 Ω 1/4 W 5%	1301322	25
25	R2, R3, R11, R12, R13, R26	RES. 1 K 1/4 W 5%	1300365	24
1	R27	RES. 47K 1/4 W 5%	1302177	23
7	R10, R19, R22, R25, R28, R31	RES. 5.6 K 1/4 W 5%	1301874	22
1	C48	CAP. 15 PF 10V 5% DM	1000007	20
2	C42, C46	CAP. 330 PF 100V 5% DM	1000023	19
1	C43	CAP. 1800 PF 100V 5% DM	1002424	18
1	C47	CAP. 100 PF 100V 5% DM	1000016	17
1	C36	CAP. 270 PF 100V 5% DM	1000022	16
1	C39	CAP. 33 PF 100V 5% DM	1000007	15
1	C40	CAP. 47 PF 100V 5% DM	1000011	14
1	C45	CAP. 18 PF 100V 5% DM	1002608	13
2	C49, C41	CAP. 10 PF 100V 5% DM	1000006	12
1	C44	CAP. 27 PF 100V 5% DM	1001739	11
33	C1, C32, C38	CAP. .01MF 100V 20% DISC	1001610	10
2	C33, C34	CAP. 6.8 MF 35V 10% TANT	1005306	9
1	C37	CAP. 470 PF 100V 5% DM	1000024	8
8		ETIQUET (55-9-7) STAMPSON	5006732	6
4		HANDLE FLIP-CHIP MOUNTING	5008337-06	5
1		ETCHED CIRCUIT BOARD	5003330	4
25		MODULE ECO HISTORY	8-MN-M7257-1-6	3
25		ASSEMBLING HOLE CAYOUT	8-MN-M7257-1-3	2
25		X-1 COORDINATE HOLE LOCATION	8-MN-M7257-1-4	1

REV	DESCRIPTION	DATE	BY
1	INITIAL	2/72	
2	CHG		
3	ENR		
4	PROL		
5	PROD		

SEMICONDUCTOR CONVERSION CHART

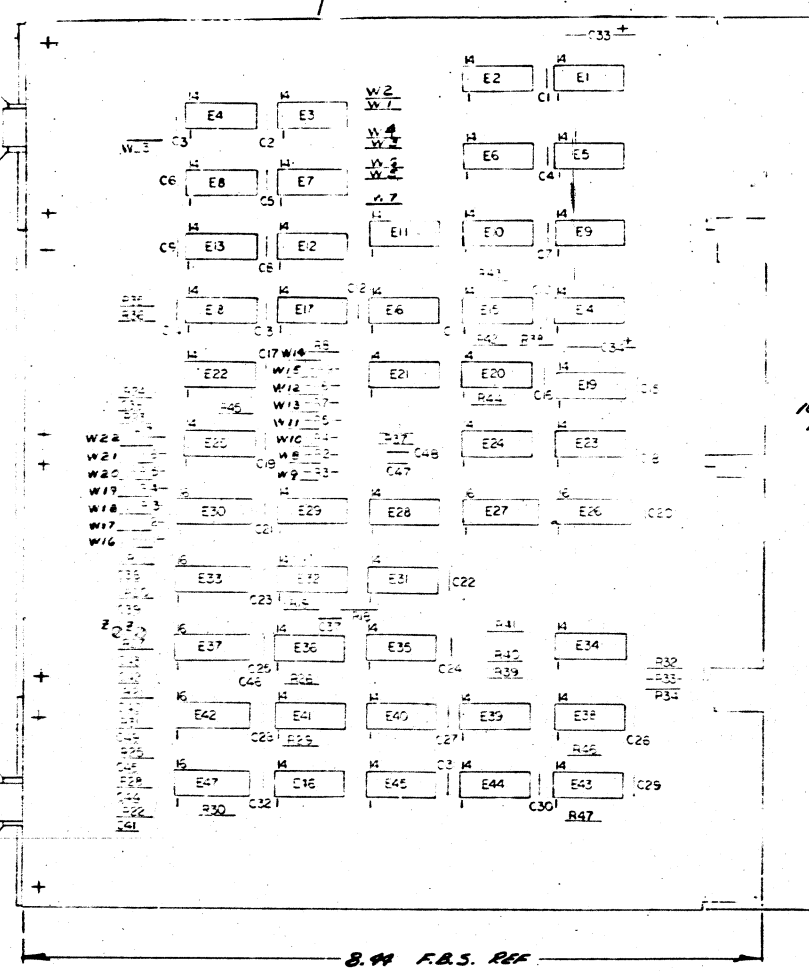
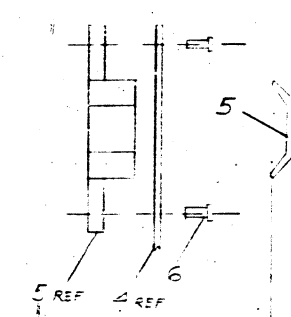
DEC NO.	EIA NO.	DEC NO.	EIA NO.
0664	M3606		

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M7257-00002

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NOTES:



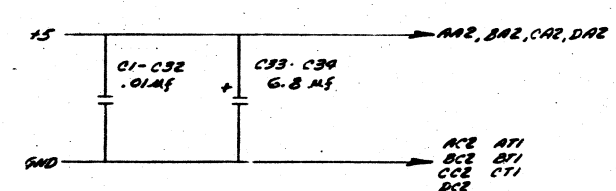
PIN NOMENCLATURE
MODULE RK11-D

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	C1	COND 97M.	1610271	48
2		SPLIT CAPS	5006735	45
23	N1-W23	INDICATED JUMPER C-2007-1	5003185	49
1	E21	I.C. DEC 7917	1910091	43
1	E22	I.C. DEC 7916	1903328	42
2	E22, E25	I.C. DEC 8292	1903712	41
7	E1, E2, E3, E4, E5, E6, E7	I.C. DEC 390	1903785	40
1	E4	I.C. DEC 319	1903724	39
1	E30	I.C. DEC 79151	1903336	38
4	E32, E35, E40, E45	I.C. DEC 7908	1910155	37
3	E38, E41, E44	I.C. DEC 79474	1905667	36
2	E31, E36	I.C. DEC 7974	1905547	35
3	E18, E19, E46	I.C. DEC 7984	1910233	34
12	E13, E14, E15, E16, E17, E18, E19, E20, E21, E22, E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36, E37, E38, E39, E40, E41, E42, E43, E44, E45, E46, E47	I.C. DEC 5881	1907705	33
4	E23, E31, E42, E47	I.C. DEC 79123	1910436	32
1	E23	I.C. DEC 7920	1905577	31
1	E39	I.C. DEC 7900	1905575	30
2	E28, E43	I.C. DEC 7902	1903004	29
2	E26, E27	I.C. DEC 7992	1910046	28
1	R19	RES. 100 Ω 1/4 W 5%	1300227	27
6	R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47	RES. 390 Ω 1/4 W 5%	1200309	26
6	R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47	RES. 180 Ω 1/4 W 5%	1301322	25
25	R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47	RES. 1 K 1/4 W 5%	1300365	24
1	R27	RES. 97K 1/4 W 5%	1302177	23
7	R10, R20, R22, R25, R28, R31	RES. 5.6 K 1/4 W 5%	1301874	22
1	C48	CAP. 15 PF 100V 5% DM	1000007	20
2	C42, C46	CAP. 330 PF 100V 5% DM	1000023	19
1	C43	CAP. 1800 PF 100V 5% DM	1002424	18
1	C47	CAP. 100 PF 100V 5% DM	1000016	17
1	C36	CAP. 270 PF 100V 5% DM	1000022	16
1	C39	CAP. 33 PF 100V 5% DM	1000007	15
1	C40	CAP. 97 PF 100V 5% DM	1000011	14
1	C45	CAP. 18 PF 100V 5% DM	1002608	13
2	C49, C41	CAP. 10 PF 100V 5% DM	1000006	12
1	C44	CAP. 27 PF 100V 5% DM	1001739	11
33	C1-C32, C38	CAP. .01 μF 100V 20% DISC	1001610	10
2	C33, C34	CAP. 6.8 μF 35V 10% TANT	1005304	9
1	C37	CAP. 470 PF 100V 5% DM	1000024	8
8		EXHAUST (55-B-7) STAMPSON	5006732	6
4		HANDLE FLIP CHIP MARGENTA	5008337-06	5
1		ETCHED CIRCUIT BOARD	5003390	4
REF		MODULE ECO HISTORY	BMH-M7257-0-6	3
REF		ASSY/BUILDING WIRE LAYOUT	DAN-M7257-0-5	2
REF		X-Y COORDINATE WIRE LOCATION	R30-M7257-0-4	1

I.C. DEC	QTY	REF
I.C. DEC 319	1	8
I.C. DEC 7992	8	16
I.C. DEC 79123	8	16
I.C. DEC 79151	8	16
I.C. DEC 390	1	8
I.C. TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

I.C. PIN LOCATIONS

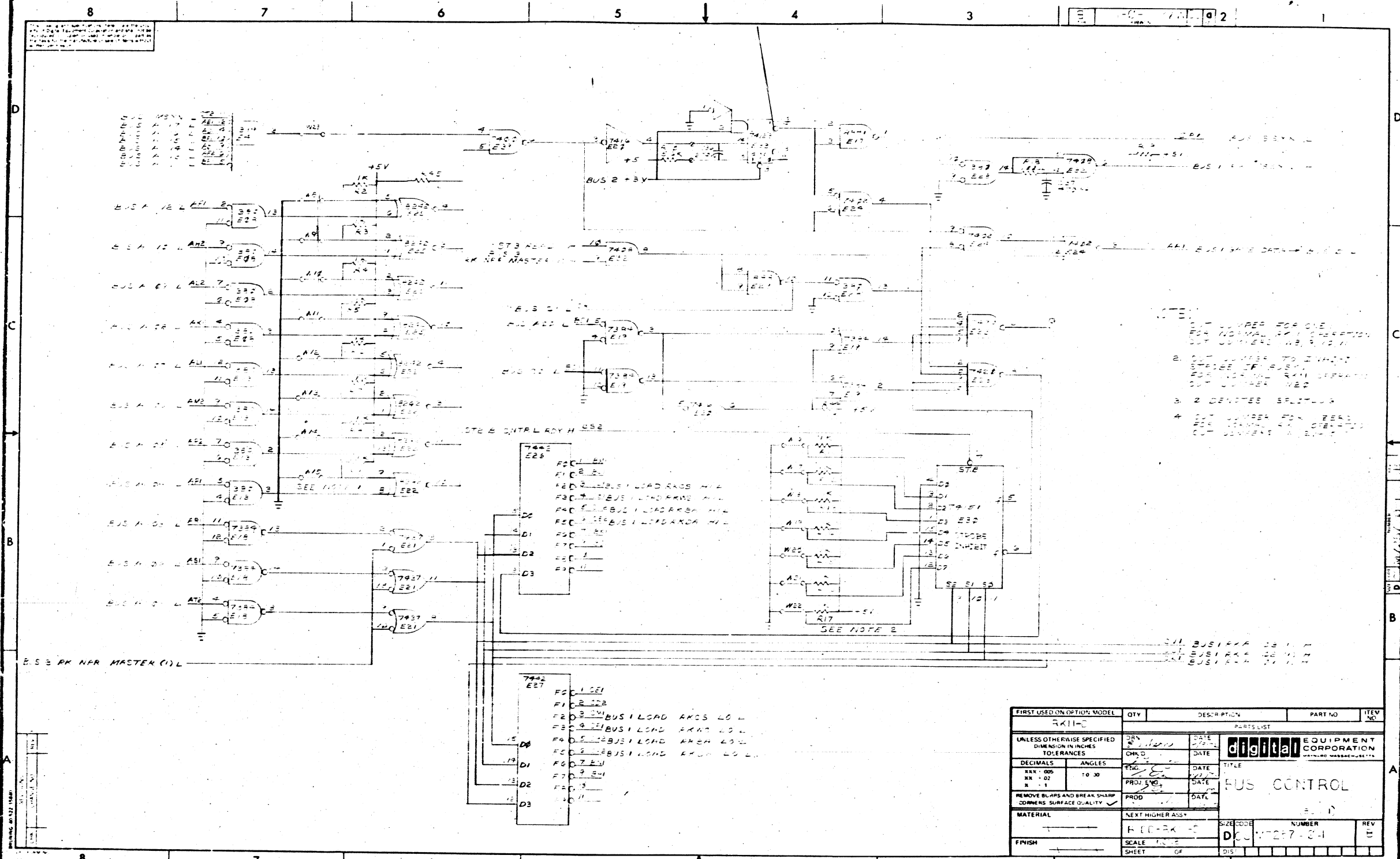


REV	DESCRIPTION	DATE	BY
1	ETCH BOARD REV	B	

DEC. NO.	EIA NO.	DEC. NO.	EIA NO.
2664	1N3606		

SIZE CODE	NUMBER	REV.
DCS	M7257-0-1	2

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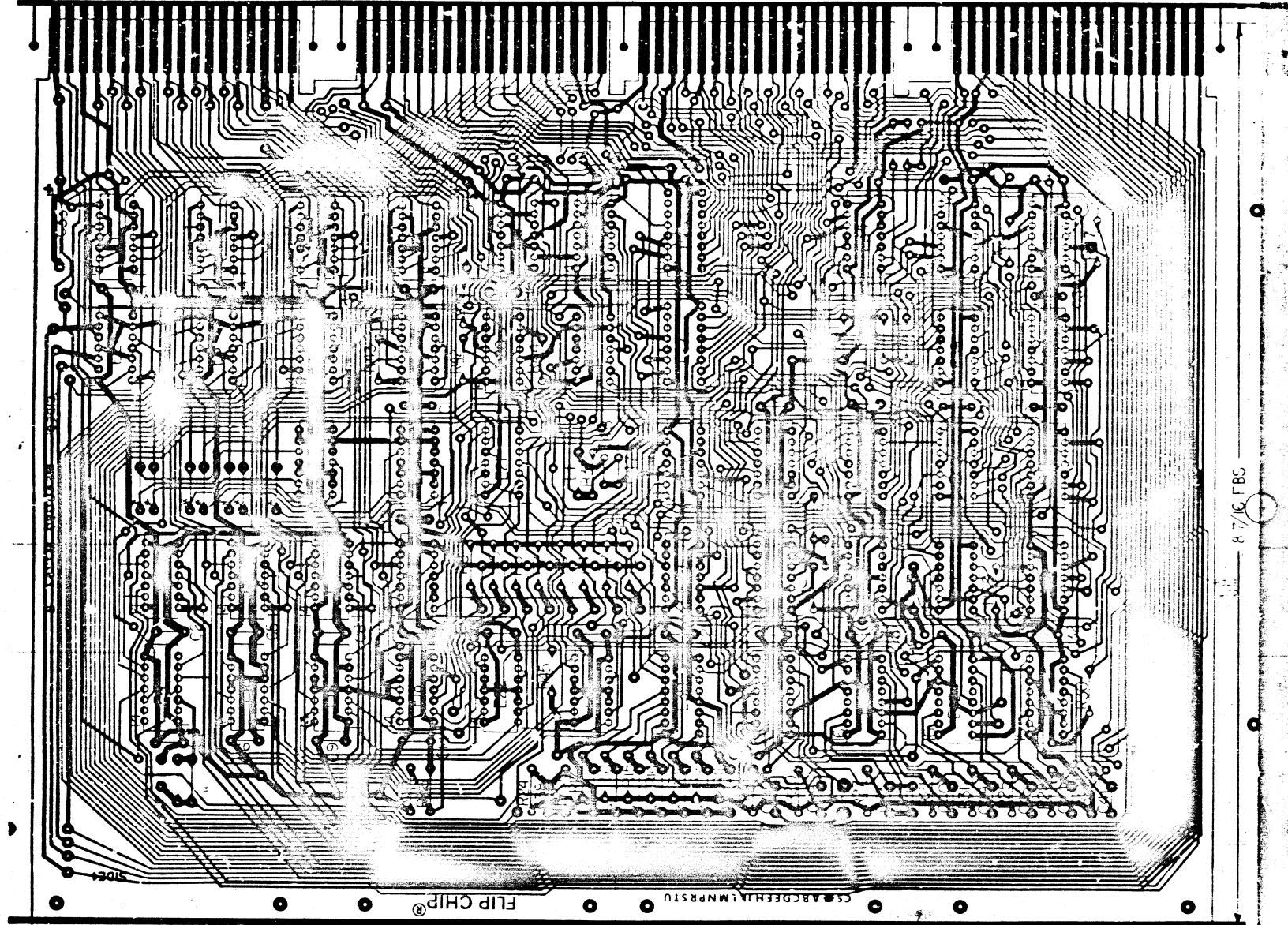
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
 DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY
 DIMENSIONS IN SQUARE BRACKETS ARE FOR INFORMATION ONLY

- 1. CUT DIMENSIONS FOR ONE FOR NORMAL OPERATION. CUT DIMENSIONS 2, 3, 4, 5.
- 2. CUT DIMENSIONS TO EXPOSE STORAGE IF BUSY FOR NORMAL OPERATION. CUT DIMENSIONS 2, 3.
- 3. 2 DIMENSIONS SPACED.
- 4. CUT DIMENSIONS FOR TEST. CUT DIMENSIONS 2, 3, 4, 5.

7420 E27	F0	1	CE1
	F1	2	CE2
	F2	3	BUS1 LOAD AKCS LG L
	F3	4	BUS1 LOAD AKCS LG L
	F4	5	BUS1 LOAD AKCS LG L
	F5	6	BUS1 LOAD AKCS LG L
	F6	7	AK
	F7	8	AK
	F8	9	AK
	F9	10	AK

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
AK11-C		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES		DATE	digital EQUIPMENT CORPORATION	
TOLERANCES		CHK'D	DATE	
DECIMALS	ANGLES	ENG	DATE	
XXX - 000	10 30	PROJ ENGR	DATE	
		PROD	DATE	
REMOVE BLURS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY		
MATERIAL		SCALE	SIZE CODE	NUMBER
FINISH		SHEET	DIG 17257-3-4	REV
		OF		5

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 10Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	#56 DRILL (.0465 DIA)	X	#54 DRILL (.055 DIA)	X	2
'Z'	#49 DRILL (.073 DIA)	X	#51 DRILL (.067 DIA)	X	

DATE	7/12/72	TITLE	ASSY/ DRILLING HOLE LAYOUT
DRAWN BY	TRIAID	DESIGNED BY	DIAH
CHECKED BY	TRIAID	DATE	5-12-72
PROJ. NO.	M7257	REV.	C
PROJ. NAME		EXTENSION	2791
SCALE	2:1	MS NO.	40089
PRINTED ON			

REVISIONS	A	B	C	D	E	F	H	J	K	TITLE	RK1-HD BUS CONTROL
DESIGNER	TRIAID									CHARGE NO.	E11-06734
DRAFTSMAN	TRIAID									DATE	5-12-72
CHECKER	TRIAID									ENGINEER	TOM ORR
										EXTENSION	2791
										MS NO.	40089

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M7257-00002

NOT TO BE USED FOR PRODUCTION

PAGE REVISION CONTROL SHEET																				
SH NO.	PAGE REVISIONS						REMARKS	FIRST USED ON OPTION/MODEL												
	DATE	ENG.	ETCH	ECO	NO.	REV.		DATE	NO.											
1	A	B	C	D								(BUS 1) (BUS 2) (BUS 3) (BUS 4)								
2	A	B	C	D																
3	A	B	C	D																
4	A	B	C	D																
5	A	B	C	D																
6	A	B	C	D																

digital EQUIPMENT CORPORATION		BUS CONTROL	
DATE	DATE	DATE	DATE
CHK'D.	ENG.	PROJ. ENG.	PROD.
NEXT HIGHER ASSY.			
B-01 RKI1-D		SCALE	SHEET 1 OF 6
DATE	NO.	REV.	ECO

**THIS DRAWING IS PART
OF E.C.O. PACKAGE #**

M7257-00003

**NOT TO BE USED
FOR PRODUCTION**

9-0-1521W

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY		RELEASED CS REV. <u>A</u>	
DATE RELEASED <u>9-20-72</u>		PAGE <u>1</u> OF <u>1</u>		RELEASED ETCH BU REV. <u>B</u>	
RELEASED BY <u>T. ORR</u>					

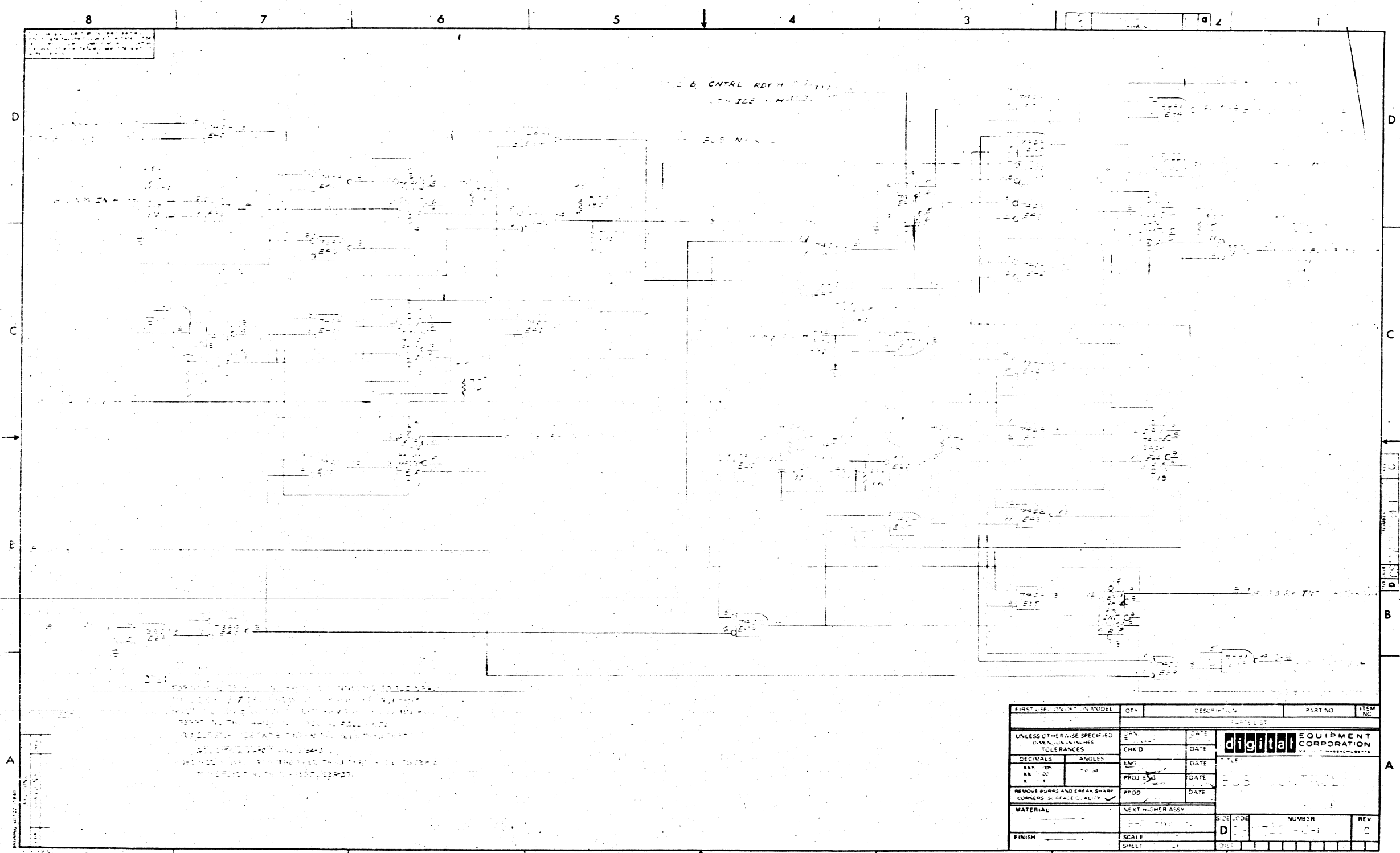
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B							E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B							REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B			REWORK ONLY NECESSARY IN 11/15 OR 11/20 SYSTEMS WITHOUT KH-11				REMOVE BUS NPR FROM E2807		

DRN	DATE	TITLE	SIZE	CODE	NUMBER	REV.
CHK'D	DATE	MODULE ECO HISTORY	B	MH	M7257-0-6	C
ENG	DATE	EQUIPMENT CORPORATION				
PROD	DATE	MAYNARD, MASSACHUSETTS				

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7257-00003

NOT TO BE USED FOR PRODUCTION

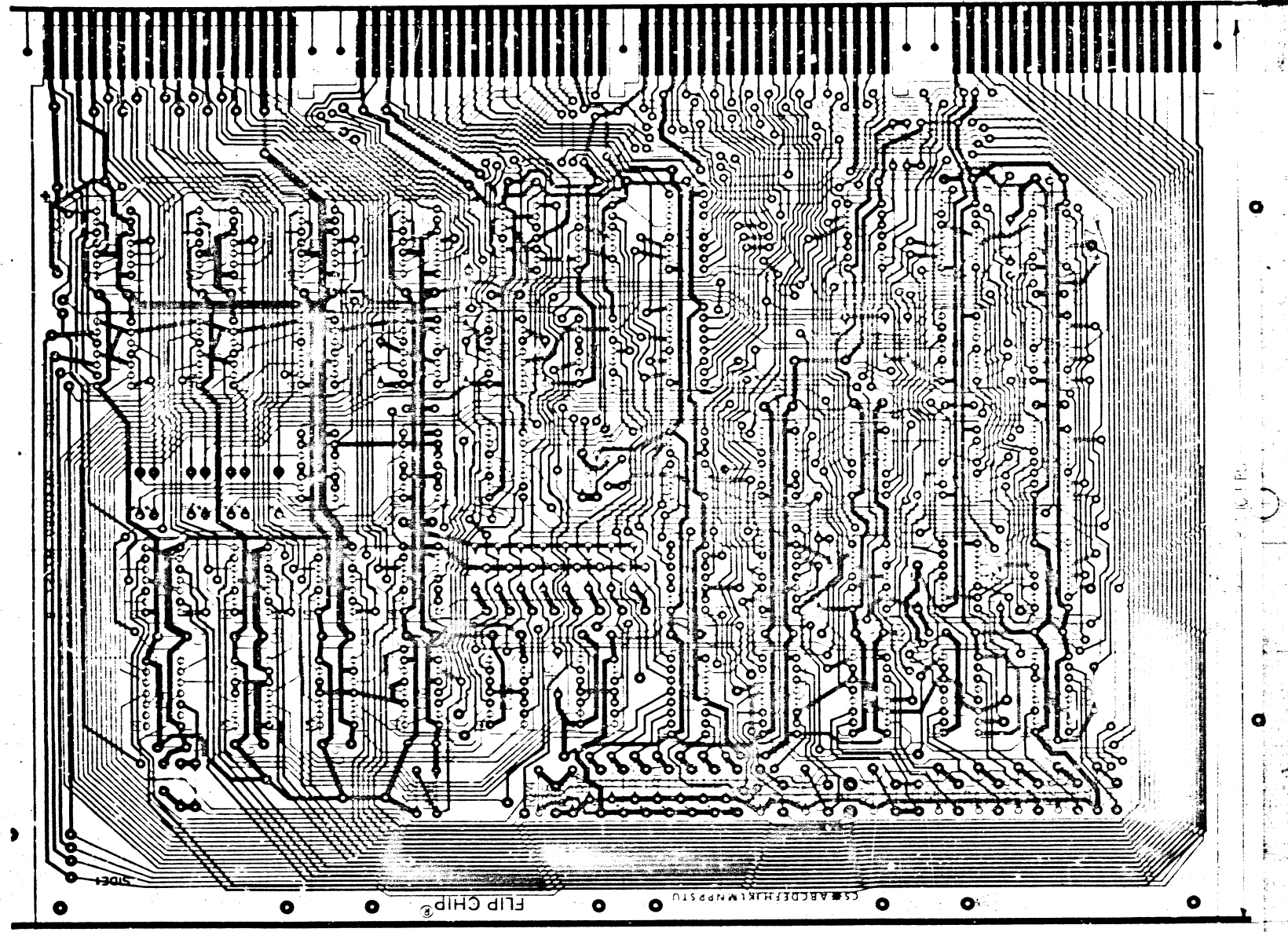


**THIS DRAWING IS PART
OF E.C.O. PACKAGE #**

M7257-00003

**NOT TO BE USED
FOR PRODUCTION**

FIRST USE ONLY IN MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	CHK'D	DATE	digital EQUIPMENT CORPORATION MASSACHUSETTS	
DECIMALS	ENGR	DATE		
ANGLES	PROJ ENGR	DATE	BUS CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS & REFACE QUALITY	PROD	DATE		
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER	REV
FINISH	SCALE	DIST		
	SHEET			



BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 1OZ COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILL SIZES		FOR NON-PTH BOARDS		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE	YES	NO	YES	NO	
NONE	#56 DRILL (.0465 DIA)	X			X		
Z	#49 DRILL (.073 DIA)	X	#54 DRILL (.055 DIA)			X	
			#3 DRILL (.067 DIA)				

DATE	7/14/72	DATE	7/14/72	DATE	7/14/72	DATE	7/14/72
DESIGNED BY	TRIAID	DESIGNED BY	TRIAID	DESIGNED BY	TRIAID	DESIGNED BY	TRIAID
PROJ. ENG.		PROJ. ENG.		PROJ. ENG.		PROJ. ENG.	
PROJ. MGR.		PROJ. MGR.		PROJ. MGR.		PROJ. MGR.	
FIRST USED ON	M7257	FIRST USED ON	M7257	FIRST USED ON	M7257	FIRST USED ON	M7257
SHEET	21	SHEET	21	SHEET	21	SHEET	21
OF		OF		OF		OF	
EQUIPMENT CORPORATION				ASSY/DRILLING HOLE LAYOUT			

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIAID								
DRAFTSMAN	TRIAID								
CHECKER	TRIAID								

TITLE RK11-D BUS CONTROL
 CHARGE NO. E11-06734 DATE 5-12-72
 ENGINEER TOM ORR EXTENSION 2791 MS NO. 40089
 PROD. NO. M7257
 C.S. REV
 ETCH REV B

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7257-00003

NOT TO BE USED FOR PRODUCTION

digital
ENGINEERING
CHANGE ORDER #16

ORIGINATOR: Richard Lewis 1-3
TEL EXT: 4629 DATE: 10/15/73
DUC PROJ NO: E28-86734
COST CENTER NO: 395

ECO NO. M7257-001
SHEET 1 OF 2
DATE RECEIVED: 11/21
FIRST ISSUE: 10-24-73
FINAL ISSUE: 11/23/73

PROBLEM
The Unibus NPG and BG lines are not properly terminated on the M7257 bus control module.

CORRECTION
Remove the terminator resistors R29, R34, R35 and R41 from the NPG and BG lines. NOTE: The M7257 is operating properly. The resistors are being removed only to make the module consistent with the Unibus specification.

BREAK INEFFECTIVITY *Retrofit all units leaving Puerto Rico after Nov. 12 and all units built in Westfield after Nov. 12. Retrofit fit all others as required or as convenient.

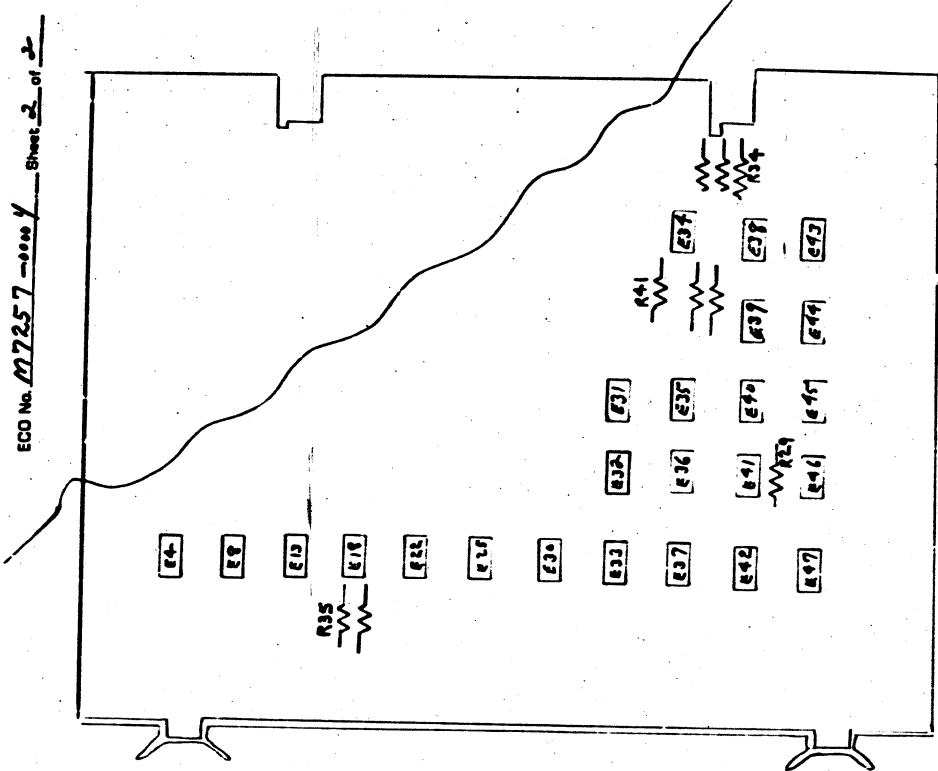
ITEM NO.	DOCUMENT/PART NO.	REV	DESCRIPTION OF CHANGE
1	D-CS-M7257-β-1 Sheet 1 Sheet 2 Sheet 5	D C C D E C	β6 Update revisions per this ECO β6 Delete R29, R34, R35, R41 from the parts list and overlay β6 Delete R29, R34, R35, and R41 β6 Delete R29, R34, R35, and R41 β6 Update per this ECO
2	D-AH-M7257-β-5	-	β6 Delete two 180 Ω resistors, R29, R35
3	B-MH-M7257-β-6	-	β6 Delete two 390 Ω resistors, R34, R41
4	1381322	-	
5	1300309	-	

DISPOSITION CODES

00 - RETURN TO STOCK
01 - UNLATERATED
02 - USE PREPSTOCK UNTIL NEW STOCK AVAILABLE (PHASE IN)
03 - USE PREPSTOCK IMMEDIATELY (RETIROFIT)
04 - (OP-ATTN)
05 - (OPERATION)
06 - (OPERATION)
07 - NEW ITEM (THIS AGENCY)
08 - NEW ITEM (THIS COMPANY)
09 - SCRAP IMMEDIATELY

APPROVAL SIGNATURES:
DRAGON ENGR: [Signature]
ENG MGR (OPT): [Signature]
FIELD SERVICE (OPT): [Signature]
CHIEF ENGR (MODULES ONLY): [Signature]

11 CENTRAL ENG.
ECO COMMITTEE



DELETE RESISTORS R29, R34, R35, R41

digital
FIELD ORDER CHANGE ORDER

FIELD NUMBER: M7257-0001
PAGE 1 OF 1

FIELD ORDER NO: M7257-0001

FIELD ORDER TITLE: REWORK all M7257's as convenient

FIELD ORDER DATE: 11-21-73

FIELD ORDER TIME: 1.5 HOURS

FIELD ORDER LOCATION: WESTFIELD

FIELD ORDER APPROVAL: Roy Evans

FIELD ORDER PARTS REQUIRED: NONE

FIELD ORDER COMMENTS: DELETE RESISTORS R29, R34, R35, R41

FIELD ORDER APPROVAL SIGNATURE: [Signature]

FIELD ORDER APPROVAL DATE: 11-21-73

FIELD ORDER APPROVAL TITLE: ENGR

9-0-1521W
 B SIZE CODE
 MH NUMBER
 D

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY				RELEASED CS REV. <u>A</u>							
DATE RELEASED <u>9-20-72</u>		PAGE <u>1</u> OF <u>1</u>				RELEASED ETCH BD REV. <u>B</u>							
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 11/15 OR 11/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG+BG LINES	—	4

REV. NO.	DATE	BY
00001		
00002		
00003		
00004		

DRN. [Signature] DATE 9-21-72
 CHK'D. [Signature] DATE 9-21-72
 ENG. [Signature] DATE 9-21-72
 PROD. [Signature] DATE 9-21-72

TITLE: MODULE ECO HISTORY
 EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS
 SIZE: B CODE: MH NUMBER: M7257-0-6 REV: D

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M7257-00004

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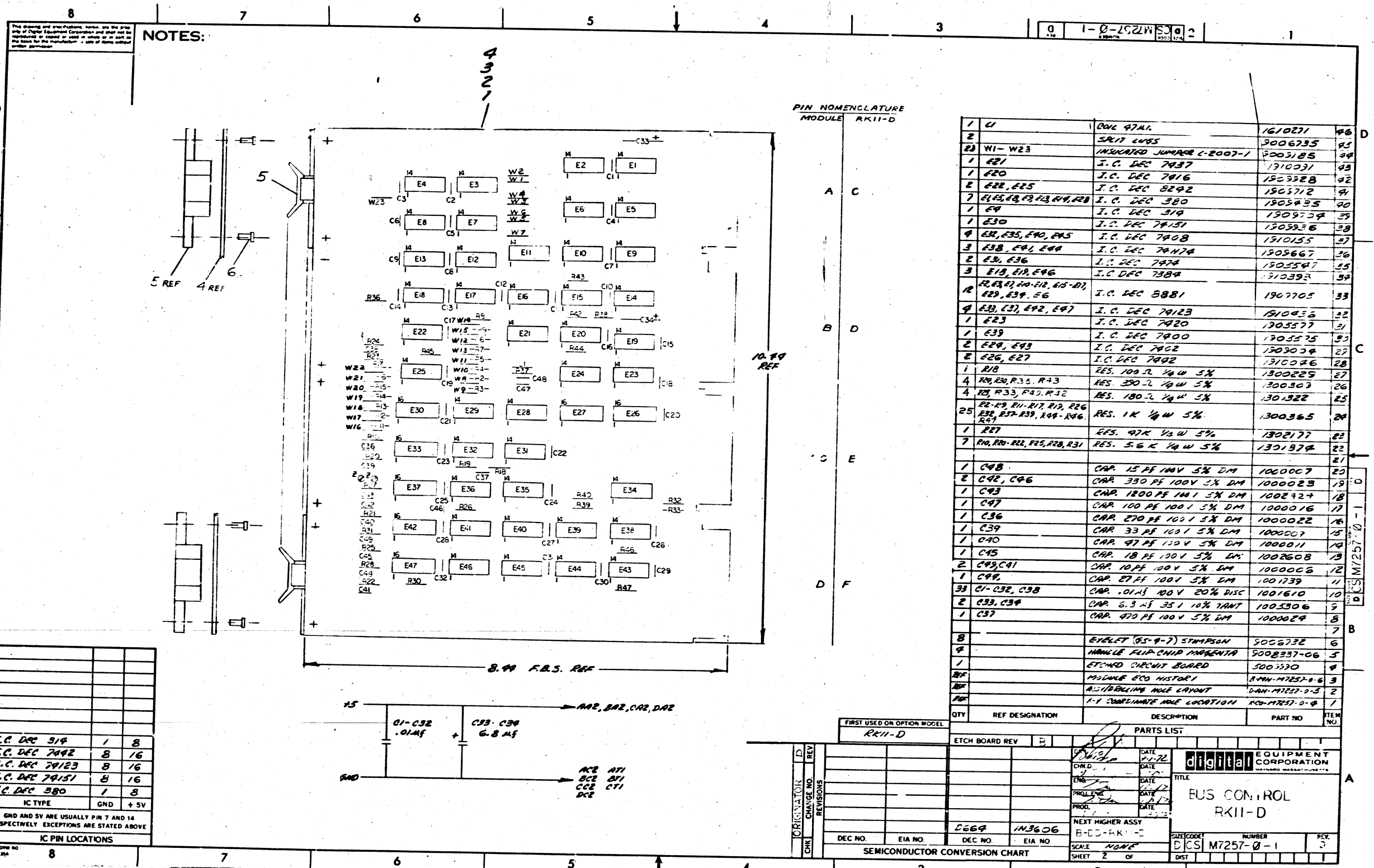
PAGE REVISION CONTROL SHEET														
SH NO.	PAGE REVISIONS												REMARKS	
	A	B	C	D	E	F	G	H	I	J	K	L		
1	A	B	C	D	E									(BUS 1) (BUS 2) (BUS 3) (BUS 4)
2	A	B	C	D	E									
3	A	A	B	B	B									
4	A	A	A	A	A									
5	A	B	B	L	U									
6	A	A	A	A	A									

DATE		FIRST USED ON OPTION/MODEL	
ETCH NO.	RK11-D		
ENG. REV.			
DATE			
12-11-70	B	00001	
2-6-73	B	00002	
5-22-73	B	00003	
11-13-73	D	00004	
DRAWN			
CHK'D.			
ENG.			
PROJ. ENG.			
PROD.			
DATE			
DATE			
DATE			
DATE			
DATE			
NEXT HIGHER ASSY.			
B-DD-RK11-D			
SCALE			
SHEET 1 OF 6			
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digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		TITLE BUS CONTROL	
SIZE CODE B CS		NUMBER M7257-0-1	
REV. F			

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M7257-00004

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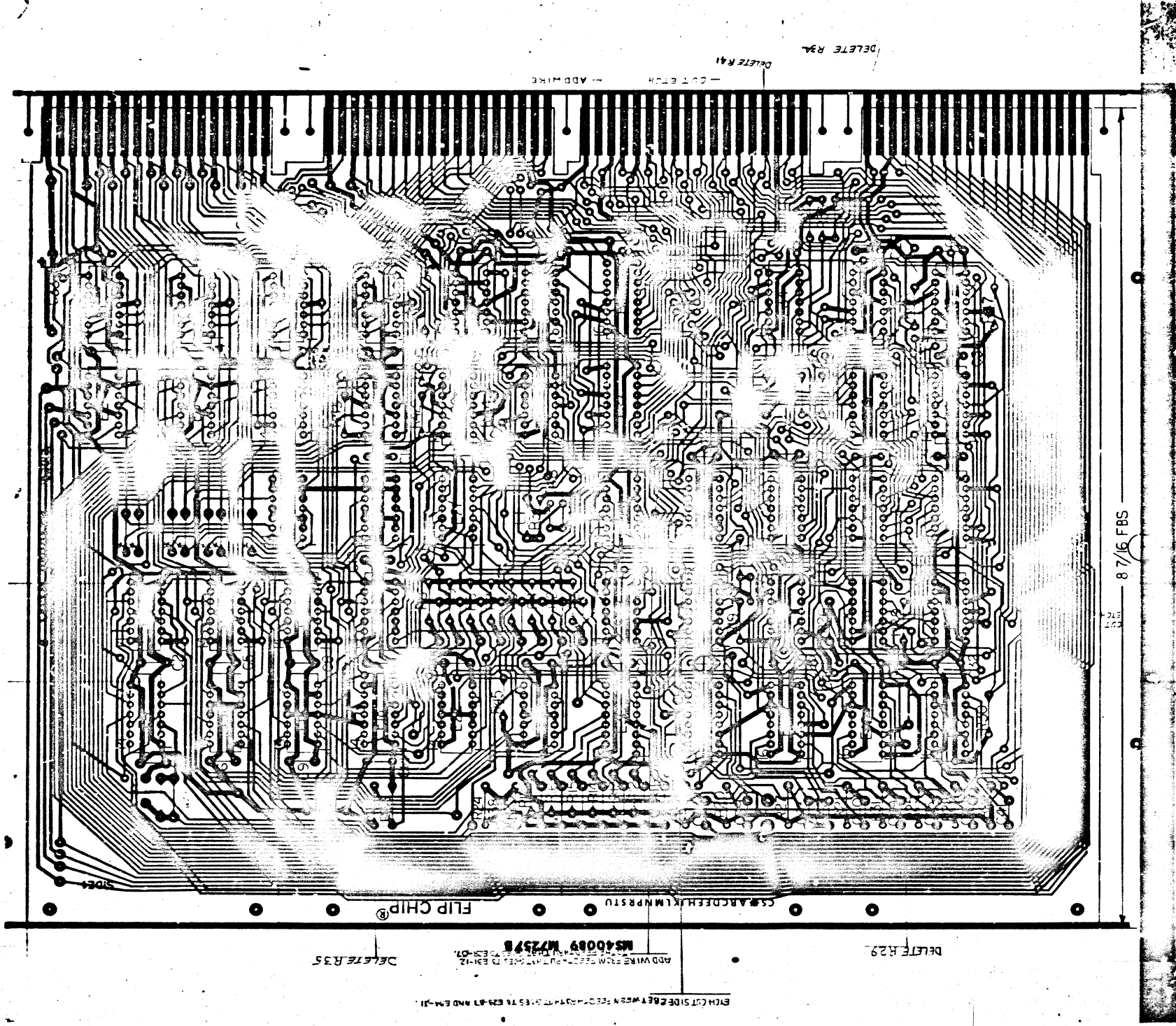
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IC TYPE	GND	+5V
I.C. DEC 319	1	8
I.C. DEC 7442	8	16
I.C. DEC 74123	8	16
I.C. DEC 74151	8	16
I.C. DEC 380	1	8

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 10Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA		DRILL SIZES		FOR NON-PTH BOARDS		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE PLATE	AFTER PLATE	YES	NO	YES	NO		
NONE	#56 DRILL (.0465 DIA)	X							
'Z'	#49 DRILL (.073 DIA)	X			#54 DRILL (.065 DIA)	X			2
					#51 DRILL (.067 DIA)		X		

DATE	7/1/72	BY	DJAH
CHKD	TRIAID	DATE	7/1/72
PRJ	M7257	REV	1
NET USED ON	M7257	REV	1
SCALE	2:1	REV	1
SHEET		REV	1

digital EQUIPMENT CORPORATION
ASSY/DRILLING HOLE LAYOUT
 NETWORK DIAH M7257-0-5
 DRT.

REVISIONS	A	B	C	D	E	F	H	J	K
DESIGNER	TRIAID								
CHECKER	TRIAID								
	TRC-D								

TITLE RKI-D BUS CONTROL
 CHARGE NO. E11-06734 DATE 5-12-72
 ENGINEER TOM ORR EXTENSION 2791 MS NO. 40089
 PROD. NO. M7257
 C.S. REV B
 ETCH REV B

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M7257-00004

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digital ENGINEERING CHANGE ORDER 9936		ORIGINATOR Tom Orr 1-3 TEL EXT 2791 DATE 12/6/73 DISC PROJ NO. E20-06734 COST CENTER NO. 395		ECO NO. M7257-0005 SHEET 1 OF 1 DATE RECEIVED 12-21-73 FIRST ISSUE 1-2-74 FINAL ISSUE 1/23/74	
PROBLEM (1) The Unibus control module can sink high current from the +5V supply if the bus address and data lines contain a lot of "ones". This can cause a momentary dip in the +5V supply. The .01 decoupling capacitors help reduce this effect but because of the critical nature of a unibus module this effect should be minimized. (2) C38 (.01) is unnecessary.				UNIT TO BE CHANGED M7257 Unibus Control Module DISP CODE 02	
CORRECTION (1) Replace all the .01uf capacitors with .22uf capacitors. This is a precautionary measure and no problem has ever been attributed to .01 capacitors. Do not rework any modules. Allow parts list to use .01 caps if .22 caps are not available. (2) Delete C38 (.01).				OPTIONS AFFECTED RK11-D RK11-E	
BREAK-IN/EFFECTIVITY .22uf instead of .01uf caps by 2/1/74 or the next lot of M7257 modules built at Puerto Rico and Ireland.				PRODUCT LINES AFFECTED PDP11 PDP15	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	SP CODE	DESCRIPTION OF CHANGE
1	B-CS-M7257-0-1 (341)	E	F	06	Update revision per this ECO.
1A	D-CS-M7257-0-1 (342)	D	E	06	Delete .01uf caps Item #10 Qty 33 Add .22uf caps Item #10 Qty 32 Retain .01 only as a substitute
1B	D-CS-M7257-0-1 (343)	A	B	06	Delete C38 (.01uf cap) Add Note: \emptyset variation of .22uf cap may be used if \emptyset 1 variation is not available.
2	1001610	-	-	00	Capacitor .01uf 100v 20% disc, Item #10, Qty 33 Deleted
3	1010274-01	-	-	07	Capacitor .22uf 50v ceramic, Item #10, Qty 32 Added
4	D-AH-M7257-0-5	E	F	06	Update revision per this ECO
5	B-MH-M7257-0-6	D	E	06	Update revision per this ECO
DISPOSITION CODES			APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - Rework IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			Typewritten _____ Hand Signed _____ DESIGN ENGR Tom Orr ENG MGR (OPT) _____ FIELD SERVICE (OPT) _____ CHIEF ENGR (MODULES ONLY) _____		

11 CENTRAL ENG.
ECO COMMITTEE

3 9-0-72 MW B
 1257-0-6 NUMBER SIZE CODE

PRODUCT LINE PDP 11 MODULE ECO HISTORY
 DATE RELEASED 9-20-72 PAGE 1 OF 1
 RELEASED BY T. ORR RELEASED CS REV. A
 RELEASED ETCH BD REV. B

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 11/15 OR 11/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33

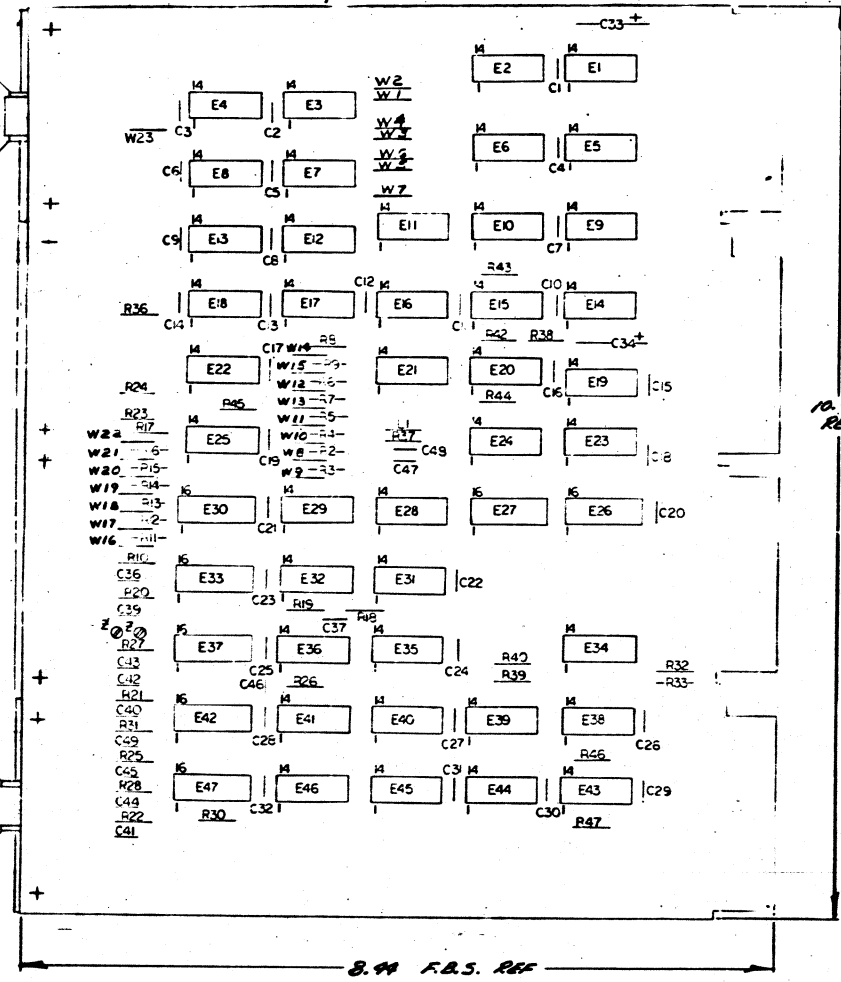
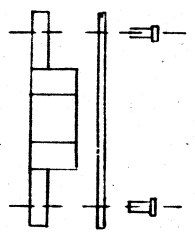
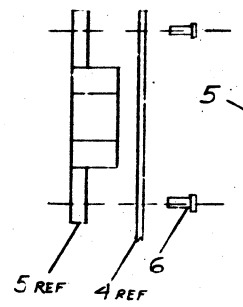
DRN <i>[Signature]</i>	DATE 9-21-72	EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE MODULE ECO HISTORY
CHK'D <i>[Signature]</i>	DATE 9-21-72		SIZE B
ENG <i>[Signature]</i>	DATE	NUMBER MT257-0-6	REV. E
PROP <i>[Signature]</i>	DATE		

DEC 16 (220) 102-N971
 DRB 104

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NOTES:



PIN NOMENCLATURE
MODULE RK11-D

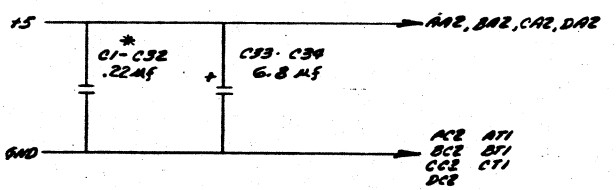
* IF ITEM #10 IS NOT AVAILABLE
USE PART NO. 1010274-00 OR
USE PART NO. 1001610 (0.044, 100V, 2073)

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	C1	COIL 974H	1610271	46
2		SR17 COILS	9006735	45
2	W1-W23	INDICATED JUMPER C-2007-1	5003185	44
1	E21	I.C. DEC 7437	1910091	43
1	E20	I.C. DEC 7416	1903328	42
2	E22, E25	I.C. DEC 8242	1905712	41
7	E15, E16, E17, E18, E19, E20	I.C. DEC 580	1905455	40
1	E19	I.C. DEC 514	1909704	39
1	E30	I.C. DEC 74151	1909836	38
4	E31, E32, E40, E45	I.C. DEC 7408	1910155	37
3	E38, E41, E44	I.C. DEC 74174	1903667	36
2	E34, E36	I.C. DEC 7474	1905547	35
3	E18, E19, E46	I.C. DEC 7384	1910393	34
10	E23, E24, E25, E26, E27, E28, E29, E30, E31, E32, E33, E34, E35, E36, E37, E38, E39, E40, E41, E42, E43, E44, E45, E46, E47	I.C. DEC 5881	1907705	33
4	E21, E22, E23, E24	I.C. DEC 74123	1910436	32
1	E27	I.C. DEC 7420	1905577	31
1	E39	I.C. DEC 7400	1905575	30
2	E24, E43	I.C. DEC 7402	1903004	29
2	E26, E27	I.C. DEC 7492	1910046	28
1	R18	RES. 100 Ω 1/4 W 5%	1900229	27
4	R19, R20, R36, R43	RES. 390 Ω 1/4 W 5%	1300309	26
4	R21, R33, R40, R42	RES. 180 Ω 1/4 W 5%	1301322	25
25	R2, R3, R11, R12, R13, R26, R32, R37, R39, R44, R46, R47	RES. 1 K 1/4 W 5%	1300365	24
1	R27	RES. 47 K 1/4 W 5%	1302177	23
7	R4, R5, R6, R7, R8, R9, R31	RES. 5.6 K 1/4 W 5%	1301874	22
1	C48	CAP. 15 PF 10V 5% DM	1000007	20
2	C42, C46	CAP. 330 PF 100V 5% DM	1000023	19
1	C43	CAP. 1200 PF 10V 5% DM	1002924	18
1	C47	CAP. 100 PF 100V 5% DM	1000016	17
1	C36	CAP. 270 PF 100V 5% DM	1000022	16
1	C39	CAP. 33 PF 100V 5% DM	1000007	15
1	C40	CAP. 47 PF 100V 5% DM	1000011	14
1	C45	CAP. 18 PF 100V 5% DM	1002608	13
2	C49, C41	CAP. 10 PF 100V 5% DM	1000006	12
1	C44	CAP. 27 PF 100V 5% DM	1001739	11
32	C1-C32	CAP. 22 nF 50V-20% TANT	1005306	10
2	C33, C34	CAP. 6.8 nF 35V 10% TANT	1005306	9
1	C37	CAP. 470 PF 100V 5% DM	1000024	8
8		EXHAUST (85-9-7) SIMPSON	9006732	6
4		HANDLE FLIP CHIP MOUNTING	9008377-06	5
1		ETCHED CIRCUIT BOARD	5003330	4
2		MODULE ECO HISTORY	8444-M7257-0-6	3
2		ASSEMBLING HOLE LAYOUT	8444-M7257-0-5	2
2		X-Y COORDINATE HOLE LOCATION	8444-M7257-0-4	1

IC TYPE	QTY	REF
I.C. DEC 514	1	8
I.C. DEC 7442	8	16
I.C. DEC 74123	8	16
I.C. DEC 74151	8	16
I.C. DEC 580	1	8

IC PIN LOCATIONS

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.



FIRST USED ON OPTION MODEL
RK11-D

ETCH BOARD REV B

DATE 4-1-72

digital EQUIPMENT CORPORATION

TITLE BUS CONTROL
RK11-D

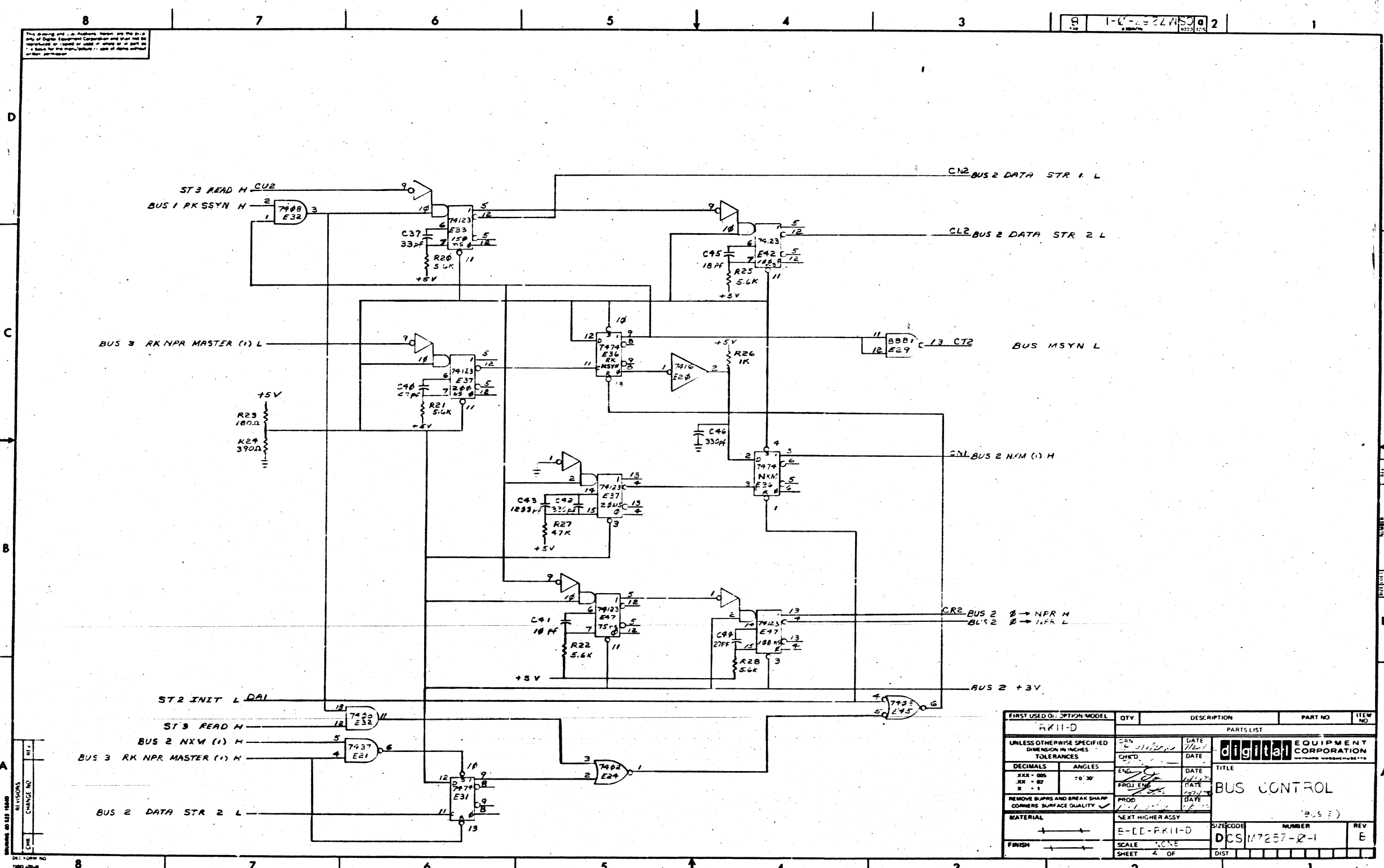
SCALE NONE

SHEET 2 OF 2

SEMICONDUCTOR CONVERSION CHART

DEC NO. EIA NO. DEC NO. EIA NO.

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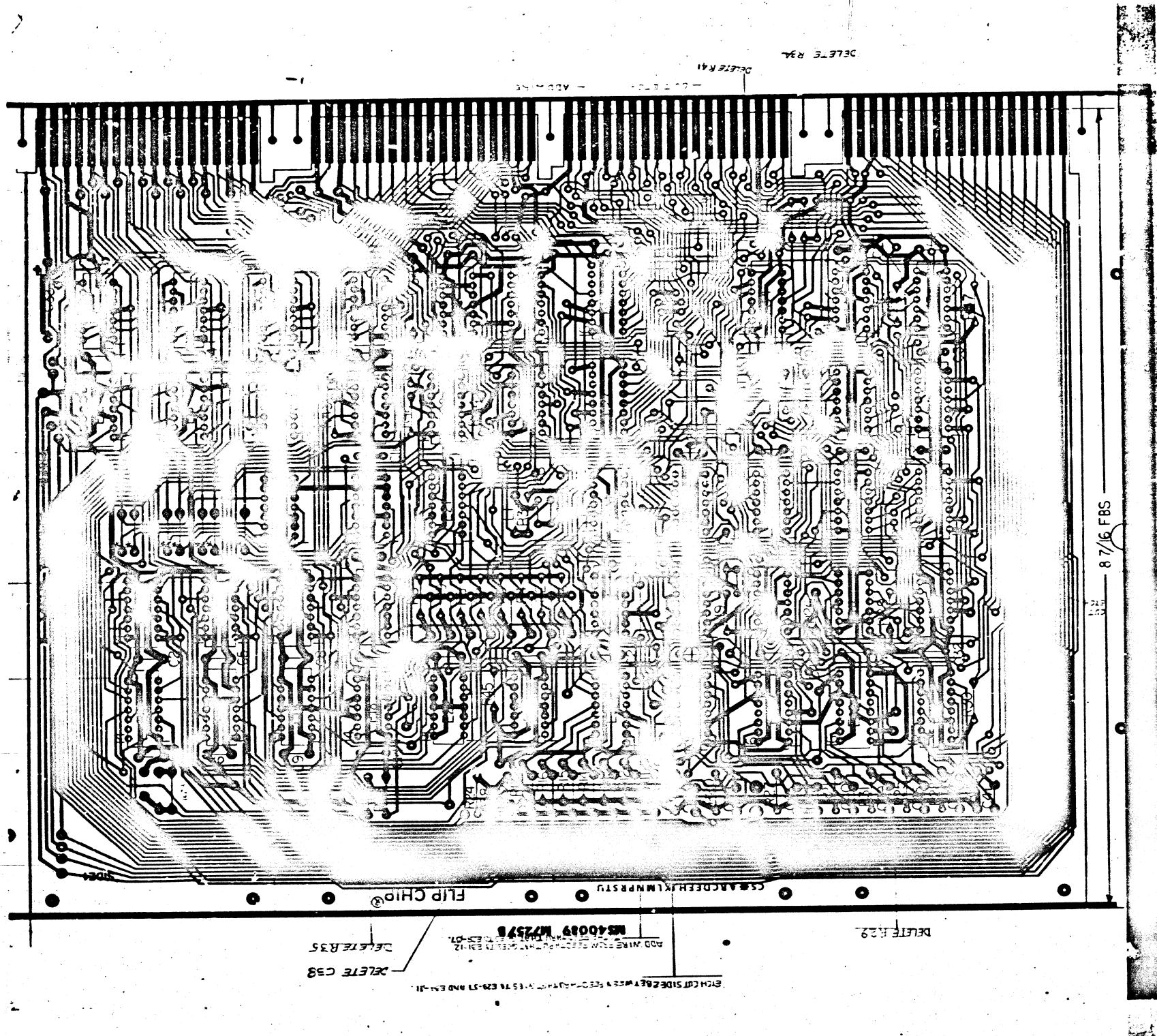


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FIRST USED OR OPTION MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
PK11-D		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DATE 11/21/72	DATE	digital EQUIPMENT CORPORATION	
DECIMALS	ENG	DATE 11/21/72	TITLE	
ANGLES	PROJ ENG	DATE 11/21/72	BUS CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD	DATE	BUS (E)	
MATERIAL	NEXT HIGHER ASSY	DATE	SIZE CODE	NUMBER
FINISH	E-ED-PK11-D	SCALE NONE	DCS	M7257-0-1
	SHEET 4 OF	DIST		REV E

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 10Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE AFTER PLATE	FOR NON-PTH BOARDS	YES NO	
NONE	*56 DRILL (.0465 DIA)	X	*54 DRILL (.055 DIA)	X	2
"Z"	*49 DRILL (.073 DIA)	X	*51 DRILL (.067 DIA)	X	

DATE	7/4/72	TITLE	ASSY/ DRILLING HOLE LAYOUT
CHECKED	TRAD	DESIGNED	M7257-0-5
APP'D	TRAD	DATE	5-12-72
DATE	7/17/72	BY	D JAH
SCALE	2/1	OF	
EQUIPMENT CORPORATION			

A	B	C	D	E	F	H	J	K
TRAD								
TRAD								
TRAD								

TITLE RKI-ID BUS CONTROL
 CHARGE NO. E11-06734 DATE 5-12-72
 ENGINEER TOM ORR EXTENSION 2791 MS NO. 40089

PROD. NO. M7257
 C.S. REV
 ETCH REV

digital ENGINEERING CHANGE ORDER 9970		ORIGINATOR Dan Mutnansky 1-3 TEL EXT 5908 DATE 1/9/74 DISC PROJ NO. E-20-06734 COST CENTER NO. 395		ECO NO. <u>M7257-0006</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>1-15-74</u> FIRST ISSUE <u>1-22-74</u> FINAL ISSUE <u>2/21/74</u>	
PROBLEM Power and ground distribution is poor which results in high susceptibility to conducted and induced noise. This may show up as intermittent data, checksum or write check errors.				UNIT TO BE CHANGED M7257 etch Rev. B RK11-D disk control DISP CODE 03*	
CORRECTION ADD 1 ground and 3 power jumpers to side 1 of the board to improve the network of power and ground distribution.				OPTIONS AFFECTED RK11-D, RK11-E	
BREAK-IN/EFFECTIVITY Rework all units to be shipped from Puerto Rico, Ireland, and Westminster after 2/4/74. Rework all units built in Westfield after 1/4/74. Rework any field machine suspected of having noise related problems.					
PRODUCT LINES AFFECTED PDP-11 PDP-15					
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP CODE	DESCRIPTION OF CHANGE
1	B-CS-M7257-0-1 Sheet 1	F	H	06	Update revisions per this ECO.
2	B-MH-M7257-0-6	E	F	06	Update revisions per this ECO.
3	D-AH-M7257-0-5	F	H	06	ADD 4, 30 AWG wires to power and ground distribution. Update revs per this ECO. REWORK INSTRUCTIONS: Etch Rev. B only. +5v runs: Add wire from: (1) +5v side of C1 to +5v side of C4. (2) +5v side of C7 to +5v side of C10. (3) +5v side of C38 to +5v feed thru connected to pin 14 of E25 side 1. NOTE: C38 was extracted by a previous ECO. The feed thru for the +5v side of C38 is located adjacent to the +5v side of R23. (4) Ground: Add wire from GND side of C24 to GND side of C41.
11 CENTRAL ENG. ECO COMMITTEE					
DISPOSITION CODES			APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			DESIGN ENGR Tom Orr ENG MGR (OPT) <i>[Signature]</i> FIELD SERVICE (OPT) <i>[Signature]</i> CHIEF ENGR (MODULES ONLY) <i>[Signature]</i>		

DEC 16 (325)-1071-N971 SEE REVERSE FOR INSTRUCTIONS ON ORDER TO FILL OUT FORM PROPERLY

digital		FIELD CHANGE ORDER		ECO <u>M7257</u> <u>C</u> <u>0006</u> PAGE 1 OF 1																	
FIELD EFFECTIVITY Rework all M7257's in RK11-D and RK11-E when symptoms are present				* LEVEL OF URGENCY CODE A - MANDATORY - HIGH PRIORITY B - MANDATORY C - HIGH PRIORITY IF SPECIFIC HARDWARE, SOFTWARE, OR SYSTEMS ARE PRESENT D - APPLICABLE IF SPECIFIC HARDWARE, SOFTWARE, OR SYSTEMS ARE PRESENT E - PRODUCT IMPROVEMENT - OPTIONAL - LOW PRIORITY																	
FIELD RETROFIT IS ANTICIPATED IN 100% OF UNITS DEFINED ABOVE				DNR IT PROJECT NUMBER (FOR FIELD SERVICE REPORTING)																	
<input checked="" type="checkbox"/> ARE TO BE REPORTED UNDER A "W" CHARGE CODE <input type="checkbox"/> STANDARD APPLICABILITY - THIS ECO IS TO BE INSTALLED AT NO CHARGE FOR WARRANTY AND MAINTENANCE CONTRACT CUSTOMERS IN ACCORDANCE WITH THE TECHNICAL EFFECTIVITY ABOVE, OTHERWISE AT CUSTOMER EXPENSE. DOCUMENTATION IS _____ PARTS IS _____ DECISION LABORS IS _____ DEC'S MINIMUM BILLING APPLIES IF THIS ECO IS INSTALLED BY DEC. THE DEC LABOR CHARGE ASSUMES ECO INSTALLATION DURING REGULAR WORKING HOURS. IF INSTALLATION OUTSIDE OF REGULAR WORKING HOURS IS ORDERED DEC'S LATEST SCHEDULE OF HOURLY RATES WILL APPLY.				ESTIMATED QUANTITY OF LABOR INSTALLATION AND TESTING: 1.0 HOURS																	
FIELD OFFICE ECO DISTRIBUTION CODE <input type="checkbox"/> F IMMEDIATE ECO DISTRIBUTION TO ALL DEC FIELD OFFICES <input type="checkbox"/> DF IMMEDIATE ECO DISTRIBUTION TO REGIONAL PRODUCT SUPPORT				SPECIAL TEST EQUIPMENT, TOOLS, OR SUPPLIES																	
ECO KIT DISTRIBUTION <input checked="" type="checkbox"/> KITS AS DEFINED BELOW MAY BE ORDERED AS REQUIRED.				LAST PREVIOUS ECO: EOL, B03																	
CONTENTS OF AN FSIC INITIATED KIT <table border="1"> <tr> <td>FID</td> <td>ECO</td> <td>POINTS</td> <td>PARTS</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> FSIC INITIATED ECO KITS WILL BE DISTRIBUTED FOR 90 DAYS AFTER THE DATE LISTED ON THE EOL/COMP SURVIVAL FILE WITH THE FOLLOWING SERVICE STATUS CODES <table border="1"> <tr> <td>FID</td> <td>ECO</td> <td>POINTS</td> <td>PARTS</td> </tr> <tr> <td></td> <td>X</td> <td>X</td> <td></td> </tr> </table>				FID	ECO	POINTS	PARTS					FID	ECO	POINTS	PARTS		X	X		RELATED WORK PREVIOUS ECO'S <input type="checkbox"/> MAINGEC CHANGE <input type="checkbox"/> MAINTENANCE MANUAL CHANGE <input type="checkbox"/> OPERATIONAL PROGRAMS AFFECTED	
FID	ECO	POINTS	PARTS																		
FID	ECO	POINTS	PARTS																		
	X	X																			
INSTALLATION AND TEST PROCEDURES				VERIFICATION MAINDECS																	
NOTES				PARTS REQUIRED																	
FIELD SERVICE APPROVAL Jim Barclay				<i>[Signature]</i> NF1173 (550) 2-12 (335/315) 650																	

DEC 12 (752)-1095-N1071

PAGE REVISION CONTROL SHEET		REMARKS
SN NO.	PAGE REVISIONS	(BUS 1) (BUS 2) (BUS 3) (BUS 4)
1	A B C D E F H	
2	A B C C D E	
3	A A B C D E	
4	A A A A A B B	
5	A A B B C D D	
6	A A A A A A	
DATE	DATE	FIRST USED ON OPTION/MODEL RK11-D
ENG.	ENG.	digital EQUIPMENT CORPORATION <small>WAYNARD MASSACHUSETTS</small> TITLE BUS CONTROL (RK11-D) SIZE CODE NUMBER B CS M7257-0-1 REV. H
ETCH REV. NO.	ETCH REV. NO.	
ECO NO.	ECO NO.	
DATE	DATE	
ENG.	ENG.	
ETCH REV. NO.	ETCH REV. NO.	
DATE	DATE	NEXT HIGHER ASSY. B-DD-RK11-D
DATE	DATE	SCALE SHEET 1 OF 6
DATE	DATE	DISTR.

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M7257-00006

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M7257-0-6

MODULE ECO HISTORY

PRODUCT LINE PDP 11 PAGE 1 OF 1 RELEASED CS REV. A
 DATE RELEASED 9-20-72 RELEASED ETCH BD REV. B
 RELEASED BY T. ORR

ECO NO	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 G1 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE EUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN I/15 CR. I/20 SYSTEMS WITHOUT KH-11		✓		REMOVE EUS NPR FROM E2607	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C33 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANG	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE 45V & GND DISTRIBUTION	0	0

REVISIONS

00001	✓
00002	✓
00003	✓
00004	✓
00005	✓
00006	✓

MODULE ECO HISTORY

EQUIPMENT CORPORATION

M7257-0-6

DATE: 9-20-72

BY: T. ORR


DHB 104

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M7257-00006

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SUPPLEMENT ECO

 ENGINEERING CHANGE ORDER #000	ORIGINATOR Dan Mutnansky 1-2 TEL EXT 5908 DISC PROJ NO. E20-06734 COST CENTER NO. 395	ECO NO. <u>M7257-6A</u> SHEET <u>1</u> OF <u>1</u> DATE RECEIVED <u>1-30-74</u> FIRST ISSUE <u>1-1-74</u> FINAL ISSUE <u>2/28/74</u>				
	PROBLEM M7257 ECO #06 contains a typographical error in rework instruction #4. Item #4 adds a wire from the GND side of C24 to the GND side of C41. C41 should be R41. There is no GND side of C41.					
CORRECTION Pictoral rework documentation (D-AH-M7257-0-5) contains correct information. A wire is shown from C24 to R41. Change rework instructions to read R41 instead of C41.		UNIT TO BE CHANGED M7257 Etch Rev. B RK11-D Disk Control DISP CODE 03* OPTIONS AFFECTED RK11-D RK11-E				
BRIEF IN/EFFECTIVITY *This is a supplement to M7257 ECO #06.		PRODUCT LINES AFFECTED PDP-11 PDP-15				
ITEM NO. 1	DOCUMENT/ART NO. B-M7-M7257-0-6	OLD REV F	NEW REV H	DISP CODE 06	DESCRIPTION OF CHANGE Update revision and add note explaining change.	DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC FIELD SERVICE AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Customer Charge <input checked="" type="checkbox"/> Product Line Charge TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE ORDER PR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DISPOSITION CODES 00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRESENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY			APPROVAL SIGNATURES DESIGN ENGR Tom Orr ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULES ONLY)			

SUPPLEMENT ECO

11 CENTRAL ENG.
ECO COMMITTEE

SUPPLEMENT ECO

H 9-0-1521W B
 NUMBER 3300 SIZE

PRODUCT LINE PDP 11 MODULE ECO HISTORY
 DATE RELEASED 9-20-72 PAGE 1 OF 1
 RELEASED BY T. ORR RELEASED CS REV A
 RELEASED ETCH BD REV B

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 OI TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 1/15 OR 1/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B	✓			✓			REMOVE TERMINATOR RESISTORS FROM NPG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B	✓			✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANSKY	1-10-74	H	B	✓			✓			ADD WIRES TO IMPROVE +5V & GND DISTRIBUTION	0	0
0006A	D. MUTNANSKY	1-24-74	—	—	—	—		—	—		CORRECT REWORK INSTRUCTION	—	—

REVISIONS
 CHG NO REV
 1.5 00001 A
 2.5 00002 B
 3.5 00003 C
 4.5 00004 D
 5.5 00005 E
 6.5 00006 F
 7.5 0006A H

DRB 104

DATE 9-21-72
 DATE 9-21-72
 DATE
 DATE

EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE
 MODULE ECO HISTORY

SIZE CODE NUMBER REV
 B MH M7257-0-6 H

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M7257-0006A

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digital ENGINEERING CHANGE ORDER <i>1006</i>		ORIGINATOR Dick Lewis (1-3) TEL EXT 4620 DATE 6/27/74 DISC PROJ NO. E-20-06734 COST CENTER NO. 395		ECO NO <i>M7257-0007</i> SHEET <i>1</i> OF <i>1</i> DATE RECEIVED <i>7/9/74</i> FIRST ISSUE <i>7-17-74</i> FINAL ISSUE <i>NA</i>		
PROBLEM The M7257 module is built with all jumpers installed. However, to be tested, the module must be configured for the RK11-D which requires cutting out several of the jumpers.				UNIT TO BE CHANGED M7257 Bus Control DESP CODE 02		
CORRECTION Correct M7257 documentation to build Loads with only the necessary jumpers installed (W3, W6, W12 thru W19, W21 thru W23)				OPTIONS AFFECTED RK11-D, E		
BREAK-IN/EFFECTIVITY Phase in module build areas by 8-1-74.				PRODUCT LINES AFFECTED PDP 11 PDP 15.		
ITEM NO	DOCUMENT/PART NO.	OLD REV	NEW REV	DISP ODR	DESCRIPTION OF CHANGE	DOCUMENTATION AFFECTED
1	D-CS-M7257-0-1					<input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC
	Sheet 1	H	J	06	Update revisions per this ECO	
	Sheet 2	E	F	06	Change parts list (Item #44) to call out 13 jumpers (W3, W6, W12 thru W19, W21 thru W23). Correct overlay to show W1, W2, W4, W5, W7 thru W11, W20 as broken lines.	
	Sheet 3	B	C	06	Show W8 thru W11 and W20 as broken lines.	
	Sheet 6	A	B	06	Show W1 thru W5 and W7 as broken lines.	FIELD SERVICE AFFECTED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Customer Champ <input type="checkbox"/> Product Line Champ TYPE OF CHANGE <input type="checkbox"/> ELECTRICAL <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MODULE ORDER FR MODEL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
2	D-AH-M7257-0-5	H	J	06	Show W1, W2, W4, W5, W7 thru W11, W20 as broken lines	
3	B-MH-M7257-0-5		J	06	Update per this ECO	
4	9009185	-	-	00	Delete 10 jumpers.	
11 CENTRAL ENG. ECO COMMITTEE JUN 28 1974						
DISPOSITION CODES				APPROVAL SIGNATURES		
00 - RETURN TO STOCK 01 - (DELETED) 02 - USE PRE-ENT STOCK UNTIL NEW STOCK AVAILABLE (PHASE IN) 03 - REWORK IMMEDIATELY (RETROFIT) 04 - (DELETED) 05 - (DELETED) 06 - DOCUMENT CORRECTION 07 - NEW ITEM (THIS ASSEMBLY) 08 - NEW ITEM (THIS COMPANY) 09 - SCRAP IMMEDIATELY				DESIGN ENGR Dick Lewis <i>[Signature]</i> ENG MGR (OPT) _____ FIELD SERVICE (OPT) _____ CHIEF ENGR (MODULES ONLY) _____		
2LC 16-13251-1071-0971 SEE REVERSE FOR INSTRUCTIONS (ON ORDER TO FILL OUT FORM PROPERLY)						

J M7257-0-6 4W B

MODULE ECO HISTORY

PRODUCT LINE PDP 11 RELEASED CS REV. A
 DATE RELEASED 9-20-72 PAGE 1 OF 1 RELEASED ETCH BD REV. B
 RELEASED BY T. ORR

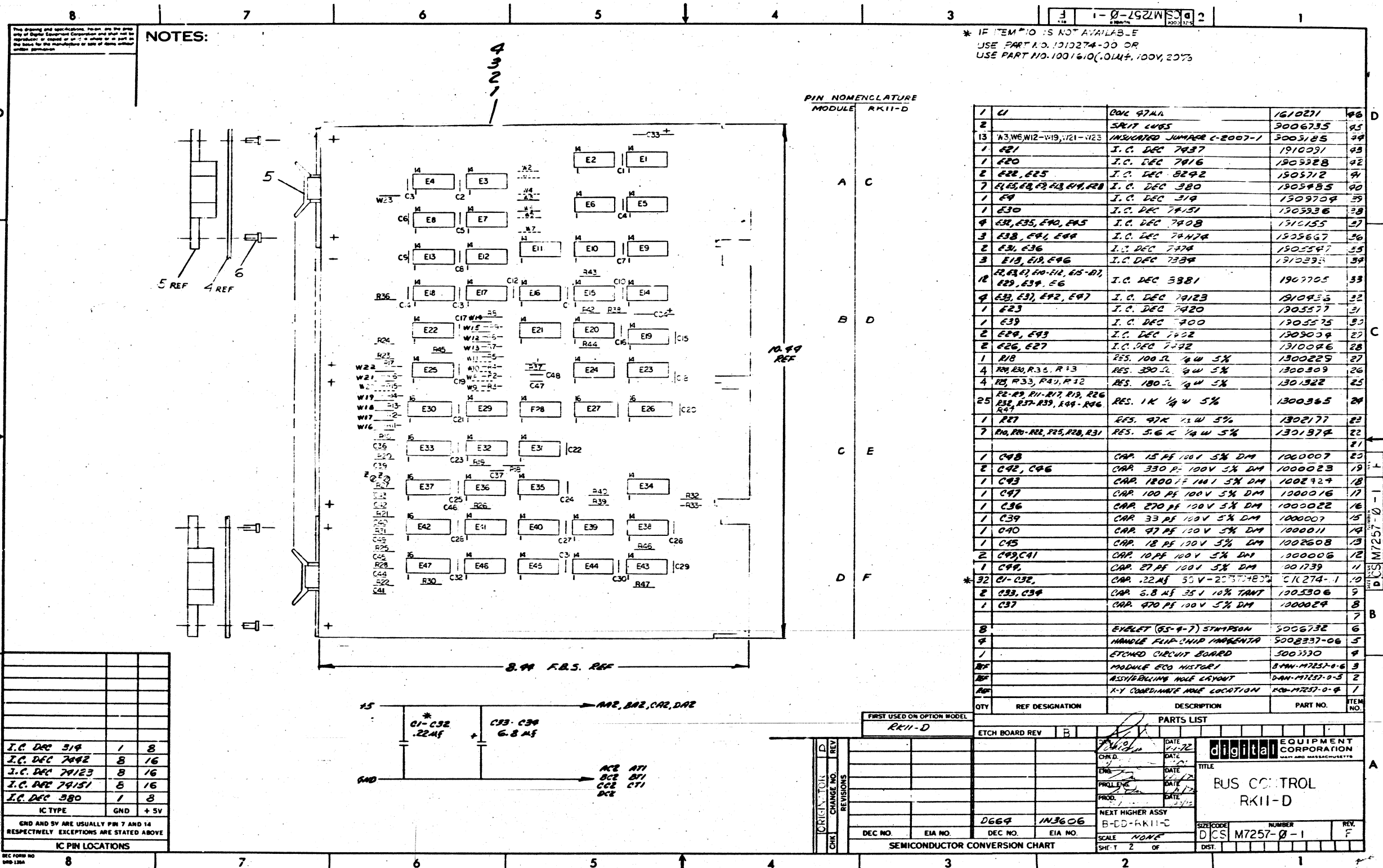
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED IND. SCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS L'YSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 11/15 OR 11/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NFG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANSKY	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE +5V & GND DISTRIBUTION	0	0
0006A	D. MUTNANSKY	1-24-74	—	—	—	—		—	—		CORRECT REWORK INSTRUCTION	—	—
00007	R. LEWIS	6-28-74	J	B		✓		✓			DELETE OPTIONAL JUMPERS	—	10

REV. NO.	REV.
00001	A
00002	B
00003	C
00004	D
00005	E
00006	F
00007	J

DRN: T. ORR DATE: 9-20-72
 CHK'D: T. ORR DATE: 9-20-72
 ENG: T. ORR DATE: 9-20-72
 PROD: T. ORR DATE: 9-20-72

TITLE: **MODULE ECO HISTORY**
 EQUIPMENT CORPORATION
 SIZE: B CODE: MH NUMBER: M7257-0-6 REV: J

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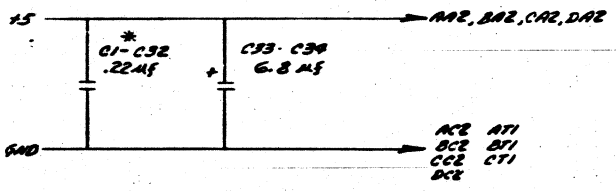
NOTES:

* IF ITEM NO. IS NOT AVAILABLE
USE PART NO. 1010274-00 OR
USE PART NO. 1001610 (0.01M \pm , 100V, 20%)

IC TYPE	GND	+5V
I.C. DEC 319	1	8
I.C. DEC 7942	8	16
I.C. DEC 79123	8	16
I.C. DEC 79151	8	16
I.C. DEC 380	1	8

END AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	C1	DIOL 97M	1610271	46
2		SR17 4095	3006735	45
13	W3, W6, W12-W19, W21-W23	INSULATED JUMPER L-2007-1	5005185	44
1	E21	I.C. DEC 7937	1910091	43
1	E20	I.C. DEC 7916	1903328	42
2	E22, E25	I.C. DEC 5242	1905712	41
7	E43, E48, E49, E53, E54, E58	I.C. DEC 380	1905485	40
1	E4	I.C. DEC 319	1909709	39
1	E30	I.C. DEC 79151	1903336	38
4	E32, E35, E40, E45	I.C. DEC 7908	1910155	37
3	E38, E41, E44	I.C. DEC 79174	1905667	36
2	E31, E36	I.C. DEC 7974	1905547	35
3	E18, E19, E46	I.C. DEC 7334	1910294	34
12	R2, R3, R10-R12, R15-R17, R29, R34, E6	I.C. DEC 5881	1907705	33
4	E33, E37, E42, E47	I.C. DEC 79123	1910456	32
1	E23	I.C. DEC 7920	1905577	31
1	E39	I.C. DEC 7900	1905575	30
2	E28, E43	I.C. DEC 7922	1905039	29
2	E26, E27	I.C. DEC 7992	1910096	28
1	R18	RES. 100 Ω 1/4W 5%	1900229	27
4	R9, R20, R35, R43	RES. 390 Ω 1/4W 5%	1900309	26
4	R28, R33, R40, R42	RES. 180 Ω 1/4W 5%	1901322	25
25	R2-R9, R11-R17, R19, R26, R27, R37-R39, R44-R46, R47	RES. 1K 1/4W 5%	1900365	24
1	R27	RES. 47K 1/4W 5%	1902177	23
7	R10, R19, R22, R25, R28, R31	RES. 5.6K 1/4W 5%	1901974	22
				21
1	C48	CAP. 15 PF 100V 5% DM	1000007	20
2	C42, C46	CAP. 330 P-100V 5% DM	1000023	19
1	C43	CAP. 1800 PF 100V 5% DM	1002324	18
1	C47	CAP. 100 PF 100V 5% DM	1000016	17
1	C36	CAP. 270 PF 100V 5% DM	1000022	16
1	C39	CAP. 33 PF 100V 5% DM	1000007	15
1	C40	CAP. 47 PF 100V 5% DM	1000011	14
1	C45	CAP. 18 PF 100V 5% DM	1002608	13
2	C49, C41	CAP. 10 PF 100V 5% DM	1000006	12
1	C44	CAP. 27 PF 100V 5% DM	001739	11
				10
32	C1-C32	CAP. .22M Ω 50V-20% 7485%	C1K274-1	9
2	C33, C34	CAP. 6.8M Ω 35V 10% TANT	1905306	8
1	C37	CAP. 470 PF 100V 5% DM	1000024	7
				6
8		EVILET (RS-4-7) STAMPSON	5006732	5
4		HANDLE FLIP-CHIP MOUNTING	5008337-06	4
1		ETCHED CIRCUIT BOARD	5003330	3
REF		MODULE ECO HISTORY	84M-M7257-0-6	2
REF		ASSY/PCB/PCB LAYOUT	DAN-M7257-0-3	1
REF		X-Y COORDINATE HOLE LOCATION	80M-M7257-0-4	1

FIRST USED ON OPTION MODEL		REVISIONS		PARTS LIST	
CHK	CHANGE NO.	DATE	BY	QTY	DESCRIPTION

ETCH BOARD REV B

DATE 11/72

DATE 12/72

DATE 1/73

DATE 2/73

DATE 3/73

DATE 4/73

DATE 5/73

DATE 6/73

DATE 7/73

DATE 8/73

DATE 9/73

DATE 10/73

DATE 11/73

DATE 12/73

DATE 1/74

DATE 2/74

DATE 3/74

DATE 4/74

DATE 5/74

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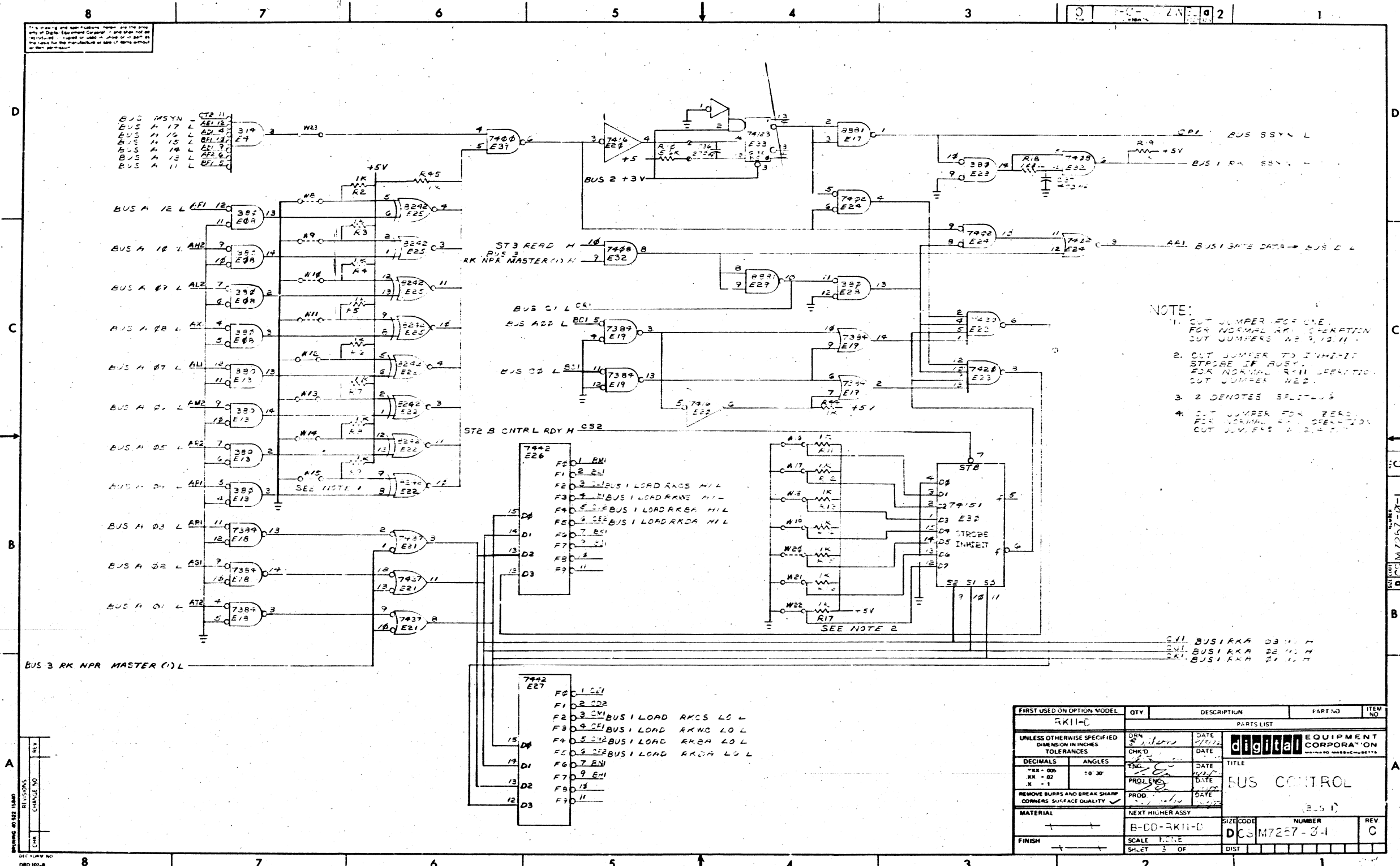
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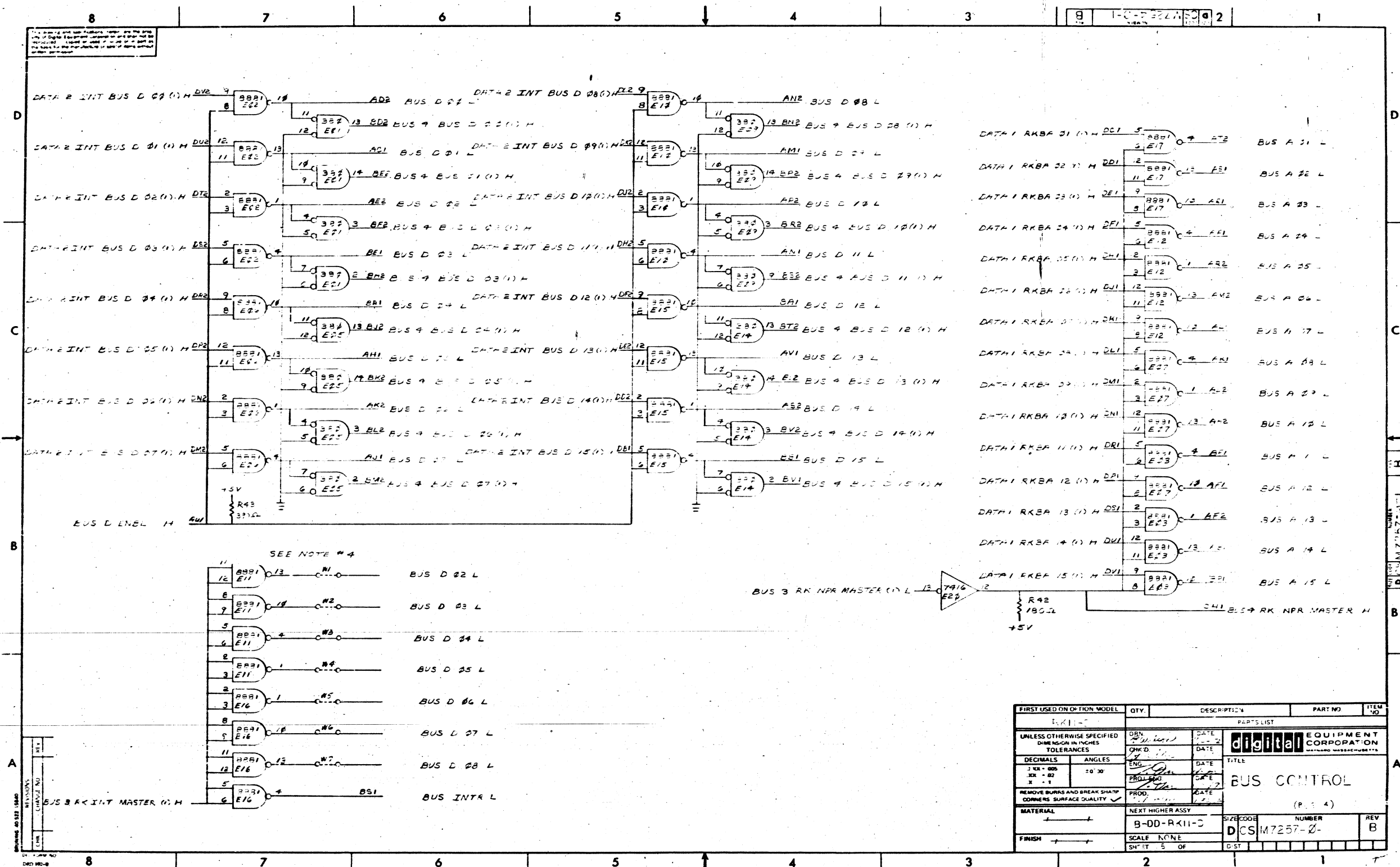
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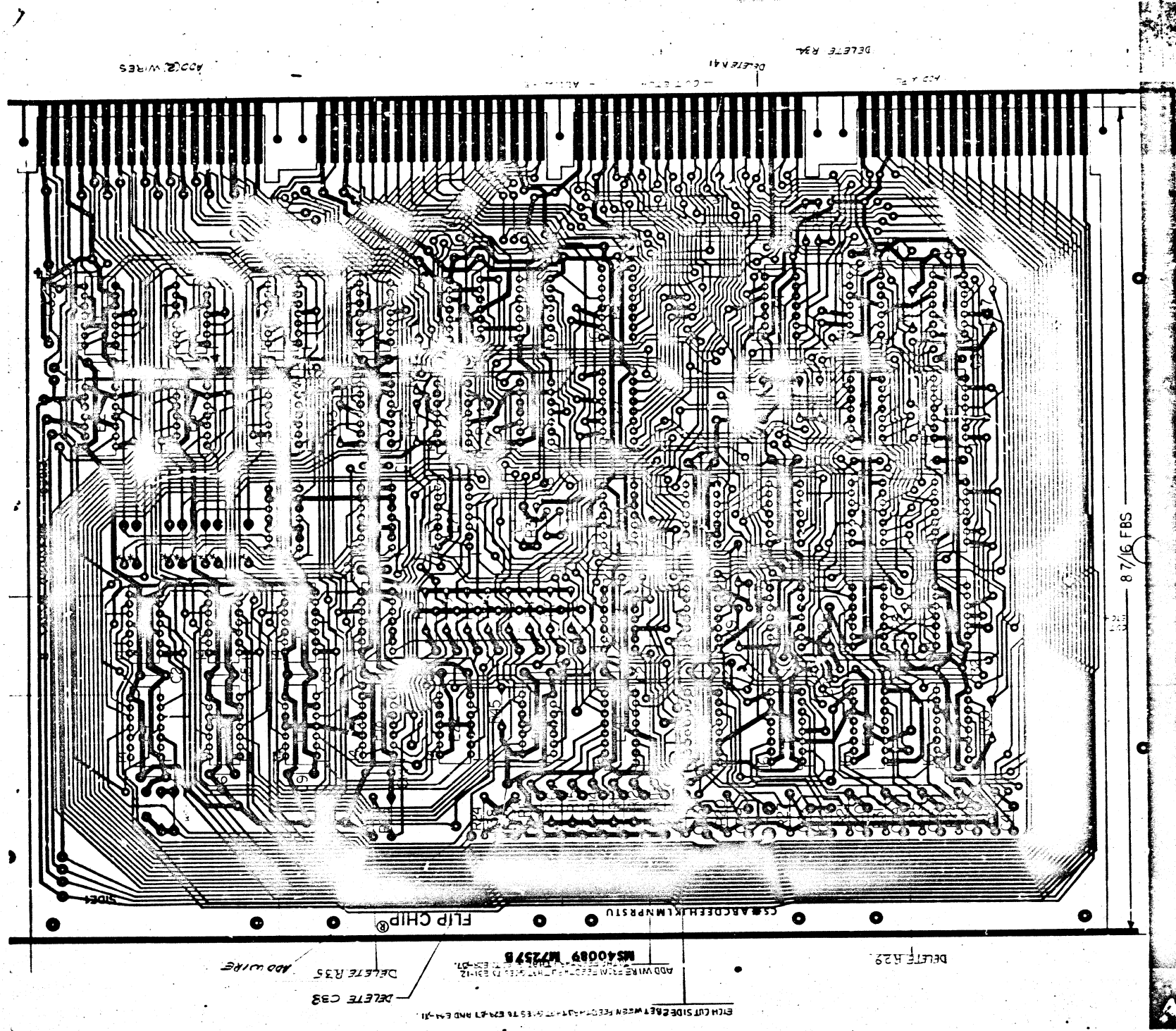
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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.1750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 10Z COPPER NOTCH BEFORE GOLD PLATING
 2 SIDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA				CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	BEFORE PLATE	AFTER PLATE	FOR NON-PTH BOARDS	YES	NO	
NONE	#56 DRILL (.0465 DIA)	X		#54 DRILL (.055 DIA)	X		
"Z"	#49 DRILL (.073 DIA)	X		#51 DRILL (.067 DIA)		X	2

NOTE:

LEN JUMPERS INDICATED BY
 BROKEN LINES WILL NOT BE
 INSTALLED DURING ASSEMBLY

DATE	17/1/72	SCALE	2/1	OF	1	SHEET
DESIGNER	TRAD	PROJ. ENG.	M7257	REVISED ON		
CHECKED	TRAD	DATE		BY		
TITLE			ASSY/ DRILLING HOLE LAYOUT			
PART USED ON			M7257			
DIAH			M7257-0-5			
REV. NO.			J			
DATE			5-12-72			
EXTENSION			2791			
ENGINEER			TOM ORR			
CHARGE NO.			E11-06734			
TITLE			RK11-D BUS CONTROL			
PROD. NO.			M7257			
C.S. REV			J			
ETCH REV			B			
MS NO.			40089			

REVISIONS	A	B	C	D	E	F	H	J	K
REVISION	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD	TRAD
DATE									
EXTENSION									
ENGINEER									

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		ECO NO. M7257-0008 SHEET 3 OF 2	
419-6415-0815 ORIGINATOR Dick Lewis MS/BS5 TEL EXT 4620 DATE 9/30/74 DWG PROJ NO E-20-07534 CDR CENTER NO 395		ENGINEERING CHANGE ORDER 474	
UNIT TO BE CHANGED M7257 Bus Control			
PROBLEM Reflections on grant lines can cause double grants.		DESCRIPTION OF CHANGE Update revisions per this ECO. Add two 180Ω resistors (13-01322) R29 and R30 to parts list. Add R29 and R30 to overlay. Add R29 to +5V on BUS NPG IN H line at E46 pin 10. Add R35 to +5V on BG IN H line at E18 pin 6. Remove notes deleting R29 and R35. Update per this ECO. Add two 180Ω resistors. to CS / 009 Note: Etch connections for these resistors already exists on the board. R29 is located between E41 and E46. R35 is located beside R36.	
CORRECTION Terminate grant lines by adding an 180 ohm pull-up resistor at the receiver inputs.		PRODUCT LINES AFFECTED PDP-11 PDP-15	
BREAK/INACTIVITY * Reto-fit in field only where problem is observed. Phase in at Puerto Rico and Ireland module build areas by 12/1/74.		DOCUMENTATION AFFECTED <input checked="" type="checkbox"/> MODEL <input type="checkbox"/> DIAGNOSTICS <input type="checkbox"/> TECH MANUAL <input type="checkbox"/> TESTER <input type="checkbox"/> TEST PROG <input type="checkbox"/> TOOLING <input type="checkbox"/> PKG INST <input type="checkbox"/> ENG SPEC <input type="checkbox"/> PURCH SPEC FIELD SERVICE <input checked="" type="checkbox"/> AFFECTED <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Customer Change <input type="checkbox"/> Product Line Change	
DISPOSITION CODES 1 13-01322 2 D-AM-M7257-0-5 3 B-MR-M7257-0-6 4 13-01322 11 CENTRAL ENG ECO COMMITTEE 133 OCT 27 1974		APPROVAL SIGNATURES DESIGN ENGR Tom Ott ENG MGR (OPT) FIELD SERVICE (OPT) CHIEF ENGR (MODULAR ONLY)	

SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

DRA-111C2

		ECO NO. M7257-0008 SHEET 3 OF 2	
ENGINEERING CHANGE ORDER		DOCUMENT/PART NO.	
CONTINUATION SHEET		DESCRIPTION OF CHANGE	
ITEM NO.		OLD REV NEW REV	
NOTE: When the M7257 was originally released, the board included pull-ups on the BG receivers and pull-downs on the drivers. These were removed by ECO No. M7257-0004 to make the module consistent with the Unibus specification. The present ECO adds the pull-ups only per latest Unibus test results.			

		ECO NO. M7257-0008 PAGE 1 OF 1	
FIELD HISTORY - M7257			
ETCH BOARD REVISION B			
ECO NUMBER 001 002 003 004 005 006 007 008			
ECO DATE 9-21-74 10-23-74 10-23-74 10-24-74 10-24-74 10-24-74 10-24-74 10-24-74			
PRODUCTION CS A B C D E F H J K			
DOCUMENTATION CS			
FIELD REWORK CS D E H K			
NOTES:			
FIELD SERVICE APPROVAL Jim Barclay			
(1719) 11-1 (350/250) 600			

FIELD CHANGE ORDER

FIELD HISTORY - M7257

ETCH BOARD REVISION B

ECO NUMBER 001 002 003 004 005 006 007 008

ECO DATE 9-21-74 10-23-74 10-23-74 10-24-74 10-24-74 10-24-74 10-24-74 10-24-74

PRODUCTION CS A B C D E F H J K

DOCUMENTATION CS

FIELD REWORK CS D E H K

NOTES:

FIELD SERVICE APPROVAL

Jim Barclay

(1719) 11-1 (350/250) 600

SIZE CODE NUMBER HW B
M 7257-0-6 K

PRODUCT LINE <u>PDP 11</u>		MODULE ECO HISTORY				RELEASED CS REV <u>A</u>	
DATE RELEASED <u>9-20-72</u>		PAGE <u>1</u> OF <u>1</u>				RELEASED ETCH BD REV <u>B</u>	
RELEASED BY <u>T. ORR</u>							

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 11/15 CR 11/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B	✓			✓			REMOVE TERMINATOR RESISTORS FROM NPG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B	✓			✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANSKY	1-10-74	H	B	✓			✓			ADD WIRES TO IMPROVE +5V & GND DISTRIBUTION	0	0
0006A	D. MUTNANSKY	1-24-74	—	—	—	—		—	—		CORRECT REWORK INSTRUCTION	—	—
00007	R. LEWIS	6-28-74	J	B	✓			✓			DELETE OPTIONAL JUMPERS	—	10
00008	R. LEWIS	10-4-74	K	B	✓			✓			ADD TERMINATOR RESISTORS TO NPG + BG LINES	2	—

REVISIONS	CHKD	DATE	DATE	TITLE	SIZE	CODE	NUMBER	REV
00001		9-21-72	9-21-72	MODULE ECO HISTORY	B	MH	M7257-0-6	K
00002		9-21-72	9-21-72					
00003								
00004								
00005								
00006								
00007								
00008								

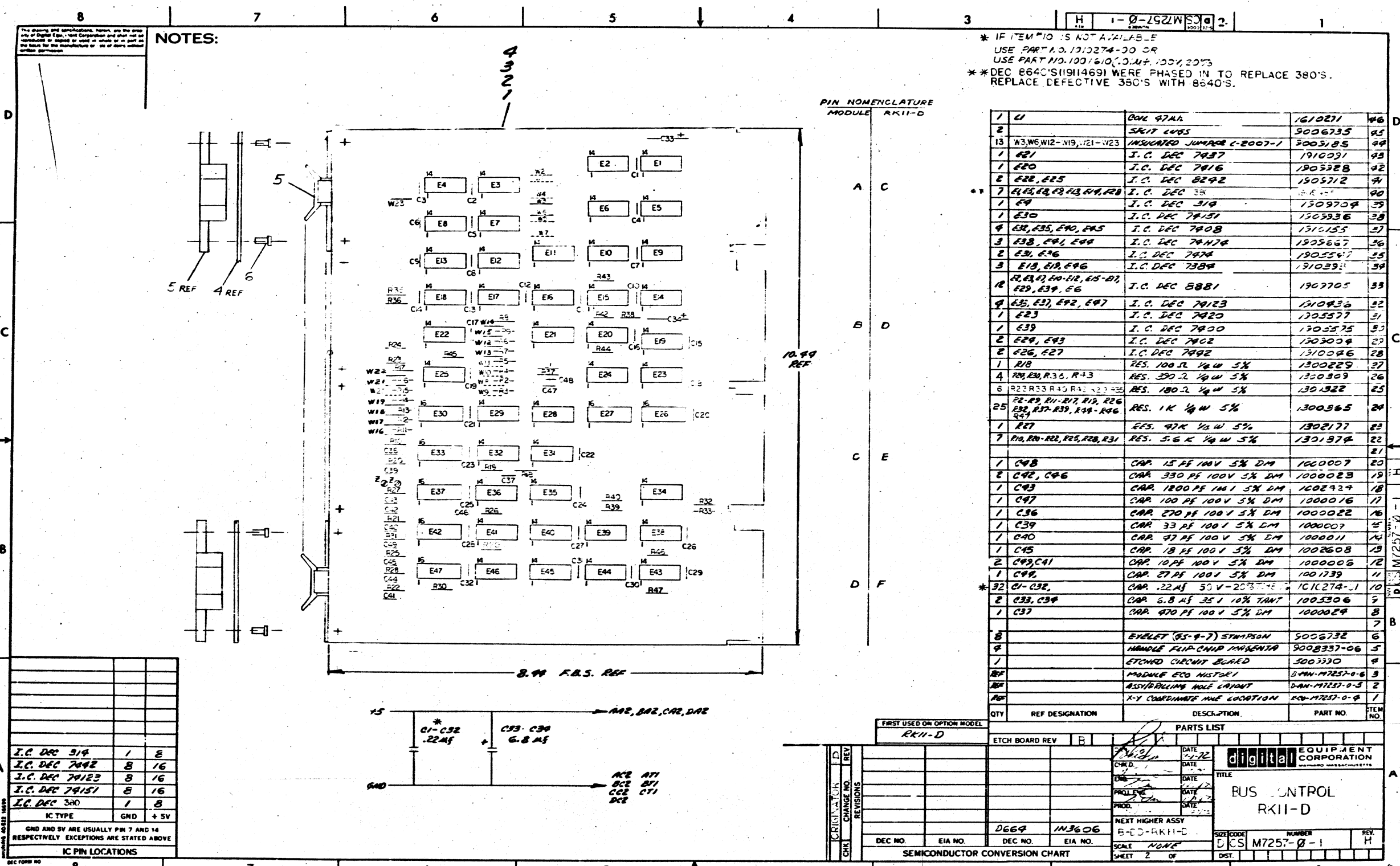
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 ENG: [Signature] DATE: []
 PRD: [Signature] DATE: []

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

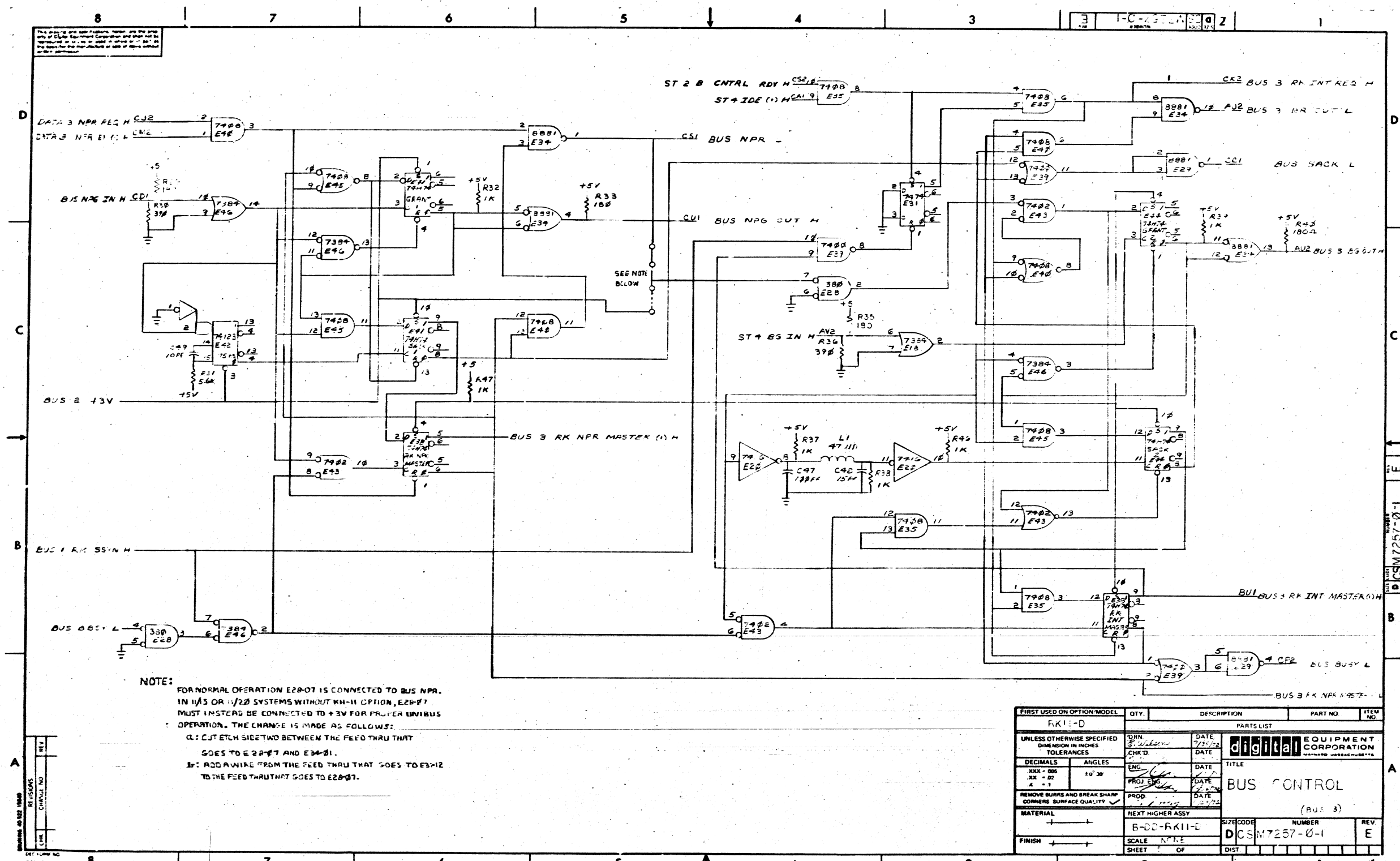
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M7257-00008

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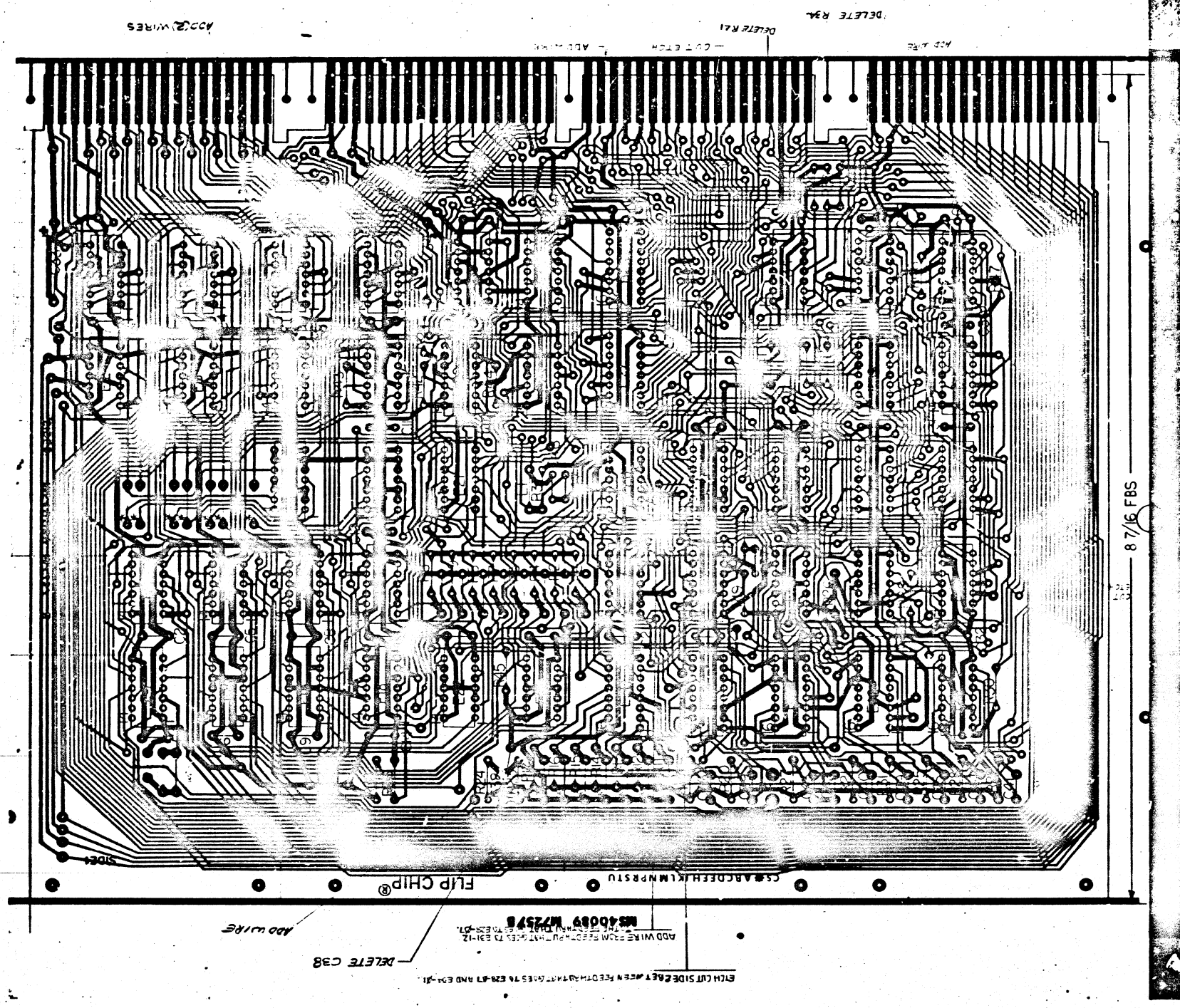
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NOTE:
 FOR NORMAL OPERATION E28-07 IS CONNECTED TO BUS NPR.
 IN 1/15 OR 1/20 SYSTEMS WITHOUT KH-11 OPTION, E28-07
 MUST INSTEAD BE CONNECTED TO +3V FOR PROPER UNIBUS
 OPERATION. THE CHANGE IS MADE AS FOLLOWS:
 1. CUT BOTH SIDES TWO BETWEEN THE FEED THRU THAT
 GOES TO E 28-07 AND E34-01.
 2. ADD A WIRE FROM THE FEED THRU THAT GOES TO E34-02
 TO THE FEED THRU THAT GOES TO E28-07.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	DATE	PARTS LIST	
XXX - 000	10' 30"	7/25/73	digital EQUIPMENT CORPORATION	
XX - 02		DATE	TITLE	
X - 01		12/7/72	BUS CONTROL	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL				
NEXT HIGHER ASSY				
B-DD-RK11-D				
SCALE				
SHEET OF				
SIZE CODE				
NUMBER				
D/C S M 7257-0-1				
REV				
E				

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BOARD FABRICATION INFORMATION

BOARD SIZE 8.550 X 11.750 PLATED THRU EYELET SIDED
 BOARD MATERIAL .052 THK 1OZ COPPER NOTCH BEFORE GOLD PLATING
 2 SDES NOTCH AFTER GOLD PLATING

HOLE LETTER	DRILLING DATA				CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS	DRILL SIZES BEFORE PLATE	AFTER PLATE	FOR NON-PTH BOARDS	YES	NO	
HONE	*56 DRILL (.0463DIA)	X		*54 DRILL (.055DIA)	X		
"Z"	*49 DRILL (.073DIA)	X		*51 DRILL (.067DIA)	X		2

NOTE:
 1EN JUMPERS INDICATED BY
 BROKEN LINES WILL NOT BE
 INSTALLED DURING ASSEMBLY

DATE	7/14/72	TITLE	ASSY/DRILLING HOLE LAYOUT
DESIGNER	TRIAD	REV	
DRAWN		DATE	7/17/72
CHECKED		BY	
INSTRUMENT		NO.	
SCALE	M7257	PROJECT	M7257-0-5
SHEET	27	OF	27
		REV	K

REVISIONS	A	B	C	D	E	F	H	J	K
DESCRIPTION	TRIAD								
DATE									
ENGINEER	TOM ORR								

TITLE RKI-D BUS CONTROL PROD. NO. M7257
 CHARGE NO. E11-06734 DATE 5-12-72 C.S. REV B
 ENGINEER TOM ORR EXTENSION 2791 MS. NO. 40989

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digital ENGINEERING CHANGE ORDER		CONTINUATION SHEET		ECO NO. M7257-0009	SHEET 1 OF 3
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE	
4	5009990	B	C 02	Phase in new etch board as shown above. Note: Update bill of materials per new parts list (D-CS-M7257-0-1, Sheet 2). Changes to the parts list are shown below. Items 5 thru 17 are new items. Items 18 thru 22 are additional quantities to existing items. Items 23 thru 43 are deletions.	
5	10-00005		07	Add qty five 6.8 pf cap.	
6	13-00295		07	Add qty three 330 Ω res.	
7	13-05124		07	Add qty one 287 Ω res.	
8	13-04854		07	Add qty two 5.1K res.	
9	13-00005-01		07	Add qty two 1K resistor pack	
10	15-03100		07	Add qty one trans. DEC 3009B	
11	19-05635		07	Add qty one DEC IC 74H20	
12	19-09056		07	Add qty three DEC IC 74H00	
13	19-09931		07	Add qty one DEC IC 74H04	
14	19-10409		07	Add qty three DEC IC 74H103	
15	19-11469		07	Add qty one DEC IC 8640	
16	19-11117-00		07	Add qty eight DEC IC 8838	
17	90-07791		07	Add qty two solder terminal	
18	10-10274-01		07	Add qty seventeen .22 mf cap.	
19	10-05306		07	Add qty two 6.8 pf cap.	
20	19-09712		07	Add qty one DEC IC 8242	
21	19-09667		07	Add qty one DEC IC 74H74	
22	90 09185		07	Add qty two insulated jumpers	
23	10-00007		00	Delete qty one 15 pf cap.	
24	10-00016		00	Delete qty one 100 pf cap.	
25	10-00009		00	Delete qty one 33 pf cap.	

DRA-111C-2

digital ENGINEERING CHANGE ORDER, 619		ECO NO. M7257-0009		SHEET 1 OF 3	DATE RECEIVED 10/18/74	DATE 9/30/74	ORIGINATOR Dick Lewis ms/mas		
UNIT TO BE CHANGED		M7257		BUS Control		DISP CODE 02*			
PROBLEM The M7257 module has no spare IC locations, has long etch runs, and a poor power and ground network.		CORRECTION Relayout the M7257 module to high density standards to add some spare IC locations, shorten the etch runs, and improve the PMZ/GND network. Several logic changes are incorporated in the C etch revision to facilitate the new layout; therefore, CS rev K prints must be used with, and only with, C etch boards. These changes are transparent external to the module.		BREAK-IN/ACTIVITY *All rev B etch boards in W.I.P. and stock may be completed, (do not scrap any boards), Phase in etch rev. C boards by 3/1/75.		PRODUCT LINES AFFECTED PDP-11 FDP-15			
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE	APPROVAL SIGNATURES	DESIGN ENGR Tom Off 1-3	ENG MGR (OPT)	FIELD SERVICE (OPT)	CHIEF ENGR (MODULES ONLY)
1	D-CS-M7257-0-1								
	Sheet 1	K	L 06	Update revs per this ECO					
	Sheet 2	H	J 06	Replace old rev with new rev print supplied					
	Sheet 3	C	D 06	Replace old rev with new rev print supplied					
	Sheet 4	B	C 06	Replace old rev with new rev print supplied					
	Sheet 5	E	F 06	Replace old rev with new rev print supplied					
	Sheet 6	B	C 06	Replace old rev with new rev print supplied					
2	D-MH-M7257-0-5								
		K	L 06	Replace old rev with new rev print supplied					
3	B-MH-M7257-0-6								
		K	L 06	Update per this ECO					

SEE REVERSE FOR INSTRUCTIONS (IN ORDER TO FILL OUT FORM PROPERLY)

digital ENGINEERING CHANGE ORDER		CONTINUATION SHEET		ECO NO. M7257-0009	SHEET 3 OF 3
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE	
26	10-00011		00	Delete qty one 47 pf cap.	
27	10-02608		00	Delete qty one 18 pf cap.	
28	10-00024		00	Delete qty one 470 pf cap.	
29	13-00229		00	Delete qty one 100 Ω res.	
30	13-00309		00	Delete qty two 390 Ω res.	
31	13-00365		00	Delete qty twenty-five 1K res.	
32	13-01874		00	Delete qty six 5.6kres.	
33	16-10271		00	Delete qty one 47 μh coil	
34	19-09928		00	Delete qty one DEC IC 7416	
35	19-09485		00	Delete qty seven DEC IC 380	
36	19-10155		00	Delete qty one DEC IC 7408	
37	19-05547		00	Delete qty two DEC IC 7474	
38	19-10393		00	Delete qty three DEC IC 7384	
39	19-09705		00	Delete qty eight DEC IC 8081	
40	1-10436		00	Delete qty two DEC IC 74123	
41	19-05577		00	Delete qty one DEC IC 7420	
42	19-05575		00	Delete qty one DEC IC 7400	
43	90-06735		00	Delete qty two split lugs	

DRA-111C-3

7 9-0-7521W B
A 19 NUMBER 1233 325

PRODUCT LINE PDP 11
DATE RELEASED 9-20-72
RELEASED BY T. ORR

MODULE ECO HISTORY
PAGE 1 OF 2

RELEASED CS REV A
RELEASED ETCH BD REV B

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 01 TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN I115 OR I120 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG + BG LINES	—	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANSKY	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE +5V & GND DISTRIBUTION	0	0
0006A	D. MUTNANSKY	1-24-74	—	—	—	—		—	—		CORRECT REWORK INSTRUCTION	—	—
00007	R. LEWIS	6-28-74	J	B		✓		✓			DELETE OPTIONAL JUMPERS	—	10
00008	R. LEWIS	10-4-74	K	S		✓		✓			ADD TERMINATOR RESISTORS TO NPG + B6 LINES	2	—

REV. NO.	DATE	BY	DESCRIPTION
1	9-20-72	T. ORR	INITIAL
2	11-16-72	T. ORR	REVISED
3	2-16-73	R. LEWIS	REVISED
4	5-3-73	R. LEWIS	REVISED
5	10-12-73	R. LEWIS	REVISED
6	12-6-73	T. ORR	REVISED
7	1-10-74	D. MUTNANSKY	REVISED
8	1-24-74	D. MUTNANSKY	REVISED
9	6-28-74	R. LEWIS	REVISED
10	10-4-74	R. LEWIS	REVISED

DRN: [Signature] DATE: 9-20-72
CHKD: [Signature] DATE: 9-21-72
ENG: [Signature] DATE: []
PROD: [Signature] DATE: []

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: MODULE ECO HISTORY
SIZE: B CODE: MH NUMBER: M7257-0-6 REV: L

DEC 14 1972 10:24:57
DRB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7257-00009

NOT TO BE USED FOR PRODUCTION

REV. L
 NUMBER M7257-0-6
 H. B.

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY					RELEASED CS' REV. <u>A</u>						
DATE RELEASED <u>9-20-72</u>		PAGE <u>2</u> OF <u>2</u>					RELEASED ETCH BD REV. <u>B</u>						
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARL ER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00009	R. LEWIS	10-4-74	L	C		✓		✓			NEW ETCH TO SHORTEN RUNS, IMPROVE PWR + GND	17	20

REVISIONS
 CHG. NO. REV.

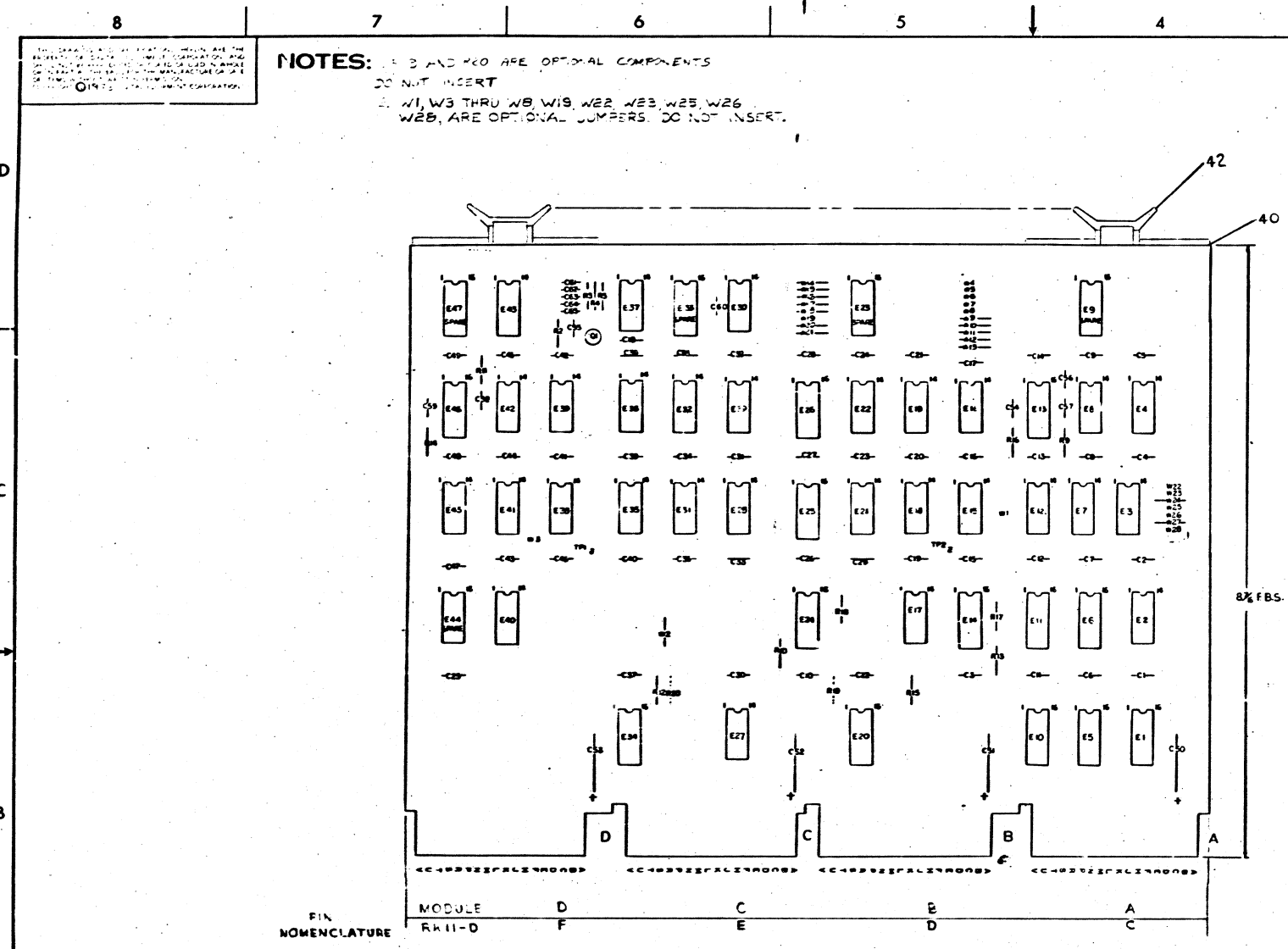
DRG. D. SMITH DATE 9-21-72
 CHKD. D. SMITH DATE 9-21-72
 ENG. T. ORR DATE 9-21-72
 PROP. R. LOCLEY DATE 9-22-72

EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE MODULE ECO HISTORY
 SIZE B CODE M NUMBER M7257-0-6 REV. L

DEC 30-1320-102C-R371
 DR3 104

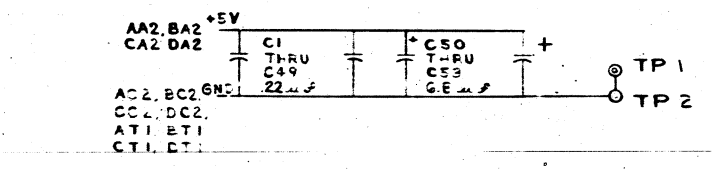
THIS DRAWING IS PART OF E.C.O. PACKAGE # *M7257-00009* **NOT TO BE USED FOR PRODUCTION**



NOTES: W1, W3 AND W8 ARE OPTIONAL COMPONENTS DO NOT INSERT
 W1, W3 THRU W8, W19, W22, W23, W25, W26, W28, ARE OPTIONAL JUMPERS. DO NOT INSERT.

IC TYPE	GND	+5V
IC DEC 8547	1	8
IC DEC 74H103	11	4
IC DEC 314	1	16
IC DEC 744	8	16
IC LFC 74123	8	12
IC DEC 7451	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.
 IC PIN LOCATIONS



REF	X-Y COORDINATE HOLE LOC.	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
REF	ASSY/DRILLING HOLE LAYOUT					
REF	MODULE ECO HISTORY					
1	ETCHED CIRCUIT BOARD	5009990				4
2	C53, C59	1000006				5
1	C54	1000022				6
2	C57, C60	1000023				7
1	C56	1002424				8
49	C1 THRU C49	1010274-01				9
4	C50 THRU C53	1005306				10
5	C61 THRU C65	1000005				11
1	C55	1001739				12
1	Q1	1503100				13
9	R2, R3, R4	1300295				14
2	R10, R13	1300309				15
1	R5	1305124				16
4	R12, R15, R7, R3	1301322				17
1	R16	1301874				18
1	R9	1302177				19
2	R11, R14	1304854				20
2	E10, E30	1300005-01				22
1	E19	1905635				23
2	E22, E38	1909004				24
3	E18, E31, E37	1909056				25
4	E40, E41, E42, E35	1909637				26
1	E2	1909704				27
4	E3, E4, E6, E27	1909705				28
3	E7, E12, E15	1909712				29
1	E21	1909931				30
1	E26	1909936				31
2	E24, E25	1910046				32
1	E28	1910091				33
3	E36, E39, E45	1910155				34
3	E29, E32, E43	1910409				35
2	E13, E46	1910436				36
1	E17	191463				37
8	E1, E5, E6, E10, E11, E14, E20, E34	1911117-00				38
15	W2, W9 THRU W18, W20, W21, W24, W27	9009185				39
8		9006732				40
2	TP1, TP2	9007791				41
4		9008337-06				42

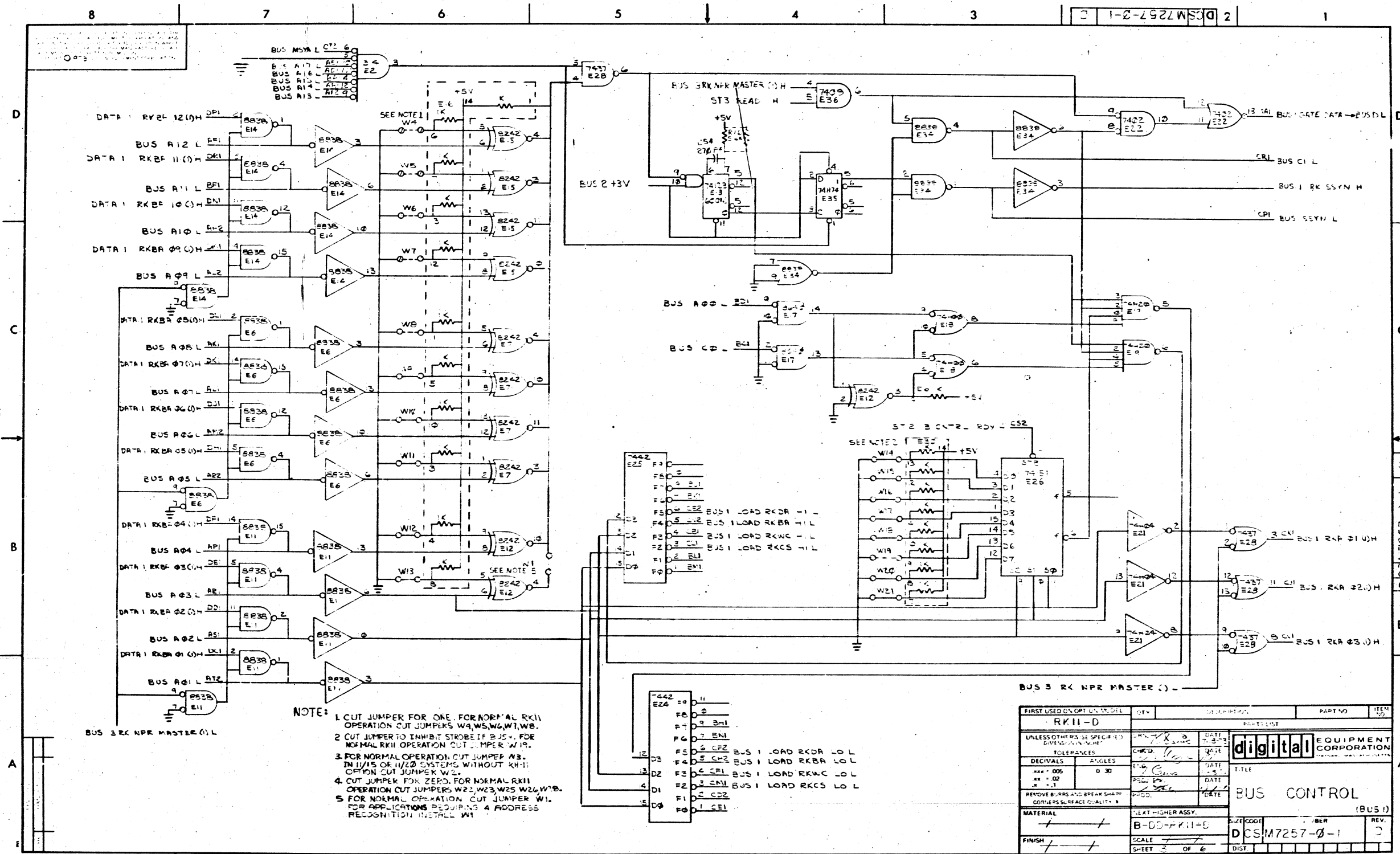
REV	DATE	BY	CHKD	DATE	BY
1	10/1/74	J. Lewis			
2	10/1/74	J. Lewis			
3	10/1/74	J. Lewis			
4	10/1/74	J. Lewis			

SEMICONDUCTOR CONVERSION CHART

DEC NO	EIA NO	DEC NO	EIA NO

digital EQUIPMENT CORPORATION
 TITLE: BUS CONTROL RKII-D
 SIZE CODE: DCS NUMBER: M7257-0-1
 SHEET: 2 OF 2

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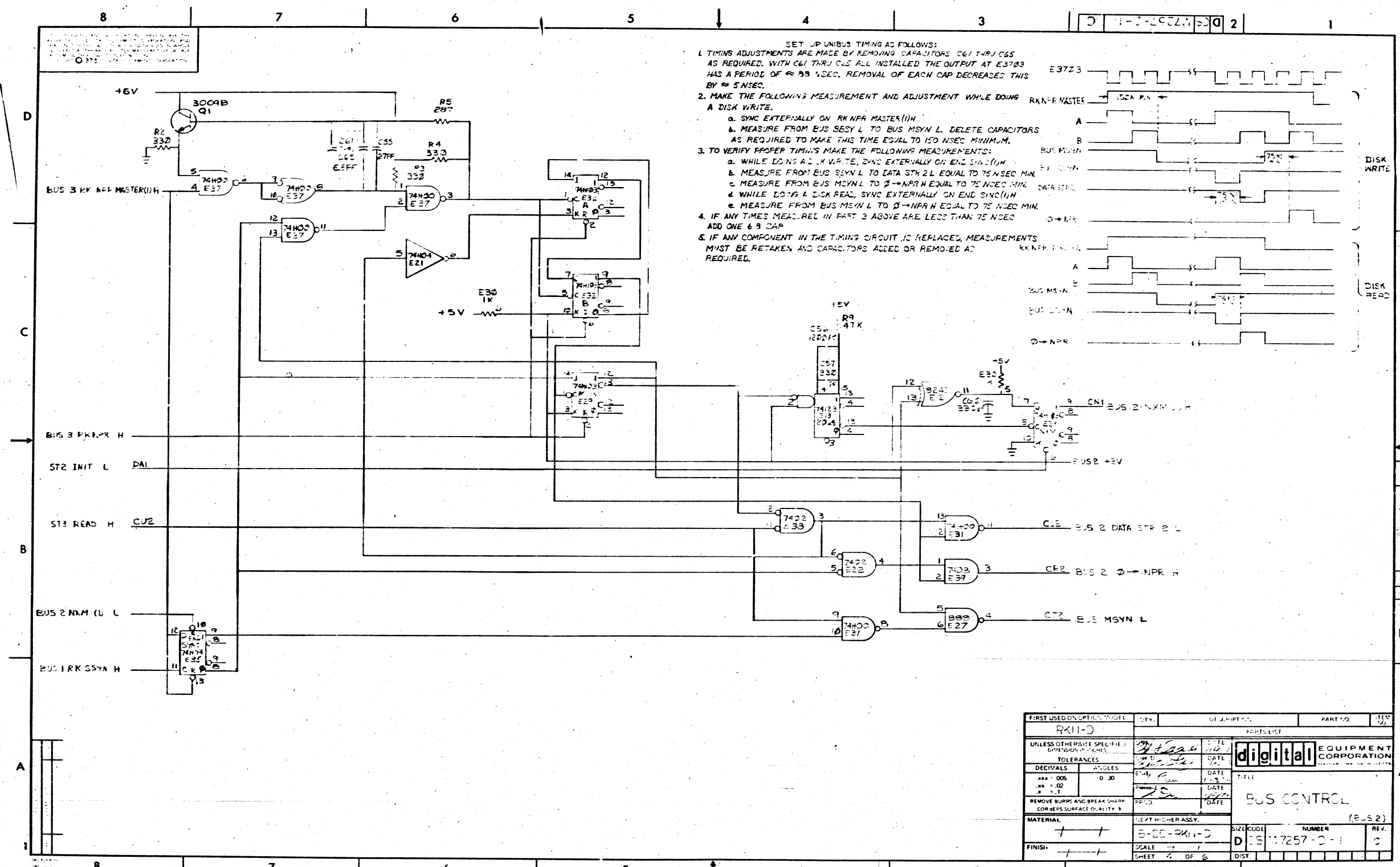
FIRST USED ON OPT. IN DEL.	REV.	DATE	PART NO.	ITEM NO.
RKII-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TOLERANCES		
DECIMALS	ANGLES	DATE		
.005	0.30	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY B		DATE		
MATERIAL		NEXT HIGHER ASSY.		
FINISH		SIZE CODE		
		B-DD-RKII-D		
		SCALE		
		SHEET 3 OF 6		
		DIST		

digital EQUIPMENT CORPORATION

BUS CONTROL (BUS 1)

DCS M7257-0-1 REV. 2

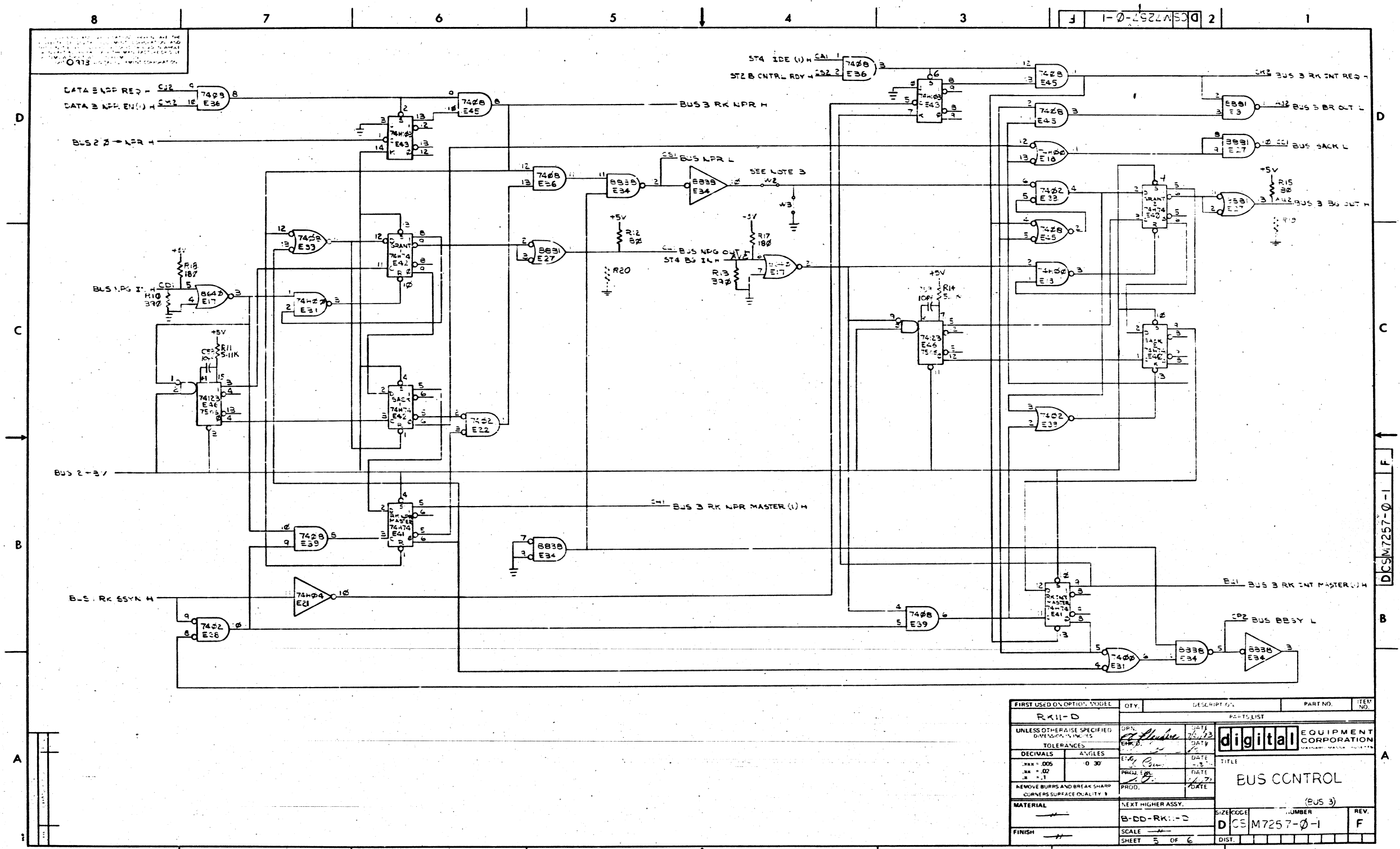
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SET UP UNIBUS TIMING AS FOLLOWS:
 1. TIMING ADJUSTMENTS ARE MADE BY REMOVING CAPACITORS C61 THRU C65 AS REQUIRED. WITH C61 THRU C65 ALL INSTALLED THE OUTPUT AT E3703 HAS A PERIOD OF ≈ 99 NSEC. REMOVAL OF EACH CAP DECREASES THIS BY ≈ 5 NSEC.
 2. MAKE THE FOLLOWING MEASUREMENT AND ADJUSTMENT WHILE DOING A DISK WRITE.
 a. SYNC EXTERNALLY ON RK-NR MASTER (H)
 b. MEASURE FROM BUS SSYN L TO BUS MSYN L. DELETE CAPACITORS AS REQUIRED TO MAKE THIS TIME EQUAL TO 150 NSEC MINIMUM.
 3. TO VERIFY PROPER TIMING MAKE THE FOLLOWING MEASUREMENTS:
 a. WHILE DOING A DISK WRITE, SYNC EXTERNALLY ON END SYNC (H)
 b. MEASURE FROM BUS SSYN L TO DATA STR 2 L EQUAL TO 75 NSEC MIN.
 c. MEASURE FROM BUS MSYN L TO Ø-NPR H EQUAL TO 75 NSEC MIN.
 d. WHILE DOING A DISK READ, SYNC EXTERNALLY ON END SYNC (H)
 e. MEASURE FROM BUS MSYN L TO Ø-NPR H EQUAL TO 75 NSEC MIN.
 4. IF ANY TIMES MEASURED IN PART 3 ABOVE ARE LESS THAN 75 NSEC ADD ONE OR TWO CAP.
 5. IF ANY COMPONENT IN THE TIMING CIRCUIT IS REPLACED, MEASUREMENTS MUST BE RETAKEN AND CAPACITORS ADDED OR REMOVED AS REQUIRED.

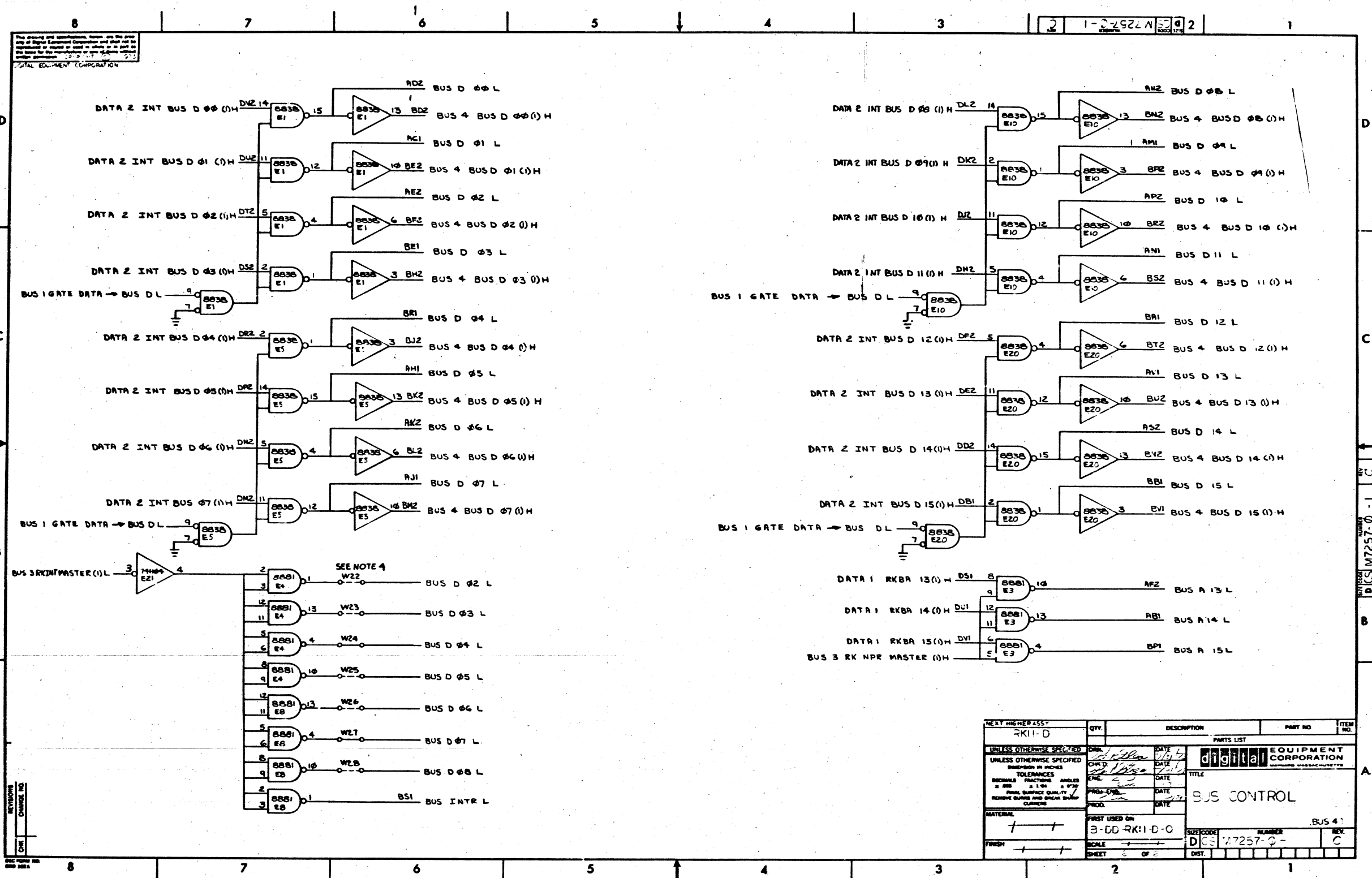
FIRST USED OR OPTION MODEL	REV.	DESCRIPTION	PART NO.	REV.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES	DATE	PARTS LIST		
TOLERANCES	DATE	digital EQUIPMENT CORPORATION		
DECIMALS	DATE	TITLE		
ANGLES	DATE	BUS CONTROL (BUS 2)		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 1	DATE	NEXT HIGHER ASSY.		
MATERIAL	DATE	B-BD-RK11-D	SIZE CODE	NUMBER
FINISH	DATE	D	SCALE	REV.
		SHEET 4 OF 6	DIST	

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FIRST USED OR OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES				
TOLERANCES:				
DECIMALS	ANGLES	DATE		
.xxx = .005	0 30'	DATE		
.xx = .02		DATE		
.x = .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 3				
NEXT HIGHER ASSY.				
MATERIAL				
FINISH				
B-DD-RK11-D		SIZE CODE	NUMBER	REV.
SCALE		DIST.	DCS M7257-0-1	F
SHEET 5 OF 6				

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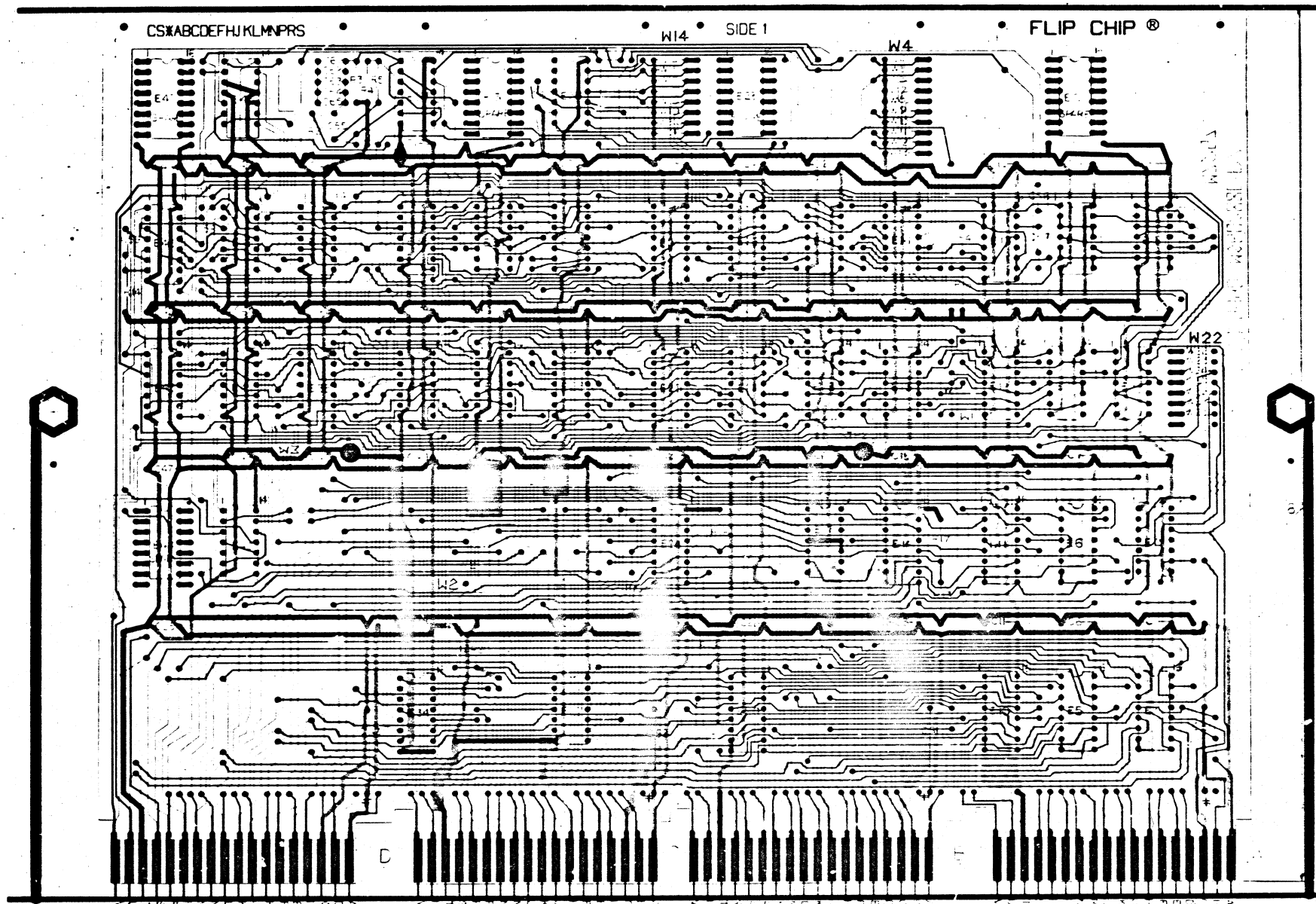


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QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION		
TITLE: BUS CONTROL			
MATERIAL: 3-DD-RK11-D-0			
SCALE: 1:1			
SHEET 2 OF 2			
SIZE CODE: DCS		NUMBER: M7257-0-1	
REV. C		REV. C	

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5009990CP7MS60288M7257



NOTES:

1. JUMPERS W. 3, 8, 22, 23, 25, 26, AND 28 ARE CUSTOMER OPTIONS, DO NOT INSERT.
2. 5, 9, AND R20 ARE OPTIONAL COMPONENTS, DO NOT INSERT.

HOLE LETTER	DRILL SIZES		CAN TAKE STRIPLETS	QTY OF HOLES
	FOR PTH BOARDS BEFORE PLATE	FOR PTH BOARDS AFTER PLATE		
NONE	*.61 (.39 DIA.)	X		1
Z	*.11 (.095 DIA.)	X	X	2

BOARD FABRICATION INFORMATION

- BOARD SIZE: 11.502 X 11.750
 END-USE: 215-0-0
 BOARD MATERIAL: .052 THK
 1/2% COPPER 2 SIDES
- EYELET PLATED THRU
 2 SIDED MUL 1-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DATE	DATE	digital EQUIPMENT CORPORATION VERMONT, MASSACHUSETTS
DATE	DATE	
DATE	DATE	
DATE	DATE	
DATE	DATE	
TITLE		RK11-D BUS CONTROL
FIRST USED ON	SIZE CODE	NUMBER
M 7257	DAH	M7257-C-5
SCALE	ETCH REV	REV
		L
MS 60288		

THIS DRAWING IS PART OF E.C.O. PACKAGE #

M7257-00009

NOT TO BE USED FOR PRODUCTION

digital
ENGINEERING
CHANGE ORDER

ORIGINATOR Dick Lewis ECO NO. M7257-00010
 TEL EXT. 4000 DATE 8/21/75 SHEET 1 OF 2
 LOCATION NL1-2/et5 DATE RECEIVED 8-29-75
 COST CENTER NO. 39C ISSUE DATE 8-25-75
 FINAL RELEASE

PROBLEM
I.C. 8838 is no longer a preferred Unibus Receiver/Driver.

UNIT TO BE CHANGED
M7257
Bus Control

PRODUCT AFFECTED
PDP-11
PDP-15

CORRECTION
Substitute I.C. 8641 for the 8838 in new module builds
 Note: This ECO affects M7257 ETCH Rev C only.

BREAK-IN/EFFECTIVITY
Phase into new builds in module build areas by 11/1/75.
 Do Not rework any built boards. When I.C. Failure occurs
 replace defective 8838's with 8641's after 11/1/75.

QUICK-CHECK
Check for 8641's in locations E1, 5, 6, 10, 11, 14, 20, 34

TEST
Normal module test.

TYPE OF ECO
 HARDWARE
 SOFTWARE
 PURCHASE SPEC

FIELD SERVICE AFFECTED
 YES NO
 D.P.R. DISTR.
 L.O.U. CODE

WHERE USED
RK11-L
RK11-E

ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	D-CS-M7257-0-1 Sheet 1 Sheet 2 Sheet 3 Sheet 5 Sheet 6	L J D F C	M K E H D	Update revisions per this ECO Update parts list per items 2 and 3 this ECO Change all 8838 logic gates to 8641 Change all 8838 logic gates to 8641 Change all 8838 logic gates to 8641
2.	191117-00	-	-	Delete eight 8838's (Item 3)
3.	1911579	-	-	Add eight 8641's (Item 3)

APPROVAL SIGNATURE (TYPE NAME AND SIGNATURE)
 PROJECT ENGR. Dick Lewis
 ENG. MGR. Doug Rothenberg

REVIEW SIGNATURES (SEE INSTRUCTIONS FOR APPLICATION)
 FIELD SERVICE
 DIAGNOSTIC ENGR. Bob Wood 8-29

TEL. EXT. 6538 COST CENTER NO. 39C
 DISC. PROJ. NO. B-20-67334 DATE 8/21/75

COORD. NO. MD 3095 REF. NO.

DEC 16 (496) 1071A R175

digital
ENGINEERING
CHANGE ORDER

CONTINUATION
SHEET

ECO NO. M7257-00010
SHEET 2 OF 2

ITEM NO.	DOCUMENT/PART NO.	OLD REV.	NEW REV.	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
4.	D-AH-M7257-0-5	L	M	Update revision
5.	R-MH-M7257-0-6	L	M	Update per this ECO

11 CENTRAL ENG.
ECO COMMITTEE

AUG 29 1975

DEC 16 (496) 1071-1A R175

9-0-72/W

PRODUCT LINE <u>PDP 11</u>				MODULE ECO HISTORY				RELEASED CS REV. <u>A</u>					
DATE RELEASED <u>9-20-72</u>				PAGE <u>1</u> OF <u>2</u>				RELEASED ETCH BD REV. <u>B</u>					
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR PERFORMED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE (NO. 1 CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B	✓			✓			E40 DI TO CM2	0	0
00002	R LEWIS	2 16 73	C	B	✓			✓			REMOVE BUS MYSN FILTER CIRCUIT	1	3
00003	R LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 1V15 OR 1V20 SYSTEMS WITHOUT KH-1		✓		REMOVE BUS NPR FROM E2807	—	—
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG +5G LINES	—	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	DANIEL MUTNANSKY	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE +5V GND DISTRIBUTION	0	0
00006A	D MUTNANSKY	1-24-74	—	—	—	—		—	—		CORRECT REWORK INSTRUCTION	—	—
00007	R. LEWIS	6-28-74	J	B		✓		✓			DELETE OPTIONAL JUMPERS	—	10
00008	R. LEWIS	10-4-74	K	B		✓		✓			ADD TERMINATOR RESISTORS TO NPG +5G LINES	2	—

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M7257-00010

NOT TO BE USED FOR PRODUCTION

W 17257-00010 B

PRODUCT LINE <u>PDP11</u>		MODULE ECO HISTORY					RELEASED CS REV. <u>A</u>						
DATE RELEASED <u>9-20-72</u>		PAGE <u>2</u> OF <u>2</u>					RELEASED ETCH BD REV. <u>B</u>						
RELEASED BY <u>T. ORR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REV. SIGN LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00009	R. LEWIS	10-4-74	L	C		✓		✓			NEW ETCH TO SHORTEN R.O.S, IMPROVE PWR + GND	17	20
00010	R. LEWIS	8-21-75	M	C		✓		✓			REPLACE 8938'S WITH 8641'S	8	8

REVISIONS
CHG. (CHG. NO.) (REV.)

DRN. D. SMITH DATE 8-2-72
 CRD. D. SMITH DATE 8-2-72
 ENG. T. ORR DATE 8-2-72
 PROO. R. DORLEY DATE 8-2-72

EQUIPMENT CORPORATION
 NATHAN, MASSACHUSETTS

TITLE: MODULE ECO HISTORY
 SIZE: 3 H NUMBER: M7257-0-5 REV: M

DEC 10-13-74-1024-071
 DHB 104

THIS DRAWING IS PART OF E.C.O. PACKAGE #

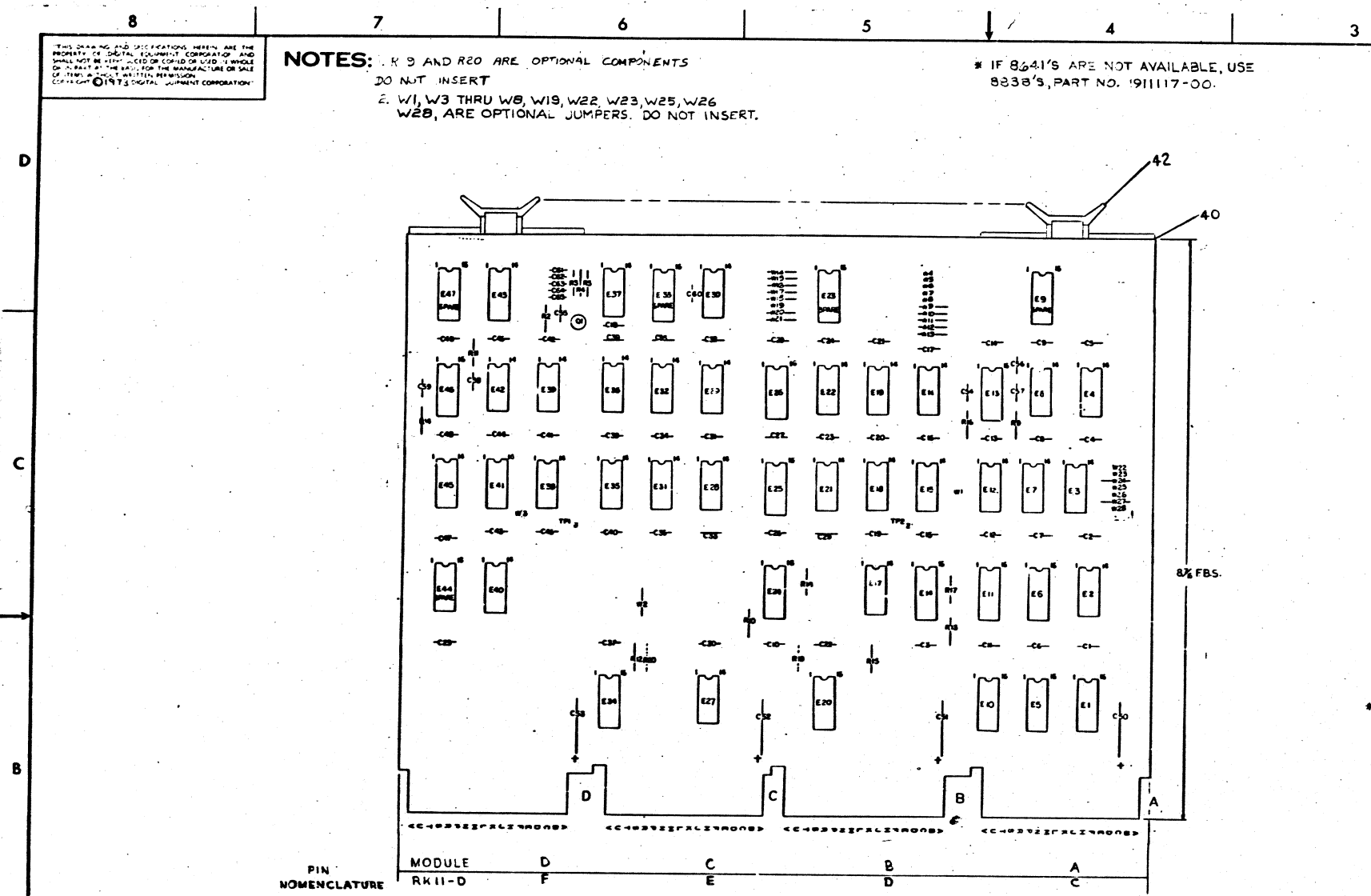
M7257-00010

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NOTES: RK 9 AND R20 ARE OPTIONAL COMPONENTS DO NOT INSERT
 2. W1, W3 THRU W8, W19, W22, W23, W25, W26, W28, ARE OPTIONAL JUMPERS. DO NOT INSERT.

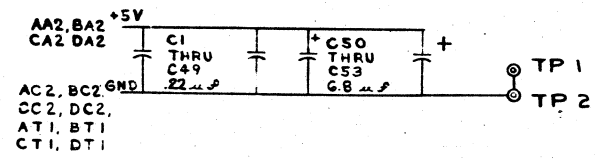
* IF 8641'S ARE NOT AVAILABLE, USE 8838'S, PART NO. 191117-00.



IC TYPE	QTY	LOC
I.C. DEC 8642	1	B
I.C. DEC 74H103	11	4
I.C. DEC 314	1	8
I.C. DEC 7442	8	16
I.C. DEC 74123	8	16
I.C. DEC 74151	8	16
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



REF	X-Y COORDINATE HOLE LOC.	QTY	ITEM NO.
REF	ASSY/DRILLING HOLE LAYOUT		D-AH-M7257-05
REF	MODULE ECO HISTORY		B-MH-M7257-06
1	ETCHED CIRCUIT BOARD	5009990	4
2	C58, C59	CAP 10 MMF 100V 5%	1000006
1	C54	CAP 270 MMF 100V 5%	1000022
2	C57, C60	CAP 330 MMF 100V 5%	1000023
1	C56	CAP 1200 MMF 100V 5%	1002424
49	C1 THRU C49	CAP .22 MF 50V 20%	1010274-01
4	C50 THRU C53	CAP 6.8 MFD 35V 10% TANT	1005306
5	C61 THRU C65	CAP 6.8 MMF 100V 5%	1000035
1	C55	CAP 27 MMF 100V 5%	1001739
1	Q1	TRANS DEC 3009B	1503100
3	R2, R3, R4	RES. 330 1/4 W 5%	1300295
2	R10, R13	RES. 390 1/4 W 5%	1300309
1	R5	RES. 297 1/8 W 1%	1305124
4	R12, R15, R17, R13	RES. 180 1/4 W 5%	1301322
1	R16	RES. 5.6K 1/4 W 5%	1301874
1	R9	RES. 4.7K 1/4 W 5%	1302177
2	R11, R14	RES. 5.1K 1/8 W 1%	1304854
21			
2	E1G, E30	RES. 1K RESISTOR PACK	1300005-01
1	E19	IC. 74H20	1905635
2	E22, E38	IC. 7402	1909004
3	E18, E31, E37	IC. 74H00	1909056
4	E40, E41, E42, E35	IC. 74H74	1909667
1	E2	IC. 314	1909704
4	E3, E4, E8, E27	IC. 8881	1909705
3	E7, E12, E15	IC. 8242	1909712
1	E21	IC. 74H04	1909931
1	E26	IC. 74151	1909936
2	E24, E25	IC. 7442	1910046
1	E28	IC. 7437	1910091
3	E36, E39, E45	IC. 7408	1910155
3	E29, E32, E43	IC. 74H103	1910409
2	E13, E46	IC. 74123	1910436
1	E17	IC. 8642	1911429
8	E15, E6, E19, E41, E29, E34	IC. 8641	1911579
15	W2, W9 THRU W18, W20, W24, W24, W27	INSULATED JUMPER	9009185
8		EYELET	9006732
2	TP1, TP2	SOLDER TERMINALS	9007791
4		HANDLE (FLIPCHIP) MAGENTA	9008337-06

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL: RKII-D

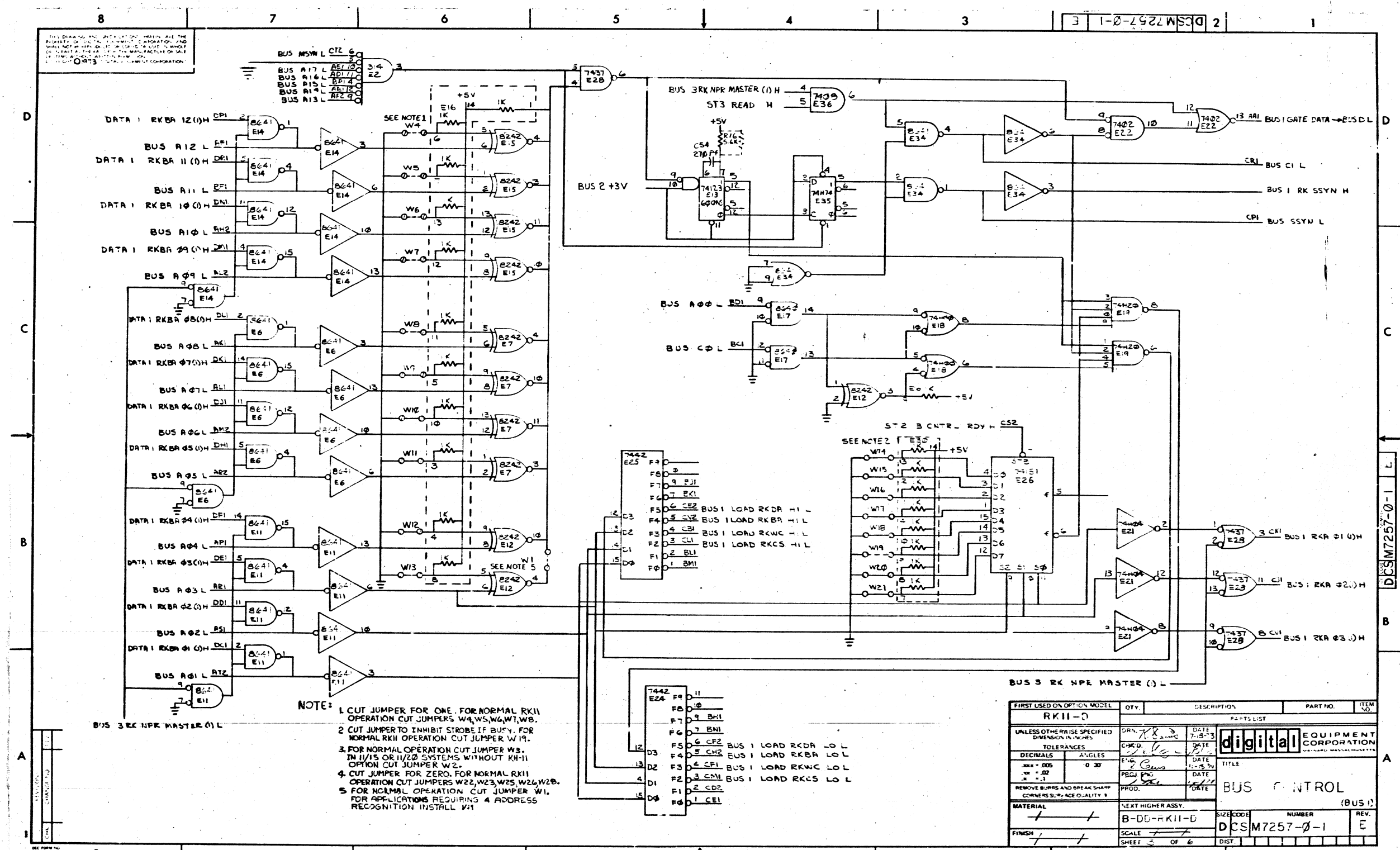
ETCH BOARD REV: C

DRN: [Signature] DATE: 10/4/73
 ENG: [Signature] DATE: 10/4/73
 PROJ. ENG: [Signature] DATE: 10/4/73
 PROD: [Signature] DATE: 10/4/73

digital EQUIPMENT CORPORATION
 TITLE: BUS CONTROL RKII-D
 SIZE CODE: DCS M7257-0-1
 NUMBER: 1
 REV: K

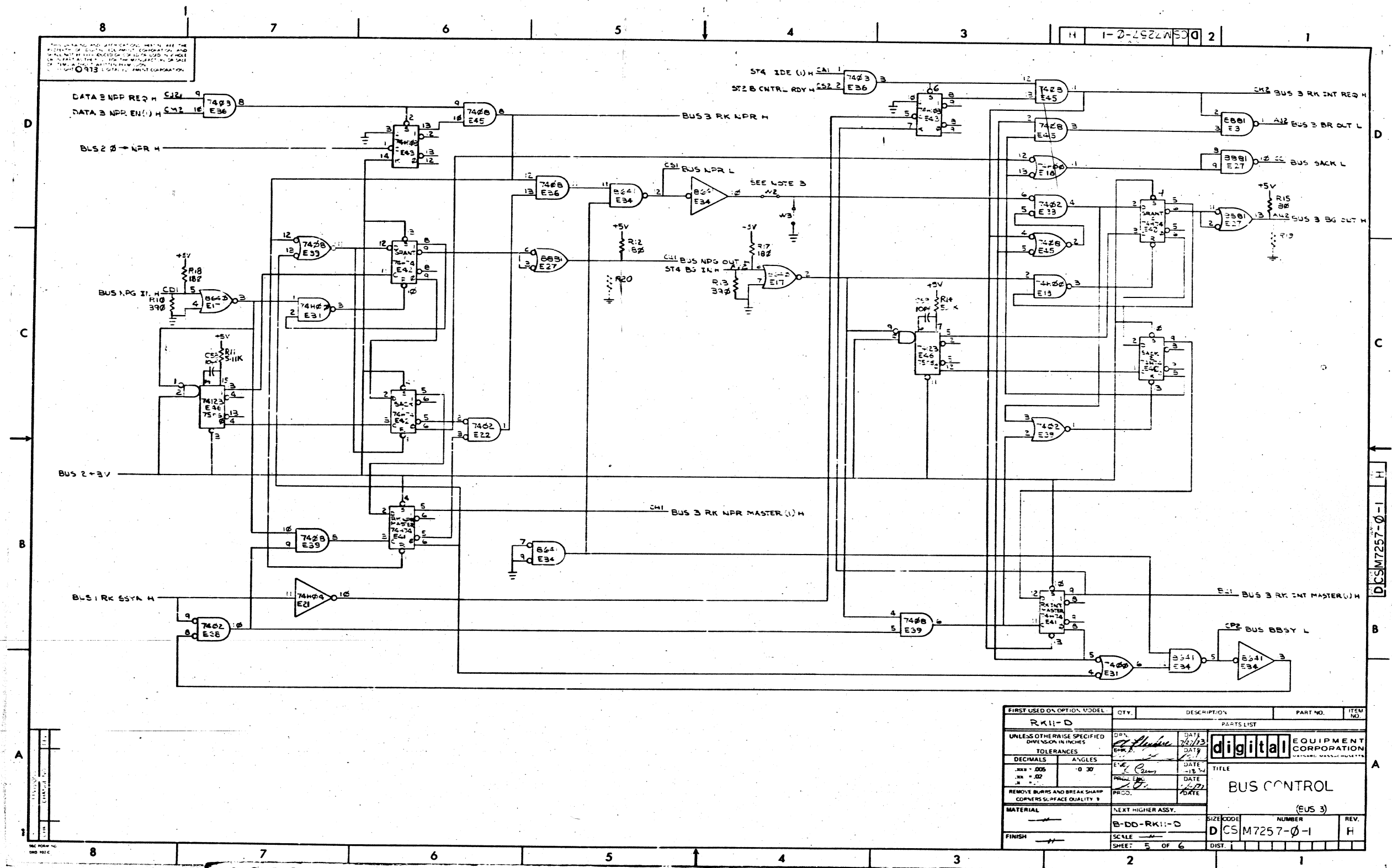
SEMICONDUCTOR CONVERSION CHART
 DEC NO. EIA NO. DEC NO. EIA NO.
 SCALE: NONE
 SHEET: 1 OF 1

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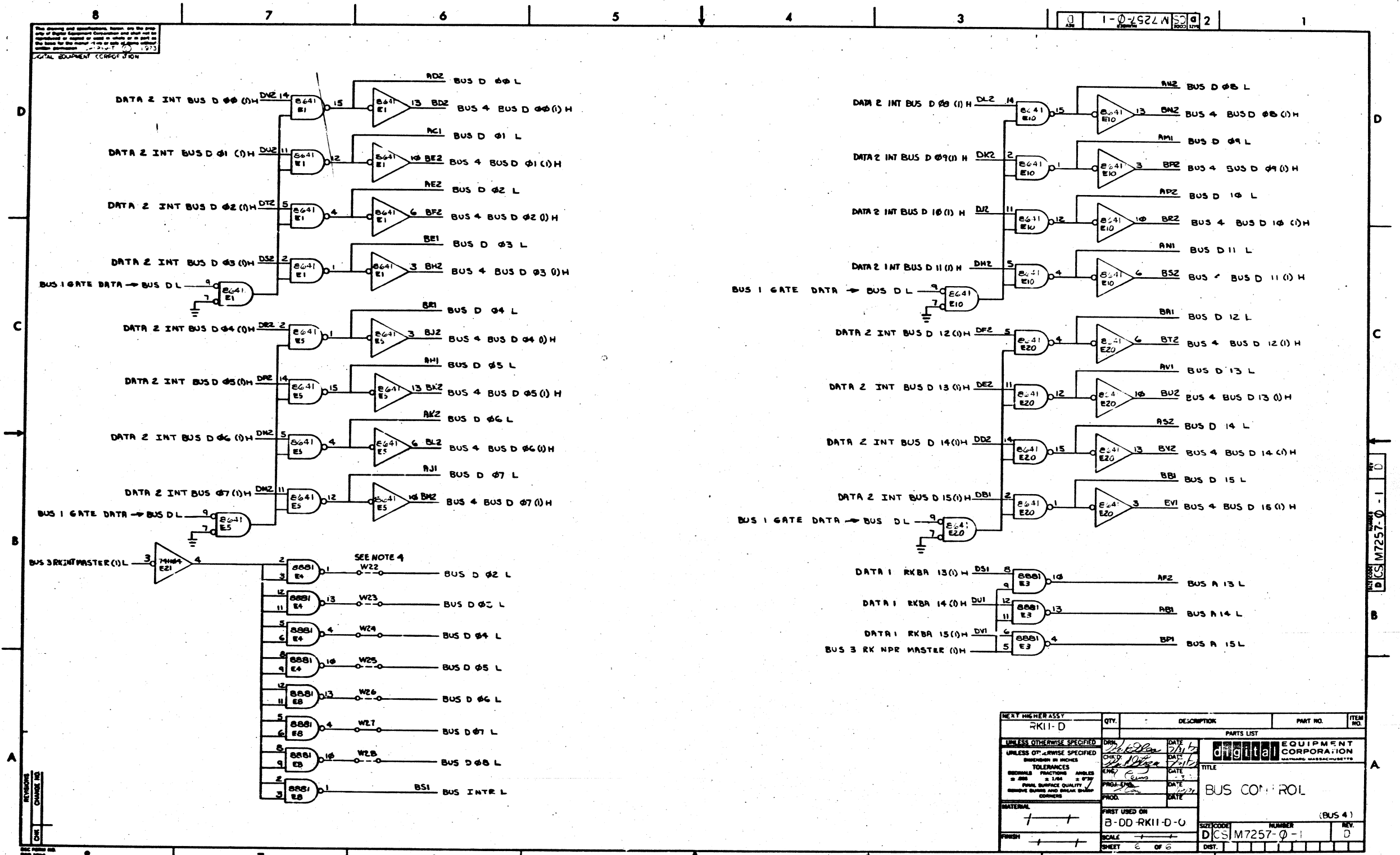
FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RKII-0				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE		
1/16 ± .005	0 30'	7-8-73		
1/32 ± .002		DATE		
1/64 ± .001		11-8-74		
REMOVE BURRS AND BREAK SHARP CORNERS 5.0° MIN. QUALITY B				
MATERIAL				
NEXT HIGHER ASSY.				
B-DC-RKII-0				
SCALE				
SHEET 3 OF 6				
PARTS LIST		TITLE		
digital EQUIPMENT CORPORATION		BUS CONTROL (BUS I)		
SIZE CODE		NUMBER		REV.
DCSM7257-0-1		E		
DIST				

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FIRST USED OR OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES				
TOLERANCES				
DECIMALS	ANGLES	DATE		
.XXX = .005	.0 30'	26/1/73		
.XX = .02		DATE		
.X = .05		1/2/73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY 9				
MATERIAL				
NEXT HIGHER ASSY.				
B-DD-RK11-D				
FINISH				
SCALE				
SHEET 5 OF 6				
PARTS LIST				
digital EQUIPMENT CORPORATION				
TITLE				
BUS CONTROL				
(EUS 3)				
SIZE CODE NUMBER REV.				
DCS M7257-0-1 H				
DIST.				

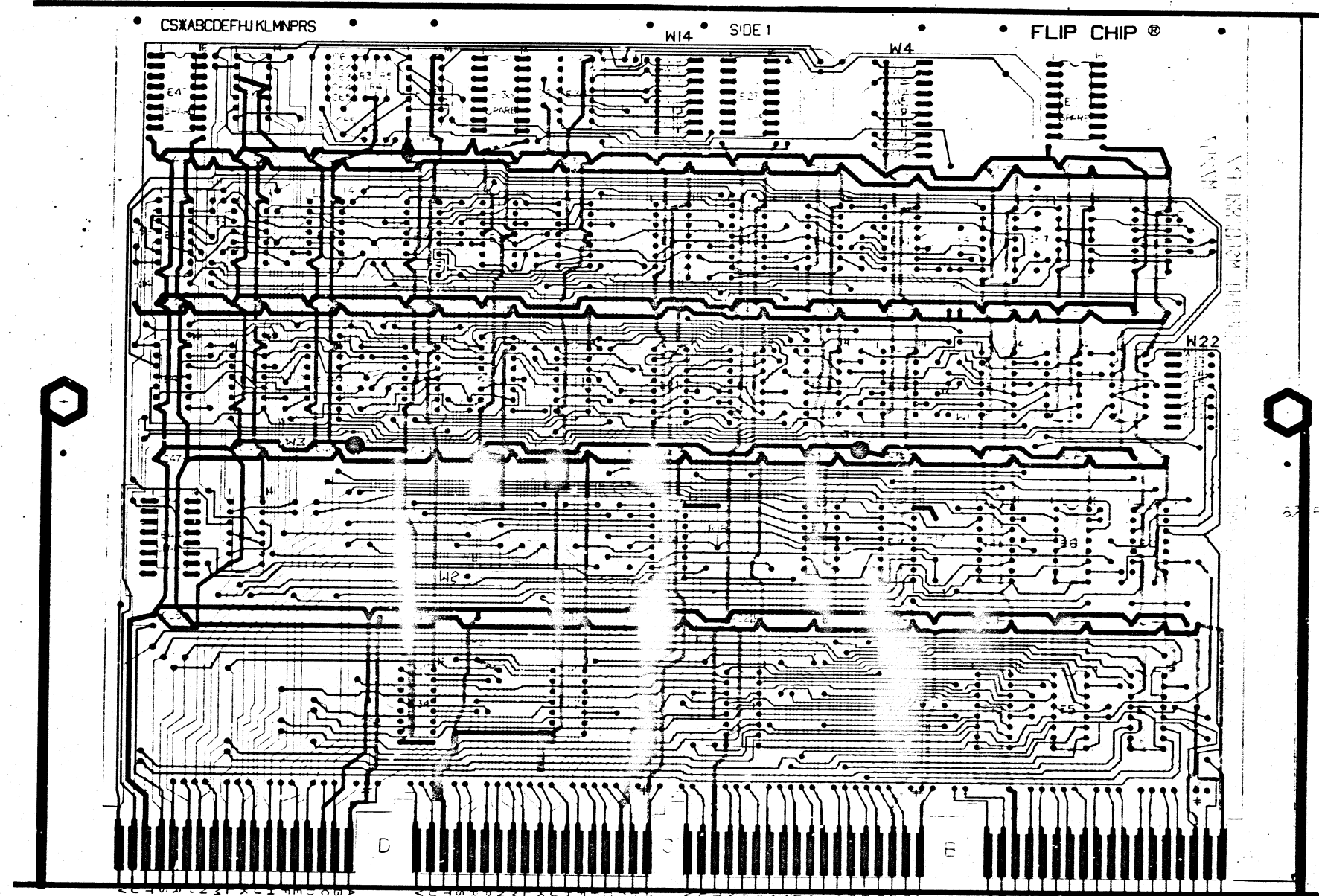
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NOT TO BE USED FOR PRODUCTION

5009990CP7MS60288M7257



NOTES:

- 1. JUMPERS W1, 3, 8, 22, 23, 25, 26, AND 28 ARE CUSTOMER OPTIONS, DO NOT INSERT.
- 2. R9 AND R20 ARE OPTIONAL COMPONENTS, DO NOT INSERT.

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS		QTY OF HOLES
	FOR PTH BOARDS BEFORE PLATE	FOR PTH BOARDS AFTER PLATE	YES	NO	
NONE	*.61 (.039DIA)	X		X	
Z	*.41 (.096DIA)	X		X	2

BOARD FABRICATION INFORMATION

- BOARD SIZE 11.562 X 11.750
- BOARD MATERIAL 1.58 T-HK
- 1.2Z COPPER 2 SIDES
- EYELET PLATED THRU
- 2 SIDED MULTI-LAYER
- NOTCH BEFORE GOLD PLATING
- NOTCH AFTER GOLD PLATING

DATE	DATE	
DATE	DATE	
DATE	DATE	TITLE
DATE	DATE	RK11
DATE	DATE	BUS CONTROL
DATE	DATE	NUMBER
DATE	DATE	M7257-C-5
DATE	DATE	REV.
DATE	DATE	MS 60288

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digital

To be entered by Maynard ECO Admin.
ECO No. 117257-00010
SHEET 1 of 1
MSS No. _____
Discrete Project No. E20-07534

ECO IMPLEMENTATION/COST SUMMARY

Build Level	Area (s)	Effect. Date	No. of Units	Cost/Unit	Total* Cost	Persons Contacted	Comments
Field Service (Systems/Units)					Ø		
Diagnostic Programming					Ø		
Units in Customer/ Hold Area					Ø		
Other:							
Systems/Units in or Complete thru Acceptance					Ø		
Other:							
Systems/Units in Test Areas					Ø		
Other:							
Units in System Assembly or FA&T Stock					Ø		
Other:							
Options in Volume Manufacturing					Ø		
Other:							
Units in Sub-Asy Area					Ø		
Other:							
Modules in Module Manufacturing					Ø		
Other:							
P.C. Board Production					Ø		
Vendor:							
Metal Fabrication					Ø		
Vendor:							
Availability of Test Equipment/ Method					Ø		
Availability of Tooling					Ø		

11 CENTRAL ENG.
ECO COMMITTEE
631
AUG 25 1975

TOTAL COST = Ø CHARGE (S) TO DISCRETE PROJECT NO. Ø

Does this ECO alter the Standard Cost of the product? Yes No
If Yes, by how much? \$ _____ Increase (Decrease)
*Detail (in parentheses) the cost to be charged to the Discrete Project Number: Doug Hollenberg 8/28/75

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE PAGE WHICH PRESENTS IMPLEMENTATION DETAIL.
DEC 3-6983 1831-N175



ORIGINATOR Rich Letz ECO NO. M7257-0001
TEL EXT. 4820 DATE 11/7/75 SHEET 1 OF 1
LOCATION 111-7-75 DATE RECEIVED 11-7-75
COST CENTER NO. 300 FINAL RELEASE 11-7-75

PROBLEM
CLOSE SPACING OF CAPACITORS C03 THRU C08 MAKES BOARD ASSEMBLY DIFFICULT.
NOTE: THIS ECO APPLIES TO ETCH REV. C BOARDS ONLY.

UNIT TO BE CHANGED
M7257
Bus Control
PRODUCT AFFECTED
PFB-11
PFB-15

CORRECTION:
REMOVE CAPACITOR C03 WHICH ALLOWS MORE SPACE FOR C01, C02, C08, C05.

11 CENTRAL ENG.
ECO COMMITTEE
263

TYPE OF ECO
 HARDWARE
 SOFTWARE
 PURCHASE
 SPEC.

BREAK-IN/EFFECTIVITY
PLEASE IN TO MODULE BUILD AHEAD BY 11/1/75. NO BOARDS ARE TO BE REWORKED OR SCRAPPED. NOV 7 1975

FIELD SERVICE AFFECTED
 YES NO
 D.P.R. DISTR
 L.O.U. CODE
WHERE USED

QUICK-CHECK
CHECK FOR REMOVAL OF C03.

M11-2
R011-2

TEST
NORMAL MODULE TEST.

ITEM NO	DOCUMENT PART NO	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL
1.	M7257-0-1 Sheet 1 Sheet 4 Sheet 2	M	L	Update revisions per this ECO. Delete capacitor C03 from drawings. Delete C03 from overlay and change parts list as follows:
2.	100005	-	-	Delete quantity of one, cap. C.Spf (C03)
3.	M7257-0-5	M	L	Update per this ECO.
4.	M7257-0-F	M	L	Update per this ECO.

APPROVAL SIGNATURE (TYPE NAME and SIGN)
PROJECT ENGR. Rich Letz *Rich Letz*
ENG. MGR. _____
TEL. EXT. 4820 COST CENTER NO. 300
DISC. PROJ. NO. 111-7534 DATE 11/7/75
COORD. NO. MD 3791 REF. NO. _____

REVIEW SIGNATURES (SEE INSTRUCTIONS FOR APPLIC.)
FIELD SERVICE _____
DIAGNOSTIC ENGR. Cond. Doug Mianche 11-11-75

NOV 7 1975

9-0-72

MODULE ECO HISTORY

PRODUCT LINE PDP 11
 DATE RELEASED 9-20-72
 RELEASED BY T. ORR

PAGE 1 OF 2

RELEASED CS REV A
 RELEASED ETCH 'BD REV B

ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS NOW AVAILABLE OR RETURNED (FOR REPAIR) TO THIS REV. S.O. LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE WITH (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00001	T. ORR	11-16-72	B	B							END OF TO CM2	0	0
00002	R. LEWIS	2-16-73	C	B	✓			✓			REMOVE BUS MYSH FILTER CIRCUIT	1	3
00003	R. LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 1/15 OF IV20 SYSTEMS WITHOUT KH-		✓		REMOVE BUS NPR FROM E2607	-	-
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG-BG LINES	-	4
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33
00006	JANIEL MUTNANEK	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE 45V GND DISTRIBUTION	0	0
00006A	JANIEL MUTNANEK	1-24-74	-	-	-	-		-	-		CORRECT REWORK INSTRUCTION	-	-
00007	R. LEWIS	6-28-74	J	B		✓		✓			DELETE OPTIONAL JUMPFERS	-	10
00008	R. LEWIS	10-4-74	K	B		✓		✓			ADD TERMINATOR RESISTORS TO NPG-BG LINES	2	-

REV. NO.	DATE	BY	DESCRIPTION
00001			
00002			
00003			
00004			
00005			
00006			
00007			
00008			

DCC 104
DHB 104

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N 34 30-98271 8

PRODUCT LINE <u>PCP11</u>					MODULE ECO HISTORY					RELEASED CS REV. <u>A</u>			
DATE RELEASED <u>9-20-72</u>					PAGE <u>2</u> OF <u>2</u>					RELEASED ETCH BD REV. <u>B</u>			
RELEASED BY <u>T.CRR</u>													
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)			
00009	R. LEWIS	10-4-74	L	C		V		V			NEW ETCH TO SHORTEN RUNS. REMOVE PWR+ SNE	17	20
00010	R. LEWIS	8-21-75	M	C		✓		✓			REPLACE 883'S WITH 881'S	5	8
00011	R. LEWIS	08-NOV-75	N	C		✓		✓			DELETE C83	0	1

REVISIONS
DATE
BY

DATE
BY
DATE
BY

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

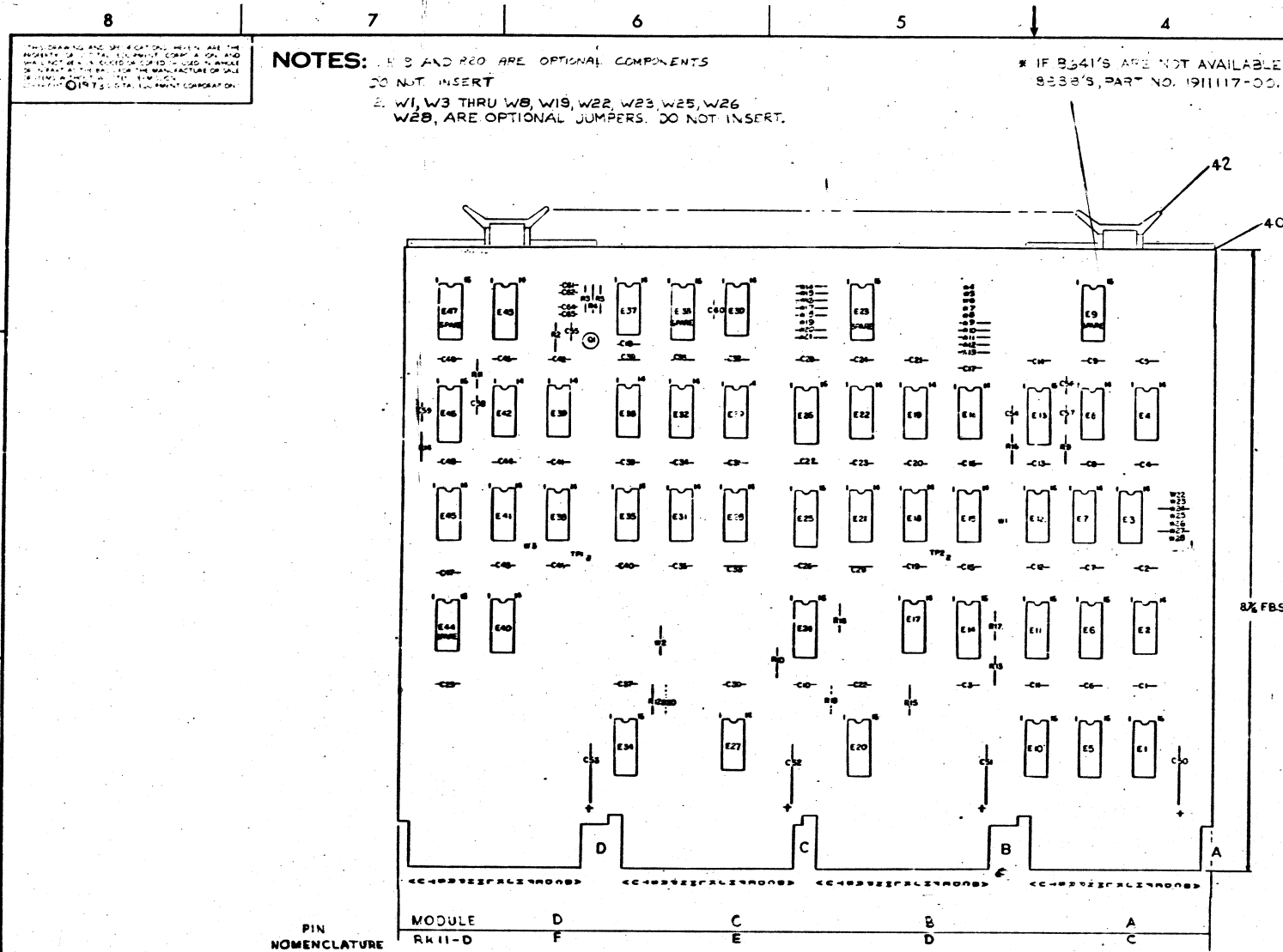
MODULE ECO HISTORY
SIZE B
NUMBER 17257-00011

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NOT TO BE USED FOR PRODUCTION

PAGE REVISION CONTROL SHEET															
SH NO.	PAGE REVISIONS											REMARKS			
	A	B	C	D	E	F	G	H	I	J	K		L	M	N
1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	(BUS 1) (BUS 2) (BUS 3) (BUS 4)
2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
3	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
4	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
5	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
6	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
7	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
8	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
9	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
10	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
11	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
12	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
13	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
14	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
15	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
16	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
17	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
18	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
19	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
20	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
21	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
22	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
23	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
24	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
25	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
26	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
27	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
28	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
29	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
30	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
31	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
32	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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39	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
40	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
41	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
42	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
43	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
44	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
45	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
46	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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48	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
49	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
50	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
51	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
52	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
53	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
54	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
55	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
56	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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60	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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62	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
63	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
64	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
65	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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70	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
71	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
72	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
73	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
74	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
75	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
76	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
77	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
78	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
79	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
80	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
81	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
82	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
83	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
84	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
85	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
86	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
87	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
88	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
89	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
90	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
91	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
92	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
93	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
94	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
95	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
96	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
97	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
98	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
99	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
100	A	B	C	D	E	F	G	H	I	J	K	L	M	N	

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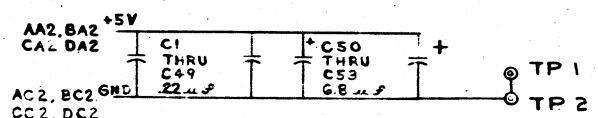
NOTES: E 3 AND R20 ARE OPTIONAL COMPONENTS
DO NOT INSERT
W1, W3 THRU W8, W19, W22, W23, W25, W26
W28, ARE OPTIONAL JUMPERS. DO NOT INSERT.

* IF 8341'S ARE NOT AVAILABLE, USE 8338'S, PART NO. 191117-00.

IC	DEC	QTY	LOC
I.C. DEC 840		1	B
I.C. DEC 74H103		11	4
I.C. DEC 314		1	B
I.C. DEC 7442		8	16
I.C. DEC 74123		8	16
I.C. DEC 74151		8	16
IC TYPE	GND	+5V	

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE.

IC PIN LOCATIONS



REF	DESCRIPTION	QTY	PART NO.	ITEM NO.
REF	X-Y COORDINATE HOLE LOC.		ACC-M7257-0-1	1
REF	ASSY/DRILLING HOLE LAYOUT		D-AH-M7257-0-5	2
REF	MODULE ECO HISTORY		E-MH-M7257-0-6	3
1	ETCHED CIRCUIT BOARD		5009990	4
2	C58, C59		CAP 10 MMF 100V 5%	5
1	C54		CAP 270 MMF 100V 5%	6
2	C57, C60		CAP 330 MMF 100V 5%	7
1	C56		CAP 1200 MMF 100V 5%	8
49	C1 THRU C49		CAP .22 MF 50V 20%	9
4	C50 THRU C53		CAP 6.8 MFD 35V 10% TANT	10
4	C61, C62, C64, C65		CAP 6.8 MMF 100V 5%	11
1	C55		CAP 27 MMF 100V 5%	12
1	Q1		TRANS DEC 3009B	13
3	R2, R3, R4		RES 330 1/4 W 5%	14
2	R10, R13		RES. 390 1/4 W 5%	15
1	R5		RES. 287 1/8 W 1%	16
4	R12, R15, R18, R19		RES. 180 1/4 W 5%	17
1	R16		RES 5.6K 1/4 W 5%	18
1	R9		RES 4.7K 1/4 W 5%	19
2	R11, R14		RES. 51K 1/8 W 1%	20
				21
2	E16, E30		RES. 1K RESISTOR PACK	22
1	E19		IC. 74H20	23
2	E22, E38		IC. 7402	24
3	E18, E31, E37		IC. 74H00	25
4	E40, E41, E42, E35		IC. 74H74	26
1	E2		IC. 314	27
4	E3, E4, E8, E27		IC. 8851	28
3	E7, E12, E15		IC. 8242	29
1	E21		IC. 74H04	30
1	E26		IC. 74151	31
2	E24, E25		IC. 7442	32
1	E28		IC. 7437	33
3	E36, E39, E45		IC. 7408	34
3	E29, E32, E43		IC. 74H103	35
2	E13, E46		IC. 74123	36
1	E17		IC. 8340	37
8	E15, E6, E19, E14, E29, E34		IC. 8341	38
15	W2, W9 THRU W18, W20, W21, W24, W27		INSULATED JUMPER	39
8			EYELET	40
2	TP1, TP2		SOLDER TERMINALS	41
4			HANDLE (FLIPCHIP) MAGENTA	42

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

CHG	NO	REV	DATE	BY

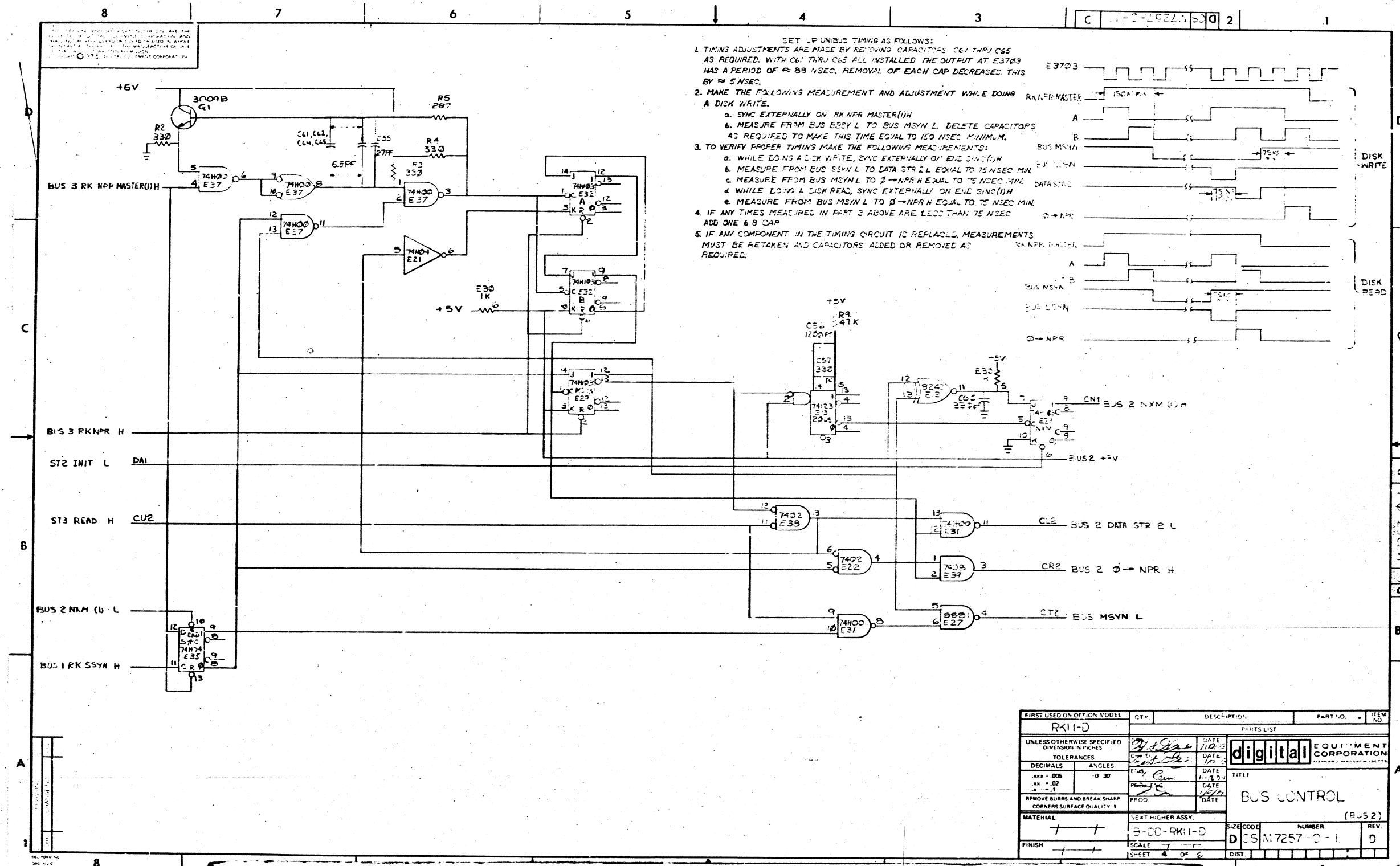
DEC NO	EIA NO	DEC NO	EIA NO

DATE	DATE	DATE	DATE

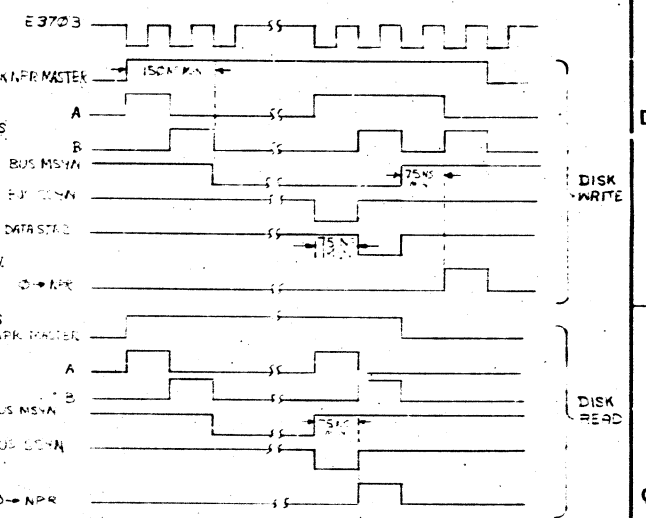
SCALE	SHEET	OF	TOTAL
NONE	2	6	

SEMICONDUCTOR CONVERSION CHART

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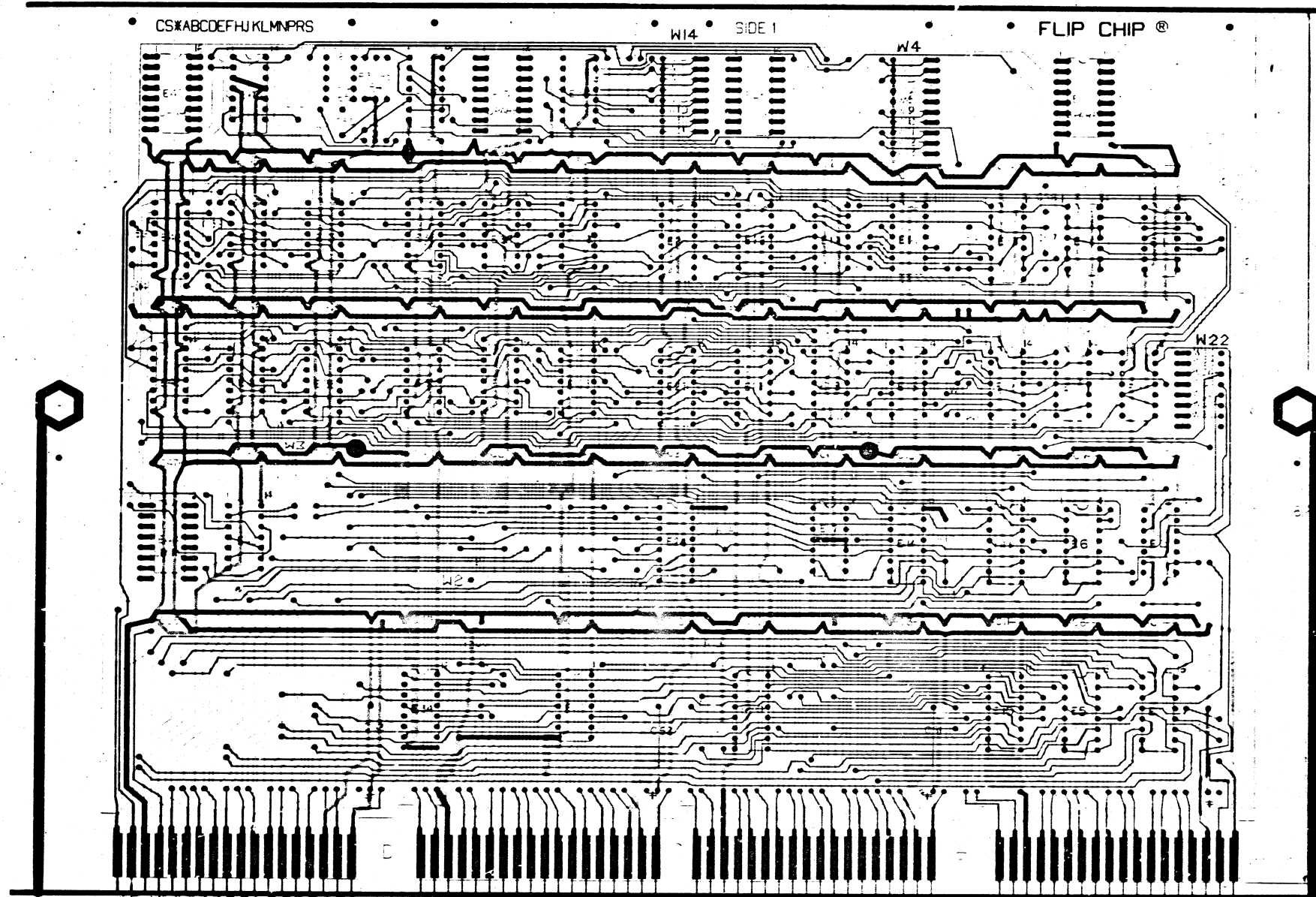
SET UP UNIBUS TIMING AS FOLLOWS:
 1. TIMING ADJUSTMENTS ARE MADE BY REMOVING CAPACITORS C61 THRU C65 AS REQUIRED, WITH C61 THRU C65 ALL INSTALLED THE OUTPUT AT E3703 HAS A PERIOD OF ≈ 88 NSEC, REMOVAL OF EACH CAP DECREASES THIS BY ≈ 5 NSEC.
 2. MAKE THE FOLLOWING MEASUREMENT AND ADJUSTMENT WHILE DOING A DISK WRITE.
 A DISK WRITE.
 a. SYNC EXTERNALLY ON RKNPR MASTER (H)
 b. MEASURE FROM BUS ESSY L TO BUS MSYN L. DELETE CAPACITORS AS REQUIRED TO MAKE THIS TIME EQUAL TO 150 NSEC MINIMUM.
 3. TO VERIFY PROPER TIMING MAKE THE FOLLOWING MEASUREMENTS:
 a. WHILE DOING A DISK WRITE, SYNC EXTERNALLY ON END SYNC (H)
 b. MEASURE FROM BUS SSVN L TO DATA STR 2 L EQUAL TO 75 NSEC MIN.
 c. MEASURE FROM BUS MSYN L TO ϕ -NPR H EQUAL TO 75 NSEC MIN.
 d. WHILE DOING A DISK READ, SYNC EXTERNALLY ON END SYNC (H)
 e. MEASURE FROM BUS MSYN L TO ϕ -NPR H EQUAL TO 75 NSEC MIN.
 4. IF ANY TIMES MEASURED IN PART 3 ABOVE ARE LESS THAN 75 NSEC ADD ONE 6.8 CAP.
 5. IF ANY COMPONENT IN THE TIMING CIRCUIT IS REPLACED, MEASUREMENTS MUST BE RETAKEN AND CAPACITORS ADDED OR REMOVED AS REQUIRED.



FIRST USED ON OPTION MODEL	CTY.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
UNLESS OTHERWISE SPECIFIED DIVISION IN INCHES		PARTS LIST		
TOLERANCES	DECIMALS	ANGLES	DATE	DATE
.015	.005	30°	11-27-74	11-27-74
.002	.001		DATE	DATE
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY B	PROD.			
MATERIAL	TEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
+	B-DD-RK11-D	D	CS M7257-0-1	D
FINISH	SCALE	SHEET	DIST.	
+	7	4 OF 6		

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5009990CP7MS60288M7257



NOTES:

- 1 JUMPERS W1, 3, 8, 22, 23, 25, 25, AND 28 ARE CUSTOMER OPTIONS, DO NOT INSERT.
- 2 9 AND R20 ARE OPTIONAL COMPONENTS, DO NOT INSERT.

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS	QTY OF HOLES
	FOR PTH BOARDS	FOR NON-PTH BOARDS		
NONE	*.51	*.32 DIA.	X	
Z	*.1	*.05 DIA.	X	2

BOARD FABRICATION INFORMATION

- BOARD SIZE 11.562 x 11.750
- BOARD MATERIAL 1.052 THK
- 1.27 COPPER 2 SIDES
- EYELET PLATED THRU
- 2 SIDED MULTI-LAYER
- NOTCH BEFORE GOLD PLATING
- NOTCH AFTER GOLD PLATING

DATE	DATE	digital EQUIPMENT CORPORATION
AVTAL	DATE	
CHG	DATE	TITLE
ENG	DATE	RK II-C
PROJ. ENG.	DATE	BUS CONTROL
PROD.	DATE	
FIRST USED ON	SIZE/POOR	NUMBER
M 7257	D/AH	M7257-C-5
SCALE	REV.	N
BY/CHG		MS 60288

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NOT TO BE USED FOR PRODUCTION

ECO No. M7257#11 Sheet 2 of 2

digital

To be entered by Maynard ECO Admin.
 ECO No. M7257-00011
 SHEET 1 of 1
 M98 No. _____
 Discrete Project No. E20-07534

ECO IMPLEMENTATION/COST SUMMARY

Build Level	Area (s)	Effect Date	No. of Units	Cost/Unit	Total Cost	Persons Contacted	Comments
Field Service (Systems/Units)					0		
Diagnostic Programming					0		
Units in Customer/ Hold Areas					0		
Other:							
Systems/Units in or Complete thru Acceptance					0		
Other:							
Systems/Units in Test Areas					0		
Other:							
Units in System Assembly or F&B Stock					0		
Other:							
Options in Volume Manufacturing					0		
Other:							
Units in Sub-assy Areas					0		
Other:							
Modules in Module Manufacturing					0		
Other:							
P.C. Board Production					0		
Vendor:							
Metal Fabrication					0		
Vendor:							
Availability of Test Equipment/ Method					0		
Availability of Tooling					0		

11 CENTRAL ENG.
 ECO COMMITTEE
 769
 NOV 2 1975

**CONFIDENTIAL
 COST INFO.**

To be issued with ECO
 only on project

TOTAL COST = 0 CHARGE (S) TO DISCRETE PROJECT NO 0

Does this ECO alter the Standard Cost of the product? Yes No
 If Yes, by how much? \$ _____ Increase (Decrease)

*Detail (in parentheses) the cost to be charged to the Discrete Project Number.

WHENEVER SUFFICIENT DETAIL CANNOT BE SHOWN ON THIS SUMMARY SHEET, THE PERSON PREPARING THE SUMMARY IS REQUIRED TO ATTACH A SEPARATE PAGE WHICH PRESENTS IMPLEMENTATION DETAIL.
 DEC 3-6886) 1831-N175

digital ENGINEERING CHANGE ORDER		ORIGINATOR <u>Ray Guida</u> TEL EXT <u>4431</u> DATE <u>20 APR 76</u> LOCATION <u>M221-1/EB1</u> COST CENTER NO. <u>367</u>	ECO NO. <u>M7257-00012</u> SHEET <u>1</u> OF <u>3</u> DATE RECEIVED <u>3-26-76</u> ISSUE DATE <u>6-1-76</u> FINAL P. LEASE
PROBLEM M7257 susceptible to noise on BUS SSYN. During time interval when RK11-D is bus master but has not asserted MSYN. Symptom. Random RK11 failures in some large systems, inability to get a good bus margin on RK11-D in some large system.		UNIT TO BE CHANGED M7257 (etch Rev C) PRODUCT AFFECTED PDP11	
CORRECTION Change M7257 so SSYN is not sampled until the RK11 asserts MSYN.		TYPE OF ECO <input checked="" type="checkbox"/> HARDWARE <input type="checkbox"/> SOFTWARE <input type="checkbox"/> PURCHASE SPEC	
BREAK/INEFFECTIVITY Phase in See attached sheet #3.		FIELD SERVICE AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.P.R. DISTR <input type="checkbox"/> L.O.U. CODE WHERE: <u>D</u>	
QUICK-CHECK Wire on E35-12 and E35-13		WHERE: <u>D</u> RK11-D	
TEST N/A			
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV
1	B-CS M7257-0-1 sheet 1	N	P
2	D-CS-M7257-0-1 sheet 2	L	M
3	D-CS-M7257-0-1 sheet 4	D	E
4	D-All-M7257-0-5	N	P
DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL Change sheet No. 1 to Rev P " " " 4 to Rev E Update as per this ECO to show location of two wires Update as per sheet 2 i.e. changing D input to END SYNC from BUS J RK NVR MASTER (I) H to MSYN (I) H Add rework instructions as shown in marked up drawing.			
APPROVAL SIGNATURE (TYPE NAME AND SIGN) PROJECT ENGR RY GUGLIEMINI ENG MGR R. TESTER		REVIEW SIGNATURES (SEE INSTRUCTIONS) FIELD SERVICE DIAGNOSTIC ENGR	
TEL EXT <u>4431</u> COST CENTER NO. <u>367</u> DISC PROJ NO <u>E20-D1534</u> DATE		MAY 28 1976	
COORD. NO. <u>MD-5612</u> REF. NO.		<u>Mary Bullard</u> 6-3-76	

DEC 16 6891 1071A R175

digital ENGINEERING CHANGE ORDER		ECO NO. <u>M7257-00012</u> SHEET <u>2</u> OF <u>3</u>
ITEM NO.	DOCUMENT/PART NO.	OLD REV
5.	B-NH-M7257-0-6	N
6.	M7257 (etch Rev C)	P
DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL Update per this ECO Do the following rework: a) cut etch on side 2 that goes from E35-13 to E35-12. b) cut etch on side 1 as shown below. c) add wire from E35-13 to plated through hole indicated above. d) add wire from E35-12 to PTH shown above.		
11 CENTRAL ENG. ECO COMMITTEE MAY 14 1976		

DEC 16 6891 1071A R175

digital ENGINEERING CHANGE ORDER		ECO NO. <u>M7257-00012</u> SHEET <u>3</u> OF <u>3</u>
ITEM NO.	DOCUMENT/PART NO.	OLD REV
DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL Puerto Rico & Maynard M7257 etch Rev C CS Rev P is the only shippable revision out of module manufacturing (Puerto Rico) after July 1, 1976. FAST M7257 etch Rev C CS Rev P is the only shippable revision that will be allowed after November 1, 1976. M98 numbers will be issued on a per system basis by Engineering for systems that exhibit this problem. Field This ECO should be installed on systems that exhibit this problem.		
11 CENTRAL ENG. ECO COMMITTEE MAY 14 1976		

DEC 16 6891 1071A R175

9-0-1321W

PRODUCT LINE <u>PDP 11</u>		DATE RELEASED <u>9-20-72</u>		RELEASED BY <u>T. ORR</u>		MODULE ECO HISTORY						PAGE <u>1</u> OF <u>2</u>		RELEASED CS REV. <u>A</u>		RELEASED ETCH BD REV. <u>B</u>	
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED				
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)							
00001	T. ORR	11-16-72	B	b	✓			✓			E40 CI TO CM2	0	0				
00002	R. LEWIS	2-16-73	C	B	✓			✓			REMOVE BUS MYSM FILTER CIRCUIT	1	3				
00003	R. LEWIS	5-3-73	D	B		✓	REWORK ONLY NECESSARY IN 11/15 OR 11/20 SYSTEMS WITHOUT KH-11		✓		REMOVE BUS NPR FROM E2807	—	—				
00004	R. LEWIS	10-12-73	E	B		✓		✓			REMOVE TERMINATOR RESISTORS FROM NPG + B6 LINES	—	4				
00005	T. ORR	12-6-73	F	B		✓		✓			REMOVE C38 CHANGE ALL .01 CAPS TO .22	32	33				
00006	DANIEL MUTNANSKI	1-10-74	H	B		✓		✓			ADD WIRES TO IMPROVE +5V GND DISTRIBUTION	0	0				
0006A	D. MUTNANSKI	1-24-74	—	—	—	—	—	—	—		CORRECT REWORK INSTRUCTION	—	—				
00007	R. LEWIS	6-28-74	J	B		✓		✓			DELETE OPTIONAL JUMPER	—	10				
00008	R. LEWIS	10-4-74	K	B		✓		✓			ADD TERMINATOR RESISTORS TO NPG + B6 LINES	2	—				

REVISIONS	CHKD	DATE	DRN	DATE	TITLE
00001					MODULE ECO HISTORY
00002					
00003					
00004					
00005					
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0006A					
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171 1000 3215

MODULE ECO HISTORY														
PRODUCT LINE <u>PDP11</u>			DATE RELEASED <u>9-20-72</u>			RELEASED BY <u>T.CRR</u>			PAGE <u>2</u> OF <u>2</u>			RELEASED CS REV <u>A</u>		
RELEASED ETCH BD REV <u>B</u>														
ECO. NO.	ORIGINATOR	DATE WRITTEN	NEW CS REV.	NEW ETCH BOARD REV.	IS IT MANDATORY TO REWORK ALL EARLIER VERSIONS (NOW AVAILABLE OR RETURNED FOR REPAIR) TO THIS REVISION LEVEL?			ARE ALL REVISIONS OF THIS MODULE COMPLETELY COMPATIBLE NOW (CAN BE MIXED INDISCRIMINATELY)?			SIMPLIFIED CHANGE DESCRIPTION	NO. PARTS ADDED	NO. PARTS DELETED	
					YES	NO	CONDITIONAL (EXPLAIN)	YES	NO	CONDITIONAL (EXPLAIN)				
00009	R. LEWIS	10-4-74	L	C		✓		✓			NEW ETCH TO SHORTEN RUNS, IMPROVE PWR + GND	17	20	
00010	R. LEWIS	8-21-75	M	C		✓		✓			REPLACE 8938'S WITH 8541'S	8	8	
00011	R. LEWIS	08-NOV-75	N	C		✓		✓			DELETE C63	0	1	
00012	R. BRULA	20-7-75-R	P	C		✓		✓			ETCH CUTS 2 WIRES ALONG TO IMPROVE PUS MARGIN	0	0	

REVISIONS
CHKD (CIR) (NO) (REV)

DRN
O. SMITH
DATE
9-21-74

CHK'D
O. SMITH
DATE
9-21-74

ENG.
T. CRR
DATE
9-21-74

PROP.
R. LOGLEY
DATE
9-21-74

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
MODULE ECO HISTORY

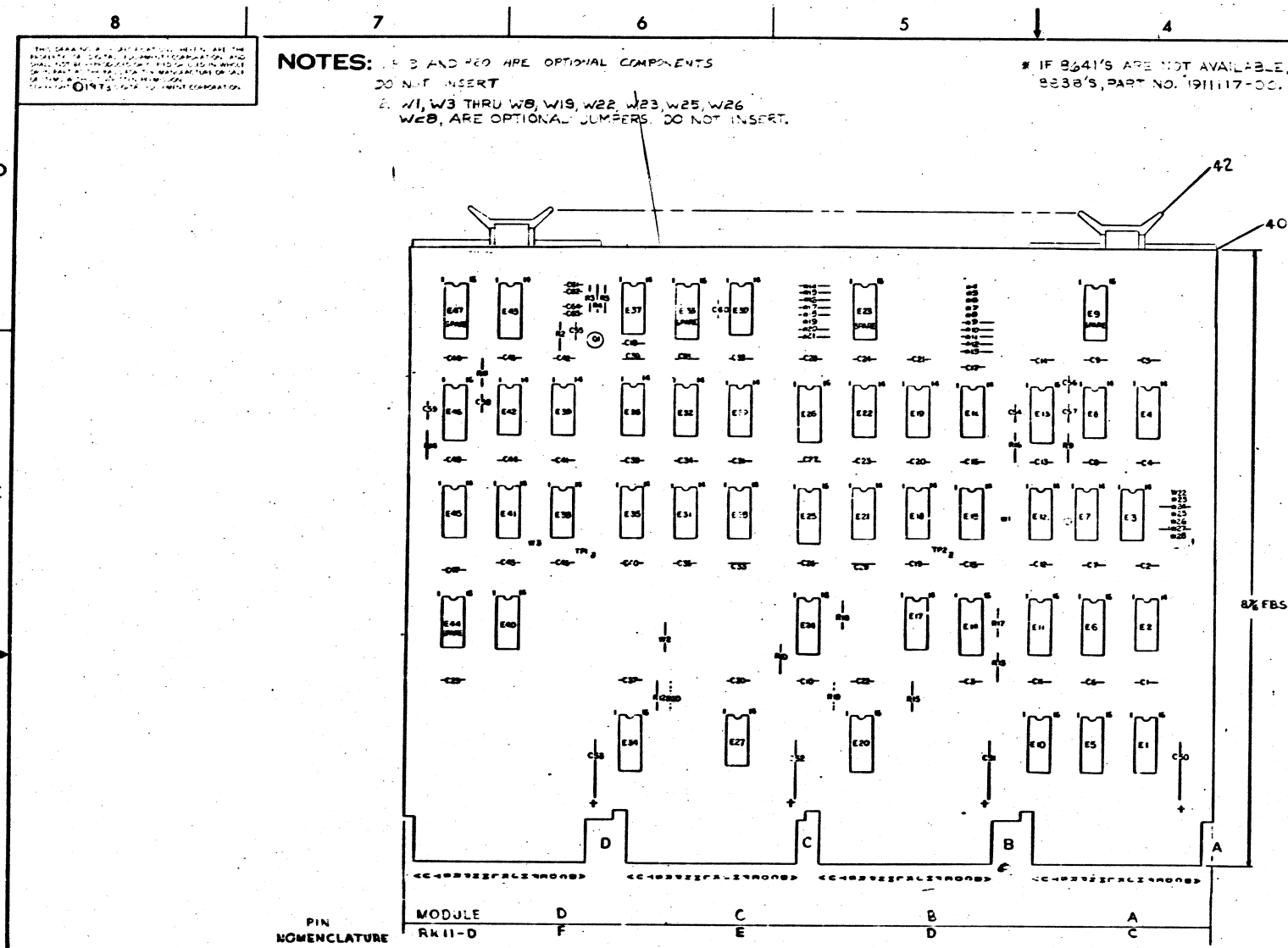
SIZE
B

REV.
P

NUMBER
M7257-0-5

DEC 16-1974-1024-N971
DHB 104

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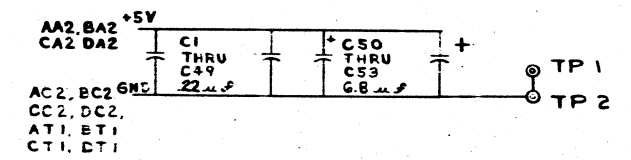
NOTES:
 1. E3 AND E20 ARE OPTIONAL COMPONENTS DO NOT INSERT
 2. W1, W3 THRU W8, W19, W22, W23, W25, W26, W28, ARE OPTIONAL JUMPERS DO NOT INSERT.

* IF 8241'S ARE NOT AVAILABLE, USE 8238'S, PART NO. 191117-00.

IC	DEC	QTY	REV
IC DEC 8240		1	8
IC DEC 74H103		11	4
IC DEC 314		1	8
IC DEC 7442		8	16
IC DEC 74123		8	16
IC DEC 74151		8	16
IC TYPE	GND	+5V	

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS



REF	QTY	REF DESIGNATION	DESCR. / FORM	PART NO.	ITEM NO.
			X-Y COORDINATE HOLE LOC.	A-CC-M7257-0-1	1
			ASSY/DRILLING HOLE LAYOUT	D-AH-M7257-0-1	2
			MODULE ECO HISTORY	B-MH-M7257-0-1	3
			ETCHED CIRCUIT BOARD	5009990	4
2		C53, C59	CAP 10 MMF 100V 5%	1000006	5
1		C54	CAP 270 MMF 100V 5%	1000022	6
2		C57, C60	CAP 330 MMF 100V 5%	1000023	7
1		C56	CAP 1200 MMF 100V 5%	1002424	8
49		C1 THRU C49	CAP 22 MF 50V 20%	1010274-01	9
4		C50 THRU C53	CAP 6.8 MFD 35V 10% TANT	1005306	10
4		C61, C62, C64, C65	CAP 6.8 MMF 100V 5%	1000035	11
1		C55	CAP 27 MMF 100V 5%	1001739	12
1		Q1	TRANS DEC 3009B	1503100	13
9		R2, R3, R4	RES 330 1/4 W 5%	1300295	14
2		R10, R13	RES 390 1/4 W 5%	1300309	15
1		R5	RES 297 1/8 W 1%	1305124	16
4		R12, R15, R18, R3	RES 180 1/4 W 5%	1301322	17
1		R16	RES 56K 1/4 W 5%	1301874	18
1		R9	RES 47K 1/4 W 5%	1302177	19
2		R11, R14	RES 511K 1/8 W 1%	1304854	20
					21
2		E10, E30	RES. 1K RESISTOR PACK	1300005-01	22
1		E19	IC 74H20	1905635	23
2		E22, E38	IC 7402	1909004	24
3		E18, E31, E37	IC 74H00	1909056	25
4		E40, E41, E42, E35	IC 74H74	1909667	26
1		E2	IC 314	1909704	27
4		E3, E4, E8, E27	IC 8881	1909705	28
3		E7, E12, E15	IC 8242	1909712	29
1		E21	IC 74H04	1909931	30
1		E26	IC 74151	1909936	31
2		E24, E25	IC 7442	1910046	32
1		E28	IC 7437	1910091	33
3		E36, E39, E45	IC 7408	1910155	34
3		E29, E32, E43	IC 74H103	1910409	35
2		E13, E46	IC 74123	1910436	36
1		E17	IC 8241	1911439	37
8		E15, E16, E19, E14, E20, E34	IC 8241	1911579	38
15		W2, W9 THRU W18, W20, W21, W24, W27	INSULATED JUMPER	9009185	39
8			EYELET	9006732	40
2		TP1, TP2	SOLDER TERMINALS	9007791	41
4			HANDLE (FLIPCHIP) MAGENTA	9008337-06	42

REV	DATE	BY	CHKD
1			
2			
3			
4			
5			
6			
7			
8			

ETCH BOARD REV C

SEMICONDUCTOR CONVERSION CHART

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION

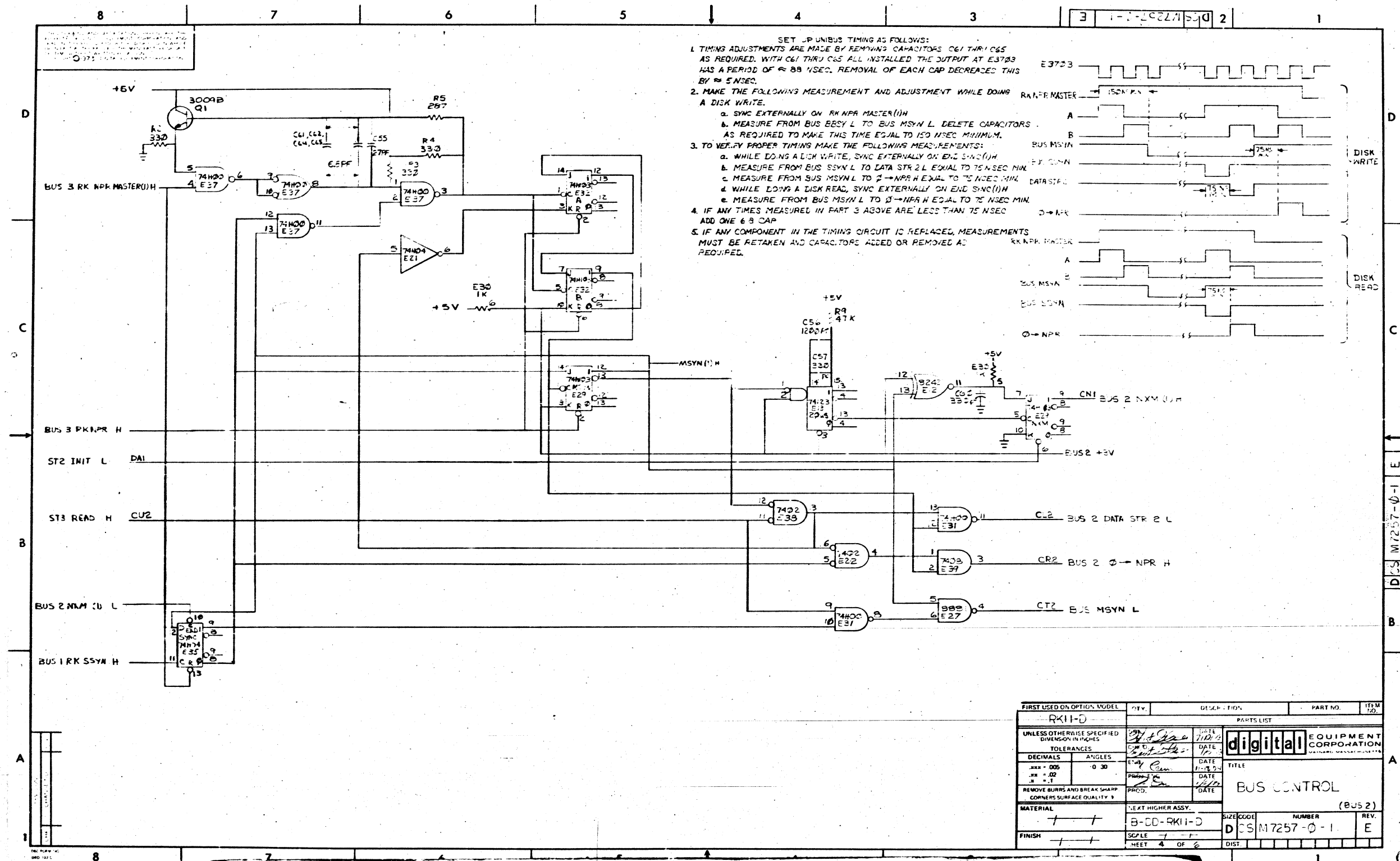
TITLE BUS CONTROL RKII-D

SIZE CODE DCS

NUMBER M7257-0-1

REV. M

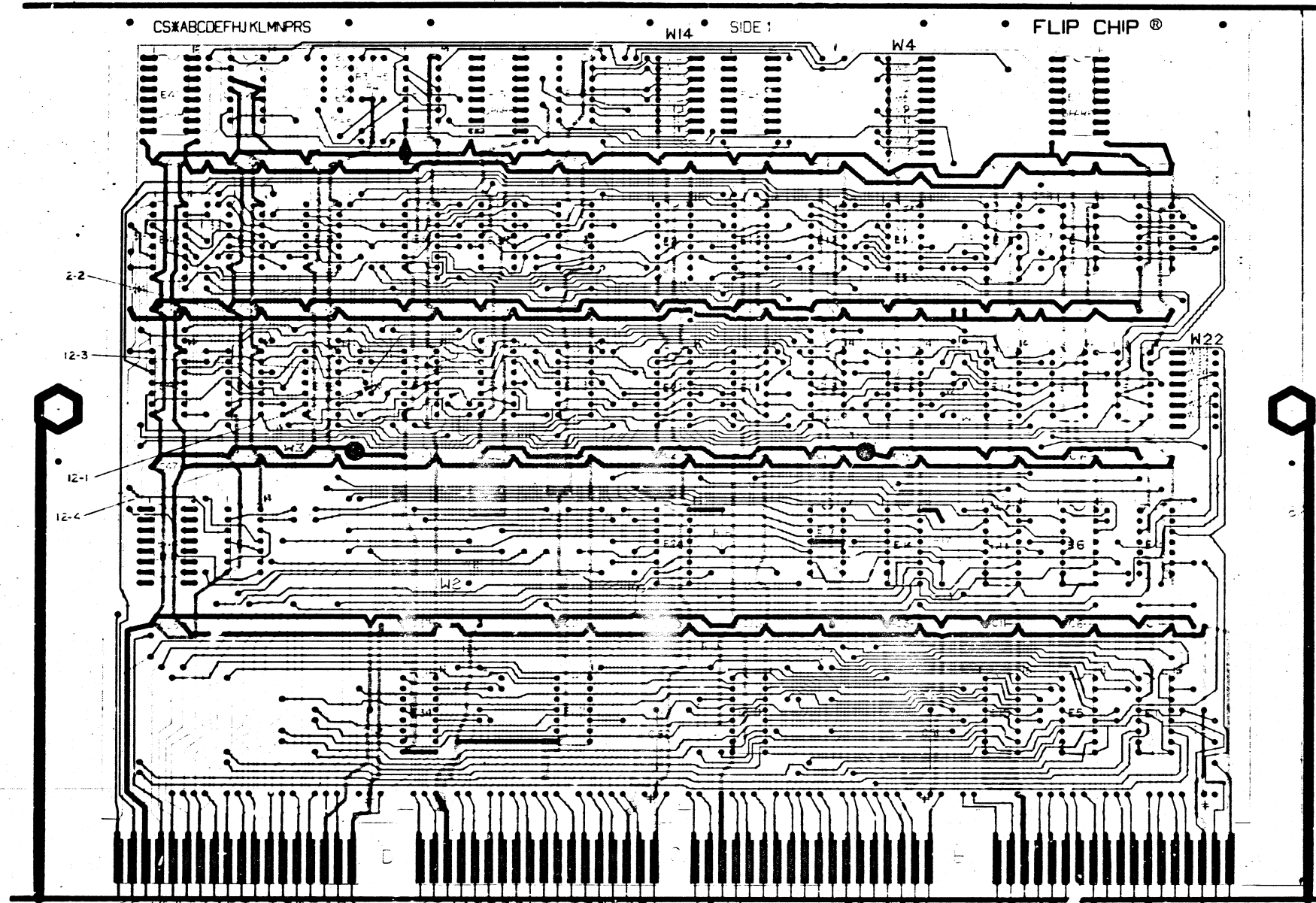
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FIRST USED ON OPTION MODEL	REV.	DESCRIPTION	PART NO.	ITEM NO.
RK11-D				
PARTS LIST				
digital EQUIPMENT CORPORATION				
BUS CONTROL (BUS 2)				
DCS M7257-0-1 E				
SHEET 4 OF 6				

S009990CP7MS60288M7257



NOTES:

- 1 JUMPERS W/ 3 & 22, 23, 25, 26, AND 28 ARE CUSTOMER OPTIONS, DO NOT INSERT.
- 2 4, 9 AND R27 ARE OPTIONAL COMPONENTS, DO NOT INSERT.

E.C.O. #12
 ETCH CUTS: 1: 12-1 CUT ETCH ON SIDE 1 THAT GOES TO 2ND PTH LEFT OF E35-5
 ETCH CUTS: 2: 12-2 CUT ETCH ON SIDE 2 THAT GOES FROM E35-12 TO E35-13
 WIRE ADDS: 3: 12-3 ADD WIRE FROM E35-13 TO 2ND PTH LEFT OF E35-5
 4: 12-4 ADD WIRE FROM E35-12 TO PTH BELOW E28-7

HOLE LETTER	DRILL SIZES		CAN TAKE GRIPLETS	QTY OF HOLES
	FOR PTH BOARDS	BEFORE/AFTER PLATE		
1	.61	.330(1A)	X	1
2	.41	.205(1A)	X	2

BOARD FABRICATION INFORMATION

BOARD SIZE: 11.562 x 11.750
 BOARD MATERIAL: 100% TIK
 1/2 Z. COPPER 2 SIDES
 EYELET PLATED THRU
 2 SIDED MULTI-LAYER
 NOTCH BEFORE GOLD PLATING
 NOTCH AFTER GOLD PLATING

DRW. ANTL	DATE		EQUIPMENT CORPORATION	
CHKD	DATE		TITLE: REV. D BUS CONTROL	
ENG.	DATE		SIZE/SCALE: D/AH M7257-C-5	
PROJ. ENG.	DATE		NUMBER: MS 60288	
PRG.	DATE		REV.	
FIRST USED ON	M 7257			
SCALE	D/AH			
ETCH REV				

THIS DRAWING IS PART OF E.C.O. PACKAGE # M7257-00012

NOT TO BE USED FOR PRODUCTION

MDS 17

digital

ECO IMPLEMENTATION/COST SUMMARY

To be entered by Maynard ECO Admin.

ECO No. M7257-00012

SHEET 1 of 1

M98 No. _____

Discrete Project No. E20-07534

Build Level	Area (s)	Effect. Date	No. of Units	Cost/Unit	Total Cost*	Persons Contacted	Comments
Field Service (Systems/Units)		NA	NA	0	0		
Diagnostic Programming		NA	↑	↑	↑		
Units in Customer/ Hold Areas		N/D V 1 1976	↑	↑	↑		ECO to be phased in as stated in break-in effectivity. M98 numbers will be issued on a per system basis before 11-1-76, where problem is exhibited.
Systems/Units in or Complete the Acceptance Other		↑	↑	↑	↑		
Systems/Units in Test Areas)			↑	↑	↑		
Owner							
Units in System Assembly or FA&T Stock							CONFIDENTIAL COST INFO. To be issued with ECO only on request
Options in Volume Manufacturing		↓					
Units in Sub-Asy Areas		N/D V 1 1976					
Modules in Module Manufacturing		JULY 1 1976					
P.C. Board Production		NA					11 CENTRAL ENG. ECO COMMITTEE MAY 14 1976
Vendor							
Metal Fabrication							
Vendor							
Availability of Test Equipment/ Method			↓	↓	↓		
Availability of Tooling		NA	NA	0	0		

TOTAL COST = 0 CHARGE (S) TO DISCRETE PROJECT NO. 0

Does this ECO alter the Standard Cost of the product? Yes No

If Yes, by how much? \$ _____ Increase (Decrease)

*Detail (in parentheses) the cost to be charged to the Discrete Project Number.

R. Testa (7/28)

WHenever sufficient detail cannot be shown on this summary sheet, the person preparing the summary is required to attach a separate page which presents implementation detail.

digital		FCO M7257 S 0012		PAGE 1 of 5	
FIELD CHANGE ORDER		ESTIMATED TIME TO INSTALL AND TEST (hours)		0.5	
APPLICABILITY		MANDATORY		DECIMAL HOURS	
REWORK ETCH REVISION "C" M7257'S FROM CS REVISION "N" TO "P" IN ANY SYSTEM WITH A DC LOAD APPROACHING MAXIMUM (15 TO 20 LOADS) OR WHEN PROBLEM SYMPTOMS ARE EVIDENT.		DIGITAL		INSTALLATION CHANGE NUMBER	
IT IS RECOMMENDED THAT M7257 SPARES STOCK BE UPDATED WHENEVER THIS FCO HAS BEEN IMPLEMENTED ON ANY SYSTEM.		PURCHASABLE OPTION		FOR FIELD SERVICE REPAIRING	
FIELD SERVICE LOGISTICS SPARES STOCK MUST BE AT CS REVISION "P" OR LATER.		CUST		CUST	
SPECIAL TEST EQUIPMENT, TOOLS, or SUPPLIES (Not included in the Field Refit Kit)		CUST		CUST	
FIELD INSTALLATION and TEST PROCEDURE		CUST		CUST	
NOTES:		CUST		CUST	
APPROVED - Field Service Project Support		DISTRIBUTION COPIES:		APPROVED - Technical Documentation	
MICHAEL LI		To all field offices		100111 and 10111	
110 350		To Regional Offices		110 50	
PART NUMBER		LOGISTICS COUING: (NF1781 SMT) (SK) (B) (50)		400	
QTY		LOGISTICS REVIEW		NOVEMBER 11, 1976	
PART NUMBER		QTY		DISPOSITION	
PART NUMBER		QTY		DISPOSITION	
PART NUMBER		QTY		DISPOSITION	

digital	CONTINUATION SHEET	FCO M7257-50012 PAGE 2
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NOTE: THE "PROBLEM" AND "PROBLEM SYMPTOM" AS PRESENTED IN THE FCO ARE INADEQUATE FOR FIELD SERVICE PURPOSES. THE FOLLOWING IS AN AMPLIFICATION OF THOSE STATEMENTS:

PROBLEM: WHEN BUS BBSY IS ASSERTED (BUS MASTER), ADDRESS, DATA, AND CONTROL INFORMATION ARE SENT SIMULTANEOUSLY FROM THE SAME RK11-D. YET THIS CONTROLLER WILL ALLOW APPROXIMATELY 250 NSEC DESKEM PRIOR TO INFORMING THE SLAVE DEVICE (ASSERTION OF MSYN) THAT THE ABOVE MENTIONED DATA ARE READY AND VALID. THE RK11-D AWAIT'S BUS SSYN FROM SLAVE DEVICE FOR RECEIPT ACKNOWLEDGE. DURING THE DESKEM PERIOD, A REFLECTED SSYN WILL ERRONEOUSLY SIGNAL THE RK11-D RECEIPT ACKNOWLEDGE, THUS CAUSING WORD COUNT AND BUS ADDRESS TO BE UPDATED. IN OTHER WORDS, BLOCKS OF DATA CAN BE TRANSFERRED WITH WORDS MISSING. THE RK11-D DOES NOT DETECT AND/OR REPORT ANY ERRORS.


- OPERATIONAL FAILURE SYMPTOMS:
1. OPERATING SYSTEM WILL INTERMITTENTLY CRASH DUE TO MISSING INSTRUCTION IN A PROGRAM.
 2. CALCULATED RESULT WILL OCCASIONALLY PROVE TO BE INCORRECT DUE TO MISSING DATA IN THE BLOCK.

digital		FCO M7257-50012 PAGE 3	
ENGINEERING CHANGE ORDER		UNIT TO BE CHANGED	
ORIGINATOR: ROY GLEUDA		M7257 (etch Rev C)	
TEL EXT: 4431		PRODUCT AFFECTED	
LOCATION: ML21-1/E81		PDP11	
COST CENTER NO: 367		TYPE OF ECO	
PROBLEM: M7257 susceptible to noise on BUS SSYN. During time interval when RK11-D is Bus Master but has not asserted MSYN. Symptom: Random RK11 failures in some large systems, inability to get a good bus margin on RK11-D in some large system.		<input checked="" type="checkbox"/> HARDWARE <input type="checkbox"/> SOFTWARE <input type="checkbox"/> PURCHASE SPEC. FIELD SERVICE AFFECTED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> D.P. R.DISTR. <input type="checkbox"/> L.O.U. CODE WHERE USED: RK11-D	
CORRECTION: Change M7257 so SSYN is not sampled until the RK11 asserts MSYN.		BRIEF/INEFFECTIVITY	
Phase in		BRIEF/INEFFECTIVITY	
See attached sheet #3.		BRIEF/INEFFECTIVITY	
QUICK-CHECK		BRIEF/INEFFECTIVITY	
TEST: N/A		BRIEF/INEFFECTIVITY	
APPROVAL SIGNATURE (TYPE NAME AND SIGNATURE)		BRIEF/INEFFECTIVITY	
PROJECT MGR: ROY GLEUDA		BRIEF/INEFFECTIVITY	
ENG. MGR: R. TERCAI		BRIEF/INEFFECTIVITY	
TEL EXT: 4431		BRIEF/INEFFECTIVITY	
DISC. PROJ. NO: 122-071314		BRIEF/INEFFECTIVITY	
COORD. NO: MD-5412		BRIEF/INEFFECTIVITY	
REF. NO:		BRIEF/INEFFECTIVITY	

digital		CONTINUATION SHEET		FCO M7257-50012 PAGE 4	
ENGINEERING CHANGE ORDER		DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL		Update per this ECO	
5. B-MH-M7257-0-6		OLD REV		N P	
6. M7257 (etch Rev C)		NEW REV		N P	
Do the following rework:		DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL		a) cut etch on side 2 that goes from E35-13 to E35-12. b) cut etch on side 1 as shown below. 	
				c) add wire from E35-13 to plated through hole indicated above.	
				d) add wire from E35-12 to PTH shown above.	
				<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 11 CENTRAL ENG. ECO COMMITTEE MAY 14 1976 </div>	

 ENGINEERING CHANGE ORDER		CONTINUATION SHEET		FCO M7257-50012 PAGE 5	
ITEM NO.	DOCUMENT/PART NO.	OLD REV	NEW REV	DESCRIPTION OF CHANGE/DISPOSITION OF MATERIAL	
				<p><u>Puerto Rico & Maynard</u></p> <p>M7257 etch Rev C CS Rev P is the only shippable revision out of module manufacturing (Puerto Rico) after July 1, 1976.</p> <p>FA&T</p> <p>M7257 etch Rev C CS Rev P is the only shippable revision that will be allowed after November 1, 1976.</p> <p>M96 numbers will be issued on a per system basis by Engineering for systems that exhibit this problem.</p> <p>Field</p> <p>This ECO should be installed on systems that exhibit this problem.</p>	
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 11 CENTRAL ENG. ECO COMMITTEE <small>245</small> MAY 14 1976 </div>					

DEC 16-1496-1071-1A-R175

		MODULE ECO HISTORY		FCO M7257-50012 Page 6																
ECO HISTORY - M7257 ETCH BOARD REVISION B																				
ECO NUMBER	001	002	B03	E04	005	C06	007	C08												
ECO DATE	9-72	12-72	2-73	10-73	10-73	1-74	1-74	7-74	10-74											
PRODUCTION CS	A	B	C	D	E	F	H	J	K											
DOCUMENTATION CS																				
FIELD REWORK CS				D	E		H		K											
NOTES:																				
ECO HISTORY - M7257 ETCH BOARD REVISION C																				
ECO NUMBER	009	010	011	S12																
ECO DATE	10-74	9-75	11-75	11-76																
PRODUCTION CS	L	M	N	P																
DOCUMENTATION CS																				
FIELD REWORK CS				P																
NOTES:																				
ECO HISTORY - ETCH BOARD REVISION																				
ECO NUMBER																				
ECO DATE																				
PRODUCTION CS																				
DOCUMENTATION CS																				
FIELD REWORK CS																				
NOTES:																				
ECO HISTORY - ETCH BOARD REVISION																				
ECO NUMBER																				
ECO DATE																				
PRODUCTION CS																				
DOCUMENTATION CS																				
FIELD REWORK CS																				
NOTES:																				

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