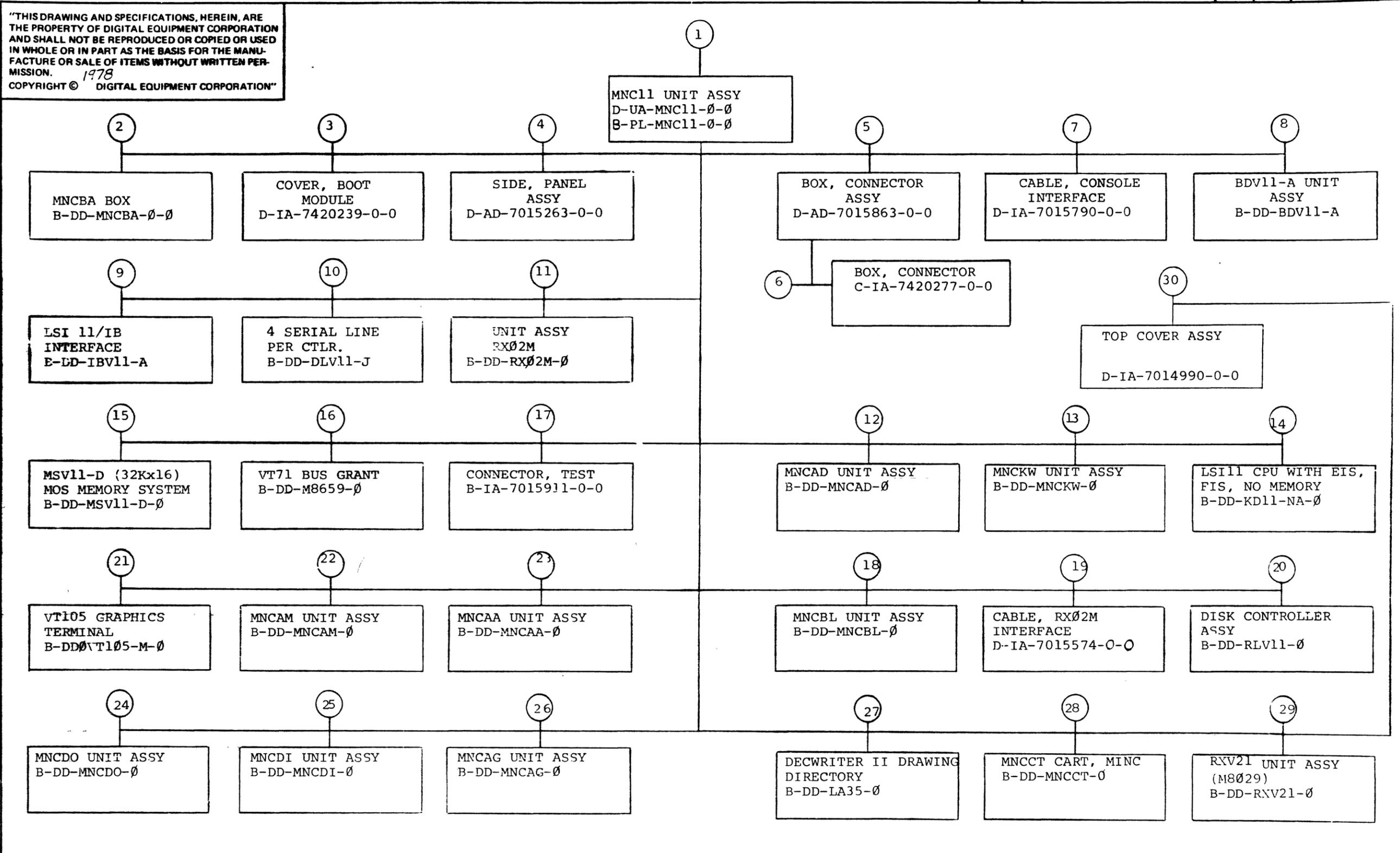


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TITLE	MNC11 UNIT ASSY	SIZE	CODE	NUMBER	REV
			B DD	MNC11-Ø	
		SHEET 2 OF 5			

Mf

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
				15	B-DL-MSV11-0-0	MSV11-D (32Kx16) MOS MEMORY SYSTEM	E/M
10	B-DD-DLV11-J	4 SERIAL LINE PER CTLR.					
				16	B-DD0M8659-0	VT71 BUS GRANT	E/M
11	B-DD-RX02M-0	UNIT ASSY RX02M	E/M				
				17	B-IA-7015911-0-0 A-DC-7409873-2-0	CONNECTOR, TEST DECAL, PWR CONNECTOR	E/M M
12	B-DD-MNCAD-0	MNCAD UNIT ASSY	E/M				
				18	B-DD-MNCBL-0	MNCBL UNIT ASSY	E/M
13	B-DD-MNCKW-0	MNCKW UNIT ASSY	E/M				
				19	D-IA-7015574-0-0 A-DC-7409872-2-0	CABLE, RX02M INTERFACE DECALS, PWR HARNESS	E/M M
14	B-DD-KD11-NA-0	LSI 11 CPU WITH EIS, FIS, NO MEMORY	E/M				

TYPE E ELECTRICAL M MECHANICAL E/M ELECTRO/MECHANICAL	digital	TITLE MNCII UNIT ASSY	SHEET 4 OF 5	SIZE CODE B DD	NUMBER MNCII-3	REV
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DRB 108A

Mf

5

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	
				25	B-DD-MNCDI-Ø	MNCDI UNIT ASSY	E/M	
20	B-DD-RLV11-Ø	DISK CONTROLLER ASSY	E/M					
				26	B-DL-MNCAG-Ø	MNCAG UNIT ASSY	E/M	
21	B-DD-VT1Ø5-M-Ø	VT1Ø5 GRAPHICS TERMINAL	E/M					
				27	B-DD-LA36-Ø	DECWRITER II DRAWING DIRECTORY	E/M	
22	B-DE-MNCAM-Ø	MNCAM UNIT ASSY	E/M					
				28	B-DD-MNCCT-Ø	MNCCT CART, MINC	E/M	
23	B-DD-MNCAA-Ø	MNCAA UNIT ASSY	E/M					
				29	B-DD-RXV21-Ø	RXV21 UNIT ASSY	E/M	
24	B-DD-MNCDO-Ø	MNCDO UNIT ASSY	E/M					
				30	D-IA-7014990-0-0	TOP COVER ASSY	M	
					D-MD-7419881-0-0	COVER, TOP	M	
					C-MD-7419874-0-0	RETAINER, CONN.	M	
					B-MD-7419883-0-0	HINGE BRKT, TOP COVER	M	
TYPE E ELECTRICAL M MECHANICAL E/M ELECTRO/M ECHANICAL				digital TITLE MNC11 UNIT ASSY		SHEET 5 OF 5 SIZE CODE B DD		NUMBER MNC11-Ø REV

DRB 108A

MR

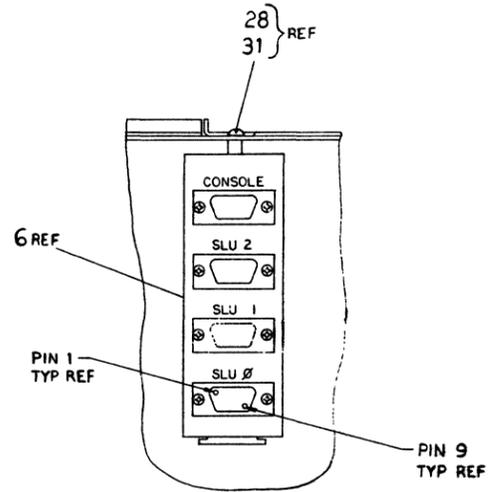
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST			QUANTITY VARIATION																			
MADE BY A. C. Filz		CHECKED J. Harson		SECTION		MNC11-CA	MNC11-CC	MNC11-CD														
DATE 8 MAY 78		DATE 14 July 78																				
ENG J. Filz		PROD B. N. J.		ISSUED SECT.																		
DATE 19-JUL-78		DATE 12-78																				
ITEM NO.	DWG NO./PART NO.	DESCRIPTION																				
1	D-UA-MNC11-BA-Ø	MNC11-BA System		1	-	-																
2	D-UA-MNC11-BC-Ø	MNC11-BC System		-	1	-																
3	D-UA-MNC11-BD-Ø	MNC11-BD System		-	-	1																
4	D-UA-MNCAD-Ø-Ø	MNCAD Unit Assy		1	1	1																
5	D-UA-MNCKW-Ø-Ø	MNCKW Unit Assy		1	1	1																
6	D-UA-MNCBL-Ø-Ø	Blank Control Panel Assy *		1	1	1																
7	D-UA-MNCAM-Ø-Ø	MNCAM UNIT ASSY		1	1	1																
8	D-UA-MNCAA-Ø-Ø	MNCAA UNIT ASSY		1	1	1																
9	D-UA-MNCDI-Ø-Ø	MNCDI UNIT ASSY		1	1	1																
10	D-UA-MNCDO-Ø-Ø	MNCDO UNIT ASSY		1	1	1																
11	D-UA-MNCAG-Ø-Ø	MNCAG UNIT ASSY		1	1	1																
12	E-UA-LA35-Ø-Ø	LA35-HE UNIT ASSY		1	-	-																
13	E-UA-LA35-Ø-Ø	LA35-HH UNIT ASSY		-	1	-																
14	E-UA-LA35-Ø-Ø	LA35-HS UNIT ASSY		-	-	1																
15	D-IA-7015790-0-0	CABLE CONSOLE INTERFACE		1	1	1																
		* Note : Fill up all unused MINC slots with item #6. Total MNCBL's will always be 1 more than is required to fill unused MINC slots.																				
TITLE MNC11-C System (Ship List)		ASSY NO.		SIZE A	CODE PL	NUMBER MNC11-C-SH		REV	ECO NO.													
		SHEET 1 OF 1		DIST																		

DEC FORM
DRA 110

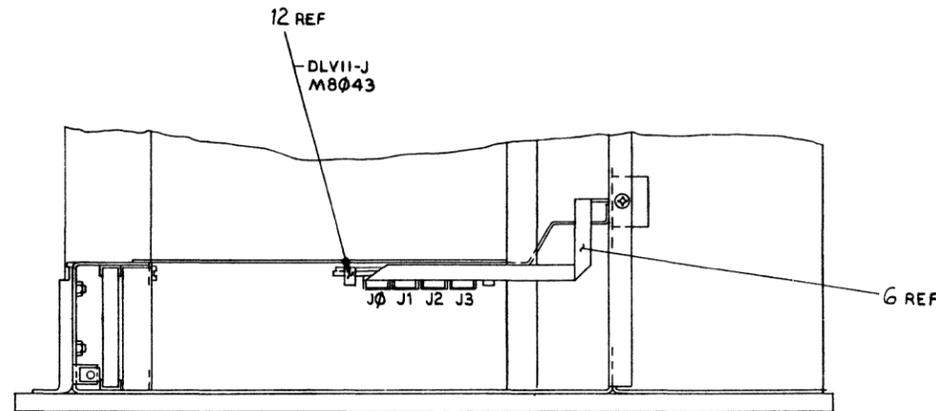
MR

2

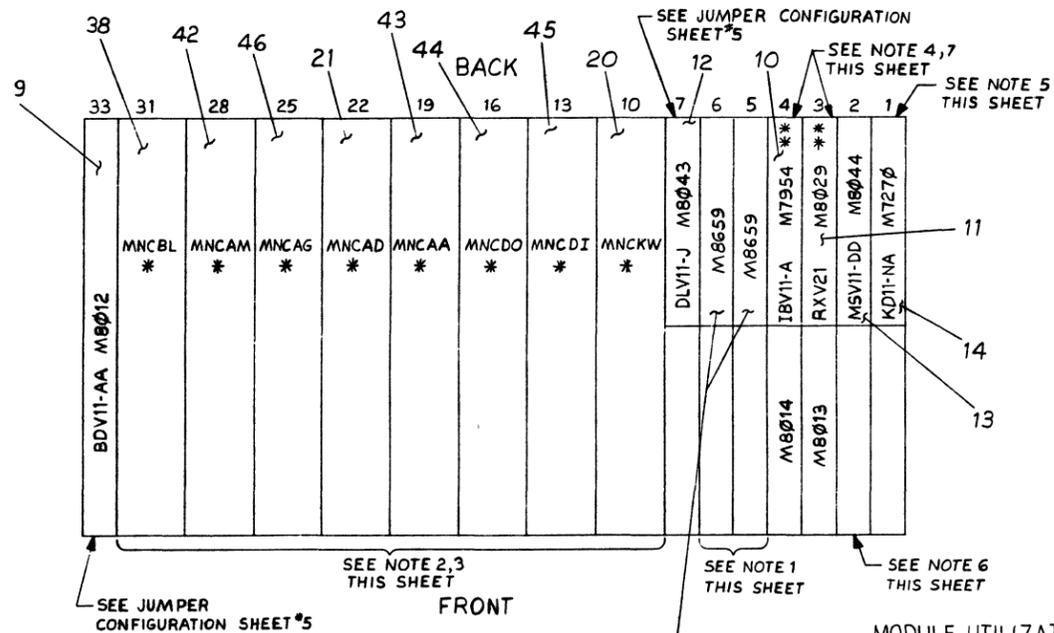
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VIEW A-A
SCALE: 1/1
INSTALL AS SHOWN
CONNECTORS FROM DLVII-J (M8043)



DETAIL 'E'
WITH COVER (ITEM #2) REMOVED
SCALE: 1/2



MODULE UTILIZATION
(MODULE SIDE)
SCALE: NONE

MODULE UTILIZATION NOTES:

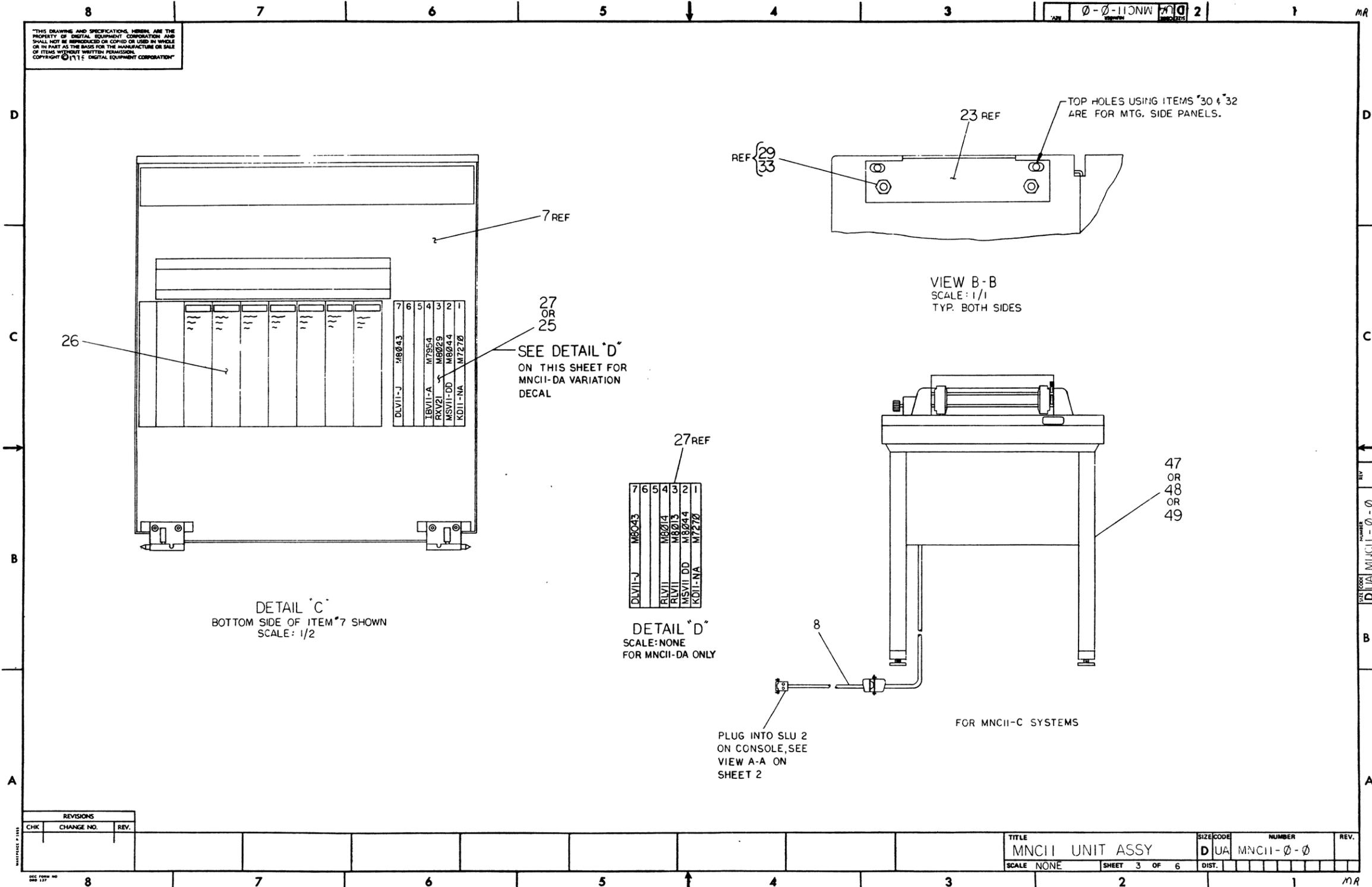
- SLOTS 5 & 6 ARE USED FOR LS1111 OPTION EXPANSION ONLY.
- SLOTS 10 THRU 31 ARE MINC OPTION EXPANSION AREA.
- * FOR MNC11-C, SYSTEMS ONLY.
- ** FOR MNC11-D SLOT 3 AND 4 CONTAINS M8014 & M8013 PART OF AN RLVII. M7954 AND M8029 ARE FOR MNC11-B & C VARIATIONS.
- MODE 2, W6 INSTALLED, W5 REMOVED. PC AT 173000 FOR USER BOOTSTRAP.
W1 INSTALLED CRYSTAL CLOCK
W3 REMOVED ENABLE EVENT LINE
- MSVII-DD JUMPER CONFIGURATION FOR 30K JUMPER
5 → 7 NON PARITY 16 → 15, 10 → 14 32K
S1-1 ON 1 → 2 30K MEMORY SPACE
S1-2 ON W2 IN
S1-3 ON STARTING LOC W3 IN NON BATTERY
S1-4 ON 000000 W4 OUT BACK UP
S1-5 ON W5 OUT
W1 OUT MEMORY
R3 IN SIZE BLK
- IBV11-A ADDRESS AND VECTOR CHANGE TO:
ADDRESS 171420
VECTOR 420
S2-1 ON S1-1 ON
S2-2 OFF S1-2 OFF
S2-3 OFF S1-3 OFF
S2-4 ON S1-4 OFF
S2-5 ON S1-5 ON
S2-6 OFF S1-6 OFF
S2-7 OFF S1-7 OFF
S2-8 OFF S1-8 OFF
S2-9 OFF
S2-10 OFF

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
MNC11 UNIT ASSY	D UA	MNC11-0-0	
SCALE NONE	SHEET 2 OF 6	DIST.	

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Ø-Ø-110NW 2



TOP HOLES USING ITEMS *30 & *32 ARE FOR MTG. SIDE PANELS.

VIEW B-B
SCALE: 1/1
TYP. BOTH SIDES

SEE DETAIL 'D'
ON THIS SHEET FOR
MNCII-DA VARIATION
DECAL

DETAIL 'C'
BOTTOM SIDE OF ITEM *7 SHOWN
SCALE: 1/2

DETAIL 'D'
SCALE: NONE
FOR MNCII-DA ONLY

FOR MNCII-C SYSTEMS

PLUG INTO SLU 2
ON CONSOLE, SEE
VIEW A-A ON
SHEET 2

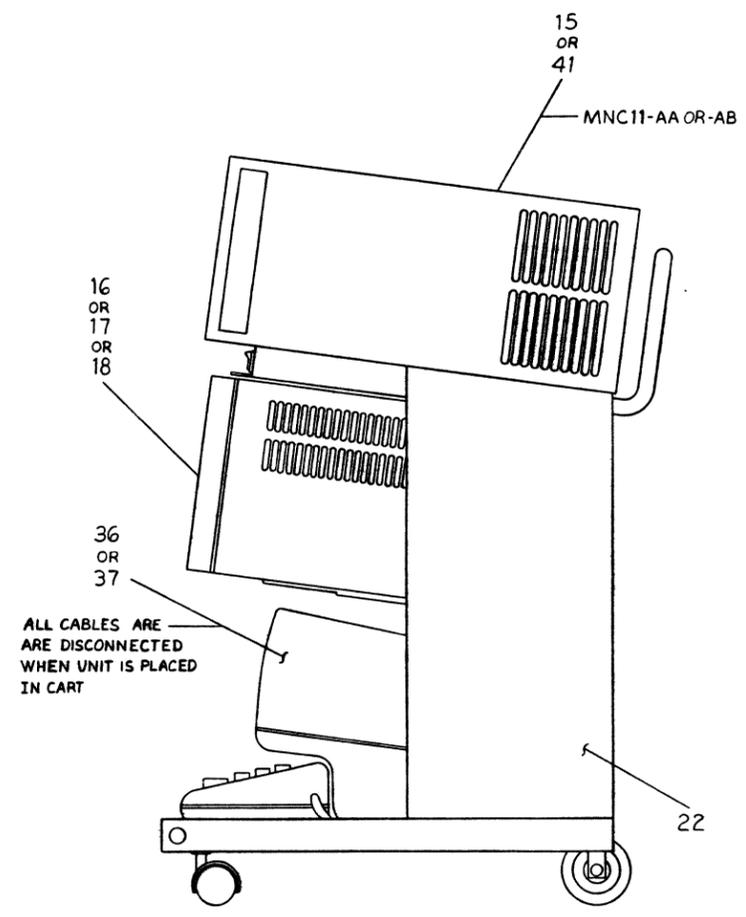
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	MNCII UNIT ASSY	SIZE CODE	D UA	NUMBER	MNCII-Ø-Ø	REV.	
SCALE	NONE	SHEET	3 OF 6	DIST.			

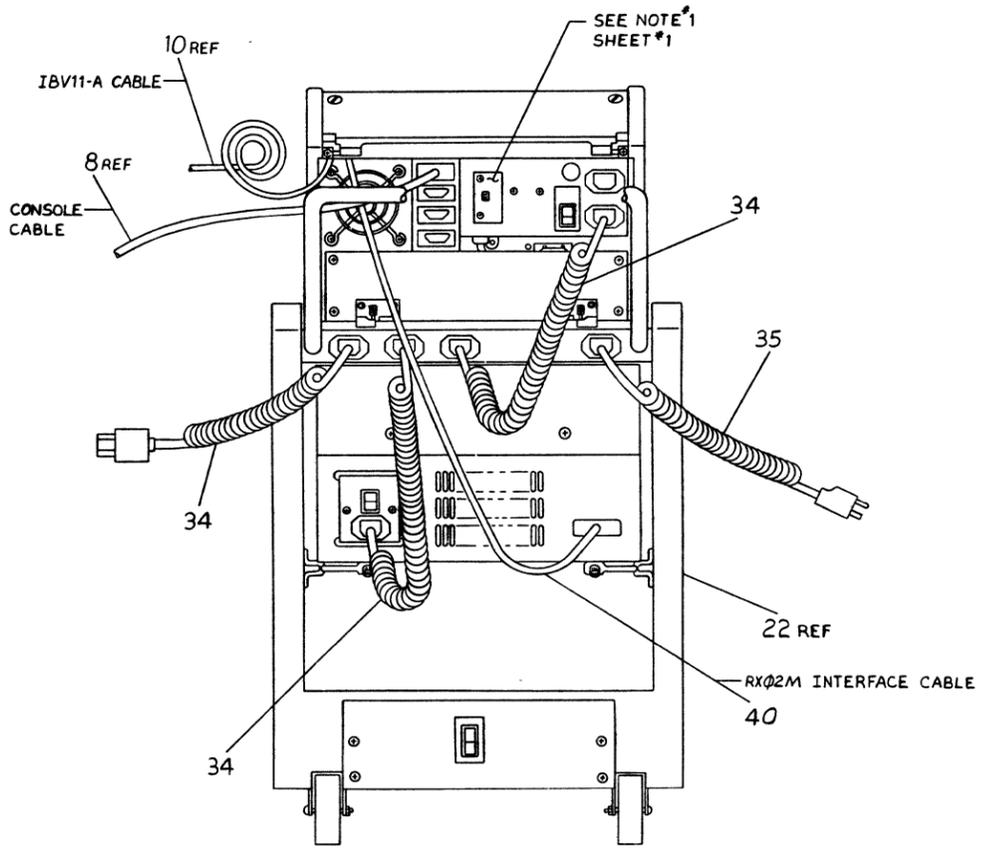
MR
D
C
B
A
REV
D UA MNCII-Ø-Ø
B
A

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0-0-110NMM10 2



RIGHT SIDE VIEW
SCALE: NONE



REAR VIEW
SCALE: NONE

REVISIONS		
CHK	CHANGE NO.	REV.

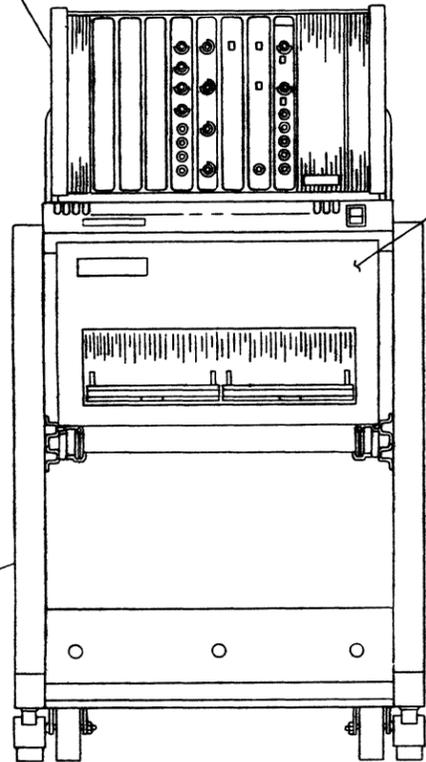
TITLE		SIZE CODE	NUMBER	REV.
MNC11 UNIT ASSY		D UA	MNC11-0-0	
SCALE	NONE	SHEET	4 OF 6	DIST.

REV. NUMBER D UA MNC11-0-0

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JUMPER CONFIGURATION

15 }
OR } REF
41 }



FRONT VIEW
SCALE: NONE

BDV11-AA (RXØ2M SYSTEM) MNC11-AA

- A1 ON CPU TEST
- A2 ON MEMORY TEST
- A3 OFF
- A4 OFF
- A5 OFF A SWITCH-E15
- A6 ON
- A7 ON RXØ2
- A8 OFF

- B1 OFF
- B2 OFF
- B3 OFF B SWITCH-E21
- B4 OFF
- B5 ON

BDV11-AA (RLØ1 SYSTEM) MNC11-DA

- A1 ON CPU TEST
- A2 ON MEMORY TEST
- A3 OFF
- A4 OFF
- A5 OFF
- A6 OFF
- A7 ON
- A8 OFF

- B1 OFF
- B2 OFF
- B3 OFF
- B4 OFF
- B5 ON

DLV11-J

CONSOLE (J3)

VECTOR 60

- V5 X→Ø
- V6 INSERTED
- V7 INSERTED

ADDRESS 177560

- C1 X→1
- C2 X→1
- A12 X→1
- A11 X→1
- A10 X→1
- A9 X→Ø
- A8 X→1
- A7 REMOVED
- A6 INSTALLED
- A5 X→Ø

DLV11-J

BAUD RATE 9600
N→3

- JUMPER P X→1 NO PARITY
- JUMPER E X→Ø ODD PARITY
- JUMPER D X→1 8 DATA BITS
- JUMPER S X→Ø 1 STOP BIT
- X→H HALT ON BREAK

EIA RS423, RS232C

- JUMPER M3 X→3
- JUMPER N3 X→3

JUMPER M INSERTED

SLUØ (JØ)

VECTOR 300

ADDRESS 176500 (110 BAUD 20 MA)

BAUD RATE 9600
N→Ø

- JUMPER P X→1
- JUMPER E X→Ø
- JUMPER D X→Ø 8 DATA BITS
- JUMPER S X→Ø 1 STOP BITS

- JUMPER MØ X→3
- JUMPER NØ X→3

SLU1 (J1)

VECTOR 310

ADDRESS 176510

BAUD RATE 1200
W→1

- JUMPER P X→1
- JUMPER E X→Ø
- JUMPER D X→1 8 DATA BITS
- JUMPER S X→1 2 STOP BITS

- JUMPER M1 X→3
- JUMPER N1 X→3

DLV11-J

SLU2 (J2)

VECTOR 320

ADDRESS 176520

BAUD RATE 300
T→2

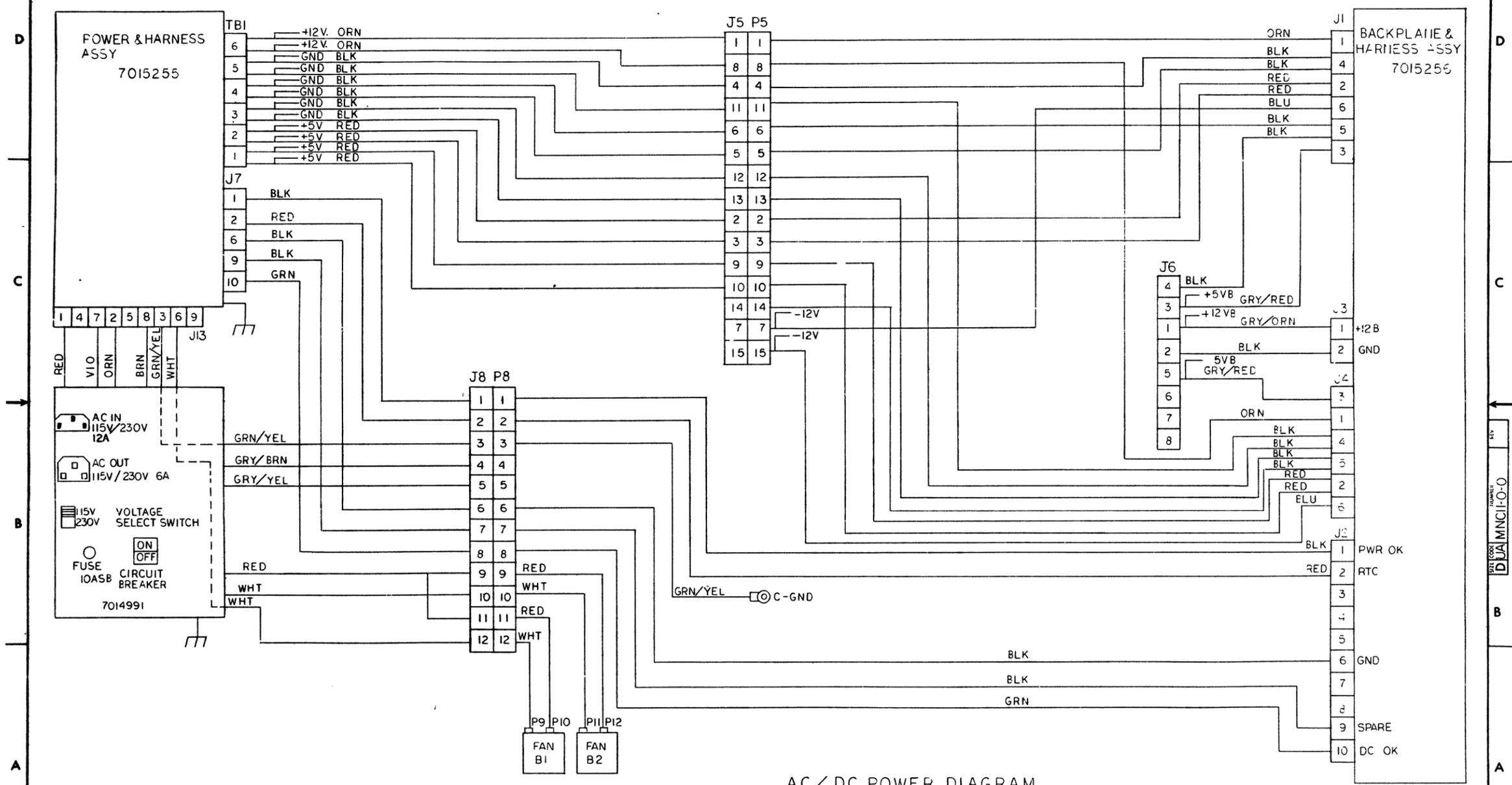
- JUMPER P X→1
- JUMPER E X→Ø
- JUMPER D X→1 8 DATA BITS
- JUMPER S X→1 2 STOP BITS

- JUMPER M2 X→3
- JUMPER N2 X→3

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
MNCII UNIT ASSY	D UA	MNCII-Ø-Ø	
SCALE NONE	SHEET 5 OF 6	DIST.	

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AC/DC POWER DIAGRAM

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	MNCII UNIT ASSY	SIZE CODE	D UA	NUMBER	MNCII-0-0	REV.	
SCALE	NONE	SHEET	6 OF 6	DIST.			

14

M.P.

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:								
MADE BY <i>G. Valencia</i>		CHECKED <i>J. Huson</i>												NOTES:								
DATE <i>13-JUL-78</i>		DATE <i>14 July 78</i>																				
ENG <i>O.C. Ff</i>		PROD <i>J. Huson</i>																				
DATE <i>14-July-78</i>		DATE <i>14 July 78</i>												REF DESIGNATION								
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	MNC11-AA	MNC11-BA	MNC11-BC	MNC11-BD	MNC11-CA	MNC11-CC	MNC11-CD	MNC11-DA	MNC11-AB										
1	E-UA-MNCBA-0-0		MNCBA BOX ASSY	1	-	-	-	-	-	-	1	1										
2	D-MD-7420102-0-0	7420102-0	COVER, LOGIC COMPARTMENT	1	-	-	-	-	-	-	1	1										
3	D-MD-7420239-0-0	7420239-0	COVER, BOOT MODULE	1	-	-	-	-	-	-	1	1										
4	D-AD-7015363-0-0	7015363-0	PANEL, SIDE ASSY (RIGHT)	1	-	-	-	-	-	-	1	1										
5	D-AD-7015363-0-0	7015363-1	PANEL, SIDE ASSY (LEFT)	1	-	-	-	-	-	-	1	1										
6	D-AD-7015836-0-0	7015836-0	BOX, CONNECTOR ASSY	1	-	-	-	-	-	-	1	1										
7	D-IA-7014990-0-0	7014990-0	COVER, TOP ASSY	1	-	-	-	-	-	-	1	1										
8	D-IA-7015790-0-0	7015790-0	CABLE, CONSOLE INTERFACE	1	-	-	-	1	1	1	1	1										
9	D-UA-BDV11-A-0		UNIT ASSY (BDV11) (M8012)	1	-	-	-	-	-	-	1	1										
10	A-PL-IBV11-A-0		LS111/IB INTERFACE (M7954)	1	-	-	-	-	-	-	-	1										
11	RXV21		RXV21 M8029	1	-	-	-	-	-	-	-	1										
12	A-PL-DLV11-J-0		4 SERIAL LINE PER CTRL (M8043)	1	-	-	-	-	-	-	1	1										
13	A-PL-MSV11-D-0		32K-16 BIT MOS MEMORY SYSTEM (M8044)	1	-	-	-	-	-	-	1	1										
14	A-PL-KD11-NA		LS111 CPU WITH EIS, FIS, NO MEMORY	1	-	-	-	-	-	-	1	1										
15	D-UA-MNC11-AA		BASIC MINC (115V 60 HZ)	X	1	1	-	1	1	-	-	-										
16	E-UA-RX02M-MA		RX02M UNIT ASSY (115V 60HZ)	-	1	-	-	1	-	-	-	-										
17	E-UA-RX02M-MC		RX02M UNIT ASSY (115V 50HZ)	-	-	1	-	-	1	1	-	-										
18	E-UA-RX02M-MD		RX02M UNIT ASSY (230V 50HZ)	-	-	-	1	-	-	-	-	-										
19	E-UA-RLV11-0-0		DISK CONTROLLER ASSY (RLV11)	-	-	-	-	-	-	-	1	-										
20	D-UA-MNCKW-0-0		MNCKW UNIT ASSY	-	-	-	-	1	1	1	-	-										
21	D-UA-MNCAD-0-0		MNCAD UNIT ASSY	-	-	-	-	1	1	1	-	-										

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			SHEET 1 OF 3	INSERTION PARTS LIST DATA BASE REV			

DRB 125

M.P.

15

MR

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:		
MADE BY <i>B. Navies</i> DATE <i>13-JUL-78</i>		CHECKED <i>J. Huson</i> DATE <i>14 July 78</i>		SECTION <i>1</i>		MNC11-AA	MNC11-BA	MNC11-BC	MNC11-BD	MNC11-CA	MNC11-CC	MNC11-CD	MNC11-DA	MNC11-AB		
ENG <i>A.C.F.</i> DATE <i>19-July 78</i>		PROD <i>B.L.</i> DATE <i>17 July 78</i>		ISSUED SECTION <i>1</i>											REF DESIGNATION	
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION													
22	D-UA-MNCCT-0-0		CART, MINC	-	1	1	1	1	1	1	1	-	-			
23	C-MD-7420240-0-0	7420240-0	BRKT, SPACER SIDE PANEL	2	-	-	-	-	-	-	-	2	2			
24	D-UA-M8659-0-0		VT71 BUS GRANT	2	-	-	-	-	-	-	-	2	2			
25	A-DC-3615262-0-0	3615262-0	DECAL, PROCESSOR COMP	1	-	-	-	-	-	-	-	-	1			
26	D-DC-3615263-0-0	3615263-0	DECAL, USER INFO.	1	-	-	-	-	-	-	-	1	1			
27	A-DC-3615774-0-0	3615774-0	DECAL, PROCESSOR COMP (MNC11-D)	-	-	-	-	-	-	-	-	1	-			
28		9006021-03	SCR, PHIL TRUSS HD6-32x.31	7	-	-	-	-	-	-	-	7	7			
29		9006037-03	SCR, PHIL TRUSS HD8-32x.38	8	-	-	-	-	-	-	-	8	8			
30		9006039-03	SCR, PHIL TRUSS HD8-32x.50	4	-	-	-	-	-	-	-	4	4			
31		9005633-00	WASHER, INT. TOOTH LOCK #6	7	-	-	-	-	-	-	-	7	7			
32		9005634-00	WASHER, INT. TOOTH LOCK #8	8	-	-	-	-	-	-	-	8	8			
33		9006563-00	NUT, KEPS #8	4	-	-	-	-	-	-	-	4	4			
34		1700150-0	LINE CORD IEC TO IEC	-	3	3	3	3	3	3	3	-	-			
35		1700156-0	LINE CORD 115V TO IEC	-	1	1	1	1	1	1	1	-	-			
36	E-UA-VT105-MA-0		VIDEO TERMINAL 115V/60HZ	-	1	1	-	1	1	-	-	-	-			
37	E-UA-VT105-MB-0		VIDEO TERMINAL 230V/50HZ	-	-	-	1	-	-	-	1	-	-			
38	D-UA-MNCBL-0-0		MNCBL UNIT ASSY	-	-	-	-	1	1	1	-	-	-			
*39	B-IA-7015911-0-0	7015911-0	CONNECTOR, TEST	REF	-	-	-	-	-	-	-	REF	REF			
40	D-IA-7015574-0-0	7015574-0	CABLE, RX02M INTERFACE	1	-	-	-	-	-	-	-	1	1			
41	D-UA-MNC11-AB		BASIC (230V 50HZ)	-	-	-	1	-	-	-	1	-	-			
42	D-UA-MNCAM-0-0		MNCAM UNIT ASSY	-	-	-	-	1	1	1	-	-	-			

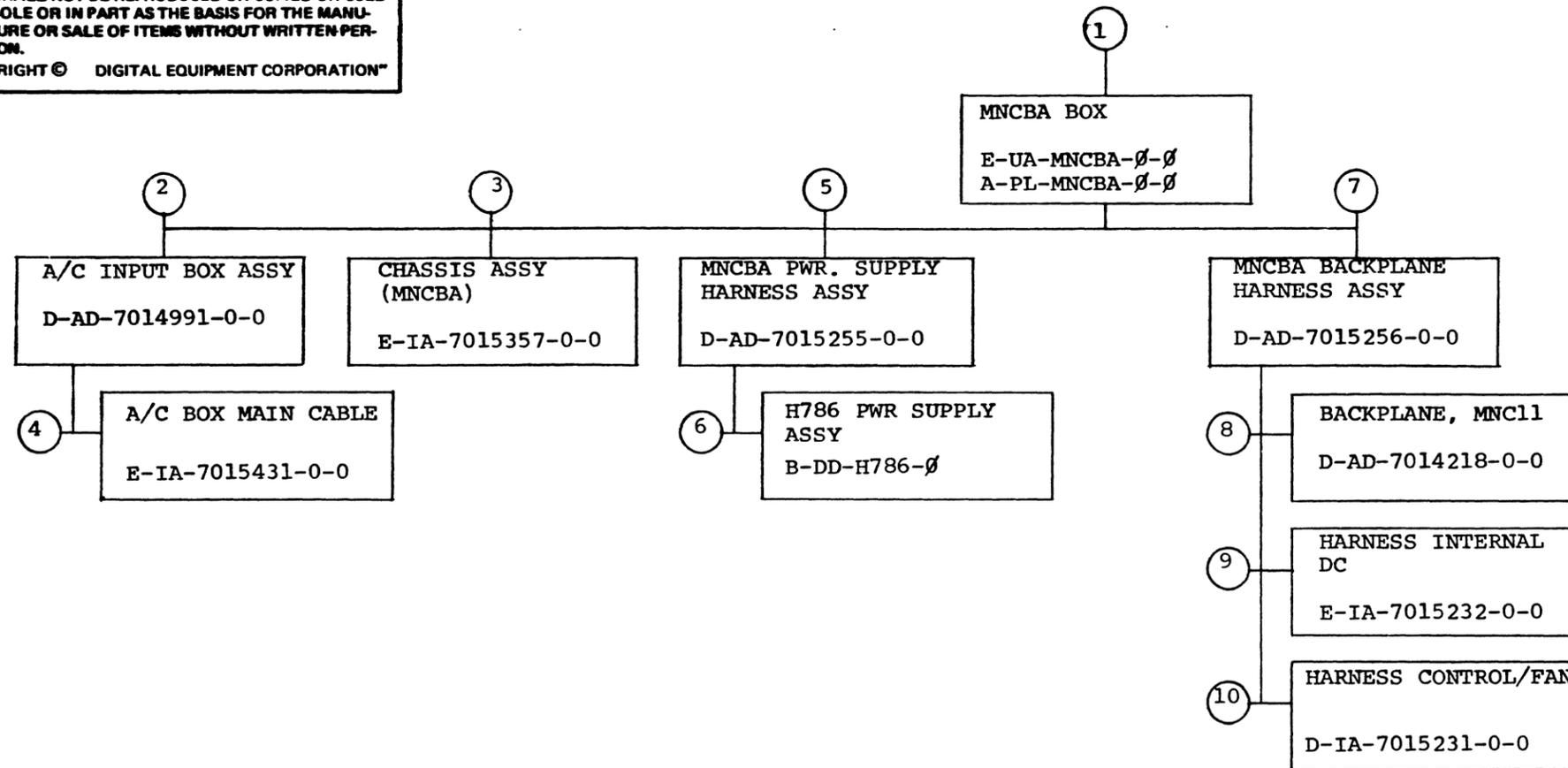
E.C.O. NO.

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	MNC11 UNIT ASSY	D-UA-MNC11-0-0	B	PL	MNC11-0-0	
SHEET 2 OF 3			INSERTION PARTS LIST DATA BASE REV			

DRB 125

MR

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TITLE	MNCBA BOX	SHEET 2 OF 4	SIZE CODE	B DD	NUMBER	MNCBA-Ø	REV
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FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1				4	E-IA-7015431-0-0	A/C BOX - MAIN CABLE	E/M
	E-UA-MNCBA-Ø-Ø	MNCBA BOX	E/M		A-DC-7409873-2-0	DECALS, POWER CONNECTOR	M
	A-PL-MNCBA-Ø-Ø	MNCBA BOX	E/M				
	D-IA-7420278-0-0	COVER, BOTTOM	M				
	C-IA-7419895-0-0	PANEL, FRONT BREATHER	M				
	C-PS-4830036-0-0	EXTRUSION, FRONT BREATHER PANEL	M				
	D-MD-7419871-0-0	FILLER, POWER SUPPLY	M				
	D-MD-7419877-0-0	SHELF, STRAIN RELIEF	M				
	C-IA-7419896-0-0	PANEL, FRONT CORNER	M				
	C-PS-4830037-0-0	EXTRUSION, FRONT PANEL CORNER	M	5	D-AD-7015255-0-0	MNCBA PWR. SUPPLY HARNESS ASSY	E/M
					D-IA-7015214-0-0	HARNESS POWER SUPPLY	E/M
2	D-AD-7014991-0-0	A/C INPUT BOX ASSY	E/M				
	D-IA-7419882-0-0	BOX, A/C INPUT	M	6	B-DD-H786-Ø	H786 POWER SUPPLY ASSY	E/M
	D-MD-7419884-0-0	COVER, A/C BOX	M				
	C-IA-7418378-0-0	PLATE, VOLTAGE SELECT	M				
	C-IA-7015432-0-0	VOLTAGE SWITCH ASSY	E/M				
	C-IA-7015521-0-0	CONN. PWR. RECP. (FEMALE)	E/M				
	C-IA-7015522-0-0	CONN. PWR. RECP. (MALE)	E/M				
				7	D-AD-7015256-0-0	MNCBA BACKPLANE HARNESS ASSY	E/M
3	E-IA-7015357-0-0	CHASSIS ASSY (MNCBA)	M				
	E-IA-7419879-0-0	CHASSIS	M				
	E-MD-7419880-0-0	COMPARTMENT, POWER SUPPLY	M				
	B-MD-7419878-0-0	BRKT, TOP COVER PIVOT	M				
	D-MD-7419876-0-0	PARTITION, FAN	M	8	D-AD-7014218-0-0	BACKPLANE	E/M
	D-IA-7419859-0-0	CARD-GUIDE SUPPORT REAR	M		5012292	ETCH BOARD	E/M
	D-IA-7419875-0-0	SUPPORT, FRONT PANEL	M		D-MD-7418990-0-0	MOUNTING BAR	M
	D-IA-7419873-0-0	SUPPORT, FRONT SINGLE CARD-GUIDE	M		B-MD-7417041-0-0	CONN BLOCK 288 PIN	M
	D-MD-7419865-0-0	BRKT, SUPPORT POWER SUPPLY	M		B-MD-7417042-0-0	CONN BLOCK 72 PIN	M
	E-MD-7420233-0-0	PARTITION, LOGIC	M		A-SP-7014218-0-1	ASSY SPEC. BACKPLANE	REF
	B-MD-7420243-0-0	STRIKE, PIVOT	M		D-DA-9505110-0-0	FIXTURE, MNC	REF
					C-MD-7419331-0-0	MODULE, STIFFENER	REF
					A-DC-7411881-0-0	DECAL, LOGIC ASSY	E/M

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE

MNCBA BOX

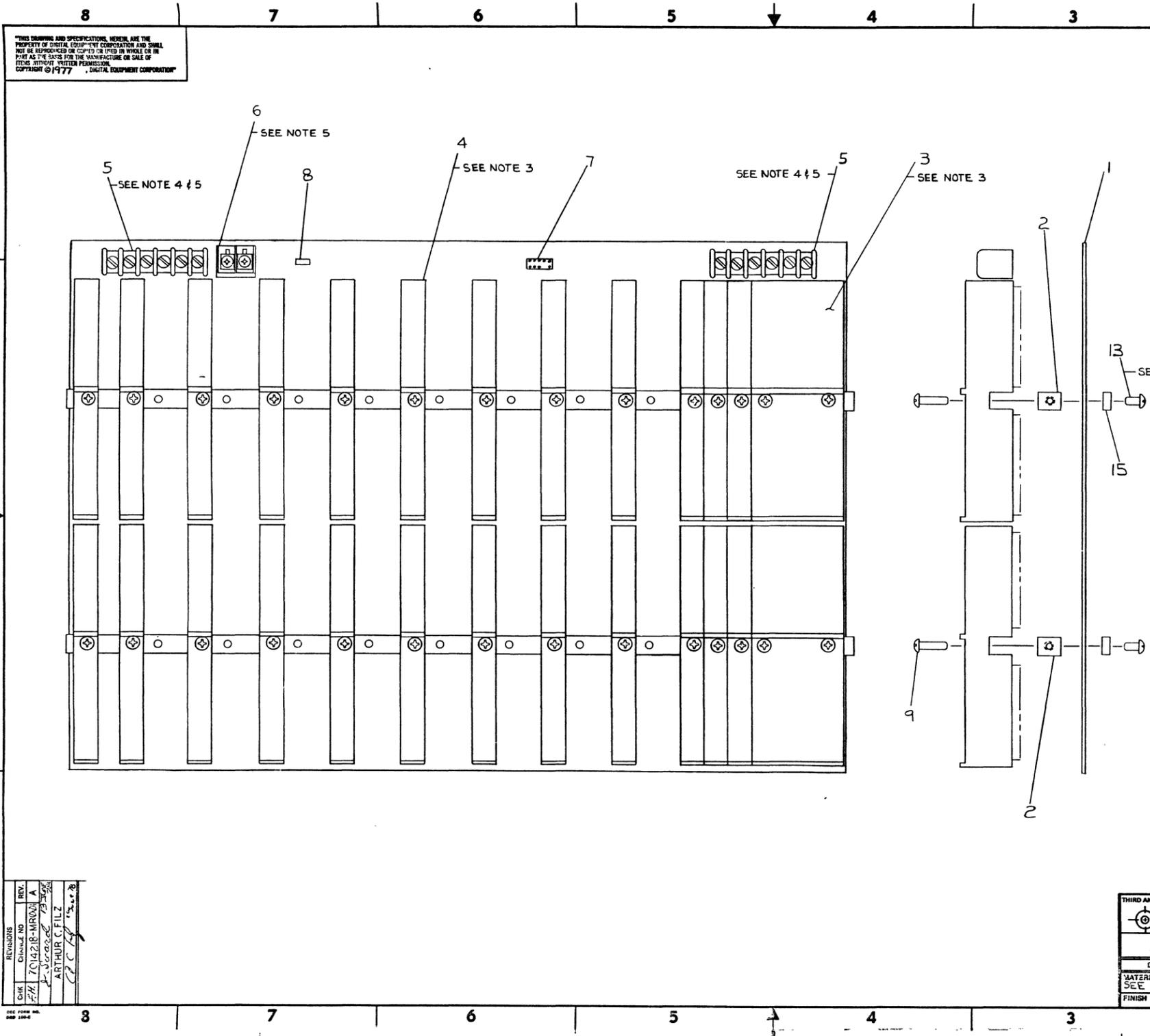
SHEET 3 OF 4

SIZE CODE
B DD

NUMBER
MNCBA-Ø

REV

DRB 108A



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0-0-0-8124218-0-0 2 1 MR

- NOTES:**
- ITEMS NO 13 + 15 TO BE USED BY MANUFACTURING ONLY. REMOVE BEFORE FINAL SHIPMENT.
 - PIN 4 ON ITEM NO.7 TO BE REMOVED
 - USE ONLY WIDE LEAD IN ANGLE CONNECTOR BLOCKS.
 - ITEM *5 TO BE MOUNTED WITH WRITING TOWARDS BLOCKS.
 - ON ITEMS *5 AND *6 CUT PINS BELOW THE HEIGHT OF THE PINS ON THE CONNECTOR BLOCKS.

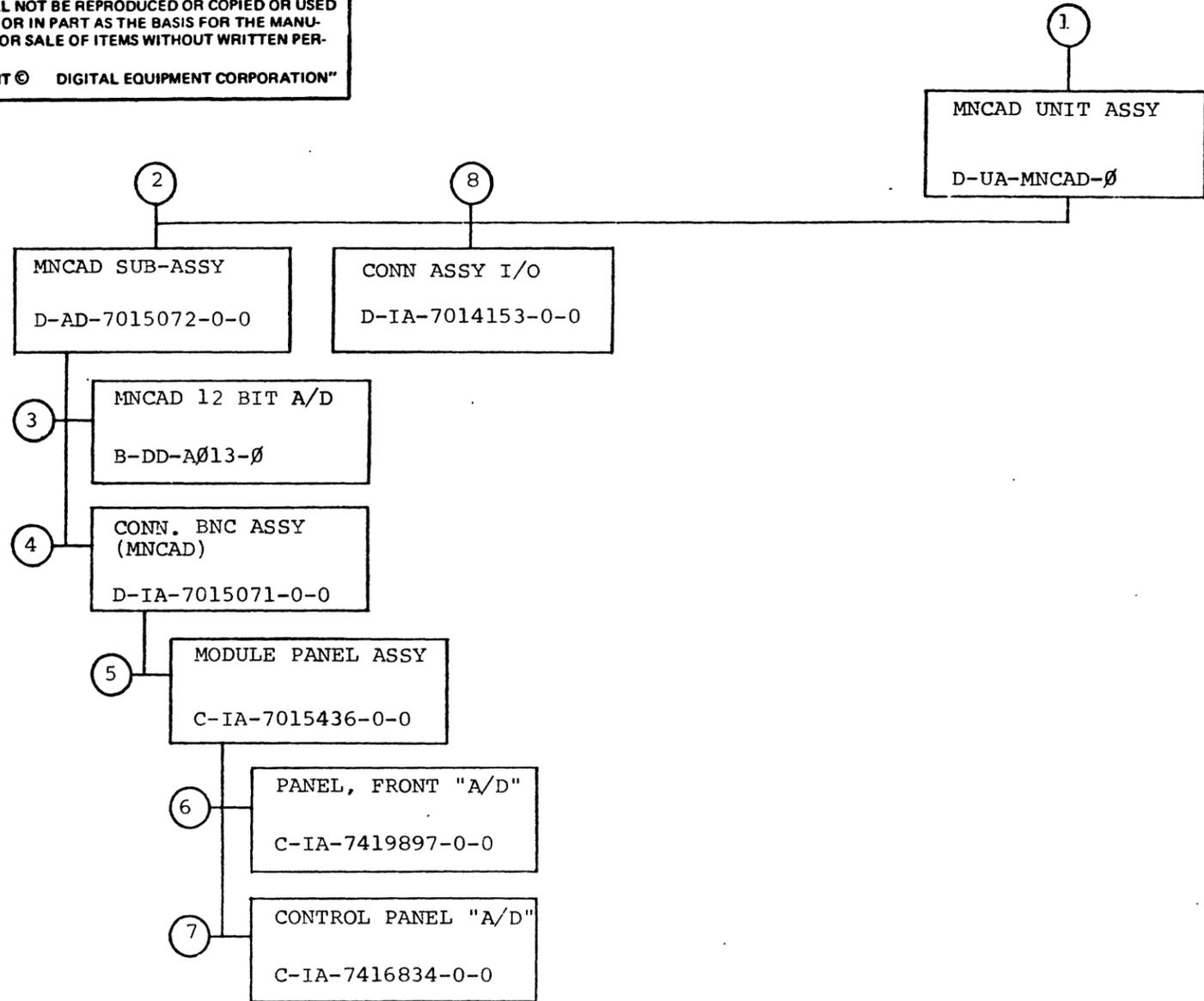
REF	DESCRIPTION	DWG/PART NO.	ITEM NO.
REF	PACKAGING INSTRUCTION	3700040	18
REF	AWT REVISION STATUS	A-WT-7014218-0-0	17
1	DECAL, LOGIC ASSY	A-DC-7411881-0-0	16
REF	MODULE STIFFENER	C-MD-7419331-0-0	15
1	COMPRESS-O-CARTON	9905016-04	14
REF	SCR,PHL PAN *8-32 X.31	9006036-01	13
REF	LAYOUT, BACKPLANE	D-LO-7607520-0-0	12
REF	FIXTURE, MINC	D-DA-9505110-0-0	11
REF	ASSY SPEC, BACKPLANE	A-SP-7014218-1-0	10
28	SCR, POSI DR *8-32 X.625	9006120-6	9
1	JUMPER (INSULATED)	9009185	8
1	CONN, 5X2	1213488	7
1	CONN, TERMINAL	1213464	6
2	CONN, TERMINAL	1212484	5
24	CONN BLOCK 72 PIN	B-MD-7417042-0-0	4
2	CONN BLOCK 288 PIN	B-MD-7417041-0-0	3
2	MOUNTING BAR	D-MD-7418790-0-0	2
1	ETCH BOARD	5012292	1

QUANTITY & VARIATION		DESCRIPTION		DWG/PART NO.	ITEM NO.
1		ETCH BOARD		5012292	1
2		MOUNTING BAR		D-MD-7418790-0-0	2
2		CONN BLOCK 288 PIN		B-MD-7417041-0-0	3
24		CONN BLOCK 72 PIN		B-MD-7417042-0-0	4
1		CONN, TERMINAL		1212484	5
1		CONN, TERMINAL		1213464	6
1		CONN, 5X2		1213488	7
1		JUMPER (INSULATED)		9009185	8
28		SCR, POSI DR *8-32 X.625		9006120-6	9
REF		ASSY SPEC, BACKPLANE		A-SP-7014218-1-0	10
REF		FIXTURE, MINC		D-DA-9505110-0-0	11
REF		LAYOUT, BACKPLANE		D-LO-7607520-0-0	12
REF		SCR,PHL PAN *8-32 X.31		9006036-01	13
1		COMPRESS-O-CARTON		9905016-04	14
REF		MODULE STIFFENER		C-MD-7419331-0-0	15
1		DECAL, LOGIC ASSY		A-DC-7411881-0-0	16
REF		AWT REVISION STATUS		A-WT-7014218-0-0	17
REF		PACKAGING INSTRUCTION		3700040	18

THIRD ANGLE PROJECTION	DRN: M. H. [Signature]	DATE: 11/29/77	FIRST USED ON: MNCII digital
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D: J. H. [Signature]	DATE: 11/29/77	TITLE: BACKPLANE, MNCII
DO NOT SCALE DWG	ENG: [Signature]	DATE: 11/29/77	
MATERIAL SEE PARTS LIST	PROL ENG: [Signature]	DATE: 11/29/77	
FINISH NONE	PROD. O. C. [Signature]	DATE: 11/29/77	
SCALE 1/1	NEXT HIGHER ASSY:		
SHEET 1 OF 1	MATERIAL: D-AD-7015256-0-0	SIZE: D	CODE: AD
	NUMBER: 7014218-0-0	REV: A	

REV.	DESCRIPTION	DATE
A	CHANGE NO. 1	11/29/77
B	CHANGE NO. 2	11/29/77
C	CHANGE NO. 3	11/29/77
D	CHANGE NO. 4	11/29/77

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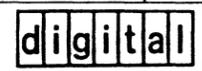
TITLE MNCAD UNIT ASSY	SHEET 2 OF 3	SIZE CODE B DD	NUMBER MNCAD-Ø	REV A
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MR

25

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP00592	FIELD MAINTENANCE PRINT SET	-	5	C-IA-7015436-0-0	MODULE PANEL ASSY	M
	B-TC-MNCAD-0-1	FIELD MAINTENANCE PRINT SET	-				
	D-UA-MNCAD-0-0	MNCAD UNIT ASSY	E/M				
	C-MD-7419869-0-0	PLATE, COMP SIDE	M				
	C-MD-7419868-0-0	PLATE, ETCH SIDE	M				
	A-DC-3615260-0-0	DECAL, I/O SCHEMATIC	E/M				
	A-DC-3615264-0-0	DECAL, INFORMATION (MNCAD)	E/M				
	A-PL-MNCAD-0-5	PARTS LIST MNCAD	E/M				
	A-PL-MNCAD-0-SH	SHIP LIST MNCAD	E/M				
	A-SP-MNCAD-0-2	MNCAD ENGINEERING SPEC.	E/M	6	C-IA-7419897-0-0	PANEL, FRONT "A/D"	M
	A-SP-MNCAD-0-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M		C-PS-4830033-0-0	EXTRUSION, FRONT PANEL "A/D"	M
	A-SP-MNCAD-0-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M				
2	D-AD-7015072-0-0	MNCAD SUB-ASSY	M				
	B-MD-7420242-0-0	SPACER, MODULE	M				
	C-IA-7419864-0-0	SUB PANEL	M				
				7	C-IA-7416834-0-0	CONTROL PANEL "A/D"	M
					C-SS-7416834-01	CONTROL PANEL	M
					C-SS-7416834-02	CONTROL PANEL	M
					C-SS-7416834-03	CONTROL PANEL	M
					C-SS-7416834-04	CONTROL PANEL	M
					C-SS-7416834-05	CONTROL PANEL	M
3	B-DD-A013-0	MNCAD 12 BIT A/D	E/M				
	A-PL-A013-0-0	12 BIT A/D	E/M				
	D-UA-A013-0-0	12 BIT A/D	E/M				
	D-CS-A013-0-1	12 BIT A/D	E/M				
				8	D-IA-7014153-0-0	CONN ASSY I/O	E/M
					A-DC-7416836-0-0	DECAL, I/O CONN	E/M
					A-DC-7418934-0-0	DECAL, I.D. I/O CONN	E/M
4	D-IA-7015071-0-0	CONN. BNC ASSY (MNCAD)	E/M				

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL



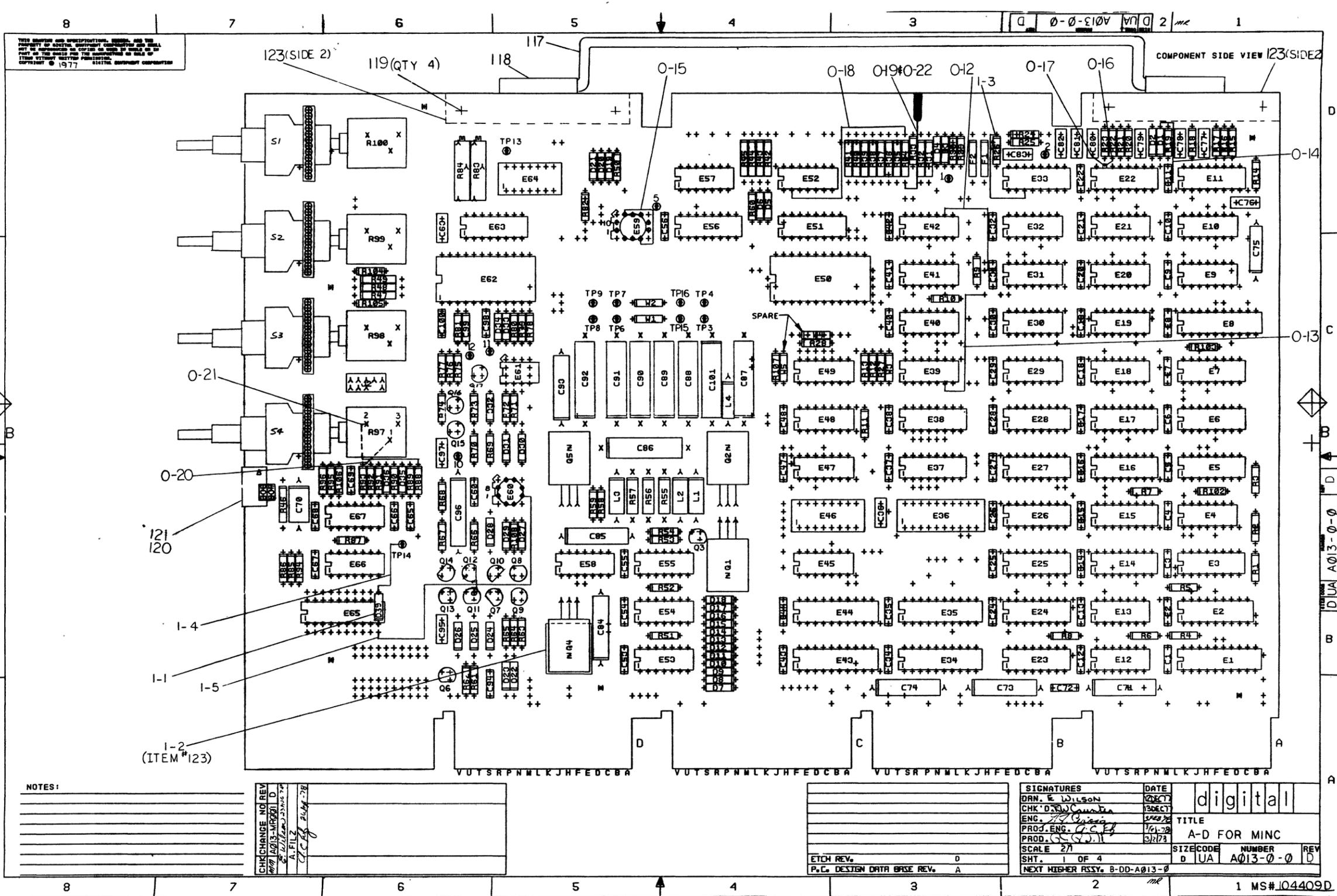
TITLE MNCAD UNIT ASSY

SHEET 3 OF 3

SIZE CODE
B DD

NUMBER
MNCAD-0

REV
A



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COMPONENT SIDE VIEW 123(SIDE 2)

NOTES:

CHANGE NO	REV
1003-NR001	D
1003-NR001	1
1003-NR001	2
1003-NR001	3
1003-NR001	4
1003-NR001	5
1003-NR001	6
1003-NR001	7
1003-NR001	8
1003-NR001	9
1003-NR001	10

ETCH REV.	D
P.C. DESIGN DATA BASE REV.	A

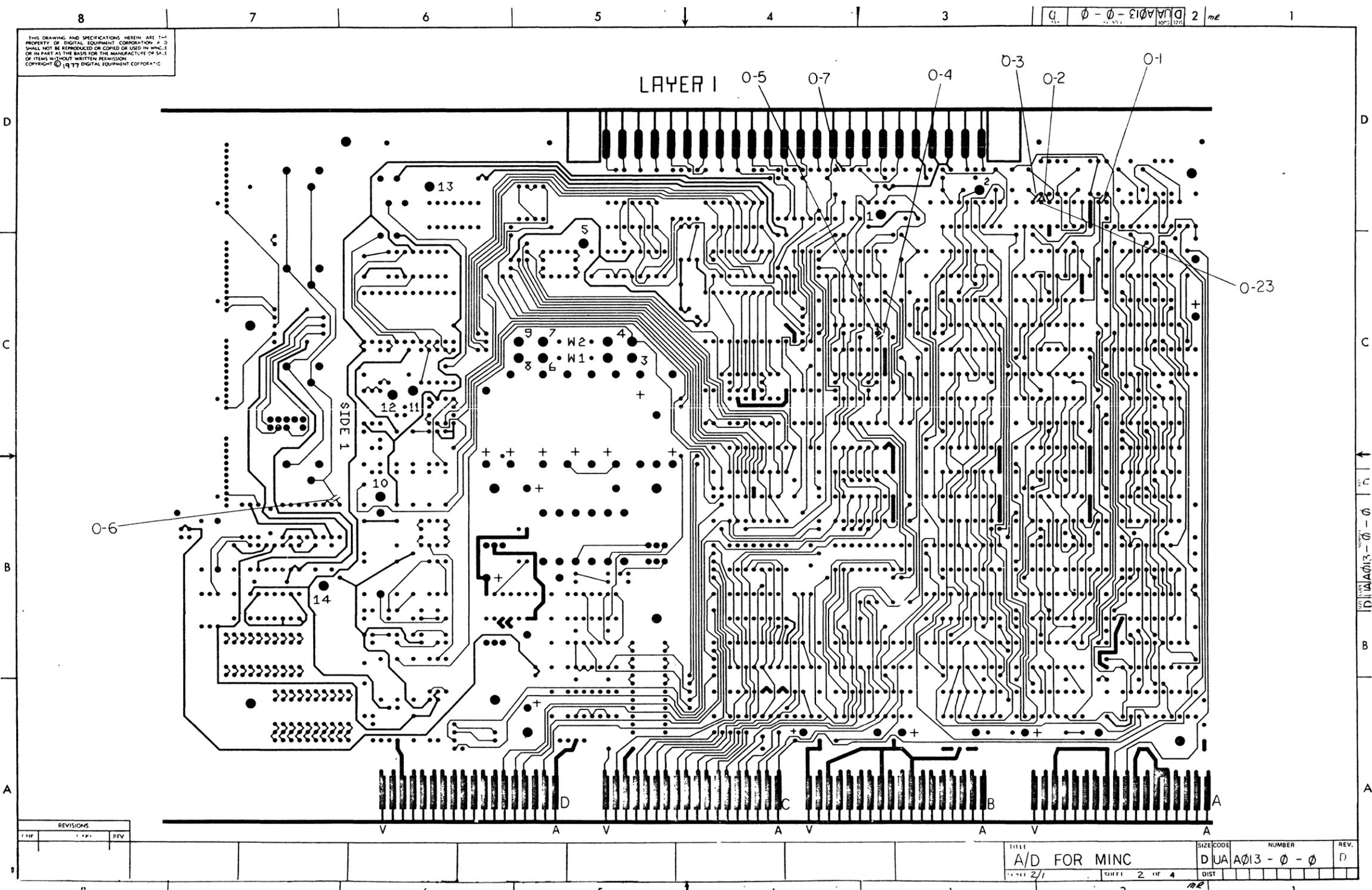
SIGNATURES		DATE
DAN E. WILSON		10/27
CHK'D BY		10/27
ENG. J. J. GREGG		10/27
PROJ. ENG. J. C. E.		10/27
PROD. (S. J. J.)		10/27
SCALE 27		
SHT. 1 OF 4		
NEXT HIGHER ASSY. 8-DD-A013-0		

digital	
TITLE	
A-D FOR MINC	
SIZE CODE	NUMBER
D U A	A013-0-0
REV	
D	

1 MS# 104409D

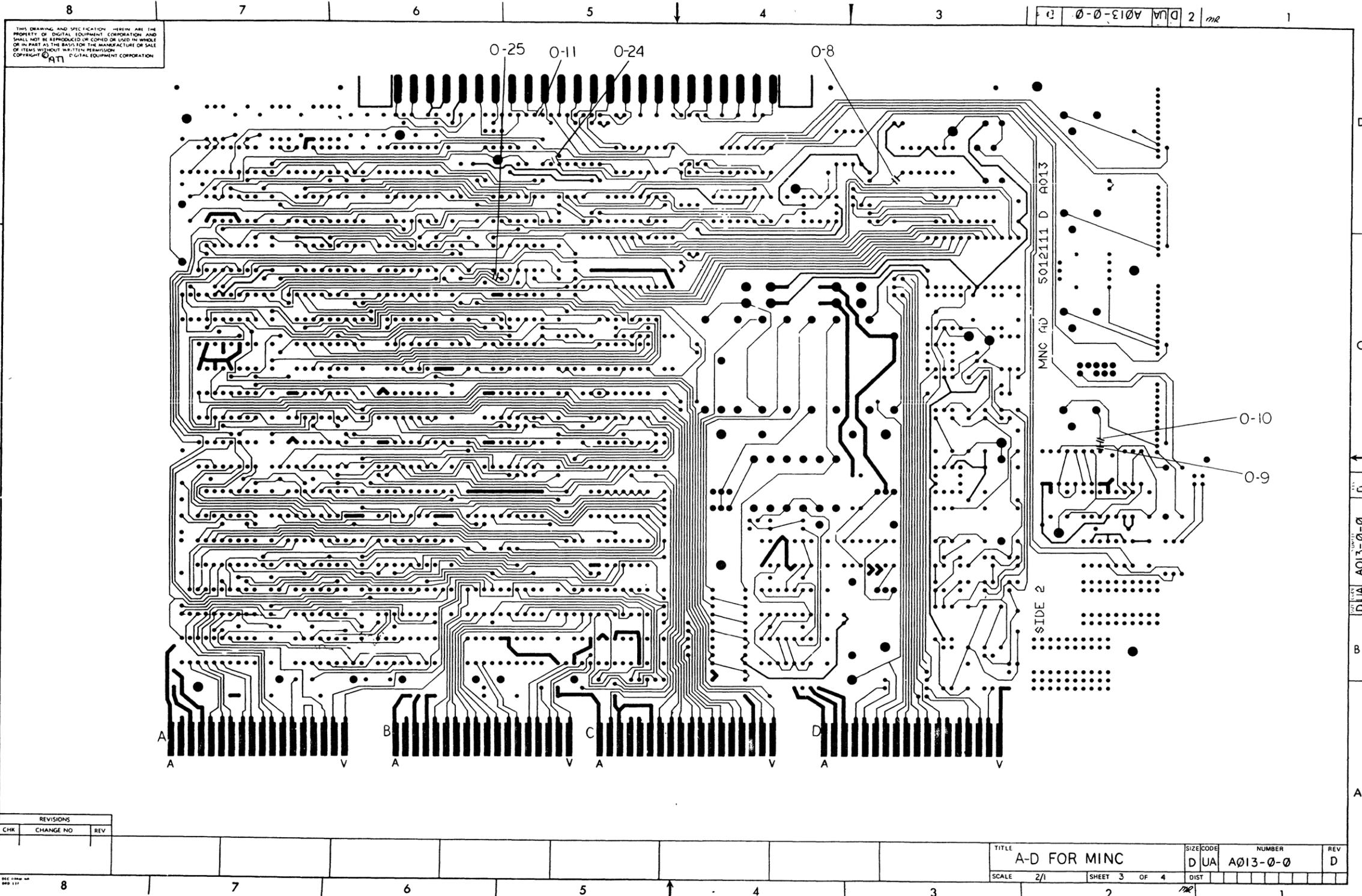
0 - 0 - 013 2 me 1

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REVISIONS	
NO.	DESCRIPTION

TITLE	SIZE CODE	NUMBER	REV.
A/D FOR MINC	D	A013 - 0 - 0	D
DIST	SHEET	OF	
2/1	2	4	



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REVISIONS		
CHR	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
A-D FOR MINC	D	UA	A013-0-0	D
SCALE	SHEET	OF	DIST	
2/1	3	4		

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REWORK INSTRUCTIONS
FIRST RELEASE

- ETCH CUTS, SIDE 1 (AS SHOWN)
 0-1 AT TOP OF C11
 0-2,0-3 AT BOTH SIDES OF E22(15)
 0-4,0-5 AT BOTH SIDES OF PTH BELOW E4(16)
 0-6 AT TOP OF R88
 0-7 AT TOP OF R34
 ETCH CUTS, SIDE 2 (AS SHOWN)
 0-8 AT E64(17)
 0-9 AT TOP OF R93
 0-10 ON ETCH RUNNING FROM R93 TO R97(2)
 0-11 AT TOP OF R34
 0-24 AT BOTTOM OF R34
 0-25 AT PTH BELOW E4(16)
 WIRE ADDS, SIDE 1 (AS SHOWN)
 0-12 FROM E42(19) TO PTH TO THE RIGHT OF R9
 0-13 FROM E39(18) TO PTH BELOW AND TO THE RIGHT OF R9
 0-14 FROM TOP OF D1 TO PTH AT C11
 0-15 FROM E59(41) TO E59(19)
 0-16 LIFT PIN E22(15) AND WIRE FROM E22(15) TO BOTTOM OF R22
 0-17 FROM E22(15) TO BOTTOM OF C80
 0-18 FROM E32(2) TO TOP OF R34
 0-19 FROM BOTTOM OF R34 TO JH(16)
 WIRE ADDS SIDE 2 (AS SHOWN)
 0-20 FROM TOP OF R93 TO R97(1)
 0-21 FROM TOP OF R88 TO R97(2)
 0-22 FROM BOTTOM OF R34 TO JH(16)
 DRILLING
 0-23 DRILL OUT E22(15) (REF A-SP-7665169-0-0)

ECO #1

- COMPONENT ADDS SIDE #1 (AS SHOWN)
 1-1 ADD DIODE (MCL1304) D39 IN LOCATION E65 BETWEEN PINS 10 AND 11. INSERT CATHODE IN PIN 10 HOLE AND ANODE LEAD IN OUTER HOLE ATTACHED TO PIN 11.
 1-2 ADD TAPE (ITEM 123) TO BOTTOM OF Q4, PLACE TAPE ON PART NOT ON THE BOARD.

- WIRE ADDS SIDE #1 (AS SHOWN)
 1-3 FROM TOP R26 TO E33 PIN 3
 1-4 FROM TP14 TO ANODE END OF D39
 1-5 FROM CATHODE END OF D39 TO E60 PIN 4

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	A-D FOR MINC	SIZE CODE	D UA	NUMBER	A013-0-0	REV.	D
SCALE	+	SHEET	4 OF 4	DIST.			

MR

TY A013.LST
AUTOMATED BY PRTLST 1D(1)

PARTS LIST

SHEET 1 OF 4

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012111-0-0	5012111-00	ETCH BD (A013)	1	
2	2		1010274-01	.22 MFD 50V XZ 3C023 CER.	56	C1-C22,C24-C32,C34,C35,C37, CONT C38,C40-C44,C47,C48,C53-C56, CONT C60,C65-C69,C72,C94,C98,C100
3	3		1000042-00	1000.0 MMF 100V 5%200PPM DM15S (10-00)	2	C36,C80
4	4		1000027-00	820.0 MMF 100V 5%200PPM DM15S (10-00)	1	C63
5	5		1004812-00	15 MFD 20V 10% 150D S.TA (10-00)	5	C71,C73,C74,C85,C93
6	6		1001776-00	1 MFD 35V 10% 150D S.TA (10-00)	1	C75
7	7		1000026-00	680.0 MMF 100V 5%200PPM DM15S (10-00)	1	C76
8	8		1000021-00	220.0 MMF 100V 5%200PPM DM15S (10-00)	3	C77,C78,C79
9	9		1000020-00	180.0 MMF 100V 5%200PPM DM15S (10-00)	1	C81
10	10		1000022-00	270.0 MMF 100V 5%200PPM DM15S (10-00)	1	C82
11	11		1000024-00	470.0 MMF 100V 5%200PPM DM15S (10-00)	1	C83
12	12		1005306-00	6.8MFD 35V 10% 150D S.TA (10-00)	1	C84
13	13		1005335-00	39 MFD 20V 10% 150D S.TA (10-00)	4	C86,C87,C88,C89
14	14		1002433-00	22 MFD 35V 20% 150D S.TA (10-00)	4	C90,C91,C92,C101
15	15		1005820-00	22.0 MMF 100V 5%200PPM DM15S (10-00)	1	C95
16	16		1009939-01	.0022 MFD 100V 10% 863UWFLYST	1	C96
17	17		1000016-00	100.0 MMF 100V 5%200PPM DM15S (10-00)	1	C97
18	18		1001610-00	.01 MFD 50V Z5U 309CER/8000FF MIN	1	C99
19	19		1010031-03	.22 MFD 50V 10% M.POLYCARB	1	C70
20	20		1105275-00	D 672 TR= 15NS PIV= 60V SF	28	D1-D18,D19,D21,D29-D36
21	21		1109502-00	1N 4742 VZ= 12.0 10% 1W Y	1	D20
22	22		1109991-00	1N 754A VZ= 6.8 5% .40W	1	D22
23	23		1110232-00	MCL1304 CL04MA FROM10-80V	3	D23,D28,D39
24	24		1103041-00	DEC 777 QS=12PCB PIV= 8VS	3	D24,D25,D26
25	25		1104860-00	1N 746A VZ= 3.3 5%	1	D27
26	26		1211164-06	SW,DIP 1P 1A 10POS	1	E36
27	27		1211164-04	SW,DIP 1P 1A 8POS	1	E46
28	28		1213488-00	CONN. 10POS HOUSING	1	J2

REVISION HISTORY				VARIATIONS FOR THIS ASSY.			
CHK	ECD NO	REV		FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
---	INIT	C	00	MADE BY:	E.WILSON	DATE:	12-DEC-77
MN	MRO01	D		TITLE	PARTS LIST		
				CHECKED:	R.W.CAUNTER	DATE:	13-DEC-77
				DSN.ENG.:	G.SIROIS	DATE:	3-FEB-78
				PROD.:	R.REBELLO	DATE:	3-FEB-78
				RESP.ENG.:	A.FILZ	DATE:	3-FEB-78
				ASSY.NO.:	D-UA-A013-0-0		EDIT#
							14

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MR

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AUTOMATED BY PRTLST ID(1)

PARTS LIST

SHEET 2 OF 4

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
29	29		1214352-00	SW,ROT 1P 4A 3POS	4	S1,S2,S3,S4
30	30		1300295-00	330 1/4W 5% CC	(13-00) 2	R1,R4
31	31		1301424-00	680 1/4W 5% CC	(13-00) 2	R2,R6
32	32		1300365-00	1 K 1/4W 5% CC	(13-00) 34	R3,R5,R7-R14,R16,R20,R23,R26, CONT R27,R28,R33,R107,R102-R106, CONT R29,R30,R50-R53,R62,R66,R82, CONT R85,R86
33	33		1302388-00	2 K 1/4W 5% CC	(13-00) 1	R15
34	34		1304870-00	6.81 K 1/4W 1% RN55D-F 100PPM	(13-00) 2	R17,R18
35	35		1300271-00	220 1/4W 5% CC	(13-00) 1	R19
36	36		1304854-00	5.11 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R21
37	37		1309416-00	31.6 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R22
38	38		1300479-00	10 K 1/4W 5% CC	(13-00) 6	R24,R25,R61,R81,R87,R96
39	39		1310881-00	1 K 1/4W 1% FUSIBLE	16	R34-R49
40	40		1310881-02	47 1/4W 1% FUSIBLE	2	R31,R32
41	41		1300250-00	150 1/4W 5% CC	(13-00) 1	R54
42	42		1300315-00	470 1/2W 5% CC	(13-00) 2	R55,R57
43	43		1301781-00	82 1/2W 5% CC	(13-00) 1	R56
44	44		1309422-00	5.1 1/4W 5% CC	(13-00) 2	R58,R59
45	45		1301425-00	300 1/4W 5% CC	(13-00) 1	R60
46	46		1300496-00	15 K 1/4W 5% CC	(13-00) 1	R64
47	47		1300229-00	100 1/4W 5% CC	(13-00) 2	R63,R65
48	48		1303178-00	620 1/4W 5% CC	(13-00) 1	R67
49	49		1300426-00	2.7 K 1/4W 5% CC	(13-00) 2	R68,R69
50	50		1300432-00	3 K 1/4W 5% CC	(13-00) 2	R70,R108
51	51		1302685-00	909 1/4W 1% RN55D-F 100PPM	(13-00) 3	R71,R88,R93
52	52		1305114-00	3.48 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R72
53	53		1302955-00	750 1/4W 1% RN55D-F 100PPM	(13-00) 1	R73
54	54		1305516-00	128 K 1/4W 1% RN55E-B 25PPM	(13-00) 1	R74
55	55		1302379-00	75 1/4W 5% CC	(13-00) 2	R75,R76
56	56		1302859-00	5.76 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R77
57	57		1302899-00	30.1 1/4W 1% RN55D-F 100PPM	(13-00) 1	R78
58	58		1303313-00	12.1 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R79
59	59		1303038-00	133 1/4W 1% RN55D-F 100PPM	(13-00) 1	R80
60	60		1309143-13	50 K 3/4W 20% POT 100PPM	1	R83
61	61		1309143-05	200 3/4W 10% POT 100PPM	1	R84
62	62		1302396-00	150 K 1/4W 5% CC	(13-00) 1	R90
63	63		1300488-00	12 K 1/4W 5% CC	(13-00) 2	R94,R95
64	64		1314457-00	5 K 5% 10 TURN POT,PC MNT	4	R97,R98,R99,R100
65	65		1300005-01	R NETWORK 13-1K RESISTORS 5% DIP	(13-00) 2	E41,E48
66	66		1315012-00	300 K 1/4W 5% CC	(13-00) 1	R89
67	67		1303312-00	10.0 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R92
68	68		1309418-00	24.3 K 1/4W 1% RN55D-F 100PPM	(13-00) 1	R91
69	69		1510414-00	D 45C6 PNP 30WT SI 45 20 Y	1	Q1
70	70		1510171-00	D 44C3 NPN 30WT SI 30 20 Y	3	Q2,Q4,Q5
71	71		1503409-00	DEC6534D PNP 310MW SI 40 90 F	1	Q3
72	72		1509587-00	SE 4020 NPN 200MW SI 60120 M	5	Q6,Q9,Q11,Q13,Q15
73	73		1509681-00	2N 5245 FET 350MW SIN CHNNL	1	Q7

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TITLE	PARTS LIST	SIZE	CODE	DOCUMENT NUMBER	REV
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LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
74	74		1509142-00	DEC4250 PNP 200MW SI 40250 P	4	Q8,Q12,Q16,Q17
75	75		1509525-00	2N 3906 PNP 310MW SI 40100 Y	2	Q10,Q14
76	76		1603377-00	.22UH 10% 2.7A #WEE.22	2	L1,L2
77	77		1602254-00	22. UH 10% 430MA #RFS22	1	L3
78	78		1610662-00	100.0 UH 10% 165MA #DDI 00	1	L4
79	79		9009122-00	FUSE, SUB-MINI, .062A, 125V, AXIAL LEAD	2	F1,F2
80	80		1912729-00	DC 004 PROTOCOL,REG. SELECTOR	1	E1
81	81		1912730-00	DC 003 INTERRUPT,2 CIRCUIT	1	E2
82	82		1912951-00	DM 8556 COUNTER,BINARY,4BIT	3	E3,E15,E26
83	83		1905547-00	DEC 7474 FF-D DUAL,EDGE TRIGGER,15MHZ	3	E4,E20,E30
84	84		1910652-00	74174 FF-D HEX	2	E5,E25
85	85		1911527-00	8097 BUFFER GATE-HEX 2INPUT TRI-STA	3	E6,E7,E14
86	86		1910155-00	DEC 7408 AND GATE,POS.QUAD 2IN 14	3	E9,E32,E45
87	87		1909686-00	7404 INVERTER GATE-HEX 1IN	5	E10,E12,E18,E29,E31
88	88		1912858-00	LS221 ONE SHOT-DUAL,SCHMITT TRIGGER	1	E11
89	89		1909004-00	DEC 7402 NOR GATE-QUAD 2IN	2	E13,E21
90	90		1911330-00	74173 FF-D QUAD,TRISTATE	6	E16,E17,E27,E28,E37,E38
91	91		1905590-00	DEC 7401 NAND GATE-QUAD 2IN,OPN COLLECT	1	E19
92	92		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIGGERABLE	2	E22,E33
93	93		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UNIBUS	1	E23
94	94		1909934-00	8266 MUX 1 OF 2 (QUAD)	1	E24
95	95		1913040-00	DC 005 TRANSCEIVER 4BIT	4	E34,E35,E43,E44
96	96		1905580-00	DEC 7450 A-0-I XPNDBLE GATE-DUAL 2X2	1	E39
97	97		1909705-00	DEC 8881-1NAND GATE-QUAD 2IN,OPN COLL.	1	E40
98	98		1905575-00	7400 NAND GATE-QUAD 2IN	1	E42
99	99		1910741-00	7406 INVERTER GATE-HEX 1IN,BUFFER,0	3	E47,E53,E66
100	100		1909490-00	DEC 8281 COUNTER,ASYNCH UP,BINARY	2	E49,E55
101	101		1911628-00	AM 2504 SUCCESSIVE APPROX REG 24 P	1	E50
102	102		1911598-00	501C MUX,8CHNL,ANALOG	2	E51,E56
103	103		1910010-01	DEC 2501-1 2501 WITH VR=40V 14	2	E52,E57
104	104		1905576-00	7410 NAND GATE-TRIPLE 3IN	1	E54
105	105		1713218-00	325 VOLT.REG.FIX +/-15V 50MA 14	1	E58
106	106		2111285-02	HI 200-5 DUAL ANALOG SW,CMOS	1	E59
107	107		1911144-00	2505 OP AMP .1% SETTLE	1	E60
108	108		1910235-01	3100 OP AMP UNITY GAIN VOLT. FOLLOW	1	E61
109	109		1912401-00	AD562 DAC,12BIT,MULT	1	E62
110	110		1911629-00	1408L8 DAC, 8BIT	1	E63
111	111		1913219-00	AD 2700/L ANALOG SWITCH 10V PRECISION RE	1	E64
112	112		1912107-00	324 OP AMP,QUAD	1	E67
113	113		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X .187 LG	16	TP1-TP16
114	114		9009185-00	JUMPER, WIRE, INSULATED, BLACK BAND	3	W1,W2,W3
115	115		1114494-00	LED 1.0MCD@20MA	2	D37,D38
116	116		2304081-00	B1-01 PROM,	1	E8
117	117	C-MD-7420191-0-0	7420191-00	HANDLE	1	
118	118	C-MD-7420192-0-0	7420192-00	HANDLE RETAINER	2	
119	119		9006732-00	EYELET, ROLLED FLANGE, .121 OD X .219 LG	4	
120	120		9009783-00	SCREW, SLOTTED ROUND HD. 2-56 X 1/4 TYPE F	1	
121	121		1215265-00	HOLDER,LED	1	

! TITLE	PARTS LIST	! SIZE! CODE!	DOCUMENT NUMBER	! REV !
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	A/D FOR MINC	! K ! PL !	A013-0-DBP	! D !

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LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
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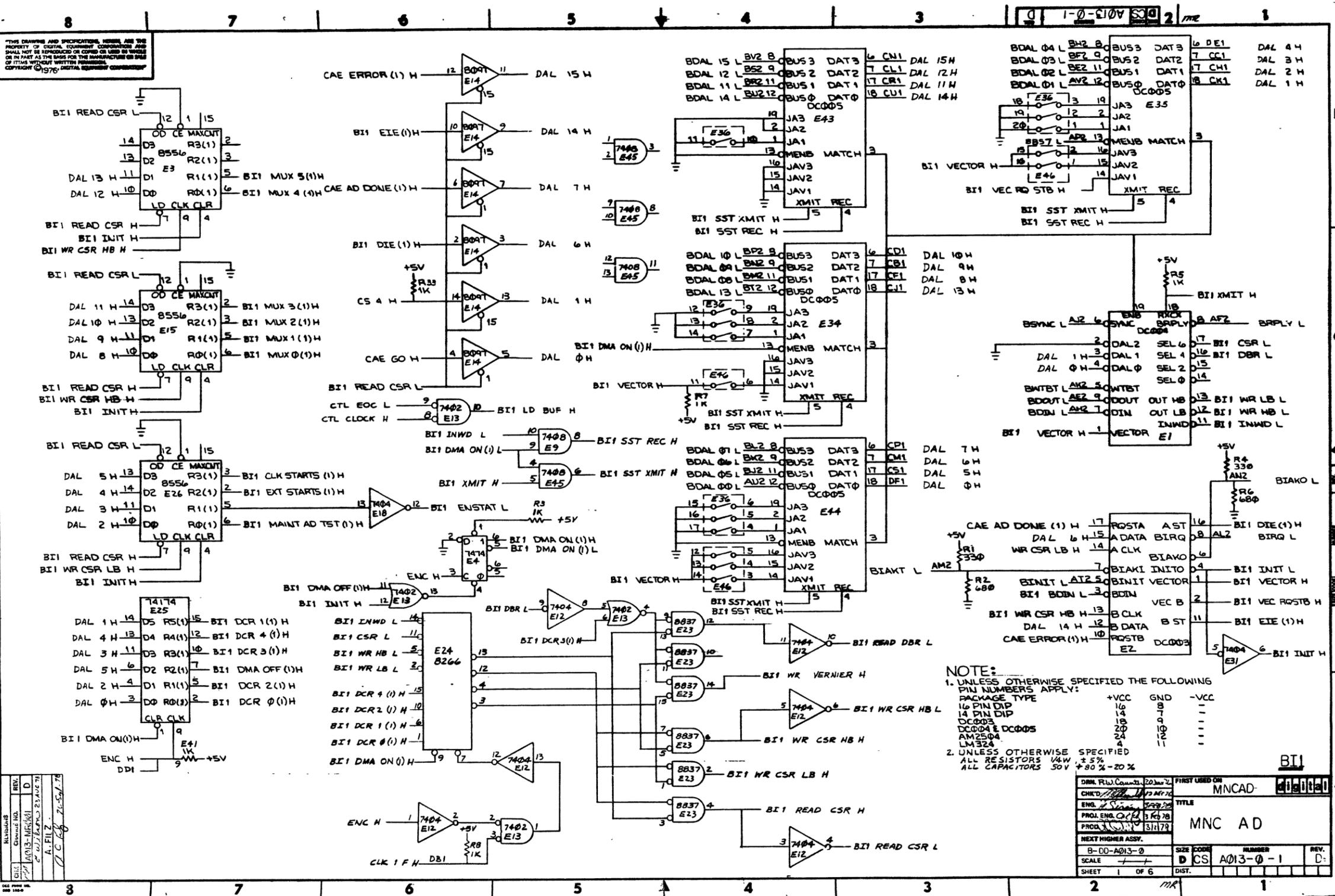
122	122	A-SP-7665169-0-0		MULTILAYER REWORK STANDARD		REF
123	123		9009507-00	TAPE, VINYL, ELECTRICAL, 3/4 X 66"		A/R

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TITLE	PARTS LIST	SIZE	CODE	DOCUMENT NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	A/D FOR MINC	K	PL	A013-0-DBF	1D

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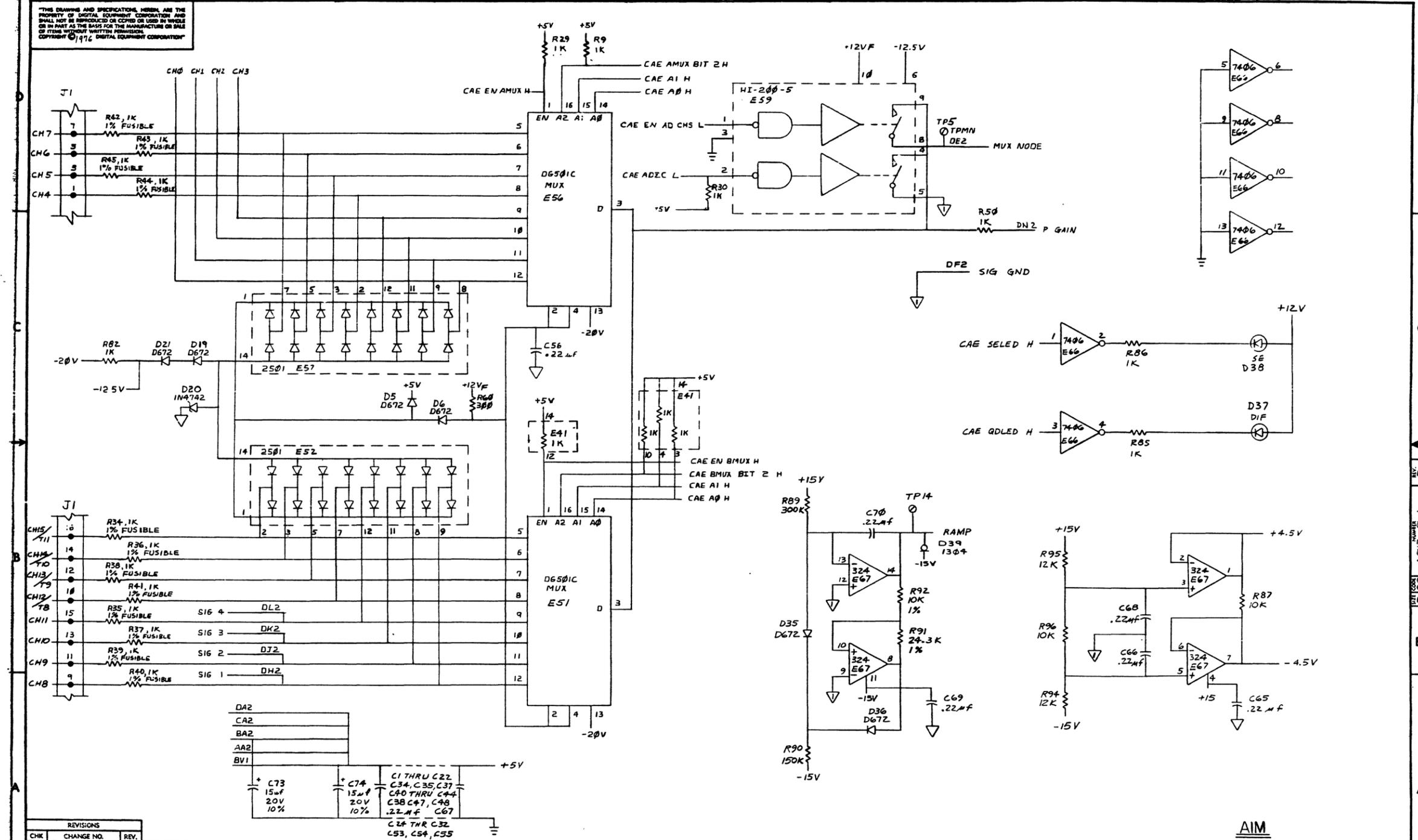
NOTE:
 1. UNLESS OTHERWISE SPECIFIED THE FOLLOWING PIN NUMBERS APPLY:
 PACKAGE TYPE +VCC GND -VCC
 16 PIN DIP 16 8 -
 14 PIN DIP 14 7 -
 DC003 18 9 -
 DC004 & DC005 20 10 -
 AM2504 24 12 -
 LM324 4 11 -
 2. UNLESS OTHERWISE SPECIFIED ALL RESISTORS 1/4W ±5% ALL CAPACITORS 50V

REV.	D
REV.	C
REV.	B
REV.	A

DRW. REV. Count	20 Jan 77	FIRST USED ON	MNCAD
CHKD.	12 Apr 77	TITLE	MNC AD
ENG.	12 Apr 77	PROJ. ENG.	0123 R678
PRD.	13 Apr 77	PRD.	31179
NEXT HIGHER ASSY.		SIZE	D
B-00-A013-0		CS	A013-0-1
SCALE		NUMBER	
SHEET	1 OF 6	DIST.	

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1-0-0107 500 2 MK

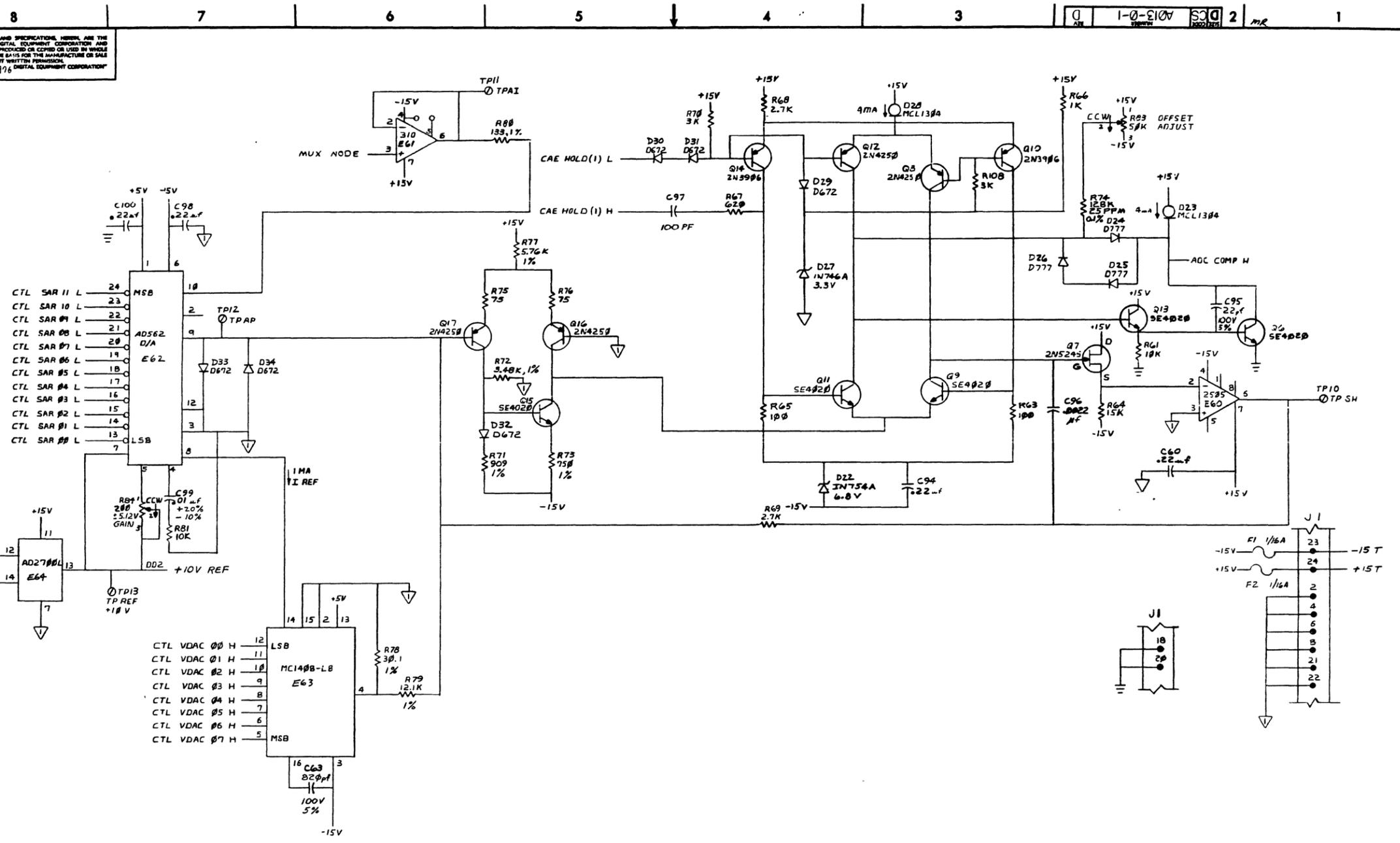


REVISIONS		
CHK	CHANGE NO.	REV.

- DA2
- CA2
- BA2
- AA2
- BV1
- +5V
- C73 15µF 20V 10%
- C74 15µF 20V 10%
- C1 THRU C22
- C34, C35, C37
- C40 THRU C44
- C50 C47, C48
- .22µF C67
- C27 THRU C32
- C53, C54, C55

TITLE		SIZE CODE	NUMBER	REV.
A-D FOR MINC		DCS	A013-0-1	D
SCALE	SHEET	OF	DIST.	
	4	6		

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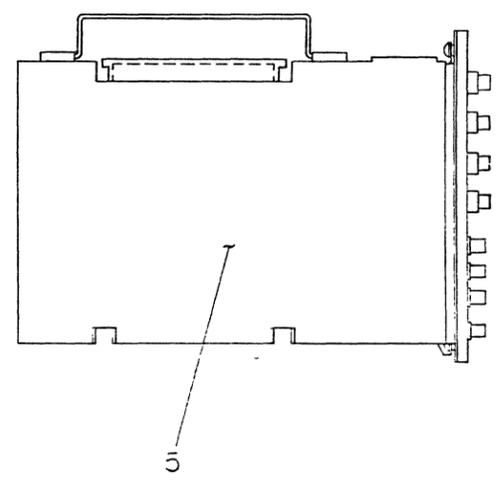
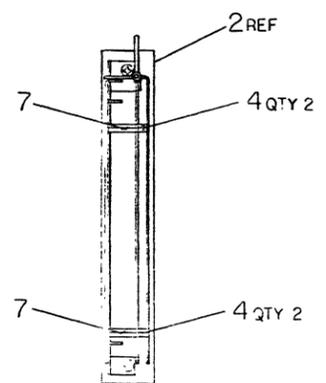
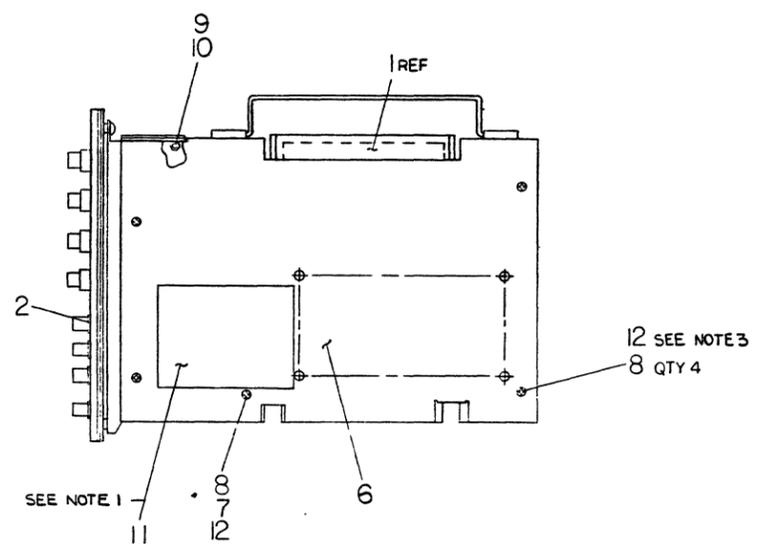
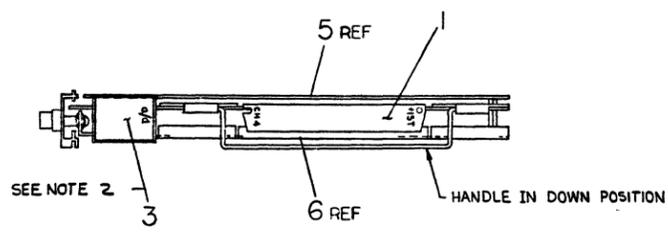
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	A-D FOR MINC	SIZE CODE	DCS	NUMBER	A013-0-1	REV.	D.
SCALE	1/1	SHEET	5 OF 6	DIST.			

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0-0-070NW 710 2

NOTES:
 1. ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLES.
 2. ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
 3. USING ITEM #12 ADD ONE DROP TO EACH LOCATION.



REF	CHKOUT #	ACCEPT. PROCEDURE	A-SP-MNCAD-0-3	13
A/R	LOCKTITE		9009521	12
1	DECAL, INFORMATION(MNCAD)		A-DC-361524-2-0	11
1	NUT, KEPS #6-32		9003185	10
1	WASHER, FLAT		9006653	9
5	SCR, FLAT HD #6-32 x .25		9006020-02	8
3	SPACER, THREADED #6-32 x .88		9006861	7
1	PLATE, COMP SIDE		D-10-7418368-0-0	6
1	PLATE, ETCH SIDE		D-1A-7418368-0-0	5
4	SPACER, THREADED #6-32 x .25		9006844	4
1	DECAL, I/O SCHEMATIC		A-DC-3615260-2-0	3
1	MNCAD I/O ASSY		D-10-7418372-0-0	2
1	CONN ASSY, I/O		D-1A-741835-0-0	1

REV. 1	DATE 1/2	BY [Signature]	CHKD [Signature]
TITLE		MNCAD UNIT ASSY	
EXT. NUMBER		MNCAD 0-0	
SHEET 1 OF 1		REV. 1	

REV. 1

MR

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION DATE 7/10/78

TITLE MNCAD INSTALLATION/AcCEPTANCE PROCEDURE

REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG *[Signature]* 7/11/78 APPD *[Signature]* 7-11-78 SIZE A CODE SP NUMBER MNCAD-0-4 REV

DEC 16 (302) 1079A-R873 DRA 107A MR SHEET 1 OF 8

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ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAD INSTALLATION/AcCEPTANCE PROCEDURE

1.0 GENERAL

1.1 SCOPE

This document describes the procedures for the installation and field acceptance of the MNCAD (A/D converter) option for the MINC-11 System. This procedure will be used for in-house PA&T, field add-on and new system installation, and periodic verification testing.

1.2 EQUIPMENT

MINC-11	System
MNCAD-TA	Test Module (Optional)
7014153-0-0	I/O Connector
Reference	Precision Voltage Source

1.3 DOCUMENTATION

MD-11-DVMNA	MNCAD Diagnostic Program
D-CS-A013-0-1	Circuit Schematics
AA-D572A-TC	Manual - "Working with MINC Devices"

SIZE A CODE SP NUMBER MNCAD-0-4 REV

DEC FORM NO EN-01022-16-N370-(381) DRA 108 MR SHEET 2 OF 8

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ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAD INSTALLATION/AcCEPTANCE PROCEDURE

2.0 INSTALLATION

2.1 ADDRESS & VECTOR

The DONE interrupt vector and CSR address are selected through two switch packs mounted on the PC board and accessible through the right cover.

The DONE interrupt vector is set on the eight switch pack (ref. figure 2.1). An OFF switch is decoded as "0" and an ON switch is decoded as "1". The ERROR interrupt vector is always 4 octal higher than the DONE vector.

DONE vector:
Octal Vector = XY0

ERROR vector:
Octal vector = XY0+4

The CSR address is set on the ten switch pack. The DBR address is always 2 octal higher than the CSR address.

CSR address:
Octal address = 17WXYZ,
where Z = 0 or 4 octal

DBR address:
Octal address = 17WXYZ+2,
Where Z = 0 or 4 octal

Select and set the DONE vector and CSR address.
The default address is 171000 and vector is 400.

VECTOR

3 4 5 6 7 8 BITS

Y X

ADDRESS

2 3 4 5 6 7 8 9 10 11 BITS

Z Y X W

FIGURE 2.1 - VECTOR AND ADDRESS SWITCH PACKS

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ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAD INSTALLATION/AcCEPTANCE PROCEDURE

1.4 PROCEDURE

```

    graph TD
      A[VECTOR & ADDRESS] --> B[INSERT OPTION]
      B --> C{ }
      C -- YES --> D[PLUG IN TEST MODULE]
      C -- NO --> E[PLUG IN I/O CONNECTOR]
      D --> F[POWER UP]
      E --> F
      F --> G[LOAD AND START DIAGNOSTIC]
      G --> H{ }
      H -- YES --> I[TYPE "Y"]
      H -- NO --> J[TYPE "N"]
      I --> K[LOGIC TEST]
      J --> K
      K --> L{PASS}
      L -- YES --> M[CALIBRATION]
      L -- NO --> N[REJECT]
      M --> O[WRAP AROUND]
      O --> P{PASS}
      P -- YES --> Q[ACCEPT]
      P -- NO --> N
  
```

* Test Module Available

SIZE A CODE SP NUMBER MNCAD-0-4 REV

DEC FORM NO EN-01022-16-N370-(381) DRA 108 MR SHEET 3 OF 8

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ENGINEERING SPECIFICATION		000000	CONTINUATION SHEET		
TITLE MNCAD INSTALLATION/ACCEPTANCE PROCEDURE					
<p>2.2 LOCATION</p> <p>The MNCAD acts as the partition separating the analog options from the digital options and the MNCAA option. When selecting the MNCAD slot, sufficient room should be left on either side of the MNCAD for the desired number of each group of options. Analog options are inserted to the left of the MNCAD, digital options and MNCAA options are inserted to the right of the MNCAD. No empty slot should be allowed to the right of the MNCAD. With power off, insert the MNCAD option into the selected slot.</p> <p>2.3 TEST MODULE</p> <p>If the MNCAD test module is available it should be plugged onto the I/O connector fingers on the MNCAD at this point, before power to the system is applied. If no test module is present plug-on the I/O connector with pins 17 and 18 wired together.</p> <p>2.4 POWER UP</p> <p>All other options to be tested and any of their test modules should be mounted in the system, then power may be applied. Allow a 5 minute warm-up period before continuing.</p> <p>2.5 DIAGNOSTIC</p> <p>The MNCAD diagnostic program should now be loaded into the processor and started at location 200. The diagnostic heading will be typed followed by:</p> <p style="padding-left: 20px;">"SWR = 000000 NEW = "</p> <p>Type "RETURN". The program will ask if a test module is connected; type "N" for no if one is not present or "Y" for yes if one is present, followed by a "RETURN".</p> <p>3.0 ACCEPTANCE</p> <p>3.1 The diagnostic will list the MNCAD tests. If the CSR address switch pack was set for an address other than 171000 or if the DONE vector switch pack was set for an address other than 400, type "B" followed by "RETURN" at the end of the test list. The diagnostic will now type:</p> <p style="padding-left: 20px;">"MNCAD (A/D) BASE ADDRESS <171000> ?</p> <p>Enter the CSR address followed by "RETURN". The diagnostic will respond:</p> <p style="padding-left: 20px;">"MNCAD (A/D) VECTOR ADDRESS <400> ?</p> <p>Enter the DONE vector address followed by "RETURN".</p> <p>3.2 Type "L" to start the logic test, and then "RETURN". The program will type the number of MNCAD's it detected in the system.</p>					
SIZE A	CODE SP	NUMBER MNCAD-0-4	REV		

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ENGINEERING SPECIFICATION		000000	CONTINUATION SHEET		
TITLE MNCAD INSTALLATION/ACCEPTANCE PROCEDURE					
<p>If the test module is not present the diagnostic will indicate "ENDPASS" and "GOOD UNITS" and will continue to loop on the logic test indicating "ENDPASS" and "GOOD UNITS" on subsequent runs.</p> <p>When the test module is present the diagnostic will type:</p> <p style="padding-left: 20px;">"PRESS EXTERNAL START ON MNCAD AT ADDRESS"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Press the push button switch on the test module on the MNCAD at the indicated address, then type "RETURN". If there is no error the diagnostic will indicate "ENDPASS" and "GOOD UNITS" and will continue to loop on the logic test indicating "ENDPASS" and "GOOD UNITS" on subsequent runs.</p> <p>To exit this test press the "C" key while holding the CNTL key down. The diagnostic will respond with:</p> <p style="padding-left: 20px;">"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"</p> <p>3.3 Type "C" to start the calibration routine. The diagnostic will then respond:</p> <p style="padding-left: 20px;">"TYPE CHANNEL & DEPRESS 'RETURN'"</p> <p>Enter "Ø" and type "RETURN". The program will now instruct:</p> <p style="padding-left: 20px;">"TYPE "O" FOR OFFSET, "G" FOR GAIN & DEPRESS 'RETURN'"</p> <p>Type the letter "O" and then "RETURN".</p> <p>The diagnostic will now direct:</p> <p style="padding-left: 20px;">"INPUT A GROUND ON THE CHANNEL"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Switch channel "Ø" on front panel of the MNCAD to TEST, then type "RETURN". The diagnostic will type:</p> <p style="padding-left: 20px;">"ADJUST R83 FOR 0.00 LSB ERROR"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN ADJUSTED"</p> <p>Offset print outs will occur about every 12 seconds. Adjust R83 (50K pot) until the offset is within 0.04 LSB of 0.00 LSB. Note: the first print out after an adjustment will not be true since the value was varying while data was being taken. Therefore, wait for the second print out after each adjustment before making any subsequent adjustment.</p> <p>To exit this routine type "RETURN" or press the "C" key while holding the "CNTL" key down until the diagnostic responds:</p> <p style="padding-left: 20px;">"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"</p>					
SIZE A	CODE SP	NUMBER MNCAD-0-4	REV		

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ENGINEERING SPECIFICATION		000000	CONTINUATION SHEET		
TITLE MNCAD INSTALLATION/ACCEPTANCE PROCEDURE					
<p>3.4 Type "C" again to start the calibration routine. The diagnostic will respond:</p> <p style="padding-left: 20px;">"TYPE CHANNEL & DEPRESS 'RETURN'"</p> <p>Type "7" and then "RETURN". If a test module is present, connect the +precision voltage source output to J5 & the -output to J4; otherwise connect the +output to pin 7 (channel 7) on the I/O connector & the -output to pin 8 (analog ground). The terminal shall have printed:</p> <p style="padding-left: 20px;">"TYPE "O" FOR OFFSET, "G" FOR GAIN & DEPRESS 'RETURN'"</p> <p>Type "G" and then "RETURN". The terminal will respond:</p> <p style="padding-left: 20px;">"INPUT +5.115 VOLTS ON THE CHANNEL"</p> <p style="padding-left: 20px;">"TYPE CR WHEN READY"</p> <p>Adjust the precision voltage source for +5.115 volts and type "RETURN". The program will respond:</p> <p style="padding-left: 20px;">"ADJUST R84 FOR 0.00 LSB ERROR"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN ADJUSTED"</p> <p>Print outs will occur about every 12 seconds. Adjust R84 (200 ohm pot) until the error is within 0.04 LSB of 0.00 LSB. Note: the first print out after an adjustment will not be true since the value was varying while data was being taken. Therefore, wait for the second print out after each adjustment before making any subsequent adjustment.</p> <p>To exit this routine type "RETURN" or press the "C" key while holding the "CNTL" key down until the diagnostic responds:</p> <p style="padding-left: 20px;">"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"</p> <p>3.5 If no graphics video display terminal (VT55, VT105, etc.) is used type "W" and then "RETURN"; if such a terminal is used:</p> <p style="padding-left: 20px;">Type "C" and set the switch register to 2000, then type "RETURN". Now type the "TEST CHARACTER" "V" followed by "RETURN".</p> <p>3.5.1 Without Test Module</p> <p>The terminal will print the number of A/D's detected and then instruct:</p> <p style="padding-left: 20px;">"SET MNCAD (A/D) FRONT PANEL SWITCHES TO 'TEST'"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Set all four front panel switches to the TEST position, then type "RETURN". The channel modes (single ended or differential) will be listed. This will be followed by the offset and then the noise test (rms and peak) on channels 0 through 3. After this, the settling test on channels 1 and 2 will be executed. Then the offset, noise, and settling tests will be repeated. The differential linearity test will be entered and will require approximately 14 minutes to complete. The last test will</p>					
SIZE A	CODE SP	NUMBER MNCAD-0-4	REV		

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 7 OF 8

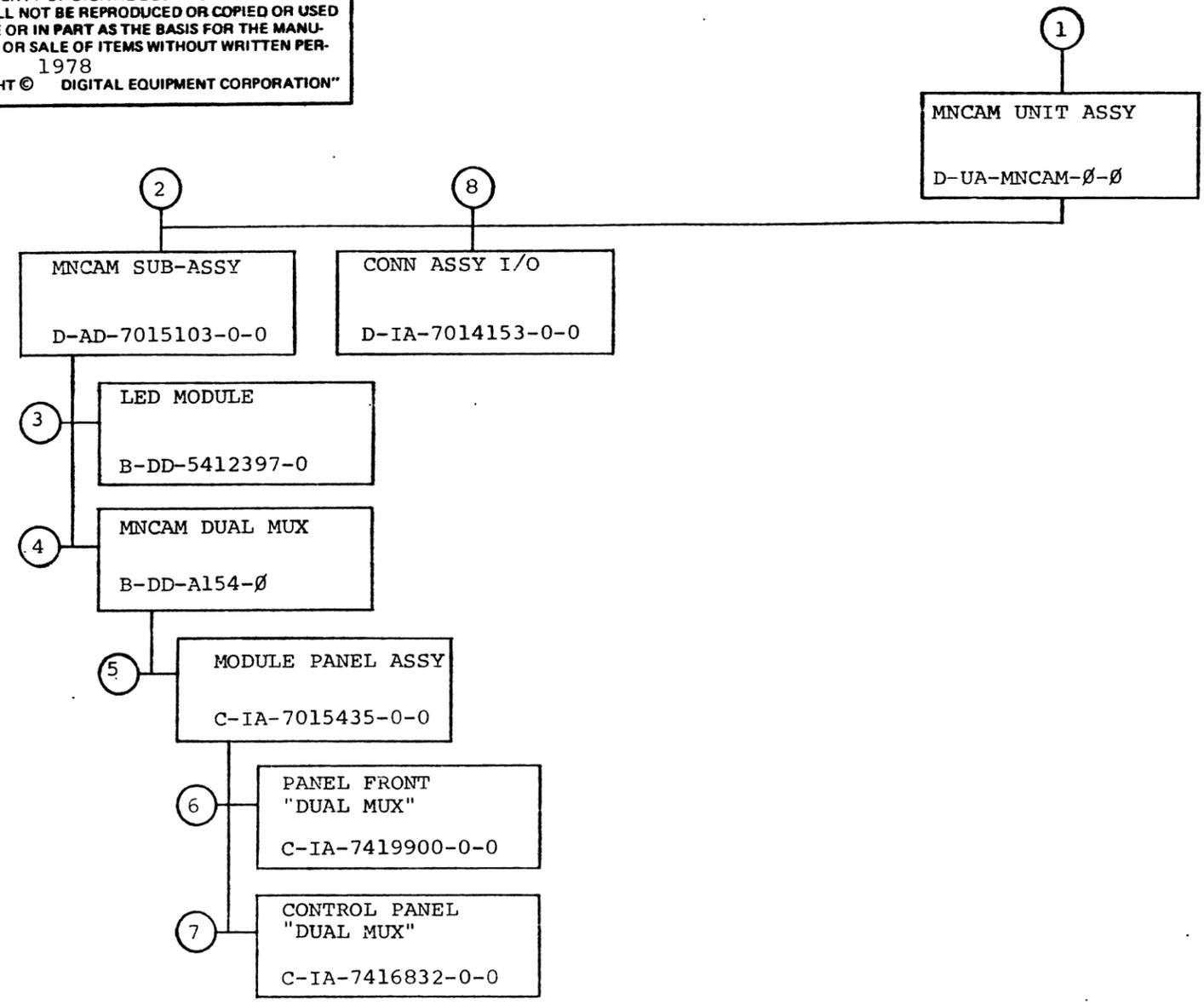
MR

ENGINEERING SPECIFICATION		000000	CONTINUATION SHEET		
TITLE MNCAD INSTALLATION/ACCEPTANCE PROCEDURE					
<p>be relative accuracy. To continue after a halt, press "p".</p> <p>3.5.2 With Test Module</p> <p>The terminal will print the number of A/D's detected and then instruct:</p> <p style="padding-left: 20px;">"SET TEST MODULE(S) TO SINGLE ENDED"</p> <p style="padding-left: 20px;">"SET MNCAD (A/D) FRONT PANEL SWITCHES TO 'TEST'"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Set the switch on the test module for single ended operation and all four front panel switches to the TEST position, then type "RETURN". The channel modes (single ended for channels 00 through 17) will be listed. The diagnostic will ask if channels 00 through 17 are to be tested by:</p> <p style="padding-left: 20px;">"TESTING CHANNELS 0-7?"</p> <p>Type "Y" and then "RETURN".</p> <p style="padding-left: 20px;">"TESTING CHANNELS 10-17?"</p> <p>Again type "Y" followed by "RETURN". The program will report the channels under test and then instruct:</p> <p style="padding-left: 20px;">"SET TEST MODULE(S) ON CHANNELS UNDER TEST TO DIFFERENTIAL"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Set the switch on the test module for single ended operation and then type "RETURN". If no errors occur the following will be printed:</p> <p style="padding-left: 20px;">"SET TEST MODULE(S) TO SINGLE ENDED"</p> <p style="padding-left: 20px;">"DEPRESS 'RETURN' WHEN READY"</p> <p>Return the test module switch to single ended operation and type "RETURN". The offset will be printed followed by the noise test on channels 0 through 2, 4 through 6, and 10 through 17. After this, the settling test on channels 1 and 2 will be executed. Then the offset, noise and settling tests will be repeated. The differential linearity test will be entered and will require approximately 14 minutes to complete. The last test will be relative accuracy. To continue after a halt, press "p".</p>					
SIZE A	CODE SP	NUMBER MNCAD-0-4	REV		

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 8 OF 8

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TITLE	MNCAM UNIT ASSY	SHEET 2 OF 3	SIZE CODE B DD	NUMBER MNCAM-0	REV A
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F 0-0-0 A154-0-0 DUA 2 MF

1

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A154 5012277E

2-3

2-4

SEE NOTE 2--

2-9

J2

J1

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V

V

C

C

J3

TP2

TP1

.1

A

A

V

A

V

A

V

A

V

REVISIONS		
CHK	CHANGE NO	REV

TITLE	MNCAM MUX	SIZE CODE	DUA	NUMBER	A154-0-0	REV	F
SCALE	2/1	SHEET	2	OF	4	DIST	

8

7

6

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3

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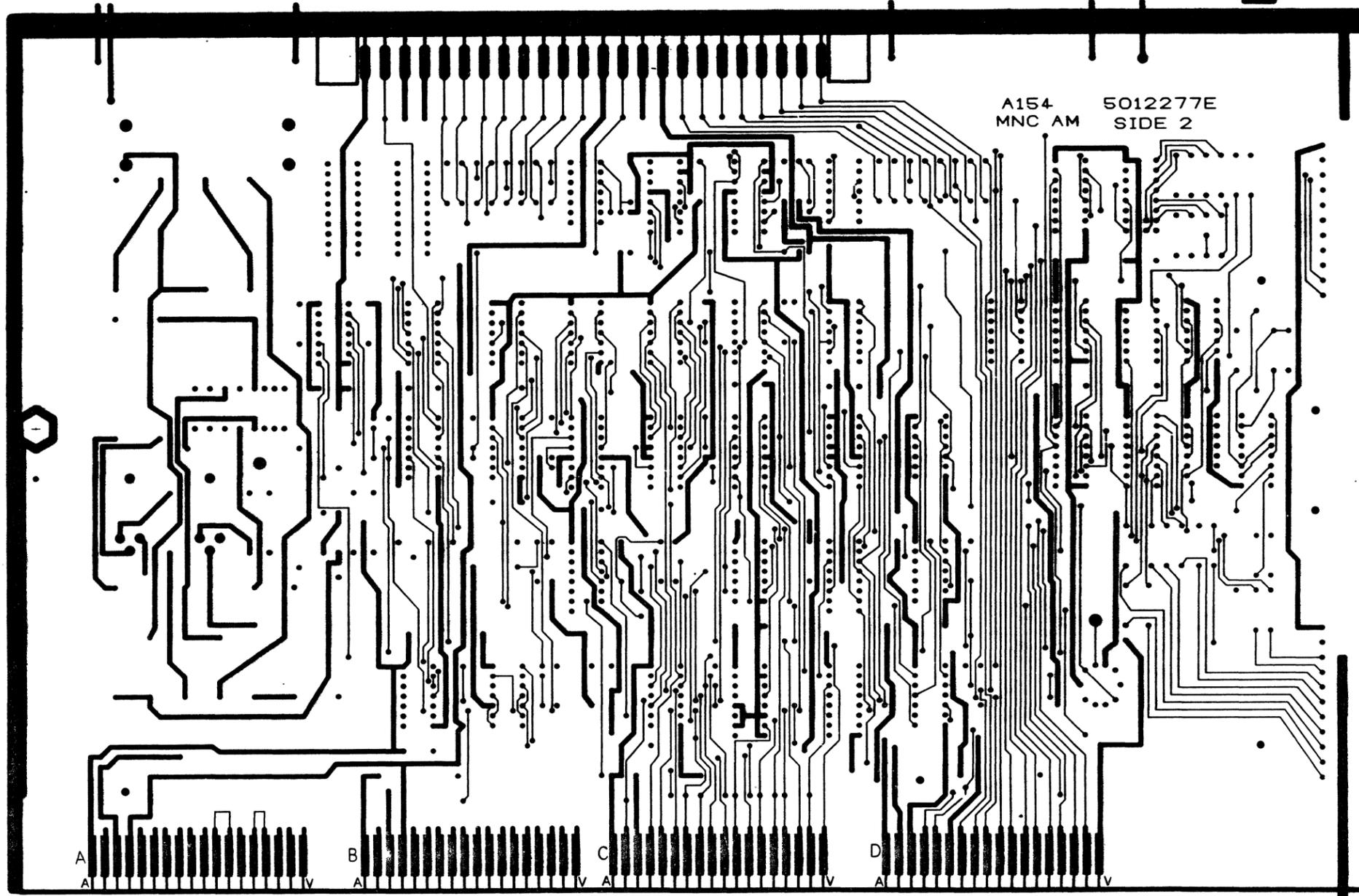
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8 7 6 5 4 3 2 1

DUA A154-0-0 2 MR

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L2



A154 MNC AM
5012277E
SIDE 2

REVISIONS		
CHK	CHANGE NO	REV

TITLE MNCAM MUX		SIZE CODE D UA	NUMBER A154-0-0	REV. F
SCALE 2/1	SHEET 3 OF 4	DIST		

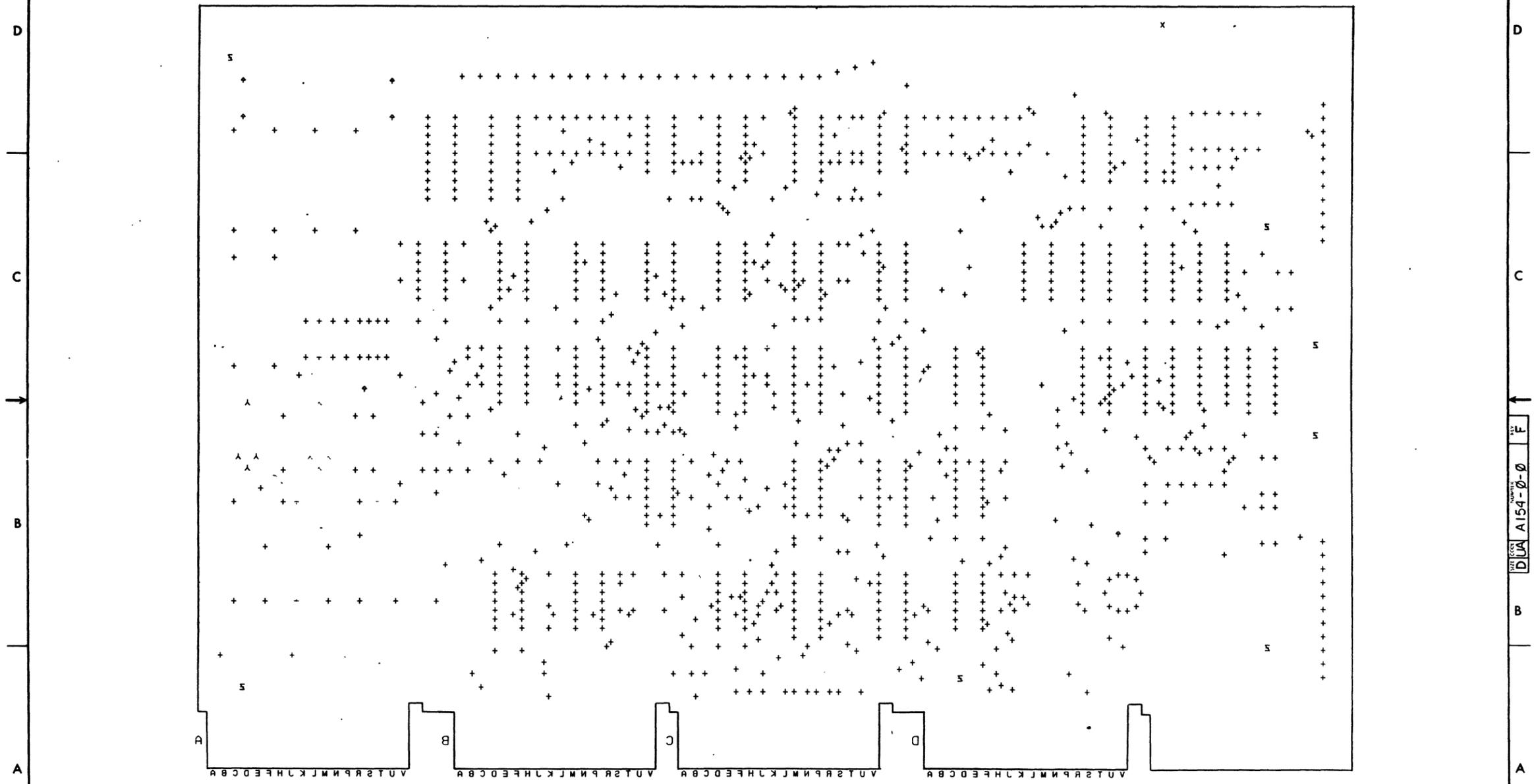
8 7 6 5 4 3 2 1

D
C
B
A

DUA A154-0-0 F

0-0-b5IV MND 2 MR 1

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REVISIONS		
CHK	CHANGE NO	REV.

TITLE	MNCAM MUX	SIZE CODE	D UA	NUMBER	A154-0-0	REV.	F
SCALE	2/1	SHEET	4	OF	4	DIST.	

8 7 6 5 4 3 2 1 MR

MR

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION												NOTES:	
MADE BY <i>E. Wilson</i>		CHECKED <i>R.W. Counter</i>															
DATE <i>7 OCT 77</i>		DATE <i>10 OCT 77</i>															
ENG <i>H.F. Simon</i>		PROD <i>Don R. Dunbar</i>															
DATE <i>20 OCT 77</i>		DATE <i>25 OCT 77</i>														SECTION 1	
																ISSUED SECTION 1	
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION													REF DESIGNATION	
21		1301401	RES 750 5% 1/4W	20													R63 THRU R78, R82 THRU R85
22		1503409	TRANS DEC 6534D	1													Q1
23		1510414	TRANS D45C6	1													Q2
24		1510171	TRANS D44C3	1													Q3
25		1602254	INDUCTOR 22 UH	3													L1, L4, L5
26		1603377	INDUCTOR 22 UH	2													L2, L3
27		1912799	I.C. DEC 74LS00	4													E1, E9, E29, E33
28		1912803	I.C. DEC 74LS04	5													E3, E5, E8, E14, E28
29		1912805	I.C. DEC 74LS08	2													E4, E40
30		1910741	I.C. DEC 7406	2													E7, E37
31		1912837	I.C. DEC 74LS123	2													E10, E41
32		1912827	I.C. DEC 74LS83	5													E11, E15, E20, E24, E25
33		1911521	I.C. DEC 7432	3													E12, E16, E31
34		1910010	I.C. DEC 2501	2													E13, E27
35		1911598	I.C. DEC DG501C	2													E17, E22
36		1911527	I.C. DEC 8097	1													E18
37		1912807	I.C. DEC 74LS10	1													E19
38		1909712	I.C. DEC 8242	1													E21
39		1910652	I.C. DEC 74174	1													E23
40		1905580	I.C. DEC 7450	1													E26
41		1909705	I.C. DEC 8881	1													E30

E.C.O. NO.

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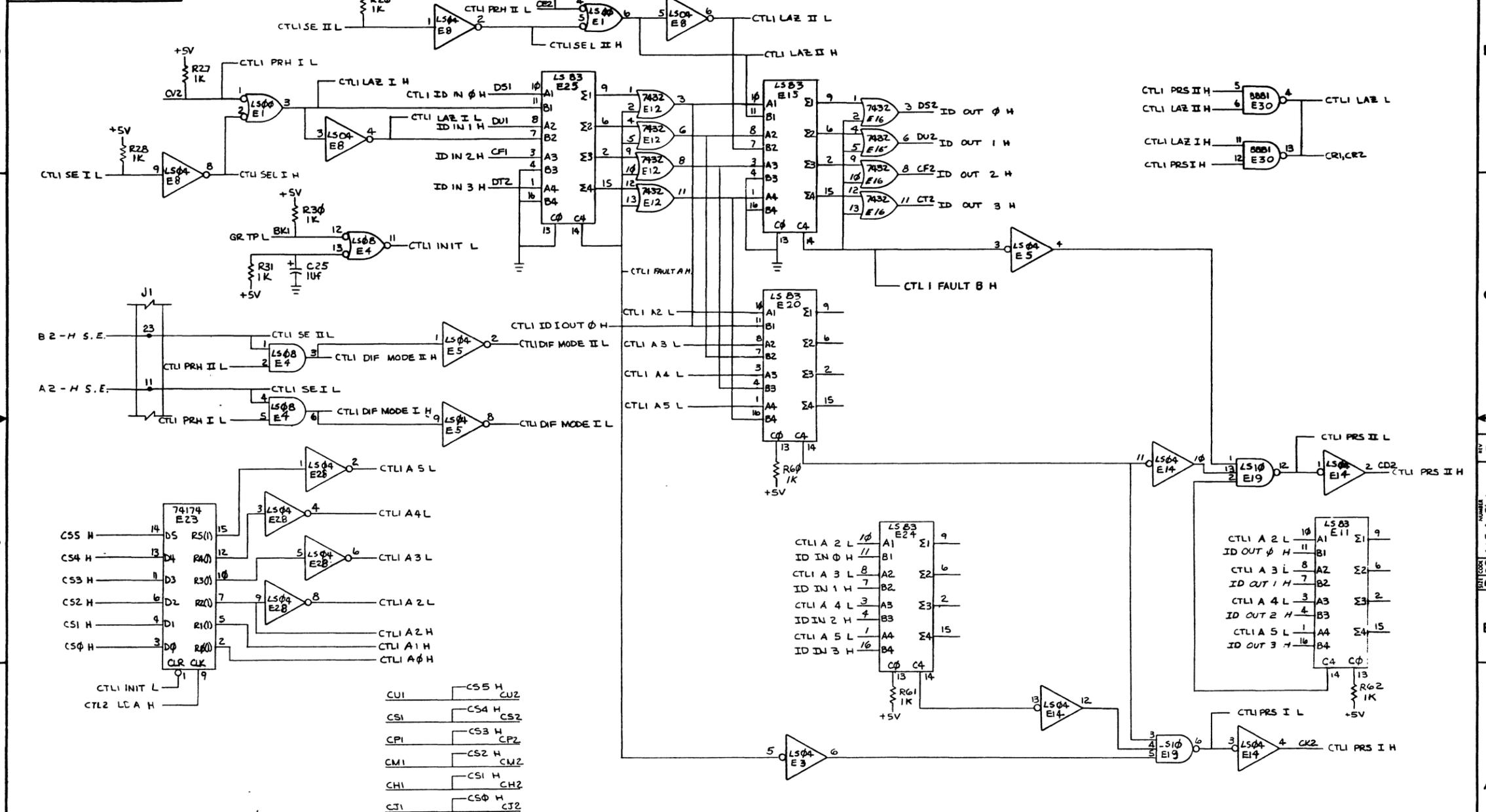
TITLE
MNCAM MUX

ASSY NO.
D-UA-A154-0-0
SHEET 2 OF 3

SIZE CODE
3 PL
NUMBER
A154-0-0
REV.
E

INSERTION PARTS LIST DATA BASE REV

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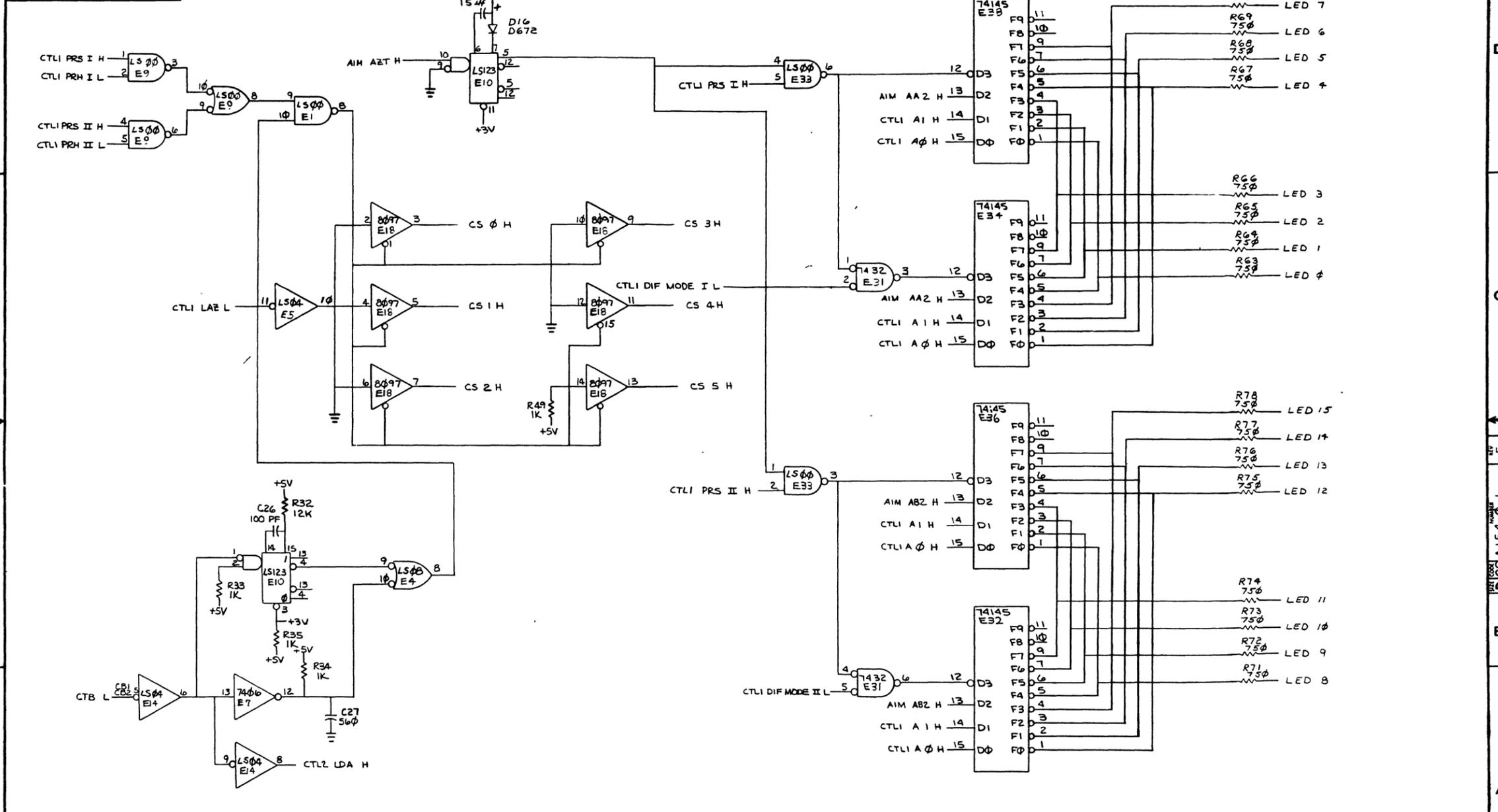


CUI	CS5 H	CU2
CSI	CS4 H	CS2
CPI	CS3 H	CP2
CM1	CS2 H	CM2
CHI	CS1 H	CH2
CTI	CS0 H	CT2

REVISIONS		
CHK	CHANGE NO.	REV.

57

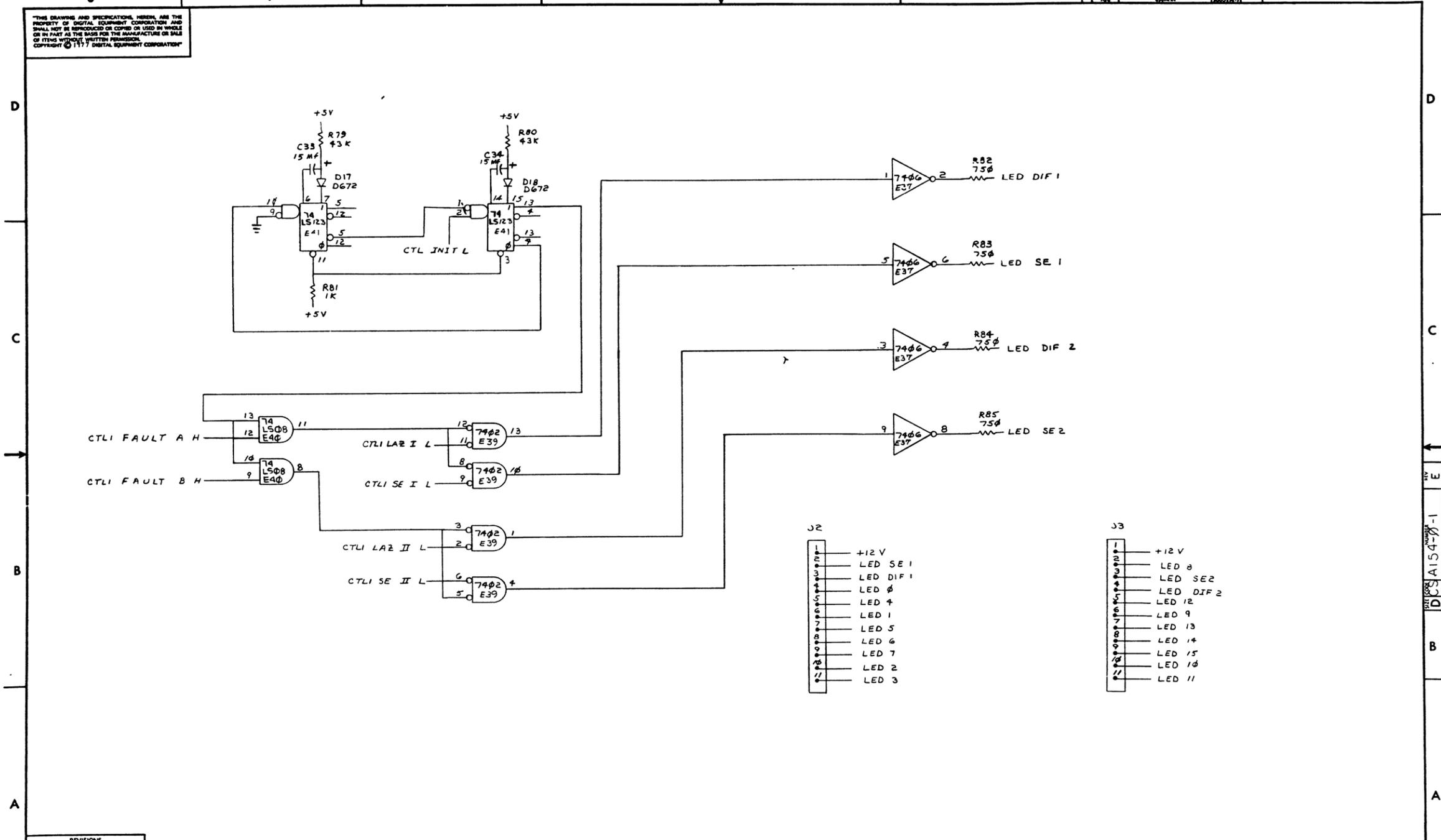
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REVISIONS		
CHK	CHANGE NO.	REV.

(CTL2) INDICATOR CNTR		TITLE	SIZE CODE	NUMBER	REV.
MNCAM MUX		D	CSA154-0-1	E	
SCALE	SHEET 3 OF 5	DIST.			

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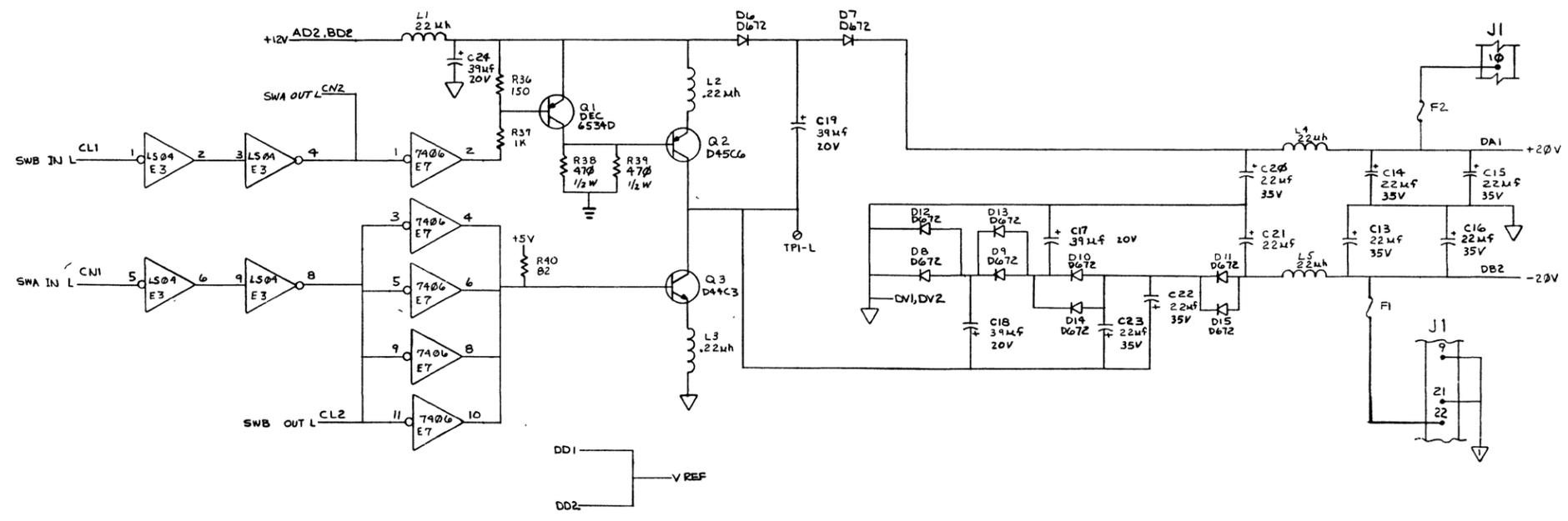
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	MNCAM MUX	SIZE CODE	D	NUMBER	CSA154-0-1	REV.	E
SCALE	←	SHEET	4	OF	5	DIST.	

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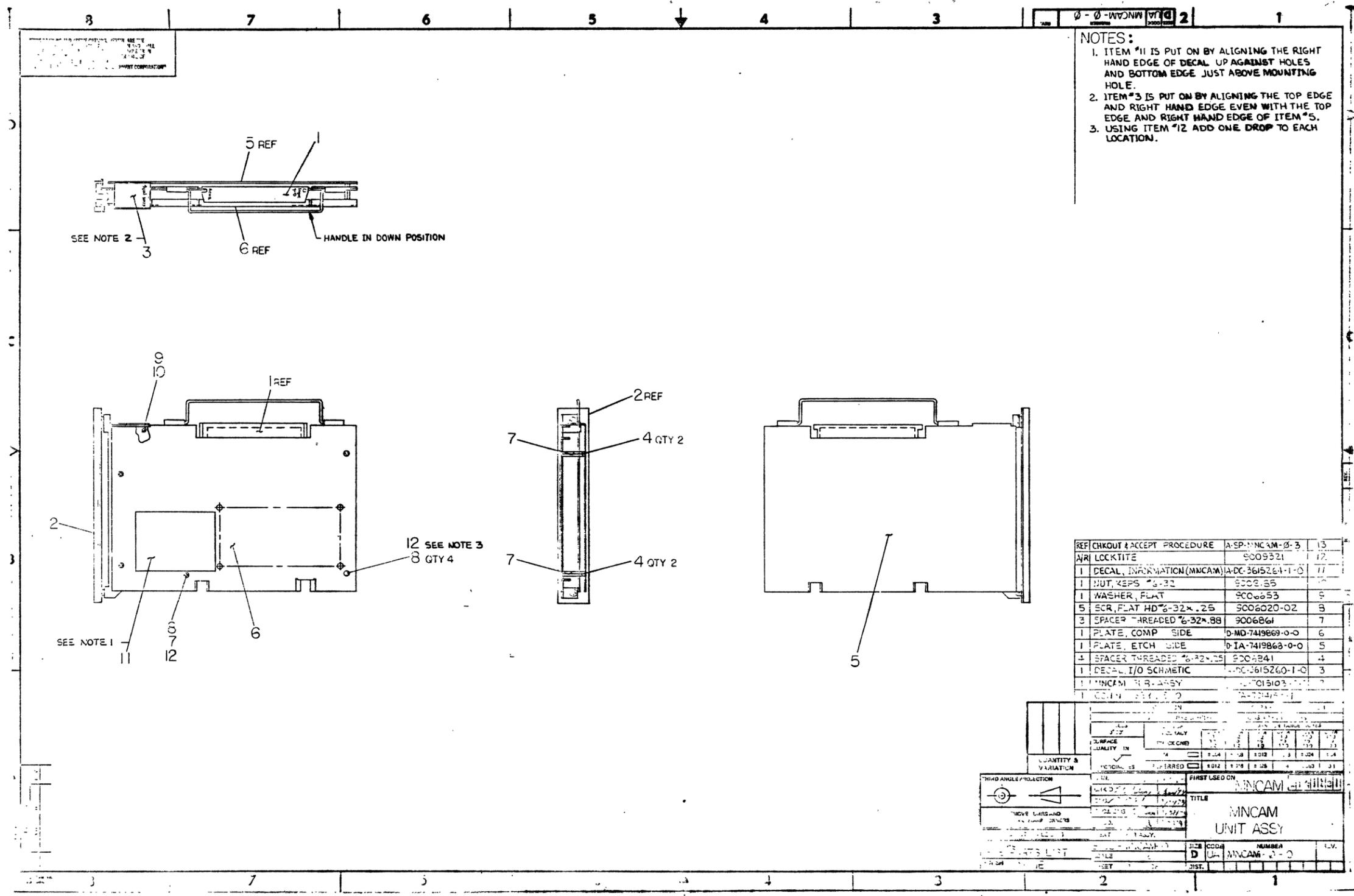
AAZ,BAZ, CAZ,DAZ
 C29 THRU C32 15 μF
 C1 THRU C12 .22 μF
 C35 THRU C39 .22 μF

ACZ,AT1,AM1, AJ1,BC1,BM1, BJ1,CC2,CT1, DC2,DT1,AF1,BC2, AH1



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE CODE	NUMBER	REV.
MNCAM MUX	D CS	A154-0-1	E
SCALE	SHEET	OF	
	5	5	
DIST.		MR	

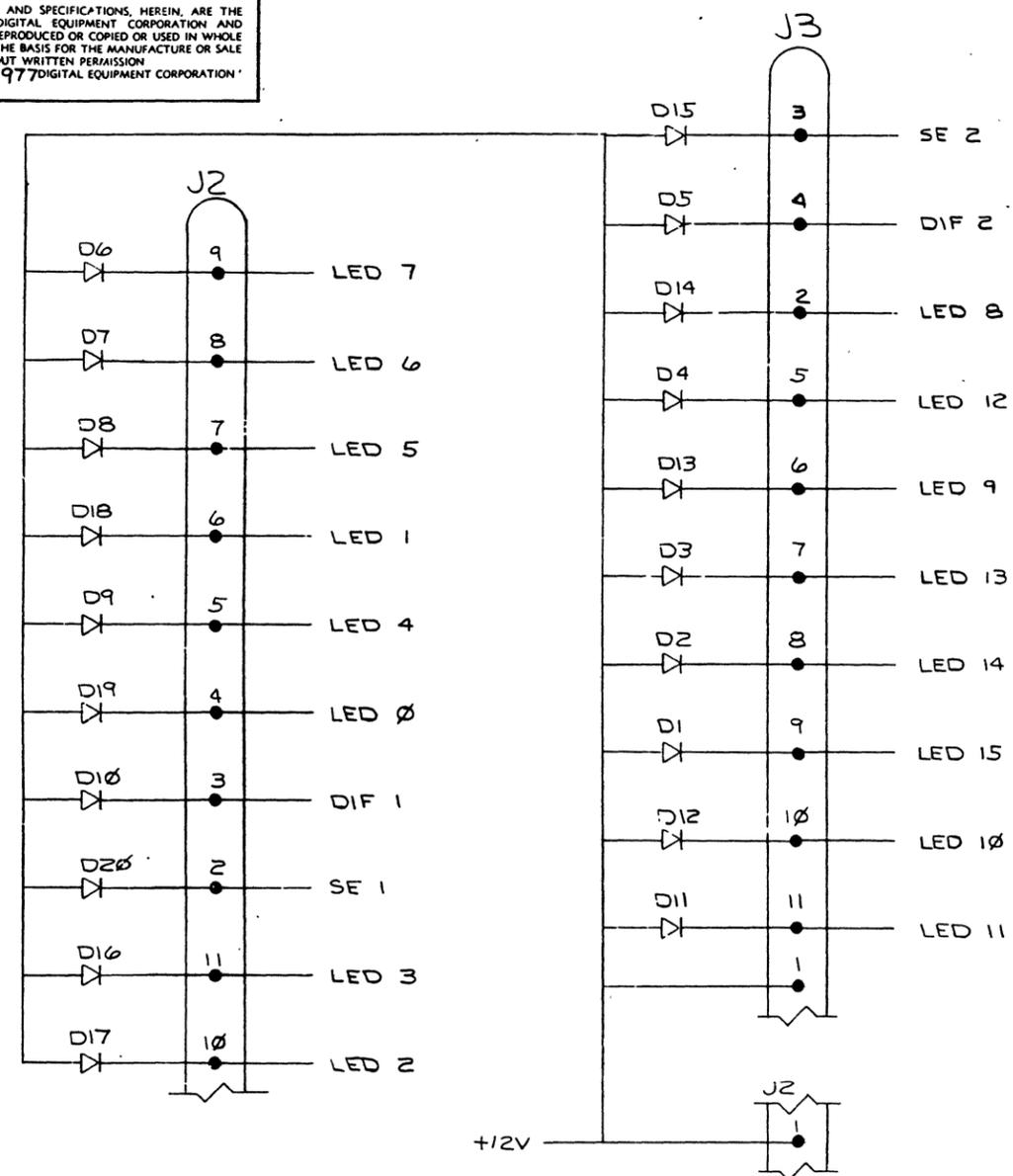


- NOTES:**
- ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
 - ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
 - USING ITEM #12 ADD ONE DROP TO EACH LOCATION.

REF	CHKOUT & ACCEPT PROCEDURE	A-SP-MNCAM-0-3	13
1	DECAL, INFORMATION (MNCAM)	A-DC-3615261-1-0	17
1	NUT, KEPS #6-32	9008855	10
1	WASHER, FLAT	9008853	9
5	SCR, FLAT HD #6-32x.25	9008020-02	8
3	SPACER, THREADED #6-32x.88	9006861	7
1	PLATE, COMP SIDE	D-ND-7419869-0-0	6
1	PLATE, ETCH SIDE	D-IA-7419868-0-0	5
4	SPACER, THREADED #6-32x.25	9008841	4
1	DECAL, I/O SCHEMATIC	A-DC-3615260-1-0	3
1	MNCAM I/O ASSY	A-DC-3615103-0-0	2
1	CONV. ASSY, 50	A-DC-3615104-0-0	1

QUANTITY & VARIATION	QUANTITY	VARIATION	QUANTITY	VARIATION	QUANTITY	VARIATION	QUANTITY	VARIATION	
1	1	1	1	1	1	1	1	1	
THIRD ANGLE PROJECTION		FIRST USED ON		MNCAM		TITLE		MNCAM UNIT ASSY	
DRAWN BY		CHECKED BY		DATE		SCALE		SHEET	
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BY		BY		BY		BY			

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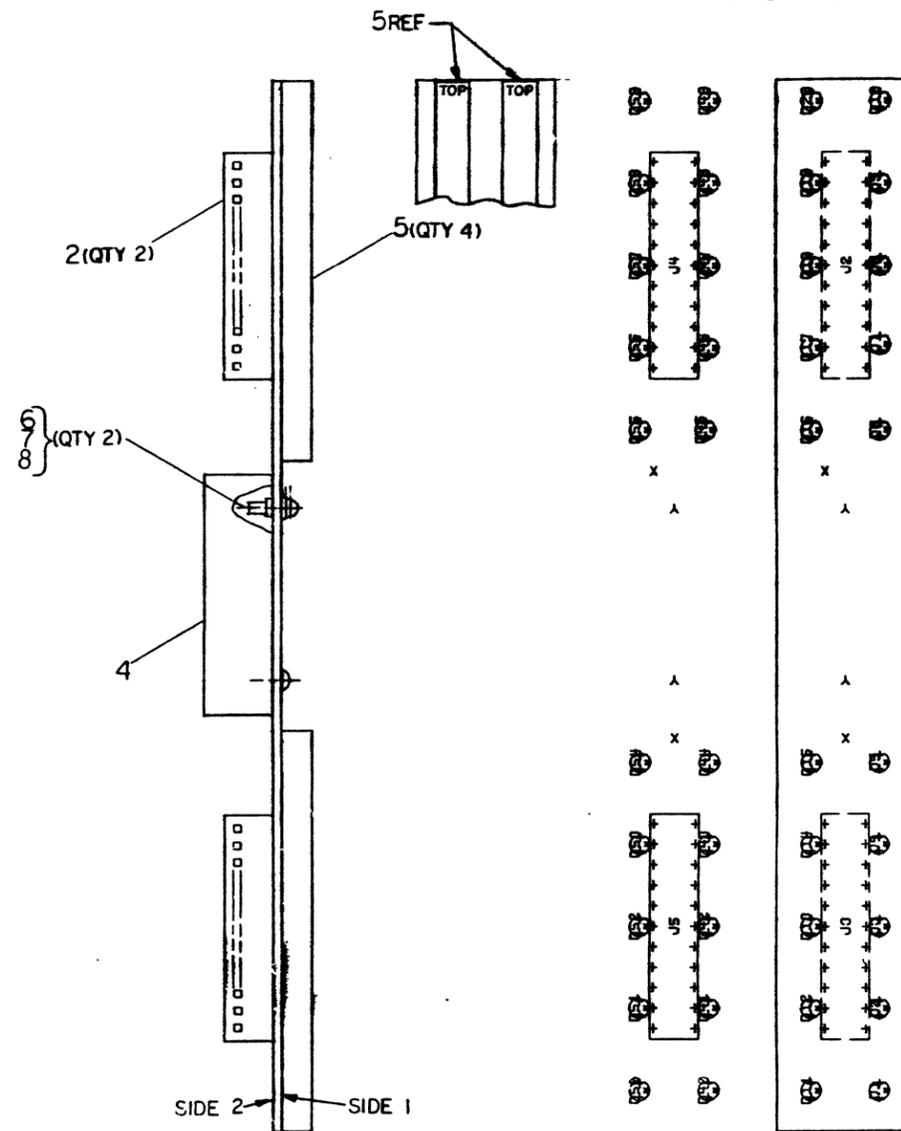
REVISIONS	REV.
CHANGE NO.	
CHK	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
DIMENSIONAL TOLERANCE		DRN	DATE	digital
DIMENSIONS ARE MILLIMETERS INCHES		CHK'D	DATE	
UNLESS OTHERWISE SPECIFIED		ENG	DATE	
MILLIMETERS	INCHES	ANGLES	DATE	
X,XX = ±0.13	.XXX = ±.006	±0° 30'	8-10-77	LED MOUNT
X,X = ±0.5	.XX = ±.02		8-10-77	
X = ±2	.X = ±.1		15-DEC-77	
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	NEXT HIGHER ASSY.		
MATERIAL	FINISH	SIZE CODE	NUMBER	REV.
		B-DD-5412397-0	C CS 5412397-0-1	D
		SCALE		
		SHEET 1 OF 1	DIST.	

DLC FORM NO. DMC 111

64

COMPONENT SIDE VIEW



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NOTES:

CHG	CHANGE NO	REV	DATE	BY	APP
		E			

ETCH REV.	E
P.C. DESIGN DATA ERASE REV.	E

SIGNATURES		DATE	digital
DRN. <i>W. Wilson</i>		12/14/77	
CHK'D. <i>W. Wilson</i>		12/15/77	
ENG. <i>P.C. 3</i>		12/14/77	
PROJ. ENG. <i>P.C. 3</i>		12/14/77	
PROD. <i>P.C. 3</i>		12/14/77	
SCALE 2/1			TITLE LED MOUNT
SHT. 1 OF 2			
NEXT HIGHER ASSY. 8-DD-5412397-0			SIZE CODE NUMBER REV D UA 5412397-0-0 E

8 7 6 5 4 3 2 1

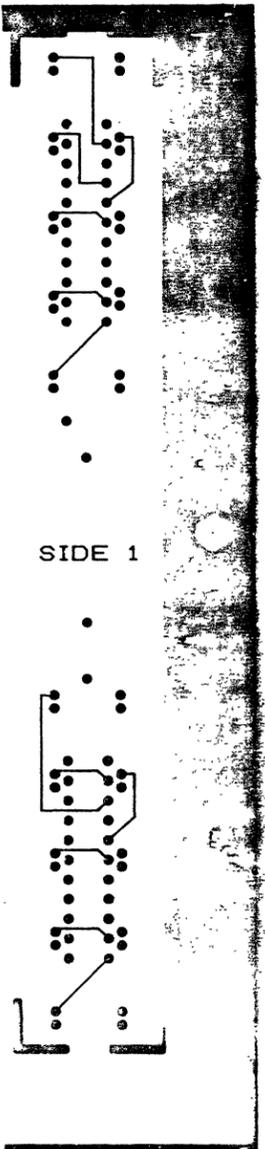
DUA5412397-0-0 E

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L1

5012396E
5412397

L2



SIDE 1



LED MOUNT
5012396E
5412397

REVISIONS		
CHR	CHANGE NO	REV

8 7 6 5 4 3 2 1

TITLE	LED MOUNT	SIZE CODE	D UA	NUMBER	5412397-0-0	REV	E
SCALE	2/1	SHEET	2	OF	2	DIST	

6E

MR

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

DATE 7/10/78

TITLE MNCAM INSTALLATION/ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG *A. Sierra* 7/11/78 APPD *A. Sierra* 7-11-78 SIZE **A** CODE SP NUMBER MNCAM-0-4 REV

DEC FORM NO. EN-01022-16-N370-(381) DRA 107A

MR SHEET 1 OF 4

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAM INSTALLATION/ACCEPTANCE PROCEDURE

1.0 GENERAL

1.1 SCOPE

This document describes the procedures for the installation and field acceptance of the MNCAM (Analog Multiplexer) option for the MINC-11 system. This procedure will be used for in-house FA&T, field add-on and new system installation, and periodic verification testing.

1.2 EQUIPMENT

MINC-11	System
MNCAM-TA	Test Module (optional)
7014153-1-0	I/O Connector
MNCAD	A/D Option
REFERENCE	Precision Voltage Source (optional)

1.3 DOCUMENTATION

MD-11-DV:1A	MNCAD Diagnostic Program
D-CS-A154-0-1	Circuit Schematics
AA-D572A-TC	Manual- "Work with MINC Devices"
A-SP-MNCAD-0-4	MNCAD Installation/Acceptance Procedure

SIZE **A** CODE SP NUMBER MNCAM-0-4 REV

DEC FORM NO. EN-01022-16-N370-(381) DRA 108

MR SHEET 2 OF 4

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAM INSTALLATION/ACCEPTANCE PROCEDURE

1.4 PROCEDURE

```

graph TD
    A[Insert Option] --> B{ * }
    B -- Yes --> C[Plug In Test Module]
    B -- No --> D[Plug In I/O Connector]
    C --> E[Power Up]
    D --> E
    E --> F[Load & Start Diagnostic]
    F --> G{ * }
    G -- Yes --> H[Type "Y"]
    G -- No --> I[Type "N"]
    H --> J[Wrap Around]
    I --> K[Print Values]
    K --> L[Noise]
    J --> M{ Pass }
    L --> M
    M -- Yes --> N[Accept]
    M -- No --> O[Reject]
  
```

*Test Module Available

SIZE **A** CODE SP NUMBER MNCAM-0-4 REV

DEC FORM NO. EN-01022-16-N370-(381) DRA 108

MR SHEET 3 OF 4

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAM INSTALLATION/ACCEPTANCE PROCEDURE

2.0 INSTALLATION

2.1 LOCATION

The MNCAM must be inserted into a slot that is to the left of the MNCAD (A/D option) and there must be no empty slots in-between. With power off, insert the MNCAM option(s) into the selected slot(s).

2.2 TEST MODULE

If the MNCAM-TA test module is available it should be plugged onto the I/O connector fingers on the top of the MNCAM at this point, before power to the System is applied. Both SE pins on the I/O connector should be tied to logic ground.

2.3 POWER UP

All other options to be tested and any of their test modules, should be mounted in the system, then power may be applied. Allow a 5 minute warm-up period before continuing.

2.4 DIAGNOSTIC

The MNCAD diagnostic is used to test the MNCAM option and should now be loaded into the processor and started at location 200. The diagnostic heading will be typed followed by:

"SWR = 000000 NEW = "

Type "RETURN". The program will ask if a test module is connected; type "N" for no if one is not present or "Y" for yes if one is present, followed by a "RETURN".

3.0 ACCEPTANCE

3.1 If the test module is present enter the wrap-around test (W) for only those channels to be tested. (Use "V" and SWR = 2000 for video graphics terminals; VT55 or VT105).

3.2 If no test module is present, input voltage through the I/O connector and enter the print values (P) routine, addressing only those channels to be tested, and then the noise test (N).

TABLE 3-1: INPUT VOLTAGE CODING

OCTAL CODE	INPUT (VOLTS)	
7777	+5.1175	+FS -1 LSB
7000	+3.8400	+3/4 FS
6000	+2.5600	+1/2 FS
5000	+1.2800	+1/4 FS
4000	0.0000	0
3000	-1.2800	-1/4 FS
2000	-2.5600	-1/2 FS
1000	-3.8400	-3/4 FS
0000	-5.1200	-FS

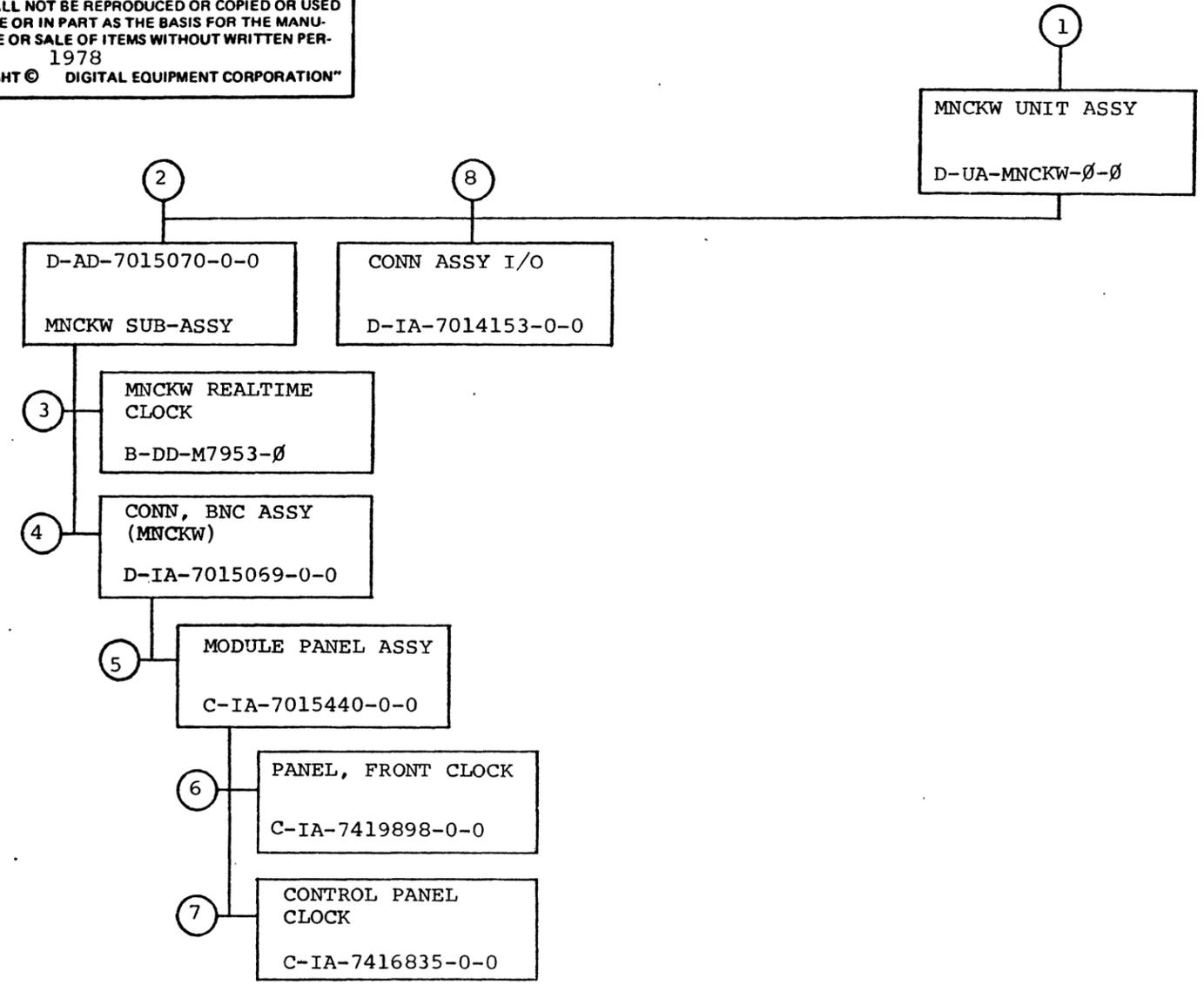
SIZE **A** CODE SP NUMBER MNCAM-0-4 REV

DEC FORM NO. EN-01022-16-N370-(381) DRA 108

MR SHEET 4 OF 4

62

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TITLE	MNCKW UNIT ASSY	SHEET 2 OF 3	SIZE CODE	B DD	NUMBER	MNCKW-Ø	REV	A
-------	-----------------	--------------	-----------	------	--------	---------	-----	---

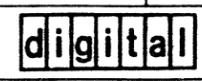
MR

70

Bik

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP00593	FIELD MAINTENANCE PRINT SET	-				
	B-TC-MNCKW-0-1	FIELD MAINTENANCE PRINT SET	-	5	C-IA-7015440-0-0	MODULE PANEL ASSY	E/M
	D-UA-MNCKW-0-0	MNCKW UNIT ASSY	E/M				
	C-MD-7419869-0-0	PLATE, COMP SIDE	M				
	C-MD-7419868-0-0	PLATE, ETCH SIDE	M				
	A-DC-3615260-0-0	DECAL, I/O SCHEMATIC	E/M				
	A-DC-3615264-0-0	DECAL, INFORMATION (MNCKW)	E/M				
	A-PL-MNCKW-0-5	PARTS LIST MNCKW	E/M				
	A-PL-MNCKW-0-SH	SHIP LIST MNCKW	E/M				
	A-SP-MNCKW-0-2	MNCKW ENGINEERING SPEC.	E/M				
	A-SP-MNCKW-0-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M	6	C-IA-7419898-0-0	PANEL, FRONT CLOCK	M
	A-SP-MNCKW-0-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M		C-PS-4830032-0-0	EXTRUSION, FRONT PANEL "D"	M
2	D-AD-7015070-0-0	MNCKW SUB-ASSY	E/M				
	B-MD-7420242-0-0	SPACER, MODULE	M				
	C-IA-7419861-0-0	SUB-PANEL	M				
	B-IA-7420635-0-0	BUTTON SWITCH (MODIFIED)	M				
				7	C-IA-7416835-0-0	CONTROL PANEL CLOCK	M
					C-SS-7416835-01	CONTROL PANEL	M
					C-SS-7416835-02	CONTROL PANEL	M
					C-SS-7416835-03	CONTROL PANEL	M
					C-SS-7416835-04	CONTROL PANEL	M
					C-SS-7416819-02	CONTROL PANEL	M
3	B-DD-M7953-0	MNCKW REALTIME CLOCK	E/M				
	A-PL-M7953-0-0	REAL TIME CLOCK	E/M				
	D-UA-M7953-0-0	REAL TIME CLOCK	E/M				
	D-CS-M7953-0-1	REAL TIME CLOCK	E/M				
				8	D-IA-7014153-0-0	CONN ASSY I/O	E/M
					A-DC-7416886-0-0	DECAL, I/O CONN	E/M
					A-DC-7418934-4-0	DECAL, I.D. I/O CONN	E/M
4	D-IA-7015069-0-0	CONN, BNC ASSY (MNCKW)	E/M				

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL



TITLE
MNCKW UNIT ASSY

SHEET 3 OF 3

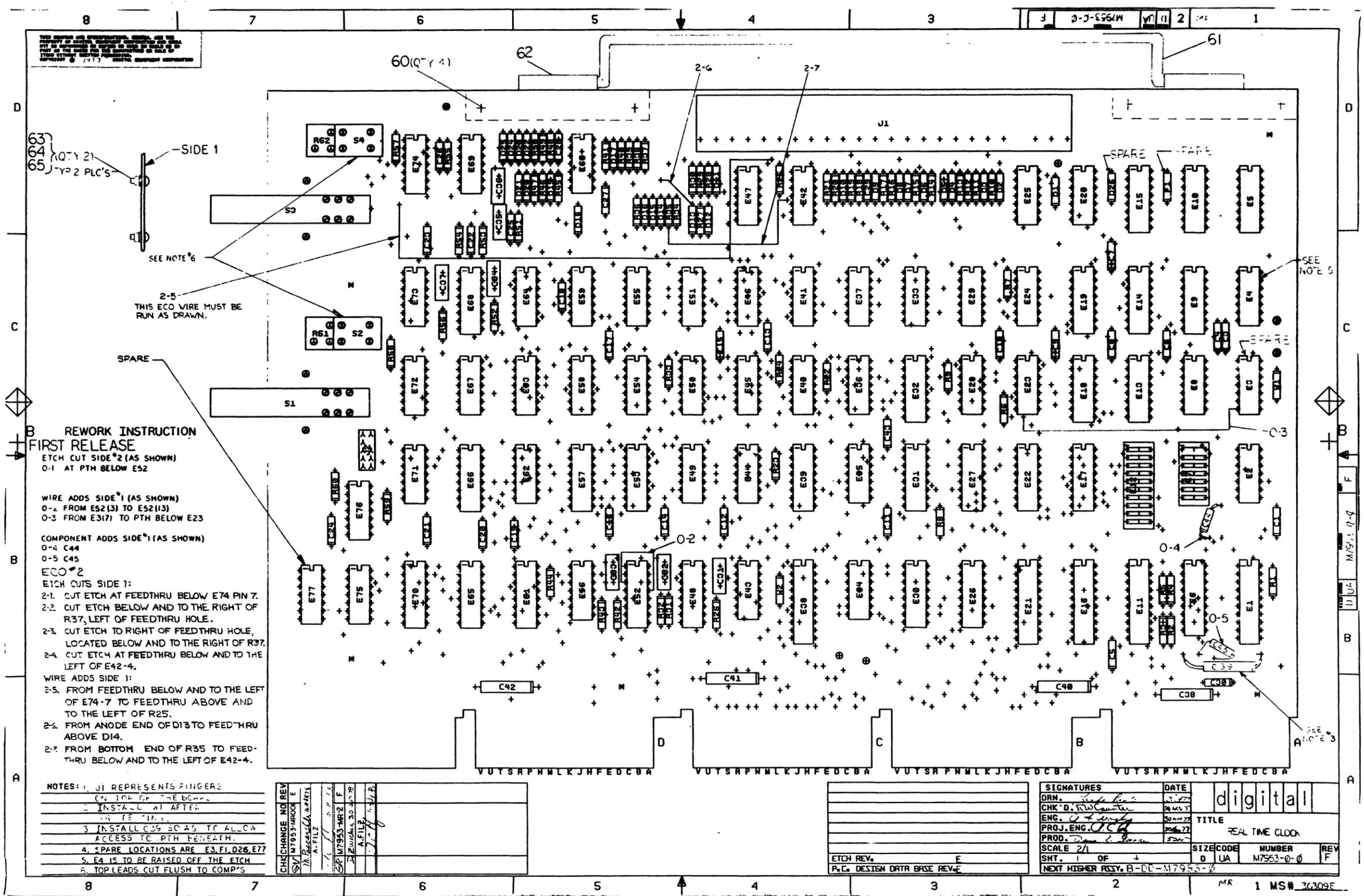
SIZE CODE
B DD

NUMBER
MNCKW-0

REV
A

MR

71
68



THIS BOARD IS DESIGNED, MANUFACTURED, AND TESTED TO MEET THE REQUIREMENTS OF MIL-STD-883C, METHOD 2000, CLASS B, LEVEL 1. THE BOARD IS NOT TO BE USED IN ANY OTHER APPLICATION WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE MANUFACTURER.

60 (QTY 4)
61 (QTY 2)
62 (QTY 2)
63 (QTY 2)
64 (QTY 2)
65 (QTY 2)
-SIDE 1
-Y2 2 PLC'S

SEE NOTE 6
2-5
THIS ECO WIRE MUST BE RUN AS DRAWN.

REWORK INSTRUCTION FIRST RELEASE
ETCH CUT SIDE 2 (AS SHOWN)
0-1 AT PTH BELOW E52

WIRE ADDS SIDE 1 (AS SHOWN)
0-2 FROM E52(3) TO E52(13)
0-3 FROM E31(7) TO PTH BELOW E23

COMPONENT ADDS SIDE 1 (AS SHOWN)
0-4 C44
0-5 C45

ECO #2
ETCH CUTS SIDE 1:
2-1 CUT ETCH AT FEEDTHRU BELOW E74 PIN 7.
2-2 CUT ETCH BELOW AND TO THE RIGHT OF R37, LEFT OF FEEDTHRU HOLE.
2-3 CUT ETCH TO RIGHT OF FEEDTHRU HOLE, LOCATED BELOW AND TO THE RIGHT OF R37.
2-4 CUT ETCH AT FEEDTHRU BELOW AND TO THE LEFT OF E42-4.

WIRE ADDS SIDE 1:
2-5 FROM FEEDTHRU BELOW AND TO THE LEFT OF E74-7 TO FEEDTHRU ABOVE AND TO THE LEFT OF R25.
2-6 FROM ANODE END OF D13 TO FEEDTHRU ABOVE D14.
2-7 FROM BOTTOM END OF R35 TO FEEDTHRU BELOW AND TO THE LEFT OF E42-4.

- NOTES:** J1 REPRESENTS PINGERS
1. CUT OFF THE BOARD
 2. INSTALL AT AFTER THE BOARD IS TESTED
 3. INSTALL C39 SCAS TO ALLOW ACCESS TO PTH BENEATH.
 4. SPARE LOCATIONS ARE E3, F1, D26, E77
 5. E4 IS TO BE RAISED OFF THE ETCH
 6. TOP LEADS CUT FLUSH TO COMPS

CHANGE NO	REV	DATE	BY	CHKD
1	1	10/1/78	W. B. BROWN	W. B. BROWN
2	1	10/1/78	W. B. BROWN	W. B. BROWN
3	1	10/1/78	W. B. BROWN	W. B. BROWN
4	1	10/1/78	W. B. BROWN	W. B. BROWN

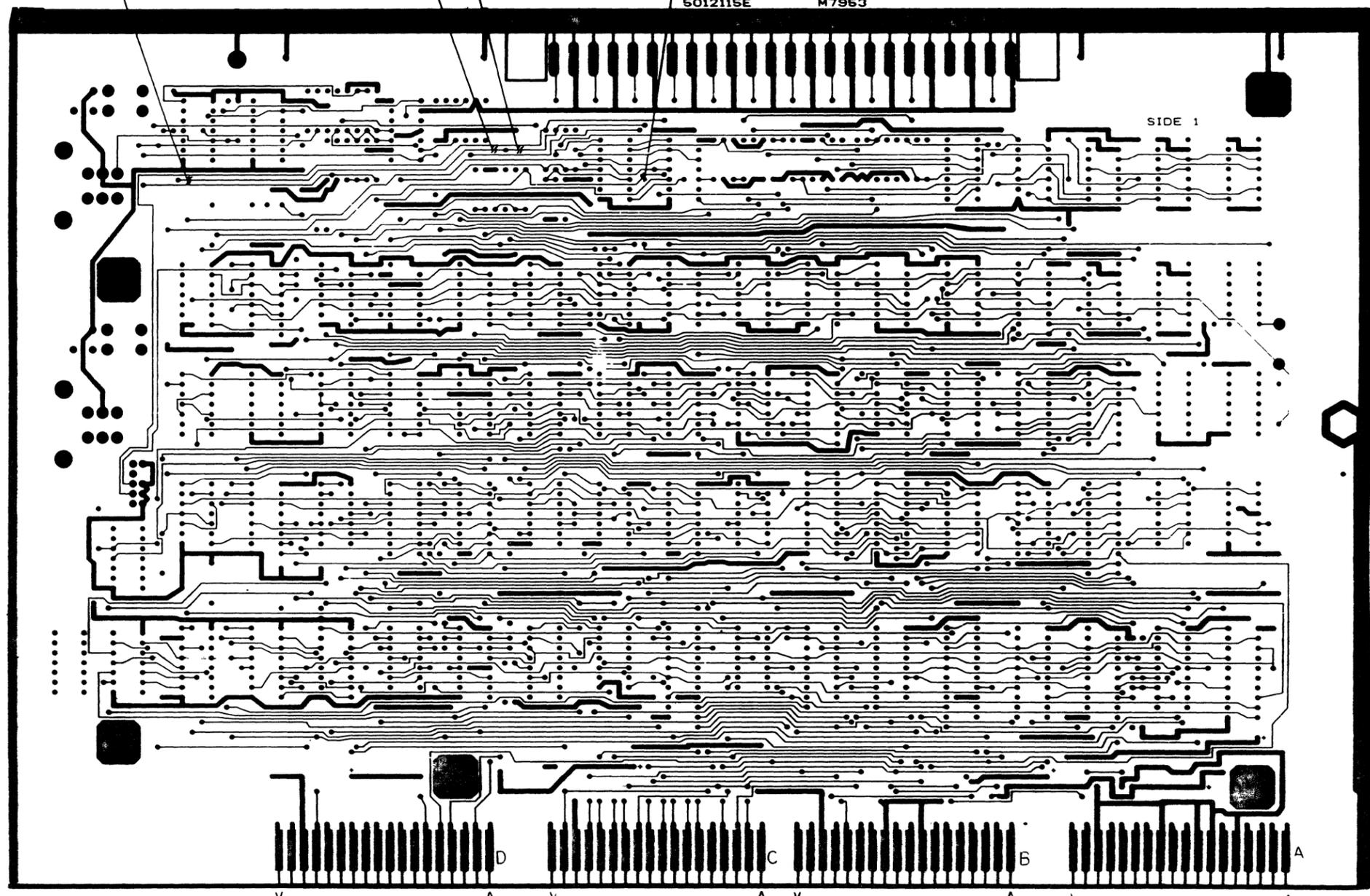
ETCH REV.	PLC DESIGN DATA BRISE REV.
F	F

SIGNATURES	DATE	TITLE
DRN. <i>[Signature]</i>	10/1/78	digital
CHK'D. <i>[Signature]</i>	10/1/78	
ENG. <i>[Signature]</i>	10/1/78	
PROJ. ENG. <i>[Signature]</i>	10/1/78	
PROD. <i>[Signature]</i>	10/1/78	
SCALE 2/1		
SHT. 1 OF 4		
NEXT HIGHER ASSY. B-00-17953-0		

MR 1 MS# 36309E

8 7 6 5 4 3 2 1

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REVISIONS		
CHK	CHANGE NO	REV

8	7	6	5	4	3	2	1	
TITLE REAL TIME CLCCK						SIZE CODE D	NUMBER UAM7953-0-0	REV. F
SCALE 2/1						SHEET 2	OF 4	DIST

73

8

7

6

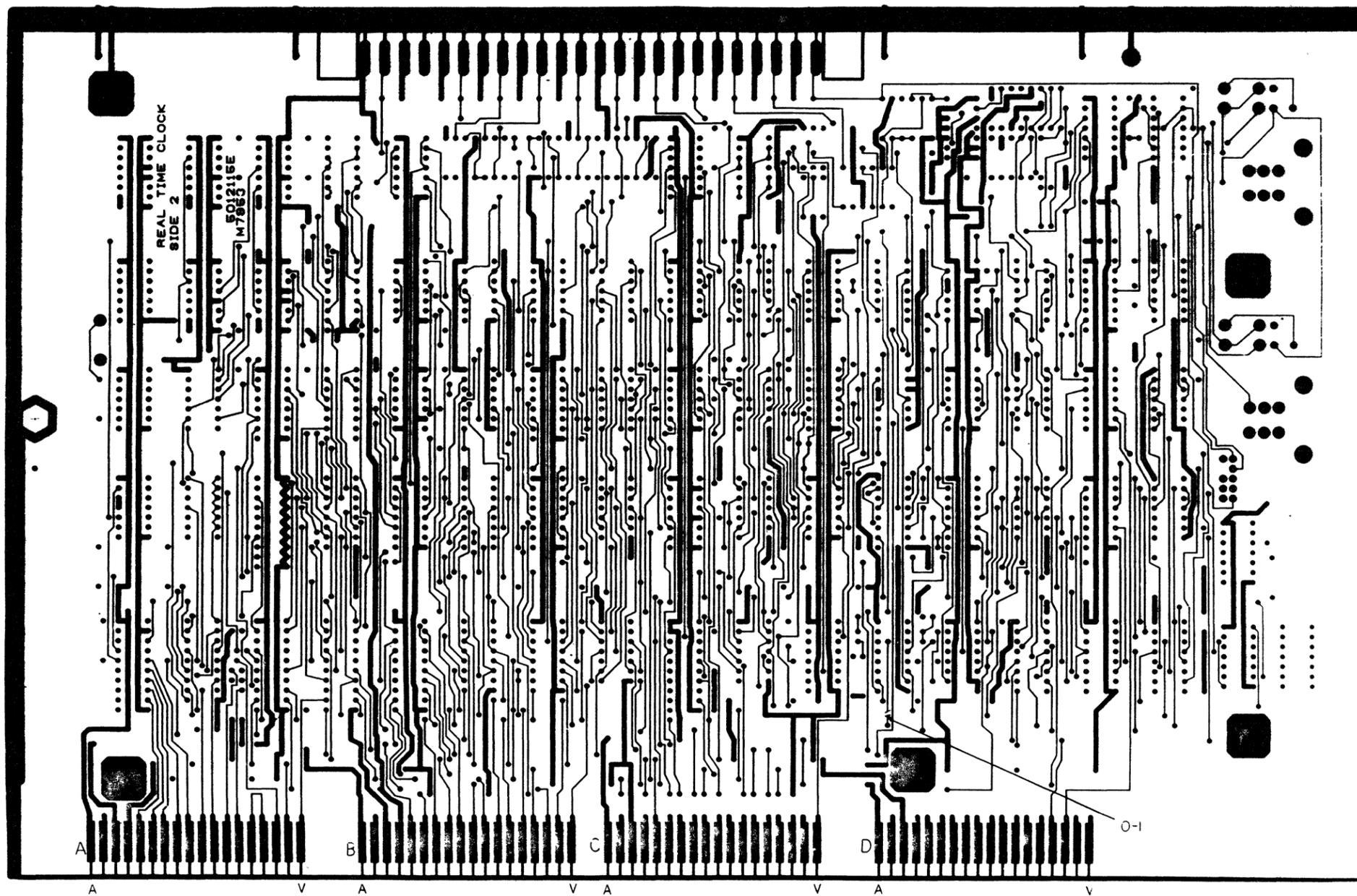
5

4

3

DLA M7053-C-0 2 MR

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REVISIONS		
CHK	CHANGE NO	REV

TITLE: REAL TIME CLOCK
 SCALE: 2/1 SHEET 3 OF 4
 SIZE: CUS DIST: DLA M7053-C-0

8

7

6

5

4

3

2

MR

70

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012115-0-0	5012115-00	M7953	1	
2	2		1012784-00	.047 MFD 50V XZ CER	30	C1,C3-C30,C43
3	3		1000014-00	68.0 MMF 100V 5%200PPM 0M15S	(10-00)	1 C31
4	4		1000021-00	220.0 MMF 100V 5%200PPM 0M15S	(10-00)	6 C32-C37
5	5		1004812-00	15 MFD 20V 10% 150V S.TA	(10-00)	5 C38-C42
6	6		1000019-00	150.0 MMF 100V 5%200PPM 0M15S	(10-00)	2 C44,C45
7	7		1105796-00	1N 4004 PIV=400 I= 1A DO11 GP	13	D1-D15,D18
8	8		1100114-00	D 664 03\75PCB PIV= 25V SP	8	D16,D17,D19-D21,D23-D25
9	9		1110232-00	MCL1304 CL03MA FROM10-800	1	D22
10	10		1300365-00	1 K 1/4W 5% CC	(13-00)	23 R1,R6-P9,R18,R21-P25,R31,R33, CONT R41-R43,R49,R55-R60
11	11		1301424-00	680 1/4W 5% CC	(13-00)	2 R2,R4
12	12		1300295-00	350 1/4W 5% CC	(13-00)	2 R3,R5
13	13		1310881-02	47 1/4W 1% FUSIBLE	8	R10,R12,R13,R16,R19,R29,R30, CONT R34
14	14		1300316-00	470 1/4W 5% CC	(13-00)	8 R11,R14,R15,R17,R20,R27,R28, CONT R35
15	15		1301874-00	5.6 K 1/4W 5% CC	(13-00)	2 R26,R32
16	16		1301422-00	7.5 K 1/4W 5% CC	(13-00)	3 R44,R52,R54
17	17		1302388-00	2 K 1/4W 5% CC	(13-00)	2 R36,R46
18	18		1302466-00	100 K 1/4W 5% CC	(13-00)	2 R37,R47
19	19		1309595-00	1 M 1/4W 5% CC	(13-00)	2 R40,R48
20	20		1300426-00	2.7 K 1/4W 5% CC	(13-00)	2 R51,R53
21	21		1314355-00	50 K POT*	2	R21,R62
22	22		1811660-01	OSCILLATOR, CRYSTAL, 100K2, 14PIN DIP	1	E4
23	23		1211164-03	SW,DIP 1P 1A 7POG *	1	E7
24	24		1211164-06	SW,DIP 1P 1A 10POG	1	E12
25	25		1213488-00	CONN 10POS HOUSING	1	J2
26	26		1214937-00	SW-PB 2P PUSH PUSH *	2	S1,S3
27	27		1912729-00	DC 004 PROTOCOL-REL. SELECTOR	1	E1

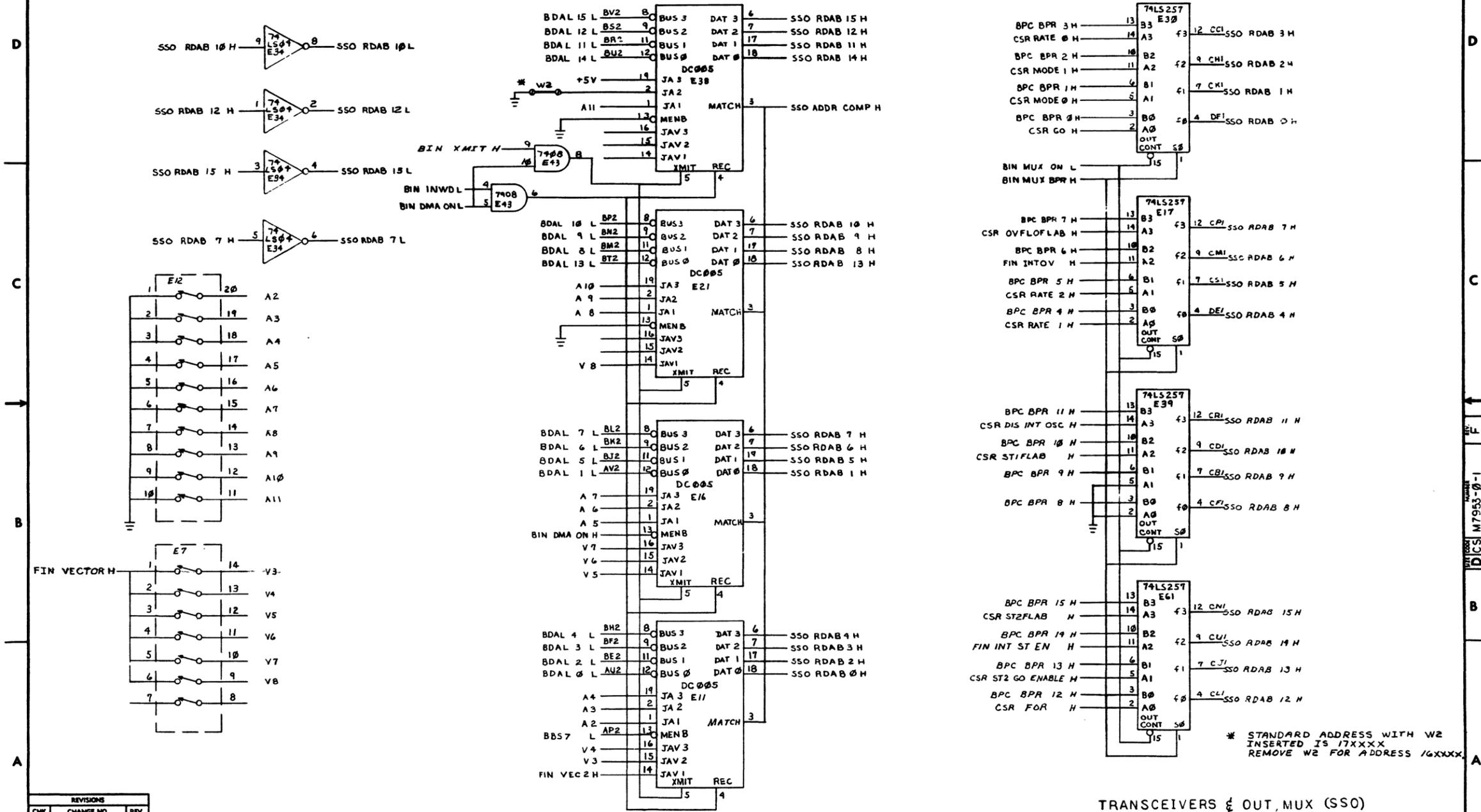
REVISION HISTORY			VARIATIONS FOR THIS ASSY.			FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
CHK	ECO NO	REV								
RWC	INIT	D				MADE BY:	E. WILSON	DATE:	28-NOV-77	TITLE
RWC	MR001	E								PARTS LIST
ER	MR002	F				CHECKED:	R.W. CAUNTER	DATE:	28-NOV-77	REAL TIME CLOCK
						DSN.ENG.:	A. ARRIGHI	DATE:	30-NOV-77	
						PROD.:	D. DUNCAN	DATE:	15-DEC-77	SIZE: CODE: DOCUMENT NUMBER: REV:
										K PL M7953-0-DBP IF
						RESI.ENG.:	A. FILZ	DATE:	30-NOV-77	ASSY. NO.:
										D-DA-M7953-0-0 7

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LINE ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
28	28	1912824-00	LS74 FF-D DUAL,EDGE TRIGGER,POS	9 CONT	E2,E29,E40,E42,E44,E49,E56, E71,E72
29	29	1914127-00	74LS190 COUNTER,SYNCHR UP/DOWN	5	E5,E9,E10,E14,E15
30	30	1912730-00	DC 003 INTERRUPT,2 CIRCUIT	1	E6
31	31	1912799-00	LS00 NAND-GATE-QUAD 2IN,POSITIVE	4	E8,E25,E37,E75
32	32	1913040-00	DC 005 TRANSCEIVER 4BIT	4	E11,E16,E21,E38
33	33	1912867-00	LS298 MUX 1 OF 4,2IN W/STORAGE	4	E13,E27,E57,E65
34	34	1912647-00	LS257 MUX 1 OF 2 (QUAD) TRI-STA	4	E17,E30,E39,E61
35	35	1912854-00	LS193 COUNTER,SYNCHR,4BIT,UP/DN,BINA	4	E18,E22,E53,E66
36	36	1912844-00	LS151 MUX 1 OF 8 & DATA SELECTOR	1	E19
37	37	1909705-00	DEC 8881-INAND GATE-QUAD 2IN,OPN COLL.	2	E20,E47
38	38	1911469-00	DEC 8640 RECEIVER,BUS,QUAD,UNIBUS,Q-BU	1	E23
39	39	1910532-00	74S00 NAND GATE-QUAD 2IN	1	E24
40	40	1910550-00	74S174 FF-D HEX	1	E26
41	41	1912803-00	LS04 INVERTER GATE-HEX 1IN	3	E28,E34,E50
42	42	1912847-00	DEC LS157 MUX 1 OF 2 (QUAD	1	E32
43	43	1912801-00	DEC LS02 NOR GATE-QUAD 2IN	5	E33,E41,E55,E63,E64
44	44	1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E35
45	45	1910537-00	74S11 AND GATE-TRIPLE 3INPUT	1	E36
46	46	1910155-00	DEC 7408 AND GATE,POS,QUAD 2IN	14 1	E43
47	47	1912805-00	LS08 AND GATE-QUAD 2IN,POSITIVE	2	E45,E62
48	48	1909686-00	7404 INVERTER GATE-HEX 1IN	2	E46,E67
49	49	1910951-00	9602 ONE SHOT-DUAL	3	E48,E52,E68
50	50	1912816-00	LS32 OR GATE-QUAD 2IN,POSITIVE	2	E51,E58
51	51	1910544-00	74S74 FF-D DUAL,EDGE TRIGGER	2	E54,E59
52	52	1912108-00	339 VOLT CMPRTR,QUAD	1	E60
53	53	1911324-00	7414 NAND GATE-HEX 1IN SCHMITT TRIG	2	E69,E76
54	54	1912846-00	LS155 DECODER,2 OF 4(DUAL) & DEMUX	1	E70
55	55	1909930-00	7405 INVERTER GATE-HEX 1IN,OPEN COL	1	E73
56	56	1912829-00	DEC LS86 X-OR GATE-QUAD 2IN	1	E74
57	57	1912697-00	LS174 FF-D HEX W/CLEAR	1	E31
58	58	9009185-00	JUMPER, WIRE, INSULATED, BLACK BAND	2	W1,W2
59	59	9006735-00	EYELET, FUNNEL FLANGE, .059 OD X .187 LG	2	
60	60	9006732-00	EYELET, ROLLED FLANGE, .121 OD X .219 LG	4	
61	61	C-MD-7420191-0-0	7420191-00 HANDLE	1	
62	62	C-MD-7420192-0-0	7420192-00 HANDLE RETAINER	2	
63	63	9006000-01	SCREW,PAN,SLOT, 2-56X 3/16 SS/PAS	4	
64	64	9006555-00	NUT,HEX , 2-56X3/16AF X 1/16 THK SS/	4	
65	65	9006686-00	WASHER, LOCK, S.S. #2	4	
66	66	1313596-00	20 K 1/4W 1% RN55D-F 100PPM (13-00	4	R38,R39,R45,R50
67	67	9107256-11	TUBING,THIN WALL,.027ID UL (91-00 A/R		

! TITLE	! PARTS LIST	! SIZE	! CODE	! DOCUMENT NUMBER	! REV
DIGITAL EQUIPMENT CORPORATION	REAL TIME CLOCK	K	FL	M7953-0-DBP	F
MAYNARD, MASSACHUSETTS					

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* STANDARD ADDRESS WITH W2 INSERTED IS 17XXXX REMOVE W2 FOR ADDRESS 16XXXX

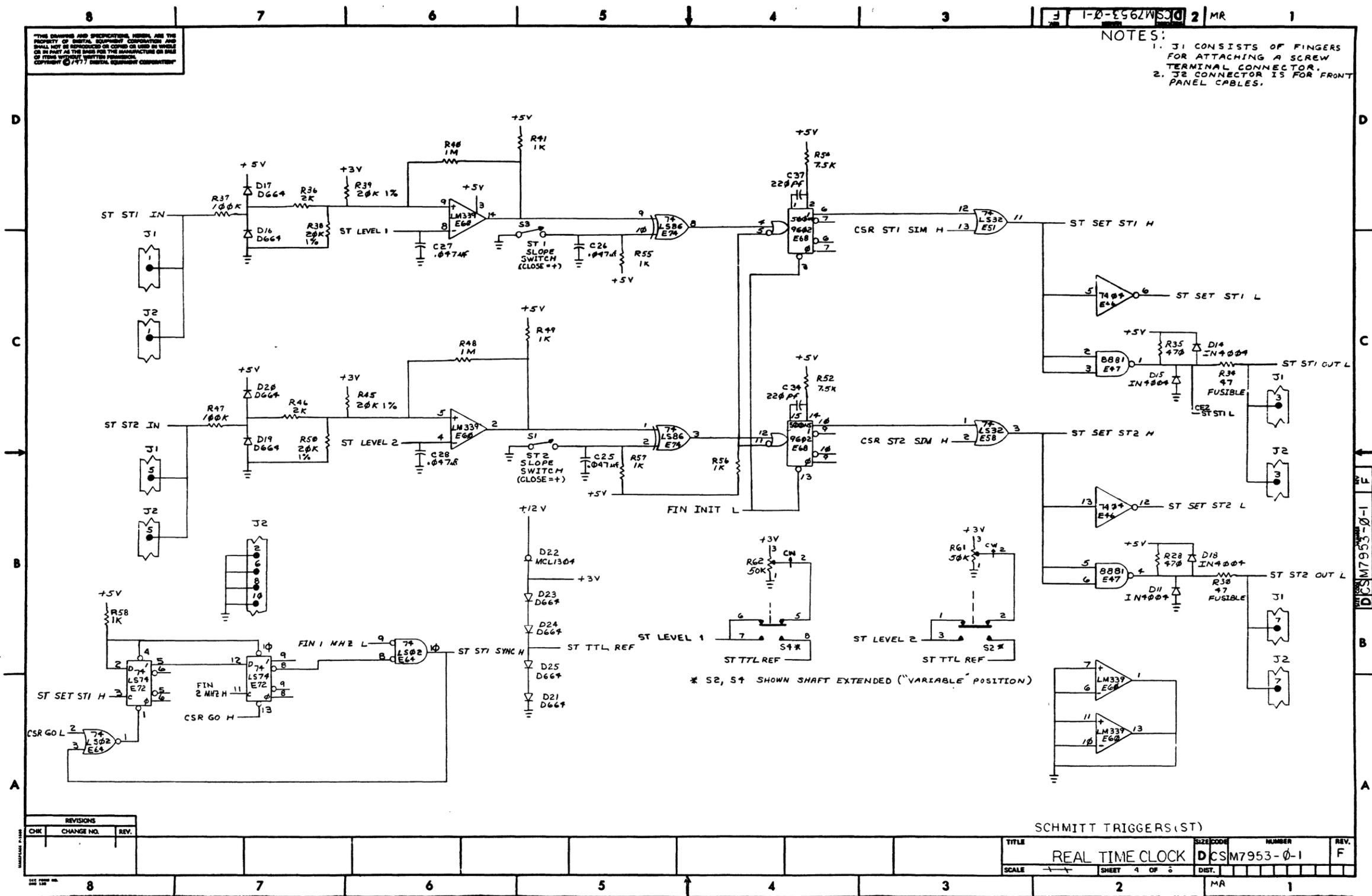
TRANSCEIVERS & OUT, MUX (SSO)

TITLE	REAL TIME CLOCK	SIZE CODE	DCS	NUMBER	M7953-0-1	REV.	F
SCALE		SHEET	2 OF 6	DIST.			

REVISIONS		
CHK	CHANGE NO.	REV.

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NOTES:
 1. J1 CONSISTS OF FINGERS FOR ATTACHING A SCREW TERMINAL CONNECTOR.
 2. J2 CONNECTOR IS FOR FRONT PANEL CABLES.



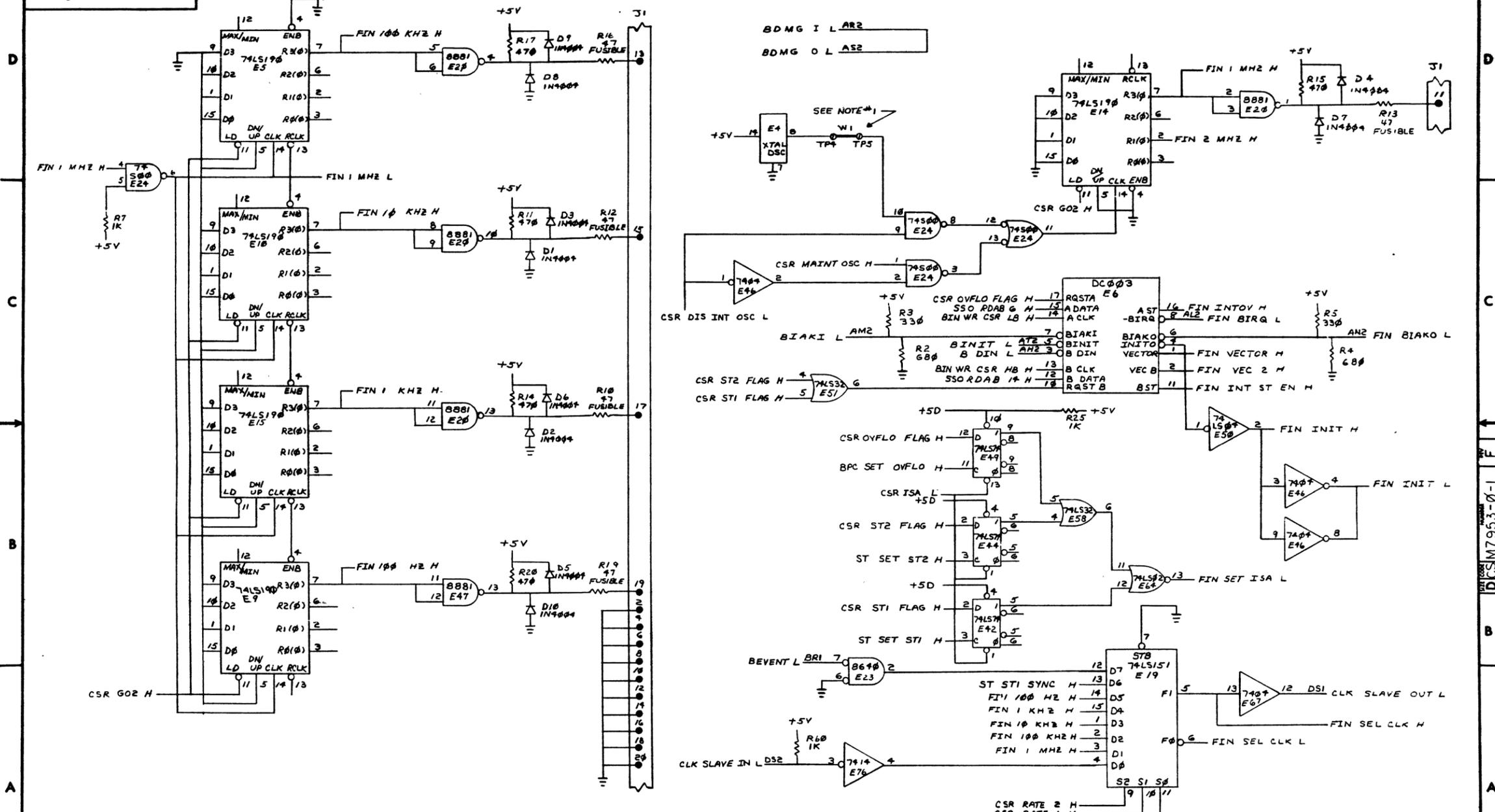
* S2, S1 SHOWN SHAFT EXTENDED ("VARIABLE" POSITION)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE/SCALE	NUMBER	REV.
REAL TIME CLOCK		DCSM7953-0-1	F	
SCALE	SHEET	OF	DIST.	
	4	OF 6		

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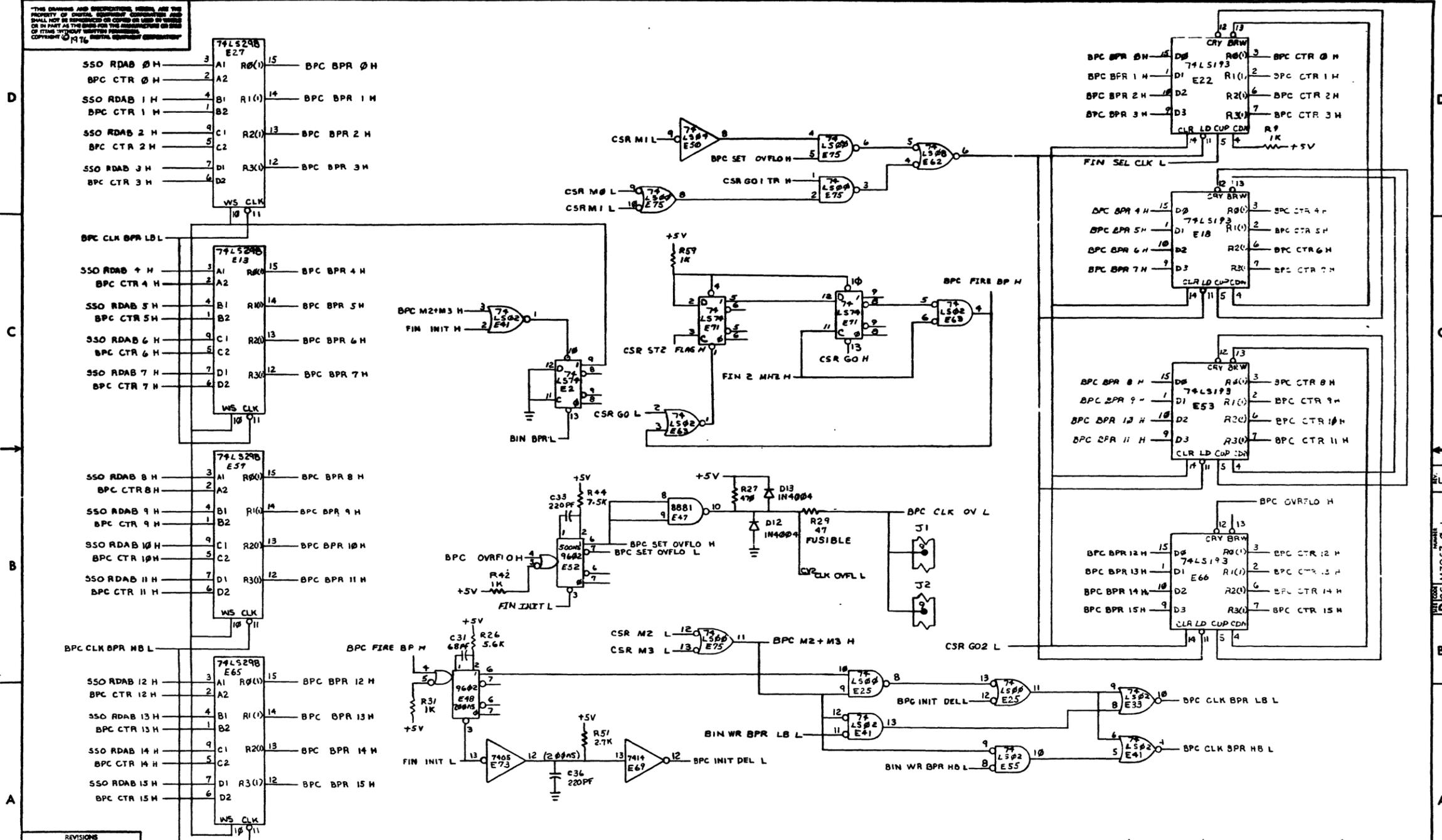
NOTES:
1. INSTALL WI AFTER GR. TEST.



CHK	CHANGE NO.	REV.	TITLE	SCALE	SHEET	OF	NO.	DATE	REV.
			REAL TIME CLOCK		5	OF	6		

REV.	NO.	DATE	BY	CHK

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REVISIONS		
CHK	CHANGE NO.	REV.

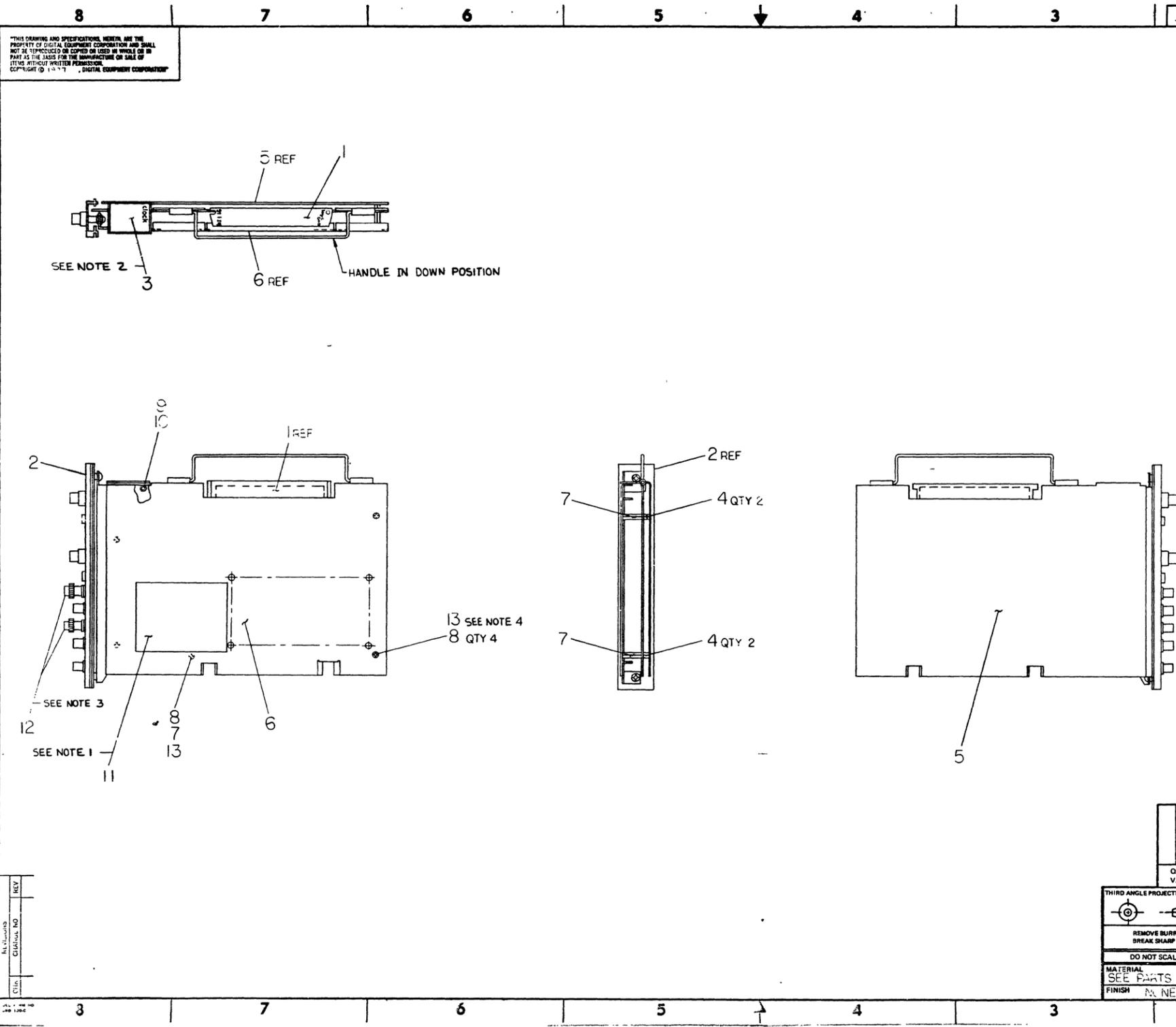
TITLE		DRAWING NUMBER		REV.	
BUFFER/PRESET & COUNTER REGS (BPC)		DCS M7953-0-1		F	
SCALE		SHEET 6 OF 6		DIST.	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QUANTITY VARIATION																
MADE BY	M. Archie	CHECKED	<i>[Signature]</i>	SECTION																
DATE	7 MARCH 78	DATE	19 MAY 78	1																
ENG	<i>A.C. [Signature]</i>	PROD	<i>B Cook</i>	ISSUED SECT.																
DATE	23-MAY-78	DATE	23-MAY-78	1																
ITEM NO.	DWG NO./PART NO.	DESCRIPTION																		
1	D-UA-MNCKW-Ø-Ø	MNCKW UNIT ASSY		1																
2	MPØØ593	PRINT SET MNCKW		1																
3	AA-D572A-TC	WORKING WITH MINC DEVICE		1																
TITLE		ASSY NO.		SIZE	CODE	NUMBER		REV	ECO NO.											
SHIP LIST MNCKW		<i>+</i> <i>+</i>		A	PL	MNCKW-Ø-SH														
SHEET 1 OF 1				DIST																

DEC FORM
DRA 110

840

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- NOTES:
- ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
 - ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
 - ITEM #12 IS PUT ON BNC'S LABEL ST1 IN AND ST2 IN.
 - USING ITEM #13 ADD ONE DROP TO EACH LOCATION.

REF	CHKOUT & ACCEPT PROCEDURE	A-SP-MNCKW-Ø-3	14
AIR	LOCKTITE	9009321	13
2	BNC SHORTING	B-IA-7009993-0-0	12
1	DECAL, INFORMATION(MNCKW)	A-DC-3615264-6-0	11
1	NUT, KEPS #6-32	9008185	10
1	WASHER, FLAT	9006653	9
5	SCR, FLAT HD #6-32 x .25	9006020-02	8
3	SPACER, THREADED #6-32 x .88	9006861	7
1	PLATE, COMP. SIDE	D-MD-7419869-0-0	6
1	PLATE, ETCH SIDE	D-IA-7419868-0-0	5
4	SPACER, THREADED #6-32 x .25	9006841	4
1	DECAL, I/O SCHEMATIC	A-DC-3615260-6-0	3
1	MNCKW SUB-ASSY	D-AD-7015070-0-0	2
1	CONN ASSY, I/O	D-IA-7014153-4-0	1

QUANTITY & VARIATION		MICROINCHES		PREFERRED		±012		±018		±025		±030		±033		±041	
✓	MEDIUM	±004	±008	±012	±018	±024	±030	±036	±042	±048	±054	±060	±066	±072	±078	±084	±090

DRN /	20/1/71	FIRST USED ON	MNCKW digital
CHK'D	2/1/71	TITLE	MNCKW UNIT ASSY
ENG	2/1/71	SIZE	D
PROL. ENG.	2/1/71	CODE	UA
PROD.	2/1/71	NUMBER	MNCKW-Ø-3
DO NOT SCALE DWG	NEXT HIGHER ASSY.	DIST.	
MATERIAL	B-DC-MNCKW-Ø-3	SCALE	1/2
SEE PARTS LIST		SHEET	1 OF 1
FINISH	AS NE		

REV	CLC	DATE	BY

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION DATE 7/19/78

TITLE MNCKW Installation/Acceptance Procedure

REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG <i>A. J. ...</i>	APPD <i>A. J. ...</i>	24-JUL-78	SIZE A	CODE SP	NUMBER MNCKW-0-4	REV
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SHEET 1 OF 3 MR

DEC 16 (392) 1679A R873
DRA 107A

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCKW Installation/Acceptance Procedure

1.0 GENERAL

1.1 SCOPE
This document describes the procedures for the installation and field acceptance of the MNCKW (Programmable Real-Time Clock) option for the MINC-11 system. This procedure will be used for in-house FA&T, field add-on and new system installation, and periodic verification testing.

1.2 EQUIPMENT

MINC-11	System
MNCKW	Clock Option
MNCKW-TA	Test Module (Optional)
7014153-4-0	I/O Connector

1.3 DOCUMENTATION

MAINDEC-11-DVMNC-B	Diagnostic Program
A-SP-MNCKW-0-2	MNCKW Engineering Specification
MP00593	Print Set
AA-D572A-TC	"Working With MINC Devices"

2.0 INSTALLATION

2.1 INITIAL SET-UP
The address and vector switches on the MNCKW board must be set properly as indicated in the manual "Working With MINC Devices"

2.2 LOCATION
The MNCKW may be inserted into any of the 8 possible MINC slots. However, if the MINC-11 system includes an MNCAD A/D converter, then the MNCKW should be installed to the right of the MNCAD. It may be installed to the immediate right or with one or more digital options (MNCAA, MNCDO, MNCDI) between the MNCKW and MNCAD.

2.3 TEST MODULE
If the MNCKW-TA test module is available it should be plugged into the I/O connector fingers on the top of the MNCKW. If no test module is available plug the standard I/O connector into the fingers.

2.4 POWER UP
All other options to be tested and any of their test modules should be mounted in the system. Power may then be applied.

SIZE A	CODE SP	NUMBER MNCKW-0-4	REV
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SHEET 2 OF 3 MR

DEC FORM NO EN-01022-16-N370 (381)
DRA 108

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCKW Installation/Acceptance Procedure

3.0 ACCEPTANCE
Refer to the diagnostic documentation for instructions on loading the diagnostic. Start at location 200. Location 204 is used for restarting after a program halt.

Follow the type out concerning front panel switch settings. The diagnostic will type out the current (old) software switch register and wait for the operator to type in a new value. Switch register functions are described in the documentation. Simply type a carriage return to leave the switch register unchanged.

The diagnostic will then type a menu of tests. Select the logic test with or without the test module (dwarf). When the test module is available, more complete testing of the MNCKW I/O signals can be done. The program will type instructions when required concerning switch settings on the MNCKW front panel and the test module.

At the start of the logic test, the program will type out the number of clock modules detected on the MINC system. All clocks will be tested unless this feature is inhibited (see the diagnostic documentation).

No errors are allowable for MNCKW acceptance.

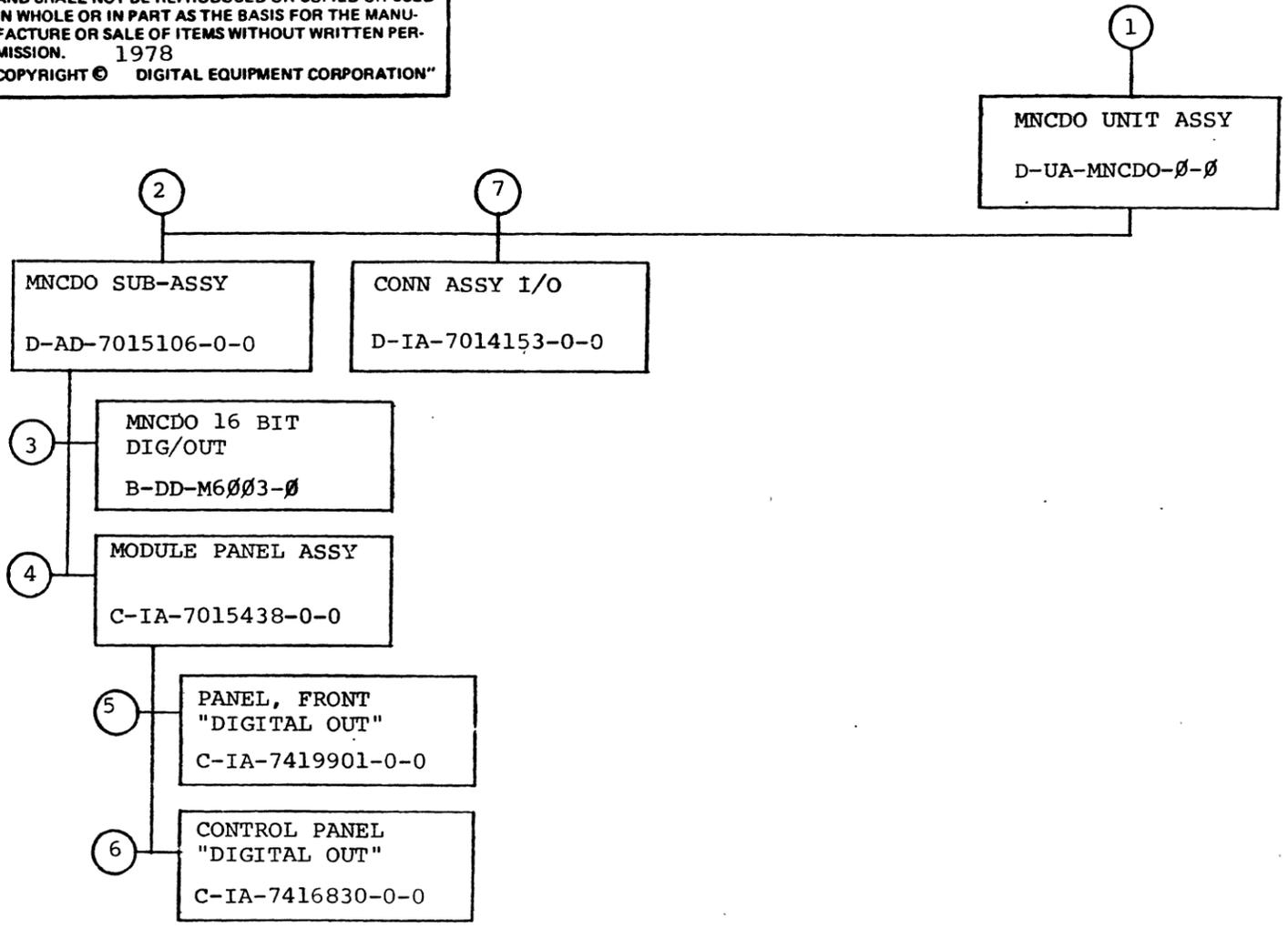
SIZE A	CODE SP	NUMBER MNCKW-0-4	REV
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SHEET 3 OF 3 MR

DEC FORM NO EN-01022-16-N370 (381)
DRA 108

98

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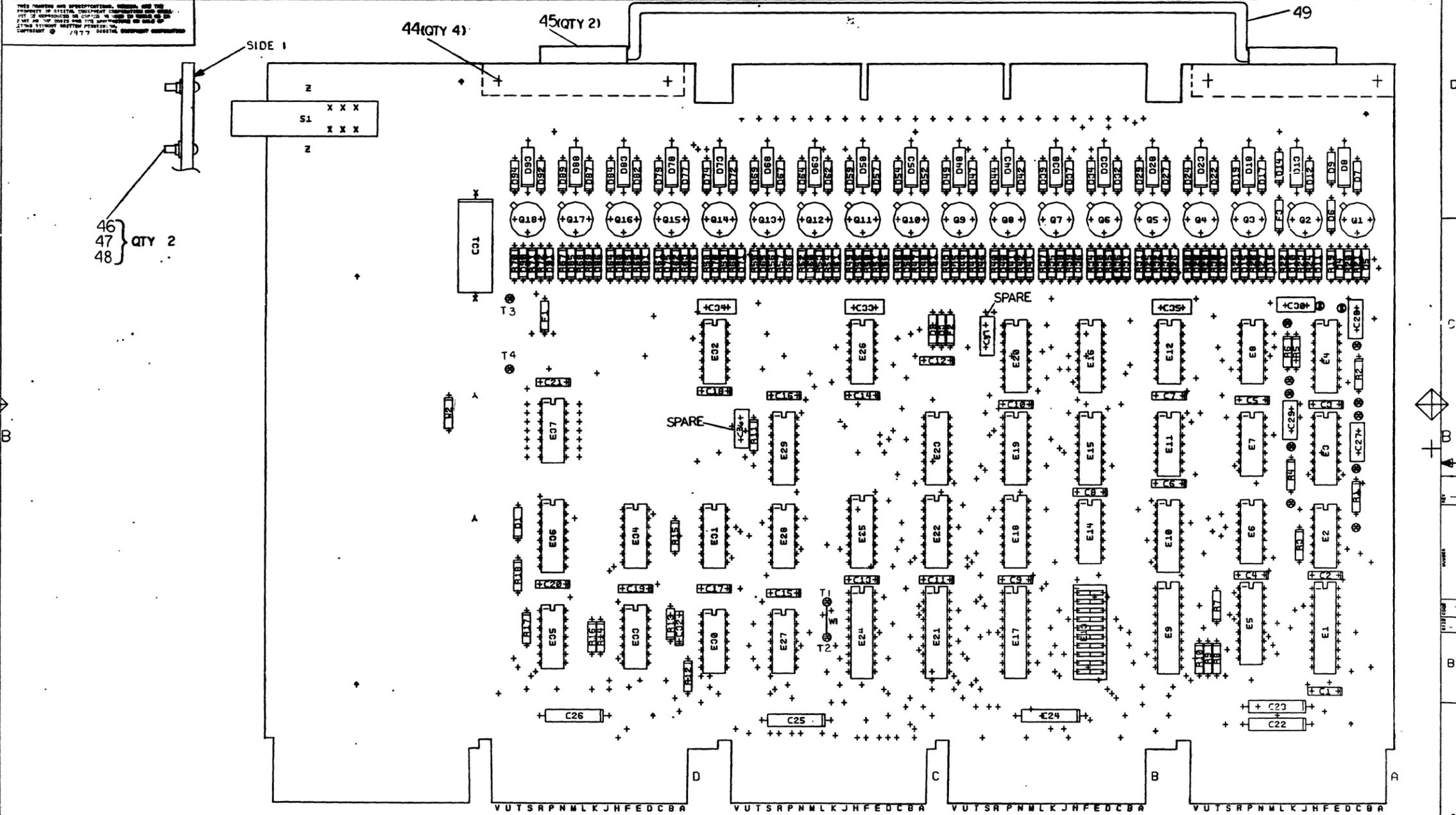


TITLE	SIZE CODE	NUMBER	REV
MNCDO UNIT ASSY	B DD	MNCDO-0	A

SHEET 2 OF 3

MR

89



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SIDE 1
 Z
 X X X
 S1
 X X X
 Z

46 }
 47 } QTY 2
 48 }

44(QTY 4)

45(QTY 2)

49

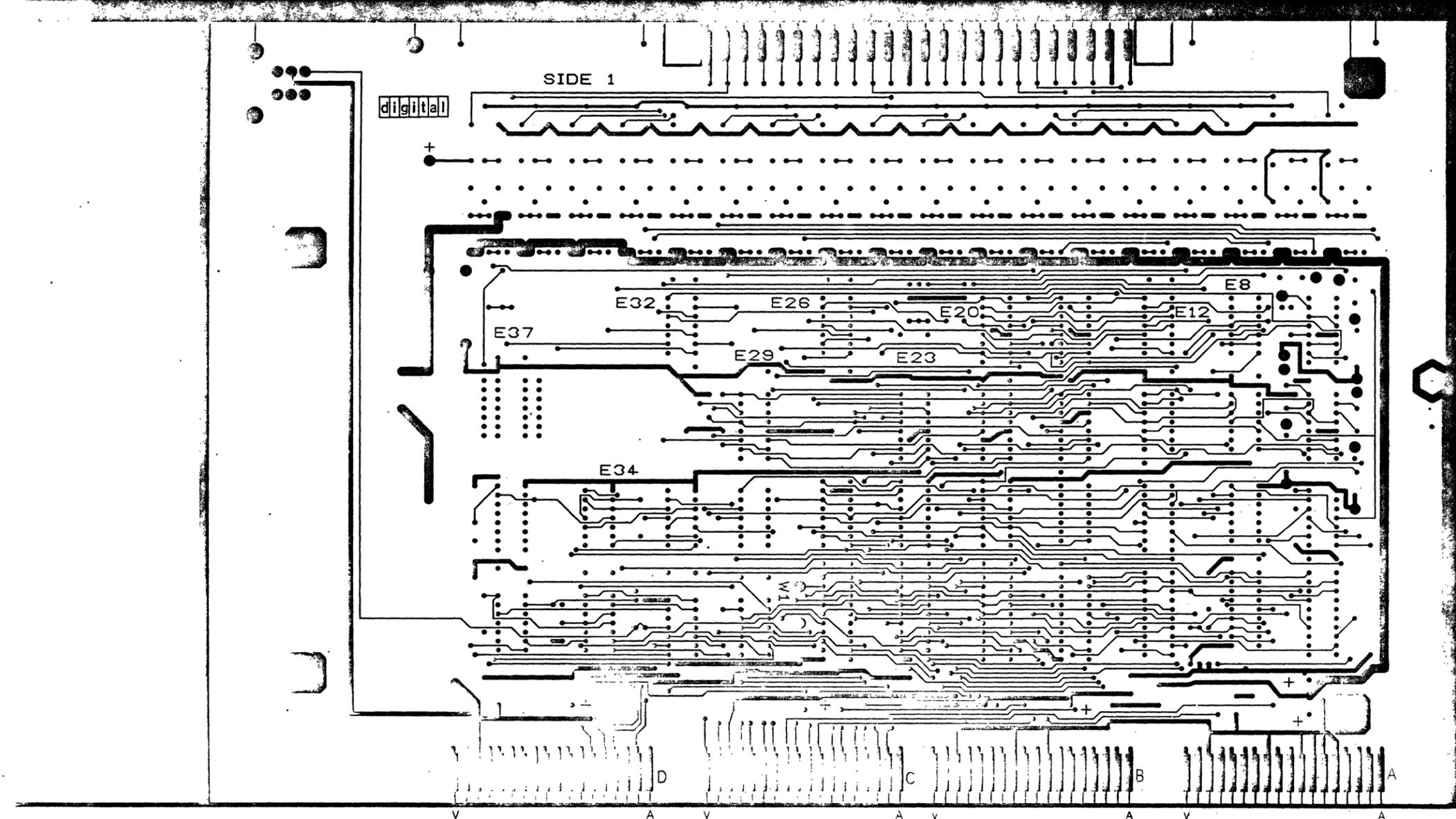
NOTES:

CHG	NO	REV

SIGNATURES		DATE	digital	
DRN.	<i>[Signature]</i>		TITLE DIGITAL CUT-OUT	
CHK'D.	<i>[Signature]</i>			
ENC.	<i>[Signature]</i>			
PROJ. ENG.	<i>[Signature]</i>			
PROD.	<i>[Signature]</i>		SIZE CODE	NUMBER
SCALE	2/1		D UA	M6003-C-0
SHT.	1 OF 4			REV D
NEXT HIGHER ASSY: B-DD-M6003-C			ETCH REV E	

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MS003 5012114 E



REV	DATE	BY	CHKD

TITLE	SIZE CODE	NUMBER	REV
DIGITAL OUTPUT	D	UAMC003-C-C	D
SCALE 1/1	SHEET 2 OF 4	DIST	

8

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3

DUALME003-0-0 2

1

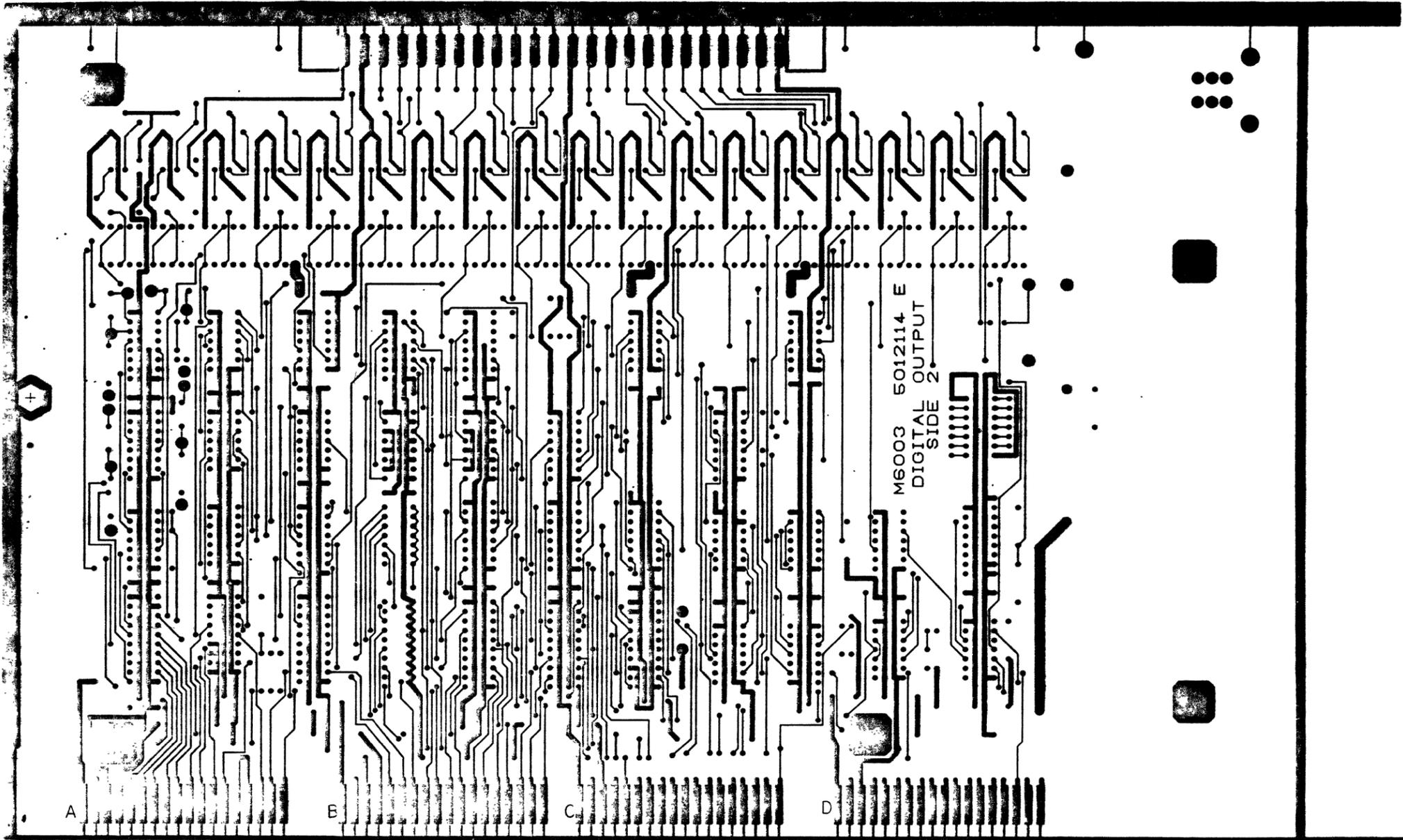
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D

C

B

A



A

B

C

D

A

V

A

V

A

V

A

V

D

C

B

A

DUALME003-0-0 2

REVISIONS		
C-K	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV
DIGITAL OUTPUT		D	U	AME003-0-0	D
SCALE	2/1	SHEET	3	OF	4
DIST					

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7

6

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3

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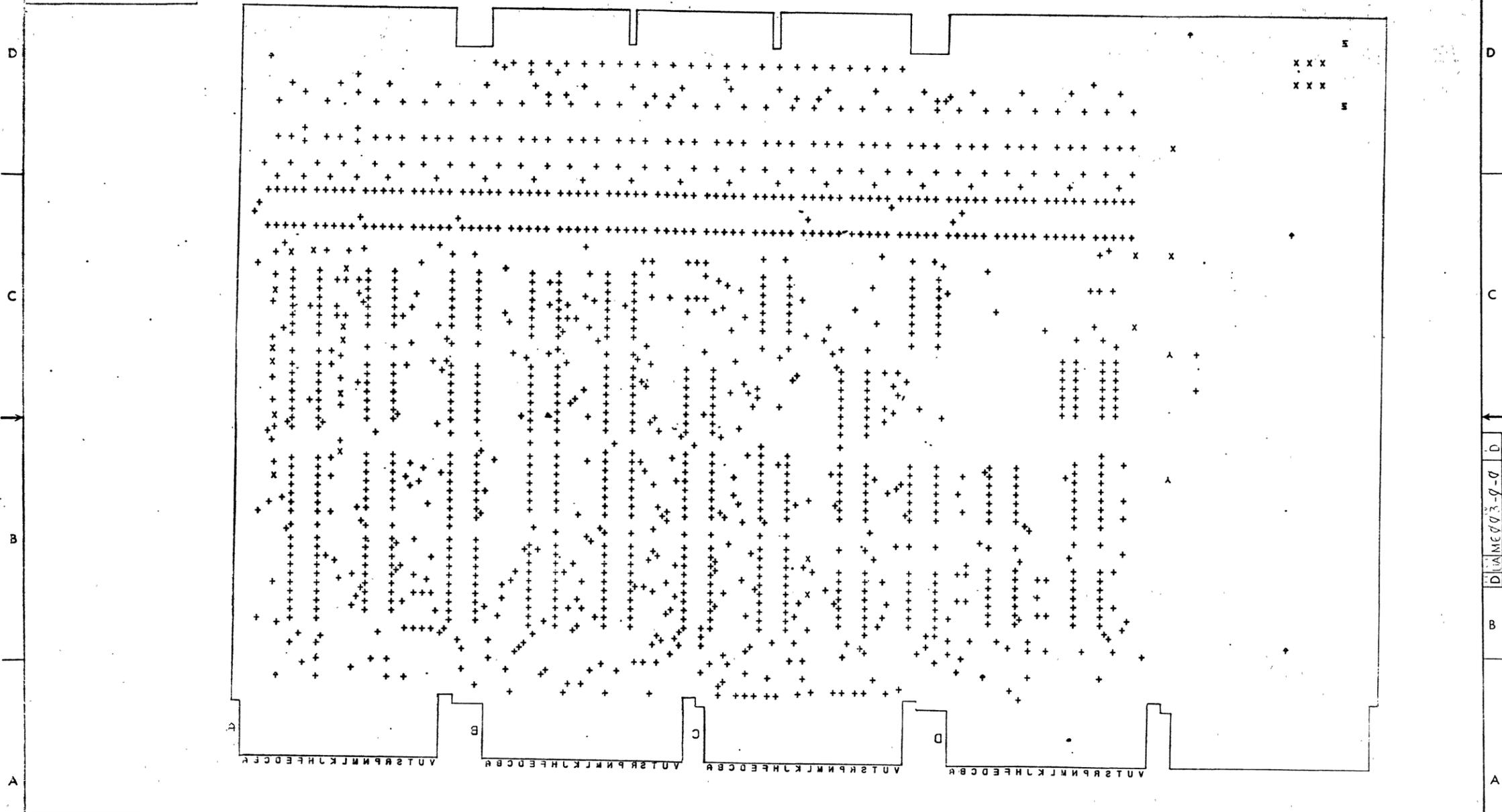
4

3

DIA M6003-0-0 2

1

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DIA M6003-0-0

TITLE	SIZE CODE	NUMBER	REV.
DIGITAL CUTPUT	DUA M6003-0-0		D
SCALE 1/1	SHEET 4 OF 4	DIST	

8

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2

1

90

DIGITAL EQUIPMENT CORPORATION PARTS LIST

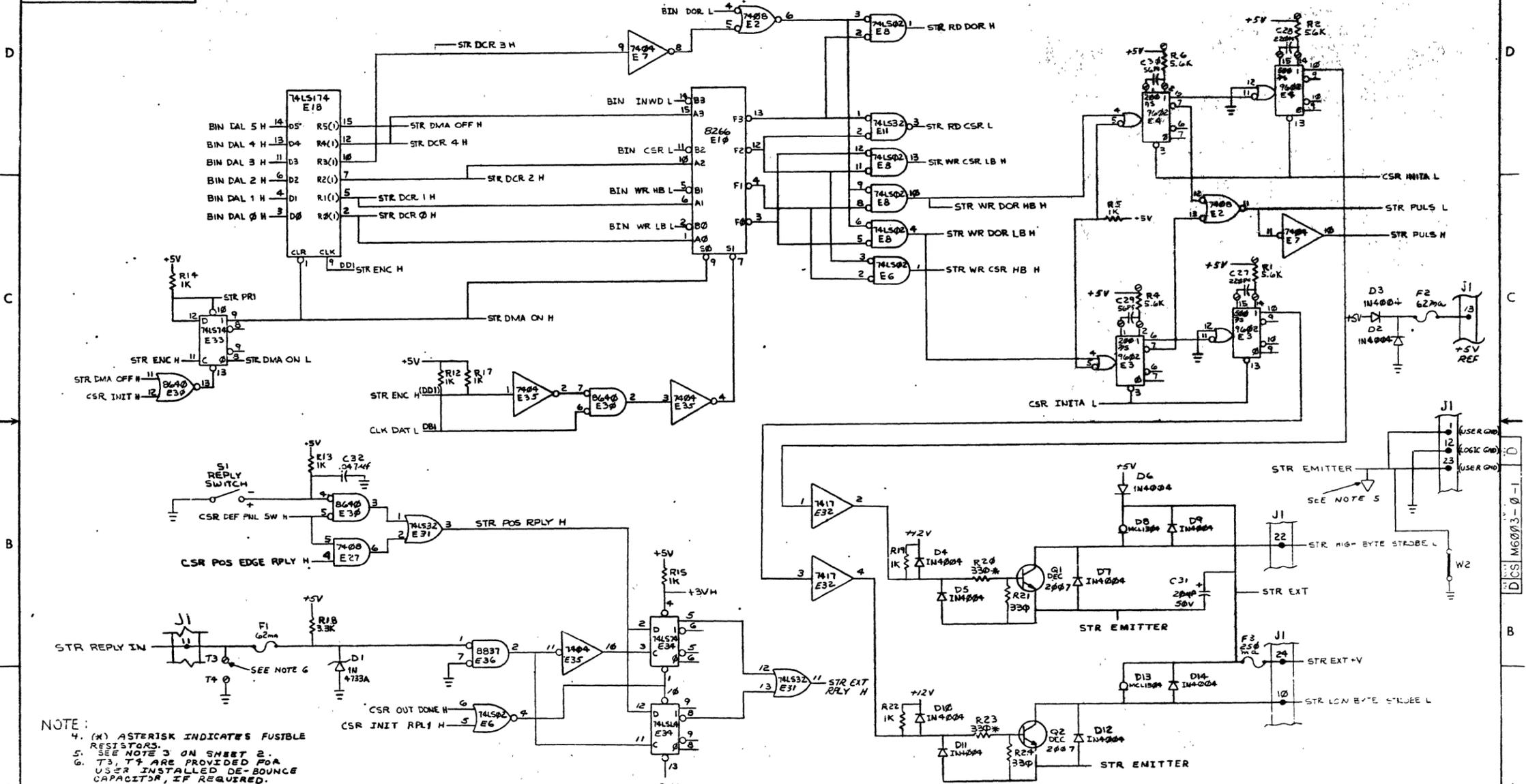
MADE BY <i>E. Wilson</i>	CHECKED <i>RWC</i>	SECTION	
DATE <i>18 AUG 77</i>	DATE <i>18 Aug 77</i>	1	
ENG <i>A. A. Arighi</i>	PROD <i>Dana R. Deman</i>	ISSUED SECTION	
DATE <i>24 OCT 77</i>	DATE <i>25 OCT 77</i>	1	

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												REF DESIGNATION
17		1301424	RES. 680, 5%, 1/4W	2												R7, R10
18		1300295	RES. 330, 5%, 1/4W	20												R8, R9, R21, R24, R27, R30, R33, R36, R39, R42, R45, R48, R51, R54, R57, R60, R63, R66, R69, R72
19		1300439	RES. 3.3K, 5%, 1/4W	1												R18
20		1310881-01	RES. 330, 1%, 1/4W, FUSIBLE	18												R20, R23, R26, R29, R32, R35, R38, R41, R44, R47, R50, R53, R56, R59, R62, R65, R68, R71
21																
22		1509632	TRANS. DEC 2007	18												Q1 THRU Q18
23		1912729	I.C. DEC DC004	1												E1
24		1910155	I.C. DEC 7408	2												E2, E27
25		1910951	I.C. DEC 9602	2												E3, E4
26		1912730	I.C. DEC DC003	1												E5
27		1912801	I.C. DEC 74LS02	2												E6, E8,
28		1909686	I.C. DEC 7404	2												E7, E35
29		1913040	I.C. DEC DC005	4												E9, E17, E21, E24
30		1909934	I.C. DEC 8266	1												E10
31		1912816	I.C. DEC 74LS32	2												E11, E31
32		1909929	I.C. DEC 7417	3												E12, E26, E32
33		1911527	I.C. DEC 8097	3												E15, E19, E25
34		1912951	I.C. DEC 8556	4												E16, E20, E23, E29
35		1912697	I.C. DEC 74LS174	1												E18
36		1912853	I.C. DEC 74LS175	1												E22

E.C.O. NO. _____

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		SHEET 2 OF 3	INSERTION PARTS LIST DATA BASE REV			

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NOTE:
 4. (*) ASTERISK INDICATES FUSIBLE RESISTORS.
 5. SEE NOTE 3 ON SHEET 2.
 6. T3, T4 ARE PROVIDED FOR USER INSTALLED DE-BOUNCE CAPACITOR, IF REQUIRED.

DMA CONTROL (STR) AND STROBES

REV	DESCRIPTION	DATE	BY	CHKD	APP'D	TITLE	SIZE	CODE	NUMBER	REV
1						DIGITAL OUTPUT	D	CS	M6003-0-1	1
2										
3										

8

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6

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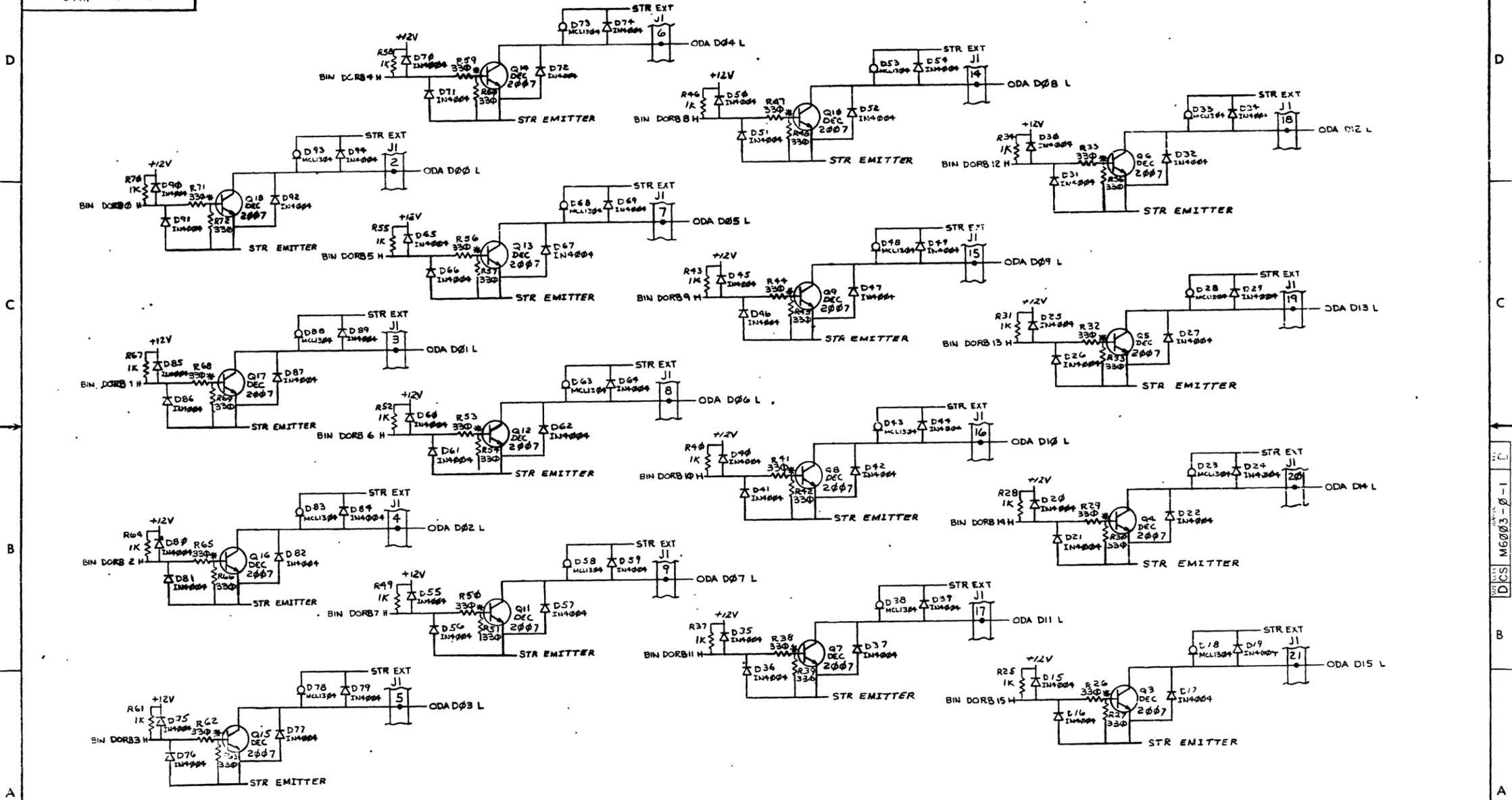
3

2

1

DCS M6003-0-1

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OUTPUT DRIVERS (ODA)

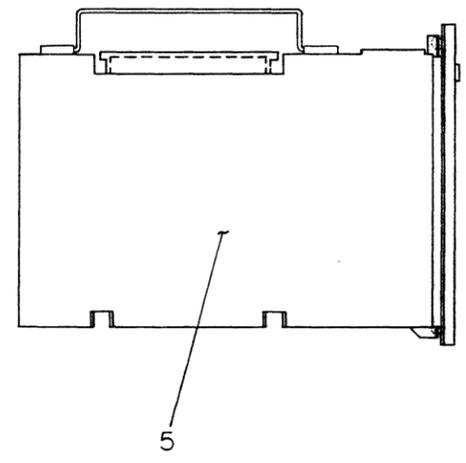
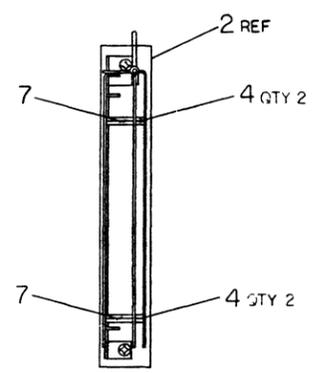
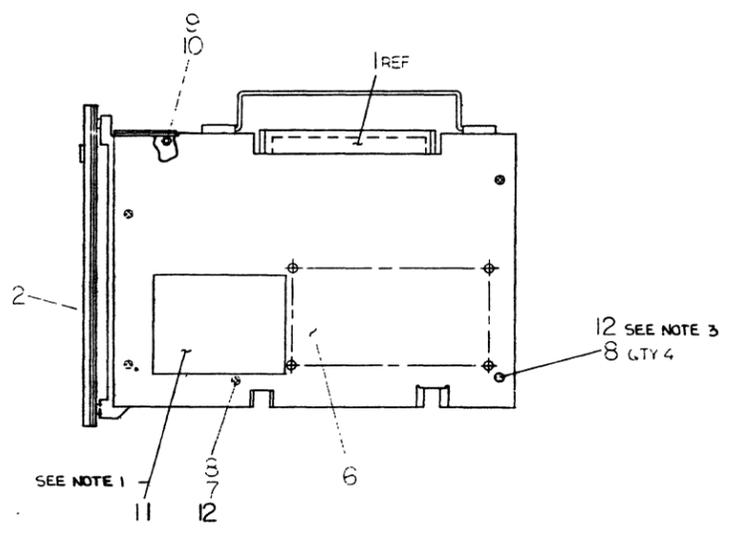
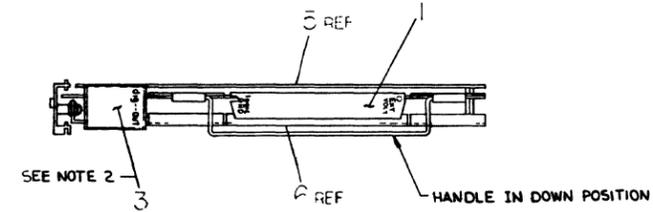
NO.	DESCRIPTION	REV.

TITLE	SIZE CODE	NUMBER	REV.
DIGITAL OUTPUT	DCS	M6003-0-1	D
SCALE	SHEET	OF	
	4	4	

101

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- NOTES:
- ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
 - ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
 - USING ITEM #12, ADD ONE DROP TO EACH LOCATION.



REF	CHKOUT #	ACCEPT PROCEDURE	A-SP-MNCDO-0-3	13
A/R	LOCKTITE		9009321	12
1	DECAL, INFORMATION (MNCDO)		A-DC-3615264-4-0	11
1	NUT, KEPS #6-32		9008655	10
1	WASHER, FLAT		9006655	9
5	SCR, FLAT HD #6-32x.25		9006020-00	8
3	SPACER, THREADED #6-32x.86		9006841	7
1	PLATE, COMP SIDE		D-MD-7419869-0-0	6
1	PLATE, ETCH SIDE		D-IA-7419868-0-0	5
4	SPACER, T-READED #6-32x.25		9006841	4
1	DECAL, I/O SCHEMATIC		A-DC-3615260-4-0	3
1	MNCDO SUB-ASSY		D-AD-7015106-0-0	2
1	CONN ASSY, I/O		D-IA-7014153-5-0	1

QUANTITY & VARIATION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES						
ANGLES 90° 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES						
SURFACE QUALITY IN	(CHECK ONE)	OVER 0	OVER 0.2	OVER 1.2	OVER 4.0	OVER 12.0	OVER 40.0	
MEDIUM	<input type="checkbox"/>	±.004	±.008	±.012	±.016	±.024	±.030	
MICROINCHES	PREFERRED <input type="checkbox"/>	±.012	±.016	±.025	±.04	±.063	±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH NONE

FIRST USED ON: MNCDO digital

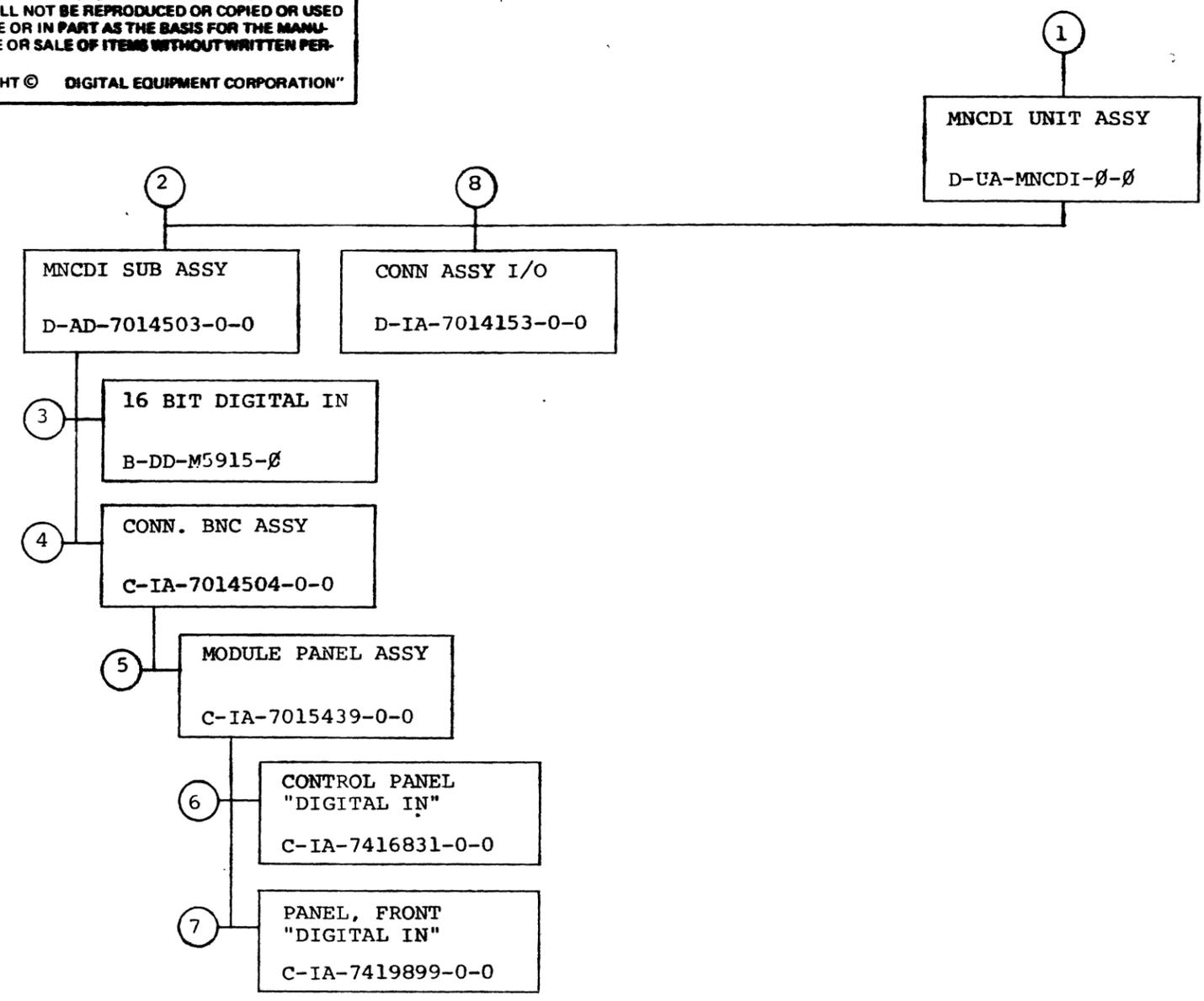
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SIZE CODE: D UA

NUMBER: MNCDO-2-0

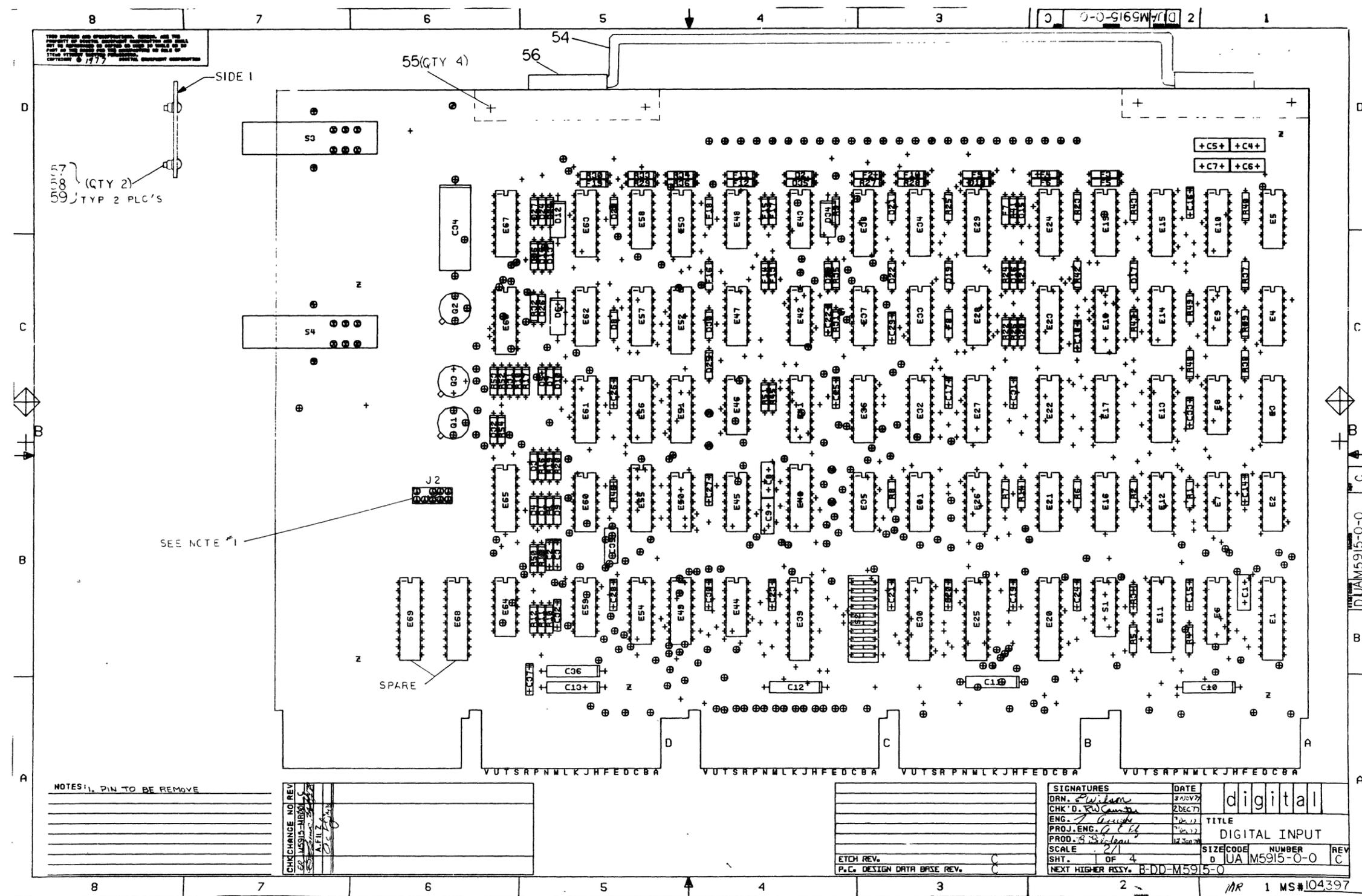
REV.:

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TITLE	MNC DI UNIT ASSY	SHEET 2 OF 3	SIZE CODE	B DD	NUMBER	MNC DI-Ø	REV	A
-------	------------------	--------------	-----------	------	--------	----------	-----	---

MR



THIS BOARD IS A SUB-ASSEMBLY. IT IS THE RESPONSIBILITY OF THE USER TO PROVIDE THE NECESSARY SUPPLY VOLTAGES AND CURRENTS TO THE BOARD. THE BOARD IS NOT TO BE USED IN A MANNER NOT INTENDED BY THE DESIGNER. © 1977

GROUP 7 (QTY 2)
TYP 2 PLC'S

SEE NOTE #1

SPARE

NOTES: 1. PIN TO BE REMOVE

CHANGE NO	REV	DATE	BY
01	1	12/20/77	A. HILZ
02	1	12/20/77	A. HILZ

ETCH REV.	P.C. DESIGN DATA BASE REV.
	C

SIGNATURES		DATE	TITLE
DRN. <i>William</i>		2/20/77	
CHK'D. <i>William</i>		2/20/77	
ENG. <i>William</i>		2/20/77	
PROJ. ENG. <i>William</i>		2/20/77	
PROD. <i>William</i>		12/20/77	
SCALE	2/1		SIZE CODE NUMBER REV
SHT. OF 4			D UA M5915-0-0 C
NEXT HIGHER ASSY. B-DD-M5915-0			

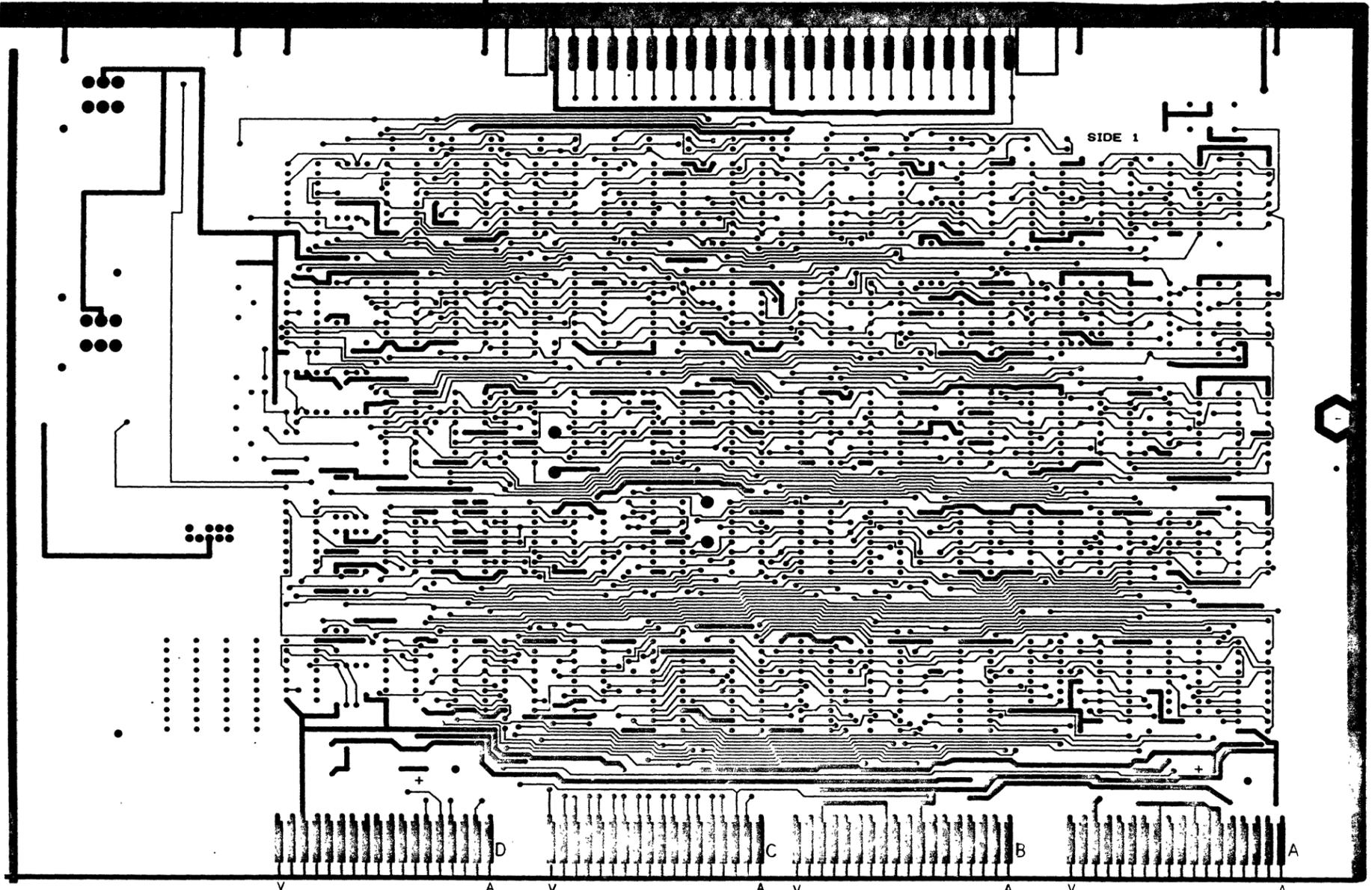
MR 1 MS#104397

8 7 6 5 4 3 2 1

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M5915 5012113C

DUA M5915-0-0 2



SIDE 1

D
C
B
A

D
C
B
A

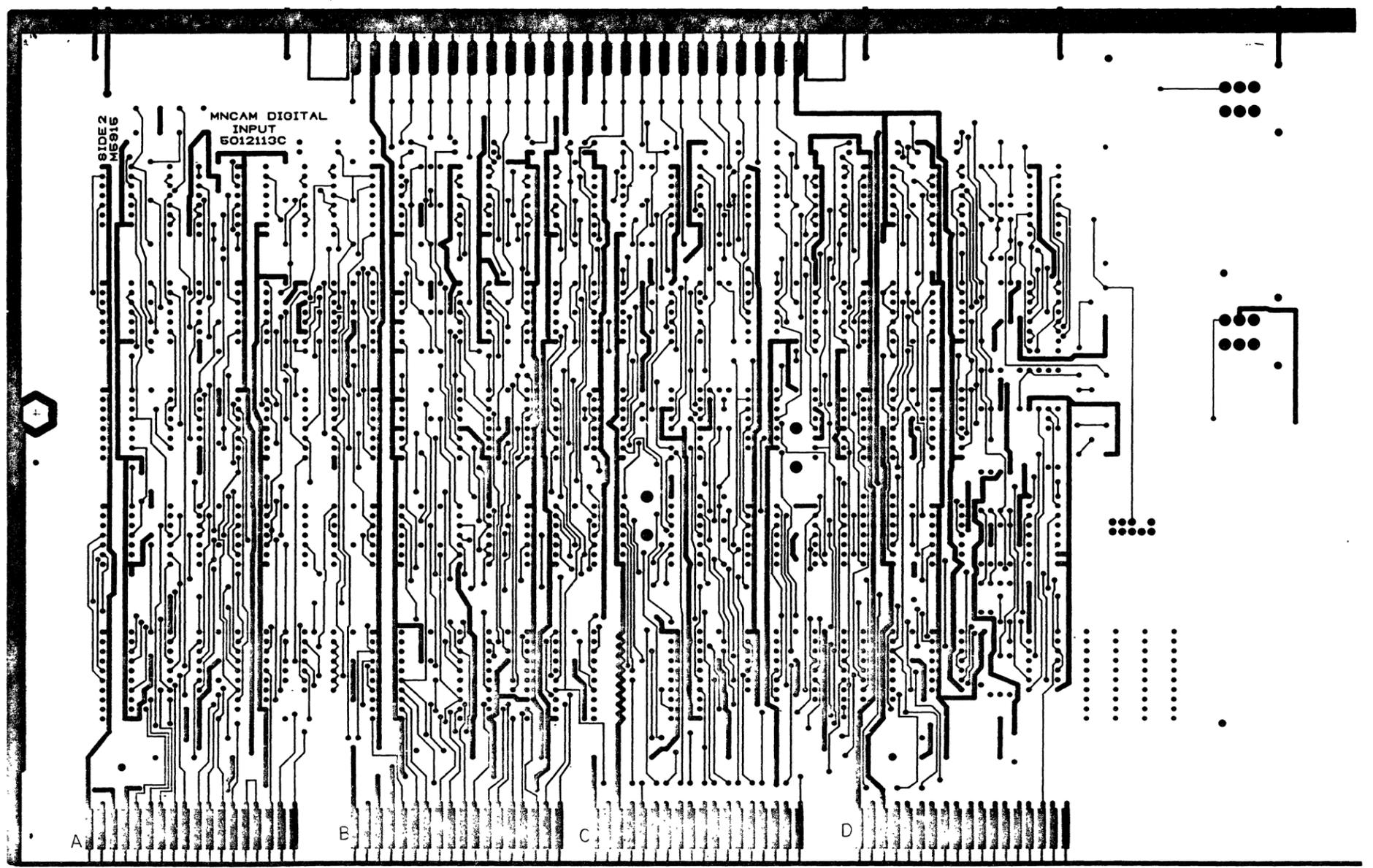
REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE CODE	NUMBER	REV
DIGITAL INPUT	DUA	M5915-0-0	C
SCALE 2/1	SHEET 2 OF 4	DIST	MR

8 7 6 5 4 3 2 1

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DUA M5915-0-0 2



REVISIONS		
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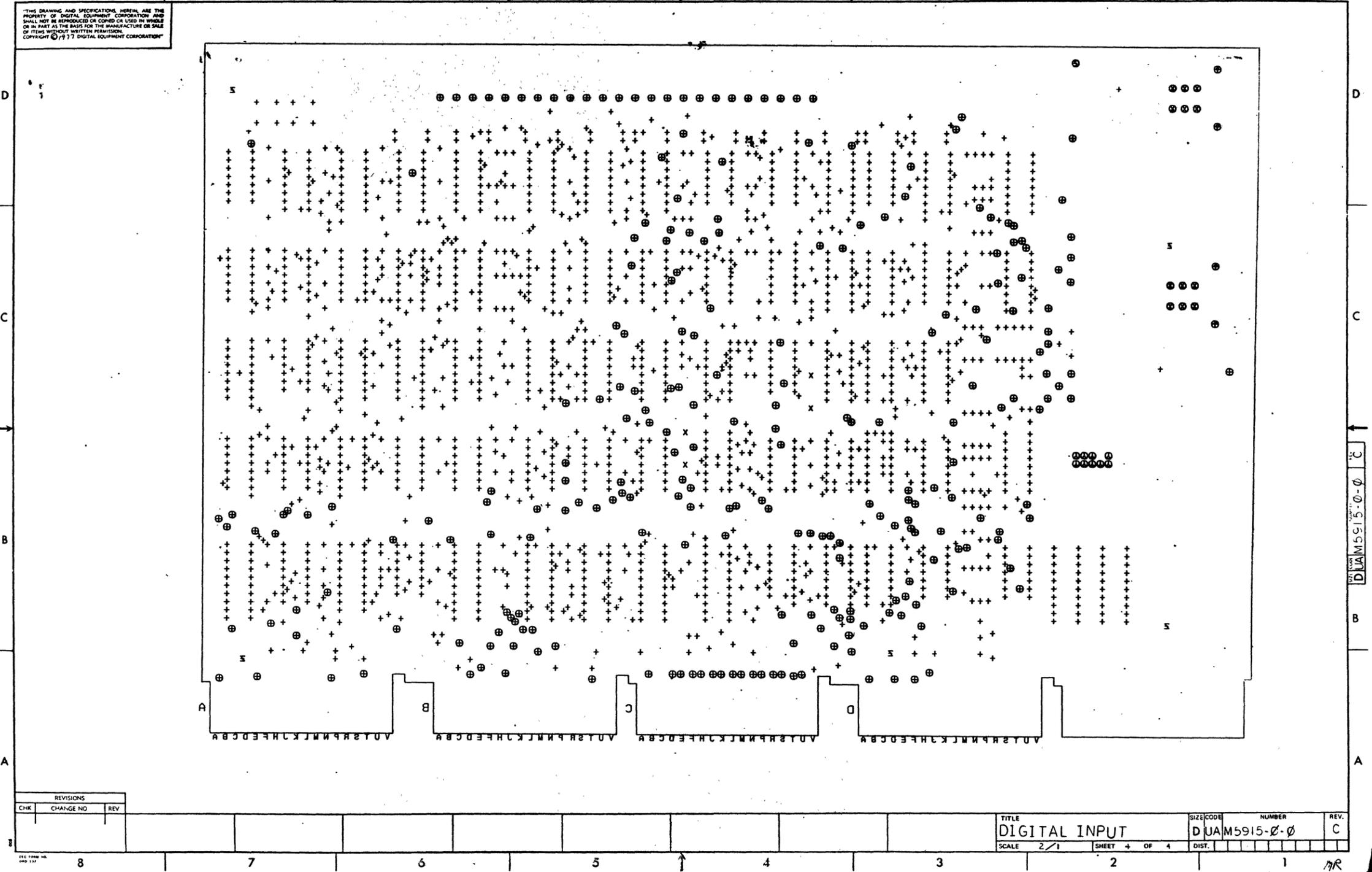
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DIGITAL INPUT	DUA M5915-0-0		C
SCALE 2/1	SHEET 3 OF 4	DIST	

DUA M5915-0-0 C

111

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DJA M5915-0-0 2



REVISIONS		
CHK	CHANGE NO	REV

TITLE
DIGITAL INPUT
SCALE 2/1 SHEET 4 OF 4 DIST. SIZE CODE NUMBER
DJA M5915-0-0 REV.
C

1120

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012113-0-0	5012113-00	M5915	1	
2	2		1000020-00	100.0 MMF 100V 5%200PPM DM15S	(10-00)	1 C1
3	3		1012784-00	.047 MFD 50V X% CER.		23 C2,C3,C14-C33,C37
4	4		1000026-00	600.0 MMF 100V 5%200PPM DM15S	(10-00)	4 C4-C7
5	5		1000014-00	68.0 MMF 100V 5%200PPM DM15S	(10-00)	1 C8
6	6		1000021-00	220.0 MMF 100V 5%200PPM DM15S	(10-00)	2 C9,C35
7	7		1004812-00	15 MFD 20V 10% 1500 S.TA	(10-00)	5 C10-C13,C36
8	8		1105796-00	1N 4004 PIV=400 I= 1A D041 SP		14 D1,D3,D4,D5,D7-D10,D13,D14, CONT D31,D32,D35,D36
9	9		1109943-00	1N 4733A VZ= 5.1 5% 1W Y		17 D2,D15-D30
10	10		1110232-00	HCL1304 CL04MA FROM10-80V		3 D6,D12,D34
11	11		1211164-06	SW,DIP 1P 1A 10POS		1 S2
12	12		1211164-03	SW,DIP 1P 1A 7PCS		1 S1
13	13		1300365-00	1 K 1/4W 5% CC	(13-00)	14 R1,R6-R8,R14,R19,R20,R41-R43, CONT R46-R49
14	14		1300295-00	330 1/4W 5% CC	(13-00)	8 R2,R4,R10,R12,R16,R18,R52,R54
15	15		1301424-00	600 1/4W 5% CC	(13-00)	2 R3,R5
16	16		1300439-00	3.3 K 1/4W 5% CC	(13-00)	17 R9,R21-R36
17	17		1310881-01	330 1/4W 1% FUSIBLE		3 R11,R17,R53
18	18		1300426-00	2.7 K 1/4W 5% CC	(13-00)	1 R13
19	19		1300271-00	220 1/4W 5% CC	(13-00)	4 R37-R40
20	20		1301874-00	5.6 K 1/4W 5% CC	(13-00)	2 R45,R51
21	21		1300309-00	390 1/4W 5% CC	(13-00)	1 R50
22	22		1300005-01	R NETWORK 13-1K RESISTORS 5% DIP	(13-00)	1 E48
23	23		1502155-00	DEC1000 NPN 5WC SI 45 25 M		3 Q1,Q2,Q3
24	24		1912729-00	DC 004 PROTOCOL,REG. SELECTOR		1 E1
25	25		1912801-00	LSC2 NOR-GATE-QUAD 2IN		2 E2,E7
26	26		1912951-00	DM 8556 COUNTER,BINARY,4BIT		4 E3,E27,E36,E56
27	27		1909686-00	7404 INVERTER GATE-HEX 1IN		1 E4
28	28		1912829-00	LS86 X-OF GATE-QUAD 2IN		1 E5

REVISION HISTORY			VARIATIONS FOR THIS ASSY.			FIRST USED ON:			DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
CHK	ECO NO	REV				MADE BY:	DATE:	TITLE			
---	INIT	B				F. WILSON	8-NOV-77	PARTS LIST			
ER	00001	C				P. W. CAUNTER	2-DEC-77	DIGITAL INPUT			
						T. ARPIGHI	3-DEC-77				
						B. RILEY	12-JAN-78		SIZE:CODE:	DOCUMENT NUMBER	REV
						A. FILZ	3-DEC-77		K PL	M5915-0-0	C
											EDIT#
											7

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113

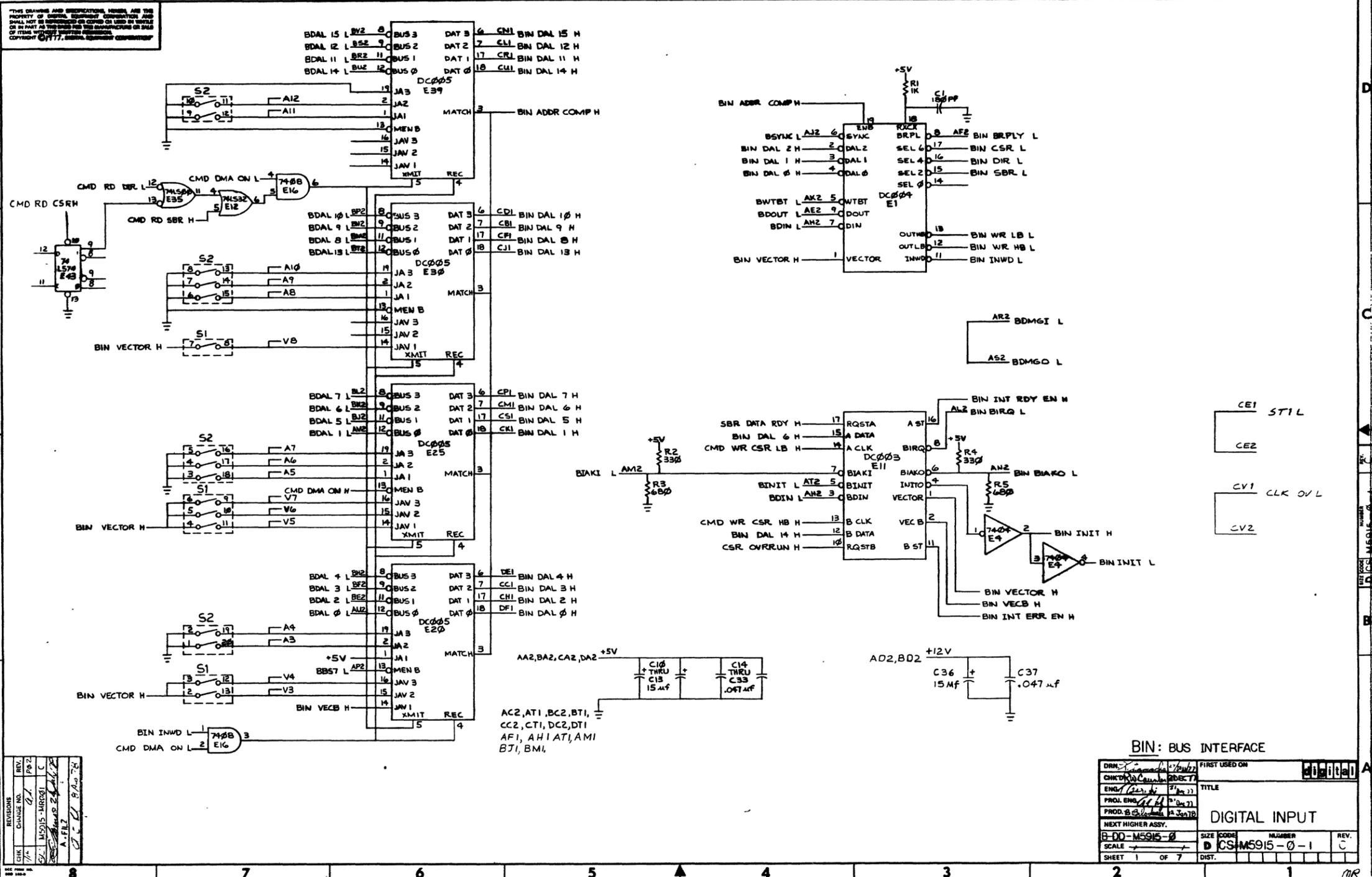
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29	29		1909934-00	8266 MUX 1 OF 2 (QUAD)	11	E6,E10,E15,E22,E23,E29,E41, CONT E51,E63,E65,E66
30	30		1912800-00	LS01 NAND-GATE-QUAD 2IN,POS. OPN CO	4	E8,E28,E42,E57
31	31		1912824-00	LS74 FF-D DUAL,EDGE TRIGGER,POS	11	E9,E14,E21,E33,E37,E43,E45, CONT E46,E47,E58,E63
32	32		1912730-00	DC 003 INTERRUPT,2 CIRCUIT	1	E11
33	33		1912816-00	LS32 OR GATE-QUAD 2IN,POSITIVE	2	E12,E60
34	34		1912647-00	LS257 MUX 1 OF 2 (QUAD) TRI-STA	4	E13,E18,E32,E61
35	35		1910155-00	DEC 7408 AND GATE,POS.QUAD 2IN 14	1	E16
36	36		1910651-00	DEC 74175 FF-D QUAD	1	E17
37	37		1909935-00	8235 MUX 1 OF 2 (QUAD) OPN COLLEC	4	E19,E34,E52,E53
38	38		1913040-00	DC 005 TRANSCEIVER 4BIT	4	E20,E25,E30,E39
39	39		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UNIBUS	3	E24,E38,E67
40	40		1911469-00	DEC 8640 RECEIVER,BUS,QUAD,UNIBUS,Q-BU	1	E26
41	41		1911324-00	7414 NAND GATE-HEX 1IN SCHMITT TRIG	1	E31
42	42		1912799-00	LS00 NAND-GATE-QUAD 2IN,POSITIVE	2	E35,E59
43	43		1910951-00	9602 ONE SHOT-DUAL	1	E40
44	44		1912805-00	LS08 AND GATE-QUAD 2IN,POSITIVE	1	E44
45	45		1912697-00	LS174 FF-D HEX W/CLEAR	2	E49,E54
46	46		1912803-00	LS04 INVERTER GATE-HEX 1IN	1	E50
47	47		1912845-00	LS153 MUX 1 OF 4 (DUAL) & DATA SFL	1	E55
48	48		1909928-00	7416 INVERTER GATE-HEX 1IN,(7406 FA	1	E64
49	49		1213488-00	CONN 10POS HOUSING	1	J2
50	50		1002839-00	20 MFD 50V G% 30D AL EL (10-12	1	C34
51	51		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X .187 LG	4	
52	52		9009122-00	FUSE, SUB-MINI, .062A, 125V, AXIAL LEAD	19	F1-F19
53	53		1214937-00	SW,PB 2P PUSH PUSH	2	S3,S4
54	54	C-MD-7420191-0-0	7420191-00	HANDLE	1	
55	55		9006732-00	EYELET, ROLLED FLANGE, .121 OD X .219 LG	4	
56	56	C-MD-7420191-0-0	7420192-00	HANDLE RETAINER	2	
57	57		9006000-01	SCREW,PAN,SLOT. 2-56X 3/16 SS/PAS	4	
58	58		9006555-00	NUT,HEX , 2-56X3/16AF X 1/16 THK SS/	4	
59	59		9006686-00	WASHER, LOCK, S.S. #2	4	

TITLE	PARTS LIST	SIZE/ CODE	DOCUMENT NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	DIGITAL INPUT	K PL	M5915-0-0	1C

MR

114

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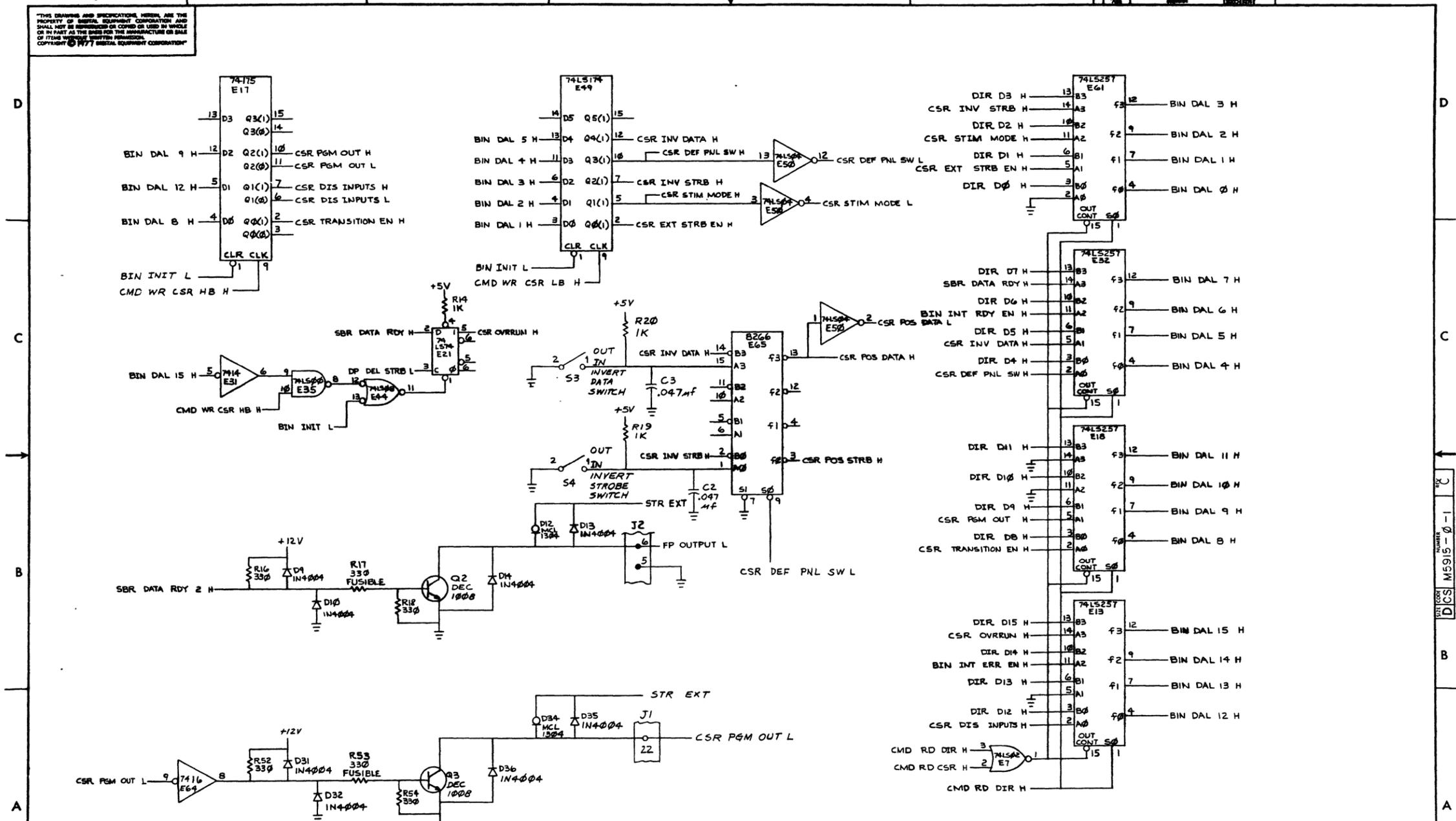


REVISIONS

REV.	CHANGE NO.	BY	DATE
1	P82	[Signature]	[Date]
2	[Blank]	[Signature]	[Date]

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1-0-5169W S3 D 2



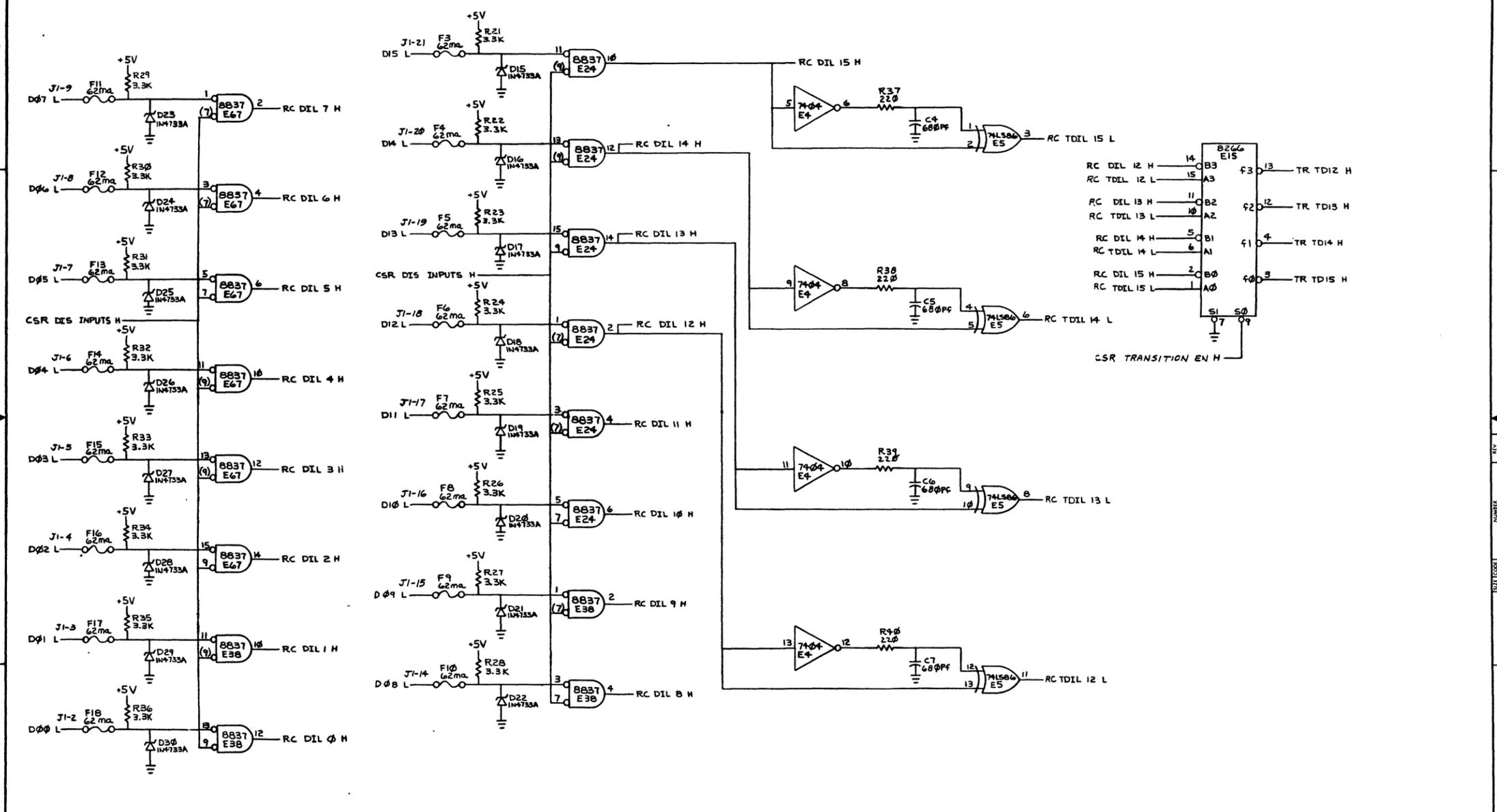
CSR: CONTROL & STATUS REGISTER

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE CODE	NUMBER	REV.
DIGITAL INPUT	DCS	M5915-0-1	C
SCALE	SHEET 3 OF 7	DIST.	

8 7 6 5 4 3 2 1 MR

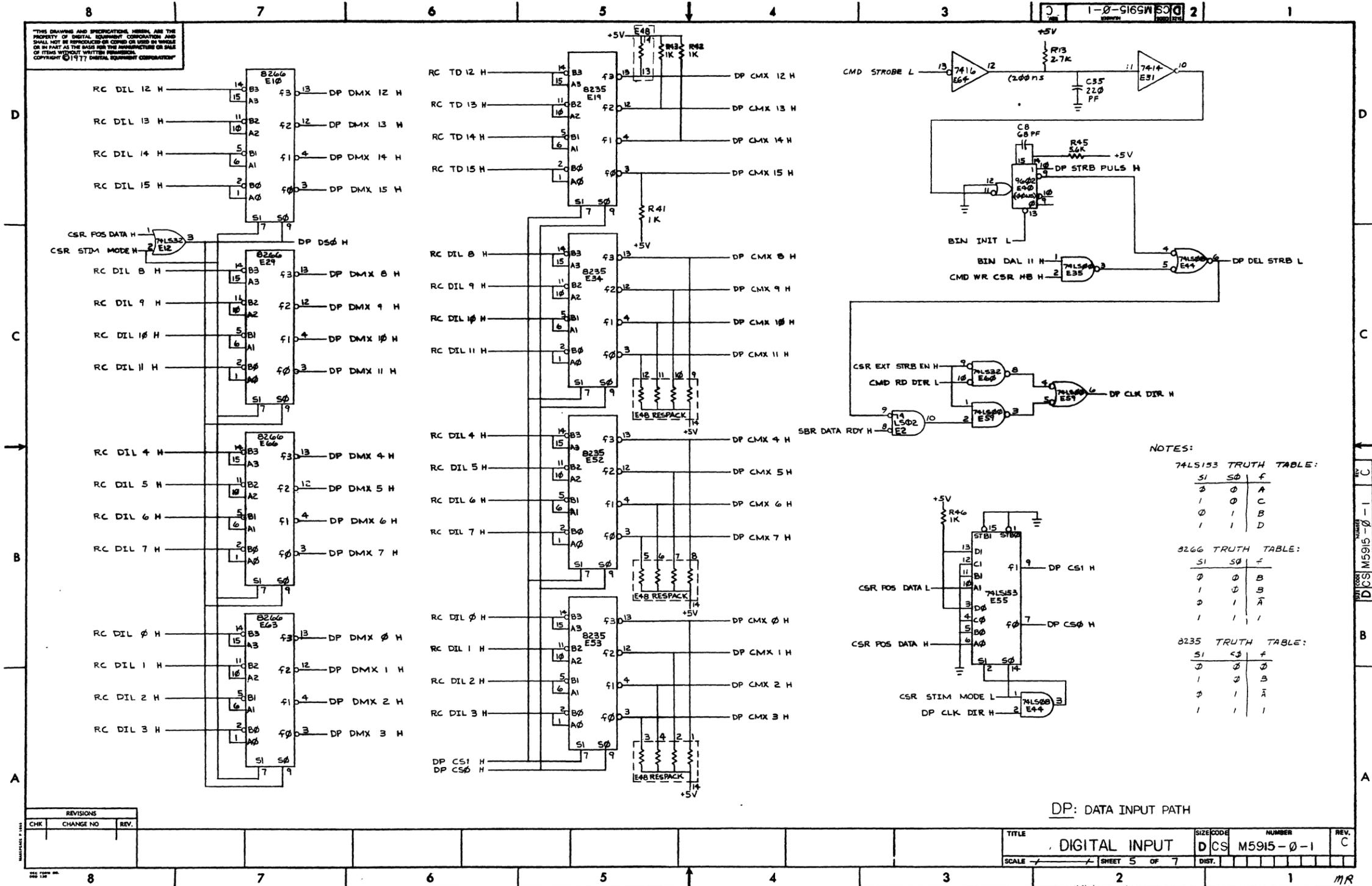
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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	DIGITAL INPUT	SIZE/CODE	D CS	NUMBER	M5915-0-1	REV.	C
SCALE		SHEET	4	OF	7	DIST.	

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NOTES:

74LS153 TRUTH TABLE:

S1	S0	f
0	0	A
1	0	C
0	1	B
1	1	D

8266 TRUTH TABLE:

S1	S0	f
0	0	B
1	0	S
0	1	A
1	1	I

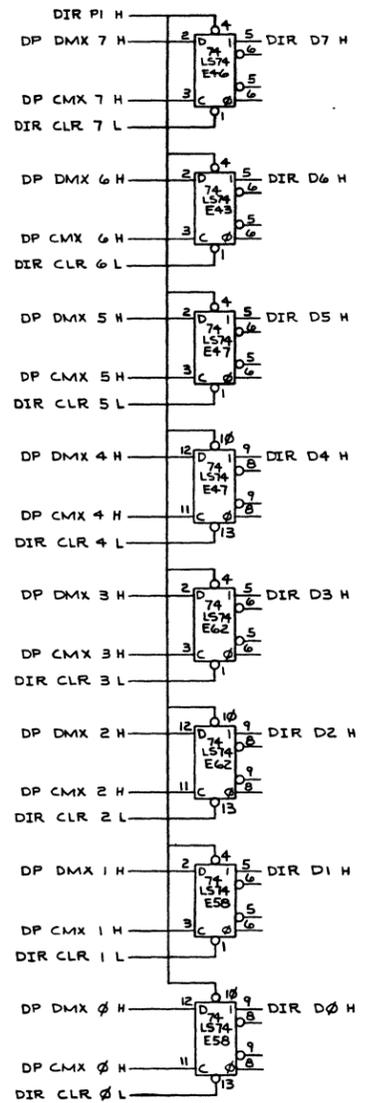
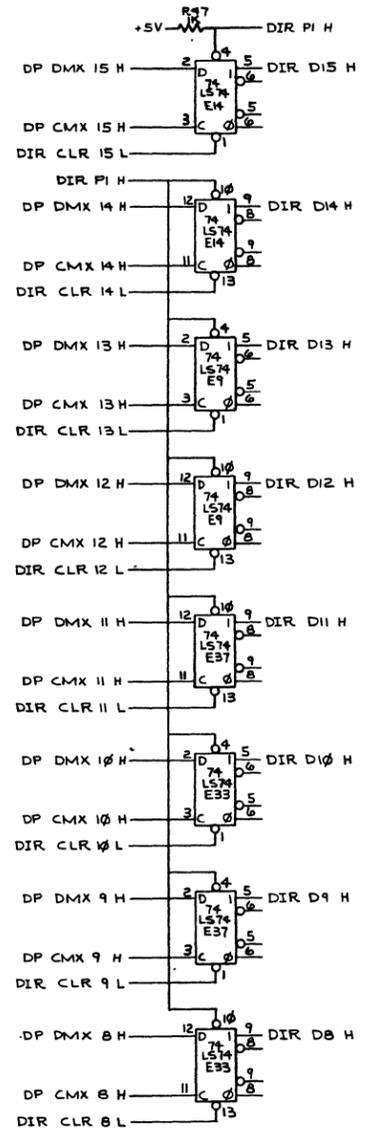
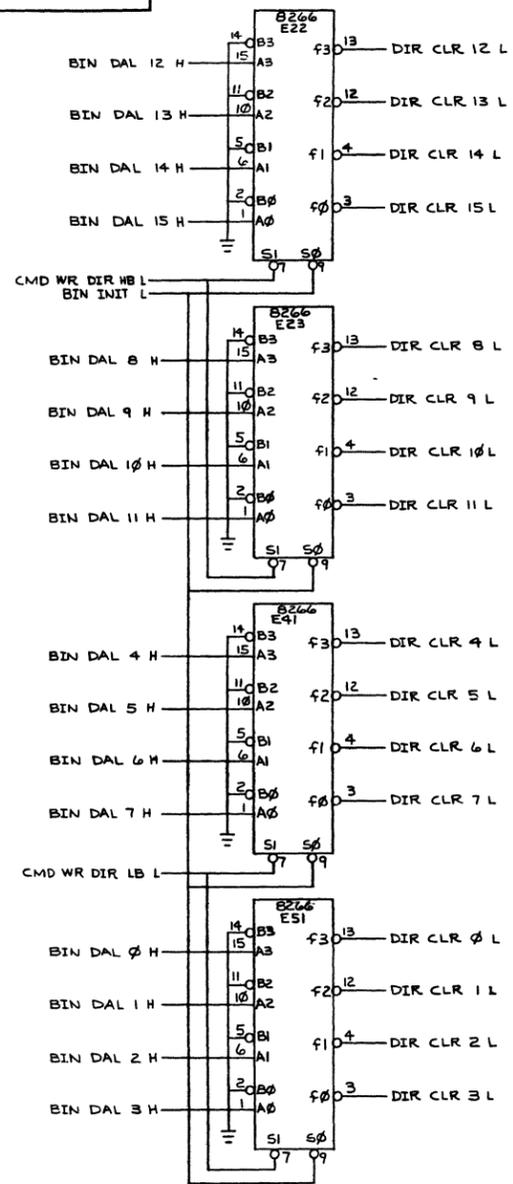
8235 TRUTH TABLE:

S1	S0	f
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1	0	B
0	1	A
1	1	I

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE/CODE	NUMBER	REV.
DIGITAL INPUT	DCS	M5915-0-1	C
SCALE	SHEET 5 OF 7	DIST.	

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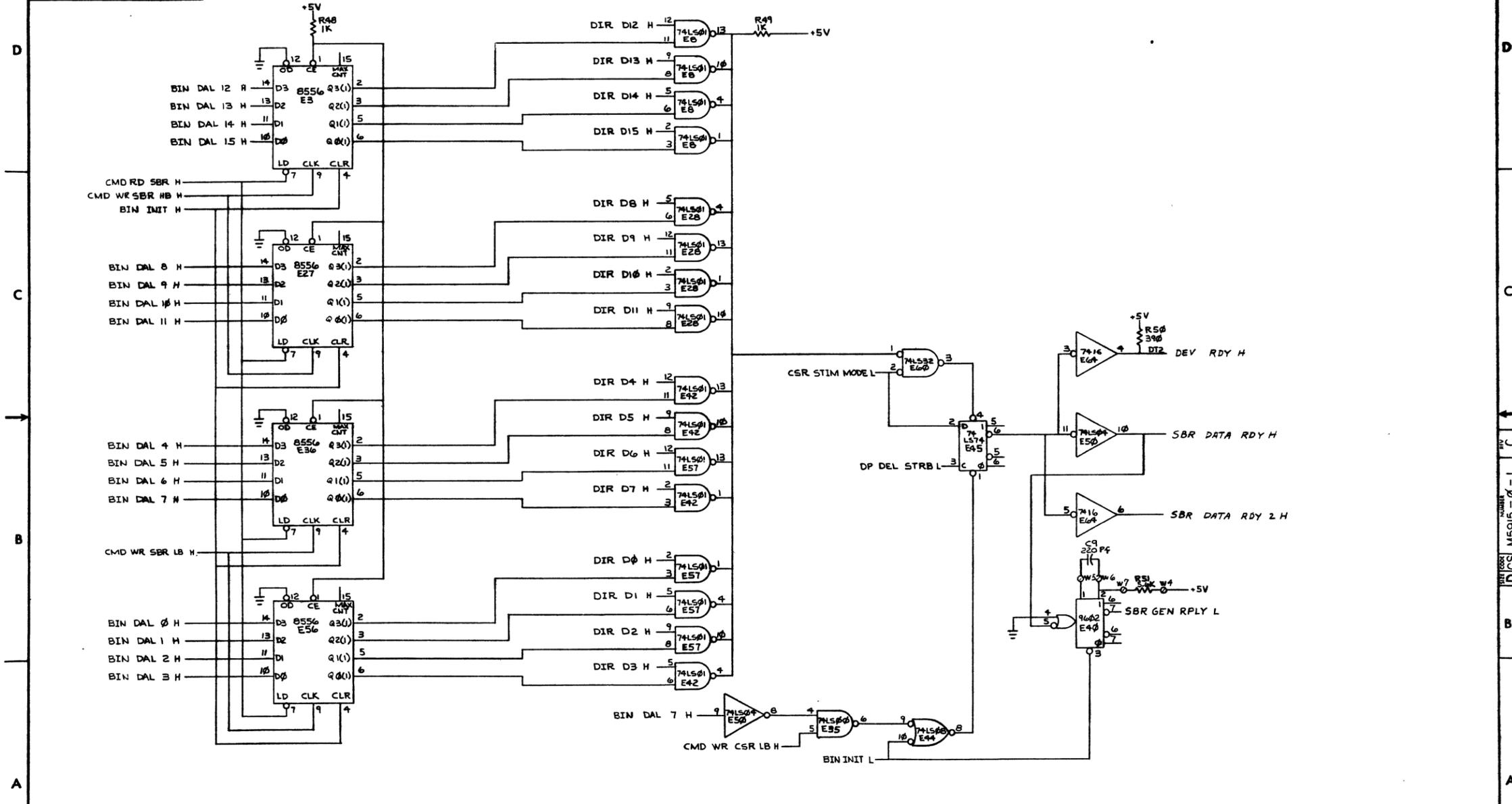
DIR : DATA INPUT REGISTER

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	DIGITAL INPUT	SIZE CODE	D CS	NUMBER	M5915-0-1	REV.	C
SCALE	1:1	SHEET	6	OF	7	DIST.	

SIZE CODE NUMBER DCS M5915-0-1

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SBR: STIMULUS BIT REGISTER

REVISIONS		
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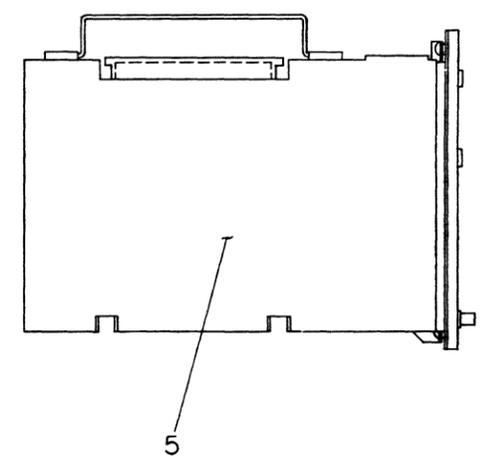
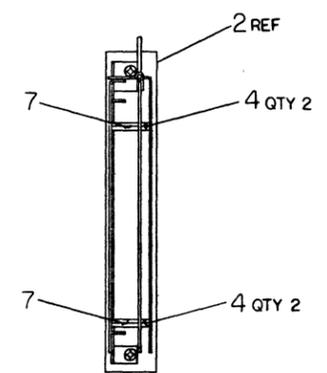
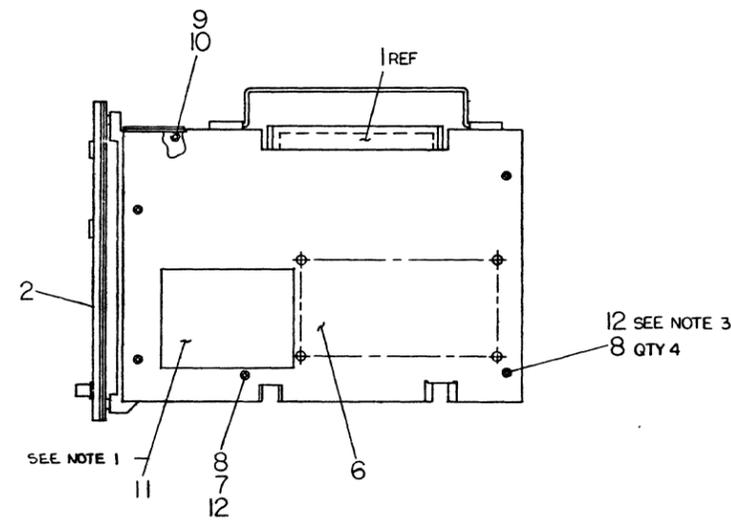
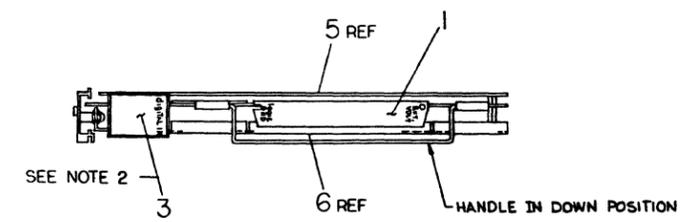
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DIGITAL INPUT	D/CS	M5915-0-1	C
SCALE	SHEET 7 OF 7	DIST.	

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Ø - Ø - IDJNW 1/16 2

NOTES

- ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
- ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
- USING ITEM #12 ADD ONE DROP TO EACH LOCATION.



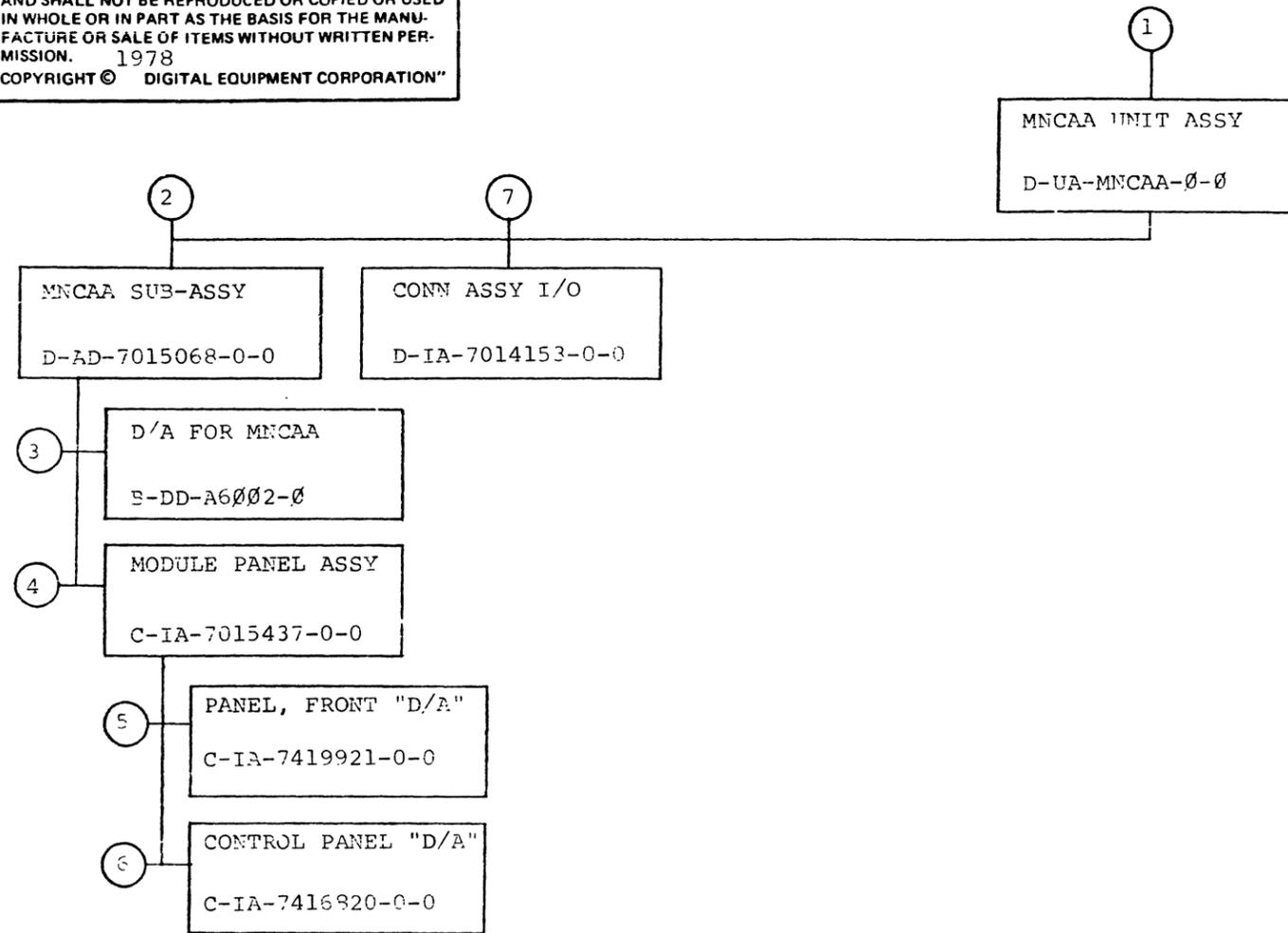
REF	CHKOUT #	ACCEPT. PROCEDURE	A-5P-MNCDI-Ø-3	13
A/R	LOCKTITE		9009321	12
1	DECAL, INFORMATION (MNCDI)		A-DC-3615264-5-0	11
1	NUT, KEPS #6-32		9008185	10
1	WASHER, FLAT		9006653	9
5	SCR, FLAT HD #6-32 x .25		9006020-02	8
3	SPACER, THREADED #6-32 x .88		9006861	7
1	PLATE, COMP. SIDE		D-MD-7419869-0-0	6
1	PLATE, ETCH SIDE		D-IA-7419868-0-0	5
4	SPACER, THREADED #6-32 x .25		9006841	4
1	DECAL, I/O SCHMETIC		A-DC-3615260-5-0	3
1	MNCDI SUB-ASSY		D-AD-7014503-0-0	2
1	CONN ASSY, I/O		D-IA-7014153-6-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		NOMINAL DIMENSION RANGE INCHES						
ANGLES 30° 30'	CLASS OF ACCURACY (CHECK ONE)	OVER		OVER		OVER		
		0 TO	0.2 TO	0.2 TO	0.5 TO	0.5 TO	0.5 TO	
	MEDIUM	0.004	0.008	0.012	0.016	0.020	0.024	
	PREFERRED	0.012	0.016	0.020	0.024	0.028	0.032	

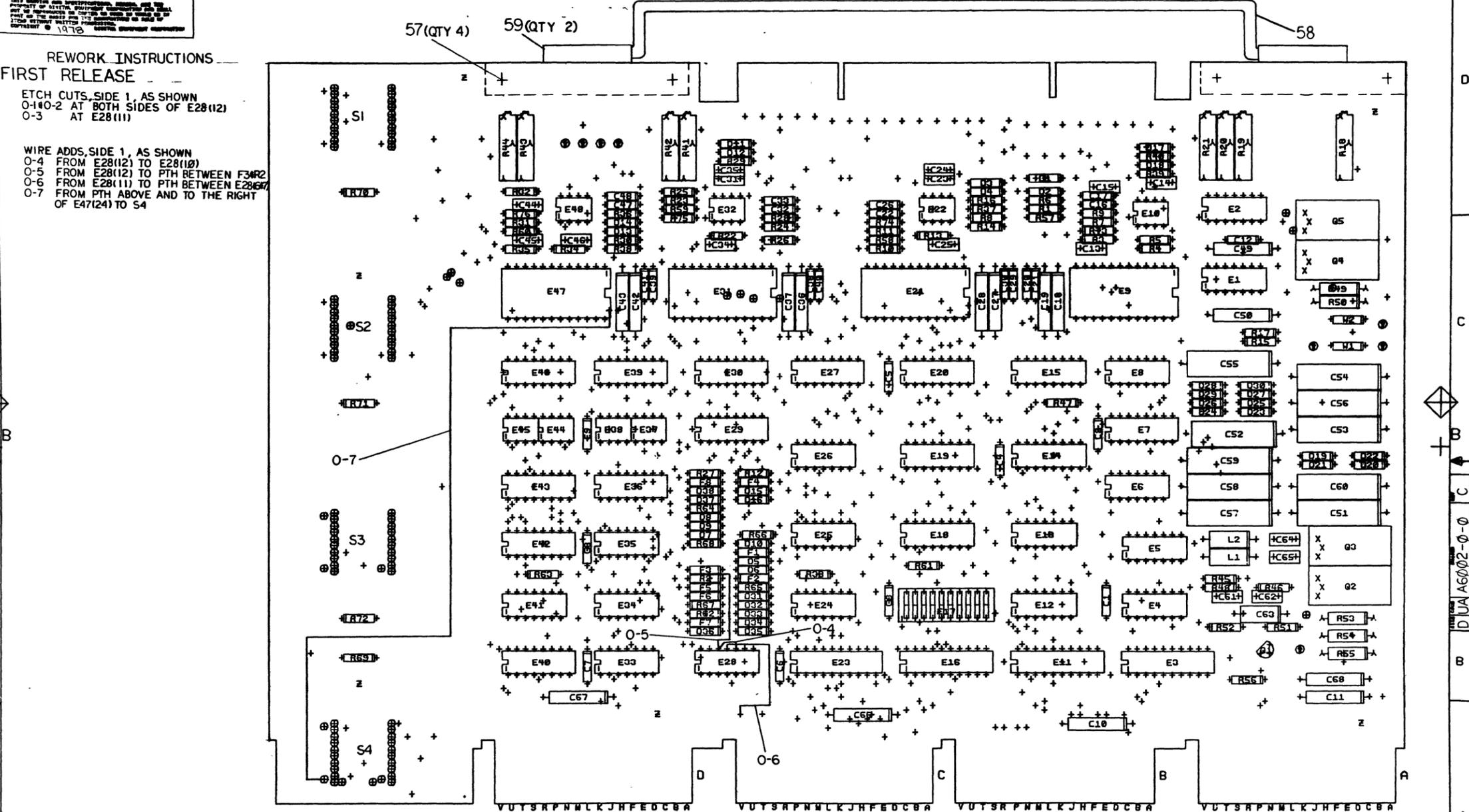
THIRD ANGLE PROJECTION	DRN. <i>A. Nelson</i>	FIRST USED ON	MNCDI
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>[Signature]</i>	TITLE	MNCDI UNIT ASSY
DO NOT SCALE DWG	ENG. <i>[Signature]</i>	SIZE	D
MATERIAL SEE PARTS LIST	PROJ. ENG. <i>[Signature]</i>	CODE	UA
FINISH NONE	PROD. <i>[Signature]</i>	NUMBER	MNCDI-Ø-Ø
		REV.	

REV. 1
DATE
BY

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TITLE	MNCAA UNIT ASSY	SIZE CODE	NUMBER	REV
	SHEET 2 OF 3	B DD	MNCAA-Ø	A



REWORK INSTRUCTIONS
FIRST RELEASE
 ETCH CUTS, SIDE 1, AS SHOWN
 0-1-0-2 AT BOTH SIDES OF E28(12)
 0-3 AT E28(11)

WIRE ADDS, SIDE 1, AS SHOWN
 0-4 FROM E28(12) TO E28(10)
 0-5 FROM E28(12) TO PTH BETWEEN F34R2
 0-6 FROM E28(11) TO PTH BETWEEN E28(12)
 0-7 FROM PTH ABOVE AND TO THE RIGHT
 OF E47(24) TO S4

NOTES: DO NOT INSERT R73 THRU R76. SPARES

CHANGE NO.	REV.

ETCH REV.	D
P.C. DESIGN DATA BASE REV.	D

SIGNATURES	DATE
DRM. <i>[Signature]</i>	5/11/78
CHK'D <i>[Signature]</i>	4/25/78
ENG. <i>[Signature]</i>	7/11/78
PROJ. ENG. <i>[Signature]</i>	7/21/78
PROD. <i>[Signature]</i>	2/2/78

digital		
TITLE	D/A	
SIZE CODE	NUMBER	REV
D UA	A6002-0-0	C

8

7

6

5

4

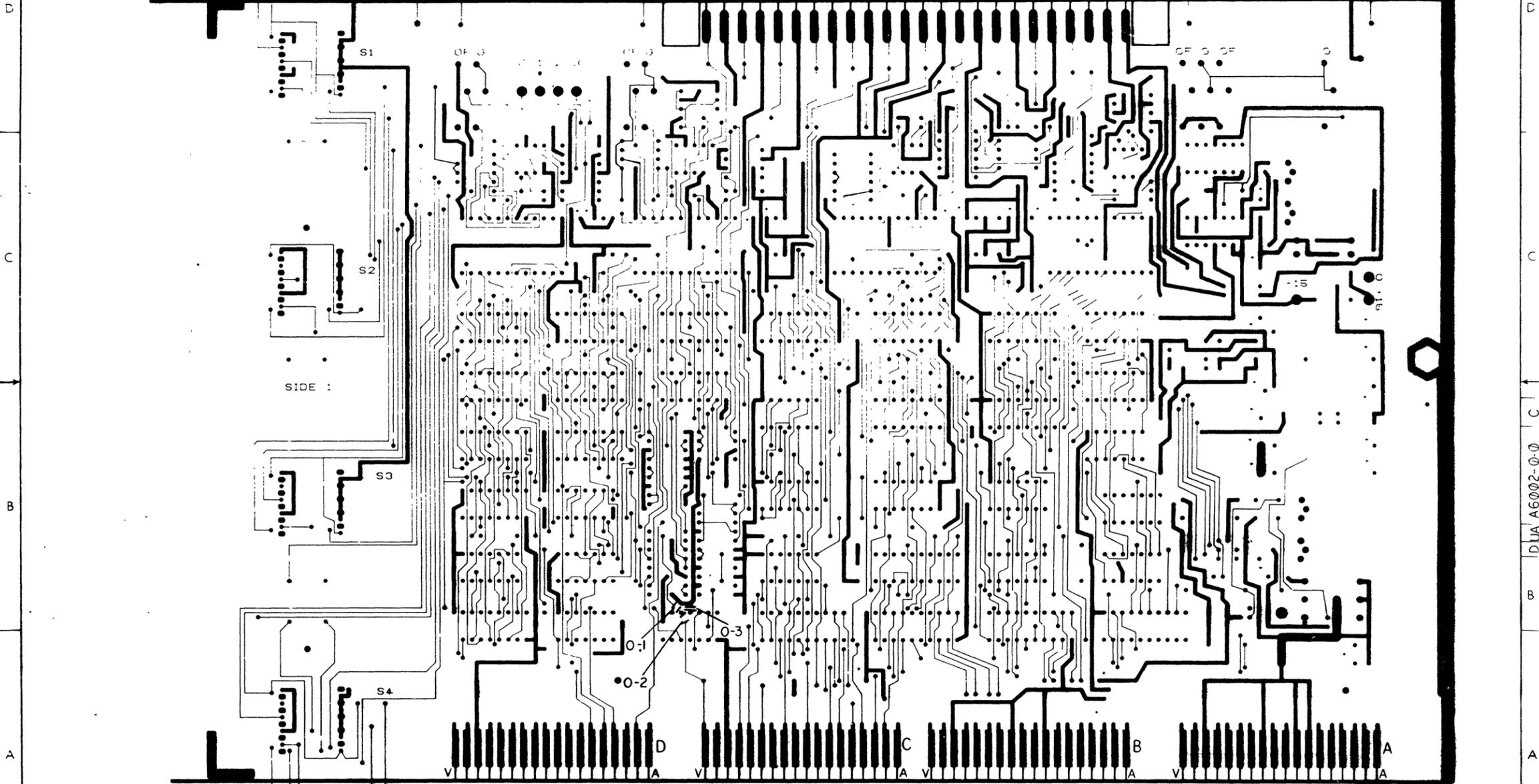
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D/LA A6002-0-0 2 C

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1978
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A6002 50121120



REVISIONS		
NO.	DATE	BY

Title: D/A
 Part: D/LA A6002-0-0
 Rev: C
 2/1 2 4

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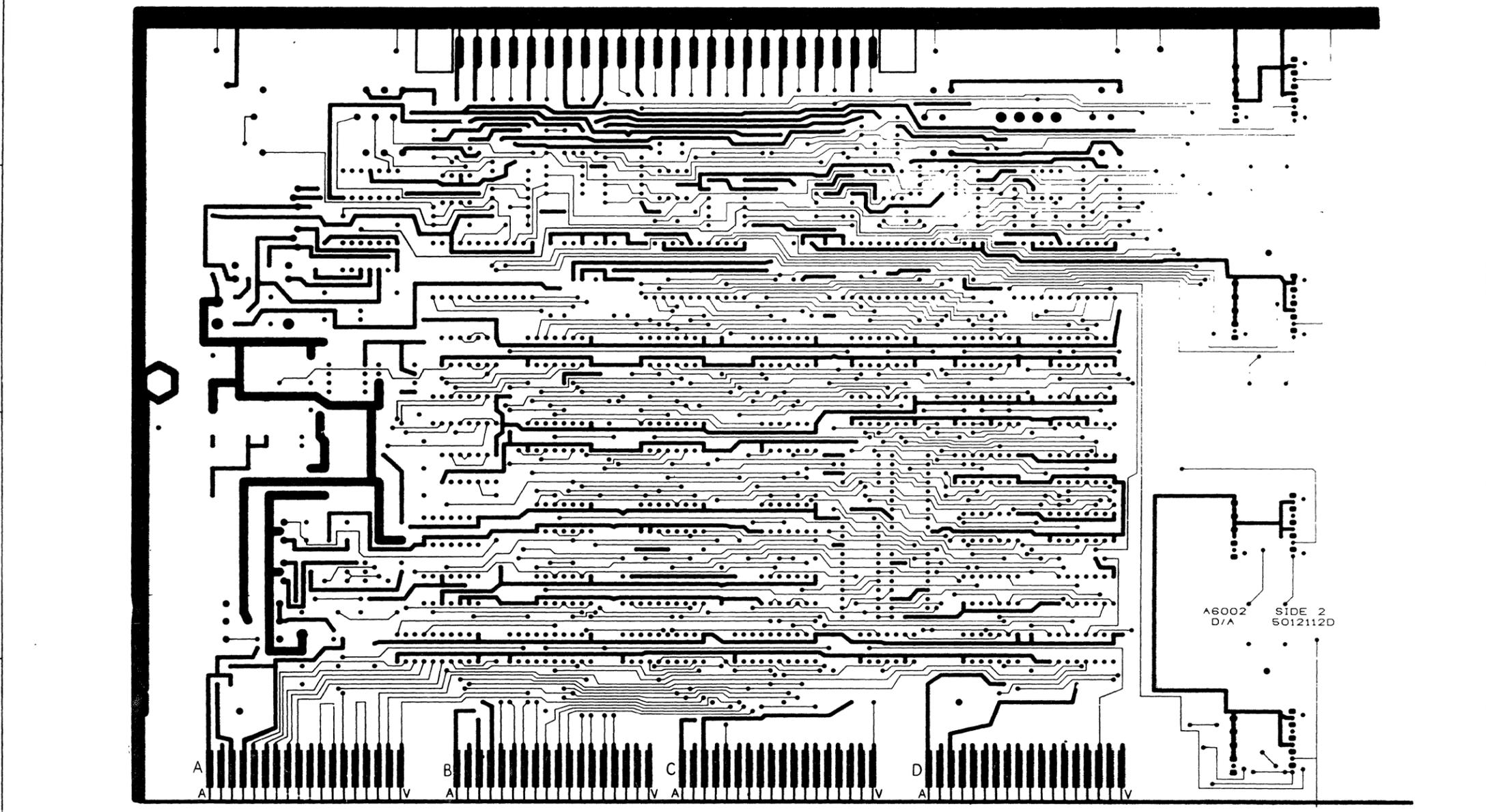
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130

8 7 6 5 4 3 2 1

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DATE: 1962

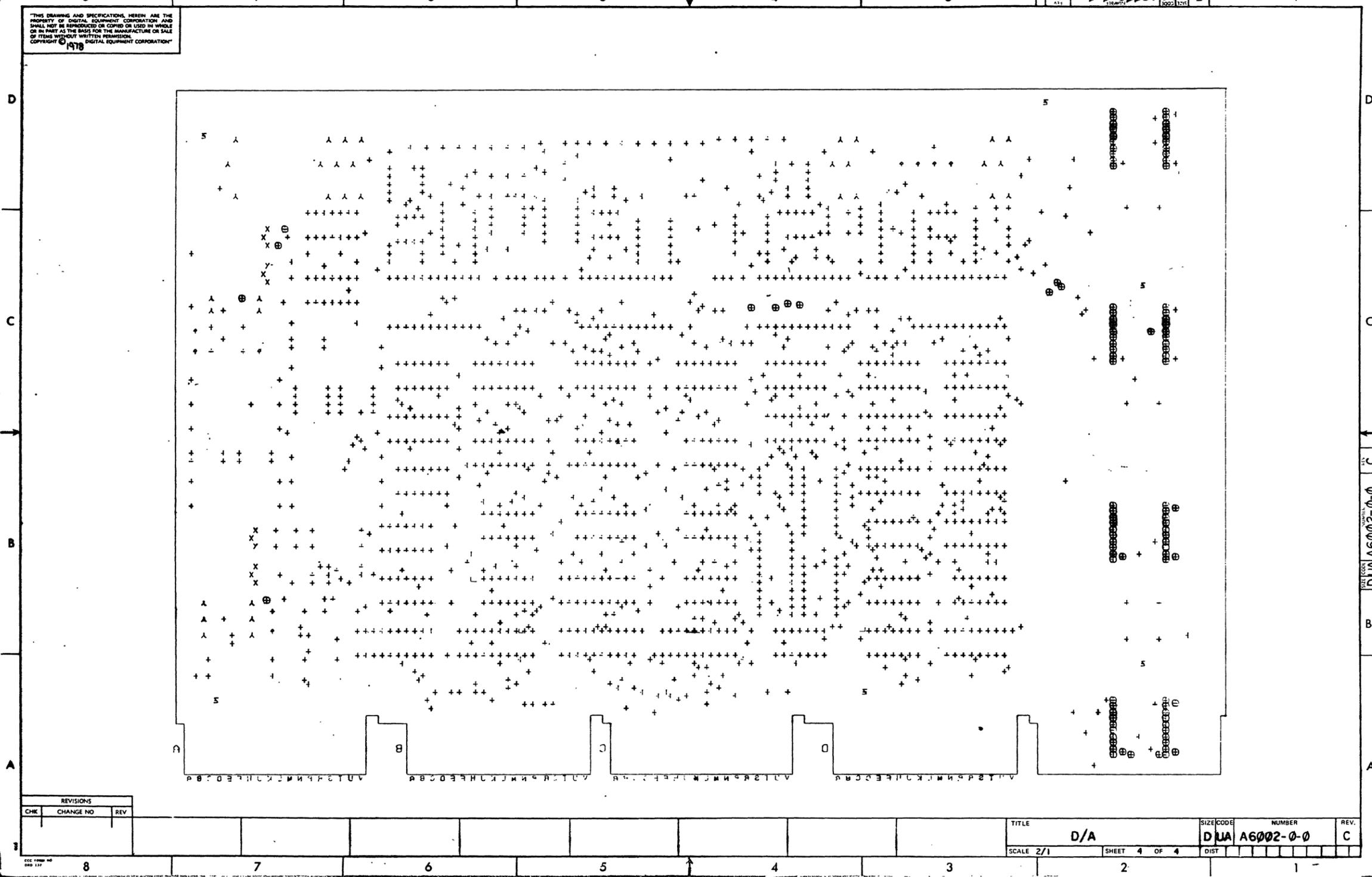
TITLE	D/A	REV	C
SCALE	2/1	NUMBER	DUA A6002-0-0
	SHEET 3 OF 4		

8 7 6 5 4 3 2 1

131

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0-2009V MTC 2



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE CODE	NUMBER	REV.
D/A	DUA	A6002-0-0	C
SCALE 2/1	SHEET 4 OF 4	DIST	

1320

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012112-0-0	5012112-00	ETCH BD (A6002)	1	
2	2		1012784-00	.047 MFD 50V XZ CER. #	26	C1-C9,C12,C16,C17,C20,C21,C22, CONT C26,C29,C30,C32,C33,C38,C39, CONT C40,C41,C47,C48
3	3		1004812-00	15 MFD 20V 10% 150D S.TA (10-00)	15	C10,C11,C18,C19,C27,C28,C36, CONT C37,C42,C43,C49,C50,C66,C67, CONT C68
4	4		1001610-01	.01 MFD 100V OR 50V Z5U DISC/800PF MIN	10	C13,C15,C24,C25,C34,C35,C44, CONT C45,C64,C65
5	5		1000015-00	82.0 MMF 100V 5%200PPM DM15S (10-00)	4	C14,C23,C31,C46
6	6		1002433-00	22 MFD 35V 20% 150D S.TA (10-00)	6	C51,C52,C54,C55,C59,C60
7	7		1005335-00	39 MFD 20V 10% 150D S.TA (10-00)	4	C53,C56,C57,C58
8	8		1001631-00	390.0 MMF 100V 5%200PPM DM15S (10-00)	2	C61,C62
9	9		1001776-00	1 MFD 35V 10% 150D S.TA (10-00)	1	C63
10	10		1105275-00	D 672 TR= 15NS PIV= 60V SP	36	D1-D16,D19-D38
11	11		1109502-00	1N 4742 VZ= 12.0 10% 1W Y	2	D17,D18
12	12		1303226-00	68.1 1/4W 1% RN55D-F 100PPM (13-00)	8	R1,R10,R23,R34,R69-R72
13	13		1300365-00	1 K 1/4W 5% CC (13-00)	18	R2,R12,R27,R33,R39,R40,R45, CONT R47,R51,R56,R61-R68
14	14		1300479-00	10 K 1/4W 5% CC (13-00)	6	R3,R13,R22,R35,R46,R48
15	15		1300207-00	50 1/4W 1% RN55C-F 50PPM (13-00)	4	R4,R11,R25,R31
16	16		1311653-00	2.15 K 1/4W 1% RN55D-F 100PPM (13-00)	4	R5,R14,R28,R32
17	17		1310881-02	47 1/4W 1% FUSIBLE	4	R6,R16,R29,R36
18	18		1302398-00	470 K 1/4W 5% CC (13-00)	4	R7,R24,R30,R37
19	19		1309595-00	1 M 1/4W 5% CC (13-00)	4	R8,R9,R26,R38
20	20		1310881-00	1 K 1/4W 1% FUSIBLE	2	R15,R17
21	21		1309143-05	200 3/4W10% POT 100PPM	4	R18,R20,R41,R43
22	22		1309143-11	20 K 3/4W20% POT 100PPM	4	R19,R21,R42,R44
23	23		1309444-00	2.7 1/2W 10% CC (13-00)	2	R49,R50
24	24		1300250-00	150 1/4W 5% CC (13-00)	1	R52

REVISION HISTORY			VARIATIONS FOR THIS ASSY.		
CHK	ECO NO	REV	FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
	INIT	C	00	MADE BY: A STEVENS	DATE: 16-FEB-78
				CHECKED: R.W.CAUNTER	DATE: 16-FEB-78
				DSN.ENG.: A.E.FILZ	DATE: 29-MAR-78
				PROD.: R.REBELLO	DATE: 29-MAR-78
				RESP.ENG.: A.E.FILZ	DATE: 29-MAR-78
				ASSY.NO.: D-UA-A6002-0-0	EDIT# 6

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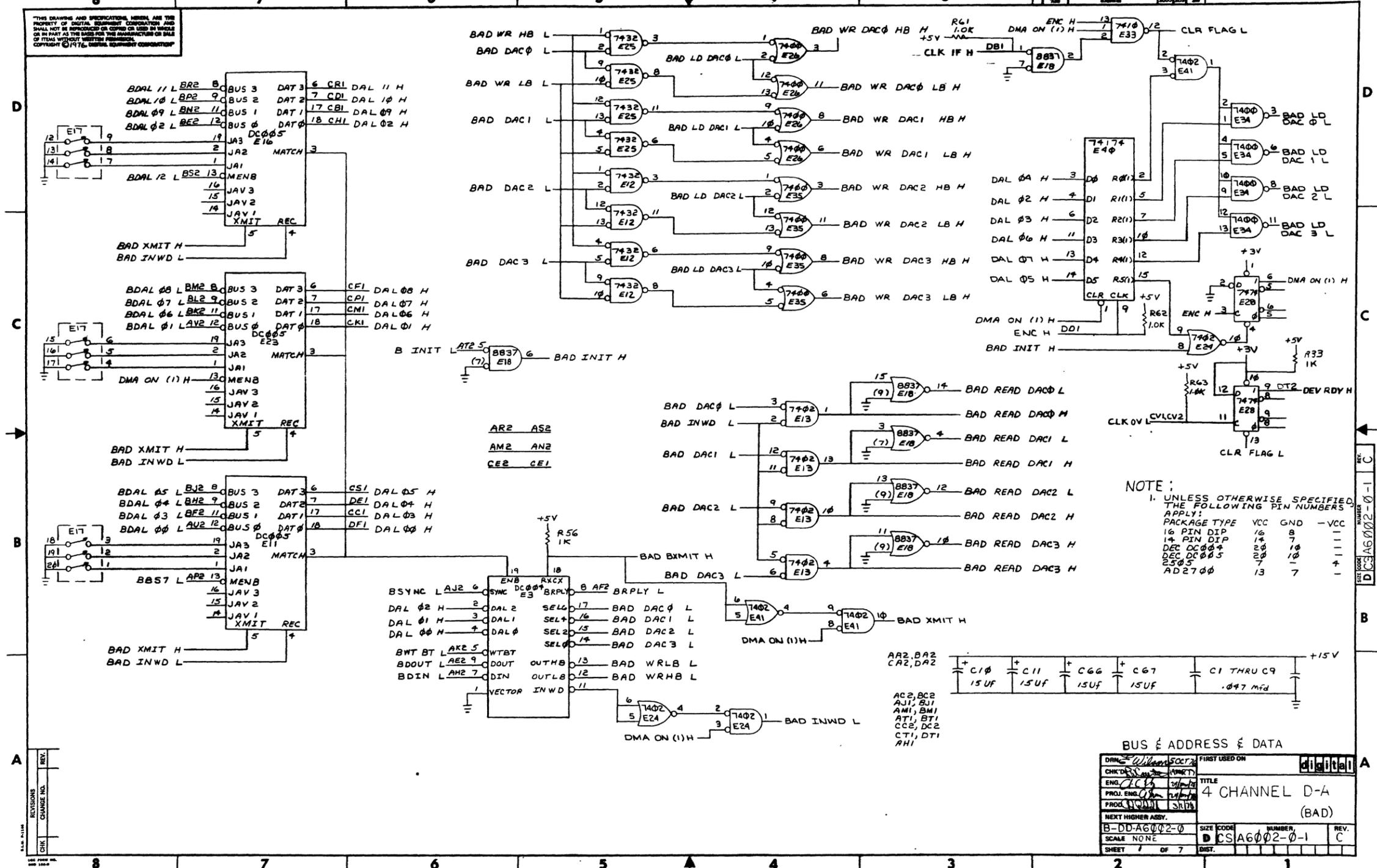
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25	25		1300315-00	470 1/2W 5% CC (13-00	2	R53,R54
26	26		1301781-00	82 1/2W 5% CC (13-00	1	R55
27	27		1302873-00	261 1/4W 1% RN55D-F 100PPM (13-00	4	R57,R58,R59,R60
28	28		1503409-00	DEC6534D PNP 310MW SI 40 90 P	1	Q1
29	29		1510414-00	D 45C6 PNP 30WT SI 45 20 Y	1	Q2
30	30		1510171-00	D 44C3 NPN 30WT SI 30 20 Y	3	Q3,Q4,Q5
31	31		1603377-00	.22UH 10% 2.7A #WEE.22	2	L1,L2
32	32		1913218-00	325 VOLT.REG.FIX +/-15V 50MA 14	1	E1
33	33		1913219-00	AD 2700/L ANALOG SWITCH 10V PRECISION RE	1	E2
34	34		1912729-00	DC 004 PROTOCOL,REG. SELECTOR	1	E3
35	35		1909054-00	7493 COUNTER,ASYNCH UP,BINARY	1	E4
36	36		1909686-00	7404 INVERTER GATE-HEX 1IN	1	E5
37	37		1905576-00	7410 NAND GATE-TRIPLE 3IN	2	E6,E33
38	38		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIGGERABLE	1	E7
39	39		1910741-00	7406 INVERTER GATE-HEX 1IN,BUFFER,0	1	E8
40	40		1912401-00	AD562 DAC,12BIT,MULT	4	E9,E21,E31,E47
41	41		1911144-00	DEC 2505 OP AMP .1% SETTLE	4	E10,E22,E32,E48
42	42		1913040-00	DC 005 TRANSCEIVER 4BIT	3	E11,E16,E23
43	43		1911521-00	7432 OR GATE-QUAD 2IN, POSITIVE	2	E12,E25
44	44		1909004-00	DEC 7402 NOR GATE-QUAD 2IN	3	E13,E24,E41
45	45		1912951-00	DM 8556 COUNTER,BINARY,4BIT	12	E14,E15,E19,E20,E27,E29,E30,
					CONT	E36,E39,E42,E43,E46
46	46		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UNIBUS	1	E18
47	47		1905575-00	7400 NAND GATE-QUAD 2IN	3	E26,E35,E34
48	48		1905547-00	DEC 7474 FF-D DUAL,EDGE TRIGGER,15MHZ	1	E28
49	49		1910645-00	75452 DRIVER,PERIPH,DUAL,NAND	2	E37,E44
50	50		1910406-00	75451 DRIVER,PERIPH,DUAL,AND	2	E38,E45
51	51		1910652-00	74174 FF-D HEX	1	E40
52	52		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X .187 LG	8	TP1-TP8
53	53		9009122-00	FUSE, SUB-MINI, .062A, 125V, AXIAL LEAD	8	F1-F8
54	54		9009185-00	JUMPER, WIRE, INSULATED, BLACK BAND	2	W1,W2
55	55		1211164-06	SW,DIP 1P 1A 10POS \$	1	E17
56	56		1214354-00	SW,ROT 3P 4A 2 SECTION	4	S1-S4
57	57		9006732-00	EYELET, ROLLED FLANGE, .121 OD X .219 LG	4	
58	58	C-MD-7420191-0-0	7420191-00	HANDLE	1	
59	59	C-MD-7420192-0-0	7420192-00	HANDLE RETAINER	2	

DIGITAL EQUIPMENT CORPORATION		TITLE	PARTS LIST	SIZE	CODE	DOCUMENT NUMBER	REV
MAYNARD, MASSACHUSETTS		D/A		K	PL	A6002-0-DBP *	C

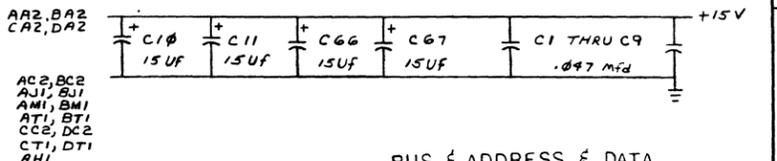
130

1-0-20094S02

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NOTE:
 1. UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:
 PACKAGE TYPE VCC GND -VCC
 16 PIN DIP 16 8 -
 14 PIN DIP 14 7 -
 DEC DC005 20 10 -
 DEC DC005 20 10 -
 2505 7 - +
 AD2700 13 7 -

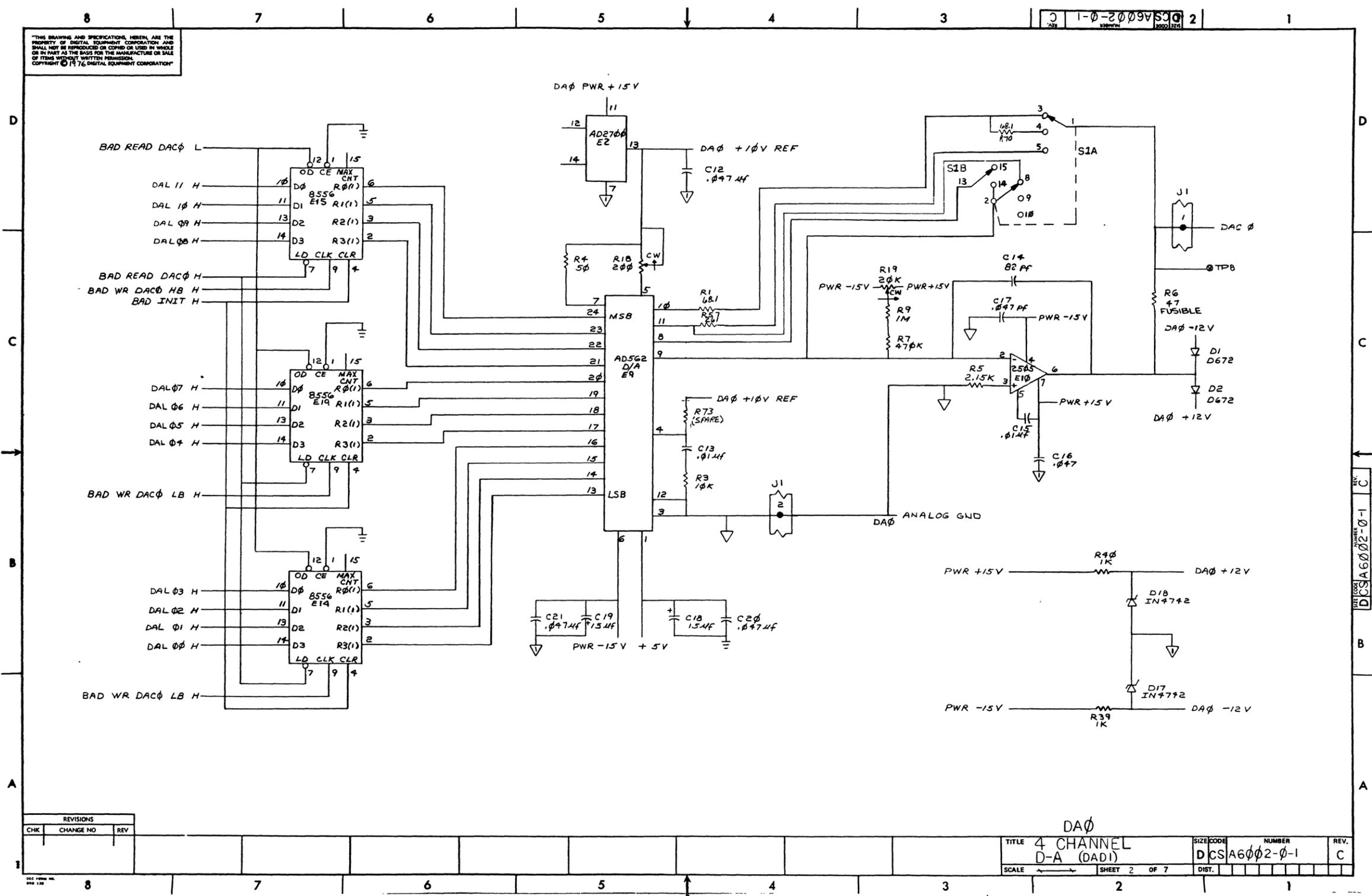


BUS ADDRESS DATA

DRN: <i>William Scott</i>	FIRST USED ON	<i>10/10/77</i>
CHK'D: <i>...</i>	TITLE	4 CHANNEL D-A
ENG: <i>...</i>		(BAD)
PROJ. ENG: <i>...</i>	SIZE	D
PROD. NO: <i>...</i>	CODE	CSA6002-0-1
NEXT HIGHER ASSY.	NUMBER	C
B-DD-A6002-0	SCALE	NONE
SHEET 1 OF 7	DIST.	

135

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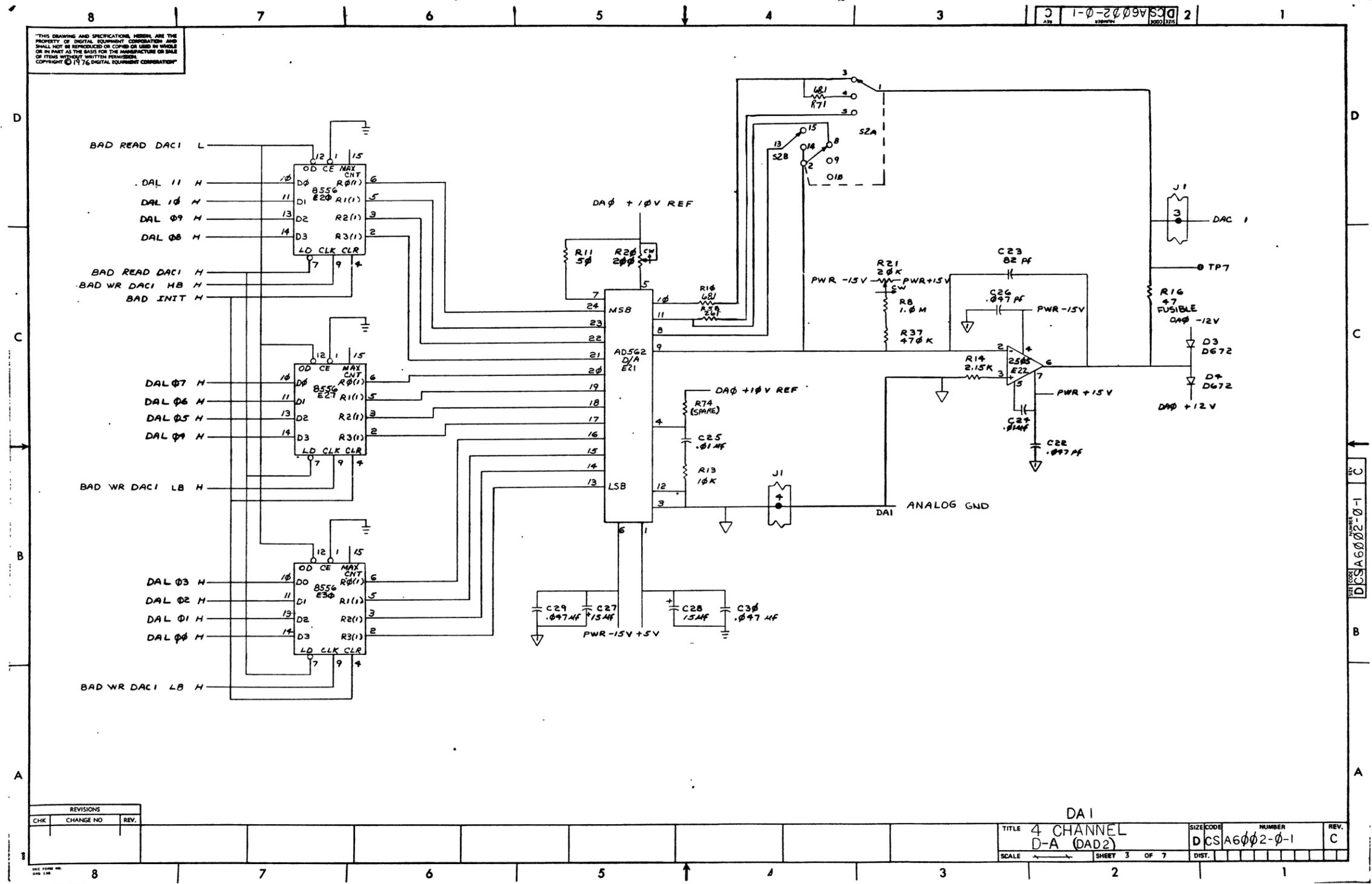


REVISIONS		
CHK	CHANGE NO	REV

TITLE 4 CHANNEL D-A (DAD1)		SIZE CODE D	NUMBER CS/A6002-0-1	REV. C
SCALE	SHEET 2 OF 7	DIST.		

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DCSA6002-0-1

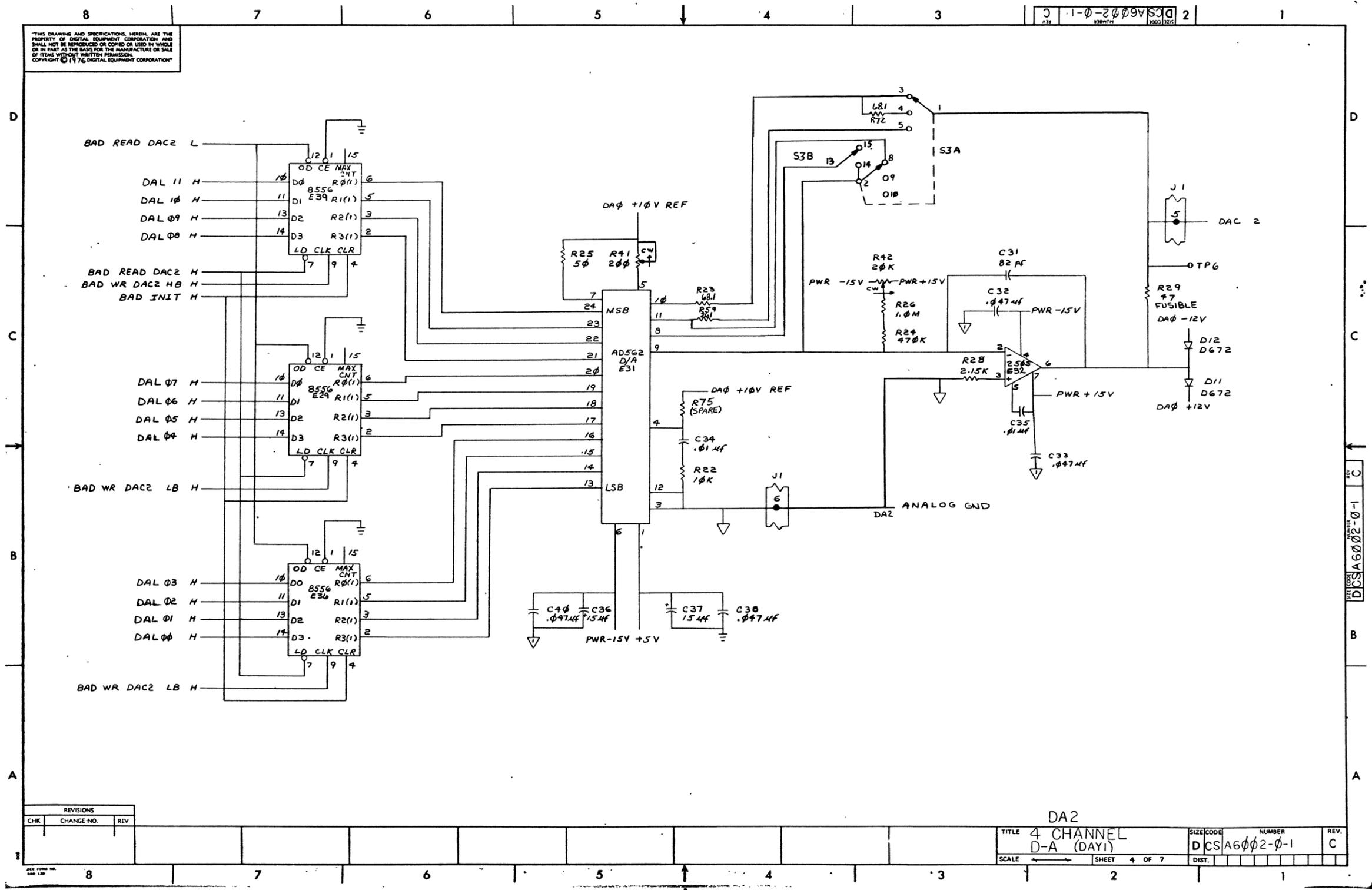


REVISIONS		
CHK	CHANGE NO	REV.

TITLE 4 CHANNEL D-A (DAD2)		SIZE CODE DCSA6002-0-1	NUMBER C	REV. C
SCALE	SHEET 3 OF 7	DIST.		

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DCSA6002-0-1

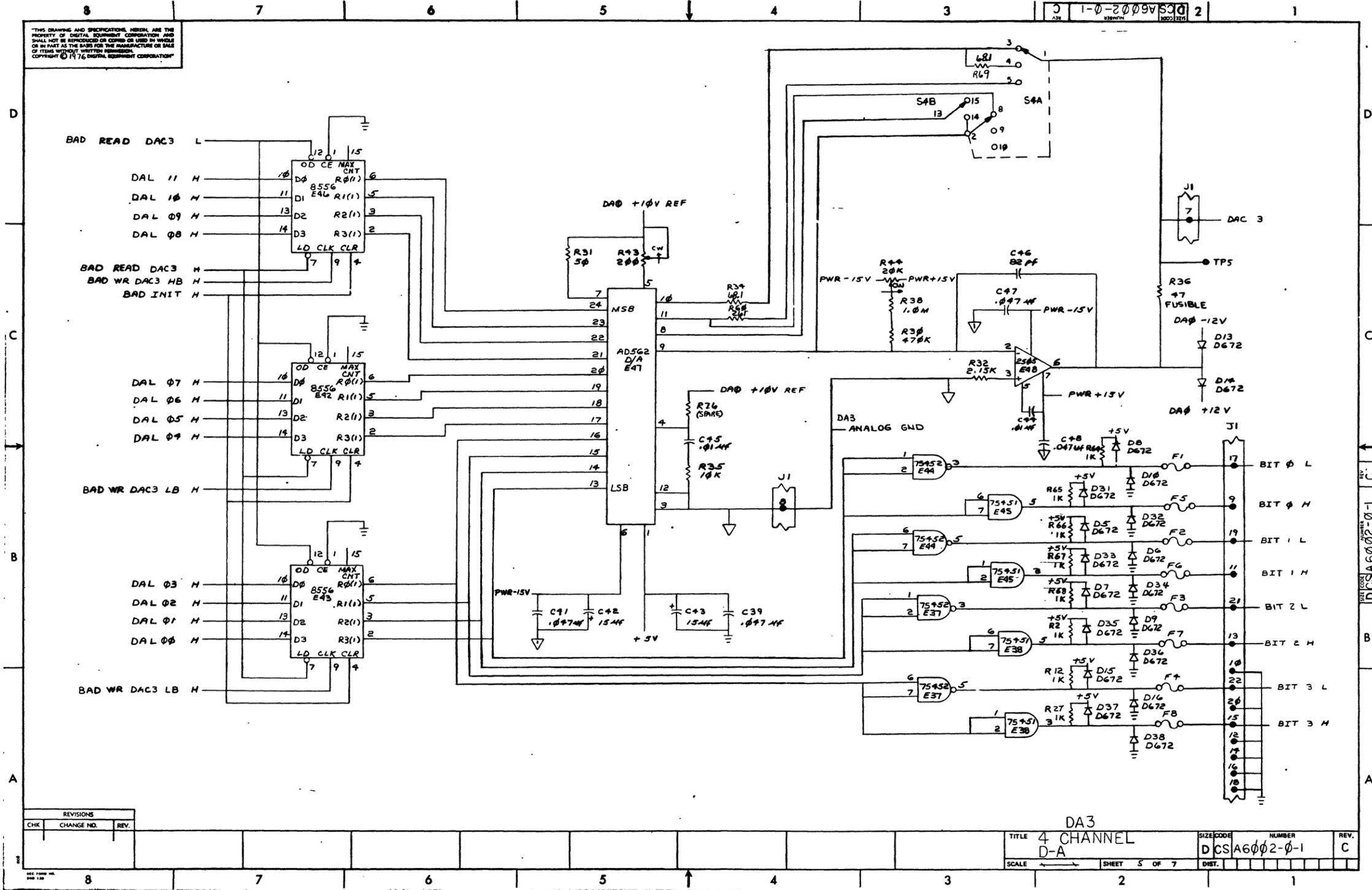


REVISIONS		
CHK	CHANGE NO.	REV

DA2		TITLE	4 CHANNEL D-A (DAY1)	SIZE CODE	NUMBER	REV.
				DCSA6002-0-1		C
		SCALE	SHEET 4 OF 7	DIST.		

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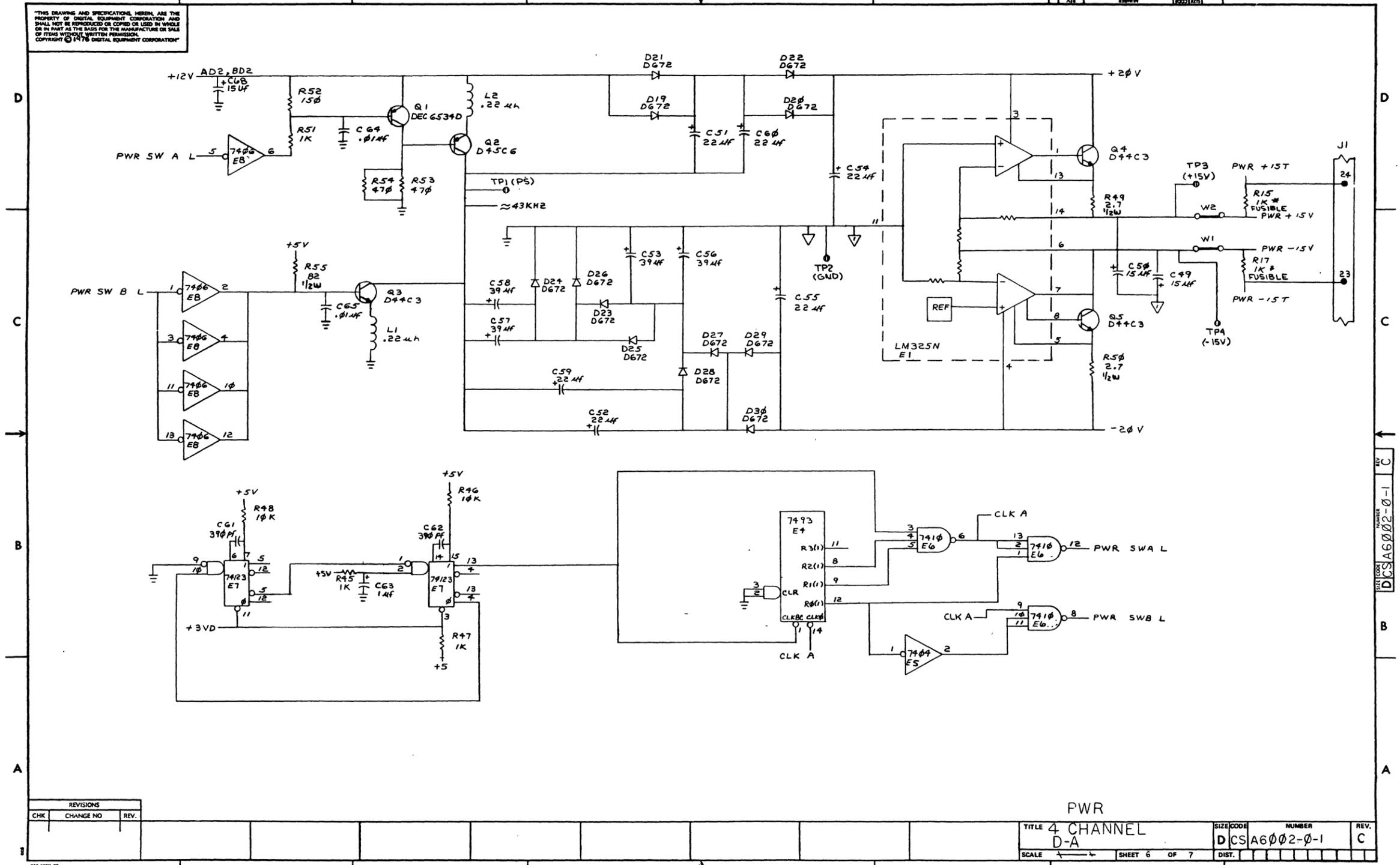
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE CODE		NUMBER		REV.	
DAC3		4 CHANNEL		D-CSA6002-0-1		C	
D-A		SHEET 5 OF 7		DIST.			

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1-0-2009750 2

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REVISIONS		
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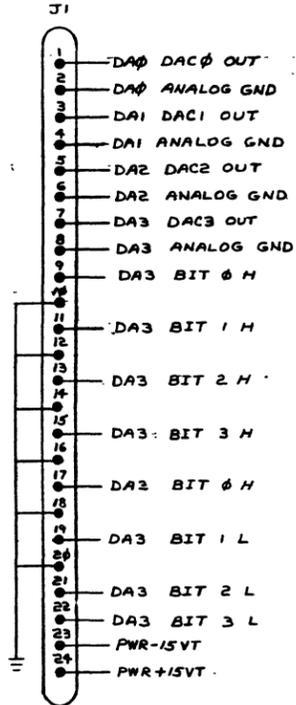
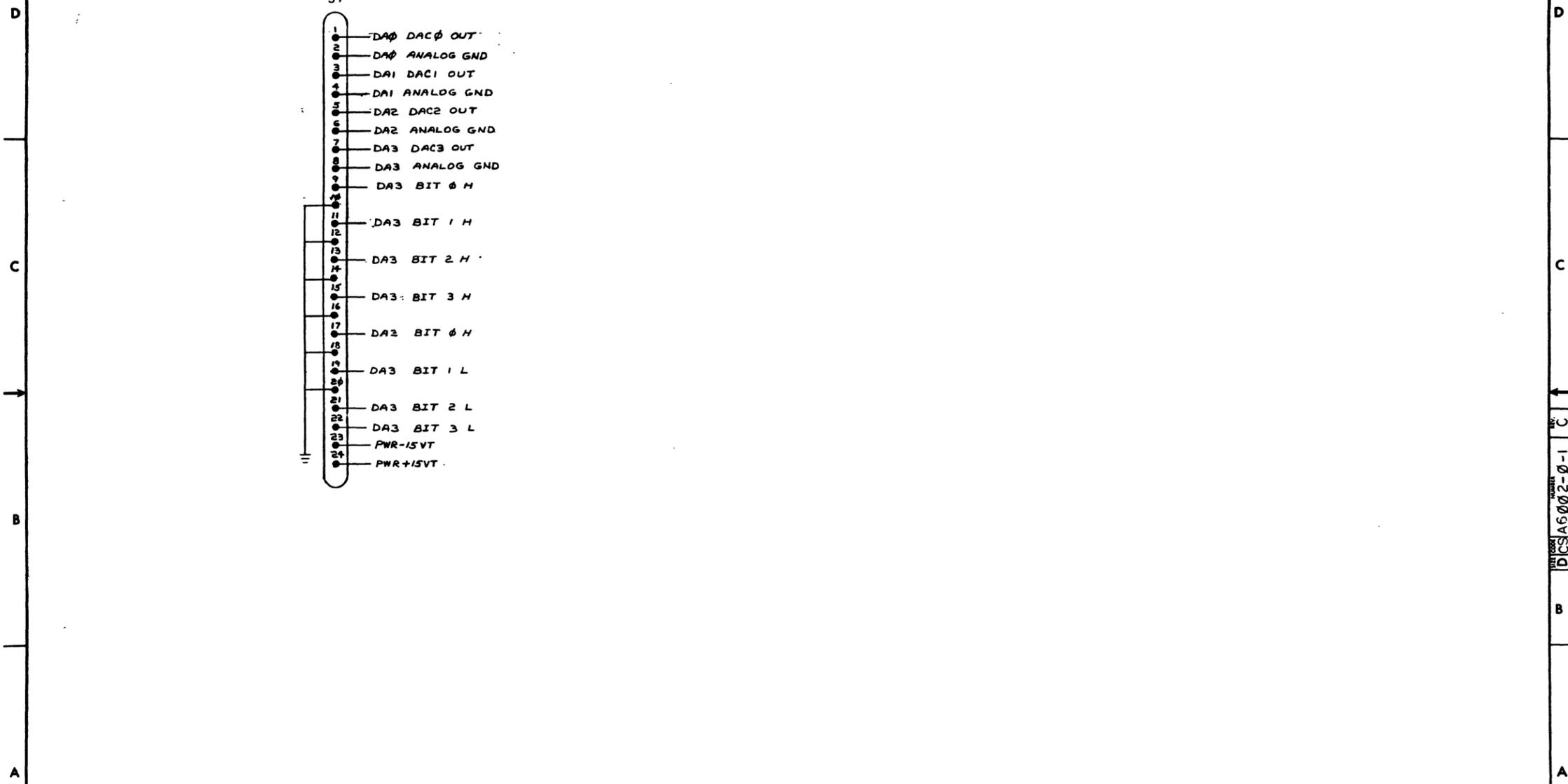
TITLE		SIZE CODE		NUMBER		REV.	
4 CHANNEL D-A		DCSA6002-0-1		02-0-1		C	
SCALE		SHEET 6 OF 7		DIST.			

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8 7 6 5 4 3 2 1

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DCS A6002-0-1 2



DCS A6002-0-1 C

REVISIONS

CHK	CHANGE NO.	REV.

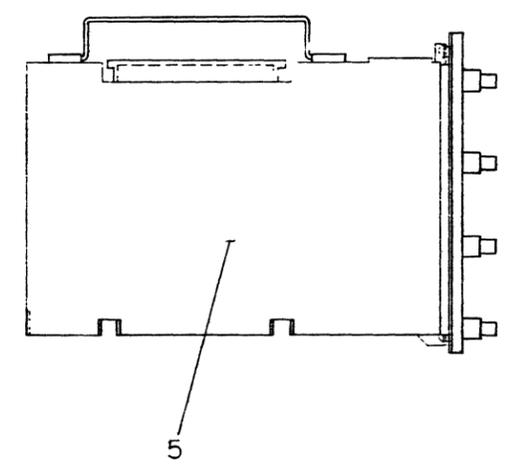
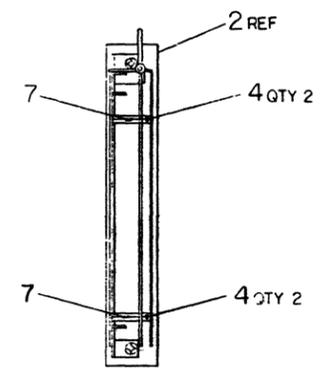
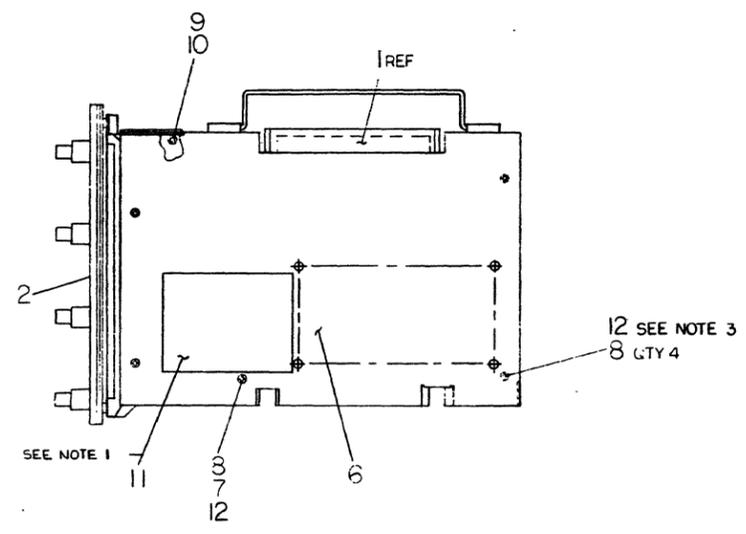
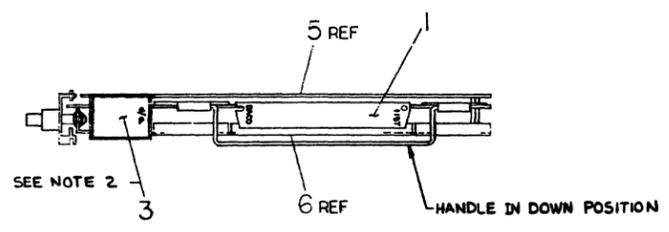
TITLE	4 CHANNEL D-A	SIZE CODE	D	NUMBER	A6002-0-1	REV.	C
SCALE	←→	SHEET	7 OF 7	DIST.			

8 7 6 5 4 3 2 1

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NOTES:
 1. ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
 2. ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
 3. USING ITEM #12 ADD ONE DROP TO EACH LOCATION.



REF	CHKOUT #	ACCEPT PROCEDURE	A-SP-MNCAA-0-3	13
1	LOCKTITE		9009321	12
1	DECAL INFORMATION (MNCAA)		ADC-3615264-3-0	11
1	NUT KEPS #4-32		9008165	10
1	WASHER, FLAT		9006153	9
5	SCR, FLAT HD #4-32x.15		9006020-02	8
3	SPACER, THREADED #4-32x.88		9006361	7
1	PLATE, COMP. SIDE		D-MD-7419869-0-0	6
1	PLATE, ETCH. SIDE		D-1A-7419868-0-0	5
4	SPACER THREADED #4-32x.15		9006141	4
1	DECAL I/O SCHEMATIC		--DC-3615260-3-C	3
1	MNCAA SUB-ASSY		D-AD-7015068-0-0	2
1	CONN ASSY, I/O		D-1A-714153-3-C	1

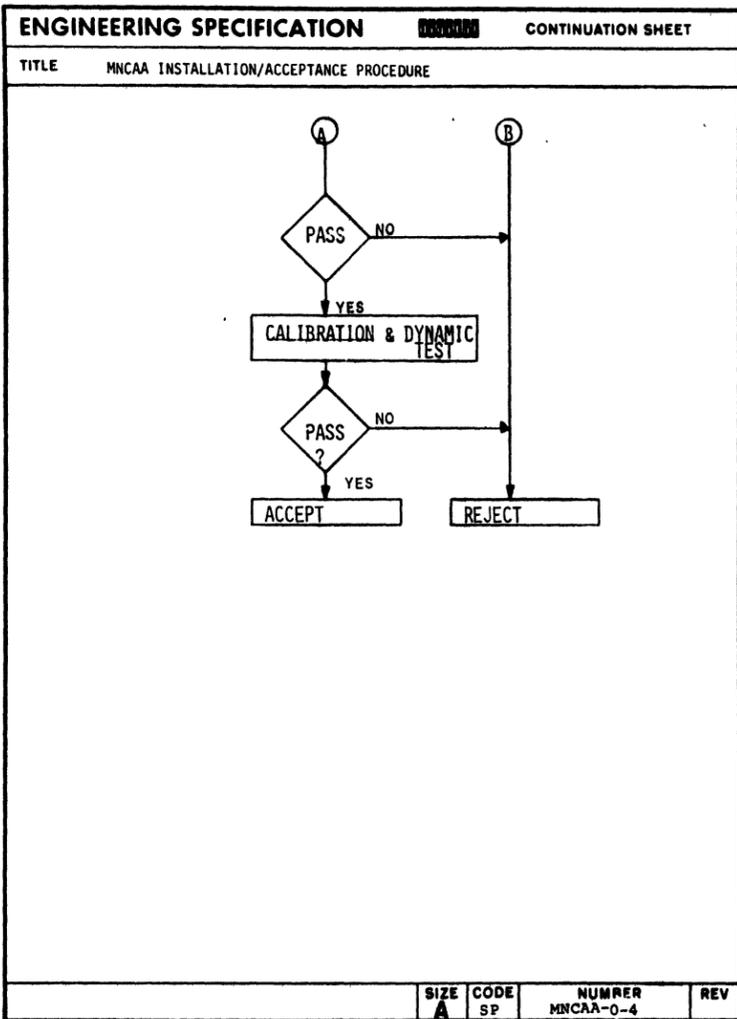
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
ANGLES	CLASS OF ACCURACY
SURFACE QUALITY	MEDIUM
QUANTITY & VARIATION	PREFERRED

DRN	CHKD	ENG	PROJ ENG	PRCD	NEXT HIGHER ASSY	DO NOT SCALE DWG	DATE	TIME

DESCRIPTION	DWG/PART NO.	ITEM NO.
MNCAA digital		
MNCAA UNIT ASSY		

MATERIAL	SIZE	CODE	NUMBER	REV.
3-DD-MNCAA-0	D	UA	MNCAA-0-0	

143



MR

ENGINEERING SPECIFICATION CONTINUATION SHEET																																											
TITLE MNCAL INSTALLATION/ACCEPTANCE PROCEDURE																																											
<p>2.0 INSTALLATION</p> <p>2.1 Address</p> <p>The four DAC addresses are selected through the single switch pack mounted on the PC board and accessible through the component side cover.</p> <p>The four addresses are consecutive and are set by selecting the first address on the 10 position switch pack. Each remaining address is always 2 octals higher than the previous address.</p> <p>Base Address:</p> <p>DAC0 Octal Address 17WXY0 DAC1 Octal Address 17WXY2 DAC2 Octal Address 17WXY4 DAC3 Octal Address 17WXY6</p> <p>Select and set the Base Address, refer to decal on component side cover.</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td colspan="10" style="text-align: center;">Address</td> </tr> <tr> <td style="text-align: center;">BIT</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> <td style="text-align: center;">10</td> <td style="text-align: center;">11</td> </tr> <tr> <td></td> <td style="text-align: center;"> </td> </tr> <tr> <td></td> <td style="text-align: center;">Y</td> <td style="text-align: center;">X</td> <td style="text-align: center;">W</td> <td colspan="6" style="text-align: center;">not used</td> </tr> </table> </div> <p>Figure 2.1 Address Switch Pack</p>				Address										BIT	3	4	5	6	7	8	9	10	11												Y	X	W	not used					
Address																																											
BIT	3	4	5	6	7	8	9	10	11																																		
	Y	X	W	not used																																							
SIZE A	CODE SP	NUMBER MNCAL-0-4	REV																																								

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 6 OF 14

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET			
TITLE MNCAL INSTALLATION/ACCEPTANCE PROCEDURE			
<p>2.2 Location</p> <p>The MNCAL is considered a digital option and can be inserted into any of the 8 available MINC slots. Up to 8 MNCAL options can be plugged into the MINC-11 system. With power off insert the MNCAL option into the selected slot.</p> <p>If any MNCAD option is in the MINC-11 system then the MNCAL option must be inserted to the right of the MNCAD option.</p> <p>2.3 Test Module</p> <p>If the MNCAL test module is available, it should be plugged into the I/O connector fingers on the top of the MNCAL; at this point before power to the MINC-11 is applied.</p> <p>2.3.1 No Test module</p> <p>If no test module is available, plug the standard I/O connector into the I/O fingers.</p> <p>2.4 Power Up</p> <p>All other options to be tested and any of their test modules should be mounted in the system, then power may be applied.</p> <p>2.5 Diagnostics</p> <p>The MNCAL Diagnostic (DVMND-A) should now be loaded into memory (refer MAINDEC11-DVMND-A). There are 2 starting locations. Starting location 200 is used for initial start up, and location 204 is used for restarting program after a halt.</p>			
SIZE A	CODE SP	NUMBER MNCAL-0-4	REV

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 7 OF 14

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET			
TITLE MNCAL INSTALLATION/ACCEPTANCE PROCEDURE			
<p>3.0 ACCEPTANCE</p> <p>3.1 General Information</p> <p>Upon loading the diagnostic and starting at 200, the diagnostic will type out the old software switch register and what the new software switch register should be. Refer to DVMND-A for explanation of software switches. After inputting the desired switch settings and pressing a carriage return the program will then type the following menu:</p> <p>L = LOGIC TEST R = RAMP OUTPUT TEST S = STATIC CALIBRATION TEST D = DYNAMIC CALIBRATION TEST B = BASE ADDRESS CHANGE O = OUTPUT BOARD LED LOOP G = GET NEW SWITCH REGISTER VALUE H = HELP THE OPERATOR AND RETYPE THIS LIST</p> <p>A CTRL C is used to abort the run of any of the above tests and get the user back to the statement "Type the Test Character" then depress "return key".</p> <p>A CTRL G is used at any time during the running of a test to change the software switch register.</p> <p>3.2 Logic Test</p> <p>Type "L" to start the Logic Test. The following message will be typed:</p> <p style="text-align: center;">PROGRAM DETECTED "X" MNCAL(D/A)'S</p> <p>At this point X will be a numeric value from 1 to 8 depending on how many MNCALs are in the MNC-11 system. If no errors are detected then the following will be typed:</p> <p style="text-align: center;">END PASS # A; TOTAL ERROR COUNT = Y A = Pass Number Y = Total Errors Detected</p>			
SIZE A	CODE SP	NUMBER MNCAL-0-4	REV

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 8 OF 14

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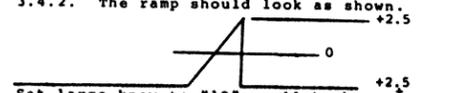
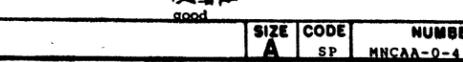
MR

ENGINEERING SPECIFICATION		CONTINUATION SHEET																																
TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE																																		
<p>A minimum of 10 passes should be run to ensure that the Logic section of the MNCAA is working properly.</p> <p>3.3 Output Test</p> <p>Upon completion of Logic Test type a CNTRL C. The following message will then be typed out:</p> <p style="padding-left: 40px;">"TYPE THE "TEST CHARACTER" THEN DEPRESS "RETURN KEY"</p> <p>3.3.1 Type "0" and carriage return. This will check out the 4 data bits of DAC3 that are brought out to the I/O converter.</p> <p>There are 8 LED's mounted on top of the MNCAA module. See Figure 1 below.</p> <div style="display: flex; align-items: center; justify-content: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>DAC 3</td><td>○</td><td>○</td><td>3</td></tr> <tr><td>DAC 2</td><td>○</td><td>○</td><td>2</td></tr> <tr><td>DAC 1</td><td>○</td><td>○</td><td>1</td></tr> <tr><td>DAC #</td><td>○</td><td>○</td><td>bit # H</td></tr> <tr><td>GND</td><td>○</td><td>○</td><td>3</td></tr> <tr><td>GND</td><td>○</td><td>○</td><td>2</td></tr> <tr><td>GND</td><td>○</td><td>○</td><td>1</td></tr> <tr><td>GND</td><td>○</td><td>○</td><td>bit # L</td></tr> </table> <div style="margin-left: 20px;"> <p>Figure 1 test module</p> </div> </div> <p>3.3.2 The diagnostic will turn Bit # L off and Bit # H on. The program will then go to Bit 1 then 2 then 3 and then repeat itself. After running this test and insuring the 4 data bits High and Low are working properly, type CNTRL C.</p> <p>3.4 Ramp Test</p> <p>Type "R" and carriage return. The program is now ready to run the Ramp Output Loop.</p> <p>3.4.1 Set all front panel switches, large knob to 5 and small knob to ±.</p>			DAC 3	○	○	3	DAC 2	○	○	2	DAC 1	○	○	1	DAC #	○	○	bit # H	GND	○	○	3	GND	○	○	2	GND	○	○	1	GND	○	○	bit # L
DAC 3	○	○	3																															
DAC 2	○	○	2																															
DAC 1	○	○	1																															
DAC #	○	○	bit # H																															
GND	○	○	3																															
GND	○	○	2																															
GND	○	○	1																															
GND	○	○	bit # L																															
	SIZE A	CODE SP	NUMBER MNCAA-0-4	REV																														

DEC FORM NO EN-01022-16-N370-(381)
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MR

ENGINEERING SPECIFICATION		CONTINUATION SHEET		
TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE				
<p>3.4.2 The program generates a ± 5 volt ramp on all four D/A's. To observe the ramp connect an oscilloscope to DAC# (yellow plug) and the gnd strap to gnd (black plug). The ramp should look as shown -</p>  <p>repeat this step for DAC1, DAC2, and DAC3.</p> <p>3.4.3 Set large knob to "2.5" small knob to "±" repeat 3.4.2. The ramp should look as shown.</p>  <p>3.4.4 Set large knob to "10" small knob to "±" repeat 3.4.2. The ramp should look as shown.</p>  <p>3.4.5 Set large knob to "0-5", set small knob to "+". Repeat 3.4.2. The ramp should look as shown.</p>  <p>3.4.6 Set large knob to "0-10". Set small knob to "+". Repeat 3.4.2. The ramp should look as shown.</p>  <p>3.4.7 Example of a bad ramp.</p> 				
	SIZE A	CODE SP	NUMBER MNCAA-0-4	REV

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

MR SHEET 10 OF 14

MR

ENGINEERING SPECIFICATION		CONTINUATION SHEET		
TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE				
<p>3.4.8 Set all front panel switches; large knob to "5"; small knob to "±".</p> <p>3.5 Calibration Test</p> <p>After completing the ramp test to insure that all channels are working properly, type a "CNTRL C". Type a "5" carriage return in response to the question type on the terminal.</p> <p>This test loads the octal number generated in the software switch register, by use of CNTRL G, into the 4 D/A's. To monitor the D/A output range use a five digit DVM, (refer to Figure 1 for proper connection to DAC outputs), to measure the DAC output.</p> <p>NOTE: All voltages monitored at test jack on test module (if test module is not available refer to Table 1 for pin assesment).</p> <p>3.5.1 To adjust the D/A converter, type CNTRL G, then type the appropriate octal number as shown in Table 2 and adjust the proper potentiometer to the desired voltage as shown.</p>				
	SIZE A	CODE SP	NUMBER MNCAA-0-4	REV

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

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MR

ENGINEERING SPECIFICATION		CONTINUATION SHEET
TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE		
TABLE 1		
<u>Signal Name</u>	<u>I/O Connector</u>	
DAC #	1	
Analog Gnd	2	
DAC 1	3	
Analog Gnd	4	
DAC 2	5	
Analog Gnd	6	
DAC 3	7	
Analog Gnd	8	
Bit # H	9	
Logic Gnd	10	
Bit 1 H	11	
Logic Gnd	12	
Bit 2 H	13	
Logic Gnd	14	
Bit 3 H	15	
Logic Gnd	16	
Bit # L	17	
Logic Gnd	18	
Bit 1 L	19	
Logic Gnd	20	
Bit 2 L	21	
Bit 3L	22	
-15T	23	
+15T	24	

| | SIZE A | CODE SP | NUMBER MNCAA-0-4 | REV |

DEC FORM NO EN 01022 16-N370-(381)
DRA 108

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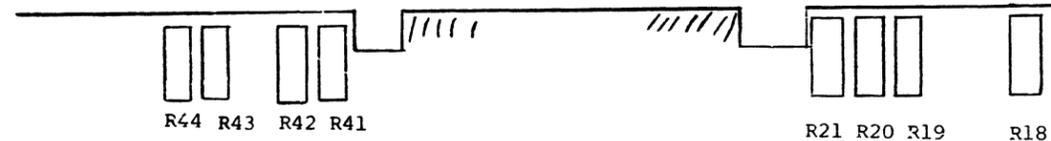
ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

TABLE 2

IN	LOAD		DACØ	DAC1	ADJUST	DAC2	DAC3	FOR.
Offset	Adj	0000	R19	R21	R42	R44		-5.1200
Gain	Adj	7777	R18	R20	R41	R43		+5.1175



The output should be adjusted to the desired voltage with a tolerance better than $\pm 1mV$.

3.6 Dynamic Test

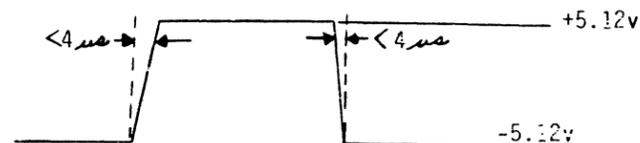
After completing the Calibration Test type a "CNTRL C". Type "D" carriage return in response to the question typed on the terminal.

3.6.1 This test checks for settling errors of the 4 D/A's.

3.6.2 Type "CNTRLG" - type 7777 in response to question and then a carriage return.

3.6.3 Connect an oscilloscope to the output of the D/A's (refer to Figure 1).

3.6.4 The output signal should be switching from -5.12V to +5.12V.



SIZE	CODE	NUMBER	REV
A	SP	MNCAA-0-4	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

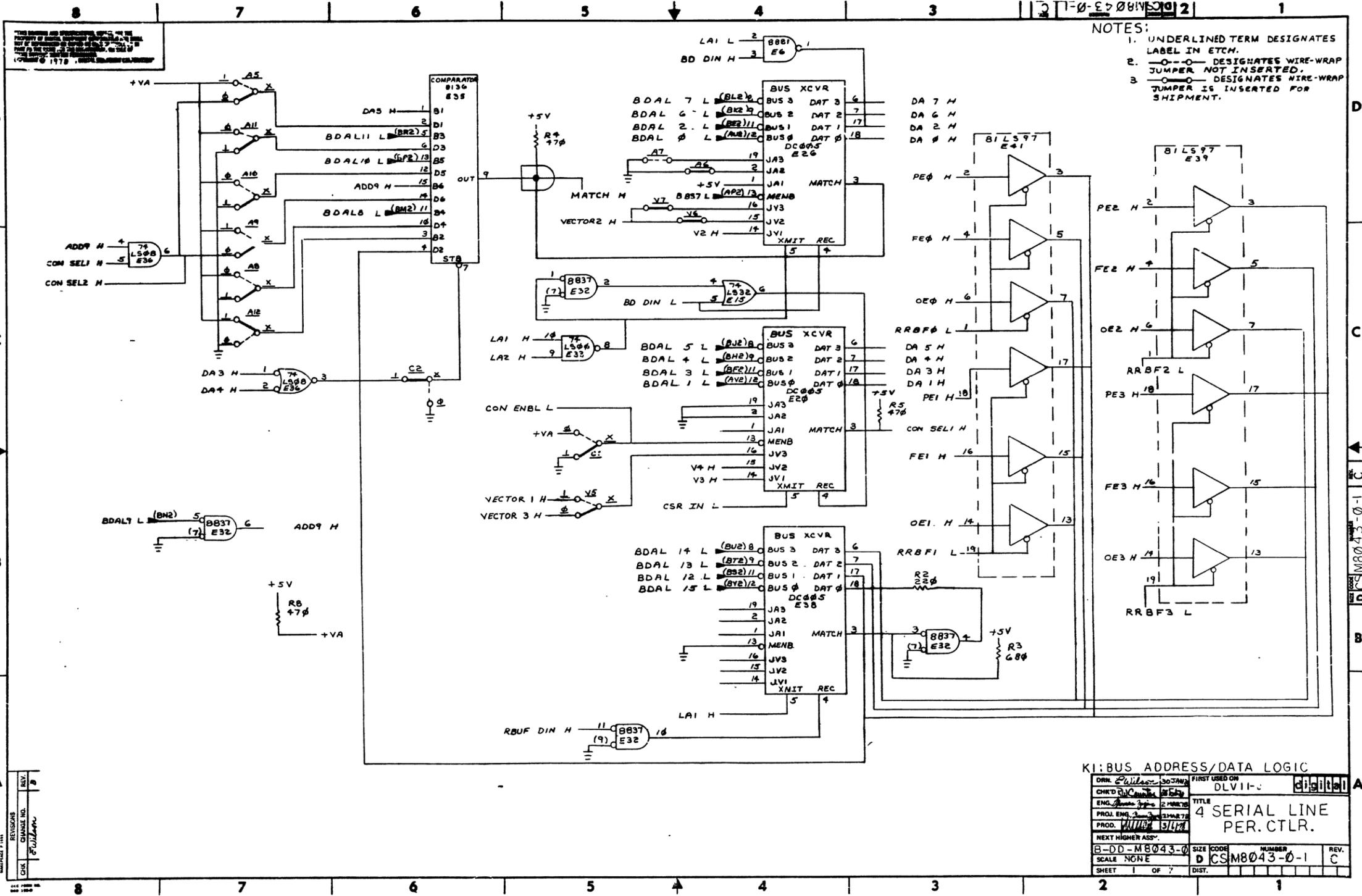
4.0 ACCEPTANCE WITHOUT TEST MODULE

If MNCAA-TA Test Module is not available, use the I/O connector 7014153-3-0 supplied with option. Refer to Table 1 for correct pin locations. Repeat Section 3.0 using the I/O connector.

4.1 When implementing Section 3.3.1 use an oscilloscope to check that the data bits at switching.

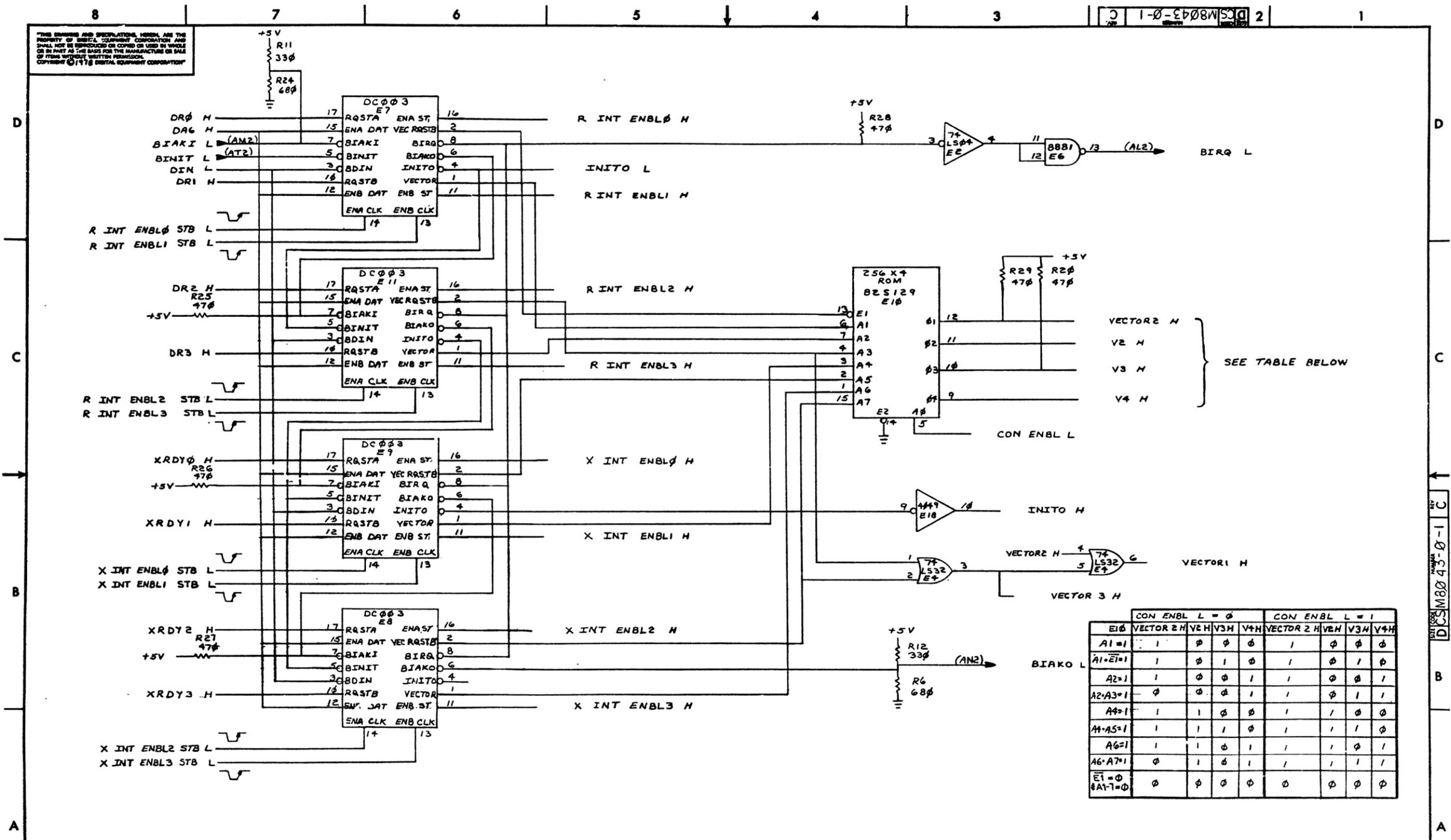
SIZE	CODE	NUMBER	REV
A	SP	MNCAA-0-4	

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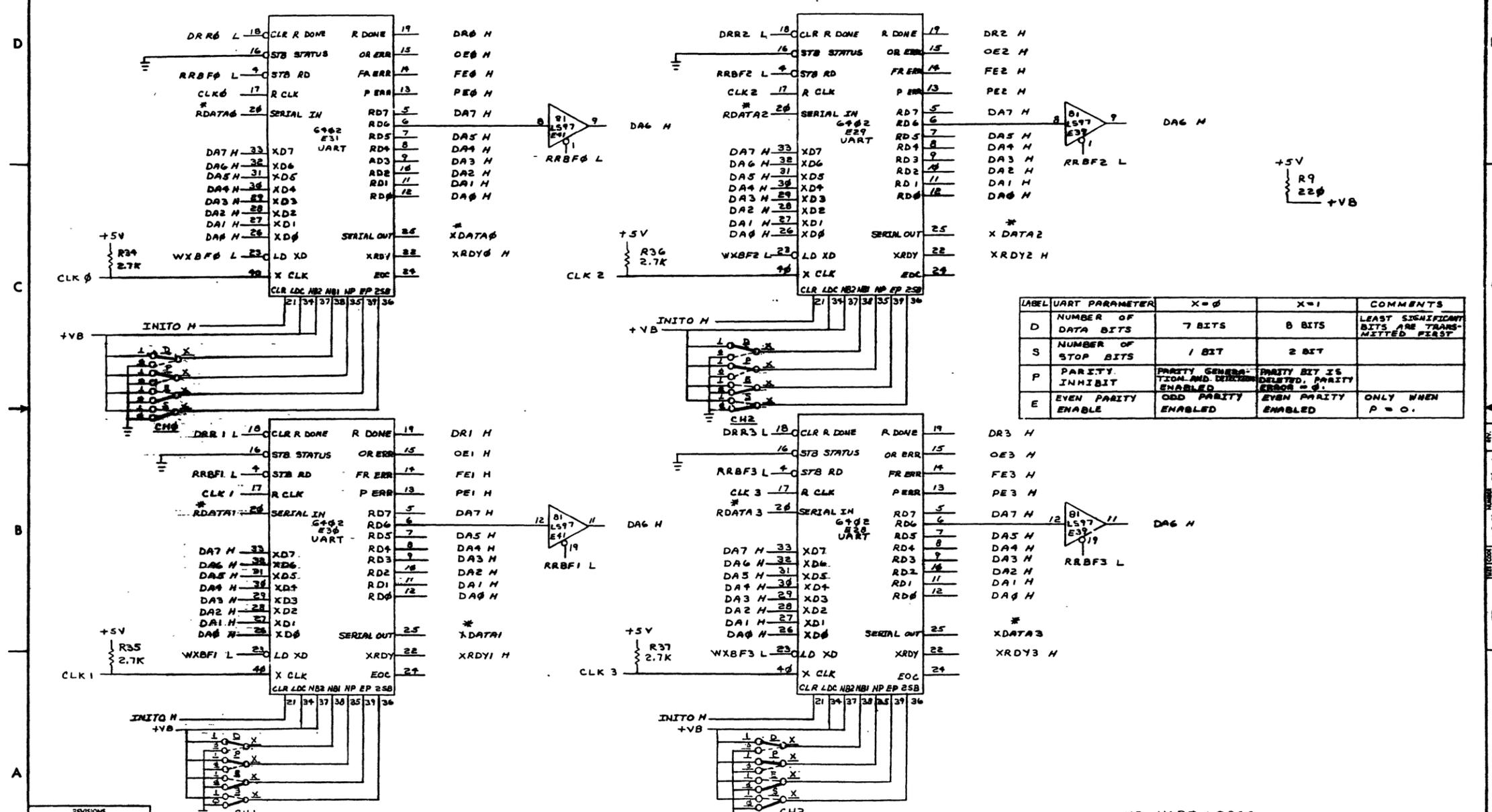
E10	CON ENBL L = 0				CON ENBL L = 1			
	VECTOR 2H	VEH	V3H	V4H	VECTOR 2H	VEH	V3H	V4H
A1=1	1	0	0	0	1	0	0	0
A1-E1=1	1	0	1	0	1	0	1	0
A2=1	1	0	0	1	1	0	0	1
A2-A3=1	0	0	0	1	1	0	1	1
A4=1	1	1	0	0	1	1	0	0
A4-A5=1	1	1	1	0	1	1	1	0
A6=1	1	1	0	1	1	1	0	1
A6-A7=1	0	1	0	1	1	1	1	1
E1=0	0	0	0	0	0	0	0	0
A1-7=0	0	0	0	0	0	0	0	0

REVISIONS		
CHK	CHANGE NO.	REV.

K4: INTERRUPT, VECTOR AND INIT LOGIC
 TITLE 4 SERIAL LINE PER. CTRL.
 SIZE/CODE NUMBER DCSM8043-0-1
 SCALE NONE SHEET 4 OF 7 DIST. REV. C

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NOTES:
 * S: HIGH = MARK = 1
 V LOW = SPACE = 0

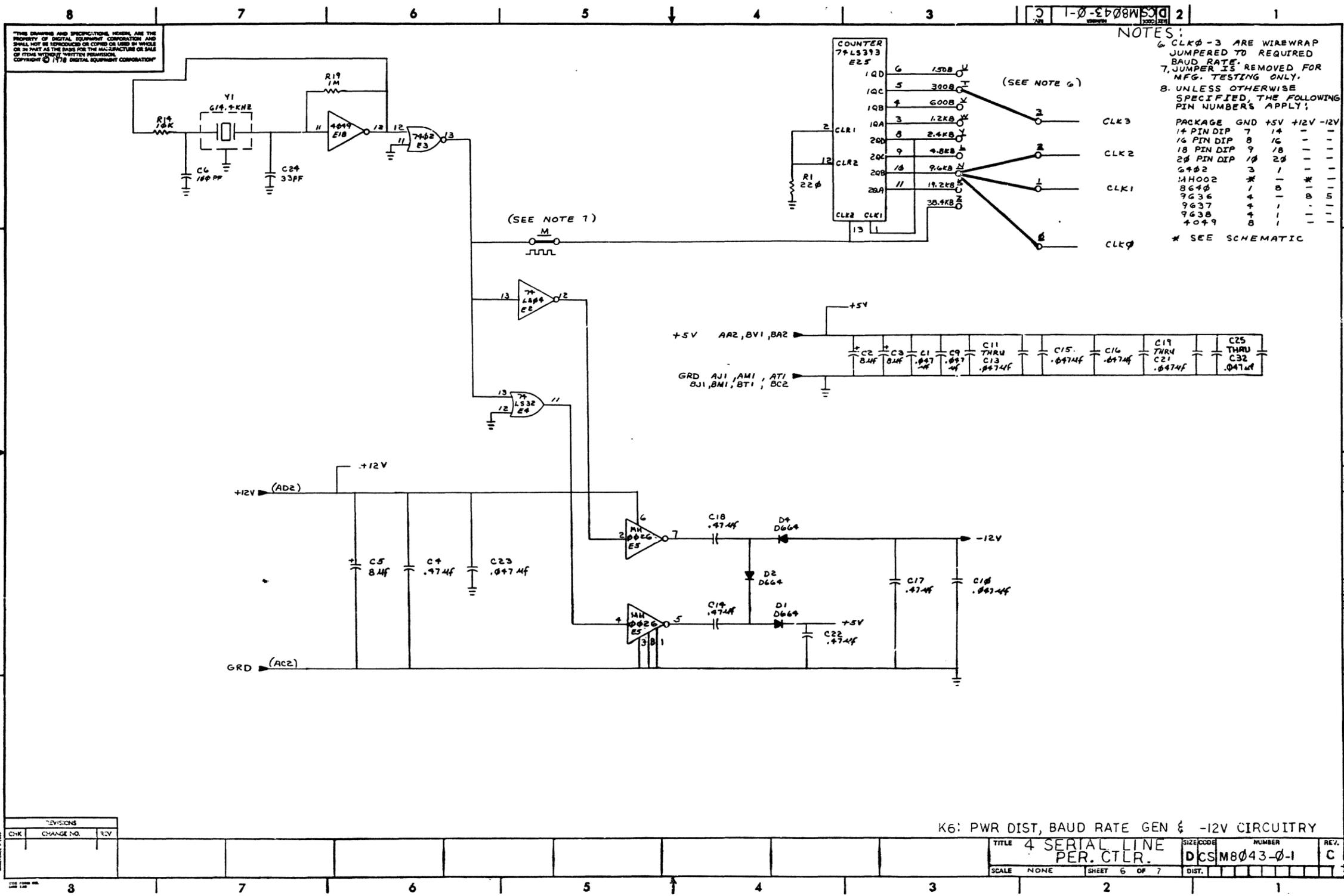


LABEL	UART PARAMETER	X=0	X=1	COMMENTS
D	NUMBER OF DATA BITS	7 BITS	8 BITS	LEAST SIGNIFICANT BITS ARE TRANSMITTED FIRST
S	NUMBER OF STOP BITS	1 BIT	2 BIT	
P	PARITY INHIBIT	PARITY GENERATION AND DETECTION DISABLED	PARITY BIT IS DELETED, PARITY ERROR = 0	
E	EVEN PARITY ENABLE	ODD PARITY ENABLED	EVEN PARITY ENABLED	ONLY WHEN P = 0.

REVISIONS		
CHK	CHANGE NO.	REV.

K5; UART LOGIC
 TITLE 4 SERIAL LINE PER. CTRLR.
 SIZE CODE NUMBER DCSM8043-0-1
 SCALE NONE SHEET 5 OF 7 DIST. C

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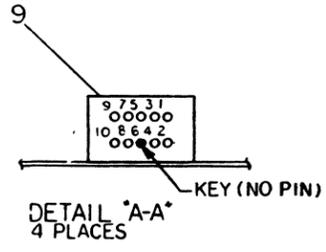
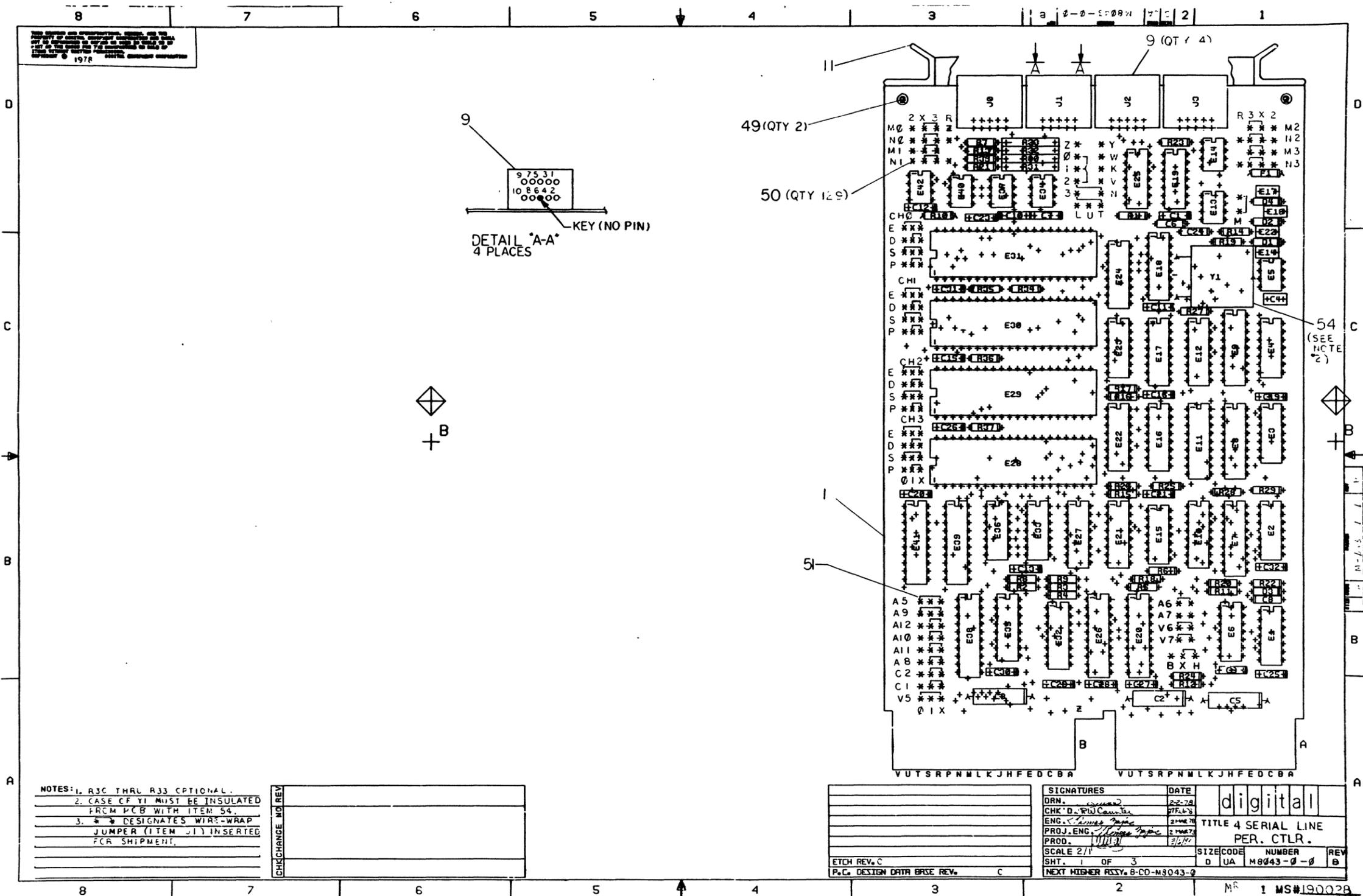
NOTES:
 6. CLK0-3 ARE WIREWRAP JUMPERS TO REQUIRED BAUD RATE. JUMPER IS REMOVED FOR MFG. TESTING ONLY.
 7. UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:
 PACKAGE GND +5V +12V -12V
 14 PIN DIP 7 14 - -
 16 PIN DIP 8 16 - -
 18 PIN DIP 9 18 - -
 20 PIN DIP 10 20 - -
 24 PIN DIP 13 24 - -
 28 PIN DIP 16 28 - -
 32 PIN DIP 19 32 - -
 36 PIN DIP 22 36 - -
 40 PIN DIP 25 40 - -
 * SEE SCHEMATIC

K6: PWR DIST, BAUD RATE GEN & -12V CIRCUITRY

TITLE	4 SERIAL LINE PER. CTRL.	SIZE/COOD	NUMBER	REV.
SCALE	NONE	SHEET	6 OF 7	DIST.
			DCSM8043-0-1	C

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NOTES: 1. R3C THRU R33 OPTIONAL.
2. CASE OF Y1 MUST BE INSULATED FROM PCB WITH ITEM 54.
3. ** DESIGNATES WIRE-WRAP JUMPER (ITEM J1) INSERTED FOR SHIPMENT.

CHG	NO	REV

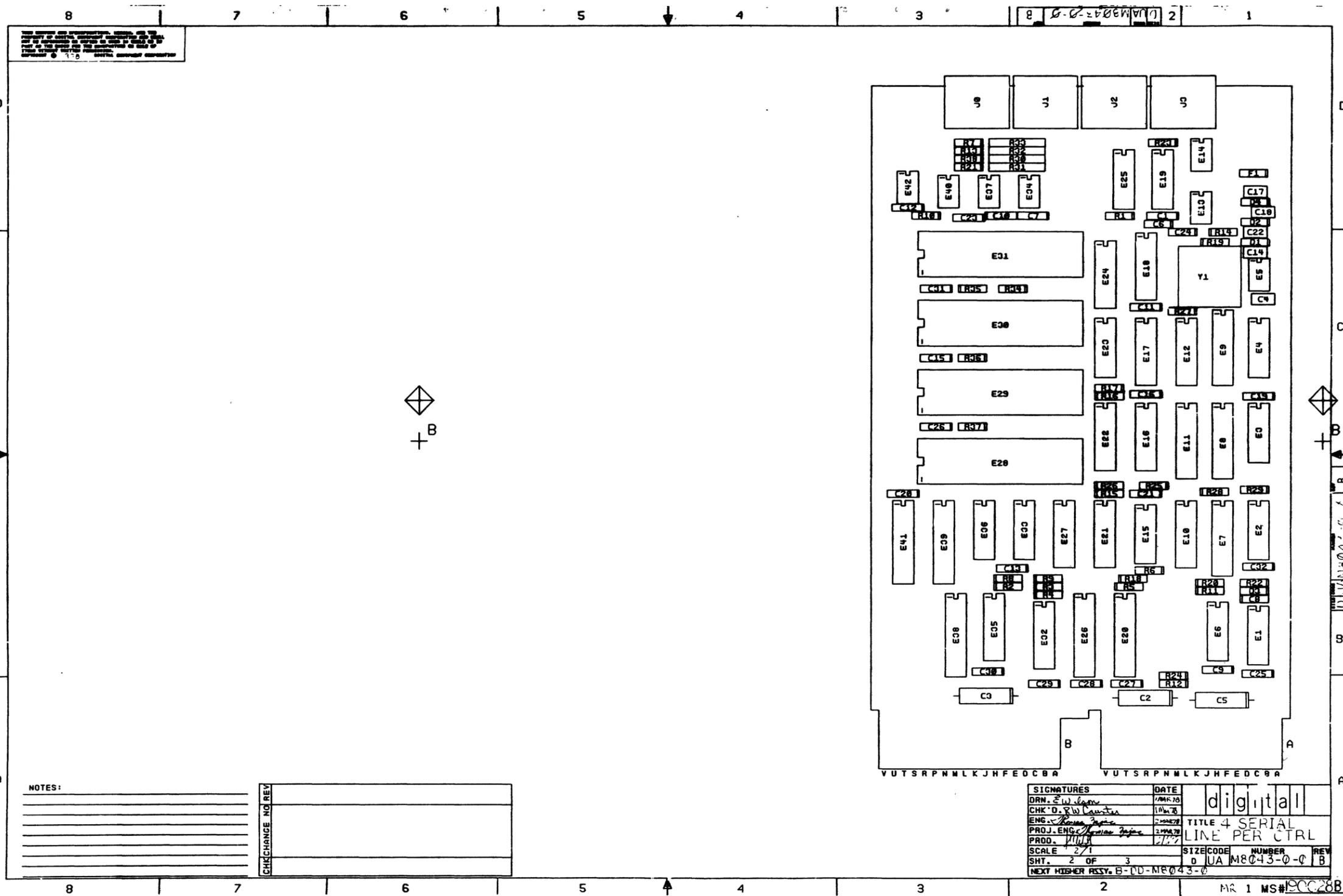
ETCH REV. C
P.C. DESIGN DATA BASE REV. C

SIGNATURES		DATE
DRN.	<i>[Signature]</i>	2-2-78
CHK'D BY	<i>[Signature]</i>	2/2/78
ENG.	<i>[Signature]</i>	2/1/78
PROJ. ENG.	<i>[Signature]</i>	2/1/78
PROD.	<i>[Signature]</i>	2/1/78
SCALE 2/1"		
SHT. 1 OF 3		
NEXT HIGHER ASSY. B-CD-M3043-0		

digital	
TITLE 4 SERIAL LINE PER. CTRL.	
SIZE CODE	NUMBER
D UA	M8043-0-0
REV	B

MR 1 MS#190028

1580

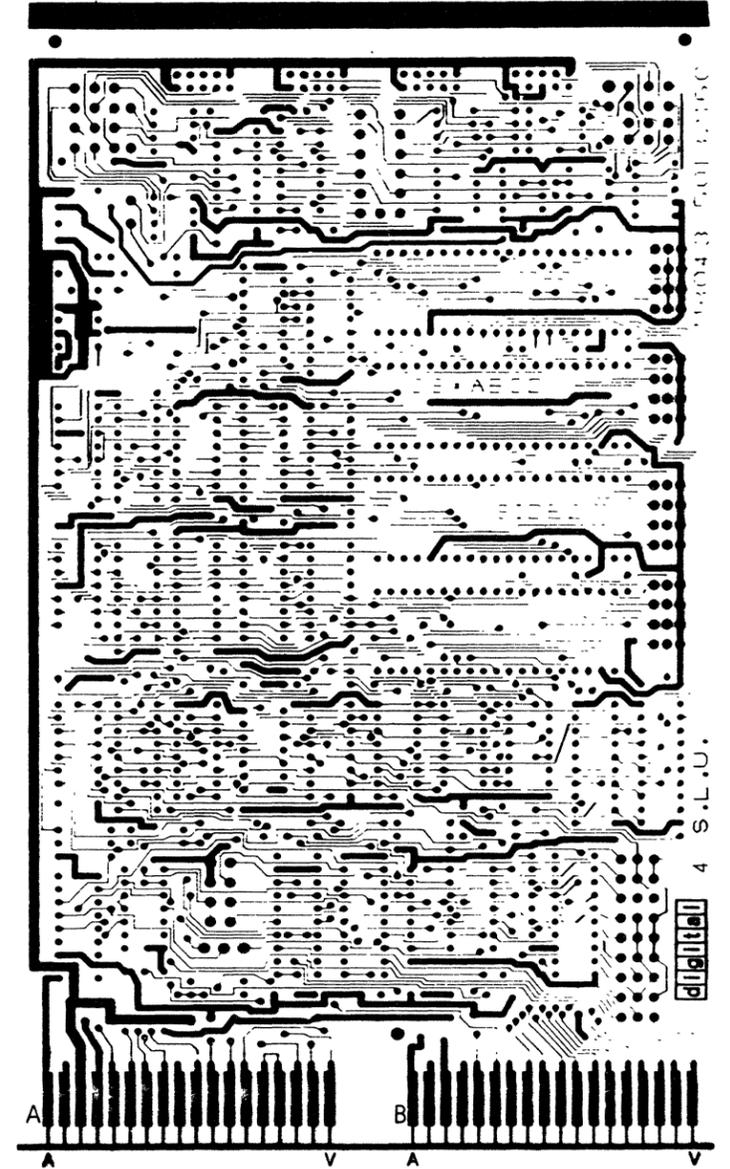
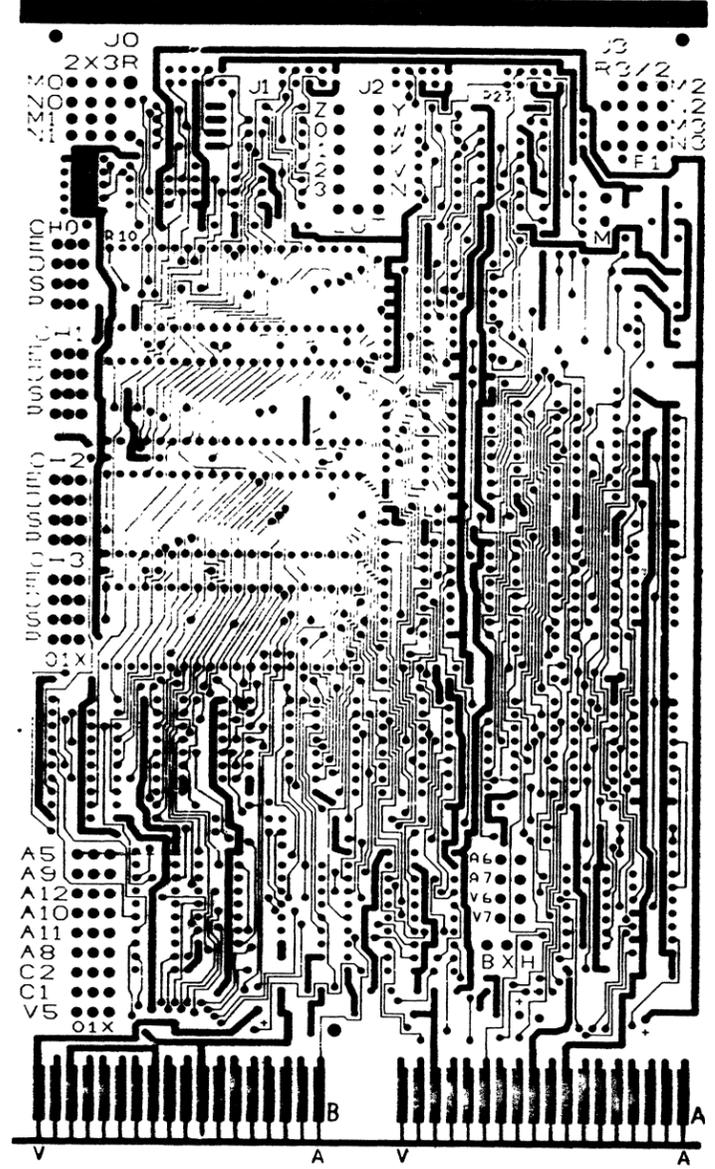


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SIDE 1

SIDE 2



REVISIONS		
REV.	CHANGE NO.	REV.

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TITLE: PATTERN SPECIFICATION, PROM

DIGITAL PART NUMBER
23467A2-00

1. GENERAL DESCRIPTION:
PROM Pattern Specification, Tri-State Outputs
2. APPLICABLE DOCUMENTS (Per latest revision on date of order):
A-PS-23000A2-05, PROM, 256 x 4, TTL, Tri-State
3. REQUIREMENTS:
 - 3.1 Mechanical: Devices shall meet all requirements specified in the Base Device Purchase Specification A-PS-23000A2-05.
 - 3.2 Electrical: Devices shall meet all parameters specified in the Base Device Purchase Specification A-PS-23000A2-05.
 - 3.3 Truth Table: Per pages 2 and 3.
 - 3.4 Marking: After programming, by Digital, devices shall be marked 467A2.

APPROVED VENDOR
Per Qualified Vendor Listing

First Used On:
M8043

Unless Otherwise Specified
Dimensions are in inches, tolerances are three decimals $\pm .005$, two place decimals $\pm .02$, one place decimal $\pm .1$; Angles $\pm 0^{\circ} 30'$.

REVISION AUTHORIZATION			APPROVAL AND DATE		SIZE	CODE	NUMBER	REV
SIGNATURE	REV	DATE	Design Eng.	Comp. Eng. / Purch.				
<i>Tom Zajac</i>			<i>Tom Zajac</i>		A	PS	23467A2-0-0	
			Writer	Comp Eng				
			J.E.P.	<i>J.E.P.</i>				
					PAGE 1		OF 3	

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DEC PART NUMBER: 23-467A2-00
LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: T. ZAJAC
DATE ORIGINATED: 3/7/78

BINARY DATA "1" = HIGH
BINARY DATA "0" = LOW

SHEET 2 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT
0	00	000	00	0	0000	32	20	040	00	0	0000	64	40	100	13	0	1011	96	60	140	00	0	0000
1	01	001	00	0	0000	33	21	041	00	0	0000	65	41	101	13	0	1011	97	61	141	00	0	0000
2	02	002	01	1	0001	34	22	042	00	0	0000	66	42	102	00	0	0000	98	62	142	00	0	0000
3	03	003	01	1	0001	35	23	043	00	0	0000	67	43	103	00	0	0000	99	63	143	00	0	0000
4	04	004	11	9	1001	36	24	044	00	0	0000	68	44	104	00	0	0000	100	64	144	00	0	0000
5	05	005	11	9	1001	37	25	045	00	0	0000	69	45	105	00	0	0000	101	65	145	00	0	0000
6	06	006	00	0	0000	38	26	046	00	0	0000	70	46	106	00	0	0000	102	66	146	00	0	0000
7	07	007	00	0	0000	39	27	047	00	0	0000	71	47	107	00	0	0000	103	67	147	00	0	0000
8	08	010	00	0	0000	40	28	050	00	0	0000	72	48	110	00	0	0000	104	68	150	00	0	0000
9	09	011	00	0	0000	41	29	051	00	0	0000	73	49	111	00	0	0000	105	69	151	00	0	0000
10	0A	012	00	0	0000	42	2A	052	00	0	0000	74	4A	112	00	0	0000	106	6A	152	00	0	0000
11	0B	013	00	0	0000	43	2B	053	00	0	0000	75	4B	113	00	0	0000	107	6B	153	00	0	0000
12	0C	014	10	8	1000	44	2C	054	00	0	0000	76	4C	114	00	0	0000	108	6C	154	00	0	0000
13	0D	015	15	D	1101	45	2D	055	00	0	0000	77	4D	115	00	0	0000	109	6D	155	00	0	0000
14	0E	016	00	0	0000	46	2E	056	00	0	0000	78	4E	116	00	0	0000	110	6E	156	00	0	0000
15	0F	017	00	0	0000	47	2F	057	00	0	0000	79	4F	117	00	0	0000	111	6F	157	00	0	0000
16	10	020	03	3	0011	48	30	060	07	7	0111	80	50	120	00	0	0000	112	70	160	00	0	0000
17	11	021	03	3	0011	49	31	061	07	7	0111	81	51	121	00	0	0000	113	71	161	00	0	0000
18	12	022	00	0	0000	50	32	062	00	0	0000	82	52	122	00	0	0000	114	72	162	00	0	0000
19	13	023	00	0	0000	51	33	063	00	0	0000	83	53	123	00	0	0000	115	73	163	00	0	0000
20	14	024	00	0	0000	52	34	064	00	0	0000	84	54	124	00	0	0000	116	74	164	00	0	0000
21	15	025	00	0	0000	53	35	065	00	0	0000	85	55	125	00	0	0000	117	75	165	00	0	0000
22	16	026	00	0	0000	54	36	066	00	0	0000	86	56	126	00	0	0000	118	76	166	00	0	0000
23	17	027	00	0	0000	55	37	067	00	0	0000	87	57	127	00	0	0000	119	77	167	00	0	0000
24	18	030	00	0	0000	56	38	070	00	0	0000	88	58	130	00	0	0000	120	78	170	00	0	0000
25	19	031	00	0	0000	57	39	071	00	0	0000	89	59	131	00	0	0000	121	79	171	00	0	0000
26	1A	032	00	0	0000	58	3A	072	00	0	0000	90	5A	132	00	0	0000	122	7A	172	00	0	0000
27	1B	033	00	0	0000	59	3B	073	00	0	0000	91	5B	133	00	0	0000	123	7B	173	00	0	0000
28	1C	034	00	0	0000	60	3C	074	00	0	0000	92	5C	134	00	0	0000	124	7C	174	00	0	0000
29	1D	035	00	0	0000	61	3D	075	00	0	0000	93	5D	135	00	0	0000	125	7D	175	00	0	0000
30	1E	036	00	0	0000	62	3E	076	00	0	0000	94	5E	136	00	0	0000	126	7E	176	00	0	0000
31	1F	037	00	0	0000	63	3F	077	00	0	0000	95	5F	137	00	0	0000	127	7F	177	00	0	0000

NOTES		FIRST USED ON OPTION MODEL		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
REV		DRN.	DATE	TITLE			
CHK'D.		CHK'D.	DATE	256 X 4			
ENG.		ENG.	DATE	ROM/PROM PATTERN SPEC			
PROJ. ENG.		PROJ. ENG.	DATE				
PROD.		PROD.	DATE	SIZE	CODE	NUMBER	REV
				K	PS	23467A2-0-0	
CHK		NEXT HIGHER ASSEMBLY		DIST.:			

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1620

DEC PART NUMBER: 23-467A2-00
 LEFT COLUMN OF BIN DATA IS MSB

ORIGINATOR: T. ZAJAC
 DATE ORIGINATED: 3/7/78

BINARY DATA "1" = HIGH
 BINARY DATA "0" = LOW

SHEET 3 OF 3

DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT	DEC LOC	HEX LOC	OCT LOC	OCT DAT	HEX DAT	BIN DAT						
128	80	200	00	0	0000	160	A0	240	00	0	0000	192	C0	300	12	A	1010	224	E0	340	00	0	0000
129	81	201	00	0	0000	161	A1	241	00	0	0000	193	C1	301	17	F	1111	225	E1	341	00	0	0000
130	82	202	00	0	0000	162	A2	242	00	0	0000	194	C2	302	00	0	0000	226	E2	342	00	0	0000
131	83	203	00	0	0000	163	A3	243	00	0	0000	195	C3	303	00	0	0000	227	E3	343	00	0	0000
132	84	204	00	0	0000	164	A4	244	00	0	0000	196	C4	304	00	0	0000	228	E4	344	00	0	0000
133	85	205	00	0	0000	165	A5	245	00	0	0000	197	C5	305	00	0	0000	229	E5	345	00	0	0000
134	86	206	00	0	0000	166	A6	246	00	0	0000	198	C6	306	00	0	0000	230	E6	346	00	0	0000
135	87	207	00	0	0000	167	A7	247	00	0	0000	199	C7	307	00	0	0000	231	E7	347	00	0	0000
136	88	210	00	0	0000	168	A8	250	00	0	0000	200	C8	310	00	0	0000	232	E8	350	00	0	0000
137	89	211	00	0	0000	169	A9	251	00	0	0000	201	C9	311	00	0	0000	233	E9	351	00	0	0000
138	8A	212	00	0	0000	170	AA	252	00	0	0000	202	CA	312	00	0	0000	234	EA	352	00	0	0000
139	8B	213	00	0	0000	171	AB	253	00	0	0000	203	CB	313	00	0	0000	235	EB	353	00	0	0000
140	8C	214	00	0	0000	172	AC	254	00	0	0000	204	CC	314	00	0	0000	236	EC	354	00	0	0000
141	8D	215	00	0	0000	173	AD	255	00	0	0000	205	CD	315	00	0	0000	237	ED	355	00	0	0000
142	8E	216	00	0	0000	174	AE	256	00	0	0000	206	CE	316	00	0	0000	238	EE	356	00	0	0000
143	8F	217	00	0	0000	175	AF	257	00	0	0000	207	CF	317	00	0	0000	239	EF	357	00	0	0000
144	90	220	00	0	0000	176	B0	260	00	0	0000	208	DA	320	00	0	0000	240	F0	360	00	0	0000
145	91	221	00	0	0000	177	B1	261	00	0	0000	209	DA	321	00	0	0000	241	F1	361	00	0	0000
146	92	222	00	0	0000	178	B2	262	00	0	0000	210	DB	322	00	0	0000	242	F2	362	00	0	0000
147	93	223	00	0	0000	179	B3	263	00	0	0000	211	DC	323	00	0	0000	243	F3	363	00	0	0000
148	94	224	00	0	0000	180	B4	264	00	0	0000	212	DD	324	00	0	0000	244	F4	364	00	0	0000
149	95	225	00	0	0000	181	B5	265	00	0	0000	213	DE	325	00	0	0000	245	F5	365	00	0	0000
150	96	226	00	0	0000	182	B6	266	00	0	0000	214	DF	326	00	0	0000	246	F6	366	00	0	0000
151	97	227	00	0	0000	183	B7	267	00	0	0000	215	EA	327	00	0	0000	247	F7	367	00	0	0000
152	98	230	00	0	0000	184	B8	270	00	0	0000	216	EB	330	00	0	0000	248	F8	370	00	0	0000
153	99	231	00	0	0000	185	B9	271	00	0	0000	217	EC	331	00	0	0000	249	F9	371	00	0	0000
154	9A	232	00	0	0000	186	BA	272	00	0	0000	218	ED	332	00	0	0000	250	FA	372	00	0	0000
155	9B	233	00	0	0000	187	BB	273	00	0	0000	219	EE	333	00	0	0000	251	FB	373	00	0	0000
156	9C	234	00	0	0000	188	BC	274	00	0	0000	220	EF	334	00	0	0000	252	FC	374	00	0	0000
157	9D	235	00	0	0000	189	BD	275	00	0	0000	221	FA	335	00	0	0000	253	FD	375	00	0	0000
158	9E	236	00	0	0000	190	BE	276	00	0	0000	222	FB	336	00	0	0000	254	FE	376	00	0	0000
159	9F	237	00	0	0000	191	BF	277	00	0	0000	223	FC	337	00	0	0000	255	FF	377	00	0	0000

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE 256 X 4 ROM/PROM PATTERN SPEC	SIZE K	CODE PS	NUMBER 23467A2-0-0	REV
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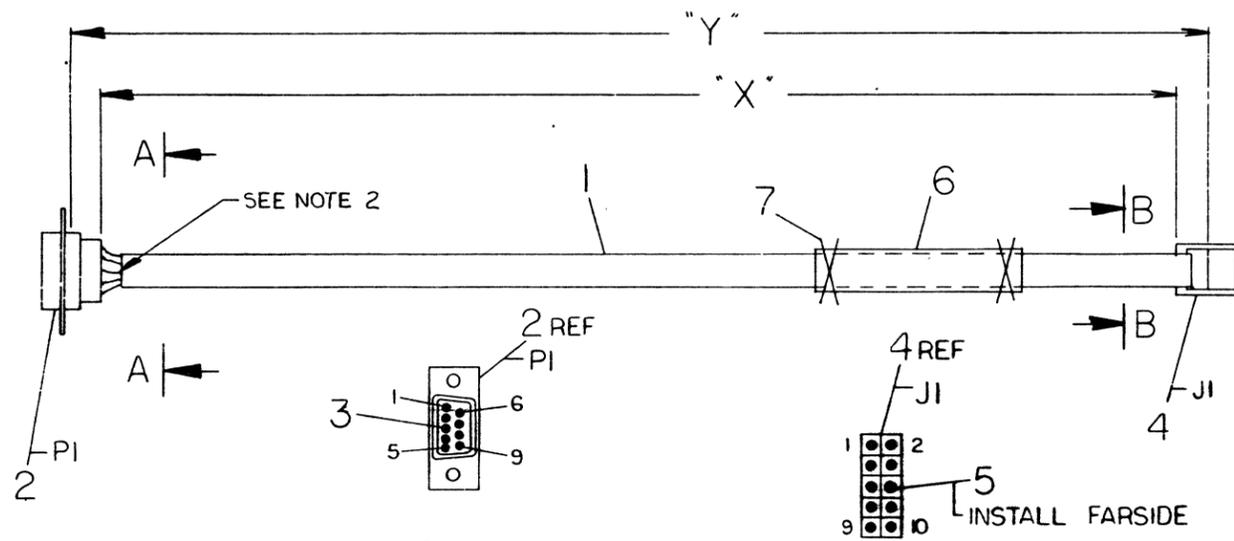
LEGEND

NUMBER	DIM.'X' VAR.	DIM.'Y' VAR PRECUT
7015575-00	1 FT. 1 IN. ±.5 IN.	1 FT. 2 IN. ±.5 IN.
7015575-01	1 FT ±.5 IN.	1 FT 1 IN. ±.5 IN.
7015575-02	11 INCH ±.5 IN.	1 FT ±.5 IN.
7015575-03	10 INCH ±.5 IN	11 IN ±.5 IN.

ITEM NO.	DESCRIPTION		FROM		TO		REMARKS
	AWG	COLOR	CONN	WITH	CONN	WITH	
1	28	BRN	PI-1	3	J1-1	—	
		BLK	PI-2		J1-10	—	
		RED	PI-3		J1-2	—	
		ORN	PI-4		J1-3	—	
		YEL	PI-5		J1-4	—	
		WHT	PI-6		J1-9	—	
		GRY	PI-7		J1-8	—	
		VIO	PI-8		J1-7	—	
		28	GRN	PI-9	3	J1-5	—

NOTES:

1. USING ITEM #1, 20 CONDUCTOR CABLE, PEEL INTO TWO, 10 WIRE STRIPS, PER VARIATION OF LENGTHS.
2. CUT BLU WIRE BACK 1 (ONE) INCH.



VIEW A-A
PIN INSERTION SIDE
SCALE: 1/1

VIEW B-B
SKT INSERTION SIDE
SCALE: 2/1

QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
2	CABLE TIE	9007031	7
1	LABLE, CABLE IDENT.	9009532	6
1	TERMINAL, DUMMY	9009140	5
1	CONN, HOUSING 10 PIN	1211206-02	4
9	CONTACT, PIN	9009763	3
1	CONN, RECEPTACLE 9 PIN	1212700-01	2
A/R	CABLE, RIBBON 20 COND.	1700052-02	1

QUANTITY & VARIATION	DESCRIPTION	DWG./PART NO.	ITEM NO.
7015575-03			
7015575-02			
7015575-01			
7015575-00			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES 30° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM <input type="checkbox"/>	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED <input type="checkbox"/>	±.012	±.016	±.025	±.04	±.063	±.1

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: —

DRN: M. Archer 1 FEB 78

CHK'D: J. Halliday 12 FEB 78

ENG: I. G. G. 10 MAR 78

PROJ. ENG: A. C. 21 FEB 78

PROD. T. 10 FEB 78

FIRST USED ON: MNCII digital

TITLE: CABLE, SLU INTERFACE

SIZE: C IA

CODE: 7015575-0-0

NUMBER: 7015575-0-0

REV: A

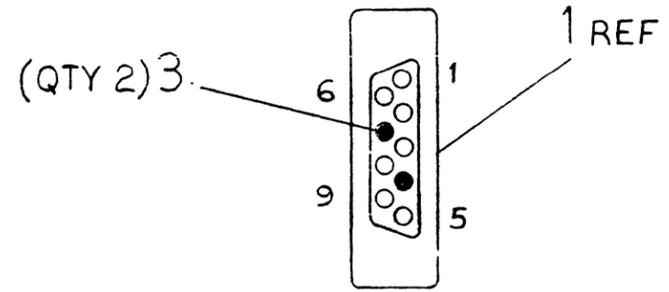
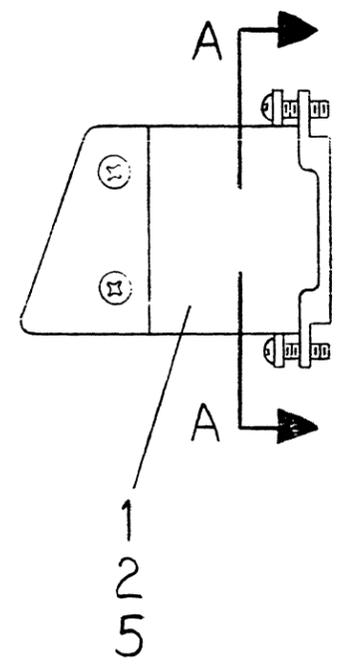
SHEET 1 OF 1

REV.	CHANGE NO.	DATE	BY
1	1	1/1/78	A.FILZ

164

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WIRE TABLE						
ITEM NO.	DESCRIPTION		FROM		TO	
	AWG	COLOR	CONN	WITH	CONN	WITH
4	22	BLK	J1-7	3	J1-4	3



SECTION A-A
 PIN INSERTION SIDE
 SCALE: NONE

QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
4	WIRE, 22 AWG (BLK)	9107350-00	4
3	CONTACT, SKT	9006762	3
2	HOOD, 9 POSITION	1215244-00	2
1	HOUSING, 9 SKT	1211244-01	1

REVISIONS	CHANGE NO.	REV.
CHK	7015911-MPROO1	A
A. FILZ		

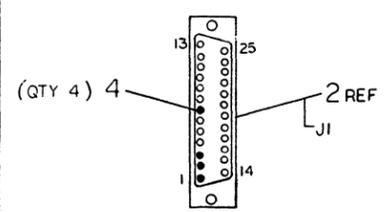
THIRD ANGLE PROJECTION	DRN. <i>R. Dawls</i>	15-MAY-78	FIRST USED ON	MNCII	digital
	CHK'D <i>B. Henry</i>	17-MAY-78	TITLE	CONNECTOR, TEST	
REMOVE BURRS AND BREAK SHARP CORNERS	ENG. <i>A. E. Ry</i>	21-MAY-78	PROJ. ENG. <i>B. Smith</i>	23-MAY-78	
DO NOT SCALE DWG	PROD. <i>R. Quinn</i>	7-13-78	NEXT HIGHER ASSY.		
MATERIAL SEE PARTS LIST	D-UA-MNCII-0-0	SCALE 1/1	SIZE CODE	B IA	NUMBER 7015911-0-0
FINISH NONE	SHEET	OF	DIST.		REV. A

165

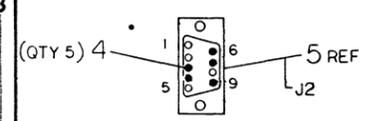
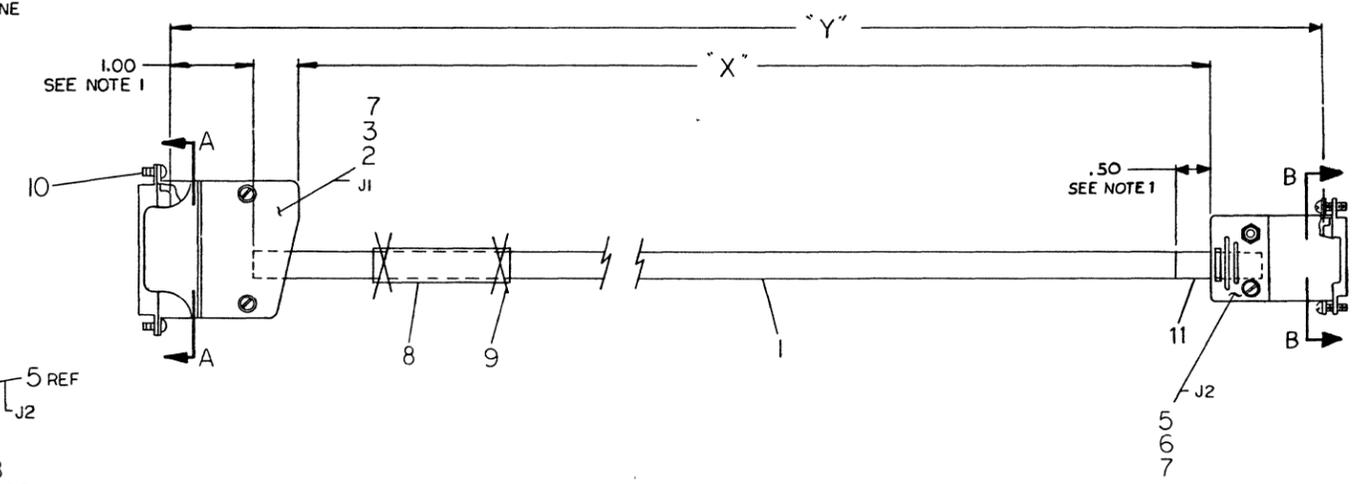
0-0-067910Z 710 2

WIRE TABLE							LEGEND		
ITEM NO	DESCRIPTION	FROM	TO	REMARKS	NUMBER	DIM "X" VAR.	DIM "Y" PRECUT VAR.		
22	BLK	J1-7	ITEM*4	J2-6	ITEM*4	SIGNAL GND			
	WHT	J1-2	ITEM*4	J2-7	ITEM*4	XMITT			
	SHIELD	J1-1	ITEM*4			A GND			
	RED	J1-3	ITEM*4	J2-4	ITEM*4	RECT DATA			
	BLK			J2-9	ITEM*4				
22	SHIELD			J2-3	ITEM*4				

NOTES:
 1. CUT BACK OUTER JACKET OF CABLE ITEM*1 TO DIMENSIONS INDICATED. ADD APPROX 1 INCH OF SHRINK TUBING ITEM*11 TO J2 ONLY.



SECTION A-A
 SKT INSERTION SIDE
 SCALE: NONE



SECTION B-B
 SKT INSERTION SIDE
 SCALE: NONE

A/R	DESCRIPTION	DWG/PART NO.	ITEM NO.
A/R	TUBING, SHRINK	9107252	11
2	SCR, RETAINER MALE	1210493-51	10
2	CABLE TIE	9007031	9
1	LABEL, CABLE IDENT.	9009532	8
A/R	DECALS, PWR CONNECTOR	A-DC-7409873-2-0	7
1	HOOD, 9 POSITION	1215244-01	6
1	HOUSING, 9 SKT	1211244-01	5
9	CONTACT, SKT	9009762	4
1	HOOD, 25 POSITION	1210493-50	3
1	RECEPTACLE ASSY	1211354	2
A/R	CABLE, 6 CONDUCTOR	9107723	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

CLASS OF ACCURACY	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010
CHECK ONE	<input type="checkbox"/>									
MEDIUM	<input type="checkbox"/>									
PREFERRED	<input type="checkbox"/>									

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PART LIST

FINISH NONE

DRN: [Signature] 11/24/77

CHKD: [Signature] 11/24/77

ENG: [Signature] 11/24/77

PROL ENG: [Signature] 11/24/77

PROD: [Signature] 11/24/77

NEXT HIGHER ASSY.

D-1A-MNC11-0-0

SCALE NONE

SHEET 1 OF 1

FIRST USED ON MNC11 digital

TITLE CABLE, CONSOLE INTERFACE

SIZE D

CODE IA

NUMBER 7015790-0-0

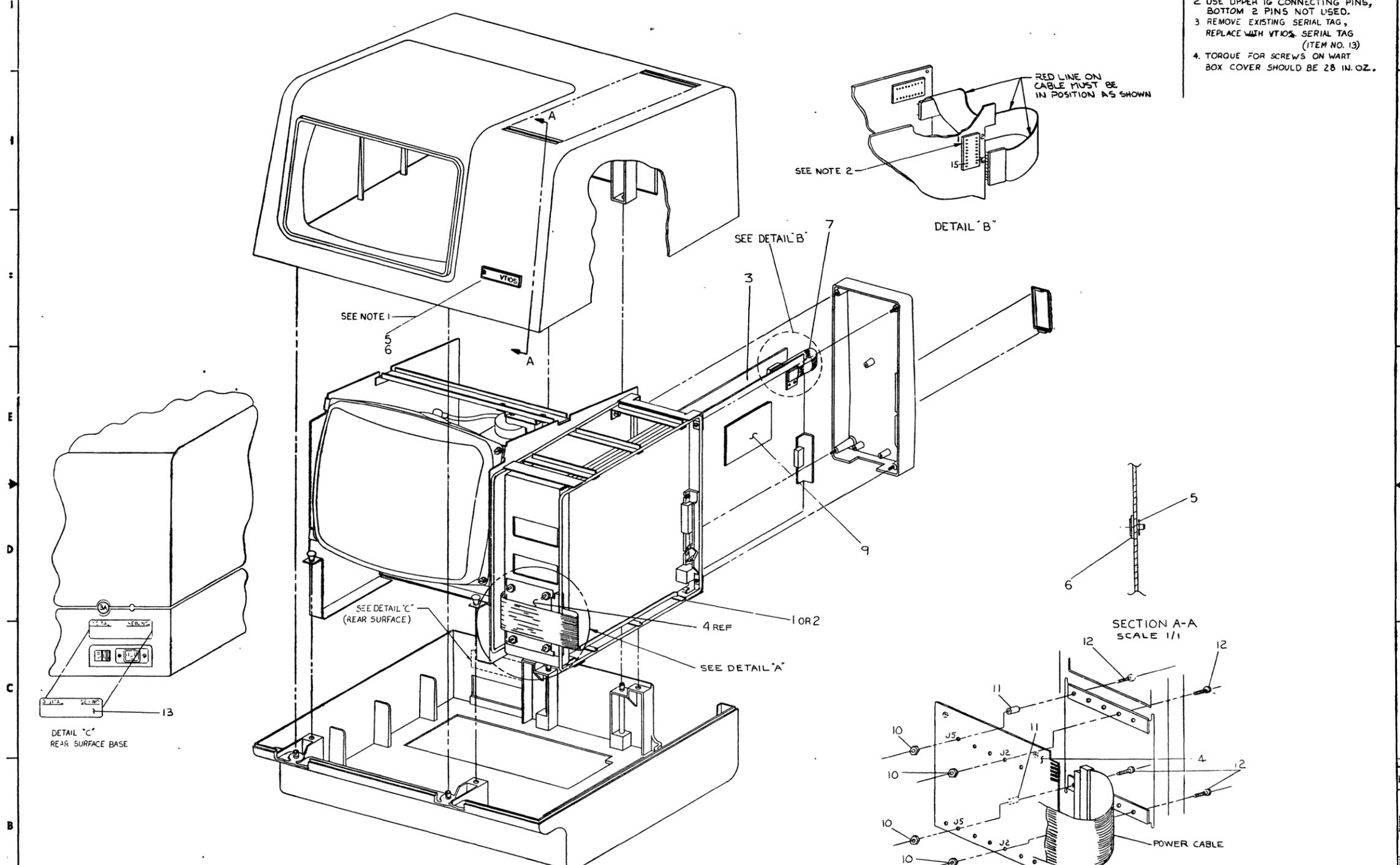
REV.

3 7 6 5 4 3 2 1 mr

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- NOTES:
- 1 REMOVE EXISTING VT100 LOGO & REPLACE WITH VT105 LOGO ITEM NO. 5.
 - 2 USE UPPER 16 CONNECTING PINS, BOTTOM 2 PINS NOT USED.
 - 3 REMOVE EXISTING SERIAL TAG, REPLACE WITH VT105 SERIAL TAG (ITEM NO. 13)
 - 4 TORQUE FOR SCREWS ON WART BOX COVER SHOULD BE 28 IN. OZ.



DESCRIPTION		DWG. PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES	GRADE OF	FINISH	STANDARD
OF 90°	ACROSS	AS SHOWN	UNLESS OTHERWISE SPECIFIED
SURFACE	CHECKED	BY	DATE
QUALITY	BY	DATE	DATE
QUANTITY & VARIATION	REVISIONS	ISSUED	BY
	DESCRIPTION	DATE	BY
	1	1/15/77	WJA
DRW. BY	DATE	FIRST USED ON	
CHKD. BY	DATE	VT100	digital
ENG. BY	DATE		
PROJ. ENG. BY	DATE		
PROD. ENG. BY	DATE		
DO NOT SCALE DIMS	NEXT HIGHER ASSY.		
MATERIAL	SCALE	SIZE	REV.
SEE PARTS LIST	1/2	8-00-VT105-0	1
FORM	SHEET	1	OF 1

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DIGITAL EQUIPMENT CORPORATION PARTS LIST

MADE BY DATE	D. OLSEN 2/27/76	CHECKED DATE	[Signature] 27 AUG 76	SECTION 1
ENG DATE	[Signature] 2/27/76	PROD DATE	Bos Cooke 11 APR 76	ISSUED SECTION 1

QUANTITY / VARIATION

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												REF DESIGNATION	
				VT105-AA	VT105-AB	VT105-MA	VT105-MB										
1	E-UA-VT100-0-0	VT100-AA	DKDB CRT EIA, USA 115 V/60 HZ	1	-	1	-										
2	E-UA-VT100-0-0	VT100-AB	DKDB CRT EIA USA 230 V/60 HZ	-	1	-	1										
3	D-UA-M7071-0-0	M7071	VT105 WAVE FORM GENERATOR	1	1	1	1										
4	D-UA-5413384-0-0	5413384	EXPANSION BACKPLANE	1	1	1	1										
5		9009257-00	RETAINING RING .160/.152	2	2	2	2										
6		1215421	LOGO VT105	1	1	1	1										
7	C-IA-7008612-0-0	7008612-DF	CABLE, KEYBOARD	1	1	1	1										
8		1212405	CARD GUIDES	2	2	2	2										
9	E-UA-VT1XX-AB-0	VT1XX-AB	ADVANCED VIDEO OPTION	-	-	1	1										
10		9006557	KEPS NUT 4-40	4	4	4	4										
11		9006970	SPACER, #4 HOLE .25 LG	2	2	2	2										
12		9006013-01	SCREW PHIL, PAN HD 4-40 x 1/2 LG	4	4	4	4										
13		3613210-00	SERIAL TAG	1	1	1	1										

E.C.O. NO. _____

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	VT105 GRAPHICS TERMINAL	E-UA-VT105-0-0	B	PL	VT105-0-0	
SHEET 1 OF 1			INSERTION PARTS LIST DATA BASE REV			

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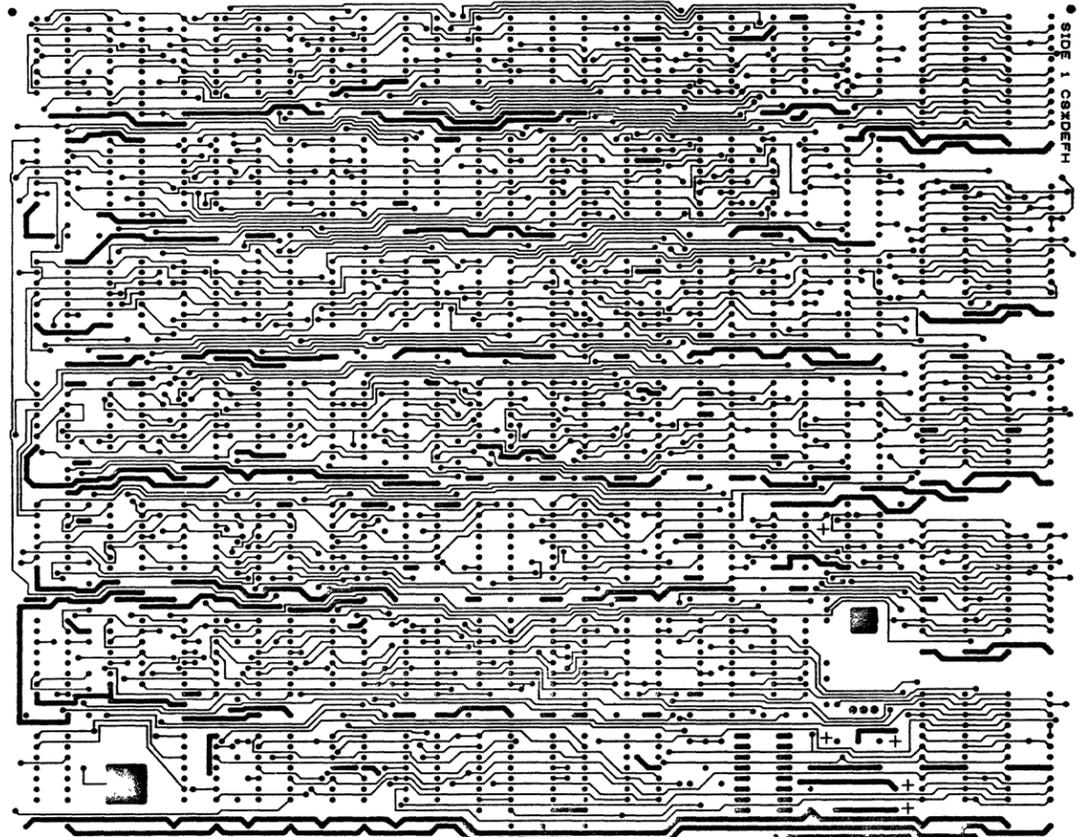
8 7 6 5 4 3 2 1

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L1

M7071 5012514E-P1

SIDE 1 CSXKDFH

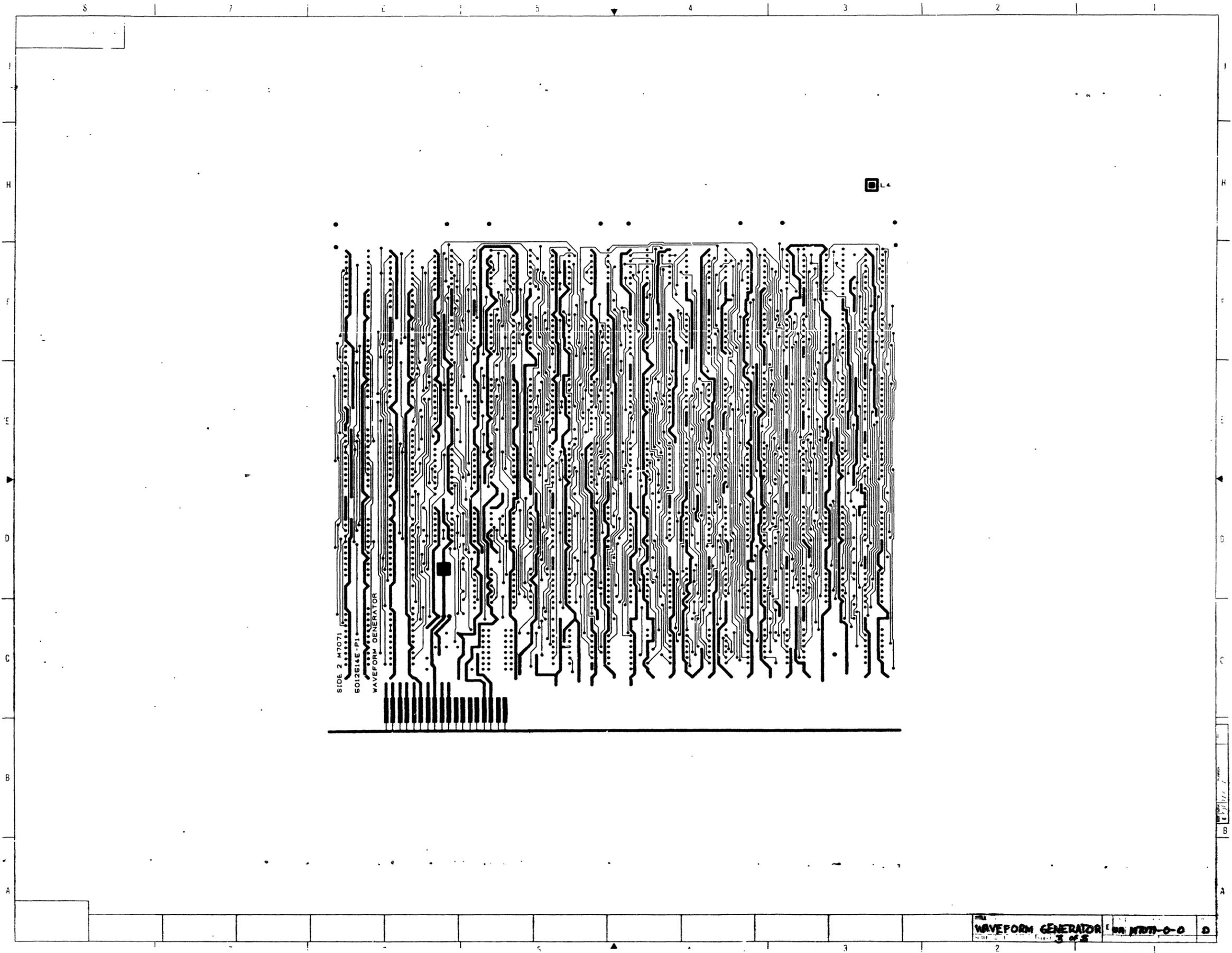


REV	DATE	BY

TITLE	SIZE/COO	NUMBER	REV
WAVEFORM GENERATOR	E DA	M7071-0-0	D
SCALE 2/1	SHEET 2	OF 3	INST

M7071-0-0

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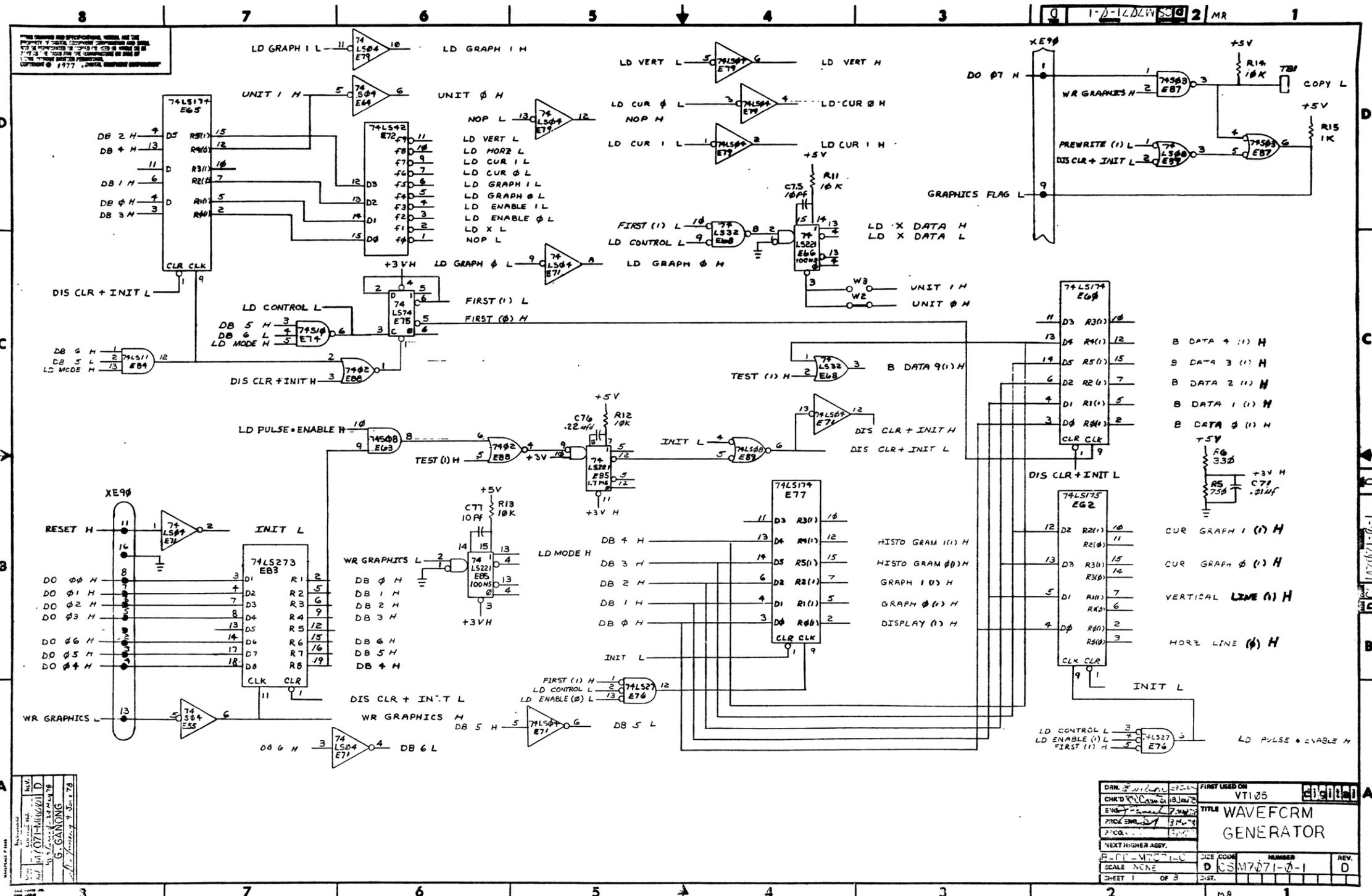


SIDE 2 M7071
 6012614E-P1
 WAVEFORM GENERATOR

L4

THE WAVEFORM GENERATOR
 PART 3 OF 5
 6012614E-P1

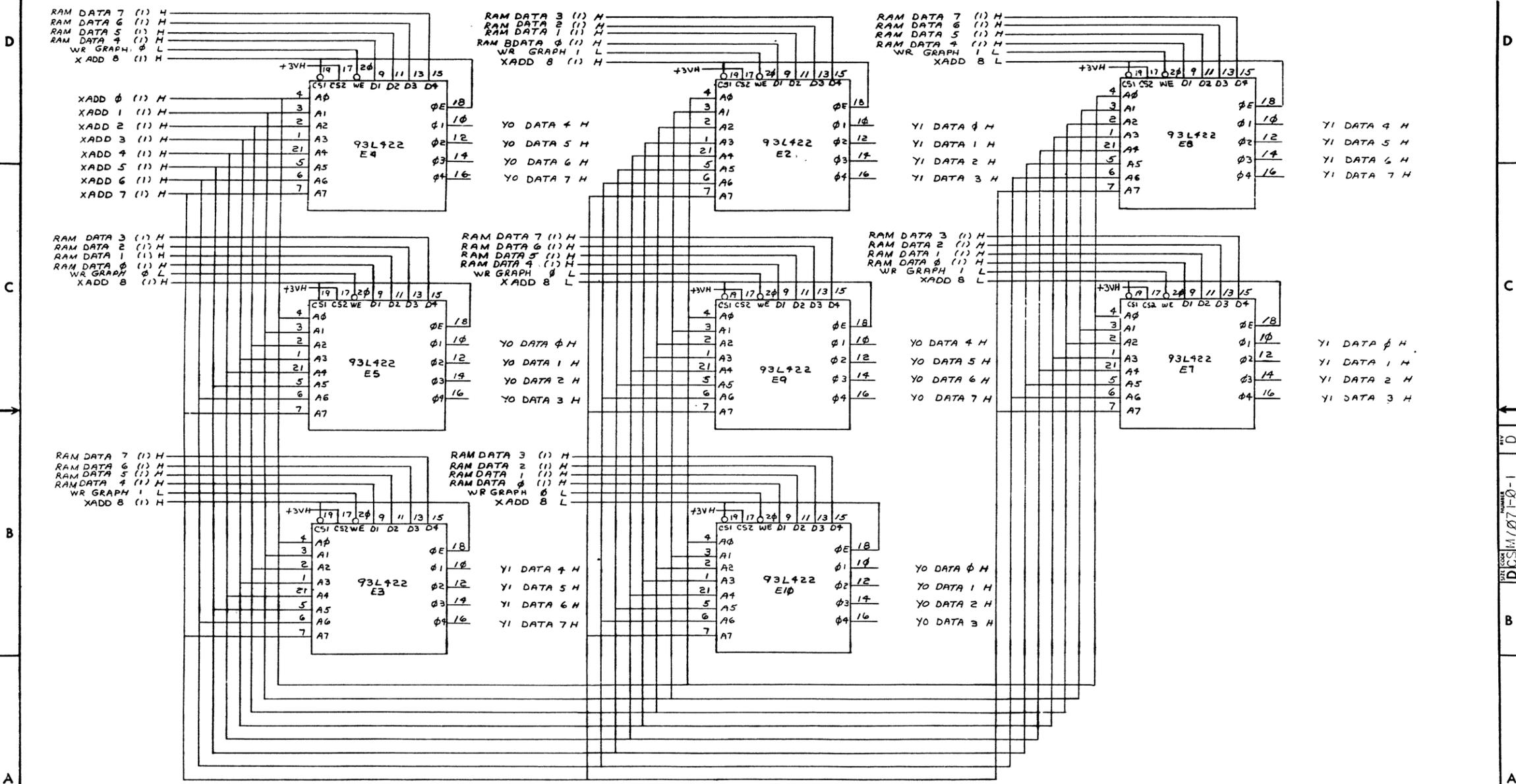
172



DRN. 3/11/78	SPCL. 3/11/78	FIRST USED ON	VT105
CHK'D 3/11/78	3/11/78	TITLE	WAVEFORM GENERATOR
ENG. 3/11/78	3/11/78	PROJ. ENGR.	3/11/78
PROC. ENGR.	3/11/78	DATE	3/11/78
NEXT HIGHER ASSY.			
REP. - MTC-10	SIZE CODE	NUMBER	REV.
SCALE NONE	D	CSM7071-0-1	D
SHEET 1 OF 3	DIST.		

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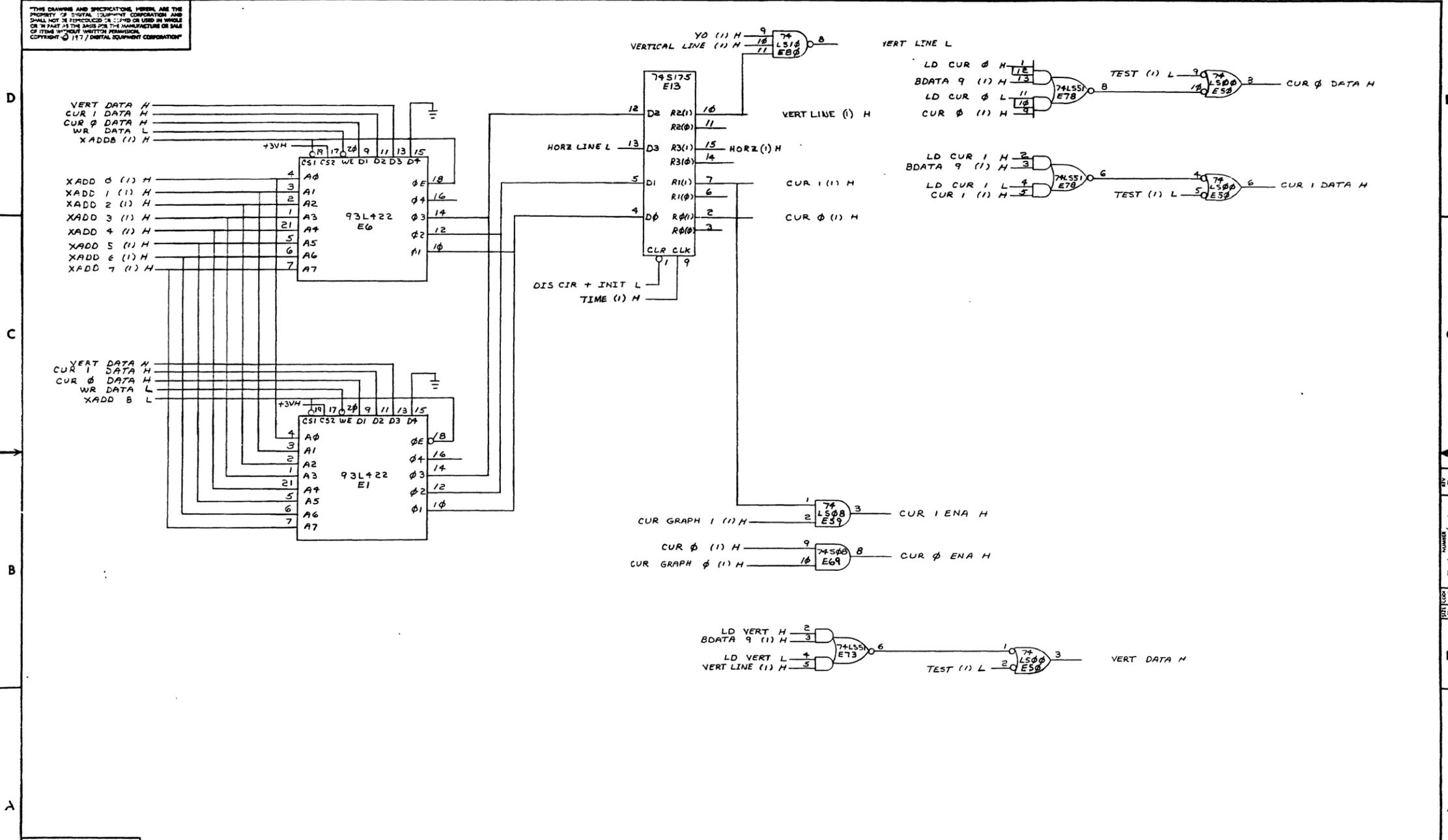
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REVISIONS		
NO.	CHANGE NO.	REV.

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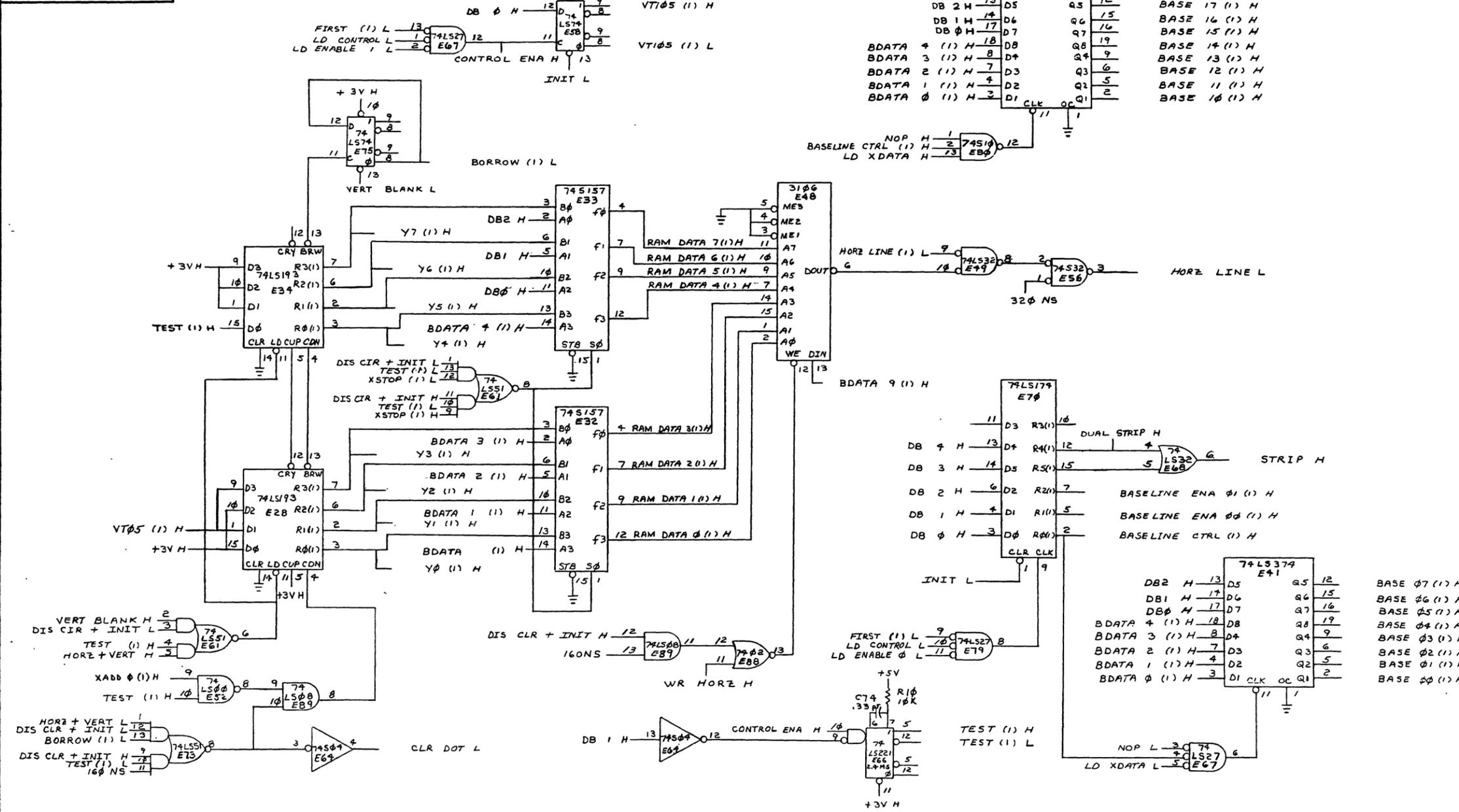


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	WAVEFORM GENERATOR	SIZE CODE	D	NUMBER	M7071-0-1	REV.	D
SCALE		SHEET	3	OF	3	DIST.	

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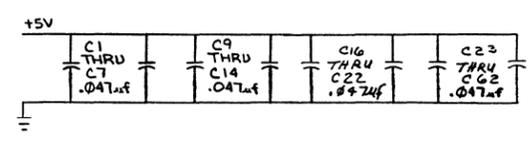
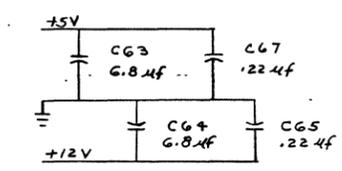
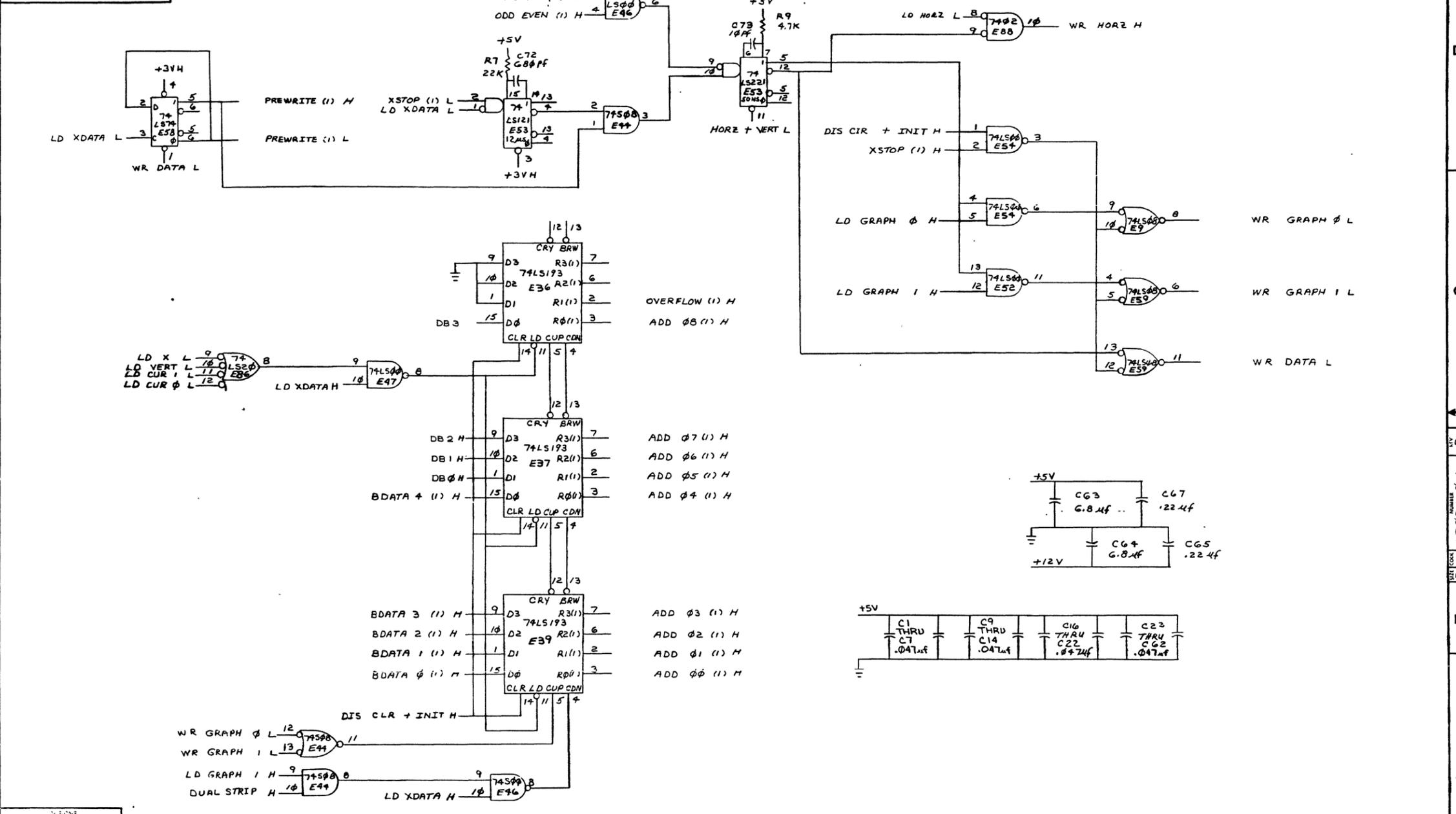
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REVISIONS			TITLE		SIZE/CODE		NUMBER		REV.	
CHK	CHANGE NO.	REV.	WAVEFORM GENERATOR		DCS M7071-0-1		D		D	
			SCALE	SHEET 5 OF 8	DIST.					

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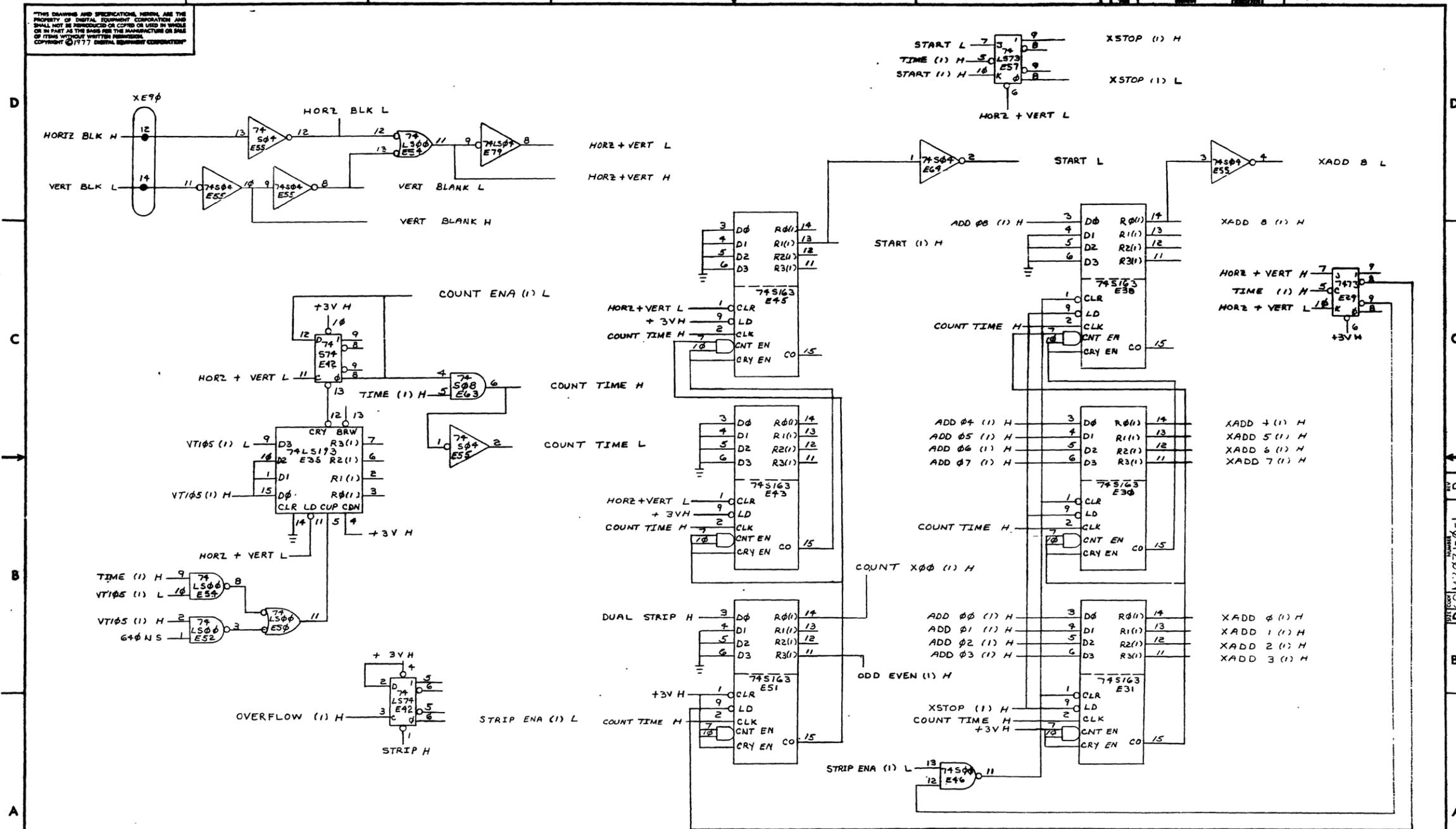


REV.	NUMBER	SIZE CODE	TITLE
D	DCSM7071-0-1		WAVEFORM GENERATOR
			SCALE
			SHEET 6 OF 8
			DIST.
			MR

178

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1-0-1202WSC 2 MR 1

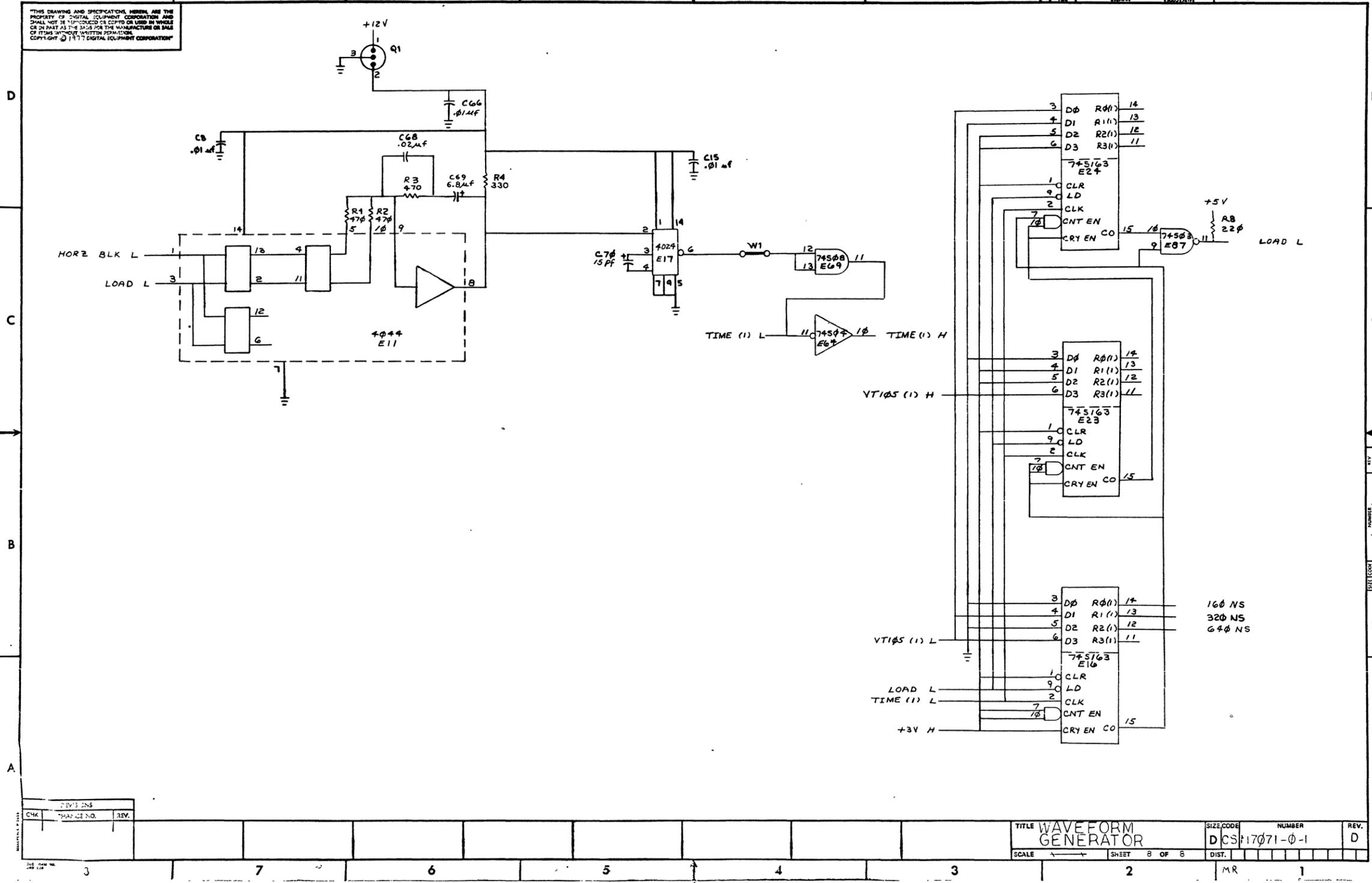


REVISIONS			TITLE		SIZE CODE	NUMBER	REV.
CHK	CHANGE NO.	REV.	WAVEFORM GENERATOR		DCS	M7071-0-1	D
			SCALE	SHEET 7 OF 8	DIST.		

179

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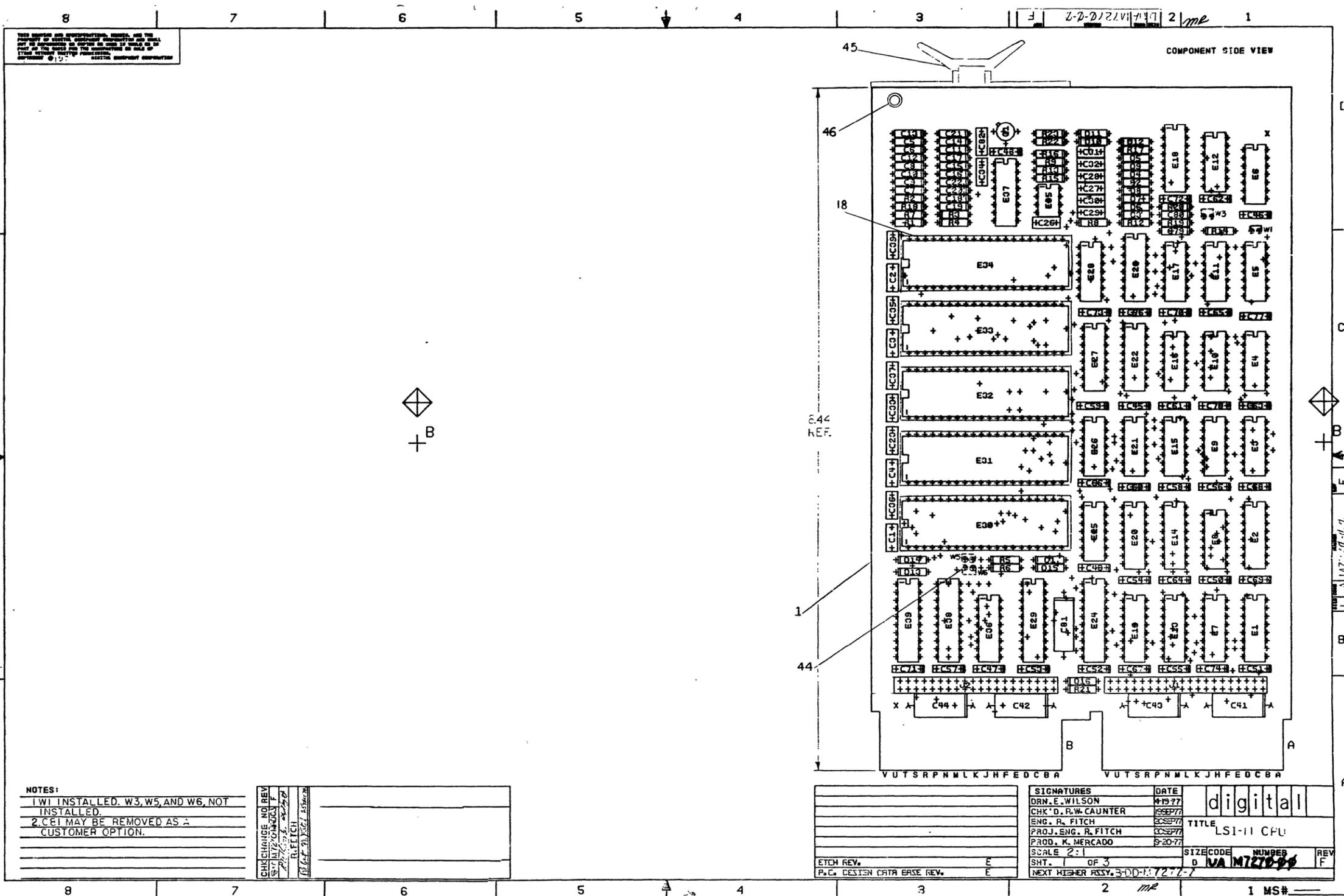
1-0-1202W SC 2 MR 1



REV. NO.	DATE	BY	CHK

TITLE	WAVEFORM GENERATOR	SIZE CODE	DCS 17071-0-1	NUMBER		REV.	D
SCALE		SHEET	8 OF 8	DIST.			

180



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NOTES:
 1. W1 INSTALLED. W3, W5, AND W6, NOT INSTALLED.
 2. C61 MAY BE REMOVED AS A CUSTOMER OPTION.

CHANGE NO.	REV.	DATE	BY

ETCH REV.	E	SIGNATURES	DATE	digital	TITLE LSI-11 CPU
P.C. DESIGN DATA BASE REV.	E	DRN. E. WILSON	4-19-77		
		CHK'D. R.W. CAUNTER	8-25-77		
		ENG. R. FITCH	8-25-77		
		PROJ. ENG. R. FITCH	8-25-77		
		PROD. K. MERCADO	9-20-77		
		SCALE 2:1			
		SHT. 1 OF 3			
		NEXT HIGHER ASSY. 3-00-1: 7277-1			

183

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3

DUA M7270-0-0 2 me

1

5013004E-P1 M7270

5013004E-P1 M7270

L1

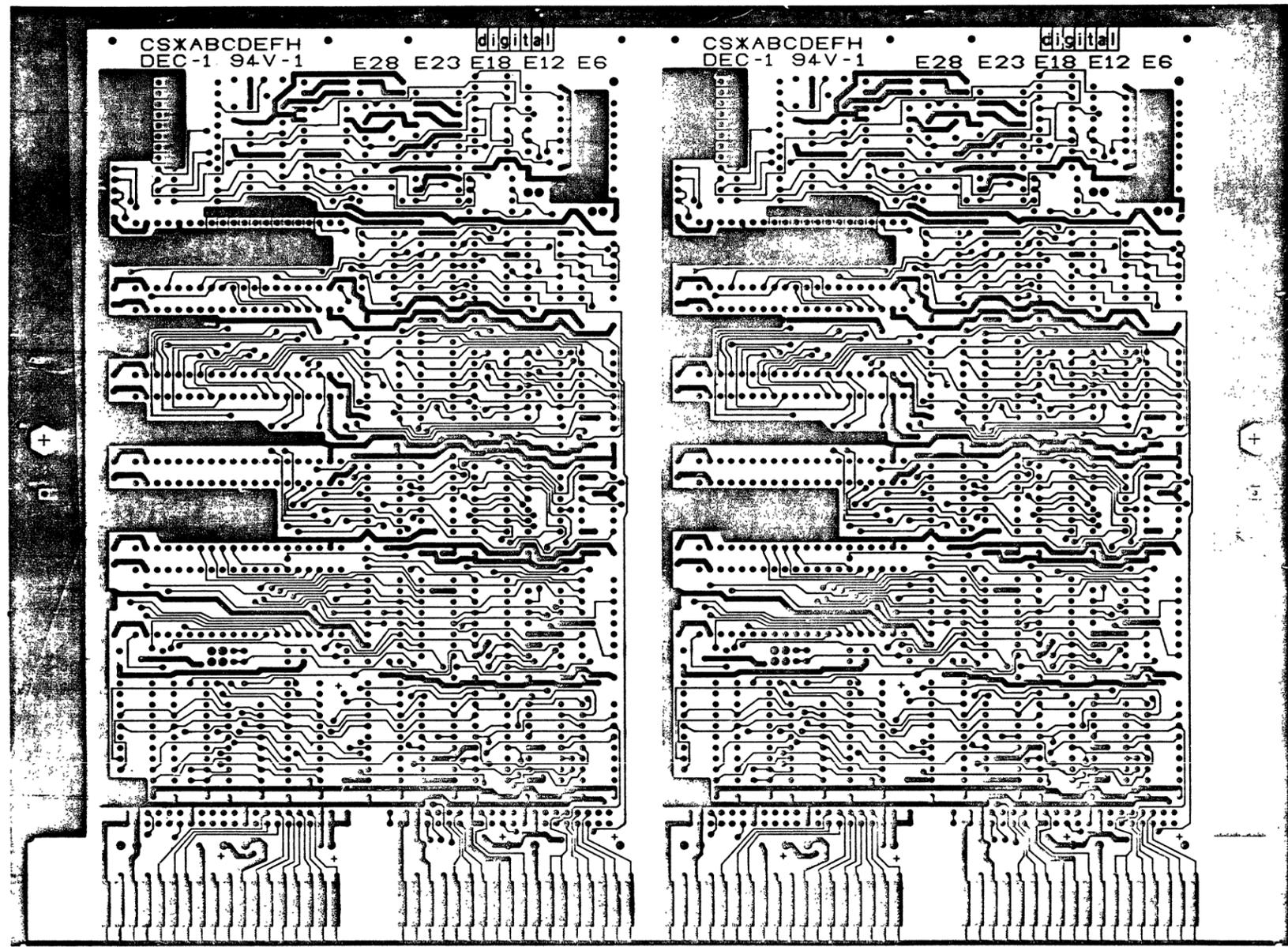
L1

CSXABCDEFGH
DEC-1 94V-1 E28 E23 E18 E12 E6

CSXABCDEFGH
DEC-1 94V-1 E28 E23 E18 E12 E6

digital

digital



TITLE		LSI-II CPU		SIZE	CODE	REV
SCALE		2/1		DUA	M7270-0-0	F
SHEET		2 OF 3		DIST		

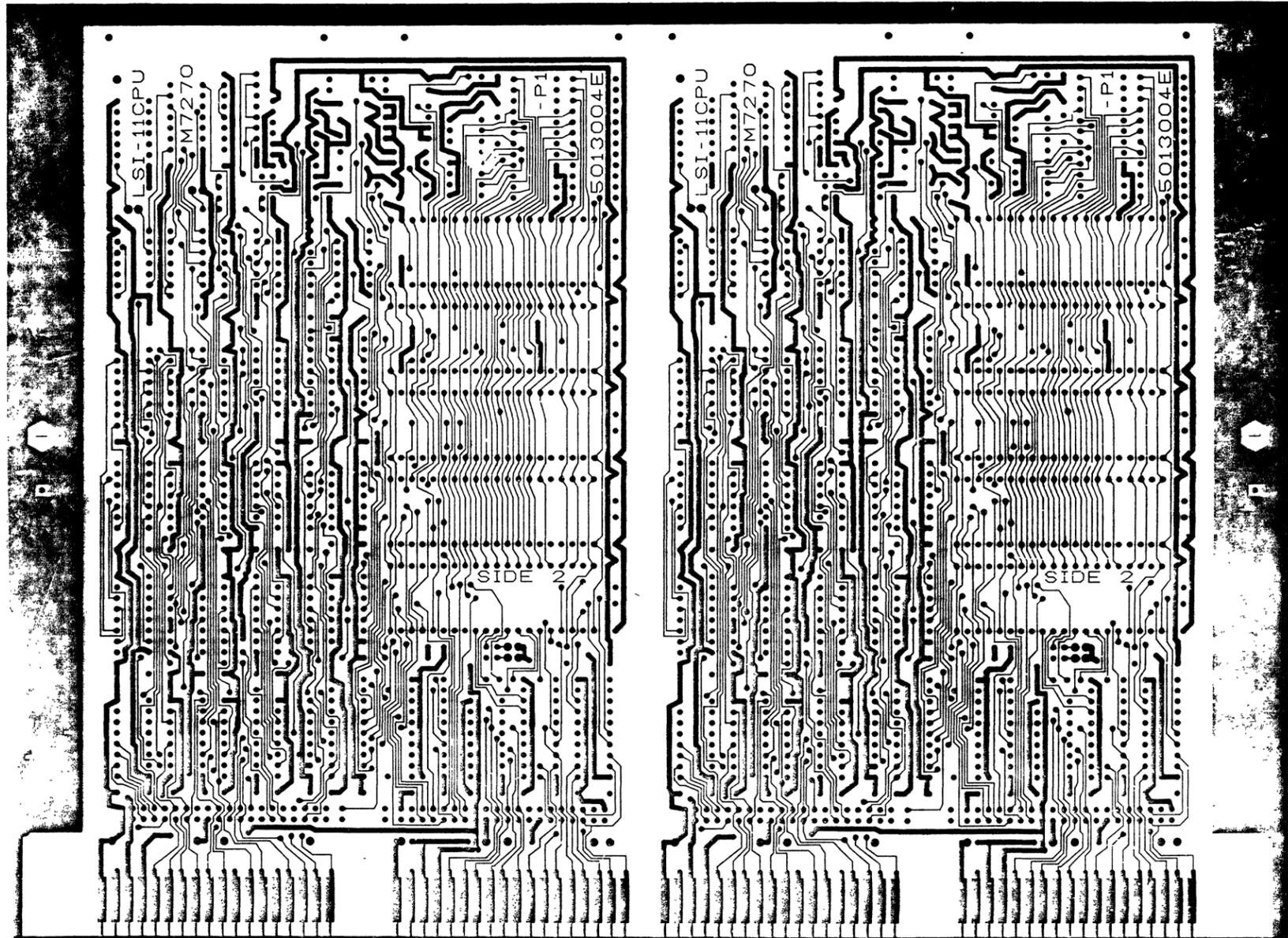
184

8 7 6 5 4 3 2 1
M7270-0-0 F

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
© 1977 PERIODICALS COMPANY

L2

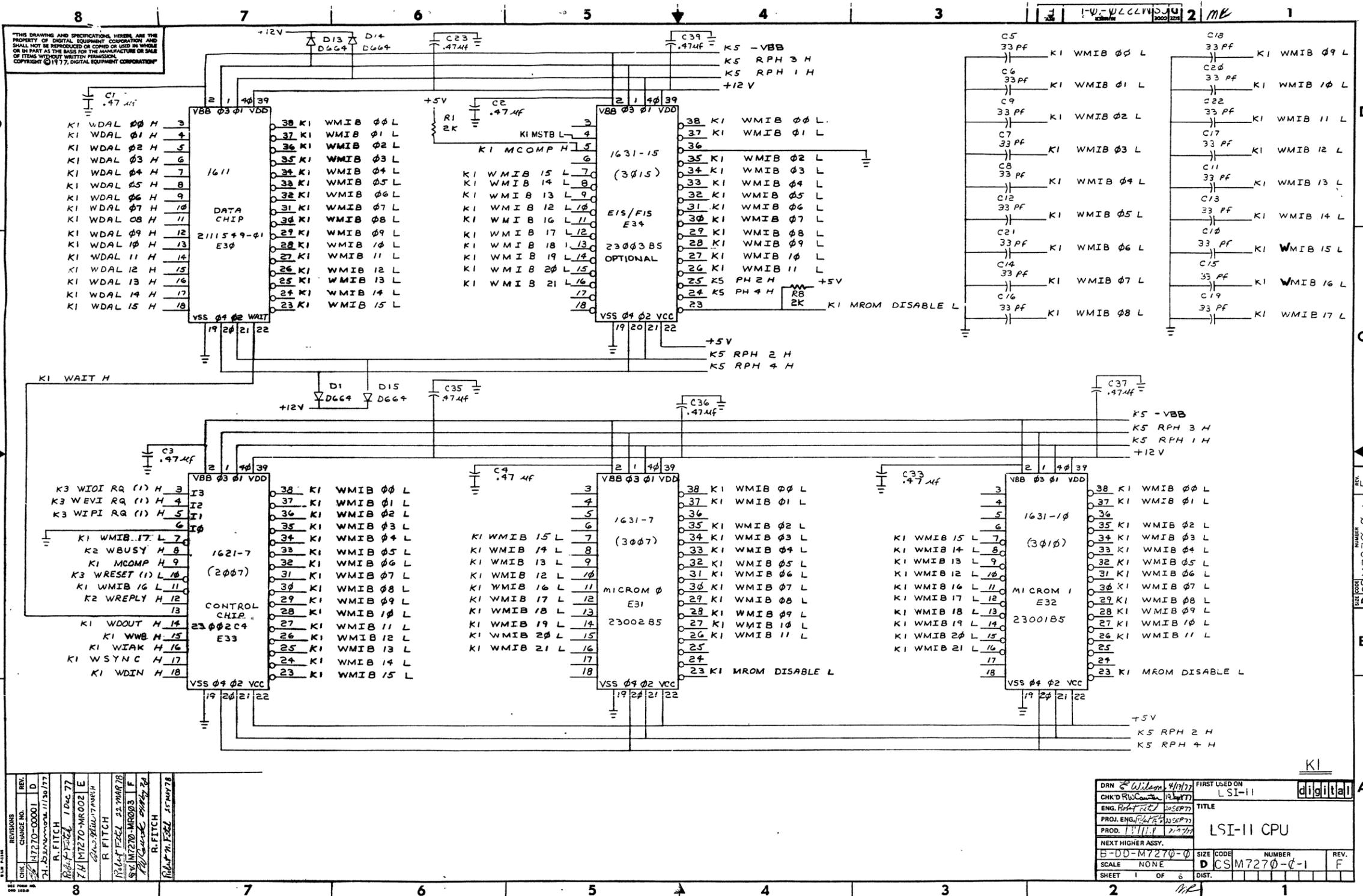
L2



8	7	6	5	4	3	2	1	LSI-11 CPU	DUA	M7270-0-0	F
								2/1	3	3	

D C B A
DUAL M7270-0-0 F

185



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REV.	BY	DATE
1	D	11/30/77
2	R. FITCH	1 Dec 77
3	R. FITCH	12/14/77
4	R. FITCH	12/14/77
5	R. FITCH	12/14/77
6	R. FITCH	12/14/77
7	R. FITCH	12/14/77
8	R. FITCH	12/14/77

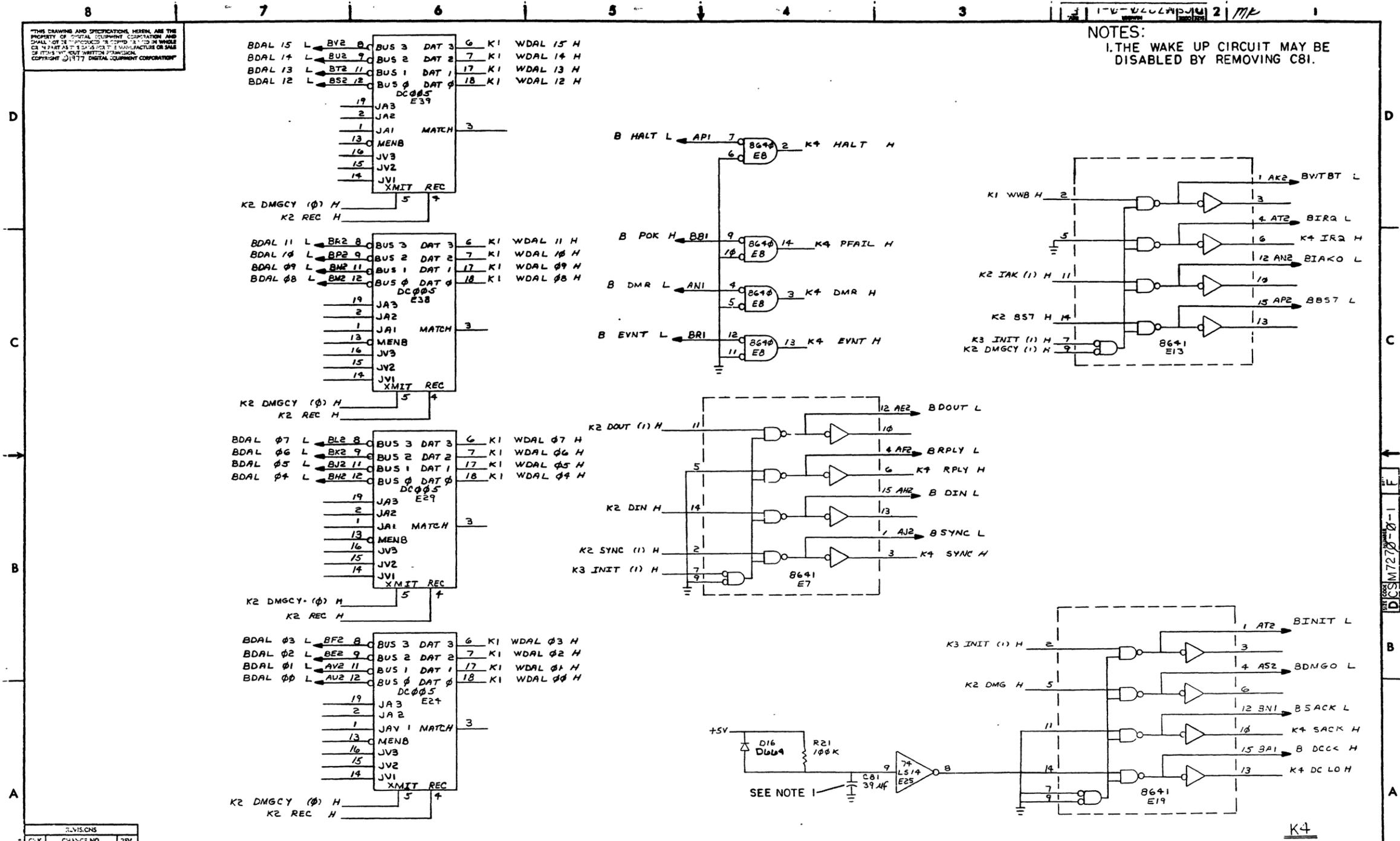
DRN	W. Wilam, 4/1/77	FIRST USED ON	LSI-11
CHK'D BY	R. W. Conner, 10/14/77	TITLE	LSI-11 CPU
ENG.	R. Fitch, 10/14/77	SCALE	NONE
PROJ. ENG.	R. Fitch, 10/14/77	SHEET	1 OF 6
PROD.	R. Fitch, 12/14/77	DIST.	
NEXT HIGHER ASSY.	B-DD-M7270-0	SIZE CODE	D
NUMBER	CSM7270-0-1	REV.	F

186

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1-7-02020-001 2 MK

NOTES:
1. THE WAKE UP CIRCUIT MAY BE DISABLED BY REMOVING CBI.

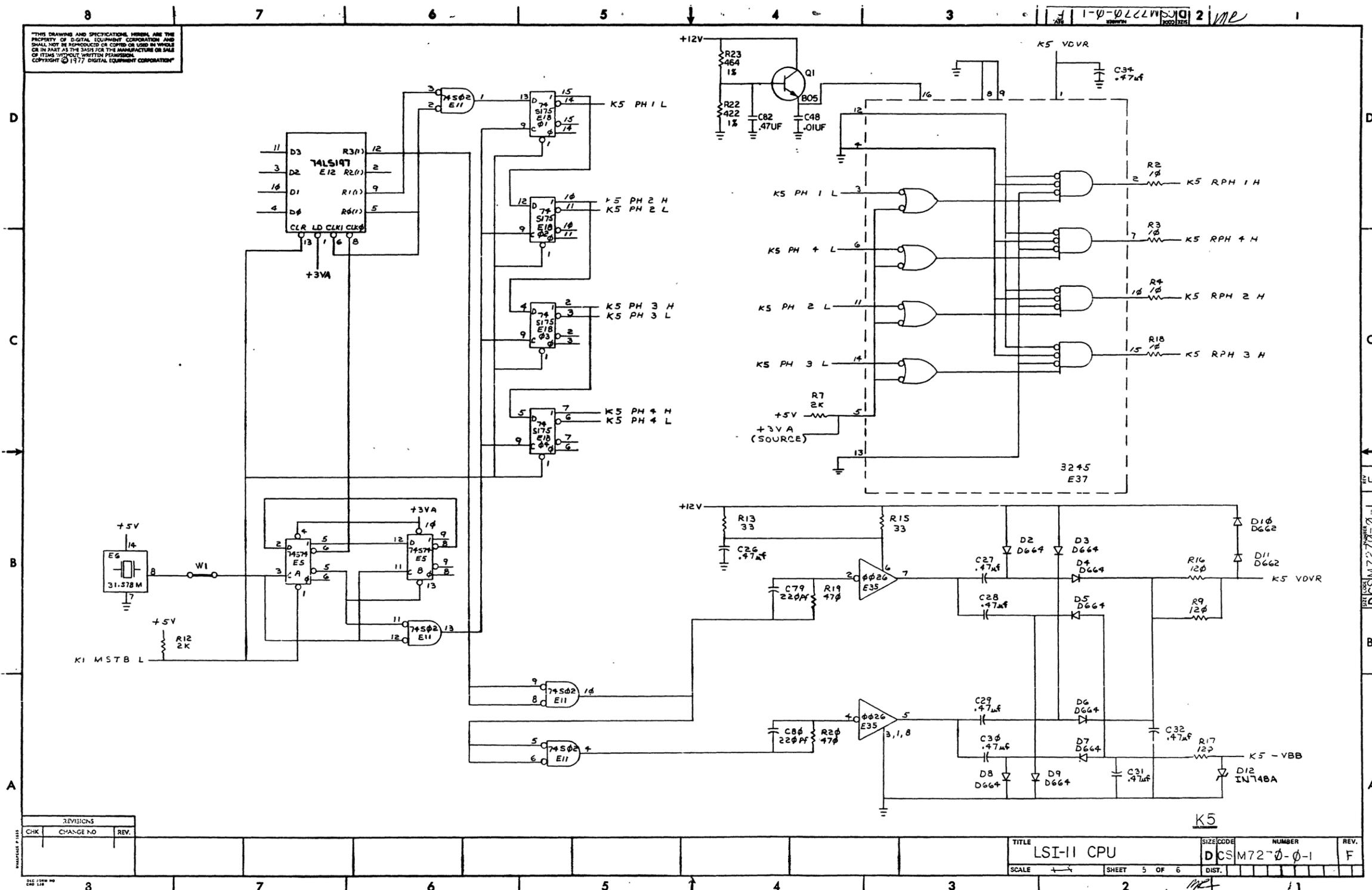


REVISIONS		
CLK	CHANGE NO.	REV.

TITLE	LSI-11 CPU	SIZE CODE	D	NUMBER	M7270-0-1	REV.	F
SCALE		SHEET	4	OF	6	DIST.	

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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE/CODE	NUMBER	REV.
LSI-11 CPU	DCS	M72-0-0-1	F
SCALE	SHEET	OF	DIST.
	5	6	

190

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP00274	FIELD MAINTENANCE PRINT SET (MP)	-				
	B-TC-IBV11-A-1	FIELD MAINTENANCE PRINT SET (TC)	-				
	A-PL-IBV11-A-0	LS111/IB INTERFACE	-				
	A-PL-IBV11-A-SH	IBV11-A SHIPPING LIST	-				
	A-SP-IBV11-A-8	ENGINEERING SPECIFICATIONS	E/M				
2	B-DD-M7954-0	LS111/IB INTERFACE (CS)					
3	D-UA-BN11A-C-0	CABLE, BN11A	E/M				
4	A-SP-3700273-0-0	PACKAGING INSTRUCTIONS	-				
	9905760	PACKAGING BOX	-				
	9905622	REVERSE TUCK FOLDING BOX	-				

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE
LS111/IB INTERFACE (WITH 4 METER CABLE)

SHEET 2 OF 2 SIZE B CODE DD NUMBER IBV11-A

REV

8

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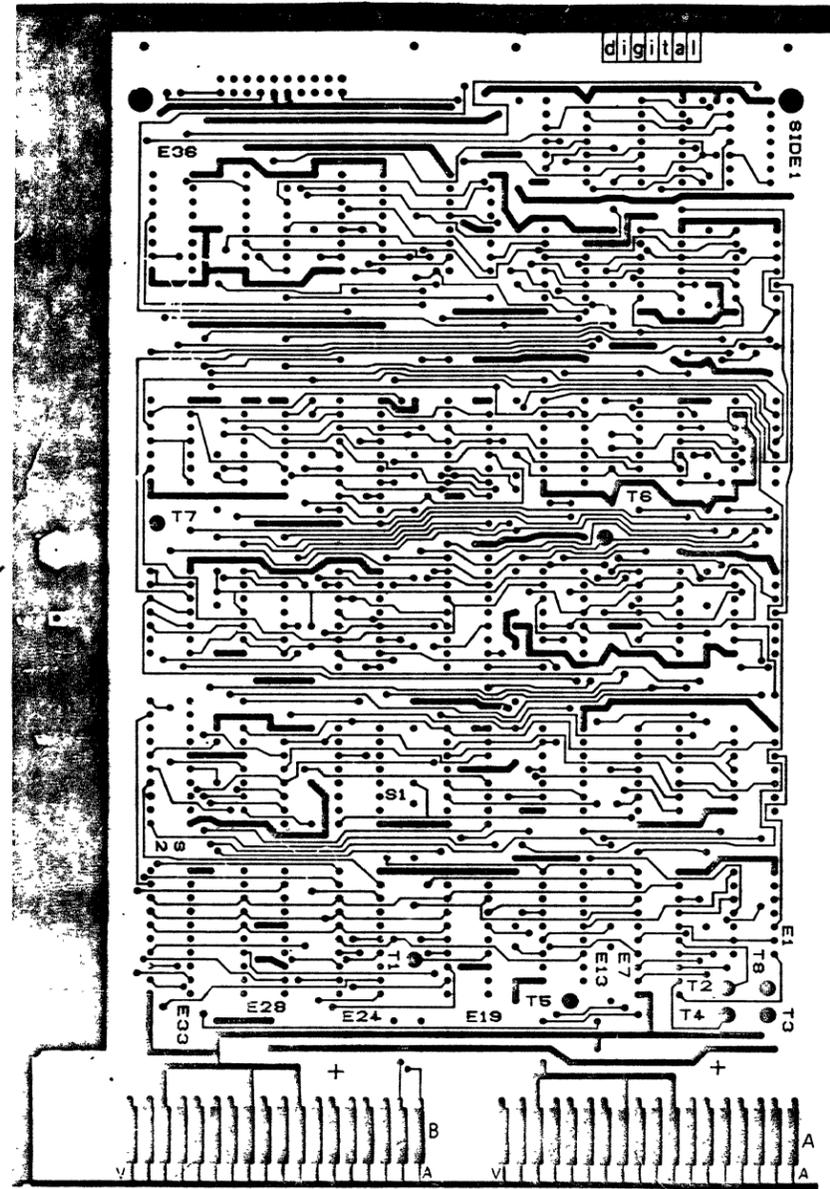
4

3

2 | DUA M7954-0-0 | 2

1

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REV	CHANGE NO

TITLE	LSI INTERFACE	SIZE CODE	D	NUMBER	M7954-0-0	REV.	D
SCALE	2/1	SHEET	2	OF	2	DIST	

8

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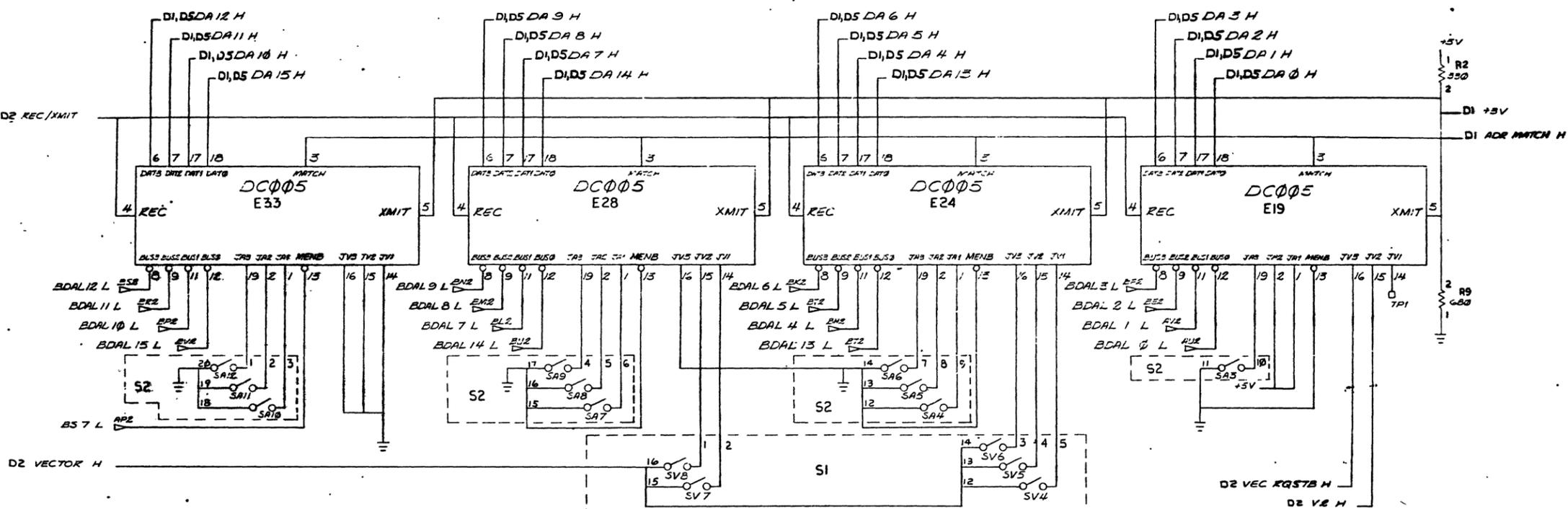
3

2

1

197

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- NOTES:
- ▷ IS MODULE FINGER PIN.
 - ON THIS AND THE FOLLOWING PAGES, ALL RESISTORS ARE 1/4 W, 5% UNLESS INDICATED OTHERWISE.
 - SELECTABLE REGISTER ADDRESS RANGE: 160000-177770. SET AT 160150 FOR PRODUCTION TESTING AND SHIPPING.
 - SELECTABLE VECTOR ADDRESS RANGE: 000-760
 - SV SWITCHES
SV_i DRIVES BDAL_i. BDAL_i IS LOW WHEN SV_i IS HIGH
i=4,5,...,8
 - SA SWITCHES. (i=3,4,...,11,12)
a) SA_i IS COMPARED WITH BDAL_i. CLOSING SWITCH IS EQUAL TO "LOW" ON THE BUS.
b) ADDR MATCH IS HIGH WHEN ALL SA_i'S ARE EQUAL TO ALL BDAL_i'S.
 - DATA MODES:
REC XMIT MODES
L L DISABLE BUS, DAT ARE OPEN.
L H DAT → BUS
H L BUS → DAT
H H BUS → DAT. VECTOR ADDRESS TRANSMITTED WHEN REQUIRED.

ADDRESS SWITCH (S2) SETTING FOR TESTING : 160150

1	2	3	4	5	6	7	8	9	10
OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	
SA2	SA11	SA8	SA9	SA6	SA7	SA6	SA5	SA4	SA3

VECTOR SWITCH (S1) SETTING FOR TESTING : 42X

1	2	3	4	5	6	7	8
ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
SV8	SV7	SV6	SV5	SV4			

* EK1 INH SWITCH ON SHEET 3.

LSII BUS INTERFACE

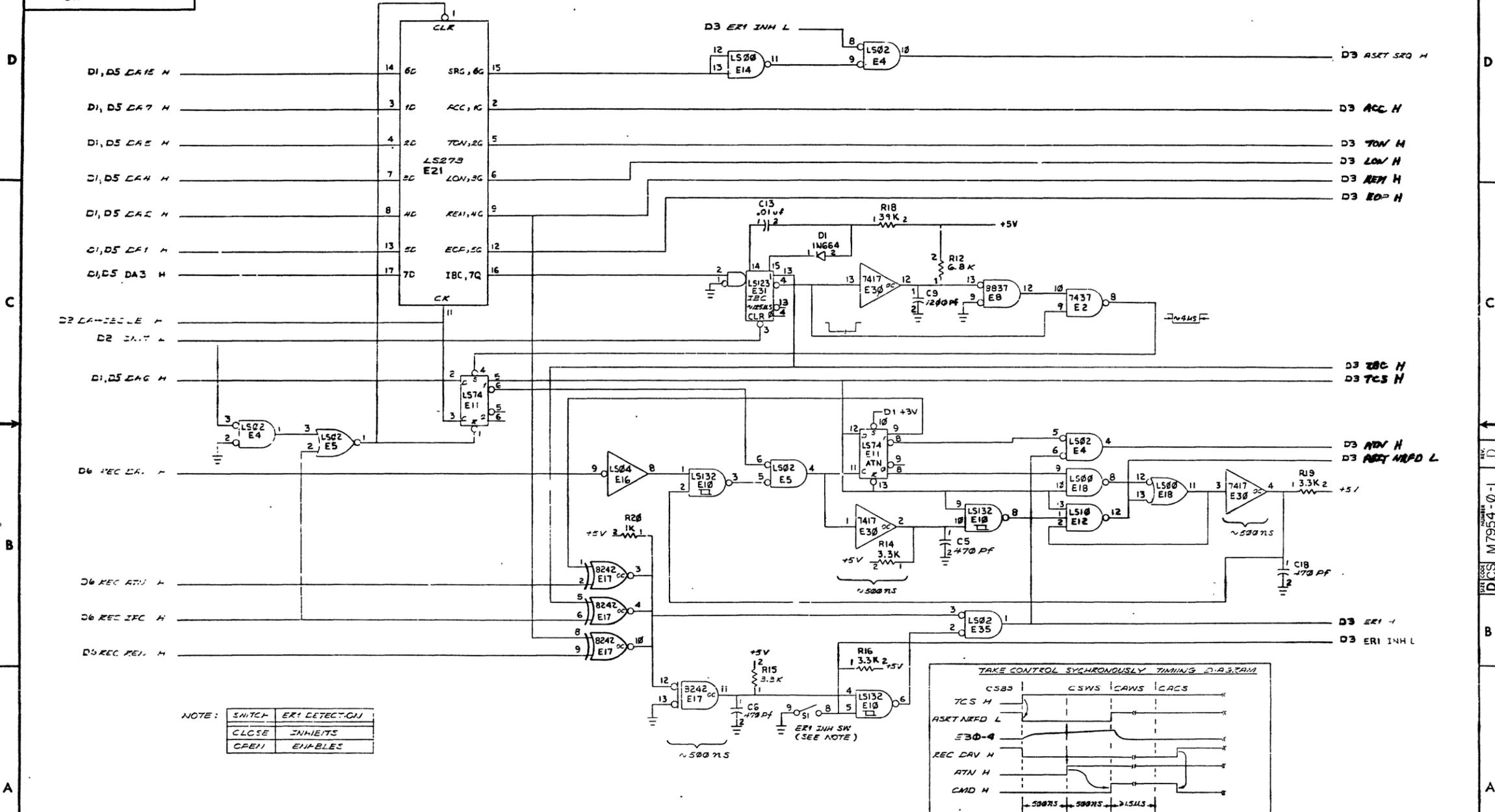
NOTES:

REV	DATE	BY	CHKD	APP'D

SIGNATURES	DATE	digital
TITLE		LSII/IB
		INTERFACE D1
SIZE	CODE	NUMBER
0	CS	17954-0-1
REV		
D		

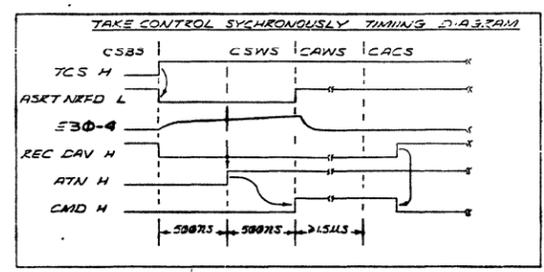
1 MS#

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NOTE:

SWTCH	ERI DETECT-ON
CLOSE	INHIBITS
OPEN	ENABLES



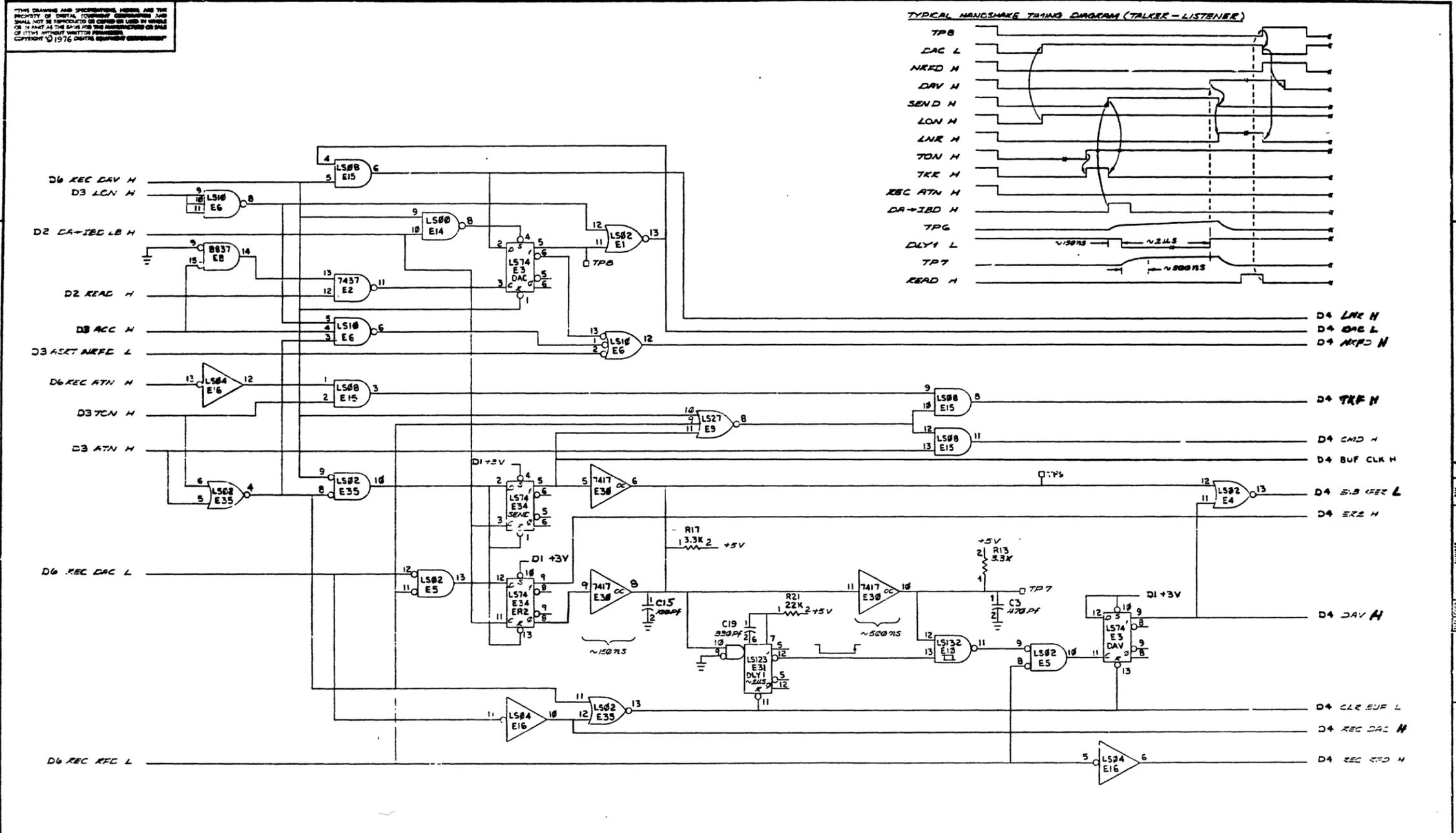
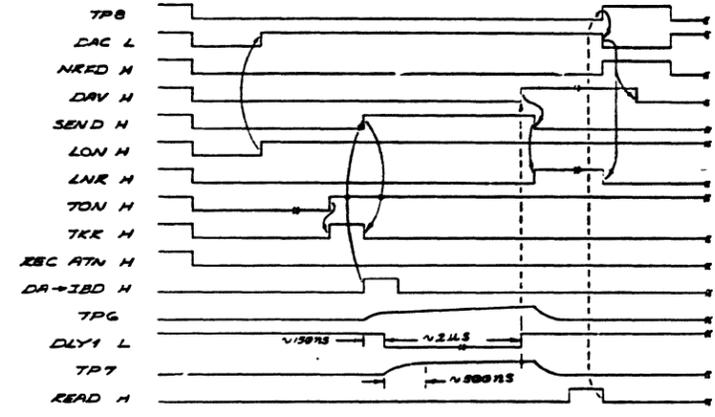
CONTROL AND STATUS

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE CODE	NUMBER	D3
LSI11/13 INTERFACE		D CS	M7954-0-1	REV. D
SCALE	SHEET 3 OF 7	DST.		

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TYPICAL HANDSHAKE TIMING DIAGRAM (TALKER - LISTENER)



REVISIONS		
CHK	CHANGE NO.	REV.

CONTROL AND HANDSHAKE D4

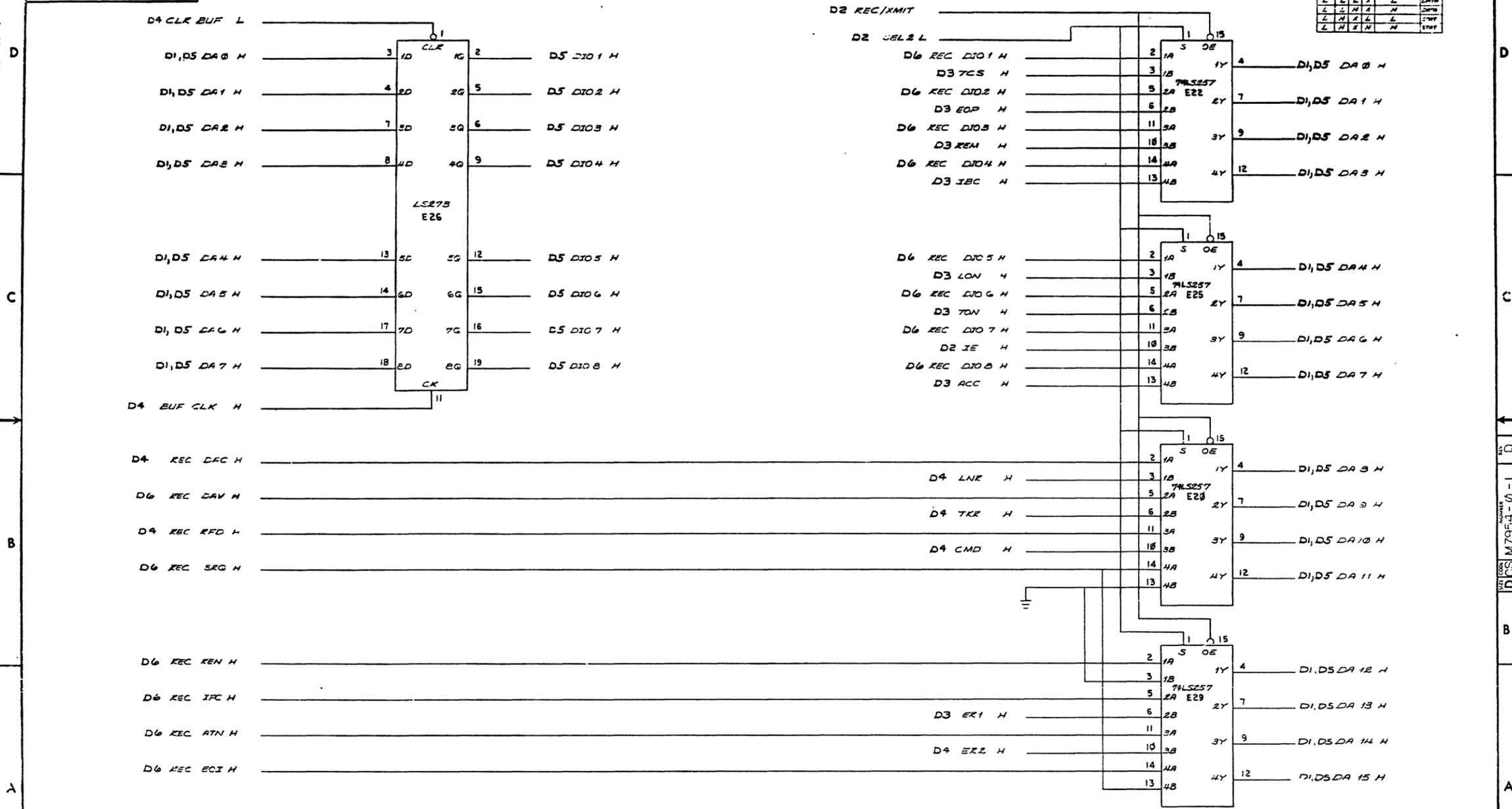
TITLE	LS11/13 INTERFACE	SIZE CODE	D4CS	NUMBER	M7954-0-1	REV.	D
SCALE	1:1	SHEET #	4	OF	7	DJT.	

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74LS257 TRUTH TABLE

OE	A	B	Y
0	X	X	X
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0



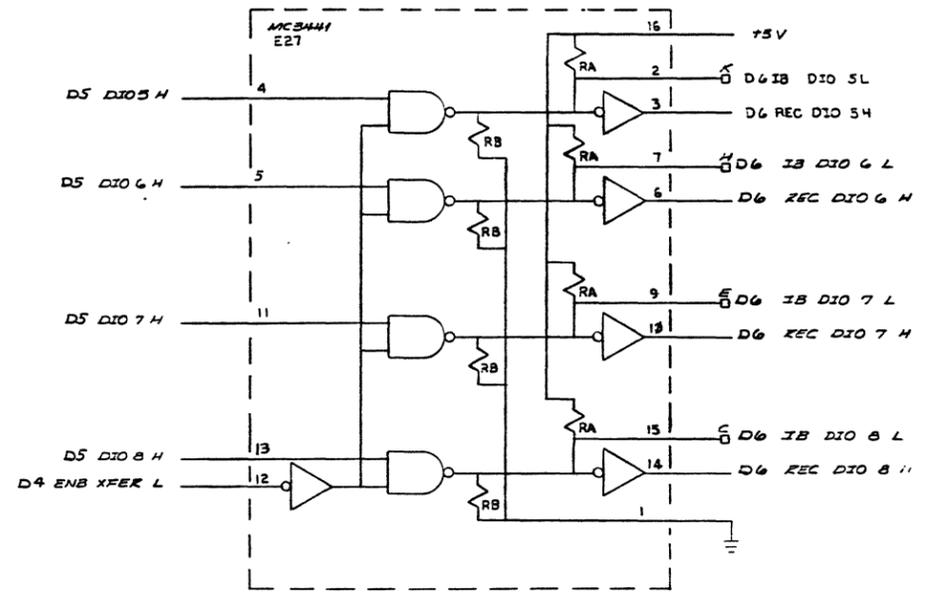
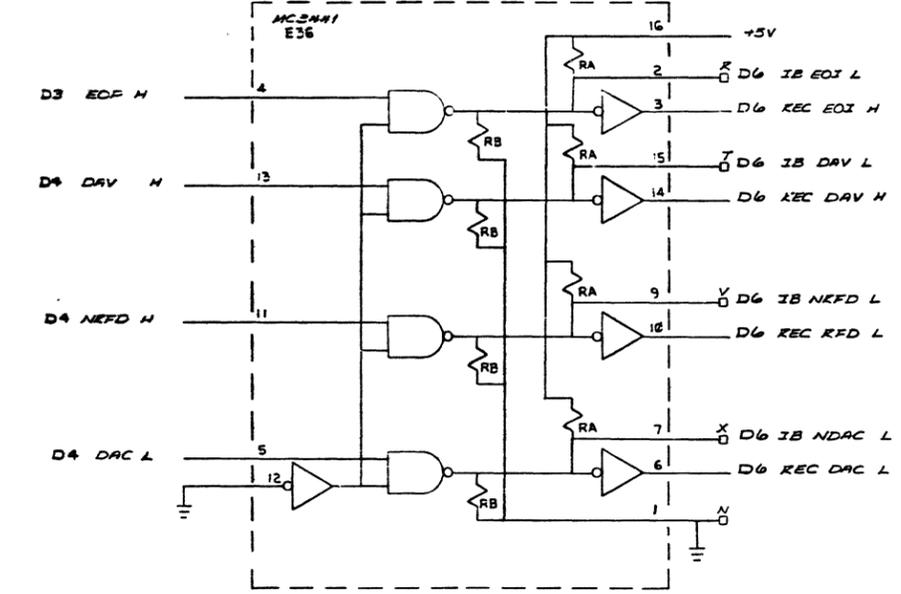
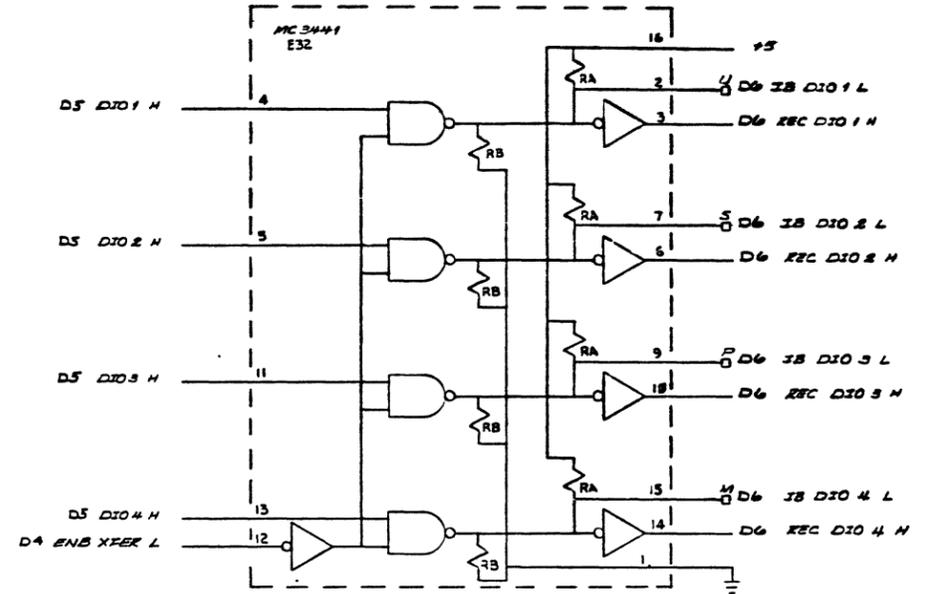
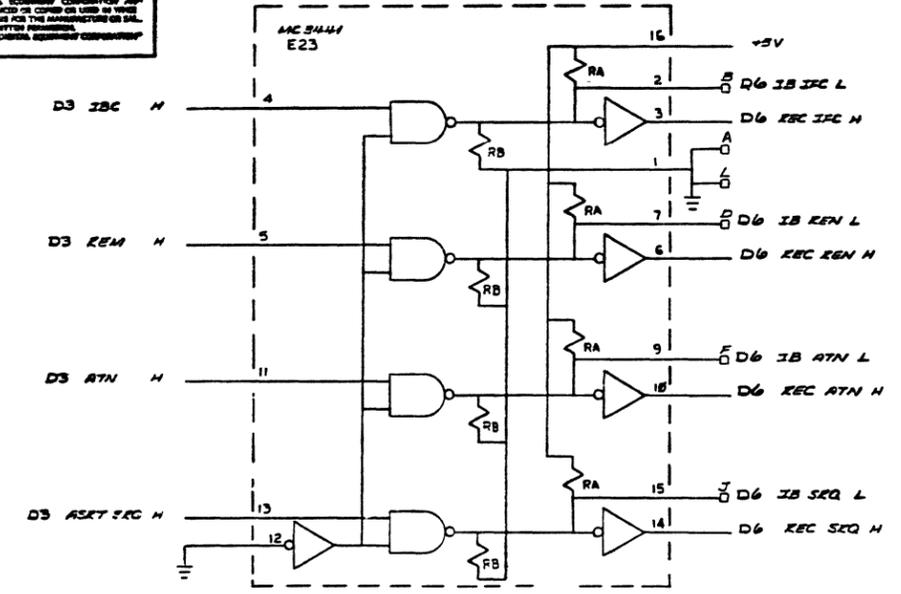
CHK	CHANGE NO.	REV.

DATA/STAT MLIX D5

TITLE	LS11/IB INTERFACE	SIZE CODE	D CS	NUMBER	M7954-0-1	REV.	D
SCALE	1/4	SHEET	5	OF	7	DIST.	

202

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NOTES: 1. RA = 3.0 KΩ, INTERNAL RESISTOR.
 2. RB = 6.2 KΩ, INTERNAL RESISTOR.
 3. □ IS A BERG CONNECTOR PIN.

REVISIONS		
CHK	CHANGE NO.	REV.

INSTRUMENT BUS INTERFACE D6

TITLE	DCS	NUMBER	REV.
LSI11/IB INTERFACE	M7954-0-1	D	D
SCALE	CONV	CP	ST.

203

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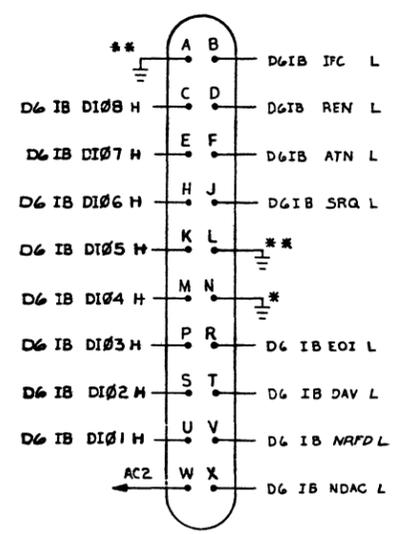
3

DCS M7954-0-1 2

1

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NOTES:
 1. (*) TERMINATION GROUND (PIN 1) OF DRIVER FOR EOI, DAV, NRFD & NDAC SIGNALS.
 2. (**) TERMINATION GROUND (PIN 1) OF DRIVER FOR IFC, REN, ATN & SRQ SIGNALS.



DCS M7954-0-1 D

EDY SIGNS		
CHK	CHANGE NO.	REV.

CABLE CONNECTOR PIN ASSIGNMENT		D7	
TITLE	SIZE/NO	NUMBER	REV.
LSII / IB INTERFACE	DCS	M7954-0-1	D
SCALE	SHEET 7 OF 7	DIS.	

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204

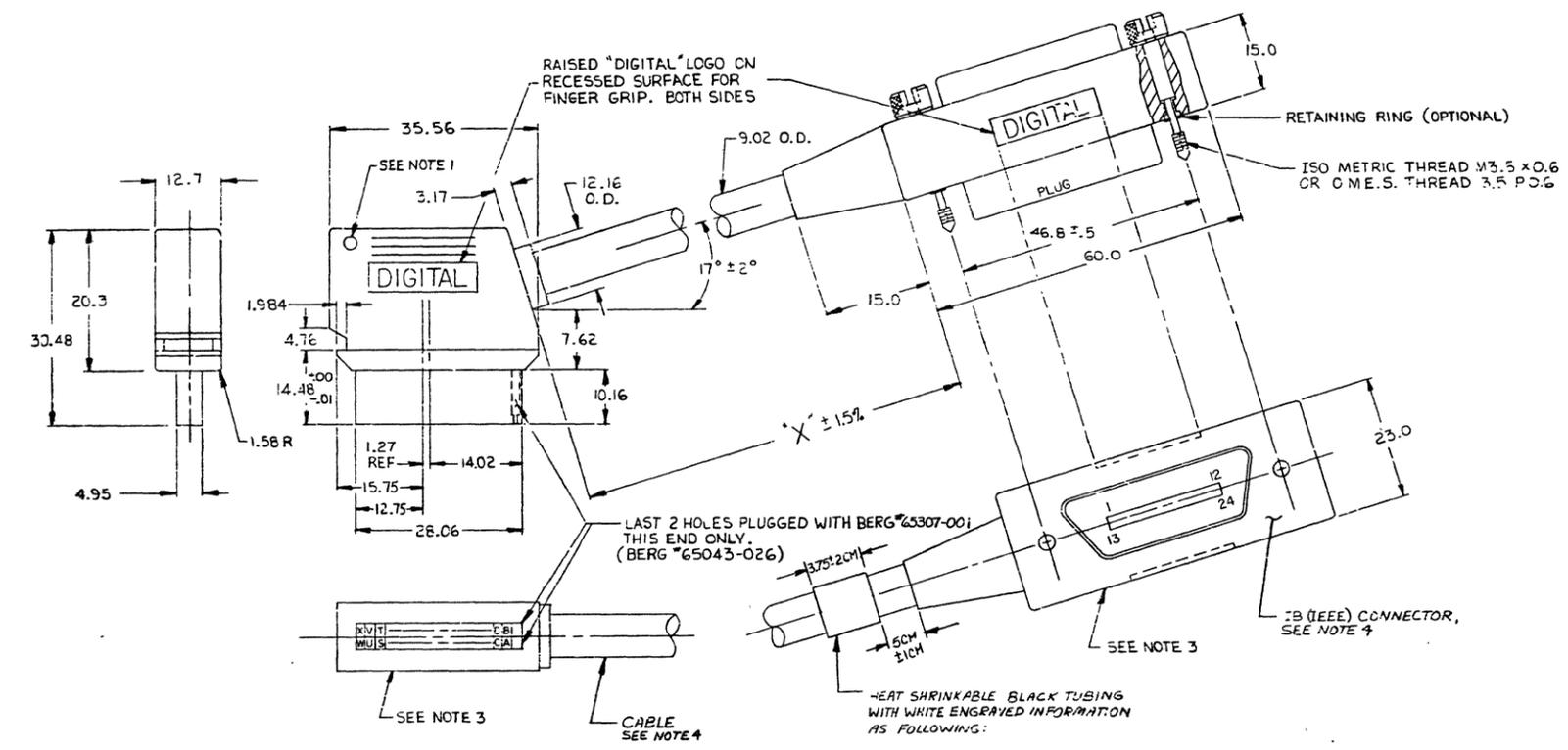
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LEGEND		
PURCHASE NO	OPTION NUMBER	DIM X (LENGTH)
1700079-00	BN11A-04	4-METER
1700079-01	BN11A-02	2-METER
1700079-02	BN11A-01	1-METER

- NOTES:
- LOCATING HOSS LOCATED APPROX. AS SHOWN. BOTH SIDES IF NECESSARY.
 - CABLE AND CONNECTOR COLOR IS GREY.
 - MOLDING MATERIAL: VINYL
 - CABLE AND CONNECTOR CHARACTERISTICS ARE DEFINED BY IEEE STD 488-1975

SIGNAL NAME	CONNECTOR PIN		WIRE COLOR
	23 CONNECTOR *	OLDER BERG HOUSING (22-CAVITY) **	
DIO 1	1	U	BRN
DIO 2	2	S	RED
DIO 3	3	P	ORG
DIO 4	4	M	YEL
EOI	5	R	GRN
DAV	6	T	BLU
NREFD	7	V	VIO
NDAC	8	X	GRY
IFC	9	B	WHT
SRQ	10	J	BLK/WHT
ATN	11	F	BRN/WHT
SHIELD	12	N	N/A SHIELD
DIO 5	13	K	CRS/WHT
DIO 6	14	H	YEL/WHT
DIO 7	15	L	GRN/WHT
DIO 8	16	I	BLU/WHT
REN	17	O	VIO/WHT
GND	18	V	GRY/WHT †
GND	19	V	BLK BRN/WHT †
GND	20	N	BLK RED/WHT †
GND	21	A	BLK CRS/WHT †
GND	22	A	BLK YEL/WHT †
GND	23	L	BLK BRN/WHT †
GND	24	L	BLK BLU/WHT †

- * CONNECTOR MEETS SPEC. DEFINED BY IEEE STD 488-1975 E.G. CMS #2024.
 - ** CONNECTOR MEETS SPEC. DEFINED BY THIS DRAWING.
 - CAVITY IS TERMINATED WITH BERG #47491 PART OR EQUIVALENT
 - † THESE THREE WIRES ARE CONNECTED AS FOLLOWS.
- N ————
 Δ THESE TWO WIRES ARE CONNECTED AS FOLLOWS.
 A ————
 □ THESE TWO WIRES ARE CONNECTED AS FOLLOWS.
 L ————



METRIC DIMENSIONS

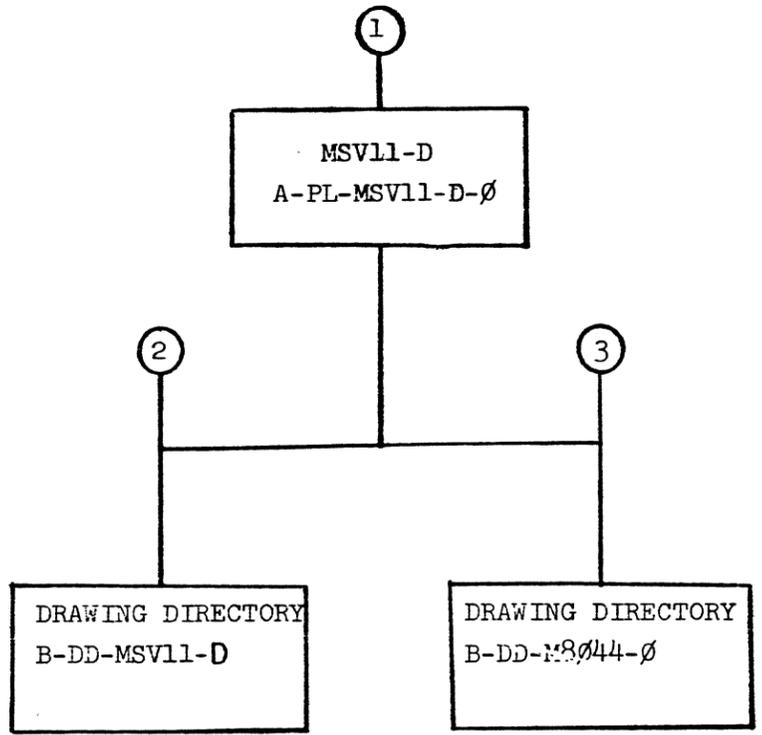
DEC
 BN11A-YY
 1700079-ZZ
 SEE LEGEND OF THIS DRAWING FOR VALUES OF YY AND ZZ.

REV	DATE	BY	CHK	APP
1				
2				

DESCRIPTION	DWG PART NO	ITEM NO
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		
TOLERANCES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
FINISH	1	2
ACCURACY	3	4
CHECK CASE	5	6
CHECK CASE	7	8
CHECK CASE	9	10
CHECK CASE	11	12
CHECK CASE	13	14
CHECK CASE	15	16
CHECK CASE	17	18
CHECK CASE	19	20
CHECK CASE	21	22
CHECK CASE	23	24
CHECK CASE	25	26
CHECK CASE	27	28
CHECK CASE	29	30
CHECK CASE	31	32
CHECK CASE	33	34
CHECK CASE	35	36
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CHECK CASE	89	90
CHECK CASE	91	92
CHECK CASE	93	94
CHECK CASE	95	96
CHECK CASE	97	98
CHECK CASE	99	100

205

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TITLE DRAWING DIRECTORY MSVII-D (32K X 16) MOS MEMORY SYSTEM	SHEET 2 OF 3	SIZE CODE BDD	NUMBER MSVII-D	REV A
--	--------------	------------------	-------------------	----------

ML 209

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
	MP 00 566	FIELD MAINTENANCE PRINT SET (MP)	-				
	B-TC-MSV11-D-1	FIELD MAINTENANCE PRINT SET (TC)	-				
1	A-PL-MSV11-D-0	PARTS LIST (MSV11-D)	E/M				
	D-BD-MSV11-D-4	MSV11D/E BLOCK DIAGRAM	E				
	D-FD-MSV11-D-5	MSV11 D/E FLOW DIAGRAM	E				
	D-TD-MSV11-D-6	MSV11 D/E TIMING DIAGRAM	E				
	A-SP-MSV11-D-3	MSV11-D SYSTEM SPECIFICATION	E/M				
	A-PL-MSV11-D-7	MSV11-D SHIPPING LIST	-				
	EK-MSV1D-OP-001	USERS MANUAL	E/M				
	D-08-MSV11-D-10	MSV11-D 32K MOS MEMORY	E				
2	B-DD-MSV11-D	DRAWING DIRECTORY MSV11-D MOS MEMORY SYSTEM	E/M				
3	B-DD-M8044-0	DRAWING DIRECTORY (M8044) MODULE	E/M				

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

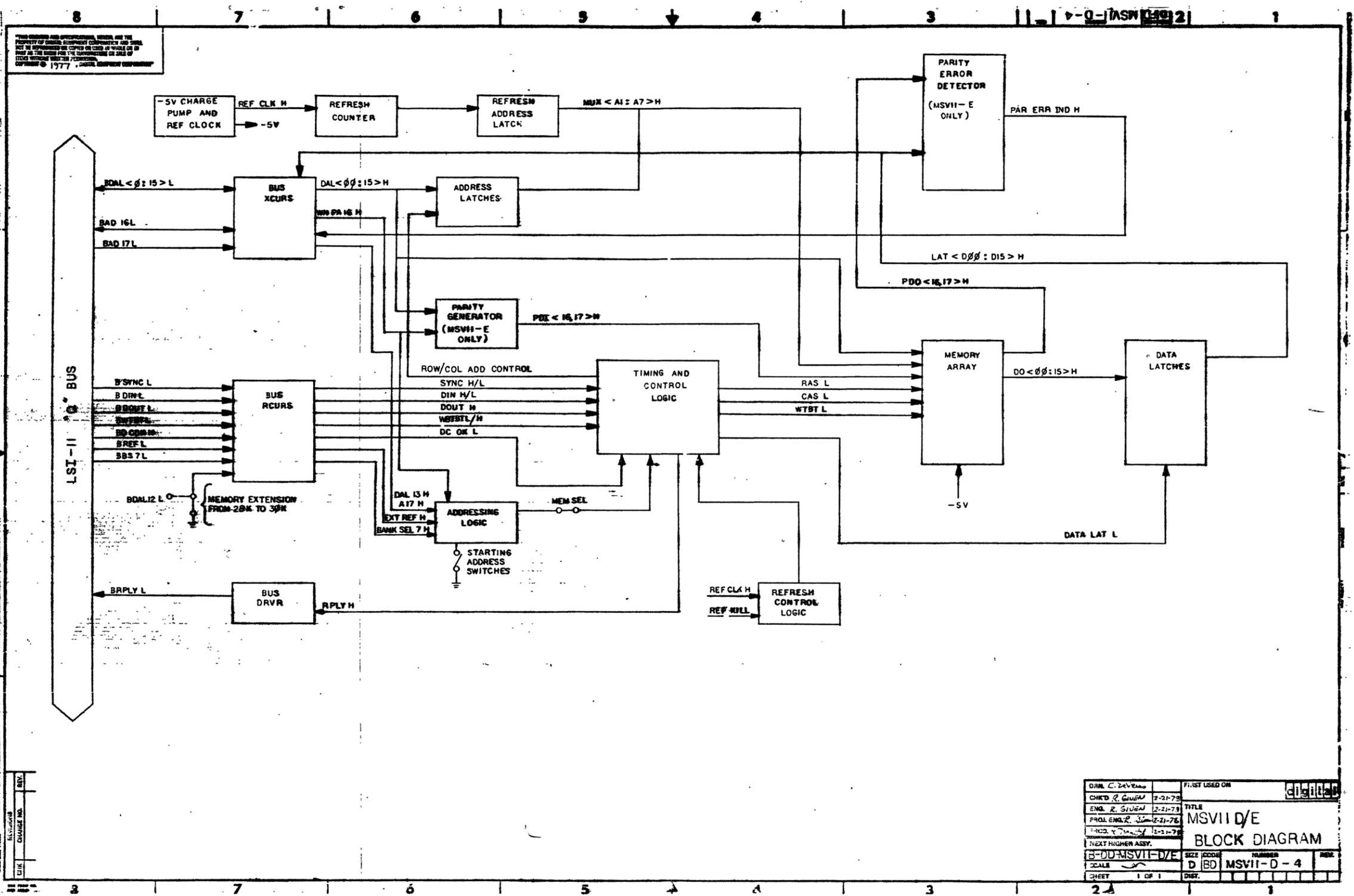
TITLE DRAWING DIRECTORY MOS MEM.
MSV11-D (32K X 16) SYSTEM

SHEET 3 OF 3

SIZE CODE B DD

NUMBER MSV11-D

REV A



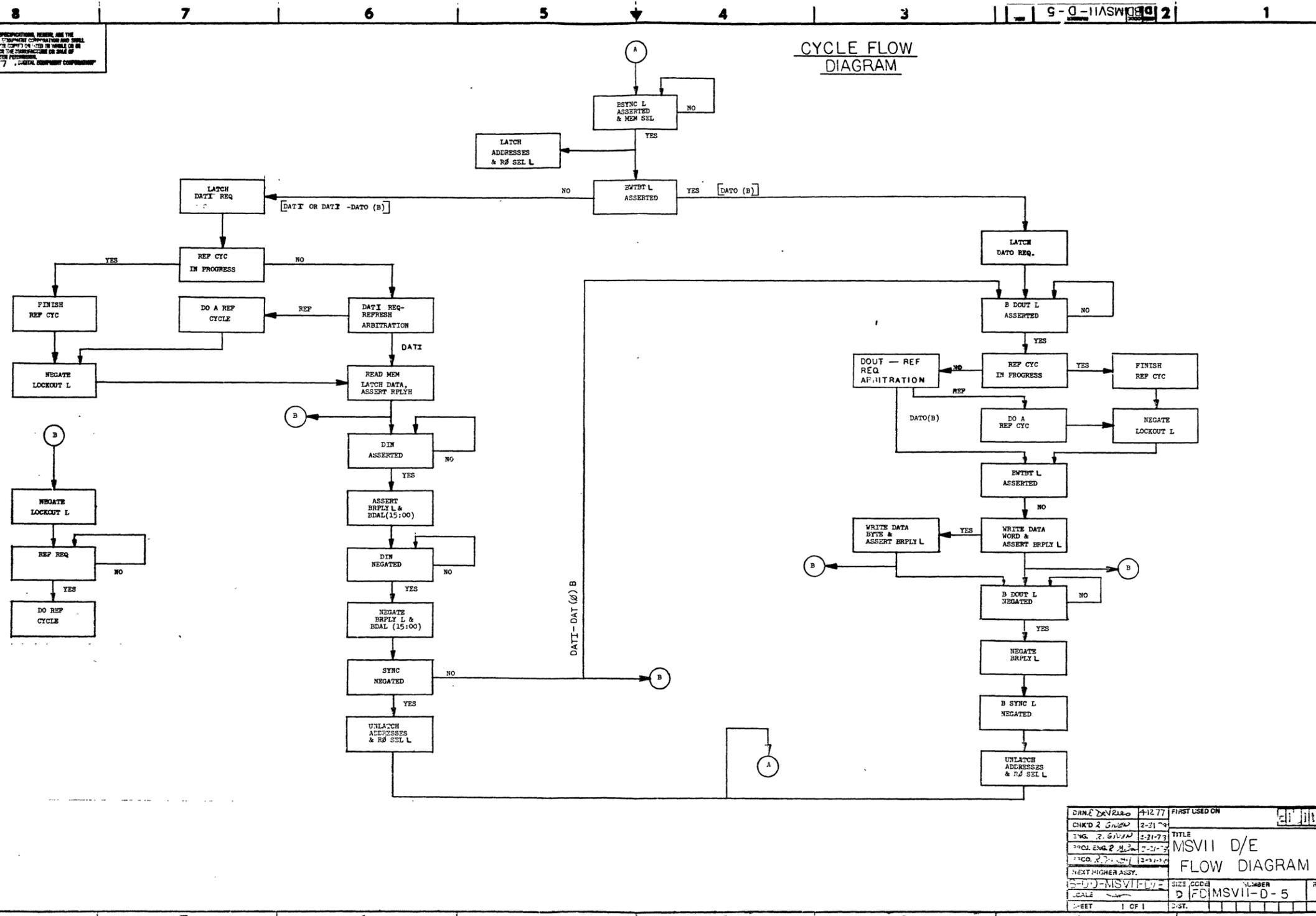
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DRW. C. 24 Rev. 0	FIRST USED ON	digital
CHK'D. R. GIBSON 2-21-78	TITLE	MSVII D/E
ENGR. R. GIBSON 2-21-78	SIZE CODE	D BD
PROJ. ENGR. J. J. 2-21-78	NUMBER	MSVII-D-4
TRCD. Y. 2-21-78	REV.	
NEXT HIGHER ASSY.		
B-DDMSVII-D/E		
SCALE		
SHEET 1 OF 1		

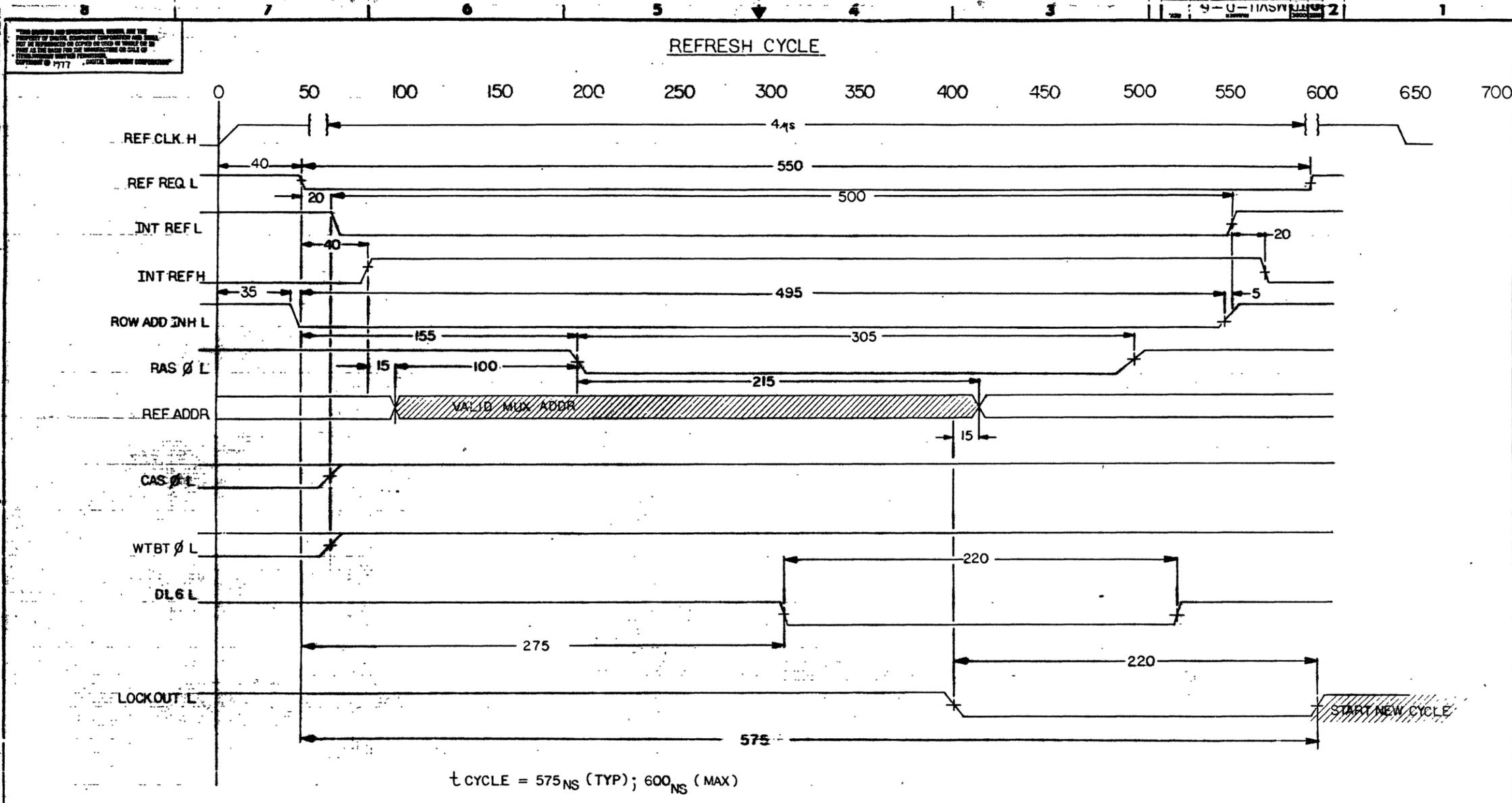
218

CYCLE FLOW DIAGRAM

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DATE	4-12-77	FIRST USED ON	
CHKD 2	5-21-77		
ENG. R. GILMAN	5-21-77	TITLE	MSVII D/E
PROJ. ENG. P. H. JONES	7-21-77		FLOW DIAGRAM
DRG. R. J. ...	12-21-77		
NEXT HIGHER ASSY.			
5-11-MSVII-D-5		SIZE CODE	NUMBER
SCALE		D	FDMSVII-D-5
SHEET	1 OF 1	POST.	



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9-U-11ASV1112

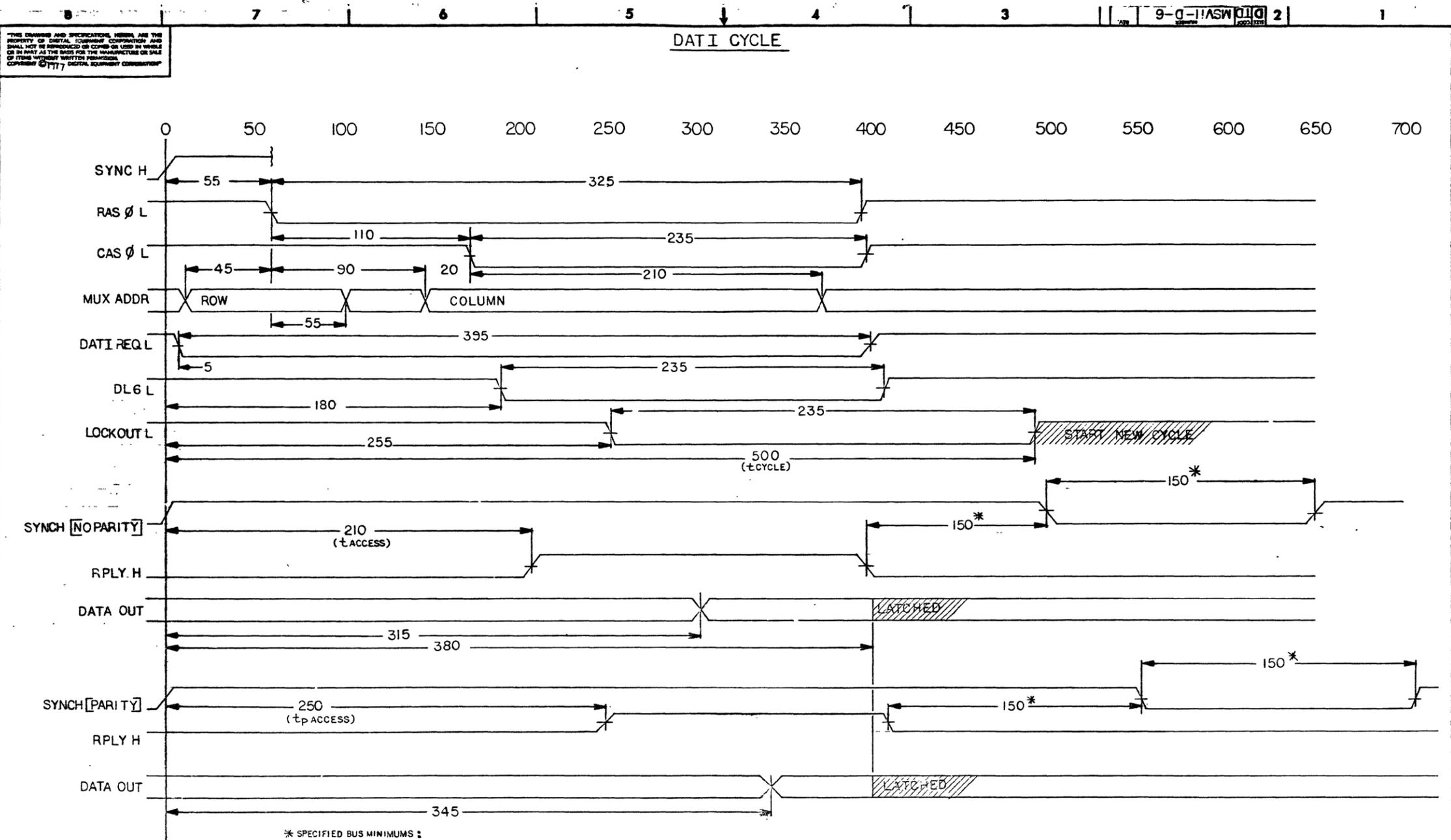
REV.	
CHANGE NO.	
DATE	
BY	

DRN. E. D. V. (11/10/77)	FIRST USED ON	
CHK'D R. G. UEM (2-21-78)		
ENG. R. G. UEM (2-21-78)	TITLE	MSVII D/E TIMING DIAGRAM
PROJ. ENG. R. G. UEM (2-21-78)	SIZE	CODE
PROD. ? (2-21-78)	D	ITD
NEXT HIGHER ASSY.	NUMBER	MSVII-D-6
S-DD-MSVII-D/E	SCALE	REV.
SHEET 1 OF 4	DNST.	

210

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DATI CYCLE



* SPECIFIED BUS MINIMUMS :
 $t_{ACCESS} = 210\text{ NS (TYP); } 225\text{ NS (MAX)}$
 $t_{PACCESS} = 250\text{ NS (TYP); } 265\text{ NS (MAX)}$
 $t_{CYCLE} = 500\text{ NS (TYP); } 520\text{ NS (MAX)}$

REVISIONS		
1	CHANGE NC	JLV

TITLE	MSVII D/E TIMING DIAGRAM	SIZE/CODE	D/TD	NUMBER	MSVII-D-6	REV.	
SCALE		SHEET	2 OF 4	E ST.			

215

8

7

6

5

4

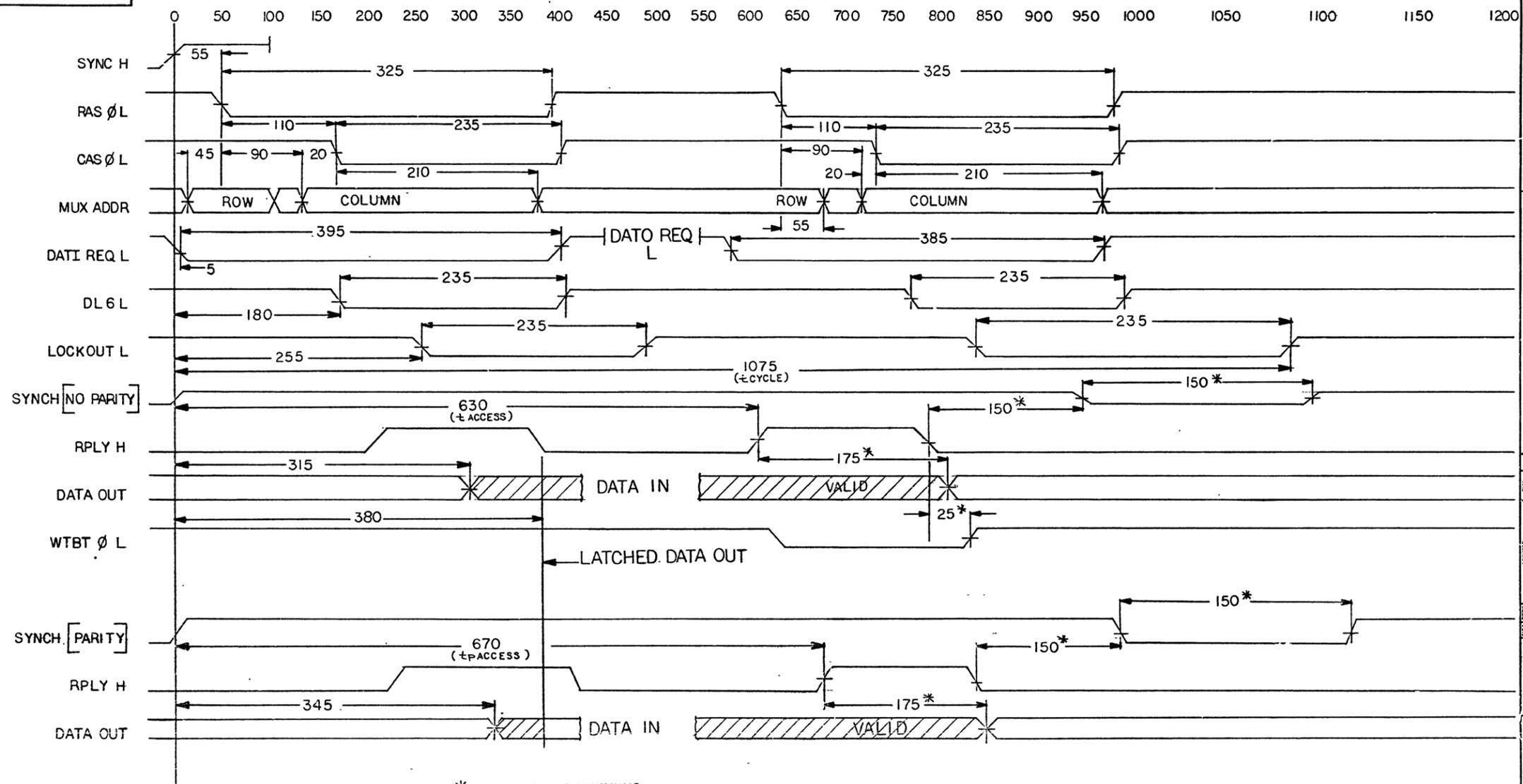
3

9-U-11ASW UJQ 2

1

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DATIO (B) CYCLE



*SPECIFIED BUS MINIMUMS
 ±ACCESS = 630 ns (TYP); 650 ns (MAX)
 ±ACCESS = 670 ns (TYP); 690 ns (MAX)
 ±CYCLE = 1075 ns (TYP); 1100 ns (MAX)
 ±CYCLE = 1115 ns (TYP); 1140 ns (MAX)

REVISIONS		
NO.	CHANGE NO.	REV.

STD FORM NO. DTD 138

8

7

6

5

4

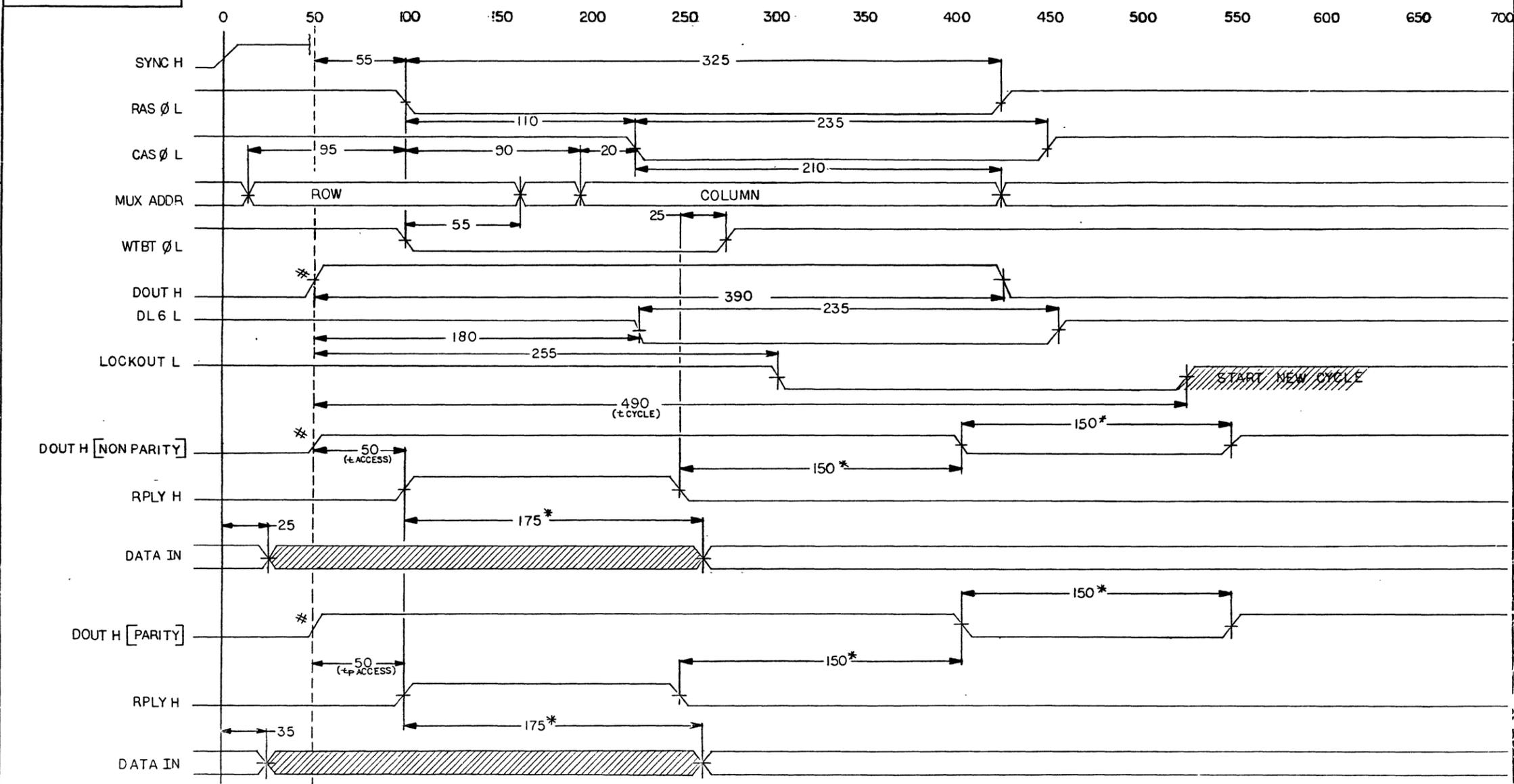
3

TITLE	MSVII D/E TIMING DIAGRAM	SIZE/CODE	D/TD	NUMBER	MSVII-D-6	REV.	
SCALE		SHEET	3 OF 4	DIST.			

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DATO (B) CYCLE



* SPECIFIED BUS MINIMUMS
 * TIME DEPENDENT ON PROCESSOR
 t_{ACCESS} = 120 NS (TYP); 110 NS (MAX)
 t_{P ACCESS} = 120 NS (TYP); 110 NS (MAX)
 t_{CYCLE} = 545 NS (TYP); 565 NS (MAX)
 SYNC H TO DOUT H SPECIFIED AT A MINIMUM OF 50 NS

REVISIONS		
CHK	CHANGE NO	REV

DEC FORM NO. 8
 DTD 138

TITLE	MSVII D/E TIMING DIAGRAM	SIZE/CODE	D/TD	NUMBER	MSVII-D-6	REV.	
SCALE		SHEET	4 OF 4	DIST.			

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DIGITAL EQUIPMENT CORPORATION PARTS LIST

MADE BY DATE	D. MANION 12/8/77	CHECKED DATE	SECTION
ENG DATE	R. Hiron 2-21-78	PROD DATE	ISSUED SECTION
		R. Mantel 2-21-78	

M8044-AA* QUANTITY / VARIATION

NOTES:
M8044-AA* IS A PRIMARY VARIATION OF THE 4K X 16 BIT SYSTEM. (NOT A MODULE TYPE) M8044-AB, AC, AD, AE, ARE MODULE TYPES, USING DIFFERENT 4K MOS DEVICES AND ARE IDENTICAL IN FUNCTION AND PURPOSE.

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-AB	M8044-AC	M8044-AD	M8044-AE											REF DESIGNATION
	D-CS-M8044-0-1		CIRCUIT SCHEMATIC	REF	REF	REF	REF											
	D-UA-M8044-0-0		UNIT ASSEMBLY	REF	REF	REF	REF											
	B-DD-M8044-0-0		DWG. DIRECTORY	REF	REF	REF	REF											
	D-MD-5013128-0-0		DRILL & ETCH DRAWING	REF	REF	REF	REF											
1		10-10279-00	CAP 0.47 UF 25V 20% CER	1	1	1	1											C10
2		10-01610-00	CAP 0.01 UF 50V 20% CER	27	27	27	27											C7,C99,C100 thru C123,C146
3		10-02627-00	CAP 2.2 UF 20V 10% S. TANT	3	3	3	3											C5,C6,C9
4		10-12121-00	CAP 220 PF 100V 1% DM	2	2	2	2											C8,C12
5		10-05306-00	CAP 6.8 UF 35V 10% S. TANT	2	2	2	2											C3,C4
6		10-12219-00	CAP 47 UF 30V AL EL	2	2	2	2											C1,C2
7		11-05275-00	DIODE D672	2	2	2	2											D1,D2
8		12-11164-01	SWITCH 5 POS	1	1	1	1											E2
9		13-09412-00	RES 18.2K 1/4W 1% MF	1	1	1	1											R26
10		13-09416-00	RES 31.6K 1/4W 1% MF	1	1	1	1											R25
11		13-02957-00	RES 121 1/4W 1% MF	1	1	1	1											R16
12		13-00295-00	RES 330 1/4W 5% CC	1	1	1	1											R27
13		13-05126-00	RES 619 1/4W 1% CC	1	1	1	1											R19
14		13-03110-00	RES 19.6 1/4W 1% MF	1	1	1	1											R18
15		13-05124-00	RES 287 1/4W 1% MF	1	1	1	1											R20
16		13-01874-00	RES 5.6K 1/4W 5% CC	2	2	2	2											R11,R24
17		13-14636-00	RES NETWORK (2-5K 1/8 W 5%)	3	3	3	3											R4,R5,R6

E.C.O. NO. 00001

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		SHEET 1 OF 16	INSERTION PARTS LIST DATA BASE REV —			

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DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-AA* QUANTITY / VARIATION										NOTES:		
MADE BY D. MANION DATE 12/8/77		CHECKED R. Gibson DATE 2-21-78		SECTION												
ENG R. Gibson DATE 2-21-78		PROD R. Mantel DATE 2-21-78		ISSUED SECTION												
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-AB	M8044-AC	M8044-AD	M8044-AE									REF DESIGNATION
59																
60		21-13735-01	4K MOS MEMORY 16 PIN IC (MOSTEK)	16	-	-	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73,
61		21-14475-01	4K MOS MEMORY 16 PIN IC (FUJITSU)	-	16	-	-									E24, E26, E30, E32, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E36
62		5013128	ETCH BOARD	1	1	1	1									
63		91-07560-01	WIRE #22 BUSS	A/R	A/R	A/R	A/R									W2, W3
64		21-13914-01	4K MOS MEMORY 16 PIN IC (DEC)	-	-	16										E24, 26, 30, 32, 36, 38, 41, 43, 53, 55, 59, 61, E64, 67, 71, 73
65		21-14114-01	4K MOS MEMORY 16 PIN IC (MOTOROLA)	-	-	-	16									E24, 26, 30, 32, 36, 38, 41, 43, 53, 55, 59, 61, E65, 67, 71, 73

E.C.O. NO.

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TITLE
32K 16 BIT MOS MEMORY

ASSY NO.
D-UA-M8044-0-0

SIZE B CODE PL NUMBER M8044-C-0

REV. C

SHEET 4 OF 16

INSERTION PARTS LIST DATA BASE REV -

222

DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-BA* QUANTITY / VARIATION								NOTES:	
MADE BY D. MANION DATE 12/8/77		CHECKED R. Jones DATE 2-21-78		SECTION								M8044-BA* IS A PRIMARY VARIATION OF THE 8K X 16 BIT SYSTEM. (NOT A MODULE TYPE) M8044-BB, BC, BD, BE ARE MODULE TYPES, USING DIFFERENT 4K MOS DEVICES AND ARE IDENTICAL IN FUNCTION AND PURPOSE.	
ENG R. Jones DATE 2-21-78		PROD R. Mantel DATE 2-21-78		ISSUED SECTION									
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-BB	M8044-BC	M8044-BD	M8044-BE						
	D-CS-M8044-0-1		CIRCUIT SCHEMATIC	REF	REF	REF	REF						
	D-UA-M8044-0-0		UNIT ASSEMBLY	REF	REF	REF	REF						
	B-DD-M8044-0-0		DWG. DIRECTORY	REF	REF	REF	REF						
	D-MD-5013128-0-0		DRILL & ETCH DRAWING	REF	REF	REF	REF						
1		10-10279-00	CAP 0.47 UF 25V 20% CER	1	1	1	1						C10
2		10-01610-00	CAP 0.01 UF 50V 20% CER	27	27	27	27						C7, C99, C100 thru C123, C146
3		10-02627-00	CAP 2.2 UF 20V 10% S. TANT	3	3	3	3						C5, C6, C9
4		10-12121-00	CAP 220 PF 100V 1% DM	2	2	2	2						C8, C12
5		10-05306-00	CAP 6.8 UF 35V 10% S. TANT	2	2	2	2						C3, C4
6		10-12219-00	CAP 47 UF 30V AL EL	2	2	2	2						C1, C2
7		11-05275-00	DIODE D672	2	2	2	2						D1, D2
8		12-11164-01	SWITCH 5 POS	1	1	1	1						E2
9		13-09412-00	RES 18.2K 1/4W 1% MF	1	1	1	1						R26
10		13-09416-00	RES 31.6K 1/4W 1% MF	1	1	1	1						R25
11		13-02957-00	RES 121 1/4W 1% MF	1	1	1	1						R16
12		13-00295-00	RES 330 1/4W 5% CC	1	1	1	1						R27
13		13-05126-00	RES 619 1/4W 1% CC	1	1	1	1						R19
14		13-03110-00	RES 19.6 1/4W 1% MF	1	1	1	1						R18
15		13-05124-00	RES 287 1/4W 1% MF	1	1	1	1						R20
16		13-01874-00	RES 5.6K 1/4W 5% CC	2	2	2	2						R11, R24
17		13-14636-00	RES NETWORK (2-5K 1/8 W 5%)	3	3	3	3						R4, R5, R6

E.C.O. NO.

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	32K 16 BIT MOS MEMORY	D-UA-M8044-0-0	B	PL	M8044-0-0	C
SHEET 5 OF 16			INSERTION PARTS LIST DATA BASE REV -			

DIGITAL EQUIPMENT CORPORATION PARTS LIST

MADE BY DATE	R. MANION 12/8/77	CHECKED <i>R. Manion</i> DATE 2-21-78	SECTION
ENG DATE	<i>R. Manion</i> 2-21-78	PROD <i>R. Manion</i> DATE 2-21-78	ISSUED SECTION

M8044-BA* QUANTITY / VARIATION							
M8044-BB	M8044-BC	M8044-BD	M8044-BE				

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-BB	M8044-BC	M8044-BD	M8044-BE											REF DESIGNATION
18		13-14637-00	RES NETWORK (3-22 1/8 W5%)	4	4	4	4											R1, R2, R7, R8
19		13-05123-00	RES 215 1/4W 1% MF	1	1	1	1											R22
20																		
21		13-00365-00	RES 1K 1/4W 5% CC	2	2	2	2											R12, R13
22		13-02874-00	RES 147 1/4W 1% MF	1	1	1	1											R21
23		13-02685-00	RES 909 1/4W 1% MF	1	1	1	1											R17
24		13-00271-00	RES 220 1/4W 5%	2	2	2	2											R14, R15
25		19-11579-00	DEC I.C. 8641	6	6	6	6											E1, E8, E51, E57, E63, E69
26		19-11469-00	DEC I.C. 8640	2	2	2	2											E13, E22
27		19-11944-00	DEC I.C. 555	1	1	1	1											E34
28		19-12746-00	DEC I.C. 74S37	3	3	3	3											E6, E17, E3
29		19-10544-00	DEC I.C. 74S74	3	3	3	3											E15, E12, E14
30																		
31		19-13670-00	DEC I.C. 74S373	5	5	5	5											E40, E70, E29, E46, E35
32		19-14451-00	DEC I.C. 74LS393	1	1	1	1											E23
33		19-10536-00	DEC I.C. 74S10	1	1	1	1											E20
34		19-10537-00	DEC I.C. 74S11	1	1	1	1											E11
35		19-13462-00	DEC I.C. 74S240	1	1	1	1											E18
36		19-12649-00	DEC I.C. 74LS75	1	1	1	1											E16
37		19-10540-00	DEC I.C. 74S22	1	1	1	1											E19

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		SHEET 6 OF 16	INSERTION PARTS LIST DATA BASE REV -			

DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-BA* QUANTITY / VARIATION												NOTES:	
MADE BY D. MANION DATE 12/8/77		CHECKED R. Hines DATE 2-21-78		SECTION												REF DESIGNATION	
ENG R. Hines DATE 2-21-78		PROD R. Martel DATE 2-21-78		ISSUED SECTION													
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-BB	M8044-BC	M8044-BD	M8044-BE										
38		19-13340-00	DEC I.C. 74S32	1	1	1	1										E10
39		19-12388-00	DEC I.C. 74S02	1	1	1	1										E7
40		19-10544-01	DEC I.C. 74S74-01	1	1	1	1										E21
41		19-12541-00	-5 VOLT REGULATOR	1	1	1	1										Q1
42		19-12807-00	DEC I.C. 74LS10	1	1	1	1										E28
43		19-13777-00	DEC I.C. 74LS240	1	1	1	1										E5
44		91-07771-00	DIODE ASSEMBLY SPACER	4	4	4	4										(USED WITH W2, W3)
45		90-09149-00	PIN WIRE WRAP .025 SQ. X .345 LNO	13	13	13	13										
46		90-09185-00	JUMPER WIRE INSULATED	1	1	1	1										W1
47		90-07254-00	TRANSIPAD	1	1	1	1										(USE UNDER Q1)
48		90-08337-06	HANDLE FLIP CHIP (MAGENTA)	2	2	2	2										
49		90-06732-00	EYELETS	4	4	4	4										
50		91-05740-55	WIRE 30 AWG. GRN	A/R	A/R	A/R	A/R										
51		16-13120-00	DELAY LINE 200NS	1	1	1	1										E4
52		10-10274-01	CAP 0.22 UF 50V +80 - 20% CER	31	31	31	31										C124 thru C145, C147 thru C155
53																	
54																	
55		23-195F1-00	DEC I.C. 1KX4 TTL PROM	1	1	1	1										E9
56																	
57																	
58																	

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		32K 16 BIT MOS MEMORY	D-UA-M8044-0-0	B	PL	M8044-0-0	C
SHEET 7 OF 16			INSERTION PARTS LIST DATA BASE REV —				

DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-BA* QUANTITY / VARIATION								NOTES:	
MADE BY D. MANION DATE 12/8/77		CHECKED R. Givins DATE 2-21-78		SECTION									
ENG R. Givins DATE 2-21-78		PROD R. Martel DATE 2-21-78		ISSUED SECTION									
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-BB	M8044-BC	M8044-BD	M8044-BE						REF DESIGNATION
59													
60		21-13735-01	4K MOS MEMORY 16 PIN IC (MOSTEK)	32	-	-	-						E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
61		21-14475-01	4K MOS MEMORY 16 PIN IC (FUJITSU)	-	32	-	-						E24, E26, E30, E32, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E36, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
62		5013128	ETCH BOARD	1	1	1	1						
63		91-07560-01	WIRE #22 BUSS	A/R	A/R	A/R	A/R						W2, W3
64		21-13914-01	4K MOS MEMORY 16 PIN IC (DEC)	-	-	32	-						E24, 26, 30, 32, 36, 38, 41, 43, 53, 55, 59, 61, E65, 67, 71, 73, 25, 27, 31, 33, 37, 39, 42, 44, E54, 56, 60, 62, 66, 68, 72, 74
65		21-14114-01	4K MOS MEMORY 16 PIN IC (MOTOROLA)	-	-	-	32						E24, 26, 30, 32, 36, 38, 41, 43, 53, 55, 59, 61, E65, 67, 71, 73, 25, 27, 31, 33, 37, 39, 42, 44, E54, 56, 60, 62, 66, 68, 72, 74

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TITLE
32K 16 BIT MOS MEMORY

ASSY NO.
D-UA-M8044-0-0

SIZE CODE NUMBER
B PL M8044-0-0

REV.
C

SHEET 8 OF 16

INSERTION PARTS LIST DATA BASE REV -

DIGITAL EQUIPMENT CORPORATION PARTS LIST

MADE BY DATE	R. MANION 12/8/77	CHECKED DATE	R. <i>Swain</i> 2-21-78
ENG DATE	R. <i>Swain</i> 2-21-78	PROD DATE	R. <i>Swain</i> 2-21-78

M8044-CA* QUANTITY / VARIATION

M8044-CB	M8044-CC	M8044-CD	M8044-CE	M8044-CF													
----------	----------	----------	----------	----------	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-CB	M8044-CC	M8044-CD	M8044-CE	M8044-CF										REF DESIGNATION
18		13-14637-00	RES NETWORK (3-22 1/8W 5%)	4	4	4	4	4										R1, R2, R7, R8
19		13-05123-00	RES 215 1/4W 1% MF	1	1	1	1	1										R22
20		1301969-00	RES 22 1/4W 5% CC	1	1	1	1	1										R3
21		13-00365-00	RES 1K 1/4W 5% CC	2	2	2	2	2										R12, R13
22		13-02874-00	RES 147 1/4W 1% MF	1	1	1	1	1										R21
23		13-02685-00	RES 909 1/4W 1% MF	1	1	1	1	1										R17
24		13-00271-00	RES 220 1/4W 5%	2	2	2	2	2										R14, R15
25		19-11579-00	DEC I.C. 8641	6	6	6	6	6										E1, E8, E51, E57, E63, E69
26		19-11469-00	DEC I.C. 8640	2	2	2	2	2										E13, E22
27		19-11944-00	DEC I.C. 555	1	1	1	1	1										E34
28		19-12746-00	DEC I.C. 74S37	3	3	3	3	3										E6, E17, E3
29		19-10544-00	DEC I.C. 74S74	3	3	3	3	3										E15, E12, E14
30																		
31		19-13670-00	DEC I.C. 74S373	5	5	5	5	5										E40, E70, E29, E46, E35
32		19-14451-00	DEC I.C. 74LS393	1	1	1	1	1										E23
33		19-10536-00	DEC I.C. 74S10	1	1	1	1	1										E20
34		19-10537-00	DEC I.C. 74S11	1	1	1	1	1										E11
35		19-13462-00	DEC I.C. 74S240	1	1	1	1	1										E18
36		19-12649-00	DEC I.C. 74LS75	1	1	1	1	1										E16
37		19-10540-00	DEC I.C. 74S22	1	1	1	1	1										E19

E.C.O. NO.

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		SHEET 10 OF 16	INSERTION PARTS LIST DATA BASE REV —			

DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-CA* QUANTITY / VARIATION										NOTES:			
MADE BY D. MANION DATE 12/8/77		CHECKED R. Hewes DATE 2-21-78		SECTION													
ENG R. Hewes DATE 2-21-78		PROD R. Martel DATE 2-21-78		ISSUED SECTION													
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-CB	M8044-CC	M8044-CD	M8044-CE	M8044-CF									REF DESIGNATION
59																	
60		21-13825-01	16K MOS MEMORY 16 PIN IC (MOSTEK)	16	-	-	-	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73,
61		21-14408-01	16K MOS MEMORY 16 PIN IC (FUJITSU)	-	16	-	-	-									E24, E26, E30, E32, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E36
62		5013128	ETCH BOARD	1	1	1	1	1									
63		91-07560-01	WIRE #22 BUSS	A/R	A/R	A/R	A/R	A/R									W2, W3
64		21-14895-01	16K MOS MEMORY 16 PIN I.C. (INTEL)	-	-	16	-	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73
65		21-14927-01	16K MOS MEMORY 16 PIN I.C. (TI.)	-	-	-	16	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E71, E67, E73
66		21-14897-01	16 MOS MEMORY 16 PIN I.C. (HITACHI)	-	-	-	-	16									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E71, E67, E73

E.C.O. NO.

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TITLE
32K 16 BIT MOS MEMORY

ASSY NO.
D-UA-M8044-0-0

SIZE
B PL

NUMBER
M8044-C-C

F.EV.
C

SHEET 12 OF 15

INSERTION PARTS LIST DATA BASE REV -

DIGITAL EQUIPMENT CORPORATION PARTS LIST				M8044-DA* QUANTITY / VARIATION										NOTES:			
MADE BY D. MANION DATE 12/8/77		CHECKED R. Swin DATE 2-21-78		SECTION										REF DESIGNATION			
ENG R Swin DATE 2-21-78		PROD R. Martel DATE 2-21-78		ISSUED SECTION													
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	M8044-DB	M8044-DC	M8044-DD	M8044-DE	M8044-DF									
59																	
60		21-13825-01	16K MOS MEMORY 16 PIN IC (MOSTEK)	32	-	-	-	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
61		21-14408-01	16K MOS MEMORY 16 PIN IC (FUJITSU)	-	32	-	-	-									E24, E26, E30, E32, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E36, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
62		5013128	ETCH BOARD	1	1	1	1	1									
63		91-07560-01	WIRE #22 BUSS	A/R	A/R	A/R	A/R	A/R									W2, W3
64		21-14895-01	16K MOS MEMORY 16 PIN I.C. (INTEL)	-	-	32	-	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
65		21-14927-01	16K MOS MEMORY 16 PIN (TI)	-	-	-	32	-									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E25, E27, E31, E33, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74
66		21-14897-01	16K MOS MEMORY 16 PIN (HITACHI)	-	-	-	-	32									E24, E26, E30, E32, E36, E38, E41, E43, E53, E55, E59, E61, E65, E67, E71, E73, E25, E27, E31, E37, E39, E42, E44, E54, E56, E60, E62, E66, E68, E72, E74, E33

E.C.O. NO.

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TITLE
32K 16 BIT MOS MEMORY

ASSY NO.
D-UA-M8044-0-0

SIZE B CODE PL NUMBER M8044-0-0

REV. C

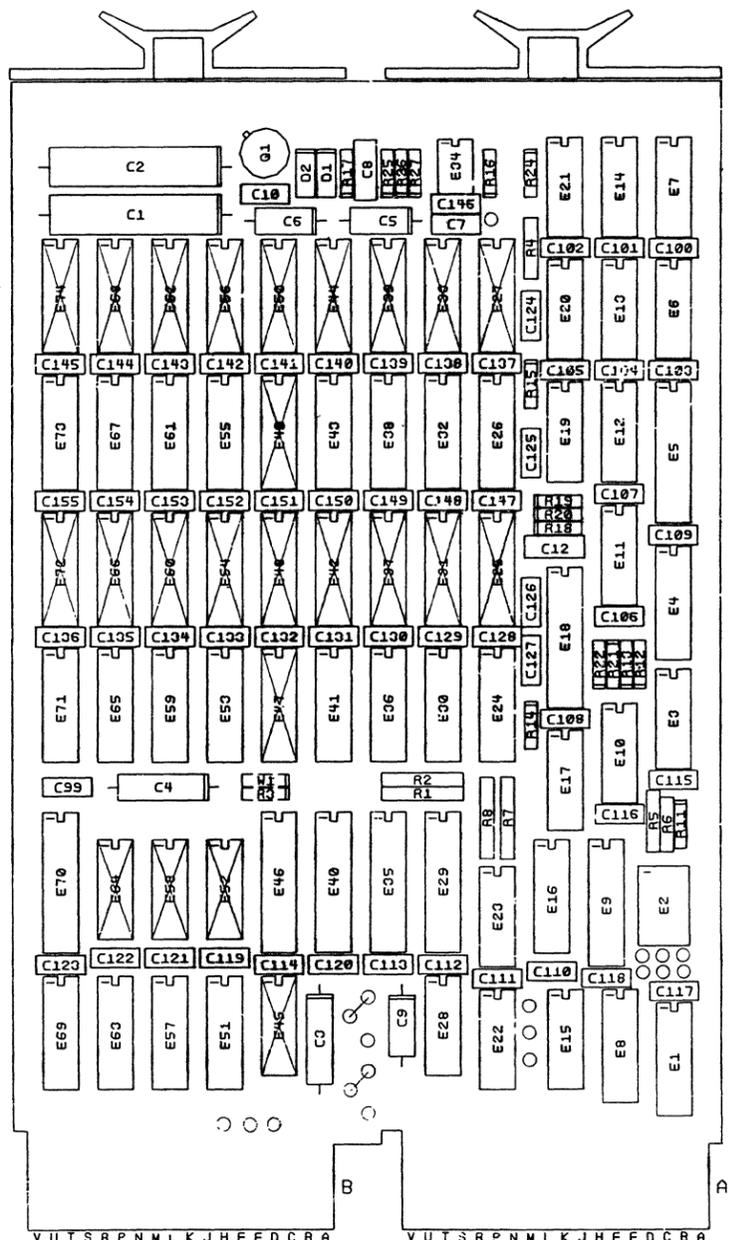
SHEET 16 OF 16

INSERTION PARTS LIST DATA BASE REV -

8 7 6 5 4 3 2 1

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MODULE VARIATIONS AA CA



NOTES:

CHK	CHANGE NO	REV

SIGNATURES		DATE	digital
DRN.			
CHK'D			
ENC.			
PROJ. ENG.			TITLE
PROD.			32K 16 BIT MOS MEMORY
SCALE 2/1			SIZE CODE NUMBER
SHT. 2 OF 8			D UA M8044-0-0 C
NEXT HIGHER ASSY. #			REV

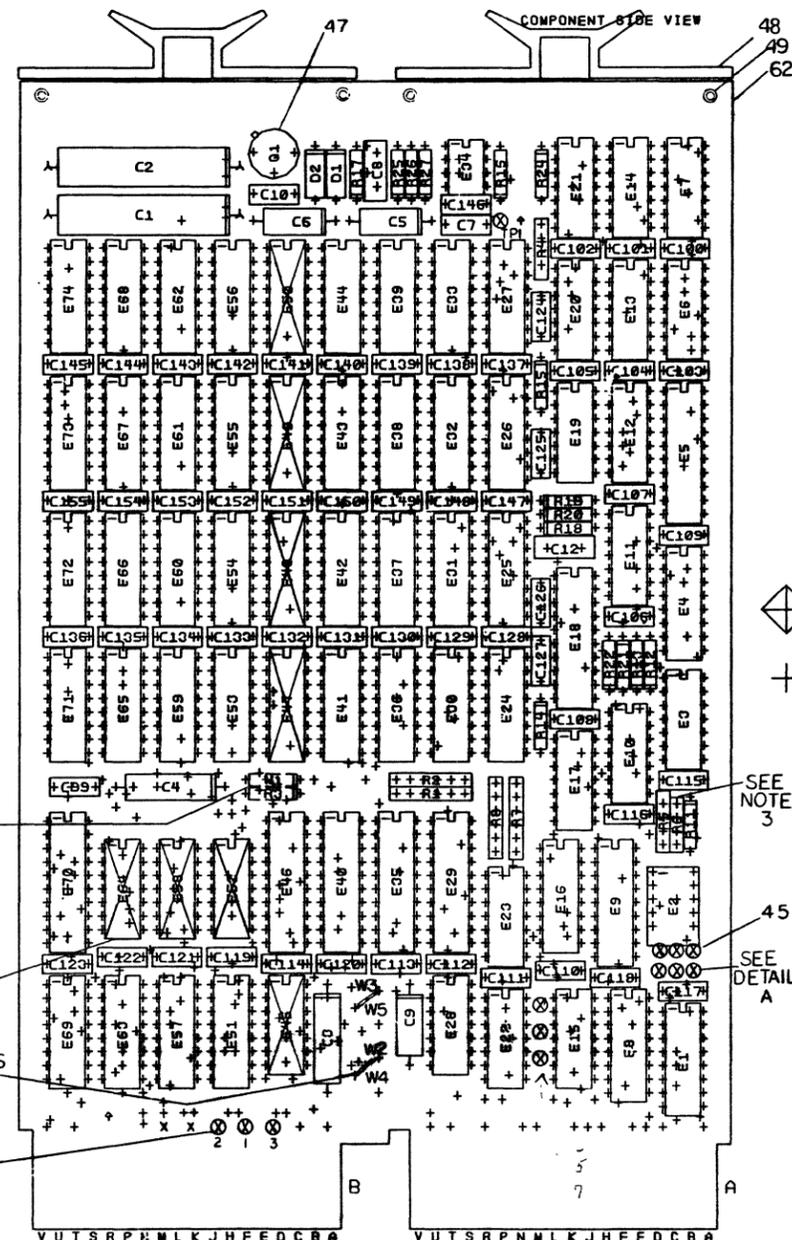
8 7 6 5 4 3 2 1 MS# 261926

236

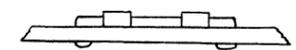
8 7 6 5 4 3 2 1

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MODULE VARIATIONS BA & DA



- W2 THRU W5 SHOULD BE INSTALLED WITH ASSEMBLY SPACERS SO THAT THEY LOOK LIKE THE FOLLOWING:



- R PACKS SHOULD BE INSTALLED SO THAT LEADS DO NOT INTERFERE WITH OTHER COMPONENTS

- WIRE WRAP PIN.

MEMORY TYPE	JUMPER CONFIG	VARIATION
NON-PARITY	5-7	BA, DA

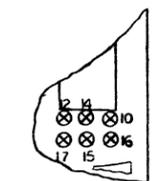
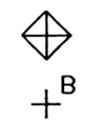
MEMORY SIZE	JUMPER CONFIG	VARIATION
8K	7-15	BA
32K	16-15	DA

7. OPTIONAL JUMPER J2 WILL ALLOW USER TO EXTEND USABLE MEMORY SPACE FROM 28K TO 30K. NORMAL JUMPER IS J-3.

JUMPER	BATTERY BACK-UP	NON BATTERY BACK-UP
W2	OUT	IN
W3	OUT	IN
W4	IN	OUT
W5	IN	OUT

MEMORY SIZE	W1	R3	VARIATION
8K	IN	OUT	BA
32K	OUT	IN	DA

10. THE FOLLOWING IC'S ARE NOT INSTALLED IN BA & DA VARIATIONS: E45, 47, 48, 49, 50, 52, 58 & 64.



DETAIL A

SEE NOTE 9

SEE NOTE 10

SEE NOTES 2 & 8

SEE NOTE 7

SEE NOTE 3

SEE DETAIL A

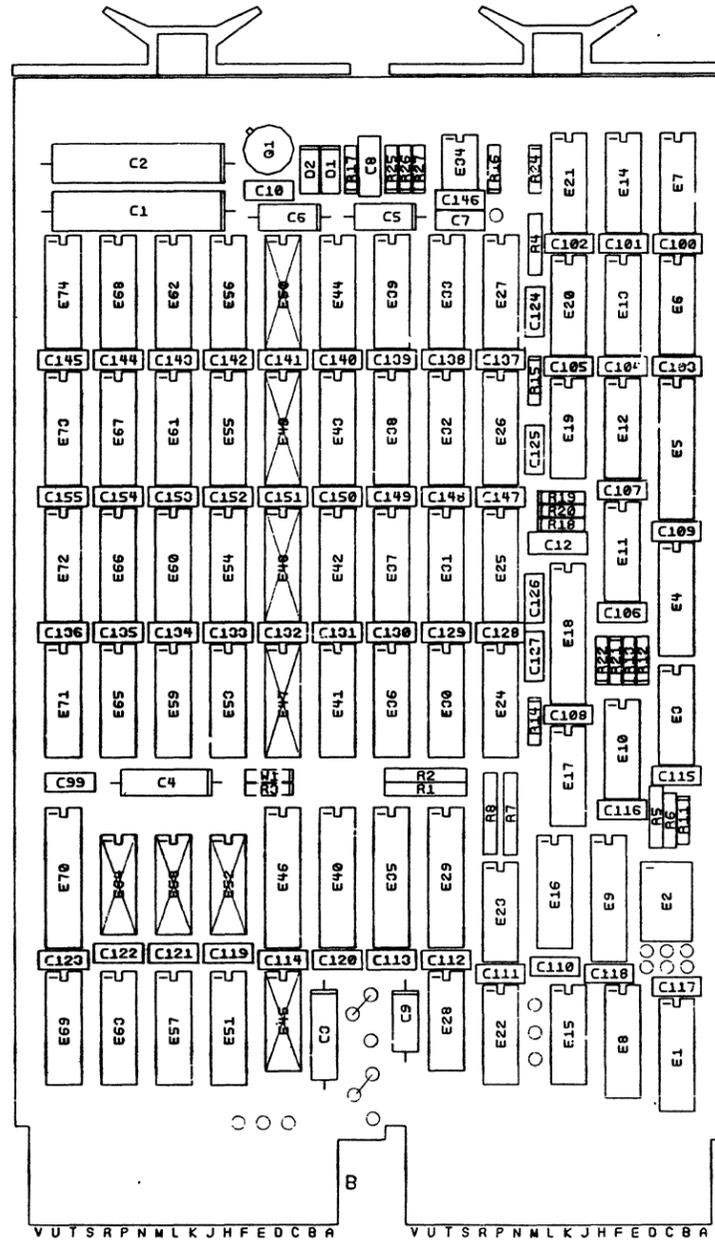
NOTES:	CHANGE NO REV

SIGNATURES		DATE	digital
DRW. <i>[Signature]</i>		<i>[Date]</i>	
CHK'D. <i>[Signature]</i>		<i>[Date]</i>	
ENG.			TITLE
PROJ. ENG.			32K 16BIT MOS MEMORY
PROD.			
SCALE 2/1			SIZE CODE NUMBER
SHT. 3 OF 8			0 UA 044-0-0 C
NEXT HIGHER ASSY: B-IND-18044-0			REV

8 7 6 5 4 3 2 1 MS# 261966

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MODULE VARIATIONS BA DA



NOTES:

CHK	CHANGE	NO	REV

SIGNATURES		DATE	digital
DRN.			
CHK'D.	Richard V. De Mars	3-12-77	TITLE 32K 16BIT MOS MEMCRY
ENC.			
PRJ. ENG.			SIZE CODE NUMBER REV D UA M8044-0-0 C
PROD.			
SCALE	2/1		
SHT.	4 OF 8		
NEXT HIGHER ASSY. H-10-M8044-0-0			

2380

8 7 6 5 4 3 2 1

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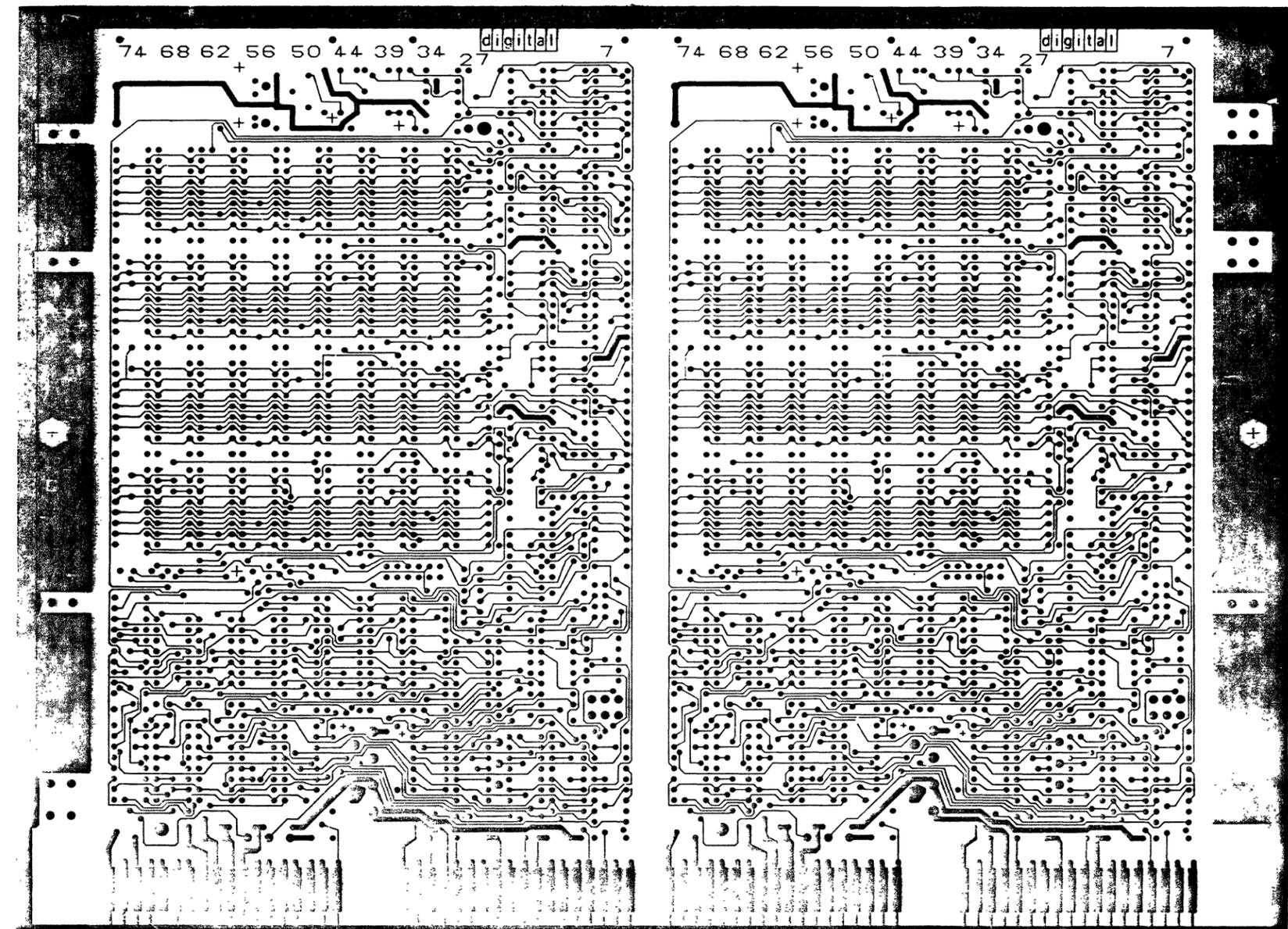
M8045 5013128D - P1

L1

M8045 5013128D - P1

L1

LAYER 1



REVISIONS		
CHK	CHANGE NO	REV

TITLE	32K 16BIT MOS MEMORY	SIZE CODE	DUA	NUMBER	M8044-0-0	REV.	C
SCALE	2/1	SHEET	5	OF	8	DIST	

8 7 6 5 4 3 2 1 ml

D
C
B
A
DUA M8044-0-0

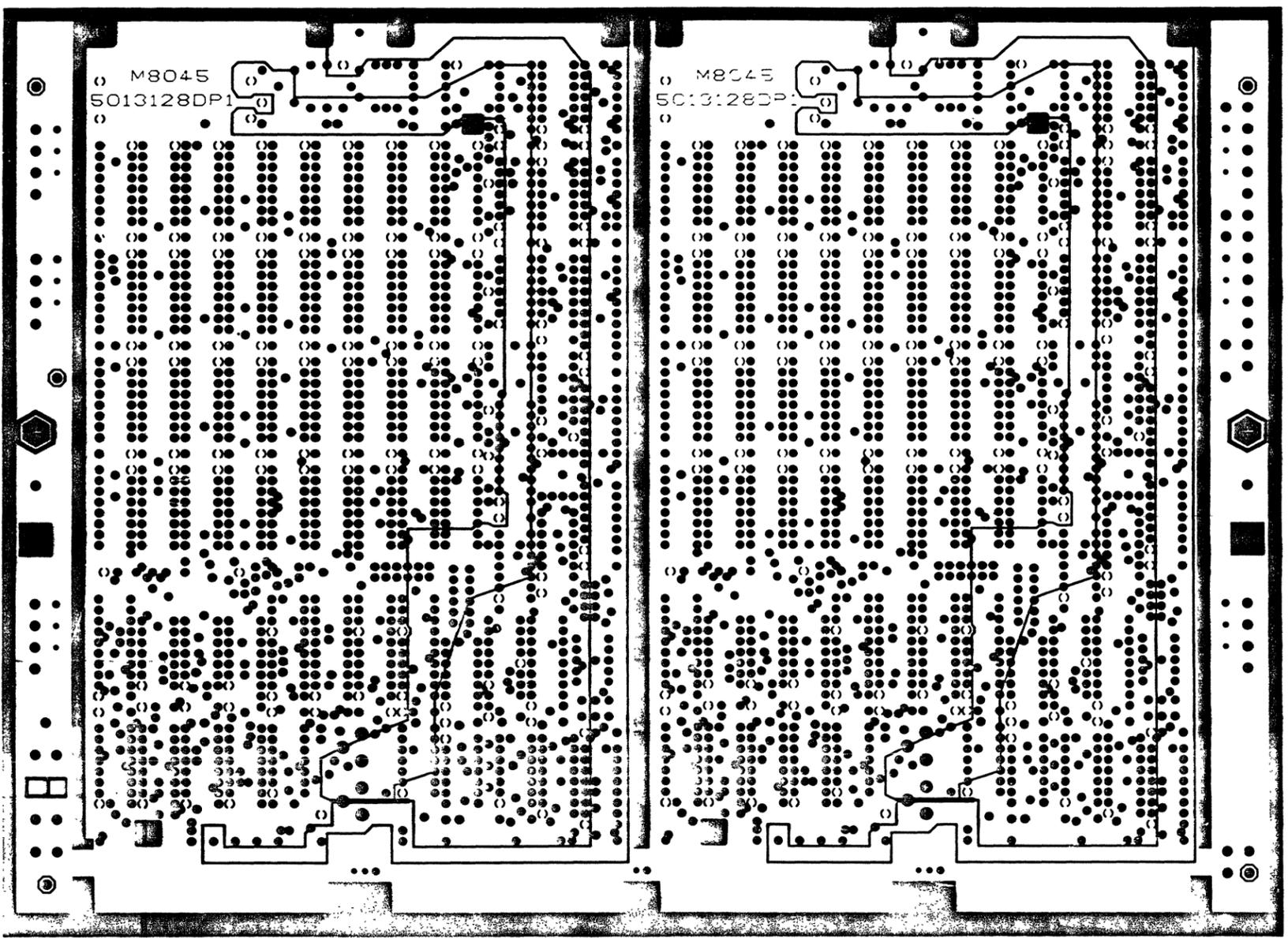
239

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M8045 5013128D - P1

M8045 5013128D - P1

LAYER 12



A B C D

REV	DATE	BY	CHKD	CHANGE TO

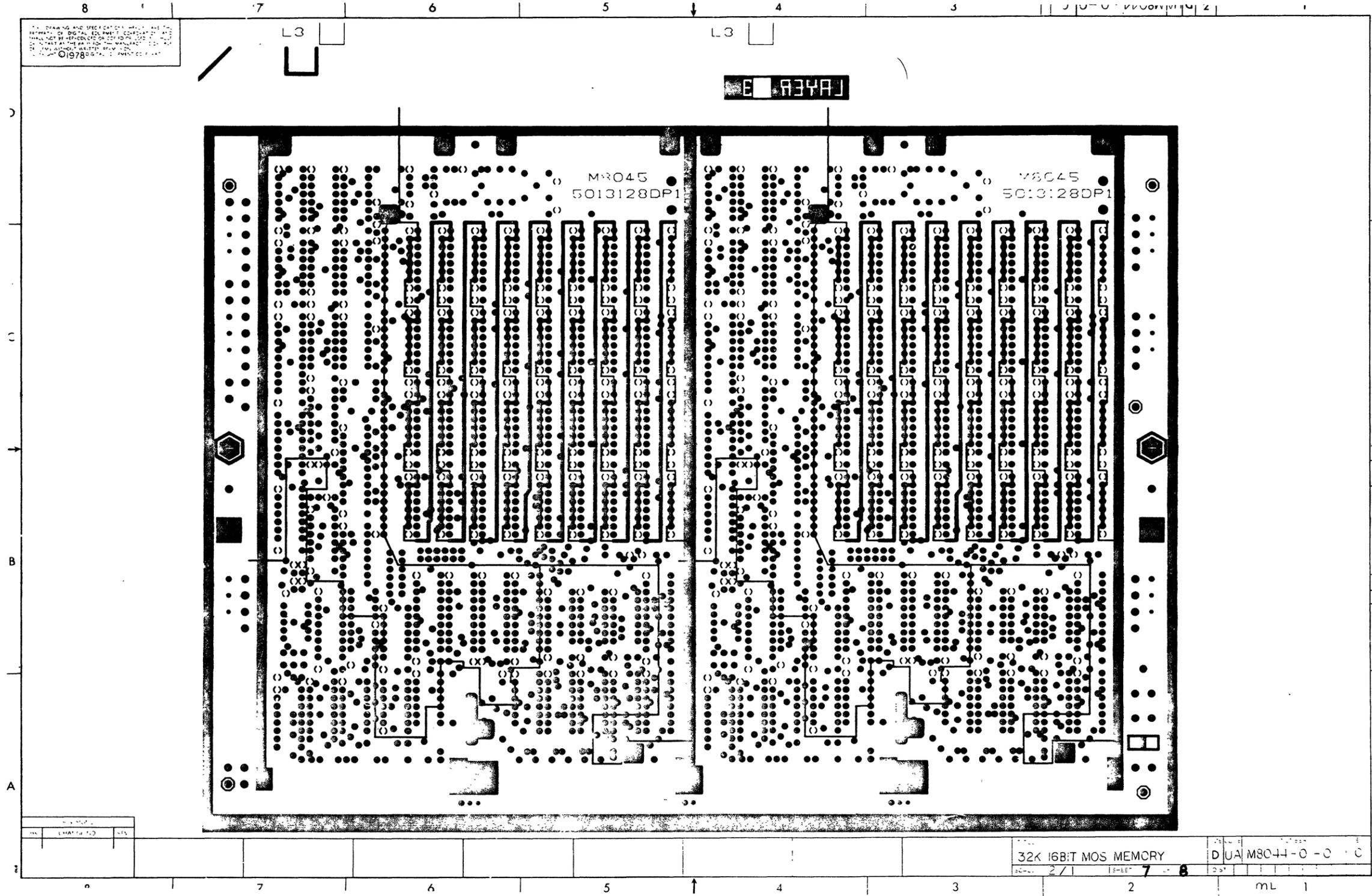
FILE	32K 16BIT MOS MEMORY	DATE CODE	D UA M8044-0-C	NUMBER	C
SCALE	2/1	SHEET	6	OF	8
		DIST			

D UA M8044-0-C

7 6 5 4 3 2 1 ml

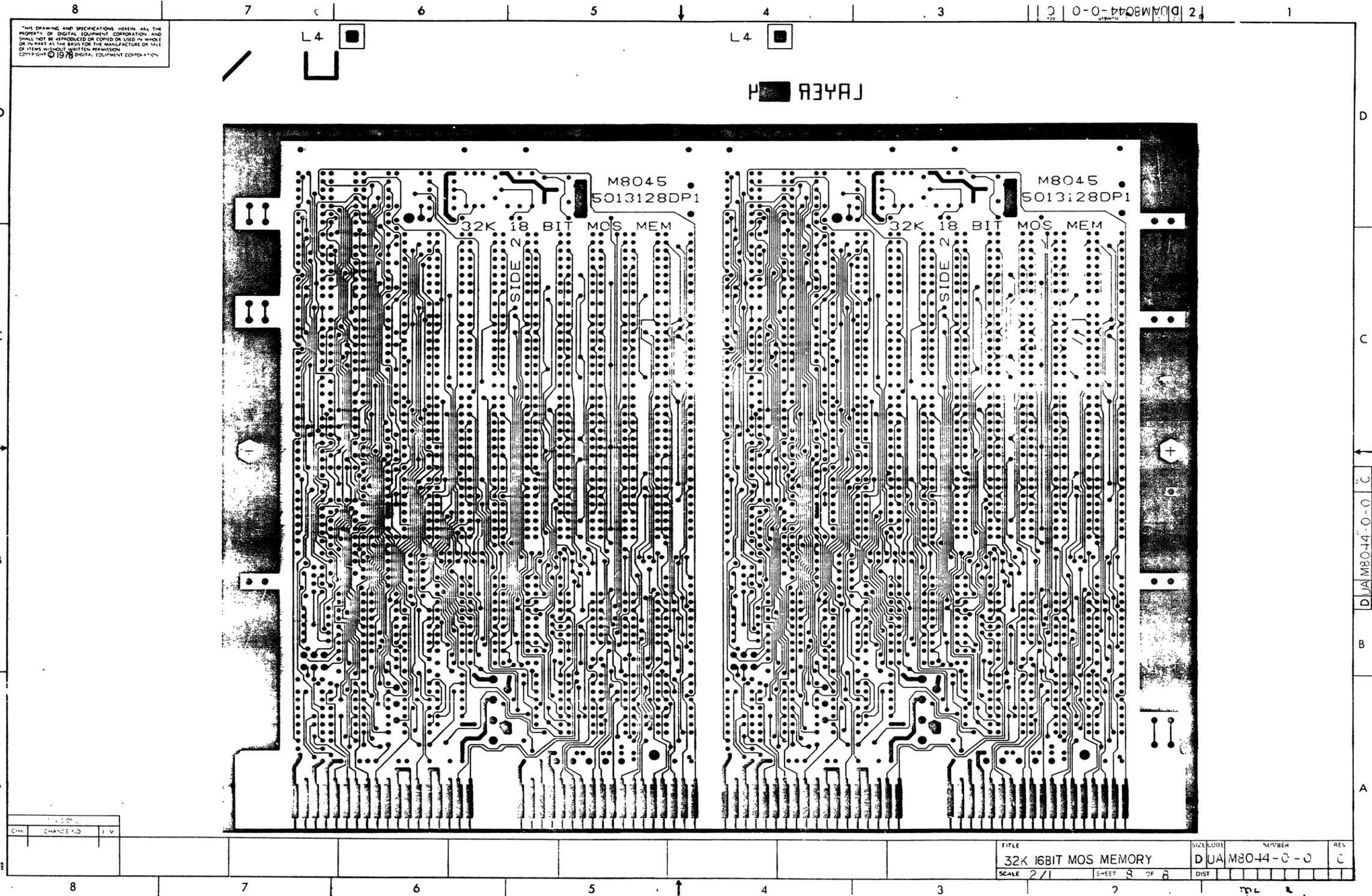
240

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CH	CHANGE NO	REV

TITLE	SIZE/LOD	NUMBER	REV
32K 18BIT MOS MEMORY	D JA	M8044-0-0	C
SCALE 2/1	SHEET 8 OF 8	DIST	

242

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NOTES:

1. ● = WIRE WRAP PIN

TYPE MEMORY	JUMPER CONFIGURATION
NON PARITY	5 TO 7
PARITY	5 TO 6

TYPE	JUMPER CONFIGURATION
4K	17 TO 15 & 17 TO 14
8K	17 TO 15 & 12 TO 14
16K	16 TO 15 & 16 TO 14
32K	16 TO 15 & 10 TO 14

DEC NO	OCTAL	SWITCH SETTING (X = OFF)				
		SI-1	SI-2	SI-3	SI-4	SI-5
0	000000					
4	020000					X
8	040000				X	
12	060000				X	X
16	100000			X		
20	120000			X		X
24	140000			X	X	
28	160000			X	X	X
32	200000		X			
36	220000		X			X
40	240000		X		X	
44	260000		X		X	X
48	300000		X	X		
52	320000		X	X		X
56	340000		X	X	X	
60	360000		X	X	X	X
64	400000	X				
68	420000	X				X
72	440000	X			X	
76	460000	X			X	X
80	500000	X	X			
84	520000	X	X	X		X
88	540000	X	X	X		
92	560000	X	X	X	X	X
96	600000	X	X			
100	620000	X	X			X
104	640000	X	X		X	
108	660000	X	X		X	X
112	700000	X	X	X		
116	720000	X	X	X		X
120	740000	X	X	X	X	
124	760000	X	X	X	X	X

5. NORMAL JUMPER 1 TO 3.
OPTIONAL JUMPER 1 TO 2
WILL ALLOW USER TO EXTEND USABLE
MEMORY SPACE FROM 28K TO 30K.

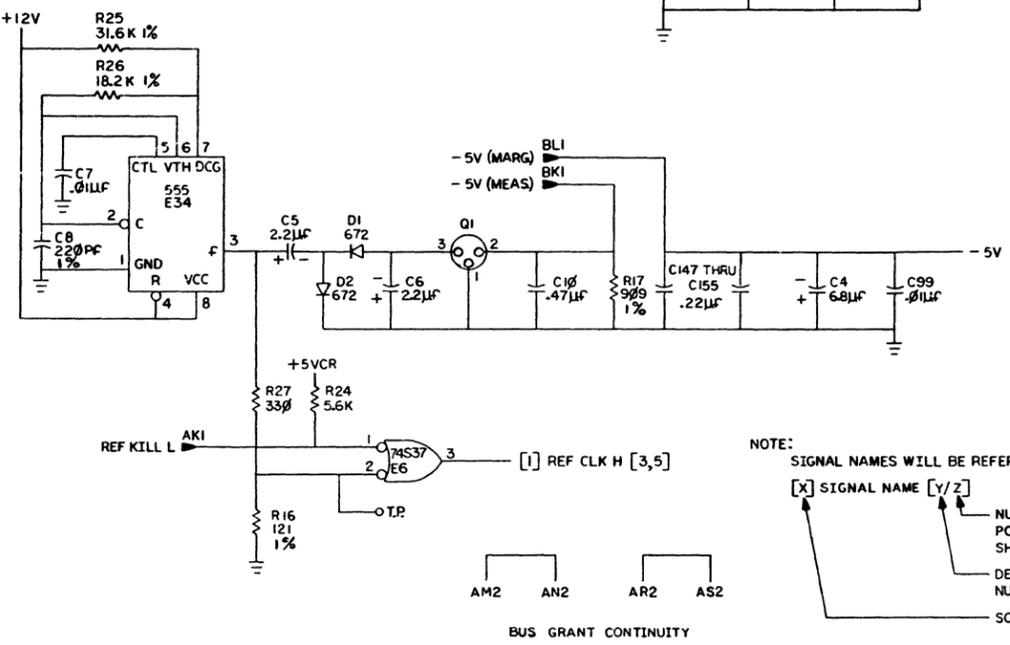
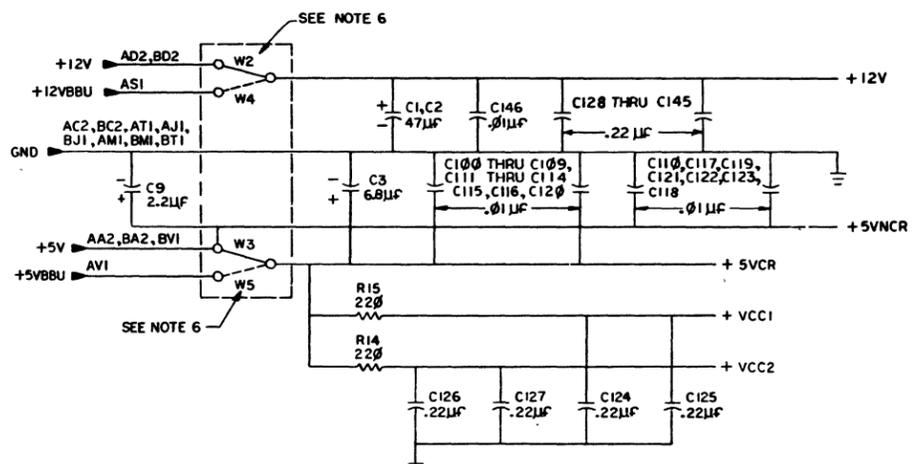
JUMPER	BATTERY BACK-UP	NON BATTERY BACK-UP
W2	OUT	IN
W3	OUT	IN
W4	IN	OUT
W5	IN	OUT

MEMORY SIZE	W1	R3
4K	IN	OUT
8K	IN	OUT
16K	OUT	IN
32K	OUT	IN

OPTION DESIGNATION	PRIMARY VARIATION	SYSTEM DESCRIPTION
MSVII-DA	M8044-AA	4K X 16 BITS
MSVII-DB	M8044-BA	8K X 16 BITS
MSVII-DC	M8044-CA	16K X 16 BITS
MSVII-DD	M8044-DA	32K X 16 BITS

IC TYPE	+5V	GND	+12V	-5V
555		1	8	
MOS	9	16	8	1
74S373	20	10		
74LS393	14	7		
74S280	14	7		
74S74	14	7		
74S10	14	7		
74S11	14	7		
8641	16	8		
8640	8	1		
74S240	20	10		
74S37	14	7		
74S22	14	7		
1Kx4 PROM	18	9		
74S02	14	7		
74LS75	5	12		
74S32	14	7		
74LS10	14	7		
74LS240	20	10		

10. THESE I.C.'S USED ONLY IN 8K & 32K CONFIG'S.

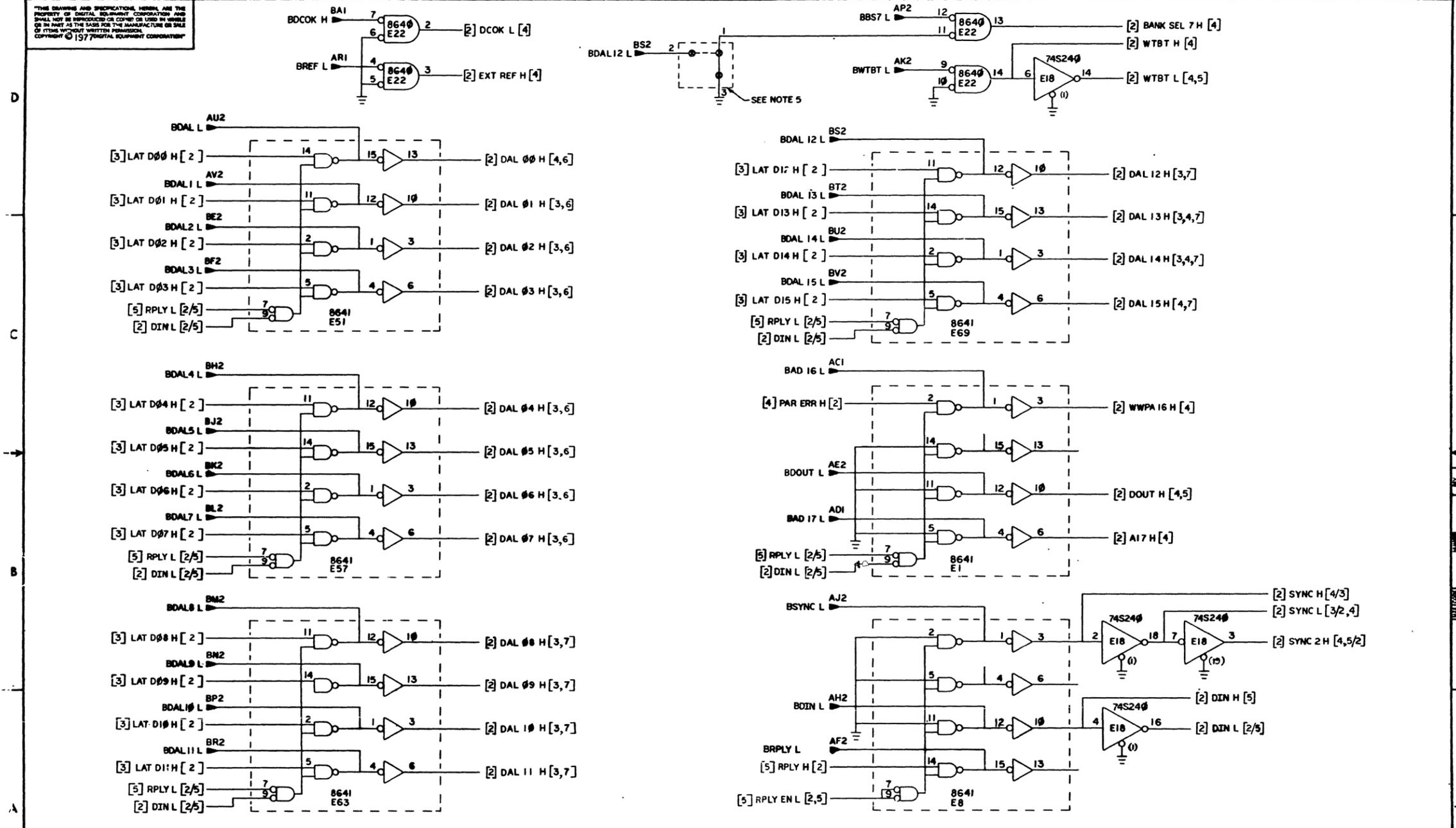


NOTE:
SIGNAL NAMES WILL BE REFERENCED AS FOLLOWS:
[X] SIGNAL NAME [Y/Z]
NUMBER OF CONNECTION POINTS ON DESTINATION SHEET.
DESTINATION SHEET NUMBER.
SOURCE SHEET NUMBER.

REV.	DATE	BY	CHKD.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

DRN. SIGNED	DATE	FIRST USED ON	
CHK'D R. GIVEN	2-21-78	MSVII-D	digital
ENG. R. GIVEN	2-21-78	TITLE	32K 16BIT MOS MEM
PROJ. ENG. R. GIVEN	2-21-78		
PROD. R. GIVEN	2-21-78		
NEXT HIGHER ASSY.			
B-00-M8044-0	SIZE	CODE	NUMBER
SCALE	D	CS	M8044-0-1
SHEET 1 OF 7	DIST.		REV. B

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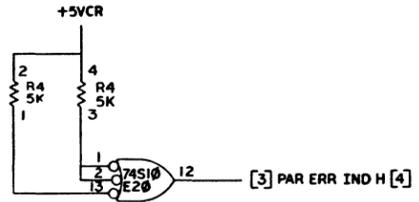
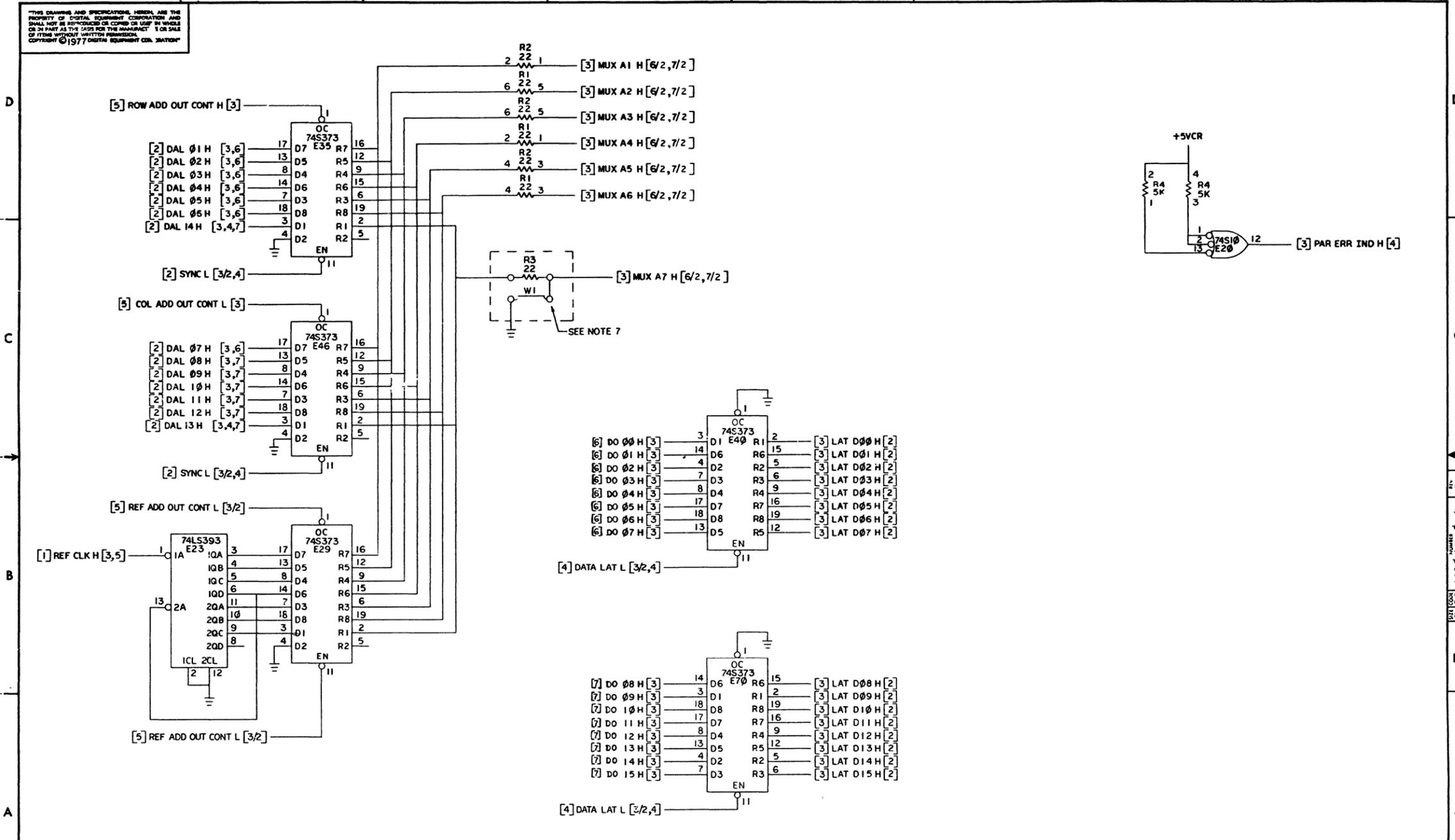


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	32K 16BIT MOS MEM	SIZE CODE	D CS	NUMBER	M8044-0-1	REV.	B
SCALE		SHEET	2 OF 7	DIST.			

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1-0-1700W 2



DCS M8044-0-1 B
 A

REVISIONS		
CHK	CHANGE NO.	REV

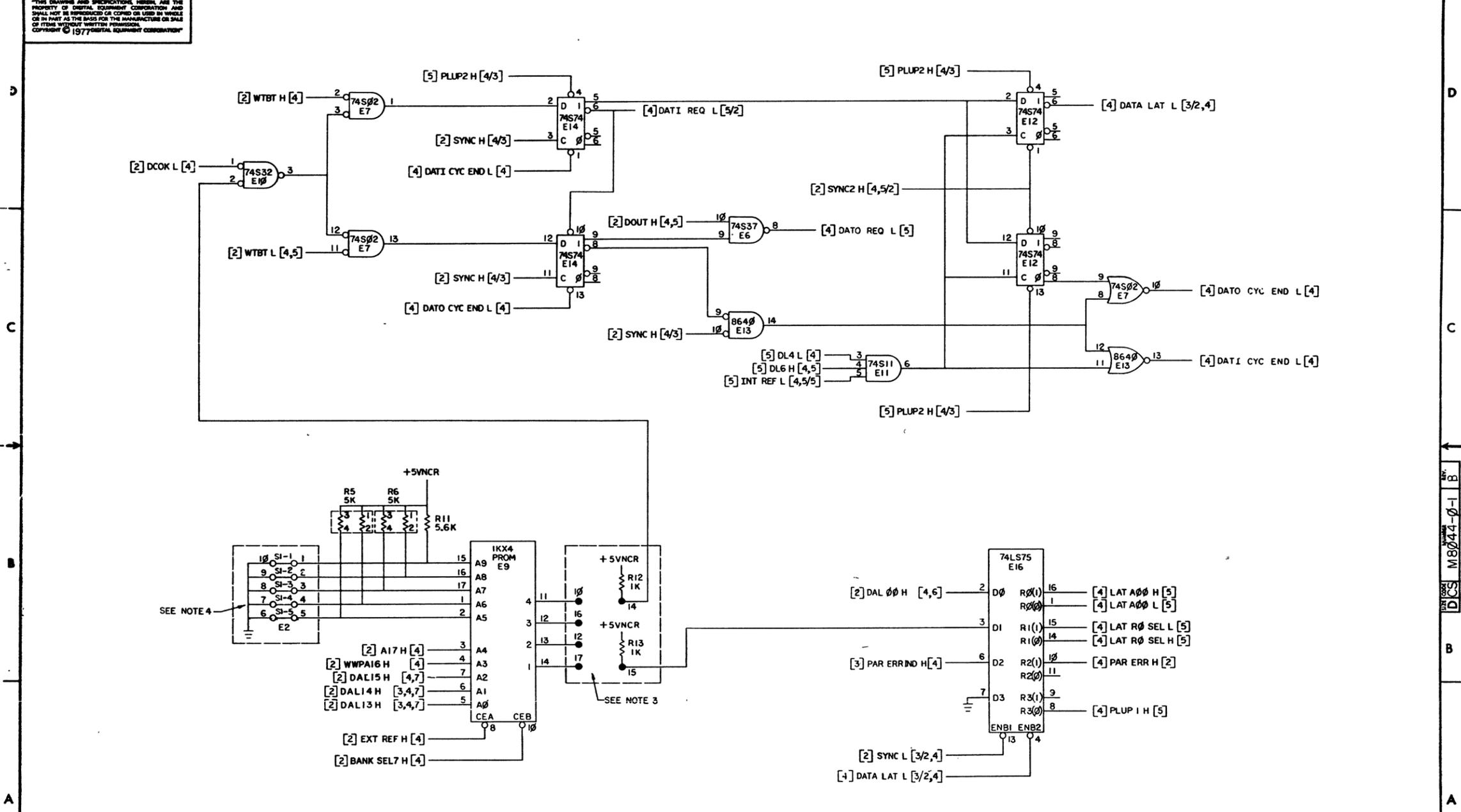
TITLE	SIZE CODE	NUMBER	REV.
32K 16BIT MOS MEM	DCS	M8044-0-1	B
SCALE	SHEET	DIST.	
	3 OF 7		

DEC FORM NO. 9

M-1

245

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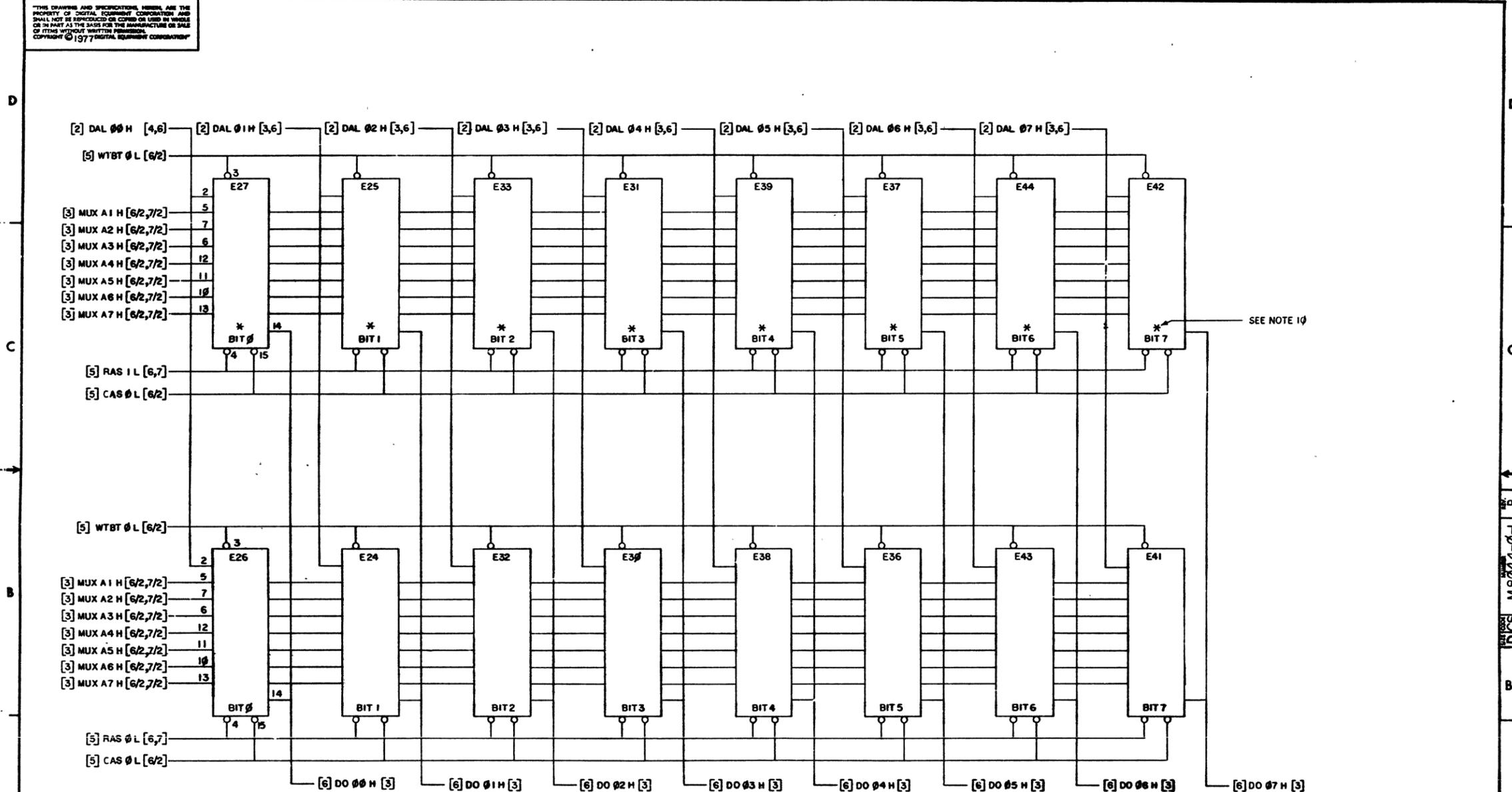


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	32K 16 BIT MOS MEM	SIZE CODE	D CS	NUMBER	M8044-0-1	REV.	B
SCALE		SHEET	4 OF 7	DIST.			

246

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[2] DAL 00 H [4,6] [2] DAL 01 H [3,6] [2] DAL 02 H [3,6] [2] DAL 03 H [3,6] [2] DAL 04 H [3,6] [2] DAL 05 H [3,6] [2] DAL 06 H [3,6] [2] DAL 07 H [3,6]

[5] WTBT 0 L [6,7]

[3] MUX A1 H [6,7,7/2] [3] MUX A2 H [6,7,7/2] [3] MUX A3 H [6,7,7/2] [3] MUX A4 H [6,7,7/2] [3] MUX A5 H [6,7,7/2] [3] MUX A6 H [6,7,7/2] [3] MUX A7 H [6,7,7/2]

[5] RAS 1 L [6,7] [5] CAS 0 L [6,7]

[5] WTBT 0 L [6,7]

[3] MUX A1 H [6,7,7/2] [3] MUX A2 H [6,7,7/2] [3] MUX A3 H [6,7,7/2] [3] MUX A4 H [6,7,7/2] [3] MUX A5 H [6,7,7/2] [3] MUX A6 H [6,7,7/2] [3] MUX A7 H [6,7,7/2]

[5] RAS 0 L [6,7] [5] CAS 0 L [6,7]

[6] DO 00 H [3] [6] DO 01 H [3] [6] DO 02 H [3] [6] DO 03 H [3] [6] DO 04 H [3] [6] DO 05 H [3] [6] DO 06 H [3] [6] DO 07 H [3]

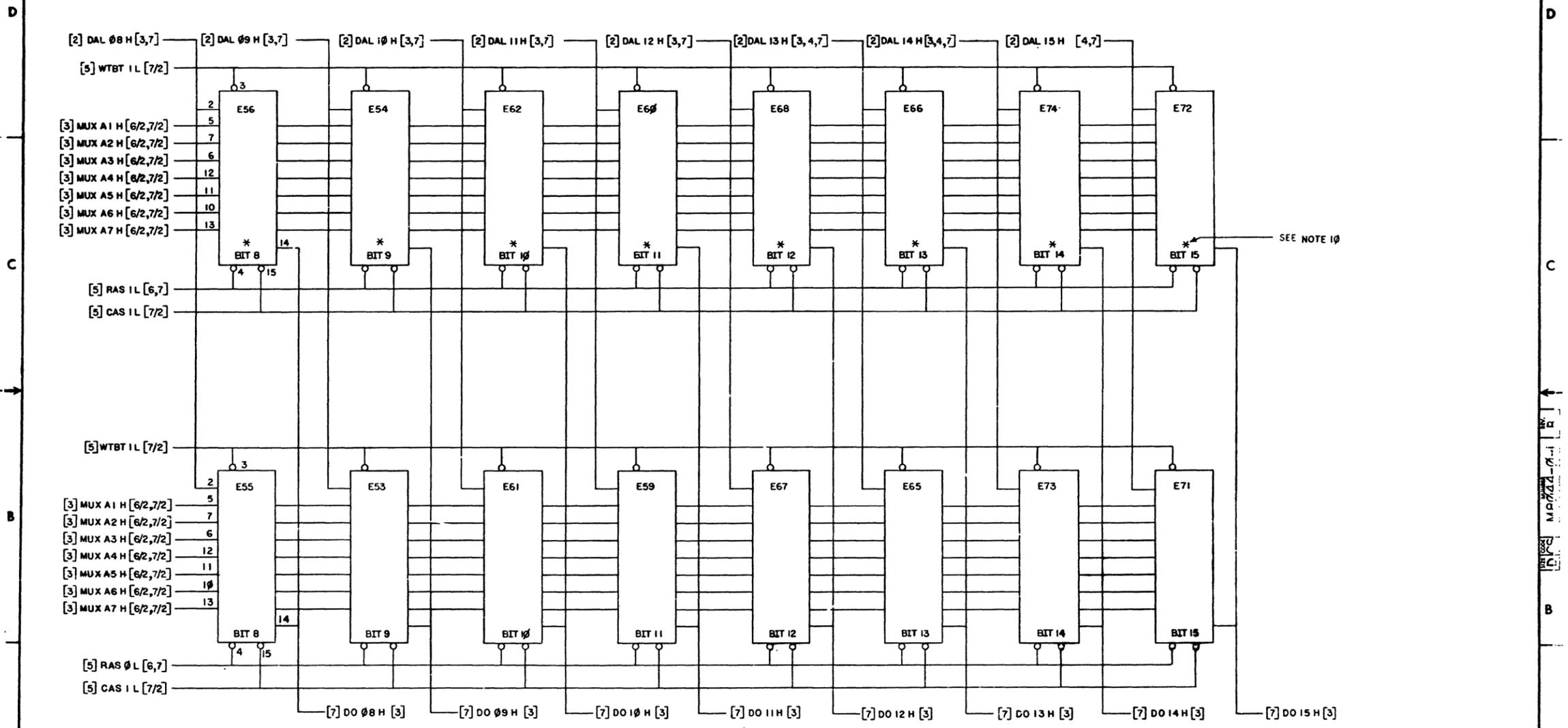
VCC1 — E26, E27, E32, E33, E38, E39, E43, E44, E55, E56, E61, E62, E67, E68, E73, E74
 VCC2 — E24, E25, E30, E31, E36, E37, E41, E42, E53, E54, E59, E60, E65, E66, E71, E72
 +5VCR — E1, E8, E9, E15, E16, E45, E51, E52, E57, E58, E63, E64, E69, E70
 +5VCR — E3 THRU E7, E10 THRU E14, E17 THRU E23, E28, E29, E35, E40, E46

SEE NOTE 10

REV.	CHANGE NO.	DESCRIPTION

TITLE	32 K 16 BIT MOS MEM	SIZE CODE	DCS	NUMBER	M8044-0-1	REV.	B
SCALE		SHEET	6 OF 7				

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VCC1 — E26, E27, E32, E33, E38, E39, E43, E44, E55, E56, E61, E62, E67, E68, E73, E74
 VCC2 — E24, E25, E30, E31, E36, E37, E41, E42, E53, E54, E59, E60, E65, E66, E71, E72
 +5VNCR — E1, E8, E9, E15, E16, E45, E51, E52, E57, E58, E63, E64, E69, E70
 +5VCR — E3 THRU E7, E10 THRU E14, E17 THRU E23, E28, E29, E35, E40, E46

SEE NOTE 10

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE/COE	NUMBER	REV.
32K 16 BIT MOS MEM	D CS	M8044-0-1	B
SCALE	SHEET 7 OF 7	DIST.	

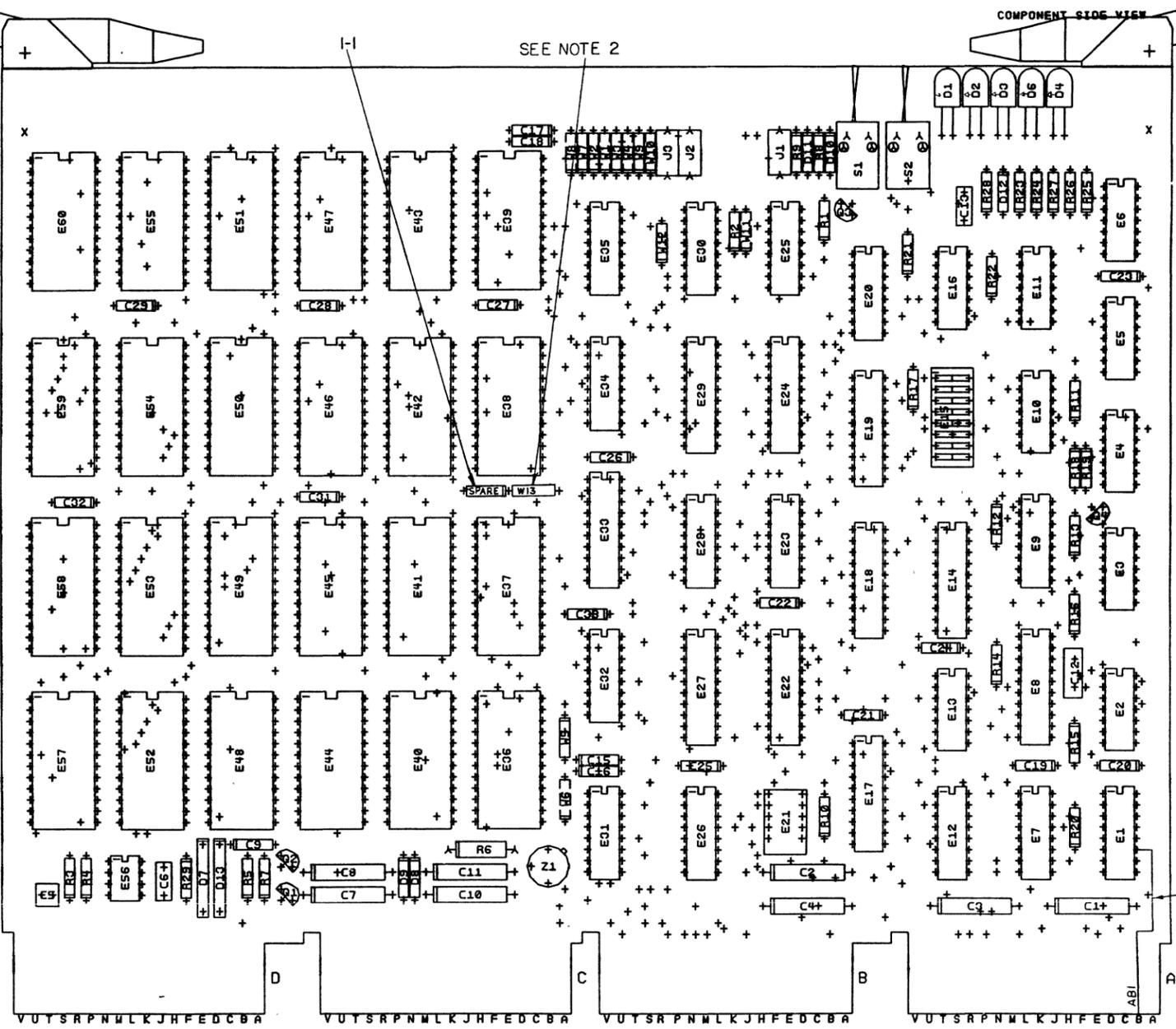
249

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DUA M8012-0-0

COMPONENT SIDE VIEW

SEE NOTE 2



NOTES:

1. 8 HOLES (+0.005 (+0.000-0.005) MAXIMUM ONLY
2. W1, 4, 6, 8, 10, 11 & 13 ARE OPTIONAL
DO NOT INSTALL
3. INSTALL SOCKETS FOR E36, E42, E40, E52, E53, & E57 ONLY

CHG	NO	REV
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
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98	1	1
99	1	1
100	1	1

ETCH REV.	NO	DATE
P.C. DESIGN DATA BASE REV.	C	

SIGNATURES	DATE
DRN: [Signature]	11/1/77
CHK'D: [Signature]	11/1/77
ENG: [Signature]	11/1/77
PROJ. ENG: [Signature]	11/1/77
PROD. R. [Signature]	11/1/77
SCALE: 2/1	
SHT. 1 OF 4	
NEXT HIGHER ASSY. B-DD-M8012-0	

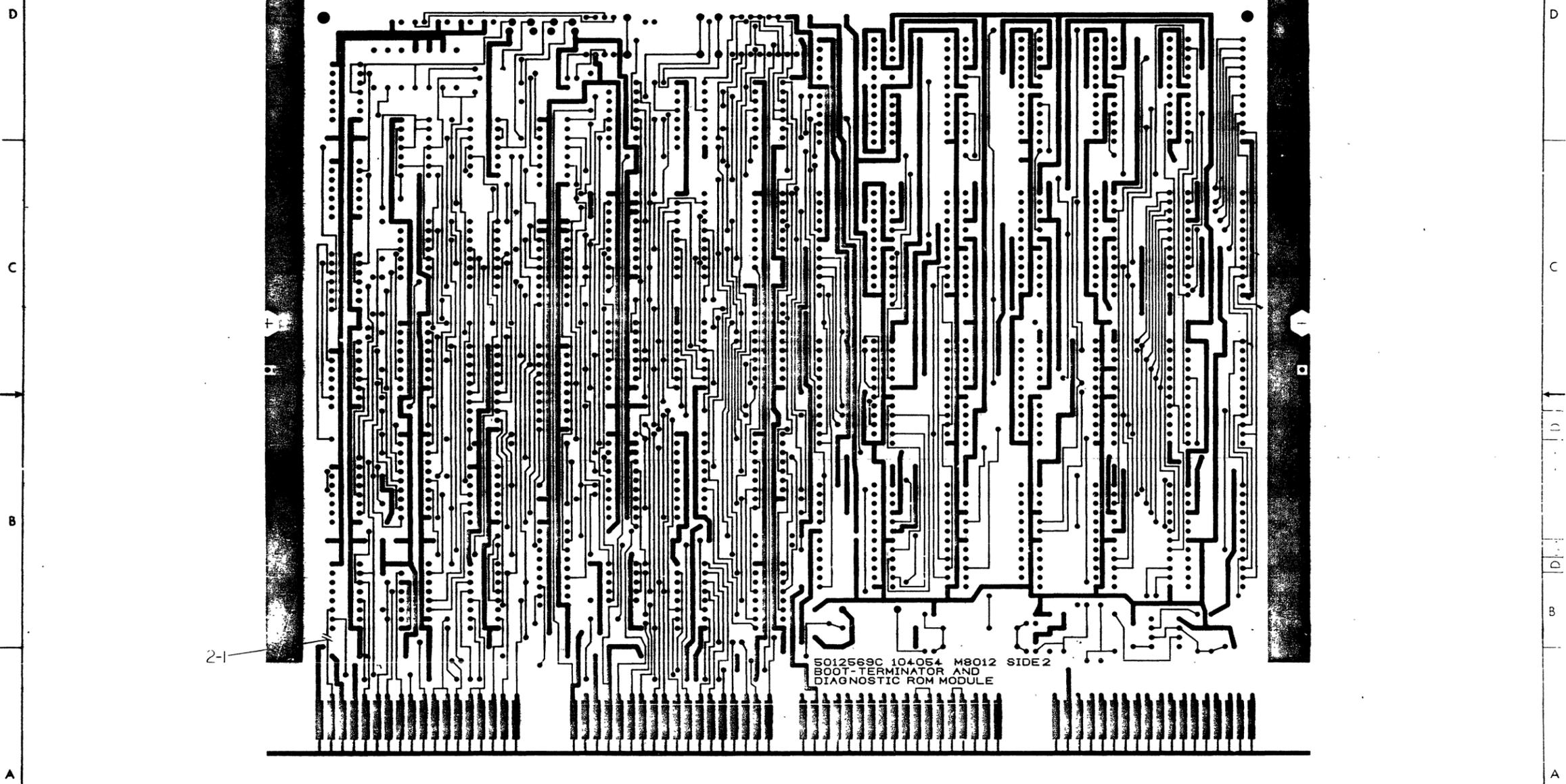
TITLE	SIZE	CODE	NUMBER	REV
digital				
BOOT TERMINATOR AND DIAGNOSTIC ROM				
DUA M8012-0-0				

1 MS#104054C

252

8 7 6 5 4 3 2 1

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5012568C 104054 M8012 SIDE 2
 BOOT-TERMINATOR AND
 DIAGNOSTIC ROM MODULE

VIEWED FROM SIDE C

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	BOOT TERMINATOR & DIAGNOSTIC ROM	CODE	DUA	REV.	M8012-6
SCALE		SHEET	3 OF 4	DIST	

8 7 6 5 4 3 2 1

254

8

7

6

5

4

3

0-0-2108WMD 2

1

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REWORK INSTRUCTIONS

ECO #1

COMPONENT DELETES SIDE 1:

1-1. DELETE C30, .047μf (PIN 1012784)

COMPONENT ADDS SIDE 1:

ECO #2

2-1 CUT ETCH SIDE 2 BETWEEN E01

PIN 11 AND FINGER AB2

2-2 ADD WIRE SIDE 1 BETWEEN E01

PIN 11 AND FINGER AB1

D

D

C

C

B

B

A

A

REV. D
M8012-0-0
DUA

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	BOOT TERMINATOR AND DIAGNOSTIC ROM	SIZE CODE	DUA	NUMBER	M8012-0-0	REV.	D
SCALE	2/1	SHEET	4	OF	4	DIST.	

255

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-U0-5012569-0-0	5012569-00	M8012	1	
2	2		1000024-00	470.0 MMF 100V 5%200PPM DM155 (10-00	1	C12
3	3		1001610-01	.01 MFD 100V OR 50V Z5U DISC/800PF MIN	2	C6,C13
4	4		1004812-00	15 MFD 20V 10% 150D S.TA (10-00	4	C7,C8,C10,C11
5	5		1005306-00	6.8MFD 35V 10% 150D S.TA (10-00	4	C1-C4
6	6		1011740-00	5600.0 MMF 50V 10% CW15C CER.	1	C5
7	7		1012784-00	.047 MFD 50V X% CER.	19	C9,C15-C29,C31-C33
8	8		1103441-00	1N 756A VZ= 0.2 5% .40W P	1	D11
9	9		1104860-00	1N 746A VZ= 3.3 5%	1	D10
10	10		1105275-00	D 672 TR= 15NS PIV= 60V SP	3	D8,D9,D12
11	11		1109991-00	1N 754A VZ= 6.8 5% .40W	2	D7,D13
12	12		1110864-00	LED 2MCD@10MA	4	D1-D4
13	13		1114384-00	LED 105MW 35MA GREEN	1	D6
14	14		1210209-00	SW,TOG 1P.01A SUBMINI S	2	S1,S2
15	15		1215006-06	SOCKET 24PIN IC LOW PROFILE	0	
16	16		1211164-01	SW,DIP 1P 1A 5POS	1	E21
17	17		1211164-04	SW,DIP 1P 1A 8POS	1	E15
18	18		1213113-00	HANDLE,MODULE	1	
19	19		1213974-06	JACK 2LINE RED	1	J2
20	20		1213974-07	JACK 2LINE BLACK	1	J1
21	21		1213974-03	JACK 2LINE PURPLE	1	J3
22	22		1300271-00	220 1/4W 5% CC (13-00	6	R5,R7,R25-R28
23	23		1300365-00	1 K 1/4W 5% CC (13-00	14	R0,R11-R15,R17-R24
24	24		1300417-00	2.2 K 1/4W 5% CC (13-00	1	R4
25	25		1301322-00	180 1/4W 5% CC (13-00	1	R10
26	26		1301890-00	560 1/4W 5% CC (13-00	2	R1,R2
27	27		1311003-01	R NETWORK 14-180 14-390 S	3	E1,E12,E26
28	28		1309444-00	2.7 1/2W 10% CC (13-00	1	R6
29	29		1312930-00	5.1 K 1/4W 5% CC (13-00	2	R3,R16
30	30		1300247-00	120 1/4W 5% CC (13-00	1	R29

REVISION HISTORY			VARIATIONS FOR THIS ASSY.		FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
CHK	ECO NO	REV	00, YA	MADE BY:	DATE:	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
R,R	00001	C		A COLON	25-APR-78	PARTS LIST				
BHF	M0002	D		R KOPPENAL	25-APR-78	BOOT-TERM & DIAGNOSTIC ROM (00 VARIATION)				
				G GOODRICH	25-APR-78					
				R HAMILTON	25-APR-78		K	PL	M8012-0-DBP	D
				G GOODRICH	25-APR-78					EDIT
						ASSY.NO.:			D-UA-M8012-0-0	4

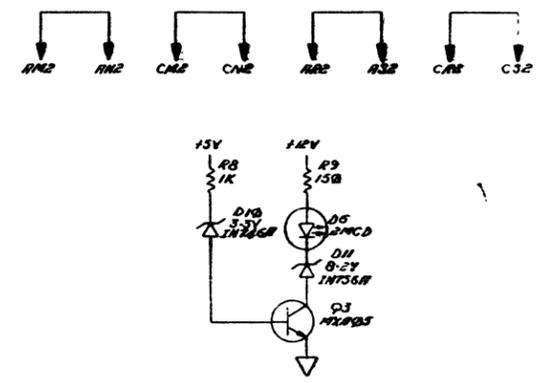
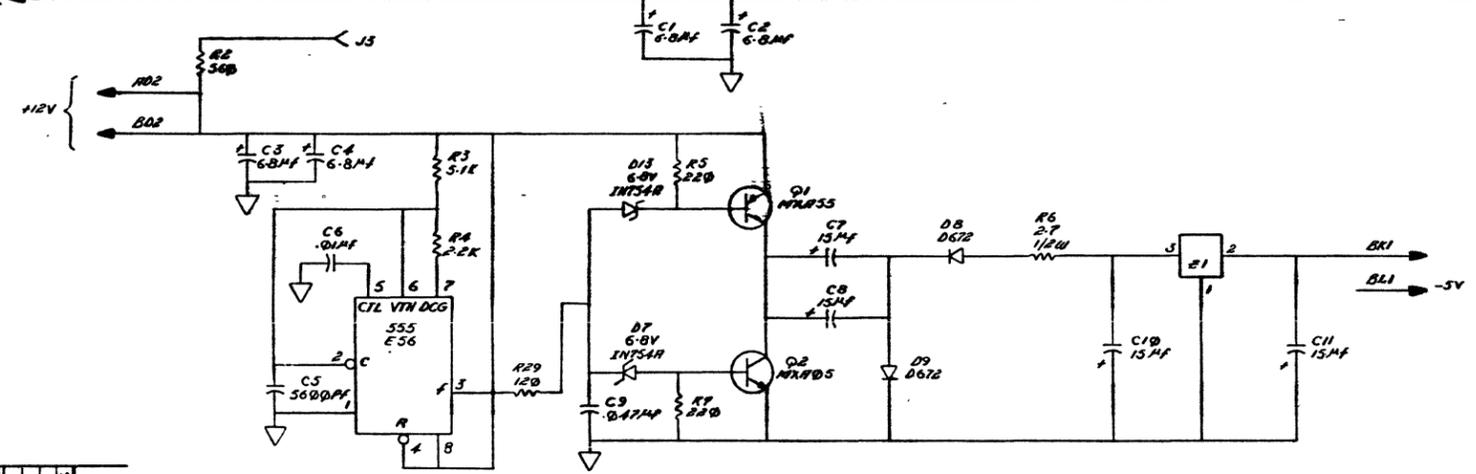
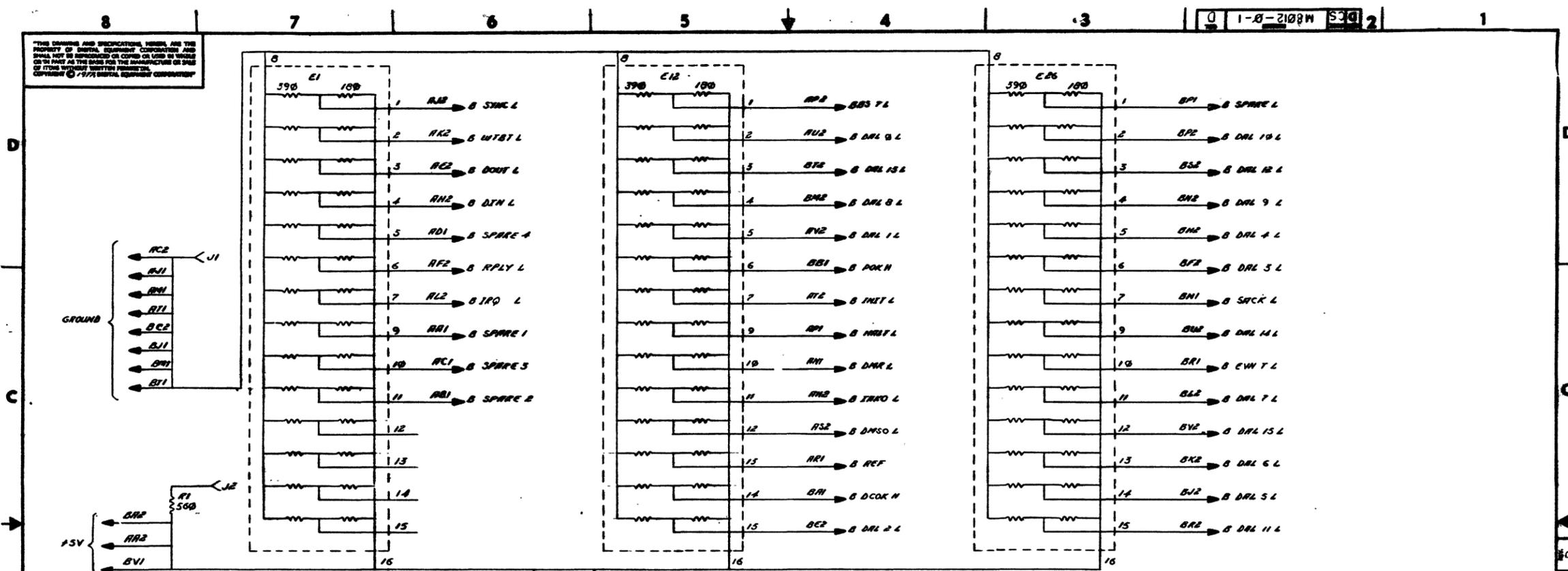
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LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
31	31		1300250-00	150 1/4W 5% CC (13-00)	1	R9
32	32		1510705-00	XA 05 NPN 500MW SI 60 50 P	3	Q2-Q4
33	33		1510706-00	XA 55 PNP 500MW SI 60 50 P	1	Q1
34	34		1910741-00	7406 INVERTER GATE=HEX 1IN,BUFFER,0	2	E6,E16
35	35		1911579-00	8641 TRANSCEIVER,BUS,QUAD,UNIBUS	1	E7
36	36		1911944-00	555CN TIMER,FUNCT,BLOCK	1	E56
37	37		1912541-00	VOLT,REG,FIX -5V .02A	1	Z1
38	38		1912647-00	LS257 MUX 1 OF 2 (QUAD) TRI=STA	6	E20,E23,E28,E31,E32,E34
39	39		1912729-00	DC 004 PROTOCOL,REG, SELECTOR	1	E8
40	40		1912803-00	LS04 INVERTER GATE=HEX 1IN	2	E5,E13
41	41		1912807-00	LS10 NAND GATE=TRIPLE 3IN	1	E11
42	42		1912813-00	LS27 NOR GATE=TRIPLE 3IN	3	E2-E4
43	43		1910544-00	74S74 FF-D DUAL,EDGE TRIGGER	1	E10
44	44		1912842-00	LS138 DECODER=THREE INPUT,16PIN	1	E35
45	45		1912843-00	LS139 DECODER, 2 OF 4(DUAL)& DEMUX	1	E30
46	46		1912853-00	LS175 FF-D QUAD	1	E25
47	47		1912863-00	LS273 FF-D OCTAL W/CLEAR	3	E27,E29,E33
48	48		1912868-00	LS299 SHIFT REG, 8-BIT UNIVERSAL	2	E22,E24
49	49		1913040-00	DC 005 TRANSCEIVER 4BIT	4	E14,E17-E19
50	50		23208A1-00	A1-03,A1-04,A1-05 PROM,	1	E9
51	51		9009185-00	JUMPER, WIRE, INSULATED, BLACK BAND	6	W2,W3,W5,W7,W9,W12
52	52		9000024-01	EYELET, ROLLED FLANGE, .121 OD X .196 LG	8	
53	53		1215006-06	SOCKET 24PIN IC LOW PROFILE	6	XE36,XE40,XE48,XE52,XE53,XE57
54	54		9107256-11	TUBING,THIN WALL,.027ID UL (91-00 A/R		
55	55		9105740-55	WIRE(WRAP)30AWG UL1423 (91-00 A/R		

56 NOTE: IF 1215006-06 IS NOT AVAILABLE USE 1210693

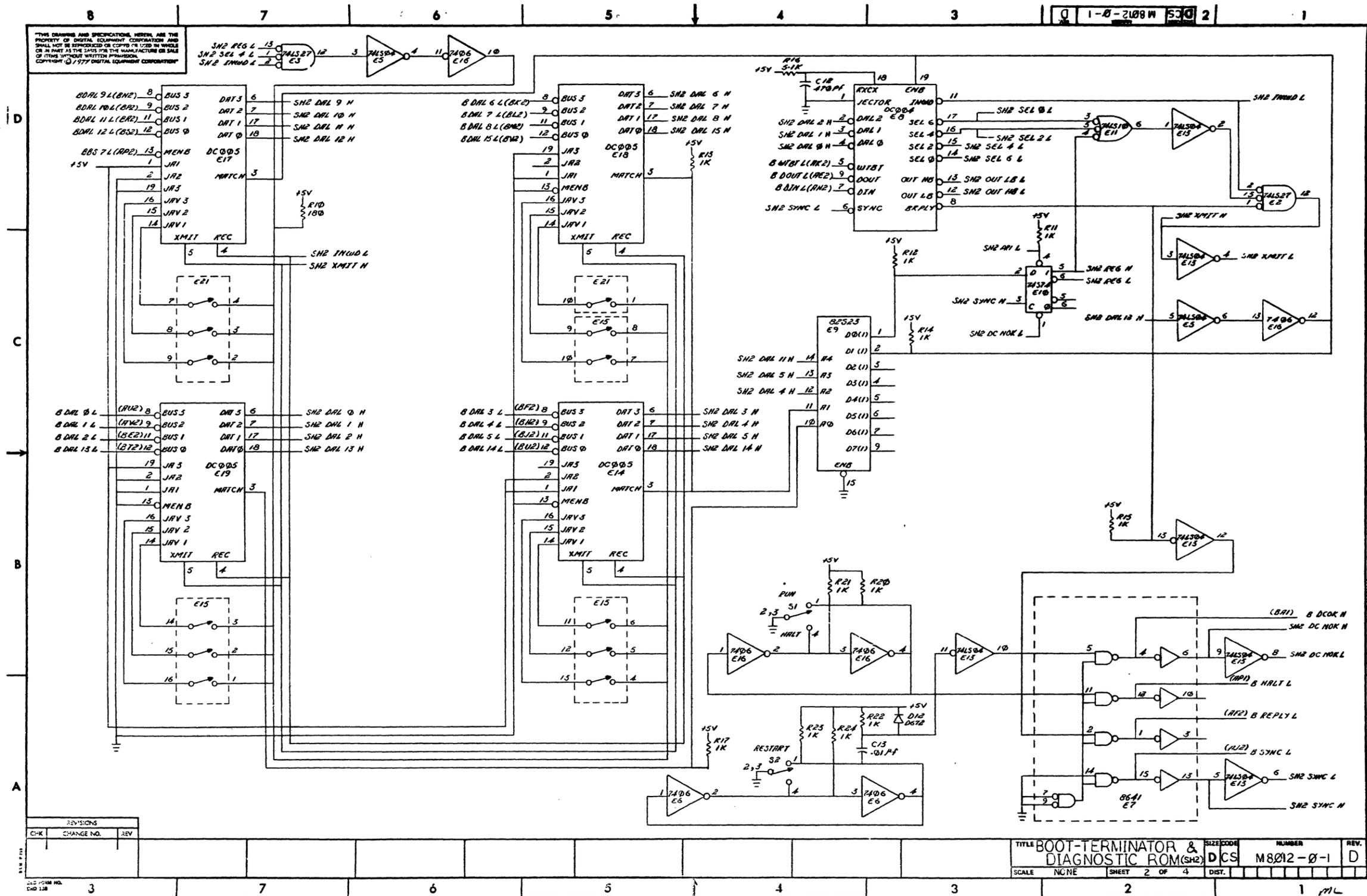
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE PARTS LIST BOOT-TERM & DIAGNOSTIC ROM (00 VARIATION)	SIZE K	CODE PL	DOCUMENT NUMBER M8012-0-DBP	REV D
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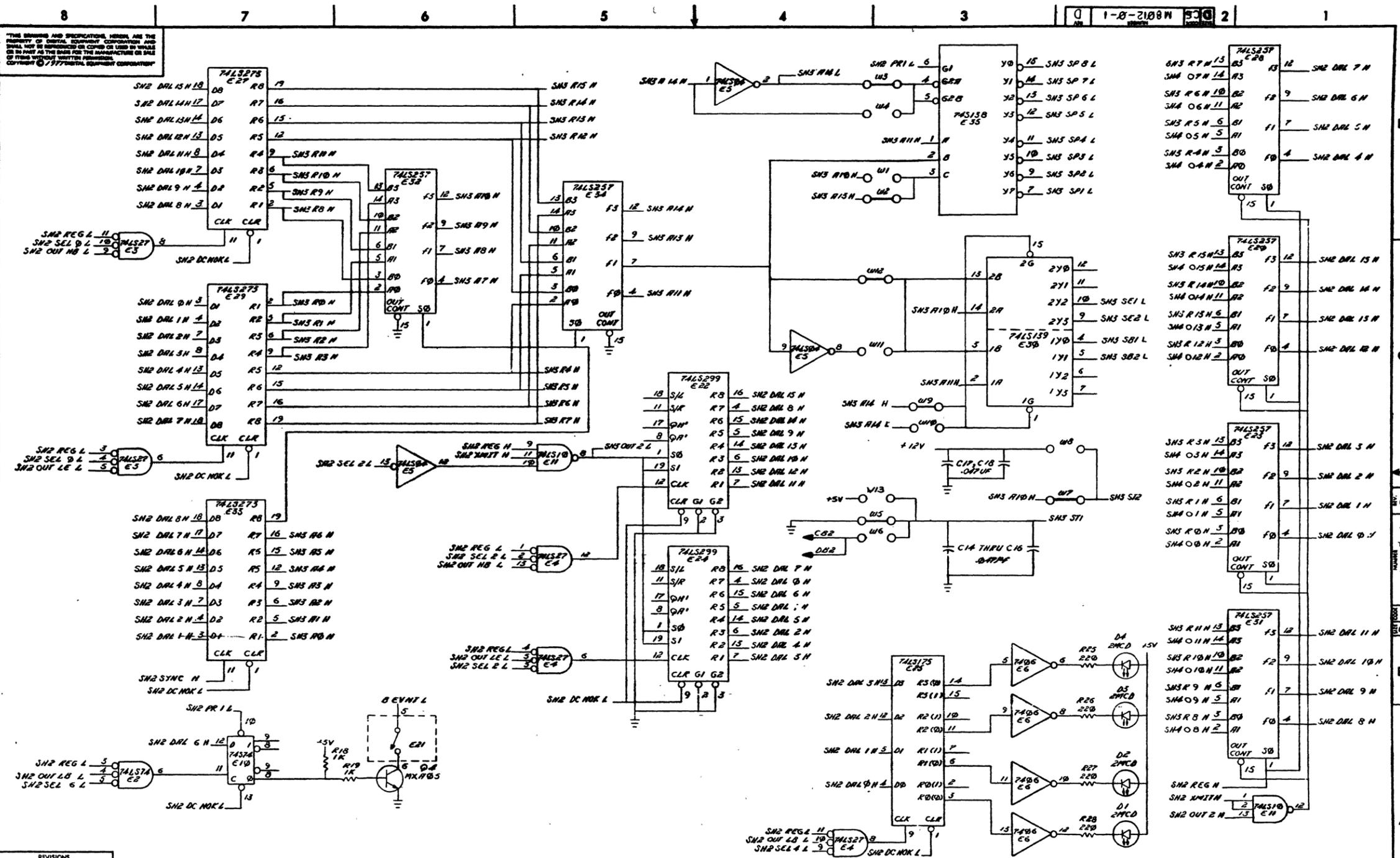
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REV.	DATE	BY	CHKD
1	11-12-77	W. J. ...	W. J. ...
2	12-1-77	W. J. ...	W. J. ...
3	12-1-77	W. J. ...	W. J. ...
4	12-1-77	W. J. ...	W. J. ...
5	12-1-77	W. J. ...	W. J. ...
6	12-1-77	W. J. ...	W. J. ...
7	12-1-77	W. J. ...	W. J. ...
8	12-1-77	W. J. ...	W. J. ...

DRW. NO.	562/001	FIRST USED ON	BDV11AA
CHKD. NO.	6-27-77	TITLE	BOOT-TERMINATOR & DIAGNOSTIC ROM
ENG. NO.	2-8-77	SIZE	CODE
PROJ. ENG. NO.	2-8-77	NUMBER	M8012-0-1
PROD. ENG. NO.	2-8-77	REV.	D
NEXT HIGHER ASSY.			
D-UA-M8012-0-0			
SCALE	NONE		
SHEET	1 OF 4		





REVISIONS			TITLE		SIZE/CODE		NUMBER		REV.	
CHK	CHANGE NO.	REV.	BOOT-TERMINATOR & DIAGNOSTIC ROM(SH3)		DCS		M8012-0-1		D	
			SCALE	NONE	SHEET	3	OF	4	DIST.	

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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS																						
ENGINEERING SPECIFICATION				DATE 27-May-77																		
TITLE M8012 TERM, BOOT AND DISGNOSTIC BOARD - M8012																						
REVISIONS																						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE																
A	ECO CHANGE	00001	GOODRICH	3-78	<i>G. Goodrich</i>	4/1/78																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">ENG</td> <td style="width: 30%;"><i>G. Goodrich</i></td> <td style="width: 10%;">APPD</td> <td style="width: 10%;"><i>[Signature]</i></td> <td style="width: 10%;">SIZE</td> <td style="width: 10%;">CODE</td> <td style="width: 10%;">NUMBER</td> <td style="width: 10%;">REV</td> </tr> <tr> <td></td> <td style="text-align: center;">A</td> <td></td> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">SP</td> <td style="text-align: center;">M8012-0-7</td> <td style="text-align: center;">A</td> </tr> </table>							ENG	<i>G. Goodrich</i>	APPD	<i>[Signature]</i>	SIZE	CODE	NUMBER	REV		A			A	SP	M8012-0-7	A
ENG	<i>G. Goodrich</i>	APPD	<i>[Signature]</i>	SIZE	CODE	NUMBER	REV															
	A			A	SP	M8012-0-7	A															
<small>DEC 16-(392)-3079-M871 DRA 107</small>																						

ENGINEERING SPECIFICATION				CONTINUATION SHEET																			
TITLE M8012 -- TERM, BOOT AND DIAGNOSTIC BOARD																							
TABLE OF CONTENTS																							
1.0	GENERAL DESCRIPTION																						
	1.1 GENERAL																						
	1.2 POWER REQUIREMENTS																						
2.0	ROM																						
	2.1 ROM																						
	2.2 ROM PAGES																						
3.0	BEVENT CLAMP (RTC DISABLE)																						
	3.1 GENERAL																						
	3.2 ADDRESS																						
4.0	MAINTENANCE REGISTERS																						
	4.1 READ WRITE REGISTER																						
	4.2 DISPLAY REGISTER																						
	4.3 SWITCH REGISTER																						
5.0	TERMINATION/PINOUT																						
6.0	POWER OK LED, RESTART AND HALT SWITCHES																						
7.0	ROM CODE																						
8.0	TEST JACKS																						
9.0	ROM ADDRESS MAP																						
	9.1 MASKED BOOT/DIAGNOSTIC ROM																						
	9.2 EPROM																						
	9.3 PROGRAM ROM																						
	9.4 ADDRESS JUMPERS																						
10.0	PROGRAM ROM/PROM JUMPERS																						
NOTE: THE LSI-11 BUS SPECIFICATION (DEC STD-160) IS REFERENCED BY AND SHALL BE CONSIDERED PART OF THIS SPECIFICATION																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">ENG</td> <td style="width: 30%;"><i>G. Goodrich</i></td> <td style="width: 10%;">APPD</td> <td style="width: 10%;"><i>[Signature]</i></td> <td style="width: 10%;">SIZE</td> <td style="width: 10%;">CODE</td> <td style="width: 10%;">NUMBER</td> <td style="width: 10%;">REV</td> </tr> <tr> <td></td> <td style="text-align: center;">A</td> <td></td> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">SP</td> <td style="text-align: center;">M8012-0-7</td> <td style="text-align: center;">A</td> </tr> </table>								ENG	<i>G. Goodrich</i>	APPD	<i>[Signature]</i>	SIZE	CODE	NUMBER	REV		A			A	SP	M8012-0-7	A
ENG	<i>G. Goodrich</i>	APPD	<i>[Signature]</i>	SIZE	CODE	NUMBER	REV																
	A			A	SP	M8012-0-7	A																
<small>DEC FORM NO EN-01022-16-N370(381) DRA 108</small>																							

ENGINEERING SPECIFICATION				CONTINUATION SHEET															
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD																			
1.0 GENERAL DESCRIPTION																			
1.1 DESCRIPTION																			
THE M8012 TERMINATOR, BOOTSTRAP AND DIAGNOSTIC BOARD IS A QUAD HEIGHT MODULE WHICH INTERFACES WITH THE LSI-11 BUS. IT PROVIDES THE FOLLOWING FEATURES:																			
A) ROM SPACE FOR BOOTSTRAP/DIAGNOSTIC AND OTHER PROGRAMS.																			
B) A 12 BIT READABLE SWITCH REGISTER																			
C) A 16 BIT READ WRITE REGISTER																			
D) A PROGRAMABLE RTC ENABLE																			
E) A POWER OK LED																			
F) A 4 LED DISPLAY REGISTER																			
G) RESTART AND HALT SWITCHES																			
H) 120 OHM LSI-11 BUS TERMINATION																			
1.2 POWER REQUIREMENTS																			
<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">TYPICAL</td> <td></td> <td style="text-align: center;">MAX</td> </tr> <tr> <td>+5 VOLTS</td> <td style="text-align: center;">1.25</td> <td style="text-align: center;">1.6</td> <td style="text-align: center;">AMPS</td> </tr> <tr> <td>+12 VOLTS</td> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.07</td> <td style="text-align: center;">AMPS</td> </tr> </table>									TYPICAL		MAX	+5 VOLTS	1.25	1.6	AMPS	+12 VOLTS	0.05	0.07	AMPS
	TYPICAL		MAX																
+5 VOLTS	1.25	1.6	AMPS																
+12 VOLTS	0.05	0.07	AMPS																
NOTE: POWER MUST BE ADDED FOR ANY ROMS USED.																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">SIZE</td> <td style="width: 10%;">CODE</td> <td style="width: 10%;">NUMBER</td> <td style="width: 10%;">REV</td> </tr> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">SP</td> <td style="text-align: center;">M8012-0-7</td> <td style="text-align: center;">A</td> </tr> </table>								SIZE	CODE	NUMBER	REV	A	SP	M8012-0-7	A				
SIZE	CODE	NUMBER	REV																
A	SP	M8012-0-7	A																
<small>DEC FORM NO EN-01022-16-N370(381) DRA 108</small>																			

ENGINEERING SPECIFICATION				CONTINUATION SHEET											
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD															
2.0 ROM															
2.1 ROM															
THE M8012 PROVIDES 2K WORDS OF MASKED ROM SOCKETS FOR BOOTSTRAPS AND DIAGNOSTICS WITH PADS FOR AN ADDITIONAL 2K WORDS FOR FUTURE USE.															
IT ALSO PROVIDES SOCKETS FOR 4 2708 EPROMS (2K WORDS) AND PADS FOR 16 8316E/2716 (16K WORDS) ROM/EPROM. THESE PADS MAY BE USED FOR 2708 EPROMS (8K WORDS) BY CHANGING JUMPERS AND SUPPLYING -5 VOLT POWER THRU PINS CB2 AND DB2.															
THE M8012-YA PROVIDES SOCKETS FOR THE ADDITIONAL 2K OF BOOT/DIAGNOSTIC ROMS AND FOR THE PROGRAM ROM/EPROM.															
2.2 ROM PAGES															
ALL ROM IS ACCESSED IN A PAGEU FORMAT OF 2 128 WORD PAGES AT THE FOLLOWING BUS ADDRESSES															
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">173000 TO 173377</td> <td style="width: 50%;">LOW PAGE</td> </tr> <tr> <td>173400 TO 173777</td> <td>HIGH PAGE</td> </tr> </table>								173000 TO 173377	LOW PAGE	173400 TO 173777	HIGH PAGE				
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SIZE	CODE	NUMBER	REV												
A	SP	M8012-0-7	A												
<small>DEC FORM NO EN-01022-16-N370(381) DRA 108</small>															

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ENGINEERING SPECIFICATION		CONTINUATION SHEET																																			
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD																																					
<p>TO CONTROL MAPPING OF THESE PAGES INTO PHYSICAL ROM ADDRESSES A PAGE CONTROL REGISTER IS USED AT BUS ADDRESS 177520. THIS REGISTER IS WORD OR BYTE ADDRESSABLE AND MAY BE READ OR WRITTEN AND IS CLEARED UPON THE NEGATION OF BDCOK.</p> <p>THE PHYSICAL ROM ADDRESS IS GENERATED BY LATCHING DAL1-DAL7 AT SYNC AS A0-A6 AND USING THE LOW OR HIGH BYTE OF THE PAGE REGISTER (DEPENDING IF BUS ADDRESS IS IN LOW OR HIGH PAGE) AS A7-A14. TWO ROMS ARE ACCESSED AT A TIME, ONE AS LOW BYTE AND ONE AS HIGH BYTE.</p> <p>NOTE THAT ANY PAGE IN PHYSICAL ROM MAY BE ACCESSED THROUGH THE LOW OR HIGH BUS PAGE.</p> <p>IF THE BUS ADDRESS IS BETWEEN:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%;">173000 AND 173377</td> <td style="width:50%;">173400 AND 173777</td> </tr> <tr> <td>ROM ADR=SOURCE</td> <td>ROM ADR=SOURCE</td> </tr> <tr> <td>A0= DAL1 (LATCHED)</td> <td>A0= DAL1 (LATCHED)</td> </tr> <tr> <td>A1= DAL2</td> <td>A1= DAL2</td> </tr> <tr> <td>A2= DAL3</td> <td>A2= DAL3</td> </tr> <tr> <td>A3= DAL4</td> <td>A3= DAL4</td> </tr> <tr> <td>A4= DAL5</td> <td>A4= DAL5</td> </tr> <tr> <td>A5= DAL6</td> <td>A5= DAL6</td> </tr> <tr> <td>A6= DAL7</td> <td>A6= DAL7</td> </tr> <tr> <td>A7= BIT0 (PAGE REG)</td> <td>A7= BIT8 (PAGE REG)</td> </tr> <tr> <td>A8= BIT1</td> <td>A8= BIT9</td> </tr> <tr> <td>A9= BIT2</td> <td>A9= BIT10</td> </tr> <tr> <td>A10= BIT3</td> <td>A10= BIT11</td> </tr> <tr> <td>A11= BIT4</td> <td>A11= BIT12</td> </tr> <tr> <td>A12= BIT5</td> <td>A12= BIT13</td> </tr> <tr> <td>A13= BIT6</td> <td>A13= BIT14</td> </tr> <tr> <td>A14= BIT7</td> <td>A14= BIT15</td> </tr> </table> <p>WHERE PHYSICAL ROM ADDRESS BIT= SOURCE</p>				173000 AND 173377	173400 AND 173777	ROM ADR=SOURCE	ROM ADR=SOURCE	A0= DAL1 (LATCHED)	A0= DAL1 (LATCHED)	A1= DAL2	A1= DAL2	A2= DAL3	A2= DAL3	A3= DAL4	A3= DAL4	A4= DAL5	A4= DAL5	A5= DAL6	A5= DAL6	A6= DAL7	A6= DAL7	A7= BIT0 (PAGE REG)	A7= BIT8 (PAGE REG)	A8= BIT1	A8= BIT9	A9= BIT2	A9= BIT10	A10= BIT3	A10= BIT11	A11= BIT4	A11= BIT12	A12= BIT5	A12= BIT13	A13= BIT6	A13= BIT14	A14= BIT7	A14= BIT15
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SIZE A	CODE SP	NUMBER M8012-0-7	REV A																																		
DEC FORM NO EN-01022-16-N370-(381) DRA 108																																					
SHEET 5 OF 10																																					

ENGINEERING SPECIFICATION		CONTINUATION SHEET	
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD			
<p>3.0 BEVENT CLAMP (REAL TIME CLOCK DISABLE)</p> <p>3.1 GENERAL</p> <p>A SINGLE BIT WRITE ONLY REGISTER CLAMPS BEVENTL LOW WHEN CLEARED. THIS ALLOWS PROGRAM CONTROL OF THE LSI-11 LINE TIME CLOCK FUNCTION. REGISTER IS CLEARED UPON NEGATION OF BDCOK. THE M8012 MODULE MUST BE LOCATED IN THE BACKPLANE PROVIDING BEVENT FOR PROPER OPERATION OF THIS FUNCTION. IT MAY BE DISABLED BY SWITCH SELECTION. SWITCH #5 OF E21 DISABLES THIS FUNCTION WHEN OFF.</p> <p>3.2 ADDRESS</p> <p>177546 BIT 6 BEVENT CLAMPED WHEN CLEAR (RTC OFF)</p> <p>4.0 MAINTENANCE REGISTERS</p> <p>4.1 READ WRITE REGISTER</p> <p>A SIXTEEN BIT READ WRITE REGISTER IS PROVIDED AT ADDRESS 177522 FOR DIAGNOSTICS. THE REGISTER IS WORD OR BYTE ADDRESSABLE AND IS CLEARED UPON NEGATION OF BDCOK.</p> <p>4.2 DISPLAY REGISTER</p> <p>A 4 BIT WRITE ONLY REGISTER AT ADDRESS 177524 CONTROLS A 4 LED EDGE MOUNTED RED DISPLAY USED FOR DIAGNOSTICS. BITS 0-3 CORRESPOND TO D1 TO D4 WITH A SET BIT TURNING THE RESPECTIVE LED OFF. THE REGISTER IS CLEARED (ALL LEDS ON) UPON NEGATION OF BDCOK.</p> <p>4.3 SWITCH REGISTER</p> <p>A 12 BIT READ ONLY REGISTER AT ADDRESS 177524 IS USED FOR MAINTENANCE AND SYSTEM CONFIGURATION (BITS 0-11). NOTE THAT THIS ADDRESS IS SHARED WITH THE DISPLAY REGISTER. E15 SWITCHES 1-8 CORRESPOND TO BITS 0-7 AND E21 SWITCHES 1-4 CORRESPOND TO BITS 8-11 WITH A ON SWITCH READ AS A 1 AND AN OFF SWITCH AS A 0.</p>			
SIZE A	CODE SP	NUMBER M8012-0-7	REV A
DEC FORM NO EN-01022-16-N370-(381) DRA 108			
SHEET 6 OF 10			

ENGINEERING SPECIFICATION		CONTINUATION SHEET													
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD															
<p>5.0 TERMINATION/PINOUT</p> <p>ALL BUS LINES ARE TERMINATED BY A RESISTOR NETWORK OF 180 OHMS TO +5 AND 390 OHMS TO GND.</p> <p>THE PINOUT AND BUS DRIVER/RECEIVER CHARACTERISTICS COMPLY WITH THE LSI-11 BUS SPECIFICATION (DEC STD-160)</p> <p>6.0 POWER OK LED, RESTART AND HALT SWITCHES</p> <p>A GREEN EDGE MOUNTED POWER OK LED IS PROVIDED AND IS LIGHTED WHEN +12 IS GREATER THAN 10 VOLTS AND +5 IS GREATER THAN 4V VOLTS.</p> <p>A EDGE MOUNTED SWITCH (S2) REBOOTS THE SYSTEM BY DEASSERTING BDCOK FOR A NOMINAL 2 USEC WHEN IT IS CYCLED BACK AND FORTH ONCE. A SECOND EDGE MOUNTED SWITH (S1) ASSERTS BHALT WHEN POSITIONED WITH ITS LEVER AWAY FROM THE LED DISPLAY.</p> <p>7.0 ROM CODE</p> <p>SEE DIAGNOSTIC ENGINEERING DESIGN PLAN FOR THE BDV11-AA DIAGNOSTIC ROM, DIAGNOSTIC RETRIVAL NUMBER HP-046-10-558 FOR BOOTSTRAPS/DIAGNOSTICS AND RESTRICTIONS ON EPROM AND PROGRAM ROM CODE</p> <p>8.0 TEST POINTS</p> <p>TIP JACKS ARE PROVIDED TO ALLOW MEASUREMENT OF THE 5 AND 12 VOLT POWER SUPPLIES. THE 5 AND 12 VOLT TEST JACKS HAVE A 560 OHM SERIES RESISTOR TO PREVENT DAMAGE BY ACCIDENTAL SHORTS.</p> <table style="width:100%; border: none;"> <thead> <tr> <th>JACK</th> <th>FUNCTION</th> <th>COLOR</th> </tr> </thead> <tbody> <tr> <td>J1</td> <td>GND</td> <td>BLACK</td> </tr> <tr> <td>J2</td> <td>+5</td> <td>RED</td> </tr> <tr> <td>J3</td> <td>+12</td> <td>PURPLE</td> </tr> </tbody> </table>				JACK	FUNCTION	COLOR	J1	GND	BLACK	J2	+5	RED	J3	+12	PURPLE
JACK	FUNCTION	COLOR													
J1	GND	BLACK													
J2	+5	RED													
J3	+12	PURPLE													
SIZE A	CODE SP	NUMBER M8012-0-7	REV A												
DEC FORM NO EN-01022-16-N370-(381) DRA 108															
SHEET 7 OF 10															

ENGINEERING SPECIFICATION		CONTINUATION SHEET																						
TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD																								
<p>9.0 ROM ADDRESS MAP</p> <p>SEE SECTION 9.4 FOR DESCRIPTION OF CHARACTERS USED TO BRACKET ADDRESSES IN 9.1 TO 9.3</p> <p>9.1 MASKED BOOT/DIAGNOSTIC ROM</p> <table style="width:100%; border: none;"> <thead> <tr> <th>HIGH BYTE</th> <th>LOW RYTE</th> <th>CHIP ADDRESS</th> </tr> </thead> <tbody> <tr> <td>I E53</td> <td>I E48</td> <td>0-2K, (4K-6K) BOOT/DIAG [16K-18K], <20K-22K></td> </tr> <tr> <td>I E58</td> <td>I E44</td> <td>2K-4K, (6K-8K) RESERVED [18K-20K], <22K-24K></td> </tr> </tbody> </table> <p>9.2 EPROM SOCKETS (INTERNAL -5V POWER)</p> <table style="width:100%; border: none;"> <tbody> <tr> <td>I E57</td> <td>I E40</td> <td>4K-5K, (0-1K) <16K-17K>, [20K-21K]</td> </tr> <tr> <td>I E52</td> <td>I E36</td> <td>5K-6K, (1K-2K) <17K-18K>, [21K-22K]</td> </tr> </tbody> </table> <p>9.3 PROGRAM ROM/EPROM</p> <table style="width:100%; border: none;"> <tbody> <tr> <td>I E54</td> <td>I E49</td> <td>16K-18K, [16K-17K] [0-2K], <0-1K></td> </tr> <tr> <td>I E57</td> <td>I E45</td> <td>18K-20K, [18K-19K] [2K-4K], <8K-2K></td> </tr> </tbody> </table>				HIGH BYTE	LOW RYTE	CHIP ADDRESS	I E53	I E48	0-2K, (4K-6K) BOOT/DIAG [16K-18K], <20K-22K>	I E58	I E44	2K-4K, (6K-8K) RESERVED [18K-20K], <22K-24K>	I E57	I E40	4K-5K, (0-1K) <16K-17K>, [20K-21K]	I E52	I E36	5K-6K, (1K-2K) <17K-18K>, [21K-22K]	I E54	I E49	16K-18K, [16K-17K] [0-2K], <0-1K>	I E57	I E45	18K-20K, [18K-19K] [2K-4K], <8K-2K>
HIGH BYTE	LOW RYTE	CHIP ADDRESS																						
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SIZE A	CODE SP	NUMBER M8012-0-7	REV A																					
DEC FORM NO EN-01022-16-N370-(381) DRA 108																								
SHEET 8 OF 10																								

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ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD

9.2 PROGRAM ROM/EPROM CONTINUED

HIGH BYTE	LOW BYTE	CHIP ADDRESS
I I I E60 I I I	I I I E41 I I I	20K-22K, !20K-21K! :4K-6K!, *4K-5K*
I I I E55 I I I	I I I E37 I I I	22K-24K, !22K-23K! :6K-8K!, *6K-7K*
I I I E51 I I I	I I I E38 I I I	24K-26K, !17K-18K! :8K-10K!, *1K-2K*
I I I E47 I I I	I I I E42 I I I	26K-28K, !19K-20K! :10K-12K!, *3K-4K*
I I I E43 I I I	I I I E46 I I I	28K-30K, !21K-22K! :12K-14K!, *5K-6K*
I I I E39 I I I	I I I E50 I I I	30K-32K, !23K-24K! :14K-16K!, *7K-8K*

SIZE A CODE SP NUMBER M8012-0-7 REV A

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE M8012 -- TERM BOOT AND DIAGNOSTIC BOARD

9.4 ADDRESS JUMPERS

THE CHARACTERS USED TO BRACKET VARIOUS ADDRESSES IN SECTIONS 9.1 TO 9.3 CORRESPOND TO THOSE IN THE TABLE BELOW. FOR EACH JUMPER COMBINATION LISTED BELOW A GIVEN CHIP WILL BE SELECTED AT THE ADDRESSES INDICATED BY THE BRACKETS

CHAR	W1	W2	W3	W4	W9	W10	W11	W12
NONE	R	I	I	R	I	R	R	I
()	X	X	X	X	I	R	I	R
[]	X	X	X	X	R	I	R	I
< >	X	X	X	X	R	I	I	R
! !	I	R	I	R	X	X	X	X
: :	R	I	R	I	X	X	X	X
* *	I	R	R	I	X	X	X	X

I=INSTALLED R=REMOVED X=DON'T CARE

NOTE: JUMPERS MUST NOT BE CONFIGURED AND CHIPS INSTALLED SUCH THAT 2 CHIPS RESPOND TO THE SAME ADDRESS.

10.0 PROGRAM ROM/EPROM JUMPERS

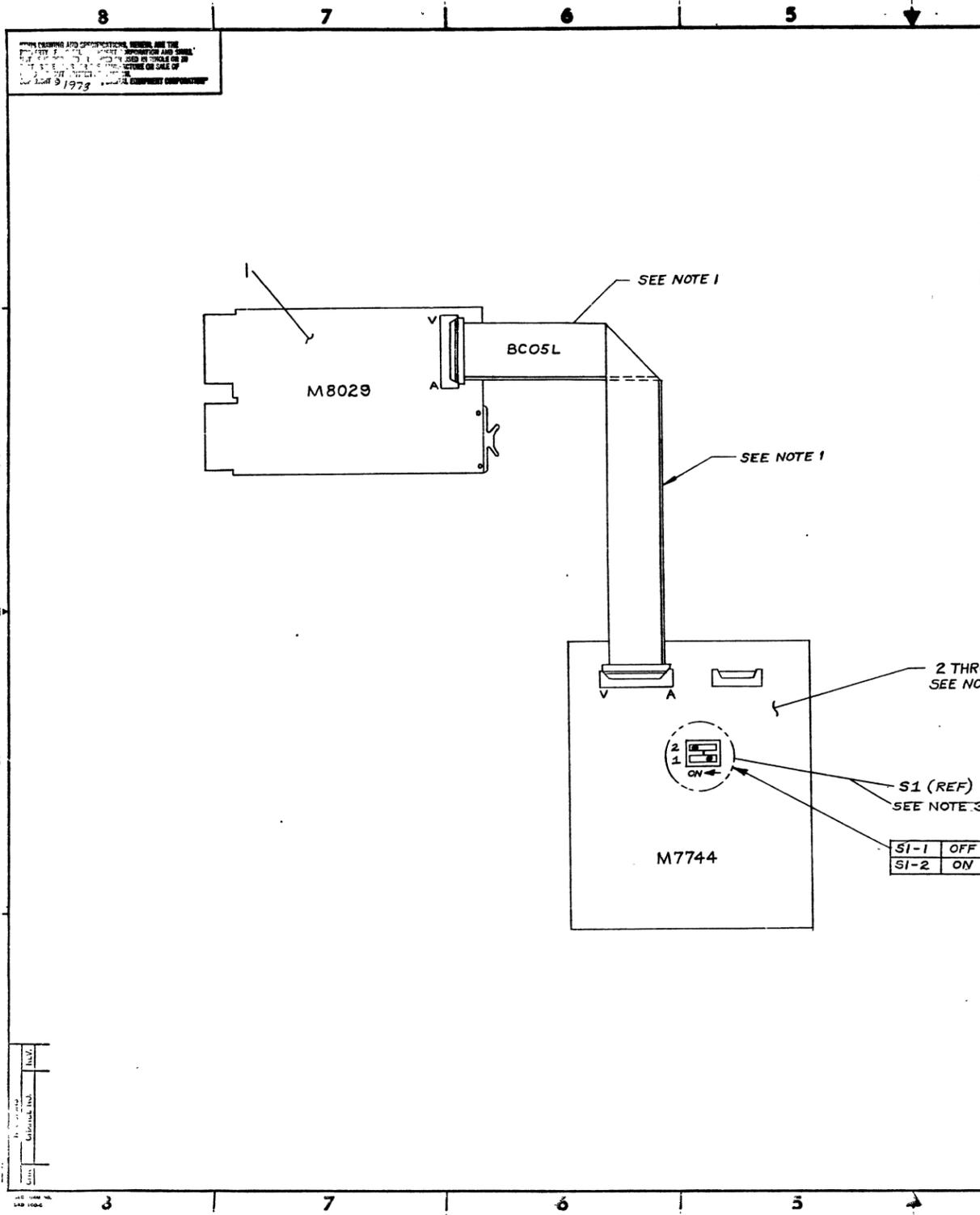
	W5	W6	W7	W8	W13	
8316E	I	R	I	R	R	NOTE 1
8316E	R	R	I	R	I	NOTE 2
2716	R	R	I	R	I	NOTE 3
2708	R	I	R	I	R	NOTE 4

NOTES:

- (1) CS1=0, CS2=0, CS3=0
- (2) CS1=0, CS2=0, CS3=1
- (3) +5 VOLT ONLY PARTS
- (4) 2708 WITH EXTERNAL -5 SUPPLIED BY CB2 & DB2.

SIZE A CODE SP NUMBER M8012-0-7 REV A

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VARIATION LEGEND	
NUMBER	VARIATION
RXV21-φ	RXV21 LSI-II INTERFACE (M8029)
RXV21-AA	RX02-AA & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-AC	RX02-AC & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-AD	RX02-AD & RXV21-φ INTERFACE, 230V, 50HZ
RXV21-BA	RX02-BA & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-BC	RX02-BC & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-BD	RX02-BD & RXV21-φ INTERFACE, 230V, 50HZ
RXV21-DA	RX02-DA & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-DC	RX02-DC & RXV21-φ INTERFACE, 110V, 50HZ
RXV21-DD	RX02-DD & RXV21-φ INTERFACE, 230V, 50HZ

- NOTES:
1. MODULE M7744 & CABLE ASSY BC05L ARE SUPPLIED WITH THE RX02 FLOPPY DISK DRIVE ASSY.
 2. RED STRIPE ON BC05L CABLE INDICATES PIN "A" ON THE CONNECTOR.
 3. THE RX02 DISK CONTROLLER BOARD (M7744) MUST BE SWITCHED CORRECTLY FOR PROPER OPERATION WITH THE RXV21-φ INTERFACE (M8029). SEE USER'S GUIDE EX-RX02-UG.
 4. ITEM 11 IS USED AT D322 OPTION BY REPLACING FALSE FRONT ON BEZEL ASSY. SAME MOUNTING HARDWARE IS RE-USABLE (5 PLACES).
 5. ITEMS 12, 13 & 14 ARE USED TO MOUNT BEZEL ASSY TO RX02 CHASSIS.
 6. ITEMS #12 THRU #15 NOT SHOWN.

QTY	DESCRIPTION	DWG. PART NO.	ITEM NO.
1	PACKAGING INSTR.-CUSTOMER	A-SP-3700193-φ-φ	REF
1	PACKAGING INSTR.-INTERPLANT	A-SP-3700185-φ-φ	REF
1	CABLE ASSY, W/MTS. BRKT	CAD-7012405-φ-φ	15
4	WASHER, FLAT, No 8	9006666-00	14
4	WASHER, SPRING LOCK No 8	9006690-00	13
4	SCR, PHL PAN HD. 8-32 x.50L	9006039-01	12
1	PLATE, FRONT, DUAL DRIVE	D-1A-7912853-φ-φ	11
1	RX02-DD FLOPPY DISK DRIVE	E-UA-RX02-DD-φ	10
1	RX02-DC FLOPPY DISK DRIVE	E-UA-RX02-DC-φ	9
1	RX02-DA FLOPPY DISK DRIVE	E-UA-RX02-DA-φ	8
1	RX02-BD FLOPPY DISK DRIVE	E-UA-RX02-BD-φ	7
1	RX02-BC FLOPPY DISK DRIVE	E-UA-RX02-BC-φ	6
1	RX02-BA FLOPPY DISK DRIVE	E-UA-RX02-BA-φ	5
1	RX02-AD FLOPPY DISK DRIVE	E-UA-RX02-AD-φ	4
1	RX02-AC FLOPPY DISK DRIVE	E-UA-RX02-AC-φ	3
1	RX02-AA FLOPPY DISK DRIVE	E-UA-RX02-AA-φ	2
1	RXV21 LSI-II FLOPPY CONTROLLER	D-UA-M8029-φ-φ	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

CLASS OF ACCURACY	TYPICAL TOLERANCES IN INCHES			
	OVER .01	.01 TO .1	.1 TO 1	OVER 1
SURFACE QUALITY	12.5	12.5	12.5	12.5
FINISH	12.5	12.5	12.5	12.5

QUANTITY & VARIATION: MICROINCHES: PREFERRED: 0.012 0.018 0.025 0.04 0.063 0.1

THIRD ANGLE PROJECTION: DRW'G. MORIN: DATE: 1/25/74: FIRST USED ON: LSI-II: digital

REMOVE BURRS AND BREAK SHARP CORNERS

TITLE: RXV21 FLOPPY DISK SYSTEM

MATERIAL: 3030-RXV21-φ: SIZE CODE: 0 UA: NUMBER: RXV21-φ-φ: REV.

FINISH: NONE: SHEET: 1 OF 1: 25

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS																
B-DD-M8029-0	1		RXV21 LSI 11 RX02 CONTROLLER	*	A															
D-UA-M8029-0-0	5		RXV21 LSI 11 RX02 CONTROLLER	B	C															
K-PL-M8029-0-DBP	-		PARTS LIST DATA BASE	B	C															
D-CS-M8029-0-1	4		RXV21 LSI 11 RX02 CONTROLLER	B	C															
D-MD-5013080-0-0	5		DRILL & ETCH DWG.	B	B															
		5013080/	ETCH BOARD	C	C															
M8029-0-L			P.C. DESIGN DATA BASE	C	C															

NOTES:

REVISIONS	DATE	CHG NO.	REV.
	578	00001	A

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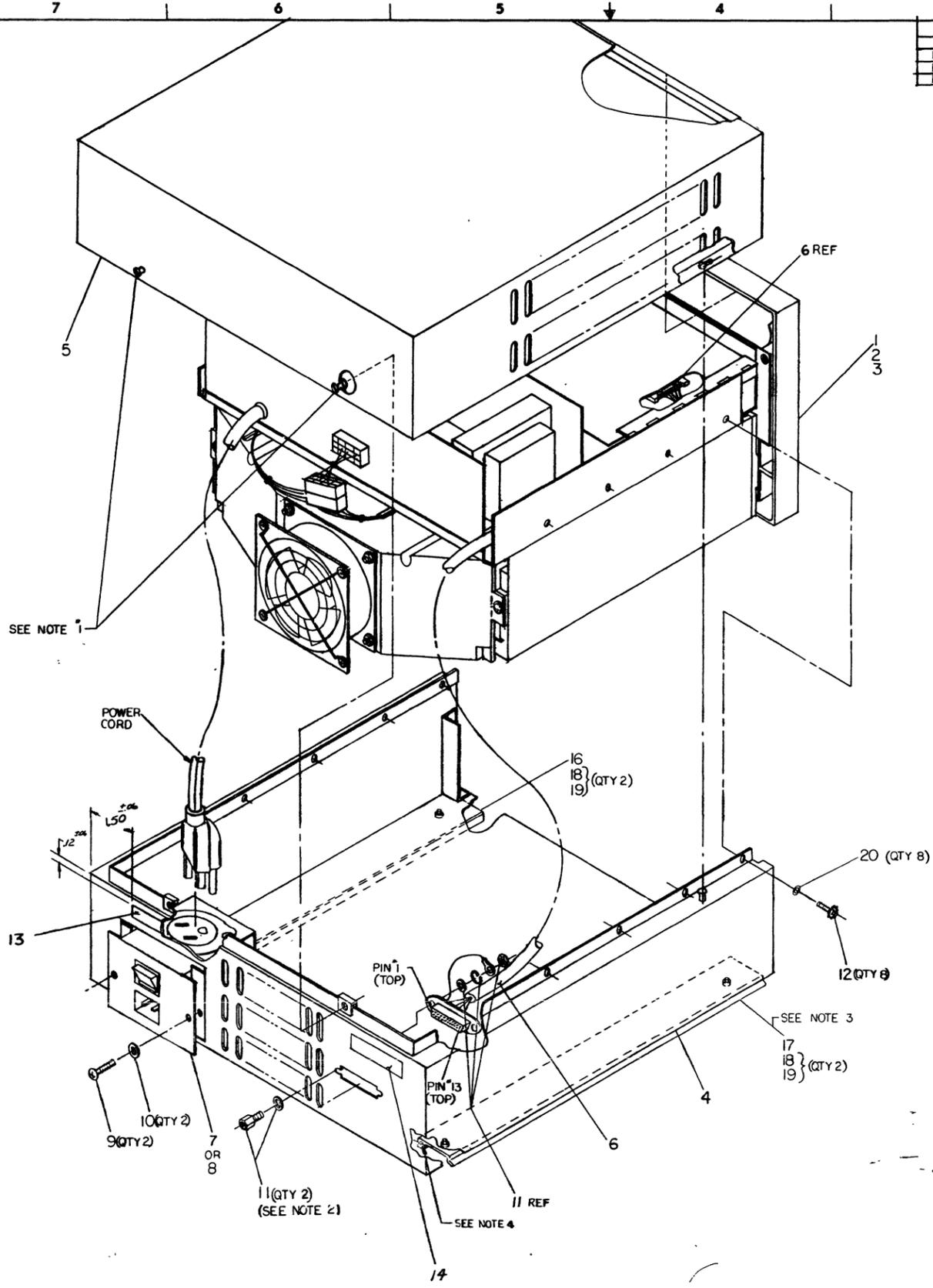


USED ON OPTION/MODEL	DRN. S. TUTTLE	12/20/77	TITLE	RXV21 LSI 11
RX02	CHK'D. <i>J. Boonman</i>	3 JAN 78	RX02 CONTROLLER	
	ENG. <i>Jerry L. Ryan</i>	24 FEB 78	SIZE	B DD
	PROD. <i>[Signature]</i>	23 FEB 78	CODE	DD
			NUMBER	M8029-0
			REV.	A
			SHEET 1 OF 1	

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LEGEND	
NUMBER	VARIATION
RX02M - MA	115V-60 HZ
RX02M - MC	115V-50 HZ
RX02M - MD	230V-50 HZ

NOTE:
 1. MAKE 1/4 TURN TO THE LEFT OR TO THE RIGHT TO SECURE COVER. (ITEM 5) TO BASE (ITEM 4).
 2. SCREW LOCK ASSY (ITEM 11) SUPPLIED WITH WASHERS & NUT.
 3. BEFORE TIGHTENING SCREWS FOR SLIDES ITEMS 16 & 17, PUSH SLIDES OUTWARDS.
 4. THREADED PORTION OF ITEMS 16 & 17 TO THE REAR OF ASSY.



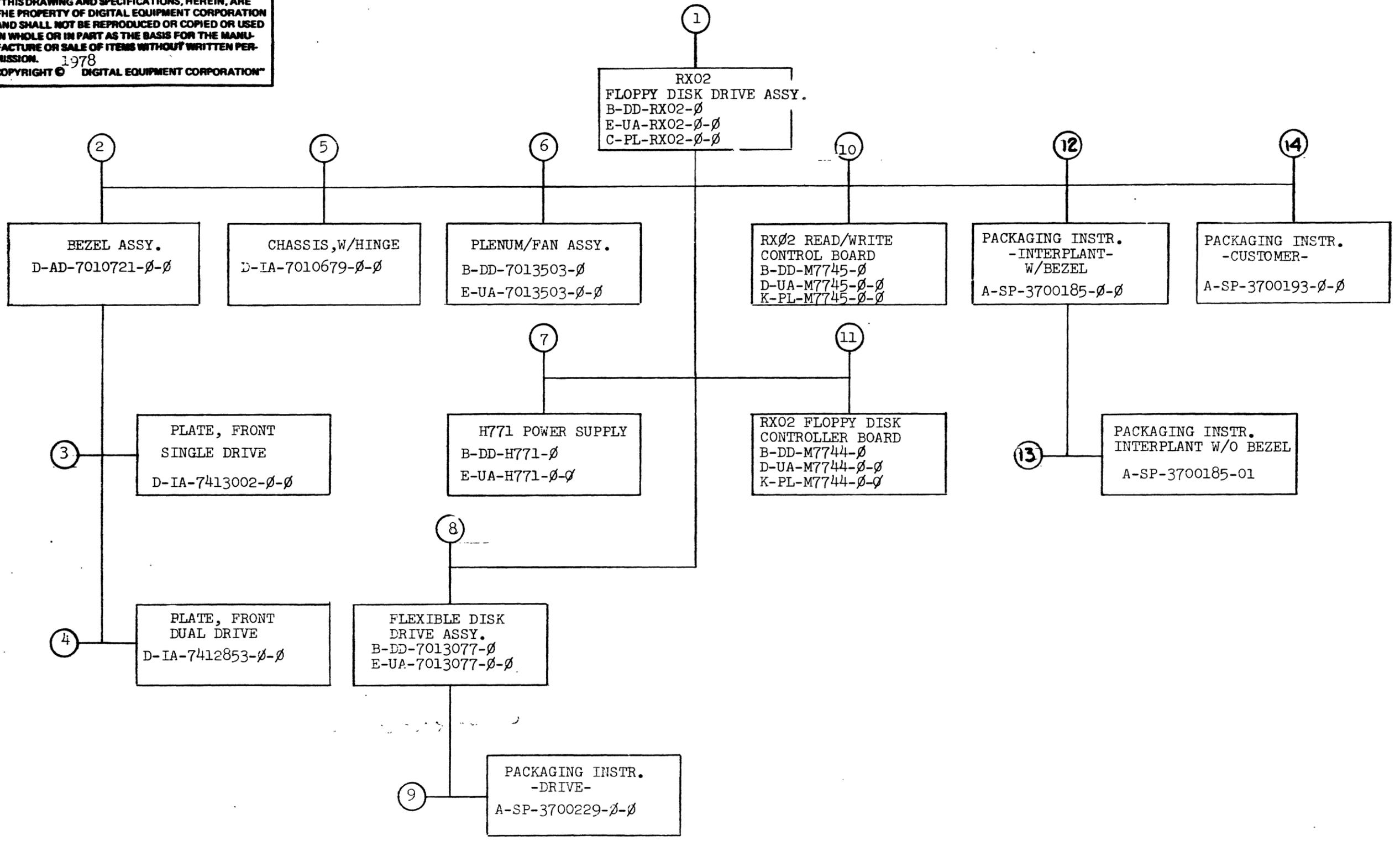
QTY	DESCRIPTION	PART NO.	ITEM NO.
8	WASHER, FLAT #10	9006664	20
4	WASHER, EXT. TOOTH #8	9008151	19
4	SCR, PHIL PAN HD #8-32 x .38	9006037-01	18
1	EXTRUSION LEG (RH)	C-MD-7A20163-01	17
1	EXTRUSION LEG (LH)	C-MD-7A20163-00	16
1	SNIP PKG & INST.	3700312	15
1	LABEL, ELEC. DATA	3613210	14
1	LABEL U.L.	A-DC-7414213-0-0	13
8	SCR, SEMS PHIL PAN #10-32 x .38	9009228-10	12
2	SCR, LOCK ASSY	9008495-00	11
2	LOCKWASHER #6	9007649-00	10
2	SCR, PHIL PAN HD #6-32 x .31	9006021-01	9
1	INPUT BOX ASSY, 230V	DAD-7015858-01	8
1	INPUT BOX ASSY, 115V	DAD-7015858-00	7
1	INTERNAL CABLE	D-1A-7014033-0-0	6
1	COVER ASSY	DAD-7013892-0-0	5
1	BASE ASSY	CAD-7013702-0-0	4
1	FLOPPY DISC DRIVE (230V-50HZ)	E-UA-RX02-LD	3
1	FLOPPY DISC DRIVE (115V-60HZ)	E-UA-RX02-LC	2
1	FLOPPY DISC DRIVE (115V-60HZ)	E-UA-RX02-LA	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CLASS OF ACCURACY	DATE	FIRST USED ON
FINISH	SCALE	REV.	
UNIT ASSY	1/2	A	RX02M
RX02M			
REWORK SURFACE AND BREAK DIMENSIONS	PROD. ENG. 09/21/77	DATE	
DO NOT SCALE DIMS	NEXT HIGHER ASSY.		
MATERIAL	D-1A-MINC11-0-0	SIZE CODE	NUMBER
SEE PARTS LIST	E UA	RX02M-0-0	REV.
FINISH NONE	SHEET 1 OF 1	DIST.	

REVISIONS
 1. CHANGE NO. 1
 2. CHANGE NO. 2
 3. CHANGE NO. 3
 4. CHANGE NO. 4
 5. CHANGE NO. 5
 6. CHANGE NO. 6
 7. CHANGE NO. 7
 8. CHANGE NO. 8
 9. CHANGE NO. 9
 10. CHANGE NO. 10

270

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TITLE	SIZE CODE	NUMBER	REV
RX02 FLOPPY DISK DRIVE	B DD	RX02-0	
SHEET 2 OF 3			

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP-00629	FIELD MAINTENANCE PRINT SET (MP)	-	7	B-DD-H771-Ø	H771 POWER SUPPLY - DRAWING DIRECTORY	-
	B-TC-RX02-0-1	FIELD MAINTENANCE PRINT SET (TC)	-		E-UA-H771-Ø-Ø	H771 POWER SUPPLY ASSY.	E/M
	B-DD-RX02-0	RX02 FLOPPY DISK DRIVE ASSY. - DRAWING DIRECTORY	-		D-IA-7010696-Ø-Ø	POWER HARNESS (VARIATIONS)	E/M
	E-UA-RX02-Ø-Ø	RX02 FLOPPY DISK DRIVE ASSY.	E/M				
	C-PL-RX02-Ø-Ø	RX02 FLOPPY DISK DRIVE ASSY. - PARTS LIST	-				
	A-SP-RX02-0-2	RX02 ENGINEERING SPECIFICATION	E/M				
			E/M	8	B-DD-7013077-Ø	FLEXIBLE DISK DRIVE ASSY. - DRAWING DIRECTORY	-
	C-IA-7015580-Ø-Ø	CABLE ASSY. - M7744/M7745	E/M		E-UA-7013077-Ø-Ø	FLEXIBLE DISK DRIVE ASSY.	E/M
	E-IA-7412666-Ø-Ø	COVER, TOP	M		B-PL-7013077-0-0	FLEXIBLE DISK DRIVE ASSY. - P/L	-
	D-UA-BC05L-Ø-Ø	CABLE, JUMPER	E/M	9	A-SP-3700229-Ø-Ø	PACKAGING INSTRUCTIONS - DRIVE	-
	C-MD-7409479-Ø-Ø	PLATE, PRESSURE	M				
	C-MD-7413350-Ø-Ø	BRACKET, SHIPPING	M				
	A-PS-1212157-Ø-Ø	SLIDES, CHASSIS	M	10	B-DD-M7745-Ø	RX02 READ/WRITE CONTROL BOARD- DRAWING DIRECTORY	-
					D-UA-M7745-Ø-Ø	RX02 READ/WRITE CONTROL BOARD - ASSY.	E
2	D-AD-7010721-Ø-Ø	BEZEL ASSY.	M		K-PL-M7745-Ø-Ø	RX02 READ/WRITE CONTROL BOARD - PARTS LIST	E
	E-MD-741450-Ø-Ø	BEZEL (DIECAST)	M		D-CS-M7745-Ø-1	RX02 READ/WRITE CONTROL BOARD - CIRCUIT SCHEMATIC	E
3	D-IA-7413002-Ø-Ø	PLATE, FRONT, SINGLE DRIVE	M	11	B-DD-M7744-Ø	RX02 FLOPPY DISK CONTROLLER BD-DRAWING DIRECTORY	-
	C-SS-7413002-Ø-Ø	SILK SCREEN, SINGLE DRIVE	M		D-UA-M7744-Ø-Ø	RX02 FLOPPY DISK CONTROLLER BD-ASSY.	E
					K-PL-M7744-Ø-Ø	RX02 FLOPPY DISK CONTROLLER BD. - PARTS LIST	E
					D-CS-M7744-Ø-1	RX02 FLOPPY DISK CONTROLLER BD. - CIRCUIT SCHEMATIC	E
4	D-IA-7412853-Ø-Ø	PLATE, FRONT, DUAL DRIVE	M				
	C-SS-7412853-Ø-Ø	SILK SCREEN, DUAL DRIVE	M				
5	D-IA-7010679-Ø-Ø	CHASSIS, W/HINGE	M				
	E-IA-7412665-Ø-Ø	CHASSIS, FLEXIBLE DISK DRIVE	M				
	C-MD-7413236-Ø-Ø	HINGE, LOGIC	M				
6	B-DD-7013503-Ø	PLENUM/FAN ASSY. - DRAWING DIRECTORY	-	12	A-SP-3700185-Ø-Ø	PACKAGING INSTRUCTIONS - INTERPLANT (W/BEZEL)	-
	E-UA-7013503-Ø-Ø	PLENUM/FAN ASSY.	E/M	13	A-SP-3700185-01	PACKAGING INSTRUCTIONS - INTERPLANT (W/O BEZEL)	-
				14	A-SP-3700193-Ø-Ø	PACKAGING INSTRUCTIONS - CUSTOMER	-

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE

RX02-FLOPPY DISK DRIVE

SHEET 3 OF 3

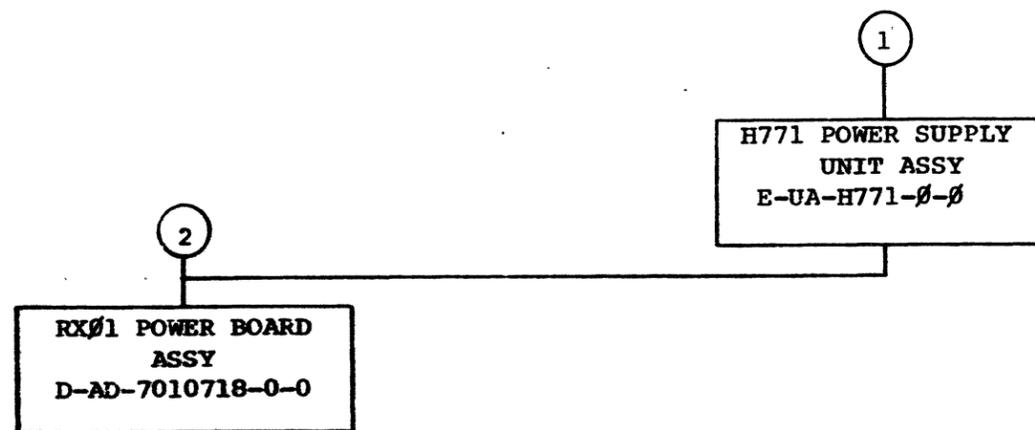
SIZE CODE
B DD

NUMBER
RX02-Ø

REV

DRB 108A

274



TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
H771 POWER SUPPLY		B DD	H771-Ø	E

DRB 107

DEC 16 (325) 1062-3-N871

280

CUSTOMER PRINT SET		MECHANICAL					CUSTOMER PRINT SET		ELECTRICAL								
		MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE			MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			1	E-UA-H771- β - β	E	2	H771 POWER SUPPLY ASSY		X			1	B-DD-H771- β	E	3	H771 POWER SUPPLY	
				E-MD-7412667-0-0	D	1	CHASSIS, POWER SUPPLY		X				D-CS-H771-A-1	B	1	H771-A CIRCUIT SCHEMATIC	
				D-AD-7010680-0-0	C	1	TRANSFORMER ASSY, 6 ϕ HZ		X				D-CS-H771-C-1	C	1	H771-C CIRCUIT SCHEMATIC	
				D-AD-7010704-0-0	E	1	TRANSFORMER ASSY, 5 ϕ HZ		X				D-CS-H771-D-1	C	1	H771-D CIRCUIT SCHEMATIC	
				C-FD-7010697-0-0	B	1	POWER CORD ASSY						A-SP-H771- β -1			ENGINEERING SPECIFICATION	
				C-IA-7010972-0-0	C	1	JUMPER										
				C-MD-7413344-0-0		1	BRACKET, FUSE MOUNTING										
				A-DC-7413403-0-0		1	DECAL, H771-A										
				A-DC-7414250-0-0	A	1	DECAL, H771-C										
				A-DC-7414251-0-0	A	1	DECAL, H771-D										
			2	D-AD-7010718-0-0		1	RX ϕ 1 POWER BOARD ASSY										
				D-IA-7010854-0-0	C	1	READ/WRITE BOARD HARNESS		X			2	D-AD-7010718-0-0	X	1	RX ϕ 1 POWER BOARD ASSY	
				D-IA-7010853-0-0	B	1	DISK CONTROL BOARD HARNESS		X				D-CS-5411398-0-1	X	1	RX ϕ 1 POWER BOARD ASSY	

CUSTOMER PRINT SET CODES

X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
 C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
 S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE

H771 POWER SUPPLY

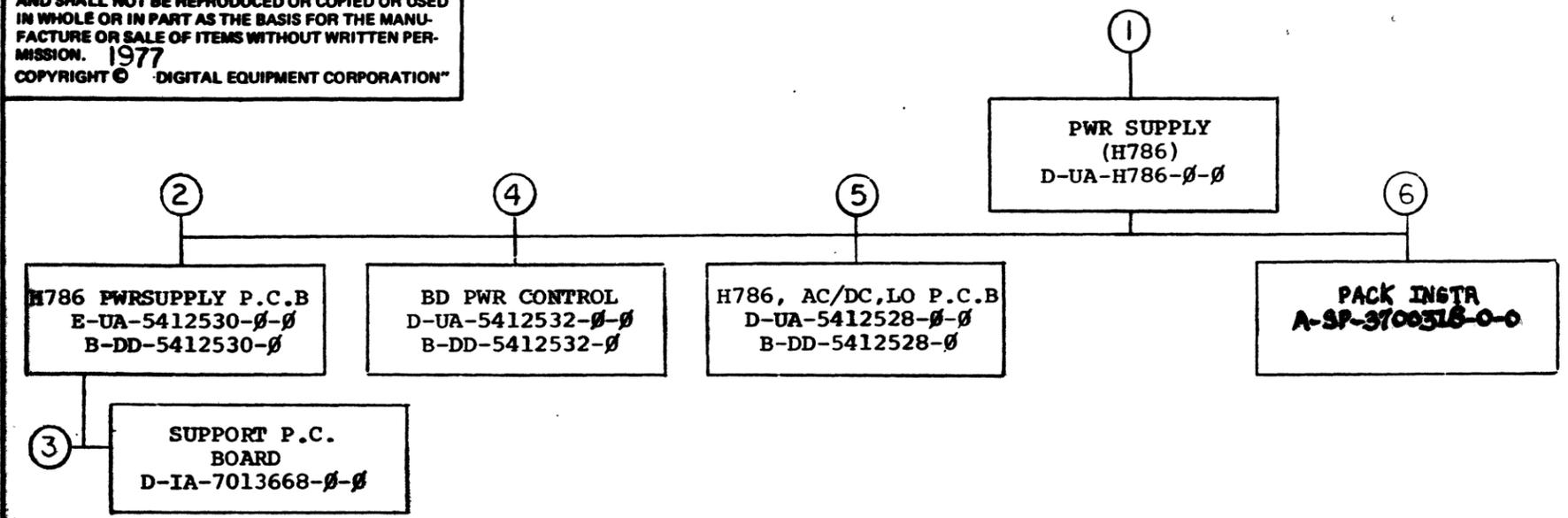
SIZE CODE
 3 DD

NUMBER
 H771- β

REV
 E

SHEET 3 OF 3

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FIND NO.	DRAWING NO.	DESCRIPTION	TYPE	FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	D-UA-H786-0-0	PWR. SUPPLY (H786)	E/M				
	E-IA-7418236-0-0	CHASSIS, PWR SUPPLY	M				
	A-SP-H786-0-2	ENG. SPEC. H786 POWER SUPPLY	-				
	A-PS-3615632-0-0	H786 POWER SUPPLY REVISION LABEL	M				
2	B-DD-5412530-0	H786 POWER SUPPLY, MASTER BOARD	-				
3	D-IA-7013668-0-0	SUPPORT PRINTED CIRCUIT BOARD	M				
	C-MD-7418386-0-0	CARD SUPPORT	M				
	B-MD-7418387-0-0	TIE BAR	M				
	C-MD-7418385-0-0	RAIL	M				
4	B-DD-5412532-0	PWR. CONTROL BOARD,	-				
5	B-DD-5412528-0	H786 AC/DC LO PC BOARD,	-				
6	A-SP-3700318-0-0	PACK INSTR. P.S. H786	-				

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE H786 PWR. SUPPLY

SHEET 3 OF 3

SIZE CODE B DD

NUMBER H786 - 0

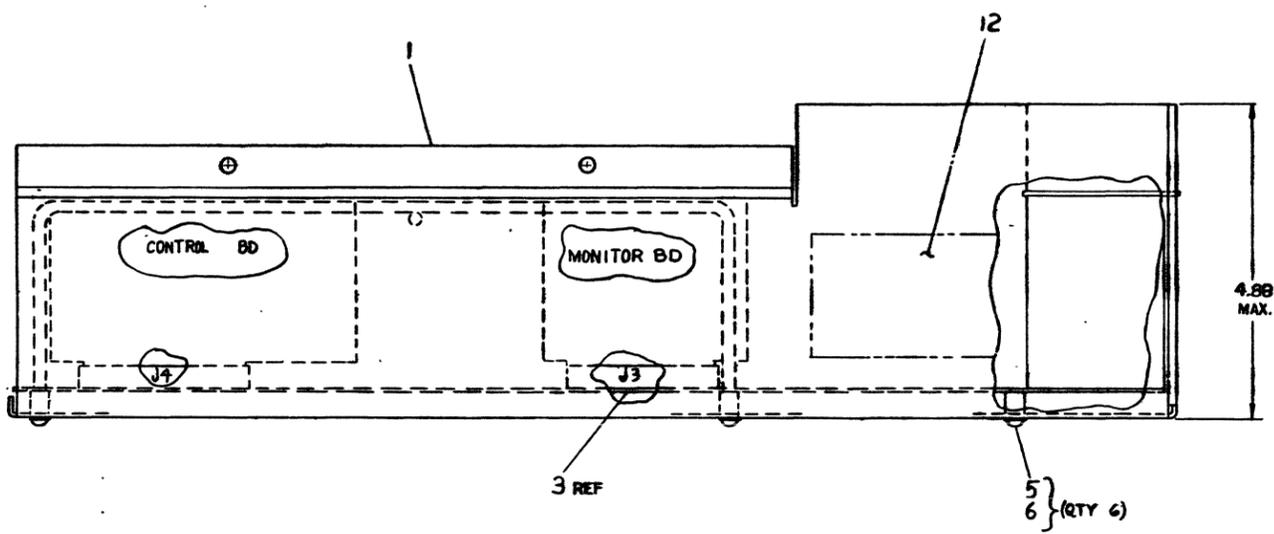
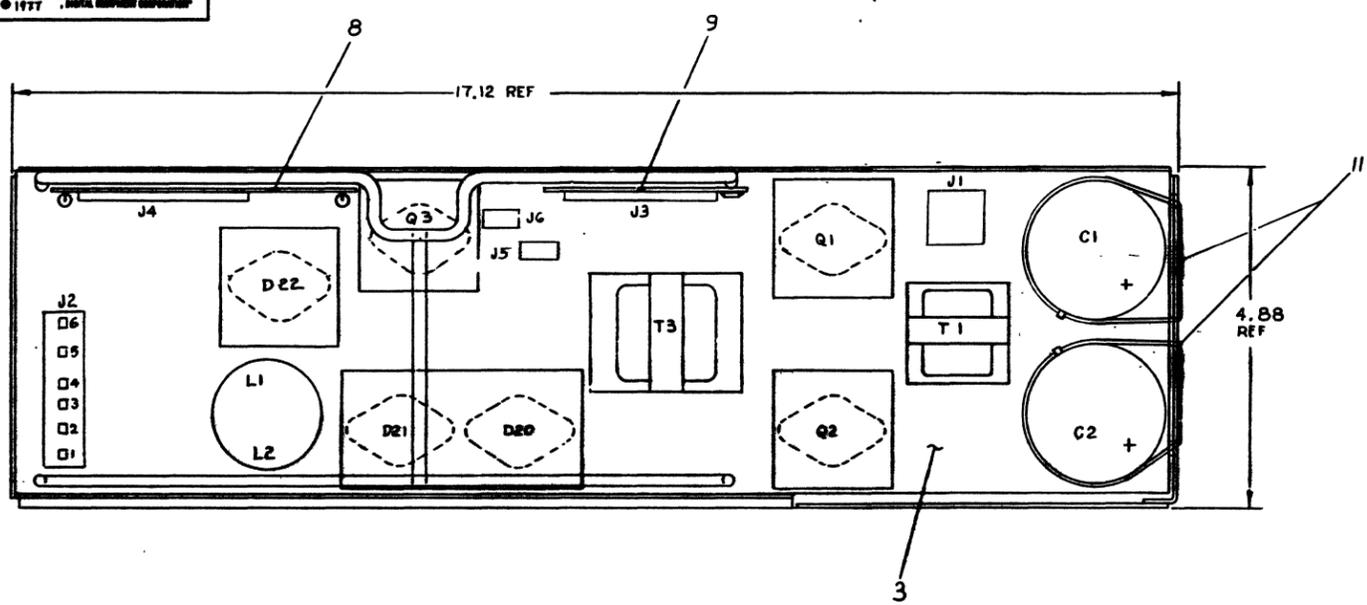
REV A

DRB 108A

ML

287

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REV.	DATE	BY	CHKD	APP'D
1	11/15/77	J. KALAGHER		
2	11/15/77	J. KALAGHER		
3	11/15/77	J. KALAGHER		
4	11/15/77	J. KALAGHER		
5	11/15/77	J. KALAGHER		
6	11/15/77	J. KALAGHER		
7	11/15/77	J. KALAGHER		
8	11/15/77	J. KALAGHER		

QTY	DESCRIPTION	DWG. PART NO.	ITEM NO.
1	LABEL, REVISION	A-PS-3615632-00	12
2	CABLE TIE	9009617	11
1	INSTR. PKG. PS H786	A-PS-3700318-0-0	10
1	H786 AC/DC LO PCB	D-UA-5412528-0-0	9
1	PWR. CONTROL BD.	C-UA-5412532-0-0	8
1	WASHER, LOCK INT TOOTH	9006633-00	6
7	SCREW, PHL. PAN HD. 1/8 X 25	9009020-01	5
1	H786 PWR. SUPPLY BD.	E-UA-5412530-0-0	3
1	CLAMP, CAPACITOR	C-UA-5412533-0-0	2
1	CHASSIS, PWR. SUPPLY	E-IA-7418236-0-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES					
DIMENSION	TOLERANCE	SURFACE QUALITY			
		FINISH	SPRUE	DRILL	OTHER
0.001	0.001	0.001	0.001	0.001	0.001
0.002	0.002	0.002	0.002	0.002	0.002
0.005	0.005	0.005	0.005	0.005	0.005
0.010	0.010	0.010	0.010	0.010	0.010
0.020	0.020	0.020	0.020	0.020	0.020
0.050	0.050	0.050	0.050	0.050	0.050
0.100	0.100	0.100	0.100	0.100	0.100
0.200	0.200	0.200	0.200	0.200	0.200
0.500	0.500	0.500	0.500	0.500	0.500
1.000	1.000	1.000	1.000	1.000	1.000
2.000	2.000	2.000	2.000	2.000	2.000
5.000	5.000	5.000	5.000	5.000	5.000
10.000	10.000	10.000	10.000	10.000	10.000
20.000	20.000	20.000	20.000	20.000	20.000
50.000	50.000	50.000	50.000	50.000	50.000
100.000	100.000	100.000	100.000	100.000	100.000

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRM. 11/15/77

CHKD. J. Kalagher

ENGR. J. Kalagher

PROL. ENG. J. Kalagher

PROD. J. Kalagher

KEY: HIGHER ASSY.

B-DD-786-0-0

SCALE 1/1

SHEET 1 OF 1

FIRST USED ON

DA11-N

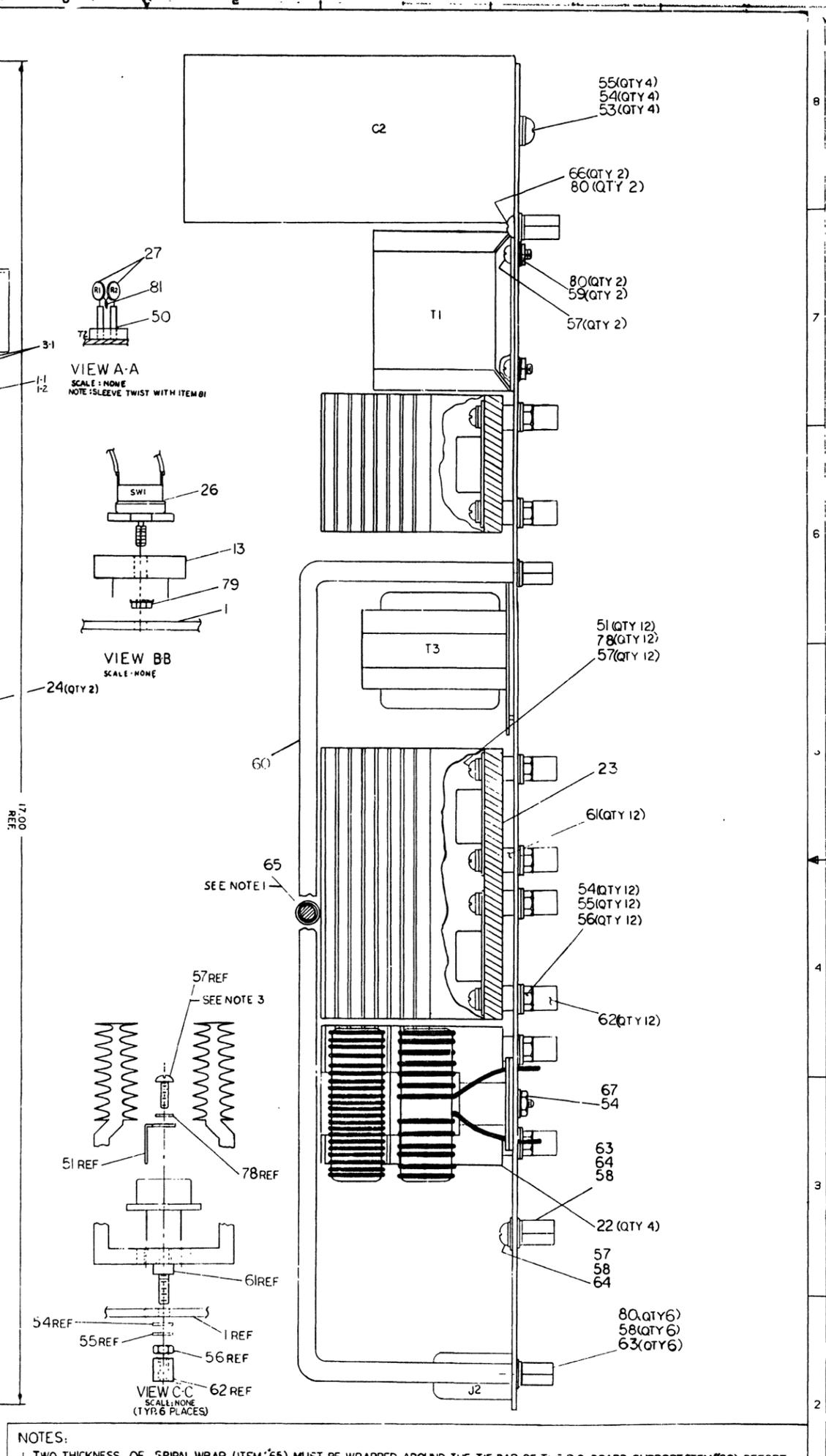
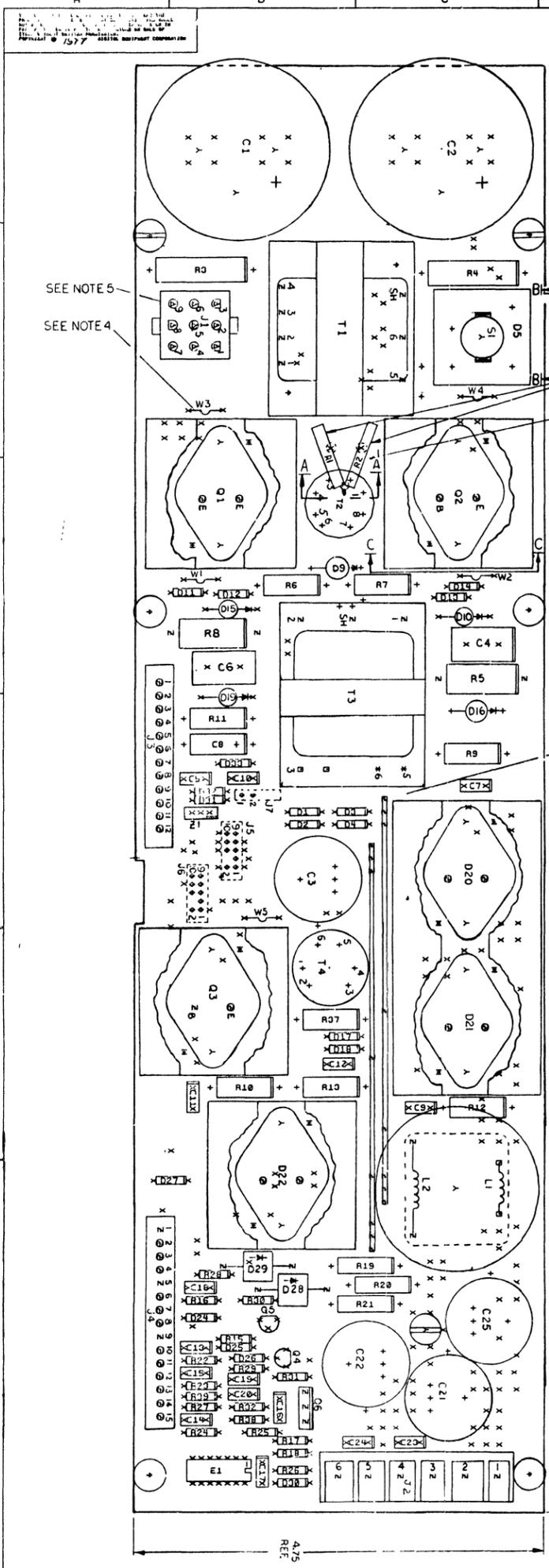
TITLE H786 POWER SUPPLY ASSY

SIZE CODE D JA

NUMBER H786-0-0

REV. B

DIST.



SEE NOTE 5
SEE NOTE 4

VIEW A-A
SCALE: NONE
NOTE: SLEEVE TWIST WITH ITEM 81

VIEW B-B
SCALE: NONE

VIEW C-C
SCALE: NONE
(1YR 6 PLACES)

NOTES:

1. TWO THICKNESS OF SPIRAL WRAP (ITEM #65) MUST BE WRAPPED AROUND THE TIE BAR OF THE P.C. BOARD SUPPORT (ITEM #60) BEFORE ATTACHING IT TO THE BOARD.
2. TORQUE REQUIREMENTS FOR ALL HARDWARE ARE SPECIFIED IN D.E.C. STANDARD 116 (WORKMANSHIP STANDARDS MANUAL) SECTION 2.0 TABLE 2.1, EXCEPT AS OTHERWISE NOTED.
3. TORQUE TO BE 6" TO 8" PER POUND (12 PLACES).
4. MAKE W1 THRU W5 FROM 4" LONG LENGTH OF ITEM #77.
5. OBSERVE PROPER PIN ORIENTATION OF CONNECTOR WHEN MOUNTING ON BOARD.

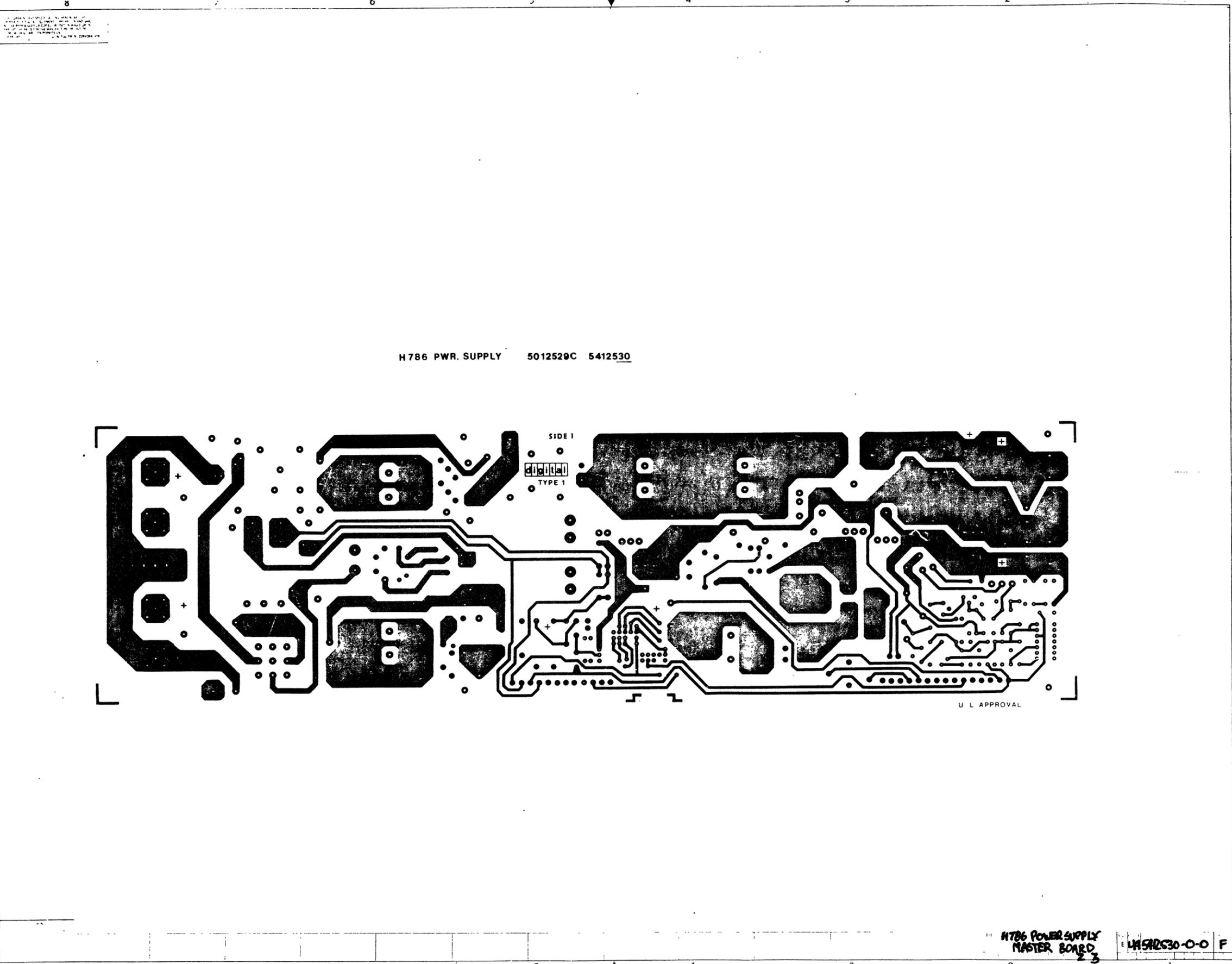
ECO #3
COMPONENT ADD SIDE 1.
3-1 ADD R1 (P/N 1314270-02) IN SERIES WITH R2 (P/N 1314270-02) AND SLEEVING (P/N 91-0772)

NOTES: THIS BOARD REQUIRES U/L APPROVAL
ETCH CUT - SIDE 2
O-1 FROM RIG TO R30
ECO #1 COMPONENT DELETE SIDE 1:
1-1 R2 (P/N 1314270-01)
COMPONENT ADD SIDE 1:
1-2 R2 (P/N 1314270-02)

CHG	NO	REV	DATE	BY	CHK	APP
1	1	1	1/1/77	J. GALEGORN		
2	1	1	1/1/77	J. GALEGORN		
3	1	1	1/1/77	J. GALEGORN		
4	1	1	1/1/77	J. GALEGORN		
5	1	1	1/1/77	J. GALEGORN		
6	1	1	1/1/77	J. GALEGORN		
7	1	1	1/1/77	J. GALEGORN		
8	1	1	1/1/77	J. GALEGORN		
9	1	1	1/1/77	J. GALEGORN		
10	1	1	1/1/77	J. GALEGORN		

ETCH REV. C	P.C. DESIGN DATA BASE REV. C	SIGNATURES	DATE	digital	TITLE H786 POWER SUPPLY MASTER BRD.	SIZE CODE EUA	NUMBER 5412530-0	REV F
		DRN. J. GALEGORN	1/1/77					
		CHK. D. J. GALEGORN	1/1/77					
		PROJ. ENG. J. GALEGORN	1/1/77					
		PROD. J. GALEGORN	1/1/77					
		SCALE 2/1						
		SHT. 1 OF 3						
		NEXT HIGHER ASSY. B-DD-5412530-0						

290



H 786 PWR. SUPPLY 5012529C 5412530

SIDE 1

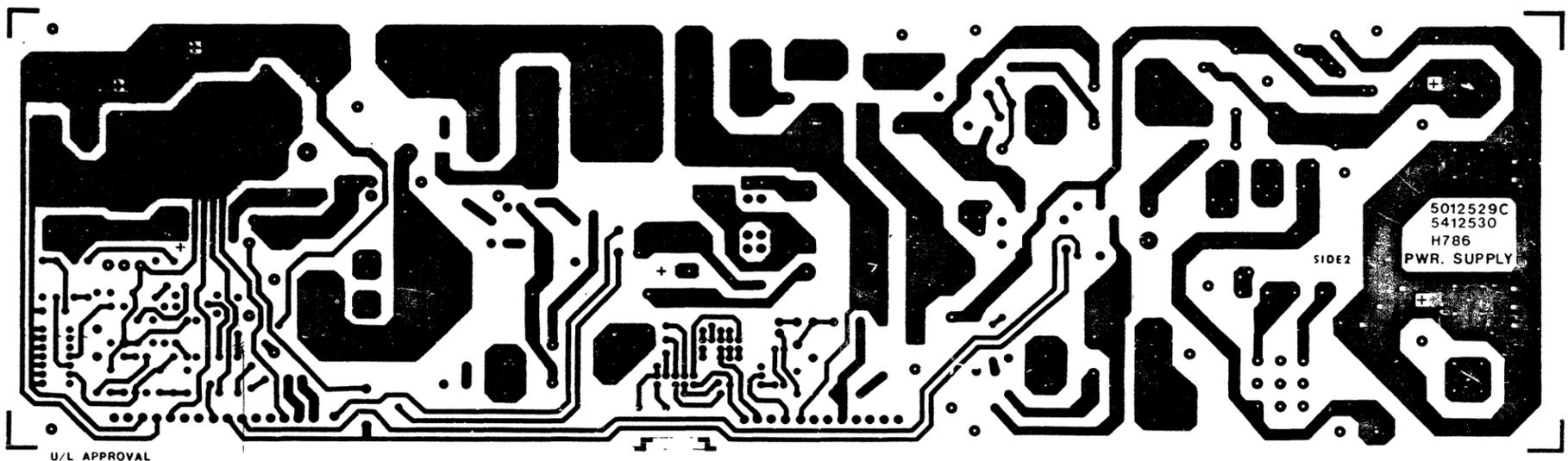
TYPE 1

U L APPROVAL

H786 POWER SUPPLY
MASTER BOARD

44512530-0-0 F

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U/L APPROVAL

H786 POWER SUPPLY
MASTER BOP
3 3

5012530-0-0 F

292

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012529-0-0	5012529-00	5412530	1	
2	2		1014240-00	2000 MFD 200V 6% AL EL	2	C1,C2
3	3		1014260-02	2100 MFD 40V AL EL	1	C3
4	4		1014139-00	.0022 MFD 600V 10% \$	2	C4,C6
5	5		1010274-00	.22 MFD 50V XZ 7C023 CER.	5	C5,C10,C17,C23,C24
6	6		1000042-00	1000.0 MMF 100V 5%200PPM DM15S (10-00)	8	C7,C9,C11-C16
7	7		1004814-00	.47 MFD 20V 10% 150D S.TA (10-00)	1	C8
8	8		1000004-00	.02 MFD 100V 20% Z5U DISC	2	C18,C19
9	9		1001610-01	.01 MFD 100V OR 50V Z5U DISC/800PF MIN	1	C20
10	10		1014260-00	11,000 MFD 6.3V AL EL	2	C21,C25
11	11		1014260-01	3700 MFD 25V AL EL \$	1	C22
12	12		1105796-00	1N 4004 PIV=400 I= 1A D041 SP	14	D1-D4,D11-D14,E17,D25,D27, CONT D30-D32
13	13		1114245-00	NBS30600LPIV=600 I=30A	1	D5
14	14		1112594-02	A115M PIV=600 I= 3A \$	2	D9,D16
15	15		1112595-02	A114M PIV=600 I=11A	2	D10,D15
16	16		1105648-00	1N 4744 VZ=15.0 10% 1W Y	1	D33
17	17		1212297-02	MATE-N-LOK 9PIN UNIV HEADER	1	J1
18	18		1213463-03	BLOCK,TERM 6POS	1	J2
19	19		1214257-00	EDGE CARD 12PIN STRAIGHT \$	1	J3
20	20		1214257-01	EDGE CARD 15PIN STRAIGHT \$	1	J4
21	21		1112595-01	A114B PIV=200 I= 1A	1	D19
22	22		1211987-01	HEAT SINK 19.8WATTS 1.75"LG	4	
23	23		1211987-02	HEAT SINK 19.8WATTS 3.50"LG	1	
24	24		1214256-00	BUS BAR,KRYPTON	2	
25	25		1912108-00	339 VOLT CMPRTR,QUAD	1	E1
26	26		1214259-02	THERMOSTAT,0@185,C@148	1	S1
27	27		1314270-02	2.5 15% THERMISTOR	2	R1,R2
28	28		1314088-00	20 K 5W 5% WW (13-00)	2	R3,R4
29	29		1301952-00	1 K 2W 5% CC (13-00)	2	R5,R8

REVISION HISTORY			VARIATIONS FOR THIS ASSY.		
CHK	ECO NO	REV	FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION
					MAYNARD, MASSACHUSETTS
P.G	00003	E	MADE BY:	R.KOPPENAL	DATE: 01-FEB-78
KG	00004	F			TITLE
			CHECKED:	K.GLEEZEN	DATE: 01-FEB-78
			DSN.ENG.:	J.GREGORICH	DATE: 01-FEB-78
			PROD.:	R.HAMILTON	DATE: 01-FEB-78
			RESP.ENG.:	J.GREGORICH	DATE: 01-FEB-78
					ASSY.NO.: E-UA-5412530-0-0
					REV
					SIZE CODE DOCUMENT NUMBER
					K PL 5412530-0-DRP
					EDIT#
					7

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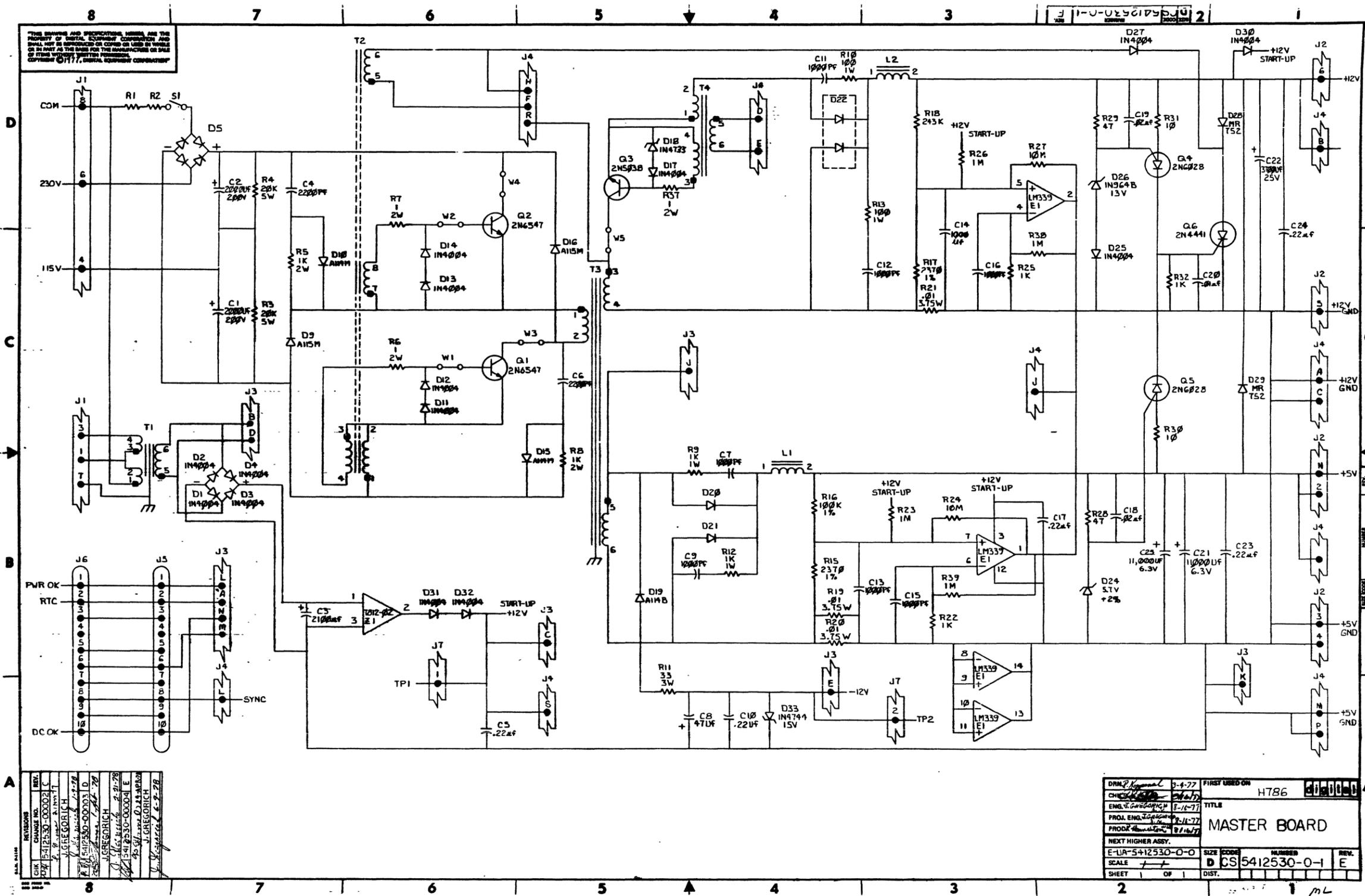
LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
30	30		1305428-00	1.0 2W 5% WW (13-00	3	R6,R7,R37
31	31		1110488-00	1N 4733 VZ= 5.1 10% 1W N	1	D18
32	32		1301499-00	1 K 1W 10% CC (13-00	2	R9,R12
33	33		1300232-00	100 1W 5% CC (13-00	2	R10,R13
34	34		1314239-00	33 3W 5% WW (13-00	1	R11
35	35		1310632-00	2.37 K 1/4W 1% RN55D-F 100PPM (13-00	2	R15,R17
36	36		1303044-00	100 K 1/4W 1% RN55D-F 100PPM (13-00	1	R16
37	37		1304843-00	243 K 1/4W 1% RN55D-F 100PPM (13-00	1	R18
38	38		1313014-00	.01 3-3/4W 3% WW (13-00	3	R19-R21
39	39		1300365-00	1 K 1/4W 5% CC (13-00	3	R22,R25,R32
40	40		1309595-00	1 M 1/4W 5% CC (13-00	4	R23,R26,R38,R39
41	41		1302666-00	10 M 1/4W 5% CC (13-00	2	R24,R27
42	42		1300202-00	47 1/4W 5% CC (13-00	2	R28,R29
43	43		1301317-00	10 1/4W 5% CC (13-00	2	R30,R31
44	44		1614274-00	XFMR P=AB S=87V \$	1	T1
45	45		1614272-00	PULSE XFMR,4 WOUND	1	T2
46	46		1614275-00	XFMR P=200-375V S=5V@3.5A	1	T3
47	47		1614273-00	PULSE XFMR,TRI-WOUND	1	T4
48	48		1614261-00	CHOKER,DUAL 24UH-80UH	2	L1,L2
49	49		1912048-02	DEC 7812-02 VOLT.REG.FIX T12V 1.5A T	1	Z1
50	50		9009798-00	SPACER, CERAMIC, .186 ODX.078 IDX.75 LG	2	
51	51		9009676-00	TERMINAL, SOLDER, FOR TERMINAL	12	
52	52		9009149-00	PIN, STAKING, P.C. BOARD, .025 X .025	20	J5-J7
53	53		9006071-01	SCREW,PAN ,PHIL, 10-32X 3/8 SS/PAS	4	
54	54		9006660-00	WASHER, FLAT, .375 O.D. X .187 I.D. X .036	4	
55	55		9006636-00	WASHER, LOCK, INT, .3800D X .200ID X .022 THK	17	
56	56		9006564-00	NUT, HEX, 10-32X3/8 AF X 1/8 THK SS/	12	
57	57		9006021-01	SCREW,PAN ,PHIL, 6-32X 5/16 SS/PAS	15	
58	58		9006633-00	WASHER, LOCK, INT, .2800D X .146ID X .018 THK	8	
59	59		9008185-00	NUT, KEP, 6-32X1/4 AF CS/	2	
60	60	D-IA-7013668-0-0	7013668-00	P.C. BOARD STIFFENER	1	
61	61	C-MD-7418435-0-0	7418435-00	HEAT SINK	12	
62	62		9009947-00	STANDOFF, NYLON, 10-32 X 1/4 \$	12	
63	63		9006844-00	SPACER, HEX, ALUM. 6-32, .250 X .375 LG	7	
64	64		9006653-00	WASHER, FLAT, .375 O.D. X .156 I.D. X .036	2	
65	65		9107240-00	WRAP, CABLE, .2500D VINYL (91-00 A/R		
66	66		9006020-01	SCREW,PAN ,PHIL, 6-32X 1/4 SS/PAS	2	
67	67		9006565-00	NUT, KEP, 10-32X 3/8 AF CS/	1	
68	68		1113496-01	UES602 PIV=100 I=30A T03	2	D20,D21
69	69		1114246-00	UES-2603 PIV=150 I=30A T03	1	D22
70	70		1111205-00	SCREENED VZ= 5.7 2% .40W	1	D24
71	71		1109988-00	1N 964B VZ= 13.0 5% .40W Y	1	D26
72	72		1110615-00	MR 752 PIV=200 I=22A A264 SM	2	D28,D29
73	73		1514195-00	2N 6547 PNP 400V SI 15A	2	Q1,Q2
74	74		1510969-00	2N 5038 NPN 140WC SI 90 50 Y	1	Q3
75	75		1510877-00	2N 6028 UJT 300MW R67B	2	Q4,Q5
76	76		1505867-00	2N 4441 SCRB 50V & 8A	1	Q6
77	77		9107460-22	WIRE, STRND, 20AWG, IPVC UL1429 (91-00 A/R		W1-W5

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE MASTER BOARD	PARTS LIST	SIZE K	CODE PL	DOCUMENT NUMBER 5412530-0-DBP	REV F
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LINE ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
78	78	9007801-00	WASHER, LOCK, S.S. #6	12	
79	79	9006563-00	NUT, KEP, 8-32 X11/32AF	CS 1	
80	80	9006656-00	WASHER, FLAT, .312 O.D. X .156 I.D. X .027	10	
81	81	9107772-00	TUBING, SHRINK, .187ID EXP, UL KYNAR	A/R	

! DIGITAL EQUIPMENT CORPORATION ! TITLE PARTS LIST ! SIZE ! CODE ! DOCUMENT NUMBER ! REV !
! NAYNARD, MASSACHUSETTS ! MASTER BOARD ! K ! PL ! 5412530-0-DBP ! F !

295



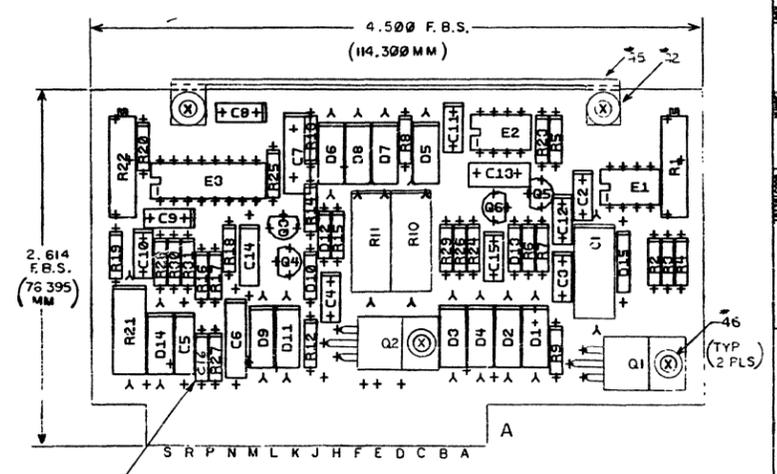
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REV.	DATE	BY	CHK
1	1-11-77	J. GREGORICH	J. GREGORICH
2	2-21-78	J. GREGORICH	J. GREGORICH
3	5-11-77	J. GREGORICH	J. GREGORICH
4	5-9-78	J. GREGORICH	J. GREGORICH

DRW. NO.	3-4-77	FIRST USED ON	HT86
CHK. NO.	2/1/77	TITLE	MASTER BOARD
ENG. NO.	8-10-77	SIZE	D
PROJ. ENG. NO.	8-11-77	CODE	CS
PROD. NO.	8-14-77	NUMBER	5412530-0-1
NEXT HIGHER ASSY.		REV.	E
E-LA-5412530-0-0		SCALE	
SHEET 1	OF 1	DIST.	

COMPONENT SIDE VIEW

REWORK INSTRUCTIONS
 ETCH CUTS SIDE 1
 Ø-1. FROM AL1 TO F/T BETWEEN C6 & D9
 ETCH CUTS SIDE 2
 Ø-2 FROM AL2 TO F/T BETWEEN C6 & D9
 ECO # 2
 COMPONENT DELETES SIDE 1:
 2-1. R32 (P/N 1301424)
 COMPONENT ADDS SIDE 1:
 2-2. C16 (P/N 1000016)



NOTES:
 1. THIS BOARD REQUIRES I/I APPROVAL
 2. THIS BOARD WILL NOT BE G.R. TESTED

CHK CHANGE NO	REV	DATE	BY
1	1	5/11/77	J. GREGORICH
2	2	5/11/77	J. GREGORICH
3	3	5/11/77	J. GREGORICH
4	4	5/11/77	J. GREGORICH
5	5	5/11/77	J. GREGORICH
6	6	5/11/77	J. GREGORICH
7	7	5/11/77	J. GREGORICH
8	8	5/11/77	J. GREGORICH

SIGNATURES		DATE	TITLE	
DRN.	<i>[Signature]</i>	5-4-77	digital	
CHK'D	<i>[Signature]</i>	5-11-77		
ENG.	<i>[Signature]</i>	5-11-77		
PROJ. ENG.	<i>[Signature]</i>	5-11-77	H786 CONTROL BOARD	
PROD.	<i>[Signature]</i>	5-11-77		
SCALE	2/1		SIZE CODE	NUMBER
SHT.	1 OF 3		D UA	5412532-0-0
REV.				
NEXT HIGHER ASSY. P-00-5412532-0-0				

8

7

6

5

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3

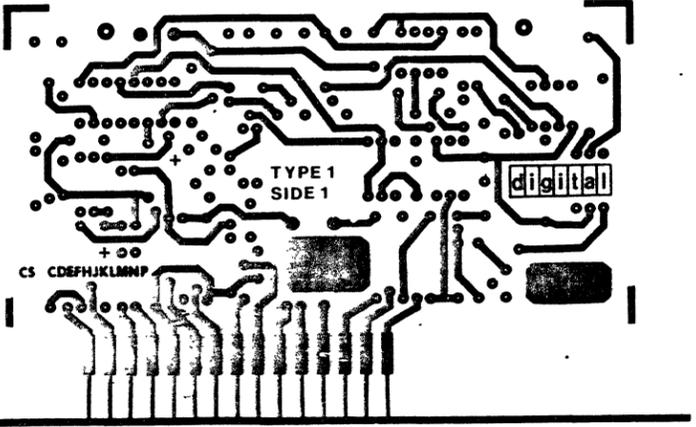
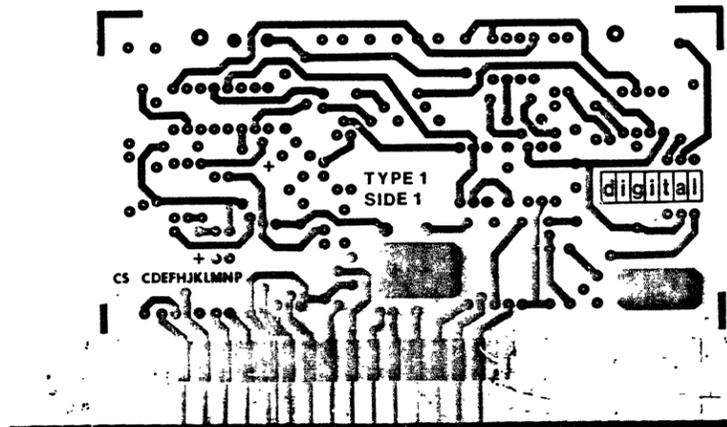
2 | DUA 5412532 -0-0 F

1

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5412532 5012531D

5412532 5012531D



U/L APPROVED

U/L APPROVED

0-1 TYP

VIEWED FROM SIDE 1

REVISIONS		
CHK	CHANGE NO	REV

DEC FORM NO DMB 137

8

7

6

5

4

3

2

1

TITLE	H786 CONTROL BOARD	SIZE CODE	D UA	NUMBER	5412532 -0-0	REV	F
SCALE	2:1	SHEET	2 OF 3	DIST			

8

7

6

5

4

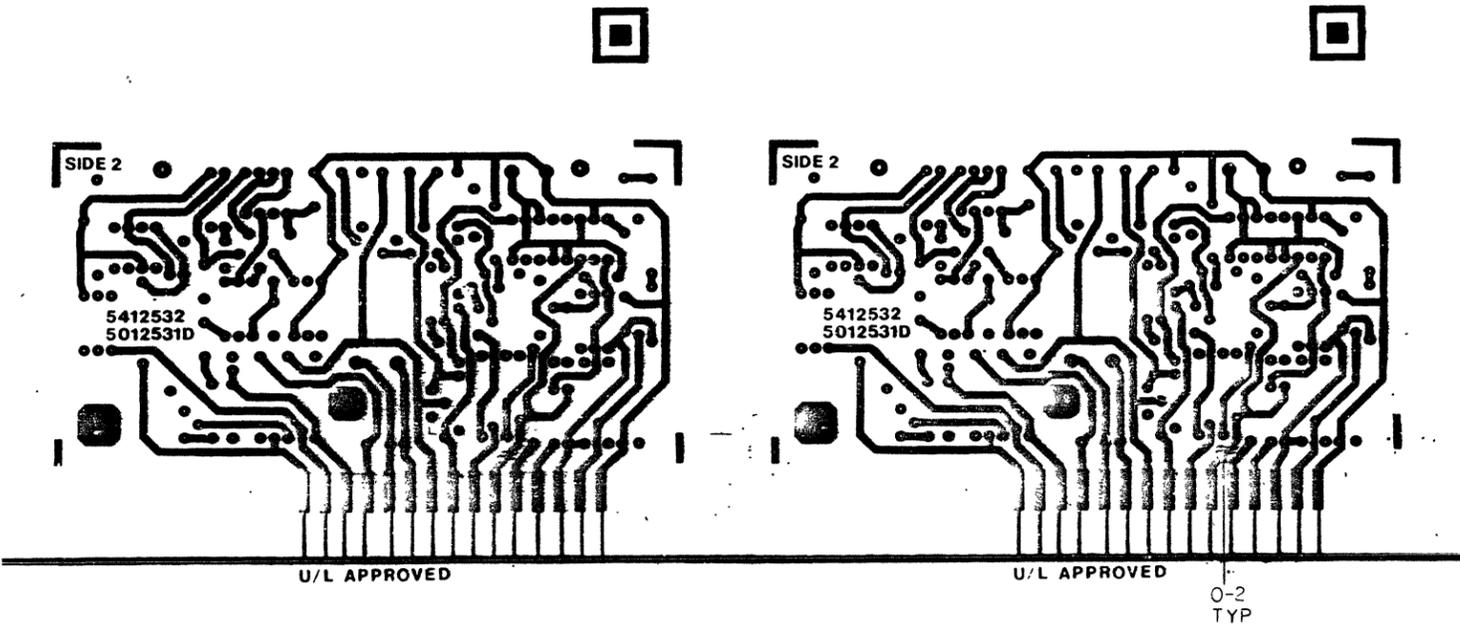
3

DIA 5412532-0-0 F

2

1

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VIEWED FROM SIDE 2

REV	NO
CHR	CHG

8	7	6	5	4	3	2	1
						TITLE H786 CONTROL BOARD SCALE 2:1 SHEET 3 OF 3 DUA 5412532-0-0 F	

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012531-0-0	5012531-00	5412532	1	
2	2		1000039-00	.056 MFD 200V 10% 663UW MYLR (10-00	1	C1
3	3		1000009-00	33.0 MMF 100V 5%200PPM DM15S (10-00	1	C2
4	4		1000055-00	2200. MMF 250V 20% Y5S DISC	2	C3,C4
5	5		1002627-00	2.2MFD 20V 10% 150D S.TA (10	1	C5
6	6		1005784-00	.01 MFD 100V 10% 663VW MYLR (10-00	1	C6
7	7		1010274-00	.22 MFD 50V X% 7C023 CER.	4	C8,C10-C12
8	8		1000042-00	1000.0 MMF 100V 5%200PPM DM15S (10-00	1	C13
9	9		1000016-00	100.0 MMF 100V 5%200PPM DM15S (10-00	3	C9,C15,C16
10	10		1005328-00	.33 MFD 20V 10% 150D S.TA (10-00	1	C14
11	11		1112595-00	A114F FIV= 50 I= 1A	4	D1-D3,D5
12	12		1112595-01	A114B FIV=200 I= 1A	7	D4,D6-D9,D11,D14
13	13		1100114-00	D 664 QS\75PCB FIV= 25V SP	3	D10,D12,D13
14	14		1109991-01	4M6.8AZ1 VZ= 6.8 1% .40W	1	D15
15	15		1309143-07	1 K 3/4W10% POT 100PPM	2	R1,R22
16	16		1304868-00	2.74 K 1/4W 1% RN55D-F 100PPM (13-00	1	R2
17	17		1304833-00	1.96 K 1/4W 1% RN55D-F 100PPM (13-00	1	R3
18	18		1300488-00	12 K 1/4W 5% CC (13-00	1	R4
19	19		1303187-00	820 K1/4W 5% CC (13-00	1	R5
20	20		1300271-00	220 1/4W 5% CC (13-00	2	R6,R14
21	21		1301317-00	10 1/4W 5% CC (13-00	3	R7,R15,R25
22	22		1300417-00	2.2 K 1/4W 5% CC (13-00	1	R8
23	23		1300219-00	68 1/4W 5% CC (13-00	2	R9,R12
24	24		1300288-00	270 2W 10% CC (13-00	2	R10,R11
25	25		1300365-00	1 K 1/4W 5% CC (13-00	2	R13,R26
26	26		1309680-00	2.7 M 1/4W 5% CC (13-00	2	R16,R17
27	27		1314187-00	6.19 K 1/4W 1% RN55D-F 100PPM (13-00	1	R18
28	28		1309413-00	3.83 K 1/4W 1% RN55D-F 100PPM (13-00	2	R19,R20
29	29		1314239-00	33 3W 5% WW (13-00	1	R21
30	30		1300426-00	2.7 K 1/4W 5% CC (13-00	1	R23

REVISION HISTORY			VARIATIONS FOR THIS ASSY.		
CHK	ECD NO	REV	FIRST USED ON:		
P.G	00003	F	DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
			MADE BY: R.BUREAU	DATE: 16-FEB-78	TITLE
			CHECKED: K.GLEASN	DATE: 16-FEB-78	PARTS LIST
			DSN.ENG.: J. GREGORICH	DATE: 16-FEB-78	CONTROL BOARD
			PROD.: R.HAMILTON	DATE: 16-FEB-78	SIZE!CODE! DOCUMENT NUMBER ! REV !
			RESP.ENG.: J.GREGORICH	DATE: 16-FEB-78	K ! PL ! 5412532-0-0 ! F !
					ASSY.NO.: D-UA-5412532-0-0 ! EDIT# !
					4 !

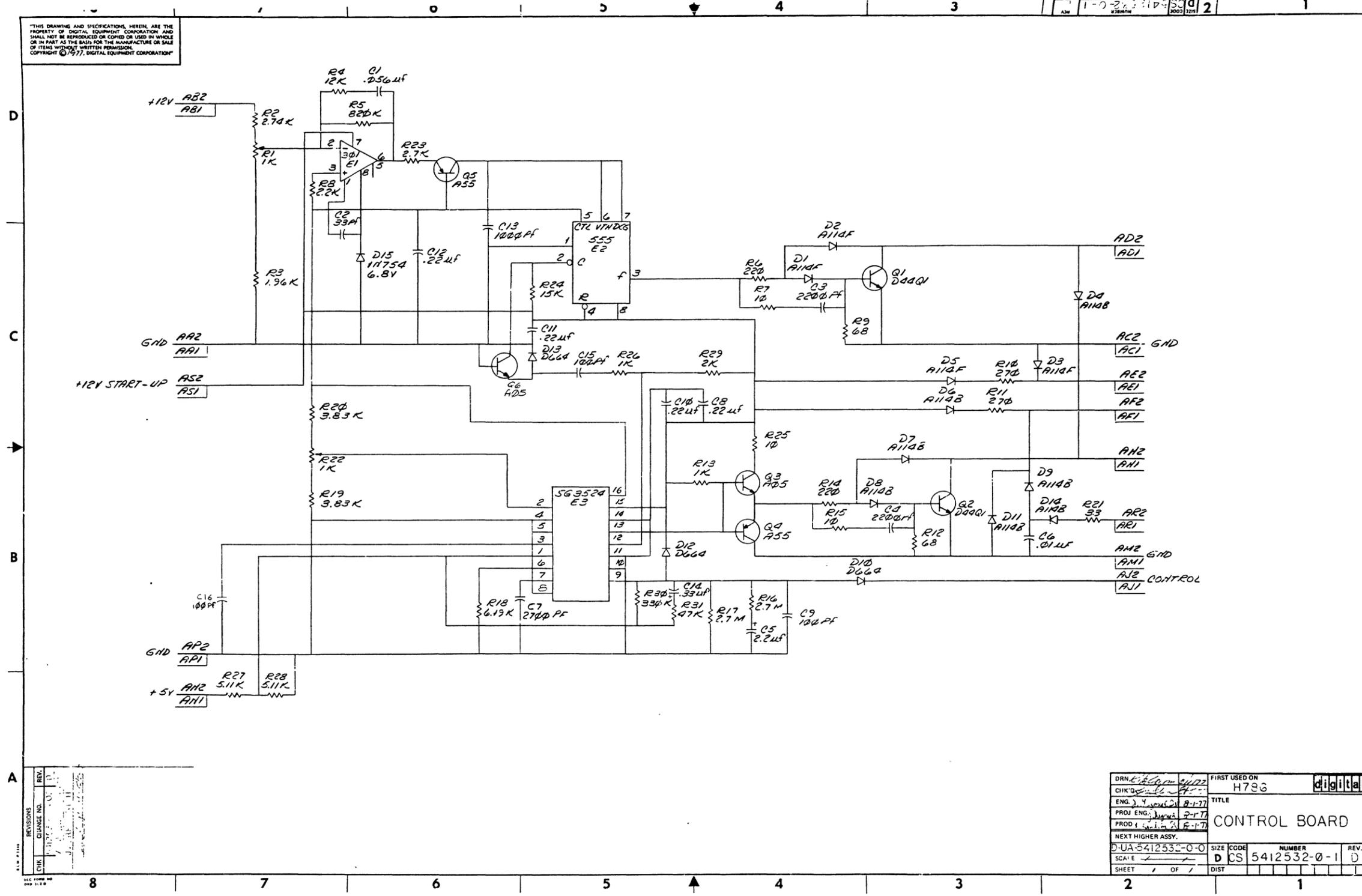
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LINE ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
31	31	1300496-00	15 K 1/4W 5% CC (13-00	1	R24
32	32	1304854-00	5.11 K 1/4W 1% RN55D-F 100PPM (13-00	2	R27,R28
33	33	1302388-00	2 K 1/4W 5% CC (13-00	1	R29
34	34	1302091-00	330 K 1/4W 5% CC (13-00	1	R30
35	35	1302177-00	47 K 1/4W 5% CC (13-00	1	R31
36	36	1514271-00	D 44Q1 NPN 4WC SI125 20	2	Q1,Q2
37	37	1510705-00	XA 05 NPN 500MW SI 60 50 P	2	Q3,Q6
38	38	1510706-00	XA 55 PNP 500MW SI 60 50 P	2	Q4,Q5
39	39	1910282-00	301AN OP AMP	1	E1
40	40	1911944-00	555CN TIMER,FUNCT.BLOCK	1	E2
41	41	1914250-00	3524 MODULATOR-REGULATING PULSE WID	1	E3
42	42	9009000-00	EYELET, ROLLED FLANGE, .121 OD X .156 LG	2	
43	43	1014170-00	2700.0 MMF 100V 1% 70PPM (10-00	1	C7
44	44	7418695-00	BAR, MODULE LOCKING	1	
45	45	9006732-00	EYELET, ROLLED FLANGE, .121 OD X .219 LG	2	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE CONTROL BOARD	PARTS LIST	SIZE K	CODE PL	DOCUMENT NUMBER 5412532-0-0	REV F
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REV.	DATE	BY	CHK	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				
8				

DRN: <i>[Signature]</i>	DATE: 3/1/77	FIRST USED ON: H796	DIGITAL
CHK'D: <i>[Signature]</i>	DATE: 3/1/77	TITLE: CONTROL BOARD	
ENG: <i>[Signature]</i>	DATE: 2-1-77		
PROD. ENG: <i>[Signature]</i>	DATE: 2-1-77		
PROD. <i>[Signature]</i>	DATE: 2-1-77		
NEXT HIGHER ASSY.			
D-UA-5412532-0-0		SIZE: D	CODE: CS
SCALE:	NUMBER: 5412532-0-1	REV.:	D
SHEET: 1	OF: 1	DIST:	

303

D U A 5412528-0 2 1

COMPONENT SIDE VIEW

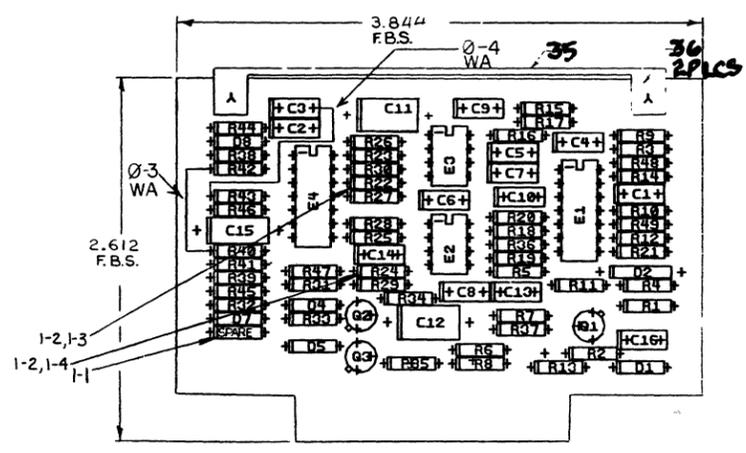
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ETCH CUT SIDE 1
Ø1 AT R43

ETCH CUT SIDE 2
Ø2 AT R42

WIRE ADD SIDE 1
Ø-3 FROM R40 TO R42
Ø-4 FROM R43 TO C3

E.C.O. #1
COMPONENT DELETE SIDE 1:
1-1 D6 (P/N: 1100114)
1-2 R22, R24 (P/N: 1300479)
COMPONENT ADD SIDE 1:
1-3 R22 (P/N: 1303311-00)
1-4 R24 (P/N: 1302685-00)



NOTES:

CHANGE NO	REV	DATE	BY	CHK'D
5412528-000	B	1-1-77	W. J.
5412528-001	A	1-1-77	W. J.

ETCH REV. B	P.C. DESIGN DATA BASE REV. B
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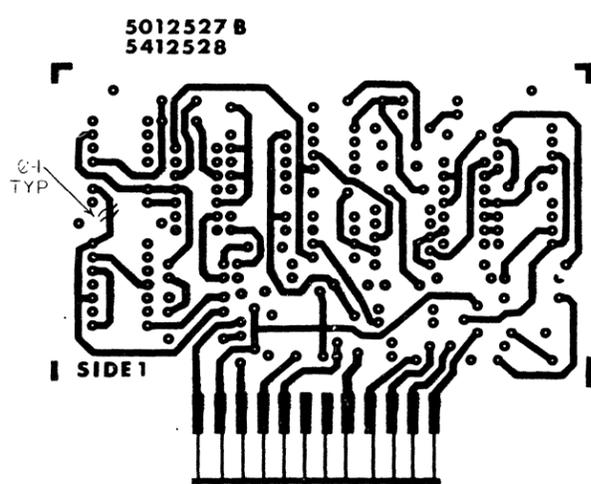
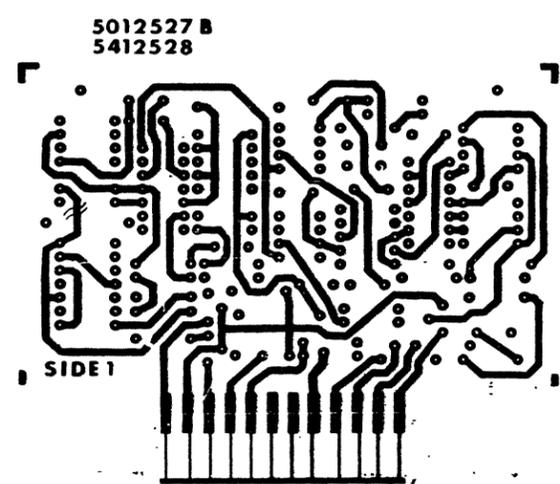
SIGNATURES	DATE	TITLE
DRN. <i>W. J. ...</i>	1-1-77	H786 POWER MONITOR
CHK'D. <i>W. J. ...</i>	1-1-77	
ENG. <i>W. J. ...</i>	1-1-77	
PROJ. ENG. <i>W. J. ...</i>	1-1-77	
PROD. <i>W. J. ...</i>	1-1-77	
SCALE 2/1	SHT. 1 OF 3	SIZE CODE NUMBER REV
NEXT HIGHER ASSY. B-00-5412528-0		D U A 5412528-0 B

1 MS#104594

305

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REV. 2



W 210 4284

VIED FROM SIDE 2

DATE	BY	CHK

H786 POWER MONITOR D UAS41252B-0-0 B
 SCALE 2:1 X 3

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:		
MADE BY R. KOPPENAL DATE 7 APR 77		CHECKED <i>[Signature]</i> DATE 8/3/77		SECTION 1												
ENG Jim Gregorich DBB DATE 8-1-77		PROD Ralph Hamilton DBB DATE 8-1-77		ISSUED SECTION 1												
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	5412528-0-0												REF DESIGNATION
1	D-MD-5012527-0-0	5012527	ETCHED CIRCUIT BOARD	1												
2		1010274	CAP., .22 UF, +80% -20% CER.	8												C1, C2, C3, C4, C9, C10, C13, C16
3		1000016	CAP., 100 PF, 100V MICA	1												C14
4		1001610-00	CAP., .01 UF, 50V CER	2												C7, C8
5		1010031-03	CAP., .22 UF, +10% POLYCARB	2												C11, C12
6		1005116	CAP., .0033 UF, 200V MYLAR	1												C15
7		1100125	DIODE, 1N758A, 10V	1												D1
8		1105873	DIODE, 4M5.1, 5.1V	1												D2
9		1100114	DIODE, D664	4												D4, D5, D7, D8
10		1301322	RES., 180, 1/4W, 5% C.C.	1												R1
11		1301808	RES., 22K, 1/4W, 5% C.C.	4												R2, R3, R9, R13
12		1300247	RES., 120, 1/4W, 5% C.C.	1												R4
13		1303364	RES., 51.1K, 1/4W, 1% M.F.	1												R5
14		1311320	RES., 90.9K, 1/4W, 1% M.F.	1												R6
15		1309289	RES., 63.4K 1/4W, 1% M.F.	1												R7
16		1300479	RES., 10K, 1/4W, 5% C.C.	10												R10, R17, R20, R32, R33, R34, R38, R42, R49, R35
17		1305421	RES., 35.7K, 1/4W, 1% M.F.	2												R11, R12
18		1300539	RES., 120K, 1/4W, 5% C.C.	1												R14
19		1305130	RES., 133K, 1/4W, 1% M.F.	1												R8
20		1309595	RES., 1M, 1/4W, 5% C.C.	6												R15, R18, R30, R37, R36, R44

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TITLE
POWER MONITOR BOARD

ASSY NO.
D-UA-5412528-0-0

SIZE CODE NUMBER
B PL 5412528-0-0

REV.
B

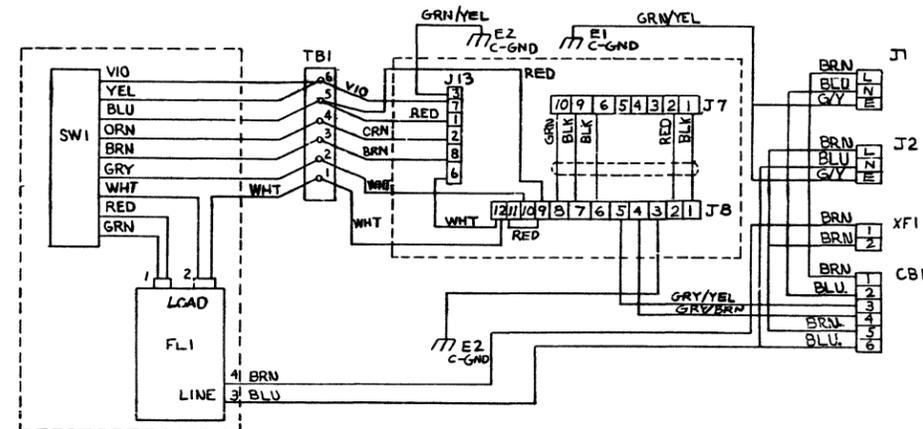
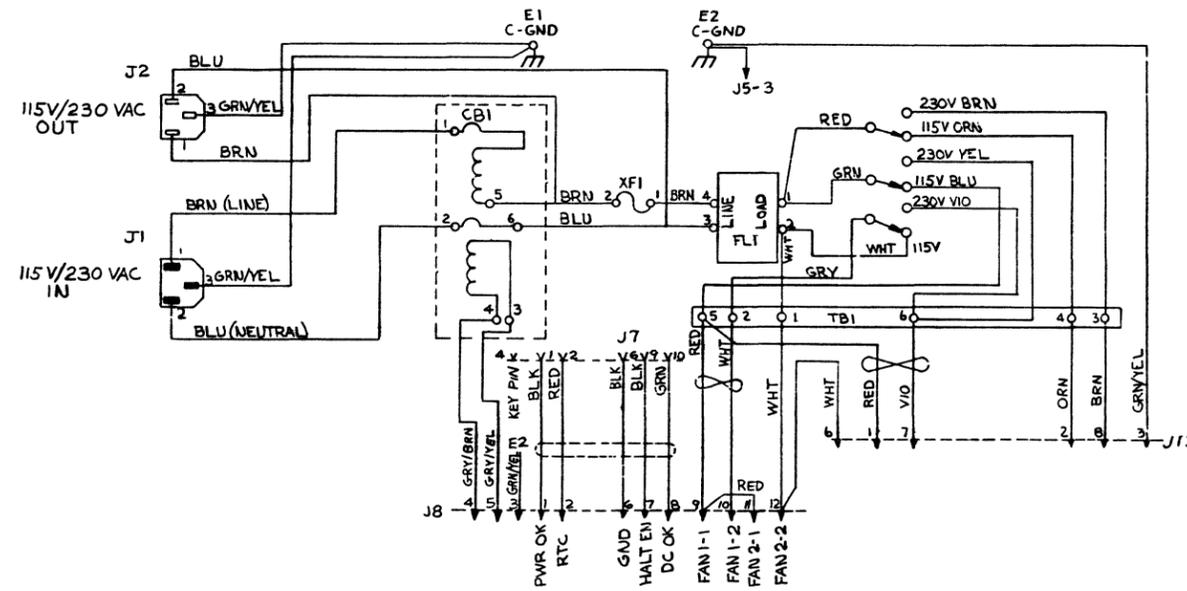
SHEET 1 OF 2 INSERTION PARTS LIST DATA BASE REV B

DIGITAL EQUIPMENT CORPORATION PARTS LIST				QUANTITY / VARIATION										NOTES:					
MADE BY R. KOPPENAL DATE 4-7-77		CHECKED <i>[Signature]</i> DATE 8/3/77		5412528-0-0															
ENG <i>Jim Gregorich D88</i> DATE 8-1-77		PROD R. Hamilton D88 DATE 8-1-77																	
SECTION	1																		
ISSUED SECTION	1													REF DESIGNATION					
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION																
21		1300447	RES., 4.7K, 1/4W, 5% C.C.	2														R16, R19	
22		1301775	RES., 820, 1/4W, 5% C.C.	1														R21	
23		1313167	RES., 833K, 1/4W, 1% M.F.	1														R25	
24		1302395	RES., 56K, 1/4W, 5% C.C.	6														R26, R27, R28, R29, R40, R41	
25		1309680	RES., 2.7M, 1/4W, 5% C.C.	1														R39	
26		1302466	RES., 100K, 1/4W, 5% C.C.	3														R31, R46, R47	
27		1300398	RES., 1.8K 1/4W, 5% C.C.	1														R48	
28		1510705	TRANS., A05	1														Q1	
29		1511686	TRANS., 2N5433	2														Q2, Q3	
30		1912108	I.C., LM339	2														E1, E4	
31		1911944	I.C., 555	2														E2, E3	
32		1305424	RES, 232K, 1/4W, 1% C.C.	1														R23	
33		1314387	RES, 3.9M, 1/4W, 5% C.C.	2														R43, R45	
34		1000042	CAP, 1000PF, 100V, 5% MICA	2														C5, C6	
35		7418695	BAR MODULE LOCKING	1															
36		9009000	EYELETS	2															
37		9105740-55	WIRE, 30 AWG. KYNAR (GRN)	A/R															
38		1303311-00	RES, 46.4K 1/4W 1% MF	1														R22	
39		1302685-00	RES, 909 1/4W 1% MF	1														R24	
E.C.O. NO.																			
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				SHEET 2 OF 2				INSERTION PARTS LIST DATA BASE REV B											

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WIRE TABLE

ITEM NO	DESCRIPTION	FROM			TO			REMARKS		
		AWG	COLOR	POINT	CONN	TERM	POINT		CONN	TERM
10	18	VIO		11				TBI-6		WIRE HARNESS
		RED		12,13				TBI-5		
		ORN		14				TBI-4		
		BRN		15				TBI-3		
		WHT		16				TBI-2		
		18	WHT		17			TBI-1		
		14	GRN/YEL		7			E2 (GND)		
8	14	GRN/YEL		8			E2 (GND)		WIRE HARNESS	
	18	GRY/BRN		9			CBI-4			
		GRY/YEL		10			CBI-3			
12	18	RED		7			FLI-1		WIRE HARNESS	
		GRN		8			FLI-2			
7	18	BRN			XFI-2	SOLDER		CBI-5	17	3.75
7	18	BLU			FLI-3			CBI-6	17	6.00
7	18	BRN			FLI-4			XFI-1	SOLDER	6.00
3	18	BLU		3	J2-N			CBI-6		
	14	GRN/YEL		2	J2-E			E1 (GND)		
4	18	BRN		3	J1-L			CBI-1		
	14	GRN/YEL		2	J1-E			E1 (GND)		

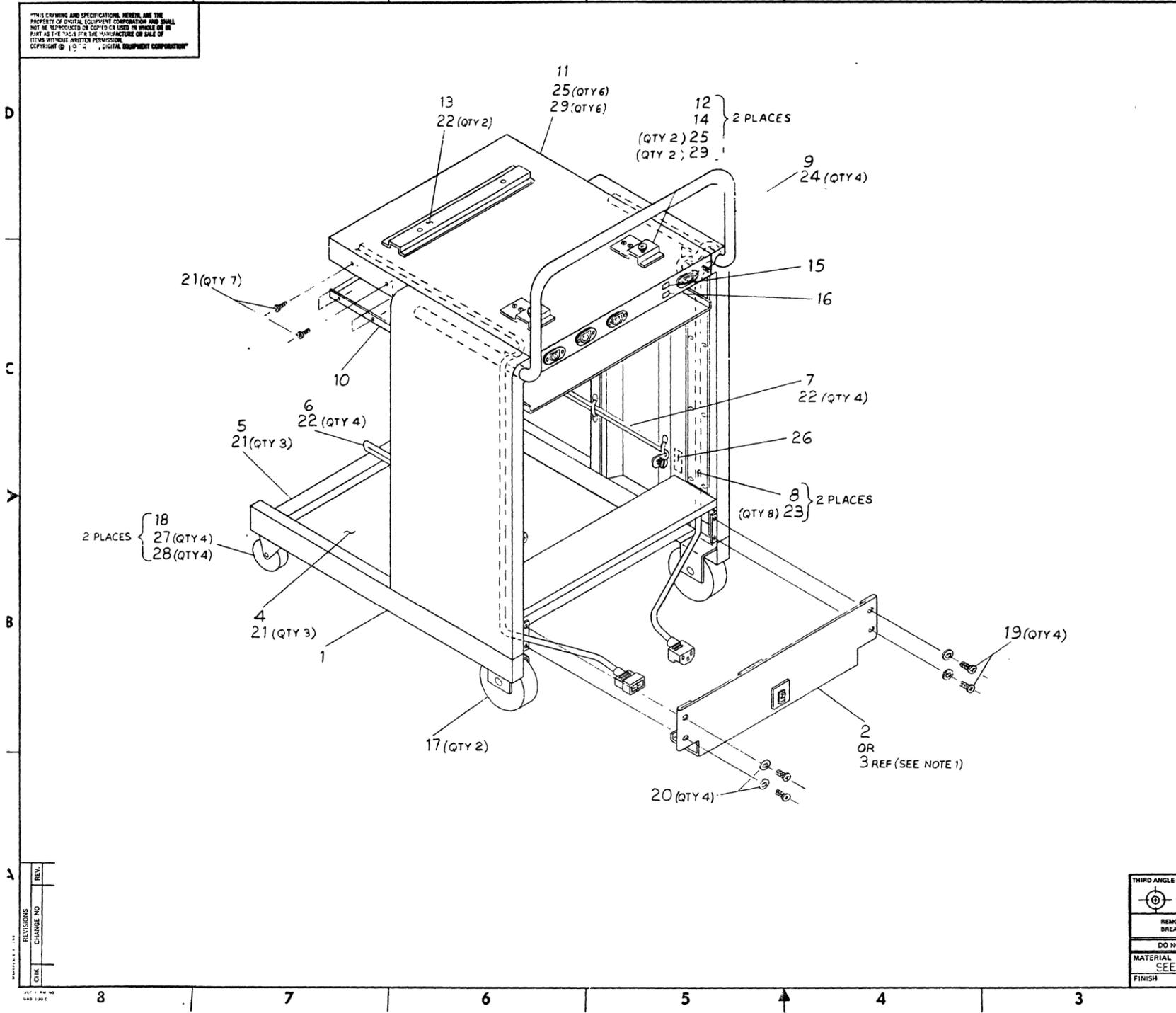


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: A/C INPUT BOX ASSY
 SIZE CODE: D AD 7014991-0-0
 SHEET: 2 OF 2
 DIST. MR

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NOTES:
 1. WHEN INSTALLING THE OPTION ITEM #3 REF (ISOLATION TRANSFORMER ASSY) REMOVE MOUNTING HARDWARE FROM ITEM #2, REMOVE ITEM #2 AND REPLACE WITH OPTION (ITEM #3 REF) AND USE EXISTING HARDWARE ITEM 19 & 20 TO INSTALL.



ITEM NO	DESCRIPTION	DWG PART NO	ITEM NO
10	WASHER, INT TOOTH LOCK #8	9006634-00	29
8	WASHER, INT TOOTH LOCK #1/16	9006638-00	28
8	SCREW, PHL TRUSS HD 5/16-18X1/2	9000040-01	27
1	LABEL, SERIAL TAG	3613210-00	26
10	SCREW, PAN HD PHL 8-32 X 1/4	9006035-01	25
4	SCREW, SELF-TAP 10-32 X 1/2	9010102-00	24
16	SCREW, PAN HD 6-32 X 3/8 (SHIT METL)	9008201-01	23
10	SCREW, FLAT HD, 8-32 X 3/8	9006037-02	22
13	SCREW, PAN HD 6-32 X 3/8 (BLK OXIDE)	9009525-02	21
4	WASHER, INT TOOTH LOCK #6	9006633-00	20
4	SCREW, PAN HD, PHL 6-32 X 3/8	9006022-01	19
2	CASTER, SWIVEL, 3" DIA	1216081-00	18
2	WHEEL, 5" AXLE & NUT	1216068-00	17
1	LABEL, C.S.A.	3613211-00	16
1	LABEL, U.L.	7414213-0-0	15
2	SCREW, SHOULDER 1/4-20	7414318-0-0	14
1	ADAPTOR, FRONT	C-IA-7421314-0-0	13
2	ADAPTOR, REAR	B-IA-7421315-0-0	12
1	ASSY, SHELF A.C. DISTRIBUTION	D-IA-7016449-0-0	11
1	BOTTOM COVER, SHELF	E-PS-3415494-08	10
1	HANDLE	E-PS-3415494-01	9
2	COVER, CABLE ACCESS	E-PS-3415494-05	8
1	SUPPORT, L.H.	E-PS-3415494-04	7
1	SUPPORT, R.H.	E-PS-3415494-03	6
1	REST, FOOT	E-PS-3415494-07	5
1	SHELF, LOWER	E-PS-3415494-06	4
REF	ISOLATION TRANS ASSY	D-AD-7015966-0-0	3
1	CIRCUIT BREAKER PANEL ASSY	D-AD-7015967-0-0	2
1	FRAME, WELDMENT	E-PS-3415494-00	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
ANGLES	CLASS OF ACCURACY
SURFACE QUALITY	MICROINCHES
QUANTITY & VARIATION	FINISH

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: NONE

DRN: [Signature]

CHK: [Signature]

ENG: [Signature]

PROD. ENG: [Signature]

PROD. DATE: [Date]

FIRST USED ON: MNCCT

TITLE: MINC CART ASSY

SIZE: D

CODE: AD

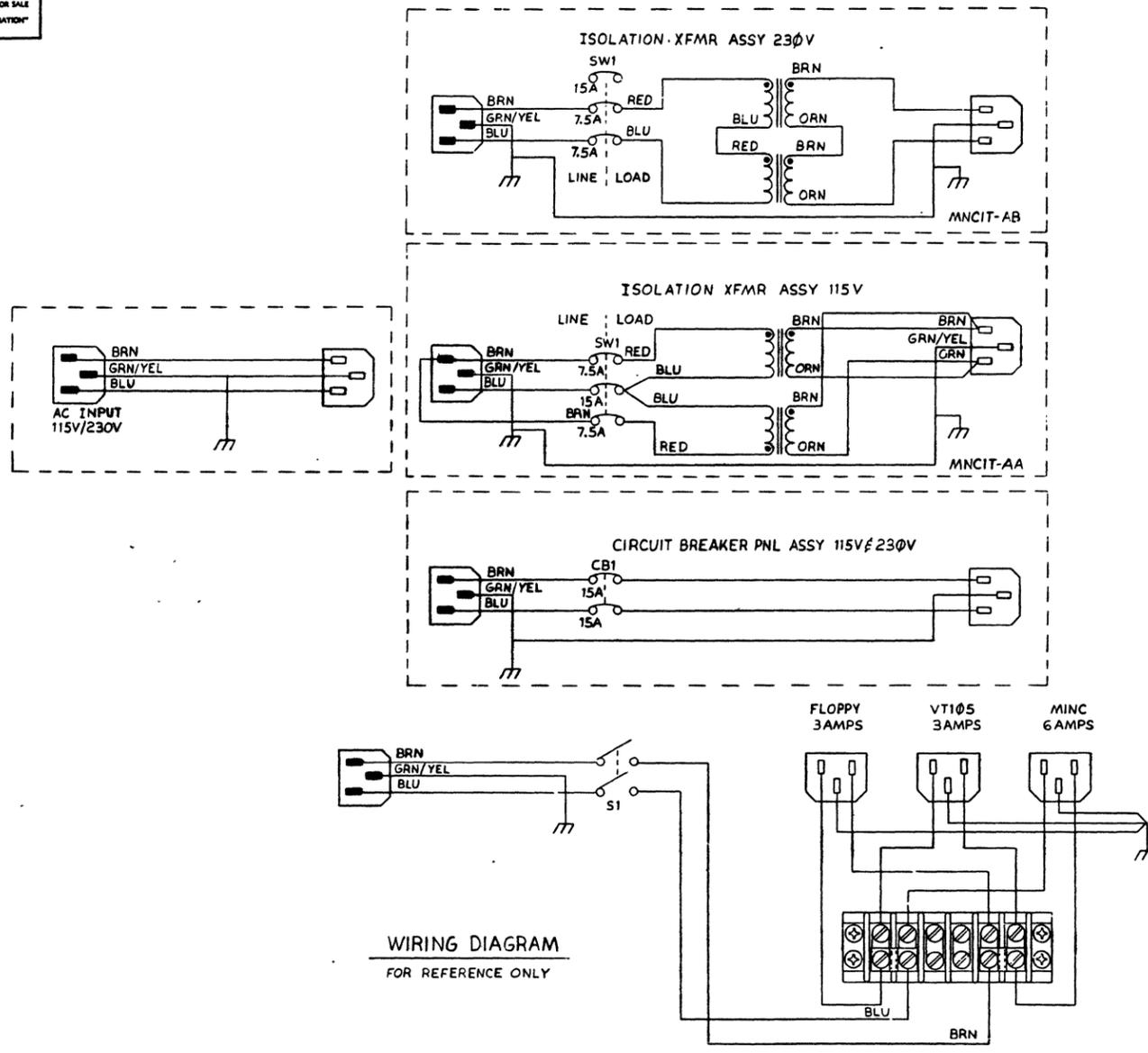
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REV.:

SHEET 1 OF 2

REV.	CHANGE NO.	DATE

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WIRING DIAGRAM
FOR REFERENCE ONLY

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE CODE	NUMBER	REV.
MINC CART ASSY	D AD	7016459-0 0	
SCALE NONE	SHEET 2 OF 2	DIST.	