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FIELD MAINTENANCE PRINT SET

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D-UA-MNCDO-Ø-Ø	MNCDO UNIT ASSY
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MNCDO

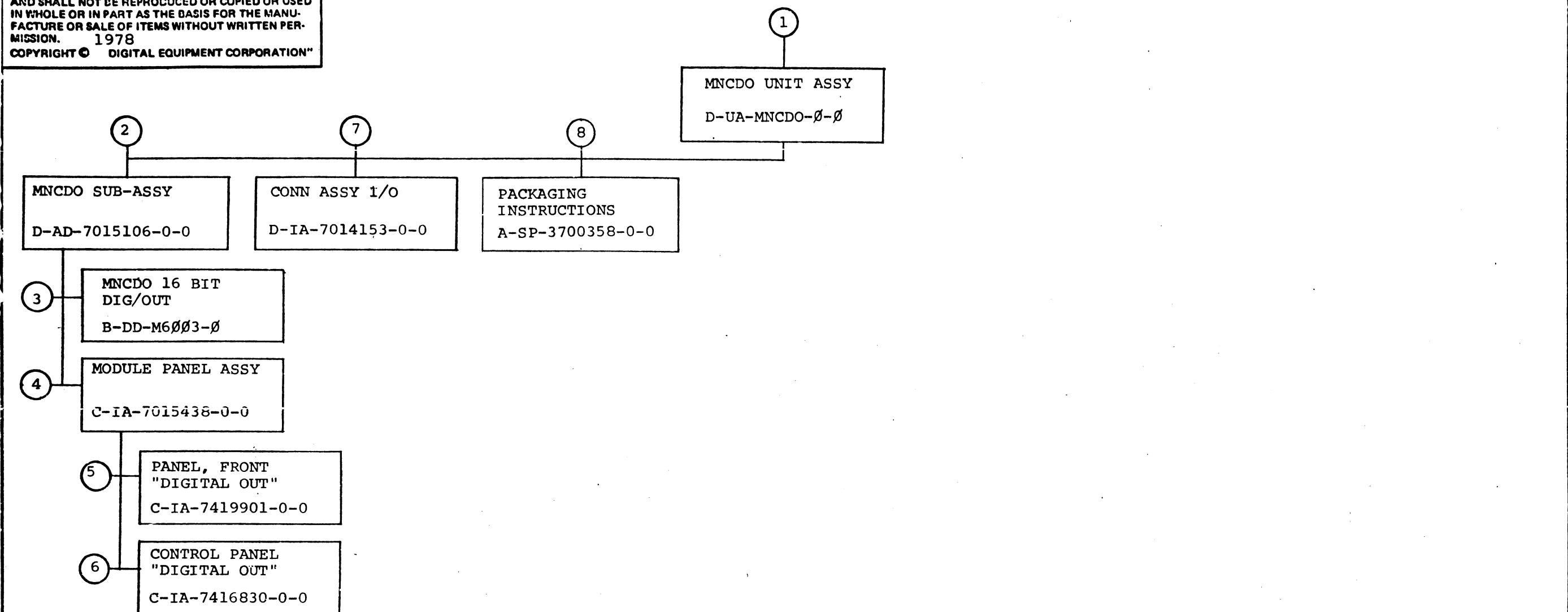
Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP00594

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TITLE	SHEET 2 OF 3	SIZECODE	NUMBER	REV
MNCDO UNIT ASSY		B DD	MNCDO-Ø	B

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

digital

TITLE MNCDO UNIT ASSY

SHEET 3 OF 3

NUMBER
MNCDO-8

REV
B.

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DRAWN BY: [Signature] DATE: [Signature]

SIDE

44(Octy 81)

45(QTY 2)

— 49

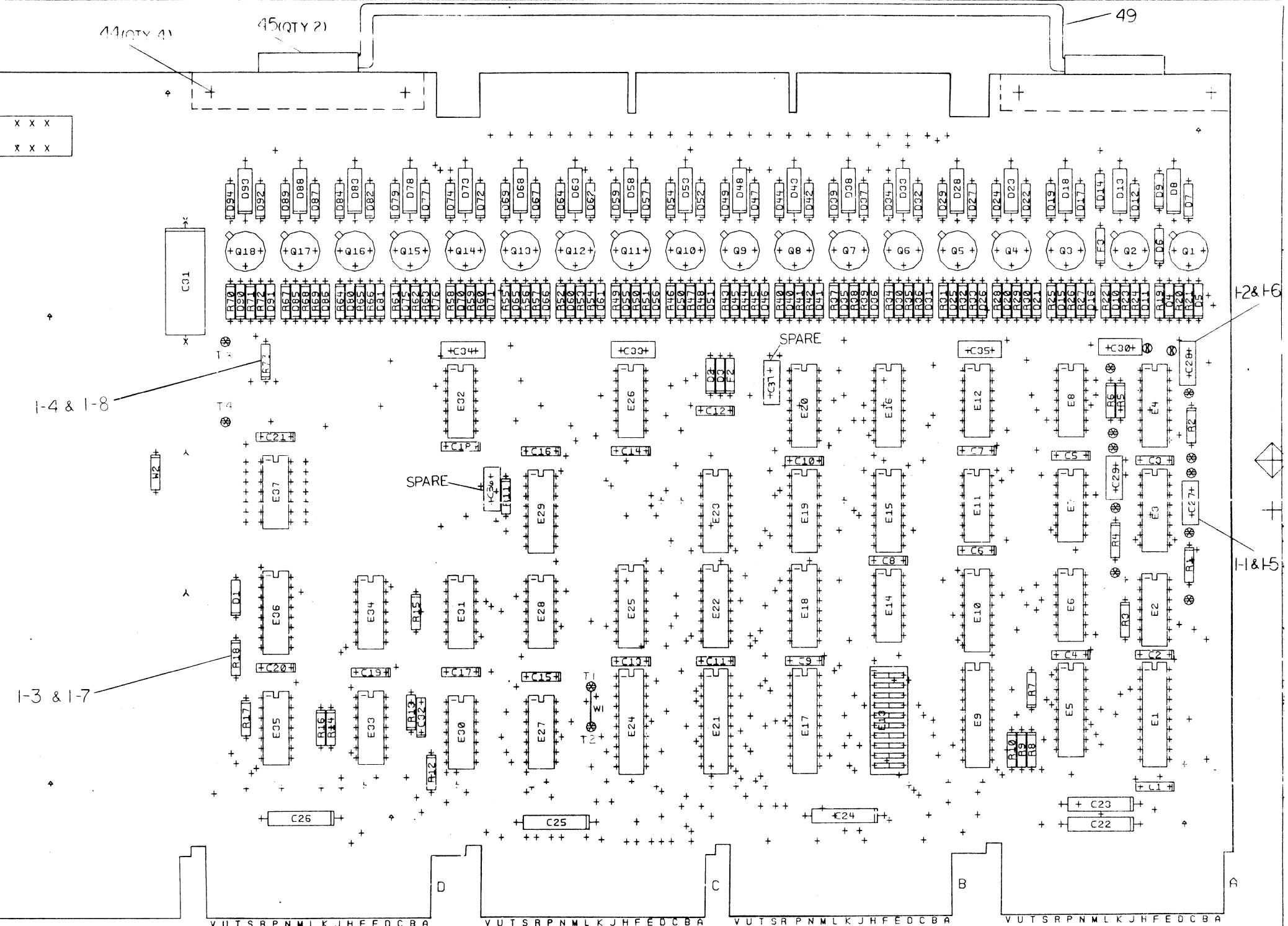
47 48 } QTY 2

REWORK INSTRUCTION

COMPONENT DELETES , SIDE 1

1-1	C27 (P/N 1000021)
1-2	C28 (P/N 1000021)
1-3	R18 (P/N 1300439)
1-4	F1 (P/N 9006735)

COMPONENT ADDS SIDE
I-5 C27 (P/N 1000025)
I-6 C28 (P/N 1000025)
I-7 R18 (P/N 1302394)
I-8 R73 (P/N 1310881)



NOTES:

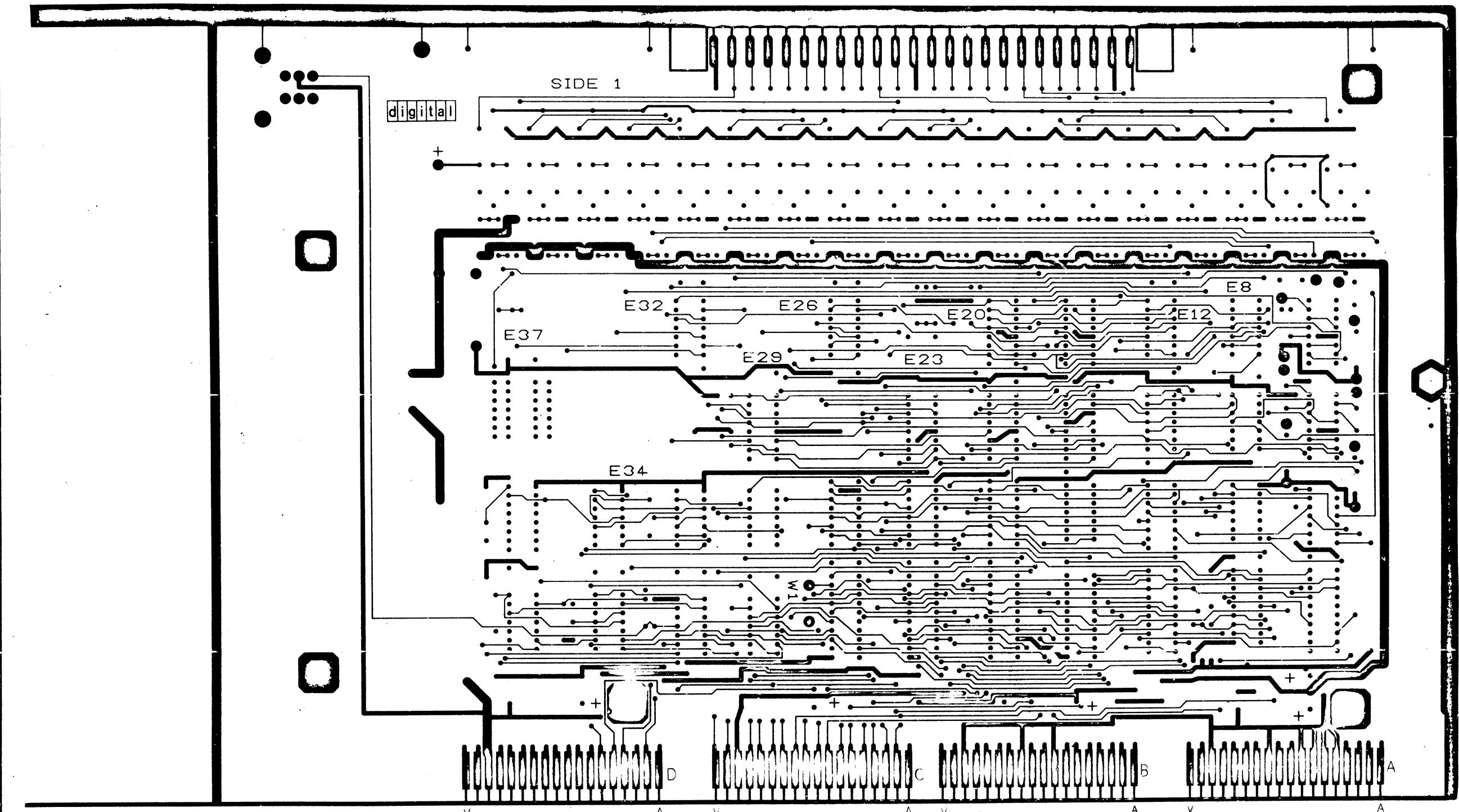
CHG	CHANGE NO	REV
See M6003-1		E
<i>Edithane</i>		10/18
A. FL 2		
<i>ACD</i>		1/4

SIGNATURES	DATE	digital			
DRN.					
CHK D. <i>[initials]</i>	EXCTD				
ENG. A 4 <i>[initials]</i>	4-0-11	TITLE			
PROJ. ENG. A <i>[initials]</i>	24-0-0	DIGITAL OUTPUT			
PROD. <i>[initials]</i>	15-0-1				
SCALE 2/1	SIZE D	CODE UA	NUMBER M6003-0-0	REV E	
SHT. 1 OF 4					FIVE REV F
NEXT HIGHER ASSY. R-00-M6003-1					

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M6003

5012114 E



REVISIONS

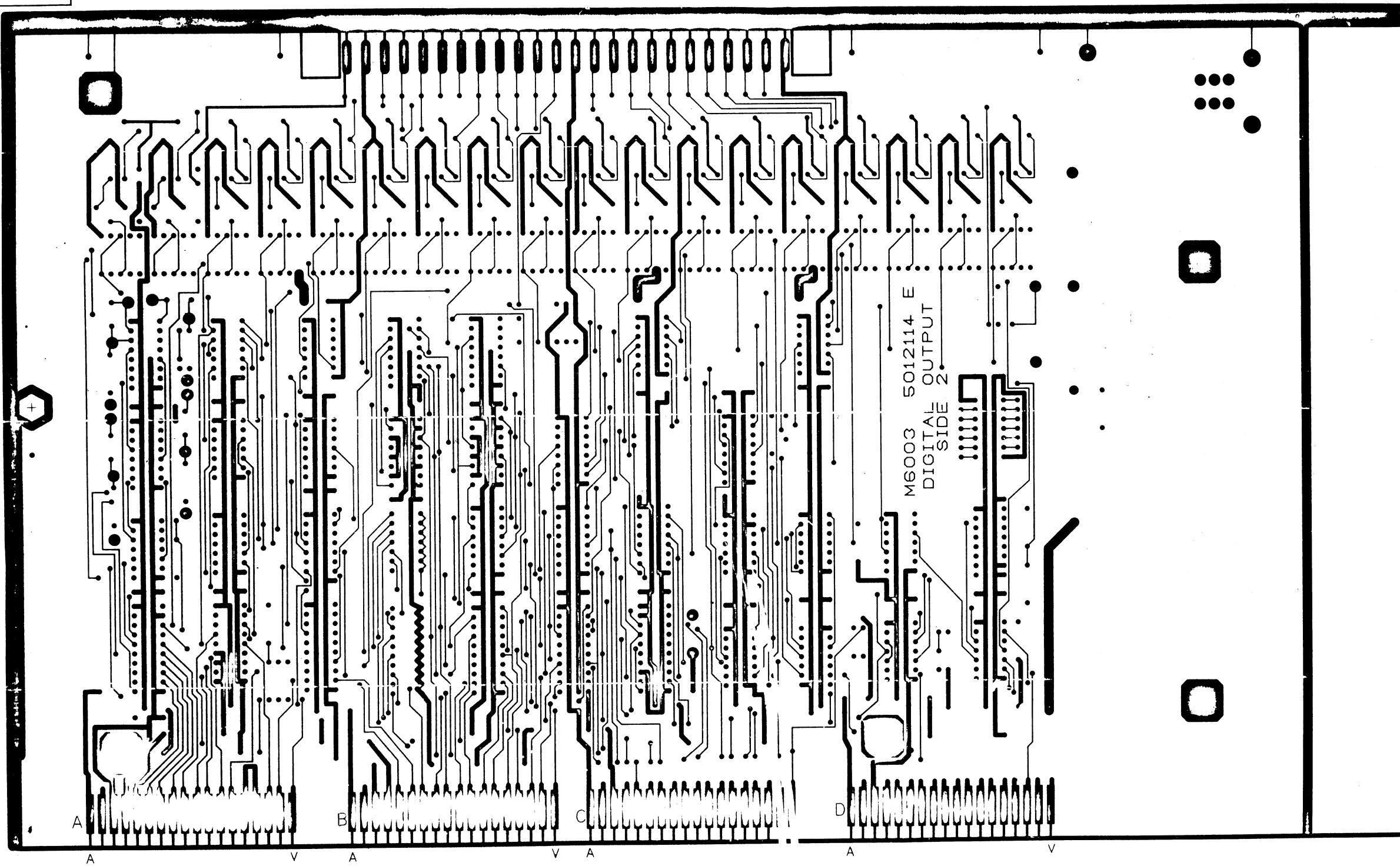
CHK CHANGE NO REV

TITLE
DIGITAL OUTPUT
SCALE 2 / 1

SIZE CODE D JAM 6003-0-0
NUMBER E
REV. E

SHEET 2 OF 4 DIST. 1

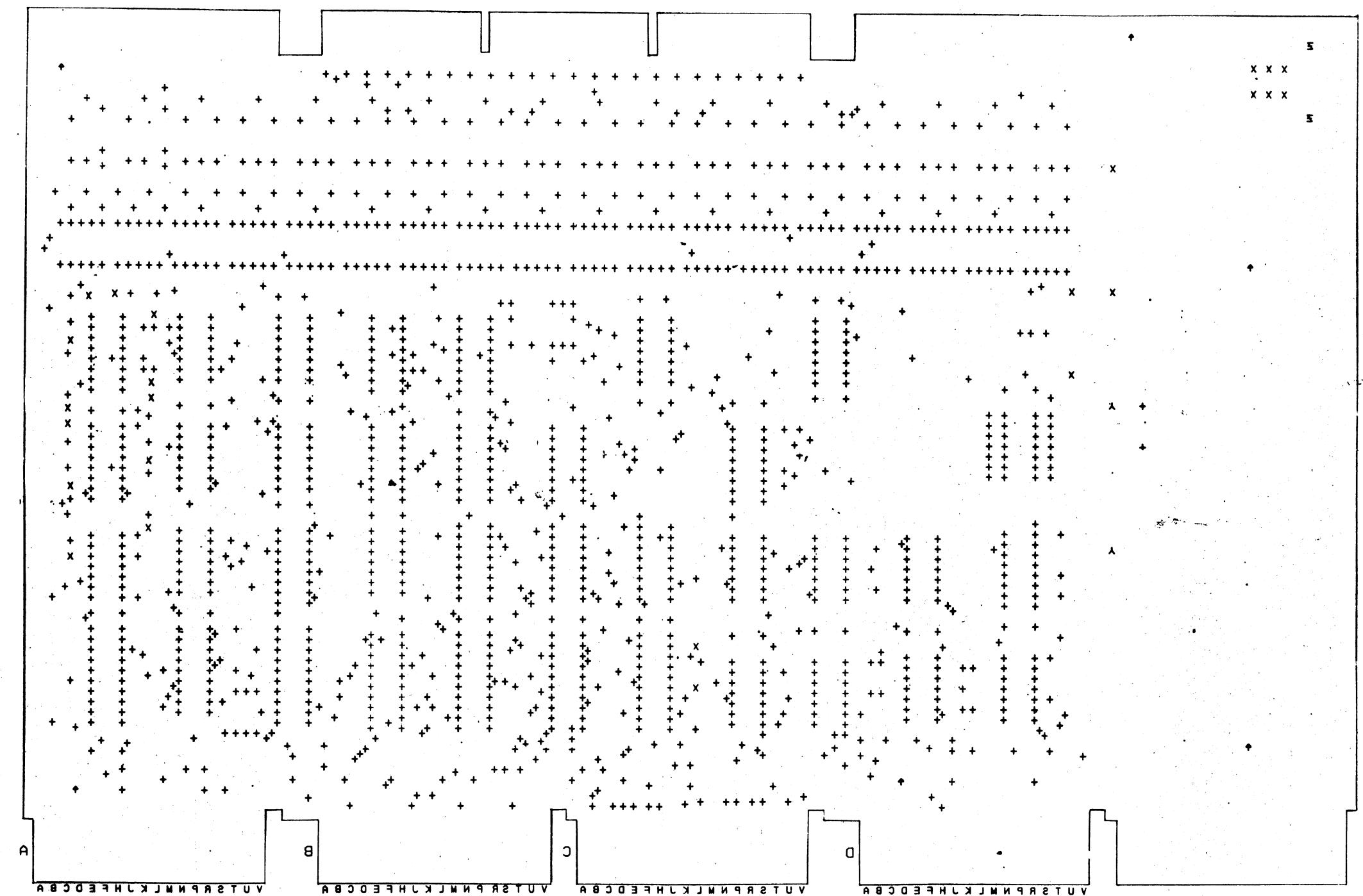
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REVISIONS		
CHK	CHANGE NO	REV

TITLE: DIGITAL OUTPUT
SCALE: 2/1 SHEET 3 OF 4 DIST. 1
SIZE CODE: DUA M6003-0-0 REV. E

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REVISIONS		
CHK	CHANGE NO	REV.
.		

TITLE
DIGITAL OUTPUT
SCALE 2/1 SHEET 4 OF 4 DIST. *Mo*

SIZE CODE NUMBER REV.
D U A M 6003 - 0 - 0 *E*

**DIGITAL EQUIPMENT CORPORATION
PARTS LIST**

RECEIVED
DATE 8 AUG 77

CHECKED RUTHERFORD
DATE 19 AUG 77

ENG A. B. DUNN
DATE 24 OCT 77

SECTION 1
PROD DANA K. DUNN
DATE 25 OCT 77

ITEM NO.

DRAWING NO.

PART NO.

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION								NOTES: 1. SPARE LOCATIONS ARE: C36,C37 , E37
				1	2	3	4	5	6	7	8	
1	D-MD-5012114-0-0	5012114	ETCHED CIRCUIT BOARD	1								
2		1012784	CAP. .047 MFD, 50V		22							C1 THRU C21,C32
3		1004812	CAP. 15 MFD, 20V			5						C22 THRU C26
4		1000025-00	CAP. 560 PF, 100V, 5%			2						C27,C28
5		1000012	CAP. 56 PF, 100V, 5%			2						C29,C30
6		1002839	CAP. 20 UF, 50V			1						C31
7		1010274-01	CAP. .22 UF, 50V			3						C33,C34,C35
8												
9		1109943	DIODE 1N4733A			1						D1
10		1105796	DIODE 1N4004			75						D2 THRU D7,D9 THRU D12,D14 THRU D17, D19 THRU D22,D24 THRU D27,D29 THRU D32,D34 THRU D37,D39 THRU D42,D44 THRU D47,D49 THRU D52,D54 THRU D57,D59 THRU D62,D64 THRU D67,D69 THRU D72,D74 THRU D77,D79 THRU D82,D84 THRU D87,D89 THRU D92,D94
11		1110232	DIODE MCL1304			18						D8,D13,D18,D23,D28,D33,D38,D43,D48,D53, D58,D63,D68,D73,D78,D83,D88,D93
12		1210929-04	FUSE 250 MA			1						F3
13		1211164-03	SWITCH PACK 7 POS			1						E14
14		1211164-06	SWITCH PACK 10 POS			1						E13
15		1301874	RES. 5.6K, 5%, 1/4W			4						R1,R2,R4,R6
16		1300365	RES. 1K, 5%, 1/4W			27						R3,R5,R11 THRU R17,R19,R22,R25,R28,R31, R34,R37,R40,R43,R46,R49,R52,R55,R58,R61, R64,R67,R70

E.C.O. NO.
MROO1

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TITLE

DIGITAL OUTPUT

ASSY NO.
D-UA-M6003-0-0

SHEET 1 OF 3

SIZE B
CODE PL

NUMBER
M6003-0-0

REV.
E

INSERTION PARTS LIST DATA BASE REV

**DIGITAL EQUIPMENT CORPORATION
PARTS LIST**

MADE BY *E. Wilson*
DATE 18 AUG 77

ENG *A. A. Anigh*
DATE 24 OCT 77

CHECKED *R. McCarter*
DATE 18 Aug 77

PROD *Dana R. Deacon*
DATE 25 OCT 77

SECTION

1

ISSUED SECTION

1

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION								REF DESIGNATION
				1	2	3	4	5	6	7	8	
17		1301424	RES. 680, 5%, $\frac{1}{4}$ W	2								R7, R1Ø
18		1300295	RES. 330, 5%, $\frac{1}{4}$ W	20								R8, R9, R21, R24, R27, R3Ø, R33, R36, R39, R42, R45, R48, R51, R54, R57, R6Ø, R63, R66, R69, R72
19		1302394-00	RES. 30K 5%, $\frac{1}{4}$ W	1								R18
20		1310881-01	RES. 330, 1%, $\frac{1}{4}$ W, FUSIBLE	18								R2Ø, R23, R26, R29, R32, R35, R38, R41, R44, R47, R5Ø, R53, R56, R59, R62, R65, R68, R71
21		1310881-00	RES 1K, $\frac{1}{4}$ W, 1% FUSIBLE	1								R73
22		15C9632	TRANS. DEC 2ØØ7	18								Q1 THRU Q18
23		1912729	I.C. DEC DCØØ4	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 DCØØ3	1								E5
27		1912801	I.C. DEC 74LSØ2	2								E6, E8,
28		1909686	I.C. DEC 7404	2								E7, E35
29		1913040	I.C. DEC DCØØ5	4								E9, E17, E21, E24
30		1909934	I.C. DEC 8266	1								E1Ø
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, E2Ø, E23, E29
35		1912697	I.C. DEC 74LS174	1								E18
36		1912853	I.C. DEC 74LS175	1								E22
ECO. NO.												

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TITLE

DIGITAL OUTPUT

ASSY NO.

D-UA-M6ØØ3-Ø-Ø

SIZE

B

CODE

PL

NUMBER

M6ØØ3-Ø-Ø

REV.

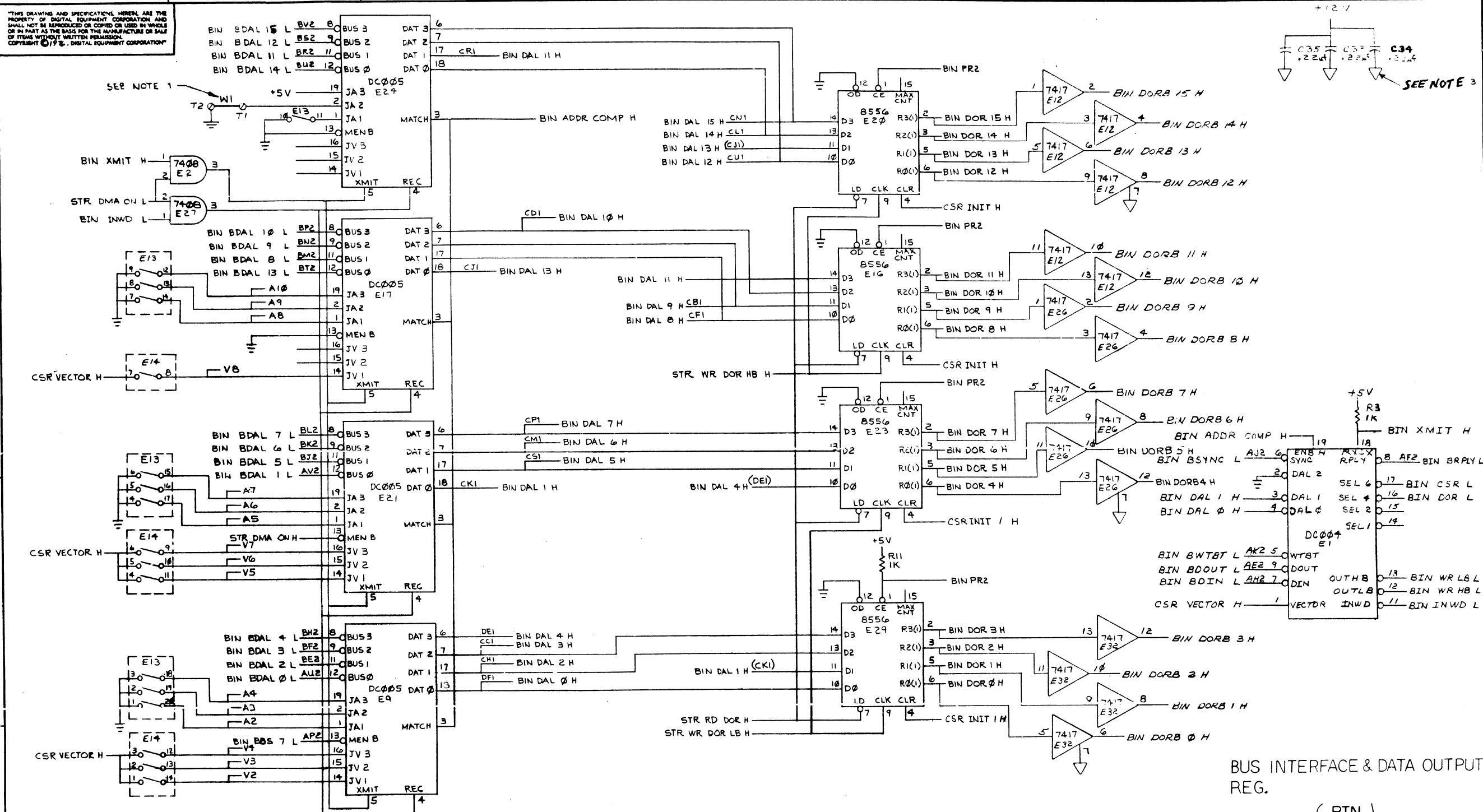
E

SHEET 2 OF 3

INSERTION PARTS LIST DATA BASE REV

**DIGITAL EQUIPMENT CORPORATION
PARTS LIST**

DIGITAL EQUIPMENT CORPORATION PARTS LIST			QUANTITY / VARIATION										NOTES:	
ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION										REF DESIGNATION	
37		1912824	I.C. DEC 74LS74	3									E28, E33, E34	
38		1911469	I.C. DEC 8640	1									E30	
39		1911116	I.C. DEC 8837	1									E36	
40		1214937	SWITCH, PUSH PUSH	1									S1	
41		9006735	SPLIT LUGS	16									T1 THRU T16	
42		9009122	FUSE 62 MA	1									F2	
43		9009185	JUMPER	2									W1, W2	
44		9006732	EYELETS	4										
45	C-MD-7420192-0-0	7420192	HANDLE, RETAINER	2										
46		9006000-01	SCREW *2-56 X 3/16	2										
47		9006555	NUT HEX *2-56	2										
48		9006686	WASHER LOCK	2										
49	C-MD-7420191-0-0	7420191	HANDLE	1										
E.C.O. NO.														
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								D-UA-M6003-0-0	B	PL		M6003-0-0	E	
				SHEET 3 OF 3				INSERTION PARTS LIST DATA BASE REV						



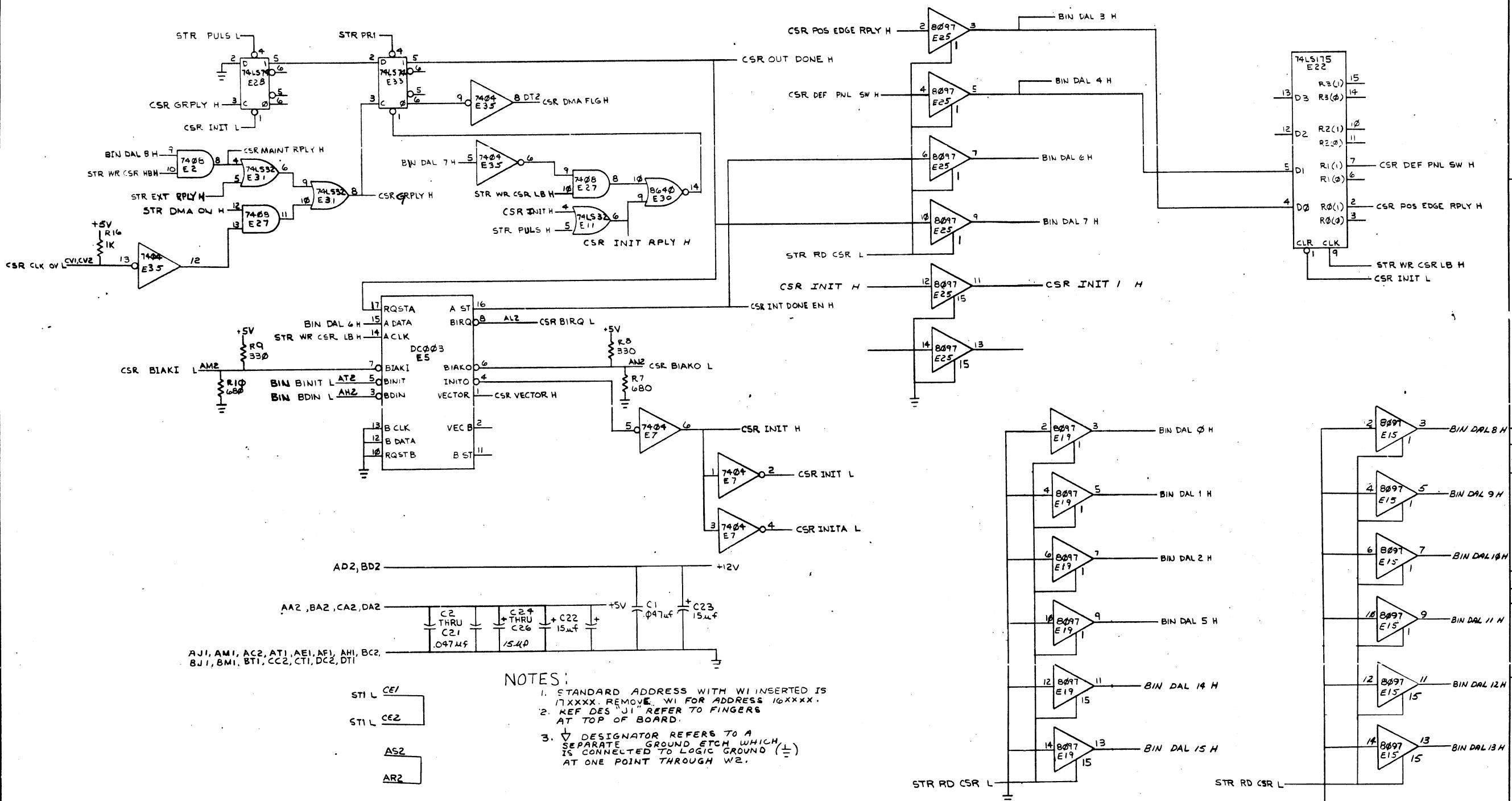
BUS INTERFACE & DATA OUTPUT
REG.

(BIN)

REVISIONS	CHARGE NO.	REV.
CNC	M6003	E
CNC	138	F
CNC	138	G

DRN. Xianark 22-Nov-76	FIRST USED ON	MNCDO	digital
CHK'D RW Counter	PD3	TITLE	
ENG. Q. [Signature]	14-077	DIGITAL OUTPUT	
PROJ. ENG. [Signature]	24-077	PROD. DR. [Signature] 25-077	
NEXT HIGHER ASSY.			
B-00-M6003-0			
SCALE	SIZE	CODE	NUMBER
✓	D	CS	M6003-0-1
SHEET	1	OF	4
		REV.	E
		DIST.	

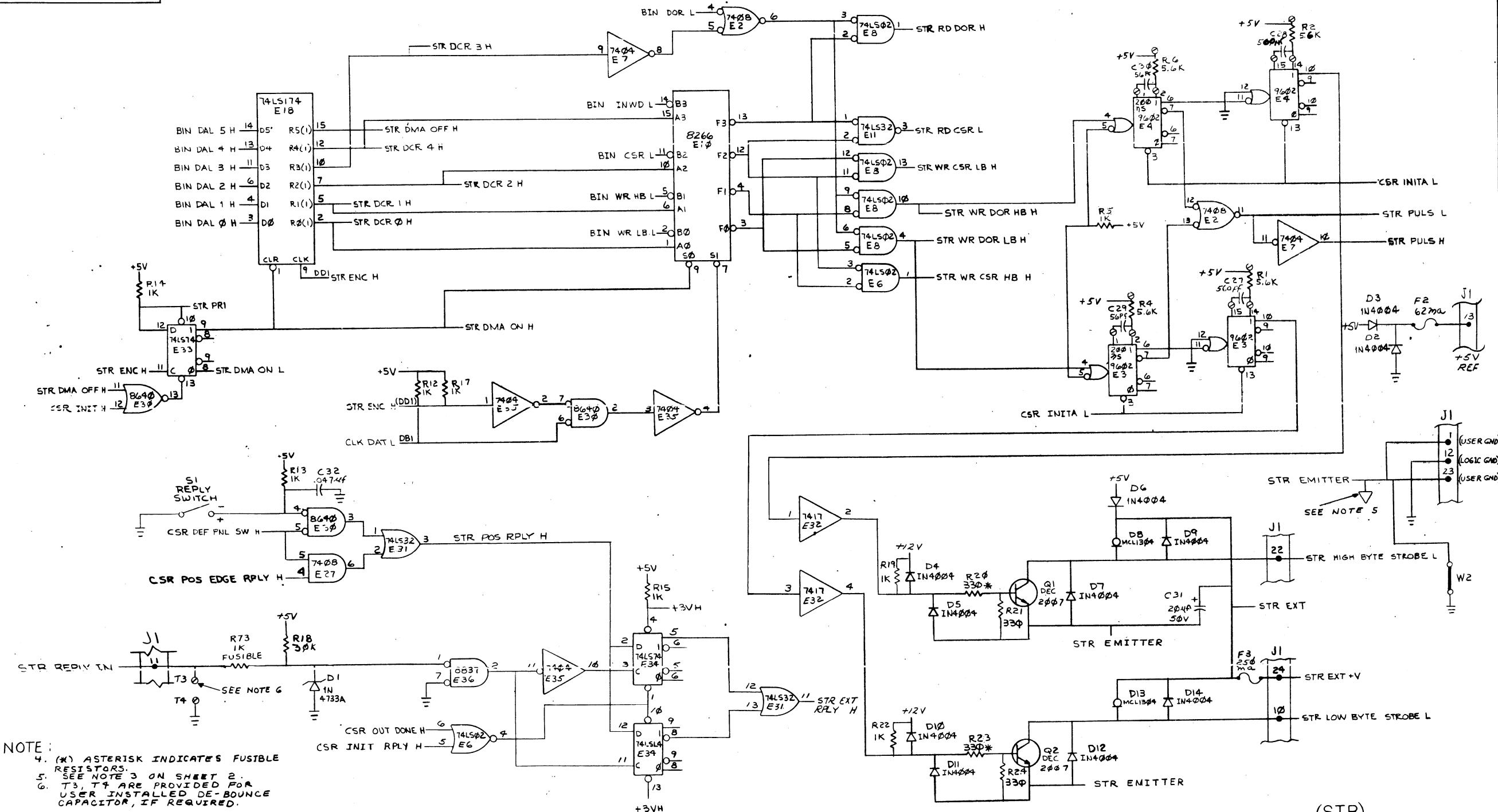
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CONTROL & STATUS REG.& INTERRUPT (CSR)

REVISIONS									TITLE		SIZE CODE		NUMBER		REV.
CHK	CHANGE NO.	REV.							DIGITAL OUTPUT		D CS		M6003-0-1		E
									SCALE	SHEET 2 OF 4	DIST.				

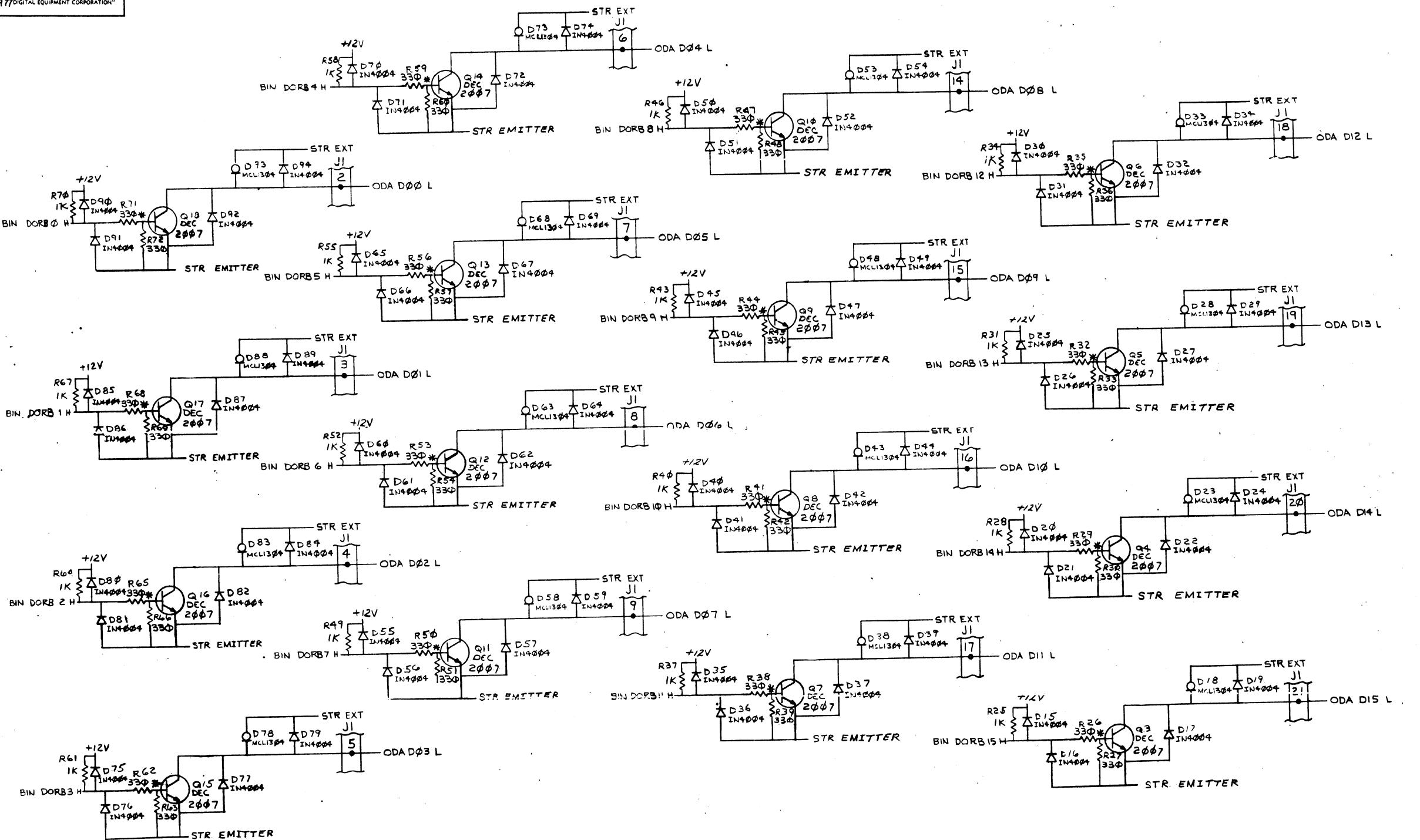
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DMA CONTROL (STR) AND STROBES

REVISIONS									PAGE 1 OF 1				
CHK	CHANGE NO.	REV.							TITLE	SIZE	CODE	NUMBER	REV.
								DIGITAL OUTPUT	D	CS	M6003	- Ø - 1	E
			SCALE	+	+	SHEET	3	OF	4	DIST.			

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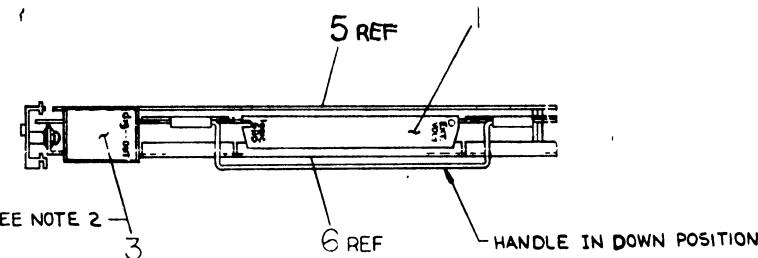
OUTPUT DRIVERS (ODA)

REVISIONS			TITLE							SIZE	CODE	NUMBER	REV.
CHK.	CHANGE NO.	REV.	DIGITAL OUTPUT							D/Cs	M6003--0--1		E
1			SCALE	→	SHEET	4	OF	4	DIST.				

**DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST**

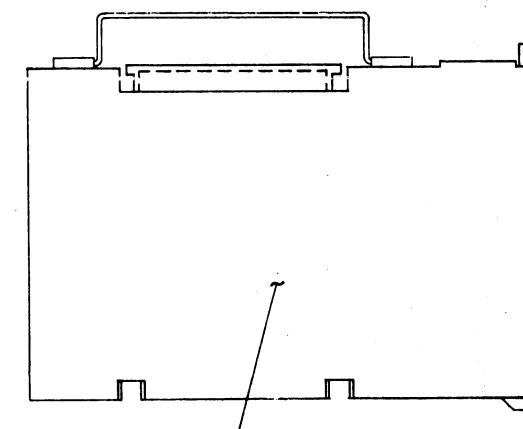
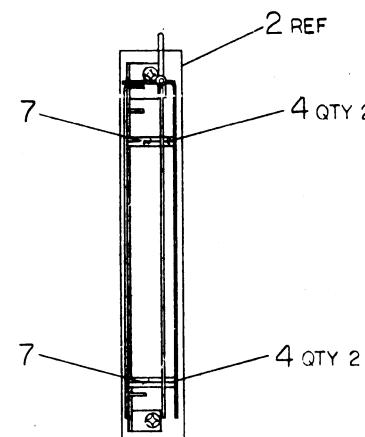
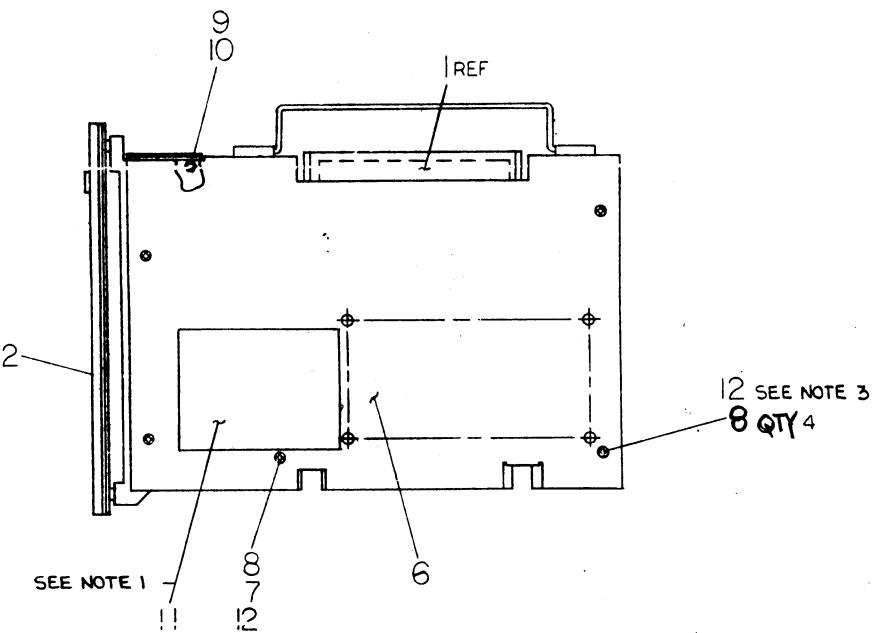
MADE BY	M. Archie 7 MARCH 78	CHECKED	<i>O'Farrell</i>
DATE		DATE	19 MAY 78
ENG	<i>O.C. Reg</i>	PROD	<i>B Cash</i>
DATE	23-MAY-78	DATE	23-May-78

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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.



DESCRIPTION	DWG./PART NO.	ITEM NO.				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES						
ANGLES 45° 30° CLASS OF ACCURACY OVER OVER OVER OVER OVER OVER						
45°	0.2	0.2	1.2	4.0	12.0	40.0
30°	0.2	0.2	1.2	4.0	12.0	40.0
SURFACE QUALITY IN CHECK ONE						
MEDIUM	±.004	±.008	±.012	±.016	±.024	±.04
MICROINCHES						
PREFERRED	±.012	±.016	±.026	±.04	±.063	±.1

REVISIONS	REV.	FIRST USED ON	
CHK	CHANGE NO.	MNCDO	
RDP	MNCDO-MR002	Digitel	
TYPICAL	Rev. B		
A			
A. FILZ			
G. G.			
THIRD ANGLE PROJECTION			
REMOVE BURRS AND BREAK AWAY CORNERS			
POL. CONC. 3			
TITLE			
MNCDO UNIT ASSY			
PRINTED BY		3-DD-MNCDO-Ø	
SIZE PARTS LIST		SIZE	CODE
NONE		1/2	MNCDO-Ø-Ø
		REV.	A
		DIST.	

REVISIONS	REV.
CHK	
RDP	MNCDO-MR002
TYPICAL	Rev. B
A	
A. FILZ	
G. G.	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 7/27/78

TITLE MNCDO Installation/Acceptance Procedure

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	A. & A. 27-JUL-78	APPD	Q. Thines	SIZE	A	CODE	NUMBER	REV
				SP	MNCDO-0-4			

SHEET 1 OF 3 MA

DEC 16 (392)-1079A-R873

DRA 107

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE MNCDO Installation/Acceptance Procedure

1.0 GENERAL

1.1 SCOPE

This document describes the procedures for the installation and field acceptance of the MNCDO (Digital Output) 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
MNCDO	Digital Output Option
MNCDO-TA	Test Module (optional)
7014153-5-0	I/O Connector

1.3 DOCUMENTATION

MAINDEC-11-DVMNE-A	Diagnostic Program
A-SP-MNCDO-0-2	MNCDO Engineering Specification
MP00594	Print Set
AA-D572A-TC	"Working With MINC Devices"

2.0 INSTALLATION

2.1 INITIAL SET-UP

The address and vector switches on the MNCDO board must be set properly as indicated in the manual "Working With MINC Devices".

2.2 LOCATION

The MNCDO may be inserted into any of the 8 possible MINC slots. However, if the MINC-11 System includes an MNCDAD A/D converter, then the MNCDO should be installed to the right of the MNCDAD (but not necessarily adjacent).

2.3 TEST MODULE

If the MNCDO-TA test module is available it should be plugged into the I/O connector fingers on the top of the MNCDO. 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	CODE	NUMBER	REV
	A	SP	MNCDO-0-4	

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

SHEET 2 OF 3 MA

ENGINEERING SPECIFICATION

digitel

CONTINUATION SHEET

TITLE MNCDO Installation/Acceptance Procedure

3.0 ACCEPTANCE

3.1 LOGIC TEST

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.

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 Dwarf Connected" if a test module is available. This allows an additional test of control signals to be made. If the test module is not available select the "Logic Test with no Dwarf Connected".

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

No errors are allowable for MNCDO acceptance.

3.2 OUTPUT TEST

When the logic test has been successfully concluded, and if a test module is available, restart the diagnostic and select the "Output Dwarf L.E.D. Loop" from the menu of tests. This produces a floating light pattern on the test module to visually check that all data outputs are operating.

3.3 PULSE OUTPUT LOOP

This section should only be performed if there is no MNCDI option on the system which must also be tested. The circuits tested by the pulse output loop are checked when running the MNCDI wrap-around mode (see the MNCDI Installation/Acceptance Procedure, A-SP-MNCDI-0-4).

Restart the diagnostic and select the "Pulse Output Verify Loop" from the menu of tests. The operator must use a scope to check for the presence of pulses on the LOW BYTE STROBE and HIGH BYTE STROBE outputs of the MNCDO. These will be low-going pulses with a nominal duration of 500 nanoseconds. These two outputs will produce pulses which are skewed with respect to each other due to delays in the program. If these two outputs produce coincident pulses, a short should be suspected.

This completes the MNCDO acceptance procedure.

	SIZE	CODE	NUMBER	REV
	A	SP	MNCDO-0-4	

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

SHEET 3 OF 3 MA