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FIELD MAINTENANCE PRINT SET

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D-UA-5412532-0-0	CONTROL BOARD
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D-UA-5412528-0-0	POWER MONITOR BOARD
B-PL-5412528-0-0	POWER MONITOR BOARD
D-CS-5412528-0-1	POWER MONITOR BOARD
D-AD-7014991-0-0	A.C. BOX ASSY
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MPØØ347	RLØ1 DISK DRIVE
A-PL-H961Ø-Ø-Ø	CABINET (H961Ø)
D-IA-7016462-0-0	CABLE, RLØ1/MNC
MPØØ596	MNCAG
MPØØ698	RLØ2 DISK DRIVE
MPØØ754	LA38-HA UNIT ASSY

UNIT VARIATIONS COVERED BY THIS PRINT SET
MDL23-AA
MDL23-AB
MDL23-AC
MDL23-AD
MDL23-AE
MDL23-AF
MDL23-BA
MDL23-BB
MDL23-BC
MDL23-BD
MDL23-BE
MDL23-BF
MDL23-CA
MDL23-CB
MDL23-CC
MDL23-CD
MDL23-CE
MDL23-CF

MDL23

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO. MPØ1Ø74

REV. | NUMBER MDL23-Ø-1 | CODE TC | SIZE B

REVISIONS

REV.	CHG. NO.	DATE

USED ON OPTION/MODEL

MDL23	

SHEET 1 OF 2

DRN.		DATE 7 80 MAY
CHK'D	J.M. HUSON	DATE 30 80 MAY
PROJ. ENG.		DATE 3 JUL 80
FIELD SERV.		DATE 23 July 80

digital

TITLE: MDL23 FIELD MAINTENANCE PRINT SET

SIZE	CODE	NUMBER	REV.
B	TC	MDL23-Ø-1	

DIST.

DRB 124

MR

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SIZE	CODE	NUMBER	REV.
B	TC	MDL23-Ø-1	

MPØØ663	LA12Ø- UNIT ASSY
MPØØ734	FIELD MAINT. PRINT SET KDF11-A
MPØØ735	FIELD MAINT. PRINT SET KEF11-A
D-IA-7015790-0-0	CABLE, CONSOLE INTERFACE (1700211)
MP00616	871 POWER CONTROLLER
B-PL-MDL23-0-2	MDL23 SHIP LIST

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MDL23 FIELD MAINTENANCE PRINT SET	2 OF 2	B	TC	MDL23-Ø-1	

DRB 107

MR

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DRAWING DIRECTORY

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UNIT VARIATIONS

VAR	TITLE
MNC11-AA	MNC11 UNIT ASSY
MNC11-BA	MNC11 UNIT ASSY
MNC11-BC	MNC11 UNIT ASSY
MNC11-BD	MNC11 UNIT ASSY
MNC11-CA	MNC11 UNIT ASSY
MNC11-CC	MNC11 UNIT ASSY
MNC11-CD	MNC11 UNIT ASSY
MNC11-DA	MNC11 UNIT ASSY
MNC11-BJ	MNC11 UNIT ASSY
MNCII-FA	MNCII UNIT ASSY (11/23) 120V RXV21
MNCII-FB	MNCII UNIT ASSY (11/23) 240V RXV21
MNCII-FC	MNCII UNIT ASSY (11/23 64KW) 120V RLV11
MNCII-FD	MNCII UNIT ASSY (11/23 64KW) 240V RLV11
MNCII-EA	MNCII SYSTEM 120V VT105 MA RX02M-MA
MNCII-ED	MNCII SYSTEM 240V VT105 MB RX02M-MD
MNCII-EJ	MNCII SYSTEM (MNCII-ED + MNC11-AB)

REVISIONS	REV.	CHANGE NO.	CHK
	A	MNC11-MR001	RDP
	B	MNC11-MR003	
	C	MNC11-MR004	
	D	MNC11-MR005	

USED ON OPTION/MODEL: MNC11

SHEET 1 OF 5

DRN. A. Vowles	DATE 13-JUL-78	TITLE: MNC11 UNIT ASSY (digital)
CHK'D. J. Huson	DATE 14 July 78	
PROJ. ENG. A.C.F.	DATE 19 July 78	
PROD. Bob Cooke	DATE 7 July 78	

SIZE	CODE	NUMBER	REV
B	DD	MNC11-Ø	D

DIST.

DRB 106A

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MR

1 — MNC11 UNIT ASSY
D-UA-MNC11-Ø-Ø
B-PL-MNC11-Ø-Ø

2 — MNCBA BOX
B-DD-MNCBA-Ø-Ø

3 — COVER, BOOT MODULE
D-IA-7420239-0-0

4 — SIDE, PANEL ASSY
D-AD-7015263-0-0

5 — BOX, CONNECTOR ASSY
D-AD-7015863-0-0

6 — BOX, CONNECTOR
C-IA-7420277-0-0

7 — CABLE, CONSOLE INTERFACE
A-SP-1700211-0-0

8 — BDV11-A UNIT ASSY
B-DD-BDV11-A

9 — LSI 11/IB INTERFACE
B-DD-IBV11-A

10 — 4 SERIAL LINE PER CTLR.
B-DD-DLV11-J

11 — UNIT ASSY RXØ2M
B-DD-RXØ2M-Ø

12 — MNCAD UNIT ASSY
B-DD-MNCAD-Ø

13 — MNCKW UNIT ASSY
B-DD-MNCKW-Ø

14 — LSI11 CPU WITH EIS, FIS, NO MEMORY
B-DD-KD11-NA-Ø

15 — MSV11-D (32Kx16) MOS MEMORY SYSTEM
B-DD-MSV11-D-Ø

16 — VT71 BUS GRANT
B-DD-M8659-Ø

17 — CONNECTOR, TEST
B-IA-7015911-0-0

18 — MNCBL UNIT ASSY
B-DD-MNCBL-Ø

19 — CABLE, RXØ2M INTERFACE
D-IA-7015574-0-0

20 — DISK CONTROLLER ASSY
B-DD-RLV11-Ø

21 — VT105 GRAPHICS TERMINAL
B-DDØVT1Ø5-M-Ø

22 — MNCAM UNIT ASSY
B-DD-MNCAM-Ø

23 — MNCAA UNIT ASSY
B-DD-MNCAA-Ø

24 — MNCDO UNIT ASSY
B-DD-MNCDO-Ø

25 — MNCDI UNIT ASSY
B-DD-MNCDI-Ø

26 — MNCAG UNIT ASSY
B-DD-MNCAG-Ø

27 — LSI 11/23 WITH KEFII-A FPII MICRO CODE
B-DD-KDFII-A-0

28 — MNCCT CART, MINC
B-DD-MNCCT-Ø

29 — RXV21 UNIT ASSY (M8Ø29)
B-DD-RXV21-Ø

30 — ISOLATION TRANSFORMER ASSY
B-DD-MNCIT-Ø-Ø

31 — TOP COVER ASSY
E-AD-7016817-0-0

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

MR

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MPØØ652	FIELD MAINTENANCE PRINT SET	-
	B-TC-MNC11-Ø-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MNC11-Ø-Ø	MNC11 UNIT ASSY	M
	K-PL-MNC11-Ø-DBP	MNC11 UNIT ASSY	M
	D-MD-7420102-0-0	COVER LOGIC COMPARTMENT	M
	C-MD-7420240-0-0	BRKT SPACER, SIDE PANEL	M
	A-PL-MNC11-E-SH	MNC11-E SHIP LIST	E/M
	A-PL-MNC11-B-SH	MNC11-B SYSTEM SHIP LIST	E/M
	A-PL-MNC11-C-SH	MNC11-C SYSTEM SHIP LIST	E/M
	A-DC-3615262-0-0	DECAL, PROCESSOR COMP	M
	A-DC-3615263-0-0	DECAL, USER INFO	M
	A-DC-3615774-0-0	DECAL, PROCESSOR COMP (MNC11-D)	M
	A-SP-MNC11-Ø-4	MINC MODULE TESTER	E/M
	A-SP-MNC11-Ø-3	MINC SYSTEM SPECIFICATION	E/M
	A-SP-MNC11-Ø-5	MINC SYSTEM ASSEMBLY TEST & ACCEPTANCE PROCEDURES	E/M
	D-IA-7016462-00	CABLE REWORK RLØ1/MNC	
	D-IA-7423488-0-0	PANEL FRONT BREATHER	
	A-DC-3617448-0-0	DECAL PROCESSOR COMP (MNC11-FC,FD)	
	A-DC-3617449-0-0	DECAL PROCESSOR COMP (MNC11-FA,FB)	
	A-SP-MNC11-0-6	MINC-23 SYSTEM SPECIFICATION	E/M
			M
			M
2	B-DD-MNCBA-0-0	MNCBA BOX	M
3	D-IA-7420239-0-0	COVER, BOOT MODULE	M
	B-SS-7420239-0-0	SILKSCREEN, BOOT MODULE COVER	M
4	D-AD-7015263-0-0	SIDE PANEL ASSY	M
	C-MD-7420241-0-0	BRKT, CATCH SIDE PANEL	M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
5	D-AD-7015836-0-0	BOX, CONNECTOR ASSY	E/M
	A-DC-7409873-1-0	DECALS, PWR CONNECTOR	M
	C-IA-7015575-0-0	CABLE, SLU INTERFACE	E/M
6	C-IA-7420277-0-0	BOX CONNECTOR	M
	SS-7420277-0-1	SILKSCREEN, CONN. BOX	M
7	A-SP-1700211-0-0	CABLE, CONSOLE INTERFACE	E/M
			M
	B-DD-DBV11-A	BDV11-A UNIT ASSY	M
9	B-DD-IBV11-A	LSI11/IB INTERFACE	E/M

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

DRB 108A

digital

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MNC11 UNIT ASSY	3 OF 5	B	DD	MNC11-Ø	D

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
10	B-DD-DLV11-J	4 SERIAL LINE PER CTLR.	
11	B-DD-RXØ2M-Ø	UNIT ASSY RXØ2M	E/M
12	B-DD-MNCAD-Ø	MNCAD UNIT ASSY	E/M
13	B-DD-MNCKW-Ø	MNCKW UNIT ASSY	E/M
14	B-DD-KD11-NA-Ø	LSI 11 CPU WITH EIS, FIS, NO MEMORY	E/M
15	B-DD-MSV11-Ø-Ø	MSV11-D (32Kx16) MOS MEMORY SYSTEM	E/M
16	B-DDØM8659-Ø	VT71 BUS GRANT	E/M
17	B-IA-7015911-0-0	CONNECTOR, TEST	E/M
	A-DC-7409873-2-0	DECAL, PWR CONNECTOR	M
18	B-DD-MNCBL-Ø	MNCBL UNIT ASSY	E/M
19	D-IA-7015574-0-0	CABLE, RXØ2M INTERFACE	E/M
	A-DC-7409872-2-0	DECALS, PWR HARNESS	M

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

DRB 108A

digital

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MNC11 UNIT ASSY	4 OF 5	B	DD	MNC11-Ø	D

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
20	B-DD-RLV11-Ø	DISK CONTROLLER ASSY	E/M
21	B-DD-VT1Ø5-M-Ø	VT1Ø5 GRAPHICS TERMINAL	E/M
22	B-DD-MNCAM-Ø	MNCAM UNIT ASSY	E/M
23	B-DD-MNCAA-Ø	MNCAA UNIT ASSY	E/M
24	B-DD-MNCDØ-Ø	MNCDO UNIT ASSY	E/M
25	B-DD-MNCDI-Ø	MNCDI UNIT ASSY	E/M
26	B-DD-MNCAG-Ø	MNCAG UNIT ASSY	E/M
27	B-DD-KDF11-A-0	LSI 11/23 WITH KEF11-A FP11 MICRO CODE.	
28	B-DD-MNCCT-Ø	MNCCT CART, MINC	E/M
29	B-DD-RXV21-Ø	RXV21 UNIT ASSY	E/M
30	B-DD-MNCIT-Ø-Ø	ISOLATION TRANSFORMER ASSY	E/M
31	E-AD-7016817-0-0	TOP COVER ASSY	M

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

DRB 108A

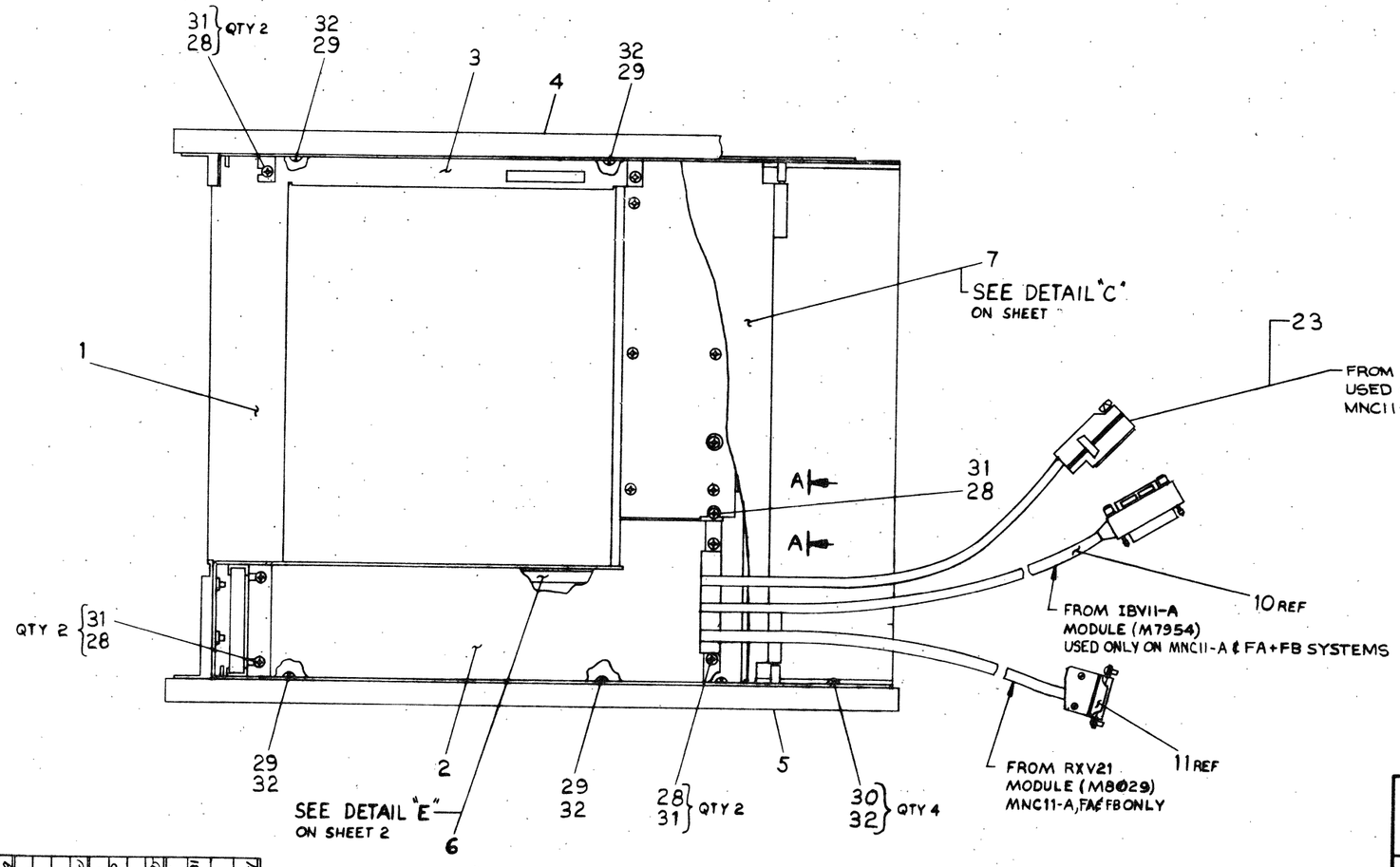
digital

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

MR

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NOTES:
1. TO CHANGE LINE VOLTAGE SETTING REMOVE SWITCH PLATE AND SET SWITCH TO VOLTAGE SETTING DESIRED. REPLACE SWITCH PLATE TO INDICATE PROPER VOLTAGE SELECTED. (MNC11-AB UNIT & MNC11D UNIT WHEN USED ON 230V SYSTEMS).
2. ITEM 79647 WILL BE USED WITH BD, BJ, CD, ED & EJ SYSTEM TO REPLACE ITEM #35.



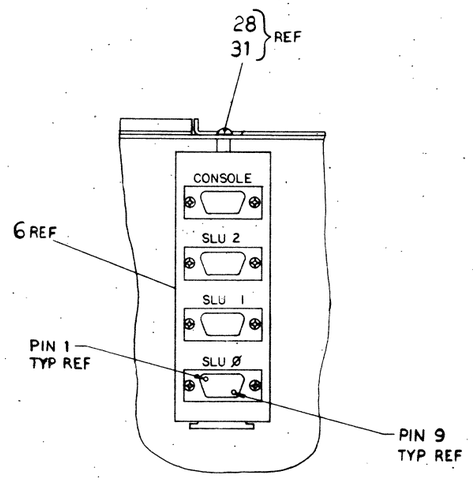
CAUTION:
OFF SHEETS PARTS LIST EXISTS SEE A-PL-MNC11-Ø-Ø

REVISIONS			
CHR	CHANGE NO.	REV.	
MC	MNC11-MR001	A	A FILZ 13 Nov 78
MC	MNC11-MR002	B	A FILZ 24 May 79
MC	MNC11-MR003	C	A FILZ 30 July 80
MC	MNC11 MR004	D	A FILZ 30 Aug 80
MC	MNC11-MR005	E	A FILZ 8 May 81

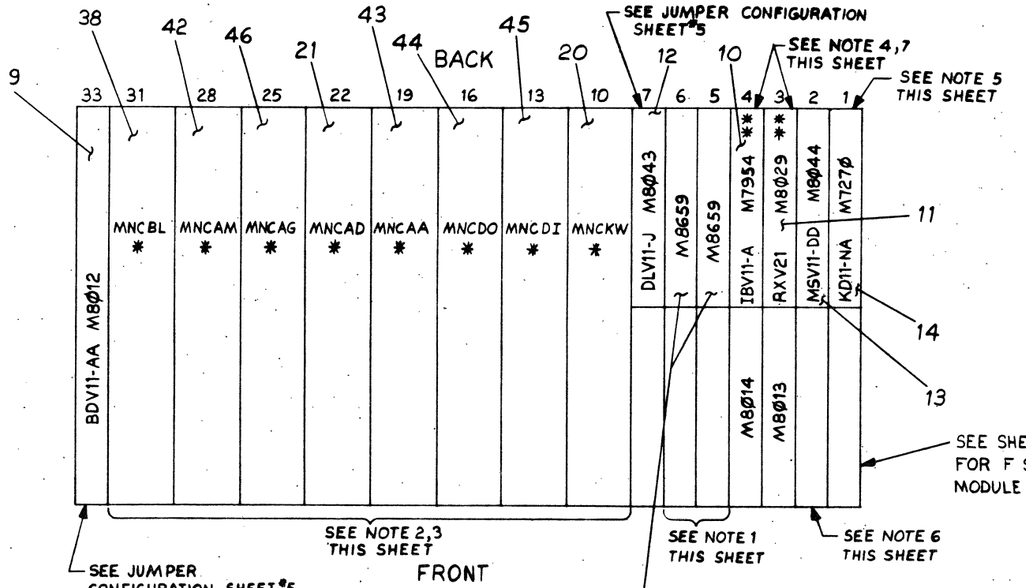
	DESCRIPTION	DWG./PART NO.	ITEM NO.
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
QUANTITY & VARIATION	ANGLES ±0° 30' / SURFACE QUALITY IN MICROINCHES / CLASS OF ACCURACY (CHECK ONE) MINIMUM / PREFERRED	NOMINAL DIMENSION AND/OR LIMITS (INCHES)	
THIRD ANGLE PROJECTION	DRN. M. Taylor 4 Dec 77	FIRST USED ON MNC11	
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D J. Hayden 14 MAR 78	TITLE MNC11 UNIT ASSY	
DO NOT SCALE DWG	ENG. D. Cobb 19-JUL-78		
MATERIAL SEE PARTS LIST	PROJ. ENG. [illegible] 19-JUL-78	NEXT HIGHER ASSY.	
FINISH NONE	PROD. [illegible] 19-JUL-78	B-DD-MNC11-Ø	
	SCALE 1/2	SIZE D CODE UA NUMBER MNC11-Ø-Ø REV. E	
	SHEET 1 OF 2	DIST.	

D UA MNC11-Ø-Ø E

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VIEW A-A
SCALE: 1/1
INSTALL AS SHOWN
CONNECTORS FROM DLV11-J (M8Ø43)



MODULE UTILIZATION
(MODULE SIDE)
SCALE: NONE

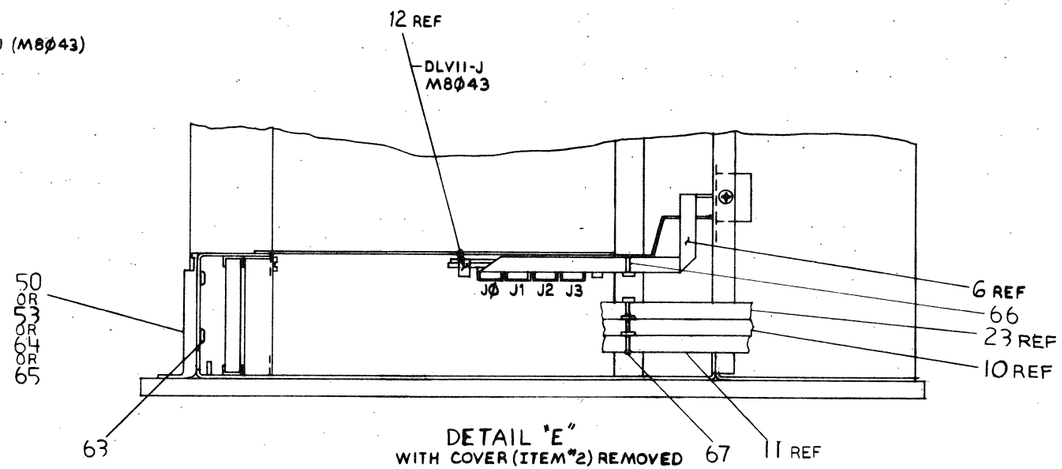
MODULE UTILIZATION NOTES:

1. SLOTS 5&6 ARE USED FOR LSI11 OPTION EXPANSION ONLY.
2. SLOTS 1Ø THRU 31 ARE MINC OPTION EXPANSION AREA.
3. * FOR MNC11-C, SYSTEMS ONLY.
4. ** FOR MNC11-D SLOT 3 AND 4 CONTAINS M8Ø14 & M8Ø13 PART OF AN RLV11. M7954 AND M8Ø29 ARE FOR MNC11-B & C VARIATIONS.
5. MODE 2, W6 INSTALLED, W5 REMOVED. PC AT 173000 FOR USER BOOTSTRAP.
   W1 INSTALLED — CRYSTAL CLOCK
   W3 REMOVED — ENABLE EVENT LINE
6. MSV11-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		

7. 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 ON	
S2-10 OFF	

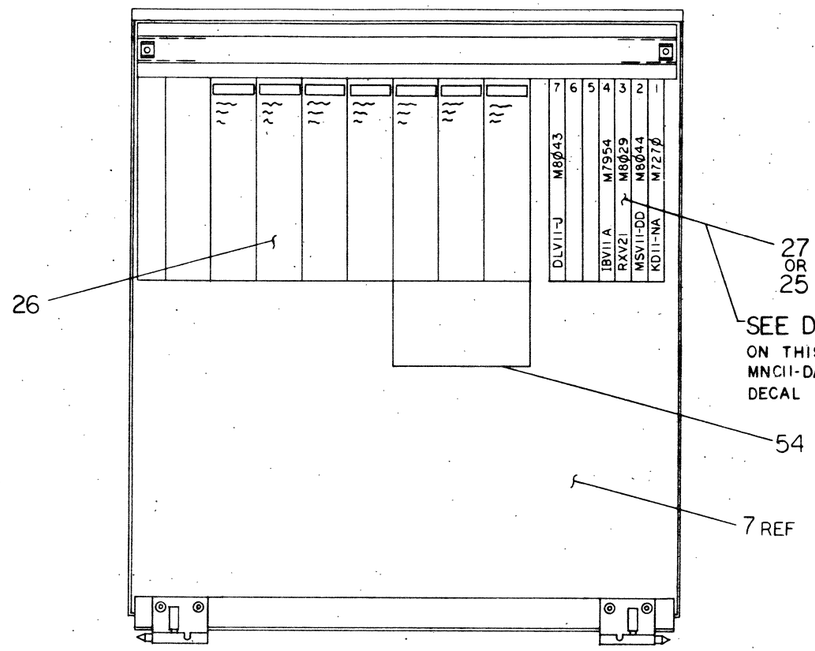


DETAIL "E"
WITH COVER (ITEM #2) REMOVED
SCALE: 1/2

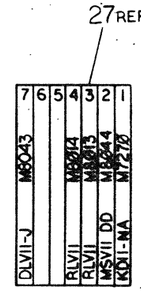
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: MNC11 UNIT ASSY		SIZE CODE: D UA	NUMBER: MNC11-Ø-Ø	REV: E
SCALE: NONE	SHEET 2 OF 7	DIST.		

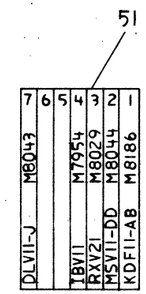
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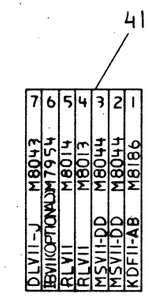
DETAIL "C"
BOTTOM SIDE OF ITEM 7 SHOWN
SCALE: 1/2



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



DETAIL "E"
FOR MNCII-FA,FB ONLY

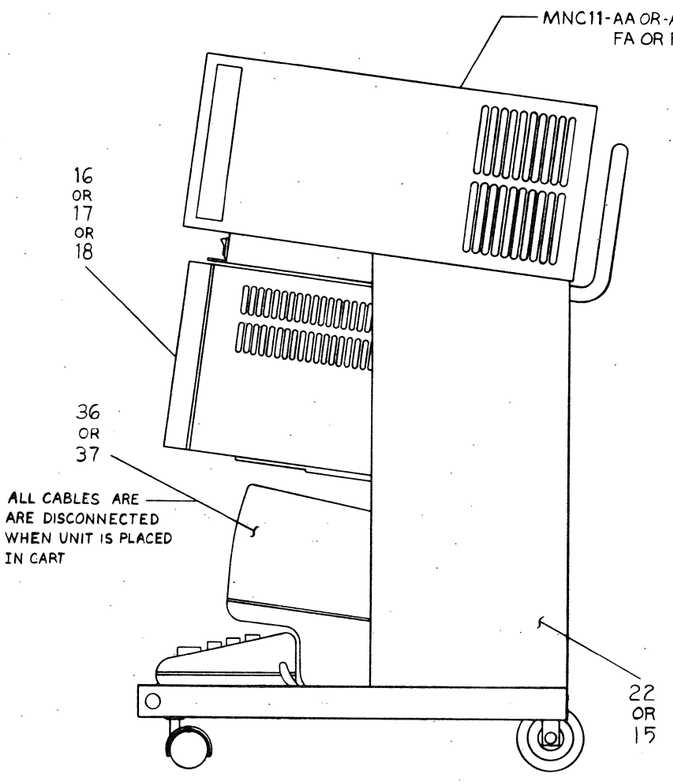


DETAIL "F"
FOR MNCII-FC,FD ONLY

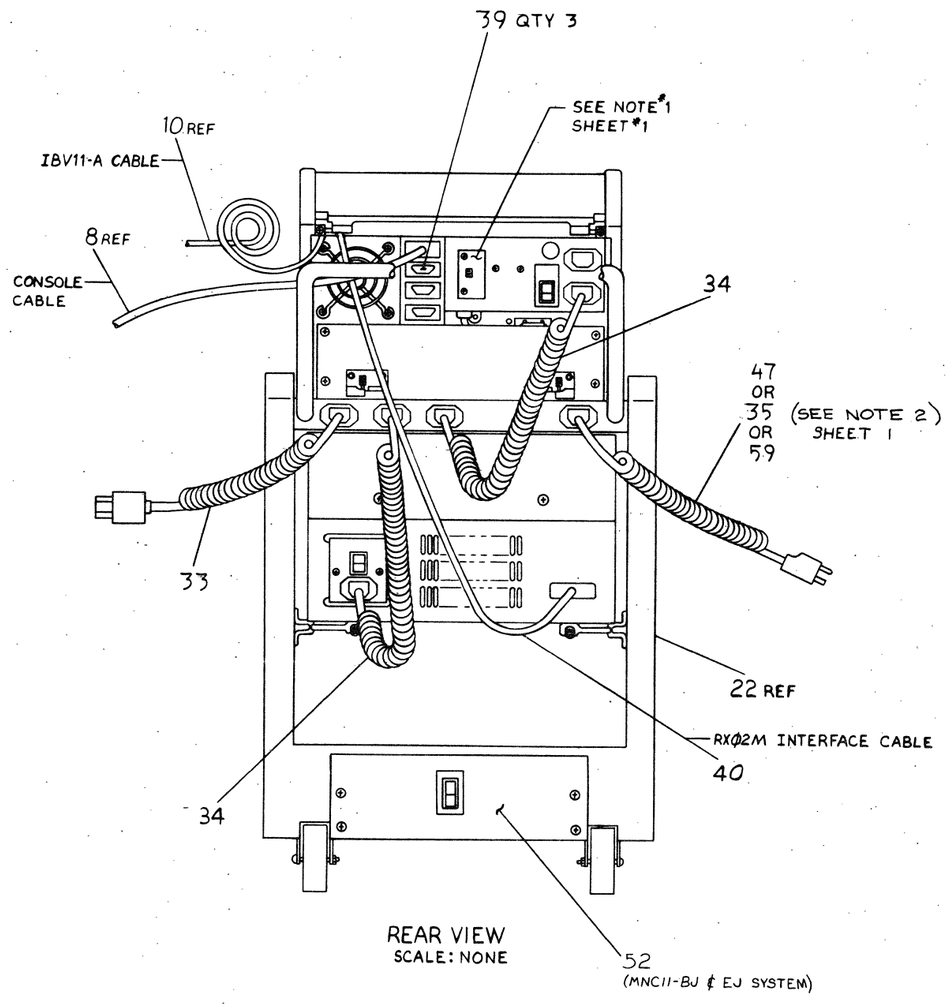
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MNCII UNIT ASSY	D	UA	MNCII-Ø-Ø	E
SCALE NONE	SHEET 3 OF 7		DIST.	

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RIGHT SIDE VIEW
SCALE: NONE

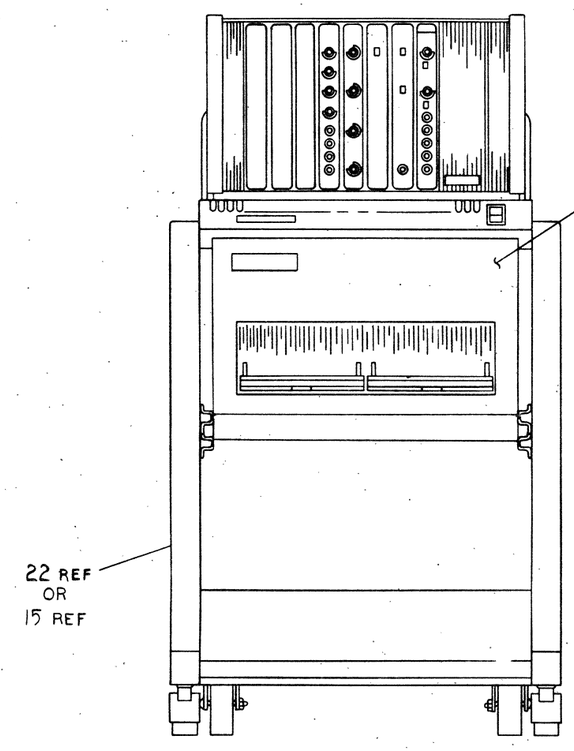


REAR VIEW
SCALE: NONE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MNCII UNIT ASSY	D	UA	MNCII-Ø-Ø	E
SCALE NONE	SHEET 4 OF 7	DIST.		

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FRONT VIEW
SCALE: NONE

JUMPER CONFIGURATION

BDV11-AA (RXØ2M SYSTEM) MNC11-AA,AB,FA,FB

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,FC,FD

A1	ON	CPU TEST
A2	ON	MEMORY TEST
A3	OFF	
A4	OFF	
A5	OFF	
A6	OFF	
A7	ON	RLØ1 OR RLØ2
A8	OFF	
B1	OFF	
B2	OFF	
B3	OFF	
B4	OFF	
B5	ON	

DLV11-J

CONSOLE (J3)

VECTOR 60

V5	X→0
V6	INSERTED
V7	INSERTED

ADDRESS 177560

C1	X→1
C2	X→1
A12	X→1
A11	X→1
A10	X→1
A9	X→0
A8	X→1
A7	REMOVED
A6	INSTALLED
A5	X→0

DLV11-J

BAUD RATE 9600
N→3

JUMPER P	X→1	NO PARITY
JUMPER E	X→0	ODD PARITY
JUMPER D	X→1	8 DATA BITS
JUMPER S	X→0	1 STOP BIT
	X→H	HALT ON BREAK

EIA RS423, RS232C

JUMPER M3	X→3
JUMPER N3	X→3

JUMPER M INSERTED

SLUO (JØ)

VECTOR 300

ADDRESS 176500 (110 BAUD 20 MA)

BAUD RATE 9600
N→0

JUMPER P	X→1	
JUMPER E	X→0	
JUMPER D	X→1	8 DATA BITS
JUMPER S	X→0	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→0	
JUMPER D	X→1	8 DATA BITS
JUMPER S	X→0	1 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→0	
JUMPER D	X→1	8 DATA BITS
JUMPER S	X→0	1 STOP BITS

JUMPER M2	X→3
JUMPER N2	X→3

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MNC11 UNIT ASSY	D	UA	MNC11-Ø-Ø	E
SCALE NONE SHEET 5 OF 7	DIST.			

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POWER & HARNESS ASSY 7015255

TB1
6 +12V. ORN
6 +12V. ORN
5 GND BLK
5 GND BLK
4 GND BLK
4 GND BLK
3 GND BLK
3 GND BLK
2 +5V RED
2 +5V RED
1 +5V RED
1 +5V RED

J7
1 BLK
2 RED
6 BLK
9 BLK
10 GRN

1 2 3 4 5 6 7 8 9 J13
RED VIO ORN BRN GRN/YEL WHT

AC IN 115V/230V 12A
AC OUT 115V/230V 6A
115V 230V VOLTAGE SELECT SWITCH
FUSE 10ASB
ON OFF CIRCUIT BREAKER
7014991

GRN/YEL
GRY/BRN
GRY/YEL
RED
WHT
WHT

J5 P5
1 1
8 8
4 4
11 11
6 6
5 5
12 12
13 13
2 2
3 3
9 9
10 10
14 14
7 7
15 15
-12V
-12V

J8 P8
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9 RED
10 10 WHT
11 11 RED
12 12 WHT

GRN/YEL C-GND

P9 P10 FAN B1
P11 P12 FAN B2

J1
1 ORN
4 BLK
2 BLK
6 RED
5 RED
3 BLU
BLK
BLK

BACKPLANE & HARNESS ASSY 7015256

J6
4 BLK
3 +5VB GRY/RED
1 +12VB GRY/ORN
2 BLK
5 5VB GRY/RED
6
7
8

J3
1 +12B
2 GND

J4
3
1 ORN
4 BLK
5 BLK
2 BLK
6 RED
RED
BLU

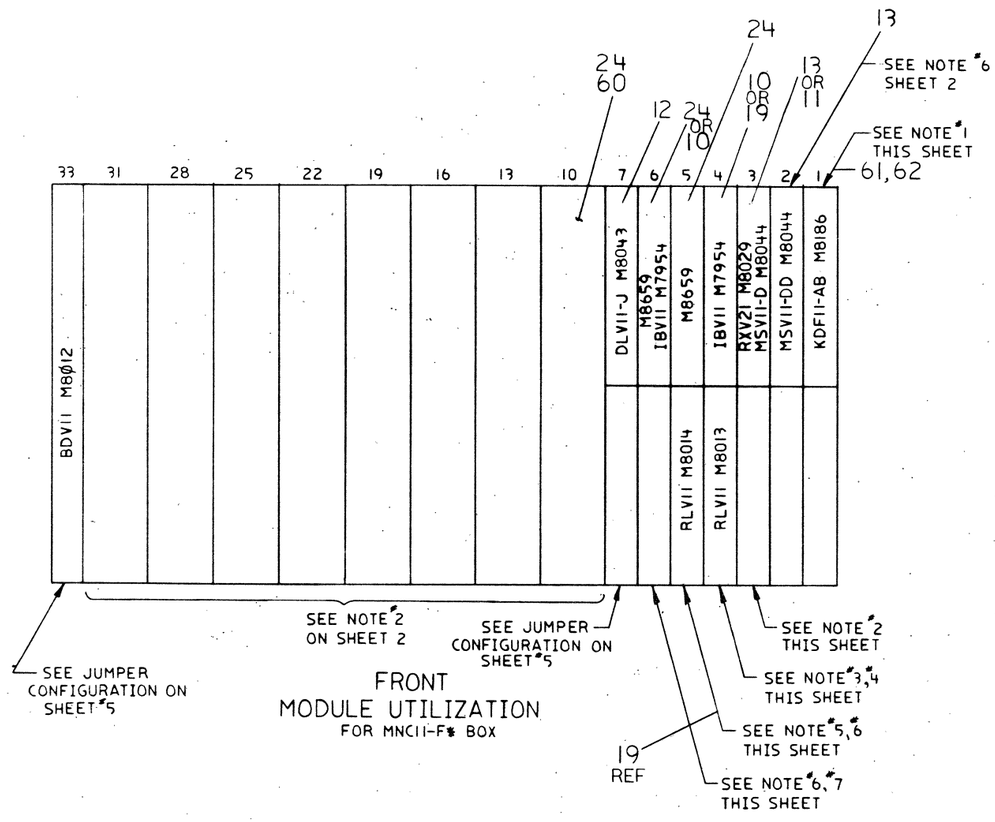
J2
1 PWR OK BRN
2 RTC RED
3
4
5
6 GND BLU
7 WHT
8 BLK
9 SPARE
10 DC OK

AC/DC POWER DIAGRAM

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MNCII UNIT ASSY	D	UA	MNCII-0-0	E
SCALE NONE SHEET 6 OF 7	DIST.			

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NOTES:

1 W1 IN CLOCK
W2 IN —
W3 OUT —
W4 OUT B EVENT ENABLE
W5 OUT DAL Ø
W6 IN DAL 1
W7 OUT DAL 2
W8-W15 IN DAL 8 - DAL 15
W16 IN TTL CLK L
W17 IN TTL CLK L
W18 OUT WAKE UP CIRCUIT

2 RXV21 IN THIS SLOT FOR MNC11-FA, FB.
MSV11-DD IN THIS SLOT FOR MNC11-FC, FD
THIS MSV11 DD WILL BECOME THE SECOND 32KW MEMORY MODULE SET

S1-1	ON	STARTING ADDRESS 200000
S1-2	OFF	
S1-3	ON	
S1-4	ON	
S1-5	ON	
1→3		28K

REMAINDER OF JUMPER THE SAME AS NOTE 6 ON SHEET 2.

3 IBV11 IN THIS SLOT FOR MNC11-FA, FB
SEE NOTE 7 ON SHEET 2 FOR ADDRESS & VECTOR.

4 RLV11 M8013 IN THIS SLOT FOR MNC11-FC, FD

5 RLV11 M8014 IN THIS SLOT FOR MNC11-FC, FD

6 M8659 IN THIS SLOT FOR MNC11-FA, FB

7 IBV11 IS OPTIONAL & PLACED IN THIS SLOT FOR MNC11-FC, FD SEE NOTE 7 ON SHEET 2 FOR ADDRESS & VECTOR.

REVISION HISTORY

DATE	ECO NUMBER	REV.

TITLE: MNC11 UNIT ASSY

DOCUMENT NUMBER

SIZE	CODE	NUMBER	REV.
D	UA	MNC11-0-0	E

SCALE NONE SHEET 1 OF 1

MR

MR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY G. Vanecek DATE 13-JUL-78 | CHECKED J. Huson DATE 14 July 78 | SECTION 1
ENG O.C Fg DATE 14-July-78 | PROD Bob Cook DATE 14 July 78 | ISSUED SECTION 1

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												NOTES:
				MNC11-AA	MNC11-BA	MNC11-BC	MNC11-BD	MNC11-CA	MNC11-CC	MNC11-CD	MNC11-DA	MNC11-AB	MNC11-BJ			REF DESIGNATION
1	E-UA-MNCBA-Ø-Ø		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-7015263-0-0	7015263-0	PANEL, SIDE ASSY (RIGHT)	1	-	-	-	-	-	-	1	1	—			
5	D-AD-7015263-0-0	7015263-1	PANEL, SIDE ASSY (LEFT)	1	-	-	-	-	-	-	1	1	—			
6	D-AD-7015836-0-0	7015836-0	BOX, CONNECTOR ASSY	1	-	-	-	-	-	-	1	1	—			
7	E-AD-7016817-0-0	7016817-0	COVER, TOP ASSY	1	-	-	-	-	-	-	1	1	—			
8		1700211	CABLE, CONSOLE INTERFACE	1	-	-	-	—	—	—	—	1	—			
9	D-UA-BDV11-A-Ø		UNIT ASSY (BDV11) (M8Ø12)	1	-	-	-	-	-	-	1	1	—			
10	A-PL-IBV11-A-Ø		LSI11/IB INTERFACE (M7954)	1	-	-	-	-	-	-	-	1	—			
11	RXV21		RXV21 M8Ø29	1	-	-	-	-	-	-	-	1	—			
12	A-PL-DLV11-J-Ø		4 SERIAL LINE PER CTLR (M8Ø43)	1	-	-	-	-	-	-	1	1	—			
13	A-PL-MSV11-D-Ø		32K-16 BIT MOS MEMORY SYSTEM(M8Ø44)	1	-	-	-	-	-	-	1	1	—			
14	A-PL-KD11-NA		LSI11 CPU WITH EIS, FIS, NO MEMORY	1	-	-	-	-	-	-	1	1	—			
15	D-UA-MNC11-AA		BASIC MINC (115V 6Ø HZ)	X	1	1	-	1	1	-	-	-	—			
16	E-UA-RXØ2M-MA		RXØ2M UNIT ASSY (115V 6ØHZ)	-	1	-	-	1	-	-	-	-	—			
17	E-UA-RXØ2M-MC		RXØ2M UNIT ASSY (115V 5ØHZ)	-	-	1	-	-	1	—	-	-	—			
18	E-UA-RXØ2M-MD		RXØ2M UNIT ASSY (23ØV 5ØHZ)	-	-	-	1	-	-	1	-	-	—			
19	E-UA-RLV11-Ø-Ø		DISK CONTROLLER ASSY (RLV11)	-	-	-	-	-	-	-	1	-	—			
20	D-UA-MNCKW-Ø-Ø		MNCKW UNIT ASSY	-	-	-	-	1	1	1	-	-	—			
21	D-UA-MNCAD-Ø-Ø		MNCAD UNIT ASSY	-	-	-	-	1	1	1	-	-	—			

E.C.O. NO. MNC11-MR001 | MNC11-MR002 | MNC11-MR003

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TITLE: MNC11 UNIT ASSY
ASSY NO.: D-UA-MNC11-Ø-Ø
SIZE: B | CODE: PL | NUMBER: MNC11-Ø-Ø | REV.: C
SHEET 1 OF 3
INSERTION PARTS LIST DATA BASE REV

DRB 125

MR

MR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY R. Davies DATE 13-JUL-78 | CHECKED J. Huson DATE 14 July 78 | SECTION 1
ENG A C F B DATE 19-July 78 | PROD [illegible] DATE [illegible] | ISSUED SECTION 1

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												NOTES:
				MNC11-AA	MNC11-BA	MNC11-BC	MNC11-BD	MNC11-CA	MNC11-CC	MNC11-CD	MNC11-DA	MNC11-AB	MNC11-BJ			REF DESIGNATION
22	A-PL-MNCCT-Ø-Ø	MNCCT-AA	CART, MINC 120 V	-	1	1	—	1	1	—	-	-	—			
~~23~~		~~9009672-00~~	~~SPACER PLASTIC .175 ID x 3/8 OD x 1/4 LG~~	~~4~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~4~~	~~4~~	~~-~~			
24	D-UA-M8659-Ø-Ø		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	4	-	-	-	-	-	-	4	4	—			
30		9006039-03	SCR, PHIL TRUSS HD8-32x.50	4	-	-	-	-	-	-	4	4	—			
31		9006633-00	WASHER, INT. TOOTH LOCK #6	7	-	-	-	-	-	-	7	7	—			
32		9006634-00	WASHER, INT. TOOTH LOCK #8	8	-	-	-	-	-	-	8	8	—			
~~33~~	~~D-IA-BC21C-0-0~~	~~BC21C-10~~	~~EIA/PRINTER CABLE~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~1~~	~~1~~	~~-~~	~~-~~	~~-~~			
34		1700150-01	LINE CORD IEC TO IEC	-	2	2	2	2	2	2	-	-	—			
35		1700156-0	LINE CORD 115V TO IEC	-	1	1	-	1	1	—	-	-	—			
36	E-UA-VT1Ø5-MA-Ø		VIDEO TERMINAL 115V/60HZ	-	1	1	-	1	1	-	-	-	—			
37	E-UA-VT1Ø5-MB-Ø		VIDEO TERMINAL 230V/50HZ	-	-	-	1	-	-	1	-	-	—			
38	D-UA-MNCBL-Ø-Ø		MNCBL UNIT ASSY	-	1	1	1	1	1	1	-	-	—			
*39	B-IA-7015911-0-0	7015911-0	CONNECTOR, TEST	REF	-	-	-	-	-	-	REF	REF	—			* THIS PART IS FOR TEST ONLY
40	D-IA-7015574-0-0	7015574-0	CABLE, RXØ2M INTERFACE	1	-	-	-	-	-	-	1	1	—			
41	D-UA-MNC11-AB		BASIC (23ØV 5ØHZ)	-	-	-	1	-	-	1	-	-	—			
42	D-UA-MNCAM-Ø-Ø		MNCAM UNIT ASSY	-	-	-	-	1	1	1	-	-	—			

E.C.O. NO.

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TITLE MNC11 UNIT ASSY

ASSY NO. D-UA-MNC11-Ø-Ø | SIZE B | CODE PL | NUMBER MNC11-Ø-Ø | REV. C

INSERTION PARTS LIST DATA BASE REV

DRB 125

MR

MA

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY B. Vanke | CHECKED J. Huson | SECTION 1
DATE 13-JUL-78 | DATE 14 July 78
ENG A C Ely | PROD [illegible] | ISSUED SECTION 1
DATE 19-JUL-78 | DATE [illegible]

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												NOTES: / REF DESIGNATION
				MNC11-AA	MNC11-BA	MNC11-BC	MNC11-BD	MNC11-CA	MNC11-CC	MNC11-CD	MNC11-DA	MNC11-AB	MNC11-BJ			
43	D-UA-MNCAA-Ø-Ø		MNCAA UNIT ASST	-	-	-	-	1	1	1	-	-	-			
44	D-UA-MNCDO-Ø-Ø		MNCDO UNIT ASSY	-	-	-	-	1	1	1	-	-	-			
45	D-UA-MNCDI-Ø-Ø		MNCDI UNIT ASSY	-	-	-	-	1	1	1	-	-	-			
46	D-UA-MNCAG-Ø-Ø		MNCAG UNIT ASSY	-	-	-	-	1	1	1	-	-	-			
47		7423844-01	PANEL FRONT BREATHER RLØI/MNC	—	—	—	—	—	—	—	1	—	—			
~~48~~	~~E-UA-LA35-Ø-Ø~~		~~LA35-HH UNIT ASSY~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~1~~	~~—~~	~~—~~	~~—~~	~~—~~			
~~49~~	~~E-UA-LA35-Ø-Ø~~		~~LA35-HS UNIT ASSY~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~1~~	~~—~~	~~—~~	~~—~~			
50		9009257	RING RETAINING	4	-	-	-	-	-	-	4	4	-			
51	D-UA-MNC11-Ø-Ø	MNC11-BD	MINC SYSTEM 23ØV 5ØHZ	-	-	-	-	-	-	-	-	-	1			
52	D-UA-MNCIT-Ø-Ø	MNCIT-AB	ISOLATION TRANSFORMER ASSY	-	-	-	-	-	-	-	-	-	1			
53		7423844-00	PANEL FRONT BREATHER (MNC11)	1	-	-	-	-	-	-	-	1	-			
54		3616098	CAUTION DECAL	1	-	-	-	-	-	-	1	1	-			
55	A-SP-3700358		MODULE PACKAGING INSTRUCTIONS	-	REF	REF	REF	REF	REF	REF	-	-	REF			
56	A-SP-3700359		MNC11-A PACKAGING INSTRUCTIONS	1	REF	REF	REF	REF	REF	REF	1	1	REF			
57	A-SP-3700324		VT1Ø5 PACKAGING INSTRUCTIONS	-	REF	REF	REF	REF	REF	REF	-	-	REF			
58	A-SP-3700312		RXØ2M PACKAGING INSTRUCTIONS	-	REF	REF	REF	REF	REF	REF	-	-	REF			
59	A-SP-3700366		MNCCT PACKAGING INSTRUCTIONS	-	REF	REF	REF	REF	REF	REF	-	-	REF			
60	A-SP-3700367		MINC-11 SYSTEM PACKAGING INS.	-	1	1	1	1	1	1	-	-	1			
61		1700090-02	CORD, POWER WITH TERMINATORS	—	—	—	—	—	—	—	—	1	—			
62		1700150-00	LINE CORD IEC TO IEC	—	1	1	1	1	1	1	—	—	—			
63	D-IA-7016462-00	7016462-06	CABLE REWORK RLØI/MNC	—	—	—	—	—	—	—	1	—	—			
64	A-PL-MNCCT-0-0	MNCCT-AB	CART MINC 240 V	—	—	—	1	—	—	1	—	—	—			

E.C.O. NO.

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TITLE: MNC11 UNIT ASSY
ASSY NO.: D-UA-MNC11-Ø-Ø
SIZE: B | CODE: PL | NUMBER: MNC11-Ø-Ø | REV.: C
SHEET 3 OF 3
INSERTION PARTS LIST DATA BASE REV

DRB 125

MR

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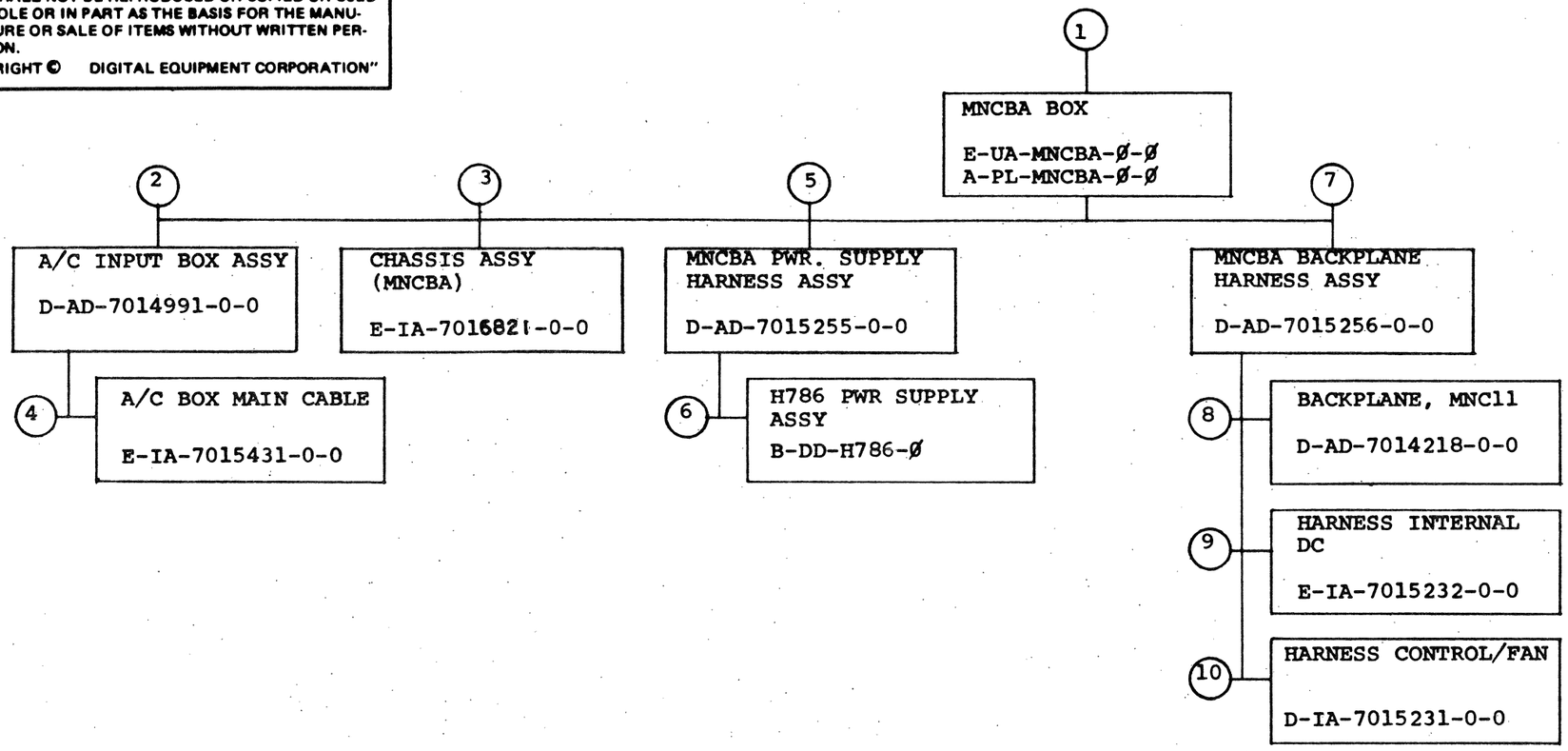
DRAWING DIRECTORY

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UNIT VARIATIONS

VAR	TITLE
MNCBA	MNCBA BOX

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TITLE		SIZE	CODE	NUMBER	REV
MNCBA BOX	SHEET 2 OF 14	B	DD	MNCBA-Ø	A

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1			
	E-UA-MNCBA-Ø-Ø	MNCBA BOX	E/M
	A-PL-MNCBA-Ø-Ø	MNCBA BOX	E/M
	D-IA-7423155-0-0	COVER, BOTTOM	M
	~~C-IA-7419895-0-0~~	~~PANEL, FRONT BREATHER~~	~~M~~
	~~C-PS-4830036-0-0~~	~~EXTRUSION, FRONT BREATHER PANEL~~	~~M~~
	D-MD-7423156-0-0	FILLER, POWER SUPPLY	M
	D-MD-7419877-0-0	SHELF, STRAIN RELIEF	M
	D-MD-7423845-0-0	PANEL, FRONT CORNER	M
	~~C-PS-4830037-0-0~~	~~EXTRUSION, FRONT PANEL CORNER~~	~~M~~
2	D-AD-7014991-0-0	A/C INPUT BOX ASSY	E/M
	D-IA-7419882-0-0	BOX, A/C INPUT	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
3	E-IA-7016821-0-0	CHASSIS ASSY (MNCBA)	M
	E-IA-7422787-0-0	SIDE PANEL, R.H	M
	E-MD-7422788-0-0	SIDE PANEL, L.H	M
	B-MD-7422789-0-0	CARD GUIDE SUPPORT, REAR	M
	D-MD-7422790-0-0	LOGIC CARDGUIDE SUPPORT, REAR	M
	D-IA-7422790-01	LOGIC CARDGUIDE SUPPORT, FRONT	M
	D-IA-7422791-0-0	PARTITION, LOGIC	M
	D-IA-7422792-0-0	SUPPORT, FRONT PANEL	M
	D-MD-7422793-0-0	CHASSIS, POWER SUPPLY	M
	E-MD-7423150-0-0	PIVOT POWER SUPPLY	M
	B-MD-7423151-0-0	SINGLE CARDGUIDE SUPPORT, FRONT	M
	D-IA-7423152-0-0	SUPPORT BKT, POWER SUPPLY	

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
4	E-IA-7015431-0-0	A/C BOX - MAIN CABLE	E/M
	A-DC-7409873-2-0	DECALS, POWER CONNECTOR	M
5	D-AD-7015255-0-0	MNCBA PWR. SUPPLY HARNESS ASSY	E/M
	D-IA-7015214-0-0	HARNESS POWER SUPPLY	E/M
6	B-DD-H786-Ø	H786 POWER SUPPLY ASSY	E/M
7	D-AD-7015256-0-0	MNCBA BACKPLANE HARNESS ASSY	E/M
8	D-AD-7014218-0-0	BACKPLANE	E/M
	5012292	ETCH BOARD	E/M
	D-MD-7418990-0-0	MOUNTING BAR	M
	B-MD-7417041-0-0	CONN BLOCK 288 PIN	M
	B-MD-7417042-0-0	CONN BLOCK 72 PIN	M
	A-SP-7014218-0-1	ASSY SPEC, BACKPLANE	REF
	D-DA-9505110-0-0	FIXTURE, MINC	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

DRB 108A

digital

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MNCBA BOX	3 OF 4	B	DD	MNCBA-Ø	A

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
	A-WT-7014218-0-0	AWT REVISION STATUS	REF
	3700040	PACKAGING INSTRUCTION	REF
9	D-IA-7015232-0-0	HARNESS INTERNAL D.C.	
	A-DC-7409872-0-0	DECALS PWR HARNESS	
	A-DC-7409873-0-0	DECALS PWR HARNESS	
	B-IA-7419885-0-0	BRT. BATT. BACKUP CONN.	
10	D-IA-7015231-0-0	HARNESS CONTROL/FAN	
	A-DC-7409872-0-0	DECAL PWR HARNESS	

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE

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

digital

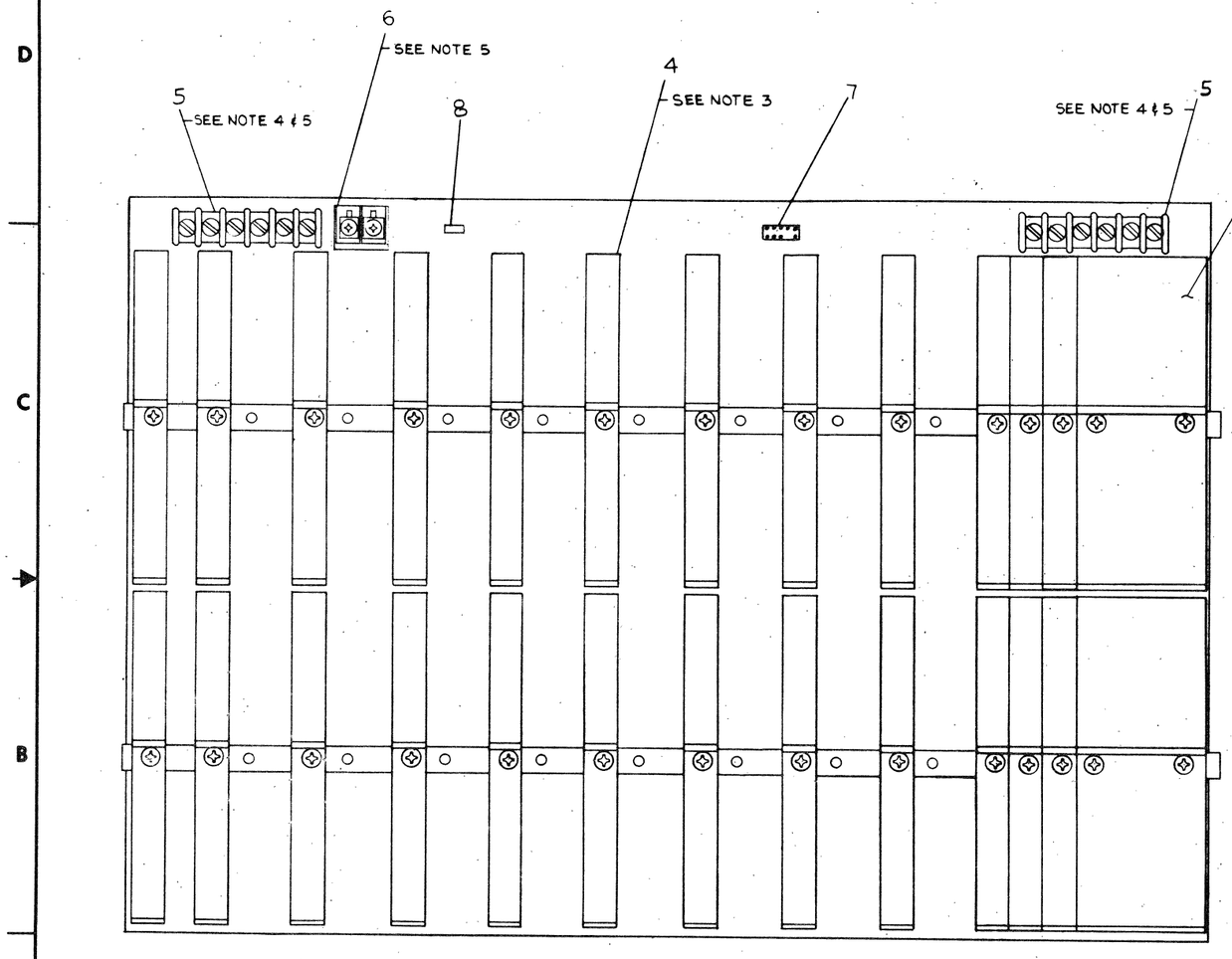
TITLE	SHEET 4 OF 4	SIZE	CODE	NUMBER	REV
MNCBA BOX		B	DD	MNCBA-Ø	A

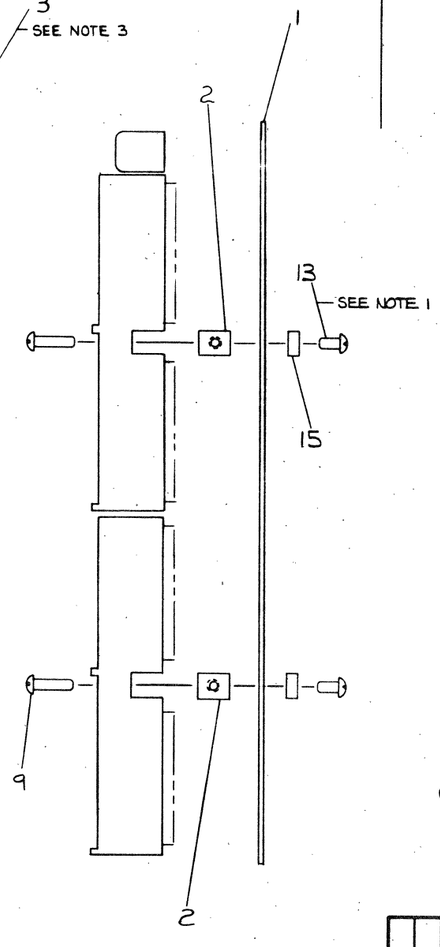
DRB 108A

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





CAUTION: OFF SHEET PARTS LIST EXISTS.
SEE K-PL-7014218-0-DBP.

REVISIONS				
CHK	CHANGE NO.	REV.		
JH	7014218-MR004	A		
J. Howard 13 JUN 77				
ARTHUR C. FILZ				
A C Filz 13 JUN 77				
JH	7014218-MR002	B		
Joe Donahue 17 JUNE 77				
A.C. FILZ				
A C Filz 20 JUN 77				

DESCRIPTION	DWG./PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
ANGLES ±0° 30' / CLASS OF ACCURACY / NOMINAL DIMENSION RANGE (IN)		
SURFACE QUALITY IN MICROINCHES / CHECK ORIT		
MEDIUM		
PREFERRED		
QUANTITY & VARIATION		
THIRD ANGLE PROJECTION — REMOVE BURRS AND BREAK SHARP CORNERS	DRN. M. Russell 14 APR 77	FIRST USED ON MNC11
	CHK'D J. Howard 13 May 77	
	ENG. A C Filz 20 May 77	TITLE BACKPLANE, MNC11
	PROJ. ENG. [illegible] 24 May 77	
	PROD. A C Filz 24 May 77	
DO NOT SCALE DWG	NEXT HIGHER ASSY.	
MATERIAL SEE PARTS LIST	D-AD-7015256-0-0	SIZE D / CODE AD / NUMBER 7014218-0-0 / REV. B
FINISH NONE	SCALE 1/1	
	SHEET 1 OF 1	DIST.

D AD 7014218-0-0 B

A

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-MNCAD-0-1	MNCAD FIELD MAINTENANCE PRINT SET
	TABLE OF CONTENTS
B-DD-MNCAD-0	MNCAD UNIT ASSY
D-UA-A0113-0-0	A/D FOR MINC
K-PL-A0113-0-0	A/D FOR MINC
D-CS-A0113-0-1	MNCAD
A-PL-MNCAD-0-SH	SHIP LIST MNCAD
D-UA-MNCAD-0-0	MNCAD UNIT ASSY
A-SP-MNCAD-0-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MNCAD

MNCAD

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP00592

REV. NUMBER MNCAD-0-1

REVISIONS		
REV		
CHG. NO.		
DATE		

USED ON OPTION/MODEL
MNCAD

SHEET 1 OF 1

DRWN.	R Brooks	DATE 28-FEB-78
CH'CK'D	R Brooks	DATE 1-APR-78
PROJ. ENG.	C C Fitz	DATE 23-MAY-78
FIELD SERV.	C L Williams	DATE 25 May 78

digital

TITLE: MNCAD UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MNCAD-0-1	

DIST.

DRD 124

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DRAWING DIRECTORY

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UNIT VARIATIONS

VAR	TITLE
MNCAD	MNCAD UNIT ASSY

REVISIONS		
REV.	A	B
CHANGE NO.	MNCAD-1	MNCAD-MR2
CHK		

USED ON OPTION/MODEL
MNCAD

SHEET 1 OF 3

DRWN.	DATE	29 Dec 77
CHK'D.	DATE	13 Feb 78
PROJ. ENG.	DATE	3/2/78
PROD.	DATE	3/2/78

TITLE: MNCAD UNIT ASSY

digital

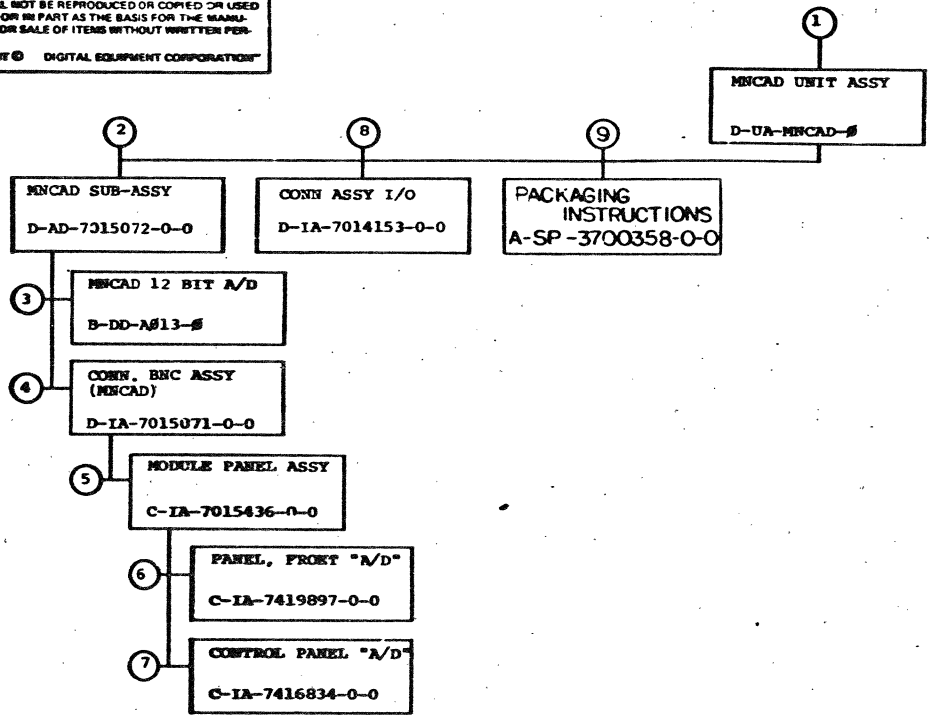
SIZE	CODE	NUMBER	REV
B	DD	MNCAD-0	B

DIST.

DRB 166A

MR

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TITLE	SHEET	SIZE	CODE	NUMBER	REV
MRCAD UNIT ASSY	2 OF 3	B	DD	MRCAD-B	B

DRB 167

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP00592	FIELD MAINTENANCE PRINT SET	-
	B-IC-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
	A-SP-MNCAD-0-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/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
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
4	D-IA-7015071-0-0	CONN. ASSY (MNCAD)	E/M
5	C-IA-7015436-0-0	MODULE PANEL ASSY	M
6	C-IA-7419897-0-0	PANEL, FRONT "A/D"	M
	C-PS-4830033-0-0	EXTRUSION, FRONT PANEL "A/D"	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
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
9	A-SP-3700358-0-0	PACKAGING INSTRUCTIONS	M

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

BMS 1004

digital

TITLE: MNCAD UNIT ASSY

SHEET 3 OF 3 | SIZE B | CODE DD | NUMBER MNCAD-0 | REV B

MR

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123 SIDE 2)

119 (QTY 4)

117

118

0-15

0-18 0-19 0-22 0-12 1-3 0-17 0-16

COMPONENT SIDE VIEW 123 SIDE 2

0-14

0-13

0-21

0-20

121

120

1-4

1-1

1-5

1-2
(ITEM # 123)

S1 S2 S3 S4

R100 R99 R98 R97

TP13 TP14 TP9 TP7 TP16 TP4 TP8 TP6 TP10 TP3

SPARE

E64 E63 E62 E67 E66 E65 E57 E56 E55 E54 E53 E52 E51 E50 E49 E48 E47 E46 E45 E44 E43 E42 E41 E40 E39 E38 E37 E36 E35 E34 E33 E32 E31 E30 E29 E28 E27 E26 E25 E24 E23 E22 E21 E20 E19 E18 E17 E16 E15 E14 E13 E12 E11 E10 E9 E8 E7 E6 E5 E4 E3 E2 E1

C93 C92 C91 C90 C89 C88 C101 C87 C86 C85 C84 C96 C70 C74 C73 C75

Q5 N Q2 N Q3 N Q1 N Q4 N

L4 L3 L2 L1

R57 R56 R55 R54 R53 R52 R51

D15 D14 D13 D12 D11 D10 D9 D8 D7

Q15 Q14 Q12 Q10 Q8 Q13 Q11 Q7 Q9 Q6

D28 D27 D26 D25 D24 D23 D22

D1 D2 D3 D4 D5 D6 D11 D10

R84 R83 R82 R81 R80 R79 R78 R77 R76 R75 R74 R73 R72 R71 R70 R69 R68 R67 R66 R65 R64 R63 R62 R61 R60 R59 R58

R104 R105 R106 R107 R108 R109 R110 R111 R112 R113 R114 R115 R116

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LAYER 1

0-5 0-7 0-4 0-3 0-2 0-1 0-23 0-6

SIDE 1

W2 W1

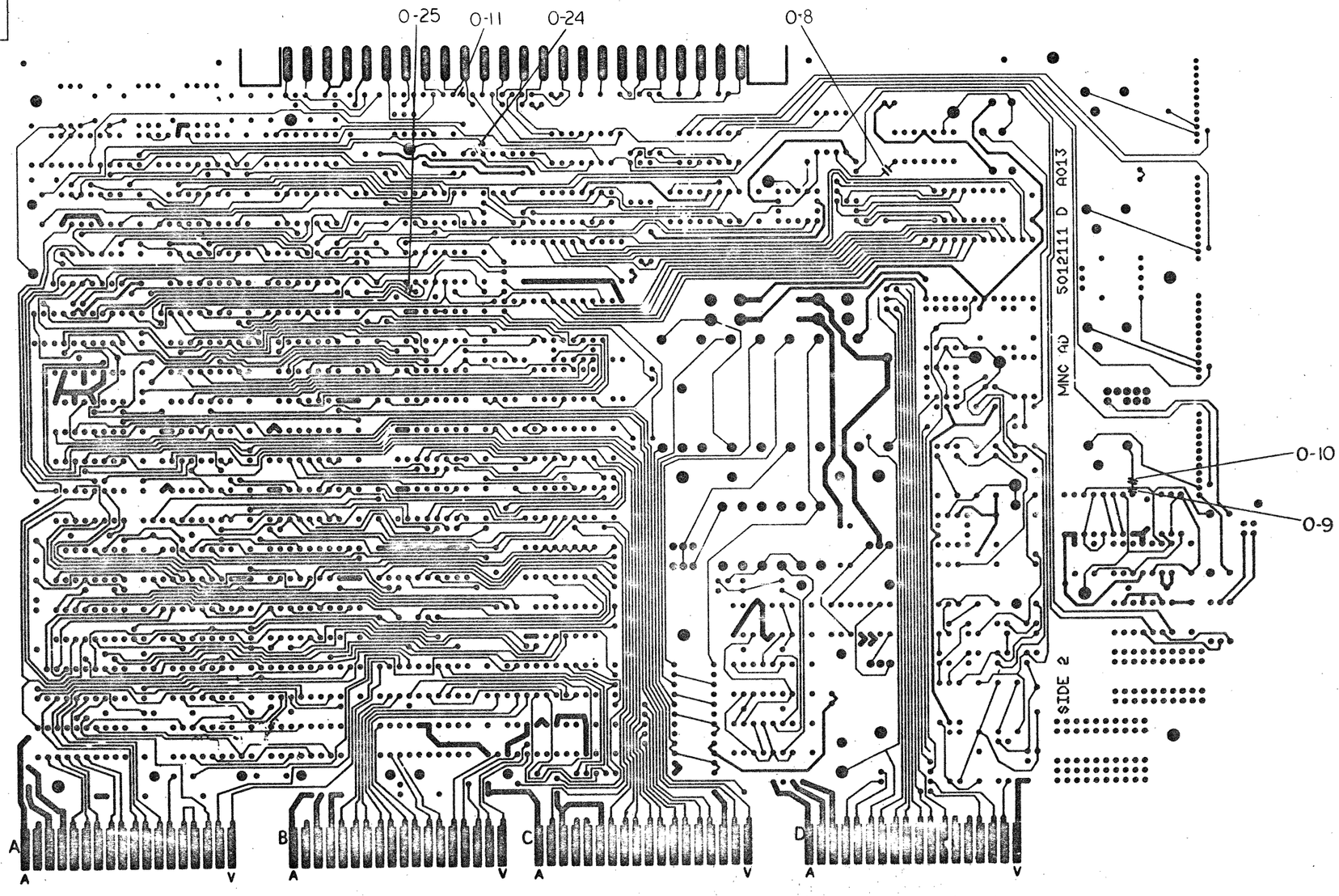
REVISIONS

[illegible]	[illegible]	PTV

TITLE	SIZE	CODE	NUMBER	REV.
A/D FOR MINC	D	UA	AØ13 - Ø - Ø	D
SHEET 2/1 SHEET 2 OF 4	DIST.			

DUAØ13-Ø-Ø

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REVISIONS		
CHK	CHANGE NO	REV

TITLE: A-D FOR MINC			SIZE: D	CODE: UA
SCALE: 2/1	SHEET 3 OF 4		DIST.	NUMBER: AØ13-Ø-Ø
				REV: D

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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 E41(6)
0-6 AT TOP OF R88
0-7 AT TOP OF R34
ETCH CUTS, SIDE #2 (AS SHOWN)
0-8 AT E64(7)
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 E41(6)
WIRE ADDS, SIDE #1 (AS SHOWN)
0-12 FROM E42(9) TO PTH TO THE RIGHT OF R9
0-13 FROM E39(6) TO PTH BELOW AND TO THE RIGHT OF R9
0-14 FROM TOP OF D1 TO PTH AT C11
0-15 FROM E59(4) TO E59(9)
0-16 LIFT PIN E22(15) AND ADD WIRE FROM E22(15) TO BOTTOM OF R22
0-17 FROM E22(15) TO BOTTOM OF C80
0-18 FROM E52(2) TO TOP OF R34
0-19 FROM BOTTOM OF R34 TO J1(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 J1(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 D CODE UA NUMBER A013-0-0 REV. D
SCALE SHEET 4 OF 4 DIST.

MR

AUTOMATED BY PRTLST.1D(1)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D=MD=5012111=0=0	5012111=00	DRILL & ETCH BOARD	1	
2	2		1010274=01	.22 MFD 50V +80=20% Z5U CER	86	C1=C22,C24=C32,C34,C35,C37,C38,
						CONT C40=C44,C47,C48,C53=C56,C60,
						CONT C65=C69,C72,C94,C98,C100
3	3		1000042=00	1000.0 MMF 100V 5%200PPM MICA	2	C36,C80
4	4		1000027=00	820.0 MMF 100V 5%200PPM MICA	1	C63
5	5		1004812=00	15 MFD 20V 10% S.TANT	5	C71,C73,C74,C85,C93
6	6		1001776=00	1 MFD 35V 10% S.TANT	1	C75
7	7		1000026=00	560.0 MMF 100V 5%200PPM MICA	1	C76
8	8		1000021=00	220.0 MMF 100V 5%200PPM MICA	3	C77,C78,C79
9	9		1000020=00	180.0 MMF 100V 5%200PPM MICA	1	C81
10	10		1000022=00	270.0 MMF 100V 5%200PPM MICA	1	C82
11	11		1000024=00	470.0 MMF 100V 5%200PPM MICA	1	C83
12	12		1005306=00	6.8MFD 35V 10% S.TANT	1	C84
13	13		1005335=00	39 MFD 20V 10% S.TANT	4	C86,C87,C88,C89
14	14		1002433=00	22 MFD 35V 20% S.TANT	4	C90,C91,C92,C101
15	15		1005820=00	22.0 MMF 100V 5%200PPM MICA	1	C95
16	16		1009939=01	.0022 MFD 100V 10% POLYSTY	1	C96
17	17		1000016=00	100.0 MMF 100V 5%200PPM MICA	1	C97
18	18		1001610=00	.01 MFD 50V +80=20% Z5U CER	1	C99
19	19		1010031=03	.22 MFD 50V 10% M.POLYCARB	1	C70
20	20		1105275=00	D 672 TR= 15NS PIV= 60V SI	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 CL84MA 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			BASIC PART NO: 9A013
ENG	ECO NUMBER	REV	SECTION A OF A
---	INIT	C	SECTION,VARIATION INDEX
MN	MR001	D	[A] 00
ACF	A013=MR003 ACF	E	[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: E,WILSON	DATE: 12=DEC=77		D I G I T A L
CHK'D: R,W,CAUNTER	DATE: 13=DEC=77	TITLE	PARTS LIST
		A/D FOR MINC	
DES.ENG: G,SIROIS	DATE: 3=FEB=78		
RESP.ENG.: A,FILZ	DATE: 3=FEB=78	DOCUMENT NUMBER	
		SIZE / CODE / NUMBER / REV	
MFG.ENG.: R,REBELLO	DATE: 3=FEB=78	K / PL / A013=0=DRP / E	
ASSEMBLY NUMBER: D=UA=A013=0=0	TOP DOCUMENT NUMBER: B=DD=A013=0=0	FILE NAME: Z0545E.PLS	EDIT #: 17

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MR

ME

AUTOMATED BY PRTLST.1D(1)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
29	29		1214352-00	SW,ROT 1P 4A 3POS	4	S1,S2,S3,S4
30	30		1300295-00	330.0 .25 W 5.0 % CC	2	R1,R4
31	31		1301424-00	680.0 .25 W 5.0 % CC	2	R2,R6
32	32		1300365-00	1.0 K .25 W 5.0 % CC	34	R3,R5,R7-R14,R16,R20,R23,R26,
						CONT R27,R28,R33,R107,R102-R106,R29,
						CONT R30,R50-R53,R62,R66,R82,R85,R86
33	33		1302386-00	2.0 K .25 W 5.0 % CC	1	R15
34	34		1304870-00	6.81 K .25 W 1.0 % RN55D-F10	2	R17,R18
35	35		1300271-00	220.0 .25 W 5.0 % CC	1	R19
36	36		1304854-00	5.11 K .25 W 1.0 % RN55D-F10	1	R21
37	37		1309416-00	31.60 K .25 W 1.0 % RN55D-F10	1	R22
38	38		1300479-00	10.0 K .25 W 5.0 % CC	6	R24,R25,R61,R81,R87,R96
39	39		1310881-00	1.0 K .25 W 1.0 % FUSE	16	R34-R49
40	40		1310881-02	47.0 .25 W 1.0 % FUSE	2	R31,R32
41	41		1300250-00	150.0 .25 W 5.0 % CC	1	R54
42	42		1300315-00	470.0 .50 W 5.0 % CC	2	R55,R57
43	43		1301781-00	82.0 .50 W 5.0 % CC	1	R56
44	44		1309422-00	5.10 .25 W 5.0 % CC	2	R58,R59
45	45		1301425-00	300.0 .25 W 5.0 % CC	1	R60
46	46		1300496-00	15.0 K .25 W 5.0 % CC	1	R64
47	47		1300229-00	100.0 .25 W 5.0 % CC	2	R63,R65
48	48		1303178-00	620.0 .25 W 5.0 % CC	1	R67
49	49		1300426-00	2.70 K .25 W 5.0 % CC	2	R68,R69
50	50		1300432-00	3.0 K .25 W 5.0 % CC	2	R70,R108
51	51		1302685-00	909.0 .25 W 1.0 % RN55D-F10	3	R71,R88,R93
52	52		1305114-00	3.48 K .25 W 1.0 % RN55D-F10	1	R72
53	53		1302955-00	750.0 .25 W 1.0 % RN55D-F10	1	R73
54	54		1305516-00	128.0 K .25 W .10% RN55E-B 2	1	R74
55	55		1302379-00	75.0 .25 W 5.0 % CC	2	R75,R76
56	56		1302859-00	5.76 K .25 W 1.0 % RN55D-F10	1	R77
57	57		1302899-00	30.10 .25 W 1.0 % RN55D-F10	1	R78
58	58		1303313-00	12.10 K .25 W 1.0 % RN55D-F10	1	R79
59	59		1303038-00	133.0 .25 W 1.0 % RN55D-F10	1	R80
60	60		1309143-13	50.0 K .75 W10.0 % POT	1	R83
61	61		1309143-05	200.0 .75 W10.0 % POT	1	R84
62	62		1302396-00	150.0 K .25 W 5.0 % CC	1	R90
63	63		1300488-00	12.0 K .25 W 5.0 % CC	2	R94,R95
64	64		1314457-00	5.0 K 1.0 W 5.0 % POT	4	R97,R98,R99,R100
65	65		1300005-01	R NETWORK 13-1K 5.0 % 14PIN	2	E41,E48
66	66		1315012-00	300.0 K .25 W 5.0 % CC	1	R89
67	67		1303312-00	10.0 K .25 W 1.0 % RN55D-F10	1	R92
68	68		1309418-00	24.30 K .25 W 1.0 % RN55D-F10	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	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 360MW SIN CHNNL	1	Q7
74	74		1509142-00	DEC4250 PNP 200MW SI 40250	4	Q8,Q12,Q16,Q17

D	I	G	I	T	A	L	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
							A/D FOR MINC	K	PL	A013-0-DBP	E

SECTION A OF A

MR

MR

AUTOMATED BY PRTLST.1D(1)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
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 #RFCS22	1	L3
78	78		1610662-00	100.0 UH 10% 165MA #DD1 00	1	L4
79	79		9009122-00	FUSE,SUB-MINI 1/16A,125V GLASS	2	F1,F2
80	80		1912729-00	DC 004 PROTOCOL,REG, SELECT	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	7474 FF-D DUAL,EDGE TRIGG	3	E4,E20,E30
84	84		1910652-00	74174 FF-D HEX	2	E5,E25
85	85		1911527-00	8097 BUFFER GATE-HEX 2INP	3	E6,E7,E14
86	86		1910155-00	DEC 7408 AND GATE,POS,QUAD 2I	3	E9,E32,E45
87	87		1909686-00	7404 INVERTER GATE-HEX 1I	5	E10,E12,E18,E29,E31
88	88		1912858-00	LS221 ONE SHOT-DUAL,SCHMIT	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,O	1	E19
92	92		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	2	E22,E33
93	93		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UN	1	E23
94	94		1909934-00	8266 MUS 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-O-I XPNDBLE GATE-D	1	E39
97	97		1909705-00	DEC 8881 NAND GATE-QUAD 2IN O	1	E40
98	98		1905575-00	7400 NAND GATE-QUAD 2IN	1	E42
99	99		1910741-00	7406 INVERTER GATE-HEX 1I	3	E47,E53,E66
100	100		1909490-00	DEC 8281 COUNTER,ASYNCH UP,BI	2	E49,E55
101	101		1911628-00	AM 2504 SUCCESSIVE APPOX REG	1	E50
102	102		1911598-00	501C MUX,8CHNL,ANALOG	2	E51,E56
103	103		1910010-00	DEC 2501 16 DIODE ARRAY,CORE	2	E52,E57
104	104		1905576-00	7410 NAND GATE-TRIPLE 3IN	1	E54
105	105		1913218-00	325 VOLT REG FIX +/-15V	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	310D OP AMP UNITY GAIN VO	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 PR	1	E64
112	112		1912107-00	324 OP AMP,QUAD	1	E67
113	113		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X	16	TP1-TP160031010
114	114		9009185-00	*** THIS ITEM IS NOT USED ***		
115	115		1114494-00	LED 1.0MCD@20MA	2	D37,D38
116	116		2304081-00	B1-01	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,ROLL FLANGE .1210DX .219	4	
120	120		9009783-00	SCREW, SLOTTED ROUND HD, 2-56 X	1	
121	121		1215265-00	HOLDER,LED	1	
122	122	A-SP-7665169-0-0		MULTILAYER REWORK STANDARD	REF	

D	I	G	I	T	A	L	TITLE	SECTION A OF A
							A/D FOR MINC	

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	A013-0-DBP	E

MR

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P A R T S L I S T

SHEET A4 OF A4

LINE ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
123	123	9009507-00	TAPE, VINYL, ELECTRICAL, 3/4 X 6	A/R	

D	I	G	I	T	A	L	TITLE	SECTION	SIZE	CODE	DOCUMENT NUMBER	REV
							A/D FOR MINC	A OF A	K	PL	A013-0-DBP	E

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BI1 READ CSR L
BI1 WR CSR HB H
BI1 INIT H
BI1 WR CSR LB H
DAL 13 H
DAL 12 H
DAL 11 H
DAL 10 H
DAL 9 H
DAL 8 H
DAL 5 H
DAL 4 H
DAL 3 H
DAL 2 H
DAL 1 H
DAL Φ H
BI1 MUX 5(1)H
BI1 MUX 4(1)H
BI1 MUX 3(1)H
BI1 MUX 2(1)H
BI1 MUX 1(1)H
BI1 MUX Φ(1)H
BI1 CLK STARTS (1) H
BI1 EXT STARTS (1) H
BI1 MAINT AD TST (1) H
BI1 ENSTAT L
BI1 DCR 1(1) H
BI1 DCR 4(1) H
BI1 DCR 3(1) H
BI1 DMA OFF (1) H
BI1 DCR 2(1) H
BI1 DCR Φ(1) H
BI1 DMA ON (1) H
ENC H
DDI
CAE ERROR (1) H
BI1 EIE (1) H
CAE AD DONE (1) H
BI1 DIE (1) H
CS 4 H
CAE GO H
BI1 DMA ON (1) H
CTL EOC L
CTL CLOCK H
BI1 LD BUF H
BI1 INWD L
BI1 DMA ON (1) L
BI1 XMIT H
BI1 SST REC H
BI1 SST XMIT H
BI1 DMA OFF (1) H
BI1 DBR L
BI1 DCR 3(1) H
BI1 INWD L
BI1 CSR L
BI1 WR HB L
BI1 WR LB L
BI1 DCR 4 (1) H
BI1 DCR 2 (1) H
BI1 DCR 1 (1) H
BI1 DCR Φ(1) H
BI1 DMA ON (1) H
CLK 1 F H
DAL 15 H
DAL 14 H
DAL 7 H
DAL 6 H
DAL 1 H
DAL Φ H
BI1 VECTOR H
BI1 DMA ON (1) H L
BI1 SST XMIT H
BI1 SST REC H
BDAL 15 L
BDAL 12 L
BDAL 11 L
BDAL 14 L
BDAL 10 L
BDAL Φ9 L
BDAL Φ8 L
BDAL 13 L
BDAL Φ7 L
BDAL Φ6 L
BDAL Φ5 L
BDAL ΦΦ L
DAL 15 H
DAL 12 H
DAL 11 H
DAL 14 H
DAL 10 H
DAL 9 H
DAL 8 H
DAL 13 H
DAL 7 H
DAL 6 H
DAL 5 H
DAL Φ H
BIAKI L
BIAKO L
BDAL Φ4 L
BDAL Φ3 L
BDAL Φ2 L
BDAL Φ1 L
DAL 4 H
DAL 3 H
DAL 2 H
DAL 1 H
BBS7 L
BI1 VECTOR H
BI1 VEC RQ STB H
BI1 XMIT H
BSYNC L
DAL 1 H
DAL Φ H
BWTBT L
BDOUT L
BDIN L
BI1 VECTOR H
BI1 WR CSR L
BI1 DBR L
BI1 WR LB L
BI1 WR HB L
BI1 INWD L
BI1 VECTOR L
BI1 INIT L
BI1 VEC RQSTB H
BI1 EIE (1) H
BI1 INIT H
CAE AD DONE (1) H
DAL 6 H
WR CSR LB H
BINIT L
BI1 BDIN L
BI1 WR CSR HB H
DAL 14 H
CAE ERROR (1) H
BI1 WR VERNIER H
BI1 WR CSR HB L
BI1 WR CSR HB H
BI1 WR CSR LB H
BI1 READ CSR H
BI1 READ CSR L
BI1 READ DBR L

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	-
DCΦΦ3	18	9	-
DCΦΦ4 & DCΦΦ5	20	10	-
AM2504	24	12	-
LM324	4	11	-

2. UNLESS OTHERWISE SPECIFIED
ALL RESISTORS 1/4W ±5%
ALL CAPACITORS 50V +80%-20%

REVISIONS			
REV.	CHANGE NO.	CHK	
D	A013-MR001		

BI1

DRN. R.W. Cannata	20 Jan 78	FIRST USED ON	MNCAD
CHK'D	13 Feb 78		
ENG.	3/1/78	TITLE	MNC AD
PROJ. ENG.	3 Feb 78		
PROG.	3/1/78		
NEXT HIGHER ASSY.		B-DD-A013-Ø	
SCALE		SIZE D	CODE CS
SHEET 1 OF 6		DIST.	NUMBER AØ13-Ø-1 REV. E

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CAE DEL HOLD H
CTL CLOCK H
7450 E59
+5 R27 1K W3
+5 R28 1K W4
W5 R107 1K +5
8281 E49 CA CB CLD R A B C D QA QB QC QD
CAE HOLD(Ø)L
E48 1K +5V
+3VA
TP2 TPTR
CAE CS 5H
7408 E32
TP4 TPC
ADC COMP H
7401 E19
BI MAINT AD TST(1) H
7404 C31
BI MUX 0 (1) H
R12 1K +5V
AM2504 E50 MSB LSB CC S D C
CTL SAR 11 H
CTL SAR 11 L
CTL SAR 10L
CTL SAR Ø9L
CTL SAR Ø8L
CTL SAR Ø7L
CTL SAR Ø6L
CTL SAR Ø5L
CTL SAR Ø4L
CTL SAR Ø3L
CTL SAR Ø2L
CTL SAR Ø1L
CTL SAR ØØL
CTL EOC L
CTL CLOCK H

+5V R18 6.81K 1% C78 220PF
R17 6.81K 1% C77 220PF
T3 74LS221 E11 CTL CLOCK L
T2 74LS221 E11
C75 1uF R15 2K +5V
AK1
AL1
R16 1K +5V

+5V E48 1K 1K 1K 1K
7406 E47
E48 1K CTL VDAC Ø7 H
DAL 7 H
DATA ENA 74173 E37 D3 D2 D1 D0 R3(1) R2(1) R1(1) R0(1) OUT CONT CLK CLR
DAL 6 H
DAL 5 H
DAL 4 H
CAE AZT L
BI WR VERNIER H
BI INIT H
CTL VDAC Ø6 H
CTL VDAC Ø5 H
CTL VDAC Ø4 H

DATA ENA 74173 E38
DAL 3 H
DAL 2 H
DAL 1 H
DAL Ø H
E48 1K E48 1K R11 1K E48 1K
CTL VDAC Ø3 H
CTL VDAC Ø2 H
CTL VDAC Ø1 H
CTL VDAC ØØ H
CAE AZT L
BI WR VERNIER H
BI INIT H

AS2
AR2

DATA ENA 74173 E17
CS3 H
CS2 H
CS1 H
CSØ H
BI READ DBR L
OUT CONT
CAE HOLD(1) L
BI ENSTAT L
R3(1) R2(1) R1(1) R0(1)
DAL 15 H
DAL 14 H
DAL 13 H
DAL 12 H

CTL SAR 11H
CTL SAR 10L
CTL SAR Ø9L
CTL SAR Ø8L
7404 E18
DATA ENA 74173 E16
DAL 11 H
DAL 10 H
DAL 9 H
DAL 8 H
BI READ DBR L
BI LD BUF H
BI INIT H

CTL SAR Ø7L
CTL SAR Ø6L
CTL SAR Ø5L
CTL SAR Ø4L
7404 E18
7404 E29
7406 E47
+5V E48 1K
DATA ENA 74173 E27
DAL 7 H
DAL 6 H
DAL 5 H
DAL 4 H
BI READ DBR L
BI LD BUF H
BI INIT H

CTL SAR Ø3L
CTL SAR Ø2L
CTL SAR Ø1L
CTL SAR ØØL
7404 E29
DATA ENA 74173 E28
DAL 3 H
DAL 2 H
DAL 1 H
DAL Ø H
BI READ DBR L
BI LD BUF H
BI INIT H

REVISIONS		
CHK	CHANGE NO.	REV.

CTL

TITLE	SIZE	CODE	NUMBER	REV.
A-D FOR MINC	D	CS	A013-0-1	E
SCALE —	SHEET 2 OF 6	DIST.		

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CAE A5 H
CAE A4 H
CAE A3 H
CAE A2 H
CAE A1 H
CAE A0 H
CAE ATB L
8097 E6
CU2
CM2
CH2
CJ2
CS 5 H
CS 4 H
CS 3 H
CS 2 H
CS 1 H
CS 0 H
CPZ
CS2

BI1 MUX 2 (1) H
BI1 MUX 1 (1) H
BI1 MUX 0 (1) H
BI1 MUX 5 (1) H
BI1 MUX 4 (1) H
BI1 MUX 3 (1) H
74174 E5
D3 D0 D1 D4 D2 D5 CLR CLK
R3(1) R2(1) R1(1) R4(1) R5(1)
CAE A2 H
CAE A1 H
CAE A0 H
CAE A5 H
CAE A4 H
CAE A3 H
R102 1K
+5V
CAE ATB H
EXT ST
J1 19
R31 47 FUSIBLE
D3 D672
D4 D672
+5V

E41 1K
+5V
CE1
ST1 OUT L
E41 1K
7400 E42
BI1 EXT STARTS (1) H
7455 E39
BI1 CLK STARTS (1) H
CV1
CLK 0V L
7404 E31

CAE TRANS INT RVL L
7402 E21
7404 E31
CAE ERROR B L
CAE ERROR C L
CAE DEL HOLD H
7474 E20
CAE ERROR A+C (1) L
7400 E42
CAE HOLD (1) H
CAE HOLD (1) L
CAE HOLD (0) L
CAE HOLD (0) H
RG2 1K
+5V
DU2 (ID OUT 1 H)
CF2 (ID OUT 2 H)
CT2 (ID OUT 3 H)

7402 E21
CAE PRG GO L
CTL EOC L
BI1 INIT L
7408 E32
CAE ERROR (1) L
CAE ERNT L
BI1 LD BUF H
7404 E31
DT2
DEV ROY H
CAE AD DONE (1) H
+3VC
CAE ERROR C L
CAE HOLD (1) L
BI1 READ DBR L
BI1 INIT L
CAE ERNT L
CAE DEL HOLD H

BI1 WR CSR LB H
7404 E31
DAL 0 H
C83 470 PF
R25 10K
7423 E33
CAE TRANS INTRVL L
R26 1K
+5V
+3VC

WR CSR HB L
CAE HOLD (0) H
8881 E40
R10 1K
R13 1K
CAE LDSEQ H.

C79 220 PF
R21 5.11K
CAE HOLD (1) H
74123 E22
CAE ZC DELAY H
R20 1K
+3VB

CAE ERROR A+C (1) L
CAE ERROR B L
7408 E9
DAL 15 H
BI1 WR CSR HB H
BI1 INIT L
7474 E4
CAE ERROR (1) H
CAE ERROR (1) L

R19 22Ø
CAE HOLD (1) L
7404 E16
C81 100 PF
CA1
AZT L
PRH I L
R103 1K
7404 E16
E48 1K
CAE QD LED H
CAE SELED H
DS2 (ID OUT 0 H)
7408 E21

CAE QD LED H
CAE A3 H
8881 E40
7404 E16
CAE STB H
CAE ATB L
7408 E32
7400 E42
CAE CTB L

C82 270 PF
R24 10K
CAE LDSEQ H
BI1 INIT H
74123 E33
7406 E47
C36 1000 PF
7401 E19
R14 1K
C76 680 PF
7408 E9
CAE ATB L
CB2
CAE CTB L

C80 1000 PF
R22 31.6K
BI1 WR CSR HB L
CAE HOLD (1) H
74123 E22
CS5 H
CAE TRANS INTRVL L

J1 17
R32 47 FUSIBLE
D1 D672
D2 D672
TP0
TP1
8-15 SE
R23 1K
+5V
E41 1K
LAZ L
CRE
74LS991 E8
CAE AZT L
SE L
CAE A2 H
CAE A3 H
CAE A4 H
CAE A5 H
PRHI L
CV2
D7 D6 D5 D4 D3 D2 D1 D0 CK2 PRS I H ENØ ENI
CAE EN AMUX H
CAE STB H
CAE AMUX BIT 2 H
CAE EN AD CHS L
CAE EN BMUX H
CAE BMUX BIT 2 H
7406 E42
CAE ADE C L
CAE ZC DELAY H
E41 1K
+5V

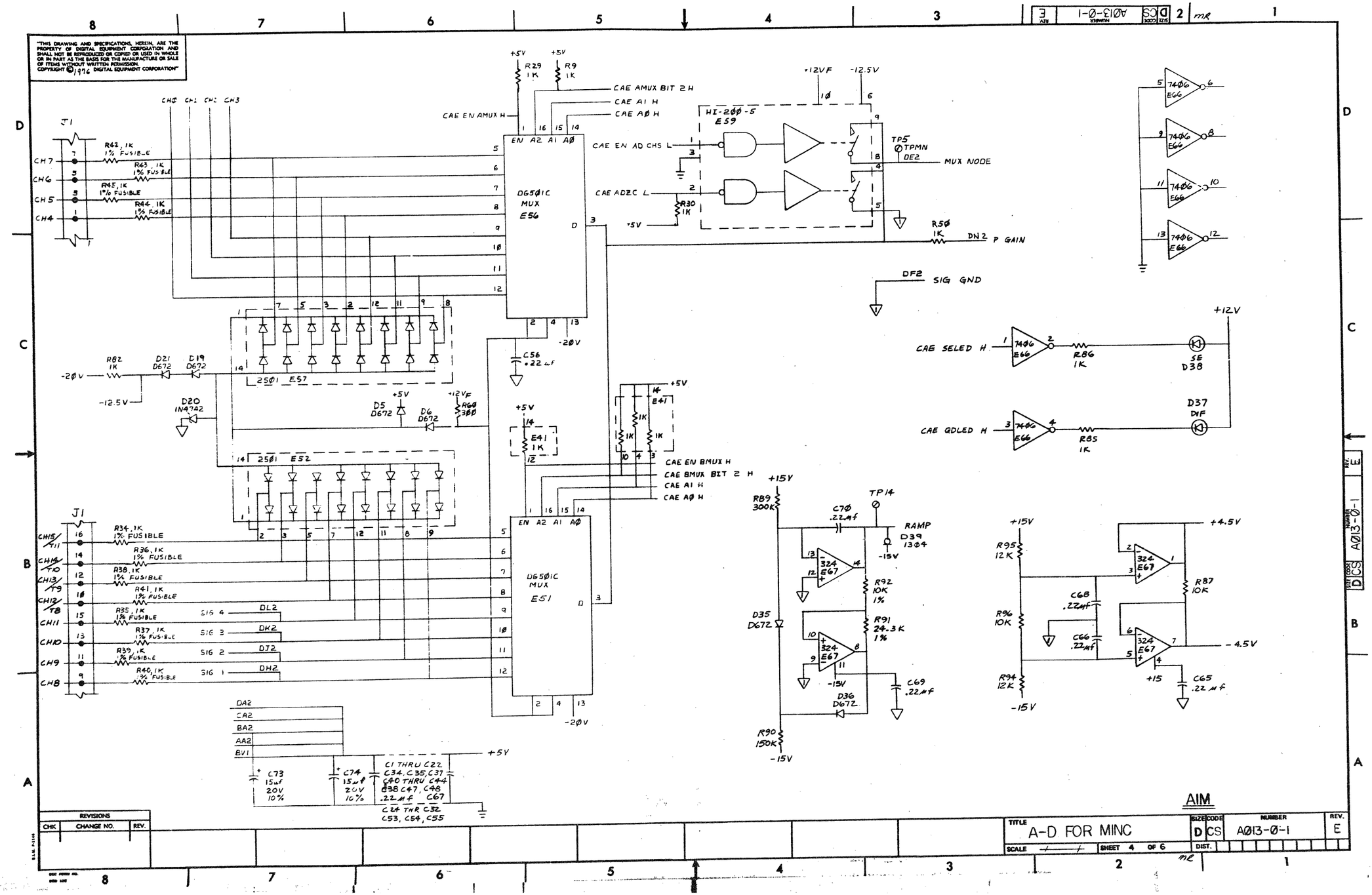
CAE PRG GØ L
CAE HOLD (1) L
7401 E19
CAE GO H

REVISIONS
CHK | CHANGE NO. | REV.

CAE

TITLE A-D FOR MINC
SIZE D CODE CS NUMBER A013-0-1 REV. E
SCALE NONE SHEET 3 OF 6 DIST.

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

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TP11 TPAI
-15V
MUX NODE
R80 133.1%
+15V
310 E61

+5V -15V
C100 .22uF
C98 .22uF
CTL SAR 11 L
CTL SAR 10 L
CTL SAR 09 L
CTL SAR 08 L
CTL SAR 07 L
CTL SAR 06 L
CTL SAR 05 L
CTL SAR 04 L
CTL SAR 03 L
CTL SAR 02 L
CTL SAR 01 L
CTL SAR 00 L
MSB
AD562 D/A E62
LSB
TP12 TPAP
D33 D672
D34 D672
1MA I REF
RB4 LCCW 200 ±5.12V GAIN
C99 .01 uF +20% -10%
R81 10K
+15V
AD2700BL E64
DD2 +10V REF
TP13 TP REF +10 V

+15V
R77 5.7GK 1%
R75 75
R76 75
Q17 2N4250
Q16 2N4250
R72 3.48K, 1%
Q15 SE4002
D32 D672
R71 909 1%
R73 75Ø 1%
-15V

CAE HOLD(1) L
CAE HOLD(1) H
D30 D672
D31 D672
+15V
R70 3K
R68 2.7K
Q14 2N3906
C97 100 PF
R67 62Ø
D29 D672
D27 IN746A 3.3V
Q11 SE4020
RG5 100
R69 2.7K -15V
D22 IN754A 6.8V
C94 .22 uF
4mA D28 MCL1300
Q12 2N4250
Q8 2N4250
Q9 SE4020
R108 3K
R66 1K
Q10 2N3906
RG3 100
C96 .0022 uF
Q7 2N5245
RG4 15K
-15V

+15V
CCW R83 5ØK OFFSET ADJUST
-15V
R74 1281 .25 PPM .01% D24 D777
4mA D23 MCL1304
D26 D777
D25 D777
ADC COMP H
+15V
Q13 SE4020
C95 22pF 100V 5%
Q6 SE4020
RG1 10K
-15V
25Ø5 E60
TP10 TP SH
C60 .22 uF
+15V

J1
F1 1/16A
-15V
+15V
F2 1/16A
-15 T
+15 T
23
24
2
4
6
8
21
22

J1
10
20

R78 3Ø.1 1%
R79 12.1K 1%
CTL VDAC ØØ H
CTL VDAC Ø1 H
CTL VDAC Ø2 H
CTL VDAC Ø3 H
CTL VDAC Ø4 H
CTL VDAC Ø5 H
CTL VDAC Ø6 H
CTL VDAC Ø7 H
LSB
MC1408-L8 E63
MSB
+5V
C63 820pf 100V 5%
-15V

REVISIONS
CHK | CHANGE NO. | REV.

ADC

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

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L4. 100 mh
+12V → +12VF
C101 22 mf 35V 20%

+5V
R52 1K
B281 LD A E55 R QA QB QC QD CB CA
E54 7410
CN2
SWA OUT L
7406 E53
R51 1K
E54 7410
CL2
SWB OUT L

C72 .22mf
C71 15mf 20V 10%
C85 39mf 20V 10%
CTL CLOCK L
BD2
AD2
+12V
D9 D672
D8 D672
D10 D672
D7 D672
SWA OUT L
7406 E53
R53 1K
R54 150
Q3 DEC 6534D
L1 .22 mh
Q1 D45C6
C87 39mf 20V 10%
R57 470 1/2W
R55 470 1/2W
TP8 TPPD
+5V
R56 82 1/2W
Q2 D44C3
L2 .22uh
7406 E53
SWB OUT L
C92 22 mf 35V 20%
C89 39mf 20V, 10%
C91 22 mf 35V 20%
PS GND DVE
D12 D672
D14 D672
D15 D672
D17 D672
D11 D672
D13 D672
D16 D672
D18 D672
C88 39mf 20V, 10%
C90 22 mf 35V 20%
L3 82 uh
C84 68 mf 35V 10%
LM325N E58
REF
DA1 +20V
Q4 D44C3
R58 5.1
TP6 TP+
W1 +15V
C95 15mf 20V 10%
C93 15mf 20V 10%
W2 -15V
Q5 D44C3
TP7 TP-
R59 5.1
DB2 -20V
-7.5V

AE1 AF1 AT1 AM1 AJ1 BT1 BM1 BJ1 BC2 AC2 DT1 CT1 DC2 CC2

CH Ø S1 R48 1K, 1% FUSIBLE → J2 10 BNC Ø
CH 1 S2 R49 1K, 1% FUSIBLE → 8 BNC 1
R104 1K +4.5V
CH 2 S3 R47 1K, 1% FUSIBLE → 6 BNC 2
R105 1K -4.5V
CH 3 S4 R46 1K, 1% FUSIBLE → 2 BNC 3
R106 1K RAMP
TP9 HRG
7 5 1 3 4 KEY (DUMMY PIN)

R88 909 1%
R93 909 1%
R97 5K R98 5K R99 5K R100 5K CCW

REVISIONS		
CHK	CHANGE NO.	REV.

APS

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

MR

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	M. Archie	CHECKED	SECTION
DATE	7 MARCH 78	DATE 7 MAY 78	1
ENG		PROD	ISSUED SECT.
DATE	23-May-78	DATE 23-May-78	1

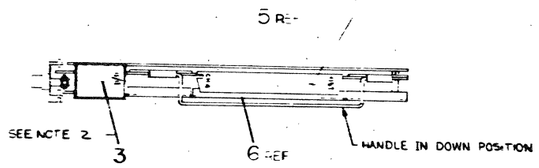
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MNCAD-0-0	MNCAD UNIT ASSY	1
2	MP##592	PRINT SET MNCAD	1
3	AA-D572A-TC	WORKING WITH MINC DEVICE	1

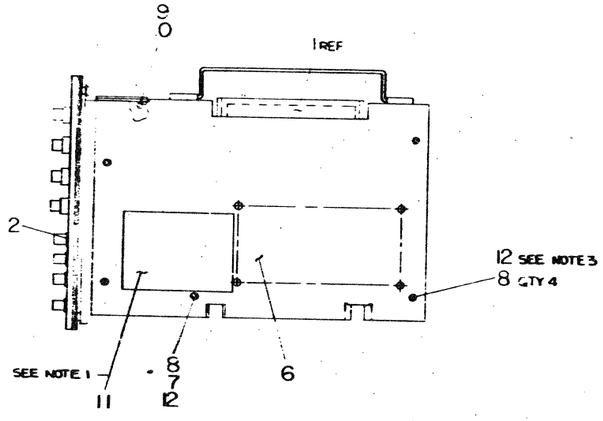
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SHIP LIST MNCAD	SHEET 1 OF 1	A	PL	MNCAD-0-SH		

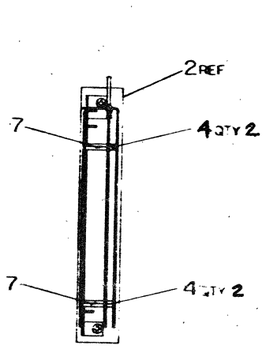
DEC FORM
ERA 119

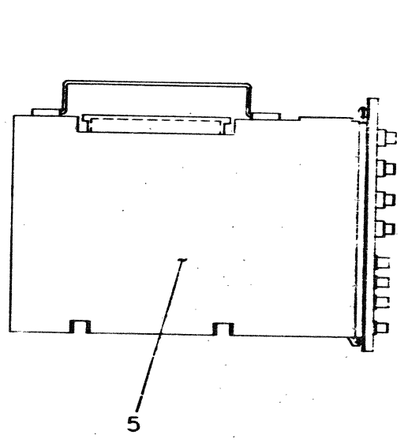
MR

NOTES:
1. ITEM "1" 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 "2" ADD ONE DROP TO EACH LOCATION









ITEM	DESCRIPTION	DWG. PART NO.	QTY
1	PACKAGING INSTRUCTIONS	A-PS-3700358-0-0	14
REF	CHKOUT & ACCEPT. PROCEDURE	A-SP-MNCAD-00-3	13
A/R	LOCKTITE	9009321	12
1	DECAL, INFORMATION (MNCAD)	A-DC-3415264-2-0	11
1	NUT, KEPS 6-32	9008 B5	10
1	WASHER, FLAT	9006053	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-3415260-2-0	3
1	MNCAD I/O ASSY	D-AD-7015072-0-0	2
1	CONN ASSY, I/O	D-IA-7014153-0-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

REVISIONS			
DIR	CHANGE NO.	REV	
07	MNCAD-MP(XX)	A	
	Rdr Printers	NOV 78	
	A. FIL		

DRN		
CHKD		
ENG		
PROJ. ENG		
PROD.		
NEXT HIGHER ASSY.		
MATERIAL	SEE PARTS LIST	
FINISH	NONE	
SCALE	1/2	
SHEET	1 OF 1	

FIRST USED ON: MNCAD digital

TITLE: MNCAD UNIT ASSY

SIZE	CODE	DRAWING	REV.
D		MNCAD C-0	A

DIST.

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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	APPD	SIZE	CODE	NUMBER	REV
7/10/78	7-11-78	A	BP	MNCAD-0-4	

DEC 10-(2SB2)-1070A-R07S
DRA 107A

MR SHEET 1 OF 8

MR

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 FA&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	CODE	NUMBER	REV
A	BP	MNCAD-0-4	

DEC FORM NO EN-01088-10-N370-(SS1)
DRA 108

MR SHEET 2 OF 8

MR

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 accessable 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.

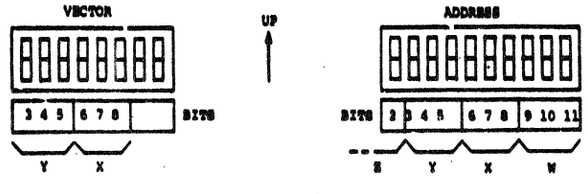


FIGURE 2.1 - VECTOR AND ADDRESS SWITCH PACKS

SIZE	CODE	NUMBER	REV
A	BP	MNCAD-0-4	

DEC FORM NO EN-01088-10-N370-(SS1)
DRA 108

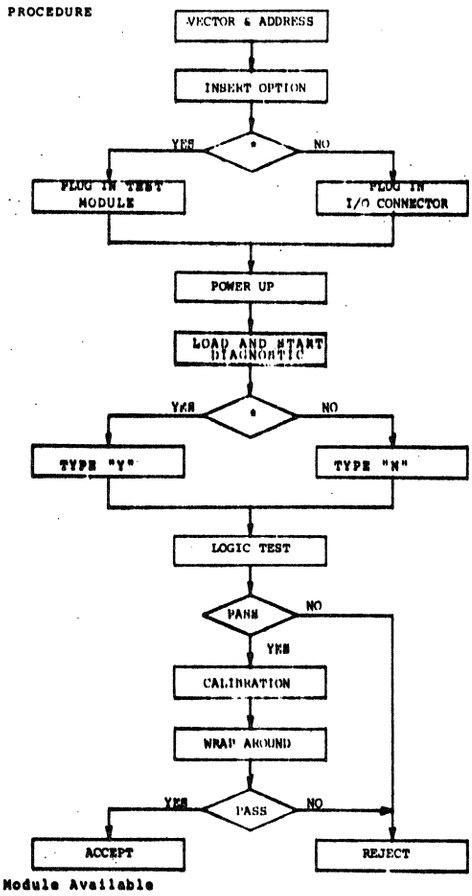
MR SHEET 4 OF 8

MR

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE MNCAD INSTALLATION/ACCEPTANCE PROCEDURE

1.4 PROCEDURE



* Test Module Available

SIZE	CODE	NUMBER	REV
A	BP	MNCAD-0-4	

DEC FORM NO EN-01088-10-N370-(SS1)
DRA 108

MR SHEET 1 OF 8

2.2 LOCATION

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.

2.3 TEST MODULE

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.

2.4 POWER UP

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

2.5 DIAGNOSTIC

The MNCAD diagnostic program 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 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 "S" followed by "RETURN" at the end of the test list. The diagnostic will now type:

"MNCAD (A/D) BASE ADDRESS <171000> ?

Enter the CSR address followed by "RETURN". The diagnostic will respond:

"MNCAD (A/D) VECTOR ADDRESS <400> ?

Enter the DONE vector address followed by "RETURN".

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.

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.

When the test module is present the diagnostic will type:

"PRESS EXTERNAL START ON MNCAD AT ADDRESS"

"DEPRESS 'RETURN' WHEN READY"

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.

To exit this test press the "C" key while holding the CNTL key down. The diagnostic will respond with:

"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"

3.3 Type "C" to start the calibration routine. The diagnostic will then respond:

"TYPE CHANNEL & DEPRESS 'RETURN'"

Enter "0" and type "RETURN". The program will nowinstruct:

"TYPE "O" FOR OFFSET, "G" FOR GAIN & DEPRESS 'RETURN'"

Type the letter "O" and then "RETURN".

The diagnostic will now direct:

"INPUT A GROUND ON THE CHANNEL"
"DEPRESS 'RETURN' WHEN READY"

Switch channel "0" on front panel of the MNCAD to TEST, then type "RETURN". The diagnostic will type:

"ADJUST R83 FOR 0.00 LSB ERROR"
"DEPRESS 'RETURN' WHEN ADJUSTED"

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.

To exit this routine type "RETURN" or press the "C" key while holding the "CNTL" key down until the diagnostic responds:

"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"

3.4 Type "C" again to start the calibration routine. The diagnostic will respond:

"TYPE CHANNEL & DEPRESS 'RETURN'"

Type "7" and then "RETURN". If a test module is present, connect the +precision voltage source output to J3 & 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:

"TYPE "O" FOR OFFSET, "G" FOR GAIN & DEPRESS 'RETURN'"

Type "G" and then "RETURN". The terminal will respond:

"INPUT +5.115 VOLTS ON THE CHANNEL"
"TYPE CR WHEN READY"

Adjust the precision voltage source for +5.115 volts and type "RETURN". The program will respond:

"ADJUST R84 FOR 0.00 LSB ERROR"
"DEPRESS 'RETURN' WHEN ADJUSTED"

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.

To exit this routine type "RETURN" or press the "C" key while holding the "CNTL" key down until the diagnostic responds:

"TYPE THE 'TEST CHARACTER' THEN DEPRESS 'RETURN KEY'"

3.5 If no graphics video display terminal (VT55, VT105, etc.) is used type "N" and then "RETURN"; if such a terminal is used:

Type "G" and set the switch register to 2000, then type "RETURN". Now type the "TEST CHARACTER" "Y" followed by "RETURN".

3.5.1 Without Test Module

The terminal will print the number of A/D's detected and then instruct:

"SET MNCAD (A/D) FRONT PANEL SWITCHES TO 'TEST'"
"DEPRESS 'RETURN' WHEN READY"

Set all four front panel swtiches 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

be relative accuracy. To continue after a halt, press "P".

3.5.2 With Test Module

The terminal will print the number of A/D's detected and then instruct:

"SET TEST MODULE(S) TO SINGLE ENDED"
"SET MNCAD (A/D) FRONT PANEL SWITCHES TO 'TEST'"
"DEPRESS 'RETURN' WHEN READY"

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 (8) through 17 (8) will be listed. The diagnostic will ask if channels 00 through 17 are to be tested by:

"TESTING CHANNELS 0-7?"

Type "Y" and then "RETURN".

"TESTING CHANNELS 10-17?"

Again type "Y" followed by "RETURN". The program will report the channels under test and then instruct:

"SET TEST MODULE(S) ON CHANNELS UNDER TEST TO DIFFERENTIAL"

"DEPRESS 'RETURN' WHEN READY"

Set the swtich on the test module for single ended operation and then type "RETURN". If no errors occur the following will be printed:

"SET TEST MODULE(S) TO SINGLE ENDED"
"DEPRESS 'RETURN' WHEN READY"

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".

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D-UA-A154-*-*	MNCAM MUX
A-PL-A154-*-*	MNCAM MUX
D-CS-A154-*-1	MNCAM MUX
A-PL-MNCAM-*-SH	SKYP LIST MNCAM
D-UA-MNCAM-*-*	MNCAM UNIT ASSY
B-PL-54!2397-0-0	LED MOUNT
D-CS-5412397-0-1	LED MOUNT
D-UA-5412397-0-0	LED MOUNT
A-SP-MNCAM-*-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MNCAM

MNCAM

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP00591

MP 00591 MNCAM-0-1 REVISION REV.

REVISIONS			
DATE	CHG. NO.	REV.	

USED ON OPTION/MODEL	
MNCAM	

SHEET 1 OF 1

DRN.	Q. Wade	DATE 28-FEB-78
CHK'D	A. Bowden	DATE 1-MAR-78
PROJ. ENG.	D. C. Fay	DATE 23-MAY-78
FIELD SERV.	C. L. Williams	DATE 25 May 78

digital

TITLE: MNCAM UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MNCAM-*-1	

DIST.

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UNIT VARIATIONS

VAR	TITLE
MNCAM	MNCAM UNIT ASSY

REVISIONS		
CHK	CHANGE NO.	REV.
BR	MNCAM-1	A
RDP	MNCAM-2	B

USED ON OPTION/MODEL: MNCAM

DRW. M Archer 29 Dec 77
CHK'D. F Hallisey 13 Feb 78
PROJ. ENG. [illegible] 3/21/78
PROD. [illegible] 3/21/78

SHEET 1 OF 3

TITLE: MNCAM UNIT ASSY

digital

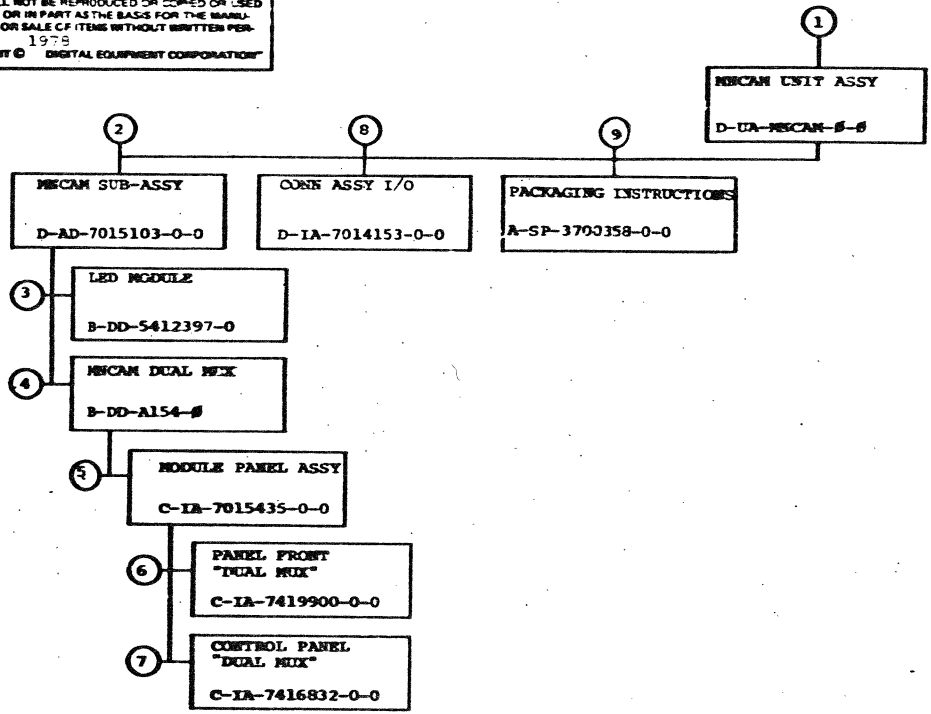
SIZE	CODE	NUMBER	REV
B	DD	MNCAM-B	B

DIST.

DRW 103A

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TITLE	SHEET	SIZE	CODE	NUMBER	REV
MBCAM UNIT ASSY	2 OF 3	B	DD	MBCAM-0	B

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP##591	FIELD MAINTENANCE PRINT SET	-
	B-TC-MNCAM-#-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MNCAM-#-#	MNCAM 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 (MNCAM)	E/M
	A-PL-MNCAM-#-5	PARTS LIST MNCAM	E/M
	A-PL-MNCAM-#-SH	SHIP LIST MNCAM	E/M
	A-SP-MNCAM-#-2	MNCAM ENGINEERING SPEC.	E/M
	A-SP-MNCAM-#-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M
	A-SP-MNCAM-#-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M
2	D-AD-7015103-0-0	MNCAM SUB-ASSY	M
	B-MD-7420242-0-0	SPACER, MODULE	M
	C-IA-7419863-0-0	SUB PANEL	M
3	B-DD-5412397-#	LED MODULE	E/M
4	B-DD-A154-#	MNCAM DUAL MUX	E/M
	A-PL-A154-#-#	MNCAM MUX	E/M
	D-UA-A154-#-#	MNCAM MUX	E/M
	D-CS-A154-#-1	MNCAM MUX	E/M
5	C-IA-7015435-0-0	MODULE PANEL ASSY	M
6	C-IA-7419900-0-0	PANEL FRONT "DUAL MUX"	M
	C-PS-4830034-0-0	EXTRUSION FRONT PANEL "A"	M
7	C-IA-7416832-0-0	CONTROL PANEL "DUAL MUX"	M
	C-SS-7416831-01	CONTROL PANEL	M
	C-SS-7416831-02	CONTROL PANEL	M
	C-SS-7416831-03	CONTROL PANEL	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-7418934-1-0	DECAL, I.D. I/O CONN	E/M
9	A-SP-3700358-0-0	PACKAGING INSTRUCTIONS	M

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTROMECHANICAL

DIGI 168A

digital

TITLE: MNCAM UNIT ASSY

SHEET 3 OF 3 | SIZE B | CODE DD | NUMBER MNCAM-# | REV B

MR

MR

AUTOMATED BY PRTLST,3L(40) **PARTS LIST** SHEET A1 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D=MD=5012277=0=0	5012277=00	A154	1	
2	2		1010274=01	.22 MFD 50V +80=20% Z5U CER	17	C1=C12,C35=C39
3	3		1002433=00	22 MFD 35V 20% S,TANT	8	C13=C16,C20=C23
4	4		1005335=00	39 MFD 20V 10% S,TANT	4	C17,C19,C18,C24
5	5		1001776=00	1 MFD 35V 10% S,TANT	1	C25
6	6		1000016=00	100.0 MMF 100V 5%200PPM MICA	1	C26
7	7		1000025=00	560.0 MMF 100V 5%200PPM MICA	1	C27
8	8		1002627=00	*** THIS ITEM IS NOT USED ***	*	
9	9		1004812=00	15 MFD 20V 10% S,TANT	7	C28=C34
10	10		1105275=00	D 672 TR= 15N3 PIV= 60V SI	17	D1,D2,D4=D18
11	11		1109502=00	1N 4742 VZ= 12.0 10% 1W Y	1	D3
12	12		1212519=06	HEADER,150 11POS STRAIGHT	2	J2,J3
13	13		1310881=00	1.0 K .25 W 1.0 % FUSE	16	R1=R8,R10=R17
14	14		1300365=00	1.0 K .25 W 5.0 % CC	25	R9,R19=R31,R33=R35,R37,R49,R52,
					CONT	R53,R60=R62,R81
15	15		1301425=00	300.0 .25 W 5.0 % CC	1	R18
16	16		1300488=00	12.0 K .25 W 5.0 % CC	1	R32
17	17		1300250=00	150.0 .25 W 5.0 % CC	1	R36
18	18		1300315=00	470.0 .50 W 5.0 % CC	2	R38,R39
19	19		1301781=00	82.0 .50 W 5.0 % CC	1	R40
20	20		1304838=00	43.0 K .25 W 5.0 % CC	3	R50,R79,R80
21	21		1301401=00	750.0 .25 W 5.0 % CC	20	R63=R78,R82=R85
22	22		1503409=00	DEC6534D PNP 310MW SI 40 90	1	Q1
23	23		1510414=00	D 45C6 PNP 30MT SI 45 20 Y	1	Q2
24	24		1510171=00	D 44C3 NPN 30MT SI 30 20 Y	1	Q3
25	25		1602254=00	22. UH 10% 430MA @RFCS22	3	L1,L4,L5
26	26		1603377=00	.22UH 10% 2.7A @WEE,22	2	L2,L3
27	27		1912799=00	LS00 NAND=GATE=QUAD 2IN,P	4	E1,E9,E29,E33
28	28		1912803=00	74LS04 INVERTER GATE,HEX	5	E3,E5,E8,E14,E28
29	29		1912805=00	LS08 AND GATE=QUAD 2IN,PO	2	E4,E40

REVISION HISTORY		
ENG	ECO NUMBER	REV
---	INITIAL	F
ACF	A154=0R004	H
AF	A154=0R005	J

BASIC PART NO: 0A154
SECTION A OF A
SECTION VARIATION INDEX
[A] 00
[B]
[C]
[D]
[E]
[F]
[H]
[J]
[K]
[L]
[M]
[N]

DRN: E. WILSON DATE: 7 OCT 77
CHK'D: R. W. CAUNTER DATE: 10 OCT 77
DES.ENG: G. F. SIROIS DATE: 20 OCT 77
RESP.ENG.: G. F. SIROIS DATE: 20 OCT 77
MFG.ENG.: DANA P. DUNCAN DATE: 25 OCT 77

ASSEMBLY NUMBER: D=UA=A154=0=0
TOP DOCUMENT NUMBER: D=DD=A154=0=0

DIGITAL

TITLE: PARTS LIST
MNCAM MUX

DOCUMENT NUMBER

SIZE	CODE	NUMBER	REV
K	PL	A154=0=DBP	J

FILE NAME: ECIT #:
Z0875J.PLS 8

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MR

AUTOMATED BY PRILST,3L(40)

MR

PARTS LIST

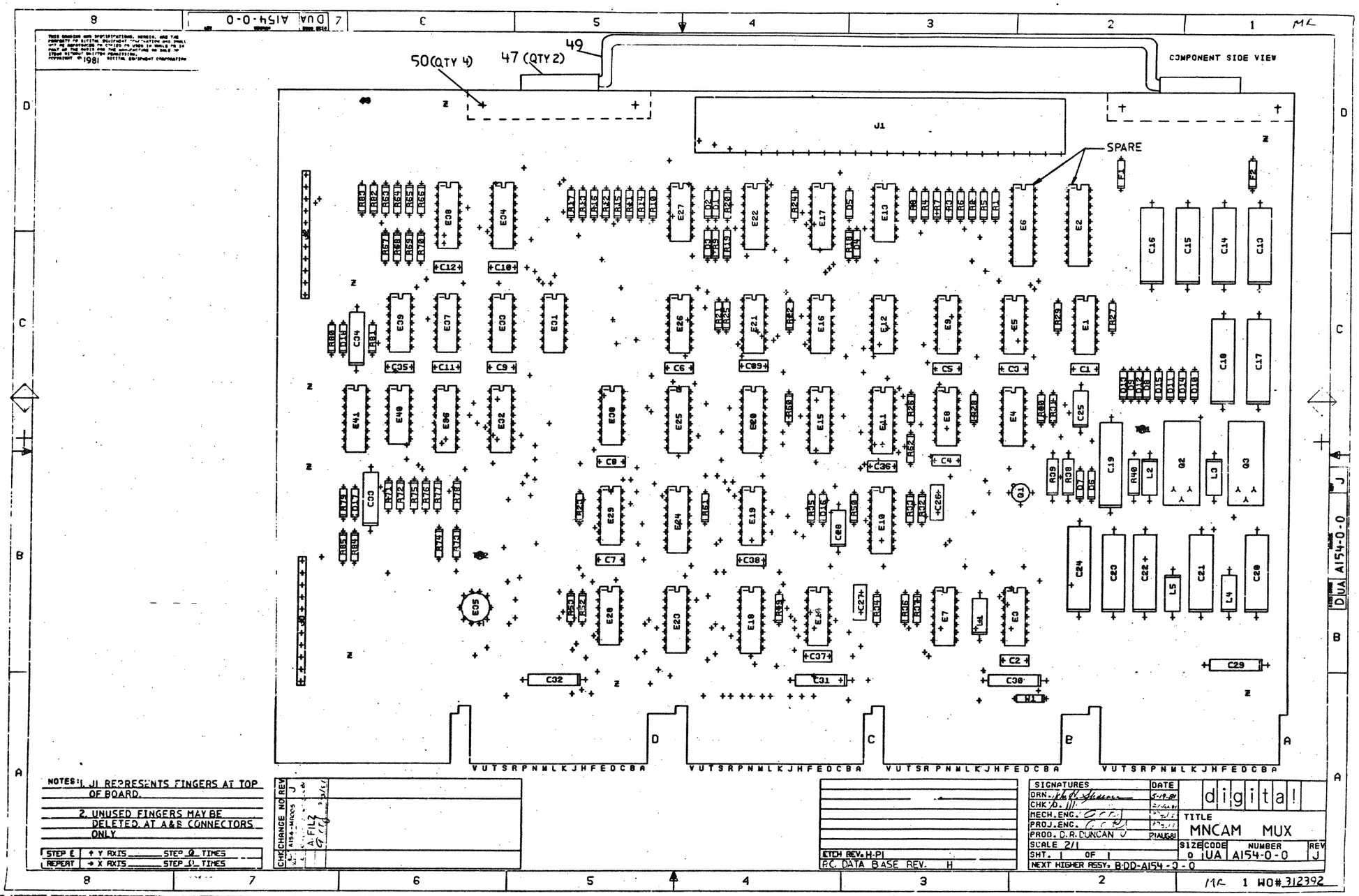
SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
30	30		1910741-00	7406 INVERTER GATE-HEX 1I	2	E7,E37
31	31		1912837-00	LS123 ONE SHOT-DUAL,RETRIG	2	E10,E41
32	32		1912827-00	LS83 ADDERS-4BIT	5	E11,E15,E20,E24,E25
33	33		1911521-00	7432 OR GATE-QUAD 2IN, PO	3	E12,E16,E31
34	34		1910010-00	DEC 2501 16 DIODE ARRAY,CORE	2	E13,E27
35	35		1911598-00	501C MUX,8CHNL,ANALOG	2	E17,E22
36	36		1911527-00	8097 BUFFER GATE-HEX 2INP	1	E18
37	37		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E19
38	38		1909712-00	DEC 8242 COMPARATOR-4BIT N,	1	E21
39	39		1910652-00	74174 FF-D HEX	1	E23
40	40		1905580-00	DEC 7450 A-O-I XPNDBLE GATE-D	1	E26
41	41		1909705-00	DEC 8881 NAND GATE-QUAD 2IN O	1	E30
42	42		1912816-00	*** THIS ITEM IS NOT USED ***	-	
43	43		1910047-00	74145 DECODER&DRIVER	4	E32,E34,E36,E38
44	44		2111285-02	MI 200-5 DUAL ANALOG SW,CMOS	1	E35
45	45		1912801-00	LS02 NOR-GATE-QUAD 2IN	1	E39
46	46		1910155-00	*** THIS ITEM IS NOT USED ***	-	
47	47	C-MD-7420192-0-0	7420192-00	HANDLE RETAINER	2	
48	48		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X	2	TP1,TP2
49	49	C-MD-7420191-0-0	7420191-00	HANDLE	1	
50	50		9006732-00	EYELET,ROLL FLANGE .1210DX .219	4	
51	51		9009122-00	FUSE,SUB-MINI 1/16A,125V GLASS	2	F1,F2
52	52		1215899-01	CLIP,JUMPER,.400CENTRS	1	M1
53	53		1215901-01	HEADER 2PIN STRAIGHT	1	

94 NOTES: 1. SPARE LOCATIONS ARE E2 AND E6.

DIGITAL	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
	MNCAM MUX		K	PL	A154-0-DBP	J

MR


50(QTY 4)
47 (QTY 2)
49
COMPONENT SIDE VIEW
J1
SPARE
NOTES: 1. J1 REPRESENTS FINGERS AT TOP OF BOARD.
2. UNUSED FINGERS MAY BE DELETED AT A&B CONNECTORS ONLY
STEP E ↑ Y AXIS STEP 0 TIMES
REPEAT → X AXIS STEP 0 TIMES
CHK CHANGE NO REV J
ETCH REV. H-P1
P.C. DATA BASE REV. H
SIGNATURES DATE
DRN. 5-19-81
CHK'D.
MECH. ENG.
PROJ. ENG.
PROD. D.R. DUNCAN
SCALE 2/1
SHT. 1 OF 1
NEXT HIGHER ASSY. B-DD-A154-0-0
digital
TITLE MNCAM MUX
SIZE D CODE 1UA NUMBER A154-0-0 REV J
MC 1 WO# 312392

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NOTES: 1. (*) ASTERISK INDICATES FUSIBLE RESISTORS.

J1

B CH H +RET D
B CH G +RET C
B CH F +RET B
B CH E +RET A
B CH D
B CH C
B CH B
B CH A

R1 1K * SIG 8 DR2
R2 1K *
R3 1K *
R4 1K *
R5 1K * SIG 8 DR2
R6 1K * SIG 7 DP2
R7 1K * SIG 6 DN2
R8 1K * SIG 5 DM2

25Ø1 E13

A CH H +RET D
A CH G +RET C
A CH F +RET B
A CH E +RET A
A CH D
A CH C
A CH B
A CH A

R16 1K *
R11 1K *
R12 1K *
R13 1K *
R14 1K * SIG 4 DL2
R15 1K * SIG 3 DK2
R16 1K * SIG 2 DJ2
R17 1K * SIG 1 DH2

25Ø1 E27

R9 1K -20V
D1 D472
D2 D472
D3 IN4742 +12.5
R10 1K *
D4 D472 +5V
D5 D472 +12V
R18 3KØ +6.5

DG5Ø1C E17
DG5Ø1C E22

+6.5 -20V
EN A2 A1 A0
D

CTLI PRS II H
CTLI AØ H
CTLI A1 H
AIM AB2 H
R24 1K +5V

CA1,CC1 13 ARI L
LSØ4 E6 12
AIM AZI H
CTLI DIF MODE II H
CTLI LAZ II L
7450 E26 6 13
LSØ4 E28 12
R52 2K +5V
+5V R25 1K

CTLI A2 H
CTLI ID I OUT Ø H
8242 E21 4

+12V -12.5
HLZØØ E35
DE2,DE1 MUX NODE
TPMN
TP2

CTLI LAZ I L
LSØ3 E29 3
CTLI PRS I L
CTLI PRS II L
LSØ3 E29 6
LS1Ø E19 8
CTLI LDA H
+5V R23 1K

CTLI PRS I H
R19 1K +5V
+5V R21 1K CTLI AØ H
+5V R2Ø 1K CTLI A1 H

AIM AZI H
CTLI DIF MODE I H
7450 E26 8 11
CTLI LAZ I L
LSØ4 E28 10
AIM AA2 H
R53 1K +5V
+5V R22 1K

CTLI A2 H
CTLI ID IN Ø H
8242 E21 3

J1
SIG GND DF2 DF1

AM2 AN2 AR2 AS2

INPUT & MULTIPLEXER (AIM)

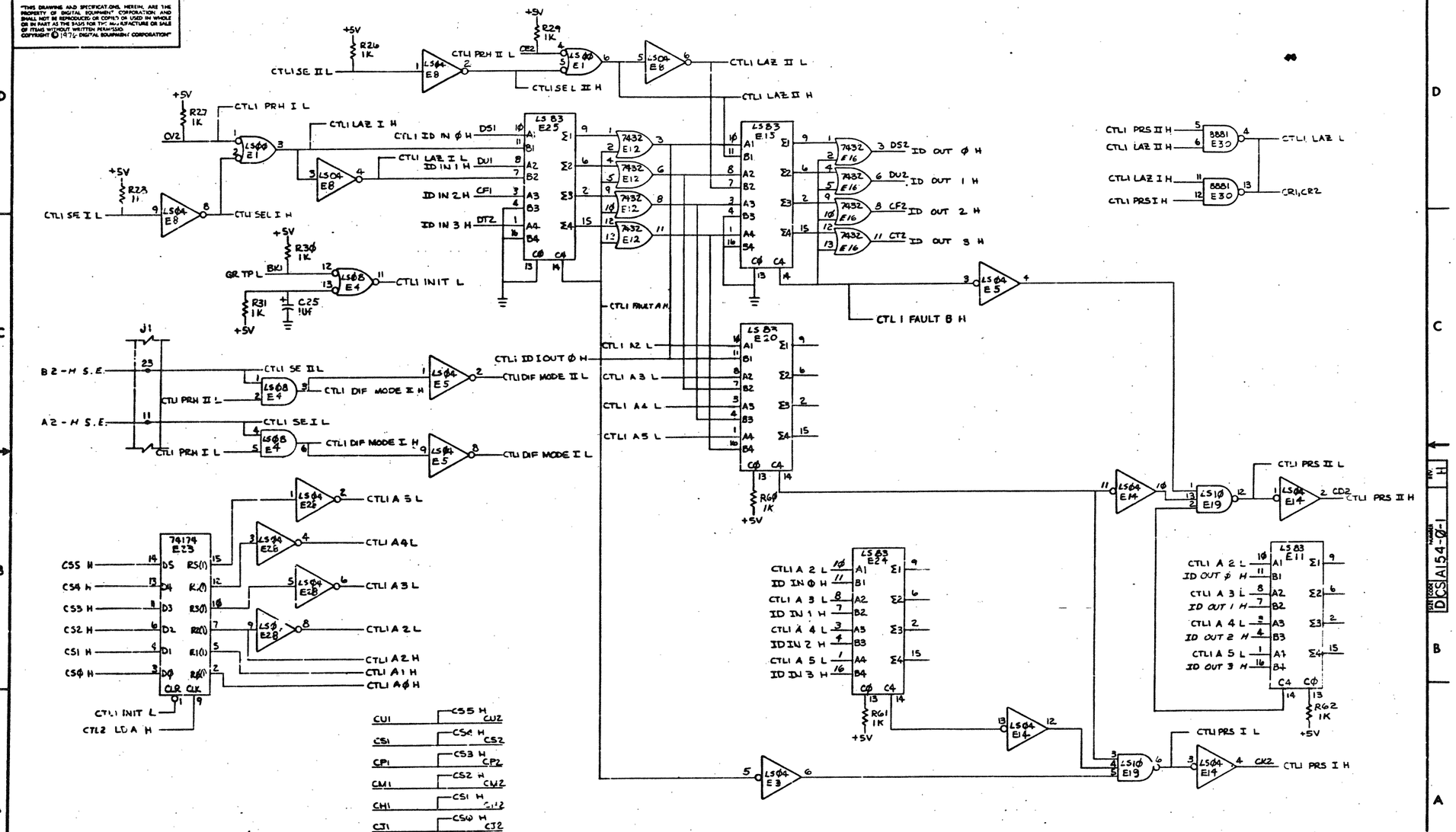
DRN		FIRST USED ON	MNCAM
CHK'D		TITLE	MNCAM MUX
ENG			
PROJ. ENG			
PROD.			
NEXT HIGHER ASSY.	B-DD-A154-Ø		
SCALE		SIZE D	CODE CS
SHEET 1 OF 5		DIST.	NUMBER A154-Ø-1
			REV. H

REVISIONS

SYM	CHANGE NO.	REV.
	A154-MR002	E
	A154-MR004	F
	A154-MR005	H

A154-Ø-1 H

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REVISIONS		
CHK	CHANGE NO.	REV.

(CTLI)

TITLE	SIZE	CODE	NUMBER	REV.
MNCAM MUX	D	CS	A154-Ø-1	H
SCALE	SHEET 2 OF 5	DIST.		

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+5V
R5Ø 43K
C28 15 MF
D16 D672
+3V

AIM A2T H
LS123 E10
CTLI PRS I H
CTLI PRH I L
CTLI PRS II H
CTLI PRH II L
LSØØ E3
LSØØ E0
LSØØ E1
LSØØ E4
LSØØ E33

CTLI LA2 L
LS244 E5
8Ø97 E18
CS Ø H
CS 1 H
CS 2 H
CS 3 H
CS 4 H
CS 5 H
CTLI DIF MODE I L
R49 1K

74145 E38
74145 E34
74145 E36
74145 E32
7432 E31
AIM AA2 H
AIM AB2 H
CTLI A1 H
CTLI AØ H
CTLI DIF MODE II L

R7Ø 75Ø
RG9 75Ø
RG8 75Ø
RG7 75Ø
RG6 75Ø
RG5 75Ø
RG4 75Ø
RG3 75Ø
R78 75Ø
R77 75Ø
R76 75Ø
R75 75Ø
R74 75Ø
R73 75Ø
R72 75Ø
R71 75Ø
LED 7
LED 6
LED 5
LED 4
LED 3
LED 2
LED 1
LED Ø
LED 15
LED 14
LED 13
LED 12
LED 11
LED 1Ø
LED 9
LED 8

+5V
C26 100 PF
R32 12K
R33 1K
R35 1K
R34 1K
C27 56Ø
LS123 E10
LSØØ E4
CTRL L
LS241 E6
74Ø6 E7
LS244 E4
CTL2 LDA H

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+5V
R79 43K
C33 15 MF
D17 DG72
74 LS123 E41
CTL INIT L
R81 1K
+5V
+5V
R80 43K
C34 15 MF
D16 DG72
74 LS123 E41

CTLI FAULT A H
CTLI FAULT B H
74 LS08 E40
74 LS08 E40

CTLI LAZ I L
CTLI SE I L
CTLI LAZ II L
CTLI SE II L
7402 E39

74Ø6 E37
R82 75Ø LED DIF 1
R83 75Ø LED SE 1
R84 75Ø LED DIF 2
R85 75Ø LED SE 2

J2
+12 V
LED SE 1
LED DIF 1
LED Ø
LED 4
LED 1
LED 5
LED 6
LED 7
LED 2
LED 3

J3
+12 V
LED 8
LED SE2
LED DIF 2
LED 12
LED 9
LED 13
LED 14
LED 15
LED 16
LED 11

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MNCAM MUX	D	CS	A154-Ø-1	H
SCALE	SHEET 4 OF 5	DIST.		

8 7 6 5 4 3 2 MR 1

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NOTES: 1. W1 TO BE REMOVED AFTER MODULE TESTING IN MODULE TEST AREA.

AA2, BA2, CA2, DA2

C29 THRU C32 15 µf

C1 THRU C12 .22 µf

C35 THRU C39 .22 µf

+5V

AC2, AT1, AM1, AJ1, BM1, BJ1, CC2, CT1, DC2, DT1, AF1 BC2, AH1

W1

BC1

+12V AD2, BD2

L1 22 µh

C24 39µf 20V

R36 150

R37 1K

SWA OUT L CN2

SWA IN L CN1

SWB IN L CL1

SWB OUT L CL2

LS04 E3

7406 E7

Q1 DEC 6534D

Q2 D45C6

Q3 D44C3

R38 470 1/2 W

R39 470 1/2 W

R40 82

L2 .22 µh

L3 .22 µh

D6 D672

D7 D672

C19 39µf 20V

TP1-L

D8 D672

D9 D672

D10 D672

D11 D672

D12 D672

D13 D672

D14 D672

D15 D672

C17 39µf 20V

C18 39µf 20V

C21 22µf

C22 22µf 35V

C23 22µf 35V

L4 22µh

L5 22µh

DV1, DV2

J1

F2

F1

DA1 +20V

DB2 -20V

C20 22µf 35V

C14 22µf 35V

C15 22µf 35V

C13 22µf 35V

C16 22µf 35V

DD1

DD2

VREF

POWER SUPPLY

REVISIONS		
CHK	CHANGE NO.	REV.

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

DEC PART NO. 800 130

MA

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY	M. Archie	CHECKED	SECTION
DATE	7 MARCH 78	DATE 17 MAY 78	1
ENG	OC Fb	PROD B Cook	ISSUED SECT.
DATE	23-May-78	DATE 23-May-78	1

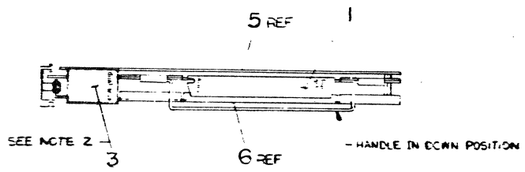
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MNCAM-0-0	MNCAM UNIT ASSY	1
2	MP00591	PRINT SET MNCAM	1
3	AA-D572A-TC	WORKING WITH MINC DEVICE	1

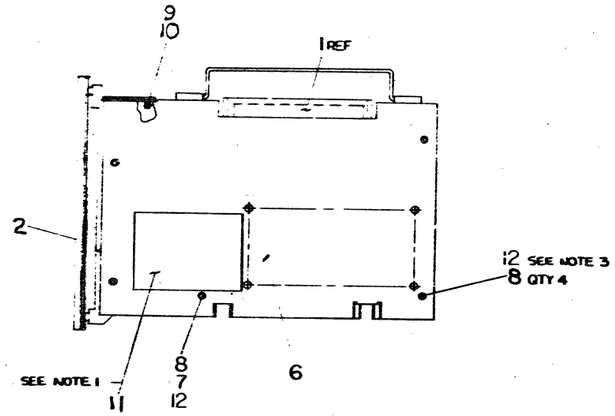
TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIP LIST MNCAM	SHEET 1 OF 1	A	PL	MNCAM-0-SH		

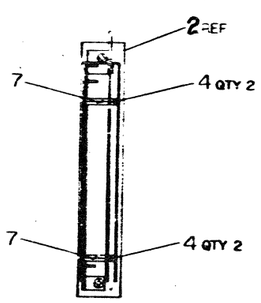
DIGITAL EQUIPMENT CORP. ERRA 1120

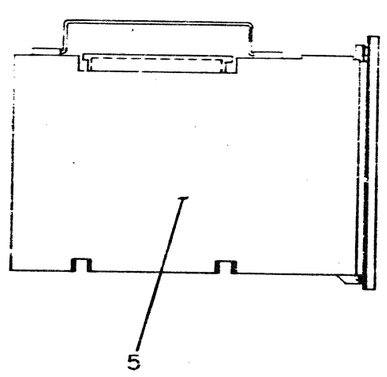
MR

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









ITEM	DESCRIPTION	DWG PART NO.	QTY
1	PACKAGING INSTRUCTIONS	A-SP-3700358-04	14
REF	CHKOUT & ACCEPT. PROCEDURE	A-SP-MNCAM-B-3	13
A/R	LOCKTITE	9009321	12
1	DECAL, INFORMATION (MNCAM)	A-DC-3615264-1-0	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-3618260-1-0	3
1	MNCAM SUB-ASSY	D-AD-7015403-0-0	2
1	CONN ASSY, I/O	D-IA-7014153-1-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ± 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 6	OVER 6 TO 12	OVER 12 TO 48	OVER 48 TO 120	OVER 120 TO 240	OVER 240 TO 480
32 FINISH QUALITY ✓	MEDIUM	± .005	± .008	± .012	± .016	± .024	± .032
1/2 DECIMALS	PREFERRED	± .01	± .016	± .025	± .04	± .063	± .1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH NONE

DRN

CHK

ENG

PROJ ENG

PROD

NEXT HIGHER ASSY. MNCAM

SCALE 1/2

SHEET 1 OF 1

FIRST USED ON MNCAM

TITLE MNCAM UNIT ASSY

SIZE D | CODE | NUMBER MNCAM 1-0 | REV. A

DIST.

REVISIONS			
DR	CHANGE NO.	REV.	
KDP	MNCAM-MR002	A	

J. Chin R. 11 Dec. '78

A. Fitz 12/12/78

D-IA MNCAM 1-0

AUTOMATED BY PRTLST.2E(3)

PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	B-MB-5012396-0-0	5012396-00	ETCH BOARD FOR 5412397	1	
2	2		1211851-00	CONN .150 11POS SIDE ENTRY	2	J2,J3
3	3		1114494-00	LED 1.0MCD@20MA	20	D1-D20
4	4	B-IA-7419858-0-0	7419858-00	BRACKET MODULE	1	
5	5		1215266-00	HOLDER, MUX LED	4	
6	6		9006010-01	SCREW,PAN,PHIL 4-40X 5/16 SS	2	
7	7		9006432-00	WASHER,LOCK,INT,.260OD X .120ID	2	
8	8		9006455-00	WASHER, FLAT, .312 O.D. X .125 I	2	

REVISION HISTORY			
ENG	ECO NUMBER	REV	SECTION A OF A
MM	00002	F	SECTION.VARIATION INDEX
AF	5412397-MR003	H	[A] 00
			[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

BASIC PART NO: 5412397

DRN:	E.WILSON	DATE: 7-OCT-77
CHK'D:	R.W.CAUNTER	DATE: 7-OCT-77
DES.ENG:	A.FILZ	DATE: 8-DEC-77
RESP.ENG.:	A.FILZ	DATE: 8-DEC-77
MFG.ENG.:	D.R.DANA	DATE: 15-DEC-77

ASSEMBLY NUMBER: B-UA-5412397-0-0

TOP DOCUMENT NUMBER: NNCAM

DIGITAL

TITLE: PARTS LIST
LED MOUNT

DOCUMENT NUMBER

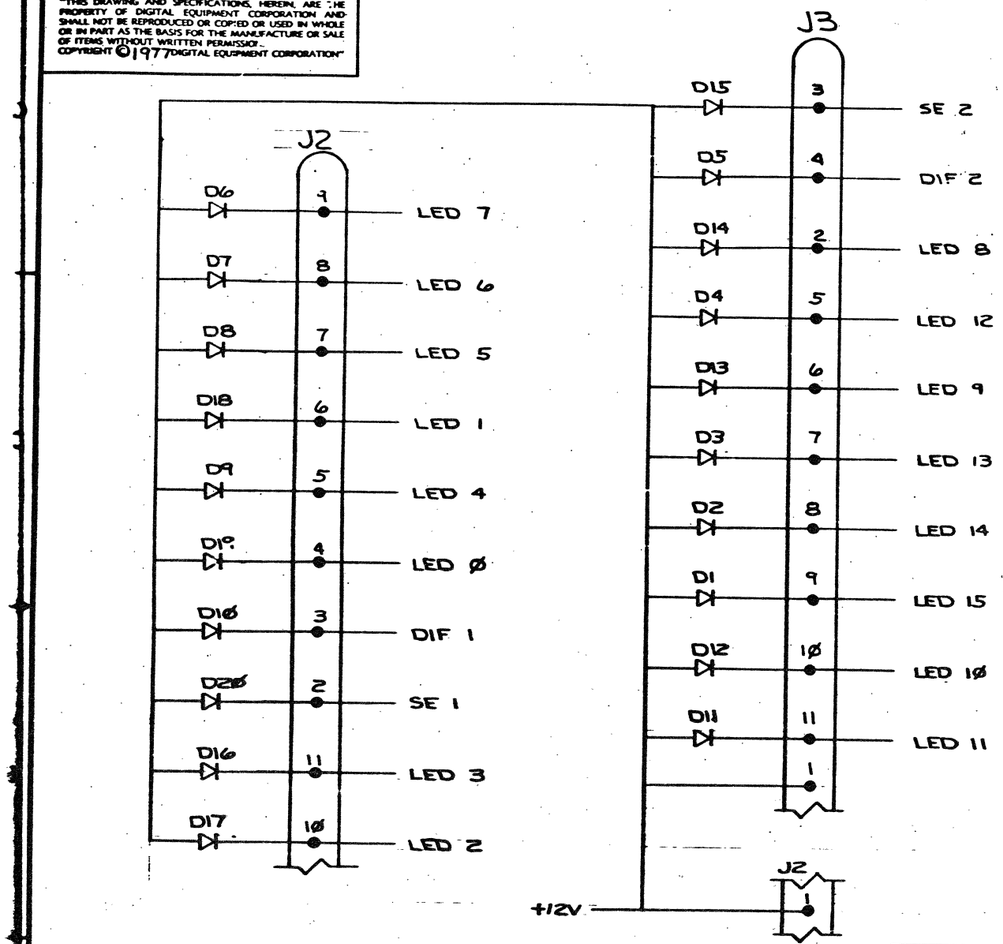
SIZE	CODE	NUMBER	REV
K	PL	5412397-0-DBP	H

FILE NAME: Z1940H.PLS

EDIT #: 4

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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
—		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
XXX ±0.10	XXX ±.005	±0° 30'
XX ±0.5	XX ±.02	
X ±2,	X ±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. T. Pieczulki	DATE 21-APR-77	digital
CHK'D. R.L. Cawston	DATE 21-APR-77	
ENG. J. Cliff	DATE 8-DEC-77	
PROJ. ENG. J. Shima	DATE 8-DEC-77	
PROD. D.R. Duncan	DATE 15-DEC-77	

TITLE: LED MOUNT

NEXT HIGHER ASSY. B-DD-5412397-Ø

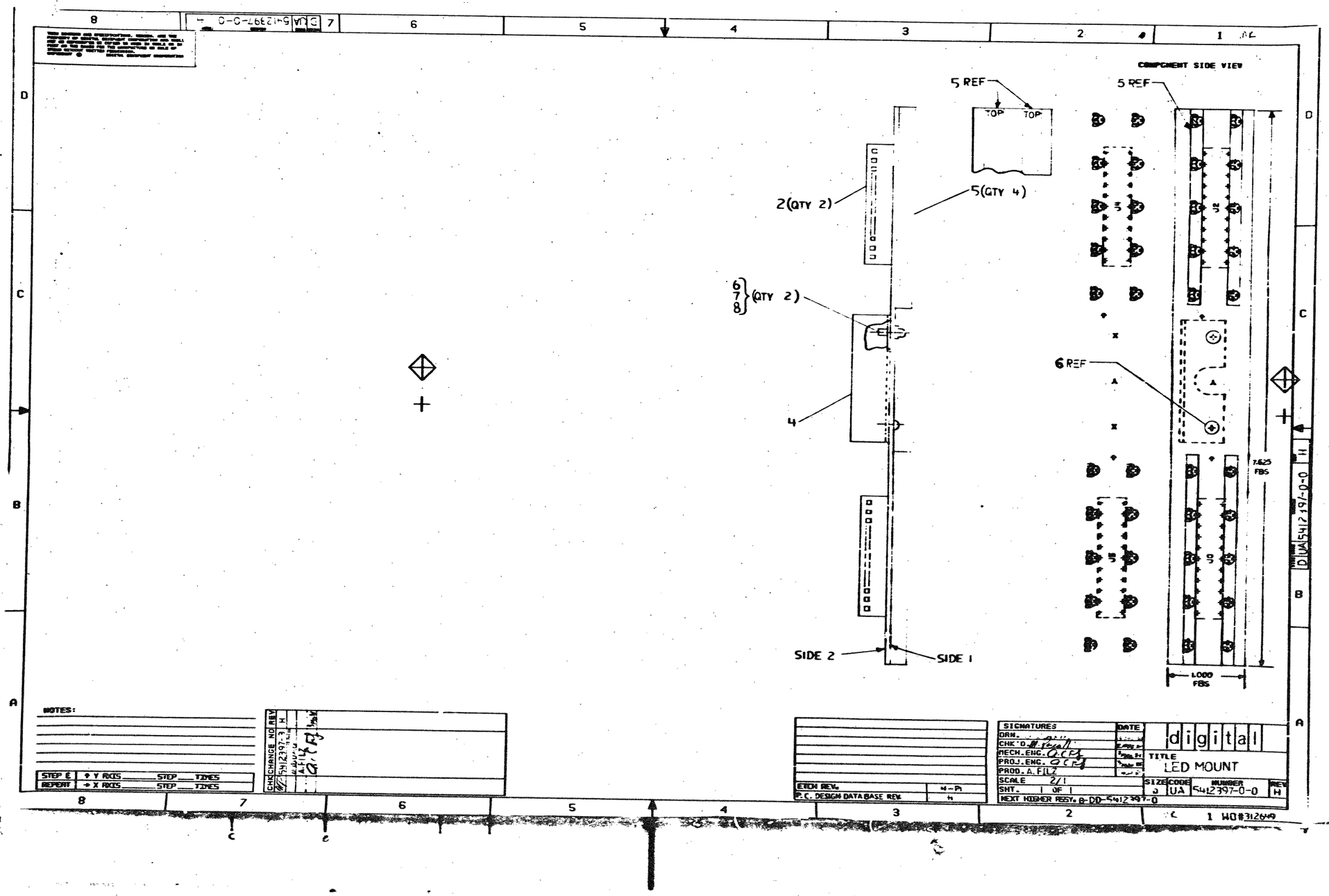
SCALE —

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
C	CS	5412397-Ø-1	D

DIST.

REVISIONS	CHANGE NO.	REV.
CHK		


COMPONENT SIDE VIEW
5 REF
TOP
TOP
5 REF
2(QTY 2)
5(QTY 4)
6
7
8 (QTY 2)
4
6 REF
SIDE 2
SIDE 1
7.625 FBS
1.000 FBS
NOTES:
STEP E + Y AXIS STEP TIMES
REPEAT → X AXIS STEP TIMES
CHANGE NO
REV
SIGNATURES
DATE
DRN.
CHK'D
MECH. ENG.
PROJ. ENG.
PROD. A. FILZ
SCALE 2/1
SHT. 1 OF 1
ETCH REV.
P.C. DESIGN DATA BASE REV.
NEXT HIGHER ASSY. B-DD-5412397-0
digital
TITLE
LED MOUNT
SIZE
CODE
NUMBER
REV
D
UA
5412397-0-0
H
WO#312649

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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 [signature] 7/11/78 | APPD [signature] 7-11-78 | SIZE A | CODE 99 | NUMBER MNCAM-0-4 | REV

DEC FORM NO. 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-DVMNA	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-01080-10-N370-(001) DRA 108

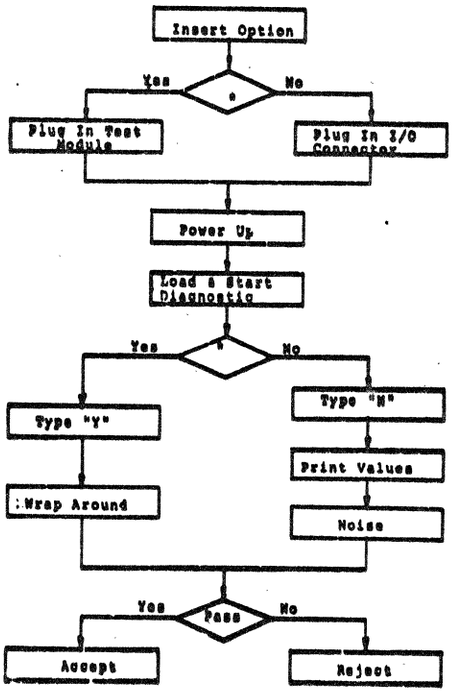
MR SHEET 2 OF 4

MR

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE MNCAM INSTALLATION/ACCEPTANCE PROCEDURE

1.4 PROCEDURE



*Test Module Available

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

DEC FORM NO EN-01080-10-N370-(001) 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 SK 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 "Y" 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-01080-10-N370-(001) DRA 108

MR SHEET 4 OF 4

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-MNCKW-0-1	MNCKW FIELD MAINTENANCE PRINT SET
	TABLE OF CONTENTS
B-DD-MNCKW-0	MNCKW UNIT ASSY
D-UA-M7953-0-0	REAL TIME CLOCK
K-PL-M7953-0-0	REAL TIME CLOCK
D-CS-M7953-0-1	REAL TIME CLOCK
A-PL-MNCKW-0-SH	SHIP LIST MNCKW
D-UA-MNCKW-0-0	MNCKW UNIT ASSY
A-GP-MNCKW-0-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MNCKW

MNCKW

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP-0593

REVISIONS	REV	CHG. NO.	DATE

USED ON OPTION/MODEL
MNCKW

SHEET 1 OF 1

DRN.	P. Yale	DATE 20-FEB-78
CHK'D	[signature]	DATE
PROJ. ENG.	[signature]	DATE 23-May-78
FIELD SERV.	C.F. Williams	DATE 25 May 78

digital

TITLE: MNCKW UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MNCKW-0-1	

DIST.

REV. | NUMBER MNCKW-0-1 | SIZE B | CODE TC

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UNIT VARIATIONS

VAR	TITLE
MNCKW	MNCKW UNIT ASSY

REVISIONS			
REV.		A	B
CHANGE NO.		MNCKW-1	MNCKW-2
CHK		ASC	FH

USED ON OPTION/MODEL: MNCKW

SHEET 1 OF 3

DRN.	M. Mahe	DATE 25 Dec 77
CHK'D.	J. Hallely	DATE 13 Feb 78
PROJ. ENG.	D. C. Rice	DATE 3/24/78
PROD.	[illegible]	DATE 3 [illegible] 79

TITLE: MNCKW UNIT ASSY

digital

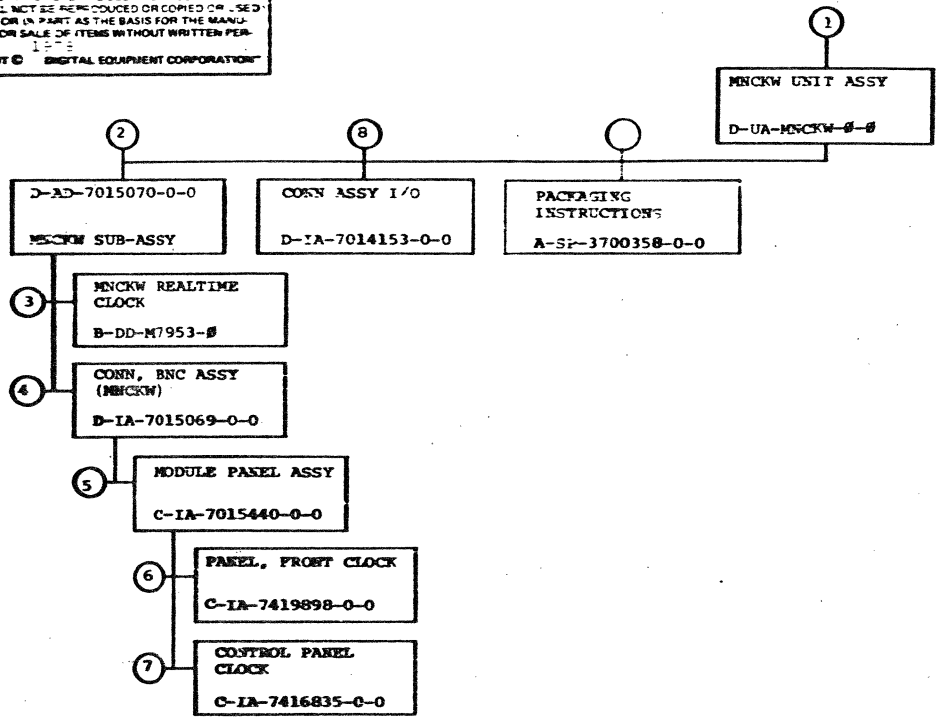
SIZE	CODE	NUMBER	REV
B	DD	MNCKW-0	B

DIST.

MR

DRD 105A

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TITLE		SIZE	CODE	NUMBER	REV
MNCKW UNIT ASSY	SHEET 2 OF 3	B	DD	MNCKW-0	B

DSB 162

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MPØØ593	FIELD MAINTENANCE PRINT SET	-
	B-TC-MNCKW-Ø-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MNCKW-Ø-Ø	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-3615254-0-0	DECAL, INFORMATION (MNCKW)	E/M
	A-PL-MNCKW-Ø-5	PARTS LIST MNCKW	E/M
	A-PI-MNCKW-Ø-SH	SHIP LIST MNCKW	E/M
	A-SP-MNCKW-0-2	MNCKW ENGINEERING SPEC.	E/M
	A-SP-MNCKW-Ø-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M
	A-SP-MNCKW-Ø-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/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
3	B-DD-M7953-Ø	MNCKW REALTIME CLOCK	E/M
	A-PL-M7953-Ø-Ø	REAL TIME CLOCK	E/M
	D-UA-M7953-Ø-Ø	REAL TIME CLOCK	E/M
	D-CS-M7953-Ø-1	REAL TIME CLOCK	E/M
4	D-IA-7015069-0-0	CONN, BHC ASSY (MPCKW)	E/M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
5	C-IA-7015440-0-0	MODULE PANEL ASSY	E/M
6	C-IA-7419898-0-0	PANEL, FRONT CLOCK	M
	C-PS-4830032-0-0	EXTRUSION, FRONT PANEL "D"	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
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
9	A-SP-3700358-0-0	PACKAGING INSTRUCTIONS	M

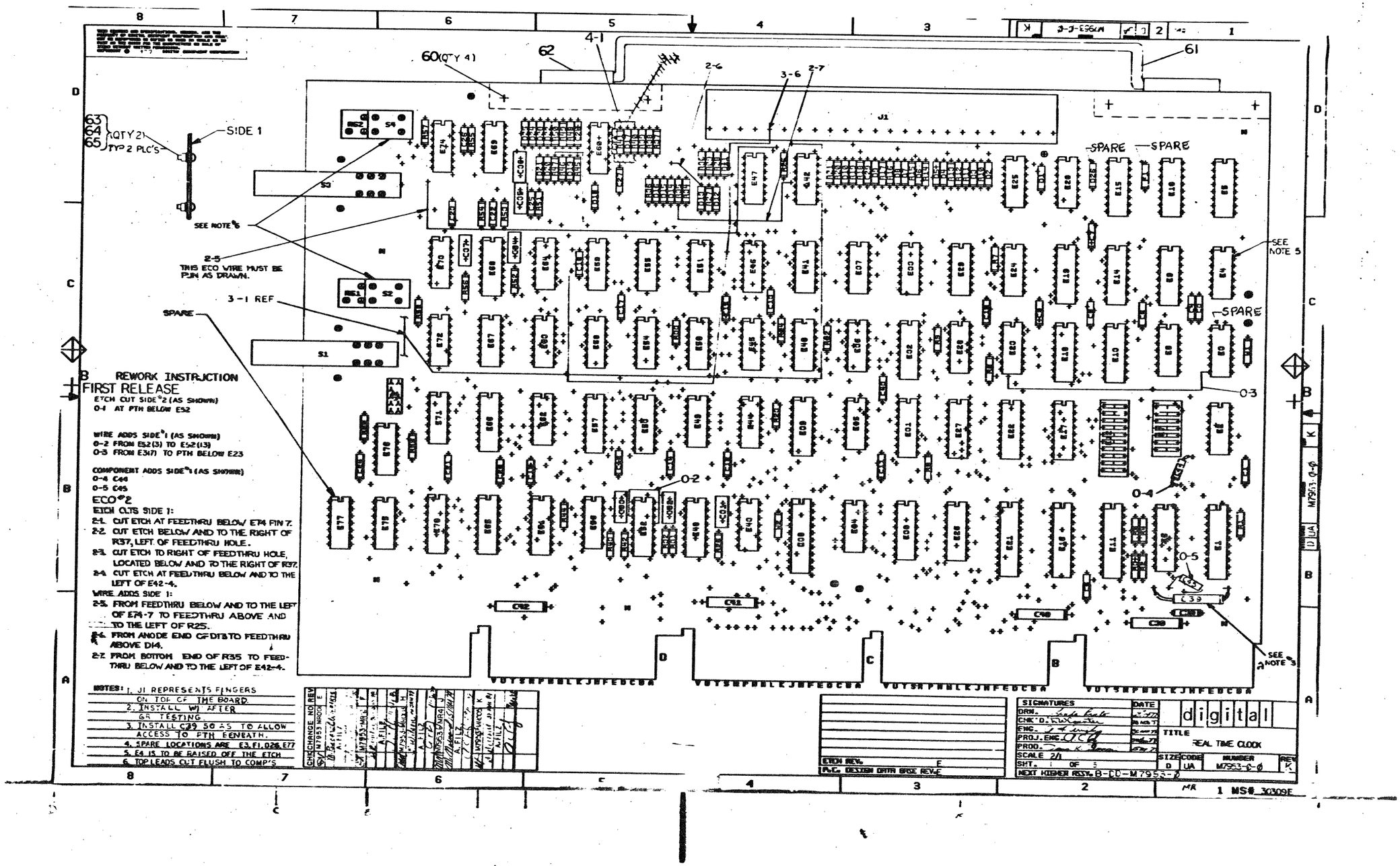
TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTROMECHANICAL

DSD 99A

digital

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

MR


60(QTY 4)
62
4-1
61
2-6
3-6
2-7
63
64
65
(QTY 2)
TYP 2 PLC'S
SIDE 1
SEE NOTE 6
2-5
THIS ECO WIRE MUST BE RUN AS DRAWN.
3-1 REF
SPARE
SPARE
SPARE
SPARE
SEE NOTE 5
SEE NOTE 3
0-1
0-2
0-3
0-4
0-5
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 E3(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: 1. J1 REPRESENTS FINGERS ON TOP OF THE BOARD.
2. INSTALL W1 AFTER QA TESTING.
3. INSTALL C39 SO AS 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 COMP'S
CHG CHANGE NO. REV
M7953 MKOO E
M7953-MR-F
M7953-MR-G
M7953-MR-H
M7953-MR-J
M7953-MR-K
ETCH REV. E
P.C. DESIGN DATA BASE REV. E
SIGNATURES
DRN.
CHK'D.
ENG.
PROJ. ENG.
PROD.
SCALE 2/1
SHT. 1 OF 5
NEXT HIGHER ASSY. B-CD-M7955-2
DATE
digital
TITLE
REAL TIME CLOCK
SIZE D
CODE UA
NUMBER M7953-0-0
REV K
MS# 30309E

REWORK INSTRUCTIONS CONTINUED

ECO #3

ETCH CUT, SIDE 1, AS SHOWN

3-1 CUT ETCH FROM J2-7 AT A POINT ABOVE S2
3-2 CUT ETCH TO THE LEFT OF UPPER MOUNTING HOLE OF R3C

ETCH CUT, SIDE 2, AS SHOWN

3-3 CUT ETCH FROM THE UPPER MOUNTING HOLE FOR R47 TO THE FEED THRU ABOVE
3-4 CUT ETCH BENEATH J1-5

WIRE ADD SIDE 1

3-5 FROM FEED THRL ABOVE AND TO THE LEFT OF E47 TO THE ETCH BELOW ETCH CUT 3-1 ROUTE AS SHOWN TO THE AREA BELOW S2
3-6 ADD WIRE FROM FEED THRU BELOW J1-5 TO UPPER MOUNTING HOLE FOR R47 ROUTE WIRE AS SHOWN

COMPONENT ADD, SIDE 1, AS SHOWN

3-7 ADD C46 10PF CAP ACROSS R40

ECO #4

COMPONENT DELETE, SIDE 1 AS SHOWN

4-1 DELETE C46 10PF CAP ACROSS R40

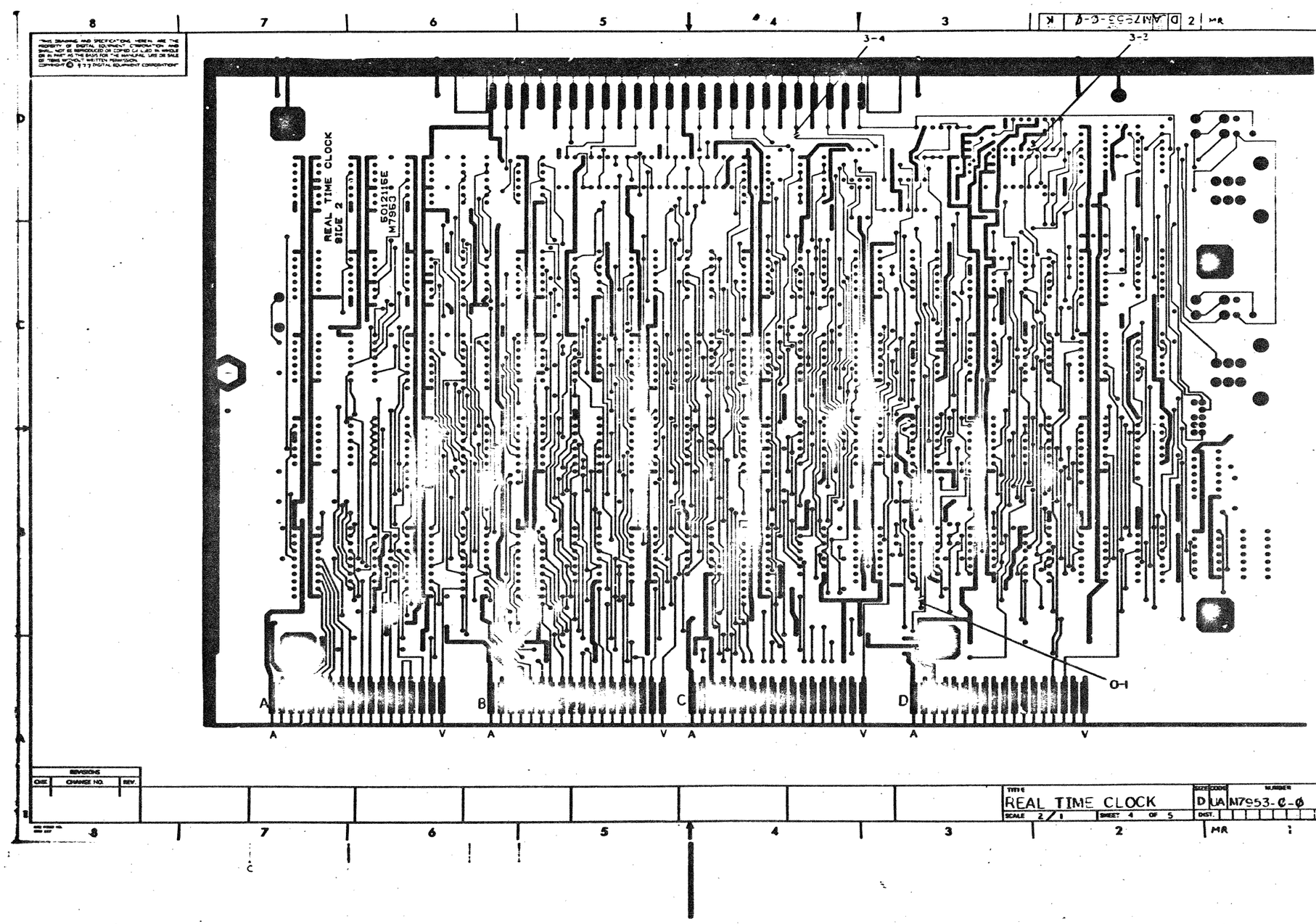
TITLE	REAL TIME CLOCK		
SCALE 2/1	SHEET 2 OF 5	DLA M7953-C-0	REV. K

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REVISIONS		
ONE	CHANGE NO.	REV.

TITLE: REAL TIME CLOCK	SIZE: D	CODE: UA	NUMBER: M7953-0-0
SCALE: 2/1	SHEET 3 OF 5	DIST.	REV: K

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REVISIONS		
ORIG	CHANGE NO.	REV.

TITLE: REAL TIME CLOCK
SIZE: D | CODE: UA | NUMBER: M7953-C-Ø | REV: K
SCALE: 2/1 | SHEET 4 OF 5 | DIST.
MR

D UA M7953-C-Ø K

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REVISIONS		
ENG	CHANGE NO	REV

TITLE	REAL TIME CLOCK	SIZE / CODE	NUMBER / REV
SCALE 2/1	SHEET 5 OF 5	D	DWM7953-0-0 K
		DST	
		PIR	

DWM7953-0-0 K

MR

AUTOMATED BY PRTLST,2D(11) — P A R T S L I S T — SHEET A1 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	B-MD-5012115-0-0	5012119-00	M7953	1	
2	2		1012784-00	.047 MFD 50V +80-20% CER	30	C1,C3-C28,C41
3	3		1000014-00	68.0 MMF 100V 5%200PPM MICA	1	C31
4	4		1000021-00	220.0 MMF 100V 5%200PPM MICA	6	C32-C37
5	5		1004012-00	15 MFD 20V 10% S,TANT	5	C38-C42
6	6		1000019-00	150.0 MMF 100V 5%200PPM MICA	2	C44,C45
7	7		1108796-00	1N 4004 PIV=400 Io 1A Do41 SP	16	D1-D15,D18
8	8		1100114-00	D 664 QS\TSPCB PIV= 25V SP	8	D16,D17,D19-D21,D23-D25
9	9		1110232-00	NCL1304 CLOCMA FROM10-80V	1	D22
10	10		1300368-00	1.0 K .25 W 5.0 % CC	23	R1,R6-R9,R10,R21-R25,R31,R33,
					CONT	R41-R43,R49,R55-R60
11	11		1301424-00	680.0 .25 W 5.0 % CC	2	R2,R4
12	12		1300299-00	330.0 .25 W 5.0 % CC	2	R3,R5
13	13		1310881-02	47.0 .25 W 1.0 % FUSE	6	R10,R12,R13,R16,R19,R29,R30,R34
14	14		1300316-00	470.0 .25 W 5.0 % CC	7	R11,R14,R15,R17,R26,R28,R38
15	15		1301674-00	5.60 K .25 W 5.0 % CC	2	R20,R32
16	16		1303179-00	8.20 K .25 W 5.0 % CC	3	R46,R52,R54
17	17		1302388-00	2.0 K .25 W 5.0 % CC	3	R27,R36,R48
18	18		1302466-00	100.0 K .25 W 5.0 % CC	2	R37,R47
19	19		1300595-00	1.8 M .25 W 5.0 % CC	2	R40,R48
20	20		1300426-00	2.70 K .25 W 5.0 % CC	2	R51,R53
21	21		1314355-00	50.0 K 10.0 W10.0 % POT	2	R61,R62
22	22		1011660-01	OSCILLATOR, XTAL 10.000 MHZ	1	Z4
23	23		1211164-03	SW,DIP 1P 1A 1POS	1	E9
24	24		1211164-06	SW,DIP 1P 1A 10POS	1	E12
25	25		1213498-00	CONN 10POS HOUSING	1	J2
26	26		1214937-00	SW,PB 2P PUSH PUSH	2	S1,S3
27	27		1912729-00	DC 004 PROTOCOL,REG, SELECT	1	Z1
28	28		1912824-00	LS74 FF=D DUAL,EDGE TRIGG	9	Z2,Z39,Z40,Z43,Z44,Z49,Z56,Z71,
					CONT	Z73

REVISION HISTORY			BASIC PART NO: M7953		DRN: S,WILSON	DATE: 29-NOV-77	DIGITAL
ENG	ECO NUMBER	REV	SECTION A OF A				
ENG	INIT	D	SECTION,VARIATION ID=XX		CHK'D: R,W,CAUNTER	DATE: 29-NOV-77	TITLE PARTS LIST
ENG	ENG001	E	[A] 00				REAL TIME CLOCK
ENG	ENG002	F	[B]		ENG: A,ARSENI	DATE: 30-NOV-77	
ENG	ENG003	H	[C]				
ENG	ENG004	J	[D]		REQ'D,ENG: A,FILE	DATE: 30-NOV-77	DOCUMENT NUMBER
ENG	M7953-ENG05	K	[E]				SIZE CODE NUMBER REV
			[F]		MFG: D,DUNCAN	DATE: 19-DEC-77	A PL M7953-0-000 K
			[G]				
			[H]		ASSEMBLY NUMBER: B-MA-M7953-0-0	TOP DOCUMENT NUMBER:	FILE NAME: EDIT 01
			[J]				194195,PLS 22
			[K]				
			[L]				
			[M]				
			[N]				

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MR

MR

AUTOMATED BY PRTLST,2D(11)

PARTS LIST

SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
29	29		1914127-00	74LS190 COUNTER,SYNCHR UP/DO	5	E8,E9,E10,E14,E15
30	30		1912710-00	DC 003 INTERRUPT,2 CIRCUIT	1	E6
31	31		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	4	E20,E25,E27,E75
32	32		1913006-00	DC 005 TRANSCEIVER 4BIT	4	E11,E16,E21,E38
33	33		1912867-00	LS298 MUX 1 OF 4,2IN W/S	4	E13,E27,E57,E65
34	34		1912647-00	LS257 MUX 1 OF 2 (QUAD)	4	E17,E30,E39,E61
35	35		1912854-00	LS193 COUNTER,SYNCHR,4BIT,	4	E18,E22,E53,E66
36	36		1912846-00	LS151 MUX 1 OF 8 & DATA	1	E19
37	37		1909705-00	DEC 8881 NAND GATE-QUAD 2IN G	2	E20,E47
38	38		1911469-00	DEC 8640 RCEIVER,BUS,QUAD,U	1	E23
39	39		1910932-00	74S00 NAND GATE-QUAD 2IN	1	E24
40	40		1910959-00	74S174 FF-D HEX	1	E26
41	41		1912981-00	74LS04 INVERTER GATE,HEX	3	E28,E34,E38
42	42		1912847-00	LS157 MUX 1 OF 2(QUAD)	1	E32
43	43		1912801-00	LS02 NOR-GATE-QUAD 2IN	5	E33,E41,E55,E63,E64
44	44		1912807-00	LS10 NAND GATE-TRIPLE 3IN	1	E35
45	45		1910937-00	74S11 AND GATE-TRIPLE 3INP	1	E36
46	46		1911198-00	DEC 7408 AND GATE,POS,QUAD 2I	1	E43
47	47		1912809-00	LS08 AND GATE-QUAD 2IN,PO	2	E49,E62
48	48		1909686-00	7404 INVERTER GATE-HEX 1I	2	E46,E67
49	49		1910931-00	9602 ONE SHOT-DUAL	3	E48,E52,E58
50	50		1912816-00	LS32 OR GATE-QUAD 2IN,POS	2	E51,E68
51	51		1910564-00	74S74 FF-D DUAL,EDGE TRIGG	2	E54,E59
52	52		1912108-00	339 VOLT CMPRTR,QUAD	1	E60
53	53		1911324-00	7414 INVERTER,HEX 1IN SCH	2	E69,E76
54	54		1912846-00	LS155 DECODER,2 OF 4(DUAL)	1	E70
55	55		1909930-00	7405 INVERTER GATE-HEX 1I	1	E73
56	56		1912829-00	LS86 E-OR GATE-QUAD 2IN	1	E74
57	57		1912697-00	LS174 FF-D HEX W/CLEAR	1	E31
58	58		9000108-00	JUMPER, WIRE, INSULATED, BLACK B	2	W1,W2
59	59		9000735-00	EYELET, FUNNEL FLANGE, .059 OD X	2	
60	60		9000732-00	EYELET,ROLL FLANGE .1210DX .219	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		9000000-81	SCREW,PAN,PHIL 2-56X 3/16 SS	4	
64	64		9000892-00	NUT,HEX , 2-56X3/16AF X 1/	4	
65	65		9000686-00	WASHER, LOCK, S,S, #2	4	
66	66		1913896-00	20.0 K .25 W 1.0 % RN550-710	4	R38,R39,R46,R50
67	67		9107236-11	TUBING,THIN WALL,.027ID UL	A/R	
68	68		1000004-00	*** THIS ITEM IS NOT USED ***	0	

DIGITAL	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
	REAL TIME CLOCK		E	80	7420[illegible]	E

MR

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NOTES:
1. C2 IS AN UNUSED DESIGNATION

SSO ADDR COMP H
BSYNC L
SSO RDAB 1 H
SSO RDAB Ø H
BWTBT L
BDOUT L
BDIN L
FIN VECTOR H
BIN XMIT H
BIN BRPLY L
BIN CSR L
BIN BPR L
BIN WR LB L
BIN WR HB L
BIN INWD L
SSO RDAB Ø H
SSO RDAB 1 H
SSO RDAB 2 H
SSO RDAB 3 H
SSO RDAB 4 H
SSO RDAB 5 H
BIN DCR Ø H
BIN DCR 1 H
BIN DCR 2 H
BIN DCR 3 H
BIN DCR 4 H
BIN DMA OFF H
ENC H
BIN DMA ON H
BIN DMA ON L
AA2,BA2,CA2,DA2,
AC2,AJ1,AM1,AT1,AE1,AH1
BC2,BJ1,BM1,BT1,
CC2,CT1,DC2,DT1
+5V
BIN PR
FIN INIT H
BIN CSRIN H
BIN INWD L
BIN INWD H
BIN DCR 3 H
BIN BPR L
BIN MUX BPR H
BIN WR BPR HB L
BIN WR BPR LB L
BIN R/W CSR LB H
BIN PWR ON L
BIN WR CSR HB H
BIN WR LB H
BIN WR HB H
ADE,BD2
CLK DAT L
DBH

BUS INTERFACE (BIN)

DRWN G Simmons	FIRST USED ON MICKW
CHK'D BY	TITLE REAL TIME CLOCK
ENGR	
PROJ. ENGR	
NEXT HIGHER ASSY.	
CS-M7953-0	SIZE D
SCALE	DRWG CS-M7953-0-1
SHEET 1 OF 6	REV. K
DIST.	

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SSO RDAB 10 H — 74LS04 E34 — SSO RDAB 10 L
SSO RDAB 12 H — 74LS04 E34 — SSO RDAB 12 L
SSO RDAB 15 H — 74LS04 E34 — SSO RDAB 15 L
SSO RDAB 7 H — 74LS04 E34 — SSO RDAB 7 L

E12
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11

E7
FIN VECTOR H
V3
V4
V5
V6
V7
V8

BDAL 15 L — BV2 — DC005 BUS 3 — SSO RDAB 15 H
BDAL 12 L — BS2 — DC005 BUS 2 — SSO RDAB 12 H
BDAL 11 L — BR2 — DC005 BUS 1 — SSO RDAB 11 H
BDAL 14 L — BU2 — DC005 BUS 0 — SSO RDAB 14 H
+5V — W2 — DC005 JA3 E38 — SSO ADDR COMP H
A11
BIN XMIT H — 7400 E43 — BIR INRQ L — 7408 E43 — BIR BRA ORL

BDAL 10 L — BP2 — DC005 BUS 3 — SSO RDAB 10 H
BDAL 9 L — BN2 — DC005 BUS 2 — SSO RDAB 9 H
BDAL 8 L — BM2 — DC005 BUS 1 — SSO RDAB 8 H
BDAL 13 L — BT2 — DC005 BUS 0 — SSO RDAB 13 H
A10
A9
A8
V8

BDAL 7 L — BK2 — DC005 BUS 3 — SSO RDAB 7 H
BDAL 6 L — BJ2 — DC005 BUS 2 — SSO RDAB 6 H
BDAL 5 L — BH2 — DC005 BUS 1 — SSO RDAB 5 H
BDAL 1 L — AM2 — DC005 BUS 0 — SSO RDAB 1 H
A7
A6
A5
BIR BRA OR H
V7
V6
V5

BDAL 4 L — BG2 — DC005 BUS 3 — SSO RDAB 4 H
BDAL 3 L — BF2 — DC005 BUS 2 — SSO RDAB 3 H
BDAL 2 L — BE2 — DC005 BUS 1 — SSO RDAB 2 H
BDAL 0 L — AM2 — DC005 BUS 0 — SSO RDAB 0 H
A4
A3
A2
SBS7 L — AP2
V4
V3
FIN VEC 2 H

74LS257 E30
BPC BPR 3 H — SSO RDAB 3 H
CSR RATE 0 H
BPC BPR 2 H — SSO RDAB 2 H
CSR MODE 1 H
BPC BPR 1 H — SSO RDAB 1 H
CSR MODE 0 H
BPC BPR 0 H — SSO RDAB 0 H
CSR GO H
OUT CONT
BIR MUX ON L
BIR MUX BPR H

74LS259 E17
BPC BPR 7 H — SSO RDAB 7 H
CSR OVFLOFLAB H
BPC BPR 6 H — SSO RDAB 6 H
FIN INTOV H
BPC BPR 5 H — SSO RDAB 5 H
CSR RATE 2 H
BPC BPR 4 H — SSO RDAB 4 H
CSR RATE 1 H

74LS259 E39
BPC BPR 11 H — SSO RDAB 11 H
CSR DIS INT OSC H
BPC BPR 10 H — SSO RDAB 10 H
CSR STIFLAB H
BPC BPR 9 H — SSO RDAB 9 H
BPC BPR 8 H — SSO RDAB 8 H

74LS259 E61
BPC BPR 15 H — SSO RDAB 15 H
CSR SIZFLAB H
BPC BPR 14 H — SSO RDAB 14 H
FIN INT ST EN H
BPC BPR 13 H — SSO RDAB 13 H
CSR ST2 GO ENABLE H
BPC BPR 12 H — SSO RDAB 12 H
CSR FOR H

* STANDARD ADDRESS WITH W2 INSERTED IS 17XXXX
REMOVE W2 FOR ADDRESS 76XXXX

TRANSCEIVERS & OUT MUX (SSO)

REVISIONS		
ECR	CHANGE NO.	REV.

TITLE	REAL TIME CLOCK		
SIZE D	CS M7953-0-1		REV K
SCALE	SHEET 2 OF 6		

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ST SET ST2 L
CSR ST2 GO ENABLE L
74 LS32 E58
CSR GO L
SSO RDAB Ø H
74 LS74 E56
74 LS64 E28
CSR GO H
BIN WR CSR LB H
74 LS08 E62
CSR INIT L
74 LS32 E51
BPC SET OVFLO L
74 LS00 E45
FIN INIT L

+5V
R23 1K
SSO RDAB 11 H
74 LS74 E44
CSR DIS INT OSC H
CSR DIS INT OSC L
74 LS38 E43
BIN WR CSR HB H
SSO RDAB 9 H
74 LS08 E62
BIN WR CSR HB H
SSO RDAB 8 H
74 LS08 E62
CSR ST2 SIM H
CSR ST1 SIM H

793/4 E26
SSO RDAB 5 H
SSO RDAB 4 H
SSO RDAB 3 H
SSO RDAB 2 H
SSO RDAB 1 H
CSR RATE 2 H
CSR RATE 1 H
CSR RATE Ø H
CSR GO H
FIN INIT L
BIN WR CSR LB H

CSR MODE 1 H
CSR MODE Ø H
CSR M3 L
CSR M2 L
CSR M1 L
CSR MØ L

CSR M2 L
CSR PS ST1 L
74 LS02 E55
74 LS02 E64
CSR M3 L
BPC CLK ENBL L
74 LS00 E41
74 LS08 E8
CSR GO 2 L
CSR GO 2 H
74 LS04 E28

ST SET ST2 L
CSR ST2 FLAG L
74 LS74 E54
74 LS64 E67
DF2 DATA FLAG H
74 LS64 E58
CSR ST2 FLAG H
CSR ST2 FLAG L
+5V
R33 1K
BIN CSRH H
CSR ST2 FLAG L
74 LS04 E37
74 LS10 E35
BIN WR CSR HB H
SSO RDAB 13 L
74 LS08 E45
FIN INIT L

BPC SET OVFLO L
CSR OVFLO FLAG H
CSR OVFLO FLAG L
R22 1K
+5V
74 LS74 E56
74 LS64 E58
74 LS74 E44
BIN WR CSR HB H
74 LS04 E37
74 LS10 E35
CSR GO1 - INIT L
74 LS08 E45

CSR INTE 2 H
CSR INTE 1 H
74 LS08 E8
ST SET ST1 L
74 LS02 E33
74 LS32 E51
CSR PS ST1 L
CSR INTE Ø H
+5V
R21 1K
74 LS74 E39
CSR ST1 FLAG L
74 LS64 E58
CSR ST1 FLAG H
CSR ST1 FLAG H
CSR ST1 FLAG L
74 LS74 E42

+5V
C32 220pf
R32 1K
CSR GO L
74 S40 E52
CSR GO 1 TR H
CSR GO 1 TR L
FIN INIT L

SSO RDAB 13 H
74 LS08 E62
CSR ST2 GO ENABLE H
CSR ST2 GO ENABLE L
BIN WR CSR HB H
CSR GO1 TR L
FIN INIT L
74 LS08 E43
CSR GO1 - INIT L

BIN CSRH H
CSR ST1 FLAG L
74 LS04 E37
74 LS10 E36
BIN WR CSR HB H
SSO RDAB 14 L
FIN INIT H
74 S11 E34
74 LS02 E63

BIN CSRIN H
CSR FDR L
74 LS04 E37
74 LS10 E35
BIN WR CSR HB H
SSO RDAB 12 L
CSR GO1 - INIT L
74 LS08 E45

FIN SET ISA L
CSR ISA H
+5V
R24 1K
74 S74 E57
CSR ISA L
74 LS74 E48
CSR FDR H
CSR FDR L
BIN SVD H

CONTROL AND STATUS REGISTER (CSR)

REVISIONS		
ECO	CHANGE NO.	REV.

TITLE	REAL TIME CLOCK		DCS	M7953-Ø-1
SCALE		SHEET 3 OF 6	SIZE	K

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

ST ST1 IN
ST ST2 IN
ST LEVEL 1
ST LEVEL 2
ST1 SLOPE SWITCH (CLOSE=+)
ST2 SLOPE SWITCH (CLOSE=+)
FIN INIT L
CSR ST1 SIM H
CSR ST2 SIM H
ST SET ST1 H
ST SET ST1 L
ST SET ST2 H
ST SET ST2 L
ST ST1 OUT L
ST ST2 OUT L
ST ST1 SIM H
ST TTL REF
CSR GO L
CSR GO H
ST SET ST1 H
FIN 1 MN 2 L
S2, S1 SHOWN SHAFT EXTENDED ("VARIABLE" POSITION)

SCHMITT TRIGGERS (ST)

REVISIONS		
ECR	CHANGE NO.	REV.

TITLE	REAL TIME CLOCK	DCSM7953-0-1	K
SCALE	SHEET 4 OF 5	DIST.	

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NOTES:
1. INSTALL W1 AFTER GR. TEST.

FREQUENCY DIVIDER AND INTERUPT (FIN)

REAL TIME CLOCK

D CSM7953-Ø-1 K

SHEET 5 OF 6

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SSO RDAB Ø H
BPC CTR Ø H
SSO RDAB 1 H
BPC CTR 1 H
SSO RDAB 2 H
BPC CTR 2 H
SSO RDAB 3 H
BPC CTR 3 H
BPC CLK BPR LB L
SSO RDAB 4 H
BPC CTR 4 H
SSO RDAB 5 H
BPC CTR 5 H
SSO RDAB 6 H
BPC CTR 6 H
SSO RDAB 7 H
BPC CTR 7 H
SSO RDAB 8 H
BPC CTR 8 H
SSO RDAB 9 H
BPC CTR 9 H
SSO RDAB 10 H
BPC CTR 10 H
SSO RDAB 11 H
BPC CTR 11 H
BPC CLK BPR HB L
SSO RDAB 12 H
BPC CTR 12 H
SSO RDAB 13 H
BPC CTR 13 H
SSO RDAB 14 H
BPC CTR 14 H
SSO RDAB 15 H
BPC CTR 15 H

BPC BPR Ø H
BPC BPR 1 H
BPC BPR 2 H
BPC BPR 3 H
BPC BPR 4 H
BPC BPR 5 H
BPC BPR 6 H
BPC BPR 7 H
BPC BPR 8 H
BPC BPR 9 H
BPC BPR 10 H
BPC BPR 11 H
BPC BPR 12 H
BPC BPR 13 H
BPC BPR 14 H
PPC BPR 15 H

CSR M1 L
CSR M0 L
CSR M1 L
BPC SET OVFLO H
CSR GO I TR H
BPC M2+M3 H
FIN INIT H
BIN BPR L
CSR GO L
CSR ST2 FLAG H
FIN 2 DONE H
CSR GO H
BPC FIRE BP H
BPC OVRFLO H
BPC SET OVFLO L
BPC OVRFLO H
R44 IK
R42 IK
+5V
R27 2K
D13 IN4684
D12 IN4684
R29 47 FUSIBLE
CLR OVFL L
BPC CLK OV L
J1
J2
C33 220PF
C31 680PF
R26 5.6K
R31 IK
R57 2.7K
C34 220PF
FIN INIT L
BPC FIRE BP H
CSR M2 L
CSR M3 L
BPC M2+M3 H
BPC INIT DEL L
BIN WR BPR LB L
BIN WR BPR HB L
BPC INIT DEL L
BPC CLK BPR LB L
BPC CLK BPR HB L
FIN SEL CLK L
CSR GO2 L

BPC CTR Ø H
BPC CTR 1 H
BPC CTR 2 H
BPC CTR 3 H
BPC CTR 4 H
BPC CTR 5 H
BPC CTR 6 H
BPC CTR 7 H
BPC CTR 8 H
BPC CTR 9 H
BPC CTR 10 H
BPC CTR 11 H
BPC CTR 12 H
BPC CTR 13 H
BPC CTR 14 H
BPC CTR 15 H

BUFFER/PRESET & COUNTER REGS (BPC)
REAL TIME CLOCK
DCS M7953-Ø-1 REV K
SHEET 6 OF 6

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	M. Archie	CHECKED	SECTION
DATE	7 MARCH 78	DATE 17 MAY 78	1
ENG	C. C. Ly	PROD B Cook	ISSUED SECT.
DATE	23-MAY-78	DATE 23-MAY-78	1

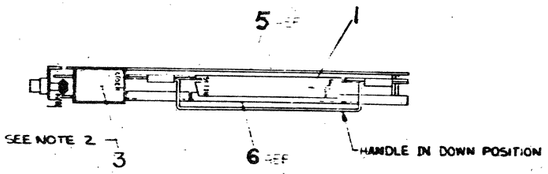
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MNCKW-0-0	MNCKW UNIT ASSY	1
2	MP00593	PRINT SET MNCKW	1
3	AA-D572A-TC	WORKING WITH MINC DEVICE	1

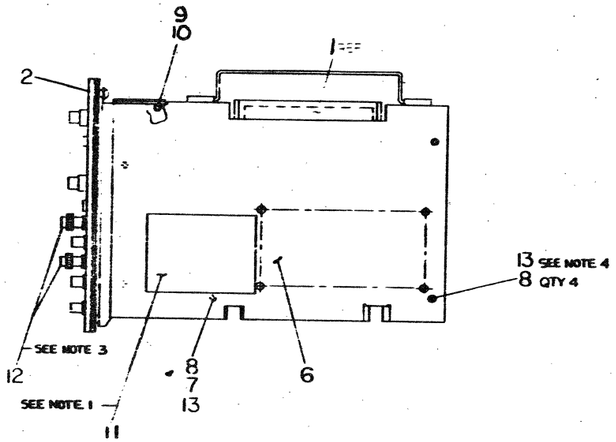
TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIP LIST MNCKW	-	A	PL	MNCKW-0-SH		
	SHEET 1 OF 1		DIST			

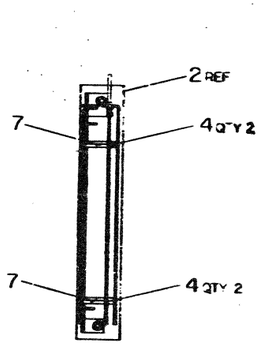
DEC FORM
SMA 110

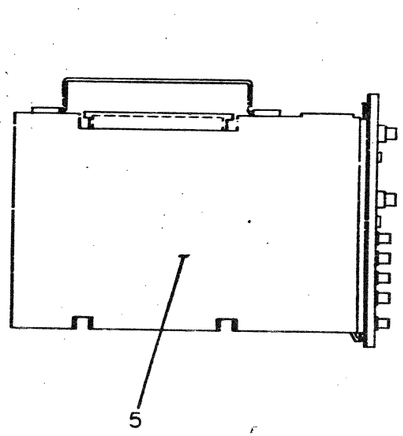
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NOTES:
1. ITEM "11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
2. ITEM "3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM "5.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









1	PACKAGING INSTRUCTIONS	A-SP-3700358-01	15
REF	CHECKOUT & ACCEPT. PROCEDURE	A-SP-MINCKW-8-3	14
AR	LOCKTITE	9009321	13
2	BNC SHORTING	B-IA-7009993-0-0	12
1	DECAL, INFORMATION (MINCKW)	A DC-3415264-6-0	11
1	NUT, KEPS 4-32	9008185	10
1	WASHER, FLAT	9006653	9
5	SCR, FLAT HD 6-32 x .25	9006C20-02	8
3	SPACER, THREADED 6-32 x .88	9006841	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-3415260-6-0	3
1	MINCKW SUB-ASSY	D-AD-7015070-0-0	2
1	CONN ASSY, I/O	D-IA-7014153-4-0	1
	DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ± 30'	CLASS OF ASSEMBLY	NOMINAL DIMENSION RANGE INCHES					
		0 to 0.5	0.5 to 1.2	1.2 to 3.0	3.0 to 6.0	6.0 to 12.0	12.0 to 24.0
SURFACE FINISH 125	MISSING	±.004	±.005	±.012	±.015	±.020	±.030
WORKBENCHES	PREFERRED	±.012	±.015	±.020	±.04	±.060	±.090

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DRWG

MATERIAL: SEE PARTS LIST
FINISH: NONE

DRN: [illegible]
CHK'D: [illegible]
ENG: [illegible]
PROJ. ENG: [illegible]
PROD. SCHED: [illegible]

NEXT HIGHER ASSY: MINCKW-[illegible]
SCALE: 1/2
SHEET 1 OF 1

FIRST USED ON: MINCKW

TITLE: MINCKW UNIT ASSY

SIZE: D | CODE: [illegible] | NUMBER: MINCKW-[illegible]C | REV: A
DIST:

REVISIONS		
DWR	CHANGE NO.	REV.
[illegible]	MINCKW-MR0021	A
[illegible]	6/21/78	
[illegible]	7/11/78	
[illegible]	[illegible]	

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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	APPD	SIZE	CODE	NUMBER	REV
	24-JUL-78	A	8P	MNCKW-0-4	

DEC 10-(3SB)-10790A-M87S
DRA 107A

SHEET 1 OF 1

MR

MR

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 FAAT, 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	CODE	NUMBER	REV
A	8P	MNCKW-0-4	

DEC FORM NO BN-01088-10-M370-(381)
DRA 108

SHEET 2 OF 3

MR

MR

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	CODE	NUMBER	REV
A	8P	MNCKW-0-4	

DEC FORM NO BN-01088-10-M370-(381)
DRA 108

SHEET 3 OF 3

MR

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-MNCDO-0-1	MNCDO FIELD MAINTENANCE PRINT SET
	TABLE OF CONTENTS
B-LD-MNCDO-0	MNCDO UNIT ASSY
D-UA-M6003-0-0	DIGITAL OUTPUT
K-PL-M6003-0-0	DIGITAL OUTPUT
D-CS-M6003-0-1	DIGITAL OUTPUT
A-PL-MNCDO-0-SH	SHIP LIST MNCDO
D-UA-MNCDO-0-0	MNCDO UNIT ASSY
A-IP-MNCDO-0-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MNCDO

MNCDO

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP-0594

MNCDO-0-1

REVISIONS		
DATE	CHG. NO.	REV
10NOV78	MNCDO-MR003	A

USED ON OPTION/MODEL
MNCDO

SHEET 1 OF 1

DRN.		DATE 28-FEB-78
CHK'D		DATE 17MAR78
PROJ. ENG.		DATE 23-May-78
FIELD SERV.	C. L. Williams	DATE 25May78

digital

TITLE: MNCDO UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MNCDO-0-1	A

DIST.

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UNIT VARIATIONS

VAR	TITLE
MRCDO	MRCDO UNIT ASSY

REVISIONS			
CHK	CHANGE NO.	REV.	
	MRCDO-1	A	
	MRCDO-2	B	

USED ON OPTION/MODEL: MRCDO

DRN.	N. Meeker	DATE 29 Dec 77
CHK'D.	[illegible]	DATE 17 Feb 78
Q.C.	[illegible]	DATE 2/16/78
[illegible]	[illegible]	DATE 2/17/78

SHEET 1 OF 3

TITLE: MRCDO UNIT ASSY

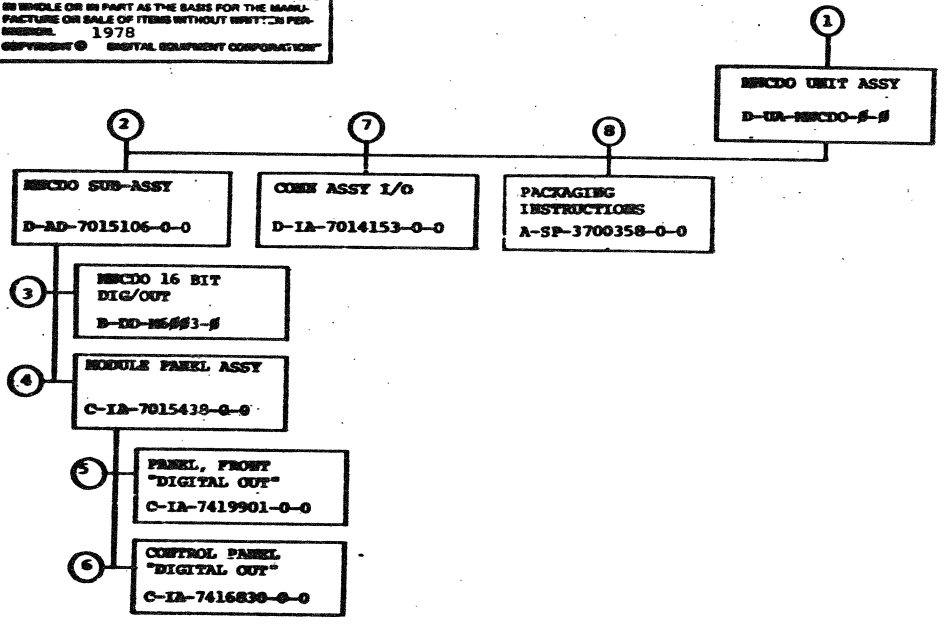
digital

SIZE	CODE	NUMBER	REV
B	DD	MRCDO-0	B

DIST.

DRB 765A

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TITLE	SHEET	SIZE	CODE	NUMBER	REV
MRCDO UNIT ASSY	2 OF 3	B	DD	MRCDO-$C	B

MR

PR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP##594	FIELD MAINTENANCE PRINT SET	-
	B-TC-MSCD#-#-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MSCDO-#-#	MSCDO 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 (MSCDO)	E/M
	A-PL-MSCDO-#-5	PARTS LIST MSCDO	E/M
	A-PL-MSCDO-#-SH	SHIP LIST MSCDO	E/M
	A-SP-MSCDO-#-2	MSCDO ENGINEERING SPEC.	E/M
	A-SP-MSCDO-#-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M
	A-SP-MSCDO-#-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M
2	D-AD-7015106-0-0	MSCDO SUB-ASSY	M
	B-MD-7420242-0-0	SPACER, MODULE	M
	C-IA-7419863-0-0	SUB PANEL	M
	B-IA-7420635-0-0	BUTTON SWITCH (MODIFIED)	M
3	B-DD-M5##3-#	MSCDO 16 BIT DIG/OUT	E/M
	A-PL-M5##3-#-#	DIGITAL OUTPUT	E/M
	D-UA-M5##3-#-#	DIGITAL OUTPUT	E/M
	D-CS-M5##3-#-1	DIGITAL OUTPUT	E/M
4	C-IA-7015438-0-0	MODULE PANEL ASSY	M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
5	C-IA-7419901-0-0	PANEL, FRONT "DIGITAL OUT"	M
	C-PS-4830032-0-0	EXTRUSION, FRONT PANEL "D"	M
6	C-IA-7416830-0-0	CONTROL PANEL "DIGITAL OUT"	M
	C-SS-7416830-01	CONTROL PANEL	M
	C-SS-7416830-02	CONTROL PANEL	M
	C-SS-7416830-03	CONTROL PANEL	M
	C-SS-7416819-02	CONTROL PANEL	M
7	D-IA-7014153-0-0	CONN ASSY I/O	E/M
	A-DC-7416837-0-0	DECAL I/O CONN	E/M
	A-DC-7418934-5-0	DECAL I.D. I/O CONN	E/M
8	A-SP-3700358-0-0	PACKAGING INSTRUCTIONS	M

TYPE: E ELECTRICAL
M MECHANICAL
EM ELECTROMECHANICAL

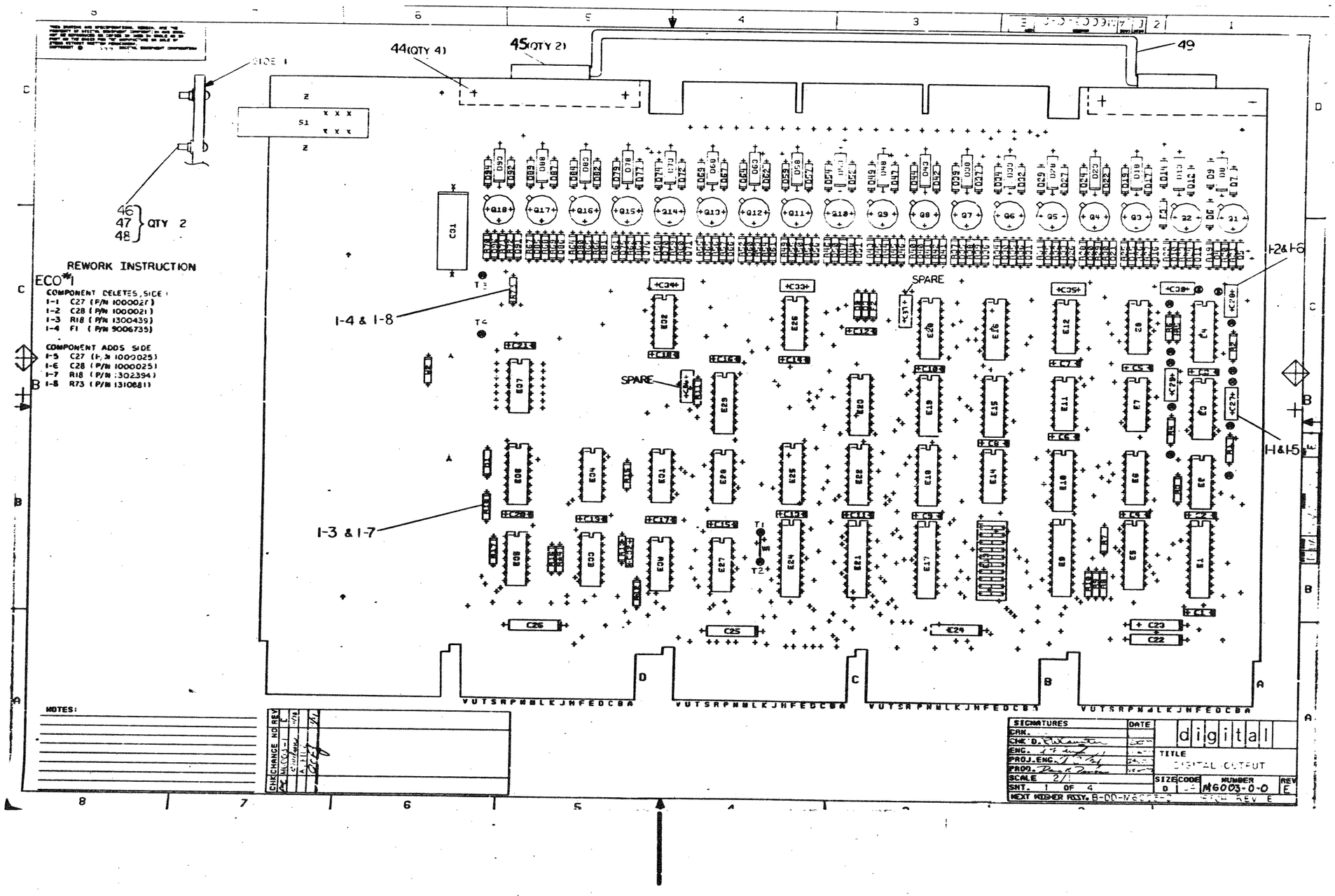
DRB REA

digital

TITLE: MSCDO UNIT ASSY

SHEET 3 OF 3 | SIZE B | CODE DD | NUMBER MP720-# | REV B

MR


SIDE 1
44 (QTY 4)
45 (QTY 2)
49
46
47
48
QTY 2
REWORK INSTRUCTION
ECO #1
COMPONENT DELETES, SIDE 1
1-1 C27 (P/N 1000027)
1-2 C28 (P/N 1000021)
1-3 R18 (P/N 1300439)
1-4 F1 (P/N 9006735)
COMPONENT ADDS SIDE
1-5 C27 (P/N 1000025)
1-6 C28 (P/N 1000025)
1-7 R18 (P/N 1302394)
1-8 R73 (P/N 1310881)
1-4 & 1-8
1-3 & 1-7
SPARE
SPARE
1-2 & 1-6
1-1 & 1-5
NOTES:
CHK CHANGE NO REV
SIGNATURES
DRN.
CHK'D.
ENG.
PROJ. ENG.
PROD.
SCALE 2/1
SHT. 1 OF 4
DATE
digital
TITLE
DIGITAL I/O PUT
SIZE D
CODE
NUMBER M6003-0-0
REV E

M6003 5012114 E

SIDE 1

digital

E32 E26 E20 E12 E8

E37 E29 E23

E34

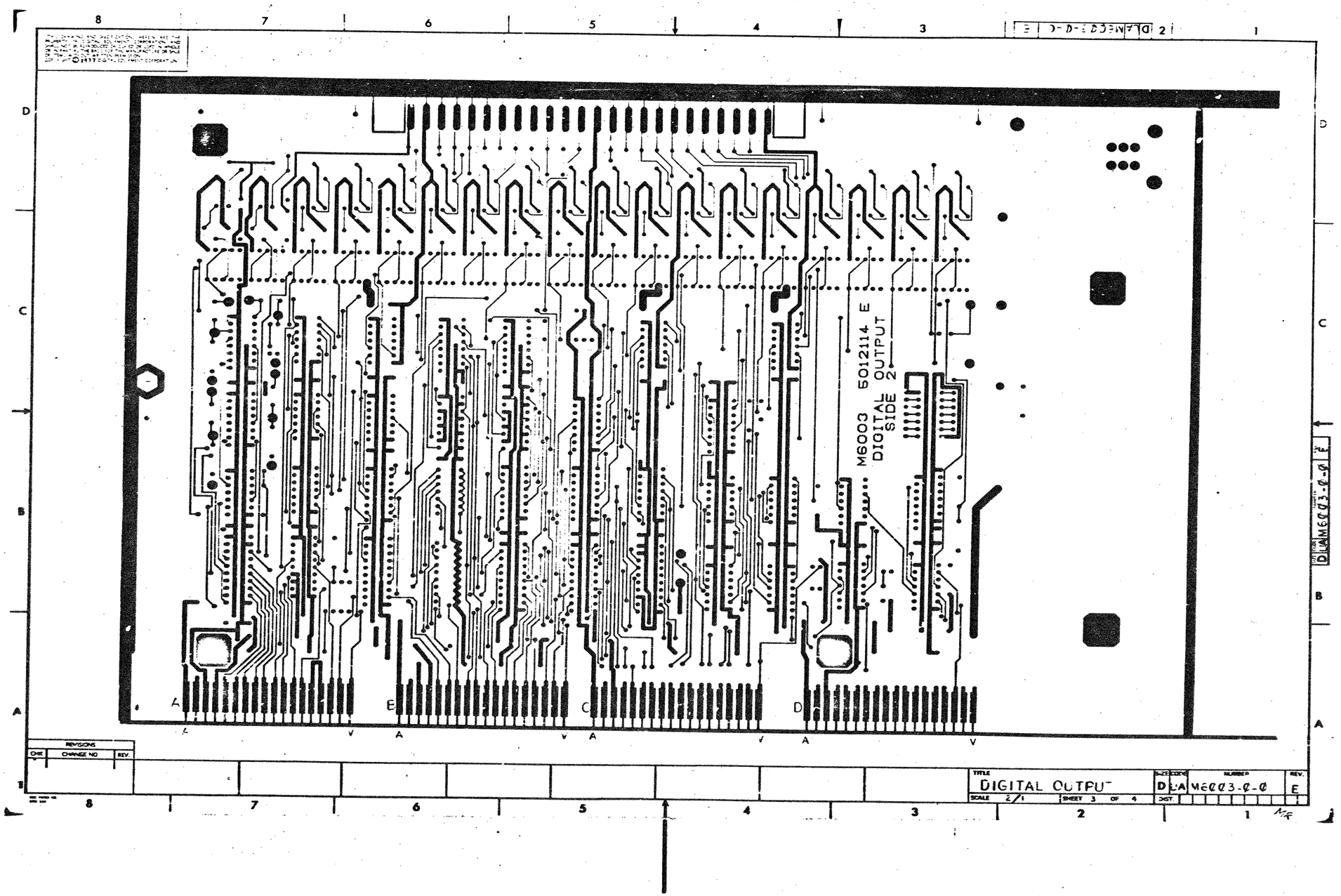
W1

D C B A

REVISIONS

ZONE	CHANGE NO	REV

TITLE: DIGITAL OUTPUT	SIZE: D	CODE: JA	NUMBER: M6003-C-0
SCALE: 2/1	SHEET 2 OF 4	DIST.	REV. E


M6003 5012114 E
DIGITAL OUTPUT
SIDE 2
A
B
C
D
REVISIONS
ZONE
CHANGE NO
REV.
TITLE
DIGITAL OUTPUT
SIZE
D
CODE
LA
NUMBER
M6003-0-0
REV.
E
SCALE 2/1
SHEET 3 OF 4
DIST

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REVISIONS		
ECR	CHANGE NO.	REV

TITLE: DIGITAL CUTPUT					SIZE: D	CODE: LA	NUMBER: M8003-0-0	REV: E
SCALE: 2/1	SHEET 4 OF 4				DIST:			

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY [illegible] DATE 24-Oct-77
CHECKED Pat Saunter DATE 15 Aug 77
SECTION 1
ENG Q.A. Angh DATE 29 OCT 77
PROD Dan Duncan DATE 25 OCT 77
ISSUED SECTION 1

NOTES:
1. SPARE LOCATIONS ARE: C36,C37 ,E37

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
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		10CC025-CC	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 7POS	1	E14
14		1211164-06	SWITCH PACK 10POS	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. M-ROOT

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TITLE: DIGITAL OUTPUT

ASSY NO.: D-UA-M6003-0-0
SHEET 1 OF 3

SIZE: B | CODE: PL | NUMBER: M5953-0-0 | REV.: E

AUTOMATION PARTS LIST DATA BASE REV

HR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY [illegible] DATE 12 Oct 77	CHECKED [illegible] DATE 5 Nov 77	SECTION 1
ENG R.A. Angle DATE 24 Oct 77	PROD Jane E. Jones DATE 25 Oct 77	ISSUED SECTION 1

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
17		1301424	RES. 680, 5%, ¼W	2	R7,R1Ø
18		1300295	RES. 330, 5%, ¼W	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%, ¼W	1	R18
20		1310881-01	RES. 330, 1%, ¼W, 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, 1/4 W, 1% FUSIBLE	1	R73
22		1SC9632	TRANS. DEC 2ØØ7	18	Q1 THRU Q18
23		1912729	I.C. DEC DCØØ4	1	E1
24		1910155	I.C. DEC 7402	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

E.C.O. NO.

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TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
DIGITAL OUTPUT	D-UA-M5ØØ3-Ø-Ø	B	PL	M5ØØ3-Ø-Ø	E
	SHEET 2 OF 3	DESCRIPTION PARTS LIST DATA BASE REV			

MP

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY P Wilson DATE 24 OCT 77 | CHECKED Richard Tu DATE 12 Jan 77 | SECTION 1
ENG A F Quigley DATE 24 OCT 77 | PROD Jack Inman DATE 25 OCT 77 | ISSUED SECTION 1

QUANTITY / VARIATION

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	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.

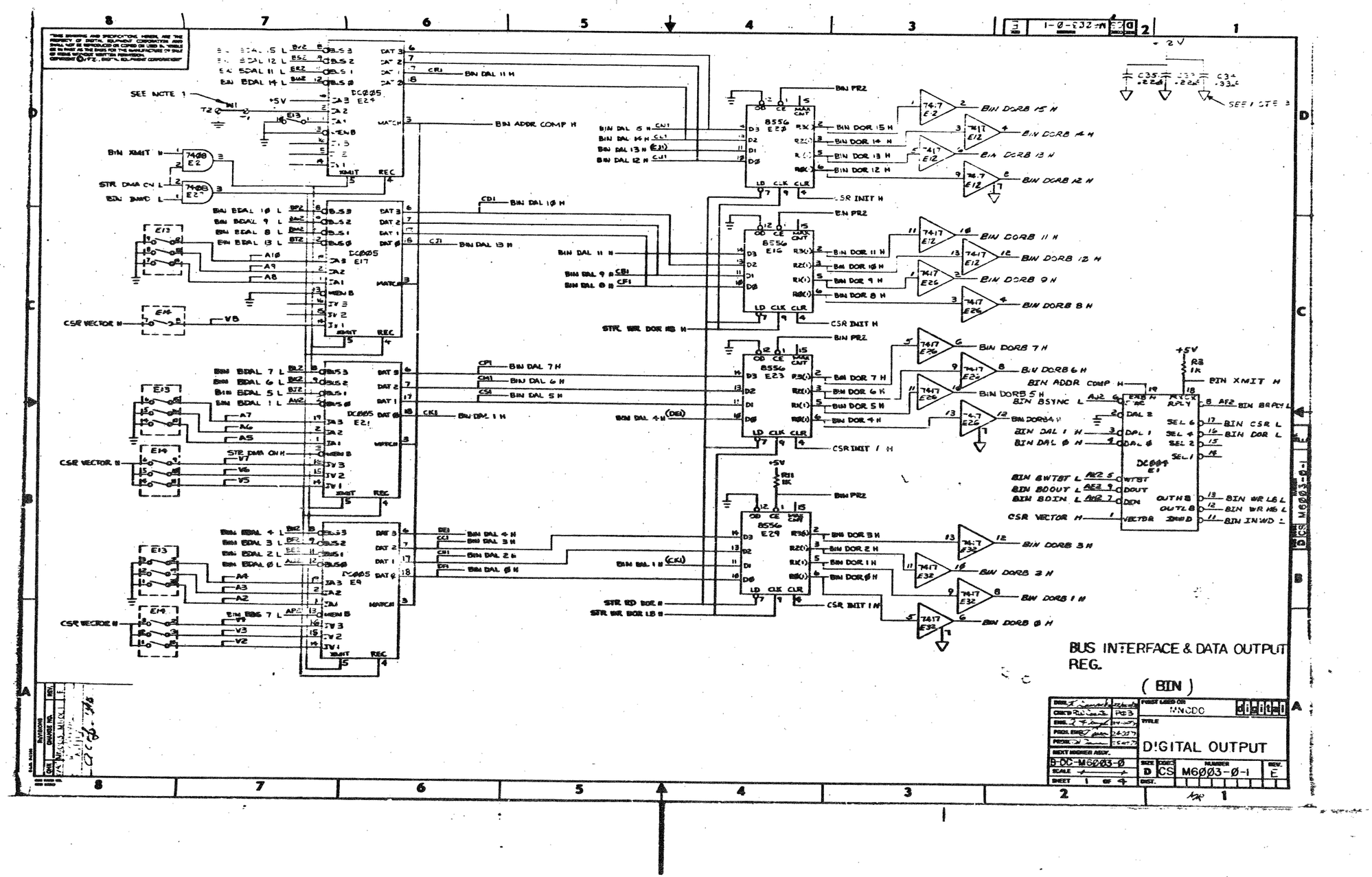
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TITLE : DIGITAL OUTPUT

ASSY NO. D-UA-M8003-0-0 | SIZE B | CODE PL | NUMBER M8003-0-0 | REV. E
SHEET 3 OF 3 | INSERTION PARTS LIST DATA BASE REV

DRB 1Z6

MR


BUS INTERFACE & DATA OUTPUT REG.
(BIN)
DIGITAL OUTPUT
M6003-0-1
SEE NOTE 1
BIN XMIT H
STR DMA CN L
BIN BWTB L
BIN ADDR COMP H
BIN DAL 15 H
BIN DAL 14 H
BIN DAL 13 H
BIN DAL 12 H
BIN DAL 11 H
BIN DAL 10 H
BIN DAL 9 H
BIN DAL 8 H
BIN DAL 7 H
BIN DAL 6 H
BIN DAL 5 H
BIN DAL 4 H
BIN DAL 3 H
BIN DAL 2 H
BIN DAL 1 H
BIN DAL 0 H
CSR VECTOR H
STR DMA ON H
STR WR DOR HB H
STR RD DOR A
STR WR DOR LB H
CSR INIT H
CSR INIT 1 H
BIN PRZ
BIN DORB 15 H
BIN DORB 14 H
BIN DORB 13 H
BIN DORB 12 H
BIN DORB 11 H
BIN DORB 10 H
BIN DORB 9 H
BIN DORB 8 H
BIN DORB 7 H
BIN DORB 6 H
BIN DORB 5 H
BIN DORB 4 H
BIN DORB 3 H
BIN DORB 2 H
BIN DORB 1 H
BIN DORB 0 H
BIN BSYNC L
BIN WR LB L
BIN WR HB L
BIN INWD L
SEE NOTE 3

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STR FULL L
STR FR1
CSR SERPLY H
CSR INIT L
CSR DATA FLG H
CSR SERPLY H
STR DMA ON H
STR FULL H
CSR CLR CSR L
STR WR CSR LB H
CSR INIT H
STR PULS H
CSR INIT RPLY H
CSR OUT DONE H
CSR INT DONE EN H
CSR POS EDGE RPLY H
CSR DEF PUL SW H
STR RD CSR L
CSR INIT H
CSR INIT / H
BIN DAL 8 H
BIN DAL 9 H
BIN DAL 1 H
BIN DAL 2 H
BIN DAL 5 H
BIN DAL 6 H
BIN DAL 7 H
BIN DAL 15 H
STR WR CSR LB H
CSR INIT L
STR RD CSR L
BIN DAL 6 H
STR WR CSR LB H
CSR BIAKI L
BIN B INIT L
BIN BDIN L
CSR BIRQ L
CSR BIAKO L
CSR VECTOR H
CSR INIT H
CSR INIT L
CSR INITA L
AD2, BD2
+12V
AA2, BA2, CA2, DA2
-5V
AJ1, AM1, AC2, AT1, AE1, AF1, AM, BC2, BJ1, BM1, BT1, CC2, CT1, DC2, DT1
STI L CE1
STI L CE2
AG2
AB2

NOTES:
1. STANDARD ADDRESS WITH W1 INSERTED IS 17XXXX. REMOVE W1 FOR ADDRESS 16XXXX.
2. REF DES "J1" REFER TO FINGERS AT TOP OF BOARD.
3. ⏚ DESIGNATOR REFERS TO A SEPARATE GROUND ETCH WHICH IS CONNECTED TO LOGIC GROUND (⏚) AT ONE POINT THROUGH W2.

CONTROL & STATUS REG. & INTERRUPT (CSR)

REVISIONS		
CHR	CHANGE NO	REV.

TITLE	DIGITAL OUTPUT	SIZE/CODE	NUMBER / REV.
SCALE	SHEET 2 OF 4	D CS	M6003-0-1 E

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BIN DOR L
STR DCR 3 H
STR RD DOR H
BIN INWD L
BIN CSR L
BIN WR HB L
BIN WR LB L
BIN DAL 5 H
BIN DAL 4 H
BIN DAL 3 H
BIN DAL 2 H
BIN DAL 1 H
BIN DAL 0 H
74LS174 E10
STR DMA OFF H
STR DCR 4 H
STR DCR 2 H
STR DCR 1 H
STR DCR 0 H
STR ENBC H
8266 E19
STR RD CSR L
STR WR CSR HB L
STR WR DOR HB H
STR WR DOR LB H
STR WR CSR LB H
STR WR CSR HB H
+5V
R14 1K
STR PR1
STR DMA ON H
STR DMA ON L
STR DMA OFF H
CSR INIT H
CSR INITA L
R12 1K
R17 1K
CSR DAT L
R13 1K
C32 .047mf
S1 REPLY SWITCH
CSR DEF RPL SW H
CSR POS EDGE RPLY H
STR POS RPLY H
R15 1K
+3VH
R73 1K FUSIBLE
R18 3.9K
J1
STR REPLY IN
T3
T4
SEE NOTE 6
D1 1N 4733A
CSR OUT DONE H
CSR INIT RPLY H
STR EXT RPLY H
+3VH
R16 1K
C33 .047mf
R5 1K
C25 .047mf
R1 2.4K
C27 .047mf
R4 2.4K
C24 .047mf
CSR INITA L
STR PULS L
STR PULS H
D3 1N4004
D2 1N4004
F2 .62 AMP
+5V REF
STR EMITTER
SEE NOTE 5
D6 1N4004
D8 1N4004
D7 1N4004
D5 1N4004
D4 1N4004
R19 1K
+12V
R26 330Ω
Q1 DEC 2N97
R21 330
C31 .2mf 50V
STR EXT
STR EMITTER
STR HIGH BYTE STROBE L
W2
D13 1N4004
D14 1N4004
F3 .25 AMP
STR EXT +V
STR LOW BYTE STROBE L
R22 1K
D10 1N4004
D11 1N4004
R23 330Ω
Q2 DEC 2N97
R24 330
D12 1N4004
STR EMITTER

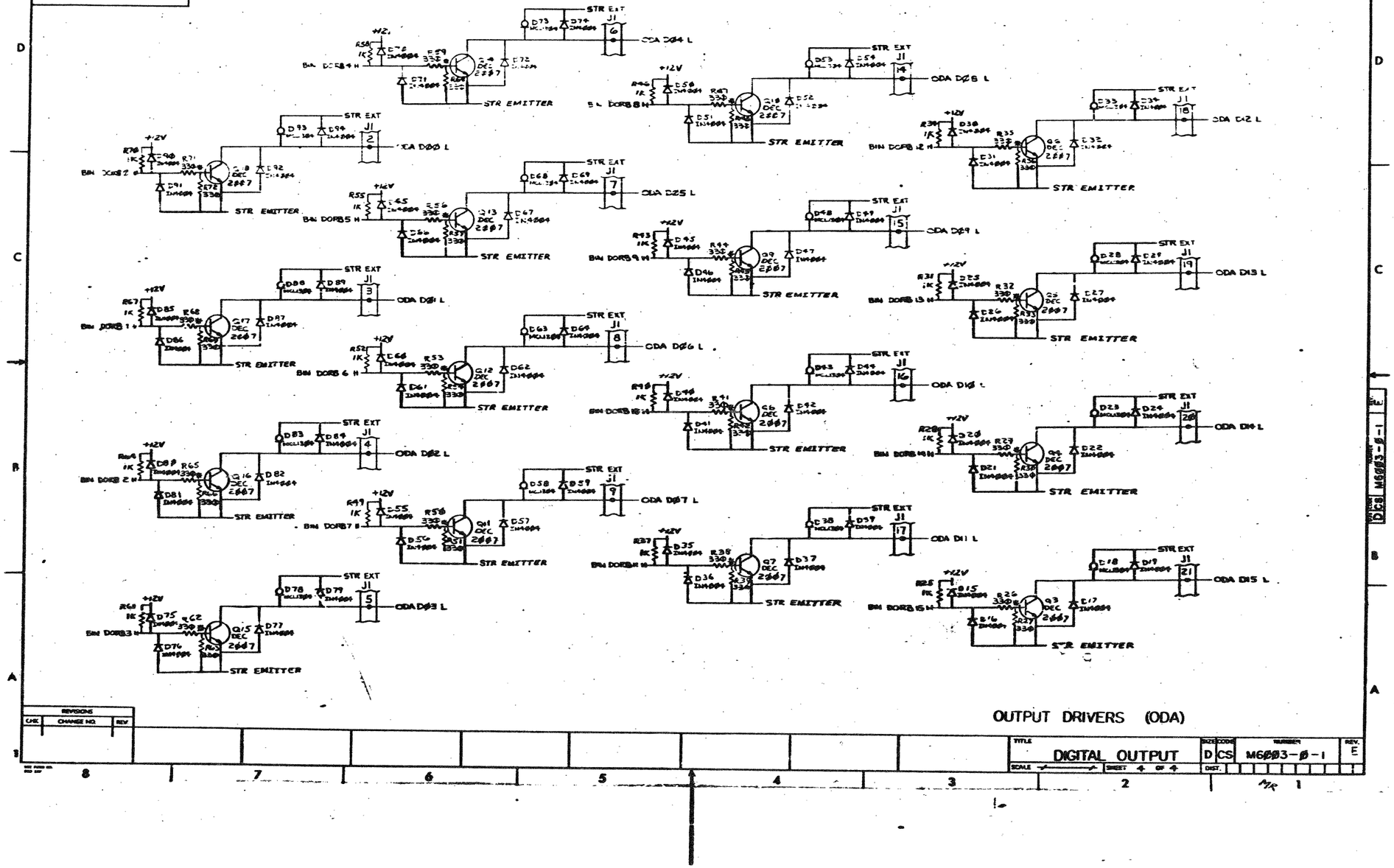
NOTE :
4. (R) ASTERISK INDICATES FUSIBLE RESISTORS.
5. SEE NOTE 3 ON SHEET 2.
6. T3, T4 ARE PROVIDED FOR USER INSTALLED DE-BOUNCE CAPACITOR, IF REQUIRED.

DMA CONTROL AND STROBES (STR)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: DIGITAL OUTPUT	SIZE: D	CODE: CS	NUMBER: M6003-0-1	REV: E
SCALE	SHEET 3 OF 4	DIST.		

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OUTPUT DRIVERS (ODA)

REVISIONS		
CHK	CHANGE NO.	REV

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY M. Archie
DATE 7 MARCH 78
ENG A C. Fb
DATE 23-May-78
CHECKED J Fabrikar
DATE 19 MAY 78
PROD B Cook
DATE 23-May-78
SECTION 1
ISSUED SECT. 1

QUANTITY VARIATION

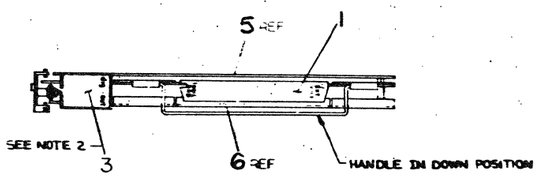
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MSCDO-#-#	MSCDO UNIT ASSY	1
2	MP##594	PRINT SET MSCDC	1
3	AA-D572A-TC	WORKING WITH KISC DEVICE	1

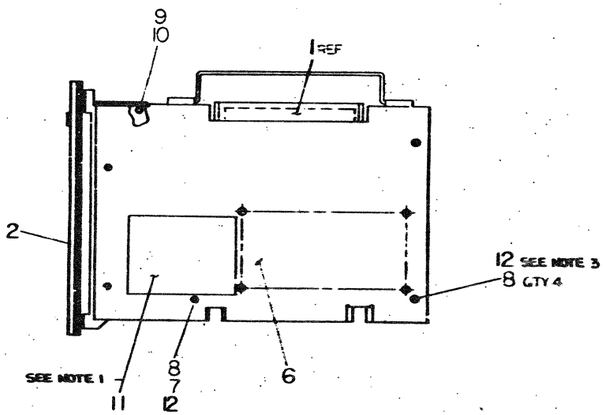
TITLE: SHIP LIST MSCDO
ASSY NO. -
SHEET 1 OF 1
SIZE A
CODE PL
NUMBER MSCDO-#-SH
REV
ECO NO.
DIST

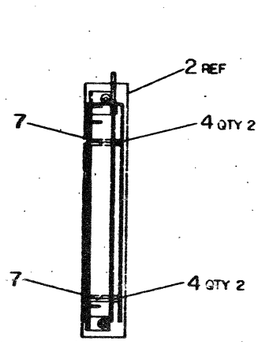
DEC FORM# DRA 190

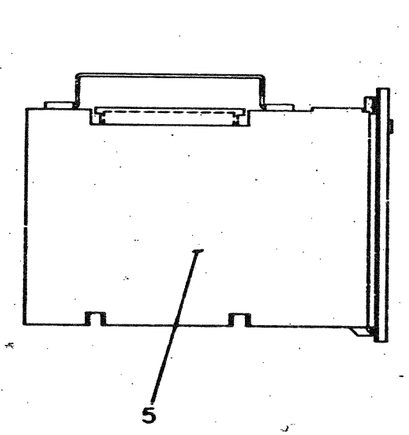
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NOTES:
1. ITEM #11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
2. ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.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









ITEM	DESCRIPTION	DRG. PART NO.	ITEM NO.
1	PACKAGING INSTRUCTIONS	A-SP-3700353-03	14
REF	CHKOUT & ACCEPT. PROCEDURE	A-SP-MNCDO-0-3	13
A/R	LOCKTITE	5009321	12
1	DECAL, INFORMATION (MNCDO)	A-DC-36152644-0-0	11
1	NUT, KEPS #6-32	9008185	10
1	WASHER, FLAT	9006683	9
5	SCR, FLAT HD #6-32 x .25	9006020-02	8
3	SPACER, THREADED #6-32 x .88	9006846	7
1	PLATE, COMP SIDE	D-MD-74-9869-0-0	6
1	PLATE, ETCH SIDE	D-IA-74-9868-0-0	5
4	SPACER, THREADED #6-32 x .25	9006841	4
1	DECAL, T/O SCHMETIC	A-DC-36152260-4-0	3
1	MNCDO SUB-ASSY	D-AC-7015406-0-0	2
1	CONN ASSY, I/O	D-IA-7014453-5-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ± 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE (INCHES)					
SURFACE QUALITY 63	STOCK SIZES	0 to 1	over 1 to 3	over 3 to 6	over 6 to 12	over 12 to 24	over 24 to 48
MACHINES: MEDIUM ☐	FINE ☐	±.005	±.010	±.015	±.020	±.030	±.040
MACHINES: PREFERRED ☐		±.010	±.020	±.030	±.040	±.060	±.080

QUANTITY & VARIATION

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST
FINISH: NONE

NEXT HIGHER ASSY: 3-DC-MNCDO-0

SCALE: 1/2

SHEET 1 OF 1

MNCDO

TITLE: MNCDO UNIT ASSY

SIZE: D | CODE: 04 | NUMBER: MNCDO-3-0 | REV: A

REVISIONS			
ECO	DRAWING NO.	REV.	
ECO	MNCDO-MR002	A	

MR 1

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MR

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	APPD	SIZE	CODE	NUMBER	REV
[signature] 8-F-Amick 8-7-78	[signature] 7-26-78	A	SP	MNCDO-0-4	

DEC 16-(3001)-1076A-M873
DRA 107A

SHEET 1 OF 3 MR

MR

ENGINEERING SPECIFICATION [redacted] 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
MPU0594	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 MNCAD A/D converter, then the MNCDO should be installed to the right of the MNCAD (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-01099-16-N370-(381)
DRA 108

SHEET 2 OF 3 MR

MR

ENGINEERING SPECIFICATION [redacted] 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 pulser 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-01099-16-N370-(381)
DRA 108

SHEET 3 OF 3 MR

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-MSCDI-0-1	MSCDI FIELD MAINTENANCE PRINT SET
	TABLE OF CONTENTS
B-DD-MSCDI-0	MSCDI UNIT ASSY
D-UA-M5915-0-0	DIGITAL INPUT
A-PL-M5915-0-0	DIGITAL INPUT
D-CS-M5915-0-1	DIGITAL INPUT
A-PL-MSCDI-0-SH	SHIP LIST MSCDI
D-UA-MSCDI-0-0	MSCDI UNIT ASSY
A-SP-MSCDI-0-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MSCDI

MSCDI

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP00595

REVISIONS			
REV			
CHG. NO.			
DATE			

USED ON OPTION/MODEL
MSCDI

SHEET 1 OF 1

DRN.	Q. Vaughn	DATE 29-FEB-78
CHK'D	[signature]	DATE 17 Apr 78
PROJ. ENG.	[signature]	DATE 23-May-78
FIELD SERV.	C. L. Dillman	DATE 25 May 78

digital

TITLE: MSCDI UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MSCDI-0-1	

DIST.

REV.

NUMBER MSCDI-0-1

CODE TC

SIZE B

8888 124

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UNIT VARIATIONS

VAR	TITLE
MBCDI	MNCDI UNIT ASSY

REVISIONS		
CHK	CHANGE NO.	REV.
[illegible]	MNCDI - 1	A
[illegible]	MNCDI-MR0028	B

USED ON OPTION/MODEL: MBCDI

SHEET 1 OF 3

DRN. M. Archie	DATE 29 Dec 77	TITLE: MNCDI Unit ASSY
CHK'D. F. [illegible]	DATE 13 Feb 78	
PROJ. ENG. A.C. [illegible]	DATE 3/21/78	
PROD. [illegible]	DATE 3/21/78	

digital

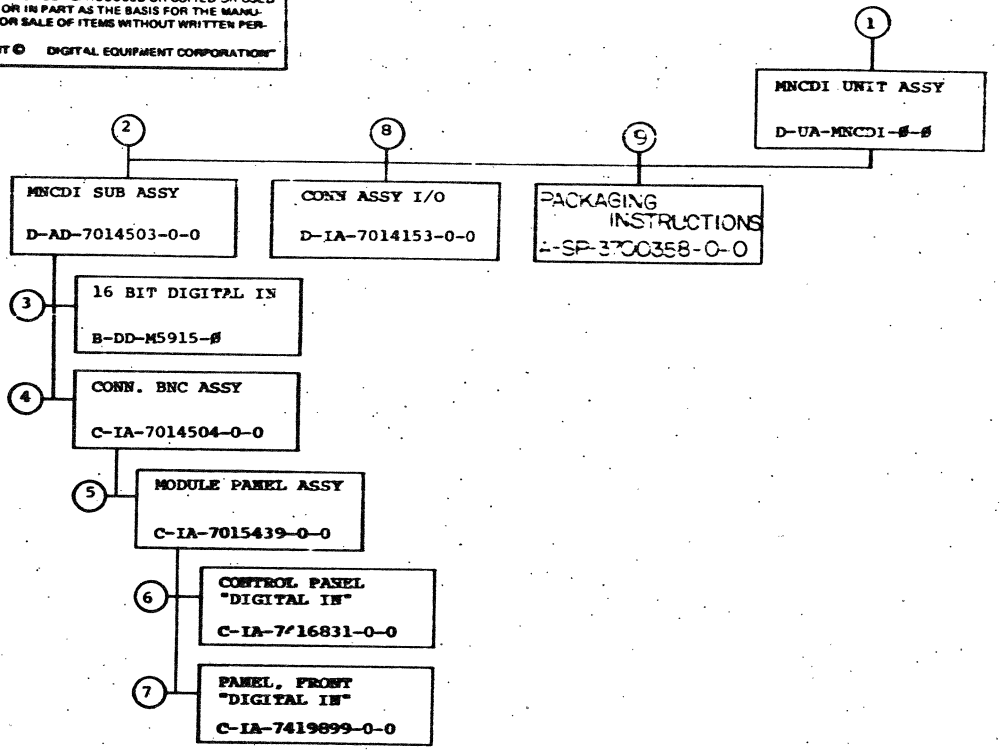
SIZE	CODE	NUMBER	REV
B	DD	MBCDI-0	B

DIST.

MK

DEB 105A

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

DRB 169

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP0@595	FIELD MAINTENANCE PRINT SET	-
	B-TC-MSCDI-@-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MSCDI-@-@	MSCDI UNIT ASSY	E/M
	C-MD-7419869-00	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 (MSCDI)	E/M
	A-PL-MSCDI-@-5	PARTS LIST MSCDI	E/M
	A-PL-MSCDI-@-SH	SHIP LIST MSCDI	E/M
	A-SP-MSCDI-@-2	MSCDI ENGINEERING SPEC.	E/M
	A-SP-MSCDI-@-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M
	A-SP-MSCDI-@-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M
2	D-AD-7014503-0-0	MSCDI SUB-ASSY	E/M
	C-IA-7419863-0-0	SUB PANEL DI	M
	B-MD-7420242-0-0	SPACER, MODULE	M
	B-IA-7420635-0-0	BUTTON SWITCH (MODIFIED)	M
3	B-DD-@5915-@	16 BIT DIGITAL IN	E/M
	A-PL-@5915-@-@	DIGITAL INPUT	E/M
	D-UA-@5915-@-@	DIGITAL INPUT	E/M
	D-CB-@5915-@-1	DIGITAL INPUT	E/M
4	C-IA-7014504-0-0	CONN. BNC ASSY (MSCDI)	E/M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
5	C-IA-7015439-0-0	MODULE PANEL ASSY	M
6	C-IA-7416831-0-0	CONTROL PANEL "DIGITAL IN"	M
	C-SS-7416831-01	CONTROL PANEL	M
	C-SS-7416831-02	CONTROL PANEL	M
	C-SS-7416831-03	CONTROL PANEL	M
	C-SS-7416819-02	CONTROL PANEL	M
7	C-IA-7419899-0-0	PANEL, FRONT "DIGITAL IN"	M
	C-PS-4830032-0-0	EXTRUSION, FRONT PANEL "D"	M
8	D-IA-7014153-0-0	CONN ASSY I/O	E/M
	A-DC-7417640-0-0	DECAL, I/O CONNECTOR	E/M
	A-DC-7418934-6-0	DECAL, I.D. I/O CONNECTOR	E/M
9	A-SP-3700358-0-0	PACKAGING INSTRUCTIONS	M

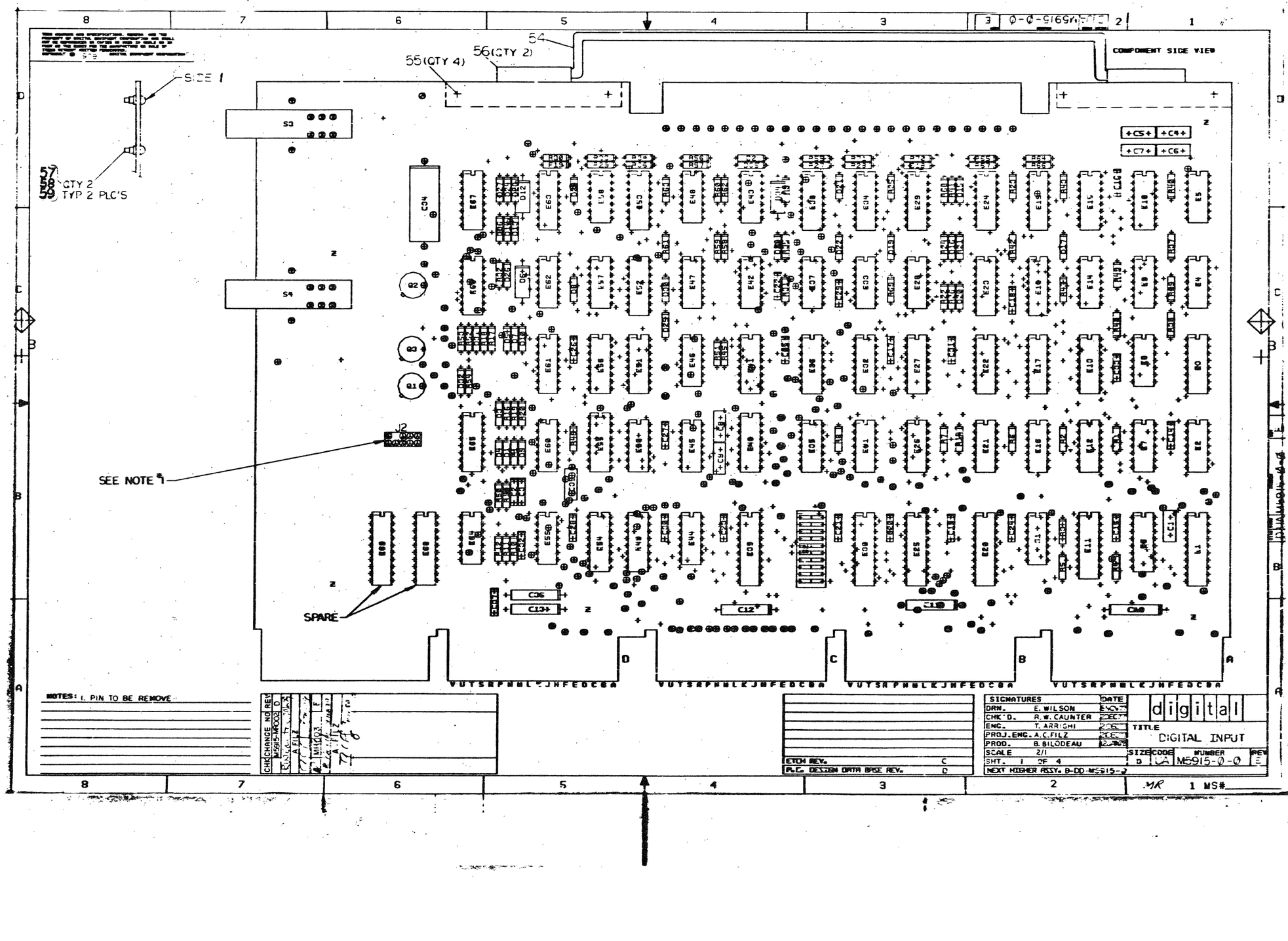
TYPE: E ELECTRICAL
M MECHANICAL
EM ELECTROMECHANICAL

DRB 108A

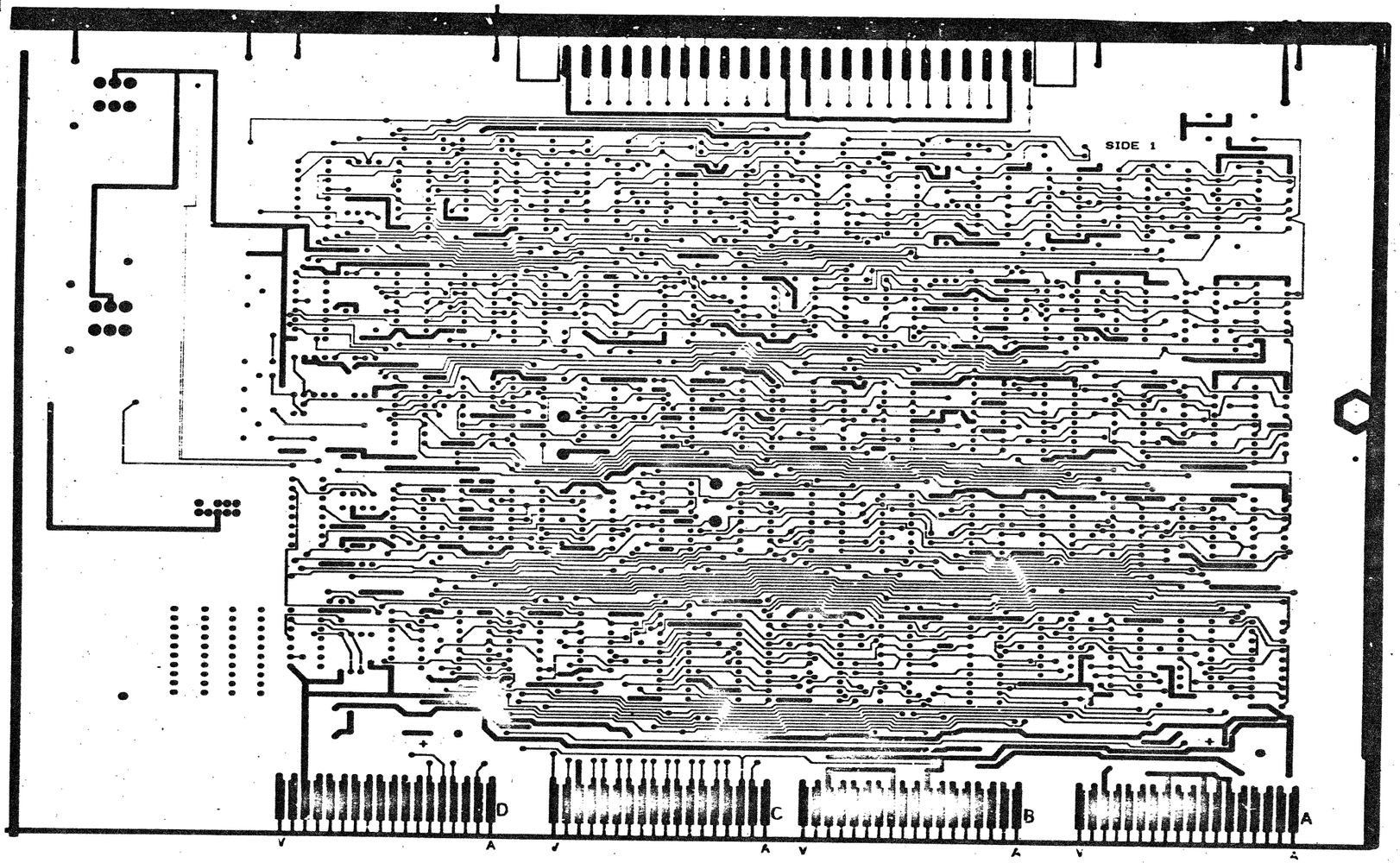
digital

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MSCDI UNIT ASSY	3 OF 3	B	DD	MSCDI-@	B

MR


COMPONENT SIDE VIEW
54
55(QTY 4)
56(QTY 2)
SIDE 1
57
58
59
QTY 2
TYP 2 PLC'S
SEE NOTE 1
SPARE
NOTES: 1. PIN TO BE REMOVE
digital
TITLE
DIGITAL INPUT
SIZE
D
CODE
CA
NUMBER
M5915-0-0
REV
E
SIGNATURES
DATE
DRN. E. WILSON
CHK'D. R.W. CAUNTER
ENG. T. ARRIGHI
PROJ. ENG. A.C. FILZ
PROD. B. BILODEAU
SCALE 2/1
SHT. 1 OF 4
ETCH REV. C
P.C. DESIGN DATA BASE REV. D
NEXT HIGHER ASSY. B-DD-M5915-J
MS#

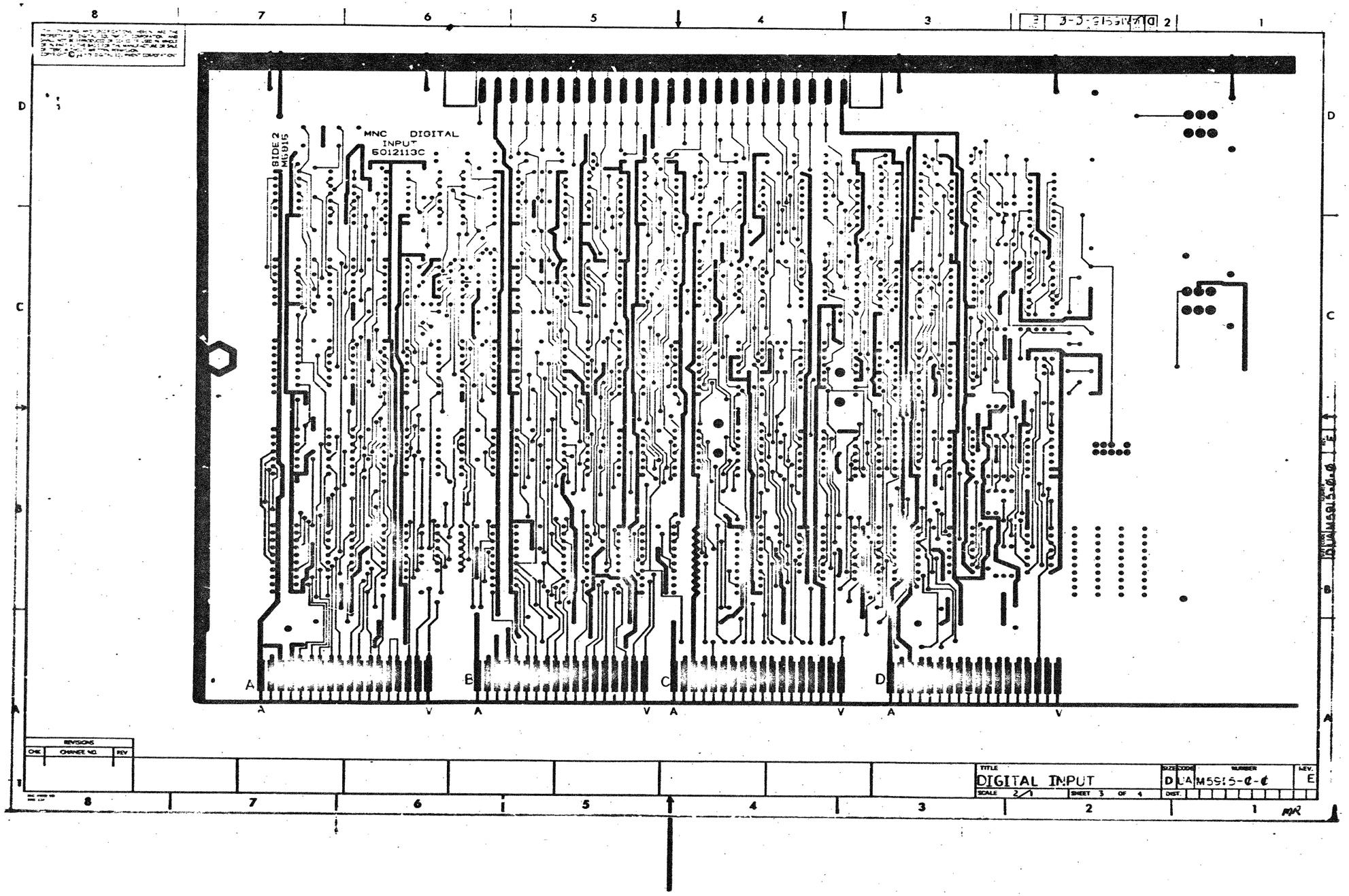
M5915 6012113C



REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV
DIGITAL INPUT	D	LA	M5915-0-0	E
SCALE 2/1	SHEET 2 OF 4		DIST.	

DIAM5915-0-0 E



REVISIONS		
CHG	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
DIGITAL INPUT	D	LA	M5515-0-0	E
SCALE 2/1 SHEET 3 OF 4	DIST.			

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
DIGITAL INPUT	D	UA	M5915-0-0	E
SCALE 2/1	SHEET 4 OF 4	DIST.		

MR

AUTOMATED BY PRTLST,2D(12) P A R T S L I S T SHEET A1 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-MD-5012113-0-0	5012113-00	M5915	1	
2	2		1000020-00	180.0 MMF 100V 5%200PPM DM15B	1	C1
3	3		1012784-00	.047 MFD 50V -20+80 CER	23	C2,C3,C14-C33,C37
4	4		1000026-00	680.0 MMF 100V 5%200PPM DM15B	4	C4-C7
5	5		1000014-00	68.0 MMF 100V 5%200PPM DM15B	1	C8
6	6		1000021-00	220.0 MMF 100V 5%200PPM DM15B	1	C35
7	7		1004012-00	15 MFD 20V 10% S.TANT	5	C10-C13,C36
8	8		1105790-00	1M 4004 PI'm400 Im 1A D041 8P	14	D1,D3,D4,D5,D7-D10,D13,D14,D31,
					CONT	D32,D35,D36
9	9		1109943-00	1M 4733A VZ= 5.1 5% 1W T	17	D2,D15-D30
10	10		1110232-00	MCL1304 CL04MA FROM10-80V	3	D6,D12,D34
11	11		1211164-06	SW,DIP 1P 1A 1CPOS	1	S2
12	12		1211164-03	SW,DIP 1P 1A 7POS	1	S1
13	13		1300369-06	1.0 K .25 W 5.0 % CC	14	R1,R6-R8,R14,R19,R20,R41-R43,
					CONT	R46-R49
14	14		1300299-00	330.0 .25 W 5.0 % CC	8	R2,R4,R10,R12,R16,R18,R32,R34
15	15		1301424-00	680.0 .25 W 5.0 % CC	2	R3,R5
16	16		1302394-00	30.0 K .25 W 5.0 % CC	17	R9,R21-R36
17	17		1310SF1-01	330.0 .25 W 1.0 % FUSE	3	R11,R17,R33
18	18		1300488-00	12.0 K .25 W 5.0 % CC	1	R13
19	19		1300271-00	220.0 .25 W 5.0 % CC	4	R37-R40
20	20		1301074-00	5.60 K .25 W 5.0 % CC	2	R45,R51
21	21		1300309-00	390.0 .25 W 5.0 % CC	1	R50
22	22		1300005-01	R NETWORK 13-1K 5.0 % 14PIN	1	R48
23	23		1502155-00	DEC1008 NPN 5MC SI 45 25 M	3	Q1,Q2,Q3
24	24		1912729-00	DC 004 PROTOCOL.REG, SELECT	1	E1
25	25		1912801-00	L802 NOR-GATE-QUAD 2IN	2	E2,E7
26	26		1912951-00	DN 8556 COUNTER,BINARY,4BIT	4	E3,E27,E36,E86
27	27		1909686-00	7404 INVERTER GATE-HEX 1I	1	E4
28	28		1912839-00	L886 X-OR GATE-QUAD 2IN	1	E5

| REVISION HISTORY | | | BASIC PART NO: M5915 | | | | |

AUTOMATED BY PRTLST.2D(12)

P A R T S L I S T

SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
29	29		1909934-00	8266 NUS 1 OF 2 (QUAD)	11	E6,E10,E15,E22,E23,E29,E41,E51,
30	30		1912800-00	LS01 NAND-GATE-QUAD 2IN,P	4	CONT E63,E65,E66
31	31		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	11	E8,E28,E42,E57
32	32		1912730-00	DC 003 INTERRUPT,2 CIRCUIT	1	E9,E14,E21,E33,E37,E43,E49,E46,
33	33		1912816-00	LS32 OR GATE-QUAD 2IN,POS	2	CONT E47,E58,E62
34	34		1912847-00	LS257 MUX 1 OF 2 (QUAD)	4	E11
35	35		1916195-00	DEC 7408 AND GATE,POS,QUAD 2I	1	E12,E60
36	36		1910651-00	DEC 74175 FF-D QUAD	1	E13,E18,E32,E61
37	37		1909935-00	8235 MUX 1 OF 2 (QUAD)	4	E16
38	38		1913040-00	DC 005 TRANSCEIVER 4BIT	4	E17
39	39		1911116-00	DEC 8837 RECEIVER,BUS,HEX,UN	4	E19,E24,E52,E53
40	40		1911469-00	DEC 8640 RECEIVER,BUS,QUAD,U	3	E20,E25,E30,E39
41	41		1911324-00	7414 INVERTER,HEX 1IN SCH	1	E26,E38,E67
42	42		1912799-00	LS00 NAND-GATE-QUAD 2IN,P	2	E28
43	43		1910951-00	9602 ONE SHOT-DUAL	1	E31
44	44		1912809-00	LS08 AND GATE-QUAD 2IN,PO	1	E35,E59
45	45		1912697-00	LS174 FF-D HEX W/CLEAR	2	E40
46	46		1912901-00	LS04 INVERTER GATE-HEX 1I	1	E44
47	47		1912865-00	LS153 MUX 1 OF 4 (DUAL)	1	E49,E54
48	48		1909928-00	7416 INVERTER GATE-HEX 1I	1	E50
49	49		1213489-00	CONN 10POS HOUSING	1	E55
50	50		1002839-00	20 MFD 50V CS 30D AL EL	1	E64
51	51		9006735-00	EYELET, FUNNEL FLANGE, .059 OD X	4	J2
52	52		9009122-00	FUSE, SUB-MINI, .062A, 125V, A	2	C36
53	53		1214937-00	SW,PB 2P PUSH PUSH	2	F1,F19
54	54	C-MD-7420191-0-0	7420191-00	HANDLE	2	S3,S4
55	55		9006732-00	EYELET, ROLLED FLANGE, .121 OD X	1	
56	56	C-MD-7420191-0-0	7420192-00	HANDLE RETAINER	4	
57	57		9006000-01	SCREW,PAN,PHIL, 2-56X 3/16 S	2	
58	58		9006553-00	NUT,HEX , 2-56X3/16AF X 1/	4	
59	59		9006686-00	WASHER, LOCK, S.S. #2	4	
60	60		1310081-00	1.0 K .25 W 1.0 % FUSE	4	
61	61		1000025-00	969.0 MMF 100V 53200PPM DM15S	17	R55-R71
				RELEASABLE	1	C9

DESIGN TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
DIGITAL INPUT	K	P5	MS913-0-0BP	E
SECTION A OF A				

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BIN: BUS INTERFACE

DIGITAL INPUT

M5915-0-1 REV. J

SHEET 1 OF 7

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BIN DAL 5 H
BIN DAL 4 H
BIN DAL 3 H
BIN DAL 2 H
BIN DAL 1 H
BIN DAL 0 H
74LS174 E54
CMD DMA OFF H
CMD DCR 4 H
CMD DCR 3 H
CMD DCR 2 H
CMD DCR 1 H
CMD DCR 0 H
CMD ENC H
+5V
RL6 1K
CMD PUR H
74 LS74 E21
CMD DMA ON H
CMD DMA ON L
CMD ENC H
CMD DMA OFF H
BIN INIT H
74LS08 E7

BIN DCR L
CMD DCR 3 H
74H-E31
7408 E46
74LS32 E12
CMD WR DIR LB L
CMD WR DCR HB L
74LS04 E7
CMD RD DIR H
7406 E31
CMD RD DIR L
CMD DCR 0 H
BIN WR LB L
CMD DCR 1 H
BIN WR HB L
CMD DCR 2 H
BIN CSR L
CMD DCR 4 H
BIN DMND L
8266 E6
CMD DMA ON H
8640 E26
CMD WR CSR LB H
CMD WR CSR HB H
74LS42 E7
CMD RD CSR H
74LS04 E2
CMD RD SBR H
CMD WR SBR HB H
CMD WR SBR LB H
BIN SBR L

+5V
CMD ENC H
CMD CLK IF H
R21 1K
R9 1K
74H-E31
8640 E26
7406 E31

CSR RDS STROBE H
74 LS74 E44
74LS32 E48
CSR DES INPUT L
74LS86 E59
CMD STROBE L
DP STRB PULS H
8640 E25
BIN INIT H
+5V
J1
+5V REF OUT
R35 1K FUSIBLE
STROBE L
R21 3.4K
D1 IN4454
DP SN7438A
8881 E38
CSR DES INPUT H
CMD PUR H
74 LS74 E44
74LS32 E48
74 LS74 E45
CMD PUR L

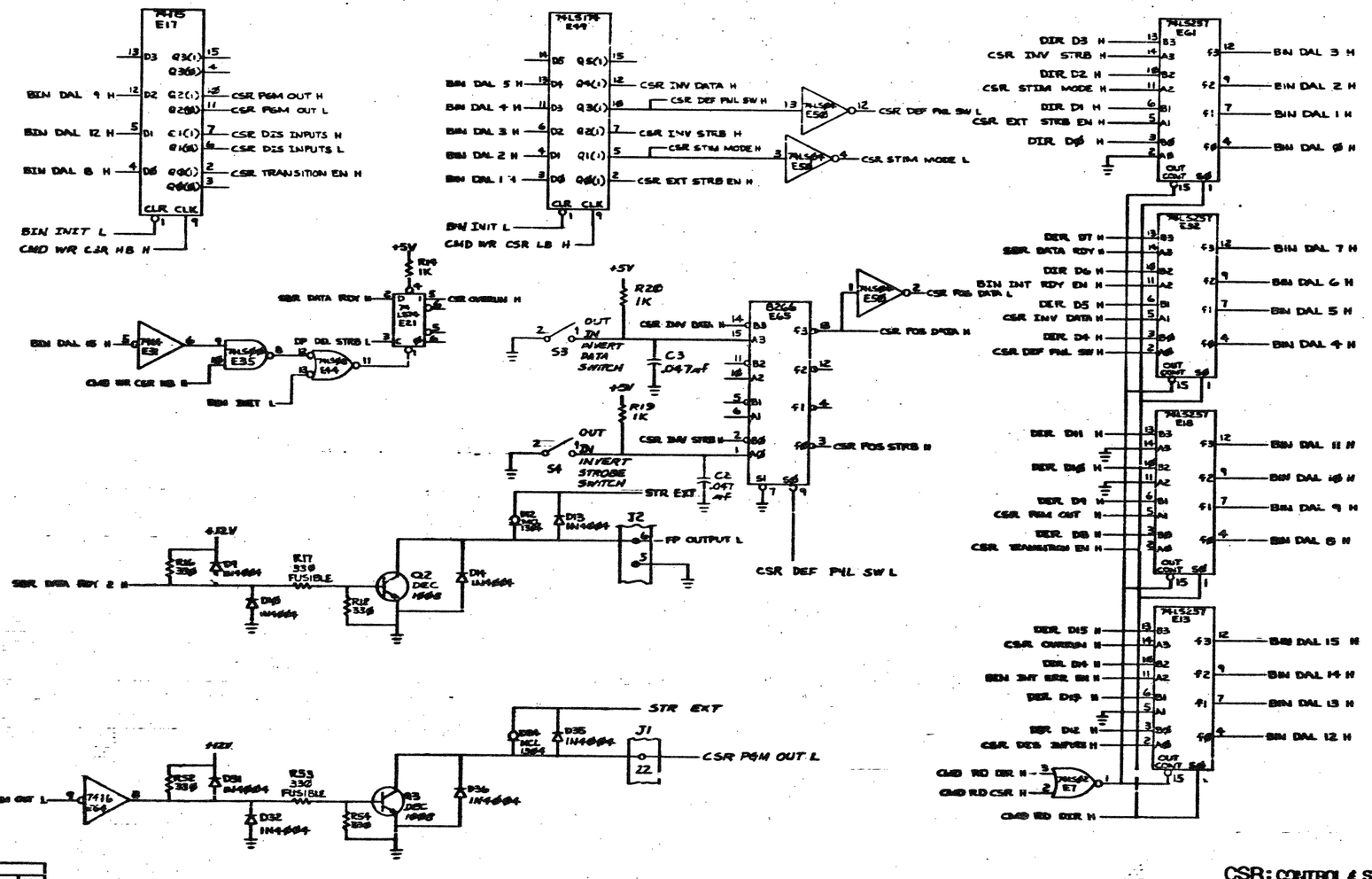
+5V
D5 IN4004
F19 .2 Amp
C34 20mF 50V
EXT H
STR EXT
D6 1S86
D7 IN4454
CMD REPLY L
J1
SBR GEN RPLY L
7406 E44
+12V
R36 330
D3 IN4454
R11 33Ø FUSIBLE
D4 IN4454
Q1 2N 4058
D8 IN4454
R6 330

CMD: COMMAND CONTROL

REVISIONS
CHG | CHANGE NO. | REV.

TITLE: DIGITAL INPUT
SIZE D | CODE CS | M5915-0-1 | REV 5
SCALE | SHEET 2 OF 7
DIST.

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CSR: CONTROL & STATUS REGISTER

REVISIONS		
ORIG	CHANGE NO.	REV.

TITLE: DIGITAL INPUT	SIZE: D	CODE: CS	NUMBER: M5915-0-1
SCALE:	SHEET: 3 OF 7		REV: 5

MR

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RC: RECEIVERS & TR: TRANSITION DETECTORS

REVISIONS		
CNG	CHANGE NO.	REV.

TITLE: DIGITAL INPUT	SIZE: D	CODE: DCS	NUMBER: M5915-0-1	REV: D
SCALE:	SHEET 4 OF 7			

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RC DIL 12 H
RC DIL 13 H
RC DIL 14 H
RC DIL 15 H
CSR FDS DATA H
CSR STIM MODE H
RC DIL 8 H
RC DIL 9 H
RC DIL 10 H
RC DIL 11 H
RC DIL 4 H
RC DIL 5 H
RC DIL 6 H
RC DIL 7 H
RC DIL 0 H
RC DIL 1 H
RC DIL 2 H
RC DIL 3 H

8266 E10 — DP DMX 12 H, DP DMX 13 H, DP DMX 14 H, DP DMX 15 H
74LS32 E12 — DP DS0 H
8266 E29 — DP DMX 8 H, DP DMX 9 H, DP DMX 10 H, DP DMX 11 H
8266 E66 — DP DMX 4 H, DP DMX 5 H, DP DMX 6 H, DP DMX 7 H
8266 E63 — DP DMX 0 H, DP DMX 1 H, DP DMX 2 H, DP DMX 3 H

RC TD 12 H
RC TD 13 H
RC TD 14 H
RC TD 15 H
RC DEL 8 H
RC DEL 9 H
RC DEL 10 H
RC DEL 11 H
RC DEL 4 H
RC DEL 5 H
RC DEL 6 H
RC DEL 7 H
RC DEL 0 H
RC DEL 1 H
RC DEL 2 H
RC DEL 3 H
DP CSI H
DP CS0 H

+5V
E48 1K, R43 1K, R42 1K
8235 E19 — DP CMX 12 H, DP CMX 13 H, DP CMX 14 H, DP CMX 15 H
R41 1K
8235 E34 — DP CMX 8 H, DP CMX 9 H, DP CMX 10 H, DP CMX 11 H
E48 RESPACK 1K
8235 E52 — DP CMX 4 H, DP CMX 5 H, DP CMX 6 H, DP CMX 7 H
E48 RESPACK 1K
8235 E53 — DP CMX 0 H, DP CMX 1 H, DP CMX 2 H, DP CMX 3 H
E48 RESPACK 1K

CMD STROBE L
74LS14 E64 — (200 ns) — R3 12K, C55 220 PF — 74LS14 E31
C8 68 PF, R45 5.6K
9602 E40 — DP STRB PULS H
BIN INIT L
BIN DAL 11 H
CMD WR CSR H8 H
74LS00 E36, 74LS00 E44 — DP DEL STRB L

CSR EXT STRB EN H
CMD RD DIR L
74LS32 E68, 74LS00 E57 — DP CLK DIR H
SSR DATA RDY H
74LS02 E2, 74LS00 E51

+5V
R46 1K
74LS153 E55
CSR FDS DATA L
CSR FDS DATA H
DP CSI H
DP CS0 H
CSR STIM MODE L
DP CLK DIR H
74LS00 E44

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	B
0	1	$\bar{A}$
1	1	1

8235 TRUTH TABLE:

S1	S0	F
0	0	0
1	0	B
0	1	$\bar{A}$
1	1	1

DP: DATA INPUT PATH

REVISIONS		
ONE	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DIGITAL INPUT	D	CS	M5915-0-1	D
SCALE —	SHEET 5 OF 7	DIST.		

8 7 6 5 4 3 2 1 MR

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8266 E22
BIN DAL 12 H
BIN DAL 13 H
BIN DAL 14 H
BIN DAL 15 H
CMD WR DER HB L
BIN INIT L
DIR CLR 12 L
DIR CLR 13 L
DIR CLR 14 L
DIR CLR 15 L

8266 E23
BIN DAL 8 H
BIN DAL 9 H
BIN DAL 10 H
BIN DAL 11 H
DIR CLR 8 L
DIR CLR 9 L
DIR CLR 10 L
DIR CLR 11 L

8266 E41
BIN DAL 4 H
BIN DAL 5 H
BIN DAL 6 H
BIN DAL 7 H
CMD WR DER LB L
DIR CLR 4 L
DIR CLR 5 L
DIR CLR 6 L
DIR CLR 7 L

8266 E51
BIN DAL Ø H
LIN DAL 1 H
BIN DAL 2 H
BIN DAL 3 H
DIR CLR Ø L
DIR CLR 1 L
DIR CLR 2 L
DIR CLR 3 L

+5V
DIR P1 H

74 LS74 E14
DP DMX 15 H
DP CMX 15 H
DIR CLR 15 L
DIR D15 H

74 LS74 E14
DIR P1 H
DP DMX 14 H
DP CMX 14 H
DIR CLR 14 L
DIR D14 H

74 LS74 E9
DP DMX 13 H
DP CMX 13 H
DIR CLR 13 L
DIR D13 H

74 LS74 E9
DP DMX 12 H
DP CMX 12 H
DIR CLR 12 L
DIR D12 H

74 LS74 E37
DP DMX 11 H
DP CMX 11 H
DIR CLR 11 L
DIR D11 H

74 LS74 E33
DP DMX 10 H
DP CMX 10 H
DIR CLR 10 L
DIR D10 H

74 LS74 E37
DP DMX 9 H
DP CMX 9 H
DIR CLR 9 L
DIR D9 H

74 LS74 E33
DP DMX 8 H
DP CMX 8 H
DIR CLR 8 L
DIR D8 H

DIR P1 H

74 LS74 E46
DP DMX 7 H
DP CMX 7 H
DIR CLR 7 L
DIR D7 H

74 LS74 E43
DP DMX 6 H
DP CMX 6 H
DIR CLR 6 L
DIR D6 H

74 LS74 E47
DP DMX 5 H
DP CMX 5 H
DIR CLR 5 L
DIR D5 H

74 LS74 E47
DP DMX 4 H
DP CMX 4 H
DIR CLR 4 L
DIR D4 H

74 LS74 E42
DP DMX 3 H
DP CMX 3 H
DIR CLR 3 L
DIR D3 H

74 LS74 E42
DP DMX 2 H
DP CMX 2 H
DIR CLR 2 L
DIR D2 H

74 LS74 E58
DP DMX 1 H
DP CMX 1 H
DIR CLR 1 L
DIR D1 H

74 LS74 E58
DP DMX Ø H
DP CMX Ø H
DIR CLR Ø L
DIR DØ H

DIR : DATA INPUT REGISTER

REVISIONS
DWR | CHANGE NO. | REV.

TITLE: DIGITAL INPUT
SIZE D | CODE CS | NUMBER M5915-Ø-1 | REV. D
SCALE | SHEET 6 OF 7 | DWG.

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+5V
R48 1K

BIN DAL 12 H
BIN DAL 13 H
BIN DAL 14 H
BIN DAL 15 H
CMD RD SBR H
CMD WR SBR ØB H
BIN INIT H
8556 E3 (BAR CNT)
LD CLK CLR

BIN DAL 8 H
BIN DAL 9 H
BIN DAL 10 H
BIN DAL 11 H
8556 E27

BIN DAL 4 H
BIN DAL 5 H
BIN DAL 6 H
BIN DAL 7 H
CMD WR SBR 1Ø H
8556 E36

BIN DAL Ø H
BIN DAL 1 H
BIN DAL 2 H
BIN DAL 3 H
8556 E56

DIR D12 H
DIR D13 H
DIR D14 H
DIR D15 H
DIR D8 H
DIR D9 H
DIR D10 H
DIR D11 H
DIR D4 H
DIR D5 H
DIR D6 H
DIR D7 H
DIR DØ H
DIR D1 H
DIR D2 H
DIR D3 H
74LS641 (E6, E28, E42, E57)

R47 1K +5V

BIN DAL 7 H
CMD WR CSR LB H
74LS04 E50, 74LS08 E35, 74LS00 E44

CSR STIM MODE L
74LS32 E49

DF DEL STRB L
74LS74 E45

+5V R50 390 DT2
7416 E46 — DEV RDY H
74LS04 E58 — SBR DATA RDY H
7416 E69 — SBR DATA RDY 2 H

+5V R51 390 R52 2.2K
SW3 SW4 SW5 SW6 SW7
74S02 E40 — SBR GEN RPLY L

BIN INIT L

SBR : STIMULUS BIT REGISTER

REVISIONS		
ECK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DIGITAL INPUT	D	CS	M5915-Ø-1	D
SCALE	SHEET 7 OF 7	DIST.		

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY M. Archie	CHECKED [signature]	SECTION 1	
DATE 7 MARCH 78	DATE 17 MAY 78		
ENG [signature]	PROD B Cook	ISSUED SECT. 1	
DATE 23-May-78	DATE 23-May-78		

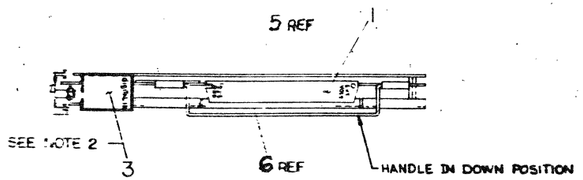
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MNCDI-0-0	MNCDI UNIT ASSY	1
2	MP00595	PRINT SET MNCDI	1
3	AA-D572-TC	WORKING WITH MINC DEVICE	1

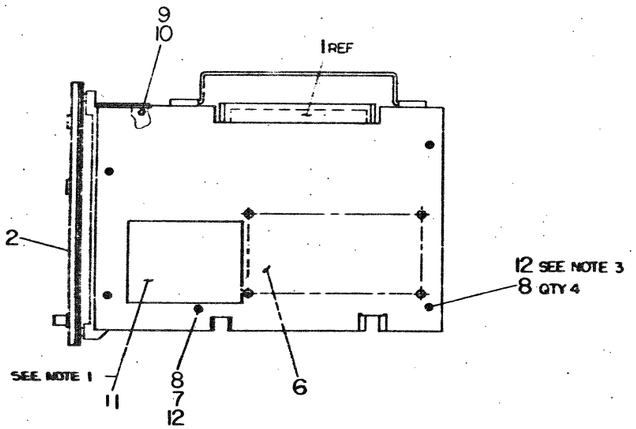
TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIP LIST MNCDI	[illegible]	A	PL	MNCDI-0-SH		
	SHEET 1 OF 1					

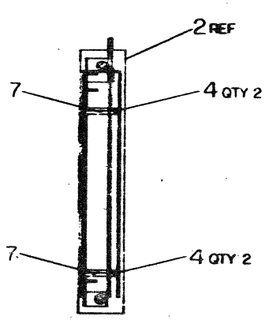
DEC FORM SRA 119

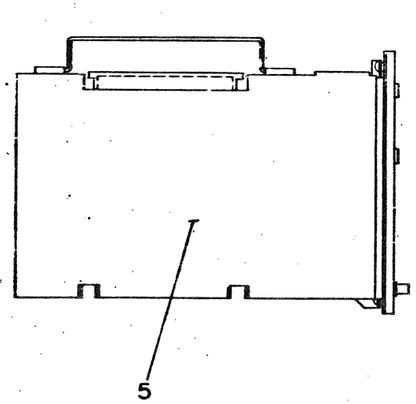
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NOTES
1. ITEM "11 IS PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
2. ITEM "3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM "5.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









1	PACKAGING INSTRUCTIONS	A-PS-3700358-02	14
REF	CHKOUT & ACCEPT. PROCEDURE	A-SP-MNCDI-0-3	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 .186	9006861	7
1	PLATE, COMP. SIDE	D-MD-7419865-0-0	6
1	PLATE, ETCH SIDE	D-IA-7419860-0-0	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-7014518-6-0	1
	DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	GENERAL DIMENSION RANGE (INCHES)				
		0 to 6	over 6 to 12	over 12 to 48	over 48 to 120	over 120 to 480
SURFACE ROUGHNESS 125 MICROINCHES	MEDIUM ☐	±.005	±.005	±.005	±.005	±.05
	PREFERRED ☐	±.002	±.005	±.005	±.01	±.05

FIRST USED ON: MNCDI

DRN			
CHK'D			
ENG			
PROJ. ENG.			
PROD.			
NEXT HIGHER ASSY.			
SCALE	2		
SHEET	1 OF 1		

TITLE: MNCDI UNIT ASSY

SIZE	CODE	DRAWING	REV.
D	04	MNCDI-3-0	A

DIST.

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG.

MATERIAL: SEE PARTS LIST

FINISH: NONE

REVISIONS			
DWG	DRAWING NO.	REV	
	MNCDI-MR0002	A	INIT. RELEASE 1 NOV 78

A-FILE 77-Nov-28

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MR

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 7/27/78

TITLE MNCDI Installation/Acceptance Procedure

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
O.F. Orsi 7-27-78	7-31-78	A	8P	MNCDI-0-4	

DEC 16-(3SD)-1079A-R87B
LMA 107A

SHEET 1 OF 4 MR

MR

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE MNCDI Installation/Acceptance Procedure

1.0 GENERAL

1.1 SCOPE

This document describes the procedures for the installation and field acceptance of the MNCDI (Digital Input) 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
MNCDI	Digital Input Option
MNCDI-TA	Test Module (optional)
BC08S	Wrap-Around Cable (optional)
7014153-6-0	I/O Connector

1.3 DOCUMENTATION

MAINDEC-11-DVMNB-A	Diagnostic Program
A-SP-MNCDI-0-2	MNCDI Engineering Specification
MP00595	Print Set
AA-D572A-TC	"Working With MINC Devices"

2.0 INSTALLATION

2.1 INITIAL SET-UP

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

2.2 LOCATION

The MNCDI 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 MNCDI should be installed to the right of the MNCAD (but not necessarily adjacent to it).

2.3 TEST MODULE

If the MNCDI-TA test module is available it should be plugged into the I/O connector fingers on the top of the MNCDI. 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	8P	MNCDI-0-4	

DEC FORM NO EN-01088-16-N370-(381)
DRA 108

SHEET 2 OF 4 MR

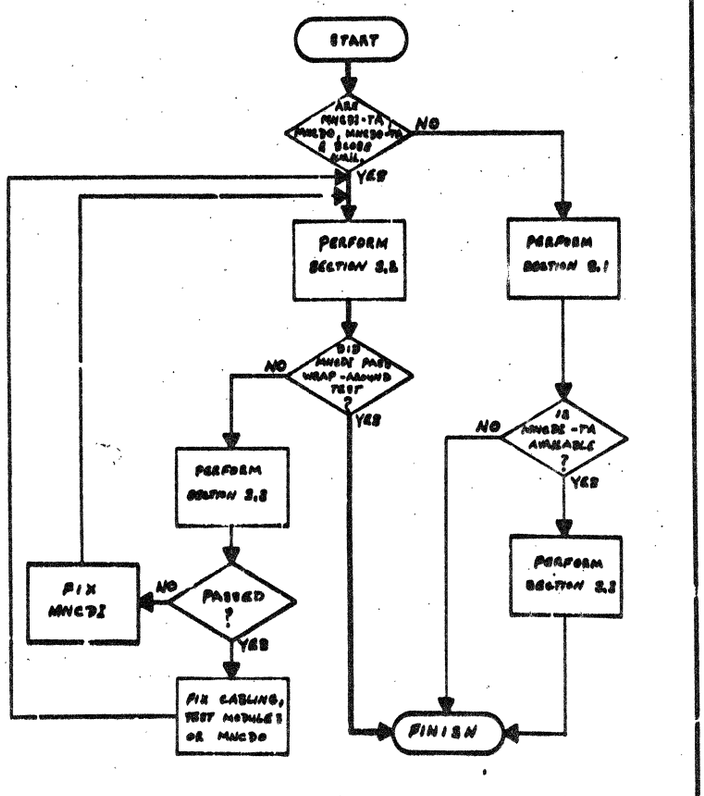
MR

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE MNCDI Installation/Acceptance Procedure

3.0 ACCEPTANCE

The bold line is the preferred path in the flow diagram. It is the only path to follow for in-house FA&T.



SIZE	CODE	NUMBER	REV
A	8P	MNCDI-0-4	

DEC FORM NO EN-01088-16-N370-(381)
DRA 108

SHEET 3 OF 4 MR

MR

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE MNCDI Installation/Acceptance Procedure

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.

3.1 LOGIC TEST

The diagnostic will type a menu of tests. Select the "LOGIC TEST". This test checks as much of the control logic and data paths as possible without making external connections. At the start of the logic test the program will type out the number of MNCDI 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 MNCDI acceptance.

3.2 WRAP-AROUND LOGIC AND DATA TEST

When the diagnostic types a menu of tests, select the "WRAP-AROUND LOGIC AND DATA TEST". This test incorporates all of the logic test and, in addition, thoroughly checks the digital input paths and handshaking signals with the MNCDO digital output module .

The MNCDI-TA and MNCDO-TA test modules should already be installed in their respective options. The BC08S cable must be connected from one test module to the other, connecting like pin numbers of each connector.

Be sure to observe the proper switch positions on the front panel of each module, as specified by the type-out.

If the MNCDI passes this test, acceptance is completed. If it fails a logic test repair or replace the MNCDI using established procedures. If one of the wrap-around data tests is failed, section 3.3 may be performed to determine if the failure is in the MNCDI as opposed to the cable or MNCDO.

3.3 TYPEOUT LOOP FOR INPUT DWARF SWITCHES

This loop allows verification of the cable connector input (J1) without the use of a MNCDO. When a push-button on the test module is depressed, the program reads the switch pack on the test module through the MNCDI and displays the value in octal and binary. By changing the switch positions on the test module and again depressing the button, a new data pattern is read by the program. All sixteen data lines can thus be checked by changing the switch positions. The push-button utilizes the strobe input.

SIZE	CODE	NUMBER	REV
A	8P	MNCDI-0-4	

DEC FORM NO EN-01088-16-N370-(381)
DRA 108

SHEET 4 OF 4 MR

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

D-TC-MSCAA-$-1	MSCAA FIELD MAINTENANCE PRINT SET
	TABLE OF CONTENTS
D-DD-MSCAA-$	MSCAA UNIT ASSY
D-UA-A66$2-$-$	D/A
X-PL-A66$2-$-$	D/A
D-CS-A66$2-$-1	4 CHANNEL D/A
A-PL-MSCAA-$-SH	SHIP LIST MSCAA
D-UA-MSCAA-$-$	MSCAA UNIT ASSY
A-SP-MSCAA-$-4	INSTALLATION & ACCEPTANCE PROCEDURE

UNIT VARIATIONS COVERED BY THIS PRINT SET
MSCAA

MSCAA

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MP$$594

REVISIONS	REV.	CHG. NO.	DATE

USED ON OPTION/MODEL
MSCAA

SHEET 1 OF 1

DRN.	A. Cook	DATE 24-FEB-78
CHK'D	[illegible]	DATE 3-MAR-78
PROJ. ENG.	[illegible]	DATE 23-MAR-78
FIELD SERV.	[illegible]	DATE 29-MAR-78

TITLE: MSCAA UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	MSCAA-$-1	

DIST.

REV. MSCAA-$-1 TC B

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UNIT VARIATIONS

VAR	TITLE
MBCAA	MBCAA UNIT ASSY

REVISIONS			
REV.	CHANGE NO.	CHK	
A	MNCAA-1	ASP	
B	MNCAA-2	KDP	

USED ON OPTION/MODEL: MBCAA

SHEET 1 OF 3

DRN.	M. Andrea	DATE 29 Dec 77
CHK'D.	F. Hackney	DATE 1/26/78
PROJ. ENG.	O. C. Fly	DATE 3/21/78
PROD.		DATE 3/21/78

TITLE: MBCAA UNIT ASSY

digital

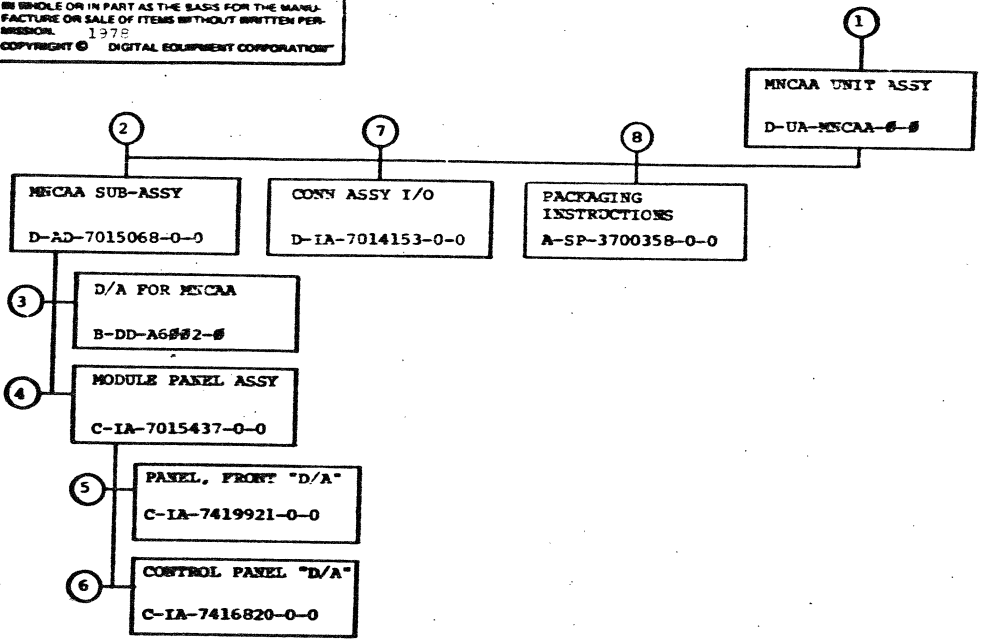
SIZE	CODE	NUMBER	REV
B	DD	MBCAA-*	B

DIST.

DWG 10SA

MR

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

MR

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MP$$59$	FIELD MAINTENANCE PRINT SET	-
	B-TC-MNCAA-$-1	FIELD MAINTENANCE PRINT SET	-
	D-UA-MNCAA-$-$	MNCAA UNIT ASSY	E/M
	C-MD-7419869-0-0	PLATE, COMP SIDE	M
	C-MD-7419868-0-0	PLATE, ETCH SIDE	M
	A-DC-3615260-0-0	DECAL, I/O SCHEMATIC	E/M
	A-DC-3615264-0-0	DECAL, INFORMATION (MNCAA)	E/M
	A-PL-MNCAA-$-5	PARTS LIST MNCAA	E/M
	A-PL-MNCAA-$-SH	SHIP LIST MNCAA	E/M
	A-SP-MNCAA-$-2	MNCAA ENGINEERING SPEC.	E/M
	A-SP-MNCAA-$-3	CHECKOUT & ACCEPTANCE PROCEDURE	E/M
	A-SP-MNCAA-$-4	INSTALLATION & ACCEPTANCE PROCEDURE	E/M
2	D-AD-7015066-0-0	MNCAA SUB-ASSY	E/M
	C-IA-7419862-0-0	SUB-PANEL	M
	B-MD-7420242-0-0	SPACER, MODULE	M
3	B-DD-A6$$2-$	D/A FOR MNCAA	E/M
	A-PL-A6$$2-$-$	D/A FOR MINC	E/M
	D-UA-A6$$2-$-$	D/A	E/M
	D-CS-A6$$2-$-1	4 CHANNEL D/A	E/M
4	C-IA-7015437-0-0	MODULE PANEL ASSY (MNCAA)	M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
5	C-IA-7419921-0-0	PANEL, FRONT "D/A"	M
	C-PS-4830032-0-0	EXTRUSION FRONT PANEL "D"	M
6	C-IA-7416820-0-0	CONTROL PANEL "D/A"	M
	C-SS-7416820-01	CONTROL PANEL	M
	C-SS-7416820-02	CONTROL PANEL	M
	C-SS-7416820-03	CONTROL PANEL	M
	C-SS-7416819-02	CONTROL PANEL	M
7	D-IA-7014153-0-0	CONN ASSY I/O	E/M
	A-DC-7417640-0-0	DECAL, I/O CONN	E/M
	A-DC-7418934-3-0	DECAL, I.D. I/O CONN	E/M
8	A-SP-370C358-0-0	PACKAGING INSTRUCTIONS	M

TYPE: E ELECTRICAL
M MECHANICAL
EM ELECTRO/MECHANICAL

DWG 10BA

digital

TITLE: MNCAA UNIT ASSY

SHEET 3 OF 3 | SIZE B | CODE DD | NUMBER MNCAA-$ | REV B

MR

57(QTY 4)
59(QTY 2)
58
COMPONENT SIDE VIEW
S1
S2
S3
S4
NOTES: 1. DO NOT INSERT R73 THRU R76, SPARES
CHG CHANGE NO REV
STEP ↕ Y AXIS STEP TIMES
REPEAT → X AXIS STEP TIMES
ECN REV.
SIGNATURES
DATE
DRN.
CHK'D
MECH. ENG.
PROJ. ENG.
PROD.
SCALE 2/1
SHT. 1 OF 2
NEXT HIGHER ASSY. 8-00-A6322-0
digital
TITLE D/A
SIZE D
CODE A
NUMBER A6302-0-0
REV D
D UA A6002-0-0

AE002 6012112 E-P2

S1

S2

S3

S4

SIDE 1

G OF G OF 0 1 2 3

G OF OF G

-15

cut etch at x ow E18

E18

E18

E18

REVISIONS

ZONE	CHANGE NO.	REV

TITLE	D/A	SIZE CODE	NUMBER / REV
SIZE A	SHEET 2 OF 3	D	DUA A6002-0-0 / D
		NEXT	MR

DUA A6002-0-0 D

A6302
D/A

SIDE 2
5012112E-P2

D/A

DUA A6002-E-Ø

AUTOMATED BY PRTLST.1D(1=0)

P A R T S L I S T

SHEET A1 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	0=0=0=5#12112=0=0	5#12112=0=0	ETCH BD (A6002)		
2	2		14127=4=0=0	.047 "FD 50V =20=80 CER	26	C1=C9,C12,C16,C17,C20,C21,C22,
					CONT	C26,C29,C30,C32,C33,C38,C39,C40,
					CONT	C41,C47,C48
3	3		1#2#912=0=2	15 "FD 20V 10% S,TANT	15	C10,C11,C18,C19,C27,C28,C36,C37,
					CONT	C42,C43,C49,C50,C66,C67,C68
4	4		1#2161#=0=1	.01 "FD 100V =20=80 Z5U DISC	1#	C13,C15,C24,C25,C34,C35,C44,C45,
					CONT	C64,C65
5	5		1#4#15=0=0	82.0 MMF 100V 5%20=0"PM DM15B	4	C14,C23,C31,C46
6	6		1#42#33=0=0	22 "FD 35V 20% S,TANT	6	C51,C52,C54,C55,C59,C60
7	7		1#45335=0=0	33 "FD 20V 10% S,TANT	4	C53,C56,C57,C58
8	8		1#21631=0=0	390.0 MMF 100V 5%2=0"PM DM15B	2	C61,C62
9	9		1#=1770=0=0	1 "FD 35V 10% S,TANT	1	C63
10	10		1145275=0=0	D 672 TRM 15#5 PIT= 60V SI	36	D1=D16,D19=D38
11	11		11495 2=0=0	1# 4762 VE= 12.0 1/8 1= I	2	D17,D18
12	12		1342220=0=0	60.1 1/4W 1% RN55D=F 10=PPM	8	R1,R18,R23,R34,R69=R72
13	13		1300305=0=0	1 K 1/4W 5% CC	18	R2,R12,R27,R33,R39,R40,R45,R47,
14	14		1320479=0=0	1# K 1/4W 5% CC	6	R51,R58,R61=R68
15	15		1302=27=0=0	50 1/4W 1% RN55C=F 5=PPM	4	R3,R13,R22,R35,R46,R48
16	16		1311653=0=0	2.15 K 1/4W 1% RN55D=F 10=PPM	4	R4,R11,R25,R31
17	17		1316981=02	47 1/4W 1% FUSIBLE	4	R5,R14,R28,R32
18	18		1342330=0=0	47# K 1/4W 5% CC	4	R6,R16,R2=,R36
19	19		1305595=0=0	1 K 1/4W 5% CC	4	R7,R24,R3=,R37
20	20		1314681=0=0	1 K 1/4W 1% FUSIBLE	2	R8,R9,R26,R38
21	21		1329143=0=5	2#0 3/4W10% POT 1=0=PPM	4	R15,R17
22	22		1349143=01	2# K 3/4W20% POT 1=0=PPM	4	R18,R20,R41,R43
23	23		1328644=0=0	2.7 1/2W 10% CC	2	R19,R21,R42,R44
24	24		1342252=0=0	15# 1/4W 5% CC	1	R69,R70
25	25		1343315=0=0	47# 1/2W 5% CC	2	R52
						R53,R54

| REVISION HISTORY | | | | | |

AUTOMATED BY PRTLST,ID(1?)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
26	26		13?1781-??	02 1/2W 5% CC	1	R55
27	27		13?2873-??	201 1/4W 1% RN55D-F 100PPM	4	R57,R58,R59,R60
28	28		15?34??-??	DEC65340 PNP 3?0MW SI 40 9P	1	Q1
29	29		151?4?4-??	D 45C6 PNP 300T SI 45 20 Y	1	Q2
30	30		151?171-??	P 44C3 NPN 300T SI 30 20 Y	3	Q3,Q4,Q5
31	31		16?3377-??	.220H 10% 2.7A SMEP.22	2	L1,L2
32	32		1913218-??	325 VOLT.REG.FIX +/-1	1	E1
33	33		1913219-??	AD 2700/L ANALOG SWITCH 10V PR	1	E2
34	34		1312729-??	DC 804 PROTOCOL,REG. SELECT	1	E3
35	35		19?9054-??	7493 COUNTER,ASYNCH UP,BI	1	E4
36	36		19?9688-??	7404 INVERTER GATE-HEX 1I	1	E5
37	37		1945576-??	7410 NAND GATE-TRIPLE 3IN	2	E6,E33
38	38		1914436-??	DEC 74123 ONE SHOT-DUAL,RETRIG	1	E7
39	39		1910761-??	7404 INVERTER GATE-HEX 1I	1	E8
40	40		1912681-??	AD562 DAC,12BIT,MULT	4	E9,E21,E31,E47
41	41		1911144-??	25?5 OP AMP .1% SETTLE	4	E10,E22,E32,E48
42	42		1913442-??	DC 805 TRANSCEIVER 8BIT	3	E11,E16,E23
43	43		1911521-??	7432 OR GATE-QUAD 2IN, PO	2	E12,E25
44	44		19?97?4-??	DEC 7402 NOR GATE-QUAD 2IN	3	E13,E26,E41
45	45		1912951-??	DM 8556 COUNTER,BINARY,4BIT	12	E14,E15,E19,E20,E27,E29,E30,E36,
					CONT	E39,E42,E43,E46
46	46		1911116-??	DEC 8837 RECEIVER,BUS,HEX,UN	1	E18
47	47		1945575-??	7408 AND GATE-QUAD 2IN	3	E26,E35,E34
48	48		1945547-??	7474 FF-D DUAL,EDGE TRIGG	1	E28
49	49		1910665-??	75452 DRIVER,PERIPH,DUAL,	2	E37,E44
50	50		1914606-??	75451 DRIVER,PERIPH,DUAL,	2	E38,E45
51	51		1914652-??	74174 FF-D HEX	1	E40
52	52		9?367?5-??	EYELET, FUNNEL FLANGE, .059 OD X	8	TP1-TP8
53	53		93?9122-??	FUSE, 8?M-?IMI, .062A, 175V, A	2	F1-F2
54	54		9?-?9185-??	JUMPER, WIRE, INSULATED, BLACK 8	2	W1,W2
55	55		1211164-??	S?,DIP 1P 1A 10P08	1	S17
56	56		1214354-??	S?,ROT 3P 4A 2 SECTION	4	S1-S4
57	57		9?-?7?2-??	EYELET, ROLLED FLANGE, .121 OD X	4	
58	58	C-?D-742-191-?-?	742-191-??	HANDLE	1	
59	59	C-?D-742-192-?-?	742-192-??	HANDLE RETAINER	2	
60	60		1310895-??	.5 2W 5% W	1	R77
61	61		15?31??-??	DEC3???B WPW 200MW SI 28 2S	1	Q6

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	A????-?-???	D

DIGITAL	TITLE	SECTION A OF A
	D/A	

MR

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BDAL 11 L BR2 8 — BUS 3 — DAT 3 — 6 CRI — DAL 11 H
BDAL 10 L BP2 9 — BUS 2 — DAT 2 — 7 CDI — DAL 10 H
BDAL 09 L BN2 11 — BUS 1 — DAT 1 — 17 CBI — DAL 09 H
BDAL 02 L BE2 12 — BUS 0 — DAT 0 — 18 CHI — DAL 02 H
DC0005 E16
E17 — JA3 19, JA2 2, JA1 1
MATCH 3
BDAL 12 L BS2 13 — MEMB
JAV3 16, JAV2 15, JAV1 14
XMIT 5, REC 4
BAD XMIT H
BAD INWD L

BDAL 08 L BM2 8 — BUS 3 — DAT 3 — 6 CFI — DAL 08 H
BDAL 07 L BL2 9 — BUS 2 — DAT 2 — 7 CPI — DAL 07 H
BDAL 06 L BK2 11 — BUS 1 — DAT 1 — 17 CNI — DAL 06 H
BDAL 01 L AV2 12 — BUS 0 — DAT 0 — 18 CKI — DAL 01 H
DC0005 E23
E17 — JA3 19, JA2 2, JA1 1
MATCH 3
DMA ON (1) H — MEMB 13
JAV3 16, JAV2 15, JAV1 14
XMIT 5, REC 4
BAD XMIT H
BAD INWD L

BDAL 05 L BJ2 8 — BUS 3 — DAT 3 — 6 CSI — DAL 05 H
BDAL 04 L BH2 9 — BUS 2 — DAT 2 — 7 DEI — DAL 04 H
BDAL 03 L BF2 11 — BUS 1 — DAT 1 — 17 CCI — DAL 03 H
BDAL 00 L AU2 12 — BUS 0 — DAT 0 — 18 DFI — DAL 00 H
DC0005 E11
E17 — JA3 19, JA2 2, JA1 1
MATCH 3
BBS7 L AP2 13 — MEMB
JAV3 16, JAV2 15, JAV1 14
XMIT 5, REC 4
BAD XMIT H
BAD INWD L

B INIT L AT2 5 — 8837 E18 (7) — 6 BAD INIT H

AR2 AS2
AM2 AN2
CE2 CE1

+5V — R56 1K

DC0004 E3 (19 ENB, 18 RXCX)
BSYNC L AJ2 6 — SYNC — 8 AF2 BRPLY L
DAL 02 H 2 — DAL 2 — SEL6 17 — BAD DAC0 L
DAL 01 H 3 — DAL 1 — SEL4 16 — BAD DAC1 L
DAL 00 H 4 — DAL 0 — SEL2 15 — BAD DAC2 L
SEL0 14 — BAD DAC3 L
BWT BT L AK2 5 — WTBT
BDOUT L AE2 9 — DOUT — OUTHB 13 — BAD WRLB L
BDIN L AH2 7 — DIN — OUTLB 12 — BAD WRHB L
VECTOR 1 — INWD 11

BAD XMIT H
BAD DAC3 L
7401 E41 (6, 5 → 4; 9, 8 → 10) — BAD XMIT H
DMA ON (1) H

7402 E24 (6, 5 → 4; 2, 3 → 1) — BAD INWD L
DMA ON (1) H

BAD WR HB L — 7432 E25 (1, 2 → 3)
BAD DAC0 L
BAD LD DAC0 L — 7400 E26 (1, 2 → 3) — BAD WR DAC0 HB H

BAD WR LB L — 7432 E25 (9, 10 → 8)
BAD LD DAC0 L — 7400 E26 (12, 13 → 11) — BAD WR DAC0 LB H

BAD DAC1 L — 7432 E25 (12, 13 → 11)
BAD LD DAC1 L — 7400 E26 (9, 10 → 8) — BAD WR DAC1 HB H

BAD DAC1 L — 7432 E25 (4, 5 → 6)
BAD LD DAC1 L — 7400 E26 (4, 5 → 6) — BAD WR DAC1 LB H

BAD DAC2 L — 7432 E12 (1, 2 → 3)
BAD LD DAC2 L — 7400 E35 (1, 2 → 3) — BAD WR DAC2 HB H

BAD DAC2 L — 7432 E12 (12, 13 → 11)
BAD LD DAC2 L — 7400 E35 (12, 13 → 11) — BAD WR DAC2 LB H

BAD DAC3 L — 7432 E12 (4, 5 → 6)
BAD LD DAC3 L — 7400 E35 (9, 10 → 8) — BAD WR DAC3 HB H

BAD DAC3 L — 7432 E12 (9, 10 → 8)
BAD LD DAC3 L — 7400 E35 (4, 5 → 6) — BAD WR DAC3 LB H

BAD DAC0 L — 7402 E13 (3, 2 → 1)
BAD INWD L
8837 E18 (15, (9) → 14) — BAD READ DAC0 L
8837 E18 (3, (7) → 4) — BAD READ DAC0 H

BAD DAC1 L — 7402 E13 (12, 11 → 13)
8837 E18 (13, (9) → 12) — BAD READ DAC1 L
8837 E18 (11, (9) → 10) — BAD READ DAC1 H

BAD DAC2 L — 7402 E13 (9, 8 → 10)
BAD READ DAC2 L
BAD READ DAC2 H

BAD DAC3 L — 7402 E13 (5, 6 → 4)
BAD READ DAC3 H
BAD READ DAC3 H

DMA ON (1) H — 7410 E33 (13, 1, 2 → 12) — CLR FLAG L
CLK IF H — DB1 — 8837 E18 (1, 7 → 2)
R61 1.0K +5V

7402 E41 (3, 2 → 1)
74174 E40 (CLR, CLK)
DAL 04 H 3 — D0 — R0(1) 2
DAL 02 H 4 — D1 — R1(1) 5
DAL 03 H 6 — D2 — R2(1) 7
DAL 06 H 11 — D3 — R3(1) 10
DAL 07 H 13 — D4 — R4(1) 12
DAL 05 H 14 — D5 — R5(1) 15
CLR 1, CLK 9
DMA ON (1) H
ENC H — DD1
R62 1.0K +5V

7400 E34 (1, 2 → 3) — BAD LD DAC 0 L
7400 E34 (4, 5 → 6) — BAD LD DAC 1 L
7400 E34 (10, 9 → 8) — BAD LD DAC 2 L
7400 E34 (12, 13 → 11) — BAD LD DAC 3 L

ENC H 13, DMA ON (1) H 1, 2 → 7410 E33 (12) — CLR FLAG L
7402 E41 (2, 3 → 1)
7400 E34 (2, 1 → 3) — BAD LD DAC 0 L
7400 E34 (4, 5 → 6) — BAD LD DAC 1 L
7400 E34 (10, 9 → 8) — BAD LD DAC 2 L
7400 E34 (12, 13 → 11) — BAD LD DAC 3 L

+3V
7474 E28 (D 1, 2 → 6, 5; C 3, 4 → 6, 5)
DMA ON (1) H
ENC H
7402 E24 (9, 8 → 10)
BAD INIT H
+5V R33 1K
+3V
+5V RG3 1.6K
7474 E28 (12, 11 → 9, 8)
DT2 — DEV RDY H
CLK 0V L — CV1, CV2
CLR FLAG L

AR2, AS2
AM2, AN2
CE2, DE2
AC2, BC2
AJ1, BJ1
AM1, BM1
AT1, BT1
CC2, DC2
CT1, DT1
AH1

C1 0 — 15 µF
C11 — 15 µF
C66 — 15 µF
C67 — 15 µF
C1 THRU C9 — .047 mfd
+5V

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 DC0004	20	10	—
DEC DC0005	20	10	—
2505	7	—	4
AD2700	13	7	—

BUS & ADDRESS & DATA

DRN	Wilson	5 OCT 76
CHK'D	[illegible]	6 OCT 76
ENG.	[illegible]	7/6/76
PROJ. ENG.	[illegible]	7/6/76
PROD.	[illegible]	7/6/76
NEXT HIGHER ASSY.	B-DD-A6002-0	
SCALE	NONE	
SHEET	1 OF 7	

FIRST USED ON
digital
TITLE: 4 CHANNEL D-A (BAD)
SIZE D — CODE — NUMBER CSA6002-0-1 — REV. D
DIST.

REVISIONS			
DIR	CHANGE NO.	REV.	
PM	A6002-MEMA	D	7/6/76

A FILE

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DAØ PWR +15V

BAD READ DACØ L
DAL 11 H
DAL 1Ø H
DAL Ø9 H
DAL Ø8 H
BAD READ DACØ H
BAD WR DACØ HB H
BAD INIT H
DAL Ø7 H
DAL Ø6 H
DAL Ø5 H
DAL Ø4 H
BAD WR DACØ LB H
DAL Ø3 H
DAL Ø2 H
DAL Ø1 H
DAL ØØ H
BAD WR DACØ LB H

OD CE MAX CNT
D0 D1 D2 D3
R0(1) R1(1) R2(1) R3(1)
LD CLK CLR
8556 E15
8556 E19
8556 E14

AD27ØØ E2
DAØ +1ØV REF
C12 .Ø47 MF

R4 5Ø
R18 2ØØ CW
R1 68.1
R5 2K

MSB
AD562 D/A E9
LSB

DAØ +1ØV REF
R73 (SPARE)
C13 .Ø1 MF
R3 1ØK

J1
DAØ ANALOG GND

C21 .Ø47 MF
C19 .15 MF
PWR -15V
+5V
C18 15 MF
C2Ø .Ø47 MF

S1A
S1B
WB.1 R10
Ø9
Ø18

J1
DAC Ø
TP8

R19 2ØK CW
PWR -15V
PWR +15V
R9 1M
R7 47ØK

C14 82 PF
C17 .Ø47 PF
PWR -15V

R5 2.15K
25Ø5 E18
PWR +15V
C15 .Ø1 MF
C16 .Ø47

R6 47 FUSIBLE
DAØ -12V
D1 D672
D2 D672
DAØ +12V

PWR +15V
R4Ø 1K
DAØ +12V
D18 IN4742
D17 IN4742
PWR -15V
R39 1K
DAØ -12V

REVISIONS
CHANGE NO. REV.

DAØ
TITLE 4 CHANNEL D-A (DAD1)
SIZE D CODE CS NUMBER A6ØØ2-Ø-1 REV. D
SCALE SHEET 2 OF 7 DIST.

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BAD READ DAC1 L
DAL 11 H
DAL 10 H
DAL Ø9 H
DAL Ø8 H
BAD READ DAC1 H
BAD WR DAC1 HB H
BAD INIT H
DAL Ø7 H
DAL Ø6 H
DAL Ø5 H
DAL Ø4 H
BAD WR DAC1 LB H
DAL Ø3 H
DAL Ø2 H
DAL Ø1 H
DAL Ø0 H
BAD WR DAC1 LB H

OD CE MAX CNT
D0 D1 D2 D3
R0(1) R1(1) R2(1) R3(1)
LD CLK CLR
8556 E20
8556 E27
8556 E50

DAØ +10V REF
R11 5Ø
R2Ø 2ØØ CW
R10 68.1 R59 2W
R71 68.1
S2A S2B S2C
R21 2ØK CW
R8 1.Ø M
R37 47Ø K
PWR -15V
PWR +15V
C23 82 PF
C26 .Ø47 MF
R14 2.15K
2585 E22
C24 .Ø1MF
C22 .Ø47 MF
PWR +15 V
J1
DAC 1
TP7
R16 47 FUSIBLE
DAØ -12V
D3 D672
D4 D672
DAØ +12 V

AD5G2 D/A E21
MSB
LS3
DAØ +10V REF
R74 (SPARE)
C25 .Ø1 MF
R12 10K
J1
DA1
ANALOG GND

C29 .Ø47MF
C27 15 MF
C28 15 MF
C3Ø .Ø47 MF
PWR -15V +5V

REVISIONS		
CHK	CHANGE NO	REV.

TITLE 4 CHANNEL D-A (DAD2) DA1
SIZE D | CODE CS | NUMBER A6ØØ2-Ø-1 | REV. D
SCALE | SHEET 3 OF 7 | DIS

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BAD READ DAC2 L
DAL 11 H
DAL 10 H
DAL 09 H
DAL 08 H
BAD READ DAC2 H
BAD WR DAC2 HB H
BAD INIT H
DAL 07 H
DAL 06 H
DAL 05 H
DAL 04 H
BAD WR DAC2 LB H
DAL 03 H
DAL 02 H
DAL 01 H
DAL 00 H
BAD WR DAC2 LB H

8556 E39 — OD CE MAX CNT; D0 D1 D2 D3; P0(1) R1(1) R2(1) R3(1); LD CLK CLR
8556 E29 — OD CE MAX CNT; D0 D1 D2 D3; R0(1) R1(1) R2(1) R3(1); LD CLK CLR
8556 E30 — OD CE MAX CNT; D0 D1 D2 D3; R0(1) R1(1) R2(1) R3(1); LD CLK CLR

DA0 +10V REF
R25 50
R41 200 CW
MSB
AD5G2 D/A E31
LSB
R23 68.1
R59 34.1
R75 (SPARE)
C34 .01 MF
R22 10K
S3A
S3B
09
010
L81
R72
R42 20K
R26 1.0M
R24 470K
PWR -15V
PWR +15V
C31 82 PF
C32 .047 MF
R28 2.15K
2583 E32
C35 .01 MF
C33 .047 MF
J1
5
DAC 2
TP6
R29 47 FUSIBLE
DA0 -12V
D12 D672
D11 D672
DA0 +12V
6
DA2
ANALOG GND
C40 .047 MF
C36 15 MF
C37 15 MF
C38 .047 MF
PWR -15V +5V

REVISIONS		
CHG	CHANGE NO	REV.

DA2

TITLE: CHANNEL D-A (DAYI)
SIZE: D | CODE: CS | NUMBER: A6002-0-1 | REV: D
SCALE | SHEET 4 OF 7 | DIST.

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BAD READ DAC3 L
DAL 11 H
DAL 10 H
DAL 09 H
DAL 08 H
BAD READ DAC3 H
BAD WR DAC3 HB H
BAD INIT H
DAL 07 H
DAL 06 H
DAL 05 H
DAL 04 H
BAD WR DAC3 LB H
DAL 03 H
DAL 02 H
DAL 01 H
DAL 00 H
BAD WR DAC3 LB H

8556 E46 R0(1) R1(1) R2(1) R3(1)
8556 E42 R0(1) R1(1) R2(1) R3(1)
8556 E43 R0(1) R1(1) R2(1) R3(1)

DA0 +10V REF
R31 50
R43 200 CW
R34 681
R66 2K
MSB
AD562 D/A E47
LSB
R76 (SPARE)
C45 .01 MF
R35 10K
PWR-15V
C41 .047MF
C42 15 MF
C43 15 MF
C39 .047 MF
+5V

S4B S4A
R69 681
R44 20K
R38 1.0M
R39 47.5K
C46 82 PF
C47 .047 MF
R32 2.15K
C49 .01 MF
C48 .047 UF
R64 1K
PWR+15V
DA3 ANALOG GND
DA0 -12V
DA0 +12V
R36 47 FUSIBLE
J1
TP5
DAC 3

D13 D672
D14 D672
D8 D672
D10 D672
D31 D672
D32 D672
D5 D672
D6 D672
D33 D672
D34 D672
D7 D672
D9 D672
D35 D672
D36 D672
D15 D672
D16 D672
D37 D672
D38 D672

R65 1K
R66 1K
R67 1K
R68 1K
R2 1K
R12 1K
R27 1K

F1 F5 F2 F6 F3 F7 F4 F8

754S52 E44
754S51 E45
754S52 E44
754S51 E45
754S52 E37
754S51 E38
754 E37
754S51 E38

BIT 0 L
BIT 0 H
BIT 1 L
BIT 1 H
BIT 2 L
BIT 2 H
BIT 3 L
BIT 3 H

REVISIONS		
CHK	CHANGE NO	REV.

DA3
4 CHANNEL D-A
SIZE D CODE CS NUMBER A6002-0-1 REV. D
SCALE
SHEET 5 OF 7
DIST.

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+12V AD2, BD2
C68 15 uF
R52 150
R51 1K
C64 .01 uF
PWR SW A L
7406 E8
Q1 DEC 6534D
Q2 D45C6
L2 .22 uH
R54 47Ø
R53 47Ø
TP1 (PS)
≈43KHZ
D21 D672
D22 D672
D19 D672
D20 D672
C51 22 uF
C60 22 uF
C54 22 uF
+2Ø V
-2Ø V
Q4 D44C3
Q5 D44C3
TP3 (+15V)
TP4 (-15V)
TP2 (GND)
PWR +15T
PWR -15T
R15 1K * FUSIBLE
R17 1K * FUSIBLE
W2
W1
PWR +15V
PWR -15V
J1
C58 39 uF
C57 39 uF
C53 39 uF
C56 39 uF
C55 22 uF
C59 22 uF
C52 22 uF
C58 15 uF
C47 15 uF
D24 D672
D26 D672
D23 D672
D25 D672
D27 D672
D29 D672
D28 D672
D30 D672
REF
LM325N E1
R49 2.7 1/2W
R50 2.7 1/2W
+5V
R55 82 1/2W
C65 .01 uF
PWR SW B L
Q3 D44C3
Q6 DEC 3009B
L1 .22 uH
R77 .5Ω
7406 E8

+5V
R48 10K
C61 390 pF
C62 390 pF
R46 10K
7413 E7
R45 1K
C63 1 uF
+3VD
R47 1K
+5

7493 E4
R3(1)
R2(1)
R1(1)
R0(1)
CLR
CLKBC
CLKA
7410 E6
7408 E6
7404 E5
CLK A
PWR SW A L
PWR SW B L

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J1

1	DAØ DACØ OUT
2	DAØ ANALOG GND
3	DA1 DAC1 OUT
4	DA1 ANALOG GND
5	DA2 DAC2 OUT
6	DA2 ANALOG GND
7	DA3 DAC3 OUT
8	DA3 ANALOG GND
9	DA3 BIT Ø H
10	
11	DA3 BIT 1 H
12	
13	DA3 BIT 2 H
14	
15	DA3 BIT 3 H
16	
17	DA3 BIT Ø L
18	
19	DA3 BIT 1 L
20	
21	DA3 BIT 2 L
22	DA3 BIT 3 L
23	PWR-15T
24	PWR+15T

REVISIONS		
CHK	CHANGE NO	REV.

TITLE 4 CHANNEL D-A		SIZE D CODE CS NUMBER A6ØØ2-Ø-1	REV. D
SCALE	SHEET 7 OF 7	DIST.	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

DRAWN BY	M. Archie	CHECKED	SECTION
DATE	7 MARCH 78	DATE 19 MAY 78	1
ENG	A C Ky	PROD B Cook	ISSUED SECT.
DATE	23-MAY-78	DATE 23-MAY-78	1

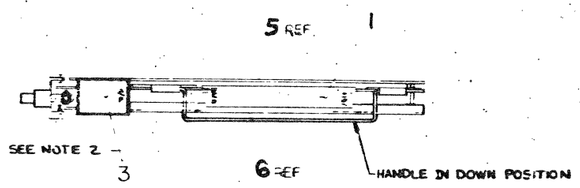
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION
1	D-UA-MNCAA-0-0	MNCAA UNIT ASSY	1
2	MP0059	PRINT SET MNCAA	1
3	AA-D572A-TC	WORKING WITH MUNC DEVICE	1

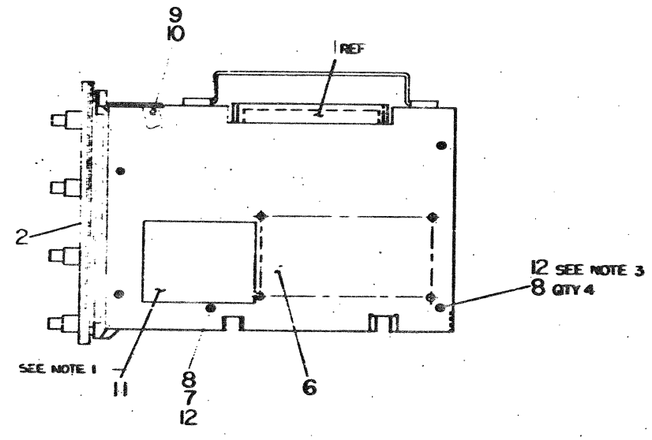
TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIP LIST MNCAA	+	A	PL	MNCAA-0-SH		
	SHEET 1 OF 1					

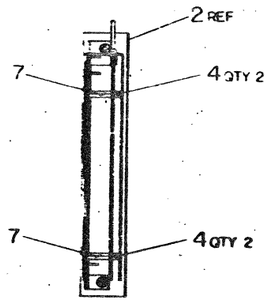
DIGITAL FORM 6000 1/80

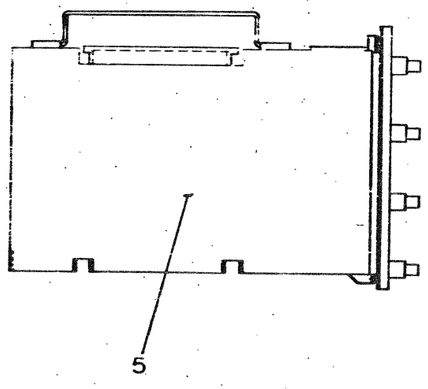
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NOTES:
1. ITEM #15 PUT ON BY ALIGNING THE RIGHT HAND EDGE OF DECAL UP AGAINST HOLES AND BOTTOM EDGE JUST ABOVE MOUNTING HOLE.
2. ITEM #3 IS PUT ON BY ALIGNING THE TOP EDGE AND RIGHT HAND EDGE EVEN WITH THE TOP EDGE AND RIGHT HAND EDGE OF ITEM #5.
3. USING ITEM #12 ADD ONE DROP TO EACH LOCATION.









1	PACKAGING INSTRUCTIONS	A-SP-3700358-0G	14
REF	CHKOUT & ACCEPT PROCEDURE	A-SP-MNCAA-0-3	13
A/R	LOCKTITE	90093Z1	12
1	DECAL, INFORMATION (MNCAA)	A-DC-36152G4-3-0	11
1	NUT, KEPS 6-32	9006185	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	9006831	4
1	DECAL, I/O SCHMETIC	A-DC-36152G0-3-0	3
1	MNCAA SUB-ASSY	D-AD-7015068-0-0	2
1	CONN ASSY I/O	D-IA-7014153-3-0	1
	DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		0 TO 3	OVER 3 TO 6	OVER 6 TO 12	OVER 12 TO 48	OVER 48 TO 72	OVER 72 TO 120
SURFACE QUALITY 125 MICROINCHES	MEDIUM ☐	±.005	±.010	±.015	±.020	±.031	±.062
	PREFERRED ☐	±.002	±.005	±.005	±.01	±.015	±.031

QUANTITY & VARIATION

UNITED INCH PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG.

MATERIAL: SEE PARTS LIST

FINISH: NONE

DRN
CHK'D
ENG.
PROJ. ENG.
PROD.
NEXT HIGHER ASSY.: E-DD-MNCAA-C
SCALE 1/2
SHEET 1 OF 1

FIRST USED ON: MNCAA

TITLE: MNCAA UNIT ASSY

SIZE D | CODE UA | NUMBER MNCAA-0-0 | REV. A

DIST.

REVISIONS			
SYM	CHANGE NO.	APP	DATE
A	ECO MNCAA MR002		

MR

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MR

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 6/30/78

TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG		APPD		SIZE	CODE	NUMBER	REV
	5-July-78		10-Jul-78	A	SP	MNCAA-0-4	

DEC 10-(3000)-10-M370A
DRA 107

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

Table of Contents

1. General
   - 1.1 Scope
   - 1.2 Equipment
   - 1.3 Documentation
   - 1.4 Flow Diagram

2.0 Installation
   - 2.1 Address
   - 2.2 Location
   - 2.3 Test Module
   - 2.4 Power Up
   - 2.5 Diagnostics

3.0 Acceptance With Test Module
   - 3.1 General Information
   - 3.2 Logic Test
   - 3.3 Output Test
   - 3.4 Ramp Test
   - 3.5 Calibration Test
   - 3.6 Dynamic Test

4.0 Acceptance Without Test Module

SIZE	CODE	NUMBER	REV
A	SP	MNCAA-0-4	

DEC FORM NO EN-01080-10-M370-(361)
DRA 108

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

1.0 GENERAL

1.1 Scope

This document describes the procedures for the installation and field acceptance of the MNCAA (4 Channel D/A Converter) 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
MNCAA-TA	Test Module (optional)
7014153-3-0	I/O Connector
Reference	Precision Digital Voltage Meter

1.3 Documentation

MAIN DEC-11-DVMND-A	Diagnostic Program
MP00590	Print Set
AA-D572A-TC	Working with MINC Devices

SIZE	CODE	NUMBER	REV
A	SP	MNCAA-0-4	

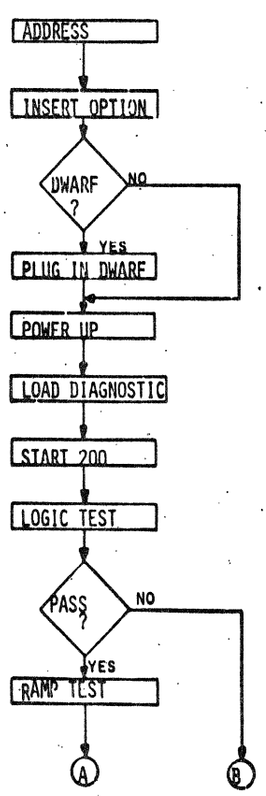
DEC FORM NO EN-01080-10-M370-(361)
DRA 108

MR

ENGINEERING SPECIFICATION CONTINUATION SHEET

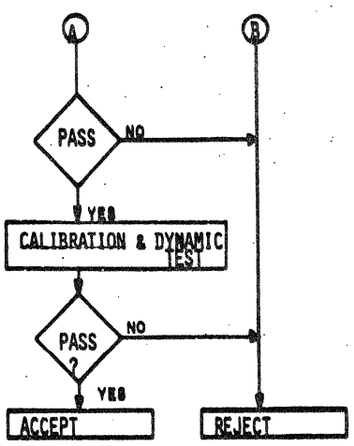
TITLE MNCAA INSTALLATION/ACCEPTANCE PROCEDURE

1.4 Flow Diagram



SIZE	CODE	NUMBER	REV
A	SP	MNCAA-0-4	

DEC FORM NO EN-01080-10-M370-(361)
DRA 108



2.0 INSTALLATION

2.1 Address

The four DAC addresses are selected through the single switch pack mounted on the PC board and accessable through the component side cover.

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.

Base Address:

DAC0 Octal Address 17WXY0
DAC1 Octal Address 17WXY2
DAC2 Octal Address 17WXY4
DAC3 Octal Address 17WXY6

Select and set the Base Address, refer to decal on component side cover.

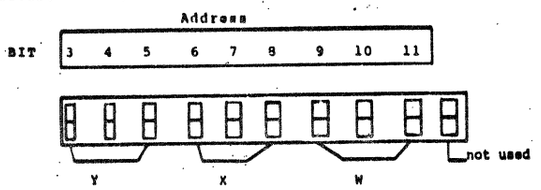


Figure 2.1 Address Switch Pack

2.2 Location

The MNCAA is considered a digital option and can be inserted into any of the 8 available MINC slots. Up to 8 MNCAA options can be plugged into the MINC-11 system. With power off insert the MNCAA option into the selected slot.

If any MNCAD option is in the MINC-11 system then the MNCAA option must be inserted to the right of the MNCAD option.

2.3 Test Module

If the MNCAA test module is available, it should be plugged into the I/O connector fingers on the top of the MNCAA; at this point before power to the MINC-11 is applied.

2.3.1 No Test module

If no test module is available, plug the standard I/O connector into the I/O fingers.

2.4 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.

2.5 Diagnostics

The MNCAA 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.

3.0 ACCEPTANCE

3.1 General Information

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:

L = LOGIC TEST
R = RAMP OUTPUT TEST
S = STATIC CALIBRATION TEST
D = DYNAMIC CALIBRATION TEST
B = BASE ADDRESS CHANGE
O = OUTPUT DWARD LKD LOOP
G = GET NEW SWITCH REGISTER VALUE
H = HELP THE OPERATOR AND RETYPE THIS LIST

A CNTRL 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".

A CNTRL G is used at any time during the running of a test to change the software switch register.

3.2 Logic Test

Type "L" to start the Logic Test. The following message will be typed:

PROGRAM DETECTED "X" MNCAA(D/A)'s

At this point X will be a numeric value from 1 to 8 depending on how many MNCAAs are in the MINC-11 system. If no errors are detected then the following will be typed:

END PASS # A; TOTAL ERROR COUNT = Y
A = Pass Number
Y = Total Errors Detected

A minimum of 10 passes should be run to ensure that the Logic section of the MNCAA is working properly.

3.3 Output Test

Upon completion of Logic Test type a CNTRL C. The following message will then by typed out:

"TYPE THE "TEST CHARACTER" THEN DEPRESS "RETURN KEY"

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.

There are 8 LED's mounted on top of the MNCAA module. See Figure 1 below.

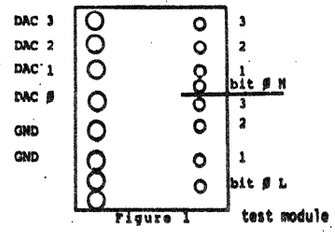


Figure 1 test module

3.3.2 The diagnostic will turn Bit Ø L off and Bit Ø M 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.

3.4 Ramp Test

Type "R" and carriage return. The program is now ready to run the Ramp Output Loop.

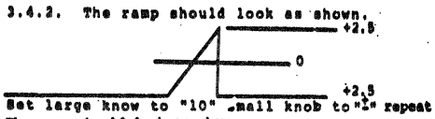
3.4.1 Set all front panel switches, large knob to 5 and small knob to ±.

3.4.2 The program generates a ± 5 volt ramp on all four D/A's. To observe the ramp connect an oscilloscope to DACØ (yellow plug) and the gnd strap to gnd (black plug). The ramp should look as shown -

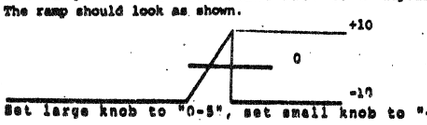


repeat this step for DAC1, DAC2, and DAC3.

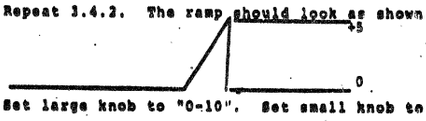
3.4.3 Set large knob to "2.5" small knob to "±" repeat 3.4.2. The ramp should look as shown.



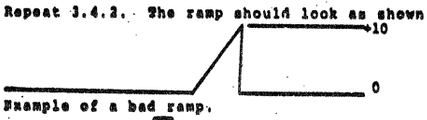
3.4.4 Set large know to "10" small knob to "±" repeat 3.4.2. The ramp should look as shown.



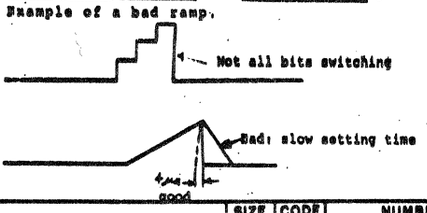
3.4.5 Set large knob to "0-5", set small knob to "+". Repeat 3.4.2. The ramp should look as shown.



3.4.6 Set large knob to "0-10". Set small knob to "+". Repeat 3.4.2. The ramp should look as shown.



3.4.7 Example of a bad ramp.



3.3.3 Set all front panel switches; large knob to "5"; small knob to "±".

3.5 Calibration Test

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.

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.

NOTE: All voltages monitored at test jack on test module (if test module is not available refer to Table 1 for pin assesment).

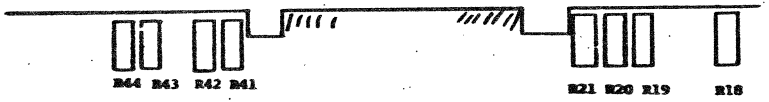
3.5.1 To adjust the D/A converter, type CNTRL G, then type the appropriate octal number as shown in Table 2 and adjust the proper potentiometer to the desired voltage as shown.

TABLE 1

Signal Name	I/O Connector
DAC Ø	1
Analog Gnd	2
DAC 1	3
Analog Gnd	4
DAC 2	5
Analog Gnd	6
DAC 3	7
Analog Gnd	8
Bit Ø M	9
Logic Gnd	10
Bit 1 M	11
Logic Gnd	12
Bit 2 M	13
Logic Gnd	14
Bit 3 M	15
Logic Gnd	16
Bit Ø L	17
Logic Gnd	18
Bit 1 L	19
Logic Gnd	20
Bit 2 L	21
Bit 3L	22
-15T	23
+15T	24

TABLE 2

IN	LOAD		ADJUST				FOR.
			DAC0	DAC1	DAC2	DAC3	
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 ± 1mV.

3.6 Dynamic Test

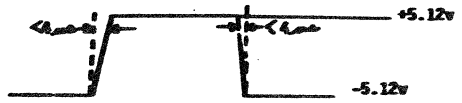
After completing the Calibration Test type a "CNTRL C". Type "D" carriage return in response to the question typed on the terminal.

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

3.6.2 Type "CNTRL G" - 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.



4.0 ACCEPTANCE WITHOUT TEST MODULE

If MECAA-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.

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LEGEND

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

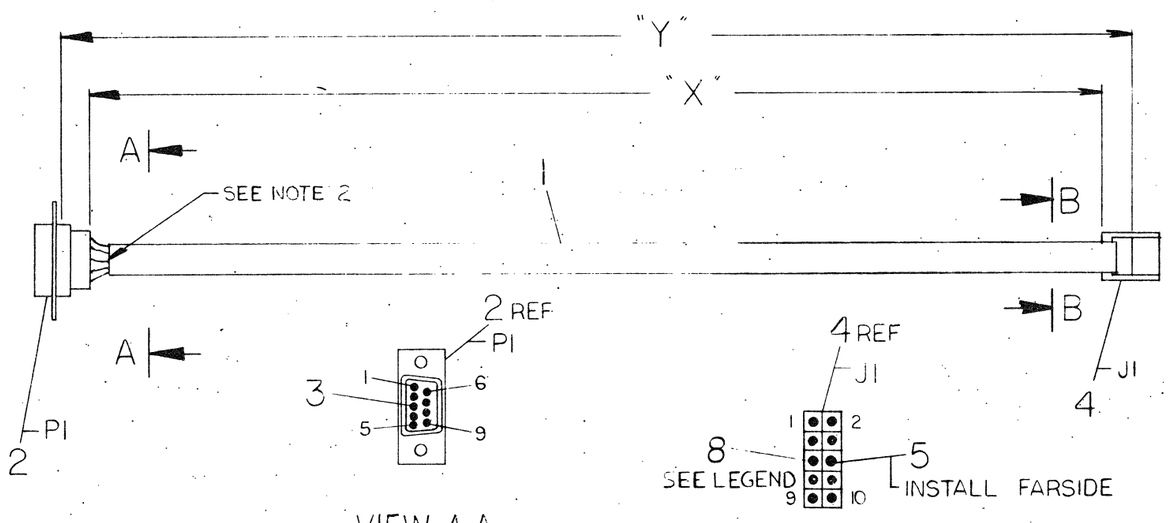
DECAL LEGEND

NUMBER	DECAL
7015575-00	J0
7015575-01	J1
7015575-02	J2
7015575-03	J3

WIRE TABLE

ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
1	28	BRN	P1-1	3	J1-1	—	
		BLK	P1-2		J1-10	—	
		RED	P1-3		J1-2	—	
		ORN	P1-4		J1-3	—	
		YEL	P1-5		J1-4	—	
		WHT	P1-6		J1-9	—	
		GRY	P1-7		J1-8	—	
		VIO	P1-8		J1-7	—	
	28	GRN	P1-9	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 1.50 INCHES.



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

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

1	1	1	1	DECAL, PWR CONNECTOR	7409873-1-0		8
~~2~~	~~2~~	~~2~~	~~2~~	~~CABLE TIE~~	~~9007031~~		~~7~~
~~1~~	~~1~~	~~1~~	~~1~~	~~LABLE, CABLE IDENT.~~	~~9009532~~		~~6~~
1	1	1	1	TERMINAL, DUMMY	1216967		5
1	1	1	1	CONN, HOUSING 10 PIN	1211206-02		4
9	9	9	9	CONTACT, PIN	9009763		3
1	1	1	1	CONN, RECEPTACLE 9 PIN	1212700-01		2
A/R	A/R	A/R	A/R	CABLE, RIBBON 20 COND.	17000052-02		1
7015575-03	7015575-02	7015575-01	7015575-00	DESCRIPTION	DWG./PART NO.		ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 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 ☐	±.004	±.008	±.012	±.016	±.024	±.04
QUANTITY & VARIATION	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN. M. Kochan 1 FEB 78
CHK'D T. Halleby 13 FEB 78
ENG. I. Jodaitis 20 MAR 78
PROJ. ENG. A.C. Fly 21 Feb 78
PROD. [illegible] 2/7[illegible]

NEXT HIGHER ASSY. D-AD-7015836-0-0

SCALE 1/1

SHEET 1 OF 1

FIRST USED ON MNC11

TITLE
CABLE, SLU INTERFACE

SIZE	CODE	NUMBER	REV.
C	IA	7015575-0-0	B

DIST.

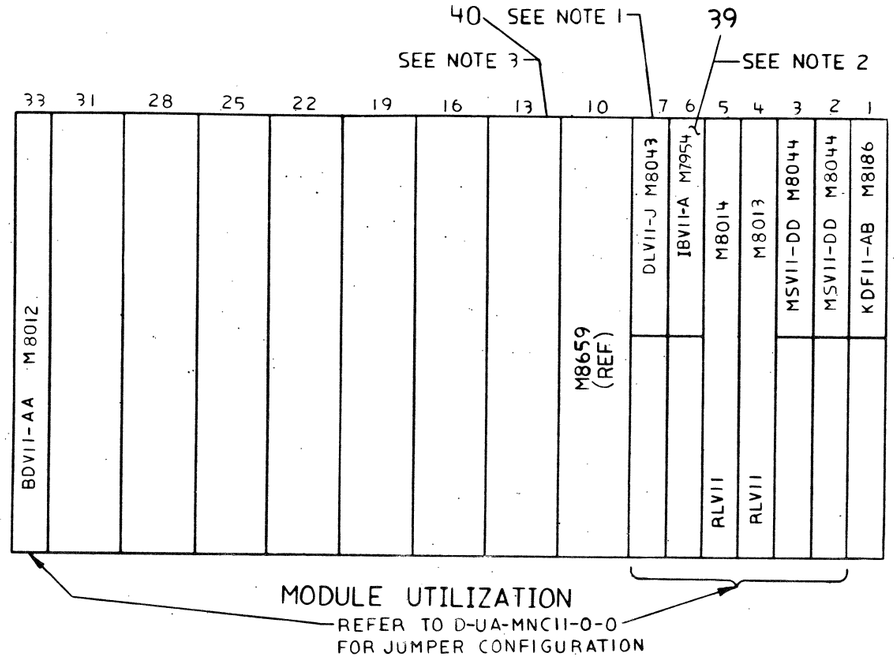
REVISIONS	CHK	CHANGE NO.	REV.
		7015575-MR001	A
	A.FILZ		
		7015575-MR002	B
	A.FILZ	13 JUN 80	

MAKEPIECE P-1488

DEC FORM NO. 2222 1200-5

MR

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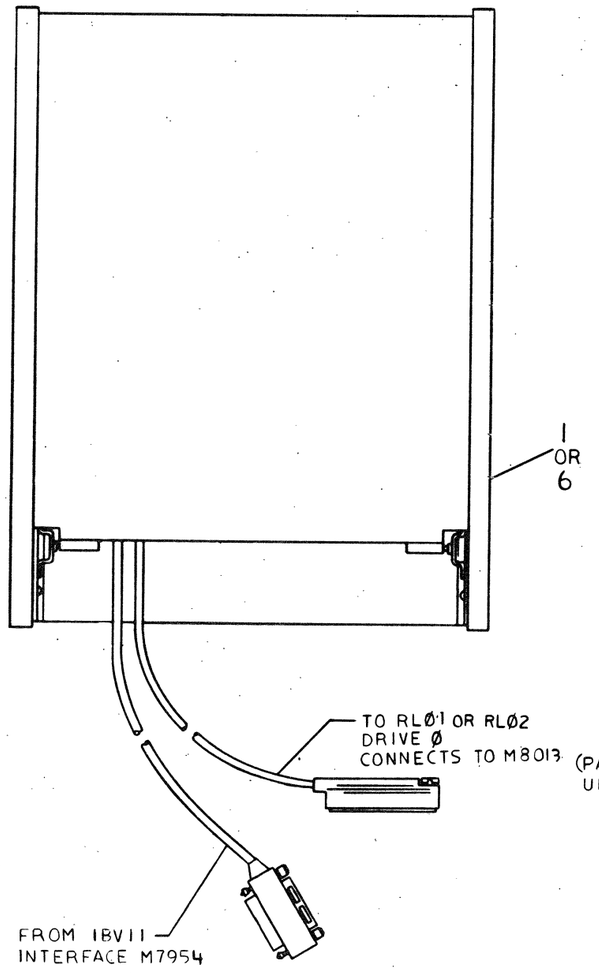
MODULE UTILIZATION

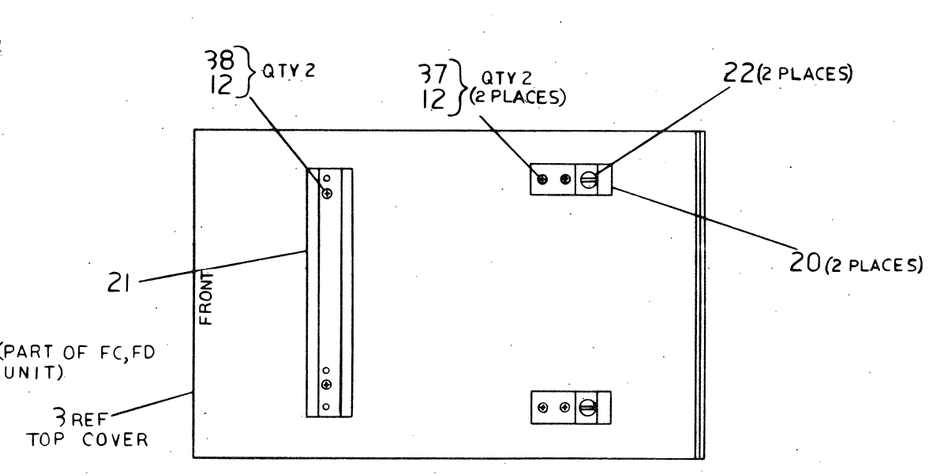
REFER TO D-UA-MNC11-0-0 FOR JUMPER CONFIGURATION

NOTE:

TERMINAL SET-UP CONFIGURATION

1. FOR MDL23-AA, AB, BA, BB, CA, & CB DLV11-J IS PREWIRE FOR 9600 BAUD. FOR MDL23-AC, AD, BC, BD CC & CD CHANGE BAUD RATE JUMPER ON DLV11-J CHANNEL 3 FROM N→3 TO T→3 (300 BAUD FOR MDL23-AE, AF, BE, BF, CE, & CF CHANGE BAUD RATE JUMPER FROM N→3 TO W-3 (1200 BAUD).
2. IBV11 USED ONLY IN MDL23-A,B SYSTEMS
   ADDRESS: 171420
   VECTOR: 420
   S2-1 ON
   S2-2,3 OFF
   S2-4,5 ON
   S2-6,7,8 OFF
   S2-9 ON
   S2-10 OFF
   S1-1,5 ON
   S1-2,3,4 OFF
   S1-6,7,8 OFF
   C VARIATION CONTAINS M8659 GRANT CARD
3. FILL UP ALL UNUSED MINC SLOTS WITH ITEM*40. TOTAL NUMBER OF MNCBL'S SHOULD BE EQUAL TO 1 MORE THAN NUMBER REQUIRED TO FILL UP UNUSED MINC SLOTS.





DETAIL "B"

THIS DETAIL SHOWS THE TOP OF THE H9610 CAB (ITEM 3) WITH THE MOUNTING HARDWARE FOR THE MINC (ITEM*1)

CAUTION: OFF SHEET PARTS LIST EXISTS K-PL-MDL23-0-DBP

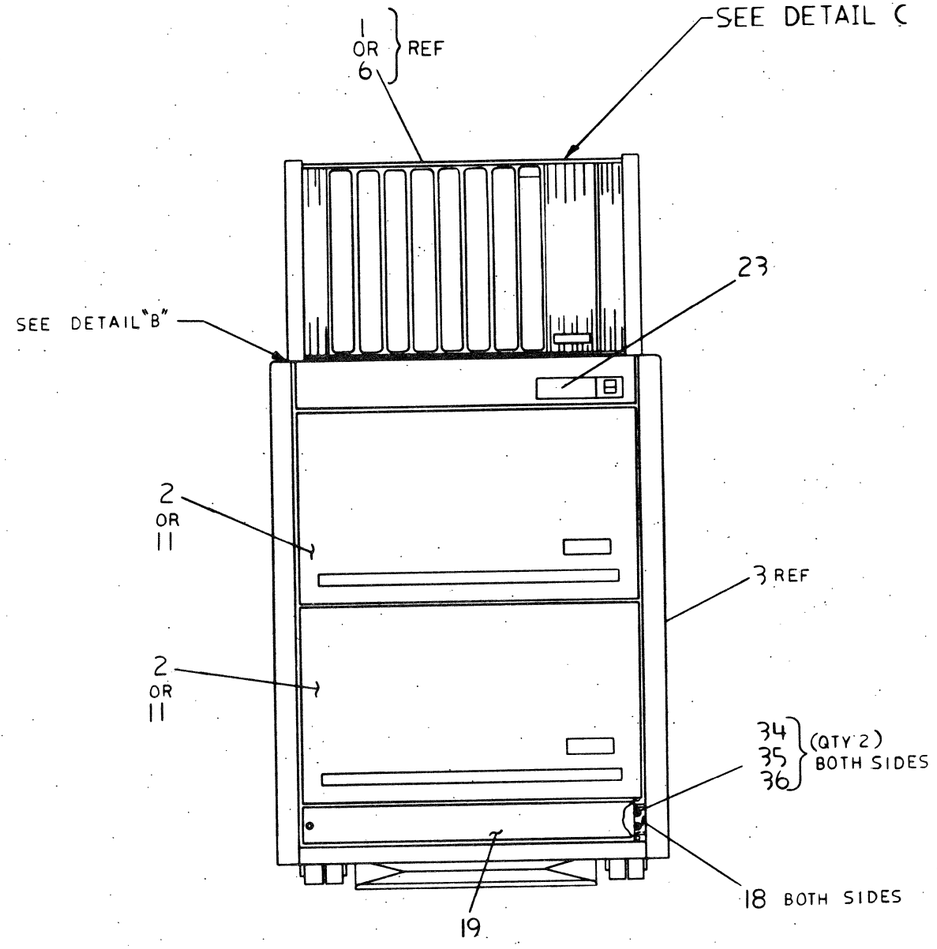
REVISIONS		
ENGR REQ.	MDL23-MR001	A
CHK.	A.FILZ	

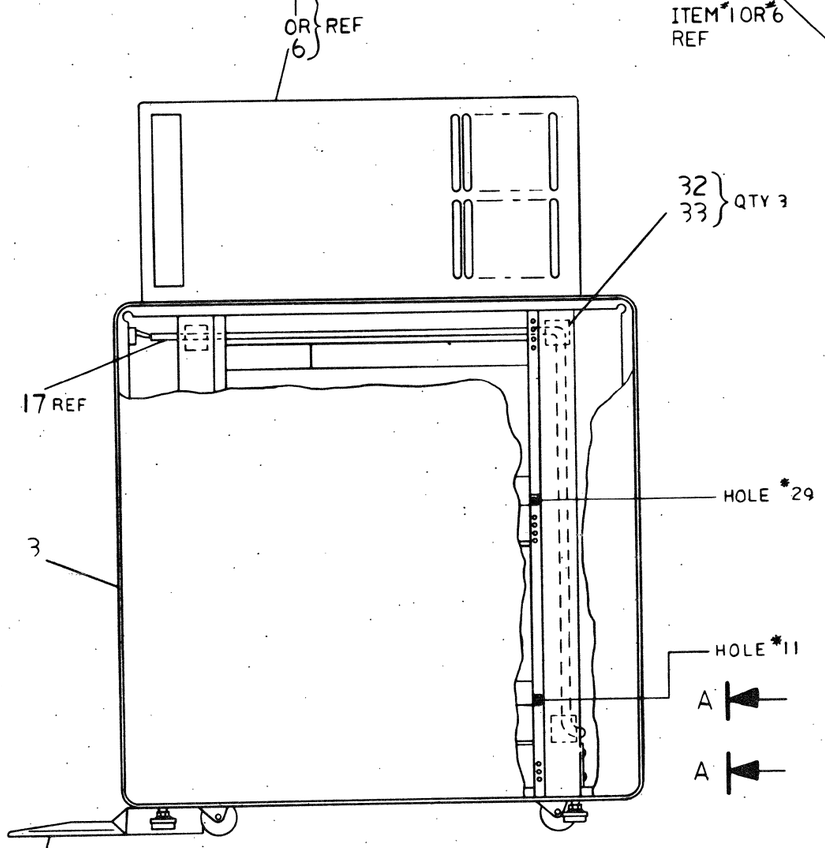
	DESCRIPTION	DWG./PART NO.	ITEM NO.
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
QUANTITY & VARIATION			
THIRD ANGLE PROJECTION	DRN Jim Record 27 May 80	FIRST USED ON	
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D J.M. Husak 30 May 80	TITLE	MDL23 UNIT ASSY
DO NOT SCALE DWG	ENG. 3 Jun 80		
	PROJ. ENG. 3 Jun 80		
	PROD. M. Cortes 11 Jun 80		
	NEXT HIGHER ASSY.		
MATERIAL SEE PARTS LIST	B-DD-MDL23-0	SIZE D / CODE UA / NUMBER MDL23-0-0	REV. A
FINISH NONE	SCALE NONE		
	SHEET 1 OF 3	DIST.	

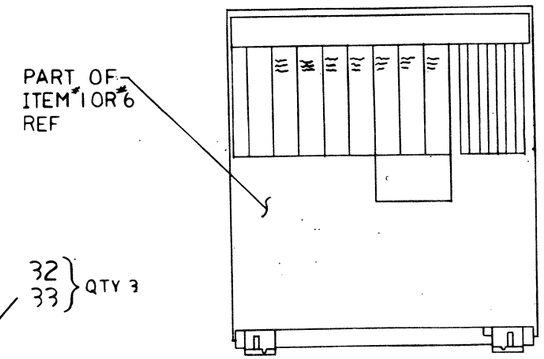
ANGLES ±0° 30' | SURFACE QUALITY IN MICROINCHES | CLASS OF ACCURACY (CHECK ONE) | NOMINAL DIMENSION RANGE INCHES

		0 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 48.0	OVER 48.0 TO 96.0
MEDIUM	☐	±.004	±.008	±.012	±.016	±.024
PREFERRED	☐	±.002	±.010	±.005	±.04	±.062

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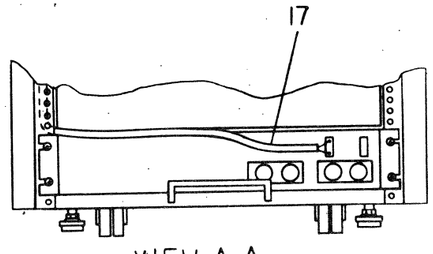






DETAIL C
BOTTOM SIDE OF TOP COVER
SCALE: NONE

STABILIZER FOOT
PART OF THE H9610 CAB
(ITEM 3)

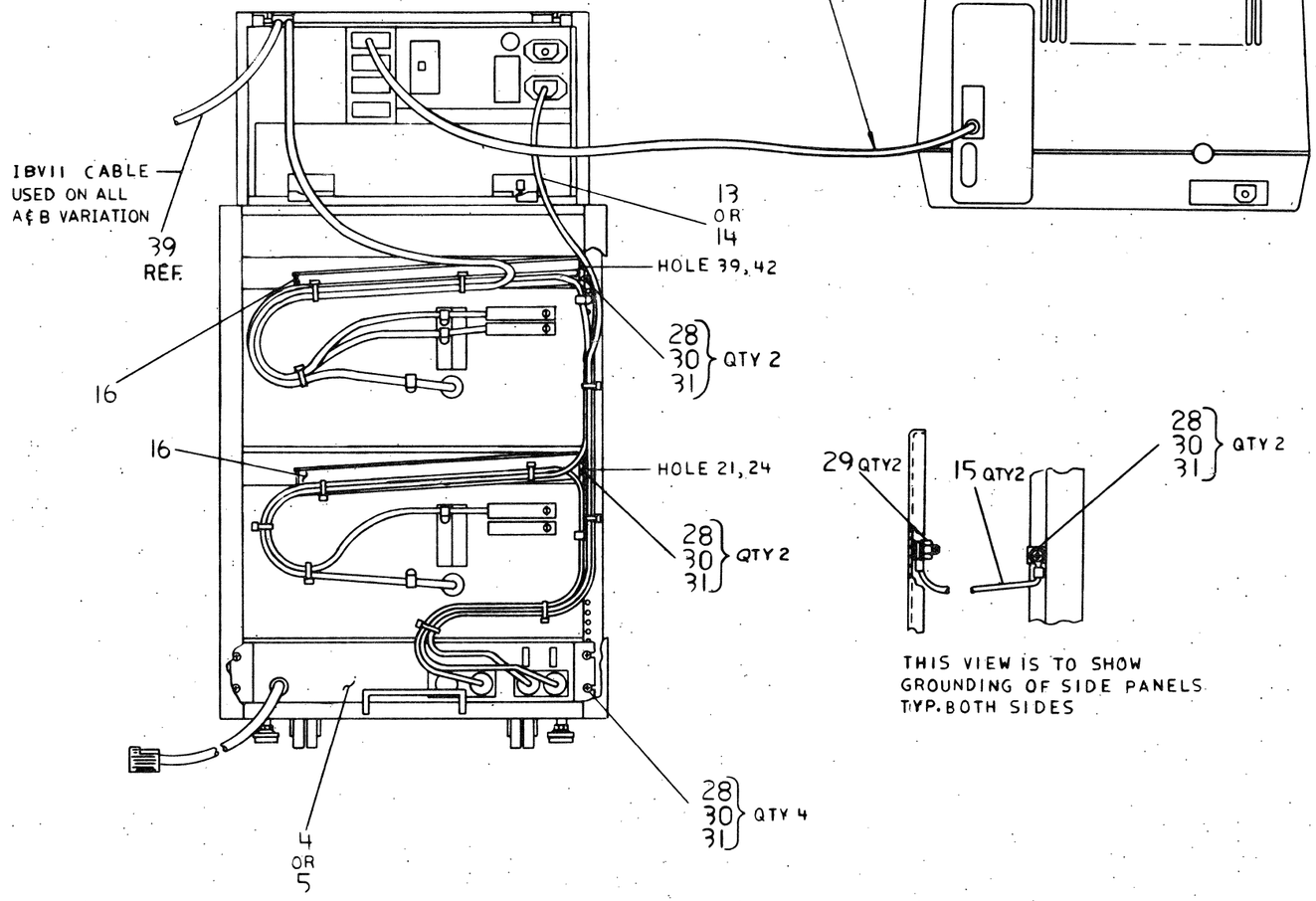


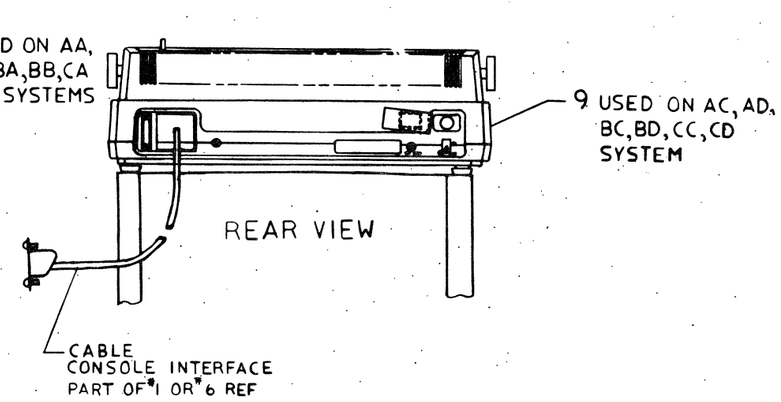
VIEW A-A
SCALE: NONE

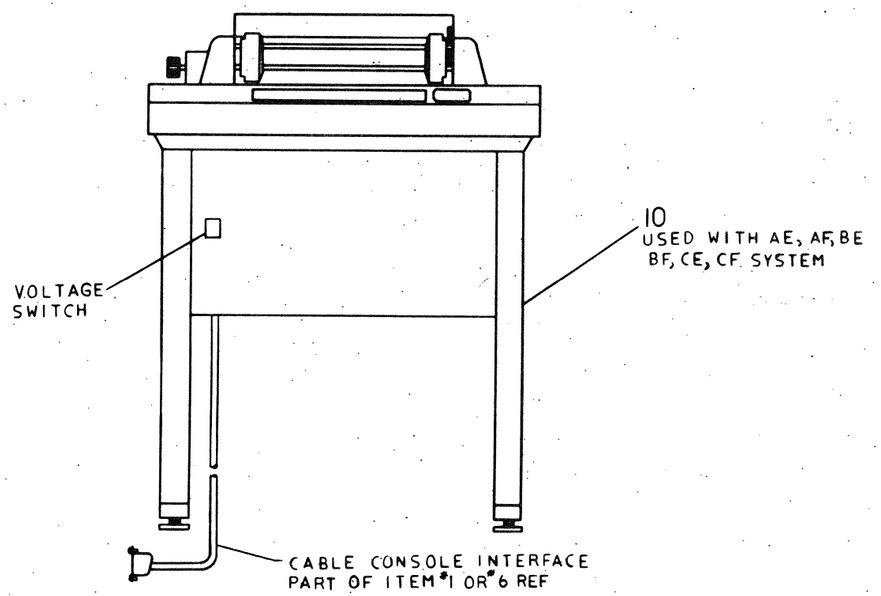
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MDL23 UNIT ASSY	D	UA	MDL23-0-0	A
SCALE NONE	SHEET 2 OF 3	DIST.		

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REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MDL23 UNIT ASSY	D	UA	MDL23-0-0	A
SCALE NONE	SHEET 3 OF 3	DIST.		

AUTOMATED BY PRTLST,3M(41)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION AA	AB	AC	AD	AE	AF	BA	BB	BC	BD	BE	BF
1	1	D-UA-MNC11-0-0	MNC11-FC	MNC11-FA EXCEPT 2 MSV11-D,RLV11,	1	-	1	-	1	-	1	-	1	-	1	-
2	2	E-UA-RL01-0-0	QRL01-AK	RL01-A + RL01K-DC,115/230V	2	2	2	2	2	2	-	-	-	-	-	-
3	3	E-UA-H9610-0-0	H9610-BC	CABINET	1	1	1	1	1	1	1	1	1	1	1	1
4	4	E-UA-871-0-0	00871-B	240V 8A POWER CONTROL,UNFILTERED	-	1	-	1	-	1	-	1	-	1	-	1
5	5	E-UA-871-0-0	00871-C	120V 16A POWER CONTROL,UNFILTERE	1	-	1	-	1	-	1	-	1	-	1	-
6	6	D-UA-MNC11-0-0	MNC11-FD	MNC11-FA EXCEPT 2 MSV11-D,RLV11,	-	1	-	1	-	1	-	1	-	1	-	1
7	7	E-UA-VT105-0-0	VT105-MA	VT100-AA,VT1XX-AB,WAVEFORM GRAPH	1	-	-	-	-	-	1	-	-	-	-	-
8	8	E-UA-VT105-0-0	VT105-MB	VT100-AB,VT1XX-AB,WAVEFORM GRAPH	-	1	-	-	-	-	-	1	-	-	-	-
9	9	B-PL-LA38-HA-0	QLA38-HA	LA38-GA WITH LAX34-BL STAND	-	-	1	1	-	-	-	-	1	1	-	-
10	10	E-UA-LA120-0-0	LA120-DA	LA120-BA W H7150 UNIVERSAL POWER	-	-	-	-	1	1	-	-	-	-	1	1
11	11	E-UA-RL02-AK-0	QRL02-AK	RL02-A + RL02K-DC, 120V/240V	-	-	-	-	-	-	2	2	2	2	2	2
12	12		9006563-00	NUT,KEP , 8-32 X11/32AF	6	6	6	6	6	6	6	6	6	6	6	6
13	13		1700083-02	PWR CORD,TERM, 75IN,14-3,125V 15	1	-	1	-	1	-	1	-	1	-	1	-
14	14		1700083-01	PWR CORD,TERM, 75IN,14-3,250V 6	-	1	-	1	-	1	-	1	-	1	-	1
15	15	C-IA-7013059-0-0	7013059-05	GROUND STRAP	2	2	2	2	2	2	2	2	2	2	2	2
16	16	A-PS-1213958-0-0	1213958-01	CABLE RETRACTOR	2	2	2	2	2	2	2	2	2	2	2	2
17	17	D-IA-7016461-0-0	7016461-7B	SWITCH ASSY,	1	1	1	1	1	1	1	1	1	1	1	1
18	18	B-AD-7011231-0-0	7011231-00	BRACKET BEZEL RETAINER ASSY	2	2	2	2	2	2	2	2	2	2	2	2
19	19	D-AD-7011616-0-0	7011616-01	BEZEL ASSY	1	1	1	1	1	1	1	1	1	1	1	1
20	20	B-IA-7421315-0-0	7421315-00	ADAPTER,REAR	2	2	2	2	2	2	2	2	2	2	2	2
21	21	C-IA-7421314-0-0	7421314-00	ADAPTER, FRONT	1	1	1	1	1	1	1	1	1	1	1	1
22	22	C-MD-7414318-0-0	7414318-00	KEY BUTTON	2	2	2	2	2	2	2	2	2	2	2	2
23	23	A-PS-3616154-0-0	3616154-01	LABEL,DIGITAL LOGO,SHORT	1	1	1	1	1	1	1	1	1	1	1	1
24	24	A-SP-3700359-0-0	3700359-00	INSTR PKG MNC11-A	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
25	25	A-SP-3700358-0-0	3700358-00	INSTR PKG MODULE MNCAD	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
26	26	A-SP-3700324-0-0	3700338-00	INSTR PKG DISPLAY VT100 CHASSIS	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
27	27	A-SP-3700372-0-0	3700372-00	INSTR PKG CAB H9510/H9610 ASSEMB	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
28	28		9006075-03	SCREW,TRUS,PHIL, 10-32X 3/4	10	10	10	10	10	10	10	10	10	10	10	10
29	29		9006565-00	NUT,KEP , 10-32X 3/8 AF	2	2	2	2	2	2	2	2	2	2	2	2
30	30		9006586-00	NUT, U-SHAPED, TINNERMAN, SPRING	10	10	10	10	10	10	10	10	10	10	10	10

REVISION HISTORY			BASIC PART NO: MDL23
ENG	ECO NUMBER	REV	SECTION A OF B
AF	INITIAL MDL23-MR001	* A	SECTION, VARIATION INDEX [A] AA,AB,AC,AD,AE,AF, BA,BB,BC,BD,BE,BF [B] CA,CB,CC,CD,CE,CF [C] [D] [E] [F]

DRN: JIM SICARD	DATE: 03-APR-80	D I G I T A L
CHK'D: J. HUSON	DATE: 30-MAY-80	TITLE: PARTS LIST MDL23 UNIT ASSY
DES,ENG: A,C,FILZ	DATE: 3-JUN-80	
RESP,ENG: A,C,FILZ	DATE: 3-JUN-80	DOCUMENT NUMBER
MFG,ENG: G. CONTOS	DATE: 11-JUN-80	SIZE: K; CODE: PL; NUMBER: MDL23-0-DBP; REV: A
ASSEMBLY NUMBER: D-UA-MDL23-0-0	TOP DOCUMENT NUMBER: B-DD-MDL23-00-0	FILE NAME: Z11S9A.PLS; EDIT #: 21

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AUTOMATED BY PRTLST,3M(41)

PARTS LIST

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION AA	AB	AC	AD	AE	AF	BA	BB	BC	BD	BE	BF
31	31		9006635-00	WASHER,LOCK,INT,,3100D X ,200ID	10	10	10	10	10	10	10	10	10	10	10	10
32	32		9007031-00	TIE,CABLE BUNDL,DIA 0= 3/4"=101	3	3	3	3	3	3	3	3	3	3	3	3
33	33		9008264-00	MOUNT, CABLE TIE, ADHESIVE BACKE	3	3	3	3	3	3	3	3	3	3	3	3
34	34		9006073-03	SCREW,TRUS,PHIL, 10-32X 1/2	4	4	4	4	4	4	4	4	4	4	4	4
35	35		9007906-00	WASHER, LOCK S,S, #10	4	4	4	4	4	4	4	4	4	4	4	4
36	36		9007786-00	RETAINER, U-NUT, 10-32	4	4	4	4	4	4	4	4	4	4	4	4
37	37		9006037-01	SCREW,PAN,PHIL 8-32X 3/8 SS	4	4	4	4	4	4	4	4	4	4	4	4
38	38		9006039-02	SCREW,FLAT,PHIL, 8-32X 1/2	2	2	2	2	2	2	2	2	2	2	2	2
39	39		IBV11-A	IEC GEN PURPOSE INTERFACE (M7954	1	1	1	1	1	1	1	1	1	1	1	1
40	40	D-UA-MNCBL-0-0	MNCBL-00	BLANK CONT PANEL ASSY	5	5	5	5	5	5	5	5	5	5	5	5

DIGITAL	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
	MDL23 UNIT ASSY SECTION A OF B	K	PL	MDL23-0-DBP	A

AUTOMATED BY PRTLST,3M(41) P A R T S L I S T SHEET B1 OF B2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION CA	CB	CC	CD	CE	CF
1	1	D-UA-MNC11-0-0	MNC11-FC	MNC11-FA EXCEPT 2 MSV11-D,RLV11,	1	-	1	-	1	-
2	2	E-UA-RL01-0-0	QRL01-AK	*** THIS ITEM IS NOT USED ***	-	-	-	-	-	-
3	3	E-UA-H9610-0-0	H9610-BC	CABINET	1	1	1	1	1	1
4	4	E-UA-871-0-0	00871-B	240V 8A POWER CONTROL,UNFILTERED	-	1	-	1	-	1
5	5	E-UA-871-0-0	00871-C	120V 16A POWER CONTROL,UNFILTERE	1	-	1	-	1	-
6	6	D-UA-MNC11-0-0	MNC11-FD	MNC11-FA EXCEPT 2 MSV11-D,RLV11,	-	1	-	1	-	1
7	7	E-UA-VT105-0-0	VT105-MA	VT100-AA,VT1XX-AB,WAVEFORM GRAPH	1	-	-	-	-	-
8	8	E-UA-VT105-0-0	VT105-MB	VT100-AB,VT1XX-AB,WAVEFORM GRAPH	-	1	-	-	-	-
9	9	B-PL-LA38-HA-0	QLA38-HA	LA38-GA WITH LAX34-GL STAND	-	-	1	1	-	-
10	10	E-UA-LA120-0-0	LA120-DA	LA120-BA W H7150 UNIVERSAL POWER	-	-	-	-	1	1
11	11	E-UA-RL02-AK-0	QRL02-AK	RL02-A + RL02K-DC, 120V/240V	2	2	2	2	2	2
12	12		9006563-00	NUT,KEP , 8-32 X11/32AF	6	6	6	6	6	6
13	13		1700083-02	PWR CORD,TERM, 75IN,14-3,125V 15	1	-	1	-	1	-
14	14		1700083-01	PWR CORD,TERM, 75IN,14-3,250V 6	-	1	-	1	-	1
15	15	C-IA-7013059-0-0	7013059-05	GROUND STRAP	2	2	2	2	2	2
16	16	A-PS-1213958-0-0	1213958-01	CABLE RETRACTOR	2	2	2	2	2	2
17	17	D-IA-7016461-0-0	7016461-7B	SWITCH ASSY,	1	1	1	1	1	1
18	18	B-AD-7011231-0-0	7011231-00	BRACKET BEZEL RETAINER ASSY	2	2	2	2	2	2
19	19	D-AD-7011616-0-0	7011616-01	BEZEL ASSY	1	1	1	1	1	1
20	20	B-IA-7421315-0-0	7421315-00	ADAPTER,REAR	2	2	2	2	2	2
21	21	C-IA-7421314-0-0	7421314-00	ADAPTER, FRONT	1	1	1	1	1	1
22	22	C-MD-7414318-0-0	7414318-00	KEY BUTTON	2	2	2	2	2	2
23	23	A-PS-3616154-0-0	3616154-01	LABEL,DIGITAL LOGO,SHORT	1	1	1	1	1	1
24	24	A-SP-3700359-0-0	3700359-00	INSTR PKG MNC11-A	REF	REF	REF	REF	REF	REF
25	25	A-SP-3700358-0-0	3700358-00	INSTR PKG MODULE MNCAD	REF	REF	REF	REF	REF	REF
26	26	A-SP-3700324-0-0	3700338-00	INSTR PKG DISPLAY VT100 CHASSIS	REF	REF	REF	REF	REF	REF
27	27	A-SP-3700372-0-0	3700372-00	INSTR PKG CAB H9510/H9610 ASSEMB	REF	REF	REF	REF	REF	REF
28	28		9006078-03	SCREW,TRUS,PHIL, 10-32X 3/4	10	10	10	10	10	10
29	29		9006565-00	NUT,KEP , 10-32X 3/8 AF	2	2	2	2	2	2
30	30		9006586-00	NUT, U-SHAPED, TINNERMAN, SPRING	10	10	10	10	10	10

REVISION HISTORY			BASIC PART NO: MDL23									
ENG	ECO NUMBER	REV	SECTION B OF B	DRN: JIM SICARD	DATE: 03-APR-80		D	I	G	I	T	A	L
AF	INITIAL MDL23-MR001	* A	SECTION, VARIATION INDEX [A] AA,AB,AC,AD,AE,AF, BA,BB,BC,BD,BE,BF [B] CA,CB,CC,CD,CE,CF [C] [D] [E] [F]	CHK'D: J. HUSON	DATE: 30-MAY-80	TITLE PARTS LIST MDL23 UNIT ASSY							
				DES.ENG.: A,C,FILZ	DATE: 3-JUN-80								
				RESP.ENG.: A,C,FILZ	DATE: 3-JUN-80	DOCUMENT NUMBER							
				MFG.ENG.: G, CONTOS	DATE: 11-JUN-80	SIZE: K	CODE: PL	NUMBER: MDL23-0-DBP				REV: A	
				ASSEMBLY NUMBER: D-UA-MDL23-0-0	TOP DOCUMENT NUMBER: B-DD-MDL23-00-0			FILE NAME: Z11S9A.PLS				EDIT #: 21	

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AUTOMATED BY PRTLST,3M(41)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION CA	CB	CC	CD	CE	CF
31	31		9006635-00	WASHER,LOCK,INT,.310OD X .200ID	10	10	10	10	10	10
32	32		9007031-00	TIE,CABLE BUNDL,DIA 0- 3/4"=101	3	3	3	3	3	3
33	33		9008264-00	MOUNT, CABLE TIE, ADHESIVE BACKE	3	3	3	3	3	3
34	34		9006073-03	SCREW,TRUS,PHIL, 10-32X 1/2	4	4	4	4	4	4
35	35		9007906-00	WASHER, LOCK S,S, #10	4	4	4	4	4	4
36	36		9007786-00	RETAINER, U-NUT, 10-32	4	4	4	4	4	4
37	37		9006037-01	SCREW,PAN,PHIL 8-32X 3/8 SS	4	4	4	4	4	4
38	38		9006039-02	SCREW,FLAT,PHIL, 8-32X 1/2	2	2	2	2	2	2
39	39		IBV11-A	*** THIS ITEM IS NOT USED ***	-	-	-	-	-	-
40	40	D-UA-MNCBL-0-0	MNCBL-00	BLANK CONT PANEL ASSY	5	5	5	5	5	5

D	I	G	I	T	A	L	TITLE	SECTION B OF B	SIZE	CODE	DOCUMENT NUMBER	REV
							MDL23 UNIT ASSY		K	PL	MDL23-0-DBP	A

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WIRE TABLE

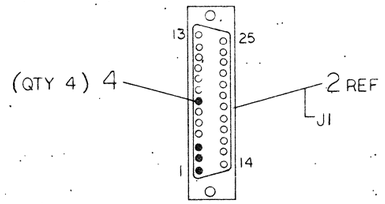
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
1	22	BLK	J1-7	ITEM #4	J2-6	ITEM #4	SIGNAL GND
		WHT	J1-2	ITEM #4	J2-7	ITEM #4	XMITT
		SHIELD	J1-1	ITEM #4	—	—	A GND
		RED	J1-3	ITEM #4	J2-4	ITEM #4	RECT DATA
		BLK	—	—	J2-9	ITEM #4	
	22	SHIELD	—	—	J2-3	ITEM #4	
12	22	BLK	J2-8	ITEM #4	J2-5	ITEM #4	3.0 LG ± 1/8

LEGEND

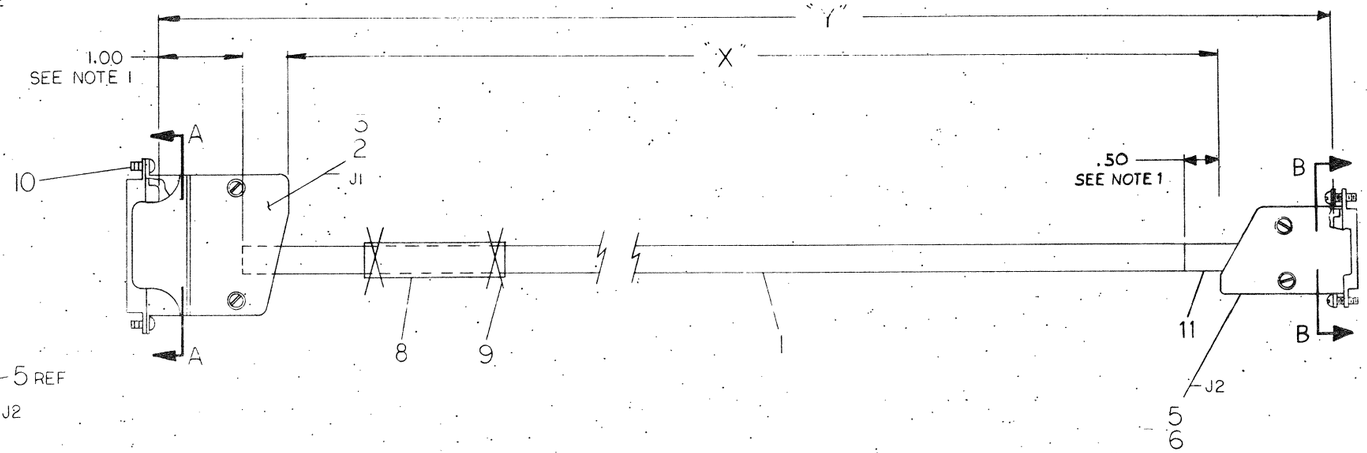
NUMBER	DIM "X" VAR.	DIM "Y" PRECUT VAR.
7015790-0	9 FEET-9 IN ±.5 IN.	10 FEET ±.5 IN.

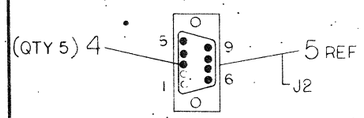
NOTES:

1. CUT BACK OUTER JACKET OF CABLE ITEM #1 TO DIMENSIONS INDICATED. ADD APPROX. 1 1/2-2 INCHES 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	#22 AWG (BLK) STRAND	9107350-00	12
A/R	TUBING, SHRINK	9107252	11
2	SCR., RETAINER MALE	1210493-51	10
1	CABLE TIE	9007031	9
1	LABLE, CABLE IDENT.	9009532	8
~~A/R~~	~~DECALS, PWR CONNECTOR~~	~~A-DC-MO9873-2-0~~	~~7~~
1	HOOD, 9 POSITION	1215244-01	6
1	HOUSING, 9 SKT	1211244-01	5
11	CONTACT, SKT	9009762	4
1	HOOD, 25 POSITION	1210493-50	3
1	RECEPTACLE ASSY	1211354	2
A/R	CABLE, 6 CONDUCTOR	9107723	1

DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 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 ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PART LIST

FINISH NONE

DRN. [illegible] 10 Mar 78
CHK'D A C Hoyt 13 Mar 78
ENG. A C Hoyt 13 Mar 78
PROJ. ENG. [illegible]
PROD. [illegible] 7/13/78
NEXT HIGHER ASSY.
D-UA-MNC11-0-0
SCALE NONE
SHEET 1 OF 1

FIRST USED ON MNC11

TITLE
CABLE, CONSOLE INTERFACE

SIZE	CODE	NUMBER	REV.
D	IA	7015790-0-0	C

DIST. 1

REVISIONS				
CHK	CHANGE NO.	REV.		
[illegible]	7015790-MR001	A	A. FILZ	27 NOV 78
[illegible]	7015790 MR002	B	A. FILZ	8 MAR 79
[illegible]	7015790-MR003	C	ARTHUR FILZ	19 FEB 80

DEC FORM NO. 2820 100-C

8 7 6 5 4 3 2 1

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY Jim Ricard
DATE 12-JUNE-80
CHECKED J. HUSON
DATE 9 July 80
SECTION 1
ENG A. C Rj
DATE 16 Jul-80
PROD GREG CONTOS
DATE 29 Jul 80
ISSUED SECTION 2

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION											
				MDL23-AA	MDL23-AB	MDL23-AC	MDL23-AD	MDL23-AE	MDL23-AF	MDL23-BA	MDL23-BB	MDL23-BC	MDL23-BD	MDL23-BE	MDL23-BF
1	D-UA-MDL23-Ø-Ø	MDL23-AA	MDL23(12ØV)/RLØ1-AK/VT1Ø5-MA	1	-	-	-	-	-	-	-	-	-	-	-
2	D-UA-MDL23-Ø-Ø	MDL23-AB	MDL23(24ØV)/RLØ1-AK/VT1Ø5-MB	-	1	-	-	-	-	-	-	-	-	-	-
3	D-UA-MDL23-Ø-Ø	MDL23-AC	MDL23(12ØV)/RLØ1-AK/LA38-HA	-	-	1	-	-	-	-	-	-	-	-	-
4	D-UA-MDL23-Ø-Ø	MDL23-AD	MDL23(24ØV)/RLØ1-AK/LA38-HA	-	-	-	1	-	-	-	-	-	-	-	-
5	D-UA-MDL23-Ø-Ø	MDL23-AE	MDL23(12ØV)/RLØ1-AK/LA12Ø-DA	-	-	-	-	1	-	-	-	-	-	-	-
6	D-UA-MDL23-Ø-Ø	MDL23-AF	MDL23(24ØV)/RLØ1-AK/LA12Ø-DA	-	-	-	-	-	1	-	-	-	-	-	-
7	D-UA-MDL23-Ø-Ø	MDL23-BA	MDL23(12ØV)/RLØ2-AK/VT1Ø5-MA	-	-	-	-	-	-	1	-	-	-	-	-
8	D-UA-MDL23-Ø-Ø	MDL23-BB	MDL23(24ØV)/RLØ2-AK/VT1Ø5-MA	-	-	-	-	-	-	-	1	-	-	-	-
9	D-UA-MDL23-Ø-Ø	MDL23-BC	MDL23(12ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-	-	-	1	-	-	-
10	D-UA-MDL23-Ø-Ø	MDL23-BD	MDL23(24ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-	-	-	-	1	-	-
11	D-UA-MDL23-Ø-Ø	MDL23-BE	MDL23(12ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-	-	-	-	-	1	-
12	D-UA-MDL23-Ø-Ø	MDL23-BF	MDL23(24ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-	-	-	-	-	-	1
13	D-UA-MDL23-Ø-Ø	MDL23-CA	MDL23(12ØV)/RLØ2-AK/VT1Ø5-MA	-	-	-	-	-	-	-	-	-	-	-	-
14	D-UA-MDL23-Ø-Ø	MDL23-CB	MDL23(24ØV)/RLØ2-AK/VT1Ø5-MB	-	-	-	-	-	-	-	-	-	-	-	-
15	D-UA-MDL23-Ø-Ø	MDL23-CC	MDL23(12ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-	-	-	-	-	-	-
16	D-UA-MDL23-Ø-Ø	MDL23-CD	MDL23(24ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-	-	-	-	-	-	-
17	D-UA-MDL23-Ø-Ø	MDL23-CE	MDL23(12ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-	-	-	-	-	-	-
18	D-UA-MDL23-Ø-Ø	MDL23-CF	MDL23(24ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-	-	-	-	-	-	-
19		MPØ1Ø74	MDL23 FIELD MAINT. PRINT SET	1	1	1	1	1	1	1	1	1	1	1	1
20	**	AX-E38Ø( )MC	DIAGNOSTIC PACK RLØ1	1	1	1	1	1	1	-	-	-	-	-	-
21	D-UA-MNCBL-Ø-Ø*	MNCBL-ØØ	BLANK MODULES	—	—	—	—	—	—	—	—	—	—	—	—

NOTES:

REF DESIGNATION

** LATEST REV LEVEL ( )
NOTE: * FILL UP ALL UNUSED MINCSLOTS WITH ITEM #21. TOTAL NUMBER OF MNCBL'S SHOULD BE EQUAL TO 1 MORE THAN NUMBER REQUIRED TO FILL UP UNUSED MINC SLOTS.

E.C.O. NO. MDL23 MR001

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DRB 125

TITLE: MDL23 SHIP LIST
ASSY NO.
SIZE: B | CODE: PL | NUMBER: MDL23-Ø-2 | REV.: A
SHEET 1 OF 4
INSERTION PARTS LIST DATA BASE REV

MR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY JIM SICARD | CHECKED J. HUSON | SECTION 2
DATE 12-JAN-80 | DATE | |
ENG [illegible] 16 JUL 80 | PROD GREG CONTOS | ISSUED SECTION 2
DATE | DATE 29 JUL 80 |

NOTES:

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												REF DESIGNATION
				MDL23-CA	MDL23-CB	MDL23-CC	MDL23-CD	MDL23-CE	MDL23-CF							
1	D-UA-MDL23-Ø-Ø	MDL23-AA	MDL23(12ØV)/RLØ1-AK/VT1Ø5-MA	-	-	-	-	-	-							** LATEST REV LEVEL ( )
2	D-UA-MDL23-Ø-Ø	MDL23-AB	MDL23(24ØV)/RLØ1-AK/VT1Ø5-MB	-	-	-	-	-	-							NOTE: * FILL UP ALL UNUSED MINC SLOTS WITH ITEM # 21. TOTAL NUMBER OF MNCBL'S SHOULD BE EQUAL TO 1 MORE THAN NUMBER REQUIRED TO FILL UP UNUSED MINC SLOTS.
3	D-UA-MDL23-Ø-Ø	MDL23-AC	MDL23(12ØV)/RLØ1-AK/LA38-HA	-	-	-	-	-	-							
4	D-UA-MDL23-Ø-Ø	MDL23-AD	MDL23(24ØV)/RLØ1-AK/LA38-HA	-	-	-	-	-	-							
5	D-UA-MDL23-Ø-Ø	MDL23-AE	MDL23(12ØV)/RLØ1-AK/LA12Ø-DA	-	-	-	-	-	-							
6	D-UA-MDL23-Ø-Ø	MDL23-AF	MDL23(24ØV)/RLØ1-AK/LA12Ø-DA	-	-	-	-	-	-							
7	D-UA-MDL23-Ø-Ø	MDL23-BA	MDL23(12ØV)/RLØ2-AK/VT1Ø5-MA	-	-	-	-	-	-							
8	D-UA-MDL23-Ø-Ø	MDL23-BB	MDL23(24ØV)/RLØ2-AK/VT1Ø5-MA	-	-	-	-	-	-							
9	D-UA-MDL23-Ø-Ø	MDL23-BC	MDL23(12ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-							
10	D-UA-MDL23-Ø-Ø	MDL23-BD	MDL23(24ØV)/RLØ2-AK/LA38-HA	-	-	-	-	-	-							
11	D-UA-MDL23-Ø-Ø	MDL23-BE	MDL23(12ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-							
12	D-UA-MDL23-Ø-Ø	MDL23-BF	MDL23(24ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	-							
13	D-UA-MDL23-Ø-Ø	MDL23-CA	MDL23(120V)/RLØ2-AK/VT1Ø5-MA	1	-	-	-	-	-							
14	D-UA-MDL23-Ø-Ø	MDL23-CB	MDL23(24ØV)/RLØ2-AK/VT1Ø5-MB	-	1	-	-	-	-							
15	D-UA-MDL23-Ø-Ø	MDL23-CC	MDL23(12ØV)/RLØ2-AK/LA38-HA	-	-	1	-	-	-							
16	D-UA-MDL23-Ø-Ø	MDL23-CD	MDL23(24ØV)/RLØ2-AK/LA38-HA	-	-	-	1	-	-							
17	D-UA-MDL23-Ø-Ø	MDL23-CE	MDL23(12ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	1	-							
18	D-UA-MDL23-Ø-Ø	MDL23-CF	MDL23(24ØV)/RLØ2-AK/LA12Ø-DA	-	-	-	-	-	1							
19		MPØ1Ø74	MDL23 FIELD MAINT. PRINT SET	1	1	1	1	1	1							
20		AX-E38Ø( )MC	DIAGNOSTIC PACK RLØ1	-	-	-	-	-	-							
21	D-UA-MNCBL-Ø-Ø*	MNCBL-ØØ	BLANK MODULES	-	-	-	-	-	-							

E.C.O. NO.

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TITLE: MDL23 SHIP LIST

ASSY NO.

SIZE B | CODE PL | NUMBER MDL23-Ø-2 | REV. A

SHEET 2 OF 4

INSERTION PARTS LIST DATA BASE REV

DRB 125

MR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY JIM SICARD | CHECKED J. HUSON | SECTION 1
DATE 12-JUN-80 | DATE | |
ENG | PROD GREG CONTOS | ISSUED SECTION 2
DATE | DATE 29 JUL 80 |

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												NOTES: / REF DESIGNATION
				MDL23-AA	MDL23-AB	MDL23-AC	MDL23-AD	MDL23-AE	MDL23-AF	MDL23-BA	MDL23-BB	MDL23-BC	MDL23-BD	MDL23-BE	MDL23-BF	
22	**	BC-F916( )-MC	DIAGNOSTIC PACK RLØ2	-	-	-	-	-	-	1	1	1	1	1	1	
23		QJ738-AH	RSX11-M OPERATING SYS. V3.2	-	-	-	-	-	-	-	-	-	-	-	-	
24		QJV32-AH	RT/FEP FOR MINC V1.1 OR GREATER	-	-	-	-	-	-	1	1	1	1	1	1	
25		QJV32-AQ	RT/FEP FOR MINC V1.1 OR GREATER	1	1	1	1	1	1	-	-	-	-	-	-	
26		EB-15836-18	MICROCOMPUTER PROCESSOR HANDBOOK	1	1	1	1	1	1	1	1	1	1	1	1	
27		EB-17723-20	MICROCOMPUTER INTERFACE HANDBOOK	1	1	1	1	1	1	1	1	1	1	1	1	
28	**	EK-VT1Ø5-UG	VT1Ø5 USER GUIDE	1	1	-	-	-	-	1	1	-	-	-	-	
29	**	EK-MNC11-UG	DEC LAB/11 MNC USER GUIDE	1	1	1	1	1	1	1	1	1	1	1	1	

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DRB 125

TITLE: MDL23 SHIP LIST
ASSY NO.:
SIZE: B | CODE: PL | NUMBER: MDL23-Ø-2 | REV.: A
SHEET 3 OF 4
INSERTION PARTS LIST DATA BASE REV

MR

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY Jim Sicard	CHECKED J. Huson	SECTION 2
DATE 12-Jun-80	DATE	
ENG	PROD Greg Contos	ISSUED SECTION 2
DATE 16 Jul 80	DATE 29 Jul 80	

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION												NOTES: / REF DESIGNATION
				MDL23-CA	MDL23-CB	MDL23-CC	MDL23-CD	MDL23-CE	MDL23-CF							
22	**	BC-F916 ( )-MC	DIAGNOSTIC PACK RLØ2	1	1	1	1	1	1							
23		QJ738-AH	RSX11-M OPERATING SYS. V3.2	1	1	1	1	1	1							
24		QJV32-AH	RT/FEP FOR MINC V1.1 OR GREATER	-	-	-	-	-	-							
25		QJV32-AQ	RT/FEP FOR MINC V1.1 OR GREATER	-	-	-	-	-	-							
26		EB-15836-18	MICROCOMPUTER PROCESSOR HANDBOOK	1	1	1	1	1	1							
27		EB-17723-20	MICROCOMPUTER INTERFACE HANDBOOK	1	1	1	1	1	1							
28	**	EK-VT1Ø5-UG	VT1Ø5 USER GUIDE	1	1	-	-	-	-							
29	**	EK-MNC11-UG	DEC LAB/11 MNC USER GUIDE	1	1	1	1	1	1							

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TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
MDL23 SHIP LIST		B	PL	MDL23-Ø- 2	A
	SHEET 4 OF 4	INSERTION PARTS LIST DATA BASE REV			

MR