digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

MM8-1 PRINT SET

SEQUENCE	
BLOCK DIAGRAM	E-BD-MM8-E-1
4K XY DRIVER	E-CS-G227-Ø-1
STACK BOARD	E-CS-G619-Ø-1
SENSE INHIBIT (4K)	E-CS-G1Ø4-Ø-1
MEMORY ASSY (4K)	D-UA-MM8-E-Ø
MEMORY ASSY (PL)	A-PL-MM8-E-Ø
STACK 4K 12 BIT	D-UA-H220-Ø-Ø
ACCESSORY LIST	A-AL-MM8-E-3
MM8-E ACCEPTANCE PROCEDURE	A-SP-7665139-0-0

MM8-3 PRINT SET

BLOCK DIAGRAM	E-BD-MM8-EJ-5
ACCESSORY LIST	A-AL-MM8-E-3
12 BIT STACK BOARD	D-CS-G646-0-1
MM8-EJ & MM8=EH ACCEPTANCE PROCEDURE (F.S.)	A-SP-MM8-EJ-1
4K 12 BIT MEMORY	D-UA-MM8-EH-0
4K STACK SCHEMATIC	E-CS-H211-0-1
8K OR 4K SENSE INHIBIT	E-CS-G115-0-1
8K OR 4K X-Y DRIVER	E-CS-G234-0-1
ENGINEERING SPECIFICATION	A-SP-MM8-EJ-4

MM8-2 PRINT SET

SEQUENCE	
BLOCK DIAGRAM	E-BD-MM8-EJ-5
8K XY DRIVER	E-CS-G233-Ø-1
8K SENSE INHIBIT	E-CS-G111-Ø-1
8K STACK SCHEMATIC	E-CS-H212-Ø-1
MEMORY (8K)	D-UA-MM8-EJ-Ø
ACCESSORY LIST	A-AL-MM8-E-3
12 BIT STACK BOARD	D-CS-G646-0-1
MM8-EJ & MM8-EH ACCEPTANCE PROCEDURE (F.S.)	A-SP-MM8-EJ-1
8K OR 4K SENSE INHIBIT	E-CS-G115-0-1
8K OR 4K X-Y DRIVER	E-CS-G234-0-1
ENGINEERING SPECIFICATION	A-SP-MM8-EJ-4

MFG SET

MANUFACTURING PROC.	A-SP-MM8-E-2
MM8-EJ & MM8-EH MANUFACTURING PROCEDURE (ON LINE)	A-SP-MM8-EJ-2
MM8-EJ & MM8-EH TEST PROCEDURE (OFF LINE)	A-SP-MM8-EJ-3
PURCHASE SPEC.	A-PS-3010654-0-0
PURCHASE SPEC.	A-PS-8009834-0-0

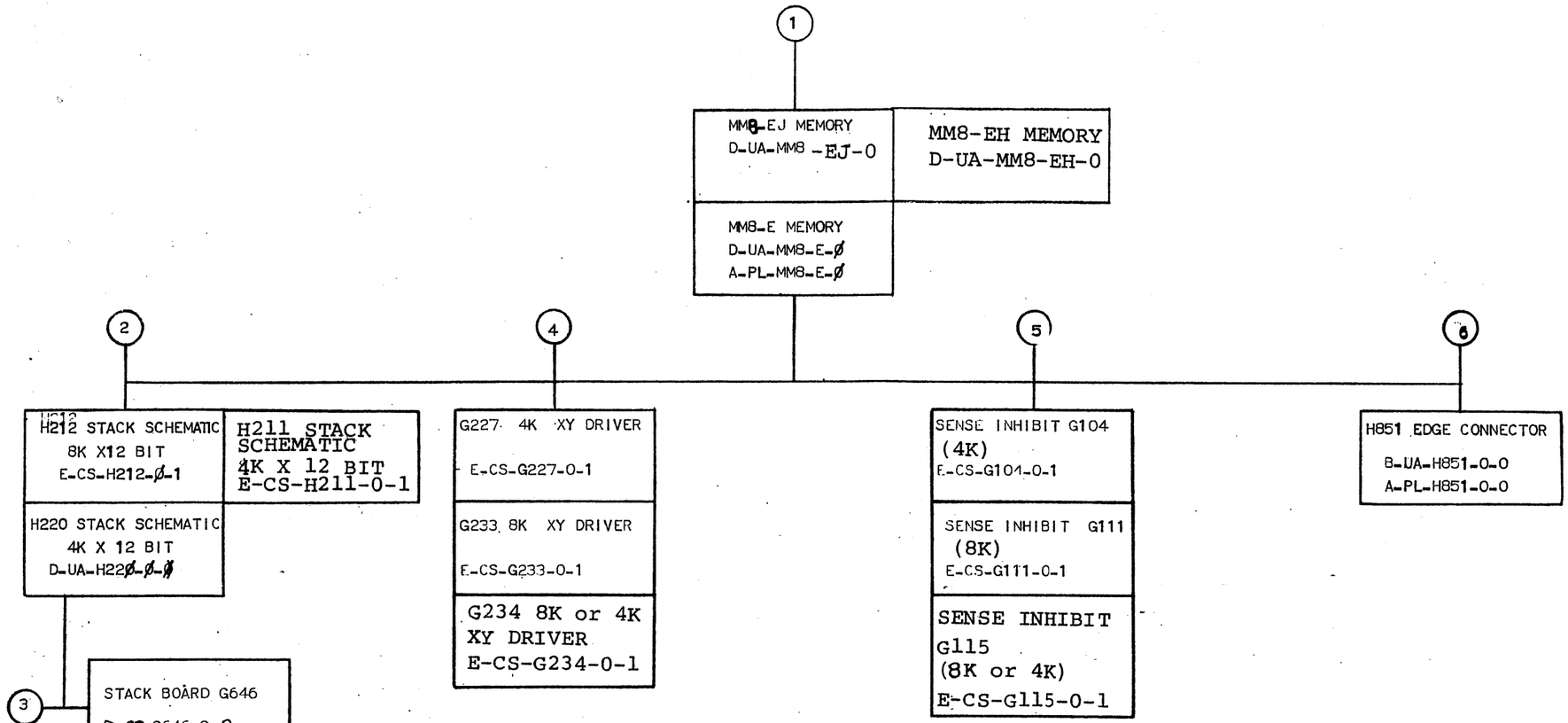
UNIT VARIATIONS

VAR	TITLE	PRINT SET MM8-1	MM8-2	MM8-3	
MM8-E	4K 12 BIT MEMORY	X			
MM8-EJ	8K 12 BIT MEMORY		X		
MM8-EH	4K 12 BIT MEMORY			X	

REVISIONS			
REV	A	B	
CHG. NO.	MM8EJ-1	MM8E-5	
DATE	WJC 4.9.		

DEC 16-12521-1062-1-A-R92

USED ON OPTION/MODEL		DRN.	DATE	TITLE
		F.CARBERRY	2-17-72	MEMORY DRAWING DIRECTORY
		CHK'D. J. KALAGHER	DATE 6-6-72	
		PROJ ENG. W. COATES	DATE 6-21-72	
		PROD. W. COATES	DATE 6-21-72	SIZE B / CODE DD / NUMBER MM8-E / REV B
		FIELD SERV. W.COATES	DATE 6-21-72	DIST G
SHEET 1 OF 3				



TITLE		SIZE	CODE	NUMBER	REV
MEMORY	SHEET 2 OF 3	B	DD	MM8-E	B

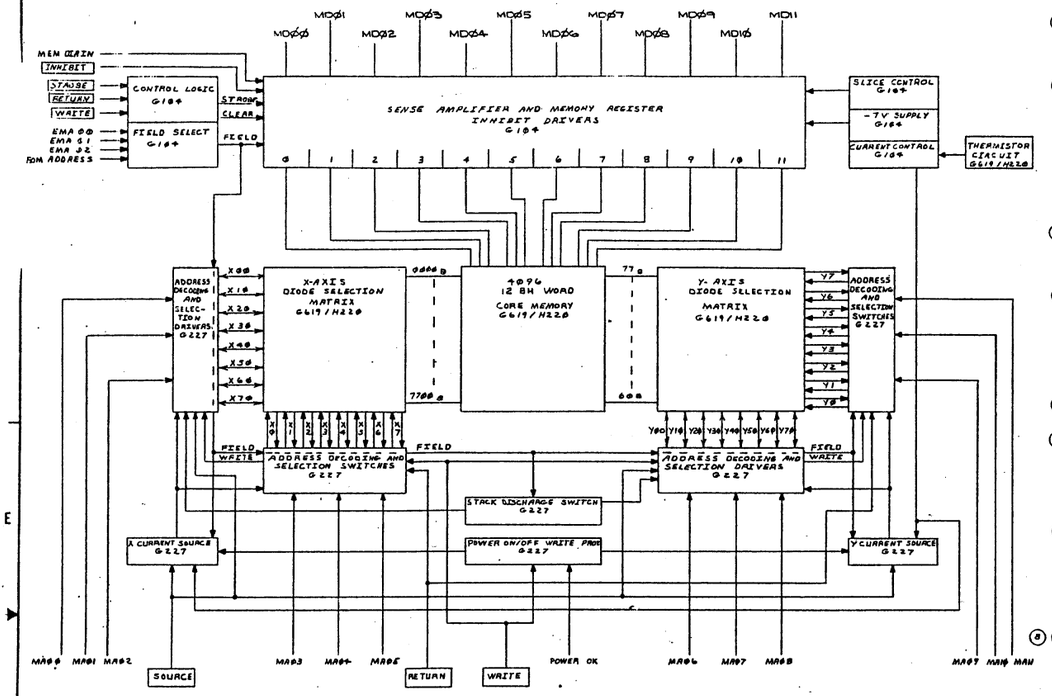
ELECTRICAL

CUSTOMER PRINT SET MM8-1	MM8-2	MM8-3				MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X							1	E-BD-MM8-E-1		1	BLOCK DIAGRAM TIMING	
						X		A-SP-MM8-EJ-3	A	21	MM8-EJ&MM8-EH TEST PROCEDURE	(OFFLINE)
	X	X						E-BD-MM8-EJ-5	A	1	BLOCK DIAGRAM TIMING	
	X						2	E-CS-H212-0-1	#	2	STACK SCHEMATIC 8K X 12 BIT	
		X						E-CS-H211-0-1	#	2	STACK SCHEMATIC 4K X 12 BIT	
X							3	E-CS-G619-0-1	#	2	PLANAR STACK SCHEMATIC	
	X	X						D-CS-G646-0-1	#	1	12 BIT STACK BOARD	
X							4	E-CS-G227-0-1	#	2	4K XY DRIVER BOARD	
	X							E-CS-G233-0-1	#	5	8K XY DRIVER BOARD	
	X	X						E-CS-G234-0-1	#	5	4K or 8K DRIVER BOARD	
X							5	E-CS-G104-0-1	#	2	SENSE INHIBIT	
	X							E-CS-G111-0-1	#	3	8K SENSE INHIBIT BOARD	
	X	X						E-CS-G115-0-1	#	3	4K or 8K SENSE INHIBITBOARD	

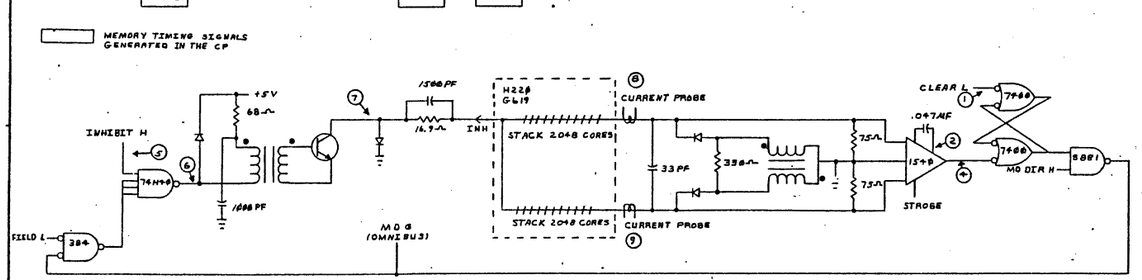
MECHANICAL

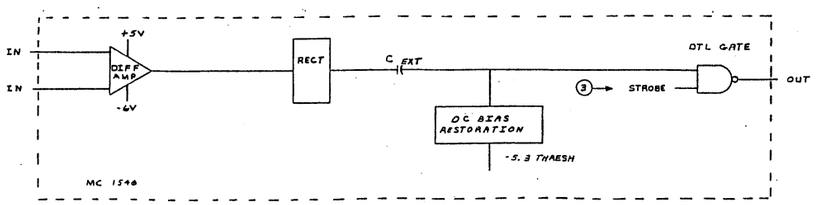
CUSTOMER PRINT SET MM8-1	MM8-2	MM8-3				MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X							1	D-UA-MM8-E-0		1	4K 12 BIT MEMORY	
X								A-PL-MM8-E-0		1	4K 12 BIT MEMORY (PL)	
	X							D-UA-MM8-EJ-0	B	1	8K 12 BIT MEMORY	
		X						D-UA-MM8-EH-0		1	4K 12 BIT MEMORY	
X								A-SP-7665139-0-0	#	4	ACCEPTANCE PROC	
						X		A-SP-MM8-E-2			MANUFACTURING PROC.	
	X	X						A-SP-MM8-EJ-1	A	5	MM8-EJ& MM8-EH ACCEPTANCE PROCEDURE	
						X		A-SP-MM8-EJ-2	A	4	MM8-EJ&MM8-EH MANUFACTURING PROC.(F.S.)	
X	X	X						A-AL-MM8-E-3	A	1	ACCESSORY SHIPPING LIST	
	X	X						A-SP-MM8-EJ-4			ENGINEERING SPECIFICATION	
							2	B-DD-H212-0		2	STACK 8K 12 BIT	
X								D-UA-H220-0-0	#	2	STACK 4K 12 BIT	
						X	3	A-PS-3010654-0-0	#		PURCHASE SPEC	
						X		A-PS-3009834 -0-0	#		PURCHASE SPEC	
								C-MD-5509025-0-0		1	COVER PLATE	
							6	B-UA-H851-0-0			EDGE CONNECTOR	
								A-PL-H851-0-0			EDGE CONNECTOR PL	
								B-MD-5509071-1-0			RECEP 36 PIN REWORK	
								D-IA-5008903-0-0			ETCH BOARD	

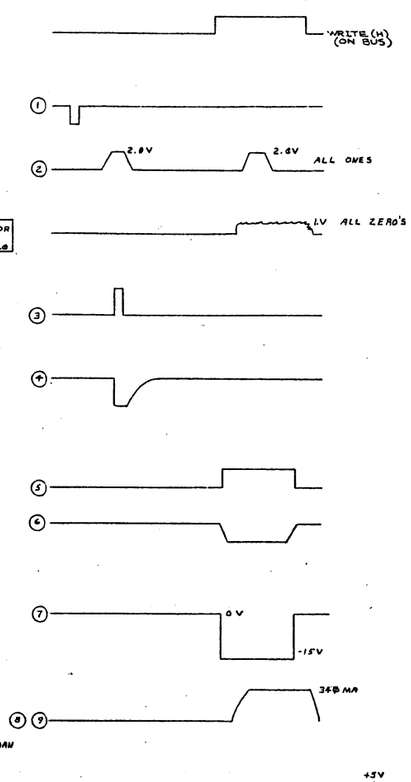
TITLE	SHEET	SIZE	CODE	NUMBER	REV
MEMORY	3 OF 3	B	DD	MM8-E	B

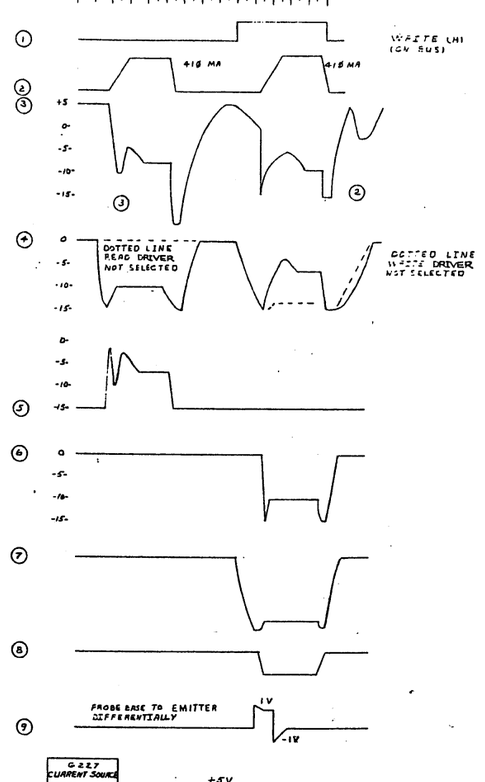


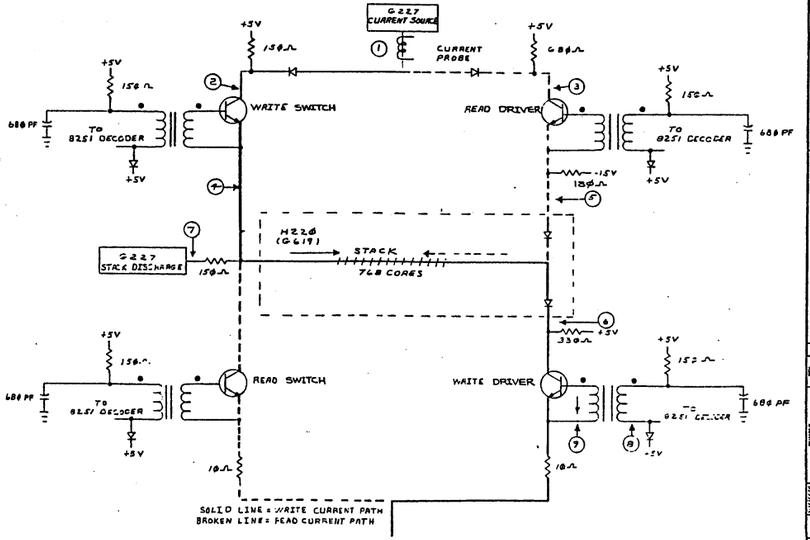
MEMORY TIMING SIGNALS GENERATED IN THE CP







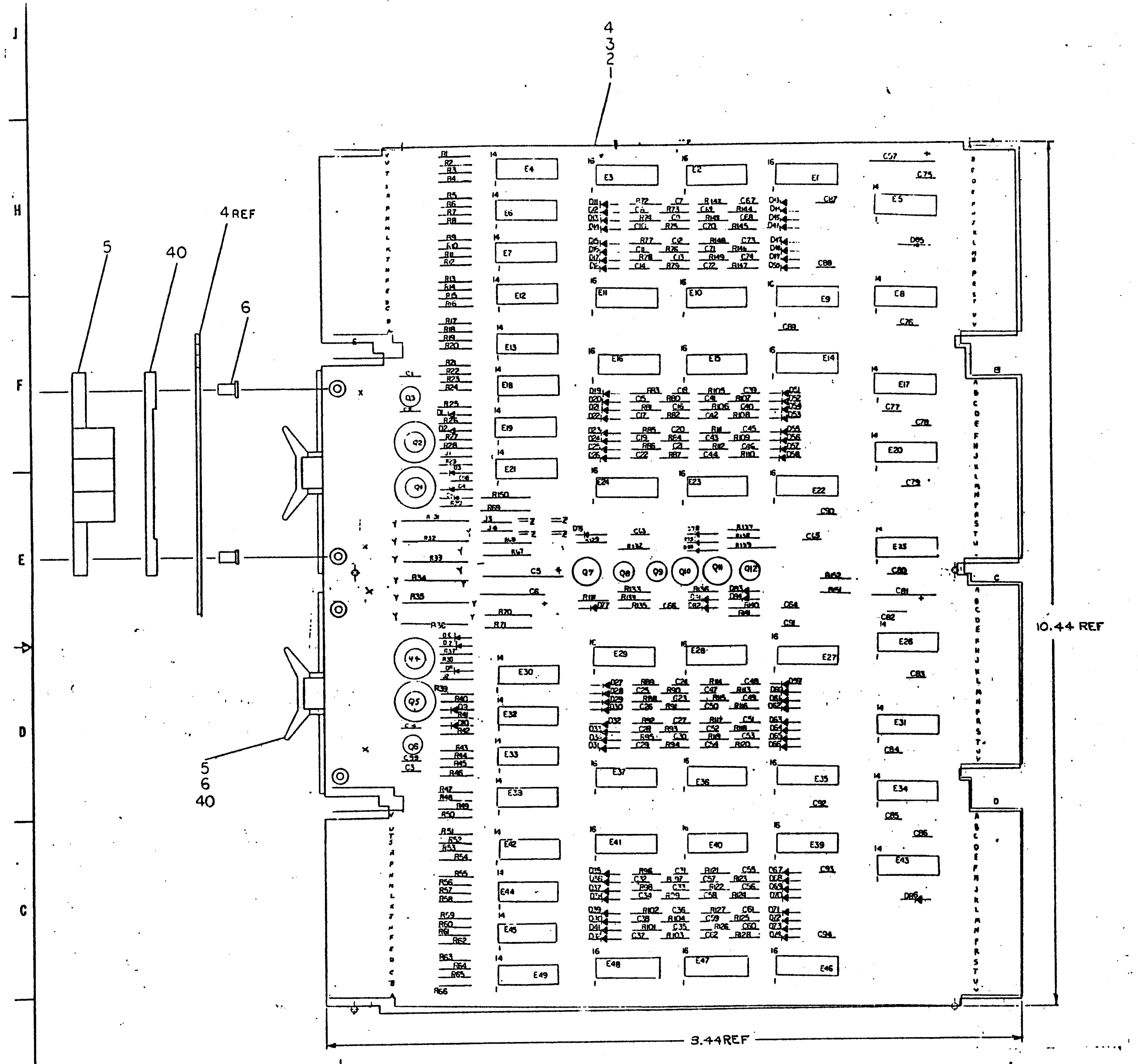


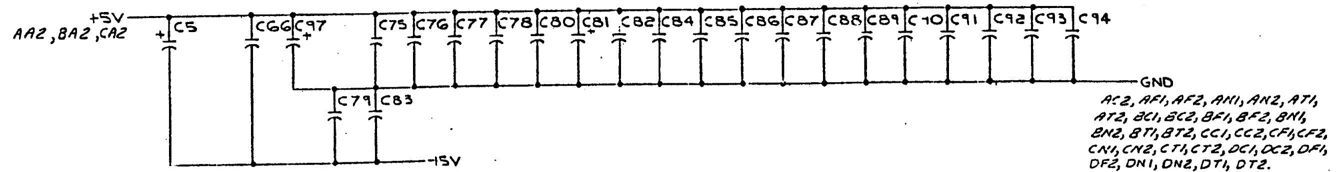


FIRST USED ON CPT/MCD: MM8-E	QTY.	DESCRIPTION	PART NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST	
UNLESS OTHERWISE SPECIFIED: DIMENSION IN INCHES; TOLERANCES: DECIMALS: FRACTIONS ±.005, ANGLES ±1/64; FINISH: SURFACE QUALITY ✓, REMOVE BURRS AND BREAK SHARP CORNERS	DRN.	DATE	DIGITAL EQUIPMENT CORPORATION
	CHK'D.	DATE	
	ENG.	DATE	
	T.L. ENG.	DATE	TITLE: BLOCK DIAGRAM TIMING MM8-E
	MGR.	DATE	
MATERIAL	A-M_ MM8-E		
FINISH	SCALE		SIZE: D CODE: MM8-E-0 REV:
	SHEET OF		

REVISIONS: REV. | CHANGE NO.

NOTES





QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
4		SPLIT LUGS	9006735	48
16	R1, R3, R5, R7, R9, R12, R14, R15, R52, R54, R56, R58, R60, R61, R64, R66	RES. 180 1/4W 5%	1301322	47
20	R2, R4, R6, R8, R10, R11, R13, R16, R51, R53, R55, R57, R59, R62, R63, R65, R132, R137, R138, R141	RES. 330 1/4W 5%	1300295	46
66	C2, C3, C7-C62, C67-C74	CAP. 680PF, 100V, 5% MICA	1000026	45
4		HEAT SINK	1210001	44
1	R140	RES 68 1/4W, 5%	1300219	43
1	R139	RES 470 1/2W, 5%	1300315	42
4	R25, R28, R39, R42	RES 680 1/4W, 5%	1301424	41
2		SPACER (CABLE CLAMP)	1202704	40
N/R		WIRE #22AWG STRD TEF. INS	0735055	39
8	E1, E9, E14, E22, E27, E35, E39, E46	I.C. DEC 8251	1909594	38
4	E5, E20, E26, E43	I.C. DEC6380	1909971	37
1	E25	I.C. DEC 74H11	1909267	36
4	E8, E17, E31, E34	I.C. DEC 74H10	1909057	35
16	E2, E3, E10, E11, E15, E16, E23, E24, E28, E29, E36, E37, E40, E41, E47, E48	PULSE TRANSFORMER	1609651	34
16	E4, E6, E7, E12, E13, E18, E19, E21, E30, E32, E33, E38, E42, E44, E45, E49	TRANSISTOR DEC4008	1510015	33
4	Q1, Q2, Q4, Q5	TRANSISTOR DEC 3762	1509649	32
2	Q3, Q6	TRANSISTOR DEC 4258	1505321	31
2	Q8, Q12	TRANSISTOR DEC 6534B	1503409-01	30
1	Q9	TRANSISTOR DEC 3001B	1503100	29
3	Q7, Q10, Q11	TRANSISTOR DEC 1008	1502155	28
4	R32-R35	RES. 16.9, 6W, 1% BERYLLIUM	1310032	27
1	R67	RES. 34.8K, 1/8W, 1% MF	1303156	26
1	R68	RES. 14.7K, 1/8W, 1% MF	1302941	25
6	R26, 27, 40, 41, 134, 135	RES. 4.7K, 1/4W, 5%	1300447	24
~~4~~	~~[illegible]~~	~~RES. 3.9K, 1/4W, 5%~~	~~1300444~~	23
5	R29, R30, R37, R38, R131	RES. 1.5K, 1/4W, 5%	1300391	22
2	R31, R36	RES. 750, 1W, 5%	1302385	21
	~~R1-R16, R51-R66 R132, R137, R138, R141~~	~~RES. 330, 1/4W, 5%~~	~~1300295~~	20
1	R151	RES. 220, 1/4W, 5%	1300271	19
81	R17-R24, R43-R50, R72-R99, R101-R129, R142-R149	RES. 150, 1/4W, 5%	1300250	18
3	R133, R136, R152	RES. 100, 1/4W, 5%	1300229	17
4	R69-R71, R150	RES. 10, 1/2W, 5%	1300168	16
9	D1-D3, D8-D10, D75, D77, D81	DIODE D672	1105275	15
76	D4-D7, D11-D74 D78-D80, D82-D86	DIODE D664	1100114	14
1	C5	CAP. 20UF, 50V, -10-75% ELEC	1002839	13
22	C64-C66, C75-C80, C82-C94,	CAP. .01UF, 100V, 20% DISC	1001610	12
3	C6, C81, C97	CAP. 39UF, 10V, 10% S.TANT	1000076	11
3	C63, C98, C99	CAP. .047UF, 16V, 15-20% DISC	1009678	10
~~2~~	~~C2-C3~~	~~[illegible]~~	~~1000025~~	9
~~66~~	~~[illegible]~~	~~CAP. 680PF, 100V, 5% DISC~~	~~1010312~~	8
2	C1, C4	CAP. 39PF, 100V, 5% D.M.	1000010	7
4		EYELET #GS4-11 STIMPSON	9006750	6
2		HANDLE FLIP CHIP GREEN	9008337-01	5
1		ETCHED CIRCUIT BOARD	5008832	4
REF		MODULE HISTORY LIST	B-MH-G227-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	J-AH-G227-0-5	2
REF		X-Y COORDINATE HOLE LOC	K-CO-G227-0-[illegible]	1

PARTS LIST

IC TYPE	GND	+5V
DEC6380	1	8
DEC8251	8	16

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT
39	22	J4-A	J4-B
39	22	J3-A	J3-B
39	22	J2-A	J2-B
39	22	J1-A	J1-B

JUMPER LIST

DEC NO.	EIA NO.
DEC 3762	—
DEC 4258	2N1259
DEC 6534B	[illegible]
DEC 3001B	2N 3646
DEC 1008	NONE
DEC D672	1N 3653
DEC D664	1N 3606

SEMICONDUCTOR CONVERSION CHART

REV COLUMN E

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH. REVISION

REV	CHANGE NO	
H	G227-00006	B. REGAN
F	G227-00005	BRUCE TARPLAY
E	G227-00004	VOGELSANG
D	G227-00003	K PIERCE
C	[illegible]	
B	ORIGINATED	

REVISIONS

DRN. DATE
CHK'D. DATE
ENG. DATE
RELEASE DATE
DATE

FIRST USED ON

EQUIPMENT CORPORATION

TITLE
X Y DRIVER &
CURRENT SOURCE

NUMBER G227-0-1

SCALE

SHEET OF 2

DIST.

X CURRENT

Y CURRENT

READ H

X FIELD H

Y FIELD H

TYPICAL OF 64 PLACES

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ANGLES
FRACTIONS

MATERIAL

FINISH

DRAWN

CHK'D

APP'D

MFG

DATE

EQUIPMENT CORPORATION

TITLE

X - DRIVER AND CURRENT SOURCE

SIZE E

NUMBER G227-0-1

REV.

REVISIONS

LTR	CHANGE NO.	BY

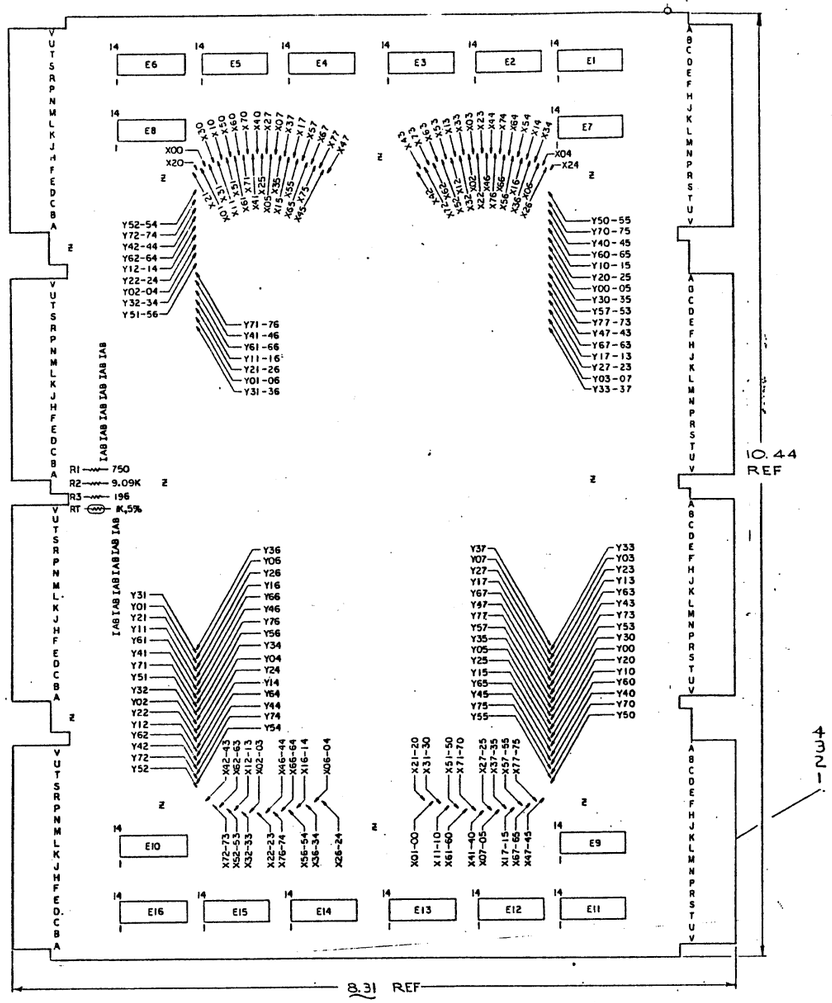
DRAWING NO. G227-0-1

REV. H

CAGE CODE

SHEET 2 OF 3

NOTES:
1. UNLESS OTHERWISE INDICATED:
   GND=AC2, AF1, AF2, AN1, AN2, AT1, AT2, BC1, BC2
   BF1, BF2, BN1, BN2, BT1, BT2, CC1, CC2, CF1, CF2
   CN1, CN2, CT1, CT2, DC1, DC2, DF1, DF2, DN1, DN2
   DT1, DT2
2. DIODE ARRAYS WILL BE MOUNTED BY STACK VENDOR. DIODE ARRAYS ARE DEC2501
3. THERMISTOR (RT) 1.0K, 1% AT 25°C
4. 2501-01 MAY BE USED INTERCHANGEABLY WITH ITEM 9.



SEE NOTE 4

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
16	E1-E16	I.C. DEC 2501	1910010	9
1	RT	RES. 1K THERMISTOR 1%	1310071	8
1	R2	RES. 9.09 1/8W 1% MF	1304865	7
1	R3	RES. 196 1/8W 1% MF	1302965	6
1	R1	RES. 750 1/8W 1% MF	1302953	5
1		ETCHED CIRCUIT BOARD	5009037	4
REF		MODULE HISTORY LIST	3-MH-G619-0-6	3
REF		X-SST, DRILLING HOLE LAYOUT	E-AH-G619-0-5	2
REF		X-Y COORDINATE HOLE LOCK-CO-G619-0-1		1

PARTS LIST

IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTFULLY. EXCEPTIONS ARE STATED ABOVE		

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

REV COLUMN	DATE
PRINTED CIRCUIT BOARD REVISION	
CIRCUIT SCH REVISION	

DRN. CHK'D. ENG. MFG. APPD.

FIRST USED ON: 1-111A-11220-0-0

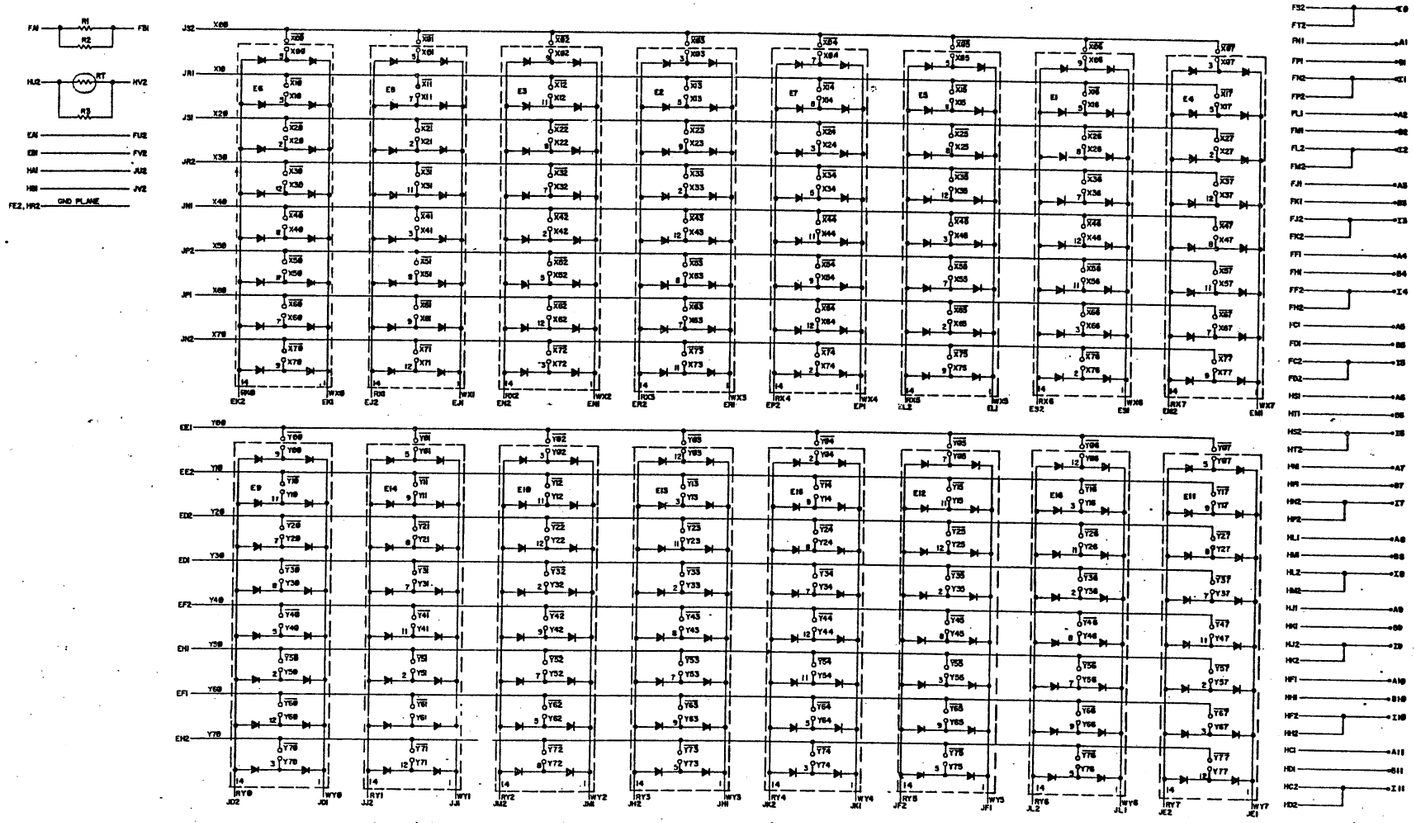
SIZE C/1 — SCALE 1 — SHEET 1 OF 2

EQUIPMENT CORPORATION

TITLE: PLANAR STACK BOARD G619

NUMBER G619-0-1 — REV. A

DIST.



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 1°30'
FINISH, SURFACE QUALITY ✓ POSITIVE BURRS 1 MAX SHARP CORNERS

MATERIAL

FINISH

	NAME	DATE
DRN.	JEANNE FRENCH	7/31/70
CHK'D.	R. VOGELSANG	7/29/70
ENG.	R. VOGELSANG	7/29/70
PROJ. ENG.		DATE
PROD.		DATE
SCALE		
SHEET 2 OF 2		

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PLANAR STACK BOARD

SIZE	CODE	NUMBER	REV.
E	CS	G619-0-1	A

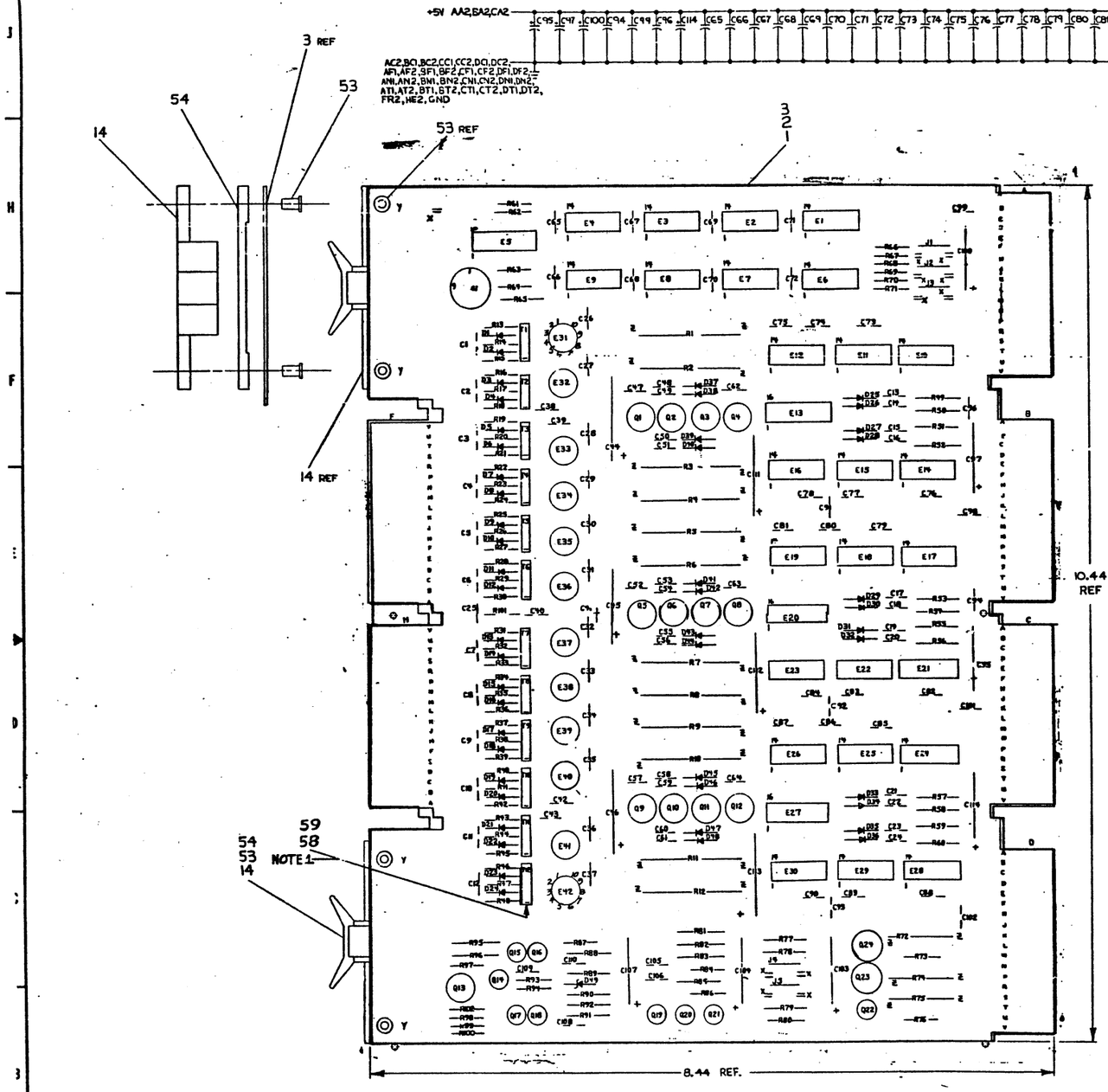
DIST A

REVISIONS

DIR	CHANGE NO.

SIZE FORM NO. 240 100

G619-0-1 REV A
CSI B



NOTES:

1. CUT CATERPILLER GROMMET (DEC 9007622) 7-1/8" LONG. ON ONE SIDE CUT TOOTH OUT 3-5/8" FROM ONE END. ON EACH END SPRAY WITH SCOTCH-GRIP ADHESIVE NO 77 (DEC 9008907) FOLLOW DIRECTIONS FOR <u>NON-PERMANENT BONDS</u> ON BACK OF CAN. PLACE THE GROMMET OVER 1725 TRANSFORMERS WITH CUTOUT TOOTH OVER CAPACITOR C40.

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R102	RES. 10, 1/4W, 10%	1300170	62
11		SPLIT LUGS	9006735	61
1	R81	RES 2.74 1/8W 1% 100 MFP	1304868	60
A/R		SCOTCH GRIP ADHESIVE	9008907	59
A/R		CATERPILLER GROMMET	9007622	58
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-G104-0-5	57
2	R90, R101	RES. 100, 1/6W, 1% 100 MFP	1302358	56
A/R		WIRE #22 AWG SOLID BUS	9107560-01	55
2		SPACER (CABLE CLAMP)	1202704	54
4		EYELET #GS4-11 E.B. STIMPSON	9006750	53
1	E6	I.C. DEC 7486	1910011	52
3	E10,E17,E24	I.C. DEC 8881	1909705	51
4	E1,E14,E21,E28	I.C. DEC 384	1909486	50
1	E2	I.C. DEC 6380	1909971	49
2	E3,E8	I.C. DEC 74H[illegible]	1909267	48
1	E9	I.C. DEC 74H00N	1909056	47
6	E11,E15,E18,E22,E25,E29	I.C. DEC 74H40N	1905586	46
1	E7	I.C. DEC 7440N	1905579	45
6	E12,E16,E19,E23,E26,E30	I.C. DEC 7400N	1905575	44
1	E4	I.C. DEC 7474N	1905547	43
12	E31-E42	I.C. MC 1540G	1905521	42
1	E5	100NS DELAY LINE	1610033-C	41
3	E13, E20, E27	PULSE TRANSFORMER	1609996	40
12	T1-T12	TRANSFORMER 1725	1609478	39
12	Q1-Q12	TRANSISTOR DEC 3734	1510062	[illegible]
2	Q23,Q24	TRANSISTOR DEC 3762	1509649	[illegible]
9	Q14-Q22	TRANSISTOR DEC 6534-B	1503409-01	36
1	Q13	TRANSISTOR DEC 2219-S	1501881	35
12	R1-R12	RES. 16.9, 6W, 1%	1309679	34
12	R49-R60	RES. 68, 1/2W, 5% CC	1309405	33
1	R89	RES. 68.1K, 1/8W, 1% 100 MFP	1305252	32
1	R88	RES. 5.62K, 1/8W, 1% 100 MFP	1305128	31
1	R91	RES. 348, 1/8W, 1% 100 MFP	1304858	30
2	R79, R95	RES. 4.64K, 1/8W, 1% 100 MFP	1304856	29
1	R77	RES. 9.09K, 1/8W, 1% 100 MFP	1304855	28
3	R65, R92, R85	RES. 1.96K, 1/8W, 1% 100 MFP	1304833	27
3	R82, R83, R96	RES. 1K, 1/8W, 1% 100 MFP	1303114	26
1	R78	RES. 1.21K, 1/8W, 1% 100 MFP	1302871	25
24	R13,R15,R16,R18,R19,R21, R22,R24,R25,R27,R28, R30,R31,R33,R34,R36, R37,R39,R40,R42,R43, R45,R46,R48	RES. 75 1/8W 1%	1303064	24
2	R64, R86	RES. 680, 1/4W, 5% CC	1301424	23
6	R66, R68, R70, R80, R94, R99	RES. 10K, 1/4W, 5% CC	1300479	22
3	R73, R76, R97	RES. 4.7K, 1/4W, 5% CC	1300447	21
2	R61, R87	RES. 1K, 1/4W, 5% CC	1300365	20
19	R14,R17,R20,R23,R26, R29,R32,R35,R38,R41, R44,R47,R62,R67,R69, R71,R84,R93,R98	RES. 330, 1/4W, 5% CC	1300295	19
1	R63	RES. 220, 1/4W, 5% CC	1300271	18
1	R100	RES. 100, 1/4W, 5% CC	1300229	17
3	R72, R74, R75	RES. 68, 1W, 10% CC	1300222	16
1	S1	ROTARY SWITCH	1210043-0	15
2		HANDLE FLIP CHIP - GREEN	9008337-01	14
1	D49	DIODE 1/4M 6.8AZ1	1109991-1	13
36	D1-D24, D37-D48	DIODE D672	1105275	12
12	D25-D36	DIODE D664	1100114	11
32	C25-C43,C47,C52,C57, C62-C64,C91-C93,C98, C101, C102, C110	CAP. .047MFD 16V 20% DISC	1009678	10
33	C65-C90,C94,C96, C99,C105,C106,C108, C109	CAP. .01MFD 100V 20% DISC	1001610	9
6	C44-C46, C111-C113	CAP. 47MFD 20V 20% S. TANT	1000079	8
7	C95,C97,C100,C103, C104, C107, C114	CAP. 6.8MFD 35V 20% S. TANT	1000067	7
12	C48-C51,C53-C56,C58-C61	CAP. 1500PF 200V 10% DISC	1000054	6
12	C13-C24	CAP. 1000PF 100V 5% MICA	1000042	5
12	C1-C12	CAP. 33PF 100V 5% D. MICA	1000009	4
1		ETCHED CIRCUIT BOARD	5008847	3
REF		MODULE ECO HISTORY	B-MH-G104-0-6	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-G104-0-4	1

PARTS LIST

			55	22	J5-A	J5-B
			↑	↑	J4-A	J4-B
DEC 380	1	8			J3-A	J3-B
DEC 384	1	8	↓	↓	J2-A	J2-B
IC TYPE	GND	+5V	55	22	J1-A	J1-B
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE			ITEM NO	AWG	FROM PT	TO PT
IC PIN LOCATIONS			JUMPER LIST			

REV	CHANGE NO		
H	G104-00006	B. TARPLEY	4/4/72
F	G104-00005+5A	B. TARPLEY	7/7/71
E	G104-00004	R. VOGELSANG	
D	G104-00003	VOGELSANG	
C	G104-00002	K. VOGELSANG	
B	ORIGINATED		

DEC NO.	EIA NO.
DEC 3734	SAME
DEC 3762	SAME
DEC 6534-B	MPS6534
DEC 2219-S	2N 2219
1/4 M 6.8AZ1	1N4099
D672	1N3653
D664	1N3606

SEMICONDUCTOR CONVERSION CHART

REV COLUMN E

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH. REVISION F

FIRST USED ON D-UA-MMS-E-0

SCALE 2/1

SHEET 1 OF 2

EQUIPMENT CORPORATION

TITLE SENSE INHIBIT

E CS G104-0-1 REV. H

NOTE: IN PLACE OF DEC 6380, DEC 380 (8034185) MAY BE USED.

PART OF IY DRIVE 9227

PART OF THE STACK H220 (8619)

QTY.	DESCRIPTION	PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED
UNIT'S OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
FRACTIONS ± 1/64
DECIMALS ± .XX ± .01
ANGLES ± 1°
FINISH
MATERIAL

DRN. MARY ROSSE 7/1/70
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

DIGITAL EQUIPMENT CORPORATION

TITLE: SENSE INHIBIT

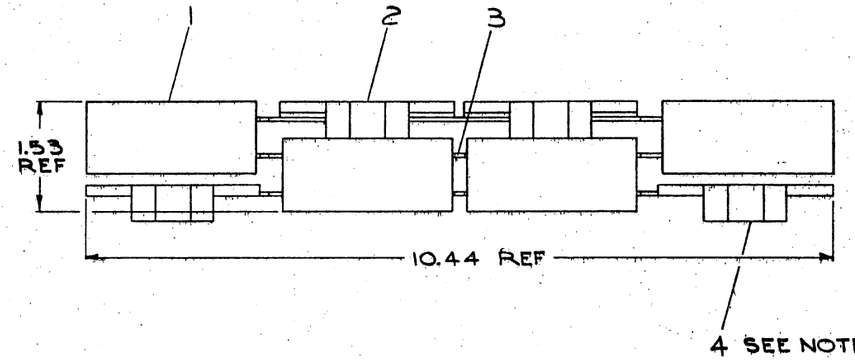
SIZE E | CODE KS | NUMBER G104-0-1 | REV. H

SCALE | SHEET 2 OF 2 | DST

REVISIONS: REV. | CHANGE NO. | CHK

G104-0-1 H KS

NOTES:
1. ITEM NO. 4 (SENSE INHIBIT G104 BOARD) MUST ALWAYS BE FACING THE FRONT OF THE MACHINE.



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8/E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN		DATE 2-7-
CHK'D		DATE 2-7-
ENG		DATE 12/11
PROJ ENG.		DATE 12/2/71
PROD.		DATE 12/2/71

NEXT HIGHER ASSY.
A-ML-MM8/E-0

SCALE 1:1
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
4K 12 BIT MEMORY

SIZE D | CODE UA | NUMBER MM8-E-0 | REV E

REVISIONS
REV | CHANGE NO. | CHK

DEC FORM NO. DRD 102A

SIZE D | CODE UA | NUMBER MM8-E-0 | REV

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

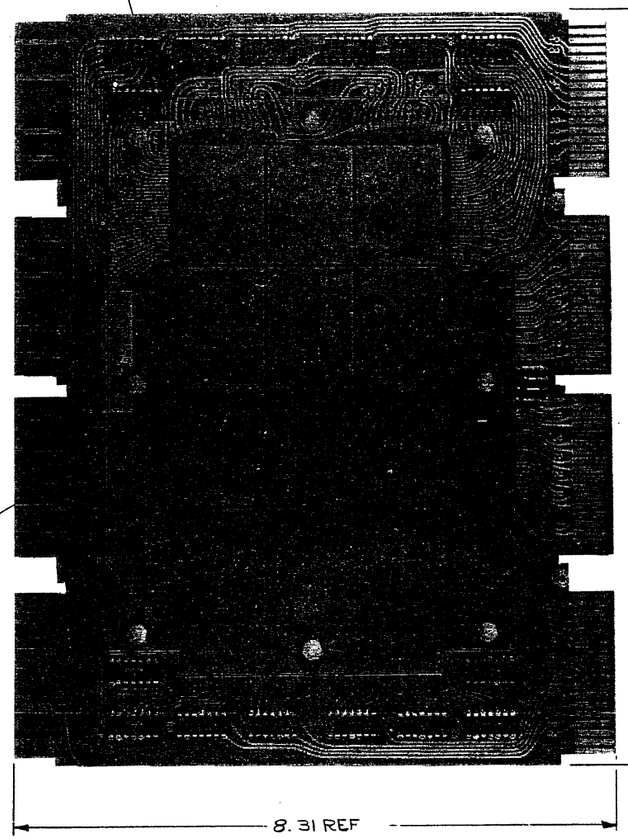
PARTS LIST

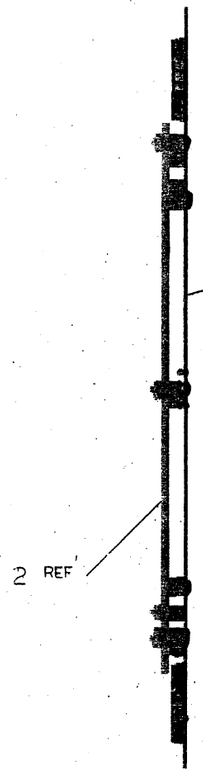
MADE BY JOHN FERGUSON	CHECKED KEN GULICK	SECTION
DATE 12-3-70	DATE 12-3-70	1
ENG Remo Vogelsang	PROD Lenny Baylor	ISSUED SECT.
DATE 1/12/71	DATE 1/13/71	1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION MM8-E
1	B-UA-H851-Ø-Ø	H851 EDGE CONNECTOR	4
2	E-CS-G227-Ø-Ø	XY DRIVER	1
3	D-UA-H22Ø-Ø-Ø	PLANAR STACK BOARD	1
4	E-CS-G1Ø4-Ø-Ø	SENSE/INHIBIT G1Ø4	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
4K 12 BIT MEMORY	D-UA-MM8-E-Ø	A	PL	MM8-E-Ø		
	SHEET 1 OF 1	DIST. 6				

DEC FORM NO.16-1031
DRA 110





QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL: PDF 8/E

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 | FRACTIONS ± 1/64 | ANGLES ± 0°30'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL: /

FINISH: /

DRN. S. Heller	DATE 7/29/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE 12/29/70	
ENG.	DATE 7/29/70	
PROJ. ENG.	DATE 11/12/71	
PROD.	DATE 11/3/71	

NEXT HIGHER ASSY: D-UA-MM8-E-0

SCALE: NONE

SHEET 1 OF 1

TITLE: MEMORY STACK (H220)

SIZE	CODE	NUMBER	REV.
D	UA	H220-0-0	

DIST.

DEC FORM NO. 1100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY	D. Kaney	CHECKED	SECTION
DATE	3/31/72	DATE 6-2-72	1
ENG	W. Coates	PROD	ISSUED SECT.
DATE	4/4/72	DATE 6-2-72	1

LEGEND

D	DOCUMENT
DN	DOCUMENT CHANGE NOTICE
PA	PAPER TAPE ASCII
PB	PAPER TAPE BINARY
PM	PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION MM8-E	MM8-EJ	MM8-EH					KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	B-DD-MM8-E	MEM. DWG. DIR.	1	1	1						
2	DEC-8E-HR1B-D	Maintenance Manual *	1	1	1						
3	Lib Kit- KM8E	Library Kit	1	1	1						
4	H212	8K Stack ASSY.		1							
5	G111	8K Sense Inhibit Board		1							
6	G233	8K XY Driver Board		1							
7	H220	4K Stack Board	1								
8	G104	4K Sense Inhibit Board	1								
9	G227	4K XY Driver Board	1								
10	H851	Edge Connector	4	4	4						
11	A-SP-MM8-EJ-4	Engineering Specification		1	1						
12	H211	4K Stack Assy			1						
13	G115	8K or 4K sense inhibit board		1	1						
14	G234	8K or 4K X-Y driver board		1	1						

TITLE	MM8-E Accessory Shipping List	ASSY. NO.	SIZE A	CODE AL	NUMBER MM8-E-3	REV. A / ECO NO MM8E-00005
		SHEET 1 OF 1	DIST.			

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 5/26/71

TITLE MM8E ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
[illegible]	[illegible]	A	SP	7665139-0-0	

DEC FORM NO. DRA 107

1.0 SCOPE

1.1 This procedure defines the minimum performance standards required of a MM8-E option which is not accepted as an integral part of a PDP8-E, i.e., add-on options.

2.0 SET UP

2.1 Remove the four (4) edge connectors from the tops of the G104, H220 and G227 (MM8-E) modules.

2.2 Inspect the G104, H220 and G227 (MM8-E) modules for conformance to "Final Inspection Procedure for Flip-Chip Modules" (A-SP-7665039-0-0) and "Module Rework Standard" (A-SP-7605845-0-0).

2.3 Check the G104 and G227 modules for a legible three character numerical date code.

2.4 Check the G104 and G227 modules to insure the circuit and etch revisions are up to current ECO levels. Make sure all EMA jumpers on the G104 module are installed.

2.5 Inspect the G104 to make sure a center strobe position is stamped on the module.

2.6 Insure that strobe switch is set to center position indicated on the G104.

2.7 Ascertain that the MM8E option has been checked out in heat and vibrated by Production.

2.8 Make sure the power to the PDP8-E is turned OFF.

2.9 Insert the G104, H220 and G227 (MM8E) modules into the omnibus. Be sure you adhere to the "Recommended Omnibus Assignment List" (A-SP-PDP8-E-0-4).

2.10 Connect the MM8E modules together using the four (4) edge connectors. The G104 should be in front, the H220 in the middle and the G227 third.

3.0 ELECTRICAL TEST

3.1 Turn on power to the PDP8-E.

3.2 Follow the loading procedure for MM8E Memory Checkerboard (MAINDEC-8E-DLAA).

3.3 Run the MM8E Memory Checkerboard diagnostic following the instructions in the program write-up, this test must run error free for a minimum of 10 minutes.

3.4 At the completion of 3.3 halt the PDP8-E and turn off the power to the PDP8-E.

3.5 Remove the two (2) edge connectors that connect the G104 and H220 together.

3.6 Remove the G104 module from the omnibus.

3.7 Turn **strobe switch** one position clockwise from the center position that is indicated on the G104 module. Reinsert the G104 module into the omnibus.

3.8 Reconnect the G104 and H220 modules using the two (2) edge connectors.

3.9 Repeat 3.3

3.10 At the completion of 3.6 halt the PDP8-**E** and turn off the power to the PDP8-E.

3.11 Repeat 3.5 and 3.6

3.12 Turn **strobe switch** one position counter-clockwise from the center position that is indicated on the G104 module. Reinsert the G104 module into the omnibus.

3.13 Repeat 3.8.

3.14 Repeat 3.3

3.15 At the completion of 3.9 halt the PDP8-E and turn off the power to the PDP8-E.

3.16 Repeat 3.5 and 3.6.

3.17 Return strobe **switch** to the center position indicated on the G104 module.

3.18 Reinsert the G104 module into the omnibus.

3.19 Repeat 3.8.

3.20 Follow the loading program for MM8E Memory Address Test (MAINDEC-8E-DLEA).

3.21 Run the MM8E Memory Address Diagnostic following the instructions in the program write-up. This test must run error free for a minimum of ten (10) minutes.

3.22 If the construction requisition specifically states a particular memory field is desired, have production cut the appropriate EMA jumper or jumpers.

4.0 FAILURE CLASSIFICATION

4.1 Mechanical Failure..

4.1.1 Any G104, H220 and G227 (MM8E) module that does not meet the criterion outlined in 2.1, 2.2, 2.3, 2.4, and 2.5 will be classified as a failure.

4.1.2 The acceptance supervisor has the option of either waivering the failure (using DEC form 12-1026) or returning the defective module or modules to production for repair.

4.2 Electrical Failure.

4.2.1 Any MM8E (G104, H220 and G227 module) which while performing 3.3, 3.6, 3.9 and 3.13 halts, generates error printouts, garble or runs other than continuous and as specified in the diagnostic write-up will be classified defective and returned to production for repair.