digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE	
DRAWING DIRECTORY	B-DD-DW8-E
FIELD INSTALLATION & ACCEPTANCE	A-SP-DW8-E-9
ACCESSORY LIST	A-AL-DW8-E-1Ø
UNIT ASSY(DW8-E) (INCL. PL)	D-UA-DW8-E-Ø
DW8-E CONTROL	D-BS-DW8-E-3
I/O BUS CONVERTER	D-BS-DW8-E-4
I/O BUS CONVERTER SIGNALS	D-IC-DW8-E-5
DW8-E EXPANDER CONTROL	D-BS-DW8-E-6
I/O BUS EXPANDER	D-BS-DW8-E-7
I/O BUS EXPANDER SIGNALS	D-IC-DW8-E-8
I/O CONNECTORS	D-IC-DW8-E-2
MODULE UTILIZATION	D-MU-DW8-E-1
WIRED ASSY	D-AD-7009154-0-0
WIRE LIST	K-WL-DW8-E-11
CONTROL	D-CS-M7101-0-1
POSITIVE I/O BUS CONVERTER	D-CS-M7102-0-1
NEGATIVE I/O BUS CONVERTER	D-CS-M7103-0-1
BUS LOADS	E-CS-M8320-0-1
POWER SUPPLY ASSY (INCL. PL)	D-AD-7009287-0-0
REGULATOR BOARD	D-CS-5409728-0-1
REGULATOR BOARD ASSY	E-IA-5409728-0-0
LINE SET 115 VAC 7 AMP	C-UA-BCØ5H-Ø-Ø
LINE SET 230 VAC 4 AMP	C-UA-BCØ5J-Ø-Ø
DW8E ENGINEERING SPECIFICATION	A-SP-DW8-E-12
MODULE UTILIZATION P.L.	A-PL-DW8-E-1

SEQUENCE

MFG. PRINT SET
DW8E ACCEPTANCE PROC. A-SP-DW8-E-13

THIS IS PRINT SET

UNIT VARIATIONS

VAR	TITLE	PRINT SET
DW8-E-NA	8 NEG BUS TO OMNIBUS INTER 115V	1
DW8-E-NB	8 NEG BUS TO OMNIBUS INTER 230V	1
DW8-E-NX	5 SLOT EXPANDER MODULE SET	
DW8-E-PA	8 POS BUS TO OMNIBUS INTER 115V	1
DW8-E-PB	8 POS BUS TO OMNIBUS INTER 230V	1
DW8-E-PX	5 SLOT EXPANDER MODULE SET	

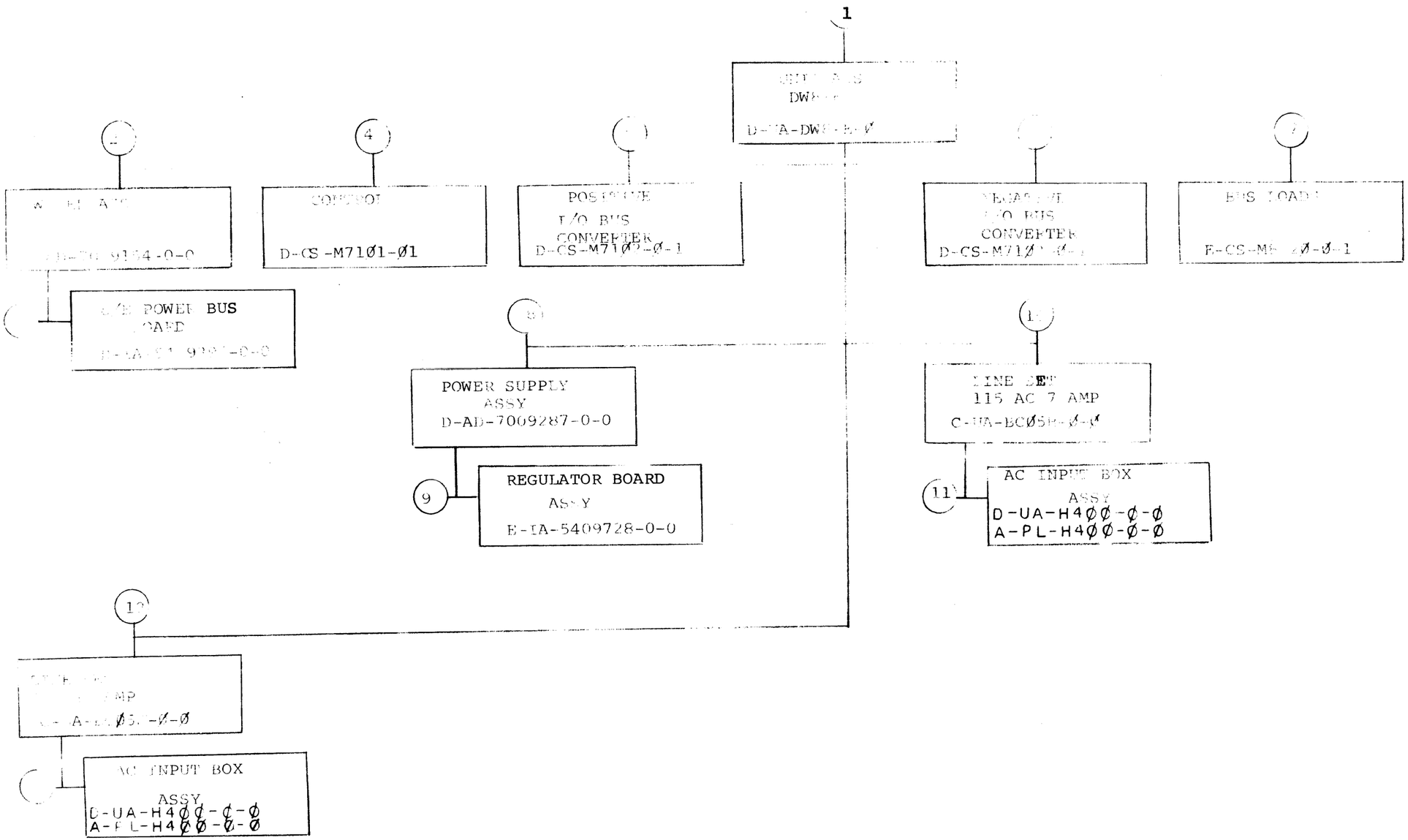
REVISIONS	DATE	CHG. NO.	REV
	4/73	DW8E-2	A
	4/73	DW8E-3	B
	5/73	DW8E-5	C
	6/73	DW8E-7	D

USED ON OPTION/MODEL

SHEET 1 OF 5

DRN. E.WILSON	DATE 3/5/73	TITLE: OMNIBUS INTERFACE
CHK'D.	DATE	
PROJ ENG.	DATE	
PROD.	DATE 4/9/73	SIZE B · CODE DD · NUMBER DW8-E · REV D
FIELD SERV.	DATE	DIST

DRB 106
DEC 16-(325)-1062-1A-R972



TITLE		SIZE	CODE	NUMBER	REV
DWG E	SHEET 2 OF 5	B	DD	DW8 E	[

CUSTOMER PRINT SET				MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
						ELECTRICAL				
X					1	D-UA-DW8-E-Ø	6	3	UNIT ASSY (DW8-E)	
X						D-MU-DW8-E-1	A	1	MODULE UTILIZATION	
X						A-PL-DW8-E-1	A	1	MODULE UTILIZATION (PL)	
X						D-BS-DW8-E-3	A	1	DW8-E CONTROL	
X						D-BS-DW8-E-4	B	2	I/O BUS CONVERTER	
X						D-IC-DW8-E-5	B	1	I/O BUS CONVERTER SIGNALS	
X						D-BS-DW8-E-6	A	1	DW8-E EXPANDER CONTROL	
X						D-BS-DW8-E-7	B	2	I/O BUS EXPANDER	
X						D-IC-DW8-E-8	B	1	I/O BUS EXPANDER SIGNALS	
						D-IA-7009155-0-0		1	HARNESS AC	
						D-IA-7009288-0-0		1	HARNESS DC	
X						A-SP-DW8-E-12	A	19	DW8-E ENGINEERING SPEC	
						A-SP-DW8-E-13	*	1	DW8E ACCEPTANCE PROCEDURE	
X						A-AL-DW8-E-1Ø	A	1	DW8-E ACCESSORY LIST	
X						D-IC-DW8-E-?	A	2	I/O CONNECTORS	
X						A-SP-DW8-E-9	*		FIELD INSTALLATION & ACCEPTANCE	
X					2	D-AD-7009154-0-C	*	1	WIRED ASSY	
						A-PL-7009154-0-0		2	WIRED ASSY (PL)	
X						K-WL-DW8-E-11	B	1	WIRE LIST	
						C-MD-7409056-0-0		1	OMNICASTING (BM8-L)	
						E-SC-1205348-0-0		1	288 PIN CONNECTOR BLOCK (H803)	
					3	D-IA-5409396-0-0		1	8/E POWER BUS BOARD	
						B-CS-5409396-0-1		1	CIRCUIT SCHEMATIC	
						K-CO-5409396-0-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-5409396-0-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-5409396-0-6		1	MODULE ECO HISTORY	
						D-IA-5009395-0-0		1	ETCH BOARD 8/E	
X					4	D-CS-M71Ø1-Ø-1	#	2	CONTROL	
						K-CO-M71Ø1-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-M71Ø1-Ø-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-M71Ø1-Ø-6		1	MODULE ECO HISTORY	

CUSTOMER PRINT SET				MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
						ELECTRICAL				
X					5	D-CS-M71Ø2-Ø-1	#	2	POSITIVE I/O BUS CONVERTER	
						K-CO-M71Ø2-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-M71Ø2-Ø-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-M71Ø2-Ø-6		1	MODULE ECO HISTORY	
X					6	D-CS-M71Ø3-Ø-1	#	1	NEGATIVE I/O BUS CONVERTER	
						K-CO-M71Ø3-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-M71Ø3-Ø-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-M71Ø3-Ø-6		1	MODULE ECO HISTORY	
X					7	E-CS-M832Ø-Ø-1	#	2	BUS LOADS	
						K-CO-M832Ø-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-M832Ø-Ø-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-M832Ø-Ø-6		1	MODULE ECO HISTORY	
X					8	D-AD-7009287-0-0	#	1	POWER SUPPLY	
						D-IA-7409376-0-0		2	CHASSIS (P.S.)	
X					9	E-IA-5409728-0-0	#	1	REGULATOR BD ASSY	
X						D-CS-5409728-0-1	#	1	REGULATOR BD	
						K-CO-5409728-0-4		1	X-Y COORDINATE HOLE LOCATION	
						D-AH-5409728-0-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-5409728-0-6		1	MODULE ECO HISTORY	
						C-IA-7409375-0-0		1	BRK SUPPORT ETCH BD	
X					10	C-UA-BCØ5H-Ø-Ø	#	1	LINE SET 115V AC 7 AMP	
					11	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-A)	
						A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-A)(PL)	
						D-IA-5309845-0-0		1	BOX AC INPUT	
						C-MD-5309849-0-0		1	COVER	
						A-DC-5309899-0-0		1	POWER CTRL DECAL 115V	
						C-IA-5409824-0-0		1	POWER CTRL BOARD 115V	
						D-AH-5409824-0-5		1	ASSY DRILLING HOLE LOCATION	
						B-MH-5409824-0-6		1	MODULE ECO HISTORY	

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

TITLE		SIZE	CODE	NUMBER	REV
DW8-E	SHEET 3 OF 5	B	DD	DW8-E	D

DRB 108

DEC 16-(325)-1062-2B-R972

ELECTRICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		12	C-UA-BCØ5J-Ø-Ø	#	1	LINE SET 230V AC 4 AMP	
		13	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-B)	
			A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-B)(PL)	
			D-IA-5309845-0-0		1	BOX AC INPUT	
			C-MD-5309849-0-0		1	COVER	
			A-DC-5309900-0-0		1	PWR CTRL DECAL 230V	
			C-IA-5409825-0-0		1	PWR CTRL BOARD 230V	
			D-AH-5409825-0-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-5409825-0-6		1	MODULE ECO HISTORY	

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE

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TITLE	SHEET	OF	SIZE	CODE	NUMBER	REV
DW8-E	4	5	B	DD	DW8-E	D

DRB 108

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			MECHANICAL				
		1	D-UA-DW8-E-0	B	3	UNIT ASSY (DW8-E)	
			D-IA-7009155-0-0		1	HARNESS AC	
			D-IA-7009288-0-0		1	HARNESS DC	
			E-IA-7410650-0-0		2	CHASSIS	
		2	D-AD-7009154-0-0	*	1	WIRED ASSY	
			A-PL-7009154-0-0		2	WIRED ASSY (PL)	
			C-MD-7409056-0-0		1	OMNICASTING (BM8-L)	
			E-SC-1205348-0-0		1	288 PIN CONNECTOR BLOCK (H803)	
		3	D-IA-5409396-0-0		1	8/E POWER BUS BOARD	
			B-CS-5409396-0-1		1	CIRCUIT SCHEMATIC	
			K-CO-5409356-0-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-5409396-0-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-5409396-0-6		1	MODULE ECO HISTORY	
			D-IA-5009395-0-0		1	ETCH BOARD 8/E	
		4	D-CS-M71Ø1-Ø-1	#	2	CONTROL	
			K-CO-M71Ø1-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-M71Ø1-Ø-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-M71Ø1-Ø-6		1	MODULE ECO HISTORY	
		5	D-CS-M71Ø2-Ø-1	#	2	POSITIVE I/O BUS CONVERTER	
			K-CO-M71Ø2-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-M71Ø2-Ø-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-M71Ø2-Ø-6		1	MODULE ECO HISTORY	
		6	D-CS-M71Ø3-Ø-1	#	2	NEGATIVE I/O BUS CONVERTER	
			K-CO-M71Ø3-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-M71Ø3-Ø-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-M71Ø3-Ø-6		1	MODULE ECO HISTORY	
		7	D-CS-M832Ø-Ø-1	#	2	BUS LOADS	
			K-CO-M832Ø-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-M832Ø-Ø-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-M832Ø-Ø-6		1	MODULE ECO HISTORY	

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			MECHANICAL				
		8	D-AD-7009287-0-0	††	1	POWER SUPPLY	
			E-IA-7409376-0-0		2	CHASSIS (P.S.)	
		9	E-IA-5409728-0-0	#	1	REGULATOR BD ASSY	
			D-CS-5409728-0-1	#	1	REGULATOR BD	
			K-CO-5409728-0-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-5409728-0-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-5409728-0-6		1	MODULE ECO HISTORY	
			C-IA-7409375-0-0		1	BRKT SUPPORT ETCH BD	
		10	C-UA-BCØ5H-Ø-Ø	#	1	LINE SET 115V AC 7 AMP	
		11	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-A)	
			A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-A)PL	
			D-IA-5309845-0-0		1	BOX AC INPUT	
			C-MD-5309849-0-0		1	COVER	
			A-DC-5309899-0-0		1	PWR CTRL DECAL 115V	
			C-IA-5409824-0-0		1	POWER CTRL BOARD 115V	
			D-AH-5409824-0-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-5409824-0-6		1	MODULE ECO HISTORY	
		12	C-UA-BCØ5J-Ø-Ø	#	1	LINE SET 230V AC 4 AMP	
		13	D-UA-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØB)	
			A-PL-H4ØØ-Ø-Ø		1	AC INPUT BOX ASSY (H4ØØ-B)(PL)	
			D-IA-5309845-0-0		1	BOX AC INPUT	
			C-MD-5309849-0-0		1	COVER	
			A-DC-5309900-0-0		1	PWR CTRL DECAL 230V	
			C-IA-5409825-0-0		1	PWR CTRL BOARD 230V	
			D-AH-5409825-0-5		1	ASSY DRILLING HOLE LOCATION	
			B-MH-5409825-0-6		1	MODULE ECO HISTORY	

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

TITLE		SIZE	CODE	NUMBER	REV
DW8-E	SHEET 5 OF 5	B	DD	DW8-E	D

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 4-20-73

TITLE DW8E FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
	Ed Reed	A	SP	DW8-E-9	

DEC FORM NO. DRA 107

SHEET 1 OF 4

1. HARDWARE

1.1 Basic Configurations

DW8E-NA Neg. I/O Bus, 115 VAC, 50/60Hz
DW8E-NB Neg. I/O Bus, 230 VAC, 50/60Hz
DW8E-PA Pos. I/O Bus, 115 VAC, 50/60 Hz
DW8E-PB Pos. I/O Bus, 230 VAC, 50/60 Hz

1.2 DW8E Expanders

DW8E-NX Neg. I/O Bus Expander Modules
Used on DW8E-NA or NB
DW8E-PX Pos. I/O Bus Expander Modules
Used on DW8E-PA or PB

1.3 Required Cables

1.3.1 BC08B-7's are to be used on a positive bus; DM04, PDP-8L, or PDP-12.

1.3.2 BC08D-7's are to be used on a negative bus; DM01, PDP-8, PDP-8I, or Linc-8.

1.3.3 The PDP-8I can be positive or negative bus but requires BC08D cables. When a DM04 is installed on a positive bus PDP-8I, BC08B cables are required.

1.4 System Requirements

1.4.1 The processor must have at least 4K of Read/Write memory.

1.4.2 An ASR33 teletype, or equivalent.

1.5 Tools Required

1.5.1 Special tools are not required to install a DW8E, all tools necessary are included in the Field Service Tool Kit.

1.5.2 If the DW8E is mounted in a cabinet, pallet handling equipment may be necessary to position the cabinet in the final installation position.

2. UNPACKING AND INSTALLING THE DW8E

2.1 Inventory all items on the DW8E Accessory List (A-AL-DW8-E-10)

2.2 If the DW8E is packed in a separate container, remove it from the shipping container and install it in the appropriate cabinet using the rotating slides included.

2.3 Remove the top cover of the DW8E and ensure that all modules are installed in the proper locations according to the module utilization drawing (D-MU-DW8-E-1).

2.4 Install the I/O, and Data Break cables using the following table:

BC08 Cables

	BAC	BMB	AC IN	DATA ADDR		DATA	
DW8-E	C20	C19	C18	C17	D17*	C16	D16*
	↓	↓	↓	↓	↓	↓	↓
DM04	BØ1	BØ2	BØ3	BØ6	BØ7	BØ8	BØ9
PDP-8L	D36	D35	D34	C36		C35	
PDP-12	N14	N15	N16	N17		N18	

(*D17 & D16 are expander section Data Break Slots)

BC08D Cables

	BAC	BMB	AC IN	DATA ADDR		DATA	
DW8E	C20	C19	C18	C17	D17*	C16	D16*
DM01	DØ1 DØ2,	DØ3 DØ4,	DØ5,	DØ6,	DØ7 DØ8,	D12 D13,	DØ9 D1Ø, D14 D15
PDP-8	ME34 MF34,	ME35 MF35,	PEØ2 PFØ2,	PEØ3 PFØ3,			PEØ4 PFØ4,
PDP-8I	JØ1 JØ2	JØ3 JØ4	JØ5	JØ6	JØ7 JØ8		JØ9 J1Ø
*Linc8	A36 A35,	A34 A33,	A32,	A31,	A30 A29,		A28 A27,

*Data Terminal Panel

2.5 Install the option(s) in the DW8E using;

A. Module Utilization (D-MU-DW8-E-1)
B. The options installation and acceptance procedure.
c. The interface section of the DW8E Engineering Specifications

2.6 With the power source OFF, plug the DW8E power cord into a switched AC power source which is controlled by the C.P.U.'s On-Off switch.

3. ACCEPTANCE

3.1 After all other system acceptance tests are completed, perform the acceptance tests for the option(s) plugged into the DW8E.

3.2 Record any discrepancies on the Acceptance Form.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY Ed Reed DATE 3-27-73	CHECKED M.Quinn DATE 3-27-73	SECTION
ENG Ed Reed DATE 3-27-73	PROD R.Pooler DATE 3-27-73	ISSUED SECT.

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								
			DW8E-NA	DW8E-NB	DW8E-NX	DW8F-PA	DW8F-PB	DW8F-PX		KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	D-UA-DW8-E-0	DW8-E Assembly	1	1		1	1				
2	C-UA-BC05H-0-0	H400A lineset, 115VAC, 7 amp	1			1					
3	C-UA-BC05J-0-0	H400B lineset, 230VAC, 4 amp		1			1				
4	B-DD-DW8-E	DW8-E print set	1	1		1	1				
5	D-CS-M7101-0-1	M7101 control card	1	1	1	1	1	1			
6	D-CS-M7102-0-1	M7102 Pos. I/O bus converter				4	4	4			
7	D-CS-M7103-0-1	M7103 neg. I/O bus converter	4	4	4						
8	D-CS-M8320-0-1	M8320 bus loads card	1	1	1	1	1	1			
9	D-MD-7409100-1-O	slides, chassis, rotating set	1	1		1	1				
10	BC08B-7	cable, flat black coax				*	*				
11	BC08D-7	Y-cable, flat black coax	*	*							
12	ECO#8M-00007	ECO to PDP-8. send only FOR PDP-8 INSTALLATION	1	1							
13	ECO#LINC8M-00008	ECO TO LINC-8 SEND ONLY FOR LINC-8 INSTALLATION	1	1							
	NOTE: BC08B-7 cables are used with positive bus systems - DM04, PDP8L, PDP12.										
	BC08D-7 cables are used with negative bus systems - DM01, PDP8, PDP8I, LINC8.										
	(CAUTION: A PDP8I can be positive or negative bus but requires BC08D cables.										
	When a DM04 is installed on a Positive bus PDP8I, BC08B cables are required.)										

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
ACCESSORY LIST	D-UA-DW8-E-0	A	AL	DW8-E-10	A	DW8E-00003
	SHEET 1 OF 1	DIST.				

DEC FORM NO.
DRA 121

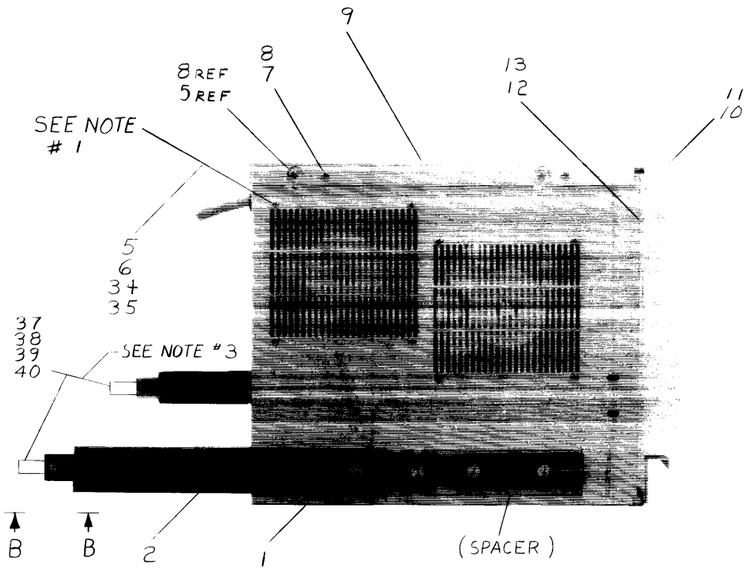
LEGEND	
NUMBER	VARIATION
DW8-E-NA	NEGATIVE BUS, 115 VAC
DW8-E-NB	NEGATIVE BUS, 230 VAC
DW8-E-NX	NEGATIVE BUS, EXPANDER: M7101, 4-M7103'S, M8320 ADDED TO NA OR NB
DW8-E-PA	POSITIVE BUS, 115 VAC
DW8-E-PB	POSITIVE BUS, 230 VAC
DW8-E-PX	POSITIVE BUS, EXPANDER: M7101, 4-M7102'S, M8320 ADDED TO PA OR PB

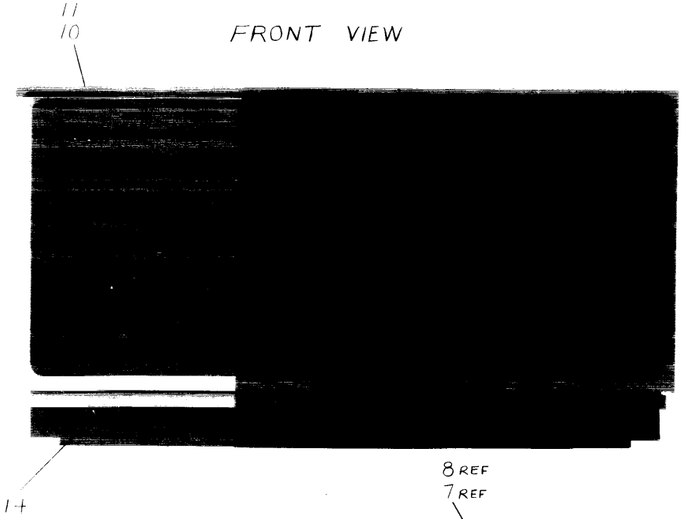
NOTES:

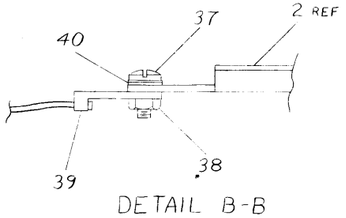
1. MOUNTING HARDWARE VARIATION FOR ITEM 16 (FAN) ARE AS FOLLOWS

ITEM #16 (FAN)	MOUNTING HARDWARE	
	ITEM NO	DISCRIPTION
1205033-1 ROTRON	34	MOUNTING CLIP
	5	#6-32X.56 SCREW
1205033-2 IMC	35	#8-32 X .38 SELF TAPPING SCR.

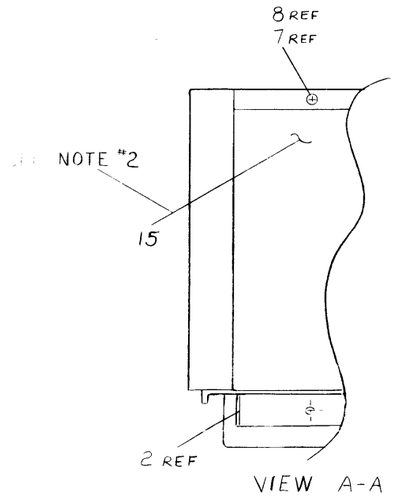
2. ITEM 15 & 36, SIDE FILTER, IS TO BE MOUNTED INSIDE BOX.
3. ASSEMBLE AS SHOWN TO PROVIDE SHIPPING TIE-DOWN AND SLIDE-LOCK RELEASE.







DETAIL B-B
SCALE : NONE



VIEW A-A
SCALE : NONE

DW8-E-PX	DW8-E-PB	DW8-E-PA	DW8-E-NX	DW8-E-NB	DW8-E-NA	QTY.	DESCRIPTION	PART NO.	ITEM NO.
	4	4		4	4		#10 WASHER, STEEL, FLAT	9006664	40
	2	2		2	2		TIE WRAP	9007033	39
	2	2		2	2		KEPNUTS #10-32	9006565	38
	2	2		2	2		SCR, PTH #10-32X7/16"	9006072-3	37
	A/R	A/R		A/R	A/R		LOOP TAPE, 5/8", VELCRO 0140	9008875-02	36
	8	8		8	8		#8-32X3/8LG SELFTAPPING SCREW	9006121	35
	8	8		8	8		MTG CLIP	9008202	34
	1	1		1	1		STRAIN RELIEF	9008442	33
1	1	1	1	1	1		BUS LOADS	D-CS-M8320-0-1	32
-	-	-	4	4	4		NEG I/O BUS CONV.	D-CS-M7103-0-1	31
4	4	4	-	-	-		POS I/O BUS CONV.	D-CS-M7102-0-1	30
1	1	1	1	1	1		CONTROL	D-CS-M7101-0-1	29
	1	1		1	1		HARNESS, DC	D-IA-7009288-0-0	28
	1	1		1	1		HARNESS, A.C.	D-IA-7009155-0-0	27
	4	4		4	4		BUMPER, RUBBER	9008525	26
	8	8		8	8		SCR PHIL HD PAN #8-32X.50	9006039-1	25
	1	1		1	1		PROTECTION PLATE	B-MD-7409025-0-0	24
	1	1		1	1		STRAIN RELIEF, CABLE	C-IA-7409387-0-0	23
	A/R	A/R		A/R	A/R		GROMMET, NYLON G52A	9008291	22
	1	1		1	1		DW8-E WIRED ASSY	D-AD-7009154-0-0	21
	1	1		1	1		POWER SUPPLY ASSY	D-AD-7009287-0-0	20
	1	-		1	-		LINE SET 230V 5 AMP	C-UA-BC05J-0-0	19
	-	1		-	1		LINE SET 115V 7 AMP	C-UA-BC05H-0-0	18
	1	1		1	1		BRKT, CABLE TROUGH	D-IA-7409919-0-0	17
	2	2		2	2		FAN, BOXER	1805033	16
	1	1		1	1		FILTER, SIDE	C-IA-7409429-0-0	15
	1	1		1	1		COVER STRIP	C-MD-7407999-0-0	14
	12	12		12	12		WASHER, INT TOOTHLOCK #8	9006634	13
	4	4		4	4		SCR, PHIL HD PAN #8-32X.25	9006035-1	12
	2	2		2	2		PANEL, FRONT	1209278-02	11
	1	1		1	1		BEZEL	1210065	10
	1	1		1	1		COVER	D-IA-7409380-0-0	9
	10	10		10	10		WASHER, EXT TOOTH LOCK #6	9007649	8
	11	11		11	11		SCR, PHIL HD PAN #6-32X.25	9006020-1	7
	8	8		8	8		NUT KEPS #6-32X.5/16X.5/32	9006560	6
	11	11		11	11		SCR, SLOT HD. BIND #6-32X.56	9007793-4	5
	4	4		4	4		WASHER, INT TOOTH LOCK #10	9006636	4
	9	9		4	9		SCR, PHL HD TRUSS #10-32X.38	9006071-3	3
	1	1		1	1		SLIDE, CHASSIS	D-MD-7409100-1-0	2
	1	1		1	1		CHASSIS, DW8-E	E-IA-7410650-0-0	1

FIRST USED ON OPTION/MODEL: DW8-E

PARTS LIST

REVISIONS			
ENG	CHANGE NO	REV	
[illegible]	DW8E-00002	A	ED REED
[illegible]	DW8E-00005	B	ED REED

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: XXX .005, XX .02, X 1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

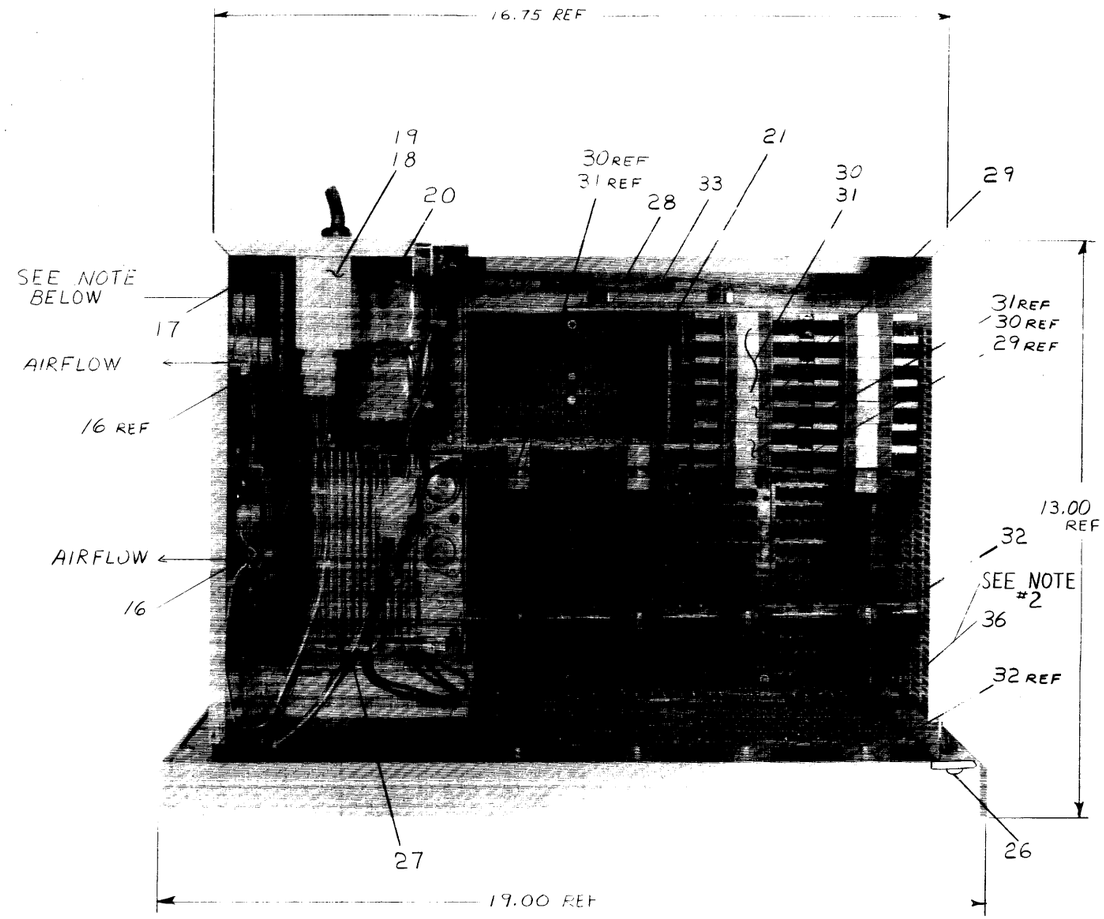
DRN E Wilson DATE 2/15/73
CHK [illegible] DATE 3/6/73
ENG [illegible] DATE
PROJ. ENG. [illegible] DATE
PROD. [illegible] DATE 1/9/73
NEXT HIGHER ASSY. B-DD-DW8-E
SCALE
SHEET 1 OF 3

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIT ASSY DW8-E

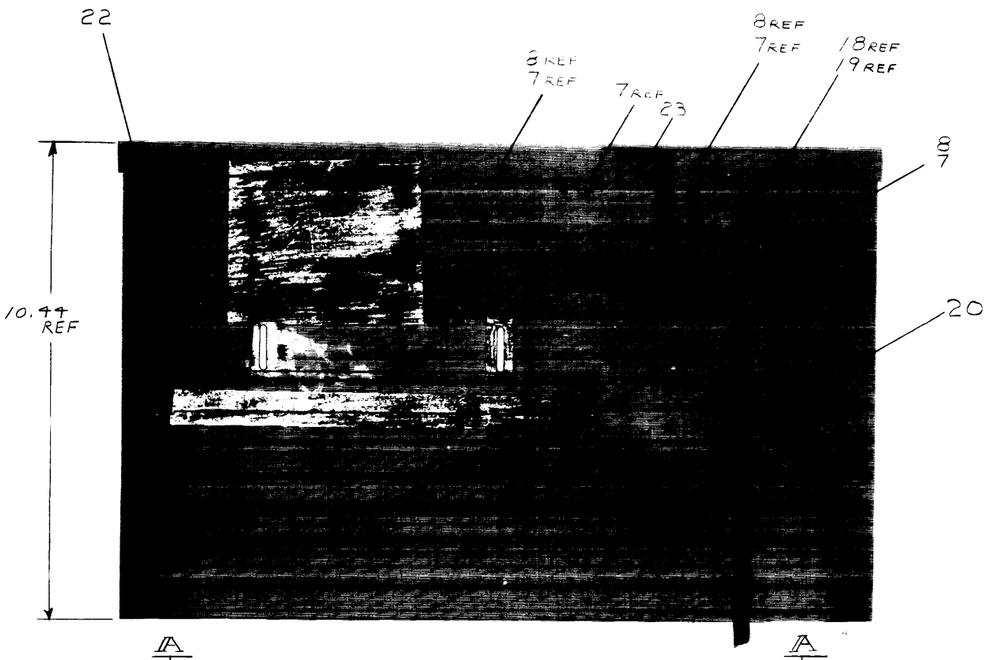
SIZE D | CODE UA | NUMBER DW8-E-Ø | REV B
DIST

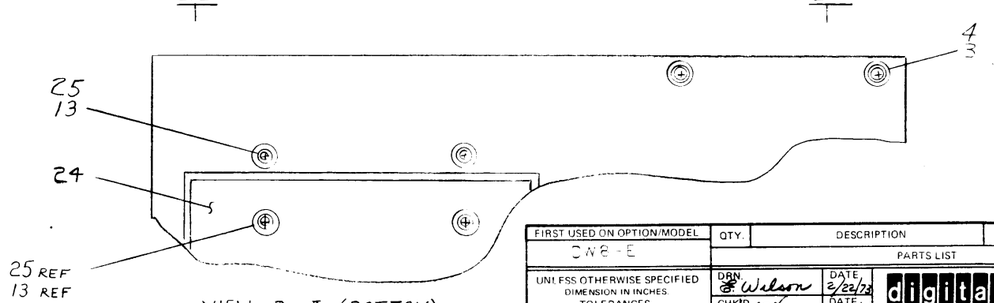
DW8-E-Ø REV B SIZE D CODE UA



TOP VIEW WITH COVER (ITEM #9) AND CABLE TROUGH (ITEM #17) REMOVED.

REAR VIEW





VIEW A-A (BOTTOM)
SCALE: NONE

REVISIONS			
CHK	CHANGE NO		REV

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO
SW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± 1
ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN	B Wilson	DATE 3/22/73
CHKD	[illegible]	DATE 3/26/73
ENG	[illegible]	DATE 4 23
PROJ. ENG	[illegible]	DATE
PROD	[illegible]	DATE 4/4/73

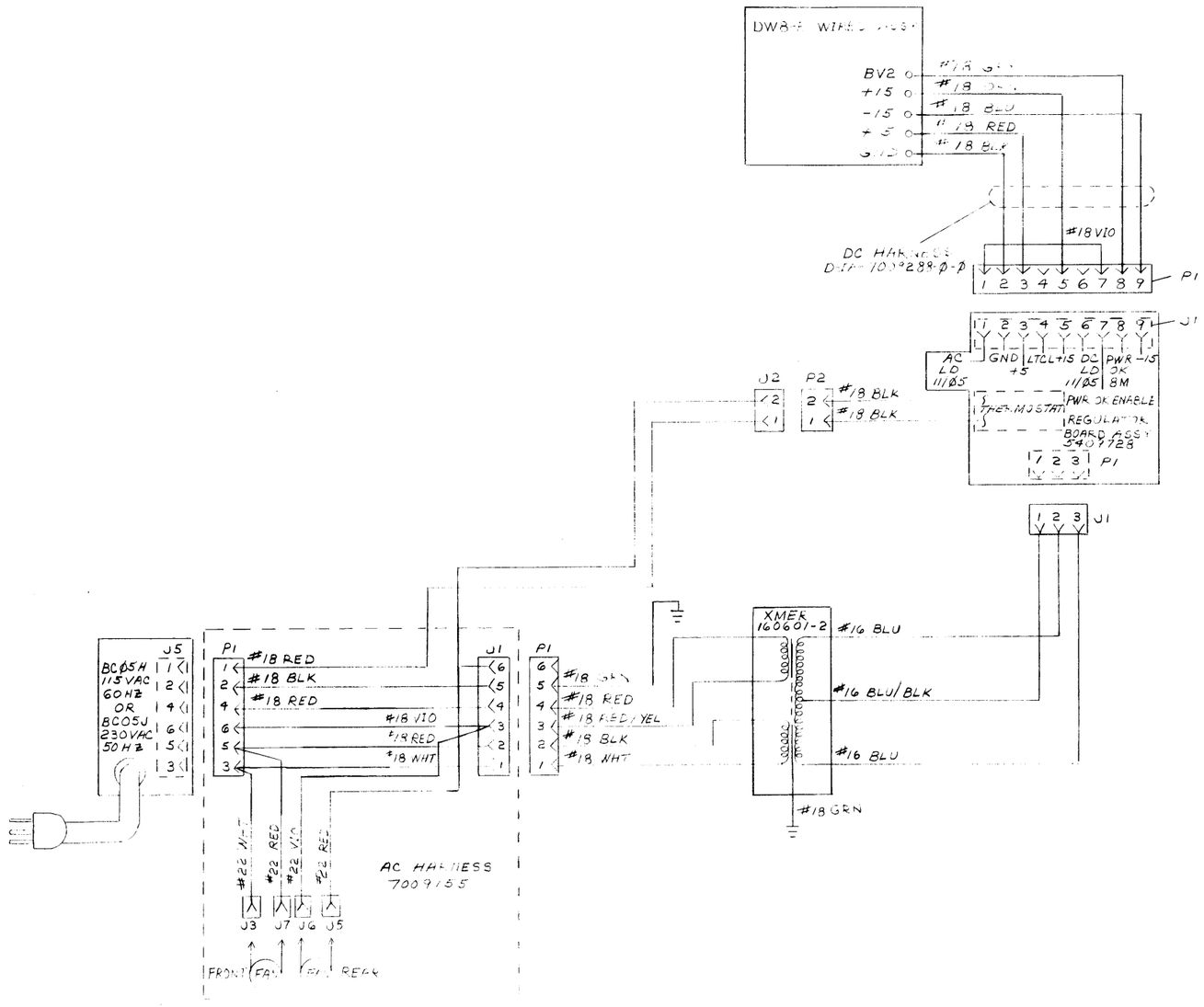
NEXT HIGHER ASSY
B-DD-[illegible]-E
SCALE —
SHEET 2 OF 3

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
UNIT ASSY
[illegible]

SIZE	CODE	NUMBER	REV
D	[illegible]	[illegible] E-9	E

DIST



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIT [illegible]	D	UA	DW8-E-0	E
SCALE	SHEET OF	DIST		

UNIT CONT DRAWING DUA DW8-E-Ø B

NOTE:
UNLESS OTHERWISE STATED ALL RESISTANCE IS IN OHMS

C1 BTS 1 H BR1 — 74H04 B16 — C1 BTS 1 L

TS1 (1) L — 7417 E1 — 100NS EG — C1 BRK H — 74123 E11 — C1 BRK (1) H (AS2) / C1 BRK (Ø) H (AT2)

SHIFT TS L, CLR TP L — 74H00 E14 — DL1 — 74H00 E20 — 74H04 E16 — SHIFT TS L / SHIFT TS H

TP1 (1) L, TP2 (1) L, TP3 (1) L, TP4 (1) L — 74H40 E14

CLR TR L — 74H00 E20 — DL2 — C1 INITIALIZE L — 74H00 E20 — CLR TP L

TIME PAUSE (1) H — 74123 E23 — RECYCLE (1) H

C1 BTS1 H, I/Ø END (1) H, BK CYCLE H, C1 IOP1 H, C1 IOP2 H, C1 IOP4 H — 74H53 E18 / 74H53 E12 — CLR TIME PSE L / I/Ø END CLK L

C1 INITIALIZE L BK1 — 7416 E7 — DEC 3009B Q1 — C1 INITIALIZE H (AS1)

C1 CØ L AV1 — 74H00 E10 — B CØ L

C1 C1 L AV1 — 74H00 E3

I/O END CLK L — 74123 E5 — I/O END CLK H

C1 BRK L BN1 — 74H04 E16 — C1 BRK H

TP1(1) L — 74H00 E10 — BK CYCLE L

C1 ADD ACC H BS2, TP3 (1) H, BK CYCLE H, SHIFT TS H, C1 INITIALIZE L — 74H00 E15 / E9 — BK CYCLE H

TS3 (1) H — 74H74 E21 — TIME PAUSE (1) H

C1 BRK L, C1 BTS3 L — 74H11 E19 — CLR TIME PSE L

C1 BTS 3 H BS1 — 74H04 E16 — C1 BTS3 L — 74H74 E22 — 7416 E7 — C1 BTS 1 L

C1 BRK H, C1 BTS3 L — 74H00 E15 — CLR TIME PSE L — 74H00 E9

T33 (1) H — 74H74 E21 — BU1 I/O PSE (1) H — CLR TP L

TS1 (1) H — 74H04 E4 — C1 BTS1 H — 74H74 E13 — TP1(1) H / TP1(Ø) H

TS2 (1) H — 74H74 E13 — TP2(1) H / TP2(Ø) H — C1 BTS3 H

TS3(1) H — 74H74 E17 — TP3(1) H / TP3(Ø) H

SHIFT TS H, BK CYCLE L, RECYCLE (1) H — 74H11 E19 / 74H00 E15 — BK CYCLE L

TS4(1) H — 74H74 E17 — TP4(1) H / TP4 (Ø) H — C BTS1 H — CLR TP L

TS1 (1) H — 74H74 E2 — AG1 C1 BTP1 H

ANI C1 BTIME 1 L — 7416 E7

ADL C1 BTP2 H — 7417 E1

TS2 (1) H — 74H74 E2 — AK1 C1 B TIME 2 L — 7416 E7

BH1 C1 B INT STROBE H — 7417 E1

AE1 C1 BTP3 H — 7417 E1

TS3 (1) H — 74H74 E8 — ALI C1 BTIME 3 L — 7416 E7

AF1 C1 BTP4 H — 7417 E1

TS4 (1) H — 74H74 E8 — AMI C1 BTIME 4 L — 7416 E7

C1 C1 H, AFE — 74123 E11 — API BC1 C1H

I/O PSE (1) H, I/O END CLK H — 74H74 E22 — I/O END (1) H / I/O END (Ø) H

C27 470 PF, R5 100Ω, C25 68 PF, R2 10K, C28 47 PF, R1 5.11K, C24 38Ø PF, R1 5.11K, C29 27 PF, R15 27.4K, C26 .01 UF, R3 22Ø, R4 12

NOTE:
CHANGE W1, REMOVE W2 FOR PDP-8 OR LINC-8
BTS1 BECOMES MEM START
BTS3 BECOMES TI

M7101 A,B16

REVISIONS	REV
CHANGE NO	A
CHK	DW8E-00002
	5-11-73
	ED REED 5-11-73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. E. Wilson 10/20/72
CHK'D [illegible] 5/6/73
ENG. [illegible] DATE
PROJ. ENG. [illegible] DATE
PROD. [illegible] 4/4/73
NEXT HIGHER ASSY. B-DD-DW8-E
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

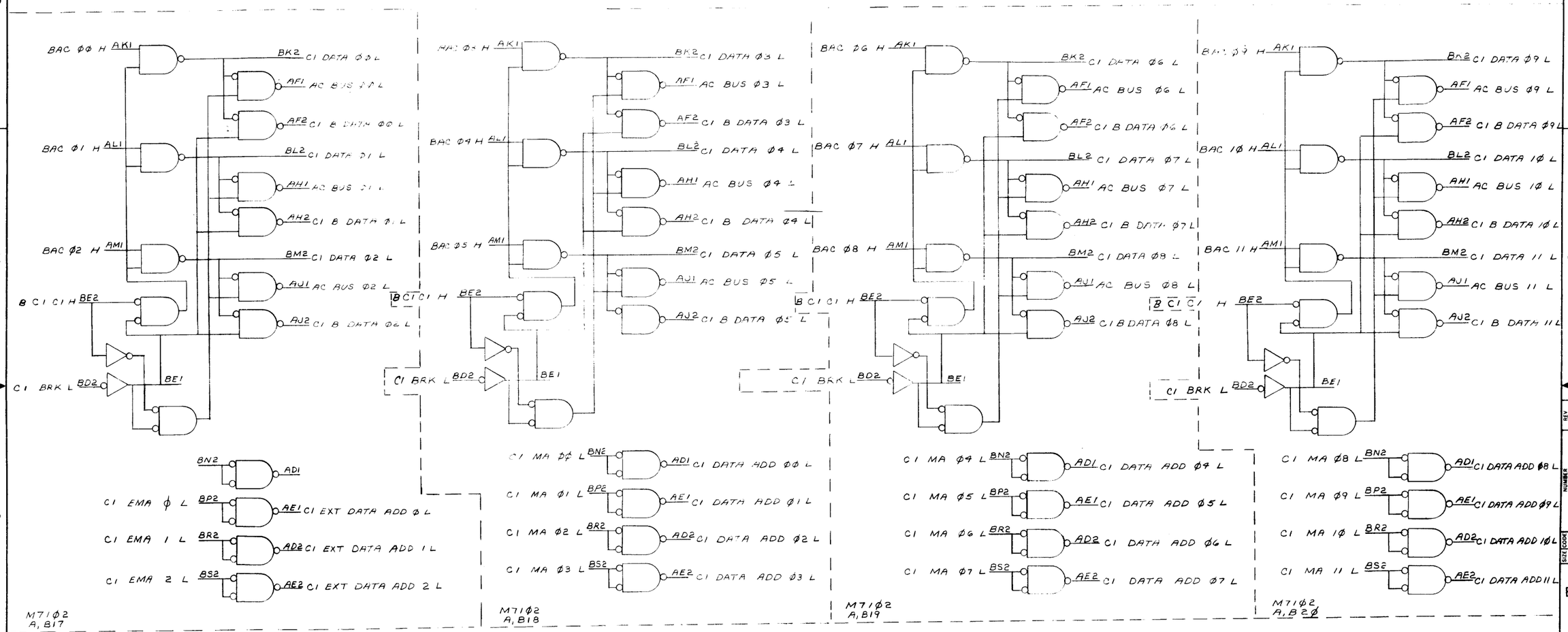
TITLE: DW8-E CONTROL

SIZE D | CODE RS | NUMBER DW8-E-3 | REV A | DIST

BASE CODE BS | NUMBER DW3-E-6 | REV A

DEC FORM NO DRD 102-B

DIGITAL EQUIPMENT CORPORATION



NOTE:
NEGATIVE BUS VERSION REPLACES M71Ø2'S WITH M71Ø3'S

REVISIONS	CHK	CHANGE NO	REV
9-Mar-73		DW8E-00002	A
9-Mar-73		DW8E-00007	B

ED REED
S. Glaser 5-1-73
J. Martin 7-10-73
REED
E. Reed 8-6-73

BRUNING 40-122 1584G
DEC FORM NO DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX = .005	±0° 30'
XX = .02	
X = .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN.	E Wilson	DATE 10/9/72
CHK'D		DATE
ENG.	E Reed	DATE 8-2-73
PROJ. ENG.		DATE 2-2-72
PROD.		DATE 4/17/73

NEXT HIGHER ASSY. B-DD-DW8-E

SCALE NONE

SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE I/O BUS CONVERTER POS BUS

SIZE	CODE	NUMBER	REV.
D	BS	DW8-E-4	B

DIST

BMB Ø0 H AN1 → BE2 C1 MD Ø0 L
BMB Ø1 H AP1 → BH2 C1 MD Ø1 L
BMB Ø2 H AR1 → BJ2 C1 MD Ø2 L
AK2 → AN2
B RUN L AL2 → AM2
BTS 1 H AP2 → AT2 C1 BTS 1 H, BB1
BTS 3 H AR2 → AS2 C1 BTS 3 H, BA1

M7105 A,B17

BMB Ø3 H AN1 → BE2 C1 MD Ø3 L
BMB Ø4 L AP1 → BH2 C1 MD Ø4 L
BMB Ø5 H AR1 → BJ2 C1 MD Ø5 L
AK2 → AN2
C1 B BREAK L AL2 → AM2 C1 BRK L
BIOP 1 H AP2 → AT2 C1 IOP 1 H, BB1
BIOP 2 H AR2 → AS2 C1 IOP 2 H, BA1

M7105 A,B18

BMB Ø6 H AN1 → BE2 C1 MD Ø6 L
BMB Ø7 H AP1 → BH2 C1 MD Ø7 L
BMB Ø8 H AR1 → BJ2 C1 MD Ø8 L
AK2 → AN2
C1 B ADD ACC L AL2 → AM2
B IOP4 H AP2 → AT2 C1 IOP4 H, BB1
B INITIALIZE H AR2 → AS2 C1 INITIALIZE L, BA1

M7105 A,B19

BMB Ø9 H AN1 → BE2 C1 MD Ø9 L
BMB 10 H AP1 → BH2 C1 MD 10 L
BMB 11 H AR1 → BJ2 C1 MD 11 L
AK2 → AN2
AL2 → AM2
AP2 → AT2, BB1
AR2 → AS2, BA1

M7105 A,B20

BD1 M7105 B17 → BC1
AV1 M7105 A17 → AU1
C1 SKIP L BU1 → M7105 A,B17 → AB1 SKIP BUS L, BU2
C1 CLR AC H BV1 → M7105 A,B17 → AA1 AC CLEAR BUS L
BR1, BS1 → M7105 B17 → BP1 C1 B RUN L
BK1, BL1 → M7105 B17 → BM1
C1 C1 L BH1, BJ1 → M7105 B17 → BF1 C1 C1 H

BD1 M7105 B18 → BC1, BV2 C1 BREAK CYCLE H
AV1 M7105 A18 → AU1
C1 INT RQST L BU1 → M7105 A,B18 → AB1 INT RQST BUS L, BU2
BV1 → M7105 A,B18 → AA1
C1 I/O PSE (1) H BR1, BS1 → M7105 B18 → BP1 C1 I/O PAUSE L
BK1, BL1 → M7105 B18 → BM1
BH1, BJ1 → M7105 B18 → BF1

BD1 M7105 B19 → BC1 C1 ADD ACC H, BV2 C1 ADD ACC L
AV1 M7105 A19 → AU1
C1 BRK IN PROG L BU1 → M7105 A,B19 → AB1 C1 BRK RQST L, BU2 C1 BRK IN PROG H
BV1 → M7105 A,B19 → AA1
C1 BRK (1) L BR1, BS1 → M7105 B19 → BP1 C1 BREAK H
BK1, BL1 → M7105 B19 → BM1
BH1, BJ1 → M7105 B19 → BF1

BD1 M7105 B20 → BC1
AV1 M7105 A20 → AU1
C1 MD DIR H BU1 → M7105 A,B20 → AB1 C1 DATA IN H, BU2
BV1 → M7105 A,B20 → AA1 C1 1 CYCLE H
C1 BRK (1) H BR1, BS1 → M7105 B20 → BP1 C1 BREAK L
BK1, BL1 → M7105 B20 → BM1
BH1, BJ1 → M7105 B20 → BF1

NOTE:
NEGATIVE BUS VERSION REPLACES M7105'S WITH M7005'S

REVISIONS	REV	CHANGE NO	CHK

BRUNING 40-522 15840
DEC FORM NO. DRD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± 1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN.	E. Wilson	10/6/78
CHK'D		DATE
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE

NEXT HIGHER ASSY. B-DD-DW8-E-E
SCALE NONE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

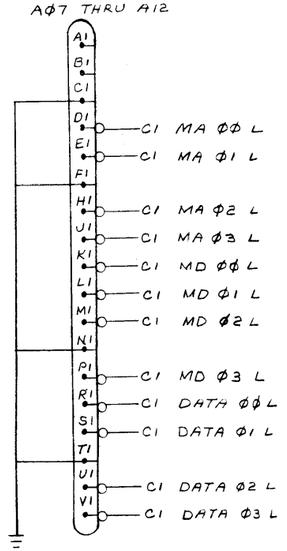
TITLE: I/O BUS CONVERTER POS BUS

SIZE	CODE	NUMBER	REV
D	BS	DW8-E-4	B

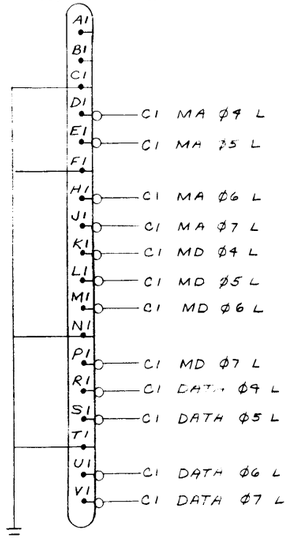
DIST.

NOTES:
1. THE SIGNAL NAMES OF AN OPTION WHICH ARE PLUGGED INTO THE CONVERTER SECTION WILL ASSUME THE PREFIX "C1"

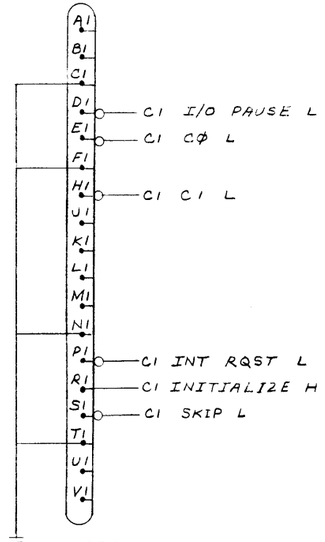
M8320 A07 THRU A12



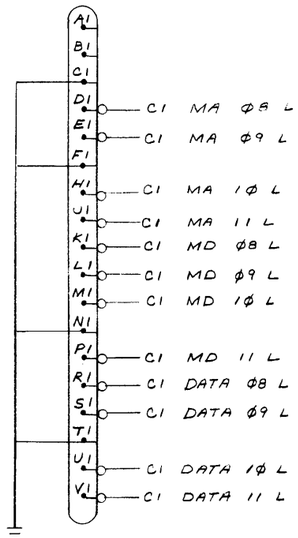
M8320 B07 THRU B12



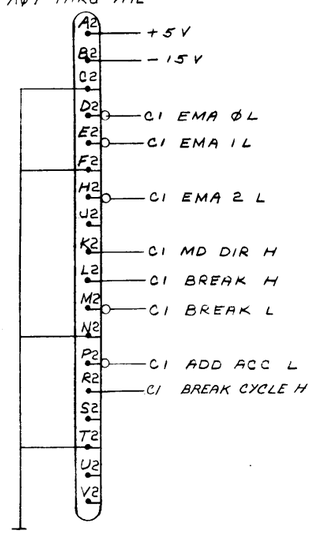
M8320 C07 THRU C12



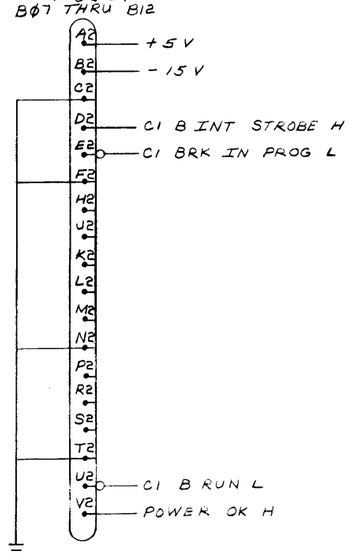
M8320 D07 THRU D12



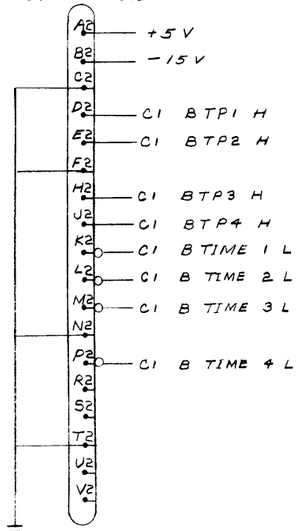
M8320 A07 THRU A12



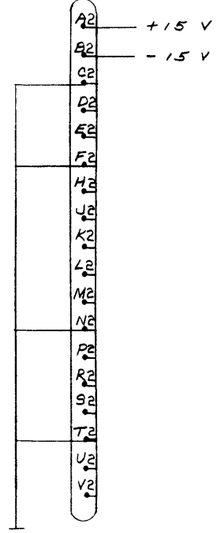
M8320 B07 THRU B12



M8320 C07 THRU C12



M8320 D07 THRU D12



REVISIONS			
LTR	CHANGE NO.		
A	DW8E-00002	E. Wilson	5/18/73
	ED REED		
B	DW8E-00007	E. Wilson	5/6/73
	REED	D. Clinton	7/6/73
		B. Reed	8/6/73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: .xxx = 005, .xx = .02, .x = .1 — ANGLES: °0 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ↑
MATERIAL
FINISH

DRN. E. Wilson	DATE	2/1/73
CHK'D.	DATE	3/6/73
ENG. E. Reed	DATE	2/1/73
PROJ. ENG. E. Reed	DATE	2/1/73
PROD.	DATE	
NEXT HIGHER ASSY. B-DT-DW8-E		
SCALE		
SHEET 1 OF 1		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: I/O BUS CONVERTER SIGNALS

SIZE	CODE	NUMBER	REV.
D	IC	DW8-E-5	B

DIST.

SIZE D CODE IC NUMBER DW8-E-5 REV B

NOTE:
UNLESS OTHERWISE STATED ALL RESISTANCE IS IN OHMS.

C2 BTS 1 H — BR1 — 74H04 E16 — C2 BTS 1 L

TS1 (1) L — 74174 E1 — 100NS EG — C2 BRK H

+5V — R18 22Ø — R17 22Ø — +5V

C30 560 PF — R16 27.4K — 74123 E11 — AS2 C2 BRK (1) H — AT2 C2 BRK (Ø) H

+5V — R11 39Ø — R10 39Ø — DL1

SHIFT TS L — CLR TP L — 74H00 E14 — 74H00 E20 — 74H04 E16 — SHIFT TS L — SHIFT TS H

TP1 (1) L — TP2 (1) L — TP3 (1) L — TP4 (1) L — 74H40 E17

DL2 — CLR TR L — 74H00 E20 — R9 39Ø — R8 39Ø — C2 INITIALIZE L — 74H00 E20 — 74H00 E20 — CLR TP L

+5V — C28 47 PF — R1 5.11K — TIME PAUSE (1) H — +3V — 74123 E23 150NS — 74123 E23 50NS — RECYCLE (1) H — +3V

C2 BTS1 H — 74H53 E18 — CLR TIME PSE L
I/Ø END (1) H
BK CYCLE H
C2 IOP1 H — BDI
C2 IOP2 H — BEI — 74H53 E12 — I/O END CLK L
C2 IOP4 H — BFI

R13 470 — +5V — R14 27 — R12 — DEC 30098 Q1 — C2 INITIALIZE L — BK1 — 74L6 E7 — AS1 C2 INITIALIZE H

C27 470 PF

C2 CØ L — AU1 — 74H00 E10 — R5 10Ø — B CØ L

C2 C1 L — AV1 — 74H00 E3

+5V — C25 68PF — R2 10K — I/O END CLK L — 74123 E5 300NS — +3V

C2 BRK L — BN1 — 74H04 E16 — C2 BRK H

TP1(1) L — 74H00 E10 — CLR TP L
BK CYCLE L
C2 ADD ACC H — BS2 — 74H00 E15 — BK CYCLE H
TP3(1) H
BK CYCLE H — 74H00 E9
SHIFT TS H — C2 INITIALIZE L — 74H00 E9 — 74H00 E9

I/O END CLK L — 74H00 E3 — 74H00 E3 — I/O END CLK H
74H04 E16 — 74H00 E3

NOTE:
CHANGE W1, REMOVE W2 FOR PDP-8 OR LINC-8
BTS1 BECOMES MEM START
BTS3 BECOMES T1

TS3 (1) H — 74H74 E21 — TIME PAUSE (1) H
C2 BRK L — 74H11 E19 — CLR TIME PSE L
C2 BTS3 L

C2 BTS 3 H — BS1 — 74H00 E16 — C2 BTS 3 L — 74H74 E22 — 7416 E7 — C2 BTS 1 L

C2 BRK H — 74H00 E15 — C2 BTS3 L — CLR TIME PSE L — 74H00 E9

TS3 (1) H — 74H74 E21 — BJ1 I/O PSE (1) H — CLR TP L

C2 BTS 1 H — TS1 (1) H — 74H00 E4 — 74H74 E13 — TP1(1) H — TP1(Ø) H

C2 BTS3 H — TS2 (1) H — 74H74 E13 — TP2(1) H — TP2(Ø) H

TS3(1) H — 74H74 E17 — TP3(1) H — TP3(Ø) H

SHIFT TS H — BK CYCLE L — RECYCLE (1) H — 74H11 E19 — 74H00 E15

TS4 (1) H — C2 BTS1 H — 74H74 E17 — TP4(1) H — TP4 (Ø) H — CLR TP L

+5V — C24 380 PF — R1 5.11K — B CØ L — 74123 E5 — AV2 C2 CLR AC H

TS1 (1) H — 74H74 E2 — AG1 C2 BTP1 H
ANI C2 BTIME 1 L
AD1 C2 BTP2 H

TS2 (1) H — 74H74 E2 — AK1 C2 B TIME 2 L
BH1 C2 B INT STROBE H
AE1 C2 BTP3 H

TS3 (1) H — 74H74 E8 — AL1 C2 BTIME 3 L
AF1 C2 BTP4 H

TS4 (1) H — 74H74 E8 — AN1 C2 BTIME 4 L

I/O PSE (1) H — I/O END (1) H
I/O END CLK H — 74H74 E22 — I/O END (Ø) H
CLR TP L

C2 C1 H — AP2 — BC2 C1H

+5V — C29 27PF — R15 27.4K — 74123 E11 400NS — AF1

+3V — R4 12Ø — C26 .01UF — R3 22Ø — +5V

M7101 AB13

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN.	F. Wilson	10/24/72
CHKD.		5/6/73
ENG.		4/23
PROJ. ENG.		
PROD.		4/9/73

NEXT HIGHER ASSY. B-DD-DW8-E
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DW8-E EXPANDER CONTROL

SIZE D | CODE BS | NUMBER DW8-E-6 | REV A | DIST.

REVISIONS				
REV	CHANGE NO	CHK		
A	DW8E-00002			
			ED REED	5-1-73

BRUNING 40-532 1984D
DEC FORM NO. DRD 102-B

NUMBER DW8-E-6 REV A

BAC Ø0 H AK1
- BK2 C2 DATA Ø0 L
- AF1 AC BUS Ø0 L
- AF2 C2 B DATA Ø0 L

BAC Ø1 H AL1
- BL2 C2 DATA Ø1 L
- AH1 AC BUS Ø1 L
- AH2 C2 B DATA Ø1 L

BAC Ø2 H AM1
- BM2 C2 DATA Ø2 L
- AJ1 AC BUS Ø2 L
- AJ2 C2 B DATA Ø2 L

BC2 C1 H BE2
C2 BRK L BD2 BE1

BN2 AD1
C2 EMA Ø L BP2 AE1 C2 EXT DATA ADD Ø L
C2 EMA 1 L BR2 AD2 C2 EXT DATA ADD 1 L
C2 EMA 2 L BS2 AE2 C2 EXT DATA ADD 2 L

M7102 A,B19

BAC Ø3 H AK1
- BK2 C2 DATA Ø3 L
- AF1 AC BUS Ø3 L
- AF2 C2 B DATA Ø3 L

BAC Ø4 H AL1
- BL2 C2 DATA Ø4 L
- AH1 AC BUS Ø4 L
- AH2 C2 B DATA Ø4 L

BAC Ø5 H AM1
- BM2 C2 DATA Ø5 L
- AJ1 AC BUS Ø5 L
- AJ2 C2 B DATA Ø5 L

B C2 C1 H BE2
C2 BRK L BD2 BE1

C2 MA Ø0 L BN2 AD1 C2 DATA ADD Ø0 L
C2 MA Ø1 L BP2 AE1 C2 DATA ADD Ø1 L
C2 MA Ø2 L BR2 AD2 C2 DATA ADD Ø2 L
C2 MA Ø3 L BS2 AE2 C2 DATA ADD Ø3 L

M7102 A,B15

BAC Ø6 H CK1
- DK2 C2 DATA Ø6 L
- CF1 AC BUS Ø6 L
- CF2 C2 B DATA Ø6 L

BAC Ø7 H CL1
- DL2 C2 DATA Ø7 L
- CH1 AC BUS Ø7 L
- CH2 C2 B DATA Ø7 L

BAC Ø8 H CM1
- DM2 C2 DATA Ø8 L
- CJ1 AC BUS Ø8 L
- CJ2 C2 B DATA Ø8 L

BC2 C1 H DE2
C2 BRK L DD2 DE1

C2 MA Ø4 L DN2 CD1 C2 DATA ADD Ø4 L
C2 MA Ø5 L DP2 CE1 C2 DATA ADD Ø5 L
C2 MA Ø6 L DR2 CD2 C2 DATA ADD Ø6 L
C2 MA Ø7 L DS2 CE2 C2 DATA ADD Ø7 L

M7102 C,D13

BAC Ø9 H CF1
- DK2 C2 DATA Ø9 L
- CF1 AC BUS Ø9 L
- CF2 C2 B DATA Ø9 L

BAC 10 H CL1
- DL2 C2 DATA 10 L
- CH1 AC BUS 10 L
- CH2 C2 B DATA 10 L

BAC 11 H CM1
- DM2 C2 DATA 11 L
- CJ1 AC BUS 11 L
- CJ2 C2 B DATA 11 L

B C2 C1 H DE2
C2 BRK L DD2 DE1

C2 MA Ø8 L DN2 CD1 C2 DATA ADD Ø8 L
C2 MA Ø9 L DP2 CE1 C2 DATA ADD Ø9 L
C2 MA 10 L DR2 CD2 C2 DATA ADD 10 L
C2 MA 11 L DS2 CE2 C2 DATA ADD 11 L

M7102 C,D14

NOTE:
NEGATIVE BUS VERSION REPLACES M7102'S WITH M7103'S

REVISIONS			
CHK	CHANGE NO	REV	
	DW8E-00002	A	
	ED REED		
	DW8E-00003	B	
	REED		

BRUNING 40522 15840
DEC FORM NO. DRD 102-B

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

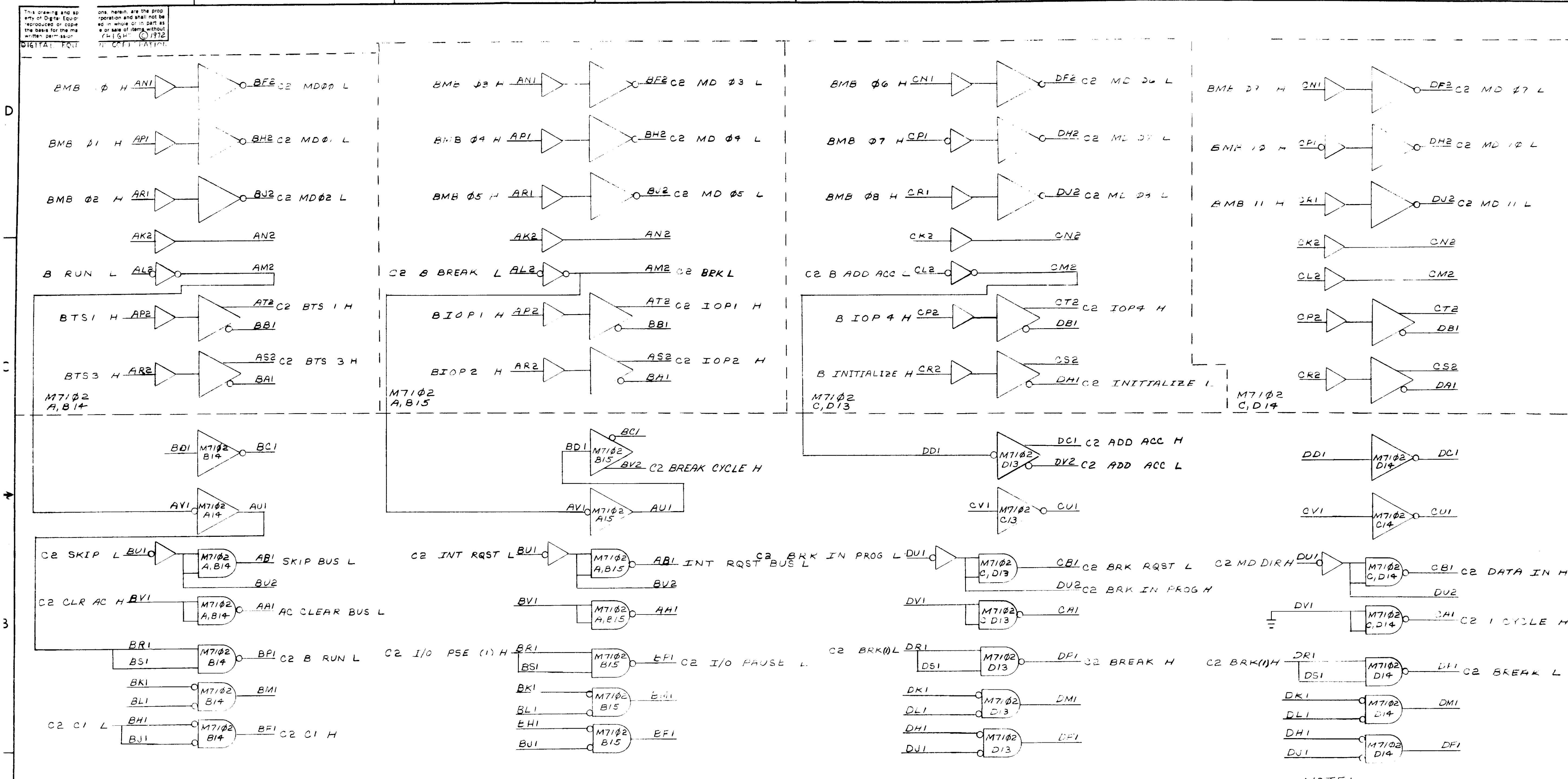
DECIMALS	ANGLES
XXX ± .005	± 0 30
XX ± .02	
X ± .1	

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. E. Wilson	DATE 10/11/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE	
ENG	DATE	TITLE I/O BUS EXPANDER PCS BUS
PROJ. ENG.	DATE	
PROD.	DATE	
NEXT HIGHER ASSY.		
B-DF-DW8--		SIZE D CODE BS NUMBER DW8-E-7 REV B
SCALE NONE		
SHEET 1 OF 2		DIST



NOTE:
NEGATIVE BUS VERSION REPLACES M71Ø2'S WITH M71Ø3'S.

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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX ± .005 XX ± .02 X ± .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN E. Wilson DATE 10/10/72
CHK'D DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

NEXT HIGHER ASSY. B-DL-DW8-E

SCALE NONE SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE I/O BUS EXPANDER POS BUS

SIZE D CODE BS NUMBER DW8-E-7 REV. B

NOTES:
1. THE SIGNAL NAMES OF AN OPTION WHICH IS PLUGGED INTO THE EXPANDER SECTION WILL ASSUME THE PREFIX "C2"

M832Ø
AØ1 THRU AØ6

A1	
B1	
C1	
D1	C2 MA ØØ L
E1	C2 MA Ø1 L
F1	
H1	C2 MA Ø2 L
J1	C2 MA Ø3 L
K1	C2 MD ØØ L
L1	C2 MD Ø1 L
M1	C2 MD Ø2 L
N1	
P1	C2 MD Ø3 L
R1	C2 DATA ØØ L
S1	C2 DATA Ø1 L
T1	
U1	C2 DATA Ø2 L
V1	C2 DATA Ø3 L

M832Ø
BØ1 THRU BØ6

A1	
B1	
C1	
D1	C2 MA Ø4 L
E1	C2 MA Ø5 L
F1	
H1	C2 MA Ø6 L
J1	C2 MA Ø7 L
K1	C2 MD Ø4 L
L1	C2 MD Ø5 L
M1	C2 MD Ø6 L
N1	
P1	C2 MD Ø7 L
R1	C2 DATA Ø4 L
S1	C2 DATA Ø5 L
T1	
U1	C2 DATA Ø6 L
V1	C2 DATA Ø7 L

M832Ø
CØ1 THRU CØ6

A1	
B1	
C1	
D1	C2 I/O PAUSE L
E1	C2 CØ L
F1	
H1	C2 C1 L
J1	
K1	
L1	
M1	
N1	
P1	C2 INT RQST L
R1	C2 INITIALIZE H
S1	C2 SKIP L
T1	
U1	
V1	

M832Ø
DØ1 THRU DØ6

A1	
B1	
C1	
D1	C2 MA Ø8 L
E1	C2 MA Ø9 L
F1	
H1	C2 MA 1Ø L
J1	C2 MA 11 L
K1	C2 MD Ø8 L
L1	C2 MD Ø9 L
M1	C2 MD 1Ø L
N1	
P1	C2 MD 11 L
R1	C2 DATA Ø8 L
S1	C2 DATA Ø9 L
T1	
U1	C2 DATA 1Ø L
V1	C2 DATA 11 L

M832Ø
AØ1 THRU AØ6

A2	+5V
B2	-15V
C2	
D2	C2 EMA Ø L
E2	C2 EMA 1 L
F2	
H2	C2 EMA 2 L
J2	
K2	C2 MD DIR H
L2	C2 BREAK H
M2	C2 BREAK L
N2	
P2	C2 ADD ACC L
R2	C2 BREAK CYCLE H
S2	
T2	
U2	
V2	

M832Ø
BØ1 THRU BØ6

A2	+5V
B2	-15V
C2	
D2	C2 B INT STROBE H
E2	C2 BRK IN PROG L
F2	
H2	
J2	
K2	
L2	
M2	
N2	
P2	
R2	
S2	
T2	
U2	C2 B RUN L
V2	POWER OK H

M832Ø
CØ1 THRU CØ6

A2	+5V
B2	-15V
C2	
D2	C2 BTP1 H
E2	C2 BTP2 H
F2	
H2	C2 BTP3 H
J2	C2 BTP4 H
K2	C2 B TIME 1 L
L2	C2 B TIME 2 L
M2	C2 B TIME 3 L
N2	
P2	C2 BTIME 4 L
R2	
S2	
T2	
U2	
V2	

M832Ø
DØ1 THRU DØ6

A2	+5V
B2	-15V
C2	
D2	
E2	
F2	
H2	
J2	
K2	
L2	
M2	
N2	
P2	
R2	
S2	
T2	
U2	
V2	

REV	DESCRIPTION	DATE	APPROVED
A	DW8E-00002 ADDED ED REED	7-2-73	
B	DW8E-00007 ADDED REED	7-24-73	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: xxx = .005, xx = .02, x = .1
ANGLES: 0 30
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ▽

MATERIAL
FINISH

DRN. E. Wilson DATE 2/11/73
CHK'D. DATE
ENG. DATE 2/11/73
PROJ. ENG. DATE
PROD. DATE

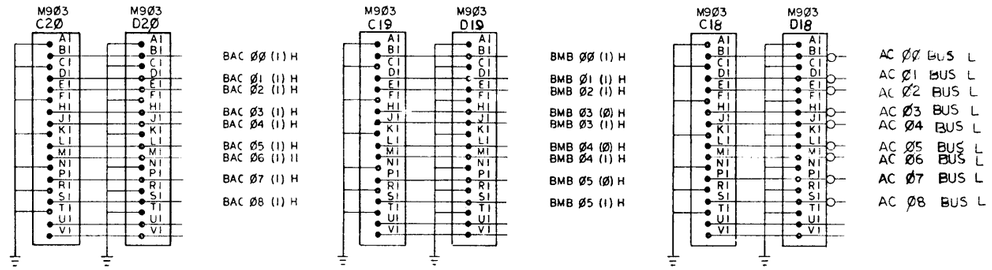
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

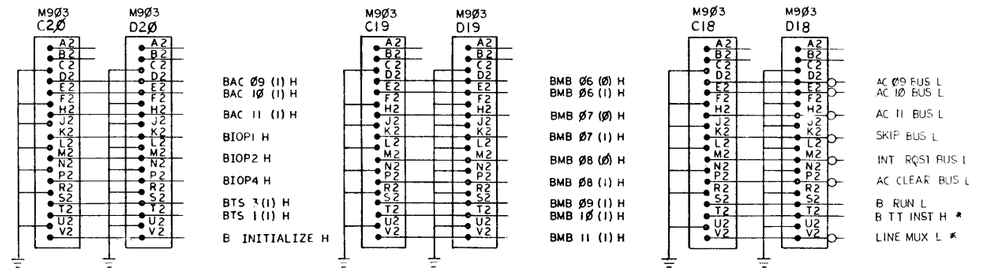
TITLE: I/O BUS EXPANDER SIGNALS

NEXT HIGHER ASSY.: H-11-DW8-E

SIZE	CODE	NUMBER	REV.
D	IC	DW8-E-8	B

SCALE
SHEET 1 OF 1
DIST.





NOTES:
1. SIGNALS MARKED WITH AN ASTERISK ARE NOT USED IN PDP 8/L BUT RESERVED FOR SPECIFIC USE IN PDP 8/I.
~~2. BC08A IN C15 USED ONLY ON A PDP-8 OR LINC-8 AND ADD ICC ~~02~~ FROM C15T2 TO GND.~~

REVISIONS	REV
CHANGE NO: DW8E-00002	A
CHK: S. Thompson 5-1-72	
ED REED 5-11-72	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION / MODEL: DW8-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. DATE
CHK'D. DATE
ENG. DATE 5-7-72
PROJ. ENG. DATE 5-7-72
PROD. DATE 4-19-72
NEXT HIGHER ASSY: B-DD-DW8-E
SCALE FET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: I/O CONNECTORS

SIZE C | CODE IC | NUMBER DW8-E-2 | REV. A
DIST.

DEC FORM NO DRD 100

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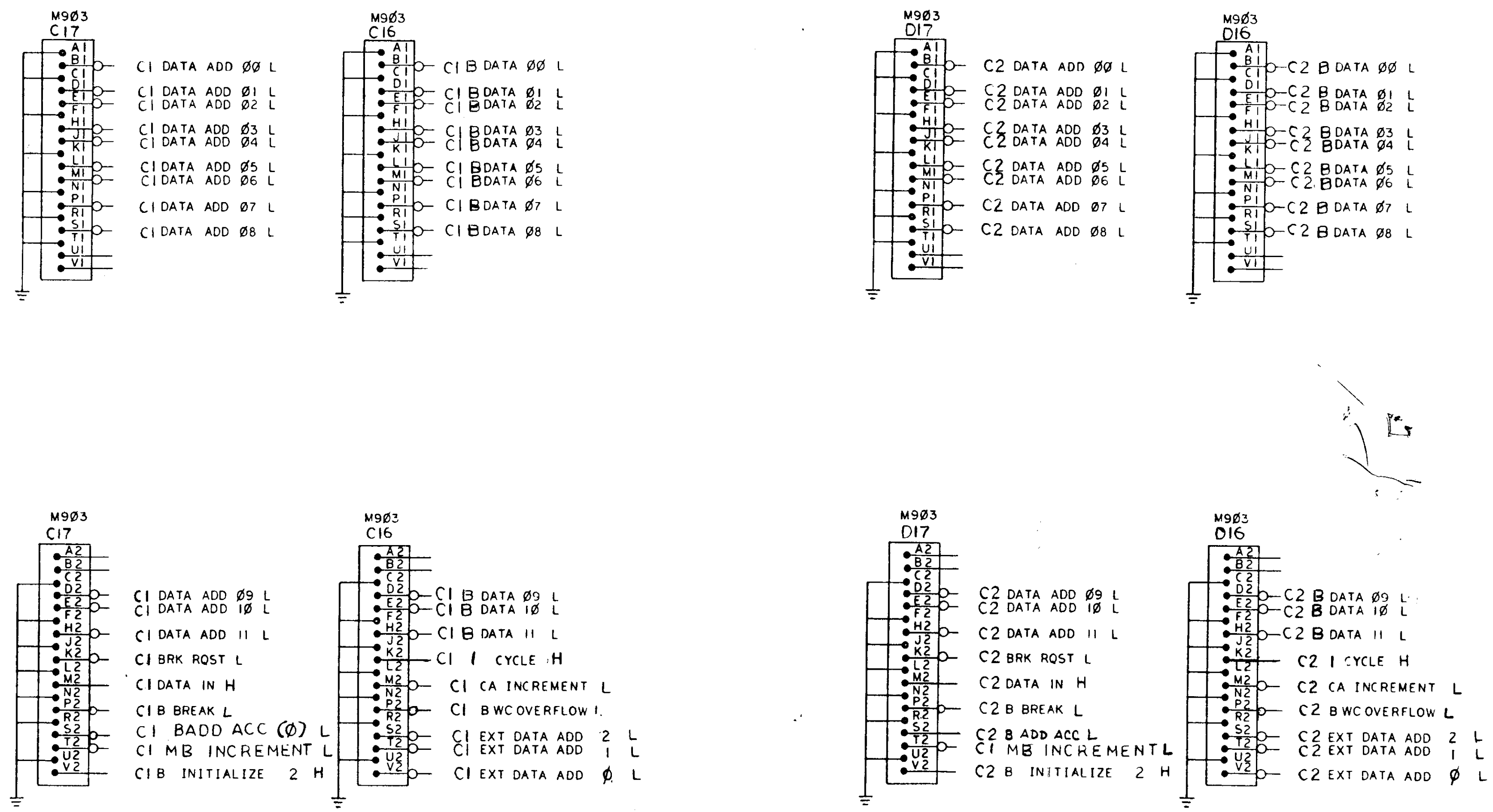


FIRST USED ON OPTION/MODEL: DW 8-E

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: —

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

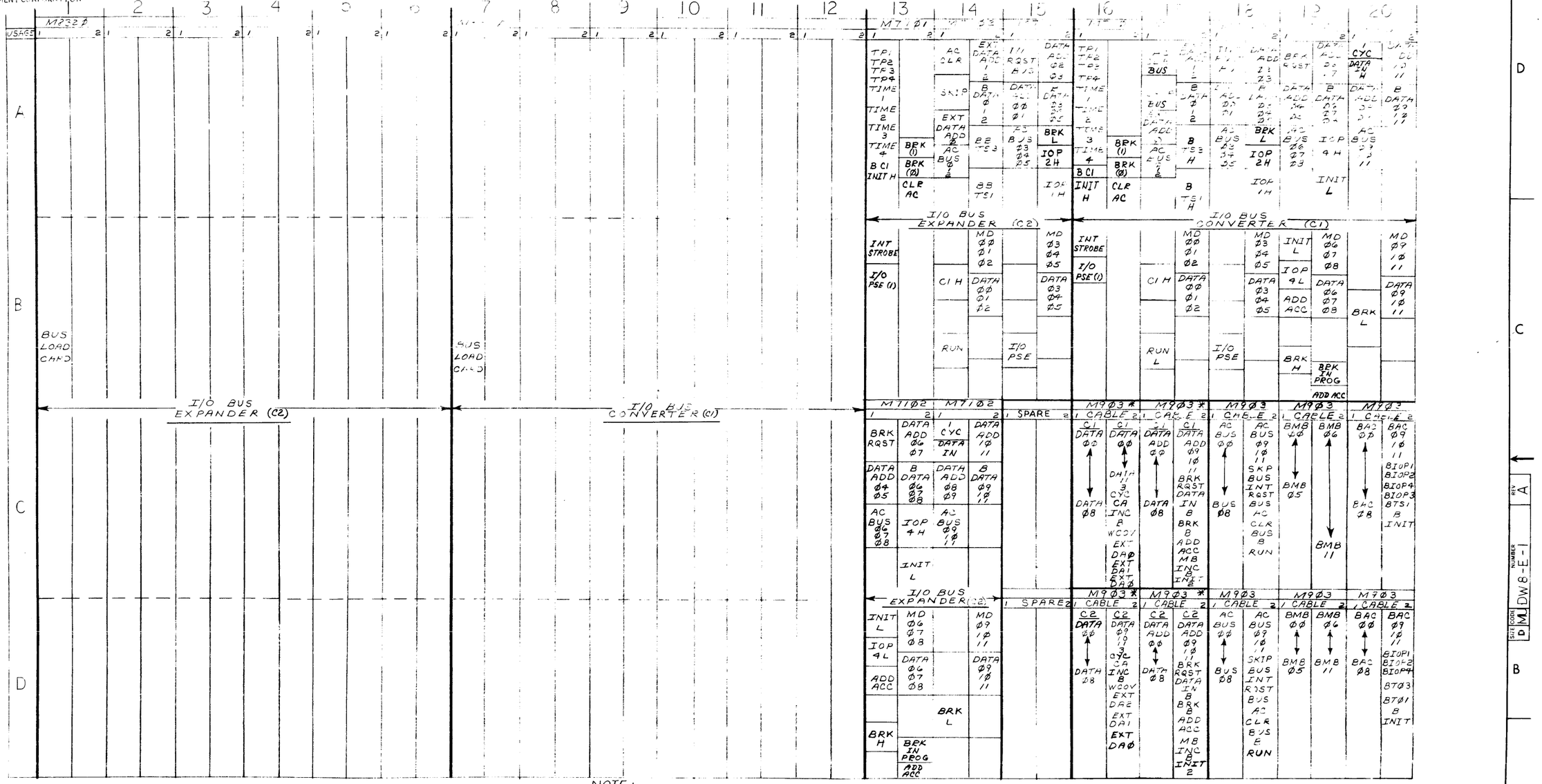
DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: I/O CONNECTORS

NEXT HIGHER ASSY: B-DD-DW8-E
SCALE: —
SHEET 2 OF 2

SIZE: C | CODE: IC | NUMBER: DW8-E-2 | REV: A

DIGITAL EQUIPMENT CORPORATION



NOTE:
1. IN NEGATIVE BUS VERSION THE M7102'S ARE REPLACED BY M7103'S
2. * DATA CABLES IN C16 AND C17 ARE FOR I/O BUS CONVERTER (C1)
   DATA CABLES IN D16 AND D17 ARE FOR I/O BUS EXPANDER (C2)
3. ~~BC08A CABLE IN C15 IS FOR PDP-8 OR LINC-8 ONLY~~
4. QUAD-SLOTS Ø7-12 AND SLOTS A,B16-A,B20 ARE THE BASIC CONVERTER SECTION. (SIGNAL NAMES PREFIXED BY "C1")
5. QUAD-SLOTS Ø1-Ø6 AND SLOTS A,B13-A,B15 & C,D13-C,D14 ARE THE EXPANDER SECTION. (SIGNAL NAMES PREFIXED BY "C2")

REVISIONS			
CHK	CHANGE NO	REV.	
[illegible]	DW8E-00002	A	
[illegible]	ED REED		

FIRST USED ON OPTION/MODEL: DW8-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

QTY.	DESCRIPTION	PART NO	ITEM NO.

PARTS LIST

DRN.	[illegible]	DATE 10/31/72
CHK'D	[illegible]	DATE 11/6/72
ENG.	[illegible]	DATE 12/27/72
PROJ. ENG.	[illegible]	DATE 12/27/72
PROD.	[illegible]	DATE 4/6/73

NEXT HIGHER ASSY: B-DD DW8-E
SCALE: NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

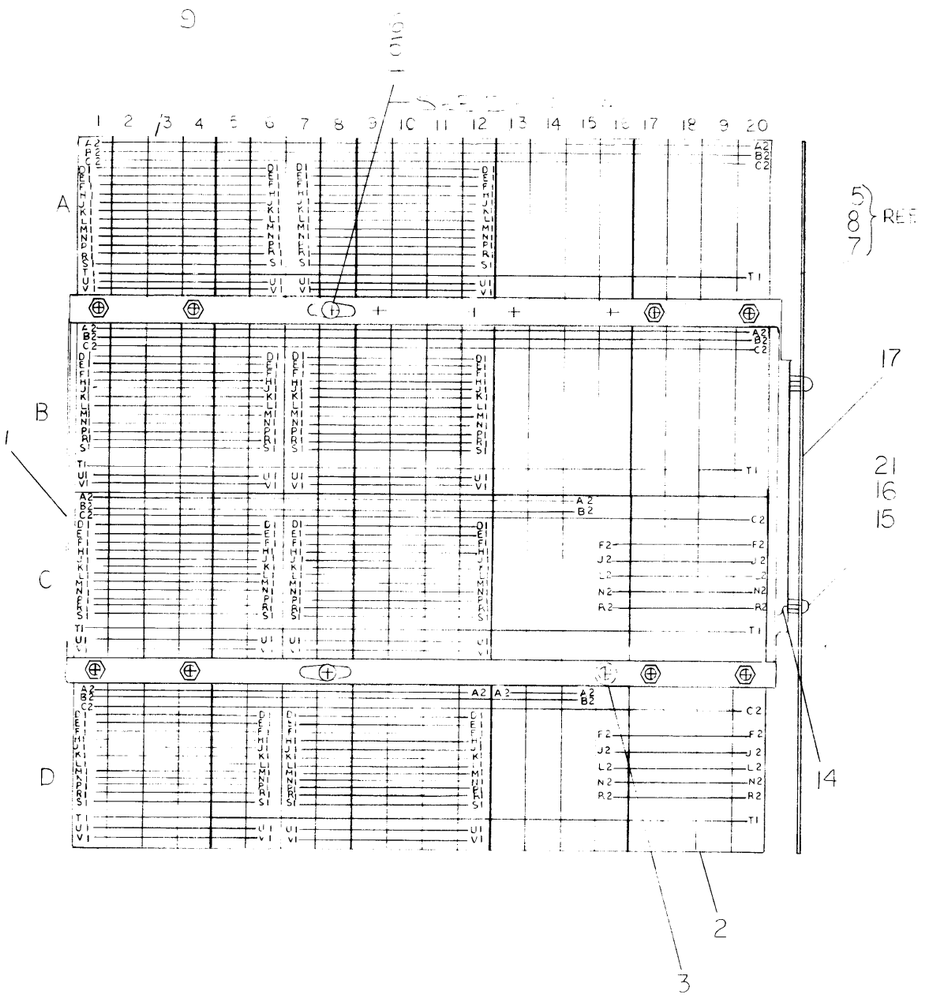
TITLE: MODULE UTILIZATION

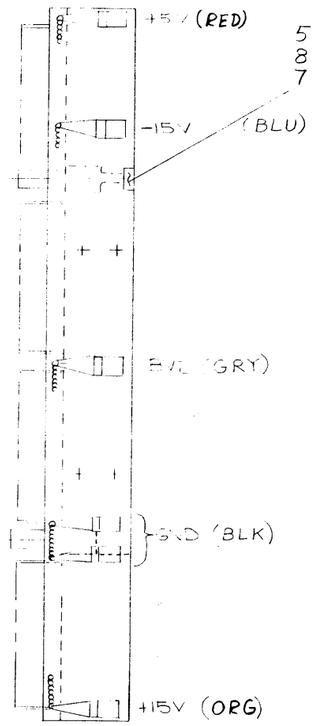
SIZE	CODE	NUMBER	REV.
D	MC	DW8-E-1	A

DIST.

DEC FORM NO DRD 100

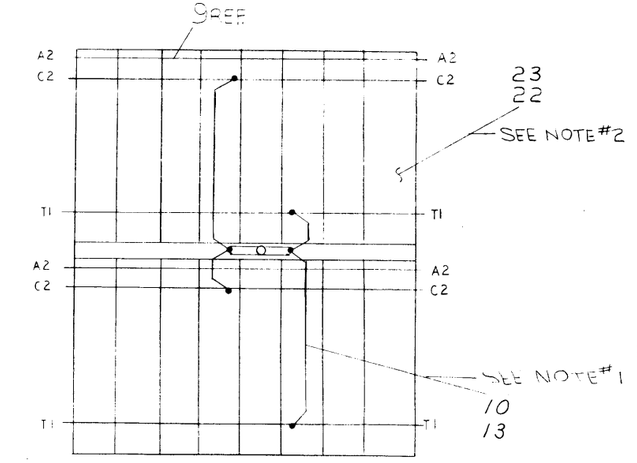
NOTES:
1. CONNECTIONS ON ITEM 9 & 13 TO BE LOCATED & SOLDERED AT MINIMUM PRACTIAL HEIGHT ABOVE BLOCKS.
2. USE YELLOW WIRE (#22) FOR MACHINE WRAPPED & BLUE WIRE(#23), FOR HAND WRAPPED WIRING.





WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH
12 + 13	RED	#22 SOLID	+5	SOLDER	A2 Ø A2	SOLDER
	RED		+5		B2 Ø A2	
	RED		+5		C15 A2	
	RED		+5		D15 A2	
11 + 13	BLK		GND		A2 Ø C2	
	BLK		GND		B2 Ø C2	
	BLK		GND		C2 Ø C2	
	BLK		GND		D2 Ø C2	
13+20	GRY		BV2		B12 V2	
13 + 18	BLU		-15V		A2 Ø B2	
	BLU		-15V		B2 Ø B2	
	BLU		-15V		C15 B2	
	BLU		-15V		D15 B2	
13+19	ORG	#22 SOLID	+15V	SOLDER	D12 A2	SOLDER



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: XXX = .005, XX = .02, X = 1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN S. Wilson	DATE 10/18/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE 11-6-72	
ENG	DATE 11-73	TITLE: WIRED ASS'Y (DW8-E)
PROJ ENG	DATE 2-7-73	
PROD	DATE 11/17/72	
NEXT HIGHER ASSY: DW8-E-9		
SCALE 1/2 F		SIZE D CODE AD NUMBER 7009154-0-0 REV.
SHEET 1 OF 1		DIST.

REV	REVISIONS: CHANGE NO	CHK

BRUNING 40-107 15968
SEE FORM 40 DRG 100-A

NUMBER 7009154-0-0 REV
SIZE D CODE AD

REV.	NUMBER	CODE	SIZE
B	DW8-E-11	WL	K

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	DW8E-00002	A	B. Bodgett 5-1-73
[illegible]	UW8E-00001	B	J. Charlton 7-16-73

ED REEL
EL REEL

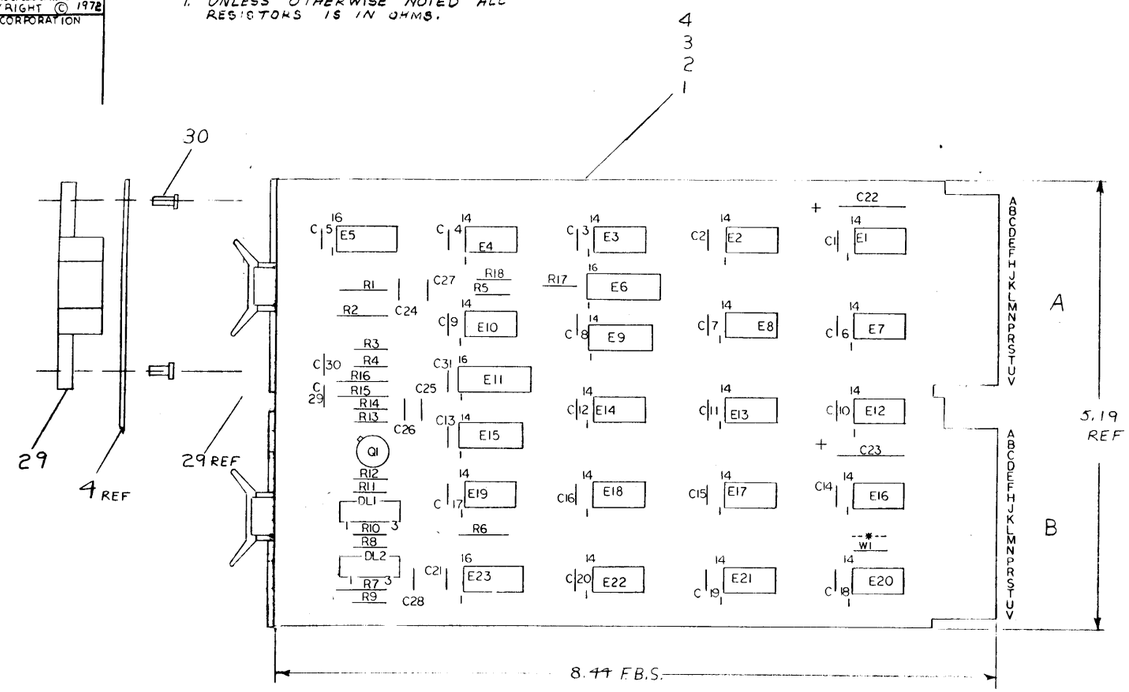
FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

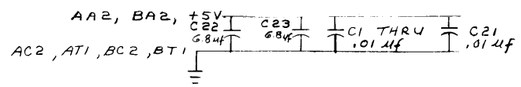
DRN. [illegible]	DATE 3/27/73	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. Gary Hall	DATE 3/29/73	
ENG. [illegible]	DATE [illegible]	TITLE DW8-E WIRE LIST
PROJ. ENG. [illegible]	DATE [illegible]	
PROD. [illegible]	DATE 4/4/73	
NEXT HIGHER ASSEMBLY B-DD-DW8-E		SIZE K · CODE WL · NUMBER DW8-E-11 · REV. B
SCALE		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRB 109

NOTES:

1. UNLESS OTHERWISE NOTED ALL RESISTORS IS IN OHMS.





REF		X-Y COORDINATE HOLE LOCATION	E-DD-M7101-0-1	1
REF		ASSY/DRILLING HOLE LAYOUT	D-MH-M7101-0-1	2
REF		MODULE ETCH MASTER	B-MH-M7101-0-1	3
1		ETCHED CIRCUIT BOARD	9003665	4
1	C28	CAP. 47pf 100V 5% DM	10-00011	5
1	C25	CAP. 100pf 100V 5% DM	10-00014	6
1	C27	CAP. 47pf 100V 5% DM	10-00029	7
2	C22, C23	CAP 6.8 µf 35V 10% TANT	10-95306	8
23	C1 THRU C21, C24, C31	CAP .01µf 100V 20% DISC	10-01610	9
1	C29	CAP 39pf 100V 5% DM	10-01631	10
2	R4, R5	RES 100 1/4 W 5%	13-00229	11
3	R3, R17, R18	RES. 220 1/4 W 5%	13-00271	12
4	R8, R9, R10, R11	RES 390 1/4W 5%	13-00309	13
1	R13	RES. 470 1/4W 5%	13-00316	14
2	R12, R14	RES. 27 1/4W 5%	13-01522	15
1	R2	RES 10K 1/8 W 1%	13-03312	16
3	R1, R6, R7	RES. 5.11K 1/8 W 1%	13-04854	17
1	Q1	TRAN. DEC 3009B	16-03100	18
2	DL1, DL2	DL 30NS	16-05528	19
1	E14	I.C. DEC 74H40	19-05586	20
6	E3, E4, E9, E10, E15 E20	I.C. DEC 74H00	19-09056	21
2	E12, E18	I.C. DEC 74H53	19-09062	22
1	E19	I.C. DEC 74H11	19-09267	23
6	E2, E8, E13, E17, E21 E22	I.C. DEC 74H74	19-09667	24
1	E7	I.C. DEC 7416	19-09928	25
1	E1	I.C DEC 7417	19-09929	26
1	E16	I.C. DEC 74H04	19-09931	27
3	E5, E11, E23	I.C. DEC 74123	19-10436	28
2		HANDLE FLIPCHIP MAGENTA	9008337-6	29
4		EYELETS (GS-9-7)	9006732	30
1	E6	DL 100NS	16-10033-0	31
2	R15, R16	RES. 27.4K 1/8 W, 1%	1309417	32
1	C29	CAP. 27 pf 100V 5% DM	1001739	33
1	C30	CAP 560 pf 100V 5% DM	1000025	34

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO

PARTS LIST

IC DEC 74123	8	16
IC TYPE	GND	+ 5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		

IC PIN LOCATIONS

REV	CHANGE NO	CHK	DATE	
D	ORIGINATED		5/7/73	E. REED
E	M7101-00001		5/7/73	E. REED
F	M7101-00002		6/18/73	E. REED

REVISIONS

DEC NO	EIA NO	DEC NO	EIA NO
8001P			

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: DWE-E

ETCH BOARD REV: F

		DATE
DRN.	E. Wilson	10/27/72
CHK'D	Bob Gage	5/6/73
ENG.		DATE
PROJ. ENG.		DATE
PROD.		DATE

NEXT HIGHER ASSY: A-DD-DW8-F

SCALE: NONE

SHEET 1 OF 2

digital EQUIPMENT CORPORATION

TITLE: DW8-1 CONTROL

SIZE	CODE	NUMBER	REV.
D		CS M7101-0-1	F

DIST.

BRUNING 40-522 16699
DEC FORM NO. DRD-135A

NOTE:
UNLESS OTHERWISE STATED ALL RESISTANCE IS IN OHMS.

BTS 1 H — BR1 — W1 — BP1 — OPTION — 74H04 E16 — BTS 1 L

TS1 (1) L — 7417 E1 — 100NS EG — BRK H — 74123 E11 — AS2 — AT2

BRK (1) H

BRK (Ø) H

SHIFT TS L
CLR TP L — 74H40 E19 — DL1 — 74H00 E20 — 74H04 E16 — SHIFT TS L

TP1 (1) L
TP2 (1) L
TP3 (1) L
TP4 (1) L — 74H40 E19 — SHIFT TS H

CLR TP L — 74H00 E20 — DL2 — INITIALIZE L — 74H00 E20 — 74H00 E20 — CLR TP L

TIME PAUSE (1) H — 74123 E23 — 150NS — 74123 E23 — 500NS — RECYCLE (1) H

B BTS1 H — 74H53 E18 — CLR TIME PSE L

I/Ø END (1) H
BK CYCLE H
IOP1 H — BD1
IOP2 H — BE1
IOP4 H — BF1 — 74H53 E12 — I/O END CLK L

INITIALIZE L — BK1 — 7416 E7 — DEC 30098 Q1 — INITIALIZE H — ASI

C Ø L — AV1 — 74H00 E10 — B C Ø L

C1 L — AV1 — 74H00 E3

I/O END CLK L — 74123 E5 — 300NS — +3V

I/O END CLK L — 74H04 E16 — 74H00 E3 — I/O END CLK H

BRK L — BN1 — 74H04 E16 — BRK H

TP1 (1) L — 74H00 E10 — BK CYCLE L

ADD ACC H — BS2
TP3 (1) H — 74H00 E15 — BK CYCLE H

BK CYCLE H
SHIFT TS H — 74H00 E9
INITIALIZE L — 74H00 E9

TS3 (1) H — AJ1 — 74H74 E21 — TIME PAUSE (1) H

BRK L
BTS3 L — 74H11 E19 — CLR TIME PSE L

BTS 3 H — BS1 — 74H74 E22 — BTS3 L — BM1 — 74H04 E16 — 7416 E7

BTS 1 L

BRK H
BTS3 L — 74H00 E15 — CLR TIME PSE L — 74H00 E9

TS3 (1) H — 74H74 E21 — BJ1 — I/O PSE (1) H

CLR TP L

SHIFT TS H — 74H11 E19

BK CYCLE L
RECYCLE (1) H — 74H00 E15

TS4 (1) H
BTS1 H — 74H74 E17 — TP4 (Ø) H

CLR TP L

B CØ L — 74123 E5 — AV2 — CLR AC H

TS1 (1) H — 74H74 E13 — TP1 (Ø) H

BT S1 H — 74H00 E4

TS2 (1) H
BTS3 H — 74H74 E13 — TP2 (Ø) H

TP3 (1) H
TS3 (1) H — 74H74 E17 — TP3 (Ø) H

TS4 (1) H — 74H74 E8

I/O PSE (1) H — 74H74 E22 — I/O END (1) H

I/O END CLK H — I/O END (Ø) H

CLR TP L

TS1 (1) H — 74H74 E2 — 7417 E1 — AG1 — BTP1 H

7416 E7 — AN1 — BTIME 1 L

7417 E1 — AD1 — BTP2 H

TS2 (1) H — 74H74 E2 — 7416 E7 — AK1 — BTIME 2 L

7417 E1 — BH1 — B INT STROBE H

7417 E1 — AE1 — BTP3 H

TS3 (1) H — 74H74 E8 — 7416 E7 — AL1 — BTIME 3 L

7417 E1 — AF1 — BTP4 H

TS4 (1) H — 74H74 E8 — 7416 E7 — AN1 — BTIME 4 L

C1 H — AP2 — 74123 E11 — 400NS — API — B C1H

C29 27PF — R15 27.4K — C26 .01UF — R3 22Ø — R4 12Ø

C28 47PF — R6 5.11K — R7 5.11K — R8 39Ø — R9 39Ø — R10 39Ø — R11 39Ø — R16 27.4K — C30 560 PF — R17 22Ø — R18 22Ø — C34 380 PF — R1 5.11K — C25 68PF — R2 10K — C27 470PF — R5 100 — R12 — R13 470 — R14 27

NOTE:
CHANGE W1, REMOVE W2 FOR PDP-8 OR LINC-8
BTS1 BECOMES MEM START
BTS3 BECOMES TI

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

DRN	E. Wilson	DATE 10/24/72
CHK		DATE
ENG		DATE
PROJ. ENG.		DATE
PROD		DATE

MATERIAL — FINISH

NEXT HIGHER ASSY. B-DD-DW8-E

SCALE — SHEET 2 OF 2

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CONTROL

SIZE	CODE	NUMBER	REV
D	CS	M7101-Ø-1	F

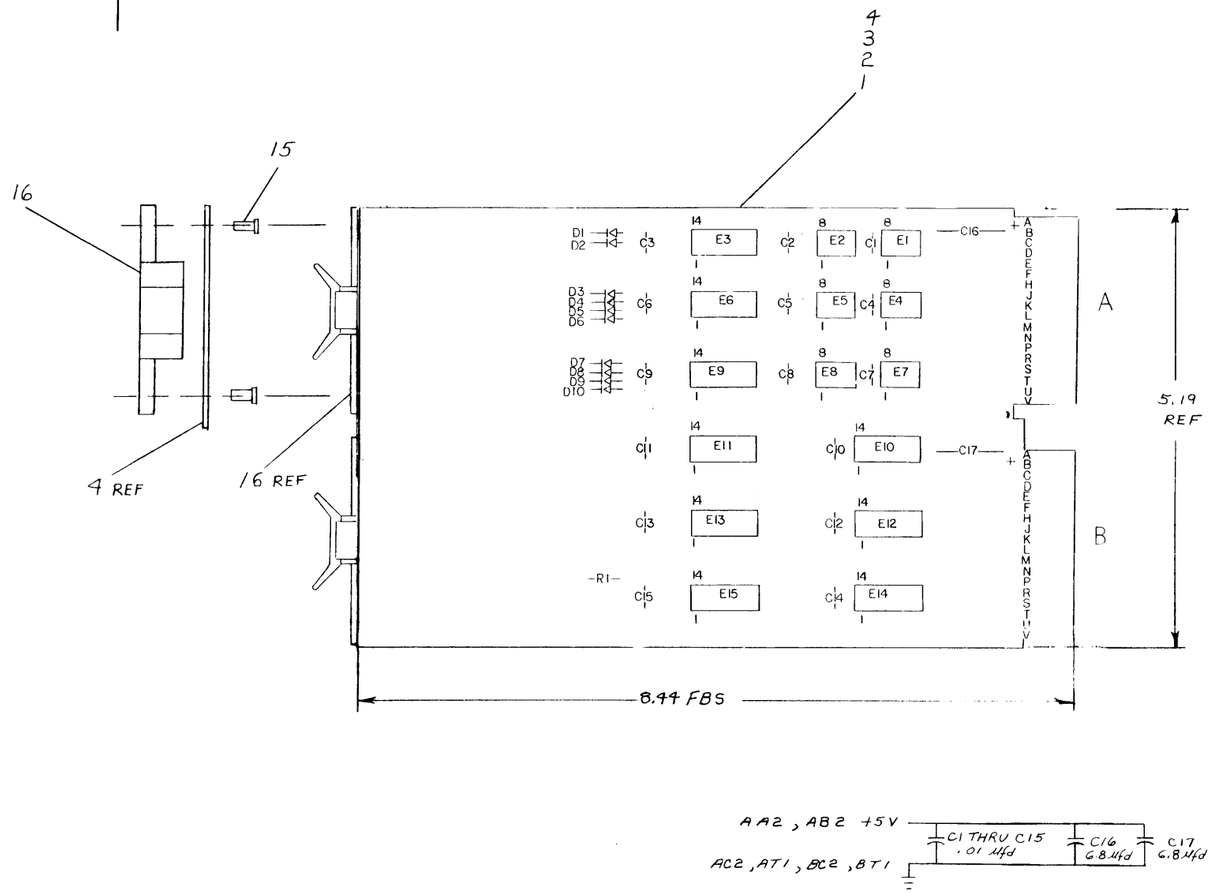
DIST.

REV	REVISIONS	CHANGE NO	CHK

BRUNING 40-523 18840
DEC FORM NO DRD 102-B

NOTES:

1. UNLESS OTHERWISE STATED ALL RESISTANCE IS IN OHMS.



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M7102-0-1	1
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M7102-0-1	2
REF		MODULE ECO HISTORY	B-MH-M7102-0-1	3
1		ETCHED CIRCUIT BOARD	50018616	4
2	C16, C17	CAP. 6.8UF 35V 10% S.TANT	1005306	5
15	C1 THRU C15	CAP. .01UF 100V 20% DISC	1001610	6
10	D1 THRU D10	DIODE D669	1100119	7
1	R1	RES. 3.3K 1/4, 5%	1300434	8
3	E3, E6, E9	I.C. DEC 384	1909496	9
1	E11	I.C. DEC 74H09	1909731	10
1	E15	I.C. DEC 8881	1909705	11
1	E13	I.C. DEC 7416	1909728	12
3	E10, E12, E14	I.C. DEC 380A	1909485	13
6	E1, E2, E4, E5, E7, E8	I.C. DEC 75452	1910645	14
4		EYELET	9006732	15
2		HANDLE, FLIP CHIP MAGENTA	9008337-06	16

I.C DEC 75452	1	8
I.C DEC 384	1	8
I.C DEC 380	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

BRUNING 40-522 16689

DEC FORM NO. DRD 135A

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

FIRST USED ON OPTION MODEL: DW8-E

ETCH BOARD REV: D

REV	CHANGE NO	DEC NO.	EIA NO.
C		Dec 4	IN 63 16

ORIGINATED

CHK.

SEMICONDUCTOR CONVERSION CHART

DRN. E Wilson 11/14/72
CHKD. 3/16/73
ENG. 3/16/73
PROJ. ENG. 3-7-73
PROD. 4/9/73

NEXT HIGHER ASSY: F-DD-DW8-E

SCALE: NONE

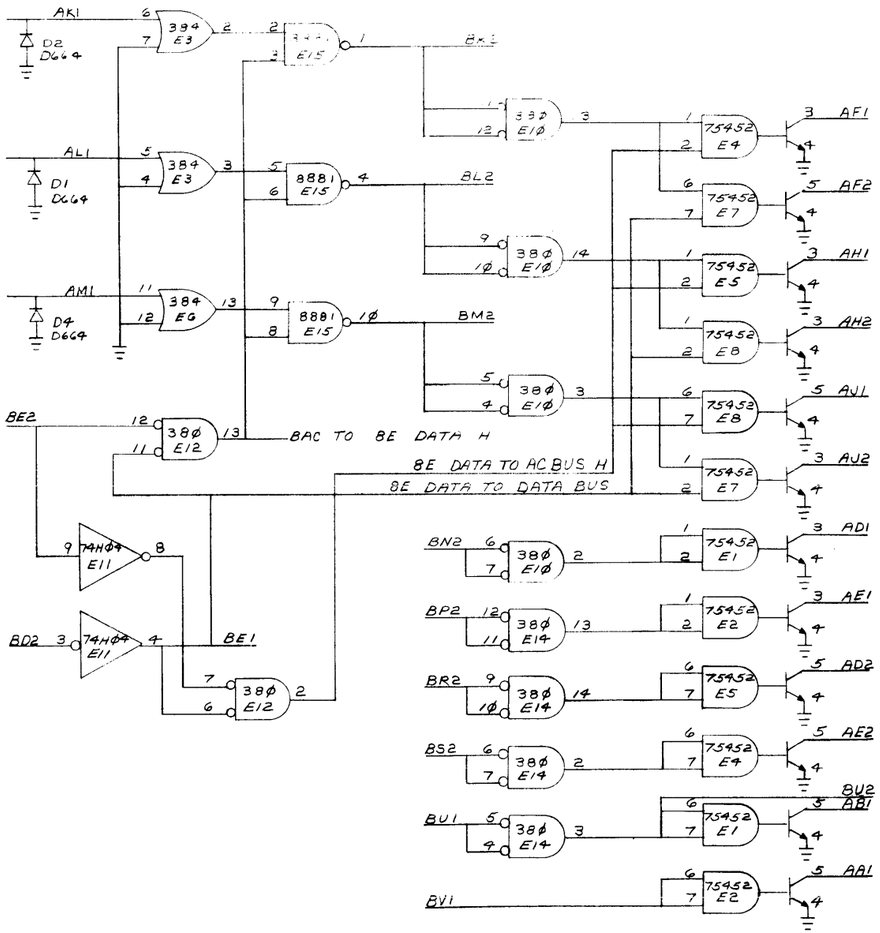
SHEET 1 OF 2

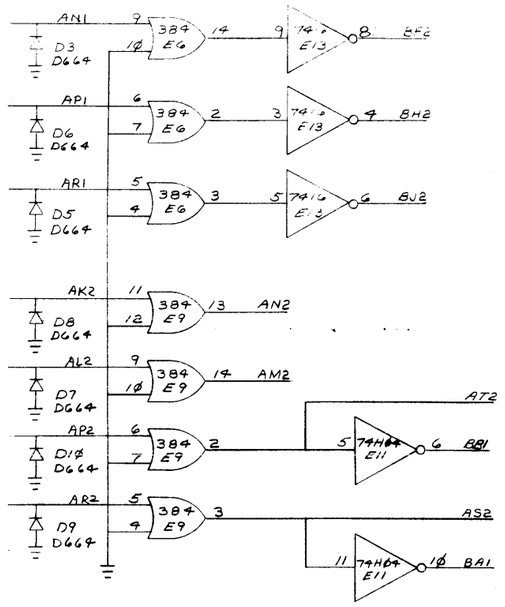
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

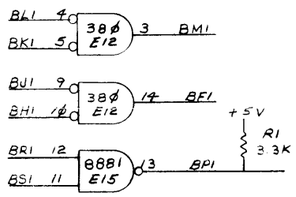
TITLE: POSITIVE I/O BUS CONVERTER

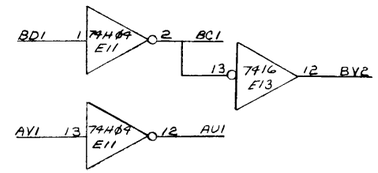
SIZE	CODE	NUMBER	REV.
D		CS-M7102-0-1	C

DIST.









FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, .X = .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

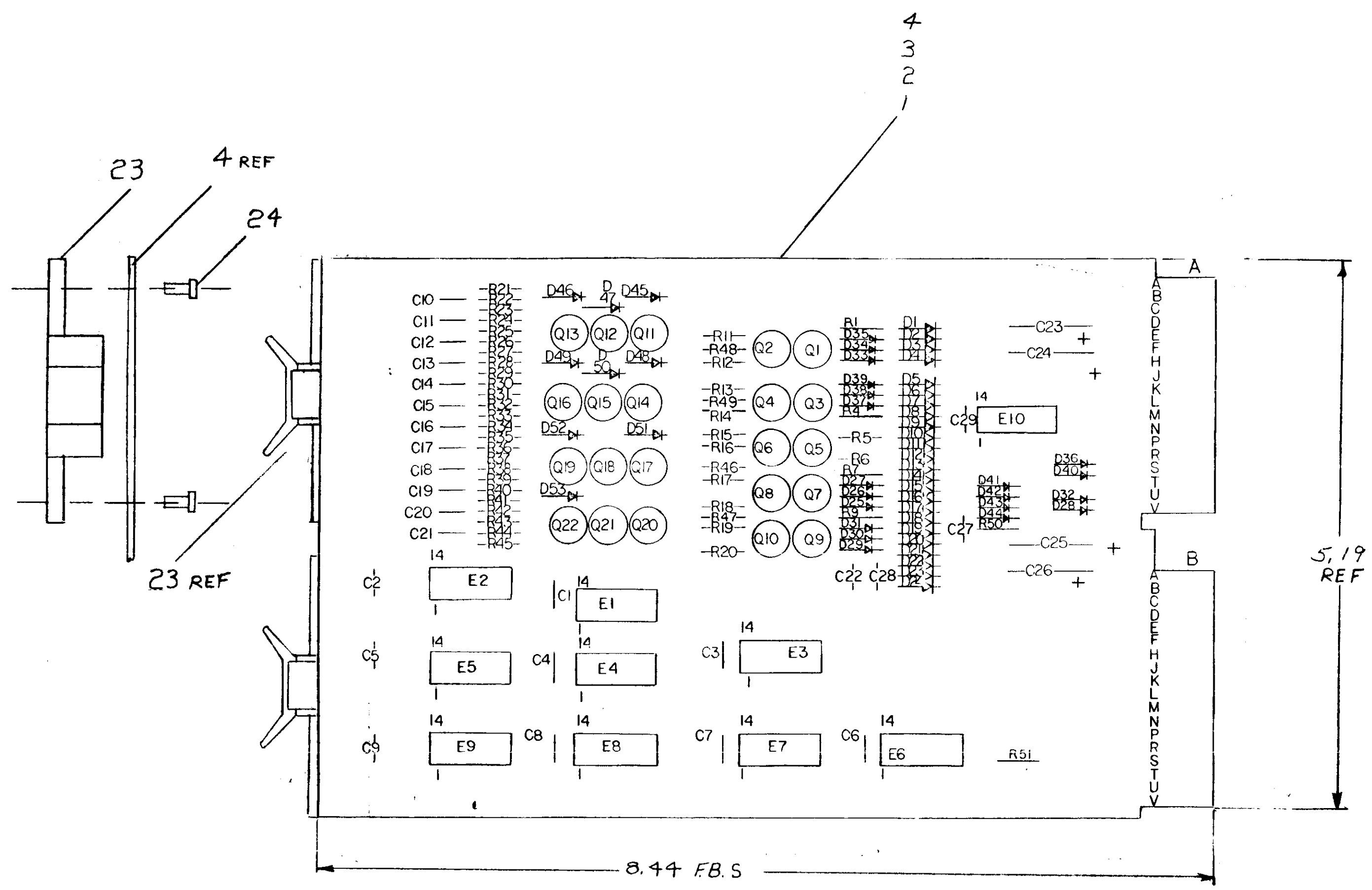
DRN. E Wilson	DATE 10/9/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. [illegible]	DATE 3/6/73	
ENG. [illegible]	DATE	TITLE: POSITIVE I/O BUS CONVERTE
PROJ. ENG. [illegible]	DATE	
PROD. [illegible]	DATE 11/9/72	
NEXT HIGHER ASSY. B-DD-DW8-E		SIZE D CODE CS NUMBER M7102-0 REV. C
SCALE NONE		
SHEET 2 OF 2		DIST.

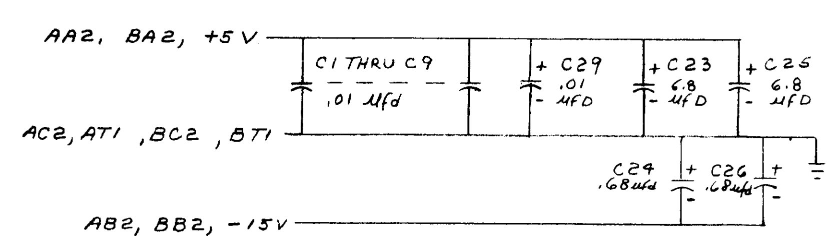
REVISIONS	REV.	CHANGE NO	CHK

BRUNING 40-522 15640
DEC FORM NO DRD 102-B

NOTES:

1. UNLESS OTHERWISE STATED RESISTANCE IS IN OHMS.





QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M7103-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7103-0-5	2
REF		MODULE ECO HISTORY	B-MH-M7103-0-6	3
1		ETCHED CIRCUIT BOARD	5009867	4
12	C10 THRU C21	CAP 15pf 100V 5% DM	1000007	5
4	C23 THRU C26	CAP 6.8uf 35V 10% S.TANT	1005306	6
13	C1 THRU C9, C22, C27, C28, C29	CAP .01 uf 100V 20% DISC	1001610	7
8	D21 THRU D24, D41 THRU D44	DIODE D662	1100113	8
45	D1 THRU D20, D25 THRU D40, D45-D53	DIODE D664	1100114	9
10	R1, R4 THRU R7, R9, R11, R14, R17, R19	RES. 470 1/4 W 5%	1300316	10
13	R21, R23, R25, R27, R29, R31, R33, R35, R37, R39, R41, R43 R45	RES. 1K 1/4 W 5%	1300365	11
10	R12, R13, R15, R16, R18, R20, R46 THRU R49	RES. 4.7K 1/4 W 5%	1300447	12
12	R22, R24, R26, R28, R30, R32, R34, R36, R38, R40, R42, R44	RES. 5.6K 1/4 5%	1301874	13
1	R50	RES. 220 1/4 5%	1300271	14
1	R51	RES. 3.3K 1/4 5%	1300439	15
10	Q1 THRU Q10	TRANS. DEC 3009B	1503100	16
12	Q11 THRU Q22	TRANS. DEC 3639B	1502762 00	17
3	E4, E6, E8	I.C. DEC 380	1909485	18
1	E1	I.C. DEC 8881	1909705	19
1	E7	I.C. DEC 7416	1909928	20
2	E3, E10	I.C. DEC 74H04	1909931	21
3	E2, E5, E9	I.C. DEC 7400	1905575	22
2		HANDLE, FLIP CHIP - MAGENTA	9008337-06	23
4		EYELET (GS-4-7)	9006732	24

PARTS LIST

FIRST USED ON OPTION MODEL: DW8-E

ETCH BOARD REV: F

IC TYPE	GND	+ 5V
I.C. DEC 380	1	8

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

IC PIN LOCATIONS

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
3009B	2N3646
3639B	NONE
D664	1N3606
D662	1N645

REVISIONS

REV	CHANGE NO.	CHK.		
F	M7103-00001		ED REED	6-13-73
E	ORIGINATED			

DRN. [signature] DATE 11/15/72
CHK'D. [signature] DATE [illegible]
ENG. [signature] DATE 3-7-73
PROJ. ENG. [signature] DATE [illegible]
PROD. [signature] DATE 4/9/73

NEXT HIGHER ASSY: B-DD-DW8-E

SCALE: NONE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: NEGATIVE I/O BUS CONVERTER

SIZE: D CODE: CS NUMBER: M7103-0-1 REV.: F

DIST.

DEC FORM NO DRO-135A

AK1 D664 D1 R1 470 D664 D2 3009B Q1 R12 4.7K -1.5V -3V +5V
AL1 D664 D7 R4 470 D664 D8 3009B Q4 R13 4.7K -1.5V -3V +5V
AM1 D664 D9 R5 470 D664 D10 3009B Q5 R16 4.7K -1.5V -3V +5V
BE2
BD2 74H04 E3
BE1 BE DATA TO DATA BUS H
BE DATA TO AC BUS H
8881 E1 13 HK2
8881 E1 10 BL2
8881 E1 1 BN2
BAC TO BE DATA H
380 E8 3
380 E6 14
380 E8 14
380 E6 2
380 E8 13
7400 E9 6 R37 1K C18 15pf -15V 1.38 5.6K AF1 Q17 3639B
7400 E2 8 R36 1K C17 15pf -15V 1.36 5.6K -3V D52 D664 AF2 Q19 3639B
7400 E9 11 R39 1K C19 15pf -15V R40 5.6K AH1 Q21 3639B
7400 E2 11 R33 1K C16 15pf -15V R34 5.6K -3V D51 D664 AH2 Q18 3639B
7400 E9 11 R43 1K C21 15pf -15V R44 5.6K AJ1 Q20 3639B
7400 E9 8 R41 1K C20 15pf -15V R42 5.6K -3V D53 D664 AJ2 Q22 3639B

AN1 D664 D11 R6 470 D664 D12 3009B Q6 R15 4.7K -1.5V -3V +5V 7416 E7 8 BF2
AP1 D664 D13 R7 470 D664 D14 3009B Q7 R18 4.7K -1.5V -3V +5V 7416 E7 10 BH2
AR1 D664 D17 R9 470 D664 D18 3009B Q9 R2Ø 4.7K -1.5V -3V +5V 7416 E7 12 BJ2
AP2 D664 D15 D25 D26 D27 D664 D16 R46 4K R17 470 D664 D28 3009B Q8 -3V +5V +3V AT2 74H04 E3 9 8 BB1
AR2 D664 D19 D29 D30 D31 D664 D20 R47 4K R19 470 D664 D32 3009B Q10 -3V +5V +3V AS2 74H04 E3 11 10 BA1
AK2 D664 D3 D33 D34 D35 D664 D4 R98 4.7K R11 470 D36 D664 3009B Q2 -3V +5V +3V 74H04 E10 3 4 AN2
AL2 D664 D5 D37 D38 D39 D664 D6 R49 4.7K R14 470 D664 D40 3009B Q3 -3V +5V +3V 74H04 E10 1 2 AM2

+5V R50 220 C27 .014f +3V D41 D662 D42 D662 D43 D662 D44 D662
-15 R45 1K C22 .01 µf C23 .01 µf C24 .01 µf -3V D21 D662 D22 D662 D23 D662 D24 D662 -15V
BU1 6 BU2 12 380 E8 2 7400 E5 11 R25 1K C12 15pf -15V R26 5.6K -3V D45 D664 AB1 Q11 3639B
BN2 9 10 380 E4 14 7400 E5 8 R27 1K C13 15pf -15V R28 5.6K -3V D50 D664 AD1 Q15 3639B
BP2 11 12 380 E4 13 7400 E2 6 R31 1K C15 15pf -15V R32 5.6K -3V D48 D664 AE1 Q14 3639B
BR2 6 7 380 E4 2 7400 E5 6 R23 1K C11 15pf -15V R24 5.6K -3V D46 D664 AD2 Q13 3639B
BS2 4 5 380 E4 3 7400 E2 3 R29 1K C14 15pf -15V R30 5.6K -3V D49 D664 AE2 Q16 3639B
BV1 1 2 7400 E5 3 R21 1K C10 15pf -15 R22 5.6K -3V D47 D664 AA1 Q12 3639B
BL1 5 BK1 4 380 E6 3 BM1
BJ1 11 BH1 12 380 E6 13 BF1
BR1 6 BS1 5 8881 E1 4 +5V R51 3.3K BP1
BD1 5 74H04 E3 6 BC1 5 7416 E7 6 BV2
AV1 13 74H04 E3 12 AU1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DW8-E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN.	S. Wilson	DATE 12/25/72
CHK'D		DATE
ENG.		DATE 1-3-73
PROJ. ENG.		DATE 3-8-73
PROD.		DATE 4/9/73

NEXT HIGHER ASSY. B-DD-DW8-E
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
NEGATIVE I/O BUS CONVERTER

SIZE	CODE	NUMBER	REV.
D	CS	M7103-0-1	F

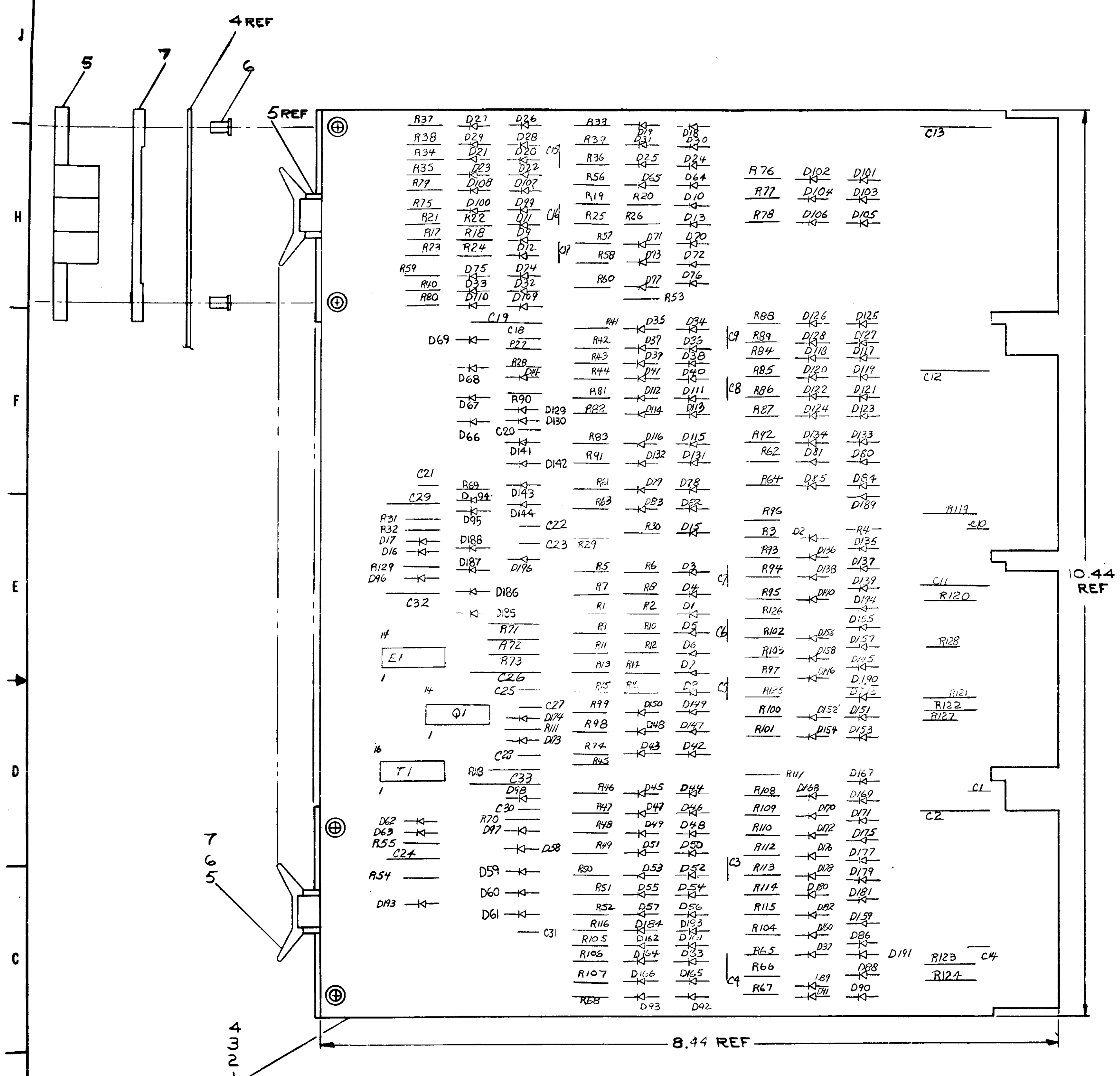
DIST.

REVISIONS	REV
CHANGE NO	
CHK	

BRUNING 40.522 15840
DEC FORM NO DRD 102-B

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   CAPACITORS = .047UF 16V 15-20%
   RESISTORS = 1500 1/4W 5%
   DIODES = D664
2. CONNECT ALL PINS C,F,N,T (EXCEPT AC1) TOGETHER TO GROUND.
3. ITEM NO. B (D664) MAY BE REPLACED WITH D600 P.N. 1105366 (REV C ONLY).



QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
12	R57-R68	RES 1K 1/4 W 5%	1300365	23
A/R		GRIPLET	1210249-0	22
3	C24, C29, C32	CAP 330PF 100V 5%	1000023	21
7	C2, C11, C12, C13, C19, C26, C33	CAP 6.8UF 35V 20%	1000067	20
23	C1, C3-C10, C14-C18, C20-C23, C25, C27, C28, C30, C31	CAP .047UF 16V 15-20%	1009678	19
1	E1	IC DEC 7400	1955775	18
1	T1	PULSE XMFR 8010 DUAL INLINE	1609651	17
1	Q1	TRANS DEC 4008	1510015	16
6	R119-R124	RES 1K 1/2W 10%	1302187	15
4	R71-R73, R118	RES 1.2K 1/2W 10%	1300387	14
46	R53, R69, R74-R117	RES 1500 1/4W 5%	1300391	13
41	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32-R52, R55, R56, R70, R127, R128	RES 470 1/4W 10%	13003[illegible]	12
20	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23, R25, R27, R29, R31, R54, R125, R129, R126	RES 150 1/4W 5%	1300250	11
2	D17, D97	DIODE D672	1105275	10
16	D58-D61, D66-D69, D141-D144, D185-D188	DIODE D662	1100113	9
177	D1-D16, D18-D57, D62-D65, D70-D96, D98-D140, D145-D184, D189-D194, D196	DIODE D664	1100114	8
4		SPACER (CABLE CLAMP)	1202704	7
8		EYELET GS4-11 STIMPSON	9006750	6
4		HANDLE FLIP CHIP-MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009486	4
REF		MODULE HISTORY LIST	B-MH-M8320-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8320-0-5	2
REF		X-Y COORDINATE HOLE LOC.	K-CO-M8320-0-4	1

SEE NOTE 3 (item 8)

PARTS LIST

ETCH BOARD REV D

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
DEC 4008	
D664	1N3606
D672	1N3653
D662	1N645

IC TYPE | GND | +5V

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

IC PIN LOCATIONS

ITEM NO | AWG | FROM PT | TO PT

JUMPER LIST

EQUIPMENT CORPORATION

TITLE: BUS LOADS

D-UA-KK8-E-0

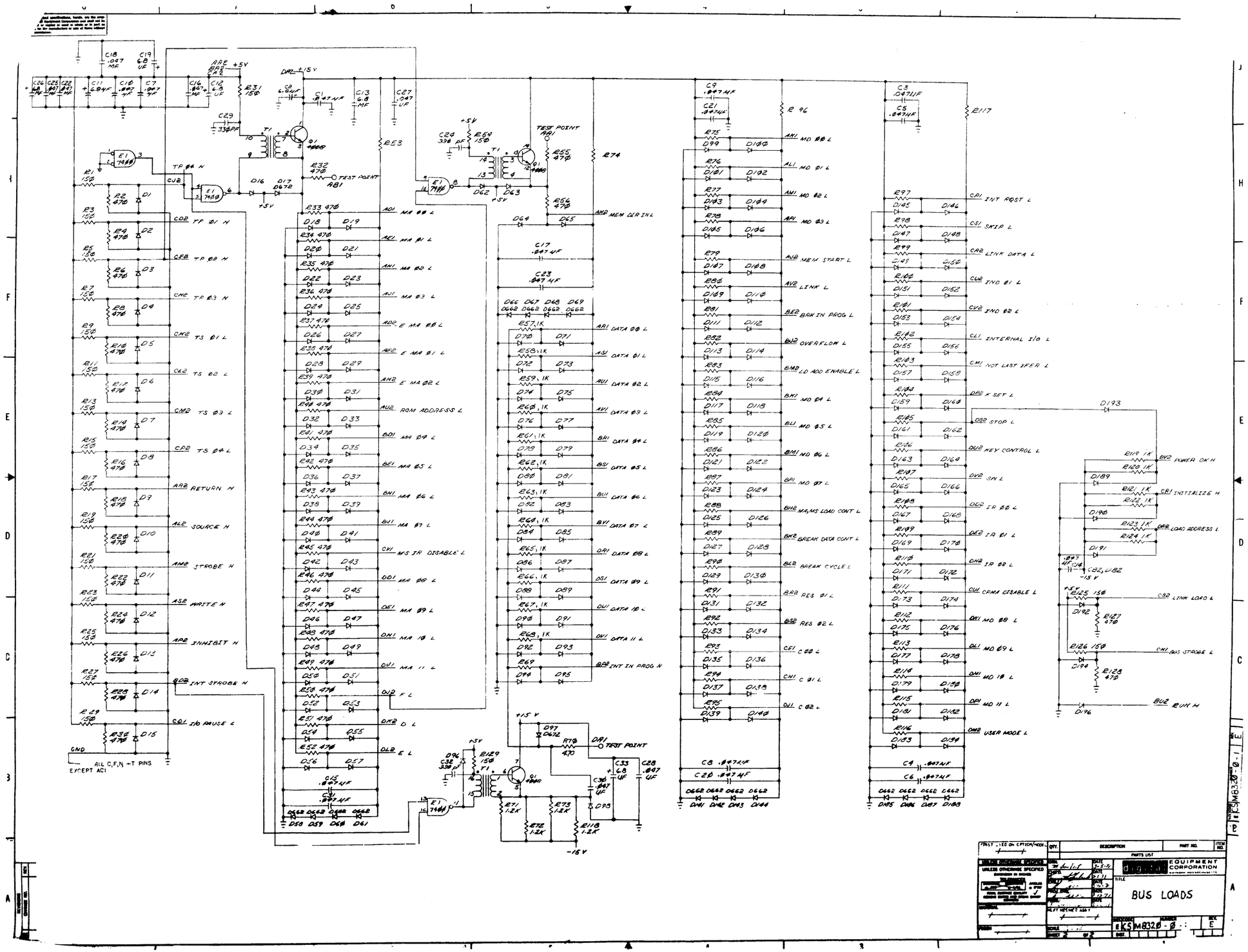
SCALE 2/1

SHEET 1 OF 2

E CS M8320-0-1 E

Revision record: M8320-00001 E; M8320-00003 D; M8320 00002 C; M8320-0-0-1 ORIGINATED A

J. KIRK; L. KLOTZ


TP Ø4 H
TP Ø1 H
TP Ø2 H
TP Ø3 H
TS Ø1 L
TS Ø2 L
TS Ø3 L
TS Ø4 L
AR2 RETURN H
ALE SOURCE H
ANE STROBE H
ASE WRITE H
APE INHIBIT H
GOE INT STROBE H
CDI I/O PAUSE L
GND
ALL C,F,N -T PINS EXCEPT AC1
MA Ø0 L
MA Ø1 L
MA Ø2 L
MA Ø3 L
E MA Ø0 L
E MA Ø1 L
E MA Ø2 L
ROM ADDRESS L
MA Ø4 L
MA Ø5 L
MA Ø6 L
MA Ø7 L
MS IR DISABLE L
MA Ø8 L
MA Ø9 L
MA 10 L
MA 11 L
F L
D L
E L
MEM CLR IN L
INT IN PROG H
DATA Ø0 L
DATA Ø1 L
DATA Ø2 L
DATA Ø3 L
DATA Ø4 L
DATA Ø5 L
DATA Ø6 L
DATA Ø7 L
DATA Ø8 L
DATA Ø9 L
DATA 10 L
DATA 11 L
MD Ø0 L
MD Ø1 L
MD Ø2 L
MD Ø3 L
MEM START L
LINK L
BRK IN PROG L
OVERFLOW L
LD ADD ENABLE L
MD Ø4 L
MD Ø5 L
MD Ø6 L
MD Ø7 L
MA,MS LOAD CONT L
BREAK DATA CONT L
BREAK CYCLE L
RES Ø1 L
RES Ø2 L
C Ø0 L
C Ø1 L
C Ø2 L
INT RQST L
SKIP L
LINK DATA L
IND Ø1 L
IND Ø2 L
INTERNAL I/O L
NOT LAST IFET L
F SET L
STOP L
KEY CONTROL L
SW L
IR Ø0 L
IR Ø1 L
IR Ø2 L
CPMA DISABLE L
MD Ø8 L
MD Ø9 L
MD 10 L
MD 11 L
USER MODE L
INITIALIZE H
LOAD ADDRESS L
LINK LOAD L
BUS STROBE L
RUN H
POWER ON H
TEST POINT AB1
TEST POINT AR1
TEST POINT AC1
+5V
+15 V
-15 V
DIGITAL EQUIPMENT CORPORATION
BUS LOADS
MS8320-0
SIZE E
SCALE NONE
SHEET 1 OF 1
REV E

WIRE TABLE

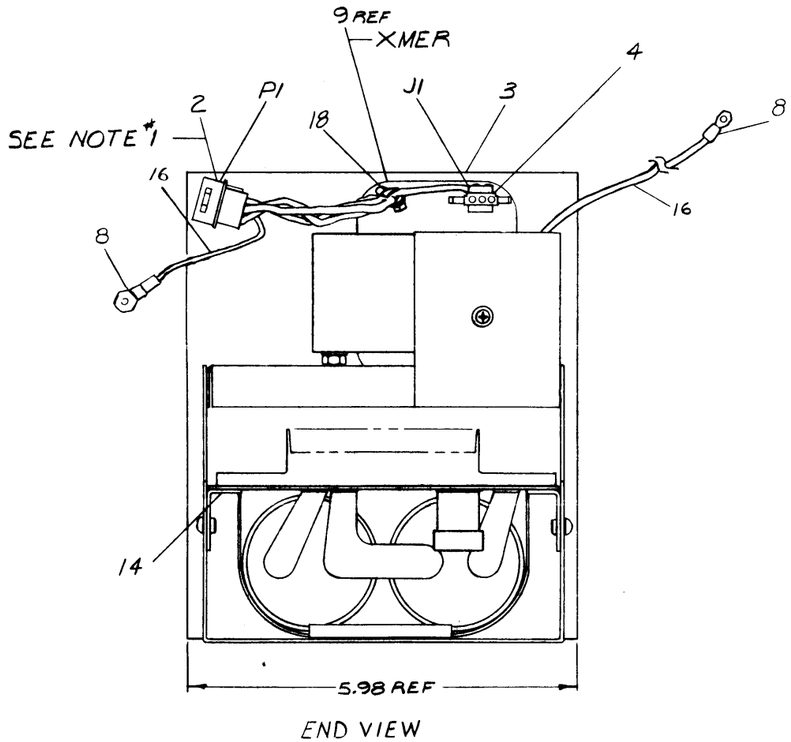
ITEM NO.	DESCRIPTION AWG	COLOR	FROM: CONNECTION	WITH	TO: CONNECTION	WITH
9		BLU	XMER	—	J1 - 3	12
		BLU		—	J1 - 2	12
		~~BLU~~ BLK ~~RED YEL~~		—	J1 - 1	12
		RED		—	P1 - 3	13
		WHT		—	P1 - 4	13
		WHT		—	P1 - 1	13
9		BLK	XMER	—	P1 - 2	13
22	18	GRN	XMER	SOLDER	—	21
22	18	GRN	P1 - 5	13	—	21

LENGTH OF WIRE TO BE 14 IN. ± 1/2 IN. (REF. ONLY)

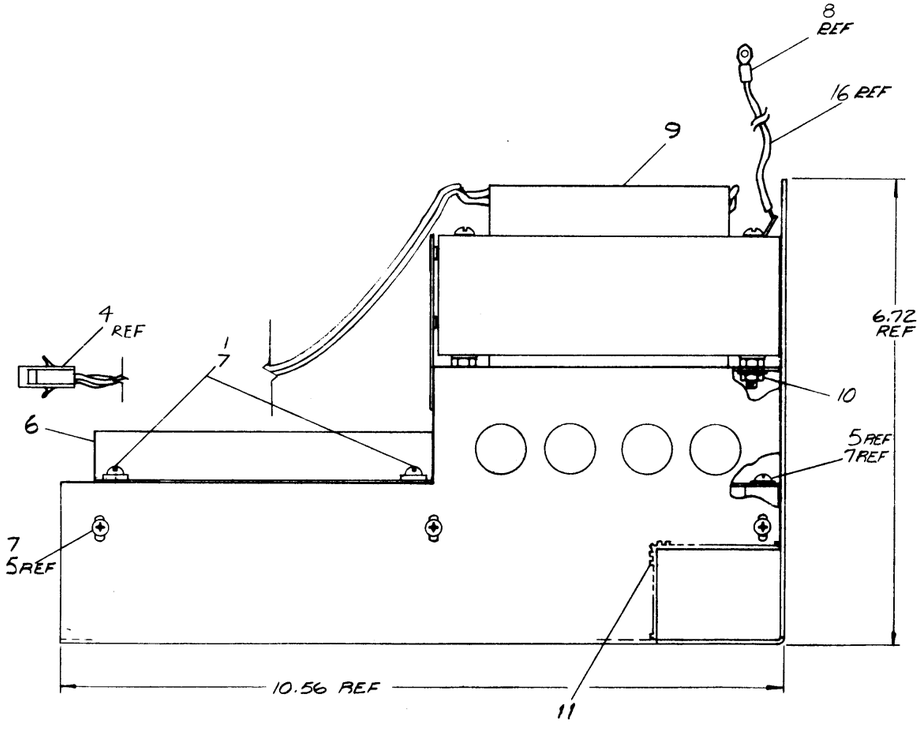
LENGTH OF WIRES TO BE 6 IN ± 1/2 IN (REF ONLY)

NOTES:

1. LENGTH OF WIRES TERMINATING TO P1 (ITEM 2) ARE TO BE 8 INCHES ± 1/2 INCH.
2. COMPONENTS J1 & P1, TO BE LABELED WITH COMPONENT IDENTIFIERS, USING BRADY MARKERS.



END VIEW



CAUTION
CHANGE COULD AFFECT U.L. LISTING

ITEM NO.	QTY.	DESCRIPTION	PART NO.
18	1	TIE WRAP PANDUIT SST-1B	9007031
17	A/R	WIRE 18 AWG BLK	9107360-00
16	A/R	WIRE 18 AWG GREEN	9107360-55
15	1	STRAIN, RELIEF	9008442
14	6	BRKT, SUPPORT ETCH BD	C-IA-7009325-00
13	5	CONTACT, MATE-N-LOK (MALE)	1209378-01
12	3	CONTACT, MATE-N-LOK (FEM)	1209379-01
11	A/R	GROMMET	9007621
10	4	NUT, KEP #8-32	9006563
9	1	XMER (TRANSFORMER)	16-10601-02
8	2	TERMINAL SOLDERLESS	9007929
7	12	WASHER, INT TOOTH LOCK #6	9006633
6	1	REGULATOR BD ASSY	C-IA-5409780-0
5	8	SCR, PHIL PAN HD #6-32 X.25	9006020-1
4	1	CONN, MATE-N-LOK 3 CKT	1209350-03
3	1	CHASSIS, P.S.	D-IA-7009600
2	1	CONN, MATE-N-LOK 6 CKT	1209351-06
1	4	SCR, PHIL PAN HD #6-32 X.50	9006024-1

PARTS LIST

FIRST USED ON OPTION/MODEL
DW8-E

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES.
TOLERANCES

DECIMALS	ANGLES
.XXX - .005 .XX - .02 .X - .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —//—

FINISH —//—

DRN	B Wilson	DATE 8/15/73
CHK'D	C1	DATE 8/16/73
ENG		DATE
PROJ ENG		DATE
PROD		DATE
NEXT HIGHER ASSY.	D-IA-DW8-E-0	
SCALE	NONE	
SHEET	1 OF 1	

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: POWER SUPPLY ASSY

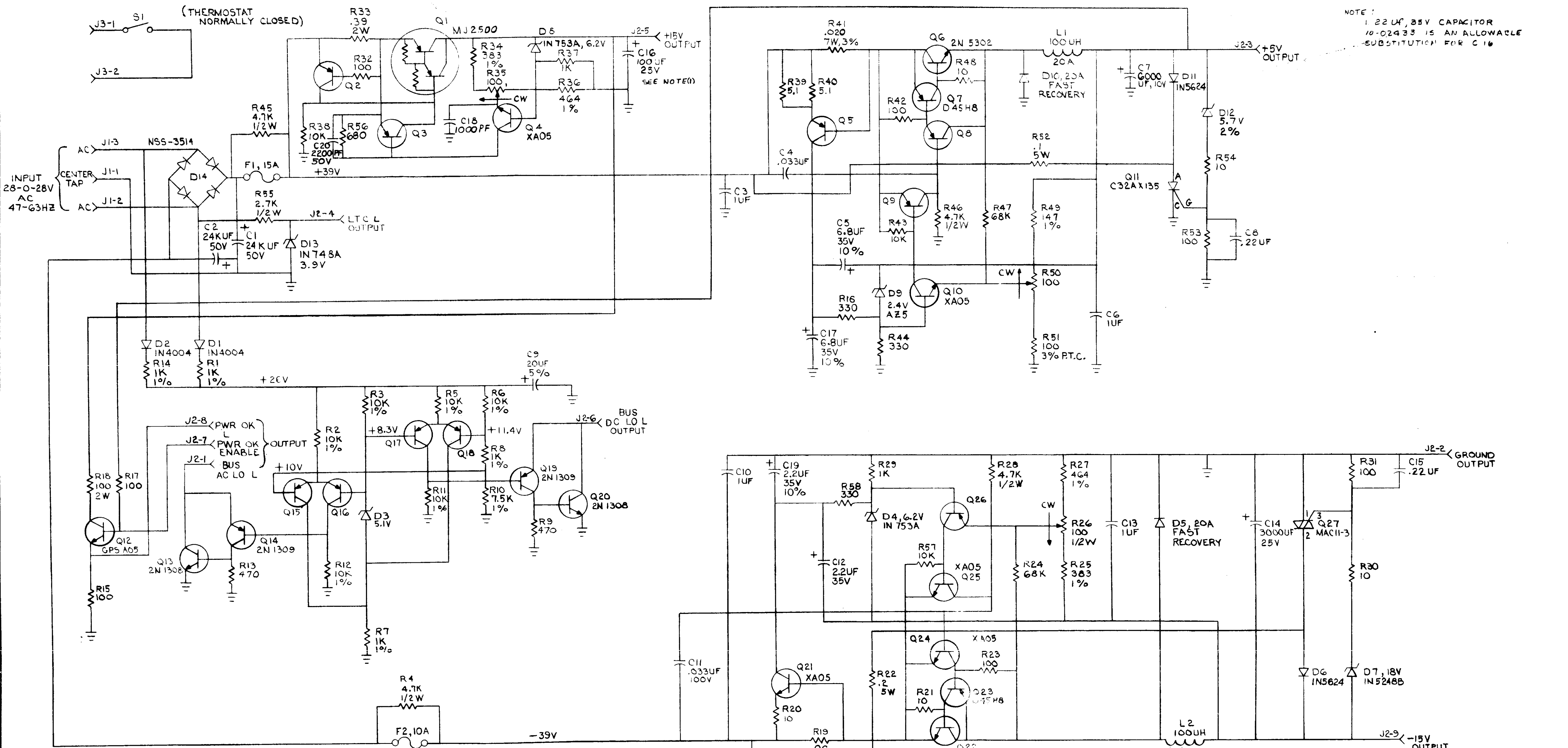
SIZE	CODE	NUMBER	REV
D	AD	7009287-0-0	

DIST.

REVISIONS		
CHK	CHANGE NO.	REV

DEC FORM NO. DRD 100-A

SIZE D CODE AD NUMBER 7009287-0-0 REV



UNLESS OTHERWISE INDICATED:
1% RESISTORS ARE 1/8W
VOLTAGES ARE TAKEN AT NO LOAD WITH 115 VAC LINE
VOLTAGES ARE ± 10% TAKEN BY A ≥ 10K/V METER
TRANSISTORS = XA55

REV	CHANGE NO.		
T	5409728-000020	D. MARTEL	D. MARTEL
S	5409728-00019	JIM BRAY	
R	5409728-00017	B. WOLF	3-25-74
P	5409728-00016	R. WOLF	1/29/74
N	5409728-00013	I. MORRIS	
M	5409728-00012	R. D. Hale	
L	5409728-00011	RICHARD BURTON	2-22-73
K	5409728-000010	C. GRAHAM	1-25-73
J	5409728-00008	R. WOLFF	12-26-72
H	5409728-00007	R. BURTON	12-18-72
F	5409728-00006	R. WOLF	9-29-72
E	5409728-00005	J. W. LAWRENCE	6-27-72
D	5409728-00004	R. BURTON	5-1-72
C	5409728-00002+2A	R. WOLFF	1-17-72
B	5409728-00001+1A+1B	R. WOLFF	1-11-72

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

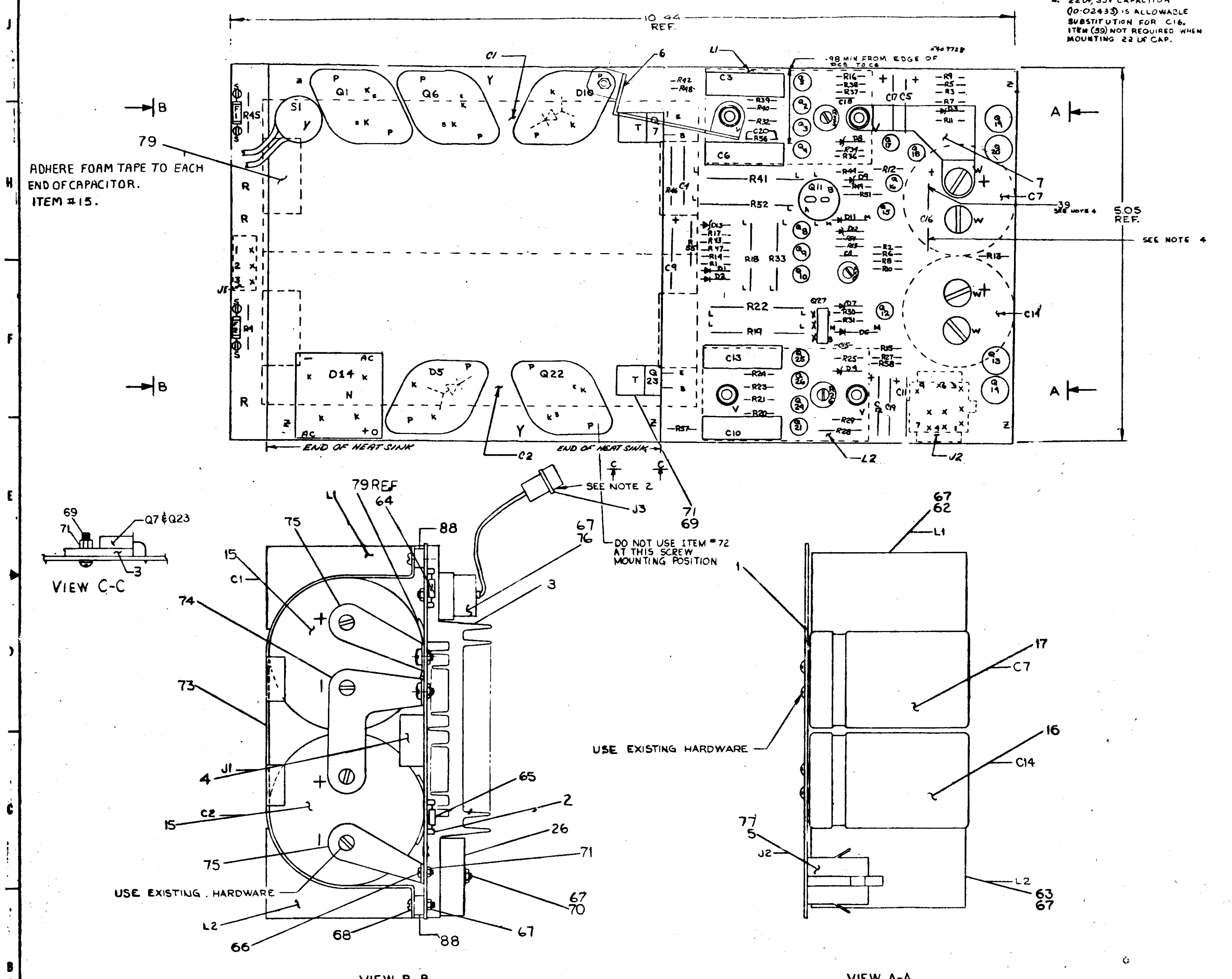
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV E

DRN. Roger Doucette	DATE 12-20-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. NANCY MOORE	DATE 12-21-71	TITLE REGULATOR BOARD FOR H740
ENG.	DATE 12-28-71	
PROJ. ENG.	DATE 12-29-71	
PROD. R.Y. Petersen	DATE 12/31/71	
NEXT HIGHER ASSY		SIZE D CODE CS NUMBER 5409728-0-1 REV. T
SCALE		
SHEET 1 OF 1		DIST.

DEC FORM NO DRD-135



NOTE:

4. 22 UF, 35V CAPACITOR (10-02433) IS ALLOWABLE SUBSTITUTION FOR C16. ITEM (39) NOT REQUIRED WHEN MOUNTING 22 UF CAP.

NOTES:

1. APPLY ITEM #8 (THERMAL COMPOUND) BETWEEN TRANSISTOR AND HEAT SINK FOR Q1 Q6, Q7, Q22, Q23 D5, D10, D14 & S1.
2. TRIM LEADS ON ITEM #76 (THERMOSTAT) TO (5) INCHES AND ATTACH ITEM #84 (PINS) AND ITEM #83 (HOUSING) AS SHOWN.
3. APPLY FLAT WASHER ITEM #72 BETWEEN SCR. HD AND ETCHED BOARD WHEN MOUNTING COMPONENTS Q1, Q6, Q22, D5 + D10.

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
				88
				87
1	Q11	XSTR C32AX135	1510928	86
2	R9, R13	RES 470 1/4 W, 5%	1300316	85
2		PINS MALE CRIMP	1209378-01	84
1	J3	MATE-N-LOCK CONNECTOR	1210822-02	83
				82
1	D12	DIODE, ZENER, 5.7 V, 2%	1111205	81
1	C12, C19	CAP 2.2 UF 35V 10% S.TANT	1002431	80
4		1" LG FOAM TAPE	9004087-1	79
2	R39, R40	RES 5.1 1/4 W 5%	1309422	78
9		PIN FEMALE	1209456	77
1	S1	THERMOSTAT SPST	1210824	76
2		CONTACT, CAPACITOR	C-MD-5309781-0-0	75
1		CONTACT, COMMON CAPACITOR	C-MD-5309779-0-0	74
1		HOLDER, CAPACITOR	C-IA-5310126-0-0	73
9		WASHER, #6 FLAT	9006658	72
5		NUT, KEPS 4-40	9008557	71
1		SCR. PHL PAN HD 6-32-3/4 LG.	9006026-1	70
2		SCR PHL PAN HD 4-40 X 7/16 LG	9006012-1	69
12		SCR. PHL HD. 6-32 X 9/16 LG	9007793-1	68
18		NUT KEPS #6-32 X 1/4	9008185	67
3		SCR. PHL PAN. HD 4-40 X 5/16 LG	9006010-4	66
1	F2	FUSE 10 AMP, PICO	1210929-01	65
1	F1	FUSE 15 AMP, PICO	1210929	64
1	L2	CHOKE 100 µH 10A MMC 4445	1611031	63
1	L1	CHOKE 100 µH 20A MMC 4289	1610717	62
1	Q27	XSTR MAC 11-3	1510765	61
1	Q1	XSTR MJ 2500	1511282	60
2	Q7, Q23	XSTR D45 H8/B	1510708-2	59
10	Q2, Q3, Q5, Q8, Q9, Q15, Q16, Q17, Q18, Q26	XSTR XA55	1510706	58
6	Q4, Q10, Q12, Q21, Q24, Q25	XSTR XA05	1510705	57
2	Q6 Q22	XSTR 2N5302	1510196	56
2	Q14, Q19	XSTR 2N1309	1501311	55
2	Q13, Q20	TRANSISTOR 2N1308	1500583	54
1	R41	RES .020, 7W, 3%	1310709-2	53
1	R56	RES 680, 1/4W, 5%	1301424	52
1	R22	RES .2 5W 5%	1309884	51
3	R26, R35, R50	POT 100, 1/2 W 20% 62 PR	1309150-05	50
1	R52	RES .1 5W, 5% WW	1305872	49
1	R33	RES .39 2W 5% WW	1310868	48
1	R10	RES 7.5K 1/8 W 1% MF	1305322	47
2	R25, R34	RES 383, 1/8 W 1% MF	1305125	46
6	R2, R5, R6, R11, R12, R3	RES 10K, 1/8 W 1% MF	1303312	45
4	R8, R1, R7, R14	RES 1K, 1/8 W, 1% MF	1303114	44
2	R27, R36	RES 464, 1/8 W, 1% MF	1303047	43
1	R51	RES 100, 3%, PTC	1310927-1	42
1	R49	RES 147, 1/8 W, 1% MF	1302874	41
2		SPACER #6-32 X 1/4 AF X 5/8 LG	9006857	40
A/R		TFE TUBING 3/8" LONG	91-07256-11	39
2	R24 R47	RES 68K 1/4W, 5%	1301327	38
5	R20, R21, R30, R48, R54	RES 10 1/4 W, 5%	1301317	37
3	R38, R43, R57	RES. 10K 1/4 W, 5%	1300479	36
4	R28, R46, R4, R45	RES 4.7K, 1/2W, 5%	1300445	35
1	R55	RES 2.7K, 1/2 W, 5%	1300425	34
1	R19	RES .06 5W 3% WW	1310376-02	33
2	R29, R37	RES 1K, 1/4W, 5%	1300365	32
3	R44, R16, R58	RES 330 1/4 W, 5%	1300295	31
1	R18	RES 100, 2W, 5%	1302389	30
7	R15, R17, R23, R31, R32, R42, R53	RES 100, 1/4 W 5%	1300229	29
1	D7	DIODE 1N5248B 18V ZENER	1110766	28
2	D5, D10	DIODE 20 AMP FAST RECOVERY RECT	1110715	27
1	D14	DIODE - BRIDGE RECTIFIER	1110714	26
1	D3	DIODE 5.1 V ZENER	1110925	25
2	D6, D11	DIODE 1N5624	1110420	24
2	D1, D2	DIODE 1N4004	1105796	23
2	D4, D8	DIODE 1N753A 6.2 V ZENER	1102421	22
1	D9	DIODE A25 2.4 V ZENER	1101938	21
1	D13	DIODE 1N748A 3.9 V ZENER	1100122	20
1	C18	CAP 1000 PF, 100V, DM	1000042	19
1	C9	CAP 20 µF 60V 5% TANT	1010716	18
1	C7	CAP 6,000 µF 10V -10+75% S.TANT	1010704	17
1	C14	CAP 3,000 µF 25V -10+75% S.TANT	1010703	16
2	C1, C2	CAP 24,000 µF 50V -10%+75%	1010702	15
1	C16	CAP 100 µF, 25V +75% AL EL	1002781	14
4	C3, C6, C10, C13	CAP 1 µF 100V 10%	1011032	13
2	C8, C15	CAP .22 µF, 50V	1010274	12
2	C5, C17	CAP 6.8 µF 35V 10% S TANT	1005306	11
2	C4, C11	CAPACITOR .033 µF 100V 10% MYLAR	1000050	10
1	C20	CAP 2200 PF, 250V CER.	1000055	9
A/R		THERMAL COMPOUND	9008268	8
1		#2 THERMAL STRAP	C-MD-5510891-1	7
1		#1 THERMAL STRAP	C-MD-5511105-1	6
1	J2	MATE-N-LOCK CONNECTOR	1209350-09	5
1	J1	MATE-N-LOCK CONNECTOR	1211342-03	4
1		HEAT SINK	1210596	3
4		SPLIT LUG	9006735	2
1		ETCHED BOARD	5009727	1
		MODULE ECO HISTORY	B-MH-5409728-0-0	REF
		X-Y COORDINATE HOLE LOC.	K-CO-5409728-0-4	REF
		CIRCUIT SCHEMATIC	D-CS-5409728-0-1	REF

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		5409728 INTERPLANT/CUSTOMER PKG	A-PI-3700065-0-0	93
		MANUFACTURING SPECIFICATION	A-SP-5409728-0-8	92
		ASSEMBLY PROCEDURE	A-SP-5409728-0-9	91
		INSPECTION PROCEDURE	A-SP-5409728-0-10	90
		MANUFACTURING TEST PROCEDURE	A-SP-5409728-0-3	89

FIRST USED ON CPT/MODEL 11/05

ETCH BOARD REV E

DIGITAL EQUIPMENT CORPORATION

TITLE: REGULATOR BOARD

E IA 5409728-0-0 REV. T

SEMICONDUCTOR CONVERSION CHART

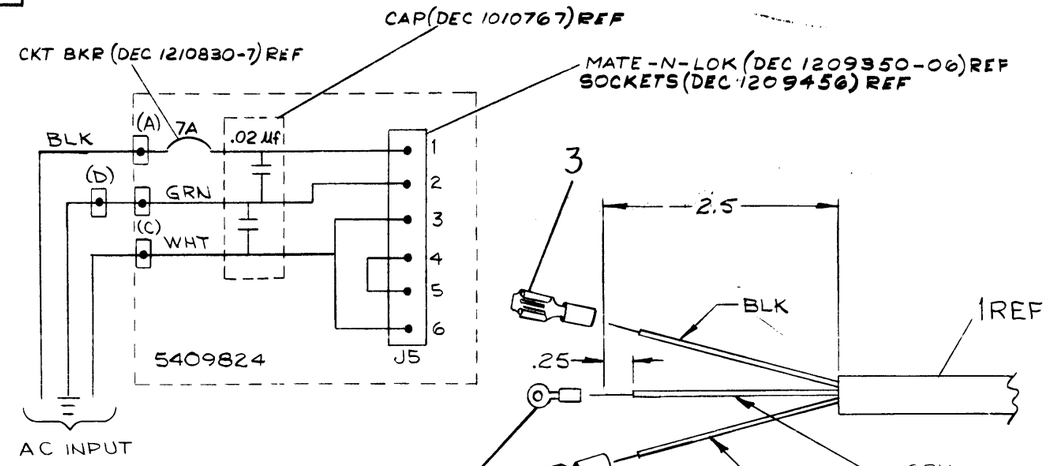
IC TYPE	GND	+5V

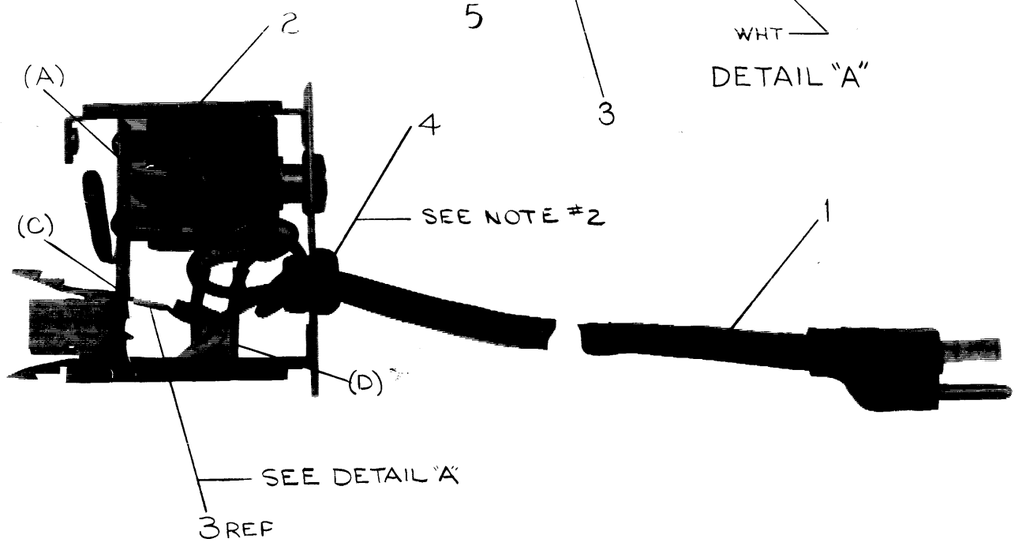
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST





SHOWN WITHOUT COVER

NOTES:

1. CONNECT ITEM #1 (POWER CORD) AND ITEM #2 (AC INPUT BOX) PER CIRCUIT SCHEMATIC.
2. FOR INSTALLATION USE HEYCO #29 STRAIN RELIEF PLIERS

ITEM NO.	PART NO.	DESCRIPTION	QTY.
5	9007929-0	SOLDER CONN ARKLESS	1
4	9008492-2	STRAIN RELIEF SR-6N3-4	1
3	9007919	SOLDERLESS CONN. ARKLESS	2
2	D-UA-H400-0-0	AC INPUT BOX H400A	1
1	170015-6	POWER CORD 120V	1

PARTS LIST

REVISIONS	REV.	CHK	DRN
CHANGE NO. BC05H-00001	A	R. WOLFF	Jim Quinn 3-28-72
BC05H-00002	B	DEMORANVILLE	S. Tone 5-15-72
H400-00002	C	R. BURTON	R. Burton 5-31-72
BC05H-00003	E	R. BURTON	R. Burton 11-2-72

FIRST USED ON OPTION/MODEL	DRN.	DATE	CHK'D	DATE	ENG.	DATE	PROJ. ENG.	DATE	PROD.	DATE
11/05	T. Guillin	12-27-71		1-6-72	David DeMoranville	1-6-72		1-7-72		1/7/72

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

NEXT HIGHER ASSY. —

SCALE —

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE

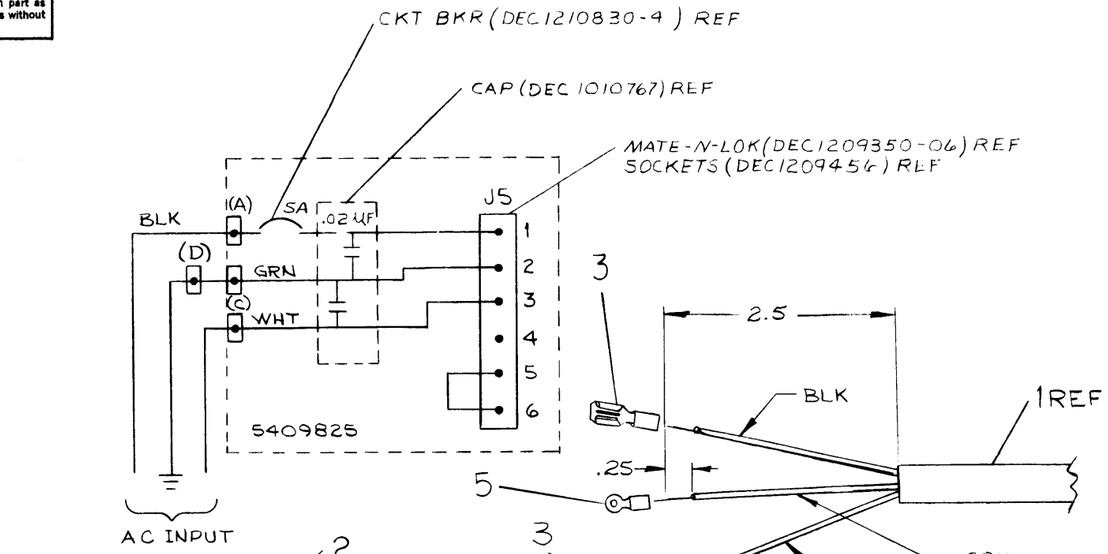
LINE SET 115VAC 7AMP

SIZE	CODE	NUMBER	REV.
C	UA	BC05H-0-0	

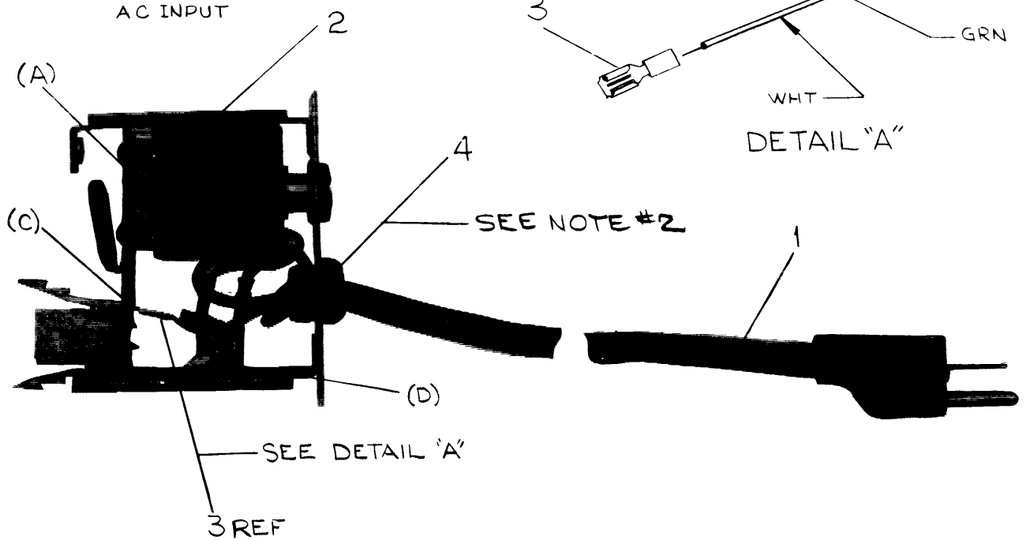
DIST.

DEC FORM NO. DRC 100-A

BC05H-0-0 C UA



DETAIL "A"



SHOWN WITHOUT COVER

NOTES:

1. CONNECT ITEM #1 (POWER CORD) AND ITEM #2 (AC INPUT) PER CIRCUIT SCHEMATIC.
2. FOR INSTALLATION USE HAYCO #29 STRAIN RELIEF PLIERS.

ITEM NO.	PARTS LIST: DESCRIPTION	PART NO.	QTY.
5	SOLDER CONN ARKLESS	9007929-0	1
4	GROMMET HEYCO SR-6N3-4	9008492-2	1
3	SOLDER CONN ARKLESS	9007919	2
2	AC INPUT BOX H400B	D-UA-H400-0-0	1
1	POWER CORD 240V	1700016-6	1

FIRST USED ON OPTION/MODEL: 11/05

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN T. Guillon DATE 12-27-71
CHK'D J. Fontana DATE 1-4-72
ENG. David DeMoranville DATE 1972
PROJ ENG. Ronald Hardy DATE 1-7-72
PROD R.K. Peterson DATE 1/7/72
NEXT HIGHER ASSY.
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
LINE SET
230VAC 4 AMP

SIZE C | CODE UA | NUMBER BC05J-0-0 | REV.
DIST.

REVISIONS	CHANGE NO.	REV.
CHK Mdemarest 3-7-72	BC05J-00001	A
WOLFF Ronald Hardy 2-8-72		
Ronald Hardy 2-8-72	H400-00002	B
Leonard 5-25-72		
R. BURTON R Burton 5-31-72		
PM	BC05J-00002	C
N. Town 10-3-72		
R. BURTON R Burton 11-2-72		
PM	BC05J-00003	D
N. Town 12-20-72		
R. BURTON R Burton 1-2-73		

DEC FORM NO. DRC 100-A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 3/9/73

TITLE DW8E ENGINEERING SPECIFICATION

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	CHANGE PER ECO	DW8E-00003	REED	4/73	[illegible]	5/73

ENG	APPD	SIZE	CODE	NUMBER	REV
ED REED	STEVE GROSS	A	SP	DW8-E-12	A

DEC 16-(392)-1079-N971
DRA 107

1. General Description

1.1 The DW8E I/O Bus Converter accepts the I/O bus and Data Break Bus of both negative and positive PDP-8 family machines (LINC8, PDP8, PDP8/L, PDP8I and PDP12) and converts these signals to OMNIBUS format. The unit mounts on rotating slides in a standard nineteen-inch relay rack or DEC option cabinet.

1.2 The DW8E primarily provides an interface between a Family-of-8 Bus and an RK8F Disk System (see section 7) enabling the bi-directional transfer of: Programmed IOT's via the PDP8 accumulator; and Data Break information via the single cycle data break facility.

2. Physical Specification

2.1 The DW8E Bus Converter is provided with chassis slides for mounting in DEC standard 19-inch cabintry.

Dimensions: 10½ inches high
14½ inches deep
16 3/4 inches wide

Operating Temperature: 32°- 130°F (0°- 55°C) @ 0% to 90% humidity, non-condensing)

Power Requirements:
DW8E-PA and NA
95 to 130 volts self-contained
47 to 63 Hz
4 Amps maximum
DW8E-PB and NB
185 to 250 volts self-contained
47 to 63Hz
2½ Amps maximum

Power Dissipation: 500WATTS

Power Supply: H740
+15V@1 Amp
+5V @ 17 Amps
-15V @ 5 Amps

Module Types: M7101, M7102, M7103, M8320

Capacity: Five quad bus slots expandable to ten quad bus slots with DW8E-PX or DW8E-NX expander unit.

Altitude See operating specification of the peripherals installed on the DW8E.

Variations:

DW8E-PA	115VAC, positive bus
DW8E-PB	230VAC, positive bus
DW8E-NA	115VAC, negative bus
DW8E-NB	230VAC, negative bus
DW8E-PX	expander unit for either DW8E-PA or PB
DW8E-NX	expander unit for either DW8E-NA or NB

Type of cables: BC08B for DM04, PDP-8/L, and PDP12
BC08D for DM01, PDP-8, Linc-8 and PDP-8/I

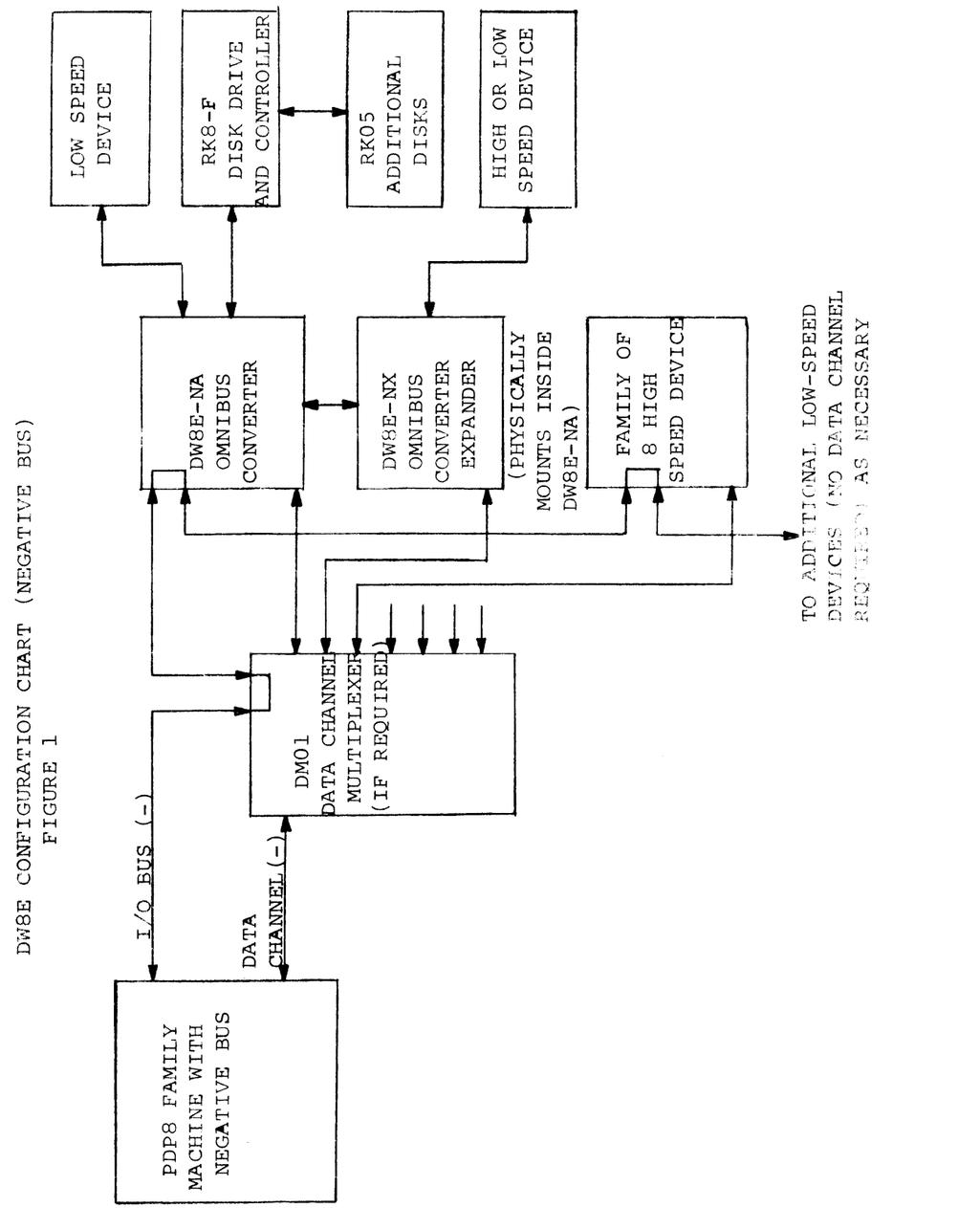
NOTE: Seven foot cables are supplied.
A positive bus PDP-8I equipped with a DM04 will require BC08B cables.

3. Interface

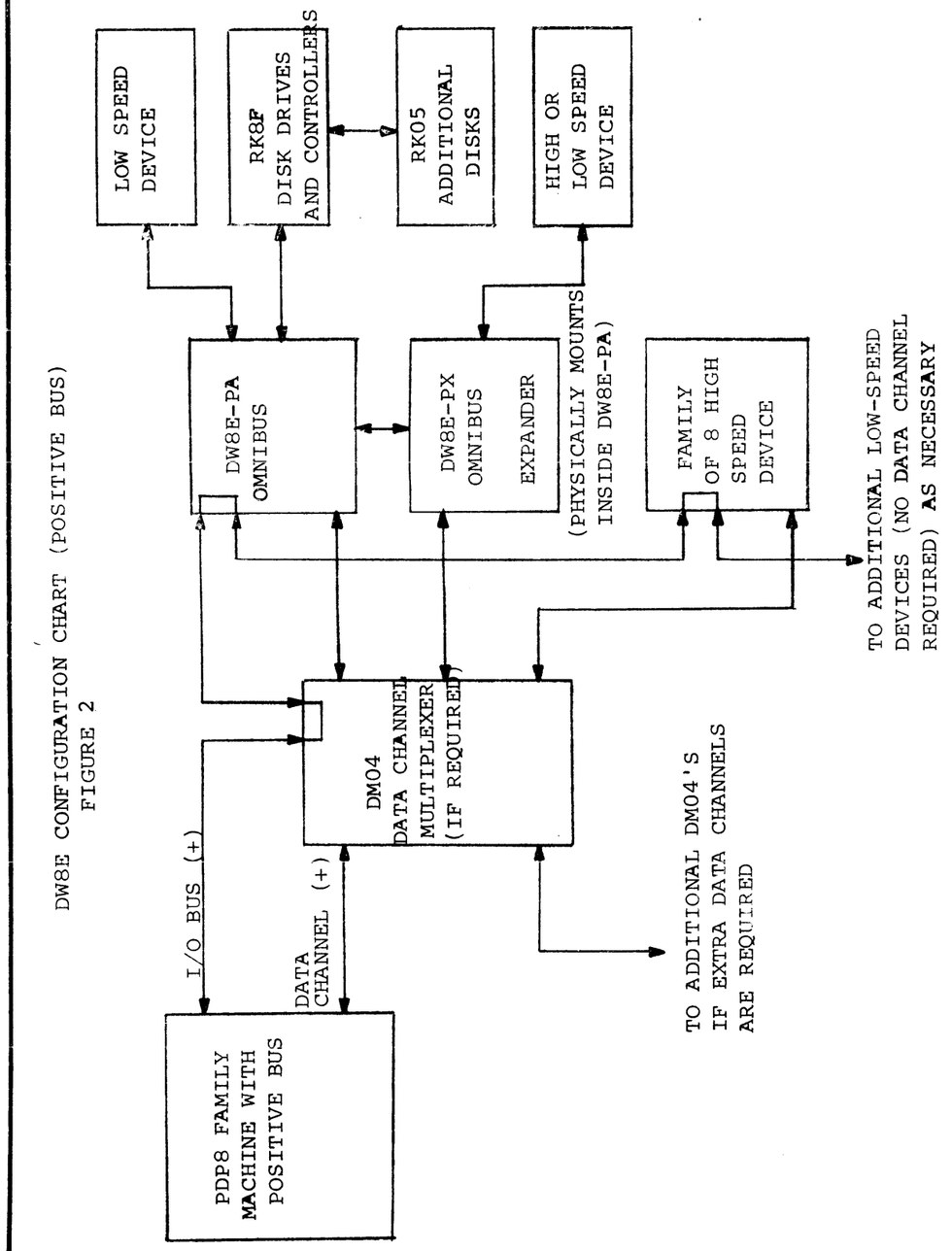
3.1 The DW8E provides space for five quad modules. Programmed I/O (accumulator transfers) as well as data break transfers are handled by the basic unit. As many options and/or peripherals may be controlled via the DW8E as module slots permit. However, only one high-speed (data break) device can be used in the basic unit. The basic unit consists of: 1-M7101, 1-M8320 and 4-M7102's (or 4-M7103's).

3.2 The unit can be expanded as follows:
If only one high-speed (data break) device is to be mounted inside the DW8E there are 5 quad bus slots available in the basic unit (DW8E-NA/PA or NB/PD).

If two high-speed (data break) devices are to be mounted, or if additonal slots are required, the expander section (DW8E-NX/PX) is required to be added to the unit. This puts, additionally, 1-M7101, 1-M8320 and 4-M7102's (or 4-M7103's) into the basic unit.



DW8E CONFIGURATION CHART (NEGATIVE BUS)
FIGURE 1



DW8E CONFIGURATION CHART (POSITIVE BUS)
FIGURE 2

3.3 Figures 1 + 2 show how the unit configures. Note that the DW8E does not perform the data channel multiplexing. Should two or more high-speed devices (data break) be used on a PDP system (either inside the DW8E or via the normal positive or negative I/O bus), a DM01 or DM04 data channel multiplexer is still necessary.

3.4 The DW8E must be the first device on the I/O bus and must have the highest priority slot when used with either a DM01 or DM04.

3.5 A DW08-A or DW08-B I/O bus converter must not be used to drive a DW8E.

3.6 PDP-8 Installation & LINC-8

3.6.1 PDP-8 ECO #8M-00007 must be installed in the PDP-8. This replaces timing signal B72A with B MEM START on the I/O Bus cable. (ECO # LINC8M-00008 IN THE LINC-8)

3.6.2 All system diagnostics should be run prior to, and after, installation of the ECO to assure no latency problems.

3.6.3. Margins should be run on the PDP-8 while running the RK8E Drive and Control Test, "MAINDEC-08-DHRKB-B-PB".

3.6.4 M7101 revision F, or modified version D or E boards, should be used in the DW8E, or later.

4. Programming

No specific IOT's are associated with the DW8E bus converter. The function of the converter is to translate the PDP-8 family external bus format into the OMNIBUS format.

4.1 The execution of a 6XX0 on the DW8E bus converter would be considered a NOP by the processor since no input or output would be executed.

4.2 I/O cycles will occur in 4.25 micro sec.

4.3 The skip bus may only be used to increment the PC by one location.

4.4 The time to complete non I/O cycles will be: 1.5 micro sec. for 8, 8I. 1.6 micro sec. for 8L.

4.5 Only single cycle data break is allowed. A data break cycle will precede a Fetch cycle only, and will be followed by at least one machine cycle.

4.6 The peripheral will halt with time state 3 asserted.

5. Omnibus Signals

The following signals are available.

Signal Function

Data Bus	Data 0-11
Memory Add	MA 0-11, EMA0-2
Memory Data	MD 0-11
Time States	TS1, TS2, TS3, TS4
Time Pulses	TP1, TP2, TP3, TP4, Int Strobe
I/O Cables	C0, C1, SKIP, Int RQST, I/O PAUSE
Memory	MD DIR
DATA BREAK	BRK IN PROG
MISC	Run, Power OK, Initialize, +5, +15, -15, GND

5.1 Timing Diagrams

5.1.1 OPR Cycle
see fig. 3

5.1.2 I/O Cycle
see figs. 4, 5, 6

5.1.3 Data Break Cycle
see fig. 7

6. Limitations

The following signals are NOT available.

Signal Function

Memory Control	ALL SIGNALS
Processor States	ALL SIGNALS
Programmer console	ALL SIGNALS
Programmed I/O	C2, Buss strobe
	NOT LAST XFER
Data Break	INT IN PROG
	CPMA Disable
	Over Flow
	Break Data Control
	MS IR Disable
	MA MS Load Control

7. Equipment Requirements

7.1 The following peripherals may be used with the DW8E

7.1.1 RK8F
7.1.2 DB8E
7.1.3 KL8E
7.1.4 KL8F

7.2 RK8F Requirements

7.2.1 All Family of 8 machines must have a data break facility.

7.2.2 The M7105 Major Registers module of the RK8E must be modified to M7105-YB, and M7104 to M7104-YA.

7.3 DB8E Requirements

7.3.1 NONE

7.4 KL8E Requirements

7.4.1 IOT code 0 must not be used.

7.5 KL8F Requirements

7.5.1 IOT code 0 must not be used.

8. DW8-E Theory of Operation

The configuration of the DW8-E I/O bus converter is to use PDP-8 I/O bus timing to generate Time States 1, 2, 3, & 4 (TS1, TS2, TS3, TS4); Time Pulses TP1, TP2, TP3, TP4; and signals necessary to transfer information in or out of approved 8/E omnibus options via AC transfers (IOT's) or Data Break Transfers (single-cycle).

Figures 3, 4, 5, 6 & 7 illustrate the OPR, IOT, & BREAK cycle timing which is generated by the control card M7101.

OPR CYCLE - Figure 3 shows the timing sequence of a basic Operate or memory reference instruction. Referring to a control module print (C-CS-M7101-0-1, D-BS-DW8-E-3 or D-BS-DW8-E-5) the control is initially set to Time State 1 by INITIALIZE L.

Timing is sequenced by the level changes of BTS 1 and BTS 3 from the PDP8 computer. These level changes generate the TP pulses, which in turn generate SHIFT TS H. This shifts the control to the next time state. CLR TP L then clears the TP pulse flops after the shift.

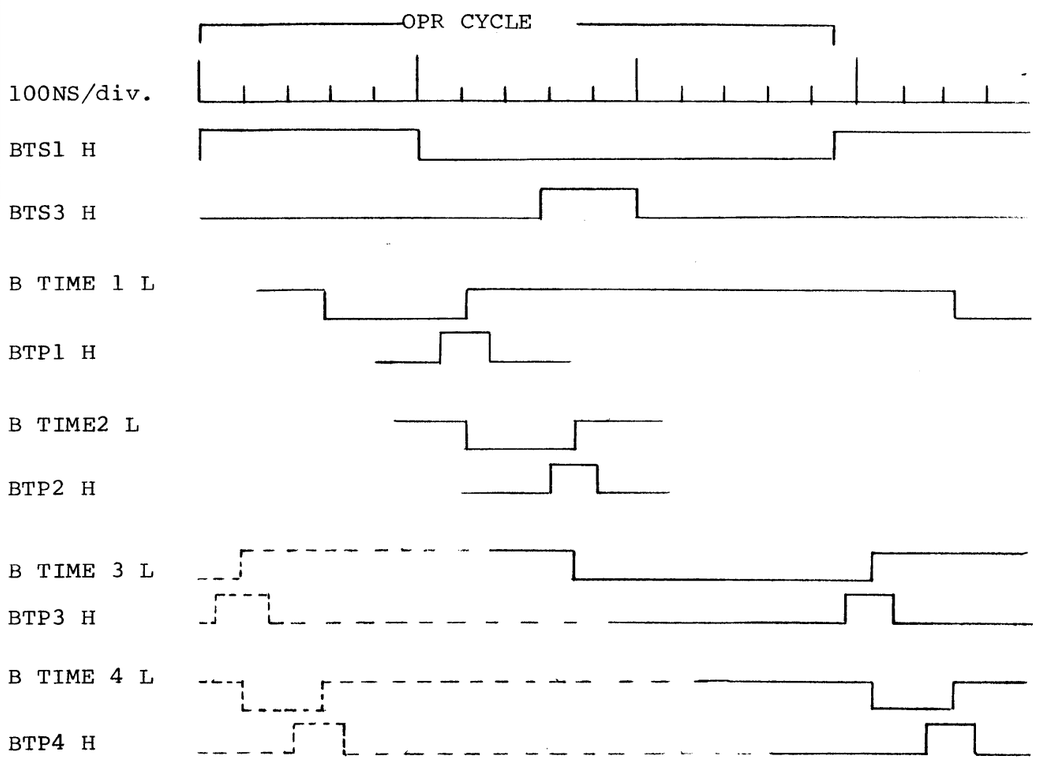
When the control is in Time State 1, BTS 1 going away sets TP1. SHIFT TS H shifts the control to Time State 2 and CLR TP L clears TP1. In Time State 2, BTS 3 going high causes the shift to Time State 3. If the machine is halted the control will stop in Time State 3. TP3, Time State 4 and TP4 occur during BTS 1 Time of the following cycle.

In Time State 3, BTS 3 going away sets TIME PAUSE. BTS 1 of the next cycle generates CLR TIME PSE L which clears TIME PAUSE and issues TP3, shifting to Time State 4. 150 NS after TIME PAUSE is cleared, RECYCLE issues TP4 which shifts it again to Time State 1.

Note in the delay circuitry for SHIFT TS L and CLR TP L that these signals are fed back to their own inputs, to limit their pulse widths to 50NS. CLR TP L also disables the input to the delay for SHIFT TS H. This prevents recirulating pulses before the TP input goes away.

IOT CYCLE - Figures 4 & 5 show the elongated IOT cycle.

FIGURE 3.



NOTE: TP3, TIME STATE 4 and TP4 are issued during BTS1 of the following cycle.

The Times shown here for BTS1 and BTS3 are typical for a PDP-8I. For a PDP-8L they are 650 NS and 250 NS. For a PDP-8 they are both 400 NS.

The function is to issue I/O PAUSE L and TP3 H to the option and also to receive and interpret CØL and C1L from the option. The timing of these events to each other remain the same although they occur on the first of the IOP pulses which are issued.

CØL causes the accumulator to be cleared by CLR AC H which enables the AC CLEAR BUS for 700 NS. C1L causes the AC to be loaded with the contents of a buffer register in the option via the AC INPUT BUS which is enabled for 400 NS by B C1 H.

The CØ and C1 combinations are:

$\overline{C\emptyset}$. $\overline{C1}$ = Load buffer register with contents of AC, don't clear AC.
$\overline{C\emptyset}$. C1 = Don't clear AC, "OR" contents of buffer register to AC.
CØ . C1 = Clear AC, then load contents of buffer register to AC.
CØ . $\overline{C1}$*= Load buffer register with contents of AC, then clear AC.

When any combination of IOP1, IOP2, IOP4 is issued, I/O END CLK H follows the IOP levels inversely. For any combination of CØ and C1 (except CØ . C1*) I/O END CLK H will follow I/O END CLK L.

I/O PSE (1) H is set by the leading edge of the first IOP pulse and I/O END CLK H goes low. When the IOP pulse goes away I/O END CLK H goes high setting I/O END. This issues CLR TIME PSE L which clears TIME PAUSE, issues TP3, and shifts to Time State 4. CLR TP L then clears TP 3, I/O END, and I/O PAUSE.

The following IOP pulses do not set I/O PAUSE again because the control is out of Time State 3. 150 NS after TIME PAUSE is cleared, recycle issues TP4 and shifts into Time State 1 for the rest of the I/O cycle.

* CØ . $\overline{C1}$ is the case where the contents of the AC must be loaded to the buffer register before the AC is cleared. The gate of the delay which was strobed by I/O END CLK L is enabled so that I/O END CLK H is only 300 NS long. I/O PAUSE is shortened and TP3 and the other events occur as before except that they are now earlier in the cycle.

PDP-8 IOT CYCLE - Figure 6.

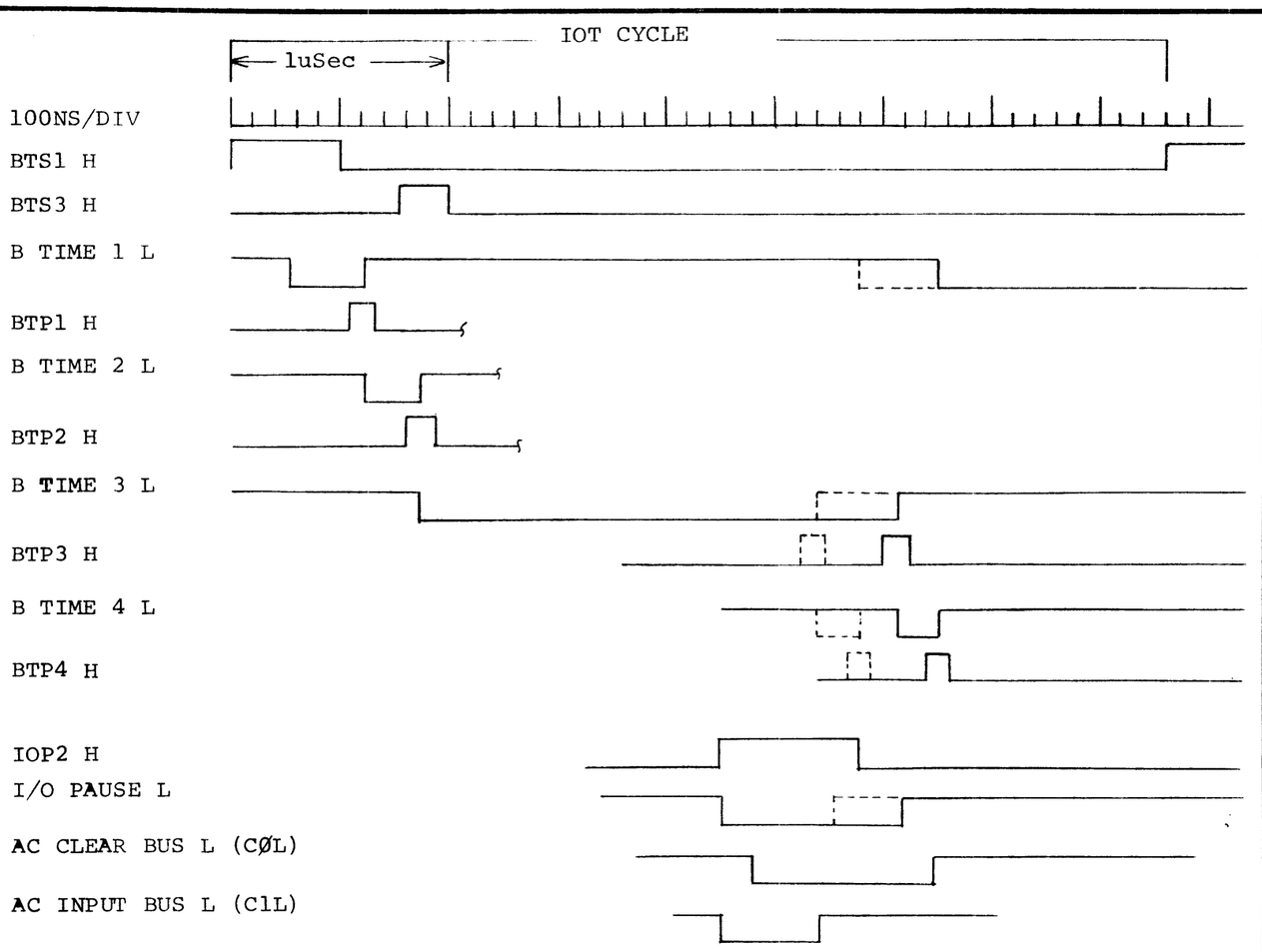


FIGURE 4

This shows a typical IOP2 load or read AC instruction. The solid lines indicate the times for $\overline{C\emptyset}.\overline{C1}$, $\overline{C\emptyset}$.C1 and C$\emptyset$.C1. The dotted lines indicate the times for C$\emptyset$.$\overline{C1}$ (load AC to buffer, clear AC).

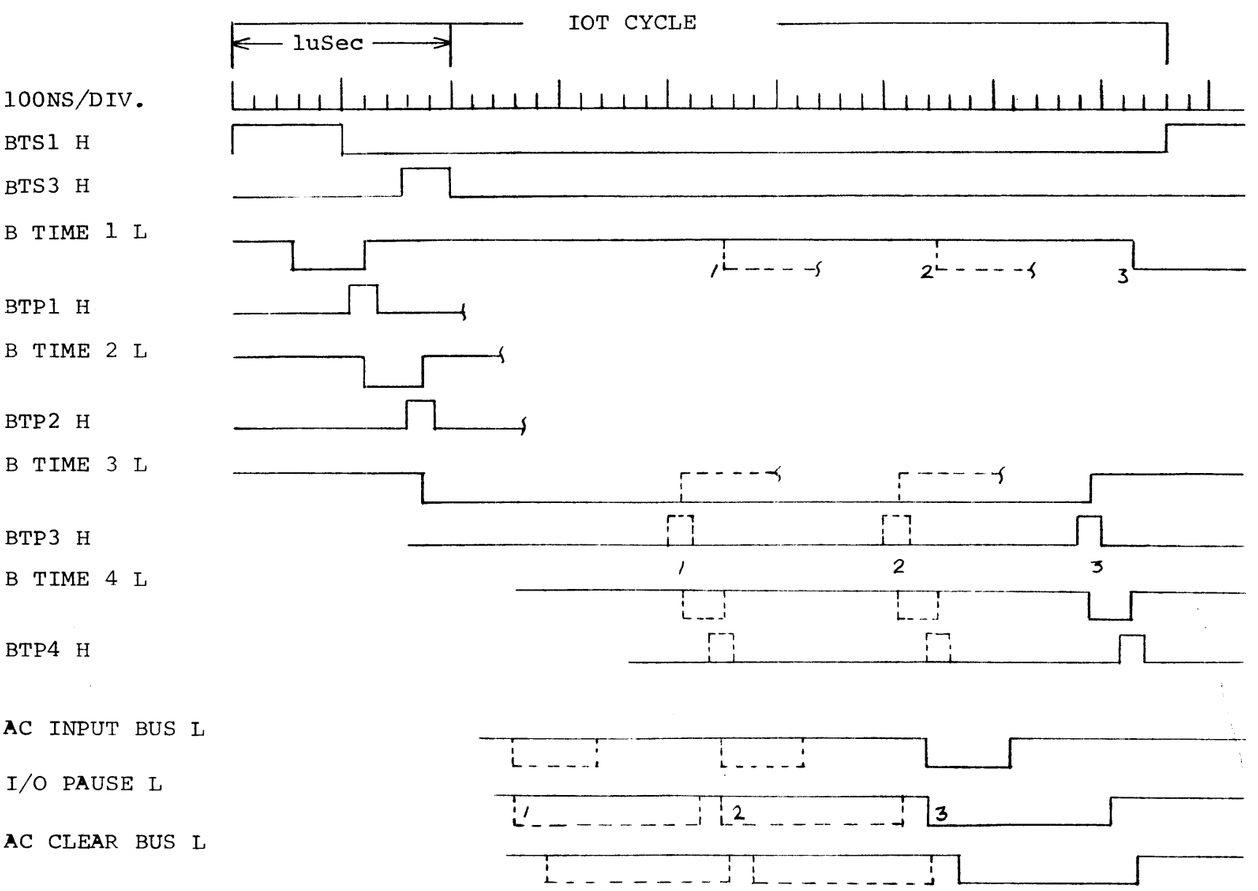


FIGURE 5

The timing shown here is for $\overline{C\emptyset}.\overline{C1}$, $\overline{C\emptyset}$.C1, C$\emptyset$.C1.

Notes: 1=IOT's using IOP 1, 3, 5, 7
2=IOT's using IOP 2, 6
3=IOT's using IOP 4

The DW8E depends on BTS1 and BTS3 for complete time synchronizing with the computer. But the signals which the PDP-8 sends are not entirely usable.

BT2A would normally replace BTS1. It occurs during the IOT cycle but is not present at Memory Start time of the following cycle to continue the timing.

ECO #8M-00007 must be installed in the PDP-8 to send B MEM START to the DW8E in place of BT2A on the I/O bus cable. (ECO # LINC8M-00008 IN THE LINC-8)

BT1B replaces BTS3 except that the PDP-8 issues a second T1B pulse during the IOT cycle.

This second BT1B pulse is eliminated internal to the DW8E by a flip flop which is clocked by the first BT1B pulse going away. The flip flop drives an open-collector inverter which is fed back to hold the BT1B input to ground. This grounds the collector of the M7103 transistor in the BT1B negative to positive bus converter circuit so that the extra BT1B does not get through. MEM START at the beginning of the next cycle clears it.

BREAK CYCLE - Figure 7.

BRK IN PROG L from the option is used to send BRK RQST L directly to the computer. (See D-BS-DW8-E-4 or D-BS-DW8-E-6).

TS4 and TP4 from the previous cycle are not entered. When BK CYCLE H is true, SHIFT TS H forces the Time State flops directly to Time State 1.

Time State 4 of the BREAK cycle is entered during the cycle by BTS3 going away which is ANDed with BRK H. The current address register in the option is incremented during TS4.

BREAK H and BREAK L are issued to the option by the BRK FLOP which is set 100 NS after shifting into Time State 1. They are ANDed in the option with ADD ACC to gate off a following request for a Data Break. Back to back Breaks can not be allowed because the PDP-8 must synchronize on a Break Request earlier in its cycle than an 8/E.

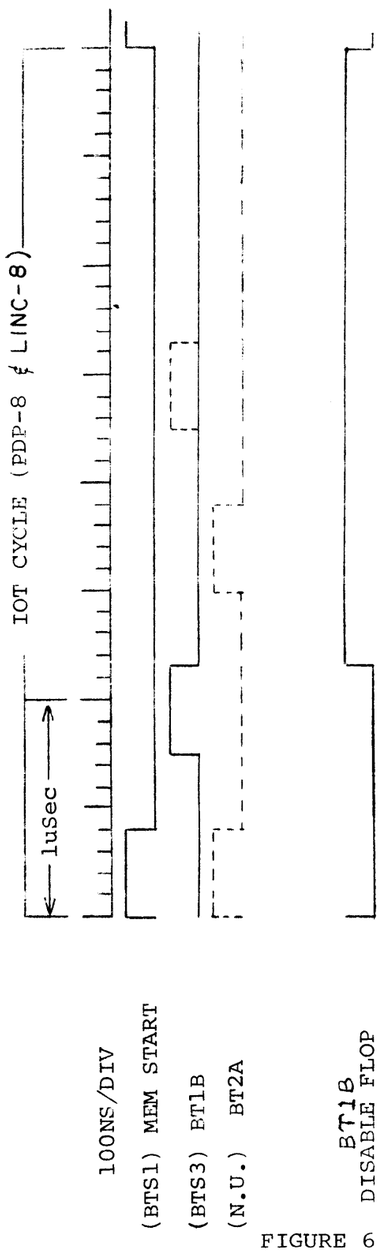
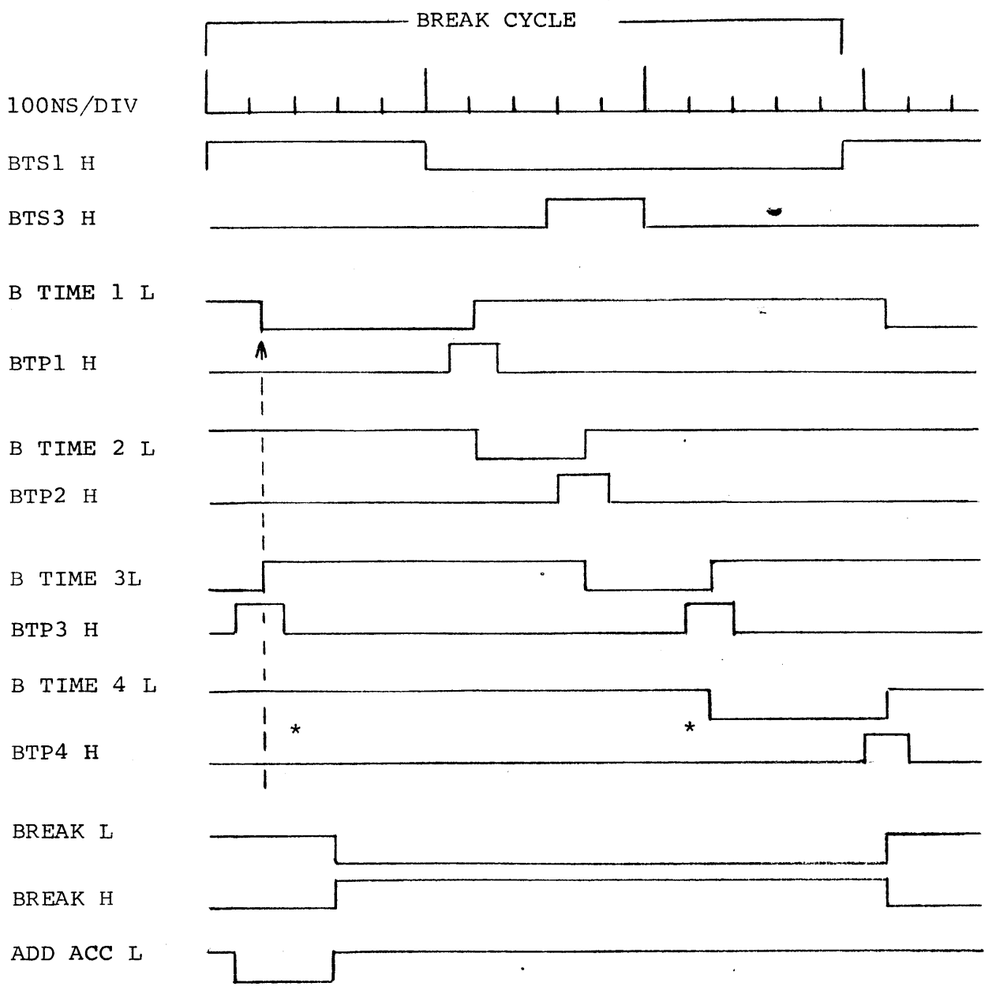


FIGURE 6.

FIGURE 7



*NOTE: 1) Time State 4 and TP4 from the previous cycle are not allowed when entering the Break Cycle. The control goes directly to Time State 1.
2) Time State 4 for the Break Cycle is entered during the Break Cycle.

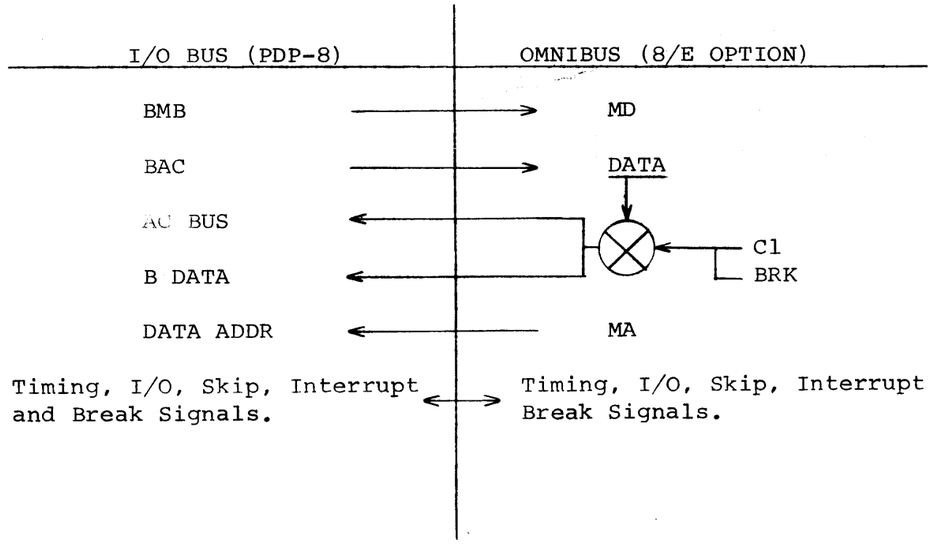
There are two further constraints to the option. The Break Address must be on the Bus before the Break Cycle. Also, the Data to be transferred into the computer must be on the Bus before Time State 2. Data to be read from the computer is loaded by the peripheral with the leading edge of TP3.

Information Multiplexing - (DWG. D-BS-DW8-E-4 or D-BS-DW8-E-6). Four M7102's are used to interface to a PDP-8 positive I/O bus. Operation of the M7103's are identical except that the M7103 has negative to positive receivers, and positive to negative drivers, to interface to a PDP-8 negative I/O bus. The M7102 and M7103 are pin-compatible.

Each M7102 or M7103 handles 3 information lines and 4 address lines and has sufficient circuitry to utilize the control and timing signals. The circuitry from input pins AP2 and AR2 allows for the fact that on the positive I/O Bus these signals are positive pulses but are negative pulses on the negative I/O bus. These signals are: BTS1, BTS3, BIOP1, BIOP2, BIOP4 and B INITIALIZE.

Figure 8 is a representative of the interfacing of the signals between the PDP-8 I/O bus and the derived OMNIBUS I/O signals.

FIGURE 8.



The BMB bits are used to drive the MD (Memory Data) lines directly without any gating. The BAC bits are normally gated onto the bi-directional DATA lines. If an IOT instruction is given to read an option buffer to the AC, the C1 line comes true. This turns off the BAC and gates the contents of the DATA lines onto the AC input Bus lines so that they can be strobed into the AC by the computer.

BRK comes true at the beginning of a Break Cycle. This also gates off the BAC but gates the DATA lines onto the B DATA lines which are strobed into the Memory Buffer of the computer.

The Memory Address (MA) and Extended Memory Address (EMA) bits are used to drive the DATA Address and Extended Data Address lines directly to the computer. Other signals which are used to drive lines directly to the computer are: SKIP, INT RQST, BRK IN PROG (BRK RQST), ADD ACC, and MD DIR (DATA IN). The cycle selection input is grounded to request only Single-cycle Data Breaks (1 cycle).

BREAK H and BREAK L inputs are driven by the (1) H and (1) L sides of the BRK flop from the M7101 control card.

The AC CLEAR BUS is driven by the 700 NS delay CLR AC from the M7101 and I/O PAUSE to the OMNIBUS is driven from the M7101 by the flop I/O PSE.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY E. REED DATE 3/6/73	CHECKED KENT GLEEZEN DATE	SECTION
ENG DATE 3-6-73	PROD DATE F J Tyler 3/7/73	ISSUED SECT.

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			DW8E-N	DW8E-P	DW8E-NX	DW8E-PX								
1	M7101	CONTROL	1	1	1	1								
2	M7102	I/O BUS CONVERTER POS.	-	4	-	4								
3	M7103	I/O BUS CONVERTER NEG.	4	-	4	-								
4	M8320	BUS LOADS	1	1	1	1								

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE UTILIZATION	B-DD-DW8-E	A	PL	DW8-E-1	A	DW8E-00002
	SHEET 1 OF 1	DIST.				

DEC FORM DEC 16-(325)-1031-N870
DRA 110