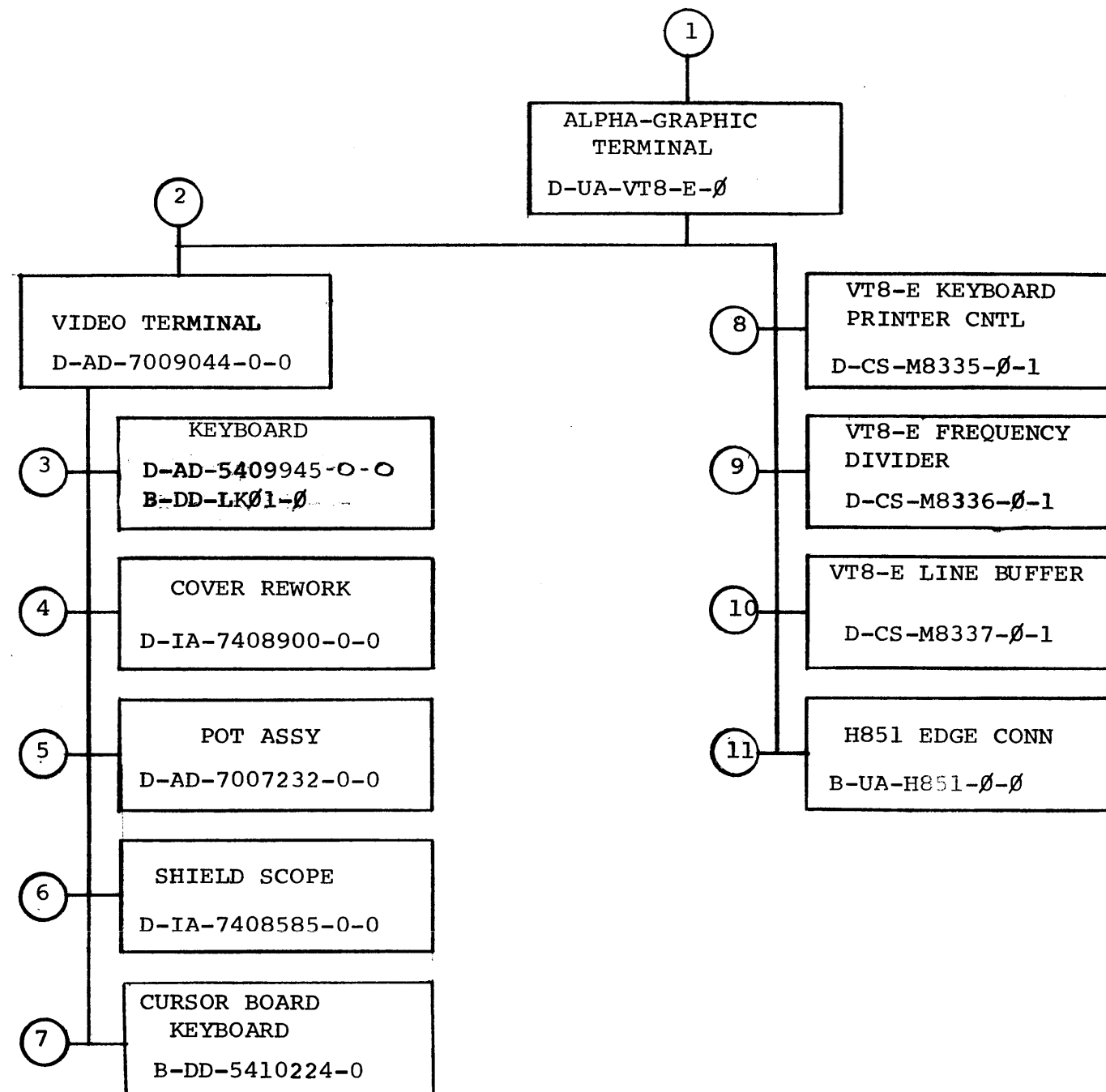


VT8-E
video display control
engineering drawings



TITLE	SHEET	OF	SIZE	CODE	NUMBER	REV
ALPHA GRAPHIC TERMINAL	2	4	B	DD	VT8-E	

CUSTOMER PRINT SET		ELECTRICAL					CUSTOMER PRINT SET		ELECTRICAL						
VT8-E		MFG. SET	FIND NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	VT8-E		MFG. SET	FIND NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X			1			D-UA-VT8-E-0 ALPHA GRAPHIC TERMINAL									
X					1	E-BD-VT8-E-1 VT8-E BLOCK DIAGRAM									
X					1	D-IC-VT8-E-2 VT8-E PWR & SIGNAL WIRING									
X					31	A-SP-VT8-E-3 ENG SPEC					11			B-UA-H851-0-0 EDGE CONN H851	
X					1	A-SL-VT8-E-4 SOFTWARE LIST								B-CS-H851-0-1 EDGE CONN.	
X					1	A-AL-VT8-E-5 ACCESSARY LIST									
X					11	A-AP-VT8-E-6 VT8-E IN HOUSE ACC PROC									
X					6	A-FI-VT8-E-7 VT8-E FIELD INSTAL & ACC PROC									
			2		3	D-AD-7009044-0-0 VIDEO TERMINAL									
					2	D-CS-3010326-0-0 VT05 RASTER DISPLAY									
X			8		6	D-CS-M8335-0-1 VT8-E KEYBOARD PRINTER CNTL									
					1	K-CO-M8335-0-4 X-Y COORDINATE HOLE LOCATION									
					1	D-AH-M8335-0-5 ASSY/DRILLING HOLE LAYOUT									
					1	B-MH-M8335-0-6 MODULE ECO HISTORY									
					5	A-WL-M8335-0-8 WIRE LIST M8335									
X			9		5	D-CS-M8336-0-1 VT8-E FREQUENCY DIVIDER									
					1	K-CO-M8336-0-4 X-Y COORDINATE HOLE LOCATION									
					1	D-AH-M8336-0-5 ASSY/DRILLING HOLE LAYOUT									
					1	B-MH-M8336-0-6 MODULE ECO HISTORY									
					1	C-IA-7009054-0-0 CABLE, MODULE									
					4	A-WL-M8336-0-8 WIRE LIST M8336									
X			10		6	D-CS-M8337-0-1 VT8-E LINE BUFFER									
					1	K-CO-M8337-0-4 X-Y COORDINATE HOLE LOCATION									
					1	D-AH-M8337-0-5 ASSY/DRILLING HOLE LAYOUT									
					1	B-MH-M8337-0-6 MODULE ECO HISTORY									
					6	A-WL-M8337-0-8 WIRE LIST M8337									

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
ALPHA-GRAPHIC TERMINAL
SHEET 3 OF 4
SIZE CODE B DD
NUMBER VT8-E
REV

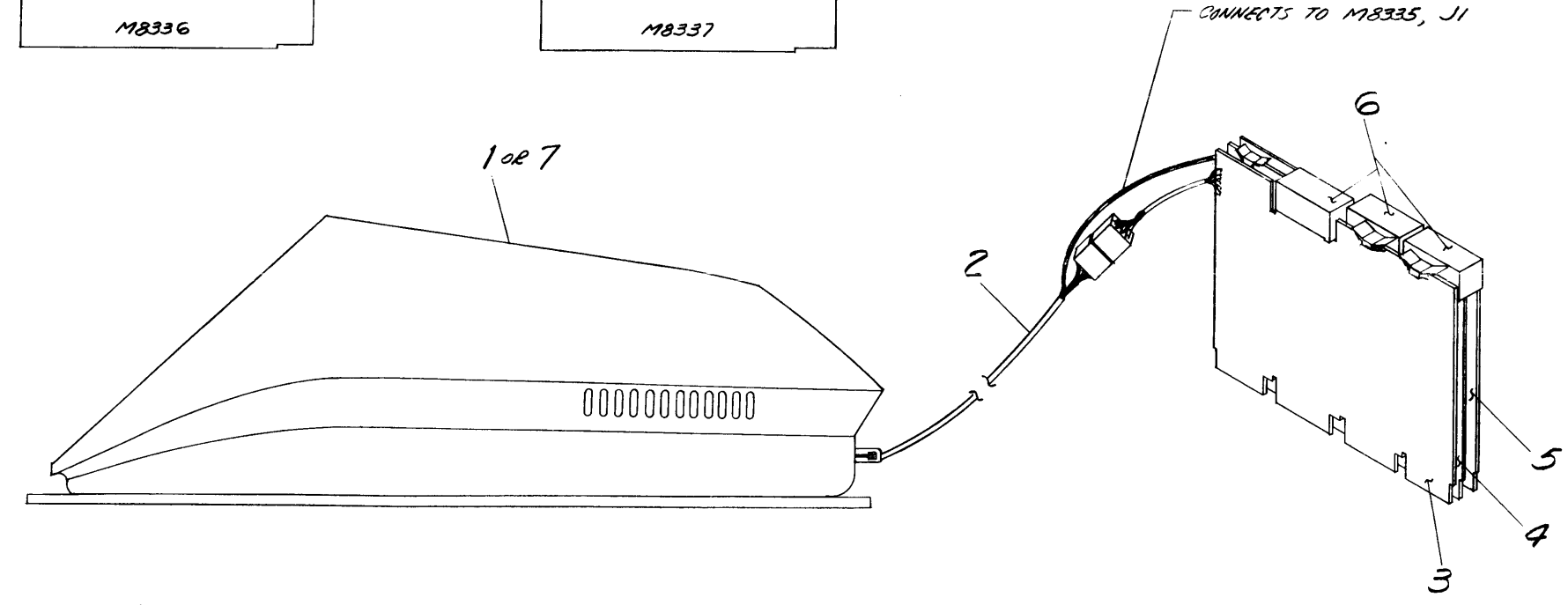
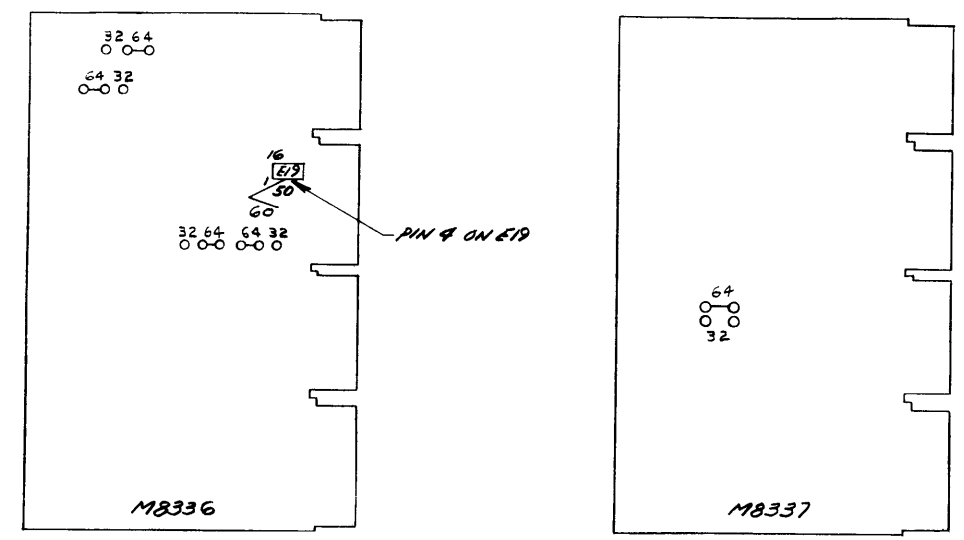
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VARIATION	POSITION OF JUMPER FOR 69/32 JUMPER SETS	POSITION OF JUMPER FOR 60/50 HZ JUMPER SET	POSITION OF 60/50 HZ SELECTION WIRE
VTB-EA,EB	69	60	60
VTB-EC,ED	69	50	50
VTB-EE,EF	32	60	60
VTB-EH,EJ	32	50	50

0-E-1A V 2

NOTES:
 1. JUMPERS ON THE M8336 AND M8337 MUST BE ARRANGED TO DETERMINE THE 69/32 CHARACTER AND 60/50 HZ VARIATIONS.
 M8336 HAS: FOUR SETS OF 69/32 SELECTION JUMPERS, ONE SET OF 60/50 HZ SELECTION JUMPERS AND ONE 60/50 HZ SELECTION WIRE.
 M8337 HAS ONE SET OF 69/32 SELECTION JUMPERS.



VTB-EA	VTB-EB	VTB-EC	VTB-ED	VTB-EH	VTB-EJ
1/1	1/1	1/1	1/1	1/1	1/1
1/1	1/1	1/1	1/1	1/1	1/1
1/1	1/1	1/1	1/1	1/1	1/1
1/1	1/1	1/1	1/1	1/1	1/1
1/1	1/1	1/1	1/1	1/1	1/1
1/1	1/1	1/1	1/1	1/1	1/1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VTB-E				
1/1	1	30 AWG SOLID WIRE (NSI)	9105740-44	9
1/1	1	BUS WIRE #22	9107560-1	8
1/1	1	VIDEO TERMINAL	D-AD-7009099-2	7
3/3	3	EDGE CONN	B-44-1851-0-0	6
1/1	1	VTB-E KEYBOARD PRINTER CONTROL	D-CS-M8335-0-1	5
1/1	1	VTB-E LINE BUFFER	D-CS-M8337-0-1	4
1/1	1	VTB-E FREQUENCY DIVIDER	D-CS-M8336-0-1	3
1/1	1	CABLE, I/O (VTB-E)	D-IA-7009092-0-0	2
1/1	1	VIDEO TERMINAL	D-AD-7009044-1	1

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE 12-28-72	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
DECIMALS	ANGLES	DATE 1/1/73	
XXX 005	10' 30"	DATE 1/1/73	
XX 02		DATE 1/1/73	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE	TITLE ALPHA-GRAPHIC TERMINAL
		DATE	
MATERIAL	NEXT HIGHER ASSY	SCALE	NUMBER DUA VTB-E-0
FINISH		SHEET 1 OF 1	

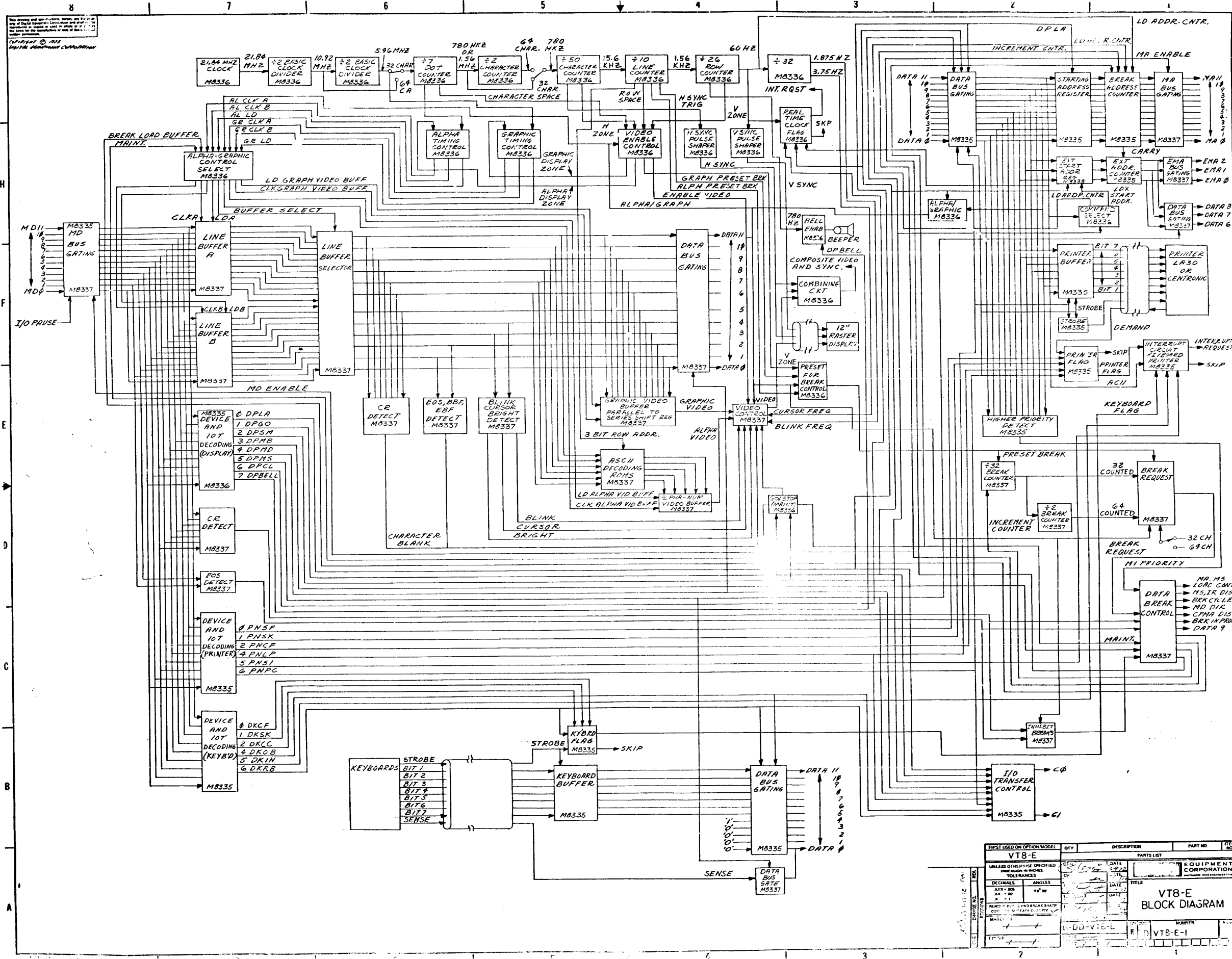
REVISIONS
 CHANGE NO.
 REV.

DWG FORM NO. DRD 100-A

SIZE CODE
 DUA VTB-E-0

NUMBER
 8

REV.

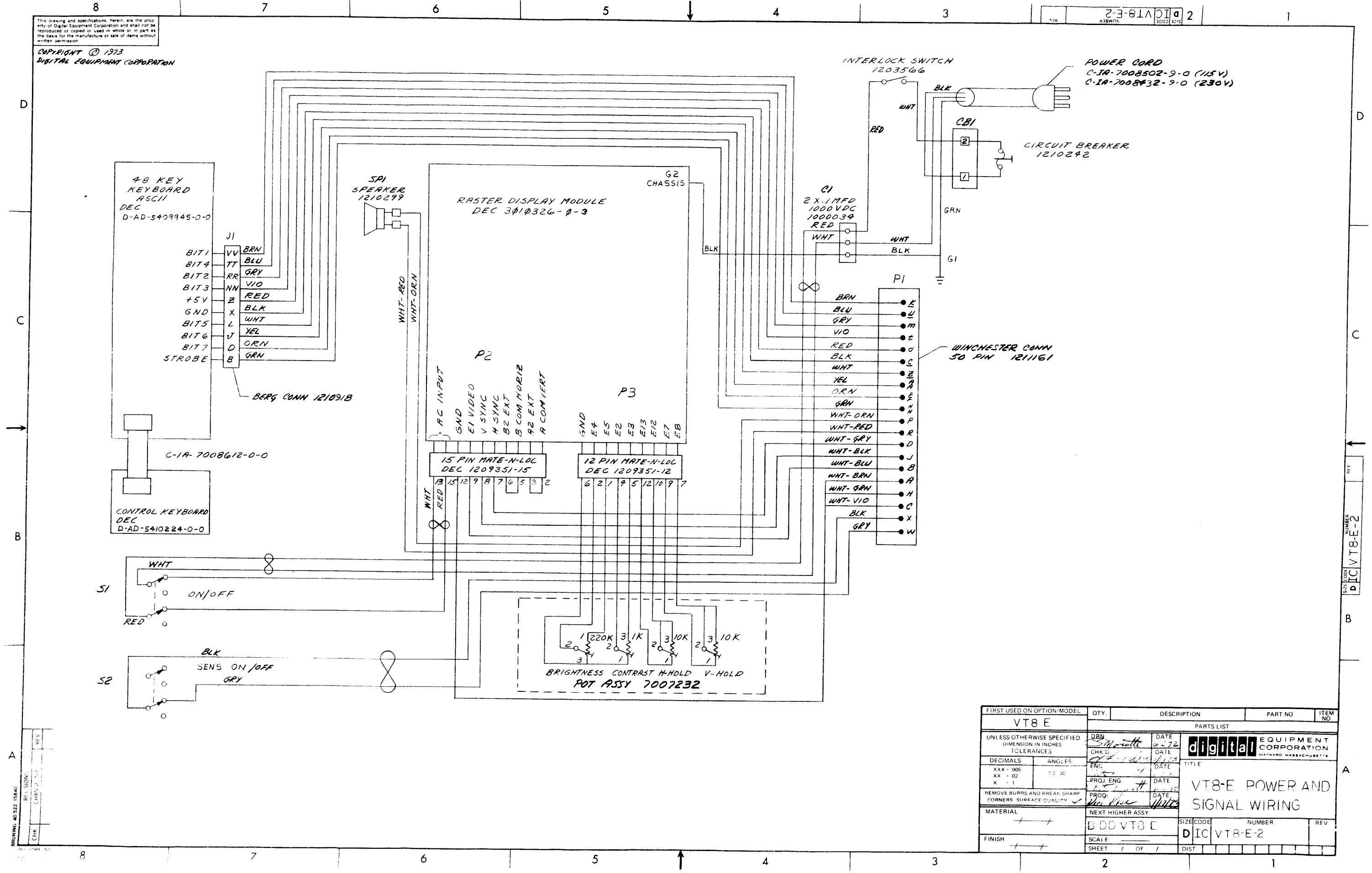


FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
VT8-E		PARTS LIST		
UNLESS OTHERWISE SPECIFIED, DIMENSIONS IN INCHES.				
TOLERANCES				
DECIMALS	ANGLES			
±.005	±.005			
REWORK TO BE APPROVED BY QUALITY CONTROL				
MATERIAL				
DATE				
DRAWN BY				
CHECKED BY				
APPROVED BY				
EQUIPMENT CORPORATION				
VT8-E BLOCK DIAGRAM				
MATERIAL				
DATE				
DRAWN BY				
CHECKED BY				
APPROVED BY				
VT8-E-1				

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2-3-81A 2



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8 E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DBN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHK'D	DATE		
ANGLES	ENG	DATE		
XXX - 005	PROJ. ENG.	DATE		
XX - 02	PROD.	DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY			TITLE VT8-E POWER AND SIGNAL WIRING	
MATERIAL	NEXT HIGHER ASSY		SIZE CODE	NUMBER
FINISH	SCALE		DIC	VT8-E-2
	SHEET / OF /		DIST	

BRUNING 40522 15840
 REVISION
 CHK'D
 DATE

REV
 NUMBER
 2
 D I C VT8-E-2

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DIGITAL EQUIPMENT CORPORATION						
MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION				DATE 12/26/72		
TITLE VT8-E ENGINEERING SPECIFICATION						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
ENG <i>P. Kotschenreuther</i> APPD Paul Kotschenreuther		SIZE A	CODE SP	NUMBER VT8-E-3	REV	

ENGINEERING SPECIFICATION		CONTINUATION SHEET
TITLE VT8-E ENGINEERING SPECIFICATION		
TABLE OF CONTENTS		
1.0 VT8-E Overall Description 2.0 System Specifications 2.1 Basic System Components 2.2 Physical Specifications 2.2.1 Video Terminal 2.2.2 I/O Cable 2.2.3 Control Modules 2.3 Power Requirements 2.3.1 Video Terminal 2.3.2 Control Modules 2.4 Environmental Specifications 2.5 Performance Specifications 2.5.1 Display - Alpha Mode 2.5.2 Display - Graphic Mode 2.5.3 Blemishes 2.5.4 Character Transmit Codes 2.5.5 Character Receive Codes 2.5.6 Character Font 2.5.7 Buffer Size 2.5.8 Processor Loading 2.6 Variations 3.0 Specifications of Vendor Supplied Equipment 4.0 Programming 4.1 Device Codes 4.2 Display Instruction Set 4.3 Keyboard Instruction Set 4.4 Printer Instruction Set 4.5 Maintenance Features 4.6 Data Format		
SIZE A	CODE SP	NUMBER VT8-E-3
SIZE A	CODE SP	NUMBER VT8-E-3

ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

- 4.6.1 Display, Alpha-Numeric Data
- 4.6.2 Display, Graphic Data
- 4.6.3 Display, Extended Addr. Cntr. Data
- 4.6.4 Keyboard
- 4.6.5 Printer

- 4.7 Timing of Signals Available to Programmer
- 4.8 Operator's Controls

5.0 Interface Specifications

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

1.0 General Description

The VT8-E Alpha-numeric, Graphic video display terminal is a PDP8/E,M,F peripheral. It provides high speed, low cost video presentation of alpha-numeric or graphic data. It also provides keyboard data input to the processor and driving capability for an optional hard copy device. The VT8-E consists of the terminal (keyboard, display, housing and cable) with the associated control logic, and a parallel printer interface.

The display control logic supplies video, audio (beep), and sync pulses to the display monitor, while constantly refreshing from a data buffer in PDP8/E,M,F memory via single cycle data breaks. The keyboard control transfers parallel 8-bit ASCII code from the keyboard to the AC of the processor. The printer control transfers parallel 7-bit ASCII code from the AC to an optional printer (LS8-E or LA30A-PA).

The VT8-E can display 20 lines of alpha-numeric information. Sixty-four normal size characters or 32 enlarged characters can be displayed per line (jumper selectable). The VT8-E is also capable of displaying graphic information on a 189 x 200 dot matrix. Alpha and graphic display modes are program selectable. A line frequency (50 Hz or 60 Hz) real time clock is available to the programmer in the form of interrupts or a skip flag.

2.0 System Specifications

2.1 Basic System Components

- 1 - Video terminal (keyboard, display, housing) 7009044
- 1 - I/O cable 7009042
- 3 - Control modules M8336, M8337, M8335

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATIONS

2.2 Physical Specifications

2.2.1 Video terminal

Height: 12"
 Width: 19"
 Depth: 30"
 Weight: 38 lbs.
 Shipping Weight: 53 lbs.

2.2.2 I/O cable - Standard length - 15'
 Optional length - 50'
 (No other lengths available)

2.2.3 Control modules - Three quad (10½" x 8¼")
 modules which occupy adjacent slots
 in the OMNIBUS.

2.3 Power Requirements

2.3.1 Video terminal

Operation is possible under one of four power combinations:

7009044-1	100 to 130 VAC, 60 Hz.
7009044-2	200 to 260 VAC, 60 Hz.
7009044-1	100 to 130 VAC, 50 Hz.
7009044-2	200 to 260 VAC, 50 Hz.

Frequency tolerance: ±0.5%
 Power consumption: 55 watt at 115 VAC
 65 watt at 230 VAC

Power cord is terminated by a standard 3-prong, male, wall-type plug.

115V	DEC#	IA 7008502-9	7009044-1
230V	DEC#	IA 7008432-9	7009044-2

The slide switch on the monitor must be set in the appropriate 115/230 volt position.

2.3.2 Control modules

+ 5.0V	3.7	Amps
-15 V	.130	Amps
+15 V	.082	Amps

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATIONS

2.4 Environmental Specifications

2.4.1 Video terminal

Operating temperature: 5°C to 43°C (41°F to 110°F)
 Storage temperature: -10°C to 60°C (15°F to 140°F)
 Humidity (non-condensing) 10 to 95%

2.4.2 Control modules

Operating temperature: 0°C to 55°C (32°F to 130°F)
 Humidity (non-condensing): 10 to 95%

2.5 Performance Specification

2.5.1 Display - Alphanumeric Mode

Screen size: 10 1/8" W x 7 5/8" H
 Characters per line: 64 normal or 32 enlarged
 (jumper selectable)
 Number of lines: 20
 Number of characters displayable: 1280 - Normal
 640 - Enlarged

Display area: 8" W x 6¼" H - Enlarged
 8" W x 4¼" H - Normal

Character size: .093" W x .150" H - Normal
 .185" W x .220" H - Enlarged

Character spacing horiz.: 40% character width
 .037" - Normal
 .074" - Enlarged

Character spacing vert.: 43% character height
 .064" - Normal
 .094" - Enlarged

Characters per inch horiz.: 8 ch/in - Normal
 4 ch/in - Enlarged

Characters per inch vert.: 4½ ch/in - Normal
 3 ch/in - Enlarged

Deflection type: Magnetic

Deflection method: Raster scan

Character generation method: 5 x 7 dot matrix

Display refresh rate: 60 Hz or 50 Hz corresponding
 to AC supplied.

Geometry distortions: Less than ±1/8" over a centered
 8" x 6¼" rectangle.

Phosphor type: P4 (white)

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

2.5.2 Display-Graphic Mode

Screen size: Same
 Display area: 6.95" W x 6¼" H if adjusted for enlarged character.
 6.95" W x 4¼" H if adjusted for normal character.
 Display format: 189 dot W x 200 dot H dot matrix
 Deflection type: Same
 Deflection method: Same
 Display refresh rate: Same
 Phosphor type: Same

2.5.3 Blemishes

The glass and plastic filter in front of the CRT shall have no more than six defects including scratches of no greater than 0.1 inches wide within a centered 8" x 6¼" area.

2.5.4 VT8-E Transmit Codes

ASCII codes generated by the VT8-E keyboard are listed in Tables I, II, III and IV. Tables I & II indicate which key combinations generate a desired code. Tables III & IV indicates which code is generated for a given key combination.

With an internal select switch on the keyboard, the keyboard can be set to generate codes according to Tables I & III (upper and lower case codes) or according to Table II & IV (upper case codes only). The VT8-E, however, is capable of displaying only upper case characters.

2.5.5 VT8-E Receive Codes

Table V lists the character displayed for a given ASCII code.

2.5.6 Character Font

Figure 1 shows the character Font for the 64 displayable characters.


SIZE **A** CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

TABLE I	Bit No.	8	7	6	5	4	3	2	1
VT8-E	4321	5	0	0	0	1	0	1	1
TRANSMIT CODES									
0000			↑ @	↑ P	Any Space	Any ∅			
0001			↑ A	↑ Q	!	1			
0010			↑ B	↑ R	"	2			
0011			↑ C	↑ S	#	3			
0100			↑ D	↑ T	\$	4			
0101			↑ E	↑ U	%	5			
0110			↑ F	↑ V	&	6			
0111			↑ G	↑ W	,	7			
1000			Any C ← ↑ H	Any C → ↑ X	(	8			
1001			Any TAB ↑ I	↑ Y	)	9			
1010			Any LF ↑ J	Any C ↑ ↑ Z	*	:			
1011			Any C ↓ ↑ K	Any ALT ↑ [+	;			
1100			↑ L		,	<			
1101			Any CR M	Any HOME ↑]	-	=			
1110			↑ N	Any EOL ↑ ^	.	>			
1111			↑ O	Any EOS ↑ _	/	?			

 Indicates Shifted Character

↑ Indicates Control Character


SIZE **A** CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Table I (Cont)	Bit No.	8	1	1	1	1
VT8-E	4321	5	0 0	0 1	1 0	1 1
TRANSMIT CODES FULL ASCII	0000		@	P	!	P
	0001		A	Q	A	Q
	0010		B	R	B	R
	0011		C	S	C	S
	0100		D	T	D	T
	0101		E	U	E	U
	0110		F	V	F	V
	0111		G	W	G	W
	1000		H	X	H	X
	1001		I	Y	I	Y
	1010		J	Z	J	Z
	1011		K	[	K	}
	1100		L	\	L	|
	1101		M	]	M	}
	1110		N	^	N	~
	1111		O	_	O	Any Rub Out

 Indicates Shifted Character

↑ Indicates Control Character


SIZE A CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Table II	Bit No.	8	1	1	1	1
VT8-E	4321	5	0 0	0 1	1 0	1 1
TRANSMIT CODES HALF ASCII	0000		↑@	↑P	Any Space	Any Ø
	0001		↑A	↑Q	!	1
	0010		↑B	↑R	"	2
	0011		↑C	↑S	#	3
	0100		↑D	↑T	\$	4
	0101		↑E	↑U	%	5
	0110		↑F	↑V	&	6
	0111		↑G	↑W	'	7
	1000		any C ←	any C →	(	8
	1001		↑H	↑X	)	9
	1010		any LF	any C ↑	*	:
	1011		any C ↓	any ALT	+	;
	1100		↑L	↑	,	<
	1101		any CR	any HOME	-	=
	1110		↑N	↑	.	>
	1111		↑O	any EOS	/	?

 Indicates Shifted Character

↑ Indicates Control Character

SIZE A CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET


TITLE VT8-E ENGINEERING SPECIFICATION

Table II
(Cont.)

VT8-E
TRANSMIT
CODES

HALF ASCII

Bit No.	8	7	6	5	4	3	2	1
4321	1	0	0	1	1	0	1	1
0000		@			P			
0001		A			Q			
0010		B			R			
0011		C			S			
0100		D			T			
0101		E			U			
0110		F			V			
0111		G			W			
1000		H			X			
1001		I			Y			
1010		J			Z			
1011		K			[
1100		L			/			
1101		M]			
1110		N			^			
1111		O						Any RUBOUT

 Indicates Shifted Character

↑ Indicates Control Character

SIZE **A** CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

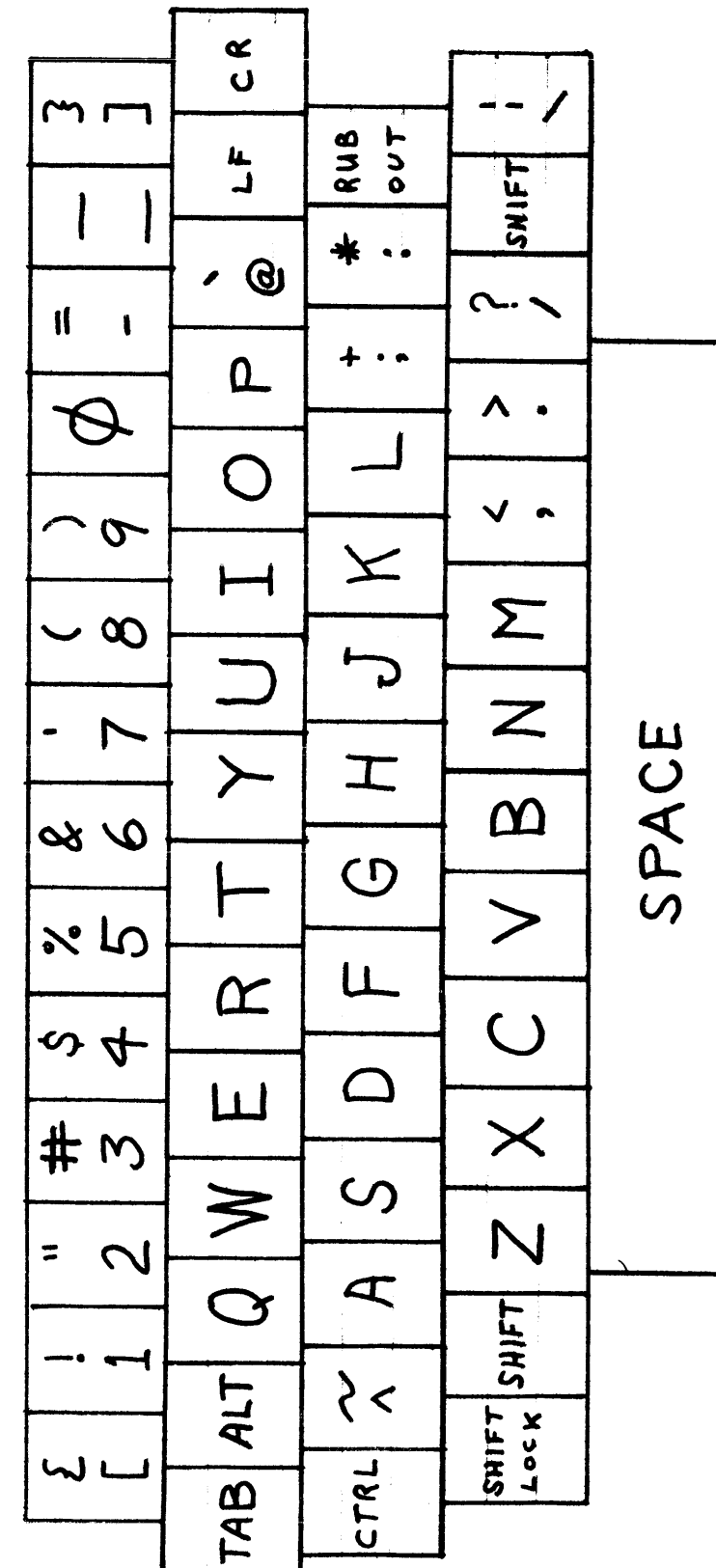
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CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

KEY CAP

CONFIGURATION



SIZE **A** CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE

Table III
VT8-E
Transmit Codes
(full ASCII)

233	261	262	263	264	265	266	267	270	271	260	015	237	235
233	261	262	263	264	265	266	267	270	271	260	015	237	235
373	221	242	243	244	245	246	247	250	251	260	275	337	375
333	261	262	263	264	265	266	267	270	271	260	255	337	335
211	233	221	227	205	222	224	231	225	211	217	220	200	212
211	233	221	227	205	222	224	231	225	211	217	220	200	212
211	233	321	327	305	322	324	331	325	311	317	320	340	212
211	233	361	367	345	362	364	371	365	351	357	360	300	212
	236	201	223	204	206	207	210	212	213	214	273	272	377
	236	201	223	204	206	207	210	212	213	214	273	272	377
	376	301	323	304	306	307	310	312	313	314	253	252	377
	336	341	363	344	346	347	350	352	353	354	273	272	377
		232	230	203	226	202	216	215	254	256	257		234
		232	230	203	226	202	216	215	254	256	257		234
		332	330	303	326	302	316	315	274	276	277		374
		372	370	343	366	342	356	355	254	256	257		334

applies to
all keys

240 with shift and cntrl.
240 with control only
240 with shift only
240 key alone

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE

Table IV
VT8-E Transmit
Codes (half ASCII)

233	261	262	263	264	265	266	267	270	271	260	015	237	235
233	261	262	263	264	265	266	267	270	271	260	015	237	235
333	221	242	243	244	245	246	247	250	251	260	275	337	335
333	261	262	263	264	265	266	267	270	271	260	255	337	335
211	233	221	227	205	222	224	231	225	211	217	220	200	212
211	233	221	227	205	222	224	231	225	211	217	220	200	212
211	233	321	327	305	322	324	331	325	311	317	320	300	212
211	233	321	327	305	322	324	331	325	311	317	320	300	212
	236	201	223	204	206	207	210	212	213	214	273	272	377
	236	201	223	204	206	207	210	212	213	214	273	272	377
	336	301	323	304	306	307	310	312	313	314	253	252	337
	336	301	323	304	306	307	310	312	313	314	273	272	337
		2232	230	203	226	202	216	215	254	256	257		234
		232	230	203	226	202	216	215	254	256	257		234
		332	330	303	326	302	316	315	274	276	277		334
		332	330	303	326	302	316	315	254	256	257		334

applies to
all keys

240 with shift and control
240 with control only
240 with shift only
240 key alone

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

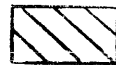
ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Table V VT8-E RECEIVE CODES	Bit No. 7 6 5 4321	0 0 0	0 0 1	0 1 0	0 1 1
0000		@	P	Space	∅
0001		A	Q	!	1
0010		B	R	"	2
0011		C	S	#	3
0100		D	T	\$	4
0101		E	U	Z	5
0110		F	V	&	6
0111		G	W	'	7
1000		H	X	(	8
1001		I	Y	)	9
1010		•	Z	*	:
1011		K	[+	;
1100		L	\	,	<
1101		•]	-	=
1110		N	ˆ	.	>
1111		O	_	/	?



Indicates Shifted Character

↑ Indicates Control Character

SIZE **A** CODE SP NUMBER VT8-E-3 REV

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Table V VT8-E RECEIVE CODES CONT.	Bit No. 7 6 5 4321	1 0 0	1 0 1	1 1 0	1 1 1
0000		@	P	SPACE	0
0001		A	Q	!	1
0010		B	R	"	2
0011		C	S	#	3
0100		D	T	\$	4
0101		E	U	%	5
0110		F	V	&	6
0111		G	W	'	7
1000		H	X	(	8
1001		I	Y	)	9
1010		J	Z	*	:
1011		K	[+	;
1100		L	\	,	<
1101		M]	-	=
1110		N	ˆ	.	>
1111		O	_	/	?

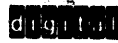


Indicates Shifted Character

↑ Indicates Control Character

SIZE **A** CODE SP NUMBER VT8-E-3 REV

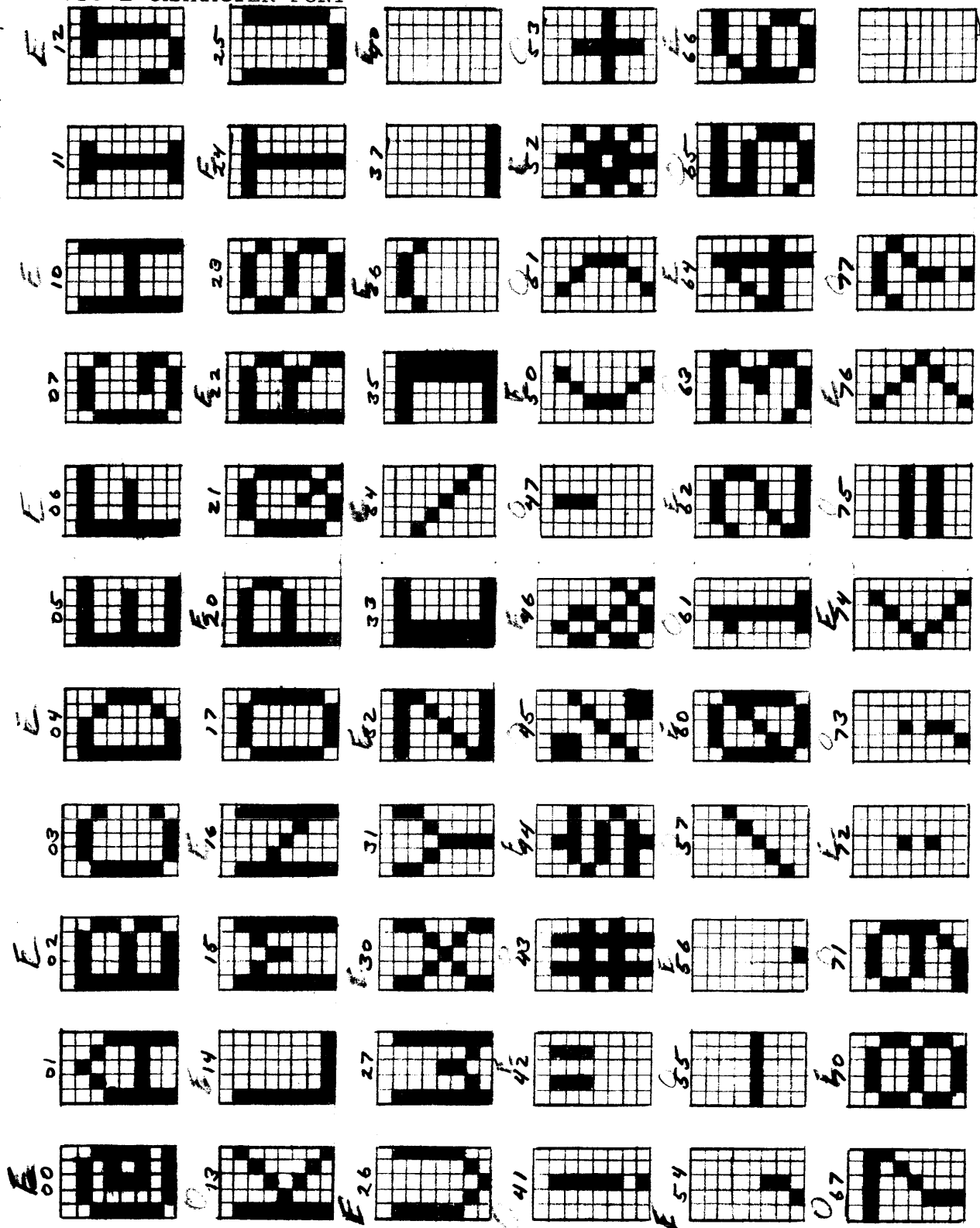
ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Figure 1
VT8-E CHARACTER FONT



SIZE A	CODE SP	NUMBER VT8-E-3	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

2.5.7 Buffer Size

A full screen alpha-numeric display requires $1280_{10} = 2400_8$ core locations for 64 characters per line. $640_{10} = 1200_8$ core locations for 32 characters per line. Graphic mode displays $3200_{10} = 6200_8$ words from core.

2.5.8 Processor Loading - each VT8-E

Alpha numeric, 64 characters per line full screen display uses approximately 9% processor time. Alpha numeric, 32 characters per line, full screen display uses approximately 4.5% of processor time. Graphic display uses approximately 25% of processor time.

2.6 Variations

The VT8-E is available in the following eight variations.

- VT8-EA 64 normal characters per line, 60 HZ, 115V
- VT8-EB 64 normal characters per line, 60 HZ, 230V
- VT8-EC 64 normal characters per line, 50 HZ, 115V
- VT8-ED 64 normal characters per line, 50 HZ, 230V
- VT8-EE 32 enlarged characters per line, 60 HZ, 115V
- VT8-EF 32 enlarged characters per line, 60 HZ, 230V
- VT8-EH 32 enlarged characters per line, 50 HZ, 115V
- VT8-EJ 32 enlarged characters per line, 50 HZ, 230V

SIZE A	CODE SP	NUMBER VT8-E-3	REV
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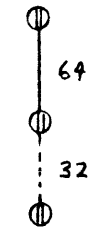

000 101

ENGINEERING SPECIFICATION 010101 CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Control modules are manufactured in the 64 character, 60 Hz configuration. Jumpers on the M8336, M8337 allow the control to be changed to any of the other three variations. The video terminal power line differs between the 50 Hz and 60 Hz configurations.

On the M8336 there are four sets of jumpers, which together select 64 or 32 character operation. A jumper set looks like this


or this


If all 64/32 jumper sets are set in the 64 position as shown above, the VT8-E will display normal size characters. There is also one 64/32 jumper set on the M8337 module.

50 Hz or 60 Hz operation is selected by two sets of jumpers on the M8336.

Jumper set locations and jumper positions are shown on the cover sheets and physical of the M8336 and M8337.

Priority Selection

The VT8-E can be operated on any of the three lowest priorities 9, 10, 11. Priority is selected by jumpers. On the M8337 a jumper in location W1, W2, or W3 corresponds to priorities 9, 10, and 11. On the M8335 there are four possible jumper positions F10, F10', F9, F9'. These should be arranged as indicated by the table below. Care must be taken to select the same priorities for both modules.

Priority	M8337 jumper inserted	M8335 jumpers
9	W1	F9 F10
10	W2	F9' F10
11	W3	F9' F10'

	SIZE A	CODE SP	NUMBER VT8-E-3	REV
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ENGINEERING SPECIFICATION 010101 CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

3.0 Specifications of Vendor Supplied Equipment

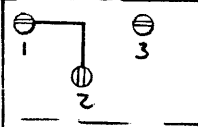
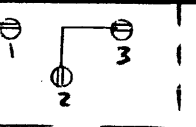
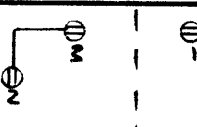
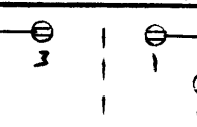
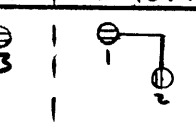

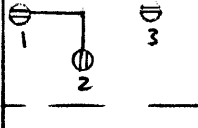
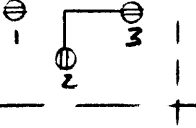
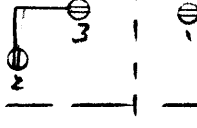
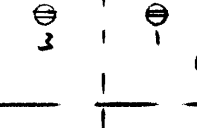
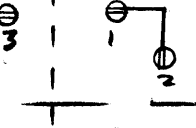

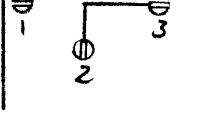
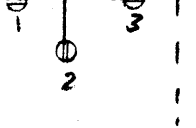
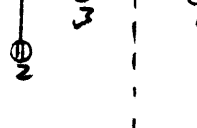
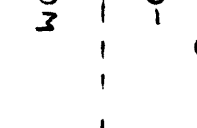
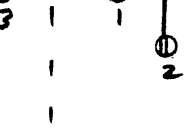





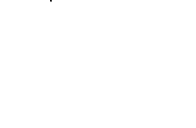

Refer to Purchase Specifications

Raster Display Module DEC #3010326 Purchase Spec A-PS-3010326-0
 LK01 Keyboard DEC #3010166-0 Purchase Spec A-PS-3010166-0
 Auxiliary Keyboard DEC #2010166-1 Purchase Spec A-PS-3010166-0

4.0 Programming

4.1 Device codes are originally set to 05 for the display, 03 for the keyboard, and 04 for the printer. However, split lugs and jumpers allow selection of any device code between 00 and 77 for the display, keyboard and printer. The device code selection jumpers are on the M8335. They are arranged as shown below. The device codes indicated are the standard 05, 03, and 04.

GROUP A GROUP B GROUP C GROUP D GROUP E GROUP F

						
						DIS PLAY
						KEYBOARD
						PRINTER

	SIZE A	CODE SP	NUMBER VT8-E-3	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Jumper positions for all 64 device codes are listed in the following table. This table indicates which split lugs are to be connected in each of the six groups (A-F) for any desired device code. Each of the three devices has a row of split lug groups. The table is used for all three devices. Care must be taken that the row of split lugs altered is for the correct device. Refer to the cover sheet for the M8335 for split lug locations.

Device Code	Group A	Group B	Group C	Group D	Group E	Group F
00	2-3	2-3	2-3	2-3	2-3	2-1
01	2-1	2-3	2-3	2-3	2-3	2-1
02	2-3	2-3	2-3	2-1	2-3	2-1
03	2-1	2-3	2-3	2-1	2-3	2-1
04	2-3	2-3	2-3	2-3	2-1	2-1
05	2-1	2-3	2-3	2-3	2-1	2-1
06	2-3	2-3	2-3	2-1	2-1	2-1
07	2-1	2-3	2-3	2-1	2-1	2-1
10	2-3	2-3	2-1	2-3	2-3	2-1
11	2-1	2-3	2-1	2-3	2-3	2-1
12	2-3	2-3	2-1	2-1	2-3	2-1
13	2-1	2-3	2-1	2-1	2-3	2-1
14	2-3	2-3	2-1	2-3	2-1	2-1
15	2-1	2-3	2-1	2-3	2-1	2-1
16	2-3	2-3	2-1	2-1	2-1	2-1
17	2-1	2-3	2-1	2-1	2-1	2-1
20	2-3	2-1	2-3	2-3	2-3	2-1
21	2-1	2-1	2-3	2-3	2-3	2-1
22	2-3	2-1	2-3	2-1	2-3	2-1
23	2-1	2-1	2-3	2-1	2-3	2-1
24	2-3	2-1	2-3	2-3	2-1	2-1
25	2-1	2-1	2-3	2-3	2-1	2-1
26	2-3	2-1	2-3	2-1	2-1	2-1
27	2-1	2-1	2-3	2-1	2-1	2-1
30	2-3	2-1	2-1	2-3	2-3	2-1
31	2-1	2-1	2-1	2-3	2-3	2-1
32	2-3	2-1	2-1	2-1	2-3	2-1
33	2-1	2-1	2-1	2-1	2-3	2-1
34	2-3	2-1	2-1	2-3	2-1	2-1
35	2-1	2-1	2-1	2-3	2-1	2-1
36	2-3	2-1	2-1	2-1	2-1	2-1
37	2-1	2-1	2-1	2-1	2-1	2-1
40	2-3	2-3	2-3	2-3	2-3	2-3
41	2-1	2-3	2-3	2-3	2-3	2-3

SIZE CODE NUMBER REV
A SP VT8-E-3

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

Device Code	Group A	Group B	Group C	Group D	Group E	Group F
42	2-3	2-3	2-3	2-1	2-3	2-3
43	2-1	2-3	2-3	2-1	2-3	2-3
44	2-3	2-3	2-3	2-3	2-1	2-3
45	2-1	2-3	2-3	2-3	2-1	2-3
46	2-3	2-3	2-3	2-1	2-1	2-3
47	2-1	2-3	2-3	2-1	2-1	2-3
50	2-3	2-3	2-1	2-3	2-3	2-3
51	2-1	2-3	2-1	2-3	2-3	2-3
52	2-3	2-3	2-1	2-1	2-3	2-3
53	2-1	2-3	2-1	2-1	2-3	2-3
54	2-3	2-3	2-1	2-3	2-1	2-3
55	2-1	2-3	2-1	2-3	2-1	2-3
56	2-3	2-3	2-1	2-1	2-1	2-3
57	2-1	2-3	2-1	2-1	2-1	2-3
60	2-3	2-1	2-3	2-3	2-3	2-3
61	2-1	2-1	2-3	2-3	2-3	2-3
62	2-3	2-1	2-3	2-1	2-3	2-3
63	2-1	2-1	2-3	2-1	2-3	2-3
64	2-3	2-1	2-3	2-3	2-1	2-3
65	2-1	2-1	2-3	2-3	2-1	2-3
66	2-3	2-1	2-3	2-1	2-1	2-3
67	2-1	2-1	2-3	2-1	2-1	2-3
70	2-3	2-1	2-1	2-3	2-3	2-3
71	2-1	2-1	2-1	2-3	2-3	2-3
72	2-3	2-1	2-1	2-1	2-3	2-3
73	2-1	2-1	2-1	2-1	2-3	2-3
74	2-3	2-1	2-1	2-3	2-1	2-3
75	2-1	2-1	2-1	2-3	2-1	2-3
76	2-3	2-1	2-1	2-1	2-1	2-3
77	2-1	2-1	2-1	2-1	2-1	2-3

SIZE CODE NUMBER REV
A SP VT8-E-3

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

4.2 Display Instruction Set

Mnemonic	Code	Function															
DPLA	6050	Load starting address register with the contents of AC 0-11 and clear the AC. (AC) → SAR 0 → AC															
DPGO	6051	Load the extended starting address register with the contents of AC 6-8 and GO in Alpha or Graphic mode, with real time clock interrupt enabled or disabled as specified by the contents of AC 10, 11. <table border="1"> <thead> <tr> <th>AC 10</th> <th>AC 11</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>∅</td> <td>∅</td> <td>Alpha, interrupt disabled</td> </tr> <tr> <td>∅</td> <td>1</td> <td>Alpha, interrupt enabled</td> </tr> <tr> <td>1</td> <td>∅</td> <td>Graphic, interrupt disabled</td> </tr> <tr> <td>1</td> <td>1</td> <td>Graphic, interrupt enabled</td> </tr> </tbody> </table> Clear the AC (AC 6-8) → XSAR GO 0 → AC	AC 10	AC 11	Function	∅	∅	Alpha, interrupt disabled	∅	1	Alpha, interrupt enabled	1	∅	Graphic, interrupt disabled	1	1	Graphic, interrupt enabled
AC 10	AC 11	Function															
∅	∅	Alpha, interrupt disabled															
∅	1	Alpha, interrupt enabled															
1	∅	Graphic, interrupt disabled															
1	1	Graphic, interrupt enabled															
DPSM	6052	Stop the display. Inhibit video and device initiated data breaks. Enter Maintenance mode and if AC11 = 1 Load extended starting address register with the contents of AC 6-8.															

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8-E ENGINEERING SPECIFICATION

		AC11 = ∅ Transfer contents of starting address registers to the address counters. Prepare for a maintenance break. ∅ → AC
DPMB	6053	Maintenance instruction. Perform one, one-cycle data break. The contents of the location specified by the address counter is transferred to the data buffer, and the address counter is incremented by one.
DPMD	6054	Maintenance instruction. Jam transfer the output of the data buffer to the AC. (Data Buffer) → AC
DPMS	6055	Maintenance instruction. Read the contents of the extended address counter into AC 6-8 and the state of the sense switch into AC ∅. (XAC) → AC 6-8 Sense Sw → AC ∅
DPCL	6056	Skip next sequential instruction if real time clock flag is set and clear the flag.
DPBL	6057	Generate a half second audible tone for use as a BELL.

SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	



TITLE VT8-E ENGINEERING SPECIFICATION

4.3 Keyboard Instruction Set

Mnemonic	Code	Function
DKCF	6030	<u>C</u> lear keyboard <u>f</u> lag.
DKSK	6031	<u>S</u> Kip next sequential instruction if keyboard flag is set.
DKCC	6032	<u>C</u> lear keyboard flag and <u>c</u> lear the AC.
	6033	Not used.
DKOB	6034	Logically <u>O</u> R the contents of the keyboard <u>b</u> uffer with AC 5-11 and deposit in AC 5-11. Transfer a 1 to AC 4. AC 0-3 remains unchanged. (Key Buf) 'OR' AC 5-11 → AC 5-11 1 → AC 4 (AC 0-3) → AC 0-3
DKIN	6035	Enable keyboard-printer <u>i</u> nterrupt if AC 11 = 1. Disable if AC 11 = 0.
DKRB	6036	<u>R</u> ead keyboard <u>b</u> uffer. Jam transfer the contents of keyboard buffer to AC 5-11. Set AC 4. Clear AC 0-3. Clear keyboard flag.

SIZE A	CODE SP	NUMBER VT8-E-3	REV
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TITLE VT8-E ENGINEERING SPECIFICATION

4.4 Printer Instruction Set

Mnemonic	Code	Function
PNSF	6040	<u>S</u> et printer <u>f</u> lag.
PNSK	6041	<u>S</u> Kip next sequential instruction if print done flag is set.
PNCF	6042	<u>C</u> lear printer <u>f</u> lag.
	6043	Not used.
PNLP	6044	<u>L</u> oad printer buffer from AC 5-11 and print . Clear AC.
PNSI	6045	<u>S</u> kip if about to <u>i</u> nterrupt. Skip if interrupt is enabled and either the keyboard flag or print done flag is set.
PNPC	6046	Load printer buffer from AC 5-11. <u>C</u> lear printer done flag and <u>p</u> rint. Clear AC.

4.5 Maintenance Features

The maintenance instructions enable the programmer to verify the correct operation of the extended starting address register, extended address counter, sense switch, data break control, data buffer, starting address register, and address counter. The VT8-E diagnostics (MAINDEC-08-DAVTA-A-PB and MAINDEC-08-DHVTB-A-PB) exercise the VT8-E in all display modes and aid in troubleshooting.

Description of Maintenance Instructions:

DPSM This instruction stops the display and sets maintenance mode by blanking the screen, inhibiting display initiated data breaks, inhibiting clocking of data buffer and locking the data buffer into the load state. During maintenance mode, the programmer can force a data break at any address thus shifting known data

SIZE A	CODE SP	NUMBER VT8-E-3	REV
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TITLE VT8-E ENGINEERING SPECIFICATION

into the data buffer, using instruction DPMB. As the data is shifted out of the buffer (31 or 63 shifts after it is shifted in) the data can be verified via instruction DPMD.

DPSM prepares for a single one-cycle data break by

- 1) Loading extended starting address register with the contents of AC 6-8 if AC $\emptyset = 1$.
- 2) Transferring the contents of the starting address registers to the address counters if AC $\emptyset = \emptyset$. DPSM clears the AC.

DPMB This instruction initiates a single one-cycle data break. One data word is transferred from the address specified by the address counter to the data buffer. This shifts the previous contents of the data buffer one position closer to the data buffer output. The DPMB also causes the address counter to be incremented. This instruction is inhibited unless in maintenance mode.

DPMD This instruction reads the output of the data buffer into the AC.

DPMS This instruction reads the contents of the extended address counter into AC 6-8 and the state of the sense switch into AC \emptyset .
 Sense ON AC $\emptyset = 1$
 Sense OFF AC $\emptyset = \emptyset$
 The sense switch is a rocker switch located below the power ON/OFF switch on the auxiliary keyboard.

Maintenance mode is always entered by DPSM and can be left only by DPGO. DPSM also doubles as STOP DISPLAY.

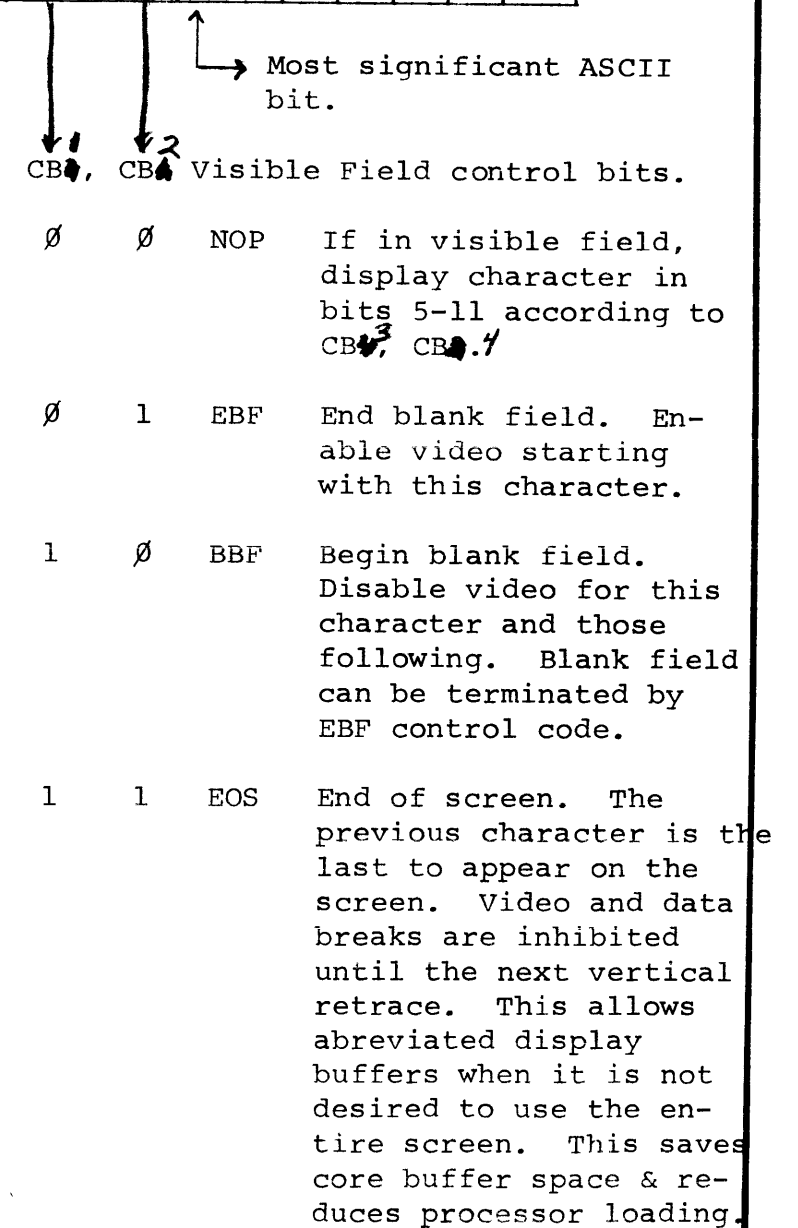
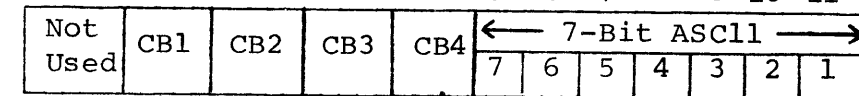
SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

TITLE VT8-E ENGINEERING SPECIFICATION

4.6 Data Format

4.6.1 Display, Alpha-numeric Data

MD BIT 0 1 2 3 4 5 6 7 8 9 10 11



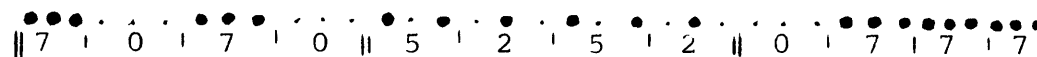
SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

TITLE VT8-E ENGINEERING SPECIFICATION

CB3	CB4	Character Display Mode Control Bits	
0	0	Normal	Display the character in bits 5-11 at normal intensity if in visible zone.
0	1	Blink	Blink this character at a 1.9 Hz rate (1.6 Hz for 50 Hz systems) if in visible zone.
1	0	Bold	Display this character at increased intensity if in visible zone.
1	1	Cursor	Display this character as a cursor if in a visible zone. The character and its dot matrix compliment are displayed alternately at a 3.7 Hz rate (3.1 Hz for 50 Hz systems).

4.6.2 Display, Graphic Data

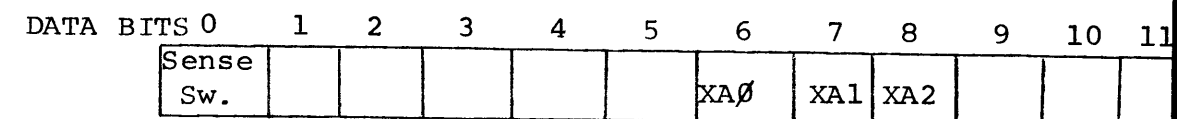
The graphic display field is a dot matrix, 189 dots wide by 200 dots high. Each dot position corresponds to a bit of a data word in the core buffer. The first word of the buffer defines the first 12 dots on the first row. Bit 0 is the first to be displayed, bit 11 the last. If a bit is a 1, a dot will be displayed; if it is a 0, no dot is displayed. Thus, if the first three words of the buffer were 7070, 5252, 0777, the corresponding display would be



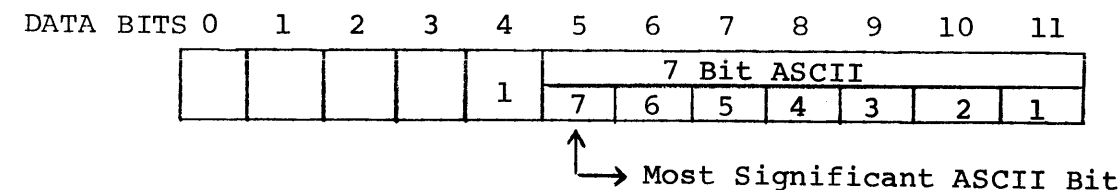
It requires 16 words to define one line of graphic data. The last three bits of the 16th word on a line are not displayed. When in graphic mode there is no way to terminate the buffer short of 3200 words; thus the entire buffer must be defined even if a major portion is blank.

TITLE VT8-E ENGINEERING SPECIFICATION

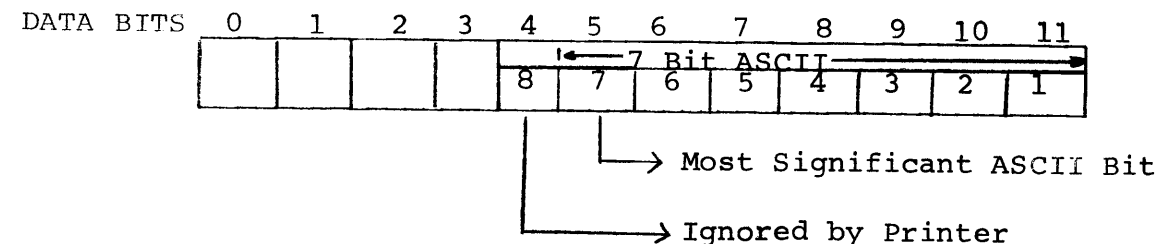
4.6.3 Display, Extended Address Counter and Sense Switch Data



4.6.4 Keyboard Data



4.6.5 Printer Data



4.7 Timing of Signals Available to Programmer

Data read into the AC during the DPMD and DPMS is gated onto the data bus during I/O Pause.

Real time clock flag sets every 16 2/3 ms. (20 ms. for 50 Hz systems). The setting of the flag corresponds to the beginning of the vertical retrace on the display. If the programmer wishes to change between alpha and graphic modes, this must be done within 150 μs. after the real time clock flag sets.

TITLE VT8-E ENGINEERING SPECIFICATION

4.8 Operatpr's Controls

4.8.1 Volume of 'beep' is controlled by R25 on the M8336.

4.8.2 Video Terminal Controls

Horizontal Hold - Stablizes picture in horizontal direction.

Vertical Hold - Stablizes picture in vertical direction.

Brightness - Adjusts intensity of raster.

Contrast - Adjusts contrast.

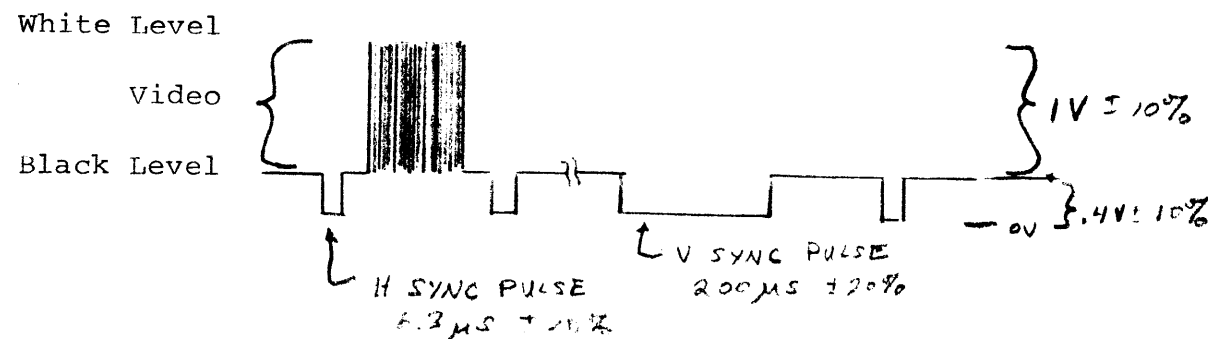
The above controls are potentiometers located on the right side of the housing.

Power ON/OFF - Applies line power to display module located on auxiliary keyboard.

Sense ON/OFF - The position of this switch is read into ACØ by the DPMS instruction ON = 1, OFF = 0. The meaning of this switch is defined by the programmer.

5.0 Interface Specifications

A composite video signal is available from J1 of the M8336. The signal appears as below.



SIZE	CODE	NUMBER	REV
A	SP	VT8-E-3	

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 01/16/73

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG P. Kotschenrauthen	APPD <i>Jim Parker</i>	SIZE A	CODE AP	NUMBER VT8-E-6	REV
---------------------------	---------------------------	-----------	------------	-------------------	-----

ENGINEERING SPECIFICATION

010100

CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

1.0 SCOPE

- 1.1 This specification sets forth the procedure for inspection of the VT8E alpha/graphic display terminal and control in accordance with the Workmanship Manual, DEC Standards, ECO's, VT8E specifications and prints. The monitor shall meet the standards set forth in the purchase specifications.

Motorola #3010326
- 1.2 All units submitted to acceptance must successfully complete the production checkout procedure.
- 1.3 Any unit which fails any of the requirements of this procedure will be classified as defective and returned to production for rework.
- 1.4 Units submitted to Acceptance after rework may be recycled through the entire acceptance procedure or any portion thereof at the discretion of the acceptance operator.
- 1.5 Any unit may be checked for compliance with the engineering specifications at the discretion of Acceptance personnel.
- 1.6 Approximate Run Time 2½ hours.
- 1.7 All picture quality shall be matched with the overlay and quality picture

2.0 REQUIRED DOCUMENTS

- 2.1 VT8E Display Test 1 - MAINDEC-08-DHVTA-A
- 2.2 VT8E Display Test 2 - MAINDEC-08-DHVTB-A
- 2.3 LA30 MAINDEC - 8E-D2FB-PB
- 2.4 VT8E Engineering Specifications
- 2.5 MAINDEC 8E-D2FB-D

SIZE A	CODE AP	NUMBER VT8-E-6	REV
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

3.0 REQUIRED TEST EQUIPMENT

3.1 PDP8/E or PDP8/M

3.2 Checked out LA30A-PA

4.0 ACCEPTANCE PROCEDURE

4.1 Mechanical Inspection

4.1.1 Check unit against construction requisition.

4.1.2 Inspect modules for workmanship.

4.1.3 Check all modules for proper circuit and etch revisions and verify against FCO status sheet and key sheet.

4.1.4 Check for final inspection stamp on all modules including the H851 over the top connectors.

4.1.5 Inspect the H851's for cracks.

4.1.6 Hardware Inspection

4.1.6.1 Check switches for proper mounting and freedom of operation.

4.1.6.2 Check wiring dress, cable and mechanical connections for compliance with hardware Assemblies Standard (A-SP-7665099-0-0).

4.1.6.2 Insure all mounting screws and bolts are installed through the base plate into casting.

4.1.6.4 Check for high voltage warning signs on the monitor and interlock switch.

4.1.6.5 Insure the unit is clean and free of all foreign material.

4.1.6.6 Insure proper alignment of control knobs.

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.1 Mechanical Inspection (Continued)

4.1.6 (Continued)

4.1.6.7 Insure presence of interlock switch insulating shield.

4.1.6.8 Insure proper grounding throughout unit.

4.1.6.9 Check for inspection stamps on the monitor and keyboard if applicable.

4.1.6.10 Insure all crimp connectors are secured properly.

4.1.6.11 Insure the device codes are labeled on the M8335 module.

4.1.6.12 Check to insure all device codes on the M8335 are selected correctly.

NOTE: Due to a lack of off line testing capabilities a close visual inspection of the electrical test section will have to be performed.

4.2 Electrical Test

NOTE: Halt the diagnostic programs with SW $\phi=1$ only. Do not use the halt switch. Turn one monitor.

4.2.0 Real Time Clock Test

Load the following program into core.

ADDRESS

0000	0000
0001	1510
1500	6002
1501	6056
1502	7000
1503	7201

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E ACCEPTANCE PROCEDURE (IN HOUSE)

4.0 ACCEPTANCE PROCEDURE (Continued)

4.2 Electrical Test (Continued)

4.2.0 Real Time Clock Test (Continued)

ADDRESS

1504	6051
1505	6052
1506	6001
1507	5306
1510	6056
1511	7402
1512	5300

Load and start at address 1500. Using a scope examine inter ROST L at CPI on the omnibus. This should occur every 16 2/3 ms. A halt at location 1511 indicates the program could not skip on the RTC flag after an interrupt was generated. The M8335 module fails if the interrupts are observed to occur other than every 16 2/3ms or if the error halt occurs.

4.2.1 Load the alpha-numerical diagnostic, VT8E video display Test 1, MAINDEC 08-DHVTA-A using normal binary loading procedures. Program assumes normal IOT's if different use SA70 to change the device codes in the program.

4.2.2 Selected Character Test

4.2.2.1 Load Address 0074

Set any character code in SR 5-11. Press clear and continue. Program halts, clear all switches. Set SR 2=1 press continue. A full screen of the character selected will be shown.

4.2.2.2 Turn brightness and contrast controls fully counter-clockwise. Insure that screen is dark.

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.2 Electrical Test (Continued)

4.2.2 Selected Character Test (Continued)

4.2.2.3 Turn brightness control fully clockwise. Insure that screen is illuminated.

4.2.2.4 Turn brightness control counter-clockwise until screen just becomes dark. Turn contrast control clockwise until characters are visible.

4.2.2.5 Check the operation of the vertical hold control by turning it all the way clockwise and then counter-clockwise until the picture is distorted then re-adjust.

4.2.2.6 Check the operation of the horizontal hold control by turning it all the way clockwise and counter-clockwise, until the picture is distorted then readjust.

4.2.2.7 Readjust picture to correct image and put SR 2=0. Characters should change approximately every second. Run on complete pass through the character codes. Set sense switch on display to OFF.

4.2.3 Run the alpha-numerical diagnostic MAINDEC-08-DHVTA-A. Consult diagnostic listing for switch settings. Run for 2 passes, approximately 40 minutes. After starting, program will halt at address 0264, put sense switch to ON and continue, this checks the condition of the sense switch.

4.2.4 Run Keyboard Test

4.2.4.1 Load SA 0072. Start 0000.

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.2 Electrical Test (Continued)

4.2.4 Run Keyboard Test

- 4.2.4.1 The keyboard test has three (3) sections to it and by depressing CR the program goes to the next section or ends the test after Section 3.
- 4.2.4.2 Section 1. Check lower case operation by typing all the keys on the keyboard. Do not type "CR"
- 4.2.4.3 Check upper case operation by depressing shift key and typing all the appropriate keys on the keyboard.
- 4.2.4.4 Type one complete line of any character and count the number of characters. Should be 32 or 64.
- 4.2.4.5 Depress "CR" for Section 2.
- 4.2.4.6 Check the cursor right operation by depressing the "→" key and observe the word right on the screen.
- 4.2.4.7 Check the cursor left operation by depressing the "←" key and observe the word left on the screen.
- 4.2.4.8 Check the down cursor operation by depressing the "↓" key and observe the word down on the screen.
- 4.2.4.9 Check cursor up operation by depressing the "↑" key and observe the word up on the screen.
- 4.2.4.10 Depress the home key and observe the word home on the screen.

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.2 Electrical Test (Continued)

4.2.4 Run Keyboard Test (Continued)

4.2.4.11 Depress "CR" for Section 3. Depressing a key will show on the screen the ASCII code for the character, and the position of the sense switch. Depressing A shows:

A = 301 SW = 1 (Switch ON)
A = 301 SW = 0 (Switch OFF)

Check all character Codes.

Depress "CR" end of keyboard test. Program will recycle.

4.2.4.12 Check the spot burn protection circuitry of the monitor as the monitor should now be thoroughly warmed up. Turn brightness control full counter clockwise and shut the AC power off while looking at the screen. The raster should collapse to a spot which should not last more than 5 seconds. If the spot burn protection circuitry is faulty, the spot will be very bright lasting much longer than 5 seconds. Readjust brightness control.

4.2.5 Load the graphic test tape (VT8E Video Display Test 2) using normal binary loader procedures.

MAINDEC #08-DHVTB-A

4.2.5.1 Load SA ~~0200~~ with the IF and DF set to the program field. Start with SR 4 = to 60 or 50 cycles and SR 6 = to characters per line.

SR4=0 = 60 cycle SR6=0 64 characters

SR4=1 = 50 cycle SR6=1 32 characters

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.2 Electrical Test (Continued)

4.2.5 (Continued)

4.2.5.1 Run for 30 minutes.

Ensure visual monitor meets specifications.

4.2.5.2 Check for proper execution of the particular starting addresses. Load address of each test below and follow the switch settings of Section 4.2.5.1.

- 0072 - Full Screen
- 0073 - Full Blank Screen
- 0074 - Checkerboard Pattern
- 0075 - Vertical Grid Pattern
- 0076 - Flash a Full Screen of dots followed by a Blank Screen.
- 0077 - Display alpha with a screen dots
- 0100 - Display alpha with the vertical grid pattern.

Run each starting address for two (2) minutes.

4.3 Printer Control

Connect known good LA30A-PA to VT8E control. Load printer diagnostic MAINDEC 8E-D2FB-PB using normal binary loading procedures. Run printer tests referencing 8E-D2FB-D diagnostic write-up, The VT8E keyboard is used in place of the LA30 keyboard to run through the diagnostic. No errors are allowed.

4.4 System Acceptance

4.4.1 Run both diagnostics for a minimum of two passes on the VT8E video display test 1 and for a minimum of 30 minutes with VT8E video display test 2.

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.4 System Acceptance (Continued)

4.4.2 Run DECX8 Rev. B with the VT8E module. Insure that the system configuration meets the required standards set forth regarding the running of DECX8 on the system.

4.4.3 Run Section 4.3 if applicable.

4.5 Preparation for Shipment and Document Check

4.5.1 Insure the unit is clean and free of any foreign material.

4.5.2 Insure the foam strip, mask and protective screen are installed in the cover.

4.5.3 The cover shall meet finish specifications described in DEC Standard 092-00100.

4.5.4 Install and secure the cover. Insure proper alignment of the keyboard and interlock switch.

4.5.5 Check for accessories in accordance with the accessory check list, drawing number A-AL-VT8E-8.

4.5.6 Check for correct diagnostic tapes and listings, with the Software Accessory Checklist, drawing number A-SL-VT8E-7.

4.5.7 Requirements for customer envelope preparation.

4.5.7.1 Construction Requisition (1 copy)

4.5.7.2 Keysheets (2 copies)

4.5.7.3 Blanket Waiver (if one) (one copy)

4.5.7.4 Waiver (all copies except yellow copy)

4.5.8 Customer Envelope Contents

4.5.8.1 Customer Acceptance Report

4.5.8.2 Keysheet (2 copies)

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

TITLE VT8E IN HOUSE ACCEPTANCE PROCEDURE

4.0 ACCEPTANCE PROCEDURE (Continued)

4.5 Preparation for Shipment and Document Check (Con't)

4.5.8 Customer Envelope Contents (Continued)

4.5.8.3 ECO Status Sheets (yellow copy)

4.5.9 T & I Envelope Contents (Continued)

4.5.9.1 ECO Status Sheet (2 copies)

4.5.9.2 Keysheets (3 copies, minimum)

4.5.9.3 Waiver (Yellow copy)

4.5.9.4 Blanket Waiver (1 copy)

4.5.9.5 Acceptance Log and Check Sheets.

SIZE	CODE	NUMBER	REV
A	AP	VT8-E-6	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

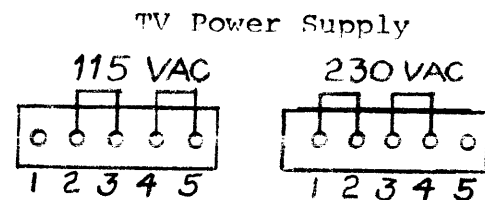
TITLE VT8E FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

3.0 PRIMARY POWER (AC)

3.1 The VT8E uses a single (permanently connected) AC power cable to connect the site power source to the VT8E Display power supply. The VT8E operates at 100-130 VAC, 50-60 Hz, single phase or 200-260 VAC 50-60 Hz, 1A, single phase.

CAUTION: Before proceeding, ensure that the VT05 power transformer windings are correctly connected (for 115V or 230 V operation) to correspond to the installation site power source as shown in Figure 2-1 and drawings D-UA-VT8E-0-0.

Figure 2-1



Sylvania

NOTE: If display monitor is Motorola check TV voltage selection switch on the side of the display chassis. Figure 2-1 does not apply in this case.

Each wire in the power cable is color-coded as shown in Table 2-1.

Table 2-1

POWER CABLE LINE IDENTIFICATION

Pigtail Information Terminal Strip Nomenclature

Line	Wire Color	Terminal Strip Nomenclature
Frame Ground	Green	Frame Ground
Neutral/ Line 2	White	Neutral or Line 2
Line 1	Black	Line 1

SIZE	CODE	NUMBER	REV
A	FI	VT8-E-7	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE VT8E FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

3.0 PRIMARY POWER (AC) (Continued)

NOTE: The green wire is the cabinet frame ground and does not carry load current but must be connected for personnel safety. The white wire is the neutral, common, AC return, or cold load and should never be used for VT8E grounding purposes.

The VT8E is normally supplied with a 15A connector. The selected AC service outlet must be capable of at least 2A, 110 VAC, 50 or 60 Hz or 1A, 200 VAC, 50 or 60 Hz single phase.

3.2 Initial Setup

3.2.1 VT8E Power Connections

Use the following procedure for the initial power check of the VT8E:

- Ensure the main power switch on the right front of the VT8E is off.
- Meter the wall receptacle to ensure that the hot, neutral, and ground connections conform to the VT8E requirements.
- Turn main power on to insure display monitor is getting power.
- Turn off main power.

4.0 MODULE AND I/O INSTALLATION

4.1 I/O Cable Installation

- Connect J3 Winchester connector to the mating connector located at the rear of the video display terminal.
- Connect J1 cable connector to J1 on the M8336.
- Connect J2 cable connector to J1 on the M8335.
- If an LA30A-PA or Centronics type line printer or equivalent type printer only device is to be installed connect the printer cable to J2 on the M8335.

SIZE	CODE	NUMBER	REV
A	FI	VT8-E-7	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8E FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

4.0 MODULE AND I/O INSTALLATION (Continued)

4.1 I/O Cable Installation

NOTE: Due to space limitations, it is advisable to connect the interconnecting cables to the interface modules before inserting the modules into the omnibus.

4.2 Plug the M8336, M8337, M8335 control modules into the omnibus per the "Recommended Slot Assignment List" in the 8E, 8M, 8F Maintenance Manual Table 2-3, Volume 1. The VT8E is a non-memory option.

4.3 The VT8E modules are plugged into adjacent omnibus slots in this order:

M8336 - First
M8337 - Middle
M8335 - Last

4.4 Install the H851 top connectors between M8336H and M8337H, M8337 E and F and M8335 E and F.

4.5 When installing more than one VT8E control (up to four may be installed in one system) the next control goes into the system directly behind the first. The two controls are interconnected by an H851 top connector located at M8335 J of the first control to M8336 J of the second one.

5.0 CUSTOMER ACCEPTANCE

Customer Acceptance consists of ensuring system operation by running all diagnostic programs provided, running an operating test of the system software, inspecting the shipping checklist, and completing a physical inspection of the VT8E. There should be no physical damage, and the shipping checklist should be complete.

5.1 Customer Acceptance Procedure

Prior to running of customer acceptance, the VT8E should be installed in accordance with the procedure, in Section 1.0 and 4.5.

Enclosed with the VT8E you will find a large envelope containing the following items:

SIZE	CODE	NUMBER	REV
A	FI	VT8-E-7	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE VT8E FIELD INSTALLATION AND ACCEPTANCE PROCEDURE

5.0 CUSTOMER ACCEPTANCE (Continued)

5.1 Customer Acceptance Procedure (Continued)

5.1.1 Customer Acceptance Forms

Upon successful completion of acceptance, the field serviceman must list any exceptions to proper acceptance on this form. The exceptions must include missing items, incomplete shipments or specification conflicts. The customer must sign the Acceptance Form.

5.1.2 Accessory Checklist

This is a list of all items which were shipped with the VT8E and should be used to inventory the shipment. The customer should be present during this inventory. Any missing items should be noted on the Customer Acceptance Form.

Customer Acceptance is a demonstration to the customer, that the VT8E operates according to specification. The demonstration shall consist of operating the appropriate diagnostics in the customers presence.

1. Consult the supplied diagnostic write-ups for proper set-up and operation.

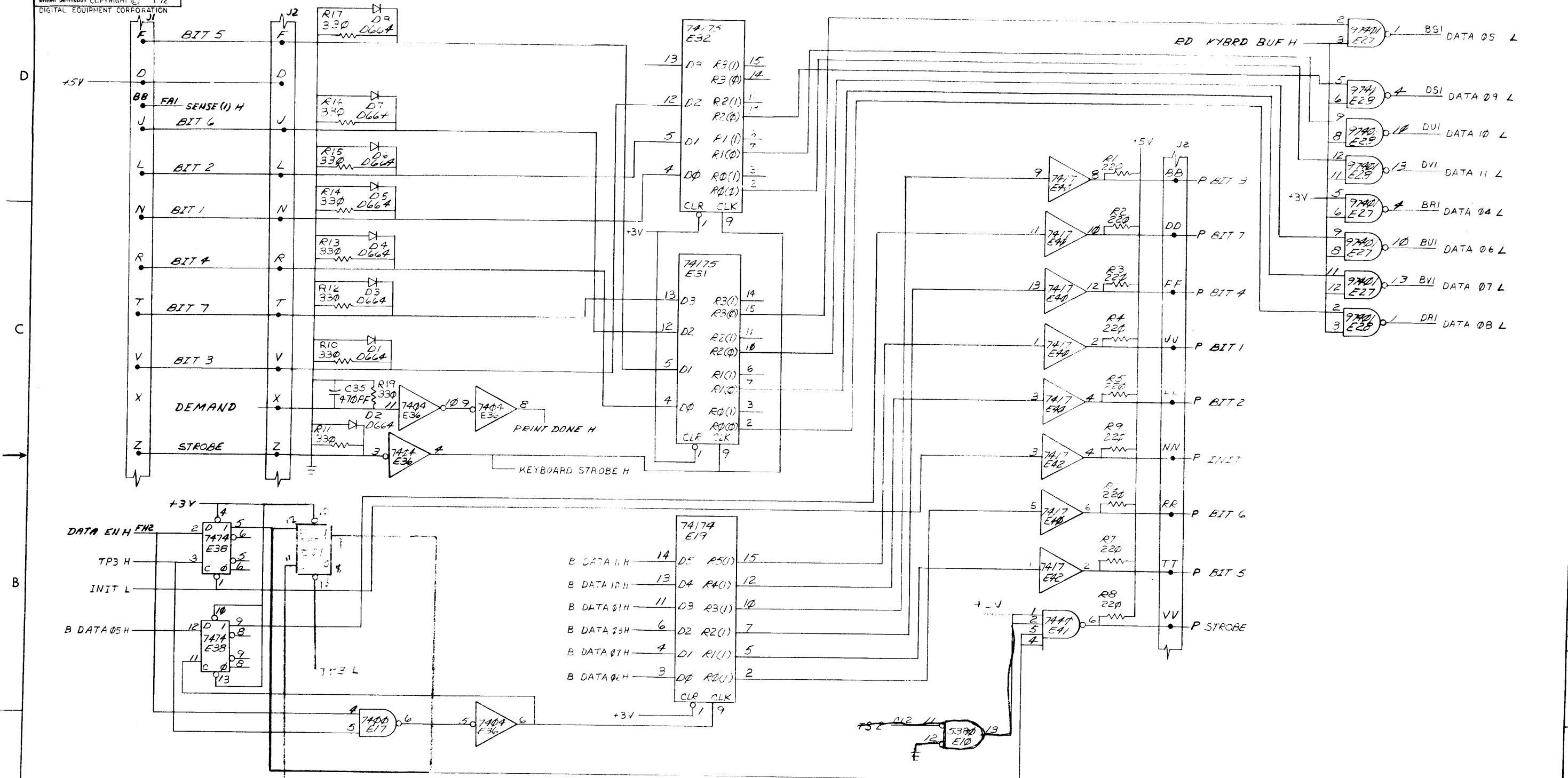
2. Run the diagnostic for one complete pass.

Successful completion of 1 and 2 shall constitute completion of VT8E Customer Acceptance. Discrepancies must be listed on the Customer Acceptance Form, and signed by the customer.

SIZE	CODE	NUMBER	REV
A	FI	VT8-E-7	

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8 1-0-6281W 2 1



BRUNING 40-522 15840

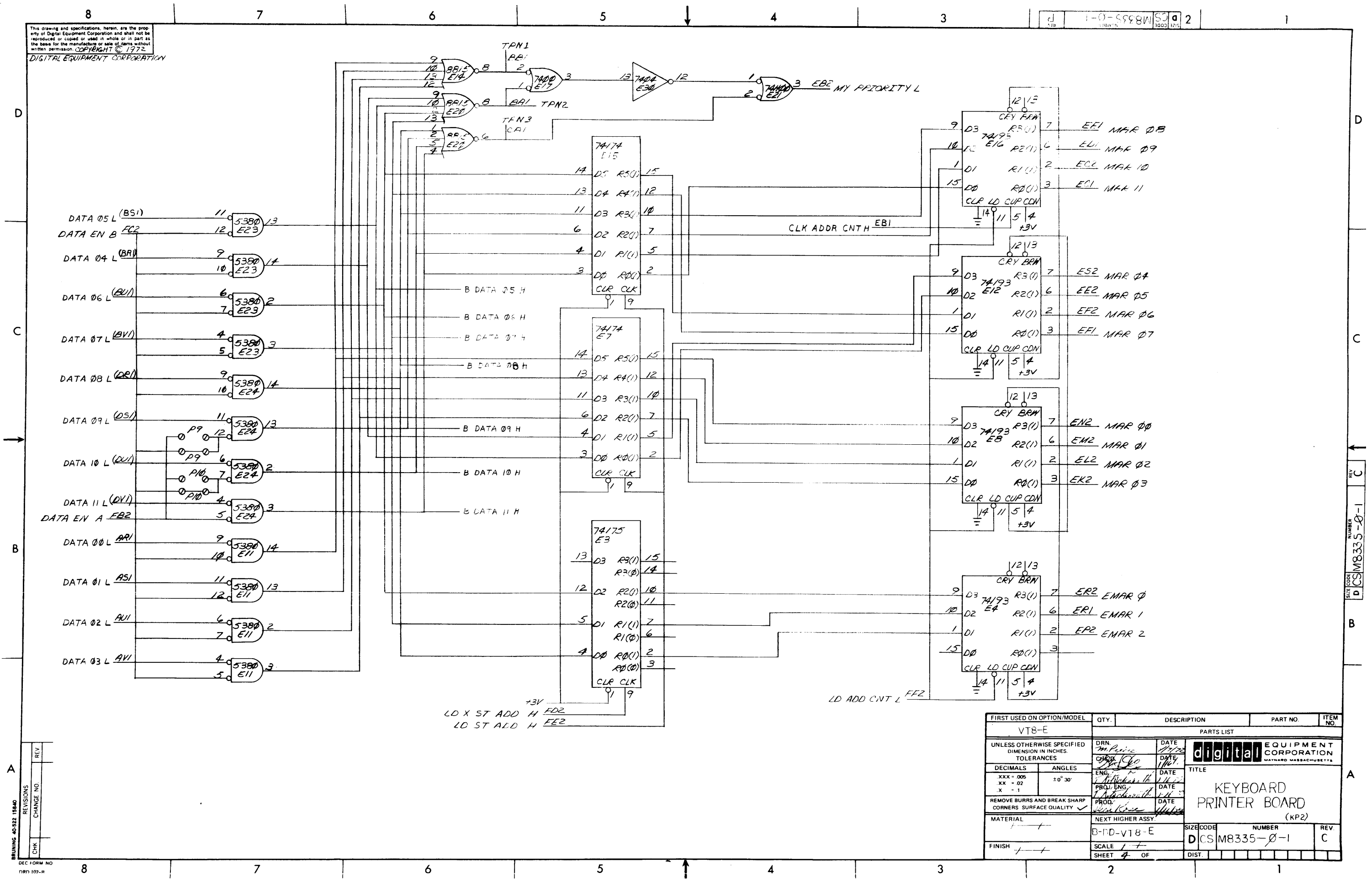
REV	CHANG	NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
VT8-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN DATE CHKD DATE ENG DATE PROJ ENG DATE PROD DATE	DATE DATE DATE DATE DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	ANGLES	10 30	TITLE KEYBOARD PRINTER BOARD	
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY			
FINISH	BULL-VT8-E	SIZE CODE D	NUMBER M8-35-0-1	REV C
SHEET 3 OF		DIST		

SIZE CODE NUMBER
D CS M8-35-0-1

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CS M8335-0-1 2



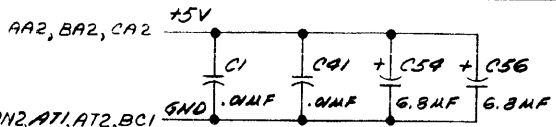
BRUNING 40-522 15640	REV
REVISIONS	CHG
CHANGE NO.	
DEC FORM NO. DRD 102-R	

FIRST USED ON OPTION/MODEL VT8-E	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN <i>M. Price</i>	DATE <i>11/20</i>	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS .005 XX .02 X .1	ENG. <i>J. Nicholas</i>	DATE <i>11/17</i>	TITLE KEYBOARD PRINTER BOARD (KP2)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>J. Nicholas</i>	DATE <i>11/17</i>	MATERIAL NEXT HIGHER ASSY. D-PD-VT8-E	
FINISH	SCALE	SHEET 4 OF	SIZE CODE D CS M8335-0-1	NUMBER REV. C

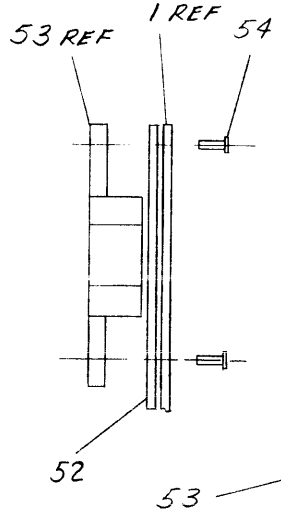
REV. C
NUMBER
D CS M8335-0-1

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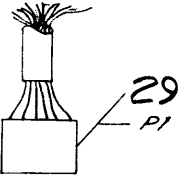
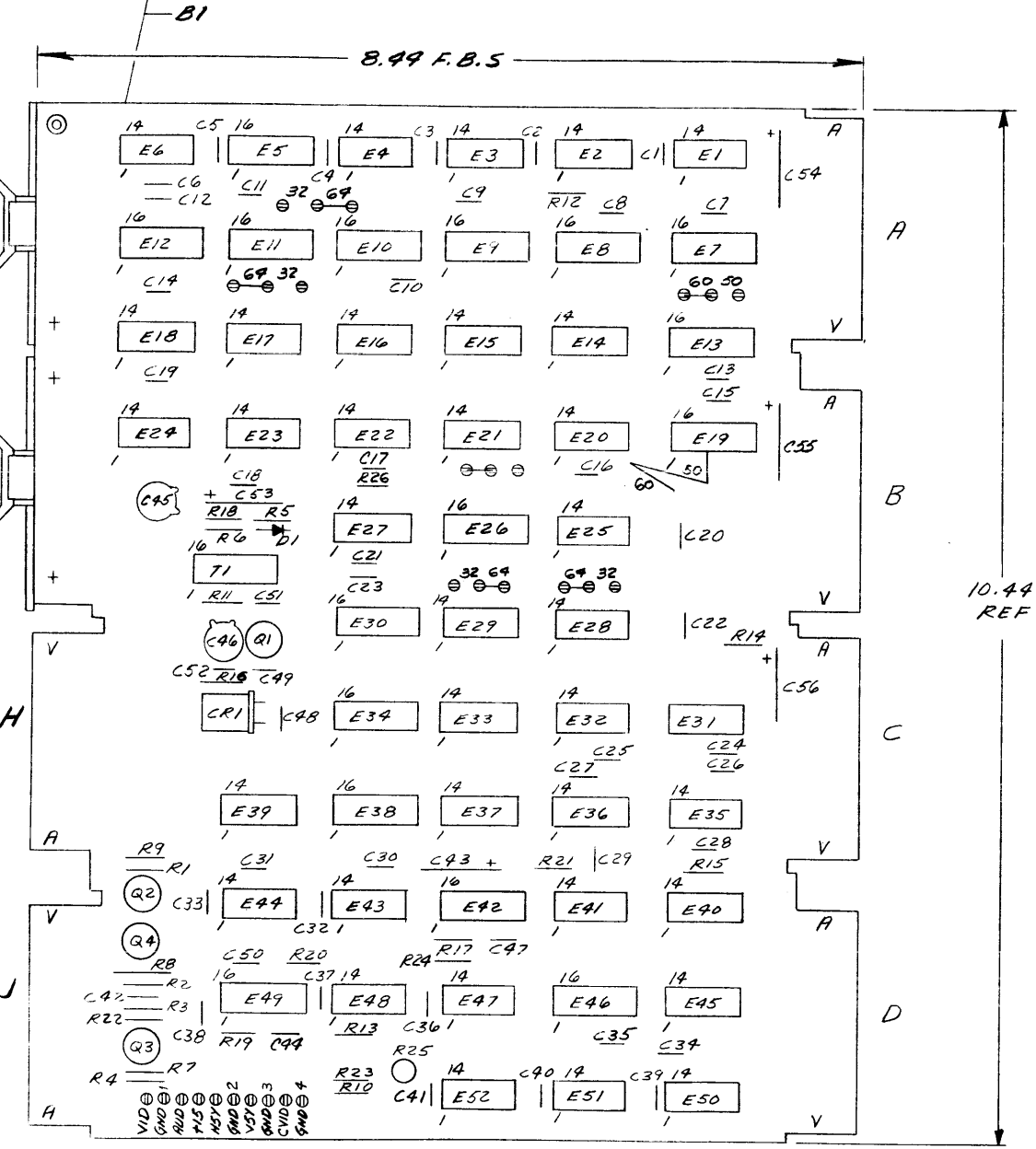
NOTES:
 1. UNLESS OTHERWISE SPECIFIED ALL CAPACITORS ARE IN MICROFARADS AND ALL RESISTORS ARE IN OHMS.
 2. SEE WIRE TABLE FOR CONNECTIONS FROM CABLE (ITEM #29) TO SPLIT LUGS.



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.



ITEM NO	DESCRIPTION	FROM		TO			
		AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH
29	#22	BRN	PI-1	---	BI-VID	SOLDER	
		RED	PI-2	---	BI-GND 1		
		ORN	PI-3	---	BI-HSY		
		YEL	PI-4	---	BI-GND 2		
		GRN	PI-5	---	BI-VSY		
		BLU	PI-6	---	BI-GND 3		
		VIO	PI-7	---	BI-RUD		
		GRY	PI-8	---	BI+15		
		WHT	PI-9	---	BI-CVID		
#29	#22	BLK	PI-10	---	BI-GND 4	SOLDER	



REF	WIRE LIST	AMOUNT	ITEM NO.
YR	*30AWG SOLID WIRE (15#)	105740-44	56
28	SPLIT LUGS (GS4-11)	7006735	58
4	EYELETS	9006730	54
2	HANDLE FLIP CHIP (MAGENTA)	9008337-6	53
2	SPACER (CABLE CLAMP)	1202709	52
1	E51	I.C. DEC 7450	1905580
1	E48	I.C. DEC 7416	1909928
2	E45, E50	I.C. DEC 5380	1910392
2	E42, E49	I.C. DEC 74123	1910930
1	E40	I.C. DEC 7437	1910091
1	E35	I.C. DEC 97401	1909973
3	E30, E34, E38	I.C. DEC 8266	1909934
5	E28, E29, E37, E41, E43	I.C. DEC 7474	1905547
1	E27	I.C. DEC 74404	1909931
4	E24, E31, E32, E52	I.C. DEC 7403	1909636
2	E17, E23	I.C. DEC 7473	1905587
1	E16	I.C. DEC 74400	1909056
2	E15, E20	I.C. DEC 7410	1905576
2	E14, E39	I.C. DEC 7420	1905577
2	E12, E46	I.C. DEC 7442	1910046
7	E6, E21, E22, E25, E33, E36, E47	I.C. DEC 7402	1909004
9	E5, E7-E11, E13, E19, E26	I.C. DEC 74193	1910018
1	E3	I.C. DEC 8815	1909713
3	E2, E4, E18	I.C. DEC 7408	1910155
2	E1, E44	I.C. DEC 7400	1905575
1	CR1	CRYSTAL 21.840 MHZ	1809850-05
1	T1	TRANSFORMER 8010	1609651
4	Q1-Q4	TRANSISTOR DEC 3009B	1503100
1	R25	RES. 10K 1/2W 30% T.POT	1309150-03
1		CABLE MODULE	020-7009054-0-0
1	R23	RES. 120 1/2W 5%	1300243
1	R22	RES. 820 1/4W 5%	1301775
1	R21	RES. 47K 1/4W 5%	1302177
1	R20	RES. 51K 1/4W 5%	1304899
1	R19	RES. 13.3K 1/8W 1%	1302412
1	R18	RES. 3.3K 1/4W 5%	1300437
2	R16, R17	RES. 10K 1/4W 5%	1300479
4	R14, R15, R24, R26	RES. 1K 1/4W 5%	1300365
1	R8	RES. 150 1/4W 5%	1300260
2	R5, R6	RES. 470 1/4W 5%	1300316
2	R4, R9	RES. 33 1/4W 5%	1300191
1	R3	RES. 1.2K 1/4W 5%	1301320
7	R1, R2, R7, R10-R13	RES. 220 1/4W 5%	1300271
1	D1	DIODE D662	1100113
4	C53-C56	CAP. 6.8 µF 35V 20% 5.7MM	1000067
1	C52	CAP. 100PF 100V 5% DM	1000016
1	C51	CAP. 68 PF 100V 5% DM	1000014
1	C50	CAP. 390 PF 100V 5% DM	1001631
1	C49	CAP. 33 PF 100V 5% DM	1000009
2	C45, C46	CAP. .047 µF 16V 20% DISC	1003478
1	C44	CAP. .047 µF 200V 10%	1036553
1	C43	CAP. 39 µF 10V 10% 5.7MM	1000076
3	C42, C47, C48	CAP. 10PF 100V 5% DM	1000006
41	C1-C41	CAP. .01 µF 100V 20% DISC	1001610
1		ETCHED CIRCUIT BOARD	5015071
REF		MODULE ECO HISTORY	B-MH-MB336-4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-MB336-4-5
REF		X-Y COORDINATE HOLE LOC.	K-CO-MB336-4-7

IC TYPE	GND	+5V
DEC 7442	B	16
DEC 74193	B	16
DEC 8266	B	16

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

IC PIN LOCATIONS
VID
GND
RUD
MSY
GND
VSY
GND
CVID
GND

BRUNING 40-522 16699

DEC FORM NO. DRD-135A

FIRST USED ON OPTION MODEL VT8-E

ETCH BOARD REV A

DATE 11/16/73

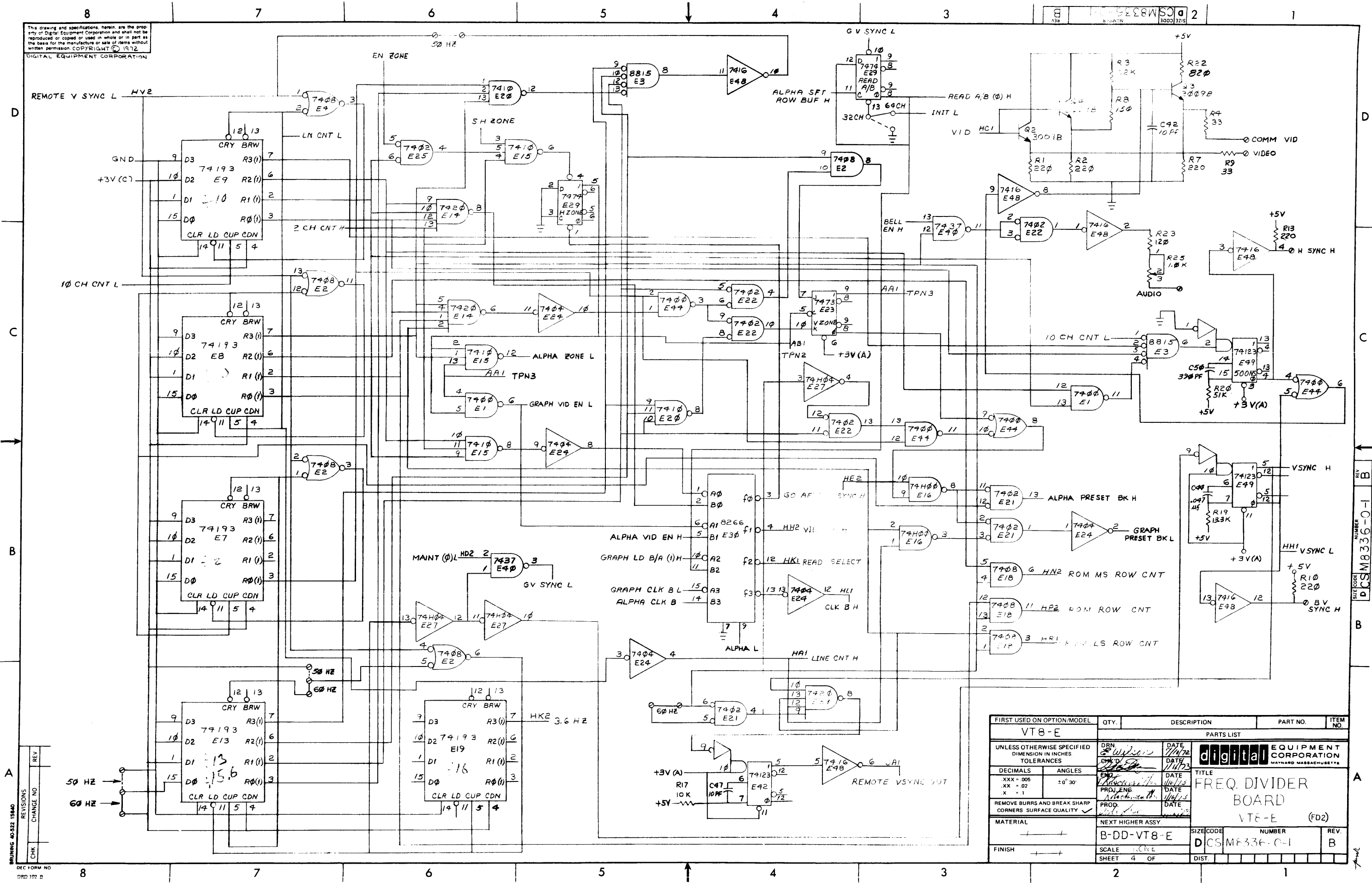
digital EQUIPMENT CORPORATION

VT8-E FREQUENCY DIVIDER

SCALE DCSI MB336-4-1

SHEET 2 OF 2

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BRWING 40-522 15840

REV	CHANGE NO

DEC FORM NO 09D 102 B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS .xxx = .005	ANGLES ±0°30'	TITLE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 1/10/72 DATE 1/17/73 DATE 1/16/73 DATE 1/16/73 DATE 1/16/73		
MATERIAL	NEXT HIGHER ASSY.	DATE 1/16/73 DATE 1/16/73 DATE 1/16/73		
FINISH	SCALE 1:1	DATE 1/16/73 DATE 1/16/73 DATE 1/16/73		
SHEET 4 OF		DIST.		

digital EQUIPMENT CORPORATION
 MATTAPOISETT, MASSACHUSETTS

TITLE
FREQ. DIVIDER BOARD
 VT8-E (FD2)

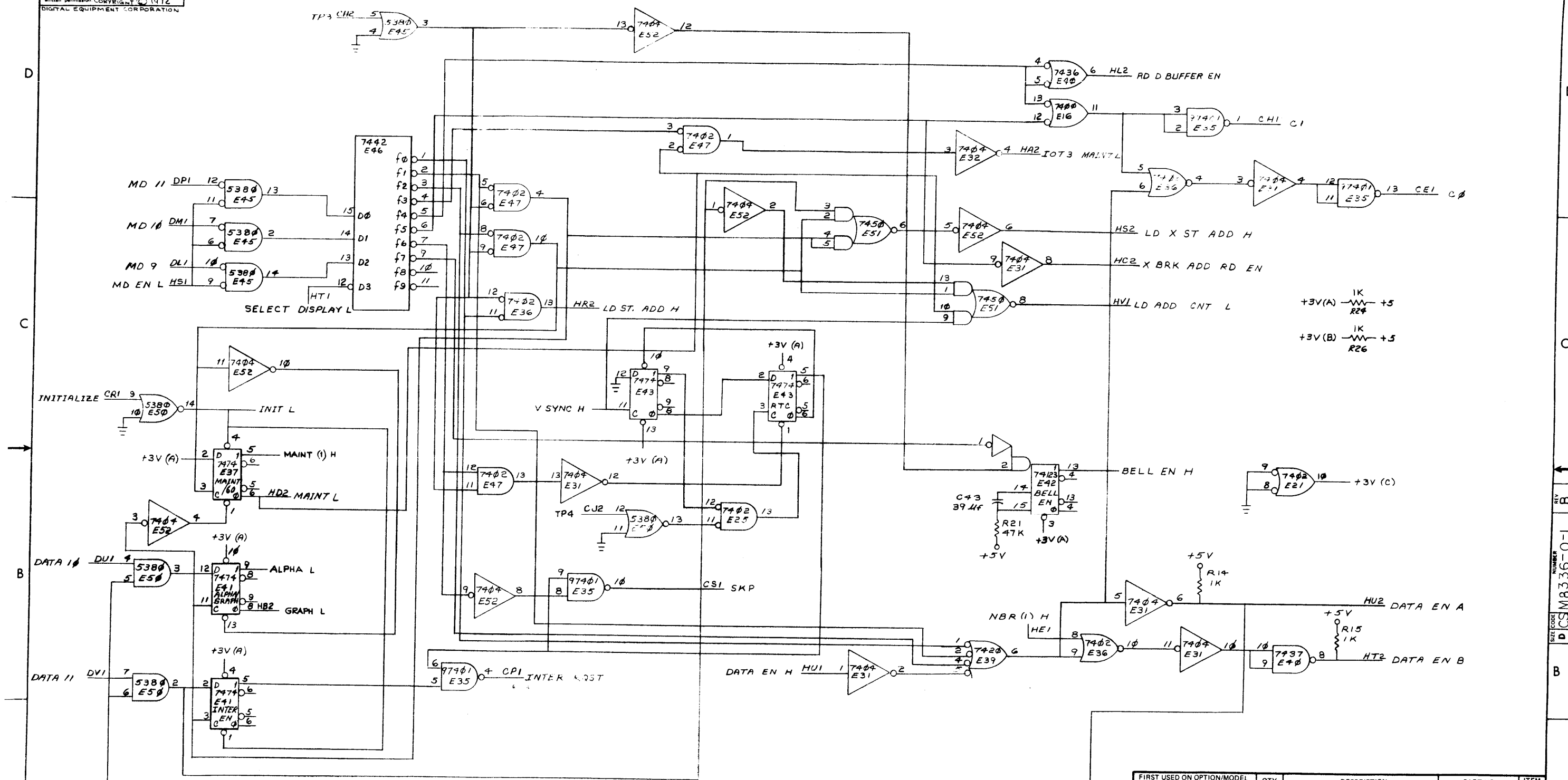
SIZE CODE
DCSM8336-C-1

NUMBER
 B

REV.
 B

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DIGITAL EQUIPMENT CORPORATION

8 7 6 5 4 3 2 1
B 1-C-9888WSD 2



BRUNNIG 40-522 15840
DRD 102-B

REV	CHANGE NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.									
VT8-E													
PARTS LIST													
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		<table border="1"> <tr> <td>DRN</td> <td>DATE</td> <td rowspan="4" style="text-align: center;">digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS</td> </tr> <tr> <td><i>S. Wilson</i></td> <td>7/14/77</td> </tr> <tr> <td><i>[Signature]</i></td> <td>DATE</td> </tr> <tr> <td><i>[Signature]</i></td> <td>DATE</td> </tr> </table>			DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	<i>S. Wilson</i>	7/14/77	<i>[Signature]</i>	DATE	<i>[Signature]</i>	DATE
DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS											
<i>S. Wilson</i>	7/14/77												
<i>[Signature]</i>	DATE												
<i>[Signature]</i>	DATE												
DECIMALS .xxx = .006 .xx = .02 .x = .1	ANGLES ±0°30	TITLE FREQ. DIVIDER BOARD VT8-E (FD3)											
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. DATE PROD. DATE	MATERIAL + + + NEXT HIGHER ASSY. B-DD-VT8-E SCALE NONE SHEET 5 OF											
FINISH + + +	SIZE CODE DCSM8336-0-1	NUMBER REV. B											

REV B
NUMBER
DCSM8336-0-1
SIZE CODE

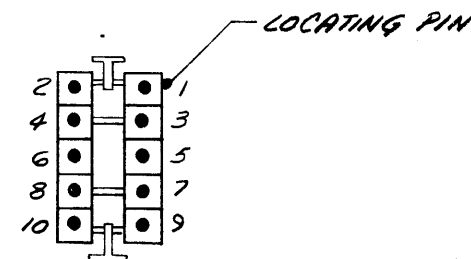
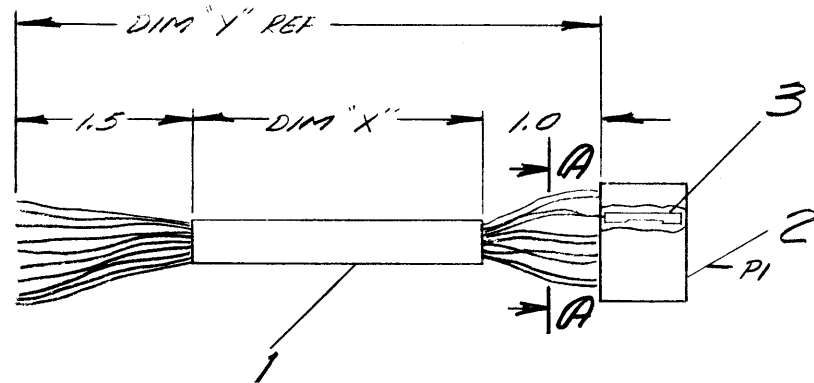
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WIRE TABLE						
ITEM NO	DESCRIPTION		FROM		TO	
	AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH
1	*22	BRN	PI-1	*3	—	*
		RED	PI-2		—	*
		ORN	PI-3		—	*
		YEL	PI-4		—	*
		GRN	PI-5		—	*
		BLU	PI-6		—	*
		VIO	PI-7		—	*
		GRY	PI-8		—	*
		WHT	PI-9		—	*
1	*22	BLK	PI-10	3	—	*

*(ASTERICK) INDICATES STRIP AND TIN

LEGEND		
NUMBER	VARIATION	
	DIM "X"	DIM "Y" (PRECUT) REF
7009054-0E	2.5 IN ± .5 IN	5.0 IN ± 1.0 IN



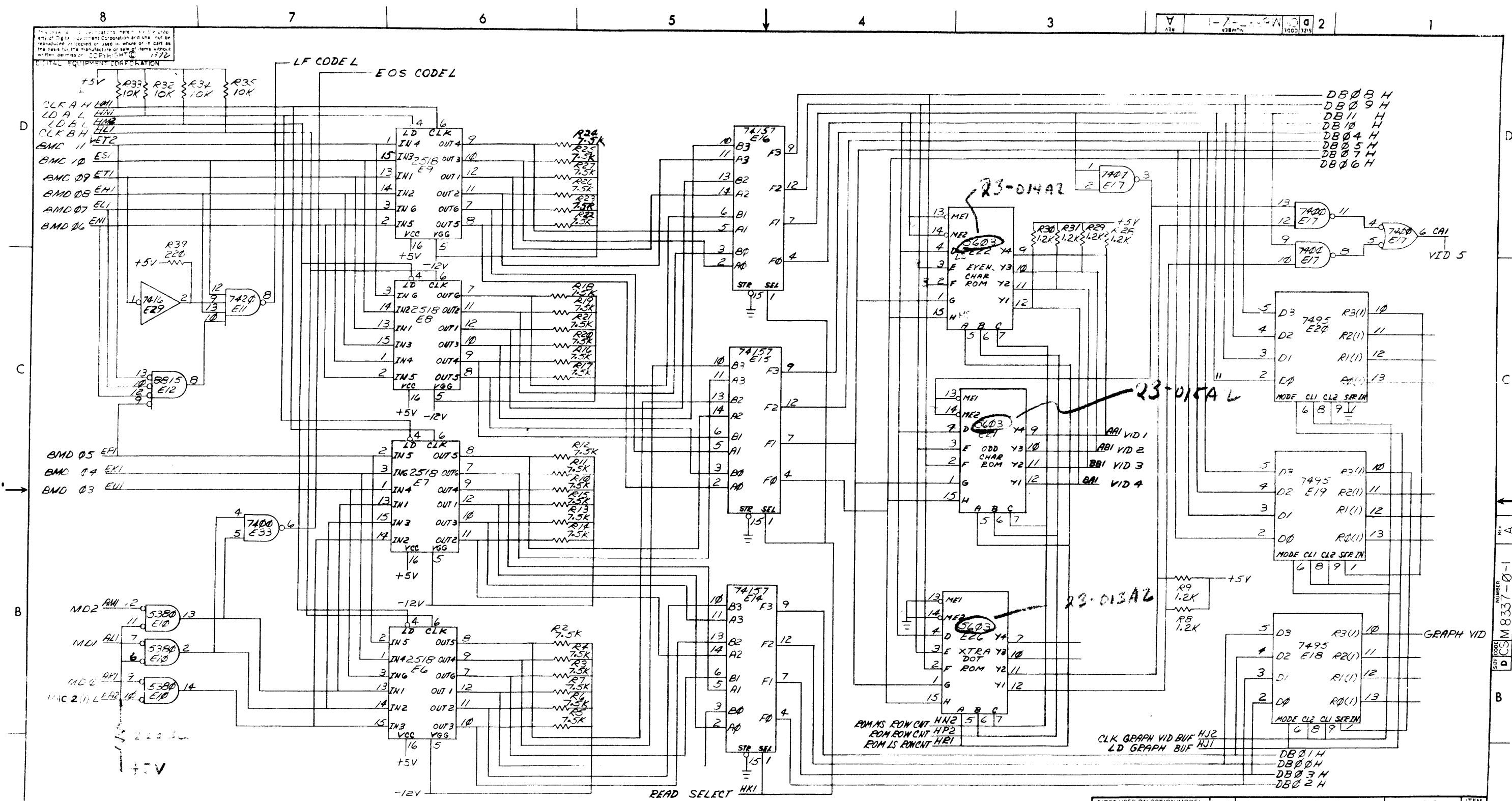
VIEW A-A
SCALE: NONE
(REAR VIEW)

10	SOCKET CONTACT	1209379-01	3
1	CONN MATE-N-LOCK	1210821-10	2
PIR	CABLE 10 COND BERDEN #8456	9107623	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES				
DECIMALS	ANGLES	PARTS LIST		
xxx = .005	± 0° 30'	DATE 8-22-72	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS TITLE CABLE, MODULE	
xx = .02		CHK'D. DATE		
x = .1		ENG. DATE		
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓		PROJ. ENG. DATE		
		PROD. DATE		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE NUMBER REV. C IA 7009054-0-0		
SEE PARTS LIST	D-05-M8337-0-1	SCALE 1-1		
FINISH		SHEET 1 OF 1		

REV.	CHANGE NO.

REV. NUMBER
C IA 7009054-0-0



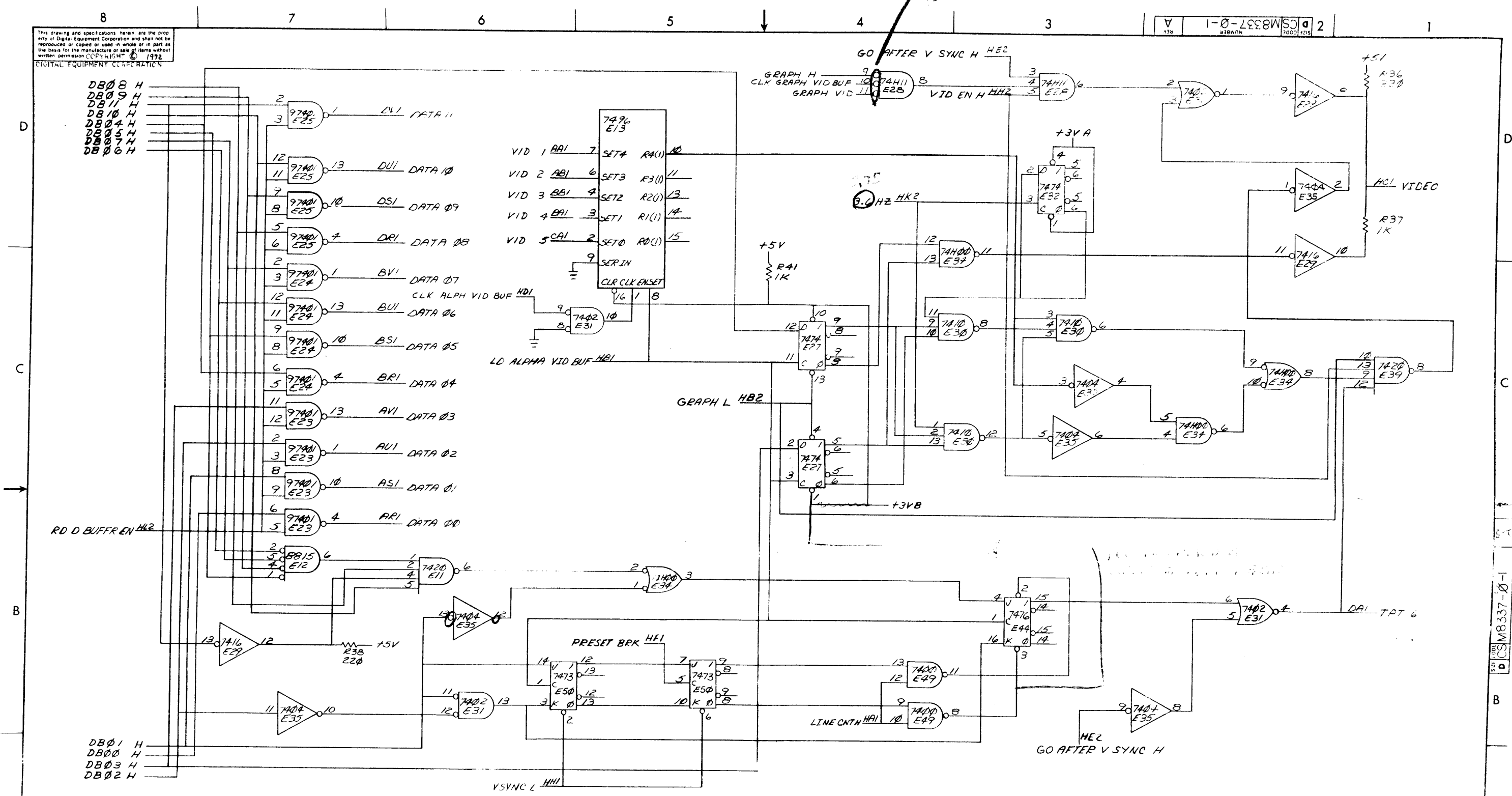
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.	
VT8-E					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN 7/29/72	DATE 7/29/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DECIMALS ANGLES	ENG 11/11/72	DATE 11/11/72			
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY	PROJ 11/11/72	DATE 11/11/72	TITLE VT8-E LINE BUFFER (LBI)		
MATERIAL	NEXT HIGHER ASSY	DATE			
FINISH	B-DL-VT8-E	SCALE	SIZE CODE D	NUMBER M8337-0-1	REV A
	SHEET 3 OF	DIST			

BRUN: G 40107 1584
 REL: CHA: J. MC
 CHK: J. MC

SIZE CODE
 DCS M8337-0-1
 REV A

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CSM8337-0-1

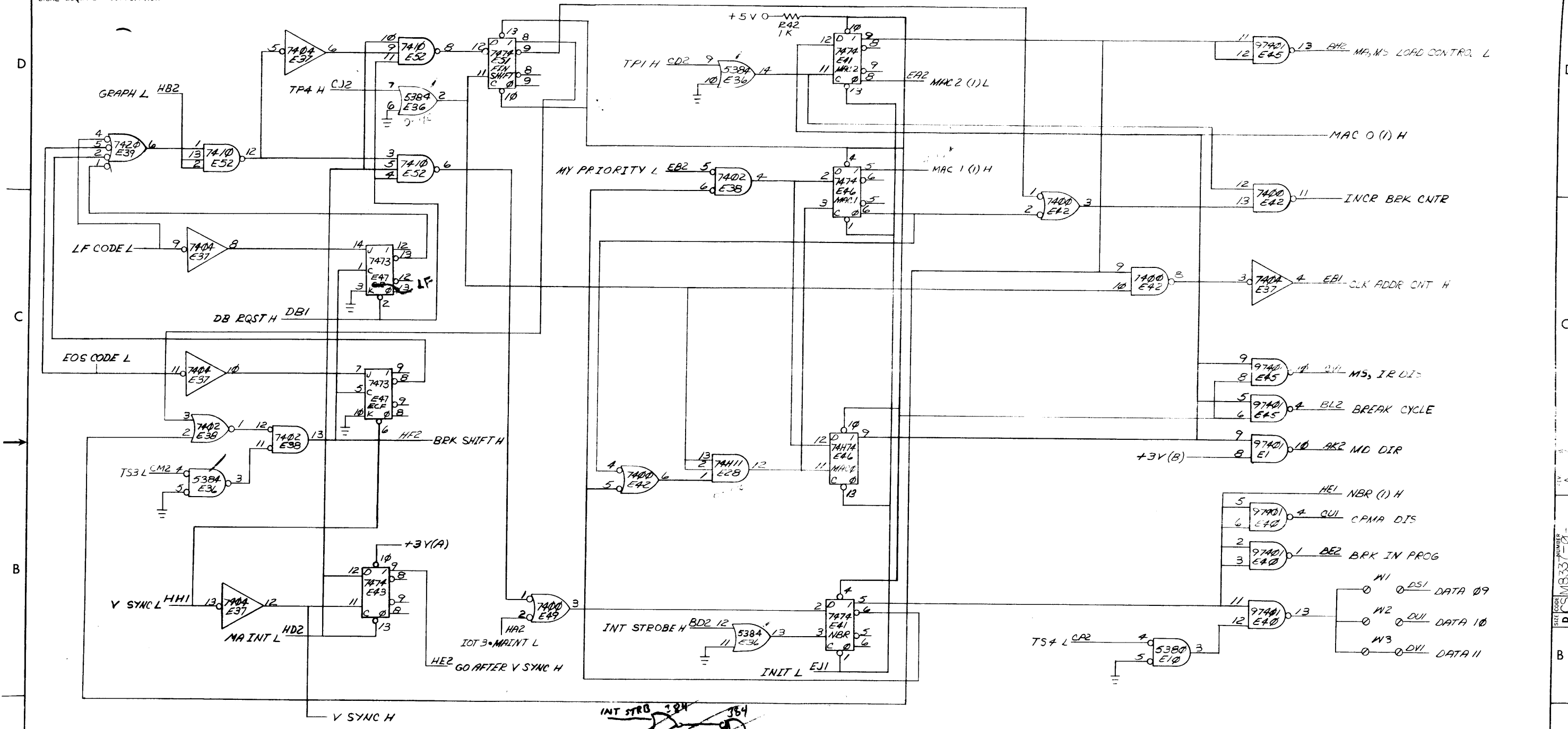


BRUNING 40-107-15868
 REV. 1
 CHANGE NO.
 CHK

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
VTS-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRAWN DATE	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .005 ANGLES 0° 30'	CHK'D DATE	DATE	TITLE VTS-E LINE BUFFER	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	ENG. DATE	DATE	SIZE CODE B-DD VTS-E	
MATERIAL	PROL'NG DATE	DATE	NUMBER DCSM8337-0-1	
FINISH	PROD. DATE	DATE	REV 1	
	NEXT HIGHER ASSY.		SHEET 4 OF 4	
	SCALE		DIST	

CSM8337-0-1

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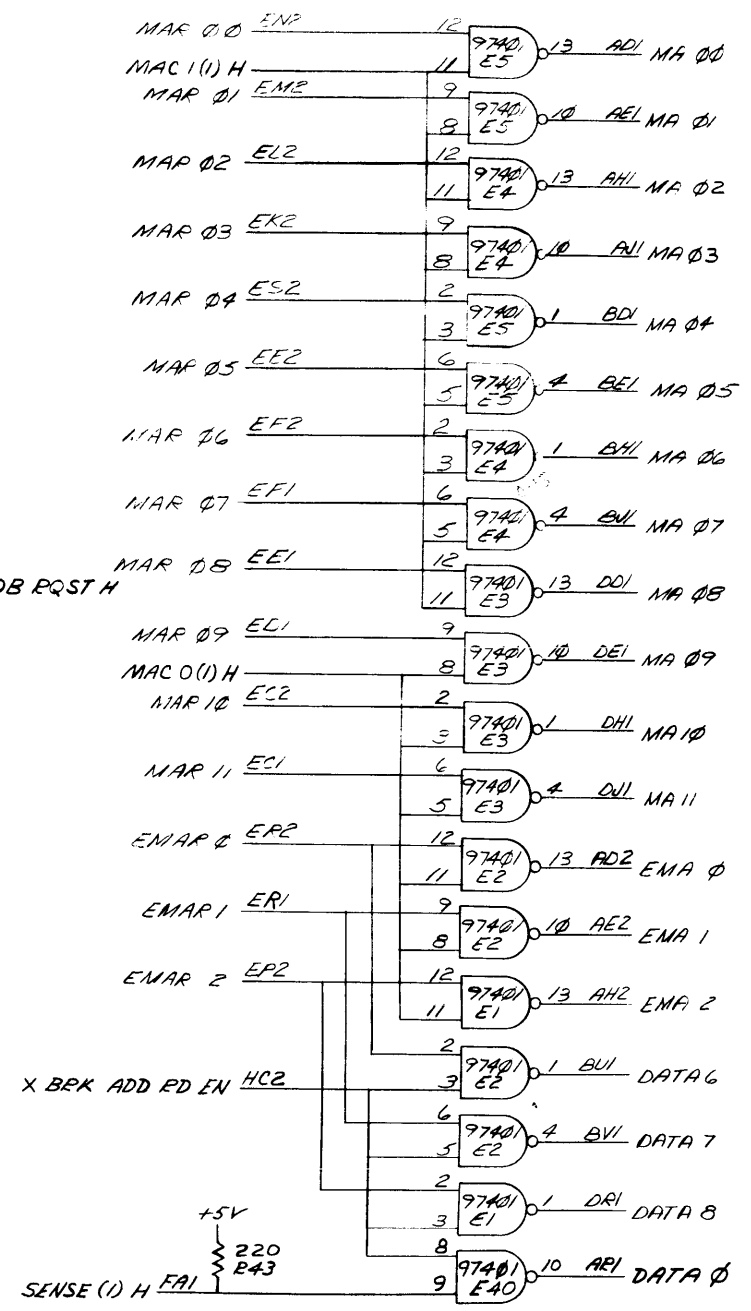
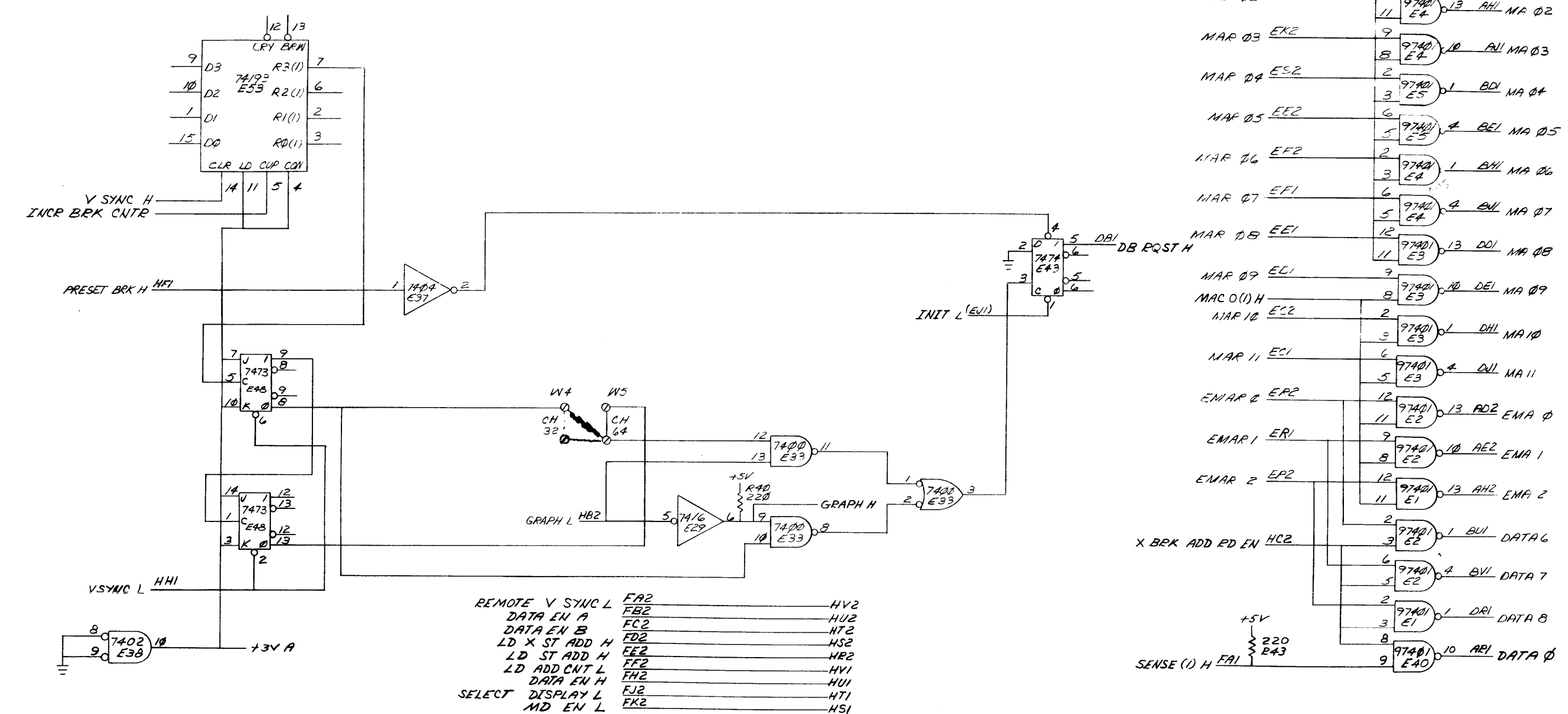
INT STRB 384
364
STOP L

REV	CHG	NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E		LINE BUFFER		
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN	DATE	digital EQUIPMENT CORPORATION	
DECIMALS	CMX'D	DATE	MAYNARD MASSACHUSETTS	
ANGLES	ENG	DATE	TITLE	
XXX - 005	PROJ. ENG.	DATE	VT8-E	
XX - 02	PRD.	DATE	LINE BUFFER	
X - 1		DATE	(L63)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.			
FINISH	B-LL-VT8-E	SCALE	SIZE CODE	NUMBER
		NONE	DCS	M8337-0-1
		SHEET 5 OF	DIST.	REV A

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1-0-228W SJ 2



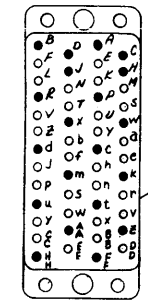
REV	CHANGE NO

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. DATE	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	CHK. DATE		
XXX - .005	± 0° 30'	ENG. DATE		
XX - .02		PRD. ENG. DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PRD. DATE	TITLE	
			VT8-E LINE BUFFER	
MATERIAL		NEXT HIGHER ASSY.		(LB4)
		B-UD-VT8-E		SIZE CODE
FINISH		SCALE		NUMBER
		SHEET 6 OF		DCS M8337-0-1
		DIST.		REV. A

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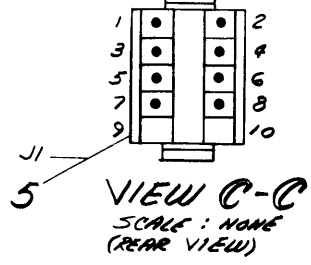
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CORPORATION

LEGEND		
NUMBER	VARIATION	
	DIM "X"	DIM "Y" REF
7009042-15	15FT ± 3IN	15FT. 9IN. ± 3IN



VIEW B-B
SCALE: NONE
(REAR VIEW)

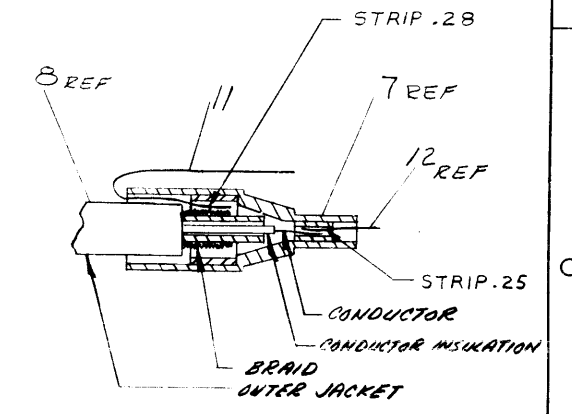
WIRE TABLE						
ITEM NO	DESCRIPTION	FROM	TO	CUT	WITH	PAINT
9	*22 GRN	J2-F	J3-B	*2	3	—
	TWP RED	J2-J	J3-AA	4	—	—
	*22 BLK	J2-T	J3-FF	8	—	—
9	TWP GRN	J2-Z	J3-HH	*2	10	—
11	*22 BLK	ITEM #7	J1-2	6	—	—
12	*22 WHT	ITEM #7	J1-1	6	—	—



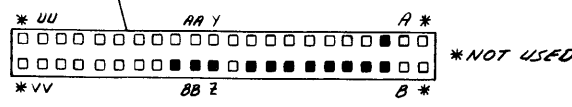
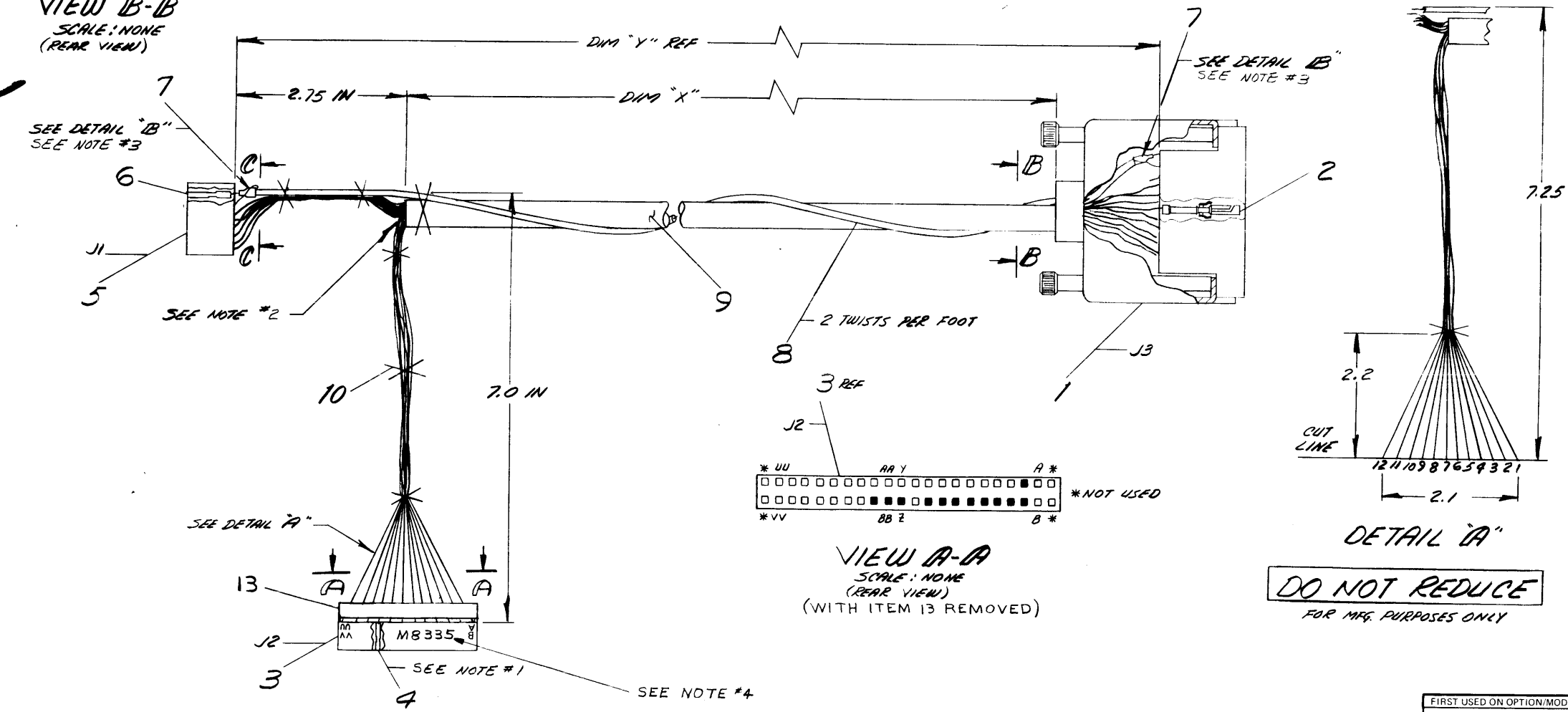
VIEW C-C
SCALE: NONE
(REAR VIEW)

WIRE TABLE						
ITEM NO	DESCRIPTION	FROM	TO	CUT	WITH	PAINT
11	*22 BLK	ITEM #7	J3-A	*2	—	—
9	*22 BLK	J1-4	J3-C	—	—	—
	TWP WHT	J1-3	J3-D	—	—	—
	*22 BLK	J1-6	J3-H	—	—	—
	TWP RED	J1-5	J3-J	—	—	—
	*22 WHT	J1-7	J3-P	—	—	—
	TWP RED	J1-8	J3-R	—	—	—
	*22 BLK	J2-DD	J3-W	12	—	—
	TWP BRN	J2-BB	J3-X	11	—	—
	*22 BLK	J2-C	J3-C	1	—	—
	TWP YEL	J2-D	J3-O	2	—	—
	*22 BLK	J2-N	J3-K	6	—	—
	TWP BLU	J2-L	J3-M	5	—	—
	*22 BLK	J2-V	J3-T	9	—	—
9	TWP GRN	J2-R	J3-U	*2	7	—
12	*22 WHT	ITEM #7	J3-B	*2	—	—

- NOTES:
- MANUFACTURING SHOULD USE MACHINE CRIMPER. TOOL FOR CRIMPING PINS (ITEM NO 4) MUST BE HT66 FROM BERG ELECT.
 - INSULATION AND DRAIN WIRE TO BE CUT BACK AS SHOWN ON DRAWING.
 - FOR CRIMPING OF ITEM #7 (SPICE) USE HAND TOOL AMP #69241-1
 - USE BRADY MARKERS FOR M8335.



DETAIL "B"
SCALE: NONE
(2 PLACES)



VIEW A-A
SCALE: NONE
(REAR VIEW)
(WITH ITEM 13 REMOVED)

DETAIL "A"
DO NOT REDUCE
FOR MFG. PURPOSES ONLY

QTY	DESCRIPTION	PART NO.	ITEM NO.
1	STRAIN RELIEF	1211166	13
A/R	WIRE *22 AWG WHT	9107350-99	12
A/R	WIRE *22 AWG BLK	9107350-00	11
A/R	TIE WRAP	9007031	10
A/R	CABLE *22 AWG	9107687	9
A/R	COAX CABLE 17A A/U	9107530	8
2	TERMSHIELDED SPLICE	1211312	7
8	TERM. PIN (MALE)	1209978-01	6
1	CONN. 10 PIN	1210822-10	5
12	SOCKET PINS	1210089-9	4
1	HOUSING PIN	1210918-15	3
20	SOCKET CONTACT *100-1020S	1210290-1	2
1	CONN. PLUG	1209569-0	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E				

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DATE	DATE	DATE	DATE
DECIMALS	ANGLES	CHK'D	ENG	PROT ENR	PROD
XXX .005	XX .02	12/1/72	12/1/72	12/1/72	12/1/72

PARTS LIST		TITLE	
digital	EQUIPMENT CORPORATION	VT8-E	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		NEXT HIGHER ASSY.	
MATERIAL	SEE PARTS LIST	SCALE	NONE
FINISH	"	SHEET	1 OF 1

SIZE CODE	NUMBER	REV
DIA	7009042-0-0	

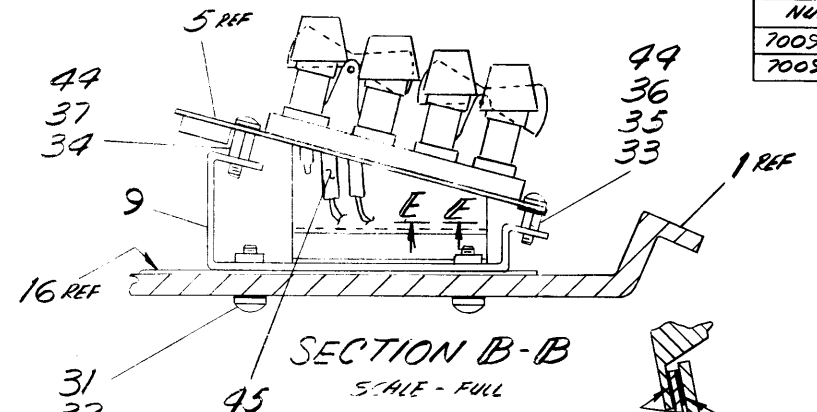
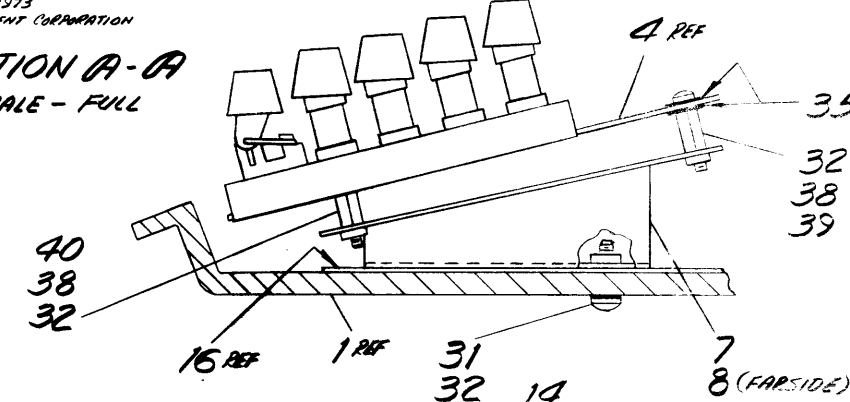
BRUNING 40-107 15968
REVISIONS
CHANGE NO
CHK
REV

NUMBER
DIA 7009042-0-0

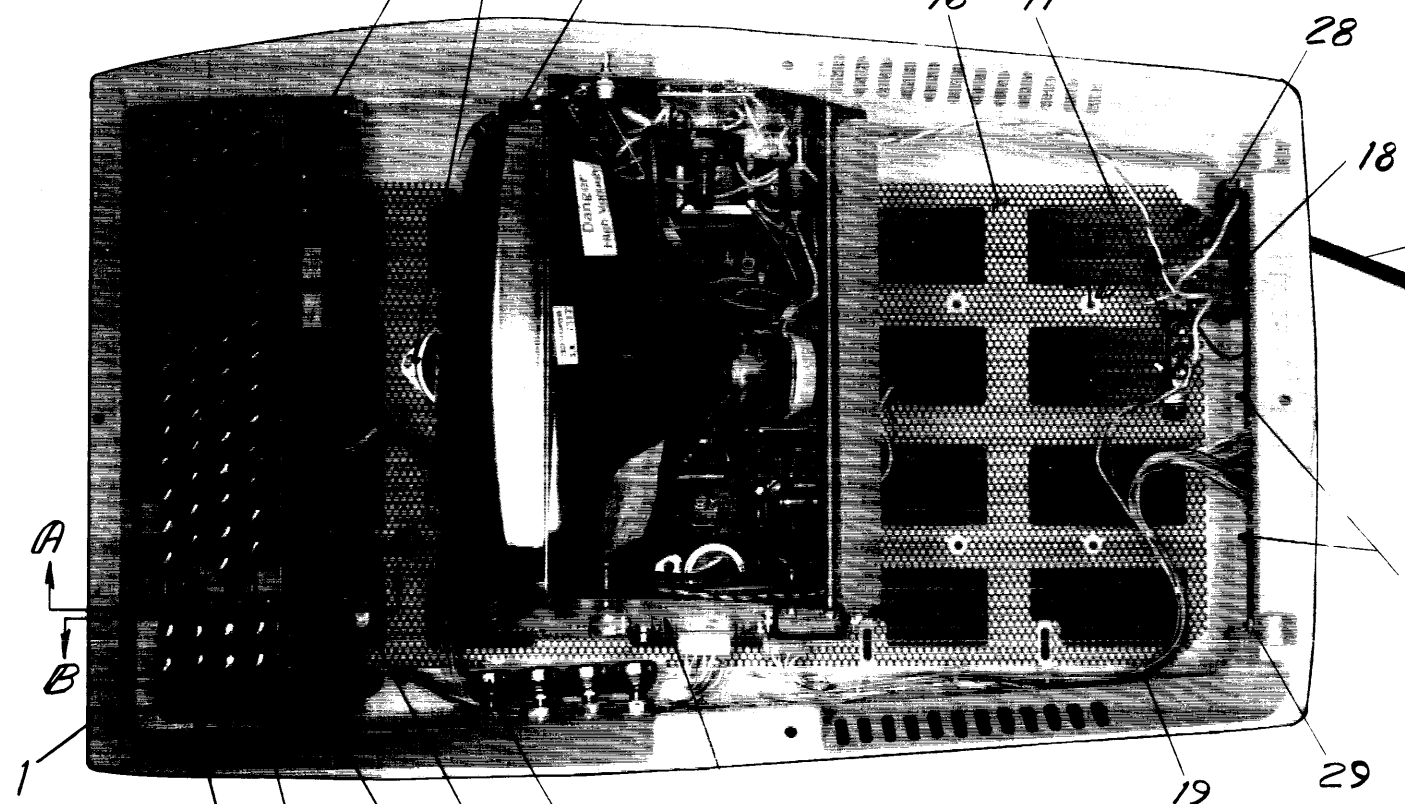
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SECTION A-A
SCALE - FULL



SECTION B-B
SCALE - FULL



SECTION C-C
SCALE - NONE

SEE NOTE 3

LEGEND

NUMBER	VARIATION
7009044-1	115V
7009044-2	230V

QTY.	DESCRIPTION	PART NO.	ITEM NO.
4	SCR. PH. PAN HD 4-20 X 1.0 LG	3006060-3	35
1	BASEBOARD MOUNTING	D-MD-7605376-0-0	54
2	SCR. NYLON 6-32 X .25	9009041-2	53
1	INSULATOR	B-MD-7409285-0-0	52
2	CONN SOLDERLESS (RED)	9006780	51
4/2	TIE WRAP	9007031	50
2	CONN SOLDERLESS (BLU)	9007927	49
3	CONN SOLDERLESS (BLU)	9007970	48
2	CONN SOLDERLESS (RED)	9007917	47
4/2	WIRE 18 AWG TWP RED/WHT	907430-29	46
4/2	TUBING, SHRINKABLE	9107305	45
8	WASH INT TOOTH #4	9006632	44
8	NUT KEPS #4-40	9006557	43
4	SCR PH PAN HD #4-40 X 3/8 LG	9006041-1	42
4	SCR PH PAN HD #4-32 X 3/8 LG	9006078-1	41
2	SPACER #8 X 1/2 LG HEX	9007977	40
2	SPACER #8 X 3/8 LG HEX	9006802	39
4	SCR PH PAN HD #8-32 X 1 LG	9006043-1	38
2	SPACER #6 X 5/16 LG HEX	9006799	37
2	SPACER #6 X 3/16 LG HEX	9006796	36
6	WASH FLAT NYLON .187 I.D.	9006713	35
2	SCR PH PAN HD #4-40 X .50 LG	9006013-1	34
2	SCR PH PAN HD #4-40 X .94 LG	9006012-1	33
10	WASH INT TOOTH #8	9006634-1	32
6	SCR PH PAN HD #8-32 X .62 LG	9006040-1	31
4	WASH INT TOOTH #10	9006635	30
8	NUT KEPS #6-32	9006560	29
1	CLAMP, CABLE NYLON .38	9007083	28
1	CABLE, KEYBOARD INTERCONN.	C-3A-7008612-0-0	27
1	BUTTON ROCKER SWITCH	B-3C-1210393-0-0	26
1	BUTTON ROCKER SWITCH	B-3C-1210398-0-0	25
1	VTDS SCOPE MASK	D-3C-1210479-0-0	24
1	SHIELD SCOPE	D-3A-7408585-0-0	23
4/2	TAPE 1/4 WIDE	9008839-1	22
-	POWER CORD REWORK 115V	C-3A-7008302-9-0	21
1	POWER CORD REWORK 230V	C-3A-7008432-9-0	20
1	POWER HARNESS	E-3A-7008979-0-0	19
1	CIRCUIT BREAKER 3A-202-101	1210242	18
1	SNAP BUSHING 58875-6	9008112	17
1	SCREEN, PROTECTIVE	E-MD-7408891-0-0	16
1	BRACKET MTG SWITCH	B-3A-7408894-0-0	15
8	WASH INT TOOTH LOCK #6	9006633	14
8	SCR. PH. PAN HD 6-32 X .50 LG	9006024-1	13
4	NUT, SPEED TWIN #8901-632-4	9006584	12
1	CAP. 2X .1MFD 1000 VDC	1000034	11
1	SPEAKER 16 OHM 1/2 W QUART	1210299	10
1	BRACKET SM. KEYBOARD	D-3A-7408852-0-0	9
1	BRACKET LG. KEYBOARD L.H.	C-3A-7408638-2-0	8
1	BRACKET LG. KEYBOARD R.H.	C-3A-7408638-1-0	7
1	POT ASSY	D-MD-7001232-0-0	6
1	CURSOR BD ASSY KEYBOARD	D-MD-5410224-0-0	5
1	KEYBOARD ASSY	D-MD-540991500	4
1	SCOPE ASSY	3010326	3
1	COVER, REWORK	D-3A-7408900-0-0	2
1	PLASTIC BASE	E-PS-1210913-0-0	1

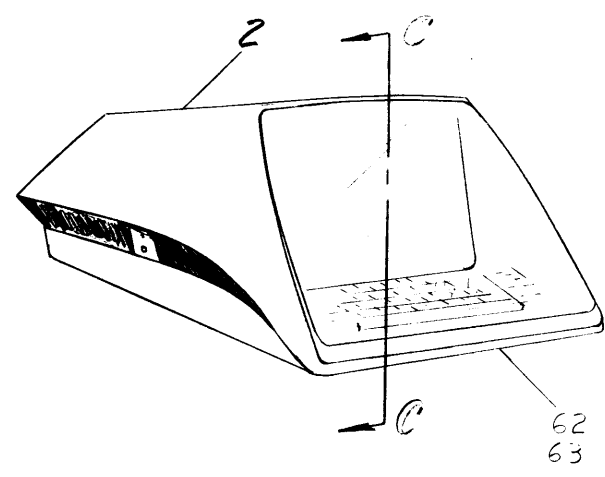
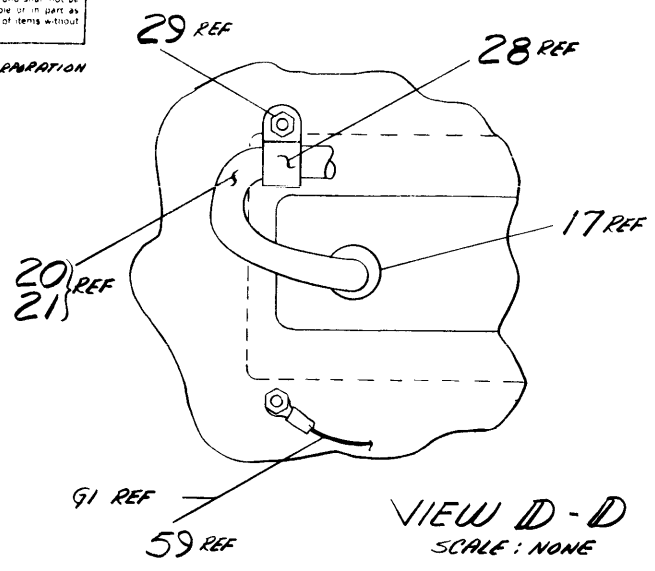
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT8-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED, DIMENSION IN INCHES TOLERANCES		DATE	digital EQUIPMENT CORPORATION	
DECIMALS	ANGLES	12/19/72	MAYFORD MASSACHUSETTS	
.xxx - .005	± 0° 30'	DATE	TITLE	
.xx - .02		1/7/13	VIDEO TERMINAL	
.x - .1		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG		
		DATE		
MATERIAL	NEXT HIGHER ASSY.	PROD.		
	D-VA-VT8-E-0	DATE		
FINISH	SCALE NONE	1/1/73		
	SHEET 1 OF 3			
		SIZE CODE	NUMBER	REV
		D AD	7009044-0-C	
		DIST.		

REV	CHANGE NO

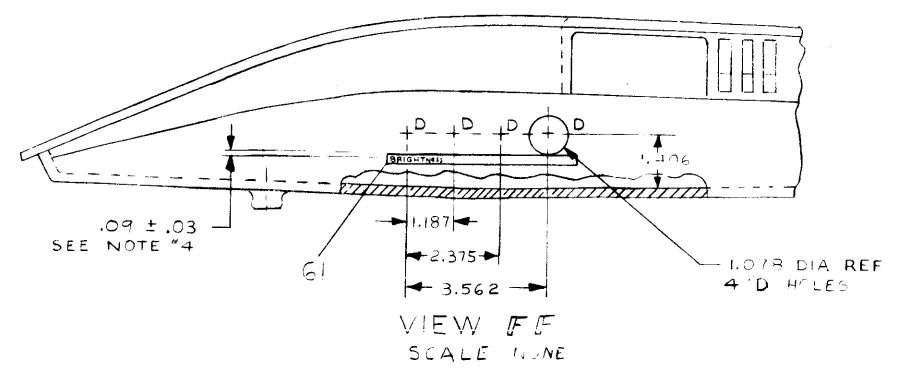
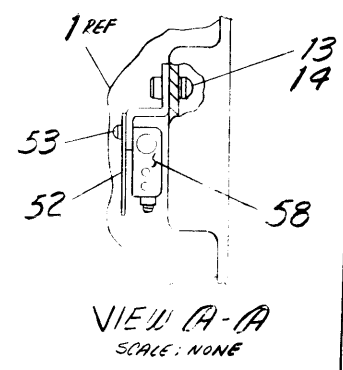
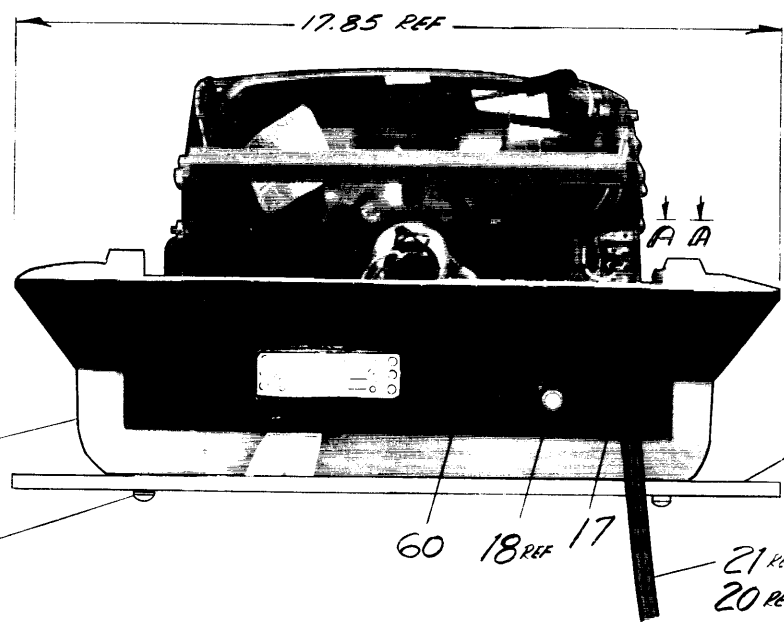
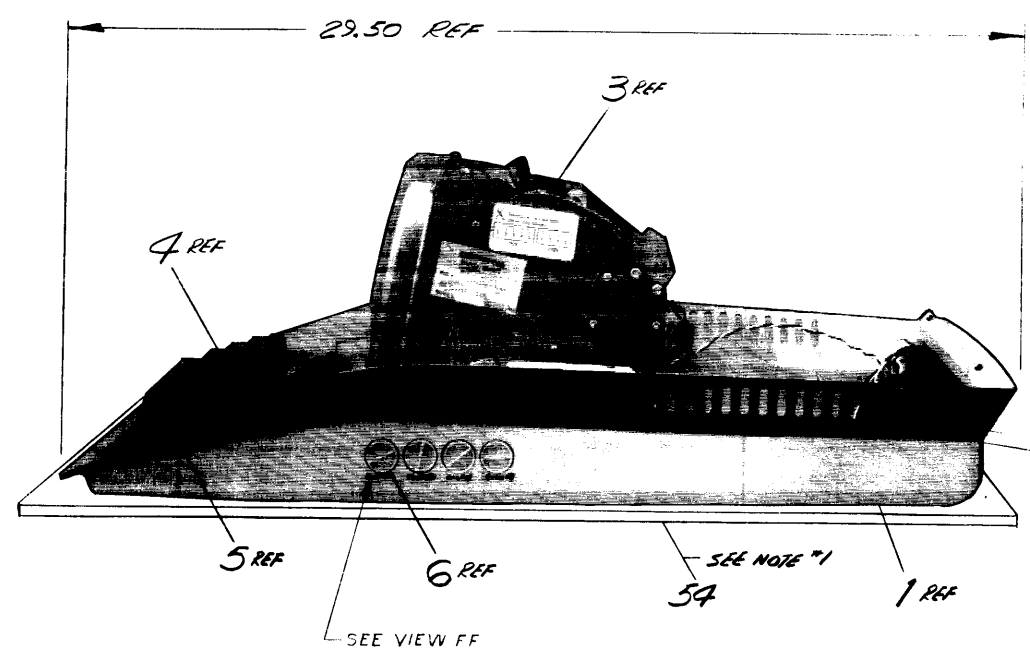
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DIGITAL EQUIPMENT CORPORATION

- NOTE:**
1. ASSEMBLE BASEBOARD (ITEM #54) TO BASE (ITEM #1) FIRST, BEFORE ASSEMBLING ANY OTHER ITEMS.
 2. G2 IS LOWER SCREW ON SIDE OF SCOPE ASSY CHASSIS.
 3. 1009044-1 SWITCH POSITION IS 115V
1009044-2 SWITCH POSITION IS 230V
 4. DECAL HAS PRESSURE SENSITIVE ADHESIVE. LOCATE AS SHOWN, WHERE .09 ± .03 DIMENSION IS DISTANCE BETWEEN THE TOP OF PRINTING AND BOTTOM EDGE OF 4 "D" HOLES.



QTY	DESCRIPTION	PART NO.	ITEM NO.
4	SCR. PHL PAN HD #8-32X.62LG	9006040-1	63
4	WASHER FLAT .375 X .187 ID	9006660	62
1	DECAL, TV CONTROLS	3611183	61
1	PLATE, BACK	D-3A-7409806-0-0	60
AIR	WIRE #14 AWG BLK	9107370-00	59
1	SWITCH, INTERLOCK	1203566	58
4	WASH. INT TOOTH LOCK 1/4	9006637	57
4	WASHER 1/4 FLAT SST	9006669	56



FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
VT8-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED, DIMENSION IN INCHES TOLERANCES	DATE 8/1/72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DECIMALS ANGLES	DATE 1/1/72			
PROJ. ENG.	DATE			
REMOVE BURRS AND REPEAN SHARP CORNERS, SURFACE QUALITY	DATE 1/1/72			
MATERIAL	NEXT HIGHER ASSY	VIDEOTERM TERMINAL		
FINISH	D-0A-VT8-E-0			
SCALE NONE	SIZE CODE DAD			
SHEET 2 OF 3	DIST	NUMBER 7009044-0-0	REV	

REV	CHG	BY	DATE

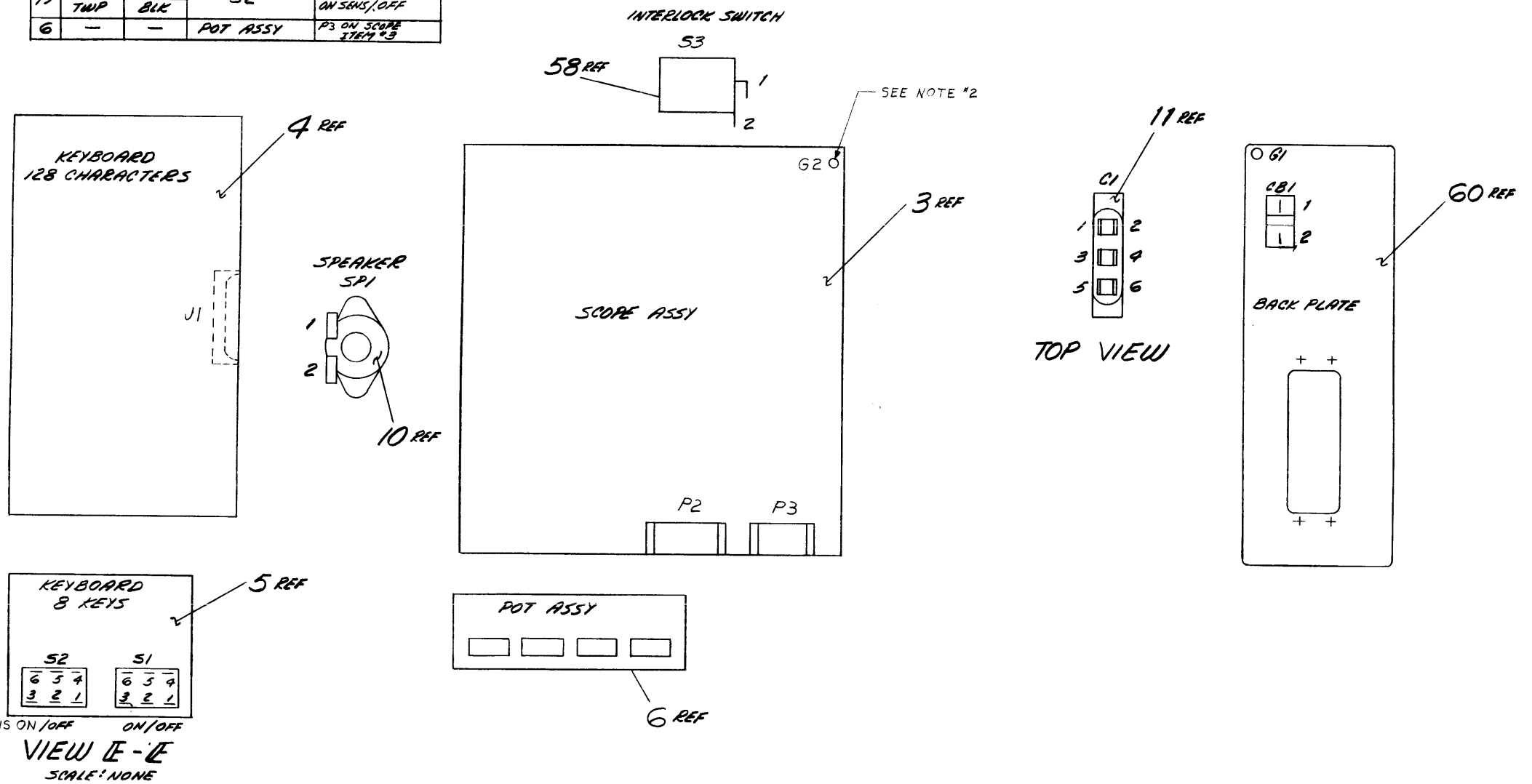
DAD7009044-0-C

HARNESS WIRE TABLE

ITEM NO	DESCRIPTION	COLOR	FROM HARNESS NUMBER	TO VTB-E UNIT LOCATION
19	*22	—	P1	ITEM #60 BACK PLATE
19	*18	WHT	POINT 1	C1-5
19	TWP	RED	POINT 2	C1-3
19	*22	—	P2	P2 ON SCOPE ITEM #3
19	*22	—	J1	ITEM #4 J1
19	*22	WHT/GRN	POINT 31	SPI-2 ITEM #10
19	*22	WHT/RED	POINT 32	SPI-1 ITEM #10
19	*18	WHT	S1	SM KEYBOARD ON/OFF
19	TWP	RED		
19	*18	WHT		
19	TWP	RED	S2	SM KEYBOARD ON SENS/OFF
19	*22	GRY		
19	TWP	BLK		
6	—	—	POT ASSY	P3 ON SCOPE ITEM #3

WIRE TABLE

ITEM NO	DESCRIPTION	COLOR	FROM		TO	
			CONNECTION	WITH	CONNECTION	WITH
46	*18	RED	C1-4	*47	53-2	*51
	TWP	WHT	CBI-2	*47	53-1	*51
20/21	—	WHT	—	—	C1-6	*48
20/21	—	GRN	—	—	G1	*49
20/21	—	BLK	—	—	CBI-1	*48
59	*14	BLK	C1-2	*48	G1	*49
59	*14	BLK	C1-1	*48	G2	*49



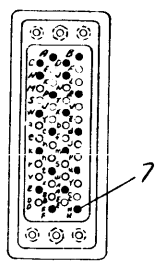
BRUNING 40-107 1598B
 REVISIONS
 CHG CHANGE NO. REV

FIRST USED ON OPTION/MODEL VTB-E	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DATE 8-1-73	DATE 1-11-73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS ANGLES	CHK'D	DATE	TITLE VIDEO TERMINAL	
XXX - 005 ±0° 30'	ENG.	DATE	DAD 7009044-0-0	
XX - 02	PROJ. ENG.	DATE	REV	
X - 1	PROD.	DATE	SHEET 3 OF 3	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	NEXT HIGHER ASSY. D-44-VTB-E-0			
MATERIAL	SCALE NONE			
FINISH	DIST. C-1			

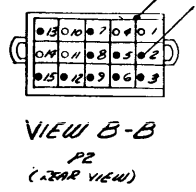
SIZE CODE NUMBER DAD7009044-0-0

The drawing shall show the size, type, and quantity of all electrical components and shall include the manufacturer's name and part number for all electrical components.

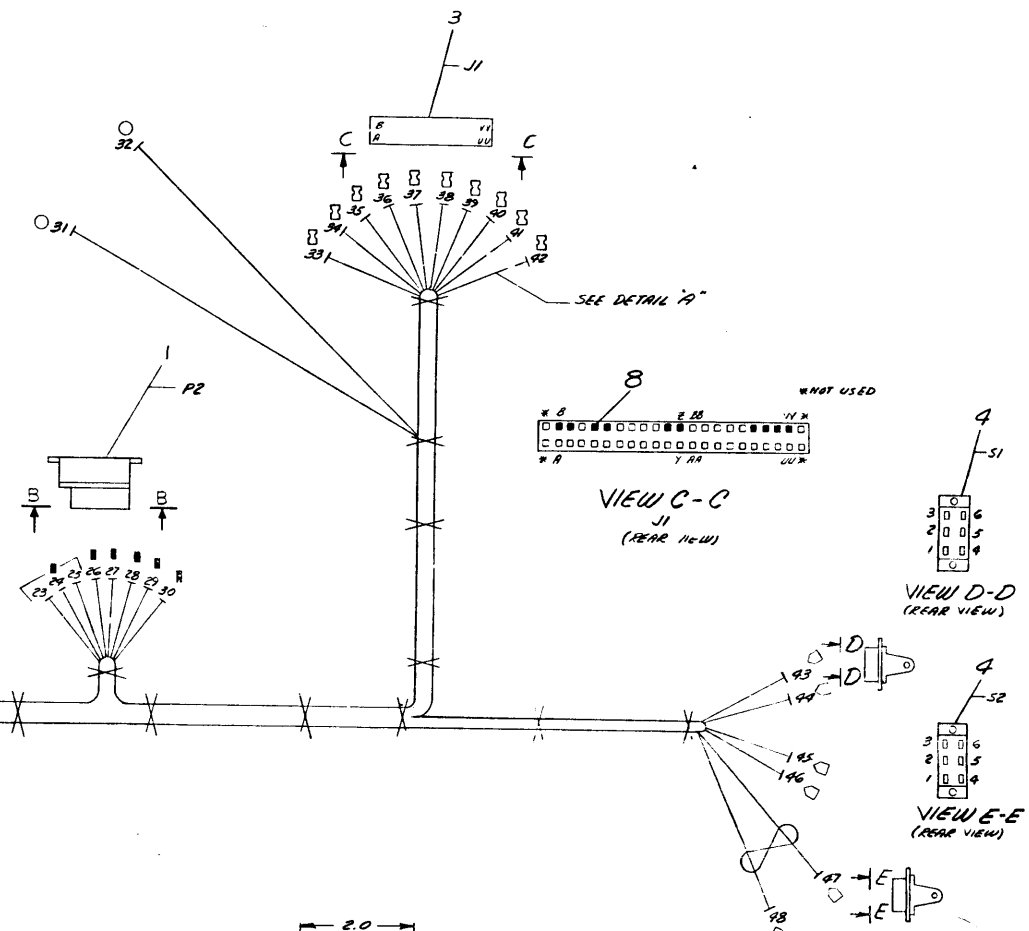
WIRE TABLE									
ITEM	DESCRIPTION	FROM	TO	SIGNAL	LENGTH				
NO.	WIRE	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM	NO.	WIRE
11	WHT	1		ITEM 5	43	S1-2	AC		36 IN
26	TWP	2		ITEM 5	48	S1-6	LC		36 IN
22	WHT/GRN	3	PI-A	ITEM 7	23	P2-12	ITEM 6	GND	25.25 IN
23	WHT/BLK	5	PI-C		25				25 IN
24	WHT/BLU	6	PI-B		26	P2-9		VIDEO	25 IN
24	WHT/GRY	7	PI-D		27	P2-7		H SYNC	25 IN
25	WHT/BLK	8	PI-J		28	P2-8	ITEM 6	- SYNC	25 IN
20	WHT/GRY	9	PI-P		31		ITEM 5	- 15V	40.25 IN
17	WHT/BLU	10	PI-R		32		ITEM 5	AUDIO	40.25 IN
22	GRY	11	PI-W		37	S2-6		GND	37 IN
18	TWP	12	PI-X		48	S2-5		SENSELN	37 IN
18	22	BLK	PI-G		31	J1-X	ITEM 8	GND	37.50 IN
17	RED	14	PI-I		38	J1-Z		+5V	37.50 IN
13	GRN	15	PI-K		32	J1-VV		BIT 1	37.50 IN
16	GRY	16	PI-M		40	J1-RR		BIT 2	37.50 IN
15	VIO	17	PI-C		39	J1-NN		BIT 3	37.50 IN
14	BLU	18	PI-U		41	J1-TT		BIT 4	37.50 IN
12	WHT	19	PI-Z		36	J1-L		BIT 5	37.50 IN
11	YEL	20	PI-AA		35	J1-J		BIT 6	37.50 IN
10	ORN	21	PI-FF		34	J1-D		BIT 7	37.50 IN
9	GRN	22	PI-HH	ITEM 7	33	J1-B	ITEM 8	STROBE	37.50 IN
22	WHT/GRN		P2-2	ITEM 6		P2-3	ITEM 6	INT VERT	1.75 IN
25	WHT/BLK		P2-5			P2-6	ITEM 6	INT VERT	1.25 IN
18	WHT	29	P2-13		45	S1-2	50.00	SWITCH AC	5.25 IN
28	TWP	30	P2-15	ITEM 6	46	S1-5	55.00	SWITCH AC	5.50 IN



VIEW A-A
PI
(REAR VIEW)



VIEW B-B
P2
(REAR VIEW)



DO NOT REDUCE DRAWING
NOT TO BE USED FOR PRODUCTION

0 IN 6 IN 12 IN
DO NOT REDUCE
(FOR MFG PURPOSES ONLY)

NOTES:
1. USE THE WIRING (1) 14-4 #29
APPROXIMATELY EVERY THREE (3) INCHES
WHEN NECESSARY AND AT BREAKOUT
POINTS.

QTY	DESCRIPTION	PART NO.	REV.
6	SHRINK TUBING RED	9107305	30
X	TIE WRAFFS SSY M	9007021	27
WIRE	#22 AWG TAP RED/WT	9107350-29	25
WIRE	#22 AWG TAP BLU/BLU	9107350-27	27
WIRE	#22 AWG ANT/BLU	9107350-16	26
WIRE	#22 AWG ANT/BLK	9107350-30	25
WIRE	#22 AWG ANT/GRY	9107350-34	24
WIRE	#22 AWG ANT/VIO	9107350-33	23
WIRE	#22 AWG ANT/BLU	9107350-31	22
WIRE	#22 AWG ANT/GRY	9107350-21	21
WIRE	#22 AWG ANT/GRN	9107350-20	20
WIRE	#22 AWG ANT/RED	9107350-18	18
WIRE	#22 AWG ELK	9107350-30	18
WIRE	#22 AWG RED	9107350-22	17
WIRE	#22 AWG GRY	9107350-28	16
WIRE	#22 AWG VIO	9107350-37	15
WIRE	#22 AWG BLU	9107350-26	14
WIRE	#22 AWG BRN	9107350-11	13
WIRE	#22 AWG WHT	9107350-99	12
WIRE	#22 AWG YEL	9107350-44	11
WIRE	#22 AWG ORN	9107350-33	10
WIRE	#22 AWG GRN	9107350-25	7
10	SOCKET CRIMP	1210281-6	6
20	CONNECTOR PIN (2-1020P)	1209629	7
10	TERMINAL F.M. CONTACT	1209372-01	6
4	CONN WARELESS 50902	9007917	5
2	SWITCH SLIDE DPDT	1205941	4
1	HOUSING SOCKET 4 PIN	1210718-05	3
1	CONN WINCHESTER 20 PIN	1211161	2
1	CONN MATE N LUG 15 PIN	1209351-15	1

FIRST USED ON OPTION MODEL: VT-3-E

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES: .005

DECIMALS: .005

ANGLES: 1/8 30

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY: 125

MATERIAL: SEE PARTS LIST

DATE: 6/5/81

ENGINEER: [Signature]

DRAWN: [Signature]

SCALE: 1/1

TITLE: FOWER HARNESS

NUMBER: 9008979-0-0

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

DRAWING DIRECTORY
 KEYBOARD CIRCUIT
 KEYBOARD ENCODING
 KEYBOARD SCHEMATIC

SEQUENCE

B-DD-LK01-Ø
 D-GS-5409945-0-1
 D-LD-5409945-0-2
 D-CS-301 01 66-0-1

SEQUENCE

MFG PRINT SET

LK01 TESTER
 LED TEST PROCEDURE

B-DD-LKØ1-TA
 A-SP-5409945-TA-Ø

UNIT VARIATIONS

PRINT SET TYPE

VARIATION

TITLE

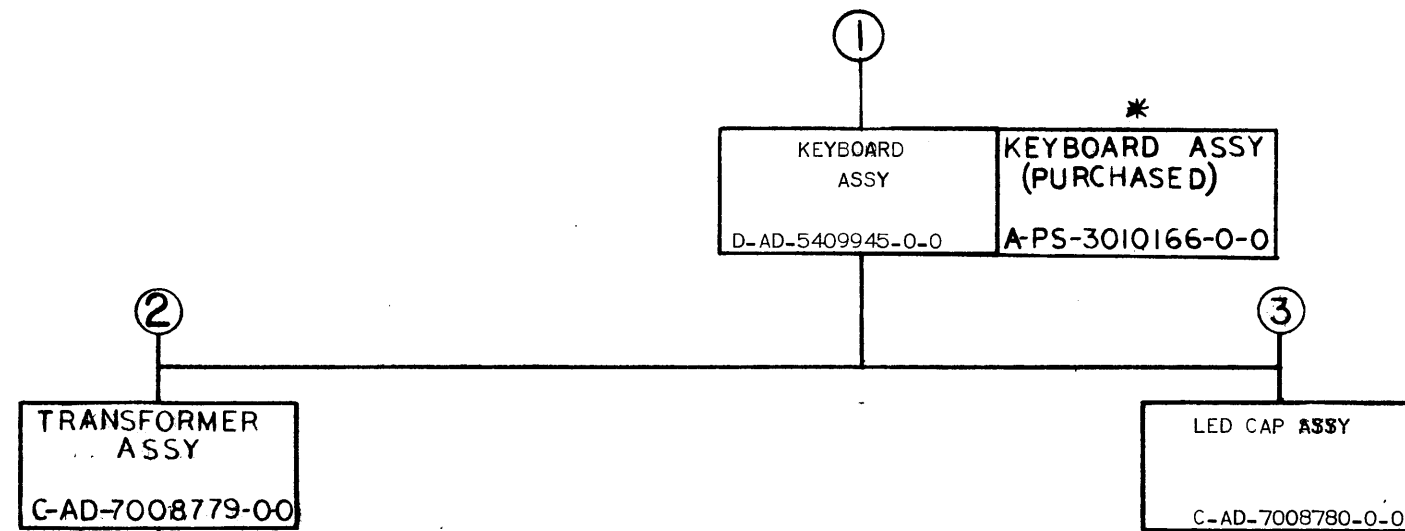
LKØ1-Ø

KEYBOARD

USED ON OPTION/MODEL		DRN.	DATE	TITLE			
		K. Russ	1-31-72	KEYBOARD			
		CHK'D. K. Russ	DATE 1-31-72				
		PROJ ENG. D. Walden	DATE 2/14/72				
		PROD. S. Minkala	DATE 2/14/72				
		FIELD SERV.	DATE	SIZE	CODE	NUMBER	REV
				B	DD	LKØ1-Ø	A
SHEET 1 OF 3				DIST	G		

REVISIONS

DATE	CHG. NO.	REV
	LK01-4	A

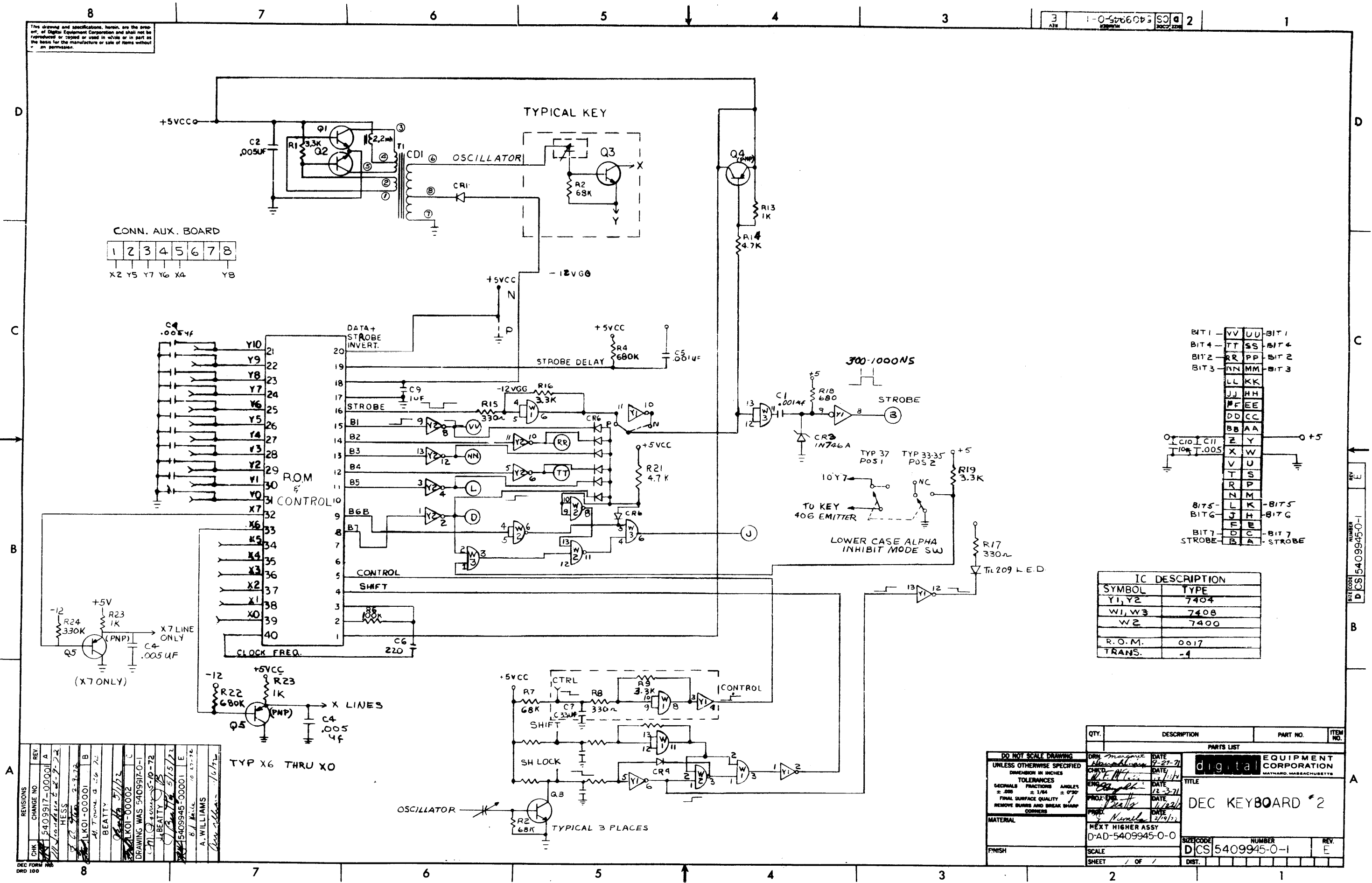


* INDICATES KEYBOARD SUPPLIED UNDER SECOND SOURCE VENDER

TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
KEYBOARD	B DD	LKØi-Ø	A	

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3 1-0-5409945-0-1 2



CONN. AUX. BOARD

1	2	3	4	5	6	7	8
X2	Y5	Y7	Y6	X4		Y8	

BIT 1	VV	UU	BIT 1
BIT 4	TT	SS	BIT 4
BIT 2	RR	PP	BIT 2
BIT 3	NN	MM	BIT 3
	LL	KK	
	JJ	HH	
	FF	EE	
	DD	CC	
	BB	AA	
	Z	Y	0 +5
	X	W	
	V	U	
	T	S	
	R	P	
	N	M	
BIT 5	L	K	BIT 5
BIT 6	J	H	BIT 6
	F	E	
BIT 7	D	C	BIT 7
	B	A	STROBE

IC DESCRIPTION

SYMBOL	TYPE
Y1, Y2	7404
W1, W3	7408
W2	7400
R.O.M.	0017
TRANS.	-4

QTY.	DESCRIPTION	PART NO.	ITEM NO.									
PARTS LIST												
<table border="1"> <tr> <td>DRN</td> <td>DATE</td> <td rowspan="4"> digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS </td> </tr> <tr> <td>CHK'D</td> <td>DATE</td> </tr> <tr> <td>ENG</td> <td>DATE</td> </tr> <tr> <td>PROJ. ENGR.</td> <td>DATE</td> </tr> </table>				DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	CHK'D	DATE	ENG	DATE	PROJ. ENGR.	DATE
DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS										
CHK'D	DATE											
ENG	DATE											
PROJ. ENGR.	DATE											
TITLE			A									
DEC KEYBOARD #2												
NEXT HIGHER ASSY			REV. E									
D-AD-5409945-0-0												
SCALE		SIZE CODE	DIST.									
SHEET / OF /		NUMBER										
DCS 5409945-0-1												

REVISIONS

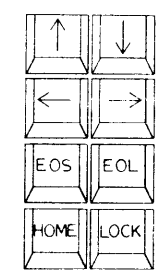
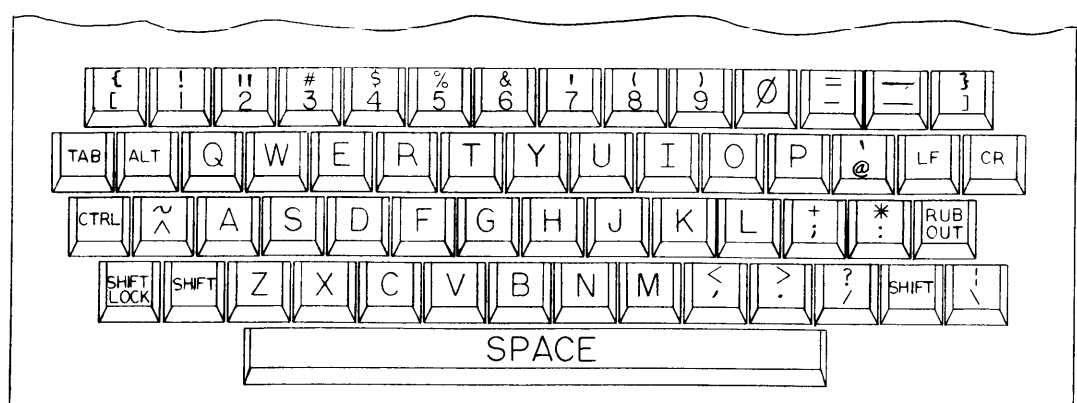
CHK	CHANGE NO.	REV
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	5409917-00001	B
	5409917-00001	C
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	5409917-00001	E
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	5409917-00001	G
	5409917-00001	H
	5409917-00001	I
	5409917-00001	J
	5409917-00001	K
	5409917-00001	L
	5409917-00001	M
	5409917-00001	N
	5409917-00001	O
	5409917-00001	P
	5409917-00001	Q
	5409917-00001	R
	5409917-00001	S
	5409917-00001	T
	5409917-00001	U
	5409917-00001	V
	5409917-00001	W
	5409917-00001	X
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	5409917-00001	Z

A. WILLIAMS

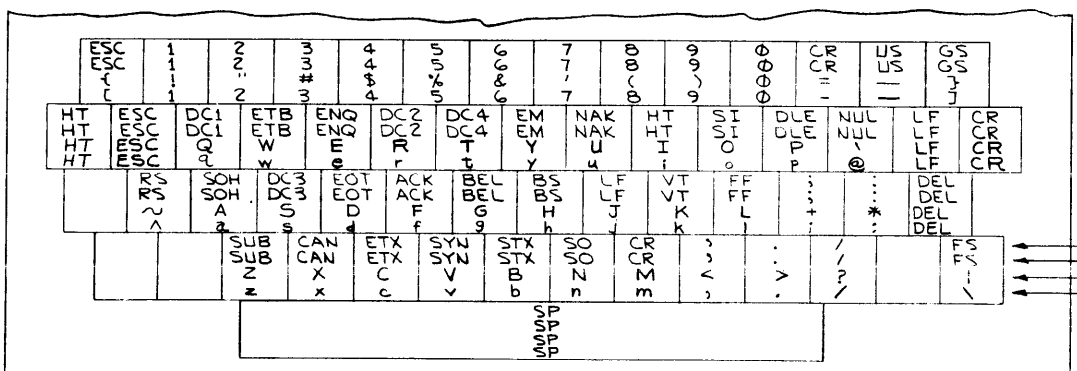
DEC FORM NO. DRD 100

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KEYBOARD KEY CAP CONFIGURATION

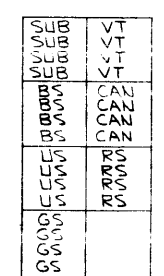


128 CHARACTER KEY ENCODING

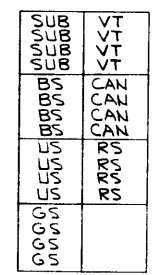
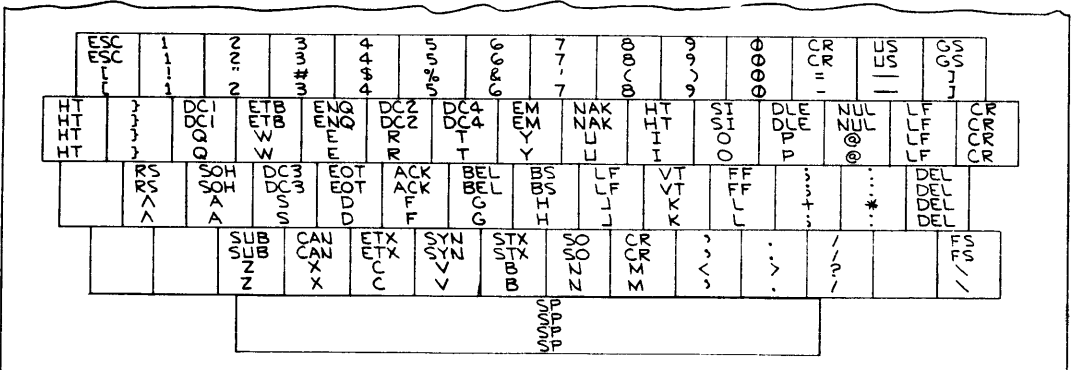


WITH SHIFT AND CONTROL
WITH CONTROL ONLY
WITH SHIFT ONLY
KEY ALONE

THIS APPLIES TO ALL KEYS



97 CHARACTER KEY ENCODING



REV.	
CHANGE NO.	
CHK	

DEC FORM NO. DRD 100-A

FIRST USED ON OPTION/MODEL D-AD-5409945-0-0	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. <i>D. Adams</i>	DATE 1-6-72	 digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	CHK'D. <i>[Signature]</i>	DATE 1-17-72		
ANGLES	ENG. <i>[Signature]</i>	DATE 2/1/72		
XXX - 006 XX - 02 X - 1	PROV. ENG. <i>[Signature]</i>	DATE 1-17-72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>[Signature]</i>	DATE 1/17/72	TITLE KEYBOARD # 2 (ENCODING)	
MATERIAL	NEXT HIGHER ASSY	SCALE	SIZE CODE	NUMBER
FINISH		SCALE	DLO	5409945-0-2
		SHEET	OF	DIST

REV. 2
DLO 5409945-0-2

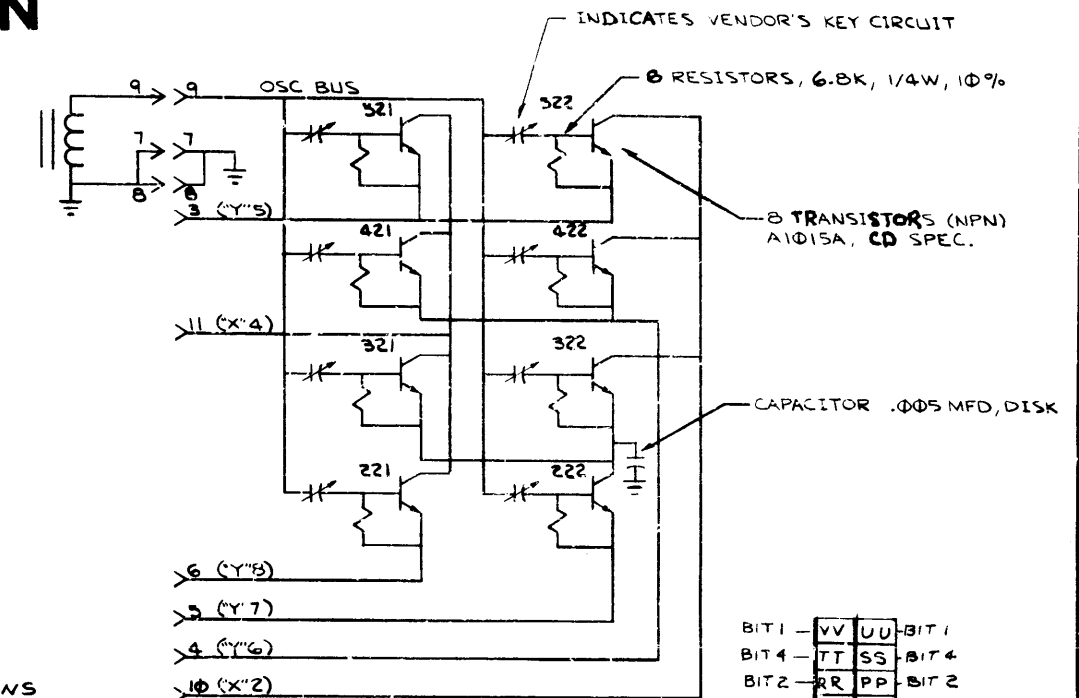
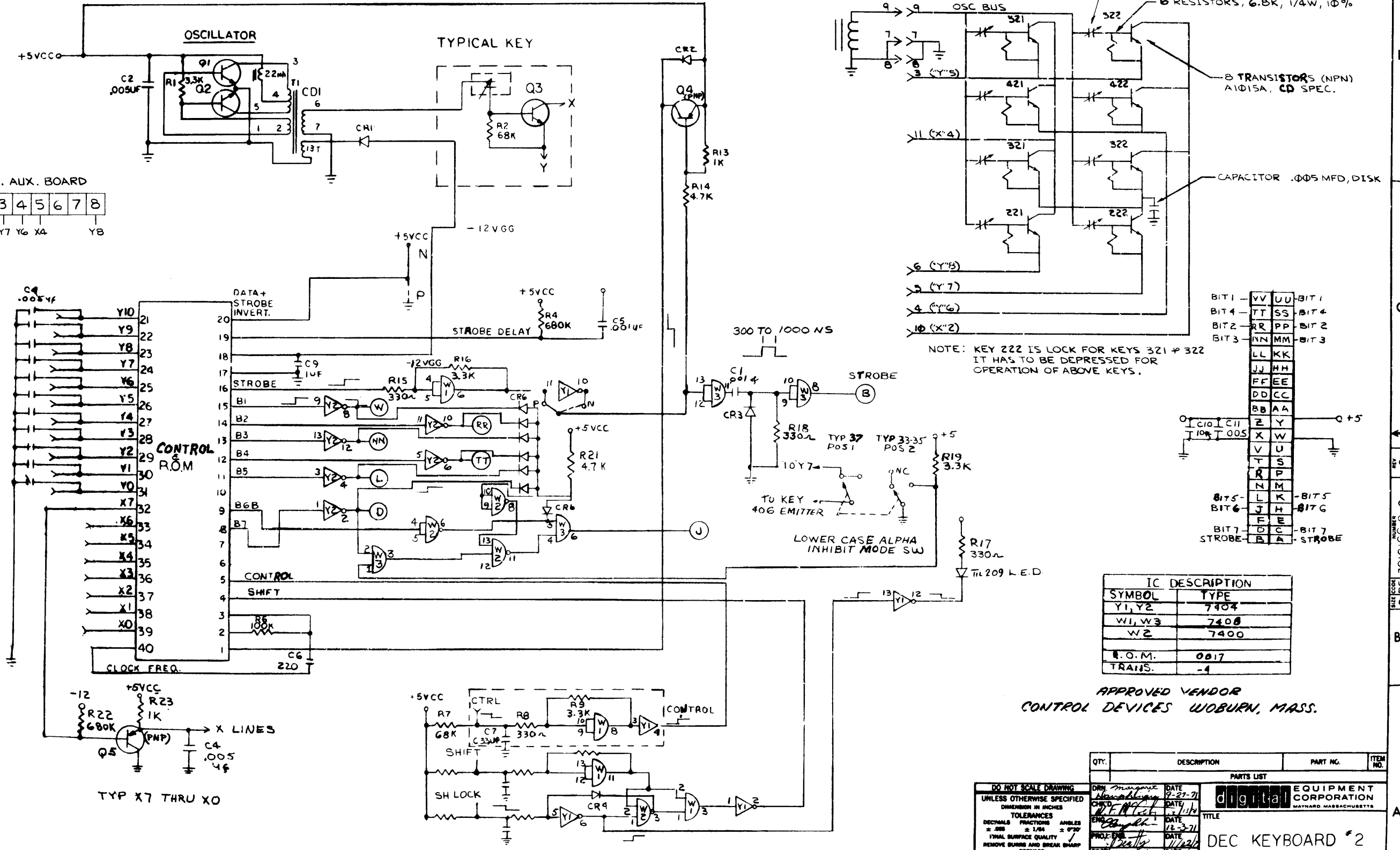
PURCHASE SPECIFICATION

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0-0-981010E Sd 2

CONN. AUX. BOARD

1	2	3	4	5	6	7	8
XZ	Y5	Y7	Y6	X4		Y8	



IC DESCRIPTION	
SYMBOL	TYPE
Y1, Y2	7404
W1, W3	7408
W2	7400
E.O.M.	0017
TRANS.	-4

APPROVED VENDOR
CONTROL DEVICES WOBURN, MASS.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE DEC KEYBOARD #2		
	SCALE	NUMBER	REV.
	SHEET 13 OF 15	DPSI 3010166-0-0	C

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
± .005 ± 1/32 ± 0°30'
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

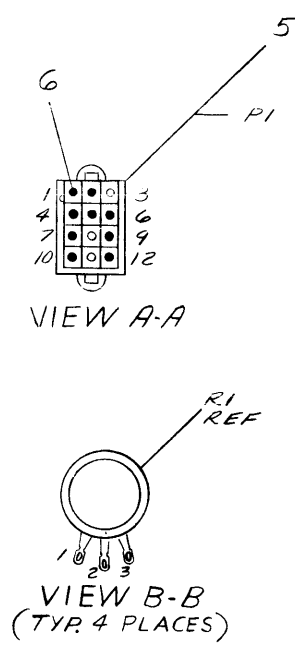
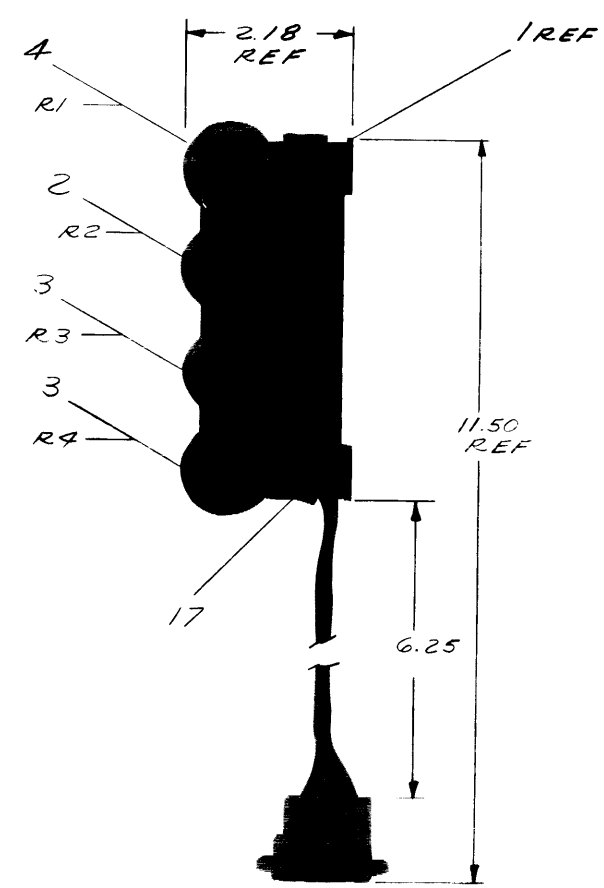
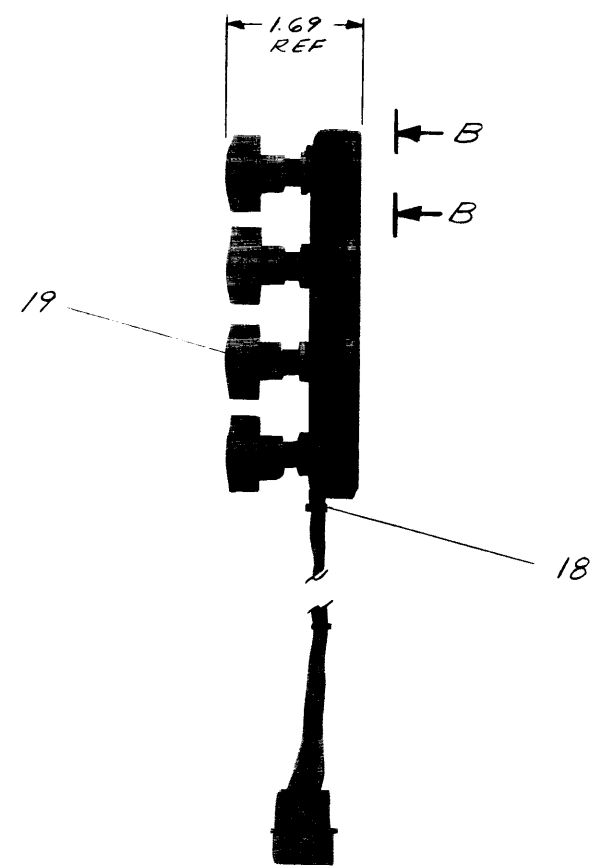
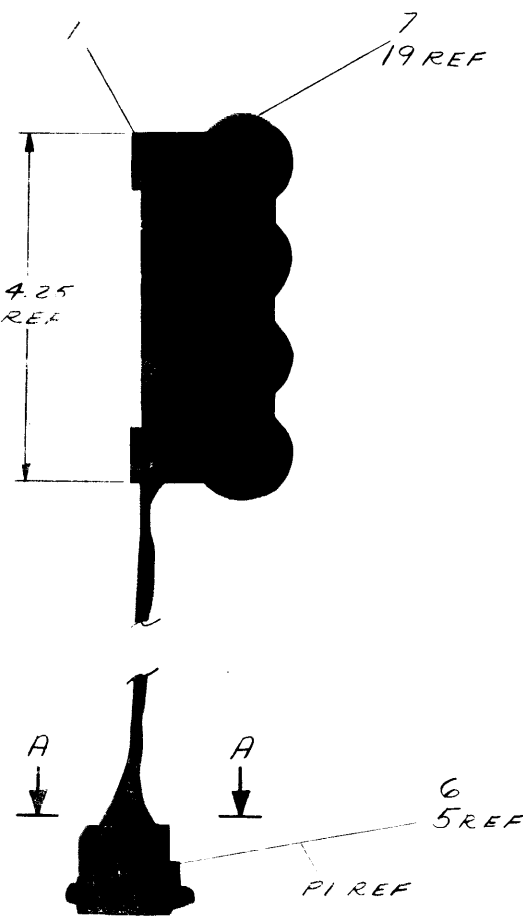
REVISIONS
CHANGE NO.
CHK
REV

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REV. 2
 NUMBER 7007232-0-0
 SIZE CODE DAD

WIRE TABLE						
ITEM NO.	AWG	COLOR	FROM		TO	
			CONNECTION	WITH	CONNECTION	WITH
8	22	BLK	R1-1	*	R2-3	—
8		BLK	R2-3	↑	P1-6	ITEM 6
16		WHT/BRN	R1-2		P1-2	
15		WHT/BLK	R1-3		P1-1	↑
14		WHT/RED	R2-1		P1-4	↓
13		WHT/DRN	R2-2		P1-5	ITEM 6
12		WHT/YEL	R3-2		R3-1	—
12		WHT/YEL	R3-1		P1-7	ITEM 6
11		WHT/GRN	R3-3		P1-9	ITEM 6
10		WHT/BLU	R4-2		R4-1	—
10		WHT/BLU	R4-1	↓	P1-10	ITEM 6
9	22	WHT/VID	R4-3	*	P1-12	ITEM 6

* THIS CONNECTION REQUIRES THE USE OF ITEM 17 & SOLDER.



DEC FORM NO. 100
 8 7 6 5 4 3 2 1

FIRST USED ON OPTION/MODEL
 VT0F

DO NOT SCALE DRAWING
 UNLESS OTHERWISE SPECIFIED
 DIMENSION IN INCHES
 TOLERANCES
 DECIMALS FRACTIONS ANGLES
 ± .005 ± 1/64 ± 0°30'
 FINAL SURFACE QUALITY
 REMOVE BURRS AND BREAK SHARP CORNERS
 MATERIAL
 FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRD	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
CHK'D	DATE	TITLE	
ENG	DATE	POT ASSEMBLY	
PROJ. ENG.	DATE	NEXT HIGHER ASSY	
PROD.	DATE	D-UA-VT0F-0-0	
SCALE NONE		SIZE CODE	NUMBER
SHEET OF		DAD	7007232-0-0
		DIST.	REV.

REV. A
 NUMBER 7007232-0-0
 SIZE CODE DAD

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

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SEQUENCE

SEQUENCE

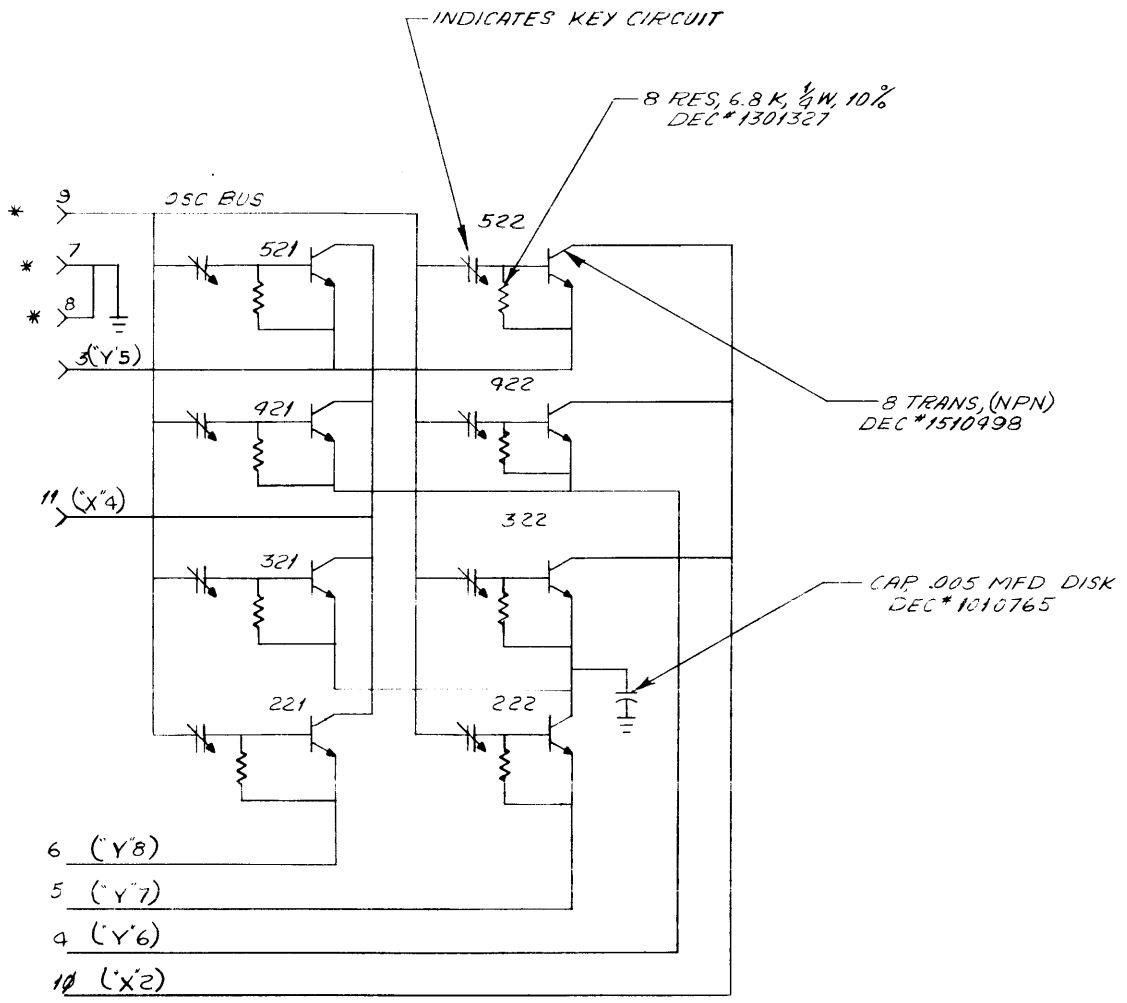
DRAWING DIRECTORY	B-DD-5410224-0
CURSOR BOARD (KEYBOARD)	D-CS-5410224-0-1
CURSOR BOARD ENCODING (KEYBOARD)	C-L0-5410224-0-8

VARIATION	TITLE	PRINT SET TYPE									
		5410224-1									
5410224	CURSOR BOARD (KEYBOARD)	X									

REVOLUTIONS		CHG. NO.	REV	DATE	USED ON OPTION/MODEL	DRN.	DATE	TITLE	SIZE	CODE	NUMBER	REV
						D.SCHMIDT	7-20-72					
						CHK'D. <td>DATE <td rowspan="5">CURSOR BOARD (KEYBOARD)</td> <td> </td> <td> </td> <td rowspan="5">5410224-0</td> <td rowspan="5"> </td> </td>	DATE <td rowspan="5">CURSOR BOARD (KEYBOARD)</td> <td> </td> <td> </td> <td rowspan="5">5410224-0</td> <td rowspan="5"> </td>	CURSOR BOARD (KEYBOARD)			5410224-0	
						R. HUTNAK	7-25-72					
						PROJ ENG.	DATE					
						<i>D. Widdon</i>	7/31/72					
						PROD.	DATE					
						<i>R. Davis</i>	8/4/72					
						FIELD SERV.	DATE		B	DD		

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NOTES:
 1. KEY 222 IS LOCK FOR KEYS 321 & 322. IT HAS TO BE DEPRESSED FOR OPERATION OF ABOVE KEYS.
 * 2. FOR REFERENCE INFORMATION SEE LWB NO. D-CS-5403995-0-1



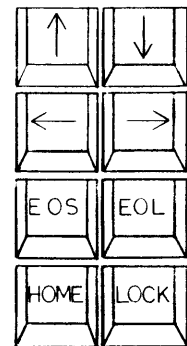
BRINING 40-322-15840	REV
REVISIONS	NO
CHK	CHANGE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VT05				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. <i>h</i> DATE 7/17/72	DATE 7/17/72	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS	CHK'D. <i>h</i> DATE 7/17/72	DATE 7/17/72		
ANGLES	ENG. <i>h</i> DATE 7/17/72	DATE 7/17/72		
XXX - .005 XX - .02 X - .1	PROJ. ENG. <i>h</i> DATE 7/17/72	DATE 7/17/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. <i>R.Daw</i> DATE 8/4/72	DATE 8/4/72	TITLE CURSOR BOARD (KEYBOARD)	
MATERIAL	NEXT HIGHER ASSY			
FINISH	SCALE NONE	SCALE NONE	SIZE CODE	NUMBER
	SHEET OF	DIST	DCS 5410224-0-1	REV.

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NOTES:

1. CODES SHOWN ARE THE ASCII OUTPUTS FROM THE MAIN KEYBOARD, WHEN THE CURSOR KEYS ARE OPERATED.



KEYCAP CONFIGURATION

SUB	VT
BS	CAN
US	RS
GS	

D
C
B
A

D
C
B
A

BRUNING 40-107 15968	REV.
	CHANGE NO.
	CHK

FIRST USED ON OPTION/MODEL VT05	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. <i>[Signature]</i>	DATE 7/17/72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS ANGLES	CHK'D <i>[Signature]</i>	DATE 7/21/72		
.XXX = .005 .XX = .02 .X = .1	ENG. <i>[Signature]</i>	DATE 9/21/72	TITLE CURSOR BOARD ENCODING (KEYBOARD)	
±0° 30'	PROJ. ENG. <i>[Signature]</i>	DATE 7/14/72		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROD. <i>[Signature]</i>	DATE 8/4/72		
MATERIAL + +	NEXT HIGHER ASSY.		SIZE CODE C LO	NUMBER 5410224-0-8
FINISH + +	SCALE 1/1			REV.
	SHEET	OF	DIST.	