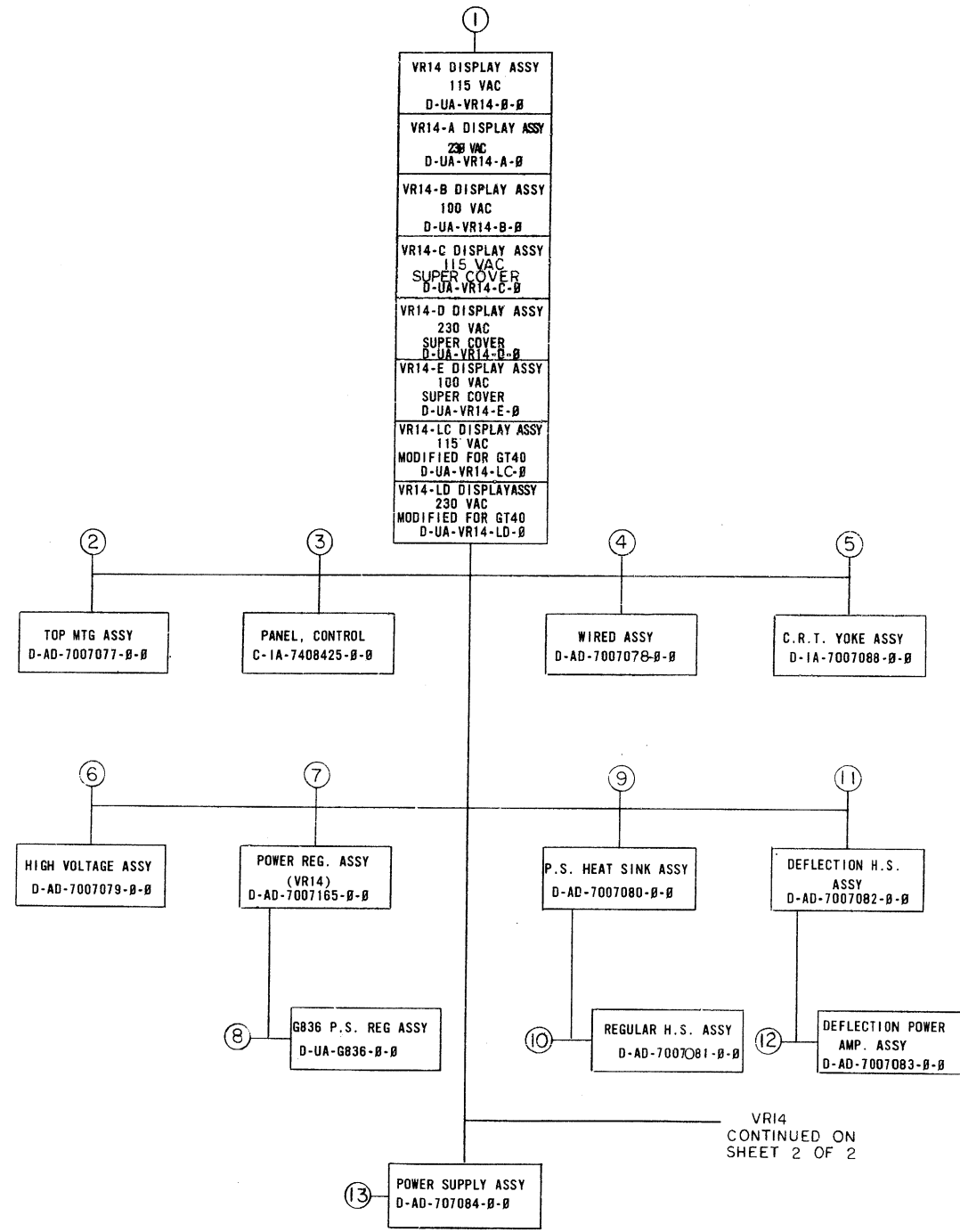


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1972

8 7 6 5 4 3 2 1

DDI VR14-0-2



MECHANICAL				DEPT USAGE			ELECTRICAL				DEPT USAGE																																																																																																						
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C																																																																																																						
1.	VR14 DISPLAY ASSY 115 VAC VR14-A DISPLAY ASSY 230 VAC VR14-B DISPLAY ASSY 100 VAC VR14-C DISPLAY 115 VAC S.C. VR14-D DISPLAY 230 VAC S.C. VR14-E DISPLAY 100 VAC S.C. VR14-LC DISPLAY ASSY 115 VAC GT 40 VR14-LD DISPLAY ASSY 230 VAC GT 40 VR14 DISPLAY ASSY P.L. BEZEL (VR12) BEZEL, CONTROL PANEL (VR12) CAP. REAR CAP. (VR14) MASK, C.R.T. (VR14) MASK C.R.T. SCREEN, SAFETY SCREEN, SAFETY (VR14) PLATE, BOTTOM MTG. FAN, SCREEN C.R.T. SHIELD MAIN CHASSIS CABLE HARNESS GROUND TUBE CHASSIS TRACK BRACE CHANNEL SWITCH MASK BRACE, CHASSIS SHIELD SAFETY HOLDER, CARD PKG INST VR14 RACK MOUNT PKG INST VR14 SUPER COVER JUMPER	D-UA-VR14-B-B D-UA-VR14-A-B D-UA-VR14-B-B D-UA-VR14-C-B D-UA-VR14-D-B D-UA-VR14-E-B D-UA-VR14-LC-B D-UA-VR14-LD-B A-PL-VR14-B-B E-SC-1209230-B-B E-IA-7408891-B-B C-SC-1209229-B-B C-MD-7408434-B-B D-SC-1209228-B-B D-MD-7408637-B-B D-SC-1210113-B-B D-IA-7408408-B-B D-IA-7408400-B-B C-MD-7404881-B-B E-SC-1210104-B-B E-IA-7008477-3-B C-IA-7408411-B-B D-MD-7408549-B-B B-IA-7008976-B-B E-PS-1211106-B-B E-IA-7409964-B-B C-IA-7408409-B-B C-MD-7408414-B-B A-PL-3700026-B-B A-PL-3700027-B-B B-IA-7007006-3-B				1.	VR14 DISPLAY 115 VAC VR14-A DISPLAY 230 VAC VR14-B DISPLAY 100 VAC VR14-C DISPLAY 115 VAC S.C. VR14-D DISPLAY 230 VAC S.C. VR14-E DISPLAY 100 VAC S.C. VR14-LC DISPLAY ASSY 115 VAC GT 40 VR14-LD DISPLAY ASSY 230 VAC GT 40 CIRCUIT SCHEMATIC (VR14) MODULE UTILIZATION MODULE UTILIZATION (PL) ENGINEERING SPECIFICATION CHECK OUT AND ACCEPTANCE PROCEDURE	A-ML-VR14-B A-ML-VR14-A A-ML-VR14-B A-ML-VR14-C A-ML-VR14-D A-ML-VR14-E D-UA-VR-1-LC-B D-UA-VR14-LD-B D-IC-VR14-B-1 C-MU-VR14-B-3 A-MU-VR14-B-3 A-SP-VR14-B-4 A-SP-VR14-B-5				4.	WIRED ASSY WIRED ASSY P.L.	C-AD-7007078-B-B A-PL-7007078-B-B				8.	6836 POWER REG. ASSY 6836 POWER REG. ASSY P.L. CIRCUIT SCHEMATIC (6836)	D-UA-6836-B-B A-PL-6836-B-B D-SC-6836-B-1				9.	POWER SUPPLY HEAT SINK ASSY POWER SUPPLY H.S. ASSY PL CIRCUIT SCHEMATIC (HEAT SINK)	D-AD-7007080-B-B A-PL-7007080-B-B D-CS-7007080-B-1				11.	DEFLECTION HEAT SINK ASSY DEFLECTION H.S. ASSY P.L. CIRCUIT SCHEMATIC (DEFLECTION)	D-AD-7007082-B-B A-PL-7007082-B-B D-CS-7007082-B-1				13.	POWER SUPPLY ASSY POWER SUPPLY ASSY P.L. CIRCUIT SCHEMATIC (POWER SUPPLY)	D-AD-7007084-B-B A-PL-7007084-B-B D-CS-7007084-B-1				2.	TOP MTG. ASSY TOP MTG. ASSY P.L. PLATE, TOP MTG. SCOTCHCAL (VR14)	D-AD-7007077-B-B A-PL-7007077-B-B E-IA-7408401-B-B A-DC-7408407-B-B				3.	PANEL, CONTROL PANEL, CONTROL SILK SCREEN	C-IA-7408425-B-B B-SS-7408425-B-1				4.	WIRED ASSY WIRED ASSY P.L. FRAME LOGIC BAR, MTG LOGIC FRAME DECALS LOGIC FRAME DECALS	D-AD-7007078-B-B A-PL-7007078-B-B D-IA-7408422-B-B B-MD-7407114-B-B A-SS-5308753-B-2 A-SS-5308753-B-4				5.	C.R.T. YOKE ASSY	D-IA-7007088-B-B				6.	HIGH VOLTAGE ASSY HIGH VOLTAGE ASSY P.L. PLATE, HIGH VOLTAGE MTG. SHIELD, HIGH VOL. PROTECTION SPACER, HEX HIGH VOLTAGE SHIELD	D-AD-7007079-B-B A-PL-7007079-B-B D-IA-7408420-B-B B-MD-7408424-B-B B-MD-7408413-B-B D-SC-1210169-B-B				7.	POWER REGULATOR ASSY (VR14) POWER REG. ASSY (VR14) P.L. MATE-N-LOK ASSY BRKT COVER, CAPACITOR	D-AD-7007165-B-B A-PL-7007165-B-B D-IA-7408439-B-B C-MD-7408436-B-B				8.	6836 POWER REG. ASSY 6836 POWER REG. ASSY P.L.	D-UA-6836-B-B A-PL-6836-B-B				9.	POWER SUPPLY H.S. ASSY POWER SUPPLY H.S. ASSY P.L. SPACER, MTG. BRKT. MTG. SPACER POWER SUPPLY HEAT SINK	D-AD-7007080-B-B A-PL-7007080-B-B C-MD-7408438-B-B C-MD-7408437-B-B D-SC-1210131-B-B				10.	REGULATOR HEAT SINK ASSY REGULATOR H.S. ASSY P.L.	D-AD-7007081-B-B A-PL-7007081-B-B				11.	DEFLECTION HEAT SINK ASSY DEFLECTION H.S. ASSY	D-AD-7007082-B-B A-PL-7007082-B-B				12.	DEFLECTION POWER AMP. ASSY DEFLECTION POWER AMP (PL)	D-AD-7007083-B-B A-PL-7007083-B-B				13.	POWER SUPPLY ASSY POWER SUPPLY ASSY (PL) POWER SUP. CABLE HAPN. COVER, CAPACITOR HOLD DOWN PLATE, SIDE MTG COVER, PROTECTION	E-AD-7007084-B-B A-PL-7007084-B-B E-IA-7007147-B-3 D-IA-7408433-B-B E-IA-7408402-B-B B-MD-7408416-B-B			

REV	CHG	NO.	DATE	BY
1	VR14-00019	F	11-7-72	A. FISHER
2	VR14-00021	H	11-7-72	A. FISHER
3	VR14-00023	J	11-7-72	A. FISHER
4	VR14-00023	J	11-7-72	A. FISHER
5	VR14-00023	J	11-7-72	A. FISHER
6	VR14-00023	J	11-7-72	A. FISHER
7	VR14-00023	J	11-7-72	A. FISHER
8	VR14-00023	J	11-7-72	A. FISHER

FIRST USED ON OPTION/MODEL
VR14

DRM	D. K. CRABBE	DATE	1-3-70
CHK'D.	D. K. CRABBE	DATE	1-4-70
ENG.	D. K. CRABBE	DATE	1-6-70
PROJ. ENL.	A. FISHER	DATE	11-6-70
PROD.	R. PETERSON	DATE	2-8-70

TITLE
DRAWING INDEX LIST

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SIZE CODE
DDI VR14-0-2

SCALE
SHEET 1 OF 2

REV. J

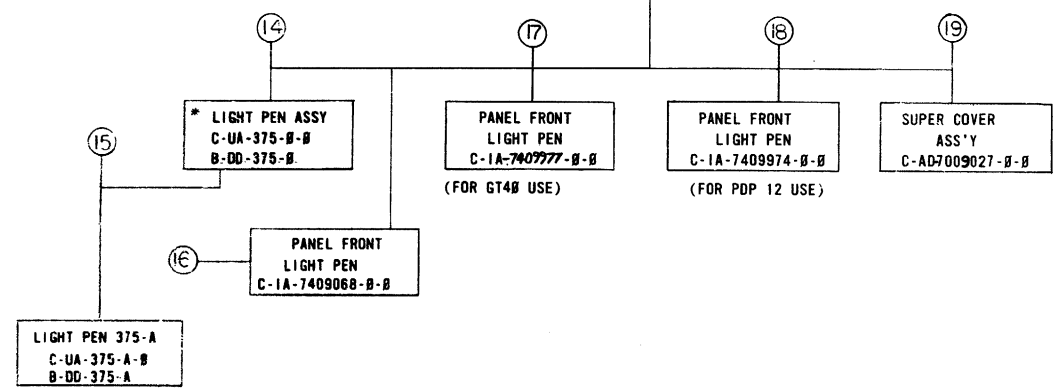
8 7 6 5 4 3 2 1

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8 7 6 5 4 3 2 1

2-0-VR14-0-2

- ① VR14 DISPLAY ASSY
115 VAC
D-UA-VR14-B-B
- VR14-A DISPLAY ASSY
230 VAC
D-UA-VR14-A-B
- VR14-B DISPLAY ASSY
100 VAC
D-UA-VR14-B-B
- VR14-C DISPLAY ASSY
115 VAC
SUPER COVER
D-UA-VR14-C-B
- VR14-D DISPLAY ASSY
230 VAC
SUPER COVER
D-UA-VR14-D-B
- VR14-E DISPLAY ASSY
100 VAC
SUPER COVER
D-UA-VR14-E-B
- VR14-LC DISPLAY ASSY
115 VAC
MODIFIED FOR GT 40
D-UA-VR14-LC-B
- VR14-LD DISPLAY ASSY
230 VAC
MODIFIED FOR GT40
D-UA-VR14-LD-B



* OPTIONAL

MECHANICAL			DEPT USAGE			ELECTRICAL			DEPT USAGE		
FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C	FIND NO.	DESCRIPTION	PART NO.	PROD	CUST	F/C
14.	LIGHT PEN ASSY	C-UA-375-0-0									
	PHONE JACK CABLE	D-1A-7008433-B-B									
15.	LIGHT PEN ASSY (375-A)	C-UA-375-A-B									
	INFRA-RED LIGHT PEN	541Q268									
16.	PANEL, FRONT LIGHT PEN SILK SCREEN	C-1A-7409068-B-B B-SS-7409068-B-1									
17.	PANEL FRONT LIGHT PEN SILK SCREEN	C-1A-7409977-B-B B-SS-7409977-B-1									
18.	PANEL FRONT LIGHT PEN SILK SCREEN	C-1A-7409974-B-B B-SS-7409974-B-1									
19.	SUPER COVER ASSY SHIM, CHASSIS (R.H.)	D-AD-7009027-B-B									
	SHIM, CHASSIS (L.H.)	C-MD-7409968-0-0									
	COVER PANEL REAR TOP	C-MB-7409969-0-0									
	EXTRUSION ASSY LOWER COVER TOP	D-MD-7409965-0-0 D-1A-7409972-0-0 E-1A-7409963-0-0									

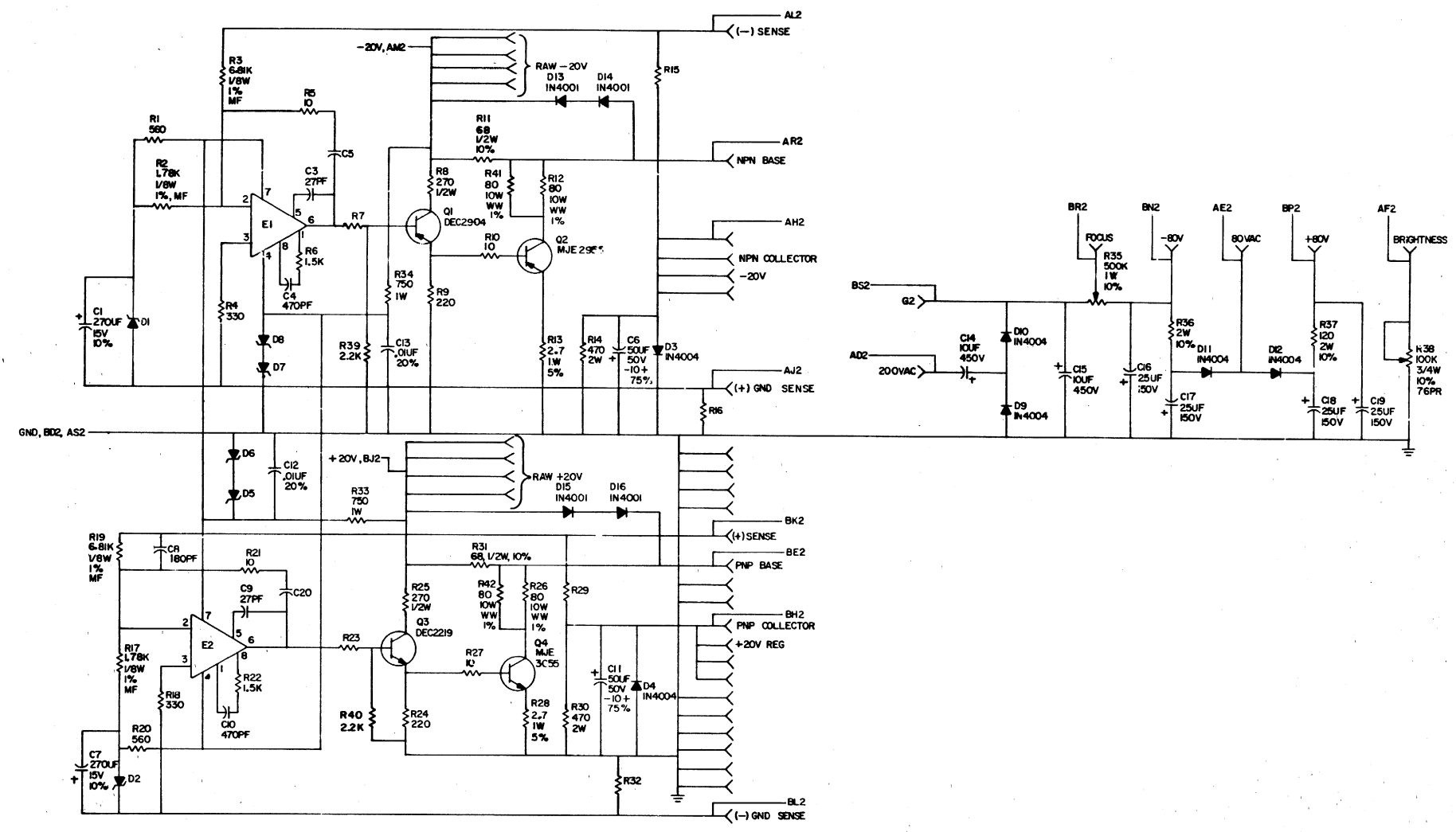
FIRST USED ON OPTION/MODEL VR14		DRN K CRABBE DATE 11-3-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS TITLE DRAWING INDEX LIST
CHK'D K CRABBE DATE 11-3-70	ENG K CRABBE DATE 11-5-70	DATE 11-3-70	
PROJ ENG A FISHMAN DATE 11-5-70	PROD R PETERSON DATE 12-8-70	DATE 11-5-70	
NEXT HIGHER ASSY D-UA-VR14-0-0		DATE	
SCALE	SHEET 2 OF 2	DATE	
SIZE CODE DDI	NUMBER VR14-0-2	REV. J	

REVISIONS
CHANGE NO
REV

DEC FORM 100
COP 100

8 7 6 5 4 3 2 1

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES THE
 CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY
 COPYRIGHT 1970 BY DIGITAL EQUIPMENT CORPORATION



UNLESS OTHERWISE INDICATED:
 RESISTORS ARE 1K, 1/4W, 5%
 DIODES ARE IN752A, 5.6V
 CAPACITORS ARE 1000PF, 100V, 5%
 E1, E2 ARE DEC709C
 —•— EYELETS

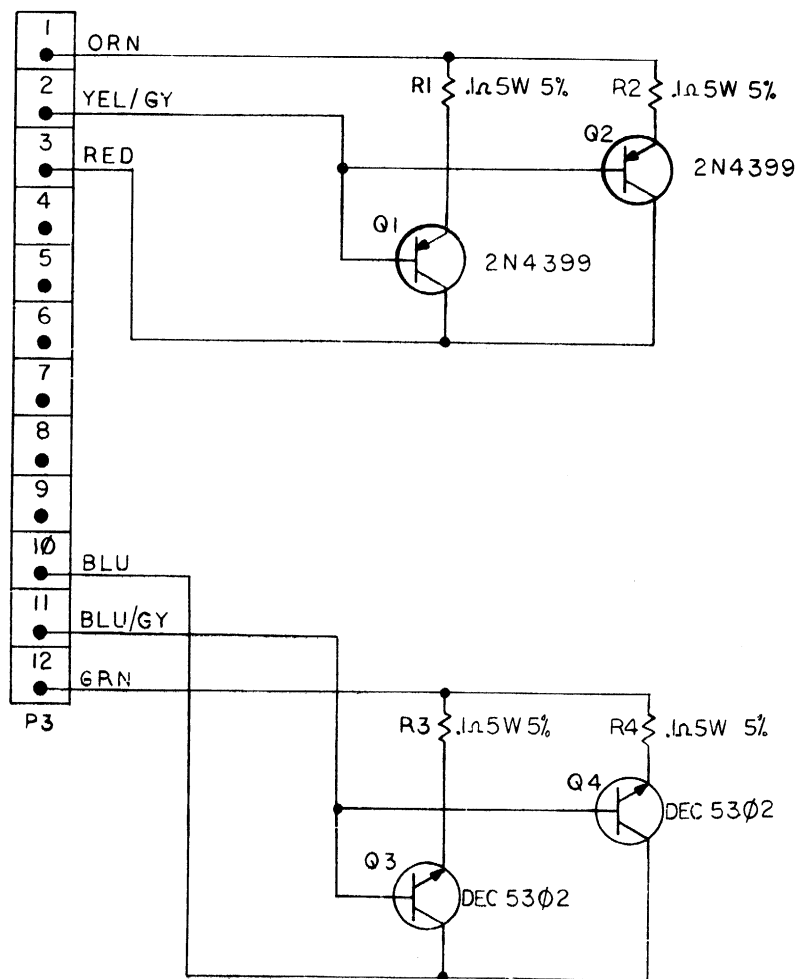
REVISIONS		DATE		TRANSISTOR & DIODE CONVERSION CHART				TITLE	
1	1/15/70	1/15/70	1/15/70	DEC	EIA	CIC	EIA	VR-14 POWER SUPPLY AND REGULATOR BD G836	
2	1/15/70	1/15/70	1/15/70	IN752A	5.6V	MJE3C55		DIGITAL EQUIPMENT CORPORATION	
3	1/15/70	1/15/70	1/15/70	IN4004	5.6V			CORPORATION	
4	1/15/70	1/15/70	1/15/70					PRINTED CIRCUIT REV	

REV 1
 NUMBER 6836-0-1
 DATE 1/15/70

77NA

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HEAT SINK CONNECTOR
 SOCKET HOUSING
 DEC 1209351-12



REF DESIGNATION	DESCRIPTION	PART NO.
P3	AMP 12 CIRCUIT	1209351-12
Q1 Q2	TRANSISTOR 2N4399	1510362
Q3, Q4	TRANSISTOR DEC 5302	1510196
R1 - R4	RESISTOR .1n5W 5%	1305872

PARTS LIST		
DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	
NEXT HIGHER ASSY		TITLE CIRCUIT SCHEMATIC (HEAT SINK)
D-AU-7007080-0-0		
SCALE	SHEET	SIZE CODE CCS 7007080-0-1
OF	REV.	A

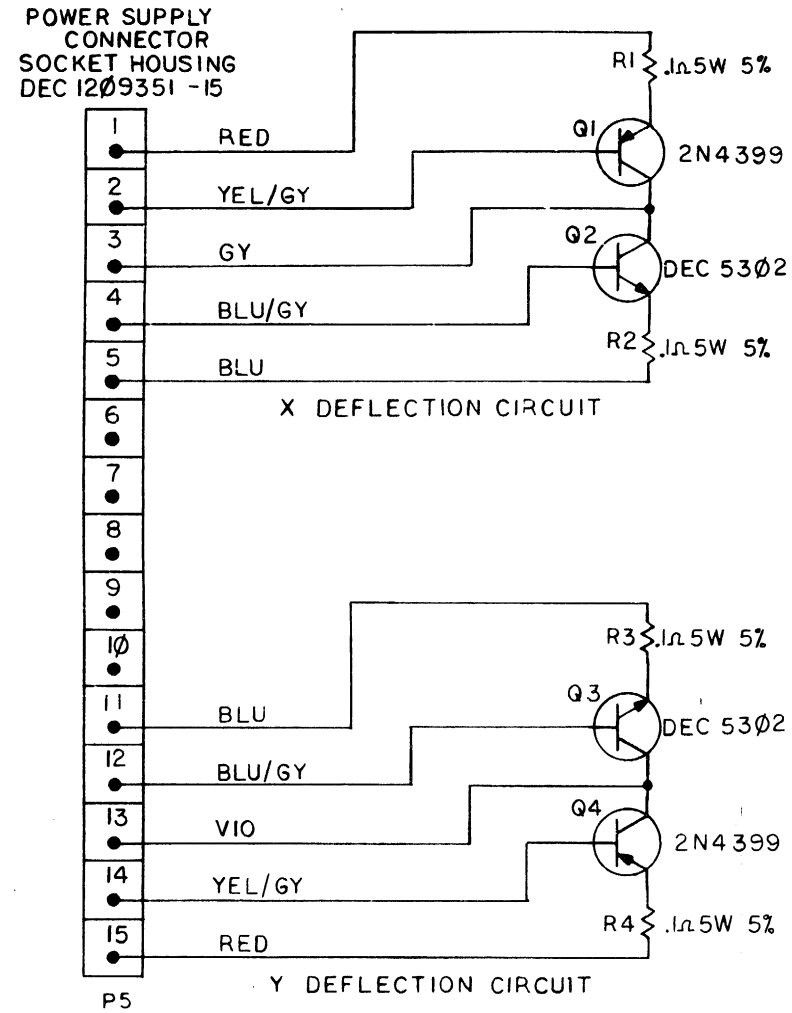
FIRST USED ON OPTION MODEL
 VRI4

TRANSISTOR-DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
DEC 5302	2N 5302		
DEC 3790	2N 3790		

REVISIONS	
CHK	CHANGE NO. REV.
	VRI4-00005 A
	4/18/71
	A. FISHMAN
	4-10-71

REV. A
 NUMBER 7007080-0-1
 SIZE CODE CCS

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REF DESIGNATION	DESCRIPTION	PART NO.
Q2, Q3.	TRANSISTOR DEC 5302	1510196
P5	AMP 15-CIRCUIT	1209351-15
Q1, Q4.	TRANSISTOR 2N4399	1510362
R1-R4	RESISTOR .1n5W 5%	1305872

REV.	CHANGE NO.	REV.
A	4-00005	A

CHK: [Signature]
A. FISHMAN
9-20-71

FIRST USED ON OPTION/MODEL
VRI4

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
DEC 3790	2N 3790		
DEC 5302	2N 5302		

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: ————

DRN: [Signature] DATE: 9/24/70
CHK'D: [Signature] DATE: 10/16/70
ENG: [Signature] DATE: 11/6/70
PROJ. ENG.: [Signature] DATE: 11-6-70
PROD.: [Signature] DATE: 11/6/70

NEXT HIGHER ASSY: D-AD-7007082-0-0
SCALE: ————
SHEET 1 OF 1

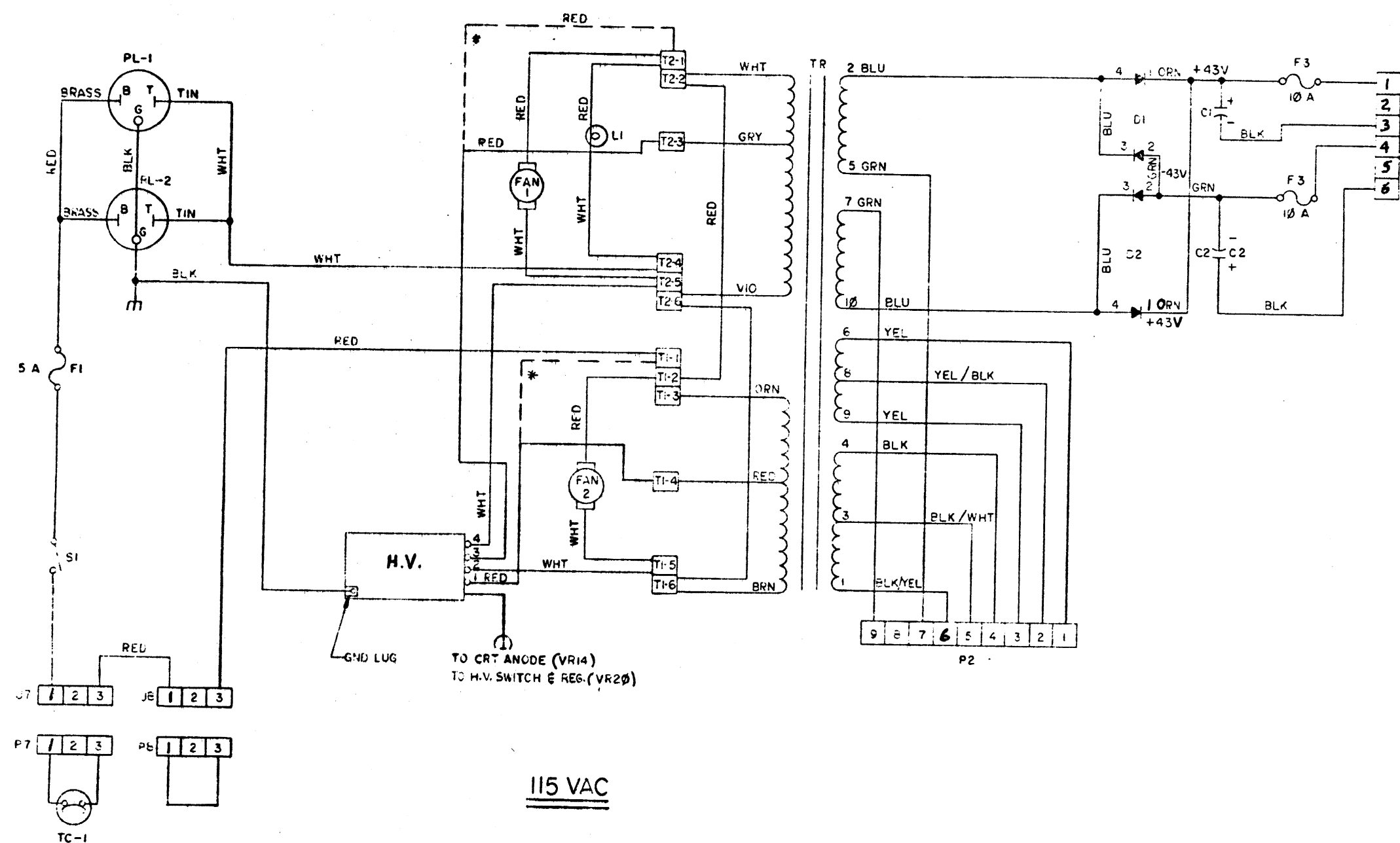
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: CIRCUIT SCHEMATIC (DEFLECTION)

SIZE CODE: CCS NUMBER: 7007082-0-1 REV.: A

REV. A
NUMBER 7007082-0-1
SIZE CODE CCS

SEE INSTRUCTIONS ON REVERSE SIDE OF THIS SHEET FOR THE LOCATION OF THE TERMINALS AND THE CONNECTIONS TO BE MADE TO THE TERMINALS.



* FOR VR20 OPERATION:
DELETE T1-4, ADD TO T1-1
DELETE T2-3, ADD TO T2-1

115 VAC

QTY	DESCRIPTION	PART'S LIST	PART NO.	ITEM NO.
	PWR SUP PARTS LIST	A-PL-7007084-0-0	15	
	F3, FUSE 10 AMP	9006938	14	
	F2, FUSE 3 AMP	9007218	13	
	F1, FUSE 5 AMP	9007222	12	
	TR, TRANSFORMER	1610160-0	11	
	PL2 WATE-N-LOCK 3 PIN	1209352-3	10	
	PL3 WATE-N-LOCK 9 PIN	1209351-9	9	
	PL1 WATE-N-LOCK 6 PIN	1209351-6	8	
	DC CAP. 5900 uf AT 75V	1010143-0	7	
	PL2 RECER AC MALE 160 5 AMPH (115V)	1201252	6	
	PL1 RECER AC FEM 160 4 AMPH (115V)	1201251	5	
	S1 SWITCH & POT 100K 1/2 W	1310383	4	
	L1 LIGHT, PILOT 115 VAC	1209348	3	
	D1, D2 RECTIFIER, DM-15	1105799	2	
	T2 JONES STRIP	9006924	1	

REV	DATE	BY
A	1/14/71	ALLSHMAN
B	1/14/71	ALLSHMAN
C	1/14/71	ALLSHMAN
D	1/14/71	ALLSHMAN
E	1/14/71	ALLSHMAN
F	1/14/71	ALLSHMAN
G	1/14/71	ALLSHMAN
H	1/14/71	ALLSHMAN
I	1/14/71	ALLSHMAN
J	1/14/71	ALLSHMAN

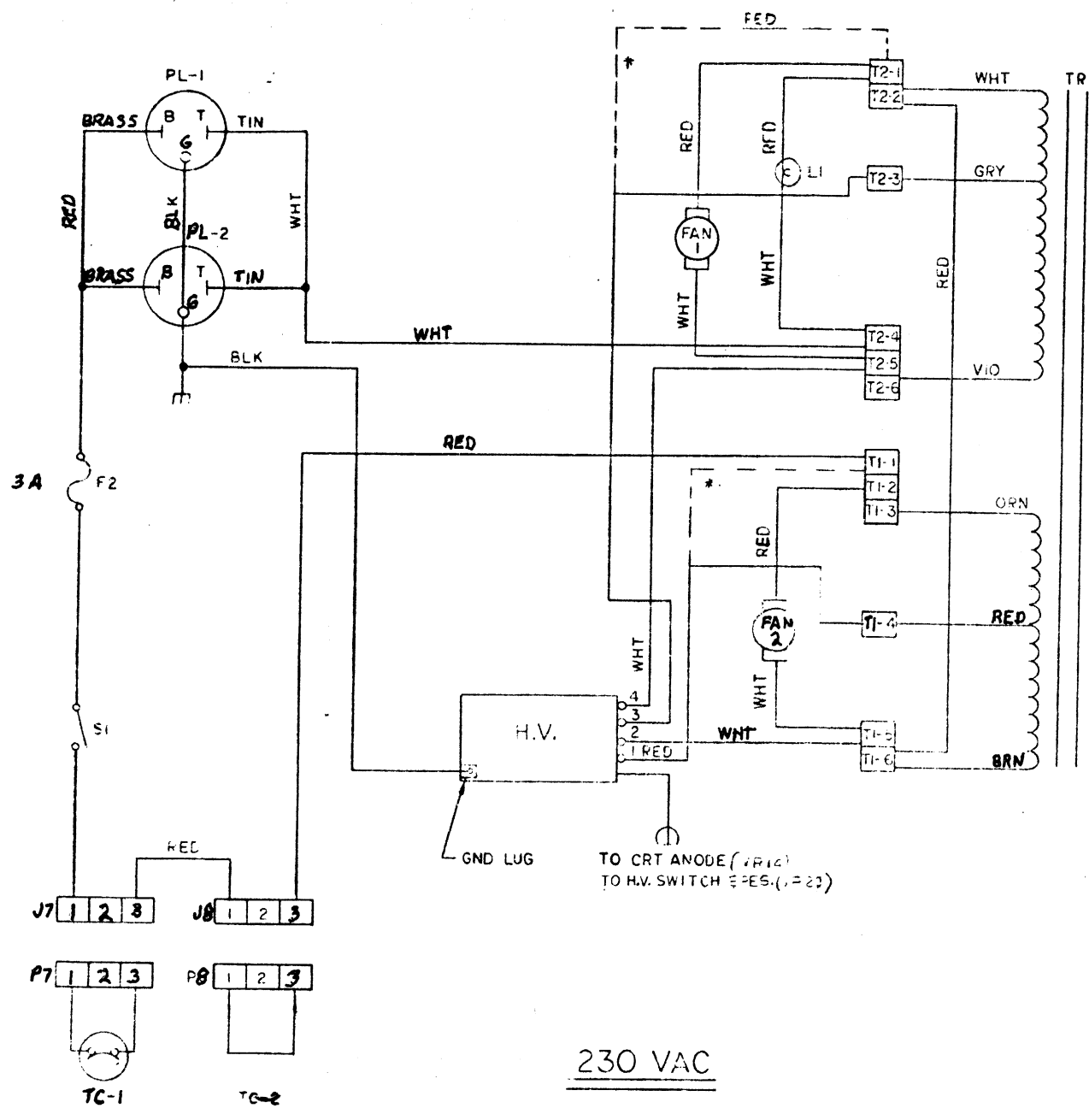
FIRST USED ON OPTICH/ MODEL	UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES
VR14	

TRANSISTOR & DIODE CONVERSION CHART

DATE	BY	REV
1/14/71	ALLSHMAN	1

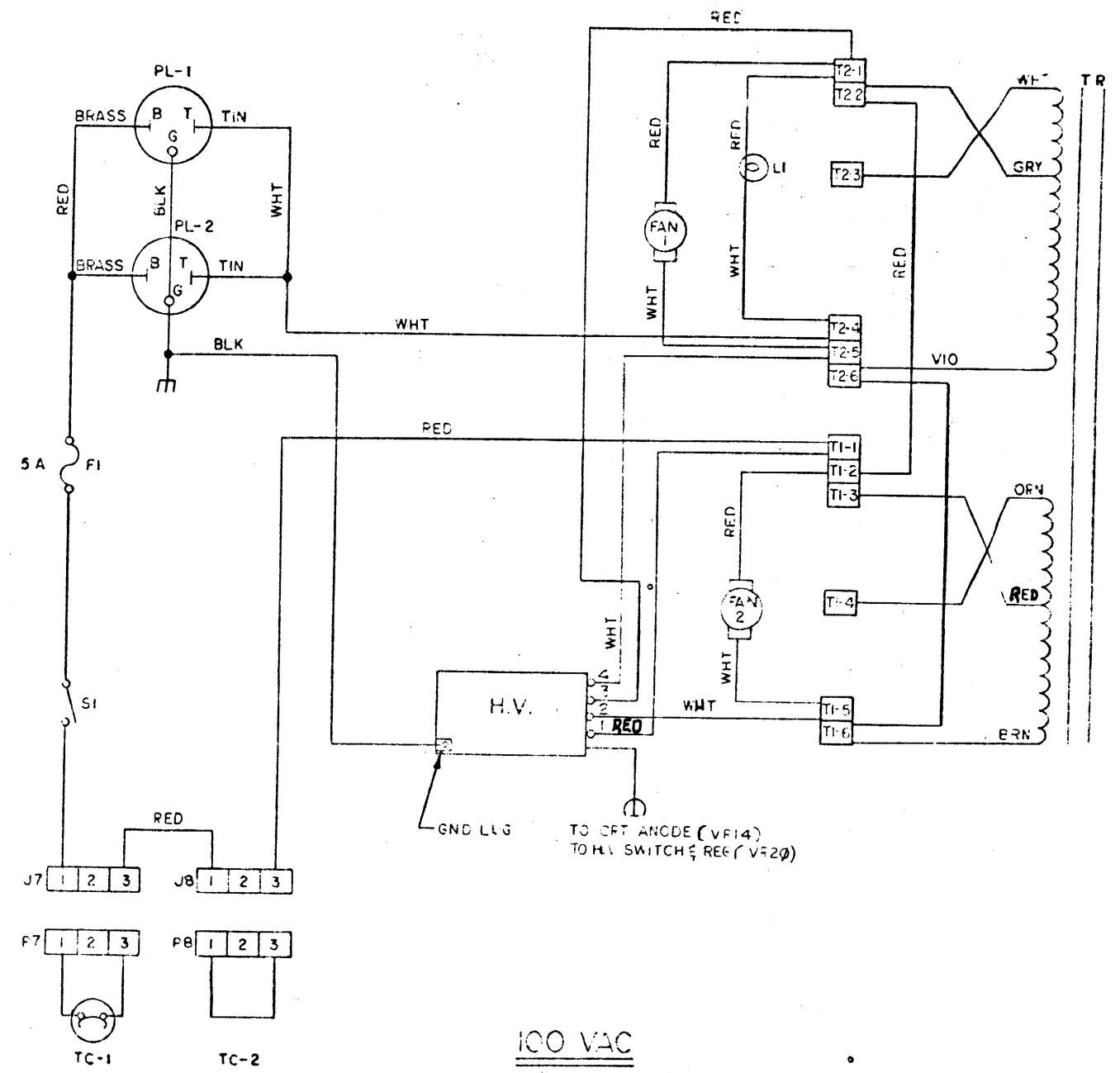
EQUIPMENT CORPORATION	
CIRCUIT SCHEMATIC	
(PWR. SUP.)	

0-AD-7007084-0-0	NUMBER	57007084-0-1
	REV	1



230 VAC

* FOR VR20 OPERATION
DELETE T1-4, ADD TO T1-1
DELETE T2-3, ADD TO T2-1



100 VAC

FIRST USED ON OPTION/MODEL
VR14

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DATE	REV
DECIMALS FRACTIONS ANGLES		
0.003 ± 0.004 ± 0.005		
FULL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP EDGES		
MATERIAL		
FINISH		

TRANSISTOR & DIODE CONVERSION CHART

TRANSISTOR	DIODE

QTY.	DESCRIPTION	PART NO.	ITEM NO.

EQUIPMENT
CORPORATION
CIRCUIT SCHEMATIC
(PWR. SUP.)

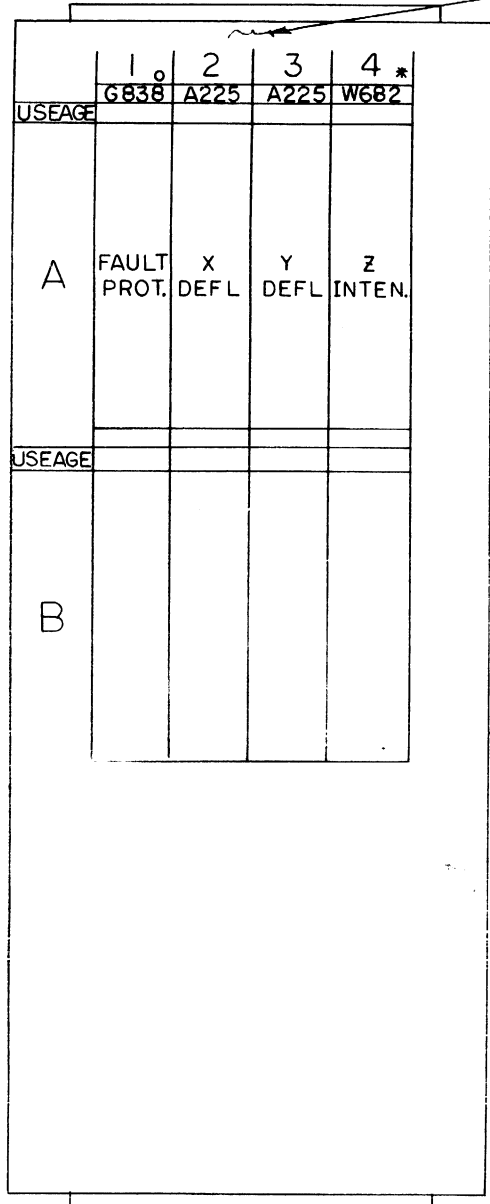
REV D
 PCSI 7007084-0-1

REVISIONS

REV

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NOTES:
 1. MODULE INFORMATION SHOWN FROM WIRING SIDE.
 2. A225' ARE REPLACED WITH A225-YB'S ON VRI4-LC AND LD



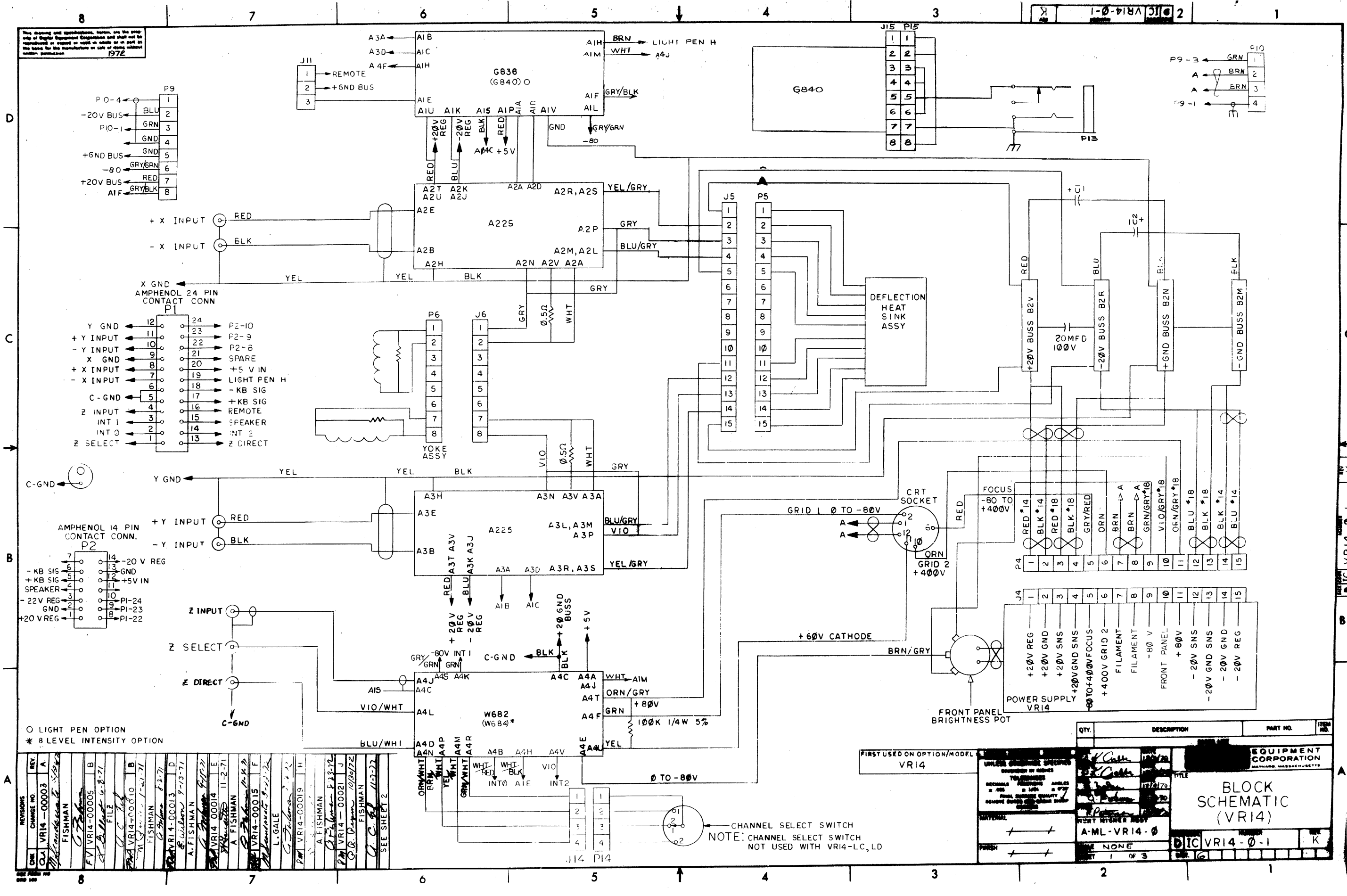
o G840 LIGHT PEN OPTION } (STANDARD ON VRI4 LC, LD)
 * W684 8 LEVEL INTENSITY OPTION }

REV.	CHG. NO.	DATE	BY
A	VR14-00019	8-11-72	A. HISHMAN
B	VR14-00022	1-3-73	A. FISHMAN

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VR14				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED	DRN	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE MODULE UTILIZATION (VRI4)	
UNLESS OTHERWISE SPECIFIED	CHKD	DATE		
DIMENSION IN INCHES	ENG.	DATE		
TOLERANCES	PROJ. ENG.	DATE		
DECIMALS ± .005	PROD.	DATE		
FRACTIONS ± 1/64				
ANGLES ± 0°30'				
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL		NEXT HIGHER ASSY		
		C-MU-VRI4-Ø-3		
FINISH		SCALE	SIZE CODE	NUMBER
		+	C MU	VRI4-Ø-3
		+	DIST.	
		SHEET 1 OF 1		REV. B

REV. 1
NUMBER 7
SIZE CODE
E

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○ LIGHT PEN OPTION
* 8 LEVEL INTENSITY OPTION

REV	CHG	NO	REV	BY	DATE
1		00003	A	FISHMAN	8-2-72
2		00005	B	FISHMAN	8-8-72
3		00010	B	FISHMAN	9-13-72
4		00013	D	FISHMAN	11-2-72
5		00014	E	FISHMAN	11-2-72
6		00015	F	FISHMAN	11-2-72
7		00019	H	FISHMAN	11-2-72
8		00021	J	FISHMAN	10/20/72
9		00022	K	FISHMAN	11-2-72

FIRST USED ON OPTION/MODEL
VRI4

CHANNEL SELECT SWITCH
NOTE: CHANNEL SELECT SWITCH NOT USED WITH VRI4-LC, LD

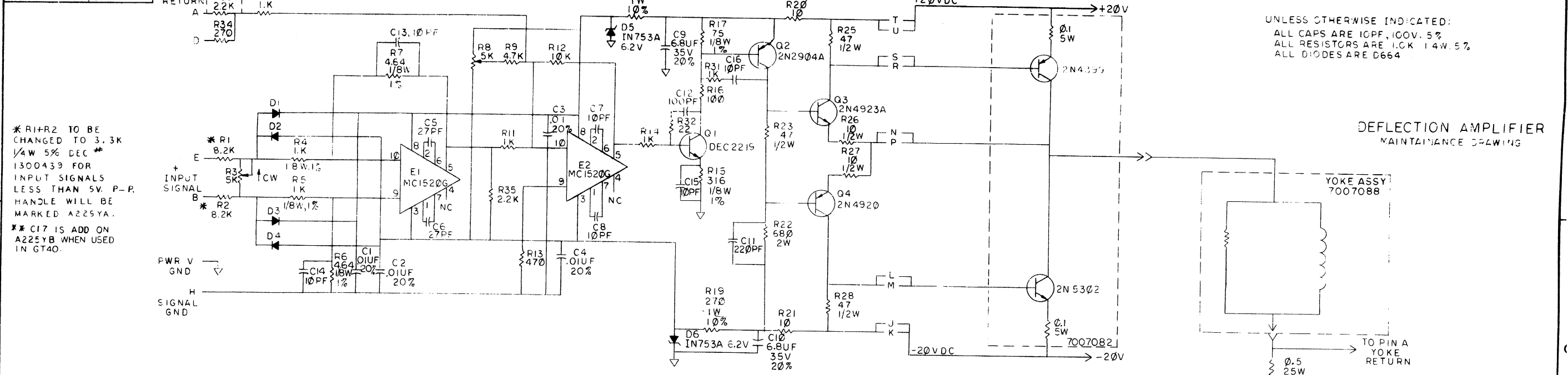
QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	POWER SUPPLY VRI4		
1	DEFLECTION HEAT SINK ASSY		
1	CRT SOCKET		
1	FRONT PANEL BRIGHTNESS POT		
1	YOKKE ASSY		
1	AMPHENOL 24 PIN CONTACT CONN P1		
1	AMPHENOL 14 PIN CONTACT CONN P2		
1	CHANNEL SELECT SWITCH		

BLOCK SCHEMATIC (VRI4)

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

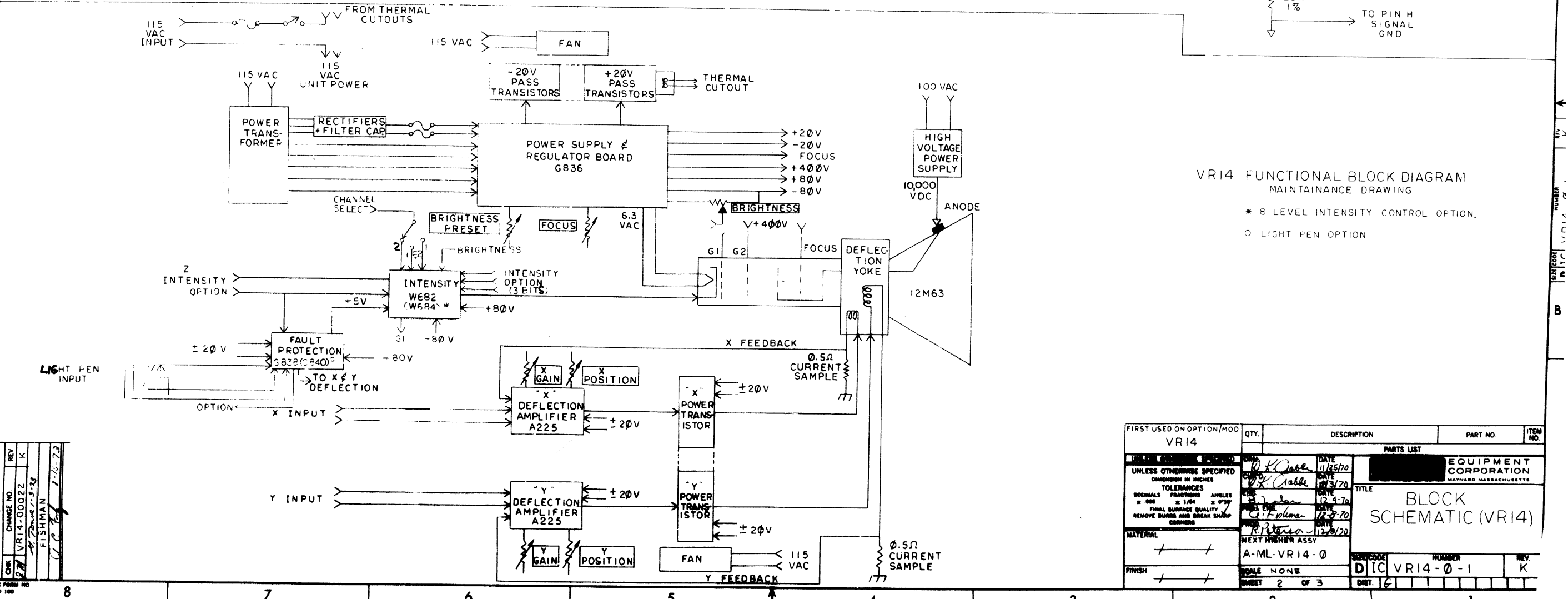
1-0-1 K

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UNLESS OTHERWISE INDICATED:
ALL CAPS ARE 10PF, 100V, 5%
ALL RESISTORS ARE 1.0K, 1/4W, 5%
ALL DIODES ARE D664

DEFLECTION AMPLIFIER
MAINTENANCE DRAWING

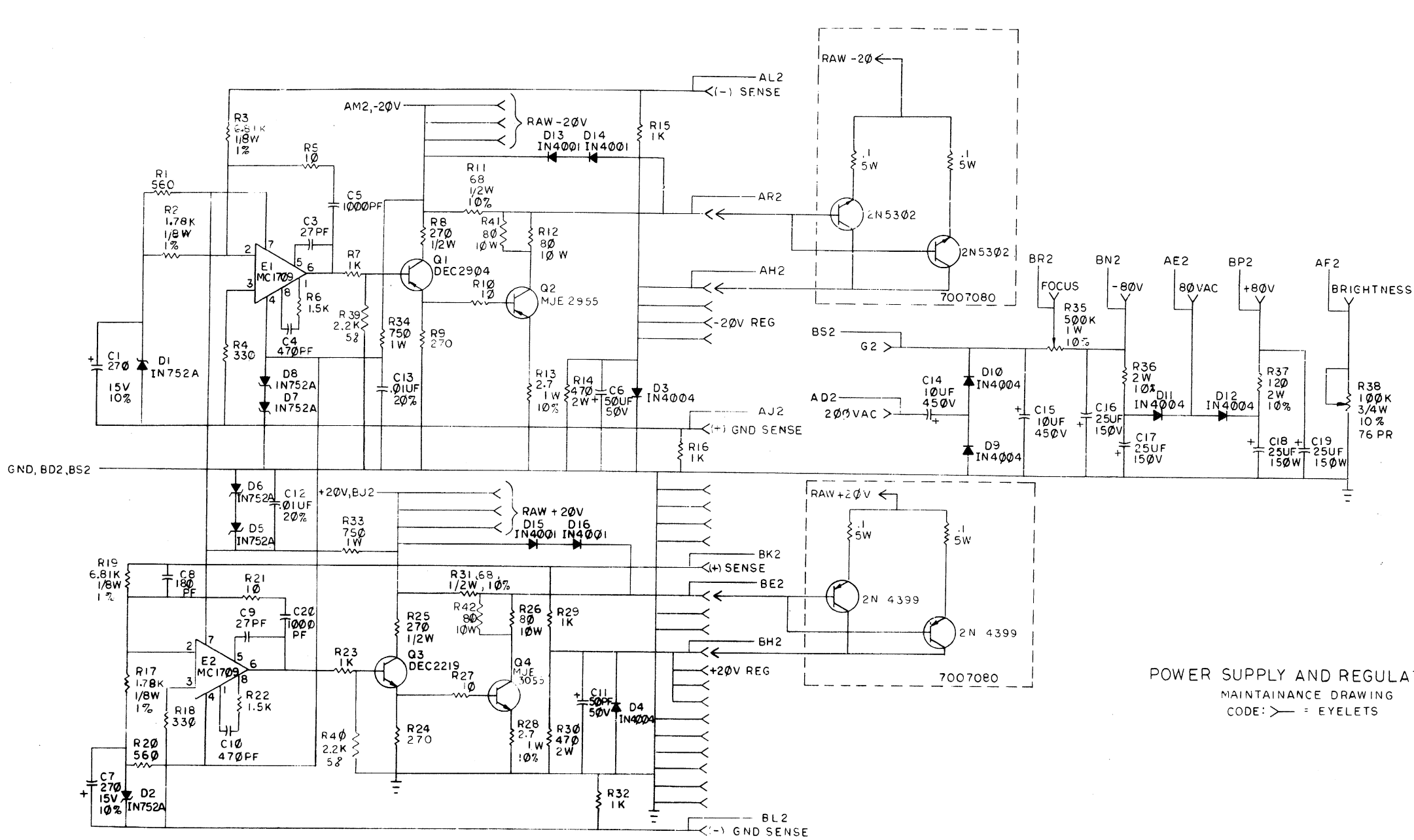


VR14 FUNCTIONAL BLOCK DIAGRAM
MAINTENANCE DRAWING

REV	NO	DATE	BY
1	1	1-1-73	FISHMAN
2	1	1-1-73	FISHMAN

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VR14				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED		EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
DIMENSIONS IN INCHES		TITLE		
TOLERANCES		BLOCK SCHEMATIC (VR14)		
DECIMALS FRACTIONS ANGLES		DATE		
.0008 ± 1/64 ± 90°		12-5-70		
FINAL SURFACE QUALITY		DATE		
REMOVE BURRS AND BREAK SHARP CORNERS		12-5-70		
MATERIAL		NEXT HIGHER ASSY		
FINISH		A-ML-VR14-0		
SCALE NONE		D I C VR14-0-1		
SHEET 2 OF 3		REV. NO. K		

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POWER SUPPLY AND REGULATOR
MAINTENANCE DRAWING
CODE: > = EYELETS

FIRST USED ON OPTION/M.C.D.	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VRI4				
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES = .005 = .010 = 30° REMOVE BURRS AND BREAK SHARP EDGES		DATE 12/11/70 DATE 12/15/70 DATE 12/15/70 DATE 12/15/70	EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
MATERIAL + + +		TITLE BLOCK SCHEMATIC (VRI4)		
FINISH + + +		DRAWING NUMBER A-ML-VRI4-0		
		REV. NO. K		

REV.	CHANGE NO.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY D.K. Crabbe	CHECKED <i>D.K. Crabbe</i>	SECTION
DATE 9/28/70	DATE 10/8/70	1
ENG <i>D.K. Crabbe</i>	PROD <i>R Peterson</i>	ISSUED SECT.
DATE 11/6/70	DATE 11/6/70	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION
	A225	Deflection Amplifier
	W682	Intensity Amplifier
	G838	Fault Protection
	G840	LIGHT PEN
	W684	8 LEVEL INTENSITY
	A225-YB	DEFLECTION AMPLIFIER

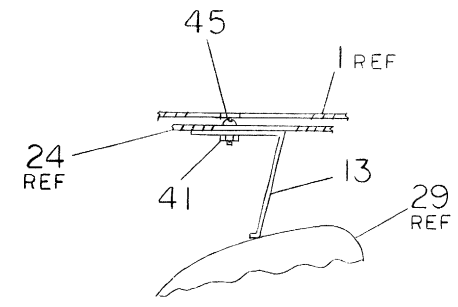
VR14-Ø	VR14-A	VR14-B	VR14-C	VR14-D	VR14-E	VR14-LC	VR14-LD											
2	2	2	2	2	2													
1	1	1	1	1	1	-	-											
1	1	1	1	1	1	-	-											
A	RA	RA	RA	RA	RA	RA	RA	R										
A	RA	RA	RA	RA	RA	R	1	1										
-	-	-	-	-	-	2	2											

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECONO.
MODULE UTILIZATION LIST	A-MU-VR14-Ø-3	A	PL	VR14-Ø-3	B	VR14-00022
SHEET 1 OF 1		DIST.				

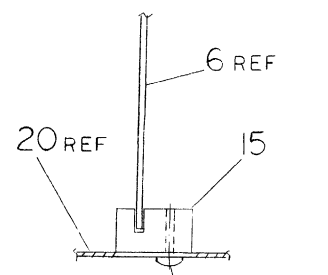
DEC FORM NO.16-1031
DRA 110

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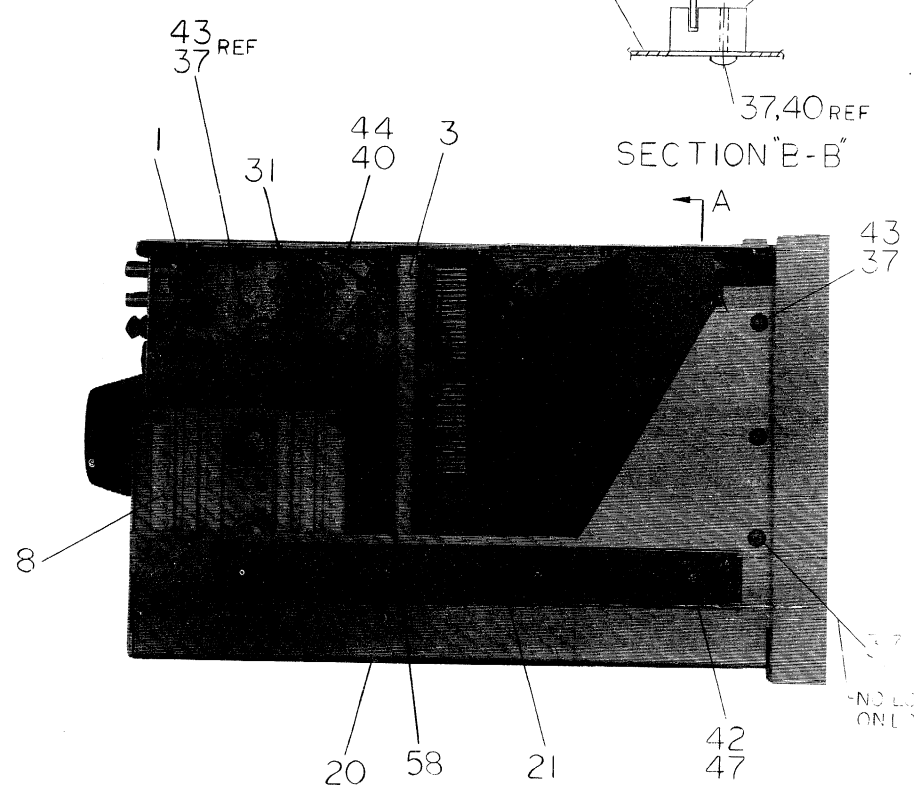
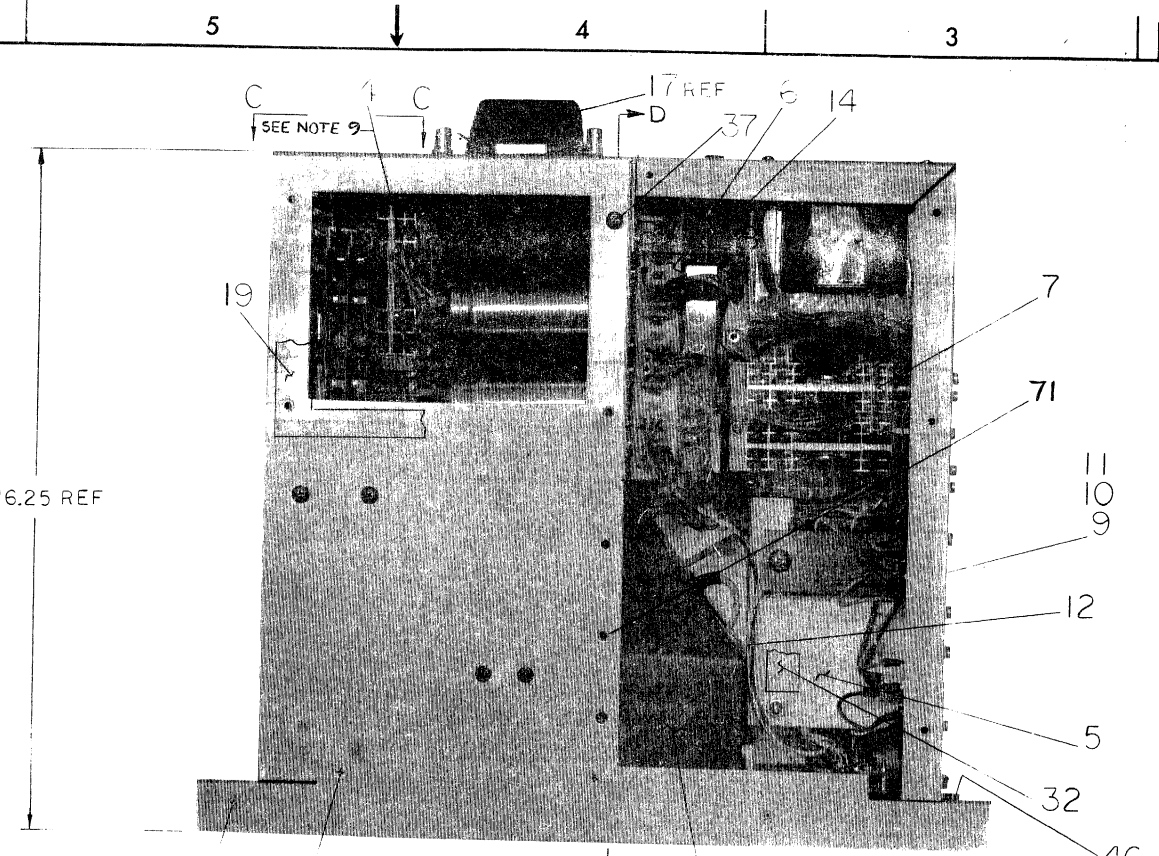
LEGEND	
NO.	VARIATION
VR14-Ø	115 VAC 50/60 HZ
VR14-A	230 VAC 50/60 HZ
VR14-B	100 VAC 50/60 HZ
VR14-C	115 VAC 50/60 HZ SUPER COVER
VR14-D	230 VAC 50/60 HZ SUPER COVER
VR14-E	100 VAC 50/60 HZ SUPER COVER
VR14-LC	115 VAC 50/60 HZ MODIFIED FOR GT 40
VR14-LD	230 VAC 50/60 HZ MODIFIED FOR GT 40



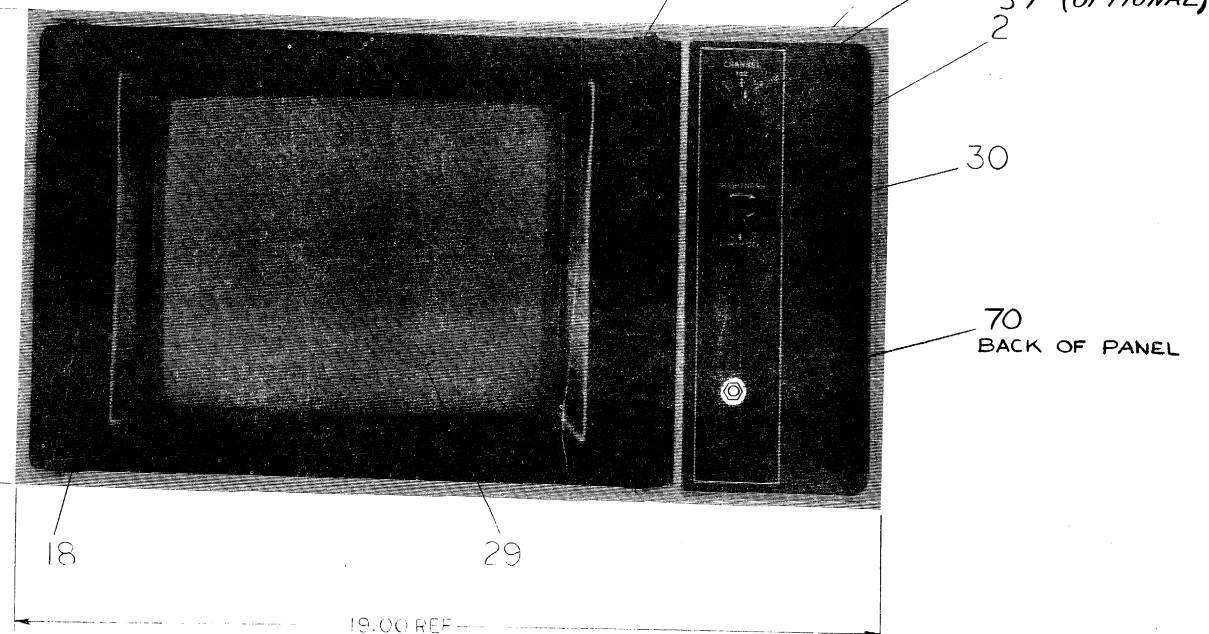
SECTION "A-A" 16.25 REF



SECTION "B-B"



10.44 REF



- NOTES:
- FOR DWG INDEX LIST REFER TO D-DI-VR14-Ø-2.
 - REMOVE ITEM #52 (WASHER) AFTER SHIPPING.
 - BEFORE MOUNTING CHASSIS TRACKS (ITEM #21) DRILL OUT BEAD OF METAL AT ONE END OF MIDDLE RUNNER ON BOTH TRACKS. USE 1/8 DRILL.
 - PLACE SHRINKIES, ITEM #55 ON POT-A, POT-B, & POT-C.
 - W684 USED WITH VR14-LC, LD.
 - G840 LIGHT PEN OPTION.
 - WHEN KEYBOARD IS CONNECTED THERE IS + AND -22 VOLTS ON PIN 22+24 ON INPUT CONNECTOR.
 - CONNECT BLK WIRE ITEM #67 WITH ITEM #'S 68, 69 & 55 FROM TOP SCREW OF CONTROL PANEL TO GND LUG ON HI VOLTAGE SUPPLY ONLY ON C, D, E, LC & LD SYSTEMS.
 - FOR VR14'S LC & LD ROTATE YOKE (SYNTRONIC) SO THAT POINTS 3 & 4 ON YOKE ARE LOCATED ON TOP.

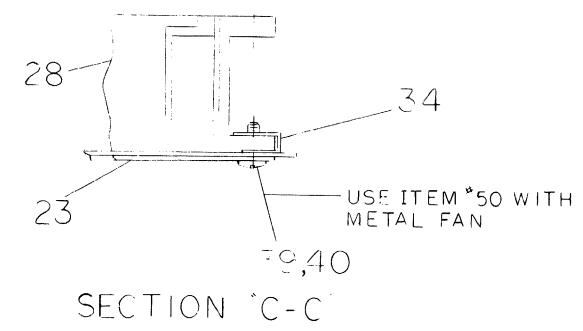
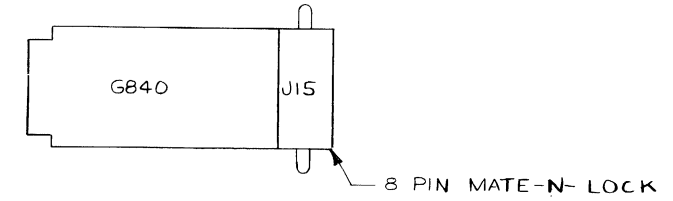
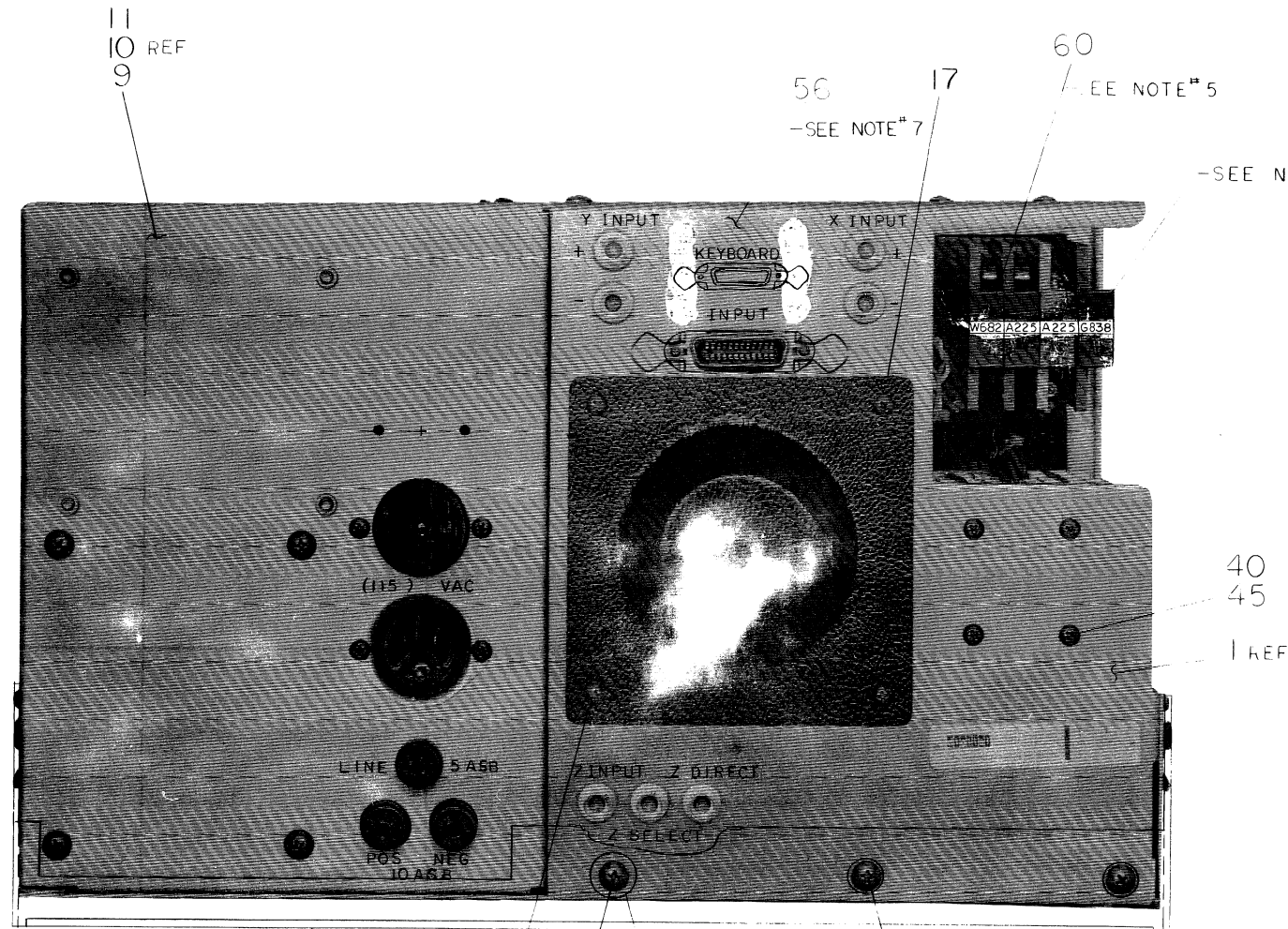
REV.	CHANGE NO.	DATE	BY	CHKD.
A	00003	12/15/70	FISHMAN	FISHMAN
B	00009	12/15/70	FISHMAN	FISHMAN
C	00010	12/15/70	FISHMAN	FISHMAN
D	00013	12/15/70	FISHMAN	FISHMAN
E	00015	12/15/70	FISHMAN	FISHMAN
F	00018	12/15/70	FISHMAN	FISHMAN
G	00021	12/15/70	FISHMAN	FISHMAN
H	00022	12/15/70	FISHMAN	FISHMAN
I	00023	12/15/70	FISHMAN	FISHMAN
J	00024	12/15/70	FISHMAN	FISHMAN

FIRST USED ON OPTION / MODEL
VR14

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE VR14 DISPLAY ASSY		
	SIZE CODE DUA	NUMBER VR14-C-Ø	REV. J
SHEET 1	OF 4	DIST.	

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REVISIONS	DATE	BY
CHANGE NO.		
CHK		

FIRST USED ON OPTION / MODEL
VRI4

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN	OK Chubb	DATE 12/8/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE VRI4 DISPLAY ASSY SIZE CODE NUMBER REV. DUA VRI4-0-0 J
CHKD.	LA Chubb	DATE 12/10/70	
ENG.	EA Chubb	DATE 12/18/70	
PROJ. ENG.	LA Fishman	DATE 12-2-70	
PROD.	LA Fishman	DATE 12-17-70	
NEXT HIGHER ASSY			
A-ML-VRI4-0			
SCALE NONE			
SHEET 2 OF 4			

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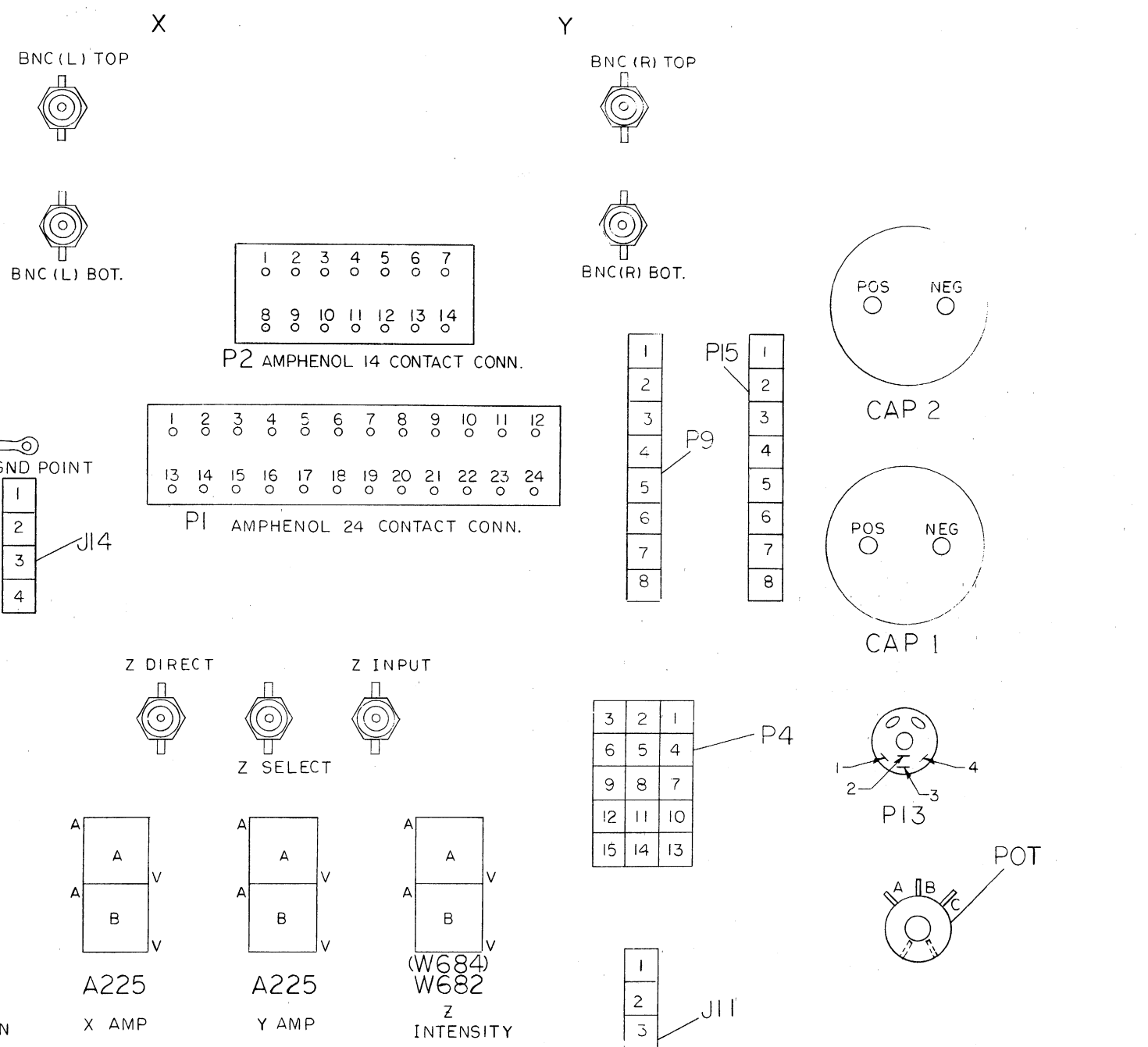
SIZE CODE D | U | A | V | R | 14 | - | 0 | - | 0 | 2 | J

HARNESS TABLE

COLOR	HARN.#	MAIN CHASSIS LOC.
RED	1	BNC(L) TOP
BLK	2	BNC(L) BOT
YEL	3	BNC(L) TOP GND
RED	4	BNC(R) TOP
BLK	5	BNC(R) BOT
YEL	6	BNC(R) TOP GND
WHT/BLU	7	A04C
BLK	8	A04C
WHT/BLU	10	A04D
WHT/VIO	11	A04L
CLEAR	12	A04J
WHT/VIO	13	A04L
ORN	14	B04C
RED	15	B04J
FRN	16	B04A
BRN	17	B04B
BRN	18	B04A
BRN	19	B04B
BRN	20	B04A
FRN	21	B04B
BLK	22	B04H
GRN	23	B04F
YEL	24	B04L
ORN	25	B04D
BLU	26	B04R
BLK	27	B01M
BLU	28	B04R
BLK	29	E03M
RED	30	B04E
GRY/RED	31	B04J
BLK	32	B02M
BLU	33	E03R
RED	34	B03V
BLK	35	E01M
BLK	36	B04H
RED	37	B04V
GRY/BLK	38	A01F
GRY/GRN	39	A01L
WHT/BLK	40	A01E
GRY/GRN	56	P0TA
GRY/GRN	57	P0TA
GRY/GRN	58	P0TA
GRY/VIO	59	P0TC
GRY/BRN	60	P0TB
WHT/GRN	81	A04F
WHT/BRN	82	A04P
WHT/YEL	83	A04M
WHT/ORN	84	A04N
GRY/BRN	85	A04E
BLK	86	B04M
RED	87	E03V

HARNESS TABLE CONT.

COLOR	HARN.#	MAIN CHASSIS LOC.
BLK	88	B04N
BLU	89	B04R
GRY/GRN	90	AC4T
RED	91	A02E
BLK	92	AC2B
YEL	93	AC2H
RED	94	AC3E
BLK	95	A03B
YEL	96	A03H
BLK	97	CAPI-NEG
RED	98	CAPI-POS
BLK	99	CAP2-POS
BLU	100	CAP2-NEG
BLK	101	C-GND POINT
WHT/VIO	102	PI-1
CLEAR	103	PI-4
BLU	104	PI-16
BLK	106	C-GND POINT
WHT/VIO	107A	Z INPUT
WHT/VIO	108	Z SELECT
BLK	109	Z INPUT GND DIRECT
WHT/BLU	110	Z INPUT GND DIRECT
CLEAR	107C	Z INPUT
SHIELD	107B	Z INPUT GND
SHIELD	102D	C-GND POINT
SHIELD	107	Z INPUT GND
SHIELD	11A	A04C
WHT/RED	105C	PI-2
WHT/RED	6A	A04B
GRN	105B	PI-3
GRN	10A	A04K
VIO	105A	PI-14
VIO	13A	A04V
BRN	102A	PI-19
BRN	96A	A01H
BLU	101C	P2-3
BLU	96F	CAP2-NEG
BLK	101B	P2-2
BLK	96D	CAP2-POS
RED	101A	P2-1
RED	96B	CAPI-POS
BLU	102C	P2-14
BLU	96E	CAP2-NEG
BLK	102B	P2-13
BLK	96C	CAP2-POS



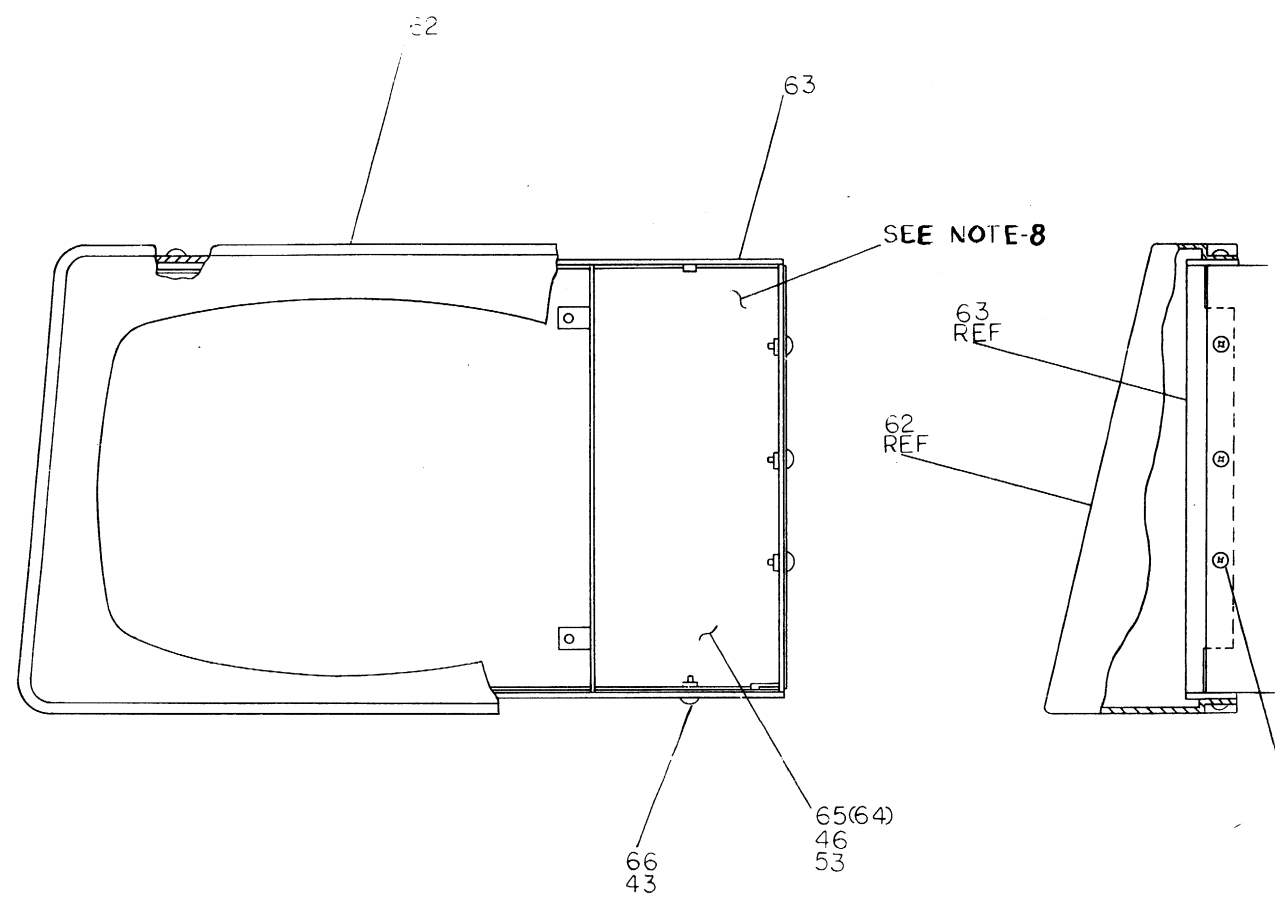
NOTE: ALL ABOVE PARTS SHOWN ARE VIEWED FROM WIRING SIDE. P15 PLUGS INTO J15 ON 6840.

REV	CHANGE NO.

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VR14				
PARTS LIST				
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				
NEXT HIGHER ASSY				
FINISH				
SCALE NONE				
SHEET 3 OF 7				
DATE		DATE		
11/5/70		11/25/70		
DATE		DATE		
12/8/70		12/8/70		
DATE		DATE		
12/8/70		12/8/70		
TITLE				
VR14 DISPLAY ASSY				
SIZE CODE		NUMBER		
DUA		VR14-0-0		
REV.		J		
DIST.		G		

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1 2 3 4 5 6 7 8



SECTION "D-D"

REVISIONS	REV
CHANGE NO	
CHK	

DEC FORM NO DRD 100-A

PARTS LIST		DESCRIPTION	PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES				
DECIMALS	ANGLES	TITLE		
xxx = .005	± 0° 30'	VRI4 DISPLAY ASSY		
xx = .02		MATERIAL		
x = .1		NEXT HIGHER ASSY.		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		SCALE NONE		
DRN <i>CBM CG</i> DATE 10-18-72		SHEET 4 OF 4		
CHK'D <i>CBM</i> DATE 10-18-72		DIST.		
ENG <i>J. Johnson</i> DATE 10-18-72		SIZE CODE NUMBER REV		
PRD <i>J. Johnson</i> DATE 10-18-72		DUA VRI4-0-2 J		
PROJ <i>R.A. Mendenhall</i> DATE 10/23/72				

REV J
NUMBER VRI4-0-2
SIZE CODE DUA

DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY D.K. CRABBE	CHECKED <i>D.K. Crabbe</i>	SECTION
DATE 12-2-70	DATE 12/8/70	1
ENG <i>D.K. Crabbe</i>	PROD <i>R. Peterson</i>	ISSUED SECT.
DATE 12/8/70	DATE 12/8/70	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			VR14-Ø	VR14-A	VR14-B	VR14-C	VR14-D	VR14-E	VR14-LC	VR14-LD				
1	D-AD-7007077-0-0	TOP MTG ASSY	1	1	1	1	1	1	1	1				
2	C-IA-7409068-0-0	PANEL, CONTROL	1	1	1	-	-	-	-	-				
3	D-AD-7007078-0-0	WIRED ASSY	1	1	1	1	1	1	1	1				
4	D-IA-7007088-0-0	C.R.T. YOKE ASSY	1	1	1	1	1	1	1	1				
5	D-AD-7007079-0-0	HIGH VOLTAGE ASSY	1	1	1	1	1	1	1	1				
6	D-AD-7007165-0-0	POWER REGULATOR ASSY (VR14)	1	1	1	1	1	1	1	1				
7	D-AD-7007080-0-0	POWER SUPPLY HEAT SINK ASSY	1	1	1	1	1	1	1	1				
8	D-AD-7007082-0-0	DEFLECTION HEAT SINK ASSY	1	1	1	1	1	1	1	1				
9	D-AD-7007084-1-0	POWER SUPPLY ASSY	1	-	-	1	-	-	1	-				
10	D-AD-7007084-2-0	POWER SUPPLY ASSY	-	1	-	-	1	-	-	1				
11	D-AD-7007084-3-0	POWER SUPPLY ASSY	-	-	1	-	-	1	-	-				
12	E-IA-7008457-0-0	MAIN CHASSIS HARNESS	1	1	1	1	1	1	1	1				
13	C-IA-7408411-0-0	GROUND, TUBE	1	1	1	1	1	1	1	1				
14	C-IA-7408409-0-0	SHIELD, SAFETY	1	1	1	1	1	1	1	1				
15	C-MD-7408414-0-0	HOLDER, CARD	1	1	1	1	1	1	1	1				
16	E-IA-7406891-0-0	BEZEL, CONTROL PANEL	1	1	1	1	1	1	1	1				
17	C-MD-7408434-0-0	CAP (VR14)	1	1	1	1	1	1	1	1				
18	D-MD-7406837-0-0	MASK, CATHODE RAY TUBE	1	1	1	-	-	-	-	-				
19	D-IA-7408408-0-0	SCREEN, SAFETY (VR14)	1	1	1	1	1	1	1	1				
20	D-IA-7408400-0-0	PLATE, BOTTOM MTG.	1	1	1	1	1	1	1	1				
21	D-SC-1209147-0-0	SLIDE, 16" TRAVEL CHASSIS TRACK	1	1	1	-	-	-	-	-				
22	D-MD-7408549-0-0	CHASSIS TRACK BRACE	1	1	1	-	-	-	-	-				

TITLE	VR14 DISPLAY ASSY	ASSY NO.	D-UA-VR14-Ø-Ø	SIZE	CODE	NUMBER	VR14-Ø-Ø	REV.	ECO NO.
		SHEET	1 OF 4	A	PL			J	VR14-00022
				DIST.	G				

DEC FORM NO. 16-1031

DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY D. CRABBE	CHECKED <i>D.K. Crabbe</i>	SECTION
DATE 12-2-70	DATE 12/8/70	1
ENG <i>D.K. Crabbe</i>	PROD <i>R. Peterson</i>	ISSUED SECT.
DATE 12/8/70	DATE 12/8/70	1

QUANTITY / VARIATION

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			VR14-Ø	VR14-A	VR14-B	VR14-C	VR14-D	VR14-E	VR14-LC	VR14-LD				
23	C-MD-7404881-0-0	FAN, SCREEN	2	2	2	2	2	2	2	2				
24	E-SC-1210104-0-0	C.R.T. SHIELD	1	1	1	1	1	1	2	2				
25	D-IA-7407791-0-0	SUPER COVER VR14				1	1	1						
26	B-MD-7407793-0-0	SPACER				1	1	1						
27	B-MD-7407794-0-0	BAR, SPACER				1	1	1						
28	1209403-0	FAN, BOXER 7, BLADE	2	2	2	2	2	2	2	2				
29	1209597-6	CATHODE RAY TUBE TYPE 12 M63 THOMAS	1	1	1	1	1	1	1	1				
30	1209576	KNOB # SS-70L-2-BLK BUCKEYE	1	1	1	1	1	1	1	1				
31	1009434	CAPACITOR, 5500 MFD 40 VDC-10, +100%	2	2	2	2	2	2	2	2				
32	3610267	"DANGER HIGH VOLTAGE" STICKER	1	1	1	1	1	1	1	1				
33	9006584	SPEED NUT #C8091-6-32-4 TINNERMAN	4	4	4	4	4	4	4	4				
34	9008202	CLIP, FAN TINNERMAN	8	8	8	8	8	8	8	8				
35	9006022-1	SCR, FANHD PHL #6-32 X 3/8 SST	4	4	4	4	4	4	4	4				
36	9006024-2	SCR, FLAT HD PHL #6-32 X 1/2 SST	4	4	4	4	4	4	4	4				
37	9006071-3	SCR, PHL TRUSS HD #10-32 X 3/8 SST	49	49	49	49	49	49	49	49				
38	9006071-2	SCR, PHL FLAT HD #10-32 X 3/8 SST	5	5	5	5	5	5	5	5				
39	9006024-1	SCR, PAN HD PHL #6-32 X 1/2 SST	8	8	8	8	8	8	8	8				
40	9006633	WASHER, LOCK INT TOOTH #6	26	26	26	26	26	26	26	26				
41	9006560	NUT, KEPS #6-32	5	5	5	5	5	5	5	5				
42	9006070-1	SCR, PHL TRUSS HD #10-32 X 5/16 SST	10	10	10	2	2	2	2	2				
43	9006635	WASHER, LOCK INT TOOTH #10	61	61	61	61	61	61	61	61				
44	9006020-1	SCR, PHL PAN HD #6-32 X 1/2 SST	4	4	4	4	4	4	4	4				

TITLE	VR14 DISPLAY ASSY.	ASSY NO.	D-UA-VR14-Ø-Ø	SIZE	CODE	NUMBER	VR14-Ø-Ø	REV.	ECO NO.
		SHEET	2 OF 4	A	PL			J	
				DIST.	G				

DEC FORM NO. 16-1031

DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

MADE BY D. CRABBE	CHECKED D. CRABBE	SECTION
DATE 12-2-70	DATE 12-8-70	1
ENG D. CRABBE	PROD R. PETERSON	ISSUED SECT.
DATE 12-8-70	DATE 12-8-70	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	VR14-Ø	VR14-A	VR14-B	VR14-C	VR14-D	VR14-E	VR14-LC	VR14-LD
45	9006021-1	SCR, PHL PAN HD #6-32 X 5/16 SST	10	10	10	10	10	10	10	10
46	9006563	NUT, KEPS #8-32	2	2	2	3	3	3	3	3
47	9007651	WASHER, LOCK EXT TOOTH #10	8	8	8	-	-	-	-	-
48	9006074-2	SCR, PHL FLAT HD #10-32 X 5/8 SST				1	1	1		
49	9006025-2	SCR, PHL FLAT HD #6-32 X 5/8 SST	-	-	-	2	2	2	2	2
50	9006121	SCR, SELF-TAPPING #8-32 X 3/8 SST	8	8	8	8	8	8	8	8
51	9006071-1	SCR, PHL PAN HD #10-32 X 3/8 SST				6	6	6		
52	9008146	WASHER, FLAT .63 OD X .23 ID X .048 THK	1	1	1	-	-	-	-	-
53	9006660	WASHER, FLAT .375 OD X .187 X .036 THK	-	-	-	3	3	3	3	3
54	9006074-3	SCR, PHL TRUSS HD #10-32 X 5/8 SST	1	1	1	-	-	-	-	-
55	9107305	SHRINKIES (RED)	3	3	3	3	3	3	3	3
56	7408407	DECALS (VR14)	1	1	1	1	1	1	1	1
57	C-IA-7408425-0-0	PANEL CONTROL (GT-40)								
58	7007006-3	JUMPER	1	1	1	1	1	1	1	1
59	7008976	CHANNEL SELECT SWITCH	1	1	1	1	1	-	-	-
60	C-UA-375-Ø-0	LIGHT PEN OPTION	A	RA	RA	RA	R	A	RA	RA
61	D-AD-7009027-0-0	SUPER COVER ASSY	-	-	-	1	1	1	1	1
62	E-PS-1211106-0-0	MASK	-	-	-	1	1	1	1	1
63	E-IA-7409964-0-0	BRACE CHASSIS	-	-	-	1	1	1	1	1
64	C-IA-7409977-0-0	PANEL CONTROL (GT-40)	-	-	-	-	-	-	1	1
65	C-IA-7409974-0-0	PANEL CONTROL (PDP-12)	-	-	-	1	1	1	-	-
66	9006073-3	SCR, PHL TRUSS HD #10-32 X 1/2 SST	-	-	-	6	6	6	6	6

TITLE	VR14 DISPLAY ASSY	ASSY NO.	D-UA-VR14-Ø-Ø	SIZE	CODE	NUMBER	VR14-Ø-Ø	REV.	ECO NO.
		SHEET	3 OF 4	DIST.	G				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

MADE BY D. CRABBE	CHECKED D. CRABBE	SECTION
DATE 12-2-70	DATE 12-8-70	
ENG D. CRABBE	PROD R. PETERSON	ISSUED SECT.
DATE 12-8-70	DATE 12-8-70	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	VR14-0	VR14-A	VR14-B	VR14-C	VR14-D	VR14-E	VR14-LC	VR14-LD
67	9107360-0-0	WIRE #18 AWG IVPC BLK	-	-	-	A	RA	RA	RA	R
68	9007930-0	CONN, ARKLES #50360-1	-	-	-	1	1	1	1	1
69	9007925-0	CONN, #300H21A-1K	-	-	-	1	1	1	1	1
70	9006637	WASHER, INT TOOTH 3/8 ID #1220	1	1	1	1	1	1	1	1
71	9007081	CLAMP, CABLE 1/4 ID	1	1	1	1	1	1	1	1

TITLE	VR14 DISPLAY ASSY	ASSY NO.	D-UA-VR14-0-0	SIZE	CODE	NUMBER	VR14-0-0	REV.	ECO NO.
		SHEET	4 OF 4	DIST.					

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

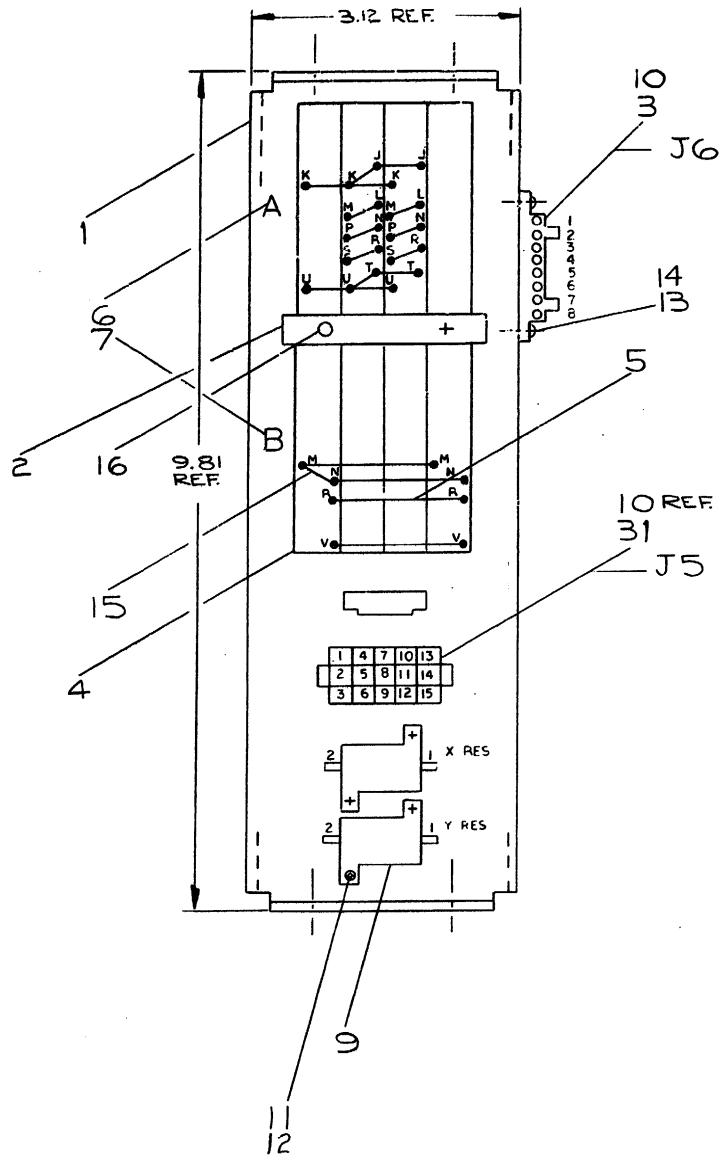
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EXTERNAL COMPONENTS TABLE					
ITEM	COMP	POL	FROM	TO	POL/REMARKS
8	RES		A04U	A04T	100K
9	XRES		SEE WIRE TABLE		0.5Ω
9	YRES		SEE WIRE TABLE		0.5Ω
32	CAP		A01K	A01V	20.MFD
36	RES		B04F	B04N	470K

WIRE TABLE					
SIGNAL NAME	ITEM NO	DESCRIPTION	AWG	COLOR	CONNECTION FROM TO
	5				A02T A03T
					A01U A03U
					A02J A03J
					A01K A03K
					B01N B04N
					B01M B04M
					B01R B04R
	5				B01V B04V
	15	18	BUS		A02J A02K
					A02T A02U
					A02S A02R
					A02N A02P
					A02L A02M
					A03S A03R
					A03N A03P
					A03L A03M
	15				B01N B01M
+20 DC	17			RED	B02V J5-1
+20 DC	17			RED	B02V J5-15
	22			YEL/GRY	A02S J5-2
	22			YEL/GRY	A03S J5-14
	23			BLU/GRY	A02M J5-4
	23			BLU/GRY	A03M J5-12
-20 DC	20			BLU	B02R J5-5
-20 DC	20			BLU	B02R J5-11
X YOKE HOT	19			GRY	A02P J5-3
Y YOKE HOT	21			VIO	A03P J5-13
X YOKE HOT	19			GRY	A02N J6-1
Y YOKE HOT	21			VIO	A03N J6-8
X YOKE RETURN	18			WHT	J6-2 XRES-2
Y YOKE RETURN	18			WHT	J6-7 YRES-1
+20 DC	17			RED	B01V A02U
-20 DC	20			BLU	B01R A02K
GND	24			BLK	A03V B03M
GND	24			BLK	XRES-1 A02V
GND	24	18		BLK	YRES-2 A03V
	26	22		YEL	B04L A04U
	25			GRN	B04F A04F
X SAMPLE	29			WHT	A01A XRES-2
Y SAMPLE	29			WHT	A03A YRES-1
X SIG GND	27			BLK	A02H A02V
Y SIG GND	27			BLK	A03H A03V
+5V	28			RED	A01P A04A
GND	27			BLK	A04C B03M
GND	27			BLK	XRES-1 A02H
GND	27	22		BLK	YRES-2 A03H
	5				A01A A02A
	5				A01D A02D
GND	24	18		BLK	A01V B02M
GND	24	18		BLK	A02V B02M
	29	22		WHT	A03A A01B
	29	22		WHT	A03D A01C
-80V	35	18		GRY/GRN	A04S A01L
	34	22		WHT/BLK	A01E A04H
GND	27	22		BLK	A01S A04C

NOTES:
 1. TWIST (2 WIRES) 3 TWIST PER INCH MIN & 4 TWIST PER INCH MAX.
 2. USE TERMPPOINT CONNECTORS ON ITEMS 8+32

SIGNAL NAME	ITEM NO	AWG	COLOR	FROM	TO
Z INT	19	22	WHT	A01M	A04U



REV	CHANGE NO.	DATE	BY	CHK
A	0002			
B				
C				
D				
E				
F				

FIRST USED ON OPTION / MODEL
VR14

DO NOT SCALE DRAWING
 UNLESS OTHERWISE SPECIFIED
 DIMENSION IN INCHES
 TOLERANCES
 DECIMALS FRACTIONS ANGLES
 ±.005 ±.010 ±.030 ±.050
 FINAL SURFACE QUALITY
 REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL: + +
 FINISH: + +

DATE: 11/16/70
 DATE: 11/16/70
 DATE: 11/16/70
 DATE: 11/16/70

digital EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS

TITLE: WIRED ASSY (VRI4)

SCALE: NONE
 SHEET: 1 OF 1

SIZE CODE: DAD NUMBER: 7007078-0-0 REV: F

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

MADE BY J. Cahill	CHECKED D. Crabbe	SECTION 1
DATE 10/2/70	DATE 10/2/70	ISSUED SECT. 1
ENG <i>D.K. Crabbe</i>	PROD <i>R. Peterson</i>	
DATE 11/6/70	DATE 11/6/70	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																	
1	D-IA-7408422-0-0	FRAME, LOGIC																	
2	B-MD-7407114-0-0	BAR, MTG																	
3	1209340-00	8 CIRCUIT MATE-N-LOK SOCKET AMP																	
4	1202244	144 CONNECTOR BLOCK																	
5	1202188	VOLTAGE CHAIN								A/R									
6	A-SS-5308753-0-2	LOGIC FRAME DECALS								A/R									
7	A-SS-5308753-0-4	LOGIC FRAME DECALS								A/R									
8	1302466	RESISTOR 100K 1/4W 5%								1									
9	1310180	RESISTOR 0.5Ω 20W 1%								2									
10	1209379-01	CONTACT TERM PIN SOCKET AMP. INC.								14									
11	9006011-1	SCR, PHL HD PAN #4-40 x 3/8 SST								4									
12	9006557	NUT, KEPS #4-40								4									
13	9006021-1	SCR, PHL HD PAN #6-32 x 5/16 SST								2									
14	9006560	NUT, KEPS #6-32								2									
15	9107560-3	#18 AWG SOLID BUSSING								A/R									
16	9006120	POZIDRIVE SCR FIL HD 8-32 x 5/8 SST								2									
17	9107360-22	#18 AWG STRD TEFLON (RED)								A/R									
18	9107360-99	#18 AWG STRD TEFLON (WHITE)								A/R									
19	9107360-88	#18 AWG STRD TEFLON (GRAY)								A/R									
20	9107360-66	#18 AWG STRD TEFLON (BLUE)								A/R									
21	9107360-77	#18 AWG STRD TEFLON (VIO)								A/R									
22	9107410-84	#18 AWG STRD TEF TRACER (GRAY/YELLOW)								A/R									

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
WIRED ASSEMBLY (VR14)	D-AD-7007078-0-0	A	PL	7007078-0-0	F	VR14-00022
	SHEET 1 OF 2	DIST.	G			

DEC FORM NO.16-1031
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

MADE BY J. Cahill	CHECKED D. Crabbe	SECTION 1
DATE 11/3/70	DATE 11/3/70	ISSUED SECT. 1
ENG <i>D.K. Crabbe</i>	PROD <i>R. Peterson</i>	
DATE 11/6/70	DATE 11/6/70	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																	
23	9107410-86	#18 AWG STRD TEF TRACER (GRY/BLU)								A/R									
24	9107360-00	#18 AWG STRD TEF WIRE (BLACK)								A/R									
25	9107350-55	#22 AWG STRD TEF WIRE (GREEN)								A/R									
26	9107350-44	#22 AWG STRD TEF WIRE (YELLOW)								A/R									
27	9107350-00	#22 AWG STRD TEF WIRE (BLACK)								A/R									
28	9107350-22	#22 AWG STRD TEF WIRE (RED)								A/R									
29	9107350-99	#22 AWG STRD TEF WIRE (WHITE)								A/R									
30	9107256-1	#22 TEF TUBING (BLACK)								A/R									
31	1209350-15	CONN PIN HOUSING MATE-N-LOK AMP								1									
32	1010195-0	CAPACITOR 20 mFd 100V 10%								1									
33	9007230	TERMI POINT CONNECTORS								6									
34	9107420-09	#22 AWG STRD TEF TRACER (BLK/WHT)								A/R									
35	9107410-85	#18 AWG STRD TEF TRACER (GRY/GRN)								A/R									
36	1302398	RES. 470K 1/4W 5%								1									

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
WIRED ASSEMBLY (VR14)	D-AD-7007078-0-0	A	PL	7007078-0-0	F	
	SHEET 2 OF 2	DIST.				

DEC FORM NO.16-1031
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 10/22/70

TITLE VR14 SPECIFICATION

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

GENERAL DESCRIPTION

The VR14 is a self-contained CRT display unit requiring only analog position and digital unblanking information. It is designed for use with a digital display controller. The amount of information displayed depends on the specific system; however, 1250 random points can be displayed flicker free at a 40 Hz. refresh rate. Viewable area is 62 inches square with an aspect ratio of 3:4. The unit is 10 1/2 inches high, 19 inches wide, 17 inches deep, and weighs about 75 pounds. It is available in either a rack mounted or table top model.

OPERATOR CONTROLS (All controls labeled as to function)

Front Panel:

- | | |
|---------------------|--|
| Brightness / ON-OFF | Manual brightness control and AC power switch. |
| Channel Select | Operator selection of either channel 1 or channel 2 if a time multiplexed signal is available. |

Internal Controls: These controls accessible from the top of the unit through the safety screen.

Deflection Controls: The following controls are 10 turn pots located on the deflection amplifiers (A225). All inputs have protection against momentary excessive voltage.

- | | |
|------------|--|
| X Gain | Controls horizontal input sensitivity. |
| Y Gain | Controls vertical input sensitivity. |
| X Position | Manual Position Control. |
| Y Position | Manual Position Control. |

NOTE: With deflection inputs grounded, the position controls allow the beam to be positioned anywhere within the usable screen area.

ENG <i>C. F. Pomeroy</i> 10/28/70	APPD <i>L. Gale</i> 10/28/70	SIZE A	CODE SP	NUMBER VR14 - 0 - 4	REV
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE VR14 SPECIFICATION

CRT Controls: These controls are 10 turn pots located on the G836 power supply module. Their purpose is to adjust focus and grid bias voltages. They are adjusted at the factory.

Focus: Adjusted for best overall focus.

Brightness Preset: To adjust the range of the front panel brightness control.

GENERAL ELECTRICAL SPECIFICATION

Spot Size: ≤ 20 mils inside the usable screen area at a brightness of 30 footlamberts. Spot size is measured using shrinking raster technique at a brightness of greater than 30 footlamberts.

Jitter: $\leq \pm 1/2$ spot diameter.

Repeatability: $\leq \pm 1$ spot diameter
(Repeatability is the deviation from the nominal location of any given spot)

Gain Change: From a fixed point on the screen, less than ± 0.3 percent gain change for each ± 1 percent line voltage variation.

Temperature Range: 0 to 50°C operating

Relative Humidity: 10 to 90 percent noncondensing.

Brightness: ≥ 30 footlamberts; measured using a shrinking raster technique.

Linearity: Maximum deviation of any straight line will be ≤ 1 percent of the line length measured perpendicular to a best fit straight line.

Deflection Method: Magnetic (70° diagonal deflection angle)

Focus Method: Electrostatic

High Voltage: 11.7 KV DC nominal (voltage proportional to input line voltage). Supply is self-contained and equipped with a bleeder resistor.

Shielding: CRT is fully enclosed in a magnetic shield.

Overload Protection: Unit is protected against fan failure or air blockage by thermal cutouts.

SIZE A	CODE SP	NUMBER VR14 - 0 - 4	REV
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TITLE VR14 SPECIFICATION

DEFLECTION AMPLIFIER SPECIFICATION

1. Deflection Amplifiers are DC coupled and are capable of sustaining a worst case AC or DC deflection at environmental extremes.
2. Input Specification
 - A. Inputs are differential.
 - B. Differential input impedance . . . 5K ohms minimum.
 - C. Input sensitivity . . . 200 mv/inch maximum.
 - D. Common Mode Rejection Ratio . . . 40 db.
 - E. Maximum Operating Input . . . $\pm 6V$. (Maximum operating input is the sum of the common mode input and the differential input.)
 - F. Input offset not to exceed $\pm 1/2$ peak to peak input signal.
 - G. Maximum non-operating input . . . $\pm 50V$.
3. Full screen deflection and settling time to within ± 1 spot diameter . . . $\leq 18 \mu s$.
4. Small signal settling time to within 1/2 spot diameter . . . $\leq 1 \mu s$ for a 0.1 inch deflection.
5. Small signal linear slew rate . . . ≥ 0.4 in $1 \mu s$.
6. Velocity error coefficient . . . 500 ns. maximum. (Average ramp delay between input and output.)

Z AXIS SPECIFICATION

1. Z Input
A negative transition from $\geq +2.4V$, but not exceeding $+8V$, to $\leq +0.8V$, but not less than $-4V$, in ≤ 20 ns will cause an unblanking pulse at the CRT cathode from approximately $+60V$ to ground with a duration of ≥ 200 ns at the 50 percent points. Delay between the 50 percent point of the negative input transition to the 50 percent point of the output pulse is less than 100 ns.
2. Z Direct
A positive going pulse not exceeding 35V, but at least 20V in height and not exceeding 10 μs , but at least 1 μs in duration will unblank the CRT to a viewable intensity. This signal is AC coupled to the CRT grid.
3. Channel Select
With the Channel Select Switch in the Channel 1 position, a positive level of greater than $+2.4V$, but not exceeding $+8V$ will enable the Z input circuit. A level of less than $+0.8V$ but not less than $-4V$ will disable the circuit. With the switch in the Channel 2 position, a positive level will enable the Z circuit; a negative level will disable it. Placing the switch in the Channel 1 and 2 position disables this input.

SIZE	CODE	NUMBER	REV
A	SP	VR14 - 0 - 4	

TITLE VR14 SPECIFICATION

POWER SUPPLY SPECIFICATION

1. All power supplies necessary for operation of the unit are self contained.
2. Input Requirements

Voltage:	100 V ± 10 percent
	117 V ± 10 percent
	230 V ± 10 percent

Selectable by tap changes.

Frequency:	50 - 60 Hz.
Power:	≤ 500 Watts
Current:	≤ 5 Amperes.
Type:	Single Phase

NOTE: Different AC power receptacles are provided on 200 and 230 V Units.
3. Fuses are provided and labeled as to function, type, and rating for the primary circuit and deflection power circuits.
4. Thermal Cutouts, which operate on the AC primary, are used to prevent damage due to fan failure, air blockage, or excessive ambient temperature.

REAR PANEL CONNECTIONS

Deflection Inputs: BNC connectors labeled X+, X-, and Y+, Y-.

With operator facing the screen and the polarity switches in the up position, if X+ is positive with respect to X-, deflection is to the right and, if Y+ is positive with respect to Y-, deflection is up.

CRT Inputs: BNC connectors labeled Z input, Z direct, and channel.

Z input is a TTL compatible input which generates a pulse at the CRT cathode for each negative transition.

Z direct is an AC coupled input to the CRT grid circuit.

Channel is a TTL compatible input which, in conjunction with the Channel Select Switch, enables or disables the Z input circuit.

NOTE: All above inputs are available at a 24 pin plug, DEC No. 1209630.

SIZE	CODE	NUMBER	REV
A	SP	VR14 - 0 - 4	

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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION				DATE 9/20/71		
TITLE VR14 CHECKOUT AND ACCEPTANCE PROCEDURE						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	00015	A.FILZ	3/72	<i>C. Johnson</i>	3-28-72
B	ECO CHANGE	00022	A FISHMAN	1/73	<i>A.C.F.</i>	1-16-73
ENG <i>C. Johnson</i>		APPD <i>[Signature]</i>	SIZE A	CODE SP	NUMBER VR14-0-5	REV B

ENGINEERING SPECIFICATION	000000	CONTINUATION SHEET
TITLE		
VR14 CHECKOUT PROCEDURE AND ACCEPTANCE PROCEDURE *		
<p>I. <u>INTRODUCTION</u></p> <p>The VR14 is a completely self-contained CRT display providing a 6.75 inch by 9 inch viewing area in a compact 19 inch package. The VR14 requires only analog X and Y position information with an intensity pulse to generate sharp, bright point plot displays.</p> <p>II. <u>SOFTWARE</u></p> <p>A. Manuals</p> <ol style="list-style-type: none"> 1. VR14 Users Manual 2. PDP-12 Systems Reference Manual <p>B. Prints</p> <ol style="list-style-type: none"> 1. VR14-0 2. VC12-0 3. EM12-0 <p>C. Diagnostics</p> <ol style="list-style-type: none"> 1. Display Test Maindec 12-D60C (Maindec-12-D6BB could also be used) <p>* Acceptance Procedure consist of Section VI through Section X excluding VI-1, VI-10, and VI-10.</p>		
SIZE A	CODE SP	NUMBER VR14-0-5
REV B	REV B	REV B



TITLE

A. Basic Mechanical Check

1. Check all knobs for position and tightness
2. All silk screening is correct and legible
3. All AC and high voltage is covered and labeled
4. Slides work correctly
5. Tube face and phosphor are not damaged
6. Serial number tag is present and correct
7. 110v, 220v labeling is correct
8. Cables are correct type and length
9. All decals are present and on straight
10. All switches operate smoothly
11. Module block is not cracked or broken
12. Deflection coil is properly adjusted and tightened
13. No chips or scratches on painted surfaces
14. All shrinkies are secure
15. No loose parts or filings on bottom of chassis
16. Check wire dress
17. Check for proper fan operation
18. High voltage connection on CRT is secure
19. All crimped terminations are mated and seated
20. Check for wiring touching power transistor cases

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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SHEET 4 OF 31



TITLE

III. TEST EQUIPMENT

A. Off-Line Test

1. VOM

B. On-Line Test

1. VOM
2. Oscilloscope
3. EP12
4. EM12
5. TU56
6. TC12
7. TTY
8. VC12

C. Special Test Equipment

None Required

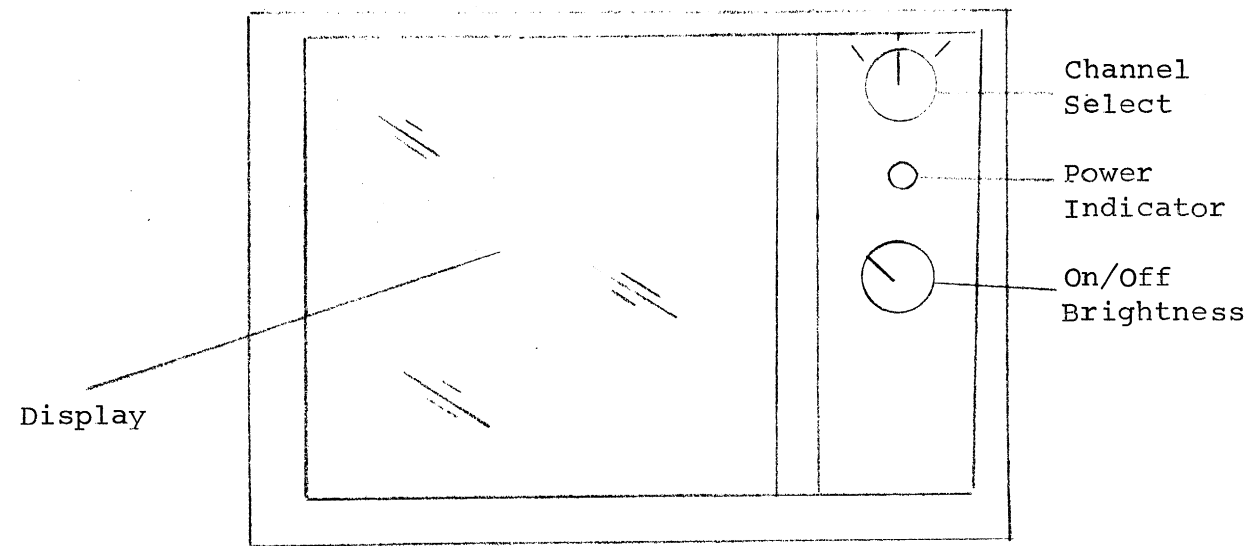
IV. OFF-LINE CHECKOUT PROCEDURE

CAUTION: The CRT is under high vacuum and is potentially in danger of explosion if subject to sharp blows or rough handling.

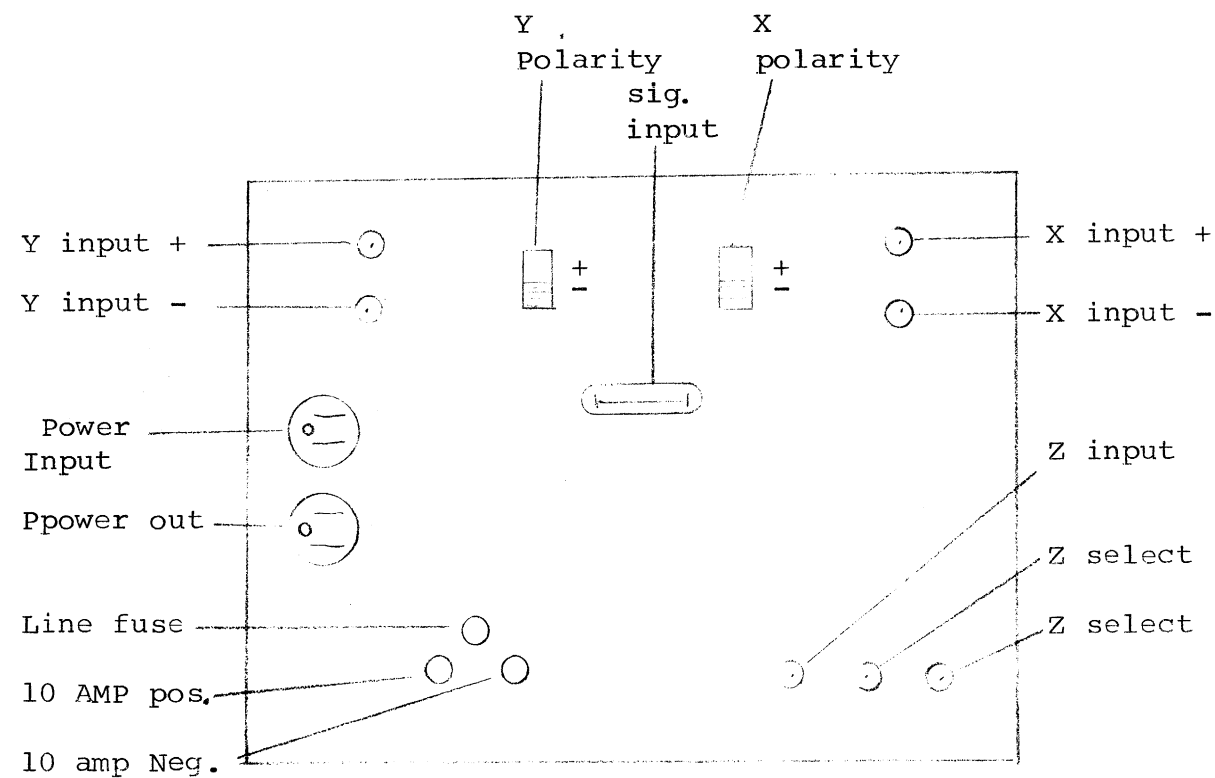
SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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SHEET 3 OF 31

TITLE



VR14 FRONT VIEW

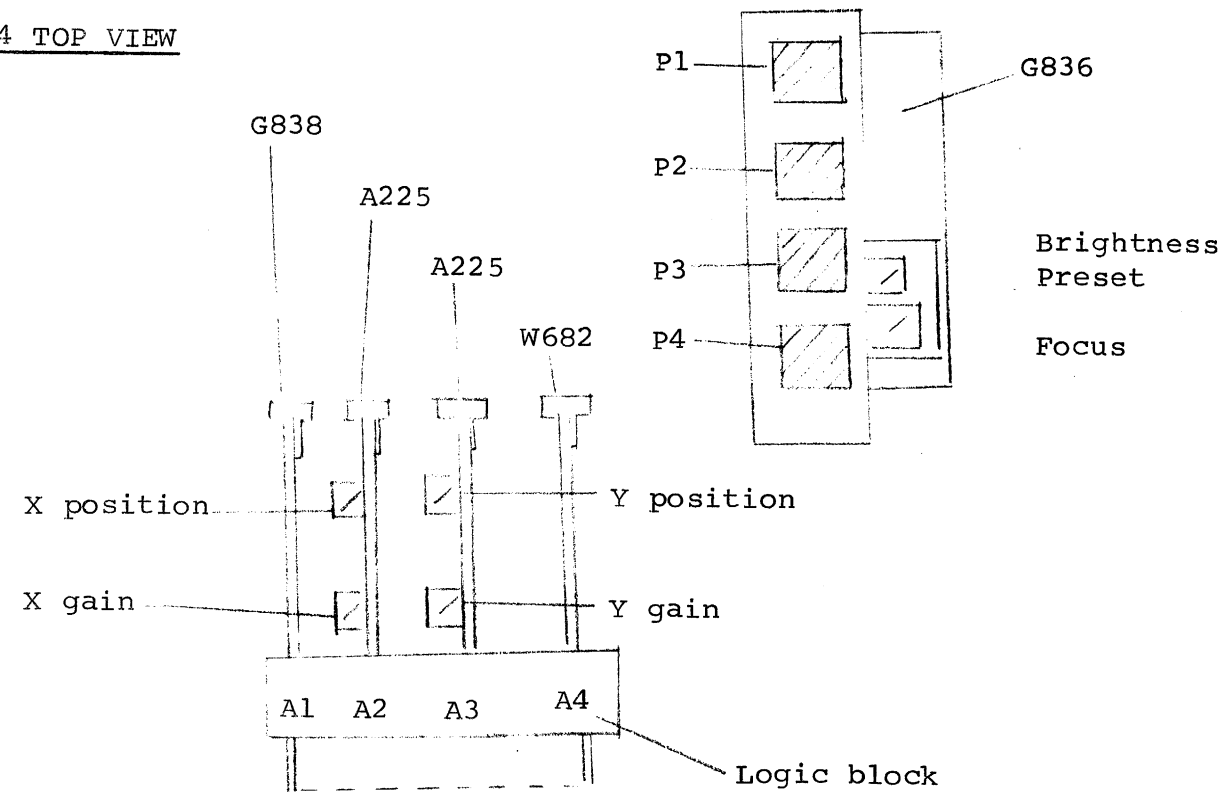


VR14 REAR VIEW

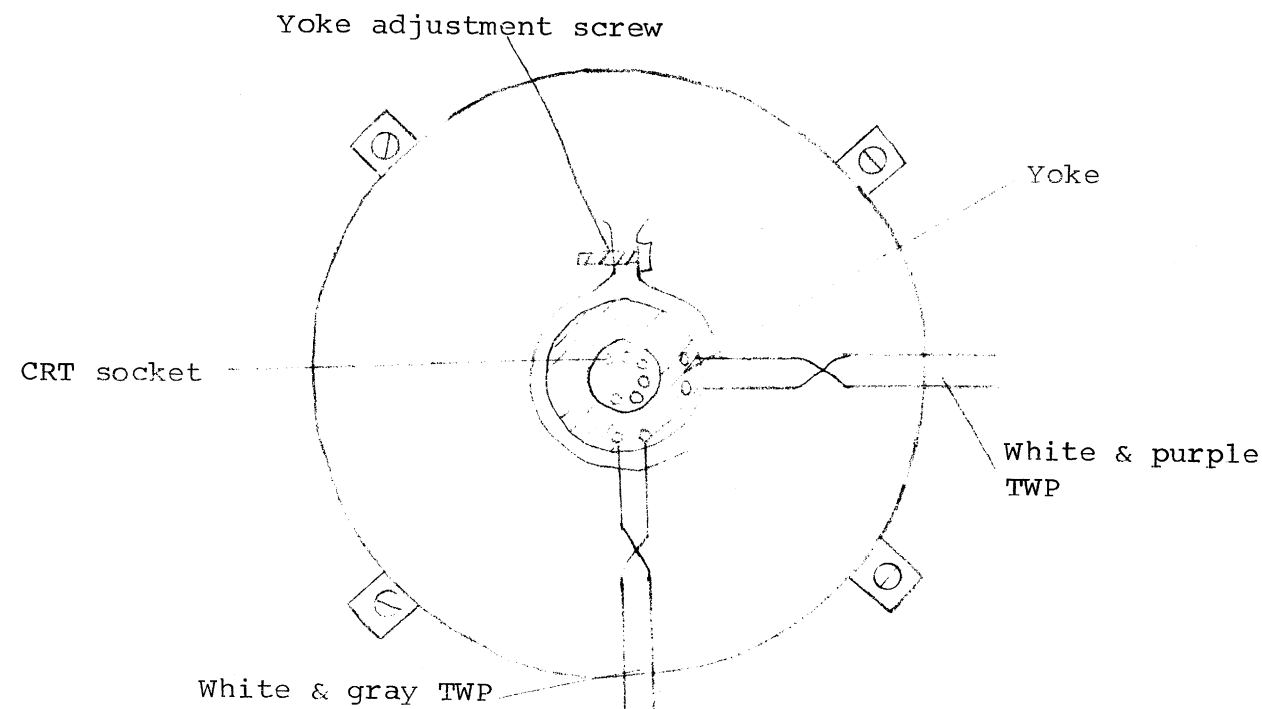
SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

VR14 TOP VIEW



VR14 YOKE ADJUSTMENT



SIZE A	CODE SP	NUMBER VR14-0-5	REV B
------------------	------------	--------------------	----------

TITLE

B. Basic Electrical Check

1. Remove the following modules from the VR14 under test.

- a. G838 Location - A01
- b. A225 Location - A02
- c. A225 Location - A03
- d. W682 Location - A04

2. Unplug the CRT socket from the CRT.

3. Check all fuses for proper value.

- a. F1 5 AMP Slow Blow (Line Fuse, 110v).
- b. F2 3 AMP Slow Blow (Line Fuse, 220v).
- c. F3 NEG 10 AMP
- d. F3 POS 10 AMP

4. Check the on-off brightness control and put it in the off position.

NOTE: Check that the line voltage applied is the same as the voltage required by the unit under test.

5. Plug in AC line cord to the proper line voltage required.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

SHEET 7 OF 31

TITLE

DC VOLTAGE CHECKS

The next series of tests are voltage tests.

The meter should be set up and connected to the test points first then power turned on for a minimum amount of time (1 to 3 seconds).

It is very important that power be on only briefly because if a fault does exist damage to the unit can be avoided. Never leave power on even if correct voltage is observed because a fault may exist that will not be detected until a later test.

6. Perform the following voltage checks using the procedure outlined above.

- a. Perform voltage check number 1 of table 1.
- b. Perform voltage check number 2 of table 1.
- c. Perform voltage check number 3 of table 1.
- d. Perform voltage check number 4 of table 1.
- e. Plug in the W682 in location A04. Perform voltage check number 5 of table 1.
- f. Perform voltage check number 6 of table 1. Adjust the front panel brightness control through its full range.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

SHEET 8 OF 31

TEST	SCALE	RANGE	VOM		VOLTAGE	NOTES
			+ PROBE	- PROBE		
7	DC	1200V	B04J	B01M	+350VDC TO -60VDC Tolerance = ± 25 VDC	ADJUST FOCUS CONTROL TO CHECK. (G836) CCW= -60VDC CW= +350VDC
8	AC	12V	CRT SOCKET PIN 1	CRT SOCKET PIN 12	6.3 VAC Tolerance = $\pm .3$ VAC	
9	DC	1200V	CRT SOCKET PIN 10	CHASSIS GND.	+350VDC Tolerance = ± 25 VDC	
10	DC	300V	CRT SOCKET PIN 2	CHASSIS GND.	-80VDC TO -20VDC Tolerance = ± 10 V. THE -20VDC MAY BE 0.	ADJUST THE BRIGHTNESS CONTROL ON THE FRONT PANEL TO VARY THIS VOLTAGE.
11	DC	1200V	CRT SOCKET PIN 6	CHASSIS GND.	+350VDC TO -60VDC Tolerance = ± 25 VDC	ADJUST THE FOCUS CONTROL TO VARY THIS VOLTAGE. (G836) CCW= -60VDC CW= +350VDC
12	DC	60V	B01V	B01M	Nominal = +21.5V Tolerance = +2V, -1V.	THIS VOLTAGE SHOULD NOT EXCEED 23.5VDC OR BE LESS THAN 20.5VDC.

CONTINUATION SHEET
 ENGINEERING SPECIFICATION
 TITLE
 SIZE A
 CODE SP
 NUMBER VR14-0-5
 RFV B
 SHEET 10 OF 31
 DEC FORM NO 16-1022
 DRA 108

TEST	SCALE	RANGE	VOM		VOLTAGE	NOTES
			+ PROBE	- PROBE		
1	DC	60V	D1-4	CHASSIS GND.	+45VDC Tolerance = ± 5 V	D1-4 SHOULD HAVE AN ORANGE WIRE ON THIS TERMINAL.
2	DC	60V	CHASSIS GND.	D2-4	-45VDC Tolerance = ± 5 V	D2-4 SHOULD HAVE A GREEN WIRE ON THIS TERMINAL.
3	AC	12V	B04A	B04B	6.3VAC Tolerance = $\pm .3$ V	
4	DC	1200V	B04D	B01M	+350VDC Tolerance = ± 25 V	
5	DC	300V	CRT SOCKET, PIN 11	CHASSIS GND.	+60VDC Tolerance ± 6 V	PLUG IN THE W682 IN LOCATION A04.
6	DC	300V	B01M	B04F	-80VDC TO -20VDC Tolerance ± 10 V. The -20VDC COULD BE AS LOW AS 0.	ADJUST THE FRONT PANEL BRIGHTNESS CONTROL TO VARY THIS VOLTAGE.

CONTINUATION SHEET
 ENGINEERING SPECIFICATION
 TITLE
 SIZE A
 CODE SP
 NUMBER VR14-0-5
 RFV B
 SHEET 9 OF 31
 DEC FORM NO 16-1022
 DRA 108

TABLE VR14-1

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE

TEST	SCALE	RANGE	VOM	VOLTAGE	NOTES
13	DC	60V	B01M B01R	Nominal = -21.5VDC Tolerance = -2V, +1V	THIS VOLTAGE SHOULD NOT EXCEED -23.5VDC OR BE LESS THAN -20.5VDC.
14	DC	12V	A02A B01M	0VDC	WITH THE A225 REMOVED FROM LOCATION A02 THIS VOLTAGE MUST BE 0VDC.
15	DC	12V	A03A B01M	0VDC	WITH THE A225 REMOVED FROM LOCATION A03 THIS VOLTAGE MUST BE 0VDC.
16	DC	12V	A04A B01M	+5VDC (+4VDC MIN.) (+6VDC MAX.)	PLUG IN THE G838 LOCATION A01.
17	DC	12V	A02A B01M	+2.6VDC TO -2.6VDC	A. PLUG IN THE A225 LOC. A02. B. ADJUST THE POSITION POT ON THE A225 IN LOC. A02.
18	DC	12V	B01M A03A	+2.6VDC TO -2.6VDC	A. PLUG IN THE A225 LOC. A03. B. ADJUST THE POSITION POT ON THE A225 IN LOC. A03.

SIZE	CODE	NUMBER	RFV
A	SP	VR14-0-5	B

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE

VOLTAGE CHART

All voltages measured with respect to ground
(chassis or B01M, N)

*Indicates voltage depends upon input signal

Circuit Block

A02A	* +3 volts nominal	X Current Sample
A03A	* +3 volts nominal	Y Current Sample
A02E, B	*	X Input Signal
A03E, B	*	Y Input Signal
A01U, B01V	+21.5 VDC (red)	+ Regulated D.C.
A01K, B01R	-21.5 VDC (blue)	- Regulated D.C.
A01P	+5 VDC	For W682
B04A	3.5 VRMS	1/2 Filament
B04B	3.5 VRMS	1/2 Filament
B04D	+400 VDC	G2
B04F	0 to -80 VDC	Brightness (G1)
B04J	-80 VDC to -400 VDC	Focus
B04L	* +60 volts	Cathode With Negative Pulses
Brightness Pot		
Gray/Green	-80 VDC	

TABLE VR14-2

SIZE	CODE	NUMBER	RFV
A	SP	VR14-0-5	B

TABLE VR14-1

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

VOLTAGE CHART - (CONTINUED)

Deflection Heat Sink - P5

X AXIS Y AXIS

P5 - 2	P5 - 14	+20.5 VDC	PNP Base (2N4399)
P5 - 1	P5 - 15	+21.5 VDC	PNP Emitter (2N4399)
P5 - 3	P5 - 13	* <1 volt	All Collectors
P5 - 4	P5 - 12	-20.5 VDC	NPN Base (2N5302)
P5 - 5	P5 - 11	-21.5 VDC	NPN Emitter (2N5302)

Regulator Heat Sink - P3

P3 - 1	+43 VDC Orange	Emitters of 2N4399
P3 - 2	+42 VDC Gray/Yellow	Bases of 2N4399
P3 - 3	+21.5 VDC Red	Collectors of 2N4399
P3 - 12	-43 VDC Green	Emitters of 2N5302
P3 - 11	-42 VDC Gray/Blue	Bases of 2N5302
P3 - 10	-21.5 VDC Blue	Collectors of 2N5302

G836 Regulator Circuit Connectors -- P1, P2, P4

P1 - 1	+43 VDC	Raw + D.C.
P1 - 3, 6	Ground	
P1 - 4	-43 VDC	Raw - D.C.

TABLE VR14-2

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

VOLTAGE CHART - (CONTINUED)

P2 - 1	3.5 VRMS	1/2 Filament
P2 - 2, 4, 7, 9	Ground	
P2 - 3	3.5 VRMS	1/2 Filament
P2 - 5	70 VRMS (200 P-P)	+80 v. tap
P2 - 6	150 VRMS (400 P-P)	+400 v. tap
P4 - 1	+21.5 VDC Red	+ Regulated
P4 - 2, 14	Ground Black	
P4 - 3	+21.5 VDC Red	Hot + Sense
P4 - 4	0 VDC Black	Cold + Sense
P4 - 5	-80 to +400 VDC Gray/Red	Focus
P4 - 6	+400 VDC Orange	G2
P4 - 7	3.5 VRMS Brown	Filament
P4 - 8	3.5 VRMS Brown	Filament
P4 - 9	-80 VDC Gray/Green	To Brightness Pot
P4 - 10	0 to -40 VDC Gray/Violet	Brightness Preset
P4 - 11	+80 VDC Gray/Orange	For W682
P4 - 12	-21.5 VDC Blue	Hot - Sense
P4 - 13	0 VDC Black	Cold - Sense
P4 - 15	-21.5 VDC Blue	- Regulated

TABLE VR14-2

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

- (1) OFF = 0VDC
- (2) FULLY CCW -80VDC
- (3) FULLY CW = between 0 and -20VDC
- g. Perform voltage check number 7 of table 1 and vary the focus control pot. Adjust this pot to its limits. Reset to approximately + 300 VDC after testing.
- h. Make the following voltage checks at the CRT socket.
- (1) No. 8 Table 1
- (2) No. 9 Table 1
- (3) No. 10 Table 1. Vary the brightness control on the front panel to insure proper operation.
- (a) OFF 0VDC
- (b) FULLY CCW -80 VDC
- (c) FULLY CW between 0 and -20VDC
- (4) Perform check number 11 Table 1. Adjust the focus control on the G836 a minimum amount to insure that the focus control varies this voltage. Reset to +300 after test.
- i. Perform voltage check number 12 of table 1.

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

- j. Perform voltage check number 13 of table 1.
- k. Perform voltage check number 14 of table 1.
- l. Perform voltage check number 15 of table 1.
- m. Plug in the G838 in location A01 and perform voltage check number 16 of table 1.
- NOTE: On A225 voltage checks number 17 and number 18, shut off the VR14 immediately if the voltage exceeds +2.6VDC and cannot be turned down by the position trim pot.
- n. Plug in the A225 in location A02 and perform voltage check number 17 of table 1. Adjust the position trim pot on the A225 to insure proper control of this voltage. After test position to +2.5VDC.
- o. Plug in the A225 in location A03 and perform voltage check number 18 of table 1. Adjust position pot on the A225 to insure proper control of the voltage. After test position to +2.5VDC
- p. The case temperature of the "X" deflection 2N4399 must be measured while the X deflection current is set for 5 amps (+2.5V at A02-A). No unit is to ship if the case is greater than 72°C.
- q. Same test for "X" 2N5302 for X current at -5A (-2.5V at A02-A). Must be less than 72°C.
- r. With A02-A and A03-A adjusted to +5A (+2.5V on both) measure the case temperature on the top 2N4399 of the power supply. Must be less than 72°C.
- s. With A02-A, A03-A at -2.5V measure the top 2N5302 case temperature on the power supply heat sink. Must be less than 72°C.

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

V. BASIC ON-LINE TEST PROCEDURE

NOTE: Before applying power check that the power applied is the same as the voltage required by the VR14 under test.

A. Cabling

1. Install the BC12 Display cable from location F38 of the EM12 to the Display under test. (For extended scope output use F39 of the EM12.)

B. Basic Set-Up

1. Set-Up the M711 location CD37 as follows:
 - a. Intens - Negative
 - b. P.R.R. - Fast
 - c. Width - For cables less than 100' set to minimum, for cables over 100' set to maximum.
2. Check that the polarity switches located on the back of the VR14 are in the negative position (down).
3. Set the channel select control on the front panel to channel 1 and 2.

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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SHEET 17 OF 31

TITLE

C. Basic On-line Checkout

1. Do not apply power to the VR14 under test at this point.
2. Load in the display diagnostic D6BC.
 - a. The following switches control this test.
 - (1) Setting Sense Switch -1 cause the display to freeze on the current test.
 - (2) Resetting Sense Switches to zero will cause the display to cycle thru the patterns listed below.
 - (a) Pattern 1 - Point Plotting (Box) Sense Sw 0
 - (b) Pattern 2 - Character Generation Sense Sw 1
 - (c) Pattern 3 - Diagonal Lines Sense Sw 2
3. Start diagnostic D6BC and freeze on Pattern 3 (Diagonal lines). LINC mode/START 20.
4. Using an oscilloscope check the input to the X deflection Tp A02-E. This signal should be 6 volts in amplitude. From 0 to -6VDC.
5. Using an oscilloscope check the input to the Y deflection Tp A03E. This signal should be 6 volts in amplitude. From 0 to -6VDC.
 - a. Make sure no oscillations are present at A02A and A03A.

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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SHEET 18 OF 31

TITLE

6. Depress STOP and I/O PRESET on the PDP-12 console.
7. Apply power to the VR14 under test.
8. Using a meter perform voltage check number 17 of table 1.
9. Using a meter perform voltage check number 18 of table 1.
10. Depress "START 20" on the PDP-12 console.
11. Select Sense Switch when pattern 1, a box, is displayed.
12. VR14 Alignment.
 - a. Adjust the X position pot so that the left side of the box pattern aligns with the left side of plastic display mask. The display should be parallel and about $\frac{1}{4}$ " from the mask at its closest point.
 - b. Perform the above step for the Y position using the bottom edge of the display mask.
 - c. Adjust the horizontal gain so the right side of the pattern aligns with the right edge of the plastic mask, within $\frac{1}{4}$ " at its closest point.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

TITLE

- d. Adjust the vertical gain in the same manner as above for the top edge of the pattern.
- e. On the G836 adjust the brightness preset to prevent the scope display from blooming (when front brightness control is fully CCW).
- f. Adjust the yoke for horizontal and vertical alignment by loosening the adjustment screw and turning the yoke by hand while watching the display. When aligned, the box should be parallel to the mask on all edges. Tighten the alignment screw down securely.
- g. Reset Sense Switches to zero. This will cause patterns to rotate when pattern 2 appears on the scope select sense switch. Pattern two will now freeze on the scope.
- h. Adjust the focus for sharp clear character display dots.
- i. Fine tune the brightness preset and focus control for a very clear display.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

- j. Using character test, select channel 1 using the front channel select knob - only channel 1 should be displayed. Repeat for channel 2 - only channel 2 should be displayed.
- k. Reset the front panel channel select to 1 and 2.
- 13. Stop D6BC Diagnostic
- 14. Load in DIAL
 - a. LSW = 701
 - b. RSW = 7300
 - c. Line Mode
 - d. I/O Preset
 - e. Do
 - f. The tape will move then stop
 - g. Hit start 20
 - h. Program will load in
- 15. At this point there will be a number 1 displayed in the upper left corner of the display. There will also be a cursor pointing to the present line position.
- 16. Strike "E" on the TTY and repeat. This will cause a row of E's to be displayed on the VR14 under test. Continue to strike E until 3 rows of E's are displayed.

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

- 17. Observe the display for acceptable limits of ripple.
- 18. Strike rub out and repeat on the TTY until the cursor returns to its original starting position.
- 19. Strike line feed on the TTY. This will cause the cursor to move to the lower left corner of the display.
- 20. Type "DX, comma, carriage return," this will cause the directory of tape unit 0 to be displayed. Check the general quality of the display for acceptable limits.
- 21. Power down the VR14 and disconnect the line cord. Wire the unit for 230VAC input.
- 22. Power up the VR14 with 230VAC and check display quality with DISPTST.
- 23. If O.K. remove line cord and rewire for 115VAC.
- 24. Hit stop and I/O PRESET on the PDP-12 console.
- 25. With a Variac set the line to each unit to 90VAC and with no signal connected and A02-A, A03-A at approximately +2.2V (standard settings for PDP-12), turn on off switch on and off rapidly (within 1/2 sec) about 5 times while monitoring the voltage at A02-A. Leave power on after the fifth time. If A02-A does not return to its original value (about 2.2V), but instead goes away negative shut down and do not ship this unit. It has power-on latch up.
- 26. All VR14/20's must be vibrated horizontally, vertically, and on its back facing up thru the range 0-60 on the vibration table while displaying DISPTST. Any breaking up or disappearing of the picture is a reject and cannot be retested unless the intermittent cause is found and fixed.
- 27. All units must be tested in a heat tent which has an ambient temperature between 45 and 55° C. For 3 hours with A02-A, A03-A at +2.0V (not 2.5) and then 3 hours with A02-A, A03-A adjusted to -2.0V (not 2.5). Now run DISPTST for 3 hours under heat tent. After both heat tent tests the following measurements must be made to see if any power transistors have become "leaky".

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

- A. Turn the position pots on X and Y deflection (A225) so that +2.5 volts is measured at A02-A and A03-A. This causes +5 amps to flow from both amplifiers and represents the worst case dissipation for the 2N4399 transistors in the power supply and deflection.
- B. Measure the case temperature of the 2N4399 in the X and Y and power supply. The case temperature a room ambient should never exceed 72 °C (161 °F).
- C. While the 2N4399's are still at full load, the 2N5302's are all unloaded and should be measured for leakage. Measure A02L to A02K, this voltage should read less than .75 volts. Measure A03L to A03K and should read less than .75 volts. This same measurement can be made at the power supply regulator board by measuring less than .75 volts between pin 11 (blue gray) and pin 12 (green) P3.
- D. Now that the 2N4399's have been run full load, the 2N5302's should be done. Turn the X and Y position pots so that -2.5 volts is measured at A02-A and A03-A. This loads fully all the 2N5302's.
- E. Measure the case temperatures of all 2N5302's. They should also be less than 72°C (161°F).
- F. Now measure the 2N4399's (which should all be off). Measure less than .75 volts between A02-R and A02-T and also between A03-R and A03-T. On the power supply measure less than .75 volts between pin 2 (yellow gray) and pin 1 (orange) on P3.
- G. After the test return the position setting to 0, 0 in X and Y.
- H. If any of the measurements are above limits, the unit should never be shipped to anyone as it is a potential failure.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

TITLE

VI. ON-LINE TEST

1. Plug in the signal input cable from the PDP-12 to the VR14.
2. Load in display test D6CB.
3. Turn on power to the VR14 and PDP-12. (On/off brightness fully CW).
4. Set the channel select on the front of the VR14 to channel 1 and 2.
5. Start the display test, LINC mode, start 20.
6. Freeze the display on pattern 2, character display.
7. Check the displayed characters for acceptable quality.
8. Turn the brightness control on the front panel. CCW fully, (No intensity,)

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B



TITLE

10. Run the display in this configuration for 48 hours.
11. After completion of the 48 hour run make the following checks.
 - a. Turn the front panel intensity control fully CW and check the quality of the displayed characters.
 - b. Check the VR14 transformer for excessive heat.
12. Hit I/O PRESET and STOP on the PDP-12 console.
13. Make the following voltage checks: (remove signal cable)
 - a. Voltage check number 12 of table 1.
 - b. Voltage check number 13 of table 1.
 - c. Replace signal cable
14. Start the display test D68C (LINC mode, START 20).
15. Select Sense Switch while the display is running pattern 3.
16. Check pattern 3 for the quality of the display.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B



TITLE

- 16A. Check the yoke alignment and adjust if required.
17. Resetting Sense Switchs to zero will cause the display test to rotate thru the patterns.
18. Select Sense Switch while the display is running pattern 1.
19. Check the quality of the display. (The box should extend to within 1/4" of the edge of the usable display area at its closest point).
20. Check the yoke alignment and adjust if required.
21. Remove input signal and zero position on X & Y (A02A, A03A = 0V).

VII. MARGINAL TEST

None Required

VIII. VIBRATION TEST

1. Power up the VR14 and PDP-12.
2. Load and start display test D6CB (LINC, mode, START 20).
3. Vibrate the logic in accordance with specification SP-7665057-0-0. Observe the display for no malfunctions while vibrating the logic.

SIZE	CODE	NUMBER	REV
A	SP	VR14-0-5	B

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

IX. ACCELERATED LIFE TEST

None Required

X. RELIABILITY TEST

None required

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE

XI VR14 PRODUCTION CHECKLIST

VR14 Serial Number _____

Phosphor _____

Power Required _____

Table Top _____

Chassis Mount _____

Tech _____ Date _____

1. Basic Mechanical Check
IV. A1 - A20

2. Basic Electrical Check
IV. B1 - B7

Test 1	+	_____	VDC		
Test 2	-	_____	VDC		
Test 3		_____	VAC		
Test 4	+	_____	VDC		
Test 5	+	_____	VDC		
Test 6	-	_____	VDC	to	- _____ VDC
	-	_____	VDC	to	_____ VDC
Test 7	+	_____	VDC	to	- _____ VDC
Test 8		_____	VAC		
Test 9	+	_____	VDC		
Test 10	-	_____	VDC	to	- _____ VDC
	-	_____	VDC	to	_____ VDC

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE

Test 11 + _____ VDC to - _____ VDC
 Test 12 + _____ VDC
 Test 13 - _____ VDC
 Test 14 _____ VDC
 Test 15 _____ VDC
 Test 16 + _____ VDC
 Test 17 + _____ VDC to - _____ VDC
 Test 18 + _____ VDC to - _____ VDC

B1 - P _____ °C
 B1 - Q _____ °C
 B1 - R _____ °C
 B1 - S _____ °C

3. Basic On Line Test

A. M711 Set up

V. B1 _____ Intens
 _____ P.R.R.
 _____ Width

B. Input Signal

V. C4 _____ VDC
 C5 _____ VDC
 C5A _____ yes _____ no

If yes do not proceed until oscillation has been fixed.

SIZE A	CODE SP	NUMBER VR14-05	REV B
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ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE

C. Brightness Preset
 V. C12,i _____
 D. Channel Select
 V. C12,J _____ Channel 1
 _____ Channel 2
 V. C12,K _____ Channel 1 and 2
 E. V. C25 _____ yes _____ no
 If yes do not ship unit.
 F. V. C26 _____ O.K.
 H. V. C27_a - C27h
 C27b + _____ VDC
 C27c + _____ VDC
 C27d + _____ VDC
 C27f - _____ VDC
 C27g - _____ VDC
 C27h - _____ VDC

4. On Line Testing

A. 48 hour reliability

VI. 10 _____ OK
 13A _____ VDC
 13b _____ VDC

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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TITLE

B. Yoke tightened Down

VI. 16A _____ OK

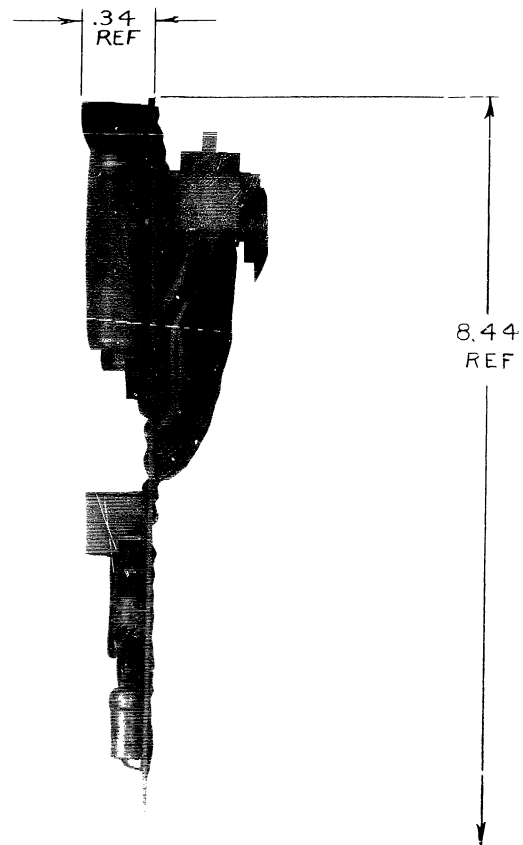
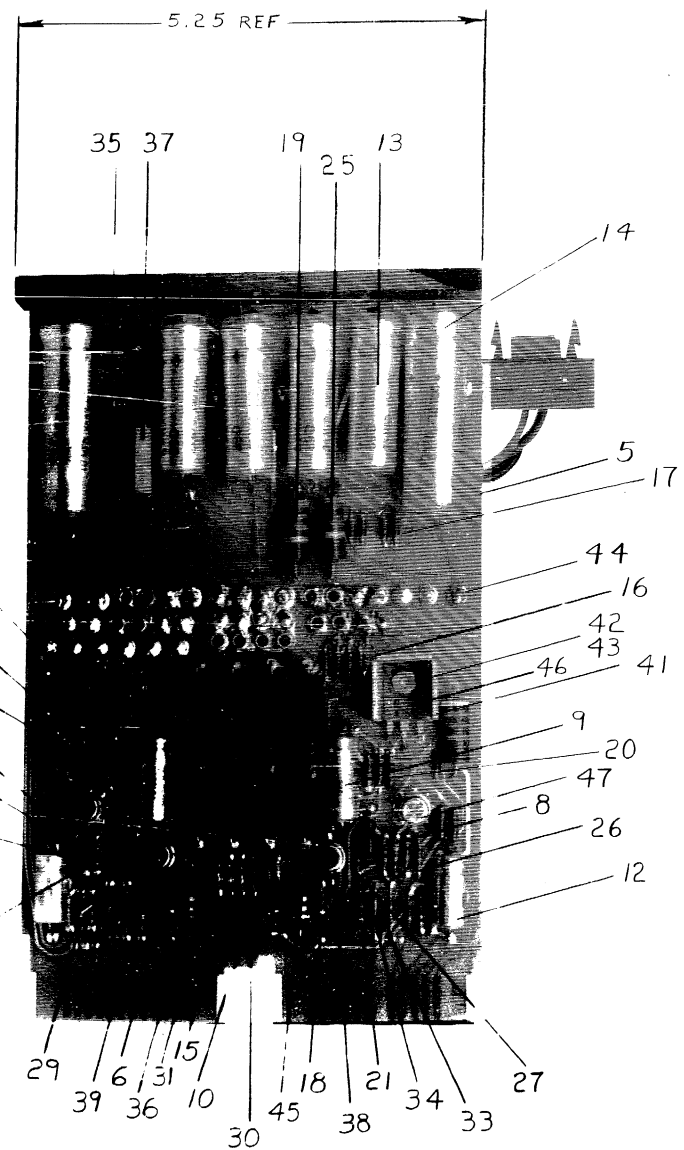
5. Vibration Test

VIII. 1 - 3 _____ OK

SIZE A	CODE SP	NUMBER VR14-0-5	REV B
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REV 3
 NUMBER 0-0-9889
 SIZE CODE d
 JJA G836-0-0
 2



REV	CHANGE NO	REVISIONS
1	1	REVISED
2	1	REVISED
3	1	REVISED
4	1	REVISED
5	1	REVISED
6	1	REVISED
7	1	REVISED
8	1	REVISED

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
VR14		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. W. HOVEY	DATE 11/24/70	digital EQUIPMENT CORPORATION <small>MAYNARD MASSACHUSETTS</small>	
DECIMALS ANGLES	CHK'D S. CRABBE	DATE 11/2/70		
xxx .005 xx .02 x .1	±0° 30'	ENG. D. CRABBE	DATE 11/6/70	TITLE 0836 POWER REGULATOR BOARD ASSEMBLY
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG. A. FISHMAN	DATE 11/6/70		
	PROD. R. PETERSON	DATE 11/6/70		
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV
FINISH	SCALE	D JJA G836-0-0		E
	SHEET 1 OF 1	DIST.		

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY / VARIATION											
PARTS LIST															
MADE BY Mary Ann Gilbert		CHECKED <i>[Signature]</i>		SECTION											
DATE July 8, 1971		DATE 7-11-71		ISSUED SECT.											
ENG <i>[Signature]</i>		PROD													
DATE 10-18-71		DATE													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION													
1	D-CS-G836-0-1	CIRCUIT SCHEMATIC													
2	K-CO-G836-0-4	X-Y COORDINATE HOLE LOCATION													
3	E-AH-G836-0-5	ASSY/DRILLING HOLE LAYOUT													
4	B-MH-G836-0-6	MODULE ECO HISTORY													
4 1/2	D-UA-G836-0-0	POWER REGULATOR BOARD ASSEMBLY													
5	5009224	ETCHED CIRCUIT BOARD		1											
6	1000C20	CAP. 180PF 100V 5% D.M.		1	C8										
7	1000C24	CAP. 470PF 100V 5% DL.ML.		2	C4, 10										
8	1000C42	CAP. 1000PF 100V 5% MICA		2	C5, 20										
9	1000C80	CAP. 50UF 50V -10 +75% S.TANT		2	C6, 11										
10	1001610	CAP. .01UF 100V 20% DISC		2	C2, 13										
11	1001739	CAP. 27PF 100V 5% MICA		2	C3, 9										
12	1001886	CAP. 270UF 15V 10% S.TANT		2	C1, 7										
13	1009438	CAP. 25UF 150V 39D		4	C16, 17, 18, 19										
14	1009439	CAP. 10UF 450V 39D		2	C14, 15										
15	1102808	DIODE 1N752A 5.6V		6	D1, 2, 5, 6, 7, 8										
16	1102942	DIODE 1N4001		4	D13, 14, 15, 16										
17	1105796	DIODE 1N4004		6	D3, 4, 9, 10, 11, 12										
18	1300220	RES. 68 1/2W 10%		2	R11, 31										
19	1300245	RES. 120 2W 10%		1	R37										
20	1301317	RES. 10 1/2W 5%		4	R10, 27, 5, 21										
21	1300285	RES. 270 1/2W 5%		2	R8, 25										
TITLE VR-14 POWER SUPPLY AND REGULATOR BOARD				ASSY NO.		SIZE CODE A PL		NUMBER G836-0-0		REV. E		ECO NO. 00008			
				SHEET 1 OF 3		DIST.									

DEC FORM NO.16-1031
DRA 110

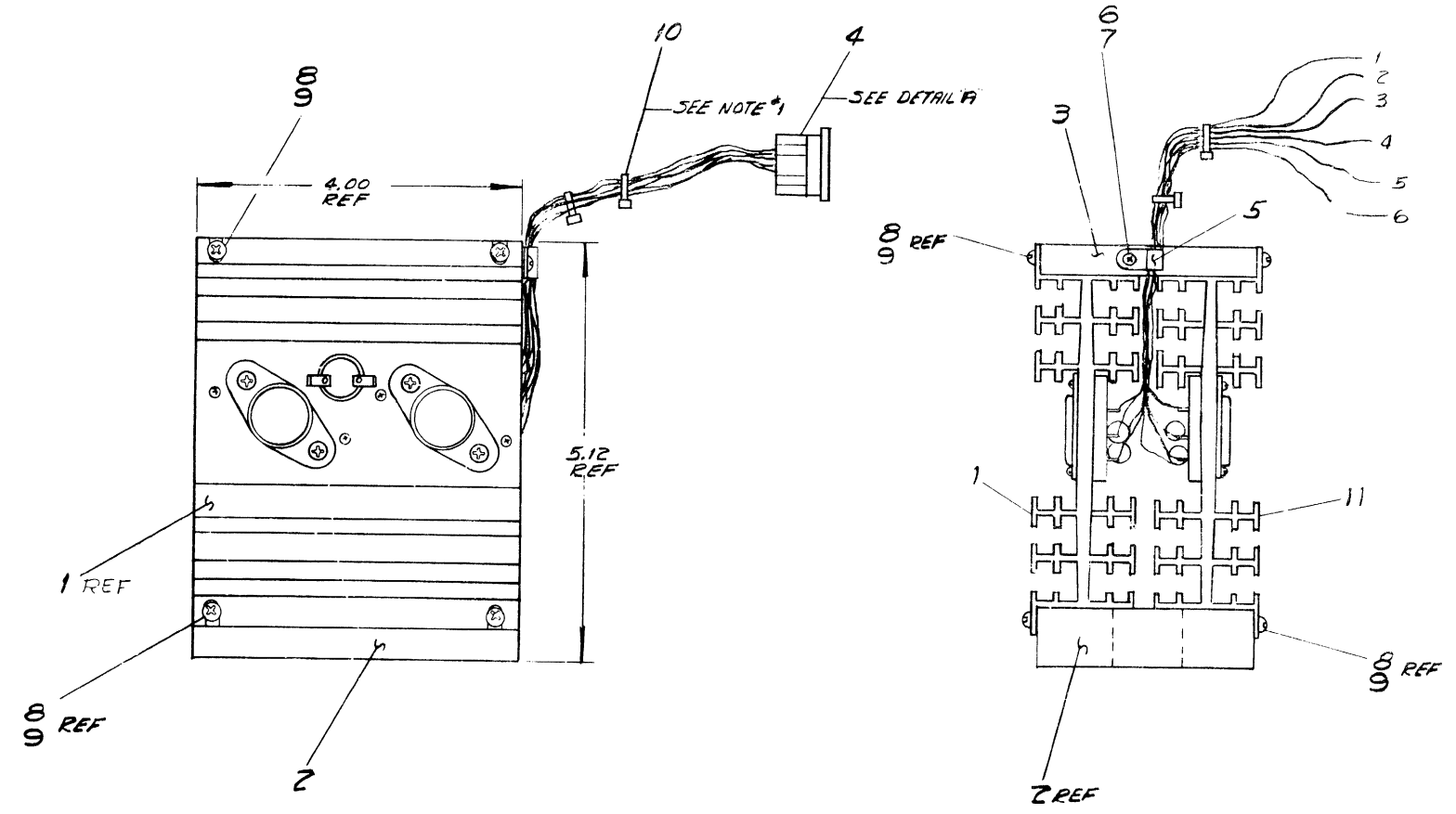
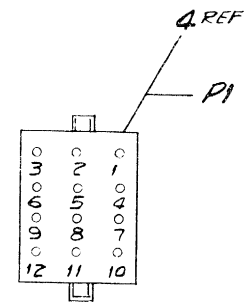
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY / VARIATION											
PARTS LIST															
MADE BY Mary Ann Gilbert		CHECKED <i>[Signature]</i>		SECTION											
DATE July 8, 1971		DATE 7-11-71		ISSUED SECT.											
ENG <i>[Signature]</i>		PROD													
DATE 10-18-71		DATE													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION													
22	1300295	RES. 330 1/2W 5%		2	R4, 18										
23	1300271	RES. 220 1/2W 5%		2	R9, 24										
24	1300265	RES. 1K 1/2W 5%		6	R7, 15, 16, 23, 29, 32										
25	1300369	RES. 1K 2W 10%		1	R36										
26	1300391	RES. 1.5K 1/2W 5%		2	R6, 22										
27	1300417	RES. 2.2K 1/2W 5%		2	R39, 40										
28	1301317	RES. 10 1/2W 5%		2	R5, 21										
29	1301890	RES. 560 1/2W 5%		2	R1, 20										
30	1302385	RES. 750 1W 5%		2	R33, 34										
31	1302826 1310701	RES. 80 10W 1% WW		4	R12, 26, 41, 42										
32	1303062	RES. 470 2W 5%		2	R14, 30										
33	1302612	RES. 1.78K 1/8W 1% MF		2	R2, 17										
34	1304870	RES. 6.81K 1/8W 1% MF		2	R3, 19										
35	1310179	RES. 500K 1W 10% 78PR POT		1	R35										
36	1310382	RES. 2.7 1W 5%		2	R13, 28										
37	1309443-14	RES. 100K 3/4W 10% 76PR POT		1	R38										
38	1501742	TRANSISTOR 2N2904		1	Q1										
39	1501891	TRANSISTOR DEC 2219		1	Q3										
40	1510556	TRANSISTOR MJE 2955		1	Q2										
41	900587 5509718	HEAT SINK REV A		2											
42	9006011	SCREW SLOTTED #4-40 x3/8 SST		2											
43	9006556	NUT HEX #4-40 SST		2											
TITLE VR-14 POWER SUPPLY AND REGULATOR BOARD				ASSY NO.		SIZE CODE A PL		NUMBER G836-0-0		REV. E		ECO NO. 00006			
				SHEET 2 OF 3		DIST.									

DEC FORM NO.16-1031
DRA 110

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY/VARIATION																		
PARTS LIST																						
MADE BY Mary Ann Gilbert		CHECKED		SECTION																		
DATE July 8, 1971		DATE																				
ENG <i>C. Freshman</i> P.C.E.		PROD		ISSUED SECT.																		
DATE 10-11-71		DATE																				
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																				
44	9007836	EYELETS #GS4-3		4																		
45	9008085	SOLDERLESS TERMINAL		8																		
46	1510555	TRANSISTOR MJE 3055		1	Q4																	
47	1909344	I.C. MC 1709 OP AMP		2	E1, 2																	
TITLE				ASSY NO.			SIZE		CODE		NUMBER				REV.		ECO NO.					
VR-14 POWER SUPPLY AND REGULATOR BOARD							A		PL		G836-0-0				E		00006					
				SHEET 3 OF 3			DIST.															

WIRE TABLE						
ITEM NO.	AWG	COLOR	FROM		TO	
			CONNECTION	WITH	CONNECTION	WITH
1	14	ORN	BRADY M. #4	---	PI-1	4
1	18	GR/YEL		5	PI-2	4
1	14	RED		6	PI-3	4
1	14	BLU		1	PI-10	4
1	18	GRY/BLU		2	PI-11	4
1	14	GRN	BRADY M. 3	---	PI-12	4

NOTES:
1. USE TIE WRAPS WHEREVER NECESSARY.



REV.	CHANGE NO.

FIRST USED ON OPTION/MODEL
VR14

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.

DRN	DATE	10/27/70
CHKD	DATE	10/27/70
ENGR	DATE	10/27/70
PROJ. ENG.	DATE	10/27/70
PROD.	DATE	10/27/70
NEXT HIGHER ASSY D-119-1212-0-0		
MATERIAL	---	
FINISH	---	

PARTS LIST		digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TITLE PS HEAT SINK ASSY VR14			
SIZE CODE	NUMBER	REV.	
DAD	7007080-0-0		
DIST.			

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY/VARIATION

MADE BY J. Devin	CHECKED D. Crabbe	SECTION 1
DATE 10/14/70	DATE 10/15/70	
ENG <i>D. L. Crabbe</i>	PROD <i>R. Peterson</i>	ISSUED SECT. 1
DATE 11/6/70	DATE 11/6/70	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	UNIT	VARIATION
1	D-AD-7007081-1-0	REGULATOR HEAT SINK ASSY.	1		
2	C-MD-7408437-0-0	BRKT, MTG. SPACER	1		
3	C-MD-7408438-0-0	SPACER, MTG.	1		
4	1209351-12	SOCKET HOUSING MATE-N-LOK	1		
5	CPS-1953-4A	CLAMP NYLON 1/4 I.D.	1		
6	9006021-1	SCR, PHL HD PAN #6-32 x 5/16 LG	1		
7	9006656	WASHER, FLAT #6 SST	1		
8	9006020-1	SCR, PHL HD PAN #6-32 x 1/4 LG SST	8		
9	9006633	WASHER, INTERNAL #6-32 SST	8		
10	9007031	TIE WRAPS SST-1B	2		
11	D-AD-7007081-2-0	REGULATOR HEAT SINK ASSY.	1		

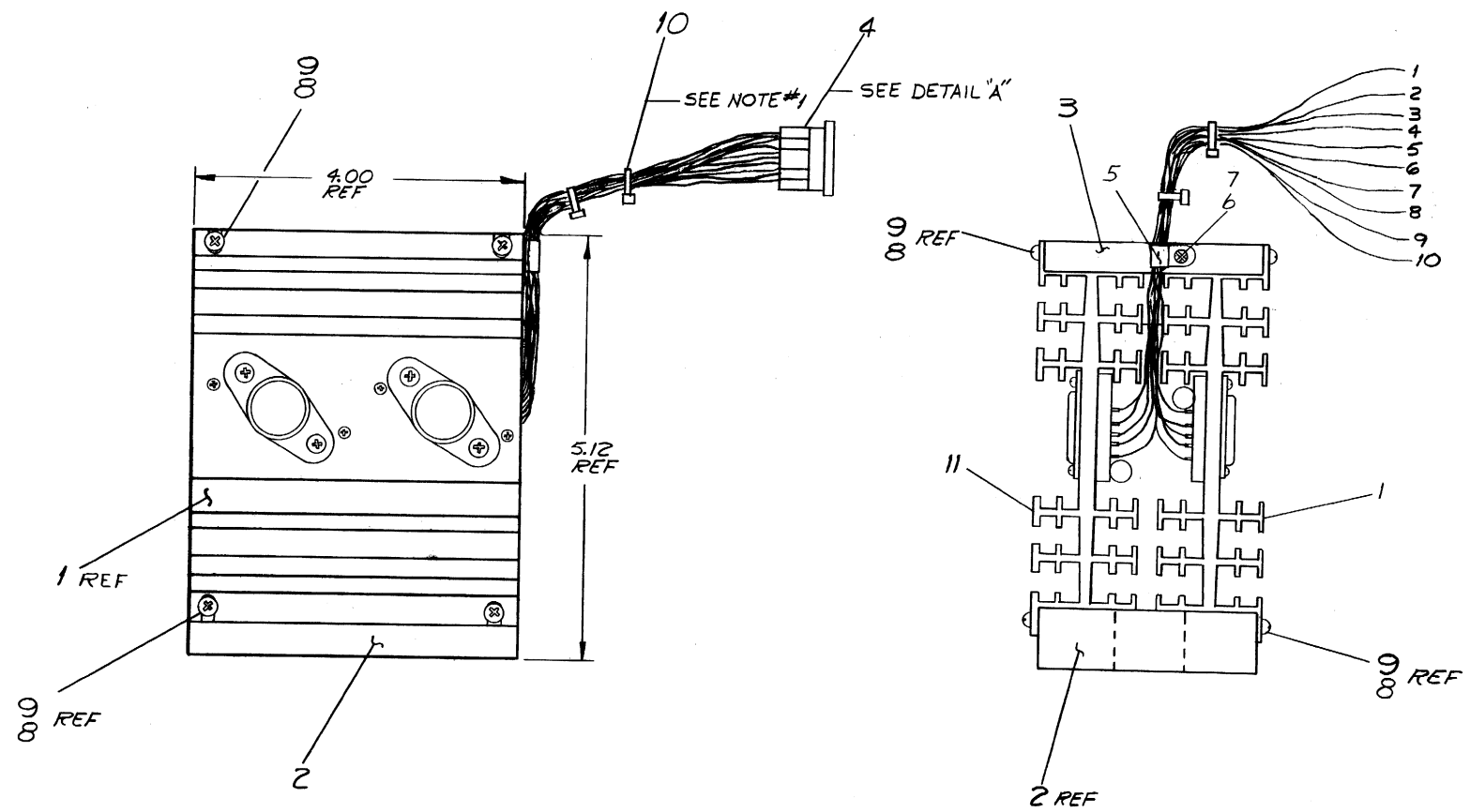
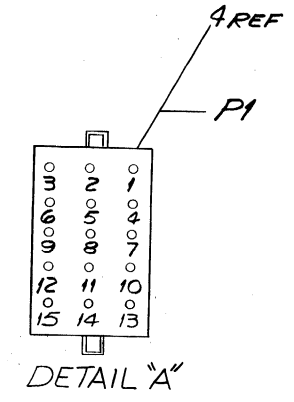
TITLE P.S. HEAT SINK ASSY.	ASSY NO. D-AD-7007080-0-0	SIZE CODE A PL	NUMBER 7007080-0-0	REV.	ECO NO.
SHEET 1 OF 1		DIST.			

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WIRE TABLE

ITEM NO.	AWG	COLOR	FROM		TO	
			CONNECTION	WITH	CONNECTION	WITH
1	18	RED	BRADY M 1	—	P1-1	4
1		GRY/YEL		2	P1-2	4
1		GRY		3	P1-3	4
1		GRY/BLU		4	P1-4	4
11		BLU		5	P1-5	4
11		BLU		6	P1-11	4
11		GRY/BLU		7	P1-12	4
11		VIO		8	P1-13	4
11		GRY/YEL		9	P1-14	4
11	18	RED	BRADY M 10	—	P1-15	4

NOTES:
1. USE TIE-WRAPS WHEREVER NECESSARY.



REV.	DATE	BY	CHK
A	10/15/70	W. H.
B	11/6/70
C	11/6/70

FIRST USED ON OPTION/MODEL
VR14

DO NOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED	DIMENSION IN INCHES
TOLERANCES	DECIMALS FRACTIONS ANGLES
±.005 ±.010 ±.020	±.005 ±.010 ±.020
FINAL SURFACE QUALITY	REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL	FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION		
	MAYNARD, MASSACHUSETTS		
	TITLE		
	DEFLECTION HEAT SINK ASSY		
	NEXT HIGHER ASSY		REV.
	D-UA-VR14-0-0		B
	SCALE	SIZE CODE	NUMBER
	1 OF 1	DAD	7007082-0-0
	SHEET	DIST.	

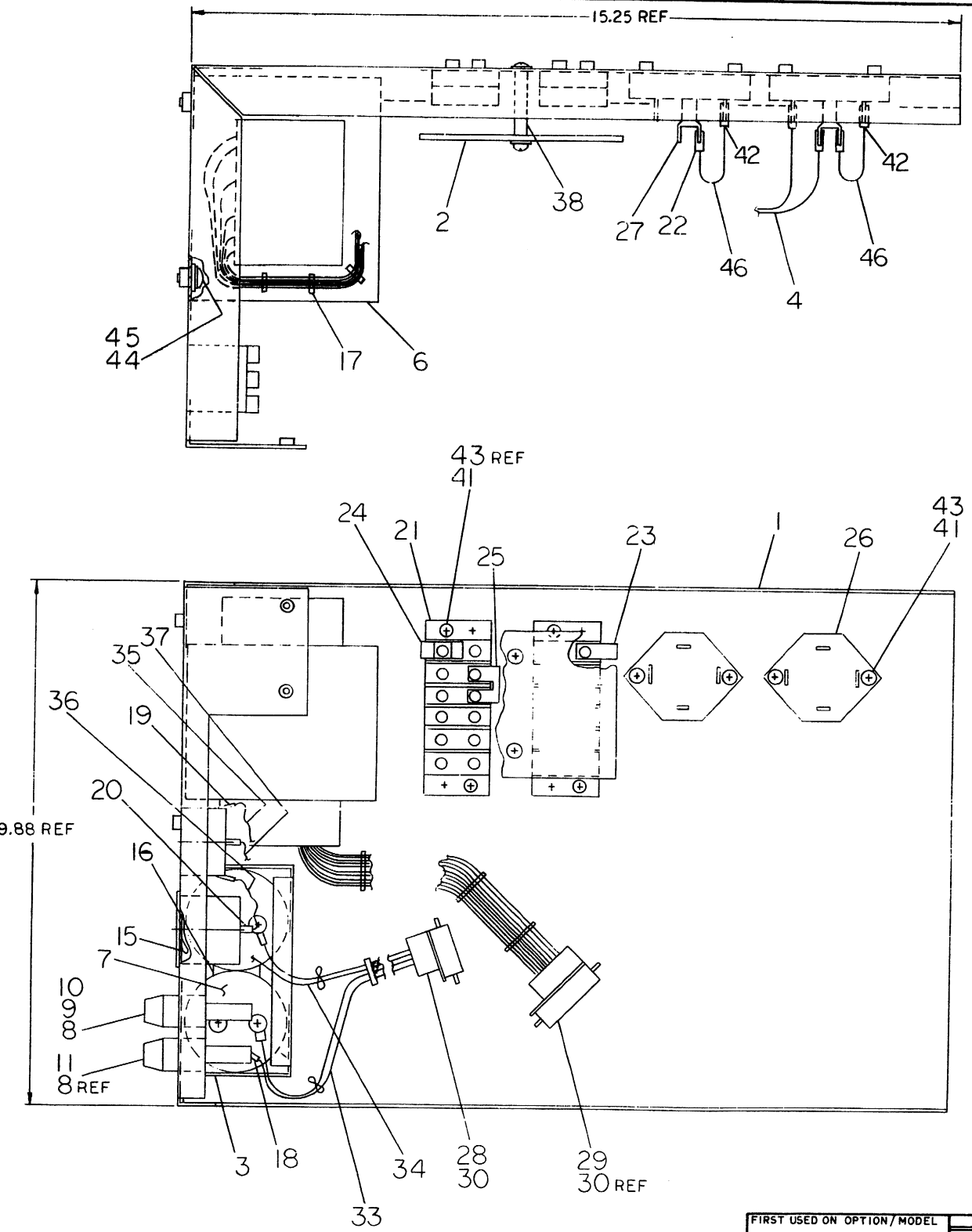
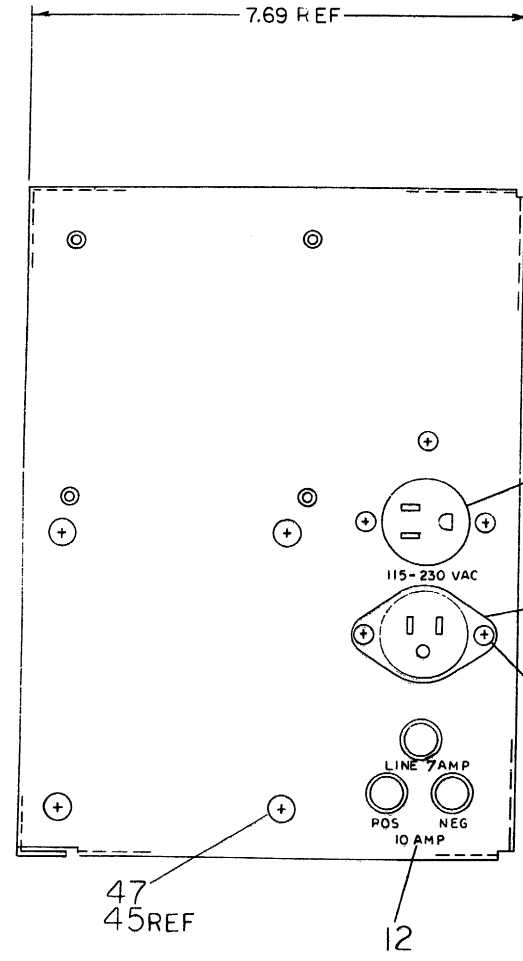
REV. B
NUMBER
DAD 7007082-0-0

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				QUANTITY/VARIATION													
PARTS LIST																	
MADE BY	W. Hovey	CHECKED	D.K. Crabbe	SECTION													
DATE	October 15, 1970	DATE	Oct. 15, 1970	1													
ENG	<i>D.K. Crabbe</i>	PROD	<i>R. Peterson</i>	ISSUED SECT.													
DATE	<i>11/6/70</i>	DATE	<i>11/6/70</i>	1													
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION															
1	D-AD-7007083-1-0	DEFLECTION POWER AMP. ASSY.		1													
2	C-MD-7408437-0-0	BRKT, MTG. SPACER		1													
3	C-MD-7408438-0-0	SPACER, MTG		1													
4	1209351-15	SOCKET HOUSING MATE-N-LOK		1													
5	CPS-1953-4A	CLAMP NYLON 1/4 I.D.		1													
6	9006021-1	SCR PHL HD PAN #6-32 x 5/16 LG		1													
7	9006656	WASHER, FLAT #6 SST		1													
8	9006020-1	SCR, PHL HD PAN #6-32 x 1/4 LG SST		8													
9	9006633	WASHER, INTERNAL #6-32 SST		8													
10	9007031	TIE WRAPS SST-1B		2/R													
11	D-AD-7007083-2-0	DEFLECTION POWER AMP. ASSY.		1													
12	1209351-03	SOCKET HOUSING (MATE-N-LOK)		1													
TITLE				DEFLECTION HEAT SINK ASSY.		ASSY NO.	D-AD-7007082-0-0		SIZE	CODE	NUMBER	REV. ECO NO.					
SHEET 1 OF 1				DIST.	A PL 7007032-0-0 B V.R. 11-00-15												

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LEGEND	
NUMBER	VARIATION
7007084-1	115 VAC (50/60 HZ)
7007084-2	230 VAC (50/60 HZ)
7007084-3	100 VAC (50/60 HZ)
7007084-4	115 VAC (VR20)
7007084-5	230 VAC (VR20)
7007084-6	100 VAC (VR20)

REV F 2 DAD 7007084-0-0



REV.	CHANGE NO.	BY	DATE
A	00002	A. FISHMAN	1-6-71
B	00007	A. FISHMAN	1-15-71
C	00010	A. FISHMAN	5-25-71
D	00014	A. FISHMAN	8-2-71
E	00019	A. FISHMAN	11-2-71
F	00022	A. FISHMAN	1-2-72

FIRST USED ON OPTION / MODEL
VR14

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS - FRACTIONS ANGLES
±.005 ±.004 ±.030
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
TITLE POWER SUPPLY ASSY (VR14)			
NEXT HIGHER ASSY D-UA-VR14-0-0		SIZE CODE DAD	NUMBER 7007084-0-0
SCALE NONE		DIST. G	REV. F
SHEET 1 OF 2			

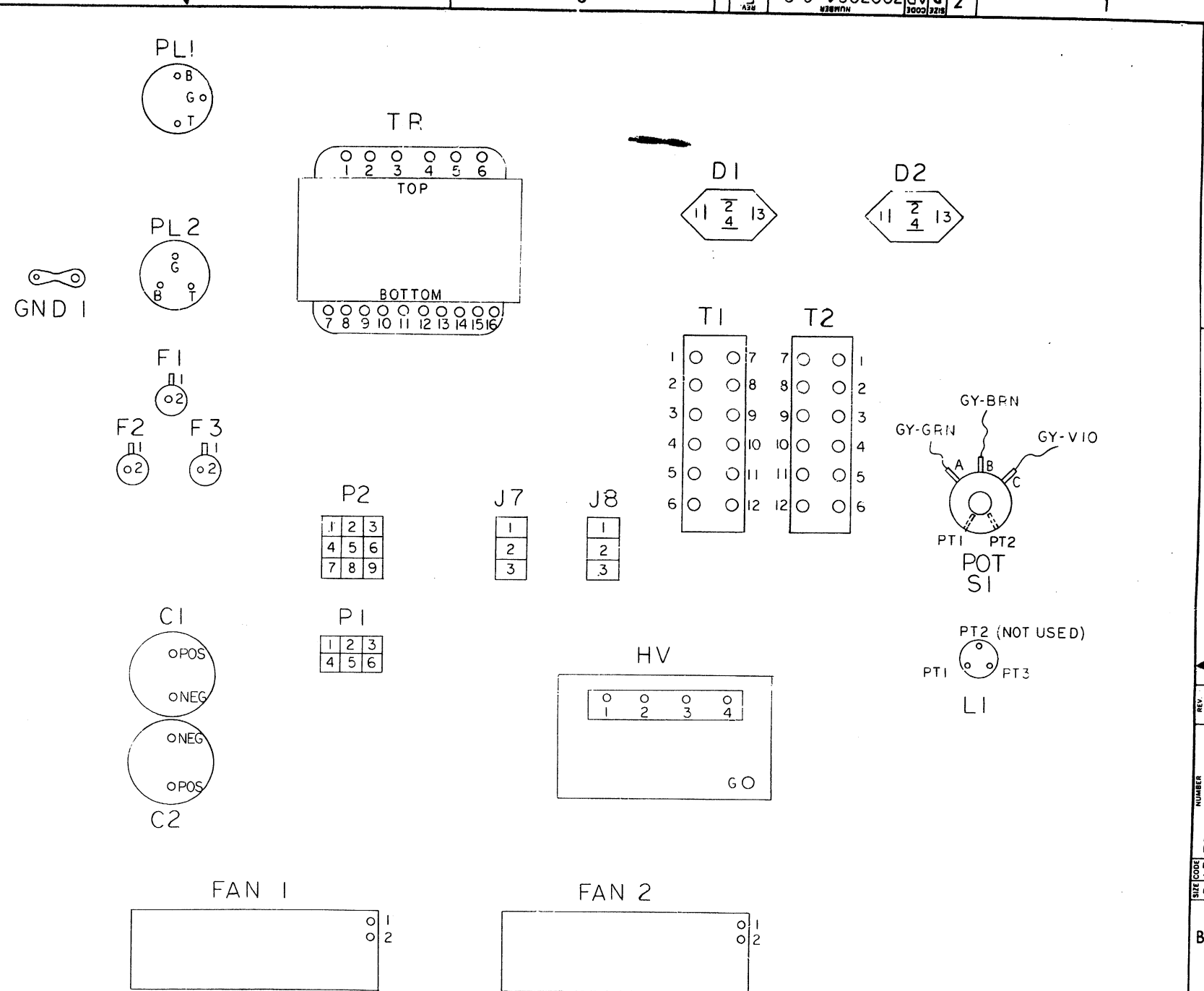
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 1973

HARNESSTABLE		
COLOR	HARNPT	P.S. LOCATION
RED	3	FAN2-1
WHT	4	FAN2-2
GRN	6	C2-NEG
GRN	7	C2-NEG
BLK	8	GND-1
RED	9	F1-2
WHT	10	PL2-T
ORN	11	CI-POS
ORN	12	CI-POS
RED	14	T1-2
WHT	15	T1-5
RED	16	T2-1
WHT	17	T2-5
GRN	22	D1-2
ORN	23	D1-1
GRN	25	D2-2
ORN	24	D2-1
RED	21	T2-1
WHT	20	T2-4
RED	19	T1-1
WHT	18	T2-4
BLK	30	GND-2 (ON H.V. ASSY)
RED	32	FAN1-1
WHT	31	FAN1-2

WIRE TABLE					
ITEM NO.	WIRE		CONNECTIONS		
	COLOR	TYPE-ITEM	FROM	TO	TYPE-ITEM
46	BLU	22	D2-3	D2-4	22,27
46	BLU	22	D1-3	D1-4	22,27
35	RED	22,24	T1-2	T2-2	22,24
36	WHT	22,24	T1-6	T2-6	22,24
32	ORN	19	CI-POS	F3-1	*A,18
33	BLK	19	CI-NEG	PI-3	28,30
	ORN	*A,18	F3-2	PI-1	28,30
34	BLK	19	C2-POS	PI-6	28,30
	GRN	*A,18	F2-2	PI-4	28,30
31	GRN	*A,18	F2-1	C2-NEG	19
35	RED	*A,18	F1-2	PL2-B	20
35	RED	19	PL1-B	PL2-B	20
36	WHT	19	PL1-T	PL2-T	20
37	BLK	19	PL1-G	PL2-G	20
6	VIO	*A	TR-1	T2-6	22
6	GRY		TR-2	T2-3	22
6	WHT		TR-3	T2-2	22
6	BRN		TR-4	T1-6	22
6	RED		TR-5	T1-4	22
6	ORN		TR-6	T1-3	22
6	YEL		TR-7	P2-1	28,30
6	BLU		TR-8	D2-4	22,27
6	YEL-BLK		TR-9	P2-2	28,30
6	GRN		TR-10	P2-9	28,30
6	YEL		TR-11	P2-3	28,30
6	GRN		TR-12	P2-7	28,30
6	BLK		TR-13	P2-4	28,30
6	BLK-WHT		TR-14	P2-5	28,30
6	BLU		TR-15	D1-4	22,27
6	BLK-YEL	*A	TR-16	P2-6	28,30

*LETTER DESIGNATION "A" INDICATES WIRE IS TO BE SOLDERED PER TABLE ABOVE (WIRE TABLE)

JUMPER TABLE		
ITEM NO.	FROM	TO
25	T1-7	T1-8
25	T1-8	T1-9
25	T1-11	T1-12
25	T2-7	T2-8
25	T2-10	T2-11
25	T2-11	T2-12



REV.	CHANGE NO.

FIRST USED ON OPTION/MODEL
 VR14

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
FRACTIONS DECIMALS ANGLES
$\pm .005$ $\pm .008$ $\pm 0'30"$
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
+ + +
FINISH
+ + +

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN	DATE 10/15/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS TITLE POWER SUPPLY ASSY (VR14)	
CHKD	DATE 10/16/70		
ENGR	DATE 11/6/70		
PROD	DATE 12/5/70		
NEXT HIGHER ASSY		SIZE CODE	NUMBER
D-UA-VR14-0-0		D	7007084-0-0
SCALE NONE		SHEET	2 OF 2
		DIST.	G

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QUANTITY / VARIATION																			
MADE BY D. Crabbe		CHECKED D. Crabbe		SECTION		7007084-1		7007084-2		7007084-3		7007084-4		7007084-5		7007084-6							
DATE 10/9/70		DATE 10/22/70		1																			
ENG <i>D. Crabbe</i>		PROD <i>R. Petersen</i>		ISSUED SECT.																			
DATE 11/6/70		DATE 11/11/70		1																			
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																					
1	E-IA-7408402-0-0	PLATE, SIDE MTG.																					
2	B-MD-7408416-0-0	COVER, PROTECTION																					
3	D-IA-7408433-0-0	COVER, CAPACITOR HOLDDOWN																					
4	E-IA-7007147-0-0	POWER SUPPLY CABLE HARNESS																					
5	D-SC-7007084-0-1	POWER SUPPLY CIRCUIT SCHEMATIC																					
6	1610160-0	TRANSFORMER MMC-3833-1 MERRIMACK																					
7	1010143-0	CAPACITOR, 5900 MFD 75V SPRAGUE																					
8	9007242	FUSE HOLDER #HKP																					
9	9007224	7 AMP SLO BLO FUSE (115V)																					
10	9007218	3 AMP SLO BLO FUSE (230V)																					
11	9008838	10 AMP FAST BLO FUSE (230V)																					
12	A-DC-7408407-0-0	SCOTCHCAL (VR14)																					
13	1201252	RECEP #160-5 MALE AMPH.																					
14	1201251	RECEP #160-4 FEM AMPH.																					
15	9006760	TERMINAL #2101-06-00 SHAKE PROOF																					
16		FOAM 1/2 x 3/4 STICKY BACK 3M																					
17	9007031	TIE WRAP SST-1-B																					
18	9107305	SHRINKIES																					
19	9006776	SOLDERLESS CONN #31889 (RED) AMP																					
20	9006780	SOLDERLESS CONN #34144 (RED) AMP																					
21	9006904	TERM STRIP #6-541 CINCH JONES																					
22	9007917	FASTON TAB #50902 AMP																					
TITLE POWER SUPPLY ASSY (VR14)				ASSY NO. D-AD-7007084-0-0				SIZE CODE A PL		NUMBER 7007084-0-0				REV. F		ECO NO. VR14-00022							
				SHEET 1 OF 3				DIST. 6															

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QUANTITY / VARIATION																			
MADE BY D. Crabbe		CHECKED D. Crabbe		SECTION		7007084-1		7007084-2		7007084-3		7007084-4		7007084-5		7007084-6							
DATE 10/9/70		DATE 10/22/70		1																			
ENG <i>D. Crabbe</i>		PROD <i>R. Petersen</i>		ISSUED SECT.																			
DATE 11/6/70		DATE 11/11/70		1																			
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																					
23	9007112	FASTON TAB #60145-1 AMP																					
24	9007269	FASTON TAB #41287-1 AMP																					
25	9007131	JUMPERS #541 CINCH JONES																					
26	1105799	DIODE PACK DM15 SOLARTRON																					
27	9007925	PIGGYBACK FASTONS #3000H21A ARKLESS																					
28	1209351-06	SOCKET HSG (MALE) #1480273-1 MATE-N-LOK																					
29	1209351-09	SOCKET HSG (MALE) #1480274-1 MATE-N-LOK																					
30	1209378-01	CONTACT PIN (MALE) MATE-N-LOK																					
31	9107370-55	#14GA TEF STRD INS WIRE (GRN)																					
32	9107370-33	#14GA TEF STRD INS WIRE (ORN)																					
33	9107440-03	#14GA TEF STRD INS TWP (BLK-ORN)																					
34	9107440-05	#14GA TEF STRD INS TWP (BLK-GRN)																					
35	9107360-22	#18GA TEF STRD INS WIRE (RED)																					
36	9107360-99	#18GA TEF STRD INS WIRE (WHT)																					
37	9107360-00	#18GA TEF STRD INS WIRE (BLK)																					
38	9006864	SPACER, AL. #6-32 TAP 1/4 AF x 1 1/4																					
39	9006560	NUT, KEPS #6-32																					
40	9006021-1	SCR PHL PAN HD #6-32 x 5/16 SST																					
41	9006025-1	SCR PHL PAN HD #6-32 x 5/8 SST																					
42	9007919	FASTON TAP AMP																					
43	9006633	LOCK WASHER #6 INT TOOTH																					
44	9006070-1	SCR, PHL PAN HD #10-32 x 5/16 SST																					
TITLE POWER SUPPLY ASSY (VR14)				ASSY NO. D-AD-7007084-0-0				SIZE CODE A PL		NUMBER 7007084-0-0				REV. F		ECO NO.							
				SHEET 2 OF 3				DIST. 6															

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

QUANTITY / VARIATION

MADE BY	D. Crabbe	CHECKED	D. Crabbe	SECTION
DATE	10/9/70	DATE	10/22/70	1
ENG	<i>D.L. Crabbe</i>	PROD	<i>R. Peterson</i>	ISSUED SECT.
DATE	11/6/70	DATE	11/11/70	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			7007084-1	7007084-2	7007084-3	7007084-4	7007084-5	7007084-6						
45	9006635	LOCK WASHER #10 INT TOOTH	12	12	12	12	12	12						
46	9107370-66	# 14 AWG TEF STRDINS WIRE (BLUE)	A/R	A/R	A/R	A/R	A/R	A/R						
47	9007019-3	SCR, PHL TRUSS HD #10-32 X 5/16SST	4	4	4	4	4	4						

TITLE POWER SUPPLY ASSY (VR14)	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
	D-AD-7007084-0-0	A	PL	7007084-0-0	F	
SHEET 3 OF 3	DIST.					