

H720
power supply and
mounting box
engineering drawings

1st Edition March 1971

H720 Power Supply & Mounting Box

D-UA-H720-0-0	4	H720 Power Supply
A-PL-H720-0-0	3	H720 Power Supply (parts list)
D-CS-H720-0-1	1	H720 Circuit Schematic
D-CS-5408475-0-1	1	Power Regulator Board Assembly (A & B Models)
D-CS-5409267-0-1	1	Power Regulator Board Assembly (E & F Models)
D-UA-11/20-0-0	2	Basic Assy/Configuration (PDP-11)
D-UA-H960-CA-0	1	Cabinet Assembly (PDP-11)
D-UA-KY11-A-0	1	Console Assembly KY11-A
D-UA-KY11-B-0	1	Console Assembly KY11-B
D-UA-KY11-C-0	1	Console Assembly KY11-C
E-UA-H952-HA-0	1	Table Assembly
E-UA-BA11-0-0	1	Chassis Assembly (BA11)

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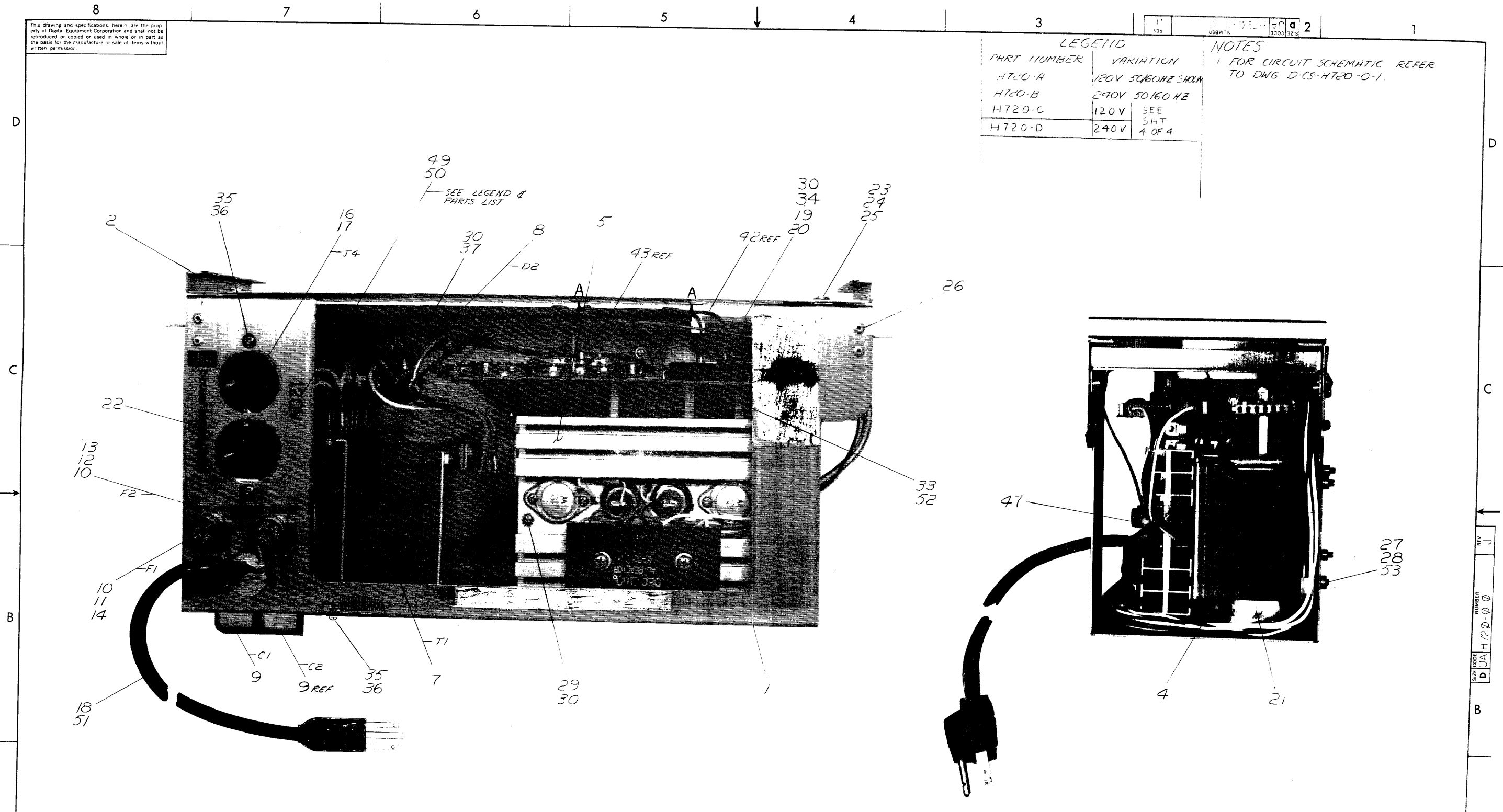
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FLIP CHIP FOCAL
DIGITAL COMPUTER LAB
UNIBUS

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LEGEND	
PART NUMBER	VARIATION
H720-A	120V 50/60HZ SHOWN
H720-B	240V 50/60 HZ
H720-C	120V SEE 3HT
H720-D	240V 4 OF 4

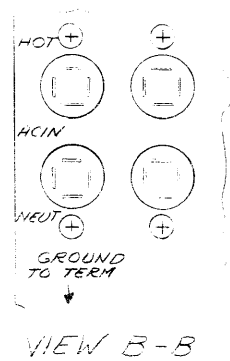
NOTES
 1 FOR CIRCUIT SCHEMATIC REFER TO DWG D-CS-H720-0-1.



REV	DATE	BY	CHKD	DESCRIPTION
1	11-10-70	W. J. H.		REVISED TO 120V
2	11-10-70	W. J. H.		REVISED TO 240V
3	11-10-70	W. J. H.		REVISED TO 120V
4	11-10-70	W. J. H.		REVISED TO 240V
5	11-10-70	W. J. H.		REVISED TO 120V
6	11-10-70	W. J. H.		REVISED TO 240V
7	11-10-70	W. J. H.		REVISED TO 120V
8	11-10-70	W. J. H.		REVISED TO 240V

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE		
	SCALE		
	SHEET 1 OF 4		
	SIZE CODE NUMBER REV DUA H720 0 0 J		

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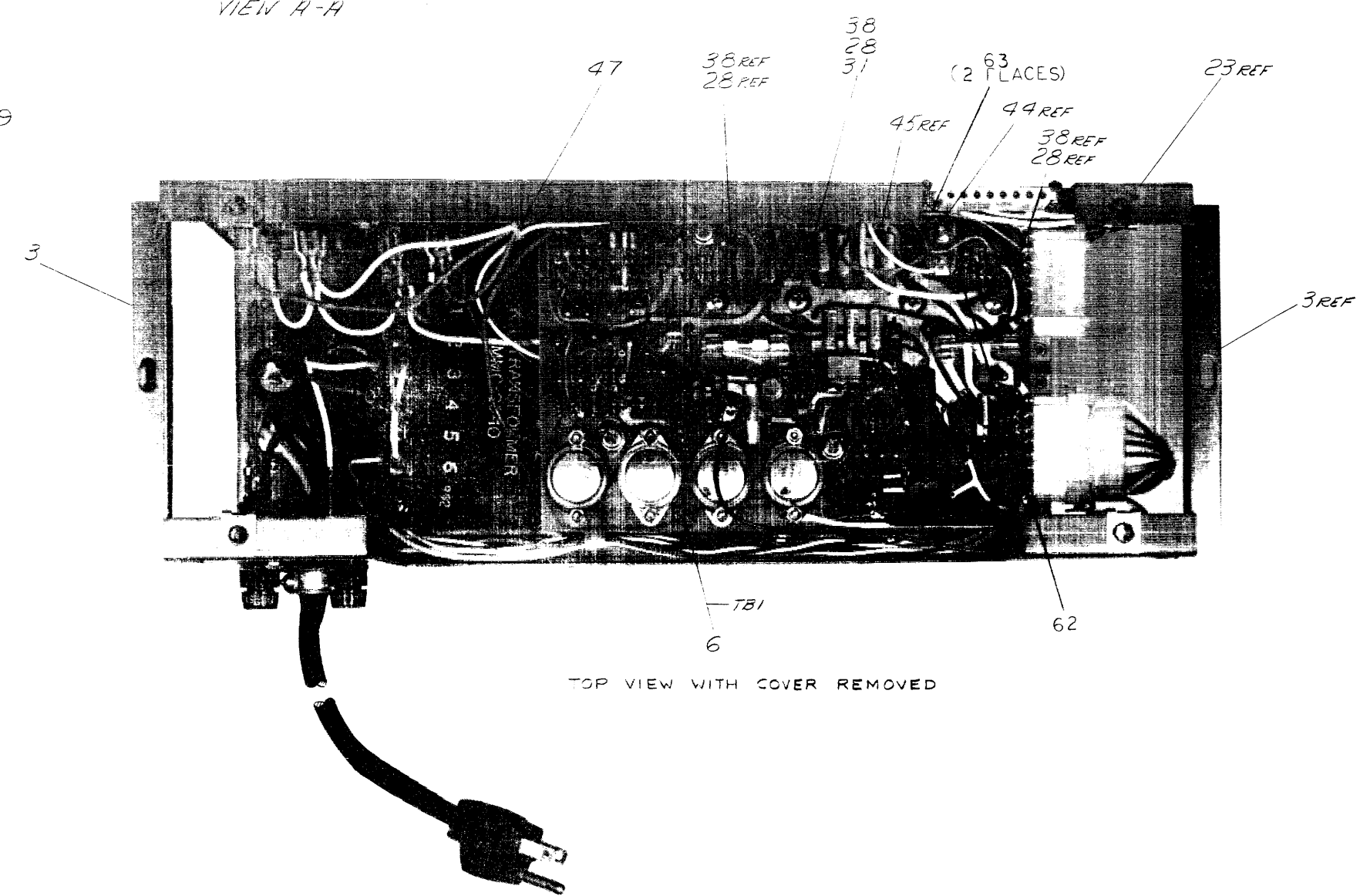
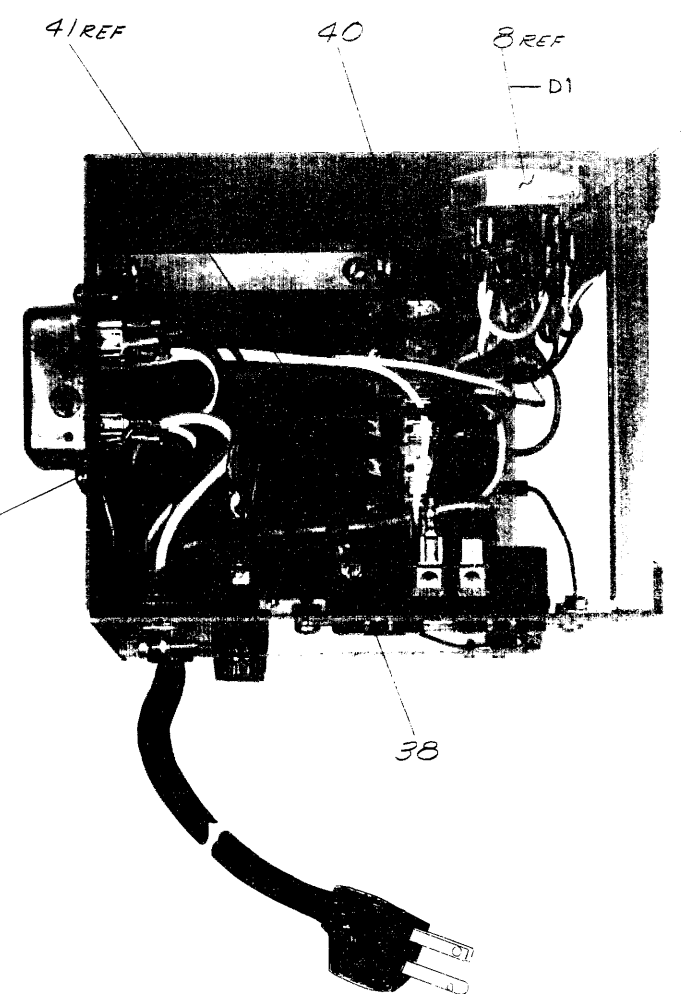
22 REF

CAUTION
CHECK TRANSFORMER
TAPS BEFORE USING

INPUT VOLTAGE	JUMPER	LINE
120 10%	3-6, 1-4	3, 4
218 10%	2-5	3, 4
225 10%	2-6	3, 4
233 10%	1-5	3, 4
240 10%	1-6	3, 4

2 REF

VIEW H-H



TOP VIEW WITH COVER REMOVED

REV	CHANGE NO.

FIRST USED ON OPTION / MODEL
PDF 11/20

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	MARCOTTE	DATE	-28-70
CHK'D.	RUSS	DATE	2-3-70
ENG.	BLAH	DATE	2-4-70
PROJ. ENG.	CADY	DATE	2-5-70
PROD.	MAX DSVNA D	DATE	2-4-70
MATERIAL			
FINISH			
D-UR-11/20-0-0		SCALE	
SHEET 2 OF 4		SIZE CODE	DUA
		NUMBER	H720 0 0
		REV.	J

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

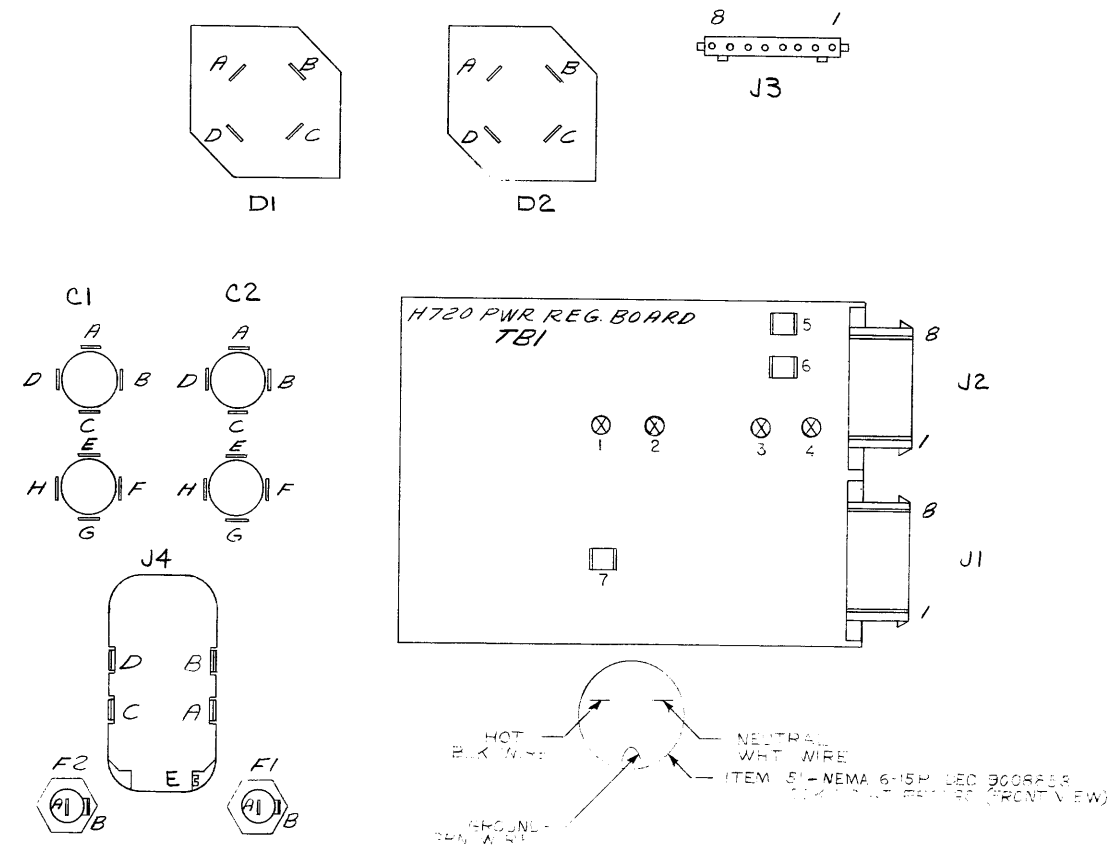
TITLE
H720 POWER
SERIES ASSEMBLY

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0-0-022471 2
338 338717M 3002 3215

WIRED TABLE						WIRED TABLE					
ITEM NO.	DESCRIPTION	FROM	TO	ITEM NO.	DESCRIPTION	FROM	TO				
5	EE	FAH	TBI-7	42	14	WHT	T1-3				
18	14	BLK	C1-A	42	14	WHT	T1-3				
18	14	WHT	C1-E	42	14	WHT	T1-11				
18	14	GRN	J4-E	42	14	WHT	C2-C				
*41	14	RED	T1-1	42	14	WHT	C2-D				
41	14	RED	T1-7	42	14	WHT	CI-F				
41	14	RED	C2-E	42	14	WHT	DI-B				
41	14	RED	C2-F	42	14	WHT	DI-B				
41	14	RED	C2-H	42	14	WHT	DI-C				
41	14	RED	CI-B	43	14	BLK	T1-9				
41	14	RED	F1-B	45	18	WHT	T1-10				
41	14	RED	T1-4	46	18TWP	WHT	T1-6				
41	14	RED	DI-A			BLK	F2-B				
41	14	RED	D2-A	46	18TWP	WHT	C2-A				
41	14	RED	D2-A	46	18TWP	BLK	T1-1				
				44	18	RED	T1-8				
				63	CAP		TBI-3				

NOTES:
 1. WIRING IN CHART IS FOR H720-A P/S TO CONVERT TO H720-B P/S DELETE WIRING FROM T1-3 TO T1-6 & T1-1 TO T1-9, SHOWN BY ASTERISK (*), ADD WIRE FROM T1-1 TO T1-6
 2. ITEM 51 SHOWN FOR PROPER COWLING OF 240 VOLT PLUG



QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE: H720 POWER SUPPLY ASSEMBLY		
	DATE: 2-3-70		
	SCALE: 1:1		
	SHEET 3 OF 4		

REV	NO.
CHK	

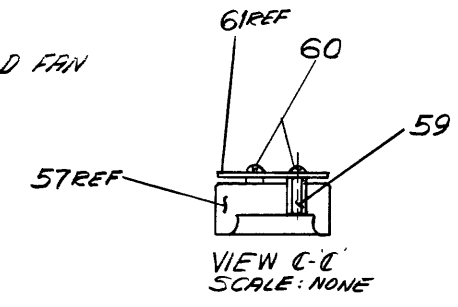
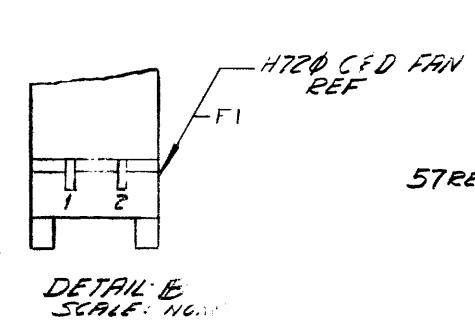
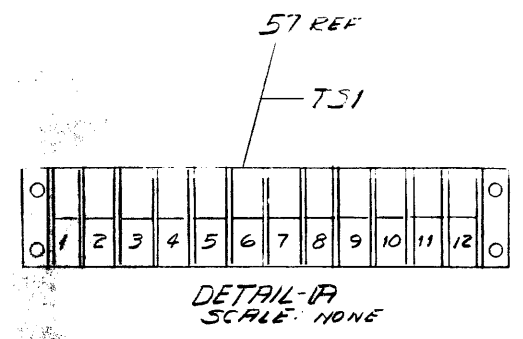
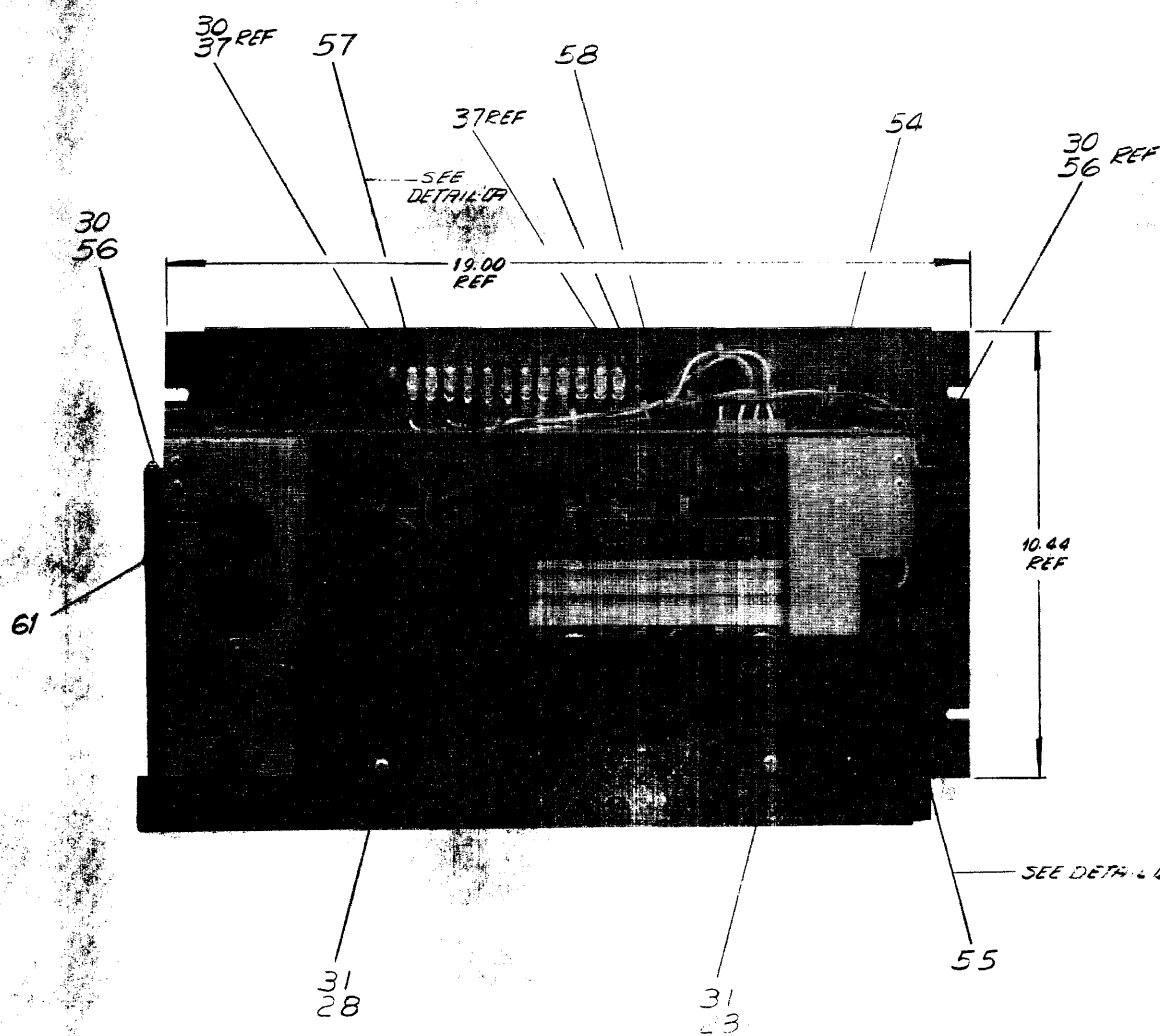
DEC FORM NO. 190-100

REV. J
 NUMBER 1
 PART NO. H720-0-0

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WIRE TABLE					
ITEM NO.	DESCRIPTION	FROM HARNESS	TO P.S.	REMARKS	
	AWG	COLOR	POINT NO.	LOCATION	
58	14	WHT	1	T51-1	
	14	RED	2	T51-2	
	14	WHT	3	T51-3	
	14	RED	4	T51-4	
	14	WHT	5	T51-5	
	14	RED	6	T51-4	
58	22	YEL	7	T51-5	

WIRE TABLE					
ITEM NO.	DESCRIPTION	FROM HARNESS	TO P.S.	REMARKS	
	AWG	COLOR	POINT NO.	LOCATION	
58	22	VIO	8	T51-6	
	11	BLU	9	T51-7	
	22	ORN	10	T51-8	
	22	BRN	11	T51-9	
	22	GRN	12	T51-10	
	14	BLK	13	T51-11	
58	14	RED	14	T51-12	
58	14	RED	15	F1-2	SOLDER-55
58	14	WHT	16	F1-1	SOLDER-55



REVISIONS	REV
CHANGE NO.	
CHK	

FIRST USED ON OPTION/MODEL
PDP11/20

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			
	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
	TITLE H720 POWER SUPPLY ASSEMBLY		
	NEXT HIGHER ASSY D-UA-11/20-0-0	SIZE CODE DUA	NUMBER H720-0-0
	SCALE NONE		REV J
	SHEET 4 OF 4	DIST.	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS					QTY/VAR						
MADE BY P. MARCOTTE			CHECKED K. RUSS		SECTION						
DATE 1/26/70			DATE 1/29/70		1						
ENG <i>C.P. Blasi</i>			PROD <i>Mac Donald</i>		ISSUED SECT.						
DATE 2/4/70			DATE 2/4/70		1						
ITEM NO.	DWG NO./PART NO. CL BASIC VAR.	DESCRIPTION			H720-A	H720-B	H720-C	H720-D	UNIT COST	UNIT QUANTITY	QUANTITY ISSUED
1	E-IA-5308519-0-0	PWR SUPPLY CHASSIS			1	1	1	1			
2	C-MD-5308518-0-0	PWR SUPPLY COVER			1	1	1	1			
3	C-MD-5308521-0-0	BRKT SUPPORT			2	2	2	2			
4	D-MD-5308520-0-0	CAPACITOR BRKT			1	1	1	1			
5	D-AD-5408525-0-0	HEAT SINK ASSY			1	1	1	1			
6	D-AD-5408475-0-0	PWR REGULATOR BD ASSY			1	1	1	1			
7	1609810	TRANSFORMER MMC 2940			1	1	1	1			
8	1105799	DIODE BRIDGE DM15			2	2	2	2			
9	1002153	CAPACITOR 2 X .1 MFD 1000V			2	2	2	2			
10	9007242	FUSEHOLDER 15 AMP 250 V			2	2	2	2			
11	9007227	FUSE AGC 15 AMP SLO-BLO			1		1				
12	9007222	FUSE AGC 5 AMP-SLO-BLO			1		1				
13	9007220	FUSE AGC 4 AMP SLO-BLO				1		1			
14	9007225	FUSE AGC 10 AMP SLO-BLO				1		1			
15	1809668	ROME X 3/8 CONN			1	1	1	1			
16	1205351	AC DUPLEX OUTLET			1		1				
17	9008856	OUTLET DUPEX NEMA 6-15R				1		1			
18	9107673-15	#14/3 600V PWR CORD 15 FT LG			1	1	1	1			
19	1209340-00	AMP CONN #1-480459-0			1	1	1	1			
20	1209379-01	CONTACT AMP #60619-4			8	8	8	8			
21	1009189	CAPACITOR 22,000 MFD 50V			2	2	2	2			
22	B-DC-5308524-0-0	P/S DECALS			A	BA	BAR	AR			
TITLE H720 POWER SUPPLY				ASSY NO. D-UA-H720-0-0	SIZE A	CODE PL	NUMBER H720-0-0			REV. J	ECO NO. H720-00013
SHEET 1 OF 3				DIST. 6							

DEC FORM NO. 16-1027
DRA 123

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QTY/VAR							
MADE BY P. MARCOTTE		CHECKED K. RUSS		SECTION							
DATE 1/27/70		DATE 1/29/70		1							
ENG <i>CRB</i>		PROD <i>Thom Donald</i>		ISSUED SECT.							
DATE 2/4/70		DATE 2/4/70		1							
ITEM NO.	DWG NO./PART NO. CL BASIC VAR.	DESCRIPTION		H720-A	H720-B	H720-C	H720-D	UNIT COST	UNIT QUANTITY	QUANTITY ISSUED	
23	9008196	CLIP ON RECEP #82-47-104-15 SOUTHCO		4	4	4	4				
24	9008198	1/4 TURN FASTENER #82-11-160-16 SOUTHCO		4	4	4	4				
25	9008200	1/4 TURN FAST RET RING #82-32-101-17 SOUTHCO		4	4	4	4				
26	9009054	POP RIVET SD43BS		8	8	8	8				
27	9006072-1	SCR PHL PAN PD #10-32 X 7/16 LG		4	4	4	4				
28	9006635	LOCK WASHER, INT TOOTH #10		10	10	12	12				
29	9006028-1	SCR PHL PAN HD #6-32 X 1" LG		2	2	2	2				
30	9007649	LOCKWASHER EXT TOOTH #6		12	12	16	16				
31	9006071	SCR PHL TRUSS HD #10-32 X 3/8 LG		4	4	2	2				
32	9007596	CONN, ARKLESS #3000 M446		3	3						
33	9007871	SPACER, 3/8 AF X 1" LG #10-32		4	4	6	6				
34	9006021-1	SCR, PHL PAN HD #6-32 X 5/16 LG		6	6	6	6				
35	9006037-1	SCR, PHL PAN HD #8-32 X 3/8 LG		6	6	6	6				
36	9006563	NUT, KEPS #8-32		6	6	6	6				
37	9006026-1	SCR, PHL PAN HD #6-32 X 3/4 LG		4	4	8	8				
38	9007928	CONN, ARKLESS #50364		4	4	4	4				
39	9007925	CONN, ARKLESS #3000-H21A		4	4	4	4				
40	9007917	CONN, ARKLESS #50902		36	36	36	36				
41	9107370-22	WIRE #14 AWG STRD TEF INS (RED)		A/RA	BA	RA	A/R				
42	9107370-99	WIRE #14 AWG STRD TEF INS (WHT)		A/RA	BA	RA	A/R				
43	9107370-00	WIRE #14 AWG STRD TEF INS (BLK)		A/RA	BA	RA	A/R				
44	9107360-22	WIRE #18 AWG STRD TEF INS (RED)		A/RA	BA	RA	A/R				
TITLE H720 POWER SUPPLY				ASSY NO. D-UA-H720-0-0		SIZE CODE A PL		NUMBER H720-0-0		REV. J	ECO NO.
SHEET 2 OF 3				DIST.							

DEC FORM NO. 16-1027
DRA 123

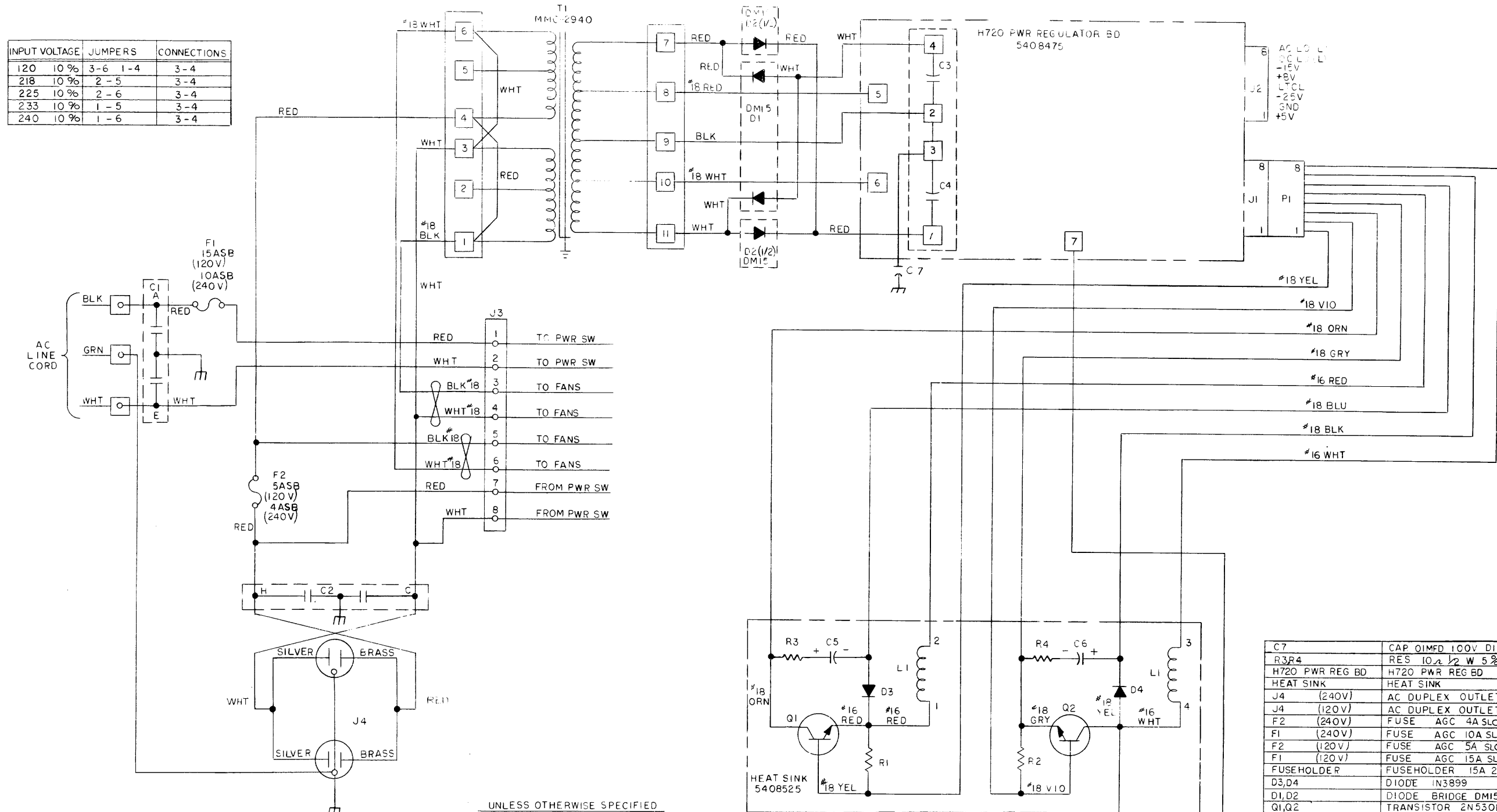
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST				QTY/VAR							
MADE BY P. MARCOTTE		CHECKED K. RUSS		SECTION							
DATE 1/27/70		DATE 1/29/70		1							
ENG <i>C. P. Chase</i>		PROD <i>thru</i>		ISSUED SECT.							
DATE 3/4/70		DATE 2/4/70		1							
ITEM NO.	DWG NO./PART NO. CL BASIC VAR.	DESCRIPTION		H720-A	H720-B	H720-C	H720-D	UNIT COST	UNIT QUANTITY	QUANTITY ISSUED	
45	9107360-99	WIRE #18 AWG STRD TEF INS (WHT)		A/RA/BA/RA/R							
46	9107430-09	WIRE #18 AWG TWP TEF INS (BLK/WHT)		A/RA/BA/RA/R							
47	9007031	TIE WRAP SST-1-B PANDUIT		A/RA/BA/RA/R							
48	9107254	TUBING, SHRINK WHT 3/16 DIA		A/RA/BA/RA/R							
49	A-DC-5308771-0-0	P/S DECALS (120V)		A/R	A/R						
50	A-DC-5308772-0-0	P/S DECALS (240V)			A/R	A/R					
51	9008853	PLUG Male #566 A.H.			1	1					
52	9006314	10-32 x 1/2 Set Scr		4	4	4	4				
53	9007081	CLAMP, 1/4" HOLUB		2	2	2	2				
REF	D-CS-H720-0-1	CIRCUIT SCHEMATIC									
REF	A-SP-H720-0-7	ADJUSTMENT PROCEDURE									
54	D-AD-7007110-0-0	FRAME ASSY				1	1				
55	9107305	TUBING SHRINCABLE 3/16 O.D.				2	2				
56	9006022-1	SCR PHL HD PAN 6-32X 3/8 SST				2	2				
57	9006917	TERMINAL STRIP # 12-541 CINCH JONES				1	1				
58	D-IA-7007115-0-0	WIRE HARNESS H720 C&D				1	1				
59	9006807	SPACER, 1/2 A.F.X 3/4 LG # 6				2	2				
60	9007853-1	SCR, PHL, PAN HD # 6-32X 1-1/8 LG				2	2				
61	B-MD-100156-12	PROTECTION, COVER (541 TERMSTRIP)				1	1				
62	1Ø-Ø161Ø	CAP .01 MFD 100V DISC CERAMIC		1	1	1	1				
63	9Ø-Ø793Ø	ARKLESS #50360		2	2	2	2				
TITLE H720 POWER SUPPLY				ASSY NO. D-UA-H72Ø-Ø-Ø		SIZE CODE A PL		NUMBER H72Ø-Ø-Ø		REV. J	ECO NO.
				SHEET 3 OF 3		DIST. G					

DEC FORM NO. 16-1027
DRA 123

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1-2-022H SO 1 d
3887N 3001 3/25

INPUT VOLTAGE	JUMPERS	CONNECTIONS
120	10%	3-6 1-4 3-4
218	10%	2-5 3-4
225	10%	2-6 3-4
233	10%	1-5 3-4
240	10%	1-6 3-4



REF DESIGNATION	DESCRIPTION	PART NO
C7	CAP OIMFD 100V DISC.	1001610
R3,R4	RES 10.2 1/2 W 5%	1300168
H720 PWR REG BD	H720 PWR REG BD	5408475-0-0
HEAT SINK	HEAT SINK	1209685
J4 (240V)	AC DUPLEX OUTLET	9008856
J4 (120V)	AC DUPLEX OUTLET	1205351
F2 (240V)	FUSE AGC 4A SLO-BLO	9007220
F1 (240V)	FUSE AGC 10A SLO-BLO	9007225
F2 (120V)	FUSE AGC 5A SLO-BLO	9007222
F1 (120V)	FUSE AGC 15A SLO-BLO	9007227
FUSEHOLDER	FUSEHOLDER 15A 250V	9007242
D3,D4	DIODE IN3899	1109781
D1,D2	DIODE BRIDGE DM15	1105799
Q1,Q2	TRANSISTOR 2N5301	1509737
R1,R2	RES 27 1/4 W 5% CC	1302558
C5,C6	CAP 1MFD 150V	1000063
C3,C4	CAP. 22000 MFD 50V	1009189
C1,C2	CAP 2 X 1MFD 1000V	1002153
P1	CONNECTOR 1 480460 0	1209340-01
J1,J2,J3	RECEPTACLE 1-480459-0	1209340-00
L1	TRANSFORMER COIL	1609762
T1	TRANSFORMER MMC 2940	1609810

UNLESS OTHERWISE SPECIFIED
WIRE IS #14 GAUGE (STRANDED)

CIRCUIT SHOWN WIRED FOR 120V.
FOR DIFFERENT VOLTAGE REFER TO JUMPER TABLE.

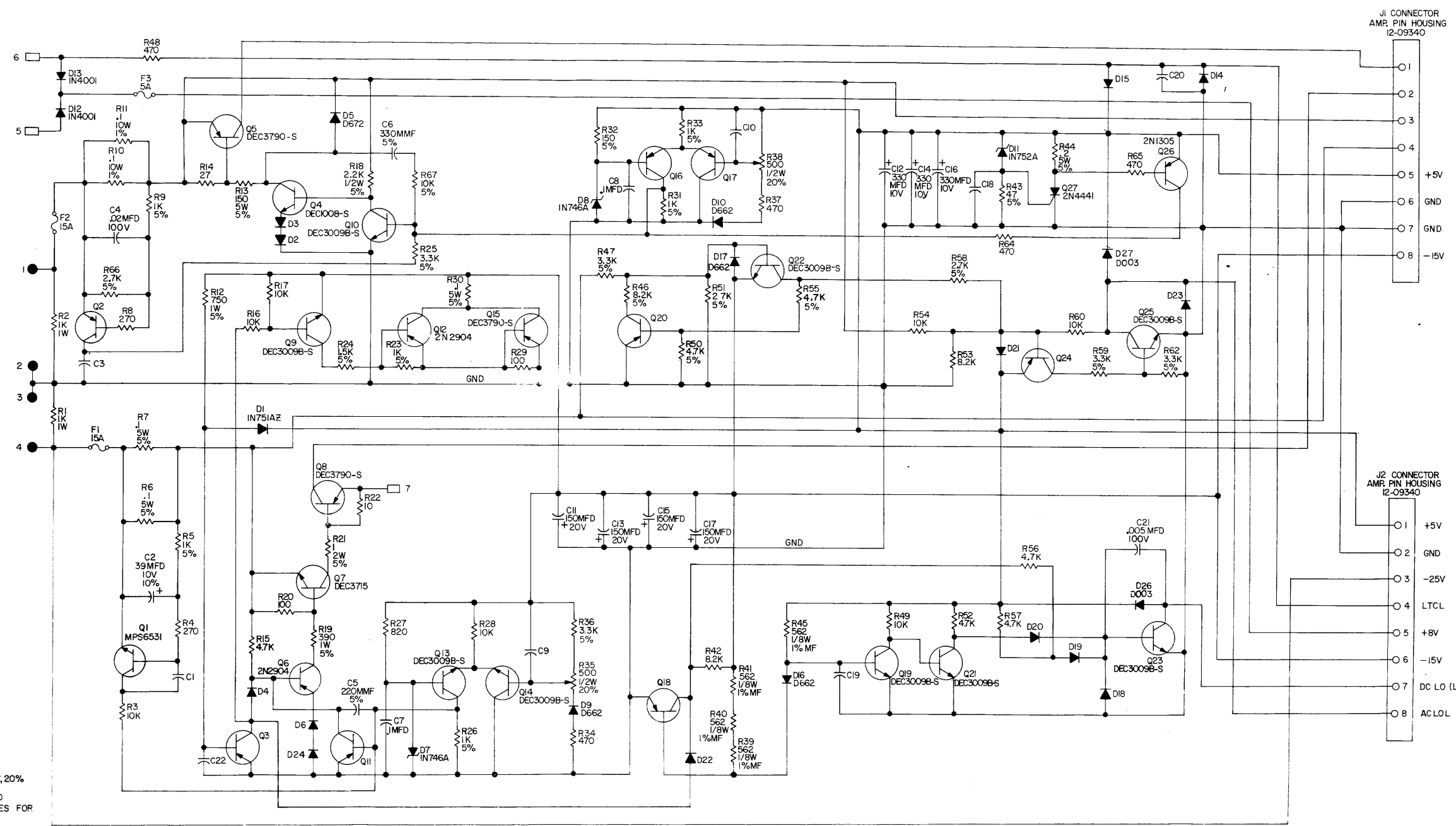
REV	DATE	BY	CHKD
1	12/10/69
2	2/16/70
3	3/17/70

TRANSISTOR & DIODE CONVERSION CHART			
DATE	DEC	EIA	DATE
2N5301		SAME	
IN3899		SAME	

digital POWER SUPPLY H720
EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PRINTED CIRCUIT REV

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5408475-0-1
D CS
REV. F



UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 10%
CAPACITORS ARE 0.1MFD, 100V, 20%
DIODES ARE D664
TRANSISTORS ARE DEC6534D
● INDICATES 1/64 DIA HOLES FOR MOUNTING CAPACITORS
□ INDICATES FAST ON TABS

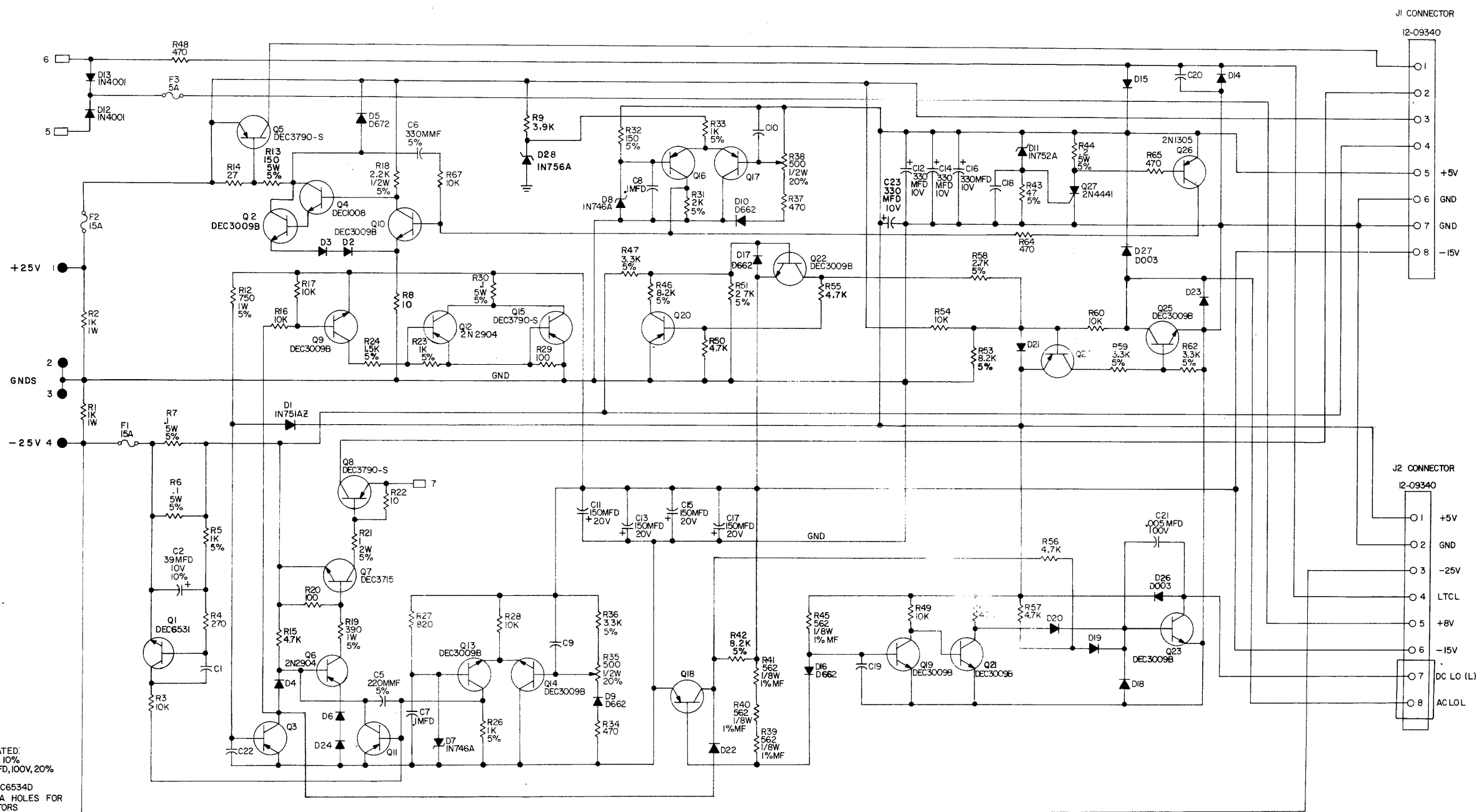
NOTE: "A" BOARDS HAVE BEEN RETRO-FITTED TO "B" BOARD EXCEPT FUSE (F3-5AMP)
NOTE: GROUND JUMPER WILL NOT SHOW ON CKT. SCHEM.

REV	DATE	BY	CHKD	DATE	BY	PROJ
1	00001	A				
2	00002	A				
3	00003	B				
4	00004	B				
5	00005	C				
6	00006	D				
7	00007	E				
8	00008	F				

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
MPS6531	SAME		
2N4441	SAME		
D672	IN3653		
DEC3715	2N213		
D662	IN752A		
D664	IN5606		
IN4001	SAME		
IN746A	SAME		
IN751A2	SAME		

digital EQUIPMENT CORPORATION
 TITLE: 740 PWR SUP
 BOARD: 5408475
 NUMBER: 5408475-0-1
 REV: F
 PRINTED CIRCUIT REV: 10

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UNLESS OTHERWISE INDICATED:
 RESISTORS ARE 1/4W, 10%
 CAPACITORS ARE .01MFD, 100V, 20%
 DIODES ARE D664
 TRANSISTORS ARE DEC6534D
 ● INDICATES 1/16 DIA HOLES FOR MOUNTING CAPACITORS
 □ INDICATES FAST ON TABS

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
2N1305	SAME		
DEC6531	MP6531		
2N4441	SAME		
D672	1N3653	1N756A	
DEC3715	2N3715	1N756A	1N994
2N2904	SAME	0003	
D662	1N6415	1N752A	SAME
D664	1N3606	DEC634D	MP6534
1N4001	SAME	DEC3790 S	2N3790
1N746A	SAME	DEC3009B	2N3009B
1N751A	SAME	DEC1008	MM1008

REVISIONS	DATE	BY	CHKD	APP'D
1	2/22/71	J. COOPER		
2	3/1/71			
3	3/1/71			

digital TITLE REGULATOR BOARD
 5409267
 EQUIPMENT CORPORATION
 MAYNARD, MASSACHUSETTS
 SIZE D CODE CS NUMBER 5409267-0-1 REV A
 PRINTED CIRCUIT REV B

SHEET NO. 1
 NUMBER 5409267-0-1
 REV. A
 D CS

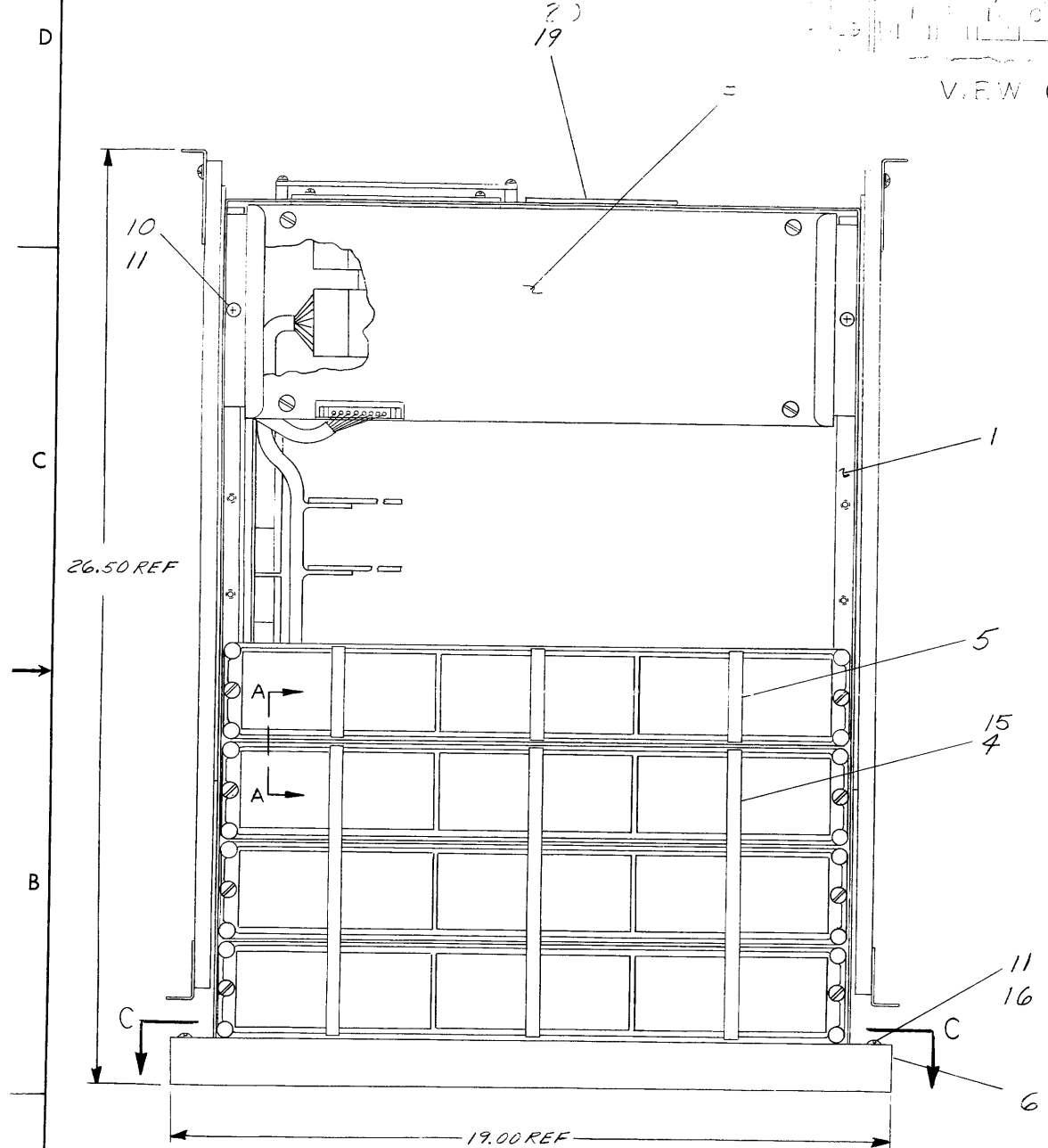
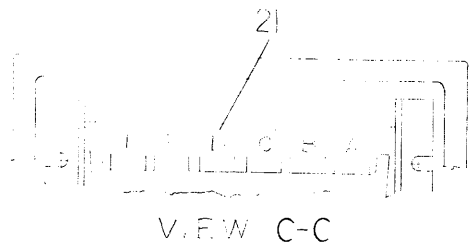
Pink

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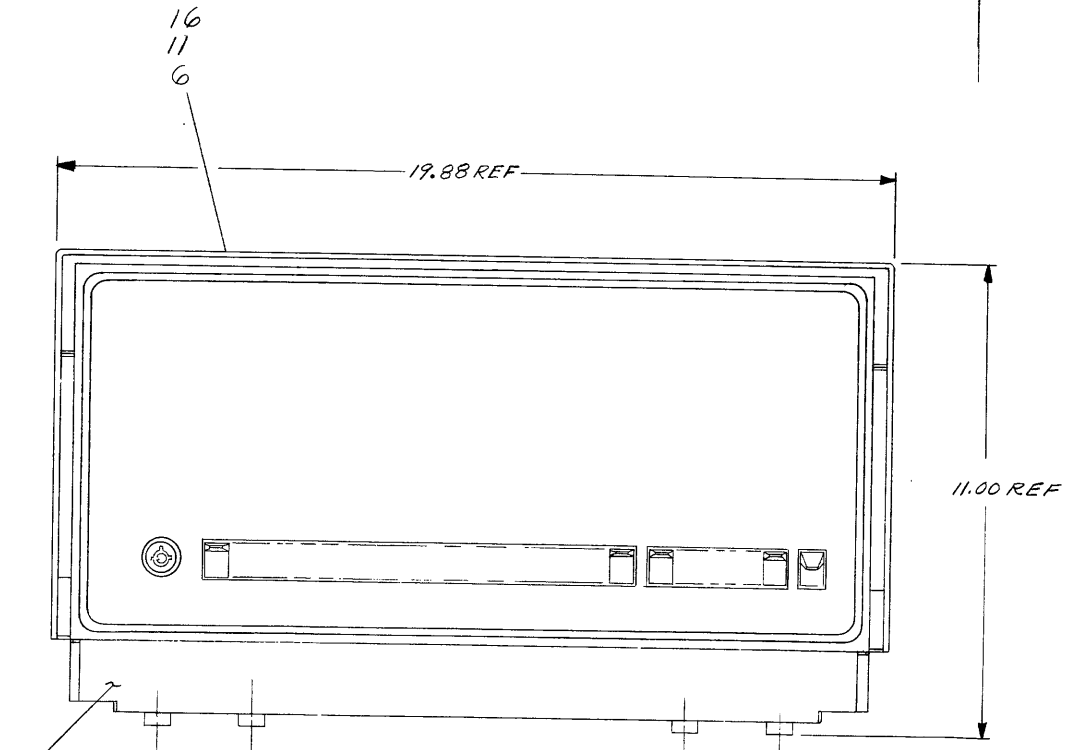
0-0-03/11/20-0-0 2

NUMBER	VARIATION	
11/20-AA	RACK MOUNTED, TTY	115V 60HZ
11/20-AB	RACK MOUNTED, TTY	230V 50HZ
11/20-BA	TABLE MODEL, TTY	115V 60HZ
11/20-BB	TABLE MODEL, TTY	230V 50HZ
11/20-CA	CAB. MODEL, TTY	115V 60HZ
11/20-CB	CAB. MODEL, TTY	230V 50HZ
11/20-DA	RACK MOUNTED, TTY - (OEM)	115V 60HZ
11/20-DB	RACK MOUNTED, TTY - (OEM)	230V 50HZ
11/20-EA	TABLE MODEL, TTY - (OEM)	115V 60HZ
11/20-EB	TABLE MODEL, TTY - (OEM)	230V 50HZ
11/20-FA	CAB. MODEL, TTY - (OEM)	115V 60HZ
11/20-FB	CAB. MODEL, TTY - (OEM)	230V 50HZ
11/20-HA	RACK MOUNTED, NOTTY - (OEM)	115V 50/60HZ
11/20-HB	RACK MOUNTED, NOTTY - (OEM)	230V 50/60HZ
11/20-JA	TABLE MODEL, NOTTY - (OEM)	115V 50/60HZ
11/20-JB	TABLE MODEL, NOTTY - (OEM)	230V 50/60HZ
11/20-KA	CAB. MODEL, NO TTY - (OEM)	115V 50/60HZ
11/20-KB	CAB. MODEL, NO TTY - (OEM)	230V 50/60HZ

- NOTES**
- FOR LOG INDEX LIST REFER TO D-DI-11/20-0-1.
 - HOLES #A9 & #A50 ARE USED TO MOUNT CHASSIS SLIDE (PART OF ITEM #1) FOR CAB MODEL.
 - ITEMS #7, #9 FOR SHIPMENT ONLY, TO BE REMOVED AFTER FINAL SHIPMENT. REAR SCREW OF BRKT TO BE INSTALLED BACK INTO TRACK.
 - WHEN 6 UNIT SPACES ARE FILLED SYSTEM WILL REQUIRE ADDITIONAL EXPANDER UNIT (ITEM #18) & H720 P/S (ITEM #3).
 - M920 INTERNAL BUS CONN SUPPLIED WITH EACH ADDITIONAL LOGIC OPTION. FOR CONNECTING OPTIONS IN BASIC UNIT WITH OPTIONS IN EXPANDER UNIT (ITEM #18) USE CABLE BC11A-8F-0 (PART OF ITEM #18).



VIEW OF BASIC UNIT WITH TOP COVER REMOVED (RACK MTD)



FRONT VIEW (TABLE MODEL) OF BASIC UNIT WITH SUPER COVER. EXPANDER UNIT THE SAME EXCEPT IN PLACE OF ITEM #1, 6, 11 & 16 USE ITEM #18

REV	CHK	DATE	BY

FIRST USED ON OPTION/MODEL
PCPII

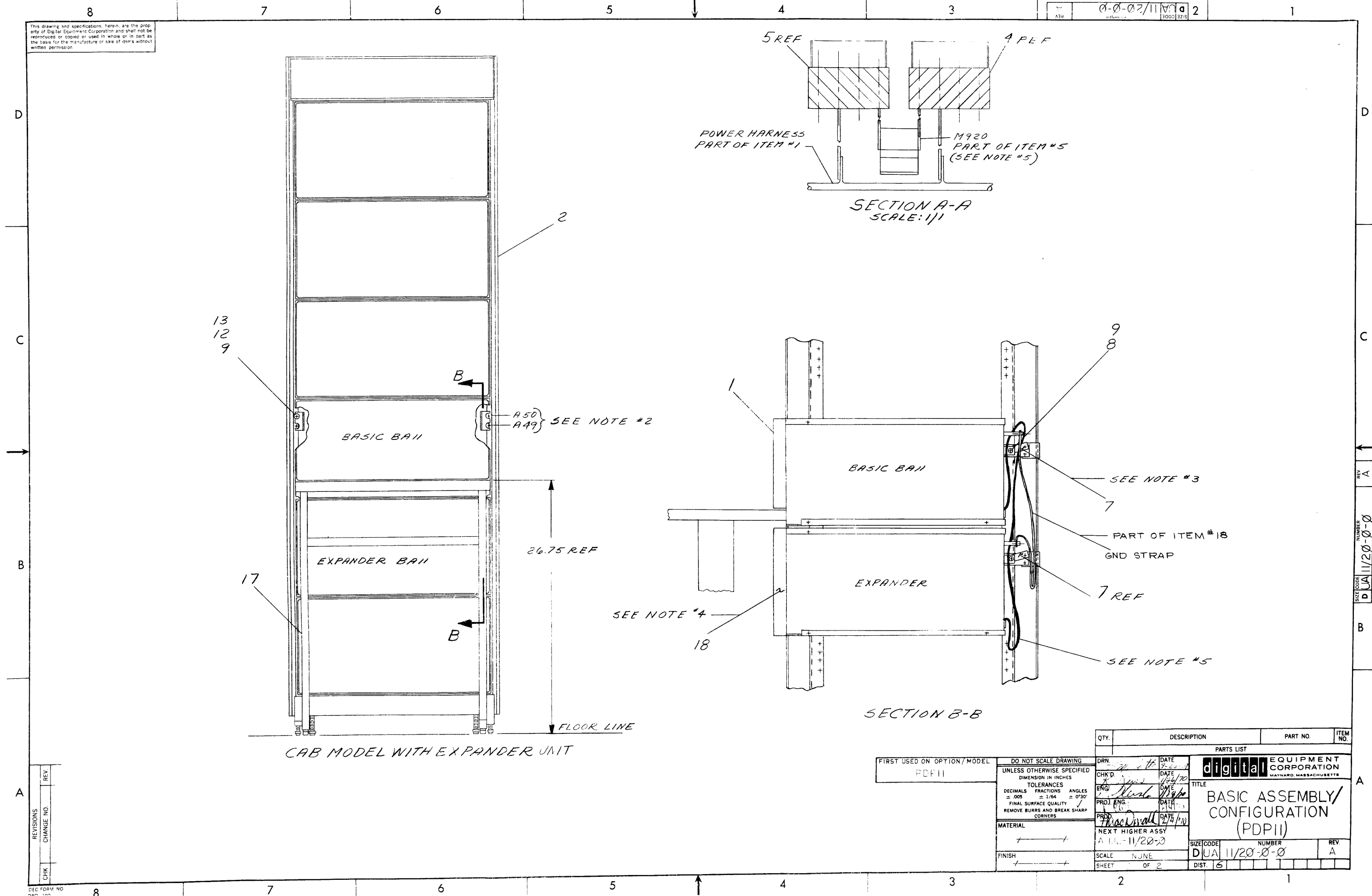
DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS FRACTIONS ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
TITLE BASIC ASSY			
CONFIGURATION (PCPII)			
SCALE 1/2		SIZE CODE DUA 11/20-0-0	NUMBER
SHEET 1 OF 2		DIST.	REV.

REV A
NUMBER
DUA 11/20-0-0

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0-0-02/11/70 a 2



CAB MODEL WITH EXPANDER UNIT

SECTION B-B

SECTION A-A
SCALE: 1/1

REVISIONS	NO.	REV.
CHANGE NO.		
CHK.		

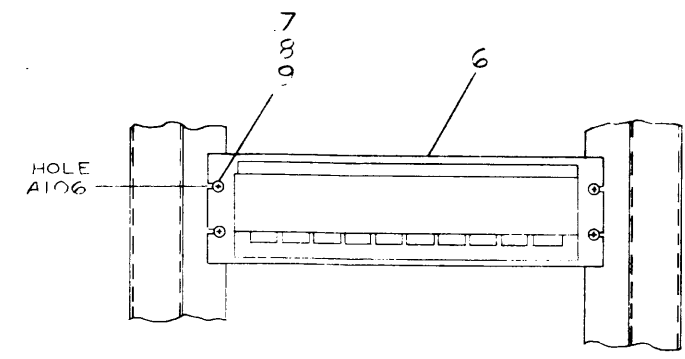
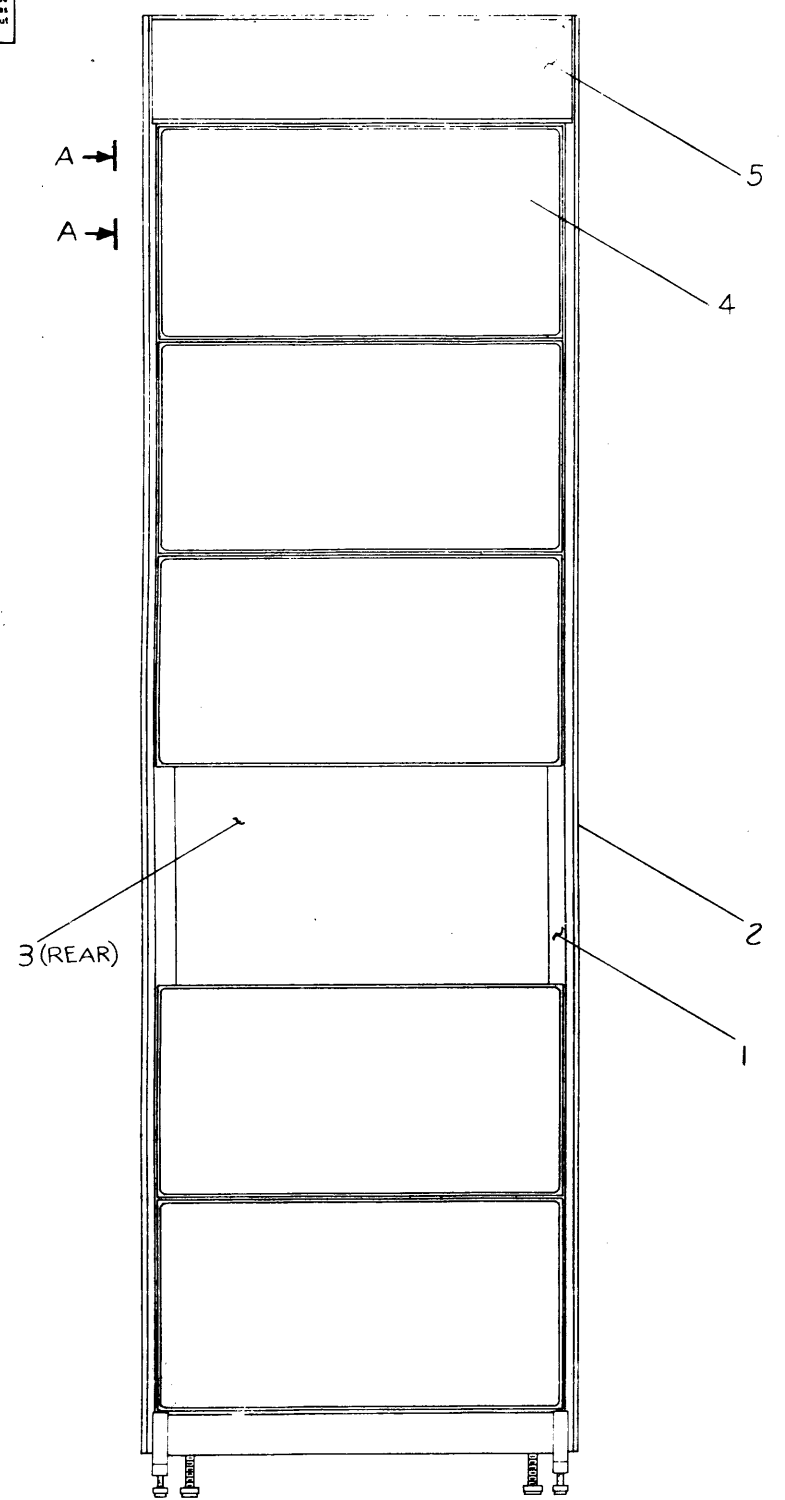
FIRST USED ON OPTION/MODEL	DO NOT SCALE DRAWING
PDF11	UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
	TOLERANCES
	DECIMALS FRACTIONS ANGLES
	± .005 ± .125 ± 0°30'
	FINAL SURFACE QUALITY ± 1/16
	REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL	
FINISH	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
CHK'D.	DATE	TITLE	
ENG.	DATE	BASIC ASSEMBLY/ CONFIGURATION	
PROJ. ENG.	DATE	(PDF11)	
PROD.	DATE	SIZE CODE	NUMBER
		DUA 11/20-0-0	REV. A
NEXT HIGHER ASSY		SCALE	
A 11-11/20-0		NONE	
		SHEET	
		OF 2	
		DIST.	
		6	

REV. A
NUMBER DUA 11/20-0-0
SIZE CODE B

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NOTES:
 1. FOR DWG INDEX LIST REFER TO D-DI-H960-CA-1
 2. FOR ASSEMBLY INSTRUCTIONS SEE DWG. D-OC-H950-0-0 & D-OC-H952-0-0.
 3. FOR INSTALLATION IN PDP11 SYSTEM REFER TO DWG D-UA-PDP11-20-0.



VIEW A-A
 SCALE: NONE
 VIEW SHOWN MINUS ITEMS 2 & 4

REV	A
DATE	11-28
BY	EVAN
CHKD	
ENG	
PROJ	
APPD	

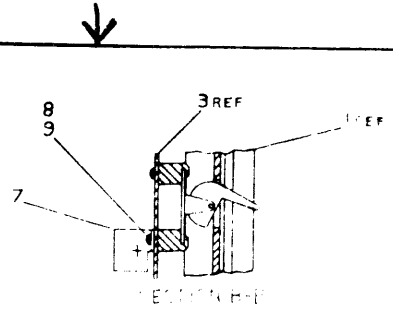
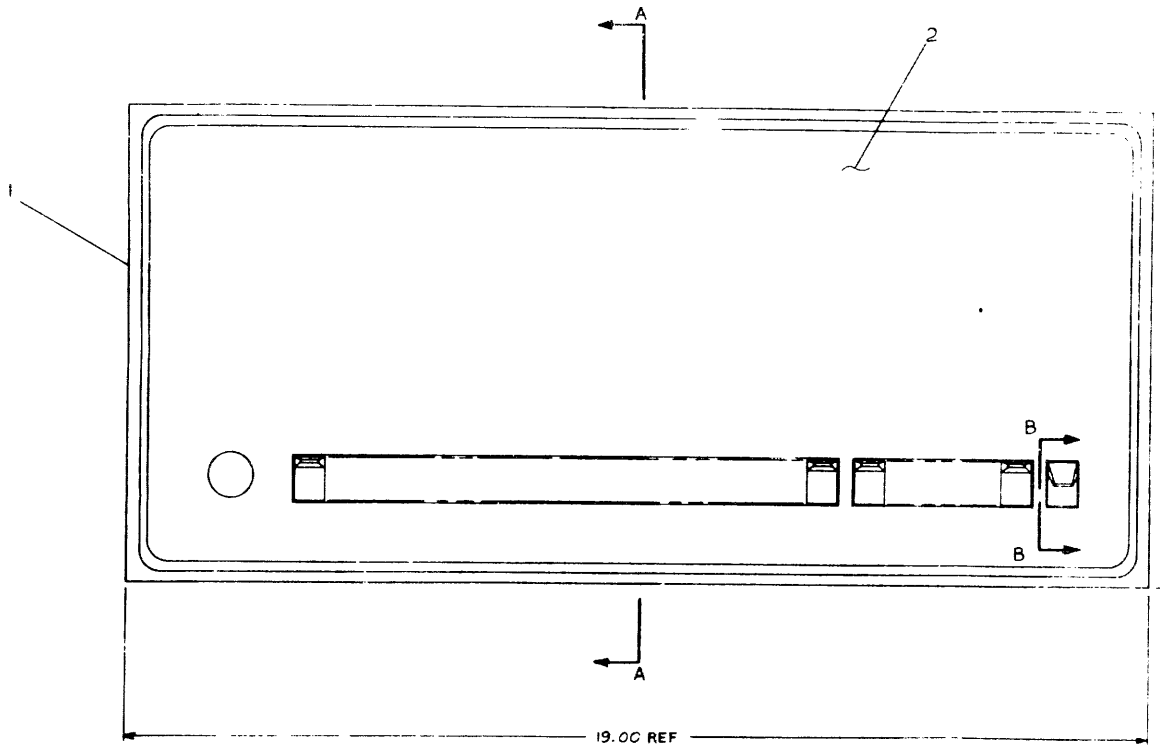
FIRST USED ON OPTION/MODEL PDP11	DO NOT SCALE DRAWING UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES ± .005 ± 1/64 ± 0'30" FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	DATE 9/2/69 DATE 3/20/69 DATE 1/1/69 DATE 1/1/69 DATE 1/1/69	DATE 9/2/69 DATE 3/20/69 DATE 1/1/69 DATE 1/1/69 DATE 1/1/69	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	TITLE CABINET ASSY (PDP11)
FINISH	D-UA-PDP11-20-0	SCALE	NONE	SIZE/CODE	NUMBER
SHEET	2	DIST.	DUA H960-CA-0	REV	A

REV A
 DUA H960-CA-0

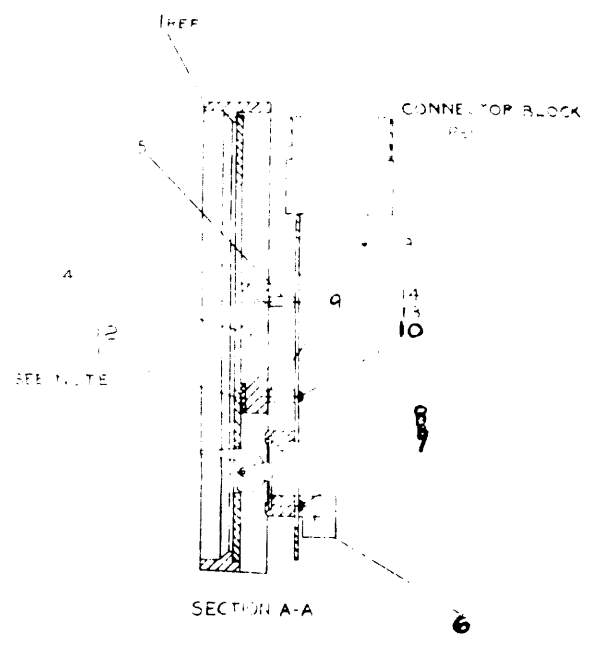
REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED TO ADD PART 11	10/15/51
2	REVISED TO ADD PART 12	10/15/51
3	REVISED TO ADD PART 13	10/15/51
4	REVISED TO ADD PART 14	10/15/51
5	REVISED TO ADD PART 15	10/15/51
6	REVISED TO ADD PART 16	10/15/51
7	REVISED TO ADD PART 17	10/15/51
8	REVISED TO ADD PART 18	10/15/51
9	REVISED TO ADD PART 19	10/15/51
10	REVISED TO ADD PART 20	10/15/51
11	REVISED TO ADD PART 21	10/15/51
12	REVISED TO ADD PART 22	10/15/51
13	REVISED TO ADD PART 23	10/15/51
14	REVISED TO ADD PART 24	10/15/51
15	REVISED TO ADD PART 25	10/15/51

J
H
F
E
D
B
A



NOTES:
 VELCRO TO BE CUT TO FIT SLOT ON
 PLEXIGLASS SUPPORT. ITEM 11 AND 12
 FILE TAPE TO ITEM 4 AND HOLES ARE TO
 ITEM 2



11 KYII-A-B

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED TO ADD PART 11	10/15/51
2	REVISED TO ADD PART 12	10/15/51
3	REVISED TO ADD PART 13	10/15/51
4	REVISED TO ADD PART 14	10/15/51
5	REVISED TO ADD PART 15	10/15/51
6	REVISED TO ADD PART 16	10/15/51
7	REVISED TO ADD PART 17	10/15/51
8	REVISED TO ADD PART 18	10/15/51
9	REVISED TO ADD PART 19	10/15/51
10	REVISED TO ADD PART 20	10/15/51
11	REVISED TO ADD PART 21	10/15/51
12	REVISED TO ADD PART 22	10/15/51
13	REVISED TO ADD PART 23	10/15/51
14	REVISED TO ADD PART 24	10/15/51
15	REVISED TO ADD PART 25	10/15/51

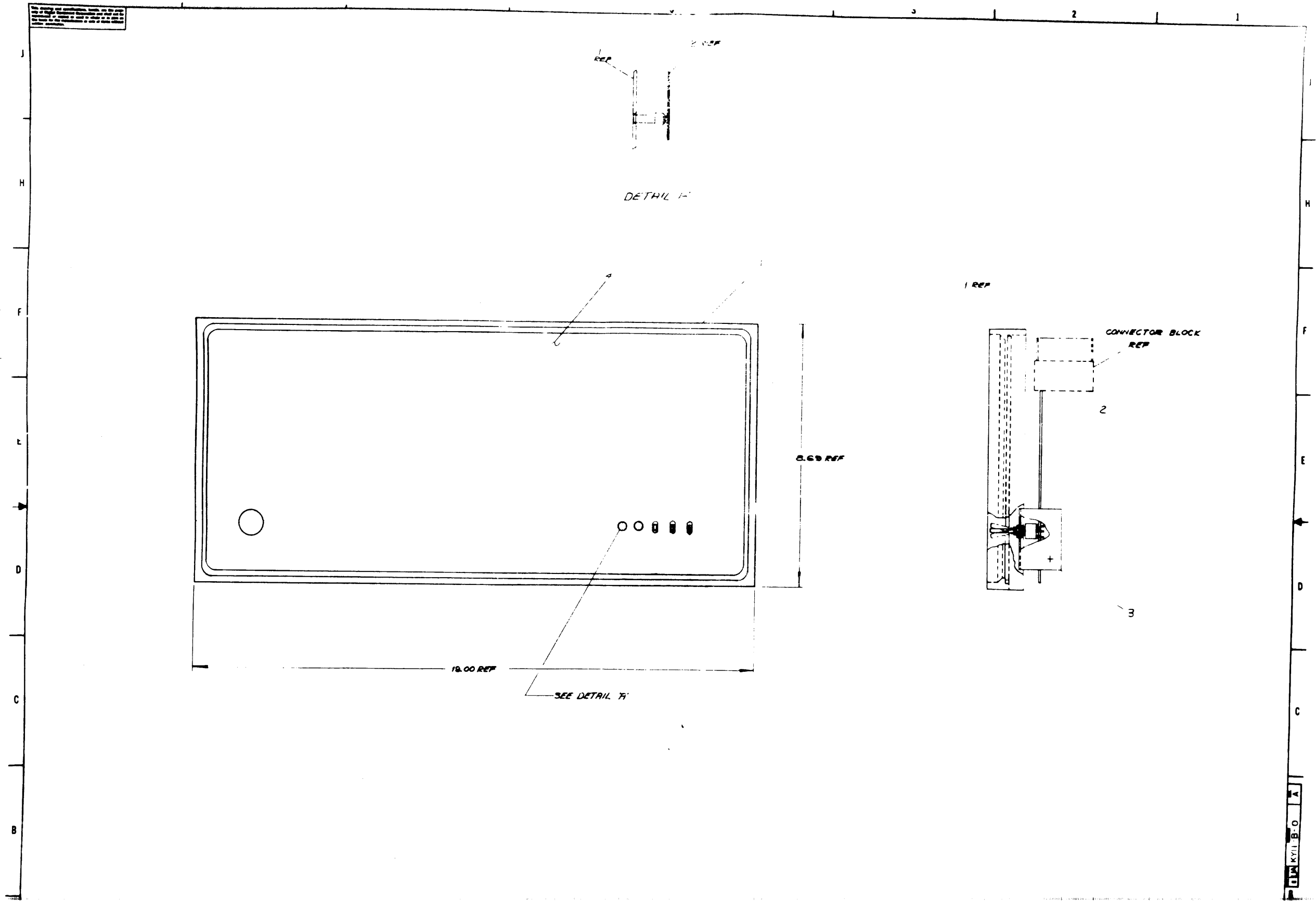
8 7 6 5 4 3 2 1

TOLERANCES
 DECIMALS
 UNLESS SPECIFIED
 ARE AS SHOWN

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	CONSOLE ASSY KYII-A	1	EA
2	11 KYII-A-B	1	EA
3	12 KYII-A-B	1	EA
4	13 KYII-A-B	1	EA
5	14 KYII-A-B	1	EA
6	15 KYII-A-B	1	EA
7	16 KYII-A-B	1	EA
8	17 KYII-A-B	1	EA
9	18 KYII-A-B	1	EA
10	19 KYII-A-B	1	EA
11	20 KYII-A-B	1	EA
12	21 KYII-A-B	1	EA
13	22 KYII-A-B	1	EA
14	23 KYII-A-B	1	EA
15	24 KYII-A-B	1	EA
16	25 KYII-A-B	1	EA

A

C



TOLERANCES UNLESS OTHERWISE SPECIFIED	
FRACTIONAL DIMENSIONS	± 0.005
DECIMAL DIMENSIONS	± 0.001
HOLES	± 0.005
PLACES	± 0.001

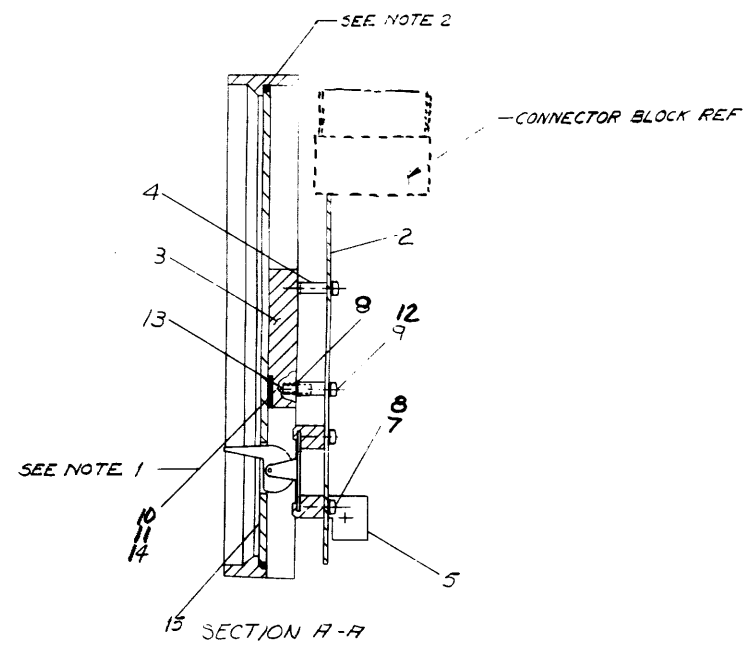
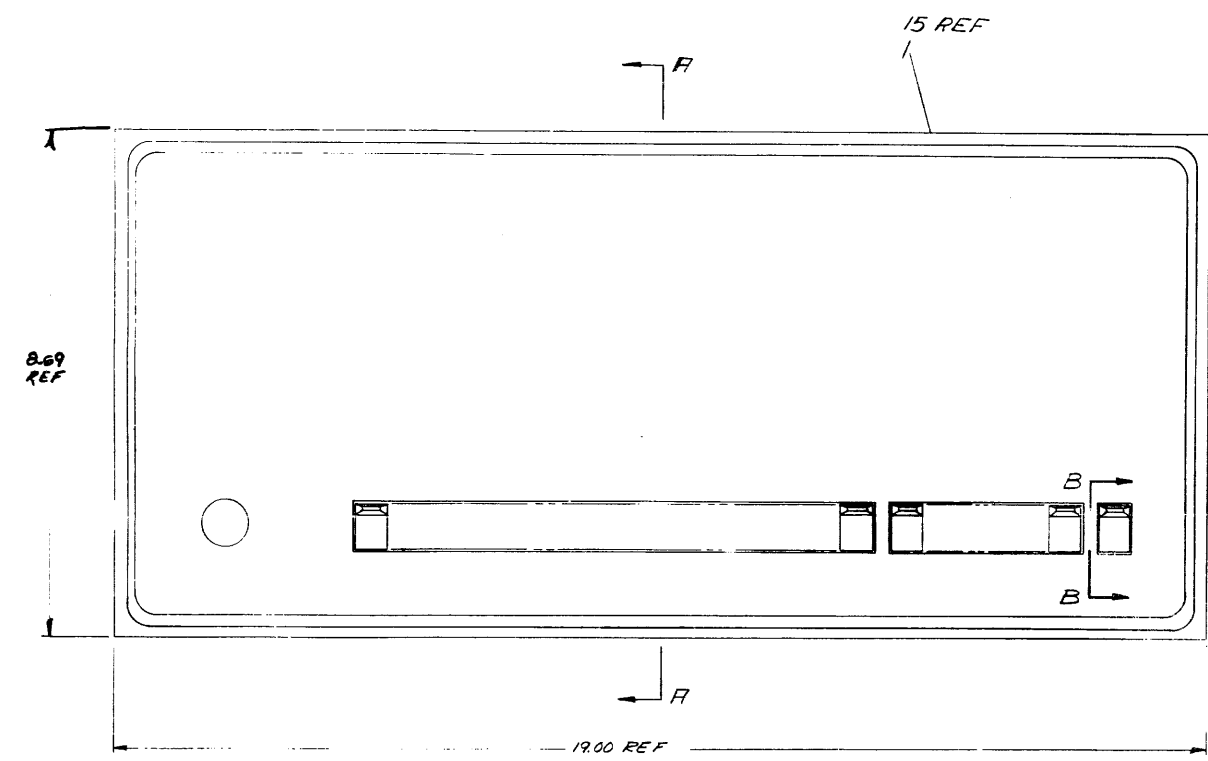
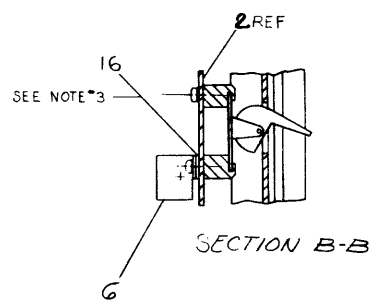
CONSOLE ASSY KYII-B KYII-B-0 1	EQUIPMENT CORPORATION PDP-11/70 018 818-0-0 11/71 1
--	---

KYII-B-0

The drawing and specifications herein, and the design and construction of the equipment, shall be the property of the United States Government and shall not be reproduced or copied in whole or in part, in any form, without the express permission of the Government.

NOTES:

1. VELCRO TO BE CUT TO FIT SLOT ON PLEXIGLAS SUPPORT (ITEM #3). ATTACH PALE TAPE TO (ITEM #3) AND HOOK TAPE TO ITEM #1.
2. ADHESIVE BOND ITEM #5 TO ITEM #1 WITH SCOTCH #2216 B/A ADHESIVE & CURE 12 HOURS AT ROOM TEMPERATURE WHILE ON FACE. BOND AREA TO BE AS SHOWN ALL AROUND.
3. NYLON WASHER (ITEM #16) MUST BE INSERTED BETWEEN BRACKET (ITEM #6) AND CONSOLE BD ASSY (ITEM #2).

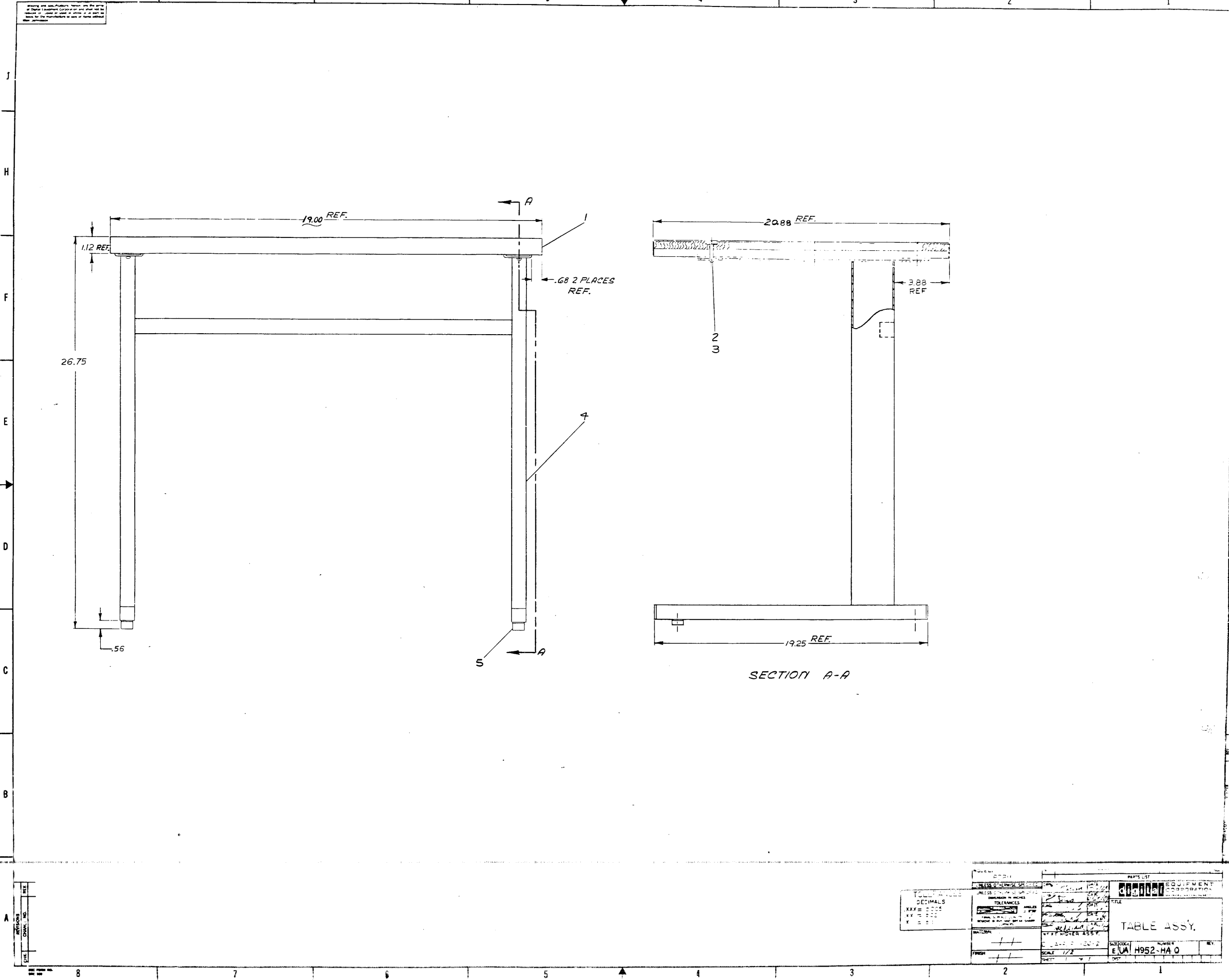


DRAWN BY: M. J. GAGNON
 CHECKED BY: C. DEWEY
 DATE: 6-1-71

QTY.	DESCRIPTION	PART NO.	UNIT
1	CONSOLE ASSY (KYII-C)		

EQUIPMENT CORPORATION
 CONSULE ASSY (KYII-C)
 SCALE: 1/2" = 1"

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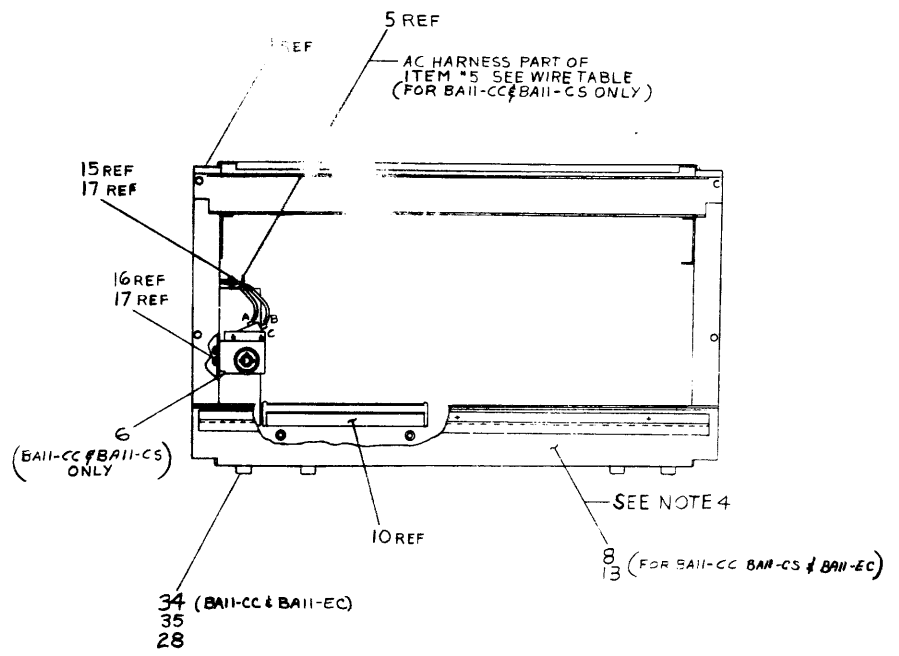
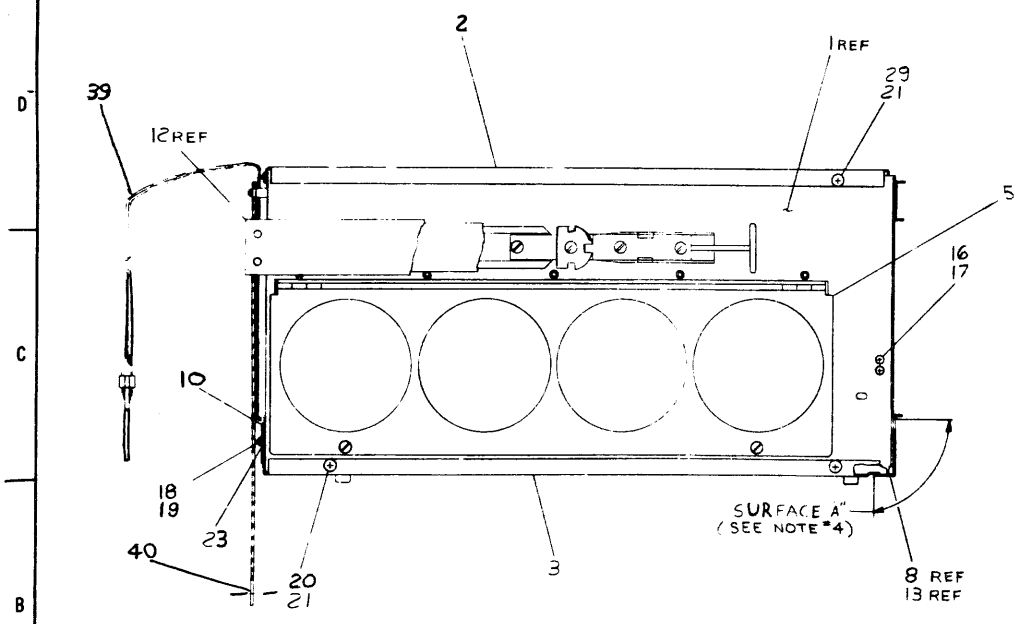
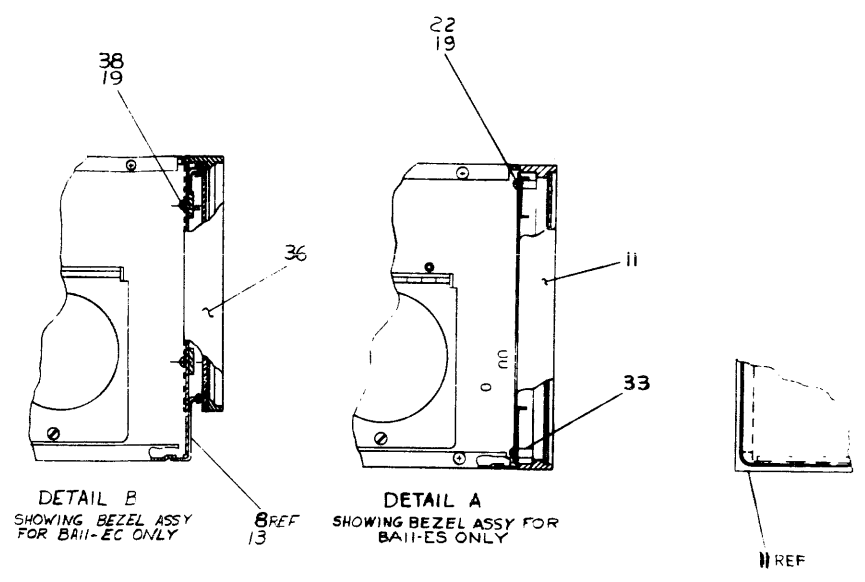
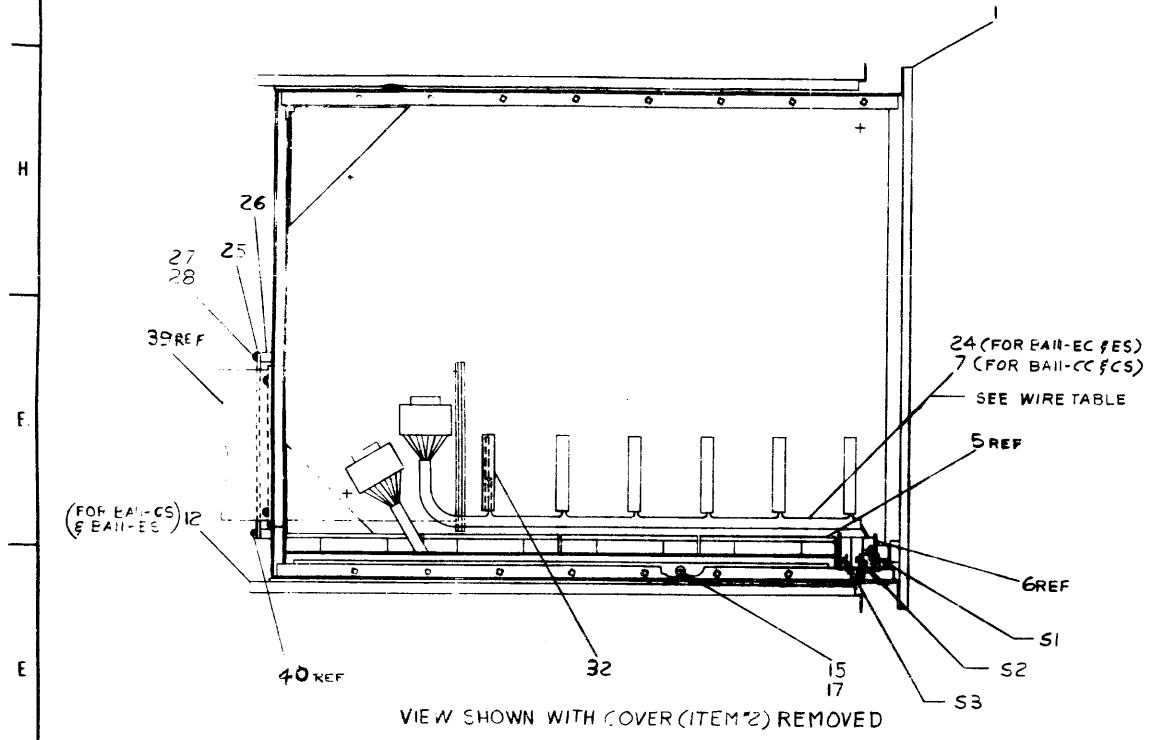
SECTION A-A

TOLERANCES DECIMALS .XX = .005 .X = .01 Y = .01		UNLESS OTHERWISE SPECIFIED FINISHES ++ ---		PARTS LIST EQUIPMENT CORPORATION TITLE TABLE ASSY. NUMBER EUA H952-HA 0	
FINISH ++ ---		SCALE 1/2" = 1" SHEET 1 OF 1		DATE 10/1/52 DRAWN BY EJA CHECKED BY EJA	

WIRE TABLE					
ITEM NO.	AWG	COLOR	FROM CONNECTION	TO CONNECTION	REMARKS
1	14	RED	1	S2-B	SOLDER
2	14	WHITE	2	S2-B	
3	14	RED	3	S1-A	
4	14	WHITE	4	S2-A	
5	14	RED	5	S2-A	
6	14	BLUE	6	S3-B	
7	14	BLUE	7	S3-A	SOLDER

LEGEND	
NUMBER	VARIATION
BAIL-CC	CABINET MODEL (BASIC)
BAIL-CS	CABINET MODEL (BASIC)
BAIL-EC	CABINET MODEL (EXPANDER)
BAIL-ES	CABINET MODEL (EXPANDER)

NOTES:
 1 FOR DWG INDEX LIST SEE D-L-BAIL-0-1.
 2 FOR BASIC CONFIGURATION DWG SHOWING BAIL INSTALLED IN CAB REFER TO DWG D-UA-11/20-0-0 & D-UA-11/10-0-0.
 3 FOR BREAKDOWN OF VARIATIONS SEE DWG AND PARTS LIST.
 4 COVER SURFACE A AS INDICATED WITH ITEM *9 (COVER STRIP) ENTIRE WIDTH, USING ITEM *13 FOR BAIL-CC, CS & EC.
 5 APPLY TAPE ITEM *20 & *31 TO SMOOTH SIDE OF INLAY (ITEM *4) AROUND EDGES AS SHOWN. THEN PLACE INLAY INTO BEZEL WITH TAPE SIDE DOWN. PRESS DOWN AROUND EDGES TO INSURE GOOD BOND.
 6 FOR SUPER COVER (ITEM *4) INSTALLATION REFER TO DWG D-AD-7006524-0-0



REV	DATE	DESCRIPTION
1	11/20/53	ISSUED FOR PRODUCTION
2	11/20/53	REVISION
3	11/20/53	REVISION
4	11/20/53	REVISION
5	11/20/53	REVISION
6	11/20/53	REVISION
7	11/20/53	REVISION

QTY	DESCRIPTION	PART NO.	UNIT
1	CHASSIS ASSEMBLY (BAIL)	BAIL-0-0	E

EQUIPMENT CORPORATION
 CHASSIS ASSEMBLY (BAIL)
 D-UA-11/20-0-0
 SCALE: 1/2" = 1"

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MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-PL-LT33-DC-0		1	TELETYPE ASR33-TU 120V
A-SP-LT33-0-5		2	TTY MODIFICATION PROCEDURE
A-SP-LT33-0-6		4	TTY ALIGNMENT/TEST PROCEDURE
A-SP-LT33-0-8		1	TTY ACCEPTANCE PROCEDURE
A-SP-LT33-0-10		1	TTY PACKING PROCEDURE
A-SP-LT33-0-11		1	TTY INSTALLATION PROCEDURE
A-AL-LT33-0-12		1	TTY ACCESSORY LIST
B-44 -4915-0-0	Ref.	1	TTY READER CONTROL 4915
- FOR IN HOUSE USE ONLY -			
A-SP-LT33-0-3	REF	5	TTY 33ASR-TU SPECIFICATION

REVISIONS				DRN. P. MARCOTTE	DATE 2/18/70	digital EQUIPMENT CORPORATION <small>MAYNARD, MASSACHUSETTS</small>	TITLE LT33-DC TELETYPE 120V 60HZ
REV.	DATE	CHG. NO.	APP'D.	CHK'D.	DATE		
A	072770	00003	C.B.	K. RUSA	2/19/70		
				ENG. <i>W. Quinn</i>	5/13/70		
				PROJ. ENG. <i>C.B. Quinn</i>	5/13/70		
				PRD. <i>Mad...</i>	5/13/70		
				FIRST USED ON			
				11/70		SIZE	CODE
				SCALE	#	A	ML
				SHEET	OF	NUMBER	REV.
				1	1	LT33-DC	A
						DIST.	

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DIGITAL EQUIPMENT CORPORATION																																												
MAYNARD, MASSACHUSETTS																																												
ENGINEERING SPECIFICATION				DATE 4/23/68																																								
TITLE MODIFICATION PROCEDURE FOR TELETYPE MODEL 33ASR-TU OR TBP																																												
REVISIONS																																												
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE																																						
	<p>The 33TBP and 33TU must be modified in the following manner:</p> <ol style="list-style-type: none"> Remove the WRU pawl from the function casting. It is the second pawl from the right of the casting. Ref: Vol. II - Sec: 574-122-700 page 6 Remove the blue lead from the 750Ω resistor post and reconnect it to the 1450Ω resistor post. Ref: Vol. I - Sec: 574-100-102 page 14 On the call control unit terminal strip the following wires are transferred: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Color of wire</th> <th style="text-decoration: underline;">Remove From</th> <th style="text-decoration: underline;">Connect To</th> </tr> </thead> <tbody> <tr> <td>Brown/White</td> <td>Term.3</td> <td>Term.5</td> </tr> <tr> <td>Blue/White</td> <td>Term.4</td> <td>Term.5</td> </tr> <tr> <td>Purple</td> <td>Term.8</td> <td>Term.9</td> </tr> </tbody> </table> Ref: Vol. I - Sec: 574-100-102 page 14 (fig.12) The leads of DEC cable #5288-2 which have red crimp lugs are connected to the call box terminal strip as follows: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Color of Wire</th> <th style="text-decoration: underline;">Term. No.</th> </tr> </thead> <tbody> <tr> <td>Grey/White</td> <td>3</td> </tr> <tr> <td>Red</td> <td>4</td> </tr> <tr> <td>Yellow/White</td> <td>6</td> </tr> <tr> <td>Black</td> <td>7</td> </tr> </tbody> </table> Mount the 4195 reader control card on the left side of the call control unit. A bracket is provided for mounting and is located to the right of arrow pointing to "plate" near the on-off switch. Connect the wires on one end of reader control card to locations as follows: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Color of Wire</th> <th style="text-decoration: underline;">Length of Wire</th> <th style="text-decoration: underline;">Origin</th> <th style="text-decoration: underline;">Connect To</th> </tr> </thead> <tbody> <tr> <td>Yellow/White</td> <td>6" approx.</td> <td>To sole-noid</td> <td>L2 of on-off switch</td> </tr> <tr> <td>Yellow/White</td> <td>6" approx.</td> <td>To reader switch</td> <td>L1 of on-off switch</td> </tr> <tr> <td>Yellow/White</td> <td>2' approx.</td> <td>---</td> <td>Plug #4 of call control unit (3rd hole from</td> </tr> </tbody> </table> 						Color of wire	Remove From	Connect To	Brown/White	Term.3	Term.5	Blue/White	Term.4	Term.5	Purple	Term.8	Term.9	Color of Wire	Term. No.	Grey/White	3	Red	4	Yellow/White	6	Black	7	Color of Wire	Length of Wire	Origin	Connect To	Yellow/White	6" approx.	To sole-noid	L2 of on-off switch	Yellow/White	6" approx.	To reader switch	L1 of on-off switch	Yellow/White	2' approx.	---	Plug #4 of call control unit (3rd hole from
Color of wire	Remove From	Connect To																																										
Brown/White	Term.3	Term.5																																										
Blue/White	Term.4	Term.5																																										
Purple	Term.8	Term.9																																										
Color of Wire	Term. No.																																											
Grey/White	3																																											
Red	4																																											
Yellow/White	6																																											
Black	7																																											
Color of Wire	Length of Wire	Origin	Connect To																																									
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Yellow/White	6" approx.	To reader switch	L1 of on-off switch																																									
Yellow/White	2' approx.	---	Plug #4 of call control unit (3rd hole from																																									

ENG <i>AC</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-5	REV
---------------	------	------------------	------------	--------------------	-----

ENGINEERING SPECIFICATION		CONTINUATION SHEET
TITLE MODIFICATION PROCEDURE FOR TELETYPE MODEL 33ASR-TU OR TBP		
Brown	---	Plug #4 of call control unit (3rd hole from right)
Ref: Sec: 574-100-102 page 14 (fig.12)		
6. Connect two SP4B4 thyrectors to the on-off switch as follows:		
a. One thyrector from position 2 to position 1 of the on-off switch.		
b. The other thyrector from position 2 to position L2 of the on-off switch.		

SIZE A	CODE SP	NUMBER LT33-0-5	REV
------------------	------------	--------------------	-----

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 4/23/68

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

TELETYPE ALIGNMENT PROCEDURE:

- A. Carefully check for damaged or obviously misaligned components.
Note: In the following sections, power is off unless noted.
- B. Main Shaft
 - 1. Clearance between slotted bronze bearing and collar .005
015
- C. Distributor Clutch
 - 1. Endplay between left bearing and clutch gear assembly .002
.008
 - 2. Clearance between brush holder and disc at closest point .025
025
 - 3. Clearance between shoe lever and stop lug with clutch disengaged and keyboard universal lever in down position .015 min.
 - 4. Increase in clearance recorded in step #3 after clutch has been engaged .050
.080
 - 5. Disengage clutch and depress any non-function key. Clearance between clutch shoe lever and trip lever with upper edge of clutch lever in line with upper edge of trip lever .015
.035
 - 6. Power on and keyboard universal lever in latched position. Clearance of clutch shoe lever beyond rear most surface of trip lever .000
.015
- D. Selector Clutch
 - 1. Disengage clutch. Endplay between clutch and side plate .002
.008

ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-6	REV
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DEC FORM NO. DRA 107

SHEET 1 OF 4

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

- 2. Disengage clutch. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever.
- 3. Disengage clutch lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in center of slot in trip lever
- E. Codebar Clutch .002
 - 1. Disengage clutch. Endplay at maximum .008
.002
 - 2. Endplay in latchlevers .012
 - 3. Typing unit in stop condition. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever
 - 4. Disengage clutch lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in slot in trip lever.
- F. Function Clutch .002
 - 1. Disengage clutch. Endplay between clutch and collar at maximum .008
 - 2. Typing unit in stop condition. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever.
 - 3. Disengage clutch. Lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in center of slot in trip lever.
- G. Rear Rail
 - 1. Power on. Perform carriage return. Power off. Release codebar clutch. Rotate main shaft until codebars are fully raised. Observe small portion of #1 codebar slide below right guide plate. Move carriage to right margin. Protruding portion of codebar must remain constant throughout carriage traverse.
- H. Drive Bail
 - 1. Power on. Perform carriage return. Power off. Release codebar clutch. Rotate main shaft until carriage drive bail reaches its rearmost position.

	SIZE A	CODE SP	NUMBER LT33-0-6	REV
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DEC FORM NO. DRA 108

SHEET 2 OF 4

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

Clearance between print hammer bail and print hammer trip lever .015
.030
 This clearance must remain constant as carriage is manually moved to right margin.

I. Print Suppression Latch

1. Place carriage approximately 1/2 inch from left margin. Set (--3-5-78) code in selector. Rotate main shaft until drive bail reaches rearmost position. Take up print suppression latchlever play to the right. Clearance between print suppression latch and print hammer bail .015
.030

J. Reader

1. Control lever in free position. Alternately hold and release armature to cycle sprocket and sensing pins through several positions. At each position:
 a. The sprocket pin shall be in line with sensing pins within .002 max.
 b. Sprocket backlash shall not exceed .001 max.

2. Control Lever In Free Position.
 a. Armature in attached position. Clearance between top surface of top plate to tip of each sensing pin in fully extended positions
 b. Armature in unattracted position. Clearance between tip of each sensing pin below top surface of top plate .015 max.

3. Tape lid closed. Tape lid latch must be centrally located in cut out of tape lid. Clearance between top plate and latch spring .005
.030

4. Armature in unattracted position.
 a. Clearance between feed pawl and ratchet with fine teeth between feed pawl and detent lever .001
.008
 b. Clearance between blocking pawl and ratchet tooth .001
.010

K. Tape Punch

1. Check to insure punch driver arm assembly

SIZE	CODE	NUMBER	REV
A	SP	LT33-0-6	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

is securely fastened to main rocker shaft.

2. Power on. Manually rotate main shaft until function rocker shaft and stripper bail are in most forward positions. Take up rear roller play toward rear and tape nudger play in clockwise direction. Clearance between rear roller and highest point on tape nudger .070
.090

3. Set all marking code in selector. Manually rotate main shaft until function rocker shaft and stripper bail are in rearmost position. There must be some clearance between rightmost sensing lever and its associated pawl.
 a. Clearance between left most sensing lever and its associated pawl .005
.020
 b. Take up all play in stripper bail toward rear. Feed wheel in its fully detented position. Clearance between feed pawl and feed wheel ratchet tooth .001
.005

4. Position end of spring to lowest notch of arm with bushing. Perforate alternate R and hyphen codes in 8 inches of tape. Align #2 code hole of tape with first .072 hole on smooth side of guage TP156011. The four remaining .072 guage holes must be visible through corresponding #2 code holes in tape. The #2 code hole which corresponds with .86 guage hole must be entirely within the perimeter of that guage hole.

TEST PROCEDURE

Run the following tape using PDP8/S or PDP8/I processor:
 Combo Test - MAINDEC-08-D2TA

(A) If failures occur run the following diagnostic pertaining to the particular area, that failed in the Combo Test, repair, re-run combo.

Teleprinter Test	MAINDEC-08-D25A
Binary Loader	DEC-8-2-U-RIM
Punch Test	MAINDEC-08-D2QA
Keyboard Test	MAINDEC-08-D2RA
Reader Test	MAINDEC-08-D2PA

(B) Unit is ready for shipment when Combo Test #MAINDEC-08-D2A

SIZE	CODE	NUMBER	REV
A	SP	LT33-0-6	

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 4/23/68

TITLE ACCEPTANCE PROCEDURE FOR TELETYPE MODEL 33ASR-TU

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

SCOPE:

To define the criteria to accept a (ASR) model 33TU for shipment.

TEST HARDWARE:

PDP8

TEST SOFTWARE:

Engineering specifications	A-SP-LT33-0-3
Diagnostic program	MAINDEC-08-D2TA - Combo Test
	MAINDEC-08-D2PA - Reader Test
	MAINDEC-08-D2SA - Printer Test
	MAINDEC-08-D2QA - Punch Test
	MAINDEC-08-D2FA - Keyboard Test

PROCEDURE:

Run the diagnostic MAINDEC-08-D2TA. The unit is accepted for shipment to a customer when this diagnostic program has been run for one complete pass without error typeouts. Quality control inspection form to be filled out before shipment.

SHIPPING SOFTWARE:

Diagnostic program	MAINDEC-08-D2RA
	MAINDEC-08-D2QA
	MAINDEC-08-D2SA
	MAINDEC-08-D2TA
	MAINDEC-08-D2PA

Maintenance manual volume I and II
Parts manual

SHIPPING HARDWARE:

#5288-2 cable - 12 feet

ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-8	REV
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DEC FORM NO.
DRA 107

SHEET 1 OF 1

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DIGITAL EQUIPMENT CORPORATION						
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ENGINEERING SPECIFICATION					DATE 5/3/68	
TITLE PACKING PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
	<ol style="list-style-type: none"> 1. Put reader clip in holder; reader pins in upward position as originally received. 2. Use one tie wrap to hold carriage at left margin. 3. Mount printer unit to fiberboard platform with the eight (8) mounting screws and three (3) studs, originally provided. 4. Put chad box and reader power pack as well as copy holder in the box provided. 5. Fifty (50) cycle teletypes should have transformer (previously mounted) left in base stand. 6. The four (4) mounting screws that mount the printer to the base stand should be put in a bag along with the on/off knob and the platen knob and then tied to the base stand. 7. Teletype AC cable and 5288-2 cable should be placed on the plastic cover where paper roll normally goes and wrapped in kim pack. 8. Tape down printer cover, punch paper-roller, printer paper-roller and cables of item 7 above. Additional tape should be used to secure whole cover to base. 9. Make sure that there are three (3) thumbscrews that hold teletype cover on, and four (4) screws in the front of the machine, also a screw in reader cover and one (1) face-plate for each machine. 					

ENG	<i>[Signature]</i>	APPD	SIZE	CODE	NUMBER	REV
			A	SP	LT33-0-10	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 5/3/68

TITLE INSTALLATION PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR WT OR TBP

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
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1. Remove all tape holding covers and cables.
2. Remove the whole cover and in the reader, remove clip which holds reader pins in an upward position before turning machine on.
3. Mount power supply for reader on basic stand and plug connector cable in.
4. Remove tie wrap being used to hold carriage at left hand margin.
5. Mount base to bottom of unit with screws provided.
6. Replace cover being sure that three (3) thumbscrews, four (4) ponhead screws and one (1) special screw (for reader) are correctly installed before attaching face plate and knobs.

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ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-11	REV
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MAYNARD, MASSACHUSETTS																																												
ENGINEERING SPECIFICATION				DATE 4/23/68																																								
TITLE MODIFICATION PROCEDURE FOR TELETYPE MODEL 33ASR-TU OR TBP																																												
REVISIONS																																												
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE																																						
	<p>The 33TBP and 33TU must be modified in the following manner:</p> <ol style="list-style-type: none"> 1. Remove the WRU pawl from the function casting. It is the second pawl from the right of the casting. Ref: Vol. II - Sec: 574-122-700 page 6 2. Remove the blue lead from the 750Ω resistor post and reconnect it to the 1450Ω resistor post. Ref: Vol. I - Sec: 574-100-102 page 14 3. On the call control unit terminal strip the following wires are transferred: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Color of wire</th> <th style="text-align: left;">Remove From</th> <th style="text-align: left;">Connect To</th> </tr> </thead> <tbody> <tr> <td>Brown/White</td> <td>Term.3</td> <td>Term.5</td> </tr> <tr> <td>Blue/White</td> <td>Term.4</td> <td>Term.5</td> </tr> <tr> <td>Purple</td> <td>Term.8</td> <td>Term.9</td> </tr> </tbody> </table> Ref: Vol. I - Sec: 574-100-102 page 14 (fig.12) 4. The leads of DEC cable #5288-2 which have red crimp lugs are connected to the call box terminal strip as follows: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Color of Wire</th> <th style="text-align: left;">Term. No.</th> </tr> </thead> <tbody> <tr> <td>Grey/White</td> <td>3</td> </tr> <tr> <td>Red</td> <td>4</td> </tr> <tr> <td>Yellow/White</td> <td>6</td> </tr> <tr> <td>Black</td> <td>7</td> </tr> </tbody> </table> 5. Mount the 4195 reader control card on the left side of the call control unit. A bracket is provided for mounting and is located to the right of arrow pointing to "plate" near the on-off switch. Connect the wires on one end of reader control card to locations as follows: <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Color of Wire</th> <th style="text-align: left;">Length of Wire</th> <th style="text-align: left;">Origin</th> <th style="text-align: left;">Connect To</th> </tr> </thead> <tbody> <tr> <td>Yellow/White</td> <td>6" approx.</td> <td>To sole-noid</td> <td>L2 of on-off switch</td> </tr> <tr> <td>Yellow/White</td> <td>6" approx.</td> <td>To reader switch</td> <td>L1 of on-off switch</td> </tr> <tr> <td>Yellow/White</td> <td>2' approx.</td> <td>---</td> <td>Plug #4 of call control unit (3rd hole from right)</td> </tr> </tbody> </table> 						Color of wire	Remove From	Connect To	Brown/White	Term.3	Term.5	Blue/White	Term.4	Term.5	Purple	Term.8	Term.9	Color of Wire	Term. No.	Grey/White	3	Red	4	Yellow/White	6	Black	7	Color of Wire	Length of Wire	Origin	Connect To	Yellow/White	6" approx.	To sole-noid	L2 of on-off switch	Yellow/White	6" approx.	To reader switch	L1 of on-off switch	Yellow/White	2' approx.	---	Plug #4 of call control unit (3rd hole from right)
Color of wire	Remove From	Connect To																																										
Brown/White	Term.3	Term.5																																										
Blue/White	Term.4	Term.5																																										
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Red	4																																											
Yellow/White	6																																											
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Yellow/White	2' approx.	---	Plug #4 of call control unit (3rd hole from right)																																									

ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-5	REV
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DEC FORM NO. DRA 107

SHEET 1 OF 2

ENGINEERING SPECIFICATION				CONTINUATION SHEET
TITLE MODIFICATION PROCEDURE FOR TELETYPE MODEL 33ASR-TU OR TBP				
<p style="text-align: right;">Brown --- --- Plug #4 of call control unit (3rd hole from right)</p> <p style="text-align: right;">Ref: Sec: 574-100-102 page 14 (fig.12)</p> <ol style="list-style-type: none"> 6. Connect two SP4B4 thyrectors to the on-off switch as follows: <ol style="list-style-type: none"> a. One thyrector from position 2 to position 1 of the on-off switch. b. The other thyrector from position 2 to position L2 of the on-off switch. 				
SIZE A	CODE SP	NUMBER LT33-0-5	REV	

DEC FORM NO. DRA 108

SHEET 2 OF 2

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 4/23/68

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
	TELETYPE ALIGNMENT PROCEDURE:					
	A. Carefully check for damaged or obviously misaligned components. Note: In the following sections, power is off unless noted.					
	B. Main Shaft					
	1. Clearance between slotted bronze bearing and collar					.005 .015
	C. Distributor Clutch					
	1. Endplay between left bearing and clutch gear assembly					.002 .008
	2. Clearance between brush holder and disc at closest point					.025 .025
	3. Clearance between shoe lever and stop lug with clutch disengaged and keyboard universal lever in down position					.015 min.
	4. Increase in clearance recorded in step #3 after clutch has been engaged					.050 .080
	5. Disengage clutch and depress any non-function key. Clearance between clutch shoe lever and trip lever with upper edge of clutch lever in line with upper edge of trip lever					.015 .035
	6. <u>Power on</u> and keyboard universal lever in latched position. Clearance of clutch shoe lever beyond rear most surface of trip lever					.000 .015
	D. Selector Clutch					
	1. Disengage clutch. Endplay between clutch and side plate					.002 .008

ENG	APPD	SIZE	CODE	NUMBER	REV
		A	SP	LT33-0-6	

DEC FORM NO. DRA 107

SHEET 1 OF 4

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

2. Disengage clutch. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever.	
3. Disengage clutch lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in center of slot in trip lever	
E. Codebar Clutch	.002
1. Disengage clutch. Endplay at maximum	.008 .002
2. Endplay in latchlevers	.012
3. Typing unit in stop condition. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever	
4. Disengage clutch lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in slot in trip lever.	
F. Function Clutch	
1. Disengage clutch. Endplay between clutch and collar at maximum	.002 .008
2. Typing unit in stop condition. Trip lever shall engage shoe lever by approximately the full thickness of shoe lever.	
3. Disengage clutch. Lift trip lever to trip clutch, permit trip lever to rest on shoe lever. Edge of shoe lever shall sit in center of slot in trip lever.	
G. Rear Rail	
1. <u>Power on</u> . Perform carriage return. <u>Power off</u> . Release codebar clutch. Rotate main shaft until codebars are fully raised. Observe small portion of #1 codebar slide below right guide plate. Move carriage to right margin. Protruding portion of codebar must remain constant throughout carriage traverse.	
H. Drive Bail	
1. <u>Power on</u> . Perform carriage return. <u>Power off</u> . Release codebar clutch. Rotate main shaft until carriage drive bail reaches its rearmost position.	

	SIZE	CODE	NUMBER	REV
	A	SP	LT33-0-6	

DEC FORM NO. DRA 108

SHEET 2 OF 4

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

Clearance between print hammer bail and print hammer trip lever .015
.030
 This clearance must remain constant as carriage is manually moved to right margin.

I. Print Suppression Latch

1. Place carriage approximately 1/2 inch from left margin. Set (--3-5-78) code in selector. Rotate main shaft until drive bail reaches rearmost position. Take up print suppression latchlever play to the right. Clearance between print suppression latch and print hammer bail .015
.030

J. Reader

1. Control lever in free position. Alternately hold and release armature to cycle sprocket and sensing pins through several positions. At each position:
 - a. The sprocket pin shall be in line with sensing pins within .002 max.
 - b. Sprocket backlash shall not exceed .001 max.
2. Control Lever In Free Position.
 - a. Armature in attached position. Clearance between top surface of top plate to tip of each sensing pin in fully extended positions
 - b. Armature in unattracted position. Clearance between tip of each sensing pin below top surface of top plate .015 max.
3. Tape lid closed. Tape lid latch must be centrally located in cut out of tape lid. Clearance between top plate and latch spring .005
.030
4. Armature in unattracted position.
 - a. Clearance between feed pawl and ratchet with fine teeth between feed pawl and detent lever .001
.008
 - b. Clearance between blocking pawl and ratchet tooth .001
.010

K. Tape Punch

1. Check to insure punch driver arm assembly

SIZE	CODE	NUMBER	REV
A	SP	LT33-0-6	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE ALIGNMENT/TEST PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP

is securely fastened to main rocker shaft.

2. Power on. Manually rotate main shaft until function rocker shaft and stripper bail are in most forward positions. Take up rear roller play toward rear and tape nudger play in clockwise direction. Clearance between rear roller and highest point on tape nudger .070
.090
3. Set all marking code in selector. Manually rotate main shaft until function rocker shaft and stripper bail are in rearmost position. There must be some clearance between rightmost sensing lever and its associated pawl.
 - a. Clearance between left most sensing lever and its associated pawl .005
.020
 - b. Take up all play in stripper bail toward rear. Feed wheel in its fully detented position. Clearance between feed pawl and feed wheel ratchet tooth .001
.005
4. Position end of spring to lowest notch of arm with bushing. Perforate alternate R and hyphen codes in 8 inches of tape. Align #2 code hole of tape with first .072 hole on smooth side of guage TP156011. The four remaining .072 guage holes must be visible through corresponding #2 code holes in tape. The #2 code hole which corresponds with .86 guage hole must be entirely within the perimeter of that guage hole.

TEST PROCEDURE

Run the following tape using PDP8/S or PDP8/I processor:
 Combo Test - MAINDEC-08-D2TA

- (A) If failures occur run the following diagnostic pertaining to the particular area, that failed in the Combo Test, repair, re-run combo.

Teleprinter Test	MAINDEC-08-D25A
Binary Loader	DEC-8-2-U-RIM
Punch Test	MAINDEC-08-D2QA
Keyboard Test	MAINDEC-08-D2RA
Reader Test	MAINDEC-08-D2PA

- (B) Unit is ready for shipment when Combo Test #MAINDEC-08-D2A

SIZE	CODE	NUMBER	REV
A	SP	LT33-0-6	

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 4/23/68

TITLE ACCEPTANCE PROCEDURE FOR TELETYPE MODEL 33ASR-TU

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

SCOPE:

To define the criteria to accept a (ASR) model 33TU for shipment.

TEST HARDWARE:

PDP8

TEST SOFTWARE:

Engineering specifications	A-SP-LT33-0-3
Diagnostic program	MAINDEC-08-D2TA - Combo Test
	MAINDEC-08-D2PA - Reader Test
	MAINDEC-08-D2SA - Printer Test
	MAINDEC-08-D2QA - Punch Test
	MAINDEC-08-D2FA - Keyboard Test

PROCEDURE:

Run the diagnostic MAINDEC-08-D2TA. The unit is accepted for shipment to a customer when this diagnostic program has been run for one complete pass without error typeouts. Quality control inspection form to be filled out before shipment.

SHIPPING SOFTWARE:

Diagnostic program	MAINDEC-08-D2RA
	MAINDEC-08-D2QA
	MAINDEC-08-D2SA
	MAINDEC-08-D2TA
	MAINDEC-08-D2PA

Maintenance manual volume I and II
Parts manual

SHIPPING HARDWARE:

#5288-2 cable - 12 feet

ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-8	REV
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DIGITAL EQUIPMENT CORPORATION						
MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION					DATE 5/3/68	
TITLE PACKING PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR TU OR TBP						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
	<ol style="list-style-type: none"> 1. Put reader clip in holder; reader pins in upward position as originally received. 2. Use one tie wrap to hold carriage at left margin. 3. Mount printer unit to fiberboard platform with the eight (8) mounting screws and three (3) studs, originally provided. 4. Put chad box and reader power pack as well as copy holder in the box provided. 5. Fifty (50) cycle teletypes should have transformer (previously mounted) left in base stand. 6. The four (4) mounting screws that mount the printer to the base stand should be put in a bag along with the on/off knob and the platen knob and then tied to the base stand. 7. Teletype AC cable and 5288-2 cable should be placed on the plastic cover where paper roll normally goes and wrapped in kim pack. 8. Tape down printer cover, punch paper-roller, printer paper-roller and cables of item 7 above. Additional tape should be used to secure whole cover to base. 9. Make sure that there are three (3) thumbscrews that hold teletype cover on, and four (4) screws in the front of the machine, also a screw in reader cover and one (1) face-plate for each machine. 					

ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-10	REV
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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 5/3/68

TITLE INSTALLATION PROCEDURE FOR TELETYPE MODEL 33ASR-TY OR WT OR WBP

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

1. Remove all tape holding covers and cables.
2. Remove the whole cover and in the reader, remove clip which holds reader pins in an upward position before turning machine on.
3. Mount power supply for reader on basic stand and plug connector cable in.
4. Remove tie wrap being used to hold carriage at left hand margin.
5. Mount base to bottom of unit with screws provided.
6. Replace cover being sure that three (3) thumbscrews, four (4) ponhead screws and one (1) special screw (for reader) are correctly installed before attaching face plate and knobs.

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ENG <i>[Signature]</i>	APPD	SIZE A	CODE SP	NUMBER LT33-0-11	REV
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DEC FORM NO.
DRA 107

SHEET 1 OF 1

