digital

11/04

Engineering Drawings

Digital Equipment Corporation

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

NOTES:

1. ALL 10.5" VERSIONS OF THE 11/04 COMPUTER WITH SERIAL NUMBERS GREATER THAN _____ CONTAIN 32 AMP., + 5 VOLT REGULATORS AND ARE BATTERY BACK-UP COMPATIBLE. — NOTE 1 — 10.5 INCH CORE BA11-K BOX

2. ALL 5.25" VERSIONS OF THE 11/04 COMPUTER WITH SERIAL NUMBERS GREATER THAN _____ CONTAIN 32 AMP., +5 VOLT REGULATORS. ALL 5.25" VERSIONS ARE BATTERY BACKUP COMPATIBLE. — NOTE 2 — 5.25 INCH MOS H777 BA11-L BOX

UNIT VARIATIONS COVERED BY THIS PRINT SET	UNIT VARIATIONS COVERED BY THIS PRINT SET
11/Ø4-AA	
11/Ø4-AB	
11/Ø4-AC	
11/Ø4-AD	
11/Ø4-BA	
11/Ø4-BB	
11/Ø4-BC	
11/Ø4-BD	
11/Ø4-DA	
11/Ø4-DB	
11/Ø4-DC	
11/Ø4-DD	
11/Ø4-FC	11/Ø4-JC
11/Ø4-FD	11/Ø4-JD
11/Ø4-HC	
11/Ø4-HD	
11/Ø4-MC	
11/Ø4-MD	
11/Ø4-HA	
11/Ø4-HB	
11/Ø4-DH	
11/Ø4-DJ	
11/Ø4-LH	
11/Ø4-LJ	
11/Ø4-DM	
11/Ø4-DN	
11/Ø4-HH	11/Ø4-JH
11/Ø4-HJ	11/Ø4-JJ
11/Ø4-MH	
11/Ø4-MJ	
11/Ø4-HM	
11/Ø4-HN	
11/Ø4-LC	
11/Ø4-LD	

11/04

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ19

REVISIONS		
REV.	CHG. NO.	DATE
A	11/Ø4-3	30MAR76
B	11/04-4	6JULY76
C	11/04-7	5-MAY-77
D	11/04-9	5-DEC-77
E	11/04-10	2 FEB-78

USED ON OPTION/MODEL

SHEET 1 OF 1

DRN. D. HEALY	DATE 9/30/75	
CHK'D D. HEALY	DATE 9/30/75	
PROJ. ENG. B Benstead	DATE 10-22-75	
FIELD SERV. M C Smith	DATE 10-22-75	

digital

TITLE: FIELD MAINTENANCE PRINT SET 11/Ø4

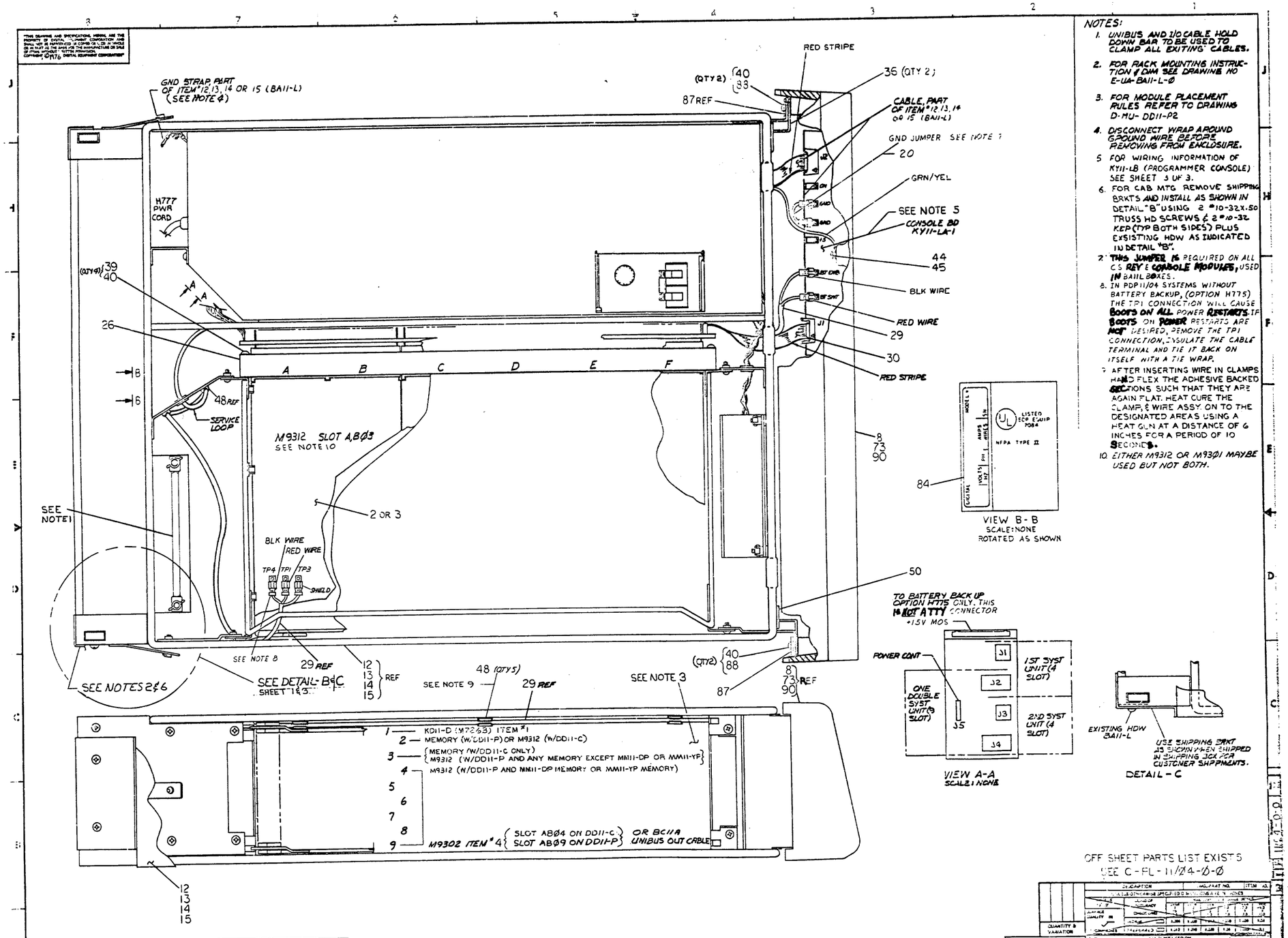
SIZE	CODE	NUMBER	REV.
B	TC	11/Ø4-0-1	E

DIST.

EN-01124-16-N6-(327)

DRB 124

2

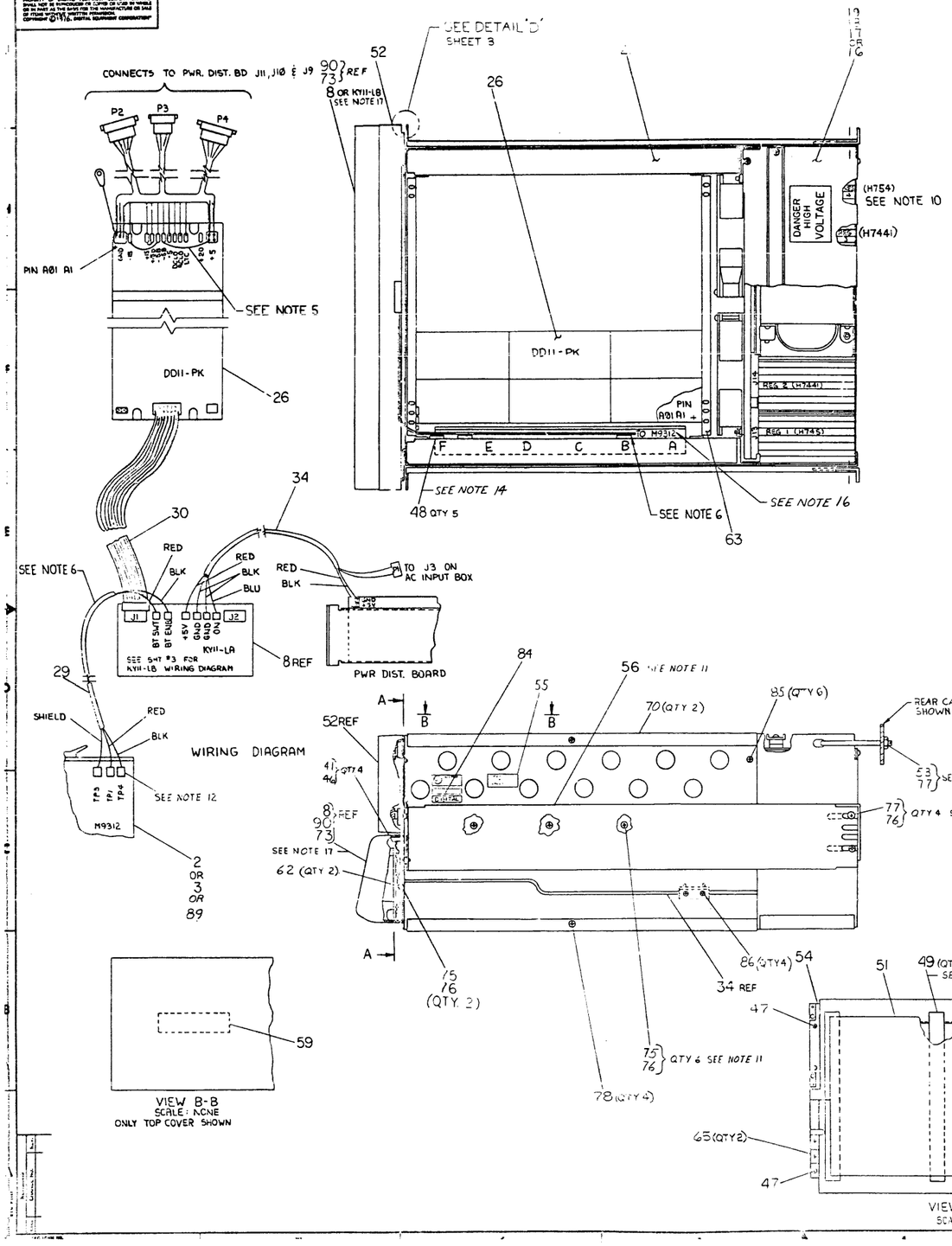


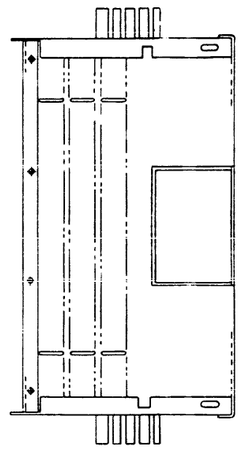
NOTES:

1. UNIBUS AND I/O CABLE HOLD DOWN BAR TO BE USED TO CLAMP ALL EXITING CABLES.
2. FOR RACK MOUNTING INSTRUCTION & DIM SEE DRAWING NO E-UA-BA11-L-0
3. FOR MODULE PLACEMENT RULES REFER TO DRAWING D-MU-DD11-P2
4. DISCONNECT WRAP AROUND GROUND WIRE BEFORE REMOVING FROM ENCLOSURE.
5. FOR WIRING INFORMATION OF KY11-LB (PROGRAMMER CONSOLE) SEE SHEET 3 OF 3.
6. FOR CAB MTG REMOVE SHIPPING BRKTS AND INSTALL AS SHOWN IN DETAIL "B" USING 2 #10-32 X .50 TRUSS HD SCREWS & 2 #10-32 KEP (TYP BOTH SIDES) PLUS EXISTING HDW AS INDICATED IN DETAIL "B".
7. THIS JUMPER IS REQUIRED ON ALL CS REV E CONSOLE MODULES, USED IN BA11 BOXES.
8. IN PDP11/04 SYSTEMS WITHOUT BATTERY BACKUP, (OPTION H775) THE TP1 CONNECTION WILL CAUSE BOOTS ON ALL POWER RESTARTS. IF BOOTS ON POWER RESTARTS ARE NOT DESIRED, REMOVE THE TP1 CONNECTION, INSULATE THE CABLE TERMINAL AND TIE IT BACK ON ITSELF WITH A TIE WRAP.
9. AFTER INSERTING WIRE IN CLAMPS HAND FLEX THE ADHESIVE BACKED SECTIONS SUCH THAT THEY ARE AGAIN FLAT. HEAT CURE THE CLAMP & WIRE ASSY ON TO THE DESIGNATED AREAS USING A HEAT GUN AT A DISTANCE OF 6 INCHES FOR A PERIOD OF 10 SECONDS.
10. EITHER M9312 OR M9301 MAYBE USED BUT NOT BOTH.

OFF SHEET PARTS LIST EXISTS
SEE C-PL-11/04-0-0

DESCRIPTION			
QUANTITY & VARIATION			
MATERIAL	SEE PARTS LIST		
FINISH			
NEXT ASSY			
FIRST USED ON	11/04		
TITLE	UNIT ASS'Y 11/04		
SIZE	E	CODE	10A
DRAWING NO.	11-04-0-0		REV. J



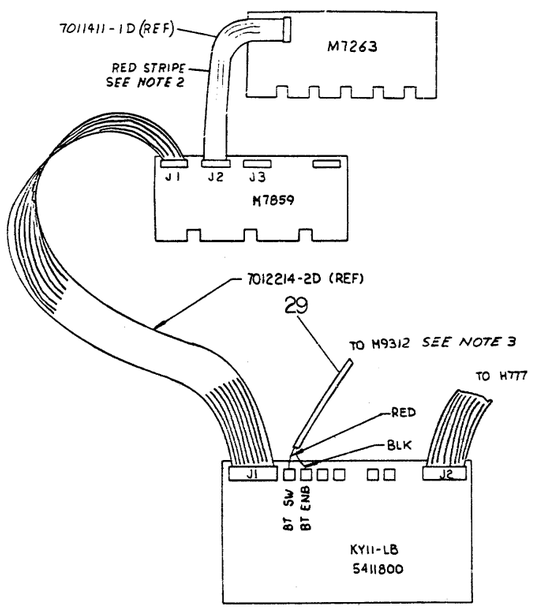


NOTES:

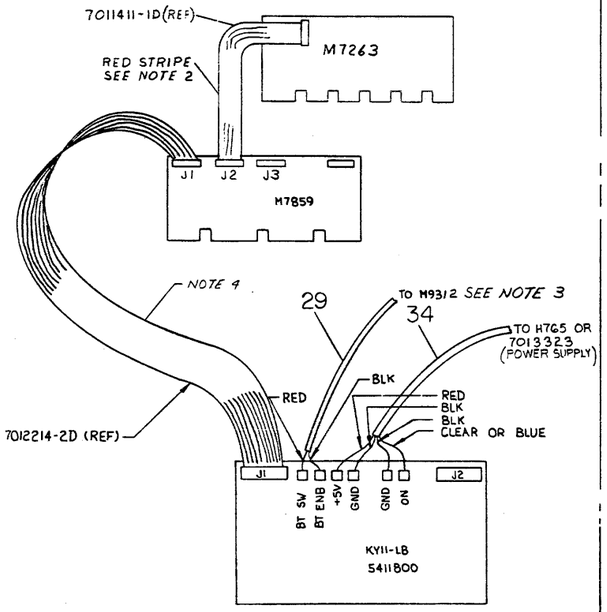
1. CAUTION : OFF SHEET PARTS LIST EXISTS SEE A-PL-11Ø4-Ø.
2. SEE DD11-P MODULE UTILIZATION DRAWING FOR MODULE PLACEMENT INFORMATION.
3. FOR ADDITIONAL INFORMATION REFER TO E-UA-BA11-K-Ø& E-UA-7Ø1332-3-Ø-1
4. TIGHTEN ALL SYSTEM UNIT MOUNTING SCREWS TO 13 IN LBS WITH A TORQUE SCREW DRIVER.
5. WHEN THE DD11-PK IS USED WITH A BA11-K EXPANSION BOX WITHOUT BATTERY BACK UP, INSTALL THE THREE JUMPERS SHOWN:
   1) -15 TO -15B
   2) +15 TO +15B
   3) +5 TO +5B
   USE # 20 INSULATED BUS WIRE ON SIDE 2. THIS WILL PROVIDE POWER TO THE MOS MEMORY VOLTAGE RAILS.
6. LOOP THE M9312 CABLE ITEM # 29 UNDER THE CABLE HOLD DOWN BAR. (SERVICE LOOP)
7. TIE DOWN F16, PART OF ITEM # 16, WITH TWO TIE WRAPS (ITEM #60) WHEN H754 IS NOT USED.
8. ~~GROUND THE BLK CHASSIS GROUND UNDER THE H744 MOUNTING SCREW.~~
9. CUTOUT IN FILTER ITEM # 51 FOR ROUTING OF CABLES ITEM # 34 & 29.
10. H754 REGULATOR AVAILABLE ONLY IN CORE MEMORY SYSTEMS.
11. THESE ITEMS ARE INSTALLED AT F.A.C.T.
12. IN PDP11/04 SYSTEMS WITHOUT BATTERY BACKUP (OPTION H775), THE TP4 CONNECTION TO THE M9312 WILL CAUSE BOOTS ON ALL POWER RESTARTS. IF BOOTS ON POWER RESTARTS ARE NOT DESIRED, REMOVE THE TP4 CONNECTION, INSULATE THE CABLE TERMINAL AND TIE IT BACK ON ITSELF WITH A TIE WRAP.
13. REPLACE FOAM STRIPS WITH ITEM 49, 2 PLACES, & ADD TWO OUTSIDE STRIPS AS SHOWN.
14. AFTER INSERTING WIRE IN CLAMPS, HAND FLEX THE ADHESIVE BACKED SECTIONS SUCH THAT THEY ARE AGAIN FLAT HEAT CURE THE CLAMP & WIRE ASSY ON TO DESIGNATED AREAS USING A HEAT GUN AT A DISTANCE OF 6 INCHES FOR A PERIOD OF TEN SECONDS
15. GND THE GRN W/YELLOW TRACE CHASSIS GND TERMINAL WITH TWO WIRES ON THE STANDOFF GND THE OTHER TERMINAL TO THE STUD ON THE AC INPUT ASSY. GND THE AC INPUT ASSY TO THE STUD ON THE H765 P.S.
16. EITHER M9312 OR M9301 MAYBE USED BUT NOT BOTH.
17. KY11-LB CABLE IS TO BE RUN BEHIND THE CONSOLE BUT IN FRONT OF THE FILTER TO THE RIGHT SIDE OF THE MACHINE THEN THRU THE HOLE IN THE FILTER AND UP OVER THE CPU MODULES TO THE M7859.

QUANTITY & VARIATION	DESCRIPTION	DWG./PART NO.	ITEM NO.
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	ANGLES ±0° 30' · SURFACE QUALITY ✓ · FRACTIONS ±	CLASS OF ACCURACY · DECIMALS: ONE ± · TWO ± · THREE ± · FOUR ±	NOMINAL SIZE RANGE INCHES: 0 TO 6 · OVER 6 TO 12 · OVER 12 TO 24 · OVER 24 TO 48 · OVER 48 TO 72 · OVER 72 TO 96
	MEDIUM · STANDARD · MACHINE FINISH	.X ±.2 · .XX ±.05 · .XXX ±.010	.X ±.2 · .XX ±.05 · .XXX ±.010 · .XXXX ±.005 · 1/64 · 1/32 · 1/16 · 1/8 · 1/4 · 1/2
	3RD ANGLE PROJECTION	FIRST USED ON	digital
	IN MORE SCALES AND LARGER SHOP DRAWINGS	TITLE: UNIT ASSY 11/Ø4	
	DO NOT SCALE THIS DRAWING	NEXT HIGHER ASSY: A-D-11-04-0	SIZE E · CODE UA · NUMBER 11/Ø4-0-0 · REV.
	MATERIAL: SEE PARTS LIST	SCALE: NONE	
	FINISH:	SHEET 1 OF 3	DIST.

WIRING DIAGRAMS FOR KY11-LB

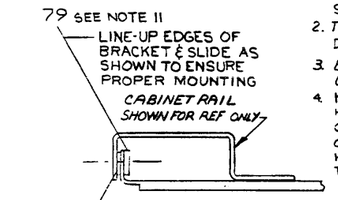


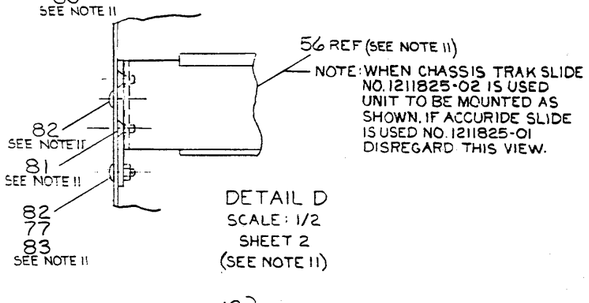
BA11-L
5 1/4" MTG BOX



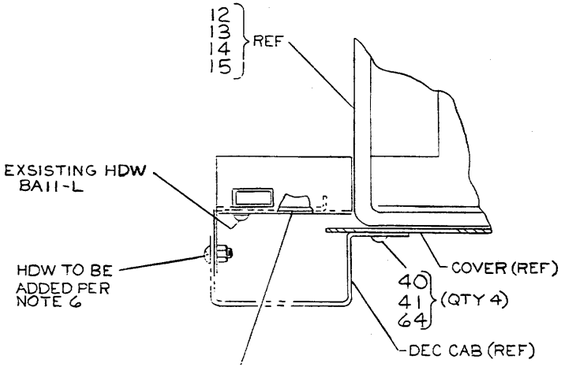
BA11-KA & 7013323
10½" MTG BOX & POWER SUPPLY

NOTES:
1. THE M7859 PROGRAMMERS CONSOLE INTERFACE MODULE, WHEN USED, MUST BE INSTALLED IN THE CPU BACKPLANE. IT IS AN SPC MODULE.
2. THIS CABLE IS TO BE INSTALLED DURING MAINTENANCE ONLY.
3. EITHER M9312 OR M9301 MAYBE USED BUT NOT BOTH.
4. KY11-LB CABLE IS TO BE RUN BEHIND THE CONSOLE BUT IN FRONT OF THE FILTER TO THE RIGHT SIDE OF THE MACHINE THEN THRU THE HOLE IN THE FILTER AND UP OVER THE CPU MODULE TO THE M7859.





DETAIL D
SCALE: 1/2
SHEET 2
(SEE NOTE 11)



DETAIL-B
(SEE NOTE 6)

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIT ASSY 11/04	D	UA	11/04-0-0	M
SCALE	SHEET 3 OF 3	DIST.		

5

ITEM NO.	DRAWING NO.	DESCRIPTION	11/04 AA	11/04 AB	11/04 BA	11/04 BB	11/04 DA	11/04 DB	11/04 AC	11/04 AD	11/04 BC	11/04 BD	11/04 DC	11/04 DD	11/04 LC	11/04 LD	11/04 FC	11/04 FD	11/04 HC	11/04 HD	11/04 MC	11/04 MD	11/04 HA	11/04 HB	11/04 JC	11/04 JD	11/04 DH	11/04 DJ	11/04 LH	11/04 LJ	11/04 BH	11/04 HJ	11/04 MH	11/04 MJ	11/04 JH	11/04 JJ	11/04 DM	11/04 DN	11/04 HM	11/04 HN
1	A-PL-KD11-D-Ø	11/Ø4 CPU (M7263)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	D-CS-M93Ø1-YA-1	TERM/BOOT (OEM) SEE NOTE 2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
3	D-CS-M93Ø1-YF-1	TERM/BOOT (END USER) SEE NOTE 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
4	D-CS-M93Ø2-Ø-1	UNIBUS TERMINATOR/SACK TURN AROUND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	B-CS-G727-Ø-1	GRANT CONTINUITY	2	2	2	2	2	2	7	7	7	7	7	7	6	6	7	7	7	7	6	6	7	7	6	6	7	7	6	6	7	7	6	6	6	6	6	6	6	6
6	A-PL-DL11WA-Ø (SEE NOTE:1)	SERIAL LINE/LINE CLOCK (M7856)/CABLE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
7	D-CS-M785Ø-Ø-1	PARITY, MEMORY MODULE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
8	D-UA-KY11-LA-Ø	CONSOLE, OPERATORS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	A-PL-MS11-JP-Ø	MEMORY, MOS 16K X 18 BIT (M7847)	-	-	-	-	1	1	-	-	-	-	1	1	2	2	-	-	-	-	-	-	-	-	-	-	1	1	2	2	-	-	-	-	-	-	1	1	-	-
10	D-UA-MM11-DP-Ø	MEMORY, CORE 16K X 18BIT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	-	-	-	-	-	-	-	-	1	1	2	2	-	-	-	-	1	1
11	D-UA-MM11-CP-Ø	MEMORY, CORE 8K X 18BIT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	E-UA-BA11-LM-Ø	MOUNTING BOX 5.25 MOS ONLY 115V	1	-	1	-	1	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	E-UA-BA11-LN-Ø	MOUNTING BOX 5.25 MOS ONLY 230V	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	E-UA-BA11-LK-Ø	MOUNTING BOX 5.25, CORE/MOS 115V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	E-UA-BA11-LL-Ø	MOUNTING BOX 5.25, CORE/MOS 230V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	E-UA-7013323-00	POWER SUPPLY ASSY. (MOS ONLY 120V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-
17	E-UA-7013323-03	POWER SUPPLY ASSY. (MOS ONLY 240V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	-	-	-
18	E-UA-7013323-02	POWER SUPPLY ASSY. (CORE/MOS 120V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	1	-
19	E-UA-7013323-05	POWER SUPPLY ASSY. (CORE/MOS 240V)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	1
20	C-IA-7012752-0-0	CABLE, JUMPER - KY11LA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	D-UA-BA11-KA-Ø	MOUNTING BOX 10.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	1	1	1	1
22	A-PL-MS11-EP-Ø	MEMORY, MOS 4K X 18BIT (M7847)	1	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	A-PL-MS11-FP-Ø	MEMORY, MOS 8K X 18 BIT (M7847)	-	-	1	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	D-UA-MM11-C-Ø	MEMORY, CORE 8K X 16 BIT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	C-AD-7011528-0-0	BACKPLANE, 4 SLOT	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	A-PL-DD11-PK-9	BACKPLANE, 9 SLOT	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	B-MU-DD11-C-2	MODULE UTILIZATION (DD11-C)	REF	REF	REF	REF	REF	REF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	B-MU-DD11-P-2	MODULE UTILIZATION (DD11-P)	-	-	-	-	-	-	REF	REF	REF	REF	REF	REF	-	-	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
29	C-IA-7011413-3F-Ø	CABLE, EXTERNAL BOOT M93Ø1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	C-IA-7011411-ØJ-Ø	CABLE, CONSOLE/BACKPLANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	A-PL-11/04-Ø-2	SHIPPING LIST 11/Ø4 (5.25)	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	A-PL-11/Ø4-Ø-3	SHIPPING LIST 11/Ø4 (1Ø.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
33	D-UA-MM11-YP-Ø	MEMORY, CORE 32K x 18 BIT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-
34	D-IA-7011992-0-0	CONSOLE POWER HARNESS (K BOX)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
~~35~~	~~D-IA-7008360-0-1~~	~~CABLE ASSY TTY (ZUMA)~~																																						
36	C-MD-7414962-0-0	BRKT.,FILTER SUPPORT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
~~37~~	~~D-IA-7012195-1-0~~	~~MOUNTING BRACKET CONSOLE (LEFT)~~																																						
~~38~~	~~D-IA-7012195-0-0~~	~~MOUNTING BRACKET CONSOLE (RIGHT)~~																																						
39	9006043-01	SCR PHIL, PAN HD 8-32 x 1.00	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	9008072	WASHER, EXT. TOOTH #8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	4	4	4	4	4	4	4	4	4	4	4	4	4	4
41	9006037-3	SCR PHIL TRUSS HD 8-32 x .38	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
~~42~~	~~9005362~~	~~WASHER, FLAT #8~~																																						
43	9008135	NUT, K22 #6																									2	2	3	2	2	3	2	2	2	2	3	3	2	3

NOTE: 1. DL11WA CABLE IS ADDED AT FA & T.
2. EITHER M9312 OR M9301 BUT NOT BOTH MAYBE USED.

REVISIONS

CHK	CHANGE NO.	REV.
[illegible]	11/Ø4-00003	C
REVISED AND RETYPED		
E.BERNSTEIN		
[illegible]	11/Ø4-00004	D
B.BERNSTEIN		
P.PORRECA	11/Ø4-00005	E
P.PORRECA	11/Ø4-00006	F
P.PORRECA		
Paul Porreca	11/Ø4-00007	H
Paul Porreca	11/Ø4-00008	J
P. PORRECA	11/Ø4-00009	K
B. BERNSTEIN	11/Ø4-00010	L
E.CROCKER	11/Ø4-TW011	M
E.CROCKER		

DRN. B. BERNSTEIN	3/8/76	FIRST USED ON 11/Ø4
CHK'D.	3/11/76	digital
ENG.		TITLE UNIT ASSY 11/Ø4
PROJ. ENG.		
PROD.		
NEXT HIGHER ASSY.		
E-UA-11/04-Ø-Ø		SIZE C / CODE PL / NUMBER 11/Ø4-Ø-Ø / REV. M
SCALE		
SHEET 1 OF 2		DIST.

A

ITEM NO.	DRAWING NO.	DESCRIPTION	11/04-AA	11/04-AB	11/04-BA	11/04-BB	11/04-DA	11/04-DB	11/04-AC	11/04-AD	11/04-BC	11/04-BD	11/04-DC	11/04-DD	11/04-EC	11/04-ED	11/04-FC	11/04-FD	11/04-HC	11/04-HD	11/04-MC	11/04-MD	11/04-HA	11/04-HB	11/04-JC	11/04-JD	11/04-DH	11/04-DJ	11/04-LH	11/04-LJ	11/04-HH	11/04-HJ	11/04-MH	11/04-MJ	11/04-JH	11/04-JJ	11/04-DM	11/04-DN	11/04-HM	11/04-HN
44	9008072	WASHER, EX.TOOTH #8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9009799	SCREW, PHIL FILL HD # 8 – 32 x .31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
46	9006634	WASHER, LOCK #8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4
47	9006070-2	SCREW, PHIL FLAT HD 10 – 32 x .31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	8	8	8	8	8	8	8	8	8
48	9009771-03	CLAMP, CABLE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3
49	12111336-2	TAPE, 8" LONG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
50	1212707	AIR FILTER BALL-L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	1212392-02	AIR FILTER BALL-K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
52	D-UA-H95Ø-PB-Ø	COVER, 5.25 BEZEL (SNAP ON)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
53	C-MD-7413659-0-0	SHIPPING BRACKET BALL-K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
54	1209224	LATCH, MOLDING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
55	A-DC-7409478-0-0	DECAL, PATENT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
56	D-PS-1211825-0-0	SLIDE, 3 POS., TILT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
~~57~~	~~A-DC-3309411-0-0~~	~~DECAL, UL~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
~~58~~	~~A-DC-3309413-0-0~~	~~DECAL, NFPA~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
59	B-DC-7415118-0-0	DECAL STICKER 11/Ø4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
60	9007880	TIE WRAP	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
61	1209340-0-0	CONNECTOR, DUMMY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	1	1	-	-
62	B-MD-7417628-0-0	BRACKET, BEZEL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
63	A-DC-7415502-0-0	MODULE DECAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
64	9006660	WASH, FL .38 O.D. x .19 I.D. x .03	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	B-MD-7417627-0-0	ADAPTER BRACKET, BEZEL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
66	A-SP-3700061-0-0	PKG. INST. 11/Ø4 (5.25) CUSTOMER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	A-SP-3700197-0-0	PKG. INST. 11/Ø4 (5.25) INPLANT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	A-SP-3700169-0-0	PKG. INST. 11/Ø4 (10.5) CUSTOMER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
69	A-SP-3700235-0-0	PKG. INST. 11/Ø4 (10.5) INPLANT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	D-IA-7009768-0-0	COVER, CHASSIS BALLK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
~~71~~	~~9006630-2~~	~~SCREW, PHIL FLAT HD #6 – 32 x .25~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~12~~	~~12~~	~~12~~	~~12~~	~~12~~	~~12~~	~~12~~	~~12~~			~~12~~	~~12~~	~~12~~	~~12~~
~~72~~	~~9007801~~	~~WASHER, LOCK #6~~																							~~10~~	~~10~~	~~10~~	~~10~~	~~10~~	~~10~~	~~10~~	~~10~~			~~10~~	~~10~~	~~10~~	~~10~~
73	E-MD-7415599-0-0	BEZEL 11/04	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1
~~74~~	~~9007651~~	~~WASHER #10 EXT TOOTH~~																							~~2~~	~~2~~	~~2~~	~~2~~	~~2~~	~~2~~	~~2~~	~~2~~			~~2~~	~~2~~	~~2~~	~~2~~
75	9007651	WASHER #10 EXT TOOTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	8	8	8	8	8	8	8	8	8
76	9006071-3	SCREW PHIL TRUSS HD #10 – 32 x .38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12
77	9006565	NUT KEPS #10 -32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	7	7	7	7	7	7	7	7	7	7	7	7
78	9006020-3	SCREW, PHIL TRULL HD #6-32 x .25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4
79	B-MD-7417882-0-0	NUT PLATE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
80	B-MD-7417883-0-0	PLATE, SLIDE MOUNTING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
81	9006071-2	SCREW, PHIL FLAT HD #10-32 x .38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4
82	9006073-03	SCREW, PHIL TRUSS HD #10-32 x .50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4
83	9006664	WASHER, FLAT #10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2
84	A-PS-3613210-0-0	LABEL, ELECTRICAL DATA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
85	9009599	SCREW, PHIL FLAT HD #10-32 x .50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6	6	6	6	6	6	6	6	6	6	6	6
86	9006020-2	SCREW, PHIL FLAT HD #6-32 x .25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4
87	B-MD-7418979-0-0	STRIP, BEARING	2	2	2	2	2	2	2	2	2	2	2	2	2	2.	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	9006039-03	SCREW, PHL TRUSS HD #8-32 x .50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	D-CS-M9312-0-1	TERM/BOOT SEE NOTE 2 SHT1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90	D-MD-7415656-0-0	BEZEL, COVER PROTECTIVE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

REVISIONS | REV. | CHANGE NO. | CHK

FIRST USED ON OPTION/MODEL: 11/Ø4

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

MATERIAL

FINISH

DRN.	B. BERNSTEIN	DATE 13APR76
CHK'D.	L. GILBERT	DATE 13APR76
ENG.	B. BERNSTEIN	DATE 13APR76
PROJ. ENG.	B. BERNSTEIN	DATE 13APR76
PROD.	K. MacDONALD	DATE 13APR76

NEXT HIGHER ASSY.
B-UA-11/Ø4-Ø-Ø

SCALE

SHEET 2 OF 2

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

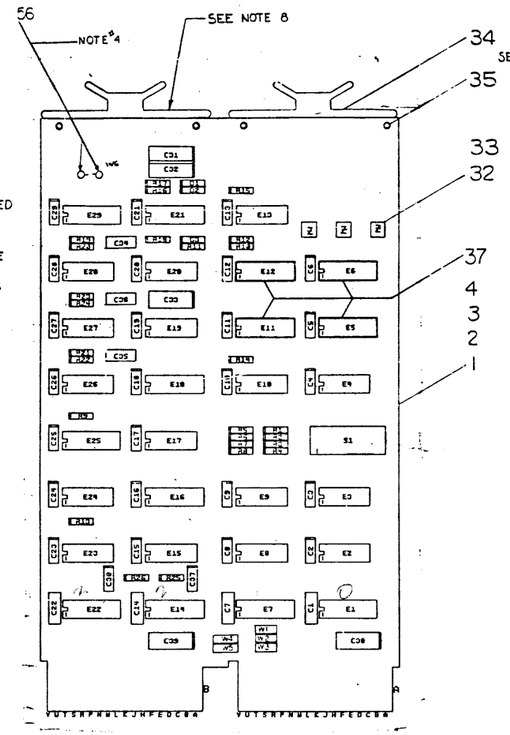
TITLE
UNIT ASSY 11/Ø4

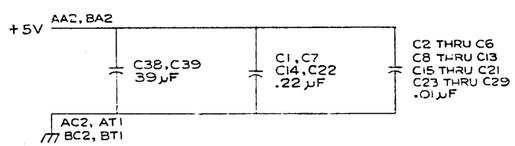
SIZE	CODE	NUMBER	REV.
C	PL	11/Ø4-Ø-Ø	M

DIST.

NOTES:

1. IN PDP11/04, 11/09 AND PDP 11/34, 11/33 SYSTEMS WITHOUT BATTERY BACKUP, TP1 SHOULD NOT BE CONNECTED TO THE POWER SUPPLY BATTERY STATUS SIGNAL UNLESS BOOTS ON ALL POWER RESTARTS ARE DESIRED.
2. IN ALL PDP11 SYSTEM WHOSE PROCESSOR MODULE DOES NOT CONTAIN GRANT PULL-UP RESISTORS, EITHER THE M9301 MUST BE POSITIONED IN THE TERMINATOR SLOT AT THE END OF THE UNIBUS FURTHEST FROM THE PROCESSOR OR JUMPERS W1 THRU W5 MUST BE INSTALLED, SO THE M9301 CAN BE INSERTED IN THE TERMINATOR SLOT NEXT TO THE PROCESSOR.
3. ON PDP11 SYSTEMS CONTAINING A BUS REPEATER OPTION, THE M9301 MUST BE INSTALLED ON THE PROCESSOR SIDE OF THE REPEATER SEE NOTE 2 FOR OTHER RESTRICTIONS.
4. JUMPER W6 SHOULD ONLY BE INSTALLED IN 11/55 AND 11/70 COMPUTERS WHOSE BACKPLANES HAVE BEEN MODIFIED FOR THIS MODULE. CONNECTOR PIN B01 IN THESE MODIFIED BACKPLANES WILL NOT BE TIED TO GROUND.
5. EARLIER VERSIONS USED PLASTIC SWITCH COVER (PN 12111B4-06) TO PREVENT INADVERTENT PROGRAMMING OF S1.
6. 11/40'S WITH RK06 REQUIRE CS REVISION P OR LATER.
7. 1001610-00 AND 1001610-01 ARE INTERCHANGEABLE
8. ON THE 'YF' VARIATION THIS HANDLE IS REMOVED.





I.C. DEC 314	1	8
I.C. DEC 7476	13	5
I.C. DEC 8640	1	8
I.C. DEC 8837	8	16
I.C. DEC 9602	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REF													
												X-Y COORDINATE HOLE LOCATION	K-CO-M9301-0-4	1
												ASSY/DRILLING HOLE LAYOUT	D-AH-M9301-0-5	2
												MODULE ECO HISTORY	B-MH-M9301-0-6	3
1	1	1	1	1	1	1	1	1	1			ETCHED CIRCUIT BOARD	5011228	4
4	4	4	4	4	4	4	4	4	4	C1,C7,C14,C22		CAP .22µF 50V	1012274-01	5
25	25	25	25	25	25	25	25	25	25	C2 THRU C6, C8 THRU C13 C15 THRU C21, C23 THRU C29		CAP .01 µF 100V 20%	1001610-01	6
2	2	2	2	2	2	2	2	2	2	C30, C37		CAP .221µF 250V 20%	1200043	7
4	4	4	4	4	4	4	4	4	4	C32, C33, C38, C39		CAP 39 µF 10V 10%	1000076	8
3	3	3	3	3	3	3	3	3	3	C34, C35, C36		CAP 270pF 100V 5%	1200022	9
3	3	3	3	3	3	3	3	3	3	D1, D2, D3		DIODE DG24 IN3626	1100114	10
8	8	8	8	8	8	8	8	8	8	R1 THRU R8		RES 12K 1/4W 5%	1320473	11
2	2	2	2	2	2	2	2	2	2	R9, R12		RES 1K 1/4W 5%	1320365	12
4	4	4	4	4	4	4	4	4	4	R11, R13, R14, R18		RES 4.7K 1/4W 5%	1300447	13
2	2	2	2	2	2	2	2	2	2	R16, R17		RES 30K 1/4W 5%	1302394	14
3	3	3	3	3	3	3	3	3	3	R19, R21, R23		RES 47Ω 1/4W 5%	1300202	15
3	3	3	3	3	3	3	3	3	3	R20, R22, R24		RES 2K 1/4W 5%	1302388	16
2	2	2	2	2	2	2	2	2	2	R25, R26		RES 383Ω 1/4W 1%	1325125	17
2	2	2	2	2	2	2	2	2	2	E1, E22		28 RES DIVIDER NETWORK	13-12628-00	18
2	2	2	2	2	2	2	2	2	2	E7, E14		25 RES DIVIDER NETWORK	13-12628-01	19
8	8	8	8	8	8	8	8	8	8	E2, E3, E8, E9 E15, E23, E27, E28		I.C. DEC 8881	1909705	20
2	2	2	2	2	2	2	2	2	2	E4, E10		I.C. DEC 7402	1909204	21
1	1	1	1	1	1	1	1	1	1	E13		I.C. DEC 7474	1905547	22
3	3	3	3	3	3	3	3	3	3	E16, E18, E25		I.C. DEC 8837	1911116	23
1	1	1	1	1	1	1	1	1	1	E17		I.C. DEC 7420	1905577	24
2	2	2	2	2	2	2	2	2	2	E19, E24		I.C. DEC 314A	1909704	25
1	1	1	1	1	1	1	1	1	1	E20		I.C. DEC 8640	1911469	26
1	1	1	1	1	1	1	1	1	1	E21		I.C. DEC 9602	1910951	27
1	1	1	1	1	1	1	1	1	1	E26		I.C. DEC 7437	1910091	28
1	1	1	1	1	1	1	1	1	1	E29		I.C. DEC 7476	1905585	29
1	1	1	1	1	1	1	1	1	1	S1		SWITCH, DIP, 10 POLE	12111B4-06	30
												~~SWITCH COVER~~	~~12111B4-03~~	31
3	3	3	3	3	3	3	3	3	3			EYELET (FASTON)	9009200	32
3	3	3	3	3	3	3	3	3	3	TP1, TP2, TP3		TAB (FASTON)	9207112	33
2	2	2	2	1	2	2	2	2	2			HANDLE FLIP/CHIP MAGENTA	9028337-06	34
4	4	4	4	2	4	4	4	4	4			EYELET	9006732	35
1	1	1	1	1	1	1	1	1	1	C31		CAP 1µF 35V 10%	1001776	36
M9301-YK	M9301-YJ	M9301-YE	M9301-YH	M9301-YF	M9301-YD	M9301-YL	M9301-YB	M9301-YA	M9301					

FIRST USED ON OPTION MODEL: 11/04

ETCH BOARD REV. F1

PARTS LIST

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

REV.	REVISIONS	ECO NO.	DEC NO.	EIA NO.	DEC NO.	EIA NO.
F	ADD C31	6-00682				
E	CHANGE W6	6-00602				
D	ADD W6	6-00603				
C	ADD W5	6-00604				
B	ADD W4	6-00605				
A	ADD W3	6-00606				
	ADD W2	6-00607				
	ADD W1	6-00608				
	ADD C30	6-00609				
	ADD C29	6-00610				
	ADD C28	6-00611				
	ADD C27	6-00612				
	ADD C26	6-00613				
	ADD C25	6-00614				
	ADD C24	6-00615				
	ADD C23	6-00616				
	ADD C22	6-00617				
	ADD C21	6-00618				
	ADD C20	6-00619				
	ADD C19	6-00620				
	ADD C18	6-00621				
	ADD C17	6-00622				
	ADD C16	6-00623				
	ADD C15	6-00624				
	ADD C14	6-00625				
	ADD C13	6-00626				
	ADD C12	6-00627				
	ADD C11	6-00628				
	ADD C10	6-00629				
	ADD C9	6-00630				
	ADD C8	6-00631				
	ADD C7	6-00632				
	ADD C6	6-00633				
	ADD C5	6-00634				
	ADD C4	6-00635				
	ADD C3	6-00636				
	ADD C2	6-00637				
	ADD C1	6-00638				
	ADD E29	6-00639				
	ADD E28	6-00640				
	ADD E27	6-00641				
	ADD E26	6-00642				
	ADD E25	6-00643				
	ADD E24	6-00644				
	ADD E23	6-00645				
	ADD E22	6-00646				
	ADD E21	6-00647				
	ADD E20	6-00648				
	ADD E19	6-00649				
	ADD E18	6-00650				
	ADD E17	6-00651				
	ADD E16	6-00652				
	ADD E15	6-00653				
	ADD E14	6-00654				
	ADD E13	6-00655				
	ADD E12	6-00656				
	ADD E11	6-00657				
	ADD E10	6-00658				
	ADD E9	6-00659				
	ADD E8	6-00660				
	ADD E7	6-00661				
	ADD E6	6-00662				
	ADD E5	6-00663				
	ADD E4	6-00664				
	ADD E3	6-00665				
	ADD E2	6-00666				
	ADD E1	6-00667				
	ADD S1	6-00668				
	ADD TP3	6-00669				
	ADD TP2	6-00670				
	ADD TP1	6-00671				
	ADD W7	6-00672				
	ADD W8	6-00673				
	ADD W9

4	4	4	4	4	4	4	4	4	E5, E6, E11, E12	SOCKET, 16 PIN, I.C.	1211813	37
Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	E5	I.C. DEC. TRI-STATE 2048 ROM	23Ø34A9	38
Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	E6	I.C. DEC TRI-STATE 2048 ROM	23Ø35A9	39
Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	E11	I.C. DEC TRI-STATE 2048 ROM	23Ø36A9	40
Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23Ø37A9	41
Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23Ø38A9	42
Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23Ø39A9	43
Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23Ø4ØA9	44
Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23Ø41A9	45
Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23Ø42A9	46
Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23Ø43A9	47
Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23Ø44A9	48
Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23Ø45A9	49
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23Ø46A9	50
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23Ø47A9	51
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23123A9	52
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23Ø49A9	53
Ø	Ø	Ø	5	Ø	Ø	5	Ø	Ø	W1 THRU W5	JUMPER, WIRE, WHITE INSULATION.	9ØØ9185	54
2	2	2	2	2	2	2	2	2	R10, R15	RES 220Ω, 1/4W, 5%	1300271	55
2	2	2	2	2	2	2	2	2		SPLIT LUG	9006735	56
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23480A9	57
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23481A9	58
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23482A9	59
Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23483A9	60
Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23332A9	61
Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23333A9	62
Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23334A9	63
Ø	Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23335A9	64
Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23538A9	65
Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23539A9	66
Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23540A9	67
Ø	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23541A9	68
Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23520A9	69
Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23521A9	70
Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23522A9	71
Ø	1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23523A9	72
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		WIRE 30 GA.	9105740-55	73
1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E5	I.C. DEC TRI-STATE 2048 ROM	23744A9	74
1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E6	I.C. DEC TRI-STATE 2048 ROM	23745A9	75
1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E11	I.C. DEC TRI-STATE 2048 ROM	23746A9	76
1	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	E12	I.C. DEC TRI-STATE 2048 ROM	23747A9	77
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		CEMENT PERMABOND	9009157	78

QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
M9301-YK	M9301-YJ	M9301-YE	M9301-YH	M9301-YF	M9301-YD	M9301-YC	M9301-YB	M9301-YA	M9301			

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR/BOOTSTRAP	D	CS	M9301-0-1	A
SCALE —	SHEET 2 OF 5		DIST.	

M9301-0-1

9

R17 30K +5V — C32 39 µF — D1 DG64 — W6 *** — 6D1 ENB BOOT ADRS L

+5V — R12 1K

8640 E20 — 7474 E13 — 8881 E28 — BF1 — BUS AC LO L

BUS DC LO L BF2 — 8837 E25 — DC LO H — 7437 E26

R16 30K +5V — C31 1µF — D2 DG64

+5V — R15 220Ω — TP2 — TP3 — EXTERNAL BOOT SWITCH — 8622 E21 8M5 — PWR UP CLR L

7476 E29 — ENAB DATA H

8640 E20 — BUS AC LO L BF1 — 8640 E20 — +5V — R10 220Ω — TP1 — SI-2 — POWER UP REBOOT ENABLE

8837 E25 — DC LO H — R24 2K — R23 47Ω — C36 270 pF

8881 E28 — R20 2K — +5V — R19 47Ω — C34 270pF 150NS — R22 2K — R21 47Ω — C35 270 pF 150NS — BU1 — BUS SSYN L

BUS AI7 L BS1 — BUS AI6 L BS2 — BUS AI5 L BR1 — BUS AI4 L BR2 — BUS AI3 L BP1 — BUS MSYN L BV1 — 8881 E23 / 8881 E15 — BUS AI7 L … BUS AØ9 L

314 E24 — 8881 E27 — BUS SSYN L

BUS C1 L BT2 — 8837 E25

+5V — R14 4.7K — R13 4.7K — +5V — ENAB DATA L — ENAB DATA H — 8881 E27 — 8831 E27

BUS INIT L AA1 — R18 4.7K — +5V — C33 39µF — D3 D664 — 8640 E20 — 8881 E28 — +5V — R11 4.7K — PWR UP CLR L

BUS AØ6 L BL2 — BUS AØ8 L BM2 — BUS AØ4 L BK2 — BUS AØ5 L BK1 — BUS AØ3 L BJ1 — BUS AØ1 L BH1 — BUS AØ2 L BJ2 — BUS AØ7 L BL1 — 8837 E18 — AØ8 H … AØ1 H

E25-4 DC LO H

BUS AI2 L BP2 — BUS AI1 L BN1 — BUS AI0 L BN2 — BUS AØ3 L BM1 — 8837 E16 — 8837 E25 — 7420 E17 — +5V — R9 1K — SI-1 — LOW ROM ENABLE — * 765XXXL — * 773XXX L — 7437 E26

3'4 E19 — 7437 E26 — ENAB JUMP L — 765XXX L

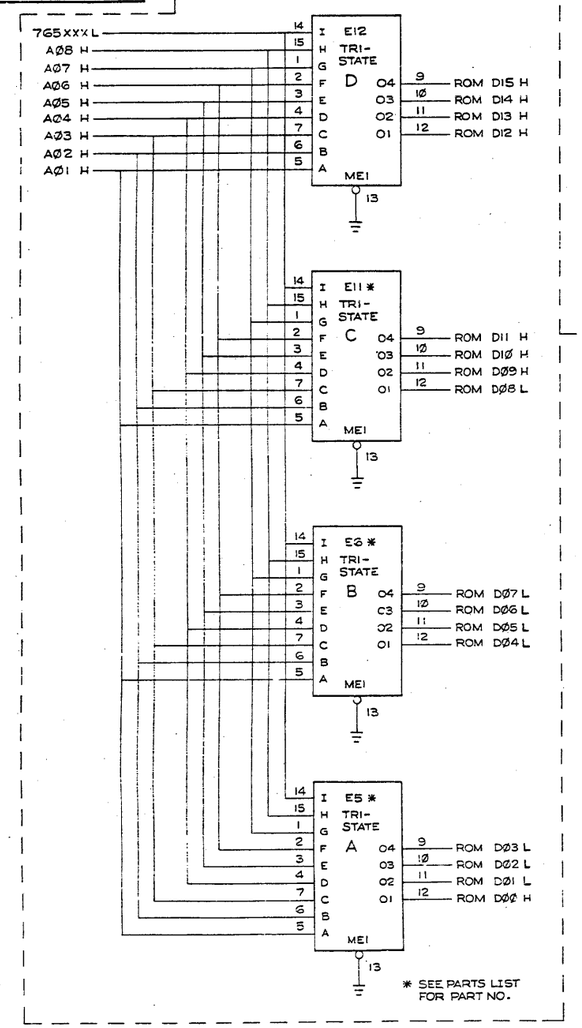
* ADRESS BITS A13-A17 ARE DECODED BY E24

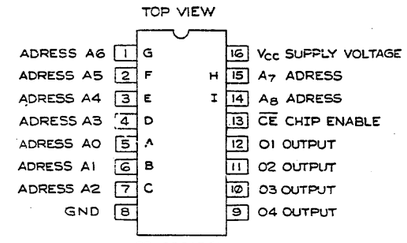
** CAUTION SHOULD BE TAKEN TO GUARANTEE PROPER NOISE FILTERING & LOGIC LEVELS ON THESE INPUTS

*** JUMPER W6 SHOULD ONLY BE INSTALLED IN 11/55 AND 11/70 COMPUTERS WHOSE BACKPLANES HAVE BEEN MODIFIED FOR THIS MODULE.

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR/ BOOTSTRAP	D	CS	M9301-0-1	V
SCALE —	SHEET 3 OF 5		DIST.	

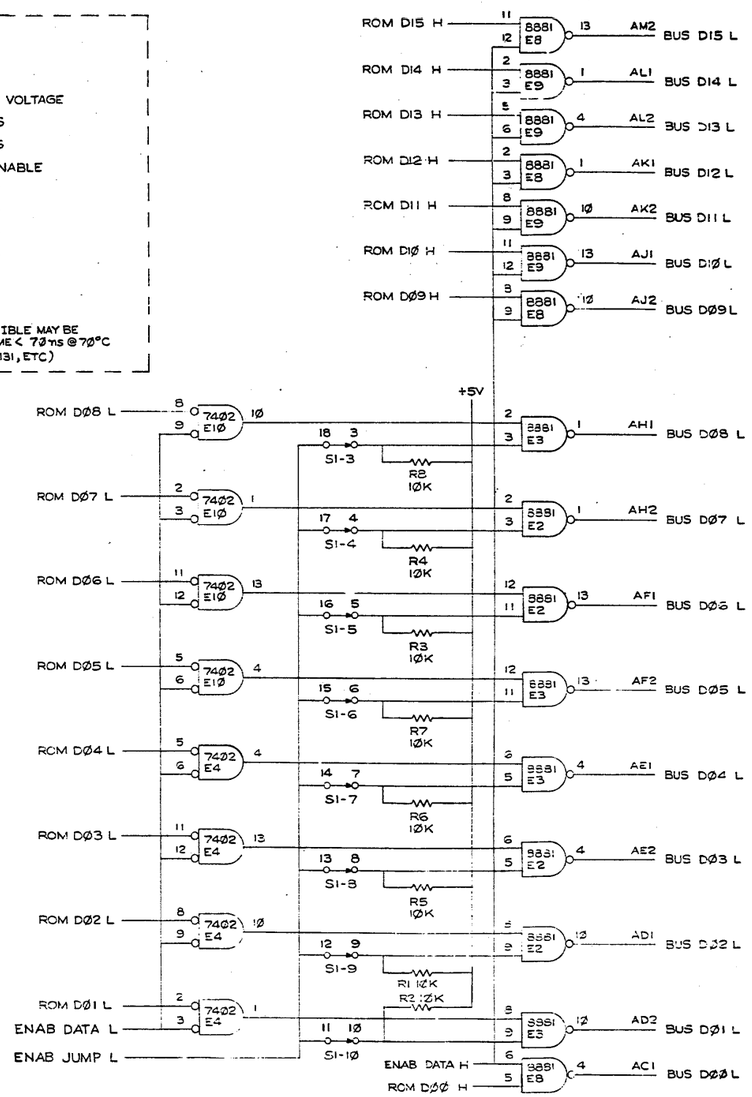




23-000A901

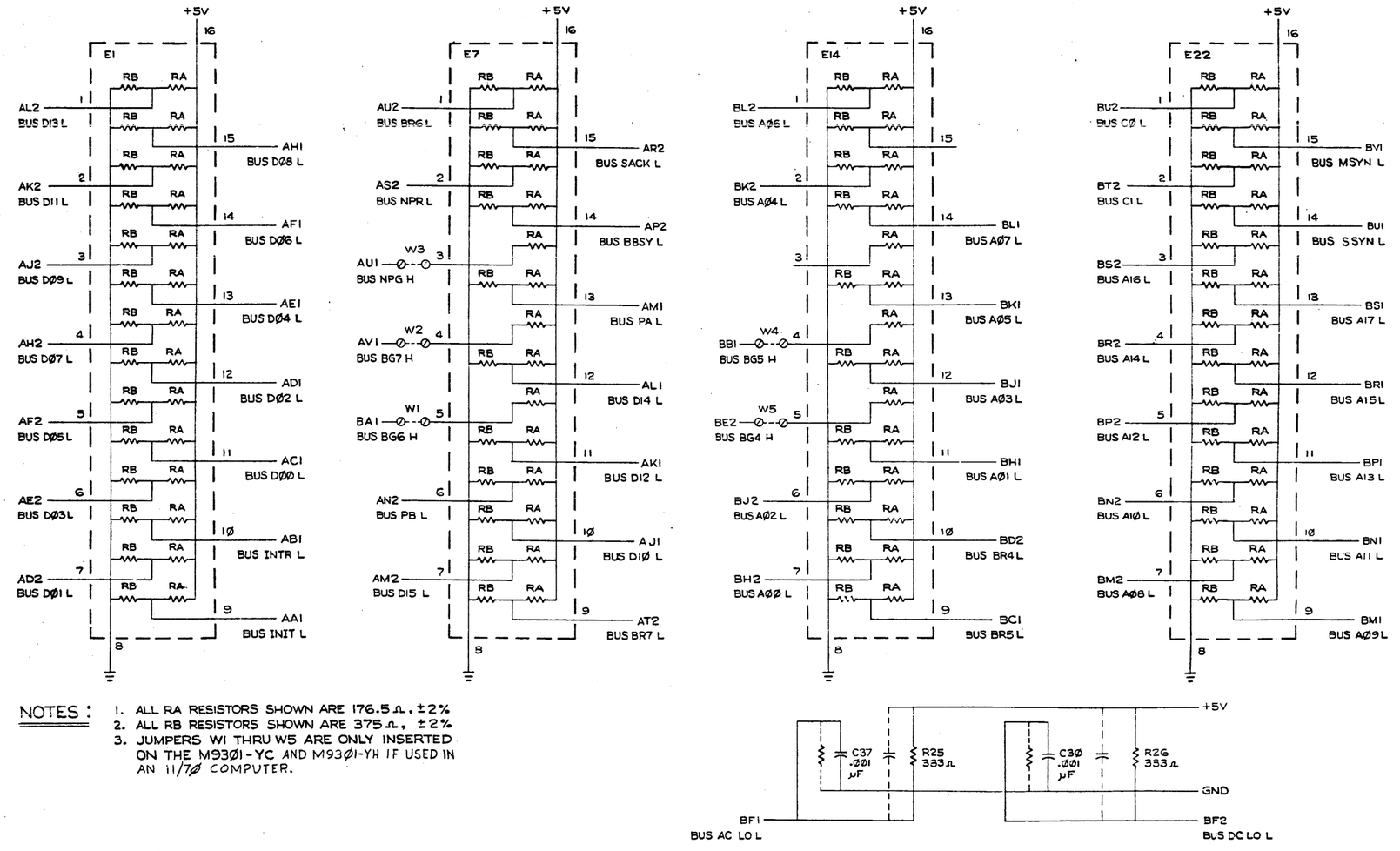
3. BLANK PROMS HAVE DEC PART NO. 23-000A901
4. BIPOLAR 2048 (512 X 4) BIT PROMS PIN COMPATIBLE MAY BE USED WITH TRI-STATE OUTPUTS AND ACCESS TIME < 70 ns @ 70°C (INTERSIL 5624, MMI 6306, SIGNETICS 825131, ETC)

ADRESS RANGE	
765000-765776	LOW ROM
773000-773776	HIGH ROM



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR/BOOTSTRAP	D	CS	M9301-0-1	V
SCALE —	SHEET 4 OF 5		DIST.	



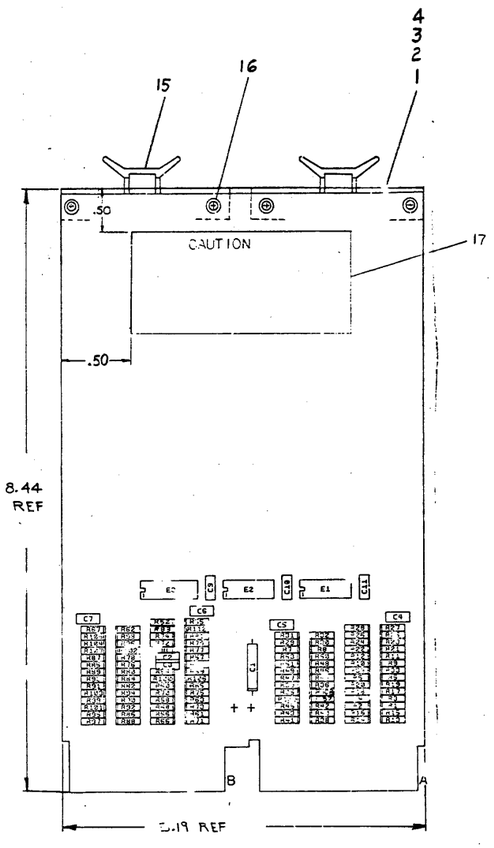
NOTES:
1. ALL RA RESISTORS SHOWN ARE 176.5Ω, ±2%
2. ALL RB RESISTORS SHOWN ARE 375Ω, ±2%
3. JUMPERS W1 THRU W5 ARE ONLY INSERTED ON THE M930I-YC AND M930I-YH IF USED IN AN 11/70 COMPUTER.

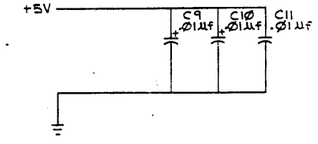
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR/BOOTSTRAP	D	CS	M930I-0-1	V
SCALE —/— SHEET 5 OF 5	DIST.			

NOTES:

1.) THE FOLLOWING REFERENCE DESIGNATIONS ARE NOT USED: C8, R64, AND R110.





IC DEC 8837	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REF				
REF		X-Y HOLE COORDINATE HOLE LOCATION	K-CO-M9302-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M9302-0-5	2
REF		MODULE ECO HISTORY	B-MH-M9302-0-6	3
REF		ETCHED CIRCUIT BOARD	5011311	4
3	C9,C10,C11	CAP .01 uf 100V 20% DISC	1001610-01	5
1	C1	CAP 39 µf 10V 10%	1000076	6
~~1~~	~~C8~~	~~CAP 6.8 µf 35V 10%~~	~~1005205~~	~~7~~
4	C4 THRU C7	CAP .22 µf 50V X%	1010274-01	8
2	C2,C3	CAP .001 µf 250V 20% DISC	1000043	9
56	R2,R4,R6,R8,R10,R12,R14,R16 R18,R20,R22,R24,R26,R28,R30 R32,R34,R36,R38,R40,R42,R44 R46,R48,R50,R54,R58,R59,R60 R62,R66,R69,R70,R72,R74,R76 R78,R80,R82,R84,R86,R88,R90 R92,R94,R96,R98,R100,R102,R57,R61,R37,R52,R93,R108,R111	RES 383 OHM 1/4W 1%	1305125	10
54	R1,R3,R5,R7,R9,R11,R13,R15 R17,R19,R21,R23,R25,R27,R29 R31,R33,R35,R39,R41,R43,R45 R47,R49,R51,R53,R55,R56,R59 R61,R63,R65,R67,R71,R73 R75,R77,R79,R81,R85,R87,R89 R91,R93,R95,R97,R99,R101, R103 THRU R107,R109,R112	RES 178 OH 1/4W 1%	1311422	11
1	E2	I.C. DEC 7430	1905578	12
1	E1	I.C. DEC 8881	1909705	13
1	E3	I.C. DEC 8837	1911116	14
2		HANDLE, FLIP-CHIP (MAGENTA)	9008337-6	15
4		EYELETS	9006732	16
1		DECAL	B-EC-7416791-C-1	17

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL

ETCH BOARD REV B

REV	CHANGE NO.	CHK	REVISIONS
B	M9307-0001	T. DUDANIEWICZ	6-1-76
C	M9302-0000	T. DUDANIEWICZ	6-1-76
D	M9302-0002	R. BARRY	14 JUNE 76

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

SEMICONDUCTOR CONVERSION CHART

DRN. J. Mays DATE 10/21/74
CHK'D. DATE 11-15-74
ENG. DATE 11-15-74
PROJ. ENG. DATE 3-25-75
PROD. DATE 3/25/75
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION

TITLE
UNIBUS™ TERMINATOR

SIZE	CODE	NUMBER	REV.
D	CS	M9302-0-1	D

DIST.

D CS M9302-0-1 D

+5V

AA2, BA2

C4 THRU C7 .22µF

C1 39µF 10V 10%

GND

AB2, AC2, AN1, API
ARI, AS1, AT1, AV2
BB2, BC2, BD1
BE1, BT1, BV2

BUS D05 L BUS D07 L BUS D09 L BUS D11 L BUS D03 L BUS D01 L BUS D04 L BUS D06 L BUS D08 L BUS D10 L BUS D02 L BUS D00 L BUS INTR L BUS INIT L BUS PA L BUS DI4 L BUS DI2 L BUS NPG H BUS BG7 H BUS SACK L BUS NPR L BUS BR7 L BUS BR6 L BUS BBSY L BUS DI5 L BUS DI3 L BUS BG6 H

R1 178 R3 178 R5 178 R7 178 R9 178 R11 178 R13 178 R15 178 R17 178 R19 178 R21 178 R23 178 R25 178 R27 178 R29 178 R31 178 R33 178 R35 178 RIØ9 178 R39 178 R41 178 R43 178 R45 178 R47 178 R49 178 R51 178 R53 178 R55 178

R2 383 R4 383 R6 383 R8 383 RIØ 383 R12 383 R14 383 R16 383 R18 383 R20 383 R22 383 R24 383 R26 383 R28 383 R30 383 R32 383 R34 383 RIØ8 383 R37 383 R36 383 R38 383 R40 383 R42 383 R44 383 R46 383 R48 383 R50 383 R52 383

AF2 AH2 AJ2 AK2 AE2 AD2 AE1 AF1 AH1 AJ1 AD1 AC1 AB1 AA1 AM1 AL1 AK1 AU1 AV1 AR2 AS2 AT2 AU2 AP2 AN2 AM2 AL2 BA1

BF1 BH1 EJ1 BK1 BL1 BM1 BF2 BH2 BJ2 BK2 BE2 BD2 BC1 BB1 BP2 BP1 BR1 BS1 BR2 BS2 BT2 BU2 BU1 BV1 BN2 BM2 BL2 BN1

R57 383 R59 178 R61 178 R63 178 R65 178 R67 178 R69 383 R71 178 R73 178 R75 178 R77 178 R79 178 R81 178 R112 178 R85 178 R87 178 R89 178 R91 178 R93 178 R95 178 R97 178 R99 178 RIØ1 178 RIØ3 178 RIØ4 178 RIØ5 178 RIØ6 178 RIØ7 178

C2 .ØØ1 µF

R54 383 R56 383 R58 383 R60 383 R62 383

C3 .ØØ1 µF

R66 383 R68 383 R70 383 R111 383 R72 383 R74 383 R83 383 R76 383 R78 383 R80 383 R82 383 R84 383 R86 383 R88 383 R90 383 R92 383 R94 383 R96 383 R98 383 RIØØ 383 RIØ2 383

BUS AC LO L BUS AØ1 L BUS AØ3 L BUS AØ5 L BUS AØ7 L BUS AØ9 L BUS DC LO L BUS AØØ L BUS AØ2 L BUS AØ4 L BUS BG4 H BUS BR4 L BUS BR5 L BUS BG5 H BUS AI2 L BUS AI3 L BUS AI5 L BUS AI7 L BUS AI4 L BUS AI6 L BUS C1 L BUS CØ L BUS SSYN L BUS MSYN L BUS AIØ L BUS AØ8 L BUS AØ3 L BUS AI1 L

SPARES

E1 8881 E3 8837

BUS NPG H — AU1 — E3 8837 pin 13, 9 → 12
BUS BG7 H — AV1 — E3 8837 pin 5, 7 → 6
BUS BG6 H — BA1 — E3 8837 pin 3 → 4
BUS BG5 H — BE2 — E3 8837 pin 15 → 14
BUS BG4 H — BB1 — E3 8837 pin 1 → 2

12, 6, 4, 14 → E2 7430 pin 8 → E1 8881 pin 2, 3 → 1 → AR2 → BUS SACK L

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR	D	CS	M9302-0-1	D
SCALE —	SHEET 2 OF 2	DIST.		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

	SEQUENCE	SEQUENCE
DRAWING DIRECTORY (DD11-C)	B-DD-DD11-C	
BACK PLANE ASSY (DD11-CK)	D-IA-7011528-0-0	
POWER HARNESS (BA11-K,BA11-L)	D-IA-7011127-0-0	
BACK PLANE ASSY (DD11-CF)	D-IA-7012445-0-0	
POWER HARNESS (BA11-F,BA11-P)	E-IA-7011128-0-0	
MODULE UTILIZATION (DD11-C)	D-MU-DD11-C-2	
CIRCUIT SCHEMATIC (DD11-C)	D-CS-5411560-0-1	
WIRE LIST (COMPLETE)	K-WL-DD11-C-1	

NOTE: DD11CK assemblies are electrically incompatible with DD11-CF assemblies. A DD11-CK will work in BA11-L and BA11-K boxes. A DD11-CF will work in BA11-F and BA11-P boxes only.

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
DD11-CK	BACK PLANE ASSY (BA11-L/BA11-K)	X
DD11-CF	BACK PLANE ASSY (BA11-F/BA11-P)	X

REVISIONS	REV	CHG. NO.	DATE
	A	DD11C-2	5-76
	B	DD11C-3	5-77

USED ON OPTION/MODEL

		DATE
DRN. D. HEALY		6/25/75
CHK'D. D. HEALY		6/25/75
PROJ ENG. R. BARRY		7/30/75
PROD. R.K.		8/18/75
FIELD SERV.		DATE

SHEET 1 OF 3

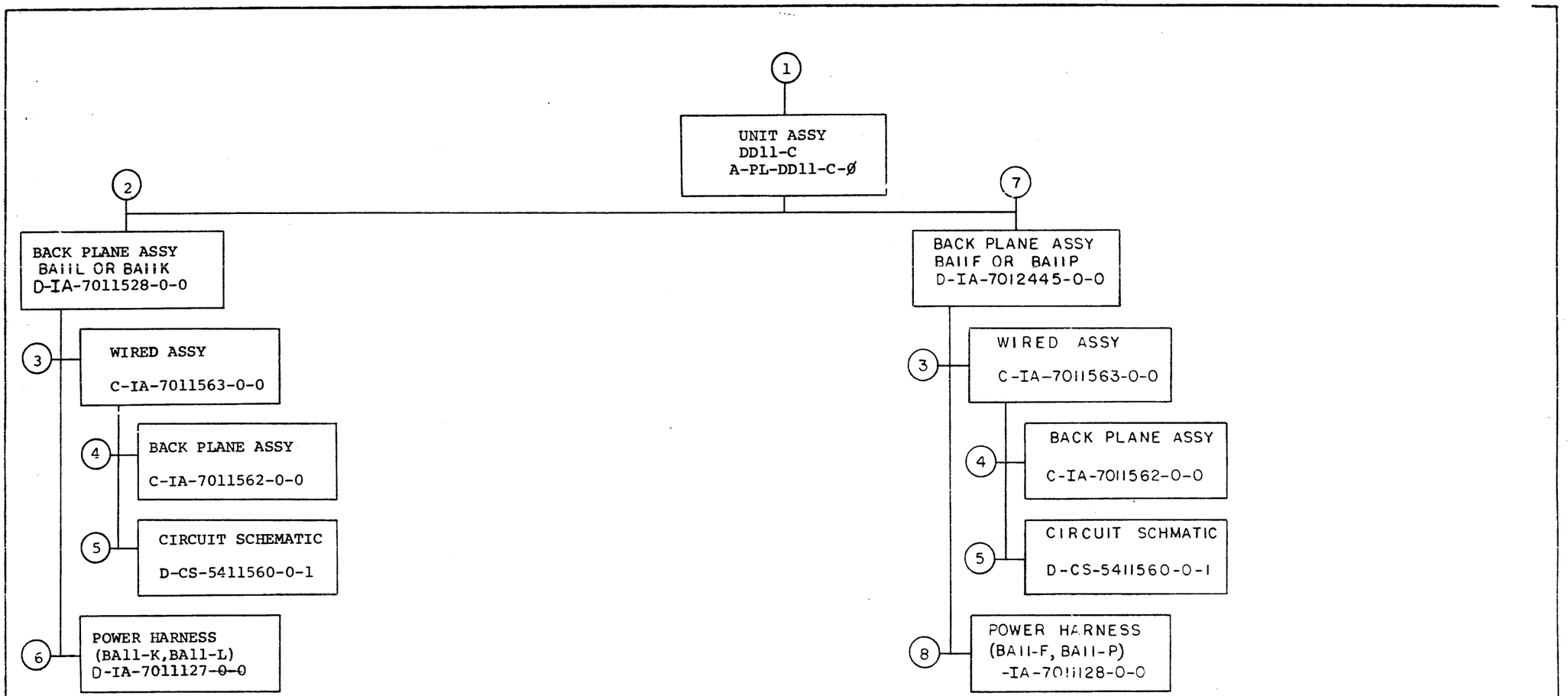
TITLE: DRAWING DIRECTORY DD11-C

SIZE	CODE	NUMBER	REV
B	DD	DD11-C	B

DIST

EN-01062-1A-16-R972-(325)

DRB 106



TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY DD11-C	SHEET 2 OF 3	B	DD	DD11-C	B

DRB 107

CUSTOMER PRINT SET 1	MFG. SET	ELECTIRCAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	A-PL-DD11-C-Ø		1	UNIT ASSY DD11-C	
X			D-MU-DD11-C-2		1	MODULE UTILIZATION	
X		2	D-IA-7011528-0-0		1	BACK PLANE ASSY (BA11L,BA11K)	
		3	C-IA-7011563-0-0		1	WIRED ASSY	
X			K-WL-DD11-C-1		1	WIRE LIST	
			A-WT-7011563-0		1	AWT REV STATUS	
X		5	D-CS-5411560-0-1			CIRCUIT SCHEMATIC	
X		6	D-IA-7011127-0-0		1	POWER HARNESS (BA11-K,BA11-L)	
X		7	D-IA-7012445-0-0		1	BACK PLANE ASSY (BA11-F,BA11-P)	
X		8	E-IA-7011128-0-0		1	POWER HARNESS (BA11-F,BA11-P)	

CUSTOMER PRINT SET 1	MFG. SET	MECHANICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	A-PL-DD11-C-Ø		1	UNIT ASSY DD11-C	
		2	D-IA-7011528-0-0		1	BACK PLANE ASSY (BA11-L,BA11-K)	
		3	C-IA-7011563-0-0		1	WIRED ASSY	
			B-DC-5308753-0-0		1	DECAL 21 POINT (LTR)	
			A-DC-7411881-0-0		1	LABEL, AWT REV STATUS	
		4	D-IA-7011562-0-0		1	BACK PLANE ASSY	
		5	D-CS-5411560-0-1			CIRCUIT SCHEMATIC	
			D-AH-5411560-0-4			ASSY/DRILLING HOLE LAYOUT	
			K-CO-5411560-0-5			X-Y COORDINATE HOLE LOCATION	
			B-MH-5411560-0-6			MODULE ECO HISTORY	
			5011559			ETCH CIRCUIT BOARD	
		6	D-IA-7011127-0-0		1	POWER HARNESS (BA11-K,BA11-L)	
		7	D-IA-7012445-0-0		1	BACK PLANE ASSY (BA11-F,BA11-P)	
		8	E-IA-7011128-0-0		1	POWER HARNESS (BA11-F,BA11-P)	

CUSTOMER PRINT SET CODES

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY DD11-C	SHEET 3 OF 3	B	DD	DD11-C	B

DRB 108

WIRE TABLE

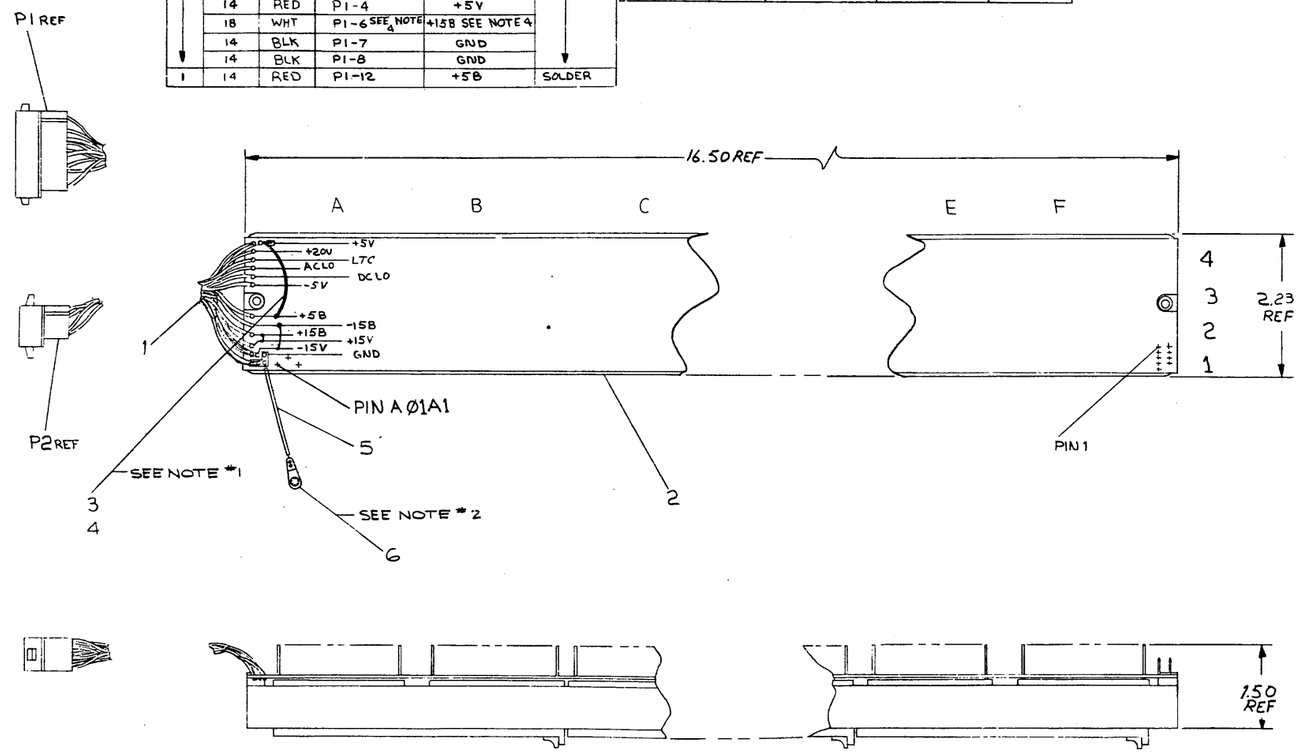
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	WITH
1	18	BLK	P2-1	GND	SOLDER
	18	BRN	P2-2	LTC	
	18	VIO	P2-3	DC LO	
	18	YEL	P2-4	AC LO	
	14	RED	P1-1	+5V	
	18	GRY	P1-2	+15	
	18	ORN	P1-3	+20V	
	14	RED	P1-4	+5V	
	18	WHT	P1-6 SEE NOTE 4	+15B SEE NOTE 4	
	14	BLK	P1-7	GND	
	14	BLK	P1-8	GND	
1	14	RED	P1-12	+5B	SOLDER

WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	WITH
1	18	BLU	P1-13	-15V	SOLDER
1	18	BRN	P1-14	-5V	
1	18	GRN	P1-15 SEE NOTE 4	-15B SEE NOTE 4	
1	18	GRN	P1-6 SEE NOTE 5	+15B SEE NOTE 5	
1	18	WHT	P1-15 SEE NOTE 5	-15B SEE NOTE 5	SOLDER

NOTES:

1. WHEN THE DD11-CK'S USED WITH A BA11-K EXPANSION BOX WITHOUT BATTERY BACK-UP (i.e., NO 7857 OR 7850), INSTALL THE 7-WIRE JUMPERS SHOWN:
   1) -15 TO -15B
   2) +15 TO +15B
   3) +5 TO +5B (SEE NOTE 3)
   USE #22 SHIELDED BUS WIRE ON SIDE 2 THIS WILL PROVIDE POWER TO THE MOS MEMORY VOLTAGE RAILS.
2. INSTALL SHAKEPROOF SOLDER LUG (ITEM #6) UNDER THE SYSTEM UNIT MOUNTING SCREW TO PROVIDE A LOGIC GROUND TO CHASSIS GROUND CONNECTION
3. BA11-K'S THAT USE THE 5410869-YA-1 POWER DISTRIBUTION (i.e., 11/34A, 11/34 WITH FP11-AU, AND SOME 11/04'S) AND HAVE MORE THAN ONE DD11-CK (OR AN ADDITIONAL DD11-DK) CAN ONLY HAVE THE +5 TO +5B JUMPER IN ONE OF THE BACK PANELS. IF TWO OF THE BACK PANELS HAVE THE JUMPER IN, THE +5V REGULATORS MAY BE CONNECTED TOGETHER. TYPICALLY THIS JUMPER IS IN THE FIRST BACK PANEL, BUT IT MAY BE PLACED IN ONE OF THE OTHER BACK PANELS IF DEEMED NECESSARY FOR POWER REQUIREMENTS.
4. WHEN USING REV. C HARNESS USE THESE POINT-TO-POINT CONNECTIONS.
5. WHEN USING REV B OR EARLIER HARNESS, USE THESE POINT-TO-POINT CONNECTIONS



1	SHAKEPROOF SOLD. LUG	9008150	6
2"	WIRE #18AWG STRD (BLK)	9107360-00	5
6"	TUBING #22 (BLUE)	9107256-06	4
8"	WIRE, BUS #22	9107560-01	3
1	WIRED ASSY DD11-C	D-IA-7011563-0-0	2
1	HARNESS POWER	D-IA-7011127-0-0	1
	DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
ANGLES ±0°30'							
SURFACE QUALITY IN ✓ MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.002	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH —

DRN. [illegible] 6/1/2017
CHK'D. [illegible] 6/1/17
ENG. [illegible] 7-10-75
PROJ. ENG. [illegible] 7-10-75
PROD. [illegible] 8/1/75
NEXT HIGHER ASSY. A-PL-DD11-C-0
SCALE NONE
SHEET 1 OF 1

FIRST USED ON BA11-L, K

digital

TITLE BACK PLANE ASS'Y DD11-CK

SIZE D | CODE | NUMBER 7011528-0-0 | REV. D | DIST.

CHG.	REVISIONS CHANGE NO.	REV.
I.S	DD11C-00001	A
	DD11C-00002	B
	DD11C-00003	C
	7011528-0001	D

DEC FORM NO. DMD 1100-C

18

WIRE TABLE

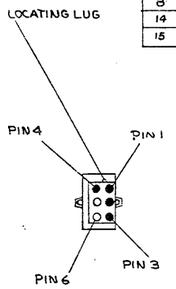
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT	FROM CONNECTION	FROM TERM	TO POINT	TO CONNECTION	TO TERM	SIGNAL
7	18	GRN	1	P1-15	ITEM 3	28		STRIP & TIN	-15B
8	18	BRN	2	P1-14		19			-5V
9	18	BLU	3	P1-13		24			-15V
6	14	RED	4	P1-12		26			+5B
5	14	BLK	5	P1-8		29			GND
5	14	BLK	6	P1-7		27			GND
10	18	WHT	7	P1-6		25			+15B
6	14	RED	8	P1-4		17			+5V
11	18	ORN	9	P1-3		18			+20V
12	18	GRY	10	P1-2		23			+15V
6	14	RED	11	P1-1		16			+5V
13	18	BLK	12	P2-1		20			GND
8	18	BRN	13	P2-2		22			LTC
14	18	VIO	14	P2-3		21		STRIP & TIN	DC LO
15	18	YEL	15	P2-4	ITEM 3	30		TIN	AC LO

NOTES:
1. USE TIE, CABLE (X) WHERE INDICATED.

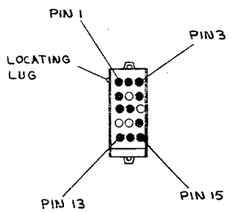
DO NOT REDUCE

0 IN 6 IN 12 IN

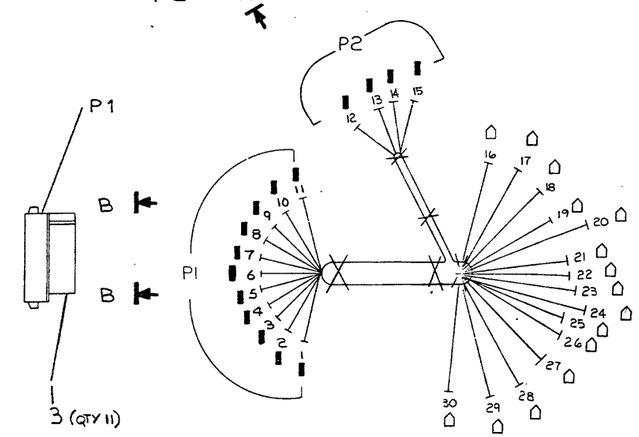
SCALE
FOR MFG PURPOSES ONLY



VIEW A-A
WIRING SIDE
SCALE: NONE



VIEW B-B
WIRING SIDE
SCALE: NONE



	QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
	A/R	WIRE #18 STRD YEL	9107360-44	15
	A/R	WIRE #18 STRD V10	9107360-77	14
	A/R	WIRE #18 STRD BLK	9107360-00	13
	A/R	WIRE #18 STRD GRY	9107360-88	12
	A/R	WIRE #18 STRD ORN	9107360-33	11
	A/R	WIRE #18 STRD GRN	9107360-55	10
	A/R	WIRE #18 STRD BLU	9107360-66	9
	A/R	WIRE #18 STRD BRN	9107360-11	8
	A/R	WIRE #18 STRD WHT	9107360-99	7
	A/R	WIRE #14 STRD RED	9107370-22	6
	A/R	WIRE #14 STRD BLK	9107370-00	5
X	5	TIE WRAP PANDUIT	9007880	4
	15	PIN MALE	1209378-01	3
	1	CONN 6 PIN MAT LOCK	1209351-06	2
	1	CONN 15 PIN MAT LOCK	1209351-15	1

SYM | QUANTITY & VARIATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	TERMINAL DIMENSION RANGE INCHES OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED	±.012	±.016	±.025	±.04	±.062	±0.1

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS
DO NOT SCALE DWG
MATERIAL SEE PARTS LIST
FINISH

DRN [illegible] 6/15/73
CHK'D [illegible] 7/1/73
ENG. [illegible] 7-30-73
PROJ. ENG. [illegible] 7-30-73
PROD. [illegible] 7/31/73
NEXT HIGHER ASSY.
D-IA-7011328-0-0
SCALE 1/1
SHEET 1 OF 1

FIRST USED ON DD11-CK

TITLE
HARNESS DD11-CK

SIZE D | CODE | NUMBER IA7011127-0-0 | REV. C | DIST.

REV.	CHANGE NO.	DESCRIPTION	DATE	APPROVED
A	7011127-00001	RELEASE	22-Oct-76	D. BARRY
B	7011127-00502	REVISION	22-Oct-76	D. BARRY
C	DD11C00003	REVISION	2-Dec-77	D. BARRY

DEC FORM NO. 88 1004

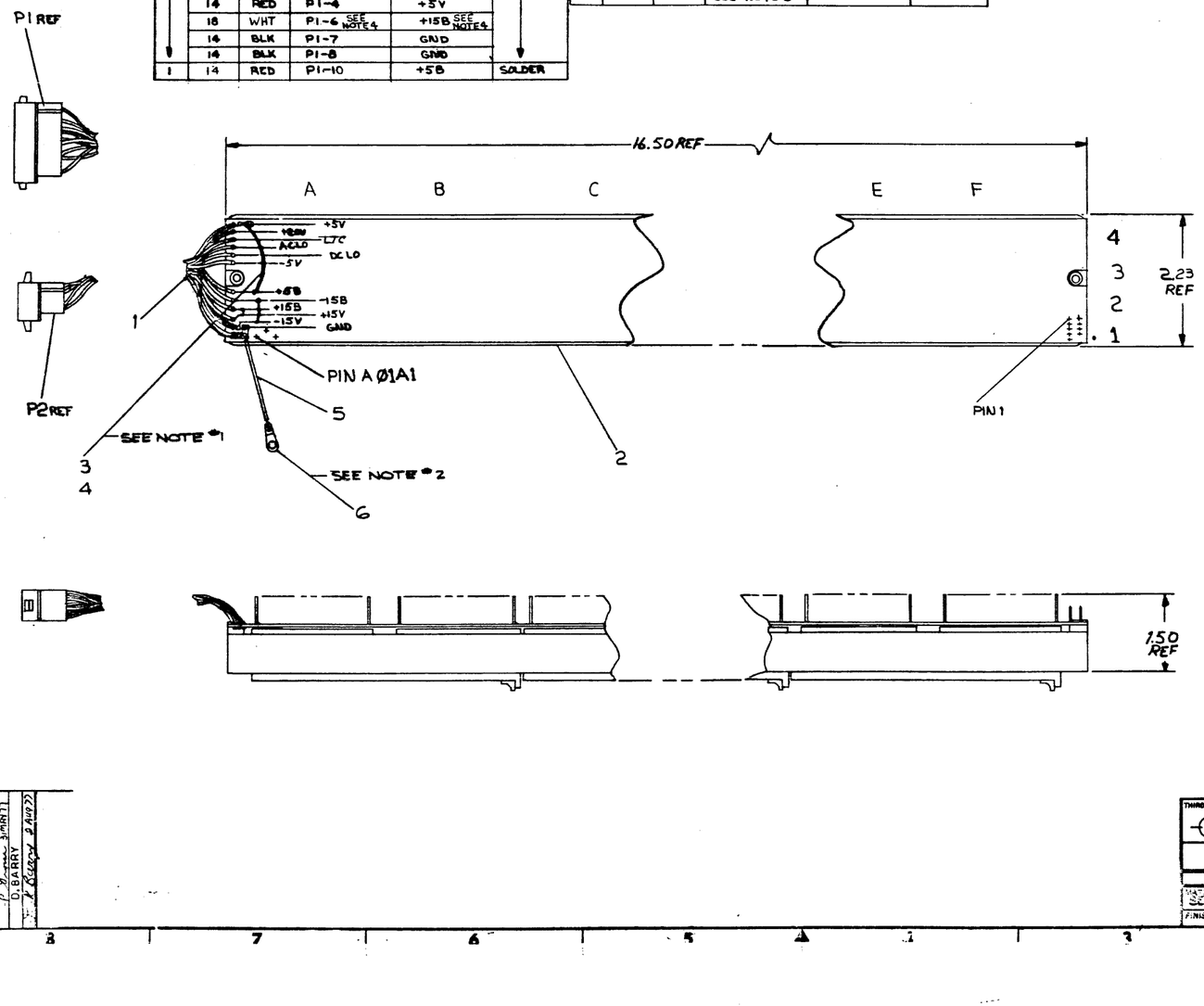
WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	WITH
1	18	BLK	P2-1	GND	SOLDER
	18	BRN	P2-2	LTC	
	18	VIO	P2-3	DC LO	
	18	YEL	P2-4	AC LO	
	14	RED	P1-1	+5V	
	18	GRY	P1-2	+15	
	18	ORN	P1-3	+20V	
	14	RED	P1-4	+5V	
	18	WHT	P1-6 SEE NOTE 4	+15B SEE NOTE 4	
	14	BLK	P1-7	GND	
	14	BLK	P1-8	GND	
1	14	RED	P1-10	+5B	SOLDER

WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	WITH
1	18	BLU	P1-13	-15V	SOLDER
1	18	BRN	P1-14	-5V	
1	18	GRN	P1-15 SEE NOTE 4	-15B SEE NOTE 4	
1	18	GRN	P1-6 SEE NOTE 5	+15B	
1	18	WHT	P-15 SEE NOTE 5	-15B	SOLDER

NOTES:
1. WHEN THE DDII-CF IS USED WITH A BAII-F EXPANSION BOX WITHOUT BATTERY BACK-UP, INSTALL THE THREE JUMPERS SHOWN:
   1) -15 TO -15B
   2) +15 TO +15B
   3) +5 TO +5B
   USE #22 SHIELDED BUS WIRE ON SIDE2. THIS WILL PROVIDE POWER TO THE MOS MEMORY VOLTAGE RAILS.
2. INSTALL SHAKEPROOF SOLDER LUG (ITEM #6) UNDER THE SYSTEM UNIT MOUNTING SCREW TO PROVIDE A LOGIC GROUND TO CHASSIS GROUND CONNECTION
3. THE BAII-F POWER HARNESS ITEM #1 IS NOT ELECTRICALLY COMPATIABLE WITH THE BAII-L OR BAII-K MOUNTING BOX.
4. WHEN USING REV. A HARNESS USE THESE POINT-TO-POINT CONNECTIONS.
5. WHEN USING REV Ø HARNESS USE THESE POINT-TO-POINT CONNECTIONS.



ITEM	QTY	DESCRIPTION	DWG./PART NO.
7		SHAKEPROOF SOLD LUG	9008150
6	2"	WIRE #18AWG STRD (BLK)	9107360-00
5	6"	TUBING #22 (BLUE)	9107256-06
4	6"	WIRE, BUS #22	9107560-01
3	1	WIRED ASSY DB11-C	D-IA-7011563-0-0
2	1	HARNESS, POWER F BOX	D-IA-7011123-0-0
1			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCUP (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES				
SURFACE QUALITY IN MICROINCHES		OVER 0 TO 0.3	OVER 0.3 TO 1.2	OVER 1.2 TO 4.2	OVER 4.2 TO 12.0	OVER 12.0 TO 40.0 TO 80.0
	MEDIUM ☐	±.004	±.005	±.012	±.020	±.04
	PREFERRED ☐	±.010	±.010	±.025	±.04	±.080

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

QUANTITY & VARIATION

DRN	R. Seeley	1-22-76
CH'D	D. Mosby	26 FEB 76
ENG	Richard Lary	3-10-76
PROJ. ENG	R. Seeley	3-10-76
PROG	[illegible]	3-10-76
NEXT HIGHER ASSY.		
MATERIAL	SEE PARTS LIST	
A-PL-DD11-C-0		
SCALE	NONE	
FINISH		
SHEET	1 OF 1	

FIRST USED ON: BA11-F

digital

TITLE: BACK PLANE ASS'Y DD11-CF

SIZE	CODE	NUMBER	REV.
D	IA	7012445-0-0	A

DIST.

REVISIONS			
CHK	CHANGE NO.	REV.	
ASY	DD11C-00003	A	
	P. Green 3/MAY 77		
	D. BARRY		
	R. Seeley 2 MAY 77		

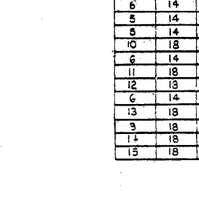
SIZE D | CODE IA | 7012445-0-0 | REV. A

WIRE TABLE

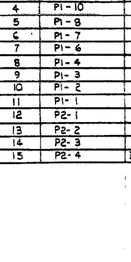
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT	FROM CONNECTION	FROM TERM	TO POINT	TO CONNECTION	TO TERM	SIGNAL
7	18	GRN	1	P1-15	ITEM 3	28		STRIP & TIN	-15 B
8	18	BRN	2	P1-14		19			-5V
9	18	BLU	3	P1-13		24			-15 V
6	14	RED	4	P1-10		26			+ 5 B
5	14	BLK	5	P1-8		29			GND
8	14	BLK	6	P1-7		27			GND
10	18	WHT	7	P1-6		25			+ 15 B
6	14	RED	8	P1-4		17			+ 5V
11	18	ORN	9	P1-3		18			+ 20V
12	18	GRY	10	P1-2		23			+15 V
6	14	RED	11	P1-1		16			+ 5V
13	18	BLK	12	P2-1		20			GND
3	18	BRN	13	P2-2		22			LTC
14	18	VIO	14	P2-3		21		STRIP & TIN	DC LO
15	18	YEL	15	P2-4	ITEM 3	30			AC LO

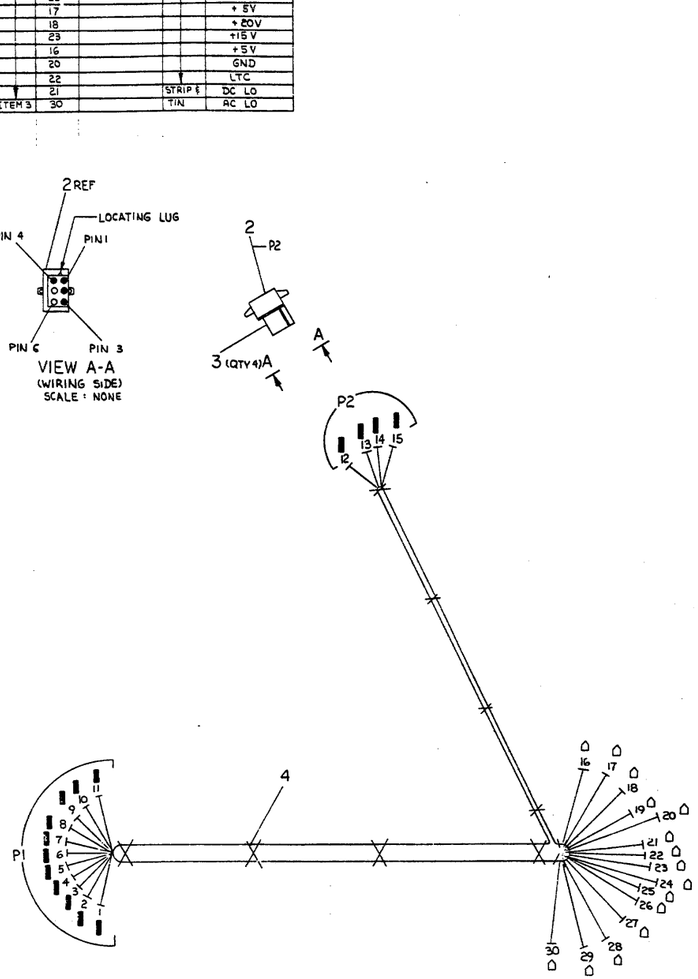
NOTES:
1. USE TIE, CABLE (X) WHERE INDICATED.

VIEW A-A
(WIRING SIDE)
SCALE : NONE



VIEW B-B
(WIRING SIDE)
SCALE : NONE





DO NOT REDUCE
SCALE
0 IN 6 IN 12 IN
FOR MANUFACTURING PURPOSES ONLY

	AR	WIRE, #18 STRD YEL	9107360-44	15
	AR	WIRE, #18 STRD VIO	9107360-77	14
	AR	WIRE, #18 STRD BLK	9107360-00	13
	AR	WIRE, #18 STRD GRY	9107360-88	12
	AR	WIRE, #18 STRD ORN	9107360-33	11
	AR	WIRE, #18 STRD GRN	9107360-55	10
	AR	WIRE, #18 STRD BLU	9107360-66	9
	AR	WIRE, #18 STRD BRN	9107360-11	8
	AR	WIRE, #18 STRD WHT	9107360-99	7
	AR	WIRE, #14 STRD RED	9107370-22	6
	AR	WIRE, #14 STRD BLK	9107370-00	5
X	9	TIE WRAP, PANDUIT	9007380-01	4
	15	PIN, MALE	1209379-01	3
	1	CONN, 6 PIN MAT LOCK	1209351-06	2
	1	CONN, 15 PIN MAT LOCK	1209351-15	1
	QTY.	DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

SYMBOL	ANGLES ±0°30'	LINEAR ADD'L DEC	NOMINAL DIMENSION RANGE (INCHES)				
	SURFACE QUALITY (CHECK ONE)		.0 to 1.5	1.5 to 6.0	6.0 to 12.0	12.0 to 48.0	OVER 48.0
		MEDIUM	±.020	±.047	±.016	±.031	±.06
	MICROINCHES	STANDARD	±.062	±.016	±.025	±.06	±.031

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH

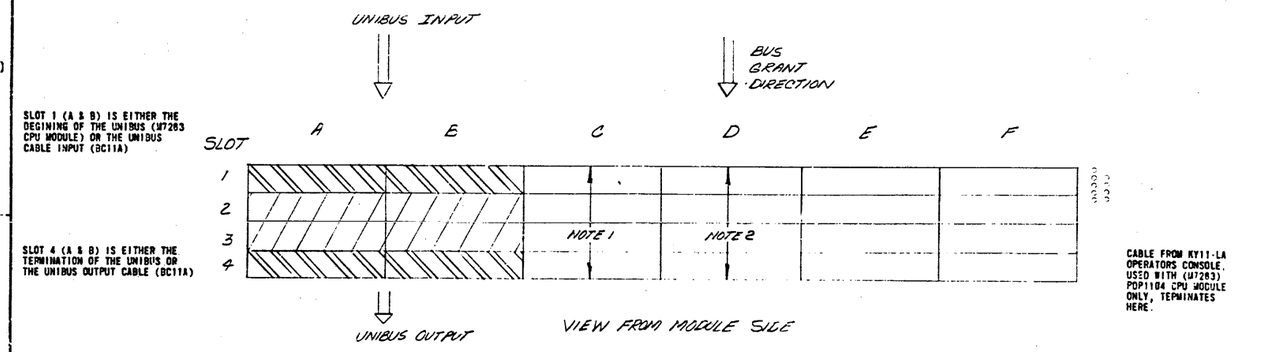
DRN. [illegible] 1 APR 77
CHK'D [illegible] 14 APR 77
ENG [illegible] 14 APR 77
APPD [illegible]
MFG [illegible]
NEXT HIGHER ASSY.

NEXT ASSY. USED ON: DD11-CF

TITLE: HARNESS DD11-CF

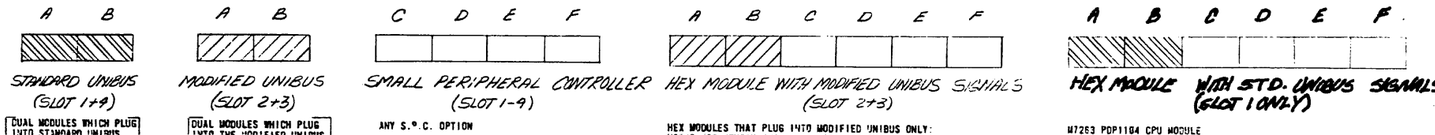
SIZE: E | CODE: [A] | NUMBER: 7011128-0-0 | REV: A

SCALE 1/1 | SHEET 1 OF 1 | DIST.



NOTES:

1. REMOVE CAI TO CDI WIRE WRAP JUMPER TO INSTALL AN NPR OPTION IN ANY SPC SLOT.
2. G727 REQUIRED IN ANY UNUSED SPC SLOT TO PROVIDE BHS GRANT CONTINUITY.
3. GRANT DIRECTION IS SLOT 1 TO SLOT 4.
4. USE M9202 TO INTERCONNECT SYSTEM UNITS INSTEAD OF M920. M9202 IS A 2 FT. UNIBUS JUMPER CABLE USED TO DISTRIBUTE UNIBUS LOADING.
5. M9302 (SACK/TERM) AND M930 (TERM) MUST NEVER BE INSTALLED IN ANY SLOT OTHER THAN SLOT 4 (A & B). POWER SUPPLY VOLTAGES WILL BE SHORTED OUT IF THESE TERMINATORS ARE MOUNTED IN THE MODIFIED UNIBUS SLOTS.
6. MODIFIED UNIBUS SECTION CARRIES CORE AND MOS MEMORY VOLTAGE RAILS AND MEMORY PARITY CONTROL SIGNALS INSTEAD OF BUS GRANT AND SOME GND SIGNALS THAT ARE CONTAINED IN STANDARD UNIBUS SLOTS.
7. INSTALL M9312 IN SLOT 2 ONLY FOR GOOD UNIBUS TERMINATION.
8. EITHER M9312 OR M9301 MAYBE USED BUT NOT BOTH.



REVISIONS			
DIR	CHANGE NO.	REV.	
AW	DD11C-00001	A	7-6-76
	DD11-C-00004	B	11-24-76
	DD11C-00005	C	3-22-77

R. BARRY
B. BERNSTEIN
J. FOLLIS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES							
ANGLES ±0°30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSIONS					
		OVER 0 TO 1.9	OVER 1.9 TO 3.5	OVER 3.5 TO 7.5	OVER 7.5 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.005	±.012	±.015	±.024	±.04
	PREFERRED ☐	±.002	±.010	±.025	±.04	±.063	±.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL

FINISH

DRN.
CHK'D
ENG.
PROJ. ENG.
PROD.
NEXT HIGHER ASSY.
SCALE
SHEET / OF /

DESCRIPTION — DEC PART NO. — ITEM NO.

FIRST USED ON B-DD-DD11-C

digital

TITLE
MODULE UTILIZATION (DD11-C)

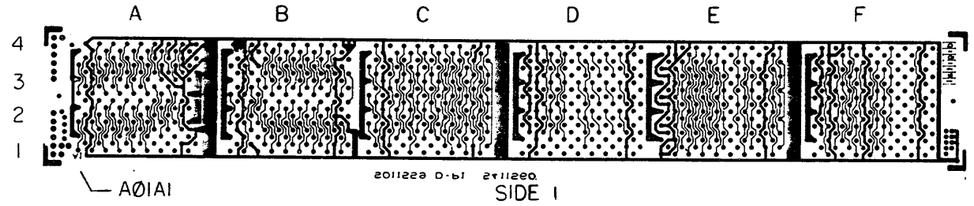
SIZE D — CODE MU — NUMBER DD11-C-2 — REV. C

DIST.

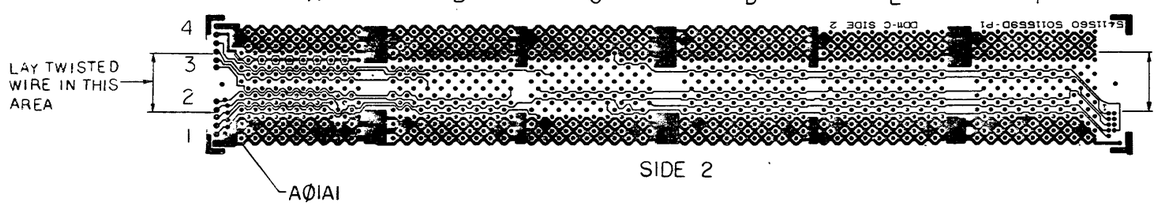
DEC SCALE NO. JD 1005

NOTES:

NOTES:
1. AH DRAWING MADE FROM SIDE 1.
2. HORIZON WIRE RUNS 1-20 MUST BE DRESSED INTO CENTER CHANNEL MARKED ON THIS DRAWING.
3. WIRES, (TWISTED PAIRS) ARE GREY AND VIOLET.
4. GREY IS GND. VIOLET IS SIGNAL LINE.
5. SIDE 1 IS DARK. SIDE 2 IS LIGHT.



RUN	FROM	TO	SIGNAL	RUN	FROM	TO	SIGNAL	RUN	FROM	TO	SIGNAL	RUN	FROM	TO	SIGNAL	RUN	FROM	TO	SIGNAL
1	B02U1	E01J1	SSYN L	5	A02P2	F01D1	BBSY L	9	B02F2	C01N1	DCLO	13	B01B1	D01P2	BG5A	17	A01V1	D01K2	BG7A
1	B02T1	E01C2	GND	5	A02T1	F01C2	GND	9	B02C2	C01T1	GND	13	B01C2	D02T1	GND LEV2	17	A01V2	D02C2	GND
2	B03U1	E04J1	SSYN L	6	A03P2	F04D1	BBSY L	10	B03F2	C04N1	DCLO	14	B04B1	D04R2	BG5E	18	A04V1	D04L2	BG7E
2	B03T1	E04C2	GND	6	A03T1	F04C2	GND	10	B03C2	C04T1	GND	14	B04C2	D03T1	GND LEV2	18	A04V2	D03C2	GND
3	B02V1	E01E1	MSYN L	7	A02A1	D01L1	INIT L	11	B01E2	D01S2	BG4A	15	B01A1	D01M2	BG6A	19	A01U1	C01A1	NPGL
3	B02T1	E01C2	GND LEV2	7	A02C2	D01T1	GND	11	B01C2	D01T1	GND	15	B01B2	D02T1	GND	19	A01T1	C01C2	GND
4	B03V1	E04E1	MSYN L	8	A03A1	D04L1	INIT L	12	B04E2	D04T2	BG4E	16	B04A1	D04N2	BG6E	20	A04U1	C04B1	NPGL
4	B03T1	E04C2	GND LEV2	8	A03C2	D04T1	GND	12	B04C2	D04T1	GND	16	B04B2	D03T1	GND	20	A04T1	C04C2	GND



IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REF		AWT REV STATUS	A-WT-7011563	5
REF		MODULE ECO HISTORY	B-MH-5411560-0-6	4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411560-0-5	3
REF		X-Y COORDINATE HOLE LOCATION	X-CO-5411560-0-4	2
1		ETCHED CIRCUIT BOARD	5011559	1
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL: DDII-CK

PARTS LIST

ETCH BOARD REV. DPI

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

SEMICONDUCTOR CONVERSION CHART

DRAWN		DATE 6-12-76
SUPV.	D. Geary	DATE 8/24/76
ENGR		DATE 6-26-76
PROJ. ENGR.		DATE 7-7-76
PROD.	R. PETERSON	DATE 4-23-76

NEXT HIGHER ASSY: D-IA-7414331-0-0

SCALE: NONE

SHEET 1 OF 1

digital

TITLE: CIRCUIT SCHEMATIC

SIZE D | CODE CS | NUMBER 5411560-0-1 | REV D

DIST.

NEXT ASSY 5411560 | USED ON DDII-CK

REV	CHANGE NO.	DESCRIPTION	DATE	APPROVED
B	5411560-00001	INITIAL RELEASE	8-20-75	R. Barry
C	5411560-00002	ECO	12-31-75	R. Barry
D	5411560-00003	ECO	1-12-76	R. Barry

DRAWN D. FEAREY 7-11-75
NEWSLETA REDRAWN 12-Dec-75
P.L. 5411560-00003 D
R. Barry 1-12-76
R. BARRY
R. Barry 12-31-75
R. BARRY
R. Barry 8-20-75
R. BARRY

DEC FORM NO DRD 175 B

5411560 SOLDER SIDE 1

5411560 SOLDER SIDE 2

5411560-0-1 REV D

DIGITAL EQUIP. CORP.

SIZE	CODE	NUMBER	REV.
K	WL	DD11-C-1	A

REVISIONS			
CHK	CHANGE NO.	REV.	
SJH	DD11C-00001	A	

R.BARRY 1-13-76

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DD11-C		PARTS LIST		

DRN.	DATE 1/2/75	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D	DATE 1/2/75	
ENG. R. Barry	DATE 2-26-75	TITLE: WIRE LIST DD11-C
PROJ. ENG. R Barry	DATE 2-2-75	
PROD.	DATE 3/13/75	
NEXT HIGHER ASSEMBLY: B-DD-DD11-C		SIZE K, CODE WL, NUMBER DD11-C-1, REV. A
SCALE		
SHEET 1 OF 1		DIST.

DEC FORM NO. DRB 109

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+15/+8V		C01U1		1-01	H						2		P	H TO WHERE	1
+15/+8V		C02U1		1-02	H						1		P	H TO WHERE	1
+15/+8V		C03U1		1-03	H						2		P	H TO WHERE	1
+15/+8V		C04U1		1-04										TO HERE	1
+15/+8V				1									8-2/8		1
+20V		A02U1		1-01	H						1		P	H TO WHERE	2
+20V		A02V1		1-02	H						2		P	H TO WHERE	2
+20V		A02V2		1-03	H						1		P	H TO WHERE	2
+20V		A03U1		1-04	H						2		P	H TO WHERE	2
+20V		A03V1		1-05	H						1		P	H TO WHERE	2
+20V		A03V2		1-06										TO HERE	2
+20V				1									12-4/8		2
+5V (1)		A01A2		1-01	H						2		P	H TO WHERE	3
+5V (1)		A02A2		1-02	H						1		P	H TO WHERE	3
+5V (1)		A03A2		1-03	H						2		P	H TO WHERE	3
+5V (1)		A04A2		1-04										TO HERE	3
+5V (1)				1									8-2/8		3
+5V (2)		B01A2		1-01	H						2		P	H TO WHERE	4
+5V (2)		B02A2		1-02	H						1		P	H TO WHERE	4
+5V (2)		B03A2		1-03	H						2		P	H TO WHERE	4
+5V (2)		B04A2		1-04										TO HERE	4
+5V (2)				1									8-2/8		4
+5V (3)		C01A2		1-01	H						2		P	H TO WHERE	5
+5V (3)		C02A2		1-02	H						1		P	H TO WHERE	5
+5V (3)		C03A2		1-03	H						2		P	H TO WHERE	5
+5V (3)		C04A2		1-04										TO HERE	5
+5V (3)				1									8-2/8		5
+5V (4)		D01A2		1-01	H						2		P	H TO WHERE	6
+5V (4)		D02A2		1-02	H						1		P	H TO WHERE	6
+5V (4)		D03A2		1-03	H						2		P	H TO WHERE	6
+5V (4)		D04A2		1-04										TO HERE	6
+5V (4)				1									8-2/8		6
+5V (5)		E01A2		1-01	H						2		P	H TO WHERE	7
+5V (5)		E02A2		1-02	H						1		P	H TO WHERE	7
+5V (5)		E03A2		1-03	H						2		P	H TO WHERE	7
+5V (5)		E04A2		1-04										TO HERE	7
+5V (5)				1									8-2/8		7

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+5V (6)	F01A2		1-01	H			2		P	H TO WHERE	8
+5V (6)	F02A2		1-02	H			1		P	H TO WHERE	8
+5V (6)	F03A2		1-03	H			2		P	H TO WHERE	8
+5V (6)	F04A2		1-04							TO HERE	8
+5V (6)			1						8-2/8		8
-15V	C01B3		1-01	H			2		P	H TO WHERE	9
-15V	C02B2		1-02	H			1		P	H TO WHERE	9
-15V	C03B2		1-03	H			2		P	H TO WHERE	9
-15V	C04B2		1-04	H			1		P	H TO WHERE	9
-15V	D04B2		1-05	H			2		P	H TO WHERE	9
-15V	D03B2		1-06	H			1		P	H TO WHERE	9
-15V	D02B2		1-07	H			2		P	H TO WHERE	9
-15V	D01B2		1-08	H			1		P	H TO WHERE	9
-15V	E01B2		1-09	H			2		P	H TO WHERE	9
-15V	E02B2		1-10	H			1		P	H TO WHERE	9
-15V	E03B2		1-11	H			2		P	H TO WHERE	9
-15V	E04B2		1-12	H			1		P	H TO WHERE	9
-15V	F04B2		1-13	H			2		P	H TO WHERE	9
-15V	F03B2		1-14	H			1		P	H TO WHERE	9
-15V	F02B2		1-15	H			2		P	H TO WHERE	9
-15V	F01B2		1-16							TO HERE	9
-15V			1						47-6/8		9
-5V	B02V2		1-01	H			1		P	H TO WHERE	10
-5V	B03V2		1-02							TO HERE	10
-5V			1						2-6/8		10
A BG IN	D01U2		1-01				1				11
A BG IN	F01B1		1-02								11
A BG IN			1						5-6/8		11
A BG OUT	D01V2		1-01				1				12
A BG OUT	F01A1		1-02								12
A BG OUT			1						5-6/8		12
A BR OUT	D01J2		1-01				1				13
A BR OUT	F01P1		1-02				2				13
A BR OUT	F01U2		1-03								13
A BR OUT			1						11-4/8		13
A IN	D01H1		1-01				1				14
A IN	E01M1		1-02								14
A IN			1						5-2/8		14

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A INT A	D01M1		1-01				1				15
A INT A	F01U1		1-02								15
A INT A			1						8-2/8		15
A INT B	C01J1		1-01				1				16
A INT B	F01K2		1-02								16
A INT B			1						10-4/8		16
A INT ENB A	D01M1		1-01				1				17
A INT ENB A	F01V1		1-02								17
A INT ENB A			1						8-4/8		17
A INT ENB B	C01L1		1-01				1				18
A INT ENB B	F01H2		1-02								18
A INT ENB B			1						10-0/8		18
A OUT HIGH	D01K1		1-01				1				19
A OUT HIGH	F01P2		1-02								19
A OUT HIGH			1						5-2/8		19
A OUT LOW	D01D1		1-01				1				20
A OUT LOW	E01M1		1-02								20
A OUT LOW			1						5-6/8		20
A SEL A	D01F1		1-01				1				21
A SEL A	E01S2		1-02								21
A SEL A			1						6-0/8		21
A SEL B	D01E1		1-01				1				22
A SEL B	F01P2		1-02								22
A SEL B			1						6-2/8		22
A SEL D	D01C1		1-01				1				23
A SEL D	E01S1		1-02								23
A SEL D			1						6-2/8		23
A SEL Z	C01J1		1-01				1				24
A SEL Z	F01T2		1-02								24
A SEL Z			1						6-0/8		24
A SSYN IN H	D01V1		1-01				1				25
A SSYN IN H	F01B1		1-02								25
A SSYN IN H			1						2-6/8		25

DD11-C.PM
RUN NAME: HND288.V23(23) 05/24/74

A/P	PIN NAME	ORDER PIN	BAY - ORDER	O
A	BG1F1		1-01	H
A	BH2F1		1-02	*
A	C01V1		1-03	*
A	C02V1		1-04	*
A	C03V1		1-05	*
A	C04V1		1-06	*
A	E03F1		1-07	*
A	BH4F1		1-08	*
			1	
B	BG J2	D02U2	1-01	
B	BG J2	F02B1	1-02	
B	BG J2		1	
A	BG OUT	D02V2	1-01	
A	BG OUT	F02A1	1-02	
B	BG OUT		1	
A	BP OUT	D02J2	1-01	
B	BP OUT	F02P1	1-02	
B	BP OUT	F02U2	1-03	
B	BP OUT		1	
B	IN	D02H1	1-01	
B	IN	E02K1	1-02	
B	IN		1	
B	INT A	D02M1	1-01	
B	INT A	F02U1	1-02	
B	INT A		1	
B	INT B	C02J1	1-01	
B	INT B	F02K2	1-02	
B	INT B		1	
B	INT ENB A	D02M1	1-01	
B	INT ENB A	F02V1	1-02	
B	INT ENB A		1	
B	INT ENB B	C02L1	1-01	
A	INT ENB B	F02M2	1-02	
B	INT ENB B		1	
A	OUT HIGH	D02K1	1-01	
A	OUT HIGH	E02M2	1-02	
B	OUT HIGH		1	

PAGE 4
RUN NUMBER

12-MAR-75 LENGTH	P	REMARKS	Z	X	Y	PG	RV	DRAW
	P	HAND WIRE	2					
		TO HERE	1					
	P	HAND WIRE	2					
	P	HAND WIRE	1					
	P	TO HERE	2					
	P	HAND WIRE	1					
		TO HERE	2					
26-6/8				1				
5-6/8				1				
3-6/8				1				
11-4/8				1				
5-2/8				1				
8-2/8				1				
10-4/8				1				
8-4/8				1				
10-0/8				1				
5-2/8				1				

HRD2#8,V23(23) 05/24/74

12-MAR-75

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	#143 EXCEPTIONS	RUN NUMBER
BG4 A	B01E2		1-01				1				46
BG4 A	D01S2		1-02								46
BG4 A			1						8-6/8		46
BG4 B	D01T2		1-01	H			1		P	H TO WHERE	47
BG4 B	D02S2		1-02							TO HERE	47
BG4 B			1						2-6/8		47
BG4 C	D02T2		1-01	H			1		P	H TO WHERE	48
BG4 C	D03S2		1-02							TO HERE	48
BG4 C			1						2-6/8		48
BG4 D	D03T2		1-01	H			1		P	H TO WHERE	49
BG4 D	D04S2		1-02							TO HERE	49
BG4 D			1						2-6/8		49
BG4 E	B04E2		1-01				1				50
BG4 E	D04T2		1-02								50
BG4 E			1						9-0/8		50
BG5 A	B01B1		1-01				1				51
BG5 A	D01P2		1-02								51
BG5 A			1						9-0/8		51
BG5 B	D01R2		1-01	H			1		P	H TO WHERE	52
BG5 B	D02P2		1-02							TO HERE	52
BG5 B			1						2-6/8		52
BG5 C	D02R2		1-01	H			1		P	H TO WHERE	53
BG5 C	D03P2		1-02							TO HERE	53
BG5 C			1						2-6/8		53
BG5 D	D03R2		1-01	H			1		P	H TO WHERE	54
BG5 D	D04P2		1-02							TO HERE	54
BG5 D			1						2-6/8		54
BG5 E	B04A1		1-01				1				55
BG5 E	D04R2		1-02								55
BG5 E			1						9-2/8		55
BG6 A	B01A1		1-01				1				56
BG6 A	D01M2		1-02								56
BG6 A			1						9-0/8		56
BG6 B	D01N2		1-01	H			1		P	H TO WHERE	57
BG6 B	D02M2		1-02							TO HERE	57
BG6 B			1						2-6/8		57

HRD2##,V23(23) 05/24/74

12-MAR-75

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	#143 EXCEPTIONS	RUN NUMBER
BG6 C	D02N2		1-01	H			1		P	H TO WHERE	58
BG6 C	D03M2		1-02							TO HERE	58
BG6 C			1						2-6/8		58
BG6 D	D03N2		1-01	H			1		P	H TO WHERE	59
BG6 D	D04M2		1-02							TO HERE	59
BG6 D			1						2-6/8		59
BG6 E	B03A1		1-01	H			1		P	H TO WHERE	60
BG6 E	D03L2		1-02							TO HERE	60
BG6 E			1						9-2/8		60
BG7 A	A01V1		1-01				1				61
BG7 A	D01K2		1-02								61
BG7 A			1						9-2/8		61
BG7 B	D01L2		1-01	H			1		P	H TO WHERE	62
BG7 B	D02K2		1-02							TO HERE	62
BG7 B			1						2-6/8		62
BG7 C	D02L2		1-01	H			1		P	H TO WHERE	63
BG7 C	D03K2		1-02							TO HERE	63
BG7 C			1						2-6/8		63
BG7 D	D03L2		1-01	H			1		P	H TO WHERE	64
BG7 D	D04K2		1-02							TO HERE	64
BG7 D			1						2-6/8		64
BG7 E	A04V1		1-01				1				65
BG7 E	D04L2		1-02								65
BG7 E			1						9-4/8		65
BR4 L	B01D2		1-01 *	H			2		P	HAND WIRE	66
BR4 L	B02D2		1-02 *				1			TO HERE	66
BR4 L	D01B2		1-03 *	H			2		P	HAND WIRE	66
BR4 L	D02B2		1-04 *	H			1		P	HAND WIRE	66
BR4 L	D03B2		1-05 *	H			2		P	HAND WIRE	66
BR4 L	D04B2		1-06 *				1			TO HERE	66
BR4 L	B03D2		1-07 *	H			2		P	HAND WIRE	66
BR4 L	B04D2		1-08 *							TO HERE	66
BR4 L			1						30-2/8		66

```
DD11-C,PW                 MWD288,V23(23) 05/24/74                                                    12-MAR-75          8143          PAGE 8
RUN NAME                  A/P  PIN      ORDER  BAY  Q  DRAW RV PG Y  X  Z  REMARKS                  LENGTH   EXCEPTIONS    RUN
                                NAME     PIN    ORDER                                                                      NUMBER
                                                                                                                           NUMBER
BR5 L                           BA1C1    1-01  * *  H                  P                            HAND WIRE     67
BR5 L                           BB2C1    1-02  * *  H                                               TO HERE       67
BR5 F                           BA1F2    1-03  * *  H                  P                            HAND WIRE     67
BR5 L                           BA2F2    1-04  * *  H                  P                            HAND WIRE     67
BR5 F                           BB3F2    1-05  * *  H                                               TO HERE       67
BR5 L                           BA3C1    1-06  * *  H                  P                            HAND WIRE     67
BR5 L                           BA4C1    1-07  * *  H                                               TO HERE       67
BR5 F                                    1-08                                                       30-0/0        67
                                                                                                                           68
BR6 F                           AA1U2    1-01  * *  H                                                                 68
BR6 L                           AA2U2    1-02  * *  H                  P                            HAND WIRE     68
BR6 L                           AB1E2    1-03  * *  H                  P                            HAND WIRE     68
BR6 L                           AB2E2    1-04  * *  H                  P                            HAND WIRE     68
BR6 L                           AA3E2    1-05  * *  H                                               TO HERE       68
BR6 F                           AA4E2    1-06  * *  H                                                             68
BR6 L                           AB3U2    1-07  * *  H                                                             68
BR6 F                           AB4U2    1-08  * *  H                                                             68
BR5 L                                    1                                                          31-6/8        69
                                                                                                                           69
BR7 L                           AB1T2    1-01  * *  H                  P                            HAND WIRE     69
BR7 L                           AB2T2    1-02  * *  H                                               TO HERE       69
BR7 L                           DB1D2    1-03  * *  H                  P                            HAND WIRE     69
BR7 L                           DB2D2    1-04  * *  H                  P                            HAND WIRE     69
BR7 L                           DB3D2    1-05  * *  H                  P                            HAND WIRE     69
BR7 L                           DB4D2    1-06  * *  H                                               TO HERE       69
BR7 L                           AA3T2    1-07  * *  H                  P                            HAND WIRE     69
BR7 L                           AA4T2    1-08  * *  H                                               TO HERE       69
BR7 L                                    1                                                          31-6/8        70
                                                                                                                           70
BUS BR4 L                       BB1H2    1-01  * *  H                  P                            HAND WIRE     70
BUS BR4 L                       BB2H2    1-02  * *  H                                               TO HERE       70
BUS BR4 L                       EA1H2    1-03  * *  H                  P                            HAND WIRE     70
BUS BR4 L                       EA2H2    1-04  * *  H                  P                            HAND WIRE     70
BUS BR4 L                       EB3H2    1-05  * *  H                  P                            HAND WIRE     70
BUS BR4 L                       EB4H2    1-06  * *  H                                               TO HERE       70
BUS BR4 L                       BB3H2    1-07  * *  H                  P                            HAND WIRE     70
BUS BR4 L                       BB4H2    1-08  * *  H                                               TO HERE       70
BUS BR4 L                                1                                                          34-2/8        70
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DD11-C,PW                 MWD288,V23(23) 05/24/74                                                    12-MAR-75          8143          PAGE 9
RUN NAME                  A/P  PIN      ORDER  BAY  Q  DRAW RV PG Y  X  Z  REMARKS                  LENGTH   EXCEPTIONS    RUN
                                NAME     PIN    ORDER                                                                      NUMBER
                                                                                                                           NUMBER
BUS BR1 L                       AA1H1    1-01  * *  H                  P                            HAND WIRE     71
BUS BR1 L                       AA2H1    1-02  * *  H                                               TO HERE       71
BUS BR1 L                       EA1H1    1-03  * *  H                  P                            HAND WIRE     71
BUS BR1 L                       EA2H1    1-04  * *  H                  P                            HAND WIRE     71
BUS BR1 L                       EB1H1    1-05  * *  H                                               TO HERE       71
BUS BR1 L                       EB2H1    1-06  * *  H                  P                            HAND WIRE     71
BUS BR1 L                       AB1H1    1-07  * *  H                                               TO HERE       71
BUS BR1 L                       AB2H1    1-08  * *  H                                                             71
BUS BR1 L                                1                                                          34-2/8        71
                                                                                                                           72
BUS BR2 L                       AA1J2    1-01  * *  H                  P                            HAND WIRE     72
BUS BR2 L                       AA2J2    1-02  * *  H                                               TO HERE       72
BUS BR2 L                       EA1F1    1-03  * *  H                  P                            HAND WIRE     72
BUS BR2 L                       EA2F1    1-04  * *  H                  P                            HAND WIRE     72
BUS BR2 L                       EB1F1    1-05  * *  H                                               TO HERE       72
BUS BR2 L                       EB2F1    1-06  * *  H                  P                            HAND WIRE     72
BUS BR2 L                       AB1J2    1-07  * *  H                                               TO HERE       72
BUS BR2 L                       AB2J2    1-08  * *  H                                                             72
BUS BR2 L                                1                                                          34-0/8        72
                                                                                                                           73
BUS BR3 L                       EA1J1    1-01  * *  H                  P                            HAND WIRE     73
BUS BR3 L                       EA2J1    1-02  * *  H                                               TO HERE       73
BUS BR3 L                       EB1V2    1-03  * *  H                  P                            HAND WIRE     73
BUS BR3 L                       EB2V2    1-04  * *  H                  P                            HAND WIRE     73
BUS BR3 L                       EA3V2    1-05  * *  H                                               TO HERE       73
BUS BR3 L                       EA4V2    1-06  * *  H                  P                            HAND WIRE     73
BUS BR3 L                       AB3J1    1-07  * *  H                                               TO HERE       73
BUS BR3 L                       AB4J1    1-08  * *  H                                                             73
BUS BR3 L                                1                                                          37-0/8        73
                                                                                                                           74
BUS BR4 L                       EA1L2    1-01  * *  H                  P                            HAND WIRE     74
BUS BR4 L                       EB2P2    1-02  * *  H                                               TO HERE       74
BUS BR4 L                       EA1U2    1-03  * *  H                  P                            HAND WIRE     74
BUS BR4 L                       EB2U2    1-04  * *  H                  P                            HAND WIRE     74
BUS BR4 L                       EA3U2    1-05  * *  H                                               TO HERE       74
BUS BR4 L                       EA3E2    1-06  * *  H                  P                            HAND WIRE     74
BUS BR4 L                       AB3E2    1-07  * *  H                                               TO HERE       74
BUS BR4 L                       AB4K2    1-08  * *  H                                                             74
BUS BR4 L                                1                                                          36-2/8        74
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W	RV	PG	Y	X	Z	REMARKS	12-MAR-75 LENGTH	0143 EXCEPTIONS	PAGE 10 RUN NUMBER
					2				
					1				
					2		P	HAND WIRE	75
					1			TO HERE	75
					2		P	HAND WIRE	75
					1			TO HERE	75
					2		P	HAND WIRE	75
					1			TO HERE	75
					2		P	HAND WIRE	75
								TO HERE	75
							36-6/8		75
					2		P	HAND WIRE	76
					1			TO HERE	76
					2		P	HAND WIRE	76
					1			TO HERE	76
					2		P	HAND WIRE	76
					1			TO HERE	76
					2		P	HAND WIRE	76
								TO HERE	76
							36-0/8		76
					2		P	HAND WIRE	77
					1			TO HERE	77
					2		P	HAND WIRE	77
					1			TO HERE	77
					2		P	HAND WIRE	77
					1			TO HERE	77
					2		P	HAND WIRE	77
								TO HERE	77
							35-2/8		77
					2		P	HAND WIRE	78
					1			TO HERE	78
					2		P	HAND WIRE	78
					1			HAND WIRE	78
					2			TO HERE	78
					1		P	HAND WIRE	78
					2			TO HERE	78
							34-6/8		78

DDII-CARD MCU NAME	A/P	PIN NAME	ORDER PIN	HAY - ORDER	Q	DRAWING
BUS A05 L		B01K1	1-01	*	H	
BUS A05 L		B02K1	1-02	*		
BUS A05 L		E01V1	1-03	*	H	
BUS A05 L		E02V1	1-04	*	H	
BUS A05 L		E03V1	1-05	*	H	
BUS A05 L		E04V1	1-06	*	H	
BUS A05 L		H03K1	1-07	*	H	
BUS A05 L		H04K1	1-08	*		
			1			
BUS A06 L		B01E2	1-01	*	H	
BUS A06 L		B02E2	1-02	*		
BUS A06 L		E01U1	1-03	*	H	
BUS A06 L		E02U1	1-04	*	H	
BUS A06 L		E03U1	1-05	*	H	
BUS A06 L		E04U1	1-06	*	H	
BUS A06 L		H03E2	1-07	*	H	
BUS A06 L		H04E2	1-08	*		
			1			
BUS A07 L		H01L1	1-01	*	H	
BUS A07 L		H02L1	1-02	*		
BUS A07 L		F01P2	1-03	*	H	
BUS A07 L		E02P2	1-04	*	H	
BUS A07 L		E03P2	1-05	*	H	
BUS A07 L		E04P2	1-06	*	H	
BUS A07 L		H03L1	1-07	*	H	
BUS A07 L		H04L1	1-08	*		
			1			
BUS A08 L		H01M2	1-01	*	H	
BUS A08 L		H02M2	1-02	*		
BUS A08 L		F01N2	1-03	*	H	
BUS A08 L		E02N2	1-04	*	H	
BUS A08 L		E03N2	1-05	*	H	
BUS A08 L		E04N2	1-06	*	H	
BUS A08 L		H03M2	1-07	*	H	
BUS A08 L		H04M2	1-08	*		
			1			

W	RV	PG	Y	X	Z	REMARKS	12-MAR-75 LENGTH	0143 EXCEPTIONS	PAGE 11 RUN NUMBER
					2				
					1				
					2		P	HAND WIRE	79
					1			TO HERE	79
					2		P	HAND WIRE	79
					1			TO HERE	79
					2		P	HAND WIRE	79
					1			TO HERE	79
					2		P	HAND WIRE	79
								TO HERE	79
							35-2/8		79
					2		P	HAND WIRE	80
					1			TO HERE	80
					2		P	HAND WIRE	80
					1			TO HERE	80
					2		P	HAND WIRE	80
					1			TO HERE	80
					2		P	HAND WIRE	80
								TO HERE	80
							34-4/8		80
					2		P	HAND WIRE	81
					1			TO HERE	81
					2		P	HAND WIRE	81
					1			HAND WIRE	81
					2		P	HAND WIRE	81
					1			TO HERE	81
					2		P	HAND WIRE	81
								TO HERE	81
							33-6/8		81
					2		P	HAND WIRE	82
					1			TO HERE	82
					2		P	HAND WIRE	82
					1			HAND WIRE	82
					2		P	HAND WIRE	82
					1			TO HERE	82
					2		P	HAND WIRE	82
								TO HERE	82
							32-0/8		82

DDII-CARD MCU NAME	A/P	PIN NAME	ORDER PIN	HAY - ORDER	Q	DRAWING
BUS A09 L		B01K1	1-01	*	H	
BUS A09 L		B02K1	1-02	*		
BUS A09 L		E01V1	1-03	*	H	
BUS A09 L		E02V1	1-04	*	H	
BUS A09 L		E03V1	1-05	*	H	
BUS A09 L		E04V1	1-06	*	H	
BUS A09 L		H03K1	1-07	*	H	
BUS A09 L		H04K1	1-08	*		
			1			
BUS A10 L		B01E2	1-01	*	H	
BUS A10 L		B02E2	1-02	*		
BUS A10 L		E01U1	1-03	*	H	
BUS A10 L		E02U1	1-04	*	H	
BUS A10 L		E03U1	1-05	*	H	
BUS A10 L		E04U1	1-06	*	H	
BUS A10 L		H03E2	1-07	*	H	
BUS A10 L		H04E2	1-08	*		
			1			
BUS A11 L		H01L1	1-01	*	H	
BUS A11 L		H02L1	1-02	*		
BUS A11 L		F01P2	1-03	*	H	
BUS A11 L		E02P2	1-04	*	H	
BUS A11 L		E03P2	1-05	*	H	
BUS A11 L		E04P2	1-06	*	H	
BUS A11 L		H03L1	1-07	*	H	
BUS A11 L		H04L1	1-08	*		
			1			
BUS A12 L		H01M2	1-01	*	H	
BUS A12 L		H02M2	1-02	*		
BUS A12 L		F01N2	1-03	*	H	
BUS A12 L		E02N2	1-04	*	H	
BUS A12 L		E03N2	1-05	*	H	
BUS A12 L		E04N2	1-06	*	H	
BUS A12 L		H03M2	1-07	*	H	
BUS A12 L		H04M2	1-08	*		
			1			

HND28B,V23(23) 05/24/74

12-MAR-75

A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A13 L	B01P1		1-01 *	H			2		P	HAND WIRE	83
BUS A13 L	B02P1		1-02 *				1			TO HERE	83
BUS A13 L	E01K2		1-03 *	H			2		P	HAND WIRE	83
BUS A13 L	E02K2		1-04 *	H			1		P	HAND WIRE	83
BUS A13 L	E03K2		1-05 *	H			2		P	HAND WIRE	83
BUS A13 L	E04K2		1-06 *				1			TO HERE	83
BUS A13 L	B03P1		1-07 *	H			2		P	HAND WIRE	83
BUS A13 L	B04P1		1-08 *							TO HERE	83
BUS A13 L			1						33-4/8		83
BUS A14 L	B01R2		1-01 *	H			2		P	HAND WIRE	84
BUS A14 L	B02R2		1-02 *				1			TO HERE	84
BUS A14 L	E01K1		1-03 *	H			2		P	HAND WIRE	84
BUS A14 L	E02K1		1-04 *	H			1		P	HAND WIRE	84
BUS A14 L	E03K1		1-05 *	H			2		P	HAND WIRE	84
BUS A14 L	E04K1		1-06 *				1			TO HERE	84
BUS A14 L	B03R2		1-07 *	H			2		P	HAND WIRE	84
BUS A14 L	B04R2		1-08 *							TO HERE	84
BUS A14 L			1						33-0/8		84
BUS A15 L	B01R1		1-01 *	H			2		P	HAND WIRE	85
BUS A15 L	B02R1		1-02 *				1			TO HERE	85
BUS A15 L	E01D2		1-03 *	H			2		P	HAND WIRE	85
BUS A15 L	E02D2		1-04 *	H			1		P	HAND WIRE	85
BUS A15 L	E03D2		1-05 *	H			2		P	HAND WIRE	85
BUS A15 L	E04D2		1-06 *				1			TO HERE	85
BUS A15 L	B03R1		1-07 *	H			2		P	HAND WIRE	85
BUS A15 L	B04R1		1-08 *							TO HERE	85
BUS A15 L			1						32-0/8		85
BUS A16 L	B01S2		1-01 *	H			2		P	HAND WIRE	86
BUS A16 L	B02S2		1-02 *				1			TO HERE	86
BUS A16 L	E01E2		1-03 *	H			2		P	HAND WIRE	86
BUS A16 L	E02E2		1-04 *	H			1		P	HAND WIRE	86
BUS A16 L	E03E2		1-05 *	H			2		P	HAND WIRE	86
BUS A16 L	E04E2		1-06 *				1			TO HERE	86
BUS A16 L	B03S2		1-07 *	H			2		P	HAND WIRE	86
BUS A16 L	B04S2		1-08 *							TO HERE	86
BUS A16 L			1						31-6/8		86

HND28B,V23(23) 05/24/74

12-MAR-75

A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A17 L	B01S1		1-01 *	H			2		P	HAND WIRE	87
BUS A17 L	B02S1		1-02 *				1			TO HERE	87
BUS A17 L	E01D1		1-03 *	H			2		P	HAND WIRE	87
BUS A17 L	E02D1		1-04 *	H			1		P	HAND WIRE	87
BUS A17 L	E03D1		1-05 *	H			2		P	HAND WIRE	87
BUS A17 L	E04D1		1-06 *				1			TO HERE	87
BUS A17 L	B03S1		1-07 *	H			2		P	HAND WIRE	87
BUS A17 L	B04S1		1-08 *							TO HERE	87
BUS A17 L			1						31-6/8		87
BUS B00 L	A01C1		1-01 *	H			2		P	HAND WIRE	88
BUS B00 L	A02C1		1-02 *				1			TO HERE	88
BUS B00 L	C01S2		1-03 *	H			2		P	HAND WIRE	88
BUS B00 L	C02S2		1-04 *	H			1		P	HAND WIRE	88
BUS B00 L	C03S2		1-05 *	H			2		P	HAND WIRE	88
BUS B00 L	C04S2		1-06 *				1			TO HERE	88
BUS B00 L	A03C1		1-07 *	H			2		P	HAND WIRE	88
BUS B00 L	A04C1		1-08 *							TO HERE	88
BUS B00 L			1						32-4/8		88
BUS B01 L	A01D2		1-01 *	H			2		P	HAND WIRE	89
BUS B01 L	A02D2		1-02 *				1			TO HERE	89
BUS B01 L	C01R2		1-03 *	H			2		P	HAND WIRE	89
BUS B01 L	C02R2		1-04 *	H			1		P	HAND WIRE	89
BUS B01 L	C03R2		1-05 *	H			2		P	HAND WIRE	89
BUS B01 L	C04R2		1-06 *				1			TO HERE	89
BUS B01 L	A03D2		1-07 *	H			2		P	HAND WIRE	89
BUS B01 L	A04D2		1-08 *							TO HERE	89
BUS B01 L			1						31-6/8		89
BUS B02 L	B01E2		1-01	H			2		P	H TO WHERE	90
BUS B02 L	E01E2		1-02	H			1		P	H TO WHERE	90
BUS B02 L	E03E2		1-03	H			2		P	H TO WHERE	90
BUS B02 L	E04E2		1-04							TO HERE	90
BUS B02 L			1						8-2/8		90
BUS B02 L	A01D1		1-01 *	H			2		P	HAND WIRE	91
BUS B02 L	A02D1		1-02 *				1			TO HERE	91
BUS B02 L	C01U2		1-03 *	H			2		P	HAND WIRE	91
BUS B02 L	C02U2		1-04 *	H			1		P	HAND WIRE	91
BUS B02 L	C03U2		1-05 *	H			2		P	HAND WIRE	91
BUS B02 L	C04U2		1-06 *				1			TO HERE	91
BUS B02 L	A03D1		1-07 *	H			2		P	HAND WIRE	91
BUS B02 L	A04D1		1-08 *							TO HERE	91
BUS B02 L			1						32-6/8		91

BUS D02 L JMP		CH2U2		1-01					1				92
BUS D02 L JMP		F02F2		1-02									92
BUS D02 L JMP				1							8-6/8		92
BUS D03 L		F01L1		1-01		H			2		P	H TO WHERE	93
BUS D03 L		F02L1		1-02		H			1		P	H TO WHERE	93
BUS D03 L		F03L1		1-03		H			2		P	H TO WHERE	93
BUS D03 L		F04L1		1-04								TO HERE	93
BUS D03 L				1							8-2/8		93
BUS D03 L		A01F2		1-01	*	H			2		P	HAND WIRE	94
BUS D03 L		A02E2		1-02	*				1			TO HERE	94
BUS D03 L		CH1T2		1-03	*	H			2		P	HAND WIRE	94
BUS D03 L		CH2T2		1-04	*	H			1		P	HAND WIRE	94
BUS D03 L		CH3T2		1-05	*	H			2		P	HAND WIRE	94
BUS D03 L		CH4T2		1-06	*				1			TO HERE	94
BUS D03 L		A03E2		1-07	*	H			2		P	HAND WIRE	94
BUS D03 L		A04E2		1-08	*							TO HERE	94
BUS D03 L				1							32-2/8		94
BUS D03 L JMP		CH2T2		1-01					1				95
BUS D03 L JMP		F02L1		1-02									95
BUS D03 L JMP				1							9-6/8		95
BUS D04 L		F01N2		1-01		H			2		P	H TO WHERE	96
BUS D04 L		F02N2		1-02		H			1		P	H TO WHERE	96
BUS D04 L		F03N2		1-03		H			2		P	H TO WHERE	96
BUS D04 L		F04N2		1-04								TO HERE	96
BUS D04 L				1							8-2/8		96
BUS D04 L		A01E1		1-01	*	H			2		P	HAND WIRE	97
BUS D04 L		A02L1		1-02	*				1			TO HERE	97
BUS D04 L		CH1N2		1-03	*	H			2		P	HAND WIRE	97
BUS D04 L		CH2N2		1-04	*	H			1		P	HAND WIRE	97
BUS D04 L		CH3N2		1-05	*	H			2		P	HAND WIRE	97
BUS D04 L		CH4N2		1-06	*				1			TO HERE	97
BUS D04 L		A03E1		1-07	*	H			2		P	HAND WIRE	97
BUS D04 L		A04E1		1-08	*							TO HERE	97
BUS D04 L				1							31-0/8		97
BUS D04 L JMP		CH2N2		1-01					1				98
BUS D04 L JMP		F02N2		1-02									98
BUS D04 L JMP				1							10-2/8		98

BUS D05 L		F01E1		1-01		H			2		P	H TO WHERE	99
BUS D05 L		F02F1		1-02		H			1		P	H TO WHERE	99
BUS D05 L		F03F1		1-03		H			2		P	H TO WHERE	99
BUS D05 L		F04F1		1-04								TO HERE	99
BUS D05 L				1							8-2/8		99
BUS D05 L		A01F2		1-01	*	H			2		P	HAND WIRE	100
BUS D05 L		A02F2		1-02	*				1			TO HERE	100
BUS D05 L		CH1P2		1-03	*	H			2		P	HAND WIRE	100
BUS D05 L		CH2P2		1-04	*	H			1		P	HAND WIRE	100
BUS D05 L		CH3P2		1-05	*	H			2		P	HAND WIRE	100
BUS D05 L		CH4P2		1-06	*				1			TO HERE	100
BUS D05 L		A03F2		1-07	*	H			2		P	HAND WIRE	100
BUS D05 L		A04F2		1-08	*							TO HERE	100
BUS D05 L				1							31-2/8		100
BUS D05 L JMP		CH2P2		1-01					1				101
BUS D05 L JMP		F02F1		1-02									101
BUS D05 L JMP				1							9-4/8		101
BUS D06 L		F01F2		1-01		H			2		P	H TO WHERE	102
BUS D06 L		F02F2		1-02		H			1		P	H TO WHERE	102
BUS D06 L		F03F2		1-03		H			2		P	H TO WHERE	102
BUS D06 L		F04F2		1-04								TO HERE	102
BUS D06 L				1							8-2/8		102
BUS D06 L		A01F1		1-01	*	H			2		P	HAND WIRE	103
BUS D06 L		A02F1		1-02	*				1			TO HERE	103
BUS D06 L		CH1V2		1-03	*	H			2		P	HAND WIRE	103
BUS D06 L		CH2V2		1-04	*	H			1		P	HAND WIRE	103
BUS D06 L		CH3V2		1-05	*	H			2		P	HAND WIRE	103
BUS D06 L		CH4V2		1-06	*				1			TO HERE	103
BUS D06 L		A03F1		1-07	*	H			2		P	HAND WIRE	103
BUS D06 L		A04F1		1-08	*							TO HERE	103
BUS D06 L				1							32-4/8		103
BUS D06 L JMP		CH2V2		1-01					1				104
BUS D06 L JMP		F02F2		1-02									104
BUS D06 L JMP				1							8-6/8		104
BUS D07 L		F01H1		1-01		H			2		P	H TO WHERE	105
BUS D07 L		F02H1		1-02		H			1		P	H TO WHERE	105
BUS D07 L		F03H1		1-03		H			2		P	H TO WHERE	105
BUS D07 L		F04H1		1-04								TO HERE	105
BUS D07 L				1							8-2/8		105

BUS NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D07 L		A01H2		1-01 *	H						2		P	HAND WIRE	I06
BUS D07 L		A02H2		1-02 *							1			TO HERE	I06
BUS D07 L		C01H2		1-03 *	H						2		P	HAND WIRE	I06
BUS D07 L		C02H2		1-04 *	H						1		P	HAND WIRE	I06
BUS D07 L		C03H2		1-05 *	H						2		P	HAND WIRE	I06
BUS D07 L		C04H2		1-06 *							1			TO HERE	I06
BUS D07 L		A03H2		1-07 *	H						2		P	HAND WIRE	I06
BUS D07 L		A04H2		1-08 *										TO HERE	I06
BUS D07 L				1									30-2/8		I06
															I07
BUS D07 L JMP		C02K2		1-01							1				I07
BUS D07 L JMP		F02H1		1-02											I07
BUS D07 L JMP				1									10-0/8		I07
BUS D08 L		F01K1		1-01	H						2		P	H TO WHERE	I08
BUS D08 L		F02K1		1-02	H						1		P	H TO WHERE	I08
BUS D08 L		F03K1		1-03	H						2		P	H TO WHERE	I08
BUS D08 L		F04K1		1-04										TO HERE	I08
BUS D08 L				1									8-2/8		I08
BUS D08 L		A01H1		1-01 *	H						2		P	HAND WIRE	I09
BUS D08 L		A02H1		1-02 *							1			TO HERE	I09
BUS D08 L		C01L2		1-03 *	H						2		P	HAND WIRE	I09
BUS D08 L		C02L2		1-04 *	H						1		P	HAND WIRE	I09
BUS D08 L		C03L2		1-05 *	H						2		P	HAND WIRE	I09
BUS D08 L		C04L2		1-06 *							1			TO HERE	I09
BUS D08 L		A03H1		1-07 *	H						2		P	HAND WIRE	I09
BUS D08 L		A04H1		1-08 *										TO HERE	I09
BUS D08 L				1									30-0/8		I09
															I10
BUS D08 L JMP		C02L2		1-01							1				I10
BUS D08 L JMP		F02K1		1-02											I10
BUS D08 L JMP				1									10-4/8		I10
BUS D09 L		A01J2		1-01 *	H						2		P	HAND WIRE	I11
BUS D09 L		A02J2		1-02 *							1			TO HERE	I11
BUS D09 L		C01K2		1-03 *	H						2		P	HAND WIRE	I11
BUS D09 L		C02K2		1-04 *	H						1		P	HAND WIRE	I11
BUS D09 L		C03K2		1-05 *	H						2		P	HAND WIRE	I11
BUS D09 L		C04K2		1-06 *							1			TO HERE	I11
BUS D09 L		A03J2		1-07 *	H						2		P	HAND WIRE	I11
BUS D09 L		A04J2		1-08 *										TO HERE	I11
BUS D09 L				1									29-6/8		I11

BUS NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D10 L		A01J1		1-01 *	H						2		P	HAND WIRE	I12
BUS D10 L		A02J1		1-02 *							1			TO HERE	I12
BUS D10 L		C01J2		1-03 *	H						2		P	HAND WIRE	I12
BUS D10 L		C02J2		1-04 *	H						1		P	HAND WIRE	I12
BUS D10 L		C03J2		1-05 *	H						2		P	HAND WIRE	I12
BUS D10 L		C04J2		1-06 *							1			TO HERE	I12
BUS D10 L		A03J1		1-07 *	H						2		P	HAND WIRE	I12
BUS D10 L		A04J1		1-08 *										TO HERE	I12
BUS D10 L				1									29-4/8		I12
BUS D11 L		A01K2		1-01 *	H						2		P	HAND WIRE	I13
BUS D11 L		A02K2		1-02 *							1			TO HERE	I13
BUS D11 L		C01H1		1-03 *	H						2		P	HAND WIRE	I13
BUS D11 L		C02H1		1-04 *	H						1		P	HAND WIRE	I13
BUS D11 L		C03H1		1-05 *	H						2		P	HAND WIRE	I13
BUS D11 L		C04H1		1-06 *							1			TO HERE	I13
BUS D11 L		A03K2		1-07 *	H						2		P	HAND WIRE	I13
BUS D11 L		A04K2		1-08 *										TO HERE	I13
BUS D11 L				1									29-0/8		I13
BUS D12 L		A01K1		1-01 *	H						2		P	HAND WIRE	I14
BUS D12 L		A02K1		1-02 *							1			TO HERE	I14
BUS D12 L		C01H2		1-03 *	H						2		P	HAND WIRE	I14
BUS D12 L		C02H2		1-04 *	H						1		P	HAND WIRE	I14
BUS D12 L		C03H2		1-05 *	H						2		P	HAND WIRE	I14
BUS D12 L		C04H2		1-06 *							1			TO HERE	I14
BUS D12 L		A03K1		1-07 *	F						2		P	HAND WIRE	I14
BUS D12 L		A04K1		1-08 *										TO HERE	I14
BUS D12 L				1									29-0/8		I14
BUS D13 L		A01L2		1-01 *	H						2		P	HAND WIRE	I15
BUS D13 L		A02L2		1-02 *							1			TO HERE	I15
BUS D13 L		C01F2		1-03 *	H						2		P	HAND WIRE	I15
BUS D13 L		C02F2		1-04 *	H						1		P	HAND WIRE	I15
BUS D13 L		C03F2		1-05 *	H						2		P	HAND WIRE	I15
BUS D13 L		C04F2		1-06 *							1			TO HERE	I15
BUS D13 L		A03L2		1-07 *	H						2		P	HAND WIRE	I15
BUS D13 L		A04L2		1-08 *										TO HERE	I15
BUS D13 L				1									28-2/8		I15

BUS NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS D14 L		A01L1		1-01 *	H			2		P	HAND WIRE	116
BUS D14 L		A02L1		1-02 *				1			TO HERE	116
BUS D14 L		C01E2		1-03 *	H			2		P	HAND WIRE	116
BUS D14 L		C02E2		1-04 *	H			1		P	HAND WIRE	116
BUS D14 L		C03E2		1-05 *	H			2		P	HAND WIRE	116
BUS D14 L		C04E2		1-06 *				1			TO HERE	116
BUS D14 L		A03L1		1-07 *	H			2		P	HAND WIRE	116
BUS D14 L		A04L1		1-08 *							TO HERE	116
BUS D14 L				1						28-2/8		116
BUS D15 L		A01M2		1-01 *	H			2		P	HAND WIRE	117
BUS D15 L		A02M2		1-02 *				1			TO HERE	117
BUS D15 L		C01D2		1-03 *				2				117
BUS D15 L		C02D2		1-04 *				1				117
BUS D15 L		C03D2		1-05 *				2				117
BUS D15 L		C04D2		1-06 *				1				117
BUS D15 L		A03M2		1-07 *	H			2		P	HAND WIRE	117
BUS D15 L		A04M2		1-08 *							TO HERE	117
BUS D15 L				1						27-6/8		117
C AG IN		D03U2		1-01				1				118
C AG IN		F03B1		1-02								118
C AG IN				1						5-6/8		118
C AG OUT		D03V2		1-01				1				119
C AG OUT		F03A1		1-02								119
C AG OUT				1						5-6/8		119
C BR OUT		D03J2		1-01				1				120
C BR OUT		F03P1		1-02				2				120
C BR OUT		F03U2		1-03								120
C BR OUT				1						11-4/8		120
C I :		D03H1		1-01				1				121
C I/		E03H1		1-02								121
C IN				1						5-2/8		121
C INT A		D03N1		1-01				1				122
C INT A		F03U1		1-02								122
C INT A				1						8-2/8		122
C INT B		C03J1		1-01				1				123
C INT B		F03K2		1-02								123
C INT B				1						10-4/8		123

BUS NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
C INT ENB A		D03M1		1-01				1				124
C INT ENB A		F03V1		1-02								124
C INT ENB A				1						8-4/8		124
C INT ENB B		C03L1		1-01				1				125
C INT ENB B		F03H2		1-02								125
C INT ENB B				1						10-0/8		125
C OUT HIGH		D03K1		1-01				1				126
C OUT HIGH		E03M2		1-02								126
C OUT HIGH				1						5-2/8		126
C OUT LOW		D03D1		1-01				1				127
C OUT LOW		E03N1		1-02								127
C OUT LOW				1						5-6/8		127
C SEL W		D03F1		1-01				1				128
C SEL W		F03S2		1-02								128
C SEL W				1						6-0/8		128
C SEL 4		D03E1		1-01				1				129
C SEL 4		E03R2		1-02								129
C SEL 4				1						6-2/8		129
C SEL 6		D03C1		1-01				1				130
C SEL 6		E03S1		1-02								130
C SEL 6				1						6-2/8		130
C SEL 7		D03J1		1-01				1				131
C SEL 7		E03T2		1-02								131
C SEL 7				1						6-0/8		131
C SSYN IN H		D03V1		1-01				1				132
C SSYN IN H		E03H1		1-02								132
C SSYN IN H				1						2-6/8		132
CA L		B01U2		1-01 *				2				133
CA L		B02U2		1-02 *				1				133
CA L		E01J2		1-03 *	H			2		P	HAND WIRE	133
CA L		E02J2		1-04 *	H			1		P	HAND WIRE	133
CA L		E03J2		1-05 *	H			2		P	HAND WIRE	133
CA L		E04J2		1-06 *				1			TO HERE	133
CA L		E03U2		1-07 *				2				133
CA L		B04U2		1-08 *								133
CA L				1						32-2/8		133

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A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
C1 L	B01I2		1-01 *	H						2		P	HAND WIRE	134
C1 L	B02I2		1-02 *							1			TO HERE	134
C1 L	E01F2		1-03 *	H						2		P	HAND WIRE	134
C1 L	E02F2		1-04 *	H						1		P	HAND WIRE	134
C1 L	F03F2		1-05 *	H						2		P	HAND WIRE	134
C1 L	E04F2		1-06 *							1			TO HERE	134
C1 L	H03I2		1-07 *	H						2		P	HAND WIRE	134
C1 L	B04I2		1-08 *										TO HERE	134
C1 L			1									31-6/8		134
D BG IN	D04U2		1-01							1				135
D BG IN	F04B1		1-02											135
D BG IN			1									5-6/8		135
D BG OUT	D04V2		1-01							1				136
D BG OUT	F04A1		1-02											136
D BG OUT			1									5-6/8		136
D BR OUT	D04J2		1-01							1				137
D BR OUT	F04P1		1-02							2				137
D BR OUT	F04U2		1-03											137
D BR OUT			1									11-4/8		137
D IN	D04H1		1-01							1				138
D IN	E04M1		1-02											138
D IN			1									5-2/8		138
D INT A	D04N1		1-01							1				139
D INT A	F04U1		1-02											139
D INT A			1									8-2/8		139
D INT B	C04J1		1-01							1				140
D INT B	F04K2		1-02											140
D INT B			1									10-4/8		140
D INT ENB A	D04M1		1-01							1				141
D INT ENB A	F04V1		1-02											141
D INT ENB A			1									8-4/8		141
D INT ENB B	C04L1		1-01							1				142
D INT ENB B	F04H2		1-02											142
D INT ENB B			1									10-0/8		142
D OUT HIGH	D04K1		1-01							1				143
D OUT HIGH	E04M2		1-02											143
D OUT HIGH			1									5-2/8		143

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A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
D OUT LOW	D04D1		1-01							1				144
D OUT LOW	E04N1		1-02											144
D OUT LOW			1									5-6/8		144
D SEL 4	D04K1		1-01							1				145
D SEL 4	F04S2		1-02											145
D SEL 4			1									6-0/8		145
D SEL 1	D04E1		1-01							1				146
D SEL 1	E04R2		1-02											146
D SEL 1			1									6-2/8		146
D SEL 0	D04C1		1-01							1				147
D SEL 0	E04S1		1-02											147
D SEL 0			1									6-2/8		147
D SEL 2	D04J1		1-01							1				148
D SEL 2	E04T2		1-02											148
D SEL 2			1									6-0/8		148
D SSYC IN H	D04V1		1-01							1				149
D SSYC IN H	E04R1		1-02											149
D SSYC IN H			1									2-6/8		149
DC L	B01F2		1-01 *	H						2		P	HAND WIRE	150
DC L	B02F2		1-02 *							1			TO HERE	150
DC L	C01N1		1-03 *	H						2		P	HAND WIRE	150
DC L	C02N1		1-04 *	H						1		P	HAND WIRE	150
DC L	C03N1		1-05 *	H						2		P	HAND WIRE	150
DC L	C04M1		1-06 *							1			TO HERE	150
DC L	H03F2		1-07 *	H						2		P	HAND WIRE	150
DC L	B04F2		1-08 *										TO HERE	150
DC L			1									25-4/8		150
F01D2	F01D2		1-01							2				151
F01D2	F01R2		1-02							1				151
F01D2	F01N1		1-03											151
F01D2			1									6-2/8		151
F01E1	F01E1		1-01							1				152
F01E1	F01V2		1-02											152
F01E1			1									4-2/8		152
F01L2	F01L2		1-01							1				153
F01L2	F01R1		1-02											153
F01L2			1									3-0/8		153

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DD11-C.PM                HHD208,V23(23) 05/24/74                    PAGE 22
RUN NAME                 A/P  PIN    ORDER  BAY -                  RUN
                              NAME   PIN    ORDER                  NUMBER

                         F01M2  1-01  1-01                          154
                         F01S1  1-02  1-02                          154
                                      1                             154

                                1-0/6                               155
                                                                    155

                         F01P2  1-01  1-01                          156
                         F01S2  1-02  1-02                          156
                                      1                             156

                                2-4/8                               157
                                                                    157

                         F02D2  1-01  1-01                          158
                         F02R2  1-02  1-02                          158
                         F02N1  1-03  1-03                          158
                                      1                             158

                                0-2/8                               159
                                                                    159

                         F02E1  1-01  1-01                          160
                         F02V2  1-02  1-02                          160
                                      1                             160

                                0-2/8                               161
                                                                    161

                         F02L2  1-01  1-01                          162
                         F02R1  1-02  1-02                          162
                                      1                             162

                                1-0/8                               163
                                                                    163

                         F02P2  1-01  1-01                          164
                         F02S1  1-02  1-02                          164
                                      1                             164

                                1-0/8                               165
                                                                    165

                         F03P2  1-01  1-01                          166
                         F03S2  1-02  1-02                          166
                                      1                             166

                                2-4/8                               167
                                                                    167

                         F04D2  1-01  1-01                          168
                         F04M2  1-02  1-02                          168
                         F04N1  1-03  1-03                          168
                                      1                             168

                                6-2/8                               169
                                                                    169

                         F04E1  1-01  1-01                          170
                         F04V2  1-02  1-02                          170
                                      1                             170

                                4-2/8                               171
                                                                    171

                         F04L2  1-01  1-01                          172
                         F04R1  1-02  1-02                          172
                                      1                             172

                                3-0/8                               173
                                                                    173

                         F03E1  1-01  1-01                          174
                         F03V2  1-02  1-02                          174
                                      1                             174

                                3-0/8                               175
                                                                    175

                         F03L2  1-01  1-01                          176
                         F03R1  1-02  1-02                          176
                                      1                             176

                                2-4/8                               177
                                                                    177

                         F03P2  1-01  1-01                          178
                         F03S2  1-02  1-02                          178
                                      1                             178

                                2-4/8                               179
                                                                    179

                         F04D2  1-01  1-01                          180
                         F04M2  1-02  1-02                          180
                         F04N1  1-03  1-03                          180
                                      1                             180

                                6-2/8                               181
                                                                    181

                         F04E1  1-01  1-01                          182
                         F04V2  1-02  1-02                          182
                                      1                             182

                                4-2/8                               183
                                                                    183

                         F04L2  1-01  1-01                          184
                         F04R1  1-02  1-02                          184
                                      1                             184

                                3-0/8                               185
                                                                    185

                         F03E1  1-01  1-01                          186
                         F03V2  1-02  1-02                          186
                                      1                             186

                                3-0/8                               187
                                                                    187

                         F03L2  1-01  1-01                          188
                         F03R1  1-02  1-02                          188
                                      1                             188

                                2-4/8                               189
                                                                    189

                         F03P2  1-01  1-01                          190
                         F03S2  1-02  1-02                          190
                                      1                             190

                                2-4/8                               191
                                                                    191

                         F04D2  1-01  1-01                          192
                         F04M2  1-02  1-02                          192
                         F04N1  1-03  1-03                          192
                                      1                             192

                                6-2/8                               193
                                                                    193

                         F04E1  1-01  1-01                          194
                         F04V2  1-02  1-02                          194
                                      1                             194

                                4-2/8                               195
                                                                    195

                         F04L2  1-01  1-01                          196
                         F04R1  1-02  1-02                          196
                                      1                             196

                                3-0/8                               197
                                                                    197

                         F03E1  1-01  1-01                          198
                         F03V2  1-02  1-02                          198
                                      1                             198

                                3-0/8                               199
                                                                    199

                         F03L2  1-01  1-01                          200
                         F03R1  1-02  1-02                          200
                                      1                             200

                                2-4/8                               201
                                                                    201

                         F03P2  1-01  1-01                          202
                         F03S2  1-02  1-02                          202
                                      1                             202

                                2-4/8                               203
                                                                    203

                         F04D2  1-01  1-01                          204
                         F04M2  1-02  1-02                          204
                         F04N1  1-03  1-03                          204
                                      1                             204

                                6-2/8                               205
                                                                    205

                         F04E1  1-01  1-01                          206
                         F04V2  1-02  1-02                          206
                                      1                             206

                                4-2/8                               207
                                                                    207

                         F04L2  1-01  1-01                          208
                         F04R1  1-02  1-02                          208
                                      1                             208

                                3-0/8                               209
                                                                    209

                         F03E1  1-01  1-01                          210
                         F03V2  1-02  1-02                          210
                                      1                             210

                                3-0/8                               211
                                                                    211

                         F03L2  1-01  1-01                          212
                         F03R1  1-02  1-02                          212
                                      1                             212

                                2-4/8                               213
                                                                    213

                         F03P2  1-01  1-01                          214
                         F03S2  1-02  1-02                          214
                                      1                             214

                                2-4/8                               215
                                                                    215

                         F04D2  1-01  1-01                          216
                         F04M2  1-02  1-02                          216
                         F04N1  1-03  1-03                          216
                                      1                             216

                                6-2/8                               217
                                                                    217

                         F04E1  1-01  1-01                          218
                         F04V2  1-02  1-02                          218
                                      1                             218

                                4-2/8                               219
                                                                    219

                         F04L2  1-01  1-01                          220
                         F04R1  1-02  1-02                          220
                                      1                             220

                                3-0/8                               221
                                                                    221

                         F03E1  1-01  1-01                          222
                         F03V2  1-02  1-02                          222
                                      1                             222

                                3-0/8                               223
                                                                    223

                         F03L2  1-01  1-01                          224
                         F03R1  1-02  1-02                          224
                                      1                             224

                                2-4/8                               225
                                                                    225

                         F03P2  1-01  1-01                          226
                         F03S2  1-02  1-02                          226
                                      1                             226

                                2-4/8                               227
                                                                    227

                         F04D2  1-01  1-01                          228
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                         F04N1  1-03  1-03                          252
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                                      1                             478

                                2-4/8                               479
                                                                    479

                         F04D2  1-01  1-01                          480
                         F04M2  1-02  1-02                          480
                         F04N1  1-03  1-03                          480
                                      1                             480

                                6-2/8                               481
                                                                    481

                         F04E1  1-01  1-01                          482
                         F04V2  1-02  1-02                          482
                                      1                             482

                                4-2/8                               483
                                                                    483

                         F04L2  1-01  1-01                          484
                         F04R1  1-02  1-02                          484
                                      1                             484

                                3-0/8                               485
                                                                    485

                         F03E1  1-01  1-01                          486
                         F03V2  1-02  1-02                          486
                                      1                             486

                                3-0/8                               487
                                                                    487

                         F03L2  1-01  1-01                          488
                         F03R1  1-02  1-02                          488
                                      1                             488

                                2-4/8                               489
                                                                    489

                         F03P2  1-01  1-01                          490
                         F03S2  1-02  1-02                          490
                                      1                             490

                                2-4/8                               491
                                                                    491

                         F04D2  1-01  1-01                          492
                         F04M2  1-02  1-02                          492
                         F04N1  1-03  1-03                          492
                                      1                             492

                                6-2/8                               493
                                                                    493

                         F04E1  1-01  1-01                          494
                         F04V2  1-02  1-02                          494
                                      1                             494

                                4-2/8                               495
                                                                    495

                         F04L2  1-01  1-01                          496
                         F04R1  1-02  1-02                          496
                                      1                             496

                                3-0/8                               497
                                                                    497

                         F03E1  1-01  1-01                          498
                         F03V2  1-02  1-02                          498
                                      1                             498

                                3-0/8                               499
                                                                    499

                         F03L2  1-01  1-01                          500
                         F03R1  1-02  1-02                          500
                                      1                             500

                                2-4/8                               501
                                                                    501

                         F03P2  1-01  1-01                          502
                         F03S2  1-02  1-02                          502
                                      1                             502

                                2-4/8                               503
                                                                    503

                         F04D2  1-01  1-01                          504
                         F04M2  1-02  1-02                          504
                         F04N1  1-03  1-03                          504
                                      1                             504

                                6-2/8                               505
                                                                    505

                         F04E1  1-01  1-01                          506
                         F04V2  1-02  1-02                          506
                                      1                             506

                                4-2/8                               507
                                                                    507

                         F04L2  1-01  1-01                          508
                         F04R1  1-02  1-02                          508
                                      1                             508

                                3-0/8                               509
                                                                    509

                         F03E1  1-01  1-01                          510
                         F03V2  1-02  1-02                          510
                                      1                             510

                                3-0/8                               511
                                                                    511

                         F03L2  1-01  1-01                          512
                         F03R1  1-02  1-02                          512
                                      1                             512

                                2-4/8                               513
                                                                    513

                         F03P2  1-01  1-01                          514
                         F03S2  1-02  1-02                          514
                                      1                             514

                                2-4/8                               515
                                                                    515

                         F04D2  1-01  1-01                          516
                         F04M2  1-02  1-02                          516
                         F04N1  1-03  1-03                          516
                                      1                             516

                                6-2/8                               517
                                                                    517

                         F04E1  1-01  1-01                          518
                         F04V2  1-02  1-02                          518
                                      1                             518

                                4-2/8                               519
                                                                    519

                         F04L2  1-01  1-01                          520
                         F04R1  1-02  1-02                          520
                                      1                             520

                                3-0/8                               521
                                                                    521

                         F03E1  1-01  1-01                          522
                         F03V2  1-02  1-02                          522
                                      1                             522

                                3-0/8                               523
                                                                    523

                         F03L2  1-01  1-01                          524
                         F03R1  1-02  1-02                          524
                                      1                             524

                                2-4/8                               525
                                                                    525

                         F03P2  1-01  1-01                          526
                         F03S2  1-02  1-02                          526
                                      1                             526

                                2-4/8                               527
                                                                    527

                         F04D2  1-01  1-01                          528
                         F04M2  1-02  1-02                          528
                         F04N1  1-03  1-03                          528
                                      1                             528

                                6-2/8                               529
                                                                    529

                         F04E1  1-01  1-01                          530
                         F04V2  1-02  1-02                          530
                                      1                             530

                                4-2/8                               531
                                                                    531

                         F04L2  1-01  1-01                          532
                         F04R1  1-02  1-02                          532
                                      1                             532

                                3-0/8                               533
                                                                    533

                         F03E1  1-01  1-01                          534
                         F03V2  1-02  1-02                          534
                                      1                             534

                                3-0/8                               535
                                                                    535

                         F03L2  1-01  1-01                          536
                         F03R1  1-02  1-02                          536
                                      1                             536

                                2-4/8                               537
                                                                    537

                         F03P2  1-01  1-01                          538
                         F03S2  1-02  1-02                          538
                                      1                             538

                                2-4/8                               539
                                                                    539

                         F04D2  1-01  1-01                          540
                         F04M2  1-02  1-02                          540
                         F04N1  1-03  1-03                          540
                                      1                             540

                                6-2/8                               541
                                                                    541

                         F04E1  1-01  1-01                          542
                         F04V2  1-02  1-02                          542
                                      1                             542

                                4-2/8                               543
                                                                    543

                         F04L2  1-01  1-01                          544
                         F04R1  1-02  1-02                          544
                                      1                             544

                                3-0/8                               545
                                                                    545

                         F03E1  1-01  1-01                          546
                         F03V2  1-02  1-02                          546
                                      1                             546

                                3-0/8                               547
                                                                    547

                         F03L2  1-01  1-01                          548
                         F03R1  1-02  1-02                          548
                                      1                             548

                                2-4/8                               549
                                                                    549

                         F03P2  1-01  1-01                          550
                         F03S2  1-02  1-02                          550
                                      1                             550

                                2-4/8                               551
                                                                    551

                         F04D2  1-01  1-01                          552
                         F04M2  1-02  1-02                          552
                         F04N1  1-03  1-03                          552
                                      1                             552

                                6-2/8                               553
                                                                    553

                         F04E1  1-01  1-01                          554
                         F04V2  1-02  1-02                          554
                                      1                             554

                                4-2/8                               555
                                                                    555

                         F04L2  1-01  1-01                          556
                         F04R1  1-02  1-02                          556
                                      1                             556

                                3-0/8                               557
                                                                    557

                         F03E1  1-01  1-01                          558
                         F03V2  1-02  1-02                          558
                                      1                             558

                                3-0/8                               559
                                                                    559

                         F03L2  1-01  1-01                          560
                         F03R1  1-02  1-02                          560
                                      1                             560

                                2-4/8                               561
                                                                    561

                         F03P2  1-01  1-01                          562
                         F03S2  1-02  1-02                          562
                                      1                             562

                                2-4/8                               563
                                                                    563

                         F04D2  1-01  1-01                          564
                         F04M2  1-02  1-02                          564
                         F04N1  1-03  1-03                          564
                                      1                             564

                                6-2/8                               565
                                                                    565

                         F04E1  1-01  1-01                          566
                         F04V2  1-02  1-02                          566
                                      1                             566

                                4-2/8                               567
                                                                    567

                         F04L2  1-01  1-01                          568
                         F04R1  1-02  1-02                          568
                                      1                             568

                                3-0/8                               569
                                                                    569

                         F03E1  1-01  1-01                          570
                         F03V2  1-02  1-02                          570
                                      1                             570

                                3-0/8                               571
                                                                    571

                         F03L2  1-01  1-01                          572
                         F03R1  1-02  1-02                          572
                                      1                             572

                                2-4/8                               573
                                                                    573

                         F03P2  1-01  1-01                          574
                         F03S2  1-02  1-02                          574
                                      1                             574

                                2-4/8                               575
                                                                    575

                         F04D2  1-01  1-01                          576
                         F04M2  1-02  1-02                          576
                         F04N1  1-03  1-03                          576
                                      1                             576

                                6-2/8                               577
                                                                    577

                         F04E1  1-01  1-01                          578
                         F04V2  1-02  1-02                          578
                                      1                             578

                                4-2/8                               579
                                                                    579

                         F04L2  1-01  1-01                          580
                         F04R1  1-02  1-02                          580
                                      1                             580

                                3-0/8                               581
                                                                    581

                         F03E1  1-01  1-01                          582
                         F03V2  1-02  1-02                          582
                                      1                             582

                                3-0/8                               583
                                                                    583

                         F03L2  1-01  1-01                          584
                         F03R1  1-02  1-02                          584
                                      1                             584

                                2-4/8                               585
                                                                    585

                         F03P2  1-01  1-01                          586
                         F03S2  1-02  1-02                          586
                                      1                             586

                                2-4/8                               587
                                                                    587

                         F04D2  1-01  1-01                          588
                         F04M2  1-02  1-02                          588
                         F04N1  1-03  1-03                          588
                                      1                             588

                                6-2/8                               589
                                                                    589

                         F04E1  1-01  1-01                          590
                         F04V2  1-02  1-02                          590
                                      1                             590

                                4-2/8                               591
                                                                    591

                         F04L2  1-01  1-01                          592
                         F04R1  1-02  1-02                          592
                                      1                             592

                                3-0/8                               593
                                                                    593

                         F03E1  1-01  1-01                          594
                         F03V2  1-02  1-02                          594
                                      1                             594

                                3-0/8                               595
                                                                    595

                         F03L2  1-01  1-01                          596
                         F03R1  1-02  1-02                          596
                                      1                             596

                                2-4/8                               597
                                                                    597

                         F03P2  1-01  1-01                          598
                         F03S2  1-02  1-02                          598
                                      1                             598

                                2-4/8                               599
                                                                    599

                         F04D2  1-01  1-01                          600
                         F04M2  1-02  1-02                          600
                         F04N1  1-03  1-03                          600
                                      1                             600

                                6-2/8                               601
                                                                    601

                         F04E1  1-01  1-01                          602
                         F04V2  1-02  1-02                          602
                                      1                             602

                                4-2/8                               603
                                                                    603

                         F04L2  1-01  1-01                          604
                         F04R1  1-02  1-02                          604
                                      1                             604

                                3-0/8                               605
                                                                    605

                         F03E1  1-01  1-01                          606
                         F03V2  1-02  1-02                          606
                                      1                             606

                                3-0/8                               607
                                                                    607

                         F03L2  1-01  1-01                          608
                         F03R1  1-02  1-02                          608
                                      1                             608

                                2-4/8                               609
                                                                    609

                         F03P2  1-01  1-01                          610
                         F03S2  1-02  1-02                          610
                                      1                             610

                                2-4/8                               611
                                                                    611

                         F04D2  1-01  1-01                          612
                         F04M2  1-02  1-02                          612
                         F04N1  1-03  1-03                          612
                                      1                             612

                                6-2/8                               613
                                                                    613

                         F04E1  1-01  1-01                          614
                         F04V2  1-02  1-02                          614
                                      1                             614

                                4-2/8                               615
                                                                    615

                         F04L2  1-01  1-01                          616
                         F04R1  1-02  1-02                          616
                                      1                             616

                                3-0/8                               617
                                                                    617

                         F03E1  1-01  1-01                          618
                         F03V2  1-02  1-02                          618
                                      1                             618

                                3-0/8                               619
                                                                    619

                         F03L2  1-01  1-01                          620
                         F03R1  1-02  1-02                          620
                                      1                             620

                                2-4/8                               621
                                                                    621

                         F03P2  1-01  1-01                          622
                         F03S2  1-02  1-02                          622
                                      1                             622

                                2-4/8                               623
                                                                    623

                         F04D2  1-01  1-01                          624
                         F04M2  1-02  1-02                          624
                         F04N1  1-03  1-03                          624
                                      1                             624

                                6-2/8                               625
                                                                    625

                         F04E1  1-01  1-01                          626
                         F04V2  1-02  1-02                          626
                                      1                             626

                                4-2/8                               627
                                                                    627

                         F04L2  1-01  1-01                          628
                         F04R1  1-02  1-02                          628
                                      1                             628

                                3-0/8                               629
                                                                    629

                         F03E1  1-01  1-01                          630
                         F03V2  1-02  1-02                          630
                                      1                             630

                                3-0/8                               631
                                                                    631

                         F03L2  1-01  1-01                          632
                         F03R1  1-02  1-02                          632
                                      1                             632

                                2-4/8                               633
                                                                    633

                         F03P2  1-01  1-01                          634
                         F03S2  1-02  1-02                          634
                                      1                             634

                                2-4/8                               635
                                                                    635

                         F04D2  1-01  1-01                          636
                         F04M2  1-02  1-02                          636
                         F04N1  1-03  1-03                          636
                                      1                             636

                                6-2/8                               637
                                                                    637

                         F04E1  1-01  1-01                          638
                         F04V2  1-02  1-02                          638
                                      1                             638

                                4-2/8                               639
                                                                    639

                         F04L2  1-01  1-01                          640
                         F04R1  1-02  1-02                          640
                                      1                             640

                                3-0/8                               641
                                                                    641

                         F03E1  1-01  1-01                          642
                         F03V2  1-02  1-02                          642
                                      1                             642

                
```

HND288,V23(23) 05/24/74

DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
					2		P	H TO WHERE	172
					1		P	H TO WHERE	173
					2		P	H TO WHERE	173
					1		P	H TO WHERE	173
					2		P	H TO WHERE	173
					1		P	H TO WHERE	173
					2		P	H TO WHERE	173
								TO HERE	173
							20-4/8		173
					2		P	H TO WHERE	174
					1		P	H TO WHERE	174
					2		P	H TO WHERE	174
					1		P	H TO WHERE	174
					2		P	H TO WHERE	174
					1		P	H TO WHERE	174
					2		P	H TO WHERE	174
								TO HERE	174
							20-4/8		174
					2		P	H TO WHERE	175
					1		P	H TO WHERE	175
					2		P	H TO WHERE	175
					1		P	H TO WHERE	175
					2		P	H TO WHERE	175
					1		P	H TO WHERE	175
					2		P	H TO WHERE	175
								TO HERE	175
							20-4/8		175
					2		P	H TO WHERE	176
					1		P	H TO WHERE	176
					2		P	H TO WHERE	176
					1		P	H TO WHERE	176
					2		P	H TO WHERE	176
					1		P	H TO WHERE	176
					2		P	H TO WHERE	176
								TO HERE	176
							20-4/8		176
					2		P	H TO WHERE	177
					1		P	H TO WHERE	177
					2		P	H TO WHERE	177
								TO HERE	177
							8-2/8		177

DD11-C.PO RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER
GND (03)		C01C2	1-01	H
GND (03)		C02C2	1-02	H
GND (03)		C03C2	1-03	H
GND (03)		C04E2	1-04	H
GND (03)		C04T1	1-05	H
GND (03)		C03T1	1-06	H
GND (03)		C02T1	1-07	H
GND (03)		C01T1	1-08	H
			1	
GND (04)		D01C2	1-01	H
GND (04)		D02E2	1-02	H
GND (04)		D03E2	1-03	H
GND (04)		D04C2	1-04	H
GND (04)		D04T1	1-05	H
GND (04)		D03T1	1-06	H
GND (04)		D02T1	1-07	H
GND (04)		D01T1	1-08	H
			1	
GND (05)		E01C2	1-01	H
GND (05)		E02C2	1-02	H
GND (05)		E03C2	1-03	H
GND (05)		E04C2	1-04	H
GND (05)		E04T1	1-05	H
GND (05)		E03T1	1-06	H
GND (05)		E02T1	1-07	H
GND (05)		E01T1	1-08	H
			1	
GND (06)		F01C2	1-01	H
GND (06)		F02C2	1-02	H
GND (06)		F03C2	1-03	H
GND (06)		F04C2	1-04	H
GND (06)		F04T1	1-05	H
GND (06)		F03T1	1-06	H
GND (06)		F02T1	1-07	H
GND (06)		F01T1	1-08	H
			1	
GND (07)		E01A1	1-01	H
GND (07)		E02A1	1-02	H
GND (07)		E03A1	1-03	H
GND (07)		E04A1	1-04	H
			1	

HND288,V23(23) 05/24/74

DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
					1		P	H TO WHERE	178
					2		P	H TO WHERE	178
					1		P	H TO WHERE	178
								TO HERE	178
							11-4/8		178
					1		P	H TO WHERE	179
					2		P	H TO WHERE	179
					1		P	H TO WHERE	179
								TO HERE	179
							11-4/8		179
					1		P	H TO WHERE	180
					2		P	H TO WHERE	180
					1		P	H TO WHERE	180
					2		P	H TO WHERE	180
					1		P	H TO WHERE	180
					2		P	H TO WHERE	180
					1		P	H TO WHERE	180
								TO HERE	180
							10-0/8		180
					1		P	H TO WHERE	181
					2		P	H TO WHERE	181
					1		P	H TO WHERE	181
								TO HERE	181
							8-6/8		181
					2		P	H TO WHERE	182
					1		P	H TO WHERE	182
					2		P	H TO WHERE	182
								TO HERE	182
							8-2/8		182
					2		P	H TO WHERE	183
					1		P	H TO WHERE	183
					2		P	H TO WHERE	183
								TO HERE	183
							8-2/8		183
					2		P	H TO WHERE	184
					1		P	H TO WHERE	184
					2		P	H TO WHERE	184
								TO HERE	184
							8-2/8		184

DD11-C.PM RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER
GND (09)		A01B2	1-01	H
GND (09)		A01V2	1-02	H
GND (09)		B01H2	1-03	H
GND (09)		B01V2	1-04	H
			1	
GND (09)		A04E2	1-01	H
GND (09)		A04V2	1-02	H
GND (09)		B04F2	1-03	H
GND (09)		B04V2	1-04	H
GND (09)			1	
GND (10)		A01N1	1-01	H
GND (10)		A01P1	1-02	H
GND (10)		A01R1	1-03	H
GND (10)		A01S1	1-04	H
GND (10)		A01S1	1-05	H
GND (10)		A04P1	1-06	H
GND (10)		A04P1	1-07	H
GND (10)		A04N1	1-08	H
			1	
GND (11)		B01D1	1-01	H
GND (11)		B01F1	1-02	H
GND (11)		B04E1	1-03	H
GND (11)		B04D1	1-04	H
			1	
GND (12)		F01J2	1-01	H
GND (12)		F02J2	1-02	H
GND (12)		F03J2	1-03	H
GND (12)		F04J2	1-04	H
GND (12)			1	
HALT GRANT		C01R1	1-01	H
HALT GRANT		C02R1	1-02	H
HALT GRANT		C03R1	1-03	H
HALT GRANT		C04R1	1-04	H
			1	
HALT REQ		C01P1	1-01	H
HALT REQ		C02P1	1-02	H
HALT REQ		C03P1	1-03	H
HALT REQ		C04P1	1-04	H

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
INIT L	A01A1		1-01 *	H			2		P	HAND WIRE	185
INIT L	A02A1		1-02 *				1			TO HERE	185
INIT L	D01L1		1-03 *	H			2		P	HAND WIRE	185
INIT L	D02L1		1-04 *	H			1		P	HAND WIRE	185
INIT L	D03L1		1-05 *	H			2		P	HAND WIRE	185
INIT L	D04L1		1-06 *				1			TO HERE	185
INIT L	A03A1		1-07 *	H			2		P	HAND WIRE	185
INIT L	A04A1		1-08 *							TO HERE	185
INIT L			1						37-2/8		185
INT SSYN	H02E1		1-01	H			1		P	H TO WHERE	186
INT SSYN	H03E1		1-02							TO HERE	186
INT SSYN			1						2-6/8		186
INTR L	A01B1		1-01 *	H			2		P	HAND WIRE	187
INTR L	A02B1		1-02 *				1			TO HERE	187
INTR L	F01M1		1-03 *	H			2		P	HAND WIRE	187
INTR L	F02M1		1-04 *	H			1		P	HAND WIRE	187
INTR L	F03M1		1-05 *	H			2		P	HAND WIRE	187
INTR L	F04M1		1-06 *				1			TO HERE	187
INTR L	A03B1		1-07 *	H			2		P	HAND WIRE	187
INTR L	A04B1		1-08 *							TO HERE	187
INTR L			1						47-6/8		187
LTC	C01D1		1-01	H			2		P	H TO WHERE	188
LTC	C02D1		1-02	H			1		P	H TO WHERE	188
LTC	C03D1		1-03	H			2		P	H TO WHERE	188
LTC	C04D1		1-04							TO HERE	188
LTC			1						8-2/8		188
MSYN L	B01V1		1-01 *				2				189
MSYN L	B02V1		1-02 *				1				189
MSYN L	B01E1		1-03 *	H			2		P	HAND WIRE	189
MSYN L	B02E1		1-04 *	H			1		P	HAND WIRE	189
MSYN L	B03E1		1-05 *	H			2		P	HAND WIRE	189
MSYN L	B04F1		1-06 *				1			TO HERE	189
MSYN L	H03V1		1-07 *				2				189
MSYN L	B04V1		1-08 *								189
MSYN L			1						31-2/8		189

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
MPG L	A01U1		1-01 *				2				190
MPG L	C01A1		1-02 *				1				190
MPG L	C01R1		1-03 *	H			2		P	HAND WIRE	190
MPG L	C02A1		1-04 *				1			TO HERE	190
MPG L	C02E1		1-05 *	H			2		P	HAND WIRE	190
MPG L	C03A1		1-06 *				1			TO HERE	190
MPG L	C03K1		1-07 *	H			2		P	HAND WIRE	190
MPG L	C04A1		1-08 *				1			TO HERE	190
MPG L	C04B1		1-09 *				2				190
MPG L	A04U1		1-10 *								190
MPG L			1						29-4/8		190
MPP L	A01S2		1-01 *				2				191
MPP L	A02S2		1-02 *				1				191
MPP L	F01J1		1-03 *	H			2		P	HAND WIRE	191
MPP L	F02J1		1-04 *	H			1		P	HAND WIRE	191
MPP L	F03J1		1-05 *	H			2		P	HAND WIRE	191
MPP L	F04J1		1-06 *				1			TO HERE	191
MPP L	A03S2		1-07 *	H			2		P	HAND WIRE	191
MPP L	A04S2		1-08 *							TO HERE	191
MPP L			1						43-6/8		191
PA L	A01M1		1-01 *	H			2		P	HAND WIRE	192
PA L	A02M1		1-02 *				1			TO HERE	192
PA L	C01C1		1-03 *	H			2		P	HAND WIRE	192
PA L	C02C1		1-04 *				1			TO HERE	192
PA L	C03C1		1-05 *				2				192
PA L	C04C1		1-06 *				1				192
PA L	A03M1		1-07 *				2				192
PA L	A04M1		1-08 *								192
PA L			1						27-2/8		192
PAR DET	H02E2		1-01	H			1		P	H TO WHERE	193
PAR DET	H03E2		1-02							TO HERE	193
PAR DET			1						2-6/8		193
PAR P4	A02P1		1-01	H			1		P	H TO WHERE	194
PAR P4	A03P1		1-02							TO HERE	194
PAR P4			1						2-6/8		194
PAR P1	A02N1		1-01	H			1		P	H TO WHERE	195
PAR P1	A03N1		1-02							TO HERE	195
PAR P1			1						2-6/8		195

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
PB L		A01N2		1-01 *	H			2		P	HAND WIRE	196
PB L		A02N2		1-02 *				1			TO HERE	196
PB L		C01S1		1-03 *	H			2		P	HAND WIRE	196
PB L		C02S1		1-04 *	H			1		P	HAND WIRE	196
PB L		C03S1		1-05 *	H			2		P	HAND WIRE	196
PB L		C04S1		1-06 *				1			TO HERE	196
PB L		A03N2		1-07 *	H			2		P	HAND WIRE	196
PB L		A04N2		1-08 *							TO HERE	196
PB L				1						30-0/8		196
RESERVE BUS		B02A1		1-01	H			1		P	H TO WHERE	197
RESERVE BUS		B03A1		1-02							TO HERE	197
RESERVE BUS				1						2-6/8		197
SACK L		A01K2		1-01 *	H			2		P	HAND WIRE	198
SACK L		A02R2		1-02 *				1			TO HERE	198
SACK L		F01T2		1-03 *	H			2		P	HAND WIRE	198
SACK L		F02T2		1-04 *	H			1		P	HAND WIRE	198
SACK L		F03T2		1-05 *	H			2		P	HAND WIRE	198
SACK L		F04T2		1-06 *				1			TO HERE	198
SACK L		A03R2		1-07 *	H			2		P	HAND WIRE	198
SACK L		A04R2		1-08 *							TO HERE	198
SACK L				1						45-6/8		198
SSYN L		F01C1		1-01 *	H			2		P	HAND WIRE	199
SSYN L		F02C1		1-02 *	H			1		P	HAND WIRE	199
SSYN L		F03C1		1-03 *	H			2		P	HAND WIRE	199
SSYN L		F04C1		1-04 *							TO HERE	199
SSYN L				1						8-2/8		199
SSYN L		B01D1		1-01 *	H			2		P	HAND WIRE	200
SSYN L		F02D1		1-02 *				1			TO HERE	200
SSYN L		E01J1		1-03 *	H			2		P	HAND WIRE	200
SSYN L		E02J1		1-04 *	H			1		P	HAND WIRE	200
SSYN L		E03J1		1-05 *	H			2		P	HAND WIRE	200
SSYN L		E04J1		1-06 *				1			TO HERE	200
SSYN L		E03D1		1-07 *	H			2		P	HAND WIRE	200
SSYN L		E04D1		1-08 *							TO HERE	200
SSYN L				1						32-2/8		200
SSYN L JMP		F02J1		1-01				1				201
SSYN L JMP		F02C1		1-02								201
SSYN L JMP				1						4-4/8		201

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MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE
DRAWING DIRECTORY (DD11-P)	B-DD-DD11-P	
BACK PLANE ASSY (DD11PK)	C-AD-7011523-0-0	
BACK PLANE ASSY (DD11PF)	C-AD-7012307-0-0	
MODULE UTILIZATION (DD11-P)	D-MU-DD11-P-2	
POWER HARNESS (BA11-K,BA11-L)	D-IA-7011108-0-0	
POWER HARNESS (BA11F,BA11-P)	D-IA-7011109-0-0	
CIRCUIT SCHEMATIC (DD11-P)	D-CS-5411660-0-1	
WIRE LIST (COMPLETE)	K-WL-DD11-P-1	

NOTE: DD11PK ASSEMBLIES ARE ELECTRICALLY INCOMPATIBLE WITH DD11PF ASSEMBLIES. A DD11PK WILL WORK IN BA11-L AND BA11-K BOXES ONLY. A DD11PF WILL WORK IN BA11-F AND BA11-P BOXES ONLY

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
DD11-PK	BACK PLANE ASSY (BA11L, BA11K)	X
DD11-PF	BACK PLANE ASSY (BA11F, BA11P)	X

REVISIONS	DATE	CHG. NO.	REV
	2-76	DDIIP-2	A
	2-3-76	R. Barry	
	9-76	DDIIP-3	B
	12-76	DDIIP-4	C
	2-77	DDIIP-5	D

DEC 16-12251-1962-1A-R972

USED ON OPTION/MODEL		DRN.	DATE
		D. HEALY	6/19/75
		CHK'D.	DATE
		D. Healy	6/30/75
		PROJ ENG.	DATE
		R Barry	7-2-75
		PROD.	DATE
		R.K. Peterson	7/2/75
		FIELD SERV.	DATE
			7-3-75

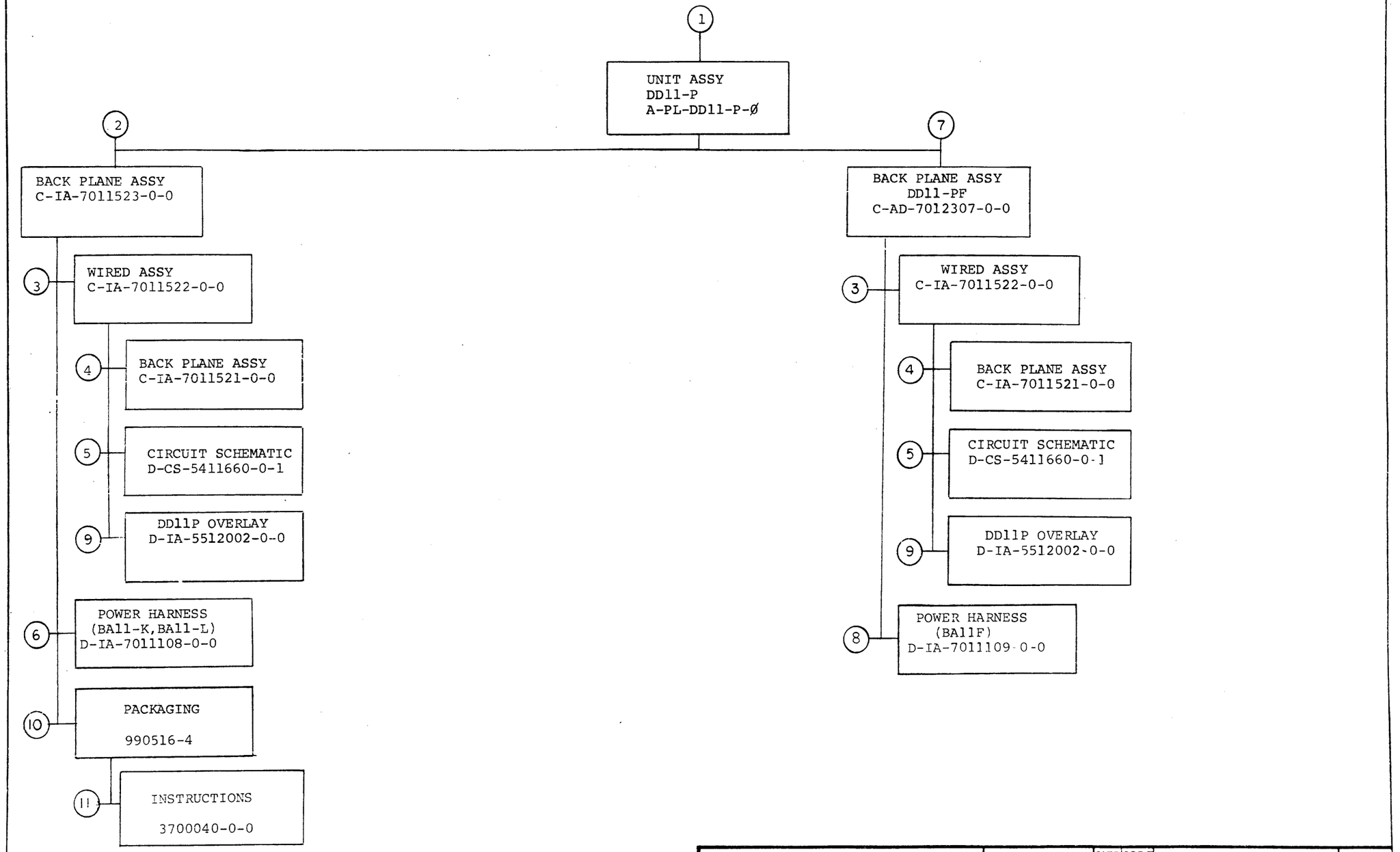
SHEET 1 OF 3

TITLE: DRAWING DIRECTORY DD11-P

SIZE	CODE	NUMBER	REV
B	DD	DD11-P	D

DIST

DRB 106



TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY DD11-P	SHEET 2 OF 3	B	DD	DD11-P	D

DRB 107
DEC 16-(325)-1062-3-N871

ELECTRICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	A-PL-DD11-P-Ø		1	UNIT ASSY DD11-P	
X			D-MU-DD11-P-2		1	MODULE UTILIZATION	
X		2	C-IA-7011523-0-0		1	BACK PLANE ASSY DD11-PK	
		3	C-IA-7011522-0-0		1	WIRED ASSY	
X			K-WL-DD11-P-1	C	1	WIRE LIST	
			A-WT-7011522-0		1	AWT REV STATUS	
X		5	D-CS-5411660-0-1		1	CIRCUIT SCHEMATIC	
X		6	D-IA-7011108-0-0		1	POWER HARNESS (BA11-K,BA11-L)	
X		7	C-AD-7012307-0-0		1	BACK PLANE ASSY DD11-PF	
X		8	C-IA-7011109-0-0		1	POWER HARNESS(BA11-F,BA11-P)	

MECHANICAL

CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	A-PL-DD11-P-Ø		1	UNIT ASSY DD11-P	
		2	C-IA-7011523-0-0		1	BACK PLANE ASSY DD11-PK	
		3	C-IA-7011522-0-0		1	WIRED ASSY	
			B-DC-5308753-0-0		1	DECAL 21 POINT (LTR)	
			A-DC-7411881-0-0		1	LABEL, AWT REV STATUS	
		4	D-IA-7011521-0-0		1	BACK PLANE ASSY	
		5	D-CS-5411660-0-1			CIRCUTI SCHEMATIC	
			D-AH-5411660-0-4			ASSY/DRILLING HOLE LAYOUT	
			K-CO-5411660-0-5			X-Y COORDINATE HOLE LOCATION	
			B-MH-5411660-0-6			MODULE ECO HISTORY	
			5011659			ETCH CIRCUIT BOARD	
		6	D-IA-7011108-0-0		1	POWER HARNESS (BA11-K.BA11-L)	
		7	C-AD-7012307-0-0		1	BACKPLANE ASSY DD11-PF	
		8	D-IA-7011109-0-0		1	POWER HARNESS (BA11-F,BA11-P)	
		9	D-IA-5512002-0-0		1	OVERLAY, WIRING	
		10	990516			PACKAGING	
		11	3700040-0-0			PACKAGING INSTRUCTIONS	

CUSTOMER PRINT SET CODES

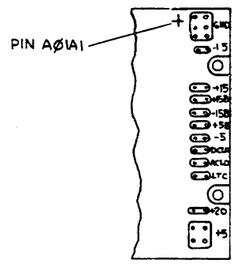
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY DD11-P	3 OF 3	B	DD	DD11-P	D

DPB 108

WIRE TABLE

FROM			TO	FROM			TO
COLOR	POINT	CONNECTION	SIGNAL	COLOR	POINT	CONNECTION	SIGNAL
BLUE	P4-13	SOLDER	-15V	BRN	P2-14	SOLDER	-5V
RED	P4-4		+5V	BLK	P2-8		GND
RED	P4-1		+5V	GRAY	P2-2		+15
BLK	P4-8		GND	ORG	P2-3		+20
ORG	P4-3		+20V	BLK	P2-9		GND
BLK	P4-9		GND	RED	P2-12	SOLDER	+5B
WHT	P4-6		+15B	ITEM 5	ITEM 6	SOLDER	GND
GRN	P4-15		-15B				
YEL	P3-4		ACLO				
BLK	P3-1		GND				
BRN	P3-2		LTC				
VIO	P3-3		DCLO				
RED	P2-4		+5V				
RED	P2-1	SOLDER	+5V				



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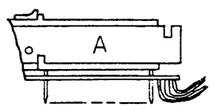
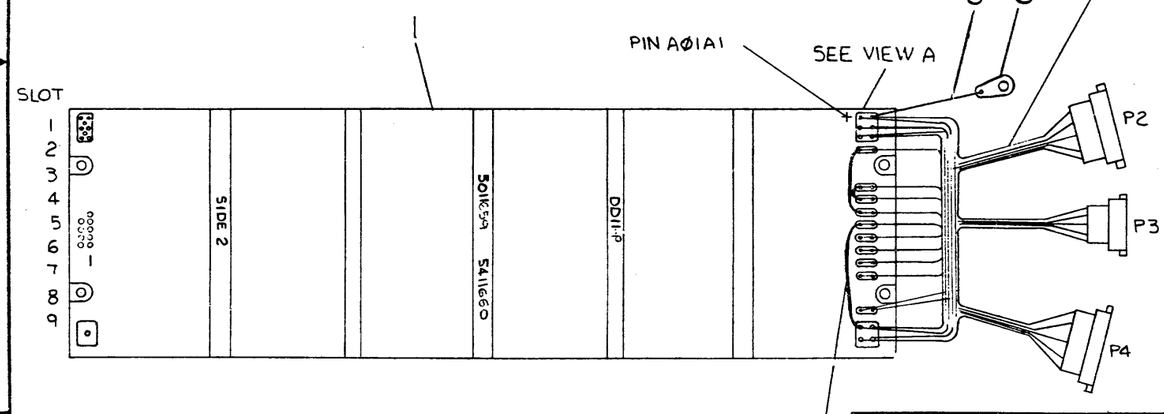




NOTES:

1. WHEN THE DD11-PK'S USED WITH A BA11-K EXPANSION BOX WITHOUT BATTERY BACK UP, (I.E., NO 785 OR 7850) INSTALL THE THREE JUMPERS SHOWN:
   A) -15 TO -15B
   B) +15 TO +15B
   C) +5 TO + 5B (SEE NOTE 3)
   USE *22 SHIELD BUS WIRE ON SIDE 2. THIS WILL PROVIDE POWER TO THE MOS MEMORY VOLTAGE RAILS.
2. INSTALL ITEM# 6 UNDER LOGIC FRAME MOUNTING SCREW TO TIE LOGIC GROUND TO CHASSIS GROUND.
3. BA11-K'S THAT USE THE 5410864-YA-1 POWER DISTRIBUTION (I.E., 11/34A, 11/34 WITH FP11-AU, AND SOME 11/04'S) AND HAVE MORE THAN ONE DD11-DK (OR AN ADDITIONAL DD11-CK) CAN ONLY HAVE THE +5 TO +5B JUMPER IN ONE OF THE BACK PANELS. IF TWO OF THE BACK PANELS HAVE THE JUMPER IN, THE +5V REGULATORS MAY BE CONNECTED TOGETHER. TYPICALLY THIS JUMPER IS IN THE FIRST BACK PANEL, BUT IT MAY BE PLACED IN ONE OF THE OTHER BACK PANELS IF DEEMED NECESSARY FOR POWER REQUIREMENTS.

A/R	COPRESS-O-CARTON	9905016-4	8
REF.	PACKAGING INSTRUCTIONS	3700040-0-0	7
1	TERMINAL, SOLDER	9008150	6
2"	WIRE, BLK, STRD# 14	9107370-00	5
6"	TUBING #22 (BLUE)	9107256-06	4
6"	WIRE BUS # 22	9107560-01	3
1	POWER HARNESS (BA11-K, BA11-L)	D-IA-7011108-0-0	2
1	WIRED ASSY DD11-P	C-IA-7011522-0-0	1
QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: DD11-P

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
X.XX = ±0.10	.XXX = ±.005	±0° 30'
X.X = ±0.5	.XX = ±.02	
X = ±2.	.X = ±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL: SEE PARTS LIST
FINISH: + +

		DATE
DRN	[illegible]	5/20/75
CHK'D	J. Casey	7/1/75
ENG	R. Barry	7-9-75
PROJ ENG	R. Barry	7-9-75
PROD	R. Peterson	7/21/75

NEXT HIGHER ASSY.: A-PL-DD11-P -Ø
SCALE: ++
SHEET 1 OF 1

digital

TITLE: BACKPLANE ASS'Y (DD11-PK)

SIZE	CODE	NUMBER	REV.
C	IA	7011523-0-0	D

DIST.

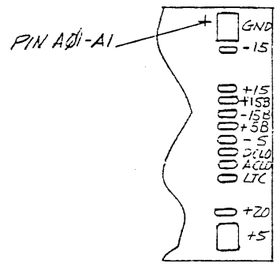
REVISIONS			
CHK	CHANGE NO.		REV.
[illegible]	7011523-00001	R. BARRY 13 OCT 75	A
[illegible]	DD11P-00002	R. BARRY 24-FEB-76	B
[illegible]	DD11-P-00005	R. BARRY 8-MARCH-76	C
[illegible]	7011523-00002	D. BARRY 17-FEB 77	D
[illegible]		D. BARRY 24 JUNE 77	

DEC FORM NO. DMC 100-B

SIZE C | CODE IA | NUMBER 7011523-0-0 | REV. D

WIRE TABLE

FROM			TO	FROM			TO
COLOR	POINT	CONNECTION	SIGNAL	COLOR	POINT	CONNECTION	SIGNAL
BLU	P4-13	SOLDER	-15V	BRN	P2-14	SOLDER	-5V
RED	P4-4	↓	+5V	BLK	P2-8	↓	GND
RED	P4-1	↓	+5V	GRAY	P2-2	↓	+15
BLK	P4-8	↓	GND	ORN	P2-3	↓	+20
ORN	P4-3	↓	+20V	BLK	P2-9	↓	GND
BLK	P4-9	↓	GND	RED	P2-10	SOLDER	+5B
WHT	P4-6	↓	+15B	ITEM #5		↓	GND
GRN	P4-15	↓	-15B	ITEM #6		SOLDER	GND
YEL	P3-4	↓	ACLO				
BLK	P3-1	↓	GND				
BRN	P3-2	↓	LTC				
VIO	P3-3	↓	DCLO				
RED	P2-4	↓	+5V				
RED	P2-1	SOLDER	+5V				



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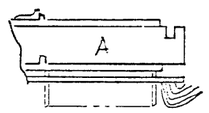
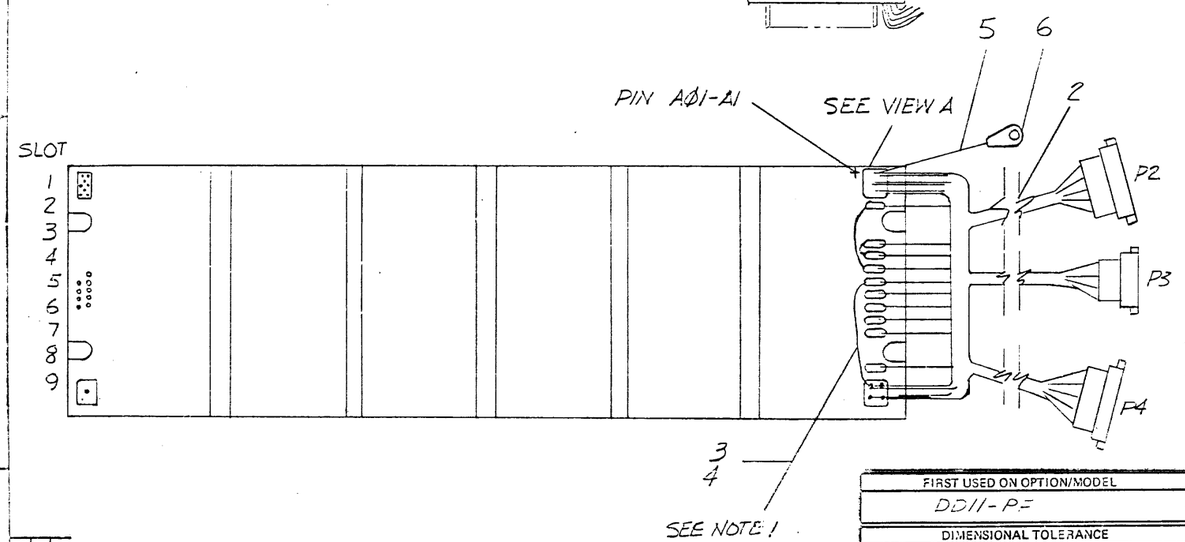




NOTES:

1. WHEN DD11-PF IS USED WITH A BA11-F EXP BOX WITHOUT BATTERY BACK UP INSTALL THE THREE JUMPERS SHOWN:
   1) -15 TO -15B
   2) +15 TO +15B
   3) +5 TO +5B
   USE #20 INSULATED BUS WIRE ON SIDE 2 THIS WILL PROVIDE POWER TO THE MOS MEM VOLTAGE RAILS.
2. INSTALL ITEM #6 UNDER LOGIC FRAME MOUNTING SCREW TO TIE LOGIC GROUND TO CHASSIS GROUND.

QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	TERMINAL, SOLDER	9008150	6
FT/2	WIRE, BLK STRD #14	9107370-00	5
A/R	TUBING, #20 (CLEAR)	9107267-10	4
A/R	WIRE, BUS #20	9107560-02	3
1	POWER HARNESS BA11-F	11-17470-39-00	2
1	WIRED ASSY DD11-P	6J-470 522 0-0	1

PARTS LIST

FIRST USED ON OPTION/MODEL: DD11-PF

DIMENSIONAL TOLERANCE
DIMENSIONS ARE ~~MILLIMETERS~~ INCHES UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
X.XX ±0.10	.XXX ±.005	±0° 30'
X.X ±0.5	.XX ±.02	
X ±1.	.X ±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL: SEE PARTS LIST

FINISH: —

		DATE
DRN.	[illegible]	12/12/75
CHK'D.	[illegible]	12/13/75
ENG.	R Barry	12/13/75
PROJ. ENG.	R Barry	12/13/75
PROD.	[illegible]	12-19-75

NEXT HIGHER ASSY.: A-PL-DD11-PF-Ø

SCALE: NONE

SHEET 1 OF 1

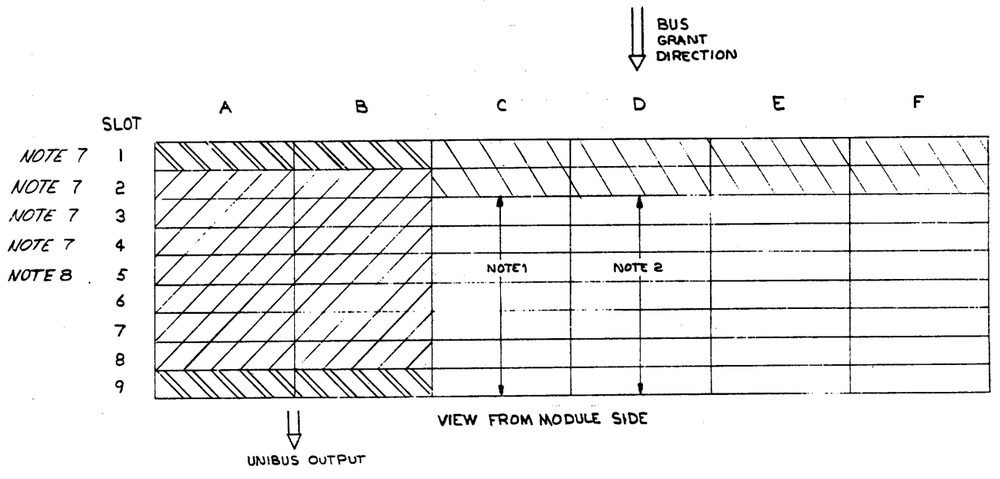
digital

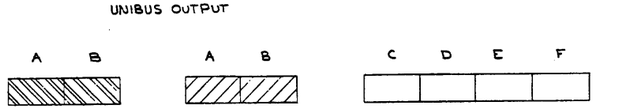
TITLE: BACK PLANE ASSY (DD11-PF)

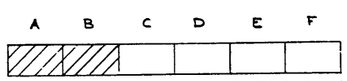
SIZE	CODE	NUMBER	REV.
C	AD	7012307-0-0	

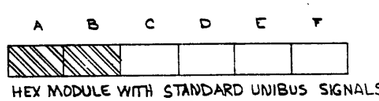
DIST.

REVISIONS: REV. | CHANGE NO. | DATE









GENERAL

ANY HEX MODULE THAT MEETS EITHER OF THE FOLLOWING REQUIREMENTS CAN BE MOUNTED IN THESE SLOTS.

1.) THOSE PINNED TO TAKE SIGNALS FROM MODIFIED UNIBUS (A&B) WITH THE BUS GRANTS TAKEN FROM SPC SLOTS 1E: ABOVE

2.) THOSE PINNED TO TAKE SIGNALS FROM STANDARD SPC PINNING WITH THE EXCEPTION OF POWER FROM (A&B). 1E: SPECIAL OPTIONS

NOTES:

1. REMOVE CA1 TO CB1 WIRE WRAP JUMPER TO INSTALL AN NPR OPTION IN ANY SPC SLOT.
2. G727 REQUIRED IN ANY UNUSED SPC SLOT TO PROVIDE BUS GRANT CONTINUITY.
3. GRANT DIRECTION IS SLOT 1 TO SLOT 9.
4. USE M9202 TO INTERCONNECT SYSTEM UNITS INSTEAD OF M920. M9202 IS A 2 FT. UNIBUS JUMPER CABLE USED TO DISTRIBUTE UNIBUS LOADING.
5. M9302 (SACK/TERM) AND M930 (TERM) MUST NEVER BE INSTALLED IN ANY SLOT OTHER THAN SLOT 9 (A & B). POWER SUPPLY VOLTAGES WILL BE SHORTED OUT IF THESE TERMINATORS ARE MOUNTED IN THE MODIFIED UNIBUS SLOTS.
6. MODIFIED UNIBUS SECTION CARRIES CORE AND MOS MEMORY VOLTAGE RAILS AND MEMORY PARITY CONTROL SIGNALS INSTEAD OF BUS GRANT AND SOME GND SIGNALS THAT ARE CONTAINED IN STANDARD UNIBUS SLOTS.
7. REFER TO NEXT PAGE FOR RECOMMENDED UTILIZATION OF THIS SLOT IN STANDARD SYSTEM.
8. THIS SLOT IS RESERVED FOR KK11-A OPTION ON PDP1134A ONLY BA11-K BOX ONLY.
9. SLOT 3 IS TO BE USED FOR EITHER KK11-A OR FP11-A OPTIONS. IF BOTH OPTIONS ARE PRESENT FP11-A MUST GO IN SLOT 3 AND KK11-A IN SLOT 5 THESE CONFIGURATIONS APPLY TO BOTH THE BA11-L (5 1/4") AND BA11-K (10.5") BOXES.
10. EITHER M9312 OR M9301 MAY BE USED BUT NOT BOTH.

REVISIONS			
SYM	CHANGE NO.	REV.	
A	DD11P-00005	A	D.HANLY 6 FEB 77
B	DD11-P-00006	B	J. SOFIO 2 FEB 78
C	DD11P-00007	C	J. SOFIO 22 FEB 78
D	DD11P-00008	D	J. SOFIO 12 JUN 78

DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES 10° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE (INCHES)					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	±.005	±.008	±.012	±.018	±.024	±.04
	PREFERRED	±.010	±.016	±.025	±.04	±.060	±.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL

FINISH

DRN. 11.31.2 FIRST USED ON digital

CHK'D 7/1/75

ENG. 7-9-75

PROJ. ENG. 7-9-75

PROD. 7/7/75

NEXT HIGHER ASSY.

B-DD-DD11-P

SCALE

SHEET 1 OF 2

TITLE: MODULE UTILIZATION (DD11-P)

SIZE	CODE	NUMBER	REV.
D	MU	DD11-P-2	D

DIST.

DEC 1-CRM NO. Dec 100-C

RECOMMENDED SLOT UTILIZATION IN STANDARD SYSTEMS

KD11-D W/M9312 & MS11-JP(FP) PDP-11/04

SLOT		
	1	M7263
	2	MS11-JP (FP)
	3	M9312
	4	
	5	
	6	
	7	
	8	
SLOT	9	

KD11-E W/M9312 PDP-11/34

SLOT		
	1	M7266
	2	M7265
	3	M9312
	4	
	5	
	6	
	7	
	8	
SLOT	9	

KD11-D W/M9312 & MM11-DP/OR MM11-YP PDP-11/04

SLOT		
	1	M7263
	2	MM11-DP
	3	
	4	M9312
	5	
	6	
	7	
	8	
SLOT	9	

KD11-EA W/M9312 FP11-A PDP-1134A

SLOT		
	1	M8266
	2	M8265
	3	M8267
	4	M9312
	5	
	6	
	7	
	8	
SLOT	9	

KD11-D W/M9312 & MM11-CP PDP-11/04

SLOT		
	1	M7263
	2	MM11-CP
	3	M9312
	4	
	5	
	6	
	7	
	8	
SLOT	9	

BA11-K 10.5" BOX/BA11-L 5.25" BOX
W/M9312 FP11-A KK11-A

KD11-EA PDP1134A

	SLOT		
		1	M8266
		2	M8265
SEE NOTE 9 →		3	M8267
		4	M9312
		5	M8268
		6	
		7	
		8	
	SLOT	9	

KD11-EA W/M9312 PDP-1134A

SLOT		
	1	M8266
	2	M8265
	3	M9312
	4	
	5	
	6	
	7	
	8	
SLOT	9	

BA11-K 10.5 BOX/BA11-L 5.25 BOX

KD11-EA W/M9312 KK11-A OR FP11-A PDP1134A

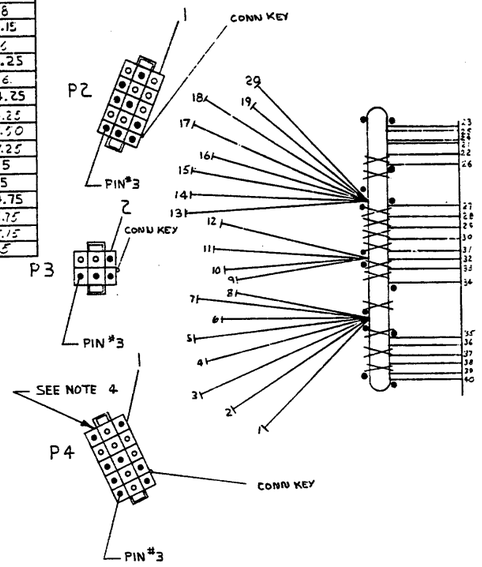
	SLOT		
		1	M8266
		2	M8265
SEE NOTE 9 →		3	M8267 OR M8268
		4	M9312
		5	
		6	
		7	
		8	
	SLOT	9	

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MODULE UTILIZATION (DD11-P)	D	MU	DD11-P-2	D
SCALE	SHEET 2 OF 2		DIST.	

WIRING TABLE

ITEM NO.	DESCRIPTION AWG	COLOR	FROM POINT	FROM CONNECTION	FROM WITH	TO POINT	TO CONNECTION	SIGNAL	LENGTH
9	#18	BLUE	1	P4-13	3	26	SOLDER	-15V	7
5	14	RED	2	P4-4	↑	37	↑	+5V	5
5	14	RED	3	P4-1		38		+5V	5
6	14	BLK	4	P4-8		21		GND	7.75
7	14	ORN	5	P4-3		35		+20V	5
6	14	BLK	6	P4-9		22		GND	8
13	18	WHT	7	P4-6		28		+15B	6.15
14	18	GRN	8	P4-15		29		-15B	5
12	18	YEL	9	P3-4		33		ACLO	4.25
6	14	BLK	10	P3-1		23		GND	6
10	18	BRN	11	P3-2		34		LTC	4.25
11	18	VIO	12	P3-3		32		DCLO	4.25
5	14	RED	13	P2-4		39		+5V	7.50
5	14	RED	14	P2-1		40		+5V	7.25
10	18	BRN	15	P2-14		31		-5V	5
6	14	BLK	16	P2-8		24		GND	5
8	18	GREY	17	P2-2		27		+15	4.75
7	14	ORN	18	P2-3		30		+20	6.75
6	14	BLK	19	P2-9	↓	25	↓	GND	5.15
5	14	RED	20	P2-12	3	30	SOLDER	+5B	5



NOTES:
1. USE TIE WRAPS (X) ITEM#4 AT BREAKOUT POINTS SHOWN
2. DOT (•) INDICATES NAIL LOCATION FOR ASS'Y USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.
3. WIRE LENGTH TOLERANCES WILL BE +½ -0 INCHES.
4. ALL CONN. SHOWN FROM WIRING SIDE.

FOR WIRE LENGTHS SEE WIRING TABLE

ITEM	DESCRIPTION	DWG./PART NO.	QTY
1	POWER HARNESS DECALS	7409872-2-0	15
A/R	WIRE #18 AWG, GRN	9107360-55	14
A/R	WIRE #18 AWG, WHT	9107360-99	13
A/R	WIRE #18 AWG, YEL	9107360-44	12
A/R	WIRE #18 AWG, VIO	9107360-77	11
A/R	WIRE #18 AWG, BRN	9107360-11	10
A/R	WIRE #18 AWG, BLUE	9107360-66	9
A/R	WIRE #18 AWG, GREY	9107360-88	8
A/R	WIRE #14 AWG, ORN	9107370-33	7
A/R	WIRE #14 AWG, BLK	9107370-00	6
A/R	WIRE #14 AWG, RED	9107370-22	5
12	TIE WRAP	9007031	4
20	PIN MALE	1209378-01	3
1	CONN. 5 PIN HOUSING	1209351-06	2
2	CONN 15 PIN HOUSING	1209351-15	1

DO NOT REDUCE
SCALE
0 IN — 6 IN — 12 IN
FOR MANUFACTURING PURPOSES ONLY

REVISIONS	CHK	CHANGE NO.	REV.
	JVE	7011108-0001	A
		7011108-0002	B

D. GERNEY
P. FONSECA

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
ANGLES ±0° 30' | CLASS OF ACCURACY | NOMINAL DIMENSION RANGE (INCHES)
SURFACE QUALITY 1N | SPECIFIED | PREFERRED | 0 TO 2 | OVER 2 TO 12 | OVER 12 TO 48 | OVER 48 TO 120 | OVER 120 TO 300
MICROINCHES | SPECIFIED | ±.004 | ±.008 | ±.012 | ±.016 | ±.024 | ±.04
MICROINCHES | PREFERRED | ±.012 | ±.018 | ±.025 | ±.04 | ±.060 | ±.01
QUANTITY & VARIATION

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS
DO NOT SCALE DWG
MATERIAL: SEE PARTS LIST
FINISH

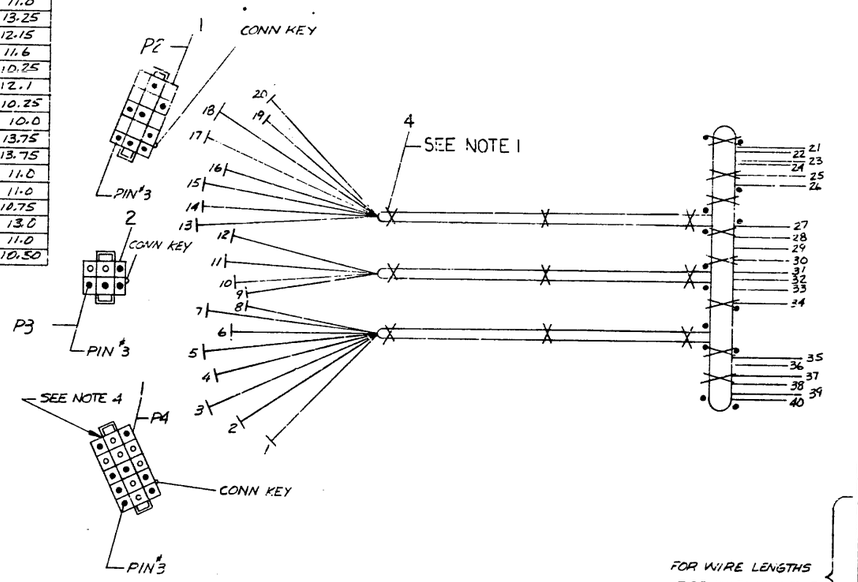
DRN. 9/11/75
CHK'D 9/21/75
ENG'R 9/24/75
PROJ. ENG'R 9/24/75
PROD. 9/30/75
NEXT HIGHER ASSY.
C-AD-7011164-0-0
SCALE 1/1
SHEET 1 OF 1

FIRST USED ON: DD11-D
digital
TITLE: POWER HARNESS (BA11-K, BA11-L)
SIZE D | CODE 1A | NUMBER 7011108-0-0 | REV. B
DIST.

DEC FORM NO. DRD 100-C

WIRING TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT	FROM CONNECTION	FROM WITH	TO POINT	TO CONNECTION	SIGNAL	LENGTH
9	18	BLU	1	P4-13	3	26	SOLDER	-15V	12.75
5	14	RED	2	P4-4		37		+5V	11
5	14	RED	3	P4-1		38		+5V	11.25
6	14	BLK	4	P4-8		21		GND	13.75
7	14	ORN	5	P4-3		35		+20V	11.0
6	14	BLK	6	P4-9		22		GND	13.25
13	18	WHT	7	P4-6		28		+15B	12.15
14	18	GRN	8	P4-15		29		-15B	11.6
12	18	YEL	9	P3-4		33		ACLO	10.25
6	14	BLK	10	P3-1		23		GND	12.1
10	18	BRN	11	P3-2		34		LTC	10.25
11	18	V.D	12	P3-3		32		DCLO	10.0
5	14	RED	13	P2-4		39		+5V	13.75
5	14	RED	14	P2-1		40		+5V	13.75
15	14	BRN	15	P2-14		31		-5V	11.0
6	14	BLK	16	P2-8		24		GND	11.0
8	18	GRY	17	P2-2		27		+15	10.75
7	14	ORN	18	P2-3		36		+20	13.0
6	14	BLK	19	P2-9		25		GND	11.0
5	14	RED	20	P2-10	3	30	SOLDER	+5B	10.50



DO NOT REDUCE

SCALE

0 IN — 6 IN — 12 IN

FOR MANUFACTURING PURPOSES ONLY

NOTES:

1. USE TIE WRAPS (X) ITEM #4 AT BREAKOUT POINTS SHOWN.
2. DOT (•) INDICATES NAIL LOCATION FOR ASSY USE ONLY. COVER NAILS WITH SHRINK TUBING.
3. WIRE LENGTH TOL WILL BE ± .12 IN
4. ALL CONN SHOWN FROM WIRING SIDE.
5. STRIP 1/8" INSULATION FROM POINTS 21 THRU 40 AND FLUX TIN POINTS 21 THRU 40.

FOR WIRE LENGTHS SEE WIRING TABLE

ITEM	DESCRIPTION	DWG./PART NO.	QTY
1	POWER HARNESS DECAL	7409972-2	16
AR	WIRE #14 AWG (BRN)	9107370-11	15
AR	WIRE #18 AWG (GRN)	9107360-55	14
AR	WIRE #18 AWG (WHT)	9107360-99	13
AR	WIRE #18 AWG (YEL)	9107360-44	12
AR	WIRE #18 AWG (VIO)	9107360-77	11
AR	WIRE #18 AWG (BRN)	9107360-11	10
AR	WIRE #18 AWG (BLU)	9107360-66	9
AR	WIRE #18 AWG (GRY)	9107360-88	8
AR	WIRE #14 AWG (ORN)	9107370-33	7
AR	WIRE #14 AWG (BLK)	9107370-00	6
AR	WIRE #14 AWG (RED)	9107370-22	5
17	TIE WRAP	9007031	4
20	PIN MALE	1209378-01	3
1	CONN 6 PIN HOUSING	1209351-06	2
2	CONN 15 PIN HOUSING	1209351-15	1

REVISIONS			
DWR	CHANGE NO.	REV.	
KIT	7011109-00001	A	11/13/75
			D. BARRY
	7011109-00002	B	11/17/75
			P. PORRECA

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG.

MATERIAL: SEE PARTS LIST

FINISH: —

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'

CLASS OF ACCURACY (CHECK ONE)

SURFACE QUALITY IN MICROINCHES	OVER 0 TO 6	OVER 6 TO 30	OVER 30 TO 120	OVER 120 TO 400	OVER 400 TO 800
MEDIUM	±.004	±.008	±.012	±.016	±.024
PREFERRED	±.012	±.016	±.020	±.04	±.060

DRAWN		11/13/75
CHK'D		12/1/75
ENG.		12/5/75
PROJ. ENG.		12/18/75
PROD.		

NEXT HIGHER ASSY.: CAD-7012307-0-C

SCALE: 1/1 — SHEET 1 OF 1

FIRST USED ON: DD11-DF, PF

digital

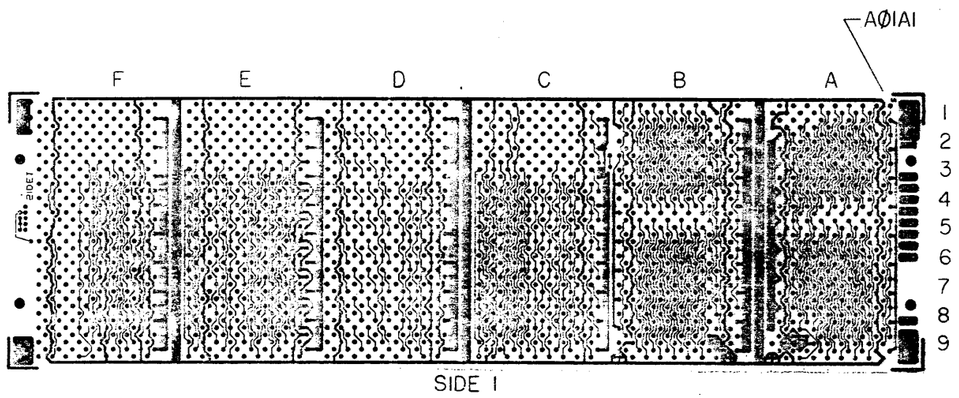
TITLE: POWER HARNESS (BA11-F)

SIZE D — CODE 1A — NUMBER 7011109-0-C — REV. F

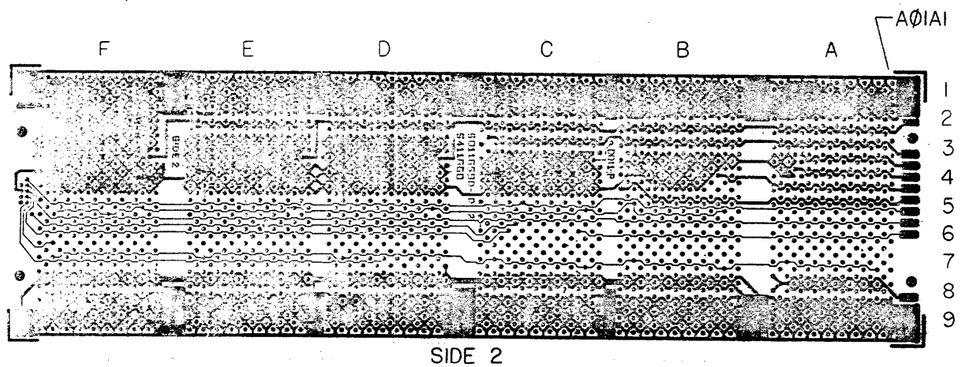
DIST.

DEC FORM NO. DRD 100-C

NOTES:



SIDE 1



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

IC PIN LOCATIONS

REF			
REF		AWT REV STATUS	A-WT-7011522-0-5
REF		MODULE ECO HISTORY	B-MH-5411660-0-6 4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411660-0-5 3
REF		X-Y COORDINATE HOLE LOCATION	X-CO-5411660-0-4 2
1		ETCHED CIRCUIT BOARD	5011659 1
QTY	REF. DESIGNATION	DESCRIPTION	PART NO / ITEM NO

PARTS LIST

FIRST USED ON OPTION MODEL

ETCH BOARD REV. D

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

SEMICONDUCTOR CONVERSION CHART

REV.	CHANGE NO.	CHK	
C	5411660-0000	R.BARRY	8-11-75
D	5411660-0000	R.BARRY	6-NOV-75

DRN. A. Hodgett 6-20-75
CHKD. [illegible] 7/16/75
ENG. K. Barry 7-7-75
PROJ. ENG. T. Barry 7-7-75
PROD. DATE
NEXT HIGHER ASSY C-TA-7011521-0-0
SCALE 1/1
SHEET 1 OF 1

digital

TITLE: CIRCUIT SCHEMATIC

SIZE/CODE D CS | NUMBER 5411660-0-1 | REV. E

DIST.

SIZE	CODE	NUMBER	REV.
K	WL	DD11-P-1	C

REVISIONS		
REV.	CHANGE NO.	CHK
A	DD11P-00001	RTB
B	DD11P-00003	RTB
C	DD11P-00004	RTB

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DD11-P		PARTS LIST		

DRN.	DATE 6/30/75	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE 6/30/75	
ENG. R Barry	DATE 7-2-75	TITLE
PROJ. ENG.	DATE 7/2/75	WIRE LIST DD11-P
PROD.	DATE 7/2/75	
NEXT HIGHER ASSEMBLY		
B-DD-DD11-P		SIZE K · CODE WL · NUMBER DD11-P-1 · REV. C
SCALE		
SHEET OF 1		DIST.

DEC FORM NO.
DRB 109

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
+15/+8V		C03U1		1-01 *	P						2		0-7/8		1
+15/+8V		C04U1		1-02 *	P						1		0-7/8		1
+15/+8V		C05U1		1-03 *	P						2		0-7/8		1
+15/+8V		C06U1		1-04 *	P						1		0-7/8		1
+15/+8V		C07U1		1-05 *	P						2		0-7/8		1
+15/+8V		C08U1		1-06 *	P						1		0-7/8		1
+15/+8V		C09U1		1-07 *	P										1
+15/+8V				1									5-2/8		1
+20V		A02U1		1-01 *	P						1		0-2/8		2
+20V		A02V1		1-02 *	P						2		0-4/8		2
+20V		A02V2		1-03 *	P						1		0-2/8		2
+20V		A03U1		1-04 *	P						2		0-2/8		2
+20V		A03V1		1-05 *	P						1		0-4/8		2
+20V		A03V2		1-06 *	P						2		0-2/8		2
+20V		A04U1		1-07 *	P						1		0-2/8		2
+20V		A04V1		1-08 *	P						2		0-4/8		2
+20V		A04V2		1-09 *	P						1		0-2/8		2
+20V		A05U1		1-10 *	P						2		0-2/8		2
+20V		A05V1		1-11 *	P						1		0-4/8		2
+20V		A05V2		1-12 *	P						2		0-2/8		2
+20V		A06U1		1-13 *	P						1		0-2/8		2
+20V		A06V1		1-14 *	P						2		0-4/8		2
+20V		A06V2		1-15 *	P						1		0-2/8		2
+20V		A07U1		1-16 *	P						2		0-2/8		2
+20V		A07V1		1-17 *	P						1		0-4/8		2
+20V		A07V2		1-18 *	P						2		0-2/8		2
+20V		A08U1		1-19 *	P						1		0-2/8		2
+20V		A08V1		1-20 *	P						2		0-4/8		2
+20V		A08V2		1-21 *	P										2
+20V				1									6-6/8		2

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
+5V		A01A2		1-01 *	P						2		0-7/8		3
+5V		A02A2		1-02 *	P						1		0-7/8		3
+5V		A03A2		1-03 *	P						2		0-7/8		3
+5V		A04A2		1-04 *	P						1		0-7/8		3
+5V		A05A2		1-05 *	P						2		0-7/8		3
+5V		A06A2		1-06 *	P						1		0-7/8		3
+5V		A07A2		1-07 *	P						2		0-7/8		3
+5V		A08A2		1-08 *	P						1		0-7/8		3
+5V		A09A2		1-09 *	P						2		3-1/8		3
+5V		B09A2		1-10 *	P						1		0-7/8		3
+5V		B08A2		1-11 *	P						2		0-7/8		3
+5V		B07A2		1-12 *	P						1		0-7/8		3
+5V		B06A2		1-13 *	P						2		0-7/8		3
+5V		B05A2		1-14 *	P						1		0-7/8		3
+5V		B04A2		1-15 *	P						2		0-7/8		3
+5V		B03A2		1-16 *	P						1		0-7/8		3
+5V		B02A2		1-17 *	P						2		0-7/8		3
+5V		B01A2		1-18 *	P						1		2-7/8		3
+5V		C01A2		1-19 *	P						2		0-7/8		3
+5V		C02A2		1-20 *	P						1		0-7/8		3
+5V		C03A2		1-21 *	P						2		0-7/8		3
+5V		C04A2		1-22 *	P						1		0-7/8		3
+5V		C05A2		1-23 *	P						2		0-7/8		3
+5V		C06A2		1-24 *	P						1		0-7/8		3
+5V		C07A2		1-25 *	P						2		0-7/8		3
+5V		C08A2		1-26 *	P						1		0-7/8		3
+5V		C09A2		1-27 *	P						2		3-1/8		3
+5V		D09A2		1-28 *	P						1		0-7/8		3
+5V		D08A2		1-29 *	P						2		0-7/8		3
+5V		D07A2		1-30 *	P						1		0-7/8		3
+5V		D06A2		1-31 *	P						2		0-7/8		3
+5V		D05A2		1-32 *	P						1		0-7/8		3
+5V		D04A2		1-33 *	P						2		0-7/8		3
+5V		D03A2		1-34 *	P						1		0-7/8		3
+5V		D02A2		1-35 *	P						2		0-7/8		3
+5V		D01A2		1-36 *	P						1		2-7/8		3
+5V		E01A2		1-37 *	P						2		0-7/8		3
+5V		E02A2		1-38 *	P						1		0-7/8		3
+5V		E03A2		1-39 *	P						2		0-7/8		3
+5V		E04A2		1-40 *	P						1		0-7/8		3
+5V		E05A2		1-41 *	P						2		0-7/8		3
+5V		E06A2		1-42 *	P						1		0-7/8		3
+5V		E07A2		1-43 *	P						2		0-7/8		3
+5V		E08A2		1-44 *	P						1		0-7/8		3
+5V		E09A2		1-45 *	P						2		3-1/8		3
+5V		F09A2		1-46 *	P						1		0-7/8		3
+5V		F08A2		1-47 *	P						2		0-7/8		3
+5V		F07A2		1-48 *	P						1		0-7/8		3
+5V		F06A2		1-49 *	P						2		0-7/8		3
+5V		F05A2		1-50 *	P						1		0-7/8		3
+5V		F04A2		1-51 *	P						2		0-7/8		3
+5V		F03A2		1-52 *	P						1		0-7/8		3
+5V		F02A2		1-53 *	P						2		0-7/8		3
+5V		F01A2		1-54 *	P										3
+5V				1									57-1/8		3

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
-15V		C03B2		1-01 *	P						2		0-7/8		4
-15V		C04B2		1-02 *	P						1		0-7/8		4
-15V		C05B2		1-03 *	P						2		0-7/8		4
-15V		C06B2		1-04 *	P						1		0-7/8		4
-15V		C07B2		1-05 *	P						2		0-7/8		4
-15V		C08B2		1-06 *	P						1		0-7/8		4
-15V		C09B2		1-07 *	P						2		3-1/8		4
-15V		D09B2		1-08 *	P						1		0-7/8		4
-15V		D08B2		1-09 *	P						2		0-7/8		4
-15V		D07B2		1-10 *	P						1		0-7/8		4
-15V		D06B2		1-11 *	P						2		0-7/8		4
-15V		D05B2		1-12 *	P						1		0-7/8		4
-15V		D04B2		1-13 *	P						2		0-7/8		4
-15V		D03B2		1-14 *	P						1		2-7/8		4
-15V		E03B2		1-15 *	P						2		0-7/8		4
-15V		E04B2		1-16 *	P						1		0-7/8		4
-15V		E05B2		1-17 *	P						2		0-7/8		4
-15V		E06B2		1-18 *	P						1		0-7/8		4
-15V		E07B2		1-19 *	P						2		0-7/8		4
-15V		E08B2		1-20 *	P						1		0-7/8		4
-15V		E09B2		1-21 *	P						2		3-1/8		4
-15V		F09B2		1-22 *	P						1		0-7/8		4
-15V		F08B2		1-23 *	P						2		0-7/8		4
-15V		F07B2		1-24 *	P						1		0-7/8		4
-15V		F06B2		1-25 *	P						2		0-7/8		4
-15V		F05B2		1-26 *	P						1		0-7/8		4
-15V		F04B2		1-27 *	P						2		0-7/8		4
-15V		F03B2		1-28 *	P										4
-15V				1									30-1/8		4
-5V		B02V2		1-01 *	P						2		0-7/8		5
-5V		B03V2		1-02 *	P						1		0-7/8		5
-5V		B04V2		1-03 *	P						2		0-7/8		5
-5V		B05V2		1-04 *	P						1		0-7/8		5
-5V		B06V2		1-05 *	P						2		0-7/8		5
-5V		B07V2		1-06 *	P						1		0-7/8		5
-5V		B08V2		1-07 *	P										5
-5V				1									5-2/8		5
AC LO L		B01F1		1-01 *	P						1		0-7/8		6
AC LO L		B02F1		1-02 *	P						2		0-7/8		6
AC LO L		B03F1		1-03 *	P						1		0-7/8		6
AC LO L		B04F1		1-04 *							2		4-7/8		6
AC LO L		C03V1		1-05 *	P						1		0-7/8		6
AC LO L		C04V1		1-06 *	P						2		0-7/8		6
AC LO L		C05V1		1-07 *	P						1		0-7/8		6
AC LO L		C06V1		1-08 *	P						2		0-7/8		6
AC LO L		C07V1		1-09 *	P						1		0-7/8		6
AC LO L		C08V1		1-10 *	P						2		0-7/8		6
AC LO L		C09V1		1-11 *							1		6-3/8		6
AC LO L		B05F1		1-12 *	P						2		0-7/8		6
AC LO L		B06F1		1-13 *	P						1		0-7/8		6
AC LO L		B07F1		1-14 *	P						2		0-7/8		6
AC LO L		B08F1		1-15 *	P						1		0-7/8		6
AC LO L		B09F1		1-16 *	P										6
AC LO L				1									22-5/8		6

A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
												0-7/8	7
BB+15	A02R1		1-01 *	P						2		0-7/8	7
BB+15	A03R1		1-02 *	P						1		0-7/8	7
BB+15	A04R1		1-03 *	P						2		0-7/8	7
BB+15	A05R1		1-04 *	P						1		0-7/8	7
BB+15	A06R1		1-05 *	P						2		0-7/8	7
BB+15	A07R1		1-06 *	P						1			7
BB+15	A08R1		1-07 *	P								5-2/8	7
BB+15			1										
												0-7/8	8
BB+5	B02D1		1-01 *	P						2		0-7/8	8
BB+5	B03D1		1-02 *	P						1		0-7/8	8
BB+5	B04D1		1-03 *	P						2		0-7/8	8
BB+5	B05D1		1-04 *	P						1		0-7/8	8
BB+5	B06D1		1-05 *	P						2		0-7/8	8
BB+5	B07D1		1-06 *	P						1			8
BB+5	B08D1		1-07 *	P								5-2/8	8
BB+5			1										
												0-7/8	9
BB-15	A02S1		1-01 *	P						2		0-7/8	9
BB-15	A03S1		1-02 *	P						1		0-7/8	9
BB-15	A04S1		1-03 *	P						2		0-7/8	9
BB-15	A05S1		1-04 *	P						1		0-7/8	9
BB-15	A06S1		1-05 *	P						2		0-7/8	9
BB-15	A07S1		1-06 *	P						1			9
BB-15	A08S1		1-07 *	P								5-2/8	9
BB-15			1										
												0-7/8	10
BBSY L	A01P2		1-01 *	P						2		0-7/8	10
BBSY L	A02P2		1-02 *	P						1		0-7/8	10
BBSY L	A03P2		1-03 *	P						2		13-1/8	10
BBSY L	A04P2		1-04 *	H						1	TWP	0-7/8	10
BBSY L	F03D1		1-05 *	P						2		0-7/8	10
BBSY L	F04D1		1-06 *	H						1	2° TWP	0-7/8	10
BBSY L	F05D1		1-07 *	P						2		0-7/8	10
BBSY L	F06D1		1-08 *	P						1		0-7/8	10
BBSY L	F07D1		1-09 *	P						2		0-7/8	10
BBSY L	F08D1		1-10 *	P						1		14-3/8	10
BBSY L	F09D1		1-11 *	H						2	TWP	0-7/8	10
BBSY L	A05P2		1-12 *	P						1		0-7/8	10
BBSY L	A06P2		1-13 *	P						2		0-7/8	10
BBSY L	A07P2		1-14 *	P						1		0-7/8	10
BBSY L	A08P2		1-15 *							2			10
BBSY L	A09P2		1-16 *									38-7/8	10
BBSY L			1										
												6-7/8	11
BG4 A	B01E2		1-01 *	H						1	TWP		11
BG4 A	D01S2		1-02 *									6-7/8	11
BG4 A			1										
												0-5/8	12
BG4 B	D01T2		1-01 *	P						1			12
BG4 B	D02S2		1-02 *	P								0-5/8	12
BG4 B			1										

RUN	NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
BG4	C		D02T2		1-01 *	P						1			0-5/8	13
BG4	C		D03S2		1-02 *	P										13
BG4	C				1										0-5/8	13
BG4	D		D03T2		1-01 *	P						1			0-5/8	14
BG4	D		D04S2		1-02 *	P										14
BG4	D				1										0-5/8	14
BG4	E		D04T2		1-01 *	P						1			0-5/8	15
BG4	E		D05S2		1-02 *	P										15
BG4	E				1										0-5/8	15
BG4	F		D05T2		1-01 *	P						1			0-5/8	16
BG4	F		D06S2		1-02 *	P										16
BG4	F				1										0-5/8	16
BG4	H		D06T2		1-01 *	P						1			0-5/8	17
BG4	H		D07S2		1-02 *	P										17
BG4	H				1										0-5/8	17
BG4	J		D07T2		1-01 *	P						1			0-5/8	18
BG4	J		D08S2		1-02 *	P										18
BG4	J				1										0-5/8	18
BG4	K		D08T2		1-01 *	P						1			0-5/8	19
BG4	K		D09S2		1-02 *	P										19
BG4	K				1										0-5/8	19
BG4	L		B09E2		1-01 *	H						1	TWP		7-1/8	20
BG4	L		D09T2		1-02 *	X										20
BG4	L				1										7-1/8	20
BG5	A		B01B1		1-01 *	H						1	TWP		7-1/8	21
BG5	A		D01P2		1-02 *	X										21
BG5	A				1										7-1/8	21
BG5	B		D01R2		1-01 *	P						1			0-5/8	22
BG5	B		D02P2		1-02 *	P										22
BG5	B				1										0-5/8	22
BG5	C		D02R2		1-01 *	P						1			0-5/8	23
BG5	C		D03P2		1-02 *	P										23
BG5	C				1										0-5/8	23
BG5	D		D03R2		1-01 *	P						1			0-5/8	24
BG5	D		D04P2		1-02 *	P										24
BG5	D				1										0-5/8	24
BG5	E		D04R2		1-01 *	P						1			0-5/8	25
BG5	E		D05P2		1-02 *	P										25
BG5	E				1										0-5/8	25
BG5	F		D05R2		1-01 *	P						1			0-5/8	26
BG5	F		D06P2		1-02 *	P										26
BG5	F				1										0-5/8	26

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BG5 H		D06R2		1-01 *	P						1		0-5/8		27
BG5 H		D07P2		1-02 *	P										27
BG5 H				1									0-5/8		27
BG5 J		D07R2		1-01 *	P						1		0-5/8		28
BG5 J		D08P2		1-02 *	P										28
BG5 J				1									0-5/8		28
BG5 K		D08R2		1-01 *	P						1		0-5/8		29
BG5 K		D09P2		1-02 *	P										29
BG5 K				1									0-5/8		29
BG5 L		B09B1		1-01 *	H						1	TWP	7-3/8		30
BG5 L		D09R2		1-02 *	X										30
BG5 L				1									7-3/8		30
BG6 A		B01A1		1-01 *	H						1	TWP	7-1/8		31
BG6 A		D01M2		1-02 *	X										31
BG6 A				1									7-1/8		31
BG6 B		D01N2		1-01 *	P						1		0-5/8		32
BG6 B		D02M2		1-02 *	P										32
BG6 B				1									0-5/8		32
BG6 C		D02N2		1-01 *	P						1		0-5/8		33
BG6 C		D03M2		1-02 *	P										33
BG6 C				1									0-5/8		33
BG6 D		D03N2		1-01 *	P						1		0-5/8		34
BG6 D		D04M2		1-02 *	P										34
BG6 D				1									0-5/8		34
BG6 E		D04N2		1-01 *	P						1		0-5/8		35
BG6 E		D05M2		1-02 *	P										35
BG6 E				1									0-5/8		35
BG6 F		D05N2		1-01 *	P						1		0-5/8		36
BG6 F		D06M2		1-02 *	P										36
BG6 F				1									0-5/8		36
BG6 H		D06N2		1-01 *	P						1		0-5/8		37
BG6 H		D07M2		1-02 *	P										37
BG6 H				1									0-5/8		37
BG6 J		D07N2		1-01 *	P						1		0-5/8		38
BG6 J		D08M2		1-02 *	P										38
BG6 J				1									0-5/8		38
BG6 K		D08N2		1-01 *	P						1		0-5/8		39
BG6 K		D09M2		1-02 *	P										39
BG6 K				1									0-5/8		39
BG6 L		B09A1		1-01 *	H						1	TWP	7-3/8		40
BG6 L		D09N2		1-02 *	X										40
BG6 L				1									7-3/8		40

RUN	NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BG7	A		A01V1		1-01 *	H						1	TWP	7-3/8		41
BG7	A		D01K2		1-02 *	X										41
BG7	A				1									7-3/8		41
BG7	B		D01L2		1-01 *	P						1		0-5/8		42
BG7	B		D02K2		1-02 *	P										42
BG7	B				1									0-5/8		42
BG7	C		D02L2		1-01 *	P						1		0-5/8		43
BG7	C		D03K2		1-02 *	P										43
BG7	C				1									0-5/8		43
BG7	D		D03L2		1-01 *	P						1		0-5/8		44
BG7	D		D04K2		1-02 *	P										44
BG7	D				1									0-5/8		44
BG7	E		D04L2		1-01 *	P						1		0-5/8		45
BG7	E		D05K2		1-02 *	P										45
BG7	E				1									0-5/8		45
BG7	F		D05L2		1-01 *	P						1		0-5/8		46
BG7	F		D06K2		1-02 *	P										46
BG7	F				1									0-5/8		46
BG7	H		D06L2		1-01 *	P						1		0-5/8		47
BG7	H		D07K2		1-02 *	X										47
BG7	H				1									0-5/8		47
BG7	J		D07L2		1-01 *	P						1		0-5/8		48
BG7	J		D08K2		1-02 *	P										48
BG7	J				1									0-5/8		48
BG7	K		D08L2		1-01 *	P						1		0-5/8		49
BG7	K		D09K2		1-02 *	P										49
BG7	K				1									0-5/8		49
BG7	L		A09V1		1-01 *	H						1	TWP	7-5/8		50
BG7	L		D09L2		1-02 *	X										50
BG7	L				1									7-5/8		50

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BR4 L		B01D2		1-01 *							2		0-7/8		51
BR4 L		B02D2		1-02 *							1		0-7/8		51
BR4 L		B03D2		1-03 *							2		0-7/8		51
BR4 L		B04D2		1-04 *							1		6-5/8		51
BR4 L		D03H2		1-05 *	P						2		0-7/8		51
BR4 L		D04H2		1-06 *	P						1		0-7/8		51
BR4 L		D05H2		1-07 *	P						2		0-7/8		51
BR4 L		D06H2		1-08 *	P						1		0-7/8		51
BR4 L		D07H2		1-09 *	P						2		0-7/8		51
BR4 L		D08H2		1-10 *	P						1		0-7/8		51
BR4 L		D09H2		1-11 *							2		7-7/8		51
BR4 L		B05D2		1-12 *							1		0-7/8		51
BR4 L		B06D2		1-13 *							2		0-7/8		51
BR4 L		B07D2		1-14 *							1		0-7/8		51
BR4 L		B08D2		1-15 *							2		0-7/8		51
BR4 L		B09D2		1-16 *											51
BR4 L				1									25-7/8		51
BR5 L		B01C1		1-01 *	P						1		0-7/8		52
BR5 L		B02C1		1-02 *	P						2		0-7/8		52
BR5 L		B03C1		1-03 *	P						1		0-7/8		52
BR5 L		B04C1		1-04 *							2		6-1/8		52
BR5 L		D03F2		1-05 *	P						1		0-7/8		52
BR5 L		D04F2		1-06 *	P						2		0-7/8		52
BR5 L		D05F2		1-07 *	P						1		0-7/8		52
BR5 L		D06F2		1-08 *	P						2		0-7/8		52
BR5 L		D07F2		1-09 *	P						1		0-7/8		52
BR5 L		D08F2		1-10 *	P						2		0-7/8		52
BR5 L		D09F2		1-11 *							1		8-3/8		52
BR5 L		B05C1		1-12 *	P						2		0-7/8		52
BR5 L		B06C1		1-13 *	P						1		0-7/8		52
BR5 L		B07C1		1-14 *	P						2		0-7/8		52
BR5 L		B08C1		1-15 *	P						1		0-7/8		52
BR5 L		B09C1		1-16 *	P										52
BR5 L				1									25-7/8		52
BR6 L		A01U2		1-01 *							2		0-7/8		53
BR6 L		A02U2		1-02 *							1		0-7/8		53
BR6 L		A03U2		1-03 *							2		0-7/8		53
BR6 L		A04U2		1-04 *							1		7-3/8		53
BR6 L		D03E2		1-05 *	P						2		0-7/8		53
BR6 L		D04E2		1-06 *	P						1		0-7/8		53
BR6 L		D05E2		1-07 *	P						2		0-7/8		53
BR6 L		D06E2		1-08 *	P						1		0-7/8		53
BR6 L		D07E2		1-09 *	P						2		0-7/8		53
BR6 L		D08E2		1-10 *	P						1		0-7/8		53
BR6 L		D09E2		1-11 *							2		8-7/8		53
BR6 L		A05U2		1-12 *							1		0-7/8		53
BR6 L		A06U2		1-13 *							2		0-7/8		53
BR6 L		A07U2		1-14 *							1		0-7/8		53
BR6 L		A08U2		1-15 *							2		0-7/8		53
BR6 L		A09U2		1-16 *											53
BR6 L				1									27-5/8		53

RUN	NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
BR7	L		A01T2		1-01 *	P						2		0-7/8	54
BR7	L		A02T2		1-02 *	P						1		0-7/8	54
BR7	L		A03T2		1-03 *	P						2		0-7/8	54
BR7	L		A04T2		1-04 *							1		7-3/8	54
BR7	L		D03D2		1-05 *	P						2		0-7/8	54
BR7	L		D04D2		1-06 *	P						1		0-7/8	54
BR7	L		D05D2		1-07 *	P						2		0-7/8	54
BR7	L		D06D2		1-08 *	P						1		0-7/8	54
BR7	L		D07D2		1-09 *	P						2		0-7/8	54
BR7	L		D08D2		1-10 *	P						1		0-7/8	54
BR7	L		D09D2		1-11 *							2		8-7/8	54
BR7	L		A05T2		1-12 *	P						1		0-7/8	54
BR7	L		A06T2		1-13 *	P						2		0-7/8	54
BR7	L		A07T2		1-14 *	P						1		0-7/8	54
BR7	L		A08T2		1-15 *							2		0-7/8	54
BR7	L		A09T2		1-16 *										54
BR7	L				1									27-5/8	54
BUS	A00 L		B01H2		1-01 *	P						2		0-7/8	55
BUS	A00 L		B02H2		1-02 *	P						1		0-7/8	55
BUS	A00 L		B03H2		1-03 *	P						2		0-7/8	55
BUS	A00 L		B04H2		1-04 *							1		8-5/8	55
BUS	A00 L		E03H2		1-05 *							2		0-7/8	55
BUS	A00 L		E04H2		1-06 *							1		0-7/8	55
BUS	A00 L		E05H2		1-07 *							2		0-7/8	55
BUS	A00 L		E06H2		1-08 *							1		0-7/8	55
BUS	A00 L		E07H2		1-09 *							2		0-7/8	55
BUS	A00 L		E08H2		1-10 *							1		0-7/8	55
BUS	A00 L		E09H2		1-11 *							2		0-7/8	55
BUS	A00 L		B05H2		1-12 *	P						1		0-7/8	55
BUS	A00 L		B06H2		1-13 *	P						2		0-7/8	55
BUS	A00 L		B07H2		1-14 *	P						1		0-7/8	55
BUS	A00 L		B08H2		1-15 *	P						2		0-7/8	55
BUS	A00 L		B09H2		1-16 *	P									55
BUS	A00 L				1									30-1/8	55
BUS	A01 L		B01H1		1-01 *	P						2		0-7/8	56
BUS	A01 L		B02H1		1-02 *	P						1		0-7/8	56
BUS	A01 L		B03H1		1-03 *	P						2		0-7/8	56
BUS	A01 L		B04H1		1-04 *							1		8-5/8	56
BUS	A01 L		E03H1		1-05 *	P						2		0-7/8	56
BUS	A01 L		E04H1		1-06 *	P						1		0-7/8	56
BUS	A01 L		E05H1		1-07 *	P						2		0-7/8	56
BUS	A01 L		E06H1		1-08 *	P						1		0-7/8	56
BUS	A01 L		E07H1		1-09 *	P						2		0-7/8	56
BUS	A01 L		E08H1		1-10 *	P						1		0-7/8	56
BUS	A01 L		E09H1		1-11 *							2		10-1/8	56
BUS	A01 L		B05H1		1-12 *	P						1		0-7/8	56
BUS	A01 L		B06H1		1-13 *	P						2		0-7/8	56
BUS	A01 L		B07H1		1-14 *	P						1		0-7/8	56
BUS	A01 L		B08H1		1-15 *	P						2		0-7/8	56
BUS	A01 L		B09H1		1-16 *	P									56
BUS	A01 L				1									30-1/8	56

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS A02 L		B01J2		1-01 *	P						2		0-7/8		57
BUS A02 L		B02J2		1-02 *	P						1		0-7/8		57
BUS A02 L		B03J2		1-03 *	P						2		0-7/8		57
BUS A02 L		B04J2		1-04 *							1		8-5/8		57
BUS A02 L		E03F1		1-05 *	P						2		0-7/8		57
BUS A02 L		E04F1		1-06 *	P						1		0-7/8		57
BUS A02 L		E05F1		1-07 *	P						2		0-7/8		57
BUS A02 L		E06F1		1-08 *	P						1		0-7/8		57
BUS A02 L		E07F1		1-09 *	P						2		0-7/8		57
BUS A02 L		E08F1		1-10 *	P						1		0-7/8		57
BUS A02 L		E09F1		1-11 *							2		9-5/8		57
BUS A02 L		B05J2		1-12 *	P						1		0-7/8		57
BUS A02 L		B06J2		1-13 *	P						2		0-7/8		57
BUS A02 L		B07J2		1-14 *	P						1		0-7/8		57
BUS A02 L		B08J2		1-15 *	P						2		0-7/8		57
BUS A02 L		B09J2		1-16 *	P										57
BUS A02 L				1									29-5/8		57
BUS A03 L		B01J1		1-01 *	P						1		0-7/8		58
BUS A03 L		B02J1		1-02 *	P						2		0-7/8		58
BUS A03 L		B03J1		1-03 *	P						1		0-7/8		58
BUS A03 L		B04J1		1-04 *							2		9-5/8		58
BUS A03 L		E03V2		1-05 *	P						1		0-7/8		58
BUS A03 L		E04V2		1-06 *	P						2		0-7/8		58
BUS A03 L		E05V2		1-07 *	P						1		0-7/8		58
BUS A03 L		E06V2		1-08 *	P						2		0-7/8		58
BUS A03 L		E07V2		1-09 *	P						1		0-7/8		58
BUS A03 L		E08V2		1-10 *	P						2		0-7/8		58
BUS A03 L		E09V2		1-11 *							1		11-5/8		58
BUS A03 L		B05J1		1-12 *	P						2		0-7/8		58
BUS A03 L		B06J1		1-13 *	P						1		0-7/8		58
BUS A03 L		B07J1		1-14 *	P						2		0-7/8		58
BUS A03 L		B08J1		1-15 *	P						1		0-7/8		58
BUS A03 L		B09J1		1-16 *	P										58
BUS A03 L				1									32-5/8		58
BUS A04 L		B01K2		1-01 *	P						2		0-7/8		59
BUS A04 L		B02K2		1-02 *	P						1		0-7/8		59
BUS A04 L		B03K2		1-03 *	P						2		0-7/8		59
BUS A04 L		B04K2		1-04 *							1		9-5/8		59
BUS A04 L		E03U2		1-05 *	P						2		0-7/8		59
BUS A04 L		E04U2		1-06 *	P						1		0-7/8		59
BUS A04 L		E05U2		1-07 *	P						2		0-7/8		59
BUS A04 L		E06U2		1-08 *	P						1		0-7/8		59
BUS A04 L		E07U2		1-09 *	P						2		0-7/8		59
BUS A04 L		E08U2		1-10 *	P						1		0-7/8		59
BUS A04 L		E09U2		1-11 *							2		11-1/8		59
BUS A04 L		B05K2		1-12 *	P						1		0-7/8		59
BUS A04 L		B06K2		1-13 *	P						2		0-7/8		59
BUS A04 L		B07K2		1-14 *	P						1		0-7/8		59
BUS A04 L		B08K2		1-15 *	P						2		0-7/8		59
BUS A04 L		B09K2		1-16 *	P										59
BUS A04 L				1									32-1/8		59

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS A05 L		B01K1		1-01 *	P						1		0-7/8		60
BUS A05 L		B02K1		1-02 *	P						2		0-7/8		60
BUS A05 L		B03K1		1-03 *	P						1		0-7/8		60
BUS A05 L		B04K1		1-04 *							2		9-5/8		60
BUS A05 L		E03V1		1-05 *	P						1		0-7/8		60
BUS A05 L		E04V1		1-06 *	P						2		0-7/8		60
BUS A05 L		E05V1		1-07 *	P						1		0-7/8		60
BUS A05 L		E06V1		1-08 *	P						2		0-7/8		60
BUS A05 L		E07V1		1-09 *	P						1		0-7/8		60
BUS A05 L		E08V1		1-10 *	P						2		0-7/8		60
BUS A05 L		E09V1		1-11 *							1		11-3/8		60
BUS A05 L		B05K1		1-12 *	P						2		0-7/8		60
BUS A05 L		B06K1		1-13 *	P						1		0-7/8		60
BUS A05 L		B07K1		1-14 *	P						2		0-7/8		60
BUS A05 L		B08K1		1-15 *	P						1		0-7/8		60
BUS A05 L		B09K1		1-16 *	P										60
BUS A05 L				1									32-3/8		60
BUS A06 L		B01L2		1-01 *	P						2		0-7/8		61
BUS A06 L		B02L2		1-02 *	P						1		0-7/8		61
BUS A06 L		B03L2		1-03 *	P						2		0-7/8		61
BUS A06 L		B04L2		1-04 *							1		9-7/8		61
BUS A06 L		E03U1		1-05 *	P						2		0-7/8		61
BUS A06 L		E04U1		1-06 *	P						1		0-7/8		61
BUS A06 L		E05U1		1-07 *	P						2		0-7/8		61
BUS A06 L		E06U1		1-08 *	P						1		0-7/8		61
BUS A06 L		E07U1		1-09 *	P						2		0-7/8		61
BUS A06 L		E08U1		1-10 *	P						1		0-7/8		61
BUS A06 L		E09U1		1-11 *							2		10-5/8		61
BUS A06 L		B05L2		1-12 *	P						1		0-7/8		61
BUS A06 L		B06L2		1-13 *	P						2		0-7/8		61
BUS A06 L		B07L2		1-14 *	P						1		0-7/8		61
BUS A06 L		B08L2		1-15 *	P						2		0-7/8		61
BUS A06 L		B09L2		1-16 *	P										61
BUS A06 L				1									31-7/8		61
BUS A07 L		B01L1		1-01 *	P						1		0-7/8		62
BUS A07 L		B02L1		1-02 *	P						2		0-7/8		62
BUS A07 L		B03L1		1-03 *	P						1		0-7/8		62
BUS A07 L		B04L1		1-04 *							2		8-7/8		62
BUS A07 L		E03P2		1-05 *	P						1		0-7/8		62
BUS A07 L		E04P2		1-06 *	P						2		0-7/8		62
BUS A07 L		E05P2		1-07 *	P						1		0-7/8		62
BUS A07 L		E06P2		1-08 *	P						2		0-7/8		62
BUS A07 L		E07P2		1-09 *	P						1		0-7/8		62
BUS A07 L		E08P2		1-10 *	P						2		0-7/8		62
BUS A07 L		E09P2		1-11 *							1		10-5/8		62
BUS A07 L		B05L1		1-12 *	P						2		0-7/8		62
BUS A07 L		B06L1		1-13 *	P						1		0-7/8		62
BUS A07 L		B07L1		1-14 *	P						2		0-7/8		62
BUS A07 L		B09L1		1-15 *	P						1		0-7/8		62
BUS A07 L		B09L1		1-16 *	P										62
BUS A07 L				1									30-7/8		62

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS A08 L		B01M2		1-01 *	P						1		0-7/8		63
BUS A08 L		B02M2		1-02 *	P						2		0-7/8		63
BUS A08 L		B03M2		1-03 *	P						1		0-7/8		63
BUS A08 L		B04M2		1-04 *							2		8-5/8		63
BUS A08 L		E03N2		1-05 *	P						1		0-7/8		63
BUS A08 L		E04N2		1-06 *	P						2		0-7/8		63
BUS A08 L		E05N2		1-07 *	P						1		0-7/8		63
BUS A08 L		E06N2		1-08 *	P						2		0-7/8		63
BUS A08 L		E07N2		1-09 *	P						1		0-7/8		63
BUS A08 L		E08N2		1-10 *	P						2		0-7/8		63
BUS A08 L		E09N2		1-11 *							1		10-3/8		63
BUS A08 L		B05M2		1-12 *	P						2		0-7/8		63
BUS A08 L		B06M2		1-13 *	P						1		0-7/8		63
BUS A08 L		B07M2		1-14 *	P						2		0-7/8		63
BUS A08 L		B08M2		1-15 *	P						1		0-7/8		63
BUS A08 L		B09M2		1-16 *	P										63
BUS A08 L				1									30-3/8		63
BUS A09 L		B01M1		1-01 *	P						1		0-7/8		64
BUS A09 L		B02M1		1-02 *	P						2		0-7/8		64
BUS A09 L		B03M1		1-03 *	P						1		0-7/8		64
BUS A09 L		B04M1		1-04 *							2		8-7/8		64
BUS A09 L		E03R1		1-05 *	P						1		0-7/8		64
BUS A09 L		E04R1		1-06 *	P						2		0-7/8		64
BUS A09 L		E05R1		1-07 *	P						1		0-7/8		64
BUS A09 L		E06R1		1-08 *	P						2		0-7/8		64
BUS A09 L		E07R1		1-09 *	P						1		0-7/8		64
BUS A09 L		E08R1		1-10 *	P						2		0-7/8		64
BUS A09 L		E09R1		1-11 *							1		10-5/8		64
BUS A09 L		B05M1		1-12 *	P						2		0-7/8		64
BUS A09 L		B06M1		1-13 *	P						1		0-7/8		64
BUS A09 L		B07M1		1-14 *	P						2		0-7/8		64
BUS A09 L		B08M1		1-15 *	P						1		0-7/8		64
BUS A09 L		B09M1		1-16 *	P										64
BUS A09 L				1									30-7/8		64
BUS A10 L		B01N2		1-01 *	P						2		0-7/8		65
BUS A10 L		B02N2		1-02 *	P						1		0-7/8		65
BUS A10 L		B03N2		1-03 *	P						2		0-7/8		65
BUS A10 L		B04N2		1-04 *							1		9-1/8		65
BUS A10 L		E03P1		1-05 *	P						2		0-7/8		65
BUS A10 L		E04P1		1-06 *	P						1		0-7/8		65
BUS A10 L		E05P1		1-07 *	P						2		0-7/8		65
BUS A10 L		E06P1		1-08 *	P						1		0-7/8		65
BUS A10 L		E07P1		1-09 *	P						2		0-7/8		65
BUS A10 L		E08P1		1-10 *	P						1		0-7/8		65
BUS A10 L		E09P1		1-11 *							2		9-7/8		65
BUS A10 L		B05N2		1-12 *	P						1		0-7/8		65
BUS A10 L		B06N2		1-13 *	P						2		0-7/8		65
BUS A10 L		B07N2		1-14 *	P						1		0-7/8		65
BUS A10 L		B08N2		1-15 *	P						2		0-7/8		65
BUS A10 L		B09N2		1-16 *	P										65
BUS A10 L				1									30-3/8		65

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS A11 L		B01N1		1-01 *	P						2		0-7/8		66
BUS A11 L		B02N1		1-02 *	P						1		0-7/8		66
BUS A11 L		B03N1		1-03 *	P						2		0-7/8		66
BUS A11 L		B04N1		1-04 *							1		8-3/8		66
BUS A11 L		E03L1		1-05 *	P						2		0-7/8		66
BUS A11 L		E04L1		1-06 *	P						1		0-7/8		66
BUS A11 L		E05L1		1-07 *	P						2		0-7/8		66
BUS A11 L		E06L1		1-08 *	P						1		0-7/8		66
BUS A11 L		E07L1		1-09 *	P						2		0-7/8		66
BUS A11 L		E08L1		1-10 *	P						1		0-7/8		66
BUS A11 L		E09L1		1-11 *							2		9-7/8		66
BUS A11 L		B05N1		1-12 *	P						1		0-7/8		66
BUS A11 L		B06N1		1-13 *	P						2		0-7/8		66
BUS A11 L		B07N1		1-14 *	P						1		0-7/8		66
BUS A11 L		B08N1		1-15 *	P						2		0-7/8		66
BUS A11 L		B09N1		1-16 *	P										66
BUS A11 L				1									29-5/8		66
BUS A12 L		B01P2		1-01 *	P						2		0-7/8		67
BUS A12 L		B02P2		1-02 *	P						1		0-7/8		67
BUS A12 L		B03P2		1-03 *	P						2		0-7/8		67
BUS A12 L		B04P2		1-04 *							1		7-5/8		67
BUS A12 L		E03C1		1-05 *	P						2		0-7/8		67
BUS A12 L		E04C1		1-06 *	P						1		0-7/8		67
BUS A12 L		E05C1		1-07 *	P						2		0-7/8		67
BUS A12 L		E06C1		1-08 *	P						1		0-7/8		67
BUS A12 L		E07C1		1-09 *	P						2		0-7/8		67
BUS A12 L		E08C1		1-10 *	P						1		0-7/8		67
BUS A12 L		E09C1		1-11 *							2		8-5/8		67
BUS A12 L		B05P2		1-12 *	P						1		0-7/8		67
BUS A12 L		B06P2		1-13 *	P						2		0-7/8		67
BUS A12 L		B07P2		1-14 *	P						1		0-7/8		67
BUS A12 L		B08P2		1-15 *	P						2		0-7/8		67
BUS A12 L		B09P2		1-16 *	P										67
BUS A12 L				1									27-5/8		67
BUS A13 L		B01P1		1-01 *	P						1		0-7/8		68
BUS A13 L		B02P1		1-02 *	P						2		0-7/8		68
BUS A13 L		B03P1		1-03 *	P						1		0-7/8		68
BUS A13 L		B04P1		1-04 *							2		7-7/8		68
BUS A13 L		E03K2		1-05 *	P						1		0-7/8		68
BUS A13 L		E04K2		1-06 *	P						2		0-7/8		68
BUS A13 L		E05K2		1-07 *	P						1		0-7/8		68
BUS A13 L		E06K2		1-08 *	P						2		0-7/8		68
BUS A13 L		E07K2		1-09 *	P						1		0-7/8		68
BUS A13 L		E08K2		1-10 *	P						2		0-7/8		68
BUS A13 L		E09K2		1-11 *							1		9-7/8		68
BUS A13 L		B05P1		1-12 *	P						2		0-7/8		68
BUS A13 L		B06P1		1-13 *	P						1		0-7/8		68
BUS A13 L		B07P1		1-14 *	P						2		0-7/8		68
BUS A13 L		B08P1		1-15 *	P						1		0-7/8		68
BUS A13 L		B09P1		1-16 *	P										68
BUS A13 L				1									29-1/8		68

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS A14 L		B01R2		1-01 *	P						2		0-7/8		69
BUS A14 L		B02R2		1-02 *	P						1		0-7/8		69
BUS A14 L		B03R2		1-03 *	P						2		0-7/8		69
BUS A14 L		B04R2		1-04 *							1		8-3/8		69
BUS A14 L		E03K1		1-05 *	P						2		0-7/8		69
BUS A14 L		E04K1		1-06 *	P						1		0-7/8		69
BUS A14 L		E05K1		1-07 *	P						2		0-7/8		69
BUS A14 L		E06K1		1-08 *	P						1		0-7/8		69
BUS A14 L		E07K1		1-09 *	P						2		0-7/8		69
BUS A14 L		E08K1		1-10 *	P						1		0-7/8		69
BUS A14 L		E09K1		1-11 *							2		9-1/8		69
BUS A14 L		B05R2		1-12 *	P						1		0-7/8		69
BUS A14 L		B06R2		1-13 *	P						2		0-7/8		69
BUS A14 L		B07R2		1-14 *	P						1		0-7/8		69
BUS A14 L		B08R2		1-15 *	P						2		0-7/8		69
BUS A14 L		B09R2		1-16 *	P										69
BUS A14 L				1									28-7/8		69
BUS A15 L		B01R1		1-01 *	P						1		0-7/8		70
BUS A15 L		B02R1		1-02 *	P						2		0-7/8		70
BUS A15 L		B03R1		1-03 *	P						1		0-7/8		70
BUS A15 L		B04R1		1-04 *							2		7-1/8		70
BUS A15 L		E03D2		1-05 *							1		0-7/8		70
BUS A15 L		E04D2		1-06 *							2		0-7/8		70
BUS A15 L		E05D2		1-07 *							1		0-7/8		70
BUS A15 L		E06D2		1-08 *							2		0-7/8		70
BUS A15 L		E07D2		1-09 *							1		0-7/8		70
BUS A15 L		E08D2		1-10 *							2		0-7/8		70
BUS A15 L		E09D2		1-11 *							1		9-1/8		70
BUS A15 L		B05R1		1-12 *	P						2		0-7/8		70
BUS A15 L		B06R1		1-13 *	P						1		0-7/8		70
BUS A15 L		B07R1		1-14 *	P						2		0-7/8		70
BUS A15 L		B08R1		1-15 *	P						1		0-7/8		70
BUS A15 L		B09R1		1-16 *	P										70
BUS A15 L				1									27-5/8		70
BUS A16 L		B01S2		1-01 *	P						2		0-7/8		71
BUS A16 L		B02S2		1-02 *	P						1		0-7/8		71
BUS A16 L		B03S2		1-03 *	P						2		0-7/8		71
BUS A16 L		B04S2		1-04 *							1		7-3/8		71
BUS A16 L		E03E2		1-05 *	P						2		0-7/8		71
BUS A16 L		E04E2		1-06 *	P						1		0-7/8		71
BUS A16 L		E05E2		1-07 *	P						2		0-7/8		71
BUS A16 L		E06E2		1-08 *	P						1		0-7/8		71
BUS A16 L		E07E2		1-09 *	P						2		0-7/8		71
BUS A16 L		E08E2		1-10 *	P						1		0-7/8		71
BUS A16 L		E09E2		1-11 *							2		8-7/8		71
BUS A16 L		B05S2		1-12 *	P						1		0-7/8		71
BUS A16 L		B06S2		1-13 *	P						2		0-7/8		71
BUS A16 L		B07S2		1-14 *	P						1		0-7/8		71
BUS A16 L		B08S2		1-15 *	P						2		0-7/8		71
BUS A16 L		B09S2		1-16 *	P										71
BUS A16 L				1									27-5/8		71

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
BUS A17 L		B01S1		1-01 *	P						1		0-7/8	72
BUS A17 L		B02S1		1-02 *	P						2		0-7/8	72
BUS A17 L		B03S1		1-03 *	P						1		0-7/8	72
BUS A17 L		B04S1		1-04 *							2		7-1/8	72
BUS A17 L		E03D1		1-05 *	P						1		0-7/8	72
BUS A17 L		E04D1		1-06 *	P						2		0-7/8	72
BUS A17 L		E05D1		1-07 *	P						1		0-7/8	72
BUS A17 L		E06D1		1-08 *	P						2		0-7/8	72
BUS A17 L		E07D1		1-09 *	P						1		0-7/8	72
BUS A17 L		E08D1		1-10 *	P						2		0-7/8	72
BUS A17 L		E09D1		1-11 *							1		8-7/8	72
BUS A17 L		B05S1		1-12 *	P						2		0-7/8	72
BUS A17 L		B06S1		1-13 *	P						1		0-7/8	72
BUS A17 L		B07S1		1-14 *	P						2		0-7/8	72
BUS A17 L		B08S1		1-15 *	P						1		0-7/8	72
BUS A17 L		B09S1		1-16 *	P									72
BUS A17 L				1									27-3/8	72
BUS D00 L		A01C1		1-01 *	P						1		0-7/8	73
BUS D00 L		A02C1		1-02 *							2		0-7/8	73
BUS D00 L		A03C1		1-03 *							1		0-7/8	73
BUS D00 L		A04C1		1-04 *							2		7-3/8	73
BUS D00 L		C03S2		1-05 *							1		0-7/8	73
BUS D00 L		C04S2		1-06 *							2		0-7/8	73
BUS D00 L		C05S2		1-07 *							1		0-7/8	73
BUS D00 L		C06S2		1-08 *							2		0-7/8	73
BUS D00 L		C07S2		1-09 *							1		0-7/8	73
BUS D00 L		C08S2		1-10 *							2		0-7/8	73
BUS D00 L		C09S2		1-11 *							1		9-3/8	73
BUS D00 L		A05C1		1-12 *							2		0-7/8	73
BUS D00 L		A06C1		1-13 *							1		0-7/8	73
BUS D00 L		A07C1		1-14 *							2		0-7/8	73
BUS D00 L		A08C1		1-15 *							1		0-7/8	73
BUS D00 L		A09C1		1-16 *										73
BUS D00 L				1									28-1/8	73
BUS D01 L		A01D2		1-01 *	P						2		0-7/8	74
BUS D01 L		A02D2		1-02 *	P						1		0-7/8	74
BUS D01 L		A03D2		1-03 *	P						2		0-7/8	74
BUS D01 L		A04D2		1-04 *							1		7-3/8	74
BUS D01 L		C03R2		1-05 *	P						2		0-7/8	74
BUS D01 L		C04R2		1-06 *	P						1		0-7/8	74
BUS D01 L		C05R2		1-07 *	P						2		0-7/8	74
BUS D01 L		C06R2		1-08 *	P						1		0-7/8	74
BUS D01 L		C07R2		1-09 *	P						2		0-7/8	74
BUS D01 L		C08R2		1-10 *	P						1		0-7/8	74
BUS D01 L		C09R2		1-11 *							2		8-7/8	74
BUS D01 L		A05D2		1-12 *	P						1		0-7/8	74
BUS D01 L		A06D2		1-13 *	P						2		0-7/8	74
BUS D01 L		A07D2		1-14 *	P						1		0-7/8	74
BUS D01 L		A08D2		1-15 *	P						2		0-7/8	74
BUS D01 L		A09D2		1-16 *	P									74
BUS D01 L				1									27-5/8	74

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS D02 L		A01D1		1-01 *	P						1		0-7/8		75
BUS D02 L		A02D1		1-02 *	P						2		0-7/8		75
BUS D02 L		A03D1		1-03 *	P						1		0-7/8		75
BUS D02 L		A04D1		1-04 *							2		7-5/8		75
BUS D02 L		C03U2		1-05 *	P						1		0-7/8		75
BUS D02 L		C04U2		1-06 *	P						2		0-7/8		75
BUS D02 L		C05U2		1-07 *							1		6-7/8		75
BUS D02 L		F05E2		1-08 *	P						1		1-3/8		75
BUS D02 L		F03E2		1-09 *	P						1		0-7/8		75
BUS D02 L		F04E2		1-10 *	P						2		1-3/8		75
BUS D02 L		F06E2		1-11 *	P						2		0-7/8		75
BUS D02 L		F07E2		1-12 *	P						1		0-7/8		75
BUS D02 L		F08E2		1-13 *	P						2		0-7/8		75
BUS D02 L		F09E2		1-14 *							1		8-3/8		75
BUS D02 L		C06U2		1-15 *	P						2		0-7/8		75
BUS D02 L		C07U2		1-16 *	P						1		0-7/8		75
BUS D02 L		C08U2		1-17 *	P						2		0-7/8		75
BUS D02 L		C09U2		1-18 *							1		9-3/8		75
BUS D02 L		A05D1		1-19 *	P						2		0-7/8		75
BUS D02 L		A06D1		1-20 *	P						1		0-7/8		75
BUS D02 L		A07D1		1-21 *	P						2		0-7/8		75
BUS D02 L		A08D1		1-22 *	P						1		0-7/8		75
BUS D02 L		A09D1		1-23 *											75
BUS D02 L				1									49-0/8		75
BUS D03 L		A01E2		1-01 *	P						1		0-7/8		76
BUS D03 L		A02E2		1-02 *	P						2		0-7/8		76
BUS D03 L		A03E2		1-03 *	P						1		0-7/8		76
BUS D03 L		A04E2		1-04 *							2		7-3/8		76
BUS D03 L		C03T2		1-05 *	P						1		0-7/8		76
BUS D03 L		C04T2		1-06 *	P						2		0-7/8		76
BUS D03 L		C05T2		1-07 *							1		7-7/8		76
BUS D03 L		F05L1		1-08 *	P						1		1-3/8		76
BUS D03 L		F03L1		1-09 *	P						1		0-7/8		76
BUS D03 L		F04L1		1-10 *	P						2		1-3/8		76
BUS D03 L		F06L1		1-11 *	P						2		0-7/8		76
BUS D03 L		F07L1		1-12 *	P						1		0-7/8		76
BUS D03 L		F08L1		1-13 *	P						2		0-7/8		76
BUS D03 L		F09L1		1-14 *							1		8-7/8		76
BUS D03 L		C06T2		1-15 *	P						2		0-7/8		76
BUS D03 L		C07T2		1-16 *	P						1		0-7/8		76
BUS D03 L		C08T2		1-17 *	P						2		0-7/8		76
BUS D03 L		C09T2		1-18 *							1		9-1/8		76
BUS D03 L		A05E2		1-19 *	P						2		0-7/8		76
BUS D03 L		A06E2		1-20 *	P						1		0-7/8		76
BUS D03 L		A07E2		1-21 *	P						2		0-7/8		76
BUS D03 L		A08E2		1-22 *	P						1		0-7/8		76
BUS D03 L		A09E2		1-23 *											76
BUS D03 L				1									50-0/8		76

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
BUS D04 L		A01E1		1-01 *	P						1		0-7/8	77
BUS D04 L		A02E1		1-02 *	P						2		0-7/8	77
BUS D04 L		A03E1		1-03 *	P						1		0-7/8	77
BUS D04 L		A04E1		1-04 *							2		6-5/8	77
BUS D04 L		C03N2		1-05 *	P						1		0-7/8	77
BUS D04 L		C04N2		1-06 *	P						2		0-7/8	77
BUS D04 L		C05N2		1-07 *							1		8-3/8	77
BUS D04 L		F05N2		1-08 *	P						1		1-3/8	77
BUS D04 L		F03N2		1-09 *	P						1		0-7/8	77
BUS D04 L		F04N2		1-10 *	P						2		1-3/8	77
BUS D04 L		F06N2		1-11 *	P						2		0-7/8	77
BUS D04 L		F07N2		1-12 *	P						1		0-7/8	77
BUS D04 L		F08N2		1-13 *	P						2		0-7/8	77
BUS D04 L		F09N2		1-14 *							1		9-7/8	77
BUS D04 L		C06N2		1-15 *	P						2		0-7/8	77
BUS D04 L		C07N2		1-16 *	P						1		0-7/8	77
BUS D04 L		C08N2		1-17 *	P						2		0-7/8	77
BUS D04 L		C09N2		1-18 *							1		8-7/8	77
BUS D04 L		A05E1		1-19 *	P						2		0-7/8	77
BUS D04 L		A06E1		1-20 *	P						1		0-7/8	77
BUS D04 L		A07E1		1-21 *	P						2		0-7/8	77
BUS D04 L		A08E1		1-22 *	P						1		0-7/8	77
BUS D04 L		A09E1		1-23 *										77
BUS D04 L				1									50-4/8	77
BUS D05 L		A01F2		1-01 *	P						2		0-7/8	78
BUS D05 L		A02F2		1-02 *	P						1		0-7/8	78
BUS D05 L		A03F2		1-03 *	P						2		0-7/8	78
BUS D05 L		A04F2		1-04 *							1		7-1/8	78
BUS D05 L		C03P2		1-05 *	P						2		0-7/8	78
BUS D05 L		C04P2		1-06 *	P						1		0-7/8	78
BUS D05 L		C05P2		1-07 *							2		7-5/8	78
BUS D05 L		F05F1		1-08 *	P						2		1-3/8	78
BUS D05 L		F03F1		1-09 *	P						2		0-7/8	78
BUS D05 L		F04F1		1-10 *	P						1		1-3/8	78
BUS D05 L		F06F1		1-11 *	P						1		0-7/8	78
BUS D05 L		F07F1		1-12 *	P						2		0-7/8	78
BUS D05 L		F08F1		1-13 *	P						1		0-7/8	78
BUS D05 L		F09F1		1-14 *							1		8-7/8	78
BUS D05 L		C06P2		1-15 *	P						1		0-7/8	78
BUS D05 L		C07P2		1-16 *	P						2		0-7/8	78
BUS D05 L		C08P2		1-17 *	P						1		0-7/8	78
BUS D05 L		C09P2		1-18 *							2		8-3/8	78
BUS D05 L		A05F2		1-19 *	P						1		0-7/8	78
BUS D05 L		A06F2		1-20 *	P						2		0-7/8	78
BUS D05 L		A07F2		1-21 *	P						1		0-7/8	78
BUS D05 L		A08F2		1-22 *	P						2		0-7/8	78
BUS D05 L		A09F2		1-23 *										78
BUS D05 L				1									48-6/8	78

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS D06 L		A01F1		1-01 *	P						1		0-7/8		79
BUS D06 L		A02F1		1-02 *	P						2		0-7/8		79
BUS D06 L		A03F1		1-03 *	P						1		0-7/8		79
BUS D06 L		A04F1		1-04 *							2		7-3/8		79
BUS D06 L		C03V2		1-05 *	P						1		0-7/8		79
BUS D06 L		C04V2		1-06 *	P						2		0-7/8		79
BUS D06 L		C05V2		1-07 *							1		6-7/8		79
BUS D06 L		F05F2		1-08 *	P						1		1-3/8		79
BUS D06 L		F03F2		1-09 *	P						1		0-7/8		79
BUS D06 L		F04F2		1-10 *	P						2		1-3/8		79
BUS D06 L		F06F2		1-11 *	P						2		0-7/8		79
BUS D06 L		F07F2		1-12 *	P						1		0-7/8		79
BUS D06 L		F08F2		1-13 *	P						2		0-7/8		79
BUS D06 L		F09F2		1-14 *							1		8-3/8		79
BUS D06 L		C06V2		1-15 *	P						2		0-7/8		79
BUS D06 L		C07V2		1-16 *	P						1		0-7/8		79
BUS D06 L		C08V2		1-17 *	P						2		0-7/8		79
BUS D06 L		C09V2		1-18 *							1		9-3/8		79
BUS D06 L		A05F1		1-19 *	P						2		0-7/8		79
BUS D06 L		A06F1		1-20 *	P						1		0-7/8		79
BUS D06 L		A07F1		1-21 *	P						2		0-7/8		79
BUS D06 L		A08F1		1-22 *	P						1		0-7/8		79
BUS D06 L		A09F1		1-23 *											79
BUS D06 L				1									48-6/8		79
BUS D07 L		A01H2		1-01 *	P						1		0-7/8		80
BUS D07 L		A02H2		1-02 *	P						2		0-7/8		80
BUS D07 L		A03H2		1-03 *	P						1		0-7/8		80
BUS D07 L		A04H2		1-04 *							2		6-5/8		80
BUS D07 L		C03M2		1-05 *	P						1		0-7/8		80
BUS D07 L		C04M2		1-06 *	P						2		0-7/8		80
BUS D07 L		C05M2		1-07 *							1		8-1/8		80
BUS D07 L		F05H1		1-08 *	P						1		1-3/8		80
BUS D07 L		F03H1		1-09 *	P						1		0-7/8		80
BUS D07 L		F04H1		1-10 *	P						2		1-3/8		80
BUS D07 L		F06H1		1-11 *	P						2		0-7/8		80
BUS D07 L		F07H1		1-12 *	P						1		0-7/8		80
BUS D07 L		F08H1		1-13 *	P						2		0-7/8		80
BUS D07 L		F09H1		1-14 *							1		9-1/8		80
BUS D07 L		C06M2		1-15 *	P						2		0-7/8		80
BUS D07 L		C07M2		1-16 *	P						1		0-7/8		80
BUS D07 L		C08M2		1-17 *	P						2		0-7/8		80
BUS D07 L		C09M2		1-18 *							1		8-1/8		80
BUS D07 L		A05H2		1-19 *	P						2		0-7/8		80
BUS D07 L		A06H2		1-20 *	P						1		0-7/8		80
BUS D07 L		A07H2		1-21 *	P						2		0-7/8		80
BUS D07 L		A08H2		1-22 *	P						1		0-7/8		80
BUS D07 L		A09H2		1-23 *											80
BUS D07 L				1									48-6/8		80

VGWRAP 35(102)-1 03-JUN-77

RUN	NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC FLAG	LENGTH EXCEPTIONS	RUN NUMBER
BUS	D08 L		A01H1		1-01 *	P						1			0-7/8	81
BUS	D08 L		A02H1		1-02 *	P						2			0-7/8	81
BUS	D08 L		A03H1		1-03 *	P						1			0-7/8	81
BUS	D08 L		A04H1		1-04 *							2			6-1/8	81
BUS	D08 L		C03L2		1-05 *	P						1			0-7/8	81
BUS	D08 L		C04L2		1-06 *	P						2			0-7/8	81
BUS	D08 L		C05L2		1-07 *							1			8-5/8	81
BUS	D08 L		F05K1		1-08 *	P						1			1-3/8	81
BUS	D08 L		F03K1		1-09 *	P						1			0-7/8	81
BUS	D08 L		F04K1		1-10 *	P						2			1-3/8	81
BUS	D08 L		F06K1		1-11 *	P						2			0-7/8	81
BUS	D08 L		F07K1		1-12 *	P						1			0-7/8	81
BUS	D08 L		F08K1		1-13 *	P						2			0-7/8	81
BUS	D08 L		F09K1		1-14 *							1			9-3/8	81
BUS	D08 L		C06L2		1-15 *	P						2			0-7/8	81
BUS	D08 L		C07L2		1-16 *	P						1			0-7/8	81
BUS	D08 L		C08L2		1-17 *	P						2			0-7/8	81
BUS	D08 L		C09L2		1-18 *							1			8-3/8	81
BUS	D08 L		A05H1		1-19 *	P						2			0-7/8	81
BUS	D08 L		A06H1		1-20 *	P						1			0-7/8	81
BUS	D08 L		A07H1		1-21 *	P						2			0-7/8	81
BUS	D08 L		A08H1		1-22 *	P						1			0-7/8	81
BUS	D08 L		A09H1		1-23 *											81
BUS	D08 L				1										49-2/8	81
BUS	D09 L		A01J2		1-01 *	P						2			0-7/8	82
BUS	D09 L		A02J2		1-02 *	P						1			0-7/8	82
BUS	D09 L		A03J2		1-03 *	P						2			0-7/8	82
BUS	D09 L		A04J2		1-04 *							1			6-3/8	82
BUS	D09 L		C03K2		1-05 *	P						2			0-7/8	82
BUS	D09 L		C04K2		1-06 *	P						1			0-7/8	82
BUS	D09 L		C05K2		1-07 *	P						2			0-7/8	82
BUS	D09 L		C06K2		1-08 *	P						1			0-7/8	82
BUS	D09 L		C07K2		1-09 *	P						2			0-7/8	82
BUS	D09 L		C08K2		1-10 *	P						1			0-7/8	82
BUS	D09 L		C09K2		1-11 *							2			7-5/8	82
BUS	D09 L		A05J2		1-12 *	P						1			0-7/8	82
BUS	D09 L		A06J2		1-13 *	P						2			0-7/8	82
BUS	D09 L		A07J2		1-14 *	P						1			0-7/8	82
BUS	D09 L		A08J2		1-15 *	P						2			0-7/8	82
BUS	D09 L		A09J2		1-16 *	P										82
BUS	D09 L				1										25-3/8	82

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS D10 L		A01J1		1-01 *	P						1		0-7/8		83
BUS D10 L		A02J1		1-02 *	P						2		0-7/8		83
BUS D10 L		A03J1		1-03 *	P						1		0-7/8		83
BUS D10 L		A04J1		1-04 *							2		5-7/8		83
BUS D10 L		C03J2		1-05 *	P						1		0-7/8		83
BUS D10 L		C04J2		1-06 *	P						2		0-7/8		83
BUS D10 L		C05J2		1-07 *	P						1		0-7/8		83
BUS D10 L		C06J2		1-08 *	P						2		0-7/8		83
BUS D10 L		C07J2		1-09 *	P						1		0-7/8		83
BUS D10 L		C08J2		1-10 *	P						2		0-7/8		83
BUS D10 L		C09J2		1-11 *							1		7-7/8		83
BUS D10 L		A05J1		1-12 *	P						2		0-7/8		83
BUS D10 L		A06J1		1-13 *	P						1		0-7/8		83
BUS D10 L		A07J1		1-14 *	P						2		0-7/8		83
BUS D10 L		A08J1		1-15 *	P						1		0-7/8		83
BUS D10 L		A09J1		1-16 *	P										83
BUS D10 L				1									25-1/8		83
BUS D11 L		A01K2		1-01 *	P						2		0-7/8		84
BUS D11 L		A02K2		1-02 *	P						1		0-7/8		84
BUS D11 L		A03K2		1-03 *	P						2		0-7/8		84
BUS D11 L		A04K2		1-04 *							1		6-1/8		84
BUS D11 L		C03H1		1-05 *	P						2		0-7/8		84
BUS D11 L		C04H1		1-06 *	P						1		0-7/8		84
BUS D11 L		C05H1		1-07 *	P						2		0-7/8		84
BUS D11 L		C06H1		1-08 *	P						1		0-7/8		84
BUS D11 L		C07H1		1-09 *	P						2		0-7/8		84
BUS D11 L		C08H1		1-10 *	P						1		0-7/8		84
BUS D11 L		C09H1		1-11 *							2		7-1/8		84
BUS D11 L		A05K2		1-12 *	P						1		0-7/8		84
BUS D11 L		A06K2		1-13 *	P						2		0-7/8		84
BUS D11 L		A07K2		1-14 *	P						1		0-7/8		84
BUS D11 L		A08K2		1-15 *	P						2		0-7/8		84
BUS D11 L		A09K2		1-16 *	P										84
BUS D11 L				1									24-5/8		84
BUS D12 L		A01K1		1-01 *	P						1		0-7/8		85
BUS D12 L		A02K1		1-02 *	P						2		0-7/8		85
BUS D12 L		A03K1		1-03 *	P						1		0-7/8		85
BUS D12 L		A04K1		1-04 *							2		5-5/8		85
BUS D12 L		C03H2		1-05 *	P						1		0-7/8		85
BUS D12 L		C04H2		1-06 *	P						2		0-7/8		85
BUS D12 L		C05H2		1-07 *	P						1		0-7/8		85
BUS D12 L		C06H2		1-08 *	P						2		0-7/8		85
BUS D12 L		C07H2		1-09 *	P						1		0-7/8		85
BUS D12 L		C08H2		1-10 *	P						2		0-7/8		85
BUS D12 L		C09H2		1-11 *							1		7-5/8		85
BUS D12 L		A05K1		1-12 *	P						2		0-7/8		85
BUS D12 L		A06K1		1-13 *	P						1		0-7/8		85
BUS D12 L		A07K1		1-14 *	P						2		0-7/8		85
BUS D12 L		A08K1		1-15 *	P						1		0-7/8		85
BUS D12 L		A09K1		1-16 *	P										85
BUS D12 L				1									24-5/8		85

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
BUS D13 L		A01L2		1=01 *	P						1		0=7/8		86
BUS D13 L		A02L2		1=02 *	P						2		0=7/8		86
BUS D13 L		A03L2		1=03 *	P						1		0=7/8		86
BUS D13 L		A04L2		1=04 *							2		5=5/8		86
BUS D13 L		C03F2		1=05 *	P						1		0=7/8		86
BUS D13 L		C04F2		1=06 *	P						2		0=7/8		86
BUS D13 L		C05F2		1=07 *	P						1		0=7/8		86
BUS D13 L		C06F2		1=08 *	P						2		0=7/8		86
BUS D13 L		C07F2		1=09 *	P						1		0=7/8		86
BUS D13 L		C08F2		1=10 *	P						2		0=7/8		86
BUS D13 L		C09F2		1=11 *							1		7=1/8		86
BUS D13 L		A05L2		1=12 *	P						2		0=7/8		86
BUS D13 L		A06L2		1=13 *	P						1		0=7/8		86
BUS D13 L		A07L2		1=14 *	P						2		0=7/8		86
BUS D13 L		A08L2		1=15 *	P						1		0=7/8		86
BUS D13 L		A09L2		1=16 *	P										86
BUS D13 L				1									24=1/8		86
BUS D14 L		A01L1		1=01 *	P						1		0=7/8		87
BUS D14 L		A02L1		1=02 *	P						2		0=7/8		87
BUS D14 L		A03L1		1=03 *	P						1		0=7/8		87
BUS D14 L		A04L1		1=04 *							2		5=3/8		87
BUS D14 L		C03E2		1=05 *	P						1		0=7/8		87
BUS D14 L		C04E2		1=06 *	P						2		0=7/8		87
BUS D14 L		C05E2		1=07 *	P						1		0=7/8		87
BUS D14 L		C06E2		1=08 *	P						2		0=7/8		87
BUS D14 L		C07E2		1=09 *	P						1		0=7/8		87
BUS D14 L		C08E2		1=10 *	P						2		0=7/8		87
BUS D14 L		C09E2		1=11 *							1		7=1/8		87
BUS D14 L		A05L1		1=12 *	P						2		0=7/8		87
BUS D14 L		A06L1		1=13 *	P						1		0=7/8		87
BUS D14 L		A07L1		1=14 *	P						2		0=7/8		87
BUS D14 L		A08L1		1=15 *	P						1		0=7/8		87
BUS D14 L		A09L1		1=16 *	P										87
BUS D14 L				1									23=7/8		87
BUS D15 L		A01M2		1=01 *	P						1		0=7/8		88
BUS D15 L		A02M2		1=02 *	P						2		0=7/8		88
BUS D15 L		A03M2		1=03 *	P						1		0=7/8		88
BUS D15 L		A04M2		1=04 *							2		5=1/8		88
BUS D15 L		C03D2		1=05 *							1		0=7/8		88
BUS D15 L		C04D2		1=06 *							2		0=7/8		88
BUS D15 L		C05D2		1=07 *							1		0=7/8		88
BUS D15 L		C06D2		1=08 *							2		0=7/8		88
BUS D15 L		C07D2		1=09 *							1		0=7/8		88
BUS D15 L		C08D2		1=10 *							2		0=7/8		88
BUS D15 L		C09D2		1=11 *							1		6=7/8		88
BUS D15 L		A05M2		1=12 *	P						2		0=7/8		88
BUS D15 L		A06M2		1=13 *	P						1		0=7/8		88
BUS D15 L		A07M2		1=14 *	P						2		0=7/8		88
BUS D15 L		A08M2		1=15 *	P						1		0=7/8		88
BUS D15 L		A09M2		1=16 *	P										88
BUS D15 L				1									23=3/8		88

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
C BG IN		D03U2		1-01 *							1		3-7/8		89
C BG IN		F03B1		1-02 *											89
C BG IN				1									3-7/8		89
C BG OUT		D03V2		1-01 *							1		3-7/8		90
C BG OUT		F03A1		1-02 *											90
C BG OUT				1									3-7/8		90
C BR OUT		D03J2		1-01 *							1		6-5/8		91
C BR OUT		F03P1		1-02 *							2		1		91
C BR OUT		F03U2		1-03 *											91
C BR OUT				1									7-5/8		91
C IN		D03H1		1-01 *							1		3-3/8		92
C IN		E03M1		1-02 *											92
C IN				1									3-3/8		92
C INT A		D03N1		1-01 *							1		6-3/8		93
C INT A		F03U1		1-02 *											93
C INT A				1									6-3/8		93
C INT B		C03J1		1-01 *							1		8-5/8		94
C INT B		F03K2		1-02 *											94
C INT B				1									8-5/8		94
C INT ENB A		D03M1		1-01 *							1		6-5/8		95
C INT ENB A		F03V1		1-02 *											95
C INT ENB A				1									6-5/8		95
C INT ENB B		C03L1		1-01 *							1		8-1/8		96
C INT ENB B		F03H2		1-02 *											96
C INT ENB B				1									8-1/8		96
C OUT HIGH		D03K1		1-01 *							1		3-3/8		97
C OUT HIGH		E03M2		1-02 *											97
C OUT HIGH				1									3-3/8		97
C OUT LOW		D03D1		1-01 *							1		3-7/8		98
C OUT LOW		E03N1		1-02 *											98
C OUT LOW				1									3-7/8		98
C SEL 0		D03F1		1-01 *							1		4-1/8		99
C SEL 0		E03S2		1-02 *											99
C SEL 0				1									4-1/8		99
C SEL 4		D03E1		1-01 *							1		4-3/8		100
C SEL 4		E03R2		1-02 *											100
C SEL 4				1									4-3/8		100
C SEL 6		D03C1		1-01 *							1		4-3/8		101
C SEL 6		E03S1		1-02 *											101
C SEL 6				1									4-3/8		101
C SER 2		D03J1		1-01 *							1		4-1/8		102
C SER 2		E03T2		1-02 *											102
C SER 2				1									4-1/8		102

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
C SSYN IN H		D03V1		1-01 *							1		0-7/8		103
C SSYN IN H		E03B1		1-02 *											103
C SSYN IN H				1									0-7/8		103
C0 L		B01U2		1-01 *							1		0-7/8		104
C0 L		B02U2		1-02 *							2		0-7/8		104
C0 L		B03U2		1-03 *							1		0-7/8		104
C0 L		B04U2		1-04 *							2		7-3/8		104
C0 L		E03J2		1-05 *	P						1		0-7/8		104
C0 L		E04J2		1-06 *	P						2		0-7/8		104
C0 L		E05J2		1-07 *	P						1		0-7/8		104
C0 L		E06J2		1-08 *	P						2		0-7/8		104
C0 L		E07J2		1-09 *	P						1		0-7/8		104
C0 L		E08J2		1-10 *	P						2		0-7/8		104
C0 L		E09J2		1-11 *							1		9-1/8		104
C0 L		B05U2		1-12 *							2		0-7/8		104
C0 L		B06U2		1-13 *							1		0-7/8		104
C0 L		B07U2		1-14 *							2		0-7/8		104
C0 L		B08U2		1-15 *							1		0-7/8		104
C0 L		B09U2		1-16 *											104
C0 L				1									27-7/8		104
C1 L		B01T2		1-01 *							2		0-7/8		105
C1 L		B02T2		1-02 *							1		0-7/8		105
C1 L		B03T2		1-03 *							2		0-7/8		105
C1 L		B04T2		1-04 *							1		7-3/8		105
C1 L		E03F2		1-05 *	P						2		0-7/8		105
C1 L		E04F2		1-06 *	P						1		0-7/8		105
C1 L		E05F2		1-07 *	P						2		0-7/8		105
C1 L		E06F2		1-08 *	P						1		0-7/8		105
C1 L		E07F2		1-09 *	P						2		0-7/8		105
C1 L		E08F2		1-10 *	P						1		0-7/8		105
C1 L		E09F2		1-11 *							2		8-7/8		105
C1 L		B05T2		1-12 *							1		0-7/8		105
C1 L		B06T2		1-13 *							2		0-7/8		105
C1 L		B07T2		1-14 *							1		0-7/8		105
C1 L		B08T2		1-15 *							2		0-7/8		105
C1 L		B09T2		1-16 *											105
C1 L				1									27-5/8		105
D BG IN		D04U2		1-01 *							1		3-7/8		106
D BG IN		F04B1		1-02 *											106
D BG IN				1									3-7/8		106
D BG OUT		D04V2		1-01 *							1		3-7/8		107
D BG OUT		F04A1		1-02 *											107
D BG OUT				1									3-7/8		107
D BR OUT		D04J2		1-01 *							1		6-5/8		108
D BR OUT		F04P1		1-02 *							2		1		108
D BR OUT		F04U2		1-03 *											108
D BR OUT				1									7-5/8		108

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
D IN		D04H1		1=01 *							1		3=3/8		109
D IN		E04M1		1=02 *											109
D IN				1									3=3/8		109
D INT A		D04N1		1=01 *							1		6=3/8		110
D INT A		F04U1		1=02 *											110
D INT A				1									6=3/8		110
D INT B		C04J1		1=01 *							1		8=5/8		111
D INT B		F04K2		1=02 *											111
D INT B				1									8=5/8		111
D INT ENB A		D04M1		1=01 *							1		6=5/8		112
D INT ENB A		F04V1		1=02 *											112
D INT ENB A				1									6=5/8		112
D INT ENB B		C04L1		1=01 *							1		8=1/8		113
D INT ENB B		F04H2		1=02 *											113
D INT ENB B				1									8=1/8		113
D OUT HIGH		D04K1		1=01 *							1		3=3/8		114
D OUT HIGH		E04M2		1=02 *											114
D OUT HIGH				1									3=3/8		114
D OUT LOW		D04D1		1=01 *							1		3=7/8		115
D OUT LOW		E04N1		1=02 *											115
D OUT LOW				1									3=7/8		115
D SEL 0		D04F1		1=01 *							1		4=1/8		116
D SEL 0		E04S2		1=02 *											116
D SEL 0				1									4=1/8		116
D SEL 4		D04E1		1=01 *							1		4=3/8		117
D SEL 4		E04R2		1=02 *											117
D SEL 4				1									4=3/8		117
D SEL 6		D04C1		1=01 *							1		4=3/8		118
D SEL 6		E04S1		1=02 *											118
D SEL 6				1									4=3/8		118
D SER 2		D04J1		1=01 *							1		4=1/8		119
D SER 2		E04T2		1=02 *											119
D SER 2				1									4=1/8		119
D SSYN IN H		D04V1		1=01 *							1		0=7/8		120
D SSYN IN H		E04B1		1=02 *											120
D SSYN IN H				1									0=7/8		120

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
DC L		B01F2		1-01 *	P						2		0-7/8		121
DC L		B02F2		1-02 *	P						1		0-7/8		121
DC L		B03F2		1-03 *	P						2		0-7/8		121
DC L		B04F2		1-04 *							1		4-3/8		121
DC L		C03N1		1-05 *	P						2		0-7/8		121
DC L		C04N1		1-06 *	P						1		0-7/8		121
DC L		C05N1		1-07 *	P						2		0-7/8		121
DC L		C06N1		1-08 *	P						1		0-7/8		121
DC L		C07N1		1-09 *	P						2		0-7/8		121
DC L		C08N1		1-10 *	P						1		0-7/8		121
DC L		C09N1		1-11 *							2		5-3/8		121
DC L		B05F2		1-12 *	P						1		0-7/8		121
DC L		B06F2		1-13 *	P						2		0-7/8		121
DC L		B07F2		1-14 *	P						1		0-7/8		121
DC L		B08F2		1-15 *	P						2		0-7/8		121
DC L		B09F2		1-16 *	P										121
DC L				1									21-1/8		121
E BG IN		D05U2		1-01 *							1		3-7/8		122
E BG IN		F05B1		1-02 *											122
E BG IN				1									3-7/8		122
E BG OUT		D05V2		1-01 *							1		3-7/8		123
E BG OUT		F05A1		1-02 *											123
E BG OUT				1									3-7/8		123
E BR OUT		D05J2		1-01 *							1		6-5/8		124
E BR OUT		F05P1		1-02 *							2		1		124
E BR OUT		F05U2		1-03 *											124
E BR OUT				1									7-5/8		124
E IN		D05H1		1-01 *							1		3-3/8		125
E IN		E05M1		1-02 *											125
E IN				1									3-3/8		125
E INT A		D05N1		1-01 *							1		6-3/8		126
E INT A		F05U1		1-02 *											126
E INT A				1									6-3/8		126
E INT B		C05J1		1-01 *							1		8-5/8		127
E INT B		F05K2		1-02 *											127
E INT B				1									8-5/8		127
E INT ENB A		D05M1		1-01 *							1		6-5/8		128
E INT ENB A		F05V1		1-02 *											128
E INT ENB A				1									6-5/8		128
E INT ENB B		C05L1		1-01 *							1		8-1/8		129
E INT ENB B		F05H2		1-02 *											129
E INT ENB B				1									8-1/8		129
E OUT HIGH		D05K1		1-01 *							1		3-3/8		130
E OUT HIGH		E05M2		1-02 *											130
E OUT HIGH				1									3-3/8		130

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
E OUT LOW		D05D1		1-01 *							1		3-7/8		131
E OUT LOW		E05N1		1-02 *											131
E OUT LOW				1									3-7/8		131
E SEL 0		D05F1		1-01 *							1		4-1/8		132
E SEL 0		E05S2		1-02 *											132
E SEL 0				1									4-1/8		132
E SEL 4		D05E1		1-01 *							1		4-3/8		133
E SEL 4		E05R2		1-02 *											133
E SEL 4				1									4-3/8		133
E SEL 6		D05C1		1-01 *							1		4-3/8		134
E SEL 6		E05S1		1-02 *											134
E SEL 6				1									4-3/8		134
E SER 2		D05J1		1-01 *							1		4-1/8		135
E SER 2		E05T2		1-02 *											135
E SER 2				1									4-1/8		135
E SSYN IN H		D05V1		1-01 *							1		0-7/8		136
E SSYN IN H		E05B1		1-02 *											136
E SSYN IN H				1									0-7/8		136
F BG IN		D06U2		1-01 *							1		3-7/8		137
F BG IN		F06B1		1-02 *											137
F BG IN				1									3-7/8		137
F BG OUT		D06V2		1-01 *							1		3-7/8		138
F BG OUT		F06A1		1-02 *											138
F BG OUT				1									3-7/8		138
F BR OUT		D06J2		1-01 *							1		6-5/8		139
F BR OUT		F06P1		1-02 *							2		1		139
F BR OUT		F06U2		1-03 *											139
F BR OUT				1									7-5/8		139
F IN		D06H1		1-01 *							1		3-3/8		140
F IN		E06M1		1-02 *											140
F IN				1									3-3/8		140
F INT A		D06N1		1-01 *							1		6-3/8		141
F INT A		F06U1		1-02 *											141
F INT A				1									6-3/8		141
F INT B		C06J1		1-01 *							1		8-5/8		142
F INT B		F06K2		1-02 *											142
F INT B				1									8-5/8		142
F INT ENB A		D06M1		1-01 *							1		6-5/8		143
F INT ENB A		F06V1		1-02 *											143
F INT ENB A				1									6-5/8		143
F INT ENB B		C06L1		1-01 *							1		8-1/8		144
F INT ENB B		F06H2		1-02 *											144
F INT ENB B				1									8-1/8		144

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
F OUT HIGH		D06K1		1-01 *							1		3-3/8	145
F OUT HIGH		E06M2		1-02 *										145
F OUT HIGH				1									3-3/8	145
F OUT LOW		D06D1		1-01 *							1		3-7/8	146
F OUT LOW		E06N1		1-02 *										146
F OUT LOW				1									3-7/8	146
F SEL 0		D06F1		1-01 *							1		4-1/8	147
F SEL 0		E06S2		1-02 *										147
F SEL 0				1									4-1/8	147
F SEL 4		D06E1		1-01 *							1		4-3/8	148
F SEL 4		E06R2		1-02 *										148
F SEL 4				1									4-3/8	148
F SEL 6		D06C1		1-01 *							1		4-3/8	149
F SEL 6		E06S1		1-02 *										149
F SEL 6				1									4-3/8	149
F SER 2		D06J1		1-01 *							1		4-1/8	150
F SER 2		E06T2		1-02 *										150
F SER 2				1									4-1/8	150
F SSYN IN H		D06V1		1-01 *							1		0-7/8	151
F SSYN IN H		E06B1		1-02 *										151
F SSYN IN H				1									0-7/8	151
F03D2		F03D2		1-01 *							2		1-5/8	152
F03D2		F03R2		1-02 *							1		0-4/8	152
F03D2		F03N1		1-03 *										152
F03D2				1									2-1/8	152
F03E1		F03E1		1-01 *							1		2-3/8	153
F03E1		F03V2		1-02 *										153
F03E1				1									2-3/8	153
F03L2		F03L2		1-01 *							1		1	154
F03L2		F03R1		1-02 *										154
F03L2				1									1-0/8	154
F03M2		F03M2		1-01 *							1		1	155
F03M2		F03S1		1-02 *										155
F03M2				1									1-0/8	155
F03P2		F03P2		1-01 *							1		0-4/8	156
F03P2		F03S2		1-02 *										156
F03P2				1									0-4/8	156
F04D2		F04D2		1-01 *							2		1-5/8	157
F04D2		F04R2		1-02 *							1		0-4/8	157
F04D2		F04N1		1-03 *										157
F04D2				1									2-1/8	157

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
F04E1		F04E1		1-01 *							1		2-3/8		158
F04E1		F04V2		1-02 *											158
F04E1				1									2-3/8		158
F04L2		F04L2		1-01 *							1		1		159
F04L2		F04R1		1-02 *											159
F04L2				1									1-0/8		159
F04M2		F04M2		1-01 *							1		1		160
F04M2		F04S1		1-02 *											160
F04M2				1									1-0/8		160
F04P2		F04P2		1-01 *							1		0-4/8		161
F04P2		F04S2		1-02 *											161
F04P2				1									0-4/8		161
F05D2		F05D2		1-01 *							2		1-5/8		162
F05D2		F05R2		1-02 *							1		0-4/8		162
F05D2		F05N1		1-03 *											162
F05D2				1									2-1/8		162
F05E1		F05E1		1-01 *							1		2-3/8		163
F05E1		F05V2		1-02 *											163
F05E1				1									2-3/8		163
F05L2		F05L2		1-01 *							1		1		164
F05L2		F05R1		1-02 *											164
F05L2				1									1-0/8		164
F05M2		F05M2		1-01 *							1		1		165
F05M2		F05S1		1-02 *											165
F05M2				1									1-0/8		165
F05P2		F05P2		1-01 *							1		0-4/8		166
F05P2		F05S2		1-02 *											166
F05P2				1									0-4/8		166
F06D2		F06D2		1-01 *							2		1-5/8		167
F06D2		F06R2		1-02 *							1		0-4/8		167
F06D2		F06N1		1-03 *											167
F06D2				1									2-1/8		167
F06E1		F06E1		1-01 *							1		2-3/8		168
F06E1		F06V2		1-02 *											168
F06E1				1									2-3/8		168
F06L2		F06L2		1-01 *							1		1		169
F06L2		F06R1		1-02 *											169
F06L2				1									1-0/8		169
F06M2		F06M2		1-01 *							1		1		170
F06M2		F06S1		1-02 *											170
F06M2				1									1-0/8		170

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
F06P2		F06P2		1-01 *							1		0-4/8		171
F06P2		F06S2		1-02 *											171
F06P2				1									0-4/8		171
F07D2		F07D2		1-01 *							2		1-5/8		172
F07D2		F07R2		1-02 *							1		0-4/8		172
F07D2		F07N1		1-03 *											172
F07D2				1									2-1/8		172
F07E1		F07E1		1-01 *							1		2-3/8		173
F07E1		F07V2		1-02 *											173
F07E1				1									2-3/8		173
F07L2		F07L2		1-01 *							1		1		174
F07L2		F07R1		1-02 *											174
F07L2				1									1-0/8		174
F07M2		F07M2		1-01 *							1		1		175
F07M2		F07S1		1-02 *											175
F07M2				1									1-0/8		175
F07P2		F07P2		1-01 *							1		0-4/8		176
F07P2		F07S2		1-02 *											176
F07P2				1									0-4/8		176
F08D2		F08D2		1-01 *							2		1-5/8		177
F08D2		F08R2		1-02 *							1		0-4/8		177
F08D2		F08N1		1-03 *											177
F08D2				1									2-1/8		177
F08E1		F08E1		1-01 *							1		2-3/8		178
F08E1		F08V2		1-02 *											178
F08E1				1									2-3/8		178
F08L2		F08L2		1-01 *							1		1		179
F08L2		F08R1		1-02 *											179
F08L2				1									1-0/8		179
F08M2		F08M2		1-01 *							1		1		180
F08M2		F08S1		1-02 *											180
F08M2				1									1-0/8		180
F08P2		F08P2		1-01 *							1		0-4/8		181
F08P2		F08S2		1-02 *											181
F08P2				1									0-4/8		181
F09D2		F09D2		1-01 *							2		1-5/8		182
F09D2		F09R2		1-02 *							1		0-4/8		182
F09D2		F09N1		1-03 *											182
F09D2				1									2-1/8		182
F09E1		F09E1		1-01 *							1		2-3/8		183
F09E1		F09V2		1-02 *											183
F09E1				1									2-3/8		183

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
F09L2		F09L2		1-01 *							1		1		184
F09L2		F09R1		1-02 *											184
F09L2				1									1-0/8		184
F09M2		F09M2		1-01 *							1		1		185
F09M2		F09S1		1-02 *											185
F09M2				1									1-0/8		185
F09P2		F09P2		1-01 *							1		0-4/8		186
F09P2		F09S2		1-02 *											186
F09P2				1									0-4/8		186
GND (01)		A01C2		1-01 *	P						1		0-7/8		187
GND (01)		A02C2		1-02 *	P						2		0-7/8		187
GND (01)		A03C2		1-03 *	P						1		0-7/8		187
GND (01)		A04C2		1-04 *	P						2		0-7/8		187
GND (01)		A05C2		1-05 *	P						1		0-7/8		187
GND (01)		A06C2		1-06 *	P						2		0-7/8		187
GND (01)		A07C2		1-07 *	P						1		0-7/8		187
GND (01)		A08C2		1-08 *	P						2		0-7/8		187
GND (01)		A09C2		1-09 *	P						1		2-1/8		187
GND (01)		A09T1		1-10 *	P						2		0-7/8		187
GND (01)		A08T1		1-11 *	P						1		0-7/8		187
GND (01)		A07T1		1-12 *	P						2		0-7/8		187
GND (01)		A06T1		1-13 *	P						1		0-7/8		187
GND (01)		A05T1		1-14 *	P						2		0-7/8		187
GND (01)		A04T1		1-15 *	P						1		0-7/8		187
GND (01)		A03T1		1-16 *	P						2		0-7/8		187
GND (01)		A02T1		1-17 *	P						1		0-7/8		187
GND (01)		A01T1		1-18 *	P						2		1-5/8		187
GND (01)		B01C2		1-19 *	P						1		0-7/8		187
GND (01)		B02C2		1-20 *	P						2		0-7/8		187
GND (01)		B03C2		1-21 *	P						1		0-7/8		187
GND (01)		B04C2		1-22 *	P						2		0-7/8		187
GND (01)		B05C2		1-23 *	P						1		0-7/8		187
GND (01)		B06C2		1-24 *	P						2		0-7/8		187
GND (01)		B07C2		1-25 *	P						1		0-7/8		187
GND (01)		B08C2		1-26 *	P						2		0-7/8		187
GND (01)		B09C2		1-27 *	P						1		2-1/8		187
GND (01)		B09T1		1-28 *	P						2		0-7/8		187
GND (01)		B08T1		1-29 *	P						1		0-7/8		187
GND (01)		B07T1		1-30 *	P						2		0-7/8		187
GND (01)		B06T1		1-31 *	P						1		0-7/8		187
GND (01)		B05T1		1-32 *	P						2		0-7/8		187
GND (01)		B04T1		1-33 *	P						1		0-7/8		187
GND (01)		B03T1		1-34 *	P						2		0-7/8		187
GND (01)		B02T1		1-35 *	P						1		0-7/8		187
GND (01)		B01T1		1-36 *	P						2		1-3/8		187
GND (01)		C01C2		1-37 *	P						1		0-7/8		187
GND (01)		C02C2		1-38 *	P						2		0-7/8		187
GND (01)		C03C2		1-39 *	P						1		0-7/8		187
GND (01)		C04C2		1-40 *	P						2		0-7/8		187
GND (01)		C05C2		1-41 *	P						1		0-7/8		187
GND (01)		C06C2		1-42 *	P						2		0-7/8		187
GND (01)		C07C2		1-43 *	P						1		0-7/8		187
GND (01)		C08C2		1-44 *	P						2		0-7/8		187

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
GND (01)		C09C2		1-45 *	P						1		2-1/8		187
GND (01)		C09T1		1-46 *	P						2		0-7/8		187
GND (01)		C08T1		1-47 *	P						1		0-7/8		187
GND (01)		C07T1		1-48 *	P						2		0-7/8		187
GND (01)		C06T1		1-49 *	P						1		0-7/8		187
GND (01)		C05T1		1-50 *	P						2		0-7/8		187
GND (01)		C04T1		1-51 *	P						1		0-7/8		187
GND (01)		C03T1		1-52 *	P						2		0-7/8		187
GND (01)		C02T1		1-53 *	P						1		0-7/8		187
GND (01)		C01T1		1-54 *	P										187
GND (01)				1									51-3/8		187
GND (02)		D01C2		1-01 *	P						1		0-7/8		188
GND (02)		D02C2		1-02 *	P						2		0-7/8		188
GND (02)		D03C2		1-03 *	P						1		0-7/8		188
GND (02)		D04C2		1-04 *	P						2		0-7/8		188
GND (02)		D05C2		1-05 *	P						1		0-7/8		188
GND (02)		D06C2		1-06 *	P						2		0-7/8		188
GND (02)		D07C2		1-07 *	P						1		0-7/8		188
GND (02)		D08C2		1-08 *	P						2		0-7/8		188
GND (02)		D09C2		1-09 *	P						1		2-1/8		188
GND (02)		D09T1		1-10 *	P						2		0-7/8		188
GND (02)		D08T1		1-11 *	P						1		0-7/8		188
GND (02)		D07T1		1-12 *	P						2		0-7/8		188
GND (02)		D06T1		1-13 *	P						1		0-7/8		188
GND (02)		D05T1		1-14 *	P						2		0-7/8		188
GND (02)		D04T1		1-15 *	P						1		0-7/8		188
GND (02)		D03T1		1-16 *	P						2		0-7/8		188
GND (02)		D02T1		1-17 *	P						1		0-7/8		188
GND (02)		D01T1		1-18 *	P						2		1-3/8		188
GND (02)		E01C2		1-19 *	P						1		0-7/8		188
GND (02)		E02C2		1-20 *	P						2		0-7/8		188
GND (02)		E03C2		1-21 *	P						1		0-7/8		188
GND (02)		E04C2		1-22 *	P						2		0-7/8		188
GND (02)		E05C2		1-23 *	P						1		0-7/8		188
GND (02)		E06C2		1-24 *	P						2		0-7/8		188
GND (02)		E07C2		1-25 *	P						1		0-7/8		188
GND (02)		E08C2		1-26 *	P						2		0-7/8		188
GND (02)		E09C2		1-27 *	P						1		2-1/8		188
GND (02)		E09T1		1-28 *	P						2		0-7/8		188
GND (02)		E08T1		1-29 *	P						1		0-7/8		188
GND (02)		E07T1		1-30 *	P						2		0-7/8		188
GND (02)		E06T1		1-31 *	P						1		0-7/8		188
GND (02)		E05T1		1-32 *	P						2		0-7/8		188
GND (02)		E04T1		1-33 *	P						1		0-7/8		188
GND (02)		E03T1		1-34 *	P						2		0-7/8		188
GND (02)		E02T1		1-35 *	P						1		0-7/8		188
GND (02)		E01T1		1-36 *	P						2		1-5/8		188
GND (02)		F01C2		1-37 *	P						1		0-7/8		188
GND (02)		F02C2		1-38 *	P						2		0-7/8		188
GND (02)		F03C2		1-39 *	P						1		0-7/8		188
GND (02)		F04C2		1-40 *	P						2		0-7/8		188
GND (02)		F05C2		1-41 *	P						1		0-7/8		188
GND (02)		F06C2		1-42 *	P						2		0-7/8		188
GND (02)		F07C2		1-43 *	P						1		0-7/8		188
GND (02)		F08C2		1-44 *	P						2		0-7/8		188

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
GND (02)		F09C2		1-45 *	P						1		2-1/8		188
GND (02)		F09T1		1-46 *	P						2		0-7/8		188
GND (02)		F08T1		1-47 *	P						1		0-7/8		188
GND (02)		F07T1		1-48 *	P						2		0-7/8		188
GND (02)		F06T1		1-49 *	P						1		0-7/8		188
GND (02)		F05T1		1-50 *	P						2		0-7/8		188
GND (02)		F04T1		1-51 *	P						1		0-7/8		188
GND (02)		F03T1		1-52 *	P						2		0-7/8		188
GND (02)		F02T1		1-53 *	P						1		0-7/8		188
GND (02)		F01T1		1-54 *	P										188
GND (02)				1									51-3/8		188
GND (03)		B09V2		1-01 *	P						2		2-3/8		189
GND (03)		B09E1		1-02 *	P						1		0-2/8		189
GND (03)		B09D1		1-03 *	P						2		0-4/8		189
GND (03)		B09B2		1-04 *	P						1		1-1/8		189
GND (03)		A09V2		1-05 *	P						2		0-6/8		189
GND (03)		A09S1		1-06 *	P						1		0-2/8		189
GND (03)		A09R1		1-07 *	P						2		0-2/8		189
GND (03)		A09P1		1-08 *	P						1		0-2/8		189
GND (03)		A09N1		1-09 *	P						2		1-7/8		189
GND (03)		A09B2		1-10 *	P						1		4-3/8		189
GND (03)		A01B2		1-11 *	P						2		1-7/8		189
GND (03)		A01N1		1-12 *	P						1		0-2/8		189
GND (03)		A01P1		1-13 *	P						2		0-2/8		189
GND (03)		A01R1		1-14 *	P						1		0-2/8		189
GND (03)		A01S1		1-15 *	P						2		0-6/8		189
GND (03)		A01V2		1-16 *	P						1		1-1/8		189
GND (03)		B01B2		1-17 *	P						2		0-4/8		189
GND (03)		B01D1		1-18 *	P						1		0-2/8		189
GND (03)		B01E1		1-19 *	P						2		2-3/8		189
GND (03)		B01V2		1-20 *	P						1		6-5/8		189
GND (03)		E03A1		1-21 *	P						2		0-7/8		189
GND (03)		E04A1		1-22 *	P						1		0-7/8		189
GND (03)		E05A1		1-23 *	P						2		0-7/8		189
GND (03)		E06A1		1-24 *	P						1		0-7/8		189
GND (03)		E07A1		1-25 *	P						2		0-7/8		189
GND (03)		E08A1		1-26 *	P						1		0-7/8		189
GND (03)		E09A1		1-27 *	P						2		4-3/8		189
GND (03)		F09J2		1-28 *	P						1		0-7/8		189
GND (03)		F08J2		1-29 *	P						2		0-7/8		189
GND (03)		F07J2		1-30 *	P						1		0-7/8		189
GND (03)		F06J2		1-31 *	P						2		0-7/8		189
GND (03)		F05J2		1-32 *	P						1		0-7/8		189
GND (03)		F04J2		1-33 *	P						2		0-7/8		189
GND (03)		F03J2		1-34 *	P										189
GND (03)				1									41-1/8		189
H BG IN		D07U2		1-01 *							1		3-7/8		190
H BG IN		F07B1		1-02 *											190
H BG IN				1									3-7/8		190
H BG OUT		D07V2		1-01 *							1		3-7/8		191
H BG OUT		F07A1		1-02 *											191
H BG OUT				1									3-7/8		191

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
H BR OUT		D07J2		1-01 *							1		6-5/8		192
H BR OUT		F07P1		1-02 *							2		1		192
H BR OUT		F07U2		1-03 *											192
H BR OUT				1									7-5/8		192
H IN		D07H1		1-01 *							1		3-3/8		193
H IN		E07M1		1-02 *											193
H IN				1									3-3/8		193
H INT A		D07N1		1-01 *							1		6-3/8		194
H INT A		F07U1		1-02 *											194
H INT A				1									6-3/8		194
H INT B		C07J1		1-01 *							1		8-5/8		195
H INT B		F07K2		1-02 *											195
H INT B				1									8-5/8		195
H INT ENB A		D07M1		1-01 *							1		6-5/8		196
H INT ENB A		F07V1		1-02 *											196
H INT ENB A				1									6-5/8		196
H INT ENB B		C07L1		1-01 *							1		8-1/8		197
H INT ENB B		F07H2		1-02 *											197
H INT ENB B				1									8-1/8		197
H OUT HIGH		D07K1		1-01 *							1		3-3/8		198
H OUT HIGH		E07M2		1-02 *											198
H OUT HIGH				1									3-3/8		198
H OUT LOW		D07D1		1-01 *							1		3-7/8		199
H OUT LOW		E07N1		1-02 *											199
H OUT LOW				1									3-7/8		199
H SEL 0		D07F1		1-01 *							1		4-1/8		200
H SEL 0		E07S2		1-02 *											200
H SEL 0				1									4-1/8		200
H SEL 4		D07E1		1-01 *							1		4-3/8		201
H SEL 4		E07R2		1-02 *											201
H SEL 4				1									4-3/8		201
H SEL 6		D07C1		1-01 *							1		4-3/8		202
H SEL 6		E07S1		1-02 *											202
H SEL 6				1									4-3/8		202
H SER 2		D07J1		1-01 *							1		4-1/8		203
H SER 2		E07T2		1-02 *											203
H SER 2				1									4-1/8		203
H SSYN IN H		D07V1		1-01 *							1		0-7/8		204
H SSYN IN H		E07B1		1-02 *											204
H SSYN IN H				1									0-7/8		204

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
HALT GRANT		C01R1		1-01 *	P						2		0-7/8		205
HALT GRANT		C02R1		1-02 *	P						1		0-7/8		205
HALT GRANT		C03R1		1-03 *	P						2		0-7/8		205
HALT GRANT		C04R1		1-04 *	P						1		0-7/8		205
HALT GRANT		C05R1		1-05 *	P						2		0-7/8		205
HALT GRANT		C06R1		1-06 *	P						1		0-7/8		205
HALT GRANT		C07R1		1-07 *	P						2		0-7/8		205
HALT GRANT		C08R1		1-08 *	P						1		0-7/8		205
HALT GRANT		C09R1		1-09 *	P										205
HALT GRANT				1									7-0/8		205
HALT REQ		C01P1		1-01 *	P						2		0-7/8		206
HALT REQ		C02P1		1-02 *	P						1		0-7/8		206
HALT REQ		C03P1		1-03 *	P						2		0-7/8		206
HALT REQ		C04P1		1-04 *	P						1		0-7/8		206
HALT REQ		C05P1		1-05 *	P						2		0-7/8		206
HALT REQ		C06P1		1-06 *	P						1		0-7/8		206
HALT REQ		C07P1		1-07 *	P						2		0-7/8		206
HALT REQ		C08P1		1-08 *	P						1		0-7/8		206
HALT REQ		C09P1		1-09 *	P										206
HALT REQ				1									7-0/8		206
INIT L		A01A1		1-01 *	P						1		0-7/8		207
INIT L		A02A1		1-02 *	P						2		0-7/8		207
INIT L		A03A1	A04A1	1-03 *	P						1		0-7/8		207
INIT L		A04A1		1-04 *	H						2	TWPR	9-7/8		207
INIT L		D03L1		1-05 *	P						1		0-7/8		207
INIT L		D04L1		1-06 *	P						2		0-7/8		207
INIT L		D05L1		1-07 *	P						1		0-7/8		207
INIT L		D06L1		1-08 *	P						2		0-7/8		207
INIT L		D07L1		1-09 *	P						1		0-7/8		207
INIT L		D08L1	D09L1	1-10 *	P						2		0-7/8		207
INIT L		D09L1		1-11 *	H						1	TWPR	11-5/8		207
INIT L		A05A1		1-12 *	P						2		0-7/8		207
INIT L		A06A1		1-13 *	P						1		0-7/8		207
INIT L		A07A1		1-14 *	P						2		0-7/8		207
INIT L		A08A1		1-15 *	P						1		0-7/8		207
INIT L		A09A1		1-16 *	P										207
INIT L				1									32-7/8		207
INT SSYN		B02E1		1-01 *	P						2		0-7/8		208
INT SSYN		B03E1		1-02 *	P						1		0-7/8		208
INT SSYN		B04E1		1-03 *	P						2		0-7/8		208
INT SSYN		B05E1		1-04 *	P						1		0-7/8		208
INT SSYN		B06E1		1-05 *	P						2		0-7/8		208
INT SSYN		B07E1		1-06 *	P						1		0-7/8		208
INT SSYN		B08E1		1-07 *	P										208
INT SSYN				1									5-2/8		208

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY ORDER	•	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
INTR L		A01B1		1-01	*	P						2		0-7/8		209
INTR L		A02B1		1-02	*	P						1		0-7/8		209
INTR L		A03B1		1-03	*	P						2		0-7/8		209
INTR L		A04B1		1-04	*							1		15-3/8		209
INTR L		F03M1		1-05	*	P						2		0-7/8		209
INTR L		F04M1		1-06	*							1		0-7/8		209
INTR L		F05M1		1-07	*	P						2		0-7/8		209
INTR L		F06M1		1-08	*	P						1		0-7/8		209
INTR L		F07M1		1-09	*	P						2		0-7/8		209
INTR L		F08M1		1-10	*	P						1		0-7/8		209
INTR L		F09M1		1-11	*							2		16-5/8		209
INTR L		A05B1		1-12	*	P						1		0-7/8		209
INTR L		A06B1		1-13	*	P						2		0-7/8		209
INTR L		A07B1		1-14	*	P						1		0-7/8		209
INTR L		A08B1		1-15	*	P						2		0-7/8		209
INTR L		A09B1		1-16	*	P										209
INTR L				1										43-3/8		209
J A IN		D08H1		1-01	*							1		3-3/8		210
J A IN		E08M1		1-02	*											210
J A IN				1										3-3/8		210
J BG IN		D08U2		1-01	*							1		3-7/8		211
J BG IN		F08B1		1-02	*											211
J BG IN				1										3-7/8		211
J BG OUT		D08V2		1-01	*							1		3-7/8		212
J BG OUT		F08A1		1-02	*											212
J BG OUT				1										3-7/8		212
J BR OUT		D08J2		1-01	*							1		6-5/8		213
J BR OUT		F08P1		1-02	*							2		1		213
J BR OUT		F08U2		1-03	*											213
J BR OUT				1										7-5/8		213
J INT A		D08N1		1-01	*							1		6-3/8		214
J INT A		F08U1		1-02	*											214
J INT A				1										6-3/8		214
J INT B		C08J1		1-01	*							1		8-5/8		215
J INT B		F08K2		1-02	*											215
J INT B				1										8-5/8		215
J INT ENB A		D08M1		1-01	*							1		6-5/8		216
J INT ENB A		F08V1		1-02	*											216
J INT ENB A				1										6-5/8		216
J INT ENB B		C08L1		1-01	*							1		8-1/8		217
J INT ENB B		F08H2		1-02	*											217
J INT ENB B				1										8-1/8		217
J OUT HIGH		D08K1		1-01	*							1		3-3/8		218
J OUT HIGH		E08M2		1-02	*											218
J OUT HIGH				1										3-3/8		218

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
J OUT LOW		D08D1		1-01 *							1		3-7/8		219
J OUT LOW		E08N1		1-02 *											219
J OUT LOW				1									3-7/8		219
J SEL 0		D08F1		1-01 *							1		4-1/8		220
J SEL 0		E08S2		1-02 *											220
J SEL 0				1									4-1/8		220
J SEL 4		D08E1		1-01 *							1		4-3/8		221
J SEL 4		E08R2		1-02 *											221
J SEL 4				1									4-3/8		221
J SEL 6		D08C1		1-01 *							1		4-3/8		222
J SEL 6		E08S1		1-02 *											222
J SEL 6				1									4-3/8		222
J SER 2		D08J1		1-01 *							1		4-1/8		223
J SER 2		E08T2		1-02 *											223
J SER 2				1									4-1/8		223
J SSYN IN H		D08V1		1-01 *							1		0-7/8		224
J SSYN IN H		E08B1		1-02 *											224
J SSYN IN H				1									0-7/8		224
K A IN		D09H1		1-01 *							1		3-3/8		225
K A IN		E09M1		1-02 *											225
K A IN				1									3-3/8		225
K BG IN		D09U2		1-01 *							1		3-7/8		226
K BG IN		F09B1		1-02 *											226
K BG IN				1									3-7/8		226
K BG OUT		D09V2		1-01 *							1		3-7/8		227
K BG OUT		F09A1		1-02 *											227
K BG OUT				1									3-7/8		227
K BR OUT		D09J2		1-01 *							1		6-5/8		228
K BR OUT		F09P1		1-02 *							2		1		228
K BR OUT		F09U2		1-03 *											228
K BR OUT				1									7-5/8		228
K INT A		D09N1		1-01 *							1		6-3/8		229
K INT A		F09U1		1-02 *											229
K INT A				1									6-3/8		229
K INT B		C09J1		1-01 *							1		8-5/8		230
K INT B		F09K2		1-02 *											230
K INT B				1									8-5/8		230
K INT ENB A		D09M1		1-01 *							1		6-5/8		231
K INT ENB A		F09V1		1-02 *											231
K INT ENB A				1									6-5/8		231
K INT ENB B		C09L1		1-01 *							1		8-1/8		232
K INT ENB B		F09H2		1-02 *											232
K INT ENB B				1									8-1/8		232

A/P	PIN NAME	ORDER PIN	BAY = ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH EXCEPTIONS FLAG	RUN NUMBER
K OUT HIGH	D09K1		1=01 *							1		3=3/8	233
K OUT HIGH	E09M2		1=02 *										233
K OUT HIGH			1									3=3/8	233
K OUT LOW	D09D1		1=01 *							1		3=7/8	234
K OUT LOW	E09N1		1=02 *										234
K OUT LOW			1									3=7/8	234
K SEL 0	D09F1		1=01 *							1		4=1/8	235
K SEL 0	E09S2		1=02 *										235
K SEL 0			1									4=1/8	235
K SEL 4	D09E1		1=01 *							1		4=3/8	236
K SEL 4	E09R2		1=02 *										236
K SEL 4			1									4=3/8	236
K SEL 6	D09C1		1=01 *							1		4=3/8	237
K SEL 6	E09S1		1=02 *										237
K SEL 6			1									4=3/8	237
K SER 2	D09J1		1=01 *							1		4=1/8	238
K SER 2	E09T2		1=02 *										238
K SER 2			1									4=1/8	238
K SSYN IN H	D09V1		1=01 *							1		0=7/8	239
K SSYN IN H	E09B1		1=02 *										239
K SSYN IN H			1									0=7/8	239
K1=1 BERG 00(1) H	D01N1		1=01 *							1		0=5/8	240
K1=1 BERG 00(1) H	D02M1		1=02 *										240
K1=1 BERG 00(1) H			1									0=5/8	240
K1=1 BXREG 00(1) H	C02U1		1=01 *							1		7=7/8	241
K1=1 BXREG 00(1) H	F01K1		1=02 *										241
K1=1 BXREG 00(1) H			1									7=7/8	241
K1=1 BXREG 01(1) H	D02F1		1=01 *							1		5=5/8	242
K1=1 BXREG 01(1) H	F01A1		1=02 *										242
K1=1 BXREG 01(1) H			1									5=5/8	242
K1=1 CBIT(1) H	D01U2		1=01 *							1		0=6/8	243
K1=1 CBIT(1) H	D02V1		1=02 *										243
K1=1 CBIT(1) H			1									0=6/8	243
K1=1 NBIT(1) H	D01L1		1=01 *							1		3=7/8	244
K1=1 NBIT(1) H	E02P2		1=02 *										244
K1=1 NBIT(1) H			1									3=7/8	244
K1=1 SSMUX 00 H	E02B2		1=01 *							1		4=3/8	245
K1=1 SSMUX 00 H	F01F1		1=02 *										245
K1=1 SSMUX 00 H			1									4=3/8	245
K1=1 SSMUX 01 H	D01H1		1=01 *							1		3=1/8	246
K1=1 SSMUX 01 H	E02E1		1=02 *										246
K1=1 SSMUX 01 H			1									3=1/8	246

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K1-1 SSMUX 02 H		E01B1		1-01	*						1		1-3/8		247
K1-1 SSMUX 02 H		E02D2		1-02	*										247
K1-1 SSMUX 02 H				1									1-3/8		247
K1-1 SSMUX 03 H		D01E1		1-01	*						1		3-3/8		248
K1-1 SSMUX 03 H		E02D1		1-02	*										248
K1-1 SSMUX 03 H				1									3-3/8		248
K1-1 VBIT(1) H		E01D1		1-01	*						1		2-5/8		249
K1-1 VBIT(1) H		E02U2		1-02	*										249
K1-1 VBIT(1) H				1									2-5/8		249
K1-1 ZBIT(1) H		E02V1		1-01	*						1		1-7/8		250
K1-1 ZBIT(1) H		F01F2		1-02	*										250
K1-1 ZBIT(1) H				1									1-7/8		250
K1-10 8-15=0 L		C01J2		1-01	*						1		9-3/8		251
K1-10 8-15=0 L		F02N2		1-02	*										251
K1-10 8-15=0 L				1									9-3/8		251
K1-10 ASSERT SSYN H		E01K2		1-01	*						1		3-1/8		252
K1-10 ASSERT SSYN H		F02F1		1-02	*										252
K1-10 ASSERT SSYN H				1									3-1/8		252
K1-10 CCN H		F01T2		1-01	*						1		1-7/8		253
K1-10 CCN H		F02J2		1-02	*										253
K1-10 CCN H				1									1-7/8		253
K1-10 CCZ H		E01L1		1-01	*						1		2-7/8		254
K1-10 CCZ H		F02B2		1-02	*										254
K1-10 CCZ H				1									2-7/8		254
K1-2 PSW 05(1) H		C01P2		1-01	*						1		6-5/8		255
K1-2 PSW 05(1) H		E02T2		1-02	*										255
K1-2 PSW 05(1) H				1									6-5/8		255
K1-2 PSW 06(1) H		C01M2		1-01	*						1		6-5/8		256
K1-2 PSW 06(1) H		E02U1		1-02	*										256
K1-2 PSW 06(1) H				1									6-5/8		256
K1-2 PSW 07(1) H		E02K2		1-01	*						1		3-3/8		257
K1-2 PSW 07(1) H		F01H2		1-02	*										257
K1-2 PSW 07(1) H				1									3-3/8		257
K1-2 SSMUX 04 H		C02D1		1-01	*						1		3-7/8		258
K1-2 SSMUX 04 H		D01H2		1-02	*										258
K1-2 SSMUX 04 H				1									3-7/8		258
K1-2 SSMUX 05 H		E01E1		1-01	*						1		1-3/8		259
K1-2 SSMUX 05 H		E02H2		1-02	*										259
K1-2 SSMUX 05 H				1									1-3/8		259
K1-2 SSMUX 06 H		C02C1		1-01	*						1		6-7/8		260
K1-2 SSMUX 06 H		E01K1		1-02	*										260
K1-2 SSMUX 06 H				1									6-7/8		260

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
K1-2 SSMUX 07 H		C02E2		1-01 *							1		3-7/8	261
K1-2 SSMUX 07 H		D01J2		1-02 *										261
K1-2 SSMUX 07 H				1									3-7/8	261
K1-2 TBIT(1) H		D01F1		1-01 *							1		0-6/8	262
K1-2 TBIT(1) H		D02K1		1-02 *										262
K1-2 TBIT(1) H				1									0-6/8	262
K1-3 SSMUX 08 H		E01N2		1-01 *							1		0-4/8	263
K1-3 SSMUX 08 H		E02N1		1-02 *										263
K1-3 SSMUX 08 H				1									0-4/8	263
K1-3 SSMUX 09 H		C02J2		1-01 *							1		6-5/8	264
K1-3 SSMUX 09 H		E01M2		1-02 *										264
K1-3 SSMUX 09 H				1									6-5/8	264
K1-3 SSMUX 10 H		C02H2		1-01 *							1		5-1/8	265
K1-3 SSMUX 10 H		D01V1		1-02 *										265
K1-3 SSMUX 10 H				1									5-1/8	265
K1-3 SSMUX 11 H		C02F2		1-01 *							1		5-7/8	266
K1-3 SSMUX 11 H		E01A1		1-02 *										266
K1-3 SSMUX 11 H				1									5-7/8	266
K1-4 ALU COUT H		E01V1		1-01 *							1		2-7/8	267
K1-4 ALU COUT H		F02L2		1-02 *										267
K1-4 ALU COUT H				1									2-7/8	267
K1-4 PSW 15(1) L		D01J1		1-01 *							1		3-1/8	268
K1-4 PSW 15(1) L		E02E2		1-02 *										268
K1-4 PSW 15(1) L				1									3-1/8	268
K1-4 SP15(1) H		C02N1		1-01 *	H						1	TWP	8-1/8	269
K1-4 SP15(1) H		F01E1		1-02 *	X							TWP		269
K1-4 SP15(1) H				1									8-1/8	269
K1-4 SSMUX 12 H		C02J1		1-01 *							1		5-1/8	270
K1-4 SSMUX 12 H		E01B2		1-02 *										270
K1-4 SSMUX 12 H				1									5-1/8	270
K1-4 SSMUX 13 H		C02D2		1-01 *							1		5-3/8	271
K1-4 SSMUX 13 H		D01V2		1-02 *										271
K1-4 SSMUX 13 H				1									5-3/8	271
K1-4 SSMUX 14 H		C02H1		1-01 *							1		6-5/8	272
K1-4 SSMUX 14 H		E01P2		1-02 *										272
K1-4 SSMUX 14 H				1									6-5/8	272
K1-4 SSMUX 15 H		C01D1		1-01 *							1		1-3/8	273
K1-4 SSMUX 15 H		C02B2		1-02 *										273
K1-4 SSMUX 15 H				1									1-3/8	273
K1-5 ALLOW MSYN H		E01V2		1-01 *							1		1-1/8	274
K1-5 ALLOW MSYN H		F02A1		1-02 *										274
K1-5 ALLOW MSYN H				1									1-1/8	274

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K1-5 MAN CLK ENAB L		F01M1		1-01 *							1		1-2/8		275
K1-5 MAN CLK ENAB L		F02E1		1-02 *											275
K1-5 MAN CLK ENAB L				1									1-2/8		275
K1-5 MAN CLK L		E02S1		1-01 *							1		3-3/8		276
K1-5 MAN CLK L		F01P1		1-02 *											276
K1-5 MAN CLK L				1									3-3/8		276
K1-5 PROC CLK H		E02J2		1-01 *	H						1	TWP	4-3/8		277
K1-5 PROC CLK H		F01P2		1-02 *	X							TWP			277
K1-5 PROC CLK H				1									4-3/8		277
K1-5 PROC CLK L		E01R1		1-01 *							1		0-6/8		278
K1-5 PROC CLK L		E02M1		1-02 *											278
K1-5 PROC CLK L				1									0-6/8		278
K1-5 TAP 30 H		D01E2		1-01 *	H						1	TWP	4-1/8		279
K1-5 TAP 30 H		E02M2		1-02 *	X							TWP			279
K1-5 TAP 30 H				1									4-1/8		279
K1-6 PBA 00 H		C01L2		1-01 *							1		4-7/8		280
K1-6 PBA 00 H		E02C1		1-02 *											280
K1-6 PBA 00 H				1									4-7/8		280
K1-6 PBA 01 H		C01H1		1-01 *							1		5-3/8		281
K1-6 PBA 01 H		D02V2		1-02 *											281
K1-6 PBA 01 H				1									5-3/8		281
K1-6 PBA 02 H		D02U2		1-01 *							1		1-7/8		282
K1-6 PBA 02 H		E01E2		1-02 *											282
K1-6 PBA 02 H				1									1-7/8		282
K1-6 PBA 03 H		D01M1		1-01 *							1		2-3/8		283
K1-6 PBA 03 H		E02B1		1-02 *											283
K1-6 PBA 03 H				1									2-3/8		283
K1-6 VBA 00(1) H		D02H1		1-01 *							1		4-1/8		284
K1-6 VBA 00(1) H		E01T2		1-02 *											284
K1-6 VBA 00(1) H				1									4-1/8		284
K1-8 KT FAULT L		D01D2		1-01 *							1		7-5/8		285
K1-8 KT FAULT L		F02T2		1-02 *											285
K1-8 KT FAULT L				1									7-5/8		285
K2-1 CLK MSYN H		C01J1		1-01 *							1		10-3/8		286
K2-1 CLK MSYN H		F02V2		1-02 *											286
K2-1 CLK MSYN H				1									10-3/8		286
K2-1 DISABLE WBIT L		D01F2		1-01 *							1		6-7/8		287
K2-1 DISABLE WBIT L		F02S1		1-02 *											287
K2-1 DISABLE WBIT L				1									6-7/8		287
K2-1 ENAB ADDR5 L		D02E2		1-01 *							1		5-5/8		288
K2-1 ENAB ADDR5 L		F01B2		1-02 *											288
K2-1 ENAB ADDR5 L				1									5-5/8		288

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K2-1 INT MSYN H		C01F2		1-01 *							1		2-7/8		289
K2-1 INT MSYN H		D02C1		1-02 *											289
K2-1 INT MSYN H				1									2-7/8		289
K2-1 KTE(1) H		C02M2		1-01 *							1		5-5/8		290
K2-1 KTE(1) H		E01J2		1-02 *											290
K2-1 KTE(1) H				1									5-5/8		290
K2-1 MSYN(1) L		C01H2		1-01 *							1		9-1/8		291
K2-1 MSYN(1) L		F02K2		1-02 *											291
K2-1 MSYN(1) L				1									9-1/8		291
K2-1 PE(1) H		C01T2		1-01 *							1		0-7/8		292
K2-1 PE(1) H		C02T2		1-02 *											292
K2-1 PE(1) H				1									0-7/8		292
K2-1 START TRAN L		C01N2		1-01 *							1		4-3/8		293
K2-1 START TRAN L		E02A1		1-02 *											293
K2-1 START TRAN L				1									4-3/8		293
K2-1 TRAN INH L		C01K2		1-01 *							1		7-7/8		294
K2-1 TRAN INH L		F02C1		1-02 *											294
K2-1 TRAN INH L				1									7-7/8		294
K2-1 UBUS C0(1) H		C01B2		1-01 *							1		4-1/8		295
K2-1 UBUS C0(1) H		D02H2		1-02 *											295
K2-1 UBUS C0(1) H				1									4-1/8		295
K2-1 UBUS C1(1) H		C01C1		1-01 *							1		4-3/8		296
K2-1 UBUS C1(1) H		D02J1		1-02 *											296
K2-1 UBUS C1(1) H				1									4-3/8		296
K2-2 BG INH L		F01R2		1-01 *							1		2-1/8		297
K2-2 BG INH L		F02B1		1-02 *											297
K2-2 BG INH L				1									2-1/8		297
K2-2 PROC INIT L		E01U1		1-01 *							1		1-7/8		298
K2-2 PROC INIT L		F02D2		1-02 *											298
K2-2 PROC INIT L				1									1-7/8		298
K2-2 RCD INIT L		C01E2		1-01 *							1		8-7/8		299
K2-2 RCD INIT L		F02E2		1-02 *											299
K2-2 RCD INIT L				1									8-7/8		299
K2-2 SACK RET(1) H		C01R2		1-01 *							1		5-3/8		300
K2-2 SACK RET(1) H		E02L1		1-02 *											300
K2-2 SACK RET(1) H				1									5-3/8		300
K2-3 C2 H		C02L1		1-01 *							1		2-3/8		301
K2-3 C2 H		D01B2		1-02 *											301
K2-3 C2 H				1									2-3/8		301
K2-3 C3 H		C01V1		1-01 *							1		0-6/8		302
K2-3 C3 H		C02S1		1-02 *											302
K2-3 C3 H				1									0-6/8		302

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K2-3 C4 H		C01U1		1-01 *							1		1-4/8		303
K2-3 C4 H		C02N2		1-02 *											303
K2-3 C4 H				1									1-4/8		303
K2-3 INT VECTOR L		D01K1		1-01 *							1		7-1/8		304
K2-3 INT VECTOR L		F02U1		1-02 *											304
K2-3 INT VECTOR L				1									7-1/8		304
K2-3 INTR H		C01V2		1-01 *							1		7-1/8		305
K2-3 INTR H		F02H1		1-02 *											305
K2-3 INTR H				1									7-1/8		305
K2-4 SP WRITE L		E02F1		1-01 *							1		4-7/8		306
K2-4 SP WRITE L		F01V2		1-02 *											306
K2-4 SP WRITE L				1									4-7/8		306
K2-4 SPA 00 H		C01D2		1-01 *	H						1	TWP	3-7/8		307
K2-4 SPA 00 H		D02F2		1-02 *	X							TWP			307
K2-4 SPA 00 H				1									3-7/8		307
K2-4 SPA 01 H		C01N1		1-01 *	H						1	TWP	2-5/8		308
K2-4 SPA 01 H		D02B2		1-02 *	X							TWP			308
K2-4 SPA 01 H				1									2-5/8		308
K2-4 SPA 02 H		C01S1		1-01 *	H						1	TWP	3-1/8		309
K2-4 SPA 02 H		D02L1		1-02 *	X							TWP			309
K2-4 SPA 02 H				1									3-1/8		309
K2-4 SPA 03 H		C01U2		1-01 *	H						1	TWP	2		310
K2-4 SPA 03 H		D02D2		1-02 *	X							TWP			310
K2-4 SPA 03 H				1									2-0/8		310
K2-5 BYTE L		E01H2		1-01 *							1		3-7/8		311
K2-5 BYTE L		F02L1		1-02 *											311
K2-5 BYTE L				1									3-7/8		311
K2-5 CC CODE 00 H		F01S1		1-01 *							1		1-4/8		312
K2-5 CC CODE 00 H		F02J1		1-02 *											312
K2-5 CC CODE 00 H				1									1-4/8		312
K2-5 CC CODE 01 H		E01U2		1-01 *							1		2-3/8		313
K2-5 CC CODE 01 H		F02H2		1-02 *											313
K2-5 CC CODE 01 H				1									2-3/8		313
K2-5 CC CODE 02 H		E01C1		1-01 *							1		4-7/8		314
K2-5 CC CODE 02 H		F02M2		1-02 *											314
K2-5 CC CODE 02 H				1									4-7/8		314
K2-5 LOAD IR H		E01D2		1-01 *							1		4-5/8		315
K2-5 LOAD IR H		F02P2		1-02 *											315
K2-5 LOAD IR H				1									4-5/8		315
K2-5 ROT CBIT(1) H		F01R1		1-01 *							1		1-1/8		316
K2-5 ROT CBIT(1) H		F02K1		1-02 *											316
K2-5 ROT CBIT(1) H				1									1-1/8		316

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K2-5 SERIAL SHIFT H		E01F2		1-01	*						1		4-1/8		317
K2-5 SERIAL SHIFT H		F02N1		1-02	*										317
K2-5 SERIAL SHIFT H				1									4-1/8		317
K2-6 DISAB LOAD PSW H		D01C1		1-01	*						1		7-7/8		318
K2-6 DISAB LOAD PSW H		F02S2		1-02	*										318
K2-6 DISAB LOAD PSW H				1									7-7/8		318
K2-7 LOAD CC L		F01N1		1-01	*						1		1-4/8		319
K2-7 LOAD CC L		F02F2		1-02	*										319
K2-7 LOAD CC L				1									1-4/8		319
K2-7 LOAD PSW L		E02N2		1-01	*						1		3-1/8		320
K2-7 LOAD PSW L		F01J2		1-02	*										320
K2-7 LOAD PSW L				1									3-1/8		320
K2-8 ALU CIN L		C02R2		1-01	*						1		7-7/8		321
K2-8 ALU CIN L		F01E2		1-02	*										321
K2-8 ALU CIN L				1									7-7/8		321
K2-8 ALU MODE H		C02K2		1-01	*						1		8-7/8		322
K2-8 ALU MODE H		F01J1		1-02	*										322
K2-8 ALU MODE H				1									8-7/8		322
K2-8 ALU S0 H		C02V2		1-01	*						1		7-1/8		323
K2-8 ALU S0 H		F01B1		1-02	*										323
K2-8 ALU S0 H				1									7-1/8		323
K2-8 ALU S1 H		D02D1		1-01	*					1			3-7/8		324
K2-8 ALU S1 H		E01H1		1-02	*										324
K2-8 ALU S1 H				1									3-7/8		324
K2-8 ALU S2 H		E01F1		1-01	*					1			0-6/8		325
K2-8 ALU S2 H		E02H1		1-02	*										325
K2-8 ALU S2 H				1									0-6/8		325
K2-8 ALU S3 H		E01R2		1-01	*					1			1-7/8		326
K2-8 ALU S3 H		E02F2		1-02	*										326
K2-8 ALU S3 H				1									1-7/8		326
K2-8 AUX CONTROL(1) L		D01D1		1-01	*					1			4-5/8		327
K2-8 AUX CONTROL(1) L		E02R1		1-02	*										327
K2-8 AUX CONTROL(1) L				1									4-5/8		327
K2-8 BLEG 00 H		C02V1		1-01	*					1			7-1/8		328
K2-8 BLEG 00 H		F01C1		1-02	*										328
K2-8 BLEG 00 H				1									7-1/8		328
K2-8 BLEG 01 H		D02N1		1-01	*					1			5-7/8		329
K2-8 BLEG 01 H		F01M2		1-02	*										329
K2-8 BLEG 01 H				1									5-7/8		329
K2-8 BMODE 00 L		D02E1		1-01	*					1			6-3/8		330
K2-8 BMODE 00 L		F01L2		1-02	*										330
K2-8 BMODE 00 L				1									6-3/8		330

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
K2-8 BMODE 01 L		C02U2		1-01 *							1		8-7/8		331
K2-8 BMODE 01 L		F01U2		1-02 *											331
K2-8 BMODE 01 L				1									8-7/8		331
K2-8 BXMODE 00 L		E01S1		1-01 *							1		1-3/8		332
K2-8 BXMODE 00 L		E02R2		1-02 *											332
K2-8 BXMODE 00 L				1									1-3/8		332
K2-8 BXMODE 01 L		E02S2		1-01 *							1		3-1/8		333
K2-8 BXMODE 01 L		F01L1		1-02 *											333
K2-8 BXMODE 01 L				1									3-1/8		333
K2-8 DIS UPR BTWRT H		E01P1		1-01 *							1		3-7/8		334
K2-8 DIS UPR BTWRT H		F02R1		1-02 *											334
K2-8 DIS UPR BTWRT H				1									3-7/8		334
K2-8 DISABLE MSYN+1 L		C02S2		1-01 *							1		5-7/8		335
K2-8 DISABLE MSYN+1 L		E01M1		1-02 *											335
K2-8 DISABLE MSYN+1 L				1									5-7/8		335
K2-8 ENAB MAINT(1) H		F01S2		1-01 *							1		1		336
K2-8 ENAB MAINT(1) H		F02U2		1-02 *											336
K2-8 ENAB MAINT(1) H				1									1-0/8		336
K2-8 ENAB OVX L		E01N1		1-01 *							1		1-1/8		337
K2-8 ENAB OVX L		E02J1		1-02 *											337
K2-8 ENAB OVX L				1									1-1/8		337
K2-8 LOAD BA(1) H		F01D1		1-01 *						1			0-7/8		338
K2-8 LOAD BA(1) H		F02D1		1-02 *											338
K2-8 LOAD BA(1) H				1									0-7/8		338
K2-8 LONG CYCLE(1) L		E02V2		1-01 *						1			3-7/8		339
K2-8 LONG CYCLE(1) L		F01V1		1-02 *											339
K2-8 LONG CYCLE(1) L				1									3-7/8		339
K2-8 MODE 01 H		E02P1		1-01 *						1			3-1/8		340
K2-8 MODE 01 H		F01N2		1-02 *											340
K2-8 MODE 01 H				1									3-1/8		340
K2-8 SEX H		C02L2		1-01 *						1			6-1/8		341
K2-8 SEX H		E01J1		1-02 *											341
K2-8 SEX H				1									6-1/8		341
K2-8 SHIFT MUX 00 L		F01K2		1-01 *						1			0-4/8		342
K2-8 SHIFT MUX 00 L		F02M1		1-02 *											342
K2-8 SHIFT MUX 00 L				1									0-4/8		342
K2-8 SHIFT MUX 01 L		F01U1		1-01 *						1			1-1/8		343
K2-8 SHIFT MUX 01 L		F02P1		1-02 *											343
K2-8 SHIFT MUX 01 L				1									1-1/8		343
K2-8 SWAP H		C02P2		1-01 *						1			6-3/8		344
K2-8 SWAP H		E01S2		1-02 *											344
K2-8 SWAP H				1									6-3/8		344

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG EXCEPTIONS	RUN NUMBER
K2-9 AMUX S0(1) L		F01D2		1-01 *							1		2-3/8	345
K2-9 AMUX S0(1) L		F02V1		1-02 *										345
K2-9 AMUX S0(1) L				1									2-3/8	345
K2-9 AMUX S1(1) L		F01H1		1-01 *							1		1-6/8	346
K2-9 AMUX S1(1) L		F02R2		1-02 *										346
K2-9 AMUX S1(1) L				1									1-6/8	346
K2-9 FORC KERNEL(1) H		C01L1		1-01 *							1		5-7/8	347
K2-9 FORC KERNEL(1) H		E02K1		1-02 *										347
K2-9 FORC KERNEL(1) H				1									5-7/8	347
K2-9 PREV MODE(1) L		C01B2		1-01 *							1		2-7/8	348
K2-9 PREV MODE(1) L		D02J2		1-02 *										348
K2-9 PREV MODE(1) L				1									2-7/8	348
LTC		C03D1		1-01 *	P						2		0-7/8	349
LTC		C04D1		1-02 *	P						1		0-7/8	349
LTC		C05D1		1-03 *	P						2		0-7/8	349
LTC		C06D1		1-04 *	P						1		0-7/8	349
LTC		C07D1		1-05 *	P						2		0-7/8	349
LTC		C08D1		1-06 *	P						1		0-7/8	349
LTC		C09D1		1-07 *	P									349
LTC				1									5-2/8	349
MSYN L (1)		B01V1		1-01 *							2		0-7/8	350
MSYN L (1)		B02V1		1-02 *							1		0-7/8	350
MSYN L (1)		B03V1		1-03 *							2		0-7/8	350
MSYN L (1)		B04V1		1-04 *	H						1	TWP	7-1/8	350
MSYN L (1)		E03E1		1-05 *	P						2		0-7/8	350
MSYN L (1)		E04E1		1-06 *							1		0-7/8	350
MSYN L (1)		E05E1		1-07 *	P						2		0-7/8	350
MSYN L (1)		E06E1		1-08 *	P						1		0-7/8	350
MSYN L (1)		E07E1		1-09 *	P						2		0-7/8	350
MSYN L (1)		E08E1		1-10 *	P									350
MSYN L (1)				1									14-1/8	350
MSYN L (2)		E09E1		1-01 *	H						1	TWP	8-3/8	351
MSYN L (2)		B05V1		1-02 *							2		0-7/8	351
MSYN L (2)		B06V1		1-03 *							1		0-7/8	351
MSYN L (2)		B07V1		1-04 *							2		0-7/8	351
MSYN L (2)		B08V1		1-05 *							1		0-7/8	351
MSYN L (2)		B09V1		1-06 *										351
MSYN L (2)				1									11-7/8	351
MSYN L JMP		E08E1		1-01 *	P						1		0-7/8	352
MSYN L JMP		E09E1		1-02 *										352
MSYN L JMP				1									0-7/8	352

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
NPG L		A01U1		1-01 *							1		3-5/8		353
NPG L		C01A1		1-02 *							2		0-2/8		353
NPG L		C01B1		1-03 *	P						2		0-5/8		353
NPG L		C02A1		1-04 *							1		0-2/8		353
NPG L		C02B1		1-05 *	P						2		0-5/8		353
NPG L		C03A1		1-06 *							1		0-2/8		353
NPG L		C03B1		1-07 *	P						2		0-5/8		353
NPG L		C04A1		1-08 *							1		0-2/8		353
NPG L		C04B1		1-09 *	P						2		0-5/8		353
NPG L		C05A1		1-10 *							1		0-2/8		353
NPG L		C05B1		1-11 *	P						2		0-5/8		353
NPG L		C06A1		1-12 *							1		0-2/8		353
NPG L		C06B1		1-13 *	P						2		0-5/8		353
NPG L		C07A1		1-14 *							1		0-2/8		353
NPG L		C07B1		1-15 *	P						2		0-5/8		353
NPG L		C08A1		1-16 *							1		0-2/8		353
NPG L		C08B1		1-17 *	P						2		0-5/8		353
NPG L		C09A1		1-18 *							1		0-2/8		353
NPG L		C09B1		1-19 *							2		3-7/8		353
NPG L		A09U1		1-20 *											353
NPG L				1									14-6/8		353
NPR L		A01S2		1-01 *							2		0-7/8		354
NPR L		A02S2		1-02 *							1		0-7/8		354
NPR L		A03S2	A04S2	1-03 *							2		0-7/8		354
NPR L		A04S2		1-04 *	H						1	TWPR	13-3/8		354
NPR L		F03J1		1-05 *	P						2		0-7/8		354
NPR L		F04J1		1-06 *	P						1		0-7/8		354
NPR L		F05J1		1-07 *	P						2		0-7/8		354
NPR L		F06J1		1-08 *	P						1		0-7/8		354
NPR L		F07J1		1-09 *	P						2		0-7/8		354
NPR L		F08J1	F09J1	1-10 *	P						1		0-7/8		354
NPR L		F09J1		1-11 *	H						2	TWPR	14-5/8		354
NPR L		A05S2		1-12 *							1		0-7/8		354
NPR L		A06S2		1-13 *							2		0-7/8		354
NPR L		A07S2		1-14 *							1		0-7/8		354
NPR L		A08S2		1-15 *							2		0-7/8		354
NPR L		A09S2		1-16 *											354
NPR L				1									39-3/8		354

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
PA L		A01M1		1-01 *	P						1		0-7/8		355
PA L		A02M1		1-02 *	P						2		0-7/8		355
PA L		A03M1		1-03 *	P						1		0-7/8		355
PA L		A04M1		1-04 *							2		5-1/8		355
PA L		C03C1		1-05 *							1		0-7/8		355
PA L		C04C1		1-06 *							2		0-7/8		355
PA L		C05C1		1-07 *							1		0-7/8		355
PA L		C06C1		1-08 *							2		0-7/8		355
PA L		C07C1		1-09 *							1		0-7/8		355
PA L		C08C1		1-10 *							2		0-7/8		355
PA L		C09C1		1-11 *							1		6-5/8		355
PA L		A05M1		1-12 *	P						2		0-7/8		355
PA L		A06M1		1-13 *	P						1		0-7/8		355
PA L		A07M1		1-14 *	P						2		0-7/8		355
PA L		A08M1		1-15 *	P						1		0-7/8		355
PA L		A09M1		1-16 *	P										355
PA L				1									23-1/8		355
PAR DET		B02E2		1-01 *							2		0-7/8		356
PAR DET		B03E2		1-02 *							1		0-7/8		356
PAR DET		B04E2		1-03 *							2		0-7/8		356
PAR DET		B05E2		1-04 *							1		0-7/8		356
PAR DET		B06E2		1-05 *							2		0-7/8		356
PAR DET		B07E2		1-06 *							1		0-7/8		356
PAR DET		B08E2		1-07 *											356
PAR DET				1									5-2/8		356
PAR P0		A02P1		1-01 *	P						2		0-7/8		357
PAR P0		A03P1		1-02 *	P						1		0-7/8		357
PAR P0		A04P1		1-03 *	P						2		0-7/8		357
PAR P0		A05P1		1-04 *	P						1		0-7/8		357
PAR P0		A06P1		1-05 *	P						2		0-7/8		357
PAR P0		A07P1		1-06 *	P						1		0-7/8		357
PAR P0		A08P1		1-07 *	P										357
PAR P0				1									5-2/8		357
PAR P1		A02N1		1-01 *	P						2		0-7/8		358
PAR P1		A03N1		1-02 *	P						1		0-7/8		358
PAR P1		A04N1		1-03 *	P						2		0-7/8		358
PAR P1		A05N1		1-04 *	P						1		0-7/8		358
PAR P1		A06N1		1-05 *	P						2		0-7/8		358
PAR P1		A07N1		1-06 *	P						1		0-7/8		358
PAR P1		A08N1		1-07 *	P										358
PAR P1				1									5-2/8		358

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
PB L		A01N2		1-01 *	P						2		0-7/8		359
PB L		A02N2		1-02 *	P						1		0-7/8		359
PB L		A03N2		1-03 *	P						2		0-7/8		359
PB L		A04N2		1-04 *							1		6-7/8		359
PB L		C03S1		1-05 *	P						2		0-7/8		359
PB L		C04S1		1-06 *	P						1		0-7/8		359
PB L		C05S1		1-07 *	P						2		0-7/8		359
PB L		C06S1		1-08 *	P						1		0-7/8		359
PB L		C07S1		1-09 *	P						2		0-7/8		359
PB L		C08S1		1-10 *	P						1		0-7/8		359
PB L		C09S1		1-11 *							2		7-5/8		359
PB L		A05N2		1-12 *	P						1		0-7/8		359
PB L		A06N2		1-13 *	P						2		0-7/8		359
PB L		A07N2		1-14 *	P						1		0-7/8		359
PB L		A08N2		1-15 *							2		0-7/8		359
PB L		A09N2		1-16 *											359
PB L				1									25-7/8		359
RESERVED M BUS		C01E1		1-01 *							1		3-7/8		360
RESERVED M BUS		B02A1		1-02 *	P						2		0-7/8		360
RESERVED M BUS		B03A1		1-03 *	P						1		0-7/8		360
RESERVED M BUS		B04A1		1-04 *	P						2		0-7/8		360
RESERVED M BUS		B05A1		1-05 *	P						1		0-7/8		360
RESERVED M BUS		B06A1		1-06 *	P						2		0-7/8		360
RESERVED M BUS		B07A1		1-07 *	P						1		0-7/8		360
RESERVED M BUS		B08A1		1-08 *	P										360
RESERVED M BUS				1									9-1/8		360
SACK L		A01R2		1-01 *	P						2		0-7/8		361
SACK L		A02R2		1-02 *	P						1		0-7/8		361
SACK L		A03R2		1-03 *	P						2		0-7/8		361
SACK L		A04R2		1-04 *							1		14-3/8		361
SACK L		F03T2		1-05 *	P						2		0-7/8		361
SACK L		F04T2		1-06 *	H						1	2" TWP	0-7/8		361
SACK L		F05T2		1-07 *	P						2		0-7/8		361
SACK L		F06T2		1-08 *	P						1		0-7/8		361
SACK L		F07T2		1-09 *	P						2		0-7/8		361
SACK L		F08T2		1-10 *	P						1		0-7/8		361
SACK L		F09T2		1-11 *							2		15-7/8		361
SACK L		A05R2		1-12 *	P						1		0-7/8		361
SACK L		A06R2		1-13 *	P						2		0-7/8		361
SACK L		A07R2		1-14 *	P						1		0-7/8		361
SACK L		A08R2		1-15 *	P						2		0-7/8		361
SACK L		A09R2		1-16 *	P										361
SACK L				1									41-5/8		361
SSYN L (1)		B01U1		1-01 *	P						1		0-7/8		362
SSYN L (1)		B02U1		1-02 *	P						2		0-7/8		362
SSYN L (1)		B03U1		1-03 *	P						1		0-7/8		362
SSYN L (1)		B04U1		1-04 *	H						2	TWP	7-3/8		362
SSYN L (1)		E03J1		1-05 *	P						1		0-7/8		362
SSYN L (1)		E04J1		1-06 *							2		2-5/8		362
SSYN L (1)		F04C1		1-07 *	P						2		0-7/8		362
SSYN L (1)		F03C1		1-08 *	P										362
SSYN L (1)				1									14-3/8		362

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW OPT	RV	RG	Y	X	Z	REMARKS	NC LENGTH FLAG	EXCEPTIONS	RUN NUMBER
SSYN L (2)		B09U1		1-01 *	P						1		0-7/8		363
SSYN L (2)		B08U1		1-02 *	P						1		0-7/8		363
SSYN L (2)		B07U1		1-03 *	P						2		0-7/8		363
SSYN L (2)		B06U1		1-04 *	P						1		0-7/8		363
SSYN L (2)		B05U1		1-05 *	H						2	TWP	9-1/8		363
SSYN L (2)		E09J1		1-06 *	P						1		0-7/8		363
SSYN L (2)		E08J1		1-07 *	P						2		0-7/8		363
SSYN L (2)		E07J1		1-08 *	P						1		0-7/8		363
SSYN L (2)		E06J1		1-09 *	P						2		0-7/8		363
SSYN L (2)		E05J1		1-10 *							1		2-5/8		363
SSYN L (2)		F05C1		1-11 *	P						1		0-7/8		363
SSYN L (2)		F06C1		1-12 *	P						2		0-7/8		363
SSYN L (2)		F07C1		1-13 *	P						1		0-7/8		363
SSYN L (2)		F08C1		1-14 *	P						2		0-7/8		363
SSYN L (2)		F09C1		1-15 *	P										363
SSYN L (2)				1									22-2/8		363
SSYN L JMP		F05C1		1-01 *	H						1	2° TWP	0-7/8		364
SSYN L JMP		F04C1		1-02 *											364
SSYN L JMP				1									0-7/8		364

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Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ18

REVISIONS		
DATE	CHG. NO.	REV.
APR-76	BA11-L-4	A
OCT-76	BA11L-6	B
MAR-77	BA11L-8	C
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JUL-77	BA11L-11	E
DEC-77	BA11L-14	F

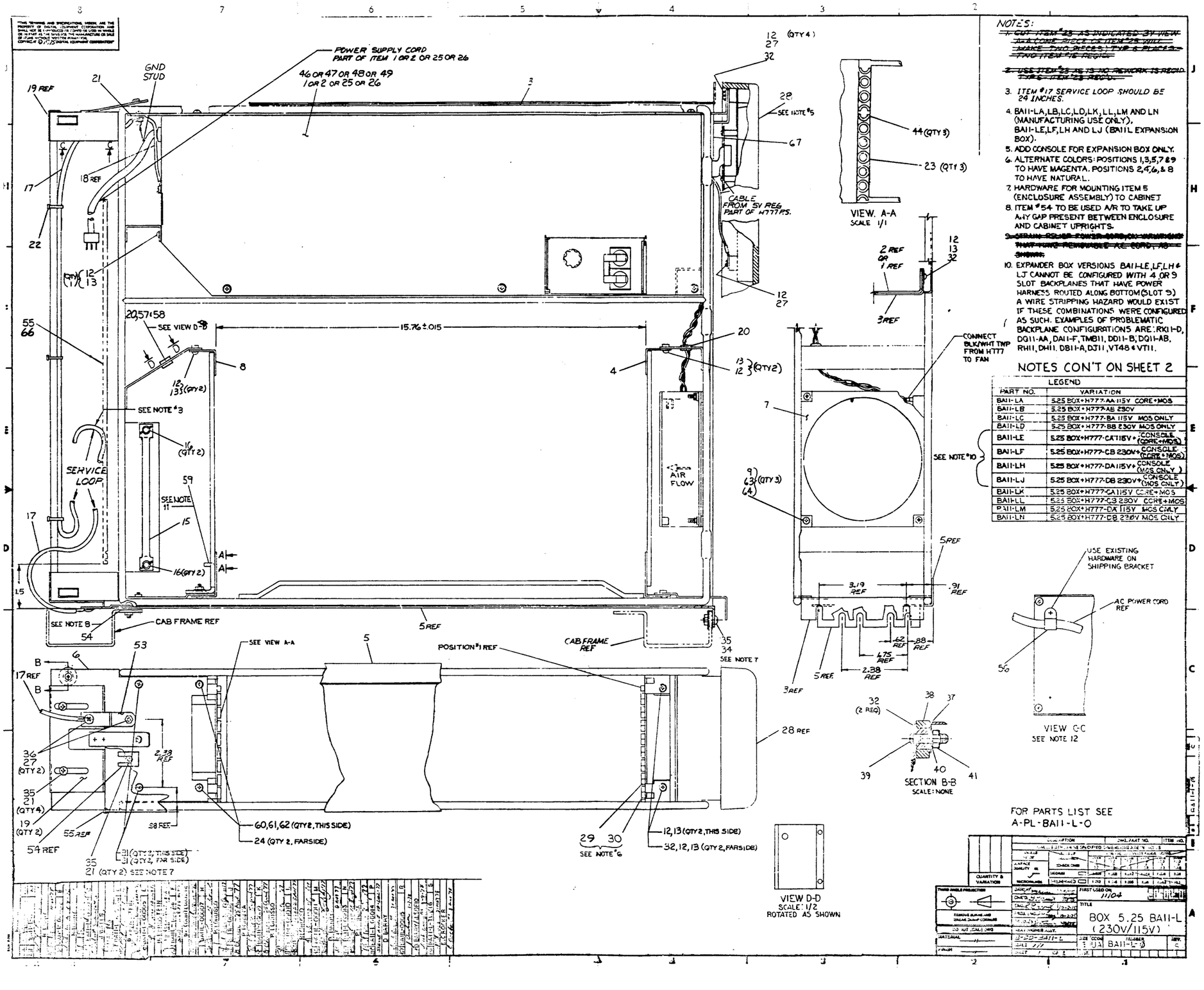
USED ON OPTION/MODEL	
11/Ø4	
11/34	

SHEET 1 OF 1

DRN. D. HEALY	DATE 9/30/75	digital
CHK'D D. HEALY	DATE 9/30/75	TITLE: FIELD MAINTENANCE PRINT SET BA11-L
PROJ. ENG. R.Barry	DATE 10-22-75	SIZE B / CODE TC / NUMBER BA11-L-1 / REV F
FIELD SERV.	DATE 10-22-75	DIST.

EK-0117A-TC-NS-(127)

DRB 124



NOTES:

~~1. CUT ITEM #25 AS INDICATED BY VIEW. DISCARD ONE PIECE OF ITEM 25 AND MARK THE OTHER PIECE TYPE A. PLACE A TYPE A ITEM #25 IN REVIEW.~~

~~2. USE ITEM #25 AS IS. NO REWORK IS REQUIRED. THIS ITEM #25 IS TYPE A.~~

3. ITEM #17 SERVICE LOOP SHOULD BE 24 INCHES.
4. BA11-LA, LB, LC, LD, LK, LL, LM AND LN (MANUFACTURING USE ONLY), BA11-LE, LF, LH AND LJ (BA11L EXPANSION BOX).
5. ADD CONSOLE FOR EXPANSION BOX ONLY.
6. ALTERNATE COLORS: POSITIONS 1, 3, 5, 7 & 9 TO HAVE MAGENTA. POSITIONS 2, 4, 6, & 8 TO HAVE NATURAL.
7. HARDWARE FOR MOUNTING ITEM 5 (ENCLOSURE ASSEMBLY) TO CABINET
8. ITEM #54 TO BE USED A/R TO TAKE UP ANY GAP PRESENT BETWEEN ENCLOSURE AND CABINET UPRIGHTS.

~~9. CERAIN RS-11B POWER CORDS (W/ WHICH) THAT HAVE REMOVABLE AC CORD, AS SHOWN.~~

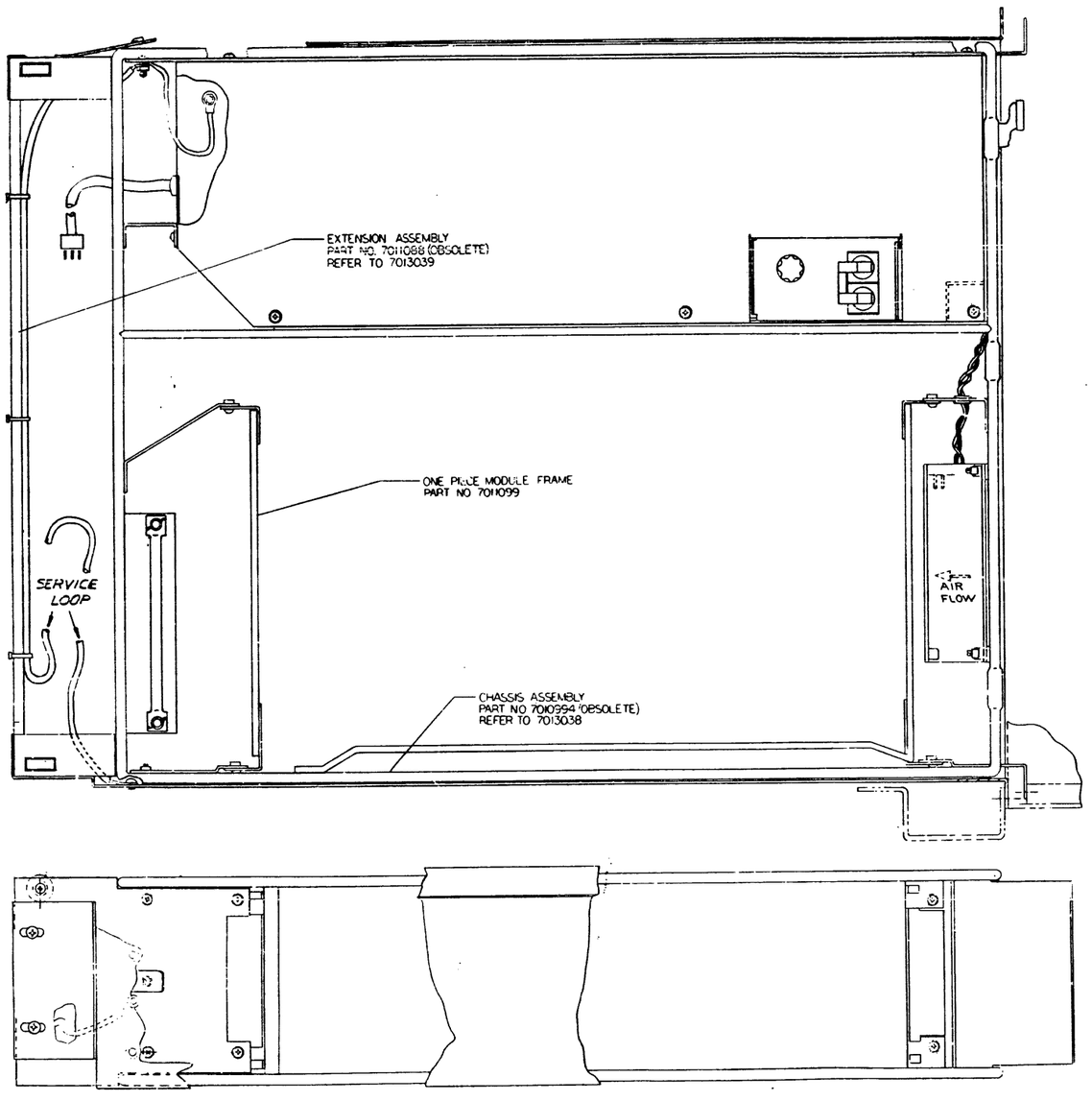
10. EXPANDER BOX VERSIONS BA11-LE, LF, LH & LJ CANNOT BE CONFIGURED WITH 4 OR 9 SLOT BACKPLANES THAT HAVE POWER HARNESS ROUTED ALONG BOTTOM (SLOT 9) A WIRE STRIPPING HAZARD WOULD EXIST IF THESE COMBINATIONS WERE CONFIGURED AS SUCH. EXAMPLES OF PROBLEMATIC BACKPLANE CONFIGURATIONS ARE: RK11-D, DQ11-AA, DA11-F, TM811, DD11-B, DQ11-AB, RH11, DH11, DB11-A, DJ11, VT48 & VT11.

NOTES CON'T ON SHEET 2

LEGEND	
PART NO.	VARIATION
BA11-LA	5.25 BOX + H777-AA 115V CORE + MOS
BA11-LB	5.25 BOX + H777-AB 230V
BA11-LC	5.25 BOX + H777-BA 115V MOS ONLY
BA11-LD	5.25 BOX + H777-BB 230V MOS ONLY
BA11-LE	5.25 BOX + H777-CA 115V + CONSOLE (CORE + MOS)
BA11-LF	5.25 BOX + H777-CB 230V + CONSOLE (CORE + MOS)
BA11-LH	5.25 BOX + H777-DA 115V + CONSOLE (MOS ONLY)
BA11-LJ	5.25 BOX + H777-DB 230V + CONSOLE (MOS ONLY)
BA11-LK	5.25 BOX + H777-CA 115V CORE + MOS
BA11-LL	5.25 BOX + H777-CB 230V CORE + MOS
BA11-LM	5.25 BOX + H777-DA 115V MOS ONLY
BA11-LN	5.25 BOX + H777-DB 230V MOS ONLY

FOR PARTS LIST SEE A-PL-BA11-L-0

FIRST USED ON	11104
TITLE	BOX 5.25 BA11-L (230V/115V)
SIZE	D
CODE	10A
DWG NO.	BA11-L-0
REV.	C



THIS VIEW IS FOR REF ONLY AND COINTAINS INFORMATION PERTINENT TO ASSEMBLY REVISIONS - THRU E

NOTES: (CON'T FROM SHEET 1)

11. ITEM NUMBER 59 IS A STIFFENING BRACKET AND MAY BE LEFT IN OR REMOVED AT FINAL DESTINATION AT USERS OPTION. IF LEFT IN IT WILL NOT INHIBIT ANY USER FUNCTIONS. IT IS TO BE PLACED OVER THE THREADED INSERTS IN FRAME BRACKET 7413853 AS SHOWN AND FASTENED BY MEANS OF AN OVER SIZED WASHER AND KEPNUT.
12. ITEM #56 AND THE AC POWER CORD ARE TO BE SHIPPED LOOSE FROM, AND INSTALLED AT SITE LOCATION.
13. ITEM #68 NOT SHOWN, IT IS USED IN SHIPPING ONLY.

DRAWN	C. MARINI	9-3-75	FIRST LEAD ON 11104
CHK'D	D. HEALY	9 30 75	
ENG			TITLE
PROJ. ENG.			BOX 5.25 BA11-L (230V/115V)
PROD			
NEXT HIGHER ASSY.			
3-DD-BA11-L			SIZE E CODE UA NUMBER BA11-L-Ø REV. S
SCALE 1/1			
SHEET 2 OF 2			DIST.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. MARINI	CHECKED D. HEALY	SECTION	
DATE 3-SEP-75	DATE 30-SEP-75		
ENG R. BARRY	PROD R.K. PETERSON	ISSUED SECT.	
DATE 2-OCT-75	DATE 2-OCT-75		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION BA11-LA	BA11-LB	BA11-LC	BA11-LD	BA11-LE	BA11-LF	BA11-LH	BA11-LJ	BA11-LK	BA11-LL	BA11-LM	BA11-LN
1	E-UA-H777-DA-0	POWER SUPPLY H777(115V)	-	-	-	-	-	-	1	-	-	-	1	-
2	E-UA-H777-DB-0	POWER SUPPLY H777(230V)	-	-	-	-	-	-	-	1	-	-	-	1
3	E-IA-7013038-0-0	CHASSIS ASSY	1	1	1	1	1	1	1	1	1	1	1	1
4	C-IA-7012653-0-0	MODULE FRAME, RIGHT SIDE	1	1	1	1	1	1	1	1	1	1	1	1
5	D-AD-7011132-0-0	ENCLOSURE ASSY	1	1	1	1	1	1	1	1	1	1	1	1
6	D-IA-7013039-0-0	EXTENSION CHASSIS ASSY	1	1	1	1	1	1	1	1	1	1	1	1
7	1213013-0-0	FAN (115V) 50/60HZ	1	1	1	1	1	1	1	1	1	1	1	1
8	C-IA-7012846-0-0	MODULE FRAME, LEFT SIDE	1	1	1	1	1	1	1	1	1	1	1	1
9	9006026-2	SCR, PHL FLAT HD 6-32 .75L	3	3	3	3	3	3	3	3	3	3	3	3
~~10~~	~~9006639~~	~~WASHER INT. TOOTH LOCK #6~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~
~~11~~	~~9009169~~	~~CBLT-SRC #6-32~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~
12	9006037-3	SCR PHL HD TRUSS #8-32 x .38L	11	11	11	11	15	15	15	10	10	10	10	
13	9006634	WASHER INT TOOTH LOCK #8	10	10	10	10	10	10	10	10	10	10	10	10
~~14~~	~~9006038-1~~	~~SCR, PHL HD PAN #6-32 x .25~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
15	B-MD-7413846-0-0	BAR, CABLE STRAIN REL	1	1	1	1	1	1	1	1	1	1	1	1
16	9009711	NUT,WING #6-32	2	2	2	2	2	2	2	2	2	2	2	2
17	C-IA-7011412-03-0	CABLE, CHASSIS GND	1	1	1	1	1	1	1	1	1	1	1	1
18	C-IA-7011412-0F-0	CABLE CHASSIS GND	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
19	C-MD-7414963-0-0	BRKT, SHIPPING & CAB MT	2	2	2	2	2	2	2	2	2	2	2	2
20	9007015	GROMMET .31 ID x .62 O.D.	2	2	2	2	2	2	2	2	2	2	2	2
21	9006565	NUT, KEPS #10-32	7	7	7	7	7	7	7	7	7	7	7	7
22	9007031	TIE WRAP	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
BOX 5.25 BA11-L (230V/115V)	E-UA-BA11-L-Ø	A	PL	BA11-L-Ø	S	
	SHEET 1 OF 4	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. MARINI	CHECKED D. HEALY	SECTION	
DATE 3-SEP-75	DATE 30-SEP-75		
ENG R. BARRY	PROD R.K. PETERSON	ISSUED SECT.	
DATE 2-OCT-75	DATE 2-OCT-75		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION BA11-LA	BA11-LB	BA11-LC	BA11-LD	BA11-LE	BA11-LF	BA11-LH	BA11-LJ	BA11-LK	BA11-LL	BA11-LM	BA11-LN
44	C-MD-7418077	CARD GUIDE. CENTER	3	3	3	3	3	3	3	3	3	3	3	3
~~45~~	~~1200403-01~~	~~FAN (115V) 50/60 HZ~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
46	E-UA-H777-BA-0	POWER SUPPLY H777 (115V)	-	-	1	-	-	-	-	-	-	-	-	-
47	E-UA-H777-BB-0	POWER SUPPLY H777 (230V)	-	-	-	1	-	-	-	-	-	-	-	-
48	E-UA-H777-AA-0	POWER SUPPLY H777 (115V)	1	-	-	-	-	-	-	-	-	-	-	-
49	E-UA-H777-AB-0	POWER SUPPLY H777 (230V)	-	1	-	-	-	-	-	-	-	-	-	-
~~50~~	~~B-IA-7010984-0-0~~	~~CHASSIS ASSY~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
~~51~~	~~B-IA-7011985-0-0~~	~~CABLE ASSY~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
~~52~~	~~B-IA-7011988-0-0~~	~~CHASSIS REAR EXTENSION~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~
53	B-IA-7418258	STRAP, GROUND	1	1	1	1	1	1	1	1	1	1	1	1
54	B-MD-7418259	SPACER. ENCLOSURE	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
55	9007035	GROMMET CATERPILLAR	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
56	9007083	CLAMP,CABLE	-	-	-	-	1	1	1	1	1	1	1	1
57	A-PS-3613211-01	DECAL, CSA	1	1	1	1	1	1	1	1	1	1	1	1
58	A-DC-7416197-01	DECAL, UL/NFPA	1	1	1	1	1	1	1	1	1	1	1	1
59	C-MD-7419019-0-0	BRACKET,MODULE FRAME STIFFENING	1	1	1	1	1	1	1	1	1	1	1	1
60	9006668	WASHER,FLAT	2	2	2	2	2	2	2	2	2	2	2	2
61	9006040-03	SCR,PHL TRUSS HD #8-32 X .625	2	2	2	2	2	2	2	2	2	2	2	2
62	9006563-00	NUT,KEP #8-32	2	2	2	2	2	2	2	2	2	2	2	2
63	9006560-00	NUT,KEP # 6-32	3	3	3	3	3	3	3	3	3	3	3	3
64	9006653	WASHER,FLAT	3	3	3	3	3	3	3	3	3	3	3	3
65	D-UA-BC11A-10-0	UNIBUS CABLE 10 FT	-	-	-	-	1	1	1	1	-	-	-	-

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
BOX 5.25 BA11-L (230V/115V)	E-UA-BA11-L-Ø	A	PL	BA11-L-Ø	S	
	SHEET 3 OF 4	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. MARINI	CHECKED D. HEALY	SECTION	
DATE 3-SEP-75	DATE 30-SEP-75		
ENG R. BARRY	PROD R.K. PETERSON	ISSUED SECT.	
DATE 2-OCT-75	DATE 2-OCT-75		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION BA11-LA	BA11-LB	BA11-LC	BA11-LD	BA11-LE	BA11-LF	BA11-LH	BA11-LJ	BA11-LK	BA11-LL	BA11-LM	BA11-LN
23	1211630-0	CENTER CARD GUIDE	3	3	3	3	3	3	3	3	3	3	3	3
24	9009836-0	SCREW PHL TRUSS HD #8-32 x .25L LOCKING	2	2	2	2	2	2	2	2	2	2	2	2
25	E-UA-H777-CA-0	POWER SUPPLY H777 (115V)	-	-	-	-	1	-	-	-	1	-	-	-
26	E-UA-H777-CB-0	POWER SUPPLY H777(230V)	-	-	-	-	-	1	-	-	-	1	-	-
27	9008072	WASHER, EXT. TOOTH #8	3	3	3	3	7	7	7	3	3	3	3	
28	D-AD-7012540-0-0	CONSOLE ASSY	-	-	-	-	1	1	1	1	-	-	-	-
29	1212405-4	CARD GUIDE, SINGLE	4	4	4	4	4	4	4	4	4	4	4	4
30	1212405-5	CARD GUIDE, SINGLE	5	5	5	5	5	5	5	5	5	5	5	5
31	9009836-1	SCR.,PHL.HD. TRUSS #8-32 x .38 (LOCKING)	4	4	4	4	4	4	4	4	4	4	4	4
32	9006666	WASHER, FLAT #8	7	7	7	7	11	11	11	11	7	7	7	7
~~33~~	~~9003884~~	~~WASHER, FLAT #10~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~
34	9007736	NUT-10-32 SELF RETAINING	4	4	4	4	4	4	4	4	4	4	4	4
35	9006071-03	SCR.,PHL. TRUSS HD. #10-32 x .38	10	10	10	10	10	10	10	10	10	10	10	10
36	9006035-3	SCR.,PHL. TRUSS HD. #8-32 x .25	2	2	2	2	2	2	2	2	2	2	2	2
37	B-MD-7417606	SLEEVE, ROLLER	2	2	2	2	2	2	2	2	2	2	2	2
38	B-MD-7417607	ROLLER	2	2	2	2	2	2	2	2	2	2	2	2
39	9009483-03	SCR.,PHL. TRUSS HD. #8-32 x .75	2	2	2	2	2	2	2	2	2	2	2	2
40	9006690	WASHER, SPLIT LOCK #8	2	2	2	2	2	2	2	2	2	2	2	2
41	9006551	NUT, HEX #8-32	2	2	2	2	2	2	2	2	2	2	2	2
42	3700061	CUST. SHIPPING PKG.	-	-	-	-	1	1	1	1	-	-	-	-
43	3700133	EMPLAMP PACKAGING	-	-	-	-	1	1	1	1	-	-	-	-
~~44~~	~~[illegible]~~	~~[illegible]~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
BOX 5.25 BA11-L (230V/115V)	E-UA-BA11-L-Ø	A	PL	BA11-L-Ø	S	
	SHEET 2 OF 4	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY G. MARINI	CHECKED D. HEALY	SECTION	
DATE 3-SEP-75	DATE 30-SEP-75		
ENG R. BARRY	PROD R.K. PETERSON	ISSUED SECT.	
DATE 2-OCT-75	DATE 2-OCT-75		

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION BA11-LA	BA11-LB	BA11-LC	BA11-LD	BA11-LE	BA11-LF	BA11-LH	BA11-LJ	BA11-LK	BA11-LL	BA11-LM	BA11-LN
66	9009157	PERMA BOND 101	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
67	1212707	AIR FILTER BA11-L	-	-	-	-	1	1	1	-	-	-	-	-
68	9007032	TIE,CABLE,SST2 M	2	2	2	2	2	2	2	2	2	2	2	2

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
BOX 5.25 BA11-L (230V/115V)	E-UA-BA11-L-Ø	A	PL	BA11-L-Ø	S	
	SHEET 4 OF 4	DIST.				

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

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
H777-BA (MOS ONLY)
H777-BB (MOS ONLY)
H777-AA (CORE/MOS)
H777-AB (CORE/MOS)

H777-0 VOL.1

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MP00016

REVISIONS			
DATE	CHG. NO.	REV.	
JAN-77	H777-2	D	REVISED & REDRAWN

USED ON OPTION/MODEL	
BA11-LA	
BA11-LB	
BA11-LC	
BA11-LD	
BA11-LE	
BA11-LF	
BA11-LH	
BA11-LJ	

SHEET 1 OF 1

DRN.	D. HEALY	DATE 9/30/75
CHK'D	D. HEALY	DATE 9/30/75
PROJ. ENG.	R. BARRY	DATE 10/22/75
FIELD SERV.		DATE

digital

TITLE: FIELD MAINTENANCE SET H777-0

SIZE	CODE	NUMBER	REV.
B	TC	H777-0-1	D

DIST.

EN-01124-16-N675(327)

DRB 124

CB-1

LINE LOAD

DETAIL-A
WIRING SIDE OF CKT BREAKER PART OF ITEM #10

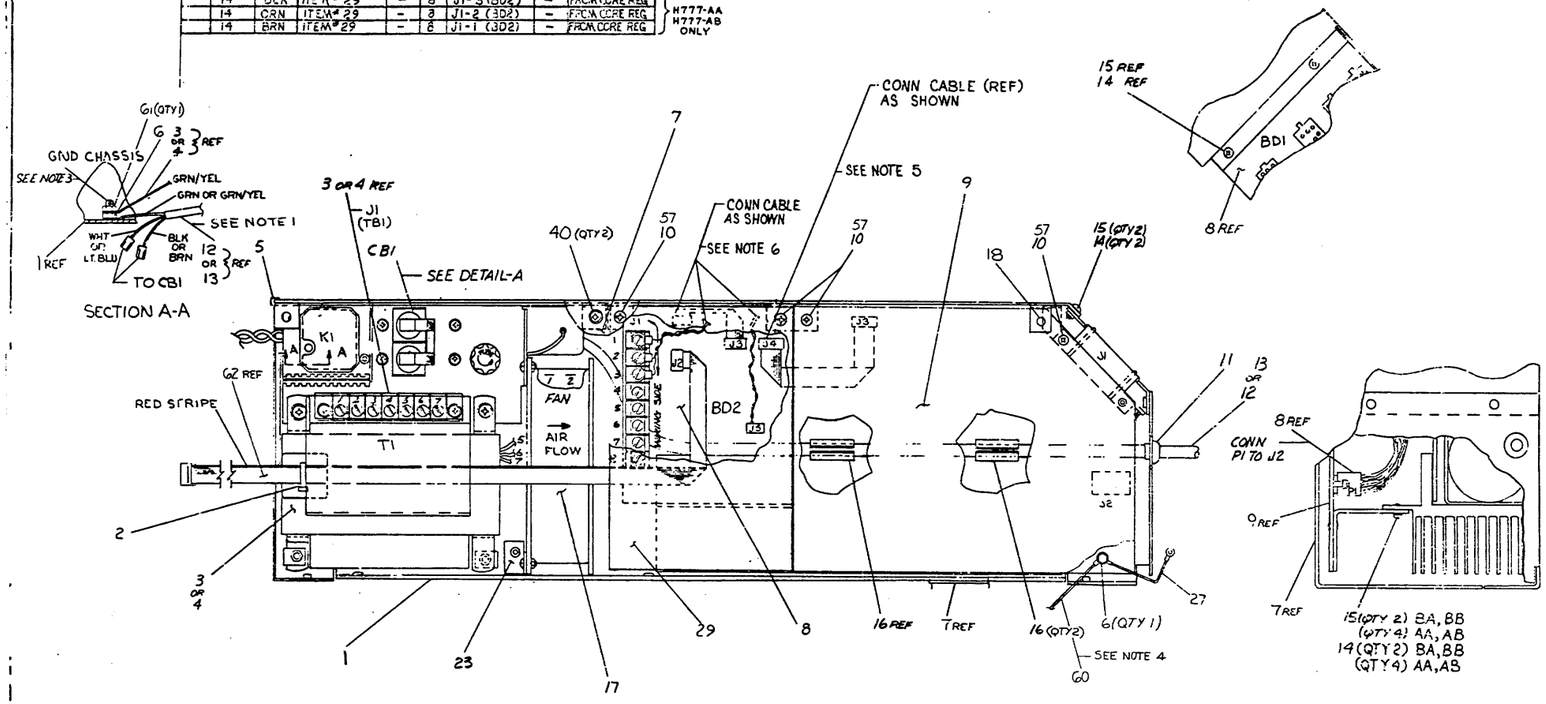
WIRE TABLE

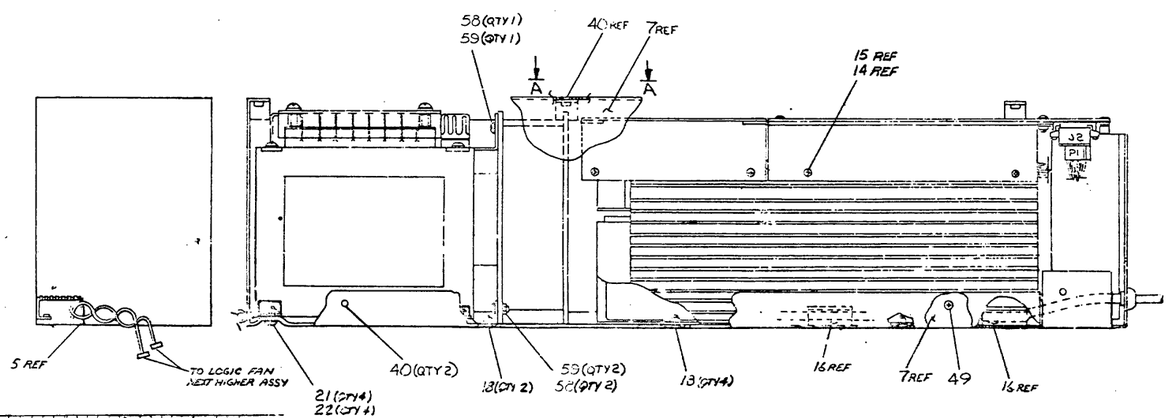
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO ITEM	CONNECTION	WITH	REMARKS
12 OR 13	14	BLK	—	—	3OR4	CB1-K1 LINE	—	
	14	WHT	—	—	3OR4	CB: -2(+) LINE	—	
	14	GRN	—	—	1	GND CHASSIS	6	
4 OR 5	14 TWPL	BLU/BLK	T1-5	—	8	J1- 7 (BD2)	—	
		BLU	T1-6	—	8	J1- 6 (BD2)	—	
		BLU	T1-7	—	8	J1- 8 (BD2)	—	
3 OR 4	18 TWP	GRY	—	—	8	J1- 4 (BD1)	—	
		BLK	—	—	8	J1- 5 (BD1)	—	
3 OR 4	18 TWP	WHT	—	—	4	FAN-1	—	
		BLK	—	—	4	FAN-2	—	
3OR4	14	GRN/YEL	EMI-3 (REF)	—	8	GND CHASSIS	6	
60	14	GRN/YEL	GND CHASSIS	6				CONSOLE GND
27	14	GRN/YEL	GND CHASSIS	6				CHASSIS GND
	14	BLK	ITEM # 29	—	8	J1-3 (3D2)	—	FROM CORE REG } H777-AA H777-AB ONLY
	14	GRN	ITEM # 29	—	8	J1-2 (3D2)	—	FROM CORE REG
	14	BRN	ITEM # 29	—	8	J1-1 (3D2)	—	FROM CORE REG

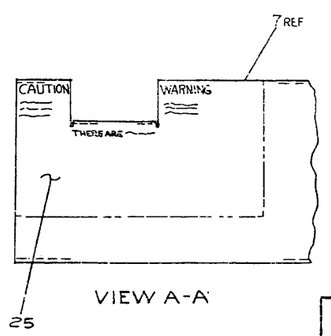
LEGEND

PART NO	VARIATION
H777-JA	P.S. ONLY 115V
H777-JB	P.S. MOS ONLY 230V
H777-AA	P.S. CORE/MOS 115V
H777-AB	P.S. CORE/MOS 230V

NOTES:
1. MAKE STUCK SERVICE LOOP AT HOOK UP END.
2. APPLY SELF STICK INS SHEET (ITEM 2A, TO UNDER SIDE OF POWER SUPPLY COVER IN AREA OF HEAT SINKS (CORE & MOS REGS).
3. APPLY SELF STICK ITEM 2G BESIDE THIS GND STUD.
4. ITEM 60 IS A GND CABLE TO GND THE FRONT PANEL CASTINGS FOR MOS AND CORE REGULATORS.
5. CABLE PART OF ITEM #9.
6. CABLE & WIRES ARE PART OF ITEM # 29.







VIEW A-A

CAUTION:
UNIT ASSEMBLY FOR OPTIONS AA, AB, BA AND BB ONLY

SEE SHEET 2 FOR OPTIONS CA, CB, DA, AND DB

SEE APL-H777-0 FOR PARTS LIST

TITLE	POWER SUPPLY ASSY (H777)
SIZE	D
NUMBER	H777-0-0
SCALE	NONE
SHEET	1 OF 2

105

WIRE CHART

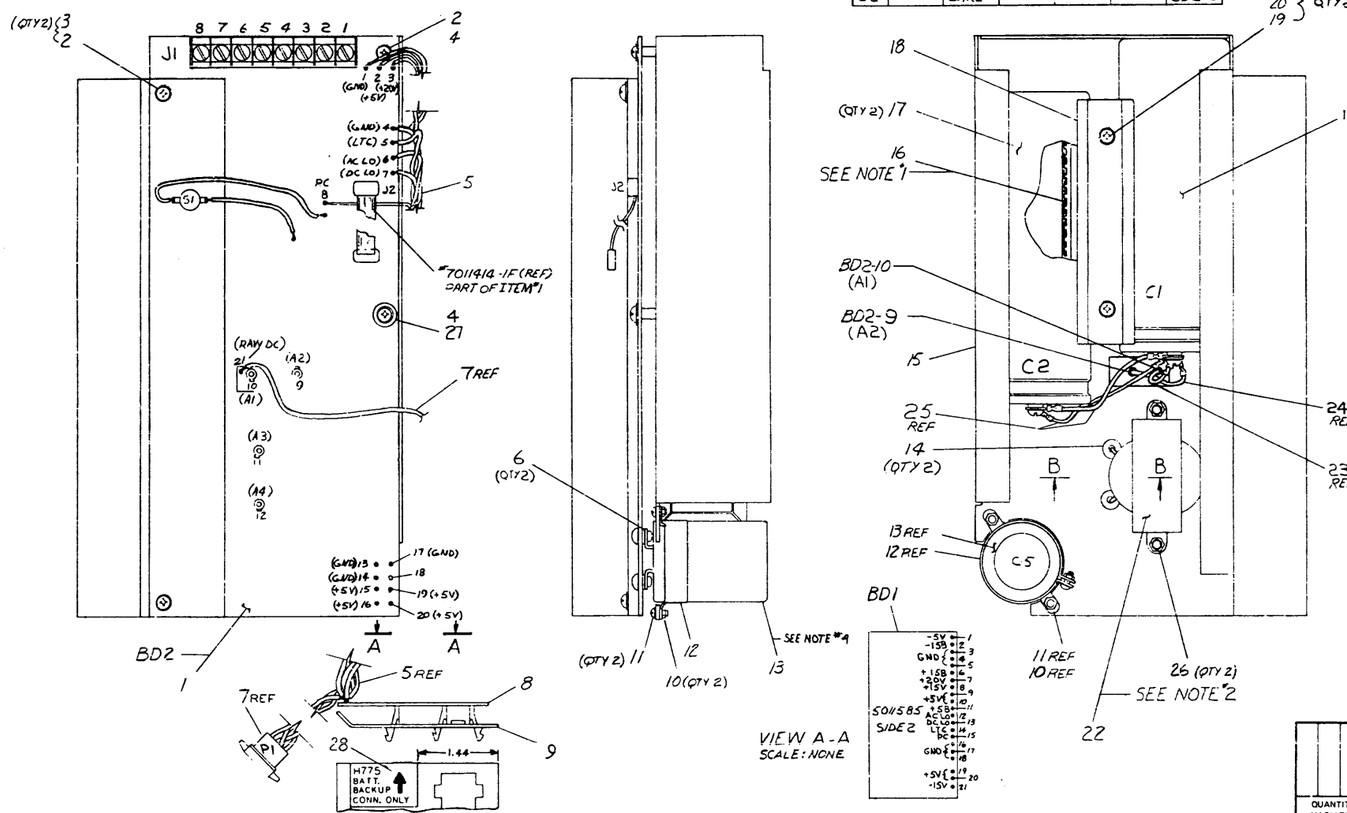
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
5	20	WHT	1	BD2-8	18	BD1-15
	14	BRN	2	2	9	1
	14	BLK	3	1	12	5
	14	ORN	4	3	13	7
	20	BRN	5	5	19	14
	20	BLK	6	4	20	16
	20	YEL	7	6	16	12
	20	VIO	8	7	17	13
	14	BLK	30	BD2-17	10	BD1-3

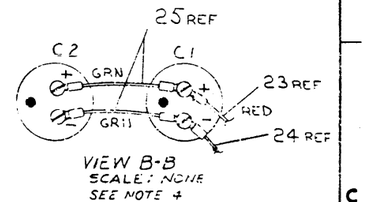
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
5	14	BLK	28	BD2-13	11	BD1-4
		RED	29	15	14	9
		RED	26	19	15	10
		BLK	25	14	21	17
		RED	24	16	22	19
	14	RED	27	BD2-20	23	BD1-20
7	18	BLU	1	BD1-21	* 11	—
	14	BLK	2	BD1-18	* 8	—
	18	RED	3	BD1-11	* 14	—

ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
7	18	GRY	4	BD1-8	* 3	—
	18	WHT	5	BD1-6	* 10	—
	14	RED	6	BD2-21	* 13	—
	18	GRN	7	BD1-2	12	—
25	14	GRN	—	C1(+)	—	C2(+)
25	14	GRN	—	C1(-)	—	C2(-)
23	14	RED	—	BD2-10	—	C1(+)
24	14	BLK	—	BD2-9	—	C1(-)
22	—	BARE	—	—	—	BD2-11
22	—	BARE	—	—	—	BD2-12

NOTES:

1. USE ITEM #16 (GROMMET) TO COVER RAW METAL EDGES UNDER CAPACITORS.
2. LEADS FROM ITEMS #22, 23 & 24 ARE TO BE CUT FLUSH WITH TOP OF CLAMPS ON ITEM #1. A1, A2, A3 & A4
3. * ASTERISK INDICATES THAT THESE CONN. ALREADY HAVE BEEN MADE ON PLUG P1 ON HARNESS D-IA-7011560-0-0 THEY ARE SHOW FOR REF ONLY.
4. ITEMS #12 & #13 ARE TO HAVE THEIR ELECTRICAL CONNECTIONS TORQUED TO 12 IN-LBS (-0, +10) IN-LBS





VIEW B-B
SCALE: NONE
SEE NOTE 4

1	DECAL	A-DC-74-6911-0-0	28
1	WASHER NYLON #6	9006707	27
2	NUT KEPS #8-32	9006563	26
2	JUMPER (GRN)	B-IA-7011800-0-0	25
1	JUMPER (BLK)	B-IA-7011802-0-0	24
1	JUMPER (RED)	B-IA-7011801-0-0	23
1	CHOKE	16/2584	22
2	SPACER HEX #8-32 x 1.38L	9008258	21
2	WASHER INT TOOTH LOCK #9	9006534	20
2	SCR PHIL HD PAN #8-32 x .50L	9006037-1	19
1	CLAMP CAPACITOR	C-MD-74-4021-0-0	18
2	CAPACITOR .22 MFD 50V	10:0702	17
A/R	GROMMET CATERPILLAR	9007035	16
1	BRACKET CAPACITOR	E-IA-7413743-0-0	15
2	GROMMET RUBBER	9007017	14
1	CAPACITOR 3900 MF / 16.0V (ES)	10:2790	13
1	CLAMP CAPACITOR	9009052	12
2	SCR PHIL PAN HD #6-32 x .25L	9006020-1	11
2	NUT KEPS #6-32	9006185	10
1	BRACKET CONN	D-IA-7413752-0-0	9
1	BOARD, PWR DISTR. H777	D-CS-5911586-0-1	8
1	HARNESS BD NOS REG PWR DIST	D-IA-7011560-0-0	7
2	WASH, .375 O.D. X .167 ID X .036	9006660	6
1	HARNESS H777 +5V REG	D-IA-7011415-0-0	5
2	SCR PHIL HD PAN #6-32 x .31L	9006021-1	4
2	SCR PHIL HD PAN #6-32 x .50L	9006024-1	3
3	WASHER, INT TOOTH LOCK #6	9006633	2
1	H777 + 5V REGULATOR	D-CS-5911597-0-1	1

DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES 10' 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 1	OVER 1 TO 3	OVER 3 TO 6	OVER 6 TO 12	OVER 12 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	± .004	± .008	± .012	± .016	± .024	± .04
	PREFERRED	± .012	± .016	± .025	± .04	± .063	± .1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL —

FINISH —

DRN R. Barry 9/25/75
CHK'D R. Brady 9/25/75
ENG. R. Barry 9/25/75
PROJ. ENG. [illegible] 9/25/75
PROD. [illegible]
NEXT HIGHER ASSY. D-IA-H777-0-0
SCALE —
SHEET 1 OF 1

FIPS* USED ON H777

digital

TITLE +5V REG ASSY

SIZE D | CODE AD | NUMBER 7011073-0-0 | REV. C

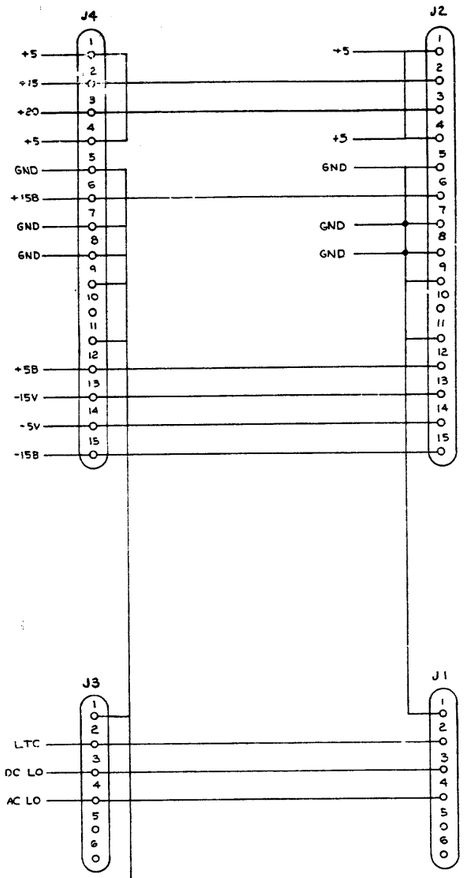
DIST.

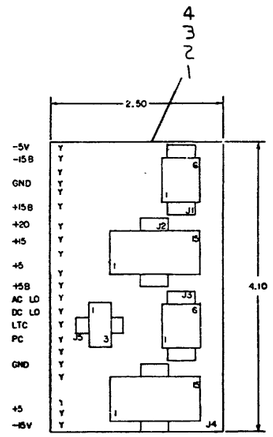
REVISIONS CHK	CHANGE NO.	REV.
[illegible]	7011073-00001	A
R. BARRY 11-25-75	7011073-00002	B
B. COURTEMANCHE 2-9-76	H777-00002	C
B. COURTEMANCHE 2-24-77		

DEC FORM NO.

106

NOTES:





REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411586-0-4	1
REF		ASSY DRILLING HOLE LAYOUT	D-AH-5411586-0-5	2
REF		MODULE ECO HISTORY	B-MH-5411586-0-6	3
1		ETCHED CIRCUIT BOARD	5011585	4
2	J2,J4	CONN., MATE-N-LOCK, 15 PIN HOUSING	1209350-15	5
2	J1,J3	CONN., MATE-N-LOCK, 6 PIN HOUSING	1209350-06	6
45		PIN, CONTACT, MATE-N-LOCK	1209856-01	7
1	J5	CONN., MATE-N-LOCK, 3 PIN HOUSING	1209350-03	8

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO

PARTS LIST

FIRST USED ON OPTION MODEL: 1104 PWR. SUPPLY

ETCH BOARD REV: D

REV	CHANGE NO	DEC NO.	EIA NO.	DEC NO.	EIA NO.

REVISIONS

SEMICONDUCTOR CONVERSION CHART

DRN B Elliott DATE 7/10/75
CHKD [illegible] DATE 7-29-75
ENGR [illegible] DATE 7-7-75
DSGN [illegible] DATE 7-7-75
PROJ [illegible] DATE

NEXT HIGHER ASSY

SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: BOARD, POWER DISTRIBUTION H777

SIZE	CODE	NUMBER	REV.
D	CS	5411586-0-1	C

DIST.

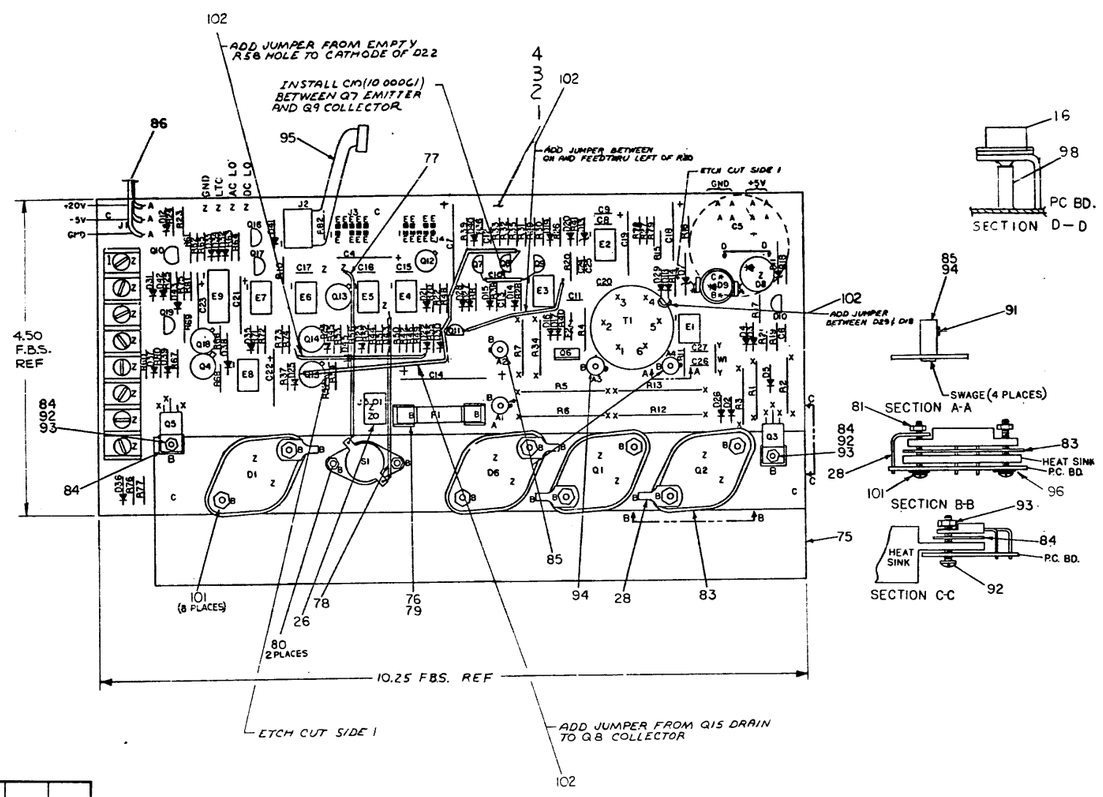
DCS 5411583-0-1

107

NOTES:

1. HARDWARE ON D1,Q1,Q2,D6,S1,C5 MUST BE TORQUED TO 12 IN-LBS (-0,+1)

1	C19	CAPACITOR, 1.5mf, 50V, POLYCARB	1010031-08	12	REF
1	D1	DIODE	1112723-01	23	REF
8	C6,C9,C11,C20, C24-C27	CAPACITOR, .01mf, 50V	1001610-00	9	REF
QTY	REF DESIGNATION	SUBSTITUTION LIST DESCRIPTION	PART NO.	ITEM NO.	



		X-Y COORDINATE HOLE LOCATION	K-CO-5411597-0-4	REF	1
		ASSY/DRILLING HOLE LAYOUT	D-AH-5411597-0-5	REF	2
		MODULE ECO HISTORY	B-MH-5411597-0-B	REF	3
		ETCHED CIRCUIT BOARD	5011598	1	4
1	C12	CAPACITOR, 100pf, 100V, 5% DM	1000018	1	5
1	C13	CAPACITOR, 470pf, 100V, 5% DM	1000024	1	6
1	C14	CAPACITOR, 50mf, 50V, AL.EL	1000080	1	7
8	C6,C9,C11,C20,C24-C27	CAPACITOR, .01mf, 100V DISC	1001610-01	8	8
2	C22,C23	CAPACITOR, 1mf, 35V, 10% TANT	1001776	2	9
3	C15,C16,C17	CAPACITOR, 5pf, 100V, 5% DM	1002425	3	10
					11
1	C19	CAPACITOR, 1.5mf, 35V, 10% TANT	1009725	1	12
2	C4,C18	CAPACITOR, 2.2mf, 20V, 10% TANT	1002627	2	13
2	C7, C21	CAPACITOR, 10mf, 20V, 10% TANT	1004813	2	14
1	D11	DIODE IN752A	1102808	1	15
1	D8	DIODE MR1033B	1103341	1	16
29	D3,D4,D12,D14 THRU D20,D22 THRU D25,D27,D30 THRU D37 D40,D42,D5,D39,D28	DIODE D672	1105275	29	17
3	D21,D41 D29	DIODE IN4004	1105796	3	18
1	D13	DIODE,ZENER,5.1V,5% IZT-5ma	1110713	1	19
1	D6	DIODE,T03	1110715	1	20
1	D10	DIODE 2N5062	1110968	1	21
3	D7,D43,D45	DIODE IN751A	1110994	3	22
1	D1	DIODE,DUAL,T03	1112723-00	1	23
2	D2,D26	DIODE A1148	1112595-01	2	24
1	D38	DIODE,ZENER 13V IN964B	1109988	1	25
1	J5	CONNECTOR 2 PIN MATE-IN-LOC	1211342-2	1	26
1	J1	TERMINAL BOARD 8 STATION	1212484-01	1	27
4		SOLDER LUG	9009676	4	28
18		PINS, STAKING	9009149	18	29
1	F2	FUSE 5A	1209070	1	30
2	R18,R19	RESISTOR, 100, 1 4W, 5%	1300229	2	31
1	R10	RESISTOR, 150, 1 4W, 5%	1300250	1	32
1	R2	RESISTOR, 150, 1W, 5%	1300255	1	33
1	R34	RESISTOR, 220, 1W, 10%	1300277	1	34
2	R78,R81	RESISTOR, 390, 1 4W, 5%	1300309	2	35
2	R29 R16	RESISTOR, 470, 1 4W, 5%	1300316	2	36
7	R82,R28 R38,R50,R69,R52,R54	RESISTOR, 1K, 1 4W, 5%	1300365	7	37
2	R8, R66	RESISTOR, 2 7K, 1 4W, 5%	1300426	2	38
7	R31,R60,R62,P65,R69,R15,R33	RESISTOR, 4.7K, 1 4W, 5%	1300447	7	39
13	R63 R25,R32,R35,R36,R37,R80 R55 THRU R57,R67,R70,R77	RESISTOR, 10K, 1 4W, 5%	1300479	13	40
1	R24	RESISTOR, 12, 1 4W, 5%	1301430	1	41
1	R4	RESISTOR, 47, 1/2W, 5%	1301695	1	42
6	R11,R23 R48,R40,R64,R75	RESISTOR, 270, 1 4W, 5%	1301972	6	43
2	R72,R74	RESISTOR, 150K, 1/4W, 5%	1302396	2	44
2	R26,R61	RESISTOR, 2K, 1 4W, 5%	1302388	2	45
4	R22,R71,R41,R73	RESISTOR, 30K, 1/4W, 5%	1302394	4	46
3	R49,R51,R53	RESISTOR, 56K, 1/4W, 5%	1302395	3	47
1	R27	RESISTOR, 100K, 1/4W, 5%	1302466	1	48
2	R17,R21,	RESISTOR, 30, 1/4W, 5%	1302751	2	49
2	R43,R44	RESISTOR, 1 21K, 1/4W, 1%	1302871	2	50
1	R46	RESISTOR, 1K, 1 4W, 1%	1303114	1	51
2	R33,R14	RESISTOR, 8.2K, 1/4W, 5%	1303179	2	52
1	R45	RESISTOR, 10K, 1 8W, 1%	1303312	1	53
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.	

PARTS LIST

IC 555	1 / 8
IC TYPE	GND / +5V

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

IC PIN LOCATIONS

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

SEMICONDUCTOR CONVERSION CHART

REV.	CHANGE NO.	REVISIONS
J	5411597-00001	
H	5411597-00003	
F	5411597-00002	
E		

FIRST USED ON OPTION MODEL

ETCH BOARD REV. E

DRN. G. Vieira DATE 6-30-75
CHK'D. [illegible] DATE 7-14-75
ENG. [illegible] DATE 7/18/75
PROJ. ENG. J.C. Barry DATE 7/18/75
PROD. [illegible] DATE 7/21/75
NEXT HIGHER ASSY

digital

TITLE H777 +5V REGULATOR

SIZE D | CODE CS | NUMBER 5411597-0-1 | REV. J

SCALE — SHEET 1 OF 4 DIST.

LAST CODE D CS 5411597-0-1 NUMBER J

108

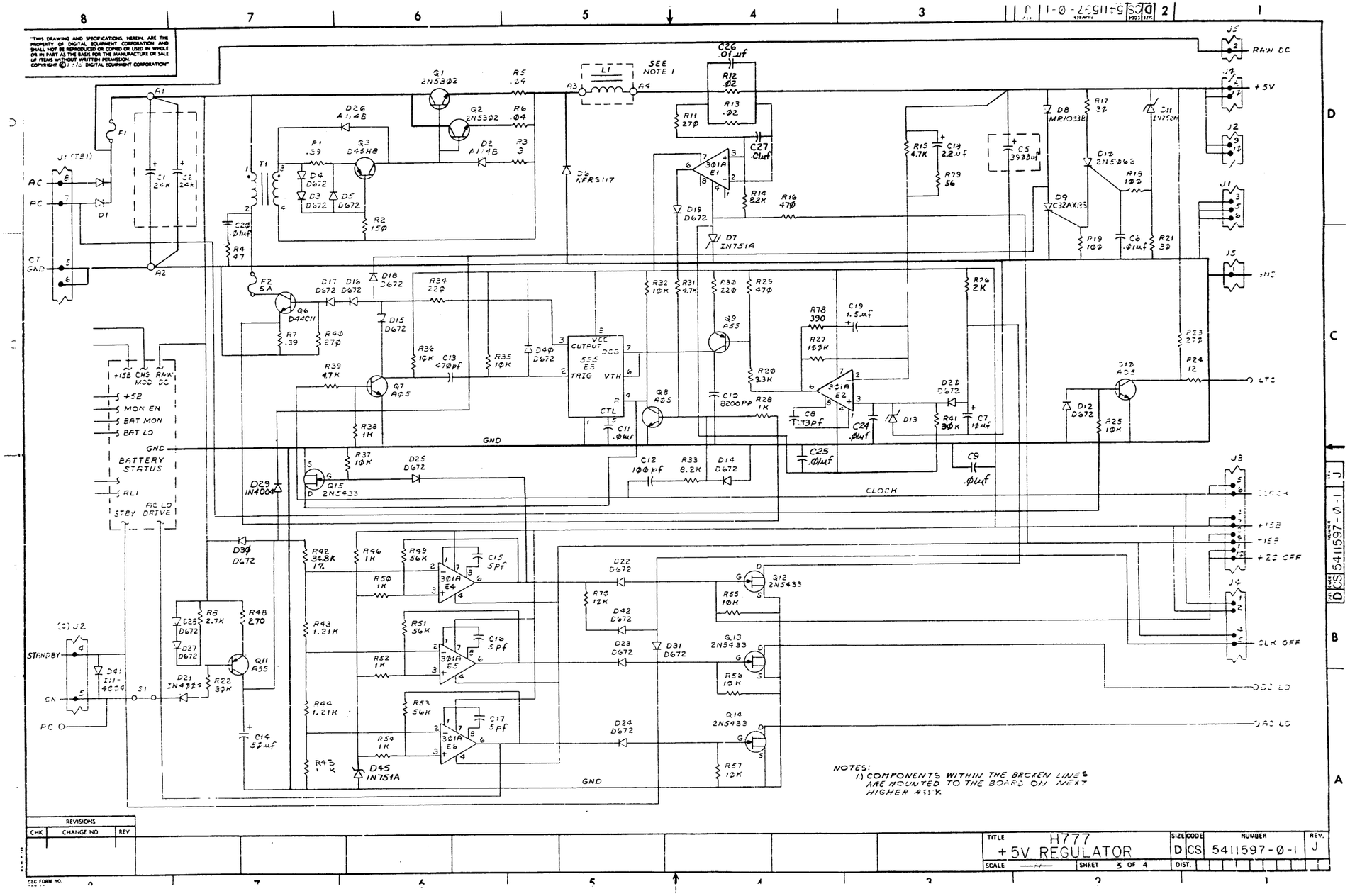
1	R76	RESISTOR, 5.1, 1/4W, 5%	1309422	54
1	R78	RESISTOR, 56, 1/4W, 5%	1302602	55
1	R42	RESISTOR, 34.8K, 1/4W, 1%	1303156	56
2	R1,R7	RESISTOR, .39, 2W, 3%	1318060	57
2	R12,R13	RESISTOR, .02, 5W, 3%	1310078	58
2	R5,R6	RESISTOR, .04, 5W,	1311362	59
1	R3	RESISTOR, 3, 3W, 5%	1312682	60
2	Q1,Q2	TRANSISTOR, 2N5302	1510196	61
3	Q7,Q8,Q10	TRANSISTOR, A05	1510705	62
5	Q9,Q11,Q18,Q17,Q18	TRANSISTOR, A55	1510708	63
2	Q3,Q5	TRANSISTOR, D45H8	1510708	64
5	Q4,Q12 THRU Q15	TRANSISTOR, 2N5433	1511686	65
1	Q19	TRANSISTOR, 2N6028	1510877	66
1	Q6	TRANSISTOR, D44C11	1512790	67
1	D9	TRANSISTOR, C32AX135	1510928	68
1	T1	TRANSFORMER PULSE	1612592	69
1	E8	I.C. DEC 7418	1905578	70
5	E1,E2,E4,E5,E6	I.C. DEC 381A	1910282	71
3	E3,E7,E8	I.C. DEC LM555	1911944	72
1	F1	FUSE 15A, 32V	9007226	73
1	S1	THERMOSTAT (ELMWOOD)	1212787	74
1		HEAT SINK	7414238	75
2		EYELET	9006732	76
3		WIRE, #22 AWG STRANDED (WHITE)	9107350-99	77
3		WIRE, #22 AWG STRANDED (WHITE)	9107350-88	78
2		FUSECLIP	9007203	79
2		SCREW, #4-40 x 7/16 lg PHILLIPS HD	9008012-1	80
10		NUT, KEP #4-40	9006557	81
A/R		COMPOUND, THERMAL	9008268	82
4		INSULATOR, TO3	9008419	83
2		INSULATOR, THERMA-FILM	9009597	84
3	A1,A2,A4	STANDOFF	7414048-0	85
REF		ASSY, HARNESS	7011415-0-0	86
1	W1	WIRE #18 AWG	9009185	87
1	C10	CAPACITOR 8200 PF 100V MYLAR	1000061	88
1	C8	CAPACITOR, 33PF, 100V, 5% D.M.	1000009	89
				90
4		SET SCREW #6-32 X 1/8 LG.	9006290-10	91
2		SCREW NYLON #4-40 X 1/2 LG.	9006402-4	92
2		NUT NYLON #4-40	9007992	93
1	A3	STANDOFF	7414048-1	94
1	J2	CONTROL CABLE (CONSOLE)	7011414-1F	95
8		WASHER, FLAT	9008172	96
~~2~~		~~WIRE, CABLE FOR T1~~	~~9004633~~	~~97~~
1		SPACER, INSULATOR	9007615	98
1	R30	RES 220, 1/4W, 5%	1300271	99
1	R20	RES 3.3K, 1/4W, 5%	1300439	100
8		SCREW, PHL PAN HD 4-40 x 5/8"	9006014-01	101
A/R		JUMPER	9105740-55	102
A/R		WIRE	9107267-09	103

DCS 5411597 REV J

REVISIONS

CHK	CHANGE NO	REV

TITLE: H777+5V REGULATOR	SIZE: D	CODE: CS	NUMBER: 5411597-0-1	REV: J
SCALE:	SHEET 2 OF 4	DIST:		

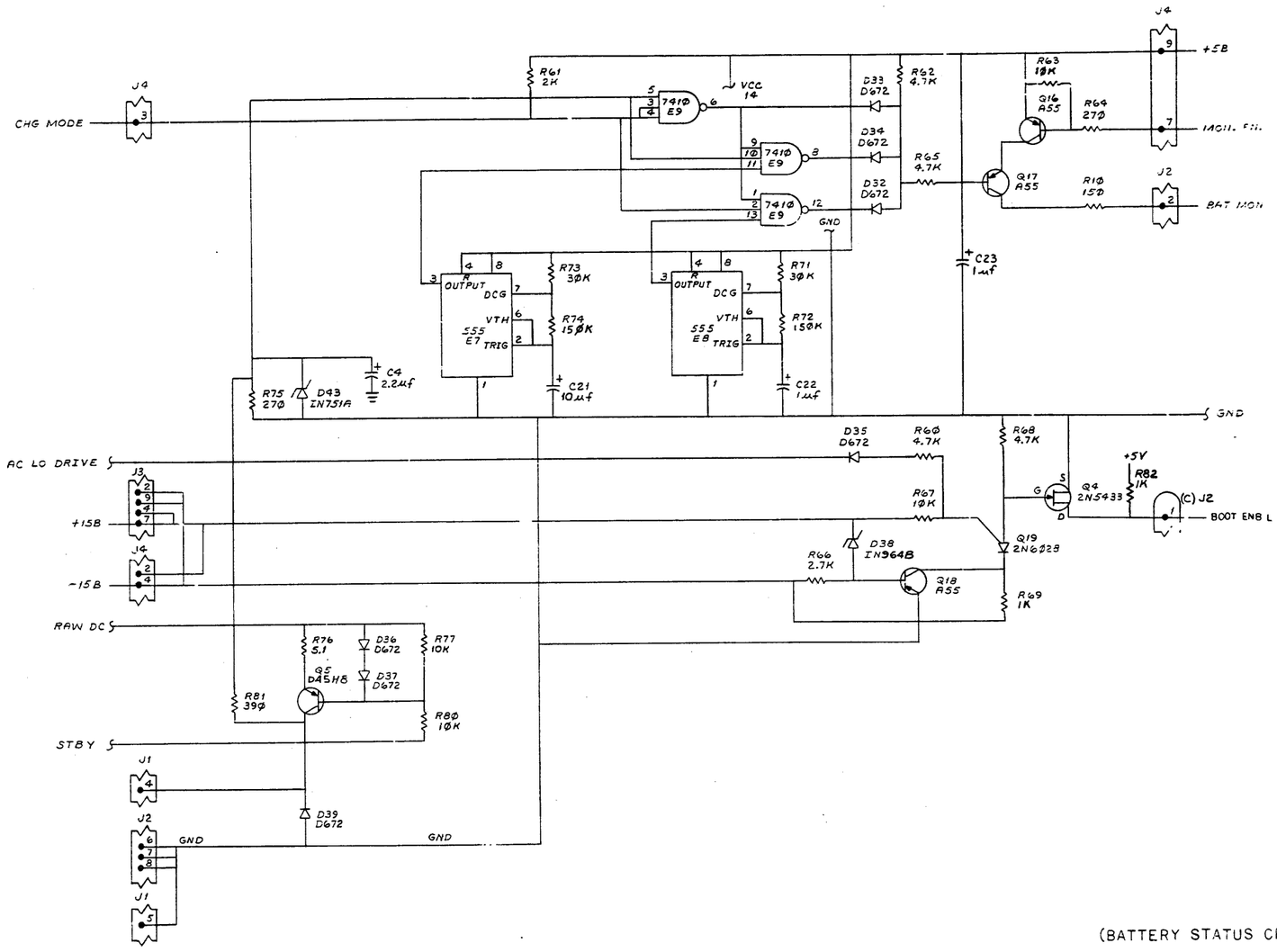


NOTES:
1) COMPONENTS WITHIN THE BROKEN LINES ARE MOUNTED TO THE BOARD ON NEXT HIGHER ASSY.

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
H777 +5V REGULATOR	D	CS	5411597-0-1	J
SCALE — SHEET 3 OF 4	DIST.			

DEC FORM NO.



(BATTERY STATUS CRKT'S)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	H777 +5V REGULATOR	SIZE/CODE	NUMBER / REV.
		D CS	5411597-0-1 J
SCALE	SHEET 4 OF 4	DIST.	

LEGEND	
PART NO	VARIATION
7011075-0	120 V
7011075-1	230 V

WIRE CHART

ITEM NO	AWG	COLOR	FROM CONN	WITH	TO CONN	WITH	REMARKS
22	18	WHT	K1-4	SOLD,31	*TB2-4S	SOLD	5 1/2"L
23	13	BLK	K1-6	↓	*TB2-1S	SOLD	5"L
24	18	BRN	K1-7		TB2-5H	25,93	6 1/2"L
26	18	BLU	K1-9		TB2-6H	25,93	7 1/2"L
SEE NOTE 2 { 27	18	GRY	K1-A		—	25	
	TWP	BLK	K1-B	SOLD,31	—	25	
26	18	BLU	G2	SOLD	*TB2-6S	SOLD	6"L
23	18	BLK	F1-1	SOLD,31	*TB2-1S	SOLD	5"L
SEE NOTE 2 & 2. { 15	18	BLU	EMI-2 LOAD	—	*TB2-4S	SOLD	6"L
	TWP	BRN	EMI-1 LOAD	—	*TB2-6S	SOLD	6"L
22	18	WHT	EMI-2	SOLD,31	CBI-2 LOAD	28,41	5"L
23	18	BLK	EMI-1	SOLD,31	CBI-1 LOAD	28,41	5"L
SEE NOTE 2 SEE DETAIL 'C' { 45	18	WHT	*TB2-5S	SOLD	J2-1	30,32	6 1/2"L
	TWP	BLK	*TB2-2S	SOLD	J2-2	30,32	6 1/2"L
45	18	WHT	*TB2-5S	SOLD	J3-1	30,32	15 1/2"L
	TWP	BLK	*TB2-2S	SOLD	J3-2	30,32	15 1/2"L

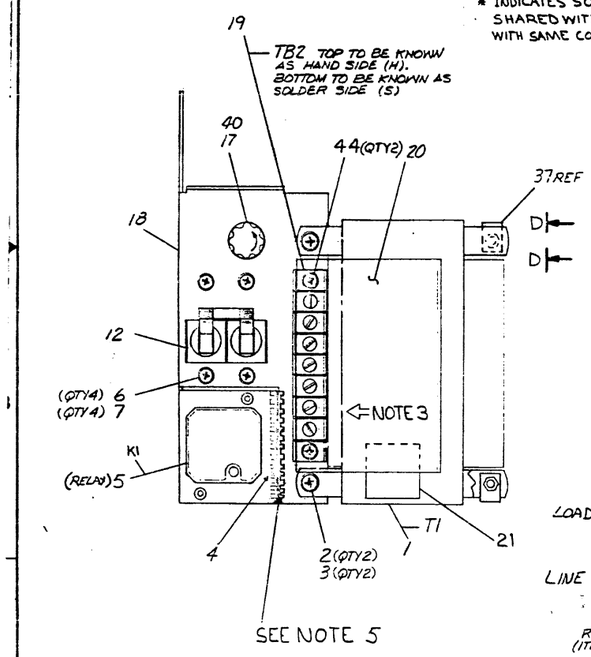
* INDICATES SOLDER CONN. SHARED WITH OTHER CONN. WITH SAME COMMON CONN.

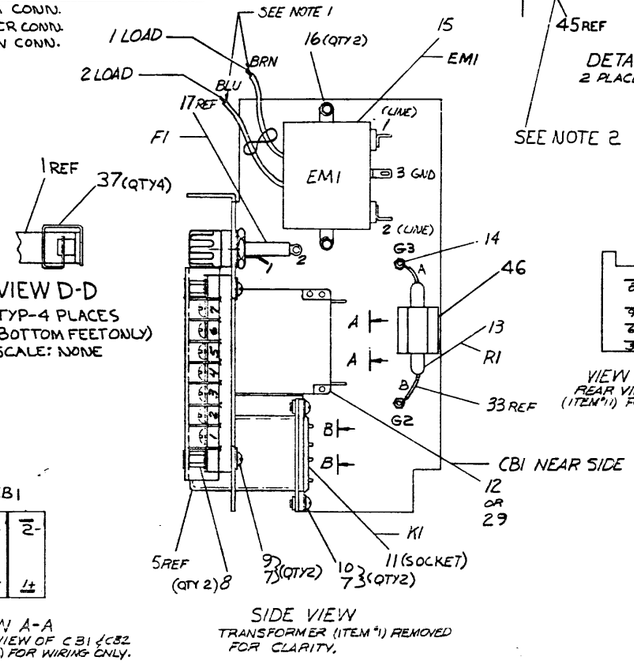
ITEM NO	AWG	COLOR	FROM CONN	WITH	TO CONN	WITH	REMARKS
1	14	BLK	T1	43	TB2-1H	—	——
	THP	BRN/WHT	↓		TB2-3H	—	——
	14	RED	↓		TB2-2H	—	——
	THP	RD/WHT	T1		TB2-4H	—	——
23	18	BLK	G3	SOLD	F1-2	SOLD,31	4"L
34	14	GRN/YEL	EMI-3	SOLD,31	—	42	8"L
35	18	BLK	TB2-1H	—	TB2-2H	—	120V
36	18	WHT	TB2-3H	—	TB2-4H	—	120V
35	18	BLK	TB2-2H	—	TB2-3H	—	230V
13	22	BARE	R1-A	—	G3	SOLD,33	
13	22	BARE	R1-B	—	G2	SOLD,33	

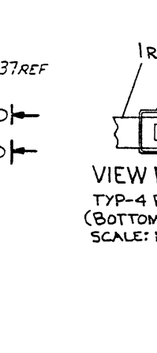
7011075-0	120V
7011075-1	230V

NOTES:

1. SECOND SOURCE FOR ITEM #15 (LINE FILTER) WILL HAVE WHT & BLK LEADS. SUBSTITUTE WHT FOR BLU AND BLK FOR BRN.
2. TWISTED PAIR WIRE TO HAVE A MIN OF 4 TWIST PER INCH AS PER WIRE CHART.
3. ALL CONNECTIONS TO TB2 ARE TO BE MADE FROM SIDE INDICATED BY ARROW.
4. USE TIE WRAPS (ITEM #38) AS NEEDED.
5. T1 PRIMARY WIRES TO TB2 MUST BE ROUTED BY ITEM 4
6. COVER, ITEM #28 WITH ITEM #41 TO COVER EXPOSED PART OF TERMINAL.

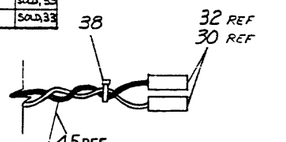




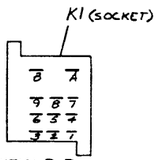


VIEW A-A
REAR VIEW OF CBI & CB2 (ITEM #2) FOR WIRING ONLY.

VIEW D-D
TYP-4 PLACES (BOTTOM FEET ONLY)
SCALE: NONE



DETAIL 'C'
2 PLACES. SEE CHART



VIEW B-B
REAR VIEW OF K1 (SOCKET) (ITEM #1) FOR WIRING ONLY.

SIDE VIEW
TRANSFORMER (ITEM #1) REMOVED FOR CLARITY.

CONT. ON SHEET 2 of 2

–	1	JUMPER ASSY (WHT 2")	B-A-7011798-0-01	36
1	1	JUMPER ASSY (BLK 2")	B-A-7011797-0-0	35
A/R	A/R	WIRE #18 AWG TRACER (BRN/YEL)	9107777-54	34
2/0	A/R	TUBING INS (RED)	9107278-02	33
4	4	HOUSING SOCKET FASTAB	1210820-1	32
A/R	A/R	TUBING SHRINK (RED)	9107305-02	31
4	4	HOUSING TERM. FASTAB	1210820-2	30
1	–	CIRCUIT BREAKER, 5A	1210191-1	29
2	2	CONN FASTON (RED INS)	9007970	28
A/R	A/R	WIRE 18 AWG INS (GRY/BLK)	9107430-08	27
A/R	A/R	WIRE 18 AWG INS (BLU)	9107360-66	26
2	2	RING CRIMP (RED INS)	9007929	25
A/R	A/R	WIRE 18 AWG INS (BRN)	9107360-11	24
A/R	A/R	WIRE 18 AWG INS (BLK)	9107360-00	23
A/R	A/R	WIRE #18 AWG INS (WHT)	9107360-99	22
1	1	MOUNT TIE WRAP	9008264	21
1	1	SHIELD TERM	C-A-7414743-0-0	20
1	1	TERMINAL 7 POS	1212788	19
1	1	BRACKET COMPONENT	D-A-7413769-0-0	18
1	1	HOLDER, FUSE	9007242-0	17
2	2	NUT KEPS #6-32	9009243	16
1	1	FILTER LINE (EMI)	1212748	15
2	2	TERMINAL TURRET INS	9006966	14
1	1	RESISTOR 10Ω, 10W	1300173	13
–	1	CIRCUIT BREAKER, 10A	1210191-0	12
1	1	SOCKET, RELAY	1212789	11
2	2	SCR PHIL HD PAN #6-32X.25	9006021-01	10
2	2	SCR PHIL HD PAN #6-32 X.62	9006026-01	9
2	2	SPACER HEX #6-32 X.19	9006842	8
8	8	WASHER INT TOOTH LOCK #6	9006633	7
4	4	SCR PHIL HD PAN #6-32X.19	9006020-01	6
1	1	RELAY 6&12V 3P 10A	1210683	5
A/R	A/R	GROMMET CATERPILLAR	9007035	4
2	2	WASHER INT TOOTH LOCK #8	9006634	3
2	2	SCR PHIL PAN HD #8-32X.44	9006038-1	2
1	1	TRANSFORMER ASSY	C-A-7011805-0-0	1
		DESCRIPTION	DWG. PART NO.	ITEM NO.

REV.	DESCRIPTION	DATE	APPROVED
A	7011075-00301	27-JAN-75	
B	7011075-00302	17-FEB-75	
C	7011075-00303	12-SEP-75	
	23 NOV 77		

DRAWN	K. BARRY	27-JAN-75
TRACED	K. BARRY	12-9-75
CHK'D	A. BARON	23 NOV 77
ENG. APPROVAL	A. BARON	11-28-77

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES	FRACTIONAL	.X	.XX	.XXX	METRIC
±1°	±1/32	±.2	±.05	±.010	±0.25
SURFACE QUALITY IN MICROINCHES	ALL OF ACCOUNTABLE (CHECK ONE)	0.5	2.5	10	0.8
	MEDIUM	±.004	±.008	±.012	±.016
	PREFERRED	±.012	±.016	±.020	±.024

1/32	0.8	1/16	1.6	1/8	3.2	1/4
1/16	1.6	1/8	3.2	1/4	6.3	1/2
1/8	3.2	1/4	6.3	1/2	12.7	1
1/4	6.3	1/2	12.7	1	25.4	2
1/2	12.7	1	25.4	2	50.8	4
1	25.4	2	50.8	4	101.6	8
2	50.8	4	101.6	8	203.2	16
4	101.6	8	203.2	16	406.4	32
8	203.2	16	406.4	32	812.8	64
16	406.4	32	812.8	64	1625.6	128
32	812.8	64	1625.6	128	3251.2	256
64	1625.6	128	3251.2	256	6502.4	512
128	3251.2	256	6502.4	512	13004.8	1024
256	6502.4	512	13004.8	1024	26009.6	2048
512	13004.8	1024	26009.6	2048	52019.2	4096
1024	26009.6	2048	52019.2	4096	104038.4	8192

QUANTITY & VARIATION: 7011075-1 / 7011075-0

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL —

FINISH —

DRAWN	
CHK'D	
ENG. APPROVAL	7-JAN-75
PROJ. ENG.	7-JAN-75
PROD. A	7-JAN-75
NEXT HIGHER ASSY.	
D-IA-H777-0-0	
SCALE	///
SHEET 1 OF 2	

FIRST USED ON H777

digital

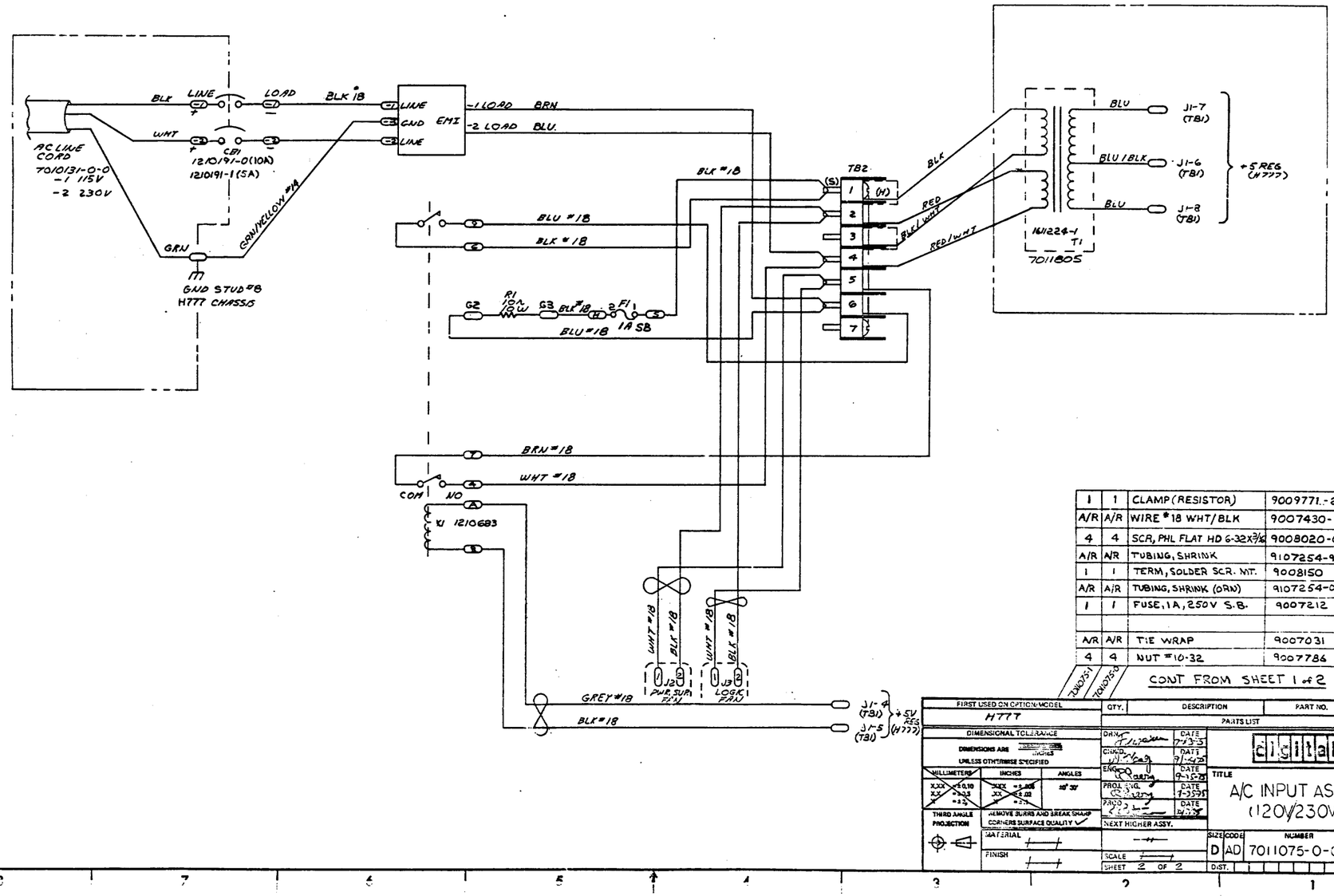
TITLE: A/C INPUT ASSY (120V/230V)

SIZE	CODE	NUMBER	REV.
D	AD	7011075-0-0	C

DIST.

DEC FORM NO.

112



1	1	CLAMP (RESISTOR)	9009771-2	46
A/R	A/R	WIRE #18 WHT/BLK	9007430-09	45
4	4	SCR, PHL FLAT HD 6-32X3/8	9008020-02	44
A/R	A/R	TUBING, SHRINK	9107254-9	43
1	1	TERM, SOLDER SCR. MT.	9008150	42
A/R	A/R	TUBING, SHRINK (ORN)	9107254-02	41
1	1	FUSE, 1A, 250V S.B.	9007212	40
A/R	A/R	TIE WRAP	9007031	38
4	4	NUT #10-32	9007786	37

70/10751 70/10752

CONT FROM SHEET 1 of 2

REVISIONS		
ECO	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL: H777

DIMENSIONAL TOLERANCE: DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
XXX ±0.10	XXX ±.005	±0° 30'
XX ±0.25	XX ±.010	
±.5	±.02	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN [illegible] DATE 7-13-5
CHKD WJ Kay DATE 9-15-75
ENG [illegible] DATE 9-15-75
PROJ ENG [illegible] DATE 7-25-75
PROD [illegible] DATE 9/25/75

NEXT HIGHER ASSY.

SCALE

SHEET 2 OF 2

digital

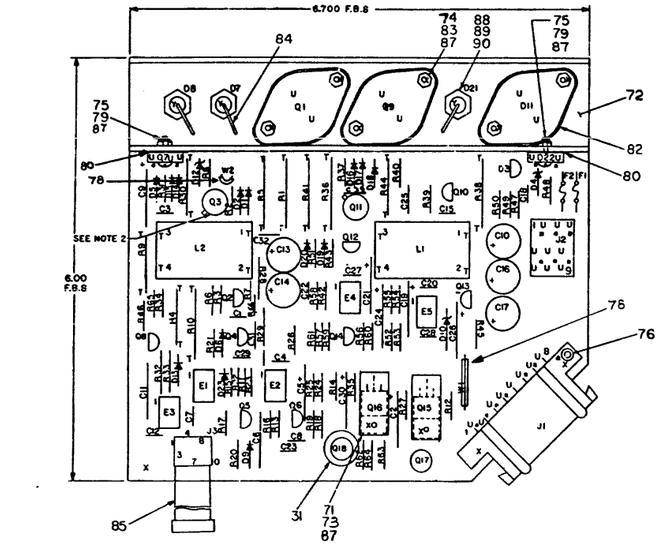
TITLE: A/C INPUT ASSY (120V/230V)

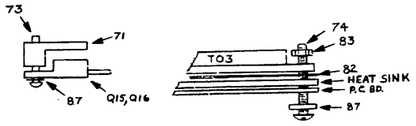
SIZE	CODE	NUMBER	REV.
D	AD	7011075-0-0	C

DIST.

NOTES:

1. SEE PARTS LIST FOR CURRENT HDW. D7, D8, D21
2. USE TRANSIPAD DEC#9007201 UNDER Q3, Q11, Q17, Q18
3. TORQUE Q1, Q9, D7, D8, D11, & D21 HARDWARE TO 6-8 IN-LBS.





SIDE VIEW MOUNTING D7, D8 AND D21

1	R18	RESISTOR, 8.2K, 1/4W, 5%	1303179	51	REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411601-0-4	1
1	R28	RESISTOR, 4.99K, 1/4W, 1% MF	1305324	52	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411601-0-5	2
2	R1,R36	RESISTOR, 1. 2W, 5% WW	1305428	53	REF		MODULE ECO HISTORY	B-MH-5411601-0-6	3
1	R55	RESISTOR, 5/1, 1/4W, 5%	1309422	54	1		ETCHED CIRCUIT BOARD	5011600	4
2	R5,R38	RESISTOR, .15, 2W, 10%	1310147	55	2	C20,C4	CAPACITOR, 33pf, 100V, 5%	1000009	5
2	R32,R33	RESISTOR, 2.21K, 1/4W,1%	1310831	56	1	C8	CAPACITOR, 100pf, 100V, 5%	1000019	6
1	D22	DIODE 2N4441 SCR	1505867	57	1	C7.	CAPACITOR, 220pf, 100V, 5%	1000021	7
3	Q3,Q11,Q17	TRANSISTOR, 2N4036	1509700	58	1	C25	CAPACITOR, .1mf, 100V, 20% DISC	1000030	8
1	Q18	TRANSISTOR, DEC 3734	1510082	59	9	C1,C3,C12,C15,C18,C27,C28, C32,C33	CAPACITOR, .01mf, 100V, DISC	1001610-01	9
1	Q7	TRANSISTOR, MJE3055	1510555	60					
7	Q4,Q5,Q6,Q8,Q12 THRU Q14	TRANSISTOR, XA06	1510785	61	6	C2,C5,C9,C19,C26,C30	CAPACITOR, 1mf, 35V, 10%	1001776	10
2	Q2,Q10	TRANSISTOR, XA55	1510706	62	2	C29,C31	CAPACITOR, .47mf, 25V, 20%	1010279	11
1	Q16	TRANSISTOR, D45H8	1510708	63	1	C24	CAPACITOR, 10mf, 20V, 10%	1004813	12
2	Q1,Q9	TRANSISTOR, 2N5038	1510969	64	2	C6,C21	CAPACITOR, .01mf, 100V, 10% MYLAR	1005784	13
1	Q15	TRANSISTOR, D44H5	1512722	65	1	C11	CAPACITOR, .015mf, 50V, 2% POLYC	1010646	14
2	L1,L2	INDUCTOR, 500uh	1612593	66	2	C13,C14	CAPACITOR, 390mf, 20V	1012807-06	15
2	E7,E5	I.C. L.M. 301A	1910282	67	1	C17	CAPACITOR, 1200mf, 8.3V	1012807-01	16
3	E1,E3,E4	I.C. L.M. 555	1911944	68	2	C10,C16	CAPACITOR, 180mf, 50V	1012807-02	17
1	C22	CAPACITOR, 470pf, 100V, 5%	1000024	69	1	D4	DIODE 1N752A	1102808	18
1	C23	CAPACITOR, 180pf, 100V 5%	1000020	70	11	D1,D2,D6,D13 THRU D17,D19, D20,D23	DIODE D672	1105275	19
2		HEAT SINK	7414765	71					
1		HEAT SINK	7413842	72	1	D9	DIODE 1N4004	1105796	20
2		SCREW #4-40 x 7/16 LG	9006012-1	73	3	D7,D8,D21	DIODE, 1N3880	1109440	21
6		SCREW #4/40 x 1/2 LG.	9005013-1	74	1	D12	DIODE 1N4742	1109502	22
2		SCREW, NYLON #4/40 x.375LG.	9006401-4	75	1	D10	DIODE Izt 5ma 5.1V, 2%	1110713	23
1		EYELET	9009000	76	1	D3	DIODE 2N5062	1110988	24
4		TRANSIPAD	9007201	77	2	D5,D18	DIODE A114B	1112595-01	25
A/R		TUBING	9107256-11	78	1	D11	DIODE DUAL	1112723-00	26
2		NUT, NYLON #4/40	9007592	79	2	F1,F2	FUSE 5A	1209070	27
2		SILPAD TO 22	1213071-06	80	1	J1	CONN. 8 PIN MATE-N-LOC	1209340-00	28
A/R		THERMAL COMPOUND	9008268	81	1	J2	CONN. 9 PIN MATE-N-LOC	1209350-09	29
3		SILPAD TO 3	1213071-02	82	17		PINS	1209456-01	30
6		NUT, KEP #4/40	9006557	83	1	(Q18)	HEAT SINK	1210001	31
A/R		WIRE #20 AWG STRANDED	9107460-65	84	5	R2,R3,R37,R47,R50	RESISTOR, 33, 1/4W, 5%	1300197	32
1	J3	CONTROL CABLE	7011414-0D	85	2	R12,R14	RESISTOR, 47, 1/4W, 5%	1300202	33
2		~~WASHER, LOCK, INTERNAL TOOTH #10~~	~~9006832~~	86	8	R6,R27,R35,R39,R48,R49,R63, R64	RESISTOR, 100, 1/4W, 5%	1300229	34
10		WASHER, FLAT	9008172	87					
3		WASHER, FLAT	9006666	88	2	R9,R44	RESISTOR, 150, 1W, 5%	1300232	35
3		SILPAD, STUD MOUNT	1213071-05	89	1	R52	RESISTOR, 390, 1/4W, 5%	1300309	36
3		BUSHING, NYLON	9008440	90	7	R19,R20,R54,R59,R60,R62,R25	RESISTOR, 1K, 1/4W, 5%	1300365	37
3		NUT, HEX #10-32	9006565	91	1	R45	RESISTOR, 1.5K, 1/4W, 5%	1300391	38
					1	R29	RESISTOR, 2.49K, 1/4W, 1%	1300424	39
AR	W1, W2	WIRE, #20 AWG, SOLID	9107560-02	93	3	R11,R43,R61	RESISTOR, 2.7K, 1/4W, 5%	1300426	40
1		LABEL, POWER SUPPLY	9009255-00	94	2	R7,R65	RESISTOR, 4.7K, 1/4W, 5%	1300447	41
2		TIE, CABLE	9007031	95	2	R23,R56	RESISTOR, 5.62K, 1/4W, 1%	1305128	42
					11	R13,R15,R16,R17,R21,R22,R42 R46,R51,R57,R58	RESISTOR, 10K, 1/4W, 5%	1300479	43
					2	R53,R24	RESISTOR, 100K, 1/4W, 5%	1302466	44
					3	R8,R31,R40	RESISTOR, 10, 1/4W, 5%	1301317	45
					2	R10,R41	RESISTOR, 330, 2W, 10%	1301961	46
					2	R26,R34	RESISTOR, 2K, 1/4W, 5%	1302388	47
					1	R66	RESISTOR, 180, 1.4W, 5%	1301322	48
					1	R4	RESISTOR, 1.2K, 1W, 10%	1302950	49
					1	R30	RESISTOR, 1.8K, 1W, 5%	1303122	50

ALTERNATE PARTS LIST

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		EYELET	9006732	76
9	C1,C3,C12,C15,C18,C27,C28,C32, C33	CAPACITOR .01 MF 50V	1001610-00	9

IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REVISIONS	CHANGE NO.	DATE	BY
L	5411601-00006	9 NOV 77	BRUCE CRAWFORD
K	5411601-00005	7 JUL 77	R. BAY
J	5411601-00004	21 JUL 76	G. POTTER
H	5411601-00003	6/9/76	G. POTTER
F	5411601-00002	12-10-75	RICHARD BARRY
E	5411601-00001	12-6-75	

FIRST USED ON OPTION MODEL

ETCH BOARD REV. E

PARTS LIST

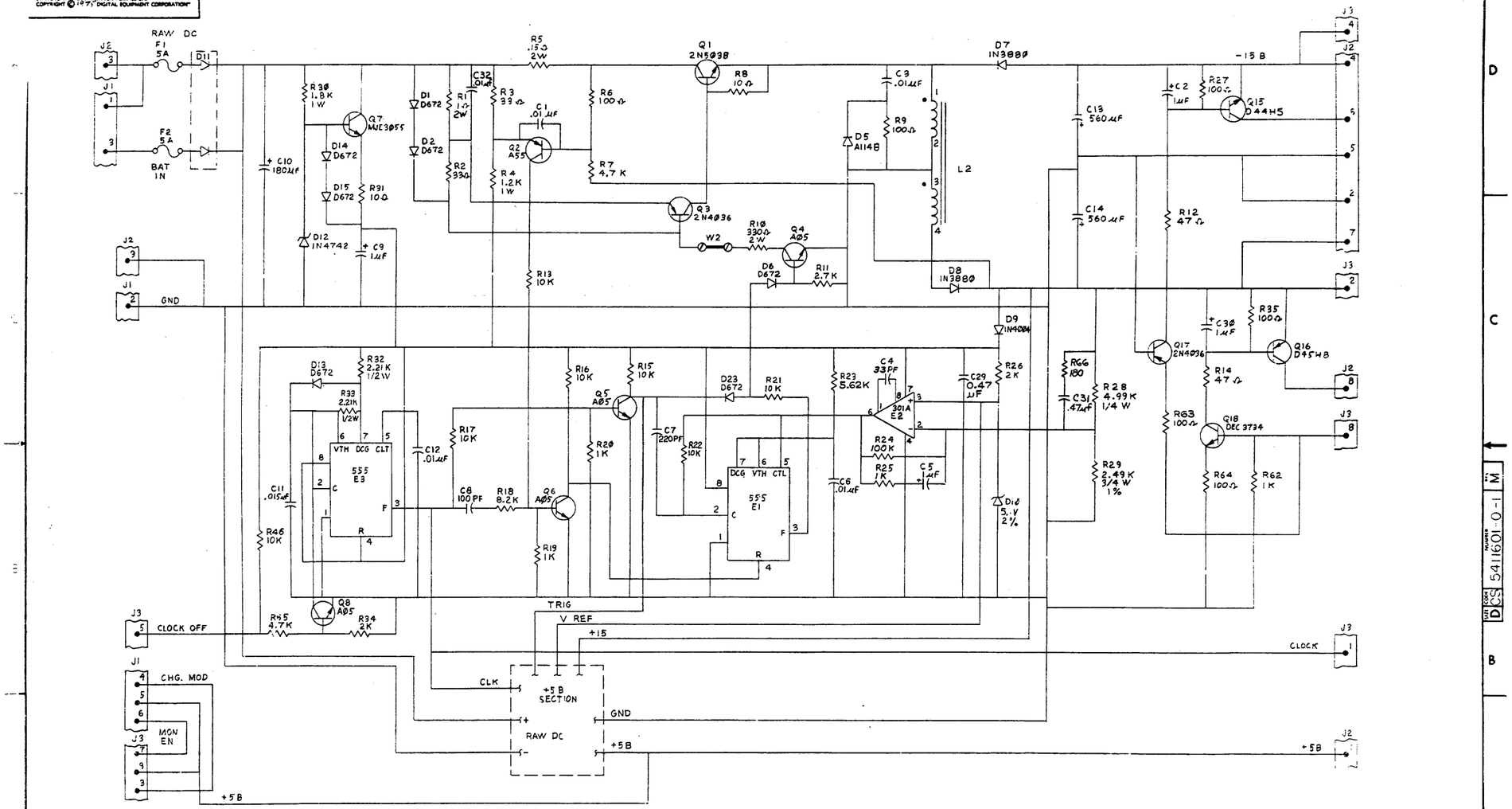
DEC NO.	EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART			

DRN. J. Hodgett	DATE	9-29-75
CHK'D.	DATE	
ENG.	DATE	
P.M. ENG.	DATE	1/22/75
CCO	DATE	2/5/75
NEXT HIGHER ASSY		
SCALE		
SHEET 1 OF 3		

digital

TITLE: MOS REGULATOR H777

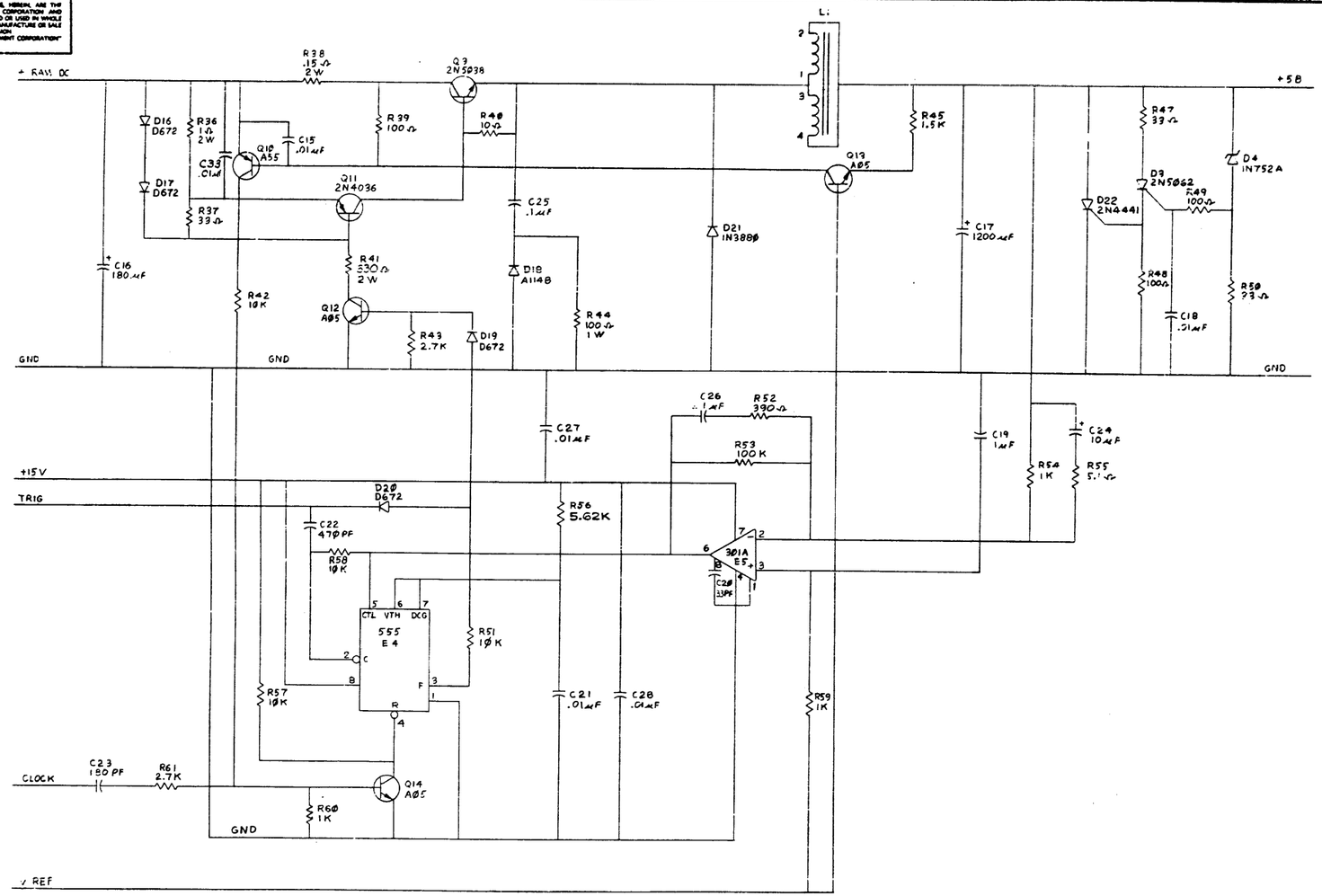
SIZE	CODE	NUMBER	REV.
D	CS	5411601-0-1	M
DIST.			



REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
MOS REGULATOR H777	D	DCS	5411601-0-1	M
SCALE — SHEET 2 OF 3	DIST.			

115



REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
MOS REGULATOR H777	D	CS	5411601-0-1	M
SCALE	SHEET 1 OF 1	DIST		

DLC FORM NO.

5411601-0-1

NOTES:

USE TRANSIPAD DEC# 9007201 UNDER Q1&Q8

1		HEAT SINK	7416236-0-0	55	
6		SCREW, #4-40 x 1/2 lg PH HD	9006013-1	56	
6		NUT, KEP #4-40	9006557	57	
1		NUT, HEX #10-32	9006584	58	
1		WASHER, FLAT	9006682	59	
1		BUSHING, NYLON	5008440	60	
6		WASHER, FLAT	9008172	61	
A/R		COMPOUND, THERMAL	9008268	62	
3		INSULATOR, TO 3	1213071-02	63	
1		~~WASHER, THERMAFILM~~	~~9006424~~	~~64~~	
2		TRANSIPAD	9007201	65	
A/R		WIRE #18 AWG, TWISTED PAIR	9107430-02	66	
1	C29	CAPACITOR 2.2UF 20V	1002627	67	
1	R47	RESISTOR 200, 1/4W, 5%	1311522	68	
1		HARNESS (THREE WIRE)	C-IA 7012547-0-0	69	
1		HARNESS (TWO WIRE)	C-IA 7012546-0-0	70	
1	C12	CAPACITOR, 10uf, 20V, 10%, TANT	1004813	71	
1	D23	DIODE, IN753A	1102421	72	
1	C26	CAPACITOR, .47uf, 25V, 20%, CER	1010279	73	
1		SOLDER, TERM, SCREW MTG.	9007815	74	
1		SIL PAD .500 .190 I.D.	1213071-05	75	
1	C32	CAP. 1UF 50V CER.	1010274-02	76	

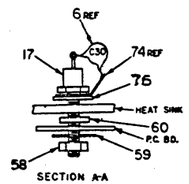
REF		X-Y COORDINATE HOLE LOCATION	K-CC-5411599-0-0	1	
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411599-0-5	2	
REF		MODULE ECO HISTORY	B-MH-5411599-0-0	3	
1		ETCHED CIRCUIT BOARD	5011598	4	
1	C7	CAPACITOR, 100PF 100V, 5%,	1000016	5	
6	C2,C3,C6,C30,C24,C25	CAPACITOR, .01uf, 100V DISC	1001610-01	6	
3	C9, C27,C28	CAPACITOR, 1uf, 35V, 10% TANT	1001778	7	D
2	C10,C13	CAPACITOR, 33pf, 100V CM	1000009	8	
1	C11	CAPACITOR, 15uf, 35V, 10% TANT	1009725	9	
2	C8,C14	CAPACITOR, .01uf, 100V, 10% MYLAR	1005784	10	
1	C31	CAPACITOR, 220pf, 100V, 5%	1000021	11	
2	C5,C16	CAPACITOR, 1200uf, 63V	1012607-01	12	
7	C1,C17,C15,C4,C20,C21,C22	CAPACITOR, 150uf, 50V	1012607-02	13	
1	D22	DIODE, IN4742	1109502	14	
1	D10	DIODE, MR1033B	1103341	15	
10	D1 THRU D7, D14, D15, D21	DIODE, D872	1105275	16	
1	D17	DIODE, IN3880	1109440	17	
2	D12,D13	DIODE, IN751, 5.1V 2%	1110713	18	
1	D9	DIODE	1110715	19	
1	D11	DIODE, IN978B	1110856	20	
1	D19	DIODE, 2N5962	1110968	21	
1	D8,	DIODE, A114B	1112595-01	22	
1	F1	FUSE, 15A, PICO	1210329	23	
1	R46	RESISTOR, 18K, 1/4W, 5%	1302465	24	C
6	R9,R39,R40,R41,R43,R45	RESISTOR, 100, 1/4W, 5%	1300229	25	
1	R7	RESISTOR, 100, 1W, 5%	1300232	26	
3	R11, ,R2,R33	RESISTOR, 390, 1/4W, 5%	1300309	27	
6	R6,R12,R23,R31,R17,R48	RESISTOR, 1K, 1/4W, 5%	1300365	28	
3	R10, ,R14, ,R30	RESISTOR, 2.7K, 1/4W, 5%	1300426	29	
4	R42,R44, R15,R27	RESISTOR, 4.7K, 1/4W, 5%	1300447	30	
1	R4	RESISTOR 1K, 1W, 5%	1300368	31	
3	R16, R29,R38,	RESISTOR, 10K, 1/4W, 5%	1300479	32	
2	R3,R35	RESISTOR, 10, 1/4W, 5%	1301317	33	
1	.R45	RESISTOR, 470, 1/4W, 5%	1300316	34	
1	R5	RESISTOR, 27, 1/4W, 5%	1301522	35	
1	,R34	RESISTOR, 330, 2W, 10%	1301961	36	
1	R19	RESISTOR, 2K, 1/4W, 5%	1302388	37	
2	R18,R26	RESISTOR, 100K, 1/4W, 5%	1302466	38	
1	R22	RESISTOR, 2.74K, 1/4W, 1%	1304868	39	
2	R1,R32	RESISTOR, 1, 2W, 5% WW	1305428	40	
2	R24, R25	RESISTOR, 1.5K, 1/4W 5%	1300391	41	
1	R21	RESISTOR, 8.25K, 1/4W, 1%	1309420	42	
2	R8,R37	RESISTOR, .08, 5W, 3% WW	1311603	43	
1	R20	RESISTOR, 56, 1/4 W, 5%	1302602	44	
2	Q1,Q8	TRANSISTOR, 2N4036	1509700	45	
7	Q3,Q5,Q6,Q7,Q9,Q12,Q13	TRANSISTOR, XA85	1510705	46	
1	Q4	TRANSISTOR, XA55	1510706	47	
1	D18	TRANSISTOR, C32AX135	1510928	48	
2	Q2,Q10	TRANSISTOR, 2N5038	1510969	49	B
1	Q11	TRANSISTOR, 2N5433	1511686	50	
2	L1,L2	INDUCTOR, 500uh	1612593	51	
2	E1,E3	I.C DEC 301A	1910282	52	
2	E2,E4	I.C DEC 555	1911944	53	
1	J1	CABLE ASSY	7011414-0E	54	

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

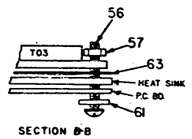
FIRST USED ON OPTION MODEL

PARTS LIST

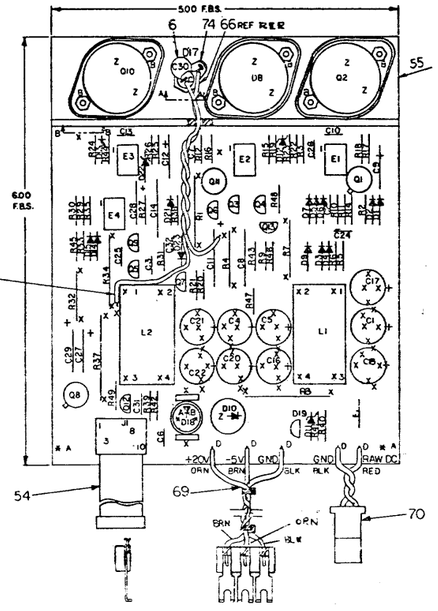
ETCH BOARD REV. D



SECTION A-A



SECTION B-B



IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

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

SEMICONDUCTOR CONVERSION CHART

REV.	REVISIONS	CHK	CHANGE NO.	DATE
J	B. COUNTEMANCHE		5411599-C0003	2-9-77
H			5411599-00002	7-JAN-77
E	G. POTTER		5411599-00001	6-AUG-76

DRN. J. SCALC DATE 1/7/77
CHK'D DATE
ENG. DATE
PROJ. DATE
MGR. DATE
NEXT HIGHER ASSY E-UA-H777-0-0
SCALE
SHEET 1 OF 2

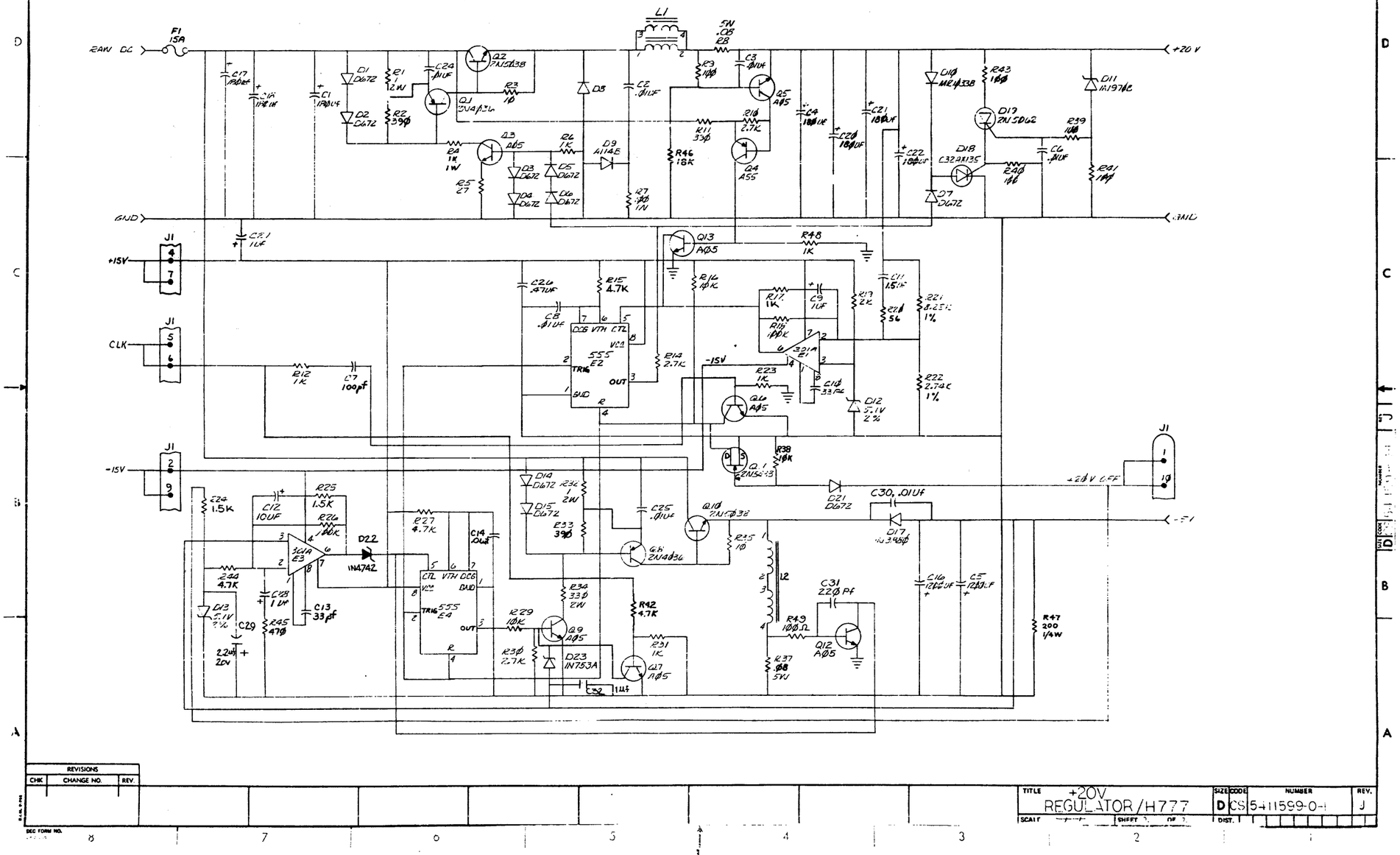
digital

TITLE +20V REGULATOR/H777

SIZE D | CODE CS | NUMBER 5411599-0-1 | REV. J

DIST.

PD 5411599-0-1



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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY — DATE —
CHECKED D. HEALY DATE 29 JUL 76
SECTION 1
ENG R. Barry DATE 26 Aug 76
PROD RB King DATE 26 Aug 76
ISSUED SECT. 1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
1	D-IA-7011248-0-0	CHASSIS ASSY P.S	1	1	1	1	-	-	-	-
2	9007031-05	TIE WRAP	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
3	D-AD-7011075-0-0	A/C INPUT ASSY (120V)	1	-	1	-	-	-	-	-
4	D-AD-7011075-1-0	A/C INPUT ASSY (230V)	-	1	-	1	-	-	-	-
5	9007035	GROMMET CAT.	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
6	9006563	NUT, KEPS #8 - 32	2	2	2	2	2	2	2	2
7	E-MD-7413825-0-0	COVER, POWER SUPPLY	1	1	1	1	-	-	-	-
8	D-AD-7011073-0-0	+5V REGULATOR ASSY	1	1	1	1	-	-	-	-
9	D-CS-5411601-0-1	MOS. REG. H777	1	1	1	1	1	1	1	1
10	9006021-01	SCR, PHL HD PAN #6 - 32 x .31	4	4	2	2	3	3	1	1
11	9008509	STRAIN RELIEF	1	1	1	1	-	-	-	-
12	D-IA-7012320-0	POWER CORD (115V)	1	-	1	-	-	-	-	-
13	D-IA-7012320-1	POWER CORD (230V)	-	1	-	1	-	-	-	-
14	9006022-1	SCR, PHIL HD PAN #6-32 x .38	6	6	4	4	-	-	-	-
15	9006633	WASHER, INT. TOOTH #6	10	10	6	6	3	3	1	1
16	9009771-02	CLAMP	2	2	2	2	-	-	-	-
17	1209403-01	FAN, BOXER 115V, 50/60 HZ	1	1	1	1	1	1	1	1
18	9006020-2	SCR, PHIL FLAT HD #6 - 32 x .25	7	7	7	7	-	-	-	-
19	9008185	NUT, KEPS #6 - 32	-	-	-	-	2	2	2	2
~~20~~	~~9006023-1~~	~~SCR., PHIL HD PAN #6 - 32 x .44~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~
21	9006074-3	SCR., PHIL TRUSS #10 - 32 x .62	4	4	4	4	4	4	4	4
22	9007651	WASHER, EXT. TOOTH #10	4	4	4	4	4	4	4	4

TITLE: POWER SUPPLY ASSY (H777)
ASSY NO. E-UA-H777-0-0
SHEET 1 OF 3
SIZE A | CODE PL | NUMBER H777-0-0 | REV M | ECO NO -777-00005
DIST.

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY — DATE —
CHECKED D. HEALY DATE 29 JUL 76
SECTION 1
ENG R. Barry DATE 26 Aug 76
PROD RB King DATE 26 Aug 76
ISSUED SECT. 1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
23	C-IA-7413773-0-0	BRACKET, FAN	2	2	2	2	2	2	2	2
24	1210984-05	INS SHEET 9.0±.1 X 1.5 ±.1	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
25	B-DC-7414744-0-0	DECAL H777 P.S.	1	1	1	1	-	-	-	-
26	A-PS-3612680-0-0	DECAL, CHASSIS GROUND	2	2	2	2	2	2	2	2
27	C-IA-7011412-0F	CABLE, CHASSIS GROUND	1	1	1	1	1	1	1	1
28	C-IA-7011412-1H	CABLE, CONSOLE GROUND	—	—	—	—	1	1	1	1
29	D-CS-5411599-0-1	CORE REG. H777	1	1	-	-	1	1	-	-
30	9007015	GROMMET	-	-	-	-	1	1	1	1
31	D-IA-7417407-0-0	CHASSIS P.S.	-	-	-	-	1	1	1	1
32	D-AD-7012910-0-0	A/C INPUT ASSY (120V)	-	-	-	-	1	-	1	-
33	D-AD-7012910-1-0	A/C INPUT ASSY (230V)	-	-	-	-	-	1	-	1
34	E-IA-7417018-0-0	COVER, POWER SUPPLY	-	-	-	-	1	1	1	1
35	A-PS-1213773-0-0	AC RECEPTACLE	-	-	-	-	1	1	1	1
36	A-PS-1212877-0-0	FILTER	-	-	-	-	1	1	1	1
37	D-AD-7012909-0-0	+5V REGULATOR ASSY	-	-	-	-	1	1	1	1
38	9009771-1-0	CABLE CLAMP	-	-	-	-	2	2	2	2
39	9006024-01	SCREW, PAN #6 - 32 x .50	-	-	-	-	1	1	1	1
40	9008404-2	SCR PHL FLAT HD #6 - 32 x .31	4	4	4	4	11	11	11	11
41	9107253-02	TUBING, SHRINK (ORN)	-	-	-	-	A/R	A/R	A/R	A/R
42	C-IA-7417288-0-0	WIRE A.C. CONN. HARNESS	-	-	-	-	REF	REF	REF	REF
43	B-DC-7414744-1-0	DECAL H777 P.S.	-	-	-	-	1	1	1	1
44	9006037-1	SCR, PHIL PAN HD #8 - 32 x .38	-	-	-	-	1	1	1	1

TITLE: POWER SUPPLY ASSY (H777)
ASSY NO. E-UA-H777-0-0
SHEET 2 OF 3
SIZE A | CODE PL | NUMBER H777-0-0 | REV M | ECO NO
DIST.

DEC FORM DEC 16 (325) 1031 N870
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

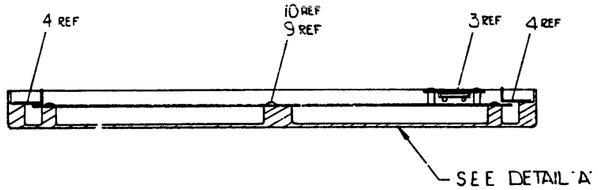
MADE BY — DATE —
CHECKED D. HEALY DATE 29 JUL 76
SECTION 1
ENG R. Barry DATE 26 Aug 76
PROD RB King DATE 26 Aug 76
ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
45	9006634	WASHER INT. TOOTH LOCK #8	-	-	-	-	1	1	1	1
~~46~~	~~D-IA-7011249-0-0 TIE 1~~	~~AC POWER CORD ASSEMBLY 230V~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~	~~1~~	~~-~~
47	9006011-1	SCR PH HD PAN #4 - 40 x .38	-	-	-	-	2	2	2	2
48	9006632	WASHER INT. TOOTH LOCK #4	-	-	-	-	2	2	2	2
49	9008020-02	SCR, PHIL FLAT HD. #6-32 x .18	1	1	1	1	-	-	-	-
50	7011411-1L	CABLE, CONSOLE CONTROL	-	-	-	-	REF	REF	REF	REF
51	9006022-03	SCR. PHIL. TRUSS #6-32 x .38	-	-	-	-	4	4	2	2
52	C-IA-7013938-1	CABLE JUMPER	-	-	-	-	1	1	1	1
53	C-IA-7013938-0	CABLE JUMPER	-	-	-	-	1	1	1	1
54	C-IA-7013939-0	CABLE GROUNDING	-	-	-	-	1	1	1	1
55	C-IA-7420323-00	AC POWER CORD W/LABLE (120V)	-	-	-	-	1	-	1	-
56	C-IA-7420323-01	AC POWER CORD W/LABLE (240V)	-	-	-	-	-	1	-	1
57	9006656	WASHER, FLAT	4	4	2	2	3	3	1	1
58	9006025-01	SCR, PAN PHIL 6-32 x 5/8	3	3	3	3	3	3	3	3
59	9006560	NUT, KEP 6-32	3	3	3	3	3	3	3	3
60	7011412-3C	CABLE ASSY	1	1	1	1	-	-	-	-
61	9006561	NUT, HEX 8-32	1	1	1	1	-	-	-	-
62	7011414-1F	CABLE, CONSOLE CONTROL	REF	REF	REF	REF	-	-	-	-
63	9009255-00	LABEL	1	1	1	1	1	1	1	1
64	3614833	LABEL, WARNING	-	-	-	-	1	1	1	1

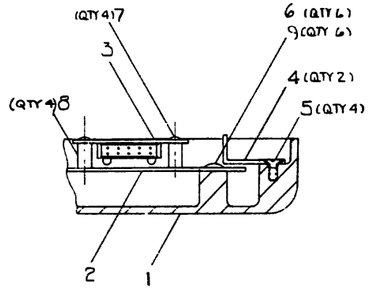
TITLE: POWER SUPPLY ASSY (H777)
ASSY NO. E-UA-H777-0-0
SHEET 3 OF 3
SIZE A | CODE PL | NUMBER H777-0-0 | REV M | ECO NO
DIST.

DEC FORM DEC 16 (325) 1031 N870
DRA 110

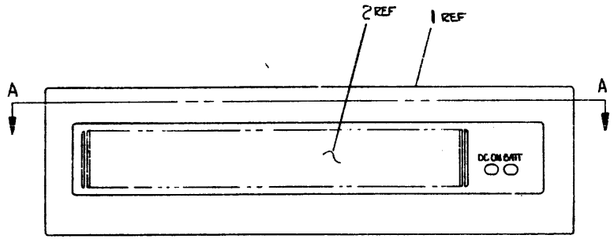
NOTES:
1. TO SELECT STAND BY/MODE, ON MODE OR OFF MODE SEE D-CS-5411501-0-1.



SECTION A-A



DETAIL "A"
SCALE 1/1



ITEM NO.	DESCRIPTION	CAGE PART NO.	QTY
6	SCREW, PAN HD. PHIL #8-32-.31 LG	9006036-1	9
4	SPACER, .250 x 6-32 x .44 LG	9009835	8
4	SCREW, PAN HD. PHIL 6-32 x .19 LG	9008020-1	7
6	WASHER, INT. TOOTH #8	9006634	6
4	SCR FLAT HD PHIL #8-32 x .25	9006035-02	5
2	BRACKET SUPPORT FILTER	C-MD-7414962-1-0	4
1	CONT. EXP. BOX (BA11-L)	D-UA-5411501-0-0	3
1	PANEL. EXPANDER BOX	8-IA-7017321-0-0	2
1	BEZEL	E-MD-7416747-0-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO .3	OVER .3 TO 1.3	OVER 1.3 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN ✓ MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.013	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN

CHK'D

ENG

PROJ. ENG.

PROD.

NEXT HIGHER ASSY.

SCALE 1/2

SHEET 1 OF 1

FIRST USED ON 1104

digital

TITLE
CONSOLE ASSY
EXPANDER BOX

SIZE D | CODE AD | NUMBER 7012540-0-0 | REV. A

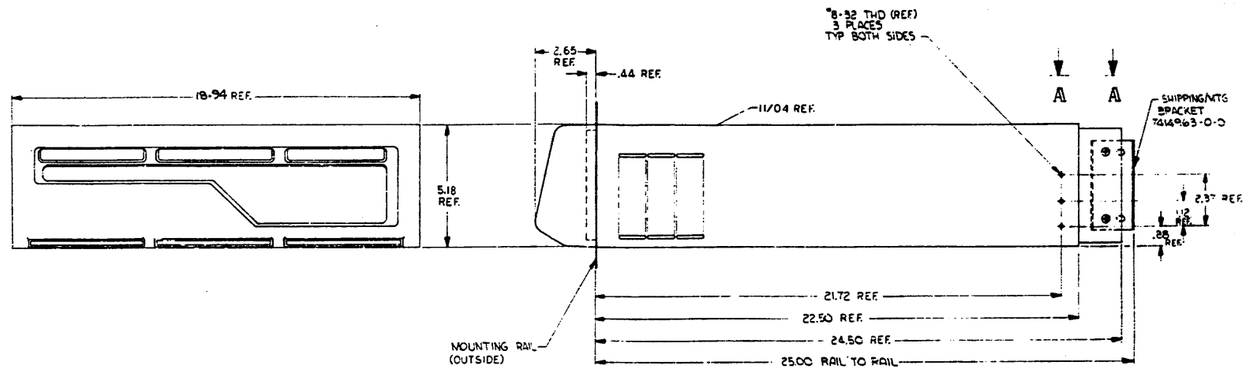
DIST.

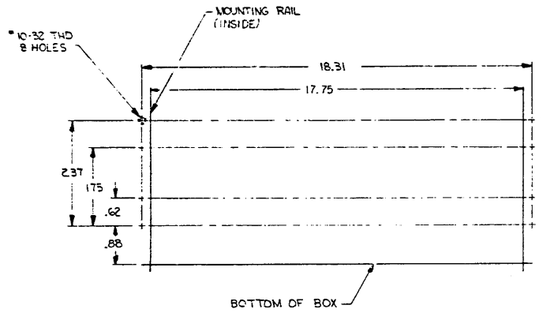
REVISIONS			
ECO	Eng. NO.	DATE	REV.
ECO-0-00001			A

PLOTUSSO

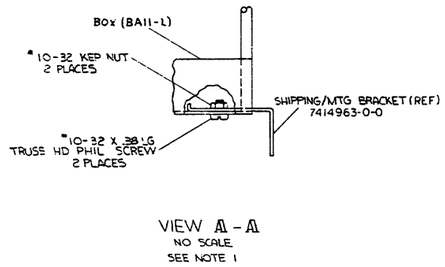
NOTES:

1. SHOWN IN MTG BRACKET POSITION, ALSO SHOWN SCHEMATIC OF BKT IN MTG POSITION & SHIPPING POSITION.
2. BECAUSE OF U.L. REQUIREMENTS THE REAR OF THIS POWER SUPPLY MUST BE COVERED, THE GUARD SHOWN IS TO BE INSTALLED ON UNITS THAT DON'T HAVE THE NEW PWR SUPPLY WITH SIDED ENDS. THERE SHOULD BE APPROX. 500 UNITS THAT WILL REQUIRE THIS RETROFIT.

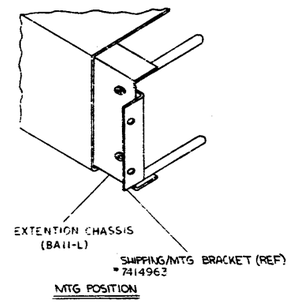




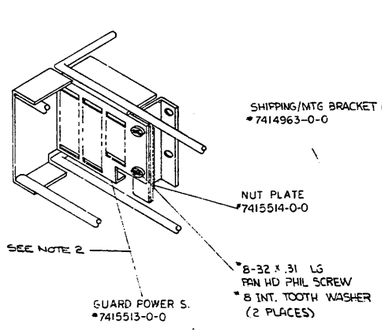
HOLE PATTERN REQ'D

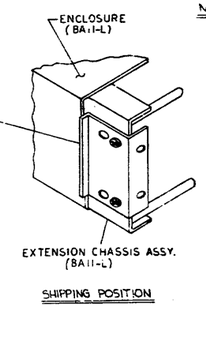


VIEW A-A
NO SCALE
SEE NOTE 1



MTG POSITION





SHIPPING POSITION

DESCRIPTION		DIG.PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES ±1°	CLASS OF ACCURACY	DECIMAL TOLERANCE ABOVE	
SURFACE QUALITY 63	STOCK CHOICE: MEDIUM ☐ MICROFINISH ☐	.X ±.1 / .XX ±.03 / .XXX ±.010 / .XXXX ±.005 / .XXXXX ±.0025	
		1.388 / 1.265 / 1.263 / 1.266 / 1.259 / 1.45	
		1.263 / 1.098 / 1.128 / 1.128 / 1.132 / 48.3	
QUANTITY & VARIATION			
THIRD ANGLE PROJECTION	DRAWN [illegible]	FIRST USED ON 11/04	
REMOVE BURRS AND BREAK SHARP CORNERS	CHECKED [illegible]	TITLE INSTALLATION SD	
DO NOT SCALE DWG	PROJ. ENGR [illegible]		
	PROD. [illegible]		
	NEXT HIGHER ASSY.		
MATERIAL	ENGR [illegible]	SIZE E / CODE AD / NUMBER 7012588-0-0 / REV.	
FINISH	SCALE NO SCALE		
	SHEET 1 OF 1	DATE	

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digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

~~CUSTOMER PRINT SET INDEX~~

SEQUENCE SEQUENCE

~~THIS IS PRINT SET~~

NOTE:
FOR FIELD MAINTENANCE
PRINT SET REFER TO
B-TC-BA11-L-1

UNIT VARIATIONS

VAR	TITLE	PRINT SET
BA11-LA	5.25 BOX, H777-AA P.S. 115V	
BA11-LB	5.25 BOX, H777-AB P.S. 230V	
BA11-LC	5.25 BOX, H777-BA P. S. 115V	
BA11-LD	5.25 BOX, H777-BB P. S. 230V	
BA11-LE	5.25 EXPANDER BOX, H777-CA P. S. 115V	
BA11-LF	5.25 EXPANDER BOX, H777-CB P. S. 230V	
BA11-LH	5.25 EXPANDER BOX, H777-DA P. S. 115V	
BA11-LJ	5.25 EXPANDER BOX, H777-DB P.S. 230V	
BA11-LK	5.25 BOX & H777CA 115V CORE & MOS	
BA11-LL	5.25 BOX & H777CB 230V CORE & MOS	
BA11-LM	5.25 BOX & H777DA 115V MOS ONLY	
BA11-LN	5 25 BOX & H777DB 230V MOS ONLY	

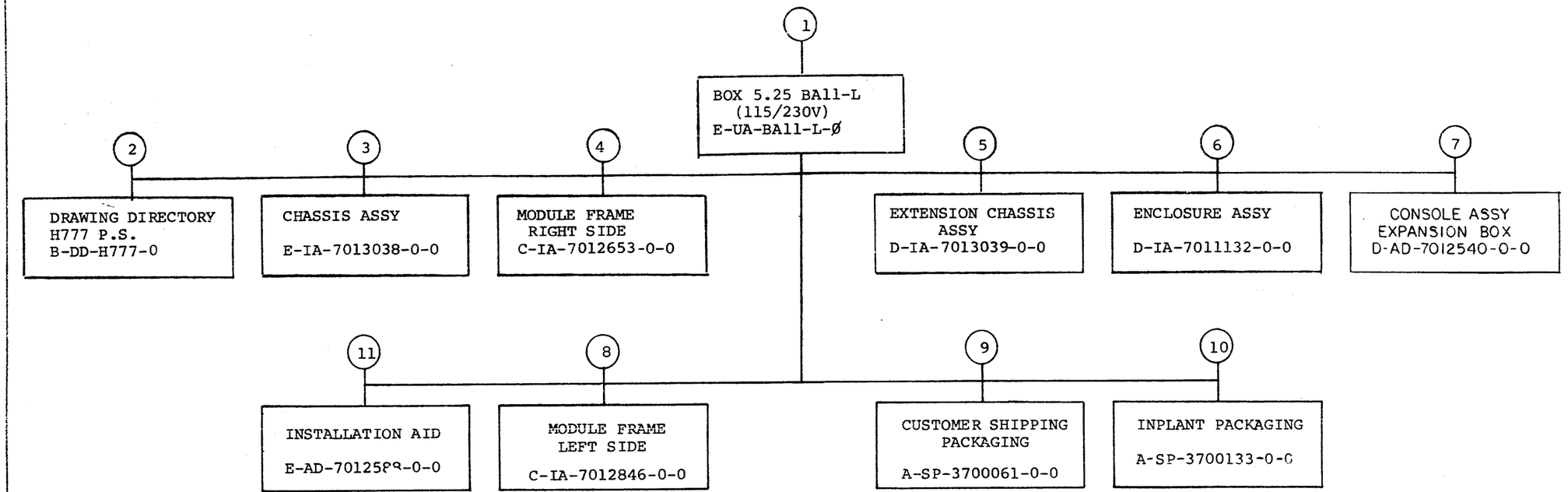
REVISIONS		
DATE	CHG. NO.	REV
4-76	BA11-L-4	A
10-76	BA11L-6	B
1-77	BA11L-7	C
3-77	BA11L-8	D
4-77	BA11L-9	E
5-77	BA11-L-10	F
7-77	BA11L-11	H

USED ON OPTION/MODEL	
11/04	
11/34	

SHEET 1 OF 4

DRN. G. MARINI	DATE 9/3/75	TITLE: DRAWING DIRECTORY BA11-L
CHK'D. D. HEALY	DATE 9/30/75	
~~PROJ ENG.~~ R Barry	DATE 10-22-75	
~~PROD~~ R X Peterson	DATE 10/22/75	SIZE B · CODE DD · NUMBER BA11-L · REV H
~~FIELD SERV.~~	~~DATE~~	DIST

DRB 106



TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-L	SHEET 2 OF 4	B	DD	BA11-L	H

ELECTRICAL (SECTION 1)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	E-UA-BA11-L-Ø		1	BOX 5.25 BA11-L 115/230V	
			A-PL-BA11-L-Ø		3	BOX 5.25 BA11-L 115/230V (PL)	
			D-UA-BC11A-10-0		1	UNIBUS CABLE 10 FT	
			B-CS-M919-0-1		1	BUS CONNECTOR M919	
			B-CS-M929-0-1		1	BUS CONNECTOR M929	
		2	B-DD-H777-B		4	DRAWING DIRECTORY H777	
		7	D-AD-7012540-0-0		1	CONSOLE ASSY, EXPANSION BOX	
			D-CS-5411501-0-0		1	BA11-L EXP. BOX CONTROL	

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	E-UA-BA11-L-Ø		1	BOX 5.25 BA11-L (115/230V)	
			B-MD-7413846-0-0		1	BAR, CABLE STRAIN RELIEF	
			C-IA-7011412-0-0		1	CABLE, CHASSIS GND	
			C-MD-7414963-0-0		1	BRKT., SHIPPING AND CAB MOUNT	
			A-PL-BA11-L-Ø		3	BOX 5.25 BA11-L 115/230V (PL)	
			A-DC-5309413-0-0		1	DECAL NFPA	
			A-DC-5309414-0-0		1	DECAL UL	
		2	B-DD-H777-B		4	DRAWING DIRECTORY H777 P.S.	
		3	E-IA-7013038-0-0		1	CHASSIS ASSY	
			C-MD-7414236-0-0		1	FRAME, CHASSIS	
			C-MD-7413855-0-0		1	BRACKET MTG (LH)	
			C-MD-7413852-0-0		1	BRACKET MTG (RH)	
			C-MD-7413853-0-0		1	BRACKET, FRAME	
			C-IA-7414442-0-0		1	BRACKET LOGIC SUPPORT (BOT)	
			C-IA-7414441-0-0		1	BRACKET LOGIC SUPPORT (BOT)	
			C-MD-7413857-0-0		1	BRACKET MAIN SUPPORT	
			C-MD-7413858-0-0		1	BRACKET, SUPPORT	
			B-MD-7414237-0-0		1	ROD CONNECTING CHASSIS	
			B-MD-7413856-0-0		1	BRACKET, FAN MOUNTING	
			B-MD-7414235-0-0		1	SUPPORT DIAGONAL ROD	
			C-MD-7413854-0-0		1	BRACKET POWER SUPPLY SUPPORT	
			B-IA-7414443-0-0		1	CLAMP PLATE CABLE	
			C-MD-7417221-0-0		1	ROD MODULE RETAINER	
			C-MD-7419019-0-0		1	BRACKET, MODULE FRAME STIF.	
		4	C-IA-7012653-0-0		1	MODULE FRAME RIGHT HAND	
			C-MD-7414084-0-0		1	BRACKET EJECTOR (MODULE FRAME)	
			C-MD-7414082-0-0		1	BRACKET BACKPLANE (MODULE FRAME)	
			C-MD-7416516-0-0			ROD, MODULE FRAME	
			C-MD-7416517-0-0			BRACKET, CARD GUIDE	

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-L	3 OF 4	B	DD	BA11-L	H

DRB 108

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	SET	FIND NO	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
		5	D-IA-7013039-0-0		1	EXTENSION CHASSIS ASSY	
			B-MD-7414086-0-0		1	ROD EXTENSION FRAME	
			C-MD-7417220-0-0			PLATE END RIGHT HAND	
			C-MD-7417239-0-0			PLATE END LEFT HAND	
		6	D-IA-7011132-0-0		1	ENCLOSURE ASSY	
			D-IA-7013868-0-0		1	ENCLOSURE BOTTOM	
			D-MD-7413869-0-0		1	ENCLOSURE TOP	
		7	D-AD-7412540-0-0		1	CONSOLE ASSY, EXPANSION BOX	
		8	C-IA-7012846-0-0			MODULE FRAME LEFT SIDE	
			C-MD-7414084-0-0			BRKT. EJECTOR L.H.	
			C-MD-7416517-0-0			BRKT. CARD GUIDE	
			C-MD-7414082-0-0			BRKT. BACKPLANE L.H.	
			C-MD-7416516-0-0			ROD	
		9	A-SP-3700061-0-0			PACKAGING INSTRUCTIONS CUST.	
			A-PS-9905647-0-0			FULL-TELESCOPE CAP	
			A-PS-9905648-0-0			FOAM PAD	
			A-PS-9905646-0-0			FOAM WITH CORRUGATED SIDEWALL ASSEMBLY	
			A-PS-9905734-0-0			STRAPPING (STEEL OR PLASTIC)	

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
		10	A-SP-3700133-0-0			PACKAGING IN-PLANT	
			A-PS-9905271-0-0			LAMINATED BUILDUPS SADDLE	
			A-PS-9905184-0-0			BEZEL PROTECTOR	
			A-PS-9905418-0-0			REGULAR SLOTTED CARTON	
			A-PS-9905129-7			POLY BAG	
			A-PS-9905729-0-0			3 IN. WIDE GLASFLEX TAPE	
		11	E-AD-7012588-0-0			INSTALLATION AID	

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-L	SHEET 4 OF 4	B	DD	BA11-L	H

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY [signature] DATE 7/9/74	CHECKED DATE	SECTION
ENG DATE	PROD DATE	ISSUED SECT.

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION											
			BAIIL-LE	BAIIL-LF	BAIIL-LH	BAIIL-LJ		ALL OTHER	VARIATIONS GET ONLY ITEMS 1+2					
1	EK-BAIIL-MM-PRE	MAINTANCE MANUL	1	1	1	1		1						
2	MP00018	PRINT SET BAII-L	1	1	1	1		1						
3	D-UA-BCIIA-10-0	CABLE UNIBUS 10FT	1	1	1	1								

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
SHIPPING LIST	E-UA-BAII-L-0	A	PL	BAII-L-4		
	SHEET 1 OF 1	DIST.				

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

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
H777-CA (CORE/MOS)
H777-CB (CORE/MOS)
H777-DA (MOS ONLY)
H777-DB (MOS ONLY)

H777-0 VOL.2

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MP00309

REVISIONS	DATE	CHG. NO.	REV.
	JAN-77	H777-2	-
	ORIGINATED		
	3-78	H777-5	E

USED ON OPTION/MODEL	
BA11-LA	BA11-LK
BA11-LB	BA11-LL
BA11-LC	BA11-LM
BA11-LD	BA11-LN
BA11-LE	
BA11-LF	
BA11-LH	
BA11-LJ	

SHEET I OF 1

DRN. W Fisher	DATE 18 Jan 77	TITLE: FIELD MAINTENANCE PRINT SET H777-0
CHK'D KIT	DATE 19 JAN 77	
PROJ. ENG.	DATE 25 JAN 77	
FIELD SERV.	DATE 27-Jan 79	

digital

SIZE	CODE	NUMBER	REV.
B	TC	H777-0-2	E
DIST.			

EN-01124-16-N675-(327)

DRB 124

WIRE TABLE

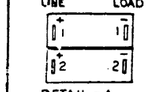
ITEM NO	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONNECTION	FROM WITH	FROM ITEM	TO CONNECTION	TO WITH	REMARKS
53	14	BLU	ITEM 35	SLDR	36	EMI LINE - 1	--	AC LINE CORD
52	14	BRN	ITEM 35	SLDR	34	EMI LINE - 2	--	AC LINE CORD
54	14	GRN/YEL	ITEM 35	SLDR	31	AC GND/CHASSIS	--	AC LINE CORD
1 OR 3	16 TRPL TWP	BLU BLU/BLK	T1-5 T1-6	-- --	8 8	J1-7 (3D3) J1-6 (3D3)	-- --	SEC VOLTAGE
3 OR 4	TWP	BLU	T1-7	--	8	J1-8 (3D3)	--	
3 OR 4	18 TWP	GRY BLK	-- --	-- --	8 8	J1-4 (3D1) J1-5 (3D1)	-- --	TO RELAY COIL
3 OR 4	18 TWP	WHT BLK	-- --	-- --	4 4	FAN-1 FAN-2	-- --	POWER SUPPLY FAN POWER
28	14	GRN/YEL	GND CHASSIS #2	G	--	--	--	CONSOLE GND
27	14	GRN/YEL	GND CHASSIS #1	G	--	--	--	CHASSIS GND
	14	BLK	ITEM # 29	--	8	J1-3 (BD2)	--	FROM CORE REG
	14	ORN	ITEM # 29	--	8	J1-2 (3D2)	--	FROM CORE REG
	14	BRN	ITEM # 29	--	8	J1-1 (3D2)	--	FROM CORE REG
42	14 TWP	BRN BLU	EMI-2 LOAD EMI-1 LOAD	41 41		CB(+2) LINE CB(+1) LINE	41 41	

H777-CA H777-CB ONLY

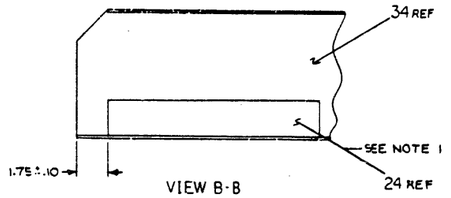
LEGEND

PART NO	VARIATION
H777-DA	P.S. MOS ONLY 115V
H777-DB	P.S. MOS ONLY 230V
H777-CA	P.S. CORE/MOS 115V
H777-CB	P.S. CORE/MOS 230V

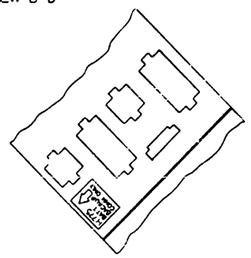
CB1



DETAIL-A
WIRING SIDE OF CKT BREAKER PART OF ITEM #10

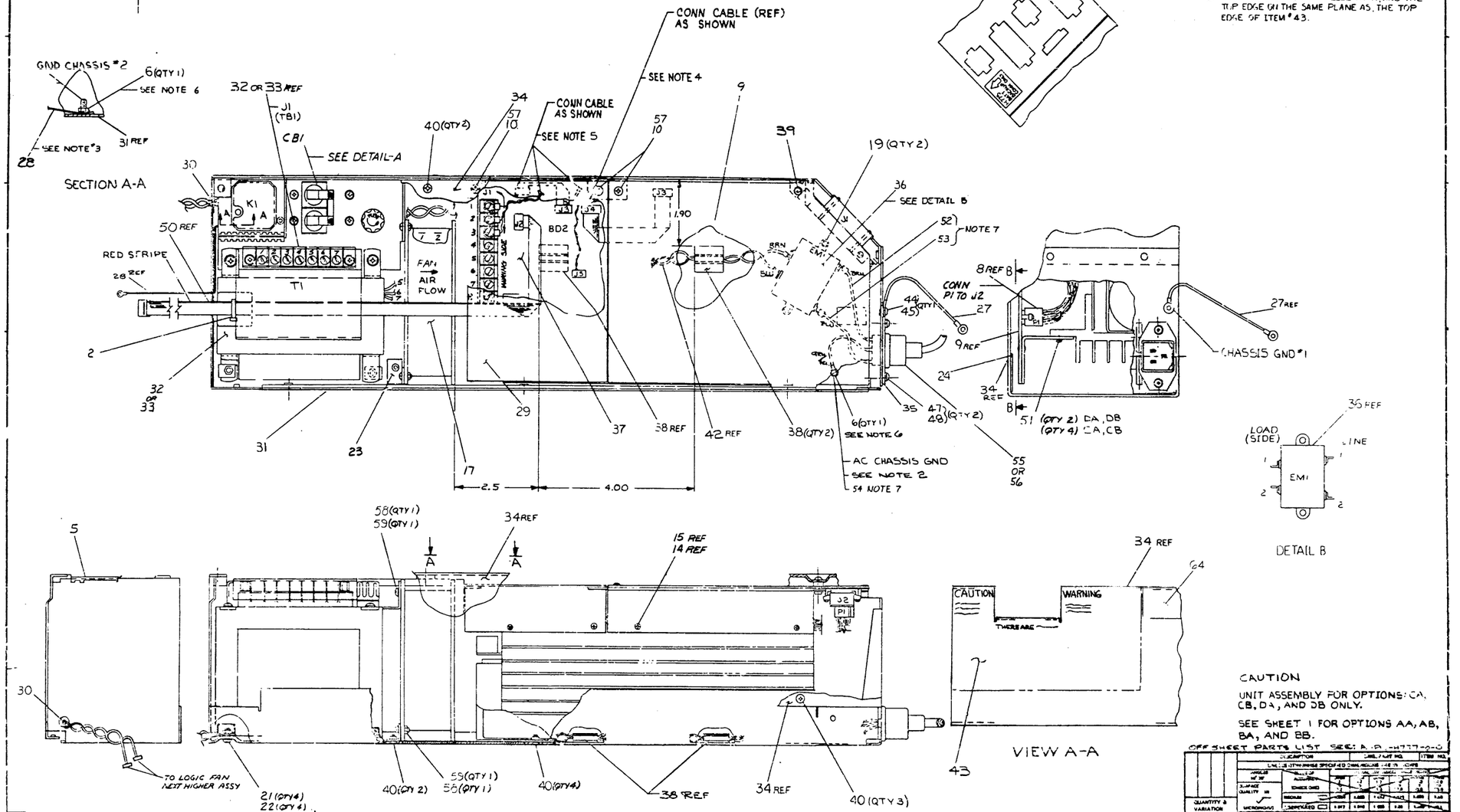


VIEW B-B



NOTES:

1. APPLY SELF STICK MS SHEET (ITEM #24) TO UNDER SIDE OF POWER SUPPLY COVER IN AREA OF HEAT SINKS (CORE & MOS REGS).
2. APPLY SELF STICK ITEM 26 BESIDE THIS GND STUD.
3. ITEM 28 IS A GND CABLE TO GND THE FRONT PANEL CASTINGS FOR MOS AND CORE REGULATORS.
4. CABLE PART OF ITEM #9.
5. CABLE & WIRES ARE PART OF ITEM #20.
6. ITEM #6 (METRIC NUT M4) CAN BE USED AS A REPLACEMENT IN FIELD IF NECESSARY.
7. INSTALL ITEM 41 OVER SOLDER ENDS PRIOR TO SOLDERING
8. POSITION ITEM #64 PARALLEL WITH, AND THE TOP EDGE ON THE SAME PLANE AS, THE TOP EDGE OF ITEM #43.



DETAIL B

VIEW A-A

CAUTION

UNIT ASSEMBLY FOR OPTIONS: CA, CB, DA, AND DB ONLY.

SEE SHEET 1 FOR OPTIONS AA, AB, BA, AND BB.

OFF SHEET PARTS LIST SEE: A-D H777-00-0

QUANTITY & VARIATION		
THIRD ANGLE PROJECTION	FIRST USED ON	BAIL C
REMOVE BURRS AND BREAK SHARP CORNERS	TITLE	POWER SUPPLY ASSY (H777)
UNLESS OTHERWISE SPECIFIED	SIZE E	CODE IDENT NO. 14A
MATERIAL SEE PARTS LIST	DRAWING NO.	H777-0-0
FINISH	SCALE	NONE
NEXT ASSY	SHEET 2 OF 2	REV M

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY — DATE —
CHECKED D. HEALY DATE 29 JUL 76 — SECTION 1
ENG R. Barry DATE 26 Aug 76
PROD RB King DATE 26 Aug 76 — ISSUED SECT. 1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
1	D-IA-7011248-0-0	CHASSIS ASSY P.S.	1	1	1	1	-	-	-	-
2	9007031-05	TIE WRAP	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
3	D-AD-7011075-0-0	A/C INPUT ASSY (120V)	1	-	1	-	-	-	-	-
4	D-AD-7011075-1-0	A/C INPUT ASSY (230V)	-	1	-	1	-	-	-	-
5	9007035	GROMMET CAT.	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
6	9006563	NUT, KEPS #8 - 32	2	2	2	2	2	2	2	2
7	E-MD-7413825-0-0	COVER, POWER SUPPLY	1	1	1	1	-	-	-	-
8	D-AD-7011073-0-0	+5V REGULATOR ASSY	1	1	1	1	-	-	-	-
9	D-CS-5411601-0-1	MOS. REG. H777	1	1	1	1	1	1	1	1
10	9006021-01	SCR. PHL HD PAN #6 - 32 x .31	4	4	2	2	3	3	1	1
11	9008509	STRAIN RELIEF	1	1	1	1	-	-	-	-
12	D-IA-7012320-0	POWER CORD (115V)	1	-	1	-	-	-	-	-
13	D-IA-7012320-1	POWER CORD (230V)	-	1	-	1	-	-	-	-
14	9006022-1	SCR, PHIL HD PAN #6-32 x .38	6	6	4	4	-	-	-	-
15	9006633	WASHER, INT. TOOTH #6	10	10	6	6	3	3	1	1
16	9009771-02	CLAMP	2	2	2	2	-	-	-	-
17	1209403-01	FAN, BOXER 115V, 50/60 HZ	1	1	1	1	1	1	1	1
18	9006020-2	SCR, PHIL FLAT HD #6 - 32 x .25	7	7	7	7	-	-	-	-
19	9008185	NUT, KEPS #6 - 32	-	-	-	-	2	2	2	2
~~20~~	~~9006023-1~~	~~SCR, PHIL HD PAN #6 - 32 x .44~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~	~~4~~
21	9006074-3	SCR., PHIL TRUSS #10 - 32 x .62	4	4	4	4	4	4	4	4
22	9007651	WASHER, EXT. TOOTH #10	4	4	4	4	4	4	4	4

TITLE: POWER SUPPLY ASSY (H777) — ASSY NO. E-UA-H777-0-0 — SHEET 1 OF 3 — SIZE A — CODE PL — NUMBER H777-0-0 — REV M — ECO NO -777-000005 — DIST.

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY — DATE —
CHECKED D. HEALY DATE 29 JUL 76 — SECTION 1
ENG R. Barry 26 Aug 76 DATE
PROD RB King DATE 26 Aug 76 — ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
45	9006634	WASHER INT. TOOTH LOCK #8	-	-	-	-	1	1	1	1
~~46~~	~~D-IA-7011248-1~~	~~AC POWER CORD ASSEMBLY 230V~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~	~~-~~	~~-~~
47	9006011-1	SCR PH HD PAN #4 - 40 x .38	-	-	-	-	2	2	2	2
48	9006632	WASHER INT. TOOTH LOCK #4	-	-	-	-	2	2	2	2
49	9008020-02	SCR, PHIL FLAT HD. #6-32 x .18	1	1	1	1	-	-	-	-
50	7011411-1L	CABLE, CONSOLE CONTROL	-	-	-	-	REF	REF	REF	REF
51	9006022-03	SCR. PHIL. TRUSS #6-32 x .38	-	-	-	-	4	4	2	2
52	C-IA-7013938-1	CABLE JUMPER	-	-	-	-	1	1	1	1
53	C-IA-7013938-0	CABLE JUMPER	-	-	-	-	1	1	1	1
54	C-IA-7013939-0	CABLE GROUNDING	-	-	-	-	1	1	1	1
55	C-IA-7420323-00	AC POWER CORD W/LABLE (120V)	-	-	-	-	1	-	1	-
56	C-IA-7420323-01	AC POWER CORD W/LABLE (240V)	-	-	-	-	-	1	-	1
57	9006656	WASHER, FLAT	4	4	2	2	3	3	1	1
58	9006025-01	SCR, PAN PHIL 6-32 x 5/8	3	3	3	3	3	3	3	3
59	9006560	NUT, KEP 6-32	3	3	3	3	3	3	3	3
60	7011412-3C	CABLE ASSY	1	1	1	1	-	-	-	-
61	9006561	NUT, HEX 8-32	1	1	1	1	-	-	-	-
62	7011414-1F	CABLE, CONSOLE CONTROL	REF	REF	REF	REF	-	-	-	-
63	9009255-00	LABEL	1	1	1	1	1	1	1	1
64	3614833	LABEL, WARNING	-	-	-	-	1	1	1	1

TITLE: POWER SUPPLY ASSY (H777) — ASSY NO. E-UA-H777-0-0 — SHEET 3 OF 3 — SIZE A — CODE PL — NUMBER H777-0-0 — REV M — ECO NO — DIST.

DEC FORM DEC 16 (325) 1031 N870
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY — DATE 19 JULY 76
CHECKED D. HEALY DATE 29 JUL 76 — SECTION 1
ENG R. Barry DATE 26 Aug 76
PROD RB King DATE 26 Aug 76 — ISSUED SECT. 1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	H777-AA	H777-AB	H777-BA	H777-BB	H777-CA	H777-CB	H777-DA	H777-DB
23	C-IA-7413773-0-0	BRACKET, FAN	2	2	2	2	2	2	2	2
24	1210984-05	INS SHEET 7.0 ± .1 X 1.5 ± .1	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
25	B-DC-7414744-0-0	DECAL H777 P.S.	1	1	1	1	-	-	-	-
26	A-PS-3612680-0-0	DECAL, CHASSIS GROUND	2	2	2	2	2	2	2	2
27	C-IA-7011412-0F	CABLE, CHASSIS GROUND	1	1	1	1	1	1	1	1
28	C-IA-7011412-1H	CABLE, CONSOLE GROUND	-	-	-	-	1	1	1	1
29	D-CS-5411599-0-1	CORE REG. H777	1	1	-	-	1	1	-	-
30	9007015	GROMMET	-	-	-	-	1	1	1	1
31	D-IA-7417407-0-0	CHASSIS P.S.	-	-	-	-	1	1	1	1
32	D-AD-7012910-0-0	A/C INPUT ASSY (120V)	-	-	-	-	1	-	1	-
33	D-AD-7012910-1-0	A/C INPUT ASSY (230V)	-	-	-	-	-	1	-	1
34	E-IA-7417018-0-0	COVER, POWER SUPPLY	-	-	-	-	1	1	1	1
35	A-PS-1213773-0-0	AC RECEPTACLE	-	-	-	-	1	1	1	1
36	A-PS-1212877-0-0	FILTER	-	-	-	-	1	1	1	1
37	D-AD-7012909-0-0	+5V REGULATOR ASSY	-	-	-	-	1	1	1	1
38	9009771-1-0	CABLE CLAMP	-	-	-	-	2	2	2	2
39	9006024-01	SCREW, PAN #6 - 32 x .50	-	-	-	-	1	1	1	1
40	9008404-2	SCR PHL FLAT HD #6 - 32 x .31	4	4	4	4	11	11	11	11
41	9107253-02	TUBING, SHRINK (ORN)	-	-	-	-	A/R	A/R	A/R	A/R
42	C-IA-7417288-0-0	WIRE A.C. CONN. HARNESS	-	-	-	-	REF	REF	REF	REF
43	B-DC-7414744-1-0	DECAL H777 P.S.	-	-	-	-	1	1	1	1
44	9006037-1	SCR, PHIL PAN HD #8 - 32 x .38	-	-	-	-	1	1	1	1

TITLE: POWER SUPPLY ASSY (H777) — ASSY NO. E-UA-H777-0-0 — SHEET 2 OF 3 — SIZE A — CODE PL — NUMBER H777-0-0 — REV M — ECO NO — DIST.

DEC FORM DEC 16 (325) 1031 N870
DRA 110

WIRE CHART

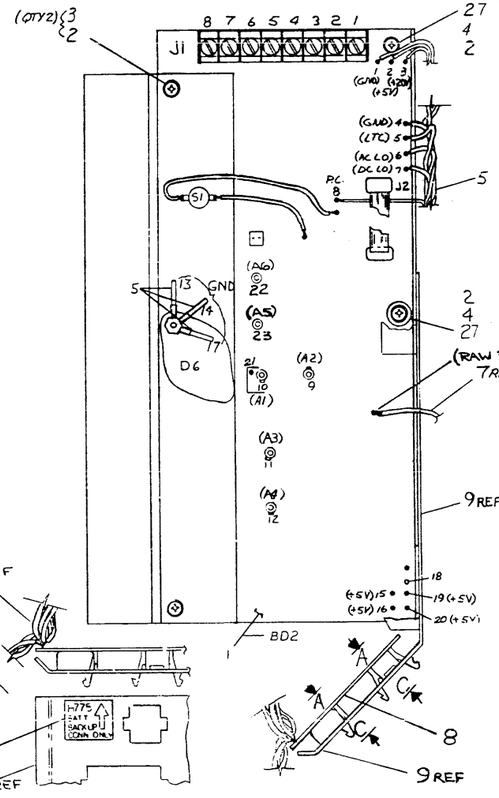
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
5	20	WHT	1	BD2-8	18	BD1-15
	14	BRN	2	2	9	1
	14	BLK	3	1	12	5
	14	ORN	4	3	13	7
	20	BRN	5	5	19	14
	20	BLK	6	4	20	16
	20	YEL	7	6	16	12
	20	VIO	8	7	17	13
	14	BLK	30	BD2-17	10	BD1-3

ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
5	14	BLK	28	BD2-13	11	BD1-4
		RED	29	15	14	9
		RED	26	19	15	10
		BLK	25	14	21	17
		RED	24	16	22	19
	14	RED	27	BD2-20	23	BD1-20
7	18	BLU	1	BD1-21	*11	—
	14	BLK	2	BD1-18	*8	—
	18	RED	3	BD1-11	*14	—
30	14	RED	—	BD2-22	—	C2 (+)

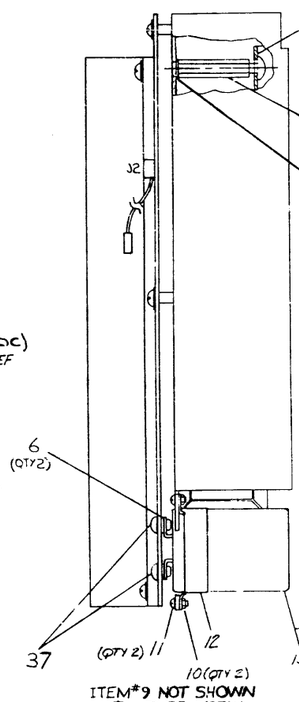
ITEM NO	DESCRIPTION AWG	COLOR	FROM POINT NO	FROM CONN	TO POINT NO	TO CONN
7	18	GRY	4	BD1-8	*3	—
	18	WHT	5	BD1-6	*10	—
	14	RED	6	BD2-21	*13	—
	18	GRN	7	BD1-2	12	—
25	14	GRN	—	C1(+)	—	C2(+)
24	14	GRN	—	C1(-)	—	C2(-)
23	14	RED	—	BD2-10	—	C1(+)
28	14	BLK	—	BD2-9	—	C1(-)
22	—	BARE	—	—	—	BD2-11
32	—	BARE	—	—	—	BD2-12
31	14	BLK	—	BD2-23	—	C2(-)

NOTES:

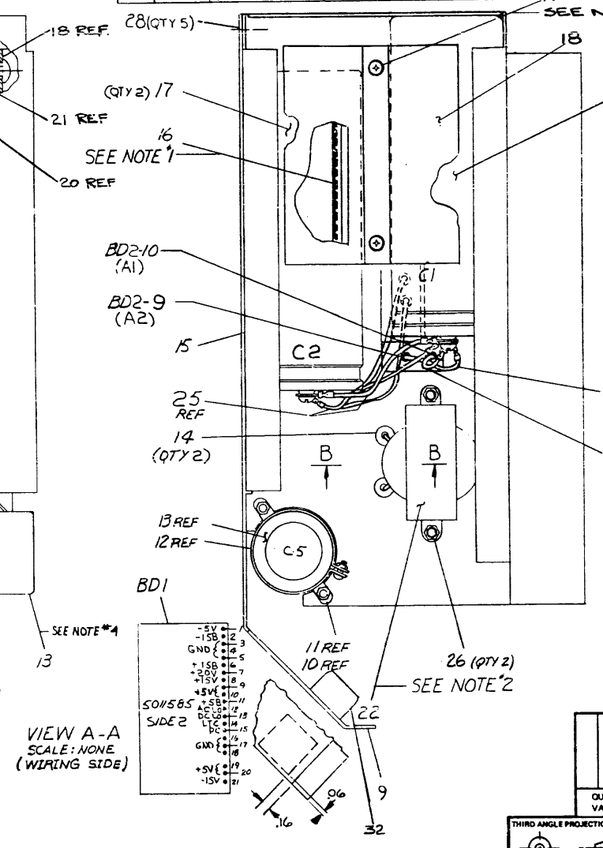
1. USE ITEM #16 (GROMMET) TO COVER RAW METAL EDGES UNDER CAPACITORS.
2. LEADS FROM ITEMS #22, 23 & 24 ARE TO BE CUT FLUSH WITH TOP OF CLAMPS ON ITEM #1, A1, A2, A3 & A4
3. * ASTERISK INDICATES THAT THESE CONN. ALREADY HAVE BEEN MADE ON PLUG P1 ON HARNESS D-IA-7011560-0-0 THEY ARE SHOW FOR REF ONLY.
4. ITEMS #17 & #13 ARE TO HAVE THEIR ELECTRICAL CONNECTIONS TORQUED TO 12 IN-LBS (-0, +10) IN-LBS.
5. BRING SCREW TO A NO SLACK POSITION, THEN TIGHTEN WITH 1/2 TO 3/4 TURN ONLY.
6. ITEMS #33 & #34 ARE NOT SHOWN.



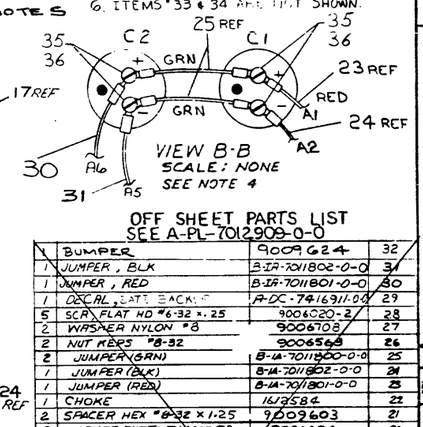
VIEW C-C



ITEM *9 NOT SHOWN IN THIS VIEW



VIEW A-A
SCALE: NONE
(WIRING SIDE)



VIEW B-B
SCALE: NONE
SEE NOTE 4

OFF SHEET PARTS LIST
SEE A-PL-7012909-0-0

1	BUMPER	9009624	32
1	JUMPER, BLK	B-IA-7011802-0-0	31
1	JUMPER, RED	B-IA-7011801-0-0	30
1	DECAL, BATT BACKUP	A-DC-7416911-0-0	29
5	SCR FLAT HD #6-32 x .25	9006020-2	28
2	WASHER NYLON #8	9006708	27
2	NUT KEPS #8-32	9006568	26
2	JUMPER (GRN)	B-IA-7011800-0-0	25
1	JUMPER (BLK)	B-IA-7011802-0-0	24
1	JUMPER (RED)	B-IA-7011801-0-0	23
1	CHOKE	16J358A	22
2	SPACER HEX #8-32 x 1.25	9009603	21
2	WASHER INT TOOTH LOCK #8	9006634	20
2	SCR PHIL HD TRUSS 8-32 x .38L	9009836-1	19
1	CLAMP CAPACITOR	C-MD-7417468-0-0	18
2	CAPACITOR .22 KUF 50V	1010702	17
A/R	GROMMET CATERPILLAR	9007035	16
1	BRACKET CAPACITOR	E-IA-7013743-1-0	15
2	GROMMET RUBBER	9007017	14
1	CAPACITOR 39000UF/16.0V (CST)	7012740-00	13
1	CLAMP CAPACITOR	9009052	12
2	SCR PHIL PAN HD #6-32x.25L	9006020-1	11
2	NUT KEPS #6-32	9009185	10
1	PLATE, CAPACITOR CONN SIDE	D-IA-7417917-0-0	9
1	BOARD, PWR DISTR. H777	D-CS-5911586-0-1	8
1	HARNESS BD NOS REG PWR DST	D-IA-7011560-0-0	7
2	WASH .375 O.D. x .137 I.D. x .036	9006660	6
1	HARNESS H777 +5V REG	D-IA-7011415-0-0	5
2	SCR PHIL HD PAN #6-32 x .31L	9006021-1	4
2	SCR PHIL HD PAN #6-32 x .50L	9005024-1	3
2	WASHER, INT TOOTH LOCK #6	9006633	2
1	H777+5V REG (REV E UP)	D-CS-5912[illegible]-0-1	1

DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES 10' 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	±.005	±.008	±.012	±.018	±.024	±.04
	PREFERRED	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL —

FINISH —

DRAWN — 13 MAY 76
CHK'D D. Moody 2 JUN 76
ENG — 17 JUN 76
PROJ. ENG T. King 15 JUL 76
PROD. — 15 JUL 76

NEXT HIGHER ASSY. D-IA-H777-0-0

SCALE —

SHEET 1 OF 1

FIRST USED ON H777-CLD

digital

TITLE +5V REG ASSY

SIZE D | CODE AD | NUMBER 7012909-0-0 | REV. E | DIST.

REV	CHANGE NO.	DESCRIPTION	DATE	APPROVED
A		H777-B WIRELIST	5-31-76	
B		H777-C WIRELIST	6-3-76	
C		H777-D WIRELIST	6-7-76	
D		H777-E WIRELIST	6-17-76	
E		H777-F WIRELIST	6-25-76	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY S. ROCHA DATE 29 JUL 76	CHECKED D. HEALY DATE 2 AUG 76	SECTION 1
ENG R. COURTMACHE DATE 13 SEP 76	PROD R. BARRY DATE 13 SEP 76	ISSUED SECT. 1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
1	D-CS-5412667-0-1	H777 +5V REG (REV & UP)	1
2	9006633	WASHER, INT TOOTH LOCK #6	4
3	9006025-01	SCR PHIL HD PAN #6-32 x .62L	2
4	9006023-01	SCR PHIL HD PAN #6-32 x .44L	2
5	D-IA-7011415-0-0	HARNESS H777 +5V REG	1
6	9006660	WASH, .375 O.D. x .137 I.D. x .036	2
7	D-IA-7011560-0-0	HARNESS BD MOS REG PWR DIST	1
8	D-CS-5411586-0-1	BOARD, PWR DISTR. H777	1
9	D-IA-7417017-0-0	PLATE, CAPACITOR CONN SIDE	1
10	9008185	NUT KEPS #6-32	2
11	9006020-1	SCR PHIL PAN HD #6-32 x .25L	2
12	9009052	CLAMP CAPACITOR	1
13	1012740-00	CAPACITOR 3900uf 16.0V (65)	1
14	9007017	GROMMET RUBBER	2
15	E-IA-7413743-1-0	BRACKET CAPACITOR	1
16	9007035	GROMMET CATERPILLAR	A/R
17	1010702	CAPACITOR 24Kuf 50V	2
18	C-MD-7417408-0-0	CLAMP CAPACITOR	1
19	9009836-1	SCR PHIL HD TRUSS #8-32 x .38L	2
20	9006634	WASHER INT TOOTH LOCK #8	2
21	9008258	SPACER HEX #8-32 x 1.375	2
22	1612584	CHOKE	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	
+5V REG ASSY	D-AD-7012909-0-0	A	PL	7012909-0-0	E	7012909 ML00#3
	SHEET 1 OF 2	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

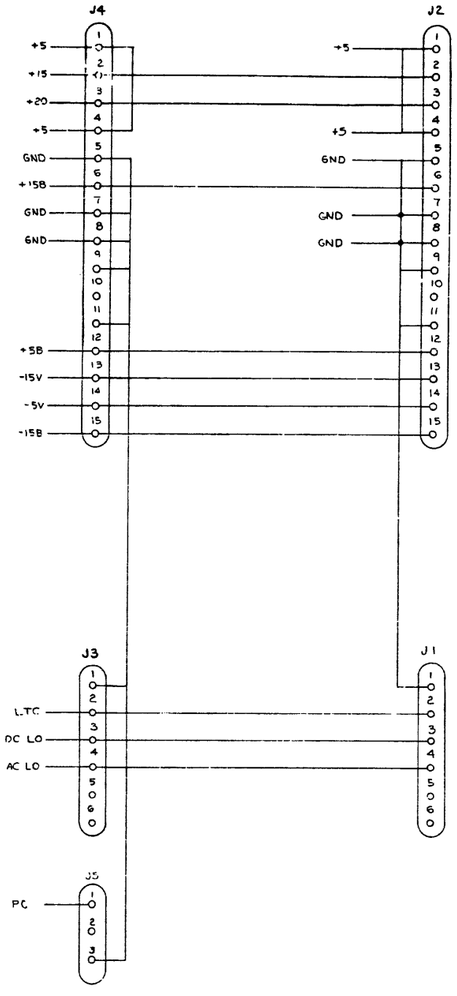
MADE BY S. ROCHA DATE 29 JUL 76	CHECKED D. HEALY DATE 2 AUG 76	SECTION 1
ENG R. COURTMACHE DATE 13 SEP 76	PROD R. BARRY DATE 13 SEP 76	ISSUED SECT. 1

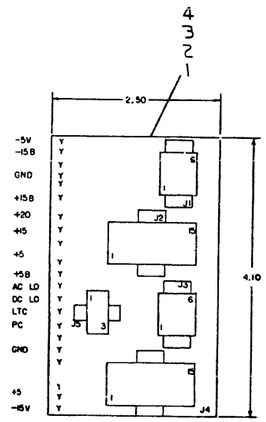
ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION
23	B-IA-7011801-0-0	JUMPER (RED)	1
24	B-IA-7011802-0-0	JUMPER (BLK)	1
25	B-IA-7011800-0-0	JUMPER (GRN)	2
26	9006563	NUT KEPS #8-32	2
27	9006707	WASHER NYLON #6	2
28	9000039-07	SCR, FLAT HD #6-32 x .25	5
29	A-DC-7416911-0-0	DECAL, BATT BACKUP	1
30	B-IA-7011801-0-1	JUMPER, RED	1
31	B-IA-7011802-0-1	JUMPER, BLK	1
32	9009624	BUMPER	1
33	9009255-00	LABEL	1
34	9007031	CABLE TIE	2
35	9006071-01	SCR PAN HD #10-32 x .37	4
36	9006636	WASHER LOCK INT .380 OD x .200 ID x .022THK	4
37	9009667	SCR, SEMS, SLOTTED BINDER HD #10-32 x 5/16	2

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
+5V REG ASSY	D-AD-7012909-0-0	A	PL	7012909-0-0	E	7012909-ML00#3
	SHEET 2 OF 2	DIST.				

DEC FORM DEC 16 (325) 1031 N870

NOTES:





REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411586-0-4	1
REF		ASSY DRILLING HOLE LAYOUT	D-AH-5411586-0-5	2
REF		MODULE ECO HISTORY	B-MH-5411586-0-6	3
1		ETCHED CIRCUIT BOARD	5011585	4
2	J2,J4	CONN.,MATE-N-LOCK,15 PIN HOUSING	1209350-15	5
2	J1 J3	CONN.,MATE-N-LOCK,6 PIN HOUSING	1209350-06	6
45		PIN.CONTACT,MATE-N-LOCK	1209456-01	7
1	J5	CONN.,MATE-N-LOCK,3 PIN HOUSING	1209350-03	8

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL
1104 PWR SUPPLY

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

ETCH BOARD REV D

CHANGE NO	REV

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

DRN D Bilodeau DATE 12/75
CHK W Thomson DATE 2-23-75
ENGR K Conroy DATE 2-23-75
PROJ MGR C Young DATE 2-23-75
APVD DATE

NEXT HIGHER ASSY

SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

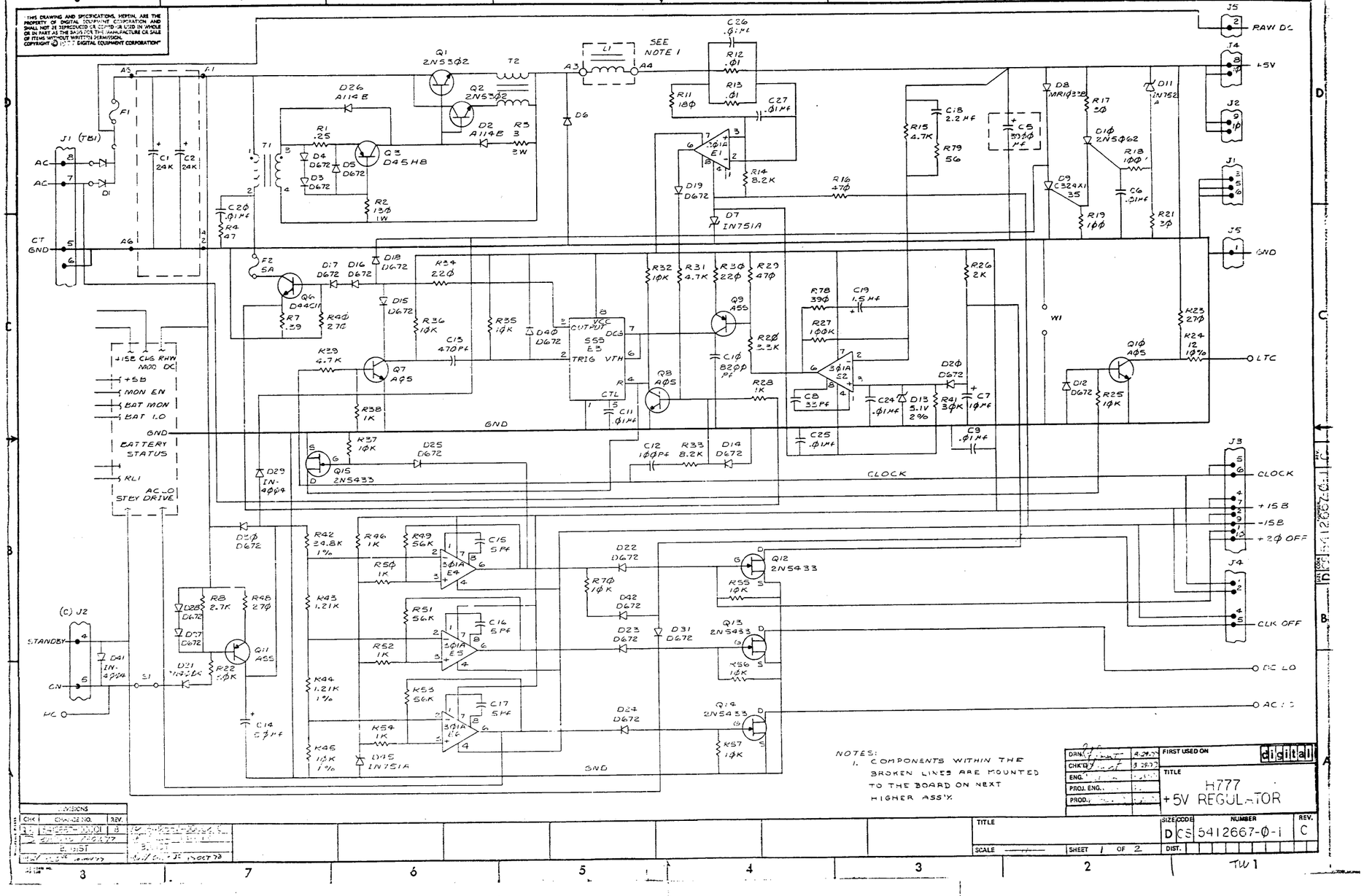
TITLE: BOARD, POWER DISTRIBUTION H777

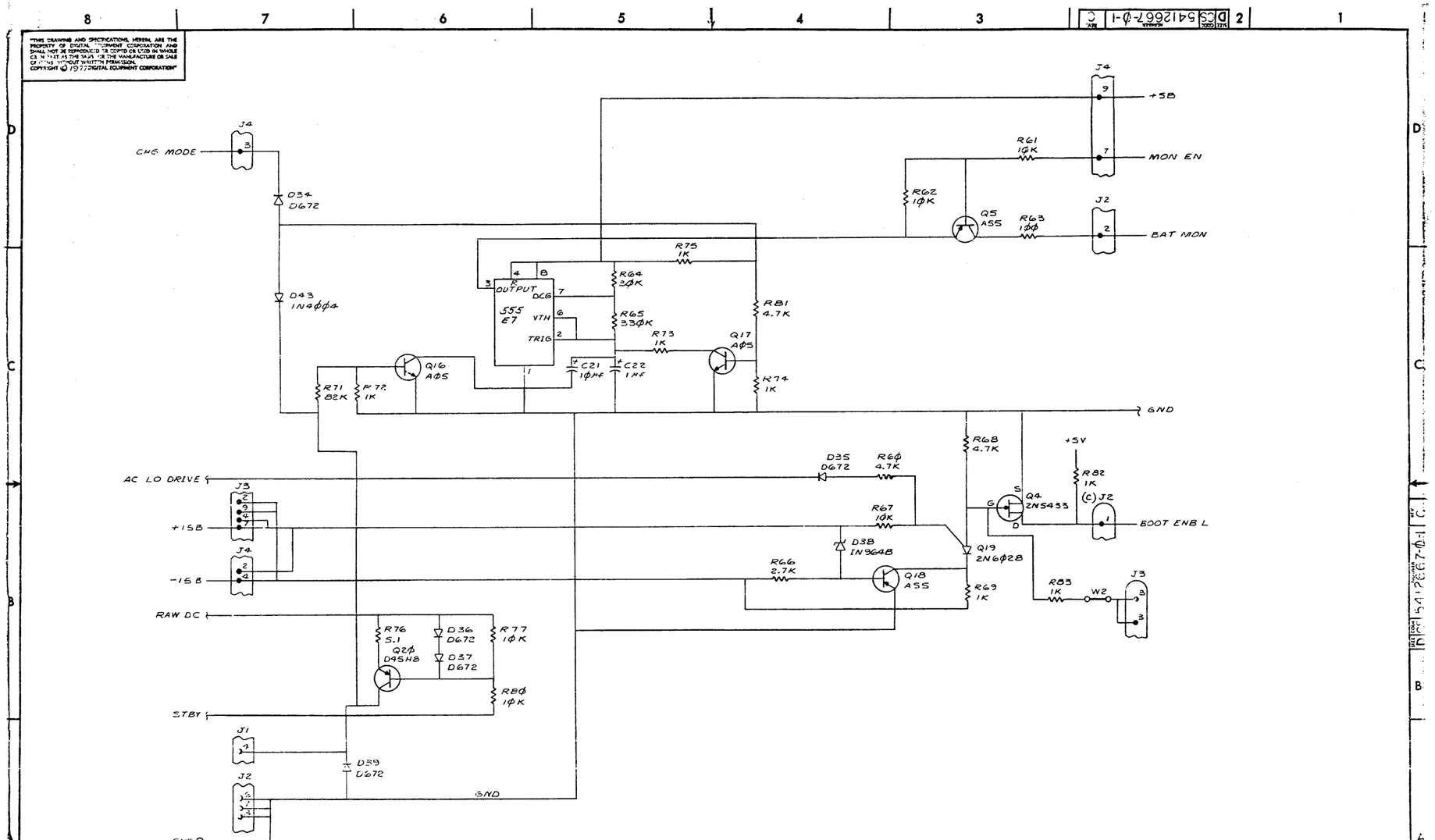
SIZE C | CODE DCS | NUMBER 5411586-0-1 | REV. C

DIST.

DCS 5411583-0-1

132





DIVISIONS		
CHK	CHANGE NO.	REV.

(BATTERY STATUS CRKT'S)

TITLE	SIZE	CODE	NUMBER	REV.
H777 +5V REGULATOR	D	CS	5412367-0-1	C
SCALE —	SHEET 2 OF 2	DIST.		

LEGEND	
PART NO	VARIATION
7012910-0	120 V
7012910-1	230 V

WIRE CHART

ITEM NO	DESCRIP AWG	DESCRIP COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
22	18	OR/WH	K1-4	SOLD,31	*TB2-3S	SOLD	5 1/2"L
23	18	GR/WH	K1-6	↓	*TB2-4S	SOLD	5"L
24	18	WH/OR	K1-7	↓	TB2-5H	25,	9"L
26	18	WH/GR	K1-9	↓	TB2-6H	25,	9"L
27	18	GRY	K1-A	—	—	42	13 1/2"L
	TWP	BLK	K1-B	SOLD,31	—		13 1/2"L
46	18	R-B/OR	G2	SOLD	*TB2-6S	SOLD	6"L
47	18	GR/BL	F1-1	SOLD,31	*TB2-4S	SOLD	3"L
43	18	BRN	CB1(-2) LOAD	28,31	*TB2-6S	SOLD	7 1/2"L
	TWP	BLU	CB1(-1) LOAD	28,31	*TB2-1S	SOLD	7 1/2"L
45	14	BLU	CB1(+1) LINE		NOTE 6	—	17"L
	TWP	BRN	CB1(+2) LINE		NOTE 6	—	17"L
15	18	WHT	*TB2-7S	SOLD	J2-2	30,32	10"L
	TWP	BLK	*TB2-5S	SOLD	J2-1	30,32	9"L
15	18	WHT	*TB2-7S	SOLD	J3-2	30,32	11"L
	TWP	BLK	*TB2-5S	SOLD	J3-1	30,32	15 1/2"L

SEE NOTE 2, SEE DETAIL 'E'

SEE NOTE 2, SEE DETAIL 'C'

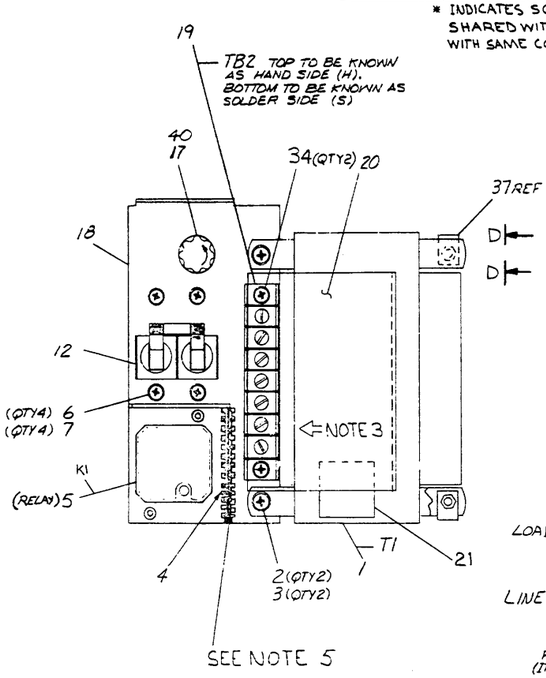
ITEM NO	DESCRIP AWG	DESCRIP COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
1	18	BLK	T1	—	TB2-1H	—	—
	TWP	BK/WH			TB2-3H	—	—
	18	RED			TB2-2H	—	—
	TWP	RD/WH	T1		TB2-4H	—	—
47	18	GY/BL	G3	SOLD	F1-2	SOLD,31	4"L
35	18	BLK	TB2-1H	—	TB2-2H	—	120V
36	18	WHT	TB2-3H	—	TB2-4H	—	120V
35	18	BLK	TB2-2H	—	TB2-3H	—	230V
13	22	BARE	R1-A	—	G3	SOLD,33	
13	22	BARE	R1-B	—	G2	SOLD,33	
48	18	BL/WH	K1-8	SOLD,31	TB2-1S	25	4"L
49	18	WH/BL	K1-5	SOLD,31	TB2-7H	25	5 1/2"L

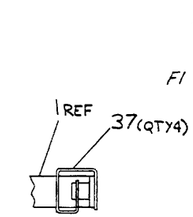
7012910-0	120V
7012910-1	230V

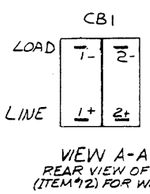
* INDICATES SOLDER CONN. SHARED WITH OTHER CONN. WITH SAME COMMON CONN.

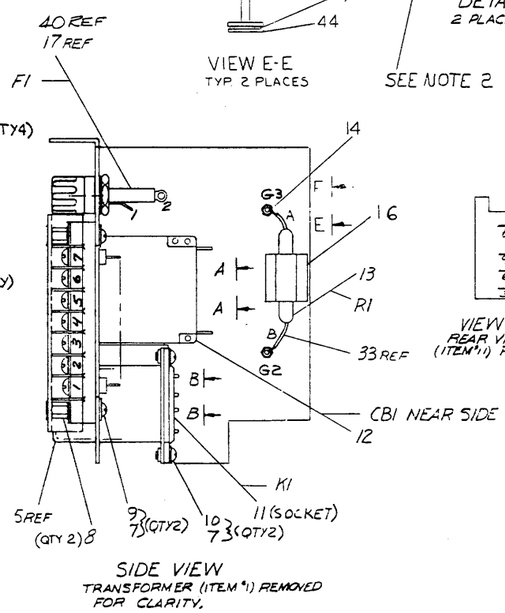
NOTES:

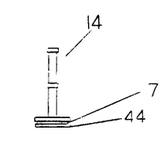
1. ~~COVER ITEM #28 WITH ITEM #31 COVER ENTIRE CONN.~~
2. TWISTED PAIR WIRE TO HAVE A MIN OF 5 TWIST PER FT AS PER WIRE CHART.
3. ALL CONNECTIONS TO TB2 ARE TO BE MADE FROM SIDE INDICATED BY ARROW.
4. USE TIE WRAPS (ITEM #38) AS NEEDED.
5. T1 PRIMARY WIRES TO TB2 MUST BE ROUTED BY ITEM 4
6. NO CONNECTION IS MADE AT THIS ASSY LEVEL REFER TO PRINT E-UA-H777-0-0

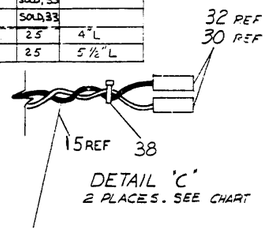


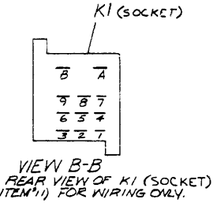


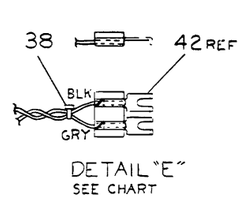












OFF SHEET PARTS LIST SEE A-PL-7012910-0-0

DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL —#—

FINISH —#—

DRN. H. Fiola 29 JUL 76
CHK'D D. Healy 2 AUG 76
ENG. [illegible] 2 AUG 76
PROJ. ENG. P. Sweeney 2 AUG 76
PROD. R. Kelly 2 AUG 76
NEXT HIGHER ASSY.
E-UA-H777-0-0
SCALE 1/1
SHEET 1 OF 2

FIRST USED ON H777-C & D

TITLE: A/C INPUT ASSY (120V/230V)

SIZE D | CODE AD | NUMBER 7012910-0-0 | REV. L | DIST.

REV.	DESCRIPTION	DATE	APPROVED
L	ECO# [illegible]	29 JUL 76	[illegible]
K	ECO# H777-0000-0	7 MAY 76	[illegible]
J	ECO# H777-0000-0	15 JAN 76	[illegible]
H	ECO# H777-0000-0	6 OCT 77	[illegible]
G	ECO# H777-0000-0	6 MAY 77	[illegible]
F	ECO# H777-0000-0	11 MAR 77	[illegible]
E	ECO# H777-0000-0	22 DEC 76	[illegible]
D	ECO# H777-0000-0	1 DEC 76	[illegible]
C	ECO# H777-0000-0	22 NOV 76	[illegible]
B	ECO# H777-0000-0	4 NOV 76	[illegible]
A	ECO# H777-0000-0	29 OCT 76	[illegible]

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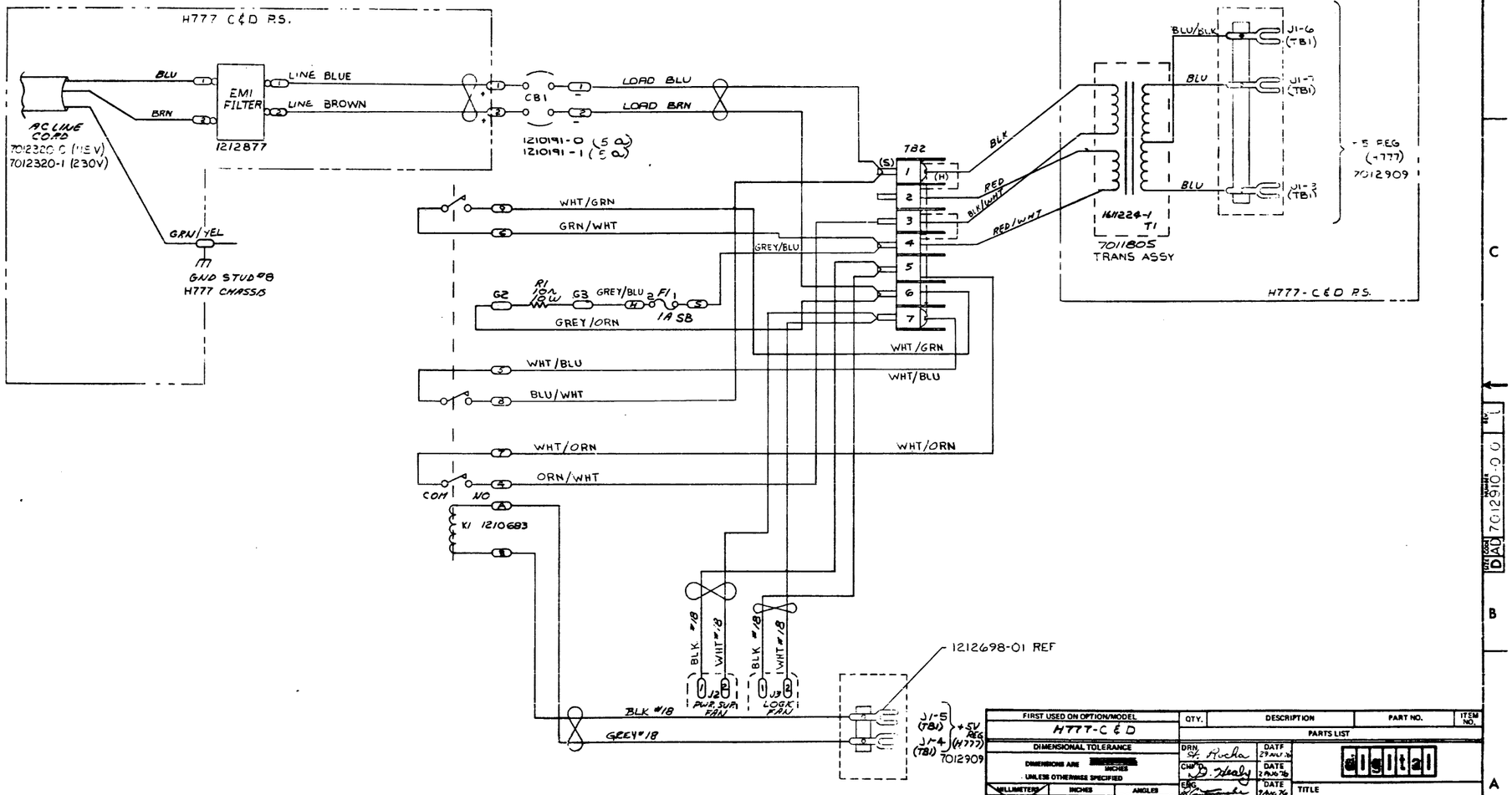


FIRST USED ON OPTION/MODEL	H777-C&D
DIMENSIONAL TOLERANCE	DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED
MILLIMETERS / INCHES / ANGLES	XXX ±0.10 XX ±0.5 X ±0.4 / XXX ±.005 .XX ±.02 / 1/2°
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL	
FINISH	

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

DRN. S. Rucha	DATE 29 AUG 76	digital
CHK D. Healy	DATE 2 SEP 76	
ENG	DATE 9 Aug 76	TITLE A/C INPUT ASSY (120V/230V)
PROJ ENG.	DATE 13 SEP 76	
PROD	DATE 13 Sept 76	
NEXT HIGHER ASSY.		
SCALE	SIZE CODE D AD	NUMBER 7012910-0-0 REV. L
SHEET 1 OF 1		

REVISIONS: REV. | CHANGE NO. | DATE

LIST/LOGIC DAD NUMBER 7012910-0-0 REV. L

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY A. ROCHA | CHECKED D. HEALY | SECTION 1
DATE 19-JULY-76 | DATE 27-JULY-76 |
ENG R. BARRY | PROD R.B. KING | ISSUED SECT. 1
DATE 17-SEPT-76 | DATE 21-SEPT-76 |

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	7012910-0	7012910-1
1	C-IA-7011805-0-0	TRANSFORMER ASSY	1	1
2	9006037-01	SCR PHIL PAN HD #8 - 32 x .38	2	2
3	9006634	WASHER INT. TOOTH LOCK #8	2	2
4	9007035	GROMMET CATERPILLAR	A/R	A/R
5	1210683-00	RELAY 12V 3P 10A	1	1
6	9006020-01	SCR PHIL HD PAN #6-32 x .25	4	4
7	9006633	WASHER INT. TOOTH LOCK #6	10	10
8	9006842	SPACER HEX #6 - 32 x .31	2	2
9	9007794-01	SCR PHIL HD PAN #6 - 32 x .69	2	2
10	9006021-01	SCR PHIL HD PAN #6 - 32 x .31	2	2
11	1212789	SOCKET, RELAY	1	1
12	1210191-1	CIRCUIT BREAKER, 5A	1	1
13	1300173	RESISTOR, 10 OHM, 10W	1	1
14	9006966	TERMINAL TURRET INS	2	2
15	9107430-09	WIRE #18 AWG INS TW/PR (WHT/BLK)	A/R	A/R
16	9009771-2	CLAMP (RESISTOR) 3/8 I.D. SELF ADH.	1	1
17	1212893-00	HOLDER, FUSE 20A, 300V	1	1
18	D-IA-7417219-0-0	BRACKET, COMPONENT	1	1
19	1212788	BARRIER STRIP 7 POS	1	1
20	B-IA-7414743-1-0	SHIELD, TERM.	1	1
21	9008264	MOUNT TIE WRAP	1	1
22	9107410-39	WIRE #18 AWG INS ORN/WHT	A/R	A/R
23	9107410-59	WIRE 18 AWG INS GRN/WHT	A/R	A/R
24	9107410-93	WIRE 18 AWG INS WHT/GRN	A/R	A/R
25	9007929	RING CRIMP (RED INS)	2	2
26	9107410-95	WIRE 18 AWG INS WHT/GRN	A/R	A/R
27	9107430-08	WIRE 18 AWG INS (GRY/BLK) TW/PR	A/R	A/R
28	9007970	CONN FASTON (RED INS.)	2	2
~~29~~	~~1210191-3~~	~~CIRCUIT BREAKER, 2.5A~~	~~1~~	~~-~~
30	1210820-2	HOUSING TERM. FASTAB	4	4
31	9107305-02	TUBING SHRINK (RED)	A/R	A/R
32	1210820-1	HOUSING SOCKET, FASTAB	4	4
33	9107278-02	TUBING INS (RED)	A/R	A/R
34	9008020-02	SCR, PHL, FLAT HD, 6 - 32 x .19	2	2
35	B-IA-7011797-0-0	JUMPER ASSY (BLK 2")	1	1
36	B-IA-7011798-0-0	JUMPER ASSY (WHT 2")	1	-
37	9007786	NUT #10 - 32	4	4
38	9007031	TIE WRAP	A/R	A/R
~~39~~	~~9107253-09~~	~~TUBING, SHRINK (WHT)~~	~~A/R~~	~~A/R~~
40	9007212	FUSE, 1A, 250V S.B.	1	1
~~41~~	~~9107253-03~~	~~TUBING, SHRINK (ORN)~~	~~A/R~~	~~-~~
42	1212698-01	STRIP, FANNING (2 POSITION)	1	1
43	9107430-16	WIRE 18 AWG INSTWP BRN, BLU	A/R	A/R
44	9006656	WASHER, FLAT	2	2
45	C-IA-7417288-0-0	A/C CONN HARNESS	1	1
46	9107410-83	WIRE #18 AWG INS GREY/ORN	A/R	A/R
47	9107410-86	WIRE #18 AWG INS GREY/BLU	A/R	A/R
48	9107410-69	WIRE #18 AWG INS BLU/WHT	A/R	A/R
49	9107410-96	WIRE #18 AWG INS WHT/BLU	A/R	A/R

TITLE: A/C INPUT ASSY (120V/230V)
ASSY NO. D-AD-7012910-0-0
SHEET 1 OF 3
SIZE A | CODE PL | NUMBER 7012910-0-0 | REV. L | ECO NO 7012910-00005
DIST.

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

TITLE: A/C INPUT ASSY (120V/230V)
ASSY NO. D-AD-7012910-0-0
SHEET 2 OF 3
SIZE A | CODE PL | NUMBER 7012910-0-0 | REV. L | ECO NO
DIST.

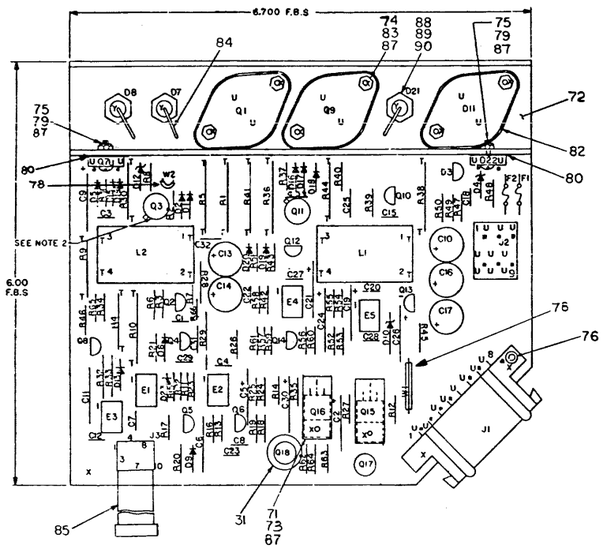
DEC FORM DEC 16 (325)-1031-N870
DRA 110

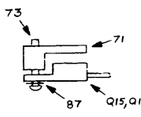
TITLE: A/C INPUT ASSY. (120V/230V)
ASSY NO. D-AD-7012910-0-0
SHEET 3 OF 3
SIZE A | CODE PL | NUMBER 7012910-0-0 | REV. L | ECO NO
DIST.

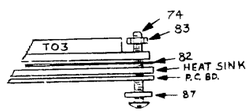
DEC FORM DEC 16 (325)-1031-N870
DRA 110

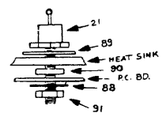
NOTES:

1. SEE PARTS LIST FOR CURRENT HDW. D7, D8, D21
2. USE TRANSIPAD DEC#9007201 UNDER Q3, Q11, Q17, Q18
3. TORQUE Q1, Q9, D7, D8, D11, & D21 HARDWARE TO 6-8 IN-LBS.









SIDE VIEW
MOUNTING D7, D8 AND D21

1	R18	RESISTOR, 8.2K, 1/4W, 5%	1303179	51	REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411601-0-4	1
1	R28	RESISTOR, 4.99K, 1/4W, 1% MF	1305324	52	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411601-0-5	2
2	R1,R36	RESISTOR, 1, 2W, 5% WW	1305428	53	REF		MODULE ECO HISTORY	B-MH-5411601-0-6	3
1	R55	RESISTOR, 5/1, 1/4W, 5%	1309422	54	1		ETCHED CIRCUIT BOARD	5011600	4
2	R5,R38	RESISTOR, .15, 2W, 10%	1310147	55	2	C20,C4	CAPACITOR, 33pf, 100V, 5%	1000009	5
2	R32,R33	RESISTOR, 2.21K, 1/4W, 1%	1310631	56	1	C8	CAPACITOR, 100pf, 100V, 5%	1000016	6
1	D22	DIODE 2N4441 SCR	1505867	57	1	C7,	CAPACITOR, 220pf, 100V, 5%	1000021	7
3	Q3,Q11,Q17	TRANSISTOR, 2N4036	1509700	58	1	C25	CAPACITOR, .1mf, 100V, 20% DISC	1000030	8
1	Q18	TRANSISTOR, CEC 3734	1510082	59	9	C1,C3,C12,C15,C18,C27,C28, C32,C33	CAPACITOR, .01mf, 100V, DISC	1001610-01	9
1	Q7	TRANSISTOR, MJE3055	1510555	60					
7	Q4,Q5,Q6,Q8,Q12 THRU Q14	TRANSISTOR, XA05	1510705	61	6	C2,C5,C9,C19,C26,C30	CAPACITOR, 1mf, 35V, 10%	1001776	10
2	Q2,Q10	TRANSISTOR, XA55	1510706	62	2	C29,C31	CAPACITOR, .47mf, 25V, 20%	1010279	11
1	Q16	TRANSISTOR, D45H8	1510708	63	1	C24	CAPACITOR, 10mf, 20V, 10%	1004813	12
2	Q1,Q9	TRANSISTOR, 2N5038	1510989	64	2	C6,C21	CAPACITOR, .01mf, 100V, 10% MYLAR	1005784	13
1	Q15	TRANSISTOR, D44H5	1512722	65	1	C11	CAPACITOR, .015mf, 50V, 2% POLYC	1010848	14
2	L1,L2	INDUCTOR, 500uh	1612593	66	2	C13,C14	CAPACITOR, 390mf, 20V	1012607-05	15
2	E2,E5	I.C. L.M. 301A	1910282	67	1	C17	CAPACITOR, 1200mf, 6.3V	1012607-01	16
3	E1,E3,E4	I.C. L.M. 555	1911944	68	2	C10,C16	CAPACITOR, 180mf, 50V	1012607-02	17
1	C22	CAPACITOR, 47pf, 100V, 5%	1000024	69	1	D4	DIODE IN752A	1102808	18
1	C23	CAPACITOR, 180pf, 100V 5%	1000020	70	11	D1,D2,D6,D13 THRU D17,D19, D20,D23	DIODE D672	1105275	19
2		HEAT SINK	7414765	71					
1		HEAT SINK	7413842	72	1	D9	DIODE IN4004	1105796	20
2		SCREW #4-40 x 7/16 LG	9006012-1	73	3	D7,D8,D21	DIODE, IN3880	1109440	21
6		SCREW #4/40 x 1/2 LG.	9005013-1	74	1	D12	DIODE IN4742	1109502	22
2		SCREW, NYLON #4/40 x.375LG.	9006401-4	75	1	D10	DIODE Izt 5ma 5.1V, 2%	1110713	23
1		EYELET	9009000	76	1	D3	DIODE 2N5062	1110968	24
4		TRANSIPAD	9007201	77	2	D5,D18	DIODE A114B	1112595-01	25
A/R		TUBING	9107256-11	78	1	D11	DIODE DUAL	1112723-00	26
2		NUT, NYLON #4-40	9007592	79	2	F1,F2	FUSE 5A	1209070	27
2		SILPAD TO ZZ	1213071-06	80	1	J1	CONN. 8 PIN MATE-N-LOC	1209340-00	28
A/R		THERMAL COMPOUND	9008268	81	1	J2	CONN. 9 PIN MATE-N-LOC	1209350-09	29
3		SILPAD TO 3	1213071-02	82	17		PINS	1209456-01	30
6		NUT, KEP #4/40	9006557	83	1	(Q18)	HEAT SINK	1210001	31
A/R		WIRE #20 AWG STRANDED	9107460-65	84	5	R2,R3,R37,R47,R50	RESISTOR, 33, 1/4W, 5%	1300197	32
1	J3	CONTROL CABLE	7011414-DD	85	2	R12,R14	RESISTOR, 47, 1/4W, 5%	1300202	33
~~2~~		~~WASHER, LOCK, INTERNAL TOOTH #~~	~~9008832~~	~~86~~	8	R6,R27,R35,R39,R48,R49,R63, R64	RESISTOR, 100, 1/4W, 5%	1300229	34
10		WASHER, FLAT	9008172	87					
3		WASHER, FLAT	9006666	88	2	R9,R44	RESISTOR, 130, 1W, 5%	1300232	35
3		SILPAD, STUD MOUNT	1213071-05	89	1	R52	RESISTOR, 390, 1/4W, 5%	1300309	36
3		BUSHING, NYLON	9008440	90	7	R19,R20,R54,R59,R60,R62,R25	RESISTOR, 1K, 1/4W, 5%	1300365	37
3		NUT, HEX #10-32	9006565	91	1	R45	RESISTOR, 1.5K, 1/4W, 5%	1300391	38
					1	R29	RESISTOR, 2.49K, 3/4W, 1%	1300424	39
AR	W1,W2	WIRE, #20 AWG. SOLID	9107560-02	93	3	R11,R43,R61	RESISTOR, 2.7K, 1/4W, 5%	1300426	40
1		LABEL, POWER SUPPLY	9009255-00	94	2	R7,R65	RESISTOR, 4.7K, 1/4W, 5%	1300447	41
2		TIE, CABLE	9007031	95	2	R23,R56	RESISTOR, 5.62K, 1/4W, 1%	1305128	42
					11	R13,R15,R16,R17,R21,R22,R42, R46,R51,R57,R58	RESISTOR, 10K, 1/4W, 5%	1300479	43
					2	R53,R24	RESISTOR, 100K, 1/4W, 5%	1302466	44
					3	R8,R31,R40	RESISTOR, 10, 1/4W, 5%	1301317	45
					2	R10,R41	RESISTOR, 33G, 2W, 10%	1301961	46
					2	R26,R34	RESISTOR, 2K, 1/4W, 5%	1302388	47
					1	R66	RESISTOR, 180, 1/4W, 5%	1301322	48
					1	R4	RESISTOR, 1.2K, 1W, 10%	1302950	49
					1	R30	RESISTOR, 1.8K, 1W, 5%	1303122	50

ALTERNATE PARTS LIST

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		EYELET	9006732	76
9	C1,C3,C12,C15,C18,C27,C28,C32, C33	CAPACITOR .01 Mf 50V	1001610-00	9

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. E

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REV.	CHANGE NO.	DATE	CHKR
E	5411601-00001	12-6-75	Richard Barry
F	5411601-00002	12-10-75	Richard Barry
G	5411601-00003	1-7-76	A. Fraser
H	5411601-00004	2-24-76	G. Potter
J	5411601-00005	4-9-76	J. Barrett
K	5411601-00006	4-30-76	G. Barbieri
L	5411601-00007	9 NOV 77	E. Crocker

DRAWN E. CROCKER 2 Mar 77
TRACED BRUCE CRAMM 9 NOV 77
ENGR R. DAY 1 Nov 77
CHKD J. Barrett 2 Nov 77
PROJ ENGR G. POTTER 2 Nov 77
MFG ENGR A. FRASER 2 Nov 77
QUAL ENGR G. Barbieri 2 Nov 77
SIZE D CODE CS NUMBER 5411601-0-1 REV. M

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

SEMICONDUCTOR CONVERSION CHART

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 3

DRN J. Day DATE 5-29-75
CHKD DATE
ENG. DATE 7/21/75
PROJ ENGR DATE 7/22/75
QUAL ENGR DATE 12-5-75

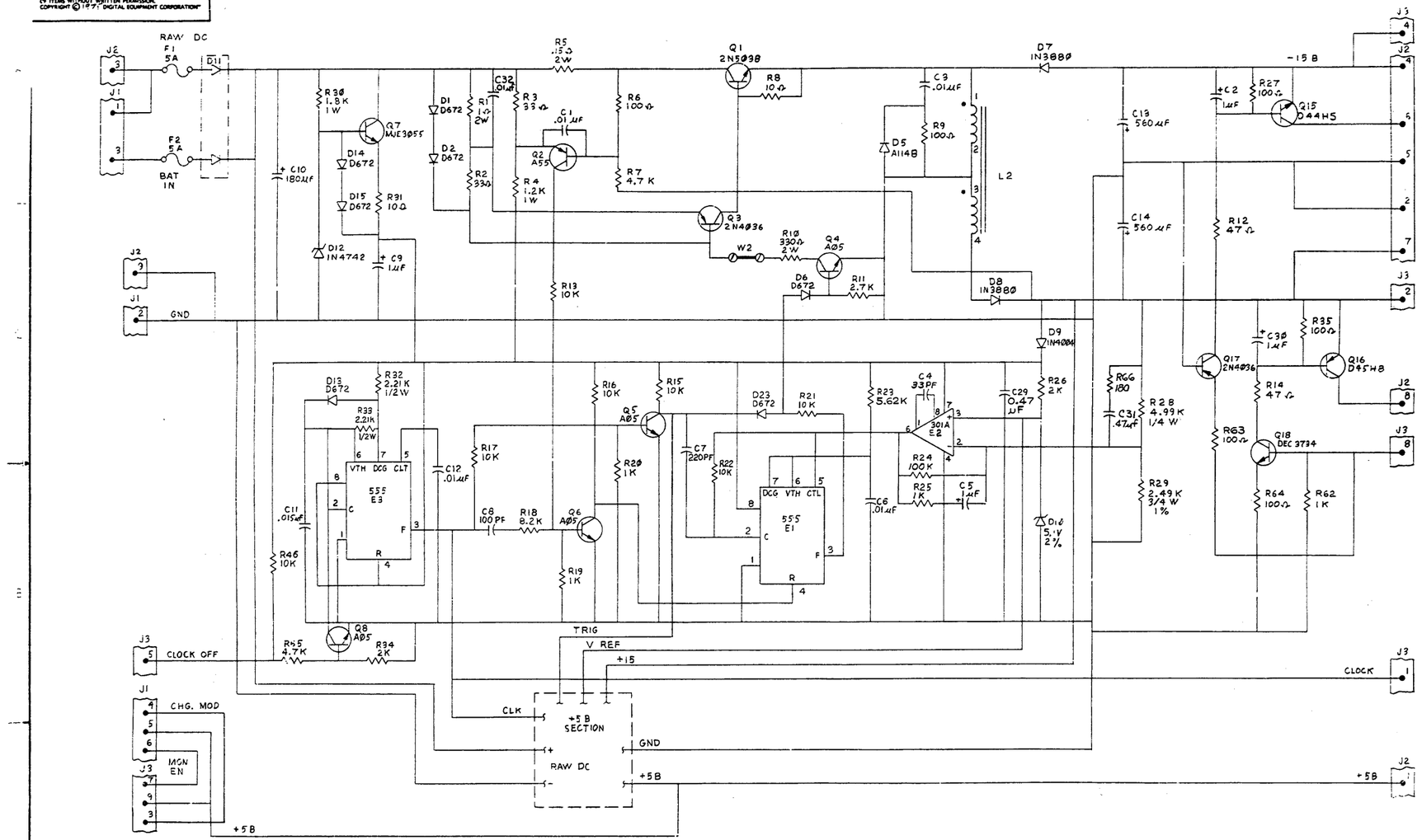
digital

TITLE MOS REGULATOR H777

SIZE D CODE CS NUMBER 5411601-0-1 REV. M

DIST.

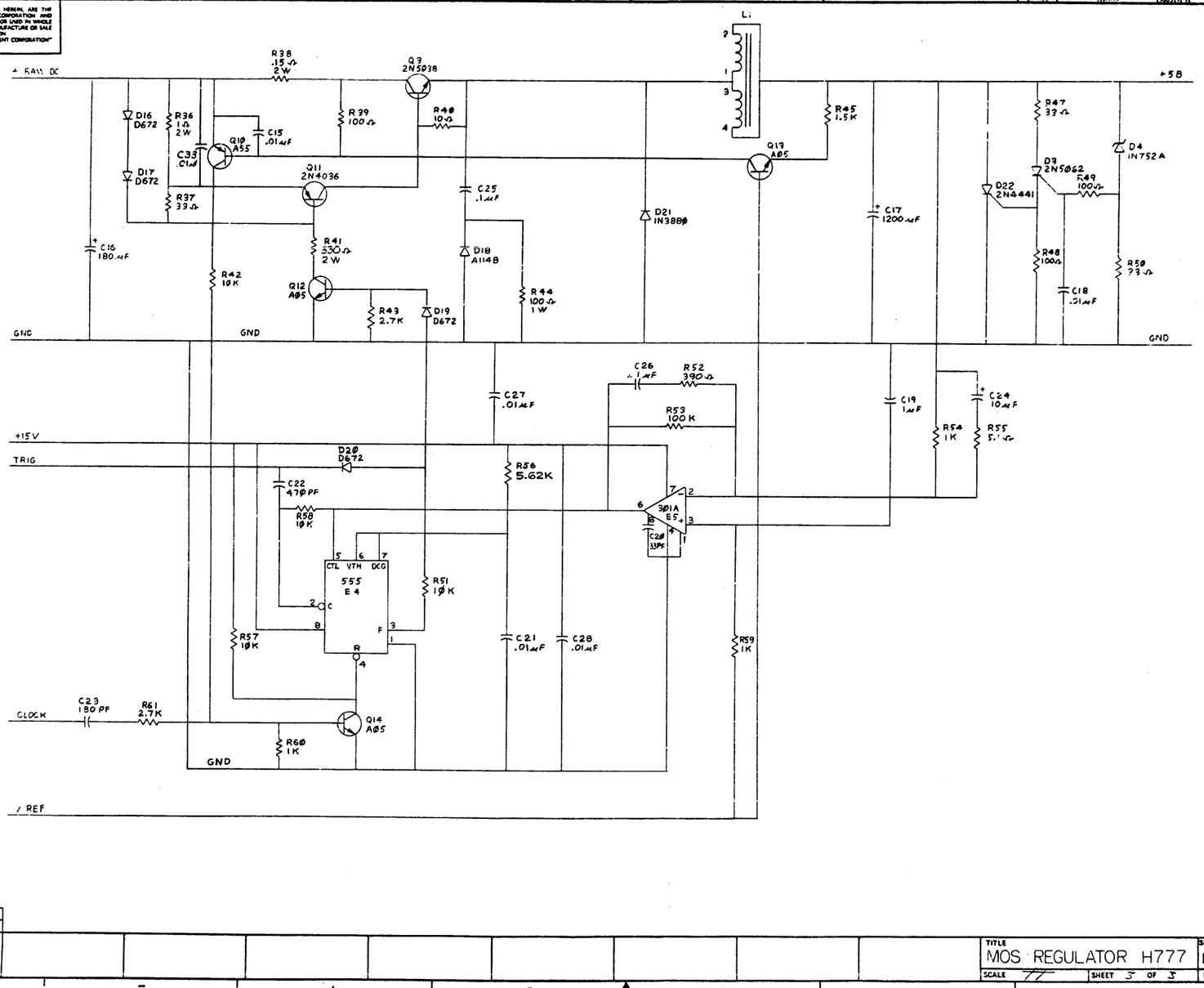
138



REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
MOS REGULATOR H777	D	CS	5411601-0-1	M
SCALE — SHEET 2 OF 3	DIST.			

5411601-0-1 M



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
MOS REGULATOR H777	D	CS	5411601-0-1	M
SCALE	SHEET 3 OF 3	DIST.		

DLC FORM NO.

NOTES:

USE TRANSIPAD DEC# 9007201 UNDER Q1&Q8

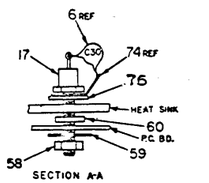
1		HEAT SINK	7416236-0-0	55	
6		SCREW, #4-40 x 1/2 lg PH HD	9006013-1	56	
6		NUT, KEP #4-40	9006557	57	
2		NUT, HEX #10-32	9006564	58	
1		WASHER, FLAT	9006682	59	
1		BUSHING, NYLON	9008440	60	
6		WASHER, FLAT	9008172	61	
A/R		COMPOUND, THERMAL	9006268	62	
3		INSULATOR, TO 3	1213071-02	63	
1		~~WASHER, THERMAFLO~~	~~9008424~~	~~64~~	
2		TRANSIPAD	9007201	65	
A/R		WIRE #18 AWG, TWISTED PAIR	9107430-02	66	
1	C29	CAPACITOR 2.2UF 20V	1002627	67	
1	R47	RESISTOR 200, 1/4W, 5%	1311522	68	
1		HARNESS (THREE WIRE)	C-IA 7012547-0-0	69	
1		HARNESS (TWO WIRE)	C-IA 7012546-0-0	70	
1	C12	CAPACITOR, 10uf, 20V, 10%, TANT	1004813	71	
1	D23	DIODE, IN753A	1102421	72	
1	C26	CAPACITOR, .47uf, 25V, 20%, CER	1010279	73	
2		SOLDER, TERM, SCREW MTG.	9007815	74	
1		SIL PAD .800 .190 I.D.	1213071-05	75	
1	C32	CAP. 1UF 50V CER.	1010274-02	76	

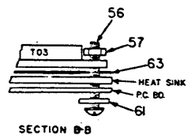
REF		X-Y COORDINATE HOLE LOCATION	K-CC 5411599-0-4	1	
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411599-0-5	2	
REF		MODULE ECO HISTORY	B-MH-5411599-0-8	3	
1		ETCHED CIRCUIT BOARD	5011598	4	
1	C7	CAPACITOR, 100PF, 100V, 5%,	1000016	5	
6	C2,C3,C8,C30,C24,C25	CAPACITOR, 01uf, 100V DISC	1001610-01	6	
3	C9, C27, C28	CAPACITOR, 1uf, 35V, 10% TANT	1001776	7	
2	C10,C13	CAPACITOR, 33pf, 100V CM	1000009	8	
1	C11	CAPACITOR, 1.5uf, 35V, 10% TANT	1009725	9	
2	C8,C14	CAPACITOR, 01uf, 100V, 10% MYLAR	1005784	10	
1	C31	CAPACITOR, 220pf, 100V, 5%	1000021	11	
2	C5,C16	CAPACITOR, 1200uf, 63V	1012607-01	12	
7	C1,C17,C18,C4,C20,C21,C22	CAPACITOR, 150uf, 50V	1012607-02	13	
1	D22	DIODE, IN4742	1105502	14	
1	D10	DIODE, MR1033B	1103341	15	
10	D1 THRU D7, D14, D15, D21	DIODE, D872	1105275	16	
1	D17	DIODE, IN3880	1109440	17	
2	D12,D13	DIODE, IN751, 5.1V 2%	1110713	18	
1	D9	DIODE	1110715	19	
1	D11	DIODE, IN979B	1110858	20	
1	D19	DIODE, 2N5682	1110968	21	
1	D9,	DIODE, A1140	1112595-01	22	
1	F1	FUSE, 15A, PICO	1210929	23	
1	R46	RESISTOR, 18K, 1/4W, 5%	1302465	24	
6	R9,R39,R40,R41,R43,R49	RESISTOR, 100, 1/4W, 5%	1300229	25	
1	R7	RESISTOR, 100, 1W, 5%	1300232	26	
3	R11, ,R2,R33	RESISTOR, 390, 1/4W, 5%	1300309	27	
6	R6,R12,R23,R31,R17,R48	RESISTOR, 1K, 1/4W, 5%	1300365	28	
3	R10, ,R14, ,R30	RESISTOR, 2.7K, 1/4W, 5%	1300426	29	
4	R42,R44, R15,R27	RESISTOR, 4.7K, 1/4W, 5%	1300447	30	
1	R4	RESISTOR 1K, 1W, 5%	1300368	31	
3	R16, R29,R38,	RESISTOR, 10K, 1/4W, 5%	1300479	32	
2	R3,R35	RESISTOR, 10, 1/4W, 5%	1301317	33	
1	,R45	RESISTOR, 470, 1/4W, 5%	1300316	34	
1	R5	RESISTOR, 27, 1/4W, 5%	1301522	35	
1	,R34	RESISTOR, 330, 2W, 10%	1301961	36	
1	R19	RESISTOR, 2K, 1/4W, 5%	1302388	37	
2	R18,R26	RESISTOR, 100K, 1/4W, 5%	1302456	38	
1	R22	RESISTOR, 2.74K, 1/4W, 1%	1304868	39	
2	R1,R32	RESISTOR, 1, 2W, 5% WW	1305428	40	
2	R24, R25	RESISTOR, 1.5K, 1/4W 5%	1300391	41	
1	R21	RESISTOR, 8.25K, 1/4W, 1%	1309420	42	
2	R8,R37	RESISTOR, 08, 5W, 3% WW	1311603	43	
1	R20	RESISTOR, 56, 1/4 W, 5%	1302602	44	
2	Q1,Q8	TRANSISTOR, 2N4033R	1509700	45	
7	Q3,Q5,Q6,Q7,Q9,Q12,Q13	TRANSISTOR, XA85	1510705	46	
1	Q4	TRANSISTOR, XA55	1510706	47	
1	D18	TRANSISTOR, C32AX135	1510928	48	
2	Q2,Q10	TRANSISTOR, 2N5038	1510969	49	
1	Q11	TRANSISTOR, 2N5433	1511686	50	
2	L1,L2	INDUCTOR, 900uh	1612593	51	
2	E1,E3	I.C DEC 301A	1910282	52	
2	E2,E4	I.C DEC 555	1911944	53	
1	J1	CABLE ASSY	7011414-0E	54	
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.	

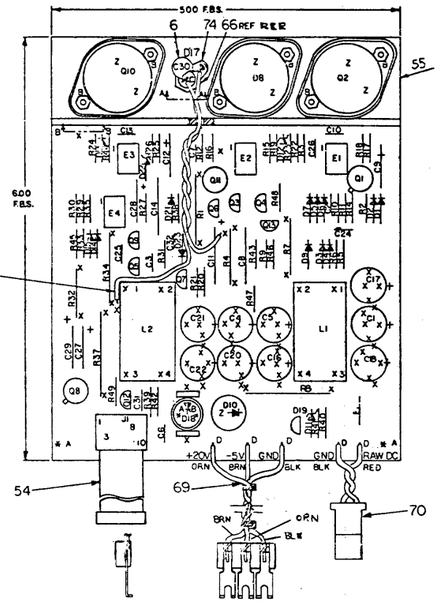
PARTS LIST

ETCH BOARD REV. D

FIRST USED ON OPTION MODEL







IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REV.	REVISIONS	CHK	DATE
J	5411599-00003 CHANGE NO.	J. SCELO	2-9-77
H	5411599-00002 CHANGE NO.	G. POTTER	7 JAN 77
E	5411599-00001 CHANGE NO.	P. Hunter	6 AUG 76

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

SEMICONDUCTOR CONVERSION CHART

DRN.		DATE
CHK'D		DATE
ENG.		DATE
PROJ.		DATE
PROD.		DATE

NEXT HIGHER ASSY: E-UA-H777-0-0

SCALE:

SHEET 1 OF 2

digital

TITLE: +20V REGULATOR/H777

SIZE	CODE	NUMBER	REV.
D	CS	5411599-0-1	J

DIST.

MAT'L SPEC 5411599-0-1 REV J

141

RAW DC
F1 15A
L1
+20 V
GND
-15V
+15V
CLK
-20 V OFF
-5 V
J1
Q1 2N5233
Q2 2N5038
Q3 A05
Q4 A55
Q5 A05
Q6 2N4036
Q7 A05
Q9 A05
Q10 2N4038
Q12 A05
Q13 A05
Q14 A05
555 E2
555 E4
301A E1
301A E3
DCS VTH CTL
CTL VTH DCB
VCC GND TRIG OUT R
D1 D672
D2 D672
D3 D672
D4 D672
D5 D672
D6 D672
D7 D672
D9 A114B
D10 MR4338
D11 1N1976B
D12 5.1V 2%
D14 D672
D15 D672
D17 2N5062
D18 C32AR135
D21 D672
D22 1N4742
D23 1N753A
DZ1 D672
1N3486
R1 1 1/2W
R2 39Ø
R3 10
R4 1K 1W
R5 27
R6 1K
R7 2.7K 1W
R9 1K
R10 10K
R11 33Ø
R12 1K
R13 4.7K
R14 2.7K
R15 4.7K
R16 2.7K
R17 1K
R18 100K
R19 2K
R20 56
R21 8.25K 1%
R22 2.74K 1%
R23 1K
R24 4.7K
R25 1.5K
R26 100K
R27 4.7K
R29 10K
R30 2.7K
R31 1K
R33 39Ø 2W
R34 33Ø 2W
R35 10
R36 10K
R37 .08 5W
R38 10K
R39 10Ø
R40 16Ø
R41 1MΩ
R42 4.7K
R43 10Ø
R45 47Ø
R46 18K
R47 200 1/4W
R48 1K
R49 100Ω
C1 100UF
C2 .01UF
C3 .01UF
C4 100UF
C5 120UF
C6 .01UF
C7 100pf
C8 .01UF
C9 1UF
C10 33pf
C11 .15UF
C12 10UF
C13 33pf
C14 1UF
C16 1200UF
C17 1200UF
C18 1UF
C19 .01uf
C20 100UF
C21 100UF
C22 100UF
C24 .01UF
C25 .01uf
C26 .47UF
C28 1UF
C29 2.2UF 20V
C30 .01UF
C31 220 PF
C32 .1UF
5.1V 2%

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
+20V REGULATOR/H777	D	CS	54 11599-0-1	J
SCALE	SHEET 2 OF 2	DIST.		

DEC FORM NO.

142

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
KY11-LA

KY11-LA

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ17

REVISIONS		
REV.		A
CHG. NO.	KY11-LA-3	
DATE	5-77	

EN-01124-16 N675(327)

USED ON OPTION/MODEL	
11/Ø4-AA	11/Ø4-DC
11/Ø4-AB	11/Ø4-DD
11/Ø4-AC	11/Ø4-EC
11/Ø4-AD	11/Ø4-ED
11/Ø4-BA	
11/Ø4-BB	
11/Ø4-BC	
11/Ø4-BD	

SHEET I OF 1

DRN. D. HEALY	DATE	9/29/75
CHK'D D. HEALY	DATE	9/29/75
PROJ. ENG. R. Barry	DATE	10-22-75
FIELD SERV.	DATE	10-22-75

digital

TITLE: FIELD MAINTENANCE PRINT SET KY11-LA

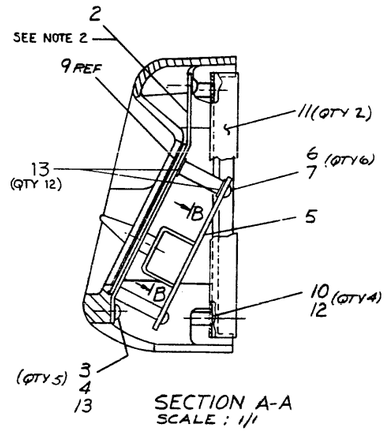
SIZE	CODE	NUMBER	REV.
B	TC	KY11-LA-1	A

DIST.

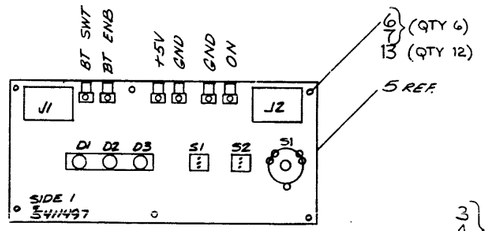
DRB 124

NOTES

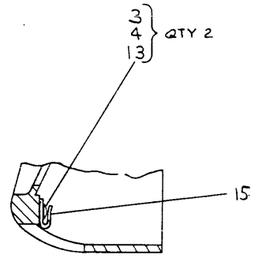
1. PART NO. 7413657-1-0 MAY BE USED IF 7415599 IS NOT AVAILABLE.
2. PRIOR TO ASSY. OF CONTROL PANEL TO SUPPORT PANEL, CLEAN ITEM 2 THOROUGHLY. AFTER CLEANING, APPLY AN EVEN COAT "3M" BRAND AEROSOL ADHESIVE #77N TO ITEM #2 ONLY. TO AVOID ATTACKING THE SILK SCREENING. POSITION ITEM #9 IN PLACE AND BOND, APPLYING PRESSURE FOR A PERIOD OF 15-30 SECONDS.
3. OVERLAY DECAL TO BE SHIPPED LOOSE PIECE WITH THE UNIT AND ADDED AS SHOWN IF REQUIRED AT F.A. & T.
4. ITEM #16 NOT SHOWN.
5. ITEMS NO'S 1,11 AND 16 ARE ADDED AT FA & T.



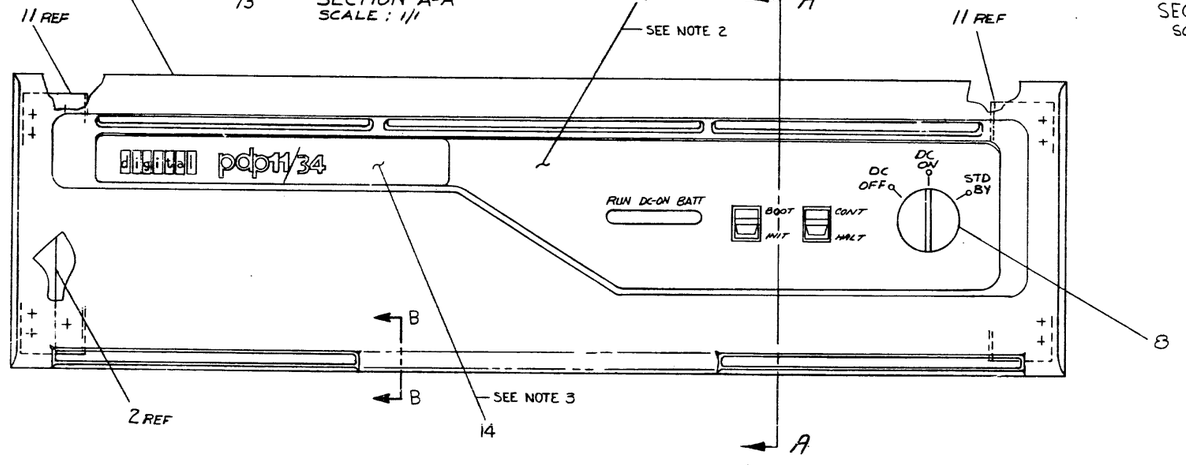
SECTION A-A
SCALE: 1/1



VIEW B-B
SCALE: NONE



SECTION B-B
SCALE: NONE



(SEE NOTE 2)	A/R	ADHESIVE, SPRAY	9008907	17
SEE NOTES 4 & 5	REF	BEZEL, COVER PROTECTIVE	D-MD-7415656-0-0	16
	1	BRACE, SUPPORT PNL	7419008	15
	1	OVERLAY, DECAL 11/34	A-PS-3613359-0-1	14
	19	WASHER, FLAT .375 x .187 x .036	9006660	13
	4	SPACER, HEX 1/4 x .38 LG	9006802	12
SEE NOTE 5	REF	BRKT, FILTER SUPPORT	C-MD-7414962-0-0	11
	4	SCR, PHIL FL HD #8-32 X .62	9006040-2	10
	1	PANEL, CONTROL, CONSOLE	D-IA-7413502-0-0	9
	1	KNOB, ROTARY SWITCH	1212570	8
	6	SCR PHIL HD PAN #6-32 X .38	9006022-1	7
	6	SPACER #6-32 X .87	9006861	6
	1	CIRCUIT ETCH BD KY11-LA	D-CS-5411497-0-1	5
	7	SCR FILL HD PAN #8-32 X .31	9009799-00	4
	7	WASHER, SPRING LOCK #8	9006690	3
	1	SUPPORT, PANEL	D-MD-7413501-0-0	2
SEE NOTES 1 & 5	REF	BEZEL 11/04	E-MD-7415599-0-0	1
	QUANTITY & VARIATION	DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 10.0	OVER 10.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: //

DR	[illegible]	[illegible]
CHK	[illegible]	[illegible]
ENG	[illegible]	[illegible]
PROJ. ENG.	[illegible]	1/12/75
PROD.	[illegible]	[illegible]

NEXT HIGHER ASSY.: E-DD-KY11-LA

SCALE: FULL

SHEET 1 OF 1

FIRST USED ON: 11/04

digital

TITLE: CONSOLE, OPER, ASSEMBLY

SIZE	CODE	NUMBER	REV.
D	UA	KY11-LA-Ø	F

DIST.

REVISIONS

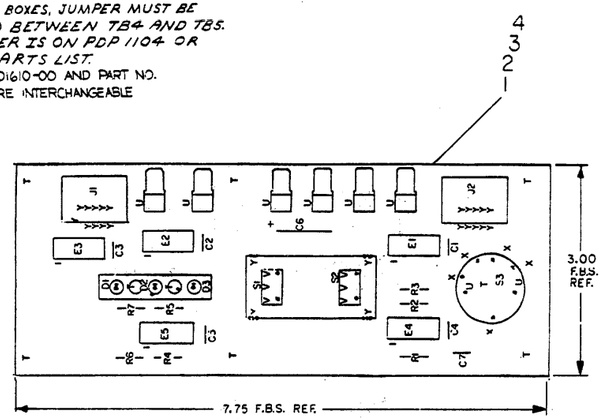
CHK.	CHANGE NO.	REV.		
[illegible]	KY11-LA-00001	A	B. COURTEMANCHE	[illegible]
[illegible]	KY11-LA-00002	B	H. Chisson 4 Jan 77	P. PORRECA
[illegible]	KY11B-00003	C	5 April 77	P. LORUSSO
[illegible]	KY11-LA-00003	D	31 MAY 77	P. PORRECA
P.G.	KY11-LA-00004	E	D. ZWICKER 8 DEC 77	D. BARRY
[illegible]	KY11-LA-TY0005	F	15 AUG 78	E. CROCKER

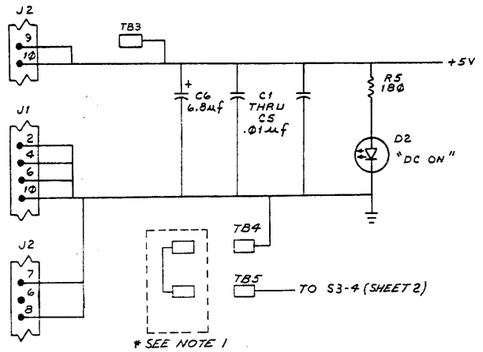
DEC FORM NO. DWG 100-C

144

NOTES:

1. IN BA11-L BOXES, JUMPER MUST BE INSTALLED BETWEEN TB4 AND TB5. THE JUMPER IS ON PDP 1104 OR PDP 1134 PARTS LIST.
2. PART NO. 1001610-00 AND PART NO. 1001610-01 ARE INTERCHANGEABLE





REF				
REF		X-Y COORDINATE HOLE LOCATION	H-CO-5411497-0-1	1
REF		ASSY/DRILLING HOLE LAYOUT	D-FA-5411497-0-1	2
REF		MODULE ECO HISTORY	B-MH-5411497-0-1	3
1		ETCHED CIRCUIT BOARD	5011496	4
5	C1 THRU C5	CAPACITOR, .01uf, 100V	1001610-01	5
1	C6	CAPACITOR, 6.8uf, 35V, 10%	1205306	6
1	C7	CAPACITOR, 1000PF, 100V	1000042	7
3	D1,D2,D3	DIODE, LIGHT EMITTING	1110864	8
1	S2	SWITCH, TOGGLE	1210840	9
1	S1	SWITCH, MOMENTARY	1210841	10
1	S3	SWITCH, ROTARY	1212560	11
1		HOLDER, TRIPLE L.E.D.	1210940-02	12
2	J1,J2	CONNECTOR, 10 PIN	1209941-05	13
2	R4, R6	RESISTOR, 1K, 1/4W, 5%	1300365	14
3	R1, R5, R7	RESISTOR, 180Ω, 1/4W, 5%	1301322	15
1	E5	I.C. DEC 7474	1305547	16
1	E3	I.C. DEC 8640	1911469	17
2	E1, E2	I.C. DEC 8881	1909705	18
1	E4	I.C. DEC 7402	1909704	19
6		TERMINAL, QUICK DISCONNECT	9007112	20
6		EYELET	9003000	21
2		SCREW, SELF-TAPING, #4-40 X .31 LG	9009236	22
1		PLATE, SWITCH MTG.	7413505-0-0	23
2	(S1), (S2)	KNOB	1210786	24
				25
				26
2	R2, R3	RESISTOR 330, 1/4W, 5%	1300295	27
A/R		~~WIRE, BUS #20~~	~~9107560-03~~	28
A/R		~~TUBING, NATURAL #20~~	~~9107C7-11~~	29

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV. =

FIRST USED ON OPTION MODEL: 11/04

I.C. DEC 8640	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

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

SEMICONDUCTOR CONVERSION CHART

REV.	REVISIONS	CHANGE NO.	CHK
F	5411497-00002		
H	5411497-00003		

DRAWN BRUCE CRAMM 11-11-77
PUNCHED 5411497-00003 H
TRACED 5411497-00003 H
CHECKED D. BARRY 2-10-77
ENG. R. BARRY 2-14-78
PROJ. ENG.
PROD.

DRN.	DATE
J. Olivieri	4-23-75
CHKD	DATE
	8-12-75
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE

NEXT HIGHER ASSY

SCALE —

SHEET 1 OF 2

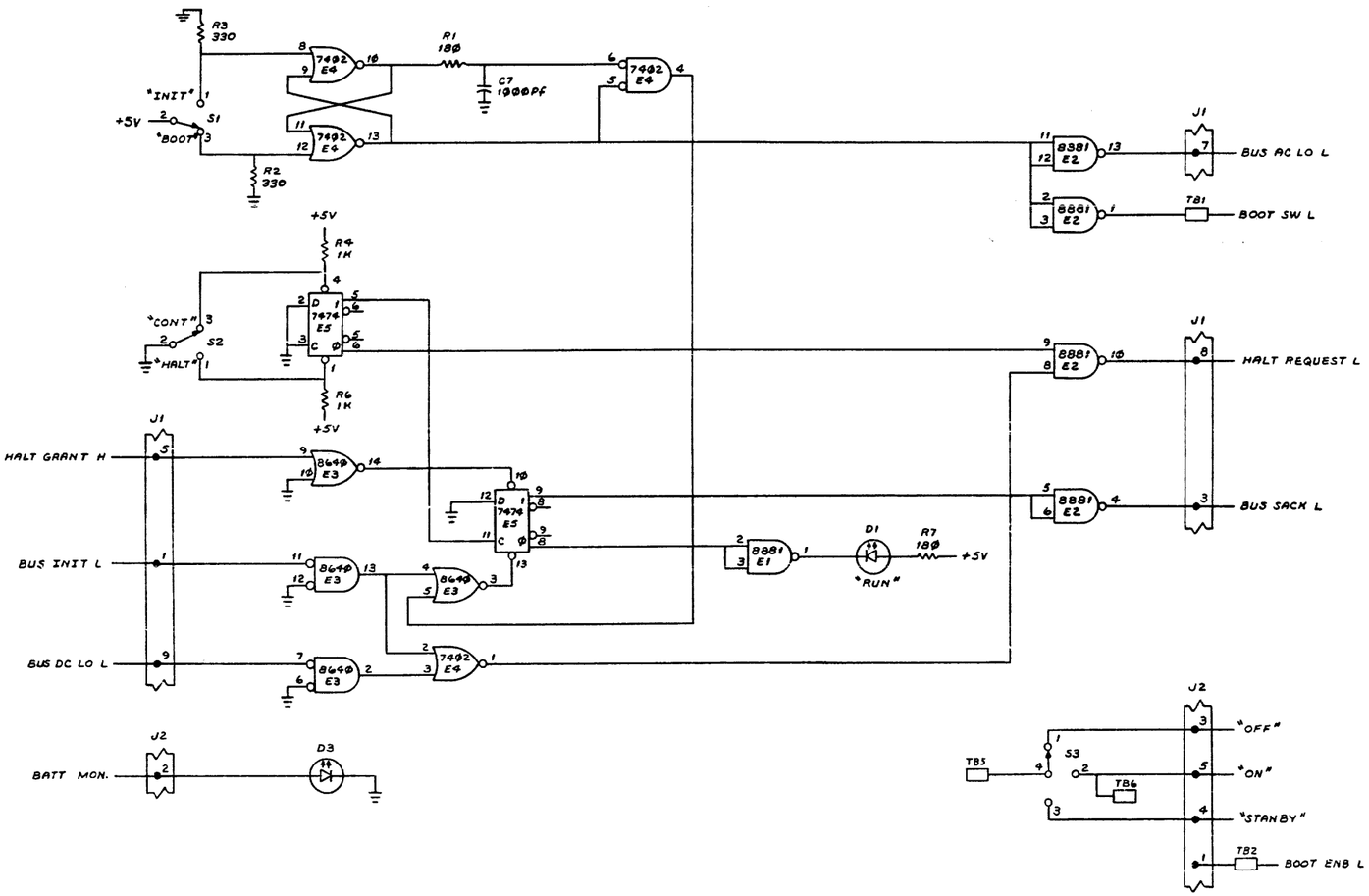
digital

TITLE: KY11-LA

SIZE	CODE	NUMBER	REV.
D	CS	5411497-0-1	H

DIST.

DEC FORM NO. DND 135.8



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
KY11-LA	D	CS	5411497-0-1	H
SCALE	SHEET 2 OF 2	DIST.		

DEC FORM NO. D40 138

5411497-0-1 H

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

~~CUSTOMER PRINT SET INDEX~~

~~THIS IS PRINT SET~~

SEQUENCE SEQUENCE

NOTE:
FOR FIELD MAINTENANCE
PRINT SET REFER TO
B-TC-KY11-LA-1

UNIT VARIATIONS

PRINT SET

VAR	TITLE
KY11-LA	OPER TURNKEY CONSOLE

REVISIONS		
DATE	CHG. NO.	REV
5-76	KY11-LA-1	A
1-77	KY11-LA-2	B
5-77	KY11-LA-3	C
12-77	KY11-LA-4	D
8-78	KY11-LA-5	E

USED ON OPTION/MODEL	
11/Ø4-AA	11/Ø4-BD
11/Ø4-AB	11/Ø4-DC
11/Ø4-AC	11/Ø4-DD
11/Ø4-AD	11/Ø4-EC
11/Ø4-BA	11/Ø4-ED
11/Ø4-BB	
11/Ø4-BC	
SHEET 1 OF 2	

DRN. G. MARINI	DATE 9/16/75	TITLE DRAWING DIRECTORY KY11-LA
CHK'D. D. HEALY	DATE 9/30/75	
PROJ ENG. R. Barry	DATE 10-22-75	
PROD R.K. Peterson	DATE 10/22/75	SIZE B / CODE DD / NUMBER KY11-LA / REV E
~~FIELD SERVC~~ //	~~DATE~~ //	DIST

EN-01062-1A-16-R972-(325)

DRB 106

ELECTRICAL (SECTION 1)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	D-UA-KY11-LA-Ø		1	CONSOLE OPER ASSY	
		3	D-CS-5411497-0-1		2	CIRCUIT ETCH BOARD KY11-LA	

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	D-UA-KY11-LA-Ø		1	CONSOLE OPER ASSY	
			D-MD-7413501-0-0		1	SUPPORT, PANEL	
			C-MD-7419008		1	BRACE, SUPPORT PANEL	
		2	D-IA-7413502-0-0		1	PANEL CONTROL CONSOLE	
			D-SS-7413502-0-1		1	SILK SCREEN LIGHT GRAY	
			D-SS-7413502-0-2		1	SILK SCREEN DARK GRAY	
		3	D-CS-5411497-0-1		2	CIRCUIT ETCH BOARD KY11-LA	
			K-CO-5411497-0-4			X-Y COORDINATE HOLE LOCATION	
			D-AH-5411497-0-5			ASSY/DRILLING HOLE LAYOUT	
			B-MH-5411497-0-6			MODULE ECO HISTORY	
			5011496			ETCH CIRCUIT BOARD	
			C-MD-7413505-0-0		1	PLATE, SW MTG	

CUSTOMER PRINT SET CODES

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY KY11-LA	SHEET 2 OF 2	B	DD	KY11-LA	E

DRB 108

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
MS11-E
MS11-EP
MS11-F
MS11-FP
MS11-J
MS11-JP

MS11-E

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ21

REVISIONS	REV.	CHG. NO.	DATE

USED ON OPTION/MODEL	
11/Ø4-AA	11/Ø4-DC
11/Ø4-AB	11/Ø4-DD
11/Ø4-AC	11/Ø4-EC
11/Ø4-AD	11/Ø4-ED
11/Ø4-BA	
11/Ø4-BB	
11/Ø4-BC	
11/Ø4-BD	

SHEET I OF 1

DRN. D. HEALY	DATE 10/1/75	TITLE: FIELD SERVICE MAINTENANCE PRINT SET MS11-E
CHK'D D. HEALY	DATE 10/1/75	
PROJ. ENG.	DATE 10/22/75	
FIELD SERV.	DATE 10-22-75	

digital

SIZE	CODE	NUMBER	REV.
B	TC	MS11-E-1	

DIST.

EN-01124-16-NOTE(327)

DRB 124

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY D. HEALY	CHECKED D. HEALY	SECTION
DATE 10/6/75	DATE 10/6/75	1
ENG R. BARRY R Barry	PROD R.W Peters	ISSUED SECT.
DATE 10-27-75	DATE 10/22/75	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			MS11-E	MS11-EP	MS11-F	MS11-FP	MS11-J	MS11-JP						
	D-CS-M7847-AA-1	UNIBUS MOS MEM	1	-	-	-	-	-						
	D-CS-M7847-AB-1	UNIBUS MOS MEM	-	1	-	-	-	-						
	D-CS-M7847-AC-1	UNIBUS MOS MEM	-	-	1	-	-	-						
	D-CS-M7847-AD-1	UNIBUS MOS MEM	-	-	-	1	-	-						
	D-CS-M7847-AH-1	UNIBUS MOS MEM	-	-	-	-	1	-						
	D-CS-M7847-AJ-1	UNIBUS MOS MEM	-	-	-	-	-	1						

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MOS RAM (MS11-E)	NONE	A	PL	MS11-E-Ø	A	MS11-E-00001
	SHEET 1 OF 1	DIST.				

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

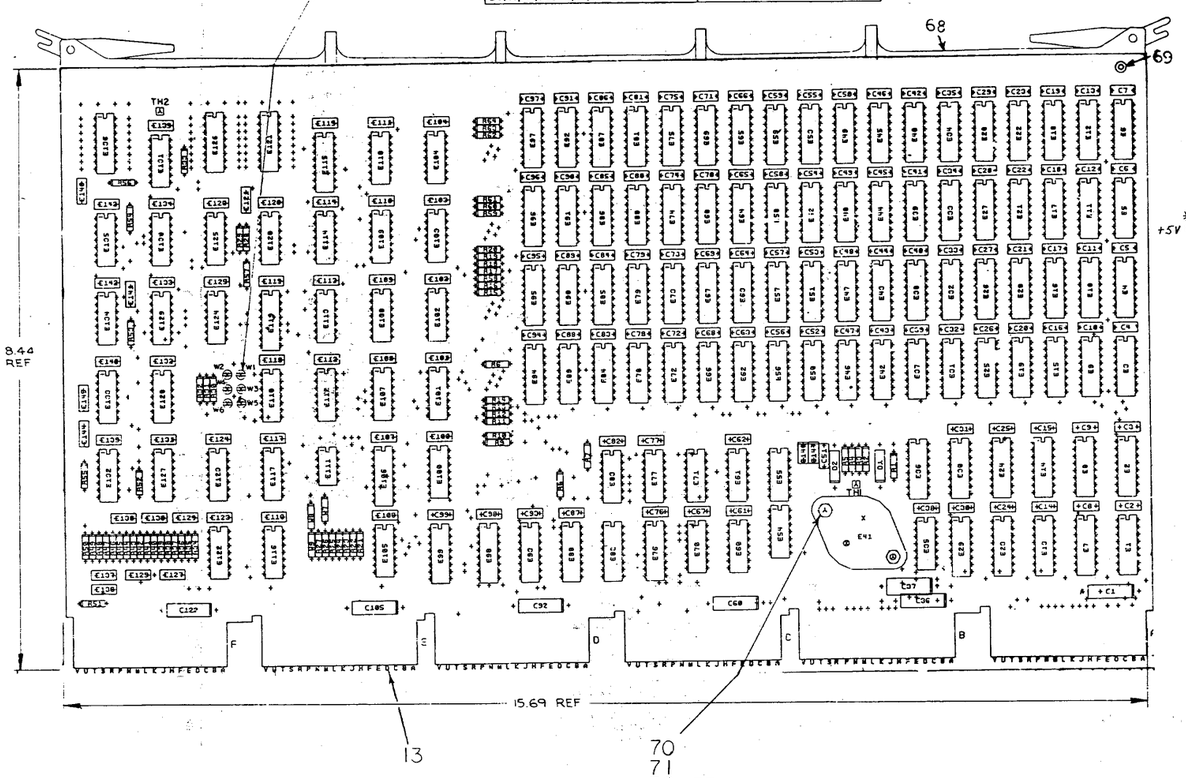
NOTES:

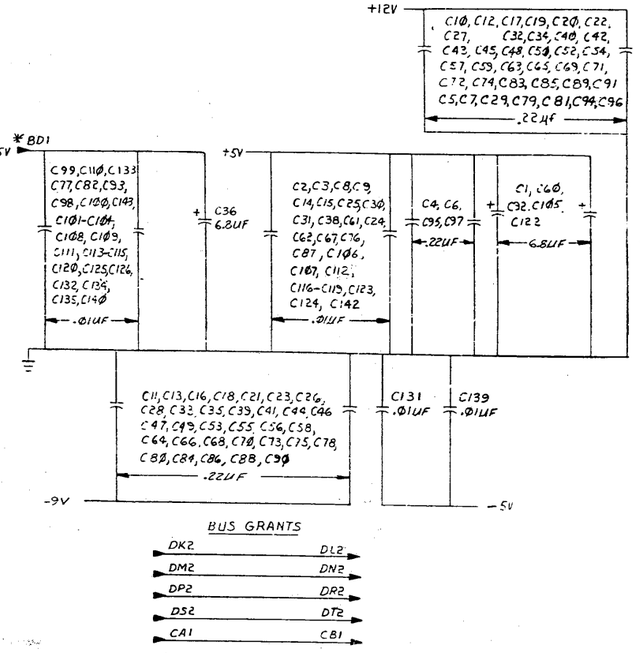
1. THERMAL COMPOUND (ITEM NO. 72) TO BE PLACED UNDER E41.

2. JUMPERS TO BE CONNECTED FOR EACH VARIATION AS FOLLOWS:

BA,CA,DA,EA,BB,CB,DB,EB, YA & YB	W3 TO W4
BC,CC,DC,EC, BD,CD,DD,ED, YC & YD	W1 TO W2 & W3 TO W4
BE,CE,DE,EE, BF,CF,DF,EF, BH,CH,DH,EH, BJ,CJ,DJ,EJ, YE,YF,YH & YJ	W1 TO W2, W3 TO W4, & W5 TO W6

2.(CONT) CONNECTIONS TO BE MADE USING BUS WIRE (ITEM NO. 73).





BUS GRANTS

DK2 DL2
DM2 DN2
DP2 DR2
DS2 DT2
CA1 CB1

7475	12	5	—
74S153	8	16	—
75107	7	14	13
74174	8	16	—
8641	8	16	—
8640	1	8	—
7483	12	5	—
IC TYPE	GND	+5V	-5V

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

IC PIN LOCATIONS

REV	REVISIONS	CHK	CHANGE NO.	DEC NO.	EIA NO.
D	J. MANTON 5-19-76		M7847-00001		
E	J. MANTON 12-9-76		M7847-00002		
F	J. MANTON 2-14-77		M7847-00003		
H	J. MANTON 4-1-77		M7847-00004		
J	J. MANTON 5-9-77		M7847-00005		
K	J. MANTON 9 MAY 77		M7847-00006		

FIRST USED ON OPTION MODEL

FOR PARTS LIST REFER TO SHEETS 2 & 3

QTY	REF. DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

PARTS LIST

ETCH BOARD REV. E

SEMICONDUCTOR CONVERSION CHART

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

DRN J. MANTON 9/24/75
CHKD 6/16/75
ENG 6/11/75
PROJ. ENG 6/11/75
PROD. 6/11/75
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 16

digital

TITLE
UNIBUS MOS MEMORY

SIZE D | CODE CS | NUMBER M7847-0-1 | REV. K
DIST.

DCS M7847-0-1 REV K

NOTES:
1. DEC PART NO 1001610-00 IS AN ACCEPTABLE REPLACEMENT FOR DEC PART NO 1001610-01 (ITEM 14)
2. VARIATIONS YA THRU YJ. ITEM 21; DI DIODE, ZENER IN757A, 9.1V 5% (1109990-00)
   VARIATIONS BA THRU BJ, CA THRU CJ, DA THRU DJ, EA THRU EJ ITEM 26; R2 RES 270, 1/4W, 5% CC (1301972-00)
   VARIATIONS BA THRU BJ DI DIODE, ZENER IN751A, 5.1V, 5% (1110994-00)
   CA THRU CJ, DA THRU DJ, EA THRU EJ R2 560 1/4W, 5%, CC (1301890-00)
   VARIATIONS YA THRU YJ ITEM 55; 4K16 PIN MOSRAM Y6B -5V(21-11749-00)
   VARIATIONS BA THRU BJ ITEM 65; MOSTEK 4096 (21-12726-00)
   VARIATIONS CA THRU CJ ITEM 65; FUJITSU 8224 (21-13787-01)
   VARIATIONS DA THRU DJ ITEM 65; MOSTEK 4027 (21-13735-01)
   VARIATIONS EA THRU EJ ITEM 65; INTEL 2104A (21-13795-01)
   VARIATIONS FA THRU FJ ITEM 65; HITACHI (21-13892-01)
   VARIATIONS HA THRU HJ ITEM 65; DEC 4027 (21-13914-01)
   VARIATIONS JA THRU JJ ITEM 65; FUJITSU 8227 (21-14475-01)

PARTS LIST

QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	1	1	1	1	1	1	1		DATA BASE TAPE	5011215-0-0	1
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~		~~DATA BASE TAPE~~	~~M7847-YA-0~~	~~2~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~		~~DATA BASE TAPE~~	~~M7847-YB-0~~	~~3~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~		~~DATA BASE TAPE~~	~~M7847-YC-0~~	~~4~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~		~~DATA BASE TAPE~~	~~M7847-YD-0~~	~~5~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~		~~DATA BASE TAPE~~	~~M7847-YE-0~~	~~6~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~		~~DATA BASE TAPE~~	~~M7847-YF-0~~	~~7~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~		~~DATA BASE TAPE~~	~~M7847-YH-0~~	~~8~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~	~~-~~		~~DATA BASE TAPE~~	~~M7847-YJ-0~~	~~9~~
REF	REF	REF	REF	REF	REF	REF	REF		UNIT ASSEMBLY	D-UA-M7847-0-0	10
REF	REF	REF	REF	REF	REF	REF	REF		DRILL & ETCH DWG	D-MD-5011215-0-0	11
REF	REF	REF	REF	REF	REF	REF	REF		MODULE ECO HISTORY	B-MI-M7847-0-6	12
1	1	1	1	1	1	1	1		ETCHED CIRCUIT BOARD	5011215	13
57	57	57	57	57	57	57	57	C2,C3,C8,C9,C14,C15,C24,C25, C28,C31,C36,C61,C62,C67,C76, C77,C82,C87,C93,C98-C104, C106-C120, C123-C127, C131-C137, C139,C140,C142,C143	CAP .01UF, 100V, 20% DISC	1001610-01 (SEE NOTE 1)	14
-	-	-	-	37	37	37	37	C5,C7,C12,C13,C18,C19,C22,C23, C26,C29,C34,C35,C41,C42,C45, C46,C49-C51,C54,C55,C58,C59 C65,C66,C78,C71,C74,C75,C80,C81, C85,C86,C88,C91,C96,C97	CAP .22UF, 50V CER	1010274-01	15
73	73	73	73	-	-	-	-	C4-C7,C10-C13,C16-C23,C26-C29 C32-C35,C37-C59,C63-C66, C68-C75,C78-C81,C83-C86,C88-C91, C96-C97			
6	6	6	6	6	6	6	6	C1,C36 ,C60,C92,C105,C122	CAP 6.8UF, 35V, 10% S. TANT	1005306-00	16
1	1	1	1	1	1	1	1	C146	CAP 82PF, 100V, 5% DM	1000015-00	17
4	4	4	4	4	4	4	4	C126-C129, C138	CAP 22PF, 100V, 1% DM	1012121-00	18
2	2	2	2	2	2	2	2	C121,C141	CAP 22PF, 100V, 5% DM	1000021-00	19
2	2	2	2	2	2	2	2	C144, C145	CAP 56PF, 100V, 5% DM	1000025-00	20
1	1	1	1	1	1	1	1	D1	SEE NOTE #2		21
1	1	1	1	1	1	1	1	DZ	DIODE, ZENER IN751A, 5.1V, 5%	1110994-00	22
21	21	21	21	21	21	21	21	R9-R29, R57-R65	RES 18, 1/4W, 5%, CC	1302124-00	23
16	16	16	16	16	16	16	16	R7,R8,R21-R27 R30-R33,R52, R54,R55	RES 1K, 1/4W, 5%, CC	1300365-00	24
5	5	5	5	5	5	5	5	R3-R5, R28, R29	RES 560, 1/4W, 5% CC	1301890-00	25
1	1	1	1	1	1	1	1	R2	SEE NOTE #2		26
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~R34~~	~~RES 330, 1/4W, 5%, CC~~	~~1300309-00~~	~~27~~
1	1	1	1	1	1	1	1	R1	RES 18K, 1/4WW 5%, CC	1300479-00	28
1	1	1	1	1	1	1	1	R48	RES 36K, 1/4W, 5%, CC	1302394-00	29
7	7	7	7	7	7	7	7	R37,R38,R41,R45,R47,R49,R50	RES 1K, 1/4W, 1%, MF	1303114-00	30
1	1	1	1	1	1	1	1	R34	RES 681, 1/4W, 1%, MF	1302872-00	31
3	3	3	3	3	3	3	3	R36, R46, R51	RES 4.7K, 1/4W, 5%, CC	1300447-00	32
2	2	2	2	2	2	2	2	R56, R53	RES 100, 1/4W, 5%, CC	1300229-00	33
1	1	1	1	1	1	1	1	R43	RES 1.54K, 1/4W, 1%, MF	1312480-00	34
1	1	1	1	1	1	1	1	R40	RES 1.05K, 1/4W, 1%, MF	1312479-00	35
1	1	1	1	1	1	1	1	R35	RES 2.7K, 1/4W, 5%, CC	1300426-00	36
1	1	1	1	1	1	1	1	R39	RES 6.8K, 1/4W, 5%, CC	1301423-00	37
1	1	1	1	1	1	1	1	R44	RES 12K, 1/4W, 5%, CC	13C0488-CO	38
1	1	1	1	1	1	1	1	R42	RES 4.3K, 1/4W, 5%, CC	1302389-00	39
6	6	6	6	6	6	6	6	E2,E8,E14,E24,E30 E36	IC 74174	1910652-00	40
5	5	5	5	5	5	5	5	E1,E7 E13,E23 E29	IC 8641	1911579-00	41

PARTS LIST

QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	1	1	1	1	1	1	1	E35	IC 8881	1909705-00	42
6	6	6	6	6	6	6	6	E54,E56,E60,F61,E79,E71	IC 8640	1911469-00	43
2	2	2	2	2	2	2	2	E77, E1x5	IC 7474	1905567-00	44
1	1	1	1	1	1	1	1	E83	IC 74197	1910035-00	45
5	5	5	5	5	5	5	5	E76,E82,F88,E115 E119	IC 7475	1909050-00	46
3	3	3	3	3	3	3	3	E93, E98, E99	IC 745153	1910547-00	47
6	6	6	6	6	6	6	6	E100-E103, E107, E109	IC 74S148	1910548-00	48
2	2	2	2	2	2	2	2	E104, E105	IC 7420	1905577-00	49
1	1	1	1	1	1	1	1	E106	IC 7483	1909932-00	50
3	3	3	3	3	3	3	3	E110, E113 E131	IC 7400	1905575-00	51
3	3	3	3	3	3	3	3	E112, E118 E123	IC 74S20	1910539-00	52
1	1	1	1	1	1	1	1	E117	IC 7486	1910011-00	53
1	1	1	1	1	1	1	1	E124	IC74S84	1910534-00	54
1	1	1	1	1	1	1	1	E125	IC 74S03	1910533-00	55
3	3	3	3	3	3	3	3	E127, E132, E133	IC 7501	1912688-00	56
1	1	1	1	1	1	1	1	E128	IC 74S85	1910535-00	57
1	1	1	1	1	1	1	1	E129	IC 7404	1909886-00	58
2	2	2	2	2	2	2	2	E114, E122	IC 7440	1905579-00	59
1	1	1	1	1	1	1	1	E116	IC 74S11	1910537-00	60
1	1	1	1	1	1	1	1	E100	IC 7437	1910001-00	61
1	1	1	1	1	1	1	1	E41	IC 7812	1912049-01	62
1	1	1	1	1	1	1	1	E134	IC 74S10	1910536-00	63
1	1	1	1	1	1	1	1	E130	IC 74S74	1910544-00	64
-	-	-	-	-	-	-	16	E12 F10,E22 E28,E34 F40, E45, E49, E50 E65,E63,E75 E81, E87,E92,E97	SEE NOTE #2		65
-	-	-	-	-	-	18	-	E6,E12,E18 E22,E28,E34 E40, E45,E49,E53,E59 E65,E69,E75, E81,E87 E92,E97			
-	-	-	-	-	32	-	-	E11,E12,E17,E18,E21 E22, E27,E30,E33,E34,E38 E40,E44, E45,E48,E49,E50,E59,E64,E65, E68,E69,E74,F75,E80 E81,E86, E87,E91 E92,E96,E97			
-	-	-	-	36	-	-	-	E5,E8,E11,E12,E17,E18 E21 E22, E27,E29,E33,E34,E38 E40,E44, E45,E48,E49,E52,E53,E58,E59, E64,E65 E68,E69,E74,E75 E80 E81,E86,E87,E91 E92 E96 E97			
-	-	-	40	-	-	-	-	E10-E12,E16-E18,E20-E22, E26-E28,E32-E34,E36-E40 E43-E45, E47-E49,E57-E59 E63-E65 E67-E69, E74-E75,E79-E81,E85-E87,E90-E92, E96-E97			
-	-	54	-	-	-	-	-	E4-E6,E10-E12,E16-E18,E20-E22, E26-E28,E32-E34 E36-E40 E42-E45 E47-E49,E51-E53 E57-E59,E62-E65, E67-E69,E73-E75 E79-E81,E85-E87, E90-E92 E95-E97			
-	64	-	-	-	-	-	-	E9-E12 E15-E22 E25-E28 E31-E34 E37-E40 E42-E49,E56-E59, E62-E69 E72-E75,E78-E81 E84-E87, E89-E92,E94-E97			
72	-	-	-	-	-	-	-	E3-E6,E9-E12,E15-E22 E25-E28, E31-E34,E37-E40,E42-E53,E56-E59, E62-E69 E72-C75 E78-E81,E84-E87, E89-E92,E94-E97			

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV
UNIBUS MOS MEMORY	D	CS	M7847-0-1	K
SCALE	SHEET 2 OF 16	DIST.		

YJ	YH	YF	YE	YD	YC	YB	YA	PARTS LIST			
QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
1	1	1	1	1	1	1	1	E111	DIP SWITCH	1211164-01	66
6	6	6	6	6	6	6	6		SPLIT LUGS	9006735-00	67
1	1	1	1	1	1	1	1		HANDLE ASSY	1210711-02	68
12	12	12	12	12	12	12	12		EYELET	9006732-00	69
2	2	2	2	2	2	2	2		NUT, KEP #4-40	9006557-00	70
2	2	2	2	2	2	2	2		SCR, PPH. #4-40 x .31	9006010-01	71
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		THERMAL COMPOUND	9008268-00	72
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		WIRE, #22 AWG BUS	9107560-01	73
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		WIRE, #30 AWG WIRE WRAP	9105740-55	74
1	1	1	1	1	1	1	1	C37	CAP .1µF, 25V	1012084-01	75
2	2	2	2	2	2	2	2	C147, C148	CAP .47µF, 25V, CER	1010273-00	76
1	1	1	1	1	1	1	1	W8	JUMPER, WIRE INSULATED	9009185-00	77
1	1	1	1	1	1	1	1	E110	IC 74LS20	1912618-03	78
REF	REF	REF	REF	REF	REF	REF	REF		DRAWING DIRECTORY	B-DD-M7847-0	79

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	D	CS	M7847-0-1	K
SCALE	SHEET 3 OF 16	DIST.		

M7847-0-1 K

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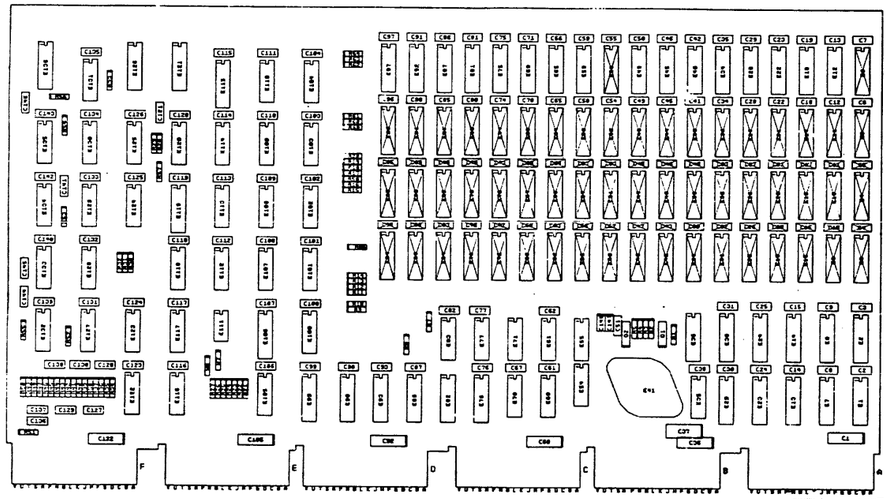
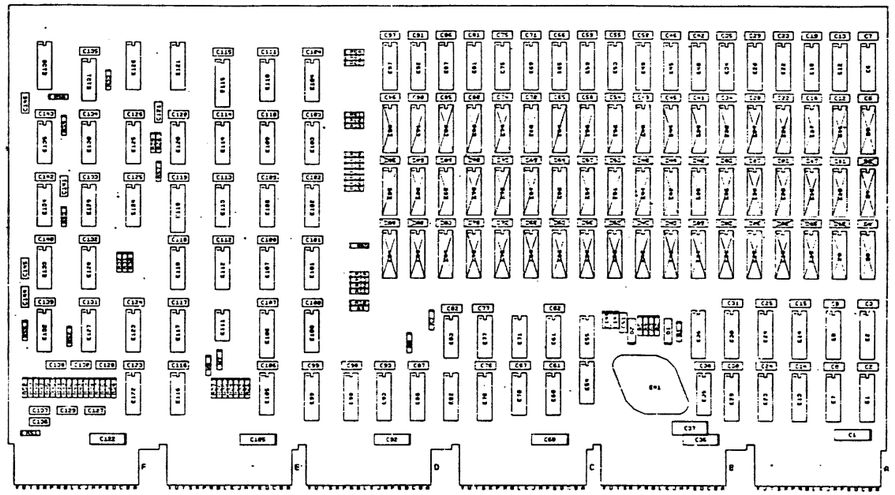
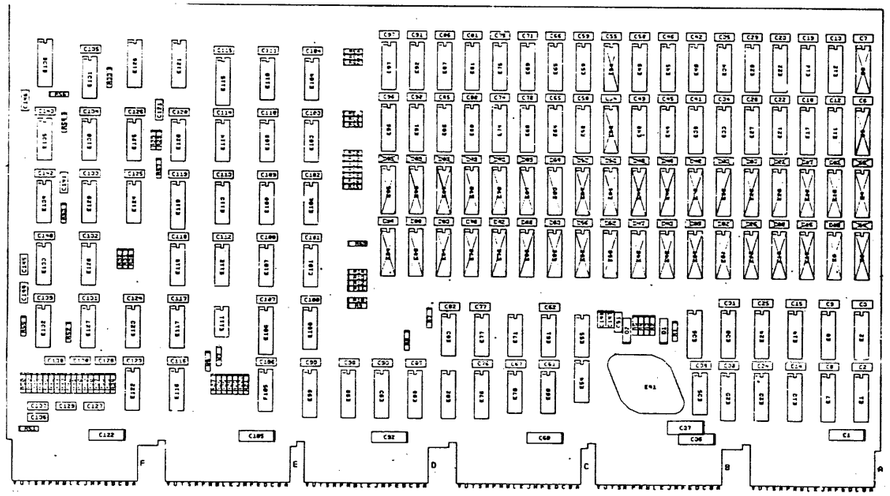
NOTE:
THESE OVERLAYS ONLY TO INDICATE POSITIONS FOR 4K MOS MEMORY IC's & .22 UF CAPS



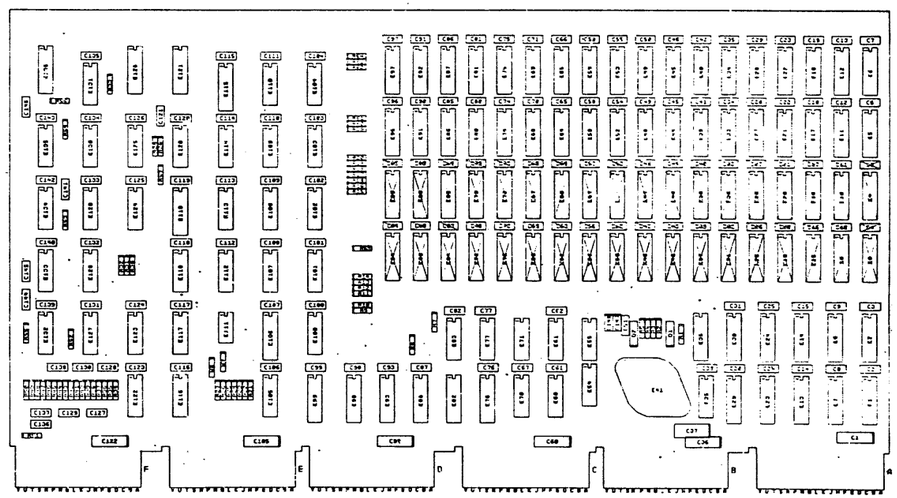
-YA;-BA;-CA;-DA,-EA;-FA;-HA;-JA.



-YB,-BB,-CB,-DB,-EB,-FB,-JB,-HB.



-YC,-BC,-CC,-DC,-EC,-FC,-HC,-JC.

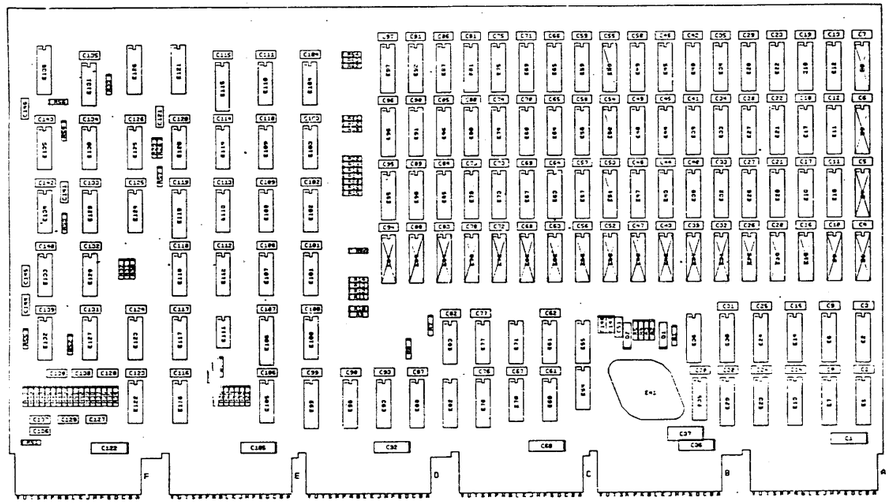


-YD,-BD,-CD,-DD,-ED,-FD,-HD,-JD.

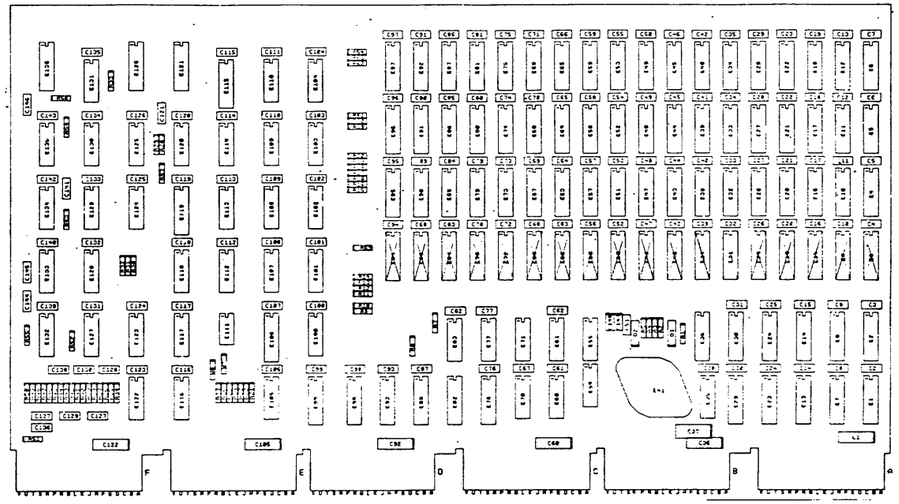
REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	D	DCS	M7847-0-1	K
SCALE — SHEET 4 OF 16	DIST.			

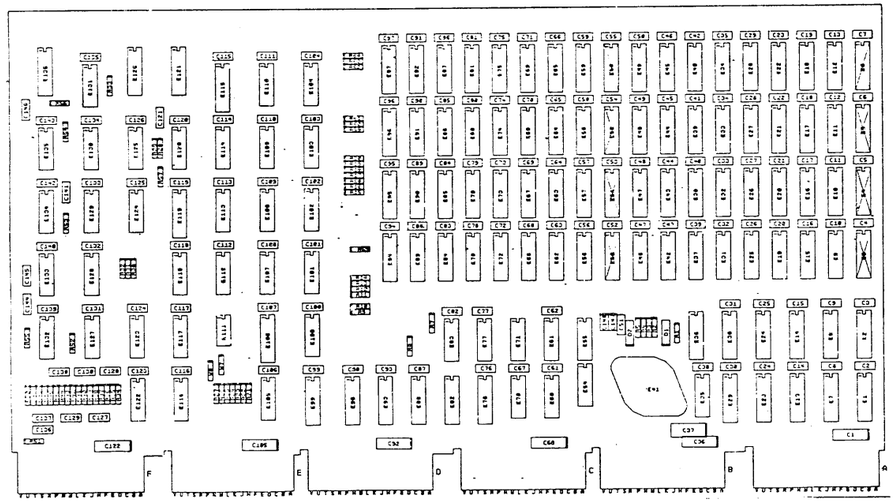
NOTE:
THESE OVERLAYS ONLY TO INDICATE POSITIONS FOR 4K MOS MEMORY IC's AND .22 uF CAPS.



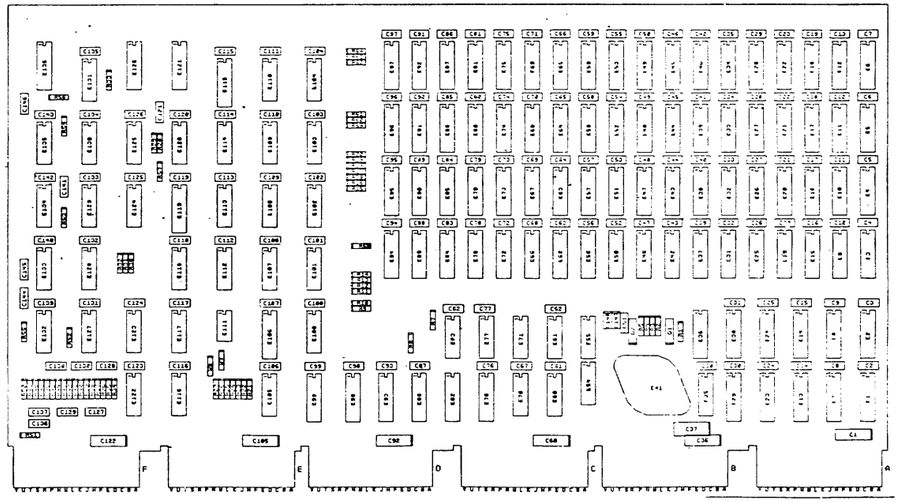
-YE,-BE,-CE,-DE,-EE,-FE,-HE,-JE



-YF,-BF,-CF,-DF,-EF,-FF,-HF,-JF



-YH,-BH,-CH,-DH,-EH,-FH,-HH,-JH



-YJ,-BJ,-CJ,-DJ,-EJ,-FJ,-HJ,-JJ

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	D	CS	M7847-0-1	K
SCALE 1/1 SHEET 5 OF 12	DIST.			

NOTE:
JUMPERS CONNECTED AS FOLLOWS

BA,CA,DA,EA,BB,CB,DB,EB, VA,YB,FA,HA,JA,FB,HB,JB	W3 - W4
BC,CC,DC,EC,BD,CD,DD,ED, YC,YD,FC,HC,JC,FD,HD,JD	W1 - W2 W3 - W4
BE,CE,DE,EE,BF,CF,DF,EF, BH,CH,DH,EH,BJ,CJ,DJ, EJ,YE,YF,VH,YJ,FE,HE,JE, FF,HF,JF,FH,HH,JH,FJ,HJ,JJ	W1 - W2 W3 - W4 W5 - W6

SW DIP E111 — R21–R24, R27 1K — +5V

BUS A17 BS1 · BUS A16 BS2 · BUS A15 BR1 · BUS A14 BR2 · BUS A13 BP1 · BUS C0 L BU2 · BUS MSYN L BV1 · BUS DC LO L BF2 · BUS C1 L BT2 · BUS A20 L BH2 — 8640 E79, E71, E61, E70, E55, E54

AD6 C0 H [DR9] · AD6 MSYN H [TC7] · AD6 C1 L [TC7] · DC LO H · AD6 C1 H [DR9] · AD6 A0 H [DR9]

7486 E117 · 7483 E106 · 7451 E116 · 7404 E124, E129 · 7420 L195 · 7420 E105

AM8 A12 H · AM8 A11 H · W7 · R26 1K · +5V

74520 E112 — BANK A (W3, W4) · BANK B (W1, W2) · BANK C (W5, W6) · BANK D (W8, W9)

R31 1K · R30 1K · R32 1K · +5V · R25 1K · +5V

74526 E123 — AD6 ADDR PREDECIT H [TC7]

7475 E115 — D0 AD6 RSA L [DR8] · D2 AD6 RSB L [DR8] · D3 AD6 RTC L [DR8] · D1 AD6 MSD L [DR8] · ENB1, ENB2

TC7 ADSTR H — E122 7440

ASSEMBLY VARIATION	W7	W8	W9
FA,HA,JA,FB,HB,JB,FC,HC,JC,BA,CA,DA,EA,BB,CB,DB,EB,BC,CC,DC,EC,BD, FD,HD,JD,FE,HE,JE,FF,HF,JF,CD,DD,ED,BE,CE,DE,EE,BF,CF,DF & EF	OUT	OUT	OUT
FH,HH,JH,FJ,HJ,JJ,BH,CH,DH,EH,BJ,CJ,DJ & EJ NORMAL OPERATION	OUT	IN	OUT
FH,HH,JH,FJ,HJ,JJ,BH,CH,DH,EH,BJ,CJ,DJ & EJ 2K I/O PAGE	OUT	OUT	IN
FH,HH,JH,FJ,HJ,JJ,BH,CH,DH,EH,BJ,CJ,DJ & EJ 3K I/O PAGE	IN	OUT	IN

* A-E MUST BE SET FOR STARTING ADDRESS OF 100 000.

SWITCH SETTINGS

STARTING ADDRESS	SWITCH A	B	C	D	E	STARTING ADDRESS	SWITCH A	B	C	D	E	STARTING ADDRESS	SWITCH A	B	C	D	E	STARTING ADDRESS	SWITCH A	B	C	D	E
0	1	1	1	0	0	200,000	1	0	1	0	0	400,000	0	1	1	0	0	600,000	0	0	1	0	0
20 000	1	1	0	1	1	220,000	1	0	0	1	1	420,000	0	1	0	1	1	620,000	0	0	0	1	1
40,000	1	1	0	1	0	240,000	1	0	0	1	0	440,000	0	1	0	1	0	640,000	0	0	0	1	0
60 000	1	1	0	0	1	260,000	1	0	0	0	1	460,000	0	1	0	0	1	660,000	0	0	0	0	1
100, 000	1	1	0	0	0	300.000	1	0	0	0	0	500,000	0	1	0	0	0	700,000	0	0	0	0	0
120.000	1	0	1	1	1	320,000	0	1	1	1	1	520,000	0	0	1	1	1	720,000	1	1	1	1	1
140, 000	1	0	1	1	0	340,000	0	1	1	1	0	540,000	0	0	1	1	0	740, 000	1	1	1	1	0
160,000	1	0	1	0	1	360,000	0	1	1	0	1	560.000	0	0	1	0	1						

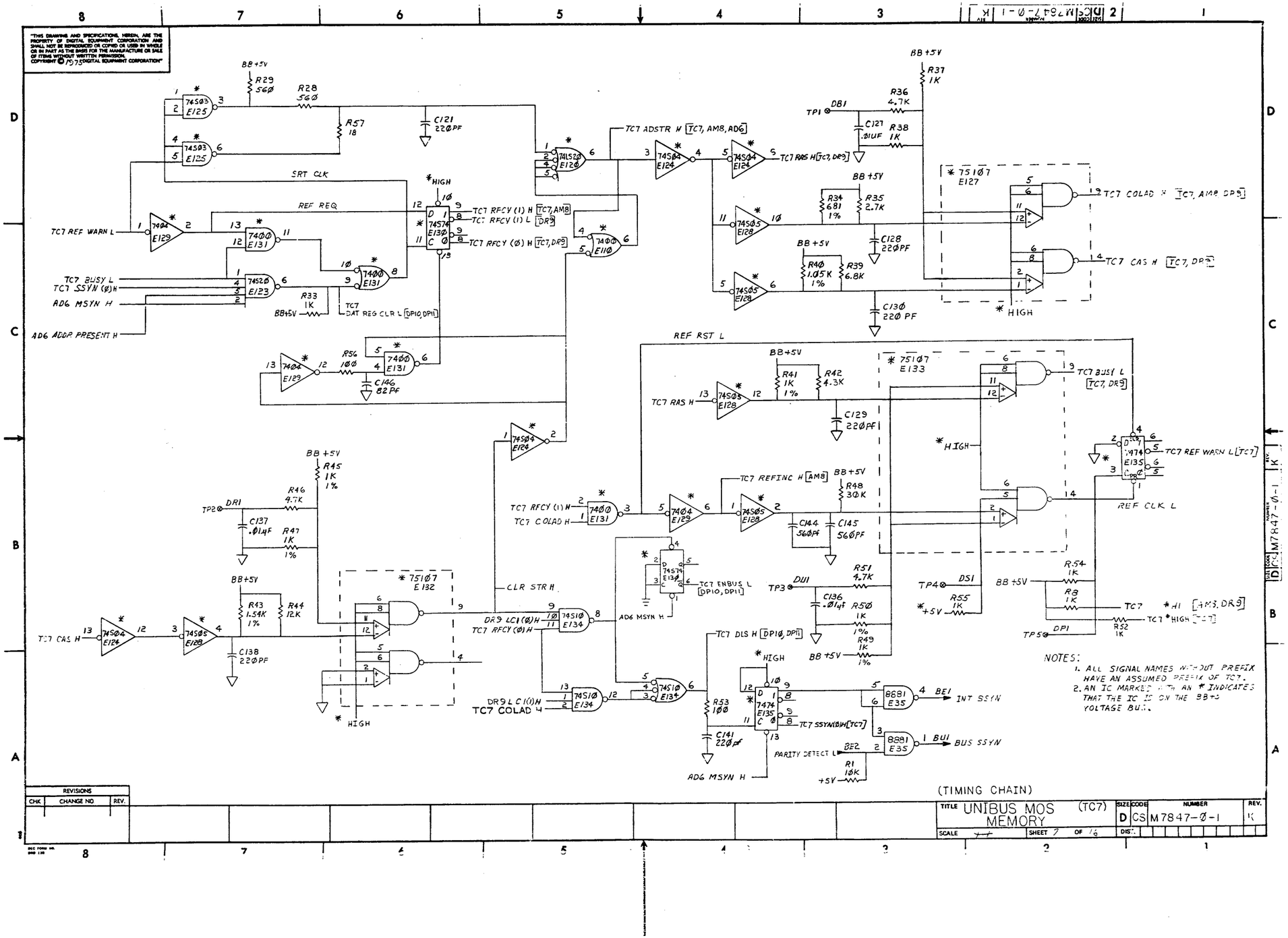
0 = ON
1 = OFF

REVISIONS		
CHK	CHANGE NO.	REV.

(ADDRESS DECODE)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY (AD6)	D	CS	M7847-0-1	K
SCALE —	SHEET 6 OF 16		DIST.	

156



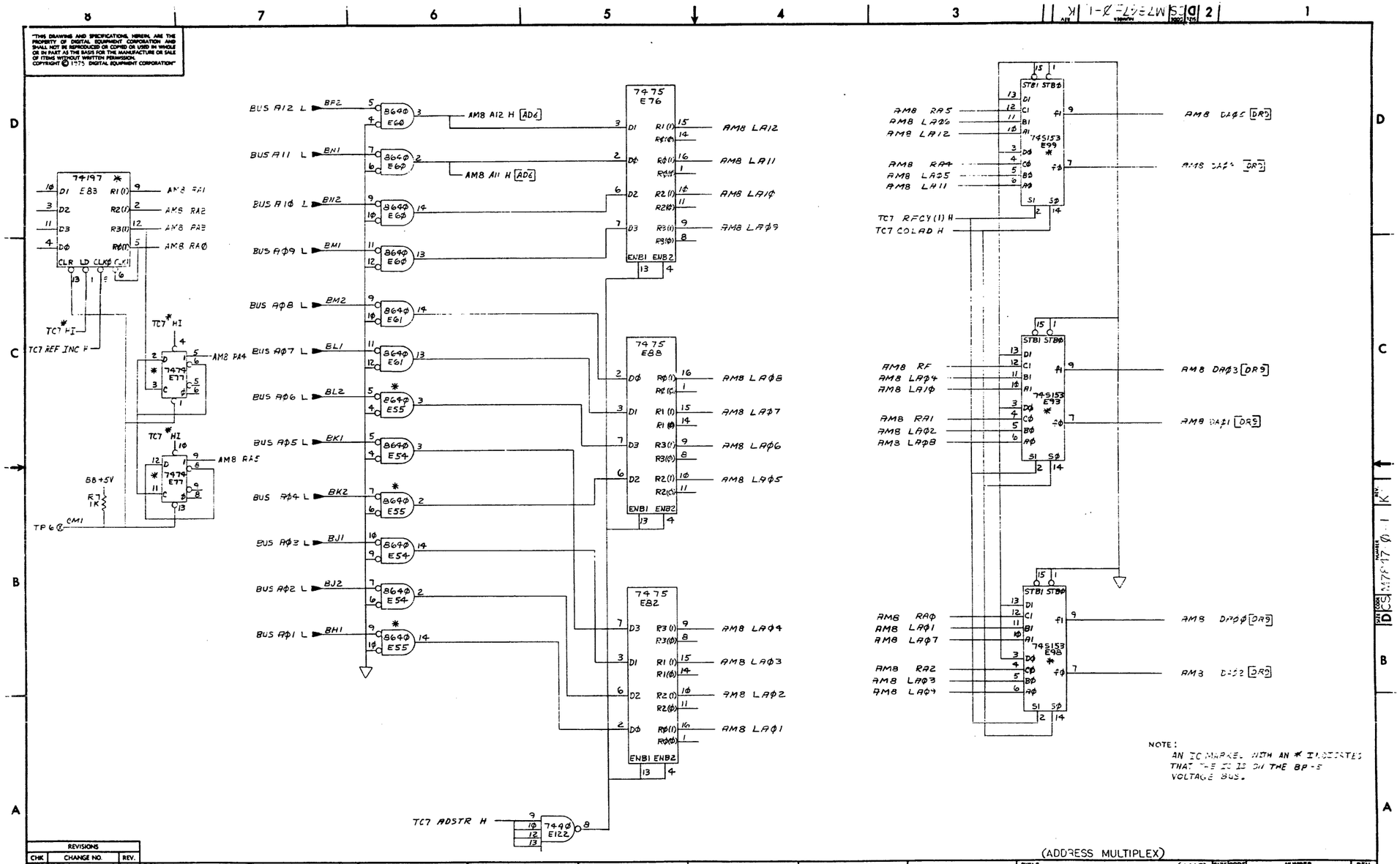
NOTES:
1. ALL SIGNAL NAMES WITHOUT PREFIX HAVE AN ASSUMED PREFIX OF TC7.
2. AN IC MARKED WITH AN * INDICATES THAT THE IC IS ON THE BB+5 VOLTAGE BUS.

(TIMING CHAIN)

REVISIONS		
CHK	CHANGE NO	REV.

TITLE		SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	(TC7)	D	CS	M7847-Ø-1	K
SCALE	SHEET 7 OF 16	DIST.			

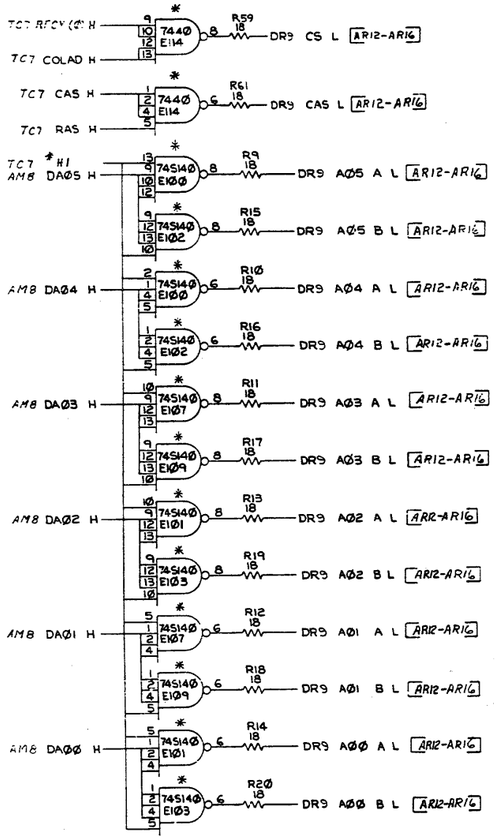
157

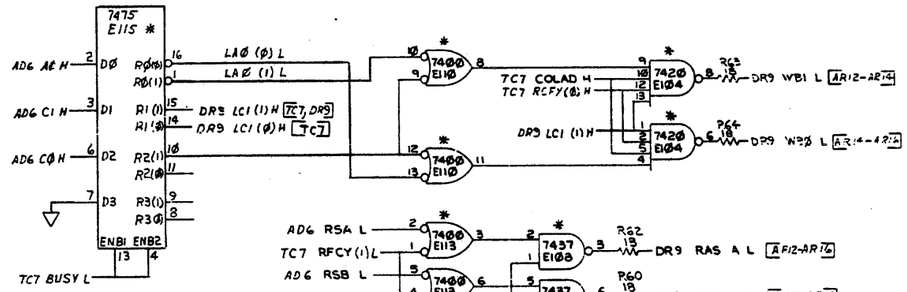


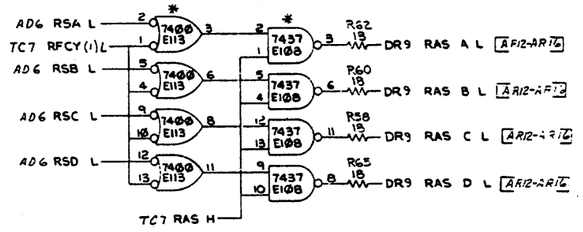
REVISIONS		
CHK	CHANGE NO.	REV.

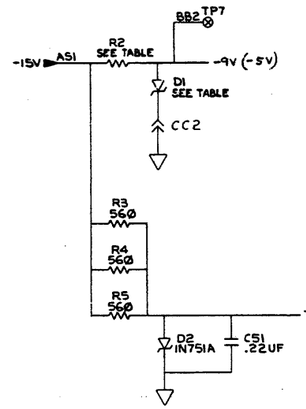
(ADDRESS MULTIPLEX)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY (AM8)	D	CS	M7847-0-1	K
SCALE —	SHEET 8 OF 16	DIST.		

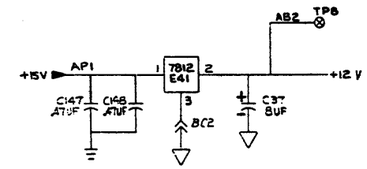




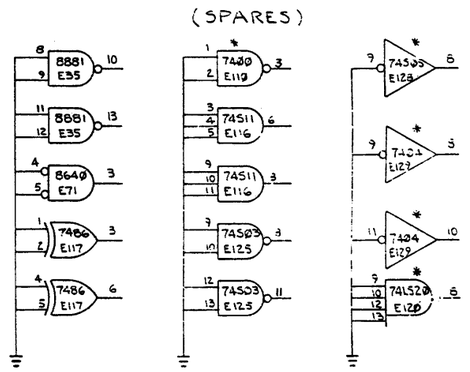




VARIATION	R2 VALUE	D1 VALUE
YA, YB, YC, YD YE, YF, YH, YJ	27Ø	IN 757A 9V
BA, CA, DA, EA, BB, CB, DB, EB, BC, CC, DC, EC, BD, CD, DD, ED, BE, CE, DE, EE, BF, CF, DF, EF, BH, CH, DH, EH, BJ, CJ, DJ & EJ.	56Ø Ω	IN751A -5V



(SPARES)



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: UNIBUS MOS MEMORY (D99)
SIZE: D | CODE: CS | NUMBER: M7847-D-1 | REV: K
SCALE: — | SHEET 9 OF 16 | DIST.

DEC FORM 36 D00 130

DIGITAL M7847-D-1 K

159

AR12 DO 15 H
AR12 DO 14 H
AR12 DO 13 H
74174 E36 — DI R1(I) D5 R5(I) D3 R3(I) CLR CLK
8641 E29
AM2 → BUS DI5
AL1 → BUS DI4
74174 E36 — D2 R2(I) D0 R0(I) D4 R4(I) CLR CLK
DPIØ DI 15 H [AR12]
DPIØ DI 14 H [AR12]
DPIØ DI 13 H [AR12]

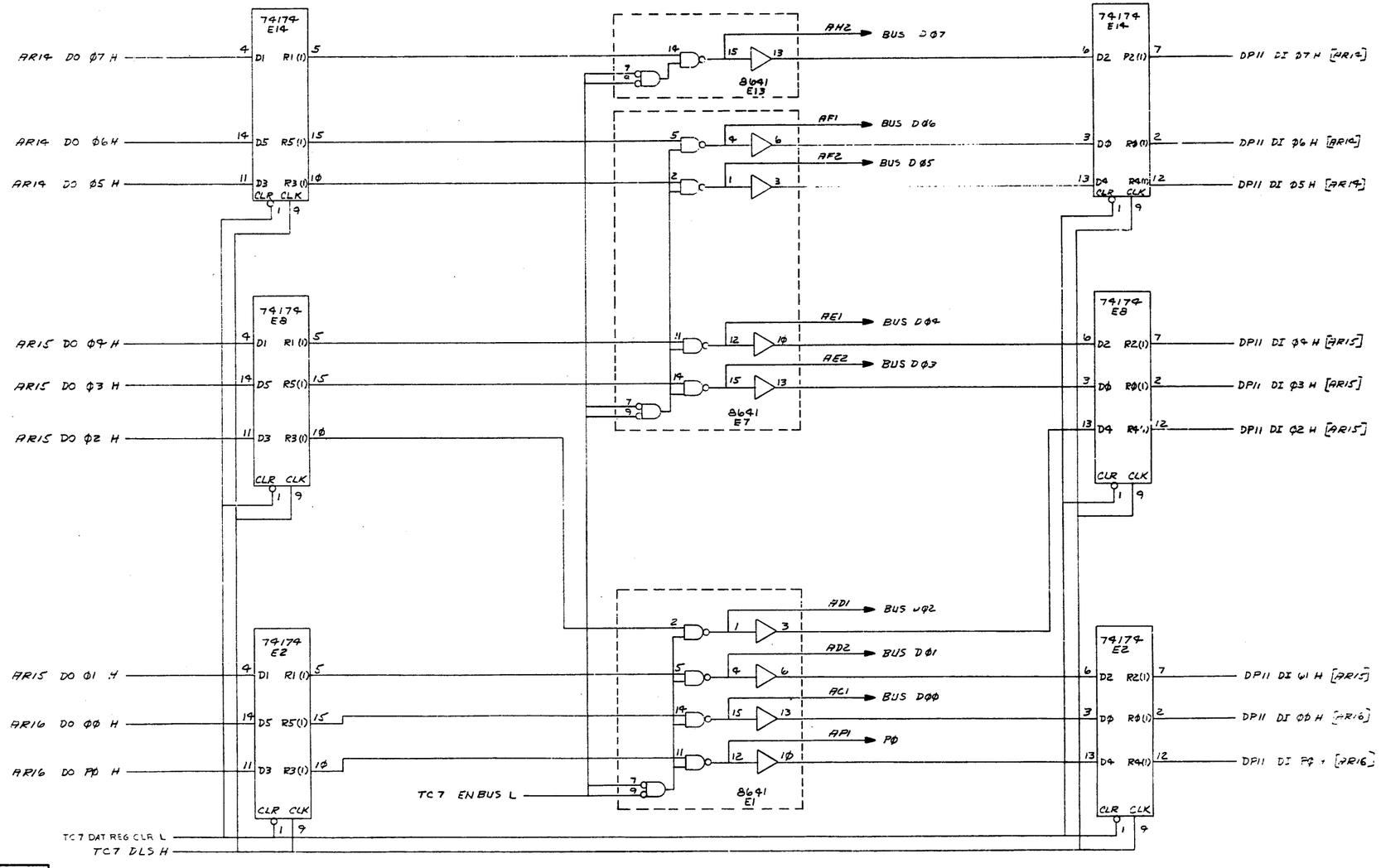
AR12 DO 12 H
AR13 DO 11 H
AR13 DO 10 H
74174 E3Ø — DI R1(I) D5 R5(I) D3 R3(I) CLR CLK
8641 E23
AL2 → BUS DI3
AK1 → BUS DI2
AK2 → BUS DI1
AJ1 → BUS DIØ
74174 E3Ø — D2 R2(I) D0 R0(I) D4 R4(I) CLR CLK
DPIØ DI 12 H [AR12]
DPIØ DI 11 H [AR13]
DPIØ DI 10 H [AR13]

AR13 DO Ø9 H
AR13 DO Ø8 H
AR14 DO P1 H
74174 E24 — DI R1(I) D5 R5(I) D3 R3(I) CLR CLK
TC7 ENBUS L
8641 E13
AJ2 → BUS DØ9
AH1 → BUS DØ8
AN1 → P1
74174 E24 — D2 R2(I) D0 R0(I) D4 R4(I) CLR CLK
DPIØ DI Ø9 H [AR13]
DPIØ DI Ø8 H [AR13]
DPIØ DI P1 H [AR14]
TC7 DAT REG CLR L
TC7 DLS H

REVISIONS		
CHK	CHANGE NO.	REV.

(DATA PATH)

TITLE		SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	(DPIØ)	D	CS	M7847-Ø-1	K
SCALE —	SHEET 10 OF 16	DIST.			



REVISIONS		
CHK	CHANGE NO.	REV.

(DATA PATH)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY (DPTI)	D	CS	M7647-Ø-1	K
SCALE —	SHEET 11 OF 16	DIST.		

16L

DR9 A05 B L
DR9 A04 B L
DR9 A03 B L
DR9 A02 B L
DR9 A01 B L
DR9 A00 B L

4096 E97 — DP10 DI 14 H
4096 E92 — DP10 DI 13 H
4096 E87 — DP10 DI 12 H
4096 E81

DP10 DI 15 H

DR9 CS L
DR9 CAS L
DR9 WR I L
DR9 RAS A L

4096 E96
4096 E91
4096 E86
4096 E80

DR9 RAS B L
DR9 A05 A L
DR9 A04 A L
DR9 A03 A L
DR9 A02 A L
DR9 A01 A L
DR9 A00 A L

4096 E95
4096 E90
4096 E85
4096 E79

DR9 RAS C L

4096 E94
4096 E89
4096 E84
4096 E78

AR12 DO 15 H [DP10] — AR12 DO 14 H [DP10] — AR12 DO 13 H [DP10] — AR12 DO 12 H [DP10]

DR9 RAS D L

4096 EXX
10 A05
11 A04
12 A03
6 A02
7 A01
5 A00
2 DIN
CS CAS WR RAS
13 15 3 4
14 DOUT

GND PIN 16
(-5V, -5V PIN 1
+12V PIN 8
+5V PIN 9

NOTE:
1. SOME IC'S ARE OMITTED ON VARIOUS ASSEMBLY VERSIONS, SEE PARTS LIST FOR EXACT DETAILS.

(ARRAY)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	(AR12)	D	CS	M7847-0-1	K
SCALE	SHEET 12 OF 16	DIST.			

DR9 AØ5 B L
DR9 AØ4 B L
DR9 AØ3 B L
DR9 AØ2 B L
DR9 AØ1 B L
DR9 AØØ B L

DPIØ DI 11H

DR9 CS L
DR9 CAS L
DR9 WBI L
DR9 PAS A L

DR9 RAS B L
DR9 AØ5 A L
DR9 AØ4 A L
DR9 AØ3 A L
DR9 AØ2 A L
DR9 AØ1 A L
DR9 AØØ A L

DR9 RAS C L

DR9 RAS D L

4096 E75	4096 E74	4096 E73	4096 E72	DPIØ DI 10H
4096 E69	4096 E68	4096 E67	4096 E66	DPIØ DI ØFH
4096 E65	4096 E64	4096 E63	4096 E62	DPIØ DI ØBH
4096 E59	4096 E58	4096 E57	4096 E56	AR13 DO ØBH [DP13]

AR13 DO 11H [DP10]
AR13 DO 10H [DP10]
AR13 DO ØFH [DP12]

4096 EXX
AØ5 (10)
AØ4 (11)
AØ3 (12)
AØ2 (6)
AØ1 (7)
AØØ (8)
DIN (9)
DOUT (14)
CS CAS WR RAS
(13) (15) (3) (4)

PIN 16 GND
PIN 1 -9V (-5V)
PIN 8 +12V
PIN 9 +5V

NOTES:
1. SOME IC'S ARE OMITTED ON VARIOUS ASSEMBLY VERSIONS. SEE PARTS LIST FOR EXACT DETAILS.

REVISIONS		
CHK	CHANGE NO.	REV.

(ARRAY)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY (AR13)	D	CS	M7847-Ø-1	K
SCALE	SHEET 13 OF 16	DIST.		

DEC FORM NO. SMB 1.30

M7847-Ø-1 REV K

DR9 A15 B L
DR9 A07 B L
DR9 A03 B L
DR9 A02 B L
DR9 A01 B L
DR9 A00 B L

4096 E53 — DP11 DI 07 H
4096 E49 — DP11 DI 06 H
4096 E45 — DP11 DI 05 H
4096 E41

DP10 DI .H

DR9 CS L
DR9 CAS L
DR9 WB1 L
DR9 RAS A L

4096 E52
4096 E48
4096 E44
4096 E39

NOTE:
SOME IC'S ARE OMITTED ON VARIOUS ASSEMBLY VERSIONS. SEE PARTS LIST FOR EXACT DETAILS.

DR9 RAS B L
DR9 A05 A L
DR9 A04 A L
DR9 A03 A L
DR9 A02 A L
DR9 A01 A L
DR9 A00 A L

4096 E51
4096 E47
4096 E43
4096 E38

DR9 RAS C L

4096 E50 — AR14 DO 01 H [DP10]
4096 E46 — AR14 DO 07 H [DP11]
4096 E42 — AR14 DO 06 H [DP11]
4096 E37 — AR14 DO 05 H [DP11]

DR9 WB0 L

DR9 RAS D L

4096 EXY
10 A05
11 A04
12 A03
6 A02
7 A01
5 A00
2 DIN
14 DOUT
CS CLSV/RRAS
13 15 3 9

GND PIN 16
(-5V) -9V PIN 1
+12V PIN 8
+5V PIN 9

REVISIONS
CHK | CHANGE NO. | REV.

(ARRAY)

TITLE: UNIBUS MOS MEMORY (AR14)
SIZE: D | CODE: CS | NUMBER: M7847-0-1 | REV: K
SCALE: — | SHEET 14 OF 16 | DIST.

DEC FORM NO. SMD 1.00

D CS M7847-0-1 K

NOTE:
SOME IC'S ARE OMITTED ON VARIOUS ASSEMBLY VERSIONS. SEE PARTS LIST FOR EXACT DETAILS.

DR9 AØ5 B L
DR9 AØ4 B L
DR9 AØ3 B L
DR9 AØ2 B L
DR9 AØ1 B L
DR9 AØØ B L

DP11 DI Ø4 H
DR9 CS L
DR9 CAS L
DR9 WBØ L
DR9 RAS A L

DR9 RAS B L
DR9 AØ5 A L
DR9 AØ4 A L
DR9 AØ3 A L
DR9 AØ2 A L
DR9 AØ1 A L
DR9 AØØ A L

DR9 RAS C L

DR9 RAS D L

4Ø96 E34 — DP11 DI Ø3 H
4Ø96 E28 — DP11 DI Ø2 H
4Ø96 E22 — DP11 DI Ø1 H
4Ø96 E18
4Ø96 E33
4Ø96 E27
4Ø96 E21
4Ø96 E17
4Ø96 E32
4Ø96 E26
4Ø96 E20
4Ø96 E16
4Ø96 E31 — ARI5 DO Ø4 H [DP11]
4Ø96 E25 — ARI5 DO Ø3 H [DP11]
4Ø96 E19 — ARI5 DO Ø2 H [DP11]
4Ø96 E15 — ARI5 DO Ø1 H [DP11]

4Ø96 EXX
10 AØ5
11 AØ4
12 AØ3
6 AØ2
7 AØ1
5 AØØ
2 DIN
D OUT
14
CS CAS WR RAS
13 15 3 4

GND PIN 16
(-5V) -5V PIN 1
-12V PIN 8
+5V PIN 9

REVISIONS		
CHK	CHANGE NO	REV

(ARRAY)
(ARI5)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY	D	CS	M7847-Ø-1	K
SCALE	SHEET 15 OF 16	DIST.		

DCS M7847-Ø-1 K

DR9 A05 B L
DR9 A04 B L
DR9 A03 B L
DR9 A02 B L
DR9 A01 B L
DR9 A00 B L

4096 E6 — DPII DI 00 H
4096 E12
4096 E5
4096 E11

DPII DI P0 H

DR9 CS L
DR9 CAS L
DR9 WB0 L
DR9 RAS A L

DR9 RAS B L
DR9 A05 A L
DR9 A04 A L
DR9 A03 A L
DR9 A02 A L
DR9 A01 A L
DR9 A00 A L

4096 E4
4096 E10

DR9 RAS C L

4096 E3 — ARI6 DO P0 H [DPII]
4096 E9 — ARI6 DO 00 H [DPII]

DR9 RAS D L

4096 EXX

10	A05	
11	A04	
12	A03	
6	A02	DOUT 14
7	A01	
5	A00	
2	DIN	
	CS CLS WR RAS	
	13 15 3 4	

GND PIN 16
(-5V)-9V PIN 1
+12V PIN 8
+5V PIN 9

NOTE:
SOME IC'S ARE OMITTED ON VARIOUS ASSEMBLY VERSIONS. SEE PARTS LIST FOR EXACT DETAILS.

REVISIONS		
CHK	CHANGE NO	REV.

(ARRAY)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MOS MEMORY (AR16)	D	CS	M7847-0-1	K
SCALE —	SHEET 16 OF 16	DIST.		

DEC FORM NO 040 137

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
KD11-D

KD11-D

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ2Ø

REVISIONS		
REV.	CHG. NO.	DATE
A	KD11-D-1	19JAN76

USED ON OPTION/MODEL	
11/Ø4-AA	11/Ø4-DC
11/Ø4-AB	11/Ø4-DD
11/Ø4-AC	11/Ø4-EC
11/Ø4-AD	11/Ø4-ED
11/Ø4-BA	
11/Ø4-BB	
11/Ø4-BC	
11/Ø4-BD	

SHEET 1 OF 1

DRN. D. HEALY	DATE 10/1/75	digital
CHK'D D. HEALY	DATE 10/1/75	TITLE: FIELD SERVICE MAINTENANCE PRINT SET KD11-D
PROJ. ENG. B. BERNSTEIN	DATE 10-22-75	
FIELD SERV.	DATE 10-22-75	

SIZE	CODE	NUMBER	REV.
B	TC	KD11-D-5	A

DIST.

EN 01124-16-N675 (327)

DRB 124

PAGE REVISION CONTROL SHEET

SH NO.	PAGE REVISIONS	REMARKS
1		
2		
3		
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34		
35		
36		
ECO NO.		
ETCH REV.		
ENG.		
DATE		FIRST USED ON OPTION/MODEL: KDII-D

DRN. D. Sdao	DATE 10/20/75	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. D. Woody	DATE 10/22/75	
ENG. R. Barry	DATE 10-22-75	TITLE: MICRO PROGRAM FLOW KDII-D
PROJ. ENG. B BERNSTEIN	DATE 10-22-75	
PROD. R.K Peters	DATE 10/23/75	

NEXT HIGHER ASSY. B-DD-KDII-B

SCALE

SHEET 1 OF 36

SIZE	CODE	NUMBER	REV.
K	MP	KDII-D-2	

DIST.

```
; 1     ;CONTROL STORE ROM DEFINITIONS FOR THE PDP11/OSL
; 2
; 3     ;FIELDS ARRANGED FOR READABILITY, NOT COMPACTNESS
; 4     ;BIT FIELDS ARE NUMBERED FROM LEFT TO RIGHT
; 5
; 6     ;ALU CONTROL SIGNALS
; 7     ALU/=75,6,29,0          ;BIT 5=CARRY IN
; 8                                     ;BIT 4=ALU MODE
; 9                                     ;BIT 3-0=ALU S0-S3
; 10                                    ;BY DEFAULT ALU/=A
; 11
; 12            ZERO=63
; 13            A + B=71
; 14            A PLUS B=31
; 15            A PLUS B PLUS 1=30
; 16            B=27
; 17            A MINUS B MINUS 1=45
; 18            A(-F)=40
; 19            A PLUS A=15
; 20            A PLUS 1=74
; 21            A=75
; 22
; 23    ; SCRATCH PAD CONTROL
; 24    SPA MUX/=3,2,33,0               ;BIT 0=SPA MUX A1
; 25                                    ;BIT 1=SPA MUX A0
; 26                                    ;BY DEFAULT SPA MUX/=ROM SPA
; 27            AA=0
; 28            BS=1
; 29            RD=2
; 30            ROM SPA=3
; 31    ROM SPA/=0,4,37         ;BIT 0-3=SP A3-A0
; 32            R5=5
; 33            R6=6
; 34            R7=7
; 35            PC=7
; 36            R10=10
; 37            R11=11
; 38            R12=12
; 39            R13=13
; 40            R14=14
; 41            R17=17
; 42            SPA0=17
; 43    ;B REGISTER CONTROL
; 44    B MODE/=3,2,13,0                ;BY DEFAULT BMODE/=HOLD DATA
; 45            LOAD=0
; 46            SHFT L=1
; 47            SHFT R=2
; 48            HOLD=3
; 49    ;BRANCH UPON MICROCODE TEST (BUT) CONTROL
; 50    BUT/=0,3,16,0           ;BY DEFAULT BUT/=2 OR 40
; 51                                    ;OUTPUT ENABLED
; 52            NONE=0
; 53            BUT DEST=2
; 54            BUS STOV=0
; 55            BUS DBE=1
; 56            LOAD PSW=5
; 57            LOAD CC=3
```

```
; 56    ;UNIBUS GATING CONTROL SIGNALS
; 59    BUS CONTROL/=#,2,19,D   ;BY DEFAULT BUS CONTROL/=
; 60                            ;DATI FORCING A
; 61                            ;UNIBUS READ OPERATION
; 62            DATI=0
; 63            DATIP=1
; 64            DATO=2
; 65            DATOB=3
; 66    ;CPU DATA PATH A-MULTIPLEXER SELECT CONTROL
; 67    AMUX/=#,2,22,D          ;BY DEFAULT AMUX/ALU
; 68                            ;ALLOWING UB INPUTS
; 69                            ;TO PASS THROUGH MULTIPLEXER
; 70            UB=0
; 71            K=1
; 72            ALU=2
; 73            PSW=3
; 74    ;SCRATCH PAD READ/WRITE CONTROL
; 75    SP CONTROL/=#,2,9,D             ;BY DEFAULT SP CONTROL/=READ
; 76                                    ;FORCING SCRATCH PAD TO
; 77                                    ;READ ADDRESSED LOCATION
; 78            READ=0
; 79            WRITE LOW=1             ;LOW BYTE WRITTEN INTO SP
; 80            ENAB+1=2                ;SP WRITES A WORD AND
; 81                                    ;+1 IS FORCED ON B LEG OF ALU
; 82            WRITE WORD=3            ;WORD WRITTEN INTO SP
; 83
; 84    ;BRANCH ON BYTE INSTRUCTION CONTROL
; 85    BUT BYTE/=#,1,10,D              ;DEFAULT TO BRANCH DISABLED
; 86            BUT=1                   ;ENABLE BRANCH
; 87
; 88    ;BRANCH TO SERVICE CONTROL
; 89    BUT SERVICE/=#,1,11,D   ;DEFAULT TO BRANCH DISABLED
; 90            SERV=1          ;ENABLE BRANCH
; 91
; 92    ;DATA TRANSFER CONTROL SIGNAL
; 93    DAT TRAN/=#,1,17,D              ;BY DEFAULT DATA TRANSFER DISABLED
; 94            TRAN=1          ;TRANSFER ENABLED
; 95
; 96    ;ALLOW BYTE TRANSFER CONTROL SIGNAL
; 97    ALLOW BYTE/=1,1,24,D            ;BY DEFAULT ALLOW BYTE DISABLED
; 98            BYTE=0          ;ENABLE ALLOW BYTE
; 99
; 100   ;SIGN EXTEND CONTROL
; 101   ENAB SEX/=1,1,23,D             ;BY DEFAULT SIGN EXTEND DISABLED
; 102           SEX=0                   ;ENABLE SIGN EXTENSION OF
; 103                                   ;DATA IN B REGISTER
; 104
; 105   ;AUXILIARY ROM CONTROL ENABLE
; 106   AUX CONTROL/=#,1,36,D   ;BY DEFAULT AUX CONTROL IS DISABLED
; 107           AUX=1                   ;ENABLE AUXILIARY CONTROL
; 108
; 109   ;NEXT MICRO PC ADDRESS
; 110   J/=#,8,7,+
; 111
; 112   ;LOAD INSTRUCTION REGISTER ENABLE
; 113   LOAD IR/=#,1,39,D
; 114           LOAD=1
; 115
; 116
; 117   ;ROM USED LOCATIONS
```



```
; 118   NIL/=#,2,31,D
; 119
; 120
; 121   ;MACRO DEFINITIONS
; 122   BA_PC                          "ROM SPA/PC,SPA MUX/ROM SPA"
; 123   BA_RS                          "SPA MUX/RS"
; 124   BA_RD                          "SPA MUX/RD"
; 125   BA_R6                          "ROM SPA/R6,SPA MUX/ROM SPA"
; 126   BA_R10                         "ROM SPA/R10,SPA MUX/ROM SPA"
; 127   BA_R12                         "ROM SPA/R12,SPA MUX/ROM SPA"
; 128   BA_R13                         "ROM SPA/R13,SPA MUX/ROM SPA"
; 129   BA_R16                         "ROM SPA/R16,SPA MUX/ROM SPA"
; 130   RS_RS PLUS 2                   "ALU/A PLUS B PLUS 1,SPA MUX/RS,AMUX/ALU,SP CONTROL/ENAB+1,E
NAB SEX/SEX"
; 131   RS_RS MINUS 2                  "SPA MUX/RS,ALU/A MINUS B MINUS 1,SP CONTROL/ENAB+1,AMUX/ALU
,ENAB SEX/SEX"
; 132   PC_PC PLUS 2                   "ROM SPA/PC,ALU/A PLUS B PLUS 1,SP CONTROL/ENAB+1,AMUX/ALU,S
PA MUX/ROM SPA,ENAB SEX
; 133   RD_RD PLUS 2                   "ALU/A PLUS B PLUS 1,SPA MUX/RD,SP CONTROL/ENAB+1,AMUX/ALU,E
NAB SEX/SEX"
; 134   RD_RD MINUS 2                  "SPA MUX/RD,ALU/A MINUS B MINUS 1,SP CONTROL/ENAB+1,AMUX/ALU
,ENAB SEX/SEX"
; 135   R6_R6 PLUS 2                   "ALU/A PLUS B PLUS 1,ROM SPA/R6,SP CONTROL/ENAB+1,AMUX/ALU,S
PA MUX/ROM SPA,ENAB SEX
; 136   R6_R6 MINUS 2                  "ROM SPA/R6,ALU/A MINUS B MINUS 1,SP CONTROL/ENAB+1,AMUX/ALU
,SPA MUX/ROM SPA,ENAB
; 137   R13_R13 PLUS 2                 "ALU/A PLUS B PLUS 1,ROM SPA/R13,SP CONTROL/ENAB+1,AMUX/ALU,
SPA MUX/ROM SPA,ENAB
; 138   R13_R13 PLUS 1                 "ALU/A PLUS 1,ROM SPA/R13,SP CONTROL/WRITE WORD,AMUX/ALU,SPA
 MUX/ROM SPA,ENAB SEX
; 139   B_B PLUS RS                    "ALU/A PLUS B,SPA MUX/RS,B MODE/LOAD,AMUX/ALU"
; 140   B_B PLUS RD                    "ALU/A PLUS B,SPA MUX/RD,B MODE/LOAD,AMUX/ALU"
; 141   PC_PC PLUS B                   "ALU/A PLUS B,ROM SPA/PC,SP CONTROL/WRITE WORD,AMUX/ALU,SPA
MUX/ROM SPA"
; 142   R13_R13 PLUS R13               "ALU/A PLUS A,ROM SPA/R13,SP CONTROL/WRITE WORD,AMUX/ALU,SPA
 MUX/ROM SPA"
; 143   B_R17                          "ROM SPA/R17,ALU/A,B MODE/LOAD,AMUX/ALU,SPA MUX/ROM SPA"
; 144   B_B                           "ALU/B,B MODE/LOAD,AMUX/ALU"
; 145   B_RS                          "SPA MUX/RS,B MODE/LOAD,AMUX/ALU"
; 146   B_B SEX                       "ALU/B,B MODE/LOAD,ENAB SEX/SEX,AMUX/ALU"
; 147   B_RD                          "SPA MUX/RD,B MODE/LOAD,AMUX/ALU"
; 148   B_PC                          "ROM SPA/PC,B MODE/LOAD,AMUX/ALU,SPA MUX/ROM SPA"
; 149   B_R12                         "ROM SPA/R12,B MODE/LOAD,AMUX/ALU,SPA MUX/ROM SPA"
; 150   B_R11 OP B                    "ROM SPA/R11,B MODE/LOAD,AUX CONTROL/AUX,AMUX/ALU,SPA MUX/RO
M SPA"
; 151   B_R11 OP B SEX                "ROM SPA/R11,B MODE/LOAD,AUX CONTROL/AUX,ENAB SEX/SEX,AMUX/A
LU,SPA MUX/ROM SPA"
; 152   B_R17 OP B                    "ROM SPA/R17,B MODE/LOAD,AUX CONTROL/AUX,AMUX/ALU, SPA MUX/R
OM SPA"
; 153   RDB_RD OP B                   "SPA MUX/RD,SP CONTROL/WRITE LOW,AUX CONTROL/AUX,AMUX/ALU"
; 154   B_RD OP B                     "SPA MUX/RD,AUX CONTROL/AUX,AMUX/ALU"
; 155   RS_B                          "ROM SPA/RS,ALU/B,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/ROM
 SPA"
; 156   R11_B                         "ROM SPA/R11,ALU/B,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/RO
M SPA"
; 157   R11_B SEX                     "ROM SPA/R11,ALU/B,SP CONTROL/WRITE WORD,ENAB SEX/SEX,AMUX/A
LU,SPA MUX/ROM SPA"
; 158   R17_B (SAME)                  "ALU/B,ROM SPA/SAME,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/R
OM SPA"
; 159   R10_B                         "ALU/B,ROM SPA/R10,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/RO
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M SPA"
                        ; 160   RD_B                    "ALU/B,SPA MUX/RD,SP CONTROL/WRITE WORD,AMUX/ALU"
                        ; 161   RDB_B                   "ALU/B,SPA MUX/RD,SP CONTROL/WRITE LOW,AMUX/ALU"
                        ; 162   R12_B                   "ALU/B,ROM SPA/R12,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/RO
M SPA"
                        ; 163   PC_B                    "ALU/B,ROM SPA/PC,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/ROM
 SPA"
                        ; 164   RS_B                    "ALU/B,SPA MUX/RS,AMUX/ALU,SP CONTROL/WRITE WORD"
                        ; 165   R14_PSW                 "ROM SPA/R14,AMUX/PSW,SP CONTROL/WRITE LOW,SPA MUX/ROM SPA"
                        ; 166   R13_B                   "ALU/B,ROM SPA/R13,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX/RO
M SPA"
                        ; 167   R16_M                   "ROM SPA/R16,ALU/ZERO,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX
/ROM SPA"
                        ; 168   R13_M                   "ROM SPA/R13,ALU/ZERO,SP CONTROL/WRITE WORD,AMUX/ALU,SPA MUX
/ROM SPA"
                        ; 169   ASLB                    "B MODE/SHIFT L"
                        ; 170   CC_R14 AND -B           "ROM SPA/R14,ALU/A(-B),OUT/LOAD CC,AMUX/ALU,SPA MUX/ROM SPA"
                        ; 171   CC_R14 OR B             "ALU/B + B,ROM SPA/R14,OUT/LOAD CC,AMUX/ALU,SPA MUX/ROM SPA"
                        ; 172   NOP                     "ALU/B,B MODE/LOAD,AMUX/ALU"
                        ; 173   DATI                    "BUS CONTROL/DATI,DAT TRAN/TRAN"
                        ; 174   DATIP                   "BUS CONTROL/DATIP,DAT TRAN/TRAN"
                        ; 175   DATO                    "BUS CONTROL/DATO,DAT TRAN/TRAN"
                        ; 176   DATOB                   "BUS CONTROL/DATOB,DAT TRAN/TRAN"
                        ; 177   M_IR_UNIBUS DATA        "M MODE/LOAD"
                        ; 178   M_UNIBUS DATA           "M MODE/LOAD"
                        ; 179   PSW_B                   "OUT/LOAD PSW,ALU/B,AMUX/ALU"
                        ; 180   UNIBUS DATA_PSW         "AMUX/PSW"
                        ; 181   UNIBUS DATA_B           "AMUX/ALU,ALU/B"
                        ; 182   ALBYT                   "ALLOW BYTE/BYTE"
                        ; 183   ENAB DBE                "OUT/ENAB DBE"
                        ; 184   ENABOVER                "OUT/ENAB STOV"
                        ; 185   COND CODES              "OUT/LOAD CC"
                        ; 186   OUT BYTE                "OUT BYTE/OUT"
                        ; 187   OUT DEST                "OUT/OUT DEST"
                        ; 188   OUT IR DECODE           "LOAD IR/LOAD"
                        ; 189   OUT SERVICE             "OUT SERVICE/SERV,B MODE/LOAD,SPA MUX/BA"
                        ; 190

; MACRO,.MAC[142,31021   17:26 8-MAY-1984        MICRO CODE FILE PAGE  [illegible]        MICRO 13A(130)
; FLOW.S,MIC     17:24 8-MAY-1984

                        ; 191   ;BRANCH ON SERVICE MICRO-STEP
                        ; 192   ;1
U 0000, 2041,0011,7504,0000 ; 193   SERV:   R_UNIBUS DATA,OUT SERVICE,J/F1  ;BRANCH ON SERVICE REQUEST
                        ; 194                                   ;LOAD VECTOR INTO BREG
                        ; 195           ;IF SERVICE REQUEST GO TO TRAP=1
                        ; 196           ;IF NOT SERVICE REQUEST GO TO F1
                        ; 197
                        ; 198
                        ; 199
                        ; 200   ;TRAP ROUTINE FROM BRANCH ON SERVICE
                        ; 201   1031
U 0103, 0416,0015,2716,0000 ; 202   TRAP=11 R13_B,J/TRAP=2           ;MOVE CONTENTS OF B REGISTER
                        ; 203                                   ;TO SP REGISTER 13
                        ; 204
                        ; 205
                        ; 206   ;INSTRUCTION FETCH
                        ; 207   1021
                        ; 208   F11:    MA_PC,DATI,             ;FETCH NEW INSTRUCTION
U 0102, 2400,0111,7515,0000 ; 209           R_IR_UNIBUS DATA,J/F2   ;LOAD INTO IR REGISTER
                        ; 210
                        ; 211
                        ; 212           ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 0
                        ; 213   601
                        ; 214   SM0=11  R_RS,                   ;SOURCE OPERAND TO B REGISTER
U 0001, 2102,0015,7504,0000 ; 215           OUT BYTE,J/SM0=2        ;BRANCH ON BYTE INSTRUCTION
                        ; 216           ;IF BYTE INSTRUCTION GO TO SBE=1 (MUST BE EVEN ADDRESS)
                        ; 217   1041
                        ; 218   SM0=21  F11_B,                  ;STORE SOURCE OPERAND IN SP  REGISTER 11
U 0104, 0014,0415,2716,2000 ; 219                   OUT DEST,J/SERV ;BRANCH TO DESTINATION ROUTINE
                        ; 220           ;IF MODIFY INSTRUCTION AND IR<5:3>=0 GO TO MDM0=1
                        ; 221           ;                                       =1      MDM1=1
                        ; 222           ;                                       =2      MDM2=1
                        ; 223           ;                                       =3      MDM3=1
                        ; 224           ;                                       =4      MDM4=1
                        ; 225           ;                                       =5      MDM5=1
                        ; 226           ;                                       =6      MDM6=1
                        ; 227           ;                                       =7      MDM7=1
                        ; 228           ;IF MOD=MODIFY INSTRUCTION AND IR<5:3>=0 GO TO MDM0=1
                        ; 229           ;                                           =1      MDM1=1
                        ; 230           ;                                           =2      MDM2=1
                        ; 231           ;                                           =3      MDM3=1
                        ; 232           ;                                           =4      MDM4=1
                        ; 233           ;                                           =5      MDM5=1
                        ; 234           ;                                           =6      MDM6=1
                        ; 235           ;                                           =7      MDM7=1
                        ; 236           ;IF MOVE INSTRUCTION DESTINATION MODE 0 GO TO MOV=1
                        ; 237
                        ; 238
                        ; 239   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 1
                        ; 240   611
                        ; 241   SM1=11  MA_RS,DATI,ALBYT,       ;INPUT SOURCE OPERAND FROM MEMORY
                        ; 242                   R_UNIBUS DATA,  ;ALLOW BYTE TRANSFER
U 0001, 2102,0101,7504,0000 ; 243                   OUT BYTE,J/SM0=2;BRANCH ON BYTE INSTRUCTION
                        ; 244           ;IF ODD BYTE GO TO SM0=1
                        ; 245           ;IF EVEN BYTE GO TO SBE=1
                        ; 246           ;IF NOT BYTE FALL THROUGH TO SM0=2
                        ; 247
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                        ; 248
                        ; 249   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 2
                        ; 250   021
                        ; 251   SM2=11  RA_PS,DATI,ALBYT,       ;INPUT SOURCE OPERAND FROM MEMORY
                        ; 252           B_UNIBUS DATA,  ;ALLOW BYTE TRANSFER
U 0062, 2302,0101,7504,0000 ; 253           BUT BYTE,J/SM2=2;BRANCH ON BYTE INSTRUCTION                    7
                        ; 254         ;IF ODD BYTE GO TO SM80=1
                        ; 255         ;IF EVEN BYTE GO TO SM00=1
                        ; 256         ;IF NOT BYTE FALL THROUGH TO SM2=2
                        ; 257
                        ; 258   1141
U 0114, 2110,6014,3004,0004 ; 259   SM2=21  RS_RS PLUS 2,J/SM0=2          ;ADD TWO TO CONTENTS OF SOURCE REGISTER
                        ; 260
                        ; 261
                        ; 262   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 3
                        ; 263   031
                        ; 264   SM3=11  RA_PS,DATI,                     ;INPUT ADDRESS OF SOURCE OPERAND
U 0063, 2520,0111,7504,0000 ; 265           B_UNIBUS DATA,J/SM3=2   ;(MUST BE EVEN ADDRESS)
                        ; 266
                        ; 267
                        ; 268   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 4
                        ; 269   041
                        ; 270   SM4=11  RS_RS MINUS 2,ALBYT,     ;SUBTRACT TWO FROM SOURCE REGISTER
U 0004, 1430,7406,4504,0000 ; 271           ENABOVER,J/SM1=1;IF INSTRUCTION IS NOT A BYTE OP
                        ; 272                                   ;SUBTRACT ONE IF INSTRUCTION
                        ; 273                                   ;IS A BYTE, PERMIT OVERFLOW
                        ; 274
                        ; 275
                        ; 276   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 5
                        ; 277   051
                        ; 278   SM5=11  RS_RS MINUS 2,ENABOVER,  ;SUBTRACT TWO FROM SOURCE
U 0065, 2630,7414,4504,0000 ; 279           J/SM5=2             ;REGISTER,PERMIT OVERFLOW
                        ; 280
                        ; 281
                        ; 282   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 6
                        ; 283   061
                        ; 284   SM6=11  RA_PC,DATI,              ;INPUT INDEX WORD FROM
U 0066, 2640,0111,7515,6000 ; 285           B_UNIBUS DATA,J/SM6=2;NEXT MEMORY LOCATION (MUST BE EVEN ADDRESS)
                        ; 286
                        ; 287
                        ; 288   ;DOUBLE OPERAND INSTRUCTION SOURCE MODE 7
                        ; 289   071
                        ; 290   SM7=11  RA_PC,DATI,              ;INPUT INDEX WORD FROM NEXT
U 0067, 2720,0111,7515,6000 ; 291           B_UNIBUS DATA,J/SM7=2;MEMORY LOCATION, (MUST BE EVEN ADDRESS)
                        ; 292
                        ; 293
                        ; 294   ;SOURCE ROUTINE FOR EVEN BYTE (EXCEPT FOR SM2) INSTRUCTIONS
                        ; 295   1061
                        ; 296   SME=11  R11_B SEX,              ;STORE SIGN EXTENDED SOURCE
U 0106, 0014,6414,2716,2000 ; 297           BUT DEST,J/SERV;OPERAND IN SP REGISTER 11
                        ; 298                                   ;BRANCH TO DESTINATION ROUTINE
                        ; 299         ;IF MODIFY INSTRUCTION AND IR<5:3>=0 GO TO MDM0=1
                        ; 300         ;                                   =1      MDM1=1
                        ; 301         ;                                   =2      MDM2=1
                        ; 302         ;                                   =3      MDM3=1
                        ; 303         ;                                   =4      MDM4=1
                        ; 304         ;                                   =5      MDM5=1
                        ; 305         ;                                   =6      MDM6=1
                        ; 306         ;                                   =7      MDM7=1
                        ; 307         ;IF NON-MODIFY INSTRUCTION AND IR<5:3>=0 GO TO NDM0=1
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                        ; 308         ;                                   =1      NDM1=1          8
                        ; 309         ;                                   =2      NDM2=1
                        ; 310         ;                                   =3      NDM3=1
                        ; 311         ;                                    =4     NDM4=1
                        ; 312         ;                                   =5      NDM5=1
                        ; 313         ;                                   =6      NDM6=1
                        ; 314         ;                                   =7      NDM7=1
                        ; 315         ;IF MOVE INSTRUCTION DESTINATION MODE 0 GO TO MOV=1
                        ; 316
                        ; 317
                        ; 318   ;SOURCE ROUTINE FOR ODD BYTE (EXCEPT FOR SM2) INSTRUCTIONS
                        ; 319   1071
U 0107, 3074,6015,2717,6000 ; 320   SM0=11  R17_B (SWAB),J/SB0=2      ;SOURCE OPERAND WITH BYTES SWAPPED
                        ; 321                                   ;STORED IN SP REGISTER 17
                        ; 322
                        ; 323
                        ; 324   ;SOURCE ROUTINE FOR SOURCE MODE 2 EVEN BYTE INSTRUCTIONS
                        ; 325   1161
U 0116, 2150,6004,3004,0020 ; 326   SM2E=11 RS_RS PLUS 2,ALBYT,J/SM2=1  ;ADD TWO TO SOURCE REGISTER
                        ; 327                                   ;IF INSTRUCTION IS NOT A BYTE
                        ; 328                                   ;OP ADD ONE IF INSTRUCTION
                        ; 329                                   ;IS A BYTE
                        ; 330
                        ; 331
                        ; 332   ;SOURCE ROUTINE FOR SOURCE MODE 2 ODD BYTE INSTRUCTIONS
                        ; 333   1171
U 0117, 2170,6004,3004,0020 ; 334   SM2O=11 RS_RS PLUS 2,ALBYT,J/SB0=1  ;ADD TWO TO SOURCE REGISTER IF
                        ; 335                                   ;INSTRUCTION IS NOT A BYTE OR
                        ; 336                                   ;ADD ONE IF INSTRUCTION IS
                        ; 337                                   ;A BYTE
                        ; 338
                        ; 339
                        ; 340   ;MODIFY INSTRUCTION DESTINATION MODE 0
                        ; 341   401
                        ; 342   MDM0=11 B_RD,                   ;DESTINATION OPERAND TO B REGISTER
U 0040, 2502,0015,7512,0000 ; 343           BUT BYTE,J/MDM0=2  ;BRANCH ON BYTE INSTRUCTION
                        ; 344         ;IF BYTE GO TO MDM=1
                        ; 345         ;IF NOT BYTE FALL THROUGH TO MDM0=2
                        ; 346   1241
                        ; 347   MDM0=21 B_R11 OP B,COND CODES,  ;OPERATE ON SOURCE AND DESTINATION
U 0124, 3120,0615,7516,3000 ; 348           J/MDM0=3            ;OPERANDS AND SET CONDITION
                        ; 349                                   ;CODES ACCORDINGLY
                        ; 350
                        ; 351
                        ; 352   ;MODIFY INSTRUCTION DESTINATION MODE 1
                        ; 353   411
                        ; 354   MDM1=11 RA_RD,PATIP,ALBYT,      ;INPUT DESTINATION OPERAND
                        ; 355           BUT BYTE,
U 0041, 2702,0121,7514,0000 ; 356           B_UNIBUS DATA,J/MDM1=2;FROM MEMORY
                        ; 357         ;IF ODD BYTE INSTRUCTION GO TO M10B=1
                        ; 358         ;IF EVEN BYTE INSTRUCTION GO TO M1EN=1
                        ; 359         ;IF NOT BYTE INSTRUCTION FALL THROUGH TO MD41=2
                        ; 360   1341
U 0134, 3200,0615,7516,3000 ; 361   MDM1=21 B_R11 OP B,COND CODES,  ;OPERATE ON SOURCE AND DESTINATION
                        ; 362           J/MDM1=3            ;OPERANDS AND SET CONDITION
                        ; 363                                   ;CODES ACCORDINGLY
                        ; 364
                        ; 365
                        ; 366   ;MODIFY INSTRUCTION DESTINATION MODE 2
                        ; 367   421
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                                          ; 368   MDM2-1: BA_RD,DATIP,ALBYT,       ;INPUT DESTINATION OPERAND
                                          ; 369                 B_UNIBUS DATA,   ;FROM MEMORY
U 0042, 3102,0121,7510,0000               ; 370                 BUT BYTE,J/MDM2-2  ;BRANCH ON BYTE INSTRUCTION
                                          ; 371           ;IF ODD BYTE GO TO M2OB-1
                                          ; 37.           ;IF EVEN BYTE GO TO M2EB-1
                                          ; 373           ;IF NOT BYTE FALL THROUGH TO MDM2-2
                                          ; 374   144:
                                          ; 375   MDM2-2: B_R11 OP B,COND CODES,    ;OPERATE ON SOURCE AND DESTINATION
U 0144, 3220,0615,7516,3000               ; 376                 J/MDM2-3          ;OPERANDS AND SET CONDITION
                                          ; 377                                   ;CODES ACCORDINGLY
                                          ; 378
                                          ; 379
                                          ; 380   ;MODIFY INSTRUCTION DESTINATION MODE 3
                                          ; 381   43:
                                          ; 382   MDM3-1: BA_RD,DATI,               ;INPUT ADDRESS OF DESTINATION
U 0043, 3200,0111,7510,0000               ; 383           B_UNIBUS DATA,J/MDM3-2    ;OPERAND FROM MEMORY
                                          ; 384
                                          ; 385
                                          ; 386   154:
                                          ; 387   MDM3-5: B_R11 OP B,COND CODES,    ;OPERATE ON SOURCE AND DESTINATION
U 0154, 3420,0615,7516,3000               ; 388                 J/MDM3-6          ;OPERANDS AND SET CONDITION
                                          ; 389                                   ;CODES ACCORDINGLY
                                          ; 390
                                          ; 391
                                          ; 392   ;MODIFY INSTRUCTION DESTINATION MODE 4
                                          ; 393   44:
                                          ; 394   MDM4-1:RD_RD MINUS 2,ALBYT,ENABOVER,  ;SUBTRACT TWO FROM DESTINATION
U 0044, 1030,7400,4510,0000               ; 395                 J/MDM1-1          ;REGISTER IS INSTRUCTION IS NOT
                                          ; 396                                   ;A BYTE OR ONE IF
                                          ; 397                                   ;INSTRUCTION IS A BYTE,
                                          ; 398                                   ;PERMIT OVERFLOW
                                          ; 399
                                          ; 400
                                          ; 401   ;MODIFY INSTRUCTION DESTINATION MODE 5
                                          ; 402   45:
U 0045, 3450,7414,4510,0000               ; 403   MDM5-1: RD_RD MINUS 2,ENABOVER,J/MDM5-2  ;SUBTRACT TWO FROM CONTENTS
                                          ; 404                                   ;OF DESTINATION REGISTER,
                                          ; 405                                   ;PERMIT OVERFLOW
                                          ; 406
                                          ; 407
                                          ; 408   ;MODIFY INSTRUCTION DESTINATION MODE 6
                                          ; 409   46:
                                          ; 410   MDM6-1:BA_PC,DATI,
U 0046, 3400,0111,7515,6000               ; 411           B_UNIBUS DATA,J/MDM6-2
                                          ; 412
                                          ; 413
                                          ; 414   ;MODIFY INSTRUCTION DESTINATION MODE 7
                                          ; 415   47:
                                          ; 416   MDM7-1:BA_PC,DATI,                ;INPUT INDEX WORD FROM MEMORY
U 0047, 3600,0111,7515,6000               ; 417                 B_UNIBUS DATA,J/MDM7-2
                                          ; 418
                                          ; 419
                                          ; 420   ;MODIFY INSTRUCTION BYTE ROUTINE FOR DESTINATION MODE 0
                                          ; 421   126:
U 0126, 3720,0614,7516,3000               ; 422   MDB-1:B_R11 OP B SEX,COND CODES,J/MDB-2  ;OPERATE ON SOURCE OPERAND AND
                                          ; 423                                   ;DESTINATION OPERAND SIGN EXTENDED
                                          ; 424                                   ;SET CONDITION CODES ACCORDING
                                          ; 425                                   ;TO RESULTS
                                          ; 426
                                          ; 427
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                                          ; 428   ;MODIFY INSTRUCTION ODD BYTE ROUTINE FOR DESTINATION MODE 1
                                          ; 429   137:
U 0137, 4030,0015,2717,0000               ; 430   M1OB-1:R17_B (SWAB),J/M1OB-2      ;DESTINATION OPERAND WITH
                                          ; 431                                   ;BYTES SWAPPED LOADED INTO
                                          ; 432                                   ;SP REGISTER 17 TO FORM NEW
                                          ; 433                                   ;DESTINATION OPERAND
                                          ; 434
                                          ; 435
                                          ; 436   ;MODIFY INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 1
                                          ; 437   136:
U 0136, 4000,0614,7516,3000               ; 438   M1EB-1:B_R11 OP B SEX,COND CODES,J/M1EB-2  ;OPERATE ON SOURCE OPERAND AND
                                          ; 439                                   ;DESTINATION OPERAND SIGN EXTENDED
                                          ; 440                                   ;SET CONDITION CODES ACCORDING
                                          ; 441                                   ;TO RESULTS
                                          ; 442
                                          ; 443
                                          ; 444   ;MODIFY INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 2
                                          ; 445   146:
U 0146, 4100,0614,7516,3000               ; 446   M2EB-1:B_R11 OP B SEX,COND CODES,J/M2EB-2  ;OPERATE ON SOURCE OPERAND AND
                                          ; 447                                   ;DESTINATION OPERAND SIGN EXTENDED
                                          ; 448                                   ;SET CONDITION CODES ACCORDING
                                          ; 449                                   ;TO RESULTS
                                          ; 450
                                          ; 451
                                          ; 452   ;MODIFY INSTRUCTION ODD BTE ROUTINE FOR DESTINATION MODE 2
                                          ; 453   147:
U 0147, 4214,0015,2717,0000               ; 454   M2OB-1: R17_B (SWAB),J/M2OB-2     ;CONTENTS OF B REGISTER WITH
                                          ; 455                                   ;BYTES SWAPPED LOADED INTO
                                          ; 456                                   ;SP REGISTER 17 TO FORM NEW
                                          ; 457                                   ;DESTINATION OPERAND
                                          ; 458
                                          ; 459
                                          ; 460   ;MODIFY INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 3
                                          ; 461   156:
U 0156, 4320,0614,7516,3000               ; 462   M3EB-1:B_R11 OP B SEX,COND CODES,J/M3EB-2  ;OPERATE ON SOURCE AND
                                          ; 463                                   ;DESTINATION OPERANDS AND
                                          ; 464                                   ;SET CONDITION CODES ACCORDING
                                          ; 465                                   ;TO RESULTS
                                          ; 466
                                          ; 467
                                          ; 468   ;MODIFY INSTRUCTION ODD BYTE ROUTINE FOR DESTINATION MODE 3
                                          ; 469   157:
U 0157, 4414,0015,2717,0000               ; 470   M3OB-1: R17_B (SWAB),J/M3OB-2     ;CONTENTS OF B REGISTER WITH
                                          ; 471                                   ;BYTES SWAPPED LOADED INTO
                                          ; 472                                   ;SP REGISTER 17 TO FORM NEW
                                          ; 473                                   ;DESTINATION OPERAND
                                          ; 474
                                          ; 475
                                          ; 476   ;NON-MODIFY INSTRUCTION DESTINATION MODE 0
                                          ; 477   50:
                                          ; 478   NDM0-1:B_RD,                      ;DESTINATION OPERAND TO B REGISTER
U 0050, 3502,2215,7510,0000               ; 479           BUT BYTE,J/NDM0-2         ;BRANCH ON BYTE INSTRUCTION
                                          ; 480           ;IF BYTE GO TO NDEB-1
                                          ; 481           ;IF NOT BYTE FALL THROUGH TO NDM0-2
                                          ; 482   164:
U 0164, 0000,0615,7516,3000               ; 483   NDM0-2:B_R11 OP B,COND CODES,J/SERV  ;OPERATE ON SOURCE AND DESTINATION
                                          ; 484                                   ;OPERANDS AND SET CONDITION CODES
                                          ; 485
                                          ; 486
                                          ; 487   ;NON-MODIFY INSTRUCTION DESTINATION MODE 1
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                        ;INPUT DESTINATION OPERAND FROM
                        ;MEMORY
                        ;BRANCH ON BYTE INSTRUCTION
                        ;  GO TO ROUT=1
                        ;  GO TO ROUT=2
                        ;  GO TO ROUT=1
                        ;  FALL THROUGH TO ROUT=2

;ROUTINE FOR DESTINATION MODE 2

ADDBYT: INPUT DESTINATION OPERAND
        FROM MEMORY
        IF ODD BYTE GO TO ROUT=1
        IF EVEN BYTE GO TO ROUT=2
        IF NOT BYTE GO TO ROUT=2

ADD2:   ADD I+O TO CONTENTS OF DESTINATION
        REGISTER

;ROUTINE FOR DESTINATION MODE 3

ADDBYT: INPUT ADDRESS OF DESTINATION
        OPERAND FROM MEMORY

;ROUTINE FOR DESTINATION MODE 4

SUBBYT: SUBTRACT TWO FROM CONTENTS OF
        REGISTER IF INSTRUCTION IS NOT
        A BYTE OR ONE IF INSTRUCTION
        IS A BYTE, PERMIT OVERFLOW

;ROUTINE FOR DESTINATION MODE 5

SUB:    SUBTRACT I+O FROM CONTENTS OF
        DESTINATION REGISTER PERMIT OVERFLOW

;ROUTINE FOR DESTINATION MODE 6

ADDBYT: INPUT INDEX WORD FROM MEMORY

;ROUTINE FOR DESTINATION MODE 7

ADDBYT: INPUT INDEX WORD FROM MEMORY

;ROUTINE FOR EVEN BYTE ROUTINE FOR DESTINATION MODES 0 AND 1

MOV:    DESTINATION OPERAND WITH
        INDEX SHIFTED LOADED INTO
        ISP REGISTER 17 TO FORM
        DATA DESTINATION OPERAND

;ROUTINE FOR ODD BYTE ROUTINE FOR DESTINATION MODE 2

MOVBYT: ADD I+O TO CONTENTS OF DESTINATION
        REGISTER IF INSTRUCTION IS NOT
        A BYTE OR ONE IF INSTRUCTION
        IS A BYTE

;ROUTINE FOR EVEN BYTE ROUTINE FOR DESTINATION MODE 2

MOVBYT: ADD I+O TO CONTENTS OF DESTINATION
        REGISTER IF INSTRUCTION IS NOT
        A BYTE OR ONE IF INSTRUCTION
        IS A BYTE.

;DESTINATION MODE 0

MOV:    OPERATE ON SOURCE AND
        DESTINATION OPERANDS, SET
        CONDITION CODES ACCORDING TO
        RESULTS

;INSTRUCTION DESTINATION MODE 0

        DESTINATION OPERAND TO B REGISTER
        BRANCH ON BYTE INSTRUCTION
        GO TO ROUT=1
        FALL THROUGH TO ROUT=2

        AUXILIARY CONTROL SET-UP,DESTINATION
        OPERAND ROTATED WITHOUT
        TRANSFER THROUGH ALU

;DESTINATION MODE 1

        INPUT DESTINATION OPERAND FROM
        MEMORY
        PUT BYTE,JMODE=2-INMATCH ON BYTE INSTRUCTION
        IF ODD BYTE GO TO ROUT=1
        IF EVEN BYTE GO TO ROUT=2
        IF NOT BYTE GO TO ROUT=2

;ROTATE INSTRUCTION DESTINATION MODE 2

        AUXILIARY CONTROL SET-UP,DESTINATION
        OPERAND ROTATED WITHOUT
        TRANSFER THROUGH ALU
```

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;ROTATE INSTRUCTION DESTINATION MODE 2
;
ROT2=11 BA_RD,DATIF,ALUBYT,     ;INPUT DESTINATION OPERAND FROM
        B_DATBUS DATA,          ;MEMORY
        ROT_BYTE,J/ROT2=2       ;BRANCH ON BYTE INSTRUCTION
        BYTE GO TO ROT2=1
        BYTE GO TO ROT2=1
        BYTE FALL THROUGH TO ROT2=2
ROT2=2.                 ;AUXILIARY CONTROL SET-UP,DESTINATION
                        ;OPERAND ROTATED WITHOUT
                        ;TRANSFER THROUGH ALU

;ROTATE INSTRUCTION DESTINATION MODE 3

ROT3=11 BA_RD,DATI,     ;INPUT ADDRESS OF DESTINATION
        B_DATBUS DATA,J/ROT3=2  ;OPERAND FROM MEMORY

;ROTATE INSTRUCTION DESTINATION MODE 4

ROT4=11 RD_RD MINUS 2,  ;AUXILIARY CONTROL SET-UP,
        BA_RD MINUS 2,  ;DESTINATION OPERAND
        ALUBYT,         ;ROTATED WITHOUT TRANSFER
        ROT_BYTE,J/ROT4=1       ;THROUGH ALU

;ROTATE INSTRUCTION DESTINATION MODE 5

ROT5=11 RD_RD MINUS 2,  ;SUBTRACT TWO FROM DESTINATION
        BA_RD MINUS 2,  ;REGISTER IF INSTRUCTION IS NOT
        ALUBYT,         ;A BYTE OR ONE IF INSTRUCTION
        ROT_BYTE,J/ROT5=1       ;IS A BYTE, PERMIT OVERFLOW

;ROTATE INSTRUCTION DESTINATION MODE 6

ROT6=11 BA_PC,DATI,     ;INPUT INDEX WORD FROM DESTINATION
        B_DATBUS DATA,J/ROT6=2  ;REGISTER, PERMIT OVERFLOW

;ROTATE INSTRUCTION DESTINATION MODE 7

ROT7=11 BA_PC,DATI,     ;INPUT INDEX WORD FROM MEMORY
        B_DATBUS DATA,J/ROT7=2

;ROTATE BYTE ROUTINE FOR DESTINATION MODE 0

ROT0B=2                 ;AUXILIARY CONTROL SET-UP,DESTINATION
                        ;OPERAND ROTATED WITHOUT TRANSFER
                        ;THROUGH ALU

;ROTATE INSTRUCTION ODD BYTE ROUTINE FOR DESTINATION MODE 1

ROB1=11 R17_B (SWAB),J/ROB1=2   ;DESTINATION OPERAND WITH
                        ;BYTES SWAPPED LOADED INTO
                        ;SP REGISTER 17 TO FORM
                        ;NEW DESTINATION OPERAND

;ROTATE INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 1

REB1=11 B_RD,J/*TEB=1   ;AUXILIARY CONTROL SET-UP
                        ;DESTINATION OPERAND ROTATED
                        ;WITHOUT TRANSFER THROUGH ALU

;ROTATE INSTRUCTION ODD BYTE ROUTINE FOR DESTINATION MODE2

ROB2=11 R17_B (SWAB),J/ROB2=2   ;CONTENTS OF R REGISTER WITH
                        ;BYTES SWAPPED LOADED INTO
                        ;SP REGISTER 17 TO FORM NEW
                        ;DESTINATION OPERAND

;ROTATE INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 2

REB2=11 B_RD,J/REB=1    ;AUXILIARY CONTROL SET-UP
                        ;DESTINATION OPERAND ROTATED
                        ;WITHOUT TRANSFER THROUGH ALU

;ROTATE INSTRUCTION ODD BYTE ROUTINE FOR DESTINATION MODE 3

ROB3=11 R17_B (SWAB),J/ROB3=2   ;CONTENTS OF R REGISTER WITH
                        ;BYTES SWAPPED LOADED INTO
                        ;SP REGISTER 17 TO FORM NEW
                        ;DESTINATION OPERAND

;ROTATE INSTRUCTION EVEN BYTE ROUTINE FOR DESTINATION MODE 3

REB3=11 B_RD,J/REB=1    ;AUXILIARY CONTROL SET-UP
                        ;DESTINATION OPERAND ROTATED
                        ;WITHOUT TRANSFER THROUGH ALU

;BRANCH INSTRUCTION WHERE PC IS CHANGED

JMP=11  R_1 SEX,J/B=2   ;SIGN EXTEND THE CONTENTS
                        ;OF THE R REGISTER

;SWAP BYTE INSTRUCTION MODE 0

SWB0=11 B_RD,J/SWB0=2   ;DESTINATION OPERAND TO B REGISTER

;SWAP BYTE INSTRUCTION MODE 1

SWB1=11 RB_RD,DATIP,    ;INPUT DESTINATION OPERAND FROM
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U 0031, 5600,0131,7510,0000    ; 728            B_UNIBUS DATA,J/SWB1-2  ;MEMORY
                               ; 729
                               ; 730
                               ; 731    ;SWAP BYTE INSTRUCTION DESTINATION MODE 2
                               ; 732    32:
                               ; 733    SWB2-1: BA_RD,DATIP,B_UNIBUS DATA,       ;INPUT DESTINATION OPERAND FROM
U 0032, 5720,0131,7510,0000    ; 734                    J/SWB2-2         ;MEMORY
                               ; 735
                               ; 736
                               ; 737    ;SWAP BYTE INSTRUCTION DESTINATION MODE 3
                               ; 738    33:
                               ; 739    SWB3-1: BA_RD,DATI,                  ;INPUT ADDRESS OF DESTINATION
U 0033, 6020,0111,7510,0000    ; 740            B_UNIBUS DATA,J/SWB3-2  ;OPERAND FROM MEMORY
                               ; 741
                               ; 742
                               ; 743    ;SWAP BYTE INSTRUCTION DESTINATION MODE 4
                               ; 744    34:
U 0034, 0630,7414,4510,0000    ; 745    SWB4-1: RD_RD MINUS 2,ENABOVER,J/SWB1-1  ;SUBTRACT TWO FROM DESTINATION
                               ; 746                                         ;REGISTER, PERMIT OVERFLOW
                               ; 747
                               ; 748
                               ; 749    ;SWAP BYTE INSTRUCTION DESTINATION MODE 5
                               ; 750    35:
U 0035, 6150,7414,4510,0000    ; 751    SWB5-1: RD_RD MINUS 2,ENABOVER,J/SWB5-2  ;SUBTRACT TWO FROM DESTINATION
                               ; 752                                         ;REGISTER, PERMIT OVERFLOW
                               ; 753
                               ; 754
                               ; 755    ;SWAP BYTE INSTRUCTION DESTINATION MODE 6
                               ; 756    36:
                               ; 757    SWB6-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROMMEMORY
U 0036, 6160,0111,7515,6000    ; 758                 B_UNIBUS DATA,J/SWB6-2
                               ; 759
                               ; 760
                               ; 761    ;SWAP BYTE INSTRUCTION DESTINATION MODE 7
                               ; 762    37:
                               ; 763    SWB7-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROM MEMORY
U 0037, 6220,0111,7515,6000    ; 764                 B_UNIBUS DATA,J/SWB7-2
                               ; 765
                               ; 766
                               ; 767    ;JUMP INSTRUCTION DESTINATION MODE 1
                               ; 768    11:
U 0011, 6320,0015,7510,0000    ; 769    JMP1-1: B_RD,J/JMP1-2                ;CONTENTS OF DESTINATION REGISTER
                               ; 770                                         ;TRANSFERRED TO B REGISTER
                               ; 771
                               ; 772
                               ; 773    ;JUMP INSTRUCTION DESTINATION MODE 2
                               ; 774    12:
U 0012, 6340,0015,7510,0000    ; 775    JMP2-1: B_RD,J/JMP2-2                ;CONTENTS OF DESTINATION REGISTER
                               ; 776                                         ;LOADED INTO B REGISTER
                               ; 777
                               ; 778
                               ; 779    ;JUMP INSTRUCTION DESTINATION MODE 3
                               ; 780    13:
                               ; 781    JMP3-1: BA_RD,DATI,                  ;INPUT JUMP ADDRESS FROM MEMORY
U 0013, 6340,0111,7510,0000    ; 782                 B_UNIBUS DATA, J/JMP2-2
                               ; 783
                               ; 784
                               ; 785    ;JUMP INSTRUCTION DESTINATION MODE 4
                               ; 786    14:
U 0014, 0230,7414,4510,0000    ; 787    JMP4-1: RD_RD MINUS 2,ENABOVER,J/JMP1-1  ;SUBTRACT TWO FROM DESTINATION
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                               ; 788                                         ;REGISTER, PERMIT OVERFLOW
                               ; 789
                               ; 790
                               ; 791    ;JUMP INSTRUCTION DESTINATION MODE 5
                               ; 792    15:
U 0015, 6370,7414,4510,0000    ; 793    JMP5-1: RD_RD MINUS 2,ENABOVER,J/JMP5-2  ;SUBTRACT TWO FROM DESTINATION
                               ; 794                                         ;REGISTER, PERMIT OVERFLOW
                               ; 795
                               ; 796
                               ; 797    ;JUMP INSTRUCTION DESTINATION MODE 6
                               ; 798    16:
                               ; 799    JMP6-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROM MEMORY
U 0016, 6400,0111,7515,6000    ; 800                 B_UNIBUS DATA,J/JMP6-2
                               ; 801
                               ; 802
                               ; 803    ;JUMP INSTRUCTION DESTINATION MODE 7
                               ; 804    17:
                               ; 805    JMP7-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROM MEMORY
U 0017, 6440,0111,7515,6000    ; 806                 B_UNIBUS DATA,J/JMP7-2
                               ; 807
                               ; 808
                               ; 809    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 1
                               ; 810    21:
U 0021, 6540,0015,7510,0000    ; 811    JSR1-1: B_RD,J/JSR1-2   ;MOVE CONTENTS OF DESTNATION REGISTER TO
                               ; 812                                         ;B REGISTER.
                               ; 813
                               ; 814    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 2
                               ; 815    22:
U 0022, 6740,0015,7510,0000    ; 816    JSR2-1: B_RD,J/JSR2-2                ;MOVE CONTENTS OF DESTINATION
                               ; 817                                         ;REGISTER TO B REGISTER
                               ; 818
                               ; 819
                               ; 820    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 3
                               ; 821    23:
                               ; 822    JSR3-1: BA_RD,DATI,                  ;INPUT DATA FROM MEMORY ADDRESS
U 0023, 6740,0111,7510,0000    ; 823                 B_UNIBUS DATA,J/JSR2-2  ;SPECIFIED BY DESTINATION
                               ; 824                                         ;REGISTER
                               ; 825
                               ; 826
                               ; 827    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 4
                               ; 828    24:
U 0024, 0430,7414,4510,0000    ; 829    JSR4-1: RD_RD MINUS 2,ENABOVER,J/JSR1-1  ;SUBTRACT TWO FROM DESTINATION
                               ; 830                                         ;REGISTER, PERMIT OVERFLOW
                               ; 831
                               ; 932
                               ; 833    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 5
                               ; 834    25:
U 0025, 6770,7414,4510,0000    ; 835    JSR5-1: RD_RD MINUS 2,ENABOVER,J/JSR5-2  ;SUBTRACT TWO FROM DESTINATION
                               ; 836                                         ;REGISTER, PERMIT OVERFLOW
                               ; 837
                               ; 838
                               ; 839    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATIN MODE6
                               ; 840    26:
                               ; 841    JSR5-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROM MEMORY
U 0026, 7000,0111,7515,6000    ; 842                 B_UNIBUS DATA,J/JSR6-2
                               ; 843
                               ; 844
                               ; 845    ;JUMP TO SUBROUTINE INSTRUCTION FOR DESTINATION MODE 7
                               ; 846    27:
                               ; 847    JSR7-1: BA_PC,DATI,                  ;INPUT INDEX WORD FROM MEMORY
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U 0027, 7440,0111,7515,0000   ; 848                 B_UNIBUS DATA,J/JSR7=2
                              ; 849
                              ; 850
                              ; 851   ;RETURN FROM SUBROUTINE INSTRUCTION                                    17
                              ; 852   RT:
U 0006, 7140,0015,7510,0000   ; 853   RTS=11:  B_R0,J/RTS=2          ;MOVE CONTENTS OF DESTINATION REGISTER
                              ; 854                                 ;TO REGISTER B
                              ; 855
                              ; 856
                              ; 857   ;RETURN FROM INTERRUPT INSTRUCTION
                              ; 858   RI:
                              ; 859   RTI=11:  R5_R6,DATI,          ;INPUT STORED PC FROM PROCESSOR STACK
U 0003, 7220,0111,7515,0000   ; 860                 B_UNIBUS DATA,J/RTI=2 ;ADDRESS SPECIFIED BY STACK
                              ; 861                                 ;POINTER
                              ; 862
                              ; 863
                              ; 864   ;WAIT INSTRUCTION
                              ; 865   WI:
                              ; 866   W=11:    BUT SERVICE,        ;BRANCH ON SERVICE, INPUT
U 0007, 7341,0011,7500,0000   ; 867                 B_UNIBUS DATA,J/W=2  ;VECTOR FROM UNIBUS
                              ; 868           ;IF SERVICE REQUEST GO TO A=3
                              ; 869           ;IF NO SERVICE REQUEST FALL THROUGH TO A2
                              ; 870
                              ; 871
                              ; 872   ;RESET FROM BUT IR DECODE
                              ; 873   RS:
U 0002, 0000,0015,2714,0000   ; 874   RSET=11: B_P,J/SERV             ;KOCK MICRO-STEP
                              ; 875
                              ; 876
                              ; 877   ;CLEAR CONDITION CODE INSTRUCTION
                              ; 878   CC:
U 0005, 7424,0017,7517,0000   ; 879   CCC=11:  R14_PSW,J/CCC=2 ;MOVE PROCESSOR STATUS TO
                              ; 880                                 ;SP REGISTER 14
                              ; 881
                              ; 882
                              ; 883   ;SET CONDITION CODE INSTRUCTION
                              ; 884   SC:
U 0004, 7424,0017,7517,0000   ; 885   SCC=11:  R14_PSW,J/SCC=2 ;MOVE PROCESSOR STATUS TO
                              ; 886                                 ;SP REGISTER 14
                              ; 887
                              ; 888
                              ; 889   ;RESTART FROM POWER FAIL
                              ; 890   II:
U 0001, 7440,0015,7515,0000   ; 891   REST=11: B_PC,J/REST=2                  ;PROGRAM COUNTER TO B REGISTER
                              ; 892
                              ; 893
                              ; 894
                              ; 895
                              ; 896
                              ; 897   TRAP=2: R6_R6 MINUS 2,ERROVER, ;SUBTRACT TWO FROM STACK
V 0020, 2230,7414,4515,0000   ; 898                 J/TRAP=3        ;POINTER,PERMIT OVERFLOW
                              ; 899   TRAP=3: BA_R6,DATO,EHAB DBE,  ;OUTPUT PROCESSOR STATUS TO
V 0101, 2120,6357,7515,0000   ; 900           UNIBUS DATA_PSW,J/TRAP=4  ;STACK,ENABLE DOUBLE
                              ; 901                                 ;BUS ERRORS
V 0105, 2210,7414,4515,0020   ; 902   TRAP=4: R6_R6 MINUS 2,ERROVER,J/TRAP=5 ;SUBTRACT TWO FROM STACK POINTER
                              ; 903                                 ;ALLOW OVERFLOW
V 0110, 2220,0015,7515,0000   ; 904   TRAP=5: B_PC,J/TRAP=6          ;MOVE CONTENTS OF PC TO B REGISTER
                              ; 905   TRAP=6: BA_R6,DATO,           ;OUTPUT PC TO STACK
V 0111, 2240,6155,2715,0030   ; 906                 UNIBUS DATA_B,J/TRAP=7
V 0112, 2260,0015,2714,0000   ; 907   TRAP=7: NOP,J/TRAP=8           ;KOCK MICRO-STEP
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                              ; 908   TRAP=8: RA_R13,DATI,          ;INPUT NEW PC FROM MEMORY                  19
                              ; 909                 B_UNIBUS DATA,J/TRAP=9  ;ADDRESS SPECIFIED BY SP REGISTER
V 0113, 2320,0111,7516,0000   ; 910   TRAP=9: R13_R13 PLUS 2,J/TRAP=10    ;ADD TWO TO SP REGISTER 13
V 0115, 2410,6014,3216,0000   ; 911   TRAP=10:PC_B,J/TRAP=11  ;LOAD NEW PC
V 0120, 2434,6015,2715,0000   ; 912   TRAP=11:RA_R13,DATI,    ;INPUT NEW PROCESSOR STATUS INTO REGISTER B
                              ; 913                 B_UNIBUS DATA,J/TRAP=12 ;FROM LOCATION SPECIFIED BY
V 0121, 2440,0111,7516,0000   ; 914                 ;SP REGISTER 13.
                              ; 915   TRAP=12:      PSW_B,J/SERV    ;LOAD NEW PROCESSOR STATUS
V 0122, 0200,7215,2714,0000   ; 916                 ;INTO PSW REGISTER
                              ; 917
                              ; 918
                              ; 919
                              ; 920   P2:     PC_PC PLUS 2,         ;INCREMENT PC
V 0123, 0010,6014,3015,0000   ; 921                 BUT IR DECODE,J/SERV    ;BRANCH ON INSTRUCTION DECODE
                              ; 922           ;IF DOUBLE OPERAND INSTRUCTION GO TO SM8=1 THRU SM7=1
                              ; 923           ;DEPENDING ON SOURCE MODE,
                              ; 924           ;IF SINGLE OPERAND MODIFY INSTRUCTION GO TO MDM8=1 THRU MDM7=1
                              ; 925           ;DEPENDING ON DESTINATION MODE,
                              ; 926           ;IF SINGLE OPERAND NON-MODIFY GO TO MDN8=1 THRU MDN7=1
                              ; 927           ;DEPENDING ON DESTINATION MODE,
                              ; 928           ;IF JUMP TO SUBROUTINE (JSR) INSTRUCTION GO TO JSR8=1 THRU JSR7=1
                              ; 929           ;DEPENDING ON DESTINATION MODE,
                              ; 930           ;IF SWAP BYTE (SWAB) INSTRUCTION GO TO SWB8=1 THRU SWB7=1
                              ; 931           ;DEPENDING ON DESTINATION MODE,
                              ; 932           ;IF CLEAR CONDITION CODE INSTRUCTION GO TO CCC=1
                              ; 933           ;IF SET CONDITION CODE INSTRUCTION GO TO SCC=1
                              ; 934           ;IF ROTATE INSTRUCTION GO TO ROTB=1 THRU ROT7=1 DEPENDING ON
                              ; 935           ;DESTINATION MODE
                              ; 936           ;IF RETURN FROM SUBROUTINE (RTS) INSTRUCTION GO TO RTS=1
                              ; 937           ;IF BRANCH INSTRUCTION PC UNCHANGE GO TO SERV
                              ; 938           ;IF RETURN FROM INTERRUPT (RTI) INSTRUCTION GO TO RTI=1
                              ; 939           ;IF WAIT INSTRUCTION GO TO W=1
                              ; 940           ;IF RESET INSTRUCTION GO TO RSET=1
                              ; 941           ;ALL OTHER INSTRUCTIONS AND ILLEGAL INSTRUCTIONS GO TO SERV=1
                              ; 942
                              ; 943
V 0125, 2570,6014,3001,0000   ; 944   SM3=2:  RS_RS PLUS 2,J/SM3=3          ;ADD TWO TO CONTENTS OF SOURCE REGISTER
V 0127, 2614,6015,2716,0000   ; 945   SM3=3:  R1P_M,J/SM3=4                ;TRANSFER ADDRESS OF SOURCE OPERAND
                              ; 946                                 ;TO SP REGISTER 1M
                              ; 947   SM3=4:  RA_R1P,DATI,ALBYT,    ;INPUT SOURCE OPERAND FROM MEMORY
                              ; 948                 B_UNIBUS DATA,  ;ALLOW BYTE TRANSFER
V 0130, 2102,0101,7516,0000   ; 949                 BUT BYTE,J/SM4=2;BRANCH ON BYTE INSTRUCTION
                              ; 950           ;IF ODD BYTE GO TO SB0=1
                              ; 951           ;IF EVEN BYTE GO TO SB8=1
                              ; 952           ;IF NOT BYTE GO TO SM4=2
                              ; 953
                              ; 954
                              ; 955   SM5=2:  RA_RS,DATI,           ;INPUT ADDRESS OF SOURCE OPERAND
V 0131, 2560,0111,7504,0000   ; 956                 B_UNIBUS DATA,J/SM3=3;(MUST BE AN EVEN ADDRESS)
                              ; 957
                              ; 958
V 0132, 2670,6014,3015,0000   ; 959   SM6=2:  PC_PC PLUS 2,J/SM6=3          ;ADD TWO TO PROGRAM COUNTER
V 0133, 2560,0015,2104,0000   ; 960   SM6=3:  B_P PLUS RS,J/SM3=3    ;ADD INDEX WORD TO CONTENTS
                              ; 961                                 ;OF SOURCE REGISTER TO OBTAN
                              ; 962                                 ;SOURCE OPERAND ADDRESS
                              ; 963
                              ; 964
V 0135, 3010,6014,3015,0000   ; 965   SM7=2:  PC_PC PLUS 2,J/SM7=3    ;ADD TWO TO PROGRAM COUNTER
V 0140, 3020,0015,3104,0000   ; 966   SM7=3:  B_P PLUS RS,J/SM7=4      ;ADD INDEX WORD TO CONTENTS
                              ; 967                                 ;OF SOURCE REGISTER TO OBTAIN
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                        ; 968                                   ;ADDRESS OF SOURCE OPERAND
                        ; 969                                   ;ADDRESS
V 0141, 3854,6015,2716,0000  ; 970  SM7=41  R10_R,J/S47=5           ;MOVE ADDRESS OF SOURCE OPERAND
                        ; 971                                   ;ADDRESS TO SP REGISTER 10
                        ; 972  SM7=51  BA_R10,DATI,             ;INPUT ADDRESS OF SOURCE OPERAND
V 0142, 2560,0111,7516,0000  ; 973              B_UNIBUS DATA,J/SM3=3
                        ; 974
                        ; 975
V 0143, 2140,0015,7517,6030  ; 976  S60=21  B_R17,J/S6E=1           ;MOVE NEW SOURCE OPERAND
                        ; 977                                   ;TO B REGISTER
                        ; 978
                        ; 979
                        ; 980
V 0145, 0014,6015,2714,0000  ; 981  MDM0=31  RD_D,J/SERV            ;LOAD RESULT OF OPERATION
                        ; 982                                   ;INTO DESTINATION REGISTER
                        ; 983
                        ; 984
                        ; 985  MDM1=31  BA_RD,DATO,     ;OUTPUT RESULT OF OPERATION
V 0150, 0004,6155,2714,3000  ; 986              UNIBUS DATA_B,J/SERV  ;TO ADDRESS SPECIFIED BY
                        ; 987                                   ;DESTINATION REGISTER
                        ; 988
                        ; 989
                        ; 990  MDM2=31  BA_RD,DATO,     ;OUTPUT RESULT OF OPERATION
                        ; 991              UNIBUS DATA_B,      ;TO ADDRESS SPECIFIED BY
V 0151, 3240,6155,2712,0020  ; 992              J/MDM2=4            ;DESTINATION REGISTER
V 0152, 0010,6004,3013,0000  ; 993  MDM2=41  RD_RD PLUS 2,ALBYT,J/SERV  ;ADD TWO TO CONTENTS OF DESTINATION
                        ; 994                                   ;REGISTER IF INSTRUCTION IS NOT
                        ; 995                                   ;A BYTE OR ONE IF
                        ; 996                                   ;INSTRUCTION IS A BYTE
                        ; 997
                        ; 998
                        ; 999  MDM3=21  RD_RD PLUS 2,           ;ADD TWO TO CONTENTS OF
V 0153, 3330,6014,3014,0000  ; 1000             J/MDM3=3            ;DESTINATION REGISTER
V 0155, 3414,6015,2716,4000  ; 1001 MDM3=31  R12_R,J/MDM3=4          ;TRANSFER ADDRESS OF DESTINATION
                        ; 1002                                  ;OPERAND TO SP REGISTER 12
                        ; 1003 MDM3=41  BA_R12,DATIP,ALBYT,     ;INPUT DESTINATION OPERAND FROM
                        ; 1004             B_UNIBUS DATA,     ;MEMORY
V 0160, 3302,0121,7516,4000  ; 1005             BUT BYTE,J/MDM3=5  ;BRANCH ON BYTE INSTRUCTION
                        ; 1006         ;IF ODD BYTE GO TO M30B=1
                        ; 1007         ;IF EVEN BYTE GO TO M3EB=1
                        ; 1008         ;IF NOT BYTE FALL THROUGH TO MDM3=5
                        ; 1009 MDM3=61  BA_R12,DATO,     ;OUTPUT RESULT OF OPERATION TO
V 0161, 0000,6155,2716,4000  ; 1010             UNIBUS DATA_B,J/SERV  ;ADDRESS SPECIFIED BY THE
                        ; 1011                                  ;SP REGISTER 12
                        ; 1012
                        ; 1013
                        ; 1014 MDM5=21  BA_RD,DATI,             ;INPUT ADDRESS OF DESTINATION
V 0162, 3320,0111,7513,2000  ; 1015         B_UNIBUS DATA,J/MDM3=3  ;OPERAND FROM MEMORY
                        ; 1016
                        ; 1017
V 0163, 3530,6014,3015,6000  ; 1018 MDM6=21  PC_PC PLUS 2,J/MDM6=3          ;ADD TWO TO PC
V 0165, 3320,0015,3112,0000  ; 1019 MDM6=31  R_B PLUS RD,J/MDM3=3    ;ADD INDEX WORD TO CONTENTS
                        ; 1020                                  ;OF DESTINATION REGISTER TO
                        ; 1021                                  ;OBTAIN ADDRESS OF DESTINATION
                        ; 1022                                  ;OPERAND
                        ; 1023
                        ; 1024
V 0170, 3630,6014,3015,6020  ; 1025 MDM7=21  PC_PC PLUS 2,J/MDM7=3    ;ADD TWO TO PC
V 0171, 3640,0015,3112,0000  ; 1026 MDM7=31  R_B PLUS RD,J/MDM7=4     ;ADD INDEX WORD TO CONTENTS OF
                        ; 1027                                  ;DESTINATION REGISTER TO OBTAIN
                        ; 1028                                  ;ADDRESS OF DESTINATION ADDRESS
V 0172, 3674,0015,2716,4000  ; 1029 MDM7=41  R12_R,J/MDM7=5           ;MOVE ADDRESS OF DESTINATION
                        ; 1030                                  ;ADDRESS TO SP REGISTER 12
                        ; 1031 MDM7=51  BA_R12,DATI,             ;INPUT DESTINATION ADDRESS FROM
V 0173, 3320,0111,7516,4000  ; 1032         B_UNIBUS DATA,J/MDM3=3  ;MEMORY
                        ; 1033
                        ; 1034
                        ; 1035
                        ; 1036
V 0175, 0004,6015,2712,0000  ; 1037 MDB=21  RDB_B,J/SERV                ;MOVE LOW BYTE OF B REGISTER TO
                        ; 1038                                  ;LOW BYTE OF DESTINATION REGISTER
                        ; 1039
                        ; 1040 M1EB=21  BA_RD,DATOB,ALBYT,      ;OUTPUT RESULT OF OPERATION
V 0200, 0000,6165,2714,0000  ; 1041             UNIBUS DATA_B,J/SERV  ;TO ADDRESS SPECIFIED BY
                        ; 1042                                  ;DESTINATION REGISTER
                        ; 1043                                  ;ALLOW BYTE TRANSFERS
                        ; 1044
V 0201, 4040,7015,7517,6000  ; 1045 M10B=21  B_R17,J/M10B=3           ;DESTINATION OPERAND MOVED
                        ; 1046                                  ;TO REGISTER B
                        ; 1047 M10B=31  B_R11 OP B SEX,COND CODES,  ;OPERATE ON SOURCE OPERAND AND
V 0202, 4060,7614,7516,3000  ; 1048             J/M10B=4            ;DESTINATION OPERAND SIGN EXTENDED,
                        ; 1049                                  ;SET CONDITION CODES ACCORDING
                        ; 1050                                  ;TO RESULTS
V 0203, 4134,6015,2717,6000  ; 1051 M10B=41  R17_R (SWAB),J/M10B=5  ;RESULT OF OPERATION WITH BYTES
                        ; 1052                                  ;SWAPPED, MOVED TO SP
                        ; 1053                                  ;REGISTER 17
V 0205, 4000,7015,7517,6000  ; 1054 M10B=51  B_R17,J/M1EB=2          ;CONTENTS OF SP REGISTER 17
                        ; 1055                                  ;MOVED TO REGISTER B
                        ; 1056 M2EB=21  BA_RD,DATOB,ALBYT,      ;OUTPUT RESULT OF OPERATION
V 0207, 3240,6165,2714,2020  ; 1057             UNIBUS DATA_B,J/MDM2=4  ;TO ADDRESS SPECIFIED BY
                        ; 1058                                  ;DESTINATION REGISTER
                        ; 1059                                  ;ALLOW BYTE TRANSFERS
                        ; 1060
                        ; 1061
V 0210, 4220,7015,7517,6000  ; 1062 M20B=21  B_R17,J/M20B=3           ;DESTINATION OPERAND MOVED TO
                        ; 1063                                  ;REGISTER B
                        ; 1064 M20B=31  B_R11 OP B SEX,COND CODES,  ;OPERATE ON SOURCE OPERAND
V 0211, 4240,7614,7516,3000  ; 1065             J/M20B=4            ;AND DESTINATION OPERAND SIGN
                        ; 1066                                  ;EXTENDED, SET CONDITION
                        ; 1067                                  ;CODES ACCORDING TO RESULTS
V 0212, 4274,6015,2717,6000  ; 1068 M20B=41  R17_B (SWAB),J/M20B=5  ;BYTES SWAPPED MOVED TO
                        ; 1069                                  ;SP REGISTER 17
V 0213, 4164,7015,7517,6000  ; 1070 M20B=51  B_R17,J/M2EB=2          ;CONTENTS OF SP REGISTER 17
                        ; 1071                                  ;MOVED TO REGISTER B
                        ; 1072 M3EB=21  BA_R12,DATOB,ALBYT,     ;OUTPUT RESULT OF OPERATION
V 0215, 0400,6165,2710,4000  ; 1073             UNIBUS DATA_B,J/SERV  ;TO ADDRESS SPECIFIED BY THE
                        ; 1074                                  ;SP REGISTER 12
                        ; 1075
                        ; 1076
V 0220, 4420,7015,7517,6000  ; 1077 M30B=21  B_R17,J/M30B=3           ;DESTINATION OPERAND MOVED TO
                        ; 1078                                  ;REGISTER B
                        ; 1079 M30B=31  B_R11 OP B SEX,COND CODES,  ;OPERATE ON SOURCE OPERAND AND
V 0221, 4440,7614,7516,3000  ; 1080             J/M30B=4            ;DESTINATION OPERAND SIGN EXTENDED
                        ; 1081                                  ;SET CONDITION CODES ACCORDING
                        ; 1082                                  ;TO RESULTS
V 0222, 4474,6015,2717,6000  ; 1083 M30B=41  R17_B (SWAB),J/M30B=5  ;RESULT OF OPERATION WITH
                        ; 1084                                  ;BYTES SWAPPED MOVED TO
                        ; 1085                                  ;SP REGISTER 17
V 0223, 4320,7015,7517,6000  ; 1086 M30B=51  B_R17,J/M3EB=2          ;CONTENTS OF SP REGISTER 17
                        ; 1087                                  ;MOVED TO REGISTER B
```

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                        ; 1088
                        ; 1089
                        ; 1090
                        ; 1091
V 0225, 4610,6014,3013,0000 ; 1092  ADD3=21RD_PC PLUS 2,J/ADD3=3      ;ADD TWO TO CONTENTS OF DESTINATION
                        ; 1093                                        ;REGISTER
V 0230, 4634,6015,2716,4000 ; 1094  ADD3=31P12_R,J/ADD3=4             ;TRANSFER ADDRESS OF DESTINATION
                        ; 1095                                        ;OPERAND TO SP REGISTER 12
                        ; 1096  ADD3=41BA_R12,DATI,ALBYT,            ;INPUT DESTINATION OPERAND
                        ; 1097          B_UNIBUS DATA,               ;FROM MEMORY
V 0231, 3502,0101,7516,4000 ; 1098          BUT BYTE,J/ADD4=2          ;BRANCH IF BYTE INSTRUCTION
                        ; 1099          ;IF ODD BYTE GO TO ADDB=1
                        ; 1100          ;IF EVEN BYTE GO TO ADDB=1
                        ; 1101          ;IF NOT BYTE FALL THROUGH TO ADD4=2
                        ; 1102
                        ; 1103
                        ; 1104  ADD5=21 BA_RD,DATI,                  ;INPUT ADDRESS OF DESTINATION
V 0232, 4600,0111,7512,0000 ; 1105          B_UNIBUS DATA,J/ADD3=3     ;OPERAND
                        ; 1106
                        ; 1107
V 0233, 4730,6014,3015,0000 ; 1108  ADD6=21 PC_PC PLUS 2,J/ADD6=3      ;ADD TWO TO PC
V 0235, 4600,0015,3113,0000 ; 1109  ADD6=31B_R PLUS RD,J/ADD3=3        ;ADD INDEX WORD TO CONTENTS
                        ; 1110                                        ;OF DESTINATION REGISTER TO
                        ; 1111                                        ;OBTAIN ADDRESS OF DESTINATION
                        ; 1112                                        ;OPERAND
                        ; 1113
                        ; 1114
V 0242, 5030,6014,3015,0000 ; 1115  ADD7=21PC_PC PLUS 2,J/ADD7=3      ;ADD TWO TO PC
V 0241, 5040,0015,3113,0000 ; 1116  ADD7=31B_R PLUS RD,J/ADD7=4       ;ADD INDEX WORD TO CONTENTS
                        ; 1117                                        ;OF DESTINATION REGISTER TO OBTAIN
                        ; 1118                                        ;ADDRESS OF DESTINATION ADDRESS
V 0242, 5074,6015,2716,4000 ; 1119  ADD7=41 R12_R,J/ADD7=5             ;MOVE ADDRESS OF DESTINATION
                        ; 1120                                        ;ADDRESS TO SP REGISTER 12
                        ; 1121  ADD7=51BA_R12,DATI,                  ;INPUT DESTINATION ADDRESS
V 0243, 4600,0111,7516,4000 ; 1122          B_UNIBUS DATA,J/ADD3=3     ;FROM MEMORY
                        ; 1123
                        ; 1124
                        ; 1125
V 0244, 3540,0015,7517,6000 ; 1126  ADD8=21B_R17,J/ADD8=1               ;DESTINATION OPERAND MOVED
                        ; 1127                                        ;TO B REGISTER
                        ; 1128
                        ; 1129
                        ; 1130
                        ; 1131
                        ; 1132
                        ; 1133
                        ; 1134
V 0245, 3120,6015,7514,1000 ; 1135  ROTW=31 B_RD OP B,COND CODES,J/ADDW=3   ;NEW DESTINATION OPERAND
                        ; 1136                                        ;TRANSFERRED THROUGH ALU
                        ; 1137                                        ;ALLOWING CONDITION CODES TO
                        ; 1138                                        ;BE SET ACCORDINGLY
                        ; 1139
                        ; 1140
V 0246, 5170,6014,3012,0000 ; 1141  ROT3=21 PC_PD PLUS 2,J/ROT3=3      ;ADD TWO TO CONTENTS OF DESTINATION
                        ; 1142                                        ;REGISTER
V 0247, 5214,6015,2716,4000 ; 1143  ROT3=31 R12_R,J/ROT3=4             ;TRANSFER ADDRESS OF DESTINATION
                        ; 1144                                        ;OPERAND TO SP REGISTER 12
                        ; 1145  ROT3=41 BA_R12,DATIP,ALBYT,          ;INPUT DESTINATION OPERAND FROM
                        ; 1146                  B_UNIBUS DATA,       ;MEMORY
V 0250, 4702,0121,7515,4000 ; 1147                  ROT BYTE,J/ROT3=5  ;BRANCH ON BYTE INSTRUCTION
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                        ; 1148          ;IF ODD BYTE GO TO ROB3=1
                        ; 1149          ;IF EVEN BYTE GO TO REB3=1
                        ; 1150          ;IF NOT BYTE FALL THROUGH TO ROT3=5
                        ; 1151  ROT5=21 BA_RD,DATI,                  ;INPUT ADDRESS OF DESTINATION
V 0251, 5160,0111,7514,0000 ; 1152          B_UNIBUS DATA,J/ROT3=3     ;OPERAND FROM MEMORY
                        ; 1153
                        ; 1154
V 0252, 5270,6014,3015,0000 ; 1155  ROT6=21 PC_PC PLUS 2,J/ROT6=3      ;ADD TWO TO PC
V 0253, 5100,0015,3113,0000 ; 1156  ROT6=31B_R PLUS RD,J/ROT3=3        ;ADD INDEX WORD TO CONTENTS
                        ; 1157                                        ;OF DESTINATION REGISTER TO
                        ; 1158                                        ;OBTAIN ADDRESS OF DESTINATION
                        ; 1159                                        ;OPERAND
                        ; 1160
                        ; 1161
V 0254, 5330,6014,3015,0000 ; 1162  ROT7=21 PC_PC PLUS 2,J/ROT7=3      ;ADD TWO TO PC
V 0255, 5340,0015,3113,0000 ; 1163  ROT7=31 B_R PLUS 51,J/ROT7=4       ;ADD INDEX WORD TO CONTENTS OF
                        ; 1164                                        ;DESTINATION REGISTER TO OBTAIN
                        ; 1165                                        ;ADDRESS OF DESTINATION ADDRESS
V 0256, 5374,6015,2716,4000 ; 1166  ROT7=41 R12_R,J/ROT7=5             ;MOVE ADDRESS OF DESTINATION
                        ; 1167                                        ;ADDRESS TO SP REGISTER 12
                        ; 1168  ROT7=51 BA_R12,DATI,                  ;INPUT DESTINATION ADDRESS
V 0257, 5160,0111,7516,4000 ; 1169          B_UNIBUS DATA,J/ROT3=3     ;FROM MEMORY
                        ; 1170
                        ; 1171
V 0260, 3720,6015,7513,1000 ; 1172  ROTB=21B_RD OP B,COND CODES,J/ROTB=2  ;NEW DESTINATION OPERAND
                        ; 1173                                        ;TRANSFERRED THROUGH ALU TO
                        ; 1174                                        ;HIGH BYTE OF B REGISTER
                        ; 1175                                        ;ALLOWING CONDITION CODES TO
                        ; 1176                                        ;BE SET ACCORDINGLY
                        ; 1177
V 0261, 5440,0015,7517,6000 ; 1178  ROB1=21 B_R17,J/ROB1=3              ;DESTINATION OPERAND MOVED TO
                        ; 1179                                        ;REGISTER B
V 0262, 4040,0015,2711,0000 ; 1180  ROB1=31 B_R,J/R20R=3                ;AUXILIARY CONTROL SET-UP,
                        ; 1181                                        ;DESTINATION OPERAND ROTATED
                        ; 1182                                        ;WITHOUT TRANSFER THROUGH ALU
                        ; 1183
V 0263, 5500,0015,7517,6000 ; 1184  ROB2=21 B_R17,J/ROB2=3              ;DESTINATION OPERAND MOVED TO
                        ; 1185                                        ;REGISTER B
V 0264, 4220,0015,2711,0000 ; 1186  ROB2=31 B_R,J/R20R=3                ;AUXILIARY CONTROL SET-UP,
                        ; 1187                                        ;DESTINATION OPERAND ROTATED
                        ; 1188                                        ;WITHOUT TRANSFER THROUGH ALU
                        ; 1189
V 0265, 5540,0015,7517,6000 ; 1190  ROB3=21 B_R17,J/ROB3=3              ;DESTINATION OPERAND MOVED TO
                        ; 1191                                        ;B REGISTER
V 0266, 4420,0015,2711,0000 ; 1192  ROB3=31 B_R,J/R30R=3                ;AUXILIARY CONTROL SET-UP,
                        ; 1193                                        ;DESTINATION OPERAND ROTATED
                        ; 1194
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; NWFLW.MAC[142,31072]   17:26 8-MAY-1964        MICRO CODE FILE PAGE 3        MICRO 13A(130)
; FLOWS.MIC      17:24 8-MAY-1964
                               ; 1195                                      ;WITHOUT TRANSFER THROUGH ALU
                               ; 1196
                               ; 1197
V 0267, 5600,2011,7514,0000    ; 1198  B-2:    ASLB,J/B-3                  ;ARITHMETIC SHIFT THE CONTENTS
                               ; 1199                                      ;OF B REGISTER LEFT ONE
V 0270, 0014,6015,3115,6000    ; 1200  B-3:    PC_PC PLUS B,J/SERV         ;ADD CONTENTS OF B REGISTER
                               ; 1201                                      ;TO PC
                               ; 1202
                               ; 1203
                               ; 1204
V 0271, 5654,6015,2717,6000    ; 1205  SWB0-2: R17_B (SWAB),J/SWB0-3      ;AUXILIARY CONTROL SET-UP,CONTENTS
                               ; 1206                                      ;OF B REGISTER WITH BYTES
                               ; 1207                                      ;SWAPPED LOADED INTO SP
                               ; 1208                                      ;REGISTER 17 TO OBTAIN
                               ; 1209                                      ;INSTRUCTION RESULT
V 0272, 3120,0615,7517,7000    ; 1210  SWB0-3: B_R17 OP B,COND CODES,J/MDM0-3  ;RESULTING DATA TRANSFERRED
                               ; 1211                                      ;THROUGH ALU ALLOWING CONDITION
                               ; 1212                                      ;CODES TO BE SET ACCORDINGLY
                               ; 1213
                               ; 1214
V 0273, 5714,6015,2717,6000    ; 1215  SWB1-2: R17_B (SWAB),J/SWB1-3      ;AUXILIARY CONTROL SET-UP,
                               ; 1216                                      ;CONTENTS OF B REGISTER WITH
                               ; 1217                                      ;BYTES SWAPPED LOADED INTO SP
                               ; 1218                                      ;REGISTER 17 TO OBTAIN INSTRUCTION
                               ; 1219                                      ;RESULT
                               ; 1220  SWB1-3: B_R17 OP B,COND CODES,     ;RESULTING DATA TRANSFERRED
V 0274, 3200,0615,7517,7000    ; 1221                  J/MDM1-3            ;THROUGH ALU ALLOWING CONDITION
                               ; 1222                                      ;CODES TO BE SET ACCORDINGLY
                               ; 1223
                               ; 1224
V 0275, 5754,6015,2717,6000    ; 1225  SWB2-2: R17_B (SWAB),J/SWB2-3      ;AUXILIARY CONTROL SET-UP CONTENTS
                               ; 1226                                      ;OF B REGISTER WITH BYTES
                               ; 1227                                      ;SWAPPED LOADED INTO SP REGISTER
                               ; 1228                                      ;17 TO OBTAIN NEW DESTINATION
                               ; 1229                                      ;OPERAND
V 0276, 5760,0615,7517,7000    ; 1230  SWB2-3: B_R17 OP B,COND CODES,J/SWB2-4  ;DESTINATION OPERAND TRANSFERRED
                               ; 1231                                      ;THROUGH ALU ALLOWING  CONDITION
                               ; 1232                                      ;CODES TO BE SET ACCORDINGLY
                               ; 1233  SWB2-4: BA_RD,DATO,                 ;OUTPUT CONTENTS OF REGISTER
                               ; 1234                  UNIBUS DATA_B,      ;B TO ADDRESS SPECIFIED BY
V 0277, 6000,6155,2714,4000    ; 1235                  J/SWB2-5                    ;DESTINATION REGISTER.
V 0300, 0010,6014,3010,0002    ; 1236  SWB2-5: RD_RD PLUS 2,J/SERV        ;ADD TWO TO CONTENTS OF
                               ; 1237                                      ;DESTINATION REGISTER.
                               ; 1238
                               ; 1239
V 0301, 6050,6014,3010,0000    ; 1240  SWB3-2: RD_RD PLUS 2,J/SWB3-3      ;ADD TWO TO CONTENTS OF
                               ; 1241                                      ;DESTINATION REGISTER
V 0302, 6074,6015,2716,4000    ; 1242  SWB3-3: R12_B,J/SWB3-4             ;TRANSFER ADDRESS OF DESTINATION
                               ; 1243                                      ;OPERAND TO SP REGISTER 12
                               ; 1244  SWB3-4: BA_R12,DATIP,               ;INPUT DESTINATION OPERAND
                               ; 1245                  B_UNIBUS DATA,      ;FROM MEMORY
V 0303, 6100,0131,7516,4000    ; 1246                  J/SWB3-5
V 0304, 6134,6015,2717,6000    ; 1247  SWB3-5: R17_B (SWAB),J/SWB3-6      ;AUXILIARY CONTROL SET-UP,CONTENTS
                               ; 1248                                      ;OF B REGISTER WITH BYTES SWAPPED
                               ; 1249                                      ;LOADED INTO SP REGISTER 17
                               ; 1250                                      ;TO OBTAIN INSTRUCTION RESULT
                               ; 1251  SWB3-6: B_R17 OP B,COND CODES,     ;RESULT TRANSFERRED THROUGH
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V 0305, 3420,0615,7517,7000    ; 1252                  J/MDM3-6            ;ALU ALLOWING CONDITION CODES
                               ; 1253                                      ;TO BE SET ACCORDINGLY
                               ; 1254
                               ; 1255
                               ; 1256  SWB5-2: BA_RD,DATI,                 ;INPUT ADDRESS OF DESTINATION
V 0306, 6040,0111,7512,0000    ; 1257                  B_UNIBUS DATA,J/SWB3-3  ;OPERAND FROM MEMORY
                               ; 1258
                               ; 1259
V 0307, 6210,6014,3015,6000    ; 1260  SWB6-2: PC_PC PLUS 2,J/SWB6-3      ;ADD TWO TO PC
V 0310, 6040,2015,3114,0000    ; 1261  SWB6-3: B_B PLUS RD,J/SWB3-3       ;ADD INDEX WORD TO CONTENTS OF
                               ; 1262                                      ;DESTINATION REGISTER TO OBTAIN
                               ; 1263                                      ;ADDRESS OF DESTINATION OPERAND
                               ; 1264
                               ; 1265
V 0311, 6250,6014,3015,6000    ; 1266  SWB7-2: PC_PC PLUS 2,J/SWB7-3      ;ADD TWO TO PC
V 0312, 6260,0015,3110,0000    ; 1267  SWB7-3: B_B PLUS RD,J/SWB7-4       ;ADD INDEX WORD TO CONTENTS OF
                               ; 1268                                      ;DESTINATION REGISTER TO OBTAIN
                               ; 1269                                      ;ADDRESS OF DESTINATION ADDRESS
V 0313, 6314,6015,2716,4000    ; 1270  SWB7-4: R12_B,J/SWB7-5             ;MOVE ADDRESS OF DESTINATION
                               ; 1271                                      ;ADDRESS TO SP REGISTER 12
                               ; 1272  SWB7-5: BA_R12,DATI,                ;INPUT DESTINATION ADDRESS FROM
V 0314, 6040,0111,7516,4000    ; 1273                  B_UNIBUS DATA,J/SWB3-3  ;MEMORY
                               ; 1274
                               ; 1275
                               ; 1276
                               ; 1277
V 0315, 0014,6015,2715,6000    ; 1278  JMP1-2: PC_B,J/SERV                 ;CONTENTS OF B REGISTER LOADED INTO PC
                               ; 1279
                               ; 1280
V 0316, 6330,6014,3010,0000    ; 1281  JMP2-2: RD_RD PLUS 2,J/JMP1-2;ADD TWO TO CONTENTS OF DESTINATION
                               ; 1282                                      ;REGISTER
                               ; 1283
                               ; 1284
                               ; 1285  JMP5-2: BA_RD,DATI,                 ;INPUT JUMP ADDRESS FROM MEMORY
V 0317, 6320,0111,7510,0000    ; 1286                  B_UNIBUS DATA,J/JMP1-2
                               ; 1287
V 0320, 6430,6014,3015,6000    ; 1288  JMP6-2: PC_PC PLUS 2,J/JMP6-3      ;ADD TWO TO PC
V 0321, 6320,0015,3110,0000    ; 1289  JMP6-3: B_B PLUS RD,J/JMP1-2       ;ADD INDEX WORD TO CONTENTS OF
                               ; 1290                                      ;DESTINATION WORD TO OBTAIN
                               ; 1291                                      ;JUMP ADDRESS
                               ; 1292
V 0322, 6470,6014,3015,6000    ; 1293  JMP7-2: PC_PC PLUS 2,J/JMP7-3      ;ADD TWO TO PC
V 0323, 6504,0015,3110,0000    ; 1294  JMP7-3: B_B PLUS RD,J/JMP7-4       ;ADD INDEX WORD AND CONTENTS
                               ; 1295                                      ;OF DESTINATION REGISTER TO OBTAIN
                               ; 1296                                      ;ADDRESS OF JUMP ADDRESS
V 0324, 6534,6015,2716,4000    ; 1297  JMP7-4: R12_B,J/JMP7-5             ;MOVE ADDRESS TO JUMP ADDRESS
                               ; 1298                                      ;TO SP REGISTER 12
                               ; 1299  JMP7-5: BA_R12,DATI,                ;INPUT JUMP ADDRESS FROM MEMORY
V 0325, 6320,0111,7516,4000    ; 1300                  B_UNIBUS DATA,J/JMP1-2
                               ; 1301
                               ; 1302
                               ; 1303
V 0326, 6574,6015,2716,4000    ; 1304  JSR1-2: R12_B,J/JSR1-3             ;MOVE CONTENTS OF B REGISTER TO
                               ; 1305                                      ;TEMPORARY STORAGE SP REGISTER 12
                               ; 1306  JSR1-3: R6_R6 MINUS 2,ENAROVER,     ;SUBTRACT TWO FROM STACK
V 0327, 6610,7414,4515,4000    ; 1307                  J/JSR1-4            ;POINTER, PERMIT OVERFLOW
V 0330, 6620,0015,7504,0000    ; 1308  JSR1-4: B_RS,J/JSR1-5              ;MOVE CONTENTS OF SOURCE
                               ; 1309                                      ;REGISTER TO B REGISTER
                               ; 1310  JSR1-5: BA_R6,DATO,                 ;OUTPUT CONTENTS OF SOURCE REGISTER TO MEMORY
                               ; 1311                  UNIBUS DATA_B,      ;LOCATION SPECIFIED BY STACK POINTER
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V 0331, 6640,6155,2715,4040   ; 1312                    J/JSR1=6
V 0332, 6660,0015,7515,6000   ; 1313  JSR1=6: B_PC,J/JSR1=7                ;PC MOVED TO B REGISTER
V 0333, 6711,6015,2704,0000   ; 1314  JSR1=7: RS_B,J/JSR1=8                ;B REGISTER LOADED INTO SOURCE
                              ; 1315                                      ;REGISTER
V 0334, 6720,6015,7516,4040   ; 1316  JSR1=8: B_R12,J/JSR1=9               ;MOVE CONTENTS OF TEMPORARY STORAGE
                              ; 1317                                      ;TO B REGISTER
V 0335, 0014,6015,2715,6020   ; 1318  JSR1=9: PC_B,J/SERV                  ;LOAD CONTENTS OF B REGISTER
                              ; 1319                                      ;INTO PC
                              ; 1320
                              ; 1321
V 0336, 6550,6014,3012,0020   ; 1322  JSP2=2: RD_RD PLUS 2,J/JSR1=2;ADD TWO TO CONTENTS OF DESTINATION
                              ; 1323                                      ;REGISTER
                              ; 1324
                              ; 1325
                              ; 1326  JSR5=2: RA_RD,DATI,                 ;INPUT DATA FROM MEMORY ADDRESS
V 0337, 6540,0111,7510,0000   ; 1327                B_DATIBUS DATA,J/JSR1=2  ;SPECIFIED BY DESTINATION REGISTER
                              ; 1328
                              ; 1329
V 0340, 7430,6014,3015,5040   ; 1330  JSR6=2: PC_PC PLUS 2,J/JSR6=3        ;ADD TWO TO PC
V 0341, 6540,6015,3114,0000   ; 1331  JSR6=3: B_B PLUS RD,J/JSR1=2         ;ADD INDEX WORD TO CONTENTS OF
                              ; 1332                                      ;DESTINATION REGISTER
                              ; 1333
                              ; 1334
V 0342, 7474,6014,3015,6020   ; 1335  JSR7=2: PC_PC PLUS 2,J/JSR7=3        ;ADD TWO TO PC
V 0343, 7100,6015,3114,0000   ; 1336  JSR7=3: B_B PLUS RD,J/JSR7=4         ;ADD INDEX WORD TO CONTENTS OF
                              ; 1337                                      ;DESTINATION REGISTER
V 0344, 7134,6015,2716,4020   ; 1338  JSR7=4: R12_B,J/JSR7=5               ;MOVE CONTENTS OF B REGISTER
                              ; 1339                                      ;TO TEMPORARY STORAGE
                              ; 1340                                      ;REGISTER
                              ; 1341  JSR7=5: RA_R12,DATI,                ;INPUT DATA FROM MEMORY
V 0345, 6540,0111,7516,4000   ; 1342                B_DATIBUS DATA,J/JSR1=2  ;ADDRESS SPECIFIED BY
                              ; 1343                                      ;TEMPORARY STORAGE REGISTER
                              ; 1344
                              ; 1345
                              ; 1346
                              ; 1347
V 0346, 7174,6015,2715,6020   ; 1348  RTS=2:  PC_B,J/RTS=3                 ;MOVE CONTENTS OF B REGISTER TO PC
                              ; 1349  RTS=3:  RA_R6,DATI,                 ;INPUT DATA FROM MEMORY ADDRESS
                              ; 1350                B_DATIBUS DATA,       ;SPECIFIED BY STACK POINTER
V 0347, 7200,0111,7515,4000   ; 1351                      J/RTS=4
V 0350, 3130,6014,3015,4020   ; 1352  RTS=4:  R6_R6 PLUS 2,J/RTS=3;ADD TWO TO CONTENTS OF
                              ; 1353                                      ;STACK POINTER
                              ; 1354
                              ; 1355
                              ; 1356
                              ; 1357
V 0351, 7250,6014,3015,4020   ; 1358  RTI=2:  RA_R6 PLUS 2,J/RTI=3         ;ADD TWO TO STACK POINTER
V 0352, 7274,6015,2715,6020   ; 1359  RTI=3:  PC_B,J/RTI=4                 ;RESTORE STORED PC
                              ; 1360  RTI=4:  RA_R6,DATI,                 ;RESTORE PROCESSOR STATUS
                              ; 1361                B_DATIBUS DATA,       ;FROM STACK
V 0353, 7303,0111,7515,4000   ; 1362                      J/RTI=5
V 0354, 7320,7215,2714,0000   ; 1363  RTI=5:  PS_B,J/RTI=6
V 0355, 0010,6014,3015,4020   ; 1364  RTI=6:  R6_R6 PLUS 2,J/SERV          ;ADD TWO TO STACK POINTER
                              ; 1365
                              ; 1366
                              ; 1367
                              ; 1368
V 0356, 0160,6015,2714,0000   ; 1369  A=2:    B_B,J/A=1                   ;MOCK MICRO-STEP
V 0357, 0414,6015,2716,0020   ; 1370  A=3:    R13_B,J/TRAP=2  ;LOAD CONTENTS OF B REGISTER
                              ; 1371                                      ;INTO SP REGISTER 13
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                              ; 1372
                              ; 1373
                              ; 1374
                              ; 1375
V 0360, 0000,6615,4017,0000   ; 1376  CCC=2:  CC_R14 AND =0,J/SERV         ;LOAD CONTENTS OF SP REGISTER 14
                              ; 1377                                      ;ADDED WITH COMPLEMENT OF
                              ; 1378                                      ;CONTENT OF B REGISTER INTO
                              ; 1379                                      ;CONDITION CODES
                              ; 1380
                              ; 1381
                              ; 1382
                              ; 1383
V 0361, 0000,6615,7117,0020   ; 1384  SCC=2:  CC_R14 OR B,J/SERV           ;LOAD CONDITION CODES WITH RESULT
                              ; 1385                                      ;OF ORING CONTENTS OF SP
                              ; 1386                                      ;REGISTER 14 WITH CONTENTS
                              ; 1387                                      ;OF B REGISTER.
                              ; 1388
                              ; 1389
                              ; 1390
                              ; 1391
V 0362, 7474,6015,2715,2020   ; 1392  REST=2: R5_B,J/REST=3               ;MOVE B REGISTER TO REGISTER 5
V 0363, 7514,6015,6316,6020   ; 1393  REST=3: R13_0,J/REST=4  ;ZERO SP REGISTER
V 0364, 7530,6014,3416,6020   ; 1394  REST=4: R13_R13 PLUS 2,J/REST=5 ;PERFORM NEXT 5 STEPS TO
V 0365, 7554,6015,1516,6020   ; 1395  REST=5: R13_R13 PLUS R13,J/REST=6       ;OBTAIN 24 AS THE CONTENTS
V 0366, 7574,6014,7416,6000   ; 1396  REST=6: R13_R13 PLUS 1,J/REST=7 ;OF SP REGISTER 13
V 0367, 7614,6015,1516,6020   ; 1397  REST=7: R13_R13 PLUS R13,J/REST=8
V 0370, 2274,6015,1516,6000   ; 1398  REST=8: R13_R13 PLUS R13,J/TRAP=0
                              ; 1399
                              ; 1400
                              ; 1401
                              ; 1402 ;UNUSED ROM LOCATIONS
                              ; 1403
                              ; 1404
V 0371, 0000,6011,7514,0000   ; 1405  NG=1:  J/SERV
V 0372, 0000,6011,7514,0000   ; 1406  NG=2:  J/SERV
V 0373, 0000,6011,7514,0000   ; 1407  NG=3:  J/SERV
V 0374, 0000,6011,7514,0000   ; 1408  NG=4:  J/SERV
V 0375, 0000,6011,7514,0000   ; 1409  NG=5:  J/SERV
V 0376, 0000,6011,7514,0000   ; 1410  NG=6:  J/SERV
V 0377, 0000,6011,7514,0000   ; 1411  NG=7:  J/SERV
                              ; 1412
```

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LOCATION / LINE NUMBER INDEX

LOC	0	1	2	3	4	5	6	7
0000	193	491	874	860	885	879	853	867
0010	577	769	775	782	787	793	8[illegible]	8[illegible]6
0020	898	811	816	823	829	835	842	848
0030	722	728	734	74[illegible]	745	751	75[illegible]	764
0040	343	356	37[illegible]	383	395	403	411	417
0050	479	491	501	513	51[illegible]	526	533	539
0060	215	243	253	265	271	279	285	291
0070	585	598	612	625	638	645	652	658
0100	715	9[illegible]	209	2[illegible]2	219	9[illegible]	297	32[illegible]
0110	9[illegible]4	9[illegible]6	9[illegible]7	9[illegible]9	259	91[illegible]	326	334
0120	911	913	915	921	348	944	422	945
0130	949	956	959	9[illegible]0	362	965	43[illegible]	43[illegible]
0140	966	97[illegible]	973	976	376	981	44[illegible]	454
0150	986	992	993	1[illegible]0[illegible]	3[illegible]8	1001	462	47[illegible]
0160	1[illegible]25	101[illegible]	1[illegible]15	1[illegible]18	483	1019	544	552
0170	1025	1026	1029	1032	5[illegible]6	1037	56[illegible]	56[illegible]
0200	1041	1045	1[illegible]48	1051	5[illegible]9	1054	[illegible]63	1[illegible]57
0210	1062	1065	1[illegible]68	1[illegible]7[illegible]	[illegible]93	1073	[illegible]78	67[illegible]
0220	1077	1[illegible]83	1083	1[illegible]86	[illegible]17	1092	[illegible]93	[illegible]85
0230	1094	1[illegible]98	1105	11[illegible]8	[illegible]29	11[illegible]9	7[illegible]6	7[illegible]0
0240	1115	1115	1119	1122	1126	1135	1141	1143
0250	1147	1152	1155	115[illegible]	11[illegible]2	11[illegible]3	1166	1169
0260	1172	1178	11[illegible]0	11[illegible]4	11[illegible]6	11[illegible]0	1192	1198
0270	12[illegible]0	12[illegible]5	121[illegible]	1215	1221	1225	123[illegible]	1235
0300	1236	124[illegible]	1242	1246	1247	1252	1257	12[illegible]0
0310	1261	1266	1267	127[illegible]	1273	127[illegible]	1281	1286
0320	1288	12[illegible]9	1293	1294	1297	13[illegible]0	13[illegible]4	13[illegible]7
0330	1308	1312	1313	1314	1315	131[illegible]	1322	1327
0340	133[illegible]	1331	1335	1336	1338	1342	134[illegible]	1351
0350	1352	135[illegible]	1359	1362	1363	1364	13[illegible]9	137[illegible]
0360	137[illegible]	13[illegible]4	1392	1393	1394	1395	139[illegible]	1397
0370	1398	14[illegible]5	14[illegible]6	1407	14[illegible]8	14[illegible]9	141[illegible]	1411

CROSS REFERENCE LISTING

(U) ALLOW BYTE
BYTE

(U) ALU
A
A + B
A MINUS B MINUS 1
A PLUS 1
A PLUS A
A PLUS B
A PLUS B PLUS 1
A(-B)
B
ZERO
(U) ARUX
ALU
K
PSW
UB
(U) AUX CONTROL
AUX
(U) B MODE
HOLD
LOAD
SHIFT L
SHIFT R
(U) BUS CONTROL
DATI
DATIP
DATO
DATOB
(U) BUT
BUT DEST
ENAB OBE
ENAB STOV
LOAD CC
LOAD PSW
NONE
(U) BYTE
BUT
(U) BYT SERVICE
SERV
(U) DAT TRAN
TRAN
(U) ENAB SEX
SEX
(U) J
F-1
F-2
F2
JMP1-1
JMP1-2
JMP2-1
JMP2-2
JMP3-1
JMP4-1
JMP5-1
JMP5-2
JMP6-1
JMP6-2
JMP6-3

```
JMP7=1          895
JMP7=2          896     1293
JMP7=3          1293    1294
JMP7=4          1294    1297
JMP7=5          1297    1299
JSR1=1          811     829
JSR1=2          811     1304    1322    1327    1331    1342
JSR1=3          1304    1306
JSR1=4          1307    1308
JSR1=5          1308    1310
JSR1=6          1312    1313
JSR1=7          1313    1314
JSR1=8          1314    1316
JSR1=9          1316    1318
JSR2=1          816
JSR2=2          816     823     1322
JSR3=1          822
JSR4=1          829
JSR5=1          835
JSR5=2          835     1326
JSR6=1          841
JSR6=2          842     1330
JSR6=3          1330    1331
JSR7=1          847
JSP7=2          848     1335
JSR7=3          1335    1336
JSR7=4          1336    1338
JSR7=5          1338    1341
M1E6=1          438     678
M1EB=2          438     1040    1054
M10B=1          430
M10B=2          430     1045
M1GB=3          1045    1047    1180
M106=4          1048    1051
M106=5          1051    1054
M2E8=1          446     693
M2E8=2          446     1056    1070
M208=1          454
M20B=2          454     1062
M20B=3          1062    1064    1180
M20B=4          1065    1068
M20B=5          1066    1070
M3EB=1          462     708
M3EB=2          462     1072    1086
M30B=1          470
M30B=2          470     1077
M30B=3          1077    1079    1192
M30B=4          1080    1083
M30B=5          1083    1086
MDB=1           422
MDB=2           422     1037    1172
MDM0=1          342
MDM0=2          343     347
MDM0=3          348     577     981     1135    1210    1352
MDM1=1          354     395
MDM1=2          356     361     643
MDM1=3          362     965     1221
MDM2=1          368
MDM2=2          370     375     617
MDM2=3          376     990
```

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```
MDM2=4          992     993     1057
MDM3=1          382
MDM3=2          383     999
MDM3=3          1000    1001    1015    1019    1332
MDM3=4          1001    1003
MDM3=5          387     629     1005
MDM3=6          388     1009    1252
MDM4=1          394
MDM5=1          403
MDM5=2          403     1014
MDM6=1          410
MDM6=2          411     1018
MDM6=3          1018    1019
MDM7=1          416
MDM7=2          417     1025
MDM7=3          1025    1026
MDM7=4          1026    1029
MDM7=5          1029    1031
MOV=1           576
NDEB=1          544     568     1126
NDM0=1          478
NDM0=2          479     483     491     548     1098
NDM1=1          489     518
NDM2=1          499
NDM2=2          501     506
NDM3=1          512
NDM3=2          513     1092
NDM3=3          1092    1094    1105    1169    1122
NDM3=4          1094    1096
NDM4=1          516
NDM5=1          526
NDM5=2          526     1104
NDM6=1          532
NDM6=2          533     1108
NDM6=3          1108    1109
NDM7=1          536
NDM7=2          539     1115
NDM7=3          1115    1116
NDM7=4          1116    1119
NDM7=5          1119    1121
NDORA=1         552     560
NDUR=2          552     1126
NG=1            1405
NG=2            1406
NG=3            1407
NG=4            1408
NG=5            1409
NG=6            1410
NG=7            1411
NMEB=1          568
NMOB=1          560
REB1=1          678
REB2=1          693
REB3=1          708
REST=1          691
REST=2          691     1302
REST=3          1392    1393
REST=4          1393    1394
REST=5          1394    1395
REST=6          1395    1396
```

31

184

32

33

```
(U) LOAD IR                 113
        LOAD                114   921
(U) MACRO%                  122
        ALBYT               102   241   251   270   320   334   354   366   394   489   499   510
                            560   568   596   614   637   947   993  1003  1040  1056  1072  1096
                           1145
        ASLB                109  1198
        BA_PC               122   208   284   290   410   416   532   538   651   657   757   763
                            799   805   841   847
        BA_R10              126   947   972
        BA_R12              127  1003  1009  1031  1072  1096  1121  1145  1168  1244  1272  1299
                           1341
        BA_R13              128   908   912
        BA_R16              129
        BA_R6               125   859   899   905  1310  1349  1360
        BA_RD               124   354   368   382   469   499   512   596   618   624   727   733
                            739   781   822   985   990  1014  1040  1056  1104  1151  1233  1256
                           1285  1326
        BA_RS               123   241   251   264   958
        BUT BYTE            106   215   243   253   343   355   370   479   491   501   585   598
                            612   949  1005  1098  1147
        BUT DEST            107   218   247
        BUT IR DECODE       108   221
        BUT SERVICE         109   193   866
        B_B                 144   559   623   617   629   663   678   693   708   874  1180  1186
                           1192  1369
        B_B PLUS RD         140  1019  1026  1109  1116  1156  1163  1261  1267  1289  1294  1331
                           1336
        B_B PLUS RS         139   960   966
        B_B SEX             146   715
        B_IR_UNIBUS DATA    177   209
        B_PC                148   891   904  1313
        B_R11 OP B          150   347   361   375   387   483   576
        B_R11 OP B SEX      151   422   438   446   462   544  1047  1064  1079
        B_R12               149  1316
        B_R17               143   976  1045  1054  1062  1070  1077  1086  1126  1178  1184  1190
        B_R17 OP B          152  1210  1220  1230  1251
        B_RD                147   342   478   584   722   769   775   811   816   853
        B_RD OP B           154  1135  1172
        B_RS                145   214  1308
        B_UNIBUS DATA       178   193   242   252   265   285   291   356   369   383   411   417
                            490   500   513   533   539   597   611   625   652   658   728   733
                            740   758   764   782   820   806   823   842   848   860   867   909
                            913   948   956   973  1004  1015  1032  1097  1105  1122  1146  1152
                           1169  1245  1257  1273  1286  1300  1327  1342  1350  1361
        CC_R14 AND OR       170  1376
        CC_R14 OR B         171  1384
        COND CODES          185   347   361   375   387   422   438   446   462   483   544   576
                           1047  1064  1079  1135  1172  1210  1220  1230  1251
        DATI                173   208   241   251   264   284   290   382   410   416   489   499
                            512   532   538   624   651   657   739   757   763   781   799   805
                            822   841   847   859   908   912   947   955   972  1014  1031  1096
                           1104  1121  1151  1166  1256  1272  1285  1299  1326  1341  1349  1360
        DATIP               174   354   368   596   614   727   733  1003  1145  1244
        DATO                175   899   905   985   990  1009  1233  1310
        DATOB               176  1040  1056  1072
        ENAB DBE            183   899
        ENABOVER            184   271   278   394   403   518   526   638   645   745   751   787
                            793   829   835   897   902  1306
        NOP                 172   907

        PC_B                163   911  1278  1318  1348  1359
        PC_PC PLUS 2        132   920   959   965  1018  1025  1168  1115  1155  1162  1200  1206
                           1288  1293  1330  1335
        PC_PC PLUS B        141  1200
        PSW_B               179   915  1363
        R10_B               159   945   970
        R11_B               156   218
        R11_B SEX           157   296
        R12_B               162  1001  1029  1094  1119  1143  1166  1242  1270  1297  1304  1338
        R13_B               168  1393
        R13_B               166   202  1370
        R13_R13 PLUS 1      138  1396
        R13_R13 PLUS 2      137   916  1394
        R13_R13 PLUS R13    142  1395  1397  1398
        R14_PSW             165   879   885
        R16_B               167
        R17_B (SWAB)        158   320   430   454   470   552   670   685   700  1051  1068  1083
                           1205  1215  1225  1247
        R5_B                155  1392
        R6_R6 MINUS 2       136   897   902  1306
        R6_R6 PLUS 2        135  1352  1358  1364
        RDB_B               161  1037
        RDB_RD OP B         153
        RD_B                160   981
        RD_RD MINUS 2       134   394   403   518   526   637   645   745   751   787   793   829
                            835
        RD_RD PLUS 2        133   508   560   568   993   999  1092  1141  1236  1240  1281  1322
        RS_B                164  1314
        RS_RS MINUS 2       131   270   278
        RS_RS PLUS 2        130   259   326   334   944
        UNIBUS DATA_B       181   906   986   991  1010  1041  1057  1073  1234  1311
        UNIBUS DATA_PSW     180   900
(U) NIL                     118
(U) ROM SPA                  31
        PC                   35   208   284   290   410   416   532   538   651   657   757   763
                            799   805   841   847   891   904   911   920   959   965  1018  1025
                           1108  1115  1155  1162  1200  1206  1266  1278  1288  1293  1313  1318
                           1330  1335  1348  1359
        PS                   34
        R10                  36   945   947   970   972
        R11                  37   218   296   347   361   375   387   422   438   446   462   483
                            544   576  1047  1064  1079
        R12                  38  1001  1003  1009  1029  1031  1072  1094  1096  1119  1121  1143
                           1145  1166  1168  1242  1244  1270  1272  1297  1299  1304  1310  1338
                           1341
        R13                  39   202   908   910   912  1370  1393  1394  1395  1398  1397  1398
        R14                  40   879   885  1376  1384
        R17                  41   976  1045  1054  1062  1070  1077  1086  1126  1178  1184  1190
                           1210  1220  1230  1251
        R5                   32  1392
        R6                   33   859   897   899   902   905  1306  1310  1349  1352  1358  1360
                           1364
        SWAB                 42   320   430   454   470   552   670   685   700  1051  1068  1083
                           1205  1215  1225  1247
(U) SP CONTROL               75
        ENABLE               60   259   270   278   326   334   394   403   506   518   526   560
                            568   637   645   745   751   787   793   829   835   897   902   910
                            920   944   959   965   993   999  1010  1025  1092  1106  1115  1141
                           1157  1162  1230  1240  1260  1266  1281  1288  1293  1306  1322  1330
                           1335  1352  1358  1364  1394
```

34

35

READ
78

WRITE LOW
79 879 885 1037

WRITE WORD
82 202 216 296 320 430 454 470 552 670 685 700
911 945 970 981 1001 1029 1051 1068 1083 1094 1119 1143
1166 1200 1205 1215 1225 1242 1247 1270 1278 1297 1304 1314
1318 1330 1348 1359 1370 1392 1393 1395 1396 1397 1398

(U) SPA MUX
24

BA
27 193 866

RD
29 342 354 368 382 394 403 478 489 499 576 512
518 526 540 568 584 596 610 624 637 645 722 727
733 739 745 751 769 775 781 787 793 811 816 822
829 835 853 981 985 990 993 999 1014 1019 1026 1037
1040 1056 1092 1104 1109 1116 1135 1141 1151 1156 1163 1172
1233 1236 1240 1256 1261 1267 1281 1285 1289 1294 1322 1326
1331 1336

ROM SPA
30 202 206 215 284 290 296 320 347 361 375 387
410 416 422 430 438 446 454 462 470 483 532 538
544 552 576 651 657 670 685 700 757 763 799 805
841 847 859 879 885 891 897 899 902 904 905 908
910 911 912 920 945 947 959 965 970 972 976 1001
1003 1009 1018 1025 1029 1031 1045 1047 1051 1054 1062 1064
1065 1070 1072 1077 1079 1083 1086 1094 1096 1108 1115 1119
1121 1126 1143 1145 1155 1162 1166 1168 1178 1184 1190 1200
1205 1210 1215 1220 1225 1230 1242 1244 1247 1251 1260 1200
1270 1272 1278 1288 1293 1297 1299 1304 1306 1310 1313 1316
1318 1330 1335 1335 1341 1348 1349 1352 1358 1359 1360 1364
1370 1376 1384 1392 1393 1394 1395 1396 1397 1398

RS
28 214 241 251 259 264 270 276 320 334 944 950
960 966 1308 1314

END OF MICRO CODE ASSEMBLY

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY D. HEALY	CHECKED D. HEALY	SECTION 1
DATE 10/1/75	DATE 10/1/75	
ENG R. Barry	PROD R. K. Peterson	ISSUED SECT. 1
DATE 10-27-75	DATE 10/22/75	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION
1	D-CS-M7263-Ø-1	KD11-D PROCESSOR MODULE HEX	1
2	K-WL-KD11-D-1	AWT ETCH LIST	REF
3	K-MP-KD11-D-2	FLOW DIAGRAM	REF
4	A-WT-KD11-D	AWT REVISION STATUS	REF
5	K-RL-KD11-D-3	ROM LISTING	REF

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
KD11-D PROCESSOR	NONE	A	PL	KD11-D-Ø		
	SHEET 1 OF 1	DIST.				

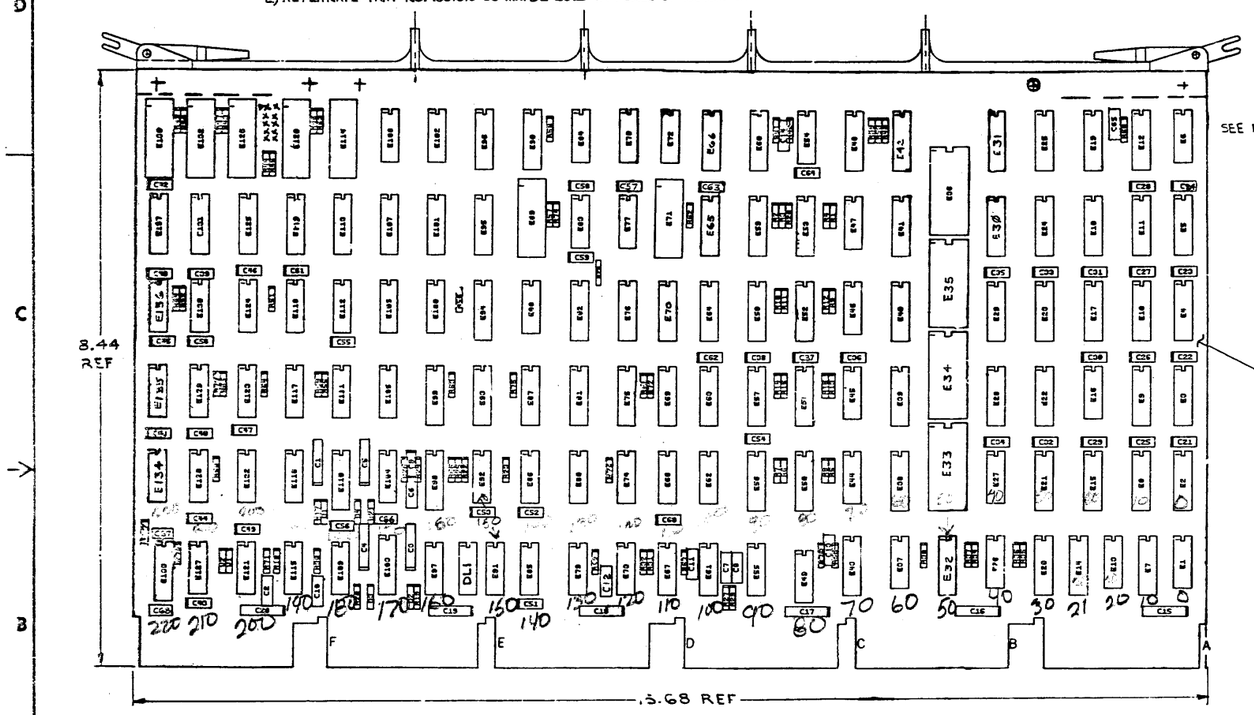
DEC FORM DEC 16-(325)-1031-N870
DRA 110

NOTES:

1.) MAINTENANCE CONNECTOR LOCATED BETWEEN E120 & E126
PIN ASSIGNMENTS AS FOLLOWS

K9 MPC 04L	X	X	K9 MPC 00L
K9 MPC 01L	X	X	K9 MPC 03L
K9 MPC 02L	X	X	K9 MPC 06L
K9 MPC 05L	X	X	K9 MPC 07L
MAN CHK ENABL	X	X	MAN CLK L

2.) ALTERNATE PART NO. 1001610-00 MAYBE USED IN PLACE OF 1001610-01



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M7263-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7263-0-5	2
REF		MODULE ECO HISTORY	B-MH-M7263-0-5	3
1		ETCHED CIRCUIT BOARD	5011244	4
1	C1	CAPACITOR, 22uf, 8V, 10%	1005836	5
6	C2,C8,C11,C12,C13,C85	CAPACITOR, 470pf, 100V, 5%	1000024	6
1	C3	CAPACITOR, .47uf, 35V, 10%	1005985	7
1	C4	CAPACITOR, 1uf, 35V, 10%	1001778	8
1	C5	CAPACITOR, 15uf, 20V, 10%	1004812	9
1	C6	CAPACITOR, 82pf, 100V, 5%	1000015	10
1	C7	CAPACITOR, 100pf, 100V, 5%	1000016	11
1	C9	CAPACITOR, 2200pf, 250V, 20%	1000055	12
1	C14	CAPACITOR, 330pf, 100V, 5%	1000023	13
6	C15,C18,C17,C18,C19,C20	CAPACITOR, 6.8uf, 35V, 10%	1005306	14
44	C21 THRU C84	CAPACITOR, .01uf, 100V, 20%	1001610-01	15
1	C86	CAPACITOR, 1000pf, 250V, 20%	1000043	16
4	D1,D2,D3,D4	DIODE, D864	1100114	17
27	R1 THRU R16,R53,R33,R40,R43 THRU R50	RESISTOR, 330 OHM, 1/4W, 5%	1300295	18
3	R17,R20,R21	RESISTOR, 24K, 1/4W, 5%	1304437	19
2	R18,R30	RESISTOR, 68 OHM, 1/4W, 5%	1300219	20
1	R19	RESISTOR, 12K, 1/4W, 5%	1300488	21
8	R22,R23,R26,R65,R66,R67,R69 R70	RESISTOR, 1K, 1/4W, 5%	1300365	22
2	R24,R78	RESISTOR, 5.62K, 1/4W, 1%	1305124	23
3	R25,R31,R32	RESISTOR, 22Ø, 1/4W, 5%	1300271	24
1	R26	RESISTOR, 34.8K, 1/4W, 1%	1303156	25
2	R27,R29	RESISTOR, 150 OHM, 1/4W, 5%	1300250	26
2	R33,R42	RESISTOR, 47 OHM, 1/4W, 5%	1300202	27
5	R34,R35,R36,R37,R38	RESISTOR, 178 OHM, 1/4W, 1%	1311422	28
1	R41	RESISTOR, 680 OHM, 1/4W, 5%	1301424	29
16	R51,R52,R54 THRU R63,R72 THRU R76,R79	RESISTOR, 470 OHM, 1/4W, 5%	1300316	30
1	R64	RESISTOR, 1.5K, 1/4W, 5%	1300391	31
1	R68	RESISTOR, 180 OHM, 1/4W, 5%	1301322	32
1	R71	RESISTOR, 820 OHM, 1/4W, 5%	1301775	33
1	DL1	DELAY LINE, 150 NSEC.	1612463	34
2	E1,E135	I.C. DEC 7432	1911521	35
10	E2,E3,E4,E5,E17,E38,E39,E40 E41,E43	I.C. DEC 8641	1911579	36
4	E6,E16,E74	I.C. DEC 8815	1909713	37
4	E8,E11,E15,E18	I.C. DEC 74153	1909937	38
4	E9,E10,E12,E28,E29,E30,E66	I.C. DEC 74157	1910655	39
4	E13,E54,E92	I.C. DEC 7420	1905577	40
11	E63,E64,E65,E14,E101,E107, E113,E119,E125,E131, E137	I.C. DEC 74174	1910652	41
2	E20,E32	I.C. DEC ~~9937~~ N8T37N	1911115	42
4	E19,E25	I.C. DEC 74175	1910651	43
4	E21,E22,E23,E24	I.C. DEC 74194	1910623	44
2	E26,E37	I.C. DEC 8881	1909705	45
2	E27,E61	I.C. DEC 7408	1910155	46
1	E31	I.C. DEC 74182	1910619	47
4	E33,E34,E35,E36	I.C. DEC 74181	1909962	48
1	E42	I.C. DEC 74S133	1911583	49
4	E44,E45,E46,E47	I.C. DEC 7486	1910011	50
1	E49	I.C. DEC 8640	1911465	51
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

IC 9602	8	16	IC 74H103	11	4
IC 7442	8	16	16 PIN ROMS	8	16
IC 74S133	8	16	20 PIN ROMS	10	20
IC 74298	8	16	I.C. 74123	8	16
IC 3101A	8	16		GND	+5V
IC 8640	1	8			
IC 74S133	8	16			
IC 74181	12	24			
IC 74182	8	16			
IC 74194	8	16			
IC 74175	8	16			
IC 3837	8	16			
IC 74174	8	16			
IC 74157	8	16			
IC 74153	8	16			
IC 3841	8	16			
IC TYPE	GND	+5V			

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL

ETCH BOARD REV. F

PARTS LIST

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

SEMICONDUCTOR CONVERSION CHART

CHANGE NO.	REV.	REVISIONS
17263-00001	D	

DRN. DATE 12-
CHK'D DATE 12-
ENG. DATE 6/19/75
PROJ. ENG. DATE 6/19/75
PROD. ENG. DATE 6/19/75
NEXT HIGHER ASSY

digital

TITLE KD11-D

SIZE D | CODE CS | NUMBER M7263-0-1 | REV. M

SCALE
SHEET 1 OF 14
DIST.

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SPARE LOGIC

GRANT CONTINUITY

DK2 → DL2
DM2 → DN2
DP2 → DR2
DS2 → DT2

4	E50,E51,E52,E53	I.C. DEC 3101A	1910653	52
4	E55,E73,E97,E109,E115,E121, E123,E129	I.C. DEC 7474	1905547	53
4	E58,E57,E58,E59	I.C. DEC 74298	1911271	54
8	E62, E66, E79, E85, E105, E118, E117, E124 E68	I.C. DEC 7402	1909004	55
2	E67, E122 E67	I.C. DEC 7414	1911324	56
2	E90, E96 E95, E96	I.C. DEC 74S153	1910547	57
3	E77,E83,E102	I.C. DEC 74H81	1909849	58
3	E78,E106,E127 106	I.C. DEC 7404	1909686	59
6	E80,E100,E104,E118,E108,E126	I.C. DEC 7400	1905575	60
1	E84	I.C. DEC 74S82	1912388	61
2	E86,E112 E86	I.C. DEC 7437	1910091	62
1	E72	I.C. DEC 74S08	1912389	63
1	E88 E8	I.C. DEC 7427	1910878	64
1	E90	I.C. DEC 7442	1910046	65
1	E91	I.C. DEC 74S08	1910532	66
2	E98,E133 E98	I.C. DEC 9602	1910951	67
2	E103,E110	I.C. DEC 74123	1910436	68
3	E111,E130,E136 E136	I.C. DEC 7405	1909930	69
1	E134 E134	I.C. DEC 74H103	1910409	70
12	E7	I.C. DEC 256 x 4 TS	23A31A2-05	71
1	E48	I.C. DEC 256 x 4	23A21A2	72
2	E60,E82	I.C. DEC 256 x 4	23A22A2	73
1	E89	I.C. DEC 256 x 4	23A27A2	74
1	E70	I.C. DEC 256 x 4	23A23A2	75
1	E75	I.C. DEC 256 x 4	23A26A2	76
2	E78,E99	I.C. DEC 256 x 4 TS	23A29A2-05	77
1	E81	I.C. DEC 256 x 4	23A25A2	78
1	E87	I.C. DEC 256 x 4	23A24A2	79
1	E93	I.C. DEC 512 x 4 TS	23A81A9	80
1	E94	I.C. DEC 32 x 8 TS	23A15A1-05	81
1	E71	I.C. DEC 256 x 8 TS	23B05B1	82
1	E89	I.C. DEC 256 x 8 TS	23B07B1	83
1	E114	I.C. DEC 256 x 8 TS	23B05B1	84
1	E120	I.C. DEC 256 x 8 TS	23B04B1	85
1	E126	I.C. DEC 256 x 8 TS	23B03B1	86
1	E132	I.C. DEC 256 x 8 TS	23B06B1	87
1	E138	I.C. DEC 256 x 8 TS	23B01B1	88
1		MODULE HANDLE	12107II-02	89
12		EYELETS	9J6002 -01	90
1	P1	JUMPER, MACH INS	9009185	91
18		PIN, WIRE-WRAP, .025 SQ.	9009149	92
1	C10	CAPACITOR 150pf 100V 5%	1003026	93
1	R77	RES, 30K, 1.4W, 5%	1302394	94
1	C68	CAP, 1000 pf, 100V, 5%	1003026	95
1	C67	CAP, 220 pf, 100V, 5%	1003021	96
AR		WIRE, 30 AWG	9C00-05	97
AR		TUBING	9C07-01	98

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
KD11-D	D	CS	M7263-0-1	M
SCALE —	SHEET 2 OF 14	DIST.		

DCS M7263-0-1 M

3101A			
ENB	WR	MEM OP	OUTPUT
H	–	DO NOTHING	H
L	L	WRITE	H
L	H	READ	COMPL OF SEL WORD

K9 SPW LOW H
K5 REG CLK H
7400 E108
K1 SPW LOW L
K10 ENAB REG (1) L
+5V
R1 330 R2 330 R3 330 R4 330
7486 E47
K1 SP ØØ L
K10 INVERT (1) H
74298 E59 SP REG
K1 AMUX Ø3 H
K3 AMUX 11 H
K1 AMUX Ø2 H
K3 AMUX 10 H
K1 AMUX Ø1 H
K3 AMUX Ø9 H
K1 AMUX ØØ H
K3 AMUX 08 H
WS CLK
K1 SWAB L
K1 SPW LOW L
3101 A E53 SPM
WR ENB
A3 A2 A1 AØ
M2 (1) M1 (1) MØ (1) M3 (1)
K8 SPA Ø3 H
K8 SPA Ø2 H
K8 SPA Ø1 H
K8 SPA ØØ H
7420 E54
K1 SWAB L

K6 ASSERT ADRESS L
8641 E41
BJ1 BUS AØ3 L
K1 BAØ3 H
BJ2 BUS AØ2 L
K1 BAØ2 H
BH1 BUS AØ1 L
K1 BAØ1 H
BH2 BUS AØØ L
K1 BAØØ H

K6 ENAB DATA L
8641 E5
AE2 BUS DØ3 L
AC1 BUS DØ2 L
AD2 BUS DØ1 L
AC1 BUS DØØ L

K2 BREG Ø4 (1) H
K9 BMODE ØØ L
K9 BMODE Ø1 L
74194 E24 BREG
K1 AMUX Ø3 H
K1 AMUX Ø2 H
K1 AMUX Ø1 H
K1 AMUX ØØ H
S1 SØ DSR
D3 D2 D1 DØ
R3 (1) R2 (1) R1 (1) RØ (1)
CLR CLK DSL
+3VA
K5 BREG CLK L
K11 SERIAL SHIFT H
K1 BREG Ø3 (1) H
K1 BREG ØØ (1) H
K8 INH +1 L
74157 E30 BLEG MUX
B3 B2 B1 BØ
A3 A2 A1 AØ
STB SØ
K9 ENAB +1 L

K1 ALU CIN Ø1 L
74182 E31 CIN
COUTX
G0 P0
K10 ALU CIN ØØ L
8815 E6
K1 Ø-3 = ØH
K8 C3H
K8 C2H
74181 E36 ALU
A-B COUT G P
B3 B2 B1 BØ
A3 A2 A1 AØ
S3 S2 S1 SØ M CIN
K10 ALU S3 H
K10 ALU S2 H
K10 ALU S1 H
K10 ALU SØ H
K10 ALU MODE (1) H
K10 ALU CIN ØØ L

STB1 STBØ
74153 E18 AMUX
K1 AMUX Ø3 H
K1 AMUX Ø2 H
74153 E11 AMUX
K1 AMUX Ø1 H
K1 AMUX ØØ H
S1 SØ

74157 E12
K1 AMUX Ø3 H
K11 CC N H
K1 AMUX Ø2 H
K11 CC Z H
K1 AMUX Ø1 H
K11 CC V H
K1 AMUX ØØ H
K11 CC C H
74175 E19 PSW
K1 NBIT (1) H
K1 ZBIT (1) H
K1 VBIT (1) H
K1 CBIT (1) H
K10 AMUX S1 L
K10 AMUX SØ L
CLR CLK
K5 PROC INIT L

K5 REG CLK H
K9 LOAD CC L
K2 PSW LOAD L
7400 E128
7400 E108
K10 AUX CONTROL (1) H
R63 130
C65 47 PF

74194

CLK	S1	SØ	OPERATION
–	L	L	HOLD
↑	L	H	SHIFT RIGHT
↑	H	L	SHIFT LEFT
↑	H	H	LOAD

74157

STB	SØ	DATA
H	–	FN=Ø
L	L	FN=AN
L	H	FN=BN

74153

S1	SØ	DATA
L	L	FN=A0
L	H	FN=B0
H	L	FN=C0
H	H	FN=D0

REVISIONS		
CHK	CHANGE NO.	REV.

DATA PATH 3-3(1104)CPU

TITLE	SIZE	CODE	NUMBER	REV.
KD11-D (K1)	D	CS	M7263-0-1	M
SCALE	SHEET 3 OF 14	DIST.		

3101A

BN3	WR	MEMOP	OUTPUT
H	—	DO NOTHING	H
L	L	WRITE	H
L	H	READ	COMPL OF SEL WORD

74194

CLK	SI	SØ	OPERATION
—	L	L	HOLD
↑	L	H	SHIFT RIGHT
↑	H	L	SHIFT LEFT
↑	H	H	LOAD

74153

S1	SØ	DATA
L	L	F=A0
L	H	F=B0
H	L	F=C0
H	H	F=D0

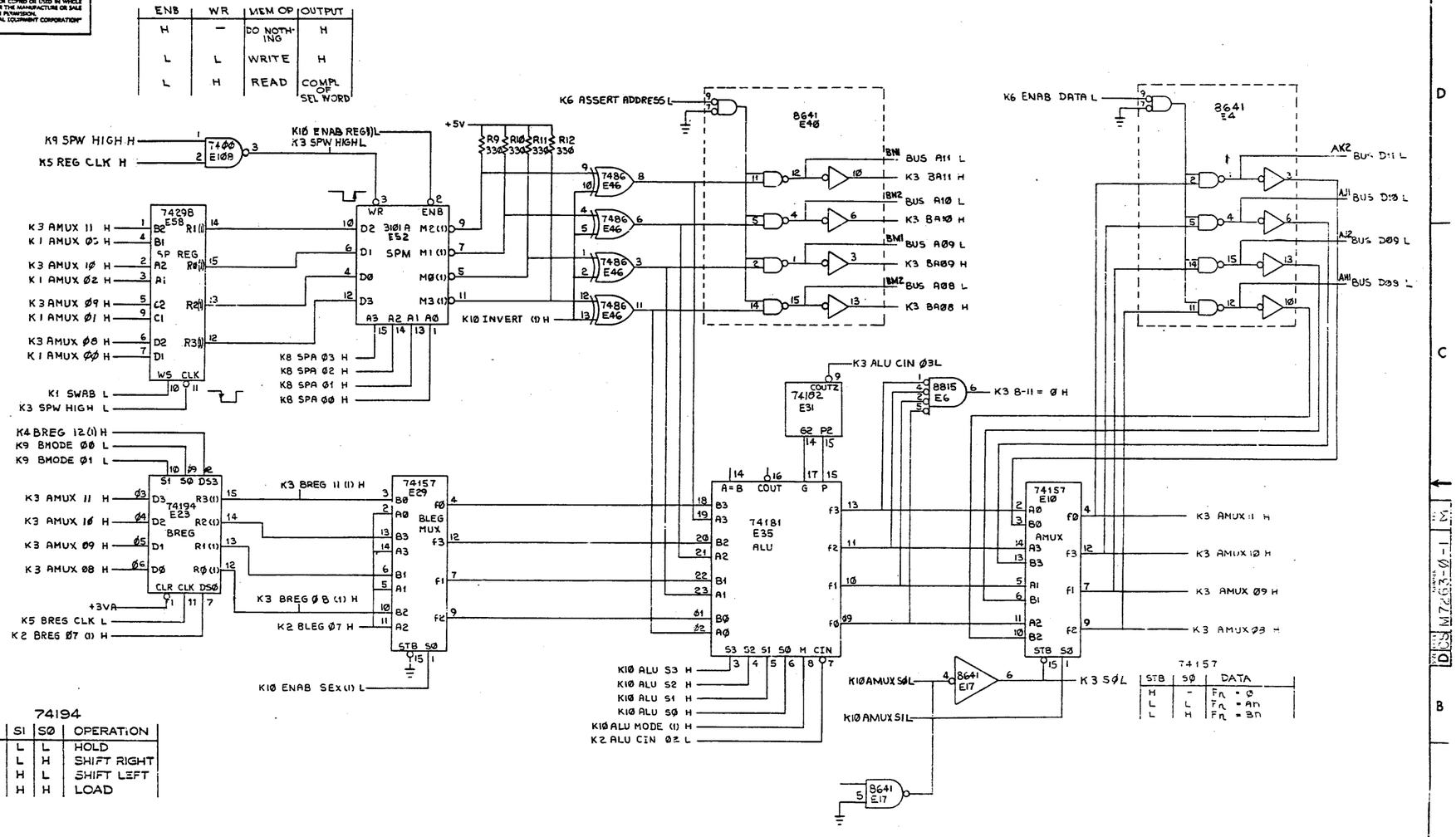
REVISIONS		
ZONE	CHANGE NO.	INT.

TITLE		SIZE	CODE	NUMBER	REV.
KD11-D	(K2)	D	CS	M7263-Ø-1	M
SCALE —	SHEET 4 OF 14	DIST.			

DATA PATH 4-7(11/2-4) CPU

192

ENB	WR	MEM OP	OUTPUT
H	—	DO NOTHING	H
L	L	WRITE	H
L	H	READ	COMPL OF SEL WORD



74194

CLK	S1	S0	OPERATION
—	L	L	HOLD
↑	L	H	SHIFT RIGHT
↑	H	L	SHIFT LEFT
↑	H	H	LOAD

74157

STB	S0	DATA
H	-	Fn = 0
L	L	Fn = An
L	H	Fn = Bn

REVISIONS

CHK	CHANGE NO.	REV.

DATA PATH 8-11 (1/3) SPU

TITLE	SIZE	CODE	NUMBER	REV.
KD11-D (K3)	D	DS	M7263-0-1	M
SCALE — SHEET 5 OF 14	DIST.			

3IØIA

ENB	WR	MEM CP	OUTPUT
H	—	DO NOTHING	H
L	L	WRITE	H
L	H	READ	COMPL OF SEL WORD

K6 ASSERT ADDRESS L
8641 E39
BR1 BUS A15 L — K4 BA15 H
BR2 BUS A14 L — K4 BA14 H
BP1 BUS A13 L — K4 BA13 H
BP2 BUS A12 L — K4 BA12 H

K6 ENAB DATA L
8641 E3
AM2 BUS D15 L
AL1 BUS D14 L
AL2 BUS D13 L
AM1 BUS D12 L

+5V
R13 330 R14 330 R15 330 R16 330

K1Ø ENAB REG (1) L
K3 SPW HIGH L

74298 E57 SP REG
K4 AMUX 15 H
K2 AMUX Ø7 H
K4 AMUX 14 H
K2 AMUX Ø6 H
K4 AMUX 13 H
K2 AMUX Ø5 H
K4 AMUX 12 H
K2 AMUX Ø4 H
WS CLK
K1 SWAB L
K3 SPW HIGH L

3101A E51 SPM
K8 SPA Ø3 H
K8 SPA Ø2 H
K8 SPA Ø1 H
K8 SPA ØØ H

7486 E45 ×4

K1Ø INVERT (1) H
74S08 E72
K4 BUF INV H

7420 E54
K4 ALEG 15 H

8815 E16
K4 12-15 = Ø H

K11 SERIAL SHIFT H
K9 3MODE ØØ L
K9 3MODE Ø1 L

74194 E22 BREG
K4 AMUX 15 H
K4 AMUX 14 H
K4 AMUX 13 H
K4 AMUX 12 H
+3VA
K5 3REG CLK L
K3 3REG 11 (1) H

74157 E28 BLEG MUX
K4 BLEG 15 H
K4 BREG 12 (1) H
K2 BLEG Ø7 H
K1Ø ENAB SEX (1) L

74181 E34 ALU
K1Ø ALU S3 H
K1Ø ALU S2 H
K1Ø ALU S1 H
K1Ø ALU SØ H
K1Ø ALU MODE (1) H
K3 ALU CIN Ø3 L

74157 E9 AMUX
K3 5Ø L
K1Ø AMUX S1 L
K4 AMUX 15 H
K4 AMUX 14 H
K4 AMUX 13 H
K4 AMUX 12 H

K6 ASSERT ADDRESS L
8691 E17
BS1 BUS A17 L — K4 BA17 H
BS2 BUS A16 L — K4 BA16 H
+3V A

+5V
R65 1K R66 1K R69 1K
+3V D
+3V C
+3V B

74137

ST3	SØ	DATA
H	—	FN=Ø
L	L	FN=AB
L	H	FN=BA

74194

CLK	S1	SØ	OPERATION
—	L	L	HOLD
↗	L	H	SHIFT RIGHT
↗	H	L	SHIFT LEFT
↗	H	H	LOAD

DATA PATH 12-15(11/24) CPU

TITLE	SIZE	CODE	NUMBER	REV.
KD11-D (K4)	D	CS	M7263-Ø-1	M

SCALE — SHEET 6 OF 14 DIST.

+5V
R17 820Ø
R18 68
BUS AC LO L
BF1 13
8837 E32
12
C2 470pf
+5V
C1 22 µf
R17 24K
D1 D664
BUS DC LO L
BF2 15
8837 E32
14
74123 E110 INIT 150ms
+3V B
+5V
C3 .47µf
R19 12K
D2 D664
74123 E103 PUP 2.2MS
+5V
C4 1µf
R20 24K
D3 D664
74123 E103 PDWN 6.6MS
+3VC
7474 E97
K5 PFAIL (1) H
K5 PFAIL (1) L
K5 PROC INIT H
7402 E85
K8 PFAIL SER L
K5 PROC CLK L
7402 E85
7414 E122
7402 E117
7420 E92
7400 E80
K12 HLT RQST L
7400 E104
K5 POWER CLR L
7474 E109 PWR INIT
K5 PROC CLK L
7405 E111
K9 MPC ØØ L
+3V B
BUS INIT L
AA1
8837 E20
K5 RCD INIT H
7400 E104
+5V
C5 15 µf
R21 24K
D4 D664
+3V B
7474 E109 START RESET
K12 START RESET L
K5 PROC CLK L
K5 POWER CLR L
74123 E110 RESET 100 MS
K5 RESET (1) H
K5 PFAIL (1) L
7437 E86
K5 PROC INIT H
7437 E86
K5 PROC INIT L
7400 E80
8881 E37
AA1
BUS INIT L
7420 E92
K7 BG INH L
K6 TRAN INH L
+5V
R22 1K
MAN CLK ENAB L
DS1
+5V
R23 1K
7450Ø E91
DU1
MAN CLK L
7450Ø E91
7458Ø E91
K8 EXT TRAN
DU1
R25 220
K6 TRAN CLK H
KIØ DAT TRAN (1) H
7402 E79
7402 E79
K5 BREG CLK L
K8 INST TRAP SER L
7402 E79
7437 E86
K5 PROC CLK H
7437 E86
K5 PROC CLK L
7400 E52
K5 PWR SPL

POWER UP TIMING (TIMES IN MSEC)
BUS DC LO L
BUS AC LO L
E110 PIN 5 (INIT)
E103 PIN 13 (PUP)
MPC ØØ L
PROC INIT L
PROC CLK L
2
150
2.2

POWER DOWN TIMING (TIMES IN MSEC)
BUS AC LO L
BUS DC LO L
E103 PIN 5 (PDWN)
PFAIL (1) H
MPC ØØ L
PROC INIT L
6.6

CLOCK TIMING DIAGRAM FOR NORMAL OPERATION (NOMINAL TIMES IN NSEC)
E92 PIN 8
E91 PIN 8
E91 PIN 4
E91 PIN 5
E91 PIN 6
70-20 175-155
(WITH MAN CLK ENAB L & MAN CLK L BOTH H)

FOR MANUAL CLOCK OPERATION
MAN CLK ENABL
MAN CLK L
E91 PIN 6

(PFAIL/AUTO REST/INIT/PROC CLK)

TITLE		SIZE	CODE	NUMBER	REV.
KD11-D (K5)		D	CS	M7263-Ø-1	M
SCALE	SHEET 7 OF 14	DIST.			

K6 CI L

K6 START TRAN H — 7402 E85 — K6 ASSERT ADDRESS L

K8 INIT DATI H — 7402 E116 — K6 ENAB DATA L

K10 CI (1) H — 7414 E122 — K10 CØ (1) H — 7430 E104 — K6 DATIP (1) H

+3VC

D 7474 E97 DATIP Ø

K9 CLR MPC L

+5V R24 5.62K 1%

C6 82pf

+3VC — 9602 E98 — +3VC

BUS SSYN L — BUI 1 — 8837 E32 — K6 SSYN H — 7402 E116 — 7414 E122 — K6 BUS IN USE H

K6 DATIP (1) H — 7402 E116

K6 BBSY H, K7 NPR H, K7 NPSYN H, K7 NO SACK TO L — 8815 E74

D 7474 E121 C Ø — R27 150 — C7 100pf — 7414 E67

K10 DAT TRAN (1) H, K6 EOT (Ø) H — 7400 E80 — K6 TRAN INH L

KG START TRANH

7402 E85 — K5 RCD INIT H

8641 E43

K10 C1(1) H — BT2 BUS C1 L — K6 C1 H

K10 CØ(1) H — BU2 BUS CØ L — K6 CØ H

+3VD — AP2 BUS BBSY L — K6 BBSY H

BV1 BUS MSYN L — K6 MSYN H

+3VC — 9602 E98 — C9 220pf — R26 3.48K 1%

K1 SPØØ L, K10 ALLOW BYTE H — 7402 E68 — 7402 E68 — K6 TRAN CLK H

7414 E122 — R29 150 — C8 470pf — 7414 E67 — K6 SSYN H

BUS PA L — AN1 — 8837 E20

BUS PB L — AN2

8640 E49

K6 CI L — 7400 E104

+3V B

D 7474 E121 PE — K6 PE (1) H

PARITY ENABLE W1 — W2

K6 SSYN H — D 7474 E115 BE — K6 BE (1) H, K6 BE (1) L

K10 DAT TRAN (1) H

7400 E125 — K6 FORCE SERV H

K6 TRAN INH L

+3V B

D 7474 E115 EOT — K6 EOT (1) H

+5V R61 1.5K — R30 68 — C10 150pf — 7405 E111

(DATA TRAN)

TITLE		SIZE	CODE	NUMBER	REV.
KD11-D	(K6)	D	CS	M7263-Ø-1	N1
SCALE ——	SHEET 8 OF 14	DIST.			

M7263-Ø-1

196

K2 PSW Ø7 (1) H
K2 PSW Ø6 (1) H
K2 PSW Ø5 (1) H
23A 31 A2-05 BR PRIORITY ROM 256x4 E7

74174 E14 CLR CLK
D0 D1 D5 D4 D3 D2
R0(1) R1(1) R5(1) R4(1) R3(1) R2(1)

BUS BR7 L AT2 8837 E20
BUS BR6 L AU2 8837 E20
BUS BR5 L BC1 8837 E32
BUS BR4 L BD2 8837 E32
+5V R67 1K
K12 HLT RQST L CP1 7414 E67

K5 PFAIL (1) H
K7 SACK RETURN (1) L
K9 BUT SERVICE (1) H
K7 PFAIL TRAP (1) H
K7 HLT REQ (1) H

K8 SERVICE TRAP H 7402 E62 7420 E13

+3VD
7474 E55 ENAB BG
K7 ENAB BG (1) L
K7 ENAB BG (1) H

7432 E1 8881 E26
R34 +5V 178 1% AV1 BUS BG7 H
R35 178 1% BA1 BUS BG6 H
R36 178 1% BB1 BUS BG5 H
R37 178 1% BB2 BUS BG4 H

7408 E61 CP1 K7 HLT GRANT H

K7 PENDING REQ H
K5 RESET (1) H
K7 SACK RETURN (1) H
8815 E74 K7 BG INH L
7474 E73 SACK RET

K8 BUT SERVICE L 7402 E68
+5V R38 178 AU1 BUS NPG H
K7 NPG (1) H
7474 E55 NPG
8881 E37

K7 HLT REQ (1) H 7404 E127
K7 ENAB BG (1) H 74H01 E23
+5V R79 470
K8 BUT SERVICE L
K7 NPG (1) H
8640 E49

R31 220 C11 470 pf
R32 220 C12 470 pf
7414 E67

BUS NPR L AS2 8640 E49
K5 RCD INIT H
K7 NPR H

BUS SACK L AR2 8837 E28
7432 E135
+5V R77 30K C68 1000 pf
+5V R78 5.62K C67 220pf
K7 NPG (1) H
9602 E133

+5V R70 1K
3881 E37
R33 47 C13 470 pf

7408 E61 7402 E62
K7 SACK TD H
K5 RCD INIT H
K7 NO SACK TD L

(PRIORITY ARBITRATION)

TITLE		SIZE	CODE	NUMBER	REV.
KD11-D (K7)		D	CS	M7263-0-1	M
SCALE	SHEET 9 OF 14	DIST.			

K2 TBIT (1) L
K12 ENABTBIT L
K5 PROC CLK H
K8 TBIT SER H
K5 PROC INIT L
7402 E124
74H103 E134
K8 TBIT FLAG(1) H

INSTRUCTION	K	IR CODE Ø2	Ø1	ØØ
ILLEGAL INST	4	H	L	H
RESERVED INST	1Ø	H	H	L
BPT	14	H	L	L
IOT	2Ø	L	H	L
EMT	3Ø	L	H	L
TRAP	34	L	L	H
HLT	—	L	L	L
NONE	—	H	H	H

+5V
R74 R76 R75 R73 R72 470 470 470 470 470
K10 BE FLAG (1) H
K12 IR CODE Ø2 L
K12 IR CODE Ø1 L
K12 IR CODE Ø0 L
K8 TBIT FLAG (1) H
K8 STOV (1) H
K7 P FAIL TRAP (1) H
K10 PE FLAG (1) H
BUT SERVICE 23-ØØ6-B1 E71
K8 BUT SERVICE L
K8 C3 H
K8 C4 H
K8 C2 H
K8 STOV SER L
K8 PFAIL SER L
K8 INST TRAP SER L
K8 SERVICE TRAP H
7404 E127
K8 T BIT SER H
74H01 E102
K10 AMUX SØ L
7432 E135
K8 INTR H
K9 BUT SERVICE (1) H
74H01 E102
K9 MPC ØØ L

SERVICE ORDER
HLT INST (FROM C
BE (SERV TBIT)
INST TRAPS (SERV TBIT)
TBIT
STOV
PFAIL
HALT SW
INTR (BR7, BR6, BR5, BR4)
NEXT INSTR FETCH

K10 ROM SPAØ3 (1) H
K1 BAØ3 H
K10 ROM SPAØ2 (1) H
K11 IR Ø2 (1) H
K11 IR ØØ (1) H
K1 BA Ø2 H
74S153 E96
K8 SPA Ø3 H
K8 SPA Ø2 H
K10 ALLOW BYTE H
7400 E118
K8 INH +1 L
7400 E100
K8 R6+7 L
7432 E135
K8 R6 L
K11 8-15 = Ø L
7402 E117
K9 ENAB STOV L
K5 PROC CLK L
74H103 E134
K8 STOV (1) H
K5 PROC INIT L
K8 STOV SER L
7474 E129
K8 BUT SERVICE L
K9 BUT SERVICE (1) H
7404 E127
+3V B

K10 ROM SPAØ1 (1) H
K11 IR Ø1 (1) H
K11 IR Ø7 (1) H
K1 BAØ1 H
K10 ROM SPAØØ (1) H
K11 IR ØØ (1) H
K11 IR Ø6 (1) H
K1 BA ØØ H
K10 SPA MUX Ø1 (1) H
K10 SPA MUX ØØ (1) H
SPA MUX
K8 SPA Ø1 H
K8 SPA ØØ H

74S153

S1	SØ	DATA
L	L	FØ=A0
L	H	FØ=B0
H	L	FØ=C0
H	H	FØ=D0

K7 SACK RETURN (1) H
K6 C1 H
K2 BA Ø5 H
K2 BA Ø4 H
K1 BA Ø3 H
K1 BA Ø2 H
K1 BA Ø1 H
K1 BA ØØ H
23-A21 A2 E98
K8 EXT LOAD PSW L
K9 SP WRITE L
K8 INIT DATI H
7404 E78
+5V
R39 R40 R41 330 330 680
74H01 E77
R28 1K
R42 47
C14 3ØØ pf
7414 E122
K2 BAØ5 H
74H01 E102
K10 AMUX SØ L
7405 E111
K10 AMUX S1 L

K9 BA 17 H
K4 BA 16 H
K4 BA 15 H
K4 BA 14 H
K4 BA 13 H
K4 BA 12 H
K3 BA 11 H
K3 BA 10 H
K3 BA Ø9 H
K3 BA Ø8 H
K2 BA Ø7 H
K2 BA Ø6 H
K6 MSYN H
74S133 E42
INTERNAL ADDRESS DECODE
K7 SACK RETURN (1) H
K6 START TRAN H
7402 E79

+3V B
K5 PROC CLK L
7474 E123 SSYN
BUS INTR L
8837 E20
K8 INTR H
7403 E128
8881 E37
BUS SSYN L
7403 E128
K8 EXT TRAN L

(SPA MUX, BUT SERVICE, INTERNAL ADDRESS DECODE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
KDII-D (KS)	D	CS	M7263-D-1	A1
SCALE —	SHEET 15 OF 14	DIST.		

198

K9 FORCE SERV H
K5 PROC INIT H
7402 E84
K9 CLR MPC L

K9 MPC Ø0 L
K9 MPC Ø1 L
K9 MPC Ø2 L
K9 MPC Ø3 L
K9 MPC Ø7 L
K9 MPC Ø6 L
K9 MPC Ø5 L
K9 MPC Ø4 L
CK1
CF1
CE1
DP1
DR1
CM1
DA1
DB1
23-001-B1 E138
CE1 CE2

23-002-B1 E132

74174 E137
74174 E131
74174 E125
D0 D1 D2 D3 D4 D5
R0(1) R1(1) R2(1) R3(1) R4(1) R5(1)
CLR CLK

K10 LOAD IR H
K10 BUT ØØ H
K5 PROC INIT L
K5 PROC CLK L

K9 BUT ØØ (1) H
K9 BUT Ø1 (1) H
K9 BUT Ø2 (1) H

7405 E136
7405 E139
7404 E106
7414 E122
7400 E118
7442 E90

R43 330 +5V DR1 K9 MPC Ø7 L
R44 330 CM1 K9 MPC Ø6 L
R45 330 DA1 K9 MPC Ø5 L
R46 330 DB1 K9 MPC Ø4 L
R47 330 DP1 K9 MPC Ø3 L
R48 330 CE1 K9 MPC Ø2 L
R49 330 CF1 K9 MPC Ø1 L
R50 330 CK1 K9 MPC Ø0 L

K9 SP WRITE H
K9 SPW LOW H
K9 SPW HIGH H
R53 330 +5V
K9 SP WRITE L
K9 ENAB +1 L

K9 BUT BYTE (1) L
K9 IR DECODE L
K9 IR DECODE (1) H
K9 BUT SERVICE (1) H

R51 470 +5V K9 BMODE Ø1 L
R52 470 K9 BMODE ØØ L

K9 BUT DEST L
K9 ENAB STOV L
K9 ENAB DBE L
K9 LOAD PSW L
K9 LOAD CC L

REVISIONS
CHK | CHANGE NO. | REV.

TITLE KD11-D (K9) (CONTROL STORE)
SIZE D CODE CS NUMBER M7263-0-1 REV N
SCALE — SHEET 1 OF 14 DIST.

K9 MPC Ø0 L — CX1
K9 MPC Ø1 L — CF1
K9 MPC Ø2 L — CE1
K9 MPC Ø3 L — DP1
K9 MPC Ø7 L — DR1
K9 MPC Ø6 L — CM1
K9 MPC Ø5 L — DA1
K9 MPC Ø4 L — DB1

23-003-B1 E126 → K1Ø BUT Ø0 H

23-004-B1 E120 →
K1Ø ROM S3 H
K1Ø ROM S2 H
K1Ø ROM S1 H
K1Ø ROM S0 H
K1Ø ROM MODE H
K1Ø ROM CIN L

K1Ø AUX SETUP H

23-005-B1 E114 →
K1Ø AUX SETUP H
K1Ø LOAD IRL
K1Ø LOAD IR H

74174 E119
D0 R0(1) — K1Ø DAT TRAN (1) H
D1 R1(1) — K1Ø C1 (1) H
D2 R2(1) — K1Ø C0 (1) H
D3 R3(1) — 7402 E117 (K11 BYTE L) — K1Ø ALLOW BYTE H
D4 R4(1) — 7405 E136 (RS4 470 to +5V) — K1Ø AMUX S1 L
D5 R5(1) — 7405 E111 (RS5 470) — K1Ø AMUX S0 L
CLR CLK

74174 E113
D0 R0(1) — K1Ø ENAB SEX (1) L
D1 R1(1)
D2 R2(1)
D3 R3(1)
D4 R4(1)
D5 R5(1) — K1Ø ALU MODE (1) H
CLR CLK

7437 E112 — K1Ø ALU S3 H
7437 E112 — K1Ø ALU S2 H
7437 E112 — K1Ø ALU S1 H
7437 E112 — K1Ø ALU S0 H

74174 E107
D0 R0(1) — K1Ø ALU CIN Ø0 L
D4 R4(1) — K1Ø INVERT (1) H
D5 R5(1) — K1Ø ENAB REG (1) L
D3 P3(1) — K1Ø SPA MUX Ø1 (1) H
D1 R1(1) — K1Ø SPA MUX Ø0 (1) H
D2 R2(1) — K1Ø ROM SPA Ø3 (1) H
CLR CLK

K11 INVERT H
K11 ENAB REG L

74174 E101
D1 R1(1) — K1Ø ROM SPA Ø2 (1) H
D3 R3(1) — K1Ø ROM SPA Ø1 (1) H
D2 R2(1) — K1Ø ROM SPA Ø0 (1) H
D0 R0(1) — K1Ø AUX CONTROL (1) H
D4 R4(1) — K1Ø PE FLAG (1) H
D5 R5(1) — K1Ø BE FLAG (1) H
CLR CLK

K6 PE (1) H
K6 BE (1) H
K5 PROC INIT L
K5 PROC CLK L

7404 E78 — K1Ø LOAD IRL

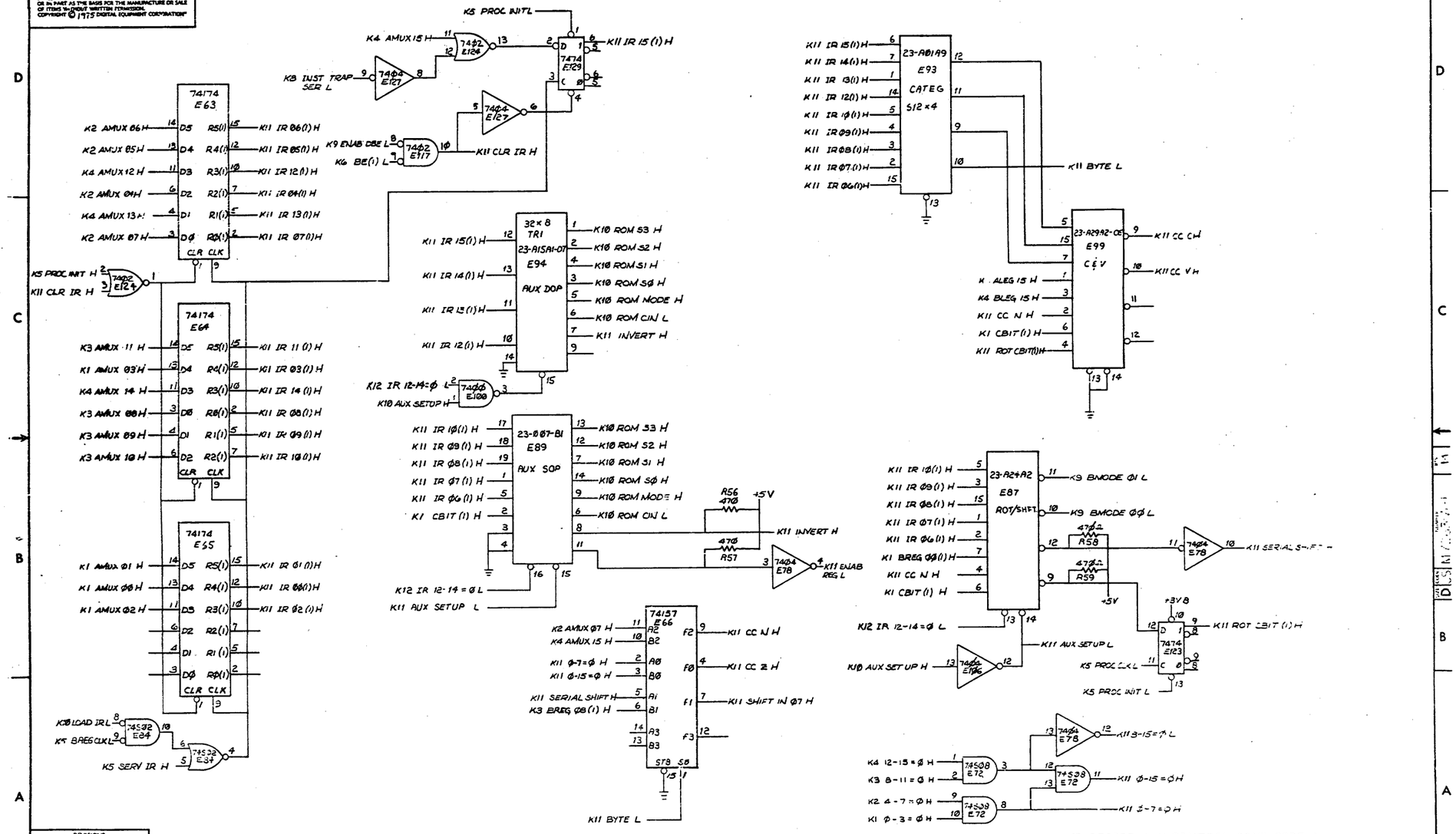
REVISIONS		
C-K	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
KDII-D (K1Ø) CONTROL STORE	D	CS	M7263-Ø-1	N

SCALE — SHEET 12 OF 14 DIST

M7263-Ø-1

200



(IR DECODE, AUX CONTROL CONE CODE 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	KD11-D (K11)	SIZE	CODE	NUMBER
		D	CS	M7263-0-1
SCALE	SHEET 13 OF 14			REV. M

201

K11 IR Ø3(1)H
K11 IR Ø4(1)H
K11 IR Ø5(1)H
7427 E88
K12 DMØH

K11 IR 14(1)H
K11 IR 13(1)H
K11 IR 12(1)H
7427 E88
7404 E106
K12 IR 12-14=ØL
K12 IR 12-14=ØH

K11 N BIT (1)H
K11 Z BIT(1)H
K11 V BIT(1)H
K11 C BIT(1)H
K11 IR 15(1)H
K11 IR 10(1)H
K11 IR Ø9(1)H
K11 IR Ø8(1)H
23-A22 A2
E60
BRANCH
K9 MPC ØG L
K9 IR DECODE L
K11 IR 11(1)H
K12 IR 12-14=ØL
7402 E105
7404 E106
K12 IR 11-14=ØL

K11 IR Ø7(1)H
K11 IR Ø6(1)H
K9 IR DECODE L
K12 IR 8-15=ØL
K12 DMØ H
K11 IR Ø2(1)H
K11 IR Ø1(1)H
K11 IR ØØ(1)H
23-A29A2-Ø5
E76
RESET/TRAP
K12 START RESET L
K12 ENABT BIT L

K11 IR Ø7(1)H
K11 IR Ø6(1)H
K11 IR Ø5(1)H
K11 IR Ø4(1)H
K11 IR Ø3(1)H
K11 IR Ø2(1)H
K11 IR Ø1(1)H
K11 IR ØØ(1)H
23-A23A2
E70
TRAP
DECODE
K12 HLT RQST L
K12 IR CODE Ø2L
K12 IR CODE Ø1L
K12 IR CODE ØØL
K11 IR 10(1)H
K11 IR Ø9(1)H
K11 IR Ø8(1)H
7427 E88
7430 E100
K12 IR 8-15=ØL
K11 IR15(1)H
K12 IR 11-14=ØL
7402 E105

K12 DMØ H
K11 IR14(1)H
K11 IR13(1)H
K11 IR12(1)H
K9 IR DECODE(1)H
K9 BUT DEST L
23-A27A2
E69
DOP
DECODE
K12 IR CODE ØØL
K9 MPC Ø5L
K9 MPC Ø4L
K9 MPC Ø3L

+5V
R63
470
K12 DEST L
K9 BUT DEST L
7400 E100
K11 IR Ø5(1)H
K11 IR Ø4(1)H
K11 IR Ø3(1)H
74H01 E83
K9 MPC Ø2L
K9 MPC ØIL
K9 MPC ØØL

K1 SP ØØL
K6 ASSERT ADDRESS L
K9 BUT BYTE(1)L
K11 BYTE L
7402 E84
7402 E124
74H01 E102
74H01 E111
74H05 E111
K9 MPC ØØL
K9 MPC ØIL

K11 IR11(1)H
K11 IR 10(1)H
K11 IR Ø9(1)H
74H01 E77
K9 MPC Ø2 L
K9 MPC Ø1L
K9 MPC ØØL
+5V
R64
470
K12 IR 12-14=ØH
K12 IR CODE ØØ L
K9 IR DECODE(1)H
7402 E105
7400 E128

K11 IR 15(1)H
K11 IR 11(1)H
K11 IR 10(1)H
K11 IR Ø9(1)H
K11 IR Ø8(1)H
K11 IR Ø7(1)H
K11 IR Ø6(1)H
K12 DMØ H
23-A25A2
E81
SOP
MICRO
BRANCH
K9 MPC Ø5 L
K9 MPC Ø4 L
K9 MPC Ø3 L
K12 IR 12-14=ØL
K9 IR DECODE L

K11 IR 15(1)H
K11 IR 11(1)H
K11 IR 10(1)H
K11 IR Ø9(1)H
K11 IR Ø8(1)H
K11 IR Ø7(1)H
K11 IR Ø6(1)H
K12 DMØ H
23-A26 A2
E75
SOP
DECODE
+5V
R62
470
K12 IR CODE Ø2 L
K12 IR CODE Ø1 L
K12 IR CODE ØØ L
K12 IR 12-14=ØL

K11 IR Ø7(1)H
K11 IR Ø6(1)H
K11 IR Ø5(1)H
K11 IR Ø4(1)H
K11 IR Ø3(1)H
K11 IR Ø2(1)H
K11 IR Ø1(1)H
K11 IR ØØ(1)H
23-A22A2
E92
DOP
MICRO
BRANCH
K9 MPC Ø2 L
K9 MPC Ø1 L
K9 MPC ØØ L
K12 IR 8-15=ØL
K9 IR DECODE L

REVISIONS
CHK | CHANGE NO. | REV.

IR,DECODE,AUX CONTROL, SEND CODES

TITLE	SIZE	CODE	NUMBER	REV.
KDII-D (K12)	D	DS	M7263-0-1	M
SCALE —	SHEET 14 OF 14	DIST		

202

THIS FACE SHEET CONTAINS THE
FOLLOWING CHIP NUMBERS:

CHIP	SHEET #
23-A01A9	2 - 16
23-A15A1	17
23-A21A2	18 - 25
23-A22A2	26 - 33
23-A23A2	34 - 41
23-A24A2	42 - 49
23-A25A2	50 - 57
23-A26A2	58 - 65
23-A27A2	66 - 73
23-A29A2	74 - 81
23-A31A2	82 - 89
23-001B1	90 - 97
23-002B1	98 - 105
23-003B1	106 - 113
23-004B1	114 - 121
23-005B1	122 - 129
23-006B1	130 - 137
23-007B1	138 - 145

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KDII-D		PARTS LIST		

REVISIONS	REV.	CHANGE NO.	CHK

DRN. D. Hosty	DATE 10/20/75	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D.	DATE 10/22/75	
ENG. R. Barry	DATE 10-22-75	TITLE ROM LISTING KDII-D PDP 11/64
PROJ. ENG. B BERNSTEIN	DATE 10-22-75	
PROD. R.K Peters	DATE 10/22/75	
NEXT HIGHER ASSEMBLY B-DD-KDII-D		SIZE K CODE CS NUMBER KDII-D-3 REV.
SCALE		
SHEET 1 OF 145		DIST.

DEC FORM NO.
DRB 109

2.03

DEC PART NUMB: 23-A01A9
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1111	17
1	001	1100	14
2	002	1111	17
3	003	1000	10
4	004	1111	17
5	005	1111	17
6	006	1011	13
7	007	1011	13
8	010	1101	15
9	011	1111	17
10	012	1001	11
11	013	1111	17
12	014	1111	17
13	015	1111	17
14	016	1011	13
15	017	1011	13
16	020	1111	17
17	021	1111	17
18	022	1111	17
19	023	1111	17
20	024	1111	17
21	025	1111	17
22	026	1011	13
23	027	1011	13
24	030	1110	16
25	031	1111	17
26	032	1010	12
27	033	1111	17
28	034	1111	17
29	035	1111	17
30	036	1011	13
31	037	1011	13
32	040	1111	17
33	041	1100	14
34	042	1111	17
35	043	1000	10

DEC PART NUMBER 23-AM1A9
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1111	17
37	045	1111	17
38	046	1011	13
39	047	1011	13
40	050	0111	07
41	051	1111	17
42	052	0011	03
43	053	1111	17
44	054	1111	17
45	055	1111	17
46	056	1011	13
47	057	1011	13
48	060	1111	17
49	061	1111	17
50	062	1111	17
51	063	1111	17
52	064	1111	17
53	065	1111	17
54	066	1011	13
55	067	1011	13
56	070	0100	04
57	071	1111	17
58	072	0000	00
59	073	1111	17
60	074	1111	17
61	075	1111	17
62	076	1011	13
63	077	1011	13
64	100	1110	16
65	101	1110	16
66	102	1010	12
67	103	1010	12
68	104	0101	05
69	105	0101	05
70	106	0100	04
71	107	0100	04

DEC PART NUMBER 23-AM1A9
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	1110	16
73	111	1110	16
74	112	1010	12
75	113	1010	12
76	114	0101	05
77	115	0101	05
78	116	0100	04
79	117	0100	04
80	120	1110	16
81	121	1110	16
82	122	1010	12
83	123	1010	12
84	124	0101	05
85	125	0101	05
86	126	0100	04
87	127	0100	04
88	130	1110	16
89	131	1110	16
90	132	1010	12
91	133	1010	12
92	134	0101	05
93	135	0101	05
94	136	0100	04
95	137	0100	04
96	140	1110	16
97	141	1110	16
98	142	1010	12
99	143	1010	12
100	144	0101	05
101	145	0101	05
102	146	0100	04
103	147	0100	04
104	150	1110	16
105	151	1110	16
106	152	1010	12
107	153	1010	12

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ROM PATTERN SPEC

DEC PART NUMBER 23-AB139
ORIGINATOR JOHN ALBOM
DATE OF ORIGIN 10-29-74

OCTAL LOC	OCTAL DATA	BINARY DATA
100	05	0101
101	05	0101
102	04	0100
103	04	0100
104	16	1110
105	16	1110
106	12	1010
107	12	1010
110	05	0101
111	05	0101
112	04	0100
113	04	0100
114	16	1110
115	16	1110
116	12	1010
117	12	1010
120	05	0101
121	05	0101
122	04	0100
123	04	0100
124	17	1111
125	17	1111
126	13	1011
127	13	1011
130	17	1111
131	17	1111
132	13	1011
133	13	1011
134	16	1110
135	17	1111
136	17	1111
137	13	1011
138	12	1010
139	13	1011
140	17	1111
141	17	1111
142	13	1011
143	13	1011

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ROM PATTERN SPEC

DEC PART NUMBER 23-AB139
ORIGINATOR JOHN ALBOM
DATE OF ORIGIN 10-29-74

OCTAL LOC	OCTAL DATA	BINARY DATA
144	17	1111
145	17	1111
146	17	1111
147	17	1111
148	17	1111
149	13	1011
150	13	1011
151	13	1011
152	05	0101
153	17	1111
154	01	0001
155	17	1111
156	17	1111
157	13	1011
158	13	1011
159	13	1011
160	11	1001
161	14	1100
162	10	1000
163	17	1111
164	17	1111
165	13	1011
166	13	1011
167	13	1011
168	07	0111
169	17	1111
170	03	0011
171	17	1111
172	17	1111
173	13	1011
174	13	1011
175	13	1011
176	17	1111
177	17	1111
178	17	1111
179	17	1111

DEC PART NUMBER 23-AB149
ORIGINATOR JOHN ALEOM
DATE OF ORIGIN 10-28-74

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1111	17
182	266	1011	13
183	267	1011	13
184	270	1101	15
185	271	1111	17
186	272	1001	11
187	273	1111	17
188	274	1111	17
189	275	1111	17
190	276	1011	13
191	277	1011	13
192	300	1110	16
193	301	1110	16
194	302	1010	12
195	303	1010	12
196	304	0101	05
197	305	0101	05
198	306	0100	04
199	307	0100	04
200	310	1110	16
201	311	1110	16
202	312	1010	12
203	313	1010	12
204	314	0101	05
205	315	0101	05
206	316	0100	04
207	317	0100	04
208	320	1110	16
209	321	1110	16
210	322	1010	12
211	323	1010	12
212	324	0101	05
213	325	0101	05
214	326	0100	04
215	327	0100	04

DEC PART NUMBER 23-AB149
ORIGINATOR JOHN ALEOM
DATE OF ORIGIN 10-28-74

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1110	16
217	331	1110	16
218	332	1010	12
219	333	1010	12
220	334	0101	05
221	335	0101	05
222	336	0100	04
223	337	0100	04
224	340	1110	16
225	341	1110	16
226	342	1010	12
227	343	1010	12
228	344	0101	05
229	345	0101	05
230	346	0100	04
231	347	0100	04
232	350	1110	16
233	351	1110	16
234	352	1010	12
235	353	1010	12
236	354	0101	05
237	355	0101	05
238	356	0100	04
239	357	0100	04
240	360	1110	16
241	361	1110	16
242	362	1010	12
243	363	1010	12
244	364	0101	05
245	365	0101	05
246	366	0100	04
247	367	0100	04
248	370	1110	16
249	371	1110	16
250	372	1010	12
251	373	1010	12

ROM PATTERN SPEC

DEC PART NUMBR 23-A0189
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	0101	05
253	375	0101	05
254	376	0100	04
255	377	0100	04
256	400	1111	17
257	401	1111	17
258	402	1011	13
259	403	1011	13
260	404	1111	17
261	405	1111	17
262	406	1011	13
263	407	1011	13
264	410	1111	17
265	411	1111	17
266	412	1011	13
267	413	1011	13
268	414	1111	17
269	415	1111	17
270	416	1011	13
271	417	1011	13
272	420	1111	17
273	421	1111	17
274	422	1011	13
275	423	1011	13
276	424	1111	17
277	425	1111	17
278	426	1011	13
279	427	1011	13
280	430	1111	17
281	431	1111	17
282	432	1011	13
283	433	1011	13
284	434	1111	17
285	435	1111	17
286	436	1011	13
287	437	1011	13

ROM PATTERN SPEC

DEC PART NUMBR 23-A0189
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
288	440	1111	17
289	441	1111	17
290	442	1011	13
291	443	1011	13
292	444	1111	17
293	445	1111	17
294	446	1011	13
295	447	1011	13
296	450	1111	17
297	451	1111	17
298	452	1011	13
299	453	1011	13
300	454	1111	17
301	455	1111	17
302	456	1011	13
303	457	1011	13
304	460	1111	17
305	461	1111	17
306	462	1011	13
307	463	1011	13
308	464	1111	17
309	465	1111	17
310	466	1011	13
311	467	1011	13
312	470	1111	17
313	471	1111	17
314	472	1011	13
315	473	1011	13
316	474	1111	17
317	475	1111	17
318	476	1011	13
319	477	1011	13
320	500	1111	17
321	501	1111	17
322	502	1011	13
323	503	1011	13

ROM PATTERN SPEC

DEC PART NUMBER 23-A0149
ORIGINATOR: JOHN BLEDSOE
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
324	504	1111	17
325	505	1111	17
326	506	1111	17
327	507	1111	17
328	510	1111	17
329	511	1111	17
330	512	1011	13
331	513	1011	13
332	514	1111	17
333	515	1111	17
334	516	1111	17
335	517	1111	17
336	520	1111	17
337	521	1111	17
338	522	1011	13
339	523	1011	13
340	524	1111	17
341	525	1111	17
342	526	1111	17
343	527	1111	17
344	530	1111	17
345	531	1111	17
346	532	1011	13
347	533	1011	13
348	534	1111	17
349	535	1111	17
350	536	1111	17
351	537	1111	17
352	540	1111	17
353	541	1111	17
354	542	1011	13
355	543	1011	13
356	544	1111	17
357	545	1111	17
358	546	1111	17
359	547	1111	17

ROM PATTERN SPEC

DEC PART NUMBER 23-A0149
ORIGINATOR: JOHN BLEDSOE
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
360	550	1111	17
361	551	1111	17
362	552	1011	13
363	553	1011	13
364	554	1111	17
365	555	1111	17
366	556	1111	17
367	557	1111	17
368	560	1111	17
369	561	1111	17
370	562	1011	13
371	563	1011	13
372	564	1111	17
373	565	1111	17
374	566	1111	17
375	567	1111	17
376	570	1111	17
377	571	1111	17
378	572	1011	13
379	573	1011	13
380	574	1111	17
381	575	1111	17
382	576	1111	17
383	577	1111	17
384	600	1111	17
385	601	1111	17
386	602	1011	13
387	603	1011	13
388	604	1111	17
389	605	1111	17
390	606	1011	13
391	607	1011	13
392	610	1111	17
393	611	1111	17
394	612	1011	13
395	613	1011	13

ROM PATTERN SPEC

DEC PART NUMBR 23-A01A9
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 12-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
396	614	1111	17
397	615	1111	17
398	616	1011	13
399	617	1011	13
400	620	1111	17
401	621	1111	17
402	622	1011	13
403	623	1011	13
404	624	1111	17
405	625	1111	17
406	626	1011	13
407	627	1011	13
408	630	1111	17
409	631	1111	17
410	632	1011	13
411	633	1011	13
412	634	1111	17
413	635	1111	17
414	636	1011	13
415	637	1011	13
416	640	1111	17
417	641	1111	17
418	642	1011	13
419	643	1011	13
420	644	1111	17
421	645	1111	17
422	646	1011	13
423	647	1011	13
424	650	1111	17
425	651	1111	17
426	652	1011	13
427	653	1011	13
428	654	1111	17
429	655	1111	17
430	656	1011	13
431	657	1011	13

ROM PATTERN SPEC

DEC PART NUMBR 23-A01A9
ORIGINATOR: JOHN BLEDM
DATE OF ORIGIN: 12-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
432	660	1111	17
433	661	1111	17
434	662	1011	13
435	663	1011	13
436	664	1111	17
437	665	1111	17
438	666	1011	13
439	667	1011	13
440	670	1111	17
441	671	1111	17
442	672	1011	13
443	673	1011	13
444	674	1111	17
445	675	1111	17
446	676	1011	13
447	677	1011	13
448	700	1111	17
449	701	1111	17
450	702	1011	13
451	703	1011	13
452	704	1111	17
453	705	1111	17
454	706	1111	17
455	707	1111	17
456	710	1111	17
457	711	1111	17
458	712	1011	13
459	713	1011	13
460	714	1111	17
461	715	1111	17
462	716	1111	17
463	717	1111	17
464	720	1111	17
465	721	1111	17
466	722	1011	13
467	723	1011	13

210

DEC PART NUMBR: 23-A31A9
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 12-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
468	724	1111	17
469	725	1111	17
470	726	1111	17
471	727	1111	17
472	730	1111	17
473	731	1111	17
474	732	1011	13
475	733	1011	13
476	734	1111	17
477	735	1111	17
478	736	1111	17
479	737	1111	17
480	740	1111	17
481	741	1111	17
482	742	1011	13
483	743	1011	13
484	744	1111	17
485	745	1111	17
486	746	1111	17
487	747	1111	17
488	750	1111	17
489	751	1111	17
490	752	1011	13
491	753	1011	13
492	754	1111	17
493	755	1111	17
494	756	1111	17
495	757	1111	17
496	760	1111	17
497	761	1111	17
498	762	1011	13
499	763	1011	13
500	764	1111	17
501	765	1111	17
502	766	1111	17
503	767	1111	17

DEC PART NUMBR: 23-A31A9
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 12-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
504	770	1111	17
505	771	1111	17
506	772	1011	13
507	773	1011	13
508	774	1111	17
509	775	1111	17
510	776	1111	17
511	777	1111	17

ROM PATTERN SPEC

DEC PART NUMBR 23-A19A1
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-25-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	00	00000000	000
1	01	01110000	160
2	02	01000101	105
3	03	01110010	162
4	04	00000000	000
5	05	01110000	160
6	06	01000101	105
7	07	01110010	162
8	10	01110111	167
9	11	01110100	164
10	12	01101010	152
11	13	00000000	000
12	14	01110111	167
13	15	01110100	164
14	16	00001010	012
15	17	00000000	000
16	20	00000000	000
17	21	00001000	010
18	22	00000000	000
19	23	00000000	000
20	24	00000000	000
21	25	00000000	000
22	26	00010000	020
23	27	00000000	000
24	30	00000000	000
25	31	00000000	000
26	32	00000000	000
27	33	00000000	000
28	34	00000000	000
29	35	00000000	000
30	36	00000000	000
31	37	00000000	000

ROM PATTERN SPEC

DEC PART NUMBR 23-A21A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	0111	07
1	001	0111	07
2	002	0111	07
3	003	0111	07
4	004	0111	07
5	005	0111	07
6	006	0111	07
7	007	0111	07
8	010	0111	07
9	011	0111	07
10	012	0111	07
11	013	0111	07
12	014	0111	07
13	015	0111	07
14	016	0111	07
15	017	0111	07
16	020	0111	07
17	021	0111	07
18	022	0111	07
19	023	0111	07
20	024	0111	07
21	025	0111	07
22	026	0111	07
23	027	0111	07
24	030	0111	07
25	031	0111	07
26	032	0111	07
27	033	0111	07
28	034	0111	07
29	035	0111	07
30	036	0111	07
31	037	0111	07
32	040	1111	17
33	041	1111	17
34	042	1111	17
35	043	1111	17

POM PATTERN SPEC

DEC PART NUMBR 23-12182
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN 10-08-74

OCTAL LOC	BINARY DATA	OCTAL DATA
36	1111	17
37	1111	17
38	1111	17
39	1111	17
40	1111	17
41	1111	17
42	1111	17
43	1111	17
44	1111	17
45	1111	17
46	1111	17
47	1111	17
48	1111	17
49	1111	17
50	1111	17
51	1111	17
52	1111	17
53	1111	17
54	1111	17
55	1111	17
56	1111	17
57	1111	17
58	1111	17
59	1111	17
60	1111	17
61	1111	17
62	1111	17
63	1111	17
64	1111	17
65	1111	17
66	1111	17
67	1111	17
68	1111	17
69	1111	17
70	1111	17
71	1111	17

POM PATTERN SPEC

DEC PART NUMBR 23-12182
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN 10-08-74

OCTAL LOC	BINARY DATA	OCTAL DATA
72	1111	17
73	1111	17
74	1111	17
75	1111	17
76	1111	17
77	1111	17
78	1111	17
79	1111	17
80	1111	17
81	1111	17
82	1111	17
83	1111	17
84	1111	17
85	1111	17
86	1111	17
87	1111	17
88	1111	17
89	1111	17
90	1111	17
91	1111	17
92	1111	17
93	1111	17
94	1111	17
95	1111	17
96	1111	17
97	1111	17
98	1111	17
99	1111	17
100	1111	17
101	1111	17
102	1111	17
103	1111	17
104	1111	17
105	1111	17
106	1111	17
107	1111	17
110	1111	17
111	1111	17
112	1111	17
113	1111	17
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115	1111	17
116	1111	17
117	1111	17
120	1111	17
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123	1111	17
124	1111	17
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127	1111	17
130	1111	17
131	1111	17
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133	1111	17
134	1111	17
135	1111	17
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137	1111	17
140	1111	17
141	1111	17
142	1111	17
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1000	1111	17
1001	1111	17
1002	1111	17
1003	1111	17
1004	1111	17
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1006	1111	17
1007	1111	17
1010	1111	17
1011	1111	17
1012	1111	17
1013	1111	17
1014	1111	17
1015	1111	17
1016	1111	17
1017	1111	17
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1105	1111	17
1106	1111	17
1107	1111	17
1110	1111	17
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1112	1111	17
1113	1111	17
1114	1111	17
1115	1111	17
1116	1111	17
1117	1111	17
1120	1111	17
1121	1111	17
1122	1111	17
1123	1111	17
1124	1111	17
1125	1111	17
1126	1111	17
1127	1111	17
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1136	1111	17
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1171	1111	17
1172	1111	17
1173	1111	17
1174	1111	17
1175	1111	17
1176	1111	17
1177	1111	17
1200	1111	17
1201	1111	17
1202	1111	17
1203	1111	17
1204	1111	17
1205	1111	17
1206	1111	17
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1277	1111	17
1300	1111	17
1301	1111	17
1302	1111	17
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1305	1111	17
1306	1111	17
1307	1111	17
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1367	1111	17
1370	1111	17
1371	1111	17
1372	1111	17
1373	1111	17
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1471	1111	17
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1504	1111	17
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1703	1111	17
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1707	1111	17
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1727	1111	17
1730	1111	17
1731	1111	17
1732	1111	17
1733	1111	17
1734	1111	17
1735	1111	17
1736	1111	17
1737	1111	17
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1741	1111	17
1742	1111	17
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1744	1111	17
1745	1111	17
1746	1111	17
1747	1111	17
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1752	1111	17
1753	1111	17
1754	1111	17
1755	1111	17
1756	1111	17
1757	1111	17
1760	1111	17
1761	1111	17
1762	1111	17
1763	1111	17
1764	1111	17
1765	1111	17
1766	1111	17
1767	1111	17
1770

ROM PATTERN SPEC PAGE ONE — 21

DEC PART NUMBR 23-A2142
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN: 10-28-74

OCTAL LOC	OCTAL DATA
100	17
101	17
110	17
111	03
112	17
113	17
114	17
115	17
116	17
117	17
118	17
119	17
120	17
121	17
122	17
123	06
124	17
125	17
126	17
127	07
128	06
129	06
130	06
131	04
132	05
133	05
134	05
135	05
136	06
137	06
138	04
139	06
140	05
141	05
142	05
143	05

ROM PATTERN SPEC PAGE TWO — 22

DEC PART NUMBR 23-A2142
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN: 10-28-74

OCTAL LOC	OCTAL DATA
144	06
145	05
146	06
147	06
148	05
149	05
150	05
151	05
152	06
153	06
154	06
155	06
156	05
157	05
158	05
159	05
160	17
161	17
162	17
163	17
164	17
165	17
166	17
167	17
168	17
169	17
170	17
171	17
172	17
173	17
174	17
175	17
176	17
177	17
178	17
179	17

DEC PART NUMBER 23-A21A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 10-08-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1111	17
182	266	1111	17
183	267	1111	17
184	270	1111	17
185	271	1111	17
186	272	1111	17
187	273	1111	17
188	274	1111	17
189	275	1111	17
190	276	1111	17
191	277	1111	17
192	300	1111	17
193	301	1111	17
194	302	1111	17
195	303	1111	17
196	304	1111	17
197	305	1111	17
198	306	1111	17
199	307	1111	17
200	310	1111	17
201	311	1111	17
202	312	1111	17
203	313	1111	17
204	314	1111	17
205	315	1111	17
206	316	1111	17
207	317	1111	17
208	320	1111	17
209	321	1111	17
210	322	1111	17
211	323	1111	17
212	324	1111	17
213	325	1111	17
214	326	1111	17
215	327	1111	17

DEC PART NUMBER 23-A21A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 10-08-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1111	17
217	331	1111	17
218	332	1111	17
219	333	1111	17
220	334	1111	17
221	335	1111	17
222	336	1111	17
223	337	1111	17
224	340	1111	17
225	341	1111	17
226	342	1111	17
227	343	1111	17
228	344	1111	17
229	345	1111	17
230	346	1111	17
231	347	1111	17
232	350	1111	17
233	351	1111	17
234	352	1111	17
235	353	0110	06
236	354	1111	17
237	355	1111	17
238	356	1111	17
239	357	0011	03
240	360	1111	17
241	361	1111	17
242	362	1111	17
243	363	1111	17
244	364	1111	17
245	365	1111	17
246	366	1111	17
247	367	1111	17
248	370	1111	17
249	371	1111	17
250	372	1111	17
251	373	0110	06

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ROM PATTERN SPEC PAGE 1 OF 1 25

DEC PART NUMBR 23-A21A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-30-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1111	17
253	375	1111	17
254	376	1111	17
255	377	0111	07

ROM PATTERN SPEC PAGE 1 OF 1 26

DEC PART NUMBR 23-A2242
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1111	17
1	001	1110	16
2	002	1110	16
3	003	1111	17
4	004	1110	16
5	005	1111	17
6	006	1110	16
7	007	1111	17
8	010	1000	10
9	011	1111	17
10	012	1110	16
11	013	1111	17
12	014	1110	16
13	015	1111	17
14	016	1110	16
15	017	1111	17
16	020	1111	17
17	021	1110	16
18	022	1110	16
19	023	1111	17
20	024	1111	17
21	025	1110	16
22	026	1111	17
23	027	1110	16
24	030	1110	16
25	031	1111	17
26	032	1110	16
27	033	1111	17
28	034	1111	17
29	035	1110	16
30	036	1110	16
31	037	1111	17
32	040	1111	17
33	041	1110	16
34	042	1111	17
[illegible]	043	1110	16

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ROM PATTERN SPEC PAGE 8

DEC PART NUMBER 23-A22A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1110	16
37	045	1111	17
38	046	1111	17
39	047	1110	16
40	050	1000	10
41	051	1111	17
42	052	1111	17
43	053	1110	16
44	054	1110	16
45	055	1111	17
46	056	1110	16
47	057	1111	17
48	060	1111	17
49	061	1110	16
50	062	1111	17
51	063	1110	16
52	064	1111	17
53	065	1110	16
54	066	1111	17
55	067	1110	16
56	070	1110	16
57	071	1111	17
58	072	1111	17
59	073	1110	16
60	074	1111	17
61	075	1110	16
62	076	1110	16
63	077	1111	17
64	100	0011	03
65	101	1100	14
66	102	1100	14
67	103	0101	05
68	104	1111	17
69	105	1110	16
70	106	1111	17
71	107	0110	06

ROM PATTERN SPEC PAGE 9 OF 18

DEC PART NUMBER 23-A22A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	0011	03
73	111	0100	04
74	112	1100	14
75	113	0101	05
76	114	1110	16
77	115	0111	07
78	116	1110	16
79	117	0111	07
80	120	1111	17
81	121	1110	16
82	122	1111	17
83	123	1111	17
84	124	1110	16
85	125	1111	17
86	126	1110	16
87	127	1111	17
88	130	1111	17
89	131	1110	16
90	132	1110	16
91	133	1111	17
92	134	1111	17
93	135	1110	16
94	136	1110	16
95	137	1111	17
96	140	0011	03
97	141	0100	04
98	142	1111	17
99	143	0100	04
100	144	1111	17
101	145	0110	06
102	146	1111	17
103	147	0110	06
104	150	0011	03
105	151	0100	04
106	152	1111	17
107	153	0100	04

ROM PATTERN SPEC [redacted] 29

DEC PART NUMBR 23-A22A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1110	16
109	155	0111	07
110	156	1110	16
111	157	0111	07
112	160	1111	17
113	161	1110	16
114	162	1111	17
115	163	1110	16
116	164	1110	16
117	165	1111	17
118	166	1111	17
119	167	1110	16
120	170	1111	17
121	171	1110	16
122	172	1111	17
123	173	1110	16
124	174	1111	17
125	175	1110	16
126	176	1110	16
127	177	1111	17
128	200	0001	01
129	201	1110	16
130	202	1110	16
131	203	1111	17
132	204	1110	16
133	205	1111	17
134	206	1110	16
135	207	1111	17
136	210	1110	16
137	211	1111	17
138	212	1111	17
139	213	1110	16
140	214	1110	16
141	215	1111	17
142	216	1111	17
143	217	1110	16

ROM PATTERN SPEC [redacted] 30

DEC PART NUMBR 23-A22A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1111	17
145	221	1110	16
146	222	1110	16
147	223	1111	17
148	224	1111	17
149	225	1110	16
150	226	1111	17
151	227	1110	16
152	230	1110	16
153	231	1111	17
154	232	1111	17
155	233	1110	16
156	234	1111	17
157	235	1110	16
158	236	1111	17
159	237	1110	16
160	240	1011	13
161	241	1110	16
162	242	1111	17
163	243	1110	16
164	244	1110	16
165	245	1111	17
166	246	1111	17
167	247	1110	16
168	250	1110	16
169	251	1111	17
170	252	1111	17
171	253	1110	16
172	254	1110	16
173	255	1111	17
174	256	1111	17
175	257	1110	16
176	260	1111	17
177	261	1110	16
178	262	1111	17
179	263	1110	16

ROM PATTERN SPEC

DEC PART NUMBER 23-A2242
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1110	16
182	266	1111	17
183	267	1110	16
184	270	1110	16
185	271	1111	17
186	272	1111	17
187	273	1110	16
188	274	1111	17
189	275	1110	16
190	276	1111	17
191	277	1110	16
192	300	0011	03
193	301	0100	04
194	302	1110	16
195	303	0101	05
196	304	1111	17
197	305	0110	06
198	306	1111	17
199	307	0110	06
200	310	0011	03
201	311	0100	04
202	312	1111	17
203	313	0100	04
204	314	1110	16
205	315	0111	07
206	316	1111	17
207	317	0110	06
208	320	1111	17
209	321	1110	16
210	322	1110	16
211	323	1111	17
212	324	1110	16
213	325	1111	17
214	326	1110	16
215	327	1111	17

ROM PATTERN SPEC

DEC PART NUMBER 23-A2242
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1111	17
217	331	1110	16
218	332	1111	17
219	333	1110	16
220	334	1111	17
221	335	1110	16
222	336	1111	17
223	337	1110	16
224	340	0011	03
225	341	0100	04
226	342	1111	17
227	343	0100	04
228	344	1111	17
229	345	0110	06
230	346	1111	17
231	347	0110	06
232	350	0011	03
233	351	0100	04
234	352	1111	17
235	353	0100	04
236	354	1110	16
237	355	0111	07
238	356	1111	17
239	357	0110	06
240	360	1111	17
241	361	1110	16
242	362	1111	17
243	363	1110	16
244	364	1110	16
245	365	1111	17
246	366	1110	16
247	367	1110	16
248	370	1111	17
249	371	1110	16
250	372	1111	17
251	373	1110	16

ROM PATTERN SPEC

DEC PART NUMBR 23-A22A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGTN: 5-MAR-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1111	17
253	375	1110	16
254	376	1111	17
255	377	1110	16

ROM PATTERN SPEC

DEC PART NUMBR 23-A22A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGTN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	0000	00
1	001	0111	07
2	002	0111	07
3	003	0111	07
4	004	0111	07
5	005	0111	07
6	006	0111	07
7	007	0111	07
8	010	1111	17
9	011	0111	07
10	012	0111	07
11	013	0111	07
12	014	0111	07
13	015	0111	07
14	016	0111	07
15	017	0111	07
16	020	1110	16
17	021	0111	07
18	022	0111	07
19	023	0111	07
20	024	0111	07
21	025	0111	07
22	026	0111	07
23	027	0111	07
24	030	1111	17
25	031	0111	07
26	032	0111	07
27	033	0111	07
28	034	0111	07
29	035	0111	07
30	036	0111	07
31	037	0111	07
32	040	1111	17
33	041	1111	17
34	042	1111	17
35	043	1111	17

DEC PART NUMBER 23-A23A2
ORIGINATOR: JOHN F BLOFM
DATE OF ORIGIN: 19-MAY-75

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1111	17
37	045	1111	17
38	046	1111	17
39	047	1111	17
40	050	1111	17
41	051	1111	17
42	052	1111	17
43	053	1111	17
44	054	1111	17
45	055	1111	17
46	056	1111	17
47	057	1111	17
48	060	1111	17
49	061	1111	17
50	062	1111	17
51	063	1111	17
52	064	1111	17
53	065	1111	17
54	066	1111	17
55	067	1111	17
56	070	1111	17
57	071	1111	17
58	072	1111	17
59	073	1111	17
60	074	1111	17
61	075	1111	17
62	076	1111	17
63	077	1111	17
64	100	1111	17
65	101	1111	17
66	102	0111	07
67	103	1111	17
68	104	0111	07
69	105	1111	17
70	106	0111	07
71	107	1111	17

DEC PART NUMBER 23-A23A2
ORIGINATOR: JOHN F BLOFM
DATE OF ORIGIN: 19-MAY-75

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	1111	17
73	111	1111	17
74	112	0111	07
75	113	1111	17
76	114	0111	07
77	115	1111	17
78	116	0111	07
79	117	1111	17
80	120	1111	17
81	121	1111	17
82	122	0111	07
83	123	1111	17
84	124	0111	07
85	125	1111	17
86	126	0111	07
87	127	1111	17
88	130	1111	17
89	131	1111	17
90	132	0111	07
91	133	1111	17
92	134	0111	07
93	135	1111	17
94	136	0111	07
95	137	1111	17
96	140	1111	17
97	141	1111	17
98	142	1111	17
99	143	1111	17
100	144	1111	17
101	145	1111	17
102	146	1111	17
103	147	1111	17
104	150	1111	17
105	151	1111	17
106	152	1111	17
107	153	1111	17

ROM PATTERN SPEC PAGE 37

DEC PART NUMBER 23-A2342
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1111	17
109	155	1111	17
110	156	1111	17
111	157	1111	17
112	160	1111	17
113	161	1111	17
114	162	1111	17
115	163	1111	17
116	164	1111	17
117	165	1111	17
118	166	1111	17
119	167	1111	17
120	170	1111	17
121	171	1111	17
122	172	1111	17
123	173	1111	17
124	174	1111	17
125	175	1111	17
126	176	1111	17
127	177	1111	17
128	200	1111	17
129	201	0111	07
130	202	0111	07
131	203	0111	07
132	204	0111	07
133	205	0111	07
134	206	0111	07
135	207	0111	07
136	210	0011	03
137	211	0111	07
138	212	0111	07
139	213	0111	07
140	214	0111	07
141	215	0111	07
142	216	0111	07
143	217	0111	07

ROM PATTERN SPEC PAGE 38

DEC PART NUMBER 23-A2342
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1111	17
145	221	0111	07
146	222	0111	07
147	223	0111	07
148	224	0111	07
149	225	0111	07
150	226	0111	07
151	227	0111	07
152	230	0111	07
153	231	0111	07
154	232	0111	07
155	233	0111	07
156	234	0111	07
157	235	0111	07
158	236	0111	07
159	237	0111	07
160	240	1111	17
161	241	1111	17
162	242	1111	17
163	243	1111	17
164	244	1111	17
165	245	1111	17
166	246	1111	17
167	247	1111	17
168	250	1111	17
169	251	1111	17
170	252	1111	17
171	253	1111	17
172	254	1111	17
173	255	1111	17
174	256	1111	17
175	257	1111	17
176	260	1111	17
177	261	1111	17
178	262	1111	17
179	263	1111	17

DEC PART NUMBR 23-A23A2
ORIGINATOR: JOHN E BLOFM
DATE OF ORIGIN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1111	17
182	266	1111	17
183	267	1111	17
184	270	1111	17
185	271	1111	17
186	272	1111	17
187	273	1111	17
188	274	1111	17
189	275	1111	17
190	276	1111	17
191	277	1111	17
192	300	1111	17
193	301	1111	17
194	302	0111	07
195	303	1111	17
196	304	0111	07
197	305	1111	17
198	306	0111	07
199	307	1111	17
200	310	1111	17
201	311	1111	17
202	312	0111	07
203	313	1111	17
204	314	0111	07
205	315	1111	17
206	316	0111	07
207	317	1111	17
208	320	1111	17
209	321	1111	17
210	322	0111	07
211	323	1111	17
212	324	0111	07
213	325	1111	17
214	326	0111	07
215	327	1111	17

DEC PART NUMBR 23-A23A2
ORIGINATOR: JOHN E BLOFM
DATE OF ORIGIN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1111	17
217	331	1111	17
218	332	0111	07
219	333	1111	17
220	334	0111	07
221	335	1111	17
222	336	0111	07
223	337	1111	17
224	340	1111	17
225	341	1111	17
226	342	1111	17
227	343	1111	17
228	344	1111	17
229	345	1111	17
230	346	1111	17
231	347	1111	17
232	350	1111	17
233	351	1111	17
234	352	1111	17
235	353	1111	17
236	354	1111	17
237	355	1111	17
238	356	1111	17
239	357	1111	17
240	360	1111	17
241	361	1111	17
242	362	1111	17
243	363	1111	17
244	364	1111	17
245	365	1111	17
246	366	1111	17
247	367	1111	17
248	370	1111	17
249	371	1111	17
250	372	1111	17
251	373	1111	17

DEC PART NUMB. 23-A23A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 19-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1111	17
253	375	1111	17
254	376	1111	17
255	377	1111	17

DEC PART NUMB: 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	0111	07
1	001	0101	05
2	002	0111	07
3	003	0100	04
4	004	0111	07
5	005	1101	15
6	006	0111	07
7	007	1100	14
8	010	0111	07
9	011	0101	05
10	012	0111	07
11	013	0100	04
12	014	0111	07
13	015	1101	15
14	016	0111	07
15	017	1100	14
16	020	0111	07
17	021	0111	07
18	022	0111	07
19	023	0111	07
20	024	0111	07
21	025	0111	07
22	026	0111	07
23	027	0111	07
24	030	0111	07
25	031	0111	07
26	032	0111	07
27	033	0111	07
28	034	0111	07
29	035	0111	07
30	036	0111	07
31	037	0111	07
32	040	0111	07
33	041	0011	03
34	042	0111	07
35	043	0010	02

ROM PATTERN SPEC 43

DEC PART NUMBR 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	0111	07
37	045	0011	03
38	046	0111	07
39	047	0010	02
40	050	0111	07
41	051	1011	13
42	052	0111	07
43	053	1010	12
44	054	0111	07
45	055	1011	13
46	056	0111	07
47	057	1010	12
48	060	0111	07
49	061	0111	07
50	062	0111	07
51	063	0111	07
52	064	0111	07
53	065	0111	07
54	066	0111	07
55	067	0111	07
56	070	0111	07
57	071	0111	07
58	072	0111	07
59	073	0111	07
60	074	0111	07
61	075	0111	07
62	076	0111	07
63	077	0111	07
64	100	0111	07
65	101	0101	05
66	102	0111	07
67	103	0101	05
68	104	0111	07
69	105	1101	15
70	106	0111	07
71	107	1101	15

ROM PATTERN SPEC 44

DEC PART NUMBR 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	0111	07
73	111	0100	04
74	112	0111	07
75	113	0100	04
76	114	0111	07
77	115	1100	14
78	116	0111	07
79	117	1100	14
80	120	0111	07
81	121	0111	07
82	122	0111	07
83	123	0111	07
84	124	0111	07
85	125	0111	07
86	126	0111	07
87	127	0111	07
88	130	0111	07
89	131	0111	07
90	132	0111	07
91	133	0111	07
92	134	0111	07
93	135	0111	07
94	136	0111	07
95	137	0111	07
96	140	0111	07
97	141	0011	03
98	142	0111	07
99	143	0011	03
100	144	0111	07
101	145	0011	03
102	146	0111	07
103	147	0011	03
104	150	0111	07
105	151	1011	13
106	152	0111	07
107	153	1011	13

DEC PART NUMBR 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	0111	07
109	155	1011	13
110	156	0111	07
111	157	1011	13
112	160	0111	07
113	161	0111	07
114	162	0111	07
115	163	0111	07
116	164	0111	07
117	165	0111	07
118	166	0111	07
119	167	0111	07
120	170	0111	07
121	171	0111	07
122	172	0111	07
123	173	0111	07
124	174	0111	07
125	175	0111	07
126	176	0111	07
127	177	0111	07
128	200	0111	07
129	201	0111	07
130	202	0111	07
131	203	0111	07
132	204	0111	07
133	205	0111	07
134	206	0111	07
135	207	0111	07
136	210	0111	07
137	211	0111	07
138	212	0111	07
139	213	0111	07
140	214	0111	07
141	215	0111	07
142	216	0111	07
143	217	0111	07

DEC PART NUMBR 23-A24A3
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	0111	07
145	221	0111	07
146	222	0111	07
147	223	0111	07
148	224	0111	07
149	225	0111	07
150	226	0111	07
151	227	0111	07
152	230	0111	07
153	231	0111	07
154	232	0111	07
155	233	0111	07
156	234	0111	07
157	235	0111	07
158	236	0111	07
159	237	0111	07
160	240	0111	07
161	241	0111	07
162	242	0111	07
163	243	0111	07
164	244	0111	07
165	245	0111	07
166	246	0111	07
167	247	0111	07
168	250	0111	07
169	251	0111	07
170	252	0111	07
171	253	0111	07
172	254	0111	07
173	255	0111	07
174	256	0111	07
175	257	0111	07
176	260	0111	07
177	261	0111	07
178	262	0111	07
179	263	0111	07

ROM PATTERN SPEC

DEC PART NUMBR 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	0111	07
181	265	0111	07
182	266	0111	07
183	267	0111	07
184	270	0111	07
185	271	0111	07
186	272	0111	07
187	273	0111	07
188	274	0111	07
189	275	0111	07
190	276	0111	07
191	277	0111	07
192	300	0111	07
193	301	0111	07
194	302	0111	07
195	303	0111	07
196	304	0111	07
197	305	0111	07
198	306	0111	07
199	307	0111	07
200	310	0111	07
201	311	0111	07
202	312	0111	07
203	313	0111	07
204	314	0111	07
205	315	0111	07
206	316	0111	07
207	317	0111	07
208	320	0111	07
209	321	0111	07
210	322	0111	07
211	323	0111	07
212	324	0111	07
213	325	0111	07
214	326	0111	07
215	327	0111	07

ROM PATTERN SPEC

DEC PART NUMBR 23-A24A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-4-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	0111	07
217	331	0111	07
218	332	0111	07
219	333	0111	07
220	334	0111	07
221	335	0111	07
222	336	0111	07
223	337	0111	07
224	340	0111	07
225	341	0111	07
226	342	0111	07
227	343	0111	07
228	344	0111	07
229	345	0111	07
230	346	0111	07
231	347	0111	07
232	350	0111	07
233	351	0111	07
234	352	0111	07
235	353	0111	07
236	354	0111	07
237	355	0111	07
238	356	0111	07
239	357	0111	07
240	360	0111	07
241	361	0111	07
242	362	0111	07
243	363	0111	07
244	364	0111	07
245	365	0111	07
246	366	0111	07
247	367	0111	07
248	370	0111	07
249	371	0111	07
250	372	0111	07
251	373	0111	07

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ROM PATTERN SPEC

DEC PART NUMBER 23-A2A42
ORIGINATOR JOHN E HLOOM
DATE OF ORIGIN 10-4-74

OCTAL LOC	OCTAL DATA
252	17
253	17
254	25
255	06

50

ROM PATTERN SPEC

DEC PART NUMBER 23-A2A42
ORIGINATOR JOHN E HLOOM
DATE OF ORIGIN 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA
0	000	1111
1	001	1111
2	002	0101
3	003	0003
4	004	1111
5	005	1111
6	006	1111
7	007	0030
8	010	1111
9	011	1111
10	012	0011
11	013	1111
12	014	1111
13	015	1111
14	016	0011
15	017	1111
16	020	1111
17	021	1111
18	022	0101
19	023	1113
20	024	1111
21	025	1111
22	026	1111
23	027	1113
24	030	1111
25	031	1111
26	032	2003
27	033	3111
28	034	1111
29	035	1111
30	036	0011
31	037	1111
32	040	1111
33	041	1111
34	042	0101
35	043	2032

S1

OCTAL DATA

```
17
17
00

17
03
17

17
03
17

17
05
17

17
17
17

17
03
17

17
17
03
17

17
17
00

17
17
00
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ROM PATTERN SPEC

DEC PART NUMBR 23-A25A2
ORIGINATOR: JOHN E ALDEN
DATE OF ORIGIN: 10-09-74

OCTAL LOC	BINARY DATA
044	1111
045	1111
046	1111
047	0000
050	1111
051	1111
052	0011
053	1111
054	1111
055	1111
056	0011
057	1111
060	1111
061	1111
062	0101
063	1111
064	1111
065	1111
066	1111
067	1111
070	1111
071	1111
072	0011
073	1111
074	1111
075	1111
076	0011
077	1111
100	1111
101	1111
102	1111
103	0000
104	1111
105	1111
106	1111
107	0000

S2

OCTAL DATA

```
17
17
03
17

17
17
03
17

17
17
17
17

17
17
17
17

17
17
03
17

17
17
03
17

17
17
00

17
17
00

17
17
03
17
```

ROM PATTERN SPEC

DEC PART NUMBR 23-A25A2
ORIGINATOR: JOHN E ALDEN
DATE OF ORIGIN: 10-09-74

OCTAL LOC	BINARY DATA
110	1111
111	1111
112	0011
113	1111
114	1111
115	1111
116	0011
117	1111
120	1111
121	1111
122	1111
123	1111
124	1111
125	1111
126	1111
127	1111
130	1111
131	1111
132	0011
133	1111
134	1111
135	1111
136	0011
137	1111
140	1111
141	1111
142	1111
143	0000
144	1111
145	1111
146	1111
147	0000
150	1111
151	1111
152	0011
153	1111

DEC PART NUMBR 23-A25A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1111	17
109	155	1111	17
110	156	0011	03
111	157	1111	17
112	160	1111	17
113	161	1111	17
114	162	1111	17
115	163	1111	17
116	164	1111	17
117	165	1111	17
118	166	1111	17
119	167	1111	17
120	170	1111	17
121	171	1111	17
122	172	0011	03
123	173	1111	17
124	174	1111	17
125	175	1111	17
126	176	0011	03
127	177	1111	17
128	200	0110	06
129	201	1111	17
130	202	0101	05
131	203	0000	00
132	204	1111	17
133	205	1111	17
134	206	1111	17
135	207	0000	00
136	210	1111	17
137	211	1111	17
138	212	0011	03
139	213	1111	17
140	214	1111	17
141	215	1111	17
142	216	0011	03
143	217	1111	17

DEC PART NUMBR 23-A25A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1111	17
145	221	1111	17
146	222	0101	05
147	223	1111	17
148	224	1111	17
149	225	1111	17
150	226	1111	17
151	227	1111	17
152	230	1111	17
153	231	1111	17
154	232	0011	03
155	233	1111	17
156	234	1111	17
157	235	1111	17
158	236	0011	03
159	237	1111	17
160	240	0100	04
161	241	1111	17
162	242	0101	05
163	243	0000	00
164	244	1111	17
165	245	1111	17
166	246	1111	17
167	247	0000	00
168	250	1111	17
169	251	1111	17
170	252	0011	03
171	253	1111	17
172	254	1111	17
173	255	1111	17
174	256	0011	03
175	257	1111	17
176	260	1111	17
177	261	1111	17
178	262	0101	05
179	263	1111	17

ROM PATTERN SPEC PAGE 55

DEC PART NUMB: 23-A25A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1111	17
182	266	1111	17
183	267	1111	17
184	270	1111	17
185	271	1111	17
186	272	0010	02
187	273	1111	17
188	274	1111	17
189	275	1111	17
190	276	0010	02
191	277	1111	17
192	300	1111	17
193	301	1111	17
194	302	1111	17
195	303	0000	00
196	304	1111	17
197	305	1111	17
198	306	1111	17
199	307	0000	00
200	310	1111	17
201	311	1111	17
202	312	0011	03
203	313	1111	17
204	314	1111	17
205	315	1111	17
206	316	0011	03
207	317	1111	17
208	320	1111	17
209	321	1111	17
210	322	1111	17
211	323	1111	17
212	324	1111	17
213	325	1111	17
214	326	1111	17
215	327	1111	17

ROM PATTERN SPEC PAGE 5 OF 8 56

DEC PART NUMB: 23-A25A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1111	17
217	331	1111	17
218	332	0011	03
219	333	1111	17
220	334	1111	17
221	335	1111	17
222	336	0011	03
223	337	1111	17
224	340	0100	04
225	341	1111	17
226	342	1111	17
227	343	0000	00
228	344	1111	17
229	345	1111	17
230	346	1111	17
231	347	0000	00
232	350	1111	17
233	351	1111	17
234	352	0011	03
235	353	1111	17
236	354	1111	17
237	355	1111	17
238	356	0011	03
239	357	1111	17
240	360	1111	17
241	361	1111	17
242	362	1111	17
243	363	1111	17
244	364	1111	17
245	365	1111	17
246	366	0011	03
247	367	1111	17
248	370	1111	17
249	371	1111	17
250	372	1010	12
251	373	1111	17

ROM PATTERN SPEC

DEC PART NUMBR 23-A25A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-29-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1111	17
253	375	1111	17
254	376	0010	02
255	377	1111	17

ROM PATTERN SPEC

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-29-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1110	16
1	001	1110	16
2	002	1110	16
3	003	1110	16
4	004	1110	16
5	005	1110	16
6	006	0100	04
7	007	1110	16
8	010	1110	16
9	011	1110	16
10	012	1110	16
11	013	0110	06
12	014	1110	16
13	015	1110	16
14	016	1110	16
15	017	0110	06
16	020	1110	16
17	021	1110	16
18	022	1110	16
19	023	0110	06
20	024	1110	16
21	025	1110	16
22	026	1000	10
23	027	0110	06
24	030	1110	16
25	031	1110	16
26	032	1110	16
27	033	0110	06
28	034	1110	16
29	035	1110	16
30	036	1110	16
31	037	0110	06
32	040	1110	16
33	041	1110	16
34	042	1110	16
35	043	1110	16

ROM PATTERN SPEC

DEC PART NUMBER 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1110	16
37	045	1110	16
38	046	0100	04
39	047	1110	16
40	050	1110	16
41	051	1110	16
42	052	1110	16
43	053	0110	06
44	054	1110	16
45	055	1110	16
46	056	1110	16
47	057	0110	06
48	060	1110	16
49	061	1110	16
50	062	1110	16
51	063	0110	06
52	064	1110	16
53	065	1110	16
54	066	1000	10
55	067	0110	06
56	070	1110	16
57	071	1110	16
58	072	1110	16
59	073	0110	06
60	074	1110	16
61	075	1110	16
62	076	1110	16
63	077	0110	06
64	100	1110	16
65	101	1110	16
66	102	1010	12
67	103	1110	16
68	104	1110	16
69	105	1110	16
70	106	0100	04
71	107	1110	16

ROM PATTERN SPEC

DEC PART NUMBER 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	1110	16
73	111	1110	16
74	112	1110	16
75	113	0110	06
76	114	1110	16
77	115	1110	16
78	116	1110	16
79	117	0110	06
80	120	1110	16
81	121	1110	16
82	122	1010	12
83	123	0110	06
84	124	1110	16
85	125	1110	16
86	126	1000	10
87	127	0110	06
88	130	1110	16
89	131	1110	16
90	132	1110	16
91	133	0110	06
92	134	1110	16
93	135	1110	16
94	136	1110	16
95	137	0110	06
96	140	1010	12
97	141	1110	16
98	142	1010	12
99	143	1110	16
100	144	1110	16
101	145	1110	16
102	146	0100	04
103	147	1110	16
104	150	1110	16
105	151	1110	16
106	152	1110	16
107	153	0110	06

ROM PATTERN SPEC PAGE 4 OF 8 61

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1110	16
109	155	1110	16
110	156	1110	16
111	157	0110	06
112	160	1110	16
113	161	1110	16
114	162	1010	12
115	163	0110	06
116	164	1110	16
117	165	1110	16
118	166	1000	10
119	167	0110	06
120	170	1110	16
121	171	1110	16
122	172	1110	16
123	173	0110	06
124	174	1110	16
125	175	1110	16
126	176	1110	16
127	177	0110	06
128	200	1110	16
129	201	1110	16
130	202	1110	16
131	203	1110	16
132	204	1110	16
133	205	1110	16
134	206	0100	04
135	207	1110	16
136	210	1110	16
137	211	1110	16
138	212	1110	16
139	213	0110	06
140	214	1110	16
141	215	1110	16
142	216	1110	16
143	217	0110	06

ROM PATTERN SPEC PAGE 5 OF 8 62

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1110	16
145	221	1110	16
146	222	1110	16
147	223	0110	06
148	224	1110	16
149	225	1110	16
150	226	1000	10
151	227	0110	06
152	230	1110	16
153	231	1110	16
154	232	1110	16
155	233	0110	06
156	234	1110	16
157	235	1110	16
158	236	1110	16
159	237	0110	06
160	240	1110	16
161	241	1110	16
162	242	1110	16
163	243	1110	16
164	244	1110	16
165	245	1110	16
166	246	0100	04
167	247	1110	16
168	250	1110	16
169	251	1110	16
170	252	1110	16
171	253	0110	06
172	254	1110	16
173	255	1110	16
174	256	1110	16
175	257	0110	06
176	260	1110	16
177	261	1110	16
178	262	1110	16
179	263	0110	06

ROM PATTERN SPEC

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-29-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1110	16
181	265	1110	16
182	266	1000	10
183	267	0110	06
184	270	1110	16
185	271	1110	16
186	272	1110	16
187	273	0110	06
188	274	1110	16
189	275	1110	16
190	276	1110	16
191	277	0110	06
192	300	1110	16
193	301	1110	16
194	302	1010	12
195	303	1110	16
196	304	1110	16
197	305	1110	16
198	306	0100	04
199	307	1110	16
200	310	1110	16
201	311	1110	16
202	312	1110	16
203	313	0110	06
204	314	1110	16
205	315	1110	16
206	316	1110	16
207	317	0110	06
208	320	1110	16
209	321	1110	16
210	322	1010	12
211	323	0110	06
212	324	1110	16
213	325	1110	16
214	326	1000	10
215	327	0110	06

ROM PATTERN SPEC

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-29-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1110	16
217	331	1110	16
218	332	1110	16
219	333	0110	06
220	334	1110	16
221	335	1110	16
222	336	1110	16
223	337	0110	06
224	340	1110	16
225	341	1110	16
226	342	1010	12
227	343	1110	16
228	344	1110	16
229	345	1110	16
230	346	0100	04
231	347	1110	16
232	350	1110	16
233	351	1110	16
234	352	1110	16
235	353	0110	06
236	354	1110	16
237	355	1110	16
238	356	1110	16
239	357	0110	06
240	360	1110	16
241	361	1110	16
242	362	1010	12
243	363	0110	06
244	364	1110	16
245	365	1110	16
246	366	1000	10
247	367	0110	06
248	370	1110	16
249	371	1110	16
250	372	1110	16
251	373	0110	06

ROM PATTERN SPEC PAGE 65

DEC PART NUMBR 23-A26A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1110	16
253	375	1110	16
254	376	1110	16
255	377	0110	06

ROM PATTERN SPEC PAGE 1 OF 0 66

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1111	17
1	001	0111	07
2	002	0111	07
3	003	0111	07
4	004	1111	17
5	005	1111	17
6	006	1111	17
7	007	1111	17
8	010	0000	00
9	011	0000	00
10	012	0000	00
11	013	0000	00
12	014	0000	00
13	015	0000	00
14	016	0000	00
15	017	0000	00
16	020	0000	00
17	021	0000	00
18	022	0000	00
19	021	0000	00
20	024	0000	00
21	025	0000	00
22	026	0000	00
23	027	0000	00
24	030	0000	00
25	031	0000	00
26	032	0000	00
27	033	0000	00
28	034	0000	00
29	035	0000	00
30	036	0000	00
31	037	0000	00
32	040	1111	17
33	041	1110	16
34	042	0111	07
35	043	0111	07

ROM PATTERN SPEC PAGE 1 OF 8 67

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1111	17
37	045	1111	17
38	046	1111	17
39	047	1111	17
40	050	0000	00
41	051	0000	00
42	052	0000	00
43	053	0000	00
44	054	0000	00
45	055	0000	00
46	056	0000	00
47	057	0000	00
48	060	0000	00
49	061	0000	00
50	062	0000	00
51	063	0000	00
52	064	0000	00
53	065	0000	00
54	066	0000	00
55	067	0000	00
56	070	0000	00
57	071	0000	00
58	072	0000	00
59	073	0000	00
60	074	0000	00
61	075	0000	00
62	076	0000	00
63	077	0000	00
64	100	1111	17
65	101	1111	17
66	102	1111	17
67	103	1111	17
68	104	1111	17
69	105	0101	05
70	106	0101	05
71	107	0101	05

ROM PATTERN SPEC PAGE 1 OF 8 68

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	0000	00
73	111	0000	00
74	112	0000	00
75	113	0000	00
76	114	0000	00
77	115	0000	00
78	116	0000	00
79	117	0000	00
80	120	0000	00
81	121	0000	00
82	122	0000	00
83	123	0000	00
84	124	0000	00
85	125	0000	00
86	126	0000	00
87	127	0000	00
88	130	0000	00
89	131	0000	00
90	132	0000	00
91	133	0000	00
92	134	0000	00
93	135	0000	00
94	136	0000	00
95	137	0000	00
96	140	1111	17
97	141	1111	17
98	142	1111	17
99	143	1111	17
100	144	1111	17
101	145	0101	05
102	146	0101	05
103	147	0101	05
104	150	0000	00
105	151	0000	00
106	152	0000	00
107	153	0000	00

ROM PATTERN SPEC PAGE 8 OF 8 69

DEC PART NUMBER 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	0000	00
109	155	0000	00
110	156	0000	00
111	157	0000	00
112	160	0000	00
113	161	0000	00
114	162	0000	00
115	163	0000	00
116	164	0000	00
117	165	0000	00
118	166	0000	00
119	167	0000	00
120	170	0000	00
121	171	0000	00
122	172	0000	00
123	173	0000	00
124	174	0000	00
125	175	0000	00
126	176	0000	00
127	177	0000	00
128	200	0110	06
129	201	0110	06
130	202	0111	07
131	203	1011	13
132	204	1111	17
133	205	1111	17
134	206	1111	17
135	207	1011	13
136	210	0000	00
137	211	0000	00
138	212	0000	00
139	213	0000	00
140	214	0000	00
141	215	0000	00
142	216	0000	00
143	217	0000	00

ROM PATTERN SPEC PAGE 9 OF 9 70

DEC PART NUMBER 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	0000	00
145	221	0000	00
146	222	0000	00
147	223	0000	00
148	224	0000	00
149	225	0000	00
150	226	0000	00
151	227	0000	00
152	230	0000	00
153	231	0000	00
154	232	0000	00
155	233	0000	00
156	234	0000	00
157	235	0000	00
158	236	0000	00
159	237	0000	00
160	240	0110	06
161	241	0110	06
162	242	0111	07
163	243	1011	13
164	244	1111	17
165	245	1111	17
166	246	1111	17
167	247	1011	13
168	250	0000	00
169	251	0000	00
170	252	0000	00
171	253	0000	00
172	254	0000	00
173	255	0000	00
174	256	0000	00
175	257	0000	00
176	260	0000	00
177	261	0000	00
178	262	0000	00
179	263	0000	00

ROM PATTERN SPEC

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	0000	00
181	265	0000	00
182	266	0000	00
183	267	0000	00
184	270	0000	00
185	271	0000	00
186	272	0000	00
187	273	0000	00
188	274	0000	00
189	275	0000	00
190	276	0000	00
191	277	0000	00
192	300	1111	17
193	301	1111	17
194	302	1111	17
195	303	1011	13
196	304	0101	05
197	305	0101	05
198	306	0101	05
199	307	1011	13
200	310	0000	00
201	311	0000	00
202	312	0000	00
203	313	0000	00
204	314	0000	00
205	315	0000	00
206	316	0000	00
207	317	0000	00
208	320	0000	00
209	321	0000	00
210	322	0000	00
211	323	0000	00
212	324	0000	00
213	325	0000	00
214	326	0000	00
215	327	0000	00

ROM PATTERN SPEC

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	0000	00
217	331	0000	00
218	332	0000	00
219	333	0000	00
220	334	0000	00
221	335	0000	00
222	336	0000	00
223	337	0000	00
224	340	1111	17
225	341	1111	17
226	342	1111	17
227	343	1011	13
228	344	0101	05
229	345	0101	05
230	346	0101	05
231	347	1011	13
232	350	0000	00
233	351	0000	00
234	352	0000	00
235	353	0000	00
236	354	0000	00
237	355	0000	00
238	356	0000	00
239	357	0000	00
240	360	0000	00
241	361	0000	00
242	362	0000	00
243	363	0000	00
244	364	0000	00
245	365	0000	00
246	366	0000	00
247	367	0000	00
248	370	0000	00
249	371	0000	00
250	372	0000	00
251	373	0000	00

ROM PATTERN SPEC

DEC PART NUMBR 23-A27A2
ORIGINATOR: JOHN E BLOOM
DATE OF ORIGIN: 10-3-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	0000	00
253	375	0000	00
254	376	0000	00
255	377	0000	00

ROM PATTERN SPEC

DEC PART NUMBR 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1010	12
1	001	0011	03
2	002	1010	12
3	003	0011	03
4	004	0010	02
5	005	0011	03
6	006	0010	02
7	007	0011	03
8	010	1010	12
9	011	0011	03
10	012	1010	12
11	013	0011	03
12	014	1110	16
13	015	0011	03
14	016	1110	16
15	017	0011	03
16	020	0010	02
17	021	1011	13
18	022	0010	02
19	023	1011	13
20	024	0010	02
21	025	0011	03
22	026	0010	02
23	027	0011	03
24	030	0010	02
25	031	1011	13
26	032	0011	03
27	033	1011	13
28	034	1110	16
29	035	0011	03
30	036	1110	16
31	037	0011	03
32	040	1110	16
33	041	0111	07
34	042	1110	16
35	043	0111	07

ROM PATTERN SPEC

DEC PART NUMBR 23-A2942
ORIGINATOR: JOHN RLOFM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	0110	06
37	045	0011	03
38	046	0110	06
39	047	0011	03
40	050	1110	16
41	051	0111	07
42	052	1110	16
43	053	0111	07
44	054	1010	12
45	055	0011	03
46	056	1010	12
47	057	0011	03
48	060	1010	12
49	061	0011	03
50	062	1000	10
51	063	0011	03
52	064	0110	06
53	065	0011	03
54	066	0110	06
55	067	0011	03
56	070	1010	12
57	071	0011	03
58	072	1010	12
59	073	0011	03
60	074	1010	12
61	075	0011	03
62	076	1010	12
63	077	0011	03
64	100	0010	02
65	101	1011	13
66	102	0010	02
67	103	1011	13
68	104	0010	02
69	105	0011	03
70	106	0010	02
71	107	0011	03

ROM PATTERN SPEC

DEC PART NUMBR 23-A2942
ORIGINATOR: JOHN RLOFM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	0010	02
73	111	1011	13
74	112	0010	02
75	113	1011	13
76	114	1110	16
77	115	0011	03
78	116	1110	16
79	117	0011	03
80	120	0110	06
81	121	1111	17
82	122	0110	06
83	123	1111	17
84	124	0010	02
85	125	0011	03
86	126	0010	02
87	127	0011	03
88	130	0110	06
89	131	1111	17
90	132	0110	06
91	133	1111	17
92	134	1110	16
93	135	0011	03
94	136	1110	16
95	137	0011	03
96	140	1010	12
97	141	0011	03
98	142	1010	12
99	143	0011	03
100	144	0110	06
101	145	0011	03
102	146	0110	06
103	147	0011	03
104	150	1010	12
105	151	0011	03
106	152	1010	12
107	153	0011	03

ROM PATTERN SPEC

DEC PART NUMBR 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1010	12
109	155	0011	03
110	156	1010	12
111	157	0011	03
112	160	0010	02
113	161	1011	13
114	162	0010	02
115	163	1011	13
116	164	0110	06
117	165	0011	03
118	166	0110	06
119	167	0011	03
120	170	0010	02
121	171	1011	13
122	172	0010	02
123	173	1011	13
124	174	1010	12
125	175	0011	03
126	176	1010	12
127	177	0011	03
128	200	1110	16
129	201	0011	03
130	202	1110	16
131	203	1011	13
132	204	0010	02
133	205	0011	03
134	206	0010	02
135	207	1011	13
136	210	1110	16
137	211	0011	03
138	212	1110	16
139	213	1011	13
140	214	0010	02
141	215	0011	03
142	216	0010	02
143	217	1011	13

ROM PATTERN SPEC

DEC PART NUMBR 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1110	16
145	221	0011	03
146	222	1110	16
147	223	1011	13
148	224	1010	12
149	225	0011	03
150	226	1010	12
151	227	1011	13
152	230	1110	16
153	231	0011	03
154	232	1110	16
155	233	1011	13
156	234	1010	12
157	235	0011	03
158	236	1010	12
159	237	1011	13
160	240	1110	16
161	241	0111	07
162	242	1110	16
163	243	1111	17
164	244	1010	12
165	245	0011	03
166	246	1010	12
167	247	1011	13
168	250	1110	16
169	251	0111	07
170	252	1110	16
171	253	1111	17
172	254	1010	12
173	255	0011	03
174	256	1010	12
175	257	1011	13
176	260	1110	16
177	261	0011	03
178	262	1110	16
179	263	1011	13

ROM PATTERN SPEC PAGE 79

DEC PART NUMBR 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1110	16
181	265	0011	03
182	266	1110	16
183	267	1011	13
184	270	1110	16
185	271	0011	03
186	272	1110	16
187	273	1011	13
188	274	1110	16
189	275	0011	03
190	276	1110	16
191	277	1011	13
192	300	1110	16
193	301	0011	03
194	302	1110	16
195	303	1011	13
196	304	0110	06
197	305	0011	03
198	306	0110	06
199	307	1011	13
200	310	1110	16
201	311	0011	03
202	312	1110	16
203	313	1011	13
204	314	0110	06
205	315	0011	03
206	316	0110	06
207	317	1011	13
208	320	1110	16
209	321	0111	07
210	322	1110	16
211	323	1111	17
212	324	0010	02
213	325	0011	03
214	326	0010	02
215	327	1011	13

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DEC PART NUMBR 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1110	16
217	331	0111	07
218	332	1110	16
219	333	1111	17
220	334	0010	02
221	335	0011	03
222	336	0010	02
223	337	1011	13
224	340	1110	16
225	341	0011	03
226	342	1110	16
227	343	1011	13
228	344	0010	02
229	345	0011	03
230	346	0010	02
231	347	1011	13
232	350	1110	16
233	351	0011	03
234	352	1110	16
235	353	1011	13
236	354	0010	02
237	355	0011	03
238	356	0010	02
239	357	1011	13
240	360	1110	16
241	361	0011	03
242	362	1110	16
243	363	1011	13
244	364	1010	12
245	365	0011	03
246	366	1010	12
247	367	1011	13
248	370	1110	16
249	371	0011	03
250	372	1110	16
251	373	1011	13

ROM PATTERN SPEC

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DEC PART NUMBR: 23-A29A2
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 20-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	1010	12
253	375	0011	03
254	376	1010	12
255	377	1011	13

ROM PATTERN SPEC

82

DEC PART NUMBR: 23-A31A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	1111	17
1	001	1111	17
2	002	1111	17
3	003	1111	17
4	004	1111	17
5	005	1111	17
6	006	1111	17
7	007	1111	17
8	010	1110	16
9	011	1110	16
10	012	1110	16
11	013	1111	17
12	014	1111	17
13	015	1111	17
14	016	1111	17
15	017	1111	17
16	020	1011	13
17	021	1111	17
18	022	1011	13
19	023	1111	17
20	024	1111	17
21	025	1111	17
22	026	1111	17
23	027	1111	17
24	030	1110	16
25	031	1110	16
26	032	1110	16
27	033	1111	17
28	034	1111	17
29	035	1111	17
30	036	1111	17
31	037	1111	17
32	040	1101	15
33	041	1101	15
34	042	1101	15
35	043	1101	15

ROM PATTERN SPEC PAGE 2 OF 3 83

DEC PART NUMBR 23-A31A2
ORIGINATOR: JOHN F BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	1111	17
37	045	1111	17
38	046	1111	17
39	047	1111	17
40	050	1101	15
41	051	1101	15
42	052	1101	15
43	053	1101	15
44	054	1111	17
45	055	1111	17
46	056	1111	17
47	057	1111	17
48	060	1101	15
49	061	1101	15
50	062	1101	15
51	063	1101	15
52	064	1111	17
53	065	1111	17
54	066	1111	17
55	067	1111	17
56	070	1101	15
57	071	1101	15
58	072	1101	15
59	073	1101	15
60	074	1111	17
61	075	1111	17
62	076	1111	17
63	077	1111	17
64	100	0111	07
65	101	0111	07
66	102	0111	07
67	103	1111	17
68	104	1111	17
69	105	1111	17
70	106	1111	17
71	107	1111	17

ROM PATTERN SPEC PAGE 2 OF 3 84

DEC PART NUMBR 23-A31A2
ORIGINATOR: JOHN F BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	1110	16
73	111	1110	16
74	112	1110	16
75	113	1111	17
76	114	1111	17
77	115	1111	17
78	116	1111	17
79	117	1111	17
80	120	0111	07
81	121	0111	07
82	122	0111	07
83	123	1111	17
84	124	1111	17
85	125	1111	17
86	126	1111	17
87	127	1111	17
88	130	1110	16
89	131	1110	16
90	132	1110	16
91	133	1111	17
92	134	1111	17
93	135	1111	17
94	136	1111	17
95	137	1111	17
96	140	1101	15
97	141	1101	15
98	142	1101	15
99	143	1101	15
100	144	1111	17
101	145	1111	17
102	146	1111	17
103	147	1111	17
104	150	1101	15
105	151	1101	15
106	152	1101	15
107	153	1101	15

ROM PATTERN SPEC

85

DEC PART NUMB: 23-A31A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	1111	17
109	155	1111	17
110	156	1111	17
111	157	1111	17
112	160	1101	15
113	161	1101	15
114	162	1101	15
115	163	1101	15
116	164	1111	17
117	165	1111	17
118	166	1111	17
119	167	1111	17
120	170	1101	15
121	171	1101	15
122	172	1101	15
123	173	1101	15
124	174	1111	17
125	175	1111	17
126	176	1111	17
127	177	1111	17
128	200	1111	17
129	201	1111	17
130	202	1111	17
131	203	1111	17
132	204	1111	17
133	205	1111	17
134	206	1111	17
135	207	1111	17
136	210	1110	16
137	211	1110	16
138	212	1110	16
139	213	1111	17
140	214	1111	17
141	215	1111	17
142	216	1111	17
143	217	1111	17

ROM PATTERN SPEC

86

DEC PART NUMB: 23-A31A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	1011	13
145	221	1111	17
146	222	1011	13
147	223	1111	17
148	224	1111	17
149	225	1111	17
150	226	1111	17
151	227	1111	17
152	230	1110	16
153	231	1110	16
154	232	1110	16
155	233	1111	17
156	234	1111	17
157	235	1111	17
158	236	1111	17
159	237	1111	17
160	240	1101	15
161	241	1101	15
162	242	1101	15
163	243	1111	17
164	244	1111	17
165	245	1111	17
166	246	1111	17
167	247	1111	17
168	250	1101	15
169	251	1101	15
170	252	1101	15
171	253	1111	17
172	254	1111	17
173	255	1111	17
174	256	1111	17
175	257	1111	17
176	260	1101	15
177	261	1101	15
178	262	1101	15
179	263	1111	17

ROM PATTERN SPEC ~~PAGE 6 OF 6~~ 87

DEC PART NUMBR 23-A31A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	1111	17
181	265	1111	17
182	266	1111	17
183	267	1111	17
184	270	1101	15
185	271	1101	15
186	272	1101	15
187	273	1111	17
188	274	1111	17
189	275	1111	17
190	276	1111	17
191	277	1111	17
192	300	0111	07
193	301	1111	17
194	302	0111	07
195	303	1111	17
196	304	1111	17
197	305	1111	17
198	306	1111	17
199	307	1111	17
200	310	1110	16
201	311	1110	16
202	312	1110	16
203	313	1111	17
204	314	1111	17
205	315	1111	17
206	316	1111	17
207	317	1111	17
208	320	0111	07
209	321	1111	17
210	322	0111	07
211	323	1111	17
212	324	1111	17
213	325	1111	17
214	326	1111	17
215	327	1111	17

ROM PATTERN SPEC ~~PAGE 7 OF 8~~ 88

DEC PART NUMBR 23-A31A2
ORIGINATOR: JOHN E BLOEM
DATE OF ORIGIN: 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	1110	16
217	331	1110	16
218	332	1110	16
219	333	1111	17
220	334	1111	17
221	335	1111	17
222	336	1111	17
223	337	1111	17
224	340	1101	15
225	341	1101	15
226	342	1101	15
227	343	1111	17
228	344	1111	17
229	345	1111	17
230	346	1111	17
231	347	1111	17
232	350	1101	15
233	351	1101	15
234	352	1101	15
235	353	1111	17
236	354	1111	17
237	355	1111	17
238	356	1111	17
239	357	1111	17
240	360	1101	15
241	361	1101	15
242	362	1101	15
243	363	1111	17
244	364	1111	17
245	365	1111	17
246	366	1111	17
247	367	1111	17
248	370	1101	15
249	371	1101	15
250	372	1101	15
251	373	1111	17

POW PATTERN SPEC

DEC PART NUMBR 23-A31A2
ORIGINATOR JOHN E BLOEM
DATE OF ORIGIN 10-28-74

DECIMAL LOC	OCTAL LOC	BINARY DATA
252	374	1111
253	375	1111
254	376	1111
255	377	1111

POW PATTERN SPEC

DEC PART NUMBR 23-Original
ORIGINATOR JOHN BLOEM
DATE OF ORIGINAL 27-SEP-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
0	000	0000000
1	001	0000000
2	002	0000000
3	003	0000000
4	004	0000000
5	005	0000000
6	006	0000000
7	007	1101001
8	010	0001111
9	011	1100111
10	012	0110111
11	013	1010111
12	014	0010111
13	015	1100111
14	016	0000000
15	017	0000000
16	020	1110110
17	021	0110110
18	022	0000000
19	023	0010110
20	024	1010110
21	025	1101110
22	026	0101110
23	027	1001110
24	030	0010101
25	031	0000000
26	032	1010110
27	033	0000000
28	034	1010110
29	035	1010110
30	036	0000000
31	037	0010110
32	040	0000011
33	041	1111101
34	042	0111101
35	043	0001111

DEC PART 40001 23-00101
ORIGINATOR JOHN MAUCH
DATE OF ORIGIN 27-FEB-75

DOS PATTERN SPEC

OCTAL LOC	BINARY DATA	OCTAL DATA
044	00111101	075
045	10100110	246
046	01011101	135
047	00000000	000
050	00011101	035
051	10001001	211
052	01101101	155
053	10010001	221
054	00101101	055
055	01000001	101
056	01001101	115
057	00000000	000
060	00110101	065
061	01010101	125
062	10010101	225
063	10011100	234
064	01100101	145
065	00101001	051
066	00110001	061
067	00100001	041
070	10111010	272
071	10011010	232
072	10010010	222
073	10001100	214
074	10101010	252
075	00110010	062
076	00100010	042
077	00100010	042
100	01101011	153
101	01101011	153
102	00000000	000
103	10111011	273
104	00111011	073
105	11011011	333
106	01011011	133
107	10011011	233

DEC PART 40001 23-00101
ORIGINATOR JOHN MAUCH
DATE OF ORIGIN 27-FEB-75

DOS PATTERN SPEC

OCTAL LOC	BINARY DATA	OCTAL DATA
110	00011011	033
111	11011011	333
112	10110011	263
113	10101011	253
114	00101011	053
115	11001011	313
116	11011011	333
117	10001011	213
120	10000001	201
121	00000001	001
122	00000110	006
123	00010110	026
124	11010110	352
125	11011010	332
126	11101010	352
127	00100010	042
130	00011010	032
131	10111110	276
132	11101010	352
133	10100110	246
134	00000000	000
135	00000000	000
136	01001010	112
137	10001010	212
140	10101101	255
141	01110110	166
142	00011001	031
143	00110110	066
144	10111001	271
145	00011001	031
146	00101110	056
147	10011001	231
150	11001101	315
151	01100110	146
152	00011001	031
153	00100110	046

ROM PATTERN SPEC [redacted] 93

DEC PART NUMBR 23-90101
ORIGINATORS JOHN BAUER
DATE OF ORIGIN 27-FEB-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	10110001	261
109	155	11001001	311
110	156	01001001	111
111	157	10001001	211
112	160	10010011	223
113	161	11100011	343
114	162	01100011	143
115	163	10011000	230
116	164	10000011	203
117	165	10111101	275
118	166	11011101	335
119	167	10011101	235
120	170	01000111	107
121	171	00000111	007
122	172	11111011	373
123	173	10001000	210
124	174	01111011	173
125	175	01111011	173
126	176	01101011	153
127	177	10000010	202
128	200	00001000	010
129	201	11100000	340
130	202	00000000	000
131	203	10110111	267
132	204	00110111	067
133	205	11010111	327
134	206	01010111	127
135	207	10100110	246
136	210	00010111	027
137	211	11100111	347
138	212	01101011	153
139	213	10100110	246
140	214	00100111	047
141	215	11000111	307
142	216	01101011	153
143	217	10000111	207

ROM PATTERN SPEC [redacted] 94

DEC PART NUMBR 23-90101
ORIGINATOR: JOHN BAUER
DATE OF ORIGIN: 27-FEB-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	00001001	011
145	221	10110001	261
146	222	00001110	016
147	223	10001110	216
148	224	10110110	266
149	225	00000000	000
150	226	01010110	126
151	227	00000000	000
152	230	00010001	021
153	231	11100001	341
154	232	00000000	000
155	233	10010110	226
156	234	01100010	142
157	235	11101010	352
158	236	01000110	106
159	237	10000110	206
160	240	11100101	345
161	241	11100101	345
162	242	01110101	165
163	243	10110101	265
164	244	11100101	345
165	245	11010101	325
166	246	11100101	345
167	247	00111001	071
168	250	00010101	025
169	251	11100101	345
170	252	10100110	246
171	253	01101110	156
172	254	00011001	031
173	255	11000101	305
174	256	01000101	105
175	257	10000101	205
176	260	00000101	005
177	261	11011001	331
178	262	01011001	131
179	263	10010110	226

252

EDA PATTERN SPEC 95

DEC PART NUMBER 23-00101
ORIGINATOR John Doyle
DATE OF ORIGIN 27-Feb-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	10101001	251
181	265	00111110	076
182	266	00101110	056
183	267	00101110	056
184	270	00011110	036
185	271	11061110	316
186	272	01001110	116
187	273	10000100	204
188	274	11010110	326
189	275	00100110	046
190	276	00111010	072
191	277	00101010	052
192	300	10110011	263
193	301	10110011	263
194	302	00000000	000
195	303	01000011	103
196	304	00110011	063
197	305	11010011	323
198	306	01010011	123
199	307	01000011	103
200	310	00010011	023
201	311	01000011	103
202	312	10001110	216
203	313	10100011	243
204	314	00100011	043
205	315	11000011	303
206	316	01000011	103
207	317	00000000	000
208	320	11100010	342
209	321	01100010	142
210	322	00001010	012
211	323	00100010	042
212	324	10110010	262
213	325	11010010	322
214	326	01010010	122
215	327	10010010	222

EDA PATTERN SPEC 96

DEC PART NUMBER 23-00101
ORIGINATOR John Doyle
DATE OF ORIGIN 27-Feb-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	11003110	306
217	331	00000000	000
218	332	00010010	022
219	333	00000000	000
220	334	00001000	010
221	335	11001010	312
222	336	10100010	242
223	337	11101101	355
224	340	10001101	215
225	341	01111010	172
226	342	00000000	000
227	343	00111010	072
228	344	11100001	341
229	345	11010001	321
230	346	01010001	121
231	347	10010001	221
232	350	01010110	126
233	351	00101101	055
234	352	00000001	001
235	353	10100101	245
236	354	10100001	241
237	355	11000001	301
238	356	01000001	101
239	357	00000000	000
240	360	01001011	113
241	361	00001011	013
242	362	11110011	363
243	363	10010000	220
244	364	01110011	163
245	365	01110011	163
246	366	10110011	263
247	367	10100110	246
248	370	01110111	167
249	371	01100111	147
250	372	00001111	017
251	373	10001111	217

ROM PATTERN SPEC

DEC PART NUMBR 23-00161
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 27-FEB-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	10010111	227
253	375	00000000	000
254	376	01001111	117
255	377	01000010	102

ROM PATTERN SPEC

DEC PART NUMBR 23-00281
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	00110000	060
1	001	00110000	060
2	002	00110000	060
3	003	00110000	060
4	004	00110000	060
5	005	00110000	060
6	006	00110000	060
7	007	00111100	074
8	010	00111100	074
9	011	00111100	074
10	012	00111100	074
11	013	00111000	070
12	014	00111100	074
13	015	00111100	074
14	016	10110000	260
15	017	10110000	260
16	020	00111000	070
17	021	00111000	070
18	022	00110100	064
19	023	00111000	070
20	024	00000000	000
21	025	00111100	074
22	026	00000000	000
23	027	00111000	070
24	030	00111100	074
25	031	10000000	200
26	032	00000000	000
27	033	10000002	200
28	034	00111000	070
29	035	00000000	000
30	036	00110000	060
31	037	00000010	002
32	040	00110000	060
33	041	10000000	200
34	042	00111100	074
35	043	10000000	200

DEC PART NUMBI 23-002B1
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	00111100	074
37	045	10000000	200
38	046	00111100	074
39	047	00111100	074
40	050	00100000	040
41	051	00000000	000
42	052	00000000	000
43	053	00000000	000
44	054	00000000	000
45	055	00000000	000
46	056	0000003P	000
47	057	10110000	260
48	060	00000000	000
49	061	00000000	000
50	062	11111000	370
51	063	11111000	370
52	064	00000000	000
53	065	00000010	002
54	066	00000010	002
55	067	00000010	002
56	070	00000000	000
57	071	00000000	000
58	072	11111000	370
59	073	11111000	370
60	074	00000000	000
61	075	00000010	002
62	076	00000010	002
63	077	00000010	002
64	100	00000000	000
65	101	00111000	070
66	102	00111100	074
67	103	00003000	000
68	104	00111100	074
69	105	00000000	000
70	106	00110000	060
71	107	00000000	000

DEC PART NUMBI 23-002B1
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	11111000	370
73	111	00111100	074
74	112	00000000	000
75	113	00111100	074
76	114	00000000	000
77	115	00111000	070
78	116	00000000	000
79	117	00111000	070
80	120	00111100	074
81	121	10000000	200
82	122	00111000	070
83	123	10002000	200
84	124	00000000	000
85	125	00111000	070
86	126	00000000	000
87	127	00000010	002
88	130	00111100	074
89	131	10000200	200
90	132	00111000	070
91	133	10000000	200
92	134	00111000	070
93	135	01110000	160
94	136	00000000	000
95	137	00111100	074
96	140	00111100	074
97	141	00003000	000
98	142	00000000	000
99	143	00000000	000
100	144	00111000	070
101	145	00000000	000
102	146	00000010	002
103	147	00111100	074
104	150	00111100	074
105	151	00003000	000
106	152	00111000	070
107	153	00000000	000

ROM PATTERN SPEC

DEC PART NUMBR 23-002H1
ORIGINATOR: JOHN ALOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
100	144	00000000
101	145	00111100
110	146	10000001
111	147	00000000
112	150	00000000
113	151	00000000
114	152	11111111
115	153	11111111
116	154	00000000
117	155	00000000
118	156	00000000
119	157	00000000
120	160	00000000
121	161	00000000
122	162	11111000
123	163	11111000
124	164	00003000
125	165	00003000
126	166	00003000
127	167	11111000
128	170	00111100
129	171	00000000
130	172	00111000
131	173	01110000
132	174	00003000
133	175	00111100
134	176	00111000
135	177	00111000
136	200	00000000
137	201	00111100
138	202	00300000
139	203	00111100
140	204	00003000
141	205	00111100
142	206	00000000
143	207	00111000

ROM PATTERN SPEC

DEC PART NUMBR 23-002H1
ORIGINATOR: JOHN ALOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
144	220	00111100
145	221	10000001
146	222	00111100
147	223	10000001
148	224	00111000
149	225	00111000
150	226	00111000
151	227	00111000
152	230	00111100
153	231	10000001
154	232	00111100
155	233	10000001
156	234	00000000
157	235	00000000
158	236	00111100
159	237	00000000
160	240	00000000
161	241	00111100
162	242	00000000
163	243	00111000
164	244	00003000
165	245	00111000
166	246	00300000
167	247	00000000
168	250	00111100
169	251	00111000
170	252	10110000
171	253	00000000
172	254	00000000
173	255	00111100
174	256	00000000
175	257	00111000
176	260	00000000
177	261	00000000
178	262	11111100
179	263	11111000

ROM PATTERN SPEC [illegible] 103

DEC PART NUMBI 23-00281
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	00000000	000
181	265	00000010	002
182	266	00000010	002
183	267	00000010	002
184	270	00000000	000
185	271	00000000	000
186	272	11111000	370
187	273	11111000	370
188	274	00003000	000
189	275	00030010	002
190	276	00003010	002
191	277	00000010	002
192	300	00030000	000
193	301	00111000	070
194	302	00111100	074
195	303	00003000	000
196	304	00111100	074
197	305	00000000	000
198	306	00111000	070
199	307	00030030	000
200	310	00111000	070
201	311	00003000	000
202	312	10003000	200
203	313	00111100	074
204	314	00030030	000
205	315	00111100	074
206	316	00111000	070
207	317	00111000	070
208	320	00111000	070
209	321	00111000	070
210	322	00111000	070
211	323	00111000	070
212	324	00003000	000
213	325	00000000	000
214	326	00110000	060
215	327	00003030	000

ROM PATTERN SPEC [illegible] 104

DEC PART NUMBI 23-00281
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	00111100	074
217	331	10111100	274
218	332	11111000	370
219	333	10111100	274
220	334	00111100	074
221	335	00000000	000
222	336	00110000	060
223	337	00000000	000
224	340	00111100	074
225	341	00000000	000
226	342	00110000	060
227	343	00000000	000
228	344	00000000	000
229	345	00111100	074
230	346	10003000	200
231	347	00000000	000
232	350	00110000	060
233	351	00003000	000
234	352	00003000	000
235	353	00003000	000
236	354	00111100	074
237	355	10003000	200
238	356	00003000	000
239	357	00110000	060
240	360	00003000	000
241	361	00003000	000
242	362	11111000	370
243	363	11111000	370
244	364	00003000	000
245	365	00003000	000
246	366	00003000	000
247	367	10003000	200
248	370	00003001	001
249	371	00003000	000
250	372	00110100	064
251	373	00110100	064

155

OCTAL
DATA

000
000
000
001

ROM PATTERN SPEC

DEC PART NUMBER 23-00381
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
252	374	00000000
253	375	00000000
254	376	00000000
255	377	00000001

OCTAL
DATA

120
120
120
120

120
120
120
100

160
160
160
160

160
160
170
170

040
040
160
360

121
163
160
060

160
070
160
170

060
121
163
105

163
170
163
170

ROM PATTERN SPEC

DEC PART NUMBER 23-00381
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
0	000	01012000
1	001	01012020
2	002	01012000
3	003	01012020
4	004	01012020
5	005	01012000
6	006	01012020
7	007	01112020
8	010	01112000
9	011	00112000
10	012	01112000
11	013	00112000
12	014	01112020
13	015	01112020
14	016	01112020
15	017	01112020
16	020	00120000
17	021	00120000
18	022	01112000
19	023	00112000
20	024	01012001
21	025	01112020
22	026	01112000
23	027	00112020
24	030	01112000
25	031	00112020
26	032	01112020
27	033	01112000
28	034	00112020
29	035	01012001
30	036	01112011
31	037	01012121
32	040	01112011
33	041	01112011
34	042	01112000
35	043	01111000

ROM PATTERN SPEC [redacted] 107

DEC PART NUMBR 23-003B1
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	01110000	160
37	045	01111000	170
38	046	01110000	160
39	047	01110000	160
40	050	01010000	120
41	051	01110000	160
42	052	01110000	160
43	053	01110000	160
44	054	01110000	160
45	055	01110000	160
46	056	01110000	160
47	057	01111000	170
48	060	01010001	121
49	061	01010001	121
50	062	00110000	060
51	063	00100000	040
52	064	01010001	121
53	065	01000101	105
54	066	01000101	105
55	067	01110000	160
56	070	01010001	121
57	071	01010001	121
58	072	00110000	060
59	073	00100000	040
60	074	01010001	121
61	075	01000001	101
62	076	01000001	101
63	077	01110000	160
64	100	01010001	121
65	101	00110000	060
66	102	01110000	160
67	103	01110000	160
68	104	01110000	160
69	105	01110000	160
70	106	01110011	163
71	107	01110000	160

ROM PATTERN SPEC [redacted] 108

DEC PART NUMBR 23-003B1
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	00110000	060
73	111	01110000	160
74	112	01010001	121
75	113	01110000	160
76	114	01110000	160
77	115	00110000	060
78	116	01110000	160
79	117	00110000	060
80	120	01110000	160
81	121	00111000	070
82	122	00110000	060
83	123	01111000	170
84	124	01110000	160
85	125	00110000	060
86	126	01010001	121
87	127	01000001	101
88	130	01110000	160
89	131	00111000	070
90	132	00110000	060
91	133	01111000	170
92	134	00110000	060
93	135	01111000	170
94	136	01010001	121
95	137	01110000	160
96	140	01110000	160
97	141	01110000	160
98	142	01110000	160
99	143	01110000	160
100	144	00110000	060
101	145	01010001	121
102	146	01000001	101
103	147	01110000	160
104	150	01110000	160
105	151	01110000	160
106	152	00110000	060
107	153	01110000	160

257

ROM PATTERN SPEC

DEC PART NUMBER 23-00381
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
100	144	01112020	160
101	145	00112000	160
102	146	01112000	170
103	147	01112000	160
104	150	00112000	160
105	151	01112011	163
106	152	01112000	160
107	153	00112000	160
108	154	01112000	160
109	155	01112000	160
110	156	01112000	160
111	157	01012001	161
112	160	01112000	160
113	161	01012001	161
114	162	00112000	160
115	163	00112020	160
116	164	01012001	161
117	165	01012101	165
118	166	01012101	165
119	167	01112000	160
120	170	01012001	161
121	171	01012001	161
122	172	00112000	160
123	173	00112020	160
124	174	01012001	161
125	175	01112000	160
126	176	01112000	160
127	177	00112000	160
128	200	01112020	160
129	201	00112000	160
130	202	00112020	160
131	203	01112000	160
132	204	01012001	161
133	205	01112000	160
134	206	00112002	160
135	207	00112000	160
136	210	01012001	161
137	211	01112020	160
138	212	01012001	161
139	213	01112000	160
140	214	01112020	160
141	215	00112002	160
142	216	01112000	160
143	217	00112020	160

ROM PATTERN SPEC

DEC PART NUMBER 23-00381
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	01112000	160
145	221	00112000	160
146	222	01112000	160
147	223	01112000	160
148	224	00112000	160
149	225	00102020	140
150	226	01112011	163
151	227	01112011	163
152	230	01112000	160
153	231	00112000	160
154	232	01112000	160
155	233	01112000	160
156	234	01112000	160
157	235	01012001	161
158	236	01112000	160
159	237	01112004	164
160	240	01012001	161
161	241	01112000	160
162	242	01112000	160
163	243	00112000	160
164	244	01112000	160
165	245	00112000	160
166	246	01012001	161
167	247	01012121	165
168	250	01112000	160
169	251	00112000	160
170	252	01112000	160
171	253	01112000	160
172	254	01012001	161
173	255	01112000	160
174	256	01112000	160
175	257	00112000	160
176	260	01012001	161
177	261	01012001	161
178	262	00112020	160
179	263	00112000	160

ROM PATTERN SPEC

111

DEC PART NUMBI 23-003B1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	01010001	121
181	265	01000001	101
182	266	01000001	101
183	267	01110000	160
184	270	01010001	121
185	271	01010001	121
186	272	00110000	060
187	273	00100000	040
188	274	01010001	121
189	275	01000101	105
190	276	01000101	105
191	277	01110000	160
192	300	01010001	121
193	301	00110000	060
194	302	01110000	160
195	303	01010001	121
196	304	01110000	160
197	305	01110000	160
198	306	00110000	060
199	307	01110000	160
200	310	00110000	060
201	311	01010001	121
202	312	01111000	170
203	313	01110000	160
204	314	01010101	125
205	315	01110000	160
206	316	00110000	060
207	317	00110000	060
208	320	00100000	040
209	321	00100000	040
210	322	00110000	060
211	323	00110000	060
212	324	01010001	121
213	325	01110000	160
214	326	01100111	163
215	327	01110000	160

ROM PATTERN SPEC

112

DEC PART NUMBI 23-003B1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	01110000	160
217	331	00110000	060
218	332	00110000	060
219	333	01110000	160
220	334	01110000	160
221	335	01010001	121
222	336	11111011	373
223	337	00110000	060
224	340	01110000	160
225	341	01110000	160
226	342	01100111	147
227	343	01110000	160
228	344	01110000	160
229	345	01110000	160
230	346	00111000	070
231	347	01110000	160
232	350	01100111	147
233	351	01110000	160
234	352	01110000	160
235	353	01110000	160
236	354	01110000	160
237	355	00111000	070
238	356	01110000	160
239	357	01100111	147
240	360	01010001	121
241	361	01010001	121
242	362	00110000	060
243	363	00110000	060
244	364	01010001	121
245	365	01110000	160
246	366	01110000	160
247	367	01111000	170
248	370	01010000	120
249	371	01110000	160
250	372	11110000	360
251	373	11110000	360

ROM PATTERN SPEC [redacted] 113

DEC PART NUMBR 23-00381
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	01010001	121
253	375	01110000	160
254	376	01110000	160
255	377	01010000	120

ROM PATTERN SPEC [redacted] 114

DEC PART NUMBR 23-00481
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	00101111	057
1	001	00101111	057
2	002	00101111	057
3	003	00101111	057
4	004	00101111	057
5	005	00101111	057
6	006	00101111	057
7	007	00100011	043
8	010	00100011	043
9	011	00001111	017
10	012	00100011	043
11	013	00001010	012
12	014	00111100	074
13	015	00111001	071
14	016	00101110	056
15	017	00000100	004
16	020	00001010	012
17	021	00001010	012
18	022	00111001	071
19	023	00001010	012
20	024	00101111	057
21	025	00111001	071
22	026	00101010	052
23	027	00001010	012
24	030	00111001	071
25	031	00101111	057
26	032	00101010	052
27	033	00101111	057
28	034	00001010	012
29	035	00101111	057
30	036	00111001	071
31	037	00101111	057
32	040	00111001	071
33	041	00101111	057
34	042	00111001	071
35	043	00101111	057

ROM PATTERN SPEC 115

DEC PART NUMBI 23-0044A1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	00111001	071
37	045	00101111	057
38	046	00111001	071
39	047	00101010	052
40	050	00101111	057
41	051	00111001	071
42	052	00101111	057
43	053	00111001	071
44	054	00101111	057
45	055	00111001	071
46	056	00101111	057
47	057	00101111	057
48	060	00101111	057
49	061	00101111	057
50	062	00100101	045
51	063	00100101	045
52	064	00101111	057
53	065	00101111	057
54	066	00101111	057
55	067	00101111	057
56	070	00101111	057
57	071	00101111	057
58	072	00100101	045
59	073	00100101	045
60	074	00101111	057
61	075	00101111	057
62	076	00101111	057
63	077	00101111	057
64	100	00101111	057
65	101	00001010	012
66	102	00111001	071
67	103	00101111	057
68	104	00111001	071
69	105	00101111	057
70	106	00111001	071
71	107	00101111	057

ROM PATTERN SPEC 116

DEC PART NUMBI 23-0045B1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	00100101	045
73	111	00111001	071
74	112	00101111	057
75	113	00111001	071
76	114	00101010	052
77	115	00001010	012
78	116	00101010	052
79	117	00001010	012
80	120	00111001	071
81	121	00101111	057
82	122	00001010	012
83	123	00101111	057
84	124	00101010	052
85	125	00001010	012
86	126	00101111	057
87	127	00101111	057
88	130	00111001	071
89	131	00101111	057
90	132	00001010	012
91	133	00101111	057
92	134	00001010	012
93	135	00111001	071
94	136	00101111	057
95	137	00111001	071
96	140	00111001	071
97	141	00111001	071
98	142	00101010	052
99	143	00111001	071
100	144	00001010	012
101	145	00101111	057
102	146	00101111	057
103	147	00111001	071
104	150	00111001	071
105	151	00111001	071
106	152	00001010	012
107	153	00111001	071

DEC PART NUMBI 23-00481
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	00101111	057
109	155	00111001	071
110	156	00101111	057
111	157	00101111	057
112	160	00101111	057
113	161	00101111	057
114	162	00100101	045
115	163	00100101	045
116	164	00101111	057
117	165	00101111	057
118	166	00101111	057
119	167	00101111	057
120	170	00101111	057
121	171	00101111	057
122	172	00100101	045
123	173	00100101	045
124	174	00101111	057
125	175	00101111	057
126	176	00101111	057
127	177	00100101	045
128	200	00111001	071
129	201	00111001	071
130	202	00001010	012
131	203	00111001	071
132	204	00101111	057
133	205	00111001	071
134	206	00001010	012
135	207	00001010	012
136	210	00101111	057
137	211	00111001	071
138	212	00101111	057
139	213	00111001	071
140	214	00101010	052
141	215	00001010	012
142	216	00101010	052
143	217	00001010	012

DEC PART NUMBI 23-00481
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

ROM PATTERN SPEC

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	00111001	071
145	221	00101111	057
146	222	00111001	071
147	223	00101111	057
148	224	00001010	012
149	225	00001010	012
150	226	00111001	071
151	227	00111001	071
152	230	00111001	071
153	231	00101111	057
154	232	00111001	071
155	233	00101111	057
156	234	00101111	057
157	235	00101111	057
158	236	00111001	071
159	237	00101010	052
160	240	00101111	057
161	241	00111001	071
162	242	00101010	052
163	243	00001010	012
164	244	00101010	052
165	245	00001010	012
166	246	00101111	057
167	247	00101111	057
168	250	00111001	071
169	251	00001010	012
170	252	00101111	057
171	253	00101111	057
172	254	00101111	057
173	255	00111001	071
174	256	00101010	052
175	257	00001010	012
176	260	00101111	057
177	261	00101111	057
178	262	00100101	045
179	263	00100101	045

ROM PATTERN SPEC

DEC PART NUMBER 23-00481
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
100	144	00101111	057
101	145	00101111	057
102	146	00101111	057
103	147	00101111	057
104	150	00101111	057
105	151	00101111	057
106	152	00100101	045
107	153	00100101	045
108	154	00101111	057
109	155	00101111	057
110	156	00101111	057
111	157	00101111	057
112	160	00111001	071
113	161	00101010	052
114	162	00101010	052
115	163	00101010	052
116	164	00111001	071
117	165	00101111	057
118	166	00101111	057
119	167	00101111	057
120	170	00111001	071
121	171	00101111	057
122	172	00101111	057
123	173	00101111	057
124	174	00111001	071
125	175	00101111	057
126	176	00101111	057
127	177	00101111	057
128	200	00111001	071
129	201	00101010	052
130	202	00101010	052
131	203	00101010	052
132	204	00111001	071
133	205	00111001	071
134	206	00101111	057
135	207	00101111	057
136	210	00111001	071
137	211	00101111	057
138	212	00111001	071
139	213	00111001	071
140	214	00101111	057
141	215	00101111	057

ROM PATTERN SPEC

DEC PART NUMBER 23-00481
ORIGINATOR JOHN BLOEM
DATE OF ORIGIN 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	00111001	071
217	331	00111001	071
218	332	00100101	045
219	333	00111001	071
220	334	00111001	071
221	335	00101111	057
222	336	00101111	057
223	337	00111001	071
224	340	00111001	071
225	341	00111001	071
226	342	00111001	071
227	343	00111001	071
228	344	00101111	057
229	345	00111001	071
230	346	00101111	057
231	347	00101111	057
232	350	00111001	071
233	351	00111001	071
234	352	00101111	057
235	353	00111001	071
236	354	00111001	071
237	355	00101111	057
238	356	00101111	057
239	357	00111001	071
240	360	00101111	057
241	361	00101111	057
242	362	00100101	045
243	363	00100101	045
244	364	00101111	057
245	365	00101111	057
246	366	00101111	057
247	367	00101111	057
248	370	00101111	057
249	371	00101111	057
250	372	00101111	057
251	373	00101111	057

ROM PATTERN SPEC PAGE 1 OF 1 121

DEC PART NUMBI 23-2049B1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	00101111	057
253	375	00111001	071
254	376	00101111	057
255	377	00101111	057

ROM PATTERN SPEC PAGE 1 OF 2 122

DEC PART NUMBI 23-2050B1
ORIGINATORI JOHN BLOEM
DATE OF ORIGINI 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	00001010	012
1	001	00001010	012
2	002	00001010	012
3	003	00001010	012
4	004	00001010	012
5	005	00001010	012
6	006	00001010	012
7	007	01101110	156
8	010	01101110	156
9	011	01101110	156
10	012	01101110	156
11	013	01101110	156
12	014	01101110	156
13	015	01001011	113
14	016	00001111	017
15	017	00001111	017
16	020	00001000	010
17	021	00001000	010
18	022	00001000	010
19	023	00001000	010
20	024	00101110	056
21	025	00101110	056
22	026	00001000	010
23	027	01101011	153
24	030	01101111	157
25	031	11001110	316
26	032	00001000	010
27	033	11001110	316
28	034	01101011	153
29	035	00001000	010
30	036	00101110	056
31	037	00101110	056
32	040	00001000	010
33	041	11101111	357
34	042	01101111	157
35	043	11101111	357

ROM PATTERN SPEC

DEC PART NUMBR 23-20501
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN 12-MAY-75

OCTAL DATA	OCTAL LOC	BINARY DATA
157	034	01101111
357	035	11101111
157	036	01101111
153	037	01101011
012	040	00001010
012	041	00001010
157	042	01101111
212	043	00001010
157	044	01101111
212	045	00001010
157	046	01101111
210	047	10001000
153	050	01101011
153	051	01101011
010	052	00001000
010	053	00001000
010	054	00001000
010	055	00001000
010	056	00001000
010	057	00001000
153	060	01101011
153	061	01101011
002	062	00000010
002	063	00000010
002	064	00000010
002	065	00000010
002	066	00000010
012	067	00001010
010	070	00001000
153	071	01101011
056	072	00101110
022	073	00010010
153	074	01101011
053	075	00101011
002	076	00000010
153	077	01101011

ROM PATTERN SPEC

DEC PART NUMBR 23-20501
ORIGINATOR JOHN ALDEN
DATE OF ORIGIN 12-MAY-75

OCTAL DATA	OCTAL LOC	BINARY DATA
053	100	00101011
056	101	00101110
056	102	00101110
056	103	00101110
010	104	00001000
153	105	01101011
010	106	00001000
153	107	01101011
157	110	01101111
316	111	11001110
153	112	01101011
316	113	11001110
002	114	00000010
153	115	01101011
202	116	00001010
016	117	01101011
016	120	01101111
316	121	11001110
002	122	01101011
316	123	11001110
173	124	00111010
012	125	01101011
156	126	00001010
153	127	00001110
157	130	00011110
212	131	11001110
210	132	00000010
012	133	11001110
153	134	01101011
010	135	00001010
056	136	01101110
056	137	01101110
157	140	01101111
012	141	00001010
010	142	00001000
012	143	00001010
153	144	01101011
010	145	00001000
056	146	01101110
056	147	01101110
157	150	01101111
012	151	00001010
010	152	00001000
012	153	00001010

ROM PATTERN SPEC [redacted] 125

DEC PART NUMBER 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	01101111	157
109	155	01101111	157
110	156	11001110	316
111	157	01101111	157
112	160	01101011	153
113	161	01101011	153
114	162	00001000	010
115	163	00001000	010
116	164	00001000	010
117	165	00001000	010
118	166	00001000	010
119	167	00001000	010
120	170	01101011	153
121	171	01101011	153
122	172	00001000	010
123	173	00001000	010
124	174	00001000	010
125	175	00001000	010
126	176	00001000	010
127	177	00101011	053
128	200	01101110	156
129	201	00001010	012
130	202	00101011	053
131	203	00001010	012
132	204	00101011	053
133	205	01101011	153
134	206	00101011	053
135	207	00101011	053
136	210	00101011	053
137	211	01101011	153
138	212	00101110	056
139	213	00101110	056
140	214	00001000	010
141	215	01101011	153
142	216	00001000	010
143	217	01101011	153

ROM PATTERN SPEC [redacted] 126

DEC PART NUMBER 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	01101111	157
145	221	11001110	316
146	222	00101110	056
147	223	11001110	316
148	224	00001000	010
149	225	00001000	010
150	226	00001000	010
151	227	00001000	010
152	230	01101111	157
153	231	11001110	316
154	232	00001000	010
155	233	11001110	316
156	234	01101111	157
157	235	00001110	016
158	236	00001110	016
159	237	00000010	002
160	240	00101110	056
161	241	00101110	056
162	242	00001000	010
163	243	01101011	153
164	244	00001000	010
165	245	01101011	153
166	246	00001000	010
167	247	00101110	056
168	250	00101110	056
169	251	00001000	010
170	252	10001000	210
171	253	01101111	157
172	254	00101110	056
173	255	00101110	056
174	256	00001000	010
175	257	01101011	153
176	260	01101011	153
177	261	01101011	153
178	262	00001000	010
179	263	00001000	010

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DEC PART NUMBER 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	00001000	010
181	265	00001000	010
182	266	00001000	010
183	267	00001000	010
184	270	01101011	153
185	271	01101011	153
186	272	00001000	010
187	273	00001000	010
188	274	00001000	010
189	275	00001000	010
190	276	00001000	010
191	277	00001000	010
192	300	00001000	010
193	301	00001000	010
194	302	01101011	153
195	303	00101110	056
196	304	00101110	056
197	305	00001000	010
198	306	01101011	153
199	307	00001000	010
200	310	01101011	153
201	311	00001000	010
202	312	11101111	357
203	313	01101111	157
204	314	00101110	056
205	315	00101110	056
206	316	00001000	010
207	317	00001000	010
208	320	00000010	002
209	321	00000010	002
210	322	01101110	156
211	323	00000010	002
212	324	01101110	156
213	325	00001010	012
214	326	00101011	053
215	327	01101011	153

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DEC PART NUMBER 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 12-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	01101111	157
217	331	01001110	116
218	332	00101011	053
219	333	01001110	116
220	334	01101110	156
221	335	01101011	153
222	336	00101011	053
223	337	00001010	012
224	340	01101111	157
225	341	00001010	012
226	342	00101110	056
227	343	00001010	012
228	344	01101111	157
229	345	01101111	157
230	346	11001110	316
231	347	01101111	157
232	350	00001000	010
233	351	00001010	012
234	352	01101111	157
235	353	00001010	012
236	354	01101111	157
237	355	11001110	316
238	356	01101111	157
239	357	00001000	010
240	360	01101011	153
241	361	01101011	153
242	362	00001000	010
243	363	00001000	010
244	364	00001000	010
245	365	00001000	010
246	366	00001000	010
247	367	11001110	316
248	370	00000000	000
249	371	00001000	010
250	372	00001111	017
251	373	00001111	017

ROM PATTERN SPEC

DEC PART NUMBER 23-02591
ORIGINATOR: JOHN BLOOM
DATE OF ORIGIN: 13-MAY-75

DECIMAL LOC	OCTAL LOC	BINARY DATA
252	374	00101011
253	375	10001010
254	376	01101011
255	377	00000000

ROM PATTERN SPEC

DEC PART NUMBER 23-02681
ORIGINATOR: JOHN BLOOM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA
0	000	00111111
1	001	00111111
2	002	00110111
3	003	00110111
4	004	00101111
5	005	00101111
6	006	00100111
7	007	00100111
8	010	00111111
9	011	00111111
10	012	00110111
11	013	00110111
12	014	00101111
13	015	00101111
14	016	00100111
15	017	00100111
16	020	00011111
17	021	00011111
18	022	00010111
19	023	00010111
20	024	00031111
21	025	00001111
22	026	00000111
23	027	00000111
24	030	00011111
25	031	00011111
26	032	00010111
27	033	00010111
28	034	00001111
29	035	00001111
30	036	00000111
31	037	00000111
32	040	10111111
33	041	10111100
34	042	10110101
35	043	10110100

ROM PATTERN SPEC PAGE 1 OF 6 131

DEC PART NUMBR 23-006B1
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	10111101	275
37	045	10111100	274
38	046	10110101	265
39	047	10110100	264
40	050	10111101	275
41	051	10111101	275
42	052	10110101	265
43	053	10110101	265
44	054	10111101	275
45	055	10111101	275
46	056	10110101	265
47	057	10110101	265
48	060	10111101	275
49	061	10111100	274
50	062	10110101	265
51	063	10110100	264
52	064	10111101	275
53	065	10111100	274
54	066	10110101	265
55	067	10110100	264
56	070	10111101	275
57	071	10111101	275
58	072	10110101	265
59	073	10110101	265
60	074	10111101	275
61	075	10111101	275
62	076	10110101	265
63	077	10110101	265
64	100	10111011	273
65	101	10111100	274
66	102	10110011	263
67	103	10110100	264
68	104	10111011	273
69	105	10111100	274
70	106	10110011	263
71	107	10110100	264

ROM PATTERN SPEC PAGE 2 OF 6 132

DEC PART NUMBR 23-006B1
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	10111011	273
73	111	10111101	275
74	112	10110011	263
75	113	10110101	265
76	114	10111011	273
77	115	10111101	275
78	116	10110011	263
79	117	10110101	265
80	120	10111011	273
81	121	10111100	274
82	122	10110011	263
83	123	10110100	264
84	124	10111011	273
85	125	10111100	274
86	126	10110011	263
87	127	10110100	264
88	130	10111011	273
89	131	10111101	275
90	132	10110011	263
91	133	10110101	265
92	134	10111011	273
93	135	10111101	275
94	136	10110011	263
95	137	10110101	265
96	140	10111001	271
97	141	10111100	274
98	142	10110001	261
99	143	10110100	264
100	144	10111001	271
101	145	10111100	274
102	146	10110001	261
103	147	10110100	264
104	150	10111001	271
105	151	10111101	275
106	152	10110001	261
107	153	10110101	265

ROM PATTERN SPEC

DEC PART NUMBR 23-00681
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	10111001	271
109	155	10111101	275
110	156	10110001	261
111	157	10110101	265
112	160	10111001	271
113	161	10111100	274
114	162	10110001	261
115	163	10110100	264
116	164	10111001	271
117	165	10111100	274
118	166	10110001	261
119	167	10110100	264
120	170	10111001	271
121	171	10111101	275
122	172	10110001	261
123	173	10110101	265
124	174	10111001	271
125	175	10111101	275
126	176	10110001	261
127	177	10110101	265
128	200	10111111	277
129	201	10111100	274
130	202	10110111	267
131	203	10110100	264
132	204	10111111	277
133	205	10111100	274
134	206	10110111	267
135	207	10110100	264
136	210	10111111	277
137	211	10111101	275
138	212	10110111	267
139	213	10110101	265
140	214	10111111	277
141	215	10111101	275
142	216	10110111	267
143	217	10110101	265

ROM PATTERN SPEC

DEC PART NUMBR 23-00681
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	10111111	277
145	221	10111100	274
146	222	10110111	267
147	223	10110100	264
148	224	10111111	277
149	225	10111100	274
150	226	10110111	267
151	227	10110100	264
152	230	10111111	277
153	231	10111101	275
154	232	10110111	267
155	233	10110101	265
156	234	10111111	277
157	235	10111101	275
158	236	10110111	267
159	237	10110101	265
160	240	10111100	274
161	241	10111100	274
162	242	10110100	264
163	243	10110100	264
164	244	10111100	274
165	245	10111100	274
166	246	10110100	264
167	247	10110100	264
168	250	10111120	274
169	251	10111101	275
170	252	10110120	264
171	253	10110101	265
172	254	10111120	274
173	255	10111101	275
174	256	10110120	264
175	257	10110101	265
176	260	10111120	274
177	261	10111100	274
178	262	10110120	264
179	263	10110100	264

ROM PATTERN SPEC

DEC PART NUMBR 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	10111100	274
181	265	10111100	274
182	266	10111100	274
183	267	10111100	274
184	270	10111100	274
185	271	10111101	275
186	272	10111100	274
187	273	10111101	275
188	274	10111100	274
189	275	10111101	275
190	276	10111100	274
191	277	10111101	275
192	300	10111010	272
193	301	10111010	272
194	302	10110010	262
195	303	10110100	264
196	304	10111010	272
197	305	10111100	274
198	306	10110010	262
199	307	10110100	264
200	310	10111010	272
201	311	10111101	275
202	312	10110010	262
203	313	10110101	265
204	314	10111010	272
205	315	10111101	275
206	316	10110010	262
207	317	10110101	265
208	320	10111010	272
209	321	10111100	274
210	322	10110010	262
211	323	10110100	264
212	324	10111010	272
213	325	10111100	274
214	326	10110010	262
215	327	10110100	264

ROM PATTERN SPEC

DEC PART NUMBR 23-00581
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	10111010	272
217	331	10111101	275
218	332	10110010	262
219	333	10110101	265
220	334	10111010	272
221	335	10111101	275
222	336	10110010	262
223	337	10110101	265
224	340	01111111	177
225	341	11111100	374
226	342	11110101	365
227	343	11110100	364
228	344	11101100	354
229	345	11111100	374
230	346	11110101	365
231	347	11110100	364
232	350	01111111	177
233	351	11111101	375
234	352	11110101	365
235	353	11110101	365
236	354	11101100	354
237	355	11111101	375
238	356	11110101	365
239	357	11110101	365
240	360	11011110	336
241	361	11111100	374
242	362	11110101	365
243	363	11110100	364
244	364	11101100	354
245	365	11111100	374
246	366	11110101	365
247	367	11110100	364
248	370	11011110	336
249	371	11111101	375
250	372	11110101	365
251	373	11110101	365

ROM PATTERN SPEC [illegible] 137

DEC PART NUMBR 23-00681
ORIGINATOR: JOHN BLOEM
DATE OF ORIGIN: 16-DEC-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	11101100	354
253	375	11111101	375
254	376	11101101	365
255	377	11101101	365

ROM PATTERN SPEC [illegible] 138

DEC PART NUMBR 23-00781
ORIGINATOR: JOHN BLOOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	000	00100111	047
1	001	00100111	047
2	002	00100111	047
3	003	00100111	047
4	004	00000000	000
5	005	00000000	000
6	006	00000000	000
7	007	00000000	000
8	010	00000000	000
9	011	00000000	000
10	012	00000000	000
11	013	00000000	000
12	014	00000000	000
13	015	00000000	000
14	016	00000000	000
15	017	00000000	000
16	020	00100111	047
17	021	00011101	035
18	022	00100111	047
19	023	00011101	035
20	024	00000000	000
21	025	00000000	000
22	026	00000000	000
23	027	00000000	000
24	030	00000000	000
25	031	00000000	000
26	032	00000000	000
27	033	00000000	000
28	034	00000000	000
29	035	00000000	000
30	036	00000000	000
31	037	00000000	000
32	040	10111101	275
33	041	10111101	275
34	042	10111101	275
35	043	10111101	275

ROM PATTERN SPEC PAGE 1 OF 2 139

DEC PART NUMBR 23-00781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
36	044	00000000	000
37	045	00000000	000
38	046	00000000	000
39	047	00000000	000
40	050	00000000	000
41	051	00000000	000
42	052	00000000	000
43	053	00000000	000
44	054	00000000	000
45	055	00000000	000
46	056	00000000	000
47	057	00000000	000
48	060	10111101	275
49	061	10111101	275
50	062	10111101	275
51	063	10111101	275
52	064	00000000	000
53	065	00000000	000
54	066	00000000	000
55	067	00000000	000
56	070	00000000	000
57	071	00000000	000
58	072	00000000	000
59	073	00000000	000
60	074	00000000	000
61	075	00000000	000
62	076	00000000	000
63	077	00000000	000
64	100	01100100	144
65	101	00100110	046
66	102	01100100	144
67	103	00100110	046
68	104	00000000	000
69	105	00000000	000
70	106	00000000	000
71	107	00000000	000

ROM PATTERN SPEC PAGE 2 OF 2 140

DEC PART NUMBR 23-00781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
72	110	00000000	000
73	111	00000000	000
74	112	00000000	000
75	113	00000000	000
76	114	00000000	000
77	115	00000000	000
78	116	00000000	000
79	117	00000000	000
80	120	01001111	117
81	121	00100001	041
82	122	01001111	117
83	123	00100001	041
84	124	00000000	000
85	125	00000000	000
86	126	00000000	000
87	127	00000000	000
88	130	00000000	000
89	131	00000000	000
90	132	00000000	000
91	133	00000000	000
92	134	00000000	000
93	135	00000000	000
94	136	00000000	000
95	137	00000000	000
96	140	00100111	047
97	141	00100111	047
98	142	00100111	047
99	143	00100111	047
100	144	00000000	000
101	145	00000000	000
102	146	00000000	000
103	147	00000000	000
104	150	00000000	000
105	151	00000000	000
106	152	00000000	000
107	153	00000000	000

ROM PATTERN SPEC PAGE 1 OF 4. 141

DEC PART NUMBR 23-03781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
108	154	00032000	000
109	155	00032000	000
110	156	00032000	000
111	157	00032000	000
112	160	00100111	047
113	161	00100111	047
114	162	00100111	047
115	163	00100111	047
116	164	00002000	000
117	165	00002000	000
118	166	00002000	000
119	167	00002000	000
120	170	00002000	000
121	171	00002000	000
122	172	00002000	000
123	173	00002000	000
124	174	00002000	000
125	175	00002000	000
126	176	00002040	000
127	177	00002000	000
128	200	00100111	047
129	201	00100111	047
130	202	00100111	047
131	203	00100111	047
132	204	00002000	000
133	205	00002000	000
134	206	00002000	000
135	207	00002000	000
136	210	00002000	000
137	211	00002000	000
138	212	00002000	000
139	213	00002000	000
140	214	00002000	000
141	215	00002000	000
142	216	00002000	000
143	217	00002020	000

ROM PATTERN SPEC PAGE 2 OF 4. 142

DEC PART NUMBR 23-03781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
144	220	00100111	047
145	221	00100111	047
146	222	00100111	047
147	223	00100111	047
148	224	00002000	000
149	225	00002000	000
150	226	00002000	000
151	227	00002020	000
152	230	00032020	000
153	231	00002000	000
154	232	00002000	000
155	233	00002000	000
156	234	00002000	000
157	235	00002000	000
158	236	00002000	000
159	237	00002000	000
160	240	00100111	047
161	241	00100111	047
162	242	00100111	047
163	243	00100111	047
164	244	00002000	000
165	245	00002000	000
166	246	00002000	000
167	247	00002020	000
168	250	00002000	000
169	251	00002000	000
170	252	00002000	000
171	253	00002020	000
172	254	00032020	000
173	255	00002020	000
174	256	00002020	000
175	257	00032020	000
176	260	00100111	047
177	261	00100111	047
178	262	00100111	047
179	263	00100111	047

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ROM PATTERN SPEC [illegible] 143

DEC PART NUMBR 23-20781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
180	264	00000000	000
181	265	00000000	000
182	266	00000000	000
183	267	00000000	000
184	270	00000000	000
185	271	00000000	000
186	272	00000000	000
187	273	00000000	000
188	274	00000000	000
189	275	00000000	000
190	276	00000000	000
191	277	00000000	000
192	300	11000100	304
193	301	00100000	040
194	302	11000100	304
195	303	00100001	041
196	304	00000000	000
197	305	00000000	000
198	306	00000000	000
199	307	00000000	000
200	310	00000000	000
201	311	00000000	000
202	312	00000000	000
203	313	00000000	000
204	314	00000000	000
205	315	00000000	000
206	316	00000000	000
207	317	00000000	000
208	320	00100111	047
209	321	10101101	255
210	322	00100110	046
211	323	10101101	255
212	324	00000000	000
213	325	00000000	000
214	326	00000000	000
215	327	00000000	000

ROM PATTERN SPEC [illegible] 144

DEC PART NUMBR 23-20781
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
216	330	00000000	000
217	331	00000000	000
218	332	00000000	000
219	333	00000000	000
220	334	00000000	000
221	335	00000000	000
222	336	00000000	000
223	337	00000000	000
224	340	00100111	047
225	341	00100111	047
226	342	00100111	047
227	343	00100111	047
228	344	00000000	000
229	345	00000000	000
230	346	00000000	000
231	347	00000000	000
232	350	00000000	000
233	351	00000000	000
234	352	00000000	000
235	353	00000000	000
236	354	00000000	000
237	355	00000000	000
238	356	00000000	000
239	357	00000000	000
240	360	00100111	047
241	361	00100111	047
242	362	00100111	047
243	363	00100111	047
244	364	00000000	000
245	365	00000000	000
246	366	00000000	000
247	367	00000000	000
248	370	00000000	000
249	371	00000000	000
250	372	00000000	000
251	373	00000000	000

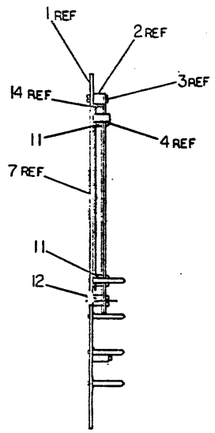
ROM PATTERN SPEC

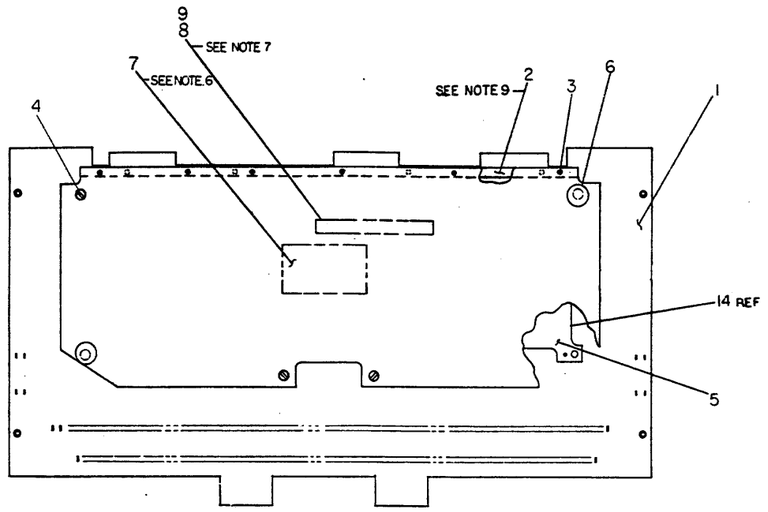
DEC PART NUMB: 23-007B1
ORIGINATOR: JOHN BLEOM
DATE OF ORIGIN: 10-09-74

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
252	374	00000000	000
253	375	00000000	000
254	376	00000000	000
255	377	00000000	000

377

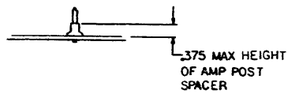
Pages 278-303 Missing From Original Document

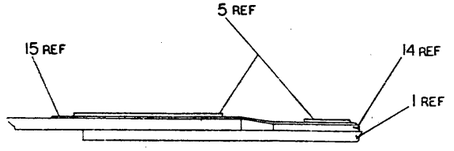


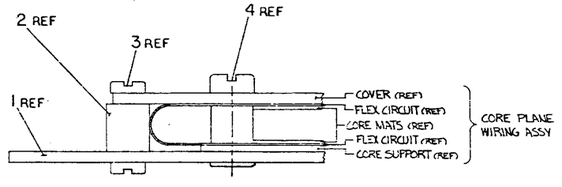


NOTES:

1. BOND CORE PLANE ASS'Y (ITEM NO. 5) TO THE STACK BD. (ITEM NO. 1) WITH ADHESIVE (ITEM NO. 10).
2. INSTALL THREADED CAMBION SPACERS (ITEM NOS. 11 AND 12) THRU STACK BOARD (ITEM NO. 1) AND CLINCH IN PLACE.
3. USE PROTECTIVE COATING (ITEM NO. 13) TO COAT ALL MAGNETIC WIRE TERMINATIONS AFTER ELECTRICAL TEST. REF DWG. E-IA-A013707-0-0
4. CLOSE COVER (PARTS OF ITEM NO. 5) AND SECURE STIFFENER SPACER (ITEM NO. 2) TO STACK BOARD (ITEM NO. 1) WITH FOUR #6 2-56 SCREWS (ITEM NO. 3.)
5. SECURE COVER TO STIFFENER SPACER (ITEM NO. 2) WITH SIX #6 2-56 SCREWS (ITEM NO. 3) AND TO CAMBION SPACERS (ITEM NO. 11 & 12) WITH 6 #6 4-40 SCREWS (ITEM NO. 4)
6. APPLY NAME PLATE (ITEM NO. 7) TO SIDE 2 OF STACK BOARD (ITEM NO. 1) APPROXIMATELY WHERE SHOWN.
7. LABEL STACK BOARD (ITEM NO. 1) ON SIDE 2 WITH THE DEC PART NUMBER SEQUENTIAL SERIAL NUMBER, C S REVISION USING INK (ITEM NO. 9) AND EPOXY (ITEM NO. 8) EXAMPLE H228-B-001.
8. PLACE WARRANTY SEALS (ITEM NO. 6) OVER SCREW HEADS AS SHOWN.
9. STIFFENER SPACER (ITEM NO. 2) ORIENTATION MARK SHOULD BE PLACED ON THIS END.







1	FLEX CIRCUIT ASSY(32K-SPC)	D-ES-A2CC91-0-0	15
1	STACK BOARD (32K-SPC)	D-10-A22...-0-0	14
A/R	PROTECTIVE COATING, RED (FI45)	4901093	13
2	STANDOFF, COAXIAL, .250 LONG	90-08177-01	12
4	STANDOFF, COAXIAL, .38 LONG	90-09127-00	11
A/R	ADHESIVE (ATV 3145)	4901036-00	10
A/R	INK, BLACK	4901084-00	9
A/R	EPOXY	4901082-00	8
1	NAME PLATE	3614053-00	7
2	WARRANTY SEAL	3613970-00	6
1	CORE PLANE WIRING ASSY	E-IA-A013707-0-0	5
8	SCR, SLT TRUSS HD, NYLON #4-40	90-09233-4	4
10	SCR, SLT TRUSS HD, NYLON #2-56	90-09204-01	3
1	STIFFENER SPACER (32K-SPC)	D-ES-A2CC92-0-0	2
1	STACK BOARD (32K-SPC)	D-10-A22...-0-0	1

DESCRIPTION	PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND SHARP EDGES

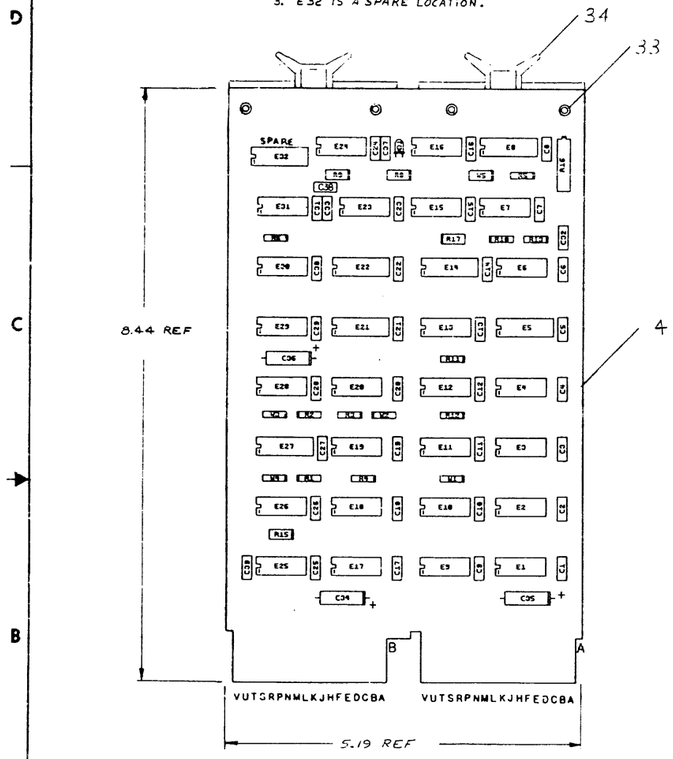
PARTS LIST

DRAWN		FIRST USED ON MMM-YY
CHECKED		
ENGR APPR		
MFG APPR		
TECH PUBS APPR		
QUALITY ASSY.		
SIZE	CODE	NUMBER
E	UA	H228-B-0
SCALE	1/1	
SHEET	OF	

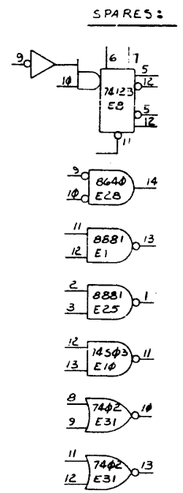
TITLE H228-B
CORE MEMORY
STACK ASSEMBLY

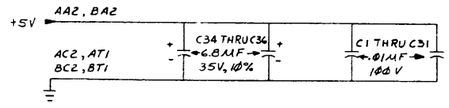
NOTES:

1. ALL RESISTORS 1/4 W, 5% UNLESS OTHERWISE NOTED.
   ALL CAPACITORS ARE 100V, 20% UNLESS OTHERWISE NOTED.
2. JUMPER CONTROL OPERATIONS ARE AS FOLLOWS:
   W1 THRU W4 SELECT CSR ADDRESS, W5 CAPACITOR FOR S SYN DLY, NOT USED.
3. E32 IS A SPARE LOCATION.



SPARES:





REF				REF
REF		X-Y COORDINATE HOLE LOCATION	X-CO-M7850-0-4	
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7850-0-5	
REF		MODULE ECO HISTORY	B-MH-M7850-0-6	
1		ETCHED CIRCUIT BOARD	5010651-00	
1	C39	CAP 470 PF, 100V, 5% (DM)	1000024-00	
2	C33, C37	CAP 330 PF, 100V, 5% (DM)	1000023-00	
32	C1 THRU C32	CAP .01 MF, 100 V, 20% DISC	1001610-01	
3	C34, C35, C36	CAP 6.8 MF, 35 V, 10% STANT	1005306-00	
1	D1	DIODE, L.E.D.	1110324-00	
5	R1 THRU R5	RES 4.7K 1/4W 5%	1300447-00	
3	R8, R9, R15	RES 100 1/4W 5%	1300229-00	
5	R6, R10, R11, R12, R17	RES 470 1/4W 5%	1300316-00	
1	R13	RES 1K 1/4W 5%	1300365-00	
1	R16	RES 10K 3/4W 2% (76 PER REF)	1309143-10	
1	E24	I.C. 7400	1905575-00	
1	E30	I.C. 7430	1905578-00	
1	E31	I.C. 7402	1909004-00	
1	E19	IC. 314A	1909704-00	
1	E23	IC. 7408	1910155-00	
4	E1, E9, E17, E25	IC. 8881	1909705-00	
1	E16	I.C. 74H04	1909931-00	
1	E27	I.C. 7485	1910224-00	
1	E8	I.C. 74123	1910436-00	
1	E10	I.C. 74S03	1910533-00	
1	E15	I.C. 74S74	1910544-00	
1	E21	I.C. 74174	1910652-00	
2	E5, E22	I.C. 74157	1910655-00	
9	E2, E3, E11, E12, E18 E20, E26, E28, E29	I.C. 8640	1911469-00	
2	E4, E13	I.C. 74S280	1911573-00	
1	E14	I.C. 8266	1909934-00	
2	E6, E7	I.C. 7474	1905547-00	
4	W1 THRU W4	INSULATED JUMPER	9009185-00	
4		EYELET	9006732-00	
2		HANDLE, FLIP-CHIP (MAGENTA)	9008337-6	

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL

ETCH BOARD REV. B

8640	1	8
8266	8	16
74151	8	16
74174	8	16
74123	8	16
7485	8	16
314A	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

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

SEMICONDUCTOR CONVERSION CHART

REV.	REVISIONS	CHANGE NO.	CHK
B	ADDED E32	00001	

J MANTON 5/12/75

DRN W. LUFKIN DATE 2-5-75
CHK'D DATE 2/17/75
ENG. DATE 2/17/75
PROJ. ENG. DATE 2/17/75
PROD. DATE 2/18/75
NEXT HIGHER ASSY

digital

TITLE PARITY MODULE

SIZE D | CODE DCS | NUMBER M7850-0-1 | REV. B

SCALE | SHEET 1 OF 3 | DIST.

PM3 PAR ERR (1) L
PM3 D15 H
PM3 CLK CSR H
PM3 INIT L
7474 E7
R17 470
D1 LED
+5V
PM2 CSR15 (1) H
CSR 15 (Ø) H

BUS A17 L BS1 — 8640 E29 — A17 H
BUS A16 L BS2 — 8640 E29 — A16 H
BUS A15 L BR1 — 8640 E29 — A15 H
BUS A14 L BR2 — 8640 E29 — A14 H
BUS A13 L BP1 — 8644 E28 — A13 H
BUS A12 L BP2 — 8640 E28 — A12 H
BUS A11 L BN1 — 8640 E28 — A11 H
BUS A10 L BN2
BUS A09 L BM1 — 8640 E18 — A09 H
BUS A08 L BM2 — 8640 E18 — A08 H
BUS A07 L BL1 — 8644 E18 — A07 H
BUS A06 L BL2
BUS A05 L BK1 — 8640 E18 — A05 H
BUS A06 L BK2 — 8640 E26 — A04 H
BUS A03 L BJ1 — 8640 E26 — A03 H
BUS A02 L BJ2 — 8640 E26 — A02 H
BUS A01 L BH1 — 8644 E26 — A01 H

7430 E30
314A E19

74157 E22: A17 H, PM3 DI1 H, A16 H, PM3 DI0 H, A15 H, PM3 DØ9 H, A14 H, PM3 DØ8 H, SEL DATA L, STB SØ
74157 E5: A11 H, PM3 DØ5 H, A13 H, PM3 DØ7 H, A12 H, PM3 DØ6 H, SEL DATA L, STB SØ
**

74174 E21: DIR 11 → PM2 ER A17 H; DIR 10 → PM2 ER A16 H; DIR Ø9 → PM2 ER A15 H; DIR Ø8 → PM2 ER A14 H; DIR Ø7 → PM2 ER A13 H; DIR Ø6 → PM2 ER A12 H; CLR CLK; PM3 CLK ADRS H
DIR Ø5 → PM2 ER A11 H; PM3 V H; PM3 CLK ADRS H
PM3 DØ2 H → PM2 CSR 2 (1) H (WRITE WRONG PARITY); PM3 CLK CSR H; PM2 CSR 2 (Ø) H; PM3 INIT L
PM3 DØØ H → PM2 CSR Ø (1) H (ERR IND ENAB); PM3 CLK CSR H

T485 E27: B3, A3, B2, A2, B1, A1, BØ, AØ; A>B, A=B, A<B; IN> IN= IN<; PM3 V H
ADRS 3 SEL 2 H
7400 E24
7402 E31 → PM12 CSRADRS SEL H
ADRS SEL 1 H

R4 4.7K, R3 4.7K, R2 4.7K, R1 4.7K; +5V
W1 AØ1, W2 AØ2, W3 AØ3, W4 AØ4

PM3 PAR ERR(1) L, PM3 DATIP L → 7402 E31 → 8881 E25 → ETCH CUT, SIGNAL NOT USED; BA1 → DATIP CLR PAUSE L

BUS CØ L BU2 → 8640 E23 → PM2 CØ H

NOTES:

* THE CSR REGISTER ADDRESS IS LOCATED BETWEEN 772100 AND 772136. IT IS SELECTED WITH JUMPERS W1 THRU W4. REMOVING A JUMPER SELECTS A "ONE" FOR THAT BIT POSITION. (*)

MACHINE ADDRESS (WORDS) 8	W4 A4	W3 A3	W2 A2	W1 A1
772140	IN	IN	IN	IN
772102	IN	IN	IN	OUT
772104	IN	IN	OUT	IN
772106	IN	IN	OUT	OUT
772110	IN	OUT	IN	IN
772112	IN	OUT	IN	OUT
772114	IN	OUT	OUT	IN
772116	IN	OUT	OUT	OUT
772120	OUT	IN	IN	IN
772122	OUT	IN	IN	OUT
772124	OUT	IN	OUT	IN
772126	OUT	IN	OUT	OUT
772130	OUT	OUT	IN	IN
772132	OUT	OUT	IN	OUT
772134	OUT	OUT	OUT	IN
772136	OUT	OUT	OUT	OUT

** THE "A" INPUTS ARE SELECTED WHEN THE SEL INPUT GOES LOW. (**)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PARITY MODULE (PM2)	D	DCS	M7850-Ø-1	B
SCALE	SHEET 2 OF 3	DIST.		

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NOTES:
- # B INPUTS SELECTED WHEN SEL IS LOW (*)
- ## SET R16 TO 110 NSEC ±10NS FROM SIGNAL ON PIN BE1 GOING LOW TO SIGNAL ON PIN BB2 GOING HIGH. (@ 1.5V LEVEL) (**)

PM2 CSR 15 (1) H
BUS DI4 L
BUS DI3 L
BUS DI2 L
PM2 ER A17 H
PM2 ER A16 H
PM2 ER A15 H
PM2 ER A14 H
PM2 ER A13 H
PM2 ER A12 H
PM2 ER A11 H
BUS DØ4 L
BUS DØ3 L
PM2 CSR 2 (1) H
BUS DØ1 L
PM2 CSR Ø (1) H
PM3 READ SEL H

8881 E9 / 8881 E17 / 8881 E1 — BUS DI5 L, BUS DI4 L, BUS DI3 L, BUS DI2 L, BUS DI1 L, BUS DI0 L, BUS DØ9 L, BUS DØ8 L, BUS DØ7 L, BUS DØ6 L, BUS DØ5 L, BUS DØ2 L, BUS DØ0 L

8640 E12 / 8640 E11 / 8640 E2 / 8640 E3

PM3 DI5 H, PM3 DI4 H, PM3 DI3 H, PM3 DI2 H, PM3 DI1 H, PM3 DI0 H, PM3 DØ9 H, PM3 DØ8 H, PM3 8 BIT GEN H

74S280 E13

PM3 DØ7 H, DØ4 H, DØ3 H, DØ1 H, PM3 A BIT GEN H, PM3 DØ6 H, PM3 DØ5 H, PM3 DØ2 H, PM3 DØØ H

74S280 E4

PM3 C1 H

74S03 E11 / 74S03 E10 / 74S03 E10

AN1 INT BUS P1 L
AP1 INT BUS P0 L
PM3 PAR ERR H

8266 E14

PM2 CSR 2 (0) H
PM3 VH
PM2 C0 H
PM3 8 BIT GEN H
PM3 A BIT GEN H
PM3 DATIP L
PM3 C1 L

R12 470, R11 470, R10 470, +5V

R6 470, +5V — 74H04 E16 — PM3 INT SSYN H

R5 4.7K +5V
R16 10K (T.P.)
R13 1K +5V PM3 VH
C32 .01UF

INT BUS SSYN L BE1 — 74123 E8 — PM3 C1 L
PM3 INIT L
BB2 S SYN DLY (Ø) H

PM3 PAR ERR (1) H
PM3 PAR ERR (1) L
PM2 CSR Ø (1) H
7474 E15
8881 E1 — AN2 — BUS PB L

PM3 INT SSYN H
PM3 M SYN PULSE L
PM3 PAR ERR H
8881 E25 — BU1 — BUS SSYN L

PM3 PAR ERR (1) H — 74H04 E16 — R8 100, C37 330 PF 5% — 7408 E24 — ERR CLR INH L
7408 E23 — S SYNC INH Ø H

BUS INIT L AA1 — 8640 E20 — INIT H — 74H04 E16 — PM3 INIT L
PM3 C1 H
BUS C1 L BT2 — 8640 E20 — 74H04 E16 — PM3 C1 L

BE2 INT BUS PAR MOD DET L

R9 100 — C33 330PF 5% — 7408 E24 — PM3 M SYN PULSE L

BUS M SYN L BV1 — 8640 E20
C39 470 PF 5% — PM3 C1 L — 7408 E23 — PM3 READ SEL H
PM2 CSR ADRS SEL H — 7408 E23 — R15 100
CLK CSR L
PM3 CLK CSR H — 74H04 E16 — 7408 E24 — PM3 CLK ADRS H
PM3 C1 H
PM3 PAR ERR (1) L

REVISIONS

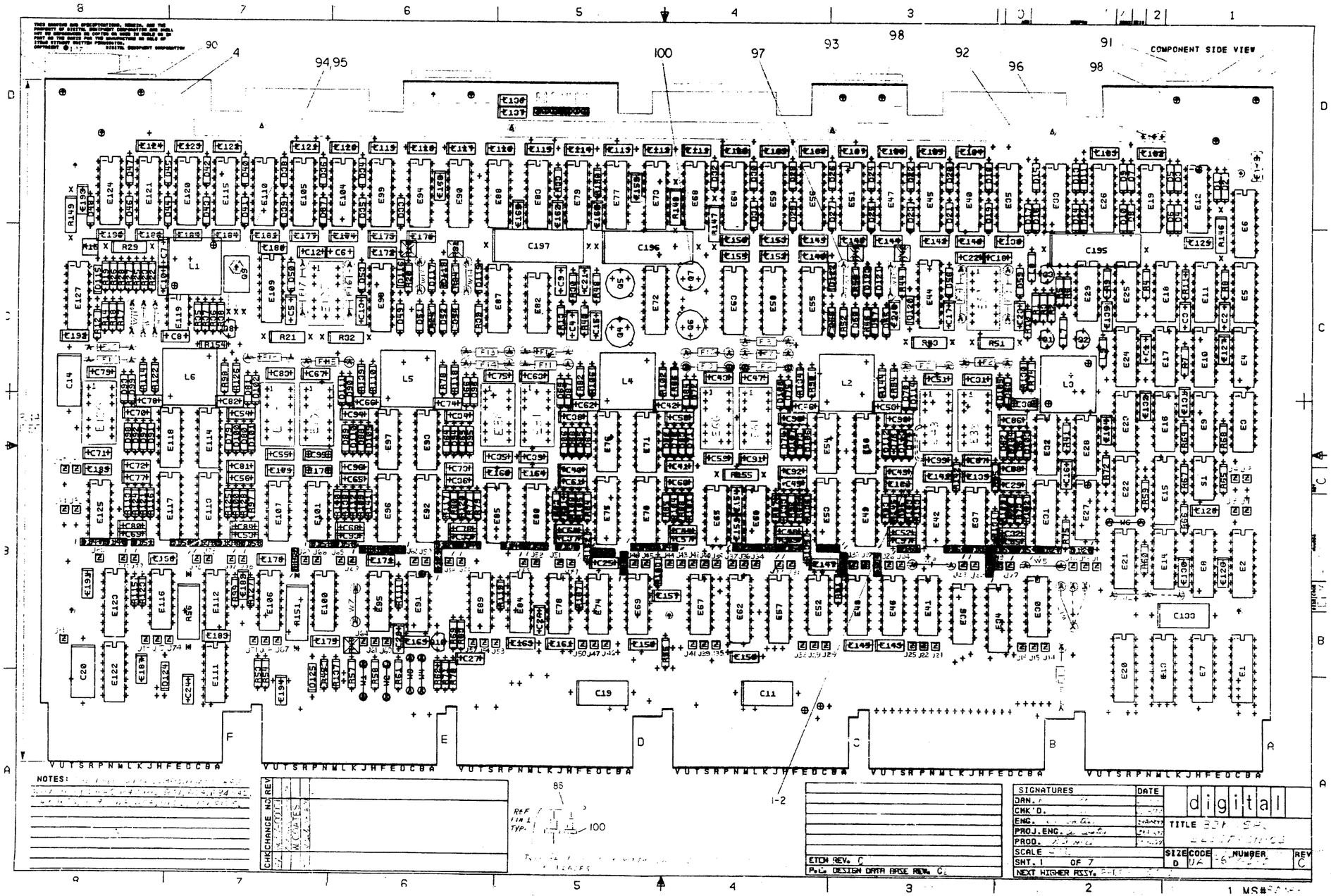
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PARITY MODULE (PM3)	D	DCS	M7850-0-1	B
SCALE	SHEET 3 OF 3	DIST		

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
102	102		1305128-00	5.62 K 1/4W 1% RN55D-F 100PPM (13-00	1	R33
103	103		1300249-00	150 1/2W 5% CC (13-00	2	R147,R149
104	104		1300247-00	120 1/4W 5% CC (13-00	1	R39
105	105		1303178-00	620 1/4W 5% CC (13-00	1	R46
106	106		1110836-00	1N 759A VZ= 12.0 5% .40W P	1	D120
107	107	SEE NOTE 109	1001610-00	.01 MFD 50V Z5U 309CER/8000PF MIN	110	C4,C7,C9,C10,C15,C21,C24,C25,
					CONT	C27,C29,C32,C33,C36,C37,C40,
					CONT	C41,C44,C45,C48,C49,C56,C57,
					CONT	C60,C61,C64,C65,C68,C69,C72,
					CONT	C73,C76,C77,C80,C81,C84,C85,
					CONT	C88,C89,C92,C93,C96,C97,C100,
					CONT	C52,C53,C126,C128,C130-C132,
					CONT	C134,C135,C138-C166,C168-C192,
					CONT	C194,C210,C127,C129
108	108		9105740-55	WIRE(WRAP)30AWG UL1423 (91-00	A/R	

109 NOTE: 10-01610-01 CAN BE USED IN PLACE OF 10-01610-00

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: PARTS LIST 32K SPC ELECTRONICS	SIZE: K	CODE: PL	DOCUMENT NUMBER: G657-0-DBP	REV: C


COMPONENT SIDE VIEW
NOTES:
digital
SIGNATURES
DATE
DRN.
CHK'D.
ENG.
PROJ.ENG.
PROD.
SCALE
SHT. 1 OF 7
NEXT HIGHER ASSY.
ETCH REV. C
P.C. DESIGN DATA BASE REV. C
SIZE D
CODE
NUMBER
REV C
REF FIN 1 TYP.
1-2

LAYER 1

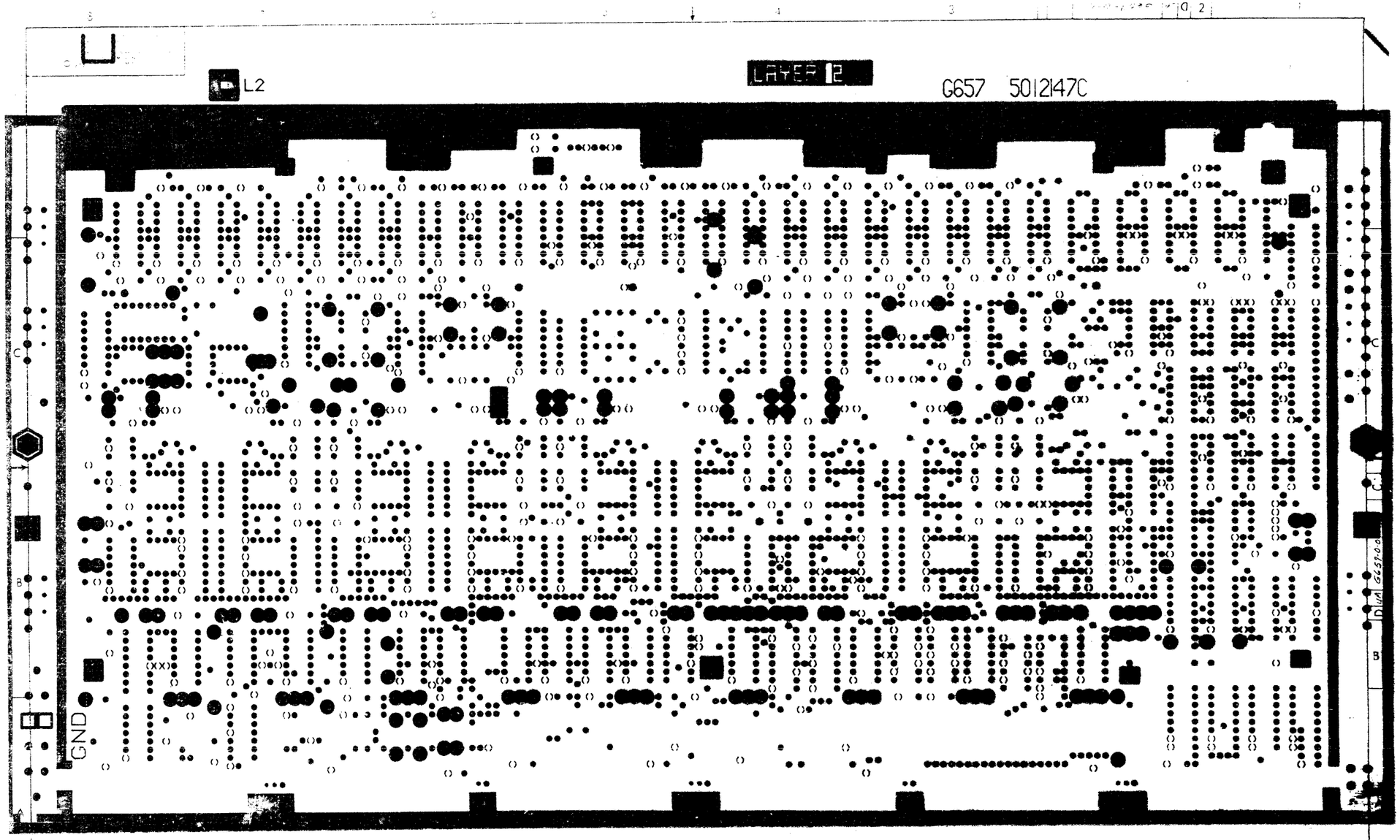
32K SPC ELECTRONICS 5012147C G657

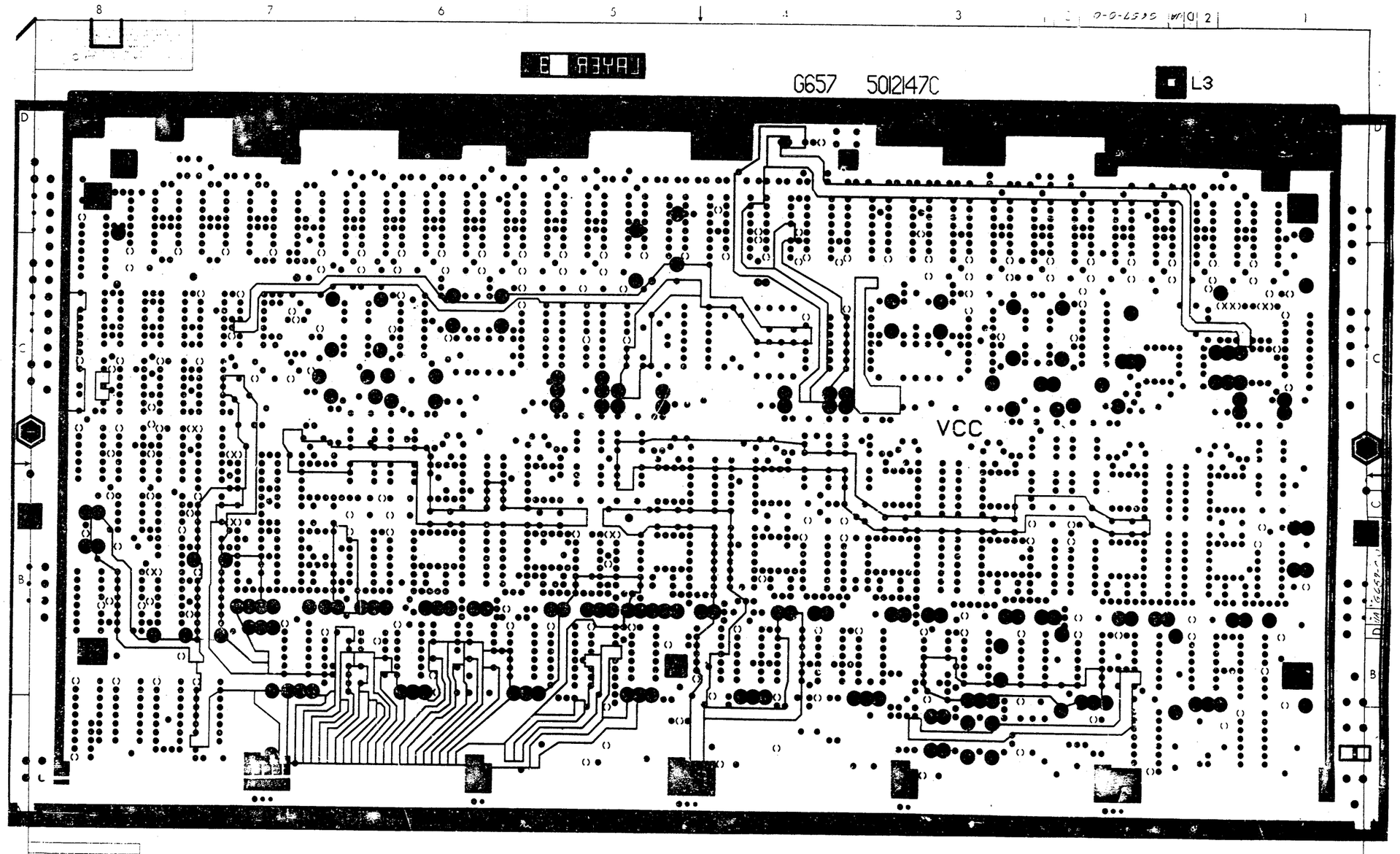
L1

CS*ABCDEFHJ SIDE 1

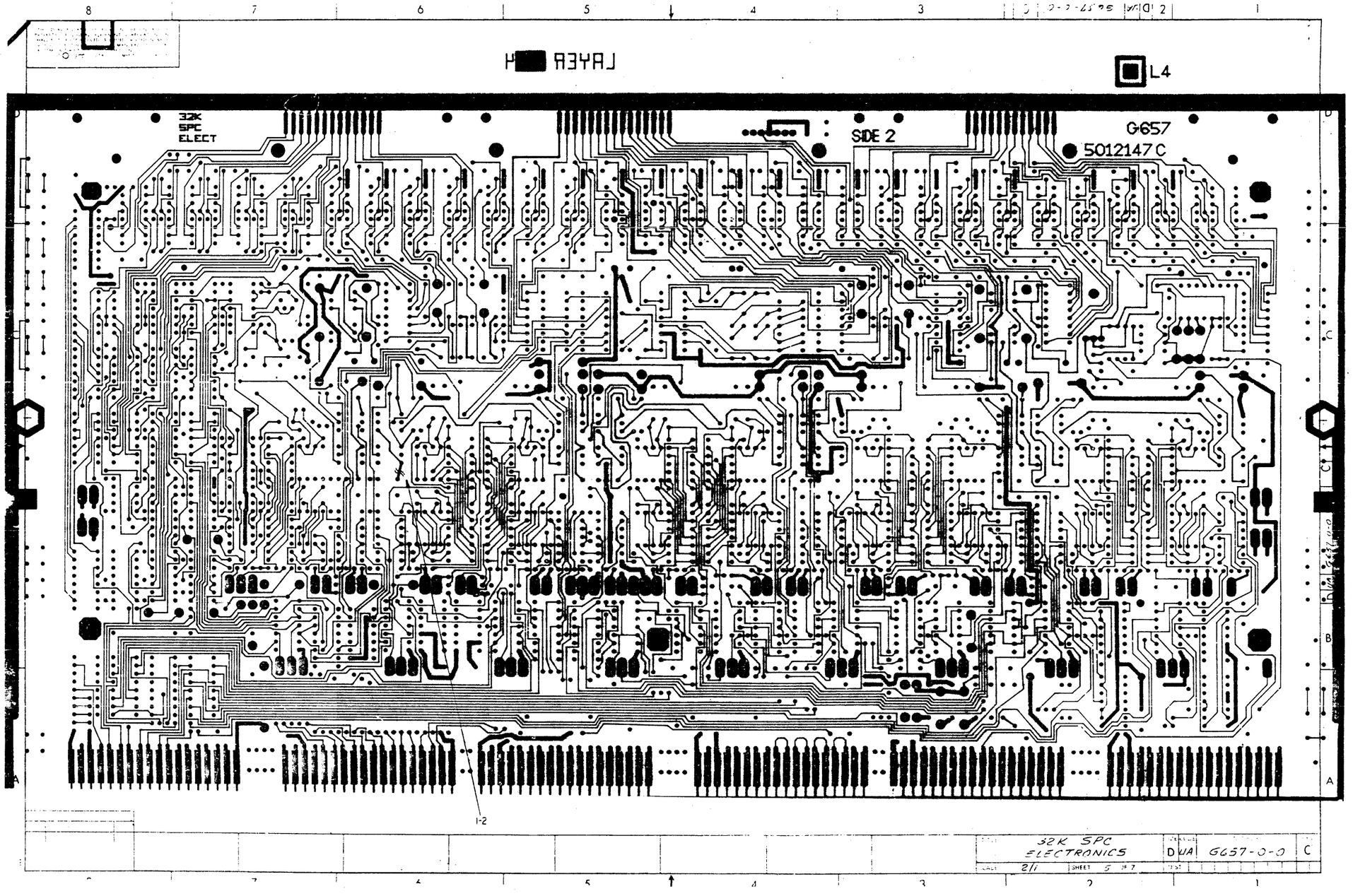
J88 J89 J87 J86

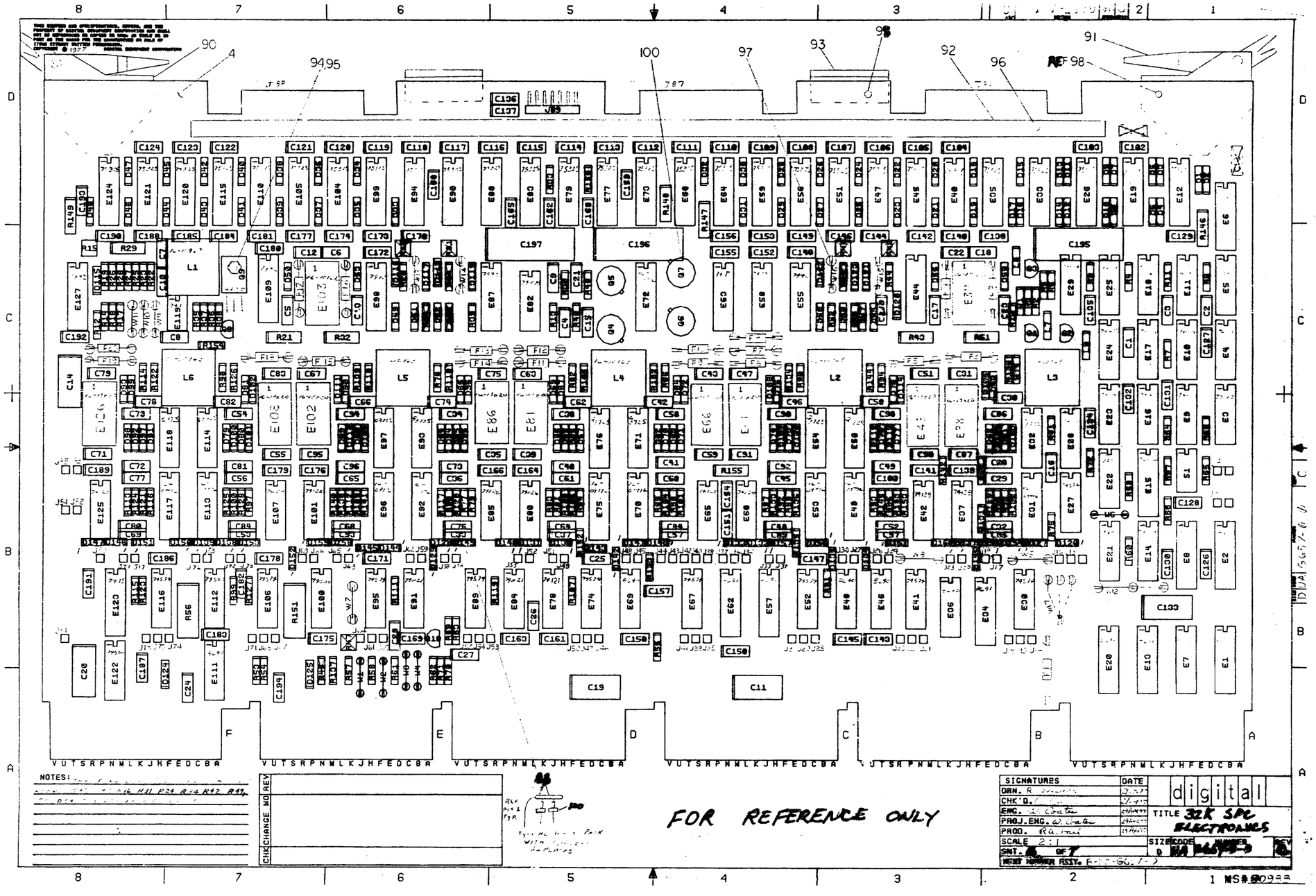
digital


L2
LAYER 2
G657 5012147C
GND
32K SPC
ELECTRONICS
D WA G657-C-0
C



32K SPC
ELECTRONICS
D JA G657 0-J C


LAYER 4
L4
32K
SPC
ELECT
SIDE 2
G657
5012147 C
1-2
32K SPC
ELECTRONICS
D
G657-0-0
C
SHEET 5 OF 7


FOR REFERENCE ONLY
digital
DUA5650

REWORK INSTRUCTIONS

ECO#1

ETCH CUTS SIDE 2:

1-1 CUT ETCH FROM E93-7 TO C99

WIRE ADD SIDE 2

1-2 FROM E93-5 TO C99

BOND WIRE TO SIDE 2 WITH ADHESIVE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELETRONICS	D	UA	G657-0-0	C
SCALE	SHEET 7 OF 7	DIST.		

321

COMPONENT SIDE VIEW

J88 J87 J86

NOTES:
1. PINS THAT HAVE AMP POST SPACERS ARE (10 PLACES) 22,14,21,28,35,50,57,64,71,78,56. AMP POST SPACERS MUST BE PUT ON BEFORE ELECTRICAL COMPONENTS ARE INSTALLED.

CHK CHANGE NO	REV

TYPICAL DIODE PACK WITH SPACERS 18 PLACES

ETCH REV. D	
P.C. DESIGN DATA BASE REV.	DL

SIGNATURES	DATE
DRN. K Shampine	12-8-76
CHK'D K Shampine	12-8-76
ENG.	
PROJ. ENG.	
PROD.	
SCALE 2/1	
SHT. 1 OF 4	
NEXT HIGHER ASSY. 3-DD-5412149-0	

digital

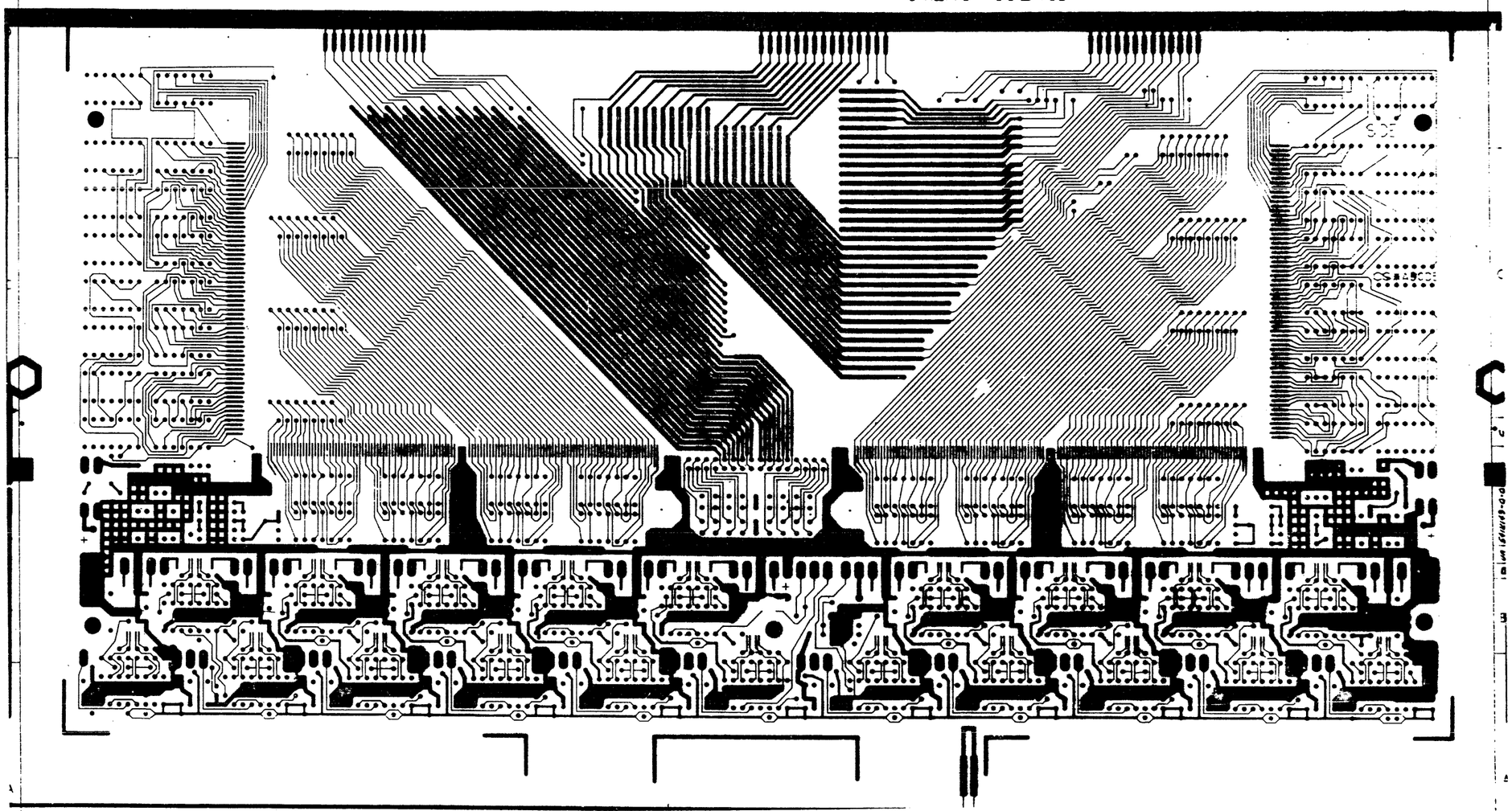
TITLE 32 K SPC MEMORY

SIZE	CODE	NUMBER	REV
D	UA	54,2149-0-0	C

MS# 30989

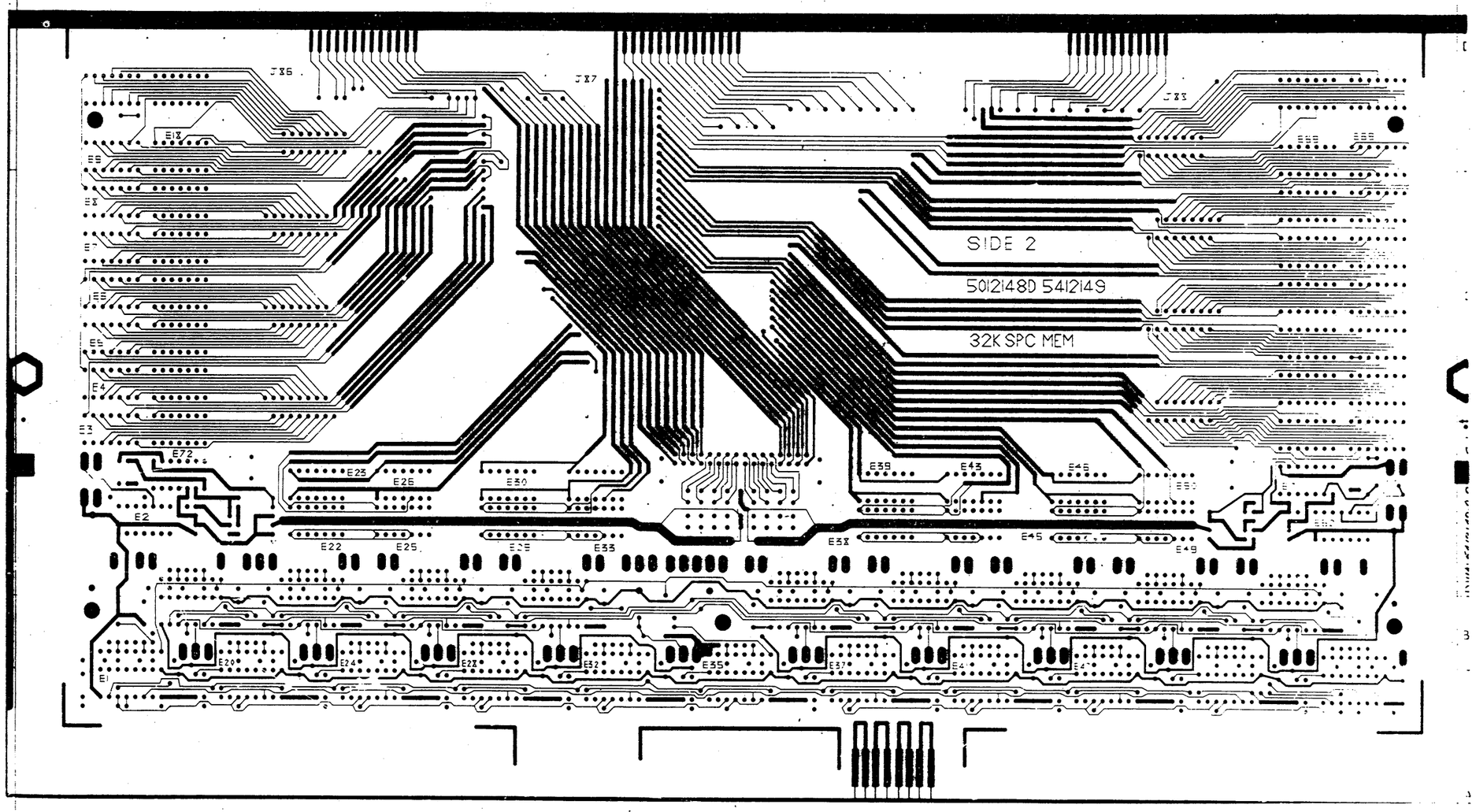
322

5412149 502148D



32K SPC MEMORY D UA 5412149-0-0 C

211 2 4



32K SPC MEMORY D UA 5412149-0-0 C

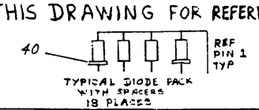
D UA 5412149-0-0 C

J88 J87 J86

NOTES:
1. PINS THAT HAVE AMP POST SPACERS ARE LOCATED AT: 13, 14, 21, 25, 35, 36, 51, 54, 71, 73, 85.
AMP POST SPACERS MUST BE PUT ON BEFORE ELECTRONIC COMPONENTS ARE INSTALLED.

CHK CHANGE NO REV

THIS DRAWING FOR REFERENCE ONLY



ETCH REV. D
P.C. DESIGN DATA BASE REV. DL

SIGNATURES	DATE
DRN. K. Hampfl	12-3-76
CHK'D. K. Hampfl	12-3-76
ENG. W. Coates	3 APR 77
PROJ. ENG. W. Coates	3 APR 77
PROD.	

digital

TITLE 32 K SPC MEMORY

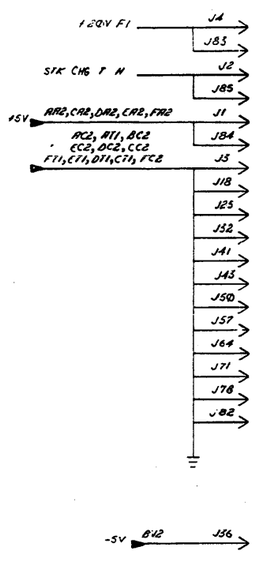
SCALE 2/1	SIZE	CODE	NUMBER	REV
SHT. 4 OF 4	D	UA	5412149-0-0	C

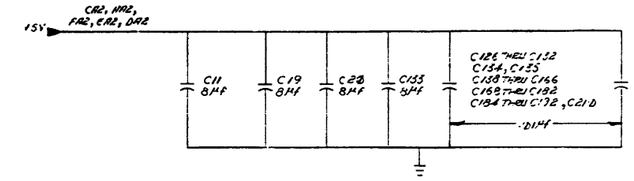
NEXT HIGHER ASSY: B-DD-5412149-0

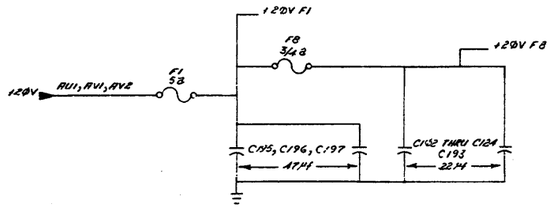
MS# 80989

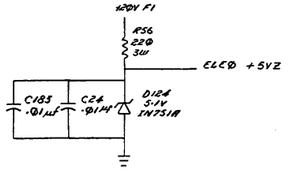
BANK SELECTION

	NON INTERLEAVED	INTERLEAVED	A17	A16	A15	A14	A13
SW	CE#1	EA#1	SW1	SW2	SW3	SW4	SW5
0	32K	64K	ON	ON	ON	ON	ON
4K	36K	68K	ON	ON	ON	ON	OFF
8K	40K	72K	ON	ON	ON	OFF	ON
12K	44K	76K	ON	ON	ON	OFF	OFF
16K	48K	80K	ON	ON	OFF	ON	ON
20K	52K	84K	ON	ON	OFF	ON	OFF
24K	56K	88K	ON	ON	OFF	OFF	ON
28K	60K	92K	ON	ON	OFF	OFF	OFF
32K	64K	96K	ON	OFF	ON	ON	ON
36K	68K	100K	ON	OFF	ON	ON	OFF
40K	72K	104K	ON	OFF	ON	OFF	ON
44K	76K	108K	ON	OFF	ON	OFF	OFF
48K	80K	112K	ON	OFF	OFF	ON	ON
52K	84K	116K	ON	OFF	OFF	ON	OFF
56K	88K	120K	ON	OFF	OFF	OFF	ON
60K	92K	124K	ON	OFF	OFF	OFF	OFF
64K	96K	124K	OFF	ON	ON	ON	ON
68K	100K	124K	OFF	ON	ON	ON	OFF
72K	104K	124K	OFF	ON	ON	OFF	ON
76K	108K	124K	OFF	ON	ON	OFF	OFF
80K	112K	124K	OFF	ON	OFF	ON	ON
84K	116K	124K	OFF	ON	OFF	ON	OFF
88K	120K	124K	OFF	ON	OFF	OFF	ON
92K	124K	124K	OFF	ON	OFF	OFF	OFF
96K	124K	124K	OFF	OFF	ON	ON	ON
100K	124K	124K	OFF	OFF	ON	ON	OFF
104K	124K	124K	OFF	OFF	ON	OFF	ON
108K	124K	124K	OFF	OFF	ON	OFF	OFF
112K	124K	124K	OFF	OFF	OFF	ON	ON
116K	124K	124K	OFF	OFF	OFF	ON	OFF
120K	124K	124K	OFF	OFF	OFF	OFF	ON







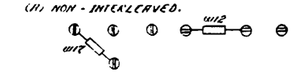


TS325	8	9	16
8640	1	8	
8641	8	16	
7483A	12	5	
7475	12	5	
74H12	8	16	
IC TYPE	GND	+5V	+20

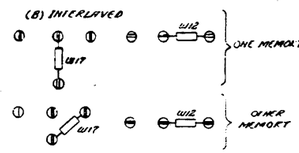
NOTES:

1. INTERLEAVE CONTROL IS ACHIEVED AS FOLLOWS:

(A) NON - INTERLEAVED.



(B) INTERLEAVED



(C) THE BANK SELECTION SWITCH MUST BE SET THE SAME ON BOTH MEMORIES.

2. UNDER NORMAL CONDITIONS (W5, W6, OUT) THE MEMORY WILL NOT RESPOND TO ADDRESS BETWEEN 124K AND 128K, BECAUSE THESE ADDRESS ARE RESERVED FOR PERIPHERAL DEVICES ON THE UNIBUS.
FOR SPECIAL APPLICATIONS WHERE THE RANGE OF PERIPHERAL ADDRESS IS MORE RESTRICTED THAN THIS ARRANGE THE MEMORY CAN BE CONFIGURED TO INCLUDE THE ADDITIONAL UNIBUS ADDRESSES AS FOLLOWS.

W5 IN, W6 OUT } 124K TO 126K

W5 IN, W6 IN } 124K TO 127K

NOTE THAT FOR SYSTEMS WITHOUT MEMORY MANAGEMENT, THIS MEANS THE USEFUL VIRTUAL ADDRESS SPACE FOR MEMORY CAN BE EXTENDED FROM 28K TO 30K OR 31K. BY SACRIFICING SOME PERIPHERAL SPACE.

CAUTION:
SOME DIGITAL SOFTWARE MAY NOT BE COMPATIBLE WITH THE REDUCED PERIPHERAL ADDRESS SPACE. TO ASSURE COMPATIBILITY W5 AND W6 MUST BE OUT.

3. SCHEMATIC FOR M223 MEMORY STACK IS SHOWN ON CS-5412149-0-1.

4.

MODE		WR BYTE Ø/L / WR BYTE 1 L	CLOCK Ø H / CLOCK 1 H	CLEAR Ø L / CLEAR 1 L	STROBE LNLBAR, UNLBAR, STROBE LNUBAR, UNUBAR	OUT EN L
DATI	BUS CØ=H, BUS C1=H	H / H	L / L	⊔ / ⊔	⊓ / ⊓	⊔
DATO	BUS CØ=H, BUS C1=L	L / L	⊓ / ⊓	H / H	L / L	H
DATOB	BUS CØ=L, BUS C1=L, BUS AØ=H (LO BYTE)	L / H	⊓ / L	H / ⊔	L / ⊓	H
DATOB	BUS CØ=L, BUS C1=L, BUS AØ=L (UP BYTE)	H / L	L / ⊓	⊔ / H	⊓ / L	H

5. W1, W2, W3, W4, W9, W10, W11, MUST BE INSTALLED BEFORE MEMORY TEST.

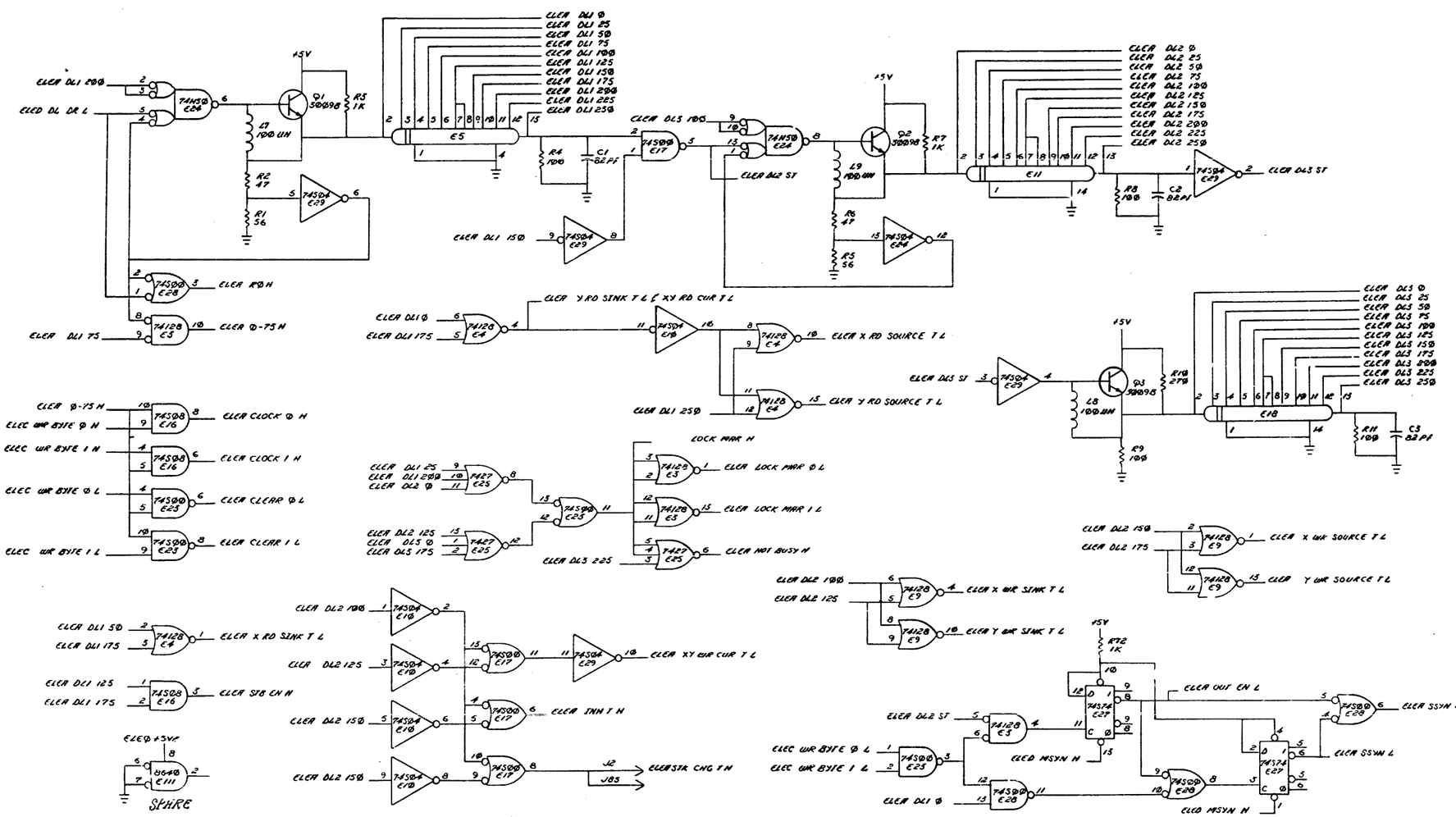
6. W5 AND W6 CONTROL BITS 16 AND 17. (A) FOR 16 BIT SYSTEM W5 AND W6 OUT. (B) FOR 18 BIT SYSTEM W5 AND W6 IN.

REVISIONS		
S	CHANGE NO.	REV.
	ECO 7000	C
	N. COATES	

DRN. Angel Rubio	1/23/77	FIRST USED ON MM11-YP
CHK'D Q. Hamilton	2/9/77	
ENG. W. Coates	2/9/77	TITLE (ELEØ) 32K SPEC ELECTRONICS
PROJ. ENG. W. Coates	2/9/77	
PMOD.	2/9/77	
NEXT HIGHER ASSY.		
B-DD-G657-0		SIZE D, CODE CS, NUMBER G657-0-1, REV. C
SCALE NONE		
SHEET 1 OF 18		DIST.

NOTE: ALL DIODES D672
UNLESS OTHERWISE SPECIFIED

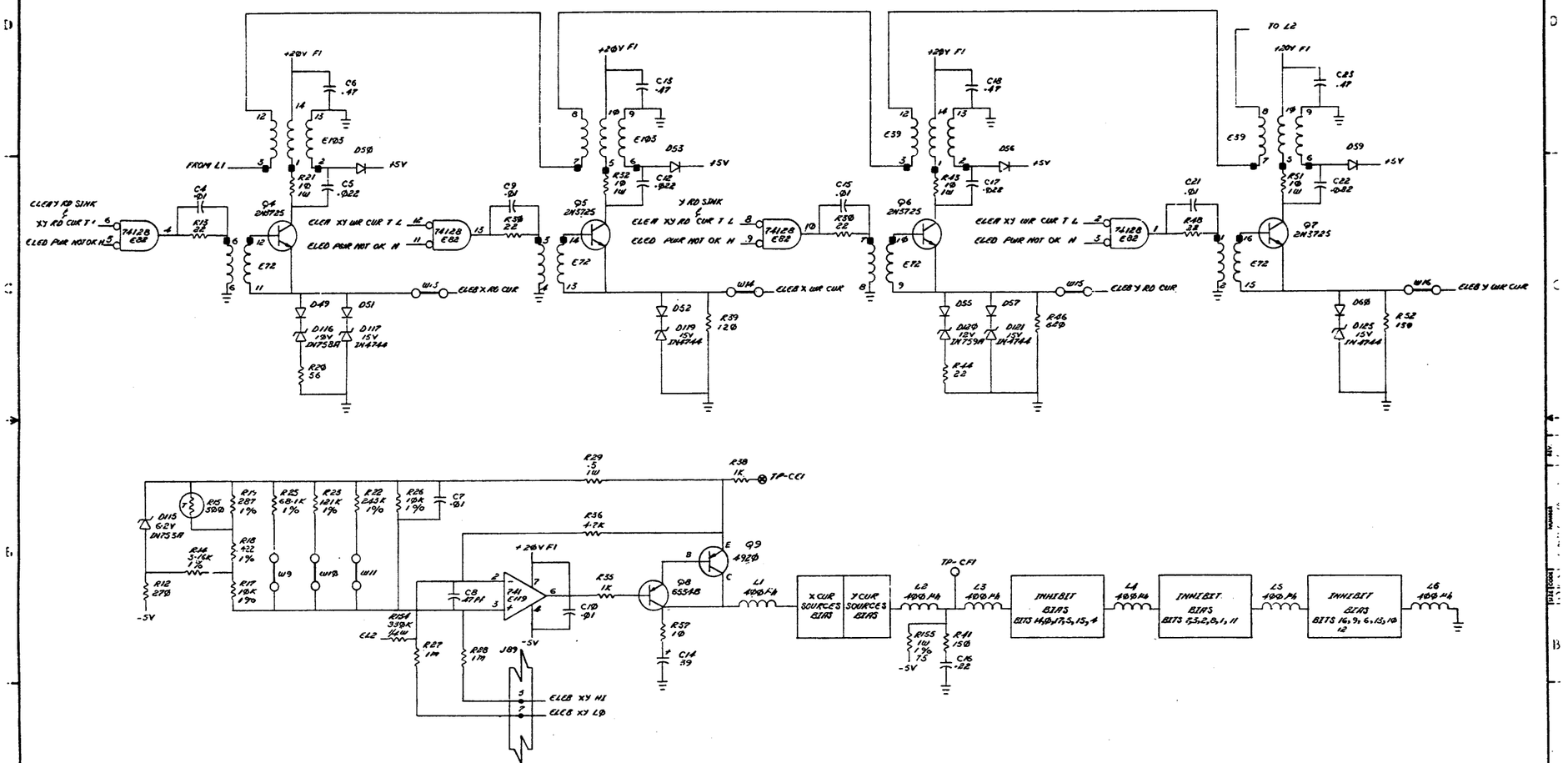
BUS GRANT LINES
DK2 - DL2
DM2 - DN2
DP2 - DR2
DS2 - DT2
CA1 - CB1



REVISIONS		
CHK	CHANGE NO.	REV.

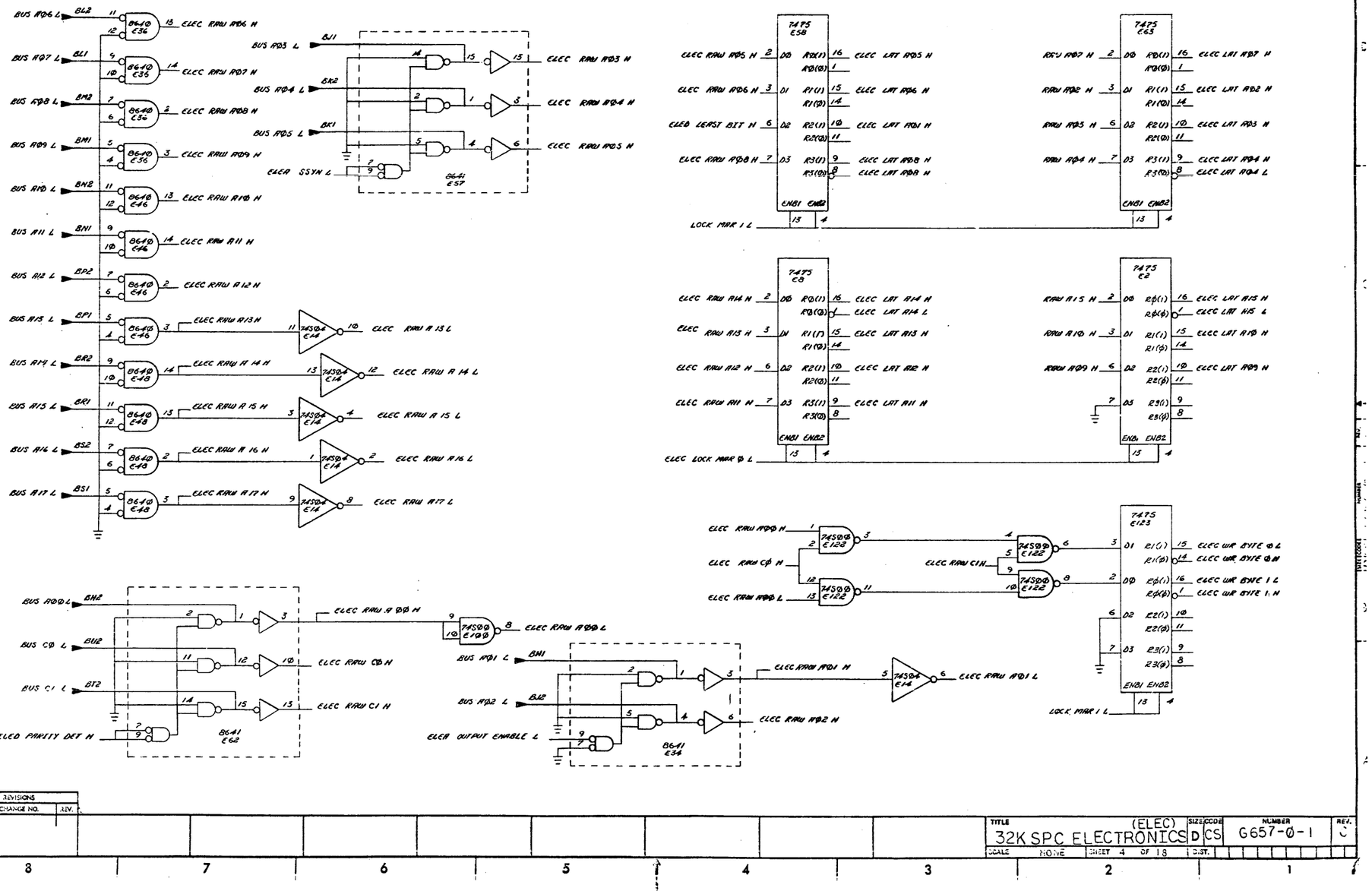
TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEA)	D	CS	G657-0-1	C
SCALE NONE SHEET 2 OF 18	DIST.			

DEC FORM NO. 10 138



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32KSPC ELECTRONICS (ELES)	D	CS	G657-0-1	C
SCALE NONE SHEET 3 OF 18	DIST.			



REVISIONS		
CLK	CHANGE NO.	REV.

TITLE	SIZE/CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEC)	D CS	G657-0-1	C
SCALE NONE SHEET 4 OF 18	DST.		

ELEC FORM NO. DRD 328

ELEC RAW A13 H
ELEC RAW A14 H
ELEC RAW A15 H
ELEC RAW A16 H
ELEC RAW A17 H
74S30 E21
+5V R60 10K
ELEC RAW A 12 H
+5V R59 10K
ELEC RAW A 11 H

ELEA MEM BUSY H
ELEA SSYN L
ELED MSYN H
74S30 E22
ELED DL DR L

+5V R55 10K
ELEA SSYN H
PARITY DET. L
BE2
8640 E69
8641 E62
BUI
ELED BUS SSYN L
ELED PARITY DET. H
BE1
ELED INT SSYN L
ELEA SSYN L
8641 E57

ELEC RAW A 12 L
ELEC RAW A 13 L
ELEC RAW A 16 L
ELEC RAW A 17 L
74S85 E15
+5V R68 10K
+5V R67 10K
+5V R66 10K
+5V R65 10K
+5V R64 10K
S1
74S08 E16
RAW A 13 L
RAW A16 H
RAW A01 H
RAW A01 L
W17
LEAST BIT H

ELED +5V2
ELEC LAT A 15 L
ELEB INH T H
74S40 E112
ELED LO INH L
ELED UP INH L
ELEC LAT A 15 H

CLEA RD H
CLEA LOCK MAR H
BUS DC LO L
BF2
8640 E69
74S00 E100
BUS MSYN L
BV1
ELED MSYN H
ELED +5V2
8640 E111
ELED PWR NOT OK H
+5V R54 4.99K 1%
R55 31.6K 1%

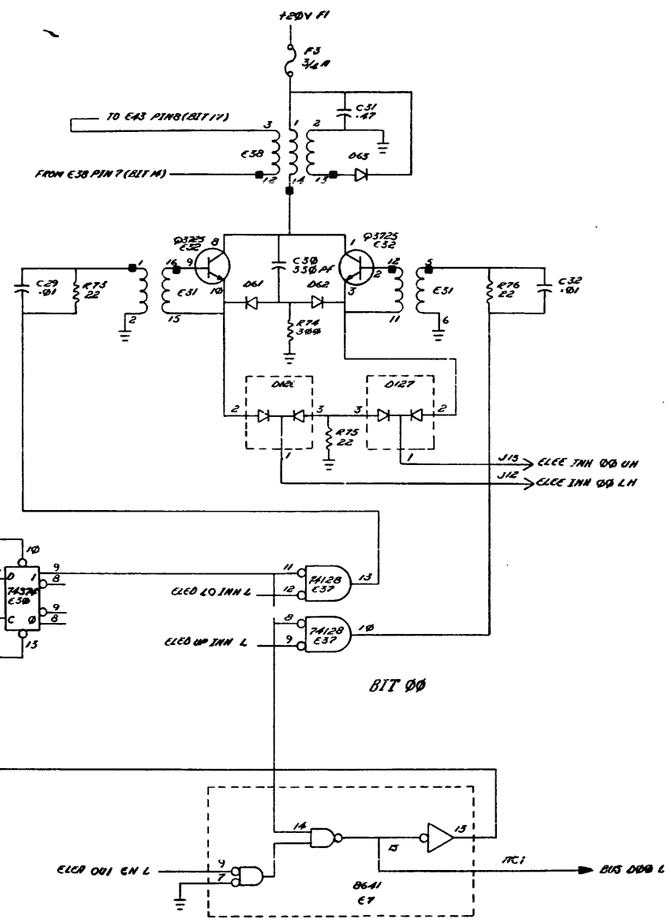
+20V F1
R51 220
DI25 5.1V IN751A
C184 .01
R57 9.09K 1%
R58 19.6K 1%
R61 34.8K 1%
R62 68.1K 1%
W1
W2
W3
W4
R53 3.48K 1%
R69 44.7K 1%
C27 .01
+5V(REG)
C28 .01
J89
R71 82K
R70 44.7K 1%
Q16 J12S8
C26 22pf
C25 .01
CLEA X RD SINK T L
R52 1K
+5V
74H21 E18

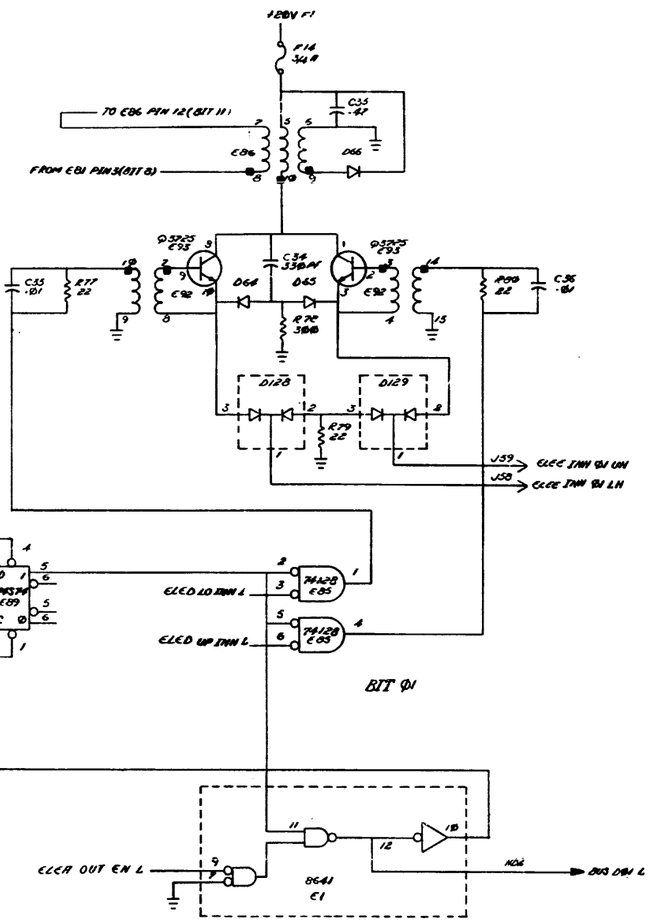
LAT A 15 L
WR BYTE 0 L
WR BYTE 1 L
LAT A 15 H
SIB EN H
74H21 E91
74H21 E84
J37 ELED STB LMLB H
J40 ELED STB LMUB H
J38 ELED STB UMLB H
J42 ELED STB UMUB H

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELED)	D	CS	G657-0-1	C
SCALE NONE SHEET 5 OF 18	DIST.			

DEC FORM NO. DRD 138

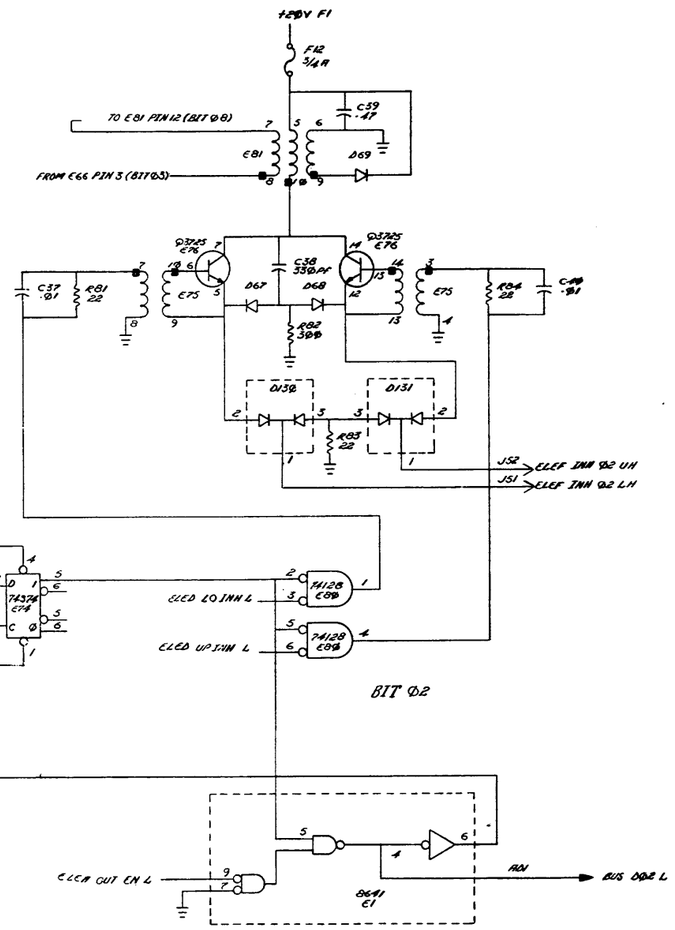


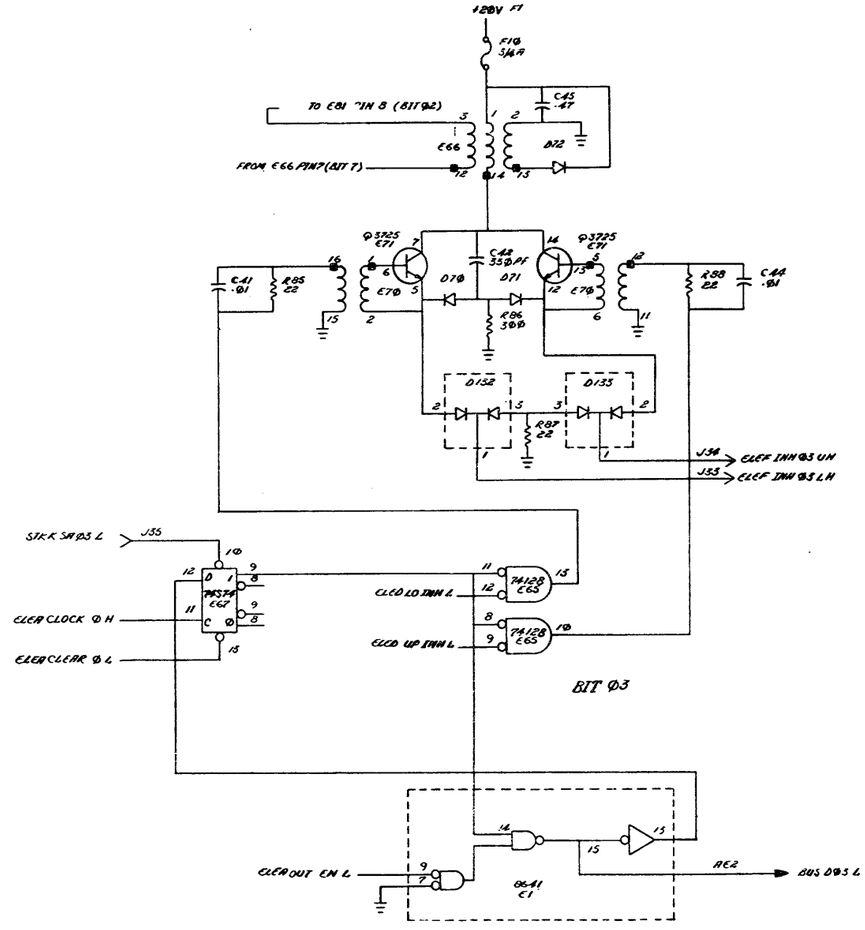


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEE)	D	DCS	G657-0-1	C
SCALE NONE	SHEET 6 OF 18	DIST.		

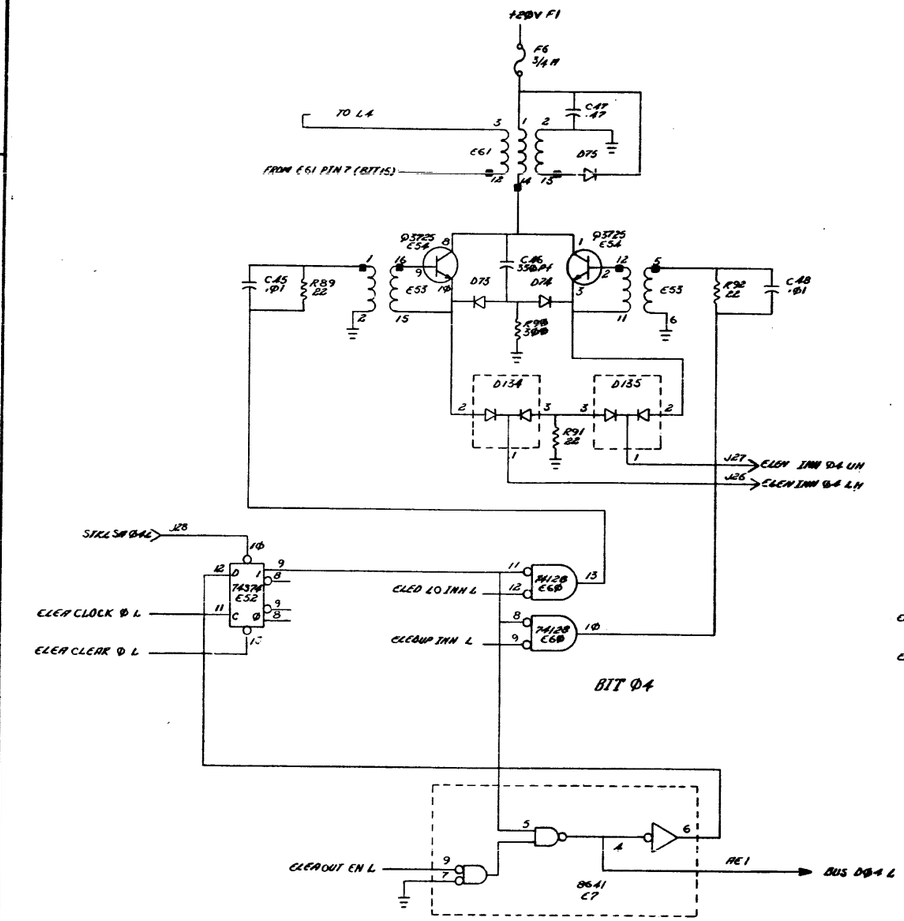
331

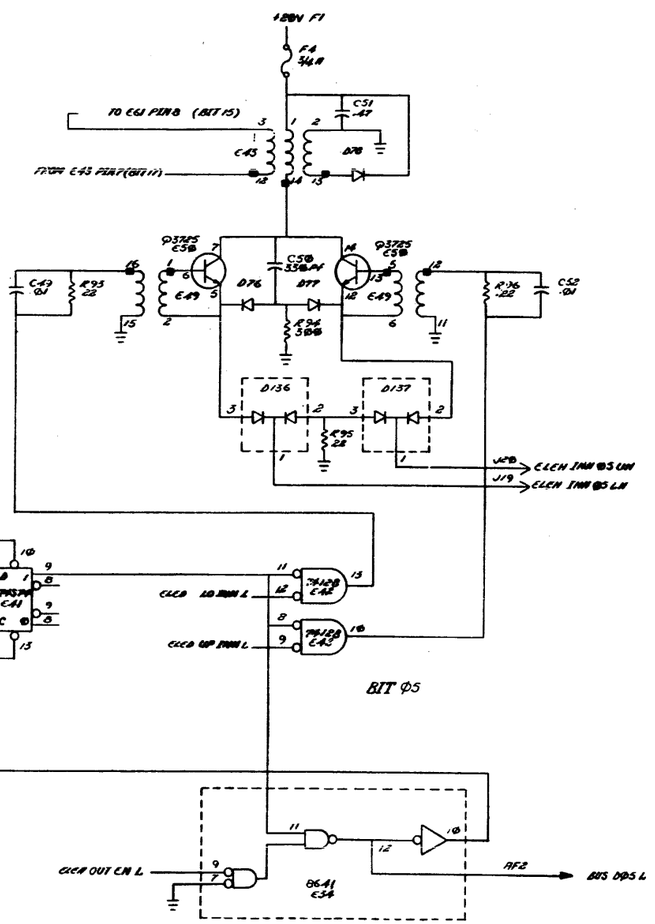




CHK	CHANGE NO.	REV.

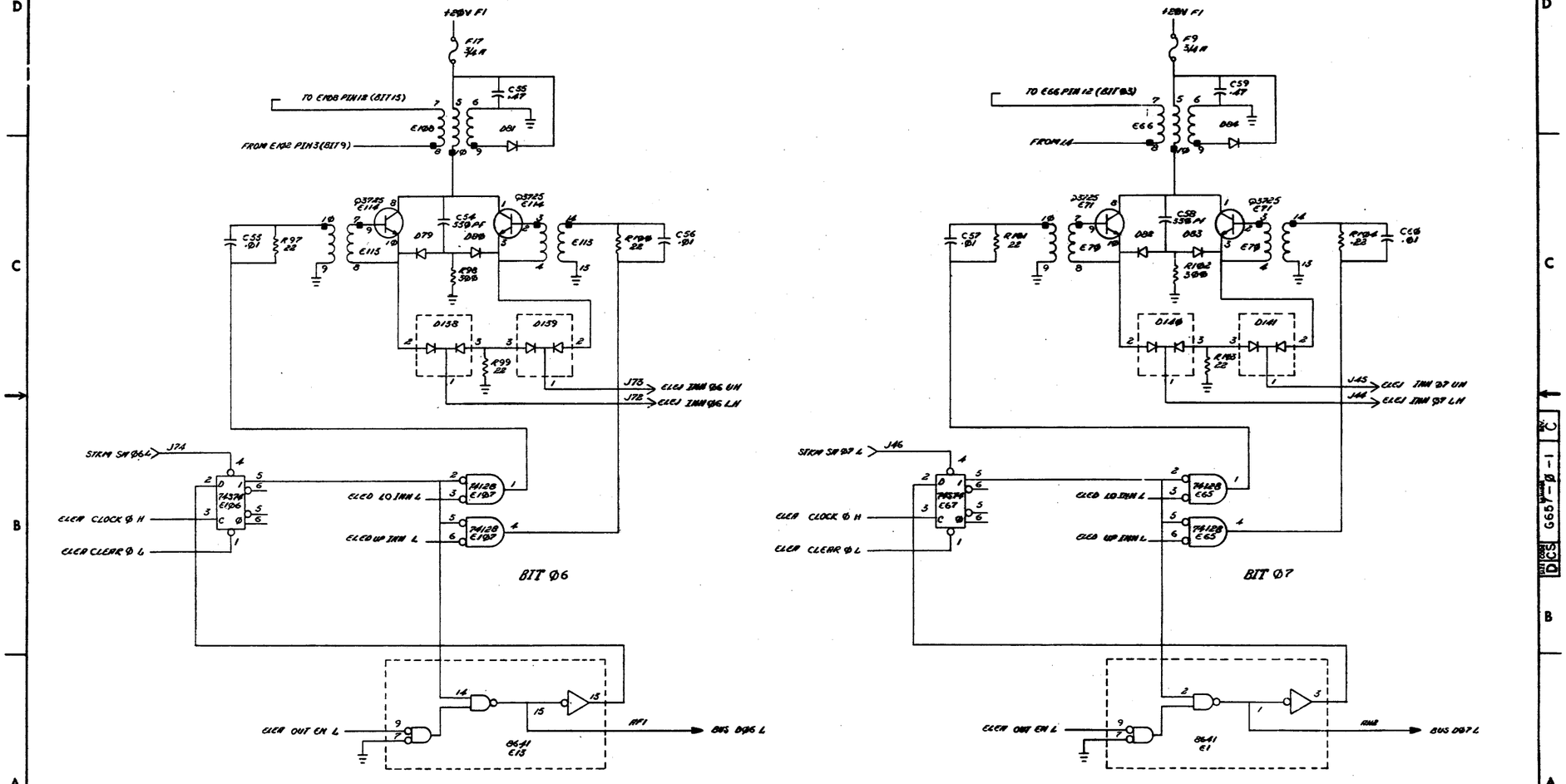
TITLE	32K SPC ELECTRONICS (ELEF)	SIZE	CODE	NUMBER / REV.
SCALE NONE	SHEET 7 OF 18	D	DCS	G657-Ø-1 / C
		DIST.		





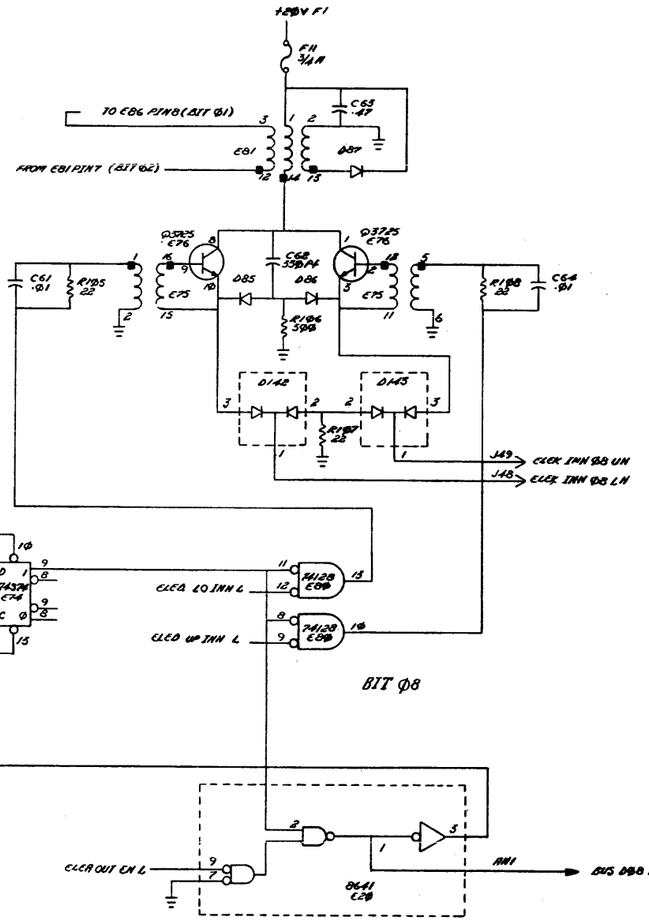
REVISIONS		
LTR	CHANGE NO.	REV.

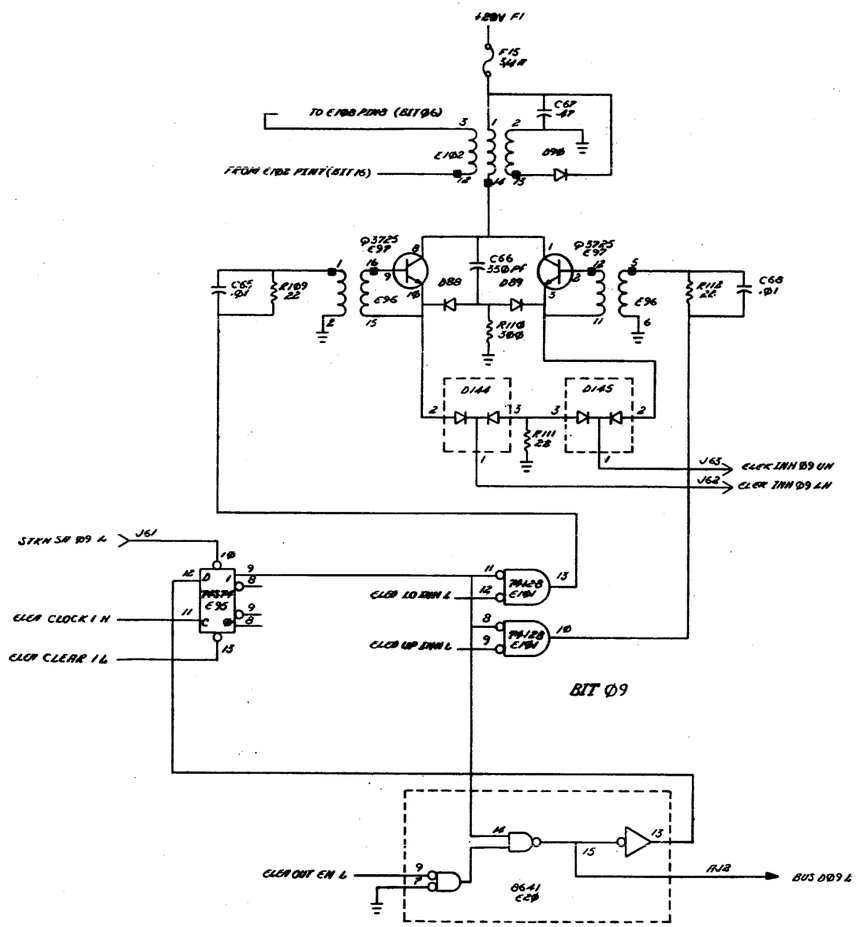
TITLE	32K SPC ELECTRONICS (ELEH)	SIZE	CODE	NUMBER / REV.
		D	DCS	G657-Ø-1 / C
SCALE	NONE	SHEET 8 OF 18	DIST.	



REVISIONS		
CHK	CHANGE NO.	REV.

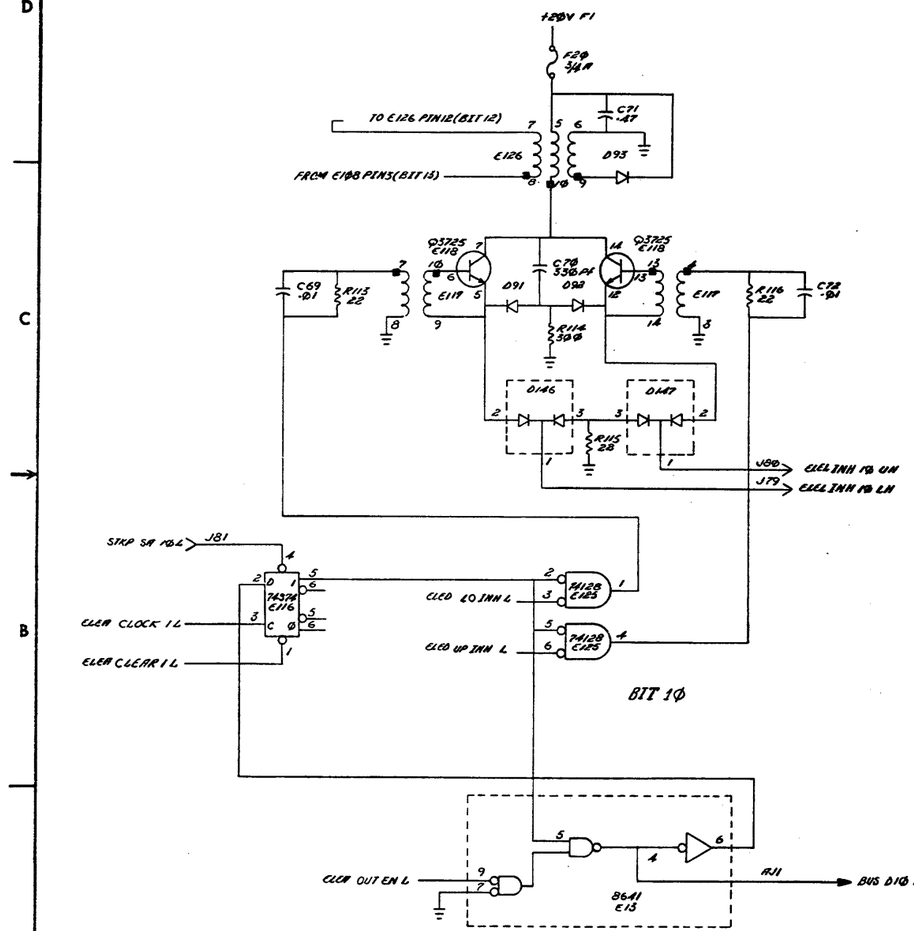
TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEJ)	D	DCS	G657-Ø-1	C
SCALE NONE SHEET 9 OF 18	DIST.			

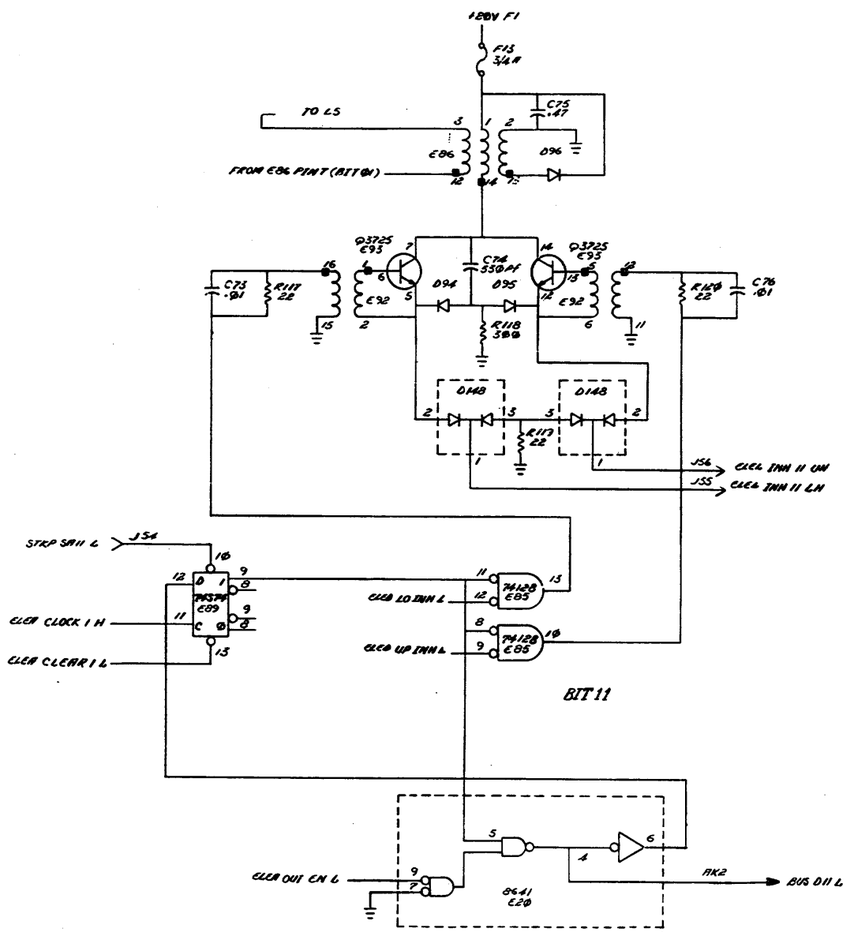




REVISIONS		
LTR	CHANGE NO.	REV.

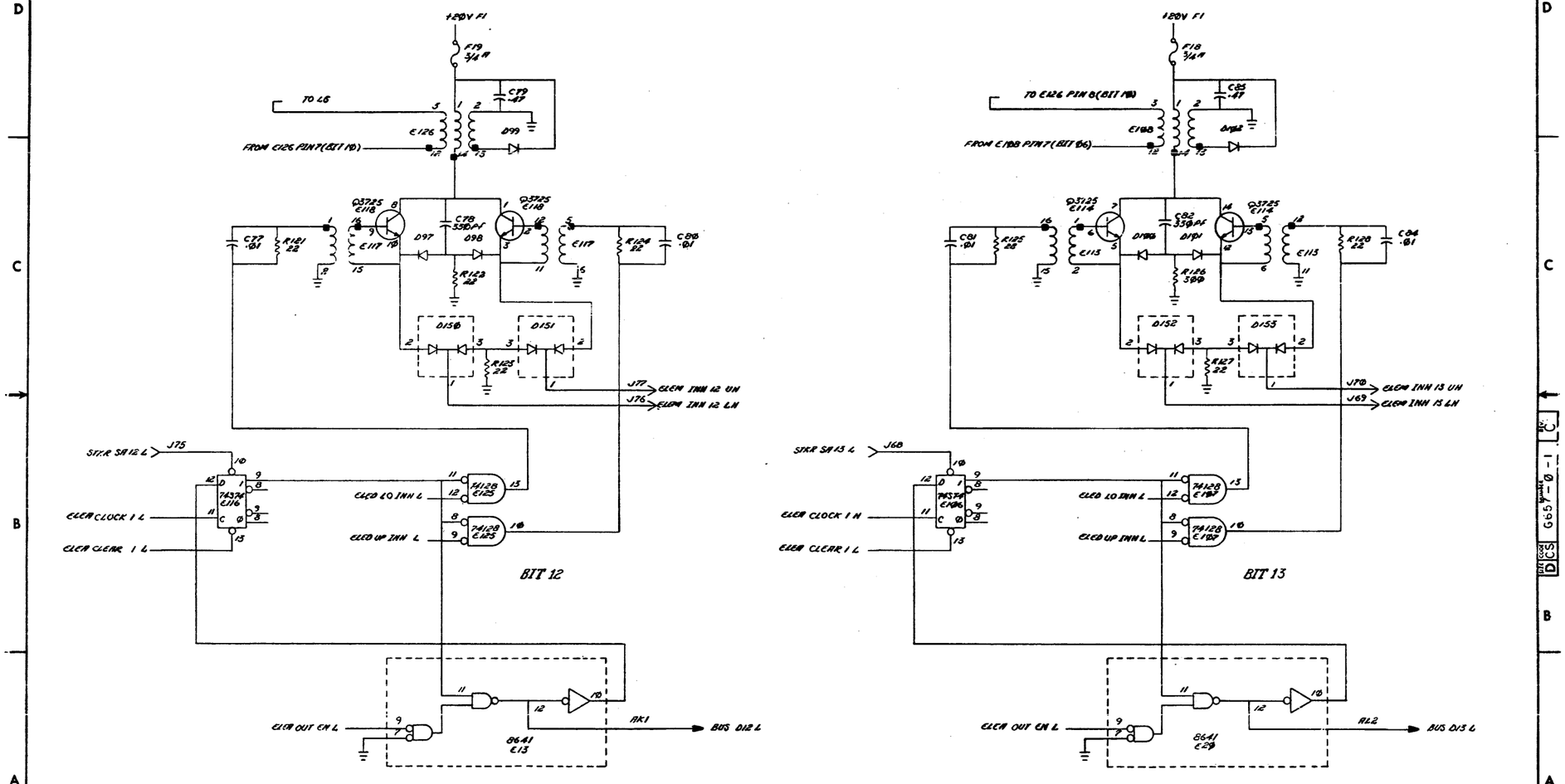
TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEK)	D	DCS	G657-Ø-1	C
SCALE NONE	SHEET 10 OF 16	DIST.		





REV. SIGNS		
SYM	CHANGE NO.	REV.

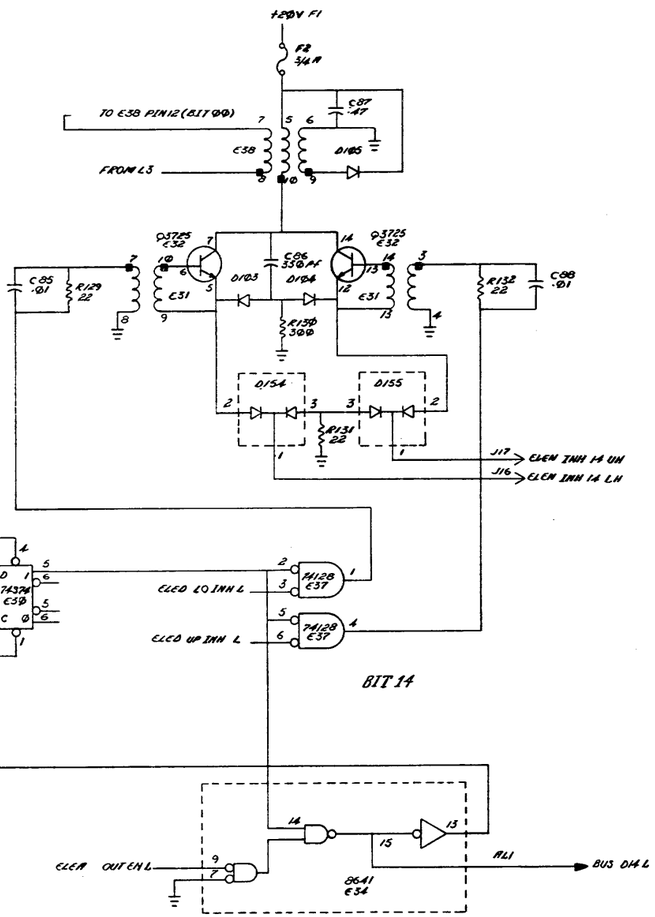
TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEL)	D	CS	G657-0-1	C
SCALE NONE SHEET 11 OF 18	DIST.			

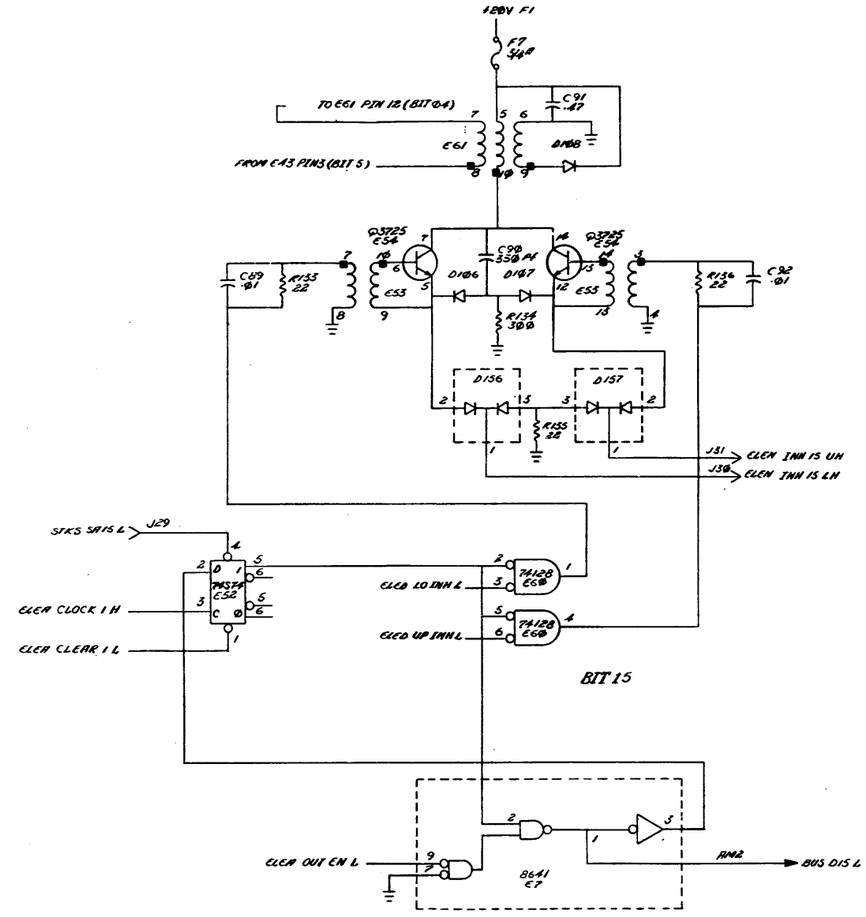


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEM)	D	CS	G657-Ø-1	C
SCALE NONE · SHEET 12 OF 18 · DIST.				

DIGITAL G657-Ø-1 REV C

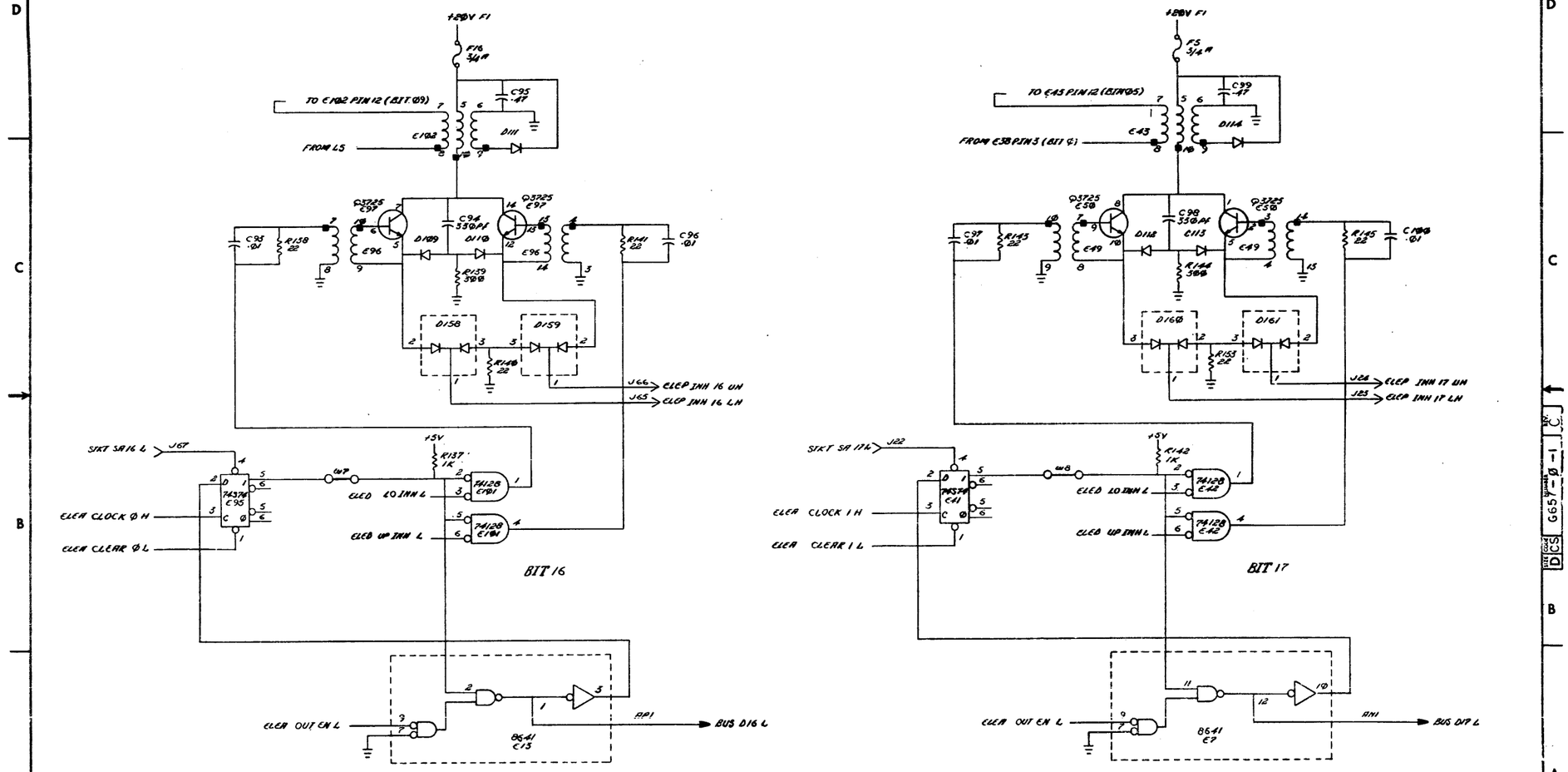




REVISIONS		
CHK	CHANGE NO.	REV.

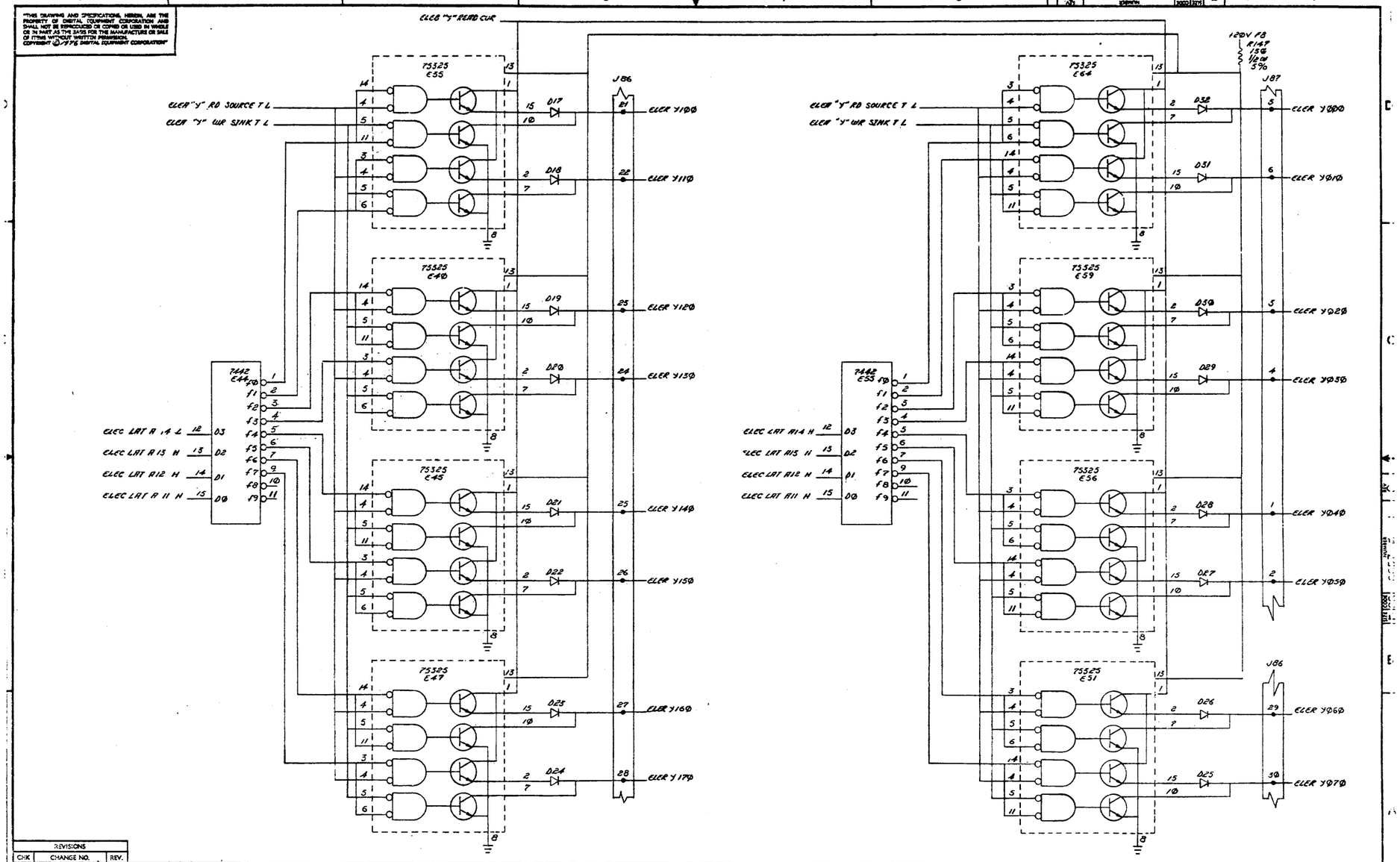
TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEN)	D	CS	G657-Ø-1	C
SCALE NONE SHEET 13 OF 18	CIST.			

G657-Ø-1 REV C



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELEP)	D	DCS	G657-Ø-1	C
SCALE NONE SHEET 14 OF 18	DIST.			

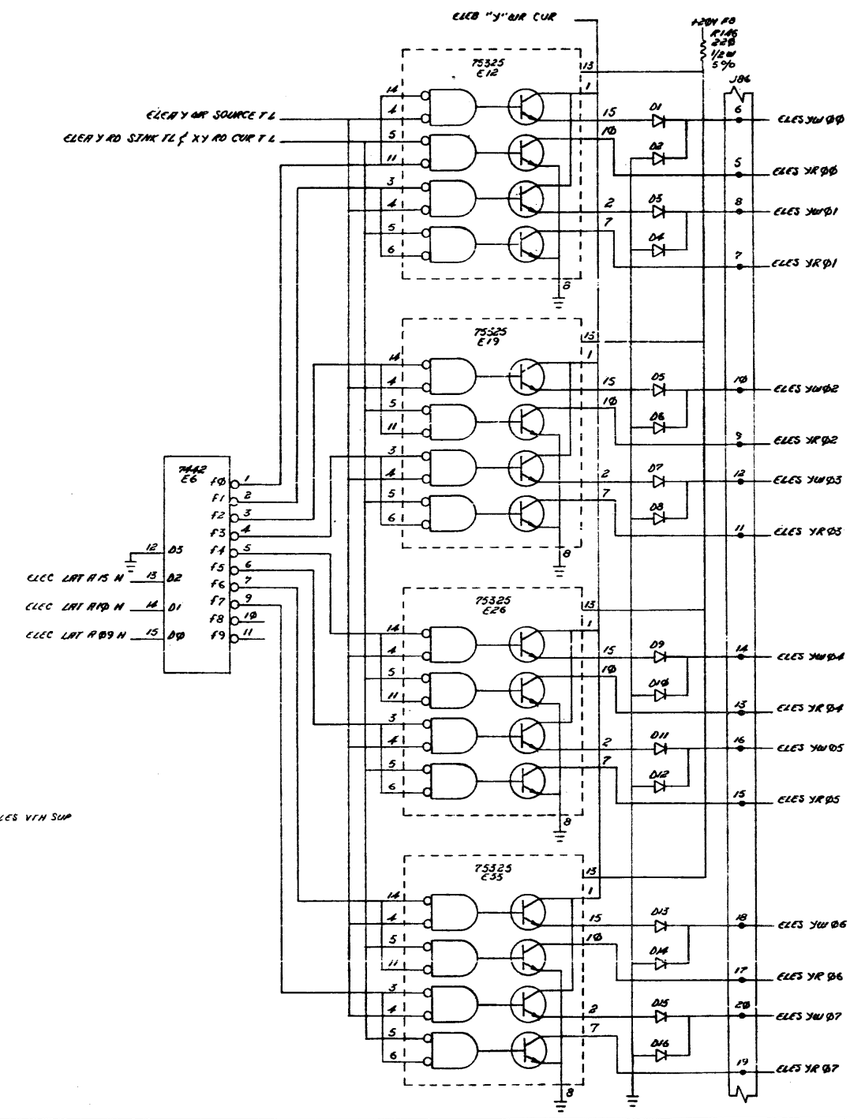


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELER)	D	CS	G657-Ø-1	C
SCALE NON SHEET 15 OF 18	DIST.			

DEC FORM NO. DRD 328

340

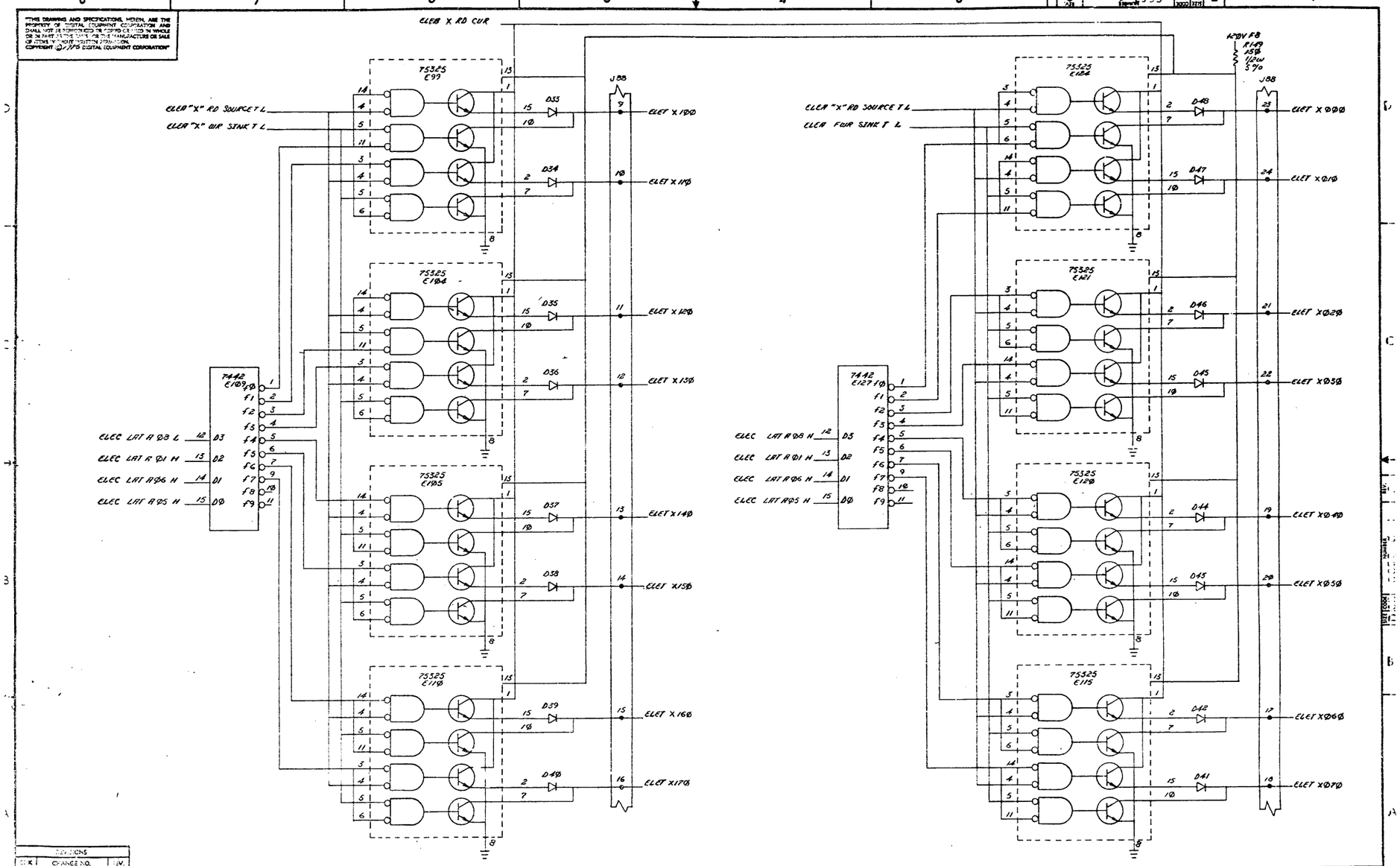


REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELES)	D	CS	G657-Ø-1	C
SCALE NONE	SHEET 16 OF 18	DIST.		

SEE FORM NO. CRD 138

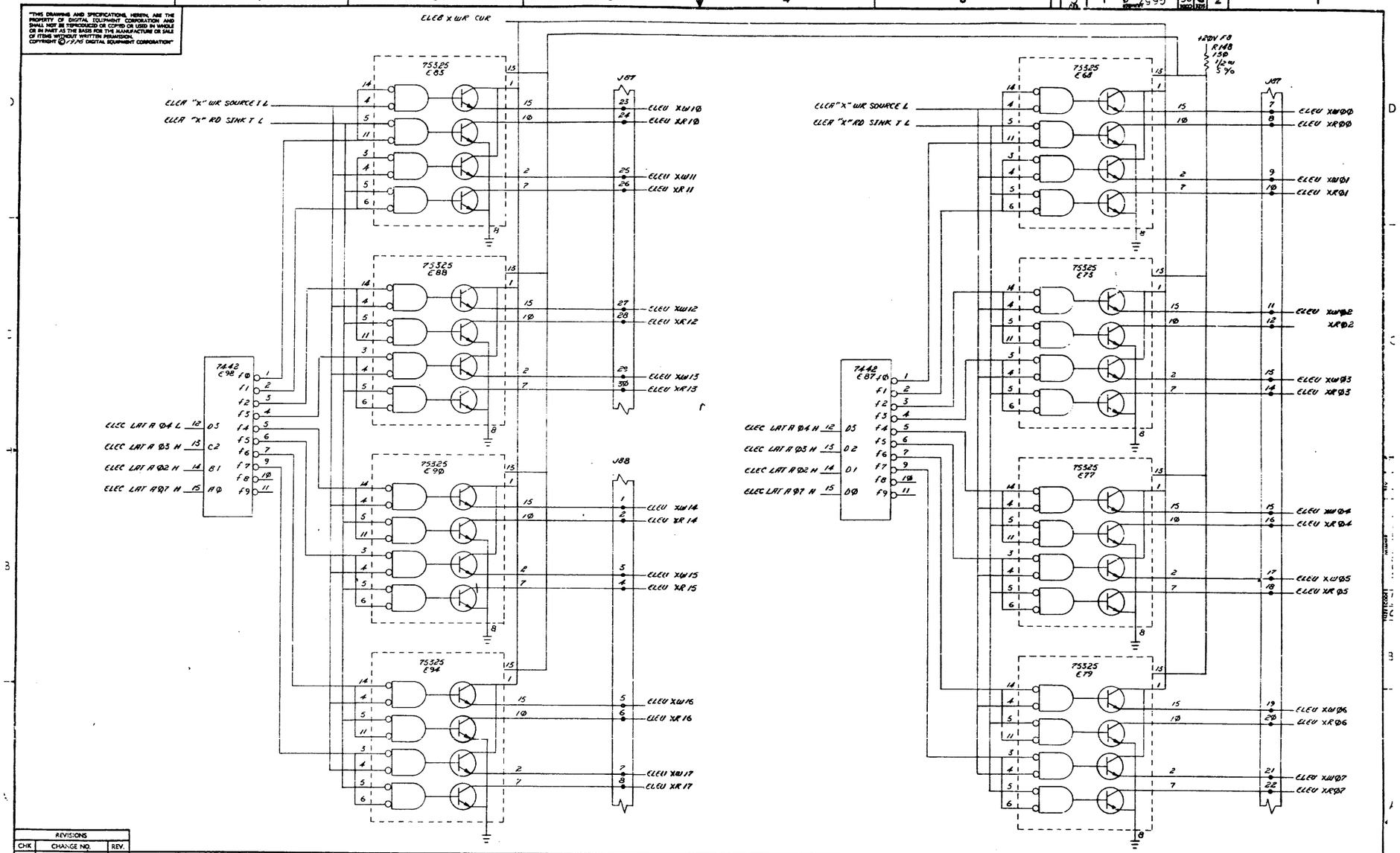
34



REVISIONS		
BLK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS (ELET)	D	CS	G657-Ø-1	C
SCALE NONE SHEET 17 OF 19	DIST.			

342



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
32K SPC ELECTRONICS	(ELEU)	D	CS	G657-Ø-1	C
SCALE NONE	SHEET 18 OF 18	DIST.			

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FIELD MAINTENANCE PRINT SET

B-TC-MM11-DP-3

TABLE OF CONTENTS

MM11-DP PRINT SET
TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
MM11-DP
MM11-D

MM11-DP

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MP 00032

REVISIONS		
REV.	CHG. NO.	DATE
A	MM11DP-1	MAY-76
B	MM11DP-2	FEB-77

USED ON OPTION/MODEL

SHEET I OF 1

DRN. W. LUFKIN	DATE 24/oct/75	
CHK'D	DATE 24/oct/75	
PROJ. ENG. D. Crowley	DATE 10/23/75	
FIELD SERV.	DATE 10/29/75	

digital

TITLE: MM11-DP MEMORY MODULE

SIZE	CODE	NUMBER	REV.
B	TC	MM11-DP-3	B

DIST.

EN-01124-16-N675-(327)

DRB 124

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE

NOTE: FOR FIELD MAINTENANCE PRINT SET SEE:

B-TC-MM11-DP-3

SEQUENCE

THIS IS PRINT SET

UNIT VARIATIONS

VAR	TITLE	PRINT SET
MM11-DP	16K X 18 BIT MEMORY/MODULE	
MM11-D	16K X 16 BIT MEMORY/MODULE	

REVISIONS		
DATE	CHG. NO.	REV
MAY-76	MM11DP-1	A
FEB-77	MM11DP-2	B

DEC-11-1625-12-692-A-RB72

USED ON OPTION/MODEL

SHEET 1 OF 2

DRN. W. LUFKIN	DATE 24 Oct 75	TITLE: MM11-DP MEMORY MODULE
CHK'D	DATE 11/27/75	
PROJ. ENG.	DATE 10/29/75	
ENGR. R.A. Hill	DATE 10/29/75	SIZE B · CODE DD · NUMBER MM11-DP · REV B
FIELD SERV.	DATE 11/4/75	DIST

DRB 106

345

ELECTRICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			B-TC-MM11-DP -3	#		MM11-DP FIELD MAINT. PRINT SET	
			MPØØØ32			MM11-DP PRINT SET	
			B-DD-MM11-DP			MM11-DP DRAWING DIRECTORY	
			D-TD-MM11-DP-2		2	MM11-DP TIMING DIAGRAM	
			D-CS-G652-Ø-1			16K X 18 BIT CORE MEMORY	

MECHANICAL

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
			D-UA-MM11-DP-Ø		1	MM11-DP MEMORY MODULE ASSY	
			D-UA-H222-A-Ø		1	H222 MEMORY STACK ASSY	

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
MM11-DP MEMORY MODULE	2 OF 2	B	DD	MM11-DP	B

DRB 108

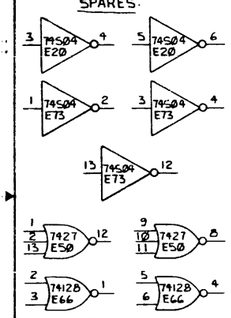
NOTES:

1. INTERLEAVE CONTROL IS ACHIEVED AS FOLLOWS:
   (A) NON-INTERLEAVED
   W5,W6 OUT
   (B) INTERLEAVED
   W5 IN, W6 OUT } ONE MEMORY
   W5 OUT, W6 IN } THE OTHER MEMORY
   (C) ADDRESS JUMPERS FOR THE COMBINED INTERLEAVED MEMORY ARE NOT THE SAME AS FOR THE NON-INTERLEAVED CASE (W1 THRU W4 MUST BE CUT THE SAME FOR BOTH INTERLEAVED MEMORIES). SEE BANK SELECTION CHART AT LEFT FOR BOTH INTERLEAVED AND NON-INTERLEAVED CASES.
2. UNDER NORMAL CONDITIONS (W8 OUT) THE MEMORY WILL NOT RESPOND TO ADDRESSES BETWEEN 124K AND 128K, BECAUSE THESE ADDRESSES ARE RESERVED FOR PERIPHERAL DEVICES ON THE UNIBUS. FOR SPECIAL APPLICATIONS WHERE THE RANGE OF PERIPHERAL ADDRESSES IS MORE RESTRICTED THAN THIS 4K RANGE, THE MEMORY CAN BE CONFIGURED TO INCLUDE THE ADDITIONAL UNIBUS ADDRESSES AS FOLLOWS:
   W8 IN, W7 OUT } 124K TO 126K
   W8 IN, W7 IN } 124K TO 127K
   NOTE THAT FOR SYSTEMS WITHOUT MEMORY MANAGEMENT THIS MEANS THE USEFUL VIRTUAL ADDRESS SPACE FOR MEMORY CAN BE EXTENDED FROM 28K TO 30K OR 31K, BY SACRIFICING SOME PERIPHERAL SPACE.
   CAUTION
   SOME DIGITAL SOFTWARE MAY NOT BE COMPATABLE WITH THE REDUCED PERIPHERAL ADDRESS SPACE. TO ASSURE COMPATIBILITY W8 MUST BE OUT.
3. SCHEMATIC FOR M222 MEMORY STACK IS SHOWN ON CS 5411554-0-1.
   NOTES CONTINUED ON SHEET 2

8.44 REF

BANK SELECTION						
S.A. (INTER-LEAVED)	S.A. (NON-INTER-LEAVED)	EA 11	W1	W2	W3	W4
—	0	16K	OUT	OUT	OUT	IN
—	8K	24K	OUT	OUT	IN	OUT
0	16K	32K	OUT	OUT	IN	IN
8K	24K	40K	OUT	IN	OUT	OUT
16K	32K	48K	OUT	IN	OUT	IN
24K	40K	56K	OUT	IN	IN	OUT
32K	48K	64K	OUT	IN	IN	IN
40K	56K	72K	IN	OUT	OUT	OUT
48K	64K	80K	IN	OUT	OUT	IN
56K	72K	88K	IN	OUT	IN	OUT
64K	80K	96K	IN	OUT	IN	IN
72K	88K	104K	IN	IN	OUT	OUT
80K	96K	112K	IN	IN	OUT	IN
88K	104K	120K	IN	IN	IN	OUT
96K	112K	124K	IN	IN	IN	IN

SPARES:



8690	1	8	
8691	8	16	
75325	8	9	16
7520	9	16	
74157	8	16	
74153	8	16	
7983	12	5	
7475	12	5	
7442	8	16	
IC TYPE	GND	+5V	+20VSW

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

IC PIN LOCATIONS

J180-1	+5V
J180-2	STROBE
J180-3	GND
J180-4	VTH
J180-5	STACK XY HI
J180-6	GND
J180-7	STACK XY LO

MEM3 BIT 16 EIT LOCK OUT		J18	
BB2	J152	STACK XY	
J180-7	J179	STACK XY LO	
J180-5	J180	STACK XY HI	
+20V	J153		
+5V	J155		
MEM1 X STACK CHG H	J149		
MEM2 Y STACK CHG H	J150		
CE1	J151	STACK V REF	
GND	J9	J60	GND
GND	J26	J77	GND
GND	J43	J154	GND

BUS GRANT LINES	
DK2	DL2
DM2	DN2
DP2	DR2
DS2	DT2

SEE NOTE 4 ON SHEET 2 OF CS FOR G652-YA VARIATION

FIRST USED ON OPTION MODEL: MMII-D/DP

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV. D

REV.	REVISIONS	CHK.	CHANGE NO.	
A	10-10-77 D. SMELSER		G652-00001	10-10-77
B	4 OCT 77 R. Jones		G652-00004	4 OCT 77
C	11-FEB-77 D. SMELSER		G652-00003	11-FEB-77
D	3/9/78 D. SMELSER		G652-00032	3/9/78

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

SEMICONDUCTOR CONVERSION CHART

DRWN	Robert Raymond	DATE 6-9-75
CHK'D		DATE 7/17/75
MFG		DATE 7/31/75
PROJ. ENG		DATE 7/31/75
PROD.	R A Hite	DATE 7/31/75
NEXT HIGHER ASSY	H	
SCALE	H	
SHEET	OF 11	

digital

TITLE: 16K X 18 MEMORY ELECTRONICS

SIZE	CODE	NUMBER	REV.
D	CS	G652-0-1	F

DIST.

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PARTS LIST

QTY	QTY	REF. DESIGNATIONS	DESCRIPTION	PART NO.	ITEM NO.
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-G652-0-5	1
REF	REF		MODULE ECO HISTORY	8-MH-G652-0-6	2
1	1		ETCHED CIRCUIT BOARD	5011492	3
2	2	C82,C83	CAPACITOR, 82 pf, 100V, 5%, DM	1000015-00	4
1	1	C111	CAPACITOR, 22 pf, 100V, 5%, DM	1005820-00	5
22	22	C16 THRU C19,C84,C87,C90,C93 C96,C99,C102,C105,C108,C113 THRU C121	CAPACITOR, 120 pf, 100V, 5%, DM	1000018-00	6
18	18	C52 THRU C69	CAPACITOR, 5600 pf, 50V, 10%, CER	1011740-00	7
4	4	C38 THRU C41	CAPACITOR, 47 uf, 30V, AL EL	1012219-00	8
60	60	C1 THRU C15,C20,C21,C42 THRU C51,C70 THRU C81,C86,C88,C89 C91,C92,C94,C95,C97,C98,C100 C101,C103,C104,C106,C107,C65, C109,C110,C112,C132,C133	CAPACITOR, .01 uf, 50V, 20%, CER	1001610-00	9
16	16	C22 THRU C37	CAPACITOR, .22 uf, 50V +80%, -20%, CER	1010274-00	10
9	9	C123 THRU C131	CAPACITOR, 8 uf, 25V, AL EL	1012084-01	11
1	1	D28	DIODE ZENER IN751A 5.1V, 5%	1110994-00	12
9	9	D109,D111,D113,D115,D117, D119,D121,D123,D125	DIODE PACK COMMON CATHODE	7010918-0-0	13
9	9	D108,D110,D112,D114,D116, D118,D120,D122,D124	DIODE PACK COMMON ANODE	7010918-0-1	14
9	9	D128 THRU D134	DIODE PACK COMMON CATHODE	7010918-0-2	15
105	105	D1 THRU D27,D29 THRU D104, D107, D135	DIODE D672	1105275-00	16
1	1	D106	DIODE ZENER IN756A, 8.2V, 1%	1103441-01	17
1	1	D105	DIODE ZENER IN4742, 12V, 10%, 1W	1109502-00	18
18	18	R51 THRU R68	RESISTOR, 21, 3W, 1% WW	1311738-01	19
2	2	R18,R17	RESISTOR, 75, 1/4W, 5%	1302379-00	20
6	6	R25,R30,R35,R40,R43,R46	RESISTOR, 100, 1/4W, 5%	1300229-00	21
1	1	R50	RESISTOR, 220, 3W, 1%, WW	1312123-00	22
24	24	R23,R28,R33,R38,R87,R88,R91 THRU R94,R97 THRU R100,R103 THRU R106,R109 THRU R112, R115,R116	RESISTOR, 1K, 1/4W, 5%	1300365-00	23
1	1	R114	RESISTOR, 1.96K, 1/4W, 1%	1304833-00	24
1	1	R47	RESISTOR, 3.16K, 1/8W, 1%	1303045-00	25
1	1	R49	RESISTOR, 3.3K, 1/4W, 5%	1300439-00	26
1	1	R19	RESISTOR, 4.7K, 1/4W, 5%	1300447-00	27
1	1	R48	RESISTOR, 4.99K, 1/8W, 1%	1305324-00	28
9	9	R89,R90,R95,R96,R101,R102, R107,R108,R113	RESISTOR, 9.09K, 1/8W, 1%	1304855-00	29
16	16	R1 THRU R8,R18,R20,R21,R22, R24,R29,R34,R39	RESISTOR, 10K, 1/4W, 5%	1300479-00	30
2	2	R13,R14	RESISTOR, 14.7K, 1/8W, 1%	1302941-00	31
1	1	R10	RESISTOR, 27K, 1/4W, 5%	1305346-00	32
1	1	R9	RESISTOR, 56K, 1/4W, 5%	1302395-00	33
1	1	R15	RESISTOR, 120K, 1/4W, 5%	1300539-00	34
1	1	R11	RESISTOR, 15K, 1/4W, 5%	1300496-00	35
18	18	R69 THRU R86	RESISTOR, 150, 1/4W, 5%	1300250-00	36
3	3	R45,R44,R119	RESISTOR, 47, 1/4W, 5%	1300202-00	37
2	2	R120,R121	RESISTOR, 56, 1/4W, 5%	1302602-00	38
1	1	R31	RESISTOR, 13, 1W, 1% WW	1312466-03	39
~~1~~	~~1~~	~~R118~~	~~RESISTOR, 750, 1/4W, 5%~~	~~1301401-00~~	40
1	1	R42	RESISTOR, 30, 1/4W, 5%	1302751-00	41
1	1	R12	RESISTOR, 4.64K, 1/8W, 1%	1304856-00	42
1	1	R26	RESISTOR, 11, 1W WW	1312466-01	43
1	1	R36	RESISTOR, 12, 1W WW	1312466-02	44
9	9	R122 THRU R130	RESISTOR PACK, 100, 1/8W, 1%	1311741-00	45
1	1	F1	FUSE, PICO 1 AMPERE	1210929-02	46
1	1	F2	FUSE, PICO 5 AMPERE	1205747-00	47

G652-YA G652

PARTS LIST

QTY	QTY	REF. DESIGNATIONS	DESCRIPTION	PART NO.	ITEM NO.
179	179	J1 THRU J179	RECEPTACLE, SINGLE	1211728-00	48
1	1	J180	CONNECTOR, 7 PIN	1212104-00	49
2	2	Q14,Q15	TRANSISTOR, 3009B	1503100-00	50
2	2	Q3,Q4	TRANSISTOR, 6534B	1503409-01	51
5	5	Q5, Q10 THRU Q13	TRANSISTOR, 4258	1505321-00	52
1	1	Q1	TRANSISTOR, 6531B	1509336-00	53
4	4	Q6 THRU Q9	TRANSISTOR, 3782	1509849-01	54
1	1	Q2	TRANSISTOR, MJE 3055	1510555-00	55
18	18	T1 THRU T18	TRANSFORMER, INHIBIT DUAL	1612119-00	56
2	2	L3,L4	INDUCTOR, 0.47 uh, 10%	1610999-00	57
2	2	L5,L6	INDUCTOR, 100 uh	1610882-00	58
2	2	E9,E31	DELAY LINE, 250 NS	1611243-00	59
2	2	E26,E37	I.C. DEC 7400	1905575-00	60
1	1	E76	I.C. DEC 7408	1910741-00	61
1	1	E50	I.C. DEC 7427	1910878-00	62
1	1	E7	I.C. DEC 7430	1905578-00	63
2	2	E32,E85	I.C. DEC 7437	1910091-00	64
5	5	E49,E64,E82,E88,E97	I.C. DEC 7442	1910048-00	65
4	4	E39 THRU E42	I.C. DEC 7475	1909050-00	66
1	1	E6	I.C. DEC 7483	1909932-00	67
1	1	E10	I.C. DEC 74121	1910230-00	68
3	3	E8,E30,E66	I.C. DEC 74128	1912068-00	69
1	1	E16	I.C. DEC 74153	1909937-00	70
1	1	E72	I.C. DEC 74157	1910855-00	71
1	1	E19	I.C. DEC 74H50	1909060-00	72
3	3	E18,E27,E57	I.C. DEC 74S00	1910532-00	73
5	5	E3,E4,E13,E14,E23	I.C. DEC 74S03	1910533-00	74
6	6	E5,E15,E17,E20,E24,E73	I.C. DEC 74S04	1910534-00	75
1	1	E21	I.C. DEC 74S10	1910536-00	76
1	1	E28	I.C. DEC 74S20	1910539-00	77
1	1	E58	I.C. DEC 74S74	1910544-00	78
18	18	E45,E46,E53,E54,E61,E62,E69 E70,E79,E80,E85,E86,E94,E95 E101,E102,E110,E111	I.C. DEC 7520	1911748-00	79
38	38	E43,E44,E47,E48,E51,E52,E55 E56,E59,E60,E63,E67,E68,E71 E74,E75,E77,E78,E81,E83,E84 E87,E89 THRU E93,E96,E98 THRU E100,E103 THRU E109	I.C. DEC 75325	1910960-00	80
5	5	E25,E33 THRU E36	I.C. DEC 8640	1911468-00	81
6	6	E1,E2,E11,E12,E22,E38	I.C. DEC 8641	1911579-00	82
1	1	E29	I.C. DEC 8885	1910649-00	83
1	1		HANDLE	1210711-02	84
12	12		EYELET (HANDLE)	9006732-00	85
22	22		EYELET (SPLIT LUGS)	9006735-00	86
4	4	(USE WITH Q6 THRU Q9)	HEAT SINK, RED	1210001-00	87
4	4	(USE WITH Q6 THRU Q9)	TRANSIPAD	9007201-00	88
1	1		SCREW PPH #4-40 x 3/8	9006011-01	89
54	54		DIODE ASSEMBLY SPACER	9107771-00	90
1	1		NUT, KEP #4-40	9006557-00	91
		(SEE NOTES AND CHART SHEET #1)	WIRE, #22 AWG (SOLID)	9007560-01	92
1	1		SPACER, THD, ROUND #4-40 X 3/8	9006968-00	93
1	1		SCREW, NYLON, BINDER HD #4-40 X 3/8	9006401-04	94
–	1	R118	RESISTOR 750 1/4W 5%	1301401-00	95
1	–	R118	RESISTOR 22 1/4W 5%	1301969-00	96
A/R	–		WIRE #30 AWG GRN	9105740-55	97
	1	R41	RESISTOR 11, 1W, 1%	1312466-01	98
1		R41	RESISTOR 12, 1W, 1%	1312466-02	99

G652-YA G652

NOTES:
4. G652-YA VARIATION:
ETCH CUT #1 SIDE 1 BETWEEN BOTTOM OF R118 AND FEEDTHRU.
ETCH CUT #2 SIDE 2 BETWEEN TOP OF R118 AND E76 PIN 10.
ETCH CUT #3 SIDE 2 BETWEEN CATHODE OF D104 AND CATHODE OF D135.
COMPONENT CHANGE, RESISTOR, R118 CHANGED FROM 750Ω TO 22Ω 1/4 W 5%.
RESISTOR, R41 CHANGED FROM 11Ω TO 12Ω 1W, 1%.
JUMPER #1 FROM CATHODE OF D104 TO BOTTOM OF R118
JUMPER #2 FROM CATHODE OF D106 TO TOP OF R118
JUMPER WIRE PART # 30 AWG GRY 9105740-55
5. G652-YA WILL NOT OPERATE WITH H222-A'S & B'S
G652 WILL NOT OPERATE WITH H222-YA'S & YB'S

TITLE	16K X 18 MEMORY ELECTRONICS	SIZE	CODE	NUMBER	REV.
SCALE —	SHEET 2 OF 11	D	CS	G652-0-1	F
		DIST.			

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MEM2 RAW AI12 H
MEM2 RAW AI1 H
MEM1 AI7 H
MEM1 AI5 H
MEM2 RAW AI3 H
MEM2 RAW AI4 H
MEM1 AI6 H
MEM1 SSYN L
MEM1 MSYN H
MEM1 NOT BUSY H
READ
WRITE
BANK SEL H
MEM1 RØ H
MEM1 RØ L
MEM1 X READ SOURCE T L
MEM1 READ SINK T L
MEM1 X READ I SOURCE T H
MEM1 STROBE EN L
MEM2 WR BYTEØ L
MEM2 WR BYTE1 L
MEM1 INPUT MDR H
MEM1 INPUT MDR L
MEM1 CLR MDR L
MEM1 SSYN H
MEM1 SSYN L
MEM1 OUTPUT EN L
MEM1 INH TØ L
MEM1 INH T1 L
MEM1 X WRITE SINK T L
MEM1 X WRITE I SOURCE H
MEM1 X STACK CHG H
MEM1 X WRITE SOURCE T L
MEM1 INH RT L
MEM1 NOT BUSY H
MEM1 LOCK MAR H
MEM1 LOCK MAR L
MEM1 LOCK MAR2 L
MEM1 STBØ H
MEM1 STB1 H
MEM1 LEAST BIT H
INTERLEAVE
BUS AI7 L
BUS AI6 L
BUS AI5 L
BUS AØI L
BUS DCLØ L
BUS MSYN L
MEM1 AI7 H
MEM1 AI6 H
MEM1 AI5 H
MEM1 RAW AØI H
MEM1 RAW AØI L
+5V
+3V
+20V
+5V Z
+20V SW
Q1 G5518
Q2 MJE3055
Q3 G5348
Q4 G5348
Q5 4258
D25 D672
D26 D672
D27 D672
D28 IN751A
F1 1 AMP
L5 100UH
L6 100UH
R49 3.3K
R50 220 3W
R115 1K
R116 1K
R121 56
R123 56
R45 47
R44 47
R48 4.99K
R47 3.16K
R19 4.7K
R18 10K
R20 10K
R16 75
R17 75
R9 56K
R10 27K
R11 15K
R12 9.69K
R13 14.7K
R14 14.7K
R15 120K
C82 82PF
C83 82PF
C112 .01 UF
C111 22PF
C21 .01 UF
J49
J180-2

REVISIONS		
CHK	CHANGE NO.	REV.

(TIMING & CONTROL)

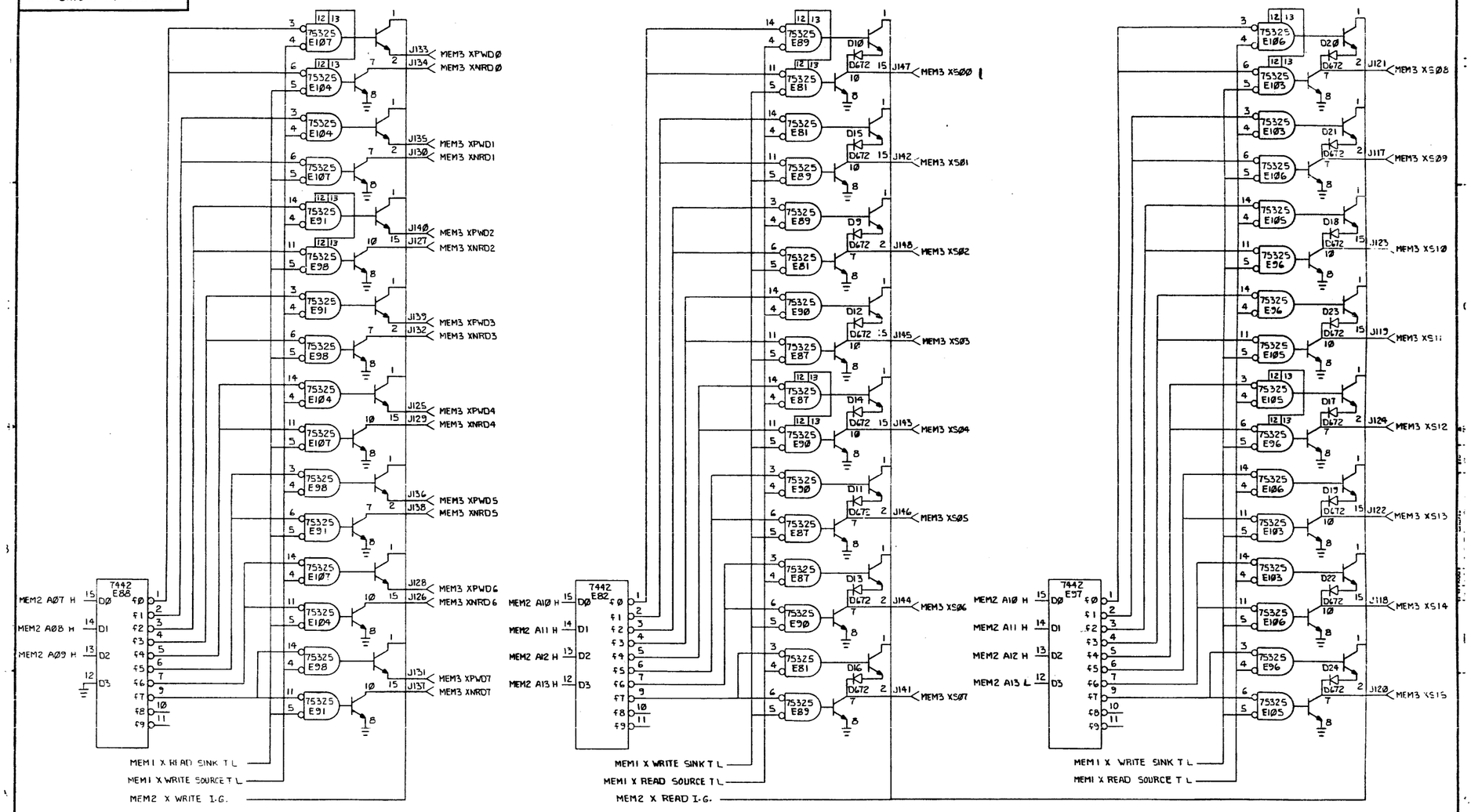
TITLE	16K X18 MEMORY ELECTRONICS (MEM1)	SIZE	CODE	NUMBER	REV.
SCALE	SHEET 3 OF 11	D	CS	G652-0-1	E
		DIST.			

MEM1 LEAST BIT H
BUS A04 L
BUS A03 L
BUS A02 L
MEM1 OUTPUT EN L
MEM2 A01 H
MEM2 A04 H
MEM2 A03 H
MEM2 A02 H
BUS A08 L
BUS A06 L
BUS A05 L
BUS A07 L
MEM1 LOCK MAR 1 L
MEM2 A08 H
MEM2 A06 H
MEM2 A05 H
MEM2 A07 H
MEM2 RAW 12 H
BUS A12 L
BUS A09 L
BUS A10 L
BUS A11 L
MEM2 RAW 11 H
MEM2 A12 H
MEM2 A09 H
MEM2 A10 H
MEM2 A11 H
MEM2 RAW A0 H
MEM2 RAW C0 H
MEM2 RAW C1 H
BUS A14 L
BUS A13 L
MEM2 RAW 14 H
MEM2 RAW 13 H
MEM1 LOCK MAR 2 L
MEM2 WR BYTE 0 L
MEM2 WR BYTE 1 L
MEM2 A13 H
MEM2 A13 L
MEM2 A14 B0 L
MEM2 A14 B1 L
MEM2 A14 B0 H
MEM2 A14 B1 H
MEM1 X WRITE SINK T L
MEM1 X READ SINK T L
MEM1 X WRITE SOURCE T L
MEM1 X READ SOURCE T L
MEM2 A14 B0 H
MEM2 Y I SOURCE DIODE END T H
MEM2 Y STACK CHG H
MEM2 Y COMMON SINK T L
MEM2 Y DIODE SOURCE T L
MEM2 Y I SOURCE COMMON END T H
MEM2 Y DIODE SINK T L
MEM2 Y COMMON SOURCE T L
BUS SSYN L
MEM1 SSYN H
BUS C0 L
BUS C1 L
BUS A0 L
MEM2 PAW C0 H
MEM2 RAW C1 H
MEM2 RAW A0 H
PARITY DETECT L
INT SSYN L
MEM1 X READ I SOURCE T H
MEM2 Y I SOURCE COMMON END T H
MEM1 X WRITE I SOURCE T H
MEM2 Y I SOURCE DIODE END T H
MEM1 X READ I SOURCE T H
+3V
+20V
X-READ I.G.
Y-COMMON END I.G.
X-WRITE I.G.
Y-DIODE END I.G.
STACK V REF
CUT ETCH
ADD JUMPER
FOR YA VARIATION SEE NOTE 4
SEE NOTE 4
(MAR & CURRENT SOURCES)

REVISIONS		
CLK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
16K x 18 MEMORY ELECTRONICS (MEM2)	D	CS	G652-0-1	F
SCALE —	SHEET 4 OF 11	DIST.		

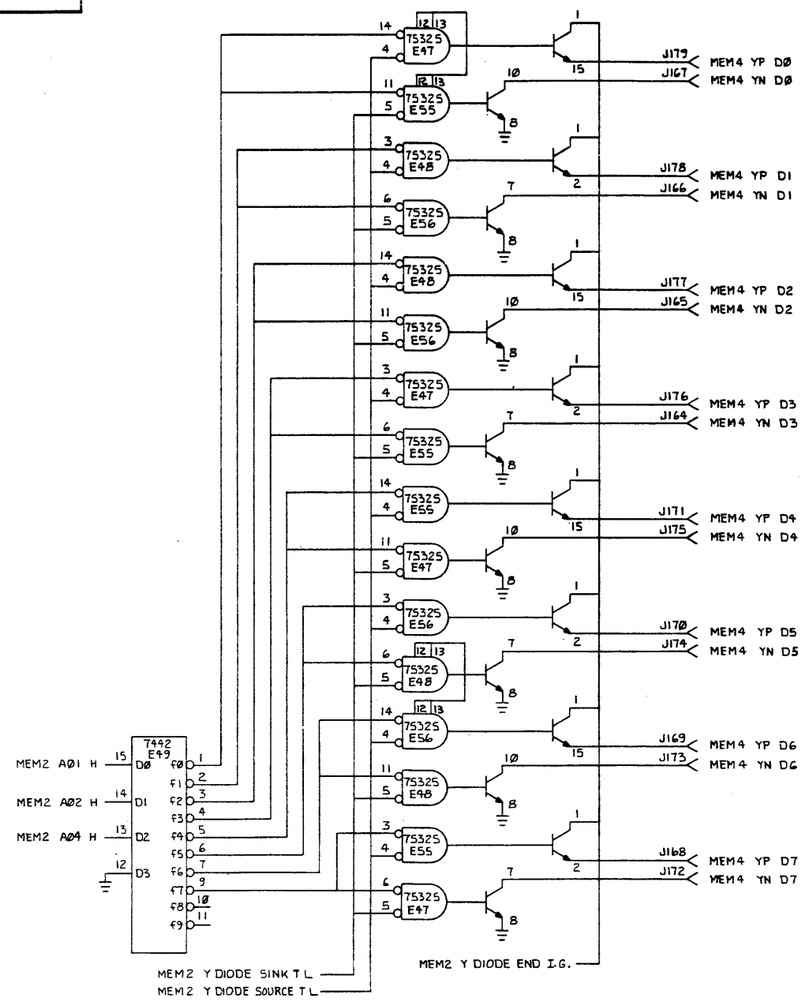
350

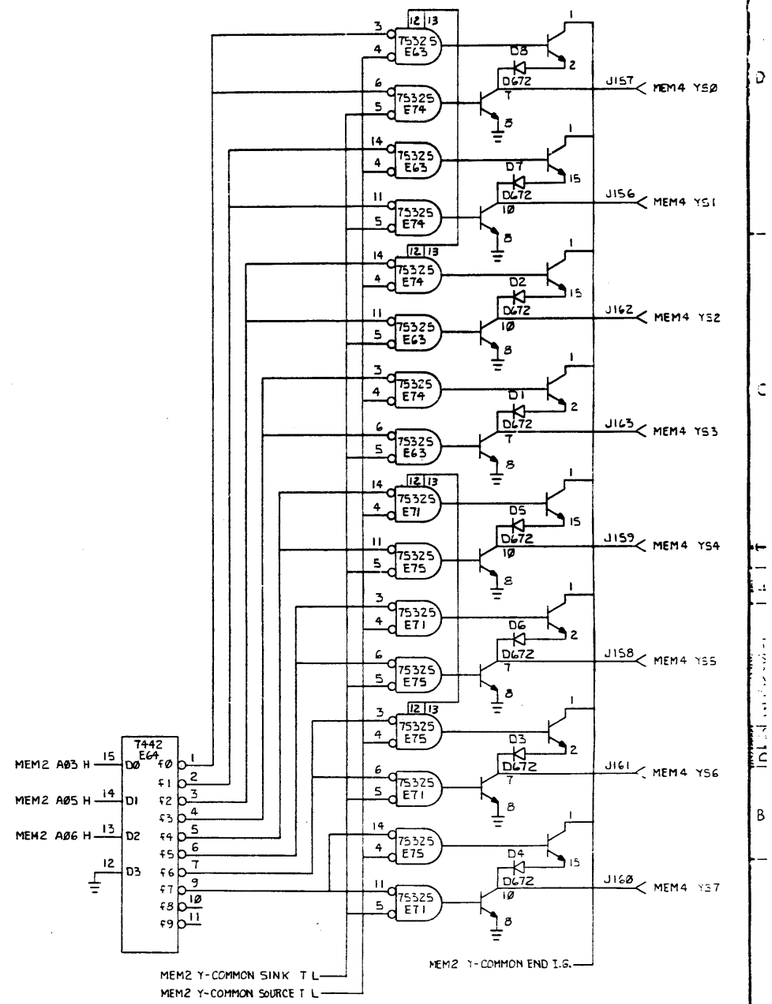


REVISIONS		
CHK	CHANGE NO.	REV.

(X DRIVE)

TITLE	SIZE	CODE	NUMBER	REV.
16K x 18 MEMORY ELECTRONICS (MEM3)	D	CS	G652-0-1	F
SCALE — # SHEET 5 OF 11	DIST.			





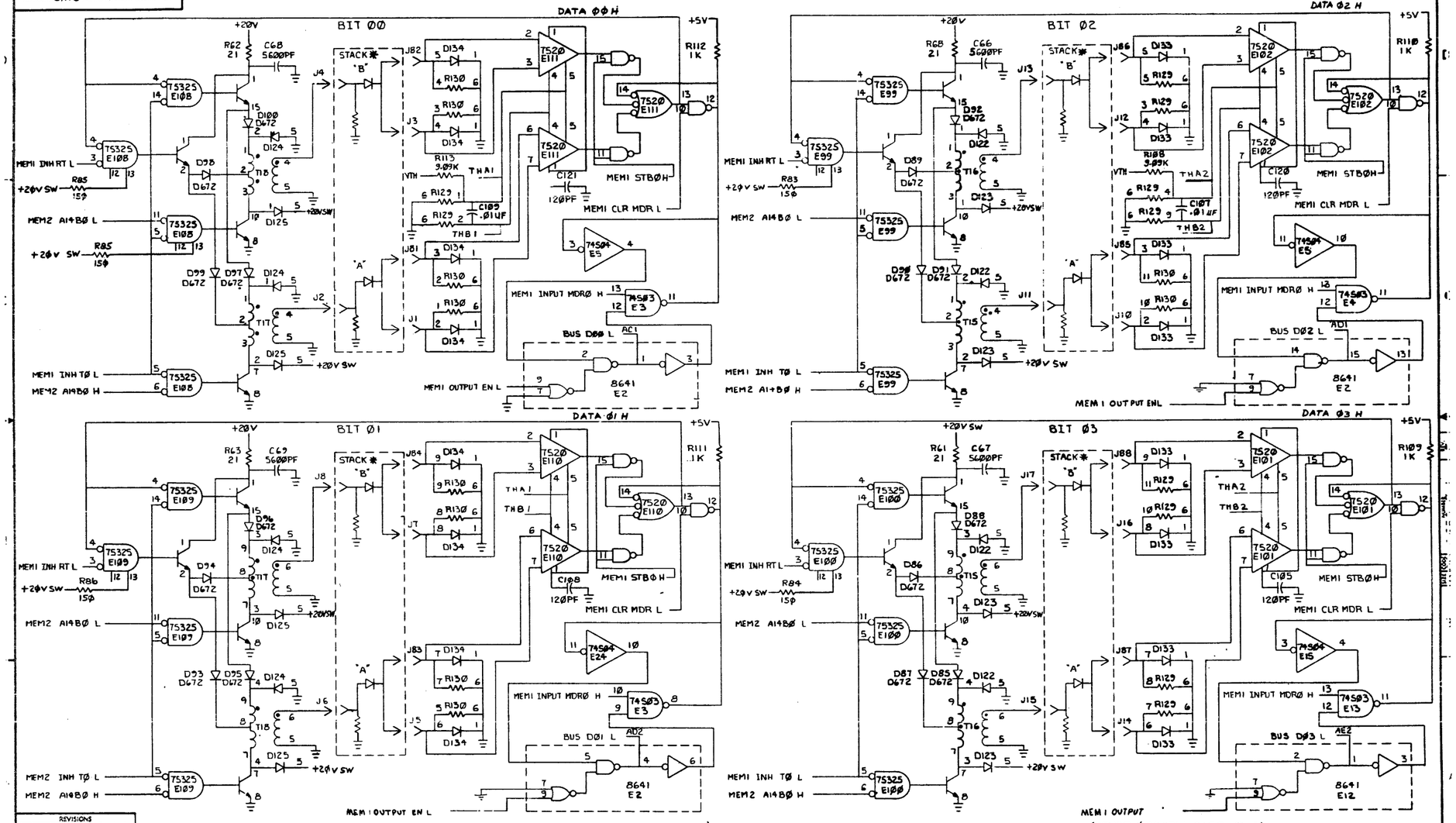
REVISIONS		
CHK	CHANGE NO.	REV.

(Y DRIVE)

TITLE	SIZE	CODE	NUMBER	REV.
16K x 18 MEMORY ELECTRONICS (MEM4)	D	CS	G652-0-1	D
SCALE — # SHEET 6 OF 11	DIST.			

358

* MOUNTED ON H222 BD:



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	16K x 18 MEMORY ELECTRONICS (MEM5)	SIZE	CODE	NUMBER	REV.
		D	CS	G652-Ø-1	F
SCALE	#	SHEET 7 OF 11		DIST.	

* MOUNTED ON H222 BD

BIT Ø4 — DATA Ø4 H — STACK * "B" "A" — +20V — +5V — R59 21 — C64 5600PF — R106 1K — 75325 E92 — D84 D672 — D120 — D82 D672 — T14 — D121 — +20V SW — R81 15Ø — MEM1 INH RTL — MEM2 A14BØ L — D83 D672 — D81 D672 — D120 — T13 — D121 — MEM1 INH TØ L — MEM2 A14BØ H — J21 J19 — J20 D132 R128 R128 — J18 D132 R128 R128 — J30 D132 R128 R128 — J29 D132 R10T 5.09K THA3 R127 C103 .01 µF R127 THB3 — 7520 E95 — C119 120PF — MEM1 STBØ H — MEM1 CLR MDR L — 74S04 E5 — MEM1 INPUT MDRØ H — 74S03 E3 — BUS DØ4 L AE1 — 8641 E1 — MEM1 OUTPUT EN L

BIT Ø6 — DATA Ø6 H — STACK * "B" "A" — +20V — +5V — R67 21 — C62 5600PF — R104 1K — 75325 E83 — D76 D672 — D118 — D73 D672 — T12 — D119 — +20V SW — R79 15Ø — MEM1 INH RT L — MEM2 A14BØ L — D74 D672 — D75 D672 — D118 — T11 — D119 — MEM1 INH TØ L — MEM2 A14BØ H — J30 J29 J28 J27 — J94 D131 R127 R127 — J95 D131 R128 R128 — J93 D131 R127 R127 — 7520 E86 — R102 9.09K THA4 C101 .01 µF THB4 C118 120PF — MEM1 STBØ H — MEM1 CLR MDR L — 74S04 E5 — MEM1 INPUT MDRØ H — 74S03 E4 — BUS DØ6 L AF1 — 8641 E1 — MEM1 OUTPUT EN L

BIT Ø5 — DATA Ø5 H — STACK * "B" "A" — +20V — +5V — RGØ 21 — C65 5600PF — R105 1K — 75325 E93 — D80 D672 — D120 — D78 D672 — T13 — D121 — +20V SW — R82 15Ø — MEM1 INH RT L — MEM2 A14BØ L — D77 D672 — D79 D672 — D120 — T14 — D121 — MEM1 INH TØ L — MEM2 A14BØ H — J25 J23 J22 — J92 D132 R128 R128 — J91 D132 R128 R128 — J24 D132 R128 R128 — 7520 E94 — THA3 THB3 C102 120PF — MEM1 STBØ H — MEM1 CLR MDR L — 74S04 E15 — MEM1 INPUT MDRØ H — 74S03 E14 — BUS DØ5 L AF2 — 8641 E12 — MEM1 OUTPUT EN L

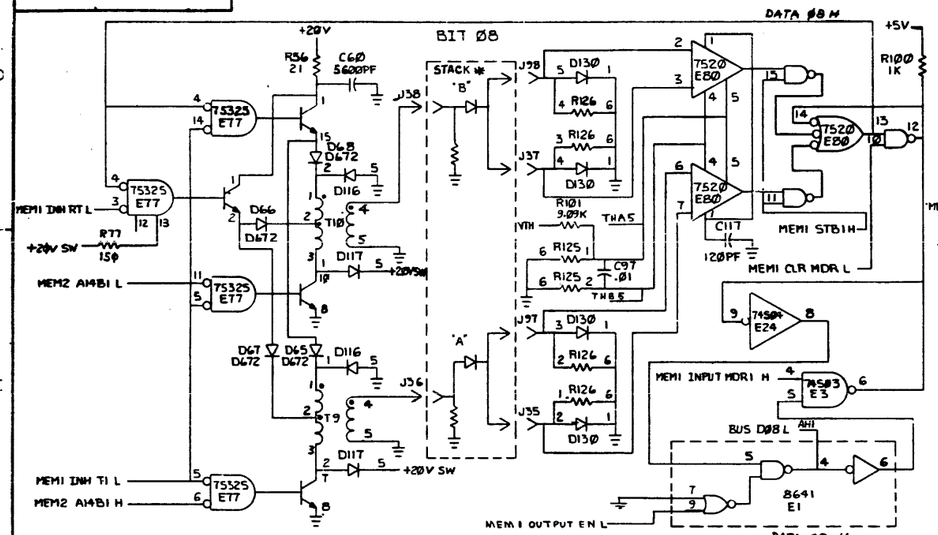
BIT Ø7 — DATA Ø7 H — STACK * "B" "A" — +20V — +5V — R58 21 — C68 5600PF — R103 1K — 75325 E84 — D72 D672 — D118 — D70 D672 — T11 — D119 — +20V SW — R80 15Ø — MEM1 INH RT L — MEM2 A14BØ L — D71 D672 — D69 D672 — D118 — T12 — D119 — MEM1 INH TØ L — MEM2 A14BØ H — J34 J33 J32 J31 — J96 D131 R127 R127 — J95 D131 R127 R127 — J33 D131 R127 R127 — 7520 E85 — THA4 THB4 C99 120PF — MEM1 STBØ H — MEM1 CLR MDR L — 74S04 E24 — MEM1 INPUT MDRØ H — 74S03 E13 — BUS DØ7 L AH2 — 8641 E12 — MEM1 OUTPUT EN L

REVISIONS		
CHK	CHANGE NO.	REV.

(SENSE & INHIBIT BITS 4-7)

TITLE	SIZE	CODE	NUMBER	REV.
16K×18 MEMORY ELECTRONICS (MEM6)	D	CS	G652-Ø-1	F
SCALE — H — SHEET 8 OF 11	DIST.			

* MOUNTED ON H222 BD:



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	16K x 18 MEMORY ELECTRONICS (MEM7)	SIZE	CODE	NUMBER / REV.
		D	CS	G652-0-1
SCALE —H—	SHEET 9 OF 11	DIST		

* MOUNTED ON M222 BD

BIT 12 — DATA 12 H

BIT 13 — DATA 13 H

BIT 14 — DATA 14 H

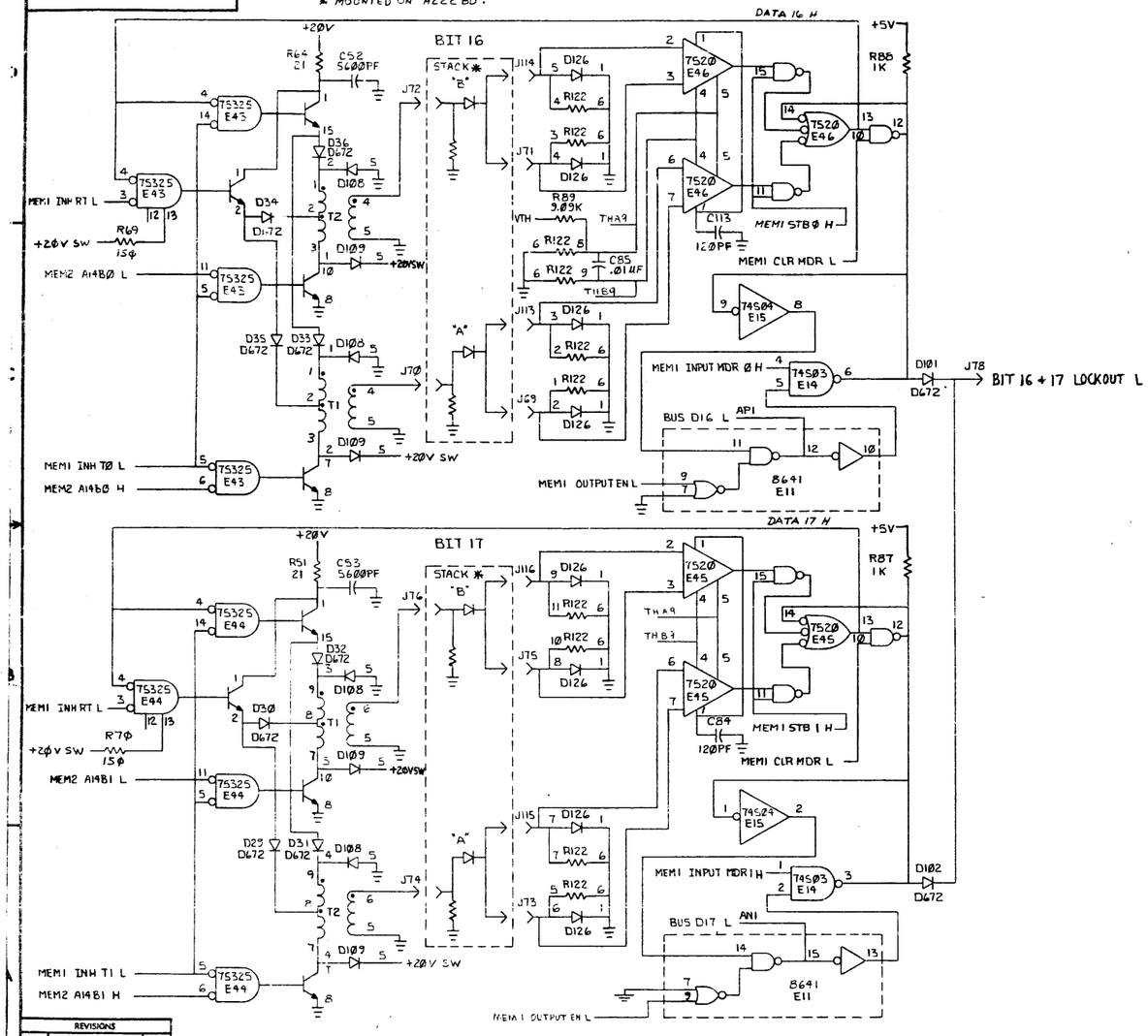
BIT 15 — DATA 15 H

(SENSE & INHIBIT BITS 12-15)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
16K x 18 MEMORY ELECTRONICS (MEM1)	D	CS	G652-0-1	F
SCALE —	SHEET 10 OF 11		DIST.	

* MOUNTED ON H222 BD.

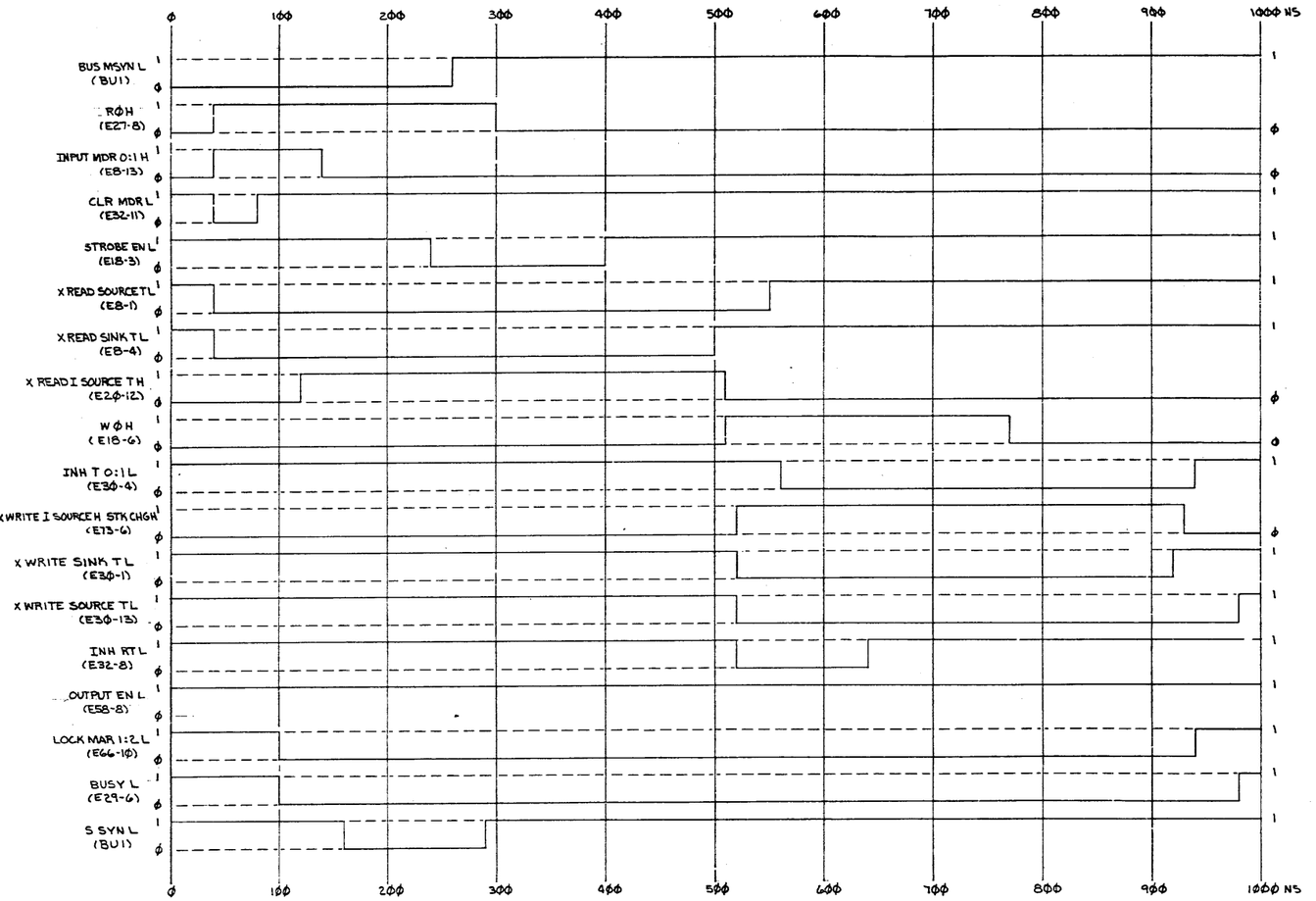


REVISIONS		
CHK	CHANGE NO.	REV.

(SENSE & INHIBIT BITS 16 & 17)

TITLE	SIZE	CODE	NUMBER	REV.
16K x 18 MEMORY ELECTRONICS (MEM9)	D	CS	G652-0-1	F
SCALE —	SHEET 1 OF 1		DIST.	

DAT O



DRN. W. LUFKIN	9/SEPT/75	FIRST USED ON: MMII-DP
CHK'D M. Lufkin	9/SEPT/75	
ENG. D. Lee	10/29/75	TITLE: MMII-DP TIMING DIAGRAM
PROJ. ENG() T.O.	11/4/75	
PROD. ENG. NOLE	24 OCT 75	
NEXT HIGHER ASSY.		
3-DD-MMII-DP		SIZE D, CODE TD, NUMBER MMII-DP-2, REV.
SCALE		
SHEET 1 OF 2		DIST.

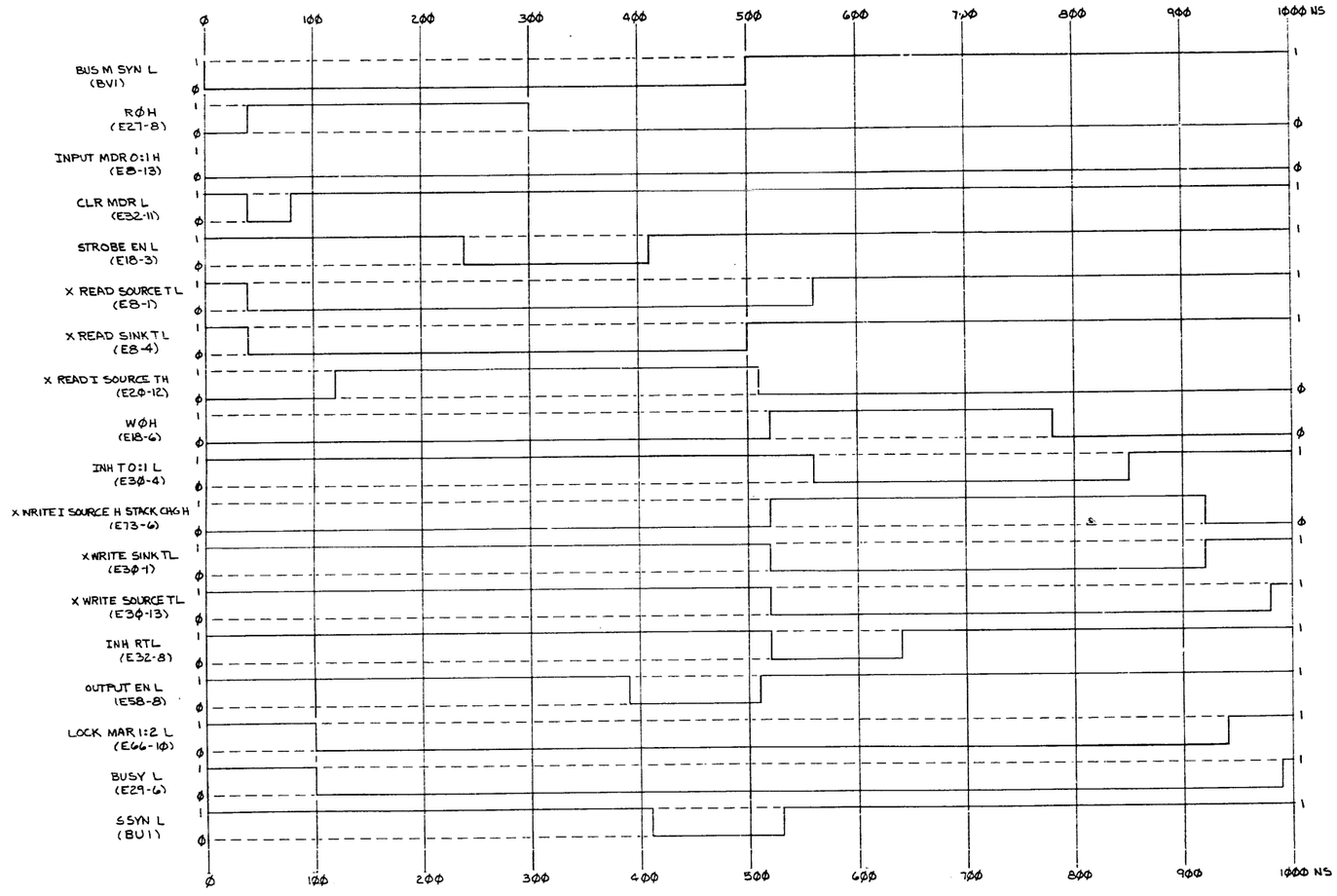
digital

REVISIONS		
DATE	CHANGE NO.	REV.

ECO FORM NO. ENG 1020-0

MMII-DP-2

DAT I



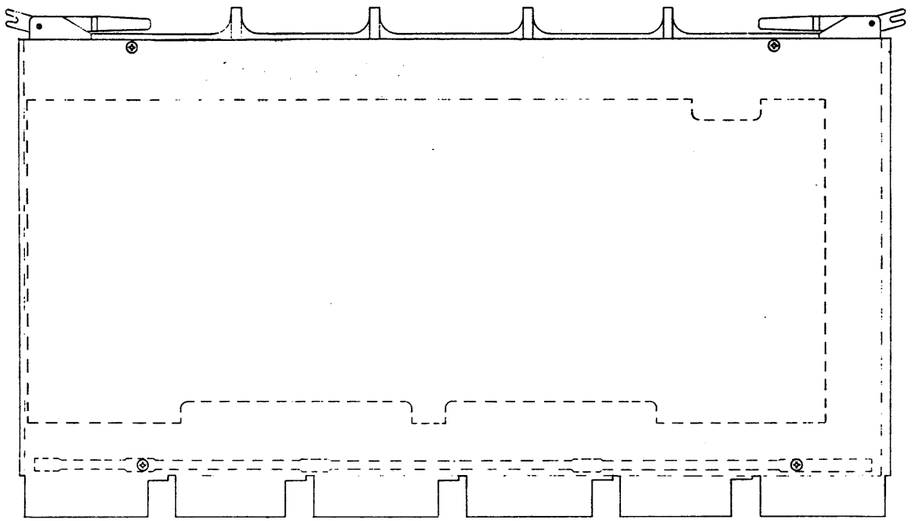
REVISIONS		
CHK	CHANGE NO.	REV.

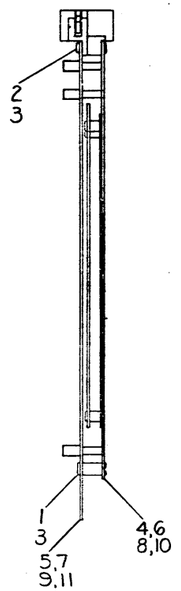
TITLE	SIZE	CODE	NUMBER	REV.
MMII-DP TIMING DIAGRAM	D	TD	MMII-DP-2	
SCALE	SHEET 2 OF 2	DIST.		

LEGEND

VARIATION		DESCRIPTION	DWG. NUMBER
MMII-D WILL INCLUDE MODULE COMBINATION C OR D	D	G652-YA 16K x 18 CORE MEM.	D-CS-G652-0-1
		H222-YB STACK BOARD (16BIT)	D-UA-H222-B-0
	C	G652 16K x 18 CORE MEM.	D-CS-G652-0-1
		H222-B STACK BOARD (16BIT)	D-UA-H222-B-0
MMII DP WILL INCLUDE MODULE COMBINATION A OR B	B	G652-YA 16K x 18 CORE MEM.	D-CS-G652-0-1
		H222-YA STACK BOARD (18BIT)	D-UA-H222-A-0
	A	G652 16K x 18 CORE MEM.	D-CS-G652-0-1
		H222-A STACK BOARD (18 BIT)	D-UA-H222-A-0

NOTE :
1. MMII-DP MEMORY MODULE ASSEMBLY (16K X 18 BIT) MAY BE SUBSTITUTED FOR MMII-D MODULE ASSEMBLY (16K x 16 BIT).
2. G652-YA'S WILL NOT OPERATE WITH H222'S.
3. H222-YA'S & YB'S WILL NOT OPERATE WITH G652'S.





4	4	WASHER, LOCK #2 INT TOOTH	9006631-00	6
2	2	SCR, PHL PAN HD SS #2-56X .3116	9006002-01	5
2	2	SCR, PHL PAN HD, SS #2-56 X .19	9006000-01	4
1	1	16K X 18 CORE MEMORY (G652)	D-CS-G652-0-1	3
1		H222 STACK BOARD (16 BIT)	D-UA-H222-B-0	2
	1	H222 STACK BOARD (18 BIT)	D-UA-H222-A-0	1
DESCRIPTION			CAGE PART NO.	ITEM NO.

MMII-D / MMII-DP

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)		OVER 0 TO 3 / ±.1	OVER 3 TO 6 / ±.15	OVER 6 TO 13 / ±.2	OVER 13 TO 22 / ±.3	OVER 22 TO 40 / ±.5	OVER 40 TO 80 / ±.8
SURFACE QUALITY IN MICROINCHES ✓	MEDIUM	☐	±.006	±.008	±.012	±.016	±.024	±.04
	PREFERRED	☐	±.003	±.010	±.025	±.38	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DRN. K. LUFKIN	7/24/75	FIRST USED ON: MMII-DP
CHK'D	8/21/75	digital
ENG.		TITLE: MMII-DP MEMORY MODULE ASSEMBLY
PROJ. ENG.		
PROD.		
% OF SCALE DWG	NEXT HIGHER ASSY.	
MATERIAL: SEE PARTS LIST	B-DD-MMII-DP	SIZE: D / CODE: UA / NUMBER: MMII-DP-0 / REV: A
FINISH	SCALE 1/1	
	SHEET 1 OF 1	DST.

REV.	Engineering	Manufacturing
A	MMII-DP-00002	22 FEB 77
	D SHELSER	3/14/77

DEC FORM NO. D40 1086

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE

SEQUENCE

THIS IS PRINT SET

UNIT VARIATIONS		PRINT SET
VAR	TITLE	
H222-A	16K X 18 BIT DEC	
H222-B	16K X 16 BIT DEC	
H222-YA	16K X 18 BIT CONTROL DATA	
H222-YB	16K X 16 BIT CONTROL DATA	

REVISIONS		
DATE	CHG. NO.	REV
5-76	H222-1	A
2-77	H222-2	B

DEC 14-11231-10621-A-R972

DRB 106

USED ON OPTION/MODEL

SHEET 1 OF 2

DRN. W LUFKIN	DATE 24/OCT/75	TITLE H222 MEMORY STACK
CHK'D.	DATE 24/OCT/75	
PROJ ENG.	DATE 10/28/75	
PROD. R.A. HILL	DATE 10/29/75	SIZE B / CODE DD / NUMBER H222-Ø / REV B
FIELD SERV.	DATE 11/4/75	DIST

ELECTRICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
			B-DD-H222-Ø		2	DRAWING DIRECTORY	
			D-CS-5411554-0-1			H222 STACK BOARD	
			E-IA-7011661-0-0		2	CORE PLANE WIRING ASSEMBLY	

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
			D-UA-H222-A-0		1	H222 CORE MEMORY STACK ASSY	
			D-PA-1211725-0-0		1	STIFFENER, FINGER END	
			D-PS-1211726-0-0		1	STIFFENER, HANDLE END	
			D-MD-5511796-0-0		1	CORE SUPPORT (16K x 16/18 BIT)	
			D-MD-5511797-0-0		1	COVER (16K X 16/18 BIT)	
			A-PL-5411554-C-C			PARTS LIST	
			D-AH-5411554-C-5			MEMORY STACK SUB	

CUSTOMER PRINT SET CODES

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
H222 MEMORY STACK	2 OF 2	B	DD	H222-Ø	B

"Y" DIODE MATRIX

NOTE:
PREFIX FOR J156-J179 IS MEM4.

J160 J161 J158 J159 J163 J162 J156 J157
YS7 YS6 YS5 YS4 YS3 YS2 YS1 YS0

D18

D52 D60 D54 D62 D56 D64 D58 D66

D16

J179 YP D0 — YN D0 J167
J178 YP D1 — YN D1 J166
J177 YP D2 — YN D2 J165
J176 YP D3 — YN D3 J164
J171 YP D4 — YN D4 J175
J170 YP D5 — YN D5 J174
J169 YP D6 — YN D6 J173
J168 YP D7 — YN D7 J172

CB .22 UF 50V — D17 D672 — R56 82 1/2 W — +5V

R57 R58

+20V J153 — C4 .22 UF — Q2 3736 — L1 100 UH — D2 D672 — R54 47 — J155 +5V
D6 D672 — D4 D672 — C9 .01 UF — W4 — D79 D672
PULL UP H — J150 MEM2Y STACK CHG H — 74S140 E2 — R15 100 — Q3 3736 — C5 680 PF

REV.	ECO	DATE	BY
C	5411554-00001	4-9-76	D.SHELLER
D	5411554-00002	6/12/75	D.SHELLER

DRN. M. Thomas 6-26-75
CHK'D. 7/3/75
ENG. 7/14/75
PROJ. ENG. 7/14/75
P.RCD. 7/14/75
NEXT HIGHER ASSY. D-UA-H222-0
SCALE —
SHEET 1 OF 3

FIRST USED ON MM11D/DA — digital

TITLE 16K X 16, 18 MEMORY STACK

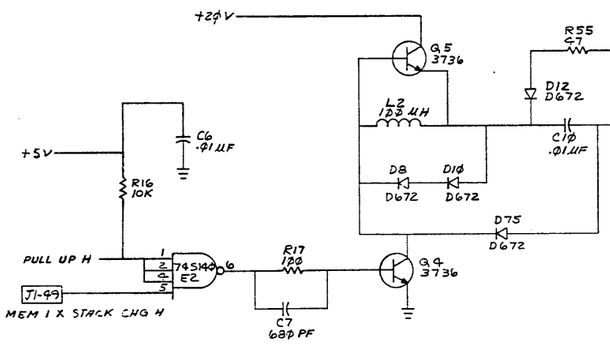
SIZE D | CODE DCS | NUMBER 5411554-C-1 | REV. D

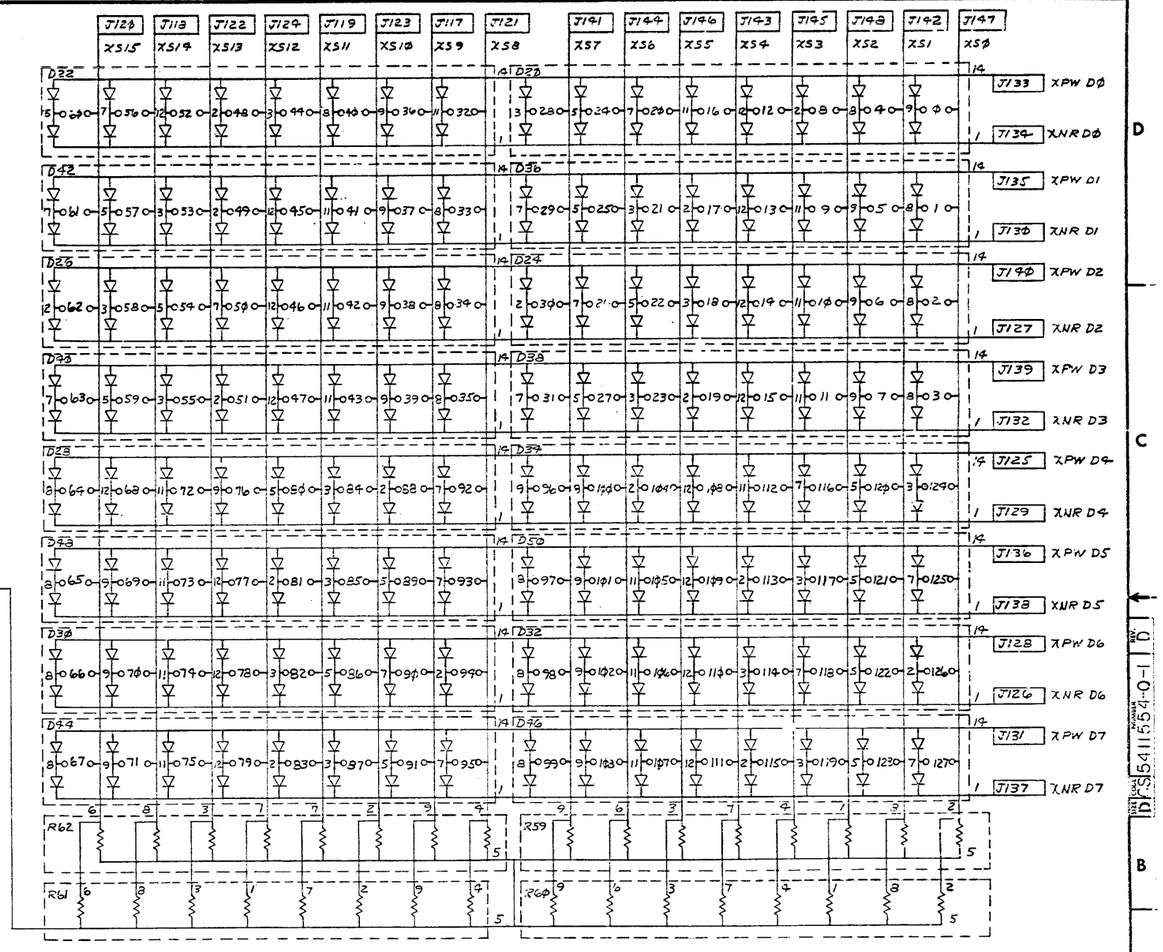
DIST.

ECO FORM NO. DWG 1020

"X" DIODE MATRIX

NOTE:
PREFIX FOR J117-J148 IS MEM3.





REVISIONS		
DNK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
16K X 16, 18 MEMORY STACK	D	CS	5411554-0-1	D
SCALE —	SHEET 2 OF 3	DIST.		

364

NOTES:
1. R18 THRU R53 ARE 1K, 1/4W ±5%.
2. UNLESS OTHERWISE SPECIFIED: ALL DIODES ARE D672.
3. W3 MUST BE INSTALLED FOR A 16 BIT MEMORY -- H222B, OR H222A USED WITHOUT A PARITY CONTROLLER (M7850).
4. W1 & W2 ARE USED TO ADJUST VREF

BIT Ø0A: J1 SBØØA, J81 SAØØA, J2 IØØA — R53 — D73
BIT ØØB: J3 SBØØB, J82 SAØØB, J4 IØØB — R52 — D71
BIT Ø1A: J5 SBØ1A, J83 SAØ1A, J6 IØ1A — R51 — D69
BIT Ø1B: J7 SBØ1B, J84 SAØ1B, J8 IØ1B — R50 — D67
BIT Ø2A: J10 SBØ2A, J85 SAØ2A, J11 IØ2A — R49 — D65
BIT Ø2B: J12 SBØ2B, J86 SAØ2B, J13 IØ2B — R48 — D63
BIT Ø3A: J14 SBØ3A, J87 SAØ3A, J15 IØ3A — R97 — D61
BIT Ø3B: J16 SBØ3B, J88 SBØ3B, J17 IØ3B — R46 — D59
BIT Ø4A: J18 SBØ4A, J89 SAØ4A, J19 IØ4A — R45 — D57
BIT Ø4B: J20 SBØ4B, J90 SAØ4B, J21 IØ4B — R44 — D55
BIT Ø5A: J22 SBØ5A, J91 SAØ5A, J23 IØ5A — R43 — D53
BIT Ø5B: J24 SBØ5B, J92 SAØ5B, J25 IØ5B — R42 — D57
BIT Ø6A: J27 SBØ6A, J93 SAØ6A, J26 IØ6A — R41 — D49
BIT Ø6B: J29 SBØ6B, J94 SAØ6B, J30 IØ6B — R96 — D47
BIT Ø7A: J31 SBØ7A, J95 SAØ7A, J32 IØ7A — R39 — D45
BIT Ø7B: J33 SBØ7B, J96 SAØ7B, J34 IØ7B — R38 — D43
BIT Ø8A: J35 SBØ8A, J97 SAØ8A, J36 IØ8A — R37 — D41
BIT Ø8B: J37 SBØ8B, J98 SAØ8B, J38 IØ8B — R36 — D39
BIT Ø9A: J39 SBØ9A, J99 SAØ9A, J96 IØ9A — R35 — D37
BIT Ø9B: J41 SBØ9B, J100 SAØ9B, J42 IØ9B — R34 — D35
BIT 10A: J44 SB10A, J101 SAØA, J45 I10A — R33 — D33
BIT 10B: J46 SB10B, J102 SAØB, J47 I10B — R32 — D31
BIT 11A: J48 SB11A, J103 SA11A, J49 I11A — R31 — D29
BIT 11B: J50 SB11B, J104 SA11B, J51 I11B — R30 — D27
BIT 12A: J52 SB12A, J105 SA12A, J53 I12A — R29 — D25
BIT 12B: J54 SB12B, J106 SA12B, J55 I12B — R28 — D23
BIT 13A: J56 SB13A, J107 SA13A, J57 I13A — R27 — D21
BIT 13B: J58 SB13B, J108 SA13B, J59 I13B — R26 — D19
BIT 14A: J61 SB14A, J109 SA14A, J62 I14A — R25 — D17
BIT 14B: J63 SB14B, J110 SA14B, J64 I14B — R24 — D15
BIT 15A: J65 SB15A, J111 SA15A, J66 I15A — R23 — D13
BIT 15B: J67 SB15B, J112 SA15B, J68 I15B — R22 — D11
BIT 16A: J69 SB16A, J113 SA16A, J70 I16A — R21 — D9
BIT16B: J71 SB16B, J114 SA16B, J72 I16B — R20 — D7
BIT17A: J73 SB17A, J115 SA17A, J74 I17A — R19 — D5
BIT17B: J75 SB17B, J116 SA17B, J76 I17B — R18 — D3

W3 (SEE NOTE 3) — J78 BIT 16&17 LOCK OUT

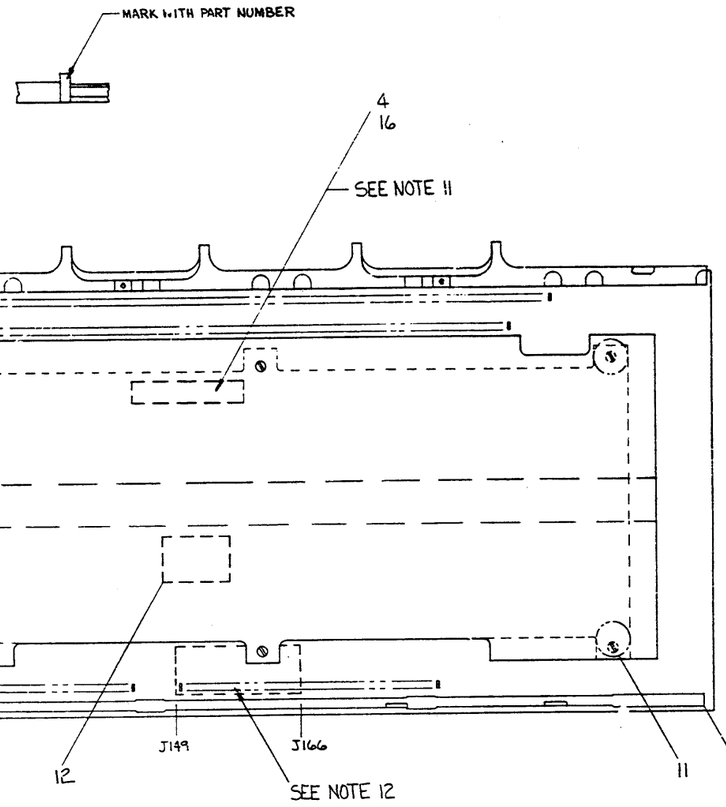
+20
D1 1N757A 9.1V
R1 82Ø
R2 3.16K
R3 1.21K
R4 1.62K
R5 10K
R6 21.5K
W1
W2 (SEE NOTE 4)
R7 1K
R14 1K
C1 .01 µF
R10 3.48K
R8 1.5ØK
R9 15ØK
XY J152
XY LO J79
XY HI J8Ø
J9 J26 J43 J6Ø J77 J154
C2 .22µF
U2 72741 E1
R11 47Ø
C3 .01µF
R12 1.96K
R13 1ØØ
Q1 6534B
J151 V REF

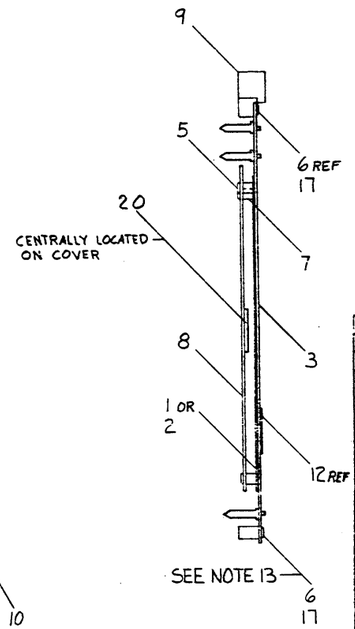
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
16K X 16, 18 MEMORY STACK	D	CS	5411554-0-1	D
SCALE	SHEET 3 OF 3	DIST.		

DEC STORE 16 BMR 120

DIGITAL CODE DCS 5411554-0-1 REV. D





LEGEND			
NUMBER	NUMBER	VARIATION	USED ON
H222-YA	H222 A	16K X 18 BIT	MM11-DP
H222-YB	H222 B	16K X 16 BIT	MM11-D

NOTES:

1. BOND ITEM 1 (CORE PLANE) TO ITEM 3 (STACK BOARD) WITH ITEM 14 (ADHESIVE).
2. SWAGE ITEM 1 (CORE PLANE) AND ITEM 3 (STACK BOARD) TOGETHER WITH ITEM 7 (STANDOFF).
3. USE ITEM 15 (PROTECTIVE COATING) TO COAT ALL MAGNETIC WIRE TERMINATIONS AFTER ELECTRICAL TEST. (REF E-IA-7011661-0-0)
4. BOND TWISTED CABLES TO ITEM 1 (CORE PLANE) WITH ITEM 13 (ADHESIVE). SEE E-IA-7011661-0-0.
5. BOND X & Y DRIVE LOOPS IN PLACE WITH ITEM 13 (ADHESIVE). SEE E-IA-7011661-0-0 NOTES
6. REFER TO E-IA-7011661-0-0 WHEN SOLDERING WIRE TERMINATIONS TO ITEM 3 (STACK BOARD).
7. ASSEMBLE ITEMS 9 & 10 (STIFFENERS) TO ITEM 3 (STACK BOARD) USING ITEMS 6 & 17.
8. ATTACH ITEM 8 (COVER) TO ITEM 3 (STACK BOARD) USING ITEM 5 (NYLON SCREW).
9. APPLY ITEM 11 (WARRANTY SEAL) WHERE SHOWN.
10. APPLY ITEM 12 (NAME PLATE) TO SIDE 2 OF ITEM 3 (STACK BOARD) AS SHOWN.
11. MARK ITEM 3 (STACK BOARD) ON SIDE 2 WITH DEC PART NUMBER, SEQUENTIAL SERIAL NUMBER, AND CIRCUIT SCHEMATIC REVISION USING ITEM 4 (INK) AND ITEM 16 (EPOXY). EXAMPLE: H222-A-001-C5-B.
12. TRIM AMP POSTS AND COMPONENT LEADS TO BE .05 IN THIS AREA OF SIDE 2.
13. INSTALL ITEM 17 (LOCKWASHER) "TORQUE HAND TIGHT".

1	1	1	1	TAPE FOAM ADHESIVE 1.9 X .35	9008956-01	20
1	—	—	—	CORE PLANE WIRING ASSY	E-IA-7011661-3-B	19
1	1	—	—	CORE PLANE WIRING ASSY	E-IA-7011661-2-0	18
8	8	8	8	WASHER, LOCK #2 INT TOOTH	9006631-00	17
A/R	A/R	A/R	A/R	EPOXY	4901082-00	16
A/R	A/R	A/R	A/R	PROTECTIVE COATING (FI45)	4901083-00	15
A/R	A/R	A/R	A/R	ADHESIVE (RTV 3145)	4901086-00	14
A/R	A/R	A/R	A/R	ADHESIVE (RTV 3140)	4901085-00	13
1	1	1	1	NAME PLATE	~~9053233-00~~	12
2	2	2	2	WARRANTY SEAL		11
1	1	1	1	STIFFENER, FINGER END	D-PS-1211725-0-0	10
1	1	1	1	STIFFENER, HANDLE END	D-PS-1211726-0-0	9
1	1	1	1	COVER	D-MD-5511791-0-0	8
6	6	6	6	STANDOFF .25 DIA X .19 LG	9009677-00	7
8	8	8	8	SCR, PHL PAN HD SS #2-56 X .19	9006000-01	6
6	6	6	6	SCR, SLT BNDR HD NYLON #4-40 X .19	9009233-04	5
A/R	A/R	A/R	A/R	INK, BLACK	4901084-00	4
1	1	1	1	H222 STACK BOARD	541554	3
—	—	1	—	CORE PLANE WIRING ASSY	E-IA-7011661-1-0	2
—	1	—	1	CORE PLANE WIRING ASSY	E-IA-7011661-0-0	1
H222-YB	H222-YA	H222-B	H222-A	DESCRIPTION	DWG. PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	OVER 0 TO 0.3	OVER 0.3 TO 1.2	OVER 1.2 TO 4.3	OVER 4.3 TO 12.3	OVER 12.3 TO 40.8	OVER 40.8 TO 80.8
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.029	±.04	±.063	±0.1

QUANTITY & VARIATION

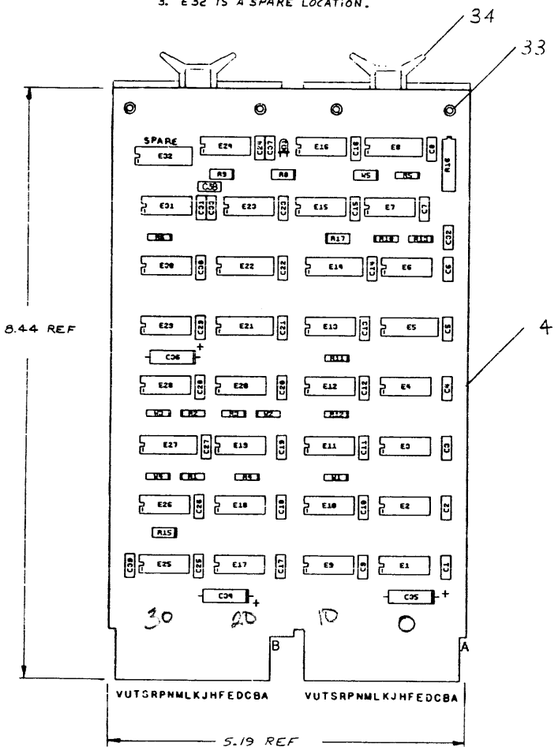
THIRD ANGLE PROJECTION	DRN. W. LUFKIN 7/17/75	FIRST USED ON MM11-DP
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D 7/17/75	TITLE H222 CORE MEMORY STACK ASSEMBLY
DO NOT SCALE DWG	ENG. 7/17/75	
MATERIAL SEE PARTS LIST	PROJ. ORG. 7/17/75	
FINISH	PROG.	NEXT HIGHER ASSY. D-IA-MM11-D-0-L
	SCALE 1/1	SIZE D CODE 07UA NUMBER H222-0-0 REV. 5
	SHEET 1 OF 1	DIST.

Revisions		
Symbol	Comment Nos.	Init.
A	1-5 ECO 2000	
B	6-13 ECO 2225	

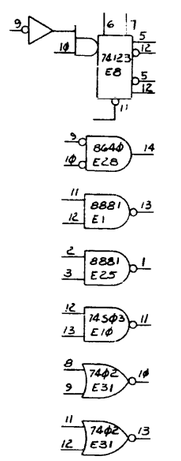
H222-0-0

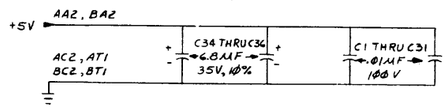
NOTES:

1. ALL RESISTORS 1/4 W, 5% UNLESS OTHERWISE NOTED.
   ALL CAPACITORS ARE 100V, 20% UNLESS OTHERWISE NOTED.
2. JUMPER CONTROL OPERATIONS IS FOLLOWS:
   W1 THRU W4 SELECT CSR ADDRESS, W5 CAPACITOR FOR 5 SYN DLY, NOT USED.
3. E32 IS A SPARE LOCATION.



SPARES:





REF				REF
REF		CIRCUIT SCHEMATIC	D-CS-M7850-0-1	REF
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M7850-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7850-0-5	2
REF		MODULE ECO HISTORY	B-MH-M7850-06	3
1		ETCHED CIRCUIT BOARD	5010651-00	4
1	C39	CAP 470 PF, 100V, 5% (DM)	1000024-00	5
2	C33, C37	CAP 330 PF, 100V, 5% (DM)	1000023-00	6
32	C1 THRU C32	CAP .01 MF, 100 V, 20% DISC	1001610-01	7
3	C34, C35, C36	CAP 6.8 MF, 35V, 10% STANT	1005306-00	8
1	D1	DIODE, L.E.D.	1110324-00	9
5	R1 THRU R5	RES 4.7K 1/4W 5%	1306447-00	10
3	R8, R9, R15	RES 100 1/4W 5%	1300229-00	11
5	R6, R10, R11, R12, R17	RES 470 1/4W 5%	1300316-00	12
1	R13	RES 1K 1/4W 5%	1300365-00	13
1	R16	RES 10K 3/4 W 2% (1% PER REF)	1303143-10	14
1	E24	I.C. 7400	1905575-00	15
1	E30	I.C. 7430	1905578-00	16
1	E31	I.C. 7402	1903004-00	17
1	E19	IC. 314A	1909704-00	18
1	E23	IC. 7408	1910155-00	19
4	E1, E9, E17, E25	IC. 8881	1909705-00	20
1	E16	I.C. 74H04	1909931-00	21
1	E27	I.C. 7485	1910224-00	22
1	E8	I.C. 74123	1910436-00	23
1	E10	I.C. 74S03	1910533-00	24
1	E15	I.C. 74S74	1910544-00	25
1	E21	I.C. 74174	1910652-00	26
2	E5, E22	I.C. 74157	1910655-00	27
9	E2, E3, E11, E12, E18 E20, E26, E28, E29	I.C. 8640	1911469-00	28
2	E4, E13	I.C. 74S280	1911573-00	29
1	E14	I.C. 8266	1909934-00	30
2	E6, E7	I.C. 7474	1905547-00	31
4	W1 THRU W4	INSULATED JUMPER	9009185-00	32
4		EYELET	9006732-00	33
2		HANDLE, FLIP-CHIP (MAGENTA)	9008337-6	34

QTY	REF. DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. B

8640	1	8
8266	8	16
74151	8	16
74174	8	16
74123	8	16
7485	8	16
314A	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

SEMICONDUCTOR CONVERSION CHART

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

REV.	CHANGE NO.	CHK.	DATE
B	M7850-00001		5/1/75

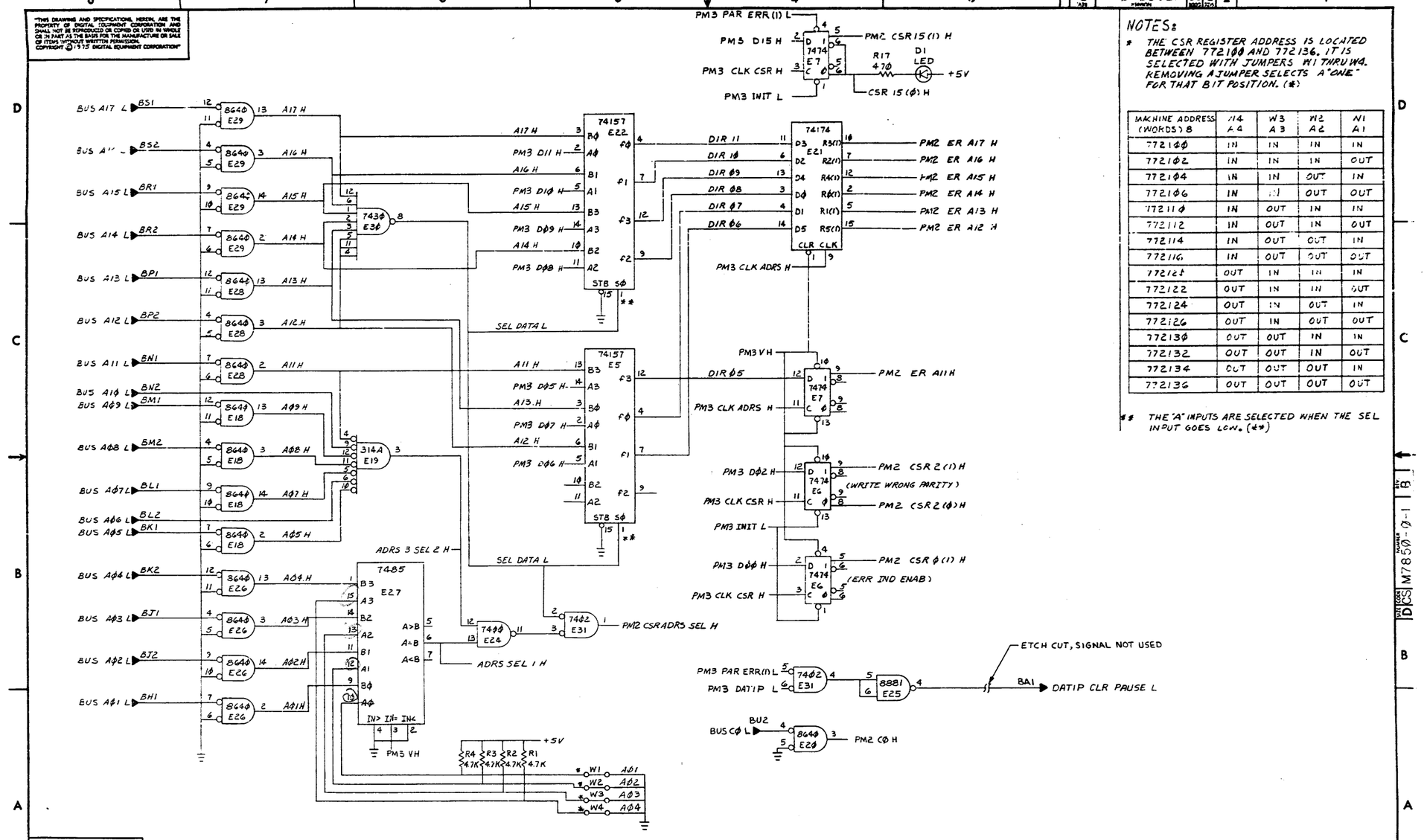
DRN. W. LUFKIN DATE 2-5-75
CHK'D DATE 2/17/75
ENG. DATE 3/13/75
PROJ. ENG. DATE 3/11/75
PROD. DATE 3/13/75
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 3
DIST.

digital

TITLE: PARITY MODULE

SIZE	CODE	NUMBER	REV.
D	CS	M7850-0-1	B

M7850-0-1 REV B DCS



NOTES:

* THE CSR REGISTER ADDRESS IS LOCATED BETWEEN 772100 AND 772136. IT IS SELECTED WITH JUMPERS W1 THRU W4. REMOVING A JUMPER SELECTS A "ONE" FOR THAT BIT POSITION. (*)

MACHINE ADDRESS (WORDS) 8	W4 A4	W3 A3	W2 A2	W1 A1
772100	IN	IN	IN	IN
772102	IN	IN	IN	OUT
772104	IN	IN	OUT	IN
772106	IN	IN	OUT	OUT
772110	IN	OUT	IN	IN
772112	IN	OUT	IN	OUT
772114	IN	OUT	OUT	IN
772116	IN	OUT	OUT	OUT
772120	OUT	IN	IN	IN
772122	OUT	IN	IN	OUT
772124	OUT	IN	OUT	IN
772126	OUT	IN	OUT	OUT
772130	OUT	OUT	IN	IN
772132	OUT	OUT	IN	OUT
772134	OUT	OUT	OUT	IN
772136	OUT	OUT	OUT	OUT

** THE "A" INPUTS ARE SELECTED WHEN THE SEL INPUT GOES LOW. (**)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PARITY MODULE (PM2)	D	CS	M7850-Ø-1	B
SCALE	SHEET 2 OF 3	DIST.		

NOTES:
* B INPUTS SELECTED WHEN SEL IS LOW (*)
** SET R16 TO 110 NSEC ± 10 NS FROM SIGNAL ON PIN BE1 GOING LOW TO SIGNAL ON PIN BB2 GOING HIGH. (@ 1.5V LEVEL) (**)

PM2 CSR 15 (1) H
BUS DI4 L
BUS DI3 L
BUS DI2 L
PM2 ER A17 H
PM2 ER A16 H
PM2 ER A15 H
PM2 ER A14 H
PM2 ER A13 H
PM2 ER A12 H
PM2 ER A11 H
BUS DØ4 L
BUS DØ3 L
PM2 CSR 2(1) H
BUS DØ1 L
PM2 CSR Ø(1) H
PM3 READ SEL H

8881 E9 · 8881 E17 · 8881 E1 · 8640 E12 · 8640 E11 · 8640 E2 · 8640 E3

AM2 BUS DI5 L · AL1 · AL2 · AK1 · AK2 BUS DI1 L · AJ1 BUS DI0 L · AJ2 BUS DØ9 L · AH1 BUS DØ8 L · AH2 BUS DØ7 L · AF1 BUS DØ6 L · AF2 BUS DØ5 L · AE1 · AE2 · AD1 BUS DØ2 L · AD2 · AC1 BUS DØØ L

74S280 E13: PM3 DI5 H, DI4 H, DI3 H, DI2 H, PM3 DI1 H, PM3 DI0 H, PM3 DØ9 H, PM3 DØ8 H, PM3 8 BIT GEN H → ODD, EVEN
74S280 E4: PM3 DØ7 H, DØ4 H, DØ3 H, DØ1 H, PM3 A BIT GEN H, PM3 DØ6 H, PM3 DØ5 H, PM3 DØ2 H, PM3 DØØ H → ODD, EVEN

PM3 C1 H
74S03 E11: ANI · INT BUS PI L
74S03 E10: API · INT BUS PØ L
74S03 E16: PM3 PAR ERR H
R12 470 · R11 470 · R10 470 · +5V

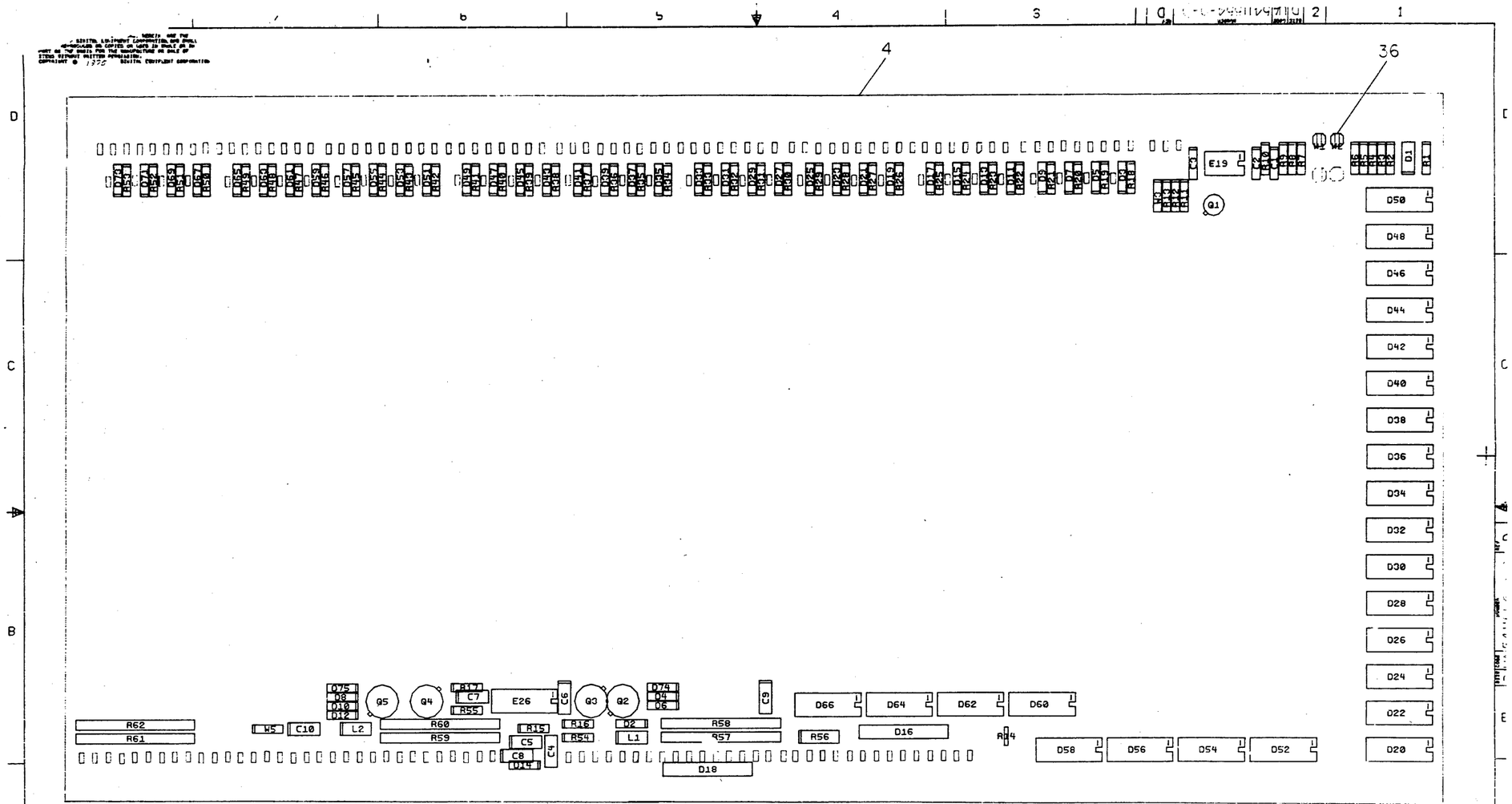
8266 E14: PM2 CSR 2(Ø) H · PM3 VH · PM2 CØH · PM3 INT SYNC H · PM3 C1 L
B3 A3 B2 A2 B1 A1 B0 A0 → F3 F2 F1 F0 S1 S0
PM3 8 BIT GEN H · PM3 A BIT GEN H · PM3 DATIP L
MA / MB

RG 470 · +5V · 74H64 E16
R5 4.7K · +5V · R16 10K (T.P.) · R13 1K · +5V · PM3 VH · C32 .01UF
INT BUS SSYN L · BE1 · PM3 C1 L · 74123 E8 · 882 S SYN DLY (Ø) H
PM3 PAR ERR(1) H · PM3 PAR ERR(1) L
74S74 E15 · PM2 CSR Ø(1) H · 8881 E1 · AN2 · BUS PB L
PM3 INIT L · PM3 INT SSYN H · PM3 M SYN PULSE L · PM3 PAR ERR H
8881 E25 · BU1 · BUS SSYN L
S SYNC INH Ø H
BE2 · INT BUS PAR MOD DET L

BUS INIT L · AA1 · 8640 E20 · INIT H · 74H04 E16 · PM3 INIT L
BUS C1 L · BT2 · 8640 E20 · PM3 C1 H · 74H04 E16 · PM3 C1 L
PM3 PAR ERR(1) H · 74H04 E16 · R8 180 · C37 330 PF 5% · 7400 E24 · ERRCLR INH L
R9 180 · C33 330 PF 5% · 74H04 E16 · 7400 E24 · PM3 M SYN PULSE L
BUS M SYN L · BV1 · 8640 E20
PM2 CSR ADRS SEL H · 7408 E23 · R15 180 · C39 470 PF 5% · PM3 C1 L · 7408 E23 · PM3 READ SEL H
PM3 C1 H · 7408 E23 · PM3 CLK CSR H · 74H02 E16 · CLK CSR L · 7400 E24 · PM3 CLK ADRS H
PM3 PAR ERR(1) L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PARITY MODULE (PM3)	D	CS	M7850-0-1	B
SCALE	SHEET 3 OF 3		DIST.	



NOTES:

CHK	CHANGE NO	REV
SPEC	5411554-0003	D
CHK	C. Ellis-Mann	7/7/75
ENG	D. SMELSER	7/7/75
PROJ. ENG.		
PROD.		

SIGNATURES	DATE
DRN. C. Ellis	7/9/75
CHK'D. [illegible]	7/10/75
ENG. [illegible]	7/11/75
PROJ. ENG. [illegible]	7/11/75
PROD.	

digital

TITLE 16K X 16,18
MEMORY STACK

SCALE 2/1	SIZE	CODE	NUMBER	REV
SHT. 1 OF 1	D	UA	5411554-0-0	D
ETCH REV C FIRST USED ON				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY M. Poirier
DATE 7/7/75
ENG D Sucher
DATE 7/14/75

CHECKED [illegible]
DATE 7/7/75
PROD R G Hill 7/14/75
DATE

SECTION
ISSUED SECT.

QUANTITY/VARIATION

ITEM NO	DWG NO./PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATIONS
1	D-CS-5411554-0-1	CIRCUIT SCHEMATIC	REF	
2	D-AH-5411554-0-5	ASSY/DRILLING HOLE LAYOUT	REF	
3	B-MH-5411554-0-6	MODULE ECO HISTORY	REF	
4	5011493	ETCHED CIRCUIT BOARD	1	
5	1000026-00	CAP 680 PF 100V 5% DM	2	C5,C7
6	1001610-01	CAP .01UF 100V CER	5	C1,C3,C6,C9,C10
7	1010274-00	CAP .22UF 50V CER	3	C4,C8,C2
8	1105275-00	DIODE D672	44	D2-D15,D17,D19,D21,D23,D25,D27
				D29,D31,D33,D35,D37,D39,D41,
				D43,D45,D47,D49,D51,D53,D55,D59
				D61,D63,D65,D67,D69,D71,D73,D74
				D75
9	1109990-00	DIODE,ZENER 1N757A 9.1V 5%	1	D1
10	7010918-3-0	DIODE NETWORK	2	D16,D18
11	1910010-00	DIODE PACK 2501	24	D20,D22,D24,D26,D28,D30,D32,D34
				D36,D38,D40,D42,D44,D46,D48,D50
				D52,D54,D56,D58,D60,D62,D64,D66
12	1300229-00	RES 100 1/4W 5%	3	R13,R15,R17
13	1301775-00	RES 820 1/4W 5%	1	R1
14	1304862-00	RES 1.62K 1/8W 1%	1	R4
15	1302871-00	RES 1.21K 1/8W 1%	1	R3
16	1304833-00	RES 1.96K 1/8W 1%	1	R12,

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
16K x 16, 18 MEMORY STACK	D-UA-5411554-0-0	A	PL	5411554-0-0	D	00002
	SHEET 1 OF 2	DIST.				

DEC FORM DEC 16 (325) 1031 NS70
DRA

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY M. Poirier
DATE 7/7/75
ENG D Sucher
DATE 7/14/75

CHECKED [illegible]
DATE 7/7/75
PROD R G Hill 7/14/75
DATE

SECTION
ISSUED SECT.

QUANTITY/VARIATION

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATIONS
17	1303045-00	RES 3.16K 1/4W 1%	1	R2
18	1300479-00	RES 10K 1/4W 5%	1	R16
19	1303312-00	RES 10K 1/8W 1%	1	R5
20	1300316-00	RES 470 1/4W 5%	1	R11
21	1303155-00	RES 21.5K 1/8W 1%	1	R6
22	1302396-00	RES 150K 1/4W 5%	2	R8,R9
23	1301781-00	RES 82 1/2W 5%	1	R56
24	1300202-00	RES 47 1/4W 5%	2	R54,R55
25	1300365-00	RES 1K 1/4W 5%	37	R18-R53,R7
26	1310071-00	RES 1K 1% THERMISTER	1	R14
27	1311742-00	RES NETWORK 220 1/4W 1%	6	R57-R62
28	1503366-00	TRANS 2N3736	4	Q2-Q5
29	1503409-01	TRANS 6534B	1	Q1
30	1610662-00	INDUCTOR 100UH	2	L1,L2
31	1910298-00	I.C. 72741	1	E1
32	1910546-00	I.C. 74S140	1	E2
33	1211727-00	CONTACT, MALE	179	J1-J179
34	9009185-00	JUMPER, INSULATED (.4 LONG)	1	W5
35	9107560-01	JUMPER, BUSS WIRE (#22 AWG)	4	W1-W4 (OPTIONAL)
36	9006735-00	EYELET (SPLIT LUG)	4	
37	1305114-00	RES 3.48K 1/8W 1%	1	R10

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
16K x 16, 18 MEMORY STACK	D-UA-5411554-0-0	A	PL	5411554-0-0	D	
	SHEET 2 OF 2	DIST.				

DEC FORM DEC 16 (325) 1031 NS70
DRA

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-MM11-C		
H221 CORE MEM STACK	B-DD-H221-Ø		
8K MEMORY	D-CS-G651-Ø-1		
MEMORY SYSTEM MODULE ASSEMBLY	D-UA-MM11-C-Ø		

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
MM11-C	8K x 16 BIT MEM SYSTEM	X
MM11-CP	8K x 18 BIT MEM SYSTEM	X
MM11-B	4K x 16 BIT MEM SYSTEM	X
MM11-BP	4K x 18 BIT MEM SYSTEM	X

REVISIONS		
DATE	CHG. NO.	REV
9-75	MM11-C-1	A
9-75	MM11-C-2	B
12-75	MM11-C-3	C

USED ON OPTION/MODEL	
MM11-C	
SHEET 1 OF 2	

DRN. W. MAJOR	DATE 2/12/75	TITLE MEMORY SYSTEM MODULE
CHK'D.	DATE	
PROJ ENG.	DATE	
PROD.	DATE	SIZE B · CODE DD · NUMBER MM11-C · REV
FIELD SERV.	DATE	DIST

DEC 91 (225)-1062-V1-0972

DRB 106

392

ELECTRICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	B-DD-MM11-C	C	2	DRAWING DIRECTORY	
X			D-CS-G651-Ø-1	#		8K MEMORY	
			D-TD-G651-Ø-9		1	MM11B-C TIMING DIAGRAM	
						DATI MODE	
			D-TD-G651-Ø-10		1	MM11B-C TIMING DIAGRAM	
						DATO, DATOB MODE	
			D-TD-G651-Ø-11		1	MM11B, BP, C, CP	
						BLOCK DIAGRAM	

MECHANICAL

CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X			D-UA-H221-Ø-Ø	#	1	H221 CORE MEM STACK ASSY	
X			D-UA-MM11-C-Ø	C	1	MEMORY SYSTEM MODULE ASSY	

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

TITLE		SIZE	CODE	NUMBER	REV
MEMORY SYSTEM MODULE	SHEET 2 OF 2	B	DD	MM11-C	C

DRB 108

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

digital EQUIPMENT CORPORATION

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET 7

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H221-Ø		
H221 STACK BOARD	D-CS-5411246-0-1		
H221 CORE MEMORY STACK ASSY	D-UA-H221-Ø-Ø		

UNIT VARIATIONS		PRINT SET
VAR	TITLE	1
H221-B	8K x 16 BIT MEMORY STACK	X
H221-A	8K x 18 BIT MEMORY STACK	X
H221-D	4K x 16 BIT MEMORY STACK	X
H221-C	4K x 18 BIT MEMORY STACK	X

REVISIONS			
DATE	CHG. NO.	REV	
9 75	H221-2	A	

USED ON OPTION/MODEL		DRN.	DATE	TITLE
MM11-C		W. MAJOR	1/22/75	H221 CORE MEMORY STACK
		CHK'D.	DATE	
		PROJ ENG.	DATE	
		PROD.	DATE 2/13/75	SIZE B / CODE DD / NUMBER H221-Ø / REV A
		FIELD SERV.	DATE 3-18-76	DIST
SHEET 1 OF 2				

DEC 16-03201-1052-1A-0952

DRB 106

374

ELECTRICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	B-DD-H221-Ø	A	2	DRAWING DIRECTORY	
X			D-CS-5411246-0-1	#	3	H221 STACK BOARD	
			E-IA-7010839-0-0		2	CORE PLANE WIRING ASSY	

MECHANICAL

CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X			D-UA-H221-Ø-Ø	B	1	H221 CORE MEMORY STACK ASSY	
			D-MD-7413449-0-0		1	STIFFENER	
			B-MD-5511584-0-0		1	COVER, CORE MEMORY	
			B-MD-5511533-0-0		1	STAND OFF	

CUSTOMER PRINT SET CODES		TITLE		SIZE	CODE	NUMBER	REV
	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED	H221 CORE MEMORY STACK	SHEET 2 OF 2	B	DD	H221-Ø	A

DRB 108

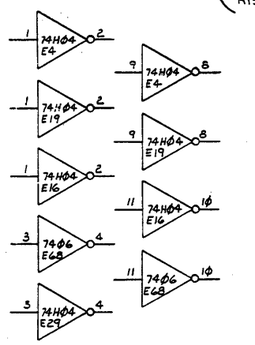
DEC 16-(325)-1062-29-R972

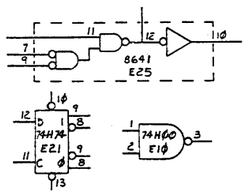
375

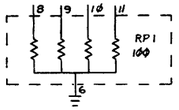
NOTES:

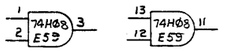
1. * INDICATES HAND INSERTED POWER RESISTORS TO BE RAISED FROM BOARD.
(R18, R55, R76, R134, R60, R61, R64, R65, R84, R85, R90, R91, R107, R108, R113, R114, R130, R131, R135, R136, R148, R149 R39)

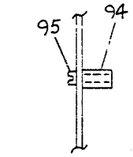
SPARES :

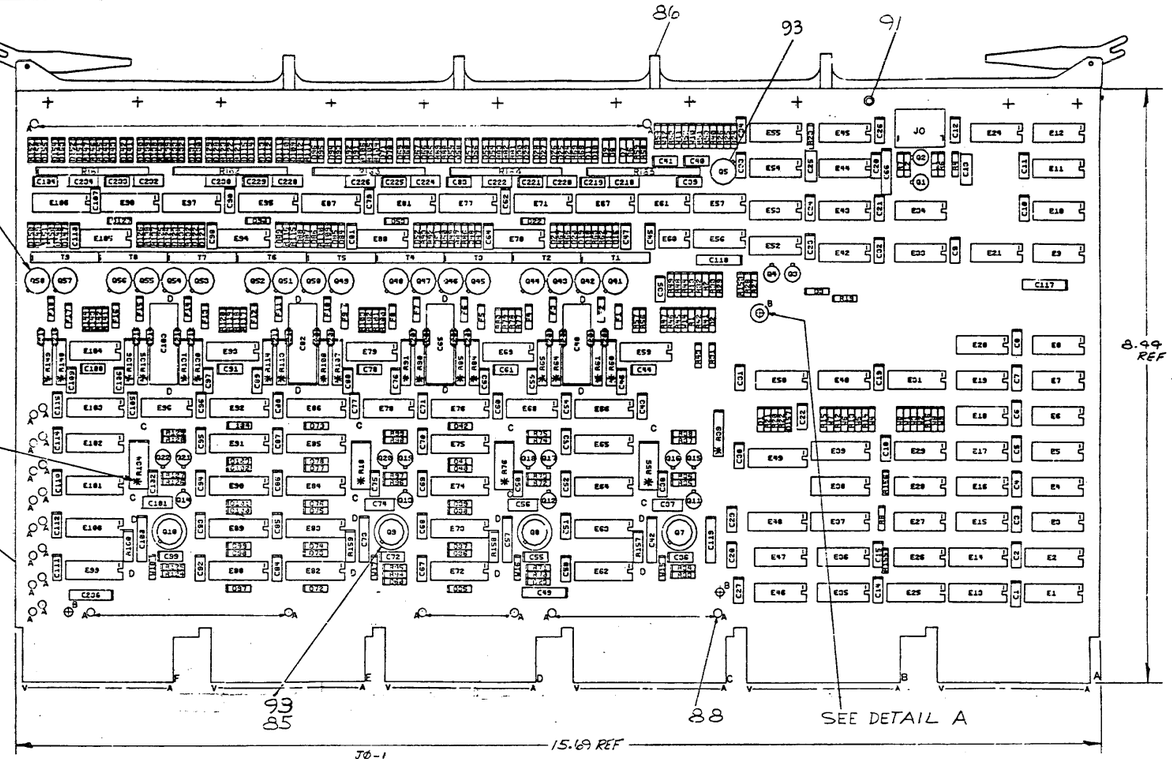


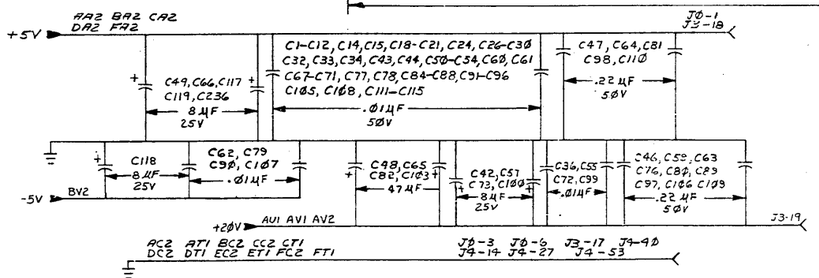












75325		8	9	16
8885		8	16	
8641		8	16	
8640		1	8	
7528	8	9		
7485		8	16	
7475		12	5	
741		4		7
IC-TYPE	-5V	GND	+5V	+20V

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

IC PIN LOCATIONS

BG 4 IN H	DS2	DT2	BG 4 OUT H
BG 5 IN H	DP2	DR2	BG 5 OUT H
BG 6 IN H	DM2	DN2	BG 6 OUT H
BG 7 IN H	DK2	DL2	BG 7 OUT H

FIRST USED ON OPTION MODEL

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV. D

REV.	REVISIONS	CHANGE NO.	
D	Discontinued (Eliminate ECO 111)	G651-00005	10/6/77
H	Add Option Model G651-00004	G651-00004	8/31/76
F	Add Option Model G651-00003	G651-00003	8-25-76
E	Add Option Model G651-00002	G651-00002	7-16-76
D	Add Option Model G651-00001	G651-00001	7-16-75
C	Initial Release		11-14-75

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

SEMICONDUCTOR CONVERSION CHART

DRN. W. LUFKIN 4-20-75
CHKD. 5/6/75
ENG. 5/13/75
PROJ. ENG. 5/13/75
PROD. 5/13/75
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 13

digital

TITLE: UNIBUS 8K MEMORY

SIZE D | CODE DCS | NUMBER G651-0-1 | REV. J | DIST.

376

PARTS LIST

REF DES	DESCRIPTION	PART NUMBER	ITEM NO
REF	X-Y COORDINATE HOLE LOCATION	K-CO-G851-0-4	1
REF	ASSY/DRILL HOLE LAYOUT	D-AH-G851-0-5	2
REF	MODULE ECO HISTORY	B-MH-G851-0-6	3
1	ETCHED CIRCUIT BOARD	5011155	4
2	C56,C74	CAP 100 PF 100V 5% CM	1000016-00	5
9	C219,C220,C224,C225 C228,C230,C232,C234,C222	CAP 120 PF 100V 5% CM	1000018-00	6
1	C22	CAP 680 PF 100V 5%	1000026-00	7
81	C1-C12,C14,C15,C18-C21,C23 C24,C26-C36,C40,C43-C45, C50-C55,C58-C62,C37-C72,C77-C79,C83-C88,C90-C96,C99, C104,C105,C107,C108,C111-C115,C219,C221,C225,C229, C233	CAP .01 UF 50V 20%	1001610-01	8
10	C42,C49,C57,C66,C100,C117, C118,C119,C236,C73	CAP 8 UF 25V10% ALUM	1012084-01	9
1	C39	CAP 27 PF 100V 5% CM	1001739-00	10
4	C13,C25,C97,C101	CAP 82 PF 100V 5% CM	1000015-00	11
13	C38,C41,C46,C47,C59 C59,C63 C64,C75,C76,C80,C81,C89,C97,C98, C102,C106,C109,C110	CAP .22UF 50V 20% CER	1010274-00	12
18	C200-C217	CAP 3300PF 50V 10% CER	1011740-01	13
4	C48,C65,C82,C103	CAP 47 UF AL EL	1012219-00	14
18	F1-F18	1/4 A PICO FUSE	1210929-04	15
1	D2	DIODE IN757A 9.1V 1% ZENER	1110890-01	16
1	D1	DIODE IN751A 5.1V 5% ZENER	1110894-00	17
1	R29	RES 100 1/4W 5%	1301775-00	18
1	R158	RES 200 1/4W 5%	1300274-00	19
3	R157,R159,R150	RES 270 1/4W 5%	1300356-00	20
9	R96,R68,R73,R97,R127,R97,R74,R98 R129	RES 470 1/4W 5%	1300318-00	21
1	R48	RES 1.5K 1/4W 5%	1300391-00	22
19	R91,R92,R93,R96,R97,R98,R97,R92 R93,R109,R110,R115,R116,R122,R133 R137,R151,R158,R150,	RES 1.0K 1/4W 5%	1300365-00	23
2	R27,R29	RES 2.7K 1/4W 5%	1300426-00	24
3	R22,R45,R46	RES 1.02K 1/4W 1%	1004833-00	25
1	R20	RES 2.61K 1/4W 1%	1300303-00	26
1	R153	RES 2K 1/4W 5%	1302238-00	27
1	R21	RES 10K 1/4W 5%	1300479-00	28
1	R24	RES 32K 1/4W 5%	1303219-00	29
1	R51	RES 2.7-K 1/4W 1%	1004868	30
1	R34	RES 330 1/4W 5%	1301990-00	31
1	R43	RES 21.5K 1/4W 1%	1303155-00	32
18	R69,R68,R69,R83,R88,R104,R105,R111 R112,R121,R123,R129,R130,R145,R147 R152,R98,R81	RES 18 1/4W 5%	1302124-00	33
4	R54,R71,R95,R125	RES 75 1/4W 5%	1302379-00	34
2	R49,R32	RES 100K 1/4W 5%	1302486-00	35
1	R41	RES 825 1/4W 1%	1305143-00	36
1	R42	RES 1.47K 1/4W 1%	1305103-00	37
2	R25,R26	RES 14.7K 1/4W 1%	1302241-00	38
5	R59,R32,R105,R122,R116	RES 9.09K 1/4W 1%	1301855-00	39
1	R30	RES 4.02K 1/4W 1%	1304453-00	40
4	R113,R25,R75,R124	RES 13 OHM 1%	1310002-01	41
18	R90,R91,R94,R95,R94,R95,R90,R91, R107,R123,R113,R114,R120,R131,R105 R106,R148,R149	RES 21.5 OHM 1/2	1311703-01	42

PARTS LIST

REF DES	DESCRIPTION	PART NUMBER	ITEM NO
5	R161-R165	RESISTOR NETWORK 100	1311741-00	43
1	R39	RES 220 3W 1% WW	1312123-00	44
9	R47,R4,R6,R7,R23,R35,R72, R36,R126	RES 100 1/4W 5%	1300229-00	45
9	R8,R12,R13,R14,R15,R40,R18, R158,R155	RES 4.7K 1/4W 5%	1300447-00	46
18	R56,R57,R77-R80,R100-R103, R117-R120,R141-R144	RES 5.6K 1/4W 5%	1301874-00	47
2	R44,R2	RES 10K 1/4W 1%	1303312-00	48
1	R19	RES 10 1/4W 5%	1301317-00	49
1	R1	RES 3.83K 1/4W 1%	1309413-00	50
1	R54	RES 24.3K 1/4W 1%	1309418-00	51
1	R52	RES 12.1K 1/4W 1%	1303313-00	52
1	R53	RES 47K 1/4W 5%	1302177-00	53
1	R124	RES 330 1/4W 5%	1300295-00	54
1	Q5	TRANSISTOR 2904-A	1501913-00	55
8	Q1-Q4,Q15,Q17,Q19,Q21	TRANSISTOR 3009-B	1503100-00	56
4	Q11,Q12,Q13,Q14	TRANSISTOR 6534B	1503409-01	57
4	Q16,Q18,Q20,Q22	TRANSISTOR 4258	1505321-00	58
5	E1,E2,E13,E14,E25	IC 8641	1911579-00	59
4	Q7,Q8,Q9,Q10	TRANSISTOR 3734	1510062-00	60
18	Q41-Q58	TRANSISTOR 3725	1510959-00	61
2	L1,L2	INDUCTOR 100 UH	1510662-00	62
4	E11,E12,E54,E55	DEL4Y LINE 250 NS TAPPED	1611243-00	63
9	T1-T9	TRANSFORMER INHIBIT (IN-LINE)	1612119-00	64
1	E40	IC 7450	1905530-00	65
4	E37,E38,E48,E49	IC 7475	1909050-00	66
2	E10,E43	IC 74H00	1909056-00	67
2	E42,E52	IC 74H50	1909060-00	68
1	E33	IC 74H53	1909062-00	69
5	E59,E69,E79,E93,E104	IC 74H08	1912400-00	70
1	E21	IC 74H74	1909667-00	71
1	E27	IC 8881	1909705-00	72
14	E9,E5,E6,E8,E15,E23,E20,E61 E70,E80,E94,E105,E17,E18	IC 74H01-1	1909849-00	73
6	E4,E7,E16,E19,E29,E78	IC 74H04	1909931-00	74
5	E66,E76,E36,E92,E103	IC 7442	1910048-00	75
1	E31	IC 7435	1910224-00	76
1	E57	IC 74121	1910230-00	77
1	E60	IC 741	1910238-00	78
5	E24,E34,E45,E53,E96	IC 8335	1910649-00	79
9	E67,E71,E77,E81,E87,E95,E97 E98,E106	IC 7528	1910687-00	80
1	E68	IC 7406	1910741-00	81
2	E44,E56	IC 7427	1910378-00	82
20	E52-E55,E72-E75,E82-E85,E88-E91,E99-E102	IC 75325	1910960-00	83
6	E26,E35,E36,E48,E47,E50	IC 8640	1911469-00	84
4	USE WITH Q7-Q10	HEAT SINK 2201 RED	1210001-00	85
1		HANDLE ASSY (HEX)	7413182-00	86
113	D3,D6-D11,D18-D30,D35-D42, D47-D50,D55-D73,D34-D104, D129-D115,D121-D133,D138-D144 D147-D157	DIODE D872	1105275-00	87

PARTS LIST

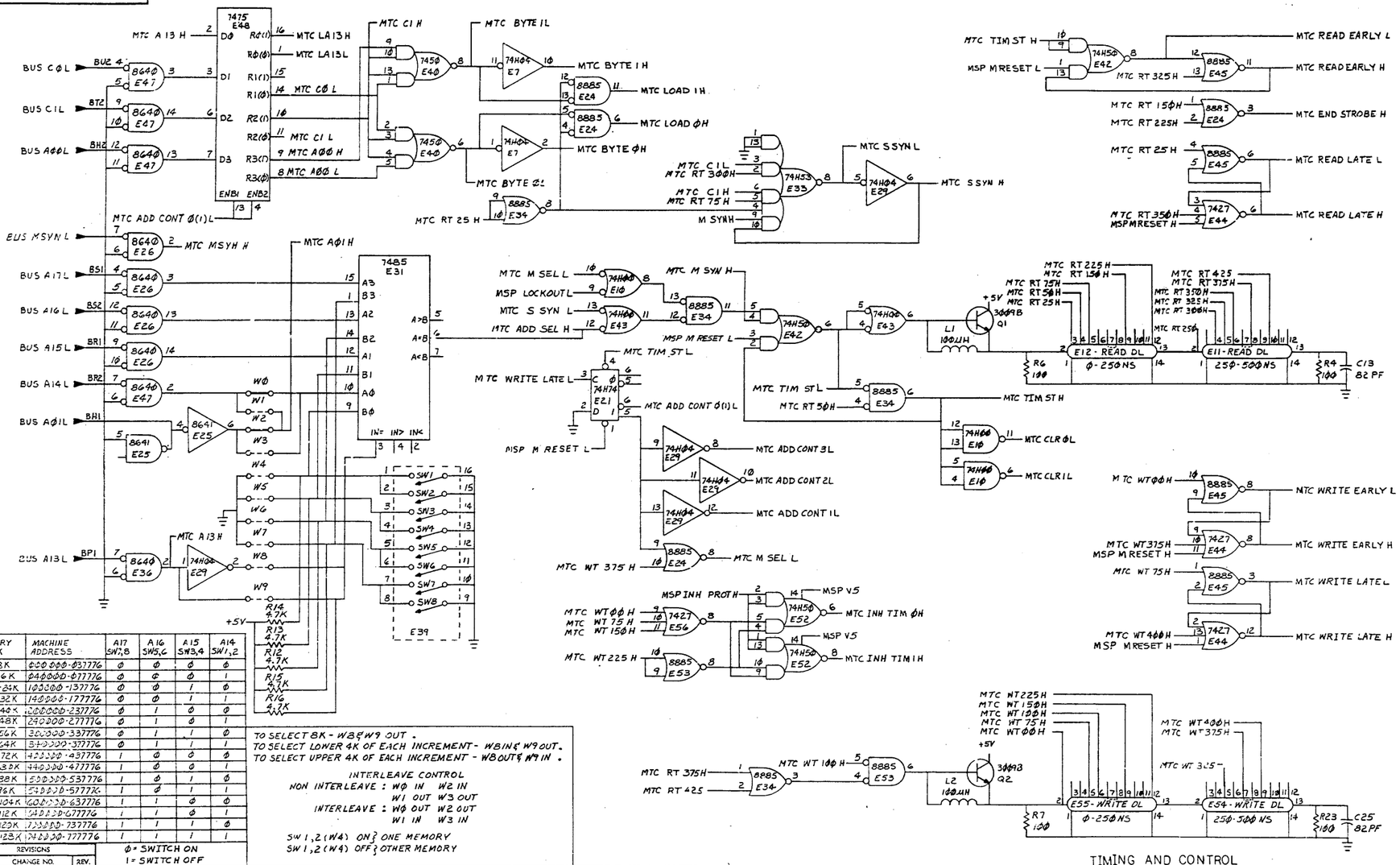
REF DES	DESCRIPTION	PART NUMBER	ITEM NO
121	J1 (1-17),J2(1-10), J3 (1-19),J4(1-59), J5 (1-16)	RECEPTACLE (AMP)	1211728-00	88
1	J0	CONN,MALE 7 PIN	1212104-00	89
1	E39	SWITCH DIP PACKAGE	1211184-04	90
12		EYELET	9006732-00	91
6	W15,W16,W17,W18,W8,W2	JUMPER,INSULATED	9009185-00	92
23	(USE WITH Q5,Q7-Q10 Q41-Q58)	TRANSIPAD	9007201-00	93
1		STANDOFF ¼ O.D. X 3/8 LG X #8-32 TAP	9008213-00	94
1		SCREW, NYLON #8-32 X ¼	9009041-01	95
1	R37	RES 270 1/4W 5%	1301972-00	96
4	R38,R75,R99,R129	RES 680 1/4W 5%	1301424	97
1	R50	RES 3.16K 1/4W 1%	1303045	98

REF DES NOT USED	
CAP	C18,C17,C116,C120 - C199 C223, C231,C235, C227
DIODES	D4,D5,D12-D15,D31-D34,D43-D48, D61-D64,D80-D85,D105-D108,D116-D120, D134-D137,D145,D146
RES	R3,R5,R9,R10,R11,R17,R154
TRANS	Q6,Q23-Q40
I.C.	E22,E23,E30,E32,E41,E51,E58

REVISIONS		
DASH	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY	D	CS	G851-0-1	J
SCALE — / — SHEET 2 OF 15	DIST.			

377



MEMORY BANK	MACHINE ADDRESS	A17 SW7,8	A16 SW5,6	A15 SW3,4	A14 SW1,2
0-8K	000 000-037776	0	0	0	0
8K-16K	040000-077776	0	0	0	1
16K-24K	100000-137776	0	0	1	0
24K-32K	140000-177776	0	0	1	1
32K-40K	200000-237776	0	1	0	0
40K-48K	240000-277776	0	1	0	1
48K-56K	300000-337776	0	1	1	0
56K-64K	340000-377776	0	1	1	1
64K-72K	400000-437776	1	0	0	0
72K-80K	440000-477776	1	0	0	1
80K-88K	500000-537776	1	0	1	0
88K-96K	540000-577776	1	0	1	1
96K-104K	600000-637776	1	1	0	0
104K-112K	640000-677776	1	1	0	1
112K-120K	700000-737776	1	1	1	0
120K-128K	740000-777776	1	1	1	1

0 = SWITCH ON
1 = SWITCH OFF

TO SELECT 8K - W8 & W9 OUT.
TO SELECT LOWER 4K OF EACH INCREMENT - W8 IN & W9 OUT.
TO SELECT UPPER 4K OF EACH INCREMENT - W8 OUT & W9 IN.

INTERLEAVE CONTROL
NON INTERLEAVE : W0 IN W2 IN
W1 OUT W3 OUT
INTERLEAVE : W0 OUT W2 OUT
W1 IN W3 IN

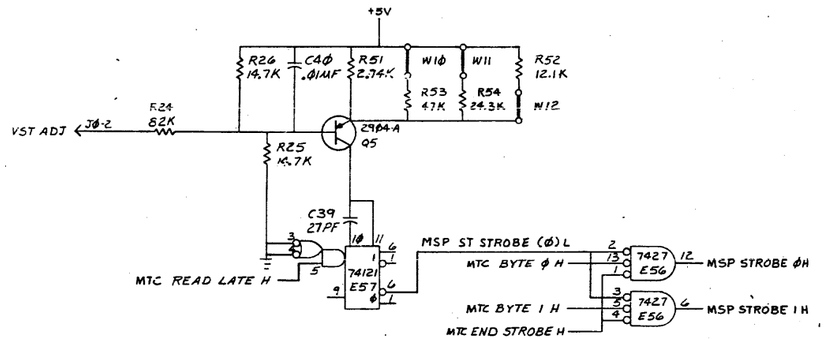
SW1,2 (W4) ON } ONE MEMORY
SW1,2 (W4) OFF } OTHER MEMORY

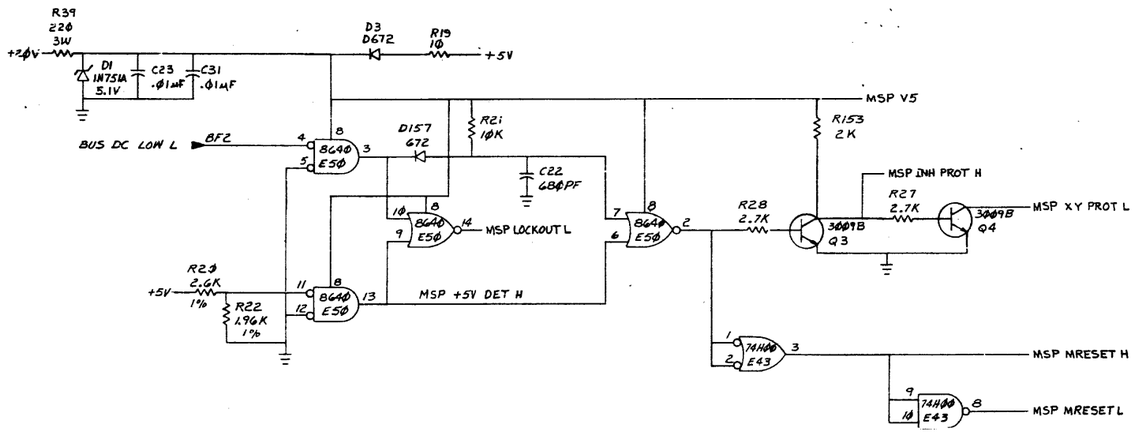
REVISIONS		
CHK	CHANGE NO.	REV.

TIMING AND CONTROL

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MTC)	D	CS	G651-0-1	J
SCALE	SHEET 3 OF 13	DIST.		

DEC FORM NO. SMD 138



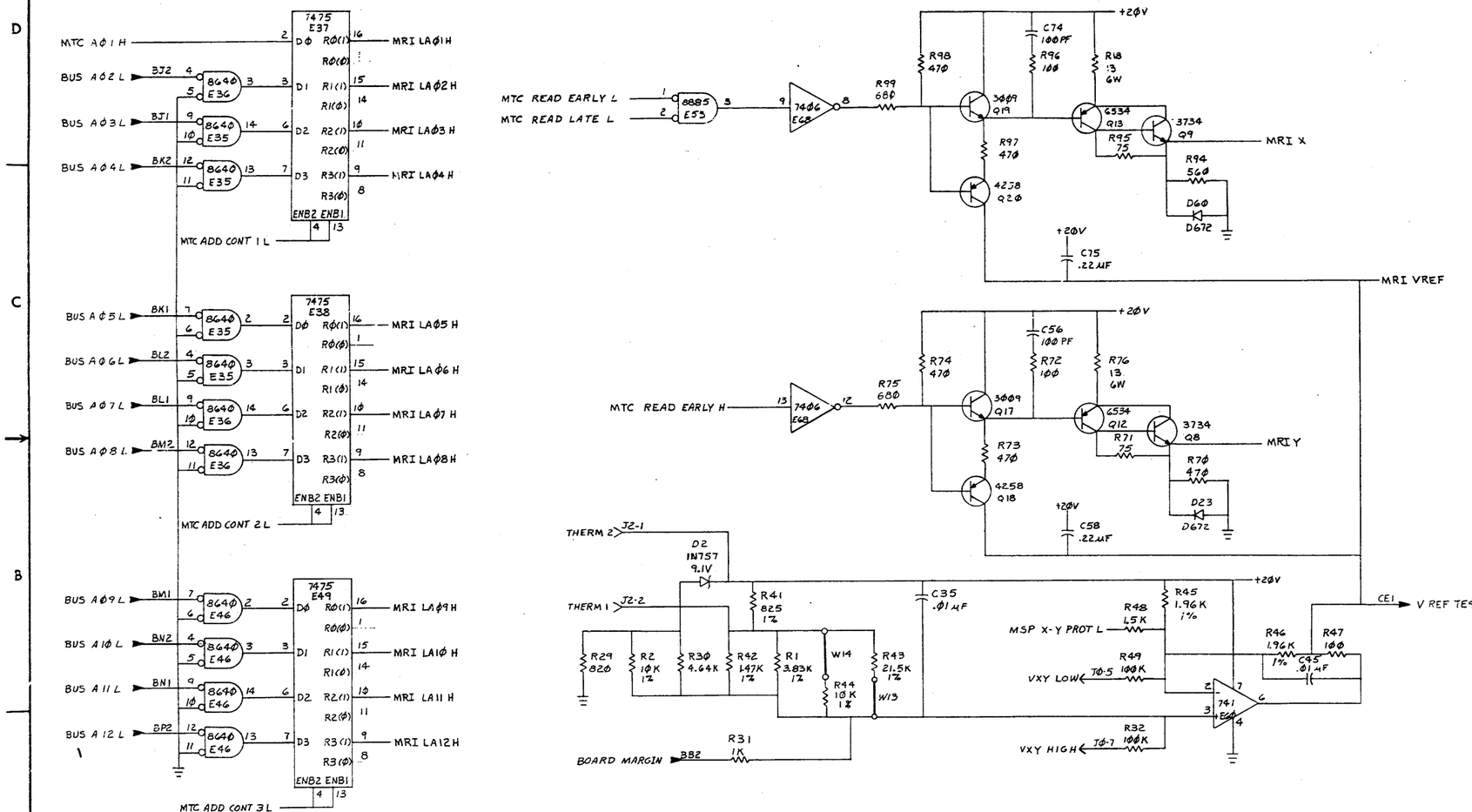


REVISIONS		
CHK	CHANGE NO.	REV.

STROBE AND PROTECT (MSP)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY	D	CS	G651-Ø-1	J
SCALE	SHEET 4 OF 13	DIST.		

379



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MRI)	D	DCS	G651-Ø-1	J
SCALE	SHEET 5 OF 13	DIST.		

DEC FORM NO. DMR 1.1.8

380

MTC READ EARLY H
MTC READ LATE H
8885 E96 → MWI X RD SC 1L
8885 E96 → MWI XRD SCØL
8885 E96 → MWI Y RD SCL
74H04 E78 → MWI Y RD SKL
8885 E96 → MWI X RD SKL

MTC WRITE LATE H
74H04 E78 → MWI X WT SCL
74H04 E78 → MWI Y WT SCL

MTC WRITE EARLY H
74H04 E78 → MWI X WT SK1L
74H04 E78 → MWI X WT SK ØL
74H04 E78 → MWI Y WT SK L
J1-1
(TO STACK RECOVERY CIRCUIT)

MTC WRITE EARLY L
MTC WRITE LATE L
8885 E53 → 7406 E68

+20V
C101 82 PF
R128 47Ø
R126 1ØØ
R134 13 6W
R129 68Ø
3009 Q21
6534 Q14
3734 Q10
R125 75
R127 47Ø
R124 33Ø
4258 Q22
+20V
C102 .22MF
MWI "X"
MR1 V REF

+20V
C37 82 PF
R37 47Ø
R35 1ØØ
R55 13 6W
R38 68Ø
3009 Q15
6534 Q11
3734 Q7
R34 75
R36 47Ø
R33 27Ø
4258 Q16
+20V
C38 .22MF
MWI Y

REVISIONS
CHK | CHANGE NO. | REV.

X,Y WRITE CURRENT SOURCES

TITLE UNIBUS 8K MEMORY (MWI) | SIZE D | CODE CS | NUMBER G651-Ø-1 | REV. J
SCALE | SHEET 4 OF 13 | DIST.

ALL DIODES ARE D672
UNLESS NOTED OTHERWISE.

MRI "X" W17

R159 270 +20V 1/2W

MWI XRD SC ϕL
MWI XWT SK ϕL

75325 E82 — D72 J3-1 XSϕϕ; D73 J3-2 XSϕ1
75325 E83 — D74 J3-3 XSϕ2; D75 J3-4 XSϕ3
75325 E84 — D76 J3-5 XSϕ4; D77 J3-6 XSϕ5
75325 E85 — D78 J3-7 XSϕ6; D79 J3-8 XSϕ7

7442 E86
MRI LA1ϕH → D0
MRI LA11H → D1
MRI LA12H → D2
MTC LA13H → D3
F0–F9

MWI XRD SC 1L
MWI XWT SK ϕL

75325 E88 — D97 J3-9 XSϕ8; D98 J3-10 XSϕ9
75325 E89 — D99 J3-11 XS1ϕ; D100 J3-12 XS11
75325 E9ϕ — D101 J3-13 XS12; D102 J3-14 XS13
75325 E91 — D103 J3-15 XS14; D104 J3-16 XS15

7442 E92
MRI LA1ϕH → D0
MRI LA11H → D1
MRI LA12H → D2
MRI LA13L → D3
F0–F9

MWI "X" W18

R16ϕ 270 +20V 1/2W

MWI XWT SC L
MWI XRD SK L

75325 E99 — J5-2 XPW Dϕ; J5-1 XNR Dϕ; J5-3 XPW D1; J5-4 XNR D1
75325 E1ϕϕ — J5-6 XPW D2; J5-5 XNR D2; J5-7 XPW D3; J5-8 XNR D3
75325 E1ϕ1 — J5-10 XPW D4; J5-9 XNR D4; J5-11 XPW D5; J5-12 XNR D5
75325 E1ϕ2 — J5-14 XPW D6; J5-13 XNR D6; J5-15 XPW D7; J5-16 XNR D7

7442 E1ϕ3
MRI LAϕ7H → D0
MRI LAϕ8H → D1
MRI LAϕ9H → D2
D3 → ⏚
F0–F9

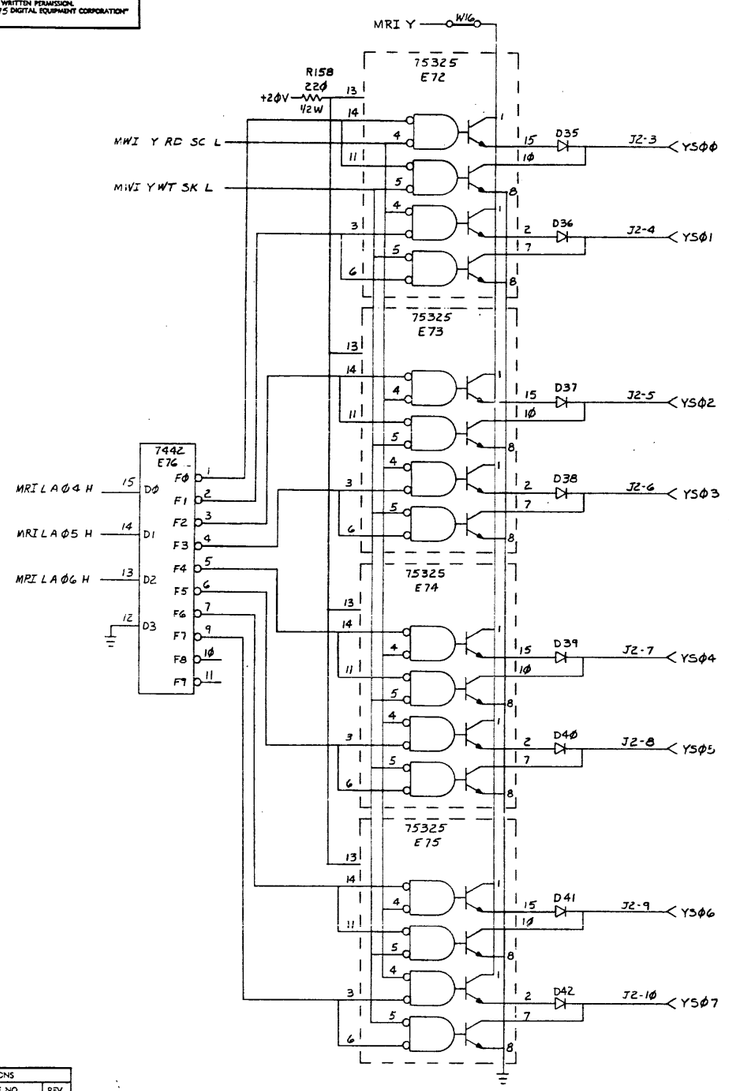
REVISIONS

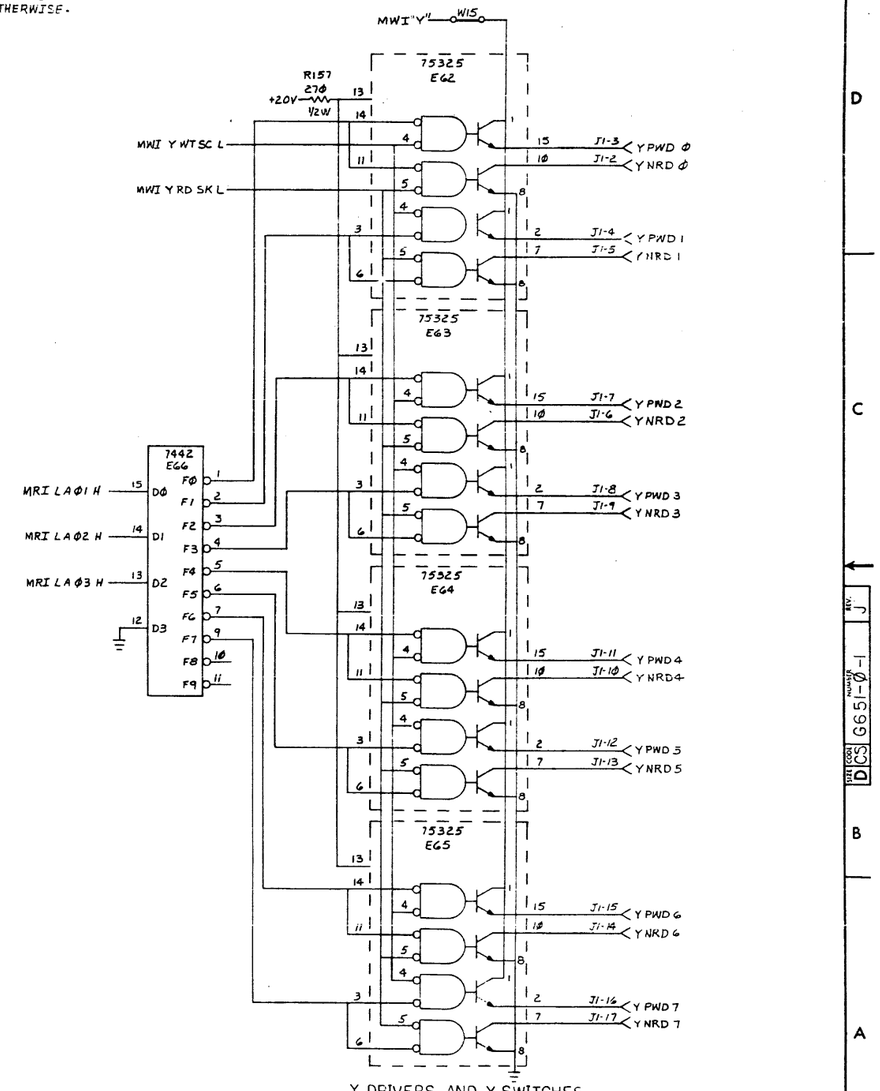
CHK	CHANGE NO.	REV.

X DRIVERS AND X SWITCHES (MXD)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY	D	CS	G651-Ø-1	J
SCALE —	SHEET 7 OF 13	DIST.		

ALL DIODES ARE DG72
UNLESS NOTED OTHERWISE.





Y DRIVERS AND Y SWITCHES

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MYD)	D	CS	G651-Ø-1	J
SCALE	SHEET 3 OF 13	DIST.		

BIT ØØ

MTC CLR ØL — 74HØ1 E3 — MTC C I H, MTC S SYN L, BUS DØØ L (ACI) — 8641 E2 — MTC LOAD Ø H

MDE VRTH — R146 9.Ø9K 1Ø — C233 .Ø1 µF — R161 — MDA VTH A1, MDA VTH A2

SAØØ J9-58, SBØØ J9-57 — D155 D672 — R161 — 7528 E1Ø6 — +5V R151 1K — 74HØ1 E1Ø5 — MSP STROBE Ø H — C234 12ØPF — D154 D672

MTC INH Ø H — 74HØ8 E1Ø4 — Q59 3725 — +2ØV R149 21 — F18 1/4A — D149 D672 — D15Ø D672 — J4-59 INH ØØ — D156 D672 — RM3 5.6K — C217 33ØØPF — R152 18 — T9

BIT Ø1

MTC CLR ØL — 74HØ1 E3 — MTC C I H, MTC S SYN L, BUS DØ1 L (AD2) — 8641 E2 — MTC LOAD Ø H

SAØ1 J9-56, SBØ1 J9-55 — D153 D672 — R161 — 7528 E1Ø6 — +5V R15Ø 1K — 74HØ1 E1Ø5 — MSP STROBE Ø H — D152 D672

MTC INH Ø H — 74HØ8 E1Ø4 — Q57 3725 — +2ØV R148 21 — F17 1/4A — D147 D672 — D146 D672 — J4-54 INH Ø1 — D151 D672 — RM4 5.6K — C216 33ØØPF — R147 18 — T9

BIT Ø2

MTC CLR ØL — 74HØ1 E5 — MTC C I H, MTC S SYN L, BUS DØ2 L (AD1) — 8641 E2 — MTC LOAD Ø H

SAØ2 J9-51, SBØ2 J9-5Ø — D193 D672 — R161 — 7528 E1Ø5 — +5V R138 1K — 74HØ1 E1Ø5 — MSP STROBE Ø H — D192 D672 — C232 12ØPF

MTC INH Ø H — 74HØ8 E1Ø4 — Q56 3725 — +2ØV R36 21 — F16 1/4A — D127 D672 — D126 D672 — J9-52 INH Ø2 — D194 D672 — R141 5.6K — C215 33ØØPF — R145 18 — T8

BIT Ø3

MTC CLR ØL — 74HØ1 E5 — MTC C I H, MTC S SYN L, BUS DØ3 L (AE2) — 8641 E2 — MTC LOAD Ø H

SAØ3 J9-49, SBØ3 J9-48 — D191 D672 — R161 — 7528 E1Ø5 — +5V R137 1K — 74HØ1 E1Ø5 — MSP STROBE Ø H — D19Ø D672

MTC INH Ø H — 74HØ8 E1Ø4 — Q55 3725 — +2ØV R135 21 — F15 — D139 D672 — D135 D672 — J9-47 INH Ø3 — D138 D672 — R142 5.6K — C214 33ØØPF — R14Ø 18 — T8

DATA LATCHES SENSE/INHIBIT

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MDA)	D	CS	G651-Ø-1	J
SCALE — # — SHEET 9 OF 13	DIST.			

DCS G651-Ø-1 REV. J

BIT Ø4

MTC CLR ØL — 74H01 E6 — MTC CIH, MTC SSYNL, BUS DØ4L AE1 — 8641 E1 — MTC LOAD Ø H — 74H01 E6 — 74H04 E7

MDE VRTH 9.09K R122 1% — C229 .01μF — R162 — MDB VTH B1 — MDB VTH B2

SAØ4 J9-45 — SBØ4 J9-44 — D132 D672 — D131 D672 — R162 — 7528 E97 — C230 120PF — MSP STROBE Ø H

+5V — R133 1K — 74H01 E99 — MTC INH Ø H — 74H08 E93 — Q54 3725

+20V — R131 21 — F14 1/4A — D124 D672 — D123 D672 — D133 672 — J4-46 INH Ø4 — R119 5.6K — C213 3300 PF — T7 — 18 R139

BIT Ø5

MTC CLR ØL — 74H01 E6 — MTC CIH, MTC SSYNL, BUS DØ5L AF2 — 8641 E1 — MTC LOAD Ø H — 74H01 E6 — 74H04 E7

SAØ5 J9-42 — SBØ5 J9-43 — D130 D672 — D129 D672 — R162 — 7528 E97 — MSP STROBE Ø H

+5V — R132 1K — 74H01 E99 — MTC INH Ø H — 74H08 E93 — Q53 3725

+20V — R130 21 — F13 1/4A — D122 D672 — D121 D672 — D128 672 — J4-41 INH Ø5 — R120 5.6K — C212 3300PF — T7 — 18 R123

BIT Ø6

MTC CLR ØL — 74H01 E8 — MTC CIH, MTC SSYNL, BUS DØ6L AF1 — 8641 E1 — MTC LOAD Ø H — 74H01 E8 — 74H04 E7

SAØ6 J9-38 — SBØ6 J9-37 — D114 D672 — D113 D672 — R162 — 7528 E95 — C228 120PF — MSP STROBE Ø H

+5V — R116 1K — 74H01 E99 — MTC INH Ø H — 74H08 E93 — Q52 3725

+20V — R114 21 — F12 1/4A — D90 D672 — D89 D672 — D115 672 — J4-39 INH Ø6 — R117 5.6K — C211 3300PF — T6 — 18 R121

BIT Ø7

MTC CLR ØL — 74H01 E8 — MTC CIH, MTC SSYNL, BUS DØ7L AH2 — 8641 E1 — MTC LOAD Ø H — 74H01 E8 — 74H04 E7

SAØ7 J4-35 — SBØ7 J4-36 — D112 D672 — D111 D672 — R162 — 7528 E95 — MSP STROBE Ø H

+5V — R115 1K — 74H01 E99 — MTC INH Ø H — 74H08 E93 — Q51 3725

+20V — R113 21 — F11 1/4A — D110 D672 — D88 D672 — D109 672 — J4-34 INH Ø7 — R118 5.6K — C210 3300PF — T6 — 18 R112

REVISIONS		
CHK	CHANGE NO.	REV

DATA LATCHES SENSE /INHIBIT

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MDB)	D	CS	G651-Ø-1	J
SCALE —	SHEET 10 OF 13	DIST.		

BIT Ø8

MTC CLR I L → 74HØ1 E15 (13→12, 11)
MTC C I H, MTC S SYN L → B641 E14 (7, 9, 2, 3, 1)
BUS DØ8L (AH)
MTC LOAD I H
74HØ1 E15 (2→3) → 74HØ4 E16 (13→12)
MDE VRTH → R105 9.09K
MDC VTH C1
MDC VTH C2
C225 .Ø1µF
R163 (5, 7, 6)
SAØ8 J4-32 → D95 DG72
SBØ8 J4-31 → D94 DG72
R163 (11, 7, 6, 2)
7528 E87 (4, 5, 16, 12)
C226 12ØPF
MSP STROBE I H
+5V → R110 1K
74HØ1 E8Ø (9→10, 8)
MTC INH I H → 74HØ8 E79 (9→10, 8)
Q5Ø 3725
+20V → R108 21 → F1Ø 1/4A
D87 DG72
D86 DG72
J4-33 INH Ø8
D96 G72
R111 18
R102 5.6K
CZØ9 3300PF
T5

BIT Ø9

MTC CLR I L → 74HØ1 E15 (10→9, 8)
MTC C I H, MTC S SYN L → B641 E19 (7, 9, 5, 4, 6)
BUS DØ9 L (AJ2)
MTC LOAD I H
74HØ1 E15 (5→6) → 74HØ4 E16 (9→8)
SAØ9 J4-30 → D93 D6
SBØ9 J4-29 → D92 DG72
R163 (3, 1, 2, 4, 6)
7528 E87 (4, 5, 15, 13)
MSP STROBE I H
+5V → R109 1K
74HØ1 E8Ø (5→4, 6)
MTC INH I H → 74HØ8 E79 (5→4, 6)
Q49 3725
+20V → R107 21 → F9 1/4A
D85 DG72
D84 DG72
J4-28 INH Ø9
D91 G72
R106 18
R103 5.6K
C2Ø8 3300PF
T5

BIT 1Ø

MTC CLR I L → 74HØ1 E17 (13→12, 11)
MTC C I H, MTC S SYN L → B641 E14 (7, 9, 14, 15, 13)
BUS DIØ L (AJ1)
MTC LOAD I H
74HØ1 E17 (2→3) → 74HØ4 E16 (5→4)
SA 1Ø J4-25 → D7Ø DG72
SB 1Ø J4-24 → D69 DG72
R163 (8, 7, 6, 9)
7528 E81 (4, 5, 10, 12)
C224 12ØPF
MSP STROBE I H
+5V → R93 1K
74HØ1 E8Ø (2→1, 3)
MTC INH I H → 74HØ8 E79 (2→1, 3)
Q48 3725
+20V → R91 21 → F8 1/4A
D53 DG72
D52 DG72
J4-26 INH 1Ø
D71 G72
R1Ø4 18
R1ØØ 5.6K
C2Ø7 3300PF
T4

BIT 11

MTC CLR I L → 74HØ1 E17 (10→9, 8)
MTC C I H, MTC S SYN L → B641 E14 (7, 9, 11, 12, 10)
BUS DI1 L (AK2)
MTC LOAD I H
74HØ1 E17 (5→6) → 74HØ4 E16 (6→6)
SA 11 J4-23 → DG8 DG72
SB 11 J4-22 → DG7 DG72
R163 (3, 1, 2, 11, 6)
7528 E81 (4, 5, 15, 13)
MSP STROBE I H
+5V → R92 1K
74HØ1 E8Ø (12→13, 11)
MTC INH I H → 74HØ8 E79 (12→13, 11)
Q47 3725
+20V → R90 21 → F7 1/4A
D51 DG72
DG66 G72
J4-21 INH 11
DG5 G72
R39 18
R1Ø1 5.6K
C224 3300PF
T4

REVISIONS

CHK	CHANGE NO.	REV.

DATA LATCHES SENSE/INHIBIT

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MDC)	D	DCS	G651-Ø-1	J

SCALE — | SHEET 11 OF 13 | DIST.

BIT 12

MTC CLR I L
MTC C I H
MTC S SYN L
BUS D 12 L
AK1
MTC LOAD I H
74H01 E18
74H01 E18
74H04 E19
8641 E13
MDE VRTH
RB2 9.09K 1%
C221 .014F
R164
MDD VTH D1
MDD VTH D2
SA 12
SB 12
J4-19
J4-18
R16A
D58 DG72
D57 DG72
7528 E77
C222 120PF
MSP STROBE I H
+5V
RB7 1K
74H01 E70
INH I H
74H08 EG9
Q46 3725
+20V
RB5 21
F6 14A
D50 DG72
D49 DG72
D59 DG72
J4-20
INH 12
R79 5.6K
C205 330PF
T3
R88 18

BIT 13

MTC CLR I L
MTC C I H
MTC S SYN L
BUS D 13 L
AL2
MTC LOAD I H
74H01 E18
74H01 E18
74H04 E19
8641 E13
SA 13
SB 13
J4-17
J4-16
R16A
D56 DG72
D55 DG72
MSP STROBE I H
+5V
RB6 1K
7528 E77
74H01 E70
MTC INH I H
74H08 EG9
Q45 3725
+20V
RB4 21
F5 14A
D48 DG72
D47 DG72
D59 DG72
J4-15
INH 13
RB0 5.6K
C204 330PF
T3
RB3 18

BIT 14

MTC CLR I L
MTC C I H
MTC S SYN L
BUS D 14 L
AL1
MTC LOAD I H
74H01 E20
74H01 E20
74H04 E19
8641 E13
SA 14
SB 14
J4-12
J4-11
R16A
D29 DG72
D28 DG72
C220 120PF
MSP STROBE I H
+5V
RG7 1K
7528 E71
74H01 E70
MTC INH I H
74H08 EG9
Q44 3725
+20V
RG5 21
F4 14A
D21 DG72
D22 DG72
D30 DG72
J4-13
INH 14
R77 5.6K
C203 330PF
T2
R81 18

BIT 15

MTC CLR I L
MTC C I H
MTC S SYN L
BUS D 15 L
AM2
MTC LOAD I H
74H01 E20
74H01 E20
74H04 E19
8641 E13
SA 15
SB 15
J4-10
J4-9
R16A
D27 DG72
D26 DG72
MSP STROBE I H
+5V
RG6 1K
7528 E71
74H01 E70
MTC INH I H
74H08 EG9
Q43 3725
+20V
RG4 21
F3 14A
D27 DG72
D25 DG72
D24 DG72
J4-8
INH 15
R78 5.6K
C202 330PF
T2
R69 18

DATA LATCHES SENSE/INHIBIT

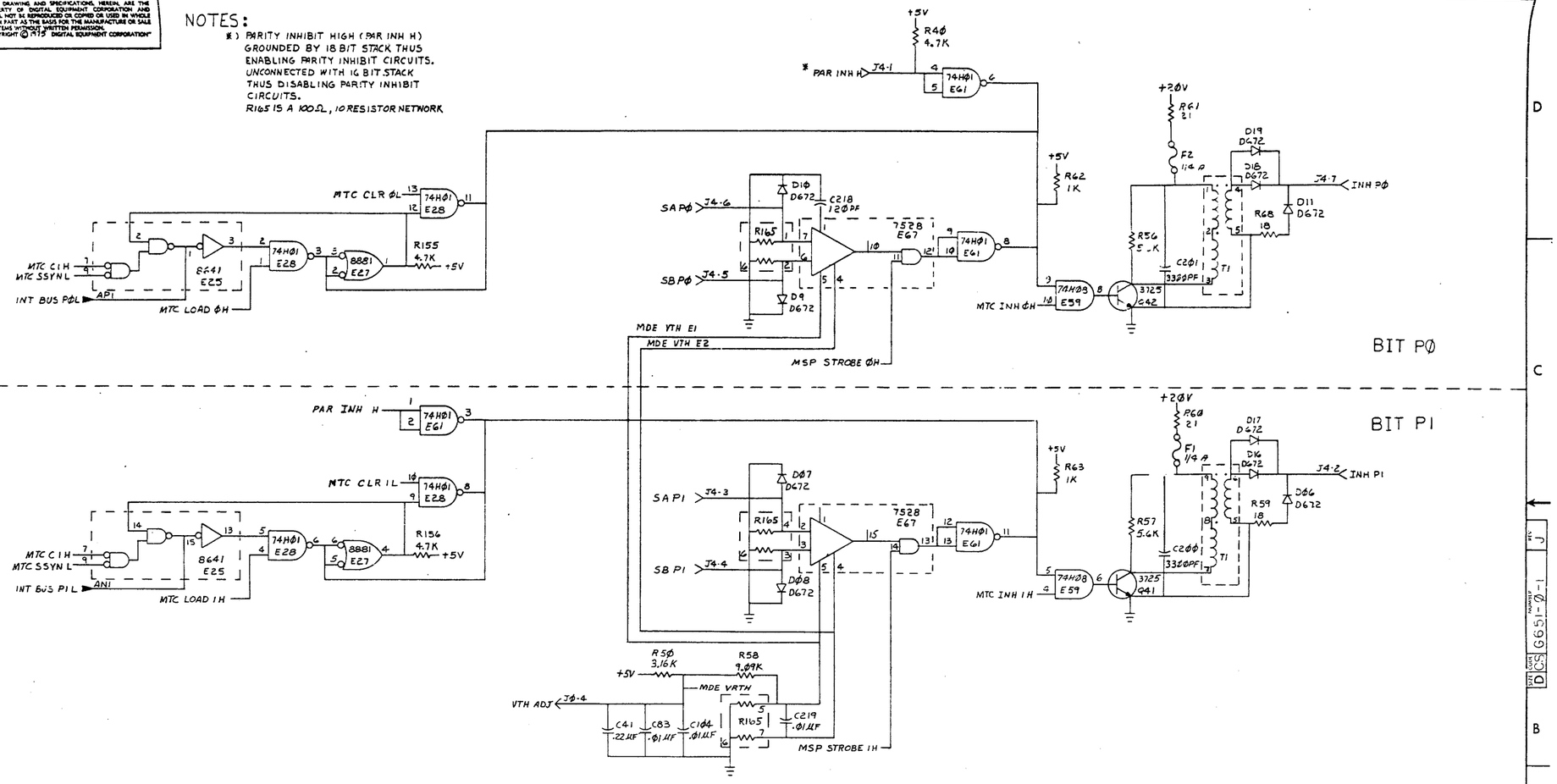
REVISIONS
CHK | CHANGE NO. | REV.

TITLE: UNIBUS 8K MEMORY (MDD)
SIZE: D | CODE: CS | NUMBER: G651-0-1 | REV: J
SCALE: | SHEET: 12 OF 13 | DIST:

367

NOTES:

*) PARITY INHIBIT HIGH (PAR INH H) GROUNDED BY 18 BIT STACK THUS ENABLING PARITY INHIBIT CIRCUITS. UNCONNECTED WITH 16 BIT STACK THUS DISABLING PARITY INHIBIT CIRCUITS.
R165 IS A 100Ω, 10 RESISTOR NETWORK



REVISIONS		
CHK	CHANGE NO.	REV.

SENSE/INHIBIT (PØ, P1) DATA LATCHES

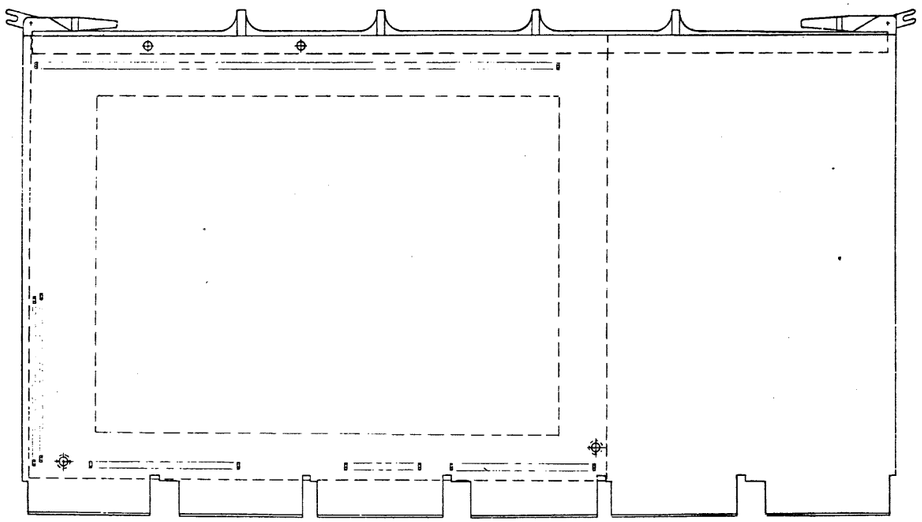
TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS 8K MEMORY (MDE)	D	CS	G651-Ø-1	J
SCALE	SHEET 13 OF 13		DIST.	

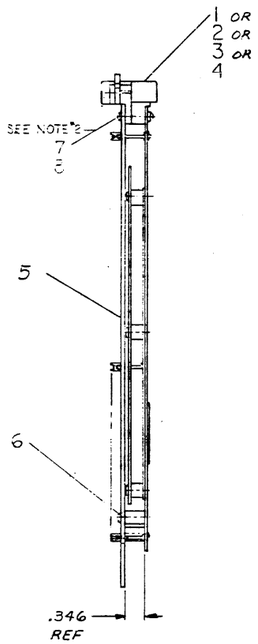
DEC FORM NO. D40 138

388

LEGEND	
NUMBER	VARIATION
MMII-C	8K x 16 BIT
MMII-CP	8K x 18 BIT
MMII-B	4K x 16 BIT
MMII-BP	4K x 18 BIT

NOTE
1. MMIICP (8K×18) MEMORY MODULE ASSEMBLY MAY BE SUBSTITUTED FOR MMIIC (8K×16). MMIIBF (4K×18) MAY BE SUBSTITUTED FOR MMIIB (4K×16).
2. INSTALL ITEM# 7(#2 INT TOOTH LOCK WASHERS) TORQUE HAND TIGHT





2	2	2	2	SCR, PHIL PAN HD 55*2-56 X.31	9006002-01	5
2	2	2	2	WASHER INT. #2	9006631	7
2	2	2	2	SCR, SLOTTED, NYLON 4-40 X.2516	9006407-05	6
1	1	1	1	8K MEMORY	D-CS-G651-0-1	5
1	-	-	-	H221 CORE MEM STACK ASSY	D-UA-H221-C	4
-	1	-	-	H221 CORE MEM STACK ASSY	D-UA-H221-D	3
-	-	1	-	H221 CORE MEM STACK ASSY	D-UA-H221-A	2
-	-	-	1	H221 CORE MEM STACK ASSY	D-UA-H221-B	1
MMIIBP	MMIIB	MMIICP	MMIIC	DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.5	OVER 4.5 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 30.0
SURFACE QUALITY IN ✓ MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.018	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN.		1-16-75
CHK'D		
ENG.		
PROJ. ENG.		
PROD.		

NEXT HIGHER ASSY. B-DD-MMII-C

SCALE 1/1

SHEET 1 OF 1

FIRST USED ON MMII-C

digital

TITLE
MEMORY SYSTEM
MODULE ASSEMBLY

SIZE	CODE	NUMBER	REV.
D	UA	MMII-C-0	C

DIST.

REVISIONS			
LTR	CHANGE NO.		REV
A	2811	J. MANTON 9/24/75	B
B	MMIIC-0002	J. MANTON 9/24/75	C
C	3006	J. MANTON 12/15/75	

DEC FORM NO. DRD 100C

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

~~CUSTOMER PRINT SET INDEX~~

~~THIS IS PRINT SET~~

SEQUENCE

SEQUENCE

NOTE:
1. FOR FIELD MAINTENANCE PRINT SET REFER TO B-TC-11/Ø4-Ø-1
2. SEE C-PL-11/04-0-0 FOR USE OF M93Ø1 IN PLACE OF M9312

5.25 BOX
BA11-L

UNIT VARIATIONS		PRINT SET
VAR	TITLE	
11/Ø4-AA	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-E, DD11-C, BA11-LM 115V	
11/Ø4-AB	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-E, DD11-C, BA11-LN 230V	
11/Ø4-AC	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-E, DD11-P, BA11-LM 115V	
11/Ø4-AD	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-E, DD11-P, BA11-LN 230V	
11/Ø4-BA	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-FP, DD11-C, BA11-LM 115V	
11/Ø4-BB	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-FP, DD11-C, BA11-LN, 230V	
11/Ø4-BC	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-FP, DD11-P, BA11-LM 115V	
11/Ø4-BD	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-FP, DD11-P, BA11-LN 230V	
11/Ø4-DA	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-JP, DD11-C, BA11-LM 115V	
11/Ø4-DB	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-JP, DD11-C, BA11-LN 230V	
11/Ø4-DC	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-JP, DD11-P, BA11-LM 115V	
11/Ø4-DD	KD11-D, KY11-LA, M9312 , M93Ø2,	
	MS11-JP, DD11-P, BA11-LN, 230V	
11/Ø4-LC	KD11-D KV11-LA M9312 , M93Ø2	
	MS11JP(2) DD11-P BA11-LM 115V	
11/Ø4-LD	KD11-D KY11-LA M9312 , M93Ø2	
	MS11JP(2) DD11-P BA11-LN 230V	
11/Ø4-FC	KD11-D KY11-L M9312 , M93Ø2	
	MM11-CP DD11-P BA11-LK 115V	
11/Ø4-FD	KD11-D KY11-L M9312 , M93Ø2	
	MM11-CP DD11-P BA11-LL 230V	

REVISIONS			
REV	CHG. NO.	DATE	
A	11/04-1	8/8	
B	11/04-3	7-15	
C	11/04-4	7-17	
D	11/04-5	7-17	
E	11/04-6	8-9	
F	11/04-7	8-19	
H	11/04-8	6-77	
J	11/04-9	12-77	
K	11/04-10	3 78	

EN-01062-1A-1-6-R97-(3225)

USED ON OPTION/MODEL	

SHEET 1 OF 7

DRN. G. MARINI	DATE 9/25/75	TITLE: DRAWING DIRECTORY 11/Ø4
CHK'D. D. HEALY	DATE 9/30/75	
PROJ ENG. R. Baum	DATE 10-22-75	
PROD R.K. Peterson	DATE 10/27/75	SIZE B / CODE DD / NUMBER 11/Ø4-0 / REV K
~~FIELD SERV~~	~~DATE~~	DIST

DRB 106

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

~~THIS IS PRINT SET~~ ☐☐☐☐

SEQUENCE

SEQUENCE

5.25 BOX
BA11-L

10.5 BOX
BA11-KA

UNIT VARIATIONS		PRINT SET
VAR	TITLE	
11/04-HC	KD11-D, KY11-LA, M9312 [illegible] M9302.	
	MM11-DP DD11-P BA11-LK, 115V	
11/04 HD	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP, DD11-P, BA11-LL, 230V	
11/04 MC	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP(2), DD11-P, BA11-LK, 115V	
11/04-MD	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP(2), DP11-P, BA11-LL, 230V	
11/04-HA	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-C, DD11-P, BA11-LK, 115V	
11/04-HB	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-C, DD11-P, BA11-LL, 230V	
11/04-DH	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MS11-JP, DD11-P, 7013323-0, 115V	
11/04-DJ	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MS11-JP, DD11-P, 7013323-3, 230V	
11/04-LH	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MS11-JP(2), DD11-P, 7013323-0, 115V	
11/04-LJ	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MS11-JP(2), DD11-P, 7013323-3, 230V	
11/04-HH	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP, DD11-P 7013323-2, 115V	
11/04-HJ	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP-DD11-P 7013323-5, 230V	
11/04-MH	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP(2) DD11-P 7013323-2, 115V	
11/04-MJ	KD11-D, KY11-LA, M9312 [illegible], M9302	
	MM11-DP(2), DD11-P 7013323-5, 230V	
11/04-DM	KD11-D, KY11-LA M9312 [illegible], M9302	
	MS11-JP, M7850, DL11-W DD11-P	
	7013323-0, 115V	

REVISIONS	REV	CHG. NO.	DATE

USED ON OPTION/MODEL

SHEET 2 OF 7

DRN. G.MARINI	DATE 9-25-75	TITLE DRAWING DIRECTORY JJ/04
CHK'D. D.HEALY	DATE 9-30-75	
PROJ ENG. R BARRY	DATE 10-22-75	
PROD. R.K.PETERSON	DATE 10-22-75	SIZE B / CODE CD / NUMBER JJ/04 Ø / REV K
FIELD SERV. -//	DATE -//	DIST

EN-01062-1A-16-R92-(325)

DRB 106

391

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE SEQUENCE

~~THIS IS PRINT SET~~

UNIT VARIATIONS

	VAR	TITLE	PRINT SET
10.5 BOX BA11-KA	11/Ø4-DN	KD11-D KY11-LA M9312 , M9302	
		MS11-JP,M7850 DL11-W DD11-P	
		7013323-3, 230V	
	11/Ø4-HM	KD11-D KY11-LA M9312 , M9302	
		MM11 DP M7850 DL11 W DD11 P	
		7013323-2, 115V	
	11/Ø4-HN	KD11-D.KY11-LA.M9312 , M9302	
		MM11-DP.M7850 DL11-W DD11-P.	
		7013323-5, 230V	
5.25 BOX BA11-L	11/Ø4-JC	KD11-D, KY11-LA,M9312 ,M93Ø2,	
		MM11-YP,DD11-P, BA11-LK, 115V	
	11/Ø4-JD	KD11-D, KY11-LA,M9312 ,M93Ø2,	
		MM11-YP,DD11-P, BA11-LL, 23ØV	
10.5 BOX BA11-KA	11/Ø4-JH	KD11-D, KY11-LA,M9312 ,M93Ø2,	
		MM11-YP,DD11-P,7Ø13323-2, 115V	
	11/Ø4-JJ	KD11-D, KY11-LA,M9312 ,M93Ø2,	
		MM11-YP,DD11-P, 7Ø13323-5, 23ØV	

REVISIONS

REV	CHG. NO.	DATE

USED ON OPTION/MODEL

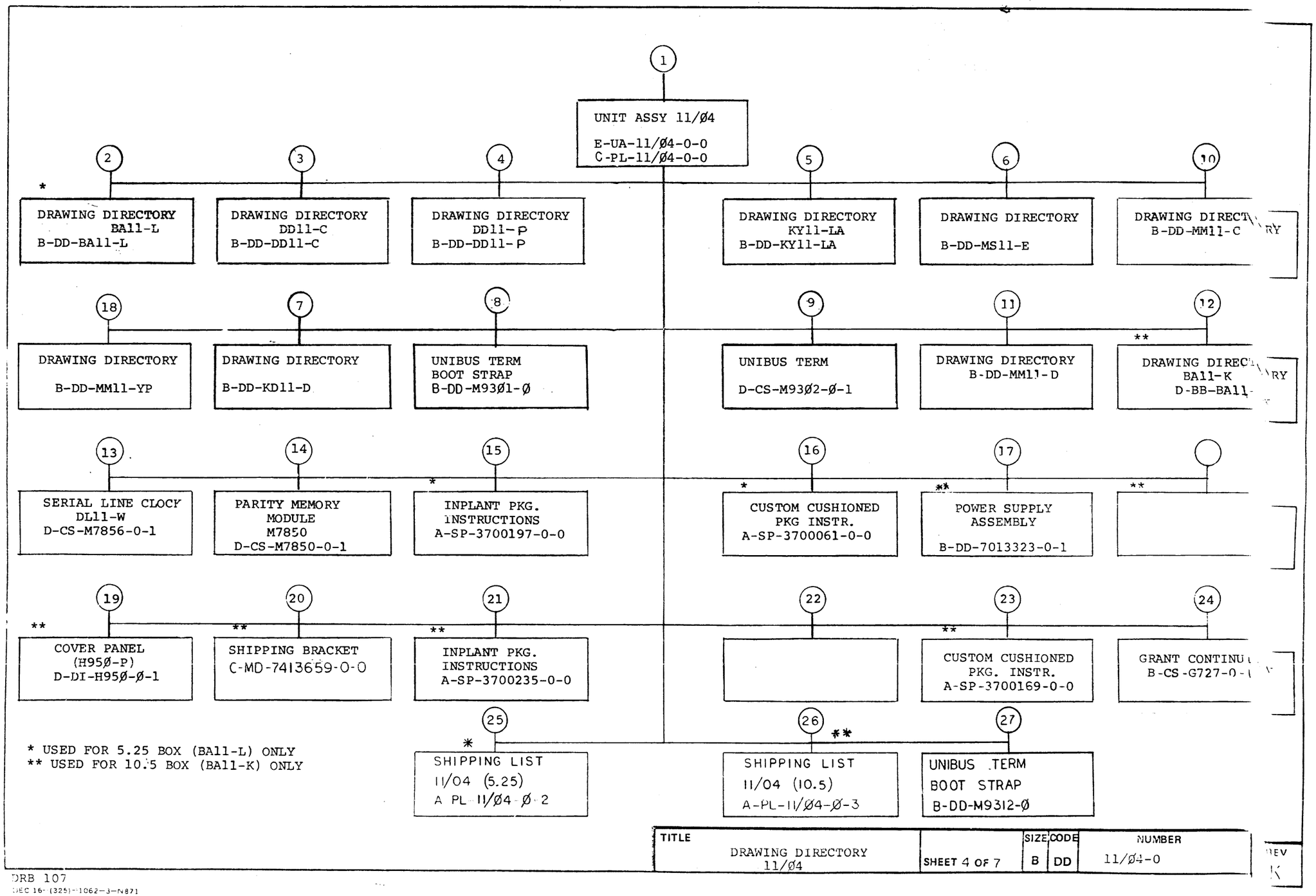
SHEET 3 OF 7

DRN. G MARINI	DATE 9-25-75	TITLE DRAWING DIRECTORY 11/04
CHK'D. D HEALY	DATE 9-30-75	
PROJ ENG. R BARRY	DATE 10-22-75	
PRCD. R K PETERSON	DATE 10-22-75	SIZE B / CODE DD / NUMBER 11/04 Ø / REV K
FIELD SERV. —//—	DATE —//—	DIST

EN-01062-1A-16-R972(325)

DRB 106

392



DRB 107

DEC 16-(325)-1062-3-N871

ELECTRICAL (SECTION 1)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	E-UA-11/Ø4-0-0		1	UNIT ASSY 11/Ø4	
			C-PL-11/Ø4-0-0		2	UNIT ASSY 11/Ø4 PL	
			C-IA-7011413-0-0		1	CABLE, EXTERNAL BOOT	
			D-IA-7011411-0-0		1	CABLE, CONSOLE TO BACKPLANE	
			D-MU-DD11-C-2		REF	MODULE UTILIZATION DD11-C	
			D-MU-DD11-P-2		REF	MODULE UTILIZATION DD11-P	
		2	B-DD-BA11-L		4	DRAWING DIRECTORY BA11-L	
		3	B-DD-DD11-C		3	DRAWING DIRECTORY DD11-C	
		4	B-DD-DD11-P		3	DRAWING DIRECTORY DD11-P	
		5	B-DD-KY11-LA		3	DRAWING DIRECTORY KY11-LA	
		6	B-DD-MS11-EP		2	DRAWING DIRECTORY MS11-EP	
		7	B-DD-KD11-D		2	DRAWING DIRECTORY KD11-D	
		8	B-DD-M93Ø1-0		5	UNIBUS TERM BOOT STRAP (M9301)	
		9	D-CS-M93Ø2-Ø-1		2	UNIBUS TERM (M9302)	
		10	B-DD-MM11-C		2	DRAWING DIRECTORY MM11-C	
		11	B-DD-MM11-D		2	DRAWING DIRECTORY MM11-D	
		12	B-DD-BA11-K		4	DRAWING DIRECTORY BA11-K	
		27	B-DD-M9312-0		1	UNIBUS TERM BOOT STRAP (M9312)	

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		1	E-UA-11/Ø4-0-0		1	UNIT ASSY 11/Ø4	
			C-PL-11/Ø4-0-0		2	UNIT ASSY 11/Ø4 PL	
			C-IA-7011413-0-0		1	CABLE, EXTERNAL BOOT	
			D-IA-7011411-0-0		1	CABLE, CONSOLE TO BACKPLANE	
		2	B-DD-BA11-L		4	DRAWING DIRECTORY BA11-L	
		3	B-DD-DD11-C		3	DRAWING DIRECTORY DD11-C	
		4	B-DD-DD11-P		3	DRAWING DIRECTORY DD11-P	
		5	B-DD-KY11-LA		3	DRAWING DIRECTORY KY11-LA	
		6	B-DD-MS11-EP		2	DRAWING DIRECTORY MS11-E	

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY 11/Ø4	SHEET 5 OF 7	B	DD	11/Ø4-0	K

DRB 108

EN-01062-2B-15-R972-(325)

ELECTRICAL (SECTION 1)

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		13	D-CS-M7856-0-1		9	SERIAL LINE/LINE CLOCK (DL11W)	
		14	D-CS-M7850-0-1		3	PARITY MEMORY MODULE (M7850)	
		17	B-DD-7013323-0-1		3	POWER SUPPLY ASSEMBLY	
		24	B-CS-G727-0-1		1	GRANT CONTINUITY	
		25	A-PL-11/Ø4-Ø-2		1	SHIPPING LIST 11/04 (5.25)	
		26	A-PL-11/Ø4-Ø-3		1	SHIPPING LIST 11/04 (10.5)	
		18	B-DD-MM11-YP		2	DRAWING DIRECTORY MM11-YP	

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

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

TITLE		SIZE	CODE	NUMBER	REV
	SHEET 6 OF 7	B	DD	11/Ø4-0	K

DRB 108

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

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		7	B-DD-KD11-D		2	DRAWING DIRECTORY KD11-D	
		8	B-DD-M93Ø1-0		1	UNIBUS TERM BOOT STRAP	
		9	D-CS-M93Ø2-Ø-1		2	UNIBUS TERM	
			K-CO-M93Ø2-Ø-4			X-Y COORDINATE HOLE LOCATION	
			D-AH-M93Ø2-Ø-5			ASSY/DRILLING HOLE LAYOUT	
			B-MH-M93Ø2-Ø-6			MODULE ECO HISTORY	
			5011311			ETCHED CIRCUIT BOARD	
		10	B-DD-MM11-C		2	MEMORY, CORE 8K MM11-C	
		11	B-DD-MM11-D		2	MEMORY, CORE 16K, MM11-D	
		12	B-DD-BA11-K		4	MTG BOX 10.5	
		13	D-CS-M7856-0-1		9	SERIAL LINE CLOCK (DL11W)	
			K-CO-M7856-0-4		-	X-Y COORDINATE HOLE LOCATION	
			D-AH-M7856-0-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-M7856-0-6		1	MODULE ECO HISTORY	
			5011464		REF	ETCHED CIRCUIT BOARD	
		14	D-CS-M7850-0-1		3	PARITY MEMORY MODULE (M7850)	
			K-CO-M7850-0-4		-	X-Y COORDINATE HOLE LOCATION	
			D-AH-M7850-0-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-M7850-0-6		1	MODULE ECO HISTORY	
			5010651		REF	ETCHED CIRCUIT BOARD	
		27	B-DD-M9312-0		1	UNIBUS TERM BOOT STRAP	

MECHANICAL (SECTION 2)

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO. / FILE DATE
		15	A-SP-3700197-0-0		3	INPLANT PKG. INSTRUCTIONS	
			A-PS-9905418-0-0		2	REGULAR SLOTTED CARTON	
			A-PS-9905754-0-0		2	BEZEL PROTECTOR	
			A-PS-9905755-0-0		2	LAMINATED SADDLE	
			A-PS-9905129-0-7		1	POLY BAG	
			A-PS-9905729-0-0		1	TAPE	
		16	A-SP-3700061-0-0		4	CUSTOM CUSHIONED PKG. INSTR.	
			A-PS-9905647-0-0		2	FULL TELESCOPE CAP	
			A-PS-9905648-0-0		2	FOAM PAD	
			A-PS-9905646-0-0		2	FOAM WITH CORRUGATED SIDEWALL	
			A-PS-9905734-0-0		2	PLASTIC STRAPPING	
			B-MD-7418879-0-0			STRIP, BEARING	
		17	B-DD-7013323-0-1		3	POWER SUPPLY ASSY	
		19	D-DI-H950-0-1		1	COVER PANEL 5 25 (H950 P)	
		20	C-MD-7413659-0-0		1	SHIPPING BRACKET	
		21	A-SP-3700235-0-0		3	INPLANT PKG. INSTRUCTIONS	
			A-PS-9905650-0-0		2	REGULAR SLOTTED CARTON	
			A-PS-9905889-0-0		2	BEZEL PROTECTOR	
			A-PS-9905644-0-0		2	REAR PAD	
			A-PS-9905323-0-0		2	LAMINATED SADDLE	
			A-PS-9905129-0-0		4	POLY BAG	
		18	B-DD-MM11-YP		2	DRAWING DIRECTORY MM11-YP	
		23	A-SP-3700169-0-0		2	CUSTOM CUSHIONED PKG. INSTR.	
			A-PS-9905645-0-0		2	FULL TELESCOPE	
			A-PS-9905642-0-0		2	FOAM. PAD	
			A PS-9905643-0-0		2	FOAM/CORRUGATED SIDE WALL ASSY	
		24	B-CS-G727-0-1		1	GRANT CONTINUITY	
		25	A-PL-11/Ø4-Ø-2		1	SHIPPING LIST 11/Ø4 (5.25)	
		26	A-PL-11/Ø4-Ø-3		1	SHIPPING LIST 11/Ø4 (10.5)	

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY 11/Ø4	SHEET 7 OF 7	3	DD	11/Ø4-0	K

DRB 108

EN-01062-2B-16-R972-(325)

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
DL11-W
DL11-WA
DL11-WB
DL11-WC

DL11-W

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ1Ø6

REVISIONS		
REV.	CHG. NO.	DATE
A	DL11W-1	8-77
B	DL11-W-2	

USED ON OPTION/MODEL		

SHEET 1 OF 1

DRN.	DATE	26-MAR-76
CHK'D	DATE	26-MAR-76
PROJ. ENG.	DATE	22-MAR-1976
FIELD SERV.	DATE	14-APR-1976

digital

TITLE: FIELD MAINTENANCE PRINT SET DL11-W

SIZE	CODE	NUMBER	REV.
B	TC	DL11-W-1	B

DIST.

DRB 124

397

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	D. HEALY	CHECKED	D. HEALY	SECTION	1
DATE	25 MAR 76	DATE	25 MAR 76		
ENG	R.E. BRATT	PROD	K. MACDONALD	ISSUED SECT.	1
DATE	1 APR 76	DATE	7-APR-76		

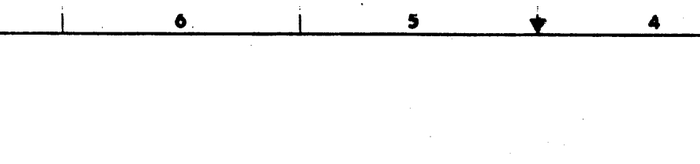
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY/VARIATION DL11-W	DL11-WA	DL11-WB	DL11-WC
1	D-CS-M7856-Ø=1	SLU/RTC OPTION	1	1	1	1
2	D-1A-7008360-1-0	CABLE ASSY (KL8-E)	-	1	-	-
3	D-UA-BCØ5C-25-0	CABLE MODEM BCØ5C	-	-	1	-
4	D-UA-BC03L-10-0	CABLE ASSY	-	-	-	1
5	2376ØA9 *	BOOTSTRAP ROM	1	1	-	1
6	9906228 *	BOX ROM	1	1	-	1

* 1. THE ROM AND ROM BOX WILL BE ADDED AT FA+T.
2. THE ROM AND ROM BOX ARE TO BE SHIPPED ONLY IF AN LT33 OPTION IS SHIPPED WITH A UNIBUS 11 SYSTEM.

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO
SERIAL LINE/LINE CLOCK DL11-W	NONE	A	PL	DL11-W-Ø	C	DL11W 00004
	SHEET 1 OF 1	DIST.				

DEC FORM DEC 16 (325) 1051 NS70
DBA 110

NOTES:



IC TYPE.	GND	+5V
IC 8641	8	16
IC 8334	1	2
IC 8437	8	16
IC 3404A	1	8
IC 74123	8	16
IC 74157	8	16
IC 74153	8	16
IC 7493	10	5
IC 7432	10	5
IC 74151	8	16
IC 74175	8	16
IC UART	1	3
IC 8087	8	16

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

IC PIN LOCATIONS

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL

ETCH BOARD REV. E

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

SEMICONDUCTOR CONVERSION CHART

CHK	CHANGE NO. REVISIONS	REV.
	M7856-0-0004	H

DRN. B. CRAMM 3/27/78
CHK'D. D Doughty DATE 2/23/78
ENG. [illegible] DATE 3-7-78
PROJ. ENG. [illegible] DATE 3-7-78
PROD. [illegible] DATE 3-12-78
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 8

digital

TITLE: SLU/RTC OPTION

SIZE	CODE	NUMBER	REV.
D	CS	M7856-0-1	H

DIST.

SIZE D CODE CS NUMBER M7856-0-1 REV. H

399

DL-1 RCVR INTR RQST H

+5V R45 10K

DL-4 BBD 6 H — 7474 E57 — RCSR CLK H

DL-4 B INIT L

DL-4 BBD Ø H — DL-1 RDR ENB (1)L — 7474 E35 — 7408 E44 — DL-4 SEL 2L

DL-1 RCVR BUSY(1)H — 7408 E44

74197 E47 (LD CLR CLKØ CLK1; D3 D2 D1 DØ; R3(1) R2(1) R1(1) RØ(1)) — DL-4 B INIT H

DL-6 XMIT CLK H

DL-6 RCVR CLK H — 74157 E38 (A Ø B Ø; A1 B1; A2 B2; A3 B3; SØ STB; f Ø f1 f2 f3)

DL-5 TTL SERIAL DATA IN

DL-5 SERIAL OUT H

FR ERR H

7437 E25

RCVR DONE H — 8881 E49 — TB-1 — BOOT SW L (FASTON TAB)

DL-3 RCVR SEL H — 7408 E44

DL-3 MASTER H — 7408 E46

DL-1 RCVR INTR ENB (1)H

DL-1 RCVR DONE H — 8097 E3 — 7408 E4

7474 E5

+5V R47 10 K

DL-1 OR ERR H

DL-1 ERROR H

DL-1 FR ERR H

DL-1 P ERR H

DL-1 XMIT RDY H

XMIT INTR ENB(1)L — 7402 E36

R32 270 — C84 82PF — 7414 E45

R33 270 — C85 82PF — 7414 E45

74175 E8 (CLK CLR; D3 DØ D2; R3(1) R3(Ø) R1(1) R1(Ø) RØ(1) RØ(Ø) R2(1) R2(Ø))

DL-4 BBD 6 H — XMIT INTR ENB (1) L

DL-4 BBD Ø H — S4-1

DL-4 BBD 2 H — DL-1 MAINT (1) H

DL-1 MAINT (1)L

DL-1 XMIT INTR ENB (1) H

7408 E46 — DL-1 SERIAL OUT L

7400 E46 — DL-1 BREAK (1) H

R46 10K +5V

DL-4 XCSR CLK H

DL-4 B INIT L

DL-3 MASTER H — DL-3 XMIT SEL H — 7400 E46 — DL-4 LD X DEL L — 7408 E4

DL-1 XMIT INTR RQST H

8097 E3 (+5V -12V; CLR R DONE; STB STATUS; STB RD; R CLK; SERIAL IN; R DONE; RD7 DL-1 RDØ7 H; RD6 DL-1 RDØ6 H; RD5 DL-1 RDØ5 H; RD4 DL-1 RDØ4 H; RD3 DL-1 RDØ3 H; RD2 DL-1 RDØ2 H; RD1 DL-1 RDØ1 H; RDØ DL-1 RDØØ H; OR ERR; FR ERR; P ERR; EOC; X RDY; X CLK; CLR LDC NB2 NB1 NP EP 2SB; SERIAL OUT)

UART E7 (DL-4 BBD 7 H XD7; DL-4 BBD 6 H XD6; DL-4 BBD 5 H XD5; DL-4 BBD 4 H XD4; DL-4 BBD 3 H XD3; DL-4 BBD 2 H XD2; DL-4 BBD 1 H XD1; DL-4 BBD Ø H XDØ; DL-4 LD X DEL L LD XD)

S4 (S4-1 S4-3 S4-4 S4-2 S4-5)

SPARE LOGIC

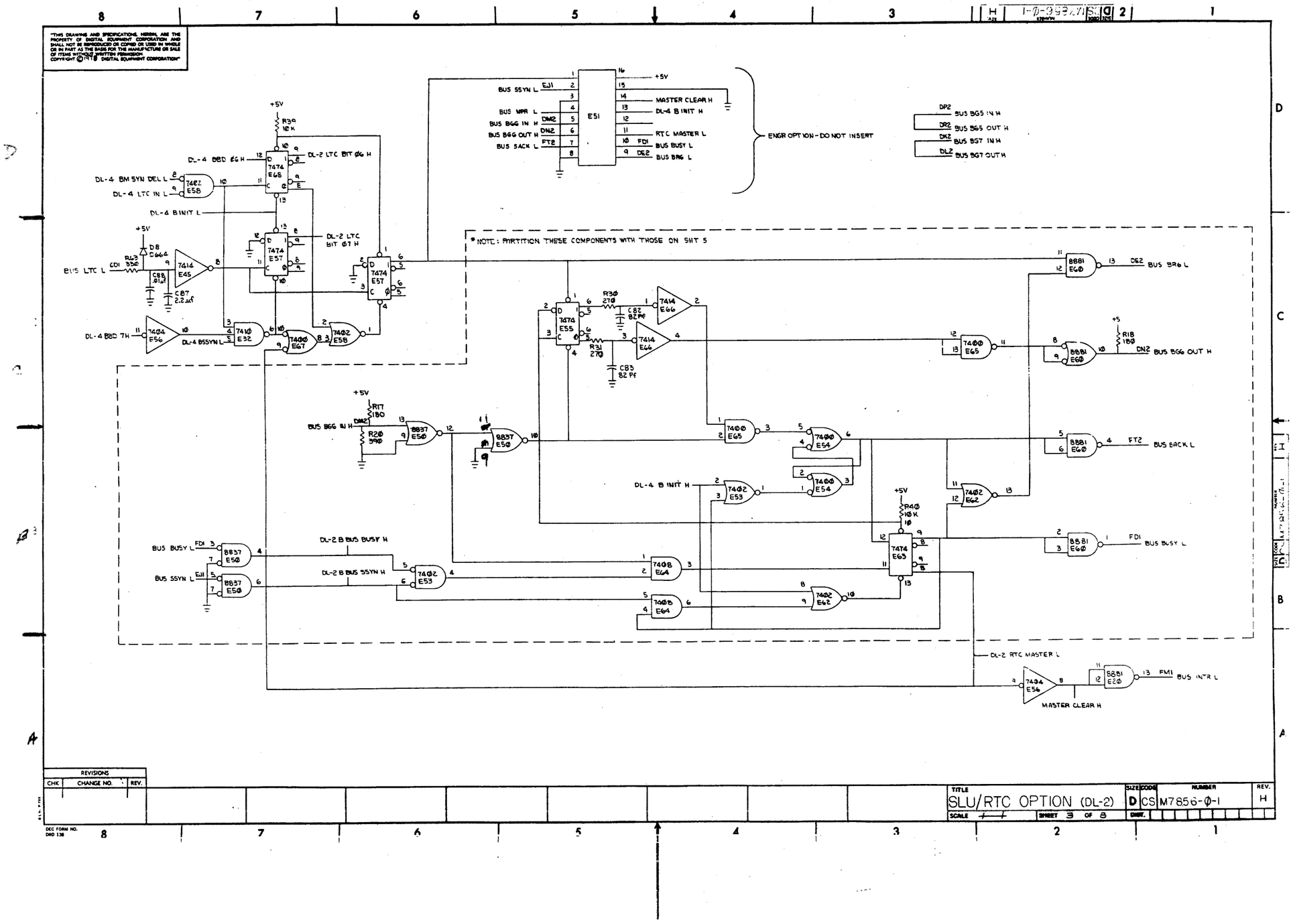
384 E48 — 1488L E11 — 1489L E10 — 7414 E66 — 8837 E41 — 7402 E36

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SLU/RTC OPTION (DL-1)	D	CS	M7856-0-1	H
SCALE —	SHEET 2 OF 8	DIST.		

DEC FORM NO. DRD 138

400



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SLU/RTC OPTION (DL-2)	D	CS	M7856-Ø-1	H
SCALE 1=1	SHEET 3 OF 8		DWG.	

DEC FORM NO. DRD 138

401

BUS SACK L — FT2 — 7
BUS BG4 OUT H — DT2 — 6
BUS BG4 IN H — DS2 — 5
BUS NPR L — FJ1 — 4
BUS SSYN L — EJ1 — 2
E52 — 8, 1, 3, 15
9 DH2 BUS BR4 L
10 FD1 BUS BUSY L
11 MASTER L
12 SACK H
13 DL-4 B INIT H
14 MASTER H
15
16 +5V
ENGR OPTION DO NOT INSERT

*NOTE: PARTITION THESE COMPONENTS WITH THOSE NOTED ON SHT. 4

DL-1 XMIT INTR RQST H — 384 E48 — 7404 E56
DL-1 RCVR INTR RQST H
7400 E65
7474 E55 — R28 270Ω — C80 82pF — R29 270Ω — C81 82pF
7414 E66 — 7414 E66 — 7414 E66
BUS BG4 IN H — DS2 — R15 180Ω — R19 390Ω — 8837 E50 — 8837 E50
7400 E65 — 7400 E54
DL-4 B INIT H — 7402 E53 — 7400 E54
DL-2 BBUS BUSY H — 7402 E53 — 7408 E64
BBUS SSYN H — 7408 E64 — 7402 E62
+5V R35 10K — 7474 E63
8881 E61 — DH2 BUS BR4 L
8881 E61 — DT2 BUS BG4 OUT H — +5V R16 180Ω
8881 E61 — FT2 BUS SACK L
7402 E62
8881 E61 — FD1 BUS BUSY L
8881 E2 — CT2 BUS DØ3 L — S2-4*
8881 E2 — CM2 BUS DØ7 L — S2-7*
8881 E2 — CL2 BUS DØ8 L — S2-8*
DL-2 RTC MASTER L — S2-5* — +5V R37 10K — 8881 E2 — CV2 BUS DØ6 L — R36 10K +5V
MASTER L — 7404 E56 — DL-3 MASTER H
8881 E13 — FM1 BUS INTR L
8881 E13 — CP2 BUS DØ5 L — S2-3*
8881 E13 — CN2 BUS DØ4 L — S2-6*
8881 E13 — CU2 BUS DØ2 L
SACK H
7400 E67
7474 E68 — DL-3 RCVR SEL H — DL-3 XMIT SEL H
7400 E67

* VECTOR ADDRESS SWITCHES - ON=1 OFF=Ø

REVISIONS		
CHK	CHANGE NO.	REV.

DEC FORM NO. DRD 138

TITLE: SLU/RTC OPTION (DL-3)
SIZE: D | CODE: CS | NUMBER: M7856-Ø-1 | REV: H
SCALE: — | SHEET 4 OF 8 | DIST.

BUS MSYN L — EE1 11 — 8837 E31 — 10 — R13 100 — C9 470 pF — 12 — 8881 E49 — 13

DL-4 BMSYN DEL L — R64 1K +5V — DL-7 SSYN EN L — 3 — 74Ø2 E23 — 1 — R11 1K +5V — R14 100 — C69 470 pF

1 — 7414 E45 — 2 — DL-4 BSSYN L

5 — 8881 E20 — 4 — EJ1 BUS SSYN L

BUS INIT L — DL1 3 — 8837 E41 — 4 — 3 — 74Ø4 E36 — 4 — DL-4 B INIT L

DL-4 B INIT H

DL-7 LD XBUF H — C84 150 pF — 74123 E24 50ns MSEC — R41 10K +5V — DL-4 LDXDEL L

DL-7 RBUF → BUS H — 74123 E24 USEC — DL-4 SEL 2 L

R43 1ØK +5V

DL-7 RCSR CLK ENB L — 74Ø2 E23 — DL-4 RCSR CLK H

DL-7 XCSR CLK ENBL — 74Ø2 E23 — DL-4 XCSR CLK H

DL-1 RDØ1 H — DL-1 RDØ3 H — DL-1 RDØ4 H — DL-1 RDØ5 H — DL-7 E14 ENL

BUS DØ1 L CR2 — BUS DØ3 L CT2 — BUS DØ4 L CM2 — BUS DØ5 L CP2 — B641 E14 — DL-4 BBD 1 H — DL-4 BBD 3 H — DL-4 BBD 4 H — DL-4 BBD 5 H

DL-1 BREAK (1) H — DL-1 RDØØ H — DL-1 MAINT (1) H — DL-1 RDØ2 H — 74157 E22 2:1 MUX — DL-7 E22 SØ H — DL-7 E22 STB L

BUS DØØ L CS2 — BUS DØ2 L CU2 — BUS DØ6 L CV2 — BUS DØ7 L CM2 — B641 E6 — DL-4 BBD ØH — DL-4 BBD 2H — DL-4 BBD 6H — DL-4 BBD 7H

DL-1 RDØ6 H — DL-1 XMIT INTR ENB (1) H — DL-1 RCVR INTR ENB (1) H — DL-2 LTC BIT Ø6 H — DL-1 RDØ7 H — DL-1 XMIT READY H — DL-1 RCVR DONE H — DL-2 LTC BIT Ø7 H — 74153 E21 4:1 MUX — DL-7 E6 EN L

DL-7 E21 S1 H — DL-7 E21 SØ H — DL-7 E23 EN L — 74Ø2 E23 — DL-1 RCVR BUSY (1) H — 8881 E23 — BUS DI1 L

DL-1 P ERR H — DL-1 FR ERR H — DL-1 OR ERR H — DL-1 ERROR H

BUS DI2 L CN2 — BUS DI3 L CF2 — BUS DI4 L CE2 — BUS DI5 L CD2 — B641 E1

DL-7 EN ERR L — S4-7 — +5V R44 10K

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SLU/RTC OPTION (DL-4)	D	CS	M7856-Ø-1	H
SCALE — SHEET 5 OF 8	DIST.			

DEC FORM NO. DRD 128

403

NOTE:
1. SWITCHES ARE SHOWN IN ACTIVE MODE.
2. D7, D6 ARE MCL1301 1 MA CONSTANT CURRENT DIODES.

DL-1 RDR ENB (I)L

DL-1 MAINT (I)L

SERIAL OUT L

DL-5 SERIAL OUT H

DL-5 TTL SERIAL DATA IN

+12/E11 PIN 14

-12/E11 PIN 1

11 DATA TERMINAL READY

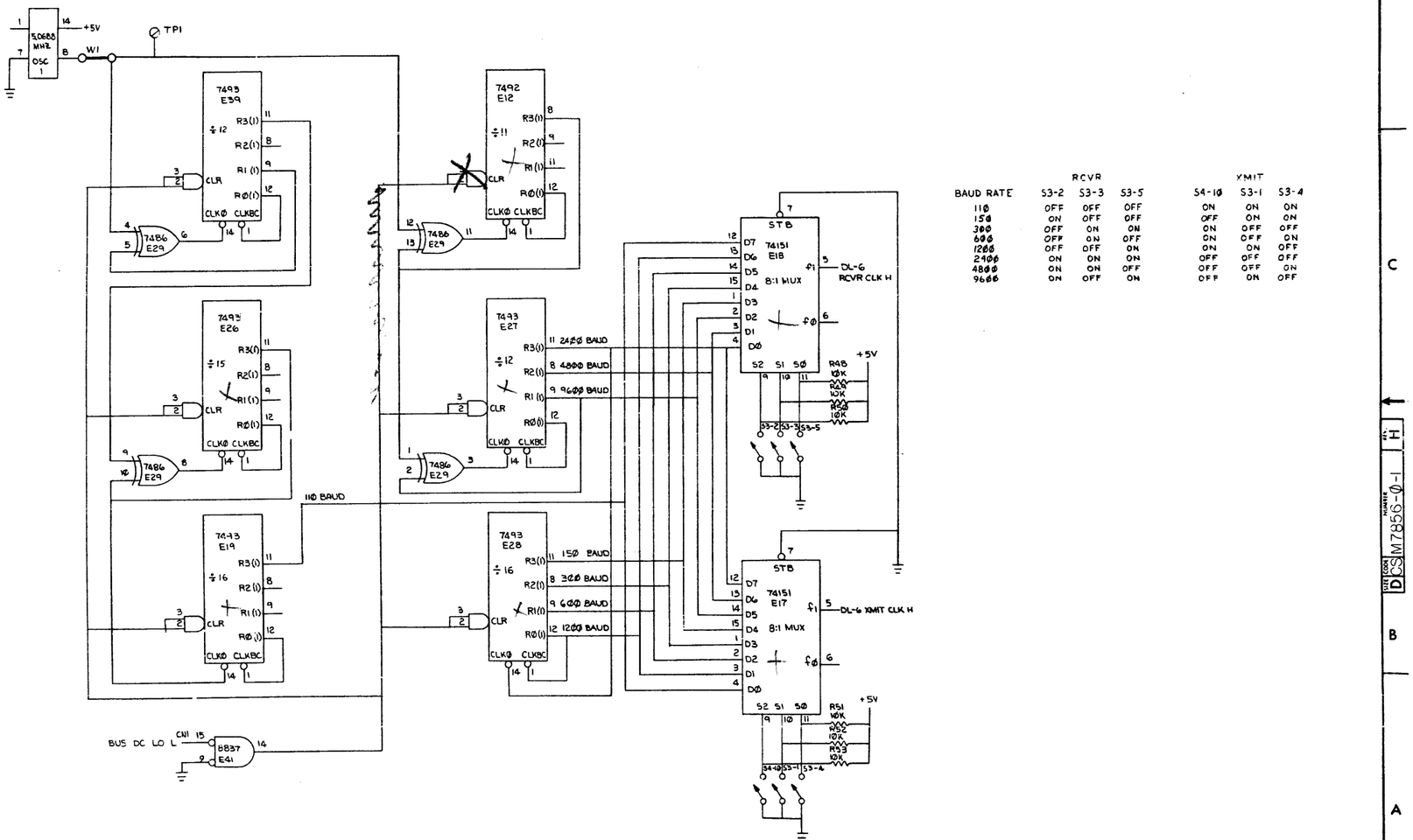
6 RQST TO SEND

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SLU/RTC OPTION (DL-5)			
SIZE	CODE	NUMBER	REV.	
D	CS	M7856-0-1	H	
SCALE		SHEET 6 OF 8	DIST.	

DEC FORM NO. DRD 138

M7856-0-1



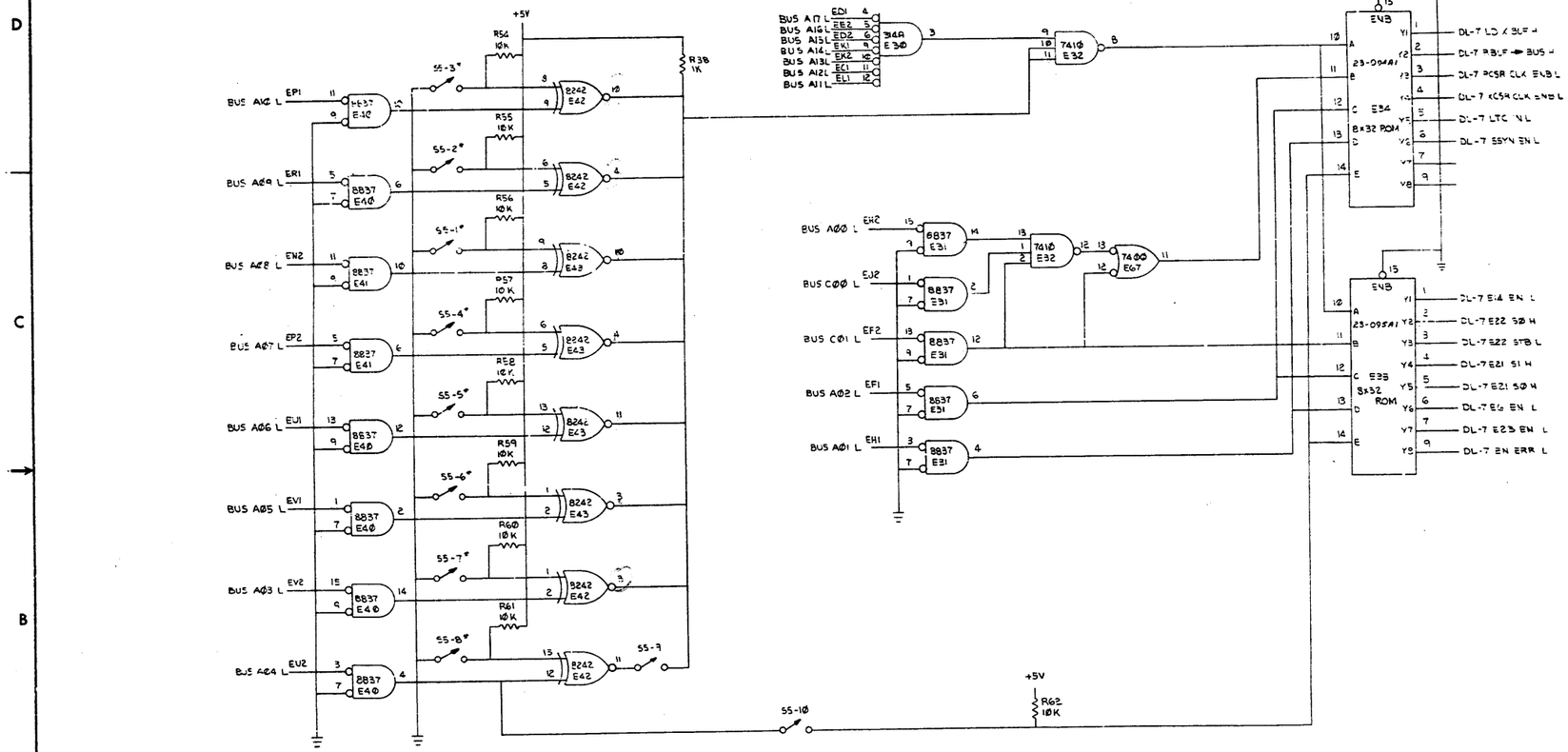
BAUD RATE	RCVR S3-2	RCVR S3-3	RCVR S3-5	XMIT S4-10	XMIT S3-1	XMIT S3-4
110	OFF	OFF	OFF	ON	ON	ON
150	ON	OFF	OFF	OFF	ON	ON
300	OFF	ON	ON	ON	OFF	OFF
600	OFF	ON	OFF	ON	OFF	ON
1200	OFF	OFF	ON	ON	ON	OFF
2400	ON	ON	ON	OFF	OFF	OFF
4800	ON	ON	OFF	OFF	OFF	ON
9600	ON	OFF	ON	OFF	ON	OFF

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SLU/RTC OPTION (DL-6)	D	CS	M7856-0-1	H
SCALE	SHEET 7 OF 8	DIST.		

DEC FORM NO. DRD 138

405



"ADDRESS SELECTION SWITCHES" OFF=1 ON=Ø

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
SLU/RTC OPTION (DL-7)	D	CS	M7856-Ø-1	H
SCALE -/- SHEET 8 OF 8	DIST.			

DEC FORM NO. DMD 2.38

406

SIZE K | CODE CS | NUMBER M7856-0-9 | REV.

(FOR 23094AI-A07 & 23095AI-A07)

DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN ✓ MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
QUANTITY & VARIATION	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL

FINISH

DRN. J. Nelson 7-JAN-76

CHK'D T. Hanrahan 9-28-76

ENG. W. Scott 9-29-76

PROJ. ENG. K. Kent 9-30-76

PROD. A. Abbott 9-25-76

NEXT HIGHER ASSY. D-CS-M7856-0-1

SCALE

SHEET 1 OF 3

FIRST USED ON DL11-W

digital

TITLE ROM LISTING

SIZE	CODE	NUMBER	REV.
K	CS	M7856-0-9	

DIST.

REVISIONS

REV.	CHANGE NO.	DATE

DEC 15-(329)-1030-18-R275
DRB 100A

407

DEC PART NUMB: 23094A1-A07
ORIGINATOR: BOB PRATT
DATE OF ORIGIN: 2/28/75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	00	00111100	074
1	01	00111100	074
2	02	00111100	074
3	03	00111100	074
4	04	00111100	074
5	05	00111100	074
6	06	00111100	074
7	07	00111100	074
8	10	00111100	074
9	11	00111100	074
10	12	00111100	074
11	13	00111100	074
12	14	00001100	014
13	15	00111100	074
14	16	00011100	034
15	17	00111100	074
16	20	00011000	030
17	21	00111100	074
18	22	00011100	034
19	23	00111100	074
20	24	00010100	024
21	25	00111100	074
22	26	00011100	034
23	27	00111100	074
24	30	00011100	034
25	31	00111100	074
26	32	00011110	036
27	33	00111100	074
28	34	00011101	035
29	35	00111100	074
30	36	00011100	034
31	37	00111100	074

DEC PART NUMB: 23-095A1-A07
ORIGINATOR: BOB PRATT
DATE OF ORIGIN: 2/28/75

DECIMAL LOC	OCTAL LOC	BINARY DATA	OCTAL DATA
0	00	11111111	377
1	01	11111111	377
2	02	11111111	377
3	03	11111111	377
4	04	11111111	377
5	05	11111111	377
6	06	11111111	377
7	07	11111111	377
8	10	11111111	377
9	11	11111111	377
10	12	11111111	377
11	13	11111111	377
12	14	11011111	337
13	15	11111111	377
14	16	11111111	377
15	17	11111111	377
16	20	10001111	217
17	21	11111111	377
18	22	11111111	377
19	23	11111111	377
20	24	11010001	321
21	25	11111111	377
22	26	11111111	377
23	27	11111111	377
24	30	01000010	102
25	31	11111111	377
26	32	11111111	377
27	33	11111111	377
28	34	11111111	377
29	35	11111111	377
30	36	11111111	377
31	37	11111111	377

WIRE TABLE

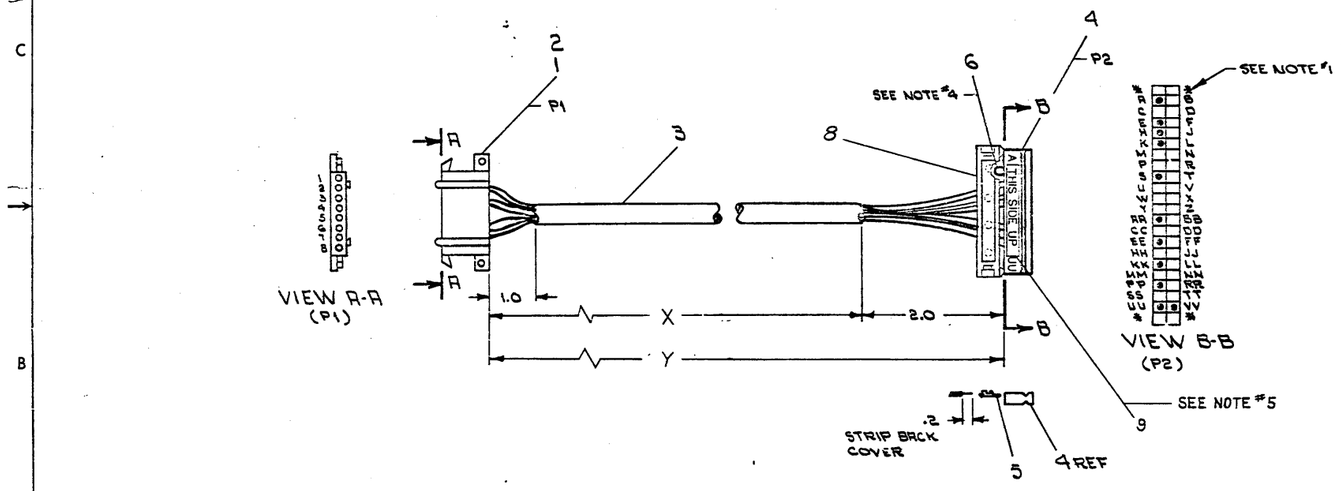
ITEM NO.	DESCRIPTION AWG	COLOR	PAIR NO.	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH
3	22	BLK	1	P1-3	2	P2-KK	S
3		RED		P1-5	2	P2-S	
3,7		SHIELD		SEE NOTE #2	—	P2-R(NOTE #3)	
3		BLK	2	P1-4	2	P2-EE	
3		WHT		P1-5	2	P2-RR	
3,7		SHIELD		SEE NOTE #2	—	P2-UU(NOTE #3)	
3		BLK	3	P1-6	2	P2-PP	
3		GRN		P1-7	2	P2-K	
3,7		SHIELD		SEE NOTE #2	—	P2-VV(NOTE #3)	
6	22	BLK	—	P2-E	S	P2-H	S

LEGEND

VARIATION	LENGTH X	LENGTH Y
7008360-0	25IN±1.0	27IN±1.0
7008360-1	42IN±1.0	48IN±1.0
7008360-9	9FT±2IN	9FT 2IN ± 2IN

NOTES:

1. * ASTERISKS INDICATE CAVITIES NOT USED OR DESIGNATED BY LETTERS.
2. DRAIN WIRES TO BE CUT BACK TO OUTER INSULATION ON P1 END OF CABLE ONLY. SHIELDS TO BE CUT BACK TO OUTER INSULATION ON BOTH ENDS OF CABLES.
3. DRAIN WIRES ON P2 END OF CABLE TO BE EACH ENCLOSED WITH ITEM #7 (TUBING) FROM END OF CABLE JACKET TO POINT WHERE THEY ENTER P2 CONNECTOR.
4. ITEM #6 (WIRE) TO BE APPROXIMATELY ONE(1) INCH LONG.
5. PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #4 (BERG HOUSING) AS SHOWN.



ITEM	DESCRIPTION	PART NO.	QTY
1	LABEL, THIS SIDE UP	36111567	9
1	STRAIN RELIEF	12,11166	8
AR	TUB. #18 TEF. THINWALL WHT	9107279-11	7
AR	WIRE, #22 AWG STRD TEF BLK	9107350-00	6
11	SOCKET, CRIMP# 47216	1210089-07	5
1	HOUSING, BERG #65033-015	1210913-15	4
AR	CABLE, BELDEN #8777-TEF SHLD	9107723-0	3
3	CONTACT MATE-N-LOCK(FEMALE)	1203379-03	2
1	CONN. MATE-N-LOCK(FEMALE)	1209740-00	1

PARTS LIST

REVISIONS CHANGE NO.	REV
INIT. REL - 000002	A
7008360-00001	B
E 411 eln 10-29-72	C
7008360-00001	C
7008360-00002	D
7008360-00001	E
7008360-00041	H

	NAME	DATE
DRAWN	K. REGAN	10-29-72
TRACED	M.E. LEWANDOWSKI	11-27-72
DESIGNED	K. REGAN	10-29-72
PROJ. ENG.	J. MCNAMARA	12-4-72
MFG.		

FIRST USED ON OPTION/MODEL: PDP-8E

DO NOT SCALE DRAWING. UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES: FRACTIONS ±1/64, ANGLES ± 0°30', FINAL SURFACE QUALITY 125, REMOVE BURRS AND BREAK SHARP CORNERS.

MATERIAL: SEE PARTS LIST

FINISH:

NEXT HIGHER ASSY: A-ML-KL8-E-0

SCALE: NONE

SHEET: 1 OF 1

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: CABLE ASSEMBLY (KL8E)

SIZE: D | CODE: IA | NUMBER: 7008360-0-0 | REV: H

DIST:

WIRE TABLE

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION		WITH	TO CONNECTION	WITH
1	26	BLU/WHT	P1-1	*	12	J1-VV	7
↓	↓	WHT/BLU	P1-2		8	J1-F	↓
		ORN/WHT	P1-3		↓	J1-J	
		WHT/ORN	P1-4			J1-V	
		GRN/WHT	P1-5			J1-T	
		WHT/GRN	P1-6		9	J1-Z	
		BRN/WHT	P1-7	**	12	J1-UU	
		WHT/BRN	P1-8		8	J1-BB	
		SLA/WHT	P1-9		↓	J1-Y	
		WHT/SLA	P1-10			J1-W	
		BLU/RED	P1-11			J1-FF	
		RED/BLU	P1-12			J1-JJ	
		ORN/RED	P1-13			J1-D	
↓	↓	SLA/RED	P1-14		↓	J1-LL	↓
1	26	SLA/GRN	P1-15		9	J1-N	7

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION		WITH	TO CONNECTION	WITH
1	26	RED/BRN	P1-16		8	J1-NN	7
↓	↓	SLA	P1-17		↓	J1-R	↓
		RED/SLA	P1-18			J1-U	
		BLU/BLK	P1-19			J1-P	
		BLK/BLU	P1-20			J1-DD	
		ORN/BLK	P1-21			J1-MM	
		BLK/ORN	P1-22			J1-X	
		GRN/BLK	P1-23			J1-RR	
		BRN/RED	P1-24		↓	J1-L	
		RED/ORN	P1-25		8	J1-C	
↓		SHIELD	P1-1	*	12	J1-A	↓
1		SHIELD	P1-7	**	12	J1-B	7
3	↓	BLK	P1-1	#	12	P1-7 **	12
2	26	RED	J1-E		7	J1-M	7

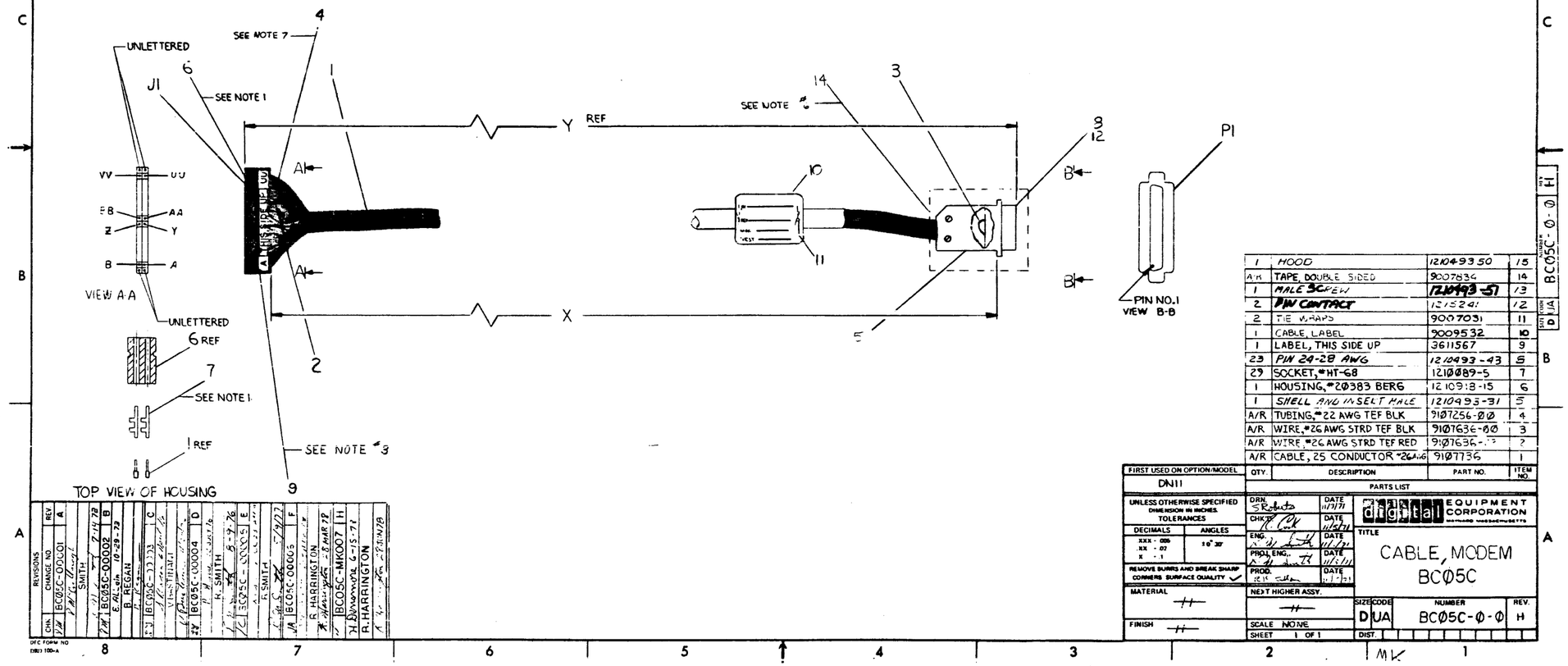
NB
* DENOTES THREE WIRES ARE SOLDERED INTO THE P1-1 SOLDER CUP
** DENOTES THREE WIRES ARE SOLDERED INTO THE P1-7 SOLDER CUP

LEGEND

NUMBER	VARIATION DIM X	DIM Y (PRECUT)
BCØ5C-25	25'±3"	25'1.8"
BCØ5C-5Ø	5Ø'±2%	5Ø'1.8"
BCØ5C-Ø9	9'±3"	9'1.8"
BCØ5C-1F	18"±1"	19.8"

NOTES:

1. MANUFACTURING SHOULD USE MACHINE CRIMPER TOOL FOR CRIMPING PINS (ITEM #7) MUST BE HT68 FROM BERG ELECT
2. ONLY DEC PART #1210918-15 MAY BE USED AS J1.
3. PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #6 (BERG HOUSING) AS SHOWN.
4. ~~USE ITEM #13 (9107302-01) IN TWO PLACES (PIN P1-7) TO PREVENT SHORTING~~
5. ~~USE ITEM #12 (9107295-01) ON ALL REMAINING SOLDER CUPS TO PREVENT SHORTING.~~
6. DUE TO TOLERANCES WITH DIFFERENT ~~MFRS~~ THE HOOD (ITEM #3) MAY VARY IN OUTSIDE DIAMETER CAUSING POTENTIAL STRAIN RELIEF GRIPPING PROBLEM. SHOULD THIS CONDITION BE PRESENT USE ITEM #4 (9107834) AT JUNCTION OF CABLE AND HOOD OVER SHIELD WIRE J1-A, J1-B, P1-1, P1-7
7. PLACE ITEM #4 (9107256) OVER SHIELD WIRE J1-A, J1-B, P1-1, P1-7



REVISIONS	CHG	CHANGE NO	REV
	1/M	BC05C-00001	A
		SMITH 11-6-72	
	1/M	BC05C-00002	B
		E. Allain 10-29-73	
		B. REGAN	
	2/D	BC05C-00003	C
		R. SMITH 5-4-76	
	#/	BC05C-00004	D
		H. SMITH 5-4-76	
	2/E	BC05C-00005	E
		R. SMITH 5/4/77	
	1/A	BC05C-00006	F
		R. HARRINGTON 8 MAR 78	
	1/	BC05C-MK007	H
		H. DUNNAVOGAL 6-15-79	
		R. HARRINGTON	

ITEM NO.	QTY.	DESCRIPTION	PART NO.
15	1	HOOD	12104935Ø
14	A/R	TAPE, DOUBLE SIDED	9007836
13	1	MALE SCREW	1210993-51
12	2	PIN CONTACT	1215241
11	2	TIE WRAPS	9007031
10	1	CABLE, LABEL	9009532
9	1	LABEL, THIS SIDE UP	3611567
8	23	PIN 24-28 AWG	1210493-03
7	29	SOCKET, #HT-68	1210089-5
6	1	HOUSING, #2Ø383 BERG	12109138-15
5	1	SHELL AND INSERT MALE	1210993-31
4	A/R	TUBING, #22 AWG TEF BLK	9107256-ØØ
3	A/R	WIRE, #26 AWG STRD TEF BLK	9107636-ØØ
2	A/R	WIRE, #26 AWG STRD TEF RED	9107636-02
1	A/R	CABLE, 25 CONDUCTOR #26 AWG	9107736

PARTS LIST

FIRST USED ON OPTION/MODEL: DN11

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

DRN. S Roberts 11/27/71
CHK. [illegible] 11/30/71
ENG. [illegible] 11/30/71
PROJ. ENG. [illegible] 11/30/71
PROD. [illegible] 11/30/71
NEXT HIGHER ASSY. —
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: CABLE, MODEM BCØ5C

SIZE D | CODE DUA | NUMBER BCØ5C-Ø-Ø | REV. H

DIST. MK

DEC FORM NO 12823 100-A

4!

WIRE TABLE

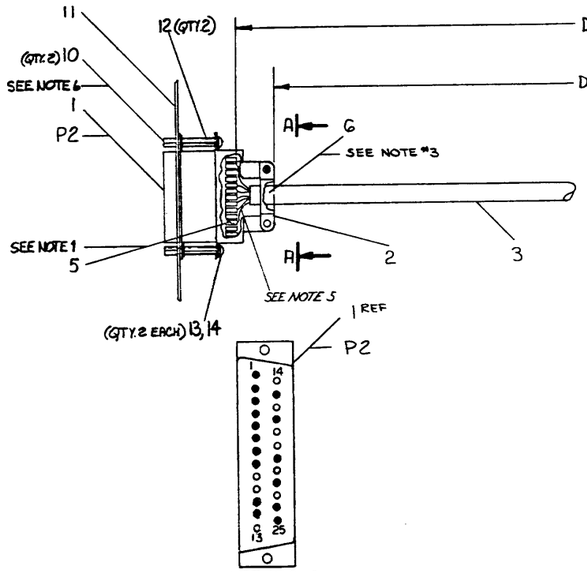
ITEM NO	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH
3	22	BLK	P1-VV	7	P2-7	SOLDER
↓	↓	GRN/WHT	P1-C	↓	P2-25	↓
		GRN/BLK	P1-JJ		P2-12	
		ORN/BLK	P1-FF		P2-11	
		RED	P1-DD		P2-20	
		GRN	P1-BB		P2-8	
		BLU/WHT	P1-Z		P2-6	
		ORN	P1-X		P2-22	
		BLU	P1-V		P2-4	
		WHT	P1-T		P2-5	
		BLU/BLK	P1-R		P2-17	
		BLK/WHT	P1-N		P2-15	
		RED/WHT	P1-L		P2-24	
↓		WHT/BLK	P1-J		P2-3	↓
3		RED/BLK	P1-F	↓	P2-2	SOLDER
8	↓	BLK	P1-E	7	P1-M	7
8	22	BLK	P2-1	SOLDER	P2-7	SOLDER

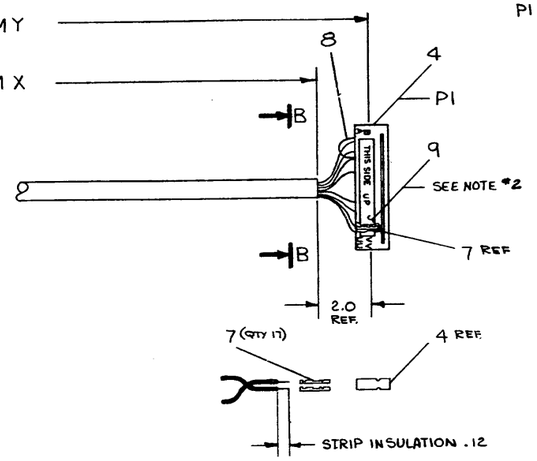
LEGEND

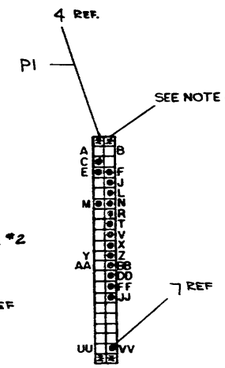
NUMBER	VARIATION DIM "X"	VARIATION DIM "Y" PRECUT
BCØ3L-10	10FT ± 2IN	10FT, 5IN
BCØ3L-5	5FT ± 2IN	5FT, 5IN
BCØ3L-1K	1FT 9IN ± 1IN	2FT
BCØ3L-Ø1	1FT ±1IN	1FT, 3IN

NOTES:

1. EACH SOLDERED CONN ON P2 SHALL BE INSULATED WITH A .25 PIECE OF SHRINK TUBING (ITEM #5)
2. PLACE ITEM #9 (THIS SIDE UP STICKER) ON LETTERED SIDE OF ITEM #4 (CONN HOUSING) AS SHOWN.
3. FOR STRAIN RELIEF WRAP 2 TURNS OF TAPE (ITEM #6) AROUND CABLE (ITEM #3) AS SHOWN.
4. PINS MARKED * IN VIEW B-B ARE NOT USEABLE
5. WIRES COMING FROM CENTER OF PLUG CONN SHOULD BE 3/8" LG., ALL OTHERS SHOULD BE CONFINED INTO HOOD OF CONN. SO THAT THEY'RE NOT BUNCHED.
6. PLACE LOCKWASHER (SUPPLIED WITH ITEM #10) BETWEEN SPACER AND CONNECTOR FLANGE. DISCARD NUT (QTY 2) SUPPLIED WITH ITEM #10.







2	WASHER, LOCK #4	9006188	14
2	SCR, PHL PAN HD #4-40 X .25	9008301-1	13
2	SPACER, THREADED, HEX	9008833	12
1	PLATE, CONN. MTG.	B-MD-7414072-00	11
2	SCREW LOCK ASSY	9008451-00	10
1	LABEL (THIS SIDE UP)	3611567	9
3IN	WIRE, STRANDED #22 AWG IPVC (BLK)	9107350-00	8
17	SOCKET, CRIMP	1210089-07	7
A/R	TAPE, DOUBLE SIDED .50 W.D.	9007834	6
16	TUBING, HEAT SHRINK .12	9107255-09	5
1	CONN, 44 POS, HSG.	1210918-15	4
A/R	CABLE, 15 COND, 22 AWG.	9107672-00	3
1	HOOD, CONN.	1212516-00	2
1	CONNECTOR, PLUG, FILTERED	1214031-00	1

REVISIONS					
SYM	ECO NO.	REV.			
E	0101-00002	A	B. SAMPSON	10-13-75	
E	0101-00003	B	M.E. LEWANDOWSKI	11-17-75	
E	0101-00004	C	R. SAMPSON	5-13-76	
E	0101-00005	D	T. ORR	11-22-77	
E	0101-00006	E	T. ORR	2 MAY 78	
E	BC03L-MK0007	F	D. Enders	3 SEP 78	

DESCRIPTION		DWG./PART NO.	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	FRACTIONAL ±	DECIMAL ±
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.064	±.008
	PREFERRED ☐	±.032	±.016

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS
DO NOT SCALE DWG
NEXT HIGHER ASSY.
SCALE 1/1
SHEET 1 OF 1

FIRST USED ON

TITLE: FILTERED CABLE ASSY BCØ3L

SIZE D | CODE UA | NUMBER BCØ3L-Ø Ø | REV. F

DIGITAL

BCØ3L-Ø-Ø

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION DATE 2-28-77

TITLE DL11-W Installation Procedure

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	ECO CHANGE	00002	B. CRAMM	8-77	B. Pratt	8-77

ENG	APPD	SIZE	CODE	NUMBER	REV
Bob Pratt		A	SP	DL11-W-2	A

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

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE DL11-W Installation Procedure

DL11-W Installation Procedure

Installation of the M7856 module consists of the following preparations:

1) Switch selection of the address mode and register addresses.
2) Switch selection of vector address.
3) Switch selection of data format.
4) Switch selection of receiver and transmitter baud rates.
5) Switch selection of operation mode for the current loops.
6) Additional switch selections for compatability.
7) Installation of G9000 in systems where +15V is not available.

NOTE: The notation used to indicate a particular switch is as follows: SX-Y where X denotes the particular switch pack and Y denotes the individual switch in the pack. The switch pack is labeled on the P. C. board with an SX(ieS2) and the individual switches are labeled on the switch pack as are the on-off positions.

A. Register Address Assignments:

The DL11-W can respond to addresses with the following format:

17	16	15	14	13	12	11	10 9 8 7 6 5 4 3 2 1	0
1	1	1	1	1	1	1	SWITCHES	

Selects 1 of 4 Registers

Byte Control

The DL11-W can be operated in one of three different address selection modes. Normally, a DL11-W used as console terminal control would operate in the first mode, whereas additional DL11-W's would be operated in the second mode. The third mode is not normally used, but is included here for completeness.

SIZE	CODE	NUMBER	REV
A	SP	DL11-W-2	A

DEC FORM NO DEC 16-(361)-1022-N370
DRA 108

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE DL11-W Installation Procedure

Mode 1: Both the serial line unit and the real-time clock sections can be addressed. Due to common address selection logic, operation in this mode requires that the serial line unit addresses be restricted to 77756X. The line clock address is 777546.

Mode 2: Only the serial line unit section can be addressed. Address selection ranges from 74000 to 777777. Line clock is disabled and does not respond to address 777546.

Mode 3: Only the line clock section can be addressed at 777546. The serial line unit section does not respond to any address.

ADDRESS AND MODE SELECTION

Address Bit	A10	A09	A08	A07	A06	A05	A04	A03	N/A	N/A
Switch	S5-3	S5-2	S5-1	S5-4	S5-5	S5-6	S5-8	S5-7	S5-9	S5-10
Mode 1	Off	Off	Off	On	Off	Off	Off	On	Off	On
Mode 2*	Off	Off	Off	On	Off	Off	Off	On	On	Off
Mode 3	Off	Off	Off	On	Off	Off	On	On	On	On

*Address 77756X selected for serial line interface. Other addresses may be selected using SWITCH-OFF = 1 and SWITCH-ON = 0.

Note: Remove R63 from DL11-W's operated in Mode 2 to allow proper operation of a line frequency clock or DL11-W operated in Mode 1 or Mode 3.

Address assignments for serial lines are normally made in the ranges from 77650X to 77667X and from 77561X to 77617X.

B. Vector Address Assignments:

The line clock, if enabled, has a fixed vector address of 100 and cannot be changed. The serial line assignments are to floating vectors produced in the form XX0 (Receiver) and XX4 (Transmitter) where XX ranges from 00 to 77.

For a DL11-W used as the console device, the vector is 060/064. Additional DL11-W's vector addresses are floating.

SIZE	CODE	NUMBER	REV
A	SP	DL11-W-2	A

DEC FORM NO DEC 16-(361)-1022-N370
DRA 108

ENGINEERING SPECIFICATION CONTINUATION SHEET

TITLE DL11-W Installation Procedure

V8	V7	V6	V5	V4	V3	V2	V1	V0
						0/1	0	0

Switch Selectable for Serial Line

Vector Bit	V8	V7	V6	V5	V4	V3
Switch	S2-8	S2-7	S2-5	S2-3	S2-6	S2-4
060/064	Off	Off	Off	On	On	Off

On = 1, Off = 0

C. Selection of Data Format:

1. Data Bits

Switches S4-3 and S4-4 control the number of data bits in the serial character as follows:

S4-4	S4-3	# of Data Bits
On	On	5
On	Off	6
Off	On	7
Off	Off	8

2. Parity

Parity is controlled by switches S4-2 and S4-6 as follows:

S4-2	S4-6	Parity
Off	Off	Off
On	Off	Off
Off	On	Even
On	On	Odd

3. Stop Bits

Switch S4-5 controls the number of stop bits selected in the serial character as follows:

SIZE	CODE	NUMBER	REV
A	SP	DL11-W-2	A

DEC FORM NO DEC 16-(361)-1022-N370
DRA 108

A3

S4-5	# of Stop Bits
On	1
Off	2 (or 1.5 if 5 data bits are selected)

D. Baud Rate Selection:

Receiver and Transmitter baud rates are independent, so any combination may be selected.

Baud Rate Switch Selections

Baud Rate	Receiver S3-2	S3-3	S3-5	Transmitter S4-10	S3-1	S3-4
110	Off	Off	Off	On	On	On
150	On	Off	Off	Off	On	On
300	Off	On	On	On	Off	Off
600	Off	On	Off	On	Off	On
1200	Off	Off	On	On	On	Off
2400	On	On	On	Off	Off	Off
4800	On	On	Off	Off	Off	On
9600	On	Off	On	Off	On	Off

E. Current Loop Operation Mode:

Normally, current loops should be in active mode, unless interfaced to another active loop, such as to another DL11.

Active - Passive Mode Selection

Transmitter	S1-1	S1-2	S1-3	S1-6	S1-7
Active	On	On	Off	Off	On
Passive	Off	Off	On	On	Off
Receiver	S3-6	S3-7	S3-8	S3-9	S3-10
Active	On	Off	On	Off	On
Passive	Off	On	Off	On	Off
Reader Enable	S1-4	S1-5	S1-8	S1-9	S1-10
Active	On	Off	On	Off	On
Passive	Off	On	Off	On	Off

F. Compatability Selection:

Switches S4-1 and S4-7 allow the DL11-W to be configured to replace DL11-A, B, C, and D options in most applications.

DL11-W Compatability Switches

Selectable	Switch	Description
Break Bit	S4-1	Enabled in the ON position. Should be disabled (switch OFF) if replacing a DL11-A, or DL11-B, should be enabled (switch ON) if replacing a DL11-C or DL11-D.
Error Bits	S4-7	Error bit reporting is enabled in the ON position. Should be disabled if replacing DL11-A or DL11-B, and should be enabled if replacing DL11-C or DL11-D.

Note: Both EIA level and current loop signals are available at the berg connector on the module. No selection is necessary. The proper cable will pick up the correct signals.

G. G8000 Installation:

For DL11-W EIA operation, a positive voltage is required between 9 and 15 volts to operate the EIA drivers. For PDP-11/20 and PDP-11/15 systems with the H720 power supply, a G8000 module must be installed to provide this voltage. Using a filter network, this module converts the full-wave rectified "+8V" signal to a positive DC voltage.

1. Install G8000 into slot A02 or DD11-A.
2. Wire A03V2 to A02V2.
3. Wire A02N2 to CXXU1 where XX is the slot location of the M7856.

H. DL11-W Systems with +15V Available Using DD11-A

There is a special situation of using a DD11-A to mount a DL11-W in systems with +15V available. These systems have +15V available, and it appears at pin A03V2 of the DD11-A when using power harness such as 7009177, 7008855, or 7008909. In this situation, no G8000 is necessary, and +15V can be wired directly from A03V2 to CXXU1, where XX is the slot number of the DL11.

I. When using the DL11-W in an 11/05 processor pin CXXU1 has +15V available on it so no G8000 or no jumpers are required.

J. INSTALLATION

The DL11-W module plugs into an SPC slot. A wire must be installed to pick up the LTC L signal from the power supply and apply it to the line frequency input of the DL11-W.

When installed, the LTC L input to the DL11-W is located on pin CD1. Connect a length of 30 AWG wire from pin CD1 on the backplane to the pin on the backplane, as designated in Table 1-1, for each application.

Table 1-1 LTC L Connection

PDP Computer	Processor	Pin Number
11/04	KD11-D (4 slot)	C02D1,C03D1,C04D1
11/04	KD11-D (9 slot)	C02D1,C03D1,C04D1,C05D1, C06D1,C07D1,C08D1, or C09D1
11/05	KA11-A w/8K memory	C01D1,C02D1,C03D1,C04D1, or F08V2
11/05	KD11-A w/16K memory	C01D1 or F08V2
11/20	KA11	A13P2 or B12R1
11/34	KD11-E	C03D1,C04D1,C05D1,C06D1, C07D1,C08D1, or C09D1
11/35	KD11-A	F03R1 or C09D1
11/40	KD11-A	F03R1 or C09D1
11/45	KB11-A	C26D1,C27D1, or C28D1
11/55	KB11-D	C26D1,C27D1, or C28D1
11/70	KB11-B	C40D1,C41D1,C42D1,C43D1, or C44D1
11/70	KB11-C	C40D1, C41D1,C42D1,C43D1, or C44D1
DD11-B Peripheral Mounting Panel		C01D1,C02D1,C03D1, or C04D1
DD11-D Peripheral Mounting Panel		C01D1,C02D1,C03D1,C04D1, C05D1,C06D1,C07D1,C08D1,C09D1
DD11-A Peripheral Mounting Panel		A03P2

NOTE: A wire connection is not necessary for backplane pin numbers ending in D1. LTC L is already connected to the line frequency input of the DL11-W.

K. Installation

The DL11-W module plugs into an SPC slot. A wire must be installed to pick up the DCLOL signal from the power supply and apply it to the DCLOL input of the DL11-W.

When installed, the DCLOL input to the DL11-W is located on pin CN1. Connect a length of 30 AWG wire from pin CN1 on the backplane to the pin on the backplane, as designated in Table 1-2 for each application.

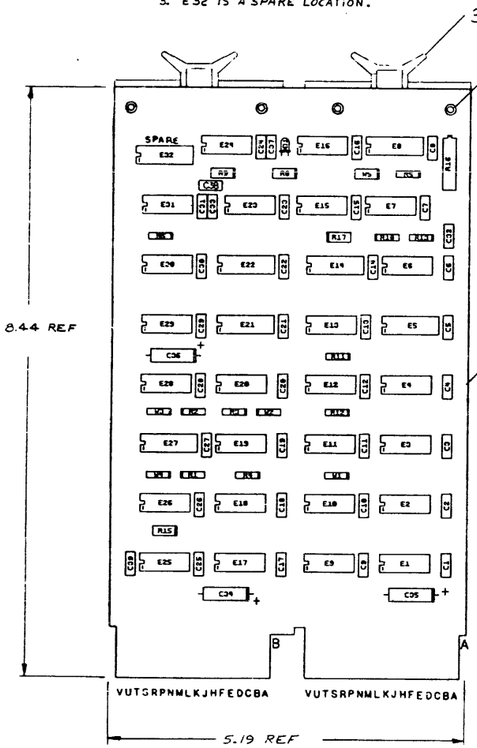
Table 1-2 DCLOL Connection

PDP Computer	Processor	Pin Number
11/04*	KD11-D (4 slot)	C03N1, C04N1
11/04*	KD11-D (9 slot)	C03N1 thru C09N1
11/05*	KA11-A w/8K Memory	C01N1, C02N1, C03N1, C04N1
11/05*	KD11-A w/16K Memory	C01N1
11/20	KA11	B11F2, B14F2, A13S2, A08S2, A03S2, B04D2, F06B2
11/34*	KD11-E	C03N1 thru C09N1
11/35	KD11-A	[illegible]09F2
11/40	KD11-A	[illegible]09F2
11/45*	KB11-A	C26N1, C26N1, C28N1
11/55*	KB11-D	C26N1, C26N1, C28N1
11/70*	KB11-B	C40N1, C41N1, C42N1, C43N1, C44N1
11/70*	KB11-C	C40N1, C41N1, C42N1, C43N1, C44N1
DD11-B Peripheral Mounting Panel		C01N1 thru C04N1
DD11-D Peripheral Mounting Panel		C01N1 thru C09N1
DD11-A Peripheral Mounting Panel		B01F2, B04F2, A03S2

*NOTE: A wire connection is not necessary for backplane pin numbers ending in N1 DCLOL. Is already connected to the input of the DL11-W.

NOTES:

1. ALL RESISTORS 1/4 W, 5% UNLESS OTHERWISE NOTED.
   ALL CAPACITORS ARE 100V, 20% UNLESS OTHERWISE NOTED.
2. JUMPER CONTROL OPERATIONS ARE AS FOLLOWS:
   W1 THRU W4 SELECT CSR ADDRESS, W5 CAPACITOR FOR 5 SYN DLY, NOT USED.
3. E32 IS A SPARE LOCATION.



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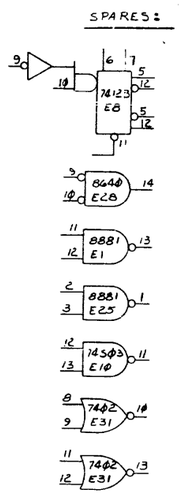
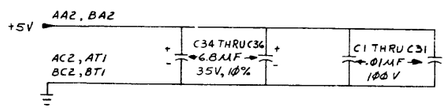




8640	1	8
8266	8	16
74151	8	16
74174	8	16
74123	8	16
7485	8	16
314A	1	8
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REF				REF
REF		X-Y COORDINATE HOLE LOCATION	X-CO-M7850-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7850-0-5	2
REF		MODULE ECO HISTORY	B-MH-M7850-0-6	3
1		ETCHED CIRCUIT BOARD	5010651-00	4
1	C39	CAP 470 PF, 100V, 5% (DM)	1000024-00	5
2	C33, C37	CAP 330 PF, 100V, 5% (DM)	1000023-00	6
32	C1 THRU C32	CAP .01 MF, 100 V, 20% DISC	1001610-01	7
3	C34, C35, C36	CAP 6.8 MF, 35 V, 10% STANT	1005306-00	8
1	D1	DIODE, L.E.D.	1110324-00	9
5	R1 THRU R5	RES 4.7K 1/4W 5%	1306447-00	10
3	R8, R9, R15	RES 100 1/4W 5%	1300229-00	11
5	R6, R10, R11, R12, R17	RES 470 1/4W 5%	1300316-00	12
1	R13	RES 1K 1/4W 5%	1300365-00	13
1	R16	RES 10K 3/4W 2% (1% PER R)	1309143-10	14
1	E24	I.C. 7400	1905575-00	15
1	E30	I.C. 7430	1905578-00	16
1	E31	I.C. 7402	1903004-00	17
1	E19	IC. 314A	1909704-00	18
1	E23	IC. 7408	1910155-00	19
4	E1, E9, E17, E25	IC. 8881	1909705-00	20
1	E16	I.C. 74H04	1909931-00	21
1	E27	I.C. 7485	1910224-00	22
1	E8	I.C. 74123	1910436-00	23
1	E10	I.C. 74S03	1910533-00	24
1	E15	I.C. 74S74	1910544-00	25
1	E21	I.C. 74174	1910652-00	26
2	E5, E22	I.C. 74157	1910655-00	27
9	E2, E3, E11, E12, E18 E20, E24, E28, E29	I.C. 8640	1911469-00	28
2	E4, E13	I.C. 74S280	1911573-00	29
1	E14	I.C. 8266	1909934-00	30
2	E6, E7	I.C. 7474	1905547-00	31
4	W1 THRU W4	INSULATED JUMPER	9009185-00	32
4		EYELET	9006732-00	33
2		HANDLE, FLIPCHIP (MAGENTA)	9008337-6	34

QTY	REF. DESIGNATION	DESCRIPTION	PART NO	ITEM NO

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. B

REV	REVISIONS	CHANGE NO.	CHK
B	ECO M7850-0001		

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

SEMICONDUCTOR CONVERSION CHART

		DATE
DRN.	W. LUFKIN	2-5-75
CHK'D		2/7/75
ENG.		2/13/75
PROJ. ENG.		2/19/75
PROD. ENG.		2-19-75
NEXT HIGHER ASSY		

digital

TITLE: PARITY MODULE

SIZE	CODE	NUMBER	REV
D	CS	M7850-0-1	B

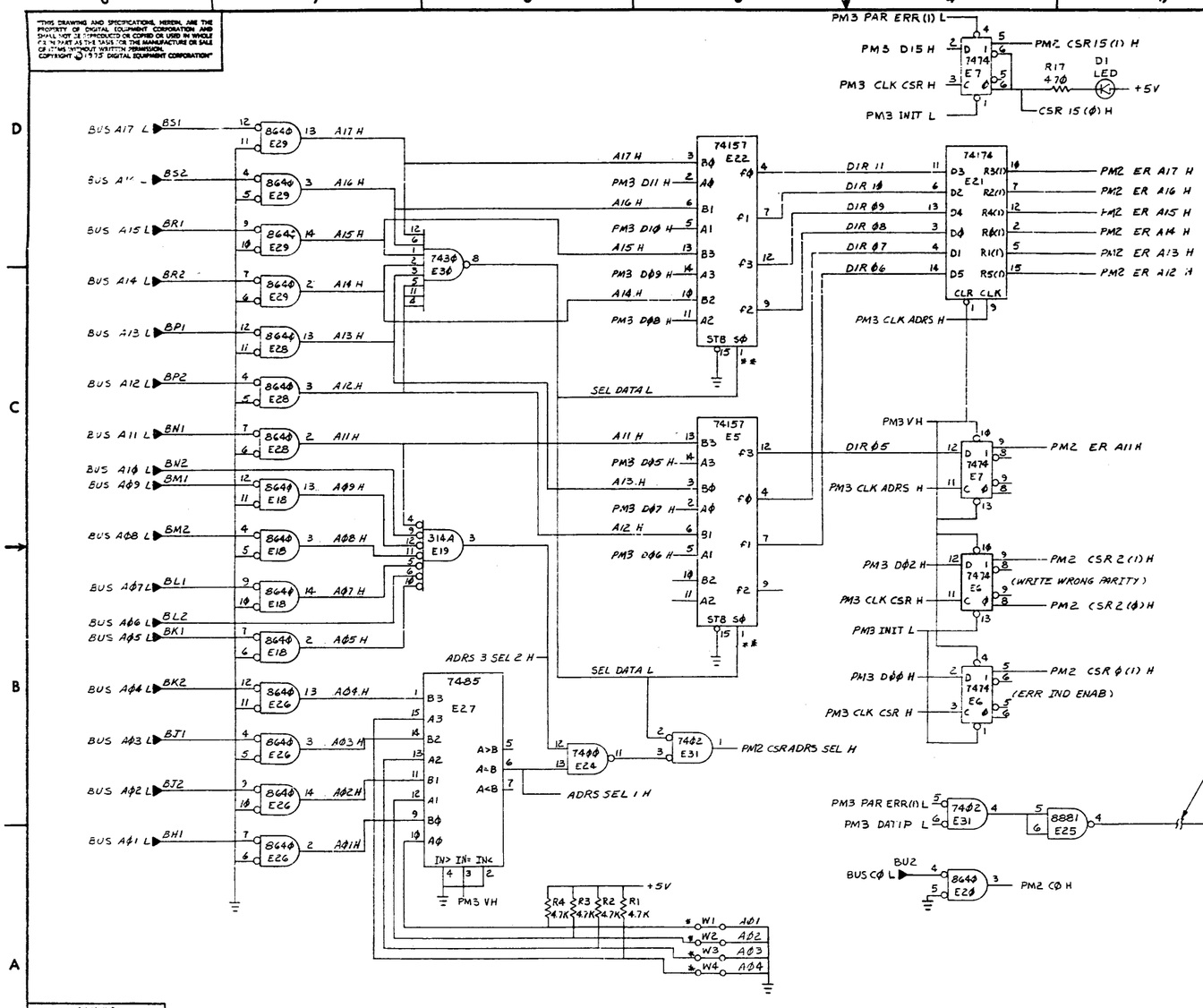
SCALE

SHEET 1 OF 3

DIST.

D CS M7850-0-1 B

416



NOTES:

* THE CSR REGISTER ADDRESS IS LOCATED BETWEEN 772100 AND 772136. IT IS SELECTED WITH JUMPERS W1 THRU W4. REMOVING A JUMPER SELECTS A "ONE" FOR THAT BIT POSITION. (*)

MACHINE ADDRESS (WORDS) 8	W4 A4	W3 A3	W2 A2	W1 A1
772100	IN	IN	IN	IN
772102	IN	IN	IN	OUT
772104	IN	IN	OUT	IN
772106	IN	IN	OUT	OUT
772110	IN	OUT	IN	IN
772112	IN	OUT	IN	OUT
772114	IN	OUT	OUT	IN
772116	IN	OUT	OUT	OUT
772120	OUT	IN	IN	IN
772122	OUT	IN	IN	OUT
772124	OUT	IN	OUT	IN
772126	OUT	IN	OUT	OUT
772130	OUT	OUT	IN	IN
772132	OUT	OUT	IN	OUT
772134	OUT	OUT	OUT	IN
772136	OUT	OUT	OUT	OUT

** THE "A" INPUTS ARE SELECTED WHEN THE SEL INPUT GOES LOW. (**)

REVISIONS		
CHK	CHANGE NO	REV.

TITLE: PARITY MODULE (PM2)		SIZE: D	CODE: CS	NUMBER: M7850-Ø-1	REV: B
SCALE	SHEET 2 OF 3	DIST.			

416

NOTES:
- # B INPUTS SELECTED WHEN SEL IS LOW (-B)
- ## SET R16 TO 110 NSEC ± 10NS FROM SIGNAL ON PIN BE1 GOING LOW TO SIGNAL ON PIN BB2 GOING HIGH. (@ 1.5V LEVEL) (# #)

PM2 CSR 15 (1) H
BUS DI4 L
BUS DI3 L
BUS DI2 L
PM2 ER A17 H
PM2 ER A16 H
PM2 ER A15 H
PM2 ER A14 H
PM2 ER A13 H
PM2 ER A12 H
PM2 ER A11 H
BUS DØ4 L
BUS DØ3 L
PM2 CSR 2(1) H
BUS DØ1 L
PM2 CSR Ø(1) H
PM3 READ SEL H
8881 E9, E9, E9, E9, E9, E17, E17, E17, E1, E1
AH2 BUS DI5 L
AL1
AL2
AK1
AK2 BUS DI1 L
AJ1 BUS DI0 L
AJ2 BUS DØ9 L
AH1 BUS DØ8 L
AH2 BUS DØ7 L
AF1 BUS DØ6 L
AF2 BUS DØ5 L
AE1
AE2
AD1 BUS DØ2 L
AD2
AC1 BUS DØØ L
8640 E12, E11, E11, E11, E12, E12, E2, E2, E2, E2, E11, E3, E3, E3, E3
PM3 DI5H
DI4H
DI3H
DI2H
PM3 DI1H
PM3 DIØH
PM3 DØ9H
PM3 DØ8H
PM3 8 BIT GEN H
74S288 E13
PM3 DØ7H
DØ4H
DØ3H
DØ1H
PM3 DØ6H
PM3 DØ5H
PM3 A BIT GEN H
74S288 E4
PM3 DØ2H
BUS M SYN L
BV1
PM3 DØØH
PM3 C1 H
74S03 E1Ø, E1Ø, E1Ø
ANI INT BUS PI L
API INT BUS PØ L
PM3 PAR ERR H
R12 470, R11 470, R1Ø 470, +5V
8266 E14
PM2 CSR 2(Ø)H
PM3 VH
PM2 CØH
PM3 INT SYN H
PM3 B BIT GEN H
PM3 A BIT GEN H
PM3 DATIP L
PM3 C1 L
R6 47Ø +5V
74H64 E16
R5 4.7K +5V
R16 1ØK (T.P.)
R13 1K +5V PM3 VH
C32 .ØØ1UF
INT BUS SSYN L BE1
PM3 C1 L
74123 E8
BB2 S SYN DLY (Ø) H
PM3 INIT L
PM3 PAR ERR(1) H
PM3 PAR ERR(1) L
74S74 E15
PM2 CSR Ø(1) H
8881 E1 AN2 BUS PB L
PM3 INT SSYN H
PM3 M SYN PULSE L
PM3 PAR ERR H
8881 E25 BUI BUS SSYN L
R8 1ØØ
C37 33Ø PF 5%
74H64 E16
74ØØ E24
ERRCLR IN# L
74Ø8 E23
S SYNC INH Ø H
BE2 INT BUS PAR MOD DET L
BUS INIT L
AA1
8640 E24
INIT H
PM3 INIT L
BUS C1 L
BT2
PA 3 C1 H
PM3 C1 L
R9 1ØØ
C33 33ØPF 5%
PM3 M SYN PULSE L
C39 47Ø PF 5%
R15 1ØØ
PM3 READ SEL H
PM2 CSR ADRS SEL H
CLK CSR L
PM3 CLK CSR H
PM3 CLK ADRS H
PM3 PAR ERR (1) L

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PARITY MODULE (PM3)	D	DCS	M7850-0-1	B
SCALE	SHEET 3 OF 3	DIST.		

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY BRUCE CRAMM	CHECKED BRUCE CRAMM	SECTION
DATE 17 NOV 77	DATE 17 NOV 77	
ENG BILL BERNSTEIN	PROD	ISSUED SECT.
DATE 11 NOV 77	DATE	

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION										
			AA,AB,BA,BB,DA	DB,AC,AD,BC,BD	DC,DD,LC,LD	FC,FD	HC,HD,MC,MD	HA,HB	JC,JD				
	EK-11004-OP	11/04 SYSTEM USERS GUIDE	1	1	1	1	1	1	1				
	ZJ009-RB	SOFTWARE LIB KIT (PAPER TAPE)	1	1	1	1	1	1	1				
	B-TC-11/04-0-1	11/04 PRINT SER (ORDER #MPØØ19)	1	1	1	1	1	1	1				
	EK-KD11-D-TM	KD11-D MANUAL	1	1	1	1	1	1	1				
	EK-MS11E-MM	MS11-E-J MANUAL	1	1	1	0	0	0	0				
	EK-MM11B-TM	MM11-B,BP,C,CP MANUAL	0	0	0	1	0	0	0				
	EK-MM11D-TM	MM11-D,DP MANUAL	0	0	0	0	1	1	0				
	EK-BA11L-MM	BA11-L MANUAL	1	1	1	1	1	1	1				
	EK-BA11K-MM	BA11-K MANUAL	0	0	0	0	0	0	0				
	EK-M7850-MM	M7850 MANUAL	0	0	0	0	0	0	0				
		DL11-W PRINT SET	0	0	0	0	0	0	0				
	EK-DL11W-MM	DL11-W MANUAL	0	0	0	0	0	0	0				
		DL11-W SOFTWARE LIB KIT	0	0	0	0	0	0	0				
		DL11-W CABLES											
	70-08360-1	DL11-WA (20MP)	0	0	0	0	0	0	0				
	BC05C-25	DL11-WB (E1A)	0	0	0	0	0	0	0				
	EK-M9301-MM	M9301 MANUAL NOTE 1	1	1	1	1	1	1	1				
	EK-MM11-YP-TM	MM11-YP MANUAL	0	0	0	0	0	0	1				
	EK-M9312-TM	M9312 MANUAL NOTE 1	1	1	1	1	1	1	1				
	23248F1	ROM CONSOLE EMULATOR NOTE 2	1	1	1	1	1	1	1				
	9906228	BOX ROM NOTE 2	1	1	1	1	1	1	1				

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
SHIPPING LIST 11/04 (5¼" BA11-L)	SHEET 1 OF 2	A	PL	11/04-0-2	B	11/04-C0011
		DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY B. CRAMM	CHECKED B. CRAMM	SECTION
DATE 17 NOV 77	DATE 17 NOV 77	
ENG B. BERNSTEIN	PROD	ISSUED SECT.
DATE 11 NOV 77	DATE	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION										
			AA,AB,BA,BB,DA	DB,AC,AD,BC,BD	DC,DD,LC,LD	FC,FD	HC,HD,MC,MD	HA,HB	JC,JD				
	NOTE 1: Manual shipped to be consistent with module shipped in machine.												
	NOTE 2: To be shipped only if M9312 is shipped.												

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIPPING LIST 11/04 (5¼" BA11-L)	SHEET 2 OF 2	A	PL	11/04-0-2	B	
		DIST				

DEC FORM DRA 110

A-8

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY BRUCE CRAMM	CHECKED BRUCE CRAMM	SECTION
DATE 17 NOV 77	DATE 17 NOV 77	
ENG BILL BERNSTEIN	PROD	ISSUED SECT.
DATE 17 NOV 77	DATE	

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION DH,DJ,LH,LJ	HH,HJ,MH,MJ	DM,DN	HM,HN	JH,JJ
	EK-11004-OP	11/04 SYSTEM USERS GUIDE	1	1	1	1	1
	ZJ009-RB	SOFTWARE LIB KIT (PAPER TAPE)	1	1	1	1	1
	B-TC-11/04-0-1	11/04 PRINT SET (ORDER #MPØØ19)	1	1	1	1	1
	EK-KD11-D-TM	KD11-D MANUAL	1	1	1	1	1
	EK-MS11E-MM	MS11-E-J MANUAL	1	0	1	0	0
	EK-MM11B-TM	MM11-B,BP,C,CP MANUAL	0	0	0	0	0
	EK-MM11D-TM	MM11-D,DP MANUAL	0	1	0	1	0
	EK-BA11L-MM	BA11-L MANUAL	0	0	0	0	0
	EK-BA11K-MM	BA11-K MANUAL	1	1	1	1	1
	EK-M7850-MM	M7850 MANUAL	0	0	1	1	0
		DL11-W PRINT SET	0	0	1	1	0
	EK-DL11W-MM	DL11-W MANUAL	0	0	1	1	0
		DL11-W SOFTWARE LIB KIT	0	0	1	1	0
		DL11-W CABLES					
	70-08360-1	DL11-WA (20MP)	0	0	1	1	0
	BC05C-25	DL11-W3 (E1A)	0	0	0	0	0
	EK-M9301-MM	M9301 MANUAL - NOTE 1	1	1	1	1	1
	12-11825	CHASSIS TRACKS AND MOUNTING HDWR	1	1	1	1	1
	70-10059	SHIPPING BRACKET	1	1	1	1	1
	EK-MM11YP-TM	MM11-YP MANUAL	0	0	0	0	1
	EK-M9312-TM	M9312 MANUAL - NOTE 1	1	1	1	1	1
	23248F1	ROM, CONSOLE EMULATOR NOTE 2	1	1	1	1	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
SHIPPING LIST 11/04 (10½" BA11-K)	SHEET 1 OF 2	A	PL	11/04-0-3	B	11/04-00011
		DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY Bruce Cramm	CHECKED Bruce Cramm	SECTION
DATE 17 NOV 77	DATE 17 NOV 77	
ENG Bill Bernstein	PROD	ISSUED SECT.
DATE 17 NOV 77	DATE	

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY VARIATION DH,DJ,LH,LJ	HH,HJ,MH,MJ	DM,DN	HM,HN	JH,JJ
	9906228	BOX ROM NOTE 2	1	1	1	1	1
		NOTE 1: MANUAL SHIPPED TO BE CONSISTENT					
		WITH MODULE SHIPPED IN MACHINE.					
		NOTE 2: TO BE SHIPPED ONLY IF M9312					
		IS SHIPPED.					

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
SHIPPING LIST 11/04 (10½" BA11-K)	SHEET 2 OF 2	A	PL	11/04-0-3	B	
		DIST				

DEC FORM

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
7013323-0
7013323-1
7013323-2
7013323-3
7013323-4
7013323-5

7013323

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ27Ø

REVISIONS	REV.	CHG. NO.	DATE

USED ON OPTION/MODEL	
1134A	

SHEET I OF 1

DRN.	D. HEALY	DATE DEC 76
CHK'D	D. HEALY	DATE DEC 76
PROJ. ENG.		DATE 13 JAN 77
FIELD SERV.		DATE 13-JAN-77

digital

TITLE: POWER SUPPLY ASSY

SIZE	CODE	NUMBER	REV.
B	TC	7013323-0-1	

DIST.

EN-01124-16-N675-(327)

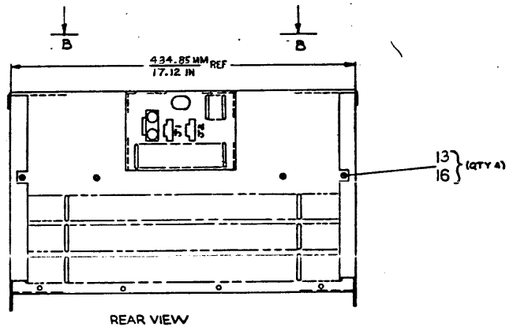
DRB 124

420

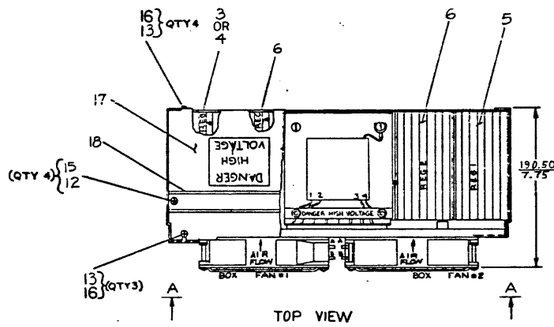
LEGEND	
NUMBER	VARIATION
7013323-0	120V H765-P, 5411086, 5410864-YA, TWO H7441, H745
7013323-1	120V H765-P, 5411086, 5410864-YA, TWO H7441, H745, H785
7013323-2	120V H765-P, 5411086, 5410864-YA, TWO H7441, H745, H754
7013323-3	240V H765-R, 5411086, 5410864-YA, TWO H7441, H745
7013323-4	240V H765-R, 5411086, 5410864-YA, TWO H7441, H745, H785
7013323-5	240V H765-R, 5411086, 5410864-YA, TWO H7441, H745, H754

NOTES

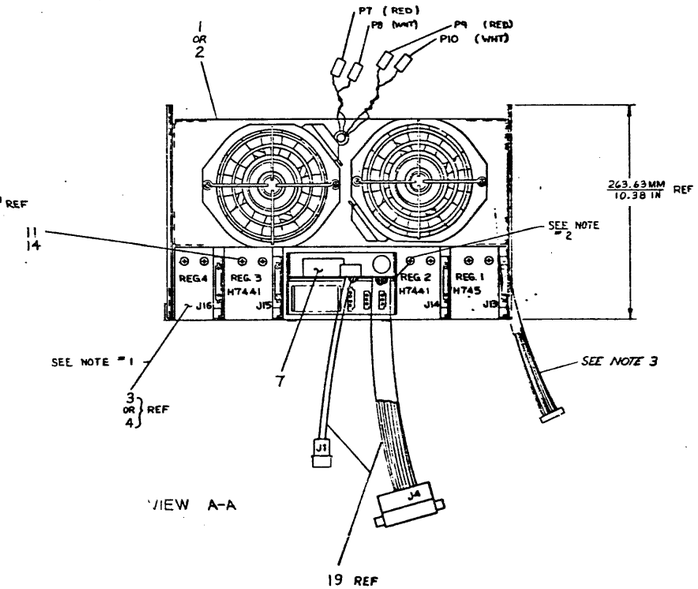
1. REGULATOR #4 IS DETERMINED BY THE VARIATION REQUIRED - SEE LEGEND AND PARTS LIST.
2. GREEN/YELLOW GROUND WIRE FROM TRANSFORMERS TO BE FASTENED UNDER REGULATOR #2 MOUNTING SCREW.
3. CONSOLE CABLE 7011411-2J FROM KY11-LR. THIS CABLE IS USED ONLY TO CONNECT THE H785/H7850 BATTERY BACK-UP REGULATOR IN REGULATOR SLOT #4.



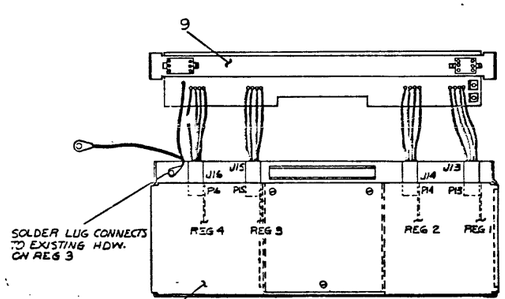
REAR VIEW



TOP VIEW



VIEW A-A



VIEW B-B
BOTTOM VIEW
FANS REMOVED FOR CLARITY

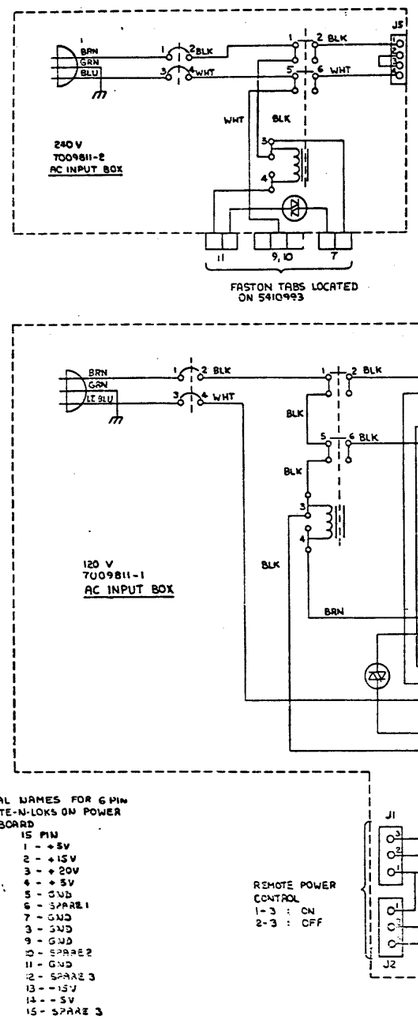
CAUTION: OFF SHEET PARTS LIST EXSISTS
SEE A-PL-7013323-0-0

FIRST USED ON (NEXT ASSY/MODEL)	QTY.	DESCRIPTION	PART NO.
1134A		PARTS LIST	
DIMENSIONAL TOLERANCE		digital	
DIMENSIONS ARE INCHES		TITLE 1134A POWER SUPPLY ASSY	
UNLESS OTHERWISE SPECIFIED			
MATERIAL SEE PARTS LIST		B-DD-7013323-0	CAGE CODE F UA
FINISH		SCALE NONE	NUMBER 7013323-0-0
		SHEET 1 OF 2	REV. A

421

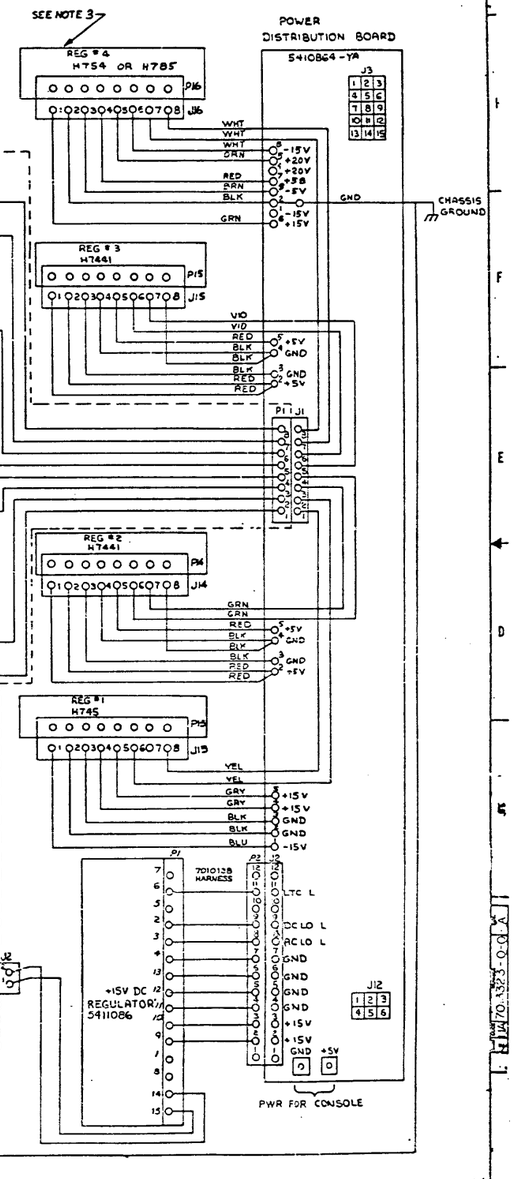
CONNECTION TABLE		
FROM CONNECTION	TO CONNECTION	SIGNALS
P2 FROM TRANS. ASSY	J2 FROM +15V REG.	28 VAC
J16 FROM PWR. DIST. BD.	P16 LOCATED ON REG. #4 (H754) OR (H785)	GND, -5V, +20V 28 VAC*5V&-15V ONLY
J15 FROM PWR. DIST. BD	P15 LOCATED ON REG. #3 (H7441)	GND, +5V, 28VAC
J14 FROM PWR DIST. BD	P14 LOCATED ON REG. #2 (H7441)	GND, +5V, 28VAC
J13 FROM PWR DIST. BD	P13 LOCATED ON REG. #1 (H745)	GND, +15V, -15V - 28 VAC
GND LUG LOCATED ON PWR. DIST. BD.	REG. #4 MOUNTING SCREW	GROUND CHASSIS
P1 FROM TRANS ASSY	J1 LOCATED ON PWR. DIST. BD	28 VAC

CONNECTION TABLE		
FROM CONNECTION	TO CONNECTION	SIGNALS
P4 FROM +15 V REG.	J2 LOCATED ON PWR DIST BD	-15 V, LTC L, AC LO L, DC LO L, GND
P5 FROM TRANS. ASSY	J5 LOCATED ON AC INPUT BOX	120/240 VAC
P7 (RED)	FAN #1-A	120 VAC - HOT
P8 (WHT)	FAN #1-B	120 VAC - NEUTRAL
P9 (RED)	FAN #2-A	120 VAC - HOT
P10 (WHT)	FAN #2-B	120 VAC - NEUTRAL
+1 P14 GRN/YEL WIRE	SEE NOTE 5	CHASSIS GROUND



COMMON SIGNAL NAMES FOR 6 PIN AND 15-PIN MATE-N-LOKS ON POWER DISTRIBUTION BOARD

6-PIN	15 PIN
1 - GND	1 - +5V
2 - LTC L	2 - +15V
3 - DC LO L	3 - +20V
4 - AC LO L	4 - -5V
5 - SPARE 4	5 - GND
6 - SPARE 5	6 - SPARE 1
	7 - GND
	8 - GND
	9 - GND
	10 - SPARE 2
	11 - GND
	12 - SPARE 3
	13 - -15V
	14 - -5V
	15 - SPARE 3



UNLESS OTHERWISE NOTED	CHANGE NO.	REV	TITLE 1134A POWER SUPPLY ASSY	SIZE E DWG NO. 7013323-0-0 REV A
			DATE	SHEET 2 OF 3 DOT

422

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY	R. PELLERIN	CHECKED	D. HEALY	SECTION 1
DATE	23 NOV 76	DATE	15 DEC 76	
ENG	[signature]	PROD	[signature]	ISSUED SECT. 1
DATE	16-FEB-77	DATE	16-FEB-77	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION											
			7013323-00	7013323-01	7013323-02	7013323-03	7013323-04	7013323-05						
1	E-UA-H765-P-Ø	H765-P POWER SUPPLY 115V	1	1	1	-	-	-						
2	E-UA-H765-R-Ø	H765-R POWER SUPPLY 23ØV	-	-	-	1	1	1						
3	D-UA-H785-Ø-Ø	REGULATOR, BATTERY BACK UP (H785)	-	1	-	-	1	-						
4	D-UA-H754-Ø-Ø	+20V REGULATOR (H754)	-	-	1	-	-	1						
5	D-UA-H745-Ø-Ø	-15V REGULATOR (H745)	1	1	1	1	1	1						
6	D-UA-H7441-Ø-Ø	+5V REGULATOR (H7441)	2	2	2	2	2	2						
7	E-IA-5411086-0-0	+15V REGULATOR (5411086)	1	1	1	1	1	1						
8														
9	D-CS-5410864-YA-1	POWER DISTRIBUTION BOARD (5411864-YA)	1	1	1	1	1	1						
10														
11	9008007-3	SCR, PH HD TRUSS #10 - 32 x .25	6	8	8	6	8	8						
12	9006040-3	SCR, PH HD TRUSS #8 - 32 x .62	4	4	4	4	4	4						
13	9006020-3	SCR, PH HD TRUSS #6 - 32 x .25	10	11	11	10	11	11						
14	9006635	WASHER INT. TOOTH #10	6	8	8	6	8	8						
15	9006634	WASHER INT. TOOTH #8	4	4	4	4	4	4						
16	9006633	WASHER INT. TOOTH #6	10	11	11	10	11	11						
17	D-IA-7009949-0-0	COVER, POWER SUPPLY	1	1	1	1	1	1						
18	D-IA-7009950-0-0	TROUGH, WIRE	1	1	1	1	1	1						
19	D-IA-7010138-0-0	HARNESS INTERCONNECT	1	1	1	1	1	1						
20	9007880	TIE WRAP 1/8 w	4	4	4	4	4	4						
21	A-CS-H765-TA-1	TESTER CIRCUIT SCHEMATIC	REF	REF	REF	REF	REF	REF						
22	A-SP-H765-Ø-1	TEST PROCEDURE	REF	REF	REF	REF	REF	REF						

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
POWER SUPPLY ASSY	E-UA-7013323-0-0	A	PL	7013323-0-0	A	1134A-00002
	SHEET 1 OF 1	DIST.				

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

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

	SEQUENCE
DRAWING DIRECTORY H765	B-DD-H765-Ø
UNIT ASSY H765	E-UA-H765-Ø-Ø
AC INPUT BOX ASSY	D-AD-7014420-Ø-Ø
AC PWR CONTROL BOARD	D-UA-5413089-Ø-1
DRAWING DIRECTORY H744	B-DD-H744-Ø
DRAWING DIRECTORY H745	B-DD-H745-Ø
DRAWING DIRECTORY H754	B-DD-H754-Ø
PWR DISTRIBUTION BOARD	D-CS-5410864-0-1
AC POWER CORD	D-AD-7012500-0-0
PWR LINE MONITOR/15V REG	D-CS-5411086-0-1
TRANSFORMER ASSEMBLY	E-AD-7011486-C-0

	SEQUENCE
MFG. PRINT SET PACKAGING INSTRUCTIONS	A-SP-3700174-0-0

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
H765-A	120V 50/60 HZ	X
H765-B	240V 50/60 HZ	X
H765-C	120V 50/60 HZ NO H754 NO B.B.	X
H765-D	240V 50/60 HZ NO H754 NO B.B.	X
H765-P	120V 50/60 HZ NO REG	X
H765-R	240V 50/60 HZ NO REG.	X

REVISIONS		
DATE	CHG. NO.	REV
CN	H765-3	A
CN	H765 4	B
SL	H765-6	C
SL	H765-7	D
RK	H765-8	E
RTB	H765-9	F
RJP	H765-10	H
RJP	H765-11	J
RM	H765-12	K
[illegible]	H765-13	L
[illegible]	H765-14	M
KT	H765-15	N
8-77	H765-16	P
9-77	H765-17	R

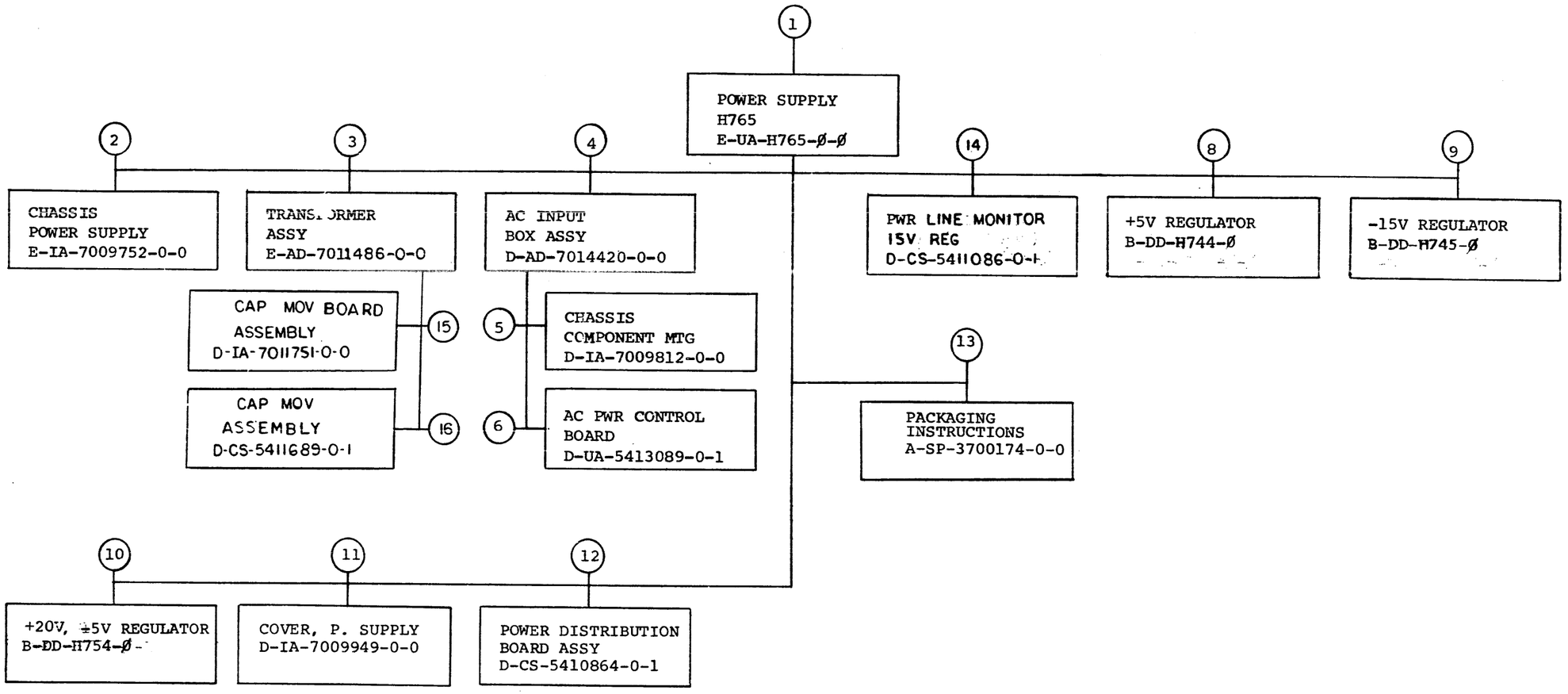
USED ON OPTION/MODEL
BA11-K
11/35-S

SHEET 1 OF 5

DRN. J. FERGUSON	DATE 6/25/74	TITLE: DRAWING DIRECTORY POWER SUPPLY H765
CHK'D. D. HEALY	DATE 7/3/74	
PROJ ENG. S. Dalton	DATE 9/4/74	
PROD. RK Peterson	DATE 9/11/74	SIZE B / CODE DD / NUMBER H765-Ø / REV R
FIELD SERV R. L. Gates	DATE 9/13/74	DIST

DEC-19-12251-1-A-RGB 2/72

DRB 106



TITLE			SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY POWER SUPPLY H765	SHEET 2 OF 5		B	DD	H765-Ø	R

DRB 107
DEC 16-(325) 1062-3-N671

A25

CUSTOMER PRINT SET 1	MFG. SET	ELECTRICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	E-UA-H765-Ø-Ø	R	2	POWER SUPPLY H765	
			A-SP-H765-0-9			H765 POWER SUPPLY ASSEMBLY PROCEDURE	
X		3	E-AD-7011486-0-0	#		TRANSFORMER ASSY	
			A-SP-7010014-0-8	A		TEST PROCEDURE	
			A-CS-7010014-TA-1	A		TESTER C.S.	
			A-UA-7010014-TA-0			TESTER U.A.	
			A-PL-7010014-TA-0	A		TESTER P.L.	
			A-SP-7011486-0-9			TRANSFORMER ASSY PROCEDURE	
X		4	D-AD-7014420-0-0	#	2	AC INPUT BOX ASSY	
			A-SP-7009811-0-8			TEST PROCEDURE	
			A-CS-7009811-TA-1			TESTER C.S.	
			A-UA-7009811-TA-0			TESTER U. A.	
			A-PL-7009811-TA-0			TESTER P.L.	
			A-SP-7009811-0-9			AC INPUT BOX ASSY PROCEDURE	
X		6	D-UA-5413089-0-0			PILOT CONTROL BOARD	
C		8	B-DD-H744-0	#	2	DRAWING DIRECTORY H744	
C		9	B-DD-H745-0	#	2	DRAWING DIRECTORY H745	
C		10	B-DD-H754-0	#	3	DRAWING DIRECTORY H754	

CUSTOMER PRINT SET 1	MFG SET	ELECTRICAL FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		12	D-CS-5410864-0-1	#	3	POWER DIST. BD. ASSY	
			D-IA-5010863-0-0	#	1	ETCHED CIRCUIT BOARD	
			A-SP-5410864-0-8			TEST PROCEDURE	
			A-SP-5410864-0-9			ASSEMBLY PROCEDURE	
X		14	D-CS-5411086-0-1	#	4	PWR LINE MONITOR/15V REG	
			A-SP-11/45-TA-2			TEST PROCEDURE	
			A-SP-5411086-0-3			ENGINEERING SPECIFICATION	
			D-IA-7010138-0-0			HARNESS INTERCONNECTION	
		15	D-IA-7011751-0-0			CAP MOV BOARD ASSY	
		16	D-CS-5411689-0-1			CAP MOV ASSY	

CUSTOMER PRINT SET CODES		TITLE	SHEET	SIZE	CODE	NUMBER	REV
	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED	DRAWING DIRECTORY POWER SUPPLY H765	SHEET 3 OF 5	B	DD	H765-Ø	R

DRB 108

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

426

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
1							
		1	E-UA-H765-Ø-Ø	R	2	POWER SUPPLY H765	
			D-IA-7009950-0-0		1	THROUGH WIRE	
		2	E-IA-7009752-0-0		1	CHASSIS, POWER SUPPLY	
			E-IA-7411682-0-0		1	CHASSIS, POWER SUPPLY	
			D-MD-7411685-0-0		1	SIDE, POWER SUPPLY	
			D-MD-7411684-0-0		1	HOUSING COMP. CHASSIS	
		3	E-AD-7011486-0-0		2	TRANSFORMER ASSY	
			C-MD-7414301-0-0		1	COVER	
		4	D-AD-7014420-0-0		2	AC INPUT BOX ASSY	
			A-DC-7412303-0-1		1	DECAL 115V	
X			D-AD-7012500-0-0		1	POWER CORD	
			A-DC-7412380-0-1		1	DECAL 230V	
		5	D-IA-7009812-0-0	A	1	CHASSIS COMPONENT MTG.	
			D-IA-7411765-0-0		1	PLATE SWITCH	
			D-IA-7411766-0-0	B	1	PLATE COMPONENT MTG.	

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
1							
		6	D-UA-5413089-0-0			PILOT CONTROL BOARD	
		8	B-DD-H744-Ø		2	DRAWING DIRECTORY H744	
		9	B-DD-H745-Ø		2	DRAWING DIRECTORY H745	
		10	B-DD-H754-Ø		3	DRAWING DIRECTORY H754	
		11	D-IA-7009949-0-0		1	COVER, POWER SUPPLY	
			C-MD-7412473-0-0		1	STRIP, CLAMP	

CUSTOMER PRINT SET CODES

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY POWER SUPPLY H765	4 OF 5	B	DD	H765-Ø	R

DPB 108

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

427

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
1		12	D-CS-5410864-0-1		3	POWER DIST. BD. ASSY	
			C-MD-7412192-0-0		1	SHIELD	
			D-MD-7411704-0-0		1	BRACKET, CONN. MTG.	
			C-IA-9305937-0-0			MATE-N-LOK FIXTURES	
			D-IA-5010863-0-0		1	ETCHED CIRCUIT BD.	
			K-CO-5410864-0-4			X-Y COORDINATE HOLE LOC.	
			D-AH-5410864-0-5		1	ASSY DRILLING HOLE LAYOUT	
			B-MH-5410864-0-6		1	MODULE ECO HISTORY	
			5010863		REF	ETCH CIRCUIT BOARD	
	X	13	A-SP-3700174-0-0	-	2	PACKAGING INSTRUCTIONS	
			A-PS-9905664-0-0	-	2	REGULAR SLOTTED CARTON	
			A-PS-9905665-0-0	-	2	LAMINATED BUILDUP	
		14	D-AH-5411086-0-5		1	ASSY DRILLING HOLE LAYOUT	
			B-MH-5411086-0-6		1	MODULE ECO HISTORY	
		15	D-AD-7011486-0-0		1	ASSEMBLY DRAWING	
		16	D-AH-5411689-0-5		1	ASSY DRILLING HOLE LAYOUT	
			D-MH-5411689-0-6		1	MODULE ECO HISTORY	

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

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY POWER SUPPLY H765	SHEET 5 OF 5	B	DD	H765-Ø	R

DPB 108

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

426

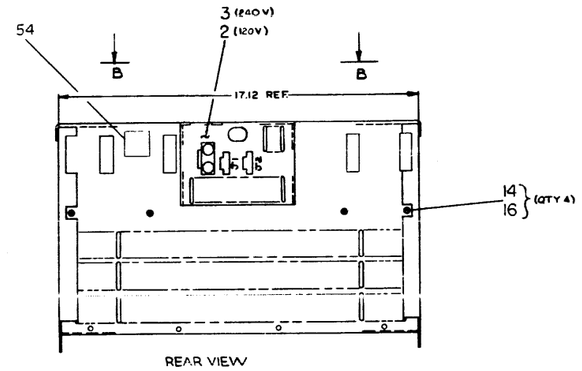
LEGEND	
NUMBER	VARIATION
H765-A	120 V 50/60 HZ
H765-B	240 V 50/60 HZ
H765-C	120V 50/60HZ NO H754
H765-D	240V 50/60HZ NO H754
H765-P	120V 50/60 HZ NO REG
H765-R	240V 50/60 HZ NO REG

NOTES CON'T.

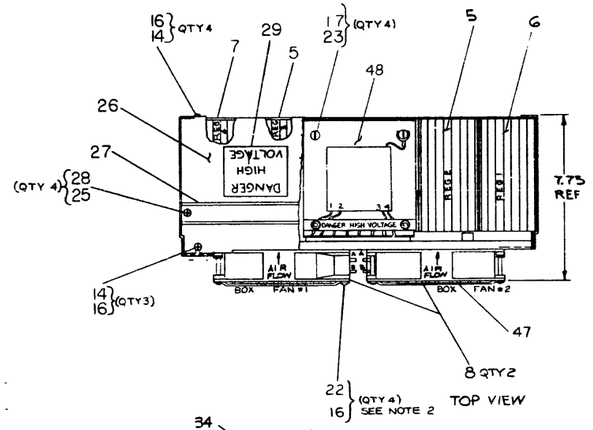
10. ITEM 16 (SCREW) & WASHER) TO BE USED TO MOUNT 54-11086 (ITEM 4) IN AC INPUT BOX (ITEM 2 OR 3) IN A,B,C,G VERSION. IN P&R VERSION INSTALL SCREW & WASHER IN MOUNTING HOLES. THEY WILL BE USED ON A HIGHER ASSEMBLY.

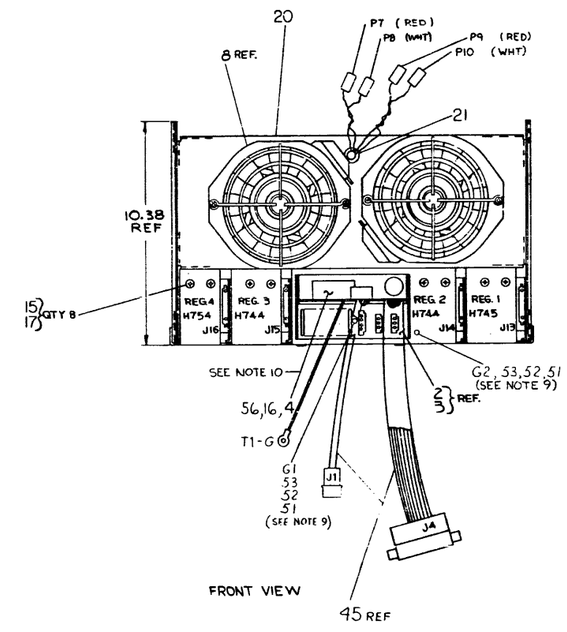
NOTES

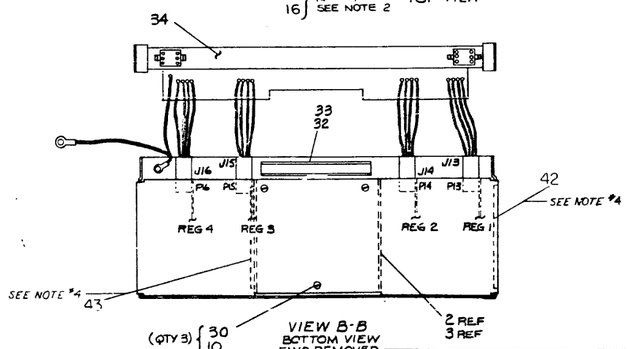
1. ~~AC TRANSFORMER ASSY C-AD-7010H-1 SHEET 2 FOR ISOMETRIC ORIENTATION OF CLAMP & PLUG WIRES.~~
2. TIGHTEN FAN SCREWS TO 10 IN-LBS WITH A TORQUE SCREW DRIVER.
3. ~~USE ITEM 54-11 IN PLACE OF ITEM 22 WHEN USING ROUND PINS.~~
4. INSTALL A.B.S VINYL, VIEW B-B ITEM #42 AND #43. CENTER 1/4 INCH FROM BOTTOM AND SIDES ON INSIDE WALL.
5. ~~USE EXTRNL TOOTH WASHER UNDER MOUNT SCREW HEAD OF SOLD TRANSFORMERS ONLY.~~
6. ~~GREEN YELLOW WIRE FROM TRANSFORMER TO BE FASTENED UNDER REGULATOR MOUNTING SCREW.~~
7. ~~IN EARLIER VERSIONS OF THE TRANSFORMER ASSEMBLY A CABLE CLAMP WAS USED IN PLACE OF THE 3 TIE WRAPS TO DRESS THE TRANSFORMER WIRES ALONG THE TRANSFORMER BODY.~~
8. ITEM 7 - H754 IS NOT USED IN VARIATIONS C & D.
9. ITEM 53 IS TO BE USED TO PREVENT CORROSION OF CHASSIS AT GROUND STUD.



REAR VIEW







4	4	4	4	4	4	SCR PH HD 6-32X1/4	9006020-1	56
1	1	1	1	1	1	CABLE GND	70138225-02	55
1	1	–	–	–	–	DECAL	A-DC-74182611-0-0	54
A/R	A/R	A/R	A/R	A/R	A/R	GREASE CONDUCTOR	9001173-01	53
2	2	2	2	2	2	WASHER LOCK EXT TOOTH #8-32	9008012	52
2	2	2	2	2	2	NUT, REP #6-32	9006543	51
~~6~~	~~6~~	~~6~~	~~6~~	~~6~~	~~6~~	~~WASHER, FLAT #6~~	~~9003828~~	~~50~~
~~A/R~~	~~A/R~~	~~A/R~~	~~A/R~~	~~A/R~~	~~A/R~~	~~WIRE, HOOK-UP #24~~	~~9003333-01~~	~~49~~
1	1	1	1	1	1	TRANSFORMER ASSEMBLY	E-AD-7014H06-0-0	48
2	2	2	2	2	2	FAN GUARD	1212361	47
–	–	–	–	~~6~~	~~6~~	~~HEX NUT 8-32~~	~~9006565~~	~~46~~
1	1	1	1	1	1	HARNESS INTERCONN.	D-IA-7014H3-0-0	45
–	–	–	–	REF	REF	WASH EXT TOOTH #10	9007981	44
1	1	1	1	1	1	A.B.S. VINYL 4.75 X 3.5	12109884-03	43
1	1	1	1	1	1	A.B.S. VINYL 4.75 X 6	12109884-04	42
–	–	–	–	REF	REF	SCR PH HD 6-32 X 0.25	9007810-1	41
REF	REF	REF	REF	REF	REF	TEST PROCEDURE	A-SP-H765-0-1	40
REF	REF	REF	REF	REF	REF	TESTER C.S.	A-CS-H765-TA-1	39
REF	REF	REF	REF	REF	REF	TESTER U.A.	E-UA-H765-TA-1	38
REF	REF	REF	REF	REF	REF	TESTER P.L.	A-PL-H765-TA-0	37
REF	REF	REF	REF	REF	REF	H765 POWER SUPPLY ASSEMBLY PROCEDURE	A-SP-H765-0-9	36
REF	REF	REF	REF	REF	REF	PACKAGING INSTRUCTIONS	A-SP-3700H-0-0	35
–	–	1	1	1	1	PWR DISTR BUTTON BOARD	C-PS-5102H-0-1	34
A/R	A/R	A/R	A/R	A/R	A/R	PERMA BOND	9009157	33
A/R	A/R	A/R	A/R	A/R	A/R	GROMMET STRIP	9008291	32
4	4	4	4	4	4	TIE WRAP 7/8 W	9007880	31
3	3	3	3	3	3	WASH, CSK #6	9008270	30
1	1	–	–	1	1	STICKER DANGER HIGH VOLTAGE	3610267	29
4	4	4	4	4	4	WASH, INT TOOTH LOCK #8	9006634	28
1	1	–	–	1	1	TROUGH, WIRE	D-IA-7009450-0-0	27
1	1	–	–	1	1	COVER, POWER SUPPLY	D-IA-7009949-0-0	26
4	4	4	4	4	4	SCR. PH HD TRUSS #8-32X.62	9006040-3	25
–	–	–	–	~~4~~	~~4~~	~~HEX NUT 8-32~~	~~9006565~~	~~24~~
4	4	4	4	4	4	SCR PH HD TRUSS 10-32X.500	9006079-3	23
4	4	4	4	4	4	SCR PH HD TRUSS 6-32X1.75	9006031-3	22
1	1	1	1	1	1	GROMMET .501 D	9007016	21
1	1	1	1	1	1	CHASSIS, POWER SUPPLY	E-IA-7009752-0-0	20
–	–	–	–	REF	REF	CLAMP, CABLE	~~D-IA-7012830-0-0~~	~~19~~
–	–	–	–	~~2~~	~~2~~	~~SCR PH HD FIL #8-32X.500~~	~~9006013-2~~	~~18~~
–	–	10	10	12	12	WASH INT TOOTH #10	9006635	17
11	11	11	11	17	17	WASH INT TOOTH #6	9006633	16
–	–	6	6	8	8	SCR PH HD TRUSS 10-32X.25	9008007-3	15
7	7	11	11	11	11	SCR PH HD TRUSS 6-32X.25	9006020-3	14
–	–	–	–	~~1~~	~~1~~	~~CLAMP, NSDA~~	~~D-IA-7011433-0-0~~	~~13~~
–	–	–	–	~~1~~	~~1~~	~~SCREW~~	~~9006033-3~~	~~12~~
–	–	–	–	~~2~~	~~2~~	~~SCR PH HD~~	~~9006008-2~~	~~11~~
3	3	3	3	3	3	SCR, PHLFLTHD 6-32X.31	9002604-2	10
–	–	–	–	~~2~~	~~2~~	~~NUT, CLIP~~	~~9009108~~	~~9~~
2	2	2	2	2	2	FAN, 115 V AC 50/60HZ	1211714	8
–	–	–	–	1	1	+20V REGULATOR (H754)	B-DD-H754-0	7
–	–	1	1	1	1	-15 V REGULATOR (H745)	B-DD-H745-0	6
–	–	2	2	2	2	+5 V REGULATOR (H744)	B-DD-H744-0	5
–	–	1	1	1	1	PWR BD. (+15V REG.)	E-IA-8411086	4
1	–	1	–	1	–	AC INPUT BOX ASSY 230V	D-AD-7014H20-2-0	3
–	1	–	1	–	–	AC INPUT BOX ASSY 115V	D-AD-7014H20-1-0	2
–	–	–	–	~~1~~	~~1~~	~~BRACKET~~	~~9009109-01~~	~~1~~
H765-R	H765-P	H765-D	H765-C	H765-B	H765-A			

FIRST USED ON (ITEM/MODEL)	QTY.	DESCRIPTION	PART NO.
8A11-K		PARTS LIST	

digital

TITLE: POWER SUPPLY, H765

DRAWN	6-24-76	SIZE/CODE	NUMBER
CHECKED	6-24-76	E UA	H765-0-0
ENGR	6-24-76	SCALE: NONE	SHEET 1 OF 2
PROJECT	6-24-76	NEXT HIGHER ASSY.	B-CC H765-0
MATERIAL	SEE PARTS LIST		

REV: U

429

CONNECTION TABLE		
FROM CONNECTION	TO CONNECTION	SIGNALS
P2 FROM TRANS. ASSY	J2 FROM +15V REG.	28 VAC
J16 FROM PWR. DIST. BD.	P16 LOCATED ON REG.#4 (H754)	GND, -5V, +20V 28 VAC
J15 FROM PWR. DIST. BD	P15 LOCATED ON REG.#3 (H744)	GND, +5V, 28 VAC
J14 FROM PWR DIST. BD	P14 LOCATED ON REG.#2 (H744)	GND, +5V, 28 VAC
J13 FROM PWR DIST. BD	P13 LOCATED ON REG.#1 (H745)	GND, +15V, -15V 28 VAC
GND LUG LOCATED ON PWR. DIST. BD. G3	G1 YEL LUG	SAFTY GROUND
P1 FROM TRANS ASSY	J1 LOCATED ON PWR. DIST. BD	28 VAC

CONNECTION TABLE		
FROM CONNECTION	TO CONNECTION	SIGNALS
P4 FROM +15V REG.	J2 LOCATED ON PWR DIST BD	-15V, LTC L, AC LO L, DC LO L, GND
P5 FROM TRANS. 535V	J5 LOCATED ON AC INPUT BOX	120/240 VAC
P7 (RED)	FAN #1 - A	120 VAC - HOT
P8 (WHT)	FAN #1 - B	120 VAC - NEUTRAL
P9 (RED)	FAN #2 - A	120 VAC - HOT
P10 (WHT)	FAN #2 - B	120 VAC - NEUTRAL
T1-G	G1	SAFETY GROUND
G1	G2	ITEM 55

240 V
7014420-2
AC INPUT BOX

120 V
7C1442C-1
AC INPUT BOX

7011751
CAP MOV BOARD ASSY

TRANS ASSY
7011486

5411689
CAP MOV ASSEMBLY

AC POWER CONTROL
54-13089

12.14330
K1

COMMON SIGNAL NAMES FOR 6 PIN AND 15-PIN MATE-N-LOKS ON POWER DISTRIBUTION BOARD

6-PIN	15 PIN
1 - GND	1 - +5V
2 - LTC L	2 - +15V
3 - DC LO L	3 - +20V
4 - AC LO L	4 - +5V
5 - SPARE 4	5 - GND
6 - SPARE 5	6 - SPARE 1
	7 - GND
	8 - GND
	9 - GND
	10 - SPARE 2
	11 - GND
	12 - SPARE 3
	13 - -15V
	14 - -5V
	15 - SPARE 3

REMOTE POWER CONTROL
1-3 : ON
2-3 : OFF

CPU CONSOLE POWER SWITCH
1-3 : ON

SEE NOTE 6

POWER DISTRIBUTION BOARD
54-12934-01

REG #4 H754/H735

REG #3 H744

REG #2 H744

REG #1 H745

7C10138 HARNESS

+5V DC REGULATOR 411086

11/05-23 CONSOLE PWR.

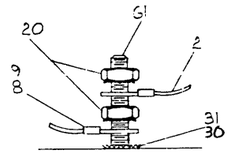
TITLE	SIZE	CODE	NUMBER	REV
POWER SUPPLY 11765	E	UA	4765-0-0	
SCALE	SHEET	OF	DIST.	

A36

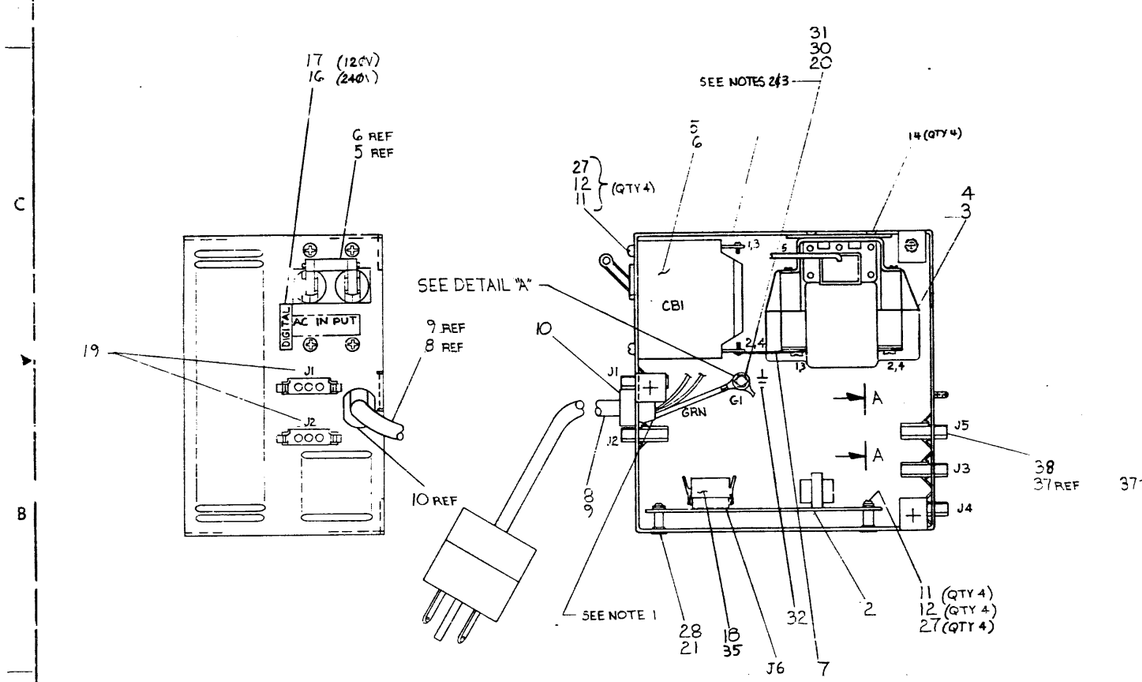
NOTES:

1. LEAVE .51N ±.2IN OF OUTER INSULATION OF LINE CORD INSIDE BOX.
2. REMOVE PAINT MASK FROM G1 ONLY AND APPLY CONDUCTIVE GREASE TO AREA AROUND STUD G1 BEFORE INSTALLING ITEMS #31 (LOCKWASHER), LUG ON GRN/YEL WIRE AND #20 (KEPNUT).
3. ENSURE THAT LUG CONNECTED TO GRN/YEL WIRE FROM LINE CORD, WASHER ITEM #31, AND KEPNUT ITEM #20 ARE THE FIRST ITEMS INSTALLED ON G1. SEE DETAIL "A".
4. STRIP LENGTH FOR ITEM #36 AND ITEM #29 SHALL BE .250 ± .015.
5. STRIP LENGTH FOR ITEM #37
   A. HAND CRIMP .187 ± .015
   B. AUTOMATIC STRIP .156 ± .015
6. STRIP LENGTH FOR ITEM #35
   A. HAND CRIMP .203 ± .015
   B. AUTOMATIC STRIP .182 ± .015

LEGEND	
NUMBER	VARIATION
7014420-1	120V 47-63HZ 12A
7014420-2	240V 47-63HZ 6A



DETAIL "A"
SEE NOTES 2 & 3



1	1	CONN 4 PIN	1209350-04	38
4	4	SOCKET, MATE-N-LOCK	1209379	37
7	3	TERM BLUE RING	9007328	36
4	4	CONNECTOR, SOCKET	1212170-00	35
A/R	A/R	WIRE #18 BRN	9107800-11	34
A/R	A/R	WIRE #18 BLU	9107800-06	33
1	1	DECAL, SAFETY GROUND	A-DC-3612680-01	32
1	1	WASHER, EXT TOOTH #8	9009078	31
A/R	A/R	GREASE, CONDUCTIVE	4901173-01	30
3	1	TERMINAL, RED RING	9007930	29
4	4	SCR, PH FL HD 6-32 X 1/4	9003020-02	28
8	8	WASHER, FLAT #6	9006656	27
REF	REF	A.C. INPUT BOX ASSEMBLY PROCEDURE	A-SP-7014420-0-0	26
REF	REF	TESTER PARTS LIST	A-PL-7009811-0-0	25
REF	REF	TESTER TEST PROCEDURE	A-SP-7009811-0-0	24
REF	REF	TESTER U.A.	A-UA-7009811-0-0	23
REF	REF	TESTER C.S.	A-CS-7009811-0-0	22
4	4	SPACER 6-32 X 3/8"	9003244	21
2	2	NUT, KEPS #8-32	9002532	20
1	1	DECAL	A-DC-7403273-13	19
1	1	CONNECTOR, 4 PIN	1212167-01	18
—	1	DECAL 120V 47-63 HZ 12A	A-DC-7412303-1	17
1	—	DECAL 240V 47-63 HZ 6A	A-DC-7412380-1	16
4	4	SCR, PH FL HD 4-40 X 3/8	9003039-06	15
4	4	SCR PH FL HD 4-40 X.19	90030039-06	14
4	4	NUT, KEPS #4-40	9002535	13
8	8	WASHER, INT TOOTH #6	9006633	12
8	8	SCR PHL PAN HD #6-32 X.25	9003020-1	11
1	1	STRAIN RELIEF	9002509	10
1	—	POWER CORD 240V	D-AD-7012500-1	9
—	1	POWER CORD 120V	D-AD-7012500-0	8
2	2	JUMPER STRAP	1214074-02	7
1	—	CIRCUIT BREAKER 10A	1212124-03	6
—	1	CIRCUIT BREAKER 12A	1212124-35	5
1	—	CONTACTOR 240V	1214233-01	4
—	1	CONTACTOR 120V	1214233-00	3
1	1	AC PWR CONTR BOARD	D-CS-5413089-0-11	2
1	1	CHASSIS, COMP MTG	D-IA-7003800	1
QTY & VAR		DESCRIPTION	DWG./PART NO.	ITEM NO.

7014420-2
7014420-1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE (INCHES)					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM	±.004	±.008	±.012	±.016	±.024	±.06
	PREFERRED	±.012	±.016	±.026	±.06	±.063	±0.1

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH

DRAWN	Thomas J	6-30-77
CHK'D		7-26-77
ENG.		7-27-77
PROJ. ENG.		8/4/77
PROD.		8/5/77
NEXT HIGHER ASSY.	E-LA-H765-0-0	
SCALE		
SHEET 1 OF 2		

FIRST USED ON: H765

TITLE: AC INPUT BOX ASSY

SIZE: D | CODE: AD | NUMBER: 7014420-0-0 | REV: A | DIST.

REVISIONS				
DIR	CHANGE NO.	REV.		
EC	7014-280-00001	A	R. KENNEDY	R. Kennedy 8/5/77

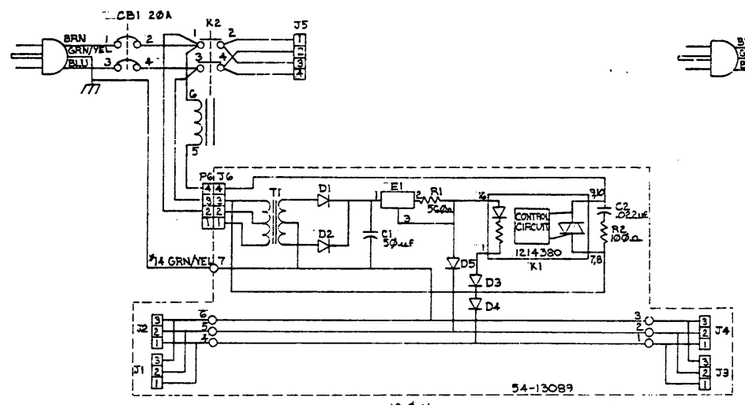
A31

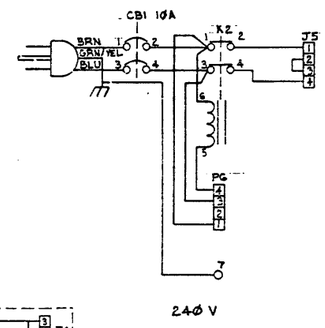
WIRE TABLE-1 VAR 120V

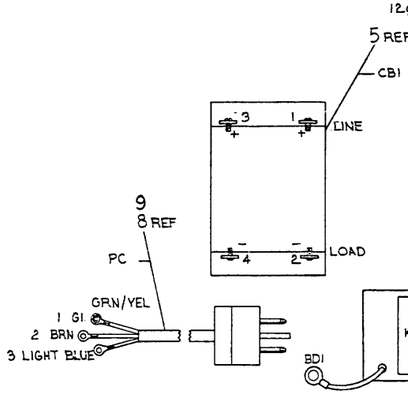
ITEM NO	DESCRIPTION AWG.	COLOR	FROM STRIP LENGTH	FROM CONN.	FROM WITH	TO STRIP LENGTH	TO CONN.	TO WITH	PRECUT WIRE LENGTH
8	14	GRN/YEL	SEE NOTE 3	PC-1			G1		
8	14	BRN		PC-2			CB1-1		
8	14	BLU		PC-3			CB1-3		
33	18	BLU	SEE NOTE4	K2-4	36	SEE NOTE 5	J5-2	37	3.0 ± 0.25
							J5-4	37	3.0± 0.25
							J5-1	37	3.0± 0.25
34	18	BRN	SEE NOTE4	K2-2	36	SEE NOTE 5	J5-3	37	3.0± 0.25
34	18	BRN		K2-1	36	SEE NOTE 6	P6-2	35	3.5± 0.25
3	18	YEL				———	K2-6	—	3.5± 0.25
7	——	—		———	K2-1	———	CB1-2	—	STRAP
33	18	BLU	SEE NOTE4	K2-3	29	SEE NOTE 6	P6-3	35	3.0 ± 0.25
7	——	—		———	K2-3	———	CB1-4	—	STRAP
3	18	YEL	SEE NOTE4	K2-5	—	SEE NOTE 6	P6-4	35	4.75 ± 0.25
2	18	GRN/YEL	SEE NOTE 6	BD-1			G1		

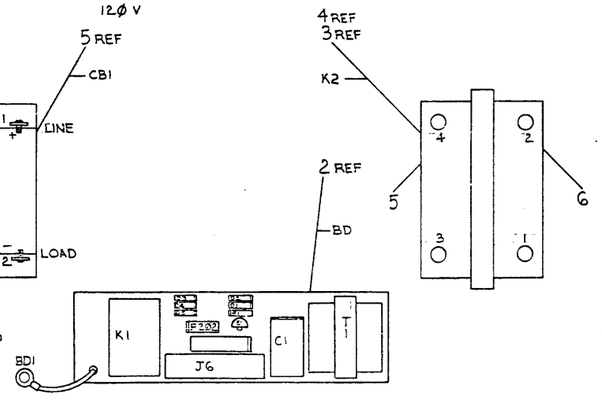
WIRE TABLE-2VAR 240V

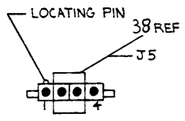
ITEM NO	DESCRIPTION AWG	COLOR	FROM STRIP LENGTH	FROM CONN	FROM WITH	TO STRIP LENGTH	TO CONN	TO WITH	PRECUT WIRE LENGTH
9	14	GRN/YEL	SEE NOTE 3	PC-1			G1		
9	14	BRN		PC-2			CB1-1		
9	14	BLU		PC-3			CB1-3		
33	18	BLU	SEE NOTE4	K2-4	29	SEE NOTE 5	J5-4	37	3.0± 0.25
34	18	BRN	SEE NOTE 4	K2-2	29	SEE NOTE 5	J5-1	37	3.0±0.25
34	18	BRN	SEE NOTE 5	J5-2	37	SEE NOTE 5	J5-3	37	2.0±0.25
34	18	BRN	SEE NOTE 4	K2-1	36	SEE NOTE 6	P6-1	35	3.5±0.25
4	18	YEL				———	K2-5	—	3.5±0.25
7	——	—		———	K2-1	———	CB1-2	—	STRAP
33	18	BLU	SEE NOTE4	K2-3	29	SEE NOTE 6	P6-3	35	3.0 ±0.25
7	——	—		———	K2-3	———	CE1-4	—	STRAP
4	18	YEL		———	K2-5	SEE NOTE 6	P6-4	35	4.75±0.25
2	18	GRN/YEL	SEE NOTE 6	BD-1			G1		









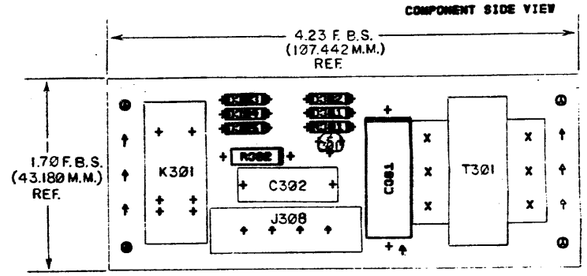


REVISIONS CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
AC INPUT BOX ASSY.	D	AD	7014420-0-0	A

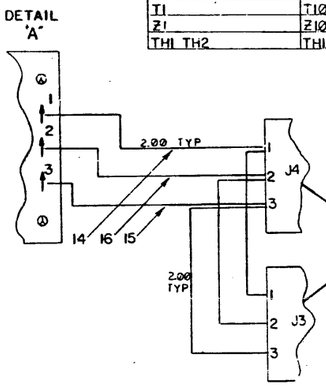
SCALE — SHEET 2 OF 2

COMPONENT SIDE VIEW



REFERENCE DESIGNATION CHART	
ACTUAL REF DES	SUPERFICIAL REF DES
C1 C2	C101 C201 C301 C102 C202 C302
D1 D2	D101 D201 D301 D102 D202 D302
D3 D4	D103 D203 D303 D104 D204 D304
D5	D105 D205 D305
J8	J108 J208 J308
K1	K101 K201 K301
R1 R2	R101 R201 R301 R102 R202 R302
T1	T101 T201 T301
Z1	Z101 Z201 Z301
TH1 TH2	TH101 TH201 TH301 TH102 TH202 TH302

DETAIL 'A'



NOTES:
1. 8 HOLES .316 (+.004 -.003) MAYMARD ONLY
2. THIS BOARD REQUIRES I/L APPROVAL
3. DO NOT SLIT BOARD, MUST BE SHEARED.
4. REFER TO PARTS LIST FOR IDENTIFICATION OF NUMBERED ITEMS.
5. MULTI-REF DESIGNATIONS ARE USED TO ACCOMODATE PNL THIS TECHNIQUES — SEE CHART FOR REF
6. J1, J2, J3 AND J4 ARE NOT USED ON 'A' VARIATION.

REV	DESCRIPTION	DATE	APPROVED
A	ECO-5413089-1	4-10-72	R. KENNEDY
B	ECO-5413089-2	4-19-72	R. KENNEDY
C	ECO-5413089-3	5-2-72	R. KENNEDY
D	ECO-5413089-4	5-23-72	R. KENNEDY

SIGNATURES	DATE
DRN.	4-10-72
CHK'D.	4-10-72
ENG.	4-10-72
PROJ. ENG.	4-10-72
PROD.	4-10-72

digital

TITLE: A.C. CONTROL BOARD

SCALE 2/1 | SIZE D | CODE UA | NUMBER 5413089-0-2 | REV D

SHT. 1 OF 2

NEXT NUMBER ASSY. 5-00-5413089-0-0

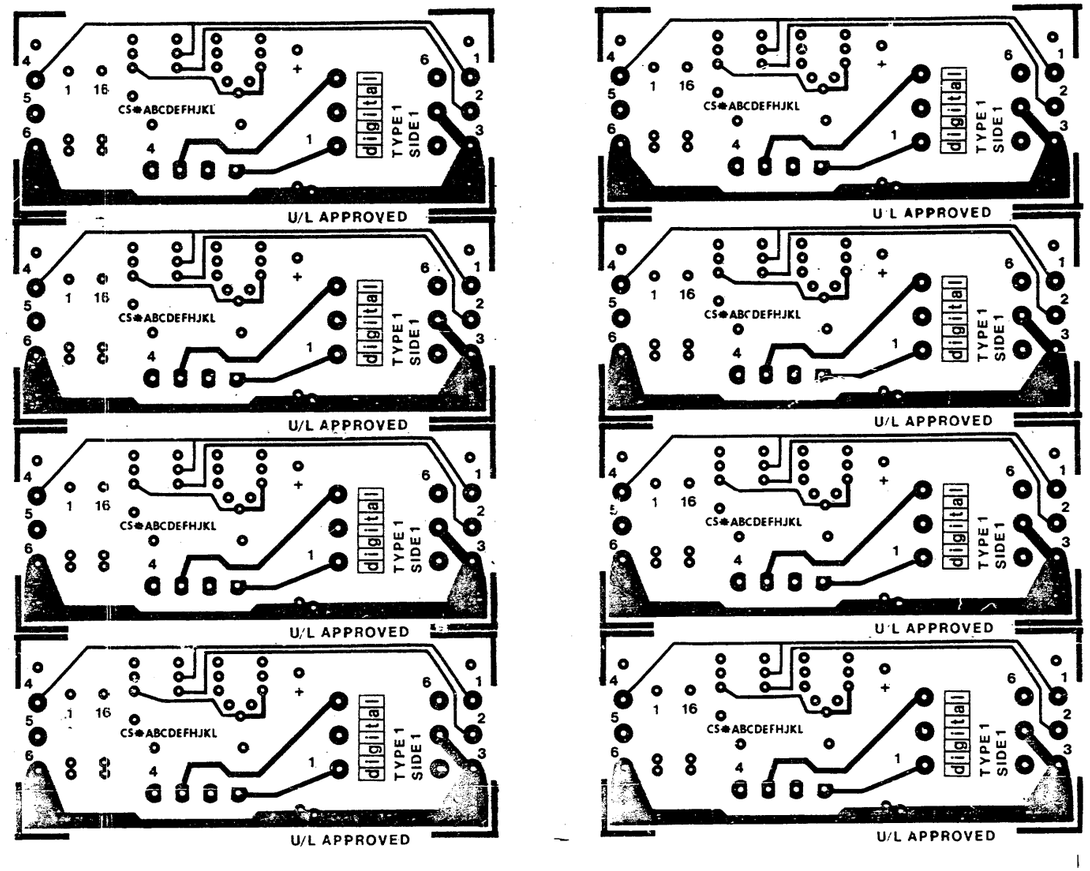
PCH REV. B

ADD. VERIFIED DATA BASE REV. B1

MS#104153

5413089-0-0 D

433

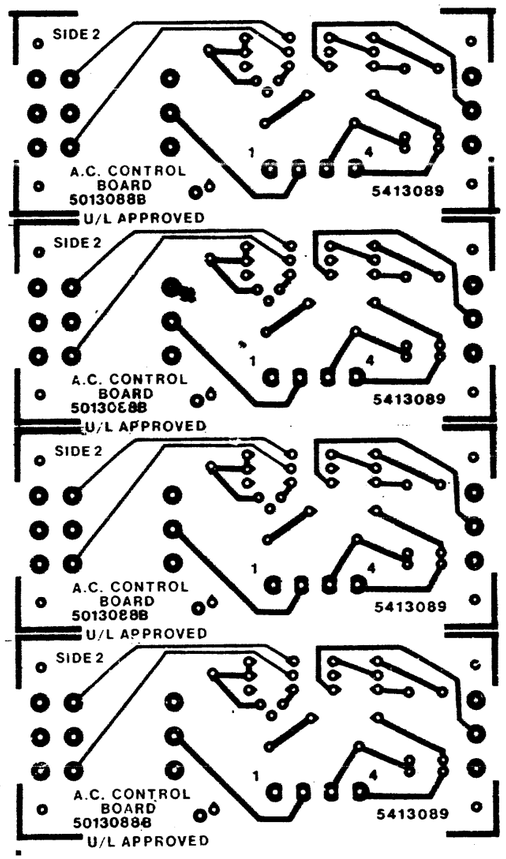


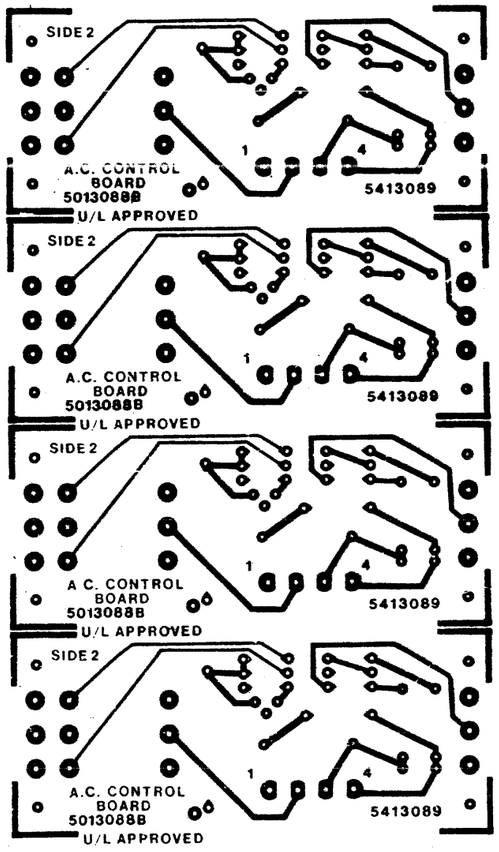
VIEWED FROM SIDE 1

A.C. CONTROL BOARD DUA 5413089-0-0 D

SCALE 2:1 SHEET 2 OF 3

43





VIEWED FROM SIDE 2

A.C. CONTROL BOARD		D	UA 5413089-0-0 D
SCALE 2	SHEET 3 OF 3		

435

DRAWING DIRECTORY

CUSTOMER PRINT SET

DRAWING DIRECTORY	B-DD-H744-0
CIRCUIT SCHEMATIC	D-CS-H744-0-1
UNIT ASSY	E-UA-H744-0-0

MFG SET

TEST PROCEDURE	A-SP-H744-0-3
MFG SPEC	A-SP-H744-0-8
PACKAGING INST	A-PI-3700074-0-0

UNIT VARIATIONS

VAR	TITLE
H744	+5V REGULATOR
H744-YA	2.0 - 8.0V VARIABLE REGULATOR

REVISIONS

CHK	CHANGE NO.	REV.
EW	00019	R
JA	00020	S

USED ON OPTION/MODEL: 11/45

SHEET 1 OF 4

DRN. D. FONTAINE	DATE 2-4-72	TITLE +5V REGULATOR
CHK'D. D. FONTAINE	DATE 2-4-72	
PROJ. ENG. G. POTTER	DATE 2-24-72	SIZE B · CODE DD · NUMBER H744-0 · REV S
PROD. A. HIRSCH	DATE 2-24-72	DIST.

digital

D36

SIZE	CODE	NUMBER	REV.
B	DD	H744-0	S

DRAWING NO.	NO. OF SHTS	PART NO.	DESCRIPTION	REVISIONS		
D-AH-H744-0-5			ASSY DRILLING/HOLE LAYOUT	Y	Y	Y
E-UA-H744-0-0	1		UNIT ASSY	Y	Z	AA
D-CS-H744-0-1	1		CIRCUIT SCHEMATIC	Y	Y	Y
B-MH-H744-0-6	4		MODULE ECO HISTORY	AD	AE	AE
		5009725	ETCHED BOARD	H	H	H
A-SP-H744-0-3			TEST PROCEDURE	REF		REF
A-SP-H744-0-8			MFG SPEC	REF		REF
D-PS-1210737-0-0	1		HEAT SINK	REF		REF
D-IA-5309756-0-0	1		REGULATOR BRK'T	REF		REF
C-MD-5309760-0-0	1		COMPONENT COVER	REF		REF
C-MD-5309759-0-0	1		CAPACITOR STRAP	REF		REF
A-PI-3700074-0-0	2		PACKAGING INSTRUCTION	REF		REF
A-PS-9905211-0-0	2		OUTER CARTON	REF		REF
A-PS-9905212-0-0	2		INNER PACKAGING	REF		REF
C-IA-7412388-0-0			2.5 CAP HOLDER	REF		REF
C-MD-7419952-0-0			COMPONENT COVER	REF		

NOTES:

REVISIONS			
REV.		R	S
CHG NO.	00018	00019	00020
DATE		2-77	3-78

digital

USED ON OPTION/MODEL	
11/45	

DRN.	D. FONTAINE	2-4-72
CHK'D	D. FONTAINE	2-4-72
ENG.	G. POTTER	2-24-72
PROD.	A. HIRSCH	2-24-72

TITLE
+5V REGULATOR

SIZE	CODE	NUMBER	
B	DD	H744-0	S

SHEET 2 OF 4

DRAWING NO.	NO. OF SHTS	PART NO.	DESCRIPTION	REVISIONS
D-AH-H744-Ø-5			ASSY DRILLING/HOLE LAYOUT	Y Y
E-UA-H744-Ø-Ø	1		UNIT ASSY	W W1
D-CS-H744-Ø-1	1		CIRCUIT SCHEMATIC	W W1
B-MH-H744-Ø-6	4		MODULE ECO HISTORY	AC AE
		5009725	ETCHED BOARD	H H
A-SP-H744-Ø-3			TEST PROCEDURE	REF
A-SP-H744-Ø-8			MFG SPEC	REF
D-PS-1210737-Ø-Ø	1		HEAT SINK	REF
D-IA-5309756-Ø-Ø	1		REGULATOR BRK'T	REF
C-MD-5309760-Ø-Ø	1		COMPONENT COVER	REF
C-MD-5309759-Ø-Ø	1		CAPACITOR STRAP	REF
A-PI-3700074-Ø-Ø	2		PACKAGING INSTRUCTION	REF
A-PS-9905211-Ø-Ø	2		OUTER CARTON	REF
A-PS-9905212-Ø-Ø	2		INNER PACKAGING	REF
C-IA-7412388-Ø-Ø			2.5 CAP HOLDER	REF
C-MD-7419952-Ø-Ø			COMPONENT COVER	REF

NOTES:

REVISIONS		
DATE	CHG NO	REV
2-77	00019	R
	00017	

digital

USED ON OPTION/MODEL			
11/45			

DRN. D. FONTAINE	2-4-72	TITLE +5V REGULATOR
CHK'D D. FONTAINE	2-4-72	
ENG. G. POTTER	2-24-72	SIZE B / CODE DD / NUMBER H744-Ø / REV. S
PROD. A. HIRSCH	2-24-72	SHEET 3 OF 4

436

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	S

DRAWING NO.	NO. OF SHTS	PART NO.	DESCRIPTION	REVISIONS
D-AH-H744-Ø-5			ASSY DRILLING/HOLE LAYOUT	Y Y
E-UA-H744-Ø-Ø	1		UNIT ASSY	V V1
D-CS-H744-Ø-1	1		CIRCUIT SCHEMATIC	W W1
B-MH-H744-Ø-6	4		MODULE ECO HISTORY	AB AE
		5009725	ETCHED BOARD	H H
A-SP-H744-Ø-3			TEST PROCEDURE	REF
A-SP-H744-Ø-8			MFG SPEC	REF
D-PS-1210737-Ø-Ø	1		HEAT SINK	REF
D-IA-5309756-Ø-Ø	1		REGULATOR BRK'T	REF
C-MD-5309760-Ø-Ø	1		COMPONENT COVER	REF
C-MD-5309759-Ø-Ø	1		CAPACITOR STRAP	REF
A-PI-3700074-Ø-Ø	2		PACKAGING INSTRUCTION	REF
A-PS-9905211-Ø-Ø	2		OUTER CARTON	REF
A-PS-9905212-Ø-Ø	2		INNER PACKAGING	REF
C-IA-7412388-Ø-Ø			2.5 CAP HOLDER	REF
C-MD-7419952-Ø-Ø			COMPONENT COVER	REF

NOTES:

REVISIONS	DATE	CHG NO	REV.
	2-77	00019	R
		00016	

digital

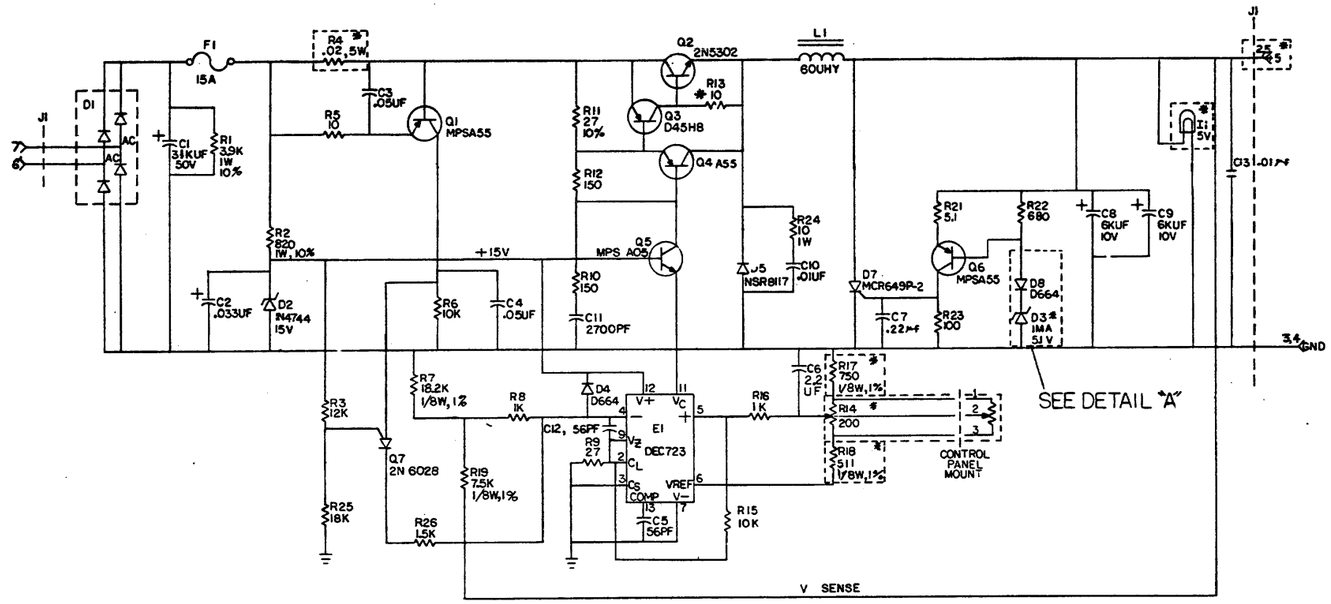
USED ON OPTION/MODEL	
11/45	

DRN.	D. FONTAINE	2-4-72
CHK'D	D. FONTAINE	2-4-72
ENG.	G. POTTER	2-24-72
PROD.	A. HIRSCH	2-24-72

TITLE: +5V REGULATOR

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	S

SHEET 4 OF 4



*FUSIBLE RESISTOR

[*] FOR YA VARIATION COMPONENT VALUES ARE AS FOLLOWS:
R4 – .06 5W
R14 – 1K 10 TURN
R17 – 300 1/8W 1%
R19 – 150 1/4W 5%
D3 – 1N754
I1 – 15V
J1-2,5 – +20-8.0V

* D9 – D664 ADDED FOR YA VARIATION ONLY

UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 5%

QTY	REF DESIGNATION	DESCRIPTION	PART NO.
PARTS LIST			
STCH BOARD REV	F	H	

IN964A	SAME	MPSA55	
D664	IN6606	2N3302	
MCR649P2		D45H8	
IN754A	SAME	MPSA05	
IN744	SAME		
NSR8117			
2N6028			
DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

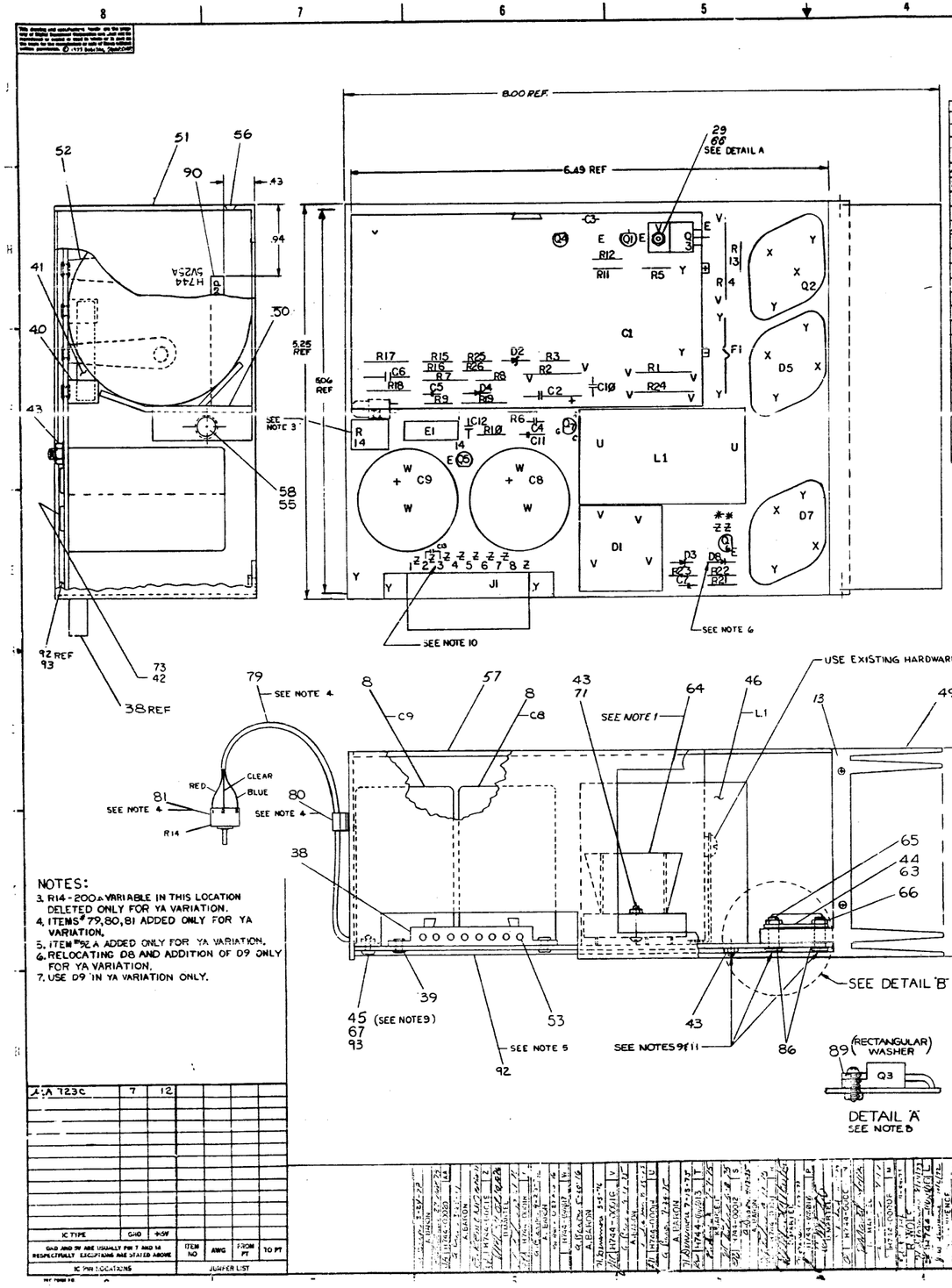
1	10-Jan-75	D. GARTEL	H744-0001B	Y			
2	5-Feb-75	A. ELKIN	H744-0001C	W			
3	7-Mar-75	A. DAKIN	H744-0001D	V			
4	9-Apr-75	A. DAKIN	H744-0001E	U			
5	12-May-75	A. DAKIN	H744-0001F	T			
6	16-Jun-75	D. GARTEL	H744-0001G	S			
7	1-Jul-75	D. GARTEL	H744-0001H	R			
8	1-Aug-75	D. GARTEL	H744-0001J	P			
9	2-Sep-75	D. GARTEL	H744-0001K	N			
10	1-Oct-75	D. GARTEL	H744-0001L	M			
11	3-Nov-75	D. GARTEL	H744-0001M	L			
12	1-Dec-75	D. GARTEL	H744-0001N	K			
13	2-Jan-76	C. POTTER	H744-0001P	J			
14	2-Feb-76	C. POTTER	H744-0001Q	H			
15	1-Mar-76	C. POTTER	H744-0001R	G			
16	1-Apr-76	C. POTTER	H744-0001S	F			
17	3-May-76	C. POTTER	H744-0001T	E			

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: 5V REGULATOR

SIZE: D | DWG NO: H744-0-1-1 | REV: Y

SHEET 1 OF 1



NOTES:

1. APPLY ITEM #63 (COMPOUND) BETWEEN TRANSISTOR (Q2), DIODES (D5, D7) AND ITEM #44 (WASHER) ALSO BETWEEN ITEM #44 (WASHER) AND HEAT SINK (ITEM #49). ALSO APPLY ITEM #63 (COMPOUND) BETWEEN ITEM #9 (DIODE BRIDGE) AND ITEM #64 (HEAT SINK BRIDGE).

NOTES CONT:

NOTE 8:
(1) Q3 SCREW HEAD SHOULD BE ON TOP OF FLAT RECTANGULAR WASHER AS SHOWN. APPLY 6 INCH LBS. OF TORQUE WHEN SECURING Q3 TO CKT. BOARD BEFORE SOLDERING.

NOTE 9: TORQUE APPLICATION
(1) APPLY 12 INCH LBS. OF TORQUE TO THE SCREWHEAD OF #4 HARDWARE EXCEPT Q3.
(2) APPLY 12 INCH LBS OF TORQUE TO #6 HARDWARE ON L1.
(3) APPLY 16 INCH LBS. OF TORQUE TO ALL #6 AND #10 HARDWARE EXCEPT ON L1.
(4) ALL HARDWARE TO BE TORQUED BEFORE SOLDERING.

NOTE 10:
INSERT C13 INTO ETCH PAD HOLES CONNECTED TO J1 TERMINALS, 2-3.

NOTE 11:
MIN TORQUE REQUIRED FOR QC INSPECTION:
8 INCH LBS FOR #4 HARDWARE;
12 INCH LBS. FOR #6 AND #10 HARDWARE

* SEE NOTE 7

NOTES:

3. R14 - 200Ω VARIABLE IN THIS LOCATION DELETED ONLY FOR YA VARIATION.
4. ITEMS #79, 80, 81 ADDED ONLY FOR YA VARIATION.
5. ITEM #92A ADDED ONLY FOR YA VARIATION.
6. RELOCATING D8 AND ADDITION OF D9 ONLY FOR YA VARIATION.
7. USE D9 IN YA VARIATION ONLY.

			R22	RES 680 1/4W 5%	1301424	69	Ø	1		T1	5 VOLT AMP	12-09219-1	68
1	1			PACKING INSTRUCTIONS	API 3700074-0070	70	2	2			L WASHER #4	9006832	67
1	1			SCR, PHL PAN HD #6-32 x 5/8 LG	9006025-1	71	7	7			NUT KEPS #4-40	9006997	66
1	Ø	I1		15 VOLT LAMP	1209169	72	6	6			SCR PHL PAN HD #6-32 x 3/16 LG	9008038-1	65
4	4			LOCKWASHER #10 INT	9006688	73	1	1			HEAT SINK BRIDGE	1210907	64
AR/AR				[illegible]	[illegible]	74	AR	AR			COMPOUND THERMAL JOINT	9008388	63
AR/AR				[illegible]	[illegible]	75	1	1	R26		RESISTOR 1.5K 1/4 W 5%	1300391	62
AR/AR				[illegible]	[illegible]	76	1	1	R19		RESISTOR 7.5K 1/8W 1%	1305322	61
1	Ø			TRANSISTOR 2N6426	[illegible]	77	1	1	R3		RESISTOR 1ER 1/4W 5%	1300488	60
AR/AR				[illegible]	[illegible]	78	1	1	Q7		TRANSISTOR, UNJUNCTION [illegible]	1510877	59
1	Ø	2 IN		WIRE, MICRODOT	1700014	79	1	1			SCR, PHL PAN HD #6-32 X 1/4 LG	9006020-1	58
1	Ø			CLAMP, CABLE	9007079	80	1	Ø			COVER	C-MD-530712D-04	57
1	Ø	R14		POT, 10 TURN, 1KΩ	1309532-04	81	1	1			SCR, PHL FLT HD #6-32 x 3/16 LG	9008020-2	56
1	Ø	R17		RES, 300Ω 1/4W 5%	1301425	82	1	1			WASHER, LOCK #6	9006633	55
1	Ø	R18		RES, 150Ω 1/4W 5%	1300250	83	[illegible]				[illegible]	[illegible]	[illegible]
1	Ø	R4		RES, 86Ω 5W 3%	1310876-02	84	Ø	B			CONTACT FEMALE	1209456	53
1	Ø	D3		DIODE ZENER IN754	1109991	85	2	2			STRAP, CAPACITOR	C-MD-530939-04	52
6	6	-		WASHER, INT TOOTH #4	9006632	86	1	1			BRACKET, REGULATOR	D-IA-530975-P1	51
1	1	C7		CAP .22 μF 50V	1010274	87	1	1			HOLDER, CAPACITOR 2.5	C-IA-12388-04	50
1	1	R13		RES 10 1/4W 5% FUSIBLE	1312496	88	1	1			HEAT SINK REGULATOR	D-PS-120737-01	49
1	1	-		WASHER, RECTANGULAR	9009769	89	2	2	C5, C12		CAP 56 PF	1000012	48
1	1	-		DECAL (H744)	ADC7416945-1-0	90	1	1	R24		RESISTOR 10 1W	1300171	47
1	1	-		JUMPER	1214074	91	1	1	L1		REACTOR 60 μH 9 MHC 4547	1610850	46
1	Ø	-		COVER, BOTTOM	7419952	92	2	2			SCR, PHL PAN HD #4-40 x 1/4 LG	9008401-1	45
2	Ø	-		WASHER, FIBER	9008848	93	3	3			WASHER, INSULATOR	9006721	44
							3	3			NUT, KEPS #6-32	9008186	43
							4	4			SCR #10-32 x 3/4 SLOTTED PAN HD	9009869-01	42
							1	1	F1		FUSE 15 AMP	1213237-01	41
							2	2			FUSE CLIP	9007203	40
							6	6			EYELET GS-4-5	9009000	39
							1	1	J1		MATE-N-LOK CONN, 8 PIN	1209340	38
							1	1	E1		INTEGRATED CIRCUIT DEC 723C	1910418	37
							1	1	Q5		TRANSISTOR A05	1510705	36
							1	1	Q3		TRANSISTOR DASHØ	1510708-1	35
							3	3	Q1, Q6, Q4		TRANSISTOR MPSA55 MOT	1510706	34
							1	1	Q2		TRANSISTOR 2N6302	1510196	33
							Ø	1	R14		RES VARIABLE 200	1310852	32
							1	1	R21		RES 5.1 1/4W 5%	1309422	31
							1	1	R23		RES 100 1/4W 5%	1300229	30
							1	1			SCR, PPH #4-40 x 3/8	9006011-1	29
							1	1	R11		RES 27 1/4W 10%	1301420	28
							Ø	1	R17		RES 750 1/8W, 1%	1308955	27
							1	1	R9		RES 27 1/4W 5%	1301522	26
							1	1	D7		RES 18.2K 1/8W, 1%	1309412	25
							2	2	R8, R16		RES 1K 1/4W 5%	1300395	24
							Ø	1	R18		RES 511 1/8W 1%	1302411	23
							1	1	R25		RES 18 K 1/4W 5%	1302465	22
							2	2	R6, R15		RES 10 K 1/4W 5%	1300479	21
							Ø	1	R4		RES .02 5W 3%	1310876	20
							1	1	R2		RES 820 1W 10%	1300358	19
							1	1	R1		RES 3.9K 1W 10%	1302927	18
							1	1	R5		RES 10 1/4W 5%	1301317	17
							2	2	R12, R10		RES 150 1/4W 5%	1300350	16
							Ø	1	D3		DIODE ZENER 1 MA. 5.1V	1110925	15
							1	1	D7		SCR MCR 6491P-2	1109463	14
							4	4			SCR, PPH #4 x 5/16 LG SELF TAP	9009142	13
							1	1	D5		DIODE PWR NSP 8117	1110715	12
							3	2	D4, D8 D9*		DIODE PWR D664	1100114	11
							1	1	D2		DIODE ZENER IN4744	1105448	10
							1	1	D1		DIODE BRIDGE	1110714	9
							2	2	C8, C9		CAP 6MFD 10V	1010704	8
							1	1	C1		CAP 31 MFD 50V	1010838	7
							2	2	C4, C3		CAP .05MF 25 V	1001774	6
							1	1	C2		CAP .033 MF 100V 10%	1000050	5
							1	1	C11		CAP 2700PF 100V 5% DM	1001037	4
							2	2	C10, C13		CAP .01 MF 100V 20% DISC	1001010	3
							1	1	C6		CAP 2.2 MF, 20V, 10%	1002627	2
							1	1			ETCHED CIRCUIT BOARD	5009725	1
											ASSY/DRILLING HOLE LAYOUT	D-AH-H744-B-S	
											X-Y COORDINATE HOLE LOCATION	X-CO-H744-B-4	REF
											MODULE ECO HISTORY	D-MH-H744-B-0	REF
											CIRCUIT SCHEMATIC	D-CI-H744-B-1	REF
QTY	QTY.	REF DESIGNATION									DESCRIPTION	PART NO.	FIND NO.

PARTS LIST

FIRST USED ON OPTIMOD	D-UA-H742A-Ø-Ø
ETCH BOARD REV	H

D664	IN3606
IN4744	

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

SEMICONDUCTOR CONVERSION CHART

DRAWN	11-7-72
CHECKED	
SCALE	2/1
SHEET	1 OF 1

EQUIPMENT CORPORATION

TITLE: 5V REGULATOR

SIZE: E | DRAWING NO.: UA H744-Ø-Ø | REV: AA

IC #: A 723C	7	12					
IC TYPE	GND	+5V					
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE			ITEM NO	AWG	FROM PT	TO PT
IC PIN LOCATIONS			JUMPER LIST				

441

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H745-Ø		
CIRCUIT SCHEMATIC	D-CS-H745-Ø-1	MFG. SET	
UNIT ASS'Y	E-UA-H745-Ø-Ø		
		TEST PROCEDURE	A-SP-11/45-TA-2
		MFG. SPEC.	A-SP-H745-Ø-8
		PACKAGING INSTRUCTION	A-PI-3700074-0-0

THIS IS PRINT SET

UNIT VARIATIONS

VAR	TITLE	PRINT SET H745-1
H745	-15V REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
	11745-16	K
	H745-17	L
	H745-18	M
9-76	H745-19	N
10-76	H745-20	P
7-77	H745-22	R

USED ON OPTION/MODEL	
11/45	

SHEET 1 OF 2

DRN. D.FONTAINE	DATE 2-7-72	TITLE	
CHK'D. J GAUDETTE	DATE 2-17-72	-15V REGULATOR	
PROJ ENG. G.POTTER	DATE 2-25-72		
PRCD. A.HUSCH	DATE 2-25-72	SIZE B / CODE DD / NUMBER H745-Ø / REV R	
FIELD SERV. A. ZINS	DATE 2-25 72	DIST	

DEC 16-12251-1 06-2-10-RV72

DPB 106

442

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	E-UA-H745-Ø-Ø	UNIT ASSY	E/M
	D-CS-H745-Ø-1	CIRCUIT SCHEMATIC	E
	D-AH-H745-Ø-5	ASSY/DRILLING HOLE LAYOUT	E
	B-MH-H745-Ø-6	MODULE ECO HISTORY	E
	A-SP-H745-Ø-8	MFG SPEC	E
	A-SP-11/45-TA-2	TEST PROCEDURE	E
	D-PS-1210737-0-0	HEAT SINK	M
	D-IA-5309756-0-0	REGULATOR BRACKET	M
	C-IA-5309761-0-0	2-5 CAP BRACKET	M
	C-MD-5309759-0-0	CAPACITOR STRAP	M
2	A-PI-3700074-0-0	PACKAGING INSTRUCTIONS	M
	A-PS-9905211-0-0	OUTER CARTON	M
	A-PS-9905212-0-0	INNER PACKAGE	M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE

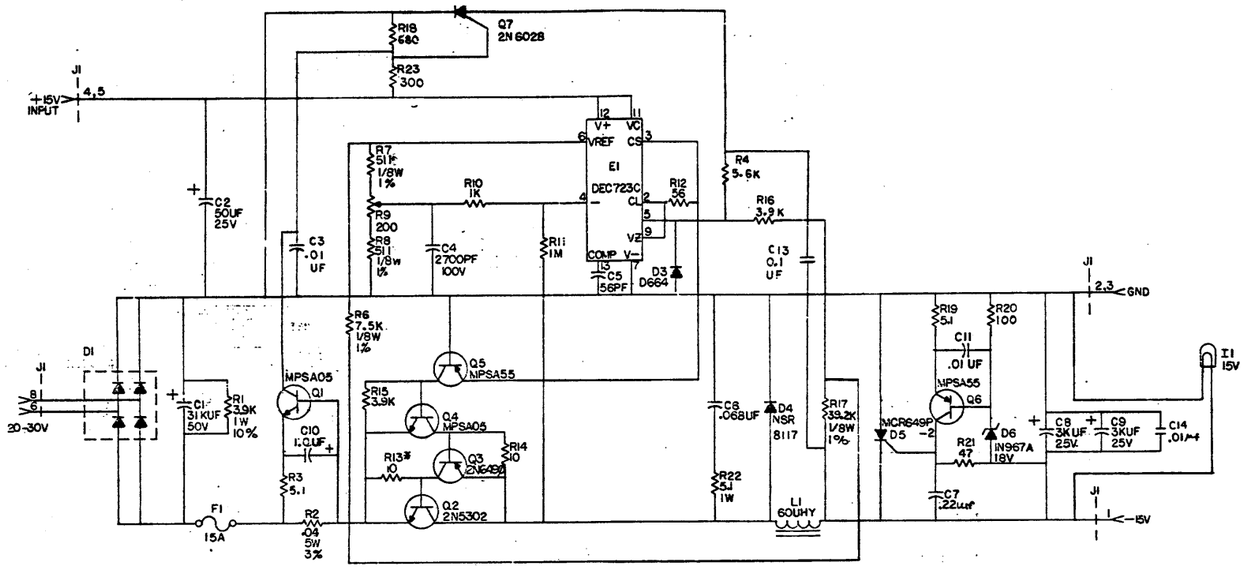
TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE -15V REGULATOR

SHEET 2 OF 2 | SIZE B | CODE DD | NUMBER H745-Ø | REV R

DRB 108A



* FUSIBLE
UNLESS OTHERWISE INDICATED:
RESISTORS = 1/4W, 5%

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV E

REV	CHANGE NO.	DESCRIPTION	DRN.	DATE
E	H745-00021	A. DAHON per Change # 24477	Roger J Duquette	11-5-71
			CHK'D. Nancy Moore	11-7-71
			ENG.	11/72
			PROJ.	11/72
			PROD.	11/3/72

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 1

Digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

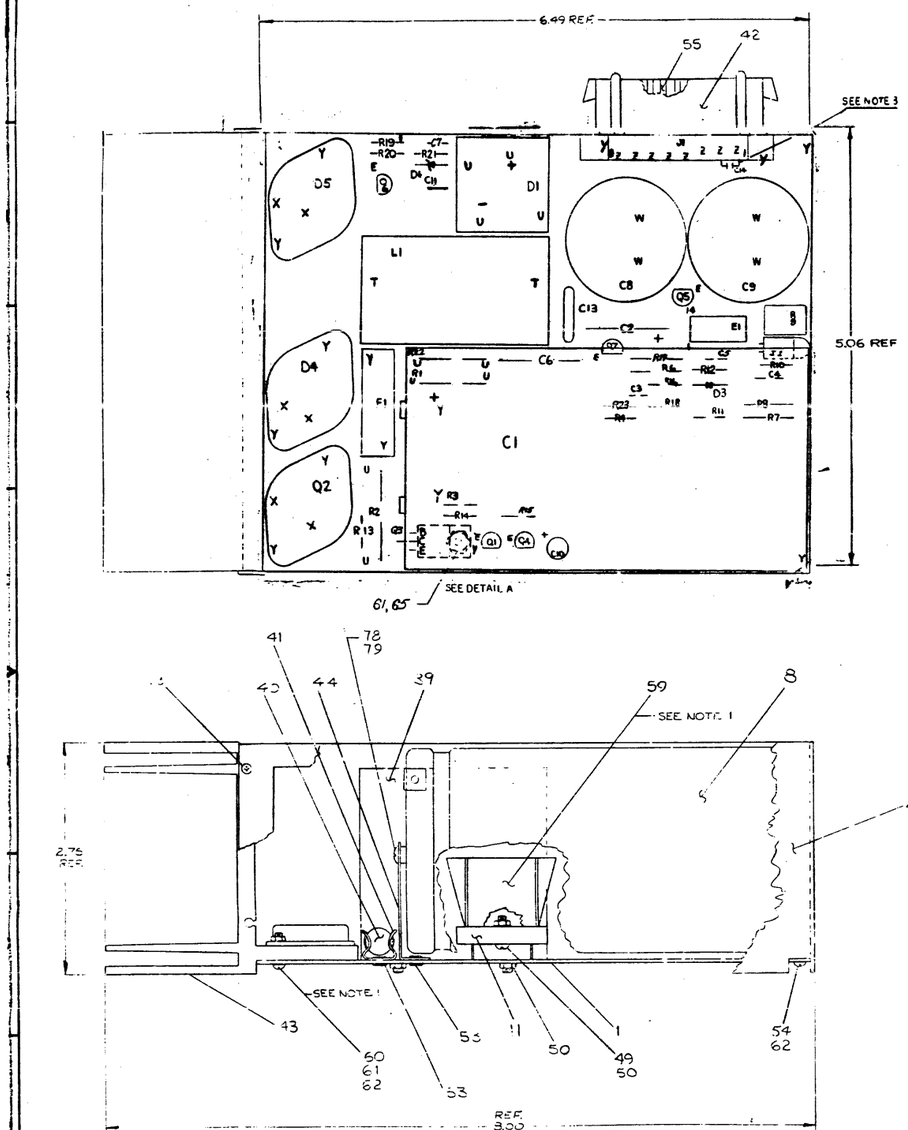
TITLE: -15V REG.

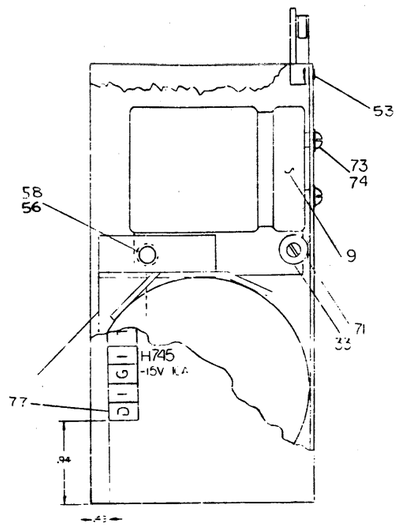
SIZE D CODE CS NUMBER H745-0-1 REV

DIST.

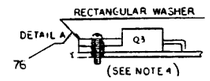
SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.
D664	IN 3606	D45H8	
NSR 8117		2N 6028	
MCR 649P-2			
IN 967A	SAME		
2N 5302			
MPS A05			
MPS A55			





NOTE:
3. INSERT C14 INTO ETCH PAD HOLES CONNECTED TO J1 TERMINALS 1-2.



NOTE 4:
Q3 SCREW HEAD SHOULD BE ON TOP OF FLAT RECTANGULAR WASHER AS SHOWN. APPLY 6 INCH LBS. OF TORQUE WHEN SECURING Q3 TO CKT. BOARD BEFORE SOLDERING.

NOTE 5: TORQUE APPLICATION
(1) APPLY 12 INCH LBS. OF TORQUE TO ALL #4 HARDWARE EXCEPT Q3.
(2) APPLY 16 INCH LBS. OF TORQUE TO ALL #2 AND #10 HARDWARE.
(3) ALL HARDWARE TO BE TORQUED BEFORE SOLDERING.

NOTE:
1. APPLY ITEM = 51 (THERMAL COMPOUND) BETWEEN TRANSISTOR AND INSULATOR, WASHER (ITEM = 52 ALSO BETWEEN WASHER & HEAT SINK FOR Q2 & D5 ALSO APPLY ITEM = 51 (COMPOUND) BETWEEN ITEM #11 (D1 - BRIDGE) AND ITEM = 59 (HEAT SINK).
2. 1010... MAY BE SUBSTITUTED FOR C13 (1000030).

		ASSY/DRILLING HOLE LAYOUT	D-AM-H745-0-5	70
1		PACKING INSTRUCTIONS	API-3700074-0-0	69
1	R18	RES. 680 "WW 5"	1301424	68
1	R23	RES 100 "WW 5%	1301425	67
1	C14 (SEE NOTE 2)	CAP. 0.1 uF 100V 20 %	1000030	66
1		BCR PN 894-40 X 5/16 LG	9009010-1	65
1	I1	LAMP 15V	1214356	64
4		SCR, PPH M4 X 5/16LG. SELF TAPPING	9009948	63
8		#4 WASHER	9009932	62
7		NUT HEX #4-40	9009557	61
6		SCR PHL PAN HD 4-40 X 3/16 LG	9009079-1	60
1		HEAT SINK BRIDGE RECT.	1210807	59
1		SCR PHL PAN HD #6-32 X 1/4 LG	9009028-1	58
1		SCR PHL FLT HD #6-32 X 1/4 LG	9004020-02	57
1		WASHER LOCK #6	9006833	56
8		CONTACT FERRULE	1209458	55
2		SCR PHL PAN HD 4-40 X 1/4 LG	9009079-1	54
6		EYELET 93-4-1	9009500	53
3		INSULATOR WASHER	9008721	52
AR		THERMAL COMPOUND	8010288	51
1		NUT HEX #6-32	9009135	50
1		SCREW PHL PAN HD 6-32 X 5/8 LG	9006525-01	49
4		WASHER FHL FLAT #6-32 X .438 OD	9009-0084-0	48
1		MARKER BOARD	5-10-5308758-0	47
1		REGULATOR BRKT	5-10-5308758-0	46
1		2.5 HOLDER CAPACITOR	5-10-5308758-0	45
2		STRAP CAPACITOR	C-10-5308758-0-0	44
1		HEAT SINK	D-PS-1210737-0-0	43
1	J1	TERM. STRIP—3-LOCK 3 PIN	1208385	42
2		RIVET CLIP	9007201	41
1	F1	FUSE	1213237-01	40
1	L1	REACTOR 60 MH	1810058	39
1	E1	INTEGRATED CIRCUIT UA723C	1210415	38
1	Q3	TRANSISTOR 2N6498	1512652-01	37
2	Q5, Q6	TRANSISTOR MJE	1510705	36
2	Q1, Q4	TRANSISTOR MJE	1510705	35
1	Q2	TRANSISTOR 2N3055	1510598	34
1	R9	RES VARIABLE 200 Ω, 20%	1310852	33
1	R20	RES 100 Ω 5%	1300229	32
1	R11	RES 1 KΩ 1/2 W 5%	1300295	31
1	R4	RES. 5.6 K 1/4W 5%	1300 274	30
2	R15, R16	RES 3.3K 1/2 W 5%	1300444	29
2	R19, R3	RES 5.1 1/2 W 5%	1308422	28
1	R12	RES 56 1/2 W 5%	1308802	27
1	R21	RES 47 1/2 W 5%	1300292	26
1	R17	RES 39.2K 1/2W 1%	1305262	25
1	R18	RES 18.2K 1/2 W 1%	1302385	24
1	R14	RES 10 1/2 W 5%	1301317	23
1	R6	RES 7.5K 1 W 1%	1305322	22
2	R7, R8	RES 511 1 W 1%	1302411	21
1	R22	RES 5.1 1/4 W 5%	1302138	20
	R24	NOT USED	1300419	19
1	R2	RES .04 Ω 3 W	1311362-00	18
1	R1	RES 3.3K 1 W 10%	1302927	17
1	C8	BRIDGE 10A 50	1110708	16
1	D5	SCR MCR6409-2	1109465	15
1	D4	DIODE MDA3117	1116215	14
2	D3	DIODE D664	1100114	13
1	Q7	TRANSISTOR UNI JUNCTION 2N6028	1510727	12
1	D1	DIODE BRIDGE	1110714	11
3	C12	CAP .15UF 220 VAC	1004312	10
2	C8, C9	CAP 3.0K UF 25V	1010703	9
1	C1	CAP 31K UF 50V	1010958	8
1	C10	CAP 1.0 UF 25V	1010866-01	7
1	C2	CAP 50 UF 25V -10+75%	1001758	6
1	C6	CAP 068 UF 1 KV 10%	1008852	5
1	C4	CAP 2700PF 100V 5%	1001631	4
3	C11, C3, C14	CAP .01UF 30V 20%	1001610	3
1	C5	CAP 1UF 100V	1008843	2
		ETCHED CIRCUIT BOARD	5308758-0-1	PCB
		CHASSIS ASSEMBLY	5308758-0-2	ASY
		CIRCUIT SCHEMATIC	A-AM-H745-0-1	SCH
		ASSEMBLY HOLE LOCATION	A-AM-H745-0-5	DRG
QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

1		DECAL (H745)	7416945-02	80
2		WASHER INT. TOOTH #10	9006635	79
2		SCREW PAN 10-32 x 3/4 LG	9009449-01	78
1	C7	CAP .22 uF 50V	1010274	77
1		WASHER, RECTANGULAR	9009769	76
1	R13	RES 10Ω 2 W, FUSIBLE	1312496-00	75
4		LOCKWASHER #10 INT	9006635	74
4		SCR #10-32 X 3/8 SLOTTED FIN HD.	9009465-01	73
1		TRANSPAD	9008206	71
		ETCH BOARD REV	E	

0664	IN3606		
DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

EQUIPMENT CORPORATION

TITLE: -15 REGULATOR

SIZE: E | H745-0-0 | REV

SCALE: | SHEET 1 OF 1

445

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H754-Ø		
+20 VOLT REGULATOR	E-CS-H754-0-1		

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
H754-0	+20 VOLT REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
10-75	H754-9	A
11-3	H754-10	B

USED ON OPTION/MODEL			
SHEET 1 OF 3			

DRN. J.Fleming	DATE 2/21/74	TITLE	
CHK'D. J.Fleming	DATE 2/21/74	+20 VOLT REGULATOR	
PROJ ENG. E. Wilcox	DATE 3-13-74		
PROD. Jack Hamman	DATE 3-14-74	SIZE B / CODE DD / NUMBER H754-Ø / REV D	
FIELD SERV. Walt Aubee	DATE 7/25/74	DIST	

DEC 16-12251-10S2-1A-R92

DRB 106

ELECTRICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	B-DD-H754-Ø	#	3	DRAWING DIRECTORY	
X			E-CS-H754-Ø-1	#	2	+20 VOLT REGULATOR	
			K-CO-H754-Ø-4		-	X-Y COORDINATE HOLE LOCATION	
			D-AH-H754-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-H754-Ø-6		1	MODULE ECO HISTORY	
			5010531		-	ETCHED CIRCUIT BOARD	
			A-SP-H754-Ø-8		3	MANUFACTURING SPEC	

MECHANICAL

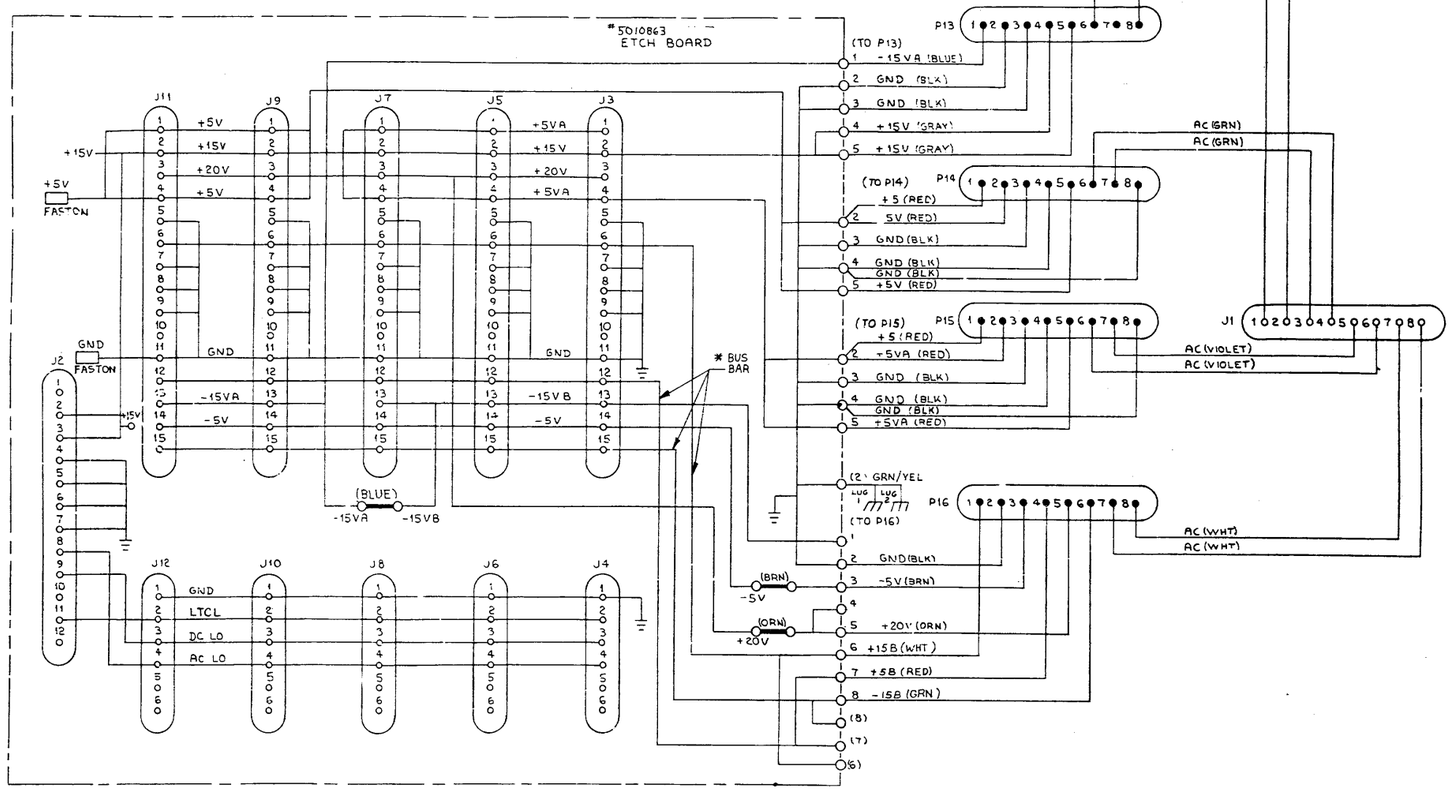
CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	E-CS-H754-0-1	#	2	+20 VOLT REGULATOR	
			D-PS-1210737-0-0		1	HEAT SINK REGULATOR	
			C-IA-5309758-0-0		1	CAPACITOR BRACKET	
		2	D-IA-5409756-0-0		1	BRACKET REGULATOR	
			A-SS-5309756-0-1		1	SILK SCREEN	
			A-SS-5309756-0-2		1	SILK SCREEN	
			A-SS-5309756-0-3		1	SILK SCREEN	

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

TITLE		SIZE	CODE	NUMBER	REV
+20 VOLT REGULATOR	SHEET 2 OF 3	B	DD	H754-Ø	B

DRB 108

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



2. BUS BAR USED IN THE YA VARIATION ONLY

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PWR DIST BOARD	D	CS	5410864-0-1	L
SCALE NONE SHEET 2 OF 3	DIST.			

452

WIRE TABLE

ITEM NO	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH	LENGTH	SIGNAL NAME
24	14	YEL	J1-1	8	P13-8	7	12.5"	AC/H745
24		YEL	J1-2		P13-6		12.5"	AC/H745
25		GRN	J1-3		P14-7		11"	AC/H744-1
25		GRN	J1-4		P14-6		11"	AC/H744-1
26		VIO	J1-5		P15-7		8.75"	AC/H744-2
26		VIO	J1-6		P15-6		8.75"	AC/H744-2
27		WHT	J1-7		P16-8		11.25"	AC/H754
27		WHT	J1-8	8	P16-7		11.25"	AC/H754
23		BLU	PDBP13-1	SOLDER	P13-1		5"	-15V
22		BLK	PDBP13-2		P13-2			GND
22		BLK	PDBP13-3		P13-3			GND
21		GRY	PDBP13-4		P13-4			+15V
21		GRY	PDBP13-5		P13-5			+15V
20		RED	PDBP14-2		P14-2			+5V
22		BLK	PDBP14-3		P14-3			GND
[illegible]		BLK	PDBP14-4		P14-4			GND
20		RED	PDBP14-5		P14-5			+5V
20		RED	PDBP15-2		P15-2			+5V
22		BLK	PDBP15-3		P15-3			GND
22		BLK	PDBP15-4		P15-4			GND
20		RED	PDBP15-5		P15-5			+5V
22		BLK	PDBP16-2		P16-2			GND
19		BRN	PDBP16-3		P16-3			-5V
18		ORN	PDBP16-5		P16-5	7	5"	+20V
23		BLU	PDP-15A		PDB-15B	SOLDER	1.75	-15V
18		ORN	PDBP16-5		PDB +20V		5"	+20V
19		BRN	PDBP16-3	SOLDER	PDB -5V		2"	-5V
33		GRN/YEL	LUG 1	35	PDBP16-2	SOLDER	11"	SAFETY GND
33					LUG 2	34	15"	SAFETY GND
20		RED	PDBP16-7	SOLDER	P16-4	7	5.5"	+5B
20		RED	PDBP15-1		P15-1		5"	+5V
20		RED	PDBP14-1		P14-1		5"	+5V
22		BLK	PDBP15-4		P15-8		5.5"	GND
22		BLK	PDBP14-4		P14-8			GND
27		WHT	PDBP16-6		P16-1			+15B
25	14	GRN	PDBP16-8	SOLDER	P16-6	7	5.5"	-15B

YA VARIATION ONLY. — SEE NOTE 1

BUS BAR CONNECTIONS FOR YA VARIATION

LEVEL A	PDB P16-6 J11,J9,J7,J5,J3 ALL PIN #6	+15V. B
LEVEL B	PDB P16-7 J11,J9,J7,J5,J3 ALL PIN #12	+5V
LEVEL C	PDB P16-8 J11,J9,J7,J5,J3 ALL PIN #15	-15V. B

NOTES:

1. CS REV. K AND EARLIER PWR DISTRIBUTION BOARDS HAD THE GREEN AND WHITE WIRES REVERSED IN COLOR ONLY. THE POINT-TO-POINT CONNECTIONS REMAIN THE SAME.

REVISIONS

CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
PWR DIST BOARD	D	CS	5410864-0-1	L
SCALE NONE — SHEET 3 OF 3	DIST			

DCS 5410864-0-1 L

A53

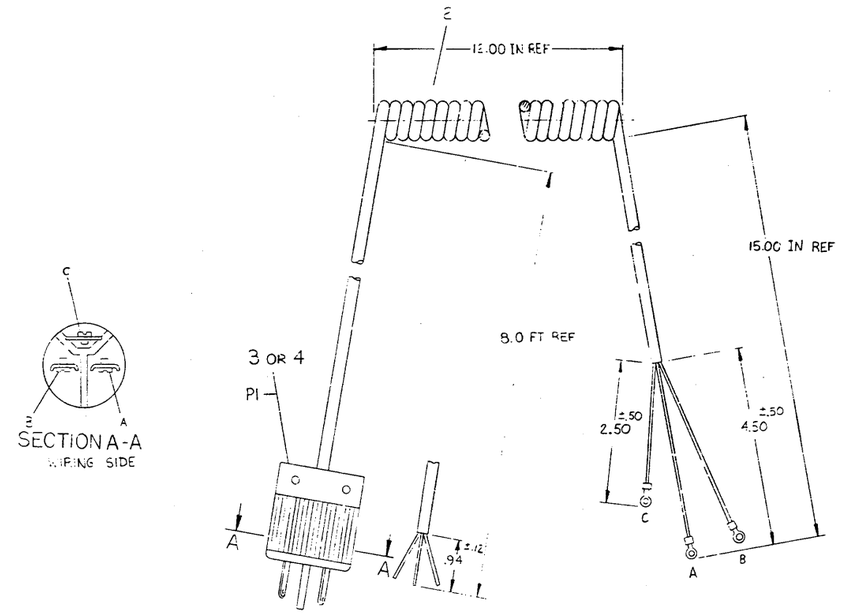
LEGEND	
NUMBER	VARIATION
7012500-0	120V
7012500-1	240V

WIRE TABLE (7012500-0)

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
3	14	BRN	P1-B	—	B	6	AC LINE
2	14	LT BLU	P1-A	—	A	6	AC NEUTRAL
2	14	GRN/YEL	P1-C	—	C	6	AC SAFETY GND

WIRE TABLE (7012500-1)

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
2	14	BRN	P1-B	—	B	6	LINE
2	14	LT BLU	P1-A	—	A	6	NEUTRAL
2	14	GRN/YEL	P1-C	—	C	6	AC SAFETY GND



ITEM	QTY	PART NO.	DESCRIPTION
3	B	9007935	TERMINAL RING TONGUE
~~2~~	~~2~~	~~9007919-0~~	~~TERMINAL, QUICK CONNECT~~
1	-	9008853	PLUG, 240 V
-	1	9003938	PLUG, 120 V
1	1	7700965-0	POWER CORD
~~1~~	~~1~~	~~7700963-0~~	~~POWER CORD~~

DESCRIPTION DWG./PART NO. ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

SURFACE QUALITY IN MIC.|INCHES	CLASS OF ACCURACY (CHECK ONE)	ANGLES ±0° 30'	OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
	MEDIUM		±.004	±.008	±.012	±.018	±.024	±.04
	PREFERRED		±.002	±.005	±.008	±.012	±.020	±.03

7012500-1
7012500-0
QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

DRN.	R. Bradley	2-27-76
CHK'D	[illegible]	[illegible]-76
ENG.	[illegible]	[illegible]
PROJ. ENG.	[illegible]	[illegible]
PROD.	[illegible]	[illegible]

FIRST USED ON 3AH-K

digital

TITLE
POWER CORD
120V 240V

NEXT HIGHER ASSY. 7009811-0-0

MATERIAL SEE PARTS LIST

FINISH —

SCALE NONE

SHEET 1 OF 1

SIZE D | CODE IA | NUMBER 7012500-0-0 | REV. B

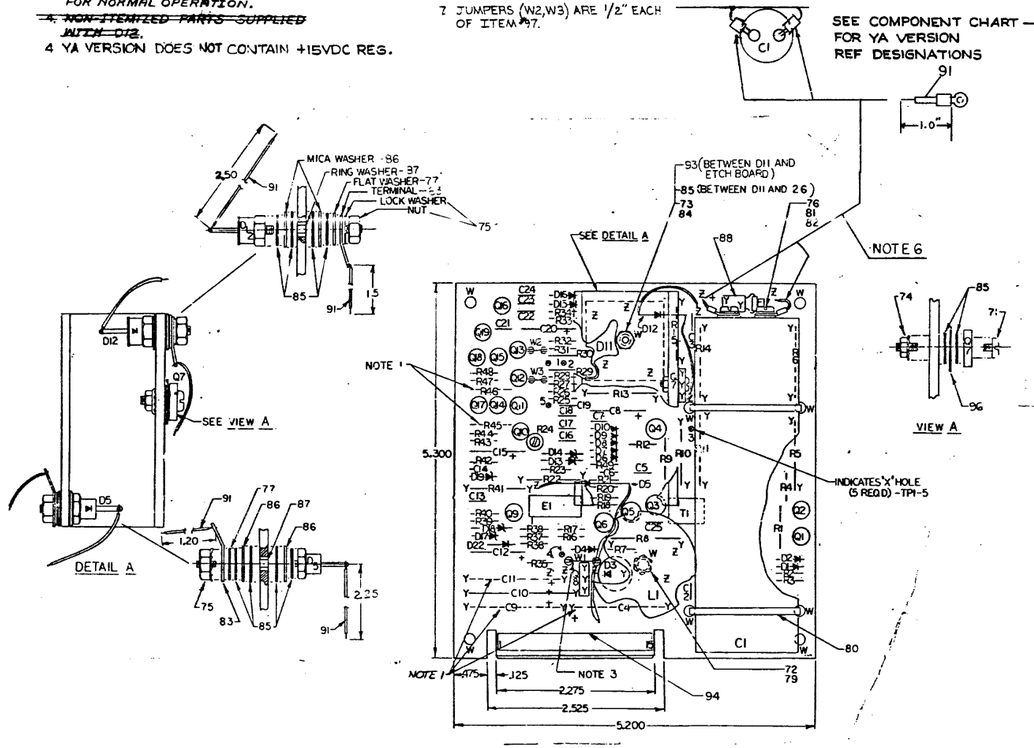
DIST.

REVISIONS			
DIR	CHANGE NO.	REV.	
	[illegible]	B	[illegible]

USED ON
NEXT ASSY

NOTES:

1. ~~R45,R46,C8,C9,&C11 ARE NOT USED ON BASIC 5411086 BUT ARE RESERVED FOR PLANNED FUTURE MODULE VARIATIONS.~~
2. ** TOTAL +15V AND +8V CURRENT NOT TO EXCEED 4.0 AMPERES.
3. W1 (TEST JUMPER) MAYBE TEMPORARILY REMOVED WHILE TROUBLE-SHOOTING TO DETERMINE IF LOSS OF 15V IS DUE TO CROW-BAR CIRCUITRY. BUT MUST BE IN THE BOARD FOR NORMAL OPERATION.
4. ~~NON-ITEMIZED PARTS SUPPLIED WITH D12.~~
4 YA VERSION DOES NOT CONTAIN +15VDC RES.
5. A) FOR STANDARD VERSION USE SHEETS 1,2,3,&4 OF THIS DWG.
   B) FOR YA VERSION USE SHEETS 1,2,&3 OF THIS DWG.
6. W1 RES MUST NOT EXTEND BEYOND THE DIMENSIONS OF THE BOARD.
7. JUMPERS (W2,W3) ARE 1/2" EACH OF ITEM 97.



REF	REF				
REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411086-0-4	1
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411086-0-5	2
REF	REF		MODULE ECO HISTORY	B-MH-5411086-0-6	3
1	1		ETCHED CIRCUIT BOARD	5011085	4
0	1	C2	CAPACITOR 58PF 100V 5%	1000012	5
4	4	C18,C17,C18,C21	CAPACITOR 330PF 100V 5%	1000023	6
3	5	C3,C13,C19,C22,C23	CAPACITOR .01uf 100V 20%	1001610-01	7
1	3	C9,C12,C15	CAPACITOR 2.2uf 35V 10%	1002431	8
2	2	C8,C25	CAPACITOR 18PF 100V 5%	1002608	9
1	1	C24	CAPACITOR 1.5uf 35V 10%	1003725	10
4	4	C5,C7,C14,C24	CAPACITOR .22uf 50V -20% +80%	1010274-01	11
0	1	C10	CAPACITOR 500uf 25V -10% +75%	1010509-01	12
1	1	C1	CAPACITOR 8400uf 50V -10% +75%	1010851	13
1	2	D2,D19	DIODE IN748A	1100122	14
0	1	D5	DIODE IN2970B	1100134	15
0	1	D3	DIODE MR1833B	1103341	16
7	8	D1,D6,D7,D8,D9,D15,D16,D22	DIODE D672	1105275	17
1	2	D18,D17	DIODE IN4744	1105648	18
0	1	D4	DIODE IN4884	1105798	19
0	1	D12	DIODE IN3828	1105 7	20
2	2	D13	DIODE IN5817A	1110368	21
~~2~~	~~2~~	~~D20,D21~~	~~DIODE IN5854-1 (LIGHT EMITTING)~~	~~1110324~~	~~22~~
1	1	D11	DIODE BRIDGE 200V 2AA	1110714	23
2	2	D13,D14	DIODE 1TT2429	1110925	24
0	1	F1	FUSE PICO 5A	1205747	25
0	1		HEAT SINK	1211986	26
0	1	R23	RESISTOR 47 1/4W 5%	1300202	27
0	2	R7,R49	RESISTOR 100 1/4W 5%	1300229	28
0	1	R41	RESISTOR 100 1W 5%	1300232	29
1	3	R4,R12,R49	RESISTOR 220 1/4W 5%	1300271	30
0	1	R14	RESISTOR 220 2W 10%	1300278	31
0	1	R11	RESISTOR 680 2W 5%	1300348	32
2	2	R18,R28	RESISTOR 1K 1/4W 5%	1300365	33
0	1	R1	RESISTOR 1.5K 1/2W 5%	1300394	34
0	1	R19	RESISTOR 2.2K 1W 10%	1300420	35
1	1	R15,	RESISTOR 3.3K 1W 10%	1300437	36
0	1	R3	RESISTOR 3.3K 1/4W 5%	1300439	37
2	2	R43,R47	RESISTOR 10K 1/4W 5%	1300479	38
0	1	R37	RESISTOR 10 1/4W 5%	1301317	39
2	3	R2,R44,R48	RESISTOR 750 1/4W 5%	1301401	40
0	1	R38	RESISTOR 680 1/4W 5%	1301424	41
0	1	R16	RESISTOR 22K 1/4W 5%	1301808	42
1	1	R13	RESISTOR 1K 2W 5%	1301952	43
0	1	R9	RESISTOR 27 1/2W 5%	1302253	44
2	2	R19,R21	RESISTOR 30K 1/4W 5%	1302394	45
0	1	R36	RESISTOR 511 1/4W 1%	1302411	46
0	1	R39	RESISTOR 909 1/4W 1%	1302685	47
1	1	R25	RESISTOR 3.16K 1/4W 1%	1303045	48
1	1	R8	RESISTOR 470 2W 5%	1303062	49
1	2	R17,R28	RESISTOR 1K 1/4W 1%	1303114	50
1	1	R31	RESISTOR 2.61K 1/4W 1%	1303303	51
0	1	R42	RESISTOR 10K 1/4W 1%	1303312	52
2	2	R33,R34	RESISTOR 5.11K 1/4W 1%	1304854	53
1	1	R30	RESISTOR 9.09K 1/4W 1%	1304355	54
YA	QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

COMPONENT CHART -YA VERSION		
3	C19,C22,C23	7
1	C8	8
1	D19	14
7	D6,D7,D8,D9,D15,D16,D22	17
1	D10	18
1	R49	30
2	R44,R48	40
1	R28	50
4	Q3,Q5,Q10,Q19	63
4	Q11,Q12,Q13,Q16	66
QTY	REF. DESIGNATION	ITEM

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

IC PIN LOCATIONS

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV. D

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

SEMICONDUCTOR CONVERSION CHART

REV.	DESCRIPTION	DATE	APPROVED
D	ECO 5411086-0001	5-6-75	
E	ECO 5411086-0002	6-25-75	
F	ECO 5411086-0003	7-25-75	
G	ECO 5411086-0004	8-25-75	
H	ECO 5411086-0005	9-25-75	
J	ECO 5411086-0006	10-25-75	
K	ECO 5411086-0007	11-25-75	
L	ECO 5411086-0008	12-25-75	

DRAWN: G. Vincent 10-7-74
CHECKED: A. BARON 10-7-74
ENGR: [illegible] 10-7-74
MFG: [illegible] 10-7-74
QUAL: [illegible] 10-7-74
NEXT HIGHER ASSY

digital

TITLE: PWR. LINE MONITOR/15V REG.

SIZE D | CODE CS | NUMBER 5411086-0-1 | REV. L

SCALE

SHEET 1 OF 4

DIST.

NOTES:

YA	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	1	R29	RESISTOR 3.48K 1/4W 1%	1305114	55
1	1	R28	RESISTOR 5.62K 1/4W 1%	1305128	56
1	1	R27	RESISTOR 4.32K 1/4W 1%	1305324	57
0	1	R35	RESISTOR 24.9K 1/4W 1%	1305405	58
0	1	R24	RESISTOR 200 20% 62PR	1309150-10	59
1	1	R32	RESISTOR 18.2K 1/4W 1%	1305412	60
0	2	R5,R6	RESISTOR .2 5W 5% WW	1309884	61
0	1	Q7	TRANSISTOR MJE3055	1510155	62
4	9	Q2,Q3,Q5,Q8,Q16,Q19	TRANSISTOR MPSA05	1510705	63
0	2	Q4,Q9	TRANSISTOR MPS A55	1510706	64
0	1	Q9	TRANSISTOR 2N 4441	1505867	65
4	5	Q1,Q11,Q12,Q13,Q18	TRANSISTOR 2N 4258	1509142	66
4	4	Q14,Q15,Q17,Q18	TRANSISTOR 2N 5433	1511686	67
0	1	L1	INDUCTOR, 500 uh	1611868	68
1	1	T1	TRANSFORMER	1612026	69
0	1	E1	I.C. DEC 723	1910415	70
0	1		SCREW, PHM #4-40 X 7/16 LG.	9006012-1	71
0	1		SCREW, PHM #6-32 X 1/4 LG.	9006020-1	72
0	1		SCREW, PHM #8-32 X 7/8 LG.	9006027-1	73
0	1		KEP NUT #4-40	9006557	74
0	2		KEP NUT #10-32	9006566	75
2	2		WASHER, ITTLKTR #10	9006635	76
0	2		WASHER, FLAT	9006696	77
0	2	(W1)	SPLIT LUG	9006735	78
0	1		SPACER, 1/4AF X 1/2	9006861	79
4	4		CABLE TIE	9007880	80
2	2		TERMINAL	9007930	81
2	2		SCREW, PHM #10-32 X 1/4 LG.	9008007-1	82
0	2		TERMINAL	9008150	83
0	1		KEP NUT #6-32	9008185	84
0	A/R		COMPOUND, THERMAL JOINT	9008268	85
0	4		WASHER, THERMA FILM	9008424	86
0	2		WASHER, RING	9008440	87
0	1		FUSE HOLDER	9009141	88
1	1	R22	RESISTOR,330, 2W 10%	1301880	89
0	1	W1	JUMPER	9009185	90
2	12		WIRE #18 STRANDED BLK	9107350-0-0	91
REF	REF		MODULE TEST PROCEDURE	A-SP-1145-TA-2	92
1	1		WASHER, RING	9006713	93
1	1		.010 INCH SHIM	7413721-0-0	94
REF	REF		ENG. SPEC AND TEST PROC.	A-SP-5411086-0-2	95
0	1		INSULATOR, THERMA FILM	9009597	96
A/R	A/R	W2,W3	WIRE #22 BUS	9107350-0-0	97

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV D

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

IC PIN LOCATIONS

REV	CHANGE NO.	CHK	DEC NO.	EIA NO.	DEC NO.	EIA NO.

REVISIONS

SEMICONDUCTOR CONVERSION CHART

DRN. G Vincent DATE 10-9-74
CHK'D. [illegible] DATE [illegible]
ENG. [illegible] DATE 11/7/74
MFG. [illegible] DATE 11/7/74
QA [illegible] DATE 11/14/74
NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE PWR. LINE MONITOR/15V REG.

SIZE CODE D | NUMBER CS 5411086-0-1 | REV. L

SHEET 2 OF 4 | DIST.

454

+25 TO +45 VDC

R8 470 2W

R13 1K 2W

TP3

C25 18 pf

R21 30K

R20 1K

R18 1K

R19 30K

C6 13 pf

Q3 MPS A05

Q5 MPS A05

C5 .22 uf 50V

T1

D22 D672

D8 D672 D9 D672 D6 D672 D7 D672

C7 .22 uf 50V

D10 1N4744 15V

R48 750

Q19 MPS A05

5 -10V TO -15V (TEST POINT)

(ENG OPTION SEE NOTE 1) R46 1/2W

Q15 2N5433

Q18 2N5933

3 AC LO 1

8 AC LO 2

R49 220

R47 10K

4 LO GND

R43 10K

R44 750

Q16 MPS A05

Q17 2N5433

Q14 2N5433

1 DC LO 2

2 DC LO 1

R45 1/2W (SEE NOTE 1 ENG. OPTION)

D15 D672 AC-1

D16 D672 AC-1

20V TO 33V RMS AC INPUT

P34 5.11K 1%

R33 5.11K 1%

C24 .22 uf 50V

C26 1.5 uf 35V

TP1

TP2

R30 5.09K 1%

R32 18.2K 1%

R31 2.61K 1%

R29 3.48K 1%

R26 5.62K 1%

R27 4.99K 1%

TP5

C8 2.2 uf 35V

G16 2N4250

G13 2N4250

Q12 2N4250

Q11 2N4250

C21 330 pf

C18 330 pf

C17 330 pf

C16 330 pf

R25 3.16K 1%

W3

W2

D14 ITT2429 5.1V

D13 ITT2429 5.1V

C22 .01 uf 100V

C23 .01 uf 100V

R28 1K 1%

C19 .01 uf 100V

RETURN

+25 TO +45VDC

TO 20V TO 33V RMS AC INPUT

AC-1 15

AC-2 14

D11 BR3004 CDV

L1

R15 3.3K 1W

6 LINE CLK L

D19 3.9V 1N748A

R22 390 ~ 2W

C18 .22 uF 50V

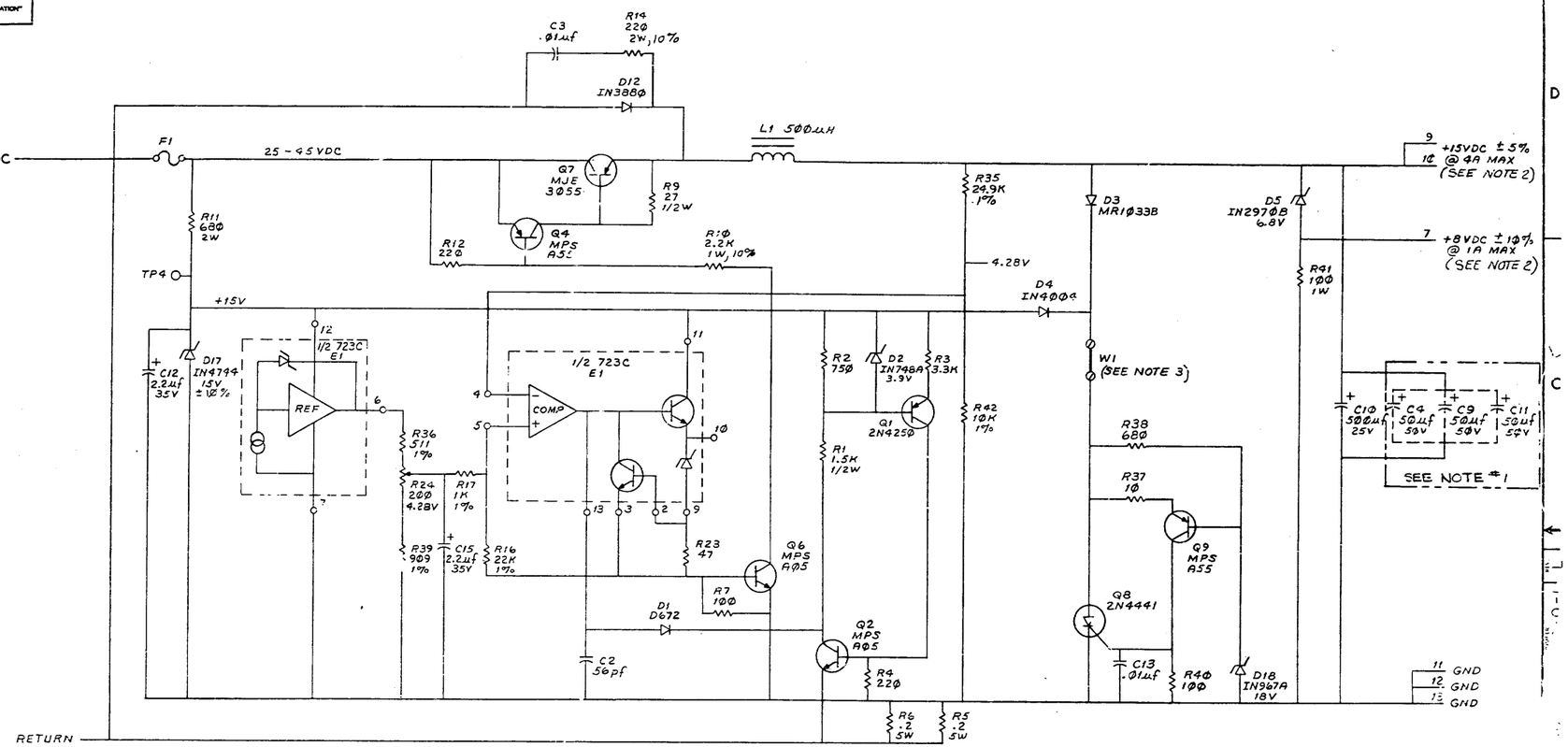
POWER FAIL CIRCUIT

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	PWR. LINE MONITOR/15V REG.	SIZE	CODE	NUMBER / REV.
		D	CS	5411086-0-1 / L
SCALE	SHEET 3 OF 4	DIST		

1-C-5411086-0-1

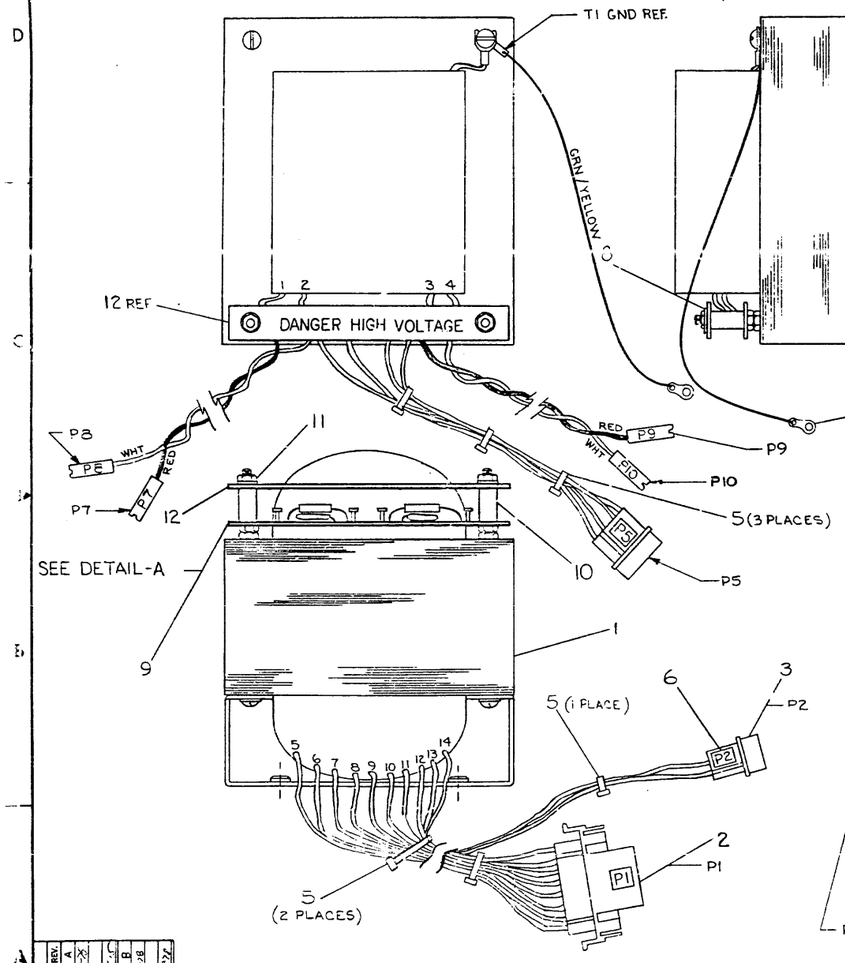
457

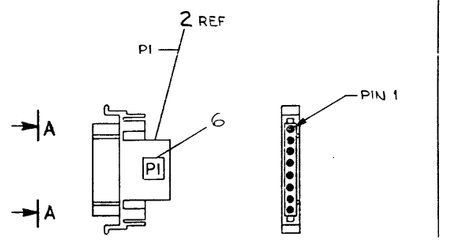


15V REGULATOR
(SEE NOTE #4)

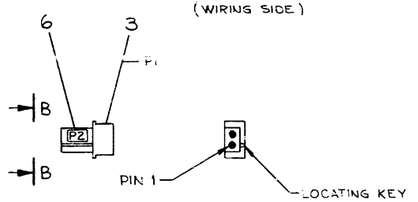
REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PWR. LINE MONITOR/15V REG.	D	CS	5411086-0-1	L
SCALE —	SHEET 4 OF 4	DIST.		

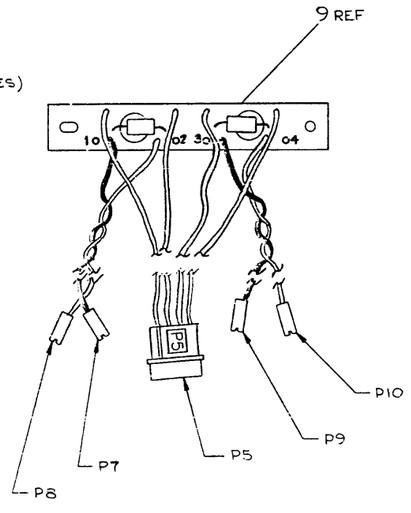




VIEW A-A
(WIRING SIDE)



VIEW B-B
(WIRING SIDE)



DETAIL-A
ITEM- 9

REF	DESCRIPTION	DWG/PART NO.	ITEM NO.
1	TRANSFORMER ASSY	A-SP-7011486-0-0	13
1	COVER	70-IA-7414301-0-0	12
2	NUT, KEP #10-32	9003535	11
2	SPACER, 3/8 OD X 1/2 LG	9001831	10
1	CAP MOV BOARD ASSY	70-IA-7011751-0-0	9
2	WASHER, FLAT .937 X .218 ID	9003664	8
1	GROUND LUG	9008150	7
1	DECAL	A-DC-7409872-0-0	6
A/R	CABLE TIES 5 1/4 L X 1/8 W	9007880	5
10	PIN, MALE	1209378-1	4
1	CONN., 2 PIN	1210822-2	3
1	CONN., 3 PIN	1209340-01	2
1	TRANSFORMER	1612524	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0°30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 0.3	OVER 0.3 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN ✓ MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: —

DRN. W. Dailie
CHK'D. [illegible]
ENG. [illegible]
PROJ. ENG. R. [illegible]
PROD. [illegible]
NEXT HIGHER ASSY. D-JA-7011482-0-0

FIRST USED ON: HT52

digital

TITLE: TRANSFORMER ASS'Y

SIZE: D | CODE: 80 | NUMBER: 70-11486-0-0 | REV.: B

SCALE 1/1

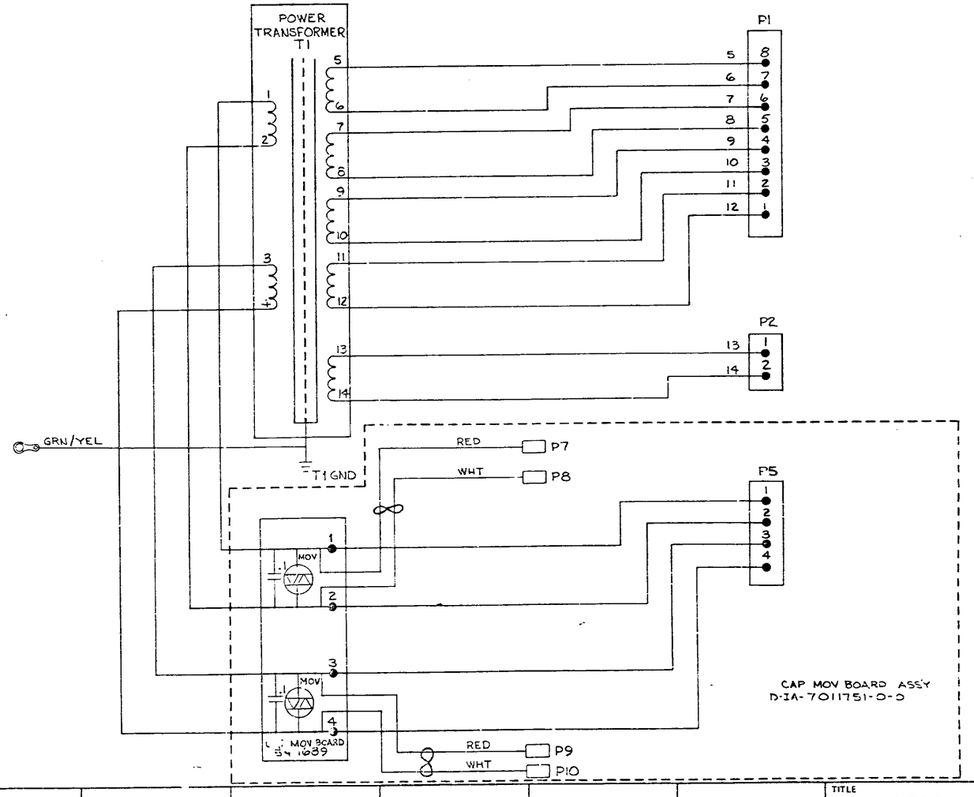
SHEET 1 OF 2

DIST.

REVISIONS			
ECO	CHANGE NO.	REV.	
123	7011486-00001	A	5/17/76 B. WOLF
JA	7011486-00002	B	4/29/77 R. KENNEDY

WIRE TABLE

ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH	WIRE LENGTH
1	14	BLK	T1-1	—	CAP MOV BD-1	SOLDER	1.5 IN
↑	↑	↑	T1-2	—	CAP MOV BD-2	SOLDER	2.0 IN
			T1-3	—	CAP MOV BD-3	SOLDER	2.0 IN
			T1-4	—	CAP MOV BD-4	SOLDER	1.5 IN
			T1-5	—	P1-8	ITEM 4	12.0 IN
			T1-6	—	P1-7	↑	↑
			T1-7	—	P1-6		
			T1-8	—	P1-5		
			T1-9	—	P1-4		
			T1-10	—	P1-3		
			T1-11	—	P1-2	↓	
			T1-12	—	P1-1	ITEM 4	
↓	↓	↓	T1-13	—	P2-1	ITEM 4	↓
1	14	BLK	T1-14	—	P2-2	ITEM 4	12.0 IN
1	14	GRN/YEL	T1-GND	—	GND LUG (ITEM 7)	SOLDER	16.0 IN



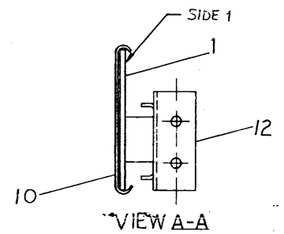
REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
TRANSFORMER ASSY	D	AD	7011486-0-0	B
SCALE — / — SHEET 2 OF 2	DIST.			

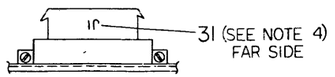
40

NOTES:

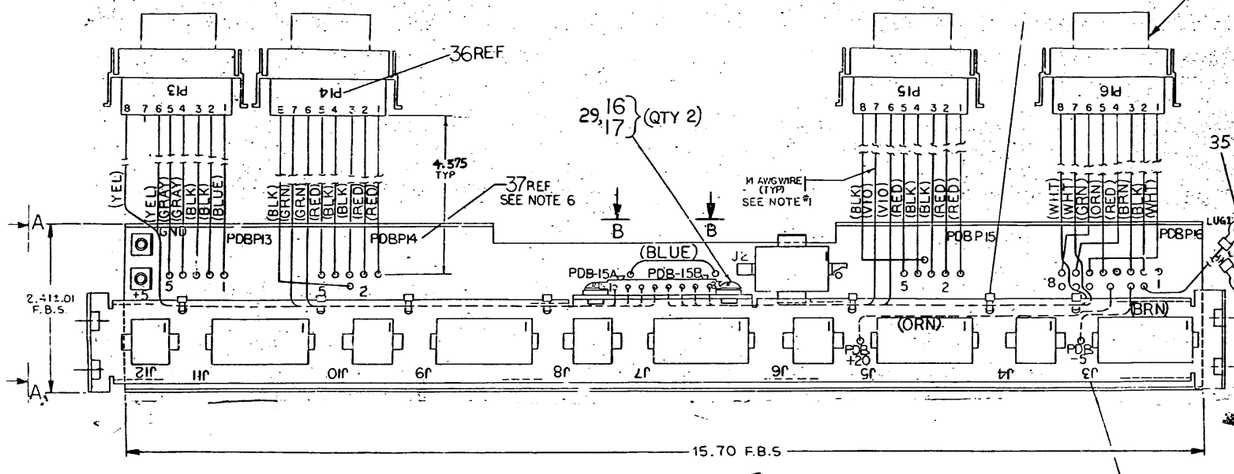
1. FOR HAND WIRING INFORMATION SEE WIRE TABLE ON SHEET 3.
2. MATE-N-LOK FIXTURES (ITEM 28) MUST BE USED DURING WAVE SOLDERING OF J2, J3-J12
3. WIRE JUMPERS ON CIRCUIT BOARD ARE PART OF SIGNAL PATHS. THEY ARE NOT FOR OPTIONS
4. PLACE DECALS (ITEM 30, 31 & 36) APPROX. AS SHOWN.
5. POWER DIST. BOARD WITH 7 #14 AWG WIRES AND BUS BAR IS THE YA VARIATION.
6. PLACE DECAL (ITEM 34) COVERING BOARD ETCH APPROX. AS SHOWN.

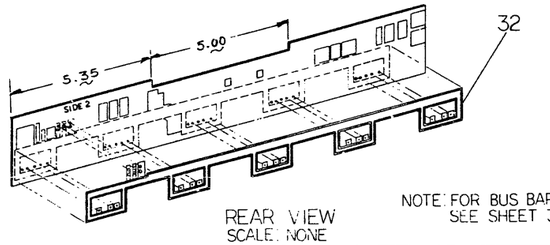


VIEW A-A



VIEW B-B
SCALE: NONE





REAR VIEW
SCALE: NONE

NOTE: FOR BUS BAR CONNECTIONS SEE SHEET 3 OF 3

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

QTY	QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	1		ETCHED CIRCUIT BOARD	D-UA-5010863-0-0	1
5	5	J4, J6, J8, J10, J12	CONN, 6 PIN MATE-N-LOK (FEMALE)	1209350-06	2
1	1	J1	CONN, 8 PIN MATE-N-LOK (FEMALE)	1209340-00	3
5	5	J3, J5, J7, J9, J11	CONN, 15 PIN MATE-N-LOK (FEMALE)	1209350-15	4
1	1	J2	CONN, 12 PIN MATE-N-LOK (FEMALE)	1209350-12	5
4	4	P13 THRU P16	CONN, 8 PIN MATE-N-LOK (MALE)	1209340-01	6
31	24	(P13 THRU P16)	PIN, MATE-N-LOK	1209378-01	7
8	8	(J1)	PIN, MATE-N-LOK	1209379-01	8
117	117		PIN, MATE-N-LOK PC MOUNT	1209456	9
1	1		SHIELD	C-MD-7412192-0-0	10
~~2~~	~~2~~		~~GROUND LUG~~	~~9008150~~	~~11~~
1	1		BRACKET, CONN MTG	D-MD-7411704-00	12
2	2		EYELET	9009000	13
2	2		FASTON TAB	9008219-0	14
7	7		CABLE TIE .12 WIDE	9007880	15
2	2		SCREW, PHHD TRUSS 6-32 x .3125	9006021-03	16
2	2		WASHER, INT TOOTH #6	9006633	17
A/R	A/R		WIRE #14 AWG STRD (ORN)	9107370-00	18
A/R	A/R		WIRE #14 AWG STRD (BRN)	9107370-11	19
A/R	A/R		WIRE #14 AWG STRD (RED)	9107370-22	20
A/R	A/R		WIRE #14 AWG STRD (GRY)	9107370-88	21
A/R	A/R		WIRE #14 AWG STRD (BLK)	9107370-00	22
A/R	A/R		WIRE #14 AWG STRD (BLU)	9107370-66	23
A/R	A/R		WIRE #14 AWG STRD (YEL)	9107370-44	24
A/R	A/R		WIRE #14 AWG STRD (GRN)	9107370-55	25
A/R	A/R		WIRE #14 AWG STRD (VIO)	9107370-77	26
A/R	A/R		WIRE #14 AWG STRD (WHT)	9107370-99	27
REF	REF		MATE-N-LOK FIXTURES	C-IA-9305937-0-0	28
2	2		FLAT WASHER #6	9006656	29
A/R	A/R	J3 THRU J12	DECAL, PWR CONN.	A-DC-7409873-01	30
A/R	A/R	J1	DECAL, PWR CONN.	A-DC-7409873-02	31
1	–		BAR, BUS, BATTERY BACKUP	1213497	32
A/R	A/R		WIRE #14 AWG GRN/YEL	9107777-54	33
1	1		TERMINAL, RING BLU	9007928	34
1	1		TERMINAL, RING YEL	9007926-01	35
A/R	A/R	P13 THRU P16	DECAL, PWR CONN.	A-DC-7409872-2	36
A/R	A/R	P13 THRU P16	DECAL, PWR BOARD	A-DC-7417991-0-0	37

5410864-YA / 5410864

PARTS LIST

FIRST USED ON OPTION MODEL: BA11-K

ETCH BOARD REV. D

REV.	CHANGE NO.	REVISIONS	CHK
D	5410864-1	ORIGINATED	M. CARRAFIELLO
C	5410864-00004		B. MINOR
B	5410864-00003		B. MINOR
A	5410864-00002		B. MINOR

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

SEMICONDUCTOR CONVERSION CHART

DRN. P. Bensley DATE 6/14/74
CHK'D DATE
ENG. DATE
ENG. DATE
PROD. DATE
NEXT HIGHER ASSY D-UA-BA11-K-Ø
SCALE NONE
SHEET 1 OF 3

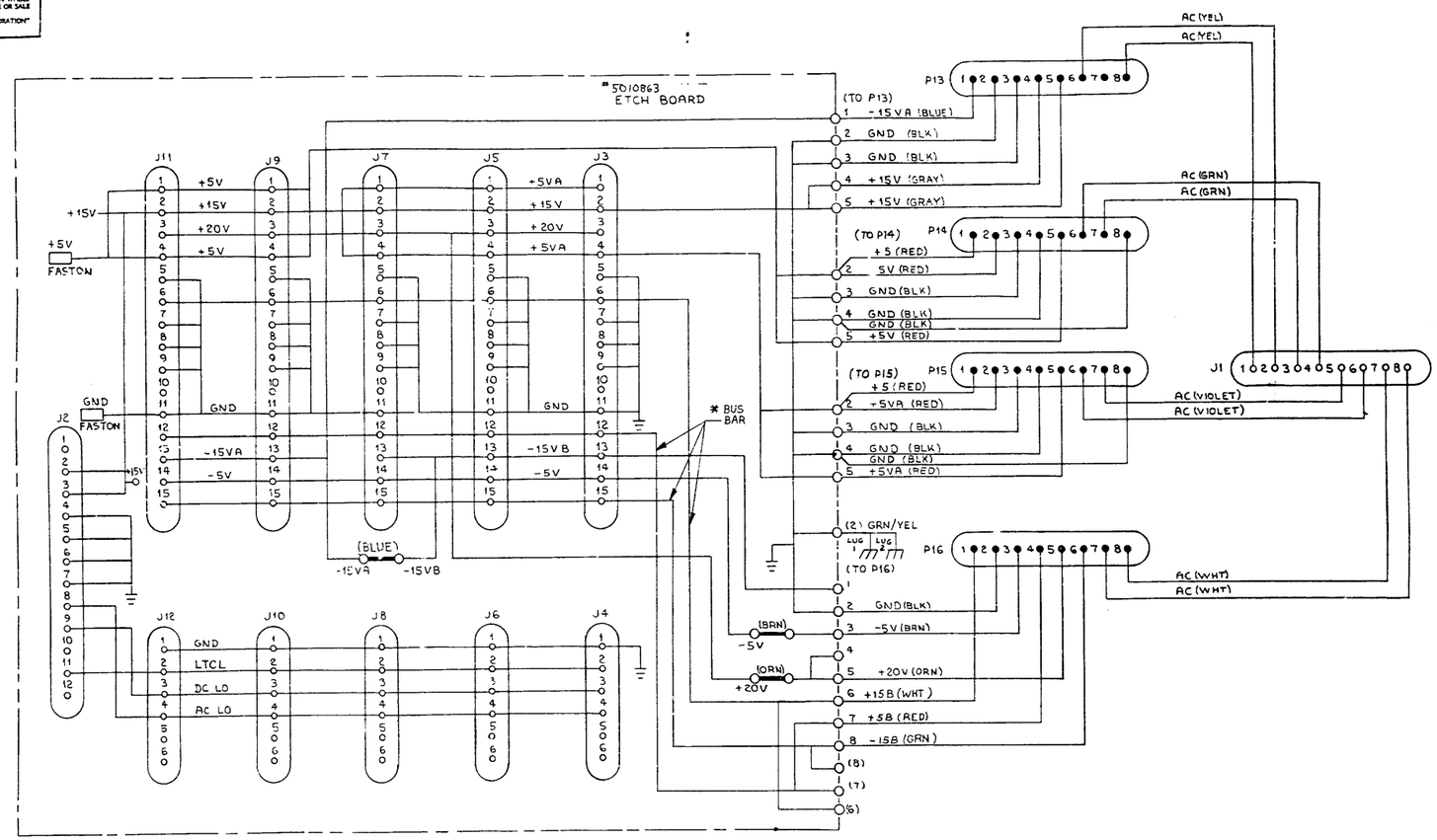
digital

TITLE: POWER DISTRIBUTION BOARD

SIZE	CODE	NUMBER	REV.
D	CS	5410864-0-1	L

DIST.

461



* BUS BAR USED IN THE YA VARIATION ONLY

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
PWR DIST BOARD	D	CS	5410864-0-1	L
SCALE NONE	SHEET 2 OF 3	DIST.		

462

WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH	LENGTH	SIGNAL NAME
24	14	YEL	J1-1	8	P13-8	7	12.5"	AC/H745
24		YEL	J1-2		P13-6		12.5"	AC/H745
25		GRN	J1-3		P14-7		11"	AC/H744-1
25		GRN	J1-4		P14-6		11"	AC/H744-1
26		VIO	J1-5		P15-7		8.75"	AC/H744-2
26		VIO	J1-6		P15-6		8.75"	AC/H744-2
27		WHT	J1-7		P16-8		11.25"	AC/H754
27		WHT	J1-8	8	P16-7		11.25"	AC/H754
23		BLU	PDBP13-1	SOLDER	P13-1		5"	-15V
22		BLK	PDBP13-2		P13-2			GND
22		BLK	PDBP13-3		P13-3			GND
21		GRY	PDBP13-4		P13-4			+15V
21		GRY	PDBP13-5		P13-5			+15V
20		RED	PDBP14-2		P14-2			+5V
22		BLK	PDBP14-3		P14-3			GND
22		BLK	PDBP14-4		P14-4			GND
20		RED	PDBP14-5		P14-5			+5V
20		RED	PDBP15-2		P15-2			+5V
22		BLK	PDBP15-3		P15-3			GND
22		BLK	PDBP15-4		P15-4			GND
20		RED	PDBP15-5		P15-5			+5V
22		BLK	PDBP16-2		P16-2			GND
19		BRN	PDBP16-3		P16-3			-5V
18		ORN	PDBP16-5		P16-5	7	5"	+20V
23		BLU	PDP-15A		PDB-15B	SOLDER	1.75	-15V
18		ORN	PDBP16-5		PDB +20V		5"	+20V
19		BRN	PDBP16-3	SOLDER	PDB -5V		2"	-5V
33		GRN/YEL	LUG 1	35	PDBP16-2	SOLDER	11"	SAFETY GND
33					LUG 2	34	15"	SAFETY GND
20		RED	PDBP16-7	SOLDER	P16-4	7	5.5"	+5B
20		RED	PDBP15-1		P15-1		5"	+5V
20		RED	PDBP14-1		P14-1		5"	+5V
22		BLK	PDBP15-4		P15-8		5.5"	GND
22		BLK	PDBP14-4		P14-8			GND
27		WHT	PDBP16-6		P16-1			+15B
25	14	GRN	PDBP16-8	SOLDER	P16-6	7	5.5"	-15B

YA VARIATION ONLY.

SEE NOTE 1

BUS BAR CONNECTIONS FOR YA VARIATION

LEVEL A	PDB P16-6 J11,J9,J7,J5,J3 ALL PIN #6	+15V. B
LEVEL B	PDB P16-7 J11,J9,J7,J5,J3 ALL PIN #12	+5V
LEVEL C	PDB P16-8 J11,J9,J7,J5,J3 ALL PIN #15	-15V. B

NOTES:

1. CS REV. K AND EARLIER PWR DISTRIBUTION BOARDS HAD THE GREEN AND WHITE WIRES REVERSED IN COLOR ONLY. THE POINT-TO-POINT CONNECTIONS REMAIN THE SAME.

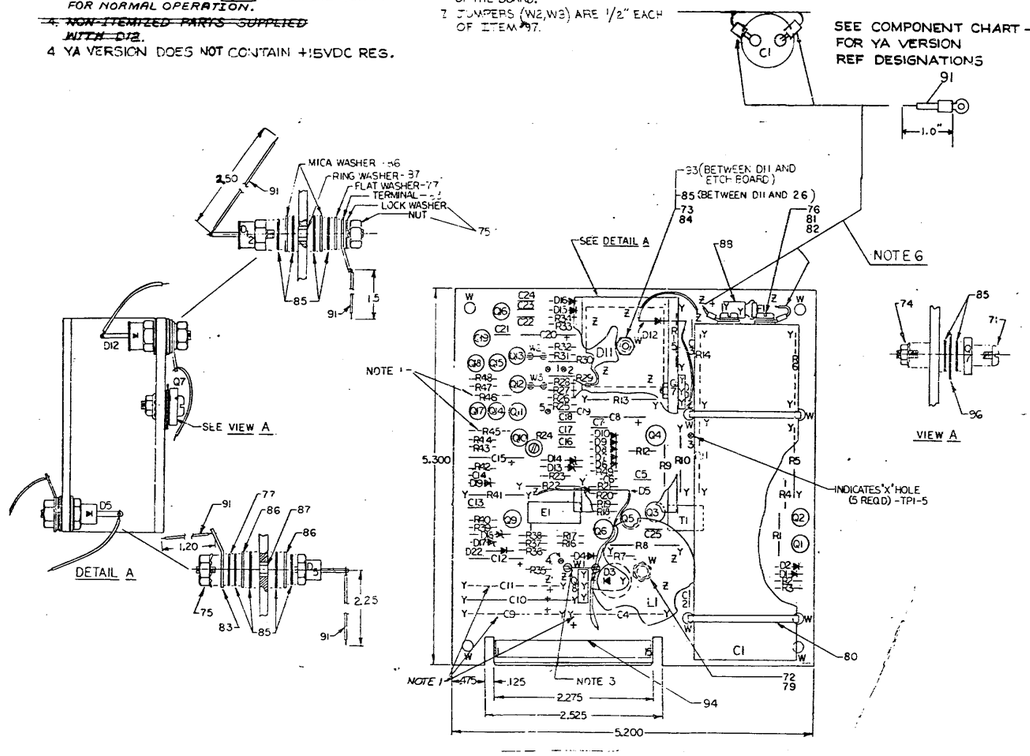
REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
PWR DIST BOARD	D	CS	5410864-0-1	L
SCALE NONE SHEET 3 OF 3	DIST.			

DEC FORM NO

NOTES:

1. R45, R46, C6, C9, & C11 ARE NOT USED ON BASIC 5411086 BUT ARE RESERVED FOR PLANNED FUTURE MODULE VARIATIONS.
2. ** TOTAL +15V AND +8V CURRENT NOT TO EXCEED 4.0 AMPERES.
3. W1 (TEST JUMPER) MAYBE TEMPORARILY REMOVED WHILE TROUBLE-SHOOTING TO DETERMINE IF LOSS OF 15V IS DUE TO CROW-BAR CIRCUITRY. BUT MUST BE IN THE BOARD FOR NORMAL OPERATION.
4. ~~NON-ITEMIZED PARTS SUPPLIED WITH D12.~~
4 YA VERSION DOES NOT CONTAIN +15VDC REG.
5. A) FOR STANDARD VERSION USE SHEETS 1,2,3, & 4 OF THIS DWG.
   B) FOR YA VERSION USE SHEETS 1,2, & 3 OF THIS DWG.
6. WIRES MUST NOT EXTEND BEYOND THE DIMENSIONS OF THE BOARD.
7. JUMPERS (W2,W3) ARE 1/2" EACH OF ITEM 97.



REF	REF				
REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-5411986-B-5	1
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411986-B-5	2
REF	REF		MODULE ECO HISTORY	B-MH-5411986-B-B	3
1	1		ETCHED CIRCUIT BOARD	5011085	4
0	1	C2	CAPACITOR 50PF 100V 5%	1000012	5
4	4	C16,C17,C18,C21	CAPACITOR 330PF 100V 5%	1000023	6
3	5	C3,C13,C19,C22,C23	CAPACITOR .01uf 100V 20%	1001610-01	7
1	3	C8,C12,C15	CAPACITOR 2.2uf 35V 10%	1002431	8
2	2	C8,C25	CAPACITOR 18PF 100V 5%	1002608	9
1	1	C24	CAPACITOR 1.5uf 35V 10%	1009725	10
4	4	C5,C7,C14,C24	CAPACITOR .22uf 50V -20% +80%	1010274-01	11
0	1	C10	CAPACITOR 500uf 25V -10% +75%	1010509-01	12
1	1	C1	CAPACITOR 6400uf 50V -10% +75%	1010851	13
1	2	D2,D19	DIODE IN748A	1100122	14
0	1	D5	DIODE IN2970B	1100134	15
0	1	D3	DIODE MR1030B	1103341	16
7	8	D1,D6,D7,D8,D9,D15,D16,D22	DIODE D672	1105275	17
1	2	D10,D17	DIODE IN4744	1105648	18
0	1	D4	DIODE IN4004	1105796	19
0	1	D12	DIODE IN3600	1109440	20
0	1	D19	DIODE IN967A	1110088	21
~~2~~	~~2~~	~~D20,D21~~	~~DIODE MV5054-1 (LIGHT EMITTING)~~	~~1110324~~	~~22~~
1	1	D11	DIODE BRIDGE 200V 2.0A	1110714	23
2	2	D13,D14	DIODE 1TTZ429	1110925	24
0	1	F1	FUSE PICO 5A	1205747	25
0	1		HEAT SINK	1211986	26
0	1	R23	RESISTOR 47 1/4W 5%	1300202	27
0	2	R7,R49	RESISTOR 100 1/4W 5%	1300229	28
0	1	R41	RESISTOR 100 1W 5%	1300232	29
1	3	R4,R12,R49	RESISTOR 220 1/4W 5%	1300271	30
0	1	R14	RESISTOR 220 2W 10%	1300278	31
0	1	R11	RESISTOR 680 2W 5%	1300348	32
2	2	R18,R28	RESISTOR 1K 1/4W 5%	1300365	33
0	1	R1	RESISTOR 1.5K 1/2W 5%	1300394	34
0	1	R18	RESISTOR 2.2K 1W 10%	1300420	35
1	1	R15,	RESISTOR 3.3K 1W 10%	1300437	36
0	1	R3	RESISTOR 3.3K 1/4W 5%	1300439	37
2	2	R43,R47	RESISTOR 10K 1/4W 5%	1300479	39
0	1	R37	RESISTOR 10 1/4W 5%	1301317	39
2	3	R2,R44,R48	RESISTOR 750 1/4W 5%	1301401	40
0	1	R38	RESISTOR 680 1/4W 5%	1301424	41
0	1	R16	RESISTOR 22K 1/4W 5%	1301808	42
1	1	R13	RESISTOR 1K 2W 5%	1301952	43
0	1	R9	RESISTOR 27 1/2W 5%	1302253	44
2	2	R19,R21	RESISTOR 30K 1/4W 5%	1302394	45
0	1	R35	RESISTOR 511 1/4W 1%	1302411	46
0	1	R39	RESISTOR 909 1/4W 1%	1302685	47
1	1	R25	RESISTOR 3.16K 1/4W 1%	1303045	48
1	1	R8	RESISTOR 470 2W 5%	1303062	49
1	2	R17,R28	RESISTOR 1K 1/4W 1%	1303114	50
1	1	R31	RESISTOR 2.61K 1/4W 1%	1303303	51
0	1	R42	RESISTOR 10K 1/4W 1%	1303312	52
2	2	R33,R34	RESISTOR 5.11K 1/4W 1%	1304854	53
1	1	R38	RESISTOR 9.09K 1/4W 1%	1304855	54
YA	QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED IN OPTION MODEL

PARTS LIST

ETCH BOARD REV. D

COMPONENT CHART - YA VERSION		
3	C19,C22,C23	7
1	C8	8
1	D19	14
7	D6,D7,D8,D9,D15,D16,D22	17
1	D10	18
1	R49	30
2	R44,R48	40
1	R28	50
4	Q3,Q5,Q10,Q19	63
4	Q11,Q12,Q13,Q16	66
QTY	REF. DESIGNATION	ITEM

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

REV.	CHANGE NO.	CHK	DATE	REVISIONS
J	5411086-00005		5/8/75	
H	5411086-0000C		4/15/75	
G	5411086-00003		2/25/75	
F	5411086-00002		1/17/75	
E	5411086-00001		12/6/74	
D	ORIGINAL		7-22-74	
C				

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

SEMICONDUCTOR CONVERSION CHART

DRN. G. Vincent DATE 10-7-74
CHK'D DATE
SPEC SYS DATE
PROJ. ENG. DATE
PROD. ENG. DATE

NEXT HIGHER ASSY

SCALE
SHEET 1 OF 4

digital

TITLE: PWR. LINE MONITOR/15V REG.

SIZE D | CODE CS | NUMBER 5411086-0-1 | REV. E

DIST.

DCS 5411086-0-1 REV E

464

NOTES:

YA	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
1	1	R29	RESISTOR 3.48K 1/4W 1%	1305114	55
1	1	R28	RESISTOR 5.62K 1/4W 1%	1305128	56
1	1	R27	RESISTOR 4.99K 1/4W 1%	1305324	57
0	1	R35	RESISTOR 24.9K 1/4W 1%	1305405	58
0	1	R24	RESISTOR 200 20% 62PR	1309159-10	59
1	1	R32	RESISTOR 10.2K 1/4W 1%	1309412	60
0	2	R5,R6	RESISTOR .2 5W 5% WW	1309884	61
0	1	Q7	TRANSISTOR MJE3055	1510555	62
4	5	Q2,Q3,Q5,Q8,Q18,Q19	TRANSISTOR MPSA05	1510705	63
0	2	Q4,Q9	TRANSISTOR MPS A55	1510706	64
0	1	Q8	TRANSISTOR 2N 4441	1505867	65
4	5	Q1,Q11,Q12,Q13,Q16	TRANSISTOR 2N 4258	1509142	66
4	4	Q14,Q15,Q17,Q18	TRANSISTOR 2N 5433	1511686	67
0	1	L1	INDUCTOR, 500 uh	1611868	68
0	1	T1	TRANSFORMER	1612026	69
0	1	E1	I.C. DEC 723	1910415	70
0	1		SCREW, PHM #4-40 X 7/16 LG.	9008012-1	71
0	1		SCREW, PHM #8-32 X 1/4 LG.	9008020-1	72
0	1		SCREW, PHM #6-32 X 7/8 LG.	9006027-1	73
0	1		KEP NUT #4-40	9008557	74
0	2		KEP NUT #10-32	9006586	75
2	2		WASHER, ITTLKWR #10	9006635	76
0	2		WASHER, FLAT	9006666	77
0	2	(W1)	SPLIT LUG	9006735	78
0	1		SPACER, 1/4AF X 1/2	9006861	79
4	4		CABLE TIE	9007880	80
2	2		TERMINAL	9007330	81
2	2		SCREW, PHM #10-32 X 1/4 LG.	9008007-1	82
0	2		TERMINAL	9008150	83
0	1		KEP NUT #6-32	9008185	84
0	A/R		COMPOUND, THERMAL JOINT	9008268	85
0	4		WASHER, THERMA FILM	9008424	86
0	2		WASHER, RING	9008440	87
0	1		FUSE HOLDER	9009141	88
1	1	R22	RESISTOR, 390, 2W 10%	1301880	89
0	1	W1	JUMPER	9009185	90
2	A/R		WIRE #18 STRANDED BLK	9107350-0-0	91
REF	REF		MODULE TEST PROCEDURE	A-SP-1145-TA-2	92
1	1		WASHER, RING	9006713	93
1	1		.010 INCH SHIM	7413721-0-0	94
REF	REF		ENG. SPEC AND TEST PROC.	A-SP-5411086-0-0	95
0	1		INSULATOR, THERMA FILM	9009597	96
A/R	A/R	W2,W3	WIRE #22 BLK	9107350-0-0	97

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV D

IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

REV	CHANGE NO	DEC NO.	EIA NO.	DEC NO.	EIA NO.

CHK REVISIONS

SEMICONDUCTOR CONVERSION CHART

DRN. G. Vincent DATE 10-9-74
CHK D. DATE 10-17-74
ENG. DATE 11/21/74
PROJ. ENGR DATE 11/21/74
PROD. DATE 11/4/74
NEXT HIGHER ASSY

SCALE
SHEET 2 OF 4

digital EQUIPMENT CORPORATION

TITLE PWR. LINE MONITOR/15V REG.

SIZE D | CODE CS | NUMBER 5411086-0-1 | REV. L

DIST.

+25 TO +45 VDC

R8 47Ω 2W

R13 1K 2W

TP3

AC-2

D15 D672

AC-1

D16 D672

20V TO 33V RMS AC INPUT

P34 5.11K 1%

R33 5.11K 1%

C24 .22μf 50V

C20 1.5μf 35V

R32 18.2K 1%

TP1

R23 3.48K 1%

R26 5.62K 1%

TP5

R27 4.99K 1%

C8 2.2μf 35V

G16 2N4250

G13 2N4250

Q12 2N4250

G11 2N4250

C21 330pf

C18 330pf

C17 330pf

C16 330pf

R31 2.61K 1%

TP2

R30 5.89K 1%

R25 3.16K 1%

W3

W2

D14 ITT2429 5.1V

D13 ITT2429 5.1V

C22 .01μf 100V

C23 .01μf 100V

R28 1K 1%

C19 .01μf 100V

RETURN

C35 18pf

R21 30K

Q3 MPS A05

R20 1K

R18 1K

Q5 MPS A05

R19 30K

C6 13pf

T1

C5 .22μf 50V

D22 D672

D8 D672

D9 D672

D6 D672

D7 D672

C7 .22μf 50V

D10 IN4744 15V

R48 75Ω

Q19 MPS A05

R49 220

R47 13K

R43 10K

5 -10V TO -15V (TEST POINT)

(ENG OPTION SEE NOTE 1)

R46 1/2W

Q15 2N5433

Q18 2N5433

3 AC LO 1

8 AC LO 2

4 LO GND

R44 75Ω

Q10 MPS A05

Q17 2N5433

Q14 2N5433

1 DC LO 2

2 DC LO 1

R45 1/2W

(SEE NOTE 1 ENG. OPTION)

+25 TO +45VDC

TO 20V TO 33V RMS AC INPUT

AC-1 15

AC-2 14

C11 6800μf 50V

R15 2.3K 1W

D11

6 LINE CLK L

R22 390Ω 2W

D19 3.9V IN748A

C18 .22μF 50V

POWER FAIL CIRCUIT

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	PWR. LINE MONITOR/15V REG.	SIZE	CODE / NUMBER	REV.
SCALE	SHEET 3 OF 4	D	CS 5411086-0-1	L
		DIST.		

4606

+25 TO +45 VDC

F1

25 - 45 VDC

C3 .01uf

R14 22Ω 2W, 10%

D12 IN3880

L1 500uH

Q7 MJE 3055

Q4 MPS A5C

R9 27 1/2W

R11 6.8Ω 2W

R12 22Ω

R10 2.2K 1W, 10%

TP9

+15V

4.28V

R35 24.9K 1%

D3 MR1033B

D5 IN2970B 6.8V

D4 TN4004

R41 100Ω 1W

9 10 +15VDC ± 5% @ 4A MAX (SEE NOTE 2)

7 +8VDC ± 10% @ 1A MAX (SEE NOTE 2)

W1 (SEE NOTE 3)

C10 500uf 25V

C4 50uf 50V

C9 50uf 50V

C11 50uf 50V

SEE NOTE #1

D17 IN4794 15V ± 10%

C12 2.2uf 35V

1/2 723C E1

REF

COMP

R36 511 1%

R24 200 4.28V

R17 1K 1%

R39 909 1%

C15 2.2uf 35V

R16 22K 1%

R23 47

Q6 MPS A05

R7 100

D1 D672

C2 56pf

Q2 MPS A05

R4 22Ω

R6 .2 5W

R5 .2 5W

R2 75Ω

D2 IN748A 3.9V

R3 3.3K

Q1 2N4250

R1 1.5K 1/2W

R42 10K 1%

R38 68Ω

R37 10

Q5 MPS A55

Q8 2N4441

C13 .01uf

R40 100Ω

D18 IN967A 8V

11 GND
12 GND
13 GND

RETURN

15V REGULATOR
(SEE NOTE #4)

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PWR. LINE MONITOR/15V REG.	D	CS	5411086-0-1	L
SCALE —	SHEET 1 OF 4		DIST.	

467

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
H7441-Ø

H7441
Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ271

REVISIONS	REV.	CHG. NO.	DATE

USED ON OPTION/MODEL	
7013323	
1134A	

SHEET 1 OF 1

DRN. D. Healy	DATE NOV 76	
CHK'D D. Healy	DATE NOV 76	
PROJ. ENG.	DATE 30DEC76	
FIELD SERV.	DATE 12-20-76	

digital

TITLE: H7441 UNIT ASSY

SIZE	CODE	NUMBER	REV.
B	TC	H7441-Ø-1	

DIST.

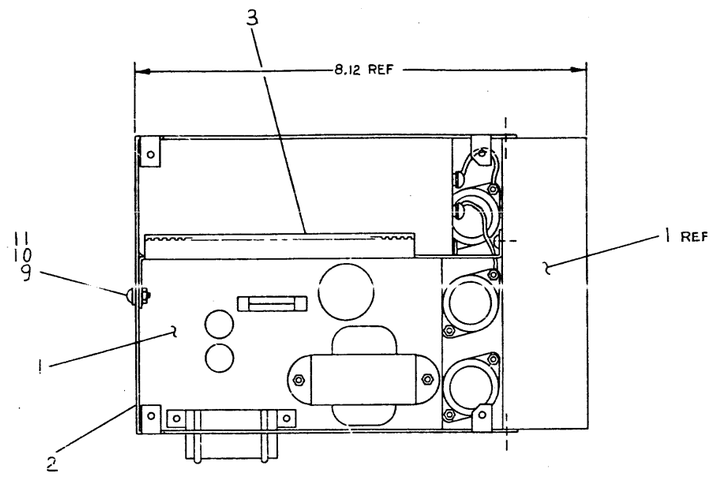
EN-01124-19 06/75 (12)

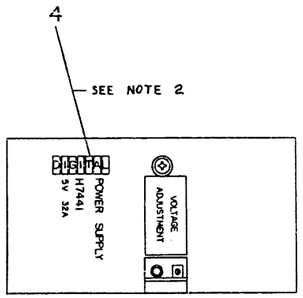
468

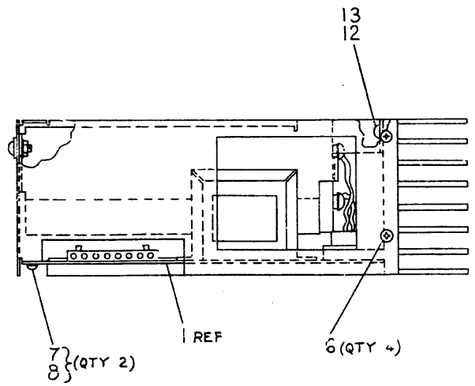
NOTES:

~~1. ATTACH (RED) WIRE FROM ITEM (#1) REG. TO POSITIVE (+) TERM. OF CAPACITOR ITEM (#5). ATTACH REMAINING (BLK) WIRE TO THE (−) TERMINAL OF THE CAP (ITEM 5).~~

2. PEEL AND ATTACH ITEM 4 TO ITEM 2 AS SHOWN.







1	WASHER, LOCK INT. TOOTH #6	9006633	13
1	SCR, PHL PAN HD. #6-32X.38	9006022-01	12
1	NUT, KEPS #6-32X.31	9006560	11
1	WASHER, FLAT #6	9006659	10
1	SCR, PHL PAN HD. #6-32X.31	9006021-01	9
2	WASHER FLAT #4	9008172	8
2	SCR, PHL. PAN HD #4-40X.25	9008301-01	7
4	SCR, SELF TAPPING #4-40X.31	9009142-2	6
~~1~~	~~CAPACITOR, 24X, C, 50 VDC~~	~~1010703-00~~	~~5~~
1	DECAL	B-1A-7416945-10	4
1	BRACKET, CAPACITOR	D-1A-7417543-0-0	3
1	BRACKET, REGULATOR	D-1A-5309756-09	2
1	REGULATOR, +5V, 32 A	D-UA-541244i-0-0	1

DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		OVER 0 TO 0.5	OVER 0.5 TO 1.5	OVER 1.5 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.005	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH

DRN. [illegible] MAR 76
CHK'D [illegible] MAR 76
ENG. [illegible] MAR 76
PROJ. ENG. [illegible] MAR 76
PROD. [illegible]
NEXT HIGHER ASSY.
8-DD-H7441-0
SCALE NONE
SHEET 1 OF 1

FIRST USED ON 1130 A

digital

TITLE: H7441 UNIT ASSY

SIZE	CODE	NUMBER	REV.
D	UA	H7441-0-0	

DIST.

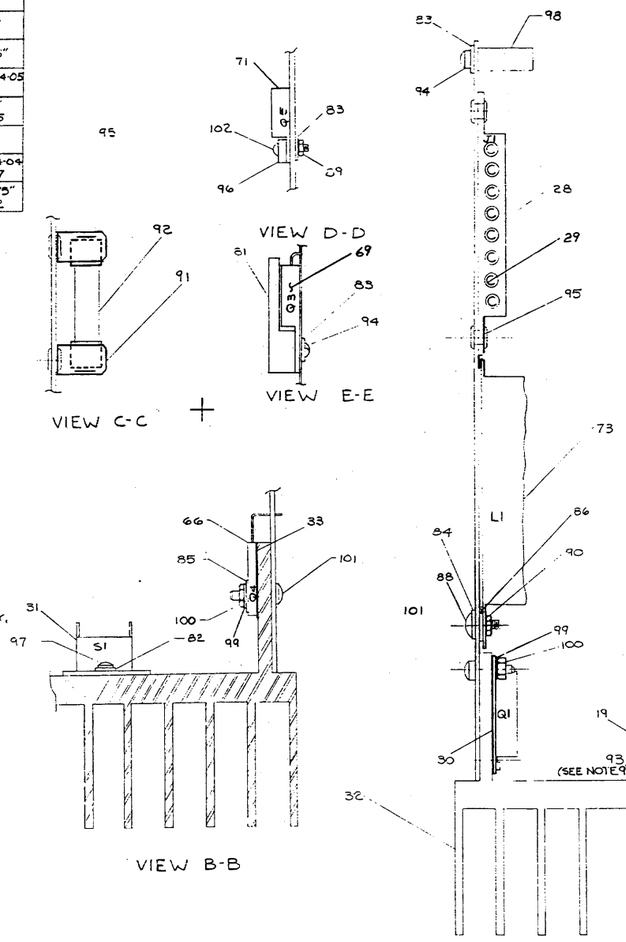
REVISIONS			
DATE	CHANGE NO.		REV.
10-MAY-77	H7441-00001	R. DEY	A
6 FEB 77	H7441-00003	D. SHIVELY	B
15 MAR 77	H7441-00004	E. ROCKER	C

WIRE & BUS STRAP RUNS

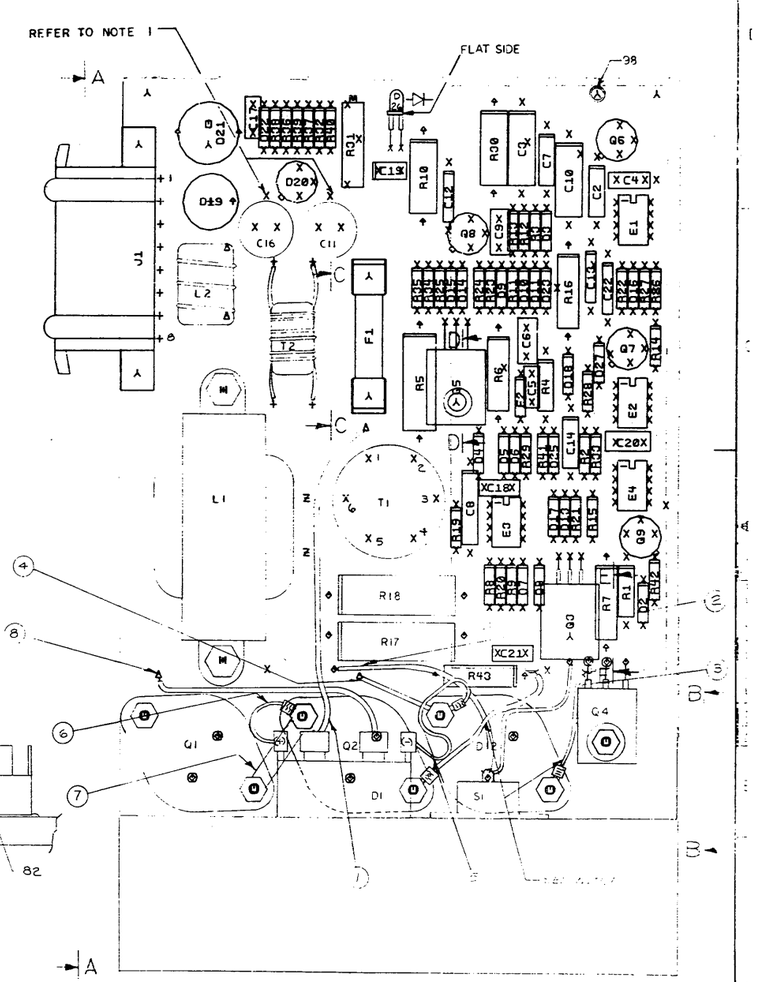
NO.	FROM	TO	WIRE OR BUS LENGTH
①	FEEDTHRU AT F1	TERMINAL D1	#14 AWG 4" SEE NOTE 3
②	S1	FEEDTHRU SHOWN	#18 AWG 3"
③	S1	FEEDTHRU SHOWN	#18 AWG 2.5"
④	D12	FEEDTHRU SHOWN	DEC PT. #12H074-05 SEE NOTE 4
⑤	TERMINAL D1	D12	#14 AWG 3" SEE NOTE 5
⑥	TERMINAL D1	Q2	#14 AWG 2" SEE NOTE 6
⑦	Q2	Q1	DEC PT #12H074-04 SEE NOTE 7
⑧	TERMINAL D1	FEEDTHRU SHOWN	#14 AWG 2.75" SEE NOTE 2

NOTES: 1. MOUNT WIRES PER IA DRAWING NO. IA 7013274. RED WIRE TO CASE Q2 AND POSITIVE TERMINAL C1 & BLACK WIRE TO CASE D12 AND NEGATIVE TERMINAL C1.
2. WIRE RUN ⑧ IS SOLDERED AT D1
3. WIRE RUN ① IS SOLDERED AT D1
4. STRAP ④ (ITEM #26) IS SOLDERED AT FEEDTHROUGH SHOWN AND MOUNTED UNDER RING LUG OF D12.
5. WIRE RUN ⑤ IS SOLDERED AT D1 AND CRIMPED TO RING LUG ITEM #87 OF D12
6. WIRE RUN ⑥ IS SOLDERED AT D1 AND CRIMPED TO RING LUG ITEM #87 OF Q2.
7. BUS STRAP ⑦ (ITEM #25) IS MOUNTED UNDER RING LUG OF Q2 AND ON CASE OF Q1.
8. TORQUE HARDWARE ON Q1, Q2, Q4 AND D12 TO 8 INCH-LBS. FROM NUT SIDE ONLY. TORQUE OTHER HARDWARE TO DEC STD VALUES
9. APPLY THERMAL COMPOUND TO D1 (ITEM 19) ONLY.

NOTES:
1. INDICATED DRILL POINTS AT C11 AND C16 SHOULD NOT BE USED FOR DRILL ALIGNMENT DURING MANUFACTURE. THESE OVERSIZED PADS WILL NOT CENTER WITH DRILL BORING.



COMPONENT SIDE VIEW



CHG/HANGE NO	REV
5412441-00007	J
B.LIST	

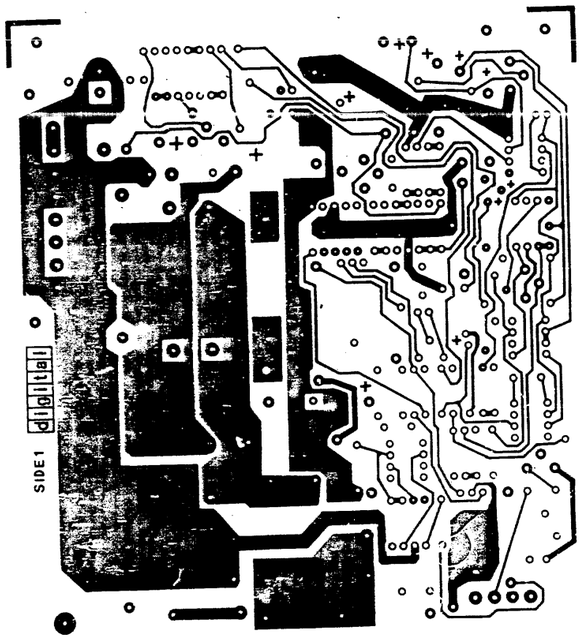
SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	
PROJ.ENG.	
PROD.	
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B-DD-5412441-0	

digital

TITLE +5V, 32 AMP REGULATOR

SIZE	CODE	NUMBER	REV
D	UA	5412441-0-0	J

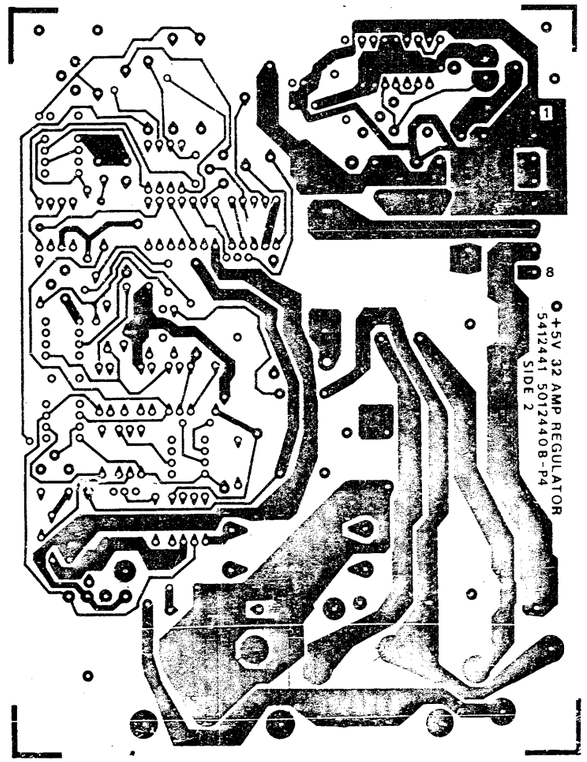
ETCH REV. F
P.C. DESIGN DATA BASE REV. B-F4



REVISIONS		
CHK	CHANGE NO	REV

-5V, 32 AMP. REGULATOR D UA 5412441-2-Ø

471



REVISIONS		
LTR	CHANGE NO	REV

-5V 32AMP REGULATOR D-A-54-244-Ø-Ø

2/1 3

472

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012440-0-0	5012440-00	5412441	1	
2	2		1000009-00	33.0 MMF 100V 5%200PPM DM15S (10-00	1	C20
3	3		1000021-00	220.0 MMF 100V 5%200PPM DM15S (10-00	1	C9
4	4		1001610-01	.01 MFD 100V OR 50V Z5U DISC/800PF MIN	5	C4,C5,C17,C18,C21
5	5		1002627-00	2.2MFD 20V 10% 150D S.TA (10	2	C2,C7
6	6		1004813-00	10 MFD 20V 10% 150D S.TA (10-00	1	C8
7	7		1010279-00	.47 MFD 25V 20% 2C023 CER.	1	C19
8	8		1010646-00	.015 MFD 50V 2% M.POLYCARB	2	C3,C10
9	9		1010702-00	24,000 MFD 50V G% 36D AL EL	1	C1
10	10		1012607-00	560 MFD 20V H% 672D AL EL	1	C11
11	11		1012607-01	1200 MFD 6.3V H% 672D AL EL	1	C16
12	12		1009964-00	.68 MFD 35V 10% 150D S.TA	1	C12
13	13		1001776-00	1 MFD 35V 10% 150D S.TA (10-00	3	C13,C14,C22
14	14		1000024-00	470.0 MMF 100V 5%200PPM DM15S (10-00	1	C6
15	15		1105508-00	1N 823 VZ= 6.2 5% .40W Y	1	D18
16	16		1102808-00	1N 752A VZ= 5.6 5% .40W P	1	D22
17	17		1103341-00	MR1033B PIV=300 I= 3A Z44 SM	1	D19
18	18		1105275-00	D 672 TR= 15NS PIV= 60V SP	15	D3-D6,D9-D11,D13-D17,D23,D25,
					CONT	D27
19	19		1110051-00	DM 16 ASSY@200V & 25A #990-3	1	D1
20	20		1110324-00	LED 1MCD@10MA #MV5054-1#HP4882	1	D26
21	21		1110836-00	1N 759A VZ= 12.0 5% .40W P	1	D2
22	22		1110968-00	2N 5062 SCR@100V I=.8A T092	1	D20
23	23		1112595-01	A114B PIV=200 I= 1A	2	D7,D8
24	24		1113496-00	UES602R PIV=100 I=30A T03	1	D12
25	25		1214074-04	STRAP,THERMAL 2 HOLE	1	
26	26		1214074-05	STRAP,THERMAL LUG .815	1	
27	27		1209070-00	FUSE, SUB-MINI, 5.000A, 125V, RADIAL LEAD	1	F2
28	28		1209340-00	MATE-N-LOK 8PIN,HOUSING,SKT	1	J1
29	29		1209456-01	MATE-N-LOK SKT PCB TAB LOOSE	8	

REVISION HISTORY			VARIATIONS FOR THIS ASSY.
CHK	ECO NO	REV	
			00
SC	00008	J	

FIRST USED ON:

MADE BY:	D.SIREEN	DATE: 10-MAR-78
CHECKED:	F.GAROFALO	DATE: 10-MAR-78
DSN.ENG.:	R.DAY	DATE: 10-MAR-78
PROD.:	R.B.KING	DATE: 10-MAR-78
RESP.ENG.:	R.DAY	DATE: 10-MAR-78

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PARTS LIST

+5V 32 AMP REGULATOR

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	5412441-0-0	J

EDIT# 6

ASSY.NO.: D-UA-5412441-0-0

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
30	30		1213071-02	INSULATOR,RUBBER SILICONE SM	3	
31	31		1212787-00	THERMOSTAT,O@212,C@182,NC	1	S1
32	32		1210737-02	HEAT SINK,REGULATOR	1	
33	33		1213071-06	INSULATOR,RUBBER SILICONE	1	
34	34		1312626-00	2.49 K 1/4W 1% RN55D-F 100PPM (13-00	1	R32
35	35		1300229-00	100 1/4W 5% CC (13-00	2	R37,R38
36	36		1300250-00	150 1/4W 5% CC (13-00	2	R24,R34
37	37		1305322-00	7.5 K 1/4W 1% RN55D-F 100PPM (13-00	1	R19
38	38		1300295-00	330 1/4W 5% CC (13-00	1	R23
39	39		1301424-00	680 1/4W 5% CC (13-00	1	R28
40	40		1301327-00	68 K 1/4W 5% CC (13-00	1	R29
41	41		1300439-00	3.3 K 1/4W 5% CC (13-00	1	R35
42	42		1310219-00	.25 3W 1% WW (13-00	1	R5
43	43		1300248-00	130 1W 5% CC (13-00	1	R6
44	44		1302644-00	226 1/4W 1% RN55D-F 100PPM (13-00	2	R8,R9
45	45		1300277-00	220 1W 10% CC (13-00	1	R16
46	46		1300309-00	390 1/4W 5% CC (13-00	1	R40
47	47		1312922-00	536 1/4W 1% RN55D-F 100PPM (13-00	1	R33
48	48		1300365-00	1 K 1/4W 5% CC (13-00	3	R13,R21,R27
49	49		1300394-00	1.5 K 1/2W 5% CC (13-00	1	R1
50	50		1300447-00	4.7 K 1/4W 5% CC (13-00	2	R12,R41
51	51		1300479-00	10 K 1/4W 5% CC (13-00	4	R14,R15,R22,R42
52	52		1301695-00	47 1/2W 5% CC (13-00	1	R4
53	53		1301972-00	270 1/4W 5% CC (13-00	1	R11
54	54		1312747-00	56.2 K 1/4W 1% RN55D-F 100PPM (13-00	1	R20
55	55		1302751-00	30 1/4W 5% CC (13-00	2	R36,R39
56	56		1302871-00	1.21 K 1/4W 1% RN55D-F 100PPM (13-00	1	R2
57	57		1303179-00	8.2 K 1/4W 5% CC (13-00	2	R25,R26
58	58		1305337-00	3.65 K 1/4W 1% RN55D-F 100PPM (13-00	1	R3
59	59		1309143-07	1 K 3/4W10% POT 100PPM	1	R31
60	60		1310868-00	.39 2W 5% WW (13-00	1	R10
61	61		1313712-00	.01 5W 3% WW (13-00	2	R17,R18
62	62		1312682-00	3 3W 5% (13-00	1	R7
63	63		1300256-00	150 1W 10% CC (13-00	1	R30
64	64		1300171-00	10 1W 5% CC (13-00	1	R43
65	65		1510196-00	2N 5302/HSNPN 200WC SI 60 40 M	2	Q1,Q2
66	66		1510555-00	MJE3055 NPN 90WC SI 60 20 Y	1	Q4
67	67		1510705-00	XA 05 NPN 500MW SI 60 50 P	2	Q6,Q7
68	68		1510706-00	XA 55 PNP 500MW SI 60 50 P	1	Q8
69	69		1510708-00	D 45H8 PNP 50WT SI 60 60 Y	1	Q3
70	70		1510928-00	C32AX135 SCR@100V I=25A	1	D21
71	71		1512790-00	D 44C11 NPN 30W SI 80 40	1	Q5
72	72		1511686-00	DEC5433 FET N 350MW 10 25 1A 20U	1	Q9
73	73		1612584-00	50 UH 30A	1	L1
74	74		1612592-00	PULSE XFMR,RATIO 4:1	1	T1
75	75		1613713-00	CHOKE, 5 UH 32A	1	L2
76	76		1613714-00	2 UH 20A	1	T2
77	77		1910282-00	301AN OP AMP	2	E3,E4

	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	PARTS LIST +5V 32 AMP REGULATOR	K	PL	5412441-0-0	J

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
78	78		1911944-00	555CN TIMER,FUNCT.BLOCK	2	E1,E2
79	79		7013274-00	JUMPER CAP TRAWS	1	
80	80		7013274-01	JUMPER CAP TRAWS	1	
81	81		7414765-00	HEATSINK	1	
82	82		9006633-00	WASHER,LOCK,INT,.280OD X .146ID X .018 THK	3	
83	83		9008172-00	WASHER, FLAT,SS .250 OD X .125 ID X .022 T	3	
84	84		9006660-00	WASHER, FLAT, .375 O.D. X .187 I.D. X .036	2	
85	85		9006653-00	WASHER, FLAT, .375 O.D. X .156 I.D. X .036	1	
86	86		9008082-00	WASHER, FLAT, FIBER OD, 1/2	2	
87	87		9007927-00	TERM RING 1POS INSULATED,16-14AWG,ROLL	2	
88	88		9006037-03	SCREW,TRUS,PHIL, 8-32X 3/8 SS/PAS	2	
89	89		9006557-00	NUT,KEP , 4-40X 1/4 AF CS	1	
90	90		9006563-00	NUT,KEP , 8-32 X11/32AF CS	2	
91	91		9007203-00	CLIP, FUSE, WITH STOP, SCREW MOUNTED	2	
92	92		9007226-00	FUSE, REG BLOW, 15.000A, 32V, GLASS	1	F1
93	93		9008268-00	COMPOUND, THERMAL JOINT	A/R	
94	94		9006012-01	SCREW,PAN ,PHIL, 4-40X 7/16 SS/PAS	2	
95	95		9009000-00	EYELET, ROLLED FLANGE, .121 OD X .156 LG	4	
96	96		9009769-00	WASHER, RECTANGULAR .405X.225X.060	1	
97	97		9006021-01	SCREW,PAN ,PHIL, 6-32X 5/16 SS/PAS	2	
98	98		9007660-00	SPACER, FIBER, RND, 4-40, .250 X .500 LG	1	
99	99		9007801-00	WASHER, LOCK, S.S. #6	7	
100	100		9008957-00	NUT,HEX , 6-32X 1/4 AF X 3/32 THK SS	7	
101	101		9007793-01	SCREW,PAN ,PHIL, 6-32X 9/16 SS/PAS	8	
102	102		9006010-01	SCREW,PAN ,PHIL, 4-40X 5/16 SS/PAS	1	
103	103		9107360-99	WIRE,STRND,18AWG,IPVC UL1429	(91-00 A/R	
104	104		9107370-00	WIRE,STRND,14AWG,IPVC UL1534	(91-00 A/R	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE PARTS LIST +5V 32 AMP REGULATOR	SIZE	CODE	DOCUMENT NUMBER	REV
		K	PL	5412441-0-0	J

J1 F1 C1 2400 MFD D1 MDA990-3 T1 S1 NC Q1 2N5302 Q2 2N5302 T2 D7 A114B D8 A114B R5 .25 R7 3.3W Q3 D45H8 D4 D672 D5 D672 D6 D672 R6 130 L1 C21 .01UF D12 R43 10 1W L2 R13 7.5K R20 56.2K C18 .01uf R8 226 P1 .26 R17 .215W R18 .215W 301 E3 R21 1K R42 10K D13 D672 C11 560uf C16 1200uf U13 MR1333B R36 3Ø D22 1N752A D26 HV 5454 C19 .47uf D20 2N5962 D21 1N5242B R33 12Ω R37 12Ω C17 .01uf R39 3Ω R40 39Ø J1

R4 47 C5 .01uf F2 5A Q5 D44C11 D9 D672 D10 D672 D23 D672 R16 220 1W R1 1.5K Q4 MJE3055 D2 1N759A R10 .39 2W R11 27Ø R30 150 1W Q9 2N5433

C2 2.2uf C22 1UF D11 D672 R14 10K R22 10K D3 D672 R3 3.65K R2 1.21K R12 4.7K Q6 AD5 R13 1K C6 470PF D27 672 R15 10K 555 E2 Q7 AD5 D16 D672 R26 8.2K R27 1K C10 .015uf C9 220PF Q8 A55 R23 33Ø R24 15Ø D14 D672 D15 D672 R25 8.2K R28 680 C13 1 uf R29 68K R34 150 C12 .68uf R35 3.3K 555 E1 C3 .015uf C4 .01uf R33 536 C20 33PF R41 4.7K C14 1uf R31 1K R32 2.49K D19 1N823 C7 2.2uf D17 D672 D25 D672 C8 10UF

REVISION HISTORY			
CHK	DRAWING NO.	REV.	
	5412441-00001	A	R. DAY 4-23-76
	5412441-00002	B	MOD 2 ECO 1-1-77 R. DAY
	5412441-00003	C	13 MAR 77 R. DAY
	5412441-00004	D	4 MAY 77 R. DAY
	5412441-00005	E	6 JUNE 77 E. CROCKER
	5412441-00006	F	13 OCT 77 B. GIST
	5412441-00007	G	13 OCT 77 B. GIST
	5412441-00008	H	8 MAR 78 B. GIST

DRN.		
CHK'D		
ENG.		
PROJ. ENG.		
PROD.		
NEXT HIGHER ASSY.		
SCALE		
SHEET	1 OF 1	

FIRST USED ON H7441 digital

TITLE +5V 32 AMF REGULATOR

SIZE	CODE	NUMBER	REV.
D	CS	5412441-0-1	H

DIST.

476

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H745-Ø		
CIRCUIT SCHEMATIC	D-CS-H745-Ø-1	MFG. SET	
UNIT ASS'Y	E-UA-H745-Ø-Ø		
		TEST PROCEDURE	A-SP-11/45-TA-2
		MFG. SPEC.	A-SP-H745-Ø-8
		PACKAGING INSTRUCTION	A-PI-3700074-0-0

UNIT VARIATIONS

VAR	TITLE	PRINT SET H745-1
H745	-15V REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
	11745-16	K
	H745-17	L
	H745-18	M
9-76	H745-19	N
10-76	H745-20	P
7-77	H745-22	R

DEC 16-13251-1062-1A-MY2

USED ON OPTION/MODEL	
11/45	
SHEET 1 OF 2	

DRN. D.FONTAINE	DATE 2-7-72	TITLE -15V REGULATOR
CHK'D. J GAUDETTE	DATE 2-17-72	
PROJ ENG. G.POTTER	DATE 2-25-72	
PROD. A.HUSCH	DATE 2-25-72	SIZE B / CODE DD / NUMBER H745-Ø / REV R
FIELD SERV. A. ZINS	DATE 2-25-72	DIST

DRB 106

477

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	E-UA-H745-Ø-Ø	UNIT ASSY	E/M
	D-CS-H745-Ø-1	CIRCUIT SCHEMATIC	E
	D-AH-H745-Ø-5	ASSY/DRILLING HOLE LAYOUT	E
	B-MH-H745-Ø-6	MODULE ECO HISTORY	E
	A-SP-H745-Ø-8	MFG SPEC	E
	A-SP-11/45-TA-2	TEST PROCEDURE	E
	D-PS-1210737-0-0	HEAT SINK	M
	D-IA-5309756-0-0	REGULATOR BRACKET	M
	C-IA-5309761-0-0	2-5 CAP BRACKET	M
	C-MD-5309759-0-0	CAPACITOR STRAP	M
2	A-PI-3700074-0-0	PACKAGING INSTRUCTIONS	M
	A-PS-9905211-0-0	OUTER CARTON	M
	A-PS-9905212-0-0	INNER PACKAGE	M

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE

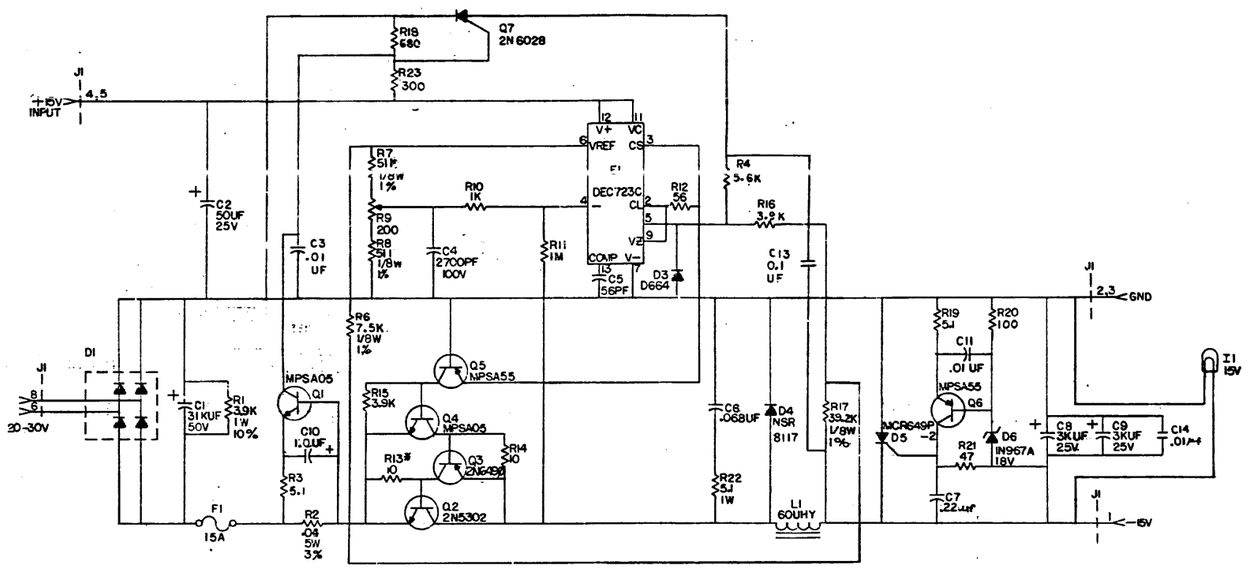
TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE -15V REGULATOR

SHEET 2 OF 2 | SIZE B | CODE DD | NUMBER H745-Ø | REV R

DRB 108A



* FUSIBLE
UNLESS OTHERWISE INDICATED:
RESISTORS = 1/4W, 5%

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV E

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.
D664	IN 3606	D45H8	
NSR 8117		2N 6028	
MCR 849P – 2			
IN 967A	SAME		
2N 5302			
MPS A05			
MPS A55			

A. LAHON 11-3-71 — 73-00021 — Customer I.D. — REVISIONS — REV

DRN. Roger J Poulette 11-4-71
CHK'D. Robert Moore 11-4-71
ENG. [illegible] 11/72
PROJ. MGR. [illegible] 1/5/72
PROG. [illegible] 1/31/72
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

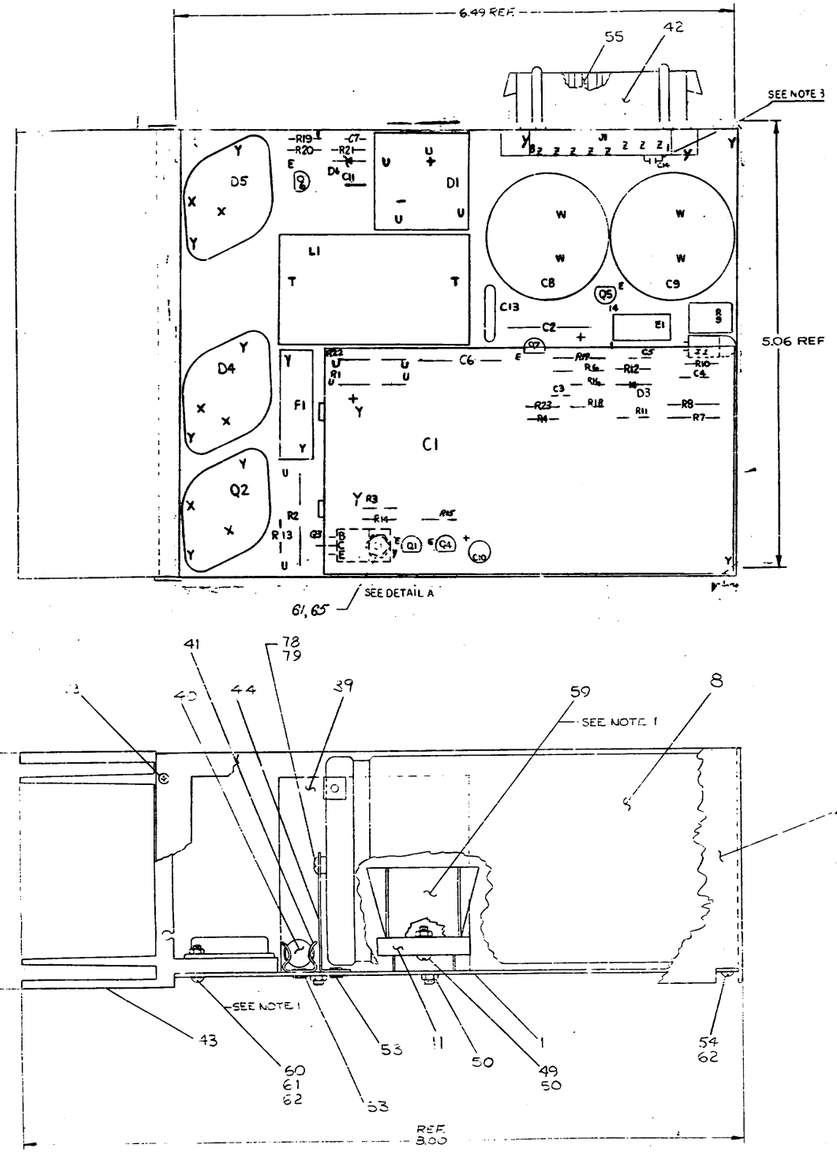
TITLE: –15V REG.

SIZE D | CODE CS | NUMBER H745-0-1 | REV F

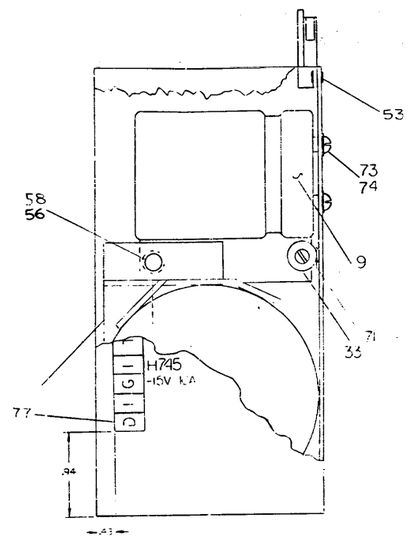
DIST.

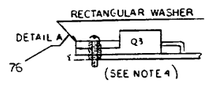
H745-0-1

479



NOTE:
3. INSERT C14 INTO ETCH PAD HOLES CONNECTED TO J1 TERMINALS 1-2.





NOTE 4:
Q3 SCREW HEAD SHOULD BE ON TOP OF FLAT RECTANGULAR WASHER AS SHOWN. APPLY 6 INCH LBS. OF TORQUE WHEN SECURING Q3 TO CKT. BOARD BEFORE SOLDERING.

NOTE 5: TORQUE APPLICATION
(1) APPLY 12 INCH LBS. OF TORQUE TO ALL #4 HARDWARE EXCEPT Q3.
(2) APPLY 16 INCH LBS. OF TORQUE TO ALL #6 AND #10 HARDWARE.
(3) ALL HARDWARE TO BE TORQUED BEFORE SOLDERING.

NOTE:
1. APPLY ITEM #51 (THERMAL COMPOUND) BETWEEN TRANSISTOR AND INSULATOR, WASHER (ITEM #52 ALSO BETWEEN WASHER & HEAT SINK FOR Q2 & Q3 D5 ALSO APPLY ITEM #51 (COMPOUND) BETWEEN ITEM #11 (D5) BRIDGE AND ITEM #59 (HEAT SINK).
2. 1010030 MAY BE SUBSTITUTED FOR C13 (1000030).

		ASSY/DRILLING HOLE LAYOUT	D-AM-H745-0-5	70
		PACKING INSTRUCTIONS	API-3700074-0-0	69
1	R18	RES. 680 ¼W 5%	1301424	68
1	R23	RES. 300 ¼W 5%	1301425	67
1	C13 (SEE NOTE 2)	CAP. 0.1 UF 100V 20%	1000030	66
1		SCR PH 8-32 X 5/16 LG	9009010-1	65
1	J1	LAMP 15V	1214356	64
4		SCR, PPH 8-32 X 5/16 LG. SELF TAPPING	9009042	63
8		L. WASHER #4	9006532	62
7		HEX NUTS #4-40	9000537	61
6		SCR PHL PAN HD #4-40 X 3/16 LG	9003011-1	60
1		HEAT SINK BRIDGE RECT	1210307	59
1		SCR PHL PAN HD #8-32 X 1 LG	9009009-1	58
1		SCR PHL FLT HD #6-32 X 1/4 LG	9004020-02	57
1		WASHER LOCK #6	9004633	56
8		CONTACT FEMALE	1209408	55
2		SCR PHL PAN HD #4-40 X 3/16 LG	9003011-1	54
6		EYELET 093-4-4	9000090	53
3		INSULATOR WASHER	9001721	52
1.4		THERMAL COMPOUND	9010208	51
3		HEX NUTS 8-32	9000635	50
1		SCREW PHL PAN HD 8-32 X 3/8 LG	9004025-01	49
4		SCREW PHL PAN HD #4-40 X 1-1/4 LG	9000084-5	48
1		CONFORMAL COAT	C-AR-9999999-A-C	47
1		INSULATOR SHEET	3-IA-9999999-A	46
1		2.5 HEATER CAPACITOR	C-AR-1210232-0-0	45
2		STRAP CAPACITOR	C-AR-9999999-0-0	44
1		HEAT SINK	A-PS-1210232-0-0	43
1	J1	CONN. HSG-8-LOCK 8 PIN	1209408	42
2		FUSE CLIP	9007281	41
1	F1	FUSE	1213237-01	40
1	L1	INDUCTOR 85 UH	1210209	39
1	E1	ENCAPSULATED CIRCUIT H1225C	1209895	38
1	Q3	TRANSISTOR 2N6498	1512652-01	37
2	Q2, Q6	TRANSISTOR MJE	1510208	36
2	Q1, Q4	TRANSISTOR MJE	1510208	35
1	Q2	TRANSISTOR 2N3302	1508838	34
1	R8	RES. WIRE-WALE 200 Ω, 20%	1210892	33
1	R20	RES. 100 Ω ¼W 5%	1300229	32
1	R21	RES. 1 MEG ¼W 5%	1300-05	31
1	R4	RES. 5.6 K ½ W 5%	130 5274	30
2	R15, R16	RES 3.9K ¼W 5%	1300444	29
2	R22, R23	RES 5.1 ¼W 5%	1300422	28
1	R12	RES 56 ¼W 5%	1302602	27
1	R21	RES 47 ¼W 5%	1300202	26
1	R17	RES 38.7K Y8W 1%	130 5276-1	25
1	R10, R11	RES 18 ¼W 5%	1303305	24
1	R14	RES 10 ¼W 5%	1301317	23
1	R6	RES 7.5K 1.0W 1%	1305122	22
2	R7, R8	RES 5K 1.0W 1%	1302611	21
1	R22	RES 5.1 1% 5%	1302138	20
1	R24	RES 100 ¼W 5%	1300479	19
1	R2	RES 0.4Ω 5W 3%	1341362-00	18
1	R1	RES 3.9K 1% 10%	1302927	17
1	CR	BRIDGE IN5;	1410088	16
1	D5	SCR MCR6406-2	1109405	15
1	D4	DIODE MSR1117	1116215	14
1	D1	DIODE D64	1100114	13
1	Q5	TRANSISTOR UNI JUNCTION 2N6028	1510277	12
1	G1	DIODE BRIDGE	1110714	11
1	C12	CAP .05Ø .20/100	1004-02C	10
2	C8, C9	CAP 3.0M UF 25V	1010288	9
1	C3	CAP 33K UF 50V	1010258	8
1	C10	CAP 1.0 UF 25V	1010866-01	7
1	C2	CAP 50 UF 25V -10+75%	1001756	6
1	C5	CAP .068 UF 100V 10%	1000952	5
1	C4	CAP 2700PF 100V 5%	1001837	4
3	C11, C3, C14	CAP .01UF 1.2KV 20%	1010610	3
1	C6	CAP 1.0UF 100V 5%	1214357	2
		ETCHED CIRCUIT BOARD	SC-3765	1
		CIRCUIT SCHEMATIC	D-AM-H745-0-1	REF
		CIRCUIT BOARD ASSEMBLY	SC-AM-H745-0-5	REF
QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

1		DECAL (H745)	7416945-02	80
2		WASHER INT. TOOTH #10	9006635	79
2		SCREW PAN 10-32 x 5/16 LG	9009469-01	78
1	C7	CAP .22 UF 50V	1010274	77
1		WASHER, RECTANGULAR	9009769	76
1	R13	RES 10Ω 2W, FUSIBLE	1312496-00	75
4		LOCKWASHER #10 INT	9006635	74
4		SCR #10-32X.31 SLOTTED FIN HD.	9009465-01	73
				72
1		TRANSPAD	9006206	71

ETCH BOARD REV E

DEC NO.	EIA NO.	DEC NO.	EIA NO.
D66	IN3606		

SEMICONDUCTOR CONVERSION CHART

IC TYPE	GND	+15V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DRAWN	R. BARON	5-6-77	
CHECKED			
ENGR APPROVAL	A. BARON	5-13-77	
MFG APPROVAL			
QUALITY APPROVAL			
PROJECT LDR	J.M. LAWRENCE	5-13-77	

EQUIPMENT CORPORATION

TITLE: -15 REGULATOR

SIZE: E | CODE IDENT NO: 01JUA | DWG NO: H745-0-0 | REV:

SCALE: | WEIGHT: | SHEET 1 OF 1

480

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H754-Ø		
+20 VOLT REGULATOR	E-CS-H754-0-1		

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
H754-0	+20 VOLT REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
10-75	H754-9	A
11-3	H754-10	B

DEC 10-12251-10N2-1A-R972

DRB 106

USED ON OPTION/MODEL					
		DRN. J.Fleming	DATE 2/21/74	TITLE	
		CHK'D. J.Fleming	DATE 2/21/74	+20 VOLT REGULATOR	
		PROJ ENG. E. A. Kilcoyne	DATE 3-13-74		
		PROD. Jack Hamm	DATE 3-14-74	SIZE B / CODE DD / NUMBER H754-Ø / REV B	
		FIELD SERV. Walt Aubrey	DATE 7/25/74	DIST	
SHEET 1 OF 3					

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ELECTRICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	B-DD-H754-Ø	#	3	DRAWING DIRECTORY	
X			E-CS-H754-Ø-1	#	2	+20 VOLT REGULATOR	
			K-CO-H754-Ø-4		-	X-Y COORDINATE HOLE LOCATION	
			D-AH-H754-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-H754-Ø-6		1	MODULE ECO HISTORY	
			5010531		-	ETCHED CIRCUIT BOARD	
			A-SP-H754-Ø-8		3	MANUFACTURING SPEC	

MECHANICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
X		1	E-CS-H754-0-1	#	2	+20 VOLT REGULATOR	
			D-PS-1210737-0-0		1	HEAT SINK REGULATOR	
			C-IA-5309758-0-0		1	CAPACITOR BRACKET	
		2	D-IA-5409756-0-0		1	BRACKET REGULATOR	
			A-SS-5309756-0-1		1	SILK SCREEN	
			A-SS-5309756-0-2		1	SILK SCREEN	
			A-SS-5309756-0-3		1	SILK SCREEN	

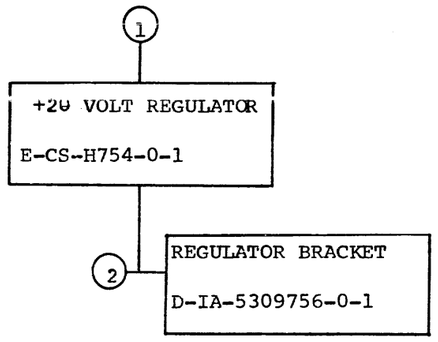
CUSTOMER PRINT SET CODES

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

TITLE	SHEET	SIZE	CODE	NUMBER	REV
+20 VOLT REGULATOR	2 OF 3	B	DD	H754-Ø	B

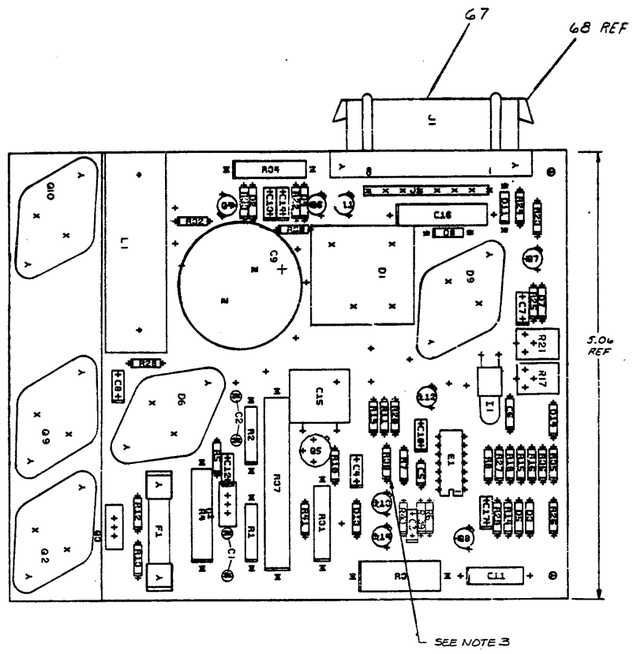
DRB 108

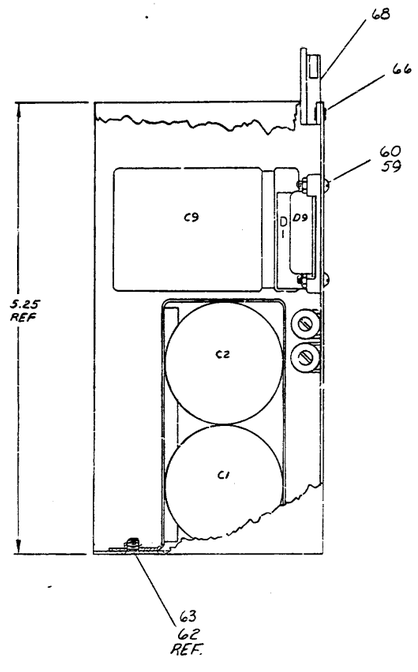
DEC 16-325J-1062-2B-R972



TITLE		SIZE	CODE	NUMBER	REV
+20 VOLT REGULATOR	SHEET 3 OF 3	B	DD	H754-Ø	5

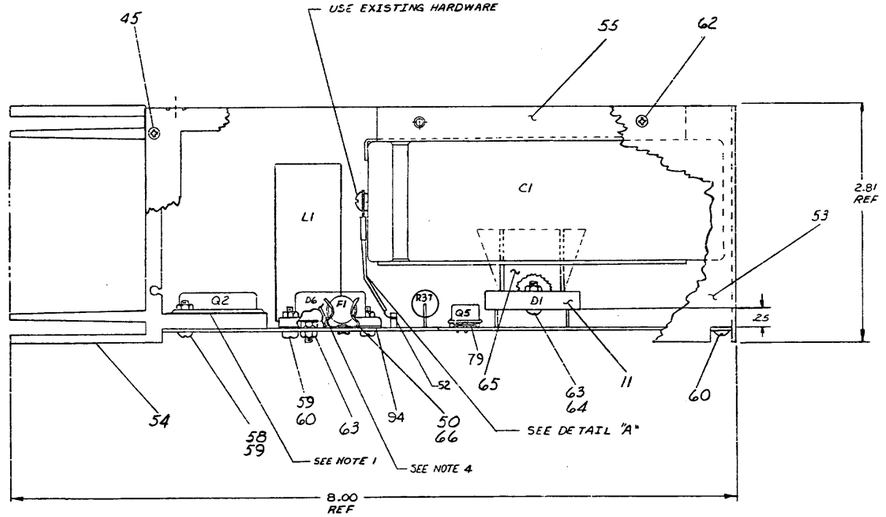
DRB 107

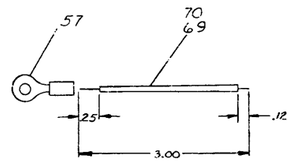




NOTES:

1. APPLY ITEM # 71 (COMPOUND) ON BOTH SIDES OF ITEM #72 (INSULATOR WASHER) FOR Q2, Q9, Q10. ALSO APPLY BETWEEN ITEM # 11 (DIODE BRIDGE D1). AND ITEM # 65 (HEAT SINK, BRIDGE RECT.)
2. UNLESS OTHERWISE INDICATED: RESISTORS ARE 1/4 W, ±5%. CAPACITORS ARE 100 V, ±3%.
3. ADD INSULATION (9107256-11) TO BOTH LEADS OF R39 TO AVOID SHORT TO ETCH.
4. APPLY ITEM #71 (COMPOUND) ON BOTH SIDES OF ITEM #94 (MICA WASHER) FOR D6.





DETAIL "A"
SCALE : NONE
RED WIRE GOES TO POSITIVE TERMINAL
BLK WIRE GOES TO NEGATIVE TERMINAL

DELETED	COMPONENTS
RESISTORS	R9
DIODES	D10, D12

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
1		WASHER, MICA	9009663	94
1	C7	CAP .22 uF 50V	1010274	93
1	Q1	TRANSISTOR 2N4920-1	1509405-1	92
1	R13	RES.27Ω 1/4W 5% FUSIBLE	1312496-01	91
AR		INSULATION	9107256-11	90
1	R39	RES 220 1/4W 5%	1302271	89
1	R37	RES. 1 10W 1%	1309106	88
1	R38	RES.1K 1% THERMISTOR	1310071	87
1	C16	CAP. 1000uF 25V	1002781	86
1	Q10	TRANSISTOR MJ900	1310712	85
1	Q9	TRANSISTOR MJ3000	1511449	84
1	C13	CAP. 180 PF 100V ±2% DM	1000218	83
				82
2	Q4, Q14	TRANSISTOR MPS A05	1310785	81
1	D2	DIODE 2003	1100100	80
2	(UNDER Q5 & R6)	TRANSPAD	9002206	79
1	R31	RES .15Ω 2W 10%	1310147	78
2	C14, C17	CAP, 1000 PF, 100V, 5%, DM	1899842	77
1	R22	RES 309 Ω 1/8W 1%	1305125	76
2	R33, R8	RES .78K 1/8W 2%	1302212	75
1	R11	RES 15K 1/8W 5%	1300596	74
1	R20	RES 470Ω 1/4W 5%	1300516	73
				72
2		WASHER INSULATOR	9000781	72
A/R		COMPOUND, THERMAL	9003248	71
A/R		WIRE, #18AWG, STRD, TFE INS (BLK)	9107388-00	70
A/R		WIRE #18AWG, STRD, TFE INS (RED)	9107388-02	69
1	J1	WIRE-W-LOCK CONN 8 PIN	1200548	68
8		PIN, SOCKET, MATE-N-LOCK	1200496	67
4		STUD ET 10-32	9000230	66
1		HEAT SINK, BRIDGE RECTIFIER	1210107	65
1		SCR. PHL PAN HD 8-32 ⅜	9006024-1	64
5		NUTS NUT 8-32 SS	9006185	63
2		SCR PHL FLAT HD 8-32 X 5/16	9006021-2	62
3		SCR PHL PAN HD 4-40 X ⅜	9006011-1	61
6		SCR PHL PAN HD 4-40 X 3/8	9006011-1	60
10		NUTS NUT 4-40	9006547	59
5		SCR PHL PAN HD 4-40 X ¼	9006013-1	58
4		TERMINAL SOLDERLESS, #10	9007300	57
1		CHASSIS	D-CH-H754-0-0	56
1		1.5 CAP SPKT	C-LB-5308756-0-0	55
1		HEAT SINK REGULATOR	D-PS-1210737-0-0	54
1		BRACKET REG	D-LB-5308758-A-0	53
4		SPLIT LUG	9006736	52
1	Q8	TRANSISTOR 2N6026	19-19677	51
2		FUSE CLIP	9007200	50
1	F1	FUSE 1½ AMP	1213237-000	49
1	L1	REACTOR 170 uHY	19-12968	48
1	E1	INTEGRATED CIRCUIT 723	19-10415	47
6	Q7,Q6,Q11,Q12, Q13	TRANSISTOR MPS A93	19-10708	46
4		SCR PHL FLAT HD 6-40 SELF TAPPING	9008142-02	45
1	Q5	TRANSISTOR 2N2906	19 03708	44
1	Q2	TRANSISTOR 2N5038	19-10983	43
1	Q3	TRANSISTOR 2N6491	1513704	42
2	R17, R21	RES VARIABLE 200 ±20% POT	13-10862	41
2	R23, R36	RES 5.1 1/2 5%	13-03427	40
1	R18	RES.237 1/8W 1%	1304857	39
				38
2	R14, R5	RES 1/2 5% 27	13-01527	37
1	R10	RES 150 1/2 5%	13-00258	36
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-H754-0-5	35
2	R7, R40	RES. 2K 1/4W 5%	1302268	34
2	R6, R19	RES 12K 1/2 5%	13-03466	33
6	R15, R25, R30, R24, R35, R41	RES 100 1/2 5%	13-00229	32
1	R12	RES 68Ω 1/4W 5% FUSIBLE	1312496-02	31
				30
1	R27	RES 10K Ω 1/2W 1%	1303312	29
1	R32	RES.3K1 1/8W 1%	13-00444	28
1	R16	RES.287Ω 1/8W 1%	13-05124	27
1	R29	RES. 10K 1/2 5%	13-02485	26
1	C11	CAP. 2.2 uF 35V 10% S. TANT	10-02431	25
1	R4	RES 5W 3% .03 Ω	1310976-1	24
1	R3	RES 1.5K 5W 5%	13-01897	23
1	R34	RES.47 2W 5%	13-05258	22
1	R26	RES 1.5K 1/2 5%	13-00591	21
2	R1, R2	RES 3.0K 1/2 10%	13-02671	20
1	R28	RES 10Ω 1/4W, 5%	1303137	19
2	D11, D8	DIODE 1N5624	1110420	18
				17
1	D14	DIODE 752A ZENER	1102308	16
1	D9	DIODE 1N 548 P-2	11-03465	15
1	D7	DIODE 1N978, 24 V	11-12856	14
1	D6	DIODE, 20 AMP FAST REC	11-10715	13
1	D3	DIODE 1N4744, ZENER, 15V	11-05648	12
1	D1	DIODE MDS 2514	11-10714	11
3	D5, D13, D4	DIODE D554	11-05114	10
1	C15	CAP .1 UF 100 V 20% DISC	1000030	9
1	C9	CAP 2.2K UF 30V 6% AL. EL.	10-10859	8
4	C3, C8, C4, C10,	CAP .01UF 50V 20% DISC.	10-01810-01	7
1	C6	CAP 2.7 50PF 100V 5% DM	10-01837	6
1	C5	CAP 150PF 100V 5% DM	10-00012	5
1	I1	LAMP, 28V, 40 MA	17-11239	4
1	C12	CAP .056 50V DISC	10-01774	3
2	C1, C2	CAP 4.7 MUF 50V 10% AL. EL.	10-11763	2
1		ETCHED CIRCUIT BOARD	5103131	1
		WIRE LIST HISTORY	B-WH-H754-0-6	SHT
		X-Y COORDINATE HOLE LOCATION	X-CO-H754-0-4	SHT

PARTS LIST

ETCH BOARD REV J

DEC NO.	EIA NO.	DEC NO.	EIA NO.
D554	1N3606		

SEMICONDUCTOR CONVERSION CHART

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

IC PIN LOCATIONS

ITEM NO.	AWG	FROM PT	TO PT

JUMPER LIST

DRAWN 4-23-72 A. BASOH
TRACED 4-23-72
CHECKED 4-23-72 A. LEHON
ENGR APPD 4-23-72 A. LEHON
MFG APPD 4-23-72 A. LEHON
QUAL APPD 4-23-72 A. LEHON
ENGR CHG 1 6-13-74 A. LEHON
ENGR CHG 2 6-13-74 A. LEHON
ENGR CHG 3 6-13-74 A. LEHON
ENGR CHG 4 6-13-74 A. LEHON
ENGR CHG 5 6-13-74 A. LEHON
ENGR CHG 6 6-13-74 A. LEHON
ENGR CHG

F1 10A

D1 NSS 3514

C1 5800UF 50V

C2 5800UF 50V

R1 3.9K 1W 10%

R2 3.9K 1W 10%

J1-8 AC

J1-7 AC

R4 .03Ω 5W, 3%

R5 27Ω

R3 1.5K 5W, 5%

C12 .05UF 25V

Q1 2N4920-1

Q2 2N5038

R13 * 27Ω

Q3 2N6491

R12 * 68Ω

L1 170 UHY

R28 10Ω

C8 .01UF 20% 50V

D6 20AMP

D11 1N5624

R23 5.1Ω

R24 100Ω

C16 1000UF 25V

Q7 MPSA55

C9 2200UF 30V

J1-5 +20V

I1

R33 1.78K 1/8W 1%

C13 100PF

R34 .47Ω 2W 5%

Q11 MPS A55

Q10 MJ9000

R32 3.9K

MPS A05 Q4

D2 D003

D4 D664

R31 .15Ω 2W 10%

MPS A55 Q6

C14 1000PF

R30 100Ω

Q9 MJ3000

R22 383Ω 1/8W 1%

R21 200Ω 20% 1/2W

J1-3 -5V

J1-2 GND

D13 D664

Q5 DEC 3500

C3 .01UF

R39 220Ω

R40 2K

Q13 MPS A55

Q8 2N6028

C11 2.2UF 35V 10%

D3 1N4744 15V

1000PF 100V C17

R6 12K

R29 18K

R7 2K

R38 1K THERM.

R10 150Ω

C4 .01UF 50V 20%

C15 .1UF 20%

Q14 MPS A05

R41 100Ω

R37 .1 10W 1%

D9 MCR 649P-2

C7 .22UF 50V

R25 100Ω

R11 15K

R20 470Ω

Q12 MPSA55

D14 752A

R35 100Ω

R36 5.1Ω

D8 1N5624

D7 1N970B 24V

R26 1.5K

D5 D664

R8 1.78K Ω 1/8W, 1%

R27 10K 1/8W, 1%

R14 27Ω

C10 .01UF 20% 50V

R19 12K

C6 2700PF

R15 100Ω

R18 237Ω 1/8W 1%

R17 200Ω 20% 1/2W

R16 237Ω 1/8W 1%

DEC 723C

C5 56PF

* FUSIBLE RESISTOR

DRN W. BISSONNETTE	8-29-72	FIRST USED ON H754	digital
CHK'D R.VOKLES	12-17-72	TITLE +20 VOLT REGULATOR	
ENG. R. BURTON	5-7-73		
PROJ. ENG. R.BURTON	5-7-73		
PROD. L. BAPTISTE	5-9-73		
NEXT HIGHER ASSY.			
SCALE		SIZE D CODE CS NUMBER H754-0-1 REV. U	
SHEET 2 OF 2		DIST.	

DOC NUMBER DCS H754-0-1 REV. U

FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
H785-Ø

H785

Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØ272

REVISIONS		
REV.	A	
CHG. NO.	H785-3	
DATE	2-78	

USED ON OPTION/MODEL	
7013323	
1134A	

SHEET I OF 1

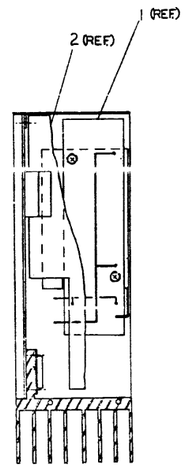
DRN. D. HEALY	DATE NOV 76	digital
CHK'D D. HEALY	DATE NOV 76	TITLE: H785 REGULATOR BATTERY BACKUP
PROJ. ENG. Joe Mercuri	DATE 12-19-76	
FIELD SERV.	DATE 12-20-76	

SIZE	CODE	NUMBER	REV.
B	TC	H785-Ø-1	A
DIST.			

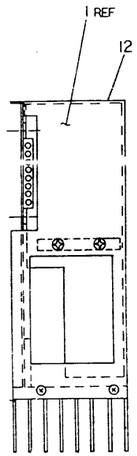
EN 01124-16-NL75-1247

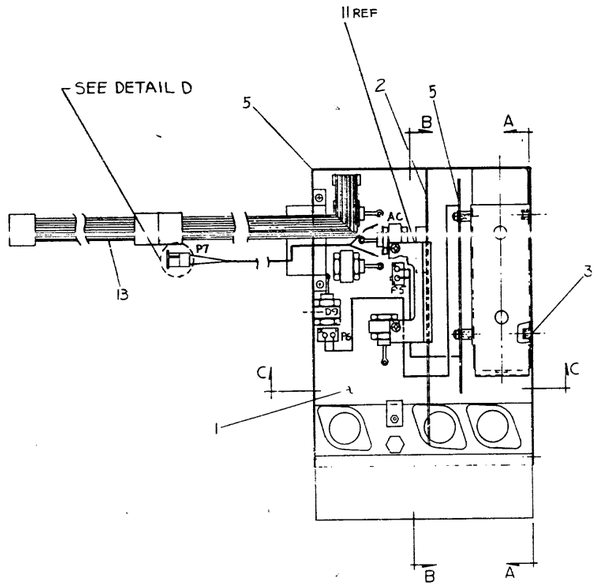
DRB 124

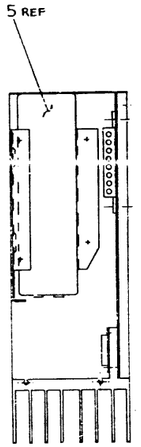
486



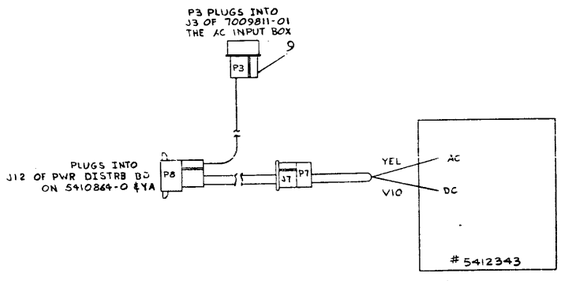
SECTION B-B



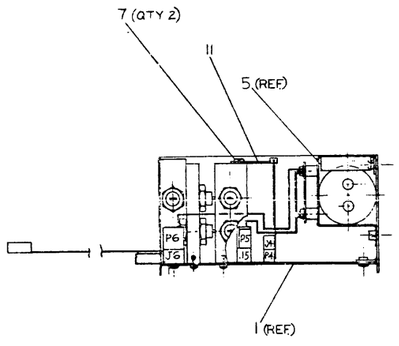




SECTION A-A



DETAIL D



SECTION C-C

1	CABLE, CONSOLE	7011411-2J	13
1	DECAL, H785-H785B	7416945-06	12
1	RETAINER, CARD	B-MD-7413124-00	11
2	SCR PN PL HD 4-32 X .31	9003801-2	10
1	CABLE, AC, DC/LO	C-IA-7013676-0-0	9
1	WASH LOCK INT 700 PN #4	9000633	8
2	SCR. PN. HD. PAN #4-40 X .25	9003301-01	7
1	SCR. PN HD FLAT	9003142-2	6
1	SLEEP TAP #4-40 X .31	9003142-2	5
1	CAPACITOR BRKT. ASSY	C-AD-3013322-0-0	4
4	CONDUCTIVE THERMAL	9003326	3
4	SCR. PN. FL HD. 4-32 X .19	9008020-2	2
1	H735 CONTROL BOARD	D-UA-5912385-0-0	1
1	H735 BATTERY BACKUP REGULATOR	D-UA-5412343-0-0	1
	DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONS ARE IN	DECIMALS ARE OF ACCURACY		.XX ±.03	.XXX ±.010	.XXXX ±.0050	ANGLES ±30'	.XX ±.13	.XXX ±.05	.XXXX ±.025
SURFACE QUALITY IN MICROINCHES	ECHOED ONES	MACHINED	63	63	63	63	3.2	1.6	1.6
		PREFERRED	125	63	63	63	3.2	1.6	1.6

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

DRAWN	7/5/79	FIRST LEAD DR 1134A
CHKD	7/20/79	
ENGR	7/20/79	TITLE REGULATOR BATTERY BACKUP
PROJ ENGR		
PROD		
HEAT HIGHER ASSY.		
MATERIAL SEE PARTS LIST	300-H735-0	SIZE E CODE UA NUMBER H785-0-0 REV C
FINISH	SCALE FULL	
	SHEET 1 OF 1	DIST.

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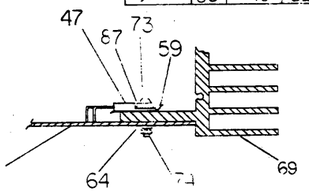
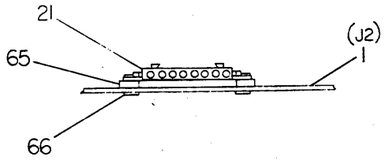
WIRE TABLE

ITEM NO	RUN NO	DESCRIPT. AWG	COLOR	FROM	TO H785	TO H7850	LENGTH
77	75	18 TWP	BLK	D11 ANODE	PAD 1	PAD 1	4.50
	76		RED	D10 ANODE	PAD 2	PAD 2	4.50
	77	18	RED	D9 CATHODE	PAD 3	PAD 3	3.00
	78	18	RED	D12 CATHODE	PAD 10	PAD 10	3.75
77	79	18TWP	BLK	D16 ANODE	PAD 11	PAD 11	1.50
	80		RED	D15 ANODE	PAD 6	PAD 6	2.00
77	81	18TWP	BLK	D17 CATHODE	PAD 8	PAD 7	2.75
	82		RED	D18 CATHODE	PAD 4	PAD 5	2.75
77	83	18TWP	RED	D13 ANODE	D18 CATHODE	D18 CAT.	3.50
	84		BLK	D14 ANODE	D17 CATHODE	D17 CAT.	3.50
	85	18	BLK	D9 ANODE	PAD 9	PAD 9	3.00

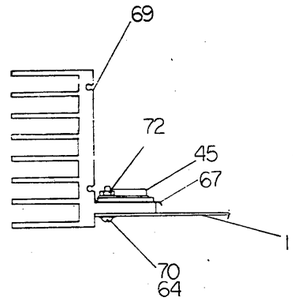
UNTWIST ITEM NO 77 AND USE PROPER COLOR.



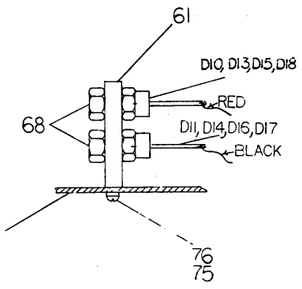
VIEW D-D
SCALE: NONE



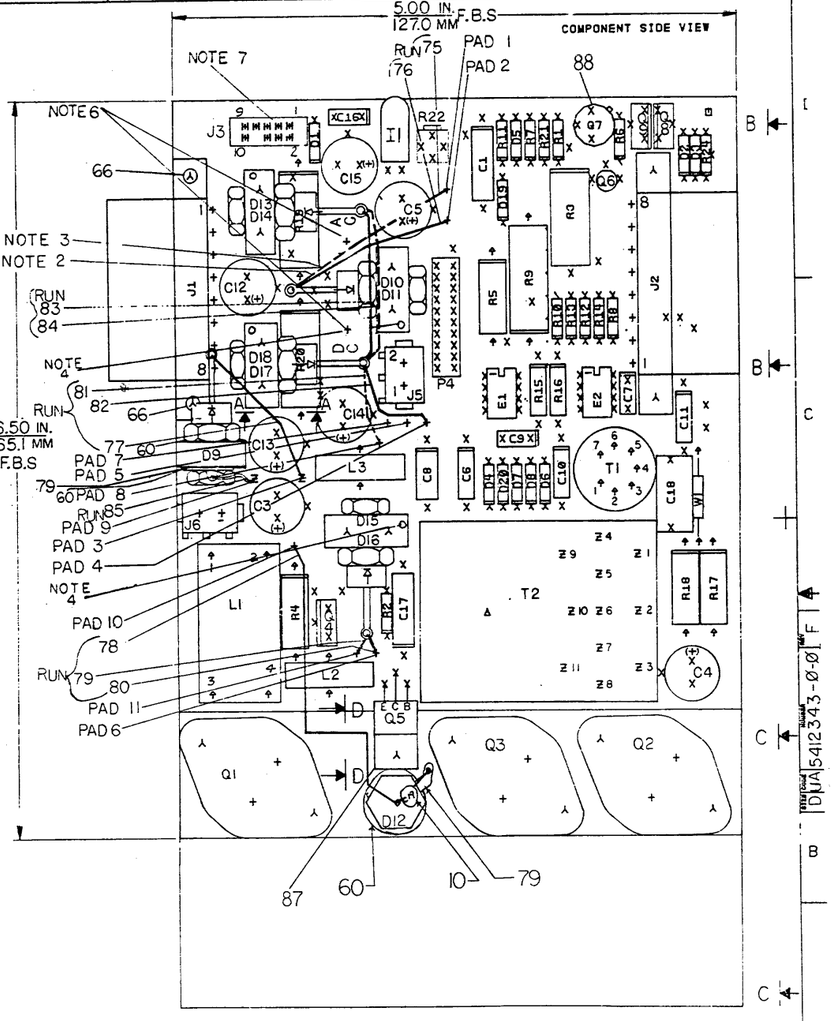
VIEW B-B
SCALE: NONE



VIEW C-C
SCALE: NONE



VIEW A-A
SCALE: NONE
TYP. 4 PLACES



NOTES:
1. SEE SHEET 4 OF 4 FOR DIODE WIRING.
2. SOLID LINE INDICATES WIRE FROM THE TOP DIODE.
3. DASHED LINE INDICATES WIRE FROM BOTTOM DIODE.
4. TIPPED HOLE AT TOP OF HEATSINKS MUST FACE PROPER WAY TO ALLOW INSERTION OF CARD GUIDE.
5. TORQUE SPECIFICATIONS:
   SI-03 10 IN-LBS INSPECT TO MIN OFS TORQUE FROM SCREW HEAD
   I3S 8 IN-LBS INSPECT TO MIN OFS TORQUE FROM SCREW HEAD
   25-08 7 IN-LBS INSPECT TO MIN OFS TORQUE FROM NUT SIDE

NOTES:
6. SOLDER ITEM NO 55 AC, DC CABLE TO REGULATOR BOARD RED WIRE TO PTH MARKED DC. BLACK WIRE TO PTH MARKED AC
7. INSERT ON TO J3 ITEM NO. 58

REV	CHANGE NO	CHK
C	5412343-00001	K.T.
D	5412343-0000202	R.M.
E	5412343-00003	R.M.
F	5412343-MEMO4	W.F.B.

ETCH REV. C
P.C. DESIGN DATA BASE REV. C

SIGNATURES	DATE
DRN [illegible]	12-8-76
CHK'D. [illegible]	3-77
ENG. [illegible]	11-3-77
PROJ. ENG. [illegible]	11-3-77
PROD. [illegible]	2-11-77

digital

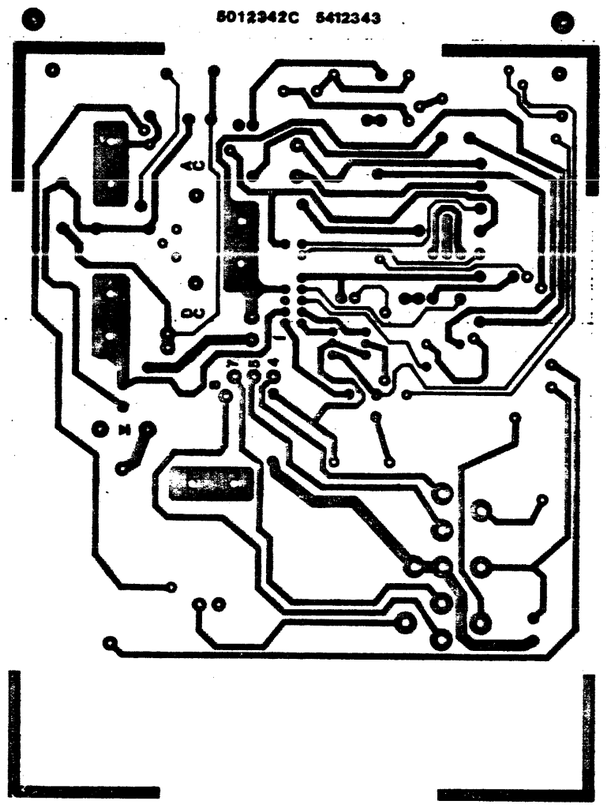
TITLE: H785 BATTERY BACKUP REGULATOR

SCALE 2-1 | SHT. 1 OF 5 | SIZE D | CODE | NUMBER 5412343-0-0 | REV F

NEXT ASSEMBLY REV. B-DD-5412343-0

MS#60929

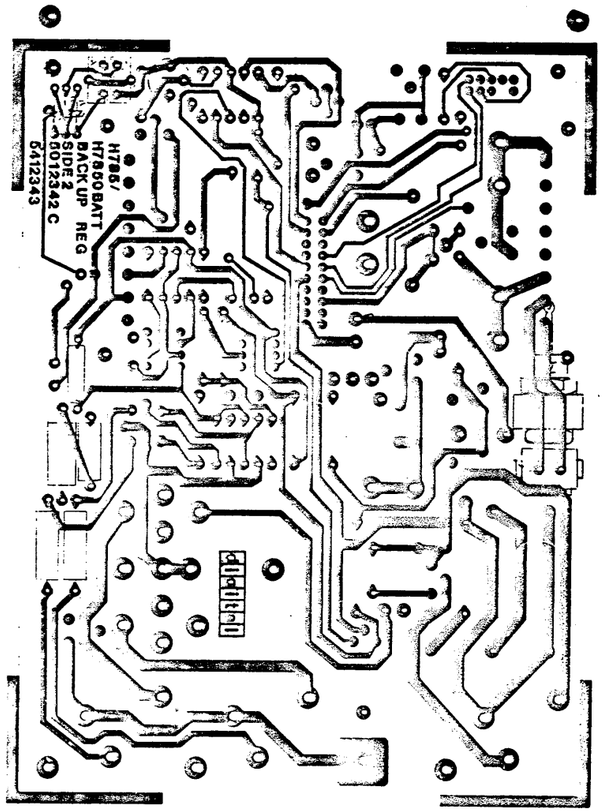
488



TITLE	SIZE	CODE	NUMBER	REV.
H785 BATTERY BACKUP REGULATOR	D	LIA	5412343-0-0	F
SCALE 2/1 SHEET 2 OF 5	DIST			

DUA 5412343-0-0 F

D LIA 5412343-0-0 F



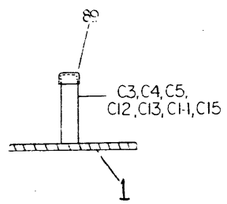
REVISIONS		
CHK	CHANGE NO	REV

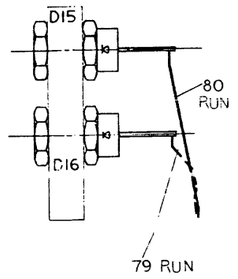
TITLE	H785 BATTERY BACKUP REGULATOR		
SIZE	CODE	NUMBER	REV.
D	UA	5412343-Ø-Ø	F
SCALE 2/1	SHEET 3 OF 5	DIST	

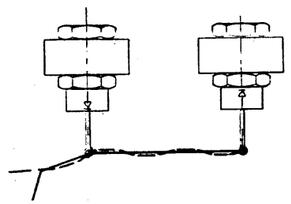
5412343-Ø-Ø F

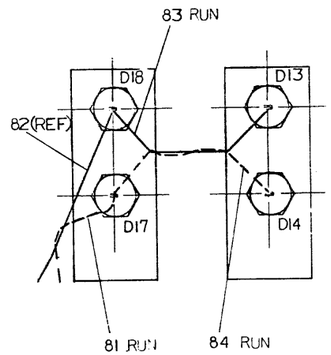
NOTES:
1. WIRING INFORMATION IS ON SHEET 1 OF 4.

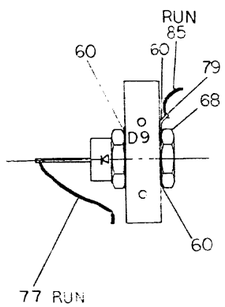
2 DIODES TO BE ASSEMBLED TO HEAT-SINKS AND WIRED AS SHOWN BEFORE INSTALLING TO BOARD.

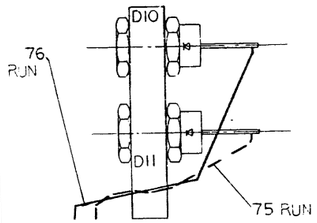












REVISIONS		
CK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
H735 BATTERY BACKUP REGULATOR	D	UA	5412343-0-0	F
SCALE 2/1	SHEET 4 OF 5	DIST.		

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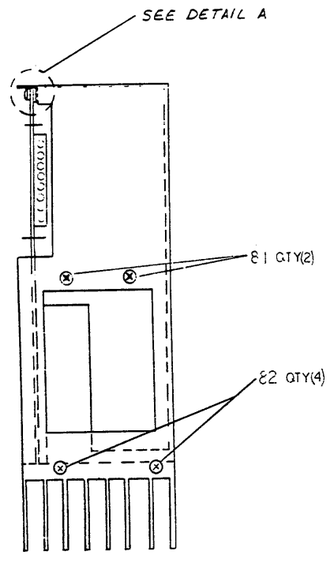
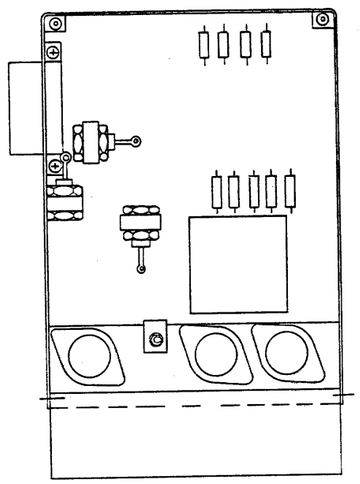
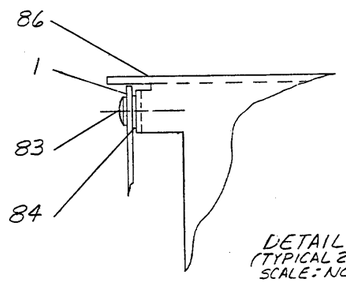






DETAIL A
(TYPICAL 2 PLACES)
SCALE: NONE

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	H785 BATTERY BACKUP REGULATOR			
SCALE 1-1	SHEET 5 OF 5	SIZE	CODE	NUMBER / REV.
		DIST.	D UA	5412343-0-0 / F

492

AUTOMATED BY PRTLST 2F(2)

P A R T S L I S T

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-CD-5012342-0-0	5012342-00	ETCH BRD 54-12343	1	
2	2		1002431-00	2.2MFD 35V 10% 150S S.TA (10-00	1	C10
3	3		1012607-02	180 MFD 50V H% 672D AL EL	3	C3-C5
4	4		1000042-00	1000.0 MMF 100V 5%200PPM DM15S (10-00	1	C7
5	5		1010646-00	.015 MFD 50V 2% M.POLYCARB	1	C8
6	6		1000024-00	470.0 MMF 100V 5%200PPM DM15S (10-00	1	C9
7	7		1001776-00	1 MFD 35V 10% 150D S.TA (10-00	2	C6,C11
8	8		1012607-00	560 MFD 20V H% 672D AL EL	3	C12-C14
9	9		1012607-01	1200 MFD 6.3V H% 672D AL EL	1	C15
10	10		1010621-00	.1 MFD 50V 20% Z5U DISC	2	C16,C19
11	11		1000813-00	10 MFD 20V 10% 150D S.TA (10-00	2	C1,C17
12	12		1000030-00	.1 MFD 100V 20% Z5U DISC	1	C18
13	13	BLANK				
14	14		1100125-00	1N 758A VZ= 10.0 5% .40W PPEP S.A.V.E(	2	D2,D3
15	15		1105275-00	D 672 TR= 15NS PIV= 60V SP	7	D1,D4-D8,D20
16	16		1103440-00	1N 3880 PIV=100 I= 6A D04 SM	6	D10,D11,D13-D16
17	17		1103366-00	IN 3880R PIV=100 I=6A S	4	D17,D18,D9,D12
18	18		1105648-00	1N 4744 VZ= 15.0 10% 1W Y	1	D19
19	19	BLANK				
20	20		1211004-02	SOCKET,100 20POS EDGE MOUNT	1	P4
21	21		1209340-00	MATE-N-LOK 8PIN,HOUSING,SKT	2	J1,J2
22	22		1209456-01	MATE-N-LOK SKT PCB TAB LOOSE	16	
23	23		1211342-02	MATE-N-LOK 2PIN PC TYPE	2	J5,J6
24	24		1209219-01	LAMP 6V@200MA,T1-3/4PINS#2319	1	I1
25	25	BLANK				
26	26		1300202-00	47 1/4W 5% CC (13-00	1	R2
27	27		1309639-00	200 5W 5% WW (13-00	1	R3
28	28		1312682-00	3 3W 5% (13-00	1	R4
29	29		1302954-00	1.2 K 1W 10% CC (13-00	1	R5
30	30		1300426-00	2.7 K 1/4W 5% CC (13-00	2	R6,R7

REVISION HISTORY			VARIATIONS FOR THIS ASSY.
CHK	ECO NO	REV	
B.N	00004	F	0%

FIRST USED ON:

MADE BY:	D BILODEAU	DATE: 31-JUL-78
CHECKED:	R PUZZO	DATE: 31-JUL-78
DSN.ENG.:	J MERCURI	DATE: 31-JUL-78
PROD.:	R KING	DATE: 31-JUL-78
RESP.ENG.:	J MERCURI	DATE: 31-JUL-78

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PARTS LIST
H785 BATTERY BACKUP REGULATOR

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	5412343-0-0BP	F

ASSY. C.: C-CA-5412343-0-0 EDIT# 3

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
31	31		1309680-00	2.7 M 1/4W 5% CC (13-00	1	R8
32	32		1313712-00	.01 5W 3% WW (13-00	1	R9
33	33		1300365-00	1 K 1/4W 5% CC (13-00	2	R1,R11
34	34		1300229-00	100 1/4W 5% CC (13-00	1	R12
35	35		1302466-00	100 K 1/4W 5% CC (13-00	2	R13,R14
36	36		1312404-00	2.21 K 1/2W 1% RN60D-F 100PPM (13-00	2	R15,R16
37	37		1313579-00	1.5 3W 5% WW (13-00	2	R17,R18
38	38		1309855-00	300 2W 5% CC (13-00	2	R19,R20
39	39		1300479-00	10 K 1/4W 5% CC (13-00	1	R21
40	40		1310852-00	200 20% POT S	1	R22
41	41		1300391-00	1.5 K 1/4W 5% CC (13-00	1	R10
42	42		1300316-00	470 1/4W 5% CC (13-00	1	R24
43	43	BLANK			0	
44	44	BLANK			0	
45	45		1510969-00	2N 5038 NPN 140WC SI 90 50 Y	3	Q1-Q3
46	46		1510708-00	D 45H8 PNP 50WT SI 60 60 Y	2	Q4,Q8
47	47		1512790-00	D 44C11 NPN 30W SI 80 40	2	Q5,Q9
48	48		1511686-00	DEC5433 FET N 350MW 10 25 1A 20U	1	Q6
49	49		1510959-00	2N 3725 NPN 3.5WC SI 50 60 P	1	Q7
50	50	BLANK			0	
51	51		1612593-00	500 UH 6A S	1	L1
52	52		1613874-00	CHOKE,15UH 4A	2	L2,L3
53	53		1613876-00	XFMR,POWER,RATIO 1:2 7PIN S	1	T1
54	54		1613875-00	XFMR,POWER,RATIO 1:2:3 100UH	1	T2
55	55		7013690-00	CABLE 2 PIN AC DC LOW	1	
56	56		1911944-00	555CN TIMER,FUNCT,BLOCK	1	E1
57	57		1910282-00	301AN OP AMP	1	E2
58	58		7013384-1D	10 CONDUCTOR EXTENDER CABLE	1	
59	59		1213071-06	INSULATOR,RUBBER SILICONE	1	
60	60		1213071-05	INSULATOR,RUBBER THERMAL	3	
61	61		7417414-00	HEAT SINK (DUAL)	4	
62	62		7417413-00	HEAT SINK (SINGLE)	1	
63	63		9006655-00	WASHER, FLAT, .312 O.D. X .125 ID X .025 T	1	
64	64		9006656-00	WASHER, FLAT, .312 O.D. X .156 I.D. X .027	6	
65	65		9007706-00	WASHER, NYLON, FLAT #4 .375 OD X .031 THK	2	
66	66		9006745-00	EYELET, ROLLED FLANGE, .120 OD X .260 LG	4	
67	67		1213071-02	INSULATOR,RUBBER SILICONE SM	3	
68	68		9006505-00	NUT,KEP , 10-32X 3/8 AF CS/	1	
69	69		1210737-04	HEAT SINK,REGULATOR	1	
70	70		9007793-04	SCREW,RND,SLOT, 6-32X 9/16 SS/PAS	6	
71	71		9007649-00	******** THIS ITEM IS NOT USED *********	-	
72	72		9108185-00	NUT,KEP , 6-32X1/4 AF CS/	6	
73	73		9008033-01	SCREW,PAN ,PHIL, 4-40X 9/16 SS/PAS	1	
74	74		9006557-00	NUT,KEP , 4-40X 1/4 AF CS	1	
75	75		9006632-00	WASHER,LOCK,INT,.260OD X .120ID X .015 THK	6	
76	76		9006410-04	SCREW,RND,SLOT, 4-40X 5/16 SS/PAS	8	
77	77		9107430-02	WIRE,STRND,18AWG,IPVC (UL1429) (91-00 A/R		
78	78		9009185-00	JUMPER, WIRE, INSULATED, BLACK BAND	1	W1

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: PARTS LIST H785 BATTERY BACKUP REGULATOR	SIZE: A	CODE: 80	DOCUMENT NUMBER: 5412343-0-0BP	REV: F

AUTOMATED BY PRTLST 2E(2)

PARTS LIST

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
79	79		9028506-00	TERM LUG 1POS SOLDER,FLAT	2	
80	80		9009149-00	PIN, STAKING, P.C. BOARD, .025 X .025	9	J3
81	81		9008404-02	SCREW,FLAT,PHIL, 6-32X 5/16 SS/PAS 100D	2	
82	82		9009142-02	SCREW, PHILLIPS FLAT HEAD, SELF TAP, 4-40	4	
83	83		9026010-01	SCREW,PAN ,PHIL, 4-40X 5/16 SS/PAS	2	
84	84		9008079-00	WASHER, FLAT FIBER OD. 1/4	2	
85	85		9005212-00	CARTON, DIE CUT 2412 100	1	
86	86	D-IA-7417410-0-0	7417410-00	REGULATOR BRACKET	1	
87	87		9009769-00	WASHER, RECTANGULAR .405X.225X.060	1	
88	88		9007201-00	TRANSIPADS #10253	1	
89	89		9009731-03	CAP,PLASTIC	7	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: PARTS LIST H785 BATTERY BACKUP REGULATOR	SIZE: A	CODE: PL	DOCUMENT NUMBER: 5412343-0-0BP	REV: F

LVAC
LVAC
GND
DC LO
AC LO
RDC
GND
BAT IN
LVAC
LVAC
+5V B
CHG MODE
MON EN
BAT MON
BOOT EN
STAND BY
DC ON
+15V
+14V
GND
-3V
+15V (OUT)
-15V (OUT)
+5B (CUT)

REVISIONS			
DIR	CHANGE NO.	REV.	
MF	5412343-0001	C	
	G.POTTER		
JHC	7-6-77		
MF	5412343-0001	D	
JHC	28 July 77		
	G. POTTER		
JHC	2 AUG 77		
MF	5412343-0003	E	
JHC	20 DEC 77		
	J. HENCHMAN		
JHC	5412343-0004	F	
	W.F. BAUMAN		

DESN. V. Vincent	7-20-77	FIRST USED ON
CHK'D J. Cox	7-24-77	digital
ENGR. E. Fuller	7-9-77	TITLE
PROJ. ENGR. J. Cox	7-9-77	H785 BATTERY BACKUP REGULATOR
PROD. K. King	7-8-77	
NEXT HIGHER ASSY.		SIZE D CODE CS NUMBER 5412343-0-1 REV. F
SCALE —		DIST.
SHEET 1 OF 1		

REWORK INSTRUCTIONS

ECO #1

1-1 CUT ETCH BETWEEN R41 AND D16. (THIS ETCH LINE RUNS OVER TO THE DRAIN OF Q10) SIDE 1.

1-2 CUT ETCH ON RIGHT SIDE OF C14, ON THE ETCH LINE THAT HAS PREVIOUSLY BEEN CUT, SIDE 1.

1-3 INSERT ECO WIRE FROM THE DRAIN OF Q10 TO THE LEFT SIDE OF C14, TACK SOLDER TO ETCH LINE ON THE LEFT SIDE OF C14, SIDE 1. (THIS IS THE SAME ETCH LINE THAT WAS CUT ON THE RIGHT SIDE OF C14). ECO WIRE IS TO BE ROUTED TO THE TOP OF THE BOARD FROM THE DRAIN OF Q10 THEN RUN ALONG THE BOARD AND COME DOWN TO THE LAND OF ETCH THAT IT HAS TO BE SOLDERED TO THE LEFT SIDE OF C14.

1-4 DRILL A .0635 DIA. HOLE (DRILL #52) BENEATH R32 (SIDE 1) MAKING SURE THE ONLY ETCH DRILLED IS THE ONE WITH BOTH ITS ENDS CUT (SEE STEPS 1 AND 2 OF REWORK INSTRUCTIONS). THIS HOLE HAS TO HOLD DEC. 12-12416-02. BE SURE OF SPACING BEFORE DRILLING.

1-5 DRILL A .0635 DIA. HOLE (DRILL #52) ABOVE Q1 TO THE LEFT SIDE OF R1, SIDE 1. BE SURE OF SPACING. THIS HOLE MUST HOLD DEC. 12-12416-02. DO NOT PIERCE ETCH ON SIDE 2.

1-6 ON SIDE 2, CUT ETCH LEADING AWAY FROM PIN 9 OF J4.

1-7 INSERT DEC. 12-12416-02 IN BOTH HOLES PREVIOUSLY DRILLED. DO NOT INSERT FULLY. INSERT SO THAT ENOUGH OF THE LEAD IS THROUGH THE BOARD THAT WILL PERMIT A COUPLE WRAPS OF AN ECO WIRE. THEN GLUE IN PLACE WITH DEC. 9009157. MAKE SURE THAT TABS ON DEC. 12-12416-02 ARE FACING EACH OTHER ON SIDE 1. (S1 AND S2)

1-8 ON DEC. PART 12-12416-02 THE ONE THAT IS LOCATED CLOSEST TO J4 ON SIDE 1, CONNECT THE LEAD THAT GOES THROUGH THE BOARD, TO PIN J4-9 ON SIDE 2. THIS IS DONE WITH AN ECO WIRE INSTALLED ON SIDE 2.

1-9 WITH AN ECO WIRE, CONNECT BOTH CASE TABS OF DEC. 12-12416-02 ON SIDE 1 TOGETHER.

1-10 DEC. PART 12-12416-02 THAT HAS BEEN INSTALLED BENEATH R32 ON SIDE 1. CONNECT AN ECO WIRE FROM THIS PART'S PIN ON SIDE 2. WITH THE OTHER END OF THE ECO WIRE GOING TO THE P.T.H BETWEEN R41 AND D16. (THIS P.T.H. HAS AN ETCH RUN CONNECTING THE ANODE OF D16 TO IT ON SIDE 2.)

1-11 CHANGE R10 FROM 13-13151 3.6K OHM TO 1300391 1.5K OHM.

1-12 CHANGE R11 FROM 13-00316 47Ø OHM TO 13-00439 3.3K OHM.

1-13 CHANGE R4 FROM 13-00309 39Ø OHM TO 13-01322 18Ø OHM.

1-14 REMOVE W2 INSULATED JUMPER 90-09185.

1-15 REMOVE D17, IN 758A 11-00125

1-16 GLUE ALL ECO WIRES DOWN WITH DEC. 90-09157.

ECO #2

COMPONENT DELETES SIDE 1:

2-1. C15 (P/N 1000021)

2-2. D16 (P/N 1110068)

COMPONENT ADDS SIDE 1:

2-3. D16 (ZENER BI-DIRECTIONAL P/N 1119913-00)

NOTES:

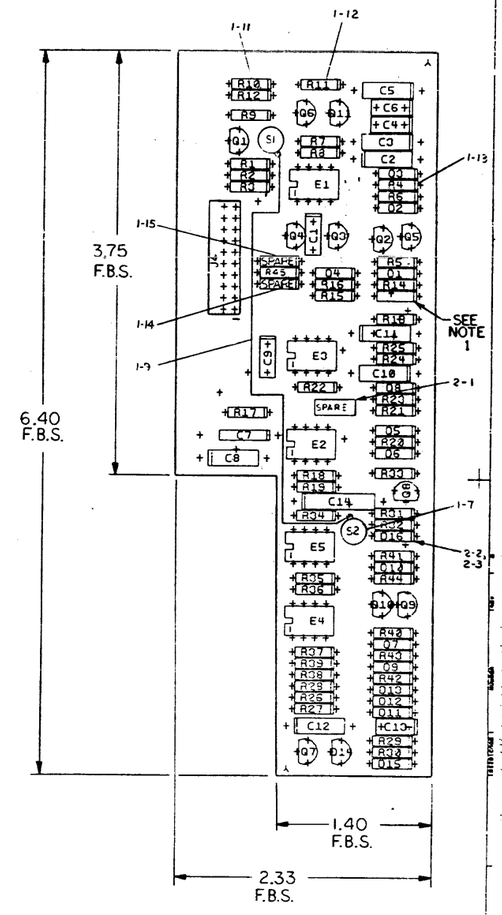
1. COMPONENT NOT INSERTED

CHK	CHANGE NO	REV
	5412365-1	C
	5412365-2	D
	5412365-3	E
		F

ETCH REV. C

P.C. DESIGN DATA BASE REV. C

COMPONENT SIDE VIEW



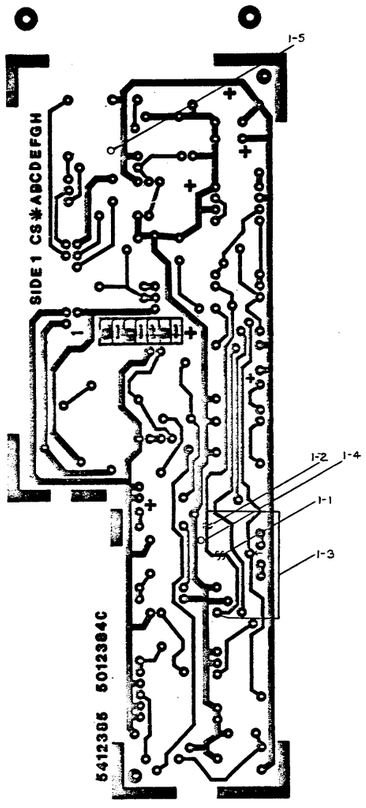
SIGNATURES	DATE
DRN. F. CAROFALO	12-9-76
CHK'D. F. SEIDMAN	12-9-76
ENG.	17 DEC 76
PROJ. ENG.	17 DEC 76
PROD.	17 DEC 76
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B-DD-5412365-0	

digital

TITLE: H785 CONTROL BD.

SIZE D | CODE UA | NUMBER 5412385-0-0 | REV F

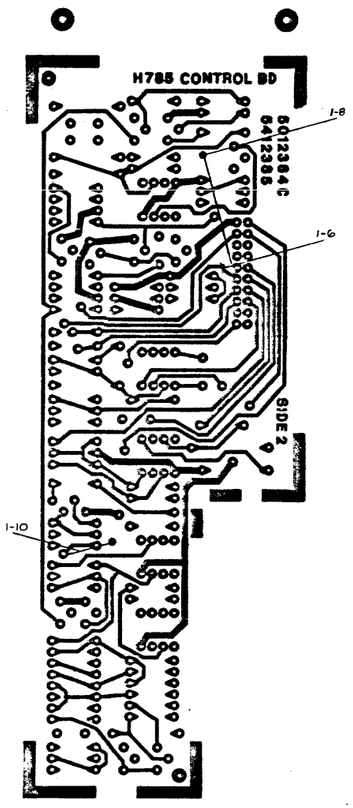
497



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
H785 CONTROL BD	D	UA	5412385-Ø-Ø	E
SCALE 2/1 SHEET 2 OF 3	DIST			

5412385-Ø-Ø E



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
H785 CONTROL BD	D	LIA	5412385-0-0	E
SCALE 2/1 SHEET 3 OF 3	DIST.			

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012384-0-0	5012384-00	5412385	1	
2	2		1001610-00	.01 MFD 100V OR 50V Z5U DISC/800PF MIN	4	C1,C4,C6,C13
3	3		1004813-00	10 MFD 20V 10% 150D S.TA (10-00	1	C2
4	4		1001776-00	1 MFD 35V 10% 150D S.TA (10-00	3	C3,C5,C11
5	5		1000061-00	8200.0 MMF 100V 10% 663UW MYLR (10-00	1	C7
6	6		1005965-00	.47 MFD 35V 10% 150D S.TA (10-00	2	C8,C12
7	7		1000009-00	33.0 MMF 100V 5%200PPM DM15S (10-00	1	C9
8	8		1005306-00	6.8MFD 35V 10% 150D S.TA (10-00	1	C14
9	9		1105275-00	D 672 TR= 15NS PIV= 60V SP	9	D1,D2,D3,D5,D6,D9,D10,D12,D13
10	10		1109988-00	1N 964B VZ= 13.0 5% .40W Y	1	D4
11	11		1102808-00	1N 752A VZ= 5.6 5% .40W P	2	D11,D15
12	12		1110968-00	2N 5062 SCR@100V I=.8A T092	1	D14
13	13		1110713-00	SZ710910 VZ= 5.1 2% M	1	D7
14	14		1114913-00	VZ= 18.0 10% 1W	1	D16
15	15		1300398-00	1.8 K 1/4W 5% CC (13-00	2	R32,R38
16	16		1300479-00	10 K 1/4W 5% CC (13-00	11	R1,R13,R18,R19,R20,R21,R28,
					CONT	R31,R42-R44
17	17		1300229-00	100 1/4W 5% CC (13-00	5	R3,R5,R25,R29,R45
18	18		1301322-00	180 1/4W 5% CC (13-00	1	R4
19	19		1302177-00	47 K 1/4W 5% CC (13-00	1	R6
20	20		1302394-00	30 K 1/4W 5% CC (13-00	1	R7
21	21		1302091-00	330 K 1/4W 5% CC (13-00	1	R8
22	22		1300365-00	1 K 1/4W 5% CC (13-00	6	R2,R9,R12,R14,R37,R40
23	23		1300426-00	2.7 K 1/4W 5% CC (13-00	1	R16
24	24		1302092-00	220 K 1/4W 5% CC (13-00	1	R15
25	25		1301423-00	6.8 K 1/4W 5% CC (13-00	1	R17
26	26		1302871-00	1.21 K 1/4W 1% RN55D-F 100PPM (13-00	1	R35
27	27		1302955-00	750 1/4W 1% RN55D-F 100PPM (13-00	1	R34
28	28		1303312-00	10.0 K 1/4W 1% RN55D-F 100PPM (13-00	1	R36
29	29		1302466-00	100 K 1/4W 5% CC (13-00	3	R22,R39,R41

REVISION HISTORY			VARIATIONS FOR THIS ASSY.
CHK	ECO NO	REV	00
W.H	00003	E	

FIRST USED ON:

MADE BY:	F.MALANSON	DATE: 21-FEB-78
CHECKED:	F.SEIDMAN	DATE: 21-FEB-78
DSN.ENG.:	J.MERCURI	DATE: 21-FEB-78
PROD.:	R.B.KING	DATE: 21-FEB-78
RESP.ENG.:	J.MERCURI	DATE: 21-FEB-78

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
PARTS LIST

H785 CONTROL BOARD

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	5412385-0-0	E

ASSY.NO.: D-UA-5412385-0-0 EDIT 4

500

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
30	30		1300271-00	220 1/4W 5% CC (13-00	1	R26
31	31		1303179-00	8.2 K 1/4W 5% CC (13-00	1	R27
32	32		1302751-00	30 1/4W 5% CC (13-00	1	R30
33	33		1309417-00	27.4 K 1/4W 1% RN55D-F 100PPM (13-00	1	R33
34	34		1503409-00	DEC6534D PNP 310MW SI 40 90 P	4	Q1,Q4,Q7,Q8
35	35		1510233-00	2N 5460 FET 310MW SIP CHNNL	1	Q2
36	36		1511686-00	DEC5433 FET N 350MW 10 25 1A 20U	4	Q3,Q9,Q10,Q11
37	37		1509338-00	DEC6531B NPN 310MW SI 40 90 P	1	Q5
38	38		1510705-00	XA 05 NPN 500MW SI 60 50 P	1	Q6
39	39		1911944-00	555CN TIMER,FUNCT.BLOCK	2	E1,E2
40	40		1910282-00	301AN OP AMP	3	E3,E4,E5
41	41		1300391-00	1.5 K 1/4W 5% CC (13-00	2	R10,R24
42	42		1213335-00	HEADER 20POS RT ANGLE FOR 12-13334	1	J4
43	43		1300439-00	3.3 K 1/4W 5% CC (13-00	1	R11
44	44		1212416-02	THERMOSTAT,@@160,N/C,SPST,AUTO RESET	2	S1,S2
45	45		1300432-00	3 K 1/4W 5% CC (13-00	1	R23
46	46		1109990-00	1N 757A VZ= 9.1 5% .40W P	1	D8
47	47		1005965-00	.47 MFD 35V 10% 150D S.TA (10-00	1	C10
48	48		9009157-00	ADHESIVE, PERMABOND #101	A/R	
49	49		9105740-55	WIRE(WRAP)30AWG UL1423 (91-00	A/R	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE: PARTS LIST H785 CONTROL BOARD	SIZE: K	CODE: PL	DOCUMENT NUMBER: 5412385-0-0	REV: E

BAT IN
+14 V
CHG MODE
+5V B
MON EN
BAT MON
AC/LO
BOOT EN
+15V
-15V
RDC
DC/LO
AC/LO
GND
-3V

J4 R1 1ØK Q1 6534 R2 1K R3 1ØØ R4 1EK D1 DG72 D2 D672 R5 1ØØ R6 47K C1 .Ø1uf Q2 2N5460 Q3 2N5433 D3 DG72 Q5 6531 R14 1K R13 1ØK R15 22ØK R16 2.7K Q4 6534 D4 1N9648 13V R45 1ØØ R31 1ØK Q8 6534 R32 1.8K R33 27.4K 1% R34 750Ω 1% R35 1.21K 1% R36 1ØK 1% C14 6.8uF R49 1K D7 5.1V 52710910 GND

555 E1: R 4, Vcc 8, DCG 7, VTH 6, C 2, f 3, 1
R7 33ØK R8 33ØK R9 1K Q6 A05 C2 10 uf C3 1uf R10Ø 1.5K R11 3.3K R12 1K C4 .Ø1uf C5 1uf C6 .Ø1uf QH D2N5433

555 E2: Vcc 8, R 4, C 2, CTL 5, VTH 6, DCG 7, f 3, 1
+14V R17 6.8V D5 DG72 R18 1ØK D6 DG72 R19 1ØK R20 1ØK C7 ØØ82uf C8 .47uf R21 1ØK D8 IN757A 9.1V

R23 3K R22 1ØØK C10 .47uf R25 1ØØ R24 1.5K C11 1uf R26 22Ø Q7 6534 C12 .47uf R27 8.2K
301A E3: 2, 3, 6, 7, 8, 4, 1
C9 33PF J4 18 J4 6 -3V J4 2Ø D11 IN752A 5.6 V J4 9 D12 DG72 R28 1ØK D14 2N5662 D15 IN752A R29 1ØØ D13 DG72 C13 .Ø1uf R30 3Ø

R38 1.8K R37 1K 301A E4: 2, 3, 7, 6, 5, 4, 1, 8 R39 1ØØK R42 1ØK D9 D672 R43 1ØK Q9 J4 7 W3 J4 5

R47 1K D10 D672 R44 1ØK R41 1ØØK Q10 2N5433 J4 17

NOTES:
1. H785, 15V OPERATION REMOVE JUMPER W2.
2. H785, 12V OPERATION REMOVE JUMPER W1.
3. W3 IS AN ENGINEERING OPTION TO BE DETERMINED AT A LATER DATE.

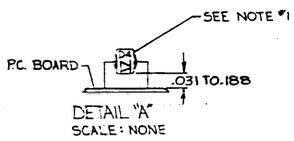
Revisions		
Dist	Control No.	REV
F	5412385-0000	D
	Add W3 & Note 3	E
	ENGINEERING RELEASE	
	5412385-0000-1	E
	6 JAN 77	

DRN.	9-7-76	FIRST USED ON digital
CHK'D		
ENG.		TITLE H785 CONTROL BOARD
PROJ. ENG.		
PRCD.		
NEXT HIGHER ASSY.		SIZE D CODE CS NUMBER 5412385-0-1 REV. E
SCALE		
SHEET	1 OF 1	DIST.

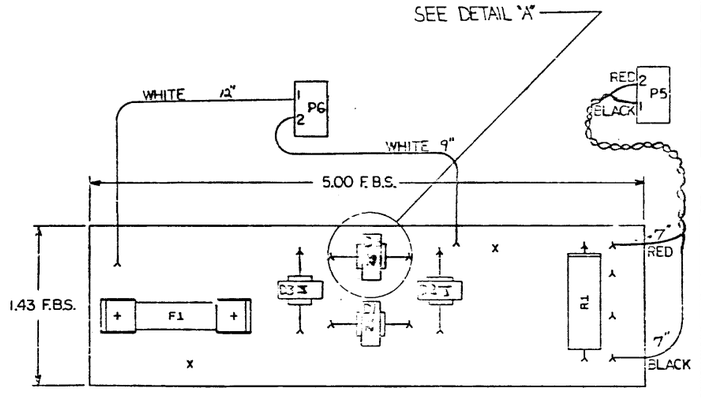
502

COMPONENT SIDE VIEW

NOTES:
1. DIODES D1 THRU D4 MUST BE RAISED FROM THE P.C. BOARD .031 TO .188



DETAIL "A"
SCALE: NONE



NOTES:

SIGNATURES	DATE
DRN.	
CHK'D.	
ENGR.	
APPD.	
MFG.	
QUAL.	
PROJ. ENGR.	

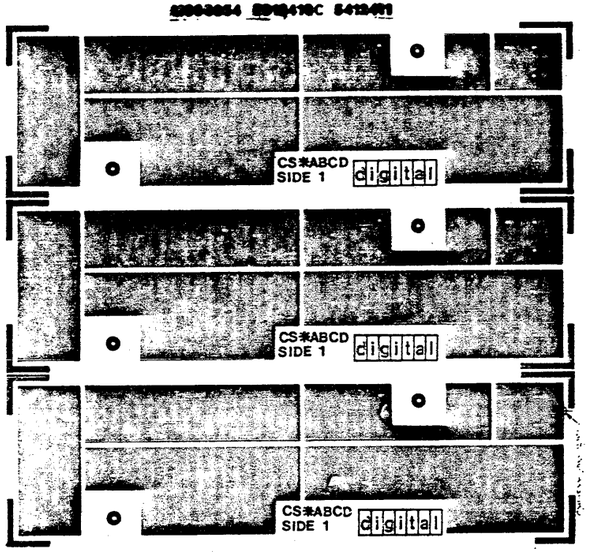
digital

TITLE INPUT RECTIFIER BOARD

SIZE A | CAGE CODE | DWG. NO. 54124II-Ø-Ø1 | REV

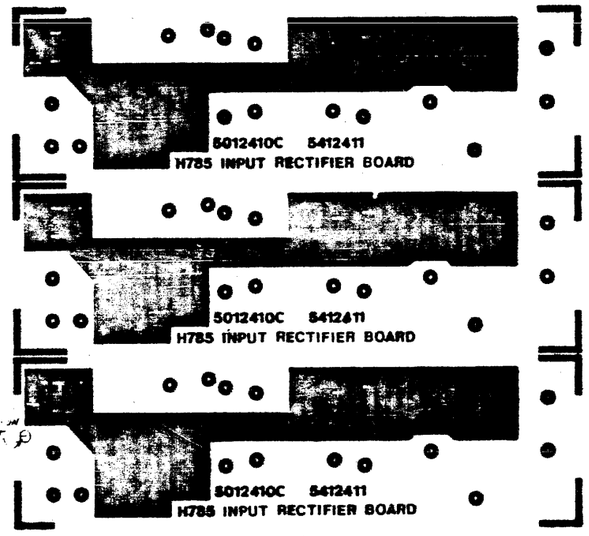
DUA 54124II-Ø-Ø E

503



REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
INPUT RECTIFIER BOARD	D		5412411-0-0	E
SCALE	SHEET 2 OF 3	DIST		



Callout point

REVISIONS		
CHK	CHANGE NO	ITR

TITLE	SIZE	CODE	NUMBER	REV.
INPUT RETIFIER BOARD	D	UA	5412411-0 0	E
SCALE 2/1 SHEET 2 OF 2	DIST			

505

AUTOMATED BY PRTLST 1D(11)

P A R T S L I S T

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012410-0-0	5012410-00	5412411	1	
2	2		1110615-00	MR 752 PIV=200 I=22A A264 SM	4	D1-D4
3	3		1210821-02	MATE-N-LOK 2PIN,HOUSING,SKT	2	P5,P6
4	4		1209379-01	MATE-N-LOK PIN 20-14AWG LOOSE	4	
5	5		1302609-00	4.7 K 2W 10% CC (13-00	1	R1
6	6		9009000-00	EYELET, ROLLED FLANGE, .121 OD X .156 LG	2	
7	7		9008390-00	FUSE, REG BLOW, 10.000A, 250V, CERAMIC	1	
8	8		9007203-00	CLIP, FUSE, WITH STOP, SCREW MOUNTED	2	
9	9		9107360-99	WIRE,STRND,18AWG,IPVC UL1429 (91-00	A/R	
10	10		9107430-02	WIRE,STRND,18AWG,IPVC (UL1429) (91-00	A/R	

11 NOTE: MS60954 ETCH REV C CS REV B

REVISION HISTORY			VARIATIONS FOR THIS ASSY.
CHK	ECO NO	REV	
---	00003	E	00

FIRST USED ON:

MADE BY:	D.BILODEAU	DATE: 08-MAR-78
CHECKED:	F.GAROFALO	DATE: 08-MAR-78
DSN.ENG.:	J.MERCURI	DATE: 08-MAR-78
PROD.:	R.B.KING	DATE: 08-MAR-78
RESP.ENG.:	J.MERCURI	DATE: 08-MAR-78

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

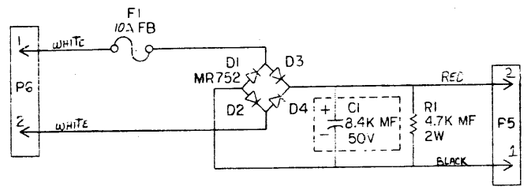
TITLE
PARTS LIST
INPUT RECTIFIER BOARD

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	5412411-0-0	E

ASSY.NO.: D-UA-5412411-0-0 EDIT 3

NOTES:

1. C1 WILL BE CONNECTED TO BOARD AT NEXT HIGHER ASSEMBLY.



IC TYPE	GND	+5V

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

IC PIN LOCATIONS

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL

ETCH BOARD REV. C

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

SEMICONDUCTOR CONVERSION CHART

REV.	REVISIONS	CHANGE NO.	
C	Added C1 per ECO 5412411-00003	5412411-00003	CHK

J.MERCURI

DRN Jack Murphy 7-19-74
CHK [illegible] DATE
ENG Joe Mercuri DATE 11-5-74
PROJ ENG [illegible] DATE
PROD [illegible] DATE

NEXT HIGHER ASSY

SCALE —/+—
SHEET 1 OF 1

digital

TITLE
INPUT
RECTIFIER BOARD

SIZE	CODE	NUMBER	REV.
D	CS	5412411-0-1	C

DIST.

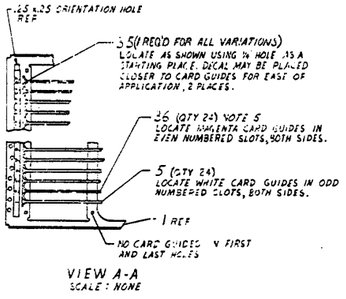
DEC FORM NO. DHD 1 3/8 B

509

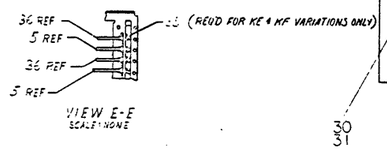
* FOR MFG USE ONLY

LEGEND	
NUMBER	VARIATION
BA11-KE	115V 50/60 HZ
BA11-KF	230V 50/60 HZ
BA11-KH *	115V 50/60 HZ
BA11-KJ *	230V 50/60 HZ
BA11-KK *	115V 50/60 HZ
BA11-KL *	230/50/60HZ
BA11-KA *	NO POWER SUPPLY

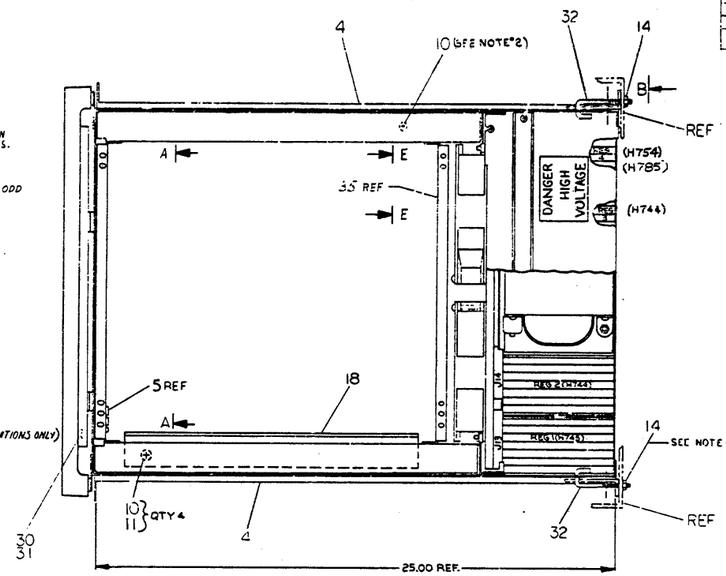
NOTES:
1. CAUTION: OFF SHEEET PARTS LISTS EXISTS SEE A-PL-BA11-K-0
2. GROUND LUG OF PWR. DISTRIBUTION BD. ATTACHES TO GND STANDOFF ON CHASSIS.
3. TIGHTEN ALL SYSTEM UNIT MOUNTING SCREWS TO 13 IN-LBS WITH A TORQUE SCREW DRIVER.
4. ATTACH SHIPPING BRACKETS TO POWER SUPPLY AND BOLT THROUGH HOLE IN CABINET RAILS.
5. INSTALL CARD GUIDES, ITEM NOS. 5 & 36 USING TOOL NO. 9412610-2.
6. ASSEMBLE ITEM NO. 37 USING EXISTING HARDWARE.



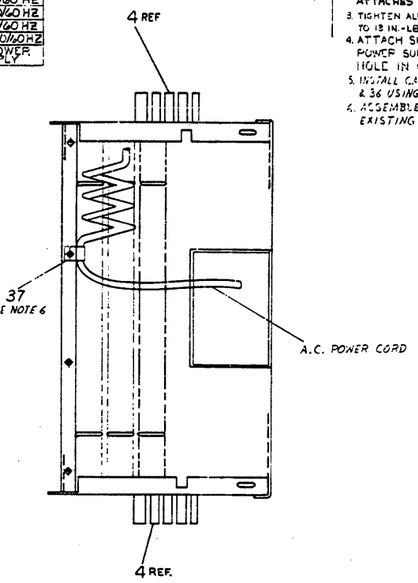
VIEW A-A
SCALE: NONE



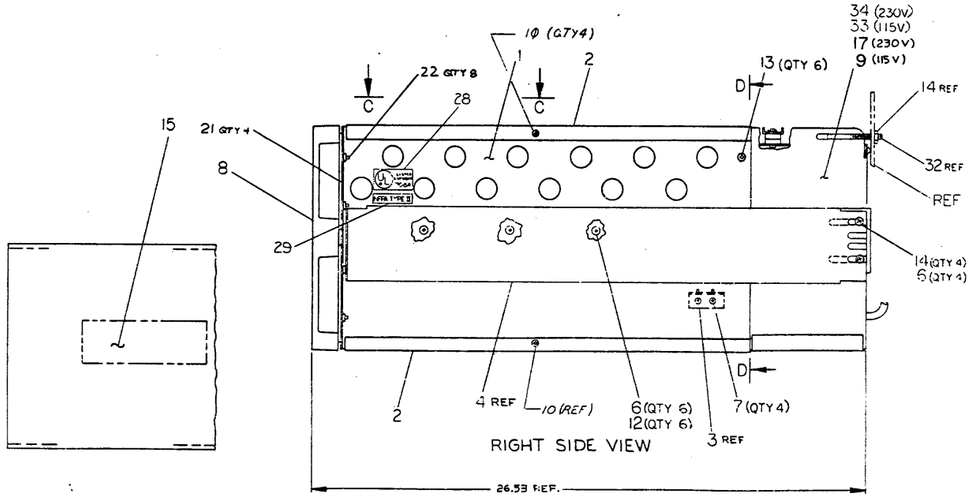
VIEW E-E
SCALE: NONE



TOP VIEW
(CHASSIS COVER REMOVED)

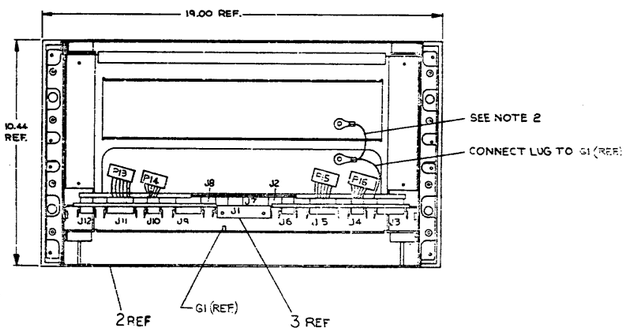


VIEW B-B



RIGHT SIDE VIEW

VIEW C-C
SCALE: NONE
ONLY TOP COVER ITEM #2 SHOWN



VIEW D-D
REAR VIEW
(POWER SUPPLY AND CHASSIS SLIDES REMOVED)

SYSTEM OR OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
BA11-K		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED

FRACTIONS	DECIMALS	ANGLES
±1/16	XXX ±.005	45° ±30'
±1/32	XX ±.02	
±1/64	X ±.1	

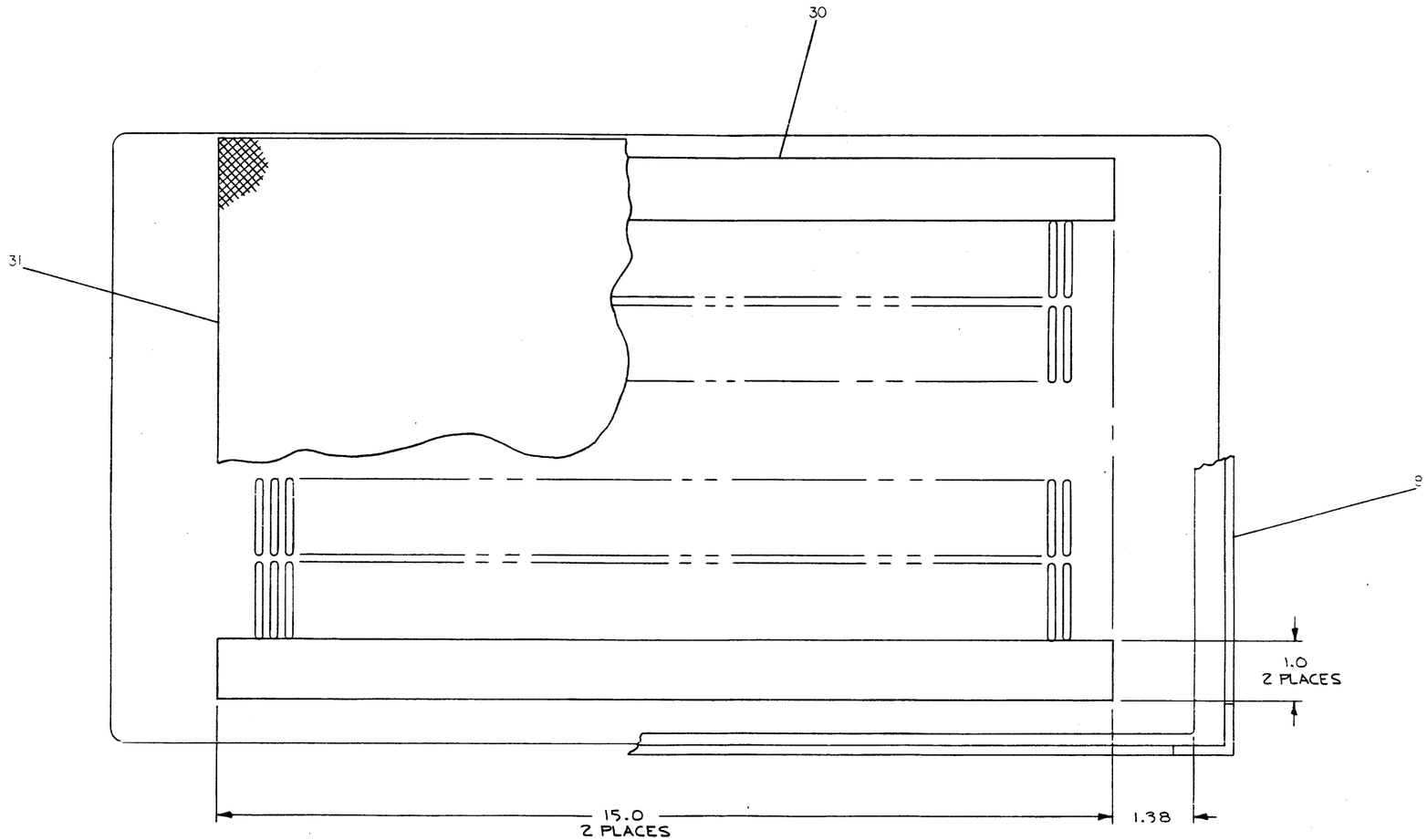
THIRD ANGLE PROJECTION
REMOVE SLIVERS AND SHARP EDGES
MATERIAL
FINISH

	NAME	DATE
DRAWN	Cathy	
TRACED		
DESIGNED		
ENGR APPR.		
MFG APPR.		
QUALITY ASSUR.		
PROJECT ENGR APPR.		

DIGITAL

TITLE: UNIT ASS'Y BA11-K

DRAWING	NUMBER	REV.
SIZE	3-DD-BA11-K	
E	BA11-K-0	N



REAR VIEW

REVISIONS		
SYM	CHANGE NO	INIT

TITLE	UNIT ASSY BA11-K-0	SIZE/CODE E UA	NUMBER BA11-K-0 REV. N
SCALE	SHEET 2 OF 2	DIST.	

509

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET 7

SEQUENCE	
DRAWING DIRECTORY BA11-K	B-DD-BA11-K
UNIT ASSY BA11-K	E-UA-BA11-K-Ø
UNIT ASSY BA11-K P.L.	A-PL-BA11-K-Ø
DRAWING DIRECTORY H765	B-DD-H765-Ø
UNIT ASSY BC11A	D-UA-BC11A-1Ø-Ø
BC11A UNIBUS CABLE, M919	B-CS-M919-0-1
BC11A UNIBUS CABLE, M929	B-CS-M929-0-1

SEQUENCE	
MFG. PRINT SET	
IN PLANT PACK. INST.	A-SP-3700167-0-0
SKID LOAD PACK. INST.	A-SP-3700165-0-0
CUST. CUSHIONED PACK. INST.	A-SP-3700169-0-0

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
BA11-KE	115 VAC 50/60 HZ	X
BA11-KF	230 VAC 50/60 HZ	X
BA11-KH	115 VAC 50/60 HZ (MANUF. ONLY)	X
BA11-KJ	230 VAC 50/60 HZ (MANUF. ONLY)	X
BA11-KK	115VAC 50/60 HZ(NO H754) (MANUF ONLY)	X
BA11-KL	230 VAC 50/60 HZ(NO H754)(MANUF ONLY)	X
BA11-KA	NO POWER SUPPLY (MANUF ONLY)	X

REVISIONS		
DATE	CHG. NO.	REV
E.A.	BA11K-4	A
E.A.	BA11K-5	B
WKK	BA11K-7	C
B.M.	BA11K-8	D
[illegible]	BA11K-9	E
RJS	BA11K-10	F
[illegible]	BA11K-11	H
RJP	BA11K-12	J
[illegible]	BA11K-13	K
3-77	BA11K-14	L
11-77	BA11K-15	M

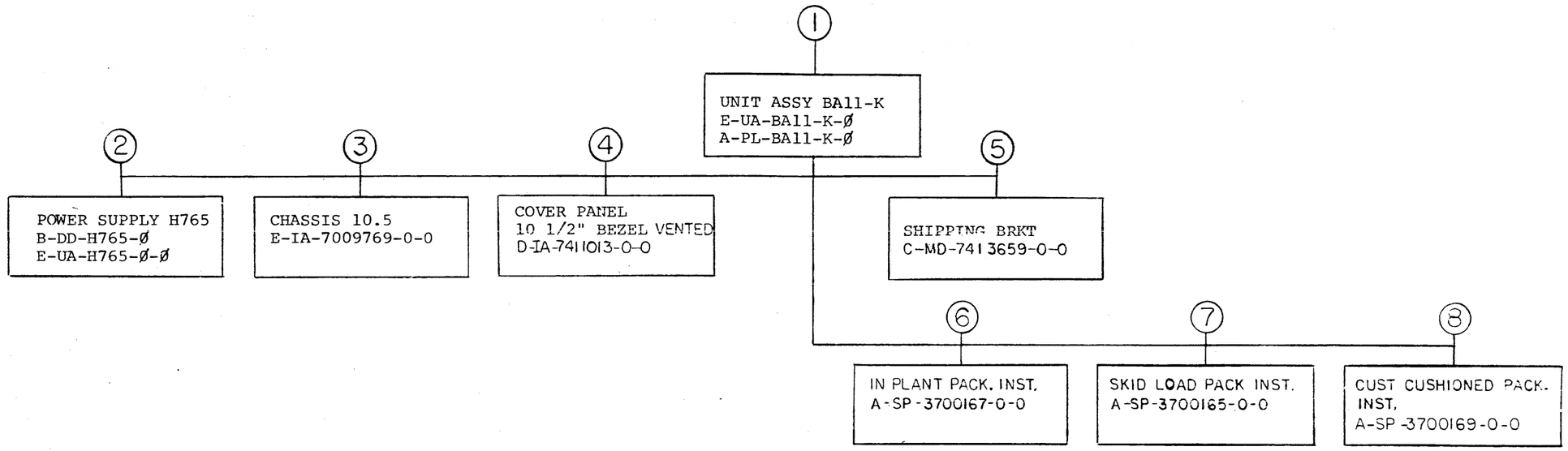
USED ON OPTION/MODEL	
11/05-S	
11/35-S	

SHEET 1 OF 4

DRN. J.FERGUSEN	DATE 6/22/74	TITLE DRAWING DIRECTORY BA11-K
CHK'D. D. HEALY	DATE 7/3/74	
PROJ ENG. E. Dutton	DATE 9/4/74	
PROD. R. Peterson	DATE 10/1/74	SIZE B / CODE DD / NUMBER BA11-K / REV M
FIELD SERV. R.L. Gates	DATE 9/13/74	DIST

DRB 106

510



TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-K	SHEET 2 OF 4	B	DD	BA11-K	M

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			ELECTRICAL				
X		1	E-UA-BA11-K-Ø	M	2	UNIT ASSY BA11-K	
X			A-PL-BA11-K-Ø	M	2	UNIT ASSY BA11-K PL	
			A-SP-BA11-K-6		8	BA11-K BASIC CHECKOUT AND ACCEPTANCE PROCEDURE	
			A-SP-BA11-K-7		10	BA11-K BASIC ASSEMBLY PROCEDURE	
C		2	B-DD-H765-Ø	X	5	POWER SUPPLY H765	

CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
			ELECTRICAL				

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-K	SHEET 3 OF 4	B	DD	BA11-K	M

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
			MECHANICAL				
		1	E-UA-BA11-K-0	M	2	UNIT ASSY BA11-K	
			A-PL-BA11-K-0	M	2	UNIT ASSY BA11-K PL	
			D-IA-7009768-0-0		1	COVER, CHASSIS	
			D-PS-1211825-0-0		3	SLIDE, 3 POS TILT	
			D-MD-7412184-0-0		1	CABLE, TROUGH CHASSIS	
X			D-UA-BC11A-10-0		1	UNIBUS, CABLE, 10 FT	
X			B-CS-M919-0-1	#	1	BUS CONNECTOR M919	
X			B-CS-M929-0-1	#	1	BUS CONNECTOR M929	
			D-PS-1212405-00		1	CARD GUIDE	
			A-DC-5309414-0		1	DECAL UL	
			A-DC-5309413-0		1	DECAL NFPA	
			A-PS-3613281-0-0		1	DECAL	
		2	B-DD-H765-0		5	DWG DIRECTORY H765	
			E-UA-H765-0-0		2	POWER SUPPLY H765	
		3	E-IA-7009769-0-0		1	CHASSIS, 10.5	
			E-IA-7411703-0-0		1	CHASSIS, FRONT	
			E-IA-7411707-0-0		1	CHASSIS, SIDE	
			D-MD-7411706-0-0		1	BRACKET, HAT	
			D-MD-7411705-0-0		1	BRACKET, CARD GUIDE	
			C-MD-7412185-0-0		1	PLATE CABLE	
		4	D-IA-7411013-0-0		1	COVER PANEL 10 1/2 BEZEL	
		5	C-MD-7413659-0-0		1	SHIPPING BRKT	

CUSTOMER PRINT SET 1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
			MECHANICAL				
	X	6	A-SP-3700167-0-0	-	3	IN PLANT PACK. INST.	
			A-PS-9905650-0-0	-	2	REGULAR SLOTTED CARTON	
			A-PS-9905335-0-0	-	2	BEZEL PROTECTOR	
			A-PS-9905644-0-0	-	2	REAR PROTECTOR	
			A-PS-9905323-0-0	A	2	SIDE PROTECTOR	
			A-PS-9905129-0-0	A	4	POLY BAG 20 x 13 x 40in 1-1/2 mil.	
	X	7	A-SP-3700165-0-0	-	4	SKID LOAD PACK. INST.	
			A-PS-1210568-0-0	-	2	CUSHIONED SKID	
			A-PS-9905445-0-0	-	2	HALF OVERLAP SLOTTED CARTON (TOP)	
			A-PS-9905419-0-0	-	2	FLANGED TUBE (BOTTOM)	
	X	8	A-SP-3700169-0-0	-	2	CUST. CUSHIONED PACK. INST.	
			A-PS-9905645-0-0	-	2	FULL TELESCOPE CAP	
			A-PS-9905642-0-0	-	2	FOAM PAD	
			A-PS-9905643-0-0	-	2	FOAM WITH CORRUGATED	
						SIDE WALL ASSEMBLY	

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

TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY BA11-K	SHEET 4 OF 4	3	DD	BA11-K	M

DPB 108
DEC 16-(325)-1062-28-R972

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY BILL BLODGET	CHECKED D. HEALY	SECTION 1
DATE 6/26/74	DATE 6/27/74	
ENG P. E. JANSON	PROD W. LUCAS	ISSUED SECT. 1
DATE 8-23-74	DATE 8-23-74	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION BA11-KE	BA11-KF	BA11-KH	BA11-KJ	BA11-KK	BA11-KL	BA11-KA
1	E-IA-7009769-0-0	CHASSIS 10.5	1	1	1	1	1	1	1
2	D-IA-7009768-0-0	COVER, CHASSIS	2	2	–	–	–	–	–
3	D-CS-541086-0-1	POWER DISTRIBUTION BOARD	REF	REF	REF	REF	REF	REF	–
4	D-PS-1211825-0-0	SLIDE, 3 POS TILT	1pr	1pr	–	–	–	–	–
5	D-PS-1212405-0	CARD GUIDE, SINGLE	24	24	24	24	24	24	24
6	9006071-3	SCREW, PHL TRUSS HD #10-32 X .38	10	10	–	–	–	4	–
7	9008020-2	SCREW, PHL FLAT HD #6-32 X .25	4	4	4	4	4	4	–
8	D-IA-7411013-0-0	COVER, PANEL 10 1/2 BEZEL (SNAP-ON VENTED)	1	1	–	–	–	–	–
9	B-DD-H765-A	POWER SUPPLY H765-A 115V 50/60 HZ	1	–	1	–	–	–	–
10	9006030-3	SCREW, PHL. TRUSS HD #6-32 X .25	9	9	5	5	5	5	5
11	9006633	WASHER INTERNAL TOOTH LOCK #6	4	4	4	4	–	–	–
12	9007651	WASHER EXTERNAL TOOTH #10	6	6	–	–	–	–	–
13	9009599	SCREW, PHL FLAT HD (SPECIAL)	6	6	6	6	6	6	–
14	9006565	NUT, KEPS, #10-32	6	6	–	–	–	–	–
15	DEC-3-(374)-1625 N1174	STICKER, "CONFIGURATION"	1	1	–	–	–	–	–
16	D-IA-7010059-0-0	SHIPPING BRKT, ASSY	1	1	–	–	–	–	–
17	B-DD-H765-B	POWER SUPPLY H765-B, 230V 50/60 HZ	–	1	–	1	–	–	–
18	D-MD-7412184-0-0	CABLE TROUGH CHASSIS	–	–	1	1	1	1	1
19	9008408-1	SCR, PH, HD SELF TAP #6-32 X .25	1	1	5	5	–	–	–
20	D-UA-BC11A-10-0	UNIBUS CABLE, 10 FT	1	1	–	–	–	–	–
21	1209224	LATCH MOLDING	4	4	–	–	–	–	–
22	9008007-2	SCR PH HD FLT #10-32 X .25	8	8	–	–	–	–	–

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
UNIT ASSY BA11-K	E-UA-BA11-K-0	A	PL	BA11-K-0	N	BA11-K 00016
	SHEET 1 OF 2	DIST.				

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

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY BILL BLODGET	CHECKED D. HEALY	SECTION 1
DATE 6/26/74	DATE 6/27/74	
ENG P. E. JANSON	PROD W. LUCAS	ISSUED SECT. 1
DATE 8-23-74	DATE 8-23-74	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION BA11-KE	BA11-KF	BA11-KH	BA11-KJ	BA11-KK	BA11-KL	BA11-KA
23	A-SP-3700167-0-0	IN PLANT PACK. INST.	REF	REF	REF	REF	REF	REF	REF
24	A-SP-3700165-0-0	SKID LOAD PACK INST.	REF	REF	REF	REF	REF	REF	REF
25	A-SP-3700169-0-0	CUST. CUSHIONED PACK. INST.	REF	REF	REF	REF	REF	REF	REF
26	A-SP-BA11-K-6	BA11-K BASIC CHECKOUT AND ACCEPTANCE PROCEDURE	REF	REF	REF	REF	REF	REF	REF
27	A-SP-BA11-K-7	BA11-K BASIC ASSEMBLY PROCEDURE	REF	REF	REF	REF	REF	REF	REF
28	A-DC-5309414-0	DECAL, UL	1	1	–	–	–	–	–
29	A-DC-5309413-0	DECAL, NFPA	1	1	–	–	–	–	–
30	1211336-02	TAPE	A/R	A/R	–	–	–	–	–
31	1211255-0-0	PRE FILTER	1	1	–	–	–	–	–
32	C-MD-7413659-0-0	SHIPPING BRACKET	2	2	–	–	–	–	–
33	B-DD-H765-C	POWER SUPPLY H765-C 115VAC 50/60HZ NO H754	–	–	–	–	1	–	–
34	B-DD-H765-D	POWER SUPPLY H765-D 230VAC 50/60HZ NO H754	–	–	–	–	–	1	1
35	A-PS-3613281-00	DECAL, ADHESIVE BACKED, BA11-K	2	2	1	1	1	1	1
36	D-PS-1212405-1	CARD GUIDE, SINGLE	24	24	24	24	24	24	24
37	9007086-00	CLAMP, CABLE	1	1	1	1	1	1	–

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
UNIT ASSY BA11-K	E-UA-BA11-K-0	A	PL	BA11-K-0	N	
	SHEET 2 OF 2	DIST.				

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

514

+5V
R39 1K
8641 E29
VECTOR L
BUS AI7 L → AI7 H
BUS AI6 L → AI6 H
BUS AI5 L → AI5 H
BUS AI4 L → AI4 H
8641 E30
BUS AI3 L → AI3 H
BUS AI2 L → AI2 H
BUS AI1 L → AI1 H
BUS AI0 L → AI0 H

BUS A11 L → 8837 E18 → A11 H
BUS A08 L → 8837 E16 → A08 H
BUS A07 L → 8837 E15 → A07 H
BUS A06 L → 8837 E18 → A06 H
BUS A05 L → 8837 E18 → A05 H
BUS A04 L → 8837 E19 → A04 H
BUS A03 L → 8837 E19 → A03 H
BUS A02 L → 8837 E17 → A02 H
BUS A01 L → 8837 E17 → A01 H

D12 L, D11 L, D10 L → 74LS86 E13, E15, E15
ALLOW SWITCHES L → S1-1 → R20 1MK → +5V
SSYN/DATA ENAB 2 H

8881 E13: BUS SSYN L
D14 H → 8881 E16: BUS D14 L
D13 H → 8881 E10: BUS D13 L
8881 E10: BUS D12 L
8881 E2: BUS D11 L
8881 E2: BUS D10 L
D09 H → 8881 E2: BUS D09 L
D08 H → 8881 E2: BUS D08 L
D07 H → 8881 E3: BUS D07 L
D06 H → 8881 E3: BUS D06 L
D05 H → 8881 E3: BUS D05 L
D04 H → 8881 E3: BUS D04 L
D03 H → 8881 E4: BUS D03 L
D02 H → 8881 E4: BUS D02 L
D01 H → 8881 E4: BUS D01 L
D00 H → 8881 E4: BUS D00 L
DATA ENAB 1 H

+5V
E1, E9, E17, E27
BUS DI3 L, BUS DI1 L, BUS DI7 L, BUS DI5 L, BUS DI6 L, BUS DI4 L, BUS DI2 L, BUS DI0 L
BUS BRG L, BUS NPR L, BUS BG7 H, BUS BG6 H, BUS NPG H, BUS BG5 H, BUS BG4 H
BUS ADG L, BUS AD4 L, BUS AD0 L
BUS C0 L, BUS C1 L, BUS AI6 L
375 176.5
AD2, AR2, AS2, AF2, AE2, AD2, AA2, AF2
AH, AR2, AS2, AF1, AE1, AD1, AC1, AB1, AA1
AH2, AR2, AS2, AF1, AE1, AD1, AM1, AL1, AK1
AJ1, AH1, AG1, AF1, AE1, AD1, AC1, AB1, AA1
BL2, BK2, BJ2, BH2, BG2, BF2, BE2, BD2, BC2
BL2, BK2, BJ2, BH2, BG2, BF2, BE2, BD2, BC2
BU2, BT2, BS2, BR2, BP2, BN2, BM2, BL2, BK2
BU1, BT1, BS1, BR1, BP1, BN1, BM1, BL1, BK1
BUS DAL L, BUS DAT L, BUS DAH L, BUS DAG L, BUS DAF L, BUS DAE L, BUS DAD L, BUS DAC L, BUS DAB L, BUS DAA L
BUS MSYN L, BUS SSYN L, BUS A17 L, BUS A15 L, BUS A13 L, BUS A11 L, BUS A09 L, BUS A07 L, BUS A05 L, BUS A03 L, BUS A01 L, BUS BR7 L, BUS BR6 L, BUS BR5 L, BUS BR4 L, BUS INT7 L, BUS INTA L, BUS DIS L, BUS DIA L, BUS DIB L, BUS DIC L, BUS DID L, BUS DIE L, BUS DIF L, BUS DIG L, BUS DIH L, BUS DII L, BUS DIJ L, BUS DIK L, BUS DIL L, BUS SACK L, BUS BBSY L, BUS PA L, BUS DAL L, BUS DAK L, BUS DAJ L, BUS DAH L, BUS DAG L, BUS DAF L, BUS DAE L, BUS DAD L, BUS DAC L, BUS DAB L, BUS DAA L

BUS AC LO L → BF1
+5V → C45 .01μF, R38 383, C44 .01μF, R34 383 → BF2 → GND → BUS DC LO L

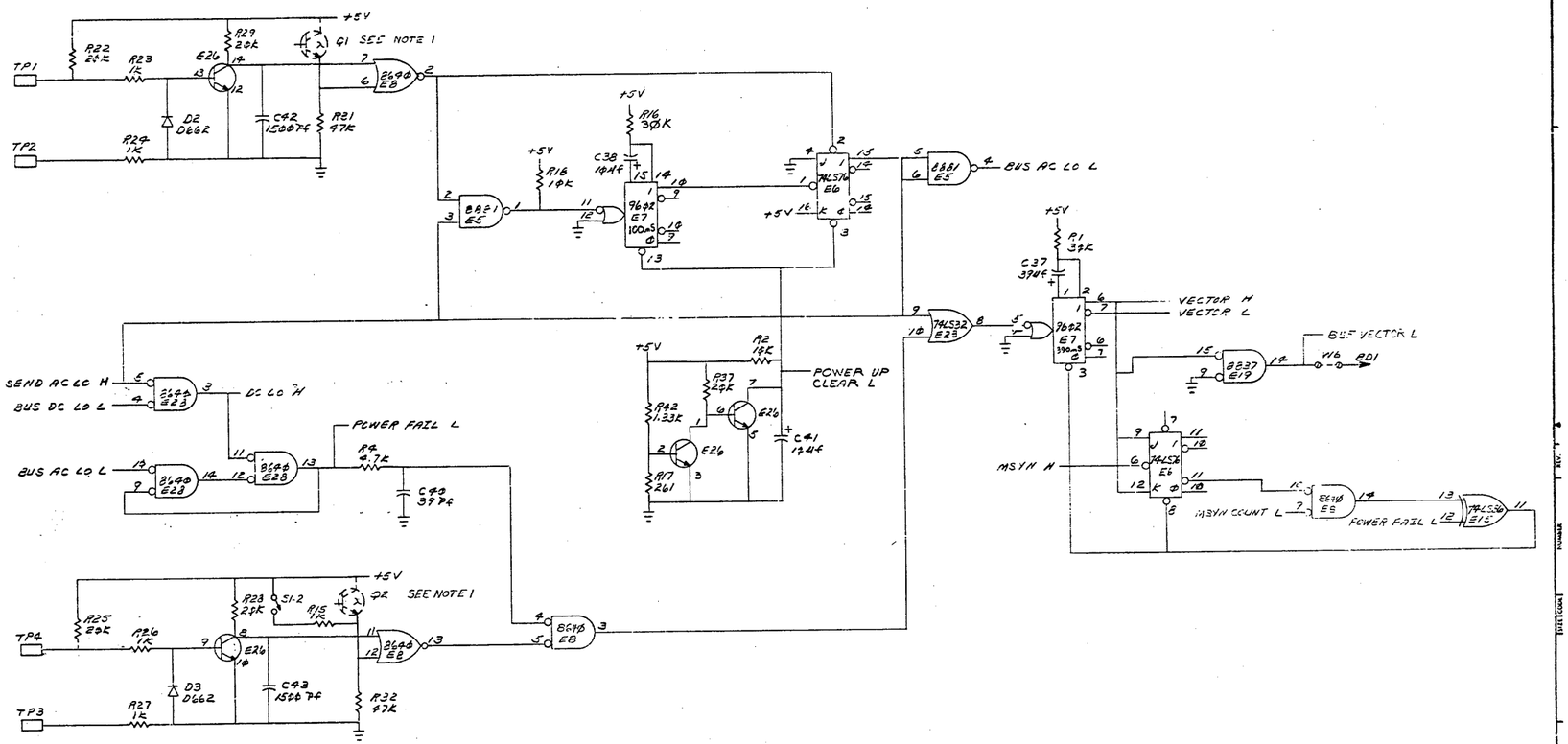
AA2, BA2 → +5V
AC2, AT1, BC2, BT1 → C35, C36 37μF
C1, C3, C16, C25 .22μF
C2-C8, C10-C15, C17, C18, C20-C24, C26-C34 .01μF

(BUS TERMINATOR, DRIVERS AND RECEIVERS)

DRN.	12-3-77	FIRST USED ON
CHK'D	12-30-77	
ENG.	12-30-77	TITLE: BOOTSTRAP TERMINATOR
PROJ. ENG.	1-26-78	
PROD.	1-30-78	
NEXT HIGHER ASSY.		
SCALE		SIZE D, CODE CS, NUMBER M9312-0-1, REV. B
SHEET 1 OF 4		DIST.

REVISIONS			
DWG	NUMBER	REV.	
1	M9312-00001	B	4-Apr-78
B.GIST			

515



NOTES: 1. PHOTO TRANSISTORS Q1 AND Q2 DO NOT APPEAR ON THE PARTS LIST, THEY ARE INTENDED FOR FUTURE APPLICATIONS.

(SWITCH FILTERS AND AC LO GENERATION)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
BOOTSTRAP TERMINATOR	D	CS	M9312-0-1	B
SCALE	SHEET 2 OF 4	DIST.		

BYTE ADR 0 H
BYTE ADR 1 H
A01 H
A02 H
A03 H
A04 H
A05 H
A06 H
A07 H
A08 H

ROM DATA LATCH H

HI-LO ROM DECODER

A17-09	LO ROM ENA H	BOOT SEL H	LOW ROM L	HIGH ROM H
765 XXX	H	H	L	L
765 XXX	L	L	H	L
773 XXX	X	H	H	H
DEFAULT	X	L	H	L

ALLOW SWITCHES ROM

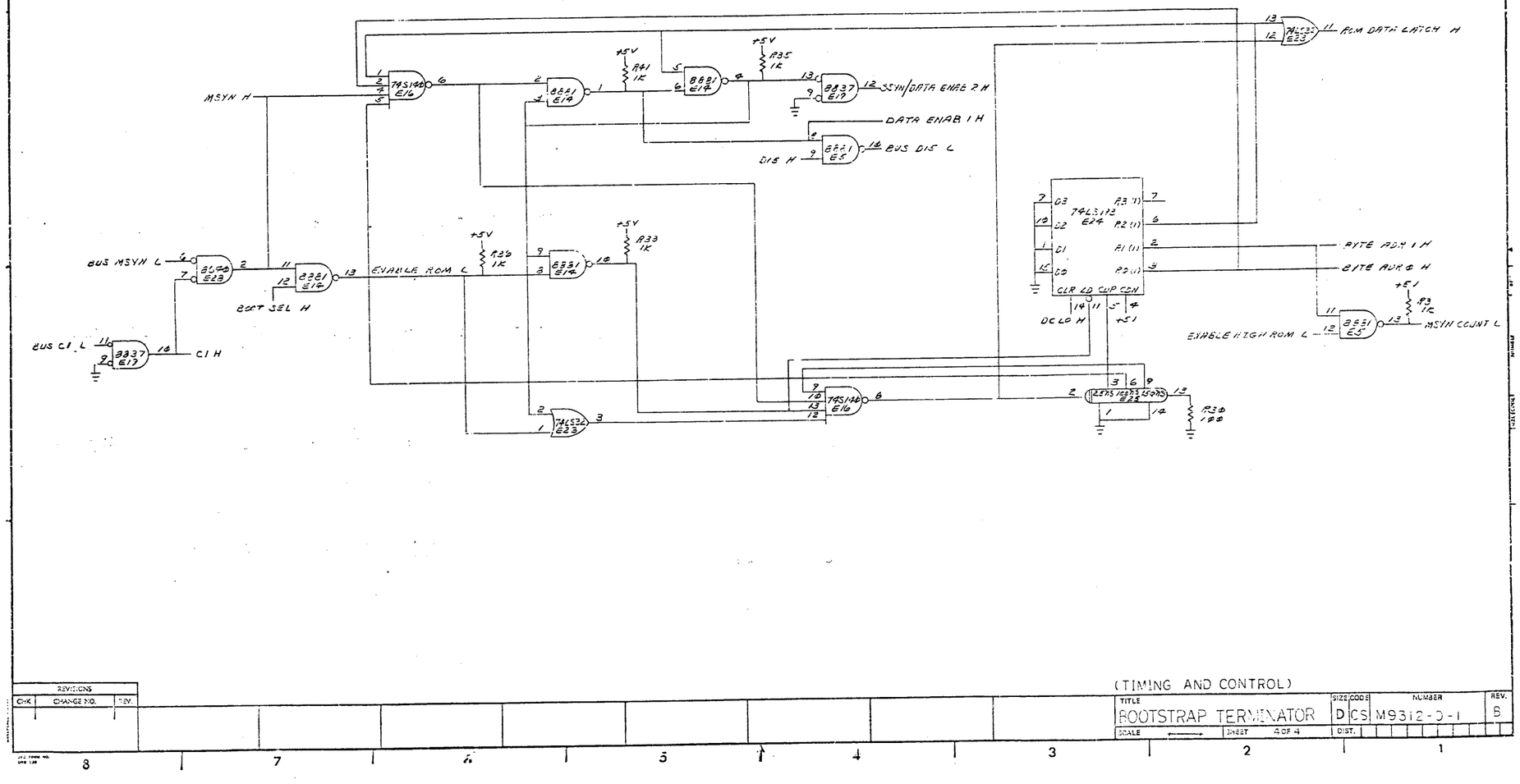
A08-01 (OCTAL)	HIGH ROM H	ENABLE ROM L	A19, W13	W11, W12	ALLOW SWITCHES L	ALLOW SWITCHES H
XXX	X	H	X	X	H	H
XXX	L	L	IN	OUT	H	L
XXX	L	L	OUT	IN	H	L
024	H	L	IN	OUT	L	H
DEFAULT	X	L	IN	OUT	H	L
224	H	L	OUT	IN	L	H
DEFAULT	X	L	OUT	IN	H	L

ALLOW SWITCHES H
ALLOW SWITCHES L
DATA ENAB I H
ENABLE ROM L
ENABLE HIGH ROM L
BOOT SEL H
LOW ROM L
HIGH ROM H
BOOT 1L
BOOT 2L
BOOT 3L
BOOT 4L

W3	W2	W1	W0	300T 1 L	300T 2 L	300T 3 L	300T 4 L
L	L	L	H	L	H	H	H
L	H	L	H	H	L	H	H
H	L	L	H	H	H	L	H
		L	H	H	H	H	L
		H	X	L	H	H	H
				H	L	H	H

(ADDRESS DECODE AND BOOT ROMS)

TITLE	SIZE	CODE	NUMBER	REV.
BOOTSTRAP TERMINATOR	D	CS	M9312-0-1	E
SCALE	SHEET 3 OF 4		DIST.	



REVISIONS		
CHK	CHANGE NO.	REV.

(TIMING AND CONTROL)

TITLE	SIZE	CODE	NUMBER	REV.
BOOTSTRAP TERMINATOR	D	CS	M9312-D-1	B
SCALE	SHEET 4 OF 4	DIST.		

518