digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

SEQUENCE			
DRAWING DIRECTORY KB11-C (SHEET 1 ONLY)	B-DD-KB11-C		
16 BIT PROCESSOR	B-PL-KB11-C-Ø		FOR KB11-CM PRINT SET
FLOW DIAGRAMS	D-FD-KB11-C-1	5	REFER TO 11/74 ELECTRICAL
BLOCK DIAGRAM	D-BD-KB11-B-2	19	PRINT SET B-TC-11/74
BLOCK DIAGRAM	D-BD-KB11-B-3		ORDER NUMBER MP00821
UNIBUS CABLE & GRANT CHAIN	D-IC-KB11-B-7		
DATA PATHS	D-CS-M813Ø-Ø-1	23	DAP
GEN REG & ALU. CONTROLS	D-CS-M8131-Ø-1	31	GRA
IR DECODE	D-CS-M8132-Ø-1	41	IRC
CONSOLE BOARD	D-CS-5411294-Ø-1	51	KNL
PROC. DATA & UNIBUS CONTROL	D-CS-M8134-Ø-1	55	PDR
ROM & ADDRESS CONTROL	D-CS-M8123-Ø-1	65	RAC
TIMING GENERATOR	D-CS-M8139-Ø-1	79	TIG
TRAPS & MISC. CONTROL	D-CS-M8135-Ø-1	85	TMC
UNIBUS & CONSOLE CONTROL	D-CS-M8136-Ø-1	93	UBC
TIMING DIAGRAM	D-TD-M8136-Ø-7	100	
FLOW DIAGRAM	D-FD-M8136-Ø-8	101	
ADDRESS MEMORY BOARD	D-CS-M8143-Ø-1	103	ADM
CACHE CONTROL BOARD	D-CS-M8142-Ø-1	115	CCB
CACHE DATA PATHS	D-CS-M8145-Ø-1	127	CDP
BLOCK DIAGRAM	B-BD-M8145-Ø-7		
DATA MEMORY BOARD	D-CS-M8144-Ø-1	139	DTM
MEM. MGMT BLOCK DIAGRAM	D-BD-KB11-B-8	153	
MEM. MGMT REGISTERS	D-BD-KB11-B-4	154	
CACHE ADDRESS TIMING	D-TD-KB11-B-1Ø	155	
INT. REG. CYCLE TIMING	D-TD-KB11-B-9	156	
MEM. MGMT TRAP TIMING	B-BD-KB11-B-5	157	
SYSTEM ADDRESS PATHS	D-CS-M8137-Ø-1	159	SAP
SYSTEM DESCRIPTOR AND CONSOLE CABLES	D-CS-M814Ø-Ø-1	171	SCC
SYSTEM STATUS REGISTERS	D-CS-M8138-YA-1	185	SSR
UNIBUS MAP (M8141) B.D.	B-BD-KB11-B-6	197	MAP
UNIBUS MAP	D-CS-M8141-Ø-1		
PROCESSOR BACK PLANE	E-AD-7010329-0-0	206	
AWT REV STATUS	A-WT-7010329-0		

THIS IS PRINT SET ☐☐☐☐

UNIT VARIATIONS		PRINT SET
VAR	TITLE	1
KB11-C	16 BIT PROCESSOR	X
KB11-CM	16 BIT PROCESSOR WITH MP CAPABILITY	
PAGE	TITLE	
5	FLOW	
19	BLOCK	
23	DATA PATHS	
31	GEN. REG. + ALU.	
41	IR DECODE	

REVISIONS			
REV	A	B	
CHG. NO.	11Ø 00007	KB11-C-TW0002	
DATE	11/11/75	12/2	

USED ON OPTION/MODEL		DRN. TOM NOTHRUP	DATE 9/11/75	TITLE DRAWING DIRECTORY 16 BIT PROCESSOR	
		CHK'D. D. HEALY	DATE 9/18/75		
		PROJ ENG.	DATE 11/25/75		
		PROD.	DATE 11/26/75	SIZE B / CODE DD / NUMBER KB11-C	REV B
SHEET 1 OF 7		FIELD SERV.	DATE	DIST	

EN-01002-1A-19-R92(325)

DRB 106

CUSTOMER PRINT SET	MFG SET	DRAWING NO	NO OF SHT	DESCRIPTION	OPTION NO/FILE DATE
		MPØØ196	1	FIELD MAINT. PRINT SET (MP)	
		B-TC-M93Ø1-Ø-3	1	FIELD MAINT. PRINT SET (TC)	
		D-CS-M93Ø1-Ø-1	5	UNIBUS TERMINATOR/BOOTSTRAP	
		B-CS-M93Ø1-Ø-9		M93Ø1-YA ROM LISTING	
		B-CS-M93Ø1-Ø-1Ø		M93Ø1-YB ROM LISTING	
		B-CS-M93Ø1-Ø-11		M93Ø1-YF ROM LISTING	
		D-AH-M93Ø1-Ø-5	1	UNIBUS TERMINATOR/BOOTSTRAP	
		B-MH-M93Ø1-Ø-6	1	MODULE ECO HISTORY	
		K-CO-M93Ø1-Ø-4		X-Y COORDINATE HOLE LOCATION	
		A-SP-M93Ø1-Ø-8		M93Ø1 PRODUCT SPECIFICATION	
		5011208		ETCHED CIRCUIT BOARD	
		A-PL-M93Ø1-Ø-7		SHIPPING LIST M93Ø1	
		B-CS-M93Ø1-Ø-12		M93Ø1-YH ROM LISTING	
		B-CS-M93Ø1-Ø-13		M93Ø1-YJ ROM LISTING	
		B-CS-M93Ø1-Ø-14		M93Ø1-YE ROM LISTING	
		B-CS-M93Ø1-Ø-15		M93Ø1-YX ROM LISTING	

CUSTOMER PRINT SET CODES

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

REVISION CONTROL SHEET

REVISIONS

ECO NO	00006	00007	00008	00009	00010	00011	00012	00013	00014	00015	TW016
	-	-	B	B	B	C	C	C	C	C	C
	L	M	N	P	R	S	S	T	U	V	W
				A	A	A	A	A	A	A	A
	L	L	L	L	L	L	L	L	L	L	L
	H	J	K	L	M	N	P	R	S	T	U
	A	A	A	B	C	C	D	D	D	D	D
	F	F	F	F	F	F	F	F	F	F	F
	-	A	B	B	B	B	B	B	B	B	B
	-	-	*	*	A	A	A	A	A	A	A
							*	*	*	*	*
							*	*	*	*	*
										*	*

TITLE		SIZE	CODE	NUMBER	REV
UNIBUS TERMINATOR/BOOTSTRAP	SHEET 2 OF 2	B	DD	M93Ø1-Ø	L

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PCA CLOCK [51]; PCA:
Ø-NO CLOCK
1-LOAD

PCA

PCB

PCB CLOCK [49-50]; PCB:
Ø-NO CLOCK
1-LOAD
2-SF7:LOAD
3-DF7:LOAD

SHIFTER [47-48]; SHF:
Ø-SWAP (SWAP BYTES)
1-PCB
2-NO SHIFT
3-RIGHT SHIFT

SHFR

PAD WRITE ENABLE [44-45]; PWE:
Ø-DON'T WRITE
1-CONDITIONAL (SIGNALS SIGN EXTEND ON MOVE)
2-WRITE (UNCONDITIONAL)
3-NOT USED

ARITHMETIC LOGIC UNIT [15-17]; ALU:
Ø-A
1-B
2-A
3-A PLUS B
4-NOT USED
5-A PLUS A (LEFT SHIFT)
6-A MINUS B
7-INSTRUCTION DEPENDENT (8)

SCRATCHPAD ADDRESS (GS; GD) [41-43]; PAD:
Ø-SF; SF
1-SF; DF
2-S; S
3-NOT USED
4-SFV; SFV
5-DF; DF
6-Ø; Ø
7-G; G

ALU

(A) (B)

AMX BMX

GR

GS GD

16 X 16 REGISTER FILES

SR MULTIPLEXOR [60-61]; SRX:
Ø-SHFR
1-GS
2-SF7: SHFR; $\overline{SF7}$: GS
3-NOT USED

DR MULTIPLEXOR [58-59]; DRX:
Ø-SHFR
1-GD
2-DF7: SHFR; $\overline{DF7}$: GD
3-CLEAR DR

CONSOLE DATA LIGHTS
"DATA PATHS"

A MULTIPLEXOR [22-23]; AMX:
Ø-DR
1-PCB
2-SR
3-BR

B MULTIPLEXOR [20-21]; BMX:
Ø-KØMX
1-KIMX
2-SR
3-BR

KØMX

KIMX

1
2
SRCCON
DSTCON

CONSTANTS
CONSTANTS MULTIPLEXORS [KØMX; KIMX] [18, 19]; KIMX:
Ø-1; SV
1-2; TV
2-SRCCON; SOB&MARK OFFSET
3-DSTCON; EXX OFFSET

SRMX DRMX

SR CLOCK [57]; SRK:
Ø-NO CLOCK
1-LOAD

SR DR

SHIFT REGISTER
DR CLOCK [55-56]; DRK
Ø-DON'T CLOCK
1-SHIFT RIGHT
2-SHIFT LEFT
3-LOAD

BUS CONTROL [30-32]; BCT:
Ø-NO AFFECT
1-READ FP
2-CONS. ACKN
3-CLR FLAGS
4-INIT IF KERNEL MODE
5-STACK REF
6-ACKN
7-BEND (BUS END)

CONDITION CODE LOAD [52-54]; CCL:
Ø-NO CHANGE
1-INSTRUCTION DER (SUBSIDIARY ROM)
2-SET/CLR CC'S FROM BR (CCOP=S)
3-LOAD CC'S FROM FPU IF FP ENB
4-CCLD& (CZEN ACC SHFR; C&V&Ø)
5-CCLD$ (CZEN ACC SHFR; C&AMX15; V&VALID ASHIFT=AMX15)
6-CCLD& (N, C, & V UNAFFECTED; Z&Z&SHFR=Ø)
7-CCLD7 (Z, N, & V UNAFFECTED; C&ALU CARRY)

BUS COND [24-26]; BSC:
Ø-DATI
1-SRC1 DATI
2-KERNAL DATI
3-SRC2 DATI
4-FC
5-DATO
6-BSOP1
7-BSOP2

BUS DELAY [39-40]; BSD
Ø-NO PAUSE
1-INTR PAUSE
2, 3 } BUS PAUSE
(SEE NOTE 1 ON FLOWS 1)

SHIFT COUNTER [38-39]; SHC:
Ø-NO COUNT
1-COUNT
2-LOAD (DR-Ø5:ØØ)
3-LOAD (17)

SC

BAMX

VIRTUAL ADDRESS
BUS ADDRESS MULTIPLEXOR [37-38]; BAX:
Ø-DR
1-PCB
2-SR
3-FPU MAINT

FP A.COMX

INTERNAL BUS [35-36]; IBS:
Ø-NO COMMAND
1-READ SW
2-LOAD PS
3-READ PS

BUS DATA (OUT)

UNIBUS DATA
CACHE DATA
BUS INTD (IN)

BRMX

MISCELLANEOUS CONTROL SIGNALS [27-29]; MSC:
Ø-NO AFFECT
1-FP ATTN
2-NOT USED
3-SET CONF IF KERNEL MODE
4-SPL
5-CONDITIONAL BUST
6-BRQ STROBE
7-BUST (BUS START)

MICRO ADDRESS FIELD [Ø-7]; UAD:
(SEE FLOWS)

BRANCH ENABLE [8-11]; BEN:
(USE FLOWS, Ø IF NOTHING SPECIFIED)

FORK ENABLE [12-13]; FEN:
Ø-NO FORK
1-FORK A
2-FORK B
4-FORK C

CONSOLE DATA LIGHTS
"BUS REGISTER"

BR CLOCK [63] BRK
Ø-NO CLOCK
1-LOAD

BR

IR

IR CLOCK [62]; IRK:
Ø-NO CLOCK
1-LOAD

BR MULTIPLEXOR [22]; BRX:
Ø-SHFR
1-BUS (DETERMINED BY ADDRESS)

* FLOATING POINT CONTROL [64-65]; FPC
Ø NOP
1 LD FDR
2 LD FIR
3 LD FPA
4 READ DATA
5 READ FPS
6 READ FDR
7 READ FPA

FP START [67]
Ø-NO OPERATION
1-FLOATING POINT START

CLEAR SYNC [66]
Ø-NOP
1-CLEAR RIP + FPSYNC

MICROPROGRAM FIELD NAME, BIT POSITIONS, AND ENCODING SHOWN NEXT TO ASSOCIATED DATA PATH ELEMENT

* MOST SIGNIFICANT BIT IS BCT FIELD = 1 (READ FP)

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO D PD 1172-B

DATA PATHS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN — DATE
CHKD R Cook — DATE 12/6/72
ENGR — DATE 12-9-72
PROJ — DATE 12-9-72
PROG — DATE 12/9/72

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
KB11-C
FLOW DIAGRAMS

NEXT HIGHER ASSY.
B-DD-KB11-B

SIZE D | CODE FD | NUMBER KB11-C-1 | REV

SCALE

SHEET 1 OF 15 | DIST

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY TOM NORTHRUP DATE 9-11-75	CHECKED D. HEALY DATE 9-18-75	SECTION 1
ENG DATE 11-25-75	PROD R. TAYLOR DATE 12-2-75	ISSUED SECTION 1

NOTES:
#1 FOR KB11-C MODULE LOCATIONS, REFER TO D-UA-11/70-0-0 SHEET 3.

#2 FOR KB11-CM MODULE LOCATIONS REFER TO D-UA-11/74-0-0 SHEET 12.

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION KB11-C	KB11-CM	REF DESIGNATION
1	D-CS-M8130-0-1	M8130	DATA PATHS	1	1	
2	D-CS-M8131-0-1	M8131	GEN. REG. PLUS ALU. CONTROLS	1	1	
3	D-CS-M8132-0-1	M8132	I R DECODE & COND CODES	1	-	
4	D-CS-M8132-0-1	M8132-YA	I R DECODE & COND CODES	-	1	
5	D-CS-M8123-0-1	M8123	ROM & ADDRESS CONTROL	1	1	
6	D-CS-M8134-0-1	M8134	PROCESSOR DATA & UNIBUS REGS	1	1	
7	D-CS-M8135-0-1	M8135	TRAPS & MISC. CONTROL	1	1	
8	D-CS-M8136-0-1	M8136	UNIBUS & CONSOLE CONTROL	1	-	
9	D-CS-M8137-0-1	M8137	SYSTEM ADDRESS PATHS	1	-	
10	D-CS-M8138-0-1	M8138-YA	SYSTEM STATUS REGISTERS	1	1	
11	D-CS-M8139-0-1	M8139	TIMING GENERATOR	1	1	
12	D-CS-M8140-0-1	M8140	SYS. DESCRIPTOR & CNSL CABLES	1	1	
13	D-CS-M8141-0-1	M8141	UNIBUS MAP	1	-	
14	D-CS-M8142-0-1	M8142	CACHE CONTROL	1	-	
15	D-CS-M8143-0-1	M8143	ADDRESS MEMORY BOARD	1	-	
16	D-CS-M8144-0-1	M8144	DATA MEMORY	1	-	
17	D-CS-M8145-0-1	M8145	CACHE DATA PATHS	1	-	
18	E-AD-7010329-0-0	7010329-00	PROCESSOR BACK PLANE ASSEMBLY	1	-	
19	D-CS-5411294-0-1	5411294-00	11/70 CONSOLE BOARD	1	-	
20	D-CS-5411294-01	5411294-03	11/70 & 11/74 CONSOLE BOARD	-	1	
21	B-MD-7414067-0-0	7414067	BLANK, MODULE	1	1	
22	B-DD-M8181-0	M8181	MAP UNIBUS MAP	-	1	
23	B-DD-M8182-0	M8182	CACHE CONTROL BOARD	-	1	
24	B-DD-M8183-0	M8183	ADDRESS MEMORY	-	1	
25	B-DD-M8184-0	M8184	DATA MEMORY	-	1	
26	B-DD-M8185-0	M8185	CACHE DATA PATH	-	1	
27	B-DD-M8176-0	M8176	UNIBUS & CONSOLE CONTROL	-	1	
28	B-DD-M8177-0	M8177	SYSTEM ADDRESS PATH	-	1	
29	D-CS-M9302-0-0	M9302	UNIBUS TERMINATOR	-	1	
30	B-DD-DL11-W	DL11W	SERIAL LINE/LINE CLOCK	-	1	
31	EK-74MP-TM-001		KB11-C, CM MANUAL	-	REF	

E.C.O. NO. REVISED & REDRAWN KB11-C TWO 2

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TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
16 BIT PROCESSOR (KB11-C,KB11-CM)	NONE	B	PL	KB11-C-Ø	B
	SHEET 1 OF 1	INSERTION PARTS LIST DATA BASE REV			

DRB 125

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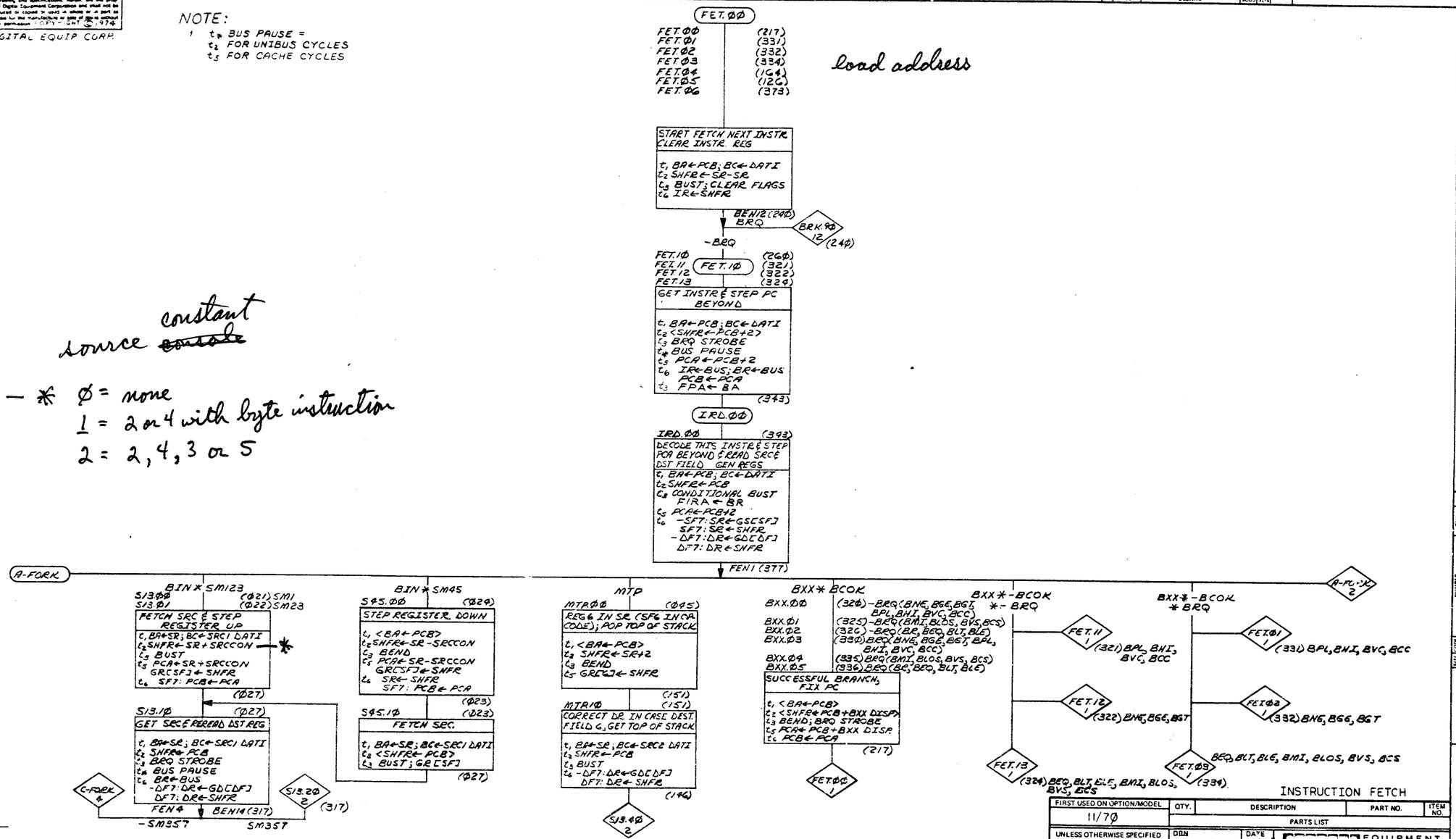
NOTE:
1 t_* BUS PAUSE =
t_2 FOR UNIBUS CYCLES
t_5 FOR CACHE CYCLES

load address

source ~~console~~ constant

— * ∅ = none
1 = 2 or 4 with byte instruction
2 = 2, 4, 3 or 5



INSTRUCTION FETCH

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN — DATE
CHK R.C.Cook DATE 12/6/75
ENG Milton Hathaway DATE 12-9-75
PROJ MGR Mike Kilmurray DATE 12-9-75
PROG Tom Fowler DATE 12-9-75

NEXT HIGHER ASSY: B-DD-KB11-B
SCALE —
SHEET 2 OF 15

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE: KB11-C FLOW DIAGRAMS (FLOWS 1)
SIZE D | CODE FD | NUMBER KB11-C-1 | REV.
DIST

REVISIONS: REV. | CHANGE NO. | CHK

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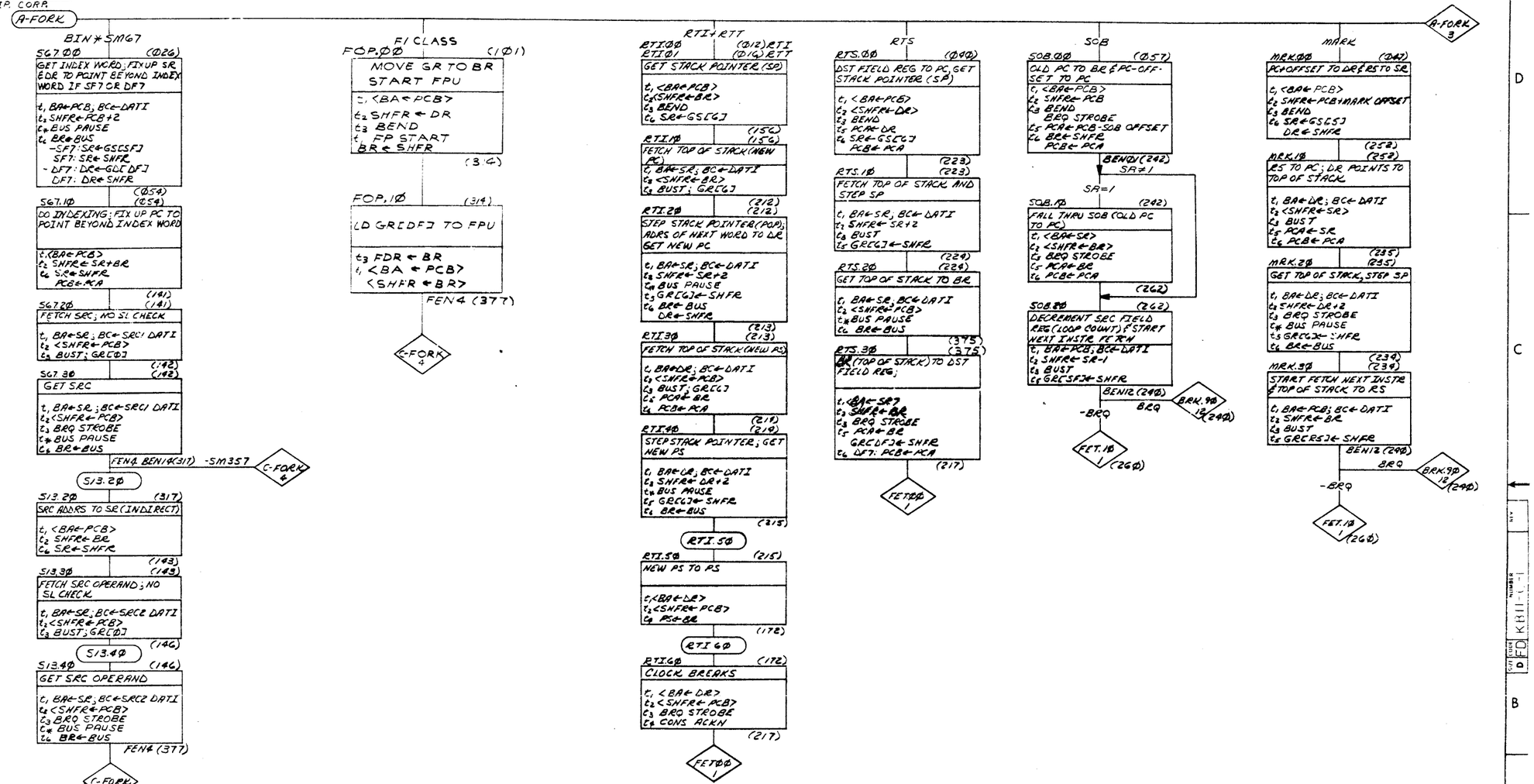

CONTROL; FLOATING; INDEXED SOURCE

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
11/7Ø		PARTS LIST		

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

DRN — DATE 12-9-75
CHK'D — DATE 12/16/75
ENG — DATE 12-9-75
PROJ ENG — DATE 12-9-75
PROD — DATE 12-10-75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-C FLOW DIAGRAMS (FLOWS 2)

NEXT HIGHER ASSY: B-DD-KB11-B
SCALE —
SHEET 3 OF 15

SIZE D | CODE FD | NUMBER KB11-C-1 | REV
DIST

REVISIONS — REV | CHANGE NO | CHK

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RESET
RES.ØØ

RES.ØØ (Ø15)
GET RØ TO DR
t1 <BA←PCB>
t2 <SHFR←BR>
t3 BEND
t4 DR←GD[Ø]

(255)
RES.1Ø (255)
INIT IF IN KERNEL MODE
t1 <BA←PCB>
t2 <SHFR←DR>
t3 START INIT
IF PS 14 (8)

(374)
RES.2Ø (379)
WAIT FOR INIT DONE
SHOW PC AND RØ
t1 BA←PCB
t2 SHFR←DR
t3 BRQ STROBE
t4 CNSL. ACKN
RIP — BEN1Ø (334)

-RIP
FET.Ø3 1 (334)

HALT
HLT.ØØ (Ø1Ø)
GET RØ AND PS; PC TO SR
t1 <BA←PCB>
t2 SHFR←PCB
t3 BEND
t4 BR←PS
DR←GD[Ø]
SR←SHFR

(376)
HLT.1Ø (316)
SET CONSOLE FLAGS IF KERNEL MODE OTHERWISE TRAP
t1 <BA←PCB>
t2 <SHFR←BR>
t3 CONF←1 IF PS14(8)

BEN.Ø6 (124)
BRM (1) — TRP.Ø2 12 (124)
BR14(8)
FET.Ø4 1 (164)

CCOP
CCP.ØØ (Ø99)
CONDITION CODE OPERATE INSTR
t1 <BA←PCB>
t2 <SHFR←BR>
t3 BRQ STROBE
BEND
t4 CC←IR (SET OR CLR SEL. BITS)

(217)
FET.ØØ 1

OP3
TRP.ØØ 12 (Ø19)

IOT
TRP.Ø1 12 (Ø19)

OP7
RSD.Ø1 12 (Ø17)

WAIT
WAT.ØØ (Ø11)
READ RØ AND SHOW IT
SHOW PC IN ADRS LIGHTS
t1 BA←PCB
t2 SHFR←DR
t3 BEND
t4 DR←GD[Ø]

BEN12 (244)
BRQ — -BRQ

WAT.1Ø (264)
WAT.11. (273)
NO BREAK REQUESTS
t1 BA←PCB
t2 SHFR←DR
t3 BRQ STROBE

(Ø11)

WAT.2Ø (294)
BREAK REQUEST; GET VECTOR
WAS IT HALT SW?
t1 <BA←PCB>
t2 SHFR←TV
INTR PAUSE
t4 DR←SHFR
BR←BUS

BEN.12(127)
CONF — CON.Ø1 14 (167)
-CONF

WAT.3Ø (127)
IF T BIT WAIT; OTHERWISE GO SERVICE
t1 <BA←PCB>
t2 <SHFR←BR>

-(PWRF+INTRF)
BEN.Ø2(253)
(PWRF+INTRF)
BRK11 12 (253)

OP 22
RSD.Ø2 12 (Ø12)

SPL
SPL.ØØ (Ø93)
SET PRIORITY LEVEL
t1 <BA←PCB>
t2 <SHFR←BA>
t3 BEND
t4 SAL:PS<7:5>←BA<2:0>
IF KERN MODE

(341)
SPL1Ø (361)
START FETCH OF NEXT INSTR
t1 BA←PCB; BC←DATI
t2 <SHFR←PCB>
t3 BUST
CLR FLAGS.

(260)
FET.1Ø 1

RSVD +EMT+TRAP
RSD.ØØ 12 (ØØØ)

A-FORK 5

F/CLASS*-(FP PRESENT)
RSD.ØØ 12 (ØØØ)

A-FORK

(JMP+JSR)*DM Ø
RSD.ØØ 12 (ØØØ)

NEG.B DM Ø
NEG.7Ø (301)
COMPLEMENT DST FIELD RES
t1 <BA←PCB>
t2 SHFR←ALU$ (A=DR, B=1)
t3 BEND
t4 SR←SHFR

(210)
NEG.9Ø (210)
INCREMENT AND SAVE DST
t1 <BA←SR>
t2 SHFR←SR+1
t3 BRQ STROBE
t5 PCA←SR+1
-I/CLASS: GR[DF]←SHFR
t6 CCLD$
DF?: PCB←PCA

(217)
RET.ØØ 1

ASH*DM Ø
ASH.1Ø 7 (Ø52)

ASHC*DM Ø
ASC.1Ø 7 (Ø53)

MFP*DM Ø
MFP.8Ø 11 (Ø96)

E/CLASS*-[DF7+BRQ]*DM Ø
EXC.ØØ
EXC.8Ø (Ø28)
SRC MODE & DST MODE Ø
FINISH EXEC OF THIS AND FETCH NEXT INSTR
t1 BA←PCB; BC←DATI
t2 SHFR←ALU$ (A=DR, B=SR)
t3 BRQ STROBE
t4 BUS PAUSE
t5 I/CLASS: GR[DF]←SHFR
t6 CCLD$
IR←BUS; BR←BUS
PCB←PCA

(373)
IRD,ØØ 1

E/CLASS*[DF7+BRQ]*DM Ø
EXC.ØØ
EXC.9Ø (Ø38)
SOURCE & DST MODE Ø
FINISH EXECUTE OF THIS INSTR
t1 <BA←PCB>
t2 SHFR←ALU$ (A=DR, B=SR)
t3 BEND
BRQ STROBE
t5 PCA←ALU$
-I/CLASS: GR[DF]←SHFR
t6 CCLD$
DF?: PCB←PCA

(217)
FET.ØØ 1

MUL*DM Ø
MUL.ØØ (Ø58)
SETUP SHIFT COUNTER
t1 <BA←PCB>
t2 <SHFR←DR>7
t3 BEND
SC←17

(1Ø2)
MUL1Ø 8

DIV*DM Ø
DVS.ØØ (Ø51)
DIVISOR TO BR
t1 <BA←PCB>
t2 SHFR←DR
t3 BEND
t4 BR←SHFR

(Ø61)
DIVØØ 9

P/CLASS:=SWAB+CLR.B+COM.B+INC.B+DEC.B +NEG.B+ADC.B+SBC.B+ASR.B+ASL.B+ ROR.B+ROL.B+BIC.B+BIS.B+ADD+SUB +SXT+MOVB+XOR
I/CLASS:=TST.B+CMP.B+BIT.B+MUL+DIV+MFP
E/CLASS:=[P/CLASS*-(NEG.B)]+MOV+TST.B+CMP.B +BIT.B

EXECUTE NO MEM REF

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO
11/70		PARTS LIST		

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

DRN		DATE 2-9-75
CHK'D	G. Cook	DATE 2/9/75
ENG	Dillon Howard	DATE 2-9-75
PROJ ENG	Dillon Howard	DATE 2-9-75
PROD		DATE
NEXT HIGHER ASSY	B-DD-KB11-B	
SCALE	—	
SHEET	4 OF 15	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-C FLOW DIAGRAMS (FLOWS 3)

SIZE D | CODE FD | NUMBER KB11-C-1 | REV

DIST.

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C-FORK

C-FORK 5

DM∅ * -F/CLASS
* -DF7 * SRC∅(∅)

DM∅ * -F/CLASS
* DF7 * SRC∅(1)

D∅∅.8∅ (2∅∅)
ODD BYTE SRC, RIGHT JUSTIFY
t_1 <BA ← DR>
t_2 SHFR ← SWAP(BR)
t_3 BRQ STROBE
t_6 BR ← SHFR
(2∅5)

DM∅ * -F/CLASS
* DF7 * SRC∅(∅)

D∅7.1∅ (2∅3)
MODIFYING THE PC
t_1 <BA ← DR>
t_2 SHFR ← BR
t_6 SR ← SHFR
(∅3∅)

DM∅ * -F/CLASS
* DF7 * SRC∅(1)

D∅7.∅∅ (2∅2)
MODIFYING THE PC-ODD BYTE
t_1 <BA ← DR>
t_2 SHFR ← SWAP(BR)
t_4 SR ← SHFR
(∅3∅)

EXC.9∅ 3

DM∅ * F/CLASS

FOP.2∅ (211)
GET CC AND SEE IF FP SYNC = 1
t_1 <BA ← ACOMX>
t_2 <SHFR ← DR>
READ FPS
t_4 BR ← BUS

FOP.G∅ BENT (213)

D∅∅.9∅ (2∅5)
DST MODE∅ BUT SRC MODE NOT FINISH; EXECUTE THIS & FETCH NEXT
t_1 BA ← PCB; BC ← DATI
t_2 SHFR ← ALU $ (A = DR, B = BR)
t_3 BUS*
t_5 -I/CLASS: GR[DF] ← SHFR
t_6 CCLD $

BEN12 (24∅)

BRQ
BRK.9∅ 12 (24∅)
-BRQ

FET.1∅ 1 (26∅)

FOP.3∅ (133)
GET CC'S AND WAIT FOR FP
READ FPS
t_3 BRQ STROBE
t_6 BR ← BUS

BENT (173)

-(BRQ + SYNC)

BRQ

SYNC * -BRQ

FOP.35 (173)
TELL FPU TO EXECUTE
FP START
<BA ← ACOMX>
<SHFR ← BR>
t_6 CC ← BR IF EN FPP

BENT (333)

FOP.6∅ (153)
GO TO SERVICE, GET BACK PC
READ FPA
t_6 BR ← BUS
(245)

FSV.9∅ 13 (245)

FP REG WR

~FP REG WR

FET.∅6 (373)

FOP.5∅ (333)
GET FP DATA
t_3 BRQ STROBE
t_1 <BA ← ACOMX>
FP READ DATA
t_2 <SHFR ← BR>
t_6 BR ← BUS
(365)

FET.∅8 (365)
WRITE GR AND START FETCH
BA ← PCB
BC ← DATI
SHFR ← BR
GR[DF] ← SHFR
BUST

BEN12 (24∅)

BRK.7∅ (24∅)
BRQ

-BRQ

FET.1∅ (26∅)

DM∅ = IR(5-3) = ∅ + FCLASS ≠ IR(1+6) = ∅

DESTINATION MODE ∅

DESCRIPTION/MODEL	QTY.	DESCRIPTION	PART NO. / ITEM NO.
1/72		PARTS LIST	

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XX ± .05; XXX ± .02; X ± .1
ANGLES: ±0°30'
BREAK EDGES AND BREAK SHARP
REMOVE BURRS AND FINISH TO GOOD WORKMANSHIP QUALITY

DRWN	DATE	2-7-75
CHK'D	DATE	7/6/71
ENG	DATE	2-9-76
PROJ MGR	DATE	12-9-75
PROJ	DATE	12/9/75

NEXT HIGHER ASSY: B-DD-KB11-B
SCALE
SHEET 5 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-C FLOW DIAGRAMS (FLOWS 4)

SIZE D | CODE FD | NUMBER KB11-C-1 | REV. A | DIST

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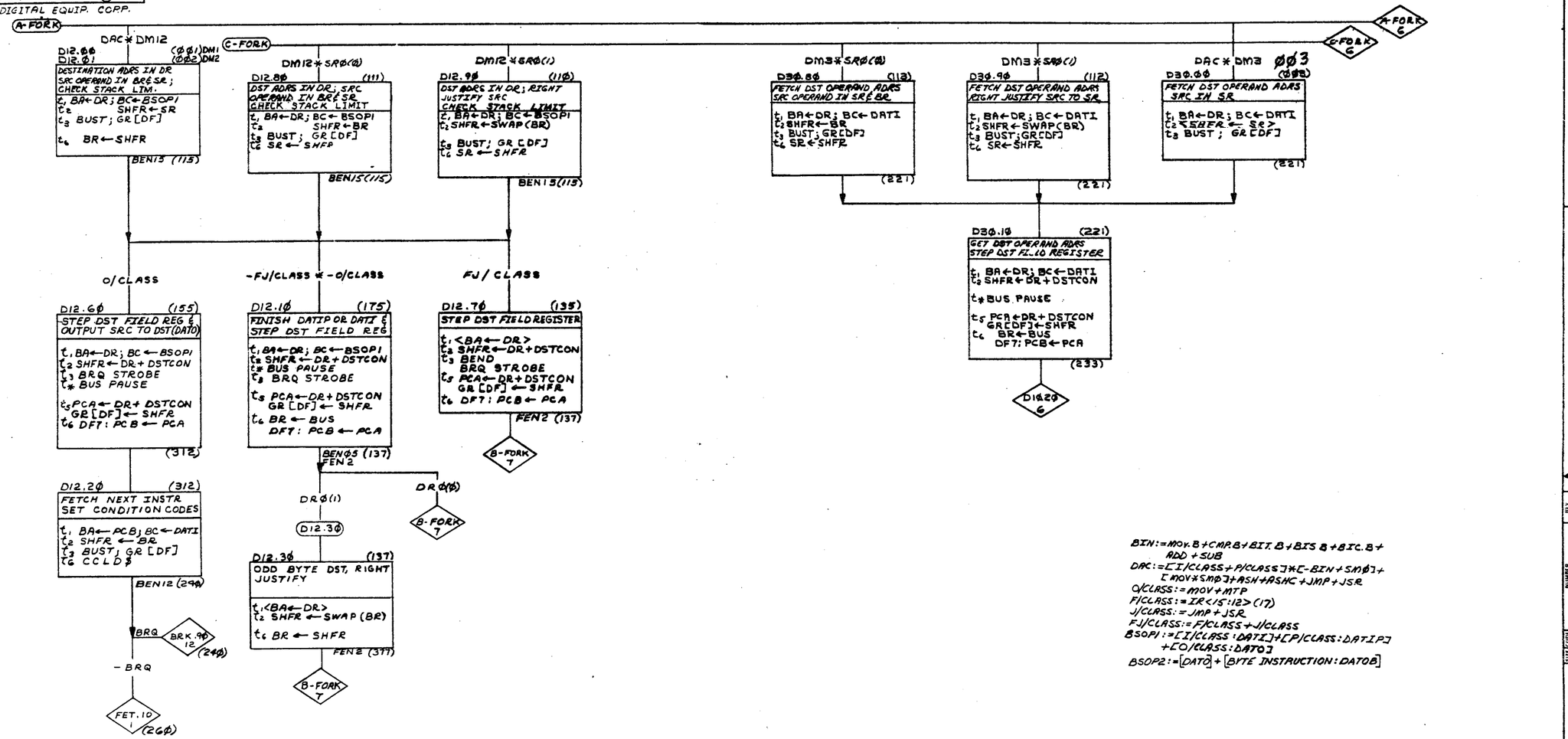
DIGITAL EQUIP. CORP.



BIN:=MOV.B+CMP.B+BIT.B+BIS.B+BIC.B+ADD+SUB
DAC:=[I/CLASS+P/CLASS]*[C-BIN+SM0]+[MOV*SM0]+ASH+ASHC+JMP+JSR
O/CLASS:=MOV+MTP
F/CLASS:=IR<15:12>(17)
J/CLASS:=JMP+JSR
FJ/CLASS:=F/CLASS+J/CLASS
BSOP1:=[I/CLASS:DATI]+[P/CLASS:DATIP]+[O/CLASS:DATO]
BSOP2:=[DATO]+[BYTE INSTRUCTION:DATOB]

DESTINATION MODES 1-3

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
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 [illegible] DATE 1-7-75
CHK P Cook DATE 12/5/74
ENGR Allan Nathanson DATE 2-3-75
PROJ ENGR Allan Nathanson DATE 12-9-74
PROG Mark Taylor DATE 12/9/75
NEXT HIGHER ASSY B-DD-KB11-B
SCALE —
SHEET 6 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-C FLOW DIAGRAMS (FLOWS 5)

SIZE D CODE FD NUMBER KB11-C-1 REV
DIST.

REVISIONS | REV | CHANGE NO | CHK

SIZE CODE DFD NUMBER KB11-C-1 REV B

101

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DIGITAL EQUIPMENT CORP.

A-FORK

C-FORK

DM45 * SRØ(Ø)

D45.ØØ (115)
STEP DST FIELD REGISTER
t1 <BA←DR>
t2 SNFR←DR-DSTCON
t5 PCA←DR-DSTCON
GRCDF]←SNFR
t6 DR←SNFR
DF7:PCB←PCA

BENØ1(121)

-DM357

D40.2Ø (121)
DATIP DATI, DATO DST SRC OPERAND TO SR; CHECK STACK LIMIT
t1 BA←DR; BC←BSOP1
t2 SNFR←BR
t3 BUST; GRCDF]
t6 SR←SNFR

BEN15(157)
FEN2

DM357

D5Ø.2Ø (161)
FETCH DST OPERAND ADRS; SRC OPERAND TO SR
t1 BA←DR; BC←DATI
t3 SNFR←BR
t3 BUST]GRCDF]
t6 SR←SNFR

(231)

D1Ø.1Ø
6

DM45 * SRØ(1)

D45.9Ø (114)
STEP DST FIELD REGISTER; ODD BYTE SOURCE
t1 <BA←DR>
t2 SNFR←LR-DSTCON
t3 BRQ STROBE
t5 PCA←DR-DSTCON
GRCDF]←SNFR
t6 DR←SNFR
DF7:PCB←PCA

BENØ1(131)

-DM357

D40.3Ø (131)
DATIP DATI, DATO DST RIGHT JUSTIFY SRC TO SR CHECK STACK LIMIT
t1 BAF←DR; BC←BSOP1
t2 SNFR←SWAP(BR)
t3 BUST; GRCDF]
t6 SR←SNFR

BEN15(177)
FEN2

-FJ/CLASS

D1Ø.6Ø
6
(177)

FJ/CLASS

B-FORK
7

DM357

D5Ø.3Ø (171)
FETCH DST OPERAND ADRS; RIGHT JUSTIFY SRC TO SR
t1 BA←DR; BC←DATI
t2 SNFR←SWAP(BR)
t3 BUST; GRCDF]
t6 SR←SNFR

(231)

D1Ø.1Ø

D1Ø.1Ø (231)
GET DST OPERAND ADRS
t1 BA←DR; BC←DATI
t2 <SNFR←BR>
t4 BUS PAUSE
t6 BR←BUS

(289)

D1Ø.2Ø (239)
DST OPERAND ADRS TO DR
t1 <BA←DR>
t2 SNFR←BR
t3 BRQ STROBE
t6 DR←SNFR

D1Ø.5Ø (311)
DATIB DATI, DATO DST SRC OPERAND TO BR
t1 BA←DR; BC←BSOP1
t2 SNFR←SR
t3 BUST; GR[DF]
t6 BR←SNFR

(311)

BEN15(157)
FEN2

DAC * DM45

D45.ØØ (ØØØ4) DM4
D45.Ø1 (ØØ5) DM5
STEP DST FIELD REGISTER
t1 <BA←PCB>
t2 SNFR←DR-DSTCON
t3 BEND
t5 PCA←DR-DSTCON
GRCDF]←SNFR
t6 DR←SNFR
DF7:PCB←PCA

BENØ1(122)

DM357

D1Ø.ØØ

-DM357

D1Ø.ØØ (162)
FETCH DST OPERAND ADRS
t1 BA←DR; BC←DATI
t2 <SNFR←PCB>
t3 BUST; GR[DF]

(231)

D1Ø.3Ø (122)
DATIB DATI, DATO DST SRC OPERAND TO BR CHECK STACK LIMIT
t1 BA←DR; BC←BSOP1
t2 SNFR←SR
t3 BUST; GR[DF]
t6 BR←SNFR

BEN15(157)
FEN2

FJ/CLASS

B-FORK
7

DM7 * SRØ(Ø)

D67.ØØ (117)
FETCH INDEX WORD; SRC TO SR
t1 BA←PCB; BC←DATI
t3 SNFR←BR
t3 BUST; GR[ØJ
t6 SR←SNFR

(ØØ6)

DM7 * SRØ(1)

D67.9Ø (116)
FETCH INDEX WORD; RIGHT JUSTIFY SRC TO SR
t1 BA←PCB; BC←DATI
t4 SNFR←SWAP(BA)
t3 BUST; GR[ØJ
t6 SR←SNFR

(ØØ6)

DAC * DM67

D67.ØØ (ØØ6) DM6
D67.Ø1 (ØØ7) DM7
GET INDEX WORD; ADJUST DST IF DST FIELD PC
t1 BA←PCB; BC←DATI
t2 SNFR←PCB+2
t4 BUS PAUSE
t5 PCA←PCB+2
t6 BR←BUS
-DF7: SR←GDC DF]
DF7: DR←SNFR

(251)

D67.1Ø (251)
DO INDEXING, STEP PC;
t5 BA←PCB>
t2 SNFR←BR+DR
t3 BRQ STROBE
t6 DR←SNFR
PCB←PCA

BENØ1(122)

-DM357

DM357

D1Ø.ØØ
6
(162)

-O/CLASS * -FJ/CLASS

D1Ø.6Ø

D1Ø.6Ø (177)
FINISH DATIP, DATI DST
t1 BA←DR; BC←BSOP1
t2 <SNFR←BR>
t4 BUS PAUSE
t6 BRQ STROBE
t6 BR←BUS

BEN05(137)
FEN2

D12.3Ø
5
(137)

DRØ(1)

DRØ(Ø)

B-FORK
7

O/CLASS

D1Ø.4Ø

D1Ø.4Ø (157)
FINISH DATO DST; LOAD CC'S
t1 BA←DR; BC←BSOP1
t2 SNFR←BR
t3 BRQ STROBE
t4 BUS PAUSE
t6 CCLD$

(331)

FETØ1
1

FJ/CLASS

B-FORK
7

DESTINATION MODES 4-7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN — DATE 9-25
CHKD R. Cook DATE 10/6/75
ENG Allan Peterson DATE 12-9-75
PROJ ENGR Allan Peterson DATE 12-9-75
PROG R. Taylor DATE 12/9/75
NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 7 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-C
FLOW DIAGRAMS
(FLOWS 6)

SIZE FD CODE DFD NUMBER KB11-C-1 REV
DIST

REVISIONS	CHANGE NO	CHK	REV

DRAWING ACCESS IRIGHT
DRAWING NO

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B-FORK

ASH

ASH.0Ø (Ø62)
SHIFT COUNT TO DR;
t1 <BA← DR>
t2 SHFR← BR
t4 DR← SHFR
(Ø52)

ASH.1Ø
ASH.1Ø (Ø52)
LOAD STEP COUNTER WITH SHIFT COUNT
t1 <BA←PCB>
t2 <SHFR←SR>
t3 BEND
SC← DR
(3Ø5)
(3Ø5)

ASH.2Ø
STEP SC; SET COND CODES Ê SEE IF NO SHIFT
t1 <BA←DR>
t2 SHFR←SR
t3 BRQ STROBE
SC← SC±1
t4 CCLD$
[ZÊN ACC SHFR; CÊV←Ø]
BENØ3(217)

SC>Ø
ASH.4Ø
ASH.41 (257) (164)
SHIFT LEFT (ZERO INSERTION) CC'S KEPT CURRENT
t1 <BA←PCB>
t2 SHFR← SHL(SR)
t3 BRQ STROBE
SC← SC±1
t5 GR[CSF]←SHFR
t6 SR←SHFR
CCLD$
[ZÊN ACC SHFR; C←AMX15
V← V_OLD+(SHFR15 ⊻ AMX15)]
BENØ3(126)
SC≠Ø

SC=Ø
FET:Ø5 1 (126)

SC<Ø
ASH.3Ø (277)
SHIFT RIGHT SIGN EXTENDED; CC'S KEPT CURRENT
t1 <BA←PCB>
t2 SHFR←SHR(SR)
t3 BRQ STROBE
SC← SC±1
t5 GR[CSF]←SHFR
t6 SR←SHFR
CCLD$
BENØ3(237)
SC≠Ø

SC=Ø
FET:Ø7 1 (237)

SC=Ø
FET:ØØ 1 (217)

ASHC

ASC

ASC.ØØ (Ø63)
SHIFT COUNT TO DR
t1 <BA← DR>
t3 SHFR← BR
t4 DR← SHFR
(Ø53)

ASC.1Ø
ASC.1Ø (Ø58)
LOAD STEP COUNTER Ê READ LO-ORDER OPERAND TO DR
t1 <BA←PCB>
t2 <SHFR←SR>
t3 BEND
SC← DR
t4 DR←GDC SFV1]
(3Ø4)
(3Ø6)

ASC.2Ø
STEP SC; SET COND CODES Ê SEE IF NO SHIFT
t1 <BA←DR>
t2 SHFR←SR
t3 BRQ STROBE
SC← SC±1
t4 BRE←SHFR
CCLD $
[ZÊN ACC SHFR; CÊV←Ø]
BEN Ø3 (2Ø7)

SC<Ø
ASC.4Ø (267)
SHIFT RIGHT; SR← HI; DR = LO; SET COND CODES ON HI
t1 <BA←DR>
t2 SHFR←SHR(SR)
t3 BRQ STROBE
SC← SC±1
t5 GR[CSF]←SHFR
t6 SR←SHFR
DR←RIGHT(DR)
[ALUØ INSERTED]
CCLD $
[ZÊN ACC SHFR; C←DRØØ
V←Ø]
BENØ3(227)
SC≠Ø

SC>Ø
ASC.3Ø (247)
ASC.31 (176)
SHIFT LEFT; SR←HI; DR← LO; SET COND CODES ON HI
t1 <BA←DR>
t2 SHFR←ALU$(A=SR, B=1) [SHL(SR)+DR15]
t3 BRQ STROBE
SC← SC±1
t5 GR[CSF]←SHFR
t6 SR←SHFR
DR←LEFT(DR)
(Ø INSERTED)
CCLD S
[ZÊN ACC SHFR; C←AMX15;
V←V_OLD+(SHFR15 ⊻ AMX15)]
BENØ3(136)
SC≠Ø

SC=Ø
ASC.ØØ (2Ø7)
NO SHIFT; SET COND CODES ON LO; START FETCH NEXT INSTR.
t1 BA←PCB; BC←DATI
t2 SHFR←DR
t3 BUST
t4 CCLD6
[N,C,ÊV N/A; Z←Z_OLD * SHFR=Ø]
BEN12(2ØØ)

SC=Ø
ASC.6Ø (227)
ASC.61 (136)
SHIFT DONE; SAVE LO ORDER SET COND CODES ON LO; START FETCH NEXT INSTR.
t1 BA←PCB; AC←DATI
t2 SHFR←DR
t3 BUST
t5 GR[CSF,1]←SHFR
t6 CCLD6
[N,C,ÊV N/A; Z←Z_OLD * SHFR=Ø]
BEN12(24Ø)

F/CLASS

FDP.7Ø (Ø36)
DST ADRS TO BR
ENABLE FP ATTN
t1 <BA←DR>
t2 SHFR←DR
t3 BEND
t4 BRE←SHFR
FP ATTN
BENIT(3Ø7)

-(SYNC+BRQ)
FSV:6Ø 13 (327)

BRQ
FSV:7Ø 13 (347)

SYNC*←BRQ
FSV:ØØ 13 (367)

B-FORK 8

-BRQ
FET.1Ø 1 (26Ø)

BRQ
BRK.9Ø 12 (24Ø)

ASH & ASC

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN [signature] DATE 1-9-75
CHKD [signature] DATE 1/9/75
ENG [signature] DATE 1-9-75
PROJ ENG [signature] DATE 1-9-75
PR'D [signature] DATE 1-9-75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE
SHEET 8 OF 15

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
KB11-C
FLOW DIAGRAMS
(FLOWS 7)

SIZE D | CODE FD | NUMBER KB11-C-1 | REV.
DIST.

REVISIONS: REV | CHANGE NO | CHK

DRAWING 40-832 ISSUED
DEC-11-DFMB-MD
FMD 1P9-B

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B-FORK

B-FORK 9

MUL.00

MUL00 (00G0)
MULTIPLICAND GOES TO DE; SC←17
t1 <BA←DR>
t2 SHFR←BR
t3 SC←17
t4 DR←SHFR
(1002)

MUL.10 (1002)

MUL.10
BR GETS CLEARED; DR SHIFTED RIGHT ONE PLACE; BRANCH DETERMINED BEFORE SHIFT
t1 <BA←DR>
t2 SHFR←BR-BR
t3 SC←SC-1
t4 BR←SHFR
DR←RIGHT(DR)
[ALU0 INSERTED]
BEN11 (2046)

DR0(1)

MUL.20 (2246)
IF DR0 IS 1 ADD SR TO BR AND COMBINED SHIFT RIGHT. BRIS←SRIS FOR SIGN.
t1 <BA←DR>
t2 SHFR←SHR(BR+SR)
t3 SC←SC-1
t4 CCLD4
BR←SHFR
DR←RIGHT(DR)
[ALU0 INSERTED]
BEN11 (2046)

SC≠0; DR0(1)

SC=0 DR0(1)

MUL.50 (2246)
MULTIPLICAND NEG: SUBTRACT SR FROM BR AND SHIFT RIGHT; BRIS ← -SRIS FOR SIGN
t1 <BA←DR>
t2 SHFR←ALU$(A-BR;B-SR)
t3 BRQ STROBE
t5 GR[SF]←SHFR
t6 B.3←SHFR
DR←RIGHT(DR)
[ALU0 INSERTED]
CCLD 0
[ZEN ACC SHFR; VEC←0]
(3100)

DR0(0)

MUL.30 (2046)
IF DR0 IS 0 COMBINED SHIFT RIGHT ONE PLACE. SIGN EXTEND ON BR
t1 <BA←DR>
t2 SHFR←SHR(BR)
t3 SC←SC-1
t4 CCLD4
BR←SHFR
DR←RIGHT(DR)
[ALU0 INSERTED]
BEN11 (2046)

SC≠0; DR0(0)

SC=0 DR0(0)

MUL.40 (2046)
MULTIPLICAND POS: SHIFT RIGHT; HIGH ORDER PRODUCT GOES TO GR[SF]
t1 <BA←DR>
t2 SHFR←SHR(BR)
t3 BRQ STROBE
t5 GR[SF]←SHFR
t6 BR←SHFR
DR←RIENT(DR)
[ALU0 INSERTED]
CCLD4
[ZEN ACC SHFR; VEC←0]
(3100)

MUL.60 (3100)
LOW ORDER PRODUCT GOES TO GR[SF+1]
t1 BA←PCB; BC←DATI
t2 SHFR←DR
t3 BUST
t5 GR[SF+1]←SHFR
t6 CCLD 8
BEN12 (2040)

FET.10 1 -BRQ (2600)

BRQ

BRK.90 12 (2400)

MULTIPLY

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
11/70		PARTS LIST		

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

DRN —
CHK'D Rick Rood DATE 2/4/76
ENG Jim Nelson DATE 2-9-76
PROJ. LDR Jim Nelson DATE 2-9-76
DSGN'D Tom Toth DATE 2-9-76

NEXT HIGHER ASSY: B-DD-KB11-B
SCALE —
SHEET 9 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-C FLOW DIAGRAMS (FLOWS 8)

SIZE	CODE	NUMBER	REV
D	FD	KB11-C-1	

DIST

REVISIONS: REV | CHANGE NO | CHK

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DIGITAL EQUIP. CORP.

B-FORK

B-FORK 11

DIV.ØØ

DIV.ØØ (ØG1)
DIVISOR GOES TO SR, LOAD CONDITION CODE TO SEE IF IT IS ZERO; HIGH ORDER P. DIVIDEND GOES TO DR
t1 <BA ← DR>
t2 SHFR ← BR
t4 SR ← SHFR
DR ← GD[SF]
CCLD$
[N ← Z ACC SHFR; V ← Ø]

DIV.1Ø (254)
BRANCH ON DIVISOR Ø; LOAD CONDITION CODE TO TEST THE SIGN OF DIVIDEND
t1 <BA ← SR>
t2 SHFR ← DR
t4 CCLD$
[N ← Z ACC SHFR; V ← Ø]

BEN Ø2 (232)

N

DVE.ØØ (272)
DIVISOR IS ZERO, ABORT DIVIDE; SET C AND V BIT; GO FETCH NEXT INSTRUCTION.
t1 <BA ← DR>
t2 <SHFR ← SR>
t3 BRQ STROBE
t4 CCLD $

(164)

FET Ø$ 1

-N

DIV.2Ø (232)
DIVISOR IS NON ZERO; BRANCH ON DIVIDEND NEG; SR HAS DIVISOR; DR HAS HIGH ORDER DIVIDEND
t1 <BA ← DR>
t2 <SHFR ← SR>

BEN Ø4 (241)

N

DVN.ØØ (261)
DIVIDEND IS NEGATIVE, GOT TO MAKE IT POSITIVE. GET LOW ORDER DIVIDEND IN SR; BR HAS DIVISOR SAVED
t1 <BA ← DR>
t2 <SHFR ← SR>
t3 CLEAR DR
t4 SR ← GS[SFV1]

(1Ø4) (1Ø4)

DVN.1Ø
FIND TWO'S COMPLEMENT OF LOW ORDER AND WRITE IT BACK; DR IS Ø
t1 <BA ← DR>
t2 SHFR ← DR - SR
t3 GR[SFV1] ← SHFR

(1Ø5) (1Ø5)

DVN.2Ø
TEST IF THERE WAS A CARRY OUT OF THE LOW ORDER DIVIDEND; PUT IT IN DR
t1 <BA ← DR>
t2 SHFR ← DR - SR
t4 DR ← LEFT (DR)
[ALU CARRY INSERTED]

(1Ø6)

DVN.3Ø

-N

DVP.ØØ

N

DVN.3Ø (1Ø6)
MAKE DR Ø IF THERE WAS A CARRY OR A -1 IF NOT; GET THE HIGH ORDER DIVIDEND TO SR
t1 <BA ← DR>
t2 SHFR ← DR - 1
t4 SR ← GS[SF]
DR ← SHFR

(Ø55) (Ø55)

DVN.4Ø
FIND TWO'S COMPLEMENT OF HIGH ORDER DIVIDEND IF THERE WAS A CARRY FROM LOW ORDER, ELSE ONE'S COMP & WRITE IT BACK; LOAD COND CODES
t1 <BA ← DR>
t2 SHFR ← DR - SR
t3 GR[SF] ← SHFR
t4 DR ← SHFR
CCLD$
[N ← Z ACC SHFR; V ← Ø]

(Ø56) (Ø56)

DVN.5Ø
SR GETS DIVISOR; BRANCH ON SIGN OF DIVIDEND
t1 <BA ← DR>
t2 SHFR ← BR
t4 SR ← SHFR

BEN Ø4 (243)

N

DVE.1Ø (263)
THE TWO'S COMPLEMENT OF A NEGATIVE NUMBER IS STILL NEGATIVE; MUST BE MOST NEG. NO. ABORT DIVIDE; SET V & C BITS
t1 <BA ← DR>
t2 <SHFR ← BR>
t4 CCLD$

(195)

DVE.2Ø 9

-N

DVN.6Ø (243)
HIGH ORDER DIVIDEND GOES TO BR; SR HAS DIVISOR
t1 <BA ← DR>
t2 SHFR ← DR
t4 BR ← SHFR

(1Ø7) (1Ø7)

DVN.7Ø
DR GETS LOW ORDER DIVIDEND; SC GETS THE COUNT; SET N TO SHOW DIVIDEND WAS NEG
t1 <BA ← DR>
t2 SHFR ← -DR
t3 SC ← 17
t4 DR ← GD[SFV1]
CCLD$
[N ← Z ACC SHFR; V ← Ø]

(197)

DIV.3Ø 9

DVP.ØØ

-N

DVP.ØØ (241)
DIVIDEND IS POSITIVE; BR GETS THE HIGH ORDER DIVIDEND; SR HAS DIVISOR
t1 <BA ← SR>
t2 SHFR ← DR
t4 BR ← SHFR

(1Ø3) (1Ø3)

DVP.1Ø
DR GETS THE LOW ORDER DIVIDEND; SC GETS THE COUNT
t1 <BA ← SR>
t2 <SHFR ← DR>
t3 SC ← 17
t4 DR ← GD [SFV1]

(147)

DIV.3Ø

DIV.3Ø (147)
START FIRST DIVISION; SHIFT BR LEFT & INSERT DR1'S; SET Z BIT
t1 <BA ← DR>
t2 SHFR ← ALU$(A=BR, B=1)
t4 BR ← SHFR
CCLD$
[N ← N, C, V, & Z ← 1]

BEN 16 (346)

SR 15 (Ø)

DIV.4Ø (346)
DIVISOR POSITIVE DO A SUBTRACTION TO FIND BIT IS OF QUOTIENT
t1 <BA ← DR>
t2 SHFR ← BR - SR
t3 SC ← SC - 1
t4 BR ← SHFR
DR ← LEFT (DR)
[ALU CARRY INSERTED]
CCLD6
[Z ← ZOLD * SHFR = Ø]

(313)

SR 15 (1)

DIV.5Ø (346)
DIVISOR IS NEGATIVE. DO AN ADDITION. TO FIND BIT IS OF QUOTIENT
t1 <BA ← DR>
t2 SHFR ← BR + SR
t3 SC ← SC - 1
t4 BR ← SHFR
DR ← LEFT (DR)
[ALU CARRY INSERTED]
CCLD6
[Z ← ZOLD * SHFR = Ø]

(313)

DIV.6Ø (313)
CONTINUE DIVIDE IF QUOTIENT WILL BE POS. BUT ALLOW FOR MOST NEG NO. IF QUOT. IS TO BE NEG.
t1 <BA ← DR>
t2 <SHFR ← BR>

BEN Ø5 (195)

DIV QUIT

DVE.2Ø

DVE.2Ø (195)
DIVISION OVERFLOW; RESULTS WON'T FIT IN 16 BITS; V BIT IS SET, GO FETCH NEXT INSTR.
t1 <BA ← SR>
t2 SHFR ← DR
t3 BRQ STROBE
t4 CCLD7
[C ← ALU CARRY]

(164)

FET Ø$ 1

-DIV QUIT

DIV.7Ø (165)
FINISH DIVISION; SHIFT BR LEFT, INSERT DR1'S; DR IS FORMING QUOTIENTS BR REMAINDER.
t1 <BA ← DR>
t2 SHFR ← ALU$(A=BR, B=1)
t4 BR ← SHFR

BEN ØØ (323)

DIV SUB

DIV.8Ø (323)
SIGNS OF DIVISOR & PART. REMAINDER ARE SAME SUBTRACT; DR Ø IS -SIGN OF REMAINDER
t1 <BA ← DR>
t2 SHFR ← BR - SR
t3 SC ← SC - 1
t4 BR ← SHFR
DR ← LEFT (DR)
[ALU CARRY INSERTED]

BEN Ø3 (125)

-DIV SUB

DIV.9Ø (343)
SIGNS OF DIVISOR & PARTIAL REMAINDER ARE DIFFERENT ADD; DR Ø IS -SIGN OF REMAINDER
t1 <BA ← DR>
t2 SHFR ← BR + SR
t3 SC ← SC - 1
t4 BR ← SHFR
DR ← LEFT (DR)
[ALU CARRY INSERTED]

BEN Ø3 (185)

SC ≠ Ø

SC = Ø

DVC.ØØ 1Ø (125)

DIVIDE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN		DATE 7-9-75
CHK'D	Kook	DATE 10/6/75
ENG	Wm Holmes	DATE 12-5-75
PROJ ENG	Wm Holmes	DATE 12-9-75
APROD	R.T. Taylor	DATE 12/19/75

NEXT HIGHER ASSY: B-DD-KB11-B
SCALE: #
SHEET 10 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-C FLOW DIAGRAMS (FLOWS 9)

SIZE	CODE	NUMBER	REV.
D	FD	KB11-C-1	

DIST

REVISIONS: REV | CHANGE NO | CHK

105

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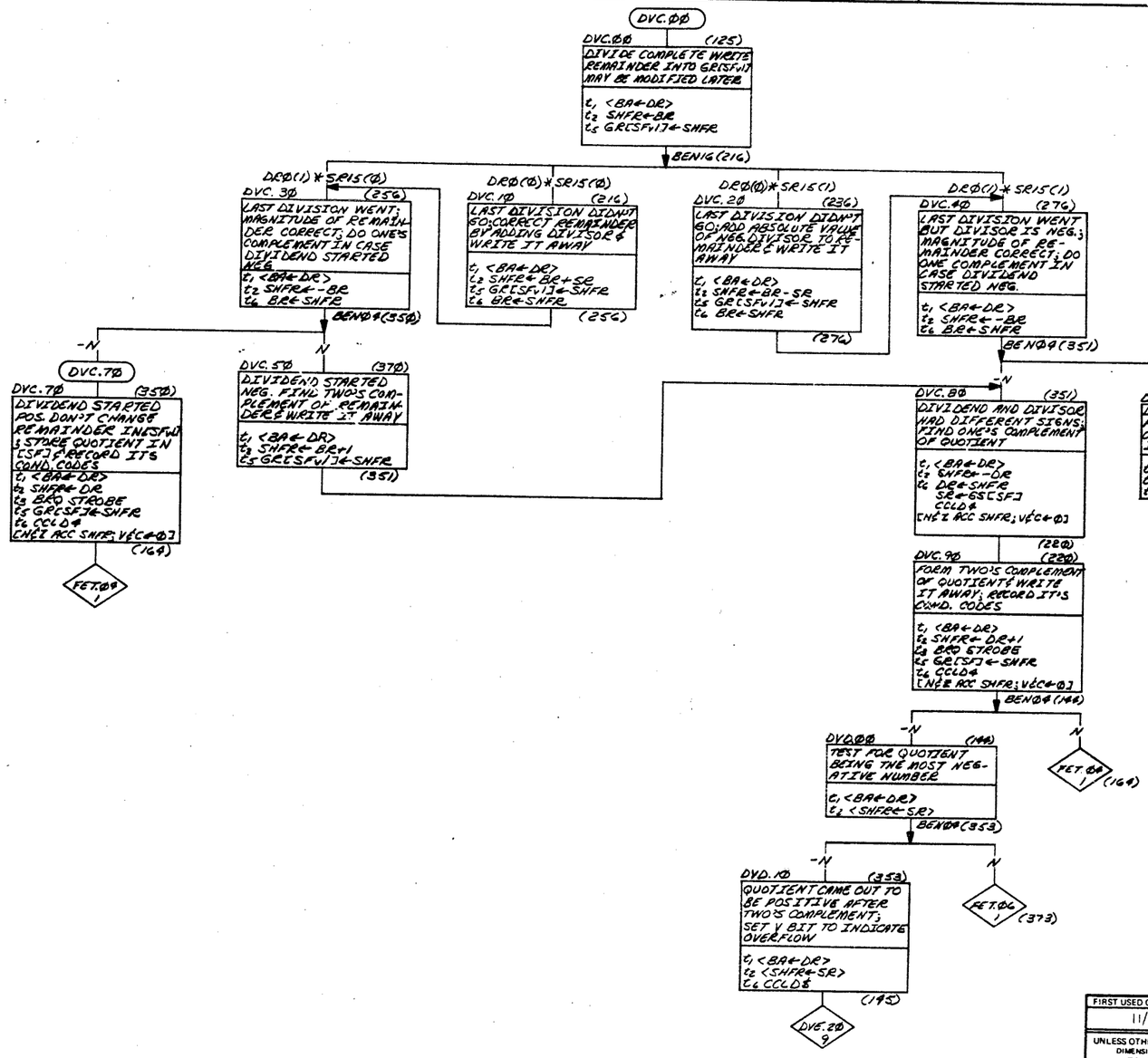

DIVIDE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN	J Vincent	DATE 11-75
CHK'D	R. Cook	DATE 11-75
ENG	Allen Hebert	DATE 11-15-75
PROJ. ENG	Allen Hebert	DATE 11-15-75
PROD	R. Taylor	DATE 11/15/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-C FLOW DIAGRAMS (FLOWS 1Ø)

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 11 OF 15
SIZE D CODE FD NUMBER KB11-C-1 REV.
DIST

REVISIONS			
CHK	CHANGE NO	REV	

BRUNING 40-522 18440
DEC FORM NO DRD 102-B

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B-FORK

NEG. B

NEG.ØØ (Ø67)
COMPLEMENT DST OPERAND
t1 <BA ← DR>
t2 SHFR ← $ALU(A=BR, B=1)
t6 BR ← SHFR
(271)

NEG.1Ø (271)
AND THEN INCREMENT, SET CC'S, SEE IF DST IS ODD BYTE
t1 <BA ← DR>
t2 SHFR ← BR+1
t6 CCLD $
BR ← SHFR
BENØS (123)
DRØ (1)

NEG.2Ø (163)
DRØ (Ø)
EVEN BYTE OR WORD-OUTPUT RESULTS; CHECK STACK LIMIT
t1 BA←DR; BC←BSOP2
t2 <SHFR ← BR>
t3 BUST; GD CDFJ
(132)

[ASRB + RORBJ * DRØ(1)

SHR.ØØ (Ø64)
SHIFT OR ROTATE RIGHT ODD BYTE; SET CCS
t1 <BA ← DR>
t2 SHFR ← $ALU(A=BR, B=1)
t6 CCLD $
BR ← SHFR
(123)

SHR.1Ø (123)
ODD BYTE-HI. ORDER BYTE POSITIONED & OUTPUT CHECK STACK LIMIT
t1 BA←DR; BC←BSOP2
t2 SHFR ← SWAP (BR)
t3 BUST; GD CDFJ
t6 BR ← SHFR
(132)

P/CLASS* - C(ASRB + RORB)* DRØ(1) + NEG. BJ

EXC.ØØ (Ø31)
DO THE OPERATION; START BUS OPERATION
t1 BA ← DR; BC ← BSOP2
t2 SHFR ← $ALU(A=BR, B=SR)
t3 BUST; GD CDFJ
t6 CCLD $
BR ← SHFR
(132)

EXEC.1Ø (132)
FINISH BUS OPERATION
t1 BA←DR; BC←BSOP2
t2 <SHFR ← BR>
t3 BRQ STROBE
t* BUS PAUSE
(217)
FET. ØØ / 1

CTST. B+ BIT. B+ CMP. BJ

TST.1Ø (Ø33)
NO MORE BUS OPS: SET CC'S & START FETCH NEXT INSTR
t1 BA ← PCB; BC ← DATI
t2 SHFR ← $ALU(A=BA, B=SR)
t3 BUST; GD CDFJ
t6 CCLD $
BEN12 (24Ø)
-BRQ → FET. 1Ø / 1 (26Ø)
BRQ → BRK. 9Ø / 12 (24Ø)

JMP

JMP.ØØ (Ø35)
LOAD NEW PC FROM DST ADRS
t1 <BA ← DR>
t2 <SHFR ← PCB>
t3 BEND
BRQ STROBE
t5 PCA ← DR
t6 PCB ← PCA
(217)
FET. ØØ / 1

JSR

JSR.ØØ (Ø34)
SAVE DST ADRS IN PCA; GET MODIFIED SRC FIELD REG TO SR
t1 <BA ← DR>
t2 SHFR ← PCB
t3 BEND
t5 PCA ← DR
t6 -SF7: SR ← GS CSFJ
SF7: SR ← SHFR
(2Ø1)

JSR.1Ø (2Ø1)
GET SP AND PUT SRC FIELD REG IN BR FOR PUSHING OLD CONTENTS ON STACK
t1 <BA ← PCB>
t2 SHFR ← SR
t3 BRQ STROBE
t6 DR ← GD CØJ
BR ← SHFR
(274)

JSR.2Ø (274)
STEP SP BACK FOR PUSH
t1 <BA ← DR>
t2 SHFR ← DR-2
t5 GR CØJ ← SHFR
t6 DR ← SHFR
(275)

JSR.3Ø (275)
WRITE OLD SRC FIELD REG ON STACK, CHECK STACK LIMIT
t1 BA←DR; BC ← DATO
t2 <SHFR ← BR>
t3 BUST; STACK REF
(Ø32)

JSR.4Ø (Ø32)
FINISH PUSH; OLD PC GOES TO SRC FIELD REG AND DST ADRS TO PC
t1 BA ← DA; BC ← DATO
t2 SHFR ← PCB
t* BUS PAUSE
t3 BRQ STROBE
t5 GR CSFJ ← $HFR
t6 PCB ← PCA
(217)
FET. ØØ / 1

MFP

MFP.ØØ (Ø66)
PREVIOUS MODE DATA IN BR; GET CURRENT MODE SP; SET CC'S.
t1 <BA ← DR>
t2 SHFR ← BR
t6 CCLD $
SR ← GS CØJ
(2Ø3)

MFP.1Ø (25Ø)
STEP STACK POINTER BACK FOR PUSH
t1 <BA ← DR>
t2 SHFR ← SR-2
t3 BEND
t5 GR CØJ ← SHFR
t6 DR ← SHFR
(222)
SYC.8Ø / 13

MFP. 8Ø

MFP.8Ø (Ø46)
PREVIOUS MODE DATA IN GR'S; IF R6 USE PREV MODE SP; RØ-R5 SET DETERMINED BY REG. SET BIT (PS11)
t1 <BA ← PCB>
t2 SHFR ← PCB
t3 BEND
t5 -I/CLASS: GR CDFJ ← SHFR
t6 -DF7: DR ← GD CDFJ
DF7: DR ← SHFR
(3Ø4)

MFP.9Ø (3Ø4)
PUT DATA IN BR & SET CC'S; GET CURRENT MODE SP
t1 <BA ← DR>
t2 SHFR ← DR
t6 CCLD $
BR ← SHFR
SR ← GS CØJ
(25Ø)

EXECUTE - MEM REF

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —"—
FINISH —"—

DRN. — DATE 2-9-75
CHK'D — DATE 2/9/75
ENG. — DATE 2-9-75
PROJ ENG. — DATE 2-9-75
PROJ — DATE
NEXT HIGHER ASSY. B-DD-KBII-B
SCALE NONE
SHEET 12 OF 15

digital

TITLE KBII-C FLOW DIAGRAMS (FLOWS 11)

SIZE D | CODE FD | NUMBER KBII-C-1 | REV.
DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 102-C

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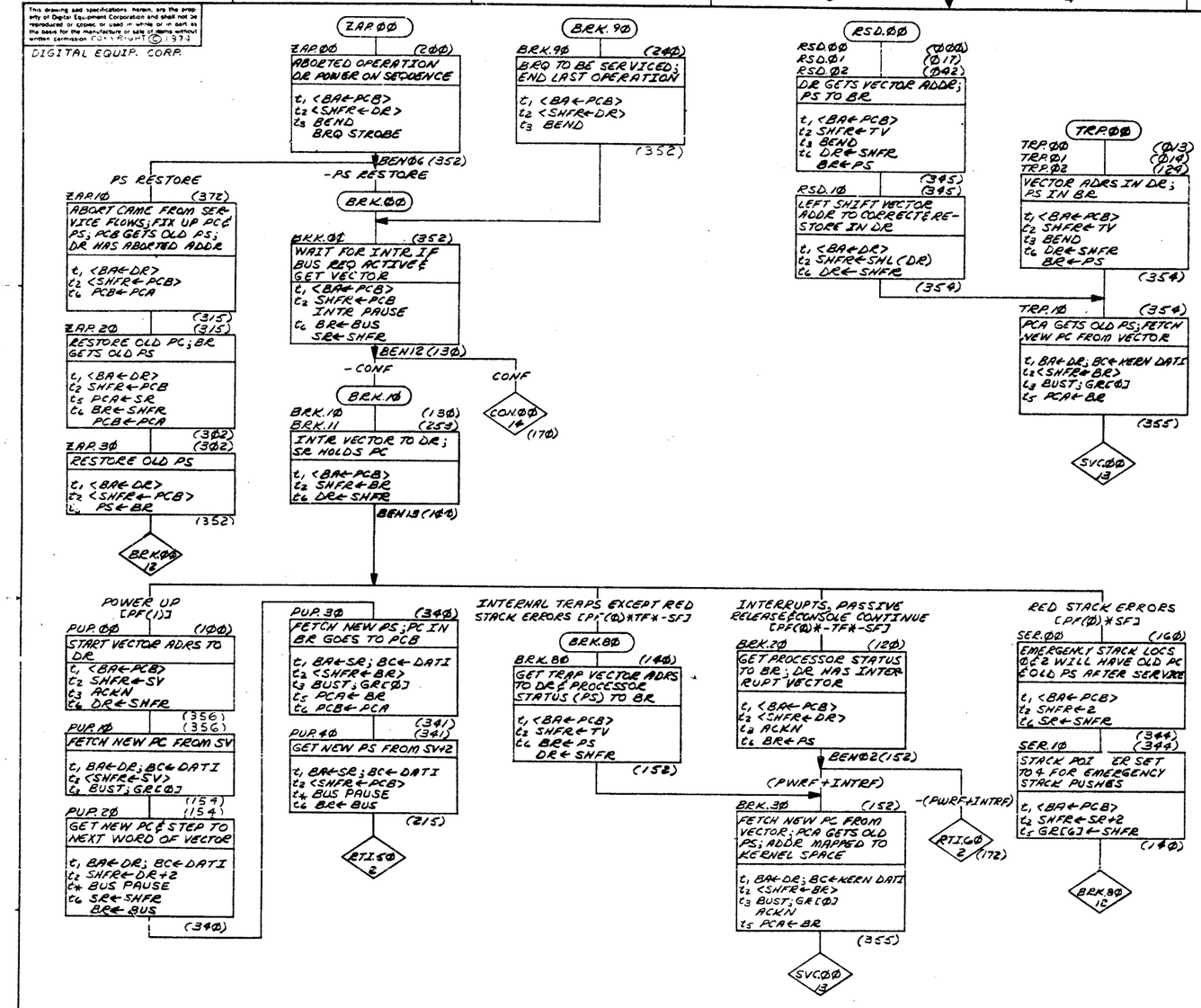

BREAK CONDITIONS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

	NAME	DATE
DRN	[illegible]	[illegible]
CHK'D	[illegible]	12/4/73
ENG	[illegible]	12-9-75
PROJ ENG	[illegible]	12-9-75
PROJ	[illegible]	4/7/75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 13 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-C
FLOW DIAGRAMS (FLOWS 12)

SIZE	CODE	NUMBER	REV.
D	FD	KB11-C-1	

DIST

REVISIONS | CHANGE NO | CHK | REV
DEC FORM NO

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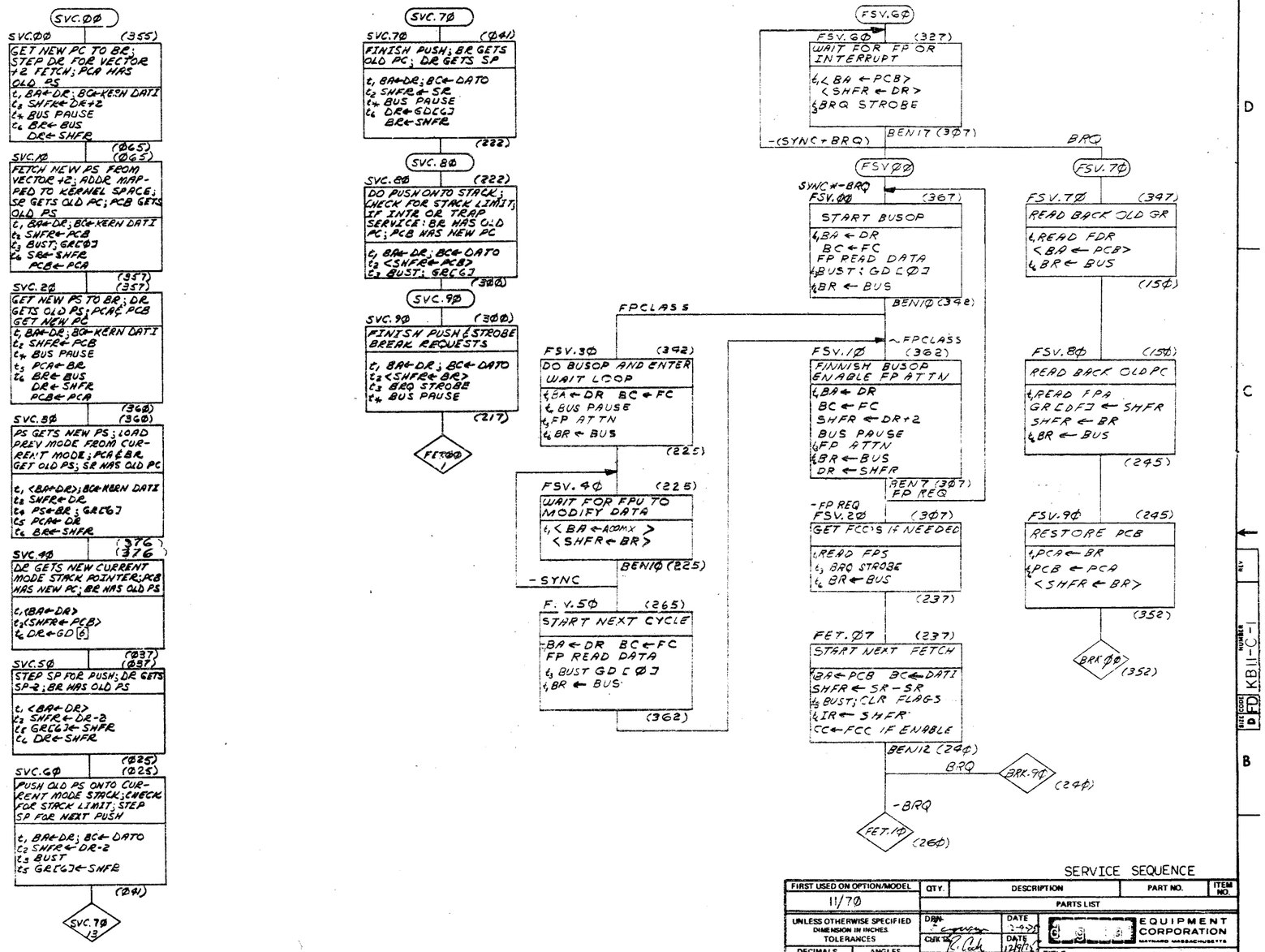

SERVICE SEQUENCE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN [illegible] DATE 2-9-75
CHK R. Cash DATE 12/9/75
ENG Wm Hellmuth DATE 2-9-75
PROJ ENG Wm Hellmuth DATE 12-9-75
RESP Kent Taylor DATE 12/9/75
NEXT HIGHER ASSY B-DD-KB11-B
SCALE
SHEET 14 OF 15

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-C FLOW DIAGRAMS (FLOWS 13)

SIZE D CODE FD NUMBER KB11-C-1 REV.
DIST.

REVISIONS	REV	CHANGE NO	CHK

DEC FORM NO

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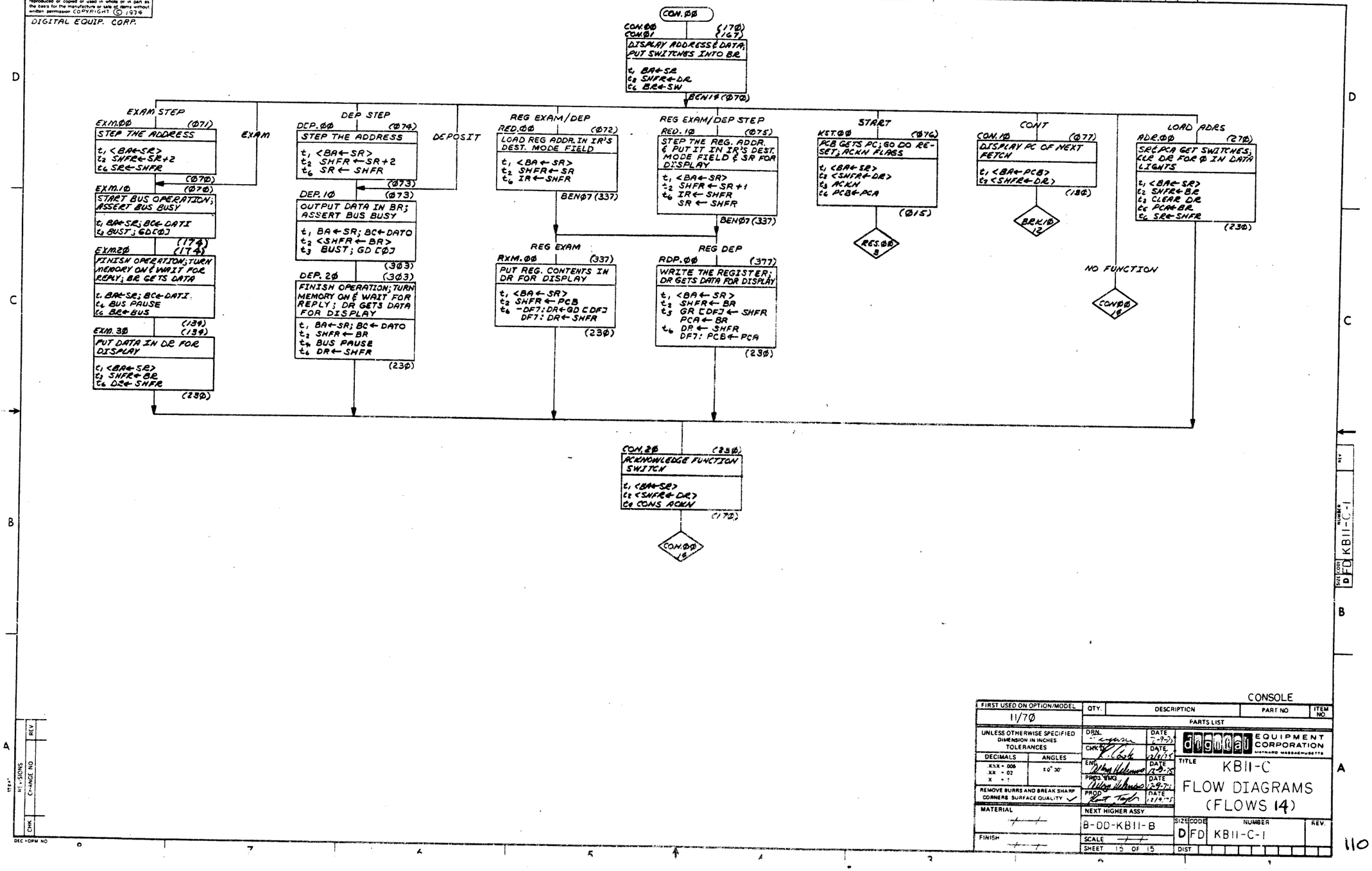

FIRST USED ON OPTION/MODEL: 11/7Ø	QTY.	DESCRIPTION: PARTS LIST	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES: DECIMALS XXX = .005, XX = .02, X = .1; ANGLES ±0° 30'	DRN	DATE 7-9-73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
	CHK	DATE 12/6/73	TITLE: KB11-C FLOW DIAGRAMS (FLOWS 14)
	ENG	DATE 12-5-73	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	PROJ. ENG	DATE 12-9-73	
	PROD	DATE 12/10/73	
MATERIAL: —	NEXT HIGHER ASSY: B-DD-KB11-B		SIZE D, CODE FD, NUMBER KB11-C-1, REV.
FINISH: —	SCALE: —		
	SHEET 15 OF 15		DIST

CONSOLE

DEC-FORM NO

REV	CHANGE NO	CHK
	NIL-SIONS	

SIZE D, CODE FD, NUMBER KB11-C-1, REV.

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ALU

PCA (DAPF,H)

PCA(T2)[51]
0 NO CLOCK
1 LOAD

PCB (DAPF,H)

PCB(T2)[50-49]
0 NO CLOCK 2 SF7:LOAD
1 LOAD 3 DF7:LOAD

PCB

SHFR (DAPF,H,J)

ALU

SHF (T2) [48-47]
0 SWAP BYTES
1 PCB
2 NO SHIFT
3 RIGHT SHIFT

ALU (DAPF, DAPH)

B A

ALU(T1)[17-15]
0 NOT A
1 B
2 A
3 A PLUS B
4 NOT USED
5 A PLUS A
6 A MINUS B
7 INSTRUCTION DEPENDENT($)

BMX (T1) [21-20]
0 KOMX
1 K1MX
2 SR
3 BR

BMX (DAPB,C,D)

AMX (DAPB,C,D)

AMX(T1)[23-22]
0 DR
1 PCB
2 SR
3 BR

KOMX
K1MX
BR
SR
BR
PCB
SR
DR

GS (16 REGISTERS) (GRAD,E,F,H)

GD (16 REGISTERS) (GRAD,E,F,H)

PAD (T14) [43-41]

	GS	GD		GS	GD
0	SF	SF	4	SFv1	SFv1
1	SF	DF	5	DF	DF
2	5	5	6	0	0
3	NOT USED		7	6	6

PWE (T14) [45-44]
0 DON'T WRITE
1 CONDITIONAL WRITE
2 WRITE
3 NOT USED

SRX (T2) [61-60]
0 SHFR
1 GS
2 SF7:SHFR; -SF7:GS
3 NOT USED

SHFR

G S

G D

DRX (T2) [59-58]
0 SHFR
1 GD
2 DF7:SHFR; -DF7:GD
3 CLR DR

SRMX (GRAD,E,F,H)

DRMX (GRAD,E,F,H)

SRK (T2) [57]
0 NO CLOCK
1 LOAD

SR (GRAD,F,H)

DR (GRAD,E,F,H)

DRK (T2) [56-55]
0 NO CLOCK
1 SHIFT RIGHT
2 SHIFT LEFT
3 LOAD

SC (GRAJ)

DR

SHC (T1) [34-33]
0 NO COUNT
1 COUNT
2 LOAD DR<5:0>
3 LOAD 17_8

DR

BMX (T1)[38-37]
0 DR
1 PCB
2 SR
3 FP EALU (MAINT)

SR

PCB

FROM FPP EALU

BAMX (DAPB, C,D)

VIRTUAL ADDRESS lights

MEMORY MGMT. (SAP,SSR, SCC)

UNIBUS ADDRESS

CACHE ADDRESS

DATA FROM CACHE MEMORY

DATA TO/FROM UNIBUS (INCL. CACHE & UNIBUS MAP REGISTERS)

SHFR

CACHE

SHFR=0 LOGIC (GRAB)

INT DATA BUS

UNIBUS

BUS BUFFER REGISTER (PDRJ) (T3)

data path

SHFR

BRMX (PDRA)

BRX (T2) [62]
0 SHFR
1 BUS(DETERMINED BY ADDRESS)

FROM FPP UADR/ CPU UADR

LR

BR

DISPLAY MULTIPLEXER (PDRF)

TO CONSOLE DATA LIGHTS

BR

DATA TO CACHE MEMORY

KOMX (DAPD)

1

2

SRCCON

DSTCON

K1MX (DAPE)

TV

SV

BR

BR

BRK (T2) [63]
0 NO CLOCK
1 LOAD

BR (DAPA)

BRA (PDRB)

IR (IRCA)

AFIR (RACJ)

IRK(T2)[46]
0 NOCLOCK
1 LOAD

KMX (T1) [19-18]

	KOMX	K1MX
0	1	START VECTOR
1	2	TRAP VECTOR
2	SOURCE CONST.	SOB & MARK OFFSET
3	DEST. CONST.	BXX OFFSET

BR

LR (PDRB)

PSW (IRCH,PDRD)

PIRQ (PDRD)

SL (PDRC)

PB (PDRC)

BR

SL/PB

PIRQ

PS

DMX (PDRE)

IBS (T1) [36-35]
0 NO COMMAND
1 READ SW
2 LOAD PS
3 READ PS

INTERNAL DATA BUS

from switch register PDRH

DATA FROM FPP

BR

DATA TO MEMORY MGMT. REGISTER, AND FPP DATA

DATA FROM MEMORY MGMT., SWITCH, CPU ERROR, AND SYSTEM SIZE & ID REGISTERS.

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

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

DRN RJ Lynch DATE 1/75
CHK'D Dave DATE 2/7/75
ENG. Alan Helman DATE 3/21/75
PROJ ENG. Alan Helman DATE 3/21/75
PRGD Jim Weems DATE 3/24/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK DIAGRAM KB11-B

MATERIAL

FINISH

NEXT HIGHER ASSY: B-DD-KB11-B

SCALE

SHEET 1 OF 1

SIZE D | CODE BD | NUMBER KB11-B-2 | REV

DIST

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40 522 15840

DEC FORM NO DRD 102-B

SIZE BD | NUMBER KB11-B-2 | REV

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CONDITION CODE LOAD

CCL (T2) [54-52]

0 NO CHANGE
1 INSTRUCTION DEPENDENT
2 SET/CLR FROM BR (CCOP)
3 LOAD FROM FPP IF ENABLED
4 CCLD4(Z & N ACC SHFR; C & V ← 0)
5 CCLD5(Z & N ACC SHFR; C ← AMX15; V ← V_{old} + (SHFR15 ⊻ AMX15))
6 CCLD6(N,C, & V UNAFFECTED; Z ← Z * SHFR = 0)
7 CCLD7(Z,N, & V UNAFFECTED; C ← ALU CARRY)

TO CONDITION CODES

FROM VARIOUS DATA PATHS

CONDITION CODE GENERATOR (GRAB, IRCE, F

FROM IR

IR DECODE (IRCB, C, D)

FROM AFIR

AFIR DECODE (RACE, F, H)

SUBSIDIARY ROM CONTROL (IRCH)

FORK C (IRCC)

FORK B (IRCB)

FORK A (RACE, F, H)

CONDITION CODE SUBSIDIARY ROM (IRCH)

ALU SUBSIDIARY ROM (GRAA)

FORK ENABLE

FEN [14-12]

0 NO FORK
1 FORK A
2 FORK B
4 FORK C

BRANCH ENABLE

BEF [11-8]	UADR5 [+40]	UADR4 [+20]
0	—	—
1	DESTINATION MODE 3,5,7	SR ≠ 1
2	CONDITION CODE Z	-(PWRF + INTR)
3	SC ≠ 0	SC < 0
4	-DIV SUB	CONDITION CODE N
5	-OBD (ODD BYTE DESTINATION)†	-DIV QUIT
6	BR14(0)	PS RESTORE
7	REGISTER DEPOSIT	-[BRQ * -(T + CONF)]
10	RIP + FP SYNC	-(FP REQ * FP SYNC)
11	SC ≠ 0	DR0(1)
12	CONF (CONSOLE FLAG)	-BRQ
13	PF(0) * (SF + TF)	PF(0) * (SF + -TF)
14	—	—
15	-FJ/CLASS †	-0/CLASS †
16	DR0(1)	SR15(1)
17	RIP + FP SYNC	FP SYNC * FP REG WR

† (BEF = 5) * OBD = CONDITIONAL FORK B
(BEF = 14) = CONSOLE BRANCHES
(BEF = 14) = CONDITIONAL FORK C
(BEF = 15) * FJ/CLASS = CONDITIONAL FORK B)

MICRO ADDRESS FIELD

UAD [07-00]

TO ADDRESS GATING

BRANCH (RACK)

ADDRESS GATING (RACL)

ADR

FEN

BEN

RAR (RACD) → TO MEMORY MGMT.

RARB (RACA, RACC)

RARA (RACC, RACD)

ZAP 200

ROM

ROM <63:60>	(RACA)	
ROM <59:56>	(RACA)	
ROM <55:52>	(RACA)	
ROM <51:48>	(RACA)	
ROM <47:44>	(RACB)	
ROM <43:40>	(RACB)	
ROM <39:36>	(RACB)	
ROM <35:32>	(RACB)	
ROM <31:28>	(RACC)	
ROM <27:24>	(RACC)	
ROM <23:20>	(RACC)	
ROM <19:16>	(RACC)	
ROM <15:12>	(RACD)	
ROM <11:08>	(RACD)	
ROM <07:04>	(RACD)	
ROM <03:00>	(RACD)	

RBR (RACA, RACB, RACC)

T2 CLK → CCL

T1↓ CLK → PWE, PAD, BSD

T1 CLK → BCT, MSC, BSC

ALU

GENERAL REGISTER CONTROL (GRAC) → TO GENERAL REGISTERS

ALU CTRL (GRAA) → TO ALU

MISCELLANEOUS

MSC (T1) [29-27]

0 NO EFFECT
1 FP ATTN
2 NOT USED
3 SET CONF IF KERNEL MODE
4 SPL (SET PRIORITY LEVEL)
5 CONDITIONAL BUST
6 BRQ STROBE
7 BUST (BUS START)

BUS DELAY

BSD (T1) [40-39]

0 NO PAUSE
1 INTR PAUSE
2 BUS PAUSE
3 BUS PAUSE

BUS CONDITION

BSC (T1) [26-24]

0 DATI
1 SRC1 DATI
2 KERNEL DATI
3 SRC2 DATI
4 FC (CONTROLLED BY FPP)
5 DATO
6 BSOP1
7 BSOP2

BUS CONTROL

BCT (T1) [32-30]

0 NO EFFECT
1 READ FPP DATA
2 CONSOLE ACKNOWLEDGE
3 CLEAR FLAGS
4 INIT IF KERNEL MODE
5 STACK REFERENCE
6 ACKNOWLEDGE
7 BEND (BUS END)

FROM CONSOLE

UNIBUS AND CONSOLE CONTROL (UBC)

TO/FROM UNIBUS CONTROL SIGNALS

TRAPS AND MISCELLANEOUS CONTROL (PRIORITY ARBITRATOR) (TMC)

TO/FROM FPP, MEMORY MGMT. INTERNAL DATA BUS & UNIBUS

TIMING GENERATOR (TIG) → TO ALL MODULES

FROM MEMORY MGMT. & UNIBUS

REVISIONS	REV	CHANGE NO	CHK

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

	NAME	DATE
DRN	D HAMEL	3/6/75
CHKD	D Moody	3/10/75
ENG	Gilbert Hellman	3/2/75
PROJ ENG	Gilbert Hellman	3/2/75
PROD	[illegible]	3/12/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK DIAGRAM KB11-B

NEXT HIGHER ASSY: B-DD-KB11-B

SIZE	CODE	NUMBER	REV
D	BD	KB11-B-3	A

SCALE

SHEET 1 OF 1

DIST

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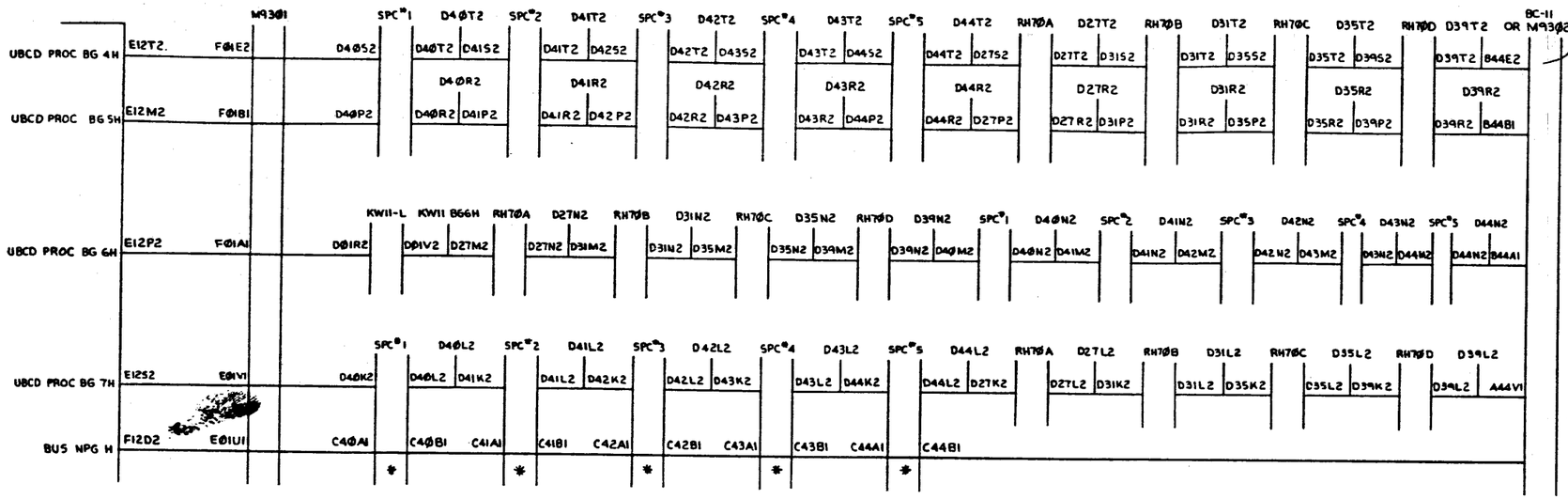

* A TO B JUMPER CONNECTION TO BE REMOVED IF AN NPG DEVICE IS INSERTED IN AN S.P.C. SLOT.

** IF NO UNIBUS DEVICES ARE PRESENT, REPLACE BC11 CABLE WITH M9302 UNIBUS TERM.

RL11, RX211

REVISIONS		
CHK	CHANGE NO	REV
[illegible]	REV 11B 00004	A

P. CRUISE 2 Dec 75 REV 21

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE [redacted] INCHES
UNLESS OTHERWISE SPECIFIED

	INCHES	ANGLES
[redacted]	XXX ±.005	±0° 30'
	XX ±.02	
	X ±.1	

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL: B-DD-KB11-B
FINISH:
NEXT HIGHER ASSY.
SCALE NONE
SHEET 1 OF 1

DRN.	DATE
S. Thelen	3/5/75
CHK'D.	DATE
[illegible]	3/21/75
ENG.	DATE
[illegible]	3/21/75
PROJ. ENG.	DATE
[illegible]	3/21/75
PROD.	DATE
[illegible]	3/21/75

digital

TITLE: UNIBUS CABLE AND GRANT CHAIN

SIZE	CODE	NUMBER	REV.
D	IC	KB11-B-7	A

DIST

USED ON: D IC KB11-B-7 REV A

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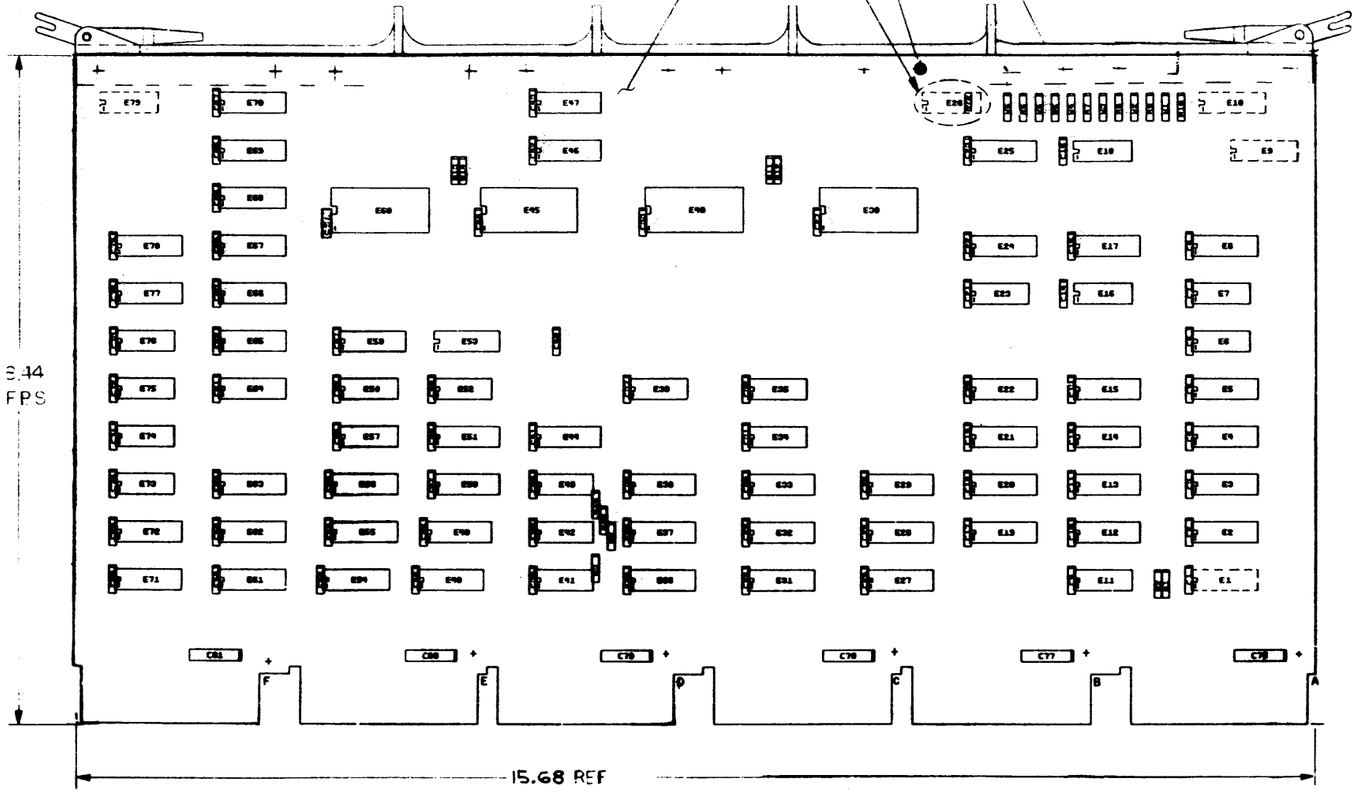
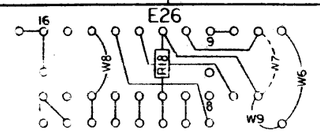
NOTES:

1. UNLESS OTHERWISE SPECIFIED RESISTANCE IS IN OHMS AND CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .01MFD.
2. E1, E9, E10 E26 & E79 ARE SPARE IC LOCATIONS
3. R3 & R15 ARE NOT USED





REF			
REF		X-Y COOR HOLE LOCATION	K-CO-MB13Ø-Ø-1
REF		ASSY/DRILLING HOLE LAYOUT	E-MN-MB13Ø-Ø-5
REF		MODULE ECO HISTORY	B-MN-MB13Ø-Ø-6
1		ETCHED CIRCUIT BOARD	5Ø11347
75	C1 THRU C75	CAP, .01uf 100V, 20%	1ØØ1Ø1Ø-Ø1
5	C76 THRU C81	CAP, 6.8uf, 35V, 20%	1ØØØØ67
7	R5 THRU R10, R18	RES. 10K, 1/4W, 5%	13ØØ479
3	R1, R11, R13	RES. 33ØΩ, 1/4W 5%	13ØØ295
2	R4, R16	RES, 15ØΩ, 1/4W, 5%	3ØØ25Ø
3	R2, R12, R14	RES, 56ØΩ, 1/4W 5%	132189Ø
1	E42	I.C. DEC 74S64	1912542
4	E30, E40, E45, E60	I.C. DEC 74S181	1912531
3	E23, E35, E74	I.C. DEC 74SØØ	1912532
2	E16, E34	I.C. DEC 74S10	1912536
4	E7, E43, E57, E75	I.C. DEC 74911	1912537
1	E52	I.C. DEC 74S2Ø	1912539
2	E48, E49	I.C. DEC 74S157	1912548
39	E3, E4, E5, E8, E13, E14, E15, E17, E20, E21, E22, E24, E25, E27, E28, E29, E31, E32, E33, E36, E37, E38, E5Ø, E51, E53, E54, E55, E56, E59, E61, E62, E63, E64, E65, E66, E71, E72, E77, E78	I.C. DEC 74S153	1912547
1	E44	I.C. DEC 74182-1	1912551
9	E2, E12, E19, E66, E67, E46, E47, E69, E70	I.C. DEC 74S174	1912555Ø
8	E6, E11, E18, E39, E41, E58, E73, E76	I.C. DEC 74SØ4	1912534
1		HANDLE, MODULE	1212711-2
12		EYELET	9ØØ6732
A/R		WIRE, #30 BUS (RETROFIT)	9105740-55

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DEC 74182-1	8	16
DEC 74S181	12	24
DEC 74S174	8	16
DEC 74S157	8	16
DEC 74S153	8	16
IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV1 — + 5V

6.8uf C76-C81 — .01uf C1-C75

AC2, AN2, AH1, AT1, BC2, BN2, BH1, BT1, CC2, CN2, CH1, CT1, DC2, DN2, DH1, DT1, EC2, EN2, EH1, ET1, FC2, FN2, FH1, FT1

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

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: 11/70

ETCH BOARD REV: A

REV	CHANGE NO.	CHK	DATE
D	M8139-00003	R. BOUCHER	28 OCT 76
C	M8139-00002	R. BOUCHER	29 AUG 76
B	M8139-00001	R. BOUCHER	7-7-76
A		R. CHUMSAE	13 JUN 75

REVISIONS

DRN. L. Shuttleworth 11/1/74
CHK'D. FERGUSON 6-1-74
ENG. L. Perkins 11-6-74
MFG. L. Perkins 11-6-74
PROJ. K. Bostic 11-13-74

NEXT HIGHER ASSY: B-DD-KB11-B

SCALE: FF

SHEET 1 OF 9

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: DATA PATHS (DAP)

SIZE	CODE	NUMBER	REV.
D	CS	M8139-0-1	D

DIST.

D CS M8139-0-1

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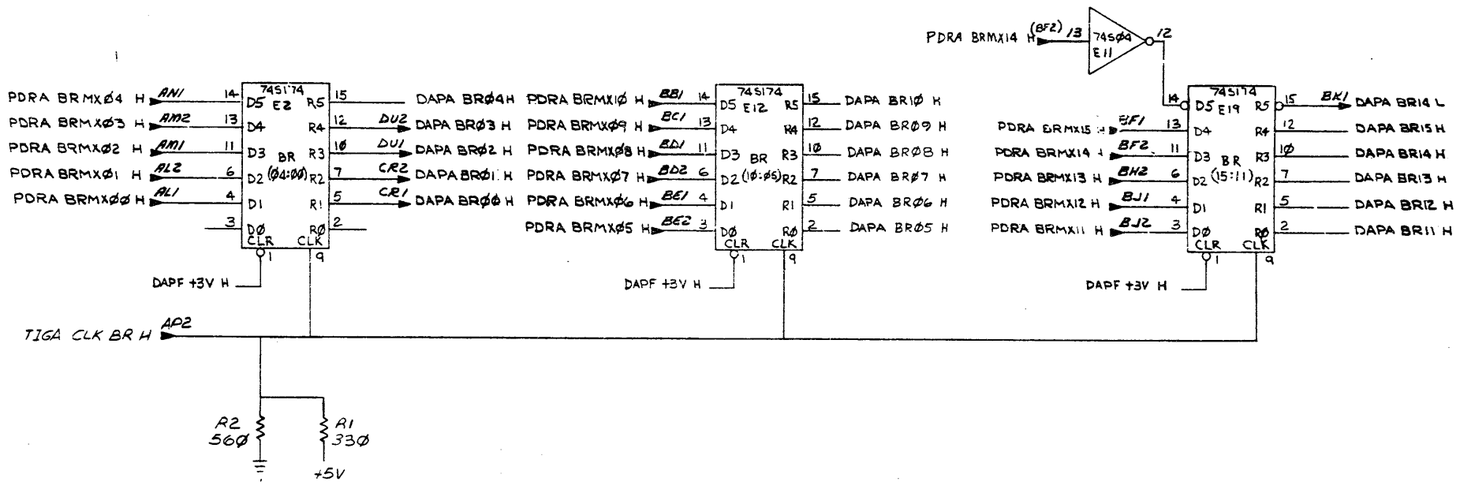

BUS REGISTER — SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN Anderson DATE 10/74
Ferguson DATE 11/1/74
E. Jenkins DATE 12/4/74
P. Jenkins DATE 1/6/74
DATE 12/19/74

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPA)

MATERIAL —
FINISH —
NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 2 OF 9

SIZE	CODE	NUMBER	REV.
D	CS	M8130-Ø-1	D

DIST.

REVISIONS: REV. | CHANGE NO | CHK

DEC FORM NO ORD 102-B

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DAPD KØMX Ø1 H
DAPE K1MX Ø1 H
GRAD SEØ1 H
DAPA BEØ1 H
DAPD KØMX ØØ H
GRAD SRØØ H
DAPA BRØØ H
RACC UBMXØ1 H
RACC UBMX ØØ H
GRAD DEØ1 H
DAPF PCBØ1 H
GRAD DRØØ H
DAPF PCBØØ H
RACC UAMX Ø1 H
RACC UAMX ØØ H
FXPA EALUØ1 H
FXPA EALUØØ H
RACB UBAX Ø1 H
RACB UBAX ØØ H

DAPD KØMX Ø3 H
DAPE K1MX Ø3 H
GRAD SRØ3 H
DAPA BRØ3 H
DAPD KØMX Ø2 H
DAPE K1MX Ø2 H
GRAD SRØ2 H
DAPA BRØ2 H
GRAD DEØ3 H
DAPF PCB Ø3 H
GRAD DEØ2 H
DAPF PCB Ø2 H
FXPA EALUØ3 H
FXPA EALUØ2 H

DAPE K1MX Ø5 H
GRAD SRØ5 H
DAPA BRØ5 H
DAPE K1MX Ø4 H
GRAD SRØ4 H
DAPA BRØ4 H
GRAE DEØ5 H
DAPF PCBØ5 H
GRAE DEØ4 H
DAPF PCBØ4 H
FXPA EALUØ5 H
FXPA EALUØ4 H

UBAX Ø1	ØØ
L	L DE
L	H PCB
H	L SE
H	H FP MAINT

UAMX Ø1	ØØ
L	L DE
L	H PCB
H	L SE
H	H BE

UBMX Ø1	ØØ
L	L KØMX
L	H K1MX
H	L SE
H	H BE

B,A,&BUS ADDR. MULTIPLEXERS (Ø5:ØØ) SLOT 6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN F. Anderson DATE 11/1/74
F. Anderson DATE 11/1/74
ENG S. Hudson DATE 11/6/74
PROJ ENG J. Hebert DATE 11/4/74
PM M. Bystrom DATE 12/3/74
NEXT HIGHER ASSY. B-DD-KBII-B
SCALE
SHEET 3 OF 9

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
DATA PATHS
(DAPB)

SIZE CODE D CS NUMBER M8130-Ø-1 REV D
DIST

REVISIONS REV CHANGE NO CHK

DEC FORM NO DRD 102-B

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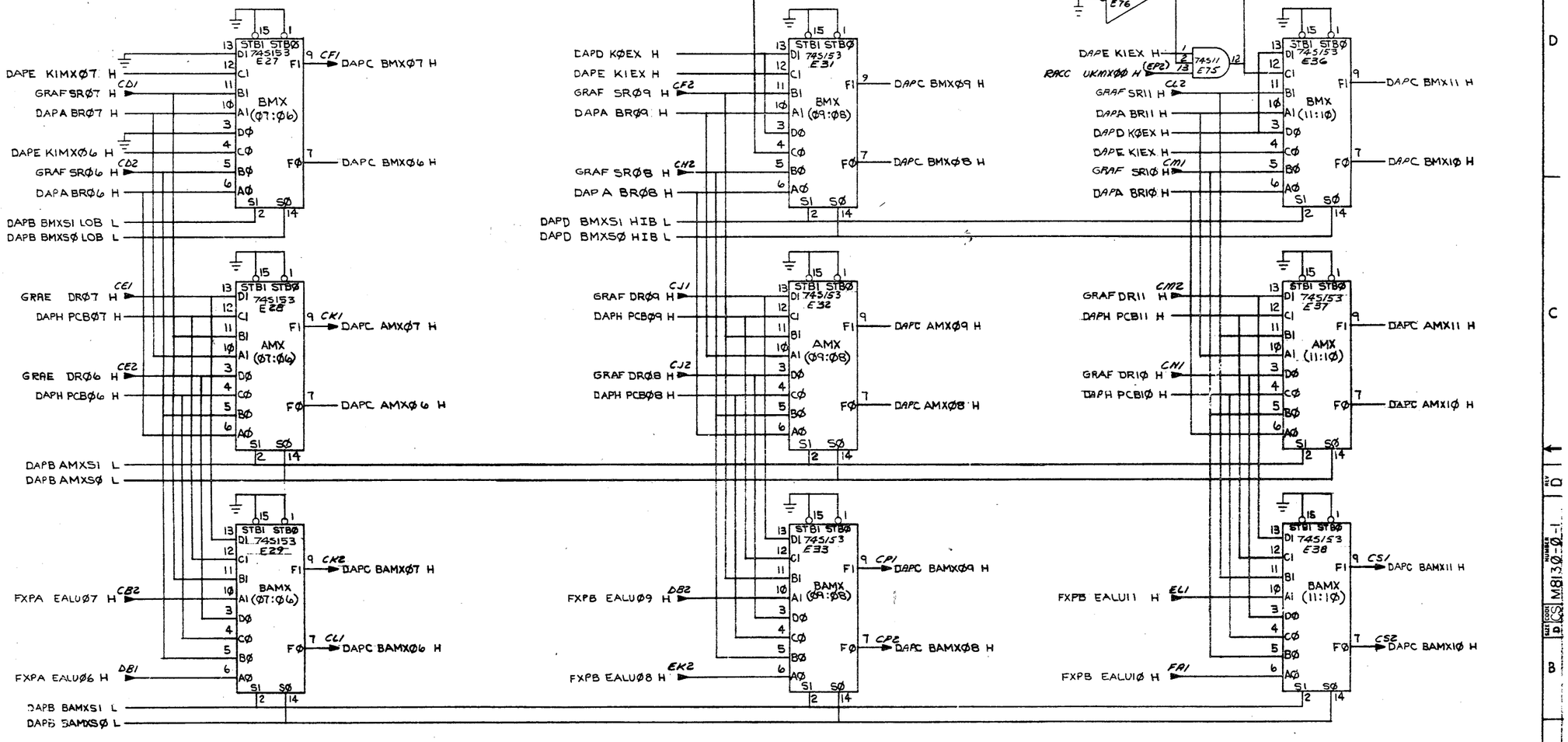

B, A, & BUS ADDR. MULTIPLEXERS (11:Ø7) SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/78		PARTS LIST		

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

DRN L. Jackman 11/1/74 — CHK Ferguson 11/1/74 — ENGR D. Jenkins 11/6/74 — PROJ MGR D. Jenkins 11/6/74 — PROJ ENGR J. Bottitta 11/3/74

MATERIAL — FINISH — NEXT HIGHER ASSY. B-DD-K811-B

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPC)

SIZE D | CODE CS | NUMBER M813Ø-Ø-1 | REV. D

SCALE — SHEET 4 OF 9 — DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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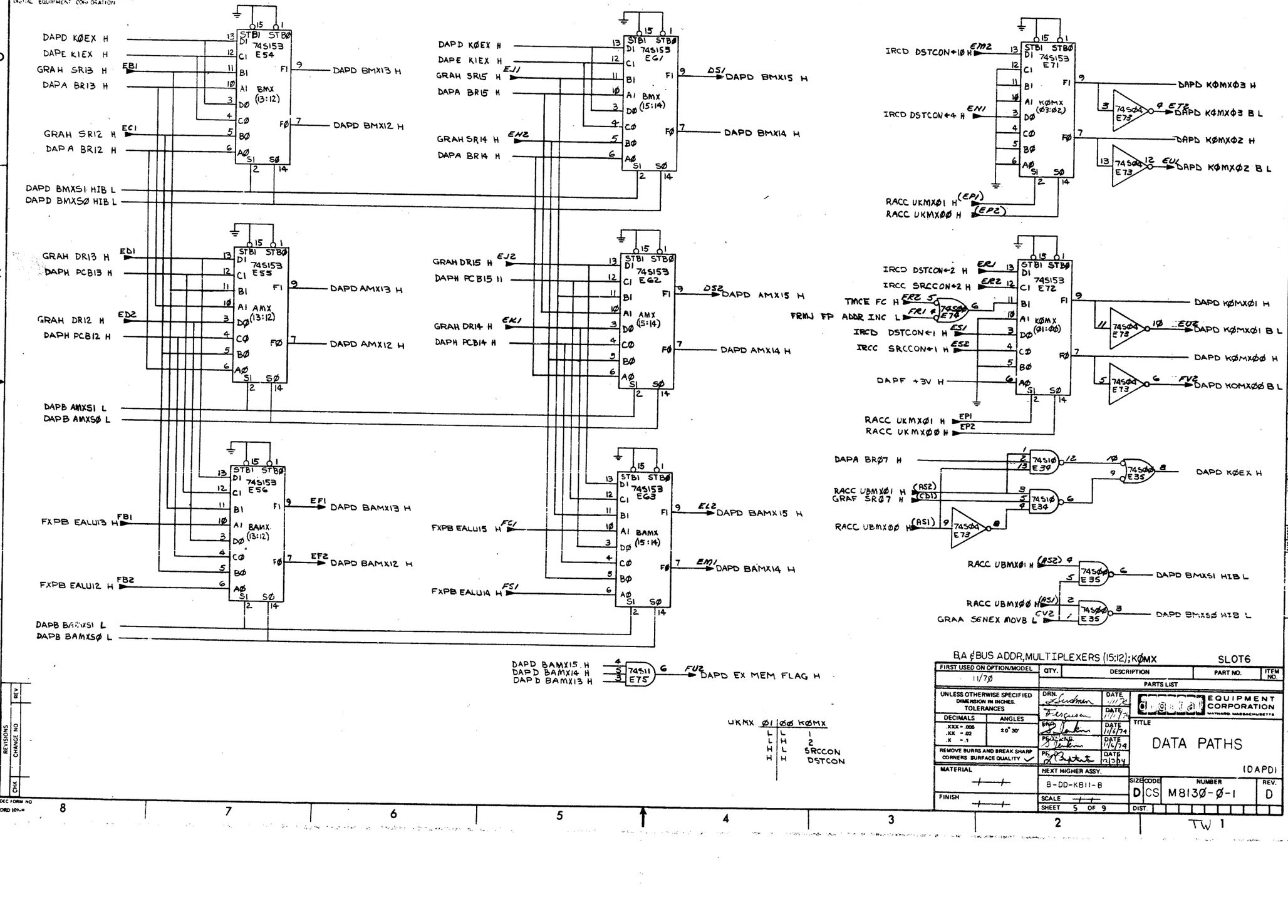

B,A BUS ADDR,MULTIPLEXERS (15:12);KØMX SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. Friedman DATE 11/7/74
ENG. Ferguson DATE 11/7/74
PROJECTING Jenkins DATE 11/6/74
PROJ. Jenkins DATE 11/13/74

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
DATA PATHS
(DAPD)

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 5 OF 9

SIZE	CODE	NUMBER	REV.
D	CS	M8130-Ø-1	D

DIST.

REVISIONS | REV. | CHANGE NO | CHK

DEC FORM NO DRD 107-0

TW 1

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* W9 SEE NOTE 3

+5V

START VECTOR 7 W6 — R5 10K — 74S04 E18 — DAPE SVØ7 H

6 W5 — R6 10K — 74S04 E18 — DAPE SVØ6 H

5 W4 — R7 10K — 74S04 E18 — DAPE SVØ5 H

4 W3 — R8 10K — 74S04 E18 — DAPE SVØ4 H

3 W2 — R9 10K — 74S04 E18 — DAPE SVØ3 H

2 W1 — R10 10K — 74S04 E18 — DAPE SVØ2 H

USE ONLY WITH W8 AND W9 OUT JUMPER ARRANGEMENT

W6 IN W7 IN	173200+XXX
W6 OUT W7 IN	773000+XXX
W6 OUT W7 OUT	ØØØØØØ+XXX
W6 IN W7 OUT	ØØØ2ØØ+XXX

XXX OFFSET (7BITS)
BITS ØØ & Ø1 ALWAYS Ø

SSRK BOOT VECTOR L — EA1 — * SEE NOTE 2 — W8 — R18 10K — +5V — 74S00 E23

* SEE NOTE 2 — W7

DAPA BRØ3 H, DAPE TVØ4 H, DAPE SVØ4 H, DAPA BRØ2 H, DAPE TVØ3 H, DAPE SVØ3 H → STB1 STBØ DI 74S153 E17 CI (Ø4:Ø3) → DAPE KIMXØ4 H, DAPE KIMXØ3 H

RACC UKMXØ1 H (EP1)
RACC UKMXØØ H (EP2)

DAPA BRØ7 H, DAPA BRØ6 H, DAPE TVØ5*Ø7 H, DAPE SVØ7 H → STB1 STBØ DI 74S153 E25 CI KIMX (7:7) → DAPE KIEX H, DAPE KIMXØ7 H

DAPA BRØ1 H, DAPE TVØ2 H, DAPE SVØ2 H, DAPA BRØØ H, DAPE TVØ1 H → STB1 STBØ DI 74S153 E8 CI KIMX (Ø2:Ø1) → DAPE KIMXØ2 H, DAPE KIMXØ1 H

RACC UKMXØ1 H (EP1)
RACC UKMXØØ H (EP2)

DAPA BRØ5 H, DAPE TVØ6 H, DAPE SVØ6 H, DAPA BRØ4 H, DAPE TVØ5*Ø7 H, DAPE SVØ5 H → STB1 STBØ DI 74S153 E24 CI KIMX (Ø6:Ø5) → DAPE KIMXØ6 H, DAPE KIMXØ5H

TMCB PIRQ L, TMCB SEQT L, TMCB FP TRAP L → AJ2, AK1, AK2 → 74S10 E16 → DAPE TVØ5*Ø7 H

TMCB PWRF L, IRCD IOT L → AE1, AE2 → 74S10 E16 → DAPE TVØ4 H

TMCB TOK L, IRCD OPCODE3 L → AF1, AF2 → 74S11 E7 → 74S08 E23 → DAPE TVØ3 H

IRCD EMT L, IRCD TRAP L, UBCB PARITY ERR L → AH2, AJ1, AP1 → 74S11 E7 → 74S11 E7 → DAPE TVØ2 H

→ 74S04 E11 → DAPE TVØ6 H

→ 74S04 E11 → DAPE TVØ1 H

	TRAP VECTOR	UKMX Ø1	ØØ	KIMX
RSVD INST	1Ø	L	L	SV
TOK+3	14	L	H	TV
IOT	2Ø	H	L	5Ø8 & MARK DISPLACEMENT
PWRF	24	H	H	BEXX DISPLACEMENT
EMT	3Ø (14 LEFT SHIFTED)			
TRAP	34 (16 LEFT SHIFTED)			
PIRQ	24Ø			
FP TRAP	244			
KT TRAP	25Ø			
PERF	114			

NOTE: 1
LEFT SHIFTING TAKES PLACE ON FLOWS 12 RSD.1Ø

NOTE: 2
W8 OUT IF: AN M93Ø IS INSTALLED IN CPU SLOT 1, W7 IS IN, W6 AND W9 ARE IN OR M93Ø1 ECO #5 IS NOT INSTALLED.
W8 IN IF: M93Ø1 ECO #5 FEATURE IS TO BE USED, W7 IS OUT, AND (W6 IS OUT IF W9 IS IN).

NOTE: 3
W9 IN FOR 773200 (FROM EA1) + XXX (7 BIT OFFSET FROM W1-W5 INCLUDING BITS ØØ AND Ø1 WHICH ARE ALWAYS Ø) IF W6 AND W7 ARE OUT.

W9 OUT FOR 773000 (FROM EA1) + XXX (8 BIT OFFSET FROM W1-W6 INCLUDING BITS ØØ AND Ø1 WHICH ARE ALWAYS Ø) IF W7 IS OUT.

NOTE: 4
A TYPICAL 11/70 CONFIGURATION WITH M93Ø1 ECO #5 INSTALLED AND AN M93Ø1-YC IS W1, W3, W8, W9 IN AND W2, W4, W5, W6 AND W7 OUT. M9312 CONFIGURATION IS THE SAME EXCEPT W9 IS REMOVED. REFER TO SHEET 1 FOR LOCATION.

TRAP VECTORS, START VECTOR, & KIMX — SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN		DATE 11/1/70
		DATE 11/1/74
		DATE 11/5/74
PROJ. ENG.		DATE 11/4/74
PROG.	Dan Weaver	DATE 12-5-74

MATERIAL — FINISH — NEXT HIGHER ASSY. B-DD-KB11-B — SCALE — SHEET 6 OF 9

Digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPE)

SIZE D | CODE CS | NUMBER M813Ø-Ø-1 | REV. D | DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO DRD 192-D

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DAPF COUTØ3 L
COUTØ3 = GØ*(PØ+CIN)

74182-1 E44 CARRY
COUTX
GØ PØ CIN

GRAA ALUC H FØ1 → 74S04 E76

DAPB BMXØ3 H
DAPB AMXØ3 H
DAPB BMXØ2 H
DAPB AMXØ2 H
DAPB BMXØ1 H
DAPB AMXØ1 H
DAPB BMXØØ H
DAPB AMXØØ H

745181 E3Ø
ALU (Ø3:ØØ)
A=B COUT G P
S3 S2 S1 SØ M CIN
F3 F2 F1 FØ

DAPF +3V A H
+5V R11 33ØΩ R12 56ØΩ
74S11 E37
FM2 → DAPF A=B(7:Ø)H
74SØØ E74
FM1 → DAPF A=B(15:Ø) L
BUS A=B(15:8) H → FK1 → DAPF SHFRØ3 H

745153 EG4
STB1 STBØ
DAPF ALUØ4 H
DAPF PCBØ3 H
DAPH ALU11 H
DAPF PCBØ2 H
DAPH ALU1Ø H
SHFR (Ø3:Ø2)
FK2 → DAPF SHFRØ2 H

745153 EG5
DAPF PCB Ø1 H
DAPH ALUØ9 H
DAPF PCBØØ H
DAPH ALUØ8 H
SHFR (Ø1:ØØ)
FL1 → DAPF SHFRØ1 H
FL2 → DAPF SHRØØ H

GRAA SHFRS1 L FD2 → 74S04 E76 → DAPF SHFRS1 H
GRAA SHFRSØ L FE1 → 74S04 E76 → DAPF SHFRSØ H

DAPF ALUØ3 H
DAPF ALUØ2 H
DAPF ALUØ1 H
FJ2 → DAPF ALUØØ H

GRAA ALUM L FE2 → 74S04 E39 → DAPF LM H
GRAA ALUSØ L FF1 → 74S04 E39 → DAPF LSØ H
GRAA ALUS1 L FF2 → 74S04 E39 → DAPF LS1 H
GRAA ALUS2 L FH2 → 74S04 E39 → DAPF LS2 H
GRAA ALUS3 L FJ1 → 74S04 E39 → DAPF LS3 H

745174 EG7
DAPF ALUØ5 H
DAPF ALUØ4 H
PCA (Ø5:ØØ)
D5 D4 D3 D2 D1 DØ CLR CLK
R5 R4 R3 R2 R1 RØ

745174 EG6
PCB (Ø5:ØØ)
DAPF PCBØ5 H
DAPF PCBØ4 H
DAPF PCBØ3 H
DAPF PCBØ2 H
DAPF PCBØ1 H
DAPF PCBØØ H

DAPJ +3V H
DAPJ CLKPCA H
DAPJ CLKPCB H

SHFR S1 SØ H
L L SWAB (OB SWAP)
L H PCB
H L ALU
H H RT. SHIFT ALU

DAPF COUTØ7 L
COUTØ7 = G1*(P1+GØ*PØ+CIN GØ)

74182-1 E44 CARRY
COUTY
G1 P1

745181 E4Ø
ALU (Ø7:Ø4)
A=B COUT G P
S3 S2 S1 SØ M CIN
F3 F2 F1 FØ

DAPC BMXØ7 H
DAPC AMXØ7 H
DAPC BMXØ6 H
DAPC AMXØ6 H
DAPB BMXØ5 H
DAPB AMXØ5 H
DAPB BMXØ4 H
DAPB AMXØ4 H
DAPF LS3 H
DAPF LS2 H
DAPF LS1 H
DAPF LSØ H
DAPF LM H
DAPF COUTØ3 L

74S04 E68 → DAPF +3V A H

745153 EG8
STBØ
DAPH PCBØ6 H
DAPH ALU14 H
SHFR (ØG)
FN1 → DAPF SHFRØ6 H

745153 E78
STB1 STBØ
DAPF PCBØ5 H
DAPH ALU13 H
SHFR (Ø5:Ø4)
DAPF PCBØ4 H
DAPH ALU12 H
FP1 → DAPF SHFRØ5 H
FP2 → DAPF SHFRØ4 H

DAPF ALUØ7 H
DAPF ALUØ6 H
DAPF ALUØ5 H
DAPF ALUØ4 H

74S04 E11 → DAPF +3V H
GRAA SHFRSØ (FE1) → 74S04 E76 → DAPF SHFRSØ B H
GRAA SHFRS1 L (FD2) → 74S04 E76 → DAPF SHFRS1 B H

745181 - ALU

S3 S2 S1 SØ	M=H LOGIC FUNCTIONS	M=L; ARITHMETIC OPERATIONS $C_N = Ø = H$	$C_N = 1 = L$
L L L L	F = $\overline{A}$	F = A	F = A PLUS 1
L L H H	F = Ø	F = MINUS 1 (2'S COMP)	F = ZERO
L H H L	F = A ⊕ B	F = A MINUS B MINUS 1	F = A MINUS B
L H H H	F = A $\overline{B}$	F = A $\overline{B}$ MINUS 1	F = A $\overline{B}$
H L L H	F = $\overline{A \oplus B}$	F = A PLUS B	F = A PLUS B PLUS 1
H L H L	F = B	F = (A+$\overline{B}$) PLUS AB	F = (A+$\overline{B}$) PLUS AB PLUS 1
H L H H	F = AB	F = AB MINUS 1	F = AB
H H L L	F = 1	F = A PLUS A	F = A PLUS A PLUS 1
H H H L	F = A+B	F = (A+ $\overline{B}$) PLUS A	F = (A+$\overline{B}$) PLUS A PLUS 1
H H H H	F = A	F = A MINUS 1	F = A

ALU (Ø7:ØØ), SHIFTER (Ø6:ØØ), PCA & PCB (Ø5:ØØ) SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/7Ø		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .ØØ6, .XX ± .Ø2, .X ± .1 — ANGLES: ±Ø° 3Ø'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN		11/7/74
		11/7/74
ENG		11/6/74
PROJECTILE		11/6/74
QUAL		12-3-74

NEXT HIGHER ASSY. B-DD-K811-B
SCALE
SHEET 7 OF 9

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPF)

SIZE	CODE	NUMBER	REV
D	CS	M813Ø-Ø-1	D

DIST.

REVISIONS	REV	CHANGE NO	CHK

DEC FORM NO DRD 102-B

M813Ø-Ø-1 REV D SIZE CODE D CS NUMBER M8130-0-1

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DAPH COUT 11 L
COUT11 = G2(P2+G1P1+G0G1P0+CING0G1)

COUT
CARRY
74182-1
E44
G2 P2

BUS A= B(15:8) H

74S181 ALU (11:08) E45
A=B COUT G P
M CIN S3 S2 S1 S0

DAPC BMX11 H
DAPC AMX11 H
DAPC BMX10 H
DAPC AMX10 H
DAPC BMX09 H
DAPC AMX09 H
DAPC BMX08 H
DAPC AMX08 H
DAPH HM H
DAPF COUT07 L

74S153 E59 SHFR (11:10)
DAPH ALU12 H
DAPH PCB11 H
DAPF ALU03 H
DAPH PCB10 H
DAPF ALU02 H
DM1
DM2
DAPH SHFR11 H
DAPH SHFR10 H

74S153 E53 SHFR (09:08)
DAPH PCB09 H
DAPF ALU01 H
DAPH PCB08 H
DAPF ALU00 H
DN1
DP1
DAPH SHFR09 H
DAPH SHFR08 H

74S04 E39
DAPH COUT15 H
COUT15 = GP
DAPH COUT15 L

BUS A=B(15:8) H
R13 330Ω, R14 560Ω, +5V

74S181 E60 ALU (15:12)
DAPD BMX15 H
DAPD AMX15 H
DAPD BMX14 H
DAPD AMX14 H
DAPD BMX13 H
DAPD AMX13 H
DAPD BMX12 H
DAPD AMX12 H
DAPH COUT11L
DAPH HS3 H
DAPH HS2 H
DAPH HS1 H
DAPH HS0 H

GRAA ALUM (FE2) 9 → 74S04 E58 → 8 DAPH HM H

74S153 E68 SHFR (14)
DAPH PCB14 H
DAPF ALU06 H
DP2
DAPH SHFR14 H

74S153 E77 SHFR (13:12)
DAPH PCB13 H
DAPF ALU05 H
DAPH PCB12
DAPF ALU04 H
DR2
DAPH SHFR13 H
DR1
DAPH SHFR12 H

DAPF SHFR S1 H
DAPF SHFR S0 H

DAPH ALU11 H
DAPH ALU10 H
DAPH ALU09 H
DAPH ALU08 H

DAPH ALU15 H
DAPH ALU14 H
DAPH ALU13 H
DAPH ALU12 H

74S174 E46 PCA (11:06) R5 R4 R3 R2 R1 R0
74S174 E47 PCB (11:06) R5 R4 R3 R2 R1 R0
DAPF ALU07 H
DAPF ALU06 H
DAPF +3V H
CLR CLK
DAPJ CLKPCA H
DAPJ CLKPCB H
DAPH PCB11 H
DAPH PCB10 H
DAPH PCB09 H
DAPH PCB08 H
DAPH PCB07 H
DAPH PCB06 H

74S174 E69 PCA (15:12) R5 R4 R3 R2 R1 R0
74S174 E79 PCB (15:12) R5 R4 R3 R2 R1 R0
DAPJ CLKPCA H
DAPJ CLKPCB H
DAPH PCB15 H
DAPH PCB14 H
DAPH PCB13 H
DAPH PCB12 H

GRAA ALUS3 L (FJ1) 1 → 74S04 E58 2 → DAPH HS3 H
GRAA ALUS2 L (FH2) 13 → 74S04 E58 12 → DAPH HS2 H
GRAA ALUS1 L (FF2) 3 → 74S04 E58 4 → DAPH HS1 H
GRAA ALUS0 L (FF1) 11 → 74S04 E58 10 → DAPH HS0 H

REVISIONS: REV | CHANGE NO | CHK
DEC 10MM NO DRD 102-B

ALU(15:08), SHIFTER(14:08), PCA & PCB(15:06) SLOT 6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN [illegible] DATE 11/1/74
ENG [illegible] DATE 11/1/74
PROJ [illegible] DATE 11/4/74
PROD Don Weaver DATE 12-3-74

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPH)

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 8 OF 9

SIZE	CODE	NUMBER	REV.
D	CS	M8130-0-1	D

DIST.

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DAPH ALU15 H
DAPJ PCB + RTSHF15 H
DAPF ALU07 H
74S153 E50 (SHFR (15))
FS2 DAPJ SHFR15 H
DA1 DAPJ SHFRA15 H
74S04 E41
IRCC(ROR.B+MUL) H (CT2)
DAPF SHFRS0 B H
DAPF SHFRS1 B H
74S10 E34
74S11 E75

DAPC AMX07 H
DAPD AMX15 H
DAPF ALU07 H
DAPH ALU15 H
BUS A=B(15:8) H
DAPF COUT07 L
DAPH COUT15 L
IRCD BYIN H (CU1)
74S157 E48
DF2 DAPJ AMX SIGN H
DF1 DAPJ ALU SIGN H
DJ1 DAPJ A=B(15:8)+BYTE H
DH2 DAPJ ALUCN L

DAPH COUT15 H
IRCH R(ICLASS) H DJ2
74S11 E43
DL1 DAPJ LEFT DATA H
RACA UPCA H DK1
TIGD T5 H DK2
74S11 E43
DAPJ CLKPCA H
R15 NOT USED
R16 150Ω
+5V

74S153 E51 (SHFR (07))
EE1 DAPJ SHFR07 H
DC1 DAPJ SHFRA07 H
DAPH ALU08 H
DAPF ALU07 H
DAPJ PCB + RTSHF07 H
DAPH ALU15 H
74S11 E57
74S11 E57
74S20 E52
74S20 E52

RACA UPCB00 H (DD1)
RACA UPCB01 H (DD2)
74S04 E41
IRCB SRCF7 L DE1
IRCC DSTF7 L DE2
RACA UPCB00 H DD1
RACA UPCB01 H DD2 (DJ2)
IRCH R(ICLASS) H
RACB UPWE00 H EV2
74S64 E42
TIGC T1 H DL2
74S11 E43
DAPJ CLKPCB H
R3 NOT USED
R4 150Ω
+5V

IRCD BYIN H CU1
IRCC (ROR.B+MUL) H CT2
GRAJ SHFR DATA H CU2
DAPH PCB15 H
IRCH C B (1) H DT2
DAPH PCB07 H
74S157 E49
DAPJ PCB + RTSHF15 H
DAPJ PCB + RTSHF07 H

ROM CONTROL:	SHFR15 S1	SHFR15 S0	SHFR15
SWAB	L	L	ALU07
PCB	L	H	PCB15
RIGHT SHIFT * [ROR.B + MUL]	L	H	SHFR DATA
NO SHIFT	H	L	ALU15
RIGHT SHIFT * $\overline{\text{ROR.B * MUL}}$	H	H	ALU15

ROM CONTROL:	SHFR07 S1	SHFR07 S0	SHFR07
SWAB	L	L	ALU15
PCB	L	H	PCB07
RIGHT SHIFT * RORB	L	H	C(1)
NO SHIFT + RIGHT SHIFT * $\overline{\text{BYTE}}$ * $\overline{\text{RORB}}$	H	L	ALU07
RIGHT SHIFT * $\overline{\text{BYTE}}$	H	H	ALU08

UPCB 01	00
L	L NO CLOCK
L	H LOAD
H	L SF7 : LOAD
H	H DF7 : LOAD

74S157 S0
L A→F
H B→F

SHIFTER (15:07); PCA & PCB CLOCKS SLOT 6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. L Goodman 11/2/76
CHKD. Pearson 11/3/76
ENG. S Perkins 11/6/76
PROD ENG. D Perkins 11/6/76
PROD. D Weaver 12-3-76

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPJ)

NEXT HIGHER ASSY. B-CO-KS11-B
SCALE —
SHEET 9 OF 9

SIZE	CODE	NUMBER	REV.
D	CS	M8130-0-1	D

DIST

REV.	REVISIONS	CHANGE NO	CHK

DEC FORM NO 102-B

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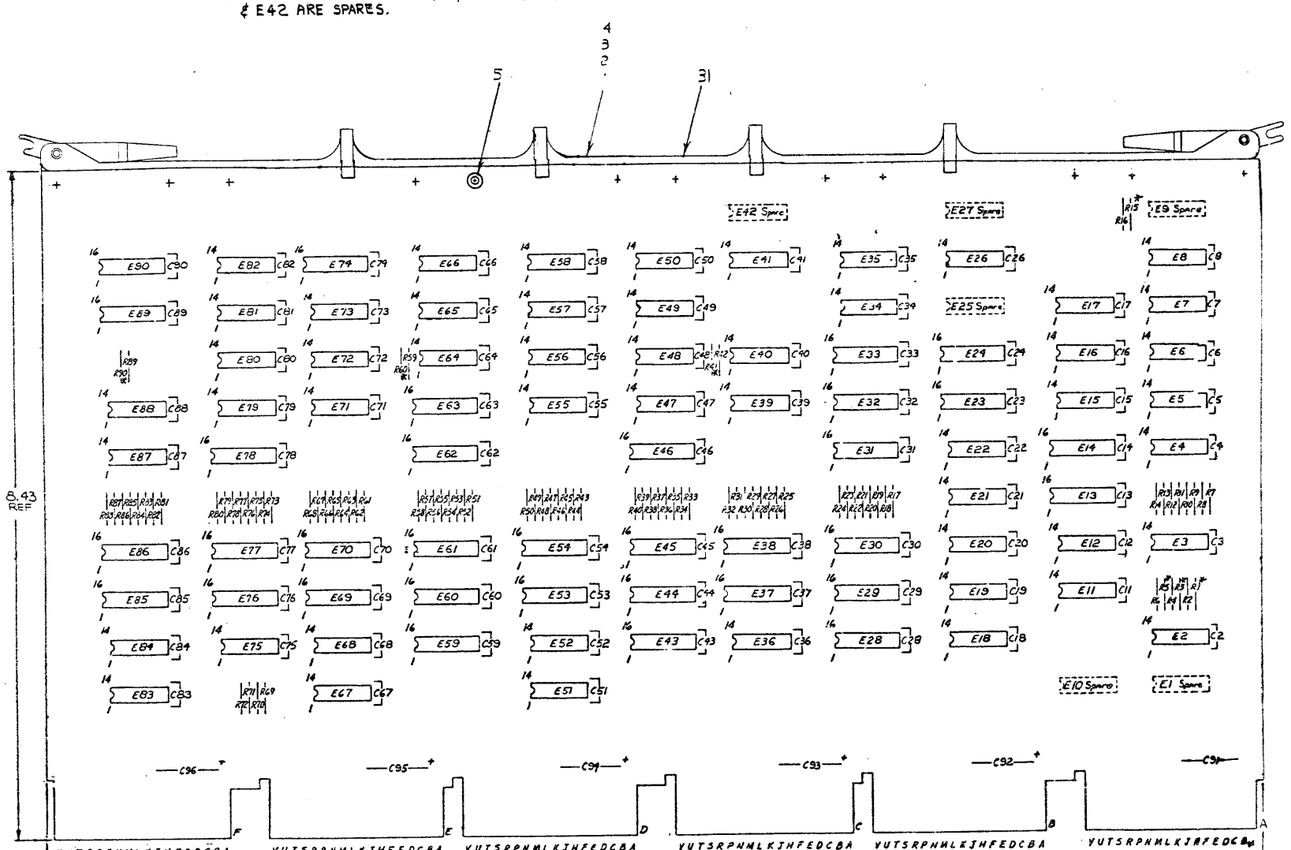
NOTES:

1. RESISTORS MARKED WITH ASTERISK ARE NOT USED
2. LOCATIONS MARKED E1, E9, E10, E 25, E 27, & E42 ARE SPARES.



1 pin on chip

AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV1,
AC2, AN2, AH1, AT1, BC2, BN2, BH1, BT1, CC2, CN2, CH1, CT1, DC2, DN2, DH1, DT1, EC2, EN2, EH1, ET1, FC2, FN2, FH1, FT1.

+5V — +6.8 µF 35V — C91 THRU C96 — .01 µF — C2 THRU C8, C11 THRU C24, C26, C28 THRU C41, C43 THRU C90

DEC DM 8598-AD	8	16
DEC 3101 A	8	16
DEC 74S174	8	16
DEC 74S158	8	16
DEC 74S153	8	16
DEC 74S194	8	16
DEC 74S112	8	16
DEC 74191	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 COORDINATE HOLE LOCATION	K-CO-M8131-0-4
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M8131-0-5
REF		MODULE ECO HISTORY	B-MH-M8131-0-6
1		ETCHED CIRCUIT BOARD	5009807
12		EYELET	9006732
6	C91 THRU C96	CAP. 6.8uf 35V ± 20% S TANT	1000067
84	C2 THRU C8, C11 THRU C24, C26, C28 THRU C41, C43 THRU C90	CAP .01uf 100V ± 20% DISC	1001610
38	R7, R9, R11, R13, R18, R20, R22 R24, R26, R28, R30, R32, R34 R36, R38, R40, R44, R46, R48, R50, R52, R54, R56, R58, R62, R64, R66, R68, R69, R71, R74, R76, R78, R80, R82, R84, R86, R88	RES 330 OHM 1/4W ± 5%	1300295
7	R2, R4, R6, R16, R42, R59, R89	RES 150 OHM 1/4W ± 5%	1300250
4	R8, R10, R12, R14	RES 560 OHM 1/4W ± 5%	1301890
32	R17, R19, R21, R23, R25, R27, R29, R31, R33, R35, R37, R39, R43, R45, R47, R49, R51, R53, R55, R57, R61, R63, R65, R67, R73, R75, R77, R79, R81, R83, R85, R87	RES 680 OHM 1/4W ± 5%	1301424
2	R70, R72	RES 750 OHM 1/4W ± 5%	1301401
2	E55, E72	IC DEC 74H30	1909059
1	E47	IC DEC 74H50	1909060
2	E13, E14	IC DEC 74191	1910096
5	E3, E4, E17, E26, E88	IC DEC 74S00	1910532
10	E7, E36, E39, E40, E51, E57, E66 E87, E83, E87	IC DEC 74S04	1910534
5	E11, E12, E52, E88, E84	IC DEC 74S05	1910535
5	E2, E15, E20, E22, E56	IC DEC 74S10	1910536
7	E8, E21, E34, E41, E65 E71, E82	IC DEC 74S11	1910537
3	E64, E73, E81	IC DEC 74S20	1910539
11	E5, E6, E16, E18, E35, E48, E49, E58, E75, E80, E19	IC DEC 74S64	1910542
2	E50, E79	IC DEC 74S74	1910544
1	E83	IC DEC 74S112	1910545
4	E23, E24, E32, E33	IC DEC 74S153	1910547
10	E29, E30, E44, E45, E60, E61, E76, E77, E89, E90	IC DEC 74S158	1910549
3	E28, E43, E59	IC DEC 74S174	1910550
4	E31, E46, E62, E78	IC DEC 74S194	1910552
8	E37, E38, E53, E54, E69, E70, E85, E86	IC DEC 3101A	1910653
1	E74	IC DEC DM8598-AD	23-CB3A1
1		HANDLE, MODULE	E-PS-1218711-2
~~A/R~~		~~WIRE, INSULATED 30 AWG BUS~~	~~8101740-30~~

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV C

FIRST USED ON OPTION MODEL 11/70

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO	DEC NO.	EIA NO.

REV	CHANGE NO.	CHK
A	16151-C0001	
B	M8131-00002	
C	M8131-TW003	
D	M8131-TW004	

DRN J. Nagle 10/14/74
CHK'D [illegible] 11-1-74
ENG [illegible] 11-27-74
P.V. ENG [illegible] 11-27-74
PM [illegible] 12/4/74
NEXT HIGHER ASSY B-DD-KBII-B
SCALE
SHEET 1 OF 10

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE GENERAL REGS & ALU. CNTL. (GRA)

SIZE D CODE DCS NUMBER M8131-0-1 REV. D
DIST

123

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Left hands are input

Right hands are output

IRCH DIV + ASHC H (FM1) — 74S00 E88 pin 9
GRAH DRIS L — 74S00 E88 pin 10
74S00 E88 pin 8 → 74S00 E88 pin 6
IRCH SXT H (FM2) — 74S00 E88 pin 4
IRCH N (1) H (ALI) — 74S00 E88 pin 5
74S00 E88 pin 6 → 74S00 E88 pin 1

IRCH C (Ø) H (FBI) — 74S20 E73 pin 1
GRAA ROM SØ L — 74S20 E73 pin 2
74S20 E73 pin 6 → 74S20 E73 pin 5
IRCH C (1) H (FCI) — 74S20 E73 pin 13
74S20 E73 pin 12 → 74S20 E73 pin 9

74S00 E88 pin 3 → GRAA CDEP L

GRAA OB SWAP L — 74S11 E65 pin 3
IRCD BYIN H (DFI) — 74S11 E65 pin 4
74S11 E65 pin 6 (AFI) → GRAA WORD+OB SWAP L

74S00 E17 pin 4
74S00 E17 pin 3
74S00 E17 pin 6 (CCI) → GRAA WORD+OB SWAP H

DM8598-AD E74 (ALU CNTL ROM)
IRCH SUBROMA4 H (FRI) → A4
IRCH SUBROMA3 H (FR2) → A3
IRCH SUBROMA2 H (FSI) → A2
IRCH SUBROMA1 H (FS2) → A1
IRCH SUBROMAØ H (FT2) → AØ
M7 → GRAA ROMM H
M6 → GRAA ROMC H
M5 → GRAA ROMSHFS1 H
M4 → GRAA ROMSHFSØ H
M3 → GRAA ROMS3 H
M2 → GRAA ROMS2 H
M1 → GRAA ROMS1 H
MØ → GRAA ROMSØ H

74S74 E66 → GRAA ROMSØ L

74S74 E66 — DAPB AMXØØ H (BSI) — 74S10 E56 (DV2) → GRAA AMXØ * ASH L

IRCB OBD (ASRB+RORB) L (CK2) — 74S11 E65 pin 9
IRCB NEG.B L (CPI) — 74S11 E65 pin 10
74S11 E65 pin 8 → GRAB OBD (1) H — 74S20 E81 pin 10
IRCD BYIN H (DFI) — 74S20 E81 pin 12
IRCC DSTMØ L (AP2) — 74S20 E81 pin 13
74S20 E81 pin 8 (EPI) → GRAA OB SWAP L

IRCH SWAB L (EV2) — 74S11 E65 pin 1
74S11 E65 pin 13
74S11 E65 pin 2
74S11 E65 pin 12 → GRAA SWAP L

74S04 E87 pin 1 → pin 2 → GRAA OB SWAP H

74S74 E66 — RACC UALUØ H (ERI) → 74S04 E66 pin 9 → pin 8 (ATI) → GRAA UALUØ L

74S00 E26 pin 13
74S00 E26 pin 12
74S00 E26 pin 11 → GRAA CIN L

RACC UALU1 H (ER2) → 74S04 E66 pin 11 → pin 10
RACC UALU2 H (ES1) → 74S04 E66 pin 13 → pin 12
74S11 E41 pin 1
74S11 E41 pin 13
74S11 E41 pin 12 → GRAA MODE H

74S64 E58 pin 2
74S64 E58 pin 3
74S64 E58 pin 9
74S64 E58 pin 10
74S64 E58 pin 4
74S64 E58 pin 5
74S64 E58 pin 6
74S64 E58 pin 1
74S64 E58 pin 11
74S64 E58 pin 12
74S64 E58 pin 13
74S64 E58 pin 8

74S158 E89
GRAA MODE H → B3
GRAA CIN L → B2
RACA USHFØI H (ET2) → B1
RACA USHFØØ H (ES2) → BØ
GRAA SWAP L → SØ
STB → 15
F3 (FE2) → GRAA ALUM L
F2 (FD1) → GRAA ALUC H
F1 (FD2) → GRAA SHFRS1 L
FØ (FE1) → GRAA SHFRSØ L

74S158 E90
RACC UALUØ H (ERI) → B3
RACC UALU2 H (ES1) → B2
RACC UALU1 H (ER2) → B1
GRAA ALU INSDEP L → BØ
SØ → GRAA SGNEX MOVB L
STB → 15
F3 (FJ1) → GRAA ALUS3 L
F2 (FH2) → GRAA ALUS2 L
F1 (FF2) → GRAA ALUS1 L
FØ (FF1) → GRAA ALUSØ L

74S158 SØ
L A→F
H B→F

74S11 E82
RACC UALUØ H (ERI) → pin 3
RACC UALU1 H (ER2) → pin 4
pin 5
pin 6 → GRAA ALU INSDEP L

74S10 E56
RACC UALU2 H (ES1) → pin 1
pin 2
pin 13
pin 12 → GRAA ALU INSDEP L

74S20 E64
pin 1
pin 2
pin 4
pin 5
pin 6 (EL1) → GRAA SGNEX MOVB L
IRCB MOVB H (CJ1) → pin 5

IRCH SWAB L (EV2) — 74S11 E82 pin 9
74S11 E82 pin 10
74S11 E82 pin 8 → RACC UALU2 H (ES1)

74S11 E82 pin 13
74S11 E82 pin 2
74S11 E82 pin 1
74S11 E82 pin 12 → RACC UALUØ H (ERI)

GRAA SWAP L — 74S11 E71 pin 3
74S11 E71 pin 5
74S11 E71 pin 4
74S11 E71 pin 6 → GRAA SHFRSØ L

74S11 E71 pin 9
74S11 E71 pin 10
74S11 E71 pin 11
74S11 E71 pin 8 → RACA USHFØØ H (ES2)

74S20 E81 pin 1
74S20 E81 pin 2
74S20 E81 pin 4
74S20 E81 pin 5
74S20 E81 pin 6 → GRAA SHFRS1 L

74S11 E71 pin 1
74S11 E71 pin 2
74S11 E71 pin 13
74S11 E71 pin 12 → GRAA ALUC H

GRAA CDEP L → 74S158 E89 pin 1
GRAA ALUM L ← 74S158 E89 pin 15

ALU & SHIFTER CONTROL LOGIC SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN [illegible] DATE 11/1/74
CHKD [illegible] DATE 11-27-74
ENG [illegible] DATE 11-27-74
PROJ [illegible] DATE 12-4-74
NEXT HIGHER ASSY.
SCALE —
SHEET 2 OF 10

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE: GENERAL REGS & ALU CNTL (GRAA)
SIZE D | CODE CS | NUMBER M8131-0-1 | REV D
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC-GRAM-NO DRD 102-B

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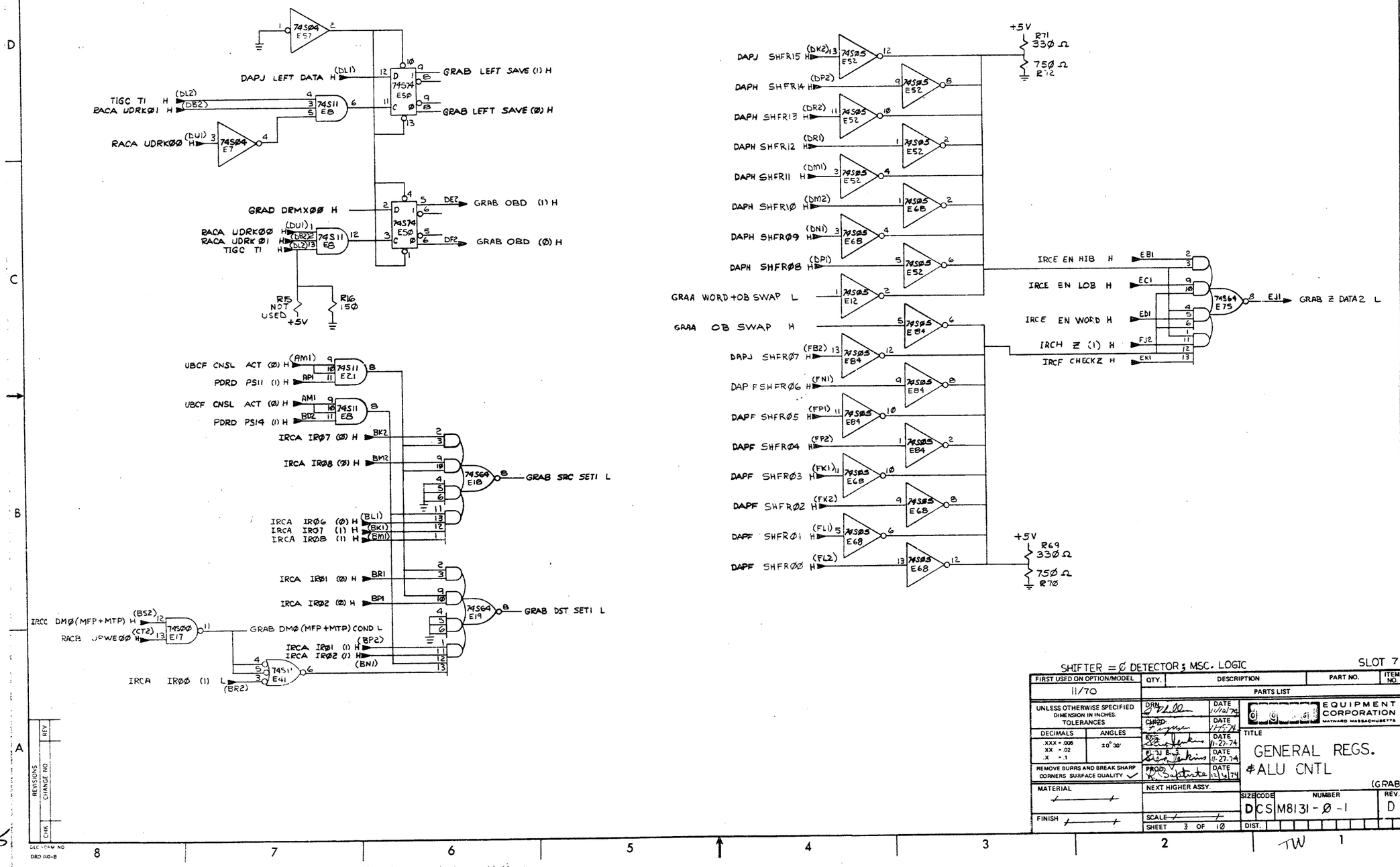

SHIFTER = Ø DETECTOR & MSC. LOGIC — SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN		DATE 11/12/74
CHKD		DATE 11/25/74
ENG		DATE 11-27-74
ENG MGR		DATE 11-27-74
PROD		DATE 12/4/74

NEXT HIGHER ASSY.

SCALE

SHEET 3 OF 10

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS. & ALU CNTL (GRAB)

SIZE	CODE	NUMBER	REV.
D	CS	M8131-Ø-1	D

DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

125

TW

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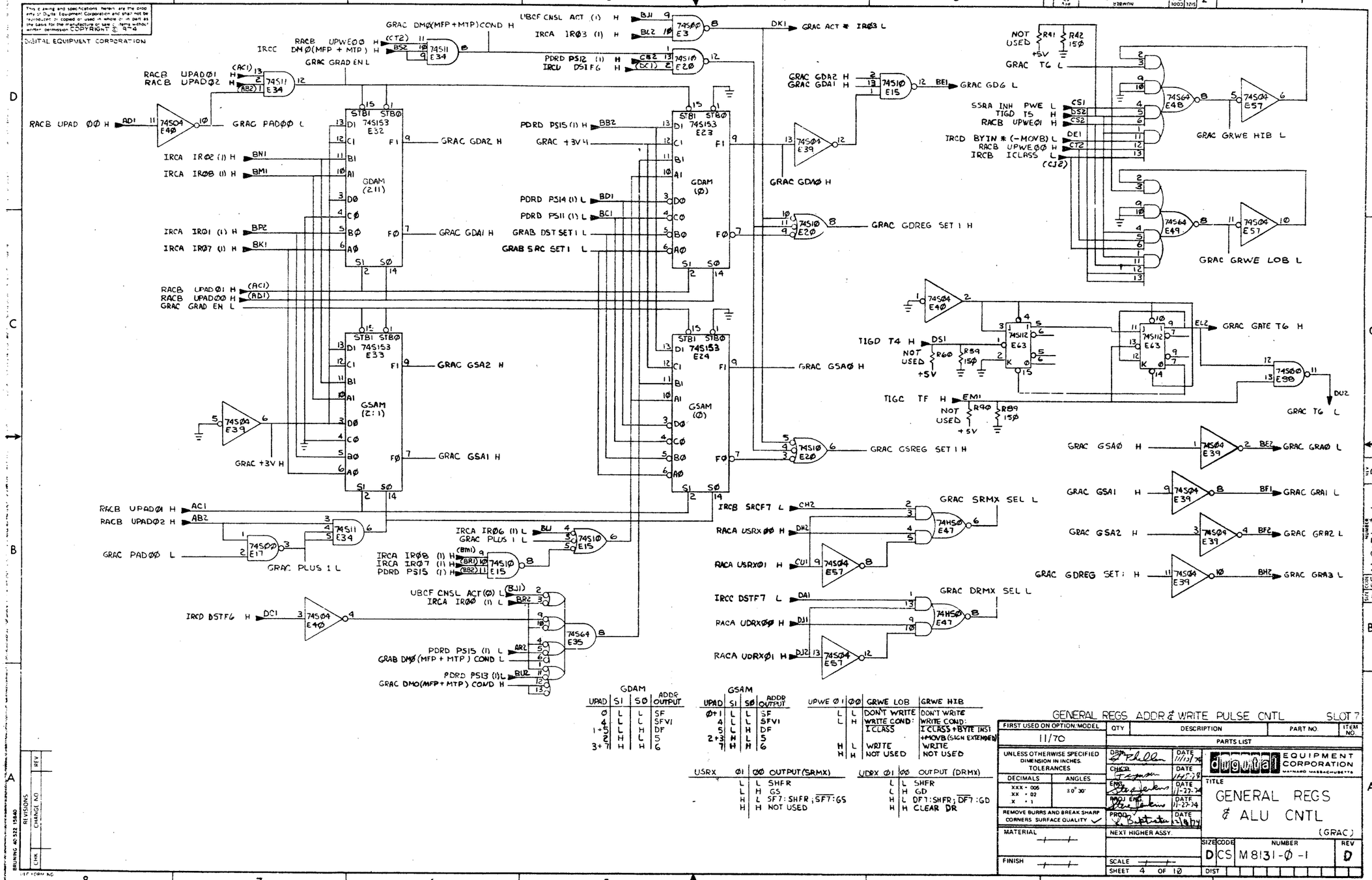

GDAM

UPAD	SI	SØ	ADDR OUTPUT
Ø	L	L	SF
4	L	L	SFVI
1+5	L	H	DF
2	H	L	5
3+7	H	H	6

GSAM

UPAD	SI	SØ	ADDR OUTPUT
Ø+1	L	L	SF
4	L	L	SFVI
5	L	H	DF
2+3	H	L	5
7	H	H	6

UPWE Ø1	ØØ	GRWE LOB	GRWE HIB
L	L	DON'T WRITE	DON'T WRITE
L	H	WRITE COND: I CLASS	WRITE COND: I CLASS + BYTE INST +MOVB (SIGN EXTENDED)
H	L	WRITE	WRITE
H	H	NOT USED	NOT USED

USRX	Ø1	ØØ	OUTPUT (SRMX)
	L	L	SHFR
	L	H	GS
	H	L	SF7:SHFR ; $\overline{SF7}$:GS
	H	H	NOT USED

UDRX	Ø1	ØØ	OUTPUT (DRMX)
	L	L	SHFR
	L	H	GD
	H	L	DF1:SHFR ; $\overline{DF7}$:GD
	H	H	CLEAR DR

GENERAL REGS ADDR & WRITE PULSE CNTL SLOT 7

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRWN	Phillo	DATE 11/1/74
CHKD	Ingram	DATE 11/7/74
ENGR	Steve Jekins	DATE 11-27-74
MNFG ENG	Steve Jekins	DATE 11-27-74
PROJ	R Butterfield	DATE 11/19/74

NEXT HIGHER ASSY.

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAC)

SIZE	CODE	NUMBER	REV
D	CS	M8131-Ø-1	D

SCALE
SHEET 4 OF 10
DIST

BRUNING AC 322 15840
REVISIONS: REV | CHANGE NO | CHK
DRD 102-B

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GRAC GRWE LOB L

3104A E69 — GS (Ø3:ØØ)

DAPF SHFRØ3 H — FK1 — D3 — M3
DAPF SHFRØ2 H — FK2 — D2 — M2
DAPF SHFRØ1 H — FL1 — D1 — M1
DAPF SHFRØØ H — FL2 — DØ — MØ

A3 A2 A1 AØ

GRAC GSREG SET1 H
GRAC GSA2 H
GRAC GSA1 H
GRAC GSAØ H

+5V

R68 33Ø — 68Ø R67
R62 33Ø — 68Ø R61
R64 33Ø — 68Ø R63
R66 33Ø — 68Ø R65

74S158 E6Ø — SRMX (Ø3:ØØ)

B3 A3 B2 A2 B1 A1 BØ AØ — F3 F2 F1 FØ — STB SØ

GRAC SRMX SEL L

GRAD GSØØ L
GRAD GSØ1 L
GRAD GSØ2 L
GRAD GSØ3 L

74S174 E59

GRAE SRMXØ5 H — D5 — R5 — EJJ1 — GRAD SRØ5 H
GRAE SRMXØ4 H — D4 — R4 — EP2 — GRAD SRØ4 H
D3 — R3 — EJ2 — GRAD SRØ3 H
D2 SR (Ø5:ØØ) — R2 — EH2 — GRAD SRØ2 H
D1 — R1 — EK2 — GRAD SRØ1 H
DØ — RØ — ED2 — GRAD SRØØ H
CLR CLK

GRAE +3V H

RACA USRK H — CV2 — 74S11 E2J — GRAD CLKSR H
TIGC T1 H — DL2

RACA UDRKØØ H — DJJ1
RACA UDRKØ1 H — DB2

GRAE DRØ4 H

74S194 E62 — DR (Ø3:ØØ)

SI SØ — DSØ D3 D2 D1 DØ DS3 — R3 R2 R1 RØ — EE1 EJJ2 EF1 EF2 — GRAD DRØ3 H, GRAD DRØ2 H, GRAD DRØ1 H, GRAD DRØØ H
CLR CLK

DAPJ LEFT DATA H — DL1

RACA UDRXØØ H — (DJJ1)
RACA UDRXØ1 H — (DJ2)
GRAJ TP(3:5) H
74S10 E22 — GRAD CLRDR L

TIGC TIB L — RB1 — 74S00 E3 — GRAD CLKDR H
R5 NOT USED — RG 150Ω — +5V
TIGD T3 L — (AL2) — 74S00 E3

GRAD DRMXØØ H

GRAC GDREG SET1 H
GRAC GDA2 H
GRAC GDA1 H
GRAC GDAØ H

74S04 E67 (×4)

GRAC GRWE LOB L

3101A E7Ø — GD (Ø3:ØØ)

A3 A2 A1 AØ

+5V

R52 33Ø — 68Ø R51
R54 33Ø — 68Ø R55
R54 33Ø — 68Ø R53
R58 33Ø — 68Ø R57

74S158 E61 — DRMX (Ø3:ØØ)

B3 A3 B2 A2 B1 A1 BØ AØ — F3 F2 F1 FØ — STB SØ

GRAC DRMX SEL L

74S194 SI | SØ

L	L	NO-OP
L	H	SHIFT RIGHT (DSØ)
H	L	SHIFT LEFT (DS3)
H	H	LOAD

74S158 SØ | OUTPUT

L	A → f
H	B → f

GS, GD, SRMX, DRMX, DR, (Ø3:ØØ) & SR (Ø5:ØØ) SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN.	E Whalen	DATE 11/25/74
CHKD	T Ingram	DATE 11/27/74
PROJ. ENG.	Steve Jenkins	DATE 11-27-74
PROD. ENG.	Ron Stute	DATE 11/27/74

NEXT HIGHER ASSY.
SCALE
SHEET 5 OF 10

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS. & ALU. CNTL (GRAD)

SIZE D | CODE CS | NUMBER M8131-Ø-1 | REV. D | DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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GRAC GRWE LOB L

3101A E85 (W, CS)

DAPJ SHFRØ7 H (FB2) — DAPF SHFRØ6 H (FN1) — DAPF SHFRØ5 H (FP1) — DAPF SHFRØ4 H (FP2)

GS (Ø7:Ø4): D3, D2, D1, DØ → M3, M2, M1, MØ

A3 A2 A1 AØ

GRAC GSREG SET1 H
GRAC GSA2 H
GRAC GSA1 H
GRAC GSAØ H

+5V

R88 330Ø
R87 680Ø
R82 330Ø
R81 680Ø
R84 330Ø
R83 680Ø
R86 330Ø
R85 680Ø

74S04 E83 (×4)

GRAC GRWE LOB L

3101A E86 (W, CS)

GD (Ø7:Ø4): D3, D2, D1, DØ → M3, M2, M1, MØ

A3 A2 A1 AØ

GRAC GDREG SET1 H
GRAC GDA2 H
GRAC GDA1 H
GRAC GDAØ H

+5V

R74 330Ø
R73 680Ø
R78 330Ø
R77 680Ø
R76 330Ø
R75 680Ø
R80 330Ø
R79 680Ø

74S158 E76 (SRMX (Ø7:Ø4))

GRAE GSØ7 L
GRAE GSØ6 L
GRAE GSØ5 L
GRAE GSØ4 L

B3 A3 B2 A2 B1 A1 BØ AØ → F3 F2 F1 FØ

STB SØ

GRAE SRMXØ7 H
GRAE SRMXØ6 H
GRAE SRMXØ5 H
GRAE SRMXØ4 H

GRAC SRMX SEL L

74S158 E77 (DRMX (Ø7:Ø4))

GRAC DRMX SEL L

GRAE +3V H
GRAD GSØ1 L
GRAD GSØ2 L
GRAD GSØ3 L
GRAE GSØ4 L
GRAE GSØ5 L
GRAE GSØ6 L
GRAE GSØ7 L

74H30 E72

GRAF GSØ8 L
GRAF GSØ9 L
GRAF GSlØ L
GRAF GSll L
GRAH GSl2 L
GRAH GSl3 L
GRAH GSl4 L
GRAH GSl5 L

74H30 E55

74S04 E87

GRAH SRlS L
GRAD SRØØ H

74S74 E79 (×2)

74S64 E80

GRAE SR LEQ ZERO H

GRADCLKSR H

74S10 E22

GRAD SRØØ H → BV2 → GRAE SR EQ ONE L

RACA UDRKØØ H (DU1)
RACA UDRKØ1 H (DB2)

GRAF DRØ8 H

74S194 E78 (DR (Ø7:Ø4))

SI SØ — DSØ — D3 D2 D1 DØ — DS3 — CLR CLK

R3 → FV2 → GRAE DRØ7 H
R2 → FU2 → GRAE DRØ6 H
R1 → FU1 → GRAE DRØ5 H
RØ → FA1 → GRAE DRØ4 H

GRAD DRØ5 H
GRAD CLRDR L
GRAD CLKDR H

74S04 E83 → GRAE +3V H

GS, GD, SRMX, DRMX, DR (Ø7:Ø4) & SR LEQ ZERO DET. SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

		DATE
DRN		11/13/74
CHKD		11/22/74
ENG		11-27-74
PROJ ENG		11-27-74
PROG		11-27-74

NEXT HIGHER ASSY.
SCALE —
SHEET 6 OF 10

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAE)

SIZE D | CODE CS | NUMBER M8131-0-1 | REV D
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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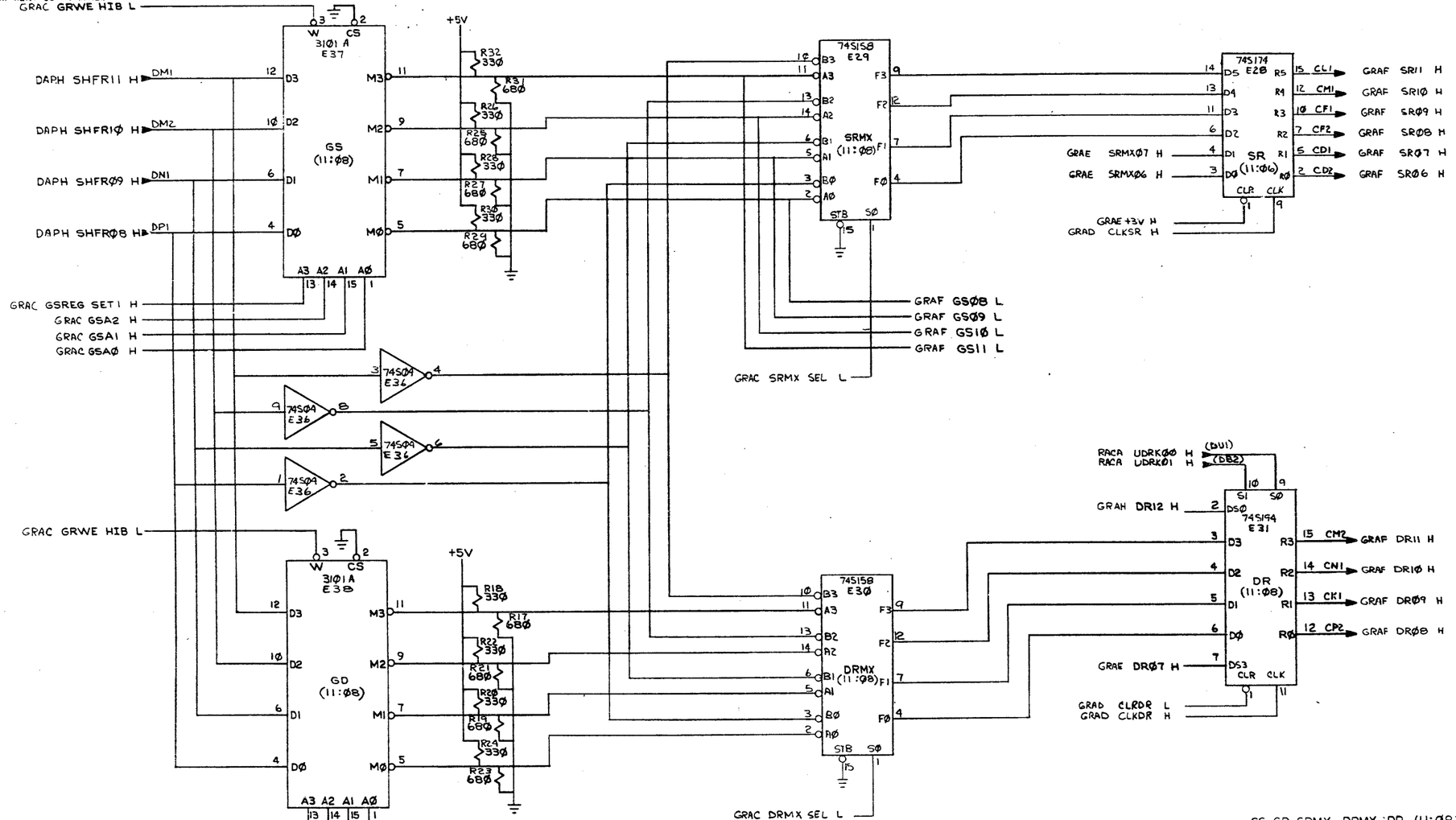

GS, GD, SRMX, DRMX, DR (11:Ø8) & SR (11:Ø6) SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN [illegible] DATE 11/12/74
CHKD [illegible] DATE 11/15/74
ENGR Steve Jenkins DATE 11-21-74
PROJ ENG. [illegible] DATE 11-27-74
PROG [illegible] DATE 12-4-74
NEXT HIGHER ASSY.
SCALE —
SHEET 7 OF 10

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAF)

SIZE D CODE DCS NUMBER M8131-Ø-1 REV. D
DIST

REVISIONS: REV. | CHANGE NO | CHK

DEC FORM NO ERD 102-B

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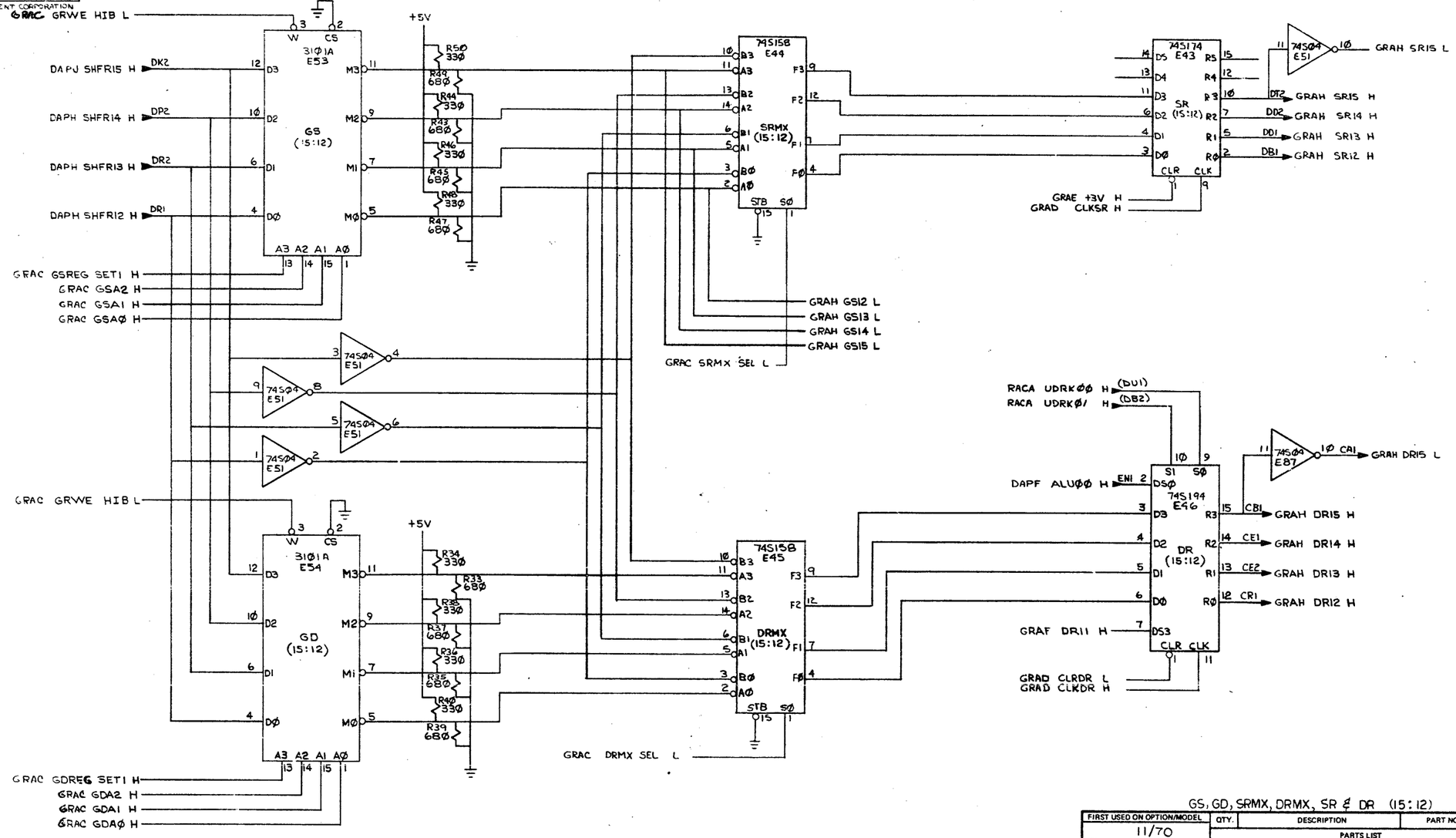

GS, GD, SRMX, DRMX, SR & DR (15:12) SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN.	DATE	11/3/74
CHK'D	DATE	11/27/74
ENG.	DATE	11-27-74
PROJ.ENG	DATE	11-27-74
PROD.	DATE	12/4/74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAH)

NEXT HIGHER ASSY.

SIZE D | CODE CS | M 8131-Ø-1 | REV. D

SCALE —

SHEET 8 OF 10 | DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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RACC USHC ØØ L AJ1 — 74S00 E4 — GRAE DRØ5 H
GRAE DRØ4 H — 74S00 E4

74191 E14 MAX/MIN R/CLK D3 D2 D1 D0 SC ⟨Ø5:Ø4⟩ LD DN CLK ENB
R3(1) R2(1) R1(1) R0(1) — GRAJ SCØ4 H

74S04 E7 — BJ2 — GRAJ SCØ5 L
74S10 E22 — BT2 — GRAJ SC=Ø L

GRAJ LDSC L
GRAJ SCØ5 L
RACC USHCØ1 H AK1
GRAJ TP(3:5) H
RACC USHCØ1 H (AK1) — 74S00 E4 — GRAJ LDSC L

GRAH SR15 L
GRAB LEFT SAVE (1) H
GRAH SR15 H
GRAB LEFT SAVE (Ø) H
74S64 E6 — AM2 — GRAJ DIV SUB L

RACC USHC ØØ H AJ2 — 74S05 E11
GRAD DRØ3 H — 74S05 E11
GRAD DRØ2 H — 74S05 E11
GRAD DRØ1 H — 74S05 E11
GRAD DRØØ H — 74S05 E12

R13 330Ø
R14 56Ø
R11 330
R12 56Ø
R9 330Ø
R10 56Ø
R7 330
R8 56Ø
+5V

74191 E13 MAX/MIN R/CLK D3 D2 D1 D0 SC ⟨Ø3:ØØ⟩ LD DN CLK ENB
R3(1) R2(1) R1(1) R0(1) — GRAJ SCØ3 H, GRAJ SCØ2 H, GRAJ SCØ1 H, GRAJ SCØØ H

GRAJ SCØ5 L

IRCF E2 (Ø) H
GRAB LEFT SAVE (1) H
IRCH N (1) H
GRAH SR15 H
IRCH N (Ø) H
GRAH SR15 L
74S64 E5 — AE2 — GRAJ DIV QUIT L

IRCH C (1) H (FC1) — 74S00 E17
IRCB PCLASS H CL2
IRCB ICLASS L CJ2
GRAH SR15 L
GRAA ALU INSDEP L
GRAE SR LEQ ZERO H
74S64 E16 — CU2 — GRAJ SHFR DATA H
GRAA ALU INSDEP L — 74S04 E7

R2 150 +5V
R1 NOT USED
TIGD T3 L AL2 — 74S10 E2
UBCE INIT L AF2
TIGD T5 L AH2 — 74S10 E2
R3 NOT USED +5V
R4 150
RACC USHCØØ H (AJ2) — 74S11 E21
74S10 E2
GRAJ TP(3:5) H

USHC Ø1	ØØ
L	L NO COUNT
L	H COUNT
H	L LOAD (DR)
H	H LOAD (17)

SHIFT COUNT REG (SC) SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN		DATE 11/12/74
ENGR		DATE 11/27/74
PROJECT		DATE 11-27-74
PROD		DATE 11/27/74

NEXT HIGHER ASSY.

SCALE

SHEET 9 OF 10

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
GENERAL REGS & ALU CNTL
(GRAJ)

SIZE	CODE	NUMBER	REV.
D	CS	M8131-Ø-1	D

DIST.

REVISIONS

REV	CHANGE NO	CHK

BRUNING 40-322 15840
DFT FORM NO DRM 102-B

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INSTRUCTION	OCTAL ADDRESS
ROR.B	00
ROL.B	01
ASR.B	02
ASL.B	03
MARK	04
MFP	05
MTP	06
SXT	07
CLR.B	10
COM.B	11
INC.B	12
DEC.B	13
NEG.B	14
ADC.B	15
SBC.B	16
TST.B	17
SUB	20
MOV.B	21
CMP.B	22
BIT.B	23
BIC.B	24
BIS.B	25
ADD	26
———	27
MUL	30
DIV	31
ASH	32
ASHC	33
XOR	34
———	35
———	36
SOB	37

ALU CNTL ROM
DM8598-AD

ROMM	ROMC	ROMSHFS1	ROMSHFS0	ROMS3	ROMS2	ROMS1	ROMS0
M7	M6	M5	M4	M3	M2	M1	M0
L	L	H	H	L	L	L	L
H	H	H	L	H	H	L	L
L	L	H	H	L	L	L	L
L	L	H	L	H	H	L	L
L	L	L	L	L	L	L	L
H	L	H	L	H	L	H	L
H	L	H	L	H	L	H	L
H	L	H	L	L	L	H	H
H	L	H	L	L	L	H	H
H	L	H	L	L	L	L	L
L	H	H	L	L	L	L	L
L	L	H	L	H	H	H	H
H	L	H	L	L	L	L	L
H	H	H	L	L	L	L	L
H	H	H	L	H	H	H	H
L	L	H	L	L	L	L	L
L	H	H	L	L	H	H	L
H	L	H	L	H	L	H	L
L	L	H	L	L	H	H	L
H	L	H	L	H	L	H	H
H	L	H	L	L	H	H	H
H	L	H	L	H	H	H	L
L	L	H	L	H	L	L	H
L	L	L	L	L	L	L	L
L	H	H	H	L	H	H	L
L	H	H	L	H	H	L	L
L	L	L	H	L	L	L	L
L	H	H	L	H	H	L	L
H	L	H	L	L	H	H	L
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L
SWAB							

INSTRUCTION DEP. ALU FUNCTION (RACC UALU (2:0)=7)
F=A
F=A PLUS A PLUS CRIT
F=A
F=A PLUS A
NOT INST. DEP.
F=B
F=B
N: F=MINUS 1 ; N: F=0
F=0
F=$\overline{A}$
F=A PLUS 1
F=A MINUS 1
F=$\overline{A}$
F=A PLUS C BIT
F=A MINUS C BIT
F=A
F=A MINUS D
F=B
F=A MINUS B MINUS 1
F=AB
F=AB
F=A+B
F=A PLUS B
———
F=A MINUS B
F=A PLUS A PLUS DR15
NOT INST. DEP.
F=A PLUS A PLUS DR15
F=A ¥ B
———
———
NOT INST. DEP.
F=A

INSTRUCTION DEP. SHFR FUNCTION (RACC UALU (2:0)=7)
RIGHT SHIFT
NO - SHIFT **
RIGHT SHIFT
NO - SHIFT **
NOT INST. DEP.
NO - SHIFT
NO - SHIFT
NO - SHIFT
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT **
NO - SHIFT
———
RIGHT SHIFT
NO - SHIFT
NOT INST. DEP. *
NO - SHIFT
NO - SHIFT
———
———
NOT INST. DEP.
SWAP BYTES

NOTE: SWAB INST. HAS SAME ROM ADDRESS AS ASL.B
*ROMSHF OUTPUTS USED TO DECODE ASH
**ODD BYTE*BYTE INSTR: SWAP BYTES

ALU CNTL ROM MAP — SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

		DATE
DRN	R Pelletier	11/12/74
CHK	R Pelletier	11-12-74
ENGR	Gilbert Jenkins	11-27-74
ENGR MGR	Gilbert Jenkins	11-27-74
PROD	[illegible]	[illegible]

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS. & ALU CNTL (GRAK)

NEXT HIGHER ASSY

SIZE	CODE	NUMBER	REV.
D	CS	M8131-0-1	D

SCALE NONE
SHEET 10 OF 10
DIST.

REVISIONS: REV | CHANGE NO | CHK
BRUNING AC-522 15940
DEC FORM NO ORU 102-B

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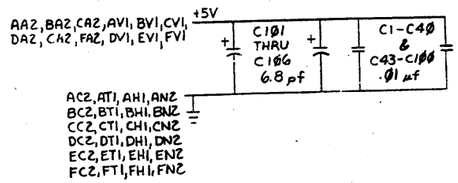
NOTES:

1. RESISTORS R1, R2 AND R14 ARE NOT USED.
2. INSTALL JUMPER W1 FOR USE WITH FP11-B
3. MUST BE M8132-YA FOR USE IN KB11-CM (11/74)



REVISIONS		
CHK	CHANGE NO.	REV.
	M8132-TW004	D
	REVISED & REDRAWN	

DRN R.CONSTANTINEAU	FIRST USED ON 11/70
CHK P.FERGUSON 2-2-74	digital
ENG S. JENKINS 1-13-75	TITLE IR DECODE & COND CODES (IRC)
PROJ. ENG. JENKINS 1-13-75	
PROD. R. TAYLOR 1-14-75	
NEXT HIGHER ASSY. B-DD-KB11-B	SIZE D CODE CS NUMBER M8132-0-1 REV. D
SCALE	
SHEET 1 OF 9	DIST.

DEC FORM NO 260 102-0

133

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PDRA BRMX15 H
PDRA BRMX14 H
PDRA BRMX13 H
PDRA BRMX12 H
PDRA BRMX11 H
PDRA BRMXØ8 H
PDRA BRMXØ9 H
PDRA BRMXØ8 H
PDRA BRMXØ7 H
PDRA BRMXØ6 H
PDRA BRMXØ5 H
PDRA BRMXØ4 H
PDRA BRMXØ3 H
PDRA BRMXØ2 H
PDRA BRMXØ1 H
PDRA BRMXØØ H

IRCA IR15 (1) H
IRCA IR15 (Ø) H
IRCA IR14 (1) H
IRCA IR14 (Ø) H
IRCA IR13 (1) H
IRCA IR13 (Ø) H
IRCA IR12 (1) H
IRCA IR12 (Ø) H
IRCA IR11 (1) H
IRCA IR11 (Ø) H
IRCA IRØØ (1) H
IRCA IRØØ (Ø) H
IRCA IRØ9 (1) H
IRCA IRØ9 (Ø) H
IRCA IRØ8 (1) H
IRCA IRØ8 (Ø) H
IRCA IRØ7 (1) H
IRCA IRØ7 (Ø) H
IRCA IRØ6 (1) H
IRCA IRØ6 (Ø) H
IRCA IRØ5 (1) H
IRCA IRØ5 (Ø) H
IRCA IRØ4 (1) H
IRCA IRØ4 (Ø) H
IRCA IRØ3 (1) H
IRCA IRØ3 (Ø) H
IRCA IRØ2 (1) H
IRCA IRØ2 (Ø) H
IRCA IR01 (1) H
IRCA IR01 (Ø) H
IRCA IRØØ (1) H
IRCA IRØØ (Ø) H

DPCK IR15 B (1) H
IRCA IRØ8 B (1) H
IRCA IRØ2 B (1) H
IRCA IR01 B (1) H

TIGC T1 H
RACA CLRK H

R1 NOT USED
R2 150Ω
+5V

INSTRUCTION REG. SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. B. Kelley DATE 11-12-74
CHKD J. Seaman DATE 12-3-74
ENG. S. Jenkins DATE 1-13-75
PROJ. ENG. S. Jenkins DATE 1-13-75
PROD. L. Taylor DATE 1/19/75
NEXT HIGHER ASSY.
SCALE —
SHEET 2 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
IR DECODE & COND. CODES
(IRCA)

SIZE	CODE	NUMBER	REV.
D	CS	M8132-Ø-1	D

DIST.

REVISIONS | LTR | CHANGE NO | CHK

DEC FORM NO DRD 103-B

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BCD TO OCTAL DECODER
8251-1 E49
IRCA IR Ø6 (1) H
IRCA IR Ø7 (1) H
IRCA IR Ø8 (1) H
IRCB IR (8:6) ØL
IRCB IR (8:6) 1L
IRCB IR (8:6) 2L
IRCB IR (8:6) 3L
IRCB IR (8:6) 4L
IRCB IR (8:6) 6L
CH2
IRCB SRCF 7 L

BCD TO OCTAL DECODER
8251-1 E50
IRCA IR Ø9 (1) H
IRCA IR 1Ø (1) H
IRCA IR 11 (1) H
IRCB IR (14:9) Ø4L
IRCB IR (14:9) Ø5L
IRCB IR (14:9) Ø6L

IRCA IR 12 (Ø) H
IRCA IR 13 (Ø) H
IRCA IR 14 (Ø) H
74S1Ø E28
74S04 E17
IRCB IR (14:12) Ø H

BCD TO OCTAL DECODER
8251-1 E48
IRCA IR 12 (1) H
IRCA IR 13 (1) H
IRCA IR 14 (1) H
IRCB IR (14:12) ØL
IRCB IR (14:12) 1L
IRCB IR (14:12) 7 L
74S04 E17
IRCB IR (14:12) 7 H

IRCC ROM DEC ENA H
IRCH R (PART PCLASS) H
74S08 E37
IRCB PART PCLASS L
IRCB SWAB H
IRCA IR 15 B (Ø) L
IRCB IR (14:9) ØØ L
IRCB IR (8:6) 3L
8875 E47
74S04 E17
1Ø
CJ1
IRCB MOVB H
IRCA IR 15 (1) L
IRCB IR (14:12) 1L
8885 E44
74S04 E43
IRCB MOVB L
74S1Ø E38
CL2
IRCB FCLASS H
IRCB NEG. B L
IRCB OBD (ASRB+RORB) L
74S1Ø E38
IRCA IR 1Ø (1) H
74S1Ø E36
IRCB IR (14:12) 7L
IRCB IR (8:6) Ø+2 H
74S08 E36

IRCH R (ICLASS) H
74S08 E36
CJ2
IRCB ICCLASS L
IRCB +3V H
IRCC ROM DEC ENA H
IRCH R (KCLASS) H
74S11 E46
IRCB IR (14:12) 7 H
IRCA IR 15 B (1) H
IRCB K CLASS H
IRCB F CLASS H
8885 E44

IRCA IR 15 B (Ø) L
IRCB IR (14:9) ØØ L
IRCB IR (14:9) Ø4 L
74S64 E63
IRCB IR (8:6) 1 L
8885 E44
CL1
IRCB FJ CLASS L
IRCB JMP+JSR H

IRCC ROM DEC ENA H
IRCH R (..JL:ASHC+MFP) H
74S08 E37
IRCB (MUL:ASHC)+MFP L
IRCB IR (14:12) Ø H
IRCC IR (11:9) 6 H
IRCA IR 15 B (1) H
74S11 E64
74S10 E38
CK1
GRAB OBD (1) H
CK2
IRCB OBD (ASRB+ROR B) L
IRCB IR (8:6) Ø L
IRCB IR (8:6) 2 L
74S08 E36
IRCB IR (8:6) Ø+1 H
74S08 E91
74S04 E91
AH2
IRCB ASRB H
(SEE NOTE 3)

THIS LOGIC ON M8132-YA ONLY. (USED ON 11/79)

74S/57 SØ
STB=L L A→F
STB=H H B→F
Z F=L

IRCA IR Ø9 (1) L
IRCB NEG. B L
IRCB OBD (ASRB+RORB) L
IRCA IR 1Ø (1) H
IRCB MOVB L
IRCB IR (14:12) 7L
IRCB IR (8:6) Ø+2 H
IRCA IR 11 (1) L
IRCD +3V H
BFORK MUX
74S157 E35
CM1
IRCB RD FARØØ L
CM2
IRCB BD FARØ1 L
CN1
IRCB ED WABØ2 L
CS2
IRCB ED FARØ4 L
STB
IRCB IR (8:6) 4 L
IRCB IR (14:9) Ø5 L
8885 E44
74S04 E43
CP1
IRCB NEG. B L
IRCB NEG. B H
74S11 E46
CP2
IRCB BD RABØ3 L
IRCB IR (14:9) Ø4 L
74H3Ø E41
CR2
IRCB BI RABØØ L

PCLASS = (CLR.B : ASL.B) * - TST.B + SWAB + SXT + XOR + MOVB + BIT. B + BIS. B + ADD + SUB
ACLASS = CMP. B + BIT. B + TST. B
ICLASS = CMP. B + BIT. B + TST. B + MUL + DIV + MFP
FUCLASS = FCLASS + JMP + JSR
OBD = ODD BYTE DESTINATION

BFORK; IR DECODERS — SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. [illegible] DATE 1-12-79
CHK'D DATE
ENG [illegible] DATE 1-12-79
PROGRAMMING [illegible] DATE 1-12-79
PROJ [illegible] DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCB)

NEXT HIGHER ASSY.

SIZE	CODE	NUMBER	REV.
D	CS	M8132-Ø-1	D

SCALE
SHEET 3 OF 9
DIST

REVISIONS: REV. | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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GRAD SRØØ H
IRCC FCLASS L
IRCA IR05(1)L
IRCA IR03(1)L
IRCA IR04(1)H
IRCA IR05(1)L
CSI
IRCC DSTF7 L
IRCA IR00(1)H
IRCA IR01(1)H
IRCA IR02(1)H
GRAC ACT*IR03 L
CAI
IRCB FCLASS H
IRCC FCLASS L
IRCC DSTMØ L
CFORK MUX
74S157 E40
74S/S7 SØ OUTPUT
L A→F
H B→F
DPI IRCC CØ RAB ØØ L
EN1 IRCC CØ RAB Ø1 L
DE1 IRCC CØ RAB Ø2 L
DP2 IRCC CØ RAB Ø3 L

IRCA IR15(Ø)H
IRCB IR(14:12) 7 H
IRCB IR(14:9) Ø5 L
IRCB IR(14:9) Ø6 L
IRCH BIAL L
IRCC DSTMØ H
IRCD +3V H
IRCH R(MFP+MTP) H
IRCB PART P CLASS L
SRAA UALUØ L
BAI
IRCH RC(ROR.B+MUL) H
+5V
R21 470
R23 470
IRCC ROM DEC ENA H
BSZ IRCC DMØ (MFP+MTP) H
BTZ IRCC MFP+MTP H
BUI IRCC (ROR.B+MUL) H

IRCD SBYN H
IRCB IR(8:6)G L
IRCB SRCF7 L
IRCC SRCM2 L
IRCC SRCM4 L
AVZ (SM24*SBYN*-SF67) IRCC SRCCON←1 H
I:RCC SRCM7 L
IRCC SRCM5 L
IRCC SRCM3 L
BUZ IRCC SM357 H

IRCA IR08 B(1)H
IRCA IR07(1)H
IRCD SBYN H
I:RCD WDIN H
IRCC SRCM3 L
IRCC SRCM5 L
BSI [SM35+SM24(WDIN+SBYN*SF67)] IRCC SRCCON←2 H

IRCA IR15 B(Ø)L
IRCB IR(14:9) Ø6 L
IRCB IR(14:12) 1 L
IRCB IR(8:6)G L
AUI IRCC OCLASS H
AUZ IRCC OCLASS L

I:RCC IR (5:3)ØH
APZ IRCC DSTMØ L
ESV IRCC DSTMØ H
DEZ IRCC DSTM2 L

BCD TO DECIMAL DECODER 8251-1 E27
IRCA IR09(1)H
IRCA IR10(1)H
IRCA IR11(1)H
IRCC SECMØ L
IRCC SECM2 L
IRCC SECM3 L
IRCC SECM4 L
IRCC SECM5 L
IRCC SECM7 L
IRCC IR(11:9)6 H

IRCC IR (5:3) ØH
IRCD SMØ H
IRCD IR (8:6) Ø H
IRCB FCLASS H
E42 74S64
WI
R3Ø 1K
+5V

BCD TO DECIMAL DECODER 8251-1 E32
IRCA IR03 (1)H
IRCA IR04 (1)H
IRCA IR05 (1)H
IRCC DSTM3 L
IRCC DSTM4 L
IRCC DSTM5 L
IRCC DSTM7 L
destination mode

INSTALL JUMPER WI FOR USE WITH FPII-B

NOTE: OCLASS=MOV+MTP
SBYN=MOVB+CMPB+BITB+BICB+BISB
SRØØ=OBS (ODD BYTE, SOURCE)
FCLASS=FPU OPCODES

CFORK; IR DECODERS; SOURCE CONSTANTS — SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
1170		PARTS LIST		

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

DRN. [illegible] DATE 11-12-74
CHK'D Ferguson DATE 12-2-74
ENG [illegible] DATE 1-13-75
PROJ ENGR [illegible] DATE 1-13-75
PROD [illegible] DATE 1/15/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCC)

NEXT HIGHER ASSY.

SIZE	CODE	NUMBER	REV.
D	CS	M8132-Ø-1	D

SCALE —
SHEET 4 OF 9
DIST.

REVISIONS: REV | CHANGE NO

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IRCC DSTM3 L
IRCC DSTM5 L
IRCC DSTM7 L
74S1Ø E28 → DD2 → IRCD DM357 H

IRCB MOVB L
IRCD BYINA H
74S4Ø E62 → DE1 → IRCD BYIN*(-MOVB)L

IRCB IR(:4:12)Ø H
IRCC IR(11:9) 6 H
IRCA IRØ8 B (1) H
IRCA IR15 (1) H
74S2Ø E70
74S11 E59

IRCA IR15 B(Ø)L
IRCA IR14 (1) H
IRCA IR13 (1) H
IRCA IR12 (Ø) H
74S1Ø E58
74S4Ø E62 → IRCD WDIN H

IRCC FCLASS L
74S11 E71 → DF2 → IRCD BYIN H
74S11 E72 → IRCD SBYN H
74S11 E72 → IRCD BYINA H

IRCB IR(14:9)Ø5 L
IRCB IR(14:9)Ø6 L
IRCA IR15 (1) H

IRCD BYINA H
IRCD DSTF67 H
IRCC DSTM2 L
IRCC DSTM4 L
74H5Ø E51
74S11 E71 → DK1 → IRCD DSTCON← 1 H
DM24 * BYIN* (-DF67)

74S04 E43 → IRCD +3V H

IRCA IRØ2(1) H
IRCD +3V H
IRCA IRØ1(1) H
74S11 E29 → IRCD DSTF67 H

IRCC DSTM3 L
IRCC DSTM5 L
IRCD WDIN H
74S4Ø E62
IRCD BYINA H
IRCC DSTM2 L
74S4Ø E62
IRCC DSTM4 L
(DD1)
FXPE AD2 H
IRCB FCLASS H
74S64 E61
74S04 E68 → DJ2 → IRCD DSTCON← 2 H
DM35 + (FCLASS * ADI * AD2) + DM2 * [WDIN + (BYIN * DF67)]
IRCD DSTM24 H

IRCA IRØ8 (Ø) H
TMCB TRAP INH L
DK2
IRCB IR(14:9)Ø4 L
74S04 E68
IRCA IRØ8 B(1) H
IRCA IR15(1) H
74S20 E67 → DM1 → IRCD EMT L
74S20 E67 → BV2 → IRCD TRAP L

IRCD SMØ H
IRCC SRCMØ L
74S04 E68
IRCB IR(8:6)Ø L
74S04 E68
IRCD IR (8:6) ØH
IRCB IR(14:12)Ø H
74S11 E59

IRCA IRØ2 (Ø) H
IRCA IRØ1 B(1) H
IRCA IRØØ(1) H
74S11 E60 → 74S1Ø E58 → DL1 → IRCD OPCODE3 L

IRCA IRØ2 B(1) H
IRCA IRØ1 (Ø) H
IRCA IRØØ (Ø) H
74S11 E60 → 74S1Ø E58 → DM2 → IRCD 2OT L

IRCA IR15 (Ø) H
IRCC DSTMØ H
74S11 E59

IRCA IRØ2 B(1) H
IRCA IRØ1 B(1) H
IRCA IRØØ (Ø) H
74S11 E60 → 74S2Ø E37 → DN1 → IRCD RTT L
DC1 → IRCD DSTF6 H

FXPE AD1 H
DB1
IRCB FCLASS H
IRCC DSTF7 L
IRCD DSTM24 H
74S2Ø E70
74S04 E68
8885 E69 → DJ1 → IRCD DSTCON← 4 H
(-AD2) * (ADI) * FCLASS * DM24 * (-DF7)
8885 E69 → DH2 → IRCD DSTCON← 1Ø H
(-AD2) * (-ADI) * FCLASS * DM24 * (-DF7)
FXPE AD2 H
DD1
74S04 E68

INSTRUCTION TRAPS & DESTINATION CONSTANTS — SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/7Ø		PARTS LIST		

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

DRN	B. Kelley	DATE 1-12-74
CHKD		DATE
ENG		DATE 1-13-75
PROJ ENG		DATE 1-13-75
PROJ	L. Taylor	DATE 1-15-75

NEXT HIGHER ASSY.

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCD)

SIZE	CODE	NUMBER	REV.
D	CS	M8132-Ø-1	D

SCALE
SHEET 5 OF 9
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 107-B

137

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IRCE VEN2 L
IRCF CCLD5 L
74S11 E10
74S153 E12
S7B1 S7B0
DAPD AMX 15 H
GRAA OB SWAP L
DAPB AMX00 H
DAPC AMX07 H
IRCH VMOD0 H
GRAA WORD+OB SWAP L
IRCF CCLD5 L
IRCH SWAB L
IRCH VMOD1 H
IRCF CC INSDEP H
IRCH ENV H
R22 470 +5V
IRCE VENI L
DAPC BMX07 H
IRCH VMOD1 H
IRCH +3V H
DAPD BMX15 H
+5V R20 470
74S153 E31
IRCD BYINA H
IRCH VMOD0 H
IRCE WOB CARRY H
DAPJ SHFRA15 H
IRCE LOB CARRY H
DAPJ SHFRA07 H
74S65 E20
E3 560 +5V
E9 330
IRCE VDATA L
GRAA WORD+OB SWAP H
IRCH V(1) H
IRCE LOAD FCC L
IRCE PS LOAD L
IRCE CC←BR H
DAPA BR01 H (CUR)
IRCF MUL+DIV NZVEN H
IRCF SET V H
IRCF CC NONAFF L
IRCF CCLD5 L
IRCF CCLD67 L
74S65 E57
DAPJ ALU SIGN H
DAPJ AMX SIGN H
IRCD BYINA H
IRCF NENI H
IRCD WDIN H
IRCH SWAB L
IRCH MODEN H
IRCD WDIN H
AJ2
IRCE EN HIB H
AKI
IRCE EN LOB H
IRCF CCLD4 L
IRCF CCLD5 L
CEI
IRCE EN WORD H
IRCF CC FP LOAD L
FXPE FCLD EN L
R5 330 R6 560 +5V
IRCB FCLASS H
RACB UIBS01 H
RACB UIBS00 H
IRCE LOAD FCC L
IRCE CC←BR H
IRCE PS LOAD L

745153	S1	S0	
S7B L	L	L	A→F
	L	H	B→F
	H	L	C→F
	H	H	D→F
S7B H	X	X	Q = L

CONDITION CODE V LOGIC SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DBN B.E. Kelley DATE 11-12-74
CHKD DATE 12-2-74
ENG DATE 1-13-75
PROJ ENG DATE 1-13-75
PROD DATE 1/14/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND CODES (IRCE)
NEXT HIGHER ASSY.
SIZE D CODE CS NUMBER M8132-0-1 REV. D
SCALE
SHEET 6 OF 9 DIST.

REVISIONS REV. CHANGE NO CHK

DEC FORM NO D8D 102-B

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IRCE WOB CARRY H
IRCE LOB CARRY H
GRAA AMXØ * ASH L (EB1)
DAPJ ALUCK L (EC1)
IRCF CCLD7 L
IRCH CMOD1 H
IRCF CC INSDEPA H
IRCH CMODØ H
IRCF CEN1 H
IRCH ENC H
R28 470Ω +5V
IRCH CMOD1 H
IRCF CC NONAFF L
IRCF CCLD6 L
RZ7 470Ω +5V
IRCE CC←BR H
DAPA BRØØ H (CT2)
IRCE PS LOAD L
IRCH C(1) H
IRCE LOAD FCC L
IRCF CEN2 H
GRAH DR15 L (ED1)
IRCH Z(1) H
GRAH DR15 H (ED2)
IRCF BR=-1 SAVE(1) H
GAAD DRØØ H (CV2)
IRCF X L
IRCH CMODØ H
IRCF CCLD7 L
IRCF CCLD67 L
IRCF CCLD6 L
IRCF CCLØØ L
IRCF CCLØ2 L
IRCF CCLD5 L
IRCF CC INSDEP H
IRCF CCLD4 L
IRCF CCFP LOAD L
IRCF CC INSDEPA H
RACA UCCLØ2 H (EF1)
RACA UCCLØ1 H (EF2)
RACA UCCLØØ H (EB1)
IRCF CC NONAFF L
IRCF C DATA L
IRCH ENZN H
+5V R26 470Ω
IRCF MUL+DIV NZVEN H
IRCH MODZN H (ERI)
IRCF CHECKZ H
IRCF CCLD6 L
IRCF NENI H
IRCF CC NONAFF L
IRCF CCLD67 L
IRCE PS LOAD L
IRCE LOAD FCC L
IRCH N(1) H
GRAA WORD+OB SWAP L (AFI)
IRCH SWAB L
DAPJ SHFRAØ7 H (CBI)
IRCF CCLD4 L
IRCF CCLD5 L
IRCH MODZN H
DAPJ SHFRAI5 H (DAI)
GRAA WORD+OB SWAP H (CCI)
+5V R8 330Ω R7 560Ω
+5V R9 330Ω R10 560Ω
IRCF ZINV H
IRCH MODZN H
+5V R19 1K
DAPF A=B(15:Ø) L (EH2)
IRCH +3V H
IRCF BR=-1 SAVE(1) H
IRCF BR=-1 SAVE(Ø) H
DAPA BRØ3 H (DV2)
IRCE CC←BR H
IRCF N DATA L
IRCH MODZN H
IRCF SET V H
IRCF MUL+DIV NZVEN H
IRCF CCLD7 L
IRCF CC NONAFF L
IRCF ZDATA1 L
DAPA BRØ2 H (DV2)
IRCE CC←BR H
IRCF NENI H
IRCF ZINV H (EH2)
DAPJ A=B(15:8)+BYTE H (EL1)
DAPF A=B(7:Ø) H
IRCH Z(1) H
IRCE LOAD FCC L
IRCE PS LOAD L
IRCH ZSET L
IRCF ZDATA1 L
IRCF Z1(1) H
IRCF Z1(Ø) H
GRAB ZDATA2 L (EJ1)
IRCF Z2(1) H
IRCH CCCLK H
IRCF Z2(Ø) H
IRCH ZCLR L

CONDITION CODES C, N, Z LOGIC — SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN.	Kelly	DATE 11-12-74
CHKD		DATE 2-2-75
ENG	Jenkins	DATE 1-13-75
PROJ. ENG.	Jenkins	DATE 1-13-75
PROG	Taylor	DATE 11-7-74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCF)

NEXT HIGHER ASSY

SIZE	CODE	NUMBER	REV.
D	CS	M8132-Ø-1	D

SCALE — SHEET 7 OF 9 — DIST.

REVISIONS: REV. | CHANGE NO | CHK

DEC FORM NO DRD 102-B

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DIGITAL EQUIPMENT CORPORATION

IRCH SETCC H
IRCA IRØ3 (1) H
DAPA BRØ3 H
UBCB CC DATA (1) H
IRCF NDATA L
IRCH N (1) H
IRCH N (Ø) H
IRCH CCCLK H
IRCH CLK INH L
GRAC GATE TG H
TIGC TF H
IRCH +3V H
UBCE INIT H
UBCB CCDATA (1) H
PDRB BRØ3 B L
IRCA IRØ3 (1) H
IRCA IRØ4 (1) H
IRCH SETCC H
TIGD TSB H
IRCA IRØ4 (Ø) H
IRCF CCLØØ L
RACA UCCLØ1 H
IRCF CCLØ1 L
IRCA IR15 (1) H
IRCA IR14 (1) H
IRCA IR13 (1) H
IRCA IR12 (Ø) H
IRCH SUB L
IRCH +3V H
IRCA IRØ7 (1) H
IRCA IR1Ø (1) H
IRCA IR13 (1) H
IRCA IRØ6 (1) H
IRCA IRØ9 (1) H
IRCA IR12 (1) H
IRCA IR14 (Ø) H
IRCA IR13 (Ø) H
IRCA IR12 (Ø) H
RACC UALUØ H
RACC UALU1 H
RACC UALU2 H
IRCA IR11 (Ø) H
IRCH BIN L
IRCH SWAB L
IRCA IRØ2 B(1) H
DAPA BRØ2 H
IRCH Z SET L
IRCA IRØ1 B(1) H
DAPA BRØ1 H
IRCF Z1 (1) L
IRCF Z2 (1) L
IRCH Z (1) H
IRCH Z (Ø) H
PDRB BRØ2 B L
IRCA IRØ2 B(1) H
PDRB BRØ1 B L
IRCH Z CLR L
IRCA IRØ1 B(1) H
IRCH N (1) L
IRCH MAT N H
IRCH N B (1) H
IRCE VDATA L
IRCH MAT V H
IRCH V (1) H
IRCH V (Ø) H
IRCF CDATA L
IRCH C (1) H
IRCH C (Ø) H
PDRB BRØØ B L
IRCA IRØØ (1) H
IRCH C (1) L
IRCH MAT C H
IRCH C B (1) H
IRCH MODEN H
IRCH ENZN H
IRCH CMODI H
IRCH CMODØ H
IRCH ENC H
IRCH VMODI H
IRCH VMODØ H
IRCH ENV H
IRCH SXT H
IRCH DIV+ASHC H
IRCH R(ROR-B+MUL) H
IRCH R(MFP+MTP) H
IRCH R(MUL:ASHC+MFP) H
IRCH R(KCLASS) H
IRCH R(ICLASS) H
IRCH R(PART PCLASS) H
IRCH SUBROMA4 H
IRCH SUBROMA3 H
IRCH SUBROMA2 H
IRCH SUBROMA1 H
IRCH SUBROMAØ H

74S153 | S1 | SØ
L | L | A → F
L | H | B → F
H | L | C → F
H | H | D → F
STB=L | X | X | F = L
STB=H | X | X | F = L

COND. CODE BITS; CC CNTL & INSTR DECODE ROMS SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = .005, .XY = .02, X = .1 | ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL | FINISH | NEXT HIGHER ASSY. | SCALE | SHEET 8 OF 9

DRN.	DATE
BE Melley	11-12-74
CHKD	DATE
[illegible]	1-13-75
ENG	DATE
[illegible]	1-13-75
PROJ. ENG.	DATE
[illegible]	1-15-75
PROD	DATE
[illegible]	1/19/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND CODES (IRCH)

SIZE D | CODE CS | NUMBER M 8132-0-1 | REV D | DIST.

REVISIONS | REV. | CHANGE NO | CHK

EC FORM NO RD 102-B

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DIGITAL EQUIPMENT CORPORATION

INSTRUCTION	OCTAL ADDRESS
ROR.B	00
ROL.B	01
ASR.B	02
ASL.B	03
MARK	04
MFP	05
MTP	06
SXT	07
CLR.B	10
COM.B	11
INC.B	12
DEC.B	13
NEG.B	14
ADC.B	15
SBC.B	16
TST.B	17
SUB	20
MOV.B	21
CMP.B	22
BIT.B	23
BIC.B	24
BIS.B	25
ADD	26
NOT USED	27
MUL	30
DIV	31
ASH	32
ASHC	33
XOR	34
NOT USED	35
NOT USED	36
SOB	37

INSTRUCTION DECODE ROM DM8598/AB

SXT	DIV*ASHC	R(ROB.B*MUL)	R(MFP*MTP)	R(MUL*ASH*MFP)	R(K CLASS)	R(I CLASS)	R(PART P CLASS)
M7	M6	M5	M4	M3	M2	M1	M0
L	L	H	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	H	H	L	H	L
L	L	L	H	L	L	L	L
H	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	H	H	L
L	L	L	L	L	L	L	H
L	L	L	L	L	H	H	L
L	L	L	L	L	H	H	L
L	L	L	L	L	H	L	H
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	L
L	L	H	L	H	L	H	L
L	H	L	L	H	L	H	L
L	L	L	L	H	L	L	L
L	H	L	L	H	L	L	L
L	L	L	L	L	L	L	H
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L

COND. CODE CNTL. ROM DM8598/AC

MOD ZN	EN ZN	CMOD 1	CMOD 0	ENC	VMOD 1	VMOD 0	ENV
M7	M6	M5	M4	M3	M2	M1	M0
H	H	L	L	L	H	H	H
H	H	L	L	L	H	L	H
H	H	L	L	L	H	H	H
L	L	L	L	L	L	L	L
H	H	H	L	H	L	L	H
H	H	H	L	H	L	L	H
H	H	H	L	H	L	L	H
H	H	H	L	L	L	L	H
H	H	L	H	L	H	L	L
H	H	L	H	L	L	L	H
H	H	H	L	H	L	L	H
H	H	H	L	L	L	L	H
H	H	L	H	L	H	L	L
L	L	L	L	L	L	L	L
H	L	L	H	H	L	L	H
L	L	H	H	L	L	L	H
H	H	H	L	L	L	L	H
H	H	L	L	H	L	L	H
H	H	L	L	H	L	L	H
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L

SWAB

CCLD4 (RACC UCCL(2:0)=4)
CCLD5 (RACC UCCL(2:0)=5)
CCLD6 (RACC UCCL(2:0)=6)
CCLD7 (RACC UCCL(2:0)=7)

INSTRUCTION DEPENDENT CONTROL (RACA UCCL(2:0)=1)

N		Z		V		C	
WORD+ ODD BYTE	BYTE *(EVEN + DSTM0)	WORD	BYTE	WORD	BYTE	WORD	BYTE
* SHFR (15)1	SHFR (7)1	SHFR(15:0)0	SHFR(7:0)0	SHFR15 ¥ AMX 0	SHFR7 ¥ AMX0	AMX0	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	SHFR15 ¥ AMX15	SHFR15 ¥ AMX7 SHFR7 ¥ AMX7	AMX15	AMX7
* SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(7:0)0	SHFR15 ¥ AMX0	SHFR15 ¥ AMX7 SHFR7 ¥ AMX0	AMX0	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	SHFR15 ¥ AMX15	SHFR15 ¥ AMX7 SHFR7 ¥ AMX7	AMX15	AMX7
NOT INSTR. DEP.		NOT INSTR. DEP.		NOT INSTR. DEP.		NOT INSTR. DEP.	
SHFR(15)1		SHFR(15:0)0		0		NOT AFFECTED	
SHFR(15)1		SHFR(15:0)0		0		NOT AFFECTED	
SHFR(15)1		SHFR(15:0)0		0		NOT AFFECTED	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		ALUCOUT 15	ALUCOUT 7
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		ALUCOUT 15	ALUCOUT 7
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * ALU15	AMX7 * ALU7	NOT AFFECTED	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * ALU15	AMX7 * ALU7	NOT AFFECTED	
* SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(7:0)0	A15*B15*ALU15 + A15*B15*ALU15	A7*B7*ALU7 + A7*B7*ALU7	ALUCOUT 15	ALUCOUT 7
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * ALU15	AMX7 * ALU7	ALUCOUT 15	ALUCOUT 7
SHER (15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * ALU15	AMX7 * ALU7	ALUCOUT 15	ALUCOUT 7
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		ALUCOUT 15	ALUCOUT 7
SHFR(15)1		SHFR(15:0)0		AMX15*BMX15*ALU15 + AMX15*BMX15*ALU15		ALUCOUT 15	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		NOT AFFECTED	
SHFR(15)0	SHFR(7)0	A=B(15:0)	A=B(7:0)	A15*B15*ALU15 + A15*B15*ALU15	A7*B7*ALU7 + A7*B7*ALU7	ALUCOUT 15	ALUCOUT 7
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		NOT AFFECTED	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		NOT AFFECTED	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	0		NOT AFFECTED	
				AMX15*BMX15*ALU15 + AMX15*BMX15*ALU15		ALUCOUT 15	
NOT AFFECTED		Z(OLD) * SHFR(15:0)0		0		X	
NOT AFFECTED		1		1		1(ALUCN + ALUCN)	
SHFR(15)1		SHFR(15:0)0		0		AMX0	
SHFR(15)1		SHFR(15:0)0		0		DR0	
SHFR(15)1		SHFR(15:0)0		0		NOT AFFECTED	
NOT INSTR. DEP		NOT INSTR. DEP.		NOT INSTR DEP.		NOT INSTR. DEP.	
SHFR(7)1		SHFR(7:0)0		0		0	
SHFR(15)1		SHFR(15:0)0		0		0	
SHFR(15)1		SHFR(15:0)0		V(OLD) + (SHFR15 ¥ AMX15)		AMX15	
NOT AFFECTED		Z(OLD) * SHFR(15:0)0		NOT AFFECTED		NOT AFFECTED	
NOT AFFECTED		NOT AFFECTED		NOT AFFECTED		ALUCOUT 15	

* ODD BYTE SWAPPED TO EVEN DURING COND. CODE CHECKING

NOTE: BYTE INSTRUCTION WITH DSTM0 IS ALWAYS EVEN BYTE

X = Z(OLD)* $\overline{DR15}$ + (SR=0)*DR15

SWAB INSTR. HAS SAME ROW ADDRESS AS ASL.B

CC CNTL & INSTR DECODE ROM MAPS SLOT 8

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO
11/70		PARTS LIST		

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

DRN		DATE 11-12-74
CHKD		DATE 12-22-74
ENG		DATE 1-13-75
PROJ ENG		DATE 1-13-75
PROD		DATE 1/14/75

NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCJ)

SIZE	CODE	NUMBER	REV.
D	CS	M8132-0-1	D

SCALE NONE
SHEET 9 OF 9
DIST

REVISIONS: LTR | CHANGE NO | DATE | APPROVED

BRUNING 40-522 15A3
DRD 102-B

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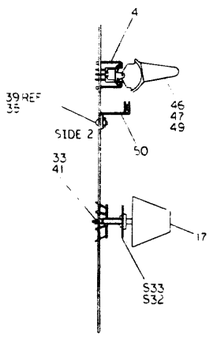
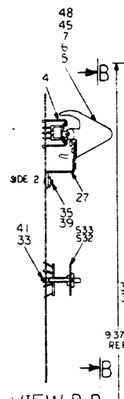
COPYRIGHT © · · · DIGITAL EQUIPMENT CORPORATION"

NOTES:

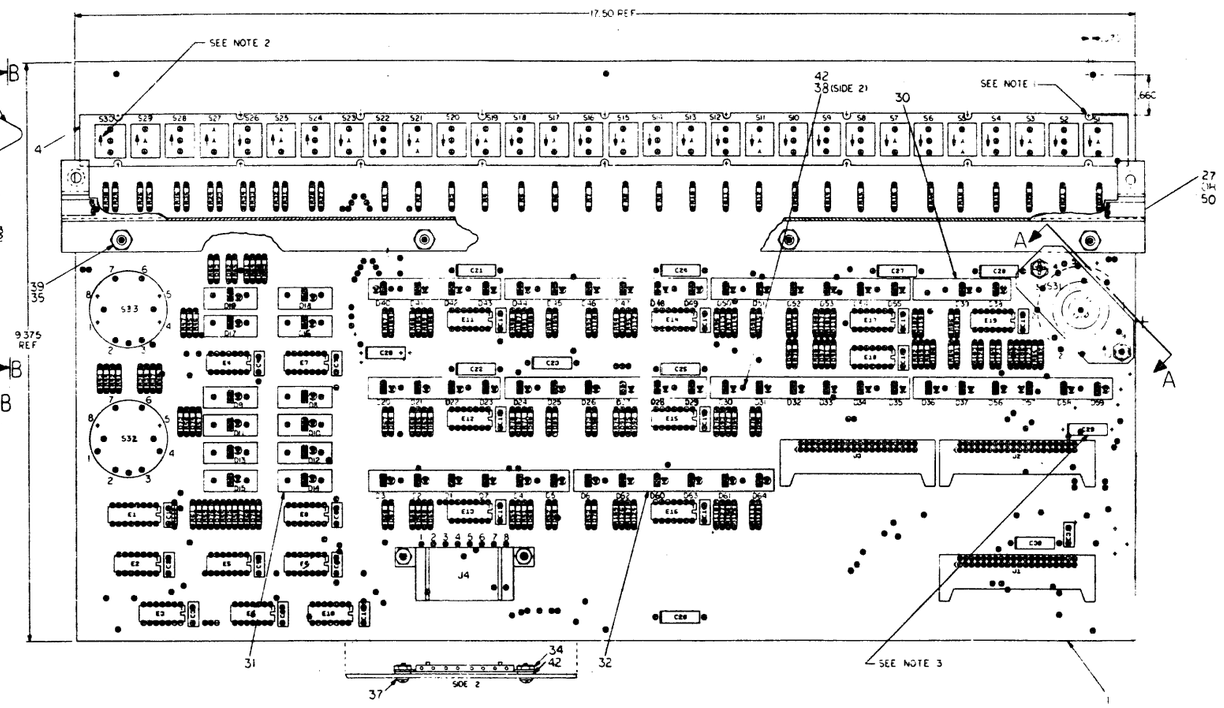
1. USE 7 POS SLOT. W.W.W. TO BE
2. PINS 45 DEG. TOP DIGITAL
3. ARROW INDICATES DIRECTION TOWARD MOUNTING WIRE-ACTIVATED
4. C28 IS OPTIONAL, DO NOT INSERT

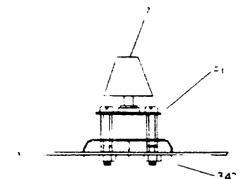


VIEW B-B
NO SCALE
-03 VARIATION ONLY

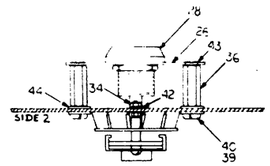


VIEW B-B
NO SCALE
-00 & -01 ONLY

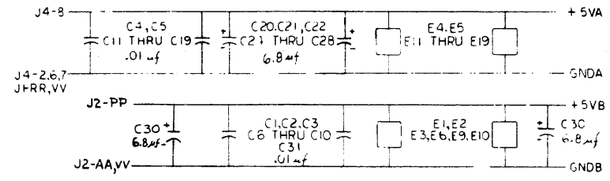




VIEW A A
NO SCALE
ROTATED AS SHOWN
(FOR -03 VARIATION ONLY)



VIEW A-A
NO SCALE
ROTATED AS SHOWN
(FOR -00 & -01 VARIATIONS ONLY)



EX: IC 9318	8	16
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REV	CHANGE NO.	REVISIONS	CHK	DATE	BY
E	5411294-00004	W. MOD		2/15/77	W. E. MAJOR
D	5411294-00003	W. HAMEL		2/27/77	W. E. MAJOR
C	5411294-00002	W. TISHER	E R	9/7/78	R. BOUCHER
B	5411294-00001	W. MOD		4/20/78	A. MAJOR
A	5411294-00000	REVISED KEEPOUT	E R	3/3/78	HAMEL

SEE K-PL-5411294-0-UBP

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL: 11/70

ETCH BOARD REV. C

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

SEMICONDUCTOR CONVERSION CHART

DRN. L. JUDMAN
CHK'D. P. FURGUSON
ENG. S. SMITH
PROJ. ENG. S. SMITH
PROD. K. TAYLOR
NEXT HIGHER ASSY

TITLE 11/70 CONSOLE BOARD

SIZE D | CODE 07611 | NUMBER 5411294-0-1 | REV

SCALE

SHEET OF

DIST.

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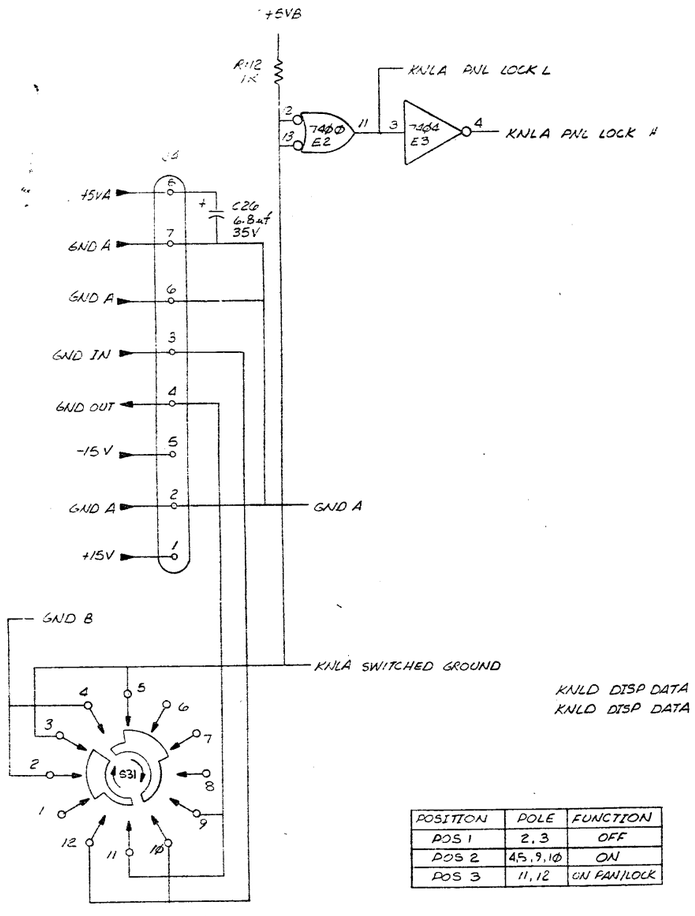
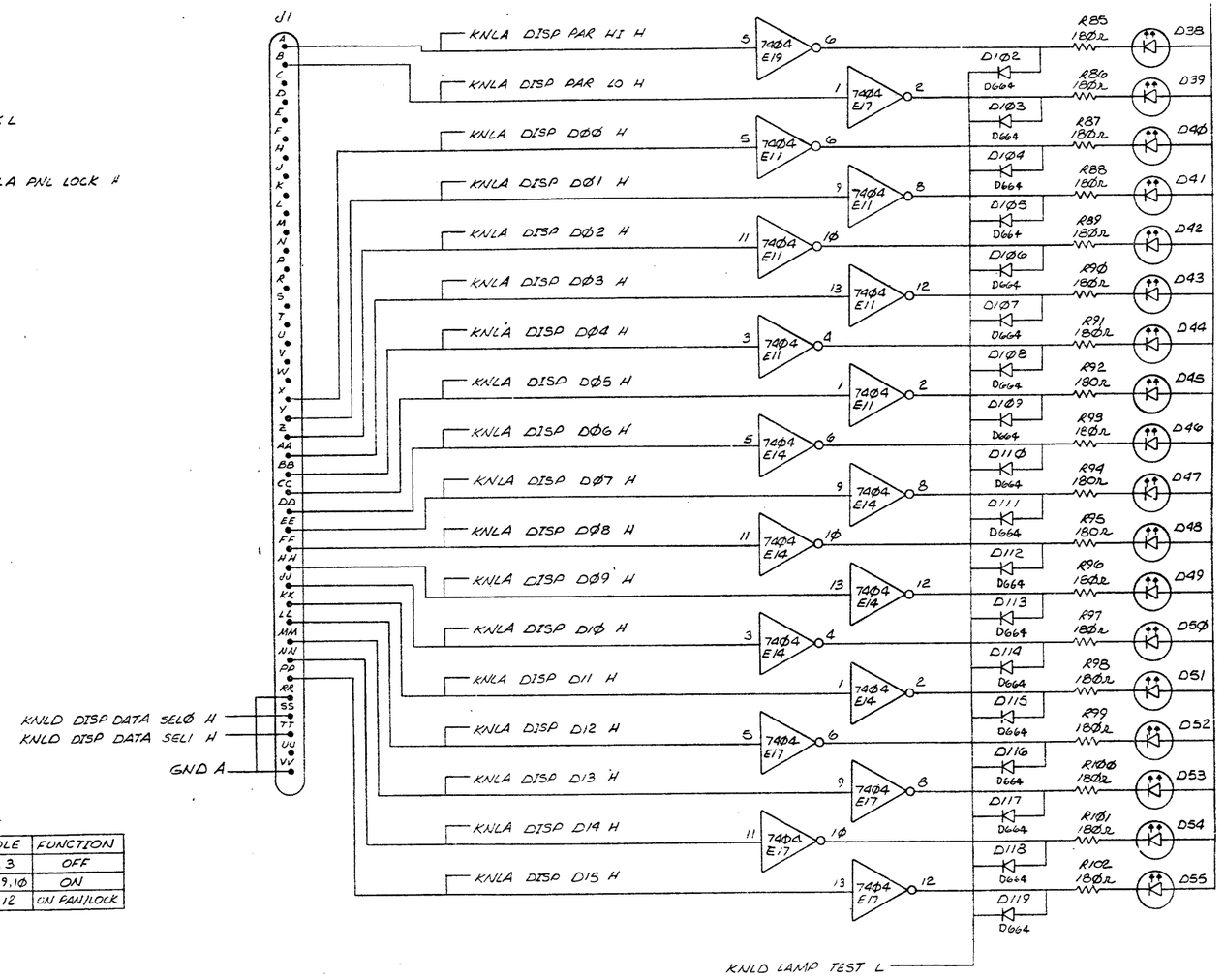
KNL / PDR INTERFACE



POSITION	POLE	FUNCTION
POS 1	2, 3	OFF
POS 2	4,5,9,10	ON
POS 3	11, 12	ON FAN LOCK



NOTES:
1. BCØ6R CABLES USED TO CONNECT CONSOLE TO PDR AND SCC BOARDS.
2. CASE OF S31 = GND A

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONSOLE BOARD (KNLA)	D	CS	5411294-Ø-1	H
SCALE -11-	SHEET 2 OF 5	DIST.		

DEC FORM NO. DRD 138

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KNL/SCC INTERFACE

J2

+5VA

EE	KNLB VADØ H	5	7ØØ1 E12	6			R67 18Ø Ω	D2Ø
W	KNLB VAØ1 H	9	7ØØ4 E12	8	D84	D664	R68 18Ø Ω	D21
U	KNLB VAØ2 H	11	7ØØ4 E12	10	D85	D664	R69 18Ø Ω	D22
S	KNLB VAØ3 H	13	7ØØ4 E12	12	D86	D664	R7Ø 18Ø Ω	D23
CC	KNLB DISP ADRSØ4 H	3	7ØØ1 E12	4	D87	D664	R71 18Ø	D24
V	KNLB DISP ADRSØ5 H	1	7ØØ4 E12	2	D88	D664	R72 18Ø Ω	D25
P	KNLB DISP ADRSØ6 H	5	7ØØ4 E15	6	D89	D664	R73 18Ø Ω	D26
H	KNLB DISP ADRSØ7 H	9	7ØØ4 E15	8	D9Ø	D664	R74 18Ø Ω	D27
E	KNLB DISP ADRSØ8 H	11	7ØØ4 E15	10	D91	D664	R75 18Ø Ω	D28
C	KNLB DISP ADRSØ9 H	13	7ØØ4 E15	12	D92	D664	R76 18Ø Ω	D29
M	KNLB DISP ADRSIØ H	5	7ØØ4 E15	4	D93	D664	R77 18Ø Ω	D3Ø
K	KNLB DISP ADRSI1 H	1	7ØØ4 E15	2	D94	D664	R78 18Ø Ω	D31
R	KNLB DISP ADRSI2 H	5	7ØØ4 E18	6	D95	D664	R79 18Ø Ω	D32
T	KNLB DISP ADRSI3 H	9	7ØØ4 E18	8	D96	D664	R8Ø 18Ø Ω	D33
V	KNLB DISP ADRSI4 H	11	7ØØ4 E18	10	D97	D664	R81 18Ø Ω	D34
X	KNLB DISP ADRSI5 H	13	7ØØ4 E18	12	D98	D664	R82 18Ø Ω	D35
N	KNLB DISP ADRSI6 H	3	7ØØ4 E18	4	D99	D664	R83 18Ø Ω	D36
L	KNLB DISP ADRSI7 H	1	7ØØ4 E18	2	D1ØØ	D664	R84 18Ø Ω	D37
E	KNLB DISP ADRSI8 H	9	7ØØ3 E19	8	D1Ø1	D664	R1Ø3 18Ø Ω	D56
	KNLD LAMP TEST L				D127	D664		

BB	KNLB DISP ADRSI9 H	11	7ØØ4 E19	1Ø	D121	D664	R1Ø4 18Ø Ω	D57
DD	KNLB DISP ADRS2Ø H	13	7ØØ4 E19	12	D122	D664	R1Ø5 18Ø Ω	D58
FF	KNLB DISP ADRS2I H	1	7ØØ4 E19	2	D123	D664	R1Ø6 18Ø Ω	D59
AA								
F	KNLB IND PAUSE H	11	7ØØ4 E16	1Ø	D124	D664	R1Ø7 18Ø Ω	D6Ø
A	KNLB IND ADRS ERR H	3	7ØØ4 E16	4	D125	D664	R1Ø8 18Ø Ω	D61
D	KNLB IND MASTER H	9	7ØØ4 E16	8	D126	D664	R1Ø9 18Ø Ω	D62
J	KNLB IND RUN H	13	7ØØ4 E16	12	D127	D664	R11Ø 18Ø Ω	D63
B	KNLB IND PAR ERR H	1	7ØØ4 E16	2	D128	D664	R111 18Ø Ω	D64
HH	KNLD DISP ADRS SELØ H							
MM	KNLD DISP ADRS SEL1 H							
LL	KNLA PNL LOCK H							
JJ	KNLB MMRØ MODE1 H							
SS	KNLB IND DATA H							
NN	KNLB MMRØ MODEØ H							
PP	+5VB							
RR								
KK	KNLD DISP ADRS SEL2 H							
TT								
UU								
VV	GND B							

KNLD LAMP TEST L

C31 .Ø1uf C3Ø 6.8uf +

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CONSOLE BOARD (KNLB)	D	CS	5411294-Ø-1	H
SCALE —	SHEET 3 OF 5	DIST.		

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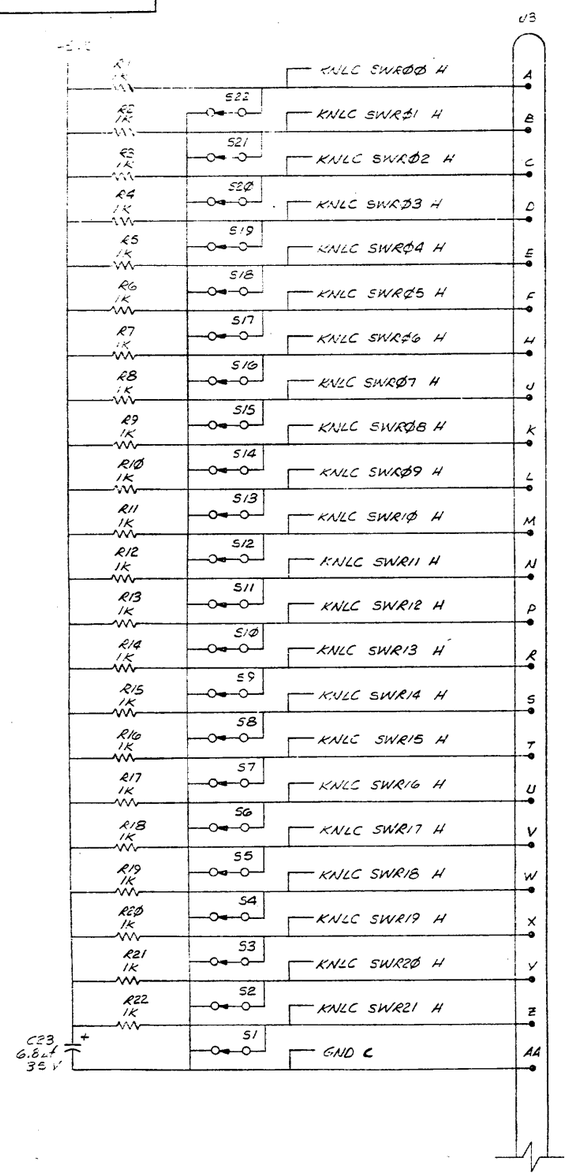
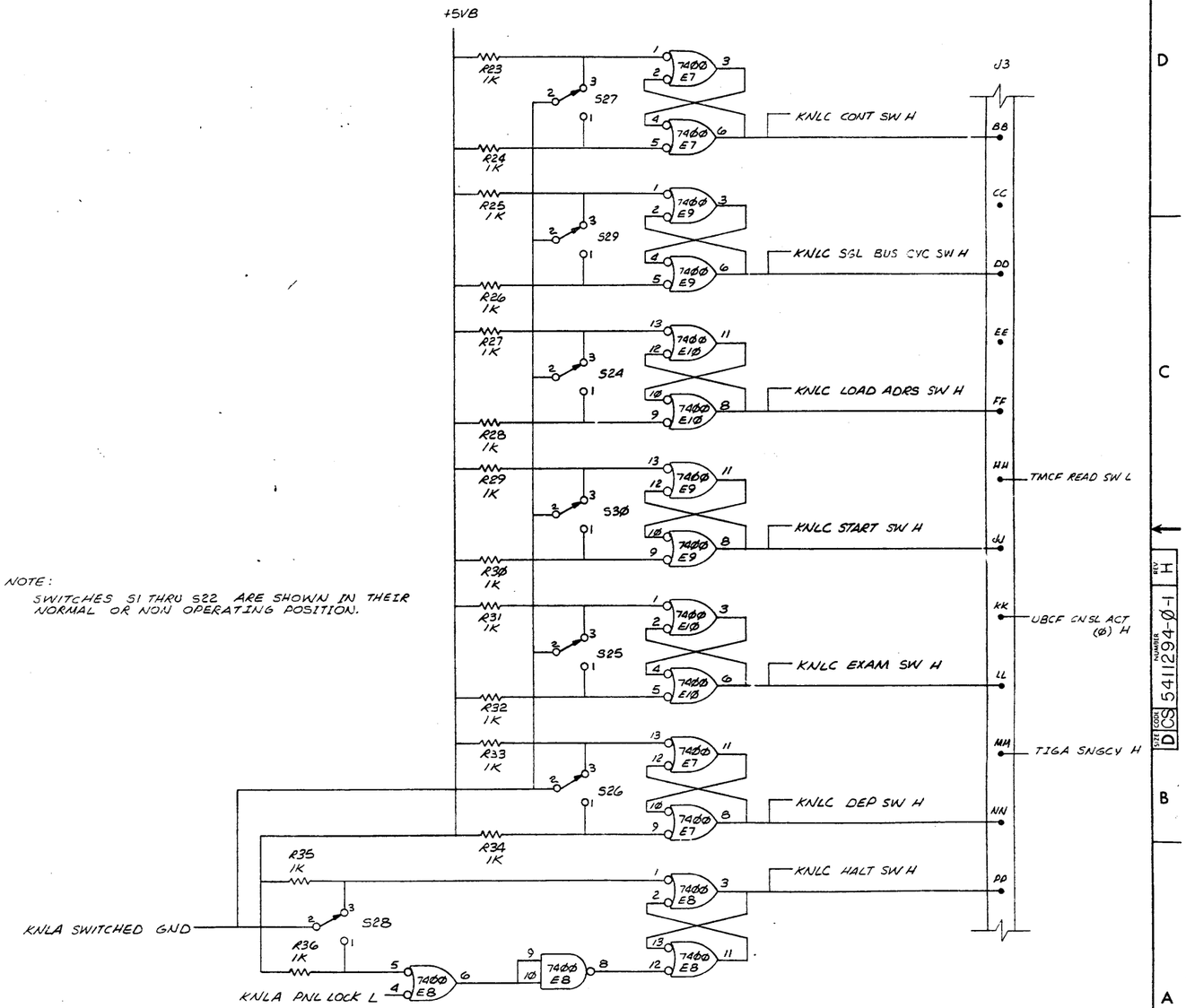
KNLC / SSC INTERFACE



NOTE:
SWITCHES S1 THRU S22 ARE SHOWN IN THEIR NORMAL OR NON OPERATING POSITION.



CONSOLE SWITCHES

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
CONSOLE BOARD (KNLC)	D	CS	5411294-Ø-1	H
SCALE —	SHEET 4 OF 5	DIST.		

DEC FORM NO DRD 178

TW 1

145

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J3
+5VC
GND C
RR
SS
TT
UU
VV

KNLD IND 16BIT MAPPING H
KNLD IND 18BIT MAPPING H
KNLD IND 22BIT MAPPING H
KNLD KERNEL H
KNLD SUPER H
KNLD USER H
KNLB IND DATA H

KNLB MMRØ MODEØ H
KNLB MMRØ MODE1 H

9318 E1
A0 A1 A2 E0 E1
KNLD DISP ADRS SEL2 H
KNLD DISP ADRS SEL1 H
KNLD DISP ADRS SELØ H
GND B

R37 2.2K +5VB
R40 2.2K
R39 2.2K
R38 2.2K
R42 2.2K
R44 2.2K
R43 2.2K
R41 2.2K

KNLD CONSOLE PHY L
KNLD PROGRAM PHY L
KNLD KERNEL D.V. L
KNLD KERNEL I.V. L
KNLD SUPER D.V. L
KNLD SUPER I.V. L
KNLD USER D.V. L
KNLD USER I.V. L

532 C.W.

KNLD DISPLAY REGISTER L
KNLD ⊔ADRS FPP/CPU L
KNLD BUS REGISTER L
KNLD DATA PATHS L

533 C.W.
GND B

CODE SELECT LINES	A2	A1	AØ
USER I.V.	H	H	H
USER D.V.	H	H	L
SUPER I.V.	H	L	H
SUPER D.V.	H	L	L
KERNEL I.V.	L	H	L
KERNEL D.V.	L	L	H
PROGRAM PHY	L	L	L
CONSOLE PHY	L	H	H

CODE SELECT LINES	DISP DATA SEL1	DISP DATA SELØ
BUS REGISTER	L	L
DATA PATHS	L	H
DISPLAY REGISTER	H	L
⊔ADRS FPP/CPU	H	H

+5VB
R45 2.2K
R47 2.2K
R46 2.2K
KNLD DISP DATA SELØ H
KNLD DISP DATA SEL1 H

+5VA
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19
R48 8Ø2 R49 180Ω R50 180Ω R51 180Ω R52 180Ω R53 180Ω R54 180Ω R55 180Ω R56 180Ω R57 180Ω R58 180Ω R59 8Ø2 R60 180Ω R61 180Ω R62 180Ω R63 180Ω R64 180Ω R65 180Ω R66 180Ω

S23
GNDA
KNLD ⊔AND TEST L

REVISIONS
CHK	CHANGE NO.	REV.

TITLE CONSOLE BOARD (KNLD)
SIZE D CODE CS NUMBER 5411294-Ø- REV 1
SCALE — SHEET 5 OF 5 DIST

DCS 5411294-Ø-1 H

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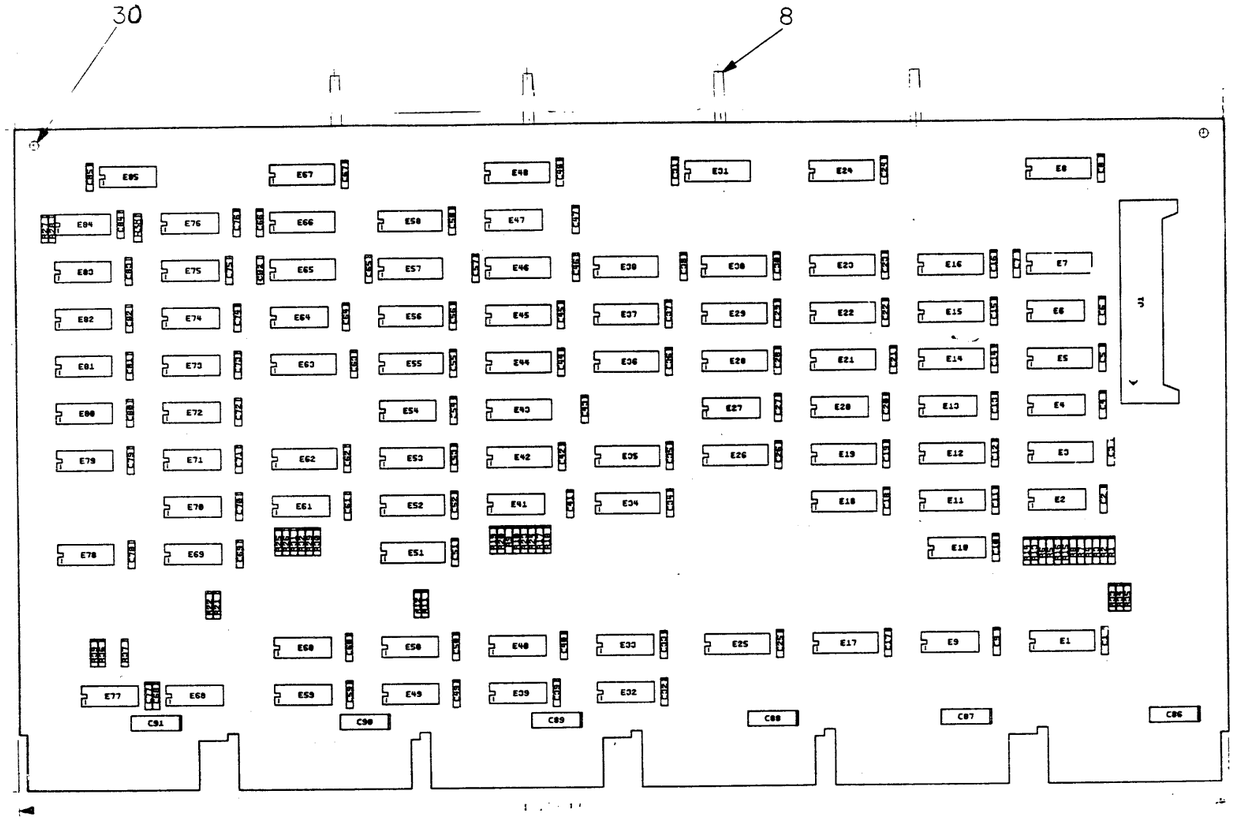
NOTES:

1. E31, E51 AND E84 ARE SPARE REFERENCE DESIGNATIONS



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8134-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8134-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8134-0-6	3
1		ETCHED CIRCUIT BOARD	5011357	4
86	C1 THRU C85,C92	CAPACITOR, .01uf, 100V. 20% DISC	1001610-01	5
6	C88 THRU C91	CAPACITOR, 6.8uf, 35V, 10%	1005306	6
1		CONN., 40 PIN	1209941-02	7
1		HANDLE ASSY	1210711-02	8
3	R35,R36,R38	RESISTOR, 150 OHM, 1/4W, 5%	1300250	9
16	R1,R3,R5,R7,R9,R11,R13,R15, R17,R19,R21,R23,R25,R27,R29, R31.	RESISTOR, 330 OHM, 1/4W, 5%	1300295	10
16	R2,R4,R6,R8,R10,R12,R14,R16 R18,R20,R22,R24,R26,R28,R30 R32	RESISTOR, 680 OHM, 1/4W, 5%	1301424	11
2	R34,R33	RESISTOR, 560 OHM, 1/4W, 5%	1301890	12
1	E73	I.C. DEC 74H50	1908060	13
4	E32,E39,E49,E59	I.C. DEC 8881	1908705	14
4	E13,E77,E80,E83	I.C. DEC 74H01	1909849-00	15
4	E8,E24,E48,E67	I.C. DEC 7485	1910224	16
1	E37	I.C. DEC 9318	1910454	17
1	E71	I.C. DEC 74S00	1910532	18
9	E2 E4,E10,E27,E41,E54,E61, E66,E74	I.C. DEC 74S04	1910534	19
3	E69,E72,E85	I.C. DEC 74S10	1910536	20
1	E76	I.C. DEC 74S11	1910537	21
1	E70	I.C. DEC 74S20	1910539	22
2	E78,E75	I.C. DEC 74S40	1910541	23
8	E6,E9,E20,E47,E68,E79,E81 E82	I.C. DEC 74S74	1910544	24
24	E3,E5,E7,E12,E14,E16,E19, E21,E23,E26,E28,E30,E35,E36 E38,E42,E44,E46,E53,E55,E57 E62,E63,E65	I.C. DEC 74S153	1910547	25
1	E29	I.C. DEC 74S157	1910548	26
12	E1,E11,E15,E17,E18 E22,E25 E34,E43,E52,E56,E66	I.C. DEC 74S174	1910550	27
2	E45,E58	I.C. DEC 74175	1910651	28
4	E33,E40,E50,E60	I.C. DEC 8640	1911469	29
12		EYELET	9006732	30
~~1~~		~~CABLE RETAINER~~	~~1208941-03~~	~~31~~
~~1~~		~~CABLE RETAINER~~	~~1208941-04~~	~~32~~

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV C

IC TYPE	GND	+5V
IC DEC 8640	1	8
IC DEC 74175	8	16
IC DEC 74S175	8	16
IC DEC 74S174	8	16
IC DEC 74S157	8	16
IC DEC 74S153	8	16
IC DEC 9318	8	16
IC DEC 7485	8	16

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

IC PIN LOCATIONS

REV	REVISIONS	CHANGE NO.	CHK	DATE
E	P. SCHNORR	M8134-00004	P.S.	7-JULY-75
D	R. BOUCHER	M8134-00003		3 SEPT 75
C	T. UPTON	M8134-00002		10-9-75
B	A. HELENIUS	M8134-00001		6 OCT 75

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

SEMICONDUCTOR CONVERSION CHART

DRN. P. Constantinou 11-27-74
CHK'D. T. Ferguson 12-2-74
ENG. Wm. Stevens 1-6-75
PROJ. ENG. Wm. Stevens 1-6-75
PROD. [illegible] 1/8/75
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 9

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS

SIZE D | CODE CS | NUMBER M8134-0-1 | REV. E

DIST.

DCSM8134-0-1

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DAPF SHFRØ3 H — BB2 — DAPJ SHFRØ7 H — CP2 — DAPH SHFR11 H — DH2 — DAPJ SHFR15 H — ES2

DTMM COMX DØ3 H — AK2 — DTMM COMX DØ7 H — CR1 — DTMM COMX D11H — DJ2 — DTMM COMX D15 H — EP2

PDRA INTDØ3 H — PDRA INTDØ7 H — PDRA INTD11 H — PDRA INTD15 H

PDRJ DØ3 H — PDRJ DØ7 H — PDRJ D11 H — PDRJ D15 H

DAPF SHFRØ2 H — BK1 — DAPF SHFRØ6 H — CP1 — DAPH SHFR10 H — DM1 — DAPH SHFR14 H — ER2

DTMM COMX DØ2 H — BE2 — DTMM COMX DØ6 H — CN1 — DTMM COMX D10 H — DL1 — DTMM COMX D14 H — EL2

PDRA INTDØ2 H — PDRA INTDØ6 H — PDRA INTD10 H — PDRA INTD14 H

PDRJ DØ2 H — PDRJ DØ6 H — PDRJ D10 H — PDRJ D14 H

STBI STBØ — DI CI BI AI DØ CØ BØ AØ — F1 FØ — SI SØ — 74S153 — BRMX (Ø3:Ø2) E12 — BRMX (Ø7:Ø6) E26 — BRMX (11:10) E42 — BRMX (15:14) E62

ATZ — PDRA BRMXØ3 H — BV2 — PDRA BRMX11 H — CK1 — PDRA BRMX15 H

AS2 — PDRA BRMXØ2 H — CA1 — PDRA BRMXØ6 H — BV1 — PDRA BRMX10 H — CK2 — PDRA BRMX14 H

PDRA BRMXSI H

PDRA BRMXSØ H

DAPF SHFRØ1 H — CR2 — DAPF SHFRØ5 H — BP2 — DAP H SHFRØ9 H — CS1 — DAPH SHFR13 H — EE2

DTMM COMX DØ1 H — AJ2 — DTMM COMX DØ5 H — BF1 — DTMM COMX DØ9 H — CU1 — DTMM COMX D13 H — BR2

PDRA INTDØ1 H — PDRA INTDØ5 H — PDRA INTDØ9 H — PDRA INTD13 H

PDRJ DØ1 H — PDRJ DØ5 H — PDRJ DØ9 H — PDRJ D13 H

DAPH SHFRØØ H — BB1 — DAPF SHFRØ4 H — BE1 — DAP H SHFRØ8 H — CD2 — DAPH SHFR12 H — BS2

DTMM COMX DØØ H — AJ1 — DTMM COMX DØ4 H — BF2 — DTMM COMX DØ8 H — CH2 — DTMM COMX D12 H — DU1

PDRA INTDØØ H — PDRA INTDØ4 H — PDRA INTDØ8 H — PDRA INTD12 H

PDRJ DØØ H — PDRJ DØ4 H — PDRJ DØ8 H — PDRJ D12 H

BRMX (Ø1:ØØ) E3 — BRMX (Ø5:Ø4) E19 — BRMX (Ø9:Ø8) E37 — BRMX (13:12) E53

AU1 — PDRA BRMXØ1 H — AV2 — PDRA BRMXØ5 H — BT2 — PDRA BRMXØ9 H — CL2 — PDRA BRMX13 H

AS1 — PDRA BRMXØØ H — AV1 — PDRA BRMXØ4 H — BS1 — PDRA BRMXØ8 H — CM2 — PDRA BRMX12 H

PDRA BRMXSI H

PDRA BRMXSØ H

TMCF SEL MEM L — FA1 — 74S08 E71

RACA UERX H — FU1

TMCF SEL INT L — FE2 — 74S08 E71

+5V

BUS INTDØ3 L — API — R5 33Ø — R6 68Ø — 74S04 E2 — PDRA INTDØ3 H

BUS INTDØ2 L — AM2 — R3 33Ø — R4 68Ø — 74S04 E2 — PDRA INTDØ2 H

BUS INTDØ1 L — AN1 — R1 33Ø — R2 68Ø — 74S04 E2 — PDRA INTDØ1 H

BUS INTDØØ L — AN1 — R7 33Ø — R8 68Ø — 74S04 E2 — PDRA INTDØØ H

+5V

BUS INTDØ7L — CF1 — R9 33Ø — R10 68Ø — 74S04 E41 — PDRA INTDØ7 H

BUS INTDØ6L — AL2 — R13 33Ø — R14 68Ø — 74S04 E2 — PDRA INTDØ6 H

BUS INTDØ5 L — AP2 — R15 33Ø — R16 68Ø — 74S04 E2 — PDRA INTDØ5 H

BUS INTDØ4 L — FB2 — R11 33Ø — R12 68Ø — 74S04 E41 — PDRA INTDØ4 H

+5V

BUS INTDI2 L — EP1 — R25 33Ø — R26 68Ø — 74S04 E61 — PDRA INTDI2 H

BUS INTDI1 L — BA1 — R21 33Ø — R22 68Ø — 74S04 E41 — PDRA INTDI1 H

BUS INTDIØ L — CF2 — R19 33Ø — R20 68Ø — 74S04 E41 — PDRA INTDIØ H

BUS INTDØ9 L — CE2 — R23 33Ø — R24 68Ø — 74S04 E41 — PDRA INTDØ9 H

BUS INTDØ8 L — CE1 — R17 33Ø — R18 68Ø — 74S04 E41 — PDRA INTDØ8 H

+5V

BUS INTDI5 L — EK1 — R31 33Ø — R32 68Ø — 74S04 E61 — PDRA INTDI5 H

BUS INTDI4 L — CV2 — R27 33Ø — R28 68Ø — 74S04 E61 — PDRA INTDI4 H

BUS INTDI3 L — FF1 — R29 33Ø — R30 68Ø — 74S04 E61 — PDRA INTDI3 H

BRMX SI	SØ	
L	L	BUS A DATA
L	H	INTD
H	L	CACHED
H	H	SHFR

BUS REGISTER MULTIPLEXER SLOT 1Ø

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

	NAME	DATE
DRN.	[illegible] Kelley	11-17-74
CHK'D	[illegible]	12-5-74
ENG	[illegible]	12-5-74
PROJ. ENG.	[illegible]	12-5-74
PROD	[illegible]	1/9/75

NEXT HIGHER ASSY.

SCALE —

SHEET 2 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE

PROCESSOR DATA & UNIBUS REGS (PDRA)

SIZE	CODE	NUMBER	REV
D	CS	M8134-Ø-1	E

DIST

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO

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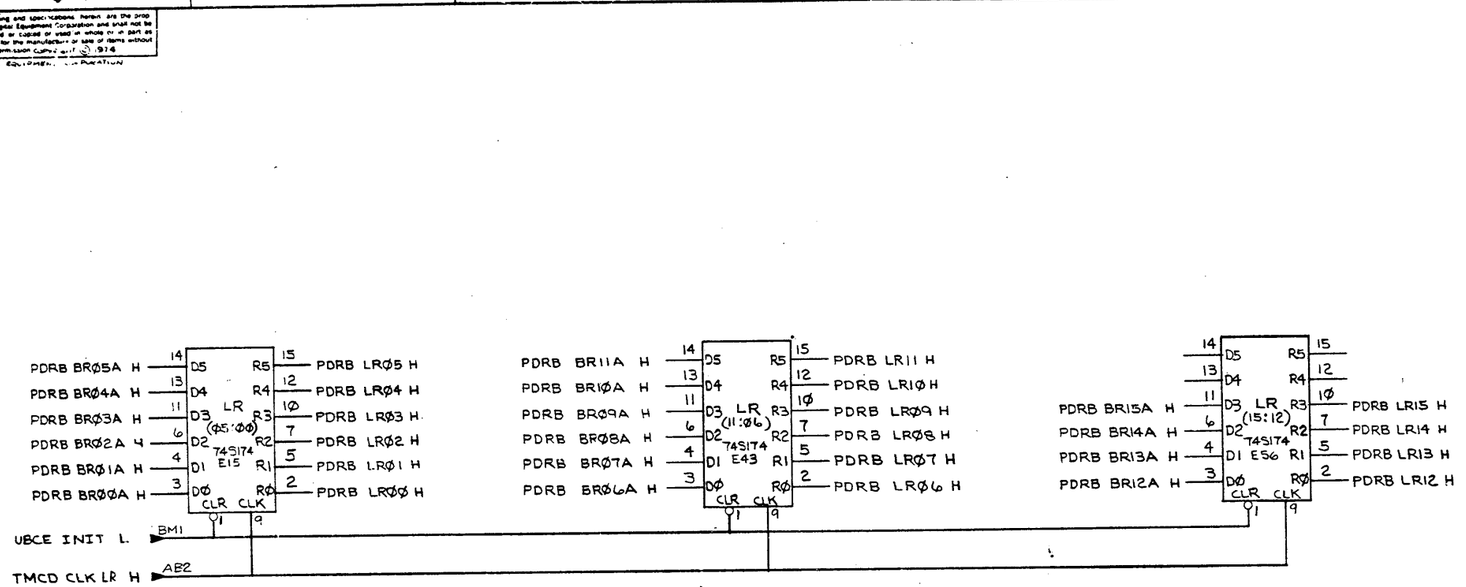

BUS REGISTER A; LIGHT REGISTER SLOT 10

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DBN Brian Kelley DATE 11-12-74
CHK DATE
ENG DATE
PROJ ENG DATE
PROD DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE PROCESSOR DATA & UNIBUS REGS (PDRB)

NEXT HIGHER ASSY.

SIZE	CODE	NUMBER	REV
D	CS	M8134-0-1	E

SCALE —
SHEET 3 OF 9 DIST.

REVISIONS	CHANGE NO	REV
CHK		

M8134-0-1 REV E

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DIGITAL EQUIPMENT CORPORATE

74S40 E75 — PDRC +3V H

PDRB BR07A H — PDRC PB07 H
PDRB BR06A H — PDRC PB06 H
PDRB BR05A H — PDRC PB05 H
PDRB BR04A H — PDRC PB04 H
PDRB BR03A H — PDRC PB03 H
PDRB BR02A H — PDRC PB02 H
74S174 E22 PB (07:02)

PDRB BR15A H — PDRC SL07 H
PDRB BR14A H — PDRC SL06 H
PDRB BR13A H — PDRC SL05 H
PDRB BR12A H — PDRC SL04 H
PDRB BR11A H — PDRC SL03 H
PDRB BR10A H — PDRC SL02 H
74S174 E66 SL (07:02)

74S40 E75
PDRB BR01A H — PDRC PB01 (1) H
TMCF CLK PB H — BD2
74S74 E6
PDRB BR00A H — PDRC PB00 (1) H

PDRB BR09A H — PDRC SL01 (1) H
TMCF CLK SL H — BP1
PDRB BR08A H — PDRC SL00 (1) H
74S74 E47
UBCE INT BUS INIT L — ESI

DAPC BAMX11 H — DN1
DAPC BAMX10 H — DP1
DAPC BAMX09 H — DP2
DAPC BAMX08 H — DF2
PDRC +3V H
PDRC SL03 H
PDRC SL02 H
PDRC SL01(1) H
PDRC SL00(1) H
7485 E48 (A<B, A=B, A>B)

DAPD BAMX15 H — FP1
DAPD BAMX14 H — FS1
DAPD BAMX13 H — FU2
DAPD BAMX12 H — FU1
PDRC SL07 H
PDRC SL06 H
PDRC SL05 H
PDRC SL04 H
7485 E67 (A<B, A=B, A>B) → PDRC STACK LIMIT H (BM2), PDRC RED ZONE H (FP1)

RACD RAR03 H — AC1
RACD RAR02 H — AA1
RACD RAR01 H — AD2
RACD RAR00 H — AB1
PDRC +3V H
PDRC PB03 H
PDRC PB02 H
PDRC PB01(1) H
PDRC PB00(1) H
7485 E8 (A<B, A=B, A>B)

RACD RAR07 H — CH1
RACD RAR06 H — AF1
RACD RAR05 H — AD1
RACD RAR04 H — AE2
PDRC PB07 H
PDRC PB06 H
PDRC PB05 H
PDRC PB04 H
7485 E24 (A<B, A=B, A>B) → PDRC PB CMP H (AE1)

PROGRAM BREAK & STACK LIMIT REGISTERS SLOT 10

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN Bruce Kelly	DATE 11-12-74	
ENG. Gregory	DATE 2-7-75	
PROJ. ENG. Wesley Schwartz	DATE 4-7-75	
PROD. R. Taylor	DATE 6-7-75	
QUAL. Wesley Schwartz	DATE 1/8/75	

NEXT HIGHER ASSY. — SCALE — SHEET 4 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS (PDRC)

SIZE	CODE	NUMBER	REV.
D	CS	M8134-0-1	E

DIST

REVISIONS: REV. | CHANGE NO. | CHK

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TMCE KERNEL DATI L — FD1 — 74S04 E74 — PDRD KERNEL DATI B H

PDRB BR13A H — 74S10 E73

PDRD ISB00 B L, RACB UIBS01 H, TIGD T4B H — FC1 — 74S11 E76 — PDRB BR15A H — 74S10 E85

PDRB BR13A H — 74S10 E66

TIGD T5B H — 150Ω R36, +5V R37 * — FC2 — 74S20 E75 — PDRD IBS00 B L, RACB UIBS01 H, PDRB BR13A H

PDRD PS CLK H — 74S04 E61

UBCE STATUS CLR L — FL2

PDRD LOAD PS H — 74S10 E72

PDRB BR12A H, TMCE KERNEL DATI L — FD1 — 74S00 E73 — PDRD KERNEL DATI B H, PDRD PS14 (1) H

PDRB BR11A H, PDRD LOAD PS H — 74S10 E85

PDRB BR11A H, PDRD PS CLK H, TMCF CLK HI PS L — FK1 — 74S00 E71

PDRB BR02A H — 74S157 E83 Q3
PDRB BR07A H — A3
PDRB BR01A H — B2
PDRB BR06A H — A2
PDRB BR00A H — B1
PDRB BR05 A H — A1
B0
A0
SEL ENB

PDRC +3V H — 150Ω R38, +5V * R39 — FC1 — 74S20 E70 — RACB UIBS01 H, PDRD IBS00 B L

TMCE KERNEL DATI L, PDRD PS14 (0) L — FD1 — 74S10 E72 — TMCE SET PRIORITY H — FL1 — FV2

TMCF CLK LO PSL — FJ1 — 74S10 E69

PDRB BR04 A H — 74S10 E79 — PDRD READ PS H

RACB UIBS01 H — FC1 — 74S00 E71

RACB UIBS00 H — FR2 — 74S04 E74 — TIGD T4B H — FL1 — 74S11 E76 — PDRD IBS00 B L

UBCE INIT L — BM1 — PDRD READ PS H

PDRD PS07 (0) H, PDRD PS06 (0) H, PDRD PS05 (0) H — 74S11 E76 — PDRD PRIORITY=0 H

NOTE:
R37 & R39 ARE SPARES.
NO VALUE IS ASSIGNED.

SSRA PS RESTORE (1) H — FV2 — 74S04 E64

TMCE KERNEL DATI L, PDRD PS14 (0) L — FD1 — 74S10 E72

PDRB BR15A H — 74175 D3 R3 E58 D2 R2 PIR (15:12) D1 R1 D0 R0 CLR CLK E1 — EF2 — PDRD PIR15 (1) H
PDRB BR14A H — ET2 — PDRD PIR14 (1) H
PDRB BR13A H — DS1 — PDRD PIR13 (1) H
PDRB BR12A H — EE1 — PDRD PIR12 (1) H

TMCF CLK PIR H — BN1

9318 E37 PIR ENCODER E1 G5 A2 A1 A0 ED — PDRC +3V H

74S04 E74 — PDRD PIA02 H
74S04 E74 — PDRD PIA01 H
74S04 E74 — PDRD PIA00 H

PDRB BR11A H — 74175 D3 R3 E45 D2 R2 PIR (11:08) D1 R1 D0 R0 CLR CLK E1 — CU2 — PDRD PIR11 (1) H
PDRB BR10A H — DM2 — PDRD PIR10 (1) H
PDRB BR09A H — DD1 — PDRD PIR09 (1) H

UBCE INIT BUS INIT L — ES1

IRCH N B (1) H — BJ1 — 74H01 E13 — BUS INTD03 L
IRCH Z (1) H — BD1 — 74H01 E13 — BUS INTD02 L
IRCH V (1) H — BM2 — 74H01 E13 — BUS INTD01 L
IRCH C B (1) H — BL1 — 74H01 E13 — BUS INTD00 L
PDRD READ PS H

74H01 E80 — FN1 — PDRD PS15 (1) H — BUS INTD15 L
74H01 E80 — FM2 — PDRD PS15 (0) H
74H01 E83 — DD2 — PDRD PS14 (1) H — BUS INTD14 L
74H01 E83 — FH2 — PDRD PS14 (0) H
74H01 E80 — PDRD PS13 (1) H — BUS INTD13 L
74H01 E80 — FB1 — PDRD PS13 (0) H
74H01 E77 — DS2 — PDRD PS12 (1) H — BUS INTD12 L
74H01 E80 — PDRD PS12 (0) H
74H01 E80 — FD2 — PDRD PS11 (1) H — BUS INTD11 L
74H01 E80 — FJ2 — PDRD PS11 (0) H
74H01 E80 — FK2 — PDRD PS07 (1) H — BUS INTD07 L
74H01 E80 — PDRD PS07 (0) H
74H01 E83 — FM1 — PDRD PS06 (1) H — BUS INTD06 L
74H01 E83 — PDRD PS06 (0) H
74H01 E83 — FP2 — PDRD PS05 (1) H — BUS INTD05 L
74H01 E83 — PDRD PS05 (0) H
74H01 E83 — FS2 — PDRD PS04 (1) H — BUS INTD04 L

PDRD PS15 (1) H — 74S74 E81 PS15 D C 0
PDRD PS14 (1) H — 74S74 E68 PS14 D C 0
PDRD PS13 (1) H — 74S74 E81 PS13 D C 0
PDRD PS12 (1) H — 74S74 E68 PS12 D C 0
PDRD PS11 (1) H — 74S74 E73 PS11 D C 0
PDRD PS07 (1) H — 74S74 E79 PS07 D C 0
PDRD PS06 (1) H — 74S74 E82 PS06 D C 0
PDRD PS05 (1) H — 74S74 E82 PS05 D C 0
PDRD PS04 (1) H — 74S74 E9 PS04 D C 0

PIR + PS REGISTERS — SLOT 10

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN	Laurie Kelley	DATE
CHK'D		DATE 7-2-74
ENG	Wm Schmitt	DATE 6-75
PROJ ENG	Wm Schmitt	DATE 6-75
PROG	R Taylor	DATE 6-5
NEXT HIGHER ASSY		
SCALE		
SHEET 5 OF 9		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS (PDRD)

SIZE D | CODE CS | NUMBER M8134-0-1 | REV E | DIST.

REVISIONS: REV | CHANGE NO | CHK

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TMCD HI BYTE EN H ← ER1 11 74S04 E64 10

TMCD DMXSI H ← EJ2 9 74S04 E64 8

TMCD DMXSØ H ← EJ2 5 74S04 E64 6

TMCD LO BYTE EN H ← EE1 5 74S04 E74 6

DMX (Ø9:Ø8) 745153
PDRB BRØ9A H 13 DI
PDRC SLØ1 (1) H 12 CI
PDRD PIR13 (1) H 11 BI
10 AI
PDRB BRØ8A H 3 DØ
PDRC SLØØ (1) H 4 CØ E36
5 BØ
6 AØ
SI SØ 2 14
FI 9 → 8881 E32 10 → DA1 → BUS DØ9 L
FØ 7 → 8881 E32 4 ← DB1 ← BUS DØ8 L

DMX (11:1Ø) 745153
PDRB BR11A H 13 DI
PDRC SLØ3 H 12 CI
PDRD PIR11 (1) H 11 BI
PDRD PS11 (1) H 10 AI
PDRB BRØ8A H 3 DØ
PDRC SLØ2 H 4 CØ E44
PDRD PIRIØ (1) H 5 BØ
6 AØ
SI SØ 2 14
FI 9 → 8881 E32 2 → DB2 → BUS DII L
FØ 7 → 8881 E32 12 → DC1 → BUS DIØ L

DMX (13:12) 745153
PDRB BR13A H 13 DI
PDRC SLØ5 H 12 CI
PDRD PIR13 (1) H 11 BI
PDRD PS13 (1) H 10 AI
PDRB BR12A H 3 DØ
PDRC SLØ4 H 4 CØ E55
PDRD PIR12 (1) H 5 BØ
PDRD PS12 (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E49 5 → EA1 → BUS DI3 L
FØ 7 → 8881 E49 10 → DV2 → BUS DI2 L

DMX (15:14) 745153
PDRB BR15A H 19 DI
PDRC SLØ7 H 12 CI
PDRD PIR15 (1) H 11 BI
PDRD PS15 (1) H 10 AI
PDRB BR14A H 3 DØ
PDRC SLØ6 H 4 CØ E63
PDRD PIR14 (1) H 5 BØ
PDRD PS14 (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E49 13 → EB1 → BUS DI5 L
FØ 7 → 8881 E49 1 → EB2 → BUS DI4 L

PDRE DMXSI L
PDRE DMXSØ L

DMX (Ø1:ØØ) 745153
PDRB BRØIA H 13 DI
PDRC PBØI (1) H 12 CI
PDRD PIAØØ H 11 BI
IRCH V (1) H 10 AI
PDRB BRØØA H 3 DØ
PDRC PBØØ (1) H 4 CØ E5
5 BØ
IRCH C B (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E59 12 → EM2 → BUS DØ1 L
FØ 7 → 8881 E59 2 → EN1 → BUS DØØ L

DMX (Ø3:Ø2) 745153
PDRB BR03A H 13 DI
PDRC PBØ5 H 12 CI
PDRD PIAØ2 H 11 BI
IRCH N B (1) H 10 AI
PDRB BRØ2A H 3 DØ
PDRC PBØ2 H 4 CØ E14
PDRD PIAØ1 H 5 BØ
IRCH E (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E59 8 → EL1 → BUS DØ3 L
FØ 7 → 8881 E59 6 → EM1 → BUS DØ2 L

DMX (Ø5:Ø4) 745153
PDRB BRØ5A H 13 DI
PDRC PBØ5 H 12 CI
PDRD PIAØØ H 11 BI
PDRD PSØ5 (1) H 10 AI
PDRB BRØ4A H 3 DØ
PDRC PBØ4 H 4 CØ E21
5 BØ
PDRD PSØ4 (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E39 5 → DK2 → BUS DØ5 L
FØ 7 → 8881 E39 10 → DJ1 → BUS DØ4 L

DMX (Ø7:Ø6) 745153
PDRB BRØ7A H 13 DI
PDRC PBØ7 H 12 CI
PDRD PIAØ2 H 11 BI
PDRD PSØ7 (1) H 10 AI
PDRB BRØ6A H 3 DØ
PDRC PBØ6 H 4 CØ E28
PDRD PIAØ1 H 5 BØ
PDRD PSØ6 (1) H 6 AØ
SI SØ 2 14
FI 9 → 8881 E39 13 → DK1 → BUS DØ7 L
FØ 7 → 8881 E39 1 → DL2 → BUS DØ6 L

PDRE DMXSI L
PDRE DMXSØ L
UBCA CP35Y B H ← DU2

DMX	SI	SØ	OUTPUT
	L	L	STATUS
	L	H	PIR ; PIA
	H	L	SL ; PB
	H	H	BR

UNIBUSA DATA MULTIPLEXER SLOTIØ

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. Bonnie Kelley DATE 11-12-74
CHK'D DATE 12-2-74
ENG. DATE 12-5-74
PROJ ENG. DATE 12-5-74
PROD DATE 12-5-74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE PROCESSOR DATA & UNIBUS REGS (PDRE)
NEXT HIGHER ASSY.
SIZE D CODE CS NUMBER M8134-Ø-1 REV E
SCALE
SHEET 6 OF 9
DIST.

REVISIONS | CHANGE NO | CHK

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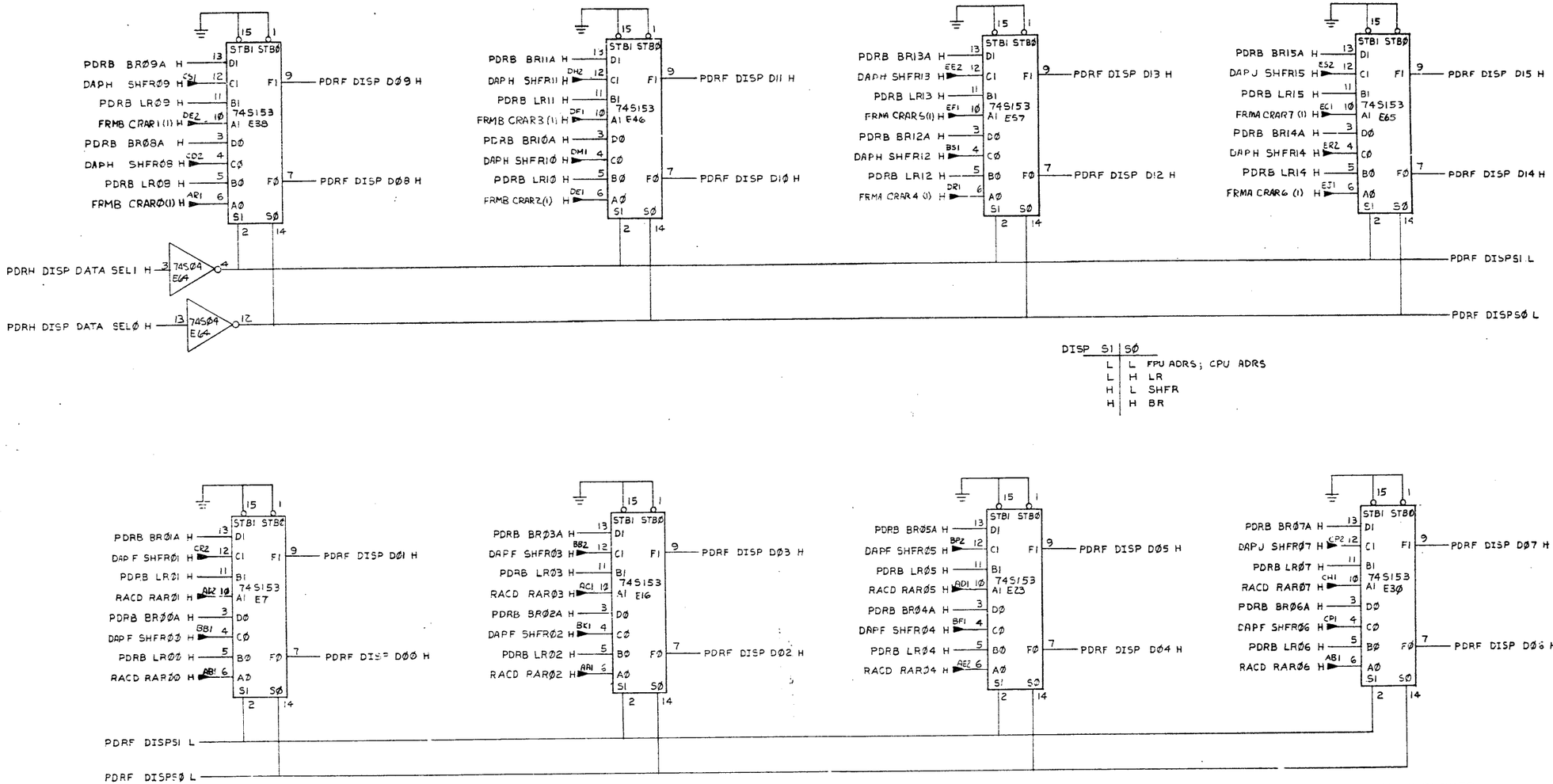

DISP S1	SØ	
L	L	FPU ADRS; CPU ADRS
L	H	LR
H	L	SHFR
H	H	BR

DATA DISPLAY MULTIPLEXER SLOTIØ

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. Jerome Kelley	DATE 11-12-74	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHKD	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROG.	DATE	

NEXT HIGHER ASSY.

SCALE —

SHEET 7 OF 9

TITLE PROCESSOR DATA & UNIBUS REGS (PDRF)

SIZE	CODE	NUMBER	REV.
D	CS	M8134-Ø-1	E

DIST.

REVISIONS	REV	CHANGE NO	CHK

REC FORM NO.

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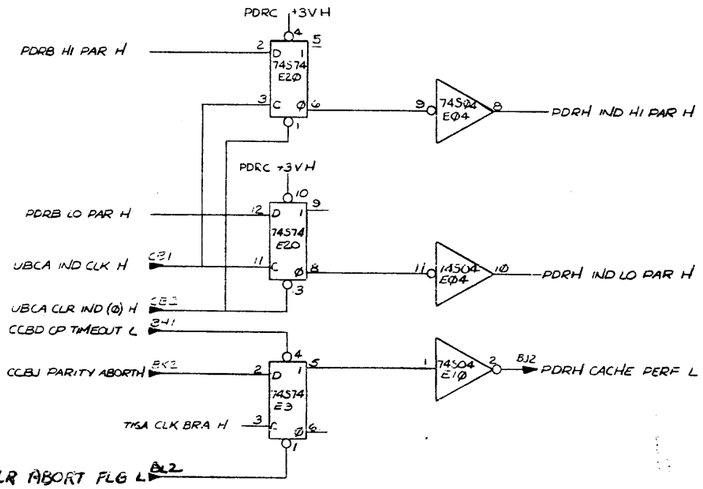

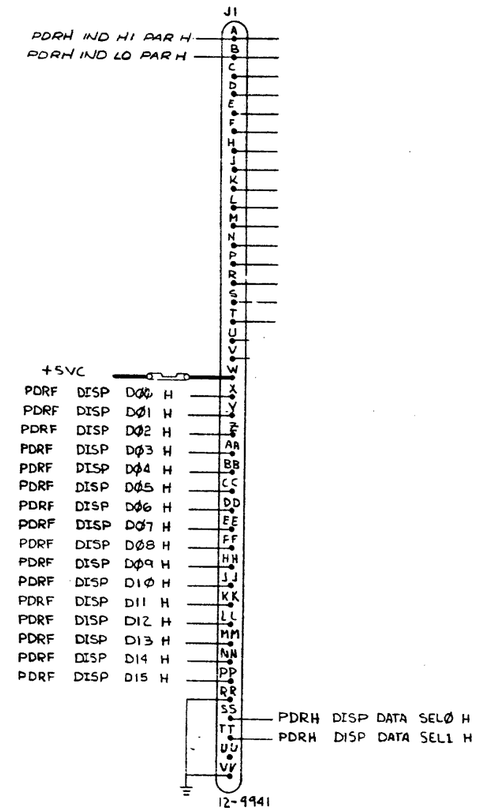

PDR/KNL INTERFACE

SIGNALS TO CONSOLE — SIGNALS FROM CONSOLE

SWITCH REGISTER AND CONSOLE CABLE SLOTIØ

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

		DATE
DRAWN	Benny Kelley	11-27-74
CHK'D		
ENG.		
PROJ ENG.		
PROD		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS (PDRH)

NEXT HIGHER ASSY.

SIZE D | CODE DCS | NUMBER M8134-Ø-1 | REV. E

SCALE

SHEET 8 OF 9

DIST.

REVISIONS			
REV	CHANGE NO	CHK	DATE

DEC FORM NO DRD 107-B

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BUS DØ7 L — DK1 — E40 — 74S174 E18 — PDRJ DØ7 H
BUS DØ6 L — DL2 — E40 — PDRJ DØ6 H
BUS DØ5 L — DK2 — E40 — PDRJ DØ5 H
BUS DØ4 L — DJ1 — E40 — PDRJ DØ4 H
PDRC +3V H

BUS DI5 L — EB1 — E50 — 74S174 E52 — PDRJ DI5 H
BUS DI4 L — EA1 — E50 — PDRJ DI4 H
BUS DI3 L — EA1 — E50 — PDRJ DI3 H
BUS DI2 L — DV2 — E50 — PDRJ DI2 H

BUS DØ3 L — EL1 — E60 — 74S174 E11 — PDRJ DØ3 H
BUS DØ2 L — EM1 — E60 — PDRJ DØ2 H
BUS DØ1 L — EM2 — E60 — PDRJ DØ1 H
BUS DØØ L — EN1 — E60 — PDRJ DØØ H
PDRC +3V H

BUS DI1 L — DB2 — E33 — 74S174 E34 — PDRJ DI1 H
BUS DIØ L — DC1 — E33 — PDRJ DIØ H
BUS DØ9 L — DA1 — E33 — PDRJ DØ9 H
BUS DØ8 L — DB1 — E33 — PDRJ DØ8 H

● T:GD T3 L — AR2 — 74S04 E10 — R35 150Ω

BUS BUFFER REG SLOT 10

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

	NAME	DATE
DRN	P.Kelly	11-12-74
CHK'D	Freeman	11-6-74
ENG	Allan Delaney	11-7-74
PROJ ENG	Allan Delaney	11-7-74
PROD	F. T. Gr	12/7-74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS (PDRJ)

MATERIAL — NEXT HIGHER ASSY. —
FINISH — SCALE — SHEET 9 OF 9

SIZE	CODE	NUMBER	REV.
D	CS	M8134-0-1	E

DIST

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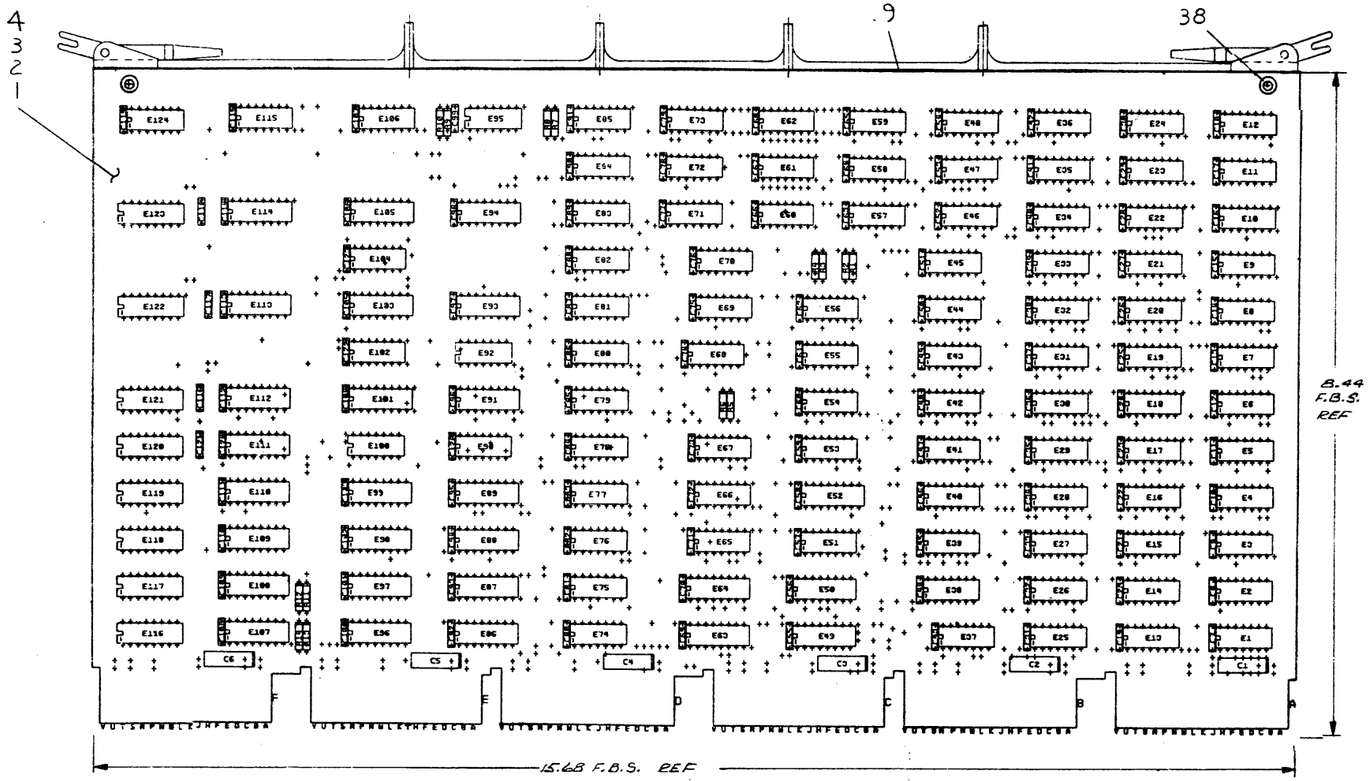
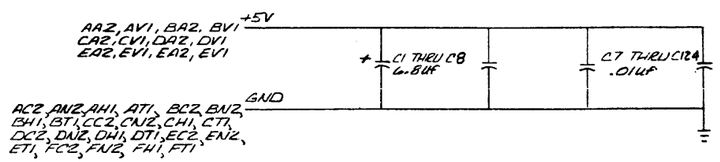
NOTES:
1. UNLESS OTHERWISE NOTED RESISTANCE IS IN OHMS AND CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .01 MFD
2. E61 & E62 ARE SPARE I.C. LOCATIONS.
3. R5, R7, R9, R12 & R13 ARE NOT USED





REF				
REF		X-Y COORDINATE HOLE LOCATION	X-CO-M8123-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8123-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8123-0-6	3
1		ETCHED CIRCUIT BOARD	5011869	4
118	C7 THRU C124	CAPACITOR, .01uf, 50V	1001610-00	5
6	C1 THRU C6	CAPACITOR, 6.8uf, 35V, 10%	1005306	6
5	R6, R8, R10, R11, R14	RESISTOR, 150 OHM, 1/4W, 5%	1300250	7
5	E4, E31, E58, E39, E104	I.C. DEC 74S00	1910532	8
12	E6, E27, E34, E52, E56, E57, E72, E78, E79, E84, E95, E100	I.C. DEC 74S04	1910534	9
12	E3, E10, E28, E29, E40, E48, E53, E59, E60, E67, E92, E102	I.C. DEC 74S10	1910536	10
4	E55, E66, E69, E85	I.C. DEC 74S11	1910537	11
3	E16, E30, E41	I.C. DEC 74S20	1910539	12
1	E15	I.C. DEC 74S40	1910541	13
37	E5, E7, E9, E8, E11, E12, E17, E18 E19, E20, E21, E22, E23, E24, E33 E35, E42, E43, E44, E45, E46, E47 E51, E54, E65, E70, E71, E74, E75 E76, E77, E80, E81, E82, E83, E32 E106	I.C. DEC 74S64	1910542	14
4	E49, E50, E63, E64	I.C. DEC 74S153	1910547	15
12	E86, E88, E96, E97, E95, E107, E108, E109, E116, E117, E118, E87	I.C DEC 74S174	1910550	16
14	E1, E2, E13, E14, E25, E26, E36, E37, E38, E73, E115, E124, E68, E90	I.C. DEC 74S74	1910544	17
2	R1, R3	RES. 680 Ω 1/4W 5%	1301424	18
2	R2, R4	RES. 330 Ω 1/4W 5%	1300295	19
1	E99	ROM 256x4	23C77A2	20
1	E94	ROM 256x4	23C78A2	21
1	E93	ROM 256x4	23C79A2	22
1	E89	ROM 256x4	23C80A2	23
1	E91	ROM 256x4	23C81A2	24
1	E120	ROM 256x4	23C82A2	25
1	E111	74S175	1910957	26
1	E123	ROM 256x4	23C66A2	27
1	E119	ROM 256x4	23C67A2	28
1	E121	ROM 256x4	23C68A2	29
1	E122	ROM 256x4	23C69A2	30
1	E114	ROM 256x4	23C70A2	31
1	E112	ROM 256x4	23C71A2	32
	E110	ROM 256x4	23C72A2	33
1	E113	ROM 256x4	23C73A2	34
1	E105	ROM 256x4	23C74A2	35
1	E103	ROM 256x4	23C75A2	36
1	E101	ROM 256x4	23C76A2	37
12		EYELET	9006732	38
1		HANDLE MODULE	1210711-2	39

IC DEC 74S175	8	16
IC DEC 74S174	8	16
IC DEC 74S153	8	16
256x4 ROM	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

FCC FORM NO. DRD 135.0

REV.	CHK	CHANGE NO.	ORIGINATED	DEC NO.	EIA NO.
A					
B		M8123-01000-1	2 JAN '76 H. Simmons		
C			5 JAN 76 A. HELENIUS		

REVISIONS

FIRST USED ON OPTION MODEL: KB11-C

SEMICONDUCTOR CONVERSION CHART

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV. C

DRN.		DATE 11/5/75
CHKD.		DATE 12-22-75
ENG.	ESD	DATE 12-22-75
PROJ. ENG.	EJS	DATE 12/8/75
PROD.		DATE 12/8/75

NEXT HIGHER ASSY: B-DD-KB11-C

SCALE: FF

SHEET 1 OF 14

digital

TITLE: ROM & ADDR CONTROL (RAC)

SIZE	CODE	NUMBER	REV.
D	CS	M8123-0-1	B

DIST.

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RACA CLR RBR L
UBCE ROM INIT H (EJ1) → 74S04 E57
TIGC T2 L → 74S04 E78 (R8 NOT USED, +5V; R6 150Ω)

74S174 E117 (63:58): D5 D4 D3 D2 D1 D0 → R5 R4 R3 R2 R1 R0 CLR CLK
- FS2 RACA UBRK H
- FU1 RACA UBRX H
- FM2 RACA USRXØ1 H
- FS1 RACA USRXØØ H
- FP2 RACA UDRXØ1 H
- FP1 RACA UDRXØØ H

74S174 E118 (57:52): D5 D4 D3 D2 D1 D0 → R5 R4 R3 R2 R1 R0 CLR CLK
- FJ2 RACA USRK H
- FT2 RACA UDRKØ1 H
- FV2 RACA UDRKØØ H
- FU2 RACA UCCLØ2 H
- FL2 RACA UCCLØ1 H
- FK2 RACA UCCLØØ H

RACB ROM47 H
RACB ROM46 H
74S174 E116 (51:46): D5 D4 D3 D2 D1 D0 → R5 R4 R3 R2 R1 R0 CLR CLK
- FR1 RACA UPCA H
- FR2 RACA UPCBØ1 H
- FN1 RACA UPCBØØ H
- FM1 RACA USHFØ1 H
- FL1 RACA USHFØØ H
- FK1 RACA UIRKA H

RACA UIRK H → 74S11 E69 → CL1

RACC RARBØ1 H
RACC RARBØØ H

23-C66A2 256×4 ROM (63:60) E123: A7 A6 A5 A4 A3 A2 A1 A0 → M3 M2 M1 M0; CS1 CSØ
23-C67A2 256×4 ROM (59:56) E107: A7 A6 A5 A4 A3 A2 A1 A0 → M3 M2 M1 M0; CS1 CSØ
23-C68A2 256×4 ROM (55:52) E138: A7 A6 A5 A4 A3 A2 A1 A0 → M3 M2 M1 M0; CS1 CSØ
23-C69A2 256×4 ROM (51:48) E122: A7 A6 A5 A4 A3 A2 A1 A0 → M3 M2 M1 M0; CS1 CSØ

RACA RARBØ2 H
RACA RARBØ3 H
RACA RARBØ4 H
RACA RARBØ5 H
RACA RARBØ6 H
RACA RARBØ7 H

UBCE ROM INIT H (EJ1)
Page 97
RACB UBSDØ1 H
TMCC ABORT H (EE1)
74S64 E106
RACA ZAP L
Zap 2ØØ Bit 7 Page 68
GNDØ9 (EA1, DC1)
TIGE TS2 L (EB1) → 74S04 E95 (P99 NOT USED, +5V; R10 150Ω)
UBCB PE ABORT L (CK1)
Page 94
74S04 E52

RACL RADRØ7 H
74S04 E95
RARB Ø7 74S74 E73
RACA +3V H
TIGD T3 L (EJ2) → 74S04 E95 (R9 NOT USED, +5V; R5 150Ω)
RACA CLKA RAR H
RACA CLK RAR H

RACL RADRØ6 H
RACL RADRØ5 H
RACL RADRØ4 H
RACL RADRØ3 H
RACL RADRØ2 H
74S174 E109 (RARB (Ø6:Ø2)): D5 D4 D3 D2 D1 D0 → R5 R4 R3 R2 R1 R0 CLR CLK

74S04 E95 → RACA +3V H

ROM BITS (63:48) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRN G. S. Lindgate DATE 11-17-75
CHKD DATE 12-2-75
ENG DATE 12/2/75
PROJ ENG DATE 12/4/75
PROG DATE 12/2/75

NEXT HIGHER ASSY. B-DD-KB11-C
SCALE —
SHEET 2 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR CONTROL (RACA)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV. E | DIST.

REVISIONS | REV | CHANGE NO | CHK

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RACA RARB Ø7 H
RACA RARB Ø6 H
RACA RARB Ø5 H
RACA RARB Ø4 H
RACA RARB Ø3 H
RACA RARB Ø2 H
RACC RARB Ø1 H
RACC RARB ØØ H

A7 E114 23-C72A2 256x4 ROM (47:44) — A6 A5 A4 A3 A2 A1 A0 — M3 M2 M1 M0 — CS1 CSØ
RACB ROM47 H
RACB ROM46 H

A7 E112 23-C71A2 256x4 ROM (43:40) — A6 A5 A4 A3 A2 A1 A0 — M3 M2 M1 M0 — CS1 CSØ
RACB ROM45 H

A7 E110 23-C72A2 256x4 ROM (39:36) — A6 A5 A4 A3 A2 A1 A0 — M3 M2 M1 M0 — CS1 CSØ

A7 E113 23-C72A2 256x4 ROM (35:32) — A6 A5 A4 A3 A2 A1 A0 — M3 M2 M1 M0 — CS1 CSØ
RACB ROM34 H
RACB ROM33 H
RACB ROM32 H

745174 E107 — D5 D4 (45:41) D3 D2 D1 DØ — R5 R4 R3 R2 R1 RØ — CLR CLK
RACB UPWEØ1 H
RACB UPWEØØ H
RACB UPADØ2 H
RACB UPADØ1 H
RACB UPADØØ H

745174 E108 — D5 D4 (4Ø:35) D3 D2 D1 DØ — R5 R4 R3 R2 R1 RØ — CLR CLK
RACB UBSDØ1 H
RACB UBSDØØ H
RACB UBAXØ1 H
RACB UBAXØØ H
RACB UIBSØ1 H
RACB UIBSØØ H

RACA CLR RBR L
TIGC TIB L — R13 NOT USED — R14 150Ω — +5V — 745Ø4 E78 DR1 13 12
TIGC TIB H (BJ1)
RACB CLKRBR (34:28) H

745Ø4 E79 — 5 6

74574 E66 — D CP — CA1 CJ1
RACB FP START (1) H
RACB FP START (Ø) H

RACA +3V H
RACB ROM4Ø H — 74574 E73 — D CP — 2 5 3 6
TIGC TIB H (BJ1) — DJ1 — RACB ROM 4Ø B L
RACA CLR RBR L

256x4 ROM E120 (67:64) 23-CB2A2 — A2 A1 A0 A3 A6 A5 A4 — M3 M2 M1 M0 — CS1 CSØ
745175 E111 — D3 D2 D1 DØ — R3(Ø) R3(1) R2(Ø) R2(1) R1(Ø) R1(1) RØ(Ø) RØ(1) — CLR CLK
RACB CLR SYNC H
DB2 RACB FPC 1 H
DB1 RACB FPC Ø H
RACA CLR RBR L
RACB CLK RBR (34:28) H

ROM BITS (47:32) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRAWN — DATE 11-5-75
CHKD — DATE 12-2-75
ENG Allan Hellering — DATE 12/2/75
PROJ ENG Allan Hellering — DATE 12/2/75
PROJ Tom Taylor — DATE 12/2/75
NEXT HIGHER ASSY. B-DD-KB11-C
SCALE — SHEET 3 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR CONTROL (RACB)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV B | DIST

REVISIONS: REV | CHANGE NO | CHK

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RACB ROM34 H
RACB ROM32 H
RACB ROM33 H
RACB CLKRBR (34:28) H
UBCE ROM INIT H
RACA +3V H
RACC ROM INIT L
TIGC TIB L
RACA CLR RBR L
RACA CLK RAR H
RACA ZAP L
RACD RAMS H
RACD RARAØ3 H
RACD RARAØ2 H
RACD RARAØ1 H
RACD RARAØØ H
RACL RADRØ1 H
RACL RADRØØ H
RACL RADRØ6 H
RACL RADRØ5 H
RACL RADRØ4 H
RACL RADRØ7 H

74S174 E96 (34,32:28)
RACC USHCØ1 H
RACC UBCTØ2 H
RACC UBCTØ1 H
RACC UBCTØØ H
RACC UMSCØ2 H
RACC UMSCØ1 H

74S174 E13.3 (33)
RACC USHCØØ H
RACC USHCØØ

74S04 E72
74S74 E13.4 (27)
RACC UMSCØØ H
RACC UMSCØØL

74S174 E97 (26:21)
RACC UBSCØ2 H
RACC UBSCØ1 H
RACC UBSCØØ H
RACC UBMXØ1 H
RACC UBMXØØ H
RACC UBLW1 H
RACC UBLWØ1 H

74S174 E98 (20:15)
RACC UBMXØØ H
RACC UKMXØ1 H
RACC UKMXØØ H
RACC UBLU2 H
RACC UBLU1 H
RACC UBLUØ H

E125 23-C74A2 256x4 ROM (31:28)
E103 23-C75A2 256x4 ROM (27:24)
E101 23-C76A2 256x4 ROM (23:20)
E99 23-C77A2 256x4 ROM (19:16)

74S174 E87 RARB (01:00)
74S174 E115 RARA Ø7

ROM BITS (31:16) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRN — DATE 11-5-75
CHKD — DATE 12-2-75
ENG — DATE 12/2/75
PROJ ENG. — DATE 12/2/75
PROD — DATE 12/2/75

NEXT HIGHER ASSY. B-DD-KB11-C
SCALE
SHEET 4 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR. CONTROL (RACC)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV. B
DIST.

REVISIONS: REV | CHANGE NO | CLTR

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RACA +3V H

E94 23-C7BA2 256x4 ROM (15:12) → RACD ROW15 H, RACD UBFEN L, RACD UBFEN L, RACD LBFEN L

E93 23-C79A2 256x9 ROM (11:00) → RACD UBEF03 L, RACD UBEF02 L, RACD UBEF01 L, RACD UBEF00 L, RACD UBEF00 L, RACD UBEF00 L

E89 23-CB0A2 256x4 ROM (07:04) → RACD UADR07 L, RACD UADR06 L, RACD UADR05 L, RACD UADR04 L

E91 23-CB1A2 256x4 ROM (03:00) → RACD UADR03 L, RACD UADR02 L, RACD UADR01 L, RACD UADR00 L

RACD RARA 00 H
RACD RARA 01 H
RACD RARA02 H
RACD RARA03 H

RACC RARA07 H
RACC RARA06 H
RACC RARA05 H
RACC RARA04 H

E88 74S174 RAR (03:00) → RACD RAR05 H, RACD RAR04 H, RACD RAR03 H, RACD RAR02 H, RACD RAR01 H, RACD RAR00 H

E115 74S74 RAR 07 → RACA +3V H

E86 74S174 RAR (05:00) → EH2 RACD RAR05 H, EE2 RACD RAR04 H, EF2 RACD RAR03 H, DV2 RACD RAR02 H, DT2 RACD RAR01 H, ED2 RACD RAR00 H

EC1 RACD RAR07 H
DS2 RACD RAR06 H

RACA ZAP L
RACA CLK13 RAR H
RACL RADR00 H
RACC RADR01 H
RACL RADR02 H
RACL RADR03 H
RACL RADR04 H
RACL RADR05 H
RACL RADR06 H
RACC RADR07 H

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ROM BITS (15:00) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
KB11-C		PARTS LIST		

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

DRN S Godette DATE —
CHK K Thompson DATE 12-2-75
ENGR Allen Helbarny DATE 2/2/75
PROJ ENG Allen Helbarny DATE 2/2/75
PROG J Taylor DATE 12/1/75
NEXT HIGHER ASSY B-DD-KB11-C
SCALE —
SHEET 5 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR. CONTROL (RACD)

SIZE D | CODE CS | NUMBER M8123-0-1 | REV B | DIST

REVISIONS			
REV	CHANGE NO	CHK	DATE

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RACJ AFIRØ3 (1) L
RACE BF1 = Ø L
RACJ AFIR15 (Ø) H
RACJ AFIR14 (1) H
RACJ AFIR13 (1) H
RACJ AFIR 12 (1) H
RACE BF2 = 4 L
74S20 E41

RACJ AFIR11 (1) H
RACJ AFIRIØ (1) H
RACJ AFIRØ9 (Ø) H
RACJ BUF AFIRØ8 (1) H
RACJ AFIR15 (Ø) H
RACJ AFIRØ6 (1) H
RACJ AFIRØ8 (1) H
74S10 E28

RACJ AFIR11 (1) H
RACJ AFIRIØ (Ø) H
RACJ AFIRØ9 (1) H
74S10 E29

RACJ AFIR Ø4 (1) L
74S04 E6

RACE BF1 = Ø L
RACE +3V H
RACJ BUF AFIR11 (Ø) L
RACJ AFIRØ8 (1) H
RACJ AFIRØ7 (Ø) H
RACJ AFIRØ6 (1) H
74S10 E53

RACJ AFIRØ5 (1) L
74S04 E6

RACE R CLASS H
RACE (MUL+ASHC+MFP) H
RACE BF3 = 5 L
RACE SMØ L
RACE BIN + SMØ H
74S64 E35
74S64 E22
74S64 E42

RACJ AFIR Ø9 (Ø) H
RACJ AFIR 1Ø (Ø) H
RACJ AFIR 11 (Ø) H
74S10 E29

RACJ AFIR12 (1) L
RACJ AFIR13 (1) L
RACJ AFIR14 (1) L
RACJ AFIR12 (Ø) L
RACJ AFIR13 (Ø) L
RACJ AFIR 14 (Ø) L

RACE BF1=Ø L
RACJ AFIR14 (Ø) H
RACJ AFIR13 (Ø) H
RACJ AFIR12 (Ø) H
74S10 E40

RACJ AFIR 1Ø (Ø) H
74S04 E31

RACJ AFIR Ø9 (Ø) H
RACJ AFIR 15 (Ø) L
RACE +3.V H
74S00 E31

RACJ AFIR Ø8 (Ø) H
RACJ AFIR Ø6 (1) H
RACJ AFIR 11 (1) L
74S64 E32

RACE JMP+JSR+SWAB H

RACE A Ø RAB Ø Ø L
RACE A Ø RAB Ø1 L
RACE A Ø RAB Ø2 L
74S64 E44
74S64 E45
74S64 E33

BIT FIELD
IR

Ø	1	2	3	4	5
15 14 13 12	11 10 09 Ø8 Ø7 Ø6	Ø5 Ø4	Ø3	Ø2	Ø1 Ø Ø
	SM	SF	DM	DF	

S = source
M = mode
F = field
D = destination

TMCB BRQ TRUE H
RACE BR INST H
RACF (HALT:OPCODE7) H
RACE R CLASS H
RACH TCLASS L
RACH DF 7+ BRQ H
RACH PSWAB H
RACE JMP+JSR+SWAB H
RACH DMØ H
74S64 E7
RACE A Ø RAB Ø3 L

RACJ AFIR11 (Ø) L
RACE BF1 = Ø L
RACE +3V H
RACH AFIR1ØA (1) L
RACH AFIRØ9A (1) L
RACJ AFIRØ8 (1) L
74S64 E24
RACE BR INST H
74S04 E34
RACE A Ø RAB Ø4 L

RACJ AFIR 13 (Ø) H
RACJ AFIR 12 (1) H
RACJ AFIR 14 (Ø) H
RACJ AFIR 13 (1) H
RACJ AFIR 14 (1) H
RACJ AFIR 12 (Ø) H
74S64 E43
RACF UCLASS H
74S10 E1Ø
RACE A Ø RAB Ø5 L
RACE BIN L

RACJ AFIR 12 (1) H
RACJ AFIR 13 (1) H
RACJ AFIR 14 (Ø) H
74S10 E4Ø
RACE BF1 = 7 L

RACJ AFIR11 (1) H
RACH AFIR1ØA (Ø) H
RACH AFIRØ9A (Ø) H
74S10 E48
RACE BF2 = 4 L

74S04 E34
RACE +3V H

NOTE: UCLASS = (MUL:ASHC) * DMØ + SOB + BIN
RCLASS = (CLR.B:ASL.B) + MFP + SXT + XOR
TCLASS EXCLUDES [MFP + NEG.B + (-DMØ)] FROM RCLASS WHEN COMBINED

A-FORK LOGIC SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRN B. B [illegible] DATE 11-5-75
CHKD [illegible] DATE [illegible]
ENGR R.M. Holmquist DATE 11/21/75
Prod ENG. R.M. Holmquist DATE 11/21/75
PROD [illegible] DATE 11/21/75

NEXT HIGHER ASSY. B-DD-KB11-C
SCALE
SHEET 6 OF 14

TITLE ROM & ADDR CONTROL (RACE)

SIZE	CODE	NUMBER	REV.
D	CS	M8123-Ø-1	B

DIST.

REVISIONS: REV | CHANGE NO | CHK

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RACF BFØ1=Ø L

RACJ AFIR15(Ø) H
RACJ AFIR14(Ø) H
RACJ AFIR13(Ø) H
RACJ AFIR12(Ø) H
74520 E41

RACJ AFIRØ3(1) H

RACJ AFIRØ7(Ø) H
RACJ AFIRØ6(Ø) H
RACJ AFIRØ5(Ø) H
RACJ AFIRØ4(Ø) H
74520 E16

RACJ AFIR11(Ø) H
RACJ AFIR10(Ø) H
RACJ AFIRØ9(Ø) H
RACJ AFIRØ8(Ø) H
74520 E30

74S64 E18

RACF IR(11:8) Ø L

RACJ AFIRØ6(Ø) H
RACJ AFIRØØ(1) H
RACF(HALT:OPCODE7) H
RACH BIN*(-SMØ1) L
RACJ AFIRØ9(1) H
RACJ AFIRØ5(Ø) H
RACJ AFIRØ3(1) H
RACJ AFIRØ4(1) H
74S64 E5
RACF A1 RABØØL

RACJ AFIR15(Ø) L
RACE BIN L
RACE BFI=7 L
RACJ BUF AFIR11(Ø) L
RACH BF2=7 L
RACE +3V H
RACH DMØ L
74S64 EZ3

RACJ AFIRØ7(Ø) H
RACJ AFIRØ1(1) H
RACF UCLASS H
RACJ AFIR 1Ø(1) H
RACJ AFIRØ5(Ø) H
RACJ AFIRØ4(1) H
RACH +3V H
74S64 E17
RACF A1 RABØ1 L

RACF BFØ1=Ø L
RACF IR(11:8) Ø L
RACJ AFIRØ7(1) L
RACJ AFIRØ6(Ø) L
RACE +3V H
74S64 EZ1

RACJ AFIRØ2(1) H
RACF(RTS:CCOP) H
RACJ BUF AFIR11(1) H
RACJ AFIRØ5(1) H
RACH +3V H
74S64 E8
RACF A1 RABØ2 L

RACJ AFIR11(1) H
RACJ AFIR1Ø(1) H
RACJ AFIRØ9(Ø) H
RACJ AFIRØ8(1) H
74S20 E3Ø

RACE +3V H
RACE BFI=Ø L
74S64 EZØ
RACF XCLASS H

RACH DMØ L
RACE BF3=5 L
RACJ AFIRØ7(1) H
RACJ AFIRØ6(Ø) H
74S00 E5B

RACJ AFIRØ7(Ø) H
RACJ AFIR15(Ø) H
74S10 EGØ

RACJ AFIRØ4(Ø) H
RACJ AFIRØ5(Ø) H
RACJ AFIRØ3(1) H
74S10 E3

74S00 E4
RACF A1 RABØ5 L

RACE BIN + SMØ H
RACH DF7 + BRQ H
RACH DMØ H
74S10 E1Ø
RACF A2 RABØ3 L

RACF XCLASS H
74S04 E34
RACF A2 RABØ5 L

RACJ AFIR15(1) L
IRCH C(1) H
RACH AFIRØ9A(1) H
IRCH Z(1) H
RACH AFIR1ØA(Ø) H
IRCH N(1) H
RACH AFIRØ9A(Ø) H
IRCH V(1) H
RACH AFIR1ØA(1) H
74S00 E5B
74S10 E59
74S10 E59
74S10 E48
74S64 E47
RACF TRUE1 H

RACJ AFIR15(Ø) L
RACH AFIRØ9A(1) H
IRCH Z(1) H
IRCH N(1) H
IRCH V(Ø) H
RACH AFIR1ØA(1) H
IRCH N(Ø) H
IRCH V(1) H
RACH AFIR1ØA(Ø) H
RACH AFIRØ9A(Ø) H
74S00 E5B
74S10 E59
74S10 E48
74S00 E5B
74S64 E4G
RACF TRUE2 H

UCLASS = (MUL:ASHC)* DMØ + SOB + BIN
XCLASS = MARK + MTP + MFP * DMØ

A-FORK LOGIC SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
KB11-C	PARTS LIST			

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

DRN E Ledgett DATE
CHKD — DATE 2-2-75
ENG Allen Helmus DATE 11/7/75
PROJ ENG Allen Helmus DATE 11/7/75
PROD K Taylor DATE 1/4/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE ROM & ADDR CONTROL (RACF)

NEXT HIGHER ASSY. B-DD-KB11-C
SIZE D CODE CS M8123-Ø-1 REV B
SCALE —
SHEET 7 OF 16
DIST

REV	CHANGE NO	VISIONS	CHK
B			

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RACJ AF IRI1 (1) H
RACJ AF IRIØ (1) H
RACJ AF IRØ9 (1) H
74S1Ø E29
RACH BF2=7 L

RACJ BUF AF IRØ8 (1) H
RACE BR INST H
74SØØ E04
RACH A2 RAB02 L

RACF TRUE E H
74SØØ E04
RACH A2 RAB01 L

PDRA BRMXIØ H (BD1)
74S04 E6
RACH +3V H
74S74 E36
RACH AF IRIØA (1) H
RACH AF IRIØA (Ø) H

PDRA BRMXØ9 H (BC1)
74S74 E36
RACH AF IRØ9A (1) H
RACH AF IRØ9A (Ø) H

RACJ CLKAFIR L
74S04 E27

RACE BF1=7 L
74S04 E34
RACH NEG.B*DMØ H

RACF TRUE 1 H
RACE BR INST H
74S64 E12
RACH A2 RABØØ L

FRMJ FP PRESENT L
BS1 13
74S04 E57
RACJ AFIRIS (1) H
R2 330
R1 680
+5V

RACJ AFIRI1 (Ø) H
RACJ AF IRØ8 (Ø) H
RACJ AF IRØ7 (1) H
RACJ AF IRØ6 (1) H
74S2Ø E16
74S04 E6
RACH PSWAB H

RACJ AFIRI1 (Ø) H
RACJ AFIRIØ (Ø) H
74S00 E31
RACE BF1=Ø L
RACE BF1=7 L
74S10 E10
RACH BIN * (-SMØ1) L

RACJ AF IRØ8 (1) H
RACJ AF IRØ7 (Ø) H
RACJ AF IRØ6 (Ø) H
74S10 E28
RACE +3V H
RACE BF1=Ø L
RACE BF2=5 L
74S64 E9
RACH NEG.B * DMØ H

RACH +3V H
RACJ AF IRØ5 (Ø) H
RACJ AF IRØ4 (Ø) H
RACJ AF IRØ3 (Ø) H
74S10 E3
74S04 E34
RACH DMØ H
RACH DMØ L

74S04 E57
RACH AØ RAB07 L

TMCB BRQ TRUE L AK1
74SØØ E4
RACH DFT+BRQ H

RACJ AF IRØØ (1) H
RACJ AF IRØ1 (1) H
RACJ AF IRØ2 (1) H
74S10 E3
RACH DFT L

RACH +3V H
RACH DMØ L
RACJ AF IRI1 (1) H
RACJ AF IRIØ (Ø) H
RACJ AF IRØ7 (Ø) H
RACJ BUF AF IRØ8 (1) H
RACJ AF IRØ9 (1) H
RACJ AF IRØ7 (Ø) H
RACJ AF IRØ6 (Ø) H
74S04 E31
74S64 E19
RACH TCLASS L
RACE BIN * SMØ H
RACE RCLASS H
RACE BF1=7 L
RACE BF1=Ø L
RACE SMØ L
RACH DMØ H
RACE JMP+JSR+SWAB H
RACH PSWAB H
74S64 E11
RACH A1 RAB04 L

RCLASS=(CLR.B:ASL.B)+MFP+SXT+XOR
TCLASS EXCLUDES(MFP+NEG.B+(-DMØ))] FROM RCLASS

RACC UMSCØ2 H
RACC UMSCØØ H
RACH +3V H
74S10 E40

RACJ AFIRI1 (Ø) H
RACE SMØ L
74S11 E55

RACC UMSCØ1 H
74S04 E56

RACE BIN L
74S04 E56
RACJ BUF AFIRI1 (1) H
RACH AFIRIØA (1) H
74S10 E60

RACJ AFIRØ5 (Ø) H
RACH DMØ L
74S11 E55

RACE BR INST H
74S04 E56

TMCB BRQ TRUE H (AK1)
RACE BR INST H
74S64 E54
RACH BUST H

74S04 E10Ø

RACC U MSC Ø1 H ER1
74S04 E10Ø
RACC UMSC ØØ H DU2
74S10 E10Ø
74S74 E90
BT2
RACH FP ATTN (1) H
BU1
RACH FP ATTN (Ø) H

RACC U MSC Ø2 H ER2
74S04 E10Ø
RACC ROM INIT L
RACH +3V H

TIG D T3 L EJ2
74S04 E10Ø
RACH SYNC CLK H

A—FORK LOGIC SLOT 9

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
KB11-C		PARTS LIST		

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

DRN — DATE 05-75
DES — DATE 5-22-75
ENGR K.D. DATE 12/1/75
PROJ ENG. DATE 12/1/75
PROJ DATE 12/1/75
NEXT HIGHER ASSY. B-DD-KB11-C
SCALE
SHEET 8 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR. CONTROL (RACH)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV B | DIST

REVISIONS: REV | CHANGE NO | CHK

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DIGITAL EQUIPMENT CORPORATION

Bit 46 of B Micro room

R12 NOT USED +5V

R11 150Ω

TIGL TIB H

RACA UIRKA H

FKI

EKI

* THIS CONNECTION MADE ON BACKPLANE WIRING

74S00 E39

RACJ CLK AFIR L

74S04 E27

74S11 E66

PDRA BRMX 15 H — BPI — RACJ AFIR 15 (1) H — RACJ AFIR 15 (Ø) H — 74S74 E38
PDRA BRMX 14 H — BNI — RACJ AFIR 14 (1) H — RACJ AFIR 14 (Ø) H — 74S74 E38
PDRA BRMX 13 H — BMI — RACJ AFIR 13 (1) H — RACJ AFIR 13 (Ø) H — 74S74 E37
PDRA BRMX 12 H — BLI — RACJ AFIR 12 (1) H — RACJ AFIR 12 (Ø) H — 74S74 E37

PDRA BRMX 11 H — BEI — RACJ AFIR 11 (1) H — RACJ AFIR 11 (Ø) H — 74S74 E26 — 74S04 E6 — RACJ BUF AFIR 11 (1) H
PDRA BRMX 10 H — BDI — RACJ AFIR 10 (1) H — RACJ AFIR 10 (Ø) H — 74S74 E26
PDRA BRMX Ø9 H — BCI — RACJ AFIR Ø9 (1) H — RACJ AFIR Ø9 (Ø) H — 74S74 E25
PDRA BRMX Ø8 H — BBI — RACJ AFIR Ø8 (1) H — RACJ AFIR Ø8 (Ø) H — 74S74 E25 — 74S04 E27 — RACJ BUF AFIR Ø8 (1) H

PDRA BRMX Ø7 H — AUI — RACJ AFIR Ø7 (1) H — RACJ AFIR Ø7 (Ø) H — 74S74 E14 — 74S04 E27
PDRA BRMX Ø6 H — ASI — RACJ AFIR Ø6 (1) H — RACJ AFIR Ø6 (Ø) H — 74S74 E14
PDRA BRMX Ø5 H — ARI — RACJ AFIR Ø5 (1) H — RACJ AFIR Ø5 (Ø) H — 74S74 E13
PDRA BRMX Ø4 H — API — RACJ AFIR Ø4 (1) H — RACJ AFIR Ø4 (Ø) H — 74S74 E13

PDRA BRMX Ø3 H — ATZ — RACJ AFIR Ø3 (1) H — RACJ AFIR Ø3 (Ø) H — 74S74 E2 — 74S04 E27
PDRA BRMX Ø2 H — ASZ — RACJ AFIR Ø2 (1) H — RACJ AFIR Ø2 (Ø) H — 74S74 E2
PDRA BRMX Ø1 H — ARZ — RACJ AFIR Ø1 (1) H — RACJ AFIR Ø1 (Ø) H — 74S74 E1
PDRA BRMX ØØ H — APZ — RACJ AFIR ØØ (1) H — RACJ AFIR ØØ (Ø) H — 74S74 E1

74S40 E15

INSTRUCTION REG. (A-FORK COPY) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRN [illegible] DATE 11-5-75
CHK [illegible] DATE 12-2-75
ENG KJD [illegible] DATE 12/1/75
PROJ ENG KJD [illegible] DATE 12/1/75
PROD [illegible] DATE 12/1/75

NEXT HIGHER ASSY. B-DD-KB11-C
SCALE
SHEET 9 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR CONTROL (RACJ)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV. B | DIST

REVISIONS: REV | CHANGE NO | CHK

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K04

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RACK +3V H

RACD UBEF Ø3 H

RACC ROM INIT L

UBCC RIP+FP SYNC H

RACB CLR SYNC H

RACH SYNC CLK H

BM2 RACK BRC 10 H

RACK BEF (1:Ø) Ø H

UBCF CNSL Ø7 (1) H

RACK BRCAB Ø7 L

RACK BEF (3:2) 3 H

RACK CNSL ACT L

UBCF CNSL ACT (1) H

RACK BRCAB Ø6 L

UBCH CNSL Ø2 H

RACK BRCAB Ø2 L

UBCH CNSL Ø1 H

RACK BRCAB Ø1 L

UBCH CNSL Ø0 H

RACK BRCAB Ø0 L

RACK BEF (1:Ø) Ø H

GND Ø9

IRCD DM357 H

IRCF Z2 (1) H

GRAJ SC=Ø L

GRAJ DIV SUB L

GRAB OBD (2) H

DAPA BRIK L

RACK BE 7S H

BE (Ø:7) BIT 5

RACD UBEFA Ø1 L

RACD UBEFA Ø0 L

RACK BRCAB Ø5 L

RACK RIP+FP SYNC

RACD UBEF Ø3 L

UBCC RIP+FP SYNC H

GRAV SC=Ø L

TMCA CONF (1) H

TMCB PF(Ø)*(SF+TF) H

GND Ø9

IRCB FJ CLASS L

GRAD OBØØ H

RACK RIP+FP SYNC L

TMCB BRQ*(T+CONF) L

BE (1Ø:17) BIT 5

RACD UBEFB Ø1 L

RACD UBEFB Ø0 L

RACD UBEF Ø2 L

GND Ø9

GRAE SR EQ ONE L

TMCB (PWRF+INTR) L

GRAV SC Ø5 L

IRCH N (1) H

GRAJ DIV QUIT L

SSRA PS RESTORE (1) H

RACK FP REQ H

BE (Ø:7) BIT 4

RACD UBEFA Ø1 L

RACD UBEFA Ø0 L

RACD UBEF Ø3 L (CF2)

FRMB FP CLASS L

GRAD OBØØ H

TMCB BRQ TRUE L

TMCB PF(Ø)*(SF+-TF) H

GND Ø9

IRCC O CLASS L

GRAH SR15 H

BE (1Ø:17) BIT 4

UBCF REG DEP (1) H

UBCF CNSL ACT (1) H

RACK FP REQ H

IRCC DSTMD L

RACK CNSL ACT L

IRCC DSTMD H

FP REG WRITE H

RACK BE 7S H

+3V

R4 330

R3 680

FRMF FP REQ L

10CF2

RACK FP REQ H

RACD UBEF Ø3 L

74S153

S1	SØ	OUTPUT
L	L	A→F
L	H	B→F
H	L	C→F
H	H	D→F
X	X	F=L

STB=L

STB=H

BRANCH CONDITIONS (ROM ADDRESS MODIFICATION) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. G. Blodgett DATE 11-5-75
DSGN. DATE 12-2-75
ENG. KJD DATE 12-2-75
PROJ. ENG. KJD DATE 12/2/75
PROG. DATE 12/2/75

NEXT HIGHER ASSY. B-DD-KB11-C

SCALE —

SHEET 10 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE ROM & ADDR. CONTROL (RACK)

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV B | DIST.

REVISIONS | REV. | CHANGE NO. | MK

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RACL +3V H

IRCB BØ RABØ3 L — DL2
IRCC CØ RABØ3 L — DP2
RACD UADRØ3 L
RACE AØ RABØ3 L
RACF A2 RABØ3 L
RACE AØ RABØ5 L
74S64 E74 → RACL RADRØ3 H

RACD UAFEN L → 74S04 E84

IRCE BØ RABØ2 L — DL1
IRCC CØ RABØ2 L — DM1
RACD UADRØ2 L
RACK BRCABØ2 L
RACE AØ RABØ2 L
RACF A1 RABØ2 L
RACH A2 RABØ2 L
74S64 E75 → RACL RADRØ2 H

RACD UBFEN L
IRCB FJCLASS L
RACK BEF(1:Ø)1 H
RACK BEF(3:2)3 H — (CE1)
GRAB OBD (1) H — DF2
RACD UBEFØ3 L
74S64 E71
RACD UBEFØ2 L → 74S04 E72

IRCE BØ RABØ1 L — DA1
IRCC CØ RABØ1 L — DN1
RACD UADRØ1 L
RACK BRCABØ1 L
RACE AØ RABØ1 L
RACF A1 RABØ1 L
RACH A2 RABØ1 L
74S64 E76 → RACL RADRØ1 H

RACD UCFEN L
IRCC SM357 H — DD1
RACK BEF(1:Ø)Ø H
RACK BEF(3:2)3 H
74S64 E7Ø

IRCC CØ RABØØ L — DP1
RACD UADRØØ L
RACK BRCABØØ L
IRCB BØ RABØØ L — DK1
IRCB B1 RABØØ L — DM2
RACE AØ RABØØ L
RACF A1 RABØØ L
RACH A2 RABØØ L
74S64 E77 → RACL RADRØØ H

IRCC DSTMØ L — DE2
RACE AØ RABØ4 L
RACH AØ RABØ7 L
RACK BRCABØ7 L
RACD UADRØ7 L
74S64 E83 → RACL RADRØ7 H

IRCC DSTMØ H — DS1
RACD UADRØ6 L
RACK BRCABØ6 L
RACE AØ RABØ4 L
RACH A2 RABØØ L
74S64 E82 → RACL RADRØ6 H

IRCB BØ RABØ4 L — (DF1)
RACD UADRØ5 L
RACK BRCABØ5 L
RACE AØ RABØ5 L
RACE A1 RABØ5 L
RACF A2 RABØ5 L
74S64 E81 → RACL RADRØ5 H

RACD UADRØ4 L
RACK BRCABØ4 L
RACE AØ RABØ4 L
RACH A1 RABØ4 L
IRCB BØ RABØ4 L — DF1
IRCB BØ RABØ3 L — (DL2)
74S64 E80 → RACL RADRØ4 H

74S04 E72 → RACL +3V H

DISABLE BFORK: $\overline{\text{UBFEN}}$ + BE15 * $\overline{\text{FJCLASS}}$ + BE05 * OBD
DISABLE CFORK: $\overline{\text{UCFEN}}$ + BE14 * SM357

ROM ADDRESS SELECTION — SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-C		PARTS LIST		

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

DRN. J.B Lodge DATE 11-5-75
CHK. Taylor DATE 12-2-75
ENGR. KJD DATE 12/2/75
PROJENGR Jerry Talerico DATE 12/2/75
PROJ R Taylor DATE 12/2/75

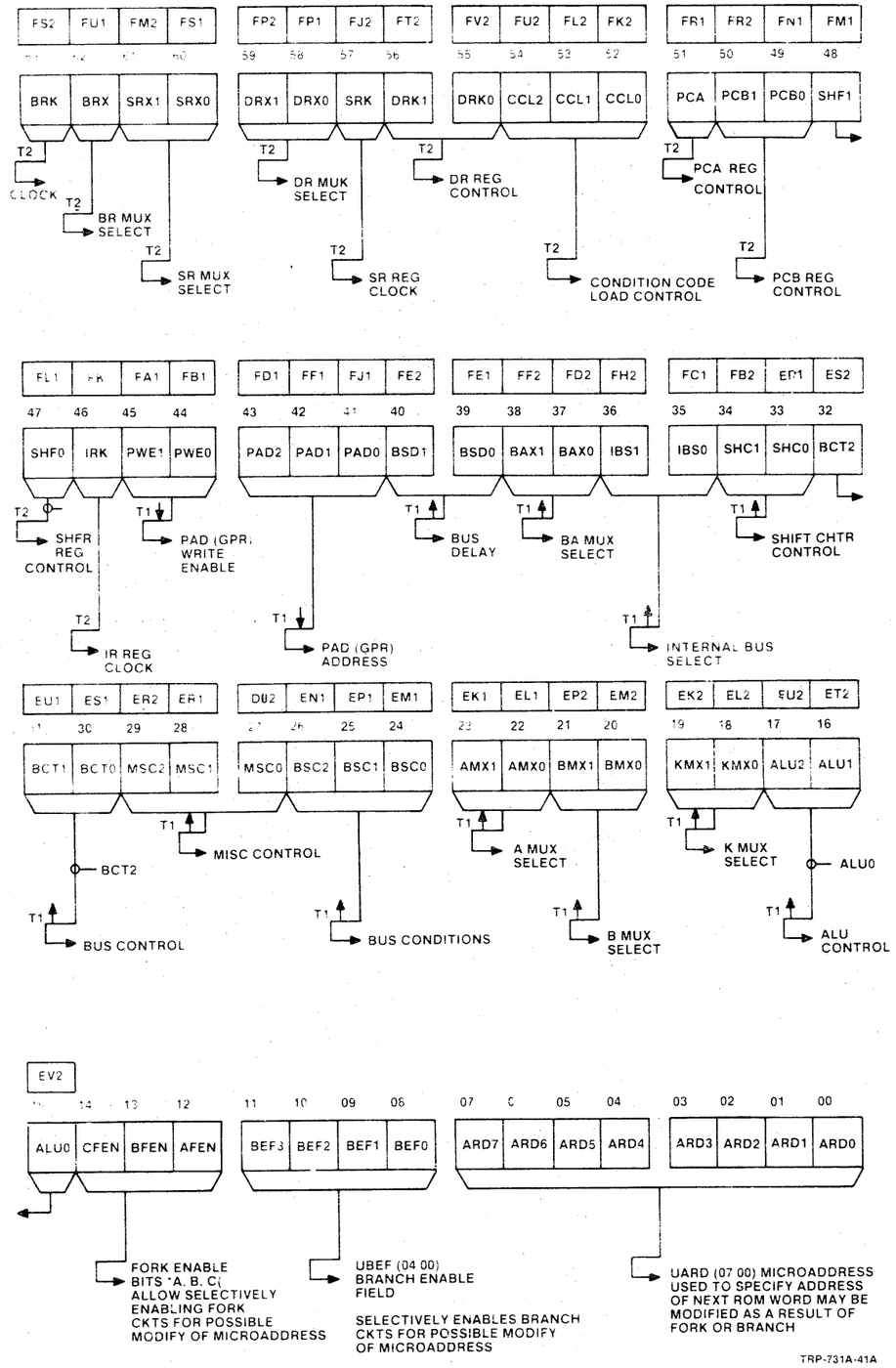
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ADDR CONTROL (RACL)

NEXT HIGHER ASSY. B-DD-KB11-C
SCALE —
SHEET OF 14

SIZE D | CODE CS | NUMBER M8123-Ø-1 | REV B
DIST.

REVISIONS: REV | CHANGE NO | CHK



ROM WORD FIELDS

MICROPROGRAM BIT USAGE

Bit Positions	Contents	Clocked At
	RACA	
63	bus register clock (UBRK)	T2
62	bus register multiplexer (UBRX)	T2
61–60	source register MUX (USRX)	T2
59–58	destination register MUX (UDRX)	T2
57	source register clock (USRK)	T2
56–55	destination register clock (UDRK)	T2
54–52	condition-code load (UCCL)	T2
51	program counter A CLK (UPCA)	T2
50–49	program counter B CLK (UPCB)	T2
48–47	shifter control (USHF)	T2
46	instruction register CLK (UIRK)	T2
	RACB	
45–44	pad write-enable (UPWE)	T1 + 15 ns
43–41	scratchpad address (UPAD)	T1 + 15 ns
40–39	bus delay (UBSD)	T1
38–37	bus address multiplexer (UBAX)	T1
36–35	internal bus (UIBS)	T1
	RACC	
34–33	shift counter (USHC)	T1
32–30	bus control (UBCT)	T1
29–27	miscellaneous control (UMSC)	T1
26–24	bus conditions (UBSC)	T1
23–22	A multiplexer (UAMX)	T1
21–20	B multiplexer (UBMX)	T1
19–18	constant multiplexers (UKMX)	T1
17–15	arithmetic logic unit cont (UALU)	T1
	RACD	
14	fork C enable (UCFEN)	AVAILABLE IMMEDIATELY
13	fork B enable (UBFEN)	
12	fork A enable (UAFEN)	
11–08	branch-enable (UBEF)	
07–00	microprogram address (UADR)	

ROM WORD FIELD AND CONTROL OF DATA FLOW

Microword bits are sent to modules in the CPU to act as control signals.

- Bits may also be used in combinational logic that generates control signals for all CPU operations.

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	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRK	PWE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
000	1	1	0	0	0	3	0	0	0	2	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	345	0	0	0	12
001	1	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0	0	7	6	2	0	0	2	0	15	115	0	0	0	05
002	1	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0	0	7	6	2	0	0	2	0	15	115	0	0	0	05
003	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0	0	7	0	2	0	0	2	0	00	221	0	0	0	05
004	0	0	0	0	0	0	3	0	1	3	2	0	0	2	5	0	1	0	0	7	0	0	0	3	6	0	01	122	0	0	0	06
005	0	0	0	0	0	0	3	0	1	3	2	0	0	2	5	0	1	0	0	7	0	0	0	3	6	0	01	122	0	0	0	05
006	1	1	0	2	0	3	0	1	0	2	0	0	0	5	2	1	0	0	0	0	1	0	1	3	0	00	251	0	0	0	04
007	1	1	0	2	0	3	0	1	0	2	0	0	0	5	2	1	0	0	0	0	1	0	1	3	0	00	251	0	0	0	06
010	1	1	0	1	1	3	0	0	0	1	0	0	6	0	1	3	0	7	0	0	0	0	0	0	0	00	316	0	0	0	03
011	0	0	0	1	0	3	0	0	0	2	0	0	0	6	0	1	0	0	7	0	0	0	0	0	2	0	12	244	0	0	0	03
012	0	0	1	0	1	0	0	0	0	2	0	0	0	7	0	1	0	0	7	0	0	0	3	0	0	2	0	00	158	0	0	0	02
013	1	1	0	0	0	3	0	0	0	2	0	0	0	7	0	0	1	3	0	7	0	0	0	0	1	1	1	0	00	354	0	0	0	12
014	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	1	3	0	7	0	0	0	1	1	1	0	00	356	0	0	0	12
015	0	0	0	1	0	3	0	0	0	2	0	0	0	6	0	1	1	0	0	7	0	0	0	3	0	0	2	0	00	255	0	0	0	03
016	0	0	1	0	1	0	0	0	0	2	0	0	0	7	0	0	1	0	0	7	0	0	0	3	0	0	2	0	00	156	0	0	0	02
017	1	1	0	0	0	3	0	0	0	2	0	0	0	7	0	0	1	3	0	7	0	0	0	1	1	1	0	0	00	345	0	0	0	12
020	1	1	0	0	0	0	1	0	1	2	1	1	5	3	1	0	0	0	6	0	0	2	0	7	0	0	00	343	0	0	0	03
021	0	0	0	0	0	0	0	0	1	2	2	0	0	0	2	0	0	0	7	1	2	0	2	3	0	0	00	027	0	0	0	01
022	0	0	0	0	0	0	0	0	1	2	2	0	0	0	2	0	0	0	7	1	2	0	2	3	0	0	00	027	0	0	0	01
023	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	7	1	0	0	0	0	0	0	00	027	0	0	0	01
024	0	0	0	0	0	1	0	0	1	2	2	0	0	2	7	0	1	0	0	0	7	0	0	2	0	0	2	6	0	00	024	0	0	0	01
025	0	0	0	0	0	0	0	0	0	2	0	0	0	2	7	0	0	0	0	7	5	0	0	1	6	0	00	041	0	0	0	15
026	1	1	0	2	2	1	3	0	0	0	2	0	0	5	1	2	3	1	0	0	0	0	1	1	3	0	00	056	0	0	0	02
027	1	1	0	2	0	3	0	0	0	1	0	0	5	3	2	0	0	0	6	1	0	0	0	1	3	0	14	317	0	0	0	01
030	0	0	0	0	0	0	0	1	1	3	2	0	1	5	0	1	0	0	0	7	6	7	0	3	2	0	7	0	00	217	0	0	0	03
031	1	0	0	0	0	0	0	1	0	1	1	0	0	6	0	0	0	0	0	7	7	3	2	0	7	0	00	132	0	0	0	11
032	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	7	6	7	5	0	0	0	00	217	0	0	0	11
033	0	0	0	0	0	0	0	1	0	0	1	0	2	5	2	0	0	0	0	0	7	6	7	5	0	3	2	0	0	7	0	12	240	0	0	0	11
034	0	0	2	0	0	1	0	0	1	1	0	1	1	0	0	0	0	0	7	0	0	0	0	2	0	0	00	201	0	0	0	11
035	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	7	6	0	0	0	0	2	0	00	217	0	0	0	11
036	1	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	7	6	0	0	0	0	2	0	17	307	0	0	0	07
037	1	0	0	0	0	0	3	0	0	0	0	2	0	7	0	0	0	0	0	7	6	0	0	0	0	0	00	025	0	0	0	13
040	0	0	1	0	1	0	0	1	0	2	0	0	0	7	0	0	1	0	0	7	0	0	0	2	2	0	00	223	0	0	0	02
041	1	0	0	1	0	3	0	0	0	2	2	0	0	7	0	0	0	0	0	7	0	0	0	0	1	0	00	222	0	0	0	13
042	1	1	0	0	0	3	0	0	0	2	2	0	0	7	0	0	0	0	0	7	0	0	0	0	1	2	00	345	0	0	0	12
043	1	0	0	0	0	3	0	0	0	2	2	0	0	7	0	0	0	0	0	7	0	0	0	0	1	2	00	361	0	0	0	03
044	0	0	0	0	0	0	0	3	0	2	0	0	0	0	1	1	3	0	7	0	0	0	1	1	1	0	00	217	0	0	0	03
045	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	1	1	0	0	7	0	0	0	3	0	0	2	0	00	255	0	0	0	03
046	0	0	1	0	1	0	0	0	0	2	0	0	0	7	0	0	1	0	0	7	0	0	0	3	0	0	2	0	00	156	0	0	0	02
047	1	1	0	0	0	3	0	0	0	2	0	0	0	7	0	0	1	3	0	7	0	0	0	1	1	1	0	0	00	345	0	0	0	12
050	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3	0	7	0	0	0	2	2	0	0	00	102	0	0	0	03
051	1	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	0	0	7	7	0	0	0	2	2	00	061	0	0	0	03
052	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	0	0	7	7	0	0	0	2	2	00	305	0	0	0	07
053	0	0	0	0	1	0	3	0	0	0	2	0	0	0	0	4	0	1	1	0	0	2	2	2	0	0	00	306	0	0	0	07

	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRK	PWE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
054	0	0	0	0	0	1	0	0	1	2	0	0	0	0	1	0	0	0	0	0	2	3	0	3	0	00	141	0	0	0	02
055	0	0	0	0	0	0	3	4	0	0	2	0	0	2	0	0	0	0	0	0	0	2	0	6	0	00	056	0	0	0	09
056	0	0	0	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	04	243	0	0	0	09
057	1	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	7	6	0	1	1	2	6	0	01	242	0	0	0	02
060	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	3	0	0	0	3	0	0	2	0	00	102	0	0	0	08
061	0	0	0	0	1	1	3	4	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	256	0	0	0	09
062	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	052	0	0	0	07
063	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	053	0	0	0	07
064	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	7	0	00	123	0	0	0	11
065	0	0	0	0	1	0	0	1	1	2	0	0	0	6	0	0	0	0	0	0	7	2	0	0	0	00	357	0	0	0	13
066	0	0	1	0	1	0	1	0	0	2	0	0	0	7	0	0	0	0	0	0	3	0	0	2	0	00	250	0	0	0	11
067	1	0	0	0	0	0	0	0	0	2	0	0	0	7	0	0	0	0	0	0	3	0	0	7	0	00	271	0	0	0	11
070	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	0	0	00	174	0	0	0	14
071	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	1	3	0	0	00	070	0	0	0	14
072	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0	2	0	0	7	07	337	0	0	0	14
073	0	0	0	0	0	0	0	0	0	0	2	0	0	6	0	2	0	0	0	0	7	5	3	0	0	0	00	303	0	0	0	14
074	0	0	0	0	0	1	0	0	0	2	0	0	0	2	0	2	0	0	0	0	2	0	1	3	0	00	073	0	0	0	14
075	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	2	0	0	0	0	2	0	0	3	0	07	337	0	0	0	14
076	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	2	0	00	015	0	0	0	14
077	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	00	130	0	0	0	14
100	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	6	0	0	1	0	1	0	00	356	0	0	0	12
101	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	7	0	0	0	1	0	2	0	0	00	314	1	0	0	02
102	1	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	7	0	0	0	3	3	0	6	0	11	246	0	0	0	08
103	0	0	0	1	0	3	0	0	0	2	0	0	0	4	0	2	0	0	3	0	0	0	0	7	0	00	147	0	0	0	09
104	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	2	0	0	6	0	00	105	0	0	0	09
105	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	6	0	00	106	0	0	0	09
106	0	0	0	1	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	055	0	0	0	09
107	0	0	0	1	0	3	4	0	0	2	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	00	147	0	0	0	09
110	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	7	6	3	0	0	2	0	15	135	0	0	0	05
111	0	0	0	0	0	1	0	0	0	2	0	0	0	5	0	0	0	0	0	7	6	3	0	0	2	0	15	115	0	0	0	05
112	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	7	7	3	0	0	2	0	00	221	0	0	0	05
113	0	0	0	0	0	1	0	0	0	0	2	0	0	5	0	0	0	0	0	7	7	0	3	0	0	2	L	00	221	0	0	0	05
114	0	0	0	0	0	0	3	0	4	3	2	0	0	2	5	0	0	0	0	6	0	0	0	3	6	0	01	131	0	0	0	06
115	0	0	0	0	0	0	3	0	1	3	2	0	0	2	5	0	0	0	0	7	0	0	0	3	6	0	01	121	0	0	0	06
116	0	0	0	0	0	1	1	0	0	0	2	0	0	5	6	0	0	0	0	7	0	0	0	2	2	0	00	006	0	0	0	06
117	0	0	0	0	0	1	1	0	0	0	2	0	0	5	6	0	1	0	0	7	7	0	3	0	0	2	0	00	006	0	0	0	06
120	1	1	0	0	0	0	0	0	0	2	2	0	0	5	0	1	3	0	6	0	7	0	0	2	0	0	02	152	0	0	0	12
121	0	1	0	0	0	1	0	0	0	2	2	0	0	5	0	0	0	0	6	0	7	6	0	2	2	2	15	167	0	0	0	06
122	1	1	0	0	0	0	0	0	0	2	2	0	0	5	0	0	0	0	6	0	7	6	0	2	2	2	15	157	0	0	0	06
123	1	1	0	0	0	0	0	0	0	2	2	0	0	5	5	0	0	0	0	7	7	7	3	0	0	2	0	00	132	0	0	0	11
124	1	1	0	0	0	0	3	0	0	0	2	0	0	2	0	1	3	0	0	7	0	0	0	1	1	1	0	0	00	354	0	0	0	12
125	0	0	0	0	0	0	3	0	0	0	2	0	0	2	0	0	4	0	0	7	0	0	0	3	2	0	16	216	0	0	0	10
126	0	0	0	0	0	0	3	0	0	0	2	0	0	2	1	0	0	0	0	7	0	0	0	3	0	0	12	240	0	0	0	01
127	0	0	0	0	0	0	3	0	0	0	2	0	0	2	1	0	0	0	0	7	0	0	0	3	2	0	02	253	0	0	0	03

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
ROM & ADDR. CONTROL	D	CS	M8123-Ø-1	B
SCALE	SHEET 12 OF 14	DIST.		

DEC FORM NO. DRD 138

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	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRK	PmE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
130	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	0	0	7	6	3	0	0	2	0	13	100	0	0	0	12
131	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6	7	3	0	0	2	0	15	177	0	0	0	06
132	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	1	6	7	3	0	0	2	0	00	217	0	0	0	11
133	1	1	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	1	6	0	0	0	0	2	0	17	113	0	0	1	04
134	0	0	0	0	0	3	U	0	1	2	0	0	0	2	0	0	0	0	0	7	6	3	0	0	2	0	00	230	0	0	0	14
135	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	6	7	3	0	0	2	0	00	137	0	0	U	05
136	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	7	3	0	0	2	0	12	240	0	0	U	07
137	1	1	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	0	0	2	0	00	377	0	0	U	05
140	1	1	0	0	0	3	0	0	0	2	1	0	0	0	1	3	0	0	0	7	6	1	1	0	0	0	00	152	0	0	0	12
141	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	7	6	1	0	0	0	0	00	142	0	0	U	02
142	1	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	7	6	1	0	0	0	0	14	317	0	0	0	02
143	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	7	3	0	0	0	0	0	00	146	0	0	0	02
144	0	0	0	0	0	0	0	7	0	2	2	0	0	0	0	2	0	0	0	6	6	3	0	0	2	0	04	353	0	0	0	10
145	0	0	1	0	0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	6	3	0	0	0	2	0	00	164	0	0	0	09
146	1	1	0	0	0	0	0	0	0	2	1	2	0	0	0	2	0	0	0	6	0	0	0	0	4	0	00	377	0	0	0	02
147	1	1	0	0	0	0	0	0	0	0	1	2	0	0	0	2	0	0	0	6	0	0	0	0	7	0	16	346	0	0	0	09
150	1	1	0	0	0	0	0	7	0	2	0	0	2	0	0	2	0	0	0	1	0	7	3	0	0	0	00	245	0	0	0	13
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	3	0	0	2	0	00	146	0	0	3	01
152	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	2	0	0	2	0	00	355	0	0	0	12
153	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	1	0	0	0	2	0	00	245	0	0	1	04
154	1	1	0	0	0	1	0	U	1	2	0	0	2	0	0	2	0	0	0	6	7	6	0	0	3	0	00	340	0	0	0	12
155	0	0	0	0	0	0	0	1	0	2	2	0	0	0	0	2	0	0	0	5	7	0	3	0	2	0	00	312	0	0	0	05
156	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	0	0	0	6	0	6	3	0	2	0	00	212	0	0	0	02
157	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	0	0	0	7	6	3	3	0	2	0	00	331	0	0	0	06
160	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	1	0	0	0	7	7	7	0	0	3	0	00	344	0	0	0	12
161	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	1	0	0	0	7	7	7	0	0	3	0	00	231	0	0	0	06
162	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	5	5	0	0	7	7	7	0	0	3	0	00	132	0	0	0	11
163	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	5	5	0	0	7	7	7	0	0	3	0	00	132	0	0	0	11
164	0	1	0	0	0	0	0	0	0	2	1	0	0	0	1	1	0	0	1	7	0	0	2	3	0	0	12	240	0	0	0	01
165	1	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	0	0	6	7	0	2	3	0	0	04	323	0	0	0	09
166	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	2	0	0	1	6	0	0	2	3	0	0	03	126	0	0	0	07
167	0	1	1	0	0	0	0	0	0	2	2	0	0	0	0	2	0	0	1	6	0	0	2	3	0	0	14	070	0	0	0	14
170	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	7	6	0	0	0	0	0	14	070	0	0	0	14
171	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	0	1	0	00	231	0	0	0	06
172	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	00	217	0	0	0	02
173	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	7	6	0	0	0	0	0	07	333	0	0	1	04
174	1	1	0	0	0	1	0	0	0	2	0	0	2	0	0	3	2	0	0	6	6	0	0	0	0	0	00	134	0	0	0	14
175	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	05	137	0	0	0	05
176	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	0	0	2	3	0	0	03	136	0	0	0	07
177	1	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	0	0	2	3	0	0	05	137	0	0	0	08
200	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	6	6	0	0	0	0	0	06	352	0	0	0	12
201	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	00	274	0	0	0	11
202	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	00	030	0	0	0	04
203	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	00	030	0	0	0	04

	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRK	PME	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
204	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	7	6	3	0	0	2	0	00	205	0	0	0	04
205	0	0	0	0	0	0	0	1	4	0	0	0	2	0	0	0	0	0	0	6	7	3	0	0	7	0	12	240	0	0	0	04
206	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6	7	3	0	0	2	0	00	310	0	0	0	08
207	0	0	0	0	0	0	0	1	4	0	0	0	2	0	0	0	0	0	0	6	7	3	0	0	2	0	12	240	0	0	0	07
210	0	1	0	0	0	0	0	1	1	3	2	0	0	0	2	0	0	0	0	7	6	3	0	0	2	0	00	217	0	0	0	03
211	1	1	0	0	0	0	0	1	0	3	2	0	0	0	2	0	0	0	0	6	0	0	2	3	0	0	17	113	0	0	1	04
212	1	1	0	0	0	0	0	1	0	3	2	0	0	0	2	0	0	0	0	6	0	0	2	3	0	0	00	213	0	0	0	02
213	1	0	0	0	0	0	0	1	0	3	2	0	0	0	2	0	0	0	0	7	0	0	2	3	0	0	00	214	0	0	0	02
214	1	1	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	7	6	3	0	0	1	0	00	215	0	0	0	03
215	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	6	0	0	3	2	0	0	00	172	0	0	0	02
216	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	6	0	0	3	2	0	0	00	256	0	0	0	10
217	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	6	0	0	3	2	0	0	12	240	0	0	0	01
220	0	0	0	0	0	0	0	4	0	2	0	2	0	0	0	0	0	0	0	7	6	3	0	0	3	0	04	353	0	0	0	10
221	1	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	7	5	0	2	0	0	0	00	233	0	0	0	05
222	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	7	7	0	2	0	0	0	00	300	0	0	0	13
223	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	7	7	0	2	0	0	0	00	224	0	0	0	02
224	1	1	0	0	0	0	0	1	0	0	0	0	5	0	0	2	0	0	0	6	7	1	3	0	0	0	00	375	0	0	0	02
225	1	0	0	0	0	0	0	1	4	0	0	0	2	0	0	2	0	0	0	6	7	1	3	0	0	0	10	225	0	0	1	13
226	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	6	7	2	0	0	2	0	00	310	0	0	0	08
227	1	0	0	0	0	0	0	1	4	0	0	0	2	0	0	2	0	0	0	6	7	2	0	0	2	0	12	240	0	0	0	07
230	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	3	0	0	2	0	00	170	0	0	0	14
231	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	3	0	0	2	0	00	233	0	0	0	06
232	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	3	0	0	2	0	04	241	0	0	0	09
233	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	2	0	0	0	7	6	3	0	0	2	0	00	311	0	0	0	06
234	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	0	0	1	12	240	0	0	0	02
235	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	00	234	0	0	0	02
236	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	00	276	0	0	0	10
237	1	0	0	0	0	0	0	0	3	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	12	240	0	0	0	14
240	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	0	0	0	0	2	0	00	352	0	0	0	12
241	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	6	0	0	0	0	2	0	00	103	0	0	0	09
242	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	6	0	0	0	0	2	0	00	262	0	0	0	02
243	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	6	0	0	0	0	2	0	00	107	0	0	0	09
244	1	1	0	0	0	3	0	0	1	2	2	0	0	0	1	0	0	0	0	3	2	1	1	0	0	0	12	127	0	0	0	09
245	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	3	2	0	0	0	2	0	00	352	0	0	0	13
246	1	0	0	0	0	0	0	1	4	5	2	0	0	0	1	1	0	0	0	6	0	0	0	0	7	0	11	206	0	0	0	08
247	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	6	0	0	0	0	0	0	03	136	0	0	0	07
250	0	0	0	0	0	0	0	3	0	0	1	0	2	0	0	2	0	0	0	7	0	0	2	0	2	0	00	222	0	0	0	11
251	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	6	7	0	3	0	0	0	01	122	0	0	0	06
252	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6	7	0	3	0	0	0	00	235	0	0	0	02
253	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	6	7	0	3	0	0	0	13	100	0	0	0	12
254	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	02	232	0	0	0	09
255	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	00	374	0	0	0	03
256	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	7	6	0	3	2	0	0	04	350	0	0	0	10
257	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	6	0	0	3	2	0	0	03	126	0	0	0	07

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
ROM & ADDR. CONTROL	D	CS	M8123-Ø-1	B
SCALE	SHEET 13 OF 14	DIST.		

DEC FORM NO
MS 11P

76

168

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next row address
- if not modified

what follows page the ~~the~~ state will be on

	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRR	PWE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
260	1	1	0	0	0	0	0	1	1	2	1	0	0	0	3	1	0	0	0	6	0	1	0	1	3	0	00	343	0	0	0	3	01
261	0	0	1	0	3	1	0	0	0	0	2	0	0	2	0	0	0	0	0	7	0	2	0	0	2	0	00	104	0	0	0	0	09
262	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	7	0	3	0	0	6	0	12	240	0	0	0	0	02
263	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	7	0	3	0	0	2	0	00	145	0	0	0	0	09
264	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	1	6	4	0	0	0	2	0	00	011	0	0	0	03
265	1	1	0	0	0	0	0	1	0	2	0	0	0	0	0	1	0	0	0	1	6	4	0	2	0	3	00	362	0	0	0	0	13
266	1	0	0	0	0	0	1	1	0	0	3	0	0	2	0	0	0	1	0	6	0	3	2	0	3	0	11	206	0	0	0	0	08
267	1	0	0	0	0	0	1	1	0	0	3	0	0	2	0	0	0	1	0	6	0	3	2	0	2	0	03	227	0	0	0	0	07
270	0	0	0	1	1	0	0	1	0	2	0	0	0	0	2	0	0	0	0	0	3	0	0	0	2	0	00	230	0	0	0	0	14
271	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	6	0	3	2	0	3	0	05	123	0	0	0	0	11
272	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	6	0	3	2	0	2	0	00	184	0	0	0	0	09
273	0	0	0	0	0	0	3	0	0	2	0	0	0	0	1	0	0	0	0	6	0	3	2	0	2	0	00	011	0	0	0	0	03
274	0	0	0	0	0	0	3	0	0	0	2	0	2	0	7	0	0	0	0	0	5	7	0	5	3	0	0	0	1	6	2	0	00	275	0	0	0	0	11
275	0	0	0	0	0	0	3	0	0	1	2	0	0	0	0	0	0	0	0	0	5	7	0	5	3	0	0	0	0	0	2	0	00	032	0	0	0	0	11
276	1	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	1	0	0	0	5	7	0	5	3	0	0	0	0	0	2	0	04	351	0	0	0	0	10
277	1	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	1	0	0	0	6	0	2	0	0	2	0	03	237	0	0	0	0	07
300	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	7	0	6	5	3	0	0	0	0	2	0	0	00	217	0	0	0	0	13
301	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	7	0	6	5	3	0	0	0	0	2	0	0	00	210	0	0	0	0	03
302	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	7	0	6	5	3	0	0	0	0	2	0	0	00	352	0	0	0	0	12
303	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	7	0	6	5	3	0	0	0	0	2	0	0	00	230	0	0	0	0	14
304	1	0	1	0	1	0	1	0	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	2	0	0	00	250	0	0	0	0	11
305	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	6	0	0	0	0	2	0	0	03	217	0	0	0	0	07
306	0	1	1	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	6	0	0	0	0	2	0	0	03	207	0	0	0	0	07
307	1	1	0	0	0	0	1	0	0	2	0	0	0	0	0	1	0	1	0	0	6	0	0	0	0	3	0	0	00	237	0	0	0	1	13
310	0	0	0	0	0	0	0	0	1	0	0	0	2	0	2	4	0	0	1	0	0	0	0	7	0	0	0	0	2	0	12	240	0	0	0	0	08
311	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	6	0	0	0	0	0	0	0	7	0	0	0	0	2	0	15	157	0	0	0	0	06
312	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	5	0	0	0	0	0	0	0	7	0	0	0	0	2	0	12	240	0	0	0	0	05
313	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	5	0	0	1	0	0	0	0	7	0	0	0	0	2	0	05	145	0	0	0	0	09
314	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	3	2	0	0	2	0	4	0	00	377	0	0	0	1	02
315	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	3	3	0	0	2	0	4	0	00	302	0	0	0	1	12
316	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3	3	0	0	2	0	4	0	06	126	0	0	0	0	03
317	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3	3	0	0	2	0	4	0	00	143	0	0	0	0	02
320	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	217	0	0	0	0	01
321	1	1	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	343	0	0	0	0	01
322	1	1	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	343	0	0	0	0	01
323	1	1	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	03	125	0	0	0	0	09
324	1	1	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	343	0	0	0	0	01
325	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	217	0	0	0	0	01
326	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	00	217	0	0	0	0	01
327	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	0	3	3	0	0	0	0	2	0	0	0	2	0	17	307	0	0	0	0	13
330	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1	1	0	0	0	0	7	3	6	7	0	0	0	0	2	0	00	217	0	0	0	0	01
331	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	1	7	6	0	0	0	0	2	0	12	240	0	0	0	0	01
332	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	2	0	12	240	0	0	0	0	01
333	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	2	0	00	365	0	0	0	0	04

	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRR	PWE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD	FPS	CLS	FPC	PGE
334	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	3	7	0	2	2	0	6	0	12	240	0	0	0	01
335	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	7	0	1	1	1	3	0	00	217	0	0	0	01
336	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	7	0	1	1	1	3	0	00	217	0	0	0	01
337	0	0	0	0	2	0	0	0	0	1	1	0	0	0	5	0	0	2	0	0	0	0	0	3	0	00	230	0	0	0	14
340	0	1	0	0	0	0	0	0	0	1	1	0	0	0	6	0	3	2	0	0	0	0	0	7	0	0	3	0	0	0	2	0	00	341	0	0	0	0	12
341	1	1	0	0	0	0	0	0	0	1	1	0	0	0	6	0	3	2	0	0	0	0	0	7	0	0	3	0	0	0	2	0	00	215	0	0	0	0	12
342	1	1	0	0	0	0	0	0	0	1	1	0	0	0	6	0	3	2	0	0	0	0	0	7	0	0	3	0	0	0	2	0	00	225	0	0	0	0	13
343	0	0	0	2	2	1	3	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	5	0	1	1	1	1	00	377	0	1	2	01
344	0	0	0	0	0	0	0	0	0	2	0	2	7	0	0	1	0	0	0	0	0	0	0	2	0	0	1	0	1	3	0	0	00	140	0	0	0	0	12
345	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	00	354	0	0	0	0	12
346	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	2	0	0	0	0	6	0	0	00	313	0	0	0	0	09
347	1	1	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0	0	0	0	0	2	0	0	00	150	0	1	0	0	13
350	0	0	0	1	0	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	00	184	0	0	0	0	10
351	0	0	0	1	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	00	220	0	0	0	0	10
352	1	1	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	00	130	0	0	0	0	12
353	0	0	0	0	0	0	1	0	0	2	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	2	0	0	00	145	0	0	0	0	10
354	0	0	0	0	0	0	3	0	1	0	2	0	0	6	3	0	0	0	0	0	7	2	3	0	0	1	2	3	0	0	00	335	0	0	0	0	12
355	1	1	0	0	0	0	3	0	0	0	2	0	0	6	3	0	0	0	0	0	7	2	3	0	0	1	0	3	0	0	00	085	0	0	0	0	13
356	0	1	0	0	0	0	3	0	0	0	2	0	0	6	3	0	0	0	0	0	7	2	3	1	0	0	2	0	0	0	00	154	0	0	0	0	12
357	1	1	0	0	0	0	3	0	1	1	1	0	0	0	3	0	0	0	0	0	7	2	3	1	0	2	0	0	0	0	00	360	0	0	0	0	13
360	1	0	0	0	0	0	0	1	0	2	0	0	0	7	0	0	0	0	0	0	2	0	0	0	0	2	0	0	00	376	0	0	0	0	13
361	0	0	0	0	0	0	0	1	0	2	0	0	0	7	0	0	0	0	0	0	2	0	0	0	0	2	0	0	00	260	0	0	0	0	03
362	1	1	0	0	0	0	3	0	0	0	2	0	0	7	0	0	0	0	0	0	2	0	0	0	0	2	0	0	07	307	0	0	0	0	13
363	1	1	0	0	0	0	3	0	0	0	2	0	0	7	0	0	0	0	0	0	2	0	0	0	0	2	0	0	03	125	0	0	0	0	09
364	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	00	364	0	0	0	0	00
365	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	12	240	0	0	0	0	04
366	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	00	313	0	0	0	0	09
367	1	1	0	0	0	0	2	0	0	0	2	1	0	0	0	0	0	1	0	1	7	4	0	2	0	3	0	0	10	342	0	1	0	0	13
370	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	3	0	0	0	3	0	0	00	351	0	0	0	0	10
371	0	0	0	0	0	0	0	0	0	1	2	2	4	0	0	0	0	0	0	0	3	3	0	0	0	3	0	0	00	350	0	0	0	0	10
372	0	0	0	0	0	0	0	0	0	1	2	2	4	0	0	0	0	0	0	0	3	3	0	0	0	3	0	0	00	315	0	0	0	0	12
373	0	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	3	3	0	0	0	3	0	0	12	240	0	0	0	0	01
374	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	334	0	0	0	1	03
375	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	217	0	0	0	0	02
376	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	037	0	0	0	0	13
377	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	230	0	0	0	0	14

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
ROM & ADDR. CONTROL	D	CS	M8123-Ø-1	B
SCALE	SHEET 14 OF 14		DIST.	

D CS M8123-Ø-1 B

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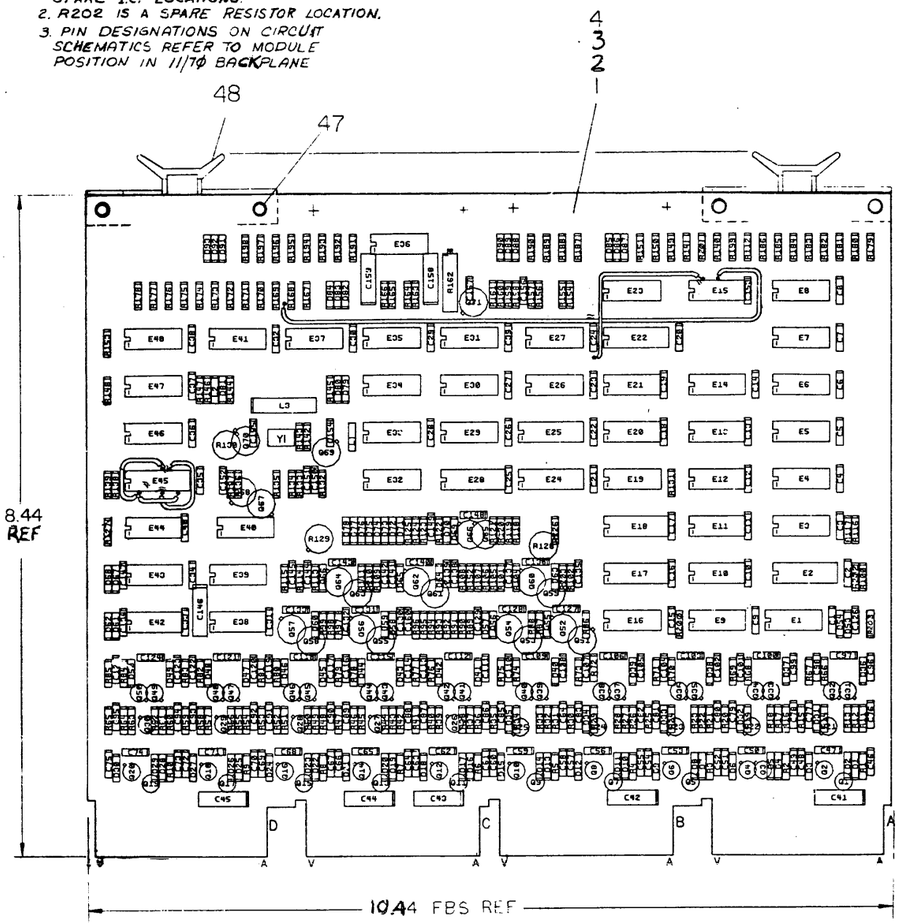
NOTES:

1. E3, E27, E36, E40, E44, AND E49 ARE SPARE I.C. LOCATIONS.
2. R202 IS A SPARE RESISTOR LOCATION.
3. PIN DESIGNATIONS ON CIRCUIT SCHEMATICS REFER TO MODULE POSITION IN 11/70 BACKPLANE



PIN NOMENCLATURE

MODULE PIN	BACKPLANE PIN
A	C
B	D
C	E
D	F

REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8139-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8139-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8139-0-6	3
1		ETCHED CIRCUIT BOARD	5011344	4
44	C1 THRU C40, C150, C153, C155 C156	CAP, .01uf, 100V	1001610-01	5
8	C41, C42, C43, C44, C45, C146, C158, C159	CAP 6.8uf, 35V 10%	1005306	6
98	C46 THRU C97, C99, C100, C102 C103, C105, C106, C108, C109, C111, C114, C115, C117, C118, C120, C121, C123, C124, C126 THRU C145, C147, C148, C149, C151, C152, C160, C112	CAP .22uf, 50V 80-20%	1010274-01	7
10	C98, C101, C104, C107, C110, C113, C116, C119, C122, C125	CAP, 33pf, 100V 5%	1000009	8
1	C157	CAP, 47pf 100V, 5%	1000011	9
1	C154	CAP, 100pf, 100V 5%	1000016	10
52	D1, D3, D4, D6, D7, D9, D10, D12, D13, D15, D16, D18, D19, D21, D22, D24, D25, D27, D28, D30 THRU D50, D57, D58, D61, D62, D64, D65, D67, D68, D69, D70, D53, D54	DIODE DEC 777	1103041	11
39	D2, D5, D8, D11, D14, D17, D20, D23, D26, D29, D55, D56, D59, D60, D63, D66, D71 THRU D93	DIODE D662	1100113	12
17	RG THRU R10, R40, R46, R52, R58, R64, R67, R71, R73, R75, R99, R113, R69	RESISTOR, 4.7K, 1/4W 5%	1300447	13
6	R11, R18, R21, R26, R31, R143	RESISTOR, 1.5K 1/4W 5%	1300391	14
5	R12, R17, R22, R27, R32	RESISTOR 15K, 1/4W 5%	1300496	15
28	R13, R15, R18, R20, R23, R25, R28, R30, R33, R35, R38, R41, R47, R50, R53, R56, R59, R62, R65, R102, R104, R114, R115, R132, R158, R44	RESISTOR 10 OHM 1/4W 5%	1301317	16
11	R14, R19, R24, R29, R34, R39, R45, R51, R57, R63, R121	RESISTOR, 100 OHM, 1/4W, 5%	1300229	17
76	R36, R37, R42, R43, R48, R49, R54, R55, R60, R61, R69 THRU R96, R101, R105 THRU R112, R123, R124, R126, R138, R139, R140, R141, R148 THRU R153, R187 THRU R200, R122, R201	RESISTOR, 1K 1/4W 5%	1300365	19
13	R66, R68, R70, R72, R76, R74, R78, R80, R82, R84, R118, R119, R120	RESISTOR 1.2K, 1/4W 5%	1301320	19
12	R77, R79, R81, R83, R85, R86, R103, R1 THRU R5	RES TOR 3K, 1/4W 5%	1300432	20
7	R87, R88, R97, R98, R134, R135, R144	RESISTOR, 47 OHM 1/4W 5%	1300202	21
6	R100, R125, R127, R131, R154, R155	RESISTOR 150 OHM 1/4W 5%	1300250	22
8	R116, R146, R156, R159, R160, R161, R164, R165	RESISTOR 330 OHM, 1/4W 5%	1300295	23
5	R117, R147, R157, R163, R166	RESISTOR, 680 OHM, 1/4W 5%	1301424	24
2	R128, R129	RESISTOR, 2K, 1/2W 10%, POT	1309150-07	25
1	R130	RESISTOR, 100 OHM, 1/2W, 10%, POT	1309150-05	26
2	R133, R137	RESISTOR, 68 OHM, 1/4W, 5%	1300219	27
1	R142	RESISTOR 750 OHM, 1/4W, 5%	1301401	28
1	R145	RESISTOR 220 OHM 1/4W 5%	1300271	29
1	R162	RESISTOR 1K 3/4W POT	1309143-07	30
35	Q1, Q3, Q5, Q7, Q9, Q11, Q13, Q17, Q19, Q21 THRU Q25, Q31 THRU Q40, Q51, Q54, Q56, Q58, Q59, Q63, Q65, Q66, Q69, Q70 Q15	TRANSISTOR DEC 4258	1505321	31

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

IC DEC 7491/12	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

EA2, DA2, EA2, FA2 +5V
CV1, DV1, EV1, FV1
C1 THRU C43 & C153 .01uf
C44, C42, C43 & C45 6.8uf
CC2, DC2, EC2, FC2 GND
CH1, DH1, EH1, FH1
CN2, DN2, EN2, FN2
CT1, DT1, ET1, FT1
C44 6.8uf EA1 +15V
C146 6.8uf EB2 -15V

FIRST USED ON OPTION MODEL: 11/70

PARTS LIST

ETCH BOARD REV: B

REV	CHANGE NO.	CHK	DATE
C	M8139-00002		6 APR 76
B	M8139-00001	R. Knowles	4-15-76
A			3 JAN 74
			9 APR 74
D			3 APR 74

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

DRN.	F SEIDMAN	DATE 12-9-74
CHK'D.	R KOPPENAL	DATE 1-8-74
ENG.	ALLAN HELENIUS	DATE 1-15-75
PROJ. ENG	ALLAN HELENIUS	DATE 1-15-75
PROD	K TAYLOR	DATE 1-15-75
NEXT HIGHER ASSY	B-DD-KB11-Ø	
SCALE	-H	
SHEET	1 OF 7	

digital EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR

SIZE	CODE	NUMBER	REV.
D	DCS	M8139-Ø-1	D

DIST.

DCS M8139-Ø-1 D

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NOTES:

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
36	Q2,Q4,Q6,Q8,Q10,Q12,Q14, Q16,Q18,Q20,Q26 THRU Q30, Q41 THRU Q50,Q52,Q53,Q55, Q57,Q60,Q61,Q62,Q64,Q67, Q68,Q71	TRANSISTOR DEC 30098	1503100	32
1	L1	INDUCTOR .22 UH	1811300	33
1	L2	INDUCTOF .47 UH	1810999	34
1	L3	INDUCTOR 33 MH	1801759	35
6	E1,E9,E14,E16,E38,E42	IC 74S40	1910541	36
8	E2,E17,E18,E22,E24 E25,E28 E45	IC DEC 74S112	1910545	37
5	E4,E7,E21,E46,E30	IC 74S04	1910534	38
7	E5,E8,E19,E26,E29,E33,E6.	IC 74S74	1910544	39
5	E10,E15,E31,E37,E43	IC 74S00	1910532	40
2	E11,E12	IC 74S65	1910543	41
4	E20,E23,E32,E13	IC 74S64	1910542	42
2	E34,E48	IC 74S11	1910537	43
2	E35,E39	IC 74S140	1910546	44
2	E41,E47	IC 74S20	1910539	45
1	Y1	CRYSTAL 33.333 UHZ	1810694-01	46
8		EYELET	9006732	47
4		HANDLE FLIP CHIP MAGENTA	9008337-06	48
A/R		TAPE,2 SIDED	9007834	49
12"		WIRE, #30 AWG BUSS (RETROFIT)	9105740-55	50
A/R		PERMA-BOND	9009157	51
1	R136	RESISTOR 120 OHM 1/4W 5%	1300247	52
1	R203	RESISTOR 33 OHM 1/4W 5%	1300197	53

PARTS LIST

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: 11/70

ETCH BOARD REV: B

REV	CHANGE NO.	DEC NO.	EIA NO.

REVISIONS

CHK

SEMICONDUCTOR CONVERSION CHART

		DATE
DRN	L Lichtman	12/9/74
CHK'D		12/9/74
ENG		1-13-75
PROJ. ENG.		1-15-75
PROD.		1/31/75

NEXT HIGHER ASSY: B-DD-KB11-0

SCALE: —

SHEET 2 OF 7

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR

SIZE	CODE	NUMBER	REV.
D	CS	M8139-0-1	D

DIST.

D CS M8139-0-1 D

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DEC FORM NO. ORD 1314-R

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X Mint Condition
Maint mod Tapes

TIGA TIMING GENERATOR

TIMING CONTROL SLOT 13

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TIMING GENERATOR (TIGA)	D	CS	M8139-Ø-1	D
SCALE	SHEET 3 OF 7		DIST.	

80

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SOURCE SYNCHRONIZER

CRYSTAL CLOCK

R/C CLOCK (MAINTENANCE)

PHASE SPLITTER/BUFFER

MAINT. BOARD SWITCH POSITION

MAINT. SWITCHES: REF. TO XMAA BOARD		
S4	SINGLE TIME STEPPER	
S3	Ø = CRYSTAL TIMING SOURCE 1 = RC TIMING SOURCE	
S1	S2	MODE CONTROL
Ø	Ø	NO EFFECT
Ø	1	SINGLE ROM CYCLE
1	Ø	UPB STOP
1	1	SINGLE PULSE (USE SW4)

TIMING SOURCE CONTROL — SLOT 13

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN		DATE 10/1/74
CHK'D		DATE 10/1/74
ENG		DATE 10/1/74
PROJ. ENG.		DATE 11/4/75
PROD.		DATE 11/13/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGB)

NEXT HIGHER ASSY: B-DD-KB11-Ø

SIZE	CODE	NUMBER	REV
D	CS	M8139-Ø-1	D

SCALE: //
SHEET 4 OF 7
DIST

REVISIONS			
LTR	CHANGE NO	DATE	CHK

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NOTES:

TIGB CLK H
TIGA T1A (1) H
TIGA T2A (1) H
TIGB CLK L
TIGA T1A (1) L
TIGA T2A (1) L

TIGC TPB H
TIGC TF H
TIGC TFR H
TIGC TPB L
TIGC TF L
TIGC TFR L
TIGC TI H
TIGC TIB H
TIGC TIR H
TIGC TIBR L
TIGC T2 H
TIGC T2B H
TIGC T2R H
TIGC T2BR H
TIGC T1 L
TIGC TIB L
TIGC TIR L
TIGC TIBR L
TIGC T2 L
TIGC T2B L
TIGC T2R L
TIGC T2BR L

REVISIONS		
REV.	CHANGE NO	

FIRST USED ON NEXT ASSY/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
11/70		PARTS LIST		

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

		DATE
DRN		11/7/75
CHK'D		11/7/75
ENG		11/5/75
MFG. ENG.		11/5/75
PROJ.		11/15/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGC)

NEXT HIGHER ASSY: B-DD-K811-Ø

SIZE	CODE	NUMBER	REV.
D	CS	M8139-Ø-1	D

SCALE
SHEET 5 OF 7
DIST

SLOT 13

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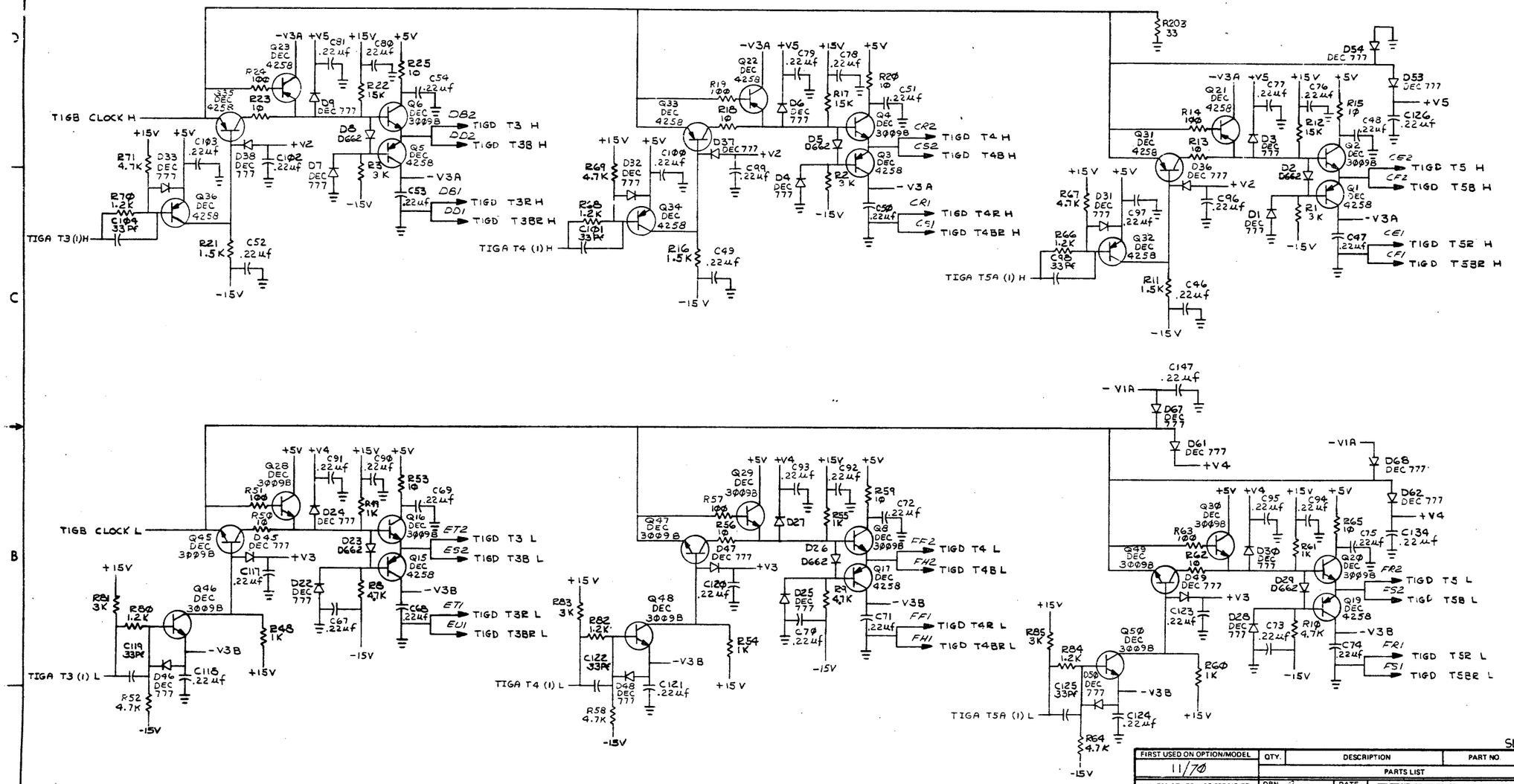

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN T Beidman 10/1/70 — CHKD T Ferguson 10/1/70 — ENG Allan Hebert 11/5/70 — PARTS ENG Allan Hebert 11/5/70 — PROD K Taylor 11/5/70

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGD)

NEXT HIGHER ASSY: B-DD-KB11-Ø
SCALE —
SHEET 6 OF 7

SIZE D | CODE CS | NUMBER M8139-Ø-1 | REV D | DIST

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-322 15840 — DEC FORM NO DRD 103-B

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TIGA ROM INITB L

74S40 E1 — CD2 → TIGE TS1 L
74S40 E9 — DC1 → TIGE TS2 L
74S40 E16 — DE2 → TIGE TS3 L
74S40 E38 — ES1 → TIGE TS4 L
74S40 E42 — EN1 → TIGE TS5 L

TIGA T1 (1) H
TIGC TPB H
74S00 E10 → 74S00 E43

TIGA T2A(1) H
74S00 E10 → 74S00 E43

TIGA T3 (1) H
74S00 E10 → 74S00 E43

TIGA T4 (1) H
74S00 E43

TIGA TSA(1) H
74S00 E43

D85 D662, D86 D662, D87 D662 → −V3A
−V1A
R179 1K, R180 1K, R181 1K, R182 1K, R183 1K, R184 1K, R185 1K, R186 1K
R112 1K, R199 1K, R140 1K, R141 1K, R149 1K, R150 1K, R151 1K, R201 1K
−15V

D82 D662, D83 D662, D84 D662 → −V3B
R167 1K, R168 1K, R169 1K, R170 1K, R171 1K, R172 1K, R173 1K, R174 1K, R175 1K, R176 1K, R177 1K, R178 1K
−15V

D93 D662, D92 D662, D91 D662 → −V3D
R198 1K, R197 1K, R196 1K, R195 1K, R194 1K, R193 1K, R192 1K, R191 1K
−15V

D90 D662, D89 D662, D88 D662 → −V3C
R190 1K, R189 1K, R188 1K, R187 1K
−15V

TIMING STATE DRIVERS — SLOT 13

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
1170		PARTS LIST		

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

DRN F. Beckman DATE 10/17/74
ENGR. DATE
ENG. Mac Hickman DATE 11/5/74
PROJ. ENG. Mac Hickman DATE 11/5/74
PROD. R. Taylor DATE 11/17/74

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGE)

MATERIAL —
FINISH —
NEXT HIGHER ASSY. B-DD-KB11-Ø
SCALE —
SHEET 7 OF 7

SIZE	CODE	NUMBER	REV.
D	CS	M 8139-Ø-1	D

DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC Form No. DRD 103-B

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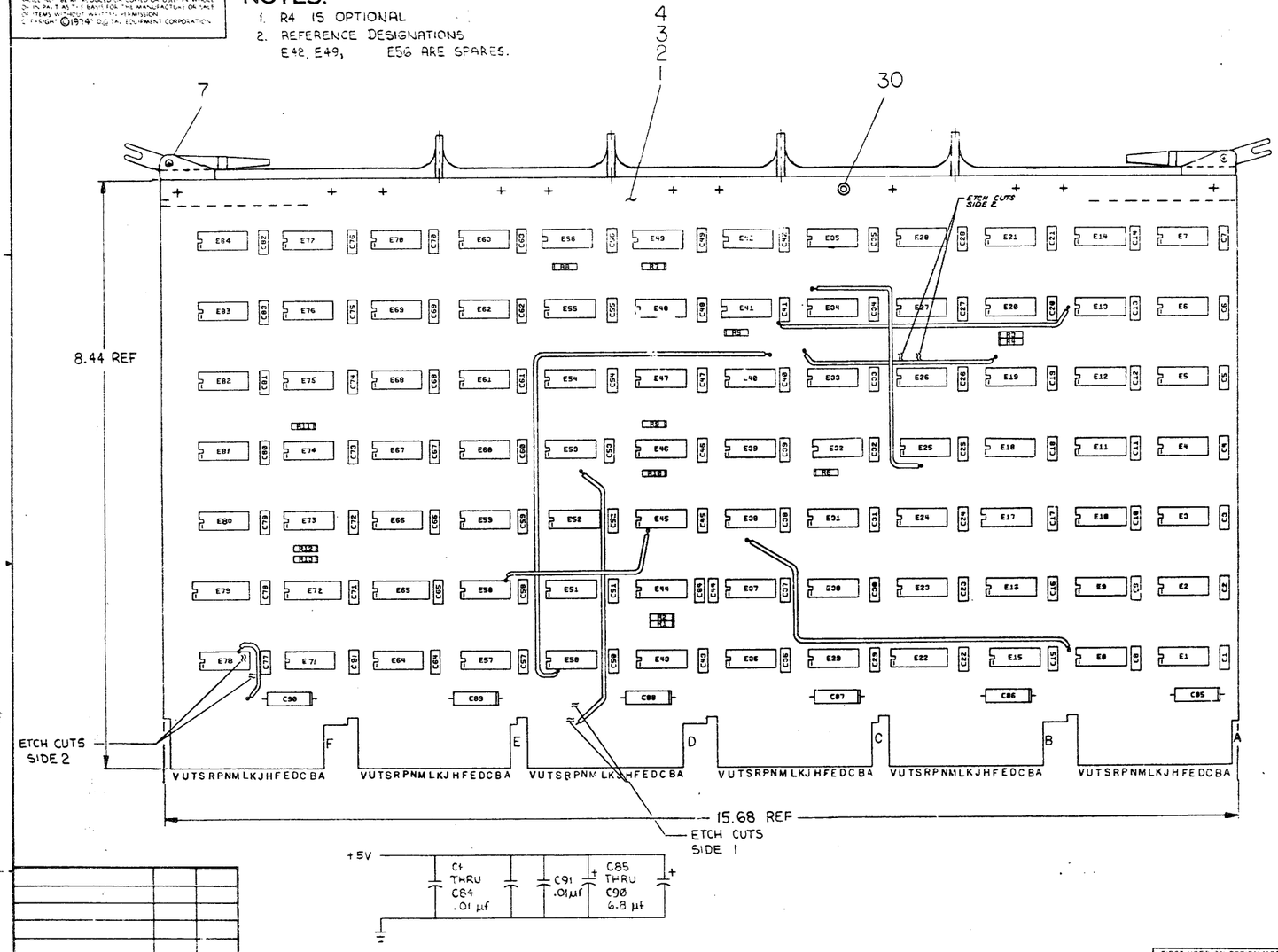
NOTES:

1. R4 IS OPTIONAL
2. REFERENCE DESIGNATIONS E42, E49, E56 ARE SPARES.



I.C DEC 8640	1	8
I.C. DEC 74S174	8	16
I.C. DEC 74S153	8	16
I.C. DEC 74S112	8	16
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
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8135-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8135-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8135-0-6	3
1		ETCHED CIRCUIT BOARD	5011321	4
85	C1 THRU C84 C91	CAPACITOR. 01uf. 100V DISC	1001610-01	5
6	C85 THRU C90	CAPACITOR. 6.8uf. 35V. 10%	1005306	6
1		HANDLE HEX MODULE	1210711-2	7
2	R5,R6	RESISTOR. 120 OHM. 1/4W. 5%	1300247	8
1	R3	RESISTOR. 150 OHM. 1/4W. 5%	1300250	9
1	R7	RESISTOR. 180 OHM. 1/4W. 5%	1301322	10
2	R1,R13	RESISTOR. 330 OHM. 1/4W. 5%	1300295	11
1	R8	RESISTOR. 390 OHM. 1/4W. 5%	1300309	12
2	R2,R12	RESISTOR. 680. 1/4W. 5%	1301424	13
3	R9,R10,R11	RESISTOR. 1K 1/4W. 5%	1300365	14
6	E21,E30,E45,E57,E64,E5	I C DEC 74S00	1910532	15
12	E1,E3,E12,E19,E27,E28,E29,E47,E55,E66,E73,E83	I.C DEC 74S04	1910534	16
7	E11,E14,E23,E24,E37,E54,E61	I C DEC 74S10	1910536	17
19	E2,E6,E10,E13,E15,E20,E25,E26,E33,E35,E43,E51,E67,E68,E74,E75,E81,E82,E71	I C DEC 74S11	1910537	18
8	E8,E16,E60,E69,E76,E77,E83,E84	I C DEC 74S20	1910539	19
4	E53,E62,E63,E70	I.C. DEC 74H30	1909059	20
2	E9,E34	I.C. DEC 74S40	1910541	21
4	E44,E46,E50,E59	I C. DEC 74H50	1909080	22
4	E7,E31,E36,E38	I C DEC 74S84	1910542	23
4	E4,E39,E40,E58	I C. DEC 74S74	1910544	24
4	E17,E18,E32,E41	I C DEC 74S112	1910545	25
1	E22	I C DEC 74S153	1910547	26
3	E65,E72,E79	I C DEC 74S174	1910550	27
1	E78	I C DEC 8640	1911469	28
2	E48,E52	I C DEC 8885	1919849	29
12		EYELET	9006732	30
35		WIRE #30 AWG BUSS (RETROFIT)	9105740-55	31

PARTS LIST

FIRST USED ON OPTION MODEL: 11/70

ETCH BOARD REV: A

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

SEMICONDUCTOR CONVERSION CHART

DRN	P Beasley	DATE 12-5-74
CHK'D	FERGUSON	DATE 12-9-74
ENG	Allan Helenius	DATE 1-6-75
PROJ ENG	ALLAN HELENIUS	DATE 1/6/75
PROD	L Taylor	DATE 1/8/75
NEXT HIGHER ASSY		
SCALE	—	
SHEET	1 OF 7	

digital EQUIPMENT CORPORATION

TITLE: TRAP & MSC CONTROL

SIZE D | CODE CS | NUMBER M8135-0-1 | *

DIST

*	1-0-M8135	DCS	2	1

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UBCF STOP L
TMCA CONF (1) L
DK1
74S00 E45
TMCE SET CONF L
74S74 E58 CONF
ED2
TMCA CONF (1) H
TMCE CLK CONF H
DU2
TMCA CONF (0) H
UBCH CLR CONF L
EK1

TMCA PAR TRP (1) H
74S04 E66
74S04 E66
TMCA SEGTF L

74S174 E65

SSRD MEM MGMT TRAP L
TMCE PAUSES H
DJ1
74H50 E44
TMCA SEGTF L
TMCE PAUSES L

CCBJ PARITY TRAP H
EU1
TMCD SLYEL (1) H
UBCE PDNF (1) H
EN1
FRHH FP EXC TRAP L
FA1
74S04 E73
R13 330
R12 680
+5V
PDRD PIR15 (1) H
FB2
D5 R5(1)
D4 R4(1)
D3 R3(1)
D2 R2(1)
D1 R1(1)
D0 R0(1)
CLR CLK

UBCE PF CLR (1) L
TMCC PRIORITY CLR L
UBCE INT BUS INIT L
DH2
DF1
74S11 E43
TMCA BRQ CLR L
TMCE BRQ CLK H

74S04 E66
74S04 E66
74S04 E66
74S04 E66
74S04 E66
74S04 E66
74S04 E80
74S04 E80
74S04 E80
74S04 E80
74S04 E80
74S04 E80

74S11 E68
74S11 E68
74S11 E68
74S11 E67
74S11 E67
74S11 E67
74S11 E81
74S11 E81
74S11 E81
74S11 E82
74S11 E82
74S11 E82

TMCA PAR TRP (1) H
74S10 E54
DM2
TMCA PERF ACKN L
UBCB ACKN B H
ET2
74S00 E45
DK2
TMCA SEG ACKN L
TMCA HONOR SEGT H
TMCA SEG + CON + PAR L

74S00 E45
TMCA HONOR SLV L
74S04 E73
TMCA HONOR SLV H
74S10 E84
FK1
TMCA HONOR PWRF L
74S20 E69
TMCA HONOR FPTRAP L
TMCA ABOVE BR7 L
74S20 E69
TMCA HONOR PIR7 L
TMCB BLOCK LEV 7 L
74S10 E54
ER1
TMCA HONOR BR7 L
TMCB BLOCK LEV6 L
74S20 E76
TMCA HONOR PIR6 L
TMCA INH BELOW BRG L
74S20 E76
ED1
TMCA HONOR BR6 L
TMCB BLOCK LEV5 L
74S20 E83
TMCA HONOR PIR5 L
74S20 E83
EE2
TMCA HONOR BR5 L
TMCA BLOCK BR4 L
TMCB PS07 (0) H
74S20 E60
TMCA HONOR PIR4 L
TMCA INH BELOW PIR4 L

BUS BR7 L
FN1
BUS BR6 L
FL1
BUS BR5 L
FS1
74S00 E78
8640 E78
8640 E78
PDRD PIR14 (1) H
FU1
PDRD PIR13 (1) H
FM1
PDRD PIR12 (1) H
FU2

74S174 E79

TMCE BRQ CLK H

ORDER OF SERVICE	VECTOR
1 CONSOLE FLAG	—
2 PARITY TRAP	114
3 SEG MEM MANAGEMENT TRAP	250
4 STACK LIMIT YELLOW	4
5 POWER FAIL	24
6 FP EXEPTION TRAP	244
CP LEVEL 7	
7 PIRQ 7 (PIR15)	240 INTR
8 BUS REQUEST 7	
CP LEVEL 6	
9 PIRQ 6 (PIR 14)	240 INTR
10 BUS REQUEST 6	
CP LEVEL 5	
11 PIRQ 5 (PIR 13)	240 INTR
12 BUS REQUEST 5	
CP LEVEL 4	
13 PIRQ 4 (PIR12)	240 INTR
14 BUS REQUEST 4	
CP LEVEL 3	
15 PIRQ 3 (PIR11)	240
CP LEVEL 2	
16 PIRQ 2 (PIR10)	240
CP LEVEL 1	
17 PIRQ 1 (PIR09)	240
CP LEVEL 0	
18 T BIT (PS04) AND NOT RTT & RTT NOT LOCKED OUT BY PROC STATUS LEVELS BUT SERVICED LAST	14

REVISIONS		
CHK	CHANGE NO.	REV.

(PRIORITY ARBITRATION) SLOT 11

TITLE		SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL	(TMCA)	D	CS	M8135-0-1	*
SCALE —	SHEET 2 OF 7	DIST.			

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TMCA ABOVE BR7 L
TMCB PS07 (Ø) H
TMCA BLOCK BR4 L
74S20 E77 → EL1 → TMCB HONOR BR4 L

TMCA INH BELOW BR6 L
TMCA INH BELOW PIR4 L
74S11 E75 → TMCB BLOCK LEV 3 L
74S20 E77 → TMCB HONOR PIR3 L

74S11 E74
74S11 E75 → TMCB BLOCK LEV 2 L
74S20 E84 → TMCB HONOR PIR2 L

74S11 E74
74S11 E75 → PDRD PRIORITY = Ø H → FR1
74S20 E84 → TMCB HONOR PIR1 L

74S174 E72
BUS BR4 L → FP1 → 8640 E78 → D5 R5(1)
PDRD PIR11 (1) H → FF1 → D4 R4(1)
PDRD PIR10 (1) H → FD1 → D3 R3(1)
PDRD PIR09 (1) H → FB1 → D2 R2(1)
PDRD PS04 (1) H → FE2 → 74S11 E74 → D1 R1(1)
IRCD RTT L → FH2 → D0 R0(1)
R11 1K → FJ1 → TMCB PS04 MAT H
CLR CLK
TMCA BRQ CLR L
TMCE BRQ CLK H

74S04 E73 (13→12)
74S04 E73 (11→10)
74S04 E73 (9→8)
74S04 E73 (3→4)

74S10 E61 → TMCB BLOCK LEV 7 L
74S00 E64 → TMCB BLOCK LEV 6 L
74H50 E59 → TMCB BLOCK LEV 5 L
74H50 E59 → TMCB BLOCK LEV 3 L
PDRD PS05 (1) H → EL2
74S04 E47 → 74S11 E51 → TMCB BLOCK LEV 2 L
PDRD PS06 (1) H → ER2
PDRD PS07 (1) H → EP1 → 74S04 E47 → TMCB PS07 (Ø) H

TMCA SEG + CON + PAR L
TMCA HONOR SLY L
TMCA HONOR PWRF L
TMCA HONOR FPTRAP L
TMCA HONOR PIR7 L
TMCA HONOR BR7 L
TMCA HONOR PIR6 L
74H30 E70 → 74S04 E55

TMCA HONOR BR6 L
TMCA HONOR PIR5 L
TMCA HONOR BR5 L
TMCA HONOR PIR4 L
TMCB HONOR BR4 L
TMCB HONOR PIR3 L
TMCB HONOR PIR2 L
TMCB HONOR PIR1 L
74H30 E62 → 74S04 E55

74S00 E57 → TMCA CONF (Ø) H → 74S00 E57 → EC1 → TMCB BRQ *-(T+CONF) L
74S11 E51 → DR1 → TMCB BRQ TRUE L
74S10 E61 → DT2 → TMCB BRQ TRUE H
74S20 E60 → EE1 → TMCB HONOR T L
74S04 E55 → 74S00 E57 → DP1 → TMCB TOK L

TMCC SEG ABORTE D (1) H
TMCC AERF (1) H
74H50 E46 → EB2 → TMCB SEGT L

TMCA HONOR SEGT H
TMCC SERF (1) H
74H50 E46 → DL1 → TMCB PWRF L

TMCD +3V H
UBCD EXT BRQ L → EJ1 → 74S74 E58 ENB VEC Ø
TMCE INTR PAUSE H
TMCE BRQ TRUE H
TMCC TS3 CLK H
74S11 E51
74S00 E57 → EJ2 → TMCB FPTRAP L

TMCA HONOR PWRF L
74S04 E55 → TMCC SERF (1) H
74H50 E46 → DL1 → TMCB PWRF L
TMCB HONOR PWRF H

TMCA HONOR FPTRAP L
74S04 E55 → 74S00 E64 → ES1 → TMCB FP ACKN L
UBCB ACKN B H → EE2
TMCB HONOR FPTRAP H

UBCE INIT H → DV2
UBCB ACKN B H → ET2
8885 E52 → EH2 → TMCB CLR INTRF L

UBCC INTRF (1) L → FF2
TMCA HONOR PWRF L → FK2
TMCA HONOR FPTRAP L
74S11 E71 → 74S11 E71 → FE2 → TMCB PWRF + INTRF L

TMCC BLOCK STROBE (1) H
8885 E52 → DU1 → TMCB TRAP INH L

TMCA HONOR PIR7 L
TMCA HONOR PIR6 L
TMCA HONOR PIR5 L
TMCA HONOR PIR4 L
TMCB HONOR PIR3 L
TMCB HONOR PIR2 L
TMCB HONOR PIR1 L
74H30 E63 → 74S00 E64 → EM1 → TMCB PIRQ L

UBCB PARITY ERR L → DS2
TMCA HONOR PWRF L
TMCC AERF (1) L
TMCB TOK L
TMCB PIRQ L
TMCA HONOR SLY L
TMCA HONOR FPTRAP L
TMCB SEGT L
74H30 E53 → 74S04 E55

UBCE PUPF (Ø) L → DS1
74H50 E50 → DP2 → TMCB PF (Ø) * (SF + TF) H
TMCC SERF (1) L
74H50 E50 → DM1 → TMCB PF (Ø) * (SF + ~TF) H

TMCA PAR TRP (1) H
TMCA CONF (3) H
74S10 E61 → EK2 → TMCB PART L

(PRIORITY ARBITRATION, TRAP VECTORS) SLOT 11

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL (TMCB)	D	CS	M8135-Ø-1	*
SCALE —	SHEET 3 OF 7	DIST.		

DEC FORM NO. SMD 130

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RACC UBSC02 H AM2
RACC UBSC01 H BV2
RACC UBSC00 H BU2
IRCD BY IN H BT2
IRCC SM 357 H AK2
DAPB BAMX00 H AF2
TMCC BSC01 B L
UBCB TIMEOUT B L DC1
TMCC ODD ADRS ERR L AN1
SAPN NOT CACHE ADRS H CL2
SAPN UNIBUS ADRS L EF1
TMCC NEXM L
TMCC BUS ERROR L
TMCC NEXM L
DD2
TMCC ABORT H
TMCC AERF MAT H
R10 1K DN1
TMCC AERF (1) H
TMCC AERF (0) H
TMCB CLR INTRF L
TMCC +3V H
TMCC SEG ABORTED (1) H
TIGE TS2 L CH2
SSRC KT ABORT FLG L DF2
segmentation error
UBCF CNSL ACT (0) H AR2
RACB UBSD01 H
TMCC TS2 CLK H
TMCC ABORT CLK L
UBCF CNSL ACT (0) H AR2
TIGE TS3 L CJ2
TMCE PAUSES H
TMCC TS3 CLKA H
stack limit violation
UBCE INIT L BC1
TMCC INIT + ACKN L
TMCD SL RED L EM2
TMCA HONOR SLV H ET2
UBCB ACK'N B H
UBCB PE ABORT L CR2
TMCE PAUSES L
TMCC TS3 CLK H
R9 1K DL2
TMCC SERF MAT H
stack error flag
TMCA HONOR PWRF L
TMCC PRIORITY CLR L
TMCC ABORT CLR L
TMCC SERF (1) H
TMCB HONOR PWRF H
TMCC BLOCK STROBE (1) H
TMCE CLK CONF H
DB2
TMCC AC CLEAR L
TMCC SERF (0) H
TMCC STROBE INH L
RACC UBCT00 H BD1
PDRD PS14 (0) H BF1
RACC UBCT01 H CF1
TMCC BCT 01 B L
RACB UBAX00 H CU2
RACH BUST H CK2
UBCC DATI L CM2
GRAC GRA3 L CL1
GRAC GD6 L DA1
TMCC BCT00 B L
RACC UBCT02 H CJ1
TMCC TS3 CLK H
TMCC +3V H
TIGD T4 H DJ2
R5 120
TMCC KERNEL RG (1) H
TMCC KERNEL RG (0) H
UBCE INIT L BC1

(AERF; SERF; ODD ADDRESS) SLOT 11

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL (TMCC)	D	CS	M8135-Ø-1	*
SCALE	SHEET 4 OF 7	DIST.		

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TMCC NEXM L — 74S04 E29 — TMCD +3V H — 74S112 E17 — BD2 — TMCD CACHE NEXM H

UBCB TIMEOUT B H — BE1 — 74S112 E17 — BA1 — TMCD UBUS TIMEOUT H
TMCC ABORTCLK L

TMCD +3V H — 74S74 E4 — AD2 — TMCD YEL TRAP H
TMCD SLYEL(1) H

SCCC ERR REG ADRS H — AS2 — 74S20 E8
TMCE C1 H
TMCC TS3 CLKA H
TMCE PAUSE S H
→ 74S11 E8Ø — TMCD CLR ERR REG A L

UBCE INIT L — BC1 — 74S11 E13 — TMCD CLR ERR REG B L

TMCE SET HALT H — 74S113 E30 — TMCD +3V H — 74S112 E18 — BF2 — TMCD ILL HALT H
TMCC TS3 CLKA H

PDRD PS14 (Ø) H — BF1 — 74S04 E19

TMCD SL RED H — TMCD +3V H — AU1 — TMCD SL RED ERR H
TMCC ABORT CLK L — 74S112 E18

TMCC ODD ADRS ERR L — 74S04 E19 — TMCD +3V H — CR1 — TMCD ODD ADRS H — 74S112 E32

SCCE PB ADRS H — CE1 — 74S04 E28
SCCE SL ADRS H — BS2 — 74S04 E28
SCCE PS ADRS H — CE2 — 74S04 E28
SCCE PIR ADRS H — BR2 — 74S04 E28

→ 74S10 E14
→ 74S00 E21

UBCA MSYN SET H — CV2 — 74S11 E35 — DD1 — TMCD DMX SØ H
→ 74S11 E35 — DE1 — TMCD DMX S1 H

TMCE C1 H — 74S04 E28 — TMCD C1B L

SCCE INTERNAL ADRS H — BH2 — 74S00 E21
UBCA MSYN SET H — CV2 — 74S00 E21
TMCD C1 B L
→ 74S11 E2Ø — AT2 — TMCD HI BYTE EN H
→ 74S11 E2Ø — AU2 — TMCD LØ BYTE EN H

+5V — R1 33Ø — R2 68Ø — C84 .01uf

TMCD YEL ZONE H
PDRC STACK LIMIT H
RACB UBSDØ 1 H — AS1 — AR1 — 74S20 E8 — 74S04 E19 — TMCD SL YEL(1) H
TIGC T2 H — DB1 — R6 12Ø — 74S112 E32
UBCE INIT H — DV2 — 88S5 E48

+5V. — R7 18Ø — R8 39Ø
TIGE TS5 L — EF2 — 88S5 E48
SCCE SW ADRS L — DR2
TMCE PAUSES H
TMCE C1 H — 74S11 E35 — CT2 — TMCD CLK LR H

TMCC SERF(1) H
TMCC KERNEL R6 (1) H
TMCC BLOCK STROBE(1) H — 74S00 E21 — 74S11 E2Ø
TIGD T5 H — BJ1 — R3 15Ø — R4 — +5V

PDRC RED ZONE H — CN1
SCCE STACK OVERFLOW H — CS2
USCB ABORT ACKN L — CP1
PDRC STACK LIMIT H — CS1
→ 74S64 E31 — 74S04 E19 — TMCD SL RED H
EM2 — TMCD SL RED L

DAPC BAMX Ø7 H — BB1
DAPC BAMX Ø6 H — BB2
SAPH VA Ø5 BH — BE2
→ 74S51 E15 — 74S04 E19 — TMCD YEL ZONE H

Non-existent Comet memory

stack limit

error

stack limit

error

control for destination multiplexer

Turn on display lights

REVISIONS		
CHK	CHANGE NO.	REV.

(INTERNAL STACK LIMIT) SLOT 11

TITLE	SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL (TMCD)	D	CS	M8135-Ø-1	*
SCALE —	SHEET 5 OF 7	DIST.		

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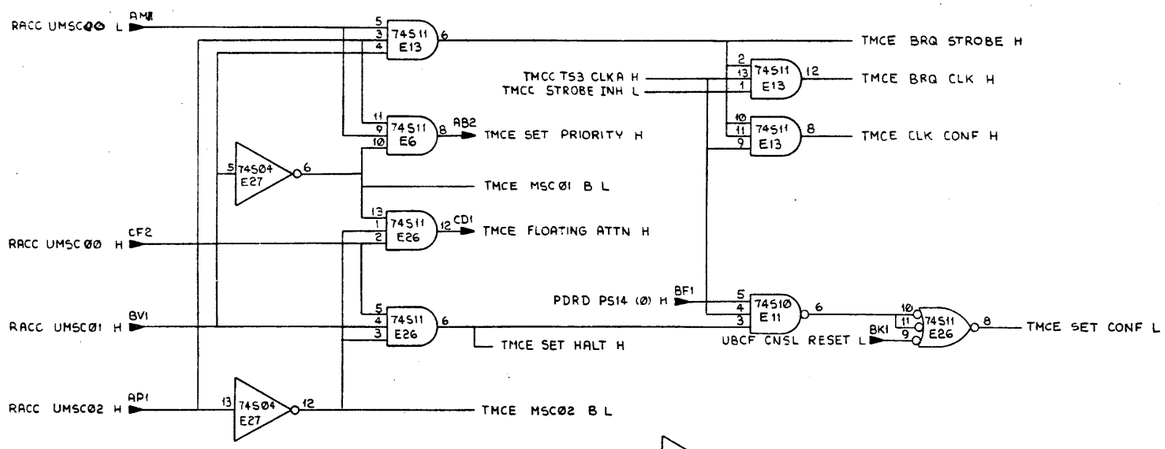
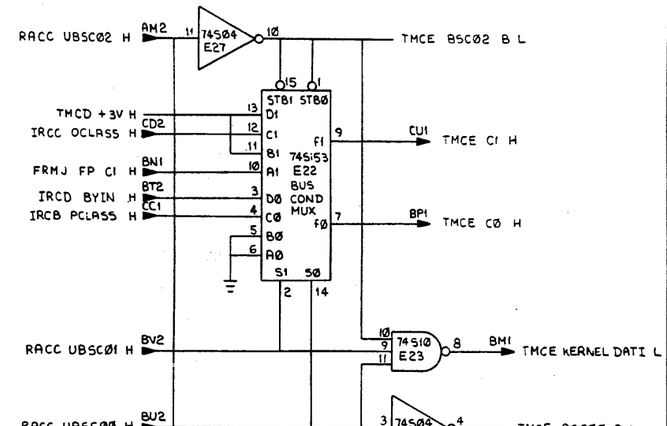


UBSC	01	00
	L	L FP
	L	H DATO
	H	L BSOP1
	H	H BSOP2



(MSC, BCT, BSC DECODE) SLOT 11

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL (TMCE)	D	CS	M8135-0-1	
SCALE —	SHEET 6 OF 7	DIST.		

M8135-0-1 REV *

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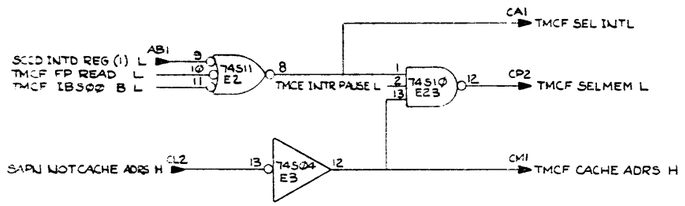

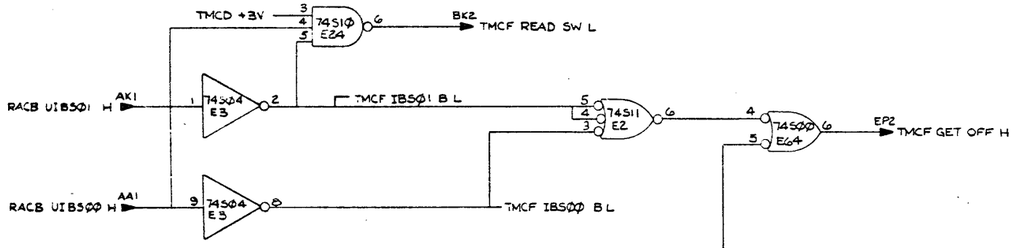

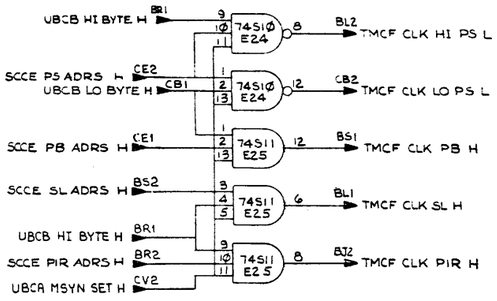

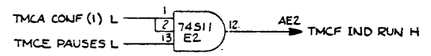

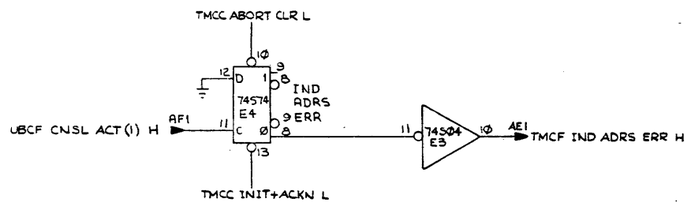

REVISIONS		
CHK	CHANGE NO.	REV.

(BRMX SELECTION FP READ) SLOT 11

TITLE		SIZE	CODE	NUMBER	REV.
TRAP & MSC CONTROL	(TMCF)	D	CS	M8135-Ø-1	*
SCALE	SHEET 7 OF 7	DIST.			

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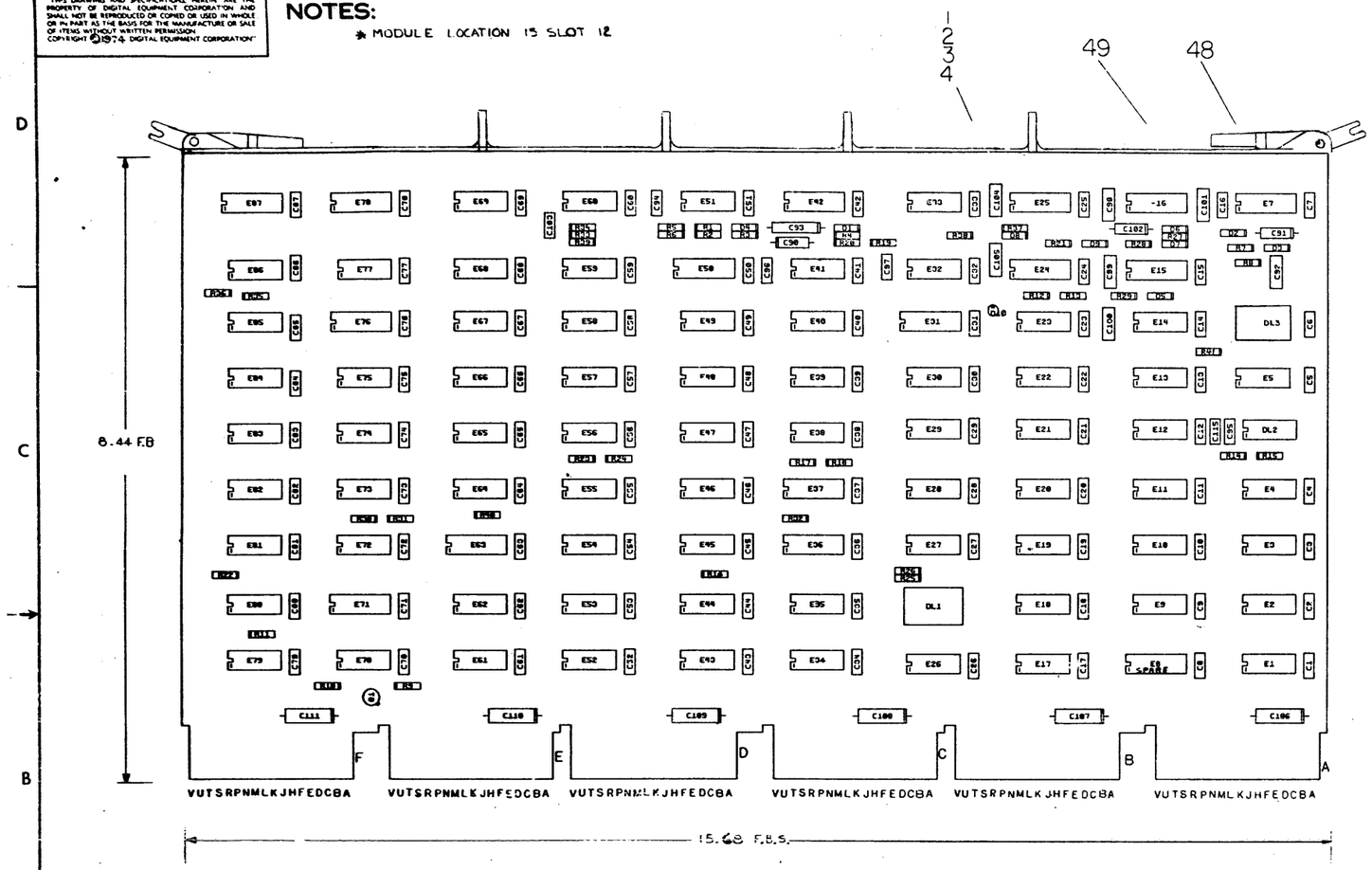
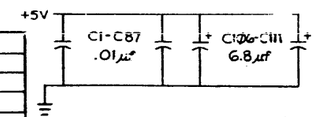
NOTES:

* MODULE LOCATION IS SLOT 12





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R25	RESISTOR, 620Ω, 1/4W, 5%	1303178	56
1	R26	RESISTOR, 120Ω, 1/4W, 5%	1300247	55
A/R		WIRE, BUSS #30 AWG	9105740-55	54
REF	-	FLOW DIAGRAM	D-FD-M8136-0-8	53
1	DL3	DELAY LINE 100NS	1609559	52

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF		TIMING DIAGRAM	D-TD-M8136-0-7	51
				50
12		EYELETS	9006732	49
1		HANDLE ASSY	1210711-02	48
1	DL2	DELAY LINE (tapped)	1611243	47
1	DL1	DELAY LINE (50ns)	1609428	46
1	E40	IC DEC 8885	1910649	45
4	E80,E53,E47,E5	IC DEC 8640	1911469	44
2	E71,E76	IC DEC 74S175	1910957	43
2	E78,E87	IC DEC 7442	1910046	42
1	E37	IC DEC 74193	1910018	41
4	E12,E35,E49,E55	IC DEC 74S140	1910546	40
4	E24,E31,E36,E50	IC DEC 74S112	1910545	39
16	E13,E11,E17,E21,E29,E28,E33,E41,E45,E51,E59,E81,E82,E83,E60,E64	IC DEC 74S74	1910544	38
3	E10,E65,E74	IC DEC 74S20	1910539	37
9	E18,E19,E23,E30,E32,E48,E54,E66,E67	IC DEC 74S11	1910537	36
3	E20,E44,E46	IC DEC 74S10	1910536	35
9	E2,E4,E9,E38,E52,E56,E57,E72,E85	IC DEC 74S04	1910534	34
13	E3,E22,E26,E34,E39,E27,E43,E58,E68,E69,E75,E77,E84	IC DEC 74S00	1910532	33
4	E61,E62,E70,E79	IC DEC 8881	1909705	32
2	E1,E86	IC DEC 74H50	1909060	31
2	E14,E73	IC DEC 74H30	1909059	30
1	R38	RESISTOR 470 OHM 1/4W 5%	1300316	29
3	R12,R30,R23	RESISTOR 180 OHM 1/4W 5%	1301322	28
2	R4,R29	RESISTOR 30K 1/4W 5%	1302394	27
2	R3,R7	RESISTOR 20K 1/4W 5%	1302391	26
1	R14	RESISTOR 300 OHM 1/4W 5%	1301425	25
6	R2,R6,R18,R20,R34,R36	RESISTOR 680 OHM 1/4W 5%	1301424	24
3	R13,R24,R31	RESISTOR 390 OHM 1/4W 5%	1300309	23
5	R11,R10,R22,R39,R41	RESISTOR 1K 1/4W 5%	1300365	22
6	R1,R5,R17,R19,R33,R35	RESISTOR 330 OHM 1/4W 5%	1300295	21
5	R8,R21,R27,R28,R37	RESISTOR 15K 1/4W 5%	1300496	20
1	R9	RESISTOR 3.9K 1/4W 5%	1300444	19
2	R15,R40	RESISTOR 150 OHM 1/4W 5%	1300250	18
2	R32,R16	RESISTOR 100 OHM 1/4W 5%	1300229	17
1	D10,	DIODE, LIGHT EMITTING MV5054-2	1110864	16
9	D1 THRU D9	DIODE D664	1100114	15
2	C90,C91	CAPACITOR .47uf 35V 10%	1005965	14
1	C95	CAPACITOR 82pf 100V 5%	1000015	13
1	C102	CAPACITOR 2.2uf 20V 10%	1002627	12
4	C98,C99,C104,C105	CAPACITOR 1200pf 100V 5%	1002424	11
93	C1 THRU C87,C94,C96,C97,C100,C103,C115	CAPACITOR .01uf 100V 20%	1001610-01	10
7	C93,C106 THRU C111	CAPACITOR 6.8uf 35V 10%	1005306	9
2	C92,C101	CAPACITOR 330pf 100V 5%	1000023	8
1		ETCHED CIRCUIT BOARD	5011340	7
REF		MODULE ECO HISTORY	B-MH-M8136-0-6	6
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8136-0-5	5
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8136-0-4	4

PARTS LIST

ETCH BOARD REV: C

FIRST USED ON OPTION MODEL: 11/70

IC TYPE	GND	+ 5V
IC DEC 74S175	8	16
IC DEC 74S157	8	16
IC DEC 74S112	8	16
IC DEC 74193	8	16
IC DEC 74123	8	16
IC DEC 8640	1	8
IC DEC 7442	8	16

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

IC PIN LOCATIONS

REV	CHANGE NO.	CHK	DRN	DATE
A	ORIGINATED	X	W. AMOUILL	10-29-74
C	M8136-00001		T. TUPTON	11-11-75
D	M8136-00003		A. HELENIUS	5-16-75
E	M8136-00004		R. BOUCHER	6-1-76
F	M8136-00005		D. Brewster	12 Jul 77
			P. SCHNORR	5 Aug 77

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

SEMICONDUCTOR CONVERSION CHART

digital EQUIPMENT CORPORATION

		DATE
DRN.	W. AMOUILL	10-29-74
CHK'D.	JENNY VINCENT	12-3-74
ENG.		DATE 1-6-75
PROJ. ENG.		DATE 1-6-75
PROG.		DATE 11/8/75

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 8

TITLE: UNIBUS & CONSOLE CONTROL (UBC)

SIZE D | CODE CS | NUMBER M8136-0-1 | REV. F

DIST.

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SIZE D CODE CS NUMBER M8136-0-1 REV F

SAPN UNIBUS ADRS L — AR2 — 74S04 E4 — AM2 — UBCA UNIBUS ADRS H

UBCA +3V H — 10 — 74S74 E13 — UBCD CLR BG (1) H — UBCB DSACK (0) H — UBCB TS3 L

74S00 E22 — UBCA PASSIVE L

UBCD NPR (0) H
UBCD NPG (0) H
UBCD SACK (0) H
UBCD DSACK (0) H
TIGA PSEUDO T3 H
UBCB ABORT L
— 74H30 E14 — 74S04 E4 —

UBCE DCLO B L — 74S74 E45 — UBCA CPBSY (1) H — UBCA CPBSY (0) H — 74S140 E12 — FL1 — UBCA CPBSY B H

+5V — R17 330 — R18 680 — C96 .01 mf — UBCA +3V H

8881 E79 — FK2 — BUS BBSY L

BUS BBSY L — FK2 — 8640 E80 — R11 1K — FJ1 — UBCA BBSY MAT H

SCCD INTD REQ (1) L — BT2 — 74S11 E23

TIGC TIB H — R40 150 — DH2 — 74S00 E22

UBCA +3V H — UBCC DATIP L — 74S74 E21 — UBCA MSYN (1) H

UBCE INIT L
UBCB PE ABORT L
UBCB ABOOBT RESTART L
— 74S11 E48 —

UBCB TIMEOUT (0) H — 74S04 E4 — 74S20 E10 — UBCB SSYN L

UBCA CPBSY (1) H — 74S140 E12 — DL2 — R15 150 — +5V — C115 .01 mf — C95 82 pf — R14 300

UBCB SSYN H
UBCC C B H
— 74S00 E22 —

UBCA START BUS (1) H

UBCA MSYN (1) H — 8881 E79 — FL2 — BUS MSYN L

TKGD T3B H — DP1 — R16 100 — 74S74 E45 — UBCA MSYN (0) H — 74S04 E38 — CR2 — UBCA MSYN SET H

UBCE INIT L

UBCA +3V H — 74S74 E21 — TIGE TS4 L — AT2 — UBCE INIT L — UBCB CPSSYN L — 74S11 E23 — TIGA PSEUDO T3 H — BH1 — SCCD INTD REQ (1) L — UBCA CPSBY (1) H — 74S11 E66

UBCA +3V H — TMCE PAUSES B H — 74S00 E27 — 74S74 E11 — UBCA TS4 CLK H — AL1 — UBCA CLR IND (0) H — UBCA +3V H

TMCE PAUSES B H — BP2 — UBCC C1 B L — TMCE CACHE ADRS H — 74S10 E20

UBCA +3V H — 74S74 E11 — 74S04 E4 — AU2 — UBCA IND CLK H

UBCE INIT L

+5V — R12 180 — TIGE TS4 L — AT2 — R13 390 — 74S04 E4 — UBCA TS4 CLK H

74193 E37 — CRY BRW — D3 D2 D1 D0 — R3(1) R2(1) R1(1) R0(1) — CLR LD CUP CDN

UBCA MSYN (1) H — 74S00 E27 — 74S00 E27 — UBCA START TIMEOUT L

UBCA +3V H
UBCD FREE CLK (0) H

(UNIBUS CONTROL) SLOT 12

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
UNIBUS & CONSOLE CONT.	(UBCA)	D	CS	M8136-0-1	F
SCALE	SHEET 2 OF 8	DIST.			

DCS M8136-0-1 REV F

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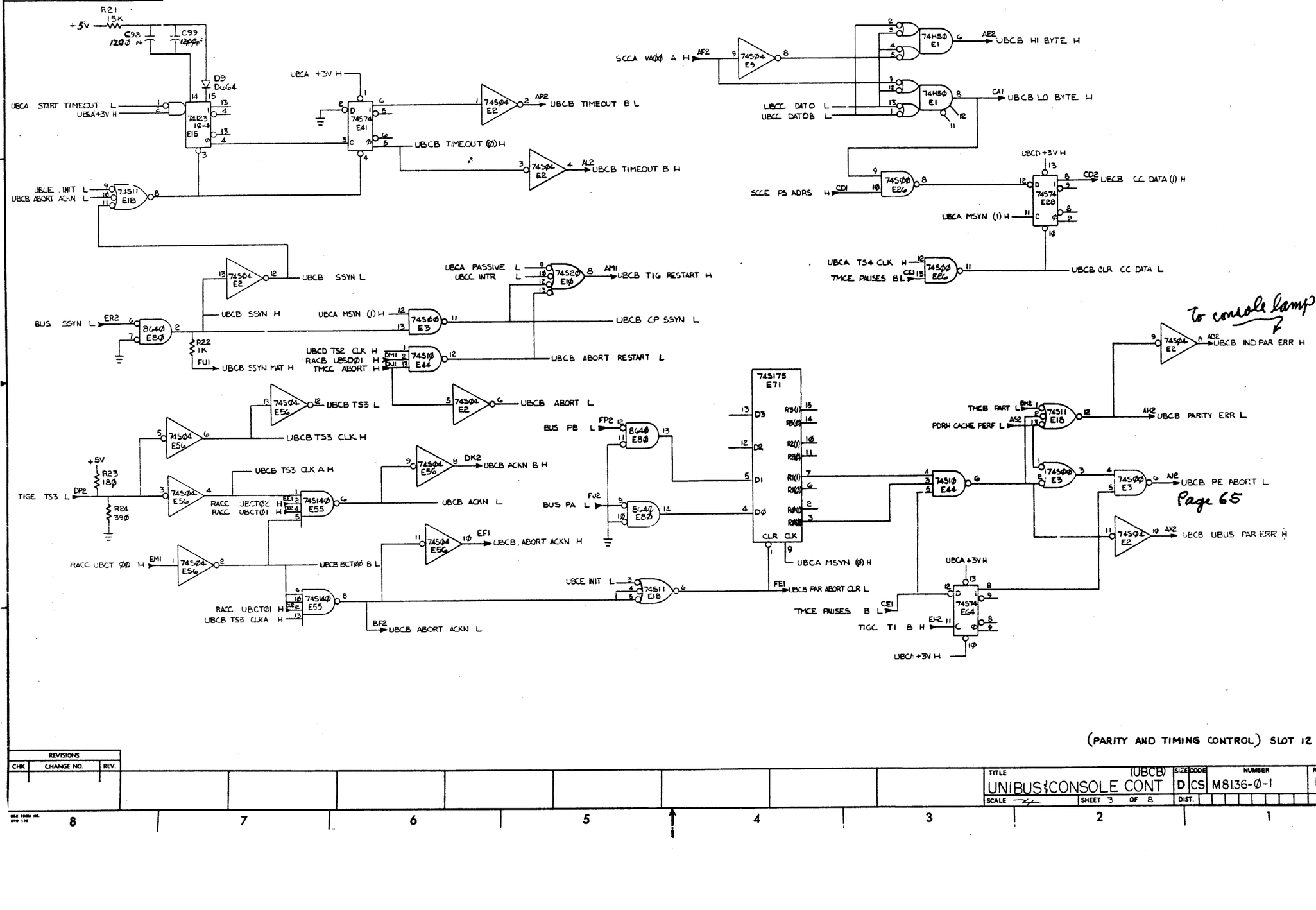

(PARITY AND TIMING CONTROL) SLOT 12

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS & CONSOLE CONT (UBCB)	D	CS	M8136-Ø-1	F
SCALE —	SHEET 3 OF 8	DIST.		

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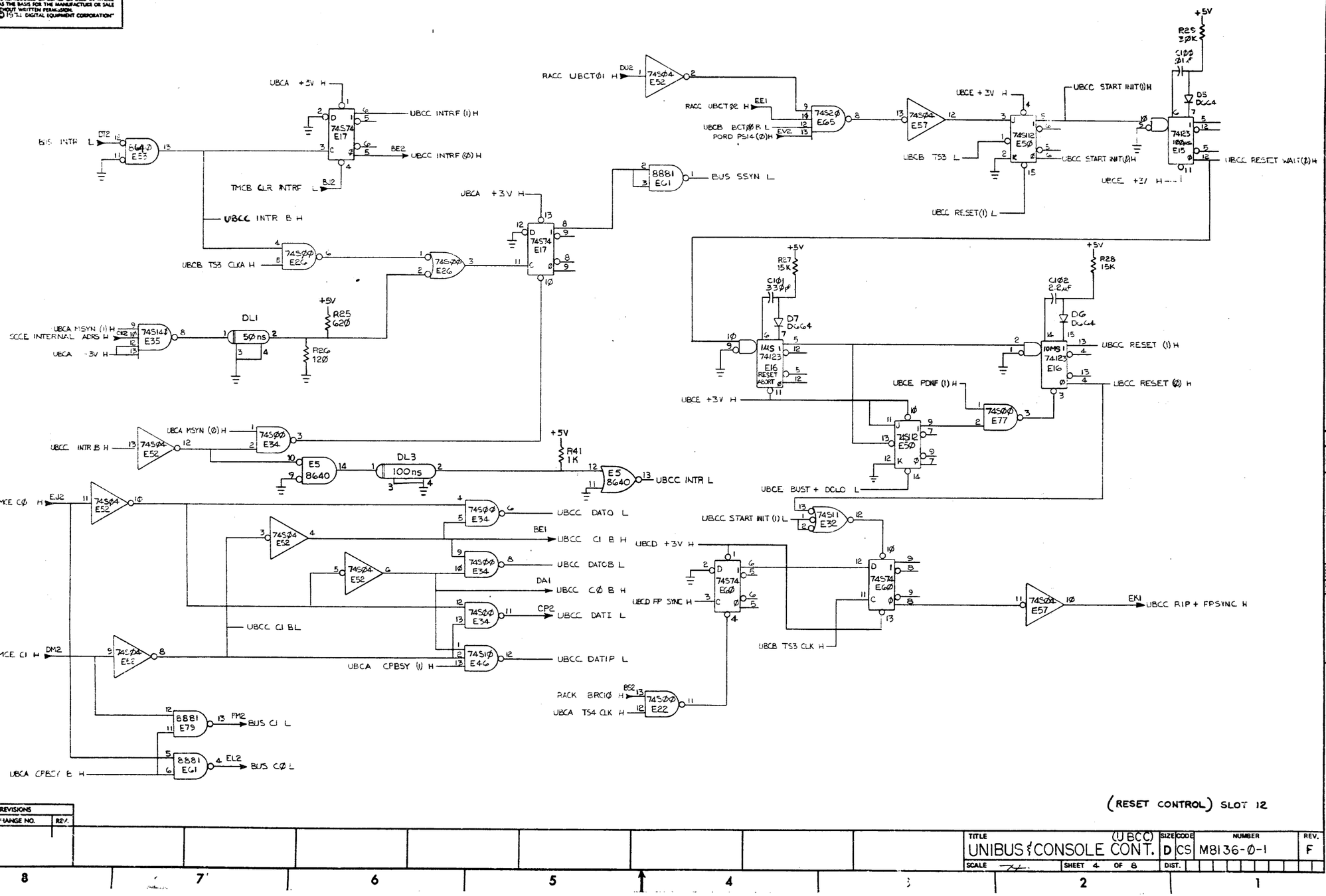

(RESET CONTROL) SLOT 12

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS CONSOLE CONT. (UBCC)	D	CS	M8136-Ø-1	F
SCALE	SHEET 4 OF 8	DIST.		

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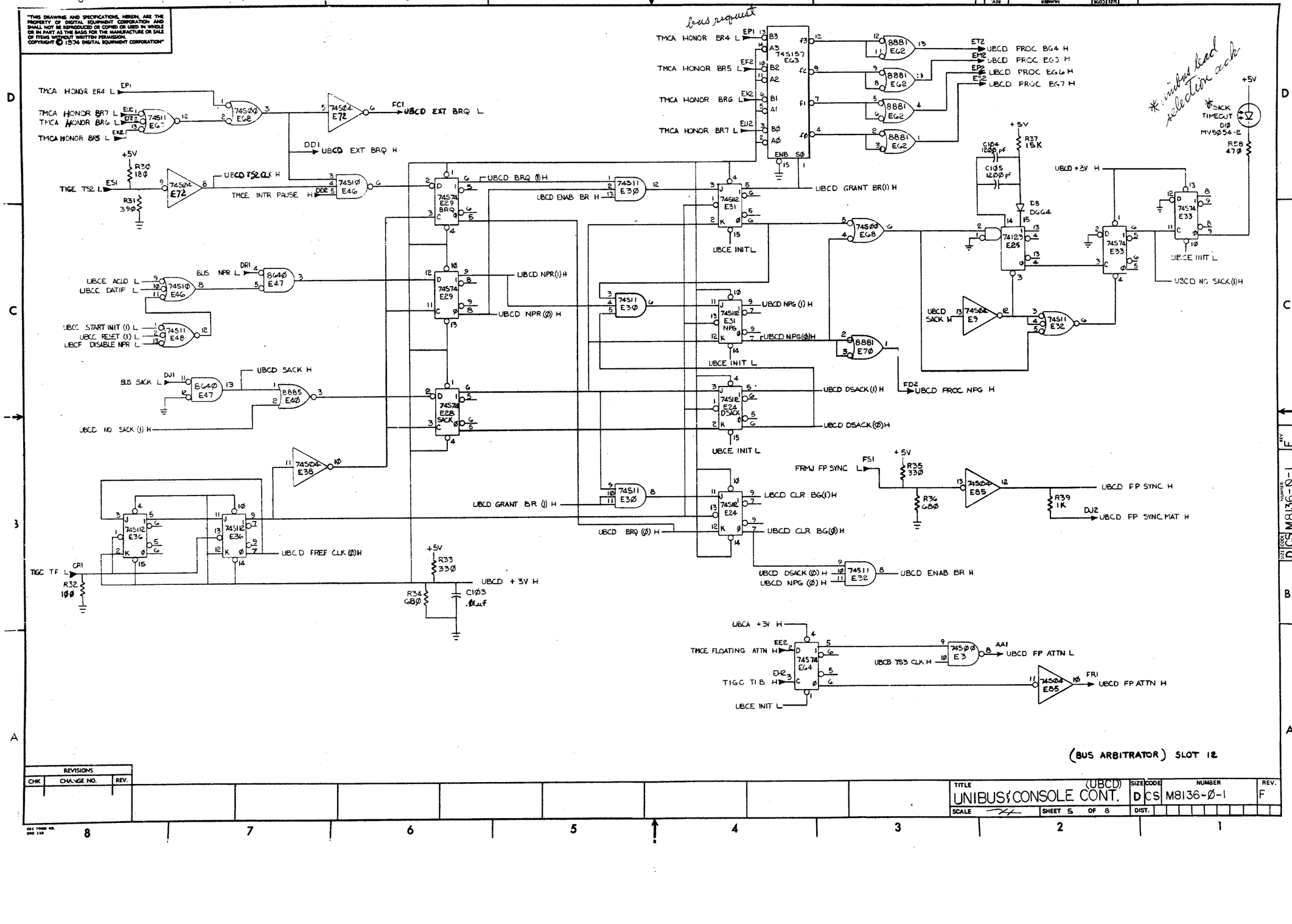

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS & CONSOLE CONT. (UBCD)	D	CS	M8136-Ø-1	F
SCALE	SHEET 5 OF 8	DIST.		

DEC FORM NO. DOD 132

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BUS ACLO L — 13640 E53 — 8881 E61 — 74S24 E37 — 74S11 E48 — 74S04 E57 — DL1 UBCE ACLO L

ADML MAIN ACLO H — EL1 — 74S04 E57

TMCC AC CLEAR L — AR1 — 74S04 E9 — 74574 E13 — AK1 UBCE PF CLR (Ø) H

TMCA HONOR PWRF L — AF1 — 74574 E13 — UBCE PF CLR (1) H

UBCE BUST + DCLO L

UBCE ACLO H — 74S00 E68 — TMCA CONF (1) H

UBCE ACLO H — 74S00 E69 — 74S00 E69 — ER1 UBCE PDNF (1) H

UBCE PDNF (Ø) H — 74S00 E69

UBCE +3V H

+5V — R7 2.0K — C91 .47μF — D2 DGG4 — 74123 E7 2MS — +5V — R8 15K — C92 33μF — D3 DGG4 — 74123 E7 1MS — 8881 E72 — FE2 FE2 BUS DCLO L

* UBCE MAINT PF L — DU1 — +5V — R1 33Ø — R2 68Ø — 74574 E51 — UBCE +3V — UBCE DCLO B L

UBCB TS3 CLK H — 74S00 E69

UBCE PF CLR (1) H — 8885 E40

UBCE DCLO B H

+5V — R3 20K — C90 .47μF — D4 DGG4 — 74123 E42 2MS — UBCE INIT L

UBCE +3V H — 74574 E51 — ES1 UBCE BLOCK DOWN (1) H

UBCE ACLO H — 74S00 E58

C93 C.8μF — R4 3ØK — +5V — D1 DGG4 — 74123 E42 70MS — UBCE +3V H

UBCE ACLO L — 74S00 E58

UBCE +3V H — 74S11 E19

UBCE DCLO B L

UBCC RESET (1) L — 74S00 E20

UBCF CNSL RESET L

74S04 E7 — AV2 UBCE INT BUS INIT L

8881 E72 — AN BUS INIT L

74S01 E27 — CE2 UBCE ROM INIT H

74S02 E49 — AS1 UBCE INIT H

74S04 E9 — 8881 E70 — +5V — R9 3.9K — R10 1K — Q1 2N3906 — FB1 UBCE INIT L

FE2 — 8640 E53 — 8885 E40 — 74S04 E57 — CT2 UBCE DCLO B H — 74S140 E35 — BK2 UBCE DCLO B L

ADML MAIN DCLO H — CF2

UBCE +3V H — 74574 E59 — EN1 UBCE PUPF (1) H — UBCE PUPF (Ø) H

UBCB ABORT ACKN L

+5V — R5 33Ø — R6 68Ø — C94 .01μF — UBCE +3V H

UBCC RESET (1) H — 74S00 E58 — EJ1 UBCE START INIT L

SCCF HALT H — DH2 — 74574 E59

UBCF START L

UBCB TS3 CLK H — 74S00 E58 — RACH BUST H — EU1

UBCE DCLO B L — 74S11 E23 — UBCE BUST + DCLO L

74S04 E72 — 74S04 E72 — FD1 UBCE BUST MAT H

Page 112

AC POWER
BUS ACLO L
BUS DCLO L
PDNF
BLOCK DOWN — 2MS
PF CLR (1) H
PUPF
TØMS RESTART
ACKN PUP

Page 65

FE2

* UBCE MAINT PF - WHEN GROUNDED CAN BE USED TO SCOPE CP POWER FAIL LOGIC WHEN RUNNING A POWER FAIL DIAGNOSTIC.

(PWRF CONTROL) SLOT 12

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS/CONSOLE CONT. (UBCE)	D	CS	M8136-0-1	F
SCALE	SHEET 6 OF 8	DIST.		

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+5V
R19 33Ø
C97 .01 uF
R2Ø 68Ø

74S74 E82
UBCF EXAM (I) H
SCCH EXAM H FT2
UBCF EXAM (Ø) H

74S74 E82
UBCF REG EXAM(I)H
SCCH REG EXAM H FU2
UBCF REG EXAM(Ø)H

74S74 E83
UBCF DEPOS (I)H
SCCH DEP H FV2
UBCF DEPOS (Ø)H

TMCE INTR CLR L DR2
UBCE INIT L
UBCF ACKN T4 L
74S11 E54

74S74 E83
FF1 UBCF REG DEP(I) H
SCCH REG DEP H FF2
UBCF REG DEP (Ø) H

74S11 E54

74S74 E81
FH2 UBCF CNSLØ7 (I)H
SCCH LOAD ADRS H FR2
UBCF CNSLØ7 (Ø)H

74S74 E81
CV2 UBCF CONT (I) H
SCCF CONT H FS2
UBCF CONT (Ø) H

74H3Ø E73

74S74 E41
TMCA CONF (I) H DK1
UBCF START (I)H
SCCF START H DF2
74S04 E38
UBCF START L

UBCA T54 CLK H
UBCF ACKN LEVEL H
74S4Ø E39
UBCF ACKN T4 L
74S11 E19
UBCE DCLO B L

UBCB TS3 CLKA H
TMCA CONF(I) H DK1
74S1Ø E44

74S4Ø E39
CV2 UBCF CNSL ACT (I)H
74S4Ø E39
CH2 UBCF CNSL ACT (Ø) H

UBCA CPBSY(I) L
TMCA CONF(I) L DB1
74S4Ø E43
DB2 UBCF IND MASTER H

RACC UBCTØE H EE1
74S04 E38
RACC UBCTØN H DU2
UBCB BCT ØØ B L
74S11 E54
UBCF ACKN LEVEL H

SCCF SINGLE CYCLE H DF1
74S04 E38
SCCF HALT H DH2
74S4Ø E43
DE1 UBCF STOP L
SCCF START H DF2
74S4Ø E43
DE2 UBCF CNSL RESET L
74S4Ø E43
UBCF DISABLE NPR L

UBCE INIT H
8885 E4Ø
CV2 UBCF STATUS CLR L

(CONSOLE CONTROL) SLOT 12

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE: UNIBUS/CONSOLE CONT (UBCF)	SIZE D	CODE CS	NUMBER M8136-Ø-1	REV F
SCALE	SHEET 7 OF 8	DIST		

98

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HOLDS MICROCODE OF PREVIOUS CONSOLE OPERATION

74S175 E76

UBCF MSB DATA L

UBCH MICRO AD2 H

UBCH STEP DEPOSIT 2 L

UBCF DEPOS (I) H

UBCH STEP DEP+DEP H

UBCF START (I) L

UBCF CONT (I) L

UBCH MICRO AD1 H

UBCF CONT (I) L

UBCF START (I) L

UBCF CNSLØ7 (Ø) H

UBCE INIT L

7442 E87

7442A E78

UBCH REG EXAM+STEP H

UBCH REG EXAM+STEP L

UBCH REG DEP+STEP H

UBCH REG DEP+STEP L

UBCH STEP DEP+DEP L

UBCH STEP DEP+DEP H

UBCH EXAM+STEP EXAM H

UBCH EXAM+STEP EXAM H

UBCF EXAM (I) H

UBCH STEP EXAM Ø L

UBCH STEP DEP+DEP L

UBCF DEPOS(I) H

UBCH DEPOSIT+REG DPST L

UBCH MICRO AD Ø H

UBCF CONT (I) L

FPI UBCH CNSLØ3 H

FMI UBCH CNSLØ1 H

FNI UBCH CNSLØ2 H

UBCF CNSLØ7(Ø)H

UBCF MSB DATA L

UBCH REG EXAM+STEP H

UBCF REG EXAM(I) H

UBCH REG STEP EXM L

UBCH REG DEP+STEP H

UBCF REG DEP(I) H

UBCH REG STEP DEP+EXM L

UBCH REG DEP+STEP L

UBCH REG DEP L

UBCH REG DEP+REG EXM L

UBCH REG EXAM+STEP L

UBCF ACKN LEVEL H

UBCB TS3 CLK H

UBCF CONT (I) H

UBCE DCLO B L

UBCE START INIT L

EØ2 UBCH CLR CONF L

CONSOLE FUNCTION	MICRO ADRS 7	8	BIT I	Ø
EXAM	Ø	Ø	Ø	Ø
STEP EXAM	Ø	Ø	Ø	1
REG EXAM	Ø	Ø	1	Ø
DEPOSIT	Ø	Ø	1	1
STEP DEPOSIT	Ø	1	Ø	Ø
STEP REG DEP	Ø	1	Ø	1
START	Ø	1	1	Ø
CONTINUE	Ø	1	1	1
LD ADRS	1	Ø	Ø	Ø
REG DEPOSIT	1	Ø	1	Ø
STEP REG EXM	1	1	Ø	1

REVISIONS		
CHK	CHANGE NO.	REV.

(CONSOLE ш ADRS) SLOT 12

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS CONSOLE CONT. (UBCH)	D	CS	M8136-Ø-1	F
SCALE — SHEET 8 OF 8	DIST.			

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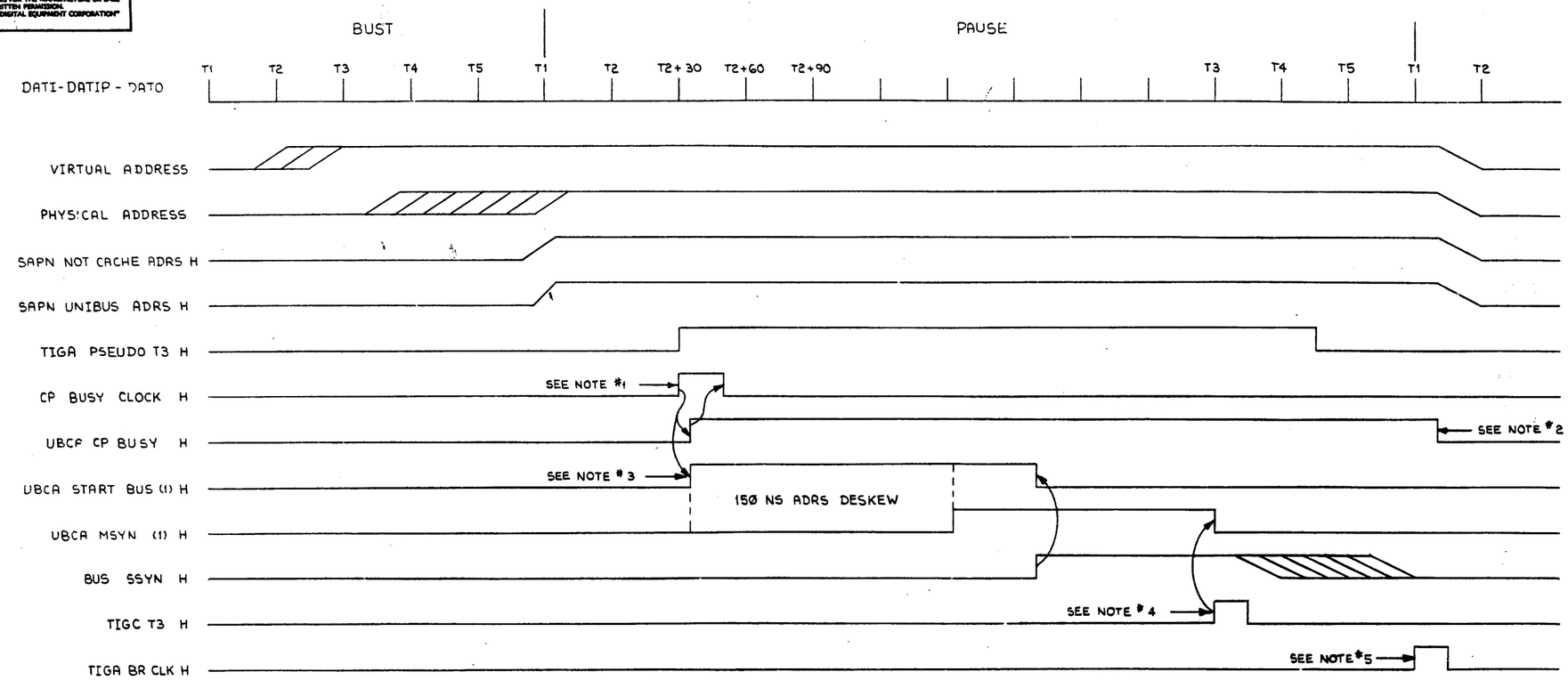

NOTES :

1. SET CP BUSY IF -(NPR + NPG + SACK + DSACK + ABORT + BBUSY)
2. CP BUSY IS NOT CLEARED IF DATIP CYCLE. IT IS CLEARED ON DATO PORTION OF DATIP/DATO
3. USED TO START DATO ADDRESS DESKEW ON DATIP/DATO OPERATION
4. 75 NS DATA DESKEW IS OBTAINED BY 2 STAGE SYNCRONIZER ON TIGA. UNIBUS DATA IS LOADED INTO PDRH BUFFER REGISTER AT T3
5. ADDRESS & CONTROL ARE DESKEWED FROM T3 TO T1. PDRH BUFFER REGISTER LOADED TO BR AT T1.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
XXX = ±0,10	XXX = ±.005	±0° 30'
XX = ±0,5	XX = ±.02	
X = ±2,	X = ±.1	

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. R Buckley	DATE 12/13/74	digital
CHK'D. [illegible]	DATE 12/19/74	
ENG. [illegible]	DATE 1-6-75	TITLE
PROJ. ENG. [illegible]	DATE 1-6-75	TIMING DIAGRAM
PROD. [illegible]	DATE 1/9/75	
NEXT HIGHER ASSY.		
SCALE —	SIZE D	CODE TD	NUMBER M8136-0-7	REV. *
SHEET 1 OF 1	DIST.			

REVISIONS: REV. | CHANGE NO. | CHK.

100

192

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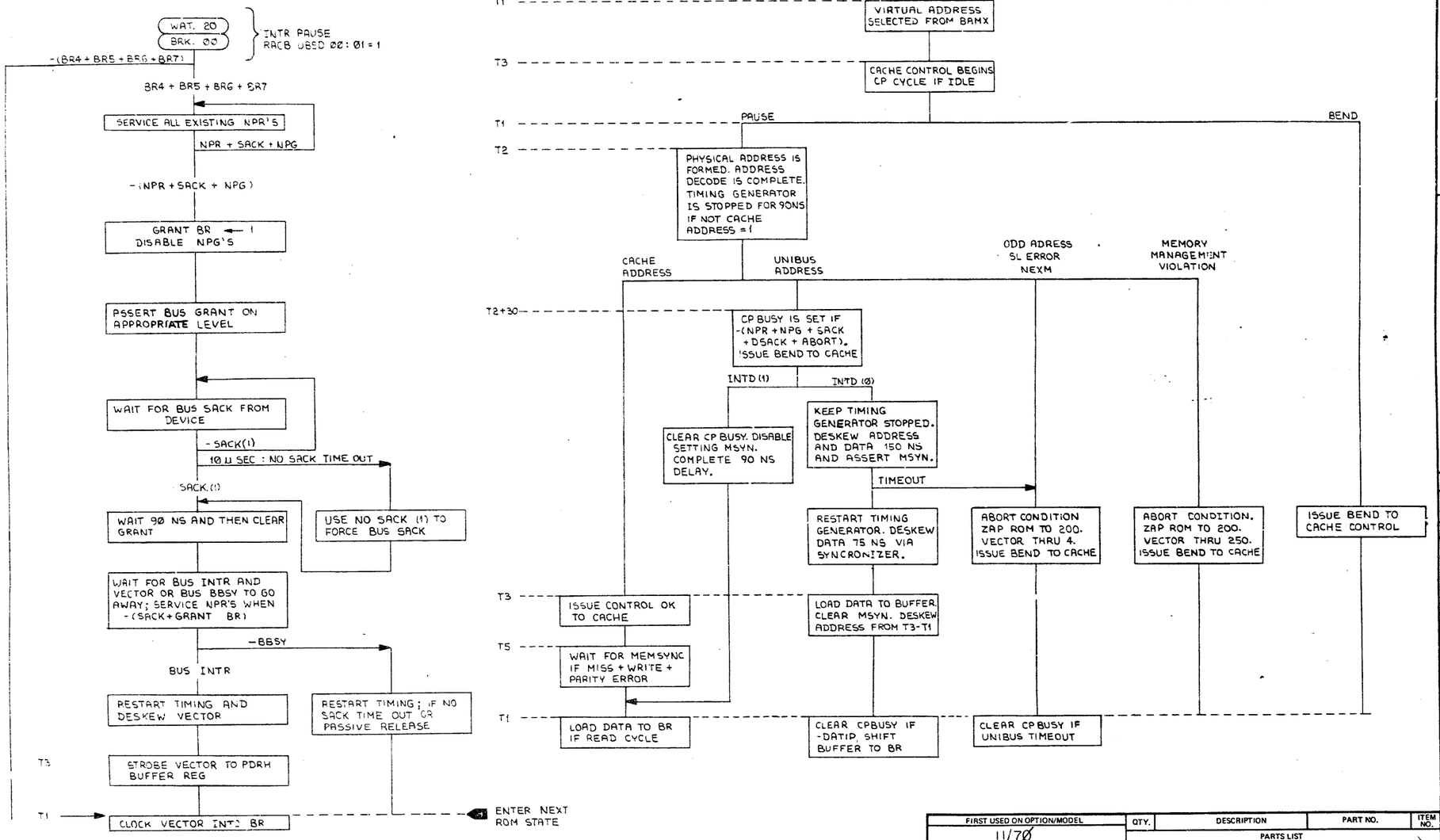
NOTE:
1) THIS FLOW DIAGRAM IS ALSO VALID FOR M8176.



REVISIONS			
REV.	CHANGE NO.	CHK	
A	KBIIC TWO		

V. BOAEN 12-20-74

FIRST USED ON OPTION/MODEL: 11/70	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. E Brasley	DATE 12-13-74	digital
CHK'D. [illegible]	DATE 1-17-75	
ENG. Glen Nelsmans	DATE 1-6-75	
PROJ. ENG. Glen Nelsmans	DATE 1-6-75	TITLE: FLOW DIAGRAM
PROD. E Taylor	DATE 1/8/75	
NEXT HIGHER ASSY.		SIZE D / CODE FD / NUMBER M8136-0-8 / REV. A
SCALE		
SHEET 1 OF 1		DIST.

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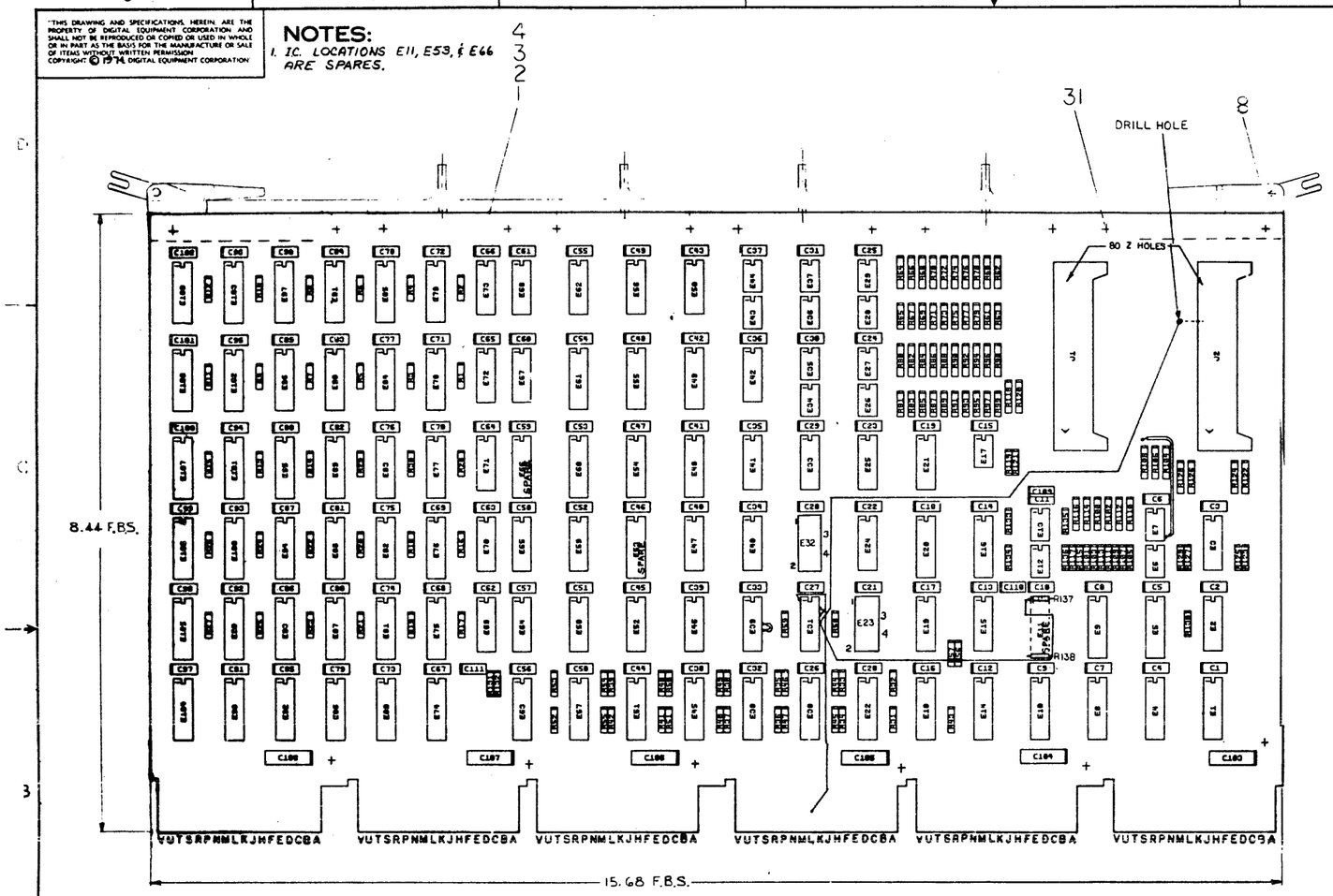
NOTES:
1. IC. LOCATIONS E11, E53, & E66 ARE SPARES.



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8143-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8134-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8134-0-6	3
1		ETCHED CIRCUIT BOARD	5011385	4
8	C103 THRU C108	CAPACITOR, 6.8uf, 35V, 20%	1005306	5
105	C1 THRU C102, C109 THRU C111	CAPACITOR, .01uf, 100V, 20%	1001610-01	6
2		CONNECTOR, 40 PIN	1209941	7
1		HANDLE, HEX MODULE	1210711-2	8
3	R131, R133, R135	RESISTOR, 330 OHM, 1/4W, 5%	1300295	9
28	R31 THRU R55, R130, R58, R59	RESISTOR, 1K, 1/4W, 5%	1300365	10
3	R132, R134, R136	RESISTOR, 680 OHM, 1/4W, 5%	1301424	11
36	R60, R62, R64, R66, R69, R70, R72, R74, R76, R78, R80, R82, R84, R86, R88, R90, R92, R94, R96, R98, R100, R102, R104, R106, R108, R110, R112, R114, R116, R118, R120, R122, R124, R126, R128, R137	RESISTOR, 121 OHM, 1/2W, 1%	1301782	12
36	R61, R63, R65, R67, R69, R71, R73, R75, R77, R79, R81, R83, R85, R87, R89, R91, R93, R95, R97, R99, R101, R103, R105, R107, R109, R111, R113, R115, R117, R119, R121, R123, R125, R127, R129, R138	RESISTOR, 196 OHM, 1/4W, 1%	1302956	13
30	R1 THRU R30	RESISTOR, 820 OHM, 1/4W, 5%	1303178	14
2	E23, E32	D10100 DELAY LINE	1609559	15
1	E2	I.C. DEC 74H74	1909667	16
2	E5, E9	I.C. DEC 74193	1910018	17
1	E40	I.C. DEC 74S00	1910532	18
4	E19, E50, E56, E62	I.C. DEC 74S04	1910534	19
1	E39	I.C. DEC 74S10	1910536	20
2	E24, E52	I.C. DEC 74S11	1910537	21
1	E48	I.C. DEC 74S64	1910542	22
9	E64, E65, E87 THRU R73	I.C. DEC 74S140	1910546	23
14	E1, E4, E8, E10, E14, E20, E63, E74, E80, E86, E92, E98, E104, E110	I.C. DEC 74S153	1910547	24
15	E12, E13, E17, E20 THRU E29, E34 THRU E37, E43, E44, E7, E6	I.C. DEC 75452	1910645	25
7	E18, E22, E30, E38, E45, E51, E57	I.C. DEC 74S175	1910957	26
9	E15, E21, E25, E33, E41, E42, E47 E58, E59	I.C. DEC 82S82	1911291	27
2	E3, E31	I.C. DEC 8640	1911469	28
6	E48, E49, E54, E55, E60, E81	I.C. DEC 74S85	1912089-00	29
30	E79 THRU E79, E81 THRU E85, E87 THRU E91, E93 THRU E97, E99 THRU E103, E105 THRU E109	I.C. DEC 1912069	1912069	30
12		EYELET	9008732	31
4"		WIRE #30 AWG BUSS (RETROFIT)	91-05740-55	32
1	R56	RESISTOR 270Ω 1/4W 5%	1301972	33
1	R57	RESISTOR 390Ω 1/4W 5%	1300309	34
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

IC DEC 74S85	8	16
IC DEC 1912069	8	16
IC DEC 8640	1	8
IC DEC 74S175	8	16
IC DEC T5452	4	8
IC DEC 74S153	6	16
IC DEC T&193	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

AA2 CA2 EA2
AV1 CV1 EV1
BA2 DA2 FA2
BV1 DV1 FV1

C1 THRU C102
C109 THRU C111
.01uf

C103 THR C108
6.8uf

+5V

AC2 AH1 AN2 AT1
BC2 BH1 BN2 BT1
CC2 CH1 CN2 CT1
DC2 DH1 DN2 DT1
EC2 EH1 EN2 ET1
FC2 FH1 FN2 FT1

FIRST USED ON OPTION MODEL: 11/70

SEMICONDUCTOR CONVERSION CHART

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

REV	CHANGE NO	CHK
P	M8143-00001	A. HELENIUS 8-26-75

PARTS LIST

ETCH BOARD REV: B

DRN. M J AMOULI 12/2/74
CHK'D. FERGUSON 12-2-74
ENG. 11/7/75
PROJ. ENG. 11/7/75
PROD. 11/14/75
NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ADDRESS MEMORY BD

SIZE D | CODE CS | NUMBER M8143-0-1 | REV. B

SCALE — | SHEET 1 OF 12 | DIST.

MIC M8143-0-1

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ADME AMX Ø2 H — 74S14Ø E68 — 8
ADME AMX Ø3 H — 74S14Ø E72 — 6
ADME AMX Ø4 H — 74S14Ø E72 — 8
ADME AMX Ø5 H — 74S14Ø E67 — 8
+5V — R131 330 — R132 680 — C111 .01uF — ADMA +3V H
ADME AMX Ø6 H — 74S14Ø E67 — 6
ADME AMX Ø7 H — 74S14Ø E73 — 6
ADME AMX Ø8 H — 74S14Ø E73 — 8
ADME AMX Ø9 H — 74S14Ø E68 — 6
index
ADMA +3V H

ME 1912Ø69 E78 — +5V — R1 62Ø — ADMA TAGØ A21 L — ADMF AMX 21 H — ADMA TAGØ WPL
ME 1912Ø69 E79 — +5V — R2 62Ø — ADMA TAGØ A20 L — ADMF AMX ØH
ME 1912Ø69 E84 — +5V — R3 62Ø — ADMA TAGØ A19 L — ADMF AMX 19 H
ME 1912Ø69 E85 — +5V — R4 62Ø — ADMA TAGØ A18 L — ADMF AMX 18 H

ME 1912Ø69 E9Ø — +5V — R5 62Ø — ADMA TAGØ A17 L — ADMF AMX 17 H
ME 1912Ø69 E91 — +5V — R6 62Ø — ADMA TAGØ A16 L — ADMF AMX 16 H
ME 1912Ø69 E86 — +5V — R7 62Ø — ADMA TAGØ A15 L — ADMF AMX 15 H
ME 1912Ø69 E97 — +5V — R8 62Ø — ADMA TAGØ A14 L — ADMF AMX 14 H

CCBM WRITE SELØ H
ADMJ WPH
ADMA +3V H
E12 — 74S14Ø E71 — 6 — ADMA TAGØ WPL

Tag

ADMA AMX AØ2 L
ADMA AMX AØ3 L
ADMA AMX AØ4 L
ADMA AMX AØ5 L
ADMA AMX AØ6 L
ADMA AMX AØ7 L
ADMA AMX AØ8 L
ADMA AMX AØ9 L

(TAGØ) SLOT 18

REVISIONS		
K	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD (ADMA)	D	CS	M8143-Ø-1	B
SCALE —	SHEET 2 OF 12	DIST.		

DCS M8143-Ø-1 REV B

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ADMA AMX AØ2 L
ADMA AMX AØ3 L
ADMA AMX AØ4 L
ADMA AMX AØ5 L
ADMA AMX AØ6 L
ADMA AMX AØ7 L
ADMA AMX AØ8 L
ADMA AMX AØ9 L

index

ME 1912Ø69 E1Ø2 — +5V — R9 G2Ø — ADMB TAGØ A13 L
ME 1912Ø69 E1Ø3 — +5V — R1Ø G2Ø — ADMB TAGØ A12 L
ME 1912Ø69 E1Ø8 — +5V — R11 G2Ø — ADMB TAGØ A11 L
ME 1912Ø69 E1Ø5 — +5V — R12 G2Ø — ADMB TAGØ A1Ø L

ADMF AMX 13 H
ADMA TAGØ WPL
ADMF AMX 12 H
ADME AMX 11 H
ADME AMX 1Ø H

Tag

ME 1912Ø69 E1Ø1 — +5V — R13 G2Ø — ADMB TAGØ VALID H
ME 1912Ø69 E95 — +5V — R14 G2Ø — ADMB TAGØ PARA H
ME 1912Ø69 E1Ø7 — +5V — R15 G2Ø — ADMB TAGØ PAR B L

ADMA TAGØ WPL
CCBM VALIDØ INPUT L
ADMF PARA GEN L
ADMJ PARB GENØ H

(TAGØ) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY (ADMB) BOARD	D	CS	M8143-Ø-1	B

SCALE — SHEET 3 OF 12 — DIST.

104

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ADME AMX Ø2 H
ADME AMX Ø3 H
ADME AMX Ø4 H
ADME AMX Ø5 H
ADMA +3V H
ADME AMX Ø6 H
ADME AMX Ø7 H
ADME AMX Ø8 H
ADME AMX Ø9 H
ADMA +3V H
CCBM WRITE SEL1 H
ADMJ WPH
ADMA +3V H
ADMC TAG1 WP L

ADMF AMX 21 H — ADMC TAG1 A21 L — R16 620Ø — +5V — E76
ADMF AMX 2Ø H — ADMC TAG1 A2Ø L — R17 620Ø — +5V — E75
ADMF AMX 19 H — ADMC TAG1 A19 L — R18 62Ø — +5V — E82
ADMF AMX 18 H — ADMC TAG1 A18 L — R19 +2Ø — +5V — E81

ADMF AMX 17 H — ADMC TAG1 A17L — R2Ø 62Ø — +5V — E88
ADMF AMX 16 H — ADMC TAG1 A16 L — R31 62Ø — +5V — E87
ADMF AMX 15 H — ADMC TAG1 A15 L — R22 62Ø — +5V — E94
ADMF AMX 14 H — ADMC TAG1 A14 L — R23 62Ø — +5V — E93

ADMC AMX AØ2 L
ADMC AMX AØ3 L
ADMC AMX AØ4 L
ADMC AMX AØ5 L
ADMC AMX AØ6 L
ADMC AMX AØ7 L
ADMC AMX AØ8 L
ADMC AMX AØ9 L

(TAG1) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD (ADMC)	D	CS	M8143-0-1	B
SCALE	SHEET 4 OF 12		DIST.	

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ADMC AMX Ø2 L
ADMC AMX Ø3 L
ADMC AMX Ø4 L
ADMC AMX Ø5 L
ADMC AMX Ø6 L
ADMC AMX Ø7 L
ADMC AMX Ø8 L
ADMC AMX Ø9 L

ME
1912Ø69
E1ØØ
+5V
R24
62Ø
ADMD TAG1 A13 L
ADMF AMX 13 H
ADMC TAG1 WPL

ME
1912Ø69
E99
+5V
R25
62Ø
ADMD TAG1 A12 L
ADMF AMX 12 H

ME
1912Ø69
E1Ø6
+5V
R26
62Ø
ADMD TAG1 A11 L
ADME AMX 11 H

ME
1912Ø69
E1Ø5
+5V
R27
62Ø
ADMD TAG1 AØ L
ADME AMX Ø H

ME
1912Ø69
E77
+5V
R28
62Ø
ADMD TAG1 VALID H
ADMC TAG1 WPL
CCBM VALID1 INPUT L

ME
1912Ø69
E89
+5V
R29
62Ø
ADMD TAG1 PARA H
ADMF PARA GEN L

ME
1912Ø69
E83
+5V
R3Ø
62Ø
ADMD TAG1 PARB L
ADMF PARB GEN1 H

(TAG1) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY (ADMD) BOARD	D	CS	M8143-Ø-1	B
SCALE — SHEET 5 OF 12	DIST.			

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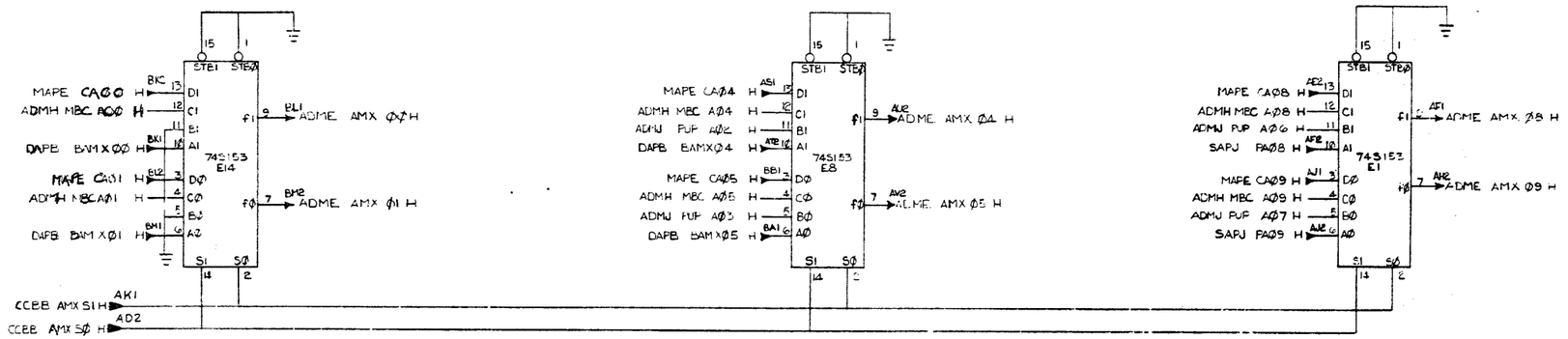

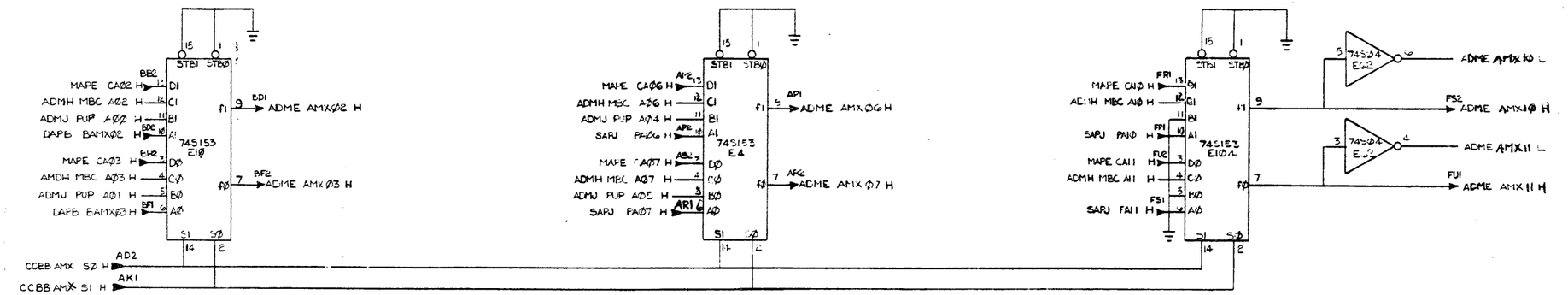

S1	S0	OUTPUT
0	0	CPU
0	1	POWER UP
1	0	MISC
1	1	UNIBUS

(ADDRESS MULTIPLEXOR) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD (ADME)	D	CS	M8143-0-1	B
SCALE —	SHEET 6 OF 12	DIST.		

DEC FORM NO. DRD 130

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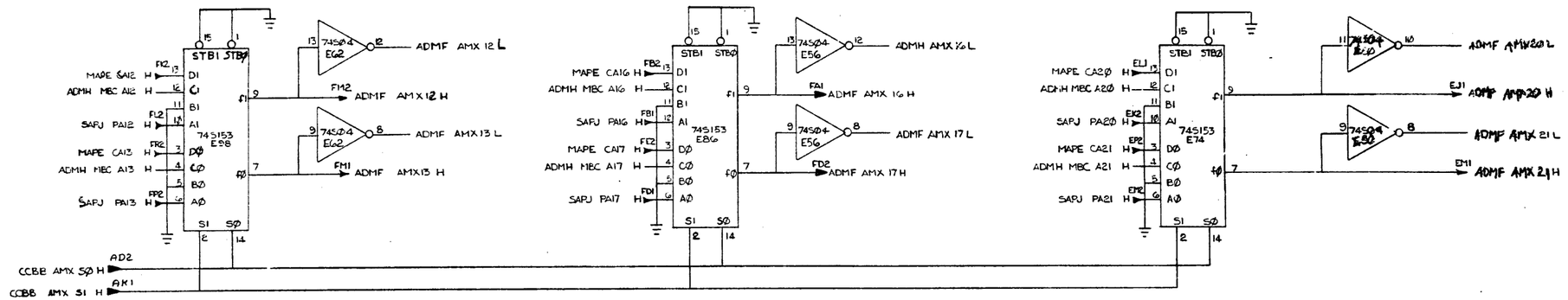

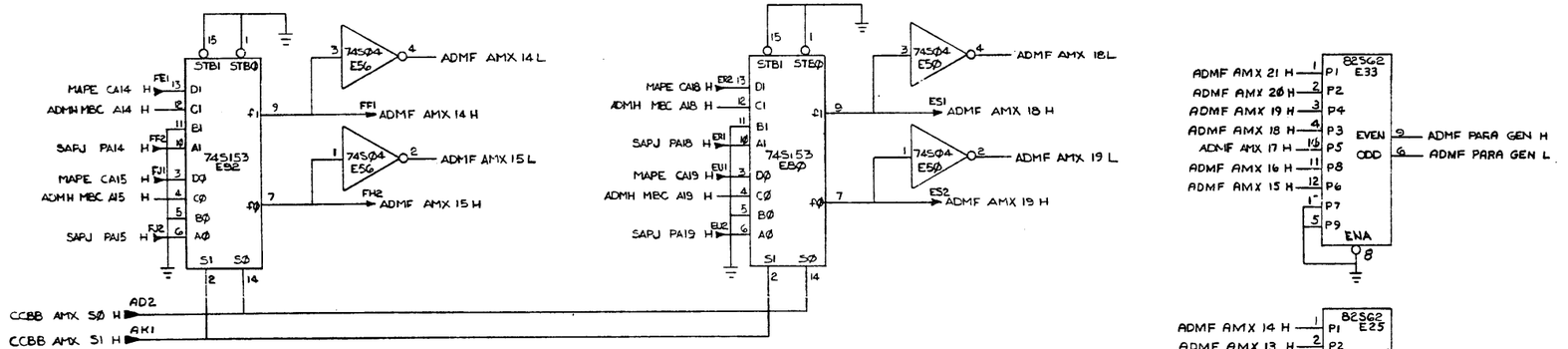

(ADDRESS MULTIPLEXOR) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD (ADMF)	D	CS	M8143-Ø-1	B
SCALE	SHEET 7 OF 12	DIST.		

DEC FORM NO. DPD 120

200

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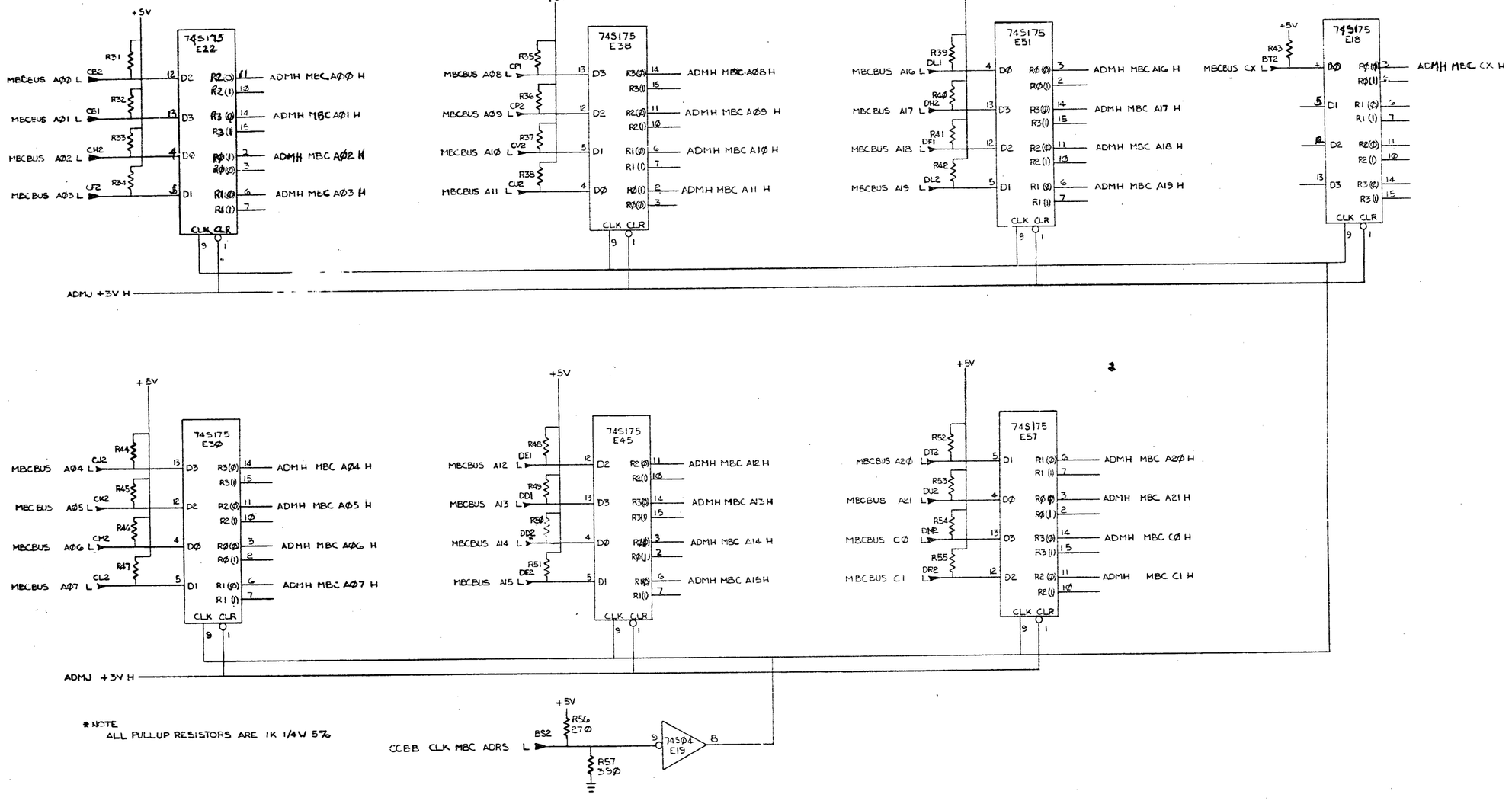

(MBC ADDRESS BUFFER) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
(ADMH) ADDRESS MEMORY BOARD	D	CS	M8143-Ø-1	B
SCALE	SHEET 8 OF 12		DIST.	

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CI	CØ	CX	AI	AØ	OPERATION	BYTE MASK
Ø	Ø	Ø	X	X	READ DOUBLE	——
Ø	1	Ø	X	X	READ DOUBLE	——
1	Ø	Ø	Ø	X	WRITE WORD	Ø,1
1	Ø	Ø	1	X	WRITE WORD	2,3
1	1	Ø	Ø	Ø	WRITE BYTE	Ø
1	1	Ø	Ø	1	WRITE BYTE	1
1	1	Ø	1	Ø	WRITE BYTE	2
1	1	Ø	1	1	WRITE BYTE	3
1	Ø	1	X	X	WRITE DOUBLE	Ø,1,2,3

* CONNECTING PIN E6 TO GROUND WILL FORCE POWER UP SEQUENCER TO RUN CONTINUALLY AFTER POWER UP

(BYTE MASK, PUP SEQUENCER) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD (ADMJ)	D	CS	M8143-Ø-1	B
SCALE	SHEET 9 OF 12	DIST.		

DEC FORM NO. DRD 130

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74S85 E49
ADMA TAGØ A21 L
ADMF AMX A21 L
ADMA TAGØ A20 L
ADMF AMX A20 L
ADMA TAGØ A19 L
ADMF AMX A19 L
ADMA TAGØ A18 L
ADMF AMX A18 L
ADMJ + 3V H

74S85 E55
ADMA TAGØ A17 L
ADMF AMX A17 L
ADMA TAGØ A16 L
ADMF AMX A16 L
ADMA TAGØ A15 L
ADMF AMX A15 L
ADMA TAGØ A14 L
ADMF AMX A14 L
CCBH FORCE MISS GP0 L ← DP2

74S85 E61
ADMB TAGØ A13 L
ADMF AMX A13 L
ADMB TAGØ A12 L
ADMF AMX A12 L
ADMB TAGØ A11 L
ADME AMX A11 L
ADMB TAGØ A10 L
ADME AMX A10 L
ADMB TAGØ VALID H

74S11 E52

DK2 ← ADMK GROUP Ø AMATCH H

74S10 E39
ADMK GROUP Ø PARA OK H
ADMK GROUP Ø PARB OK H
CU1 → ADMK GROUP Ø HIT L

74S64 E46
DB2 → ADMK HIT EITHER L

ADMK GROUP 1 PARB OK H
ADMK GROUP 1 PARA OK H

74S10 E39
CR2 → ADMK GROUP 1 HIT L

74S85 E48
ADMC TAG1 A21 L
ADMF AMX A21 L
ADMC TAG1 A20 L
ADMF AMX A20 L
ADMC TAG1 A19 L
ADMF AMX A19 L
ADMC TAG1 A18 L
ADMF AMX A18 L
ADMJ + 3V H

74S85 E54
ADMC TAG1 A17 L
ADMF AMX A17 L
ADMC TAG1 A16 L
ADMF AMX A16 L
ADMC TAG1 A15 L
ADMF AMX A15 L
ADMC TAG1 A14 L
ADMF AMX A14 L
CCBH FORCE MISS GP1 L ← DM1

74S85 E60
ADMD TAG1 A13 L
ADMF AMX A13 L
ADMD TAG1 A12 L
ADMF AMX A12 L
ADMD TAG1 A11 L
ADME AMX A11 L
ADMD TAG1 A10 L
ADME AMX A10 L
ADMD TAG1 VALID H

74S11 E52

DJ2 → ADMK GROUP 1 AMATCH H

82S62 E47
ADMC TAG1 A21 L
ADMC TAG1 A20 L
ADMC TAG1 A19 L
ADMC TAG1 A18 L
ADMC TAG1 A17 L
ADMC TAG1 A16 L
ADMC TAG1 A15 L
ADMD TAG1 PARA H
CCBL MAINT 11 H ← DF2
EVEN, ODD, ENA

82S62 E59
ADMC TAG1 A14 L
ADMD TAG1 A13 L
ADMD TAG1 A12 L
ADMD TAG1 A11 L
ADMD TAG1 A10 L
ADMD TAG1 PARB L
ADMD TAG1 VALID H
CCBL MAINT 10 H ← DS2
EVEN, ODD, ENA

ADMK GROUP 1 PARB OK H

74S00 E40
CT2 → ADMK TAG1 PAR ERR H

ADMK GROUP 1 PARA OK H

82S62 E42
ADMA TAGØ A21 L
ADMA TAGØ A20 L
ADMA TAGØ A19 L
ADMA TAGØ A18 L
ADMA TAGØ A17 L
ADMA TAGØ A16 L
ADMA TAGØ A15 L
ADMB TAGØ PARA H
CCBL MAINT Ø9 H ← DA1
EVEN, ODD, ENA

82S62 E41
ADMA TAGØ A14 L
ADMB TAGØ A13 L
ADMB TAGØ A12 L
ADMB TAGØ A11 L
ADMB TAGØ A10 L
ADMB TAGØ PARB L
ADMB TAGØ VALID H
CCBL MAINT Ø8 H ← DB1
EVEN, ODD, ENA

ADMK GROUP Ø PARB OK H

74S00 E40
CS2 → ADMK TAGØ PAR ERR H

ADMK GROUP Ø PARA OK H

(EQUALS CHECK, PARITY CHECK) SLOT 18

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE ADDRESS MEMORY BOARD (ADMK)
SIZE D | CODE CS | NUMBER M8143-Ø-1 | REV B
SCALE — | SHEET 10 OF 12 | DIST.

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DEC FORM NO. BMD 1.38

M8158(J1) to Memory M8158(J3)

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J1

ADME AMX Ø2 H — BD1 — 75452 E43 — MAIN AØ2 L — R64 R65
ADME AMX Ø3 H — BF2 — 75452 E31 — MAIN AØ3 L — R66 R67
ADME AMX Ø4 H — AU2 — 75452 E37 — MAIN AØ4 L — R68 R69
ADME AMX Ø5 H — AV2 — 75452 E44 — MAIN AØ5 L — R70 R71
ADME AMX Ø6 H — API — 75452 E36 — MAIN AØ6 L — R72 R73
ADME AMX Ø7 H — AR2 — 75452 E36 — MAIN AØ7 L — R74 R75
ADME AMX Ø8 H — AF1 — 75452 E43 — MAIN AØ8 L — R76 R77 R78
ADME AMX Ø9 H — AH2 — 75452 E44 — MAIN AØ9 L — R79 R80
ADME AMX 1Ø H — FS2 — 75452 E27 — MAIN A1Ø L — R81 R82
ADME AMX 11 H — FU1 — 75452 E34 — MAIN A11 L — R83 R84
ADMF AMX 12 H — FM2 — 75452 E27 — MAIN A12 L — R85 R86
ADMF AMX 13 H — FM1 — 75452 E34 — MAIN A13 L — R87 R88
ADMF AMX 14 H — FF1 — 75452 E35 — MAIN A14 L — R89 R9Ø
ADMF AMX 15 H — FH2 — 75452 E26 — MAIN A15 L — R91 R92
ADMF AMX 16 H — FA1 — 75452 E28 — MAIN A16 L — R93 R94
ADMF AMX 17 H — FD2 — 75452 E26 — MAIN A17 L — R95 R96
ADMF AMX 18 H — ES1 — 75452 E28 — MAIN A18 L — R97 R98
ADMF AMX 19 H — ES2 — 75452 E35 — MAIN A19 L — R99 RGØØ
ADMF AMX 2Ø H — EJ1 — 75452 E29 — MAIN A2Ø L — RG1 RG2
ADME AMX 21 H — EM1 — 75452 E29 — MAIN A21 L — RG3
ADML +3V H

+5V

J2

ADMJ ADRS PARITY H — 75452 E7 — MAIN A PAR L — R104 R105
ADMJ READ L — EB2 — 75452 E7 — MAIN C Ø L — R106 R107
ADMJ BYTE MASK Ø H — 75452 E6 — MAIN C 1 L — R108 R109
ADMJ BYTE MASK 1 H — 75452 E6 — MAIN BYTE MASK Ø L — R110 R111
ADMJ BYTE MASK 2 H — 75452 E12 — MAIN BYTE MASK 1 L — R112 R113
ADMJ BYTE MASK 3 H — 75452 E12 — MAIN BYTE MASK 2 L — R102 R103
MAIN BYTE MASK 3 L — R100 R101
MAIN ACK L — R122 R123 R124 — 8640 E3 — AAI — ADML ADRS ACK H
MAIN A PAR ERR L — R125 — 8640 E3 — ABI — ADML ADRS PAR ERR H
CCBD START H — BE1 — 75452 E13 — MAIN START L — R114 R115 R137 R138
CCBL MAINTØ1H — BE2 — 75452 E13 — MAIN MARØ L — R116 R117 — 8640 E31 — CL1 — ADML OCC H
CCBL MAINTØ2H — BR2 — 75452 E17 — MAIN MAR 1 L — R118 R119
CCBL MAINTØ3H — BJ2 — 75452 E17 — MAIN MAR 2 L — R120 R121
ADML +3V H — MAIN ACLO L — R126 R127 R128 — 8640 E3 — ADI — ADML MAIN ACLO H
MAIN DCLO L — AE1 — MAIN DCLO L — R129 — 8640 E3 — AC1 — ADML MAIN DCLO H

+5V
R135 330Ø
ADML +3V H
R136 68Ø
C1Ø9 .Ø1mF

ALL PULLUP RESISTORS ARE 121Ω
ALL PULLDOWN RESISTORS ARE 150Ω

Page 97

(MAIN MEMORY ADRS DRIVERS) SLOT 18

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY (ADML) BOARD	D	CS	M8143-Ø-1	B.
SCALE	SHEET 11 OF 12		DIST.	

M8143-Ø-1 REV B

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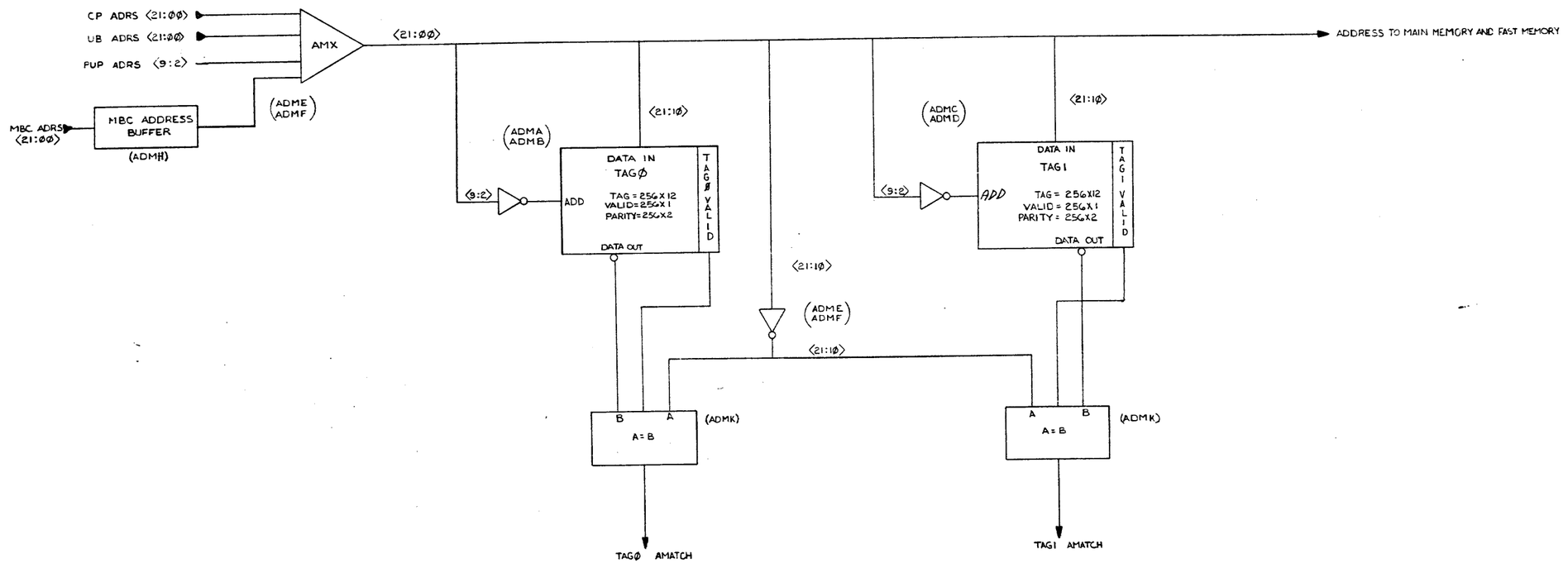

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
ADDRESS MEMORY BOARD	D	CS	M8143-0-1	B
SCALE	SHEET 12 OF 12	DIST.		

205

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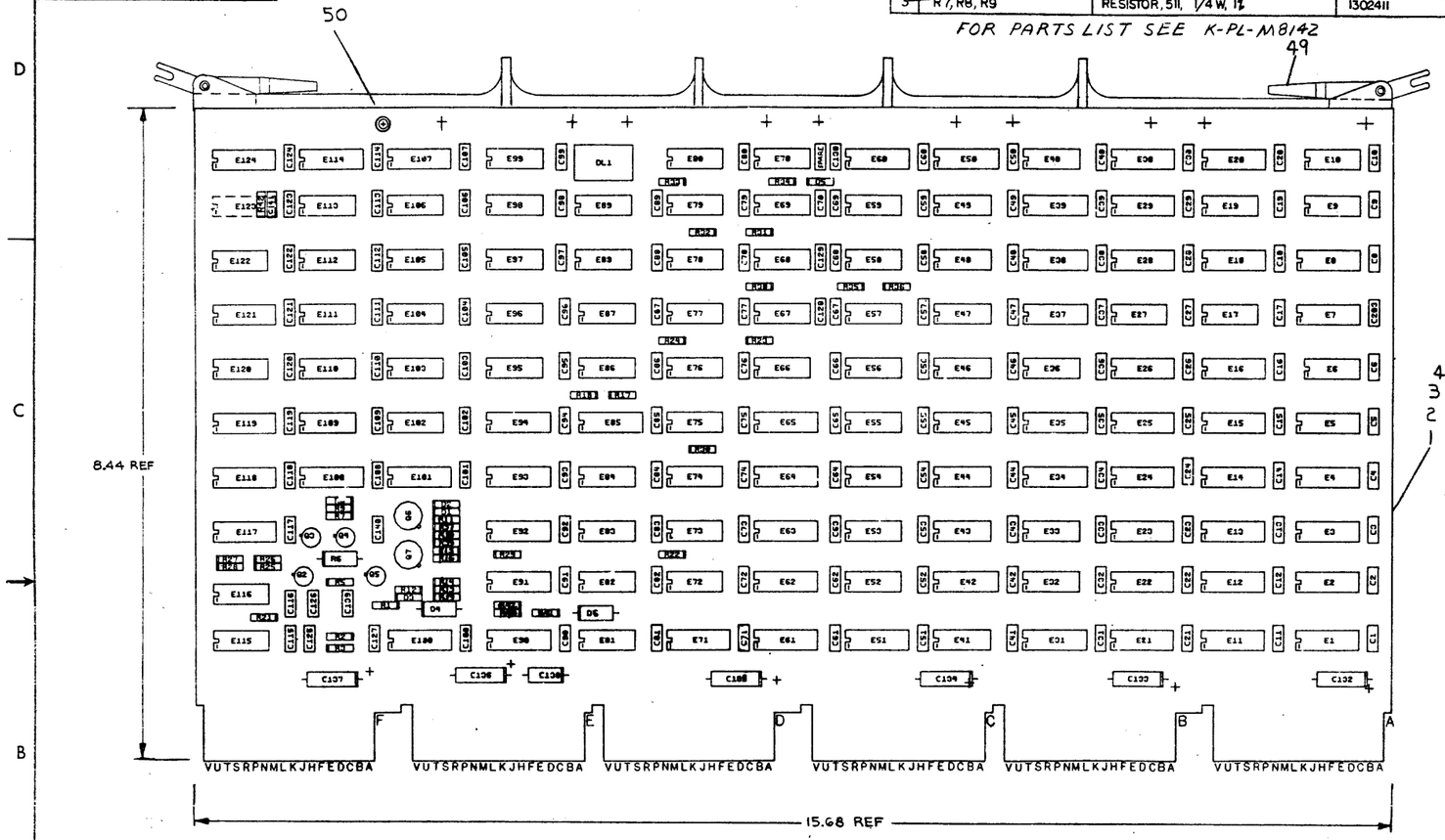
NOTES: 1. E1,E5,E107.E114,E121,E123,E124 ARE SPARES

5	~~E4,E22,E14,E51,E42~~	I.C. DEC 74175	1910851	48
1		~~HANDLE ASSY~~	1210711-2	49
12		~~EYELET~~	9006732	50
3	R7, R8, R9	RESISTOR, 511, 1/4W, 1%	1302411	51

FOR PARTS LIST SEE K-PL-M8142



3	R40,R41,R42	RESISTOR, 56, 1/4W, 5%	1302602	58
1	C141	CAP. 680 pf, 100V, 5%	1000026	59
A/R		*30 WIRE (RETROFIT)	9105740-55	53
2	Q6,Q7	TRANSPADS	9007201	54
4	R1 R29, R30, R42	RESISTOR 100Ω 1/4W 5%	1300229	55
4	C126, C127, C139, C140	CAPACITOR .22 µf 50V	1018274-01	56
1	C130	CAPACITOR 1200pf, 100V 5%	1002424-00	57

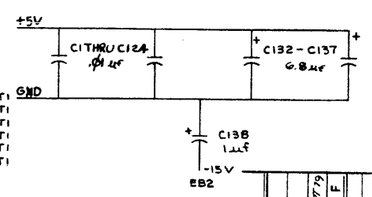
FIRST USED ON OPTION MODEL 1170

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
	REF	X-Y COORDINATE HOLE LOCATION	K-CO-M8142-0-4	1
	REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M8142-0-5	2
	REF	MODULE ECO HISTORY	B-MH-M8142-0-6	3
1		ETCHED CIRCUIT BOARD	501393	4
6	C132 THRU C137	CAPACITOR, 6.8uf, 35V, 20%	1505306	5
126	C1 THRU C124, C128 THRU 129	CAPACITOR, .01uf, 100V, 20%	1001610-01	6
1	C125	CAPACITOR 56 pf, 100V	1000012	7
1	C138	CAPACITOR 1uf, 35V, 10%	1001776	8
4	D1,D2,D3,D5	DIODE D864	1100114	9
2	D4,D6	DIODE 1N4733A	1109943	10
2	R10, R37	RESISTOR, 133 1/8W, 1%	1303038	11
4	R51,R17,R26,R27	RESISTOR, 150, 1/4W, 5%	1300250	12
4	R23, R35,R39,R32	RESISTOR, 330, 1/4W, 5%	1300295	13
5	R38, R19,R22,R21,R33	RESISTOR, 1K, 1/4W, 5%	1300365	14
1	R34	RESISTOR, 15K, 1/4W, 5%	1300496	15
2	R24, R36	RESISTOR, 680, 1/4W, 5%	1301424	16
3	R18,R25,R28	RESISTOR 220, 1/4W, 5%	1300271	17
1	R3	RESISTOR, 5.6K, 1/4W, 5%	1301874	18
1	R2	RESISTOR, 820 OHM, 1/4W, 5%	1301775	19
1	R6	RESISTOR, 3.32K, 1/4W, 1%	1302311	20
1	R12	RESISTOR, 2K, 1/4W, 5%	1302388	21
1	R5	RESISTOR, 1.47K, 1/8W 1%	1305108	22
5	R11,R13,R14,R15,R16	RESISTOR, 5.1 OHM, 1/4W, 5%	1309422	23
4	Q2,Q3,Q4,Q5	TRANSISTOR, DEC3809A	1501999	24
1	Q7	TRANSISTOR, DEC3762	1509649	25
1	Q6	TRANSISTOR, DEC3734	1510062	26
1	DL1	DELAYLINE 100NS	1608559	27
2	E76, E86	I.C. DEC 74H50	1909060	28
4	E3,E7,E24,E25	I.C. DEC 8266	1909934	29
8	E28,E64,E31,E62,E63,E34, E29,E8	I.C. DEC 74151	1909936	30
4	E13.E16,E15,E18	I.C. DEC 74153	1909937	31
1	E37	I.C. DEC 7442	1910046	32
1	E74	I.C. DEC 7437	1910081	33
1	E60	I.C. DEC 74123	1910436	34
13	E95,E109,E106,E111,E68, E56,E48,E49,E32,E41,E44, E66,E71	I.C. DEC 74S00	1910532	35
7	E97,E36,E75,E46,E17,E53, E10	I.C. DEC 74S04	1910534	36
8	E87,E102,E98,E99,E47,E54	I.C. DEC 74S10	1910536	37
10	E89,E96,E69,E120,E67,E6, E40,E52,E43,E103	I.C. DEC 74S11	1910537	38
2	E104,E78	I.C. DEC 74S20	1910539	39
11	E113,E105,E79,E110,E112, E122,E88,E58,E27,E35,E45	I.C. DEC 74S64	1910542	40
13	E72,E82,E115,E116,E84,E59, E70,E81,E9,E19,E23,E57,E77	I.C. DEC 74S74	1910544	41
18	E23,E20,E22,E29,E118,E92, E50,E30,E90,E91,E85,E94, E101,E100,E108,E93,E117, E119	I.C. DEC 74S112	1910545	42
2	E83,E73	I.C. DEC 74S140	1910546	43
2	E35,E39,	I.C. DEC 74S175	1910957	44
1	E12	I.C. DEC 74S133	1910983	45
5	E21,E38,E11,E61,E65	I.C. DEC 74174	1910652	46
1	E80	I.C. DEC 8640	1911469	47

PARTS LIST

AA2,AV1,BA2,BV1
CA2,CV1,DA2,DV1
EA2,EV1,FA2,FV1

AC2,AH1,AN2,AT1
BC2,BH1,BN2,BT1
CC2,CH1,CN2,CT1
DC2,DH1,DN2,DT1
EC2,EH1,EN2,ET1
FC2,FH1,FN2,FT1



8640	1	8
8266	8	16
74123	8	16
745133	8	16
74174	8	16
74151	8	16
7442	8	16
74153	8	16
74175	8	16
745175	8	16
745112	8	16
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

REV	CHANGE NO.	CHK	DATE
D	M8142-00004	R. Boucher (GE)	25-FEB-77
C	M8142-00003	R. BOUCHER	15JAN77
B	M8142-00002	A. HELENIUS	3-DEC-76
A	M8142-00001	E. Gemonitis	4 3/25

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

SEMICONDUCTOR CONVERSION CHART

ETCH BOARD REV B

DRN D. Thelen DATE 12/12/74
CHK'D. S. Rappaport DATE 1-7-75
ENG. Mike Nelson DATE 1-24-75
PROJ. ENG. Mike Nelson DATE 1-24-75
PROG. L. Taylor DATE 1/24/75
NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CACHE CONTROL

SIZE D | CODE CS | NUMBER M8142-0-1 | REV F

SCALE NONE SHEET 1 OF 13 DIST.

DCS M8142-0-1 F

114 206

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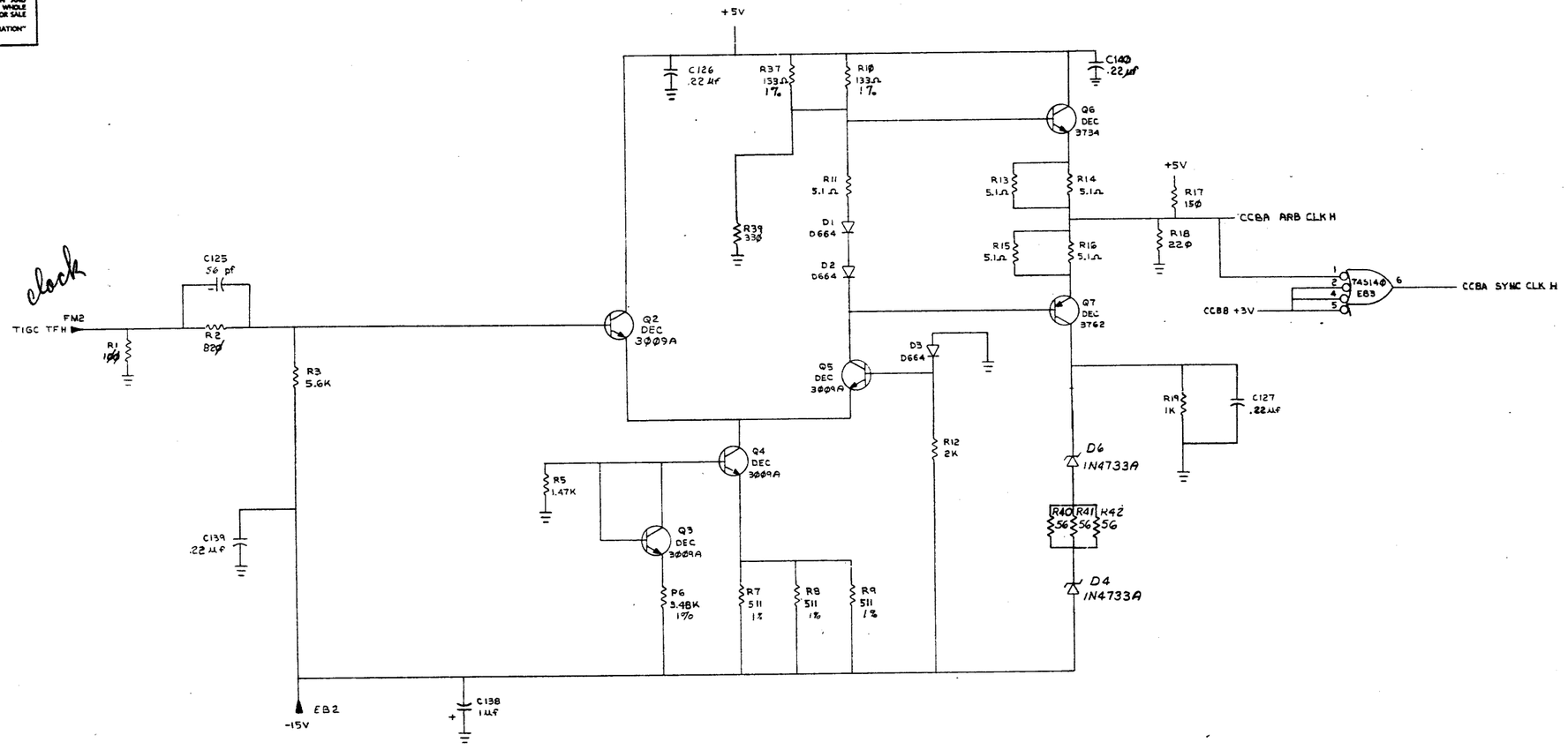

REVISIONS		
CHK	CHANGE NO.	REV.

INIT + CLK LOGIC (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBA)	D	CS	M8142-Ø-1	F
SCALE —	SHEET 2 OF 13	DIST.		

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S1	SØ	CYCLE
L	L	CPU
L	H	POWER UP
H	L	MBC
H	H	UNIBUS

CCBC BUST HOLD(I) H
CCBC T2 DLY(Ø)H
CCBB PRE UBUS (I) H
CCBC NON UBUS DATIP (Ø) H
CCBC PRE MBC (I) H
CCBC NON MBC DATIP (Ø) H
RACH BUST H
CCBC NON CPU DATIP (Ø) H
CCBC T2 DLY (I) H
74S04 E113
74S04 E95
CC BB +3V
CCBB LOCK (I) H
CCBA ARB CLK H
CCBC DONE H
74S112 E98
CCBB LOCK (Ø) H
CCBA INITAL
CCBC BUST HOLD (I) H
CCBC NON CPU DATIP (Ø) H
74S10 E87
TMCE CACHE BEND H
EM2
74S04 E97
CCBB +3V
+5V
R22 1K
DR2
MAPF UB REQUEST (I) L
74S74 E72
74S74 E82
74S112 PRE UBUS E91
CCBB PRE UBUS (I) H
CCBA SYNC CLK H
CCBA ARB CLK H
CCBC NON UBUS DATIP (Ø) H
CCBB LOCK (Ø) H
74S11 E89
CCBC NON UBUS DATIP(I) L
CCBB LOCK (Ø) L
CCBB +3V
74H50 E86
74S112 UBUS E85
CCBA INIT A L
+5V
R23 330
R24 680
C128 .01 UF
CCBB +3V
ADMJ POWER UP (I) L
CCBB +3V
74S140 E73
DL1
CCBB AMX SØ H
SØ & S1 control to ADME&F
DK1
CCBB AMX S1 H
CCBB +3V
74S112 MBC E85
CCBC NON MBC DATIP (Ø) H
CCBC LOCK (Ø) H
74S11 E89
CCBC NON MBC DATIP(I) L
CCBB LOCK(Ø) L
CCBB +3V
74H50 E86
CCBA INIT AL
74S04 E97
CCBB UB CYCLE L
unibus
CCBB UB CYCLE H
74S00 E95
74S04 E97
CCBB CP CYCLE H
processor
EF2
CCBB CP CYCLE L
74S00 E95
74S04 E97
CCBB MBC CYCLE H
mass bus
CCBB MBC CYCLE L
CCBJ MBC REQ L
EU2
74S74 E116
74S74 E116
74S74 E115
74S74 E115
74S74 E82
74S112 PRE MBC E91
CCBA SYNC CLK H
R25 220
R26 150
+5V
CCBB PRE MBC (I) H
+5V
R27 150
R28 220
CCBA ARB CLK H
CCBB LOCK(Ø) H
74S10 E102
EU2
CCBB CLK MBC ADRS L

REVISIONS

CHK	CHANGE NO	REV

REQUEST ARBITRATOR (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBB)	D	CS	M8142-Ø-1	F

SCALE — SHEET 3 OF 13 — DIST. TW

DEC FORM NO DRD 138

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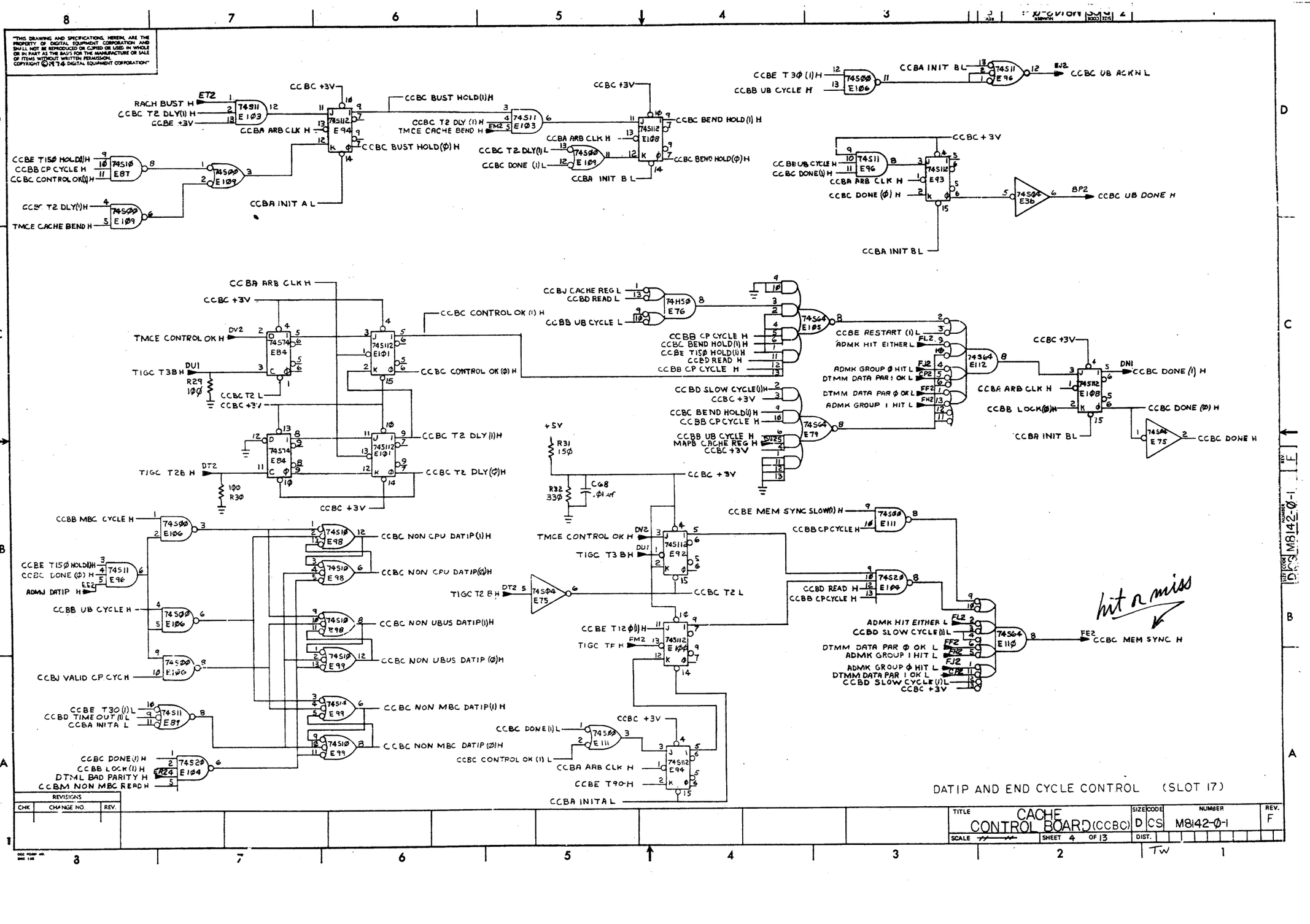

DATIP AND END CYCLE CONTROL (SLOT 17)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBC)	D	CS	M8142-Ø-1	F
SCALE	SHEET 4 OF 13	DIST.		

DS: M8142-Ø-1

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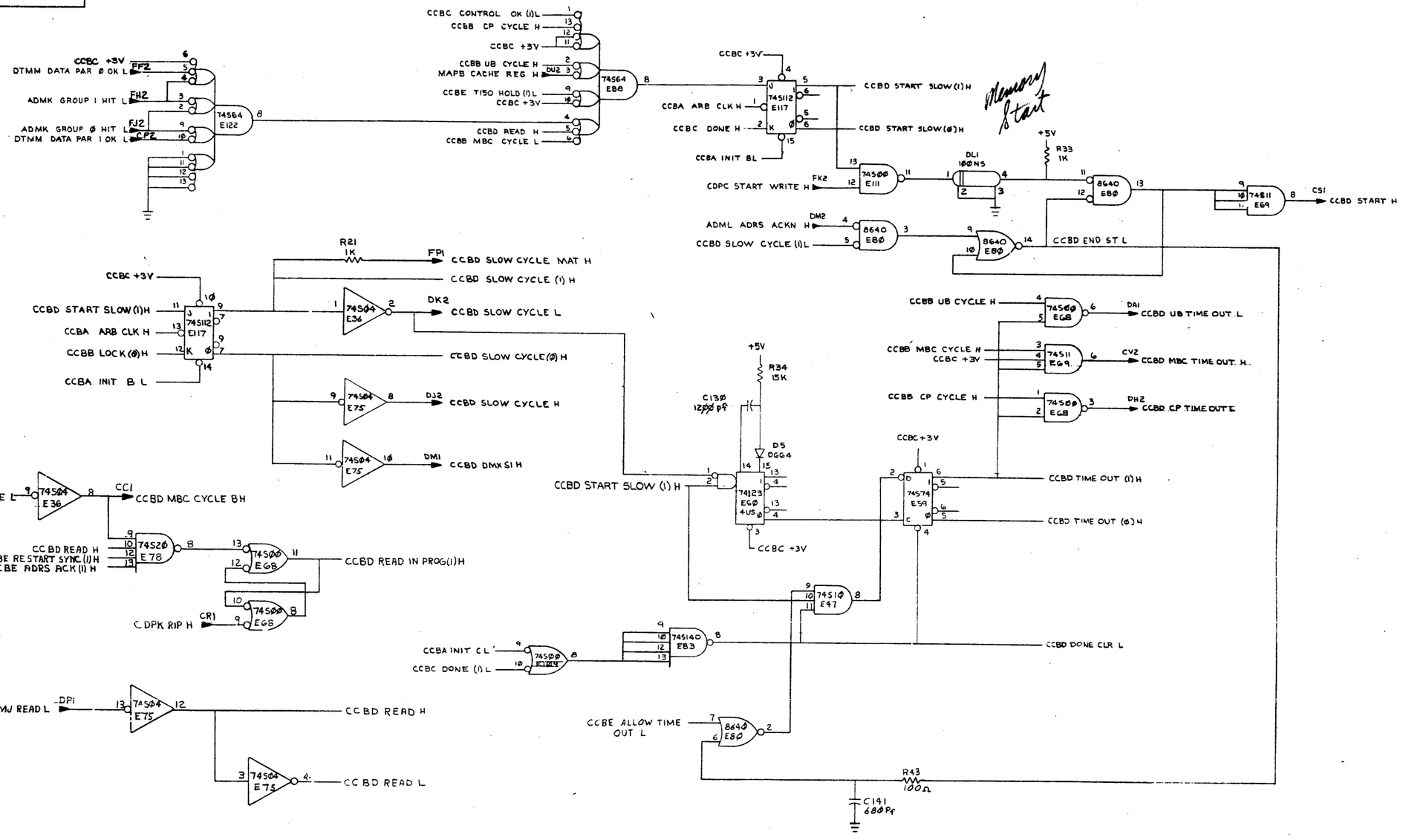

REV SIGNALS		
CHK	CHANGE NO.	REV.

MAIN MEMORY CONTROL (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBD)	D	CS	M8142-Ø-1	F
SCALE ##	SHEET 5 OF 13	DIST.		

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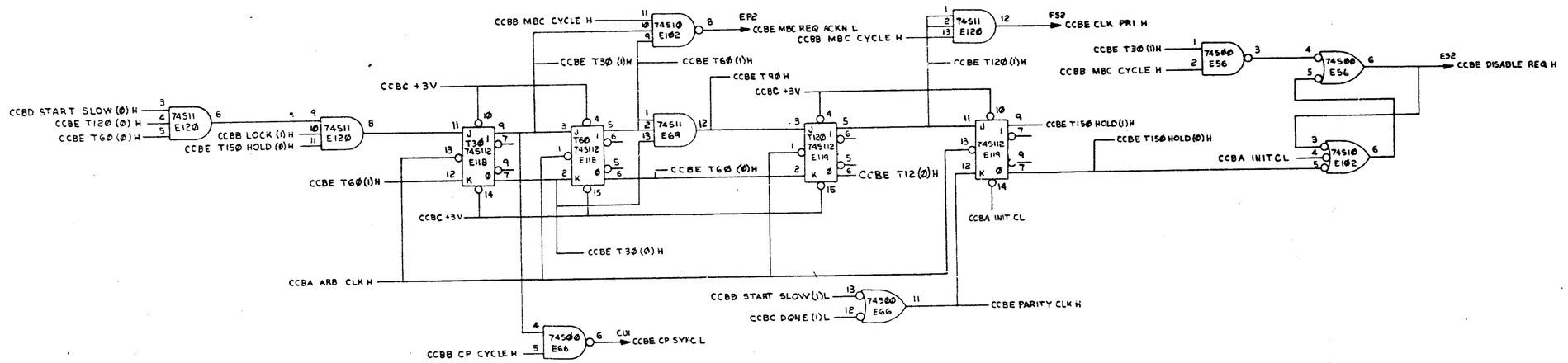

REVISIONS		
CHK	CHANGE NO.	REV.

TIMING + MAIN MEMORY RESTART (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBE)	D	CS	M8142-0-1	E

SCALE — SHEET 6 OF 13 — DIST.

DEC FORM NO. DRD 132

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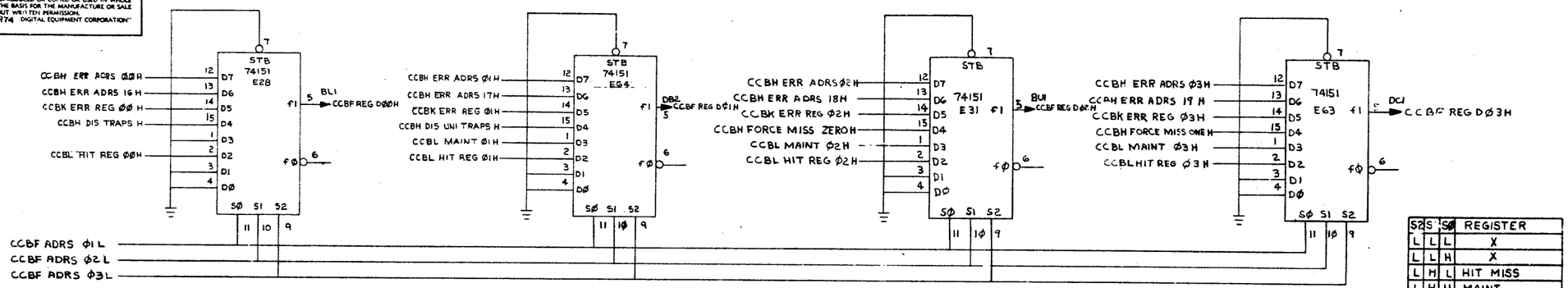
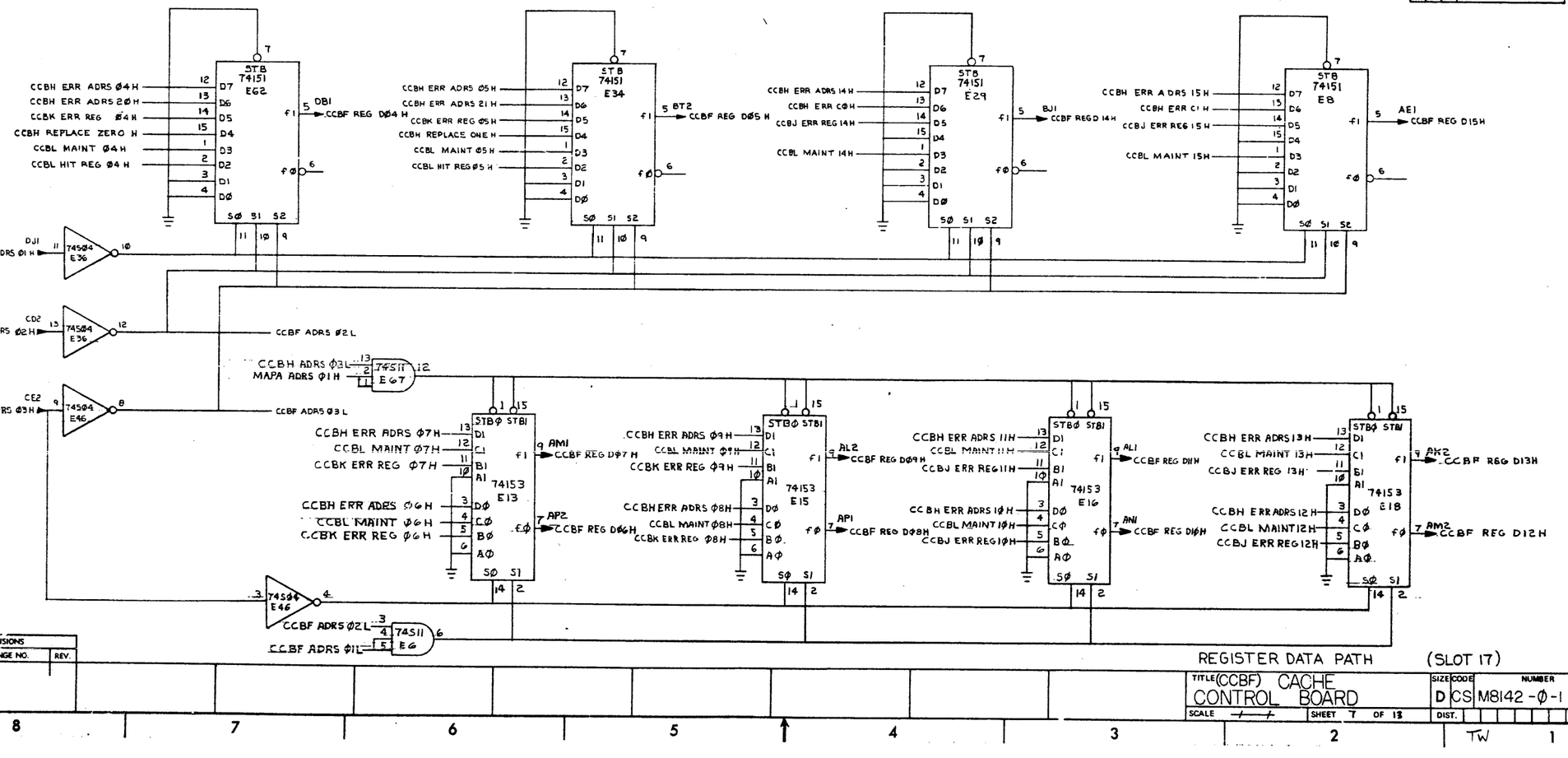


S2	S1	S0	REGISTER
L	L	L	X
L	L	H	X
L	H	L	HIT MISS
L	H	H	MAINT
H	L	L	CONTROL
H	L	H	ERROR
H	H	L	ERR ADRS HI
H	H	H	ERR ADRS LO



REVISIONS

CHK	CHANGE NO.	REV.

REGISTER DATA PATH (SLOT 17)

TITLE (CCBF) CACHE CONTROL BOARD	SIZE	CODE	NUMBER	REV.
SCALE —	D	CS	M8142-Ø-1	F
SHEET 7 OF 13	DIST. TW			

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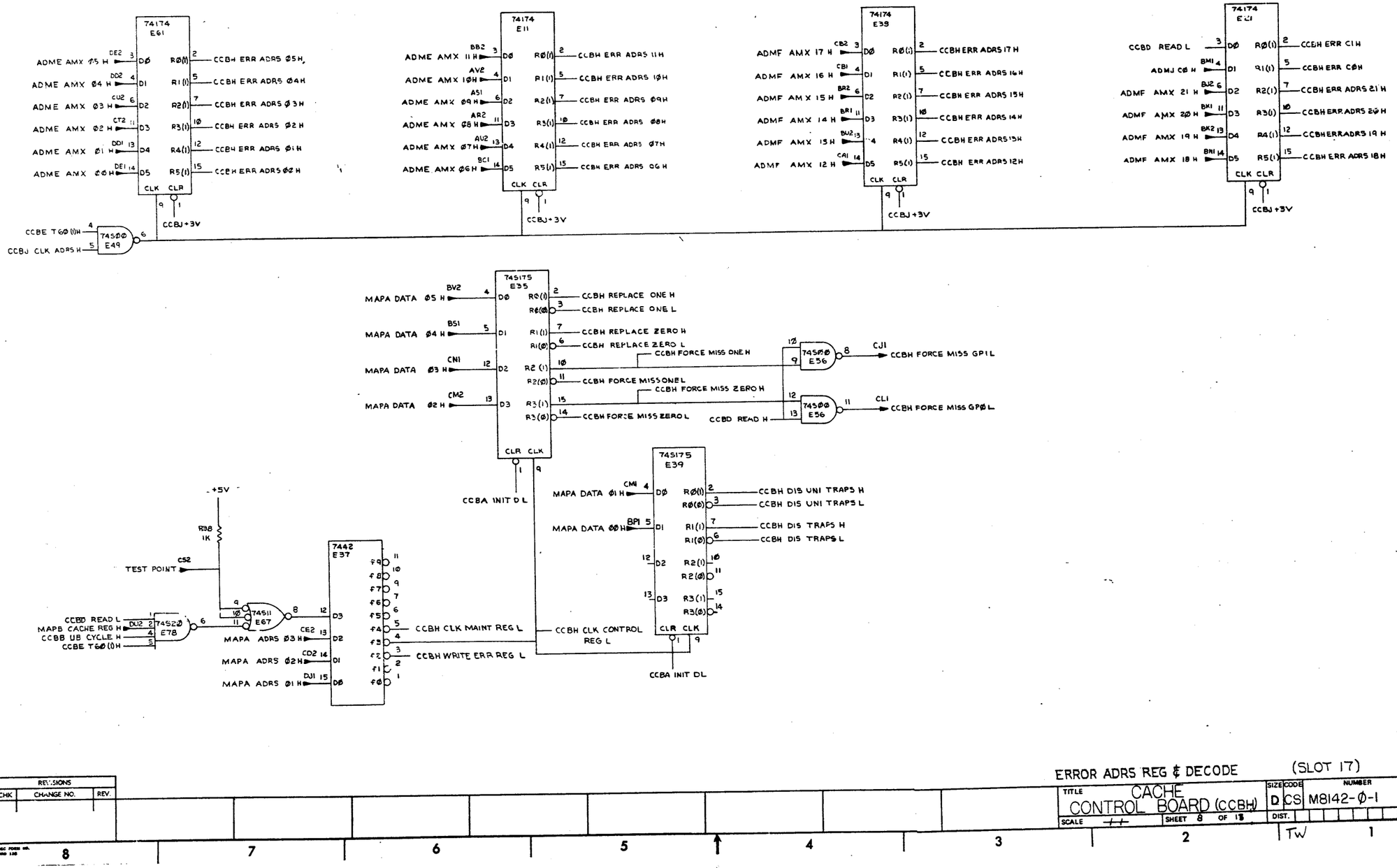

REVISIONS		
CHK	CHANGE NO.	REV.

ERROR ADRS REG & DECODE (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBH)	D	CS	M8142-Ø-1	F
SCALE -++- SHEET 8 OF 13	DIST.			

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CCBJ VALID CP CYC H
CCBC CONTROLOK(1)H
CCBB CP CYCLE H
CCBB UB CYCLE H
CCBJ UB MEM CYC L
MAPB CACHE REG H
CCBJ CACHE REG L
CCBK ANY ERR (1)H
CCBH DIS TRAPS L
CCBJ +3V
CCBJ REG ENAB H
TMCA PERF ACKN L
PDRH CACHE PERF L
CCBA INITD L
UBCB UBUS PAR ERR H
CCBH WRITE ERR REG L
CCBA INITD L
CCBJ CLR ERR REG L
CCBH DIS UBI TRAPS L
MAPB PB DATA H
CCBJ CLR ERR13 L
CCBJ ERR REG 15(0) H
CCBJ CLK ADRS H
CCBE T9Ø H
CCBJ AOK(Ø)H
CCBJ PARITY TRAP H
CCBD READ L
DTML BAD PARITY H
CCBJ VALID CPCYC H
CCBJ READ B H
PDRH CACHE PERF L
CCBJ PARITY ABORT H
CCBJ UB MEM CYC L
+5V
R35 330Ω
R36 600Ω
C129 .01 MFD
CCBJ AOK(Ø)H
CCBJ ERR REG 15 H
CCBJ ERR REG 14H
CCBJ ERR REG 13H
CCBJ ERR REG 12H
CCBJ ERR REG 11 H
CCBJ ERR REG 10 H
CCBBCPCYCLE H
CCBK ANY ERR(1) L
MAPB PB DATA H
PDRH CACHE PERF L
MAPA DATA15 H
MAPA DATA 14 H
MAPA DATA 13H
MAPA DATA 12 H
MAPA DATA11 H
MAPA DATA 10 H
MAPA DATAØ9 H
MAPA DATAØ8 H
CCBJ CLR ERR 13L
CCBJ CLR ERR Ø9 L
CCBJ CLR ERR Ø8L
CCBA INIT D L
CCBJ CLR ERR REG L

CACHE ERROR REGISTER (SLOT 17)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBJ)	D	CS	M8142-Ø-1	F
SCALE	SHEET 9 OF 15	DIST.	TW	

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CCBJ +3V
CCBK ERR REGØ9 H
UBCB UBUS PAR ERR H
CCBJ CLR ERR LØ9 L
CCBL MAINT MODE H
CCBK ANY ERR(1)L
CCBK ERR REGØ8H
CCBJ CLR ERRØ8 L
ADML ADRS PAR ERR H
CCBK ERR REGØ1 H
CCBK ERR REG ØØ H
CCBK CLR ERRØØL
MAPA DATA Ø4H
MAPA DATA Ø5 H
MAPA DATA Ø6 H
MAPA DATA Ø7 H
CCBK CLR ERRØ4 L
CCBK CLR ERRØ5 L
CCBK CLR ERRØ6 L
CCBJ CLR. ERR REG L
CCBA INIT D L
CCBB UB CYCLE H
ADML ADRS PAR ERR H
CCBD TIMEOUT(1) H
CCBB CP CYCLE L
CCBK CLR ERRØ1L
CCBK DATA PE1 H
DTMM DATA PARI OKL
CCBJ READ B H
CCBK ERR REGØ7 H
CCBB MBC CYCLEL
CCBE RESTART(1) H
CDPE MAIN HI PAR OKL
CDPE MAIN LO PAR OKL
CCBH FORCE MISS ONE L
ADMK TAG1 PAR ERR H
CCBK ERR REG Ø5H
CCBK CLK ERRØ5L
CCBK ERR CLK (1) H
CCBK ERR REGØ3H
CCBK ERR REGØ2 H
CCBK ANY ERR (1) H
CCBK ANY ERR (Ø) H
CCBE T60(1)L
CCBK DATA PEØ H
CCBJ REG ENABH
CCBE PARITY CLK H
CCBE T30(1) L
DTMM DATA PARØ OKL
CCBJ READ B H
CCBK ERR REGØ6 H
CCBK CLK ERRØ6 L
ADMK TAGØ PAR ERR H
CCBH FORCE MISS ZERO L
CCBK ERR REGØ4 H
CCBK CLR ERRØ4 L
MAPA DATA Ø3 H
MAPA DATA Ø2 H
MAPA DATA Ø1 H
MAPA DATA ØØ H
CCBK CLR ERRØ1L
CCBK CLK ERRØØL
CCBJ CLR ERR REG L
CCBA INIT D L
CCBK DATA PE1 H
CCBK DATA PEØ H
ADMK TAGØ PAR ERR H
CCBH FORCE MISS ZERO L
CCBH FORCE MISS ONE L
ADMK TAG1 PAR ERR H
CCBJ +3V
CCBK ERR CLK (1) H

CACHE ERROR REGISTER (SLOT 17)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE CACHE CONTROL BOARD (CCBK)
SIZE D CODE CS NUMBER M8142-Ø-1 REV F
SCALE SHEET 10 OF 13 DIST.

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74175 E4
MAPA DATA 15 H — AH2 — 4 D0
MAPA DATA 14 H — AD2 — 5 D1
MAPA DATA 13 H — AD1 — 12 D2
MAPA DATA 12 H — AF1 — 13 D3
R0(1) 2 — CCBL MAINT 15 H
R0(0) 3
R1(1) 7 — CCBL MAINT 14 H
R1(0) 6
R2(1) 10 — CCBL MAINT 13 H
R2(0) 11
R3(1) 15 — CCBL MAINT 12 H
R3(0) 14
CLK 9 — CCBH CLK MAINT REG L
CLR 1 — CCBL CLR MAINT L

BE1 → CCBL MAINT 15 L
BB1 → CCBL MAINT 14 L
BA1 → CCBL MAINT 13 L
AU1 → CCBL MAINT 12 L

74175 E2
MAPA DATA 11 H — AF2 — 4 D0
MAPA DATA 10 H — AC1 — 5 D1
MAPA DATA 09 H — AB1 — 12 D2
MAPA DATA 08 H — AE2 — 13 D3
R0(1) 2 AK1 → CCBL MAINT 11 H
R0(0) 3
R1(1) 7 AB2 → CCBL MAINT 10 H
R1(0) 6
R2(1) 10 AA1 → CCBL MAINT 09 H
R2(0) 11
R3(1) 15 AJ1 → CCBL MAINT 08 H
R3(0) 14
CLK 9 — CCBH CLK MAINT REG L
CLR 1 — CCBL CLR MAINT L

74175 E14
MAPA DATA 07 H — BM2 — 4 D0
MAPA DATA 06 H — BF1 — 5 D1
MAPA DATA 05 H — BV2 — 12 D2
MAPA DATA 04 H — BS1 — 13 D3
R0(1) 2 — CCBL MAINT 07 H
R0(0) 3
R1(1) 7 — CCBL MAINT 06 H
R1(0) 6
R2(1) 10 — CCBL MAINT 05 H
R2(0) 11
R3(1) 15 — CCBL MAINT 04 H
R3(0) 14
CLK 9 — CCBH CLK MAINT REG L
CLR 1 — CCBL CLR MAINT L

AR1 → CCBL MAINT 07 L
AT2 → CCBL MAINT 06 L
AS2 → CCBL MAINT 05 L
BE2 → CCBL MAINT 04 L

74175 E51
MAPA DATA 03 H — CN1 — 4 D0
MAPA DATA 02 H — CM2 — 5 D1
MAPA DATA 01 H — CM1 — 12 D2
13 D3
R0(1) 2 CP1 → CCBL MAINT 03 H
R0(0) 3
R1(1) 7 CK2 → CCBL MAINT 02 H
R1(0) 6
R2(1) 10 CK1 → CCBL MAINT 01 H
R2(0) 11
R3(1) 15
R3(0) 14
CLK — CCBH CLK MAINT REG L
CLR — CCBL CLR MAINT L

74S11 E52 (3-input AND)

DP2
UBCE INIT H — 2, 3
CCBE T30 (1) H — 4
CCBK ANY ERR (1) H — 5
74H50 E76 (NAND) → 6 → CCBL CLR MAINT L

74S133 E12
1 2 3 4 5 6 7 10 11 12 13 14 15
9 — CCBL MAINT MODE H

74174 E65
CCBL HIT REG 04 H — 3 D0
CCBL HIT REG 03 H — 4 D1
CCBL HIT REG 02 H — 6 D2
CCBL HIT REG 01 H — 11 D3
CCBL HIT REG 00 H — 13 D4
CCBD SLOW CYCLE (0) H — 14 D5
R0(1) 2 — CCBL HIT REG 05 H
R1(1) 5 — CCBL HIT REG 04 H
R2(1) 7 — CCBL HIT REG 03 H
R3(1) 10 — CCBL HIT REG 02 H
R4(1) 12 — CCBL HIT REG 01 H
R5(1) 15 — CCBL HIT REG 00 H
CLK 9
CLR 1 — CCBA INIT D L

CCBE +5V — 16
74S74 E77
CCBJ VALID CP CYCH — 12 D
CCBC DONE (1) H — 11 C
9, 8, 13
CCBE T60 (1) L

REVISIONS
CHK	CHANGE NO.	REV.

CACHE MAINTENANCE + HIT REG. (SLOT 17)

TITLE	SIZE	CODE	NUMBER	REV.
CONTROL CACHE BOARD (CCBL)	D	CS	M8142-0-1	F
SCALE —	SHEET 11 OF 15	DIST.		

DEC FORM NO. SMD 150

124

216

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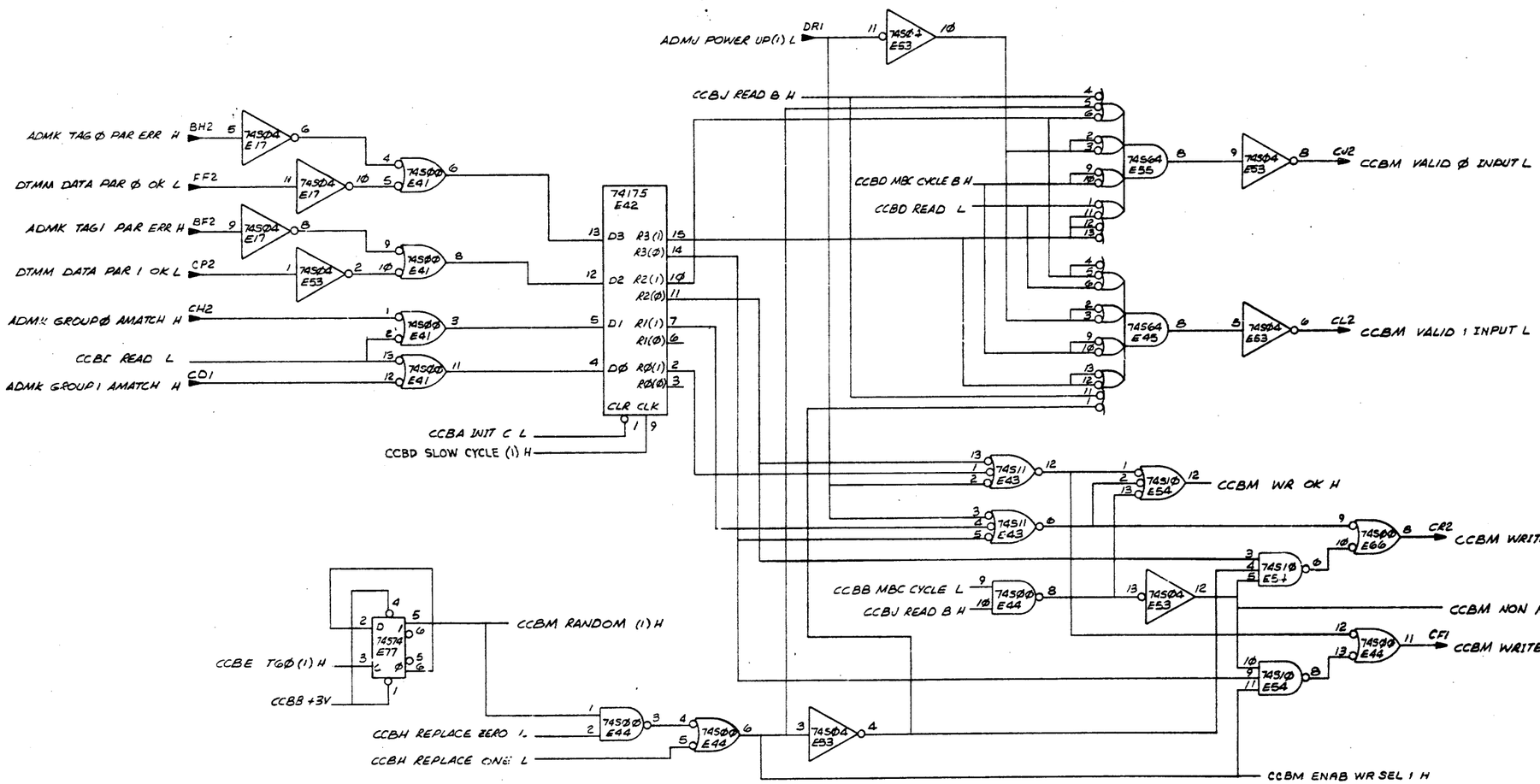

VALID AND WRITE SELECT LOGIC (SLOT 17)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE CONTROL BOARD (CCBM)	D	CS	M8142-Ø-1	F
SCALE —/— SHEET 12 OF 13	DIST.			

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17777740	ERROR ADDRESS LOW
17777742	ERROR ADDRESS HI
17777744	ERROR REGISTER
17777746	CONTROL REGISTER
17777750	MAINTENANCE REGISTER
17777752	HIT MISS

CACHE ERROR REGISTER

BIT	DESCRIPTION
ERR REG 15	CPU ABORT
ERR REG 14	CPU ABORT AFTER ADRS LOCK
ERR REG 13	PARITY ERROR ON DATA TO UNIBUS
ERR REG 12	PARITY ERROR ON DATA TO UNIBUS AFTER ADRS LOCK
ERR REG 11	ERROR DURING CP CYCLE
ERR REG 10	ERROR DURING UNIBUS CYCLE
ERR REG 09	CPU RECIVED PARITY ERROR FROM UNIBUS CYCLE
ERR REG 08	ERROR IN MAINTENENCE MODE
ERR REG 07	FAST DATA MEMORY PARITY ERROR GROUP 1
ERR REG 06	FAST DATA MEMORY PARITY ERROR GROUP Ø
ERR REG 05	ADDRESS MEMORY PARITY ERROR GROUP 1
ERR REG 04	ADDRESS MEMORY PARITY ERROR GROUP Ø
ERR REG 03	MAIN MEMORY PARITY ERROR ODD WORD
ERR REG 02	MAIN MEMORY PARITY ERROR EVEN WORD
ERR REG 01	MAIN MEMORY ADDRESS PARITY ERROR
ERR REG 00	MAIN MEMORY TIMEOUT

CONTROL REGISTER

BIT	DESCRIPTION
05	FORCE REPLACEMENT TO GROUP 1
04	FORCE REPLACEMENT TO GROUP Ø
03	FORCE MISS GROUP 1 (READ CYCLES)
02	FORCE MISS GROUP Ø (READ CYCLES)
01	DISABLE UNIBUS PB TRAPS
00	DISABLE CPU AND FAST MEMORY TRAPS

CACHE MAINTENANCE REGISTER

BIT	DESCRIPTION
MAINT 15	FORCE MAIN MEMORY ODD WORD, HI BYTE PARITY BIT TO 1
MAINT 14	FORCE MAIN MEMORY ODD WORD, LO BYTE PARITY BIT TO 1
MAINT 13	FORCE MAIN MEMGRY EVEN WORD, HI BYTE PARITY BIT TO 1
MAINT 12	FORCE MAIN MEMORY EVEN WORD, LO BYTE PARITY BIT TO 1
MAINT 11	FORCE WRONG ADDRESS MEMORY PARITY GROUP 1
MAINT 10	FORCE WRONG ADDRESS MEMORY PARITY GROUP 1
MAINT 09	FORCE WRONG ADDRESS MEMORY PARITY GROUP Ø
MAINT 08	FORCE WRONG ADDRESS MEMORY PARITY GROUP Ø
MAINT 07	FORCE FAST DATA MEMORY, GROUP 1 HI BYTE PARITY BIT TO 1
MAINT 06	FORCE FAST DATA MEMORY GROUP 1 LO BYTE PARITY BIT TO 1
MAINT 05	FORCE FAST DATA MEMORY GROUP Ø HI BYTE PARITY BIT TO 1
MAINT 04	FORCE FAST DATA MEMORY GROUP Ø LO BYTE PARITY BIT TO 1
MAINT 03	MAIN MEMORY MARGIN CODE
MAINT 02	MAIN MEMORY MARGIN CODE
MAINT 01	MAIN MEMORY MARGIN CODE
MAINT 00	NOT USED

MAINT 3	MAINT 2	MAINT 1	
0	0	0	NORMAL OPERATION
0	0	1	CHECK WRONG ADDRESS PARITY
0	1	0	EARLY STROBE MARGIN
0	1	1	LATE STROBE MARGIN
1	0	0	LOW CURRENT MARGIN
1	0	1	HIGH CURRENT MARGIN
1	1	0	NOT USED
1	1	1	NOT USED

11/70 PARITY ERROR RESPONSE

SOURCE OF CYCLE	CYCLE TYPE	TYPE OF ERROR	ACTION* ALL TRAPS ENABLED	DISABLE WARNING TRAPS (CR00 1)	DISABLE ALL TRAPS (CR Ø1;ØØ 3)	BITS SET IN ERROR REGISTER
CPU to CACHE	DATI/P	MAIN BUS TIMEOUT	ABORT	ABORT	ABORT	15,11,Ø
		MAIN BUS PARITY	ABORT	ABORT	ABORT	15,11,1
		MAIN MEM WANTED WORD	ABORT	ABORT	ABORT	15,11,2 or 3
		MAIN MEM OTHER WORD	TRAP	NO ACTION	NO ACTION	11,2 or 3
		FAST MEM ADDRESS	TRAP	NO ACTION	NO ACTION	11,4 or 5
		FAST MEM DATA	TRAP	NO ACTION	NO ACTION	11,6 or 7
	DATO/B	MAIN BUS TIMEOUT	ABORT	ABORT	ABORT	15,11,Ø
		MAIN BUS PARITY	ABORT	ABORT	ABORT	15,11,1
UNIBUS (thru MAP) to CACHE	DATI/P	MAIN BUS TIMEOUT	UNIBUS TIMEOUT	UNIBUS TIMEOUT	UNIBUS TIMEOUT	NONE
		MAIN BUS PARITY	UNIBUS TIMEOUT, TRAP	UNIBUS TIMEOUT	UNIBUS TIMEOUT	10,1
		MAIN MEM WANTED WORD	UNIBUS PB, TRAP	UNIBUS PB, TRAP	UNIBUS PB	13,10,2 or 3
		MAIN MEM OTHER WORD	TRAP	NO ACTION	NO ACTION	10,2 or 3
		FAST MEM ADDRESS	TRAP	NO ACTION	NO ACTION	10,4 or 5
		FAST MEM DATA	TRAP	NO ACTION	NO ACTION	10,6 or 7
	DATO/B	MAIN BUS TIMEOUT	UNIBUS TIMEOUT, TRAP	UNIBUS TIMEOUT	UNIBUS TIMEOUT	10,Ø
		MAIN BUS PARITY	UNIBUS TIMEOUT, TRAP	UNIBUS TIMEOUT	UNIBUS TIMEOUT	10,1
		FAST MEM ADDRESS	TRAP	NO ACTION	NO ACTION	10,4 or 5
CPU to UNIBUS thru MAP to CACHE	DATI/P	MAIN BUS TIMEOUT	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	NONE
		MAIN BUS PARITY	UNIBUS TIMEOUT ABORT TO 4, TRAP	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	10,1
		MAIN MEM WANTED WORD	UNIBUS PARITY ABORT TO 114	UNIBUS PARITY ABORT TO 114	UNIBUS PARITY ABORT TO 114	13,10,9,2 or 3
		MAIN MEM OTHER WORD	TRAP	NO ACTION	NO ACTION	10,2 or 3
		FAST MEM ADDRESS	TRAP	NO ACTION	NO ACTION	10,4 or 5
		FAST MEM DATA	TRAP	NO ACTION	NO ACTION	10,6 or 7
	DATO/B	MAIN BUS TIMEOUT	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	
		MAIN BUS PARITY	UNIBUS TIMEOUT ABORT TO 4, TRAP	UNIBUS TIMEOUT ABORT TO 4	UNIBUS TIMEOUT ABORT TO 4	10,1
		FAST MEM ADDRESS	TRAP	NO ACTION	NO ACTION	10,4 or 5

* ALL TRAPS VECTOR TO 114

NOTES
1. THESE TABLES ONLY COVER SINGLE ERRORS.
2. THE PROCESSOR ALSO WILL ABORT TO 114 WHEN DOING DATI/P CYCLES ON THE UNIBUS AND THE DEVICE ASSERTS PB. IN THESE CASES, BIT 9 SETS IN THE ERROR REGISTER.
3. ERRORS ON MASSBUS CYCLES ARE HANDLED BY THE MASSBUSS CONTROLS, AND HAVE AN EFFECT ON THE ERROR REGISTER.

REVISIONS

CHK	CHANGE NO	REV

TITLE	CACHE CONTROL BOARD		
SCALE	—	SHEET 13 OF 13	
SIZE	CODE	NUMBER	REV.
D	CS	M8142-Ø-1	F
DIST.			

DEC FORM NO DROP 137

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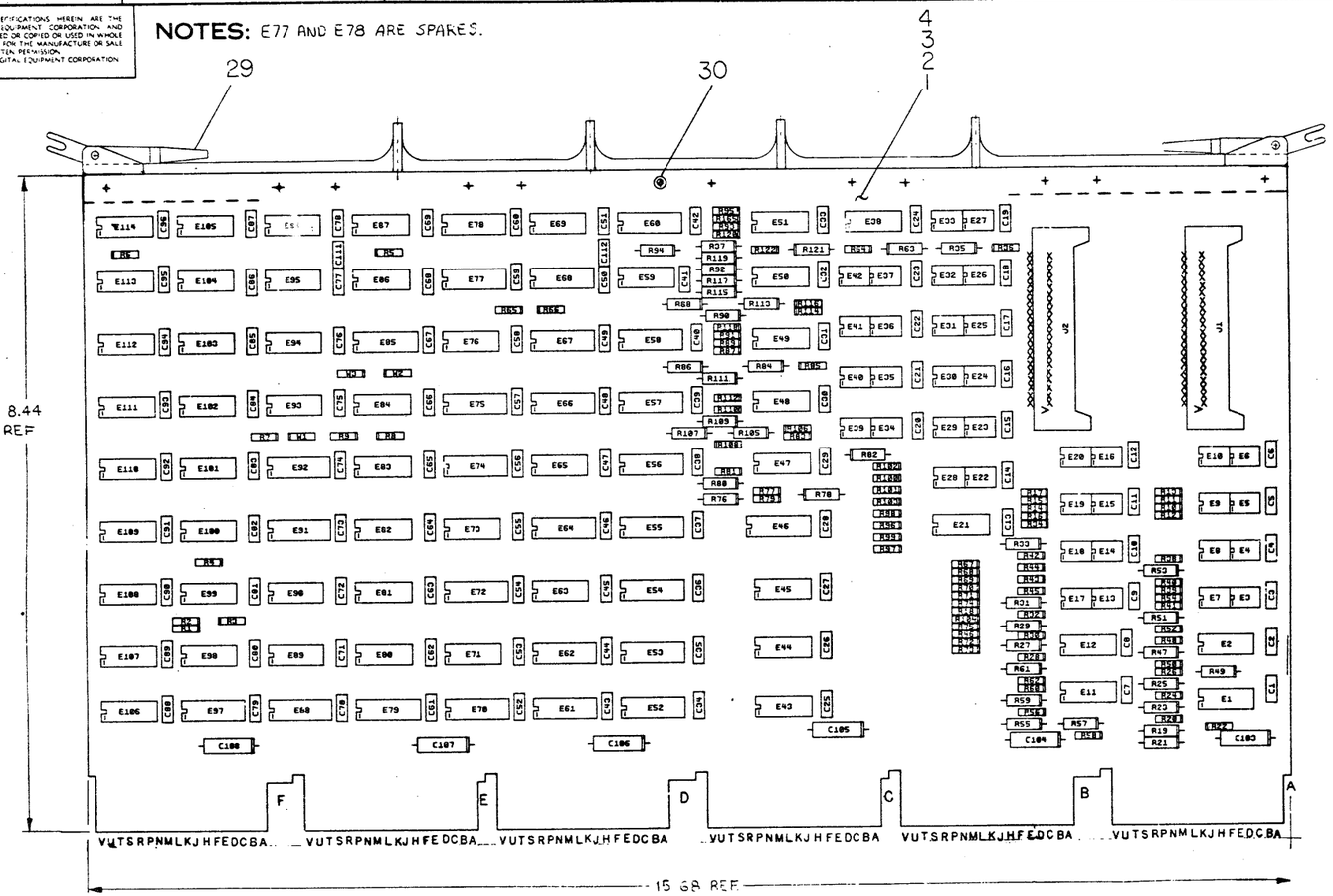
NOTES: E77 AND E78 ARE SPARES.



REF				
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8145-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8145-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8145-0-6	3
1		ETCHED CIRCUIT BOARD	5011386	4
98	C1 THRU C96, C111, C112	CAPACITOR, .01uf, 100V, 20%	1001610	5
6	C103 THRU C108	CAPACITOR, 6.8uf, 35V, 20%	1005306	6
2	R5, R65	RESISTOR, 330 OHM, 1/4W, 5%	1300295	7
43	R1 THRU R4, R7 THRU R9, R10 THRU R18, R38 THRU R46, R67 THRU R75, R96 THRU R104	RESISTOR, 1K, 1/4W, 5%	1300365	8
2	R6, R66	RESISTOR, 680 OHM, 1/4W, 5%	1301424	9
38	R19, R21, R23, R25, R27, R29, R31, R33, R35, R37, R47, R49, R51, R53, R55, R57, R59, R61, R63, R76, R78, R80, R82, R84, R86, R88, R90, R92, R94, R105, R107, R109, R111, R113, R115, R117, R119, R121	RESISTOR, 121 OHM, 1/2W, 1%	1301782	10
38	R20, R22, R24, R26, R28, R30, R32, R34, R36, R48, R50, R52, R54, R56, R58, R60, R62, R64, R77, R79, R81, R83, R85, R87, R89, R91, R93, R95, R106, R108, R110, R112, R114, R116, R118, R120, R122, R165	RESISTOR, 196 OHM, 1/4W, 1%	1302956	11
4	E52, E79, E88, E97	I C, DEC 8266	1909934	12
5	E81, E82, E89, E100, E103	I C DEC 74S00	1910532	13
4	E69, E80, E99, E108	I C DEC 74S04	1910534	14
5	E43, E84, E90, E98, E107	I.C DEC 74S10	1910536	15
6	E73, E76, E83, E106, E109, E110	I C DEC 74S11	1910537	16
2	E93, E113	I C DEC 74S20	1910539	17
4	E86, E87, E94, E95	I.C. DEC 74S64	1910542	18
6	E96, E101, E102, E104, E111, E112	I C DEC 74S74	1910544	19
2	E44, E114	I C DEC 74S140	1910546	20
9	E55, E58, E64, E66, E67, E70, E72, E74, E75	I C. DEC 74S158	1910549	21
18	E4, E6, E8, E10, E14, E16, E18, E20, E22, E23, E24, E25, E27, E34 E35, E36, E37, E26	I C. DEC 75452	1910645	22
12	E46, E53, E54, E56, E57, E60, E61 EC2, E68, E85, E91, E92	I C DEC 74S175	1910957	23
18	E3, E5, E7, E9, E13, E15, E17, E19 E28, E29, E30, E31, E32, E33, E39 E40, E41, E42	I.C DEC 75453	1911036	24
6	E21, E45, E59, E63, E65, E71	I C. DEC 82S62	1911291	25
11	E1, E2, E11, E12, E38, E47, E48, E49, E50, E51, E105	I.C. DEC 8640	1911469	26
3	W1, W2, W3	JUMPER	9009185	27
2	J1, J2	CONNECTOR BERG 40 PIN	1209941	28
1		HANDLE ASSY	1210711-02	29
12		EYELET	9006732	30
1		BLOCK DIAGRAM	D-BD-M8145-0-7	31

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

PARTS LIST

AA2, BA2, CA2, AV1, BV1, CV1, DA2, EA2, FA2, DV1, EV1, FV1 — +5V — C103 THRU C108 6.8 µf — C1 THRU C96 .01 µf

AC2, AT1, AH1, AN2, BC2, BT1, BH1, BN2, CC2, CT1, CH1, CN2, DC2, DT1, DH1, DN2, EC2, ET1, EH1, EN2, FC2, FT1, FH1, FN2

IC. DEC 8640	1	8
IC DEC 74S175	8	16
IC DEC 75453	4	8
IC DEC 75452	4	8
IC DEC 74S158	8	16
I.C DEC 8266	8	16
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	ETCH BOARD REV
11/70	B

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

SEMICONDUCTOR CONVERSION CHART

R. BOUCHER 20-JUL-76 M8145-00002 C
W. FISHER 3-27-75
A. HELENIUS 3-28-75 M8145-00001 B
CHK CHANGE NO REV
REVISIONS

DRN	R Beardy	DATE 12/18/74
CHK'D	FERGUSON	DATE 12-18-75
ENG	ALLAN HELENIUS	DATE 11/19/75
PROJ ENG	ALLAN HELENIUS	DATE 11/19/75
PROD	K. TAYLOR	DATE 1/15/75
NEXT HIGHER ASSY		
SCALE		
SHEET	1 OF 10	

digital EQUIPMENT CORPORATION

TITLE: CACHE DATA PATH

SIZE	CODE	NUMBER	REV.
D	DCS	M8145-0-1	C

DIST.

STAT CODE DCS M8145-0-1 REVISION C

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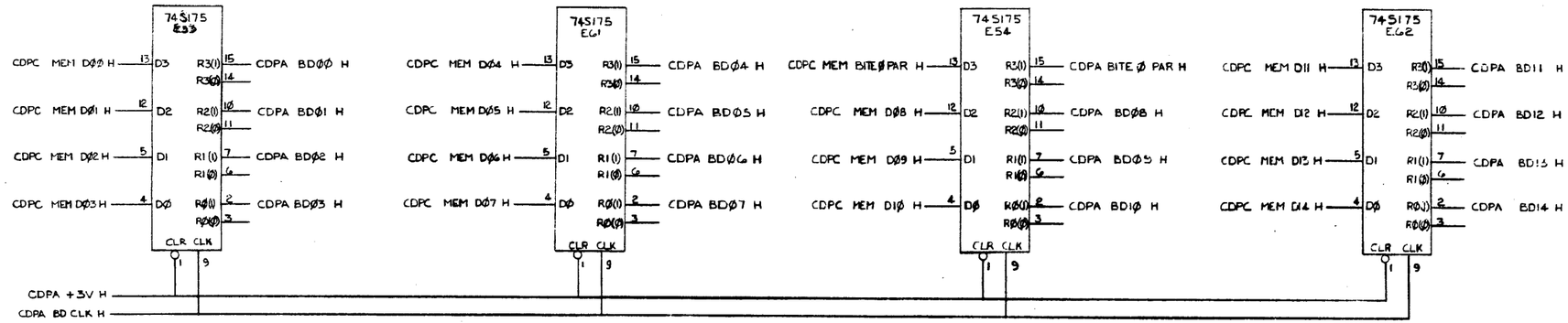

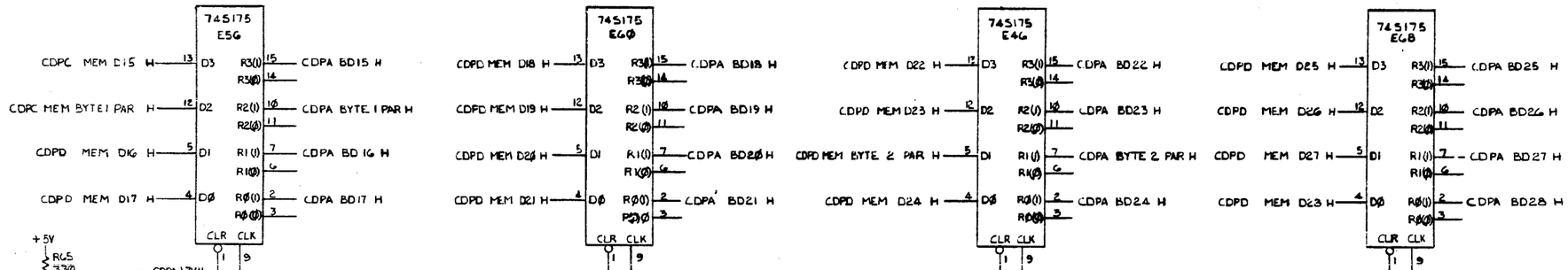

BD REGISTER (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPA)	D	CS	M8145-Ø-1	G
SCALE — SHEET 2 OF 10	DIST.			

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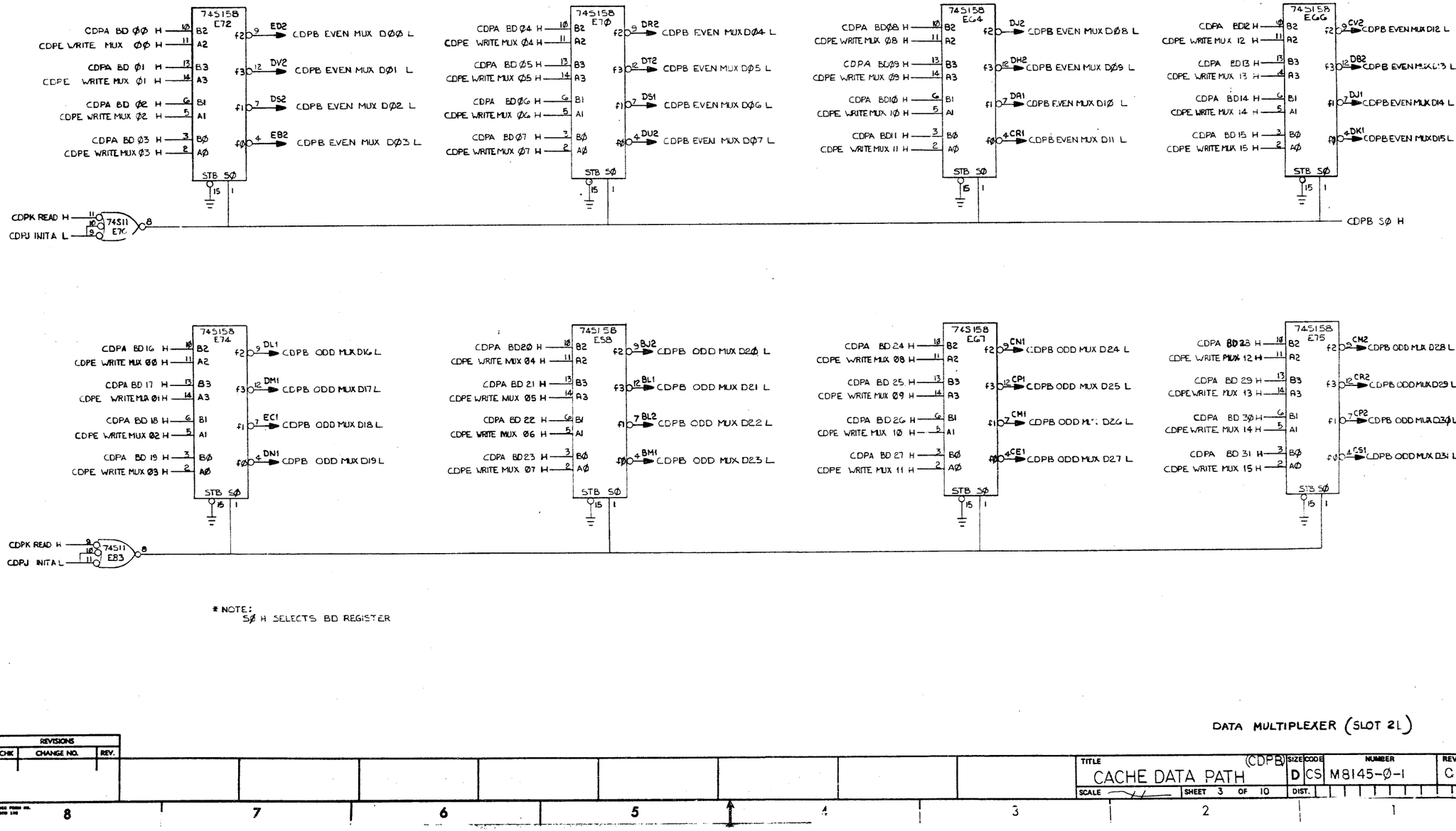

* NOTE:
SØ H SELECTS BD REGISTER

DATA MULTIPLEXER (SLOT 2L)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPB)	D	CS	M8145-Ø-1	C
SCALE	SHEET 3 OF 10	DIST.		

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CDPK READ B L
CDPC CACHE DATA EN L
74S10 E43 → DK2 → CDPC START WRITE H
CDPC MBC DATA ENAB L
CDPD OCC L
CDPK READ B L
CDPC MBC CYCLE B H
74S140 E44

MBCBUS D00 L AB1 — CDPE WRITE MUX00 H — 75452 E6 — 75453 E5 — MAIN DATA BYTE 0-0 L
MBCBUS D01 L AA1 — CDPE WRITE MUX01 H — 75452 E6 — 75453 E5 — MAIN DATA BYTE 0-1 L
MBCBUS D02 L AF2 — CDPE WRITE MUX02 H — 75452 E10 — 75453 E9 — MAIN DATA BYTE 0-2 L
MBCBUS D03 L AC1 — CDPE WRITE MUX03 H — 75452 E10 — 75453 E9 — MAIN DATA BYTE 0-3 L
MBCBUS D04 L AJ1 — CDPE WRITE MUX04 H — 75452 E16 — 75453 E15 — MAIN DATA BYTE 0-4 L
MBCBUS D05 L AH2 — CDPE WRITE MUX05 H — 75452 E16 — 75453 E15 — MAIN DATA BYTE 0-5 L
MBCBUS D06 L AM1 — CDPE WRITE MUX06 H — 75452 E20 — 75453 E19 — MAIN DATA BYTE 0-6 L
MBCBUS D07 L AJ2 — CDPE WRITE MUX07 H — 75452 E20 — 75453 E19 — MAIN DATA BYTE 0-7 L
MBCBUS B0PA L AU1 — CDPF WRITE MUX LO GEN H — 75452 E27 — 75453 E33 — MAIN DATA BYTE 0-8 L
(+5V, R10–R18 1K)

J1 (A B C D E F H J K L M N P R S T U V UU VV)
R19–R37 121

8640 E1 (3 CJ1, 2 CF2, 13 CH2, 14 CJ2)
8640 E12 (3 DF2, 2 DD2, 13 DE1, 14 DF1)
8640 E51 (13 CE2)
8640 E38 (2 CDPC DATA RDY H)
R20–R36 196
R65 196

CDPC MEM D00 H — MBCBUS D08 L AB2 — R38 1K — 75453 E3 — CDPE WRITE MUX08 H — 75452 E4 — MAIN DATA BYTE 1-0 L
CDPC MEM D01 H — MBCBUS D09 L AD2 — R39 1K — 75453 E3 — CDPE WRITE MUX 09 H — 75452 E4 — MAIN DATA BYTE 1-1 L
CDPC MEM D02 H — MBCBUS D10 L AD1 — R40 1K — 75453 E7 — CDPE WRITE MUX10 H — 75452 E8 — MAIN DATA BYTE 1-2 L
CDPC MEM D03 H — MBCBUS D11 L AF1 — R41 1K — 75453 E7 — CDPE WRITE MUX11 H — 75452 E8 — MAIN DATA BYTE 1-3 L
CDPC MEM D04 H — MBCBUS D12 L AK1 — R42 1K — 75453 E13 — CDPE WRITE MUX12 H — 75452 E14 — MAIN DATA BYTE 1-4 L
CDPC MEM D05 H — MBCBUS D13 L AK2 — R43 1K — 75453 E13 — CDPE WRITE MUX13 H — 75462 E14 — MAIN DATA BYTE 1-5 L
CDPC MEM D06 H — MBCBUS D14 L AL1 — R44 1K — 75453 E17 — CDPE WRITE MUX14 H — 75452 E18 — MAIN DATA BYTE 1-6 L
CDPC MEM D07 H — MBCBUS D15 L AL2 — R45 1K — 75453 E17 — CDPE WRITE MUX15 H — 75452 E18 — MAIN DATA BYTE 1-7 L
CDPC MBC DATA ENAB L — MBCBUS BIPA L AU2 — R46 1K — 75453 E33 — CDPF WRITE MUX HI GEN H — 75452 E27 — MAIN DATA BYTE 1-8 L
CDPC CACHE DATA EN H
(+5V)

J1 (W X Y Z AA BB CC DD EE FF HH JJ KK LL MM NN PP RR SS)
R47–R59 121
R60–R64 196

8640 E2 (3 AE2, 2 AE1, 13 CF1, 14 DD1)
8640 E11 (3 DB1, 2 DC1, 13 DE2, 14 AH2)
8640 E5 (14 BH2)

CDPC MEM D08 H
CDPC MEM D09 H
CDPC MEM D10 H
CDPC MEM D11 H
CDPC MEM D12 H
CDPC MEM D13 H
CDPC MEM D14 H
CDPC MEM D15 H
CDPC MEM BYTE 1 PAR H

(To Memory M8159 (J1))

CDPD OCC L
CDPK READ B L
74S10 E43
74S140 E44
CDPA +3V H
74S04 E69 → CDPC CACHE DATA EN L
CCBD MBC CYCLE B H → 74S04 E86 → CDPC MBC CYCLE L

last 0-15

MAIN MEMORY EVEN WORD (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	CACHE DATA PATH (CDPC)	SIZE D	CODE CS	NUMBER M8145-Ø-1
SCALE —#—	SHEET 4 OF 10	DIST.		REV. C

DIV CODE DCS M8145-Ø-1 REV. C

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J2

+5V

CDPE WRITE MUXØØ H — 75452 E22 — MAIN DATA BYTE 2-Ø L
MBCBUS DIG L — AN1 — R67 1K — 75453 E28
CDPE WRITE MUXØ1 H — 75452 E22 — MAIN DATA BYTE 2-1 L
MBCBUS DI7 L — AP1 — R68 1K — 75453 E28
CDPE WRITE MUXØ2 H — 75452 E23 — MAIN DATA BYTE 2-2 L
MBCBUS DI8 L — AP2 — R69 1K — 75453 E29
CDPE WRITE MUXØ3 H — 75452 E23 — MAIN DATA BYTE 2-3 L
MBCBUS DI9 L — AR1 — R70 1K — 75453 E29
CDPE WRITE MUXØ4 H — 75452 E24 — MAIN DATA BYTE 2-4 L
MBCBUS D2Ø L — AR2 — R71 1K — 75453 E30
CDPE WRITE MUXØ5 H — 75452 E24 — MAIN DATA BYTE 2-5 L
MBCBUS D21 L — AV2 — R72 1K — 75453 E30
CDPE WRITE MUXØ6 H — 75452 E25 — MAIN DATA BYTE 2-6 L
MBCBUS D22 L — BR1 — R73 1K — 75453 E31
CDPE WRITE MUXØ7 H — 75452 E25 — MAIN DATA BYTE 2-7 L
MBCBUS D23 L — AS1 — R74 1K — 75453 E31
CDPF WRITE MUX LO GEN H — 75452 E26
CDPC CACHE DATA EN H — MAIN DATA BYTE 2-8 L
MBCBUS B2PA L — AT2 — R75 1K — 75453 E32
CDPC MBC DATA ENAB L

R76 121 — R77 196 — R78 121 — R79 196 — R80 121 — R81 196 — R82 121 — R83 196 — R84 121 — R85 196 — R86 121 — R87 196 — R88 121 — R89 196 — R90 121 — R91 196 — R92 121 — R93 196 — R94 121 — R95 196

8640 E47 — BS1 — CDPD MEM D16 H
8640 E47 — BV — CDPD MEM D17 H
8640 E47 — BT2 — CDPD MEM D18 H
8640 E47 — CA1 — CDPD MEM D19 H
8640 E49 — BP1 — CDPD MEM D2Ø H
8640 E49 — BN1 — CDPD MEM D21 H
8640 E49 — BS2 — CDPD MEM D22 H
8640 E49 — BR2 — CDPD MEM D23 H
8640 E51 — BK1 — CDPD MEM BYTE 2 PAR H

ADML OCC H — CB1 — 74S04 E69 — CDPD OCC L

+5V

CDPE WRITE MUXØ8 H — 75452 E34 — MAIN DATA BYTE 3-Ø L
MECBUS D24 L — BE2 — R96 1K — 75453 E39
CDPE WRITE MUXØ9 H — 75452 E34 — MAIN DATA BYTE 3-1 L
MBCBUS D25 L — BJ1 — R97 1K — 75453 E39
CDPE WRITE MUX1Ø H — 75452 E35 — MAIN DATA BYTE 3-2 L
MBCBUS D26 L — BF1 — R98 1K — 75453 E40
CDPE WRITE MUX11 H — 75452 E35 — MAIN DATA BYTE 3-3 L
MBCBUS D27 L — BF2 — R99 1K — 75453 E40
CDPE WRITE MUX12 H — 75452 E36 — MAIN DATA BYTE 3-4 L
MBCBUS D28 L — BC1 — R1ØØ 1K — 75453 E41
CDPE WRITE MUX13 H — 75452 E36 — MAIN DATA BYTE 3-5 L
MBCBUS D29 L — BD1 — R1Ø1 1K — 75453 E41
CDPE WRITE MUX14 H — 75452 E37 — MAIN DATA BYTE 3-6 L
MBCBUS D3Ø L — BB1 — R1Ø2 1K — 75453 E42
CDPE WRITE MUX15 H — 75452 E37 — MAIN DATA BYTE 3-7 L
MBCBUS D31 L — BD2 — R1Ø3 1K — 75453 E42
CDPF WRITE MUX HI GEN H — 75452 E26
CDPC CACHE DATA EN H — MAIN DATA BYTE 3-8 L
MBCBUS B3PA L — AS2 — R1Ø4 1K — 75453 E32
CDPC MBC DATA ENAB L

R105 121 — R106 196 — R107 121 — R108 196 — R109 121 — R110 196 — R111 121 — R112 196 — R113 121 — R114 196 — R115 121 — R116 196 — R117 121 — R118 196 — R119 121 — R120 196 — R121 121 — R122 196

8640 E48 — BU2 — CDPD MEM D24 H
8640 E48 — BU1 — CDPD MEM D25 H
8640 E48 — BR1 — CDPD MEM D26 H
8640 E48 — BP2 — CDPD MEM D27 H
8640 E5Ø — BN2 — CDPD MEM D28 H
8640 E5Ø — CC1 — CDPD MEM D29 H
8640 E5Ø — CB2 — CDPD MEM D3Ø H
8640 E5Ø — CD2 — CDPD MEM D31 H
8640 E51 — BK2 — CDPD MEM BYTE 3 PAR H

To Memory M8159 (J3)

bit 16-31

MAIN MEMORY ODD WORD (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPD)	D	CS	M8145-Ø-1	C
SCALE —	SHEET 5 OF 10		DIST.	

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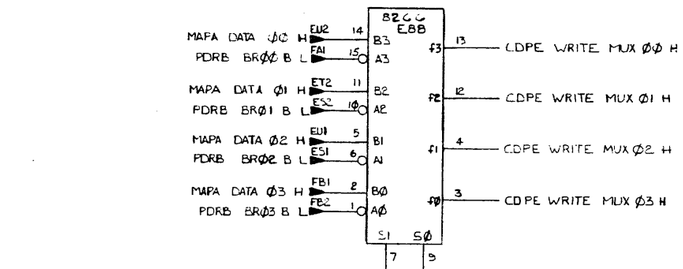

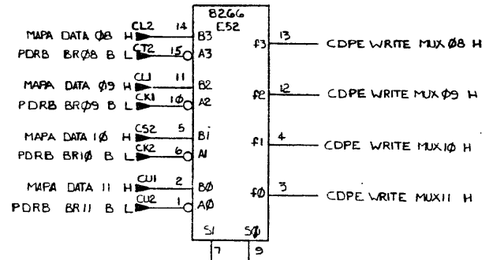

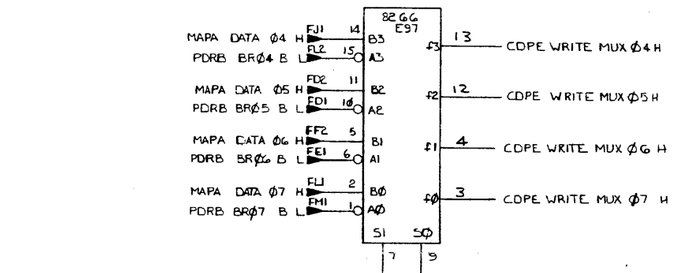

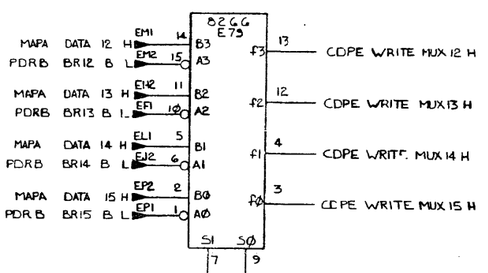

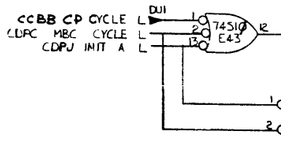

S1	SØ	OUTPUT	OPERATION
L	L	MAP DATA	UNIBUS CYCLE
L	H	BR DATA	CP CYCLE
H	L	MAP DATA	CAN'T HAPPEN
H	H	ALL 1'S	MBC CYCLE, PUP

WRITE MULTIPLEXER (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
CACHE DATA PATH	(CDPE)	D	CS	M8145-Ø-1	C
SCALE	SHEET 6 OF 10	DIST.			

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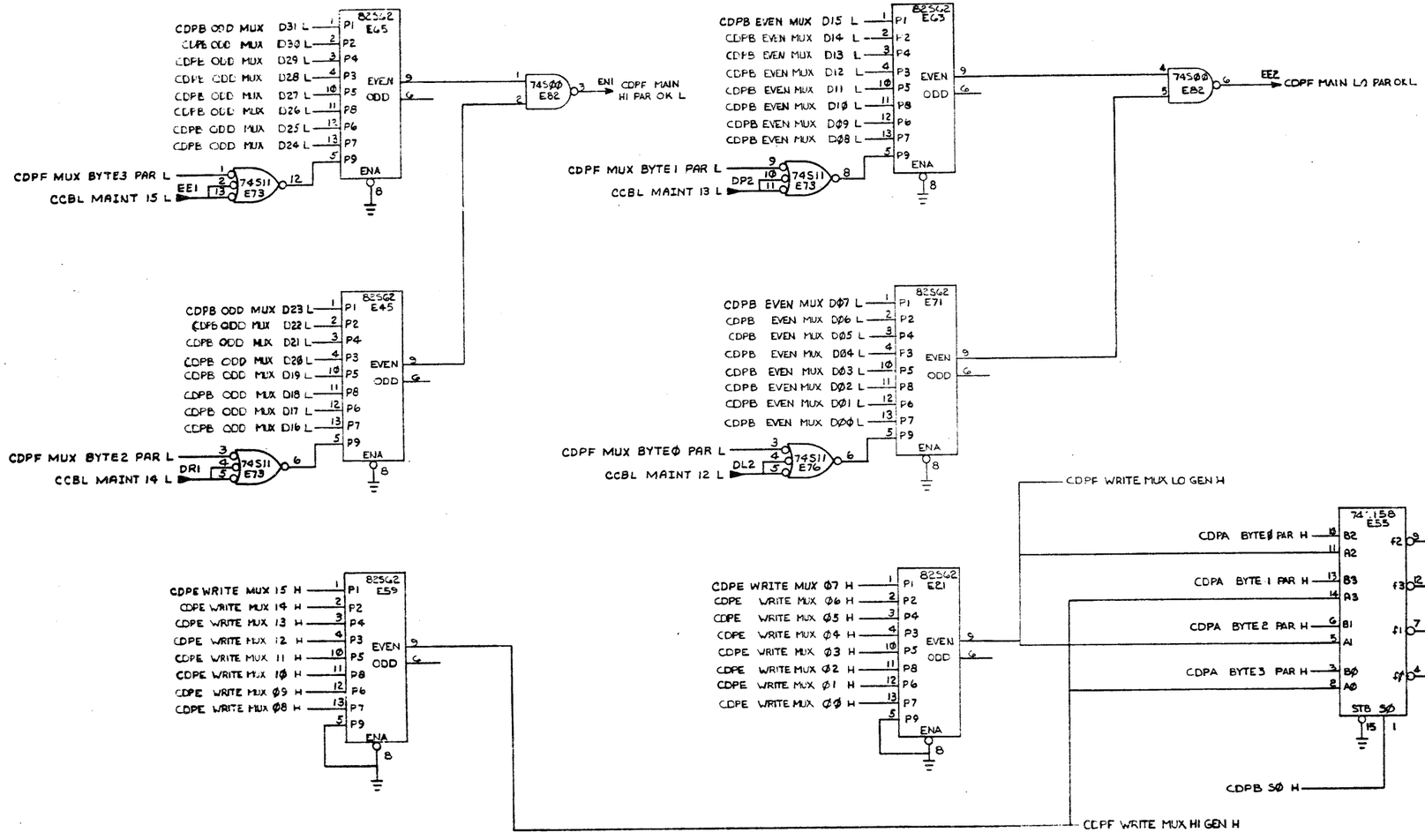

MEMORY PARITY CONTROL (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPF)	D	CS	M8145-Ø-1	C
SCALE —	SHEET 7 OF 10	DIST.		

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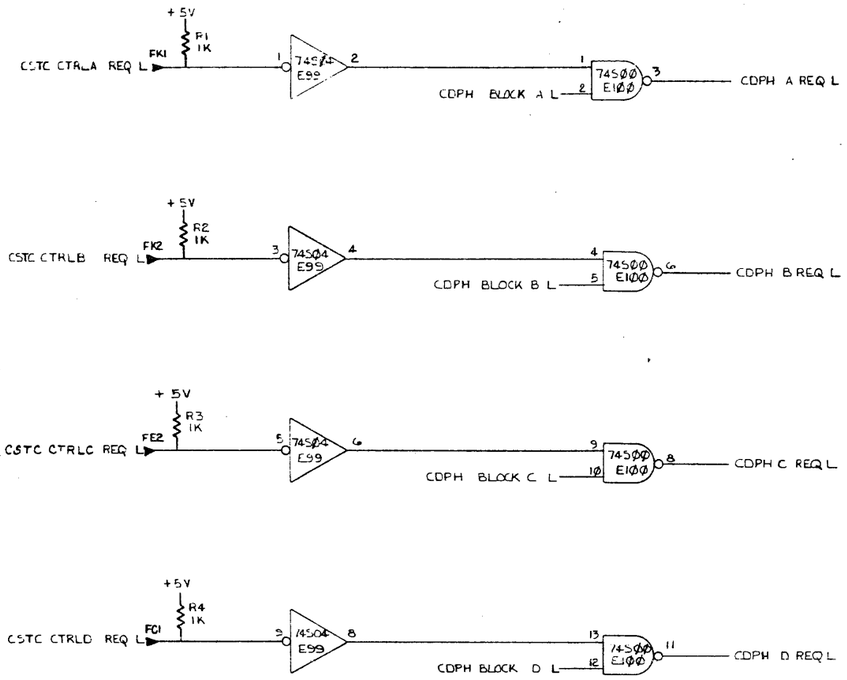

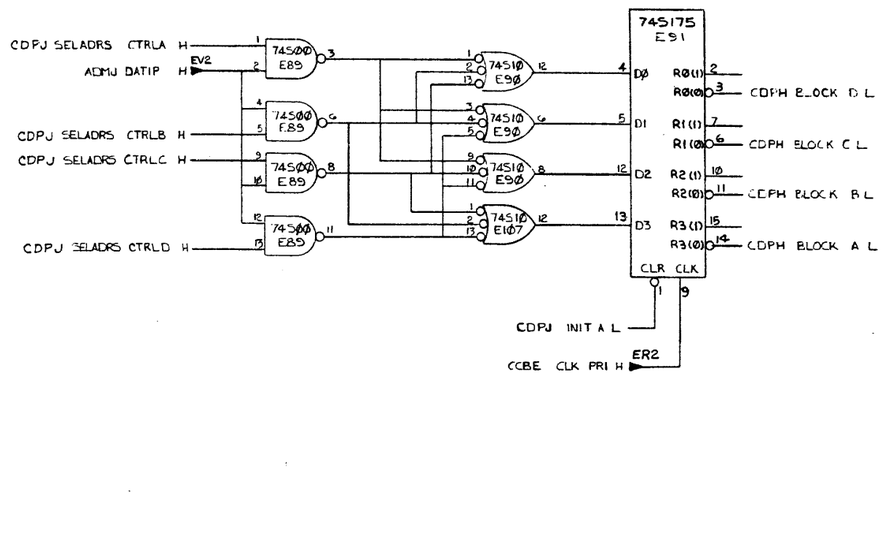

MBC REQUEST (SLOT 21)

(RH 10)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPH)	D	CS	M8145-0-1	C
SCALE	SHEET 8 OF 10	DIST.		

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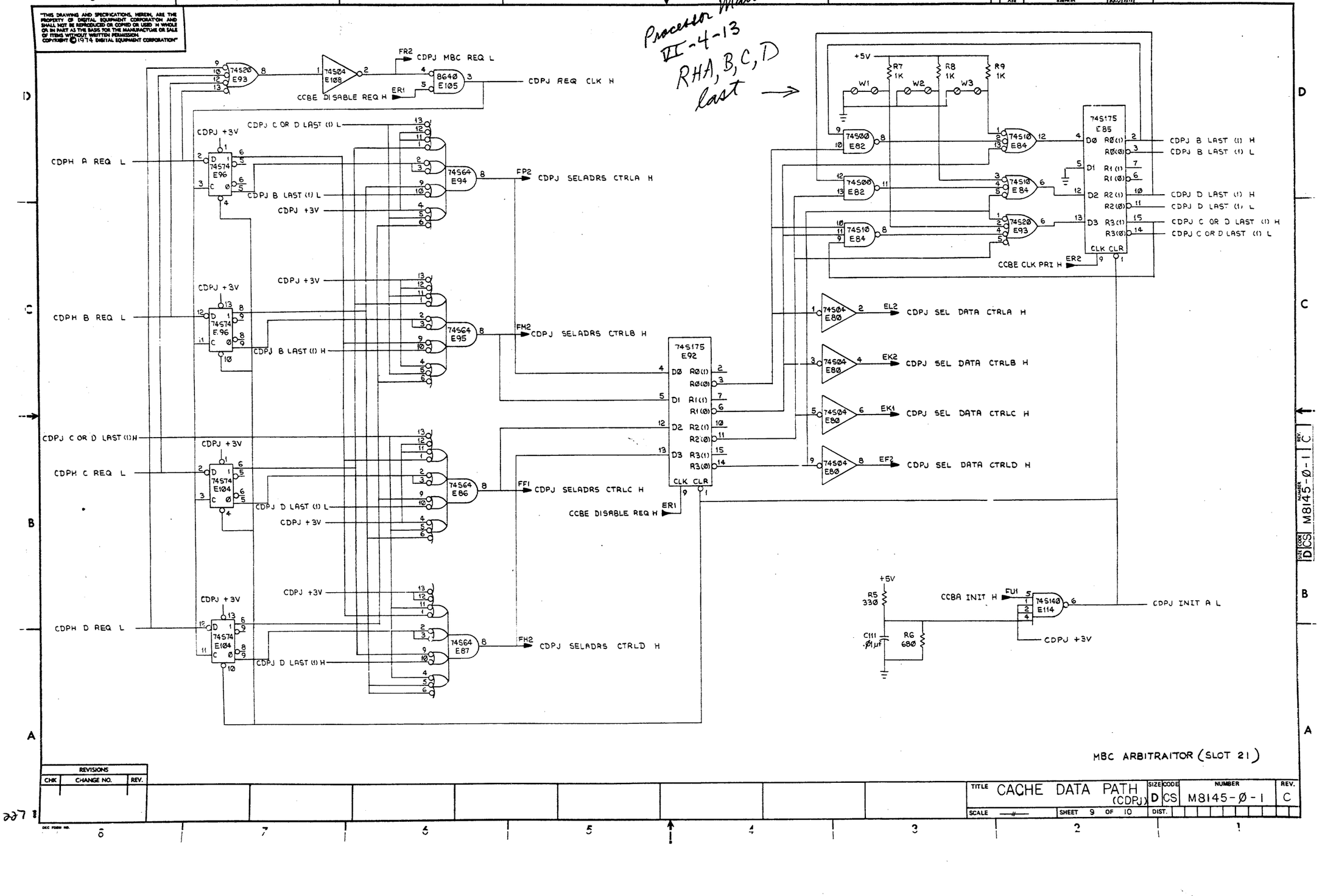
Processor Manual
II-4-13
RHA, B, C, D
last



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPJ)	D	CS	M8145-Ø-1	C
SCALE —	SHEET 9 OF 10	DIST.		

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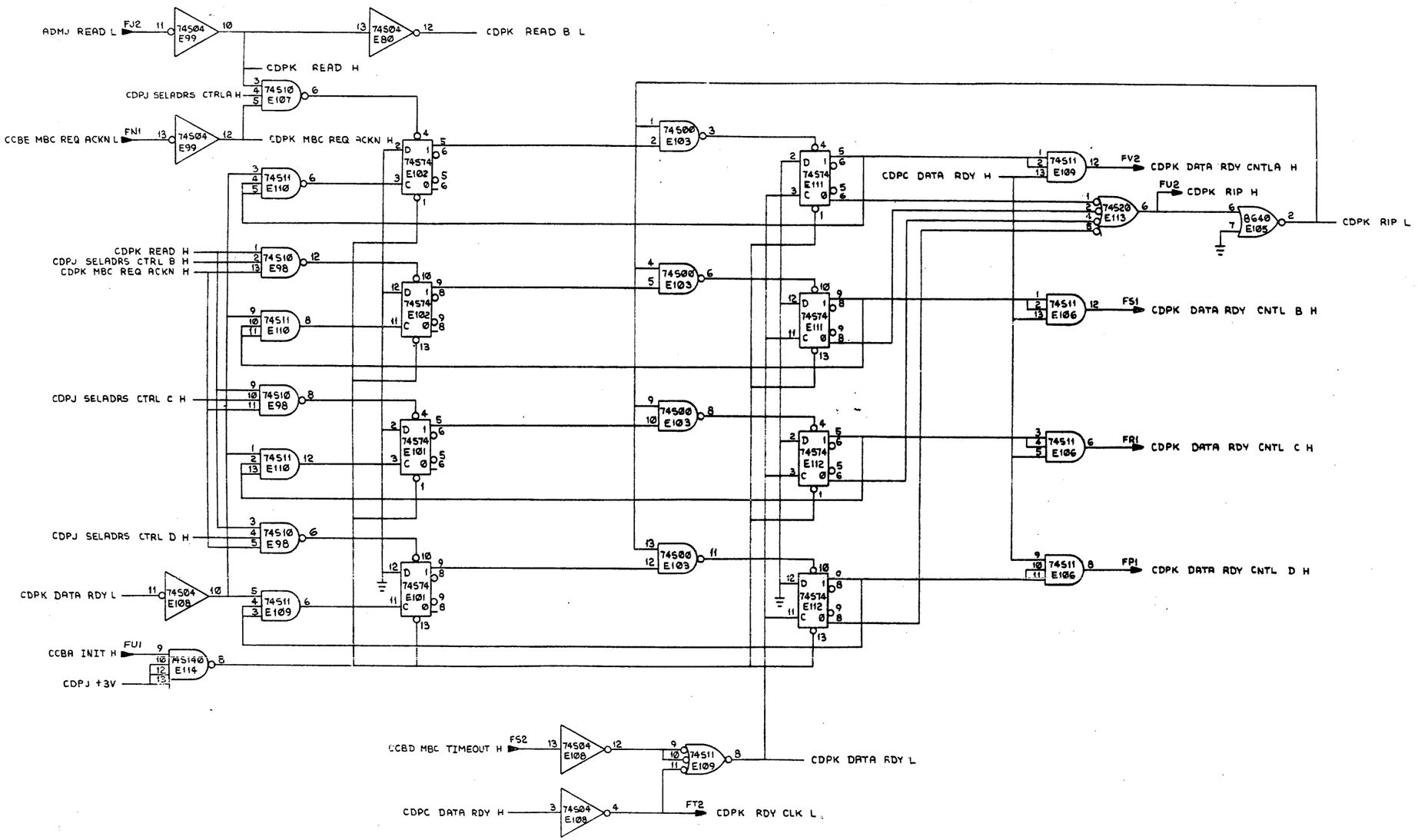

MBC DATA CONTROL (SLOT 21)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
CACHE DATA PATH (CDPK)	D	CS	M8145-0-1	C
SCALE —	SHEET 10 OF 10	DIST.		

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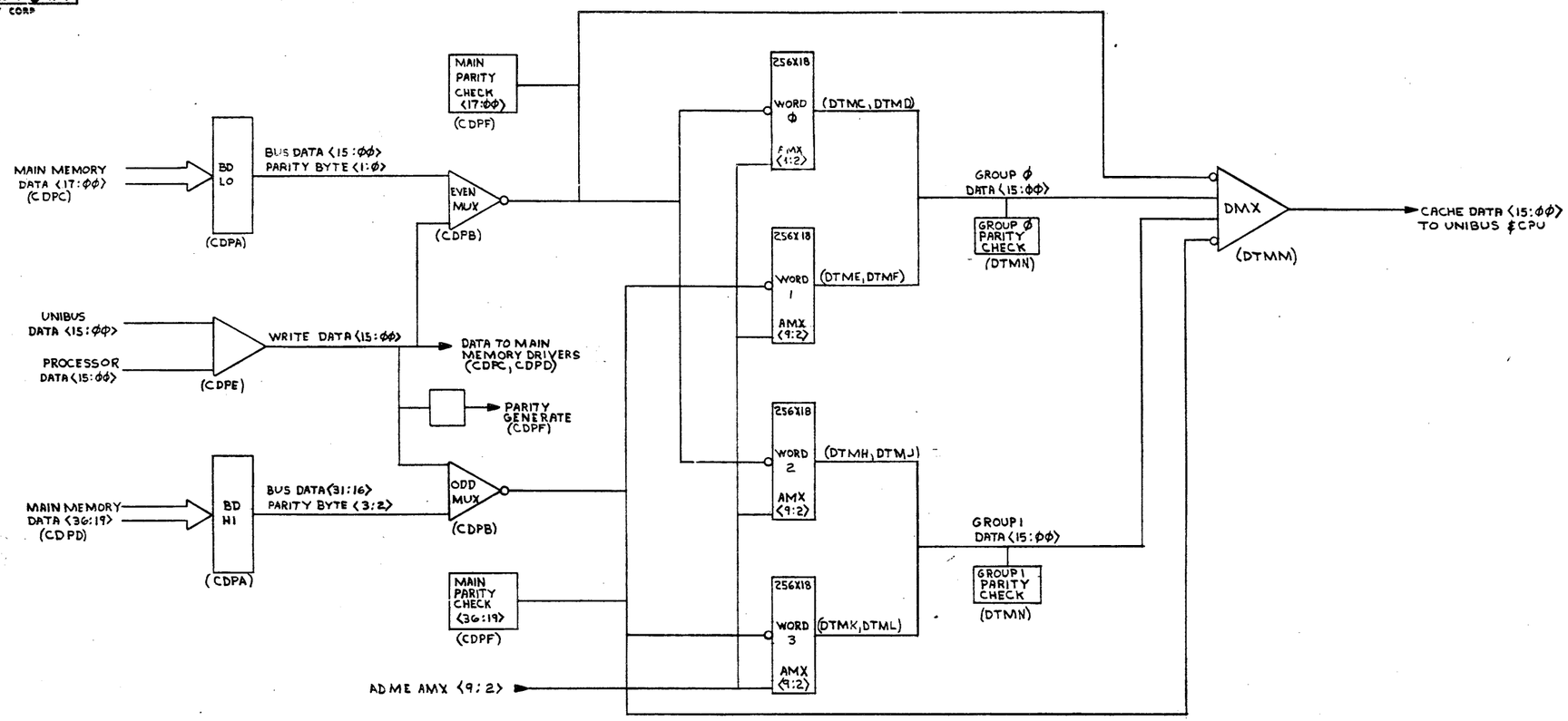

WORD SELECT

READ	AØ1	MISS	RANDOM	WORD SELECT	FUNCTION
.. 0 ..	0	0	X	0, 2	WRITE HIT
.. 0	1	0	X	1, 3	WRITE HIT
.. 1	0	0	X	0, 2	READ HIT
.. 1	1	0	X	1, 3	READ HIT
1	X	1	0	0, 1	READ MISS
1	X	1	1	2, 3	READ MISS

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			

FIRST USED ON OPTION/MODEL 11/70

DO NOT SCALE DRAWING

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

MATERIAL —"—

FINISH —"—

DRN. Jack Hayes DATE 12/30/74
CHK'D Ferguson DATE 1/10/75
ENG. Allan Hakanson DATE 1-12-75
PROJ ENG. Mike Hetherman DATE 1-10-75
PROG. R. Taylor DATE 1/13/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
CACHE DATA PATH

NEXT HIGHER ASSY D-CS-M8145-Ø-1

SCALE —"—

SHEET 1 OF 1

SIZE	CODE	NUMBER	REV.
D	BD	M8145-Ø-7	*

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO 2121 1200

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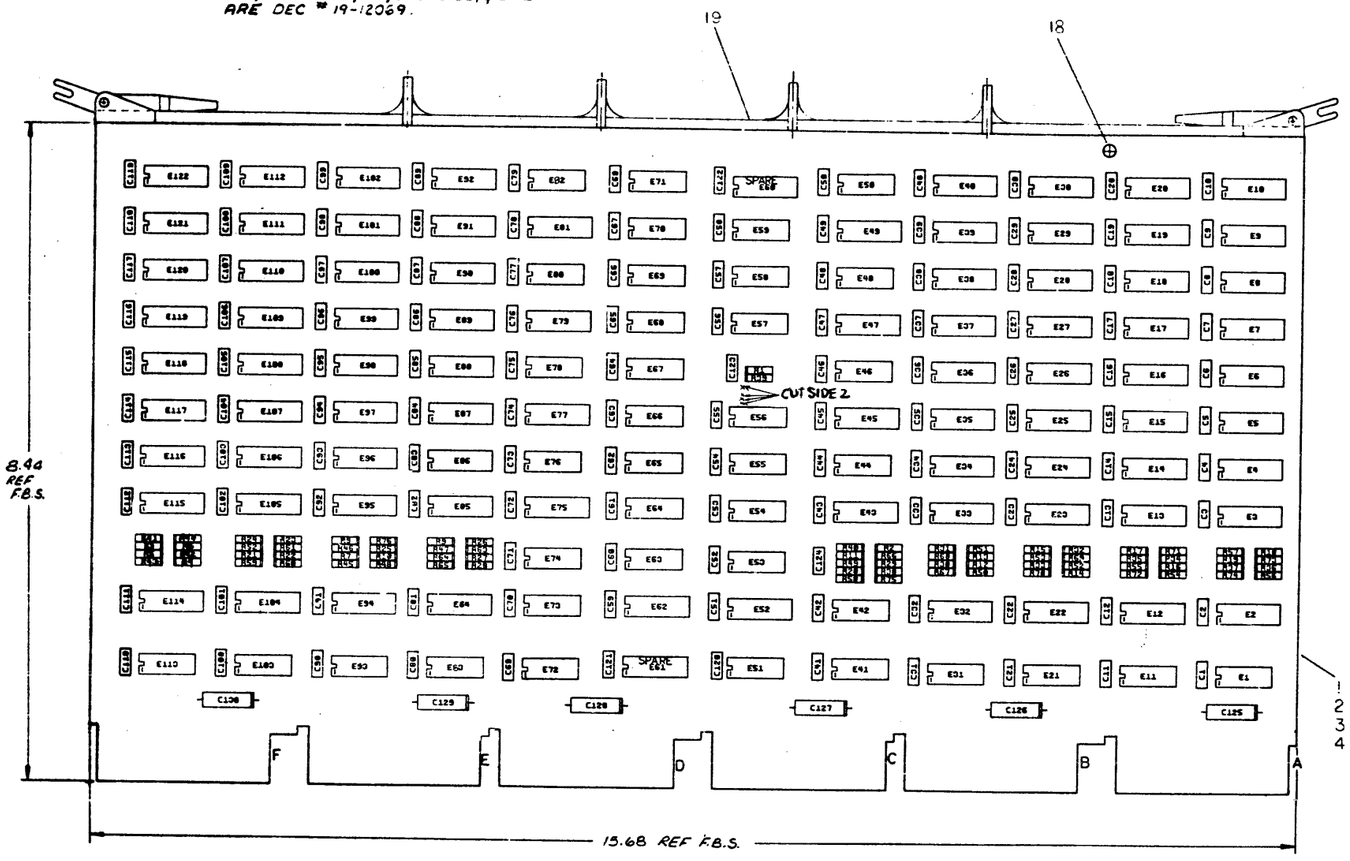
NOTES:

1 E3 - E10, E13 - E20, E23 - E30, E33 - E40, E43, E45, E47, E49, E75, E77, E79, E85 - E90, E95 - E102, E81, E105 - E112, E91, E115 - E122, & E92 ARE DEC # 19-12069.

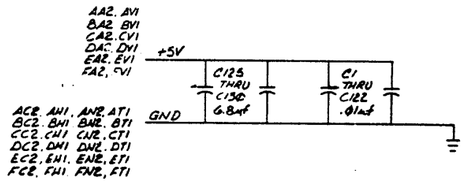


REF			
REF		X-Y COORDINATE HOLE LOC	A-CD-6S041-0-4	1
REF		ASSY DRILLING HOLE LAYOUT	D-AH-6S041-0-5	2
REF		MODULE ECO HISTORY	B-MH-6S041-0-6	3
1		ETCHED CIRCUIT BOARD	50 11286	4
124	C1 THRU C124	CAP. .01 uf. 100V. DISC	100610-01	5
6	C125 THRU C130	CAP. 6.8uf. 35V. 10% TANT	100536	6
2	R1, R2	RES. 270 Ω, 1/4W. 5%	13 01972	7
36	R3 THRU R38	RES. 33 Ω, 1/4W, 5%	13 00295	8
2	R39, R40	RES. 560 Ω, 1/4W, 5%	13 01890	9
36	R41 THRU R76	RES. 680 Ω, 1/4W. 5%	13 01424	10
8	E1, E21, E61, E53, E63, E72, E93, E113	IC DEC 7450 4	19 10534	11
10	E2, E12, E22, E32, E52, E62, E84, E94, E104, E114	IC DEC 745153	19 25347	12
72	E3 THRU E10, E13 THRU E20, E23 THRU E30, E33 THRU E40, E43, E45, E47, E49, E75, E77, E79, E85 THRU E90, E95 THRU E102, E81 E105 THRU E112, E91 E115 THRU E122, E92	SEE NOTE 1	19-12069	13
4	E11, E31, E83, E103	IC DEC 82S62	19 11291	14
3	E42, E73, E74	IC DEC 7450 0	19 10532	15
18	E44, E46, E48, E50, E54 THRU E59, E64, E66, E68, E70, E76, E78, E80, E82	IC DEC 7454 0	19 10541	16
5	E51, E65, E67, E69, E71	IC DEC 7456 4	19 10542	17
12		EYELET HANDLE	90 06732	18
1		HEX HANDLE ASSY	12 10711-2	19

IC DEC 745153	8	16
IC DEC 745301	8	16
IC TYPE	GND	+5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPEC. IVELY 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 A

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

SEMICONDUCTOR CONVERSION CHART

DRN. L Seidman 10/4/74
CHK'D FERGUSON 10-28-74
ENG. Allan Nelsons 11-12-74
PROJ. ENG. Allan Nelsons 11-12-74
PROG. J. Taylor 11/13/75
NEXT HIGHER ASSY
SCALE FULL
SHEET 1 OF 14

digital EQUIPMENT CORPORATION

TITLE DATA MEMORY

SIZE D | CODE CS | NUMBER M8144-0-1 | REV. *

DIST.

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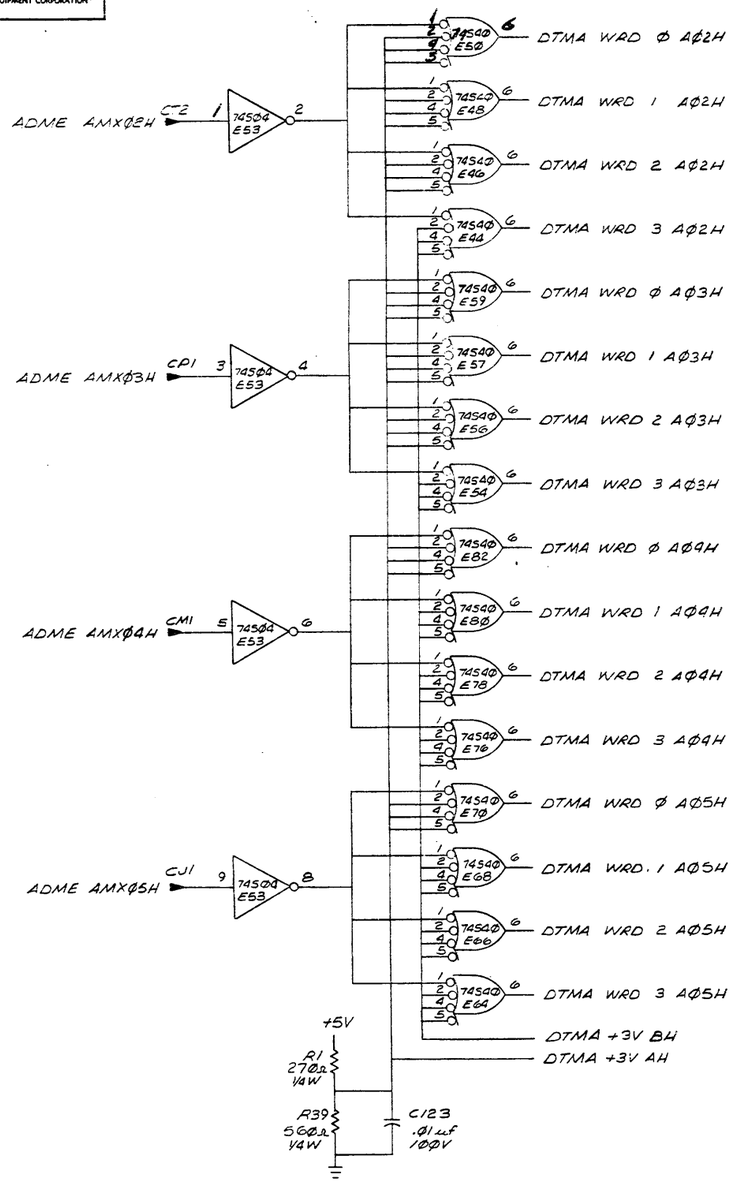

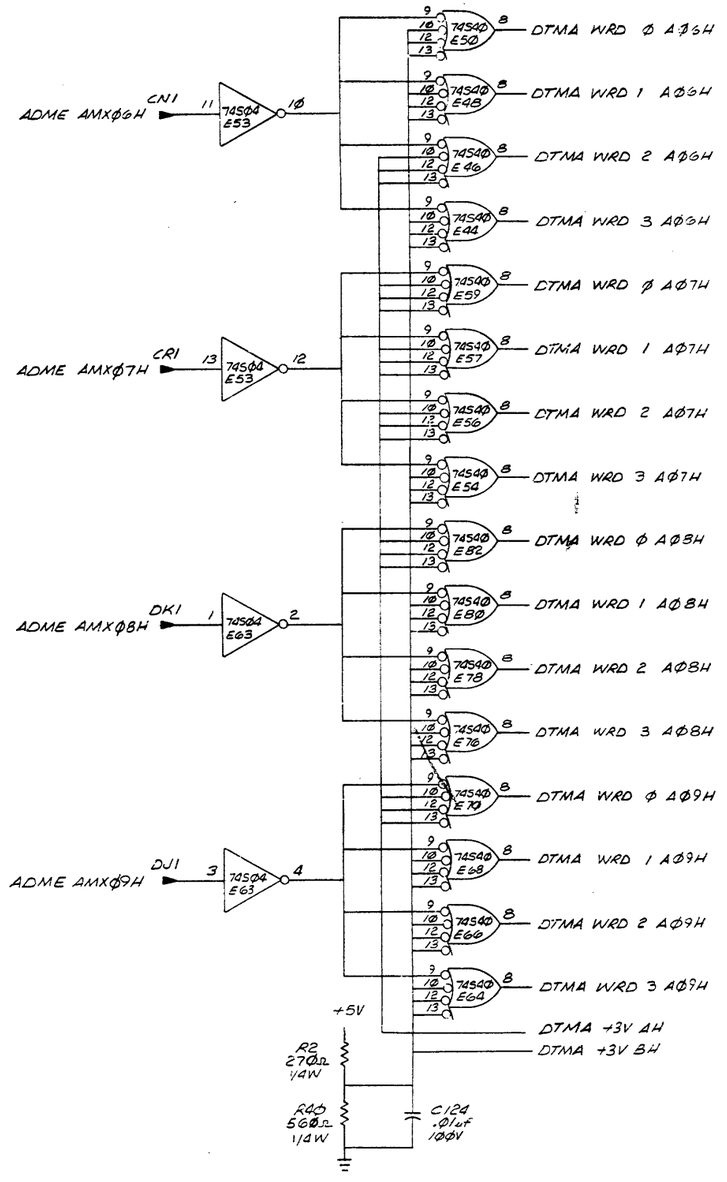

REVISIONS		
CHK	CHANGE NO.	REV.

SLOT 20 (ADDRESS DRIVERS)

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMA)	D	CS	M8144-Ø-1	*
SCALE —	SHEET 2 OF 14	DIST.		

M8144-Ø-1 REV *

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DTMB READ H

ADMJ READ L — DE1 — 74S04 EG3 — DTMB WRITE H

ADME AMXØ1 H — DC1 — 74S04 EG3 — DTMB AØ1 L

DTMA +3V AH
ADMJ POWER UP(1) H — DF1
CCBD SLOW CYCLE L — DD1
CCBD SLOW CYCLE H — DB1
74S64 E71 — DTMB CSØL

CCBM WRITE SELØ H — DL1
74S64 E69 — DTMB CS1L

DTMA +3V B H
74S64 E67 — DTMB CS2L

CCBM WRITE SEL1 H — DM1
74S64 E65 — DTMB CS3L

ADME AMXØØH — DA1
ADMJ DATOB H — DR1
74S00 E74 — 74S04 E63 — 74S00 E74 — 74S00 E58 — DTMB LO BYTE WRØ*3L

74S00 E58 — DTMB HI BYTE WRØ*1L

74S00 E55 — DTMB LO BYTE WR2*3L

CCBE WPL — DS1
ADMX DUP WPL — DD1
74S00 E73 — 74S00 E55 — DTMB HI BYTE WR2*3L

(WRITE PULSE DRIVERS
SLOT 20 CHIP SELECT DRIVERS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
DATA MEMORY (DTMB)	D	CS	M8144-Ø-1	*
SCALE —	SHEET 3 OF 14	DIST.		

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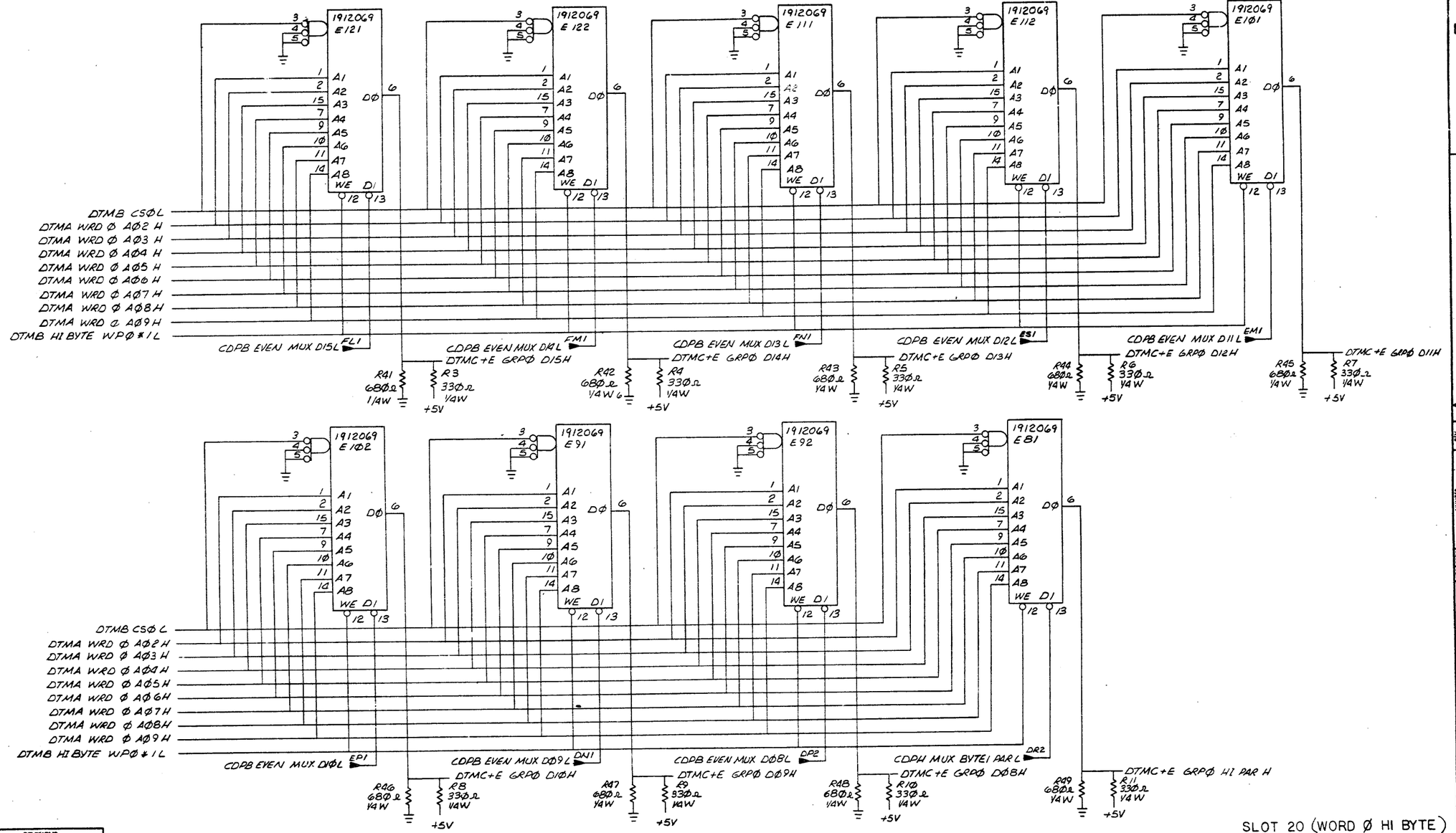

SLOT 20 (WORD Ø HI BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMC)	D	CS	M8144-Ø-1	*
SCALE	SHEET 4 OF 14	DIST.		

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DTMB CSØL
DTMA WRD Ø AØ2 H
DTMA WRD Ø AØ3 H
DTMA WRD Ø AØ4 H
DTMA WRD Ø AØ5 H
DTMA WRD Ø AØ6 H
DTMA WRD Ø AØ7 H
DTMA WRD Ø AØ8 H
DTMA WRD Ø AØ9 H
DTMB LO BYTE W.P.Ø # I L

1912069 E39 — CDPB EVEN MUX DØ7L CE1 — R50 68ØΩ 1/4W — R12 33ØΩ 1/4W — DTMD+F GRPØ DØ7H — +5V
1912069 E40 — CDPB EVEN MUX DØ6L CE1 — R51 68ØΩ 1/4W — R13 33ØΩ 1/4W — DTMD+F GRPØ DØ6H — +5V
1912069 E29 — CDPB EVEN MUX DØ5L BE1 — R52 68ØΩ 1/4W — R14 33ØΩ 1/4W — DTMD+F GRPØ DØ5H — +5V
1912069 E30 — CDPB EVEN MUX DØ4L BB1 — R53 68ØΩ 1/4W — R15 33ØΩ 1/4W — DTMD+F GRPØ DØ4H — +5V
1912069 E19 — CDPB EVEN MUX DØ3L BD1 — R54 68ØΩ 1/4W — R16 33ØΩ 1/4W — DTMD+F GRPØ DØ3H — +5V

DTMB CSØ L
DTMA WRD Ø AØ2 H
DTMA WRD Ø AØ3 H
DTMA WRD Ø AØ4 H
DTMA WRD Ø AØ5 H
DTMA WRD Ø AØ6 H
DTMA WRD Ø AØ7 H
DTMA WRD Ø AØ8 H
DTMA WRD Ø AØ9 H
DTMB LO BYTE W.PØ # I L

1912069 E20 — CDPB EVEN MUX DØ2L AD1 — R55 68ØΩ 1/4W — R17 33ØΩ 1/4W — DTMD+F GRPØ DØ2H — +5V
1912069 E9 — CDPB EVEN MUX DØ1L AF1 — R56 68ØΩ 1/4W — R18 33ØΩ 1/4W — DTMD+F GRPØ DØ1H — +5V
1912069 E10 — CDPB EVEN MUX DØØL AL1 — R57 68ØΩ 1/4W — R19 33ØΩ 1/4W — DTMD+F GRPØ DØØH — +5V
1912069 E49 — CDPH MUX BYTE Ø AAR L CD1 — R58 68ØΩ 1/4W — R20 33ØΩ 1/4W — DTMD+F GRPØ LO AAR H — +5V

SLOT 20 (WORD Ø LO BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMD)	D	CS	M8144-Ø-1	*
SCALE —	SHEET 5 OF 14	DIST.		

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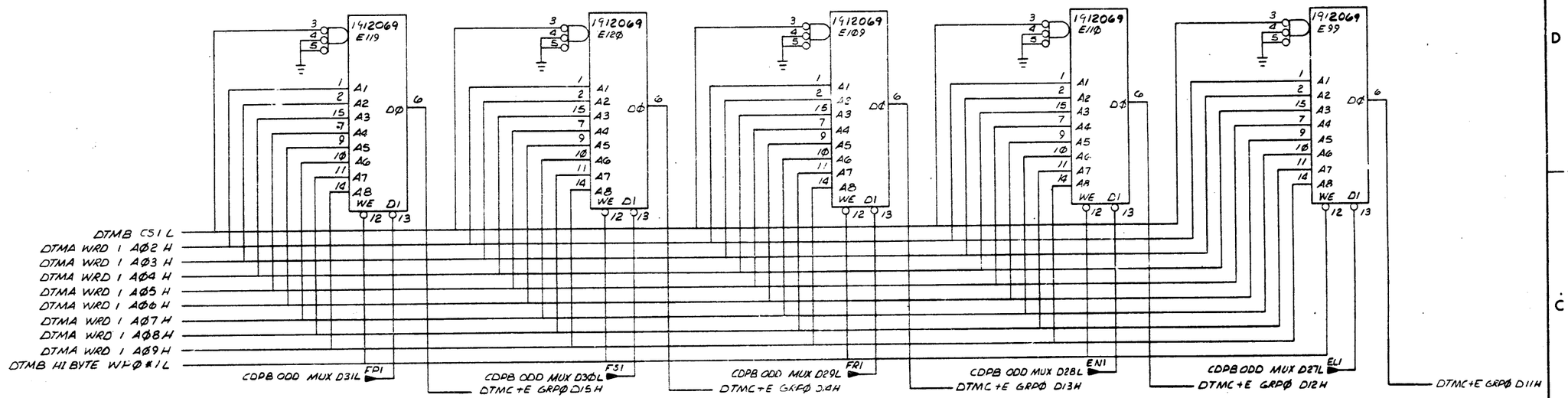

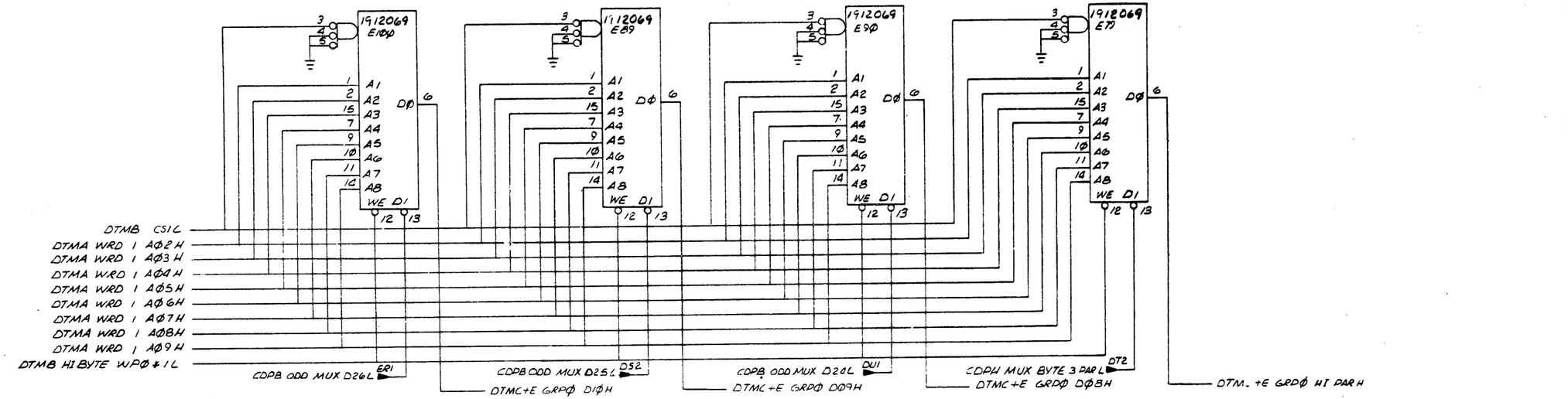

SLOT 20 (WORD 1 HI BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTME)	D	CS	M8144-Ø-1	*

SCALE — SHEET 6 OF 14 DIST.

DCS M8144-Ø-1 REV *

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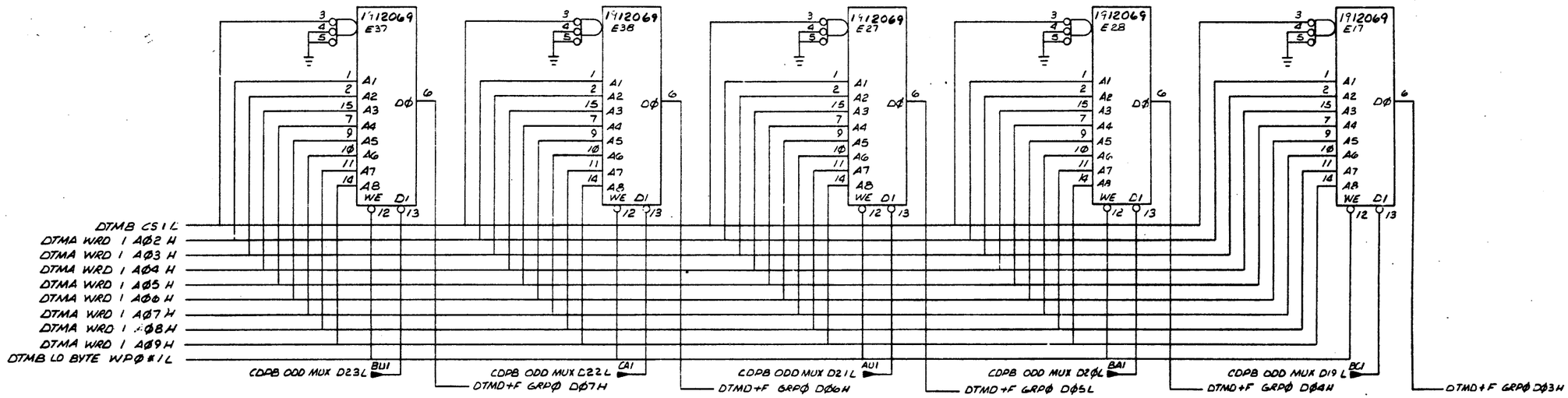

SLOT 20 (WORD 1 LO BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMF)	D	CS	M8144-Ø-1	*

SCALE — SHEET 7 OF 14 DIST.

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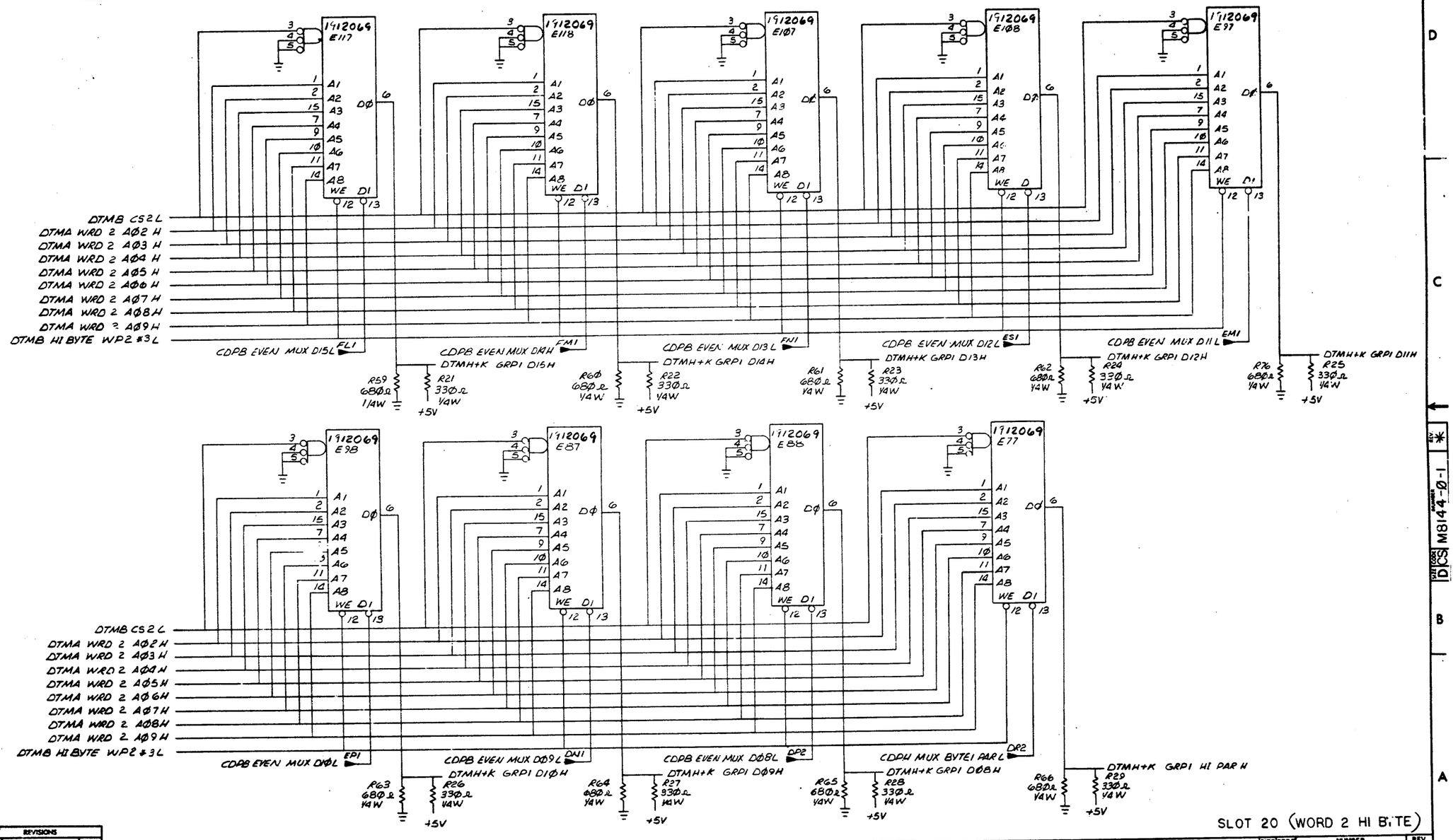

SLOT 20 (WORD 2 HI BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMH)	D	CS	M8144-Ø-1	*
SCALE —	SHEET 8 OF 14	DIST.		

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DTMB CS2 L
DTMA WRD 2 AØ2 H
DTMA WRD 2 AØ3 H
DTMA WRD 2 AØ4 H
DTMA WRD 2 AØ5 H
DTMA WRD 2 AØ6 H
DTMA WRD 2 AØ7 H
DTMA WRD 2 AØ8 H
DTMA WRD 2 AØ9 H
DTMB LO BYTE WP2 #3 L

1912069 E35 — CDPB EVEN MUX DØ7L CC1 — R67 680Ω 1/4W, R30 330Ω 1/4W +5V — DTMJ+L GRP1 DØ7H
1912069 E36 — CDPB EVEN MUX DØ6L CE1 — R68 680Ω 1/4W, R31 330Ω 1/4W +5V — DTMJ+L GRP1 DØ6H
1912069 E25 — CDPB EVEN MUX DØ5L BE1 — R69 680Ω 1/4W, R32 330Ω 1/4W +5V — DTMJ+L GRP1 DØ5H
1912069 E26 — CDPB EVEN MUX DØ4L BB1 — R70 680Ω 1/4W, R33 330Ω 1/4W +5V — DTMJ+L GRP1 DØ4H
1912069 E15 — CDPB EVEN MUX DØ3L BD1 — R71 680Ω 1/4W, R34 330Ω 1/4W +5V — DTMJ+L GRP1 DØ3H

DTMB CS2 L
DTMA WRD 2 AØ2 H
DTMA WRD 2 AØ3 H
DTMA WRD 2 AØ4 H
DTMA WRD 2 AØ5 H
DTMA WRD 2 AØ6 H
DTMA WRD 2 AØ7 H
DTMA WRD 2 AØ8 H
DTMA WRD 2 AØ9 H
DTMB LO BYTE WP2 #3 L

1912069 E16 — CDPB EVEN MUX DØ2 L AD1 — R72 680Ω 1/4W, R35 330Ω 1/4W +5V — DTMJ+L GRP1 DØ2L
1912069 E5 — CDPB EVEN MUX DØ1L AF1 — R73 680Ω 1/4W, R36 330Ω 1/4W +5V — DTMJ+L GRP1 DØ1H
1912069 E6 — CDPB EVEN MUX DØØL AL1 — R74 680Ω 1/4W, R37 330Ω 1/4W +5V — DTMJ+L GRP1 DØØH
1912069 E45 — CDPH MUX BYTE Ø PAR L CD1 — R75 680Ω 1/4W, R38 330Ω 1/4W +5V — DTMJ+L GRP1 LO PAR H

SLOT 20 (WORD 2 LO BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMJ)	D	CS	M8144-Ø-1	*
SCALE -#- SHEET 9 OF 14	DIST.			

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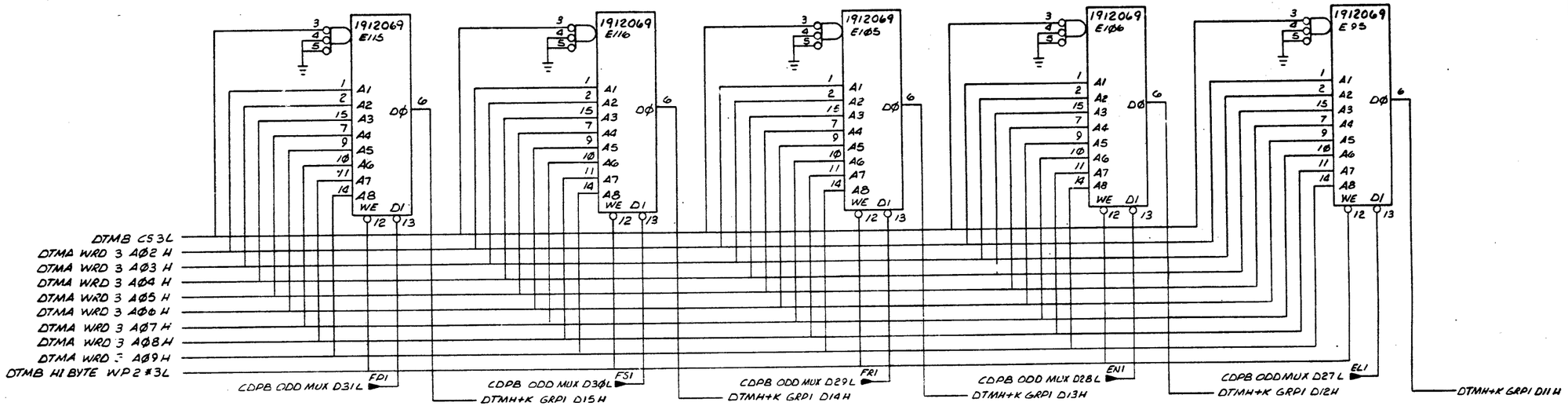

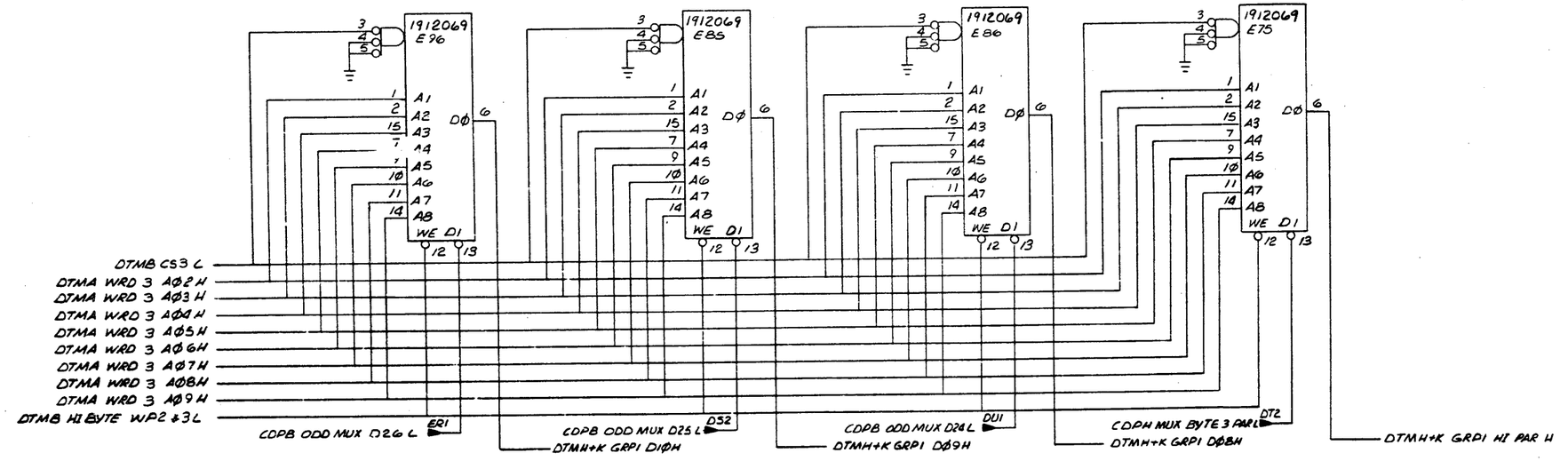

SLOT 20 (WORD 3 HI BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMK)	D	CS	M8144-Ø-1	*
SCALE —//	SHEET 10 OF 14		DIST.	

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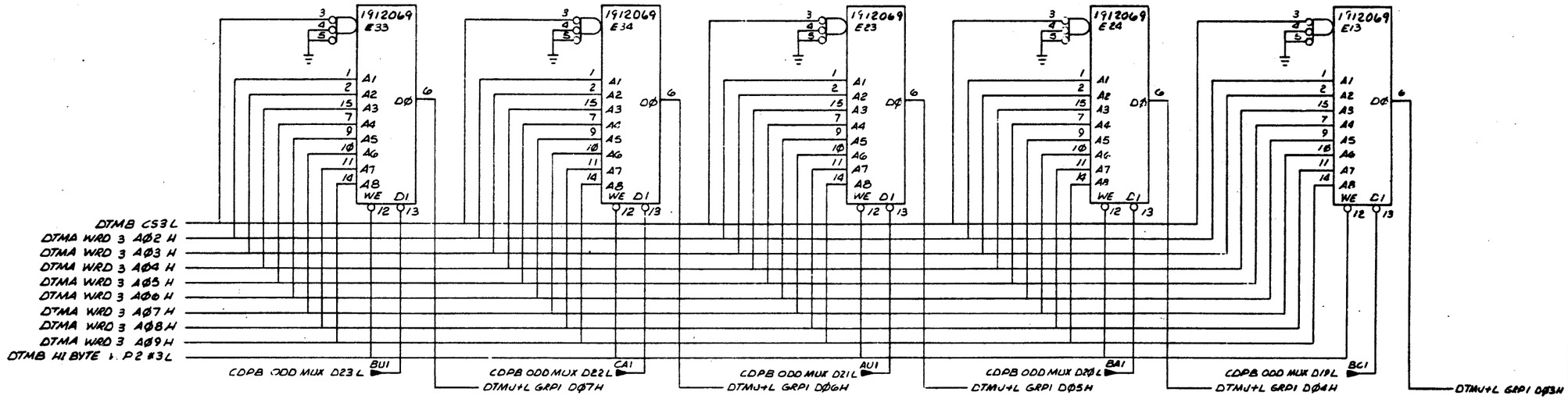

SLOT 20 (WORD 3 LO BYTE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
DATA MEMORY (DTML)	D	CS	M8144-0-1	*

SCALE — SHEET 11 OF 14 DIST.

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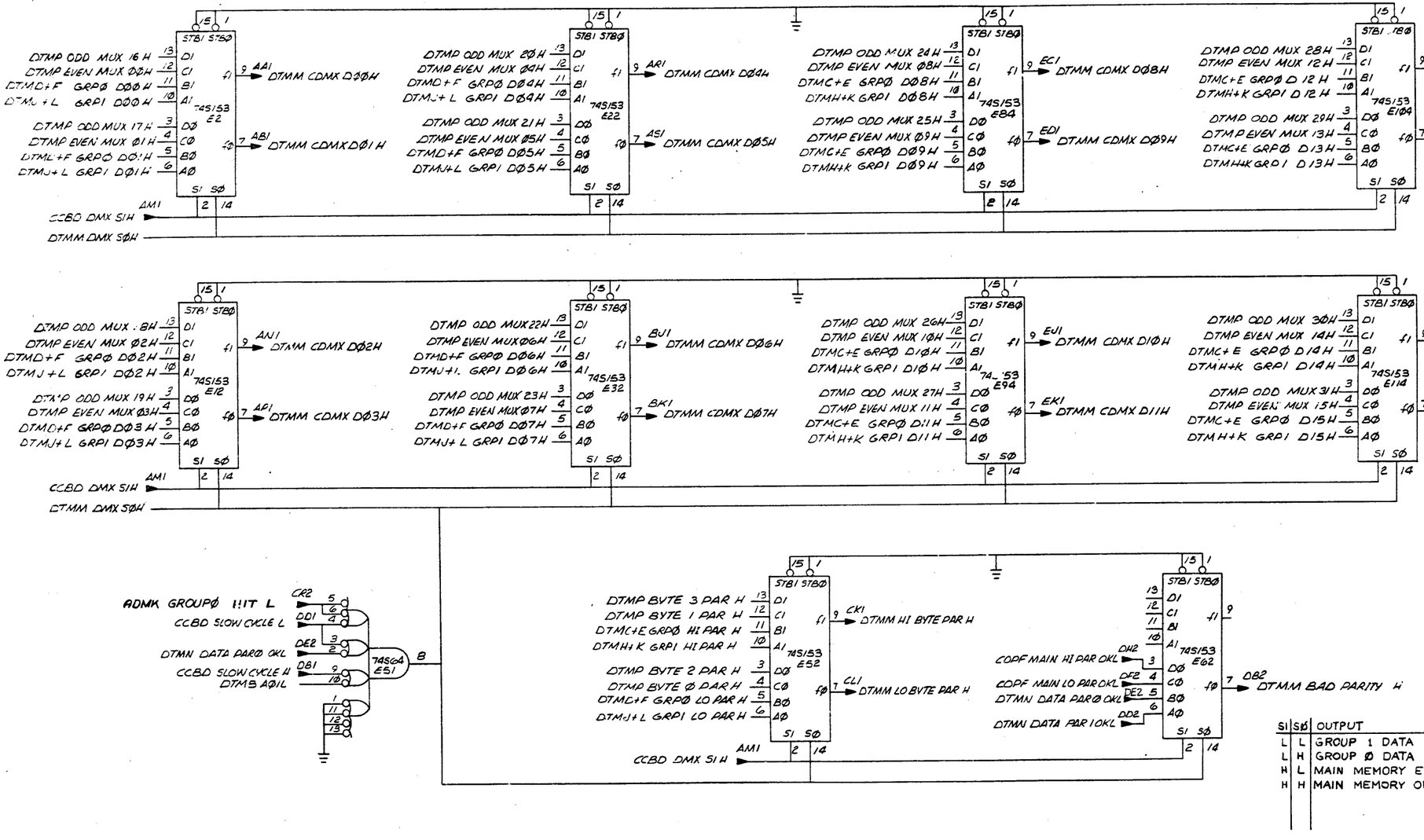

SLOT 20 (DATA OUTPUT MULTIPLEXER)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMM)	D	CS	M8144-Ø-1	*
SCALE —/—	SHEET 12 OF 14	DIST.		

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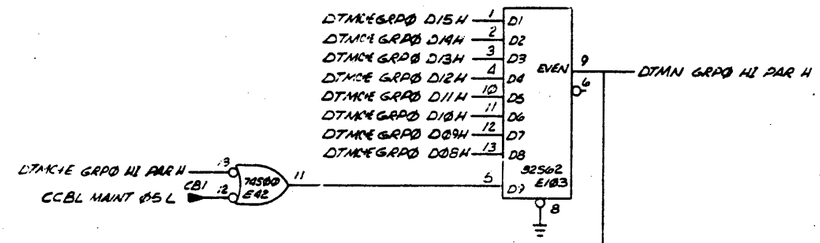

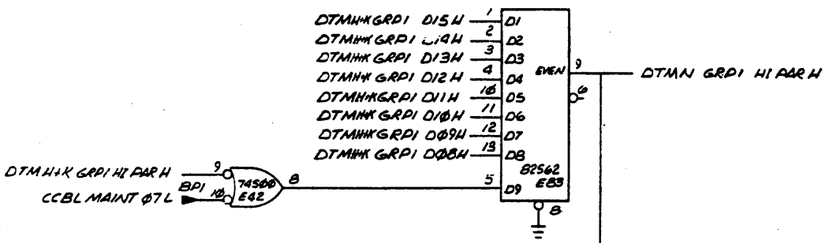

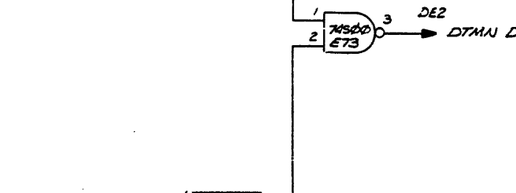

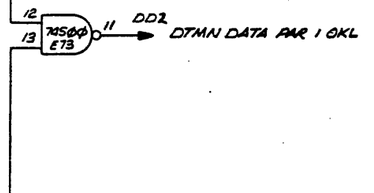

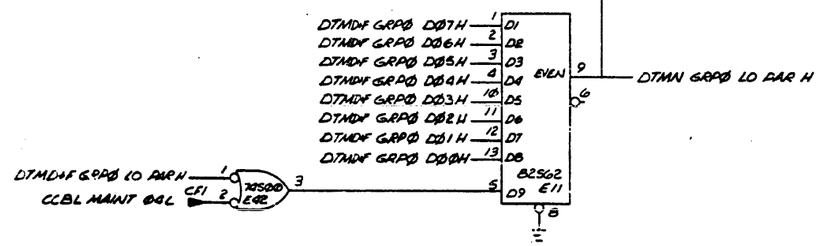

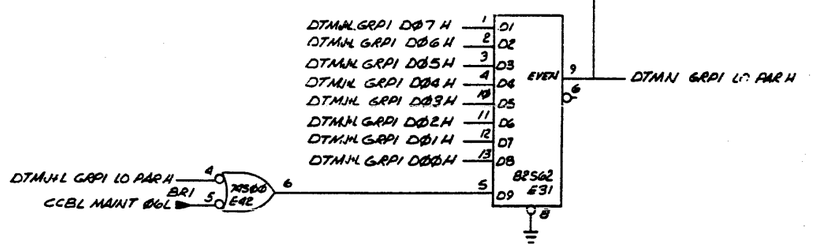

SLOT 20 (FAST MEMORY PARITY CHECKERS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMN)	D	CS	M8144-0-1	*
SCALE	SHEET 13 OF 14	DIST.		

DCS M8144-0-1

150

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CDPB EVEN MUX DØØL — AL1 — 74SØ4 E1 — DTMP EVEN MUX ØØH
CDPB EVEN MUX DØ1L — AF1 — 74SØ4 E1 — DTMP EVEN MUX Ø1H
CDPB EVEN MUX DØ2L — AD1 — 74SØ4 E1 — DTMP EVEN MUX Ø2H
CDPB EVEN MUX DØ3L — BD1 — 74SØ4 E21 — DTMP EVEN MUX Ø3H
CDPB EVEN MUX DØ4L — BB1 — 74SØ4 E21 — DTMP EVEN MUX Ø4H
CDPB EVEN MUX DØ5L — BE1 — 74SØ4 E21 — DTMP EVEN MUX Ø5H
CDPB EVEN MUX DØ6L — CE1 — 74SØ4 E41 — DTMP EVEN MUX Ø6H
CDPB EVEN MUX DØ7L — CC1 — 74SØ4 E41 — DTMP EVEN MUX Ø7H
CDPB EVEN MUX DØ8L — DP2 — 74SØ4 E72 — DTMP EVEN MUX Ø8H
CDPB EVEN MUX DØ9L — DN1 — 74SØ4 E72 — DTMP EVEN MUX Ø9H
CDPB EVEN MUX DIØL — EP1 — 74SØ4 E93 — DTMP EVEN MUX IØH
CDPB EVEN MUX DIIL — EM1 — 74SØ4 E93 — DTMP EVEN MUX IIH
CDPB EVEN MUX DI2L — ES1 — 74SØ4 E93 — DTMP EVEN MUX I2H

CDPB EVEN MUX DI3L — FN1 — 74SØ4 E113 — DTMP EVEN MUX I3H
CDPB EVEN MUX DI4L — FM1 — 74SØ4 E113 — DTMP EVEN MUX I4H
CDPB EVEN MUX DI5L — FL1 — 74SØ4 E113 — DTMP EVEN MUX I5H
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CDPB ODD MUX DI8L — AC1 — 74SØ4 E1 — DTMP ODD MUX I8H
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CDPB ODD MUX D2ØL — BA1 — 74SØ4 E21 — DTMP ODD MUX 2ØH
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CDPB ODD MUX D25L — DS2 — 74SØ4 E72 — DTMP ODD MUX 25H

CDPB ODD MUX D26L — ER1 — 74SØ4 E93 — DTMP ODD MUX 26H
CDPB ODD MUX D27L — EL1 — 74SØ4 E93 — DTMP ODD MUX 27H
CDPB ODD MUX D28L — EN1 — 74SØ4 E93 — DTMP ODD MUX 28H
CDPB ODD MUX D29L — FR1 — 74SØ4 E113 — DTMP ODD MUX 29H
CDPB ODD MUX D3ØL — FS1 — 74SØ4 E113 — DTMP ODD MUX 3ØH
CDPB ODD MUX D31L — FP1 — 74SØ4 E113 — DTMP ODD MUX 31H
CDPH MUX BYTE 3 PAR L — DT2 — 74SØ4 E72 — DTMP BYTE 3 PAR H
CDPH MUX BYTE 2 PAR L — BS1 — 74SØ4 E41 — DTMP BYTE 2 PAR H
CDPH MUX BYTE 1 PAR L — DR2 — 74SØ4 E72 — DTMP BYTE 1 PAR H
CDPH MUX BYTE Ø PAR L — CD1 — 74SØ4 E41 — DTMP BYTE Ø PAR H

SLOT 20 (MAIN MEMORY DATA INVERTERS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
DATA MEMORY (DTMP)	D	CS	M8144-Ø-1	*
SCALE	SHEET 14 OF 14	DIST.		

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DAPB,C,D BAMX <15:00>

SAPD, KBR <15:00> C

(RELOCATION) SAPK I SPACE A,B

SCCL ENBL <DK,DS,DU>

(PAR/PDR OPERATION) SAPH VA <04:01>

SCCC INT REG

APR ADRS MUX SAPK

SAPK APR <3:0>

KERNEL SET		SUPER SET		USER SET	
PDR I SPACE	PAR I SPACE	PDR I SPACE	PAR I SPACE	PDR I SPACE	PAR I SPACE
D SPACE	D SPACE	D SPACE	D SPACE	D SPACE	D SPACE
SAPD	SAPA	SAPD	SAPE	SAPC	SAPE

ADRS BUFFER SAPH

SAPH VA <05:00>

SAPH VA <15:06>

SAPH VA <12:06>

SAPJ RELOC

SSRA KY PH MEM AC (1)
SSRE RELOC
SCCL ENAB 22BIT MODE
SAPH VA <15:13>

SCCK SWR <21:16>
CNSL PHYS

SAPH EX MEM FLAG
SAPJ ADRS <21:13>

PA MUX SAPJ (OFF / ON)

SAPJ PA <21:13>

SAPJ PA <12:06>

PA <21:00>

16 BIT ADDER SAPJ

SAPJ 22BIT WRAPAROUND

SAPJ 18BIT WRAPAROUND

SCCN SYS SIZE <21:14>
SAPH VA <21:06>

ADDRESS COMPARE

16 BIT ADDER SAPN

SAPN ADRS OVERFLOW

SAPN 18BIT OVERFLOW

SAPA+B+C PAF <21:06>

VALID ADRS CHECK

SAPN NOT CACHE ADRS

SCCN CNSL OVERFLOW
SCCC INT REG
SSRA KY PH MEM ACC
SAPH EX MEM FLAG
SAPJ PA <21:13>
SCCK SWR <21:18> B (1)

SAPN

SAPN UNIBUS ADRS

SAPH VA <12:06>
SAPD+E+F PGE EXPN DOWN

PAGE LENGTH COMPARE SAPL

SAPL MM LENGTH FAULT

SAPD+E+F PLF <6:0>

SAPL WRITE CYCLE
SAPD+E+F ACF <2:0>

ACCESS CHECK SAPL

SAPL MEM MGMT (TRAP)
SAPL READ ONLY FAULT
SAPL NON RES FAULT

ABORT SAPL

SAPL ABORT COND (TO SSRC)

SAPD+E+F RAM ATTN

ATTN FF SAPD

SAPD ATTN

SAPD+E+F RAM WRTN INTO

WRTN INTO FF SAPD

SAPD WRTN INTO

SAPD+E+F * PDR BIT 15

BYPASS LOGIC SAPJ

SAPJ KT CACHE BYPASS

* THIS LOGIC IS ONLY ON KB11-CM (11/74)

(PHYSICAL ADDRESS GENERATION/ABORT + TRAP CONDITIONS)

REVISIONS			
CHK	CHANGE NO.		REV.
PC	KB11-C-TW002		A
	Released 4-17-79		
	V. BOAEN		
	D. Bean 12-07-78		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-B	PARTS LIST			

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

NEXT HIGHER ASSY. B-DD-KB11-B

	NAME	DATE
DRN.	M Copeland	27-01-75
CHK'D.	D. Lloyd	3/20/75
ENG.	Thomas Crain	3/27/75
PROJ. ENG.	Thomas Crain	3/27/75
PROD.	V. Boaen	3/27/75

digital

TITLE MEMORY MANAGEMENT BLOCK DIAGRAM

SIZE	CODE	NUMBER	REV.
D	BD	KB11-B-8	A

SCALE —

SHEET 1 OF 2

DIST.

DEC FORM NO. DFD 102-C

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BAMX <15:00>
BR<15:00>
BAMX<15:13>
I SPACE A,B
ENAB <DK,DS,DU>
(PAR/PDR OPERATIONS)
VA<04:01>B
APR ADRS MUX
ADRS<3:0>
INTERNAL REG
KERNEL SET | SUPER SET | USER SET
PAR | PDR | PAR | PDR | PAR | PDR
(PAGE DESCRIPTER REG)
PAF<21:06>
ADRS BUFFER
VA<05:00>
VA<15:13>B
VA<12:06>B
MAPPING MODES
OFF
ON
16 BIT ADDER
ADRS<21:13>
PA<12:06>
CNSL PHYS
PHYS ADRS MUX
PA<21:13>
RE LOC
SWR<21:16>
UNIBUS ADRS DRIVERS
BUS A<17:00>
PA<21:00> (CACHE ADRS)
(PROG PHYS)
(CNSL PHYS)
(VIRTUAL)
CNSL ADRS DISP MUX
DISP A<21:00>
ROM OUT <16:01>
PS <15:12>
MFP + MTP
IR 15
ADRS SPACE CONTROL
KERNEL SPACE
SUPER SPACE
USER SPACE
I SPACE A,B
ABORT AND TRAP DECODE
MEM MGMT (TRAP)
READ ONLY FAULT
MM LENGTH FAULT
NON RES FAULT
ABORT COND
BYPASS *
REG ADRS DECODE
CPU REG ADDRESSES
INTERNAL REG ADDRESSES
VA<05:01>
ABORT CONDITIONS
TRAP CONDITIONS
MODE /OPERATE /CONTROL
MMR0
PAR /PDR READ MUX
APR<15:00>
VA05 B
VALID ADRS CHECK
UNIBUS ADRS
NOT CACHE ADRS
KY PH MEM ACC
INTERNAL REG
MMR0 <15:00>
MMR1 <15:00>
MMR2 <15:00>
INTD BUS MUX
GRA <3:0>
KOMX <03:00>B
MMR1
MMR2
MMR3
VA<15:14>
CNSL ADRS CHECK
CNSL OVERFLOW
BR<05:04,02:00>
SWR <15:00>
SYS ID <15:00>
ERROR CONDITIONS
SYS SIZE <21:14>
INTERNAL DATA BUS
BUS INTD<15:00>

* THIS SIGNAL ONLY EXISTS ON KB11-CM (11/74)

REVISIONS
CHK | CHANGE NO | REV

TITLE MEMORY MANAGEMENT BLOCK DIAGRAM
SIZE D | CODE BD | NUMBER KB11-B-8 | REV. A
SCALE — | SHEET 2 OF 2 | DIST.

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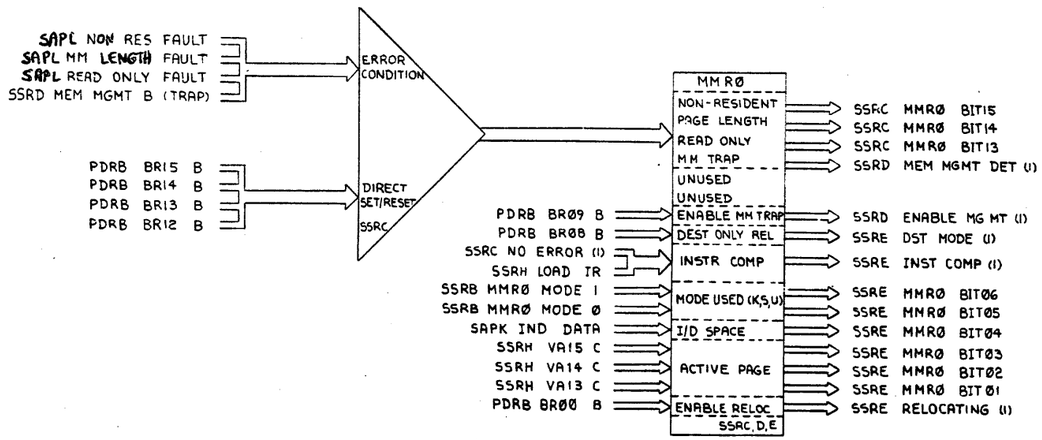

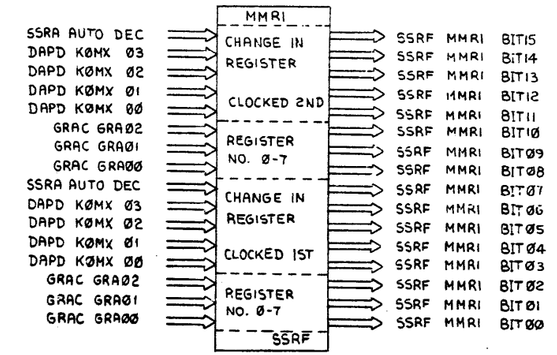

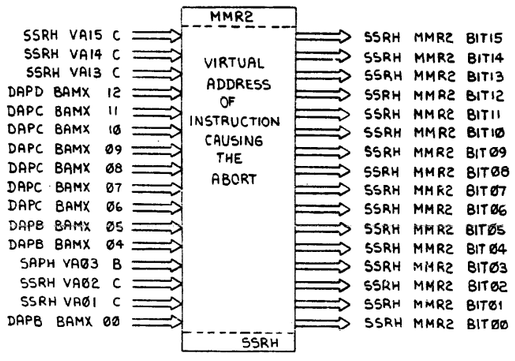

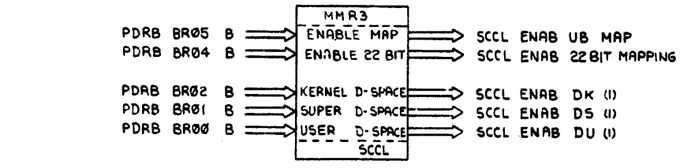

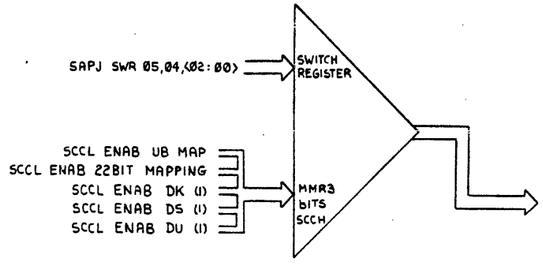

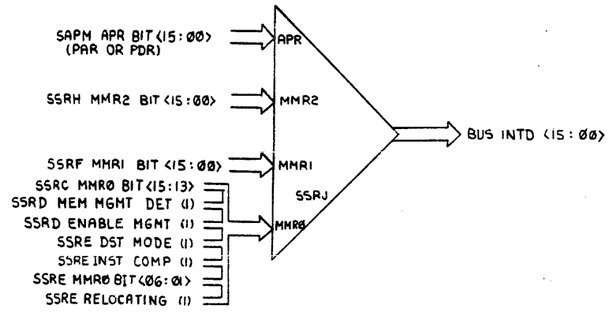

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

		DATE
DRN. E Stanley		3-19-75
CHK'D. [illegible]		3/21/75
ENG. [illegible]		3/24/75
PROJ. ENG. [illegible]		[illegible]
PROD. [illegible]		3/24/75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 1 OF 1

digital

TITLE MEM MANAGEMENT REGISTERS

SIZE	CODE	NUMBER	REV.
D	BD	KB11-B-4	

DIST.

REVISIONS	REV.	CHK
CHANGE NO.		

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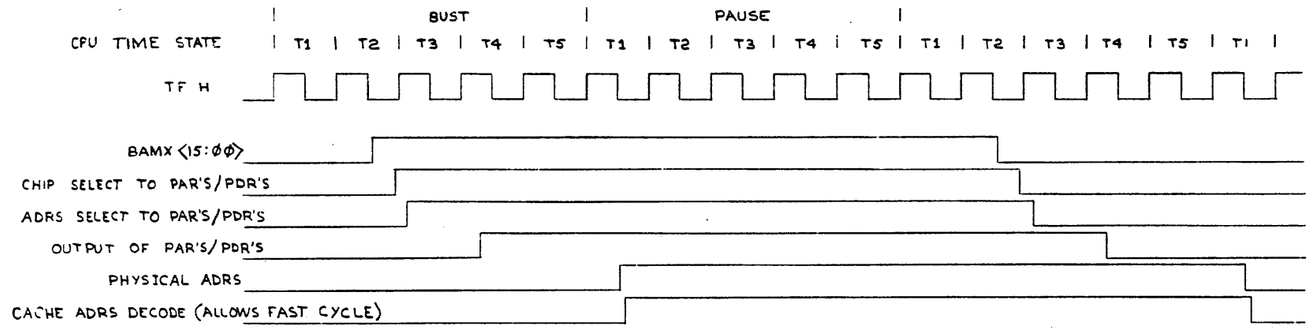

NOTES:

1. THE PURPOSE OF THIS DIAGRAM IS TO ILLUSTRATE THE FLOW OF DATA. THE TIME DELAYS INDICATED ARE WORST CASE PROPAGATION DELAYS OF GATES AND MAY VARY
2. THE TIMING DIAGRAM REPRESENTS THE TIME PERIOD IN WHICH THE CHANGE TAKES PLACE BUT NOT NECESSARILY THE ACTUAL CHANGE IN POLARITY OF THE SIGNAL. A HIGH LEVEL OR PULSE ON THE DIAGRAM REPRESENTS AN ASSERTED SIGNAL.

REVISIONS	REV.	CHANGE NO.	CHK.

DEC FORM NO. DRD 320-C

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 0.3	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 —

FINISH —

DRN. [illegible]	3/10/75	FIRST USED ON KB11-B
CHK'D [illegible]	3/21/75	digital
ENG. [illegible]	3/24/75	
PROJ. ENG. [illegible]	3/24/75	TITLE CACHE ADDRESS TIMING
PROD. [illegible]	3/24/75	
NEXT HIGHER ASSY.	B-DD-KB11-B	
SCALE —		SIZE D CODE ITD NUMBER KB11-B-10 REV.
SHEET 1 OF 1		DIST.

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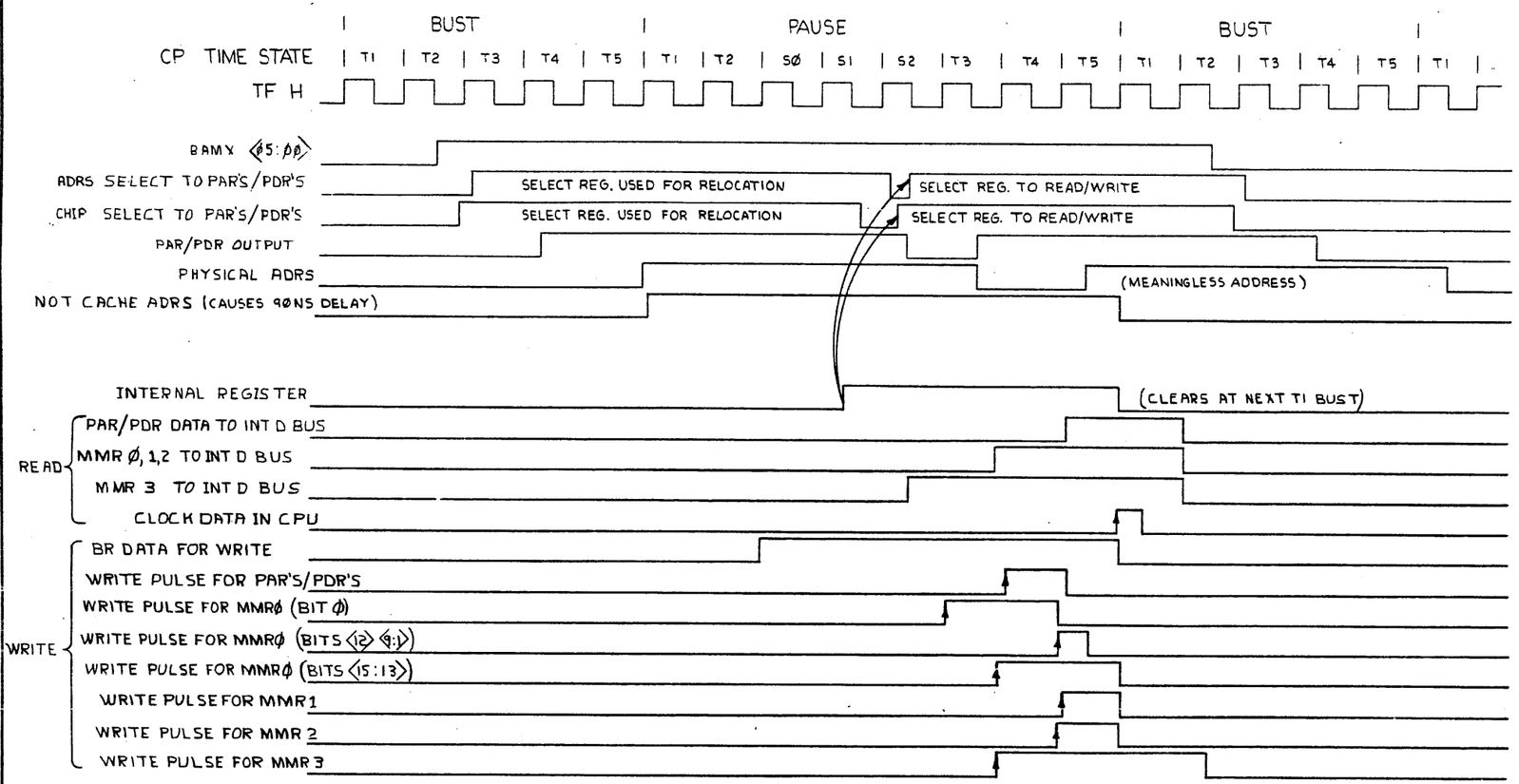
NOTES:
1. THE PURPOSE OF THIS DIAGRAM IS TO ILLUSTRATE THE FLOW OF DATA. THE TIME DELAYS INDICATED ARE WORST CASE PROPAGATION DELAYS OF GATES AND MAY VARY
2. CLOCKED SIGNALS ARE INDICATED BY AN ↓
3. THE TIMING DIAGRAM REPRESENTS THE TIME PERIOD IN WHICH THE CHANGE TAKES PLACE BUT NOT NECESSARILY THE ACTUAL CHANGE IN POLARITY OF THE SIGNAL. A HIGH LEVEL OR PULSE ON THE DIAGRAM REPRESENTS AN ASSERTED SIGNAL.



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN.		DATE 3/17/75
CHK.		DATE 3/21/75
ENG.		DATE 3/21/75
PROJ. ENG.		DATE 3/24/75
PROG.		DATE 3/24/75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE
SHEET 1 OF 1

digital

TITLE: INTERNAL REGISTERS CYCLE TIMING

SIZE	CODE	NUMBER	REV.
D	TD	KB11-B-9	

DIST.

REVISIONS: REV. | CHANGE NO. | CHK.

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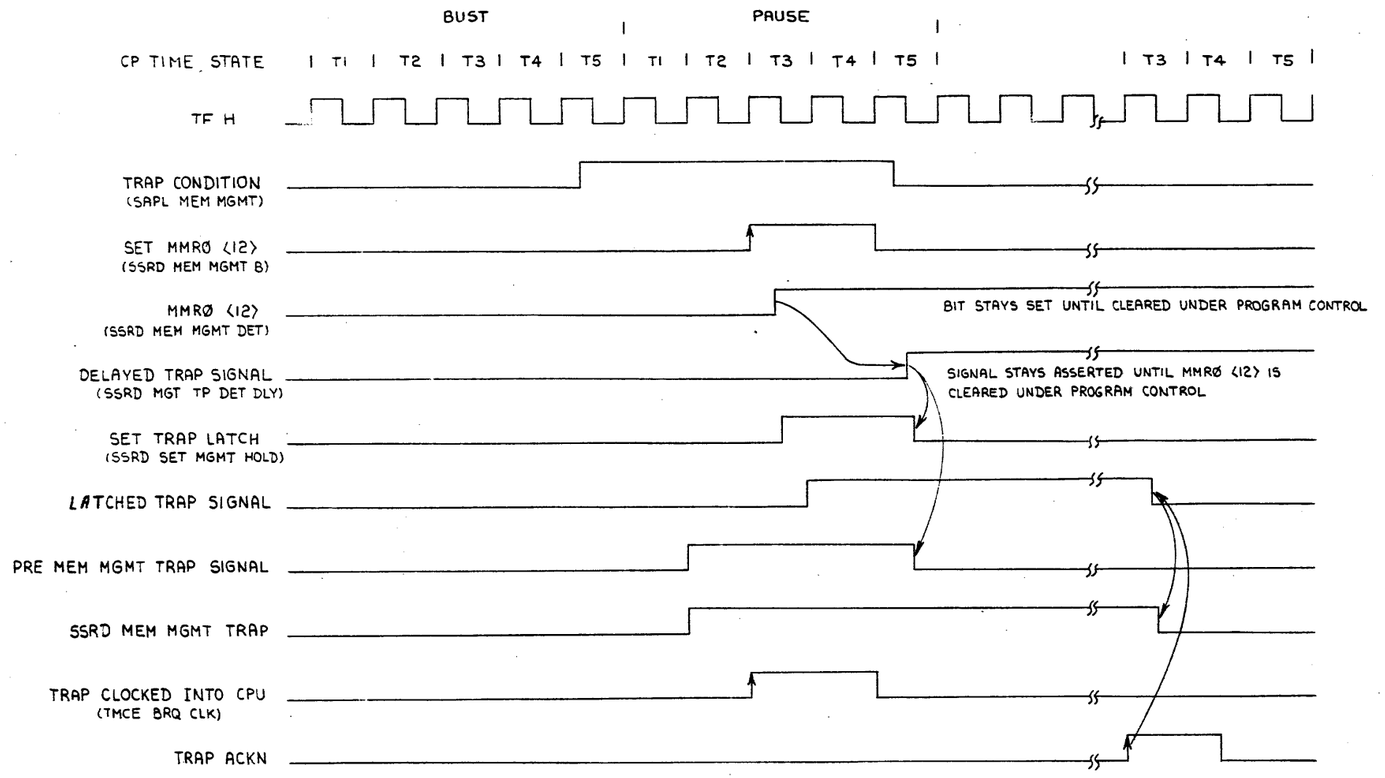

NOTES:

1. THE PURPOSE OF THIS DIAGRAM IS TO ILLUSTRATE THE FLOW OF DATA. THE TIME DELAYS INDICATED ARE WORST CASE PROPAGATION DELAYS OF GATES AND MAY VARY.
2. CLOCKED SIGNALS ARE INDICATED BY ANY ↑
3. THE TIMING DIAGRAM REPRESENTS THE TIME PERIOD IN WHICH THE CHANGE TAKES PLACE BUT NOT NECESSARILY THE ACTUAL CHANGE IN POLARITY OF THE SIGNAL. A HIGH LEVEL OR PULSE ON THE DIAGRAM REPRESENTS AN ASSERTED SIGNAL.

REVISIONS	CHANGE NO.	CHK
REV.		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE MILLIMETERS / INCHES
UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

		DATE
DRN.	R Beasley	3-18-75
CHK'D	D Wood	3/21/75
ENG.	Trevor Eccles	3/18/75
PROJ. ENG.	Steve Kelly	3/20/75
PROD.	K Taylor	3/24/75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE —
SHEET 1 OF 1

digital

TITLE
MEM MGMT
TRAP TIMING

SIZE	CODE	NUMBER	REV.
D	TD	KB11-B-5	

DIST

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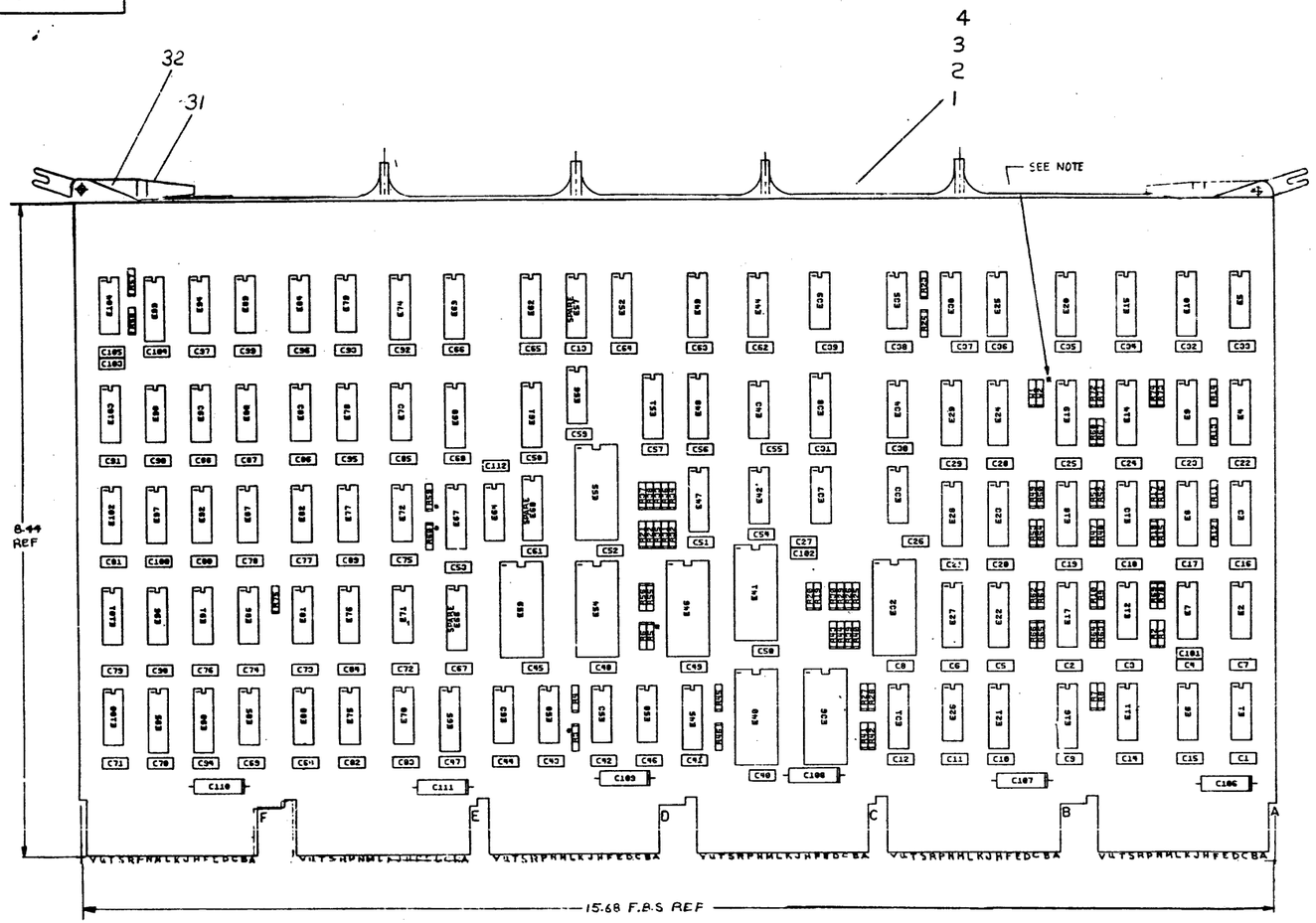
NOTES: * OPTIONAL COMPONENTS



REF			
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8137-0-4
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8137-0-5
REF		MODULE ECO HISTORY	B-MH-M8137-0-8
1		ETCHED CIRCUIT BOARD	5011313
106	C1 THRU C105 C112	CAP .01mf 100V 20%	1001610-1
6	C106 THRU C111	CAP 6.8uf 35V 10%	1005306
2	R4, R6	RESISTOR 150 OHM 1/4W 5%	1300250
34	R1 ,R7,R9,R11,R13,R15 R17,R19,R21,R23,R25,R27, R29,R31,R33,R35,R37,R39, R41,R43,R45,R47,R49,R51, R53,R55,R57 ,R61,R63, R65,R67,R69,R71,R73	RESISTOR 330 OHM 1/4W 5%	1300295
1	R75	RESISTOR 1K 1/4W 5%	1300365
34	R2, ,R8,R10,R12,R14, R16,R18,R20,R22,R24,R26, R28,R30,R32,R34,R36,R38, R40,R42,R44,R46,R48,R50, R52,R54,R56,R58,R62,R64, R66,R68,R70,R72,R74	RESISTOR 680 OHM 1/4W 5%	1301424
1	E100	IC DEC 74H21	1909058
1	E101	IC DEC 7437	1910091
4	E50,E56,E70,E79	IC DEC 7408	1910155
2	E17,E13	IC DEC 7485	1910224
8	E36,E40,E55,E54,E32,E41, E59,E46	IC DEC 74S181	1910531
5	E103,E76,E93,E73,E85	IC DEC 74S08	1910532
9	E97,E78,E5,E43,E39,E71,E37 E91,E35	IC DEC 74S64	1910534
1	E96	IC DEC 74S05	1910535
2	E75,E83	IC DEC 74S10	1910536
11	E82,E87,E26,E98,E2,E7,E80, E11,E6,E1,E92	IC DEC 74S11	1910537
3	,E34,E33,E42	IC DEC 74S20	1910539
6	E64,E77,E72,E84,E89,E94	IC DEC 74S40	1910541
6	E53,E88,E12,E81,E86,E104	IC DEC 74S64	1910542
3	E58,E102,E63	IC DEC 74S74	1910544
3	E65,E90,E95	IC DEC 74S153	1910547
7	E27,E21,E18,E16,E8,E22,E31	IC DEC 74S157	1910548
3	E3,E99,E4	IC DEC 74S158	1910549
2	E45,E47	IC DEC 74182-1	1910551
24	E69,E74,E44,E30,E68,E62, E52,E49,E67,E61,E51,E48, E14,E30,E29,E28,E9,E70, E19,E23,E10,E15,E25,E24	IC DEC 3101A	1910653
1	W1.	INSULATED JUMPER	9009185
1		HANDLE ASSEMBLY	1210711-2
12		EYELET HANDLE	9006732

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

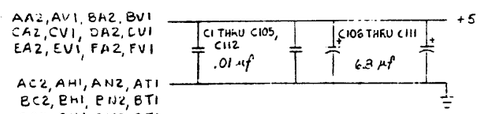
IC TYPE	GND	+ 5V
IC DEC 3101A	8	16
IC DEC 74182-1	8	16
IC DEC 74S158	8	16
IC DEC 74S157	8	16
IC DEC 74S153	8	16
IC DEC 74S181	12	24
IC DEC 7485	8	16

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

IC PIN LOCATIONS

AA2, AV1, BA2, BV1
CA2, CV1, DA2, DV1
EA2, EV1, FA2, FV1

AC2, AH1, AN2, AT1
BC2, BH1, BN2, BT1
CC2, CH1, CN2, CT1
DC2, DH1, DN2, DT1
EC2, CH1, EN2, ET1
FC2, FH1, FN2, FT1



FIRST USED ON OPTION MODEL: 11/70

ETCH BOARD REV: B

REV	CHK	CHANGE NO	DATE
A		M8137 00001	11-14-75

REVISIONS

SEMICONDUCTOR CONVERSION CHART

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

DRN. B E KELLOG	DATE 10-22-74	digital EQUIPMENT CORPORATION
CHK'D FERGUSON	DATE 11-22-74	
ENG. SHARON A. SMITH	DATE 2-20-75	
PROJ. ENG. SHARON A. SMITH	DATE 2-20-75	TITLE: SYS ADRS PATH
PROD.	DATE 3, 21-75	
NEXT HIGHER ASSY		SIZE DCS CODE M8137-0-1 NUMBER REV. A
SCALE		DIST.
SHEET 1 OF 13		

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SAPK LO BYTE B H
SCPC PULSE BC 9 E H
SAPK WR OK H
74S20 E34
SAPA WRITE LO BYTE KPAR L

SCCC KERNEL PAR(1) H BM2
SAPK HI BYTE B H
74S20 E34
SAPA WRITE HIBYTE KPAR L

SAPE KERNEL PAR L

31Ø1A E29 KPAR ⟨1:Ø8⟩
SAPK BR11 CL — SAPA+B+C PAF17 H
SAPK BR1Ø CL — SAPA+B+C PAF16 H
SAPK BR09 CL — SAPA+B+C PAF15 H
SAPK BR08 CL — SAPA+B+C PAF14 H

31Ø1A E3Ø KPAR ⟨Ø7:Ø4⟩
SAPK BR07 CL — SAPA+B+C PAF13 H
SAPK BR06 CL — SAPA+B+C PAF12 H
SAPK BR05 CL — SAPA+B+C PAF11 H
SAPK BR04 CL — SAPA+B+C PAF1Ø H

31Ø1A E14 KPAR ⟨Ø3:ØØ⟩
SAPK BR03 CL — SAPA+B+C PAFØ9 H
SAPK BR02 CL — SAPA+B+C PAFØ8 H
SAPK BR01 CL — SAPA+B+C PAFØ7 H
SAPK BR00 CL — SAPA+B+C PAFØ6 H

SAPK APR ADDRA2 L
SAPK APR ADDRA1 L
SAPK APR ADDRAØ L

74S04 E39
SAPK APR ADDR3 K L — SAPA APR ADDR 3 H
SAPK APR ADDR2 L — SAPA APR ADDR 2 H
SAPK APR ADDR1 L — SAPA APR ADDR 1 H
SAPK APR ADDRØ L — SAPA APR ADDR Ø H

31Ø1A E28 KPAR ⟨15:12⟩
SAPD BR15 CL — SAPA+B+C PAF21 H
SAPD BR14 CL — SAPA+B+C PAF2Ø H
SAPD BR13 CL — SAPA+B+C PAF19 H
SAPD BR12 CL — SAPA+B+C PAF18 H

+5V
R1 330
SAPA +3V
C101 .01µf
R2 680

REVISIONS		
CHK	CHANGE NO.	REV.

KERNEL PAGE ADDRESS REGISTERS (PAR) SLOT 14

TITLE	SIZE	CODE	NUMBER	REV.
SYS. ADRS PATH (SAPA)	D	CS	M8137-Ø-1	A

SCALE — | SHEET 2 OF 13 | DIST.

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SAPK WR OK H
SAPC PULSE BC9B H
SAPK LO BYTE H
74S20 E33
SAPB WRITE LO BYTE SPAR L

SCCC SUPER PAR (1) H
BR1
SAPK HI BYTE B H
74S20 E33
SAPB WRITE HI BYTE SPAR L

SAPE SUPER PAR L

3101A E19 SPAR <11:08>
SAPK BR11 C L
SAPK BR10 C L
SAPK BR09 C L
SAPK BR08 C L
SAPA+B+C PAF17 H
SAPA+B+C PAF16 H
SAPA+B+C PAF15 H
SAPA+B+C PAF14 H

3101A E20 SPAR <07:04>
SAPK BR07 C L
SAPK BR06 C L
SAPK BR05 C L
SAPK BR04 C L
SAPA+B+C PAF13 H
SAPA+B+C PAF12 H
SAPA+B+C PAF11 H
SAPA+B+C PAF10 H

3101A E9 SPAR <03:00>
SAPK BR03 C L
SAPK BR02 C L
SAPK BR01 C L
SAPK BR00 C L
SAPA+B+C PAF09 H
SAPA+B+C PAF08 H
SAPA+B+C PAF07 H
SAPA+B+C PAF06 H

SAPK APR ADDR 0 L
SAPK APR ADDR 1 L
SAPK APR ADDR 2 L
SAPK APR ADDR 3 S L
74S04 E37

SAPB APR ADDR0 H
SAPB APR ADDR1 H
SAPB APR ADDR2 H
SAPB APR ADDR3 S4 H

SAPK APR ADDRA2 L
SAPK APR ADDRA1 L
SAPK APR ADDRA0 L

3101A E23 SPAR <15:12>
SAPD BR15 CL
SAPD BR14 CL
SAPD BR13 CL
SAPD BR12 CL
SAPA+B+C PAF21 H
SAPA+B+C PAF20 H
SAPA+B+C PAF19 H
SAPA+B+C PAF18 H

SSRK INIT B H
FT2
7437 E101
SAPB INITA B L

SUPERVISOR PAGE ADDRESS REGISTERS (PAR) SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRWN DATE 10-22-74
DES DATE 11-22-74
SOFT ENGR DATE 1-6-75
HARD ENGR DATE 1-6-75
PROD DATE 12/17/75
NEXT HIGHER ASSY.
SCALE
SHEET 3 of 13

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. ADRS. PATH (SAPB)

SIZE D | CODE CS | NUMBER M8137-0-1 | REV. A | DIST.

REV	REVISIONS	CHANGE NO	CHK
A			

DRAWING 40-322 15840
DEC FORM NO DRD 102-B

M8137-0-1 REV A

160

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SIZE D | CODE CS | NUMBER M8137-0-1 | REV A

SAPE USER PARL

SAPK LOBYTE B H

SAPK WR OK H
SCCC USER PAR IO H
SAPC PULSE BC9B H
SAPK HIBYTE B H

74S20 E42

SAPC WRITE LOBYTE UPAR L

74S20 E42

SAPC WRITE HI BYTE UPAR L

31Ø1A E25 UPAR <11:08>

SAPK BRIIC L
SAPK BRIØC L
SAPK BRØAC L
SAPK BRØ8C L

SAPA+B+C PAF17H
SAPA+B+C PAF16 H
SAPA+B+C PAF15 H
SAPA+B+C PAF14H

31Ø1A E15 UPAR <07:04>

SAPK BRØ7C L
SAPK BRØ6C L
SAPK BRØ5C L
SAPK BRØ4C L

SAPA+B+C PAF13 H
SAPA+B+C PAF12 H
SAPA+B+C PAF 11 H
SAPA+B+C PAF1Ø H

31Ø1A E1Ø UPAR <03:ØØ>

SAPK BRØ3C L
SAPK BRØ2C L
SAPK BRØ1C L
SAPK BRØØC L

SAPA+B+C PAFØ9 H
SAPA+B+C PAFØ8 H
SAPA+B+C PAFØ7 H
SAPA+B+C PAFØ6 H

SAPK APR ADDRØ L
SAPK APR ADDR1 L
SAPK APR ADDR2 L
SAPK APR ADDR3 UL

74S04 E5

SAPC APR ADDRØ H
SAPC APR ADDR1 H
SAPC APR ADDR2 H
SAPC APR ADDR3 UA H

SAPK APR ADDR A2L
SAPK APR ADDR A1L
SAPK APR ADDR AØL

31Ø1A E24 UPAR <15:12>

SAPD BR15 CL
SAPD BR14 CL
SAPD BR13 CL
SAPD BR12 CL

SAPA+B+C PAF21 H
SAPA+B+C PAF20H
SAPA+B+C PAF19H
SAPA+B+C PAF18H

TMCE PAUSES BH
TIGD T4H
SAPE +3V
SAPB INITABL L
TIGD T5L

R3 R4 150 +5V
R5 R6 150 +5V

74S64 E53

74S04 E71 — SAPC PULSE BC9C H
74S04 E37 — SAPC PULSE BC9B H
74S04 E37 — SAPC PULSE BC9D H

USER PAGE ADDRESS REGISTERS (PAR) SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/7Ø		PARTS LIST		

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

DRN B KELLEY 10-10-74
CHKD Ferguson 2/22/74
ENG Kinnelly 1/24/75
2ND ENG Mac Lavin 1/24/75
PROD J Taylor 1/31/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. ADRS. PATH (SAPC)

NEXT HIGHER ASSY.
SIZE D | CODE CS | NUMBER M8137-Ø-1 | REV. A
SCALE — SHEET 4 of 13 | DIST.

REV	REVISIONS	CHANGE NO	CHK
A			

BRUNING 40-823 19840 DEC-11-DRM-NO

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SAPE +3V
SSRA ROM OUTBT H
DS1
74S74 E63
TIGC T1 H
DM2
SAPB INITA B L
SAPD BUST C(1) N
TIGD T5 L
(DJ2)
74S04 E71
SAPK +3V
74S11 E92
SAPE +3V
+5V R7 330
R8 680
74S38 E58
SAPD ATTN (1) H
SAPD ATTN (0) H
+5V R9 330
R10 680
74S38 E58
SAPD WRTN INTO (1) H
SAPD WRTN INTO (0) H
SAPD+E+F RAM WRTN INTO H
SAPD+E+F RAM ATTN H
+5V R11 330
R12 680
74S04 E78
SAPD PGE EXPN DOWN L
+5V R13 330
R14 680
74S04 E78
SAPD ACF2 L
+5V R15 330
R16 680
74S04 E78
SAPD ACF1 L
+5V R17 330
R18 680
74S04 E78
SAPD ACF0 L
SAPD WR A+W L
74S64 E88
SCCC INT REG B L
SAPJ RELOC H
SAPC PULSE BC9D H
SCCD RPR REG H
SCCC INT REG H
SAPK WR OKB H
EU2
EF1
ED1
SAPD WRITE LOBYTE KPDR L
74S40 E94
SAPK LO BYTE B H
SAPD WRITE HIBYTE KPDR L
74S40 E94
SAPK W R OKA H
SCCC KERNEL PDR (1) H
SAPC PULSE BC 9C H
SAPK HI BYTE B H
B12
SAPE KERNEL CS L
SAPK +3V
74S08 E70
PDRB BR15 B L
EH2
SAPD BR15 CL
PDRB BR14 B L
EJ1
SAPD BR14 C L
PDRB BR13 B L
EE1
SAPD BR13 C L
PDRB BR12 B L
ED2
SAPD BR12 C L
3101A E38 KPDR (15:12)
WR ENB DØ DI D2 D3 M0(1) M1(1) M2(1) M3(1) A3 A2 A1 A0
SAPD+E+F PLF5 H
SAPD+E+F PLF6 H
SAPD+E+F PLF7 H
SAPD+E+F PLF4 H
SAPK BR11 C L
SAPK BR10 C L
SAPK BR09 C L
SAPK BR08 C L
3101A E44 KPDR (11:08)
SAPD+E+F PLF3 H
SAPD+E+F PLF2 H
SAPD+E+F PLF1 H
SAPD+E+F PLF0 H
3101A E74 KPDR (07:06)
SAPK BR07 C L
SAPK BR06 C L
3101A E69 KPDR (03:00)
SAPK BR03 C L
SAPK BR02 C L
SAPK BR01 C L
SAPK BR00 C L
SAPD+E+F PGE EXPN DOWN H
SAPD+E+F ACF2 H
SAPD+E+F ACF1 H
SAPD+E+F ACF0 H
SAPD APR ADDR3 KD H
SAPD APR ADDR2 H
SAPD APR ADDR1 H
SAPD APR ADDR0 H
SAPK APR ADDR 3 K L
SAPK APR ADDR 2 L
SAPK APR ADDR 1 L
SAPK APR ADDR Ø L
74S04 E5
74S04 E39
74S03 E39
SSRC KT ABORT FLG L
EF2
SAPL WRITE CYCLE H
SAPD ATTN (1) L
SAPL MEM MGMT H
74S00 E73
SAPD MM AF L
SAPD GATE ATTN H
74S00 E93
SAPD ATTN DATA L
SCCC INT REG B L
(EU2)
SAPD GATE WRTN H
SAPD WRTN DATA L
SAPD WRTN INTO (1) L
SAPD MM WC L

KERNEL PAGE DESCRIPTION REGISTERS — SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN	T. Kelley	DATE 10-14-74
CHK'D	[illegible]	DATE 11-12-74
ENG	[illegible]	DATE 11-14-75
PROJ ENG	[illegible]	DATE 11-24-75
PROD	[illegible]	DATE 11-24-75

NEXT HIGHER ASSY.
SCALE
SHEET 5 OF 13

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. ADRS. PATH (SAPD)

SIZE D CODE CS NUMBER M8137-0-1 REV A
DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM #0
DRD 173-B

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SAPK LO BYTE B H
SAPK WR OWB H
SCCC SUPER PDR (1) H
SAPC PULSE BC 9C H
SAPK HI BYTE B H
SAPE WRITE HI BYTE SPDR L
SAPE WRITE LO BYTE SPDR L
SAPE SUPER CS L
SAPD WR ATTN L
SAPD+E+F RAM ATTN H
SAPD+E+F RAM INTRN INTO H
SAPD ATTN DATA L
SAPD INTRN DATA L
+5V
R19 330
R20 680
C102 .01MF
SAPE +3V

SAPD BR15 C L
SAPD BR14 C L
SAPD BR13 C L
SAPD BR12 C L
SAPD+E+F PLF E H
SAPD+E+F PLF 6 H
SAPD+E+F PLF 5 H
SAPD+E+F PLF 4 H
SAPK BR11 C L
SAPK BR10 C L
SAPK BR09 C L
SAPK BR08 C L
SAPD+E+F PLF 3 H
SAPA+E+F PLF 2 H
SAPA+E+F PLF 1 H
SAPA+E+F PLF 0 H
SAPD+E+F PGE EXPN DOWN H
SAPD+E+F ACF2 H
SAPD+E+F ACF1 H
SAPD+E+F ACF0 H

SAPK APR ADDR35 L
SAPK APR ADDR2 L
SAPK APR ADDR1 L
SAPK APR ADDR0 L
SCCC INT REG H
SAPE APR ADDR3 SD H
SAPE APR ADDR2 H
SAPE APR ADDR1 H
SAPE APR ADDR0 H

SSRB USER SPACE (1) L
SCCC USER PAR (1) L
SSRB SUPER SPACE (1) L
SCCC SUPER PAR (1) L
SSRB KERNEL SPACE (1) L
SCCC KERNEL PAR (1) L
SAPE USER PAR L
SAPE SUPER PAR L
SAPE KERNEL PAR L

SSRB USER SPACE (1) L
SSRB SUPER SPACE (1) L
SSRB KERNEL SPACE (1) L
SAPE USER CS L
SAPE SUPER CS L
SAPE KERNEL CS L
SAPE BUFINT REG L

SCCC USER PAR (1) L
SCCC USER PDR (1) L
SCCC SUPER PAR (1) L
SCCC SUPER PDR (1) L
SCCC KERNEL PAR (1) L
SCCC KERNEL PDR (1) L
SAPA +3V

SUPERVISOR PAGE DESCRIPTOR REGISTERS SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN P.Kelly DATE 10-11-74
CHKD DATE 11-22-74
ENGR DATE 11-25-75
SUPVSR DATE 11-26-75
PROJ P.R. Taylor DATE 12-17-75
NEXT HIGHER ASSY.
SCALE —
SHEET 14 OF 18

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: SYS. ADRS PATH (SAPE)

SIZE D | CODE CS | NUMBER M8137-0-1 | REV. A | DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 103-B

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SAPK WR OKB H
SCCE USER PDR (1) H
SAPK LO BYTE B H
SAPC PULSE BC 9C H
SAPK HI BYTE B H
74S40 E84
74S40 E84
SAPF WRITE LO BYTE UPDRL
SAPF WRITE HIBYTE UPDR L
SAPD+E+F RAM ATTN H
SAPD+E+F RAM WRTN INTO H
SAPD WR A+W L
SAPE USER CS L
SAPD ATTN . DATA L
SAPD WRTN DATA L

3101A E48 UPDR (15:12)
3101A E51 UPDR (11:08)
3101A E61 UPDR (07:06)
3101A E67 UPDR (03:00)
WR ENB
A3 A2 A1 A0

SAPD BR15 C L — SAPD+E+F PLF6 H
SAPD BR14 C L — SAPD+E+F PLF5 H
SAPD BR13 C L — SAPD+E+F PLF4 H
SAPD BR12 C L — SAPD+E+F PLF3 H
SAPK BR11 C L — SAPD+E+F PLF2 H
SAPK BR10 C L — SAPD+E+F PLF1 H
SAPK BR09 C L — SAPD+E+F PLF0 H
SAPK BR08 C L — SAPD+E+F PCE EXPN DOWN H
SAPK BR03 C L — SAPD+E+F ACF2 H
SAPK BR02 C L — SAPD+E+F ACF1 H
SAPK BK01 C L — SAPD+E+F ACF0 H
SAPK BR00 C L

SAPK APR ADDR3 UL — 74S04 E43 — SAPF APR ADDR3 UD H
SAPK APR ADDR2 L — 74S04 E43 — SAPF APR ADDR 2 H
SAPK APR ADDR 1 L — 74S04 E43 — SAPF APR ADDR 1 H
SAPK APR ADDR 0 L — 74S04 E43 — SAPF APR ADDR 0 H

USER PAGE DESCRIPTOR REGISTERS SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DBN	B.C. Reid	DATE 10-11-74
CHKD.	Ferguson	DATE 11-12-74
ENG	Mira R. Smith	DATE 11-14-75
BLDG ENG	Mira R. Smith	DATE 10-15-75
PROD	K. Taylor	DATE 11-11-75

NEXT HIGHER ASSY.
SCALE
SHEET 7 of 13

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. ADRS. PATH (SAPF)

SIZE D CODE CS NUMBER M8137-0-1 REV A
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 103-B

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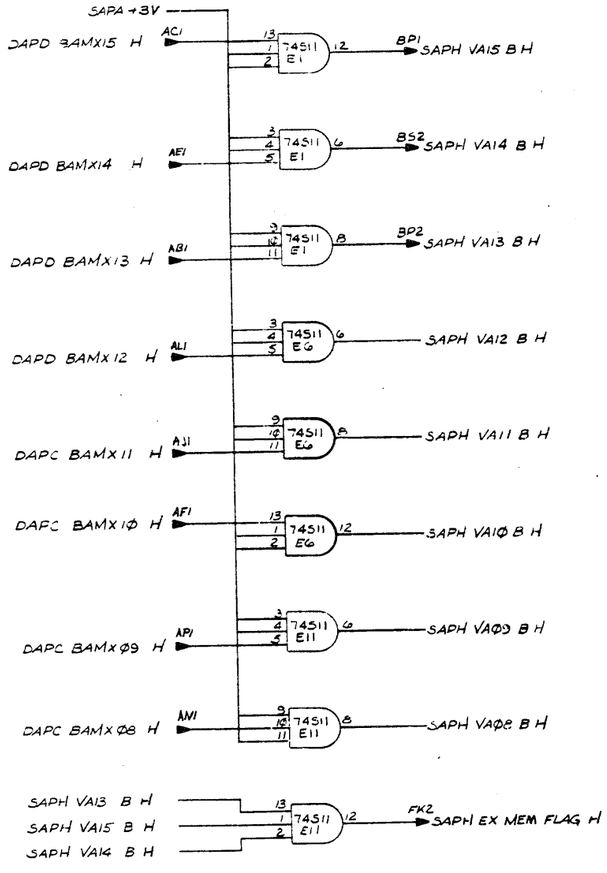
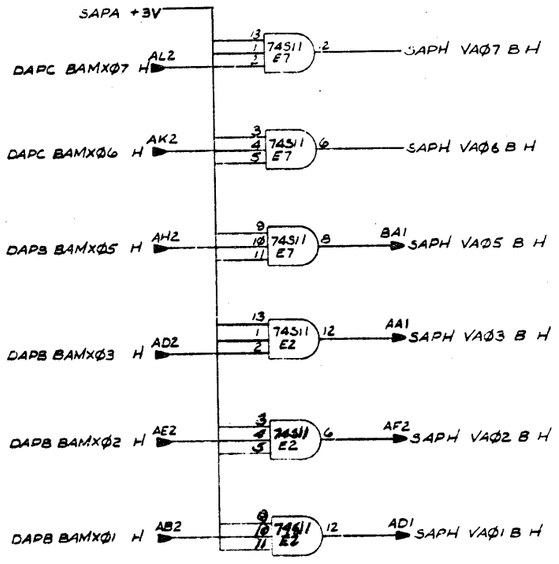


Virtual addresses



REVISIONS		
CHK	CHANGE NO.	REV.

ADDRESS BUFFERS — SLOT 14

TITLE	SIZE	CODE	NUMBER	REV.
SYS ADRS PATH (SAPH)	D	CS	M8137-0-1	A

SCALE — SHEET 8 OF 13 — DIST.

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*relocation - bit Ø of MMRØ

SSRA KY PH MEM AC(1) H — FH2 — 74S04 E91 — SSRE RELOC L — FJ1 — 74S04 E91 — SCCL ENAB 22BIT MAPPING H — FB2 — 74S00 E85

74S00 E85 → SAPJ SEL1 H → 74S04 E91 → SAPJ SEL1 L

74S00 E85 → SAPJ SELØ H → 74S04 E91 → SAPJ SELØ L

74S04 E78 → SAPJ 22BIT MAPPING H

SAPJ COUT BL

74182-1 E45 (COUT Y, G1 P1)

SAPJ PA (21:18) H

SAPJ 22 BIT WRAPAROUND L

SCCK SWR21 B (1) H — FS2

SAPH EX MEM FLAG H — FK2

SCCK SWR2Ø B(1) H — FU2

SAPJ SEL1 H

SAPJ SELØ H

74S153 E65 MUX (STB1 STBØ; D1 C1 B1 A1; DØ CØ BØ AØ; S1 SØ; F1 → DU2 → SAPJ PA21 H; FØ → DV2 → SAPJ PA2Ø H)

74S181 E36 ALU (A=B COUT4 G P; A3 B3 A2 B2 A1 B1 AØ BØ; S3 S2 S1 SØ M CIN; F3 F2 F1 FØ)

SAPA+B+C PAF13 H — R23 33Ø, R24 68Ø

SAPH VA12 B H — SAPA+B+C PAF12 H — R27 33Ø, R28 68Ø

SAPH VA11 B H — SAPA+B+C PAF11 H — R25 33Ø, R26 68Ø

SAPH VA1Ø B H — SAPA+B+C PAF1Ø H — R29 33Ø, R30 68Ø

SAPJ RELOC H

F3 → SAPJ ADR13H

F2 → CU1 → SAPJ PAI2 H

F1 → CF1 → SARJ PAI1 H

FØ → CE1 → SAPJ PAIØ H

74S181 E55 ALU (A=B COUT4 G P; A3 B3 A2 B2 A1 B1 AØ BØ; S3 S2 S1 SØ M CIN; F3 F2 F1 FØ)

SAPA+B+C PAF21 H — R31 33Ø, R32 68Ø

SAPA+B+C PAF2Ø H — R35 35Ø, R36 68Ø

SAPA+B+C PAF19 H — R33 33Ø, R34 68Ø

SAPA+B+C PAF18 H — 25J 35Ø, R38 68Ø

SAPJ RELOC BH

F3 → SAPJ ADRS21 H

F2 → SAPJ ADRS2Ø H

F1 → SAPJ ADRS19 H

FØ → SAPJ ADRS18 H

SAPJ 18BIT WRAPAROUND L

74182-1 E45 (COUT Z, G2 PZ)

SAPJ PA (17:14) H — R55 33Ø, R56 68Ø

SCCK SWR19 B(1) H — FF2

SCCK SWR18 B(1) H — FK1

74S153 E30 MUX (STB1 STBØ; D1 C1 B1 A1; DØ CØ BØ AØ; S1 SØ; F1 → DS2 → SAPJ PAI9 H; FØ → DR2 → SAPJ PAI8 H)

74S153 E95 MUX (STB1 STBØ; D1 C1 B1 A1; DØ CØ BØ AØ; S1 SØ; F1 → DP2 → SAPJ PAI7 H; FØ → CR2 → SAPJ PAI6 H)

SCCK SWR17 B(1) H — FL1

SAPH EX MEM FLAG H

SCCK SWR16 B(1) H — FD1

74S181 E40 ALU (A=B COUT4 G P; A3 B3 A2 B2 A1 B1 AØ BØ; S3 S2 S1 SØ M CIN; F3 F2 F1 FØ)

SAPH VAØ9 B H — SAPA+B+C PAF09 H — R39 33Ø, R40 68Ø

SAPH VAØ8 B H — SAPA+B+C PAF08 H — R43 33Ø, R44 68Ø

SAPH VAØ7 BH — SAPA+B+C PAF07 H — R41 33Ø, R42 68Ø

SAPH VAØ6 BH — SAPA+B+C PAF06 — R45 33Ø, R46 68Ø

SAPJ RELOC H

F3 → BT2 → SAPJ PAØ9 H

F2 → BU1 → SAPJ PAØ8 H

F1 → BR2 → SAPJ PAØ7 H

FØ → BS1 → SAPJ PAØ6 H

74S181 E54 ALU (A=B COUT4 G P; A3 B3 A2 B2 A1 B1 AØ BØ; S3 S2 S1 SØ M CIN; F3 F2 F1 FØ)

SAPA+B+C PAF17 H — R47 33Ø, R48 68Ø

SAPA+B+C PAF16 H — R51 35Ø, R52 68Ø

SAPA+B+C PAF15 H — R49 33Ø, R50 68Ø

SAPA : B+C PAF 14 H — R53 33Ø, R54 68Ø

SAPJ RELOC BH

F3 → SAPJ ADRS 17 H

F2 → SAPJ ADRS 16 H

F1 → SAPJ ADRS 15 H

FØ → SAPJ ADRS 14H

SAPJ COUT B L

74S11 E8Ø — SAPJ ADRS 13 H, SAPJ PA<17:14> H → SAPJ 18BIT UB ADR3 H

74S157 E31 (B3 A3 B2 A2 B1 A1 BØ AØ; S Ø STB; F3 F2 F1 FØ)

SAPH VAI3 B H — SAPJ ADRS13 H → CD1 → SAPJ PAI5 H

SAPH VAI4 B H — SAPJ ADRS14 H → CC1 → SAPJ PAI4 H

SAPH VAI3 B H — SAPJ ADRS 13 H → CB1 → SAPJ PAI3 H

SAPJ SEL1 H

74S157

OUTPUT	F	SEL
VIRTUAL ADRS	B	H
RELOCATED ADRS	A	L

74153

MAPPING	Fx	S1	SØ
18BIT MAPPING	A	L	L
22BIT MAPPING	B	L	H
16BIT MAPPING	C	H	L
CONSOLE	D	H	H

74S181

	Fx
SAPJ RELOC H	A+B
SAPJ RELOC L	A

SAPE +3V — 74182-1 E45 (COUT X, G2 PØ)

SAPE +3V

SAPE+3V — 74S4Ø E64 → SAPJ RELOCH

SAPJ RELOC L — FJ1 — 74S4Ø E64 → SAPJ RELOC BH

REVISIONS		
CHK	CHANGE NO.	REV.

RELOCATION LOGIC — SLOT 14

TITLE: SYS ADRS PATH(SAPJ) | SIZE D | CODE CS | NUMBER M8137-Ø-1 | REV. A

SCALE — | SHEET 9 OF 13 | DIST.

DEC FORM NO. DOD 138

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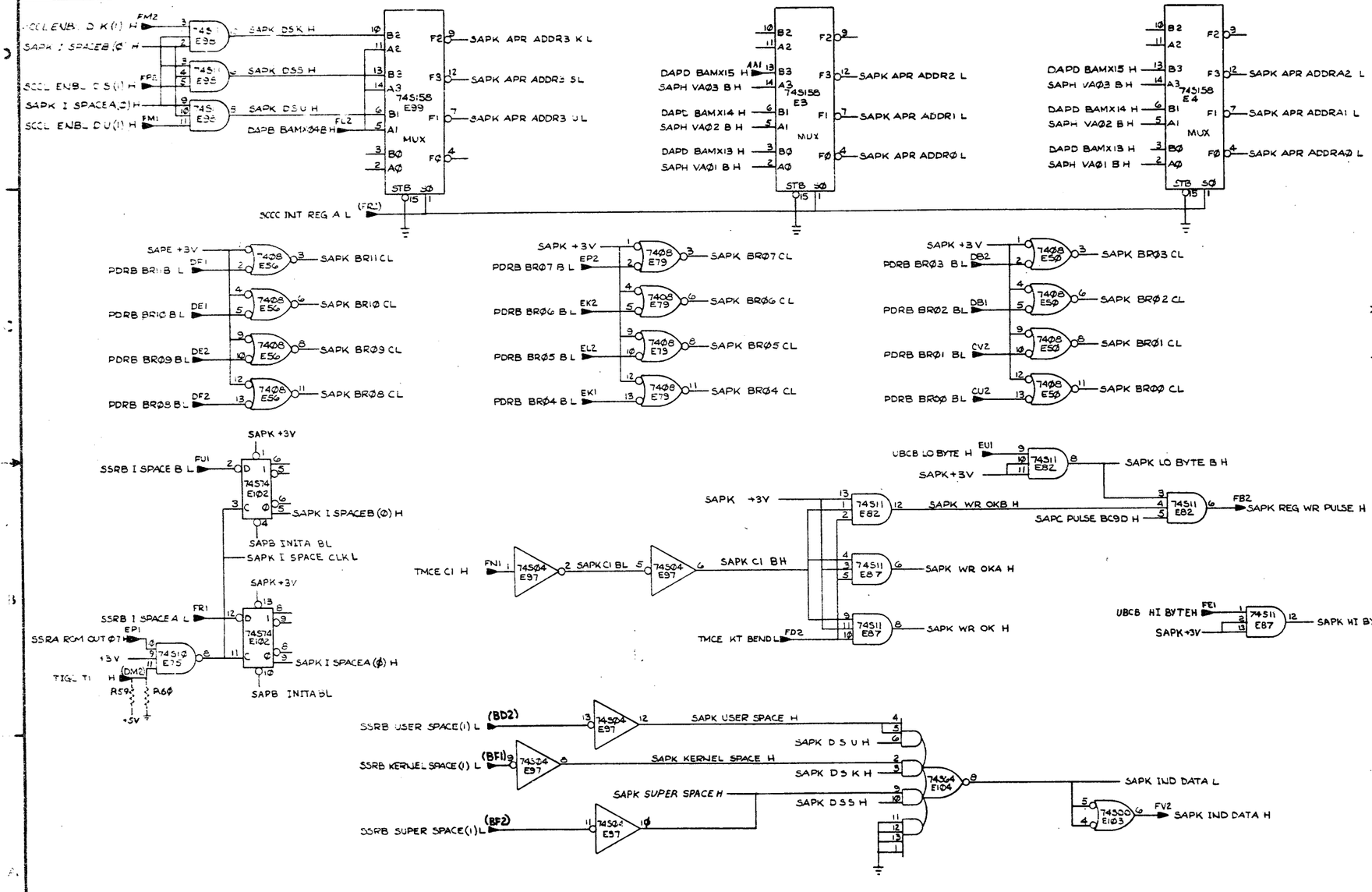
74S158		
FUNCTION	APRADDR SELECT	SEL
MEM MGMT REGISTER OPERATION	VA (04:01)	L
ADRESS RELOCATION	BAMX(13:15)	H



REVISIONS		
CHK	CHANGE NO.	REV.

REGISTER SELECT AND CONTROL — SLOT 14

TITLE SYS. ADRS PATH (SAPK)

SIZE	CODE	NUMBER	REV.
D	CS	M8137-Ø-1	A

SCALE — SHEET 10 OF 13 — DIST.

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7485
LENGTH FAULT

	MEM MGMT LENGTH FAULT	FUNCTION
EXPAND DOWN	L	A ≥ B
EXPAND DOWN	H	A < B
EXPAND UP	L	A ≤ B
EXPAND UP	H	A > B

SAPL WRITE CYCLE L
SAPD+E+F ACF0 H
SAPD ACF1 L
SAPD ACF2 L
SAPD ACF0 L
SAPD ACF1 L
SAPD+E+F ACF2 H
SAPD+E+F ACF0 H
SAPD ACF1 L
SAPD+E+F ACF2 H
SAPL WRITE CYCLE H
74540 E72
74510 E83
SAPL KEY=1 • WR1 L
SAPL KEY=4 L
SAPL KEY=5WR L
EB2
SAPL MEM MGMT H

+5V
RG1 330
RG2 680
RG3 330
RG4 680
RG5 330
RG6 680
7485 E17 COMPARATOR
SAPD+E+F PLF6 H
SAPH VA12 B H
SAPD+E+F PLF5 H
SAPH VA11 B H
SAPD+E+F PLF4 H
SAPH VA10 B H
A3 B2 A2 B1 A1 B0 A0
A<B A=B A>B
IN> IN< IN=
SAPA +3V

+5V
RG7 330
RG8 680
RG9 330
R70 680
R71 330
R72 680
R73 330
R74 680
7485 E13 COMPARATOR
SAPD+E+F PLF3 H
SAPH VA09 B H
SAPD+E+F PLF2 H
SAPH VA08 B H
SAPD+E+F PLF1 H
SAPH VA07 B H
SAPD+E+F PLF0 H
SAPH VA06 B H
A3 B2 A2 B1 A1 B0 A0
A<B A=B A>B
IN> IN< IN=
SAPA +3V

SAPA +3V
SAPD PGE EXPN DOWN L
SAPD+E+F PGE EXPN DOWN H
74564 E12
SAPL LENGTH FAULT L
74504 E71
EB1
SAPL MM LENGTH FAULT H

SAPL READ ONLY FAULT L
74510 E73
EM2
SAPL ABORT COND H

SAPD ACF0 L
SAPD ACF1 L
SAPD ACF2 L
74510 E83
74500 E76
SAPD+E+F ACF0 H
SAPD+E+F ACF1 H
74500 E73
EE2
SAPL NOWRES FAULT H
74504 E71

SAPK CI B L
TMCE C0 H
ER2
74500 E76
74500 E76
SAPL DATIP L
74504 E71
SAPL WRITE CYCLE L
SAPL WRITE CYCLE H

SAPD ACF2 L
SAPD ACF1 L
SAPD+E+F ACF0 H
74540 E77
SAPL KEY=1WR L
SAPD ACF0 L
SAPD+E+F ACF1 H
SAPD ACF2 L
74540 E77
74530 E76
SAPL KEY=2WR L
EF1
SAPL READ ONLY FAULT H
74504 E71
SAPL READ ONLY FAULT L

REVISIONS		
CHK	CHANGE NO.	REV.

ABORT AND TRAP DECODE
SLOT 14

TITLE	SIZE	CODE	NUMBER	REV.
SYS. ADRS PATH (SAPL)	D	CS	M8137-0-1	A
SCALE —	SHEET 11 OF 13	DIST.		

M8137-0-1 REV A

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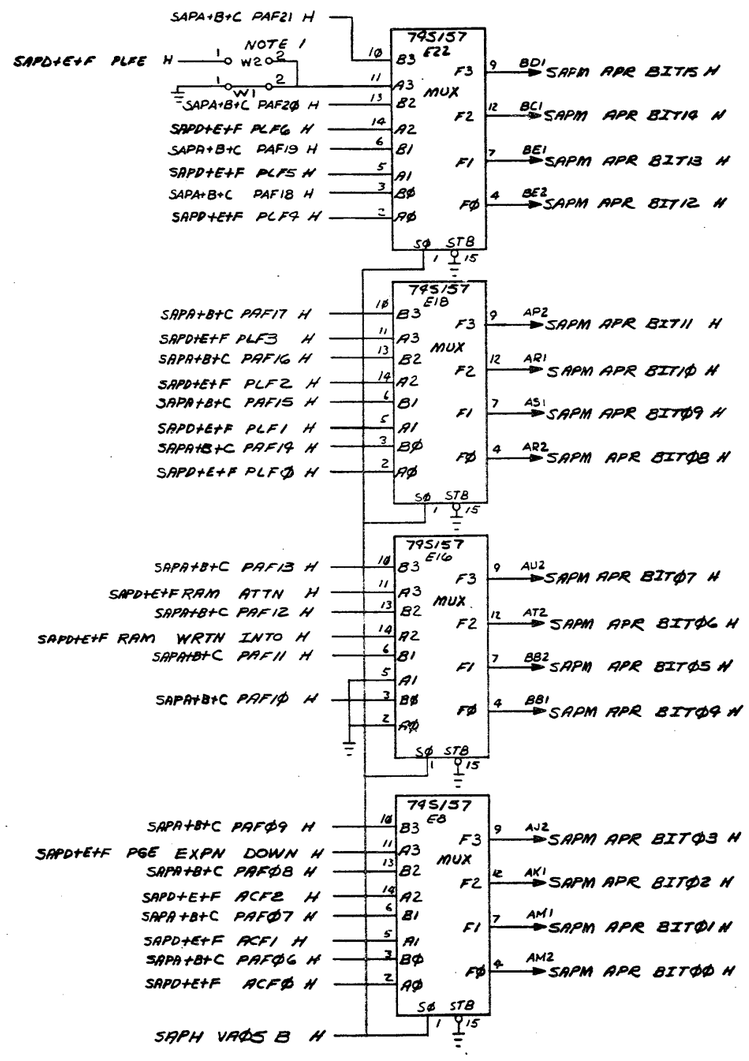

79/57

OUTPUT	INPUT LINES SELECTED				SEL
PDR'S	A3	A2	A1	AØ	Ø
PAR'S	B3	B2	B1	BØ	1

NOTES:
1. PROVISIONS FOR WIRE JUMPER. JUMPER IS NORMALLY INSERTED TO CONNECT "A3" TO GROUND.

PAR/PDR READ MULTIPLEXERS — SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN Kelley DATE 10-14-74
ENG DATE 11-22-74
DATE 12-4-75
DATE 12-30-75
PM DATE 1/21/75

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. ADRS. PATH (SAPM)

MATERIAL — NEXT HIGHER ASSY. — FINISH — SCALE — SHEET 12 of 13

SIZE	CODE	NUMBER	REV.
D	DCS	M8137-Ø-1	A

DIST.

REVISIONS: ZONE | CHANGE NO | DWN

DEC FORM NO DSD 105-B

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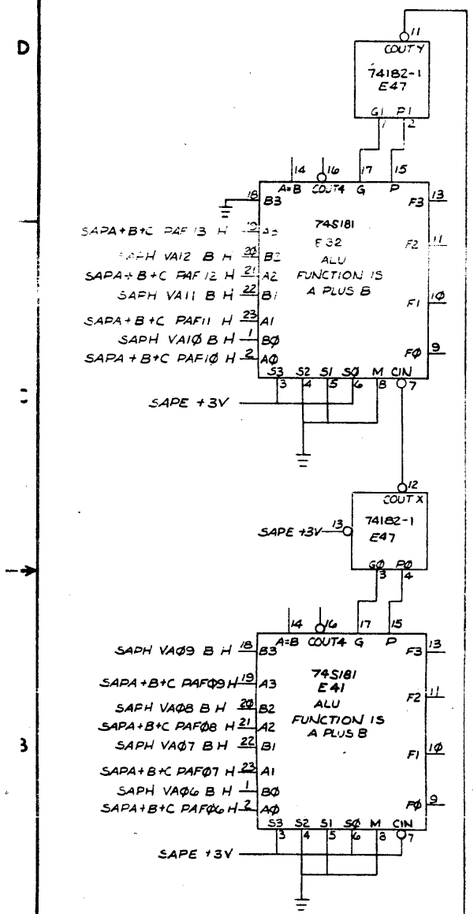
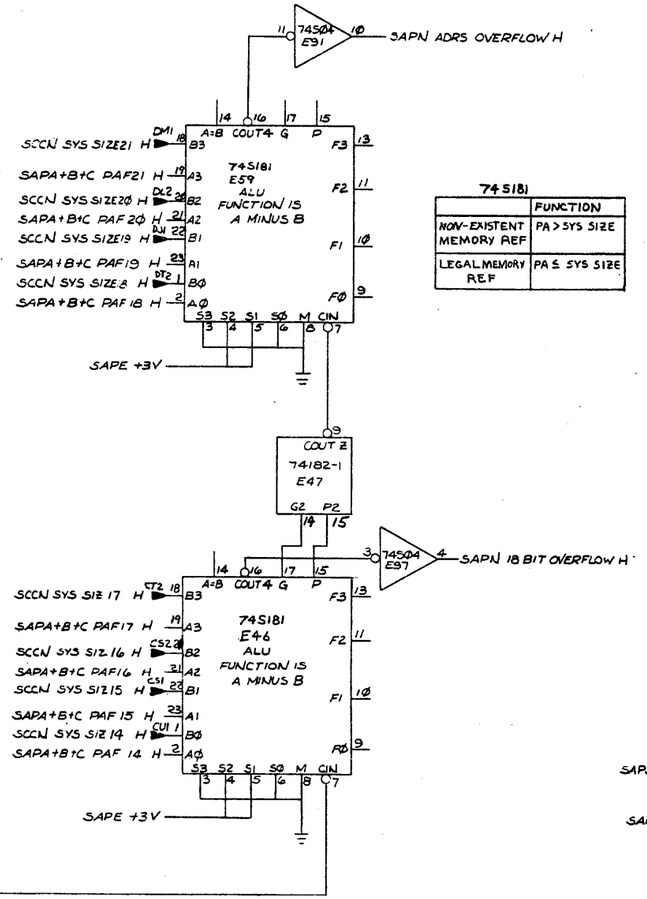
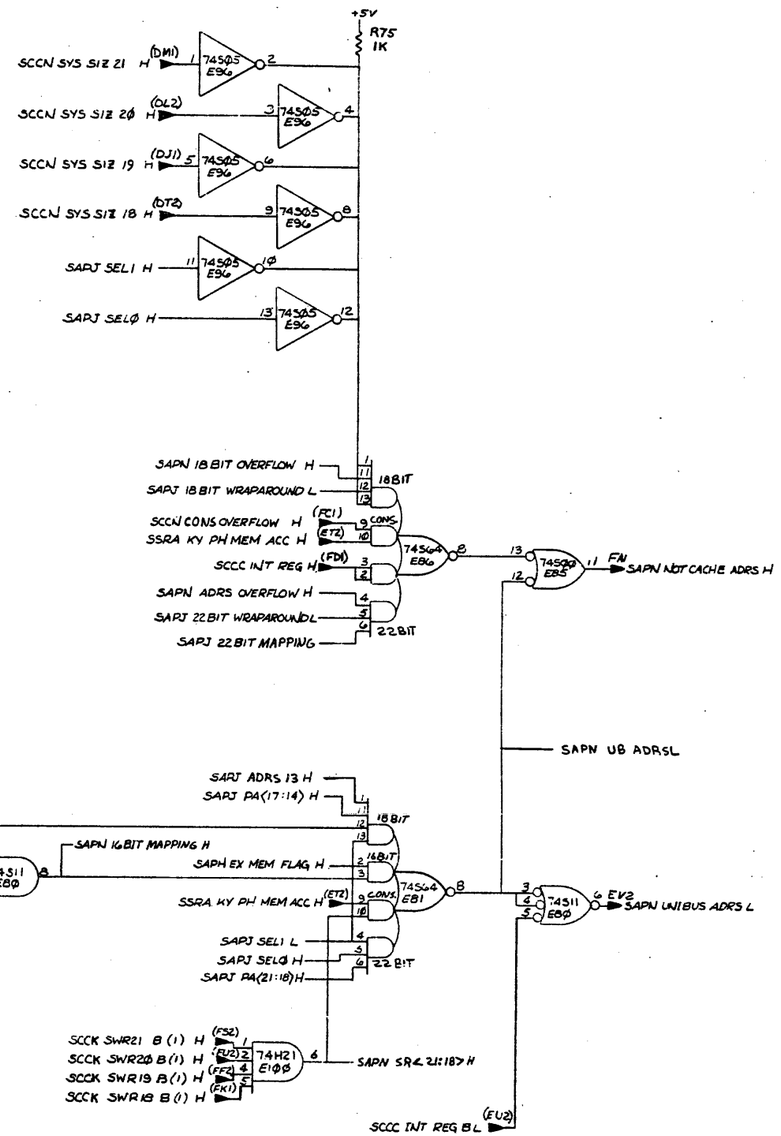




74S181	
	FUNCTION
NON-EXISTENT MEMORY REF	PA > SYS SIZE
LEGAL MEMORY REF	PA ≤ SYS SIZE



REVISIONS		
CHK	CHANGE NO.	REV.

VALID ADDRESS CHECK

SLOT 14

TITLE	SIZE	CODE	NUMBER	REV.
SYS ADRS PATH (SAPN)	D	CS	M8137-Ø-1	A
SCALE —	SHEET 13 OF 13	DIST.		

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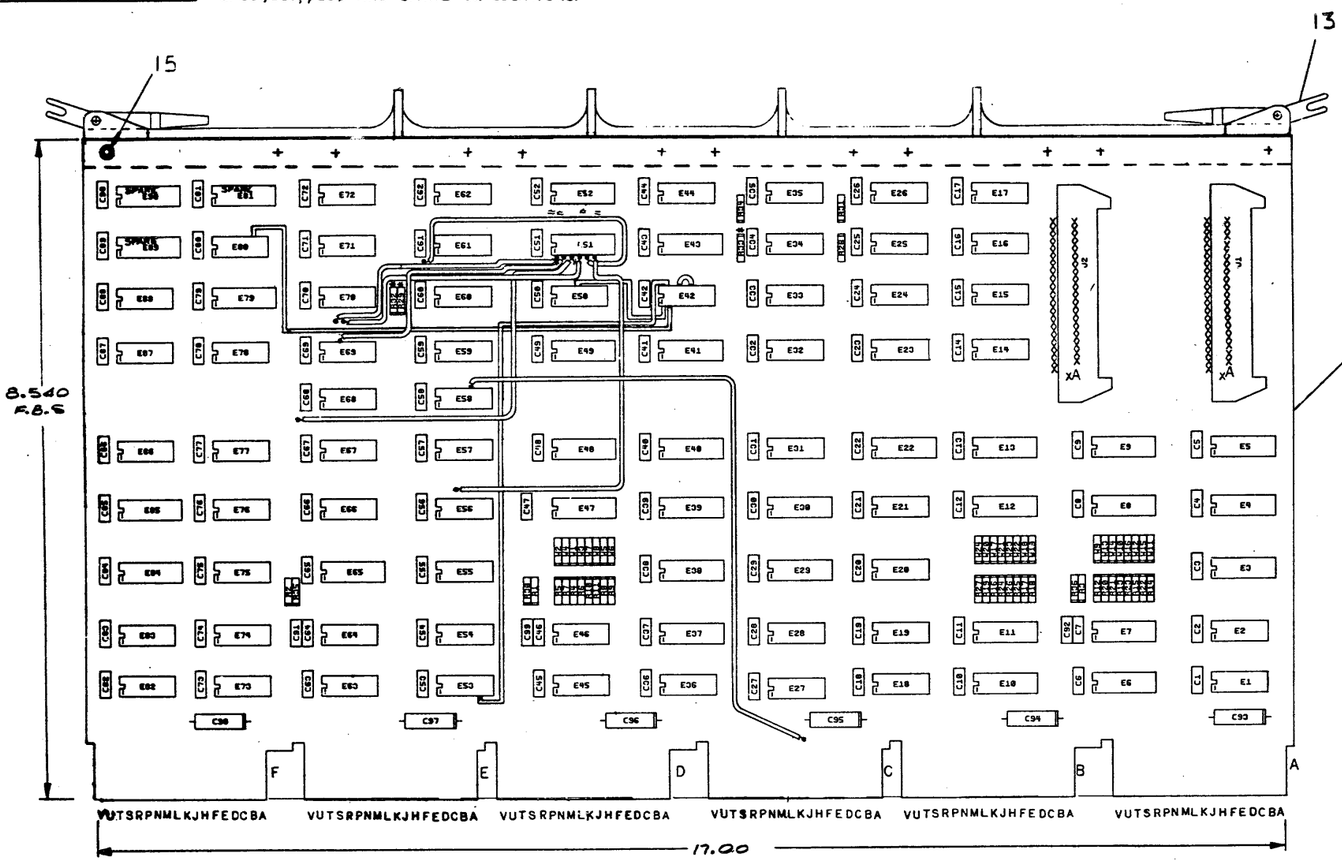
NOTES:

1. * OPTIONAL COMPONENTS.
2. E81, E89, & E90 ARE SPARE IC LOCATIONS.



AA2,AV1,BA2,BV1, CA2,CV1,DA2,DV1, EA2,EV1,FA2,FV1 — +5V
AC2,AH1,AN2,AT1, BC2,BH1,BN2,BT1, CC2,CH1,CN2,CT1, DC2,DH1,DN2,DT1, EC2,EH1,EN2,ET1, FC2,FH1,FN2,FT1 — GND

C93 THRU C98 .1 uF

C1 THRU C90 .01 uF

IC. DEC 74157	8	16
IC. DEC 74S133	8	16
IC. DEC 8234	8	16
IC. DEC 74155	8	16
IC. DEC 74S174	8	16
IC. DEC 74S158	8	16
IC. DEC 74153	8	16
IC. DEC 7483	12	5
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 COORDINATE HOLE LOCATION	K-CO-M8140-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8140-0-1	2
REF		MODULE ECO HISTORY	B-MH-M8140-0-6	3
1		ETCHED CIRCUIT BOARD	5011355	4
6	C93 THRU C98	CAPACITOR 6 8uf 35V 20% TANT	1005306	5
93	C1 THRU C92,C99	CAPACITOR .01uf 100V DISC ±0%	1001610-01	6
2	J1,J2	CONN. RIGHT ANGLE HEADER, BERG	1209941	7
1	R34	RESISTOR 150, 1/4 W. 5%	1300250	8
3	R1,R2,R3	RESISTOR 330, 1/2W. 5%	1300295	9
1	R28	RESISTOR 390, 1/4W. 5%	1300309	10
25	R4 THRU R27,R31	RESISTOR 1K, 1/4W. 5%	1300365	11
3	R30,R35,R36	RESISTOR 680 1/4W 5%	1301424	12
1		HANDLE ASSY HEX	1210711-02	13
3	W1 THRU W24	SW,PKR DIP PKG W/8 SW	1211164-04	14
12		EYELET HANDLE	9006732	15
1	E24	IC DEC 7474	1305547	16
3	E1,E2,E14	IC 7404	1909885	17
5	E63,E73,E74,E82,E83	IC DEC 8881	1909705	18
1	E23	IC DEC 8815	1909713	19
7	E18,E19,E27,E28,E36,E45, E46	IC DEC 74H01	1909849-00	20
2	E6,E7	IC 7483	1909932	21
7	E3,E4,E5,E39,E40,E47,E48	IC 74153	1909937	22
3	E15,E16,E17	IC 7408	1910155	23
2	E60,E77	IC 74S00	1910532	24
12	E20,E50,E58,E61,E66,E67, E75,E76,E78,E80,E86,E87	IC 74S04	1910534	25
1	E62	IC 74S10	1910536	26
9	E64,E25,E26,E31,E33,E42, E44,E54,E59	IC 74S11	1910537	27
5	E21,E70,E71,E72,E88	IC 74S20	1910539	28
1	E57	IC 74S40	1910541	29
3	E32,E34,E35	IC 74S64	1910542	30
3	E8,E9,E12	IC 74S158	1910549	31
2	E13,E29	IC 74S174	1910550	32
1	E79	IC 74155	1910656	33
2	E37,E38	IC 8234	1911315	34
10	E22,E30,E41,E43,E51,E52, E65,E84,E85,E49	IC 74S133	1911983	35
2	E10,E11	IC 74157	1910655	36
5	E53,E55,E56,E68,E69	IC 74S74	1910544	37
40"		WIRE #30 AWG BUSS (RETROFIT)	9105740-55	38
3		SWITCH COVER	1211284-4	39

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL: 11/70

PARTS LIST

ETCH BOARD REV: A

REV	CHANGE NO.	CHK	REVISIONS
A	M8140-00001		P. Schnorr (CPL) 21 JUNE 77
B	M8140-00002		P. Schnorr (CPL) 21 JUNE 77

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

SEMICONDUCTOR CONVERSION CHART

DRN.	P. Jordan	DATE 10/28/76
CHK'D.	B. Kypreos	DATE 12-27-77
ENG.	SHARON A. SMITH	DATE 1-9-78
PROJ. ENG	SHARON A. SMITH	DATE 1-9-78
PROD.		DATE 11/29/78

NEXT HIGHER ASSY

SCALE —

SHEET 1 OF 13

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS DESC/ CNSL CABLES

SIZE	CODE	NUMBER	REV.
D	CS	M8140-0-1	B

DIST.

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DAPD BAMX12 H — DR2 — 74S34 E61 — SCCA \A12 A L — 74S04 E61 — SCCA VA12 A H

DAPC BAMX11 H — DL2 — 74S04 E61 — SCCA VA11 A L — 74S04 E61 — SCCA VA11 A H

DAPC BAMX10 H — DS1 — 74S04 E61 — SCCA VA10 A L — 74S04 E61 — SCCA VA10 A H

DAPC BAMX09 H — EM2 — 74S04 E66 — SCCA VA09 A L — 74S04 E66 — SCCA VA09 A H

DAPC BAMX08 H — EE2 — 74S04 E66 — SCCA VA08 A L — 74S04 E66 — SCCA VA08 A H

DAPC BAMX07 H — EN1 — 74S04 E66 — SCCA VA07 A L — 74S04 E66 — SCCA VA07 A H

DAPC BAMX06 H — FF1 — 74S04 E76 — SCCA VA06 A L — 74S04 E76 — SCCA VA06 A H

DAPB BAMX05 H — FJ1 — 74S04 E76 — SCCA VA05 A L — 74S04 E76 — SCCA VA05 A H

DAPB BAMX04 H — ES2 — 74S04 E76 — SCCA VA04 A L — 74S04 E76 — SCCA VA04 A H

DAPB BAMX03 H — FF2 — 74S04 E75 — SCCA VA03 A L — 74S04 E75 — SCCA VA03 A H

DAPB BAMX02 H — FH2 — 74S04 E75 — SCCA VA02 A L — 74S04 E75 — SCCA VA02 A H

DAPB BAMX01 H — EU1 — 74S04 E75 — SCCA VA01 A L — 74S04 E75 — SCCA VA01 A H

DAPB BAMX00 H — DS2 — 74S04 E58 — SCCA VA00 A L — 74S04 E58 1Ø CJ2 — SCCA VA00 A H

SAPJ PA15 H — EJ1 — 74S04 E58 — SCCA PA15 L

SAPJ PA14 H — EM1 — 74S04 E58 — SCCA PA14 L

SAPJ PA13 H — FC1 — 74S04 E58 — SCCA PA13 L

SAPJ PA12 H — EU2 — 74S04 E58 — SCCA PA12 L

+5V — E1 E8Ø — SCCA +5V — E9Ø E8Ø — C99 .Ø1uf

SAPJ PA11 H — FK1 — 74S04 E78 — SCCA PA11 L — 74S04 E78 — SCCA PA11 B H

SAPJ PA10 H — CE2 — 74S04 E78 — SCCA PA10 L — 74S04 E78 — SCCA PA10 B H

SAPJ PA09 H — FJ2 — 74S04 E78 — SCCA PA09 L — 74S04 E78 — SCCA PA09 B H

SAPJ PA08 H — FR2 — 74S04 E86 — SCCA PA08 L — 74S04 E86 — SCCA PA08 B H

SAPJ PA07 H — FN1 — 74S04 E86 — SCCA PA07 L — 74S04 E86 — SCCA PA07 B H

SAPJ PA06 H — FS2 — 74S04 E86 — SCCA PA06 L — 74S04 E86 — SCCA PA06 B H

SSRH VA15 C H — FD2 — 74S04 E80 — SCCA VA15 C L

SSRH VA14 C H — FL2 — 74S04 E80 — SCCA VA14 C L

SSRH VA13 C H — FK2 — 74S04 E80 — SCCA VA13 C L

REVISIONS		
CHK	CHANGE NO.	REV.

ADDRESS BUFFERS SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES (SCCA)	D	CS	M8140-0-1	B

SCALE — SHEET 2 OF 13 — DIST.

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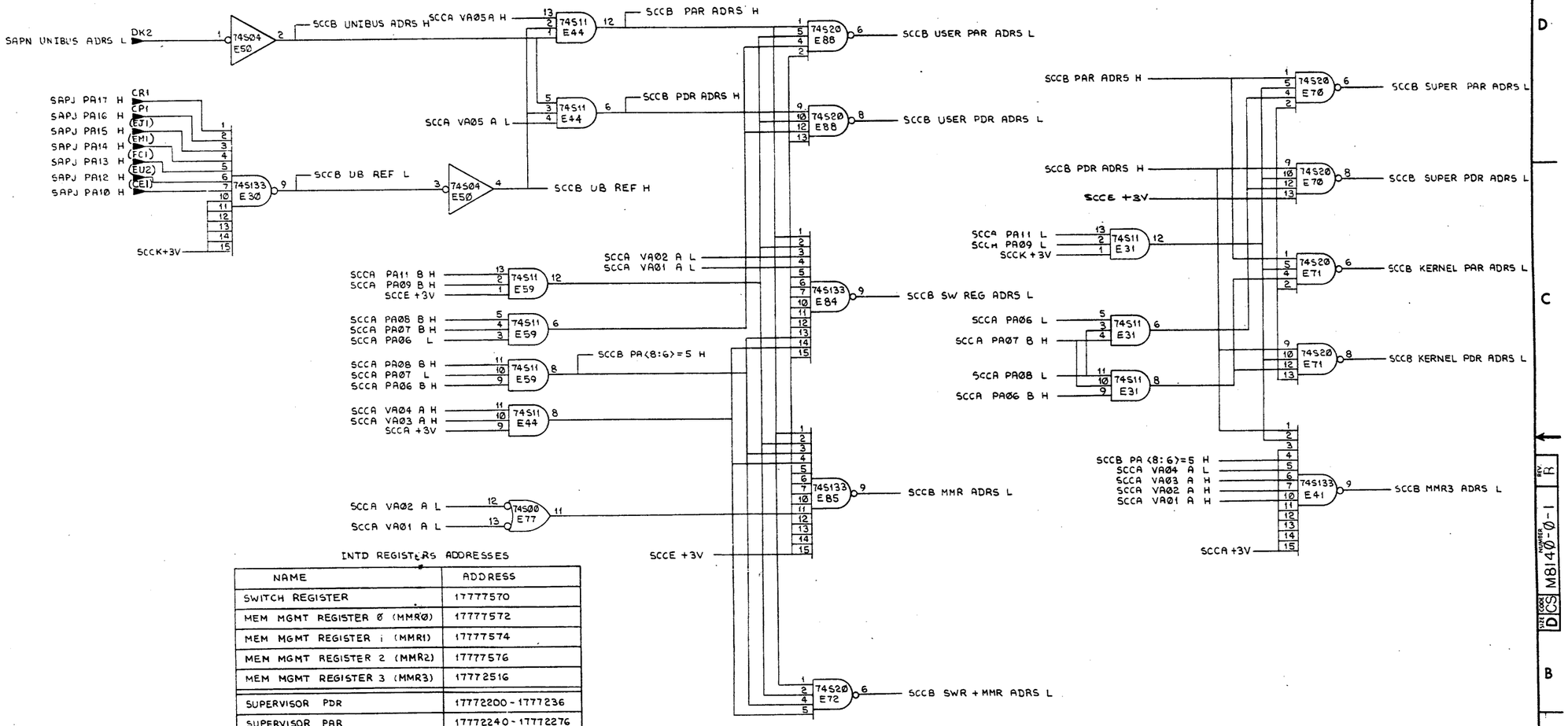

INTD REGISTERS ADDRESSES

NAME	ADDRESS
SWITCH REGISTER	17777570
MEM MGMT REGISTER 0 (MMR0)	17777572
MEM MGMT REGISTER 1 (MMR1)	17777574
MEM MGMT REGISTER 2 (MMR2)	17777576
MEM MGMT REGISTER 3 (MMR3)	17772516
SUPERVISOR PDR	17772200 - 17772236
SUPERVISOR PAR	17772240 - 17772276
KERNEL PDR	17772300 - 17772336
KERNEL PAR	17772340 - 17772376
USER PDR	17777600 - 17777636
USER PAR	17777640 - 17777676

REVISIONS

CHK	CHANGE NO.	REV.

REG ADDRESS DECODER SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES (SCCB)	D	CS	M8140-0-1	B

SCALE — | SHEET 3 OF 13 | DIST.

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SCCE +3V
SCCB USER PAR ADRS L
74S74 E69
ED1 SCCC USER PAR (1) H
EL2 SCCC USER PAR (0) H

SCCB USER PDR ADRS L
74S74 E69
EB2 SCCC USER PDR (1) H
EK2 SCCC USER PDR (0) H

SCCB SUPER PAR ADRS L
74S74 E68
ED2 SCCC SUPER PAR (1) H
EJ2 SCCC SUPER PAR (0) H

SCCD INT CLR A L

SCCB SUPER PDR ADRS L
74S74 E68
EC1 SCCC SUPER PDR (1) H
EF1 SCCC SUPER PDR (0) H

SCCB KERNEL PAR ADRS L
74S74 E56
DM2 SCCC KERNEL PAR (1) H
DR1 SCCC KERNEL PAR (0) H

SCCB KERNEL PDR ADRS L
74S74 E56
DN1 SCCC KERNEL PDR (1) H
DP1 SCCD KERNEL PDR (0) H

TIGA PSEUDO T3 H
DV2
R32 OPTIONAL
R29 OPT.
+5V

SCCD INT CLR B L

SCCC MMR REG (0) H
SCCC MMR3 (0) H
74S133 E65
SCCE +3V
DK1 SCCC INT REG H

74S04 E50
DE1 SCCC INT REG A L
DD2 SCCC INT REG B L

TMCE C1 H
DM1
74S04 E50
SCCC C1 B L

SCCA +3V
SCCB MMR ADRS L
74S74 E53
EA1 SCCC MMR REG (1) H
SCCC MMR REG (0) H

SCCE +3V
SCCB MMR3 ADRS L
74S74 E55
SCCC C1 B L
SCCC MMR3 (1) H
74S10 E62
SCCC READ MMR3 L
SSRJ GET OFF L
DB1
DP2 SCCC MMR3 (0) H

SCCD INT CLR A L

SCCB SW REG ADRS L
TIGA PSEUDO T3 H
DV2
74S74 E55
74S04 E50
DB2 SCCC SW REG L
SCCC SW REG (0) H

74S11 E64
SCCC C1 B L
SCCE +3V
EM2 SCCC WRITE MMR0 REG H

REG ADDRESS DECODE SLOT 16

REVISIONS
CHK | CHANGE NO. | REV.

TITLE: SYS DESC/CNSL CABLES (SCCC)
SIZE D CODE CS NUMBER M8140-0-1 REV B
SCALE — SHEET 4 OF 13 DIST.

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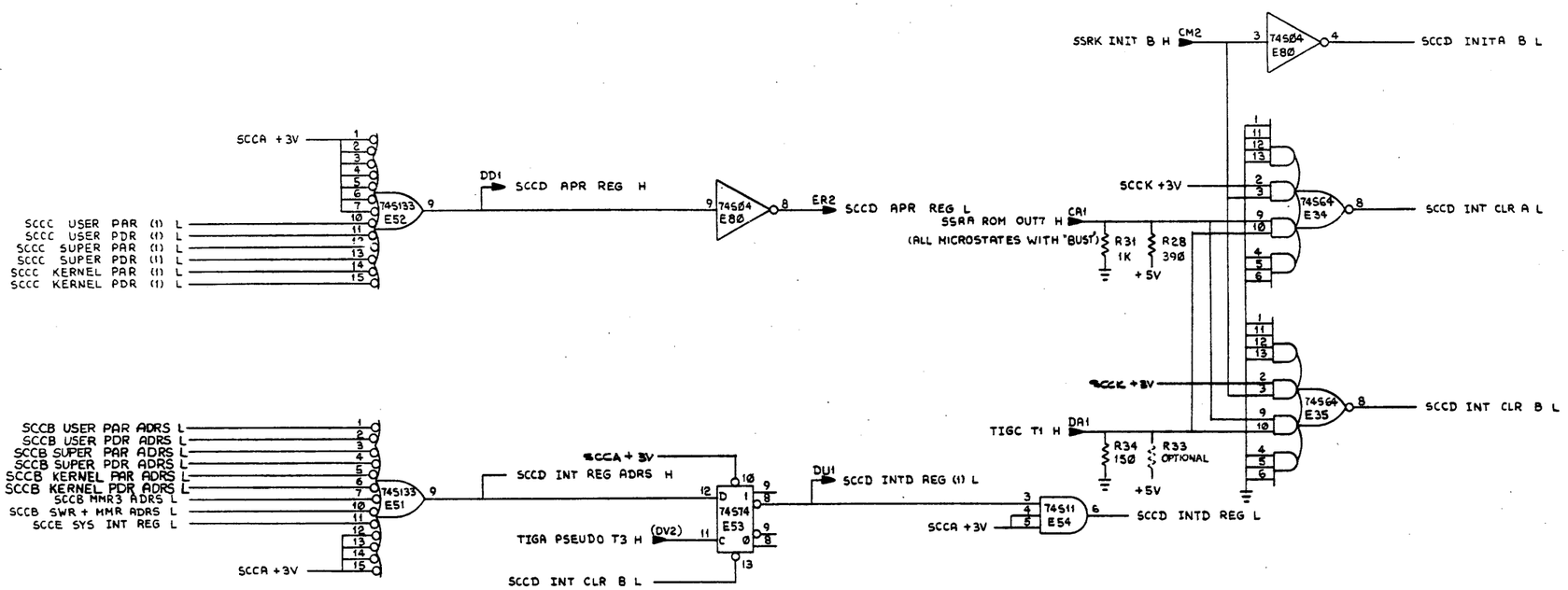

REVISIONS

CHK	CHANGE NO.	REV.

REG ADDRESS DECODE SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES (SCCD)	D	CS	M8140-0-1	B

SCALE — SHEET 5 OF 13 DIST.

M8140-0-1 REV. B SIZE D CODE CS

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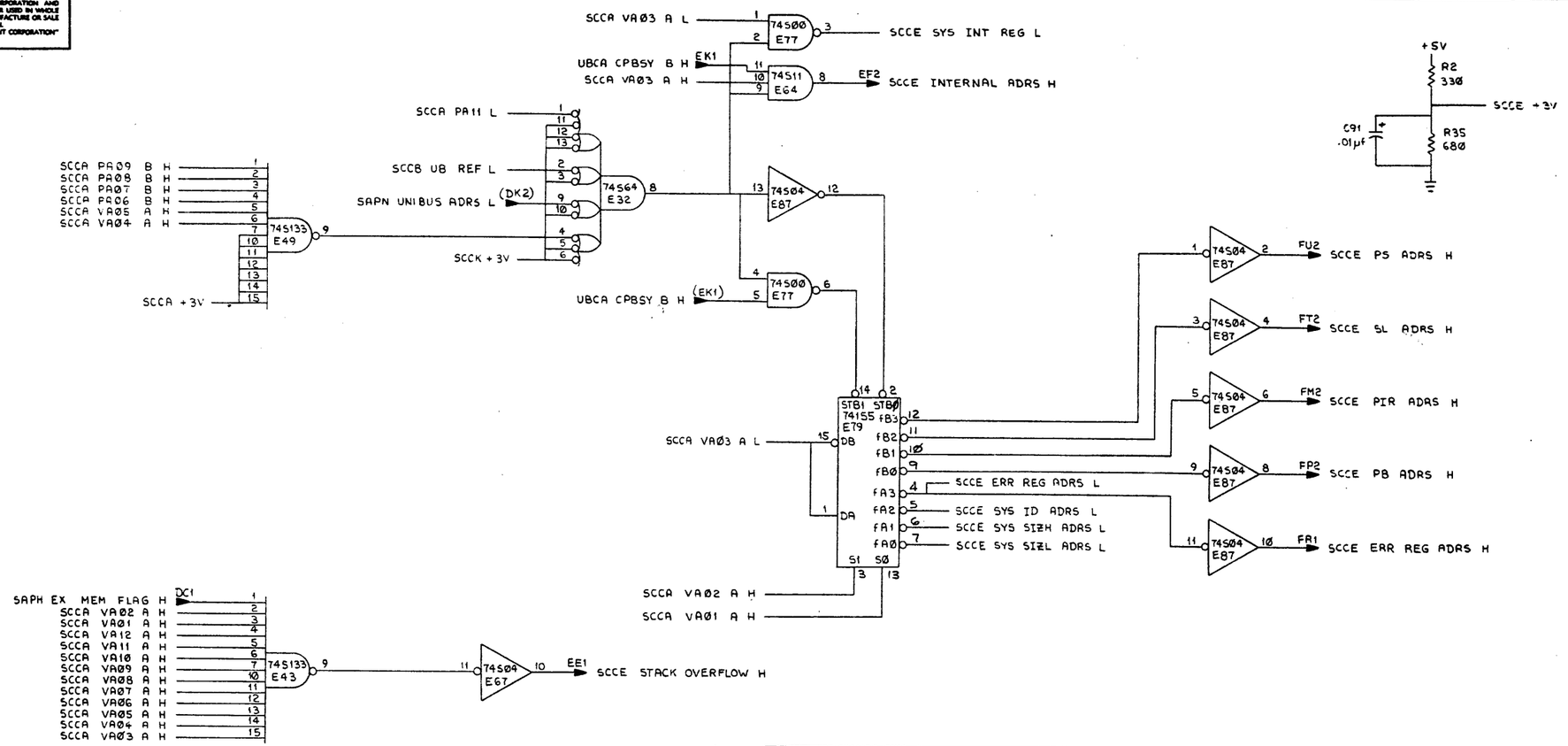

SYSTEM REG (STBØ)	UNIBUS REG (STB1)	SCCA VAØ3 A	SCCA VAØ2 A (S1)	SCCA VAØ1 A (SØ)	TRUE OUTPUT SIGNAL (F OUTPUTS)	REGISTER ADDRESS
H	H	X	X	X	NONE	NONE
L	L	H	L	L	SCCE PB ADRS	17777770
L	L	H	L	H	SCCE PIR ADRS	17777772
L	L	H	H	L	SCCE SL ADRS	17777774
L	L	H	H	H	SCCE PS ADRS	17777776
L	H	L	L	L	SCCE SYS SIZL ADRS	17777760
L	H	L	L	H	SCCE SYS SIZH ADRS	17777762
L	H	L	H	L	SCCE SYS ID ADRS	17777764
L	H	L	H	H	SCCE ERR REG ADRS	17777766

REVISIONS

CHK	CHANGE NO.	REV.

SYSTEM REG ADDRESS DECODE SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCE)	D	CS	M8140-0-1	B

SCALE — SHEET 6 OF 13 DIST.

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SCCD INITA B L
SCCJ CONT SW H
7404 E14
7408 E15
SCCF CNSL CLR L

SCCK +3V
SCCJ LOAD ADRS SW H
7474 E24
SCCF GEN REG (1) H
SCCF GEN REG (0) H

SCCJ SWR21 H
SCCJ SWR20 H
SCCJ SWR19 H
SCCJ SWR18 H
SCCJ SWR17 H
SCCJ SWR16 H
SCCJ SWR15 H
SCCJ SWR14 H
SCCJ SWR13 H
SCCJ SWR12 H
SCCJ SWR11 H
SCCJ SWR10 H
SCCJ SWR09 H
74S133 E22

SCCJ SWR04 H
8815 E23
SCCF GEN REG ADRS H

SCCJ SWR08 H
SCCJ SWR07 H
SCCJ SWR06 H
74S20 E21

SCCJ SWR05 H
7404 E14

SCCL ENAB 22BIT MAPPING H
7404 E14
7408 E17
SCCK +3V
SCCF IND 16BIT MAPPING H
SCCF IND 18BIT MAPPING H
SCCF IND 22BIT MAPPING H

SSRE RELOC L BF1
7404 E14

	ADDRESS RANGE
GENERAL REGISTERS	17777700- 17777717

SCCJ EXAM SW H
SCCF GEN REG (1) H
SCCF GEN REG (0) H
SCCJ DEP SW H
SCCK +3V
SCCA VA04 A H
SCCA VA05 A H
74S11 E25
74S11 E26
SCCF REG EXAM H
SCCF REG DEP H
SCCF EXAM H
SCCF DEP H
SCCF DISP ADRS04 H
SCCF DISP ADRS05 H

SCCJ CONT SW H
SCCJ START SW H
SCCJ SGL BUS CYC SW H
SCCJ HALT SW H
SCCJ LOAD ADRS SW H
SCCK +3V
7408 E16
7408 E15
SCCF CONT H
SCCF START H
SCCF SINGLE CYCLE H
SCCF HALT H
SCCF LOAD ADRS H

UBCB IND PAR ERR H AN1
7404 E67
TMCF IND ADRS ERR H DT2
74S11 E54
SCCF IND ADRS ERR H

REVISIONS		
CHK	CHANGE NO.	REV.

GENERAL REGISTER DECODE SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCF)	D	CS	M8140-0-1	B
SCALE —	SHEET 7 OF 13	DIST.		

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SCCJ SWR07 H → 74H01 E46 pin 1 → pin 3 DL1 → BUS INTD07 L

TMCF READ SW L (EB1) → 74S40 E57 pin 1
SCCC SW REG (0) H → 74S40 E57 pin 4
74S40 E57 pin 6 → SCCH ENAB INTD DATA H

SCCJ SWR06 H → 74H01 E46 pin 4 → pin 6 DJ2 → BUS INTD06 L

SCCJ SWR 03 H → 74H01 E46 pin 9 → pin 8 CV2 → BUS INTD03 L

8234 E38

SCCJ SWR05 H → B0
SCCL ENAB UB MAP H → A0
F0 → pin 3 DF1 → BUS INTD05 L

8234 E37

SCCJ SWR04 H → B3
SCCL ENAB 22BIT MAPPING H → A3
F3 → pin 13 CT2 → BUS INTD04 L

SCCJ SWR02 H → B2
SCCL ENBL D K (1) H → A2
F2 → pin 12 CS2 → BUS INTD02 L

SCCJ SWR01 H → B1
SCCL ENBL D S (1) H → A1
F1 → pin 4 CU1 → BUS INTD01 L

SCCJ SWR00 H → B0
SCCL ENBL D U (1) H → A0
F0 → pin 3 CU2 → BUS INTD00 L

TMCF READ SW L (EB1) → 74S11 E54 pin 1
SCCA +3V → 74S11 E54 pin 2
SCCC SW REG (0) H → 74S11 E54 pin 13
74S11 E54 pin 12 → SCCC READ MMR3 L

8234

S0	S1	fn	OUTPUT
L	L	$\bar{B}$	SWITCH REGISTER
H	L	$\bar{A}$	MEM MGMT REG3
L	H	$\bar{B}$	SWITCH REGISTER
H	H	H	NONE

SCCJ SWR15 H → 74H01 E27 pin 1 → pin 3 CL1 → BUS INTD15 L

SCCJ SWR14 H → 74H01 E27 pin 4 → pin 6 CJ1 → BUS INTD14 L

SCCJ SWR13 H → 74H01 E27 pin 9 → pin 8 BS2 → BUS INTD13 L

SCCJ SWR12 H → 74H01 E27 pin 12 → pin 11 CK1 → BUS INTD12 L

SCCJ SWR11 H → 74H01 E28 pin 1 → pin 3 CK2 → BUS INTD11 L

SCCJ SWR10 H → 74H01 E28 pin 4 → pin 6 CF1 → BUS INTD10 L

SCCJ SWR09 H → 74H01 E28 pin 9 → pin 8 CE1 → BUS INTD09 L

SCCJ SWR08 H → 74H01 E28 pin 12 → pin 11 CM1 → BUS INTD08 L

SCCH ENAB INTD DATA H

REVISIONS		
CHK	CHANGE NO.	REV.

INTERNAL BUS DRIVERS SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCH)	D	CS	M8140-0-1	B
SCALE —	SHEET 8 OF 13	DIST.		

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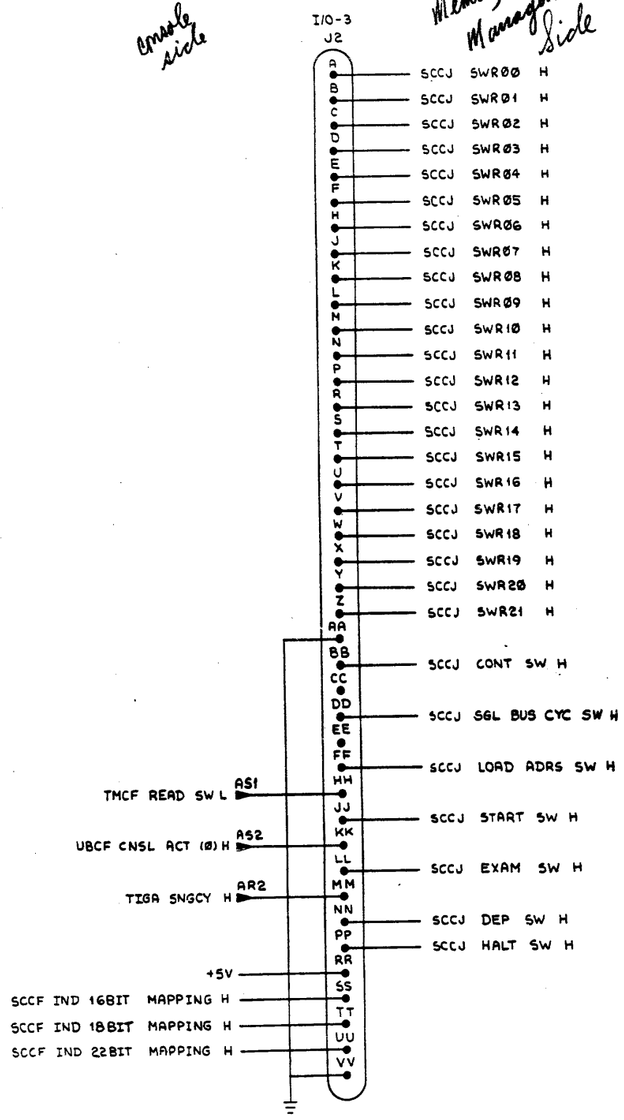
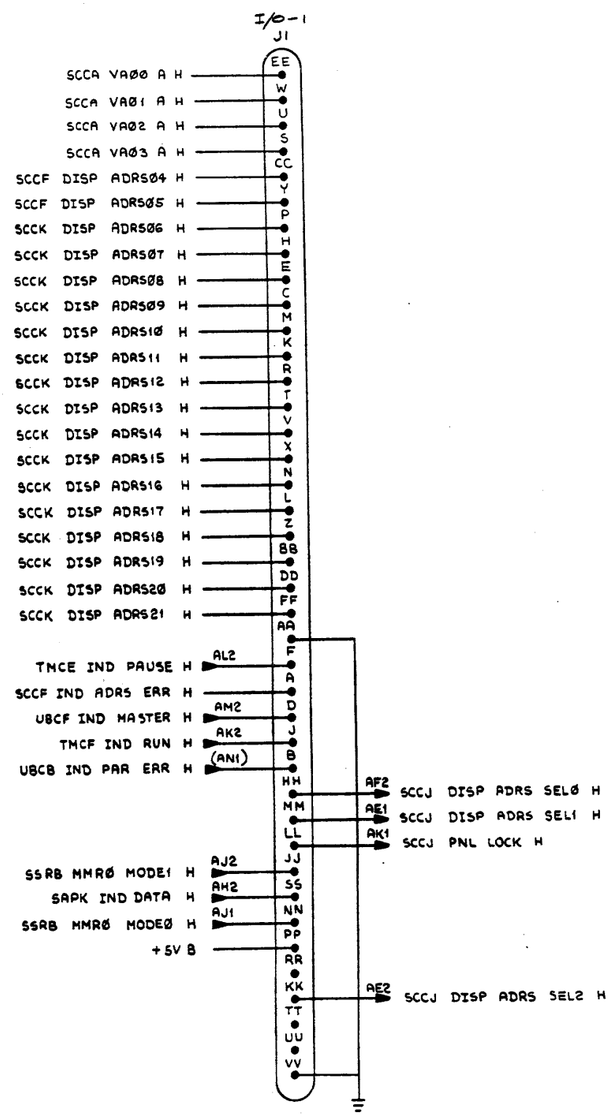
console side

Memory Management Side





SCC/CNSL CABLES SLOT 16

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES (SCCJ)	D	CS	M8140-0-1	B
SCALE — #	SHEET 9 OF 13	DIST.		

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74S158

OUTPUT	IN	SEL	STB
RELOCATED ADRS	A	L	L
VIRTUAL ADRS	B	H	L
GENERAL REG ADRS	1	X	H

74153

OUTPUT	INPUT LINES SELECTED		S1	S0
GEN REG	A1	A0	L	L
CONSOLE PHYS	B1	B0	L	H
PROGRAM PHYS	C1	C0	H	L
VIRTUAL	D1	D0	H	H

+5V
R3 330Ω
SCCK +3V
C92 .01μf
R36 680Ω

74S158 E12 MUX
SCCA VA15 C L / SCCA PA15 L → SCCK DISP ADRS15 H
SCCA VA14 C L / SCCA PA14 L → SCCK DISP ADRS14 H
SCCA VA13 C L / SCCA PA13 L → SCCK DISP ADRS13 H

74S158 E8 MUX
SCCA VA12 A L / SCCA PA12 L → SCCK DISP ADRS12 H
SCCA VA11 A L / SCCA PA11 L → SCCK DISP ADRS11 H
SCCA VA10 A L / SCCA PA10 L → SCCK DISP ADRS10 H
SCCA VA09 A L / SCCA PA09 L → SCCK DISP ADRS09 H

74S158 E9 MUX
SCCA VA08 A L / SCCA PA08 L → SCCK DISP ADRS08 H
SCCA VA07 A L / SCCA PA07 L → SCCK DISP ADRS07 H
SCCA VA06 A L / SCCA PA06 L → SCCK DISP ADRS06 H
SSRK PRGM PHYS DSPLY L (CC1)
SCCF GEN REG (1) H

74S174 E13
SCCJ SWR21 H → D0 R0(1)
SCCJ SWR20 H → D1 R1(1)
SCCJ SWR19 H → D2 R2(1)
SCCJ SWR18 H → D3 R3(1)
SCCJ SWR17 H → D4 R4(1)
SCCJ SWR16 H → D5 R5(1)
CLK CLR
UBCF CNSL07 (1) H (BB1)

BN1 SCCK SWR21 B (1) H
BD2 SCCK SWR20 B (1) H
BC1 SCCK SWR19 B (1) H
AC1 SCCK SWR18 B (1) H
BH2 SCCK SWR17 B (1) H
AF1 SCCK SWR16 B (1) H

74153 E5 MUX
SAPJ PA21 H (AA1)
SCCK +3V
SAPJ PA20 H (AB2)
→ SCCK DISP ADRS21 H
→ SCCK DISP ADRS20 H

74153 E3 MUX
SAPJ PA19 H (AB1)
SCCK +3V
SAPJ PA18 H (AD2)
→ SCCK DISP ADRS19 H
→ SCCK DISP ADRS18 H

74153 E4 MUX
SAPJ PA17 H (CR1)
SCCK +3V
SAPJ PA16 H (CP1)
→ SCCK DISP ADRS17 H
→ SCCK DISP ADRS16 H

74S11 E33
SSRK CNSL PHYS DSPLY L (CS1)
SCCF GEN REG (1) L
SCCK +3V
SSRK PRGM PHYS DSPLY L (CC1)

74S11 E64
SCCD INITA B L
SCCE +3V
→ SCCK SR CLR L

74S04 E67
SSRA ROM11Ø H (EP2)
→ SCCK ROM11Ø L

REVISIONS

CHK	CHANGE NO.	REV.

CONSOLE ADDRESS DISPLAY SLOT 16

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCK)	D	CS	M8140-0-1	B
SCALE —	SHEET 10 OF 13	DIST.		

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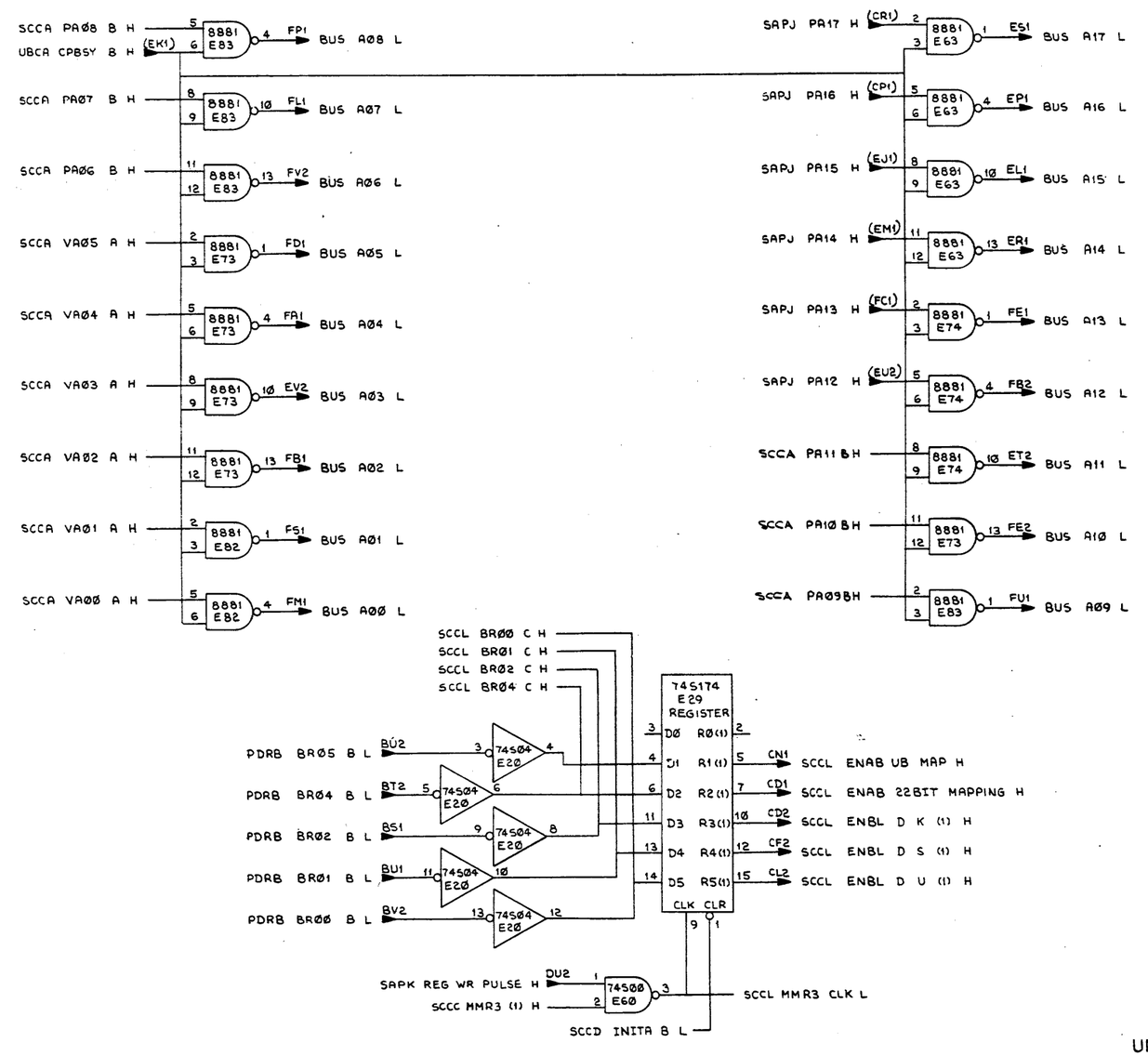

UNIBUS ADDRESS DRIVERS +MMR3 SLOT 16

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCL)	D	CS	M8140-0-1	B
SCALE —	SHEET 11 OF 13		DIST.	

M8140-0-1 REV B

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+5V

R4 1K — W1 — SCCM SYS ID07 H
R5 1K — W2 — SCCM SYS ID06 H
R6 1K — W3 — SCCM SYS ID05 H
R7 1K — W4 — SCCM SYS ID04 H
R8 1K — W5 — SCCM SYS ID03 H
R9 1K — W6 — SCCM SYS ID02 H
R10 1K — W7 — SCCM SYS ID01 H
R11 1K — W8 — SCCM SYS ID00 H

SCCD INTD REG L

TMCD ILL HALT H — DE2
TMCD ODD ADRS H — DH2
TMCD CACHE NEXM H — DF2
TMCD UBUS TIMEOUT H — DJ1
TMCD YEL TRAP H — CP2
TMCD SL RED ERR H — CR2
SCCA +3V

74153 E48 MUX
74153 E47 MUX
74153 E39 MUX
74153 E40 MUX

SCCE SYS SIZL ADRS L
SCCE SYS ID ADRS L — 74S00 E60 — SCCM SEL1 H
SCCE ERR REG ADRS L — 74S00 E60 — SCCM SEL0 H

SCCC CI BL
SCCD APR REG L
SCCC MMR REG(0)H — 74S11 E42

SSRJ GET OFF L (DB1)
SCCM INT GATE L — 74S11 E42 — SCCM DATA EN H

SCCE ERR REG ADRS L
SCCE SYS ID ADRS L
SCCE SYS SIZH ADRS L
SCCE SYS SIZL ADRS L — 74S20 E72

74H01 E45 (DL1) — BUS INTD07 L
74H01 E45 (DJ2) — BUS INTD06 L
74H01 E45 (DF1) — BUS INTD05 L
74H01 E45 (CT2) — BUS INTD04 L
74H01 E36 (CV2) — BUS INTD03 L
74H01 E36 (CS2) — BUS INTD02 L
74H01 E36 (CU1) — BUS INTD01 L
74H01 E36 (CU2) — BUS INTD00 L

74153

S1	S0	INP	OUTPUT	REGISTER ADDRESS
L	L	A	SYS SIZE-HI WORD	17777762
L	H	B	CPU ERROR	17777766
H	L	C	SYS SIZE-LO WORD	17777760
H	H	D	SYS ID REG	17777764

SYSTEM REGISTER BITS <07:00> SLOT 16

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
SYS DESC/CNSL CABLES(SCCM)	D	CS	M8140-0-1	B

SCALE — SHEET 12 OF 13 — DIST.

M8140-0-1 REV B

182

274

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SCCK SWR16 B (1) H → 7404 E2 → SCCN SWR16 L

SCCK SWR17 B (1) H → 7404 E2 → SCCN SWR17 L

BIT 17 21 20 16 18 14 19 15 (W13 W13 W14 W10 W16 W15 W12 W11)

MEMORY SIZE	SIZE REG	SWITCHES
32K	001777	00000101
64K	003777	00010101
96K	005777	10000101
128K	007777	1001010:
256K	017777	10011101
384K	027777	10010111
512K	037777	10011111
1M	077777	10111111

7483

CARRY OUT C4	F=	OUTPUT
L	A<B	NON EXISTENT MEM REF
H	A≥B	VALID MEM REF

+5V, R15 1K, R14 1K, R13 1K, R12 1K; W9, W10, W11, W12

7483 E7: SCCN SWR17 L → B4; SCCN SWR16 L → B3; SCCA VA15 C L → B2; SCCA VA14 C L → B1; A4, A3, A2, A1; C0 C4; Σ4 Σ3 Σ2 Σ1

AU2 SCCN SYS SIZE17 H
AT2 SCCN SYS SIZE16 H
AL1 SCCN SYS SIZE15 H
AH1 SCCN SYS SIZE14 H

+5V, R23 1K, R22 1K, R21 1K, R20 1K; W13, W14, W15, W16

7483 E6: SCCN SWR21 L → B4; SCCN SWR20 L → B3; SCCN SWR19 L → B2; SCCN SWR18 L → B1; A4, A3, A2, A1; C0 C4; Σ4 Σ3 Σ2 Σ1

AV2 SCCN SYS SIZE21 H
AU1 SCCN SYS SIZE20 H
AP1 SCCN SYS SIZE19 H
AH1 SCCN SYS SIZE18 H

7483 E6 C4 → 7404 E1 → ADI → SCCN CNSL OVERFLOW H

SCCK +3V

74157

SEL	INP	OUTPUT
L	A	SYS ID REGISTER
H	B	SYS SIZE -LO WORD

+5V, R19 1K, R18 1K, R17 1K, R16 1K; W17, W18, W19, W20

74157 E11 MUX: B3, A3, B2, A2, B1, A1, B0, A0, S0 STB; F3, F2, F1, F0

74H01 E19: (CK2) BUS INTD11 L; (CF1) BUS INTD10 L; (CE1) BUS INTD09 L; (CM1) BUS INTD08 L

SCCN SYS ID11 H
SCCN SYS ID10 H
SCCN SYS ID09 H
SCCN SYS ID08 H

+5V, R27 1K, R26 1K, R25 1K, R24 1K; W21, W22, W23, W24

74157 E10 MUX: B3, A3, B2, A2, B1, A1, B0, A0, S0 STB; F3, F2, F1, F0

74H01 E18: (CL1) BUS INTD15 L; (CJ1) BUS INTD14 L; (BS2) BUS INTD13 L; (CK1) BUS INTD12 L

SCCN SYS ID15 H
SCCN SYS ID14 H
SCCN SYS ID13 H
SCCN SYS ID12 H

SCCE SYS ID ADRS L
SCCD INTD REG L

SSRJ GET OFF L (DBI)
SCCM INT GATE L → 74S11 E42

SCCE SYS ID ADRS L → 74S00 E60
SCCE SYS SIZEL ADRS L → 74S00 E60

SCCK SWR18 B (1) H → 7404 E2 → SCCN SWR18 L
SCCK SWR19 B (1) H → 7404 E2 → SCCN SWR19 L
SCCK SWR20 B (1) H → 7404 E2 → SCCN SWR20 L
SCCK SWR21 B (1) H → 7404 E2 → SCCN SWR21 L

REVISIONS		
CHK	CHANGE NO.	REV.

SYSTEM REGISTER BITS <15:08> SLOT 16

TITLE: SYS DESC/CNSL CABLES (SCCN)
SIZE D | CODE CS | NUMBER M8140-0-1 | REV. B
SCALE —/— | SHEET 13 OF 13 | DIST.

DEC FORM NO. DRD 138

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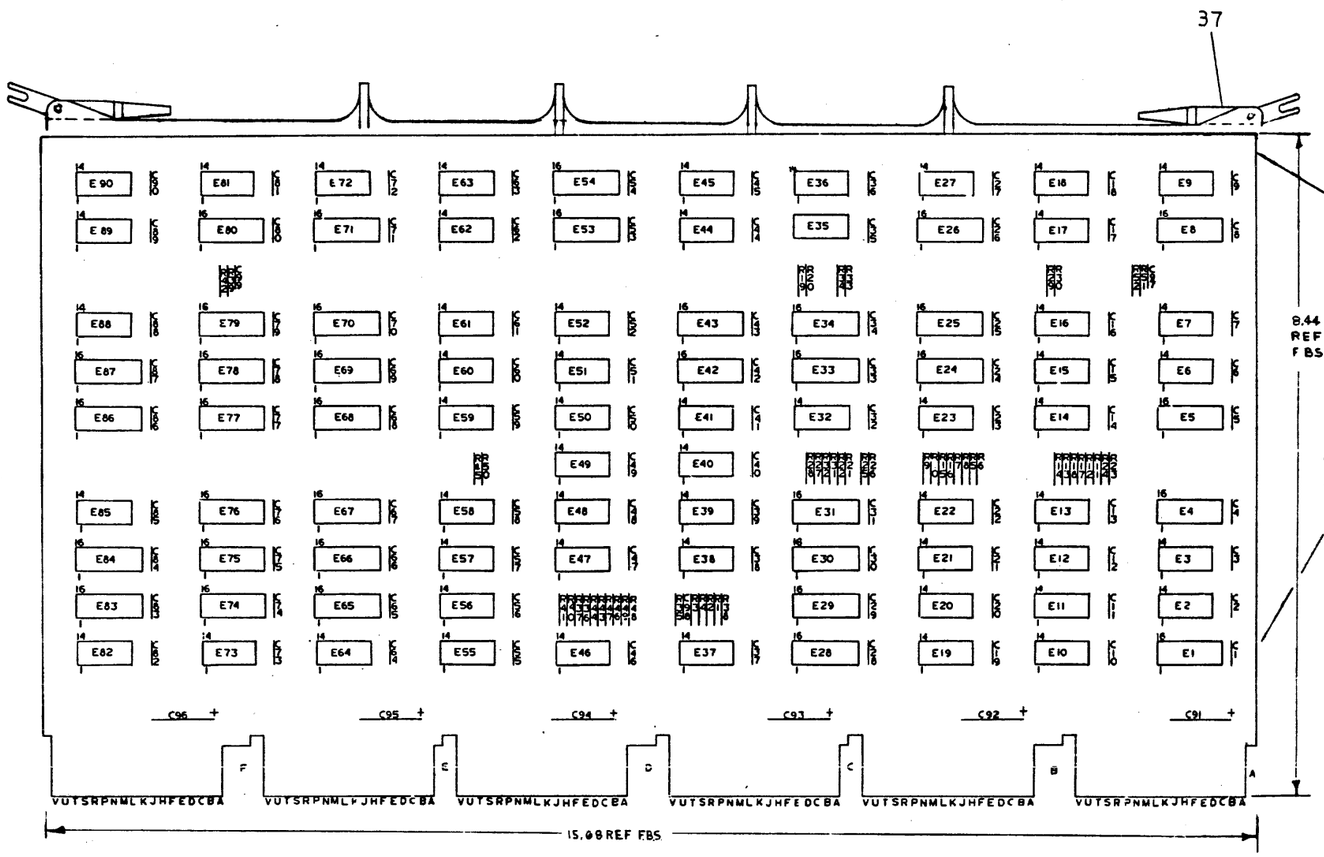
NOTES:

1. * OPTIONAL COMPONENTS.
2. E4, E5, E8, E26, E53, & E80 ARE SPARE I.C. LOCATIONS.



REF	REF				
REF	REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8138-Ø-4	1
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8138-Ø-5	2
REF	REF		MODULE ECO HISTORY	B-MH-M8138-Ø-6	3
1	1		ETCHED CIRCUIT BOARD	5011341	4
93	93	C1 THRU C90, C97, C98, C99	CAP, .01uf 100V 20%	1001610-01	5
6	6	C91 THRU C96	CAP 6.8uf 35V /0% TANT	1005308	6
4	4	R1, R33, R44, R50	RESISTOR 150 1/4W 5%	1300250	7
3	3	R35, R38, R51	RESISTOR 330 1/4W 5%	1300295	8
12	12	R4, R6, R8, R10, R12 R14, R16, R18, R20, R22, R26, R32	RESISTOR 1K 1/4W 5%	1300365	9
3	3	R24, R28, R30	RESISTOR 1.5K 1/4W 5%	1300391	10
3	3	R23, R27, R29	RESISTOR 750 1/4W 5%	1301401	11
3	3	R38, R42, R52	RESISTOR 680 1/4W 5%	1301424	12
1	1	R34	RESISTOR 300 1/4W 5%	1301425	13
12	12	R3, R5, R7, R11, R13, R15, R9, R17 R19, R21, R25, R31	RESISTOR 560 1/4W 5%	1301890	14
1	1	E35	DELAY LINE	1609428	15
8	8	E65, E66, E67, E74, E75, E76, E83 E84	I.C. 74153	1909937	16
1	1	E1	I.C. 7442	1910048	17
2	2	E81, E85	I.C. DEC 7431	1910091	18
1	1	E7	I.C. 7408	1910155	19
6	6	E2, E15, E18, E45, E47, E58	I.C. 74S00	1910532	20
9	9	E12, E14, E17, E23, E32, E48, E59 E61, E89	I.C. 74S04	1910534	21
4	4	E10, E27, E48, E88	I.C. 74S10	1910536	22
8	8	E3, E6, E11, E16, E38, E50, E57, E72	I.C. 74S11	1910537	23
3	3	E84, E73, E82	I.C. 74S05	1910535	24
5	5	E41, E44, E51, E80, E90	I.C. 74S40	1910541	25
8	8	E13, E19, E20, E21, E22, E55, E56, E83	I.C. 74S64	1910542	26
3	3	E33, E34, E79	I.C. 74S157	1910548	27
6	6	E42, E43, E69, E70, E78, E87	I.C. 74S174	1910550	28
4	4	E25, E54, E71, E86	I.C. DEC 74175	1910651	29
2	2	E68, E77	I.C. 74174	1910652	30
1	1	E24	I.C. 74157	1910655	31
8	8	E9, E37, E38, E39, E40, E49, E52 E62	I.C. 74S74	1910544	32
	1	E28,	I.C. DEC 74187	23C49A2	33
	1	E29	I.C. 74187	23C50A2	34
	1	E30	I.C. 74187	23C35A2	35
	1	E31	I.C. 74187	23C34A2	36
1	1		HANDLE, HEX MODULE	1210711-02	37
12	12		EYELET HANDLE	9006732	38
					39
1		E28	I.C. 74187	23C88A2	40
1		E29	I.C. 74187	23C90A2	41
1		E30	I.C. 74187	23C84A2	42
1		E31	I.C. 74187	23C89A2	43
A/R	A/R		WIRE, #30 AWG	9105740-55	44

M8138-YA
M8138

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL: 11/70

PARTS LIST

ETCH BOARD REV: B

IC DEC 7442	8	16
IC DEC 74153	8	16
IC DEC 74157	8	16
IC DEC 74S157	8	16
IC DEC 74174	8	16
IC DEC 74S174	8	16
IC DEC 74175	8	16
IC DEC 74187	8	16
IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

+5V
AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV1

GND
AC2, AH1, AN2 AT1, BC2, BH1, BN2 BT1, CC2, CH1, CN2, CT1, DC2, DH1, DN2, DT1, EC2, EH1, EN2, ET1, FC2, FH1, FN2, FT1

C1 THRU C90 .01 μF

C91 THRU C96 6.8 μF

REV	CHANGE NO	CHK	REVISIONS
E	M8138-00005		D. THOMPSON 6 APR 76 — CHANGE PART # — R. BOUCHER — H. Simmons 7-1-76
D	M8138-00004		T. UPTON — H. Simmons 9 JAN 74
C	M8138-00003		T. RICHARD 11-11-75
B	M8138-00001		SHARON A SMITH H 12 2 75 — H. Simmons 4-3-75
A			

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

SEMICONDUCTOR CONVERSION CHART

DRN	J THELLEN	DATE 10/15/74
CHK'D	KOPPENAL	DATE 1-14-75
ENG.	SHARON A SMITH	DATE 1-29-75
PROJ. ENG.	SHARON A SMITH	DATE 1-29-75
PROD.	L TAYLOR	DATE 11/20/75
NEXT HIGHER ASSY		
SCALE		
SHEET	1 OF 12	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: SYS. STATUS REG.

SIZE	CODE	NUMBER	REV.
D	CS	M8138-Ø-1	F

DIST.

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ROM ENCODING (1-4)	4	3	2	1
FUNCTION	M3	M2	M1	MØ
NO OPERATION	X	Ø	Ø	Ø
RESTORE PROCESSOR STATUS	X	Ø	Ø	1
AUTO INCREMENT	X	Ø	1	Ø
AUTO DECREMENT	X	Ø	1	1
BRK.3Ø	X	1	Ø	Ø
INHIBIT PADWRITE ENABLE	X	1	Ø	1
CLR ADRS 16,17	X	1	1	Ø
CLR PS RESTORE	X	1	1	1
DESTINATION MODE	1	X	X	X
NOT DESTINATION MODE	Ø	X	X	X

ROM ENCODING (5-8)	8	7	6	5
FUNCTION	M3	M2	M1	MØ
CLOCK PREV MODE (MT/FP)	X	X	X	1
KERN DATI (TRAP OR ABORT)	X	X	1	X
BUST	X	1	X	X
I SPACE IF MT/FPI	1	X	X	X

ROM ENCODING (9-12)	12	11	1Ø	9
FUNCTION	M3	M2	M1	MØ
I SPACE ON IND WORD FET	X	X	X	1
	X	X	X	X
I IF INST START IN I	X	1	X	X
DEPOSIT + EXAMINE	1	X	X	X

ROM ENCODING (13-16)	16	15	14	13
FUNCTION	M3	M2	M1	MØ
SRCM: 1-2-3-4-5	X	X	X	1
DSTM: 1-2	X	X	1	X
DSTM: 3	X	1	X	X
FLOATING POINT INST	1	X	X	X

NOTE 1: SEE SHEET SSRL FOR A "TRUTH TABLE" OF THE 74187 READ ONLY MEMORY (ROM).

* SEE PARTS LIST

745157					
INPUT LINES SELECTED				SEL	ENA
A3	A2	A1	AØ	L	L
B3	B2	B1	BØ	H	L

ROM & DECODE OUT 1-4 SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/7Ø		PARTS LIST		

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

DRN L Fuller 10/14/75 · CHK A Coppenal 11/12/75 · ENG. Alan Gosmith 11/5/75 · PROJ.ENG. Alan Gosmith 11/5/75 · PROG. L Taylor 11/20/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRA)

NEXT HIGHER ASSY. · SCALE -- · SHEET 2 OF 12

SIZE	CODE	NUMBER	REV.
D	CS	M8138-Ø-1	F

DIST.

REVISIONS: REV · CHANGE NO

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DIGITAL EQUIPMENT CORPORATION

SSRA ROM OUTØ7 H
T/GC T1 H
DDI
R43 1K
R44 130
+5V (OPTIONAL)
74S08 E47

SSRA ROM OUT12 H
SSRK CNSL KERNEL H
SSRA +3V
SSRA ROM OUTØ6 H
SSRA ROM OUTØ5 H
IRCC. MFP+MTP H
PDRD PS15 (Ø) H
PDRD PS19 (Ø) H
74S64 E21
B SSRB KS L

SSRD +3V
74S74 E39
CU1
SSRB KERNEL SPACE (1) L

PDRD PS13 (Ø) H
PDRD PS12 (1) H
ALI
BBI
SSRA +3V
74S11 E3
74S04 E12
IRCC MFP+MTP H
SSRA ROM OUTØ5 H
74S08 E15
SSRB MF/TP SPACE L

SSRA ROM OUT 12 H
74S08 E12
SSRB ROM OUT12 L

SSRA ROM OUTØ8 H
R5 R6 150Ø 1K +5V

SSRA ROM OUTØ9 H
R11 R12 150Ø 1K +5V

SSRA ROM OUTØA H
R31 R32 150Ø 1K +5V

SSRA ROM OUT11 H
R9 R10 150Ø 1K +5V

SSRA ROM OUT12 H
R29 R30 75Ø 1.5K +5V

SSRA ROM OUT13 H
R7 R8 150Ø 1K +5V

SSRA ROM OUT14 H
R15 R16 150Ø 1K +5V

SSRA ROM OUT15 H
R13 R14 150Ø 1K +5V

SSRA ROM OUT16 H
R17 R18 150Ø 1K +5V

SSRA ROM OUT12 H
SSRK CNSL SUPER H
SSRA +3V
SSRA ROM OUTØ5 H
IRCC. MFP+MTP H
SSRA ROM OUTØ6 L
SSRB MF/TP SPACE L
SSRB ROM OUT 12 L
74S64 E20
B SSRB SS L

SSRD+3V
74S74 E38
SSRB SUPER SPACE (1) L
DF2
CV2
74S08 E47
SSRB MMR0 MODE Ø H

SSRA +3V
74S11 E3
PDRD PS15 (Ø) H
AKJ
PDRD PS14 (Ø) H
BNI
74S04 E12
SSRA +3V
74S11 E3
SSRB PS14 B H

SSRA ROM OUT12 H
SSRK CNSL USER H
SSRB PMODE=USER H
SSRA ROM OUTØ5 H
IRCC MFP+MTP H
SSRA ROM OUTØ6 L
SSRB MF/TP SPACE L
SSRB ROM OUT12 L
74S64 E19
B SSRB US L

SSRD+3V
74S74 E38
SSRB USER SPACE (1) L
DH2
74S08 E48
74S08 E47
CT2
SSRB MMR0 MODE 1 H
SSRD +3V

MODE	SSRB SSR0 MODE 1 H	SSRB SSR0 MODE Ø H
KERNEL	L	L
UNUSED	H	L
SUPER	L	H
USER	H	H

SSRA +3V
74S11 E11
74S04 E12
SSRB PS14 B H
PDRD PS15 (Ø) H
AKJ
74S04 E12
SSRA +3V
74S11 E11
SSRB USER MODE H

SSRK INIT B L
IRCC SRCF7 L
BRI
74S04 E23
SSRB SPCF 7 H

SSRA ROM OUT13 H
SSRA ROM OUT11 H
SSRB PREV=I H
74S64 E22
BK2
SSRB I SPACEB L
SSRA ROM OUTØ8 H
SSRA ROM OUT14 H
SSRB DSTF7 H

IRCC MFP+MTP H
(BLI)
74S04 E23
SSRB MFP+MTP L

SSRD +3V
IRCC DSTM2 L
ARI
74S04 E14
SSRK CNSL I SPACE H
SSRA ROM OUT12 H
SSRA +3V
SSRA ROM OUT09 H
SSRA ROM OUT16 H
74S64 E13
B AS1
SSRB I SPACEA L

SAPK IND DATA H
CKI
74S74 E40
SSRB PREV=I H
SSRK PULSE BC45 H
SSRK INIT B L

IRCC DSTF7 L
AUI
74S04 E12
SSRA ROM OUT15 H
SSRB DSTF7 H
SSRA +3V

IRCA IR15 (1) H
BPI
74S04 E23
SSRB IR15 L

SSRB P MODE=USER H
SSRB USER MODE H
IRCA IRØ7 (Ø) H
BAI
74S10 E10
IRCC MFP+MTP H
(BLI)
SSRB USER/USER L
SSRA +3V
74S11 E11
SSRB ENBL IF NOT 11/44 H

ADDRESS SPACE CONTROL LOGIC SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70	PARTS LIST			

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

DRN. D. Thullen DATE 10/10/74
CHK'D DORP(2)=1 DATE 1-4-75
ENG. Robert C. Smith DATE 1/25/75
PROJ ENG. Thurston Griffin DATE 1/29/75
PROD. R. Taylor DATE 1/30/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRB)
NEXT HIGHER ASSY.
SCALE
SHEET 3 OF 12
SIZE D CODE DCS NUMBER M8138-Ø-1 REV. F
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO

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79157

OUTPUT	INPUT LINES SELECTED				SEL	ENA
INTERNAL BUS	A3	A2	A1	AØ	L	L
"FAULT" FLAG BIT	B3	B2	B1	BØ	H	L

PDRB BR15 B L — BK1 — E23 — SSRC DATA 15 H — SAPL NON RES FAULT H — BJ1
PDRB BR14 B L — BS1 — E23 — SSRC DATA 14 H — SAPL MM LENGTH FAULT H — BE1
PDRB BR13 B L — BF1 — E23 — SSRC DATA 13 H — SAPL READ ONLY FAULT H — BD1

79157 E24 MU: B2, A2, B3, A3, B1, A1, BØ, AØ, SEL, ENA → F2, F2, F1, FØ

SSRC PRE MMRØ BIT 15 H
SSRC PRE MMRØ BIT 14 H
SSRC PRE MMRØ BIT 13 H

74175 E25: D3, D2, D1, DØ, CLR, CLK → R3(1), R3(Ø), R2(1), R2(Ø), R1(1), R1(Ø), RØ(1), RØ(Ø)

SSRC MMRØ BIT 15 H
SSRC MMRØ BIT 14 H
SSRC MMRØ BIT 13 H

SSRC MMRØ BIT 15 L, SSRC MMRØ BIT 14 L, SSRC MMRØ BIT 13 L — 74S10 E27

SSRK INIT B L — 74S74 E49 — SSRC NO ERROR (1) H
SSRK PULSE BC9 16 L
SSRD +3V

SSRK INIT B L

SCCC WRITE MMRØ REG H — AA1 — 74S10 E27
SSRH VAØ2 C L
SSRH VAØ1 C H

SSRE WRITE MMRØ H — ANI — 74S00 E15
UBCB HI BYTE H
SSRE STROBE OK L — 74S00 E15
SSRA +3V — 74S11 E16
SSRK PULSE BC89 H
SSRC CLK MMRØ HI B H

MMRØ BIT LOCATIONS

BIT	PRINT SHEET
15	SSRC
14	SSRC
13	SSRC
12	SSRD
11	NOT USED
1Ø	NOT USED
9	SSRD
8	SSRE
7	SSRE
6	SSRE
5	SSRE
4	SSRE
3	SSRE
2	SSRE
1	SSRE
Ø	SSRE

SAPN UNIBUS ADR5 L — DT2 — 74S64 E55
SSRH +3V

TMCE KT BEND L — CM1 — 74S11 E36
SSRE RELOC H
SSRA +3V
SAPL ABORT COND H — DM2
SCCC INT REG B L — DR2

SSRD +3V — 74S74 E49 — SSRC ABT FLG (1) H
SSRK PULSE BC89 H — SSRC ABT FLG (Ø) H

UBCB ABORT ACKN H — CN1 — 74S00 E47
SSRK INIT B L — 74S08 E7 — AP2 — SSRC CLR ABORT FLG L

SSRC KT ABORT FLG B L — 74S04 E46
SSRC KT ABORT FLG H
DE1 — SSRC KT ABORT FLG L

SSRE RELOC H — 74S00 E18 — API — SSRC INH PSEUDO T3 L
SAPL ABORT COND H — (DM2)

MEM MGMT REGISTER #Ø-ABORT FLAGS — SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/7Ø		PARTS LIST		

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

		DATE
DRN	J. Fallon	10/15/75
CHKD	Copperal	11-19-75
ENG		DATE
PROJ ENG		DATE 11/25/75
PROD	Taylor	DATE 11/30/75

MATERIAL: —
FINISH: —
NEXT HIGHER ASSY.
SCALE: —
SHEET 4 OF 12

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRC)

SIZE D | CODE CS | NUMBER M8138-Ø-1 | REV. F | DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DSD 102-B

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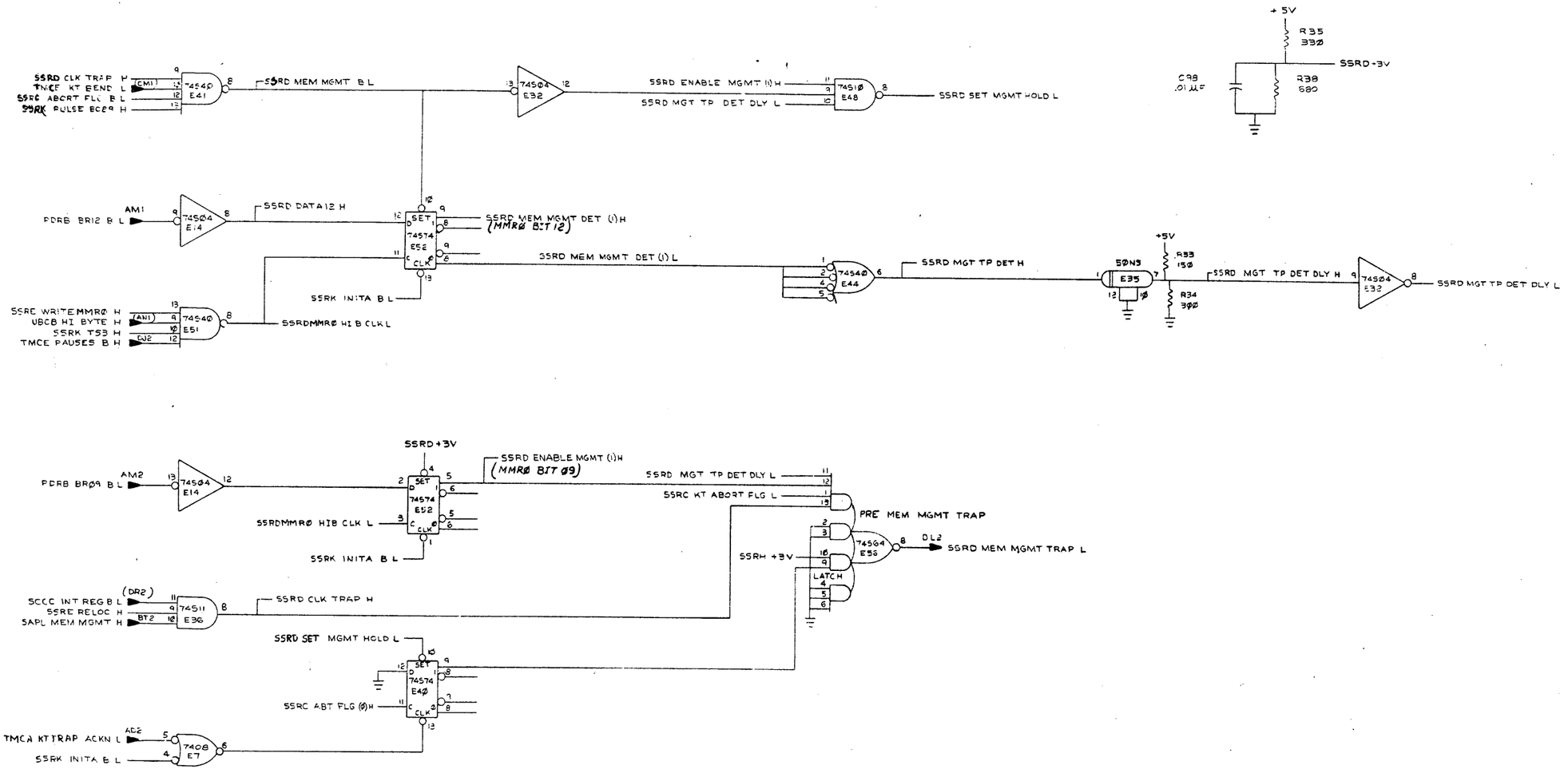

REVISIONS		
CHK	CHANGE NO.	REV.

MEM MGMT REGISTER #Ø-MEMORY MANAGEMENT TRAP SLOT 15

TITLE	SIZE	CODE	NUMBER	REV.
SYS STATUS REG SSRD	D	CS	M8138-Ø-1	F
SCALE —	SHEET 5 OF 12	DIST.		

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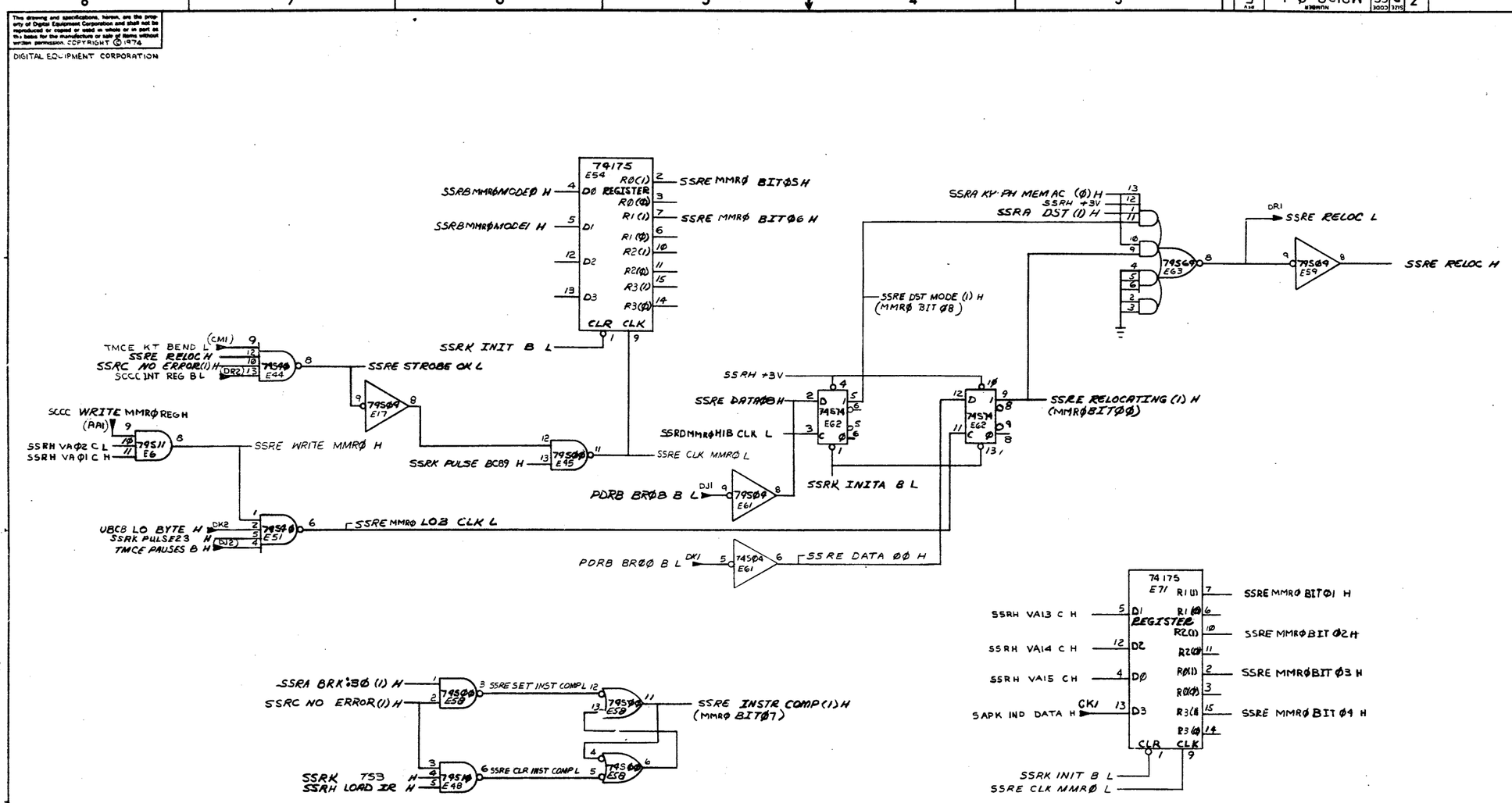

MEM MGMT REGISTER *Ø-MODE, OPERATE CONTROL SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN	L. Thiller	DATE 10/16/74
CHK'D	LORRENDL	DATE 11-18-75
ENG	Shawn G. Smith	DATE 11-21-75
PROG ENG	Shawn G. Smith	DATE 11/25/75
PROD	R. Taylor	DATE 11/20/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRE)

NEXT HIGHER ASSY.

SIZE	CODE	NUMBER	REV.
D	CS	M8138-Ø-1	F

SCALE —
SHEET 6 OF 12
DIST.

REVISIONS | REV. | CHANGE NO. | CHK.

DEC FORM NO

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SSRD +3V

SSRA ONE CHANGED (1) H
SSRK PULSE 51 H
74S00 E58
SSRF ONE AUTOED CLK L
SSRF ONE AUTOED (1) H
SSRF ONE AUTOED (0) H

74S174 E70 REGISTER
D0 D1 D2 D4 D3 D5 CLR CLK
R0(1) R1(1) R2(1) R4(1) R3(1) R5(1)
SSRF MMR1 BIT 15 H
SSRF MMR1 BIT 14 H
SSRF MMR1 BIT 13 H
SSRF MMR1 BIT 12 H

74S174 E69 REGISTER
SSRF MMR1 BIT 11 H
SSRF MMR1 BIT 10 H
SSRF MMR1 BIT 09 H
SSRF MMR1 BIT 08 H

74S174 E68 REGISTER
SSRF MMR1 BIT 07 H
SSRF MMR1 BIT 06 H
SSRF MMR1 BIT 05 H
SSRF MMR1 BIT 04 H

74S174 E67 REGISTER
SSRF MMR1 BIT 03 H
SSRF MMR1 BIT 02 H
SSRF MMR1 BIT 01 H
SSRF MMR1 BIT 00 H

SSRA BRK 30 (0) H
SSRH LOAD I A L
SSRK INIT B L
74S10 E27
SSRC NO ERROR (1) H
74S00 E45
SSRF RESET MMR1 H
SSRF CLR MMR1 L

SSRF GRA 0 B H
SSRF GRA 1 B H
SSRF GRA 2 B H

SSRA AUTO DEC (1) H

SSRC NO ERROR (1) H
SSRA ONE CHANGED (1) H
74S08 E60
74S11 E57
SSRF ONE AUTOED (1) H
SSRF ONE AUTOED (0) H
TIGD 758 H
R45 (OPTIONAL)
+5V
R50 150
SSRF CLK BYTE 0 H

DAPD KDMXD0 B L
DN1
74S04 E61
SSRF CONST00 H
SSRF CONST (01) H
DAPD KDMXD1 B L
DV2
SSRF CONST01 H
DAPD KDMXD2 B L
DP1
SSRF CONST02 H
DAPD KDMXD3 B L
DU2
SSRF CONST03 H

74S157 E79 MUX
B2 A2 B3 A3 B1 A1 B0 A0 SEL ENA
F2 F3 F1 F0
SSRH +3V
SSRA AUTO DEC (0) H

74S157	INPUT LINES SELECTED				
OUTPUT	A3	A2	A1	A0	SEL
NEGATIVE CONSTANT	A3	A2	A1	A0	L
POSITIVE CONSTANT	B3	B2	B1	B0	H

GRAC GRA2 L
DM1
74S04 E59
GRAC GRA1 L
DU1
GRAC GRA0 L
DL1
SSRF GRA0 H
SSRA +3V
74S11 E6
GRAC GRA3 L
DS2
SSRF GRA3 B H
74S40 E60

MEM MGMT REGISTER #1 - AUTO INC/DEC INFO. SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN. J. Dillon 10/14/74
CHK. B. KODDENAL 10/25
ENG. Steven Goodwin 1/29/75
ENGR ENG. Steven Goodwin 1/29/75
PROD. K. Taylor 1/30/75
NEXT HIGHER ASSY.
SCALE.
SHEET 7 OF 12

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRF)

SIZE D | CODE CS | NUMBER M8138-0-1 | REV. F | DIST.

REV	REVISIONS	CHANGE NO	CHK

DRAWING 40-522 19840 DEC FORM NO 7580 1870-R

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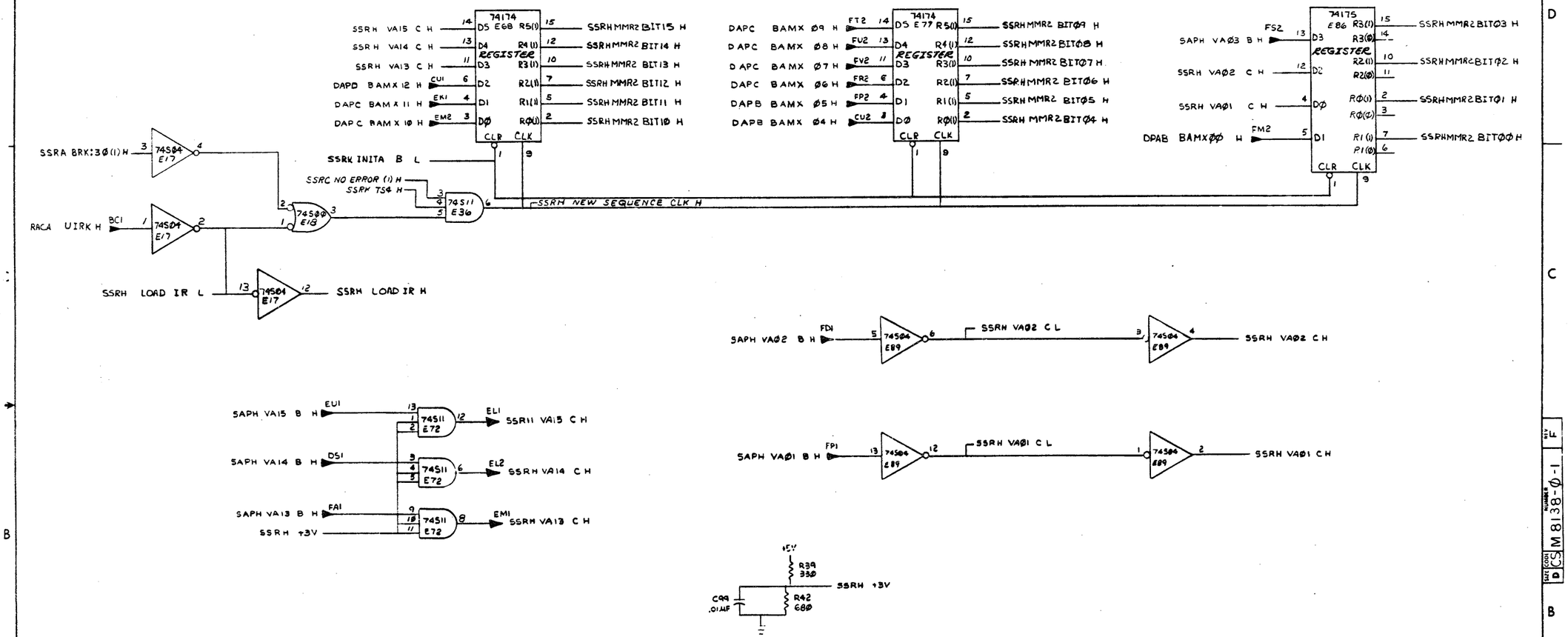

MEM MGMT REGISTER #2 INST OR TRAP VECTOR ADDRESS SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .006, XX ± .02, X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN	G Phillen	DATE 10/14/76
CHK C	RODDENAL	DATE 11/22/76
ENG	Shankman	DATE 11/30/76
PROJ ENG	Hanson Smith	DATE 11/30/76
PROD	Taylor	DATE 1/30/77

NEXT HIGHER ASSY.
SCALE
SHEET 8 OF 12

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRH)

SIZE	CODE	NUMBER	REV.
D	CS	M8138-Ø-1	F

DIST.

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-322 15840

DEC FORM NO

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SAPM APR BIT00 H
SSRH MMR2 BIT00 H
SSRF MMR1 BIT00 H
SSRE MMR0 BIT00 H
SSRE RELOCATING (I) H (MMR0 B:7 00)
SAPM APR BIT01 H
SSRH MMR2 BIT01 H
SSRF MMR1 BIT01 H
SSRE MMR0 BIT01 H
SCCC MMR REG (I) H
SSRH VA02 C H
SSRH VA01 C L
SCCD APR REG L
SSRJ MX ADDR SEL0 H
SSRJ INT BUS DATA00 H
BUS INTD00 L
SSRJ INT BUS DATA01 H
BUS INTD01 L
SAPM APR BIT02 H
SSRH MMR2 BIT02 H
SSRF MMR1 BIT02 H
SSRE MMR0 BIT02 H
SAPM APR BIT03 H
SSRH MMR2 BIT03 H
SSRF MMR1 BIT03 H
SSRE MMR0 BIT03 H
SCCC MMR REG (I) H
SSRH VA02 C H
SSRH VA01 C H
SCCD APR REG L
SSRJ MX ADDR SEL1 H
SSRJ INT BUS DATA02 H
BUS INTD02 L
SSRJ INT BUS DATA03 H
BUS INTD03 L
SAPM APR BIT04 H
SSRH MMR2 BIT04 H
SSRF MMR1 BIT04 H
SSRE MMR0 BIT04 H
SAPM APR BIT05 H
SSRH MMR2 BIT05 H
SSRF MMR1 BIT05 H
SSRE MMR0 BIT05 H
TMCE C1 H
TMCF GET OFF H
SSRJ C1 B L
SCCC INT REG H
SSRJ GET OFF L
SCCC MMR3 (0) H
SSRJ ENABLE MX L
SSRJ INT BUS DATA04 H
BUS INTD04 L
SSRJ INT BUS DATA05 H
BUS INTD05 L
SAPM APR BIT06 H
SSRH MMR2 BIT06 H
SSRF MMR1 BIT06 H
SSRE MMR0 BIT06 H
SAPM APR BIT07 H
SSRH MMR2 BIT07 H
SSRF MMR1 BIT07 H
SSRE INSTR COMP (I) H (MMR0 BIT 07)
SSRJ INT BUS DATA06 H
BUS INTD06 L
SSRJ INT BUS DATA07 H
BUS INTD07 L
SAPM APR BIT08 H
SSRH MMR2 BIT08 H
SSRF MMR1 BIT08 H
SSRE DST MODE (I) H
SAPM APR BIT09 H
SSRH MMR2 BIT09 H
SSRF MMR1 BIT09 H
SSRD ENABLE MGMT (I) H
SSRJ INT BUS DATA08 H
BUS INTD08 L
SSRJ INT BUS DATA09 H
BUS INTD09 L
SAPM APR BIT10 H
SSRH MMR2 BIT10 H
SSRF MMR1 BIT10 H
SAPM APR BIT11 H
SSRH MMR2 BIT11 H
SSRF MMR1 BIT11 H
SSRJ INT BUS DATA10 H
BUS INTD10 L
SSRJ INT BUS DATA11 H
BUS INTD11 L
SAPM APR BIT12 H
SSRH MMR2 BIT12 H
SSRF MMR1 BIT12 H
SSRD MEM MGMT DET (I) H
SAPM APR BIT13 H
SSRH MMR2 BIT13 H
SSRF MMR1 BIT13 H
SSRC MMR0 BIT13 H
SSRJ INT BUS DATA12 H
BUS INTD12 L
SSRJ INT BUS DATA13 H
BUS INTD13 L
SAPM APR BIT14 H
SSRH MMR2 BIT14 H
SSRF MMR1 BIT14 H
SSRC MMR0 BIT14 H
SAPM APR BIT15 H
SSRH MMR2 BIT15 H
SSRF MMR1 BIT15 H
SSRC MMR0 BIT15 H
SSRJ INT BUS DATA14 H
BUS INTD14 L
SSRJ INT BUS DATA15 H
BUS INTD15 L

74153						
OUTPUT	INPUT LINES SELECTED		S1	S0	1Ø	2Ø
MEM MGMT REG Ø	A1	A0	L	L	L	L
MEM MGMT REG 1	B1	B0	L	H	L	L
MEM MGMT REG 2	C1	C0	H	L	L	L
APR	D1	D0	H	H	L	L

INTERNAL BUS DATA MULTIPLEXERS — SLOT 15

FIRST USED ON OPTION/MODEL: 11/70

PARTS LIST — QTY. | DESCRIPTION | PART NO. | ITEM NO.

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 — NEXT HIGHER ASSY.

DR J Phelan 10/14/74 — CHK'D DEPEND 10/24/74 — ENG. Steven G. Smith 1/24/75 — PRGN ENG. Steven G. Smith 1/24/75 — PROD R. Taylor 1/30/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRJ)

SIZE D | CODE CS | NUMBER M 8138-Ø-1 | REV. F

SCALE — SHEET 9 OF 12 — DIST.

REVISIONS: REV | CHANGE NO | CHK

DRUMING 40-326 #840 — DEC FORM NO DRD 102-B

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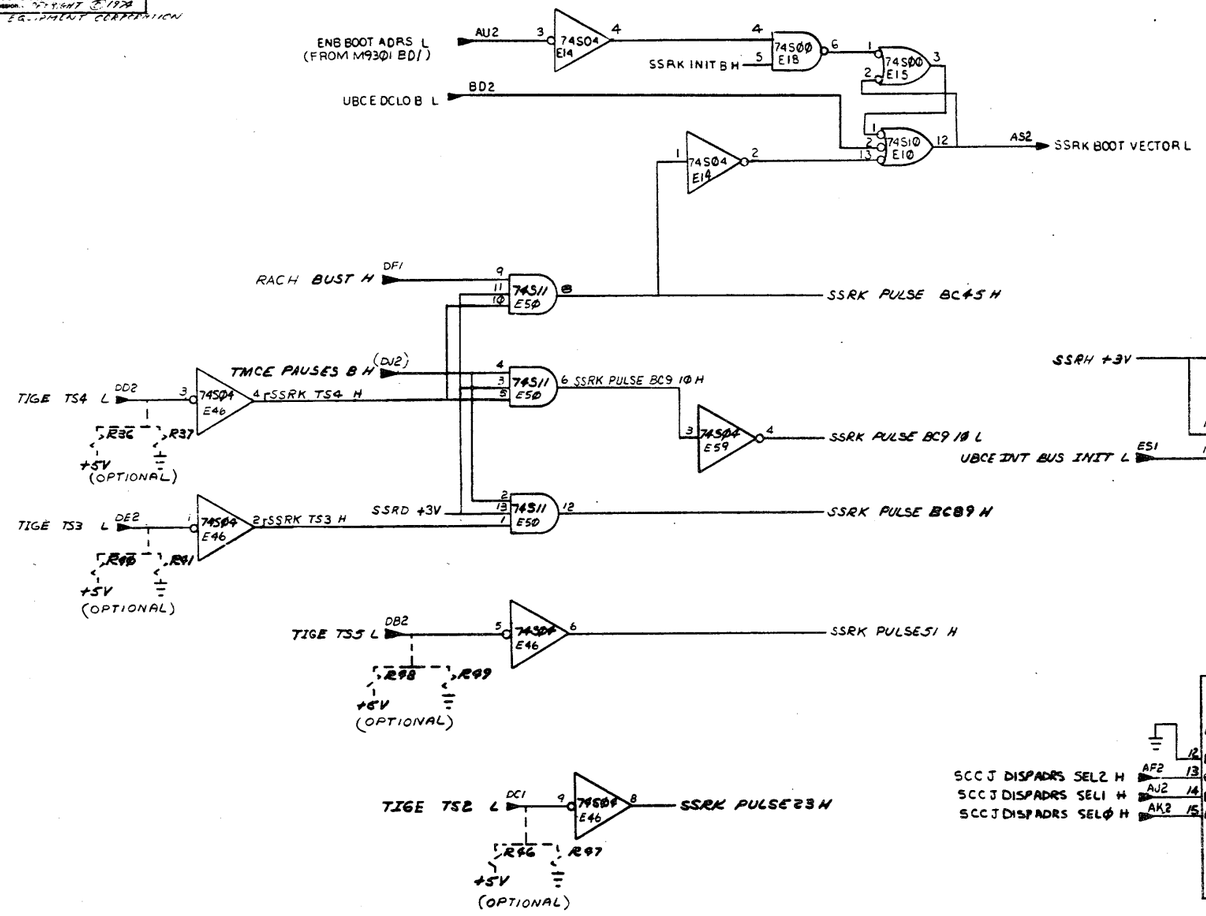

ADDRESS SELECT SWITCH POSITION	UBCJ DIS ADRS SEL2	UBCJ DIS ADRS SEL1	UBCJ DIS ADRS SEL Ø
PROGRAM PHYSICAL	L	L	L
KERNEL D VIRTUAL	L	L	H
KERNEL I VIRTUAL	L	H	L
CONSOLE PHYSICAL	L	H	H
SUPERVISOR D VIRTUAL	H	L	L
SUPERVISOR I VIRTUAL	H	L	H
USER D VIRTUAL	H	H	L
USER I VIRTUAL	H	H	H

CNSL.ADRS.SEL.SWITCH, TIMING LOGIC, INIT — SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN L Phillips 11/14/74
CHKD R COPPERNAL 12/19/74
ECO Stanley Tonia 1/25/75
PROJ. ENG. Stanley Tonia 1/24/75
PROG R Taylor 1/24/75

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS. STATUS REG. (SSRK)

NEXT HIGHER ASSY

SIZE D | CODE CS | NUMBER M8138-Ø-1 | REV. F

SCALE —
SHEET 10 OF 12
DIST.

REVISIONS: REV. | CHANGE NO | CHK

DEC FORM NO 11RD 102-B

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OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 .6 .5 4 3 2 1
0				
1	D12.0B	5		1 1 1 1 1
2	D12.01	5		1 1 1 1 1
3	D30.0B	5	1	
4	U45.0B	6		1 1
5	U45.01	6		1 1
6	D67.0B	6		1
7	D67.01	6		1
10				
11				
12				
13				
14				
15				
16				
17				
20	EXC. 00	3		1 1
21	S13.0B	1		1 1 1
22	S13.01	1		1 1 1
23	S45.10	1		1 1 1
24	S45.0B	1		1 1 1
25	SVC.60	13		1 1
26	S67.0B	2		1 1
27	S13.10		1	
30				
31	EXC.00	11		1 1 1
32	JSR.40	11		1 1 1
33	TST.T0	11		1 1 1
34				
35				
36				
37	SVC.50	13		1 1
40				
41	SVC.70	13		1
42				
43				
44				
45	MTP.00	1		1
46				
47				
50				
51				
52				
53				
54				
55				
56				
57				
60				
61				
62				
63				
64	SHR.00	11		1 1 1
65	SVC.10	13		1 1 1
66	WFP.00	11		1
67	NEG.00	11		1
70	EXM.10	14		1 1
71				
72				
73	DEP.10	14	1	1
74				
75				
76	KST.00	14		1 1 1
77	CON.00	14		1 1 1
100				
101				
102				
103				
104				
105				
106				
107				

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
110	D12.90	5	1	1 1 1 1
111	D12.00	5	1	1 1 1 1
112	D30.90	5	1	1 1
113	D30.00	5	1	1 1
114	U45.50	6		1 1
115	U45.00	6		1 1
116	D67.90	6		1 1
117	D67.00	6		1 1
120				
121	U48.20	6		1 1 1 1
122	U10.30	6		1 1 1 1
123	SHR.10	11	1	1 1
124				
125				
126	FET.05	1		1 1
127				
130				
131	U48.30	6		1 1 1
132	EXC.10	11	1	1 1
133				
134				
135	U12.70	5		1 1
136	ASC.61	7		1 1
137	D12.30	5		1 1
140				
141	S67.20	2		1
142				
143	S13.30	2		1
144				
145				
146				
147				
150	FSV.10	12	1	
151	WTP.10	1		1 1
152	BRK.30	12		1 1 1 1
153	ETM.20	14	1	
154	BRK.00	12		1 1 1
155	D12.60	5	1	1 1 1
156	RTI.10	5		1 1
157	D10.40	6		1 1
160				
161	U50.20	6		1 1
162	D10.00	6		1 1
163	NEG.20	11	1	1
164	FET.04	1		1 1
165				
166				
167				
170				
171	D50.30	6		1
172				
173				
174				
175	D12.10	5	1	1 1 1 1
176				1 1 1 1
177	D10.60	6		1 1 1
200				
201				
202				
203				
204				
205	D00.90	4		1 1
206				
207	ASC.00	7		1 1
210				
211				
212	RTI.20	2		1
213	RTI.30	2		1
214	RTI.40	2		1
215				
216				
217	FET.00	1		1 1 1

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
220				
221	D30.10	5	1	1
222	SVC.00	13		1 1
223	RTS.10	2		1 1
224				
225				
226				
227	ASC.60	7		1 1
230				
231				
232				
233				
234	MRK.30	2		1 1
235	MRK.20	3		1 1
236				
237	FET.07			1 1
240				
241				
242				
243				
244				
245	FSV.00	12		1
246				
247				
250	WFP.10	1		1 1
251				
252	MRK.10	2		1
253				
254				
255				
256				
257				
260	FET.10	1		1
261				
262	SOB.20	2		1 1
263				
264				
265	FET.09	1		1 1
266				
267				
270				
271	NEG.10	11		1
272				
273				
274	JSR.20	11		1 1
275	JSR.30	11		1
276				
277				
300				
301				
302				
303	DEP.20	14		1
304				
305				
306				
307				
310	MUL 60	8		1 1
311	U10.50	6		1 1 1
312	D12.20	5		1 1
313				
314				
315				
316				
317				
320				
321	FET.11	1		1
322	FET.12	1		1
323				
324	FET.13	1		1
325				
326				
327				

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 .6 .5 4 3 2 1
330				
331	FET.01	1		1 1
332	FET.02	1		1 1
333				
334	FET.03	1		1 1
335				
336				
337				
340	PUP.30	13		1
341				
342				
343	IRD.00	1		1 1
344				
345				
346				
347	PUP.10	13		1
350				
351				
352				
353				
354	TRP.10	12		1 1
355	SVC.00	13		1 1
356	FET.05	1		1 1
357	SVC.20	13		1
360	SVC.30	13		1
361	SPL.10	3		1
362				
363				
364				
365				
366				
367				
370				
371				
372				
373	FET.06	1		1 1
374				
375				
376				
377				

ROM ENCODING (1-4)	4	3	2	1
NO OPERATION	X	0	0	0
RESTORE PROCESSOR STATUS	X	0	0	1
AUTO INCREMENT	X	0	1	0
AUTO DECREMENT	X	0	1	1
INST COMPLETE	X	1	0	0
INHIBIT PAD WRITE ENABLE	X	1	0	1
CLR ADRS 16, 17	X	1	1	0
CLR PS RESTORE	X	1	1	1
DESTINATION MODE	1	X	X	X
NOT DESTINATION MODE	0	X	X	X
ROM ENCODING (5-8)	8	7	6	5
CLOCK PREV MODE (MT/FP)	X	X	X	1
KERN DATI (TRAP OR ABORT)	X	X	1	X
BUST	X	1	X	X
I SPACE IF MT/FPI	1	X	X	X
ROM ENCODING (9-12)	12	11	10	9
I SPACE ON IND WORD FET.	X	X	X	1
I IF INST START IN I	X	1	X	X
DEPOSIT + EXAMINE	1	X	X	X
ROM ENCODING (13-16)	16	15	14	13
SRCM: 1+2+3+4+5	X	X	X	1
DSTM = 1+2	X	X	1	X
DSTM = 3	X	1	X	X
FLOATING POINT INST	1	X	X	X

NOTE:
1. FLOW SHEET - REFERS TO KB11- (PDP11 PROCESSOR) MICRO STATE FLOWS SHEET NUMBER.
2. ROMS ARE SHOWN ON CIRCUIT SCHEMATIC SSRA.

ROM TRUTH TABLE SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRN: John Flagg	DATE: 12/17/74	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
ENG: [illegible]	DATE: 12/17/74	
PROJ ENG: [illegible]	DATE: 11/--/75	TITLE: SYS. STATUS REG
PROG: K Taylor	DATE: 11/20/75	SSRL
NEXT HIGHER ASSY.		SIZE D CODE CS NUMBER M8138-0-1 REV. F
SCALE		
SHEET 11 OF 12		DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO DRD 100-A

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OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
0				
1	D12.88	5		1 1 1 1 1
2	D12.81	5		1 1 1 1 1
3	D38.88	5		1 1 1
4	D45.88	6		1 1
5	D45.81	6		1 1
6	D67.88	6		1 1
7	D67.81	6		1 1
10				
11				
12				
13				
14				
15				
16				
17				
20	EXC 88	3		1 1 1
21	S13.88	1		1 1 1 1
22	S13.81	1		1 1 1 1
23	S45.18	1		1 1 1 1
24	S45.88	1		1 1 1
25	SVC.60	13		1 1 1
26	S67.88	2		1 1 1
27	S13.18			1 1 1
30				
31	EXC.88	11		1 1 1 1
32	JSR.48	11		1 1 1 1
33	TST.18	11		1 1 1 1
34				
35				
36				
37	SVC.50	13		1 1
40				
41	SVC.78	13		1 1
42				
43				
44				
45	MTP.00	1		1 1
46				
47				
50				
51				
52				
53				
54				
55				
56				
57				
60				
61				
62				
63				
64	SHR.88	11		1 1 1
65	SVC.18	13		1 1 1 1
66	MFP.88	11		1 1 1
67	NEG.88	11		1 1 1
70	EXM.18	14		1 1 1
71				
72				
73	DEP.18	14		1 1 1
74				
75				
76	KST.00	14		1 1 1
77	CON.00	14		1 1 1
100				
101				
102				
103				
104				
105				
106				
107				

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
110	D12.98	5		1 1 1 1 1
111	D12.88	5		1 1 1 1 1
112	D30.98	5		1 1 1
113	D30.88	5		1 1 1
114	D45.98	6		1 1 1
115	D45.88	6		1 1 1
116	D67.98	6		1 1 1
117	D67.80	6		1 1 1
120				
121	D48.20	6		1 1 1 1
122	D18.38	6		1 1 1 1
123	SHR.18	11		1 1 1
124				
125				
126	FET.05	1		1 1
127				
130				
131	D48.38	6		1 1 1
132	EXC.18	11		1 1 1
133				
134				
135	D12.78	5		1 1
136	ASC.61	7		1 1 1
137	D12.38	5		1 1
140				
141	S87.20	2		1 1
142				
143	S13.30	2		1 1
144				
145				
146				
147				
150				
151	MTP.18	1		1 1
152	BRK.38	12		1 1 1 1
153				
154	BRK.00	12		1 1 1 1
155	D12.68	5		1 1 1 1
156	RTI.18			1 1 1
157	D18.48	6		1 1 1
160				
161	U50.20	6		1 1
162	D10.00	6		1 1
163	NEG.28	11		1 1
164	FET.84	1		1 1 1
165				
166				
167				
170				
171	U50.30	6		1 1
172				
173				
174				
175	D12.18	5		1 1 1 1 1
176				
177	D18.68	6		1 1 1 1
200				
201				
202				
203				
204				
205	D88.98	4		1 1 1
206				
207	ASC.80	7		1 1 1
210				
211				
212	RTI.28	2		1 1
213	RTI.30	2		1 1
214	RTI.48	2		1 1
215				
216				
217	FET.88	1		1 1 1 1

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
220				
221	D38.18	5		1 1
222	SVC.80	13		1 1
223	RTS.18	2		1 1
224				
225				
226				
227	ASC.68	7		1 1
230				
231				
232				
233				
234	MRK.38	2		1 1
235	MRK.28	3		1 1 1
236				
237	FET.07			1 1
240				
241				
242				
243				
244				
245				
246				
247				
250	MFP.18	11		1 1
251				
252	MRK.18	2		1
253				
254				
255				
256				
257				
260	FET.18	1		1
261				
262	SOB.28	2		1 1
263				
264				
265	FSV.50	13		1
266				
267				
270				
271	NLG 18	11		1
272				
273				
274	JSR.28	11		1 1
275	JSR 38	11		1
276				
277				
300				
301				
302				
303	DEP.28	14		1
304				
305				
306				
307				
310	MUL 60	9		1 1
311	D18.98	6		1 1 1
312	D12.28	5		1 1 1
313				
314				
315				
316				
317				
320				
321	FET.11	1		1
322	FET.12	1		1
323				
324	FET.13	1		1
325				
326				
327				

OCTAL LOCATION	MICROSTATE NAME		FLOWS SHEET	TRUTH VALUE ROMOUT 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
330				
331	FET.81	1		1 1
332	FET.82	1		1 1
333				
334	FET.83	1		1 1
335				
336				
337				
340	PUP.38	13		1
341				
342	FSV.30	13	1	
343	IRD.88	1		1 1
344				
345				
346				
350				
351				
352				
353				
354	TRP.18	12		1 1
355	SVC.88	13		1 1
356	PUP.10	12		1
357	SVC.28	13		1
360	SVC.30	13		1
361	SPL 18	13		1
362			1	
363				
364	FET.08	4		1 1
365				
366	FSV.00	13	1	1
367				
370				
371				
372	FET0	1		1 1
373				
374				
375				
376				
377				

ROM ENCODING (1-4)	4	3	2	1
NO OPERATION	X	0	0	0
RESTART PROCESSOR STATUS	X	0	0	1
AUTO INCREMENT	X	0	1	0
AUTO DECREMENT	X	0	1	1
INST COMPLETE	X	1	0	0
IMMINENT PAD WRITE ENABLE	X	1	0	1
CLR ADRS 16, 17	X	1	1	0
CLR PS RESTORE	X	1	1	1
DESTINATION MODE	1	X	X	X
NOT DESTINATION MODE	0	X	X	X
ROM ENCODING (5-8)	8	7	6	5
CLOCK PREV MODE (MT/FP)	X	X	X	1
KERN DATI (TRAP OR ABORT)	X	X	1	X
BUST	X	1	X	X
SPACE RF MT/FPP	1	X	X	X
ROM ENCODING (9-12)	12	11	10	9
SPACE ON IND. WORD FET.	X	X	X	X
IF INST START IN 2	X	X	X	1
DEPOSIT + EXAMINE	1	X	X	X
ROM ENCODING (13-16)	16	15	14	13
SRCM 1+2+3+4+5	X	X	X	1
DSIM = 1+2	X	X	1	X
DSTM = 3	1	X	X	X
FLOATING POINT INST				

NOTE:
1. FLOW SHEET - REFERS TO KC11-B (PDP11 70 PROCESSOR) MICRO STATE FLOWS, SHEET NUMBER
2. ROMS ARE SHOWN ON CIRCUIT SCHEMATIC SSRA.

ROM TRUTH TABLE SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		

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

DRAWN John Slagle DATE 1/11/74
DATE
ENGR DATE
PLGG ENG DATE
PROJ J Taylor DATE 11/20/75

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: SYS, STATUS REG
SSRM

NEXT HIGHER ASSY.
SIZE D CODE CS NUMBER M8138-0-4 REV. F
SCALE
SHEET 12 OF 12 DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC FORM NO DRD 100-A

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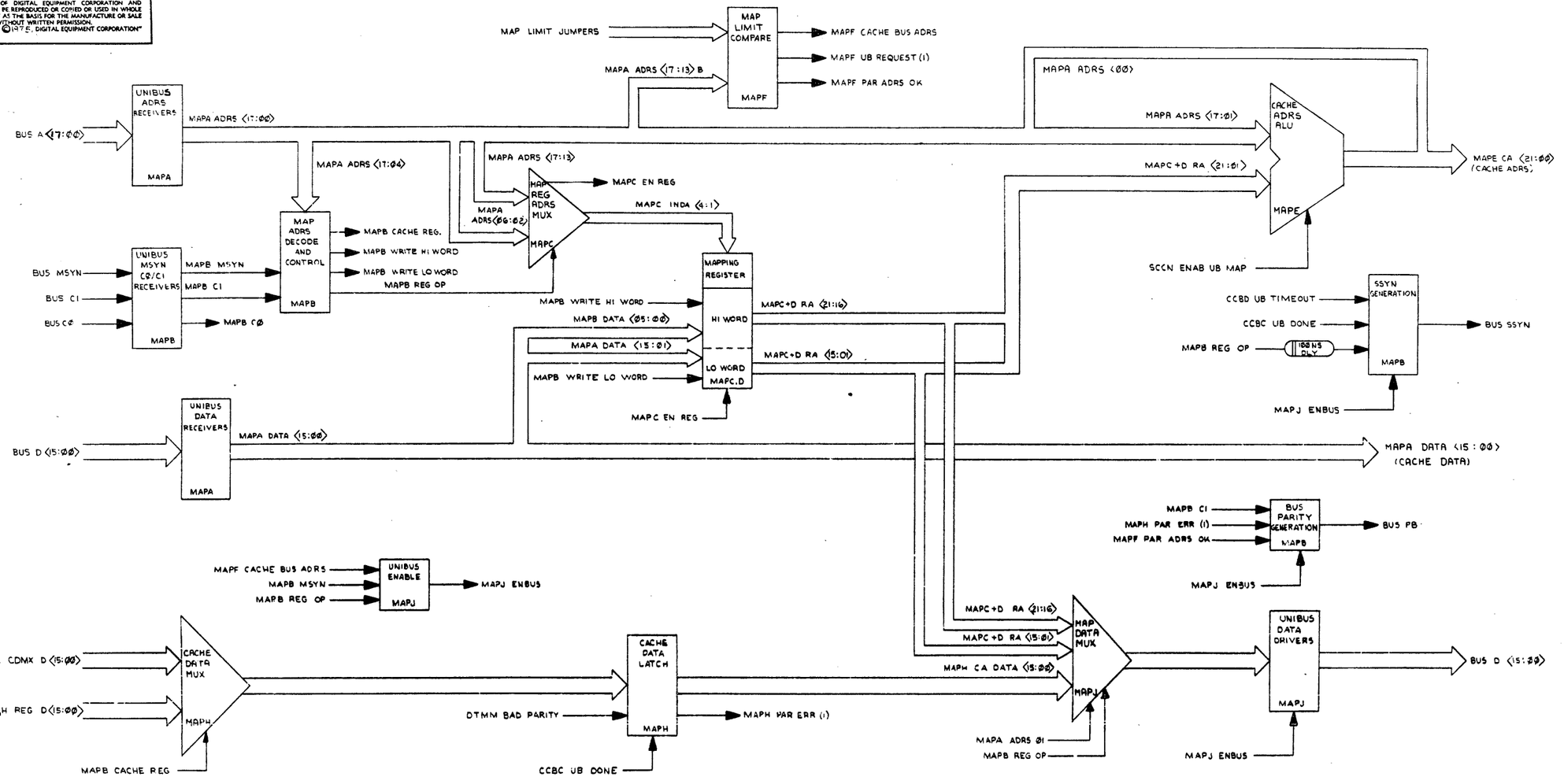

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KB11-B		PARTS LIST		

DIMENSIONAL TOLERANCE
DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL B-DD-KB11-B
FINISH

		DATE
DRN	J. Thullen	3/6/75
CHK'D	D. Mary	3/7/75
ENG.		DATE
PROJ. ENG.		DATE
PROD.	R. Taylor	3/20/75

NEXT HIGHER ASSY. B-DD-KB11-B
SCALE NONE
SHEET 1 OF 1

digital

TITLE UNIBUS MAP (M8141) BLOCK DIAGRAM

SIZE	CODE	NUMBER	REV.
D	BD	KB11-B-6	

DIST.

REVISIONS | REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 102-C

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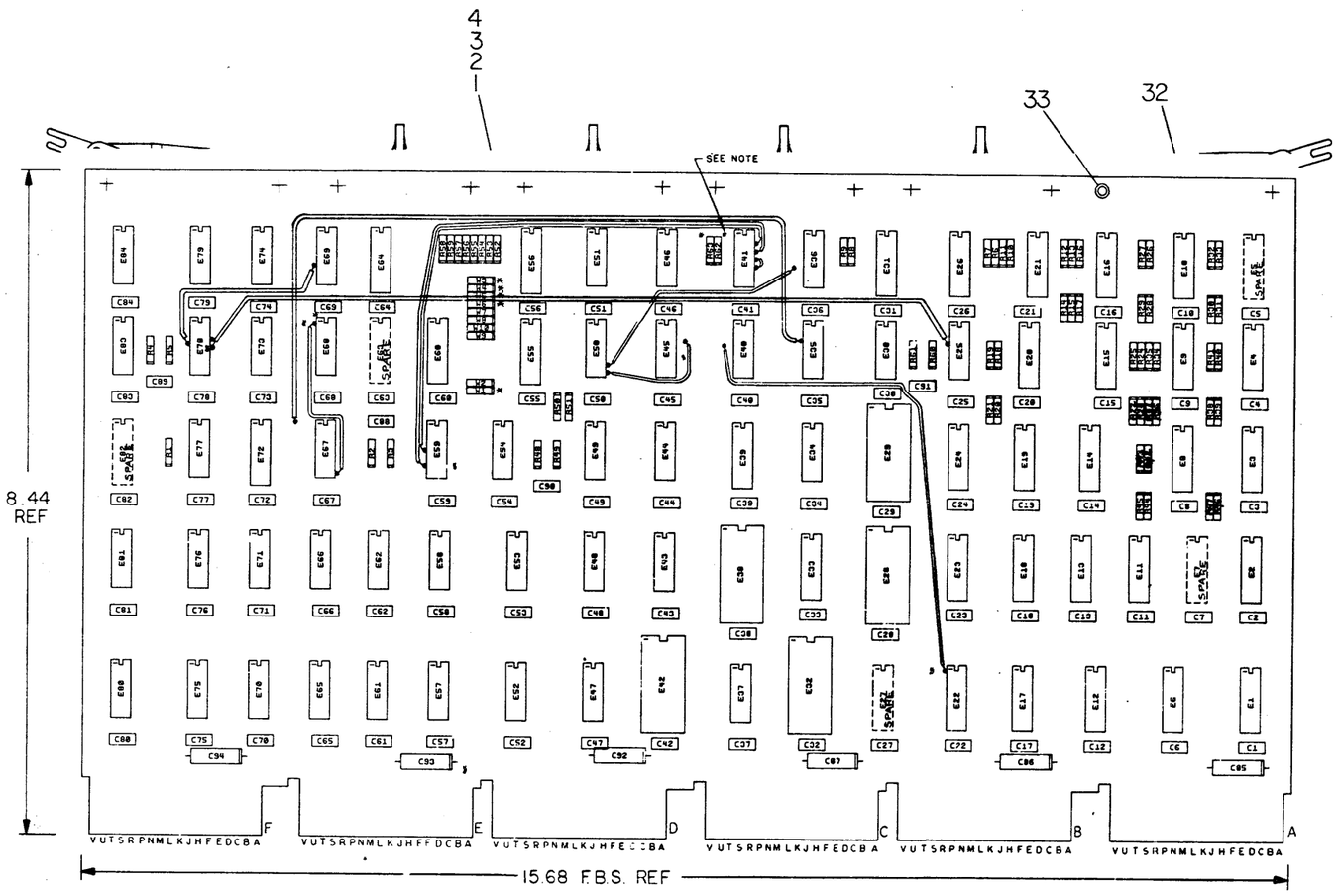
NOTES:

* OPTIONAL COMPONENT



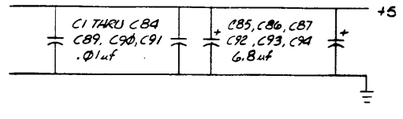
		GND	+ 5V
DEC	74S85	8	16
DEC	74182-1	8	16
DEC	74S181	12	24
DEC	74S174	8	16
DEC	74S158	8	16
DEC	74S157	8	16
DEC	8640	1	8
DEC	7485	8	16
DEC	74153	8	16
DEC	3101A	8	16
IC TYPE		GND	+ 5V

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

IC PIN LOCATIONS

AA2 CA2 EA2
AV1 CV1 EV1
BA2 DA2 FA2
BV1 DV1 FV1

AC2 AH1 AN2 AT1
BC2 BH1 BN2 BT1
CC2 CH1 CN2 CT1
DC2 DH1 DN2 DT1
EC2 EH1 EN2 ET1
FC2 FH1 FN2 FT1



REF				
REF		X-Y HOLE COORDINATE LOCATION	K-CO-M8141-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8141-0-5	2
REF		MODULE ECO HISTORY	B-MH-M8141-0-6	3
1		ETCHED CIRCUIT BOARD	5011346	4
87	C1 THRU C84, C89, C90, C91	CAP .01uf 100V 20%	1001610-01	5
6	C85, C86, C87, C92, C93, C94	CAP 6.8uf 35V 20%	1005309	6
1	C88	CAP 220pf 100V 5%	1000021	7
12	R1, R2, R50 THRU R59	RES 1K 1/4W 5%	1300365	8
1	R3	RES 47 OHM 1/4W 5%	1300202	9
24	R4, R48, R60, R7 THRU R47 (odd #'s only)	RES 330 OHM 1/4W 5%	1300295	10
24	R5, R49, R61, R6 THRU R46 (even #'s only)	RES 680 OHM 1/4W 5%	1001424	11
7	E1, E8, E12, E17, E13, E18, E23	IC DEC 74S157	1910548	12
3	E2, E11, E22	IC DEC 74S174	1910550	13
12	E3, E4, E8, E9, E10, E14, E16, E20, E26, E15, E21, E31	IC DEC 3101A	1910653	14
3	E19, E24, E39	IC DEC 74153	1909937	15
2	E25, E78	IC DEC 74S74	1910544	16
5	E29, E42, E32, E38, E28	IC DEC 74S181	1910531	17
9	E47, E50, E54, E34, E37, E59, E30, E44, E36	IC DEC 74S04	1910534	18
1	E33	IC DEC 74182-1	1910551	19
1	E35	IC DEC 74H50	1909060	20
4	E74, E49, E48, E40	IC DEC 74S11	1910537	21
3	E83, E51, E41	IC DEC 74S00	1910532	22
2	E43, E48	IC DEC 74H30	1909059	23
2	E87, E45	IC DEC 74S20	1910539	24
5	E80, E52, E57, E81, E85	IC DEC 8881	1909705	25
10	E53, E58, E62, E86, E70, E78, E75, E77, E81, E71	IC DEC 8640	1911489	26
2	E60, E55	IC DEC 7485	1910224	27
1	E88	IC DEC 7405	1909930	28
3	E79, E84, E68	IC DEC 74S40	1910541	29
1	E72	IC DEC 74S158	1910549	30
1	E73	IC DEC 74S10	1910536	31
1		HANDLE ASSEMBLY	1210711-2	32
12		EYELET HANDLE	9006732	33
5	W2, W7-W10	INSULATED JUMPERS	9009185	34
2	E56 E64	IC DEC 74585	1912089-00	35

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV A

FIRST USED ON OPTION MODEL 11/70

REV	REVISIONS	CHANGE NO.	CHK
A	R. BOUCHER 28-FEB-77	M8141-00001	

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

SEMICONDUCTOR CONVERSION CHART

		DATE
DRN.	SILVIMAN	11-11-74
CHK'D.		11-14-74
ENG.		1-14-75
PROJ. ENG.		1-14-75
PROD.		11/14/75

NEXT HIGHER ASSY

SCALE FF

SHEET 1 OF 9

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: UNIBUS MAP

SIZE	CODE	NUMBER	REV.
D	CS	M8141-0-1	A

DIST.

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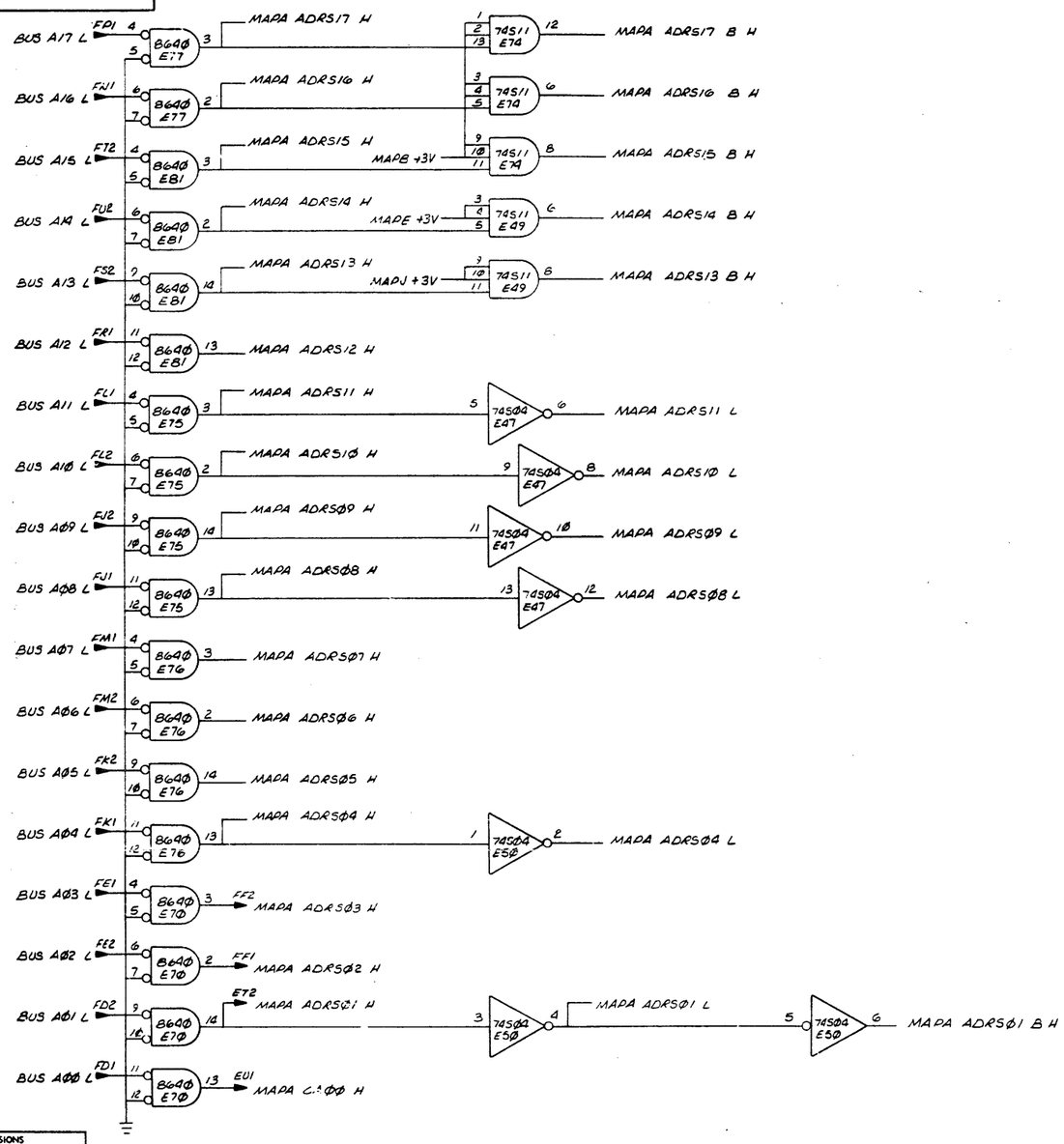

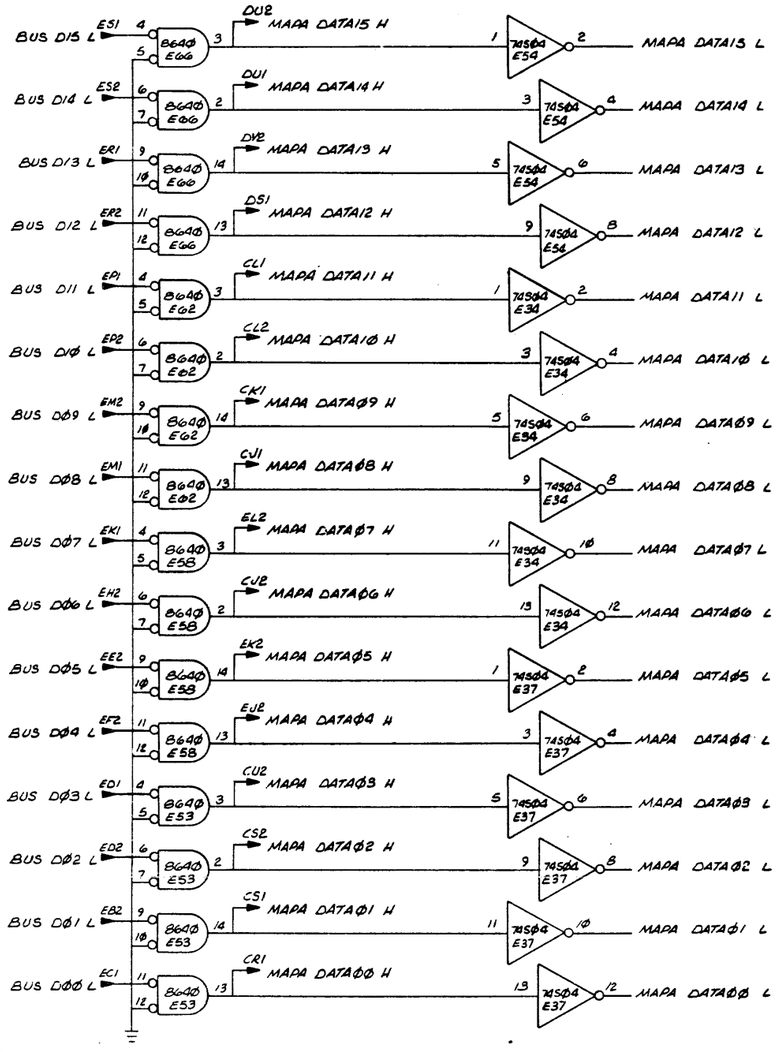

REVISIONS

CHK	CHANGE NO.	REV.

BUS ADDRESS AND DATA RECEIVERS SLOT 22

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MAP (MAPA)	D	CS	M8141-Ø-1	A
SCALE —	SHEET 2 OF 9	DIST.		

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+5V
R4 330Ω
C89 .01μf
R5 680Ω
MAPB +3V
+5V
RG2
RG3
CCBD UB TIMEOUT L
DS2
74SØ4 E5Ø
74S74 E7B
CCBC UB DONE A
AB2
74SØØ E41
74S74 E7B
CCBC UB ACKN L (BPI)
MAPJ ENBUS H
MAPB TIMEOUT (Ø) H
MAPJ C1 L
MAPH PAR ERR(1)H
MAPF PAR ADRS OK H
74S11 E49
FJ1
MAPB RB DATA H
8881 EBØ
EU2
BUS RB L
8881 EBØ
FV2
BUS SSYN L
74SØ8 E83
MAPB REG SSYN L
MAPB REG OP H
74SØ4 E5Ø
74SØ8 E6B
+5V
R2 1K
R3 47Ω
C88 220 pf
74SØ4 E59
MAPB REG OP L
74SØØ E
MAPA ADRSØ1 H
74S2Ø E45
MAPB WRITE HI WORD L
BUS CØ1 L
FC1
8641Ø E71
CO2
MAPB C1 H
BUS CØØ L
FB2
8641Ø E71
CE2
MAPB CØ H
MAPA ADRS11 L
MAPA ADRS1Ø L
MAPA ADRSØ9 L
MAPA ADRSØ8 L
74S2Ø EG7
74SØ4 E59
BUS MSYN L
UBCE DC LO B H
FH2
EV2
8641Ø E77
MAPB MSYN H
R1 1K
FD2
MAPB MSYN MAT H
MAPE +3.
74S2Ø EG7
74SØ4 E59
MAPA ADRSØ1 L
74S2Ø E45
MAPB WRITE LO WORD L
MAPA ADRS17 H
MAPA ADRS16 H
MAPA ADRS15 H
MAPA ADRS14 H
MAPA ADRS13 H
MAPA ADRS12 H
MAPA ADRSØ7 H
MAP+3V
74H3Ø E43
74SØ4 E59
MAPB 77X(XIX)XX H
MAPA ADRS11 H
MAPA ADRS1Ø H
MAPA ADRSØ9 H
MAPA ADRSØ8 H
MAPA ADRSØ6 H
MAPA ADRSØ5 H
MAPA ADRSØ4 L
MAP+3V
74H3Ø E4B
74SØ4 E59
74S1Ø E73
MAPB CACHE REG L
MAPA ADRSØ3 H
MAPA ADRSØ2 H
74SØØ E85
74SØ4 E59
EL1
MAPB CACHE REG H

REGISTER	ADDRESS DECODED
MAPPING REGISTERS	77Ø2ØØ - 77Ø376
CACHE REGISTERS	7777ØØ - 777752

REVISIONS
CHK | CHANGE NO. | REV.

MAP ENABLE-BUS CONTROL LINES-ADDRESS DECODE SLOT 22

TITLE UNIBUS MAP (MAPB)
SIZE D CODE CS NUMBER M8141-Ø-1 REV A
SCALE — SHEET 3 OF 9 DIST.

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+5V

MAPC+D RA19 H
MAPC+D RA18 H
MAPC+D RA17 H
MAPC+D RA16 H
MAPC+D RA15 H
MAPC+D RA14 H
MAPC+D RA13 H
MAPC+D RA12 H
MAPC+D RA11 H
MAPC+D RA10 H
MAPC+D RA09 H
MAPC+D RA08 H
MAPC+D RA07 H
MAPC+D RA06 H
MAPC+D RA05 H
MAPC+D RA04 H
MAPC+D RA03 H
MAPC+D RA02 H
MAPC+D RA01 H
MAPC+D RA00 H
MAPC+D RA21 H
MAPC+D RA20 H

R0 680 R1 330 R2 680 R3 330 R4 680 R5 330 R6 680 R7 330 R8 680 R9 330 R10 680 R11 330 R12 680 R13 330 R14 680 R15 330 R16 680 R17 330 R18 680 R19 330 R20 680 R21 330 R22 680 R23 330 R24 680 R25 330 R26 680 R27 330 R28 680 R29 330 R30 680 R31 330 R32 680 R33 330 R34 680 R35 330 R36 680 R37 330 R38 680 R39 330 R40 680 R41 330 R42 680 R43 330 R44 680 R45 330 R46 680 R47 330

MAPC EN LO REG L
MAPB WRITE LO WORD L
MAPB WRITE HI WORD L

MAPA DATA05 L
MAPA DATA04 L

MAPC INDA4 H
MAPC INDA3 H
MAPC INDA2 H
MAPC INDA1 H

MAPA DATA03 L
MAPA DATA02 L
MAPA DATA01 L
MAPA DATA00 L

MAPA DATA15 L
MAPA DATA14 L
MAPA DATA13 L
MAPA DATA12 L

MAPA DATA11 L
MAPA DATA10 L
MAPA DATA09 L
MAPA DATA08 L

MAPA DATA07 L
MAPA DATA06 L
MAPA DATA05 L
MAPA DATA04 L

MAPA DATA03 L
MAPA DATA02 L
MAPA DATA01 L
MAPA DATA00 L

31Ø1A E26 MAPH Ø-17 <Ø5:Ø4>
31Ø1A E16 MAPH Ø-17 <Ø3:ØØ>
31Ø1A E20 MAPL Ø-17 <15:12>
31Ø1A E9 MAPL Ø-17 <11:Ø8>
31Ø1A E3 MAPL Ø-17 <Ø7:Ø4>
31Ø1A E14 MAPL Ø-17 <Ø3:Ø1>

WR ENB D0 D1 D2 D3 M0(1) M1(1) M2(1) M3(1) A3 A2 A1 A0

MAPA ADRS16 H
MAPA ADRSØ5 H
MAPA ADRS15 H
MAPA ADRSØ4 H
MAPA ADRS14 H
MAPA ADRSØ3 H
MAPA ADRS13 H
MAPA ADRSØ2 H

74S158 E72 B3 A3 B2 A2 B1 A1 B0 A0 STB SØ f3 f2 f1 f0

MAPB REG OP L

74S04 E79 MAPC INDA4 H
74S04 E79 MAPC INDA3 H
74S04 E8A MAPC INDA2 H
74S04 E8A MAPC INDA1 H

MAPB REG OP H
MAPA ADRSØ6 H
MAPA ADRS17 H

74LS00 E35

74S04 E38 MAPC EN LO REG L
MAPC EN HI REG L

74S158

SØ	INP	OUTPUT	FUNCTION
L	A	MAPA ADRS <Ø5:Ø2>	MAPPING REGISTER REFERENCE
H	B	MAPA ADRS <16:13>	UNIBUS ADDRESS RELOCATION

LOWER MAPPING REGISTER SLOT 22

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE UNIBUS MAP (MAPC)
SIZE D | CODE CS | NUMBER M8141-Ø-1 | REV A
SCALE — | SHEET 4 OF 9 | DIST.

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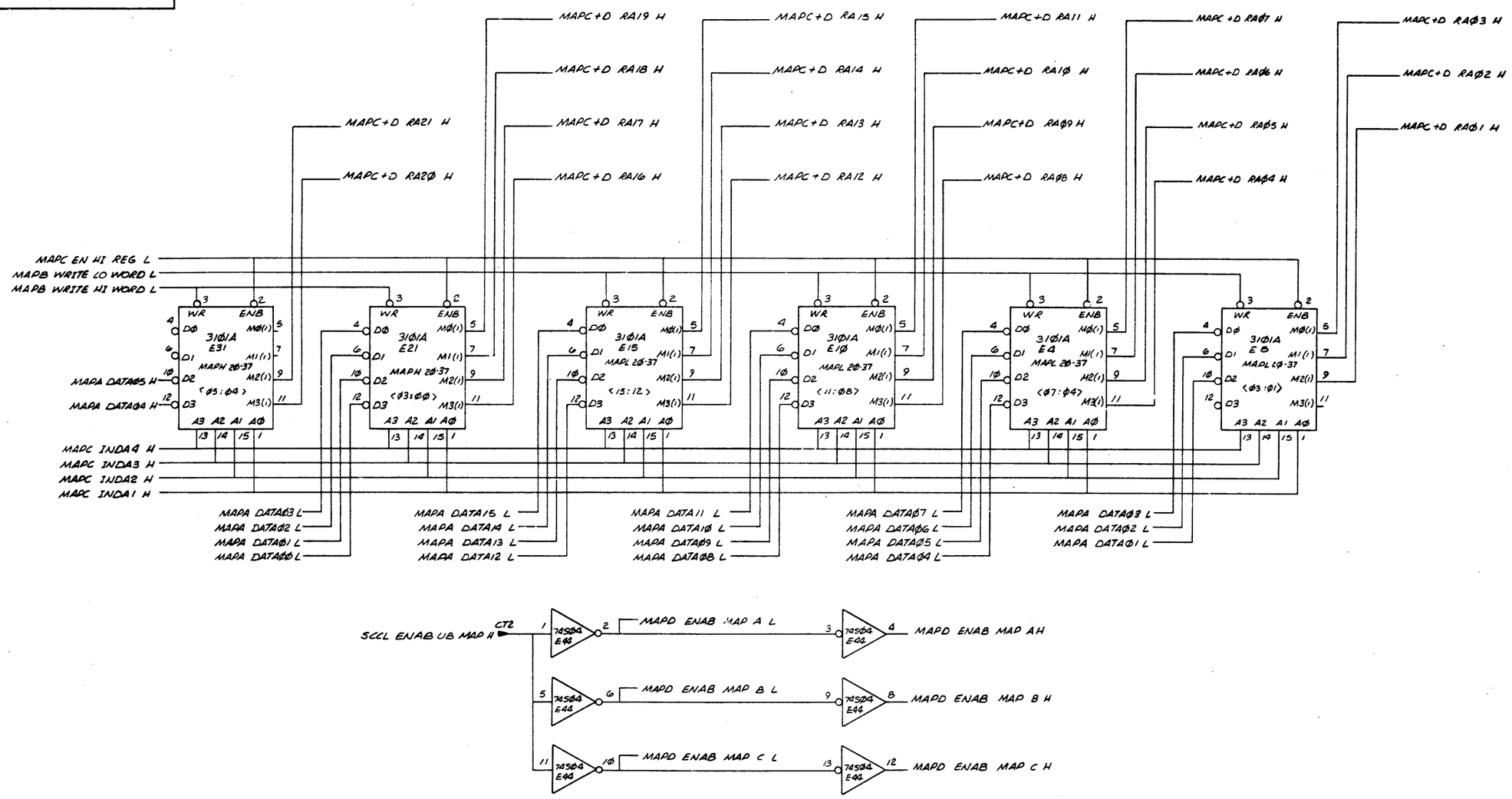

REVISIONS		
CHK	CHANGE NO.	REV.

UPPER MAPPING REGISTER SLOT 22

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MAP (MAPD)	D	CS	M 8141-Ø-1	A
SCALE -H- SHEET 5 OF 9	DIST.			

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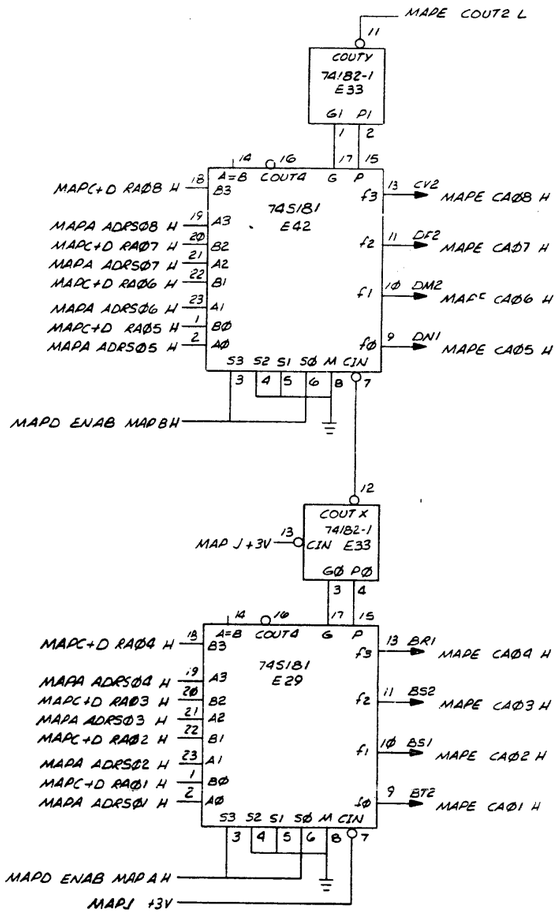
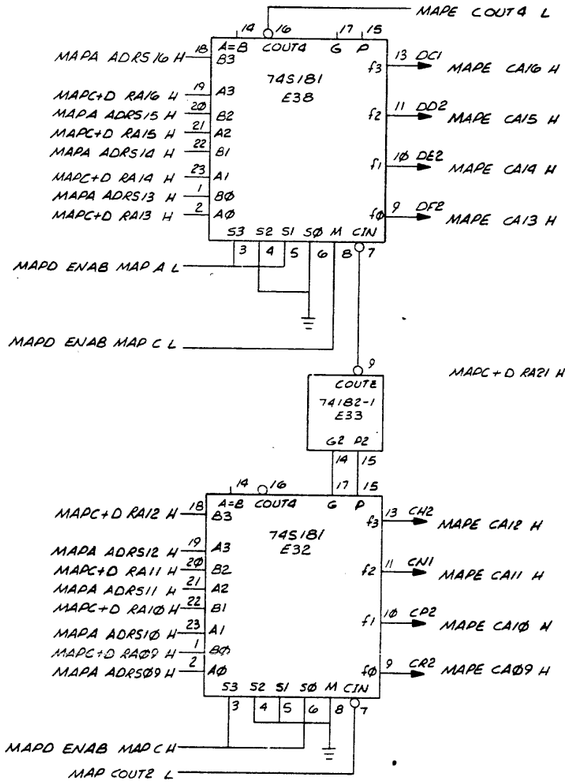
ALU (E42)

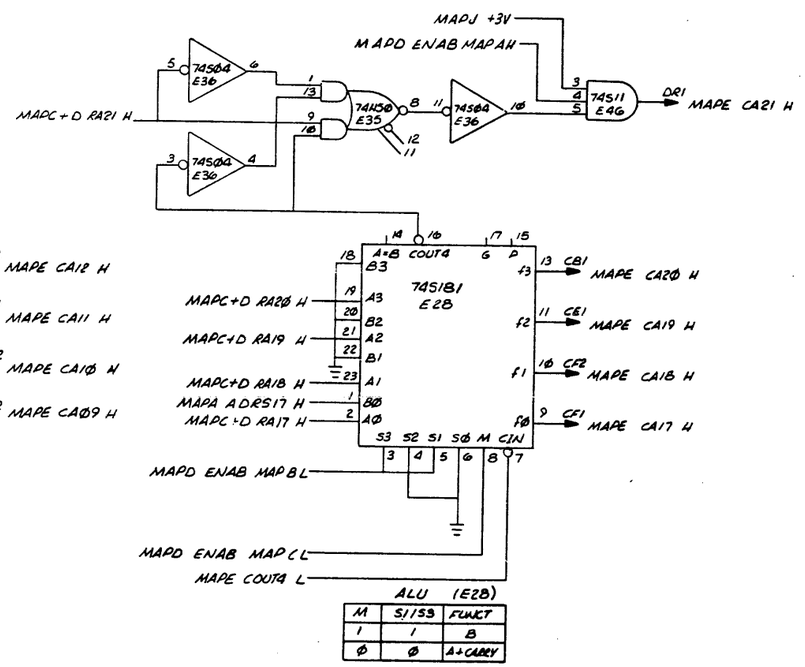
S3/S3	FUNCT
Ø	A
1	A PLUS B

ALU (E38)

M	S1/S3	FUNCT
1	1	B
Ø	Ø	A+ CARRY







+5V
R48 330 1/4W
MAPE +3V
C90 .01uF
R49 680 1/4W

ALU (E29)

S3/S3	FUNCT
Ø	A
1	A PLUS B

ALU (E32)

S3/S3	FUNCT
Ø	A
1	A PLUS B

ALU (E28)

M	S1/S3	FUNCT
1	1	B
Ø	Ø	A+ CARRY

REVISIONS

CHK	CHANGE NO.	REV.

CACHE ADRS SLOT 22

TITLE UNIBUS MAP (MAPE)
SIZE D CODE CS NUMBER M8141-Ø-1 REV A
SCALE — SHEET 6 OF 9 DIST.

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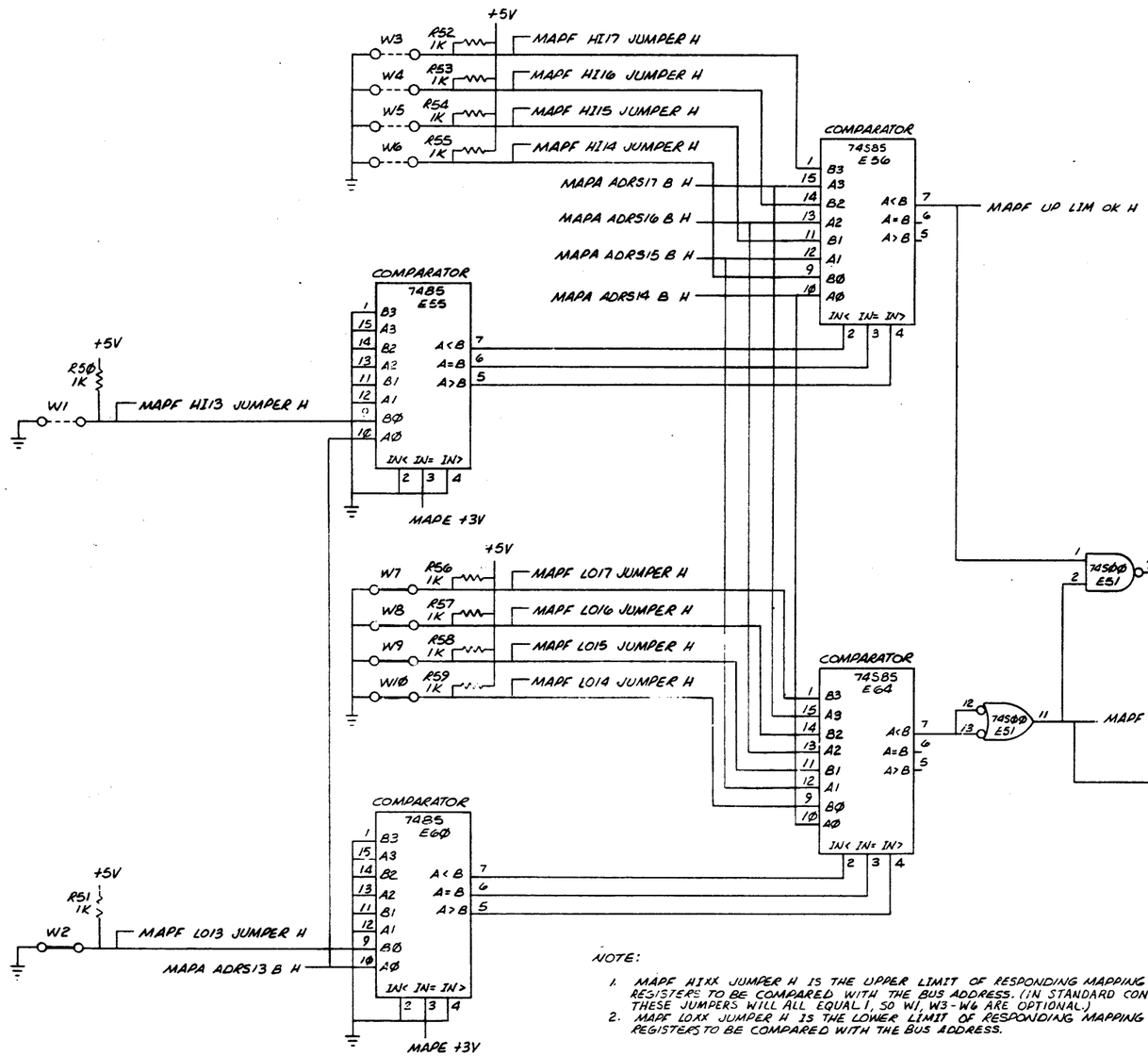

MAPF UP LIM OK		
L	A ≥ B	BUS ADDRESS ABOVE UPPER LIMIT
H	A < B	BUS ADDRESS BELOW UPPER LIMIT

MAPF LO LIM OK		
L	A < B	BUS ADDRESS BELOW LOWER LIMIT
H	A ≥ B	BUS ADDRESS ABOVE LOWER LIMIT

NOTE:

1. MAPF HIXX JUMPER H IS THE UPPER LIMIT OF RESPONDING MAPPING REGISTERS TO BE COMPARED WITH THE BUS ADDRESS. (IN STANDARD CONFIGURATIONS THESE JUMPERS WILL ALL EQUAL 1, SO W1, W3-W6 ARE OPTIONAL.)
2. MAPF LOXX JUMPER H IS THE LOWER LIMIT OF RESPONDING MAPPING REGISTERS TO BE COMPARED WITH THE BUS ADDRESS.

MAP LIMIT COMPARATOR SLOT 22

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MAP (MAPF)	D	CS	M 8141-Ø-1	A
SCALE //	SHEET 7 OF 9		DIST.	

M8141-Ø-1 REV A

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74S157		
SØ	INP	OUTPUT
L	A	CACHE REG DATA
H	B	CACHE DATA

74S157 E17
- DTAIM CDMX D15 H — BK1 13 — B3
- CCBF REG D15 H — BL2 14 — A3
- DTMM CDMX D14 H — BF1 10 — B2
- CCBF REG D14 H — BK2 11 — A2
- DTMM CDMX D13 H — BL1 6 — B1
- CCBH REG D13 H — BM2 5 — A1
- DTMM CDMX D12 H — BM1 3 — BØ
- CCBH REG D12 H — BD2 2 — AØ
- SØ STB 1 15
- f3 12, f2 9, f1 7, fØ 4

74S157 E12
- DTMM CDMX D11 H — BB2 13 — B3
- CCBH REG D11 H — BC1 14 — A3
- DTMM CDMX DIØ H — AV2 10 — B2
- CCBH REG DIØ H — AU1 11 — A2
- DTMM CDMX DØ9 H — BD2 6 — B1
- CCBH REG DØ9 H — BD1 5 — A1
- DTMM CDMX DØB H — BE2 9 — BØ
- CCBH REG DØB H — BE1 2 — AØ
- SØ STB 1 15
- f3 12, f2 9, f1 7, fØ 4

74S157 E6
- DTMM CDMX DØ7 H — AK2 13 — B3
- CCBH REG DØ7 H — AK1 14 — A3
- DTMM CDMX DØ6 H — AM2 10 — B2
- CCBH REG DØ6 H — AL2 11 — A2
- DTMM CDMX DØ5 H — AR1 6 — B1
- CCBF REG DØ5 H — AU2 5 — A1
- DTMM CDMX DØ4 H — AR2 3 — BØ
- CCBF REG DØ4 H — AP2 2 — AØ
- SØ STB 1 15
- f3 12, f2 9, f1 7, fØ 4

74S157 E1
- DTMM CDMX DØ3 H — AD1 13 — B3
- CCBF REG DØ3 H — AD2 14 — A3
- DTMM CDMX DØ2 H — AE1 10 — B2
- CCBF REG DØ2 H — AE2 11 — A2
- DTMM CDMX DØ1 H — AJ2 6 — B1
- CCBF REG DØ1 H — AJ1 5 — A1
- DTMM CDMX DØØ H — AH2 3 — BØ
- CCBF REG DØØ H — AF1 2 — AØ
- SØ STB 1 15
- f3 12, f2 9, f1 7, fØ 4
- MAPB CACHE REG L

74S174 E22
- D5 RS(1) 15 — MAPH CA DATA15 (1) H
- D4 R4(1) 12 — MAPH CA DATA14 (1) H
- D3 R3(1) 10 — MAPH CA DATA13 (1) H
- D2 R2(1) 7 — MAPH CA DATA12 (1) H
- D1 R1(1) 5 — MAPH CA DATA11 (1) H
- DØ RØ(1) 2 — MAPH CA DATA1Ø (1) H
- CLK CLR 9 1

74S174 E11
- D5 RS(1) 15 — MAPH CA DATAØ9 (1) H
- D4 R4(1) 12 — MAPH CA DATAØB (1) H
- D3 R3(1) 10 — MAPH CA DATAØ7 (1) H
- D2 R2(1) 7 — MAPH CA DATAØ6 (1) H
- D1 R1(1) 5 — MAPH CA DATAØ5 (1) H
- DØ RØ(1) 2 — MAPH CA DATAØ4 (1) H
- CLK CLR 9 1

74S174 E2
- D5 RS(1) 15
- D4 R4(1) 12 — MAPH CA DATAØ3 (1) H
- D3 R3(1) 10 — MAPH CA DATAØ2 (1) H
- D2 R2(1) 7 — MAPH CA DATAØ1 (1) H
- D1 R1(1) 5 — MAPH CA DATAØØ (1) H
- DØ RØ(1) 2 — MAPH PAR ERR (1) H
- CLK CLR 9 1
- DTMM BAD PARITY H — AF2 3
- CCBC UB DONE H — (AB2)
- MAPB MSYN H

CACHE DATA MUX SLOT 22

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MAP (MAPH)	D	CS	M8141-Ø-1	A
SCALE —	SHEET 8 OF 9	DIST.		

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MAPB CI H → 74S64 E30 → MAPJ CI L

74S64 E30 → MAPJ DATI L

+5V
R60 330
MAPJ +3V
R61 680
C91 .01uf 100V

MAPC+D RA05 H
MAPC+D RA21 H
MAPH CA DATA05 (1) H
MAPC+D RA04 H
MAPC+D RA20 H
MAPH CA DATA04 (1) H
→ 57B1 57B0, 74153 E19 MUX → 8881 E57 → BUS D05 L, BUS D04 L

MAPC+D RA03 H
MAPC+D RA19 H
MAPH CA DATA03 (1) H
MAPC+D RA02 H
MAPC+D RA18 H
MAPH CA DATA02 (1) H
→ 57B1 57B0, 74153 E39 MUX → 8881 E52 → BUS D03 L, BUS D02 L

MAPC+D RA01 H
MAPC+D RA17 H
MAPH CA DATA01 (1) H
MAPC+D RA16 H
MAPH CA DATA00 (1) H
→ 57B1 57B0, 74153 E24 MUX → 8881 E52 → BUS D01 L, BUS D00 L

MAPA ADRS01 L
MAPB REG OP H
→ 74S11 E40
MAPJ +3V
MAPA ADRS01 B H
→ 74S11 E40

74153			
S1	S0	INP	OUTPUT
L	L	A	CACHE DATA
L	H	B	MAP REG-HI WORD
H	L	C	MAP REG-LO WORD
H	H	D	ZERO

MAPC+D RA15 H
MAPH CA DATA15 (1) H
MAPC+D RA14 H
MAPH CA DATA14 (1) H
→ 74S157 E18 → 8881 E65 → BUS D15 L, BUS D14 L

74S157		
S0	INP	OUTPUT
L	A	CACHE DATA
H	B	MAP REG-LO WORD

MAPC+D RA13 H
MAPH CA DATA13 (1) H
MAPC+D RA12 H
MAPH CA DATA12 (1) H
MAPC+D RA11 H
MAPH CA DATA11 (1) H
MAPC+D RA10 H
MAPH CA DATA10 (1) H
→ 74S157 E23 → 8881 E65, 8881 E61 → BUS D13 L, BUS D12 L, BUS D11 L, BUS D10 L

MAPC+D RA09 H
MAPH CA DATA09 (1) H
MAPC+D RA08 H
MAPH CA DATA08 (1) H
MAPC+D RA07 H
MAPH CA DATA07 (1) H
MAPC+D RA06 H
MAPH CA DATA06 (1) H
→ 74S157 E13 → 8881 E61, 8881 E57 → BUS D09 L, BUS D08 L, BUS D07 L, BUS D06 L

MAPJ EN BUS H

MAPB +3V
MAPB MSYN H
→ 74S10 E73 → 74S640 E69 → MAPE +3V

MAPF CACHE BUS ADRS L
MAPB REG OP L
→ 74S640 E91

DATA MUX AND DRIVERS — SLOT 22

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS MAP (MAPJ)	D	CS	M8141-0-1	A

SCALE # — SHEET 9 OF 9 — DIST.

297

LEGEND	
NUMBER	VARIATION
7010329-00	W/O ONLY
7010329-02	ENG OPTION
7010329-03	7010329-02, SYSTEM TEST

9. IF KW11-L IS USED FOR LINE CLOCK REMOVE WIRE PIN D01R2 TO PIN D01V2.

10. TEFZEL WIRING TO BE ADDED BEFORE THE BLK WHT.

NOTES:

1. ASSEMBLE ITEM #11 CARD GUIDE, AT LOCATION C-D, ROWS 1-4 THRU 17-20. AND AT LOCATIONS A-B, C-D, E-F, ROWS 24-28 THRU 41-44 USING ITEM #12 AND CUTTING TO FIT AS REQUIRED.
2. ASSEMBLE ITEM #11 GUIDE, CARD 4 SLOTS AT LOCATION C-D ROWS 1-4 THRU 17-20 ~~AND LOCATION A-B, C-D & E-F ROWS 29-32 THRU 41-44~~ FASTEN IN PLACE USING ITEM # 12.
3. ~~INSTALL ITEM #5 IN REMAINING BLOCKS NOT INDICATED BY NOTE 1 & 2 AND ALSO IN CLOCKS AT LOCATION A-B, C-D & E-F ROWS 21, 22 & 24.~~
4. ITEM #9 TO BE SOLDERED IN PLACE (6 PLACES)
5. FOR HAND WIRE LIST REFER TO A-WL-7010329-0-2.
6. THIS ITEM IS TO PROTECT WIRE WRAP PINS DURING ANY SHIPPING + HANDLING ONCE INSTALLED IN THE CHASSIS (SYSTEM LEVEL). REMOVE & RETURN TO STOCKROOM 23 IN KANATA.

~~6. BEFORE WIRE WRAP ADD ITEM #30 AT PLACES DENOTED AWT TEST, ADD ITEM #31 AS SHOWN.~~

7. WHEN BACKPLANE IS TESTED AS 2 SEPARATE SECTIONS, ADD THE FOLLOWING JUMPERS BEFORE EACH AWT TEST. REMOVE AFTER TEST COMPLETE.

SECTION 1	SECTION 2
A01A2 – A02A2	A05A2 – A06A2
A09A2 – A10A2	A12A2 – A13A2
A15A2 – A16A2	A16A2 – A17A2
A18A2 A20A2	

8. AFTER BOTH SECTIONS ARE JOINED THE JUMPERS ARE AS FOLLOWS.
   A01A2 – A02A2
   A09A2 – A10A2
   A15A2 – A16A2
   A18A2 – A20A2
   A28A2 – A29A2
   A35A2 – A36A2
   A39A2 – A40A2

REF	QTY	DESCRIPTION	PART NO.	ITEM
REF	—	7010329-01 BASIC TEST PROC.	P00-00TST-00-00000-0R-0000-0R000051	34
1	1	FOLDERS, ONE PIECE	9905709	33
REF	REF	PACKAGING INSTRUCTIONS	A-SP-7001189-0-0	32
6	6	SCREW, PHL PAN HD	9006022-01	31
12	12	STANDOFF	9009690	30
5FT	5FT	WIRE #24 AWG SOLID INS YEL	9107688-44	29
2FT	2FT	WIRE #24 AWG SOLID INS BRN	9107688-11	28
1FT	1FT	WIRE #24 AWG SOLID INS WHT	9107683-99	27
1	1	DECAL, ASSY REV	A-DC-7411881-01	26
REF	REF	AWT REV STATUS	A-WT-7010329-0	25
A/R	A/R	WIRE #30 AWG TWPR BLK/WHT	9107720-09	24
4FT	4FT	WIRE #24 AWG SOLID INS RED	9107688-33	23
5FT	5FT	WIRE #24 AWG SOLID INS VIO	9107683-77	22
A/R	A/R	WIRE #30 AWG SOLID INS GRN	9105740-44	21
6FT	6FT	WIRE #24 AWG SOLID INS BLU	9107683-66	20
~~12~~	~~12~~	~~CONTACT~~	~~1200340-0-0~~	~~19~~
REF	REF	WIRE LIST	A-WL-7010329-0-2	18
REF	REF	WIRE LIST	K-WL-7010329-0-1	17
~~3~~	~~3~~	~~GUIDE, CARD 4 SLOT~~	~~CMD-7410395-0-0~~	~~16~~
1	1	MATE-N-LOC STRAP ASSY	C-AD-7010601-0-0	15
~~1~~	~~1~~	~~CONN, MATE-N-LOC 15 POS~~	~~1209950-15~~	~~14~~
3	3	SCR, SLOTTED, PAN HD NYLON	9009041	13
40	40	SCR, PHL HD FIL #8-32X.81	9009070	12
20	20	GUIDE, CARD 4 SLOTS	C-PS-7210698-0-0	11
1	1	MATE-N-LOC STRAP ASSY	C-1A-7010609-0-0	10
6	6	BAR, GND PROC BACK PLANE	1212293	9
~~32~~	~~32~~	~~NUT, HEX #22 AWG SOLID~~	~~9-127-7-01~~	~~8~~
6	6	WASH., INT TOOTH #8	9006634	7
6	6	SCR, PHL PAN HD #8-32X.75	9006041-01	6
29	29	SCR, PHL HD FIL #8-32 × .62	9006120-06	5
1	1	BACKPLANE PROT. COVER	C-AD-7015215-0-0	4
3	3	BAR, LOGIC SUPPORT	D MD-7412670-0-0	3
1	1	WIRED ASSY (22 ROWS)	E-AD-7010828-0-0	2
1	1	WIRED ASSY (21 ROWS)	E-AD-7010829-0-0	1

QTY.	DESCRIPTION	PART NO.	REF DES

PARTS LIST

KB11-B

A-PL-KB11-B-0

PROCESSOR BACK PLANE ASSY

SIZE E | CODE AD | NUMBER 7010329-0-0 | REV. H

SHEET 1 OF 1

13 (QTY 3)

10

SP1

SP11

SP12

SP21

PIN 1

J1 J2 J3 J4 J5 J6 J7 J8 J9 J25 J26 J27

PIN A01A1

PIN F24V2

16.438 REF

22.675 REF

9 (QTY 6)
SEE NOTE 4

HOLE ⌀ ⌀ HOLE
.325 REF

2G

10 REF

3 (QTY 3)

1 REF

30 (QTY 12)

31 (QTY 6)

5 (QTY 6)

4 SEE NOTE 6

CAUTION: OFF SHEET PARTSLIST.

SIZE	CODE	NUMBER	REV.
B	DD	5413018-0	B

DRAWING NO.	NO. OF SHTS.	PART NO.	DESCRIPTION	REVISIONS
D-UA-5413018-0-0	3		MK11 BOX CONTROLLER	A B C
B-PL-5413018-0-0	1		MK11 BOX CONTROLLER	A B C
D-CS-5413018-0-1	1		MK11 BOX CONTROLLER	A B C
D-MD-5413018-0-0	4		DRILL & ETCH DRAWING	A A B
		5013017	ETCHED BOARD	B B C
5413018-0-L			P.C. DESIGN DATA BASE	REF-
B-DD-5413018-0	1		MK11 BOX CONTROLLER	* A B

NOTES:

REVISIONS		
DATE	CHG NO.	REV.
—	ORIG.	*
9-77	00001	A
11-77	00002	B

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DRB 126

digital

USED ON OPTION/MODEL		DRN.		TITLE
MK11		L. METZGER	AUG 16	MK11 BOX CONTROLLER
		CHK'D D. Borsman	17 AUG 77	
		ENG. W. Rapp	23 AUG 77	SIZE B | CODE DD | NUMBER 5413018-0 | REV 6
		PROD.		SHEET 1 OF 1

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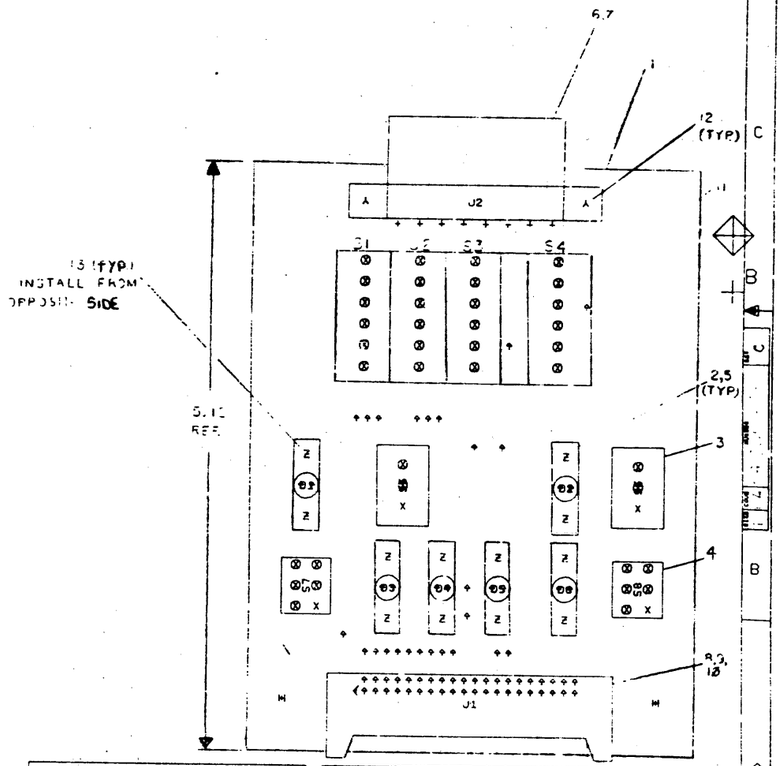
COMPONENT SIDE VIEW



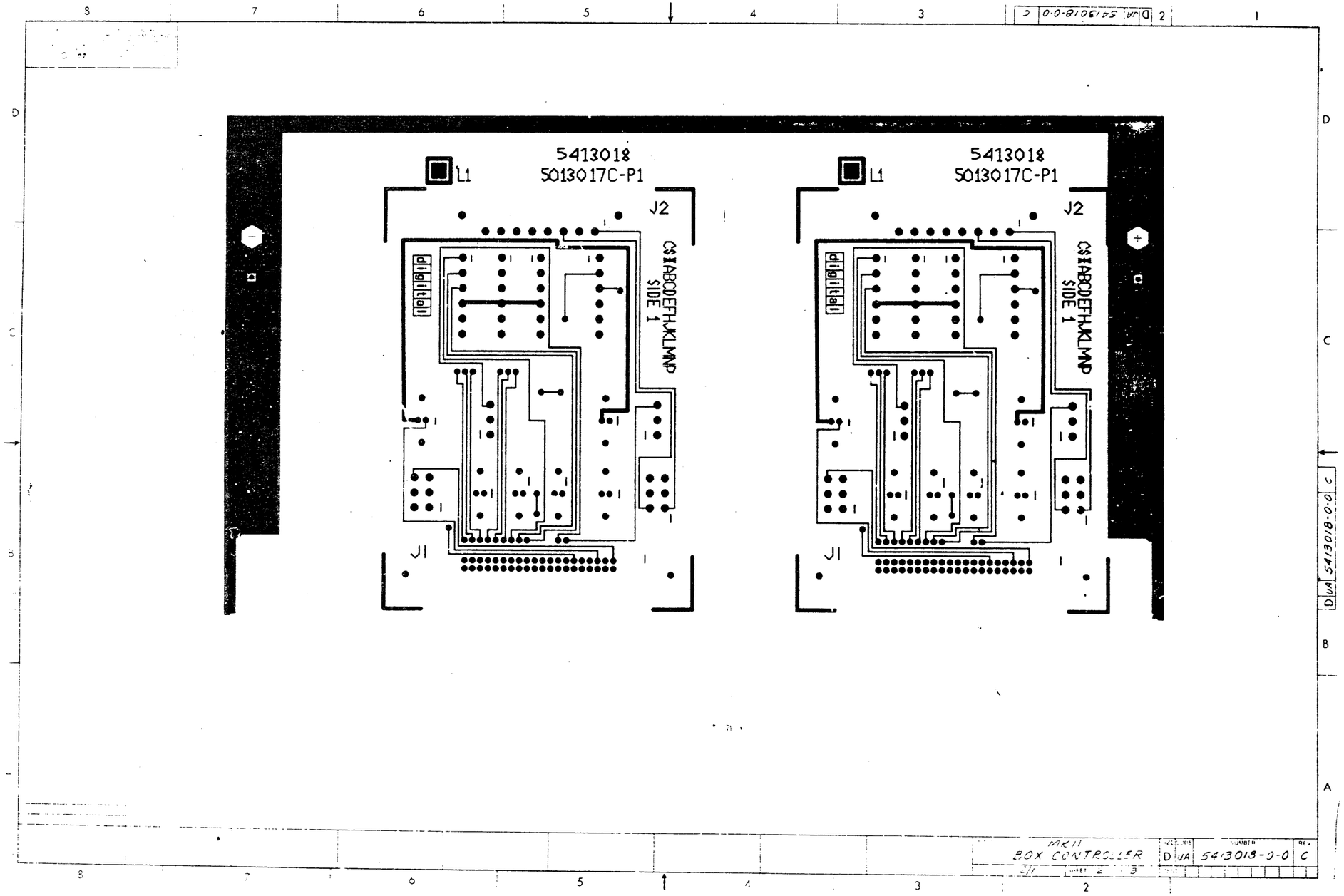
NOTES:

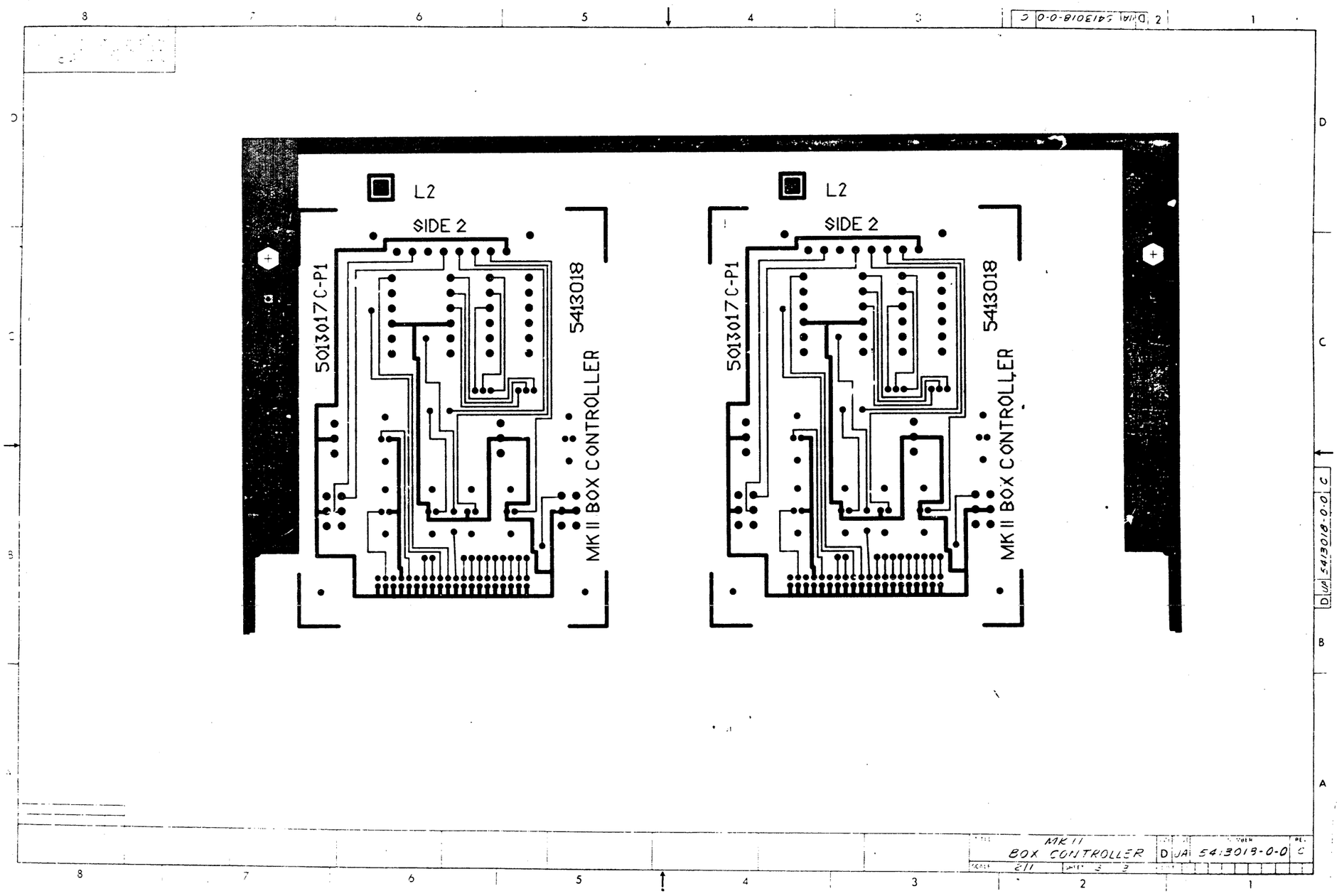
CHANGE NO	REV

ETCH REV:
P.C. DESIGN DATA BASE REV:

SIGNATURES	DATE	digital
DRN.		
CHK'D.		TITLE
ENG.		
PROJ.ENG.		
PROD.		
SCALE 2/1	SIZE D	CODE 04
SHT. 1 OF 2	NUMBER 5413118-0-0	REV C
NEXT HIGHER ASSY: R-DD-5413014-*		

MS#260750


5413018
5013017C-P1
L1
J2
J1
digitel
CS1ABCDEFHJKLMNP
SIDE 1
5413018
5013017C-P1
L1
J2
J1
digitel
CS1ABCDEFHJKLMNP
SIDE 1
MK II
BOX CONTROLLER
D
JA
5413018-0-0
C


L2
SIDE 2
5013017 C-P1
5413018
MK II BOX CONTROLLER
L2
SIDE 2
5013017 C-P1
5413018
MK II BOX CONTROLLER
MK II
BOX CONTROLLER
D
JA 54:3019-0-0
C
2:1

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY C.BEVERLIE DATE 5/5/77	CHECKED W.ANGELL DATE 5/17/77	SECTION 1
ENG W.Angell DATE 23AUG77	PROD P.C. Stebbins DATE 23AUG 77	ISSUED SECTION 1

NOTES:
USED ON: OPTION/MODEL
MKII

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
	D-CS-5413018-0-1		CIRCUIT SCHEMATIC	REF	
	D-UA-5413018-0-0		UNIT ASSEMBLY	REF	
	B-DD-5413018-0		DWG. DIRECTORY	REF	
	D-MD-5013017-0-0		DRILL & ETCH DWG.	REF	
1		5013017	ETCHED BD.	1	
2		11-10324-00	LED MV5054-1	6	D1 thru D6
3		12-09590-00	SW. TOGGLE 1P	2	S5,S6
4		12-09592-00	SW. TOGGLE DP	2	S7,S8
5		12-10848-02	HOLDER, SINGLE,LED	6	
6		12-09416-01	SOCKET TERMINAL	8	
7		12-09940-00	SOCKET HOUSING 8 PIN	1	J2
8		12-09941-02	CONN 40 PIN RT ANG. HDR.	1	J1
9		12-09941-03	LATCH, LEFT(FOR RT ANG. HDR)	1	
10		12-09941-04	LATCH, RIGHT (FOR RT ANG. HDR.)	1	
11		12-14467-00	SWITCH, THUMBWHEEL ASSY	1	S1,S2,S3,S4
12		90-06732-00	EYELET	2	
13		90-08327-01	PAN HD. SELF TAPPING SCREW	12	
14		~~91-05749-55~~	~~wire, #30 awg, green~~	~~AR~~	

E.C.O. NO. 00001 00002

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DRB 125

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
MK11 BOX CONTROLLER	D-UA-5413018-0-0	B	PL	5413018-0-0	C
	SHEET 1 OF 1	INSERTION PARTS LIST DATA BASE REV			

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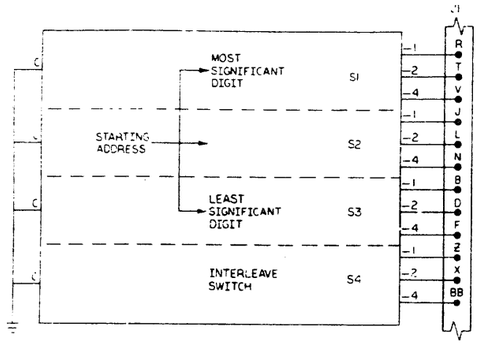
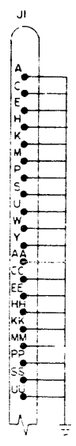
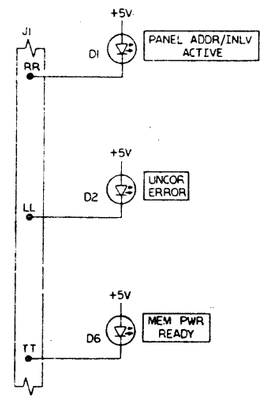
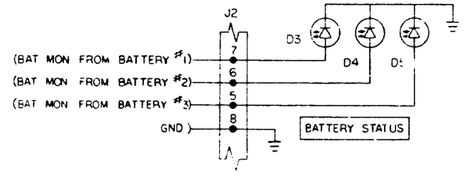
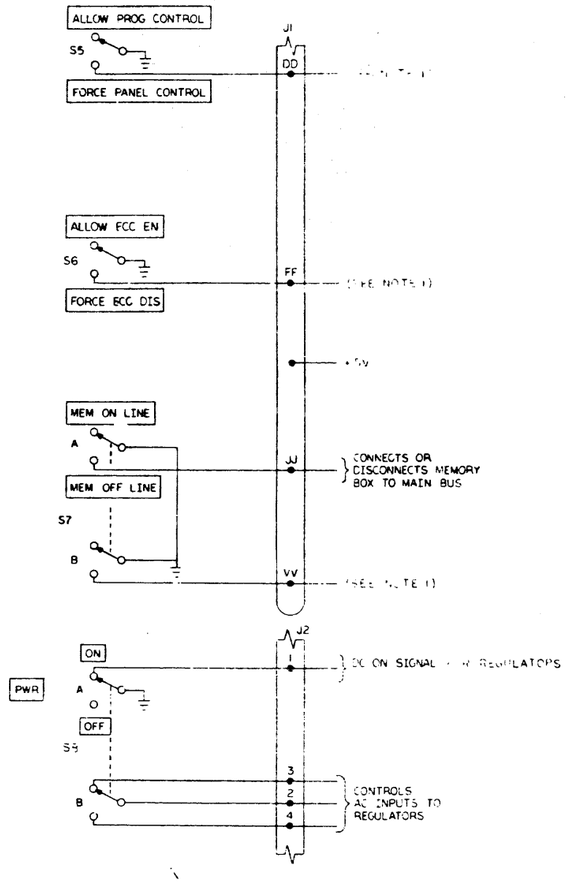
NOTES:
1. J1=40 PIN BERG CONNECTOR TO DATA BUFFER CARD IN MEMORY BACKPLANE.
2. J2=8 PIN MATE-N-LOK CONNECTOR.











REVISIONS			
ECN	DESCRIPTION	DATE	APPROVED
5[illegible]	[illegible]	[illegible]	[illegible]

DRN		FIRST USED ON	digital
CHK'D		MK11	
ENG.		TITLE	
PROJ. ENG.		MK11	
PROD.		30X CONTROLLER	
NEXT HIGHER ASSY.			
SCALE		SIZE D	CODE 05
SHEET 1 OF 1		DIST.	NUMBER 5413018-0-1 REV C

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-H775-Ø-1	FIELD MAINT. PRINT SET H775
E-UA-H775-Ø-Ø	BATTERY BACK-UP ASSY
D-IA-7011906-0-0	INTERFACE CABLE
C-IA-7011759-0-0	HARNESS P.C. BOARD CIRCUIT BREAKER
D-CS-5411625-0-1	BATTERY CHARGER CIRCUIT SCHEMATIC
D-UA-5411625-0-0	BATTERY CHARGER
A-PL-5411625-0-0	BATTERY CHARGER (PL)
MP00272	FIELD MAINT. PRINT SET H785 (COMPLETE SET)

UNIT VARIATIONS COVERED BY THIS PRINT SET
H775-BB 240V
H775-BA 120V
H775-A
H775-CA 120V
H775-CB 240V
H775-D

H775
Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.
MPØØØ14

REVISIONS	REV.	CHG. NO.	DATE
	A	H775-8	3-78

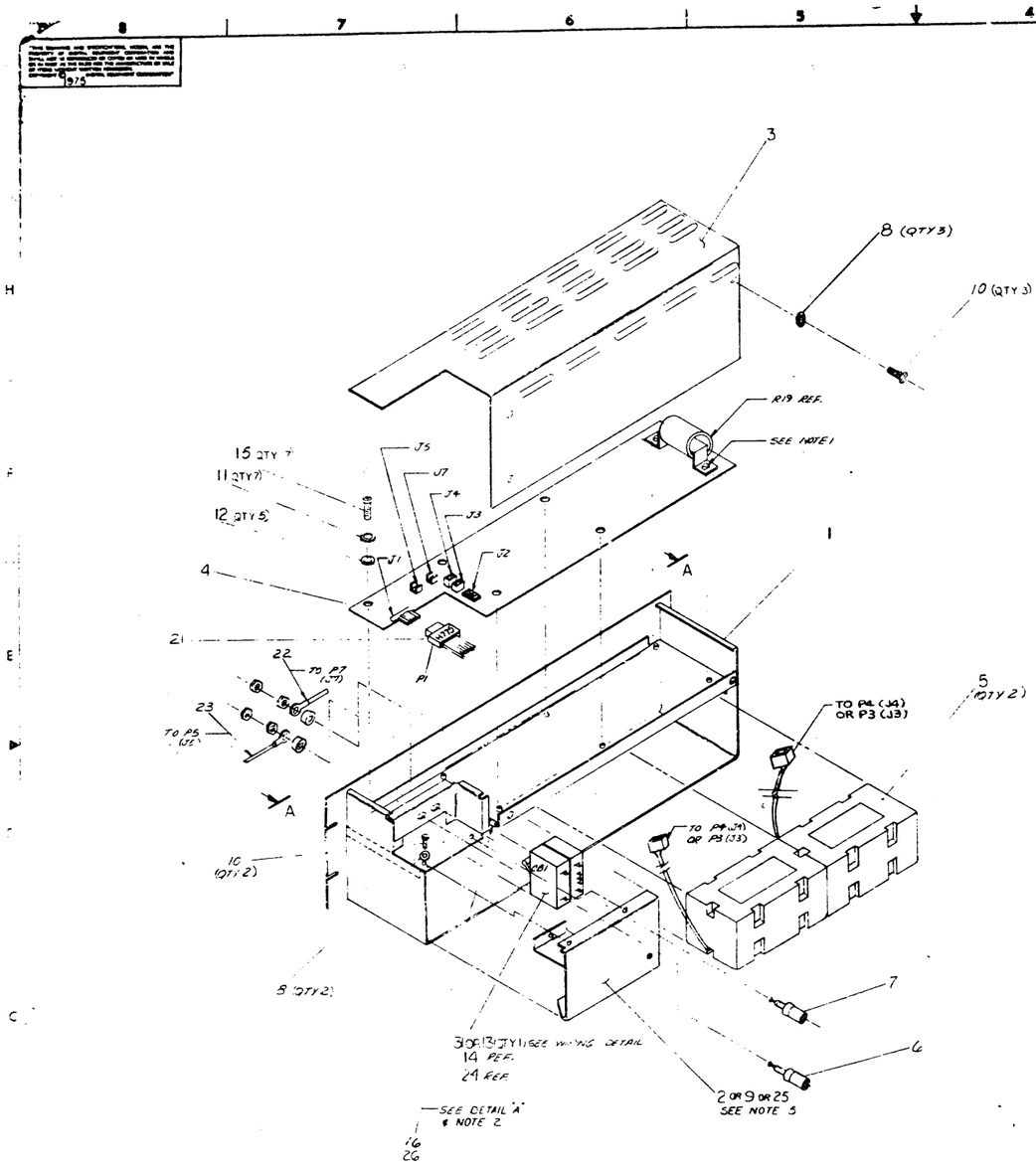
EN-01124-16/9/(327)

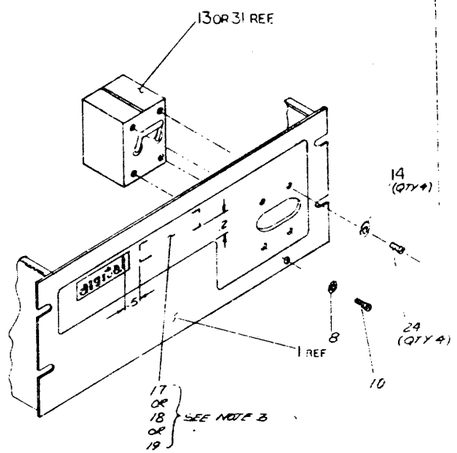
USED ON OPTION/MODEL	
11/Ø4	

SHEET 1 OF 1

DRN. R. RILEY	DATE 9/22/75	digital
CHK'D D. HEALY	DATE 10/17/75	TITLE: FIELD MAINTENANCE PRINT SET H775
PROJ. ENG.	DATE 10/22/75	SIZE B · CODE TC · NUMBER H775-Ø-1 · REV. A
FIELD SERV.	DATE 11/4/75	DIST.

DRB 124

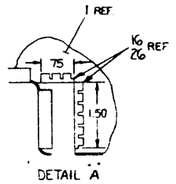




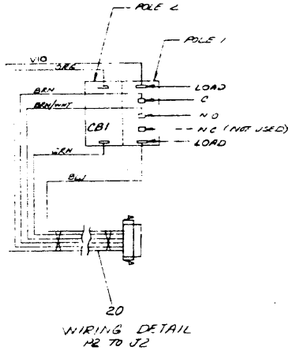
VIEW A-A
SCALE: NONE

NOTES:

1. ITEM [illegible] MOUNT HERE [illegible] DO NOT [illegible] ITEM [illegible].
2. [illegible] ON BOTH SIDES [illegible] ACCESS OPENING.
3. [illegible] # PLACE APPLY HERE [illegible] IN VIEW A-A.
4. ASSEMBLY [illegible] ARE NOT SHOWN ON THIS DOCUMENT SYSTEM DOCUMENTATION WILL DESIGNATE PLACEMENT OF THESE PARTS.
5. WHEN INSTALLING AC BRACKET ITEMS 25 OR 31 INTO UNIT 3 WIRES FROM T1 (REF 7 OR 5M) MUST BE ATTACHED TO P [illegible] (ITEM 4) WIRES 5 & 7 (FITTED WITH MATE-N-LOK PINS) MUST BE INSERTED INTO POSITIONS [illegible] IN EITHER POSITION) WIRE [illegible] FITTED WITH FAST-ON) MUST FLOW INTO FREE SIDE OF J7.



DETAIL A



20
WIRING DETAIL
J2 TO J2

ITEM	QTY				DESCRIPTION	PART NO.
1	-	-	-	-	BREAKER CIRCUIT	[illegible]
1	-	-	-	-	LEVEL [illegible]	[illegible]
-	1	1	-	-	REGULATOR	H1795
-	1	-	-	-	BATT BACKUP 48V	H1795-[illegible]
-	1	-	-	-	BATT BACKUP 12V	H1795-[illegible]
AR	-	AR	AR	AR	HYPONEX	[illegible]
-	-	-	-	1	BRACKET ASY 12V	[illegible]
4	-	-	4	4	SCR [illegible]	3000
1	-	-	-	1	JUMPER ASSY [illegible]	[illegible]
-	-	-	-	1	JUMPER ASSY [illegible]	[illegible]
-	-	-	-	1	INTERFACE CABLE	H-[illegible]
-	-	-	-	1	HARNESS [illegible]	[illegible]
-	-	-	-	1	DECAL H775 BM	[illegible]
-	-	-	-	1	DECAL H775-2-5	[illegible]
-	-	-	-	1	DECAL H1795A	[illegible]
AR	-	AR	AR	AR	[illegible]	[illegible]
7	-	-	7	7	[illegible]	[illegible]
4	-	-	4	4	[illegible]	[illegible]
-	-	-	-	-	[illegible]	[illegible]
5	-	-	5	5	WASHER FLAT [illegible]	9032663
7	-	-	7	7	WASHER LOCK [illegible]	90764?
6	-	-	6	6	SCREW [illegible]	[illegible]
-	-	-	-	1	BRACKET AC ASSY 115V	[illegible]
6	-	-	6	6	WASHER INT [illegible]	3000-08
1	-	-	-	1	PLT BINDING [illegible]	[illegible]
1	-	-	-	1	PLT BINDING [illegible]	[illegible]
2	-	-	2	2	BATTERY PACK	[illegible]
1	-	-	-	1	BATTERY CHARGER	[illegible]
1	-	-	-	1	BATTERY BRACE ASSY	[illegible]
1	-	-	-	1	BRACKET DC	[illegible]
1	-	-	1	-	CHASSIS ASSY	[illegible]

SEE NOTE 4

H775-D
H775-08
H775-04
H775-A
H775-AA

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

QUANTITY & VARIATION

DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPEC

THIRD ANGLE PROJECTION

TITLE: BATTERY PACK UP ASSY

REVISIONS		
	CHANGE NO.	REV
1	H775-00003	A
2	H775-00005	LR
3	H775-17906	C

1

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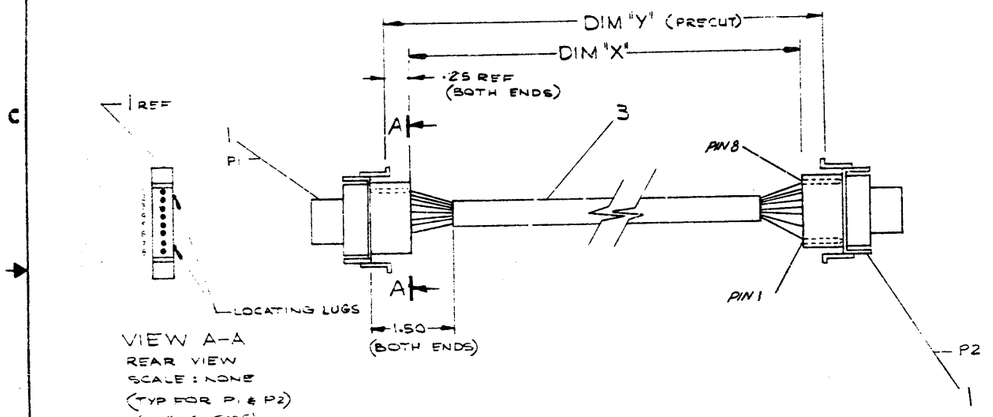
WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
4	14	ORN	P1-1	2	P2-1	2	—
5	"	BLK	P1-2	"	P2-2	"	—
6		BLUE	P1-3		P2-3		—
7		GRAY	P1-4		P2-4		—
8		RED	P1-5		P2-5		—
9		WHITE	P1-6		P2-6		—
10	"	YEL	P1-7	"	P2-7	"	—
11	14	BRN	P1-8	2	P2-8	2	—

LEGEND

NUMBER	DIM "X" VARIATION	DIM "Y" (PRECUT) REF
70119XX-05	4 FT-11.50IN ±1.0IN	5FT-0IN ± 1.0IN

NOTES:



VIEW A-A
REAR VIEW
SCALE: NONE
(TYP FOR P1 & P2)
(WIRING SIDE)

A/R	WIRE #14 STRD BRN	9107370-11	11
A/R	WIRE #14 STRD YEL	9107370-44	10
A/R	WIRE #14 STRD WHT	9107370-99	9
A/R	WIRE #14 STRD RED	9107370-22	8
A/R	WIRE #14 STRD GRY	9107370-88	7
A/R	WIRE #14 STRD BLU	9107370-66	6
A/R	WIRE #14 STRD BLK	9107370-00	5
A/R	WIRE #14 STRD ORG	9107370-33	4
A/R	TUBING, ENTR. BLK .500ID	9107254	3
16	PIN, MALE	12047B-01	2
2	CONN., 8 PIN	12934C-01	1
QTY	DESCRIPTION	DWG PART NO.	ITEM NO

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

SURFACE QUALITY IN MICROINCHES	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 30	OVER 30 TO 60
	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04		

QUANTITY & VARIATION

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

DRWN [illegible]
CHK'D [illegible]
ENG [illegible]
PROJ. ENGR [illegible]
PROG [illegible]
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 1

FIRST USED ON H775

digital

TITLE
INTERFACE CABLE (11/04)

SIZE D | CODE IA | NUMBER 7011906-00 | REV. C | DIST.

REVISIONS			
CHK	CHANGE NO.	REV.	
[illegible]	7011905-00 [illegible]	A	
[illegible]	7011906-XXXX [illegible]	B	
[illegible]	7011906-XXXX [illegible]	C	

DEC FORM 840 3/72

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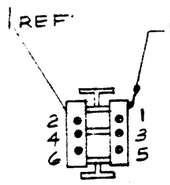
WIRE TABLE

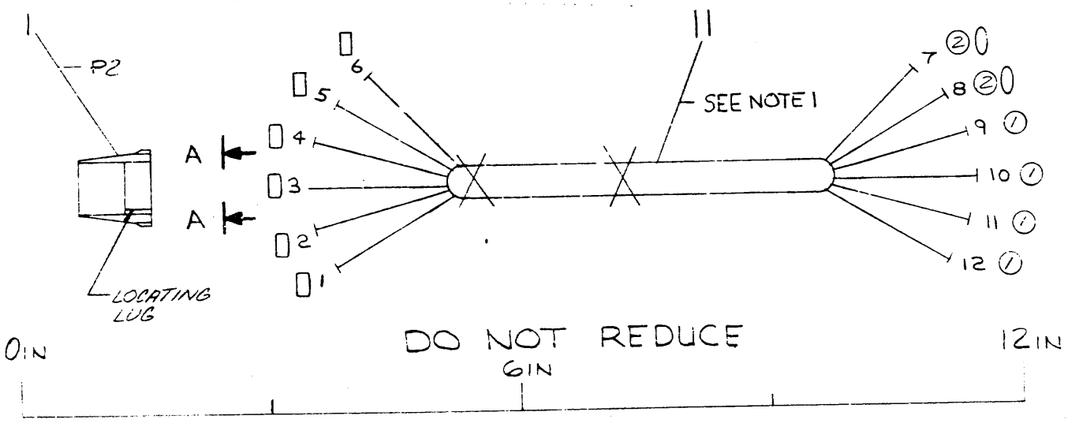
ITEM	DESCRIPTION		FROM			TO		
NO.	AWG	COLOR	POINT	CONN.	WITH	POINT	CONN.	WITH
5	14	ORN	1	P2-1	2	12	—	3
6	14	GRN	2	P2-2		11		3
7	14	BLU	3	P2-3		10		3
8	14	VIO	4	P2-4		9		3
9	18	BRN	5	P2-5		8		4,12
10	18	GRY/BRN	6	P2-6	2	7	—	4,12

NOTES:

1. USE CABLE TIES (ITEM #) APPROX. 2.0 AND 4.0 IN. FROM P2 (ITEM #1).



VIEW A-A
REAR VIEW
SCALE : NONE
(WIRING SIDE)



FOR MANUFACTURING PURPOSES ONLY

0	A/R	TUBING, SHRINK 3/16 ID	9107254-00	12
X	2	TIE, CABLE	4007031	11
—	A/R	WIRE #18 AWG (GRY/BRN)	9107410-81	10
—	A/R	WIRE #18 AWG (BRN)	9107360-11	9
—	A/R	WIRE #14 AWG (VIO)	9107370-77	8
—	A/R	WIRE #14 AWG (BLUE)	9107370-66	7
—	A/R	WIRE #14 AWG (GRN)	9107370-55	6
—	A/R	WIRE #14 AWG (ORN)	9107370-33	5
②	2	TERMINAL, QUICK CONN	9008488	4
①	4	TERMINAL, QUICK CONNECT	9007969	3
□	6	PIN (FEMALE)	1209379-00	2
	1	CONN, 6 PIN (FEMALE)	1210821-06	1

PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.	SYM

FIRST USED ON OPTION/MODEL: H775

DIMENSIONAL TOLERANCE
DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED

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

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL SEE PARTS LIST

FINISH —

DRN.	DATE	7-12-75
CHK'D.	DATE	10/22/75
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	10/24/75

NEXT HIGHER ASSY. E-UA-H775-00
SCALE 1/1
SHEET 1 OF 1

digital

TITLE HARNESS, PC BOARD/ CKT. BREAKER

SIZE	CODE	NUMBER	REV.
C	IA	7011759-0-0	A

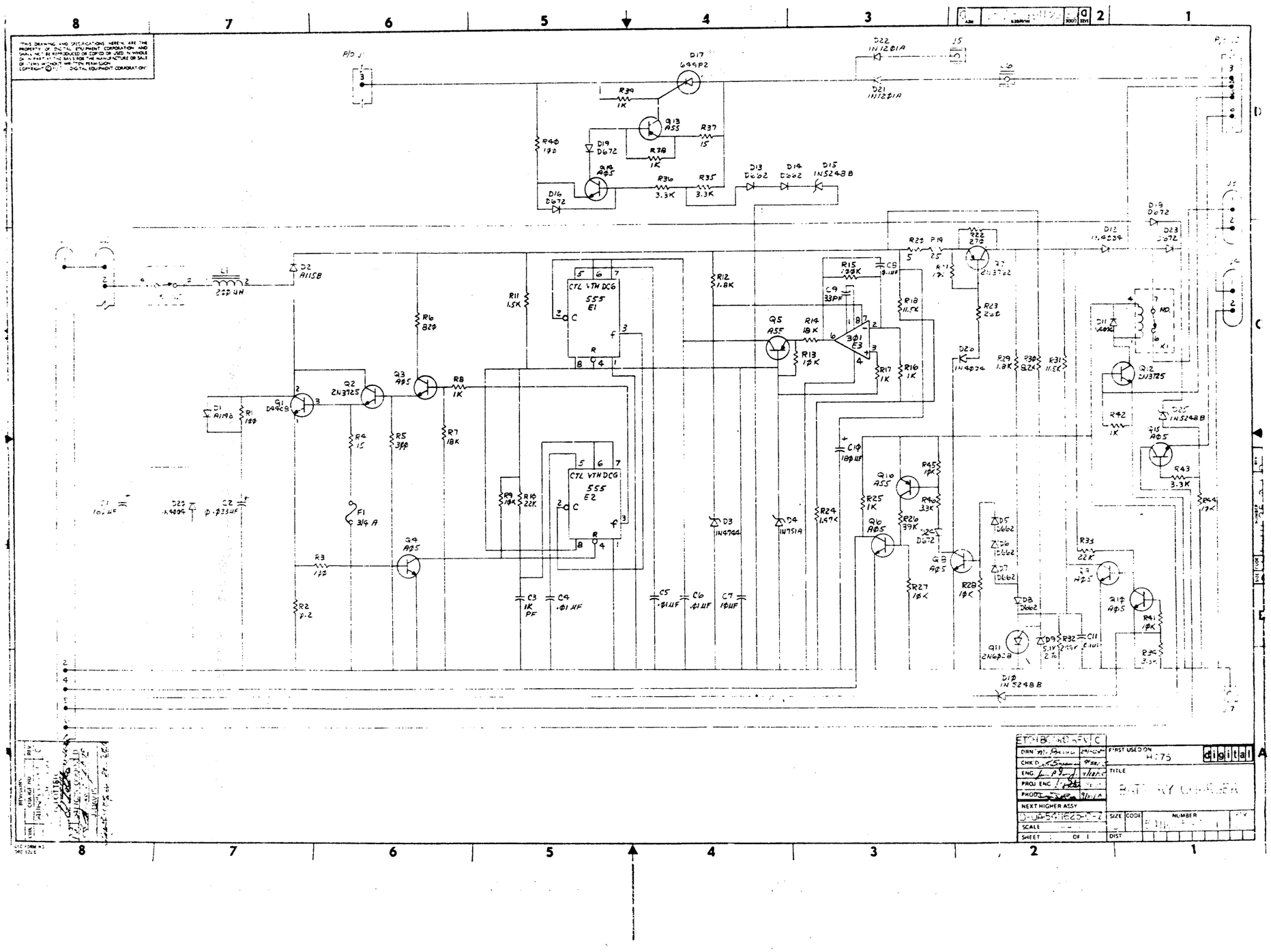
DIST.

REVISIONS		
CHK	CHANGE NO.	REV.
[illegible]	7011759-00001	A

J. R. DAVIS JR. 7-2-75

SIZE C CODE IA NUMBER 7011759-0-0 REV A

DEC FORM NO. DRC 130-B


8
7
6
5
4
3
2
1
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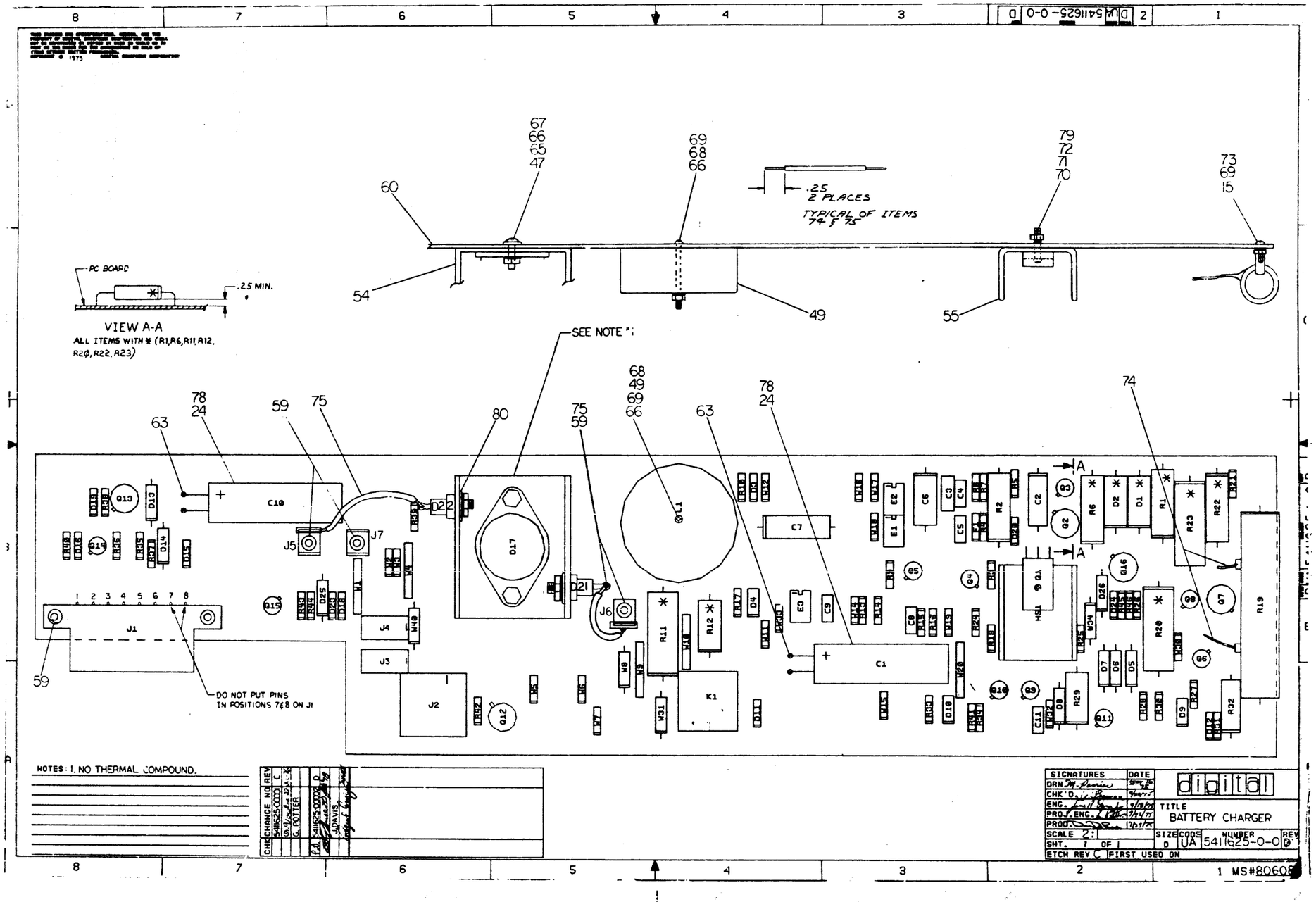
P/O J1
D17 6495P2
R39 1K
Q13 A55
R37 15
R38 1K
R40 19Ω
D19 D672
Q14 A05
R36 3.3K
R35 3.3K
D16 D672
D13 D662
D14 D662
D15 IN5248B
D22 IN1201A
D21 IN1201A
J5
J6
J1
J2
L1 220 UH
D2 A115B
R6 820
R11 1.5K
CTL VTN DCG 555 E1
R12 1.8K
R15 100K
C8 .01UF
C9 33PF
Q5 A55
R14 18K
R13 10K
3Ø1 E3
R17 1K
R16 1K
R25 19
Q7 2N3762
R18 11.5K
R23 22Ω
D20 IN4934
R29 1.8K
R30 9.2K
R31 11.5K
D12 IN4934
D19 D672
D23 D672
J3
J4
D1 A115B
R1 100
Q1 D496B
Q2 2N3725
Q3 A05
R8 1K
R4 15
R5 39Ω
R7 18K
F1 3/4 A
C1 10 UF
D23 IN4934
C2 .033UF
Q4 A05
R3 1K
R2 2.2
CTL VTN DCG 555 E2
R9 10K
R10 22K
C3 1K PF
C4 .01 UF
C5 .01UF
C6 .01 UF
C7 10UF
D3 IN4944
D4 IN751A
C10 100 UF
Q10 A55
R45 10K
R25 1K
R40 33K
Q6 A05
R210 39K
R24 1.47K
R27 18K
Q8 A05
R29 10K
D5 D662
D6 D662
D7 D662
D8 D662
Q11 2N6028
D9 5.1V 2%
R32 2.25K
C11 .1UF
D10 IN5248B
R33 22K
Q9 A05
R41 10K
R35 3.3K
R42 1K
D25 IN5248B
Q15 A05
R43 3.3K
R44 10K
REVISIONS
ECO REV
ENGINEERING
DRN
CHK'D
ENG
PROJ ENG
PROD
NEXT HIGHER ASSY
SCALE
SHEET OF 1
FIRST USED ON H175
digital
TITLE
SIZE CODE NUMBER REV
DIST

1


5411625-0-0 D
© 1975
PC BOARD
.25 MIN.
VIEW A-A
ALL ITEMS WITH * (R1,R6,R11,R12, R20,R22,R23)
.25 2 PLACES
TYPICAL OF ITEMS 74 & 75
SEE NOTE "1"
DO NOT PUT PINS IN POSITIONS 7&8 ON J1
NOTES: 1. NO THERMAL COMPOUND.
CHG CHANGE NO REV
5411625-0000 C
5411625-0000 D
SIGNATURES DATE
DRN
CHK'D
ENG.
PROJ. ENG.
PROD.
SCALE 2:1
SHT. 1 OF 1
digital
TITLE
BATTERY CHARGER
SIZE CODE NUMBER REV
D UA 5411625-0-0 D
ETCH REV C FIRST USED ON
MS#80605

1

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV C

MADE BY	JIM DAVIS	CHECKED	P. BOSSMAN	SECTION	1
DATE	4-18-75	DATE	11-4-75		
ENG	JIM DAVIS	PROD	D. DEROME	ISSUED SECT	1
DATE	4-18-75	DATE	9-25-75		

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	VARIATION
1	1302380	RESISTOR 100 OHM, 2W 5%	1	R1
2	1311604	RESISTOR 0.2 OHM, 2W 3%	1	R2
3	1301224	RESISTOR 100 OHM, ¼W 5%	3	R3 R21 R40
4	1301421	RESISTOR 15 OHM, ¼ 10%	2	R4 R37
5	1301425	RESISTOR 300 OHM, ¼W 5%	1	R5
6	1301966	RESISTOR 820 OHM, 2W 10%	1	R6
7	1302465	RESISTOR 18K, ¼W 5%	2	R7 R14
8	1300365	RESISTOR 1K, ¼W 5%	7	R8 R16 R17 R25 R38 R39 R42
9	1300479	RESISTOR 10K, ¼W 5%	7	R9 R13 R27 R28 R41 R44 R45
10	1301808	RESISTOR 22K, ¼W 5%	2	R10 R33
11	1301897	RESISTOR 1.5K, 5W 5%	1	R11
12	1303122	RESISTOR 1.8K, 1W 5%	2	R12 R29
13	1302466	RESISTOR 100K, ¼W 5%	1	R15
14	1305108	RESISTOR 1.47K, 1%, ¼W	1	R24
15	1300193	RESISTOR 25 OHM 25W WITH BRACKETS 1%	1	R19
16	1305815	RESISTOR 5 OHM, 5W 5%	1	R20
17	1305380	RESISTOR 270 OHM, 2W 5%	1	R22
18	1309963	RESISTOR 260 OHM, 5W 1%	1	R23
19	1303179	RESISTOR 9.2K ¼W 5%	2	R26 R30
20	1309415	RESISTOR 11.5K, ¼W 1%	2	R18 R31
21	1300424	RESISTOR 2.49K 3/4W 1%	1	R32
22	1300439	RESISTOR 3.3K, ¼W 5%	5	R34 R35 R36 R43 R46

TITLE	ASSY NO	SIZE	CODE	NUMBER	REV	ECO NO
BATTERY CHARGER	D-UA-5411625-0-0	A	PL	5411625-0-0	D	5411625 CCC02
	SHEET 1 OF 4	DIST				

DEC FORM DEC DRA 10

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV C

MADE BY	JIM DAVIS	CHECKED	P. BOSSMAN	SECTION	1
DATE	4-18-75	DATE	11-4-75		
ENG	JIM DAVIS	PROD	D. DEROME	ISSUED SECT	1
DATE	4-18-75	DATE	9-25-75		

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	VARIATION
23	1105784	CAPACITOR 0.01 MFD, 100V, MYLAR	1	C6
24	1105677-02	CAPACITOR 180 MFD, 50V, 672D SPRAGUE	2	C1 C10
25	1105680	CAPACITOR .033 MFD, 100V	1	C2
26	1000042	CAPACITOR 4PF, 100V	1	C3
27	1301613-1	CAPACITOR .01 MFD, 100V	2	C4 C5
28	1004813	CAPACITOR 10 MFD, 20V	1	C7
29	1105679	CAPACITOR 0.1 MFD 100V	2	C8 C11
30	1100099	CAPACITOR 33PF, 100V	1	C9
31	1510471	TRANSISTOR 2N4C8	1	Q1
32	1510944	TRANSISTOR 2N3725	2	Q2 Q12
33	1510870	TRANSISTOR A05	8	Q3 Q4 Q6 Q8 Q9 Q10 Q14 Q15
34	1510870	TRANSISTOR A55	3	Q5 Q13 Q16
35	1509649	TRANSISTOR 2N3762	1	Q7
36	1510877	TRANSISTOR 2N6028	1	Q11
37	1112596-1	DIODE GE A114B FAST REC RECT.	1	D1
38	1112594-01	DIODE GE A115B FAST REC RECT.	1	D2
39	1105648	DIODE IN4744 15V ZENER	1	D3
40	1110934	DIODE IN751A 5.1V ZENER	1	D4
41	1105679	DIODE D662	6	D5 D6 D7 D8 D13 D14
42	1110713	DIODE 5.1V 2% ZENER	1	D9
43	1105784	DIODE IN4004 RECT.	4	D11 D12 D20 D26
44	1110766	DIODE IN5248B 18V ZENER	3	D15 D25 D10

TITLE	ASSY NO	SIZE	CODE	NUMBER	REV	ECO NO
BATTERY CHARGER	D-UA-5411625-0-0	A	PL	5411625-0-0	D	
	SHEET 2 OF 4	DIST				

DEC FORM DEC DRA 10

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV C

MADE BY	JIM DAVIS	CHECKED	P. BOSSMAN	SECTION	1
DATE	4-18-75	DATE	11-4-75		
ENG	JIM DAVIS	PROD	D. DEROME	ISSUED SECT	1
DATE	4-18-75	DATE	9-25-75		

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	VARIATION
45	1105275	DIODE D672	5	D16 D18 D22 D24
46	1110006	DIODE 1201A RECT	2	D21 D23
47	1109465	SCR MCR6497	1	D17
48	1210929-03	3/4 AMP. PICOFUSE	1	F1
49	1612500	INDUCTOR 200 UH	1	L1
50	1211138-01	RELAY DPDT 6VDC	1	K1
51	1211139	RELAY SOCKET HOUSING	1	XK1
52	1211342-06	CONN. MATE-N-LOCK 6 PIN	1	J2
53	1211342-02	HEADER MATE-N-LOCK 2 PIN	2	J3 J4
54	1212645	HEAT SINK	1	HS2
55	1212487	HEAT SINK	1	HS1
56	1911944	IC LM555 TIMER	2	E1 E2
57	1910282	IC LM301A OP AMP	1	E3
58	9008219	QUICK CONNECT ¼ IN. SINGLE MALE 90°	1	J6
59	9009000	EYELETS	5	
60	5011624	ETCHED CIRCUIT BOARD	1	
61	1209340	8 PIN MATE-N-LOCK	1	J1
62	1209456-01	SOCKETS FOR 1209340	6	J1-1, J1-2, J1-3, J1-4, J1-5, J1-6
63	9009118-03	TERMINAL, SOLDER	4	
64	9007113	DOUBLE MALE QUICK CONNECT 90°	2	J5 J7

TITLE	ASSY NO	SIZE	CODE	NUMBER	REV	ECO NO
BATTERY CHARGER	D-UA-5411625-0-0	A	PL	5411625-0-0	D	
	SHEET 3 OF 4	DIST				

DEC FORM DEC DRA 10

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

ETCH REV C

MADE BY	JIM DAVIS	CHECKED	P. BOSSMAN	SECTION	1
DATE	4-18-75	DATE	11-4-75		
ENG	JIM DAVIS	PROD	D. DEROME	ISSUED SECT	1
DATE	4-18-75	DATE	9-25-75		

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY	VARIATION
65	9006024-1	6-32 x ½ PPH SCREW	2	
66	9006653	FLAT WASHER	3	
67	9008185	6-32 KEP NUT (¼ AF)	2	
68	9007853-1	6-32 x 1 1/8 PPH SCREW	1	
69	9006560	6-32 CPT NUT (5/16 AF)	3	
70	9006010-1	4-40 x 5/16 PPH SCREW	1	
71	9006655	FLAT WASHER	1	
72	9006557	4-40 KEP NUT	1	
73	9006020-1	6-32 x ½ PPH SCREW	2	
74	9107350-99	WIRE #22 AWG STRANDED IPVC x 1½" L	2	
75	9107360-22	WIRE #18 AWG STRANDED IPVC x 2½" L	2	
77	9007970	FEMALE FASTON INSULATED	2	
78	9007834	DOUBLE BACK STICKY TAPE	AR	
79	9008208	THERMAL COMPOUND	AR	
80	9006664	FLAT WASHER	2	
81	D-CS-5411625-0-1	CIRCUIT SCHEMATIC	REF	
82	D-AH-5411625-0-0	ASSY DRILLING HOLE LAYOUT	REF	
83	B-MR-5411625-0-0	MASTER FOR TROUBLE	REF	
84	9009186-00	JUMPER, #18 AWG WHITE INS. .4 HOLE	16	W2, 3, 5-7, 11, 12, 14-19, 30, 32, 43
85	9009185-00	JUMPER WIRE, WHITE INSULATION #18AWG	9	W1, 4, 8, 9, 13, 20, 31, 36, 42

TITLE	ASSY NO	SIZE	CODE	NUMBER	REV	ECO NO
BATTERY CHARGER	D-UA-5411625-0-0	A	PL	5411625-0-0	D	
	SHEET 4 OF 4	DIST				

DEC FORM DEC DRA 10

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FIELD MAINTENANCE PRINT SET

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TABLE OF CONTENTS

B-TC-H785-Ø-1	H785 REGULATOR BATTERY BACKUP (TC)
E-UA-H785-Ø-Ø	H785 UNIT ASSY
D-UA-5412343-0-0	H785 BATTERY BACKUP REGULATOR
B-PL-5412343-0-0	H785 BATTERY BACKUP REGULATOR (PL)
D-CS-5412343-0-1	H785 BATTERY BACKUP REGULATOR (CS)
D-UA-5412385-0-0	H785 CONTROL BOARD
B-PL-5412385-0-0	H785 CONTROL BOARD (PL)
D-CS-5412385-0-1	H785 CONTROL BOARD (CS)
D-UA-5412411-0-0	INPUT RECTIFIER BOARD
B-PL-5412411-0-0	INPUT RECTIFIER BOARD (PL)
D-CS-5412411-0-1	INPUT RECTIFIER BOARD (CS)

UNIT VARIATIONS COVERED BY THIS PRINT SET
H785-Ø

H785
Field Maintenance Print Set

Digital Equipment Corporation

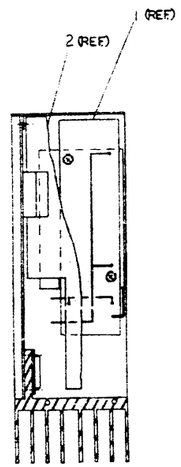
PRINT SET ORDER NO.
MPØØ272

REVISIONS		
REV	A	
CHG. NO.	[illegible] 3	
DATE	76	

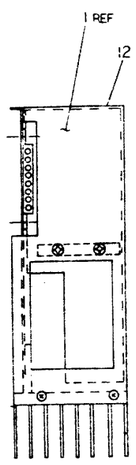
USED ON OPTION/MODEL	
7013323	
1134A	
SHEET 1 OF 2	

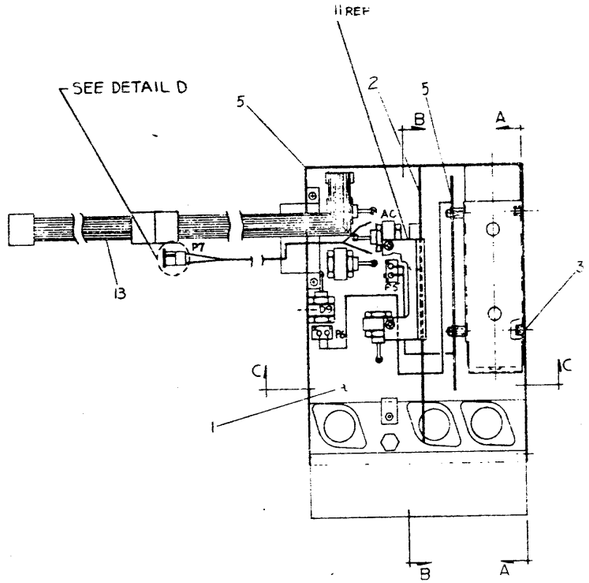
DRN. D. HEALY	DATE NOV 76	digital
CHK'D D. HEALY	DATE NOV 76	TITLE: H785 REGULATOR BATTERY BACKUP
PROJ. ENG. [illegible]	DATE 12-19-76	
FIELD SERV. [illegible]	DATE [illegible]	SIZE B / CODE TC / NUMBER [illegible] / REV [illegible] / DIST.

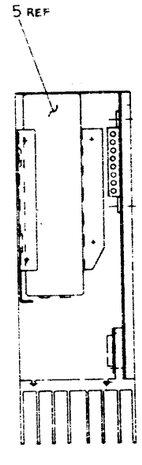
DRB



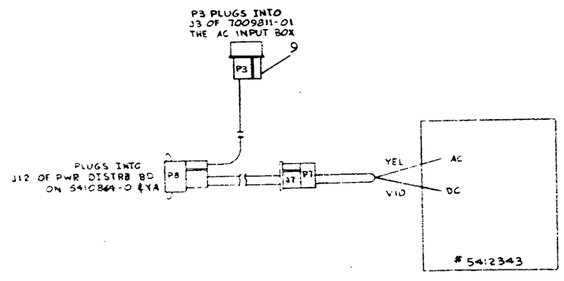
SECTION B-B



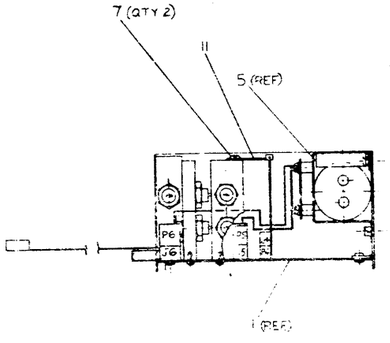




SECTION A-A



DETAIL D



SECTION C-C

1	CABLE, CONSOLE	70:1811-23	13
1	DECAL, M785 H1853	74:6945-06	12
1	RETAINER, CARD	540-A19 2609	11
1	CABLE, AC, DC/LO	C-KA 70:1351-0-0	9
1	HOUSE, LOGIC, MT 10054-3	10054-3	8
12	SCR, PN HD PAN #4-40x.25	90:0830-01	7
4	SCR, PN HD FLAT	10055-2	6
1	CAPACITOR BDMT ASSY	C-AD 70:1332-0-0	5
AR	COMPOUND, SILICONE		4
4	SCR, PP FL HD, #6-32 x .19	10030-20-2	3
1	M785 CONTROL BOARD	D-UA 541385-0-0	2
1	M105 BATTERY BACKUP REGULATOR	D-UA 54:2343-0-01	1

DESCRIPTION	CHELT PART NO.	ITM NO

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±	LOCATION OF HOLE AND SLOT	HOLE DIA	SLOT WIDTH	SLOT LENGTH	BEND RADIUS	BEND ALLOWANCE
DECIMALS	±	±	±	±	±	±
.XX	.030	.005	.005	.030	.030	.030
.XXX	.010	.003	.003	.010	.010	.010

SURFACE QUALITY	MICROINCHES
GROUND	63
MACHINED	125
MACHINED	250

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

NEXT ASSY USED ON		
APPLICATION		
DO NOT SCALE DRAWING		
MATERIAL		
FINISH		
TOLERANCES UNLESS OTHERWISE SPECIFIED		
NEXT HIGHER ASSY		

1134A

TITLE: REGULATOR BATTERY BACKUP

SIZE A | CODE IDENT | DRAWING NO. 70:1811-0-X | REV

SHEET 1 OF 1

WIRE TABLE

ITEM NO	WIRE NO	AWG	COLOR	DESCRIPT. FROM	TO H785	TO H7850	LENGTH
77	75	8T.WP	BLK	D11 ANODE	PAD 1	PAD 1	450
	76		RED	D10 CATHODE	PAD 2	PAD 2	450
	77	8		D9 CATHODE	PAD 3	PAD 3	300
	78	8		D12 CATHODE	PAD 10	PAD 10	3.5
77	79			D16 ANODE	PAD 11	PAD 11	1.0
	80	8T.WP		D15 ANODE	PAD 6	PAD 6	200
	81		BLK	D17 CATHODE	PAD 8	PAD 7	2.5
77	82	8T.WP	RED	D16 CATHODE	PAD 4	PAD 5	275
	83		BLK	D13 ANODE	D18 CATHODE	D18 CAT.	350
77	84	8T.WP	RED	D14 ANODE	D17 CATHODE	D17 CAT.	350
	85		BLK	D9 ANODE	PAD 9	PAD 9	300

ALTWIST 2 MAG 22 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

DIO, DI3, D15, D18 RED
DII, DI4, D16, D17 BLACK

COMPONENT SIDE VIEW

5.00 IN
127.0 MM
F.B.S

6.50 IN.
165.1 MM
F.B.S

NOTES:
1. SEE SHEET 4 OF 4 FOR DIODE WIRING.
2. SOLID LINE INDICATES WIRE FROM THE TOP SIDE.
3. DASHED LINE INDICATES WIRE FROM BOTTOM SIDE.
4. COPPER HOLE AT TOP OF HEATSINKS MUST FACE PROPER WAY TO ALLOW INSERTION OF CARD GUIDE.
5. [illegible]

NOTES:
1. [illegible] ITEM NO 55 [illegible] TO REGULATOR BOARD RED WIRE TO PTH MARKED DC
2. BLACK WIRE TO PTH MARKED AC
3. INSERT [illegible] TO J3 ITEM NO 58

ETCH REV. C
P.C. DESIGN DATA BASE REV. C

SIGNATURES	DATE
DRN.	
CHK'D.	
ENG.	1-3-77
PROJ ENG.	1-3-77
PROD.	2-7-77

digital

TITLE: H795 BATTERY BACKUP REGULATOR

SIZE D | CODE UA | NUMBER 54,2343-0-01 | REV F

SCALE: [illegible]
SHT. 1 OF 5
NEXT HIGHER ASSY. P-CO-5412343-0

MS# 02969

1

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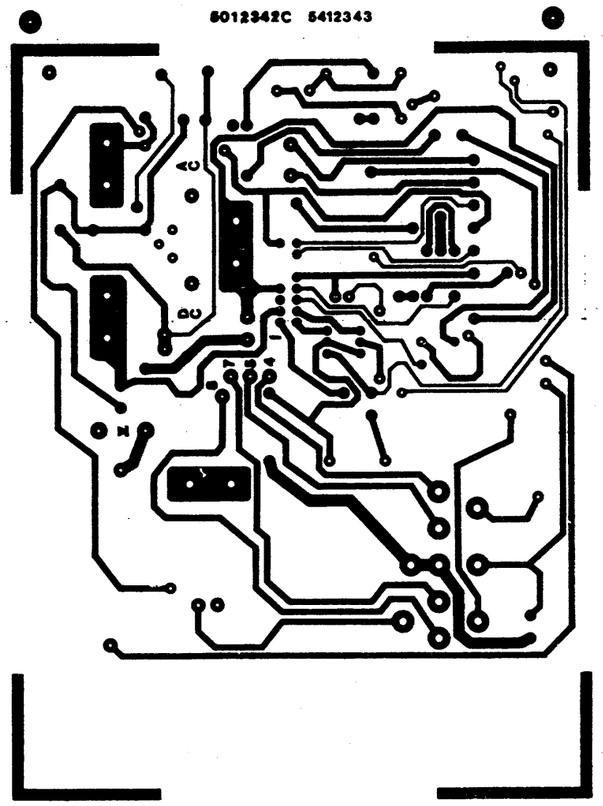

H785 BATTERY BACKUP REGULATOR		D	5412343-0-0
SCALE 2/1	SHEET 2 OF 5		

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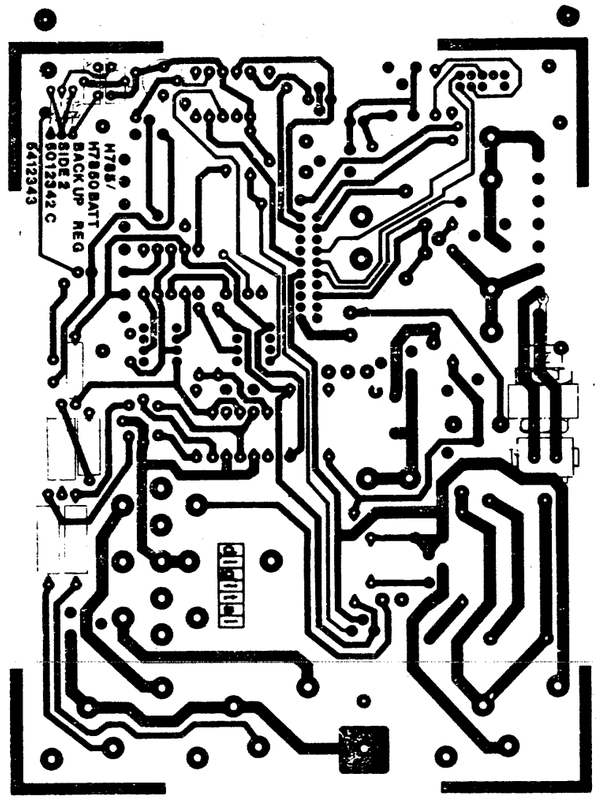

TITLE	H785 BATTERY BACKUP REGULATOR			
SCALE 2/1	SHEET 3 OF 5	SIZE D	CODE UA	NUMBER 5412343-0-0
DIST				REV H

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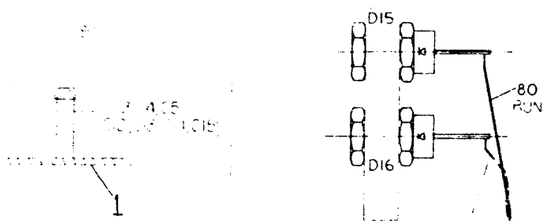
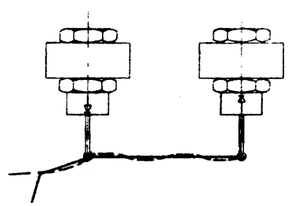
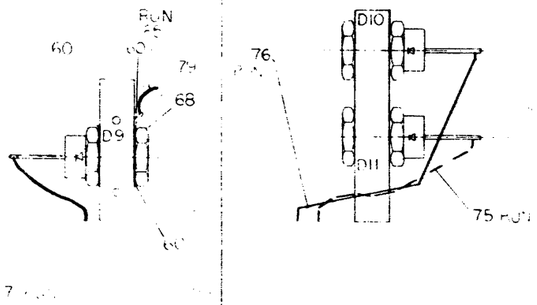
NOTES:
WIRING INFORMATION SHOWN ON SHEET 1 OF 4

2 DIODES TO BE ASSEMBLED TO HEAT SINKS AND WIRED AS SHOWN BEFORE INSTALLING TO BOARD







REVISIONS		
CHR	CHANGE NO	REV

TITLE: H7[illegible] BACKUP REG[illegible]
SIZE: D | CODE: UA | NUMBER: 541-343-01 | REV: F
SCALE: FULL | SHEET 2 OF 2 | DIST

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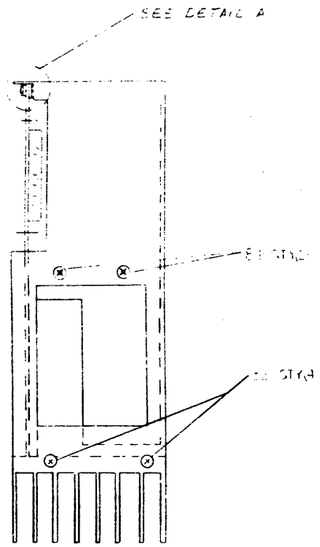

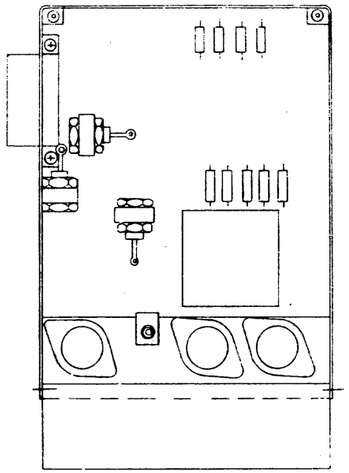

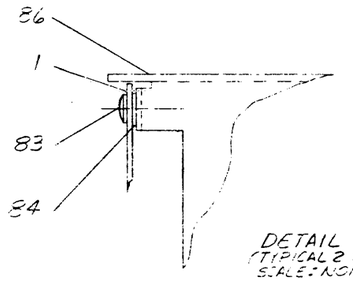

DETAIL A
(TYPICAL 2 PLACES)
SCALE: NONE

REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
H785 BATTERY BACKUP REGULATOR	D	UA	54-12343-01	F
SCALE	SHEET OF	DIST.		

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION					QTY	REFERENCE DESIGNATORS
1	1	[illegible]-5412342-[illegible]	5012342-00	ETCH BRD 54-12343					1	
2	2		1002431-00	2.2MFD 35V 10% 150S S.TA				(13-20	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% 15WD S.TA				(10-00	2	C6,C11
8	8		1012607-04	56W 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		1004813-00	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 PPER 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		1103944-00	1N 3880 PIV=100 I= 6A D04 SM					6	D10,D11,D13-D16
17	17		1103366-00	1N 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.	FIRST USED ON:		DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		
CHK	ECO NO	REV	00	MADE BY: D BILODEAU	DATE: 31-JUL-78	TITLE: PARTS LIST		
B.N	02004	F		CHECKED: R PUZZO	DATE: 31-JUL-78	H785 BATTERY BACKUP REGULATOR		
				DSN.ENG.: J MERCURI	DATE: 31-JUL-78	SIZE: K	CODE: PL	DOCUMENT NUMBER: 5412343-00-GRP
				PROD.: R KING	DATE: 31-JUL-78			REV: F
				RESP.ENG.: J MERCURI	DATE: 31-JUL-78	ASSY. O.: [illegible]-5412343-A-0		EDIT#: 3

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AUTOMATED BY PRTLST 2E(2)

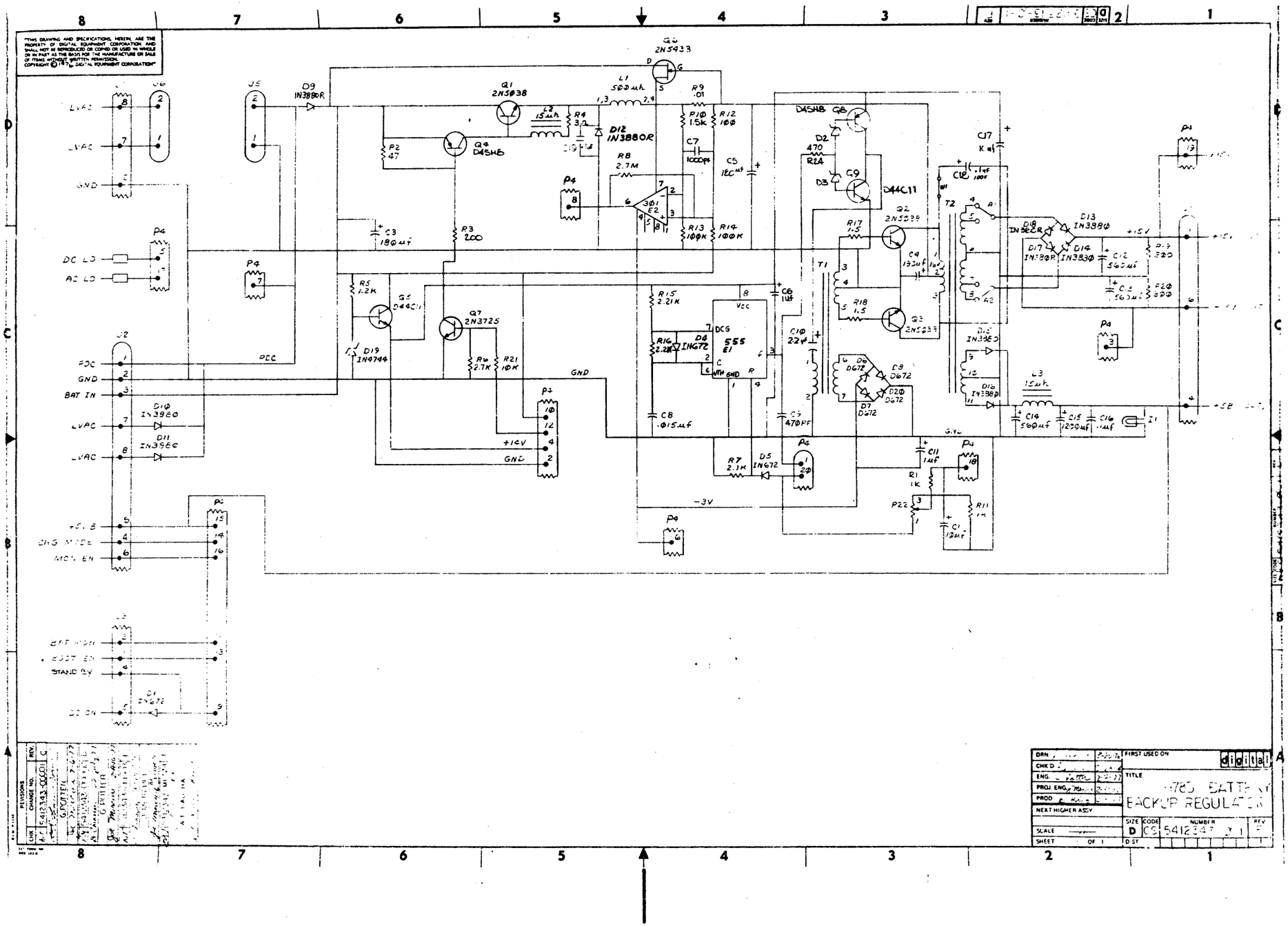
PARTS LIST

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	30Ω 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			Ø	
44	44	BLANK			Ø.	
45	45		1510969-00	2N 5038 NPN 140WC SI 90 50 Y	3	Q1-Q3
46	46		1510708-00	D 45HR 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 20V	1	Q6
49	49		1510959-00	2N 3725 NPN 3.5WC SI 50 60 P	1	Q7
50	50	BLANK			Ø	
51	51		1612593-00	500 UH 6A $	1	L1
52	52		1613874-00	CHOKE,15UH 4A	2	L2,L3
53	53		1613876-00	XFMR,POWER,RATIO 1:2 7PIN $	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		7013384-10	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		9006706-00	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		9006565-00	NUT,KEP , 10-32X 3/8 AF CS/	10	
69	69		1210737-04	HEAT SINK,REGULATOR	1	
70	70		9007793-04	SCREW,BIND,SLOT, 6-32X 9/16 SS/PAS	6	
71	71		9007649-00	******** THIS ITEM IS NOT USED *********	-	
72	72		9008185-00	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	8	
76	76		9006010-04	SCREW,BIND,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	

	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	PARTS LIST H785 BATTERY BACKUP REGULATOR	K	PL	5412343-0-0BP	F

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
79	79		9008506-00	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 1000	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-7417410-1-0	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: 5412343-00-ERP	REV: F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LVAC
LVAC
GND
DC LO
AC LO
FDC
GND
BAT IN
LVAC
LVAC
PS. B
CHG MODE
MON EN
BAT MON
BOOT EN
STAND BY
DC ON
PDC
GND
+14V
GND
-3V
+15V
+5B
Q6 2N5433
Q1 2N3038
Q4 D45H6
Q5 D44C11
Q7 2N3725
Q2 2N5038
Q3 2N5038
D45H6
D44C11
555
L1 500uh
L2 15uh
L3 15uh
T1
D1 IN4672
D2 470
D3
D4 IN672
D5 IN672
D6 D672
D7 D672
D8 D672
D9 IN3880R
D10 IN3880
D11 IN3880
D12 IN3880R
D13 IN3880
D14 IN3880
D15 IN3880
D16 IN3880R
D17 IN3880R
D18 IN3880R
D19 IN4744
R1 1K
R2 47
R3 200
R4 3Ω
R5 1.2K
R6 2.7K
R7 2.1K
R8 2.7M
R9 .01
R10 1.5K
R11 1M
R12 100
R13 100K
R14 100K
R15 2.21K
R16 2.21K
R17 1.5
R18 1.5
R21 10K
R22
C1 12uf
C2 .015uf
C3 180uf
C4 .01uf
C5 100uf
C6 1uf
C7 1000pf
C8 .015uf
C9 470PF
C10 22uf
C11 1uf
C12 560uf
C13 560uf
C14 560uf
C15 1200uf
C16 .1uf
C17 1uf
C18 .1uf
P1
P2
P3
P4
P5
P6
P7
P22
DIGITAL
DRN
CHK'D
ENG.
PROJ. ENG.
PROD
NEXT HIGHER ASSY
SCALE
SHEET OF 1
FIRST USED ON
TITLE
BATTERY BACKUP REGULATOR
SIZE D
CODE
NUMBER
REV
DST
REVISIONS
CHANGE NO.
G PUTTFIL
G PATTER

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REWORK INSTRUCTIONS

ECO #1

-1 CUT ETCH BETWEEN R4 AND D16 (THIS ETCH LINE RUNS OVER TO THE DRAIN OF Q12 SIDE 1)

-2 CUT ETCH ON RIGHT SIDE OF C14, ON THE ETCH LINE THAT HAS PREVIOUSLY BEEN CUT, SIDE 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.

-6 ON SIDE 2, CUT ETCH LEADING AWAY FROM PIN 9 OF J4.

-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 SOLDER IN PLACE WITH DEC 90-09157. MAKE SURE THAT TABS ON DEC 12-12416-02 ARE FACING EACH OTHER ON SIDE 1. (S1 AND S2)

-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.

-9 WITH AN ECO WIRE CONNECT BOTH CASE TABS OF DEC 12-12416-02 ON SIDE 1 TOGETHER

-10 DEC PART 12-12416-02 THAT HAS BEEN INSTALLED BENEATH R32 ON SIDE 1 CONNECT AN ECO WIRE FROM THIS PARTS PIN ON SIDE 2 WITH THE OTHER END OF THE ECO WIRE SOLDERED TO THE ETCH

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

-12 CHANGE R11 FROM 13-00316 470 OHM TO 13-00439 3.3K OHM.

1-13 CHANGE R4 FROM 13-00309 390 OHM TO 13-01322 180 OHM.

1-14 REMOVE W2 INSULATED JUMPER 90-09185

1-15 REMOVE D17, IN T58A 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)

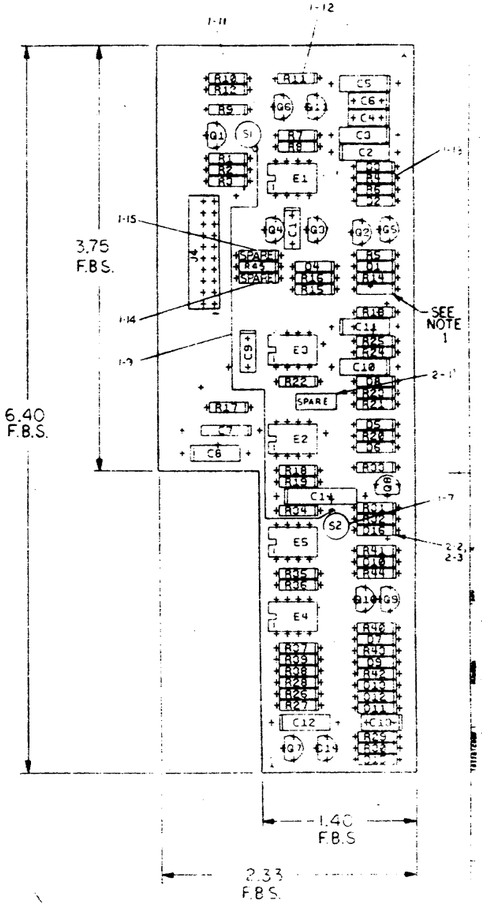
COMPONENT ADDS SIDE 1:

2-3. D16 (ZENER BI-DIRECTIONAL P/N 1119913-00)

NOTES

1. MOUNT N... ON ...

COMPONENT SIDE VIEW



CHANGE NO	REV
1-1 THRU 1-16	C
2-1 THRU 2-3	D

SIGNATURES	DATE
DRN. F. CARSTALO	12-9-77
CHK'D. F. SEIDMAN	12-9-77
ENG.	
PROJ. ENG.	
PROD.	
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B.C.C. 5412365-02	

ETCH REV. C
P.C. DESIGN DATA BASE REV. C

digital

TITLE
H785 CONTROL BD

SIZE D | DSE | NUMBER 54 12365-02 | REV D

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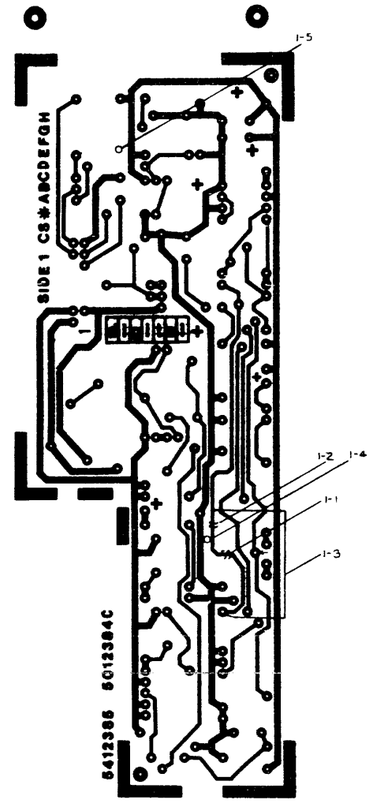

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV
H786 CONTROL BD	D	LIA	5412385-0-0	E
SCALE 2/1 SHEET 2 OF 3	DIST			

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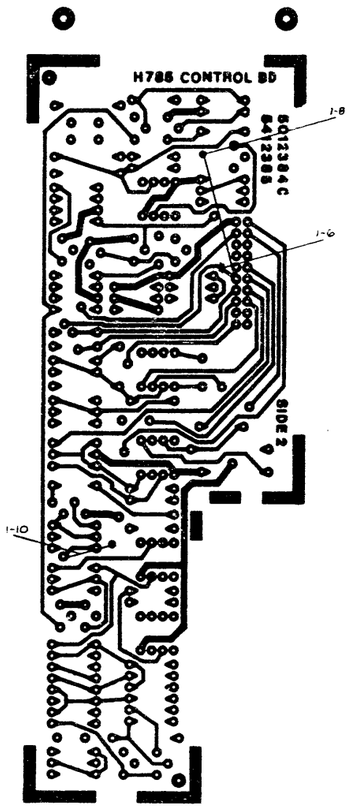

| REVISIONS | | |

AUTOMATED BY PRTLST 1D(10) P A R T S L I S T SHEET 1 OF 2

LINE	ITEM	DOCUMENT NO.	PART NO.	DESCRIPTION	QTY	REFERENCE DESIGNATORS
1	1	D-MD-5012384-0-0	5012384-00	5412385	1	
2	2		1001610-01	.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 CONT	R1,R13,R18,R19,R20,R21,R28, 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	
W.H	00003	E	00

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

EDIT# 4

ASSY.NO.: D-UA-5412385-0-0

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744

AUTOMATED BY PRTLST 1D'10)

PARTS LIST

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,O@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	

	TITLE	SIZE	CODE	DOCUMENT NUMBER	REV
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	PARTS LIST H785 CONTROL BOARD	A	PL	5412335-0-0	E

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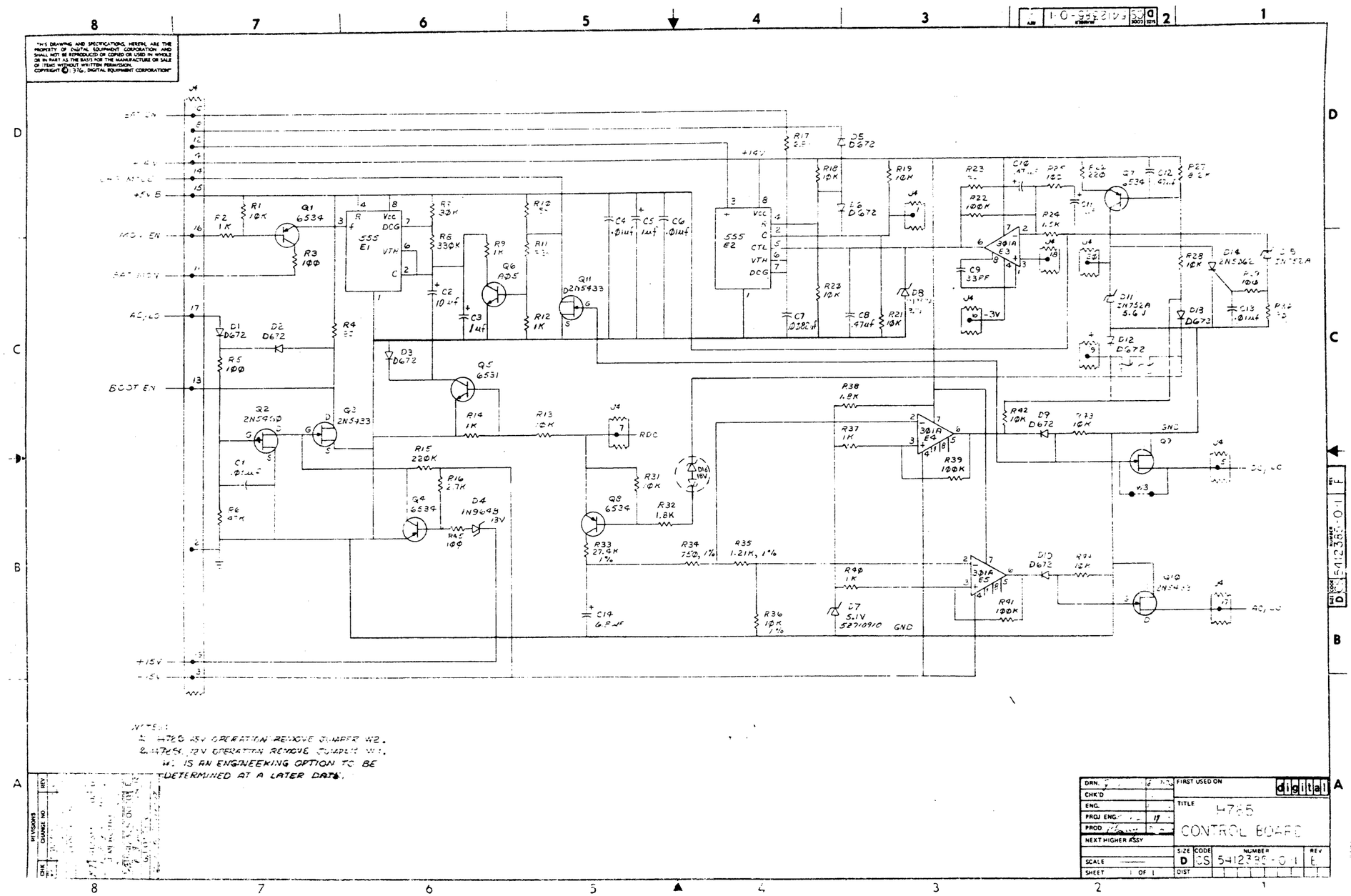

NOTES:
1. H765 5V OPERATION REMOVE JUMPER W2.
2. H765 12V OPERATION REMOVE JUMPER W1.
W1 IS AN ENGINEERING OPTION TO BE DETERMINED AT A LATER DATE.

REVISIONS			
	REV	CHANGE NO	CHK

DRN.		FIRST USED ON	digital
CHK'D			
ENG.		TITLE	H765 CONTROL BOARD
PROJ ENG.			
PROD			
NEXT HIGHER ASSY			
SCALE		SIZE D	CODE CS
SHEET 1 OF 1		NUMBER 5412385-01	REV E
		DIST	

5412385-01 REV E

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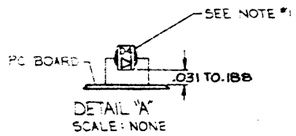
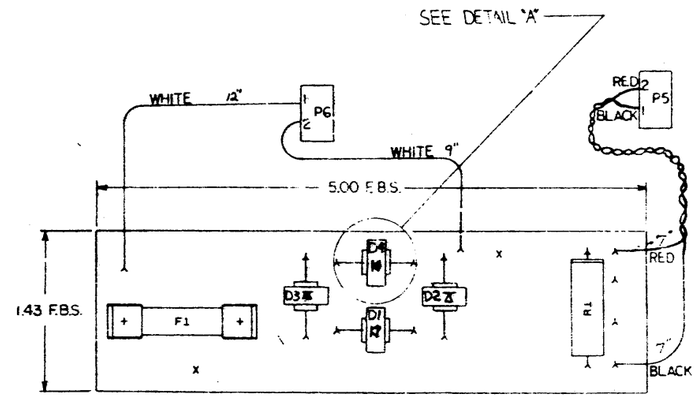
COMPONENT SIDE VIEW

NOTES:
1. DIODES D1 THRU D4 MUST BE RAISED FROM THE PC BOARD .031 TO .188



DETAIL "A"
SCALE: NONE



NOTES:

CH	CHANGE NO	REV
	541241-1	C
	541241-2	D
	541241-3	E

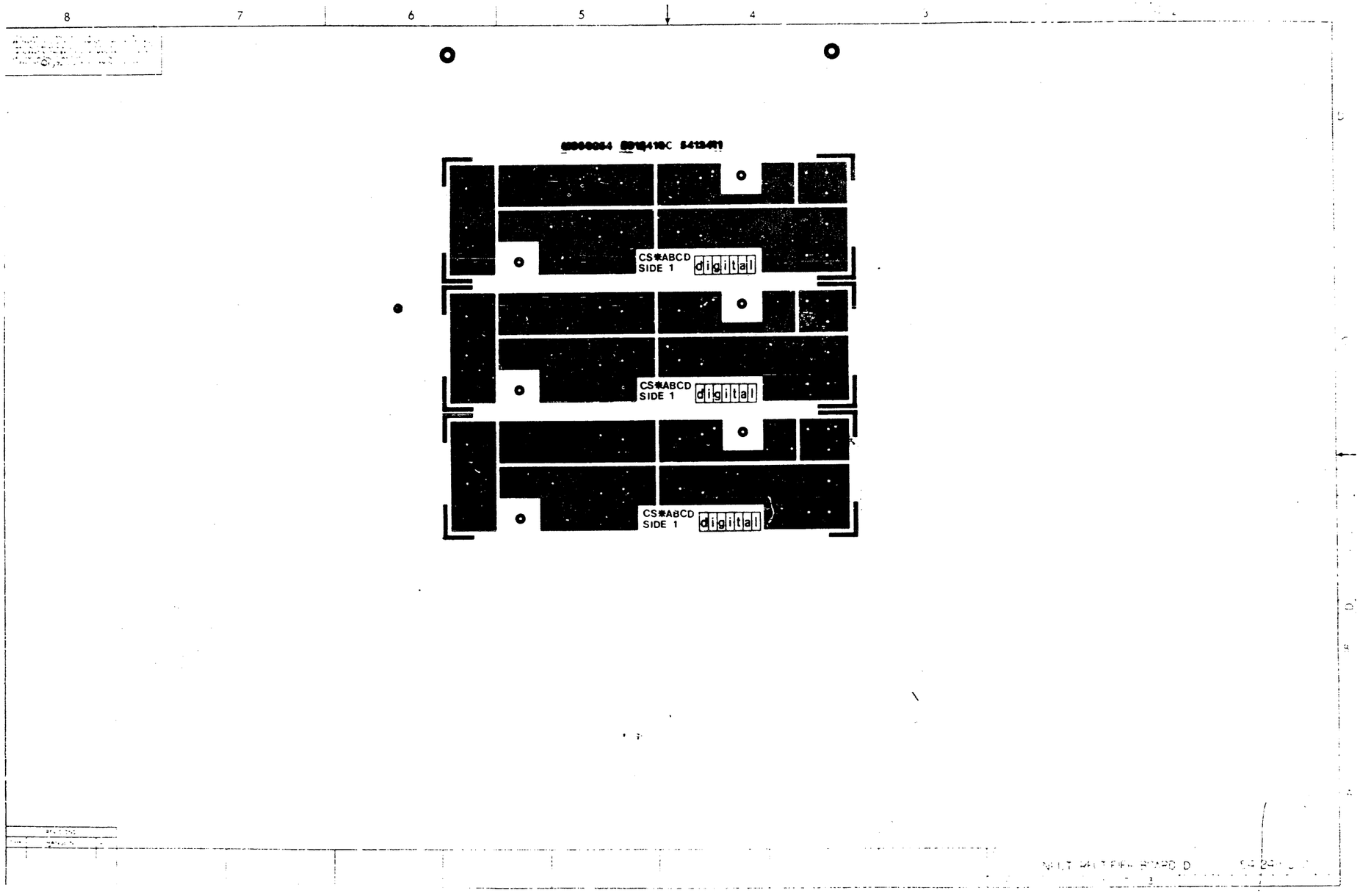
ETCH REV. C
P.C. CUSTOM DATA BASE REV. C

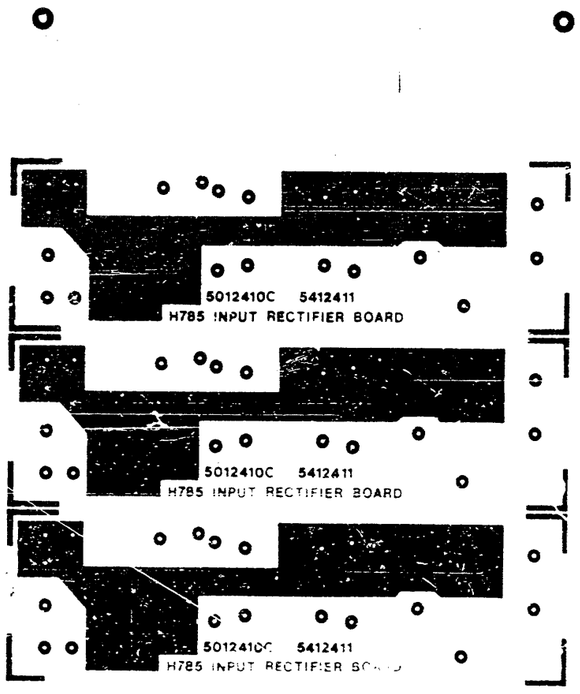
SIGNATURES	DATE
DRN.	9-11-76
CHK'D.	9-21-76
ENG.	11-5-76
PROJ. ENG.	11-5-76
PROD.	11-9-76
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY.	

digitall

TITLE INPUT RECTIFIER BOARD

SIZE	CODE	NUMBER	REV
D	1UA	541241I-0-0	E


8
7
6
5
4
CS*ABCD
SIDE 1
digital
CS*ABCD
SIDE 1
digital
CS*ABCD
SIDE 1
digital


5012410C 5412411
H785 INPUT RECTIFIER BOARD
5012410C 5412411
H785 INPUT RECTIFIER BOARD
5012410C 5412411

AUTOMATED BY PRTLST 1D(11) P A R T S L I S T SHEET 1 OF 1

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		
CHK	ECO NO	REV
---	00003	E

VARIATIONS FOR THIS ASSY.: 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

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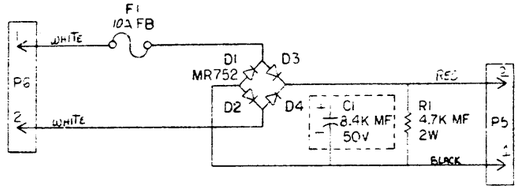
NOTES:
1. C1 WILL BE CONNECTED TO BOARD AT NEXT HIGHER ASSEMBLY.



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

DEC NO.	EIA NO	DEC NO.	EIA NO

SEMICONDUCTOR CONVERSION CHART

REV	CHANGE NO	REVISIONS
C		

J. MERCURI 15/2/11-03303

DRN
CHK
ENG
PROJ. ENG.
PROD.
NEXT HIGHER ASSY
SCALE
SHEET 1 OF

DATE

digital

TITLE: INPUT [illegible]

SIZE D | CODE | NUMBER | REV

DIST

DEC FORM 9C
ORD 135 B

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861 D — 196-230 V/47-63 HZ (3 PHASE WYE) OR
861 E — 312 460V/47-63HZ (3 PHASE WYE)

BLK
RED
GRN
WHT
GRN

861 D/E POWER CONTROL

REFER TO CIRCUIT SCHEMATIC
D-CS-861-D-1 OR
D-CS-861-E-1

P1-4 WHT
P1-3 BLK
P23
P6-5 RED 18
P8-6 BLK 18
P24
THERM1
THERM2
KEY 1
KEY 2

TO 861 D/E 11/70 CAB 1
11/70-CA,CB, MA,MB ONLY

TO SHEET 2

CBI
TBI (SEE NOTE 1)
FI
TI
CONNECT TO SWITCHED PHASE 1 CKT. 2
SECONDARY WINDINGS SHOWN ON SHEET 2
UPPER H7420 POWER SUPPLY REFER TO D-CS-H7420-0-1
P/O J2 P10
ELAPSED TIME METER
F2 F3 F4 REGULATOR FANS

CBI
TBI (SEE NOTE 1)
FI
TI
CONNECT TO SWITCHED PHASE 2 CKT. 1
SECONDARY WINDINGS SHOWN ON SHEET 3
LOWER H7420 POWER SUPPLY REFER TO D-CS-H7420-0-1
P/O J2 P16
TO CPU FANS SEE SHEET 3
F2 F3 F4 REGULATOR FANS

CABINET FAN HOOK UP FOR:
11/70-CA,CB, MA, MB ONLY

208 V
CONNECT TO UNSWITCHED PHASE 1 CKT 1
CABINET TB
BLK 1
WHT 2
3
4
FRONT FAN
REAR FAN
GROUNDED AT TB

416 V
CONNECT TO UNSWITCHED PHASE 1
CABINET TB
BLK 1
2
3
WHT 4
FRONT FAN
REAR FAN
GROUNDED AT TB

NOTES:
1. FOR 208VAC OPERATION JUMPER T81-266, T81-468
FOR 416 VAC OPERATION JUMPER T81-466

THIS SHEET IS FOR ALL 11/70 VARIATIONS

REVISIONS			
CHK	CHANGE NO	REV	
KB	11/70-00060	A	Changed per ECO
T. NORTHRUP			
KB	11/70-00078	B	Changed per ECO
B Chasson			30 June 70
MINOR			
KB	11/70-00012	C	Changed per ECO
R.BOUCHER			28 MAR 71

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/70		PARTS LIST		
DIMENSIONAL TOLERANCE	DRN		DATE 9/12/69	digital
DIMENSIONS ARE MILLIMETERS / INCHES UNLESS OTHERWISE SPECIFIED	CHK'D		DATE 8/26/70	
MILLIMETERS: X.XX ±0.10, X.X ±0.5, X ±2; INCHES: .XXX ±.005, .XX ±.02, .X ±.1; ANGLES ±0° 30'	ENG.		DATE 9/12/69	TITLE
	PROJ. ENG.		DATE 9/12/69	POWER SYSTEM CONFIGURATION
THIRD ANGLE PROJECTION	PROD.		DATE 9/24/70	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓	NEXT HIGHER ASSY.			
MATERIAL	B-DD-11/70-0		SIZE D CODE IC	NUMBER 11/70-0-2 REV. C
FINISH	SCALE			
	SHEET 1 OF 3		DIST	

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UPPER H742Ø

SECONDARY H742Ø

T4 P15

+8V P2-8 WHT
+15V2 P3-2 GRY
GND 2 P28-8 BLK
LO GND 1 P26-1 BLK
AC LO 1 P3-7 YEL
DC LO Y P8-1 VIO
AC LO 4 P22-8 YEL / P27-7 YEL
LINE CLOCK P8-7 BRN
DC LO 1 P3-8 VIO

20-30 VAC TO 5411Ø86

T5 P14

20-30 VAC — P11-6 RED, P11-7 WHT
20-30 VAC — P12-6 RED, P12-7 WHT
20-30 VAC
115 VAC
115 VAC
20-30 VAC
20-30 VAC

P10

P9-6 RED
P9-7 WHT
RED / WHT } TO H742Ø FANS
RED PT13 10 / WHT PT13 } ELAPSED TIME METER
P13-6 RED
P13-7 WHT

P9

H744 +5V REGULATOR SLOTS 2,3 & 5 FLOATING POINT (OPTION) POSITON A

RED P10-1, WHT P10-2 → AC, AC
+5V P2-6 RED
GND P28-2 BLK
GND P28-1 BLK
+5V P2-5 RED

P11

H744 +5V REGULATOR SLOTS 1,6,7,8,9 POSITION B

RED P14-1, WHT P14-2 → AC, AC
+5V P2-2 RED
GND P26-4 BLK
GND P26-5 BLK
+5V P2-1 RED

P12

H744 +5V REGULATOR SLOTS 10,11,12,13,14,15 POSITION C

RED P14-7, WHT P14-8 → AC, AC
+5V P3-6 RED
GND P8-6 BLK
GND P26-5 BLK
+5V P3-5 RED

P13

H744 +5V REGULATOR SLOTS 36,37,38,39,40 & 42,43,44 POSITION D

RED P10-8, WHT P10-10 → AC, AC
+5V P7-6 RED
GND P1-7 BLK
GND P27-4 BLK
+5V P7-8 RED

FROM SHEET 1

P5

RED P19-5, RED P19-2 } +5V SLOTS 24,25,26,27,28
BLU P5-5 → -15V
BLU P22-4 → -15V

P6

VIO P15-9 → DC LO Y (TO UBUS)
RED P20-5, RED P20-2 } +5V SLOTS 29,30,31,32,33,34 & 35

P7

VIO P22-9 → DC LO 2 (TO MEM BUS)
RED P13-2, YEL P15-10, RED P13-5 } +5V SLOTS 40,41,42,43 & 44
AC LO 2 (TO UBUS AC LO)
+5V SLOTS 36,37,38,& 39

P28

BLK P9-4 → GND
BLK P9-3 → GND
BLK P11-4 → GND
BLK P11-3 → GND
BLK P12-4 → GND
BLK P12-3 → GND
BLK PT153 BLK → GND
BLK P15-5 → GND

MAXIMUM CURRENT AVAILABLE 19.4A.

P1

GRY P3-3 → +5V2
BLK P23-3 → KEY 2
WHT P23-1 → KEY 1
BLU P5-5 → -5V
MAXIMUM CURRENT AVAILABLE 5.15A IF DL11 IS REMOVED
BLK P13-3 → GND
RED P4-6 → +5V CONSOLE

P2

RED P11-5, RED P11-2 } +5V SLOTS 1,6,7,8 & 9
RED P9-5, RED P9-2 } +5V SLOTS 2,3,4, & 5
BRN P15-11 → LINE CLK
WHT P15-1 → +8V MAINTENANCE CARD

P3

GRY P15-3, GRY P1-1 → +15V2
RED P12-5, RED P12-2 } +5V SLOTS 10,11,12,13,14, & 15
YEL P15-8 → AC LO 1 (TO UBUS AC LO)
VIO P15-12 → DC LO 1 (TO MEM BUS)

P4

RED P17-5, RED P17-2 } +5V SLOTS 20,21 & 22
VIO P22-12 → DC LO X (TO UBUS)
RED P18-5, RED P18-2 } +5V SLOTS 16,17,18
RED P1-8 → CONSOLE +5V

CONTINUED ON SHEET 3

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
1170		PARTS LIST		

DIMENSIONAL TOLERANCE — DIMENSIONS ARE MILLIMETERS / INCHES — UNLESS OTHERWISE SPECIFIED

MILLIMETERS	INCHES	ANGLES
X.XX ±0.10	XXX ±0.005	±0° 30'
X.X ±0.8	XX ±0.02	
X ±2	X ±1	

THIRD ANGLE PROJECTION — REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓ — MATERIAL — FINISH

		DATE
DRN		5/19/75
CHK'D	J. Gray	8/21/75
ENG.		9/2/75
PROJ ENG.		9/2/75
PROD		

digital

TITLE: POWER SYSTEM CONFIGURATION

NEXT HIGHER ASSY: B D 1170

SIZE D | CODE DIC | NUMBER 1170-Ø-2 | REV C

SCALE — SHEET 2 OF 3 — DIST

REVISIONS	REV	CHK
CHANGE NO		

SIZE CODE DIC 1170-Ø-2 REV C

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FROM SHEET 2

LOWER H7420

SECONDARY H7420

J4 P22

NOT USED	1	
GND	2	
GND	3	P10-5 BLK
-15V	4	P5-6 BLU
-15V	5	
-15V	6	
LO GND	7	P10-2 BLK
AC LO 2	8	P14-10 YEL
DC LO 2	9	P7-4 VIO
AC LO 3	10	P14-8 YEL
NOT USED	11	
DC LO X	12	P4-3 VIO

13 — 20-30 VAC TO 84110B6 — 14

J3 P2

5 — 20-30 VAC — 6	1	P18-6 RED
	2	P18-7 WHT
9 — 20-30 VAC — 10	7	P17-6 RED
	8	P17-7 WHT

J2 P16

3 — 20-30 VAC — 4	1	P20-6 RED
	2	P20-7 WHT
115 VAC	3	RED, WHT } TO H7420 FANS
115 VAC TO LOGIC FANS	5	RED P8-1
	6	WHT P8-2
15 — 20-30 VAC — 16	4	SHIELD
	8	P19-6 RED
17 — 20-30 VAC — 18	10	P19-7 WHT

P17 — H744 +5V REGULATOR SLOTS 20, 21, & 22 — POSITION H — P17

RED	P21-7	6	1 — P4-2 RED
WHT	P21-8	7	2 — P25-1 BLK
		8	3 — P25-2 BLK
			4 — P4-1 RED
			5

P18 — H744 +5V REGULATOR SLOTS 16, 17, 18 & CONSOLE — POSITION J — P18

RED	P21-1	6	1 — P4-5 RED
WHT	P21-2	7	2 — P27-2 BLK
		8	3 — P27-1 BLK
			4 — P4-4 RED
			5

P19 — H744 +5V REGULATOR SLOTS 24, 25, 26, 27 & 28 — POSITION K — P19

RED	P16-8	6	1 — P5-2 RED
WHT	P16-10	7	2 — P25-4 BLK
		8	3 — P25-3 BLK
			4 — P5-1 RED
			5

P20 — H744 +5V REGULATOR SLOTS 29, 30, 31, 32, 33 34 & 35 — POSITION L — P20

RED	P16-1	6	1 — P6-6 RED
WHT	P16-2	7	2 — P25-6 BLK
		8	3 — P25-5 BLK
			4 — P6-5 RED
			5

P27

BLK	P18-4	1 GND
BLK	P18-3	2 GND
		3
BLK	P13-4	4 GND
		5
PT144 BLK		6 GND
		7
		8

P26

BLK	P15-7	1 GND
BLK	P22-7	2 GND
		3
		4
BLK	P22-3	5 GND
		6
		7
		8

P25

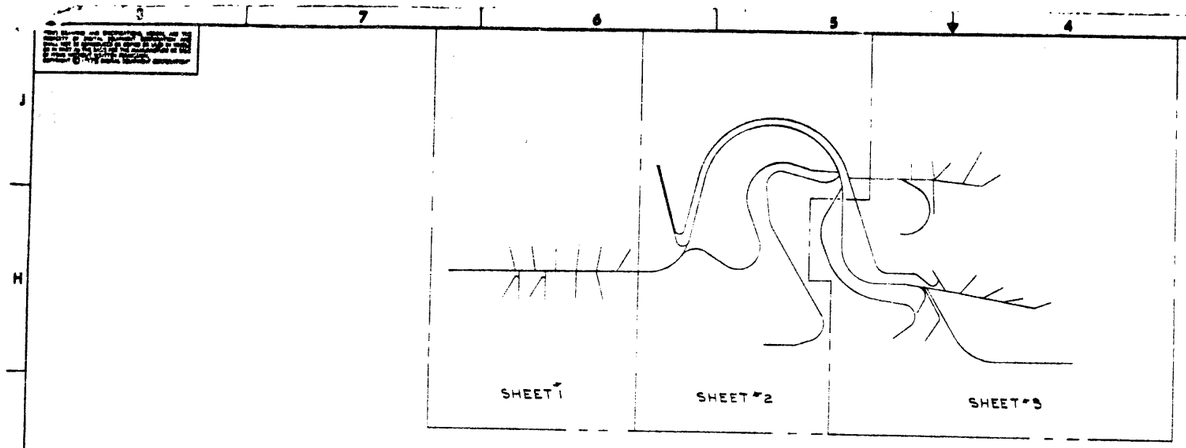
BLK	P17-3	1 GND
BLK	P17-4	2 GND
BLK	P19-4	3 GND
BLK	P19-3	4 GND
BLK	P20-4	5 GND
BLK	P20-3	6 GND
PT136 BLK		7 GND
		8

P6

RED	P16-5	1
WHT	P16-6	2 } 115 VAC TO LOGIC FANS
SHIELD	RED	3
	RED	4
RED	P24-2	5 THERM 2 } TO THERMAL SWITCH
BLK	P24-3	6 THERM 1
		7
		8

REVISIONS: REV | CHANGE NO | CHK

FIRST USED ON OPTION/MODEL: 11/70			QTY.	DESCRIPTION	PART NO.	ITEM NO.
				PARTS LIST		
DIMENSIONAL TOLERANCE: DIMENSIONS ARE MILLIMETERS / INCHES; UNLESS OTHERWISE SPECIFIED			DRN	DATE 8/14/75	digital	
			CHK'D	DATE 8/25/75		
MILLIMETERS	INCHES	ANGLES	ENG	DATE 9/1/75	TITLE: POWER SYSTEM CONFIGURATION	
X.XX ±0.10 X.X ±0.5 X ±2,	.XXX ±.005 .XX ±.02 .X ±.1	±0° 30'	PROJ. ENG	DATE 9/1/75		
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		PROD	DATE 9/24/75		
			NEXT HIGHER ASSY.			
	MATERIAL		B-DD-11/70-0		SIZE D CODE IC NUMBER 11/70-0-2 REV. C	
	FINISH		SCALE			
			SHEET 3 OF 3		DIST	



NOTES:

1.) USE TIE WRAPS (X) ITEM 9 APPROX. EVERY THREE (3) INCHES WHEN NECESSARY, AND AT EVERY BREAKOUT POINT.

2.) COMPONENTS TO BE LABELED WITH COMPONENT IDENTIFIER USING BRADY MARKERS OR DECALS 7409872-0-0.

3.) FOR POINT TO POINT WIRING REFER TO DWG 7011051-0-1

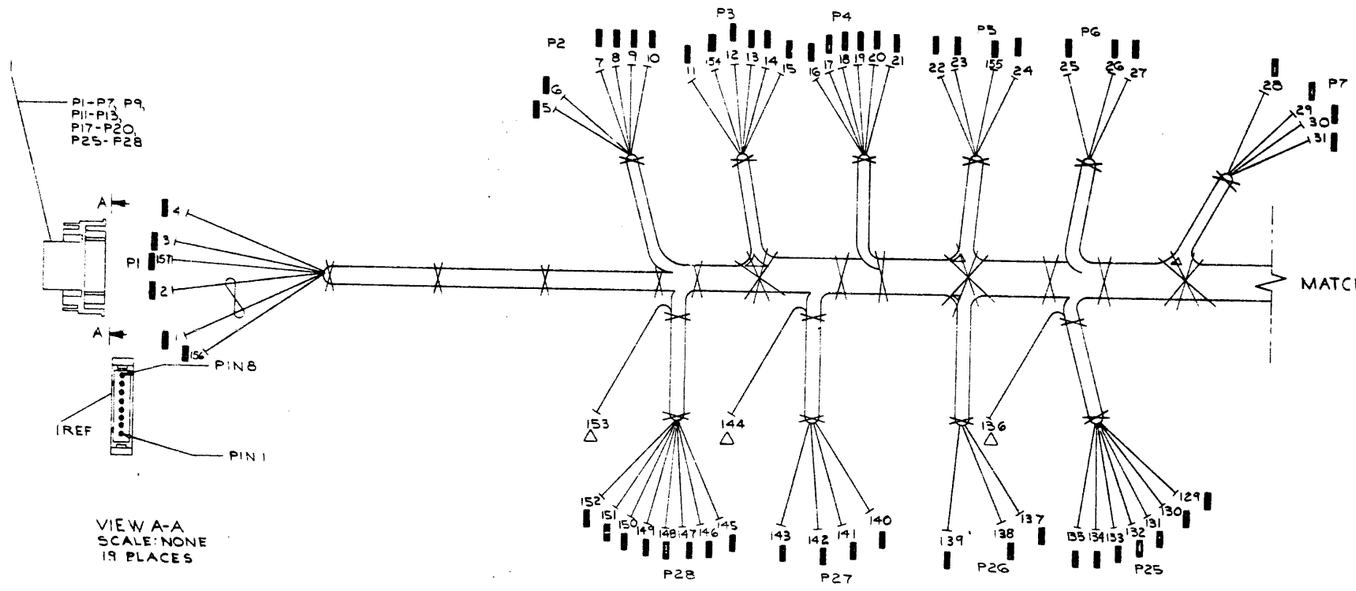
4.) IN AREA INDICATED ENCLOSE MAIN HARNESS WITH ZIPPER TUBING (ITEM 25) ZIPPER MUST BE ROUTED ALONG THE OUTSIDE CURVE OF BUNDLE. INSURE THAT EXCESS TUBING IS TUCKED IN AT END.

5.) TWIST TOGETHER

P22-7	BLK	#18 AWG
P22-8	YEL	#18 AWG.
P22-9	VIO	#18 AWG.
P22-10	YEL	#18 AWG.
P22-12	VIO	#18 AWG.
P15-7	BLK	#18 AWG.
P15-8	YEL	#18 AWG
P15-10	YEL	#18 AWG.
P15-11	BRN	#18 AWG.
P15-12	VIO	#18 AWG

6.) WITH ARROW POINTING TO -5V PIN MAXIMUM CURRENT AVAILABLE 3.4A

7.) WITH ARROW POINTING TO +5V (P-5) MAXIMUM CURRENT AVAILABLE IS 5A WITH DL REMOVED



VIEW A-A
SCALE: NONE
19 PLACES

0 IN — SCALE 0 IN — 12 IN

DO NOT REDUCE
FOR MANUFACTURING PURPOSES ONLY

ITEM NO	QTY	PART NO	DESCRIPTION
1	19	1209340-01	CONN. 8 PIN
2	1	1209360-00	HOUSING 8 PIN
3	2	1209351-03	CONN. 3 PIN
4	2	1209351-15	CONN. 15 PIN
5	2	1209351-12	CONN. 12 PIN
6	2	1209351-09	CONN. 9 PIN
7	1	1209370-00	SOCKET, FEMALE
8	6	1209378-00	CONN. SOLDERLESS
9	1	9007032	TIE WRAP
10	A/R	9107370-00	WIRE #14 AWG BLK
11	A/R	9107370-88	WIRE #14 AWG GRAY
12	A/R	9107370-66	WIRE #14 AWG BLU
13	A/R	9107370-22	WIRE #14 AWG RED
14	A/R	9107370-99	WIRE #14 AWG WHT
15	A/R	9107440-29	WIRE #14 AWG RED/WHT TWP
16	A/R	9107360-11	WIRE #18 AWG BRN
17	A/R	9107360-44	WIRE #18 AWG YEL
18	A/R	9107360-77	WIRE #18 AWG VIO
19	A/R	9107360-00	WIRE #18 AWG BLK
20	A/R	9107360-99	WIRE #18 AWG WHT
21	A/R	9107360-22	WIRE #18 AWG RED
22	A/R	9107360-33	WIRE #18 AWG BLU
23	A/R	9107440-00	WIRE #18 AWG BLK/WHT TWP
24	A/R	9107440-22	WIRE #18 AWG BLK/RED TWP
25	A/R	9107679	TUBING, ZIPPER
26	A/R	9107693	TUBING, BLK
27	A/R	9107845-00	TUBING, BLK 3/8 IN
28	A/R	9107695-00	TUBING #14 AWG BLK
29	A/R	9107430-00	WIRE #18 AWG BLK/WHT TWP
30	A/R	9107430-22	WIRE #18 AWG BLK/RED TWP

UNLESS OTHERWISE SPECIFIED	
DRN	
CHK	
ENG	
PROJ. ENG.	
MFG. ENGR.	
QUALITY ENGR.	
APPROVED	
DATE	11/70
TITLE	POWER HARNESS 11/70
SIZE	E
CODE	
NUMBER	7011051-0-0
REV	B
SHEET	1 OF 3

2 REF

PIN 8 — PIN 1

VIEW B-B
SCALE: NONE

2

P8

B

B

P8

32 33 34 35 36 37

SEE NOTE #4

25

MATCH LINE H-H

MATCH LINE G-G

26

27

3

P23, P24

3 REF

F

F

128
127
126
P23 125

DO NOT SCALE

12.0

CAUTION

PIN 3

PIN 1

VIEW F-F
SCALE: NONE
2 PLACES

REVISIONS

ZONE	CHANGE NO.	REV

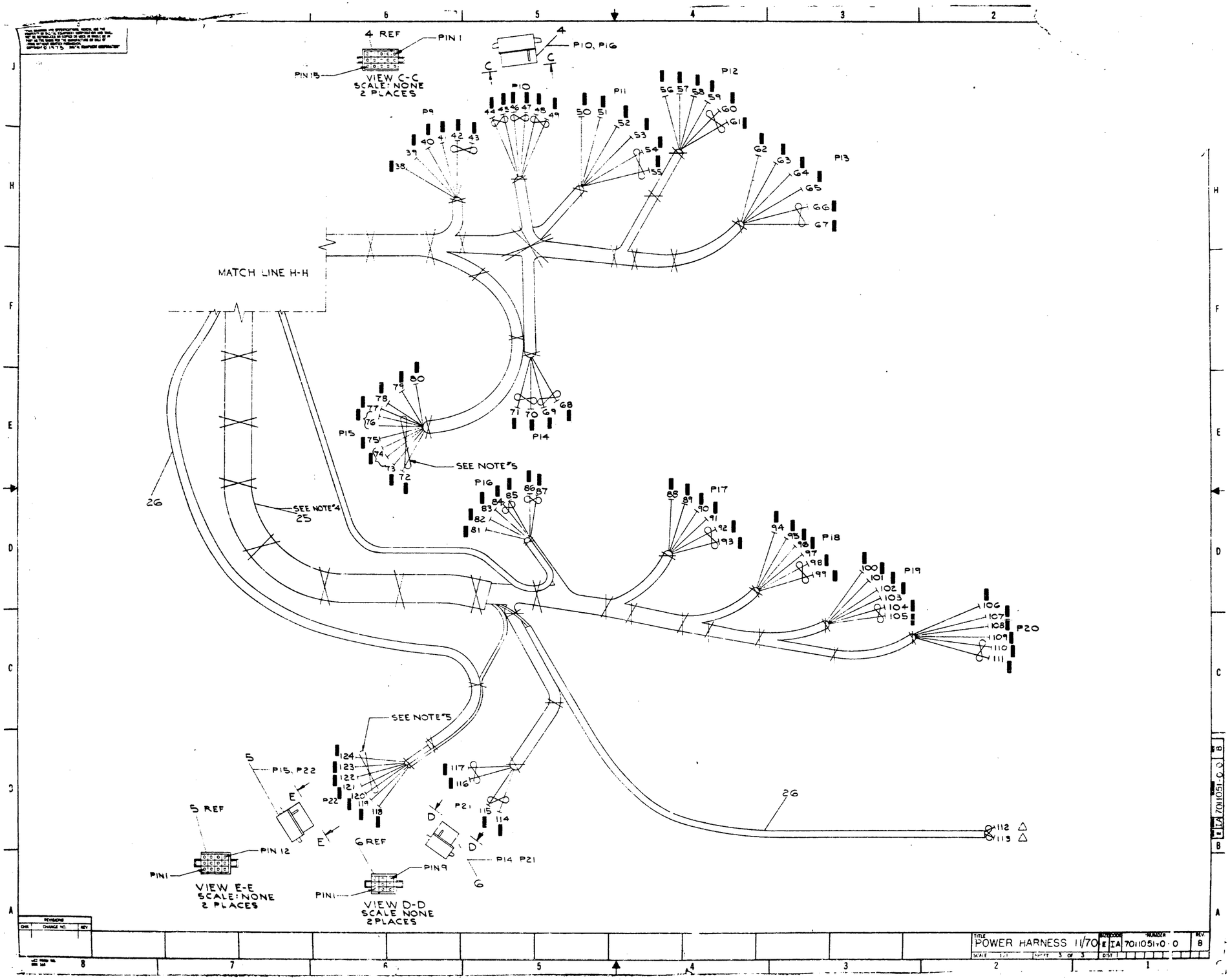
TITLE: POWER HARNESS 11/70

DRAWING NO. EIA 7011051-C-0

REV B

SHEET 2 OF 3

EIA 7011051-C-0 B


4 REF
PIN 1
PIN 15
VIEW C-C
SCALE: NONE
2 PLACES
4
P10, P16
C
C
P9
P10
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
MATCH LINE H-H
SEE NOTE 5
SEE NOTE 4
26
25
5
P15, P22
5 REF
PIN 12
PIN 1
VIEW E-E
SCALE: NONE
2 PLACES
E
E
6 REF
PIN 9
PIN 1
VIEW D-D
SCALE NONE
2 PLACES
D
D
P14 P21
6
P21
P22
112
113
TITLE
POWER HARNESS 11/70
SCALE 1/1
SHEET 3 OF 3
NUMBER
E IA 7011051-0-0
REV
B
REVISIONS
CHG
CHANGE NO.
REV

MECHANICAL

CUSTOMER PRINT SET	MFG SET	FIND NO	DRAWING NO	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
		34	B-DD-H224-Ø	#	3	32 Kx18 BIT STACK (H224-C) 32 KX19 BIT STACK (H224-E)	
		35	D-UA-H224-Ø-Ø	#	1	32 Kx18 BIT MEMORY STACK ASSY	
			E-IA-7012189-Ø-Ø		2	CORE PLANE WIRING ASSY	
		36	D-UA-G236-Ø-Ø		1	UNIT ASSY G236	
			D-CS-G236-Ø-1		4	32K MEM DRIVE	
			K-CO-G236-Ø-4		-	X-Y COORD HOLE LOCATION	
			D-AH-G236-Ø-5		4	ASSY DRILL HOLE LAYOUT	
			B-MH-G236-Ø-6		1	MODULE ECO HISTORY	
			A-PL-G236-Ø-Ø		5	PARTS LIST	
		37	D-UA-G116-Ø-Ø		1	UNIT ASSY G116	
			A-PL-G116-Ø-Ø		5	PARTS LIST	
			D-CS-G116-Ø-1		11	32K SENSE INHIBIT	
			K-CO-G116-Ø-4		-	X-Y COORD. HOLE LOCATION	
			D-AH-G116-Ø-5		4	ASSY DRILL HOLE LAYOUT	
			B-MH-G116-Ø-6		1	MODULE ECO HISTORY	

CUSTOMER PRINT SET CODES

F =
C = INCLUDES ALL PRINTS INDICATED FOR ECO PACKAGE
S = CONFIDENTIAL AUTHORIZED HARDWARE SCOPE

DRL 108

digital EN-01062-2B-16-R972 (325)

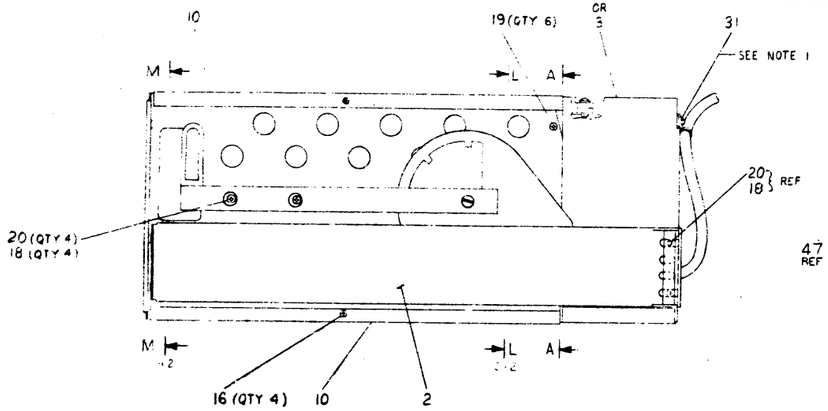
10 10 MJ11-Ø K

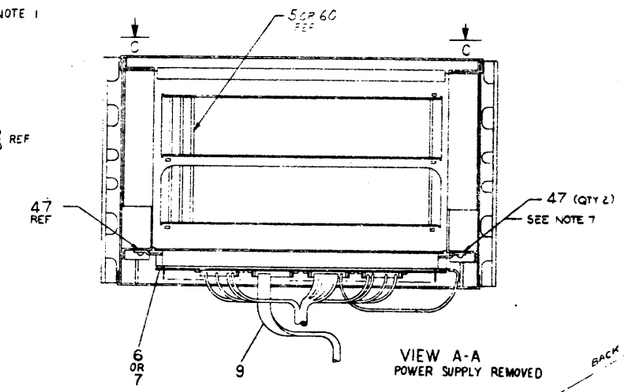
LEGEND

NUMBER	VARIATION	NUMBER	VARIATION	NUMBER	VARIATION	NUMBER	VARIATION
MJ11-BA	64K 18BIT MEM 115V	MJ11-BG	MJ11-BA(3)MJ11-BE 115V	MJ11-AA	32K 18 BIT MEM. 115 V	MJ11-AG	MJ11-AA (3) MJ11-AE 115V
MJ11-BB	64K 18BIT MEM 230 V	MJ11-BH	MJ11-BB(3)MJ11-PE 230V	MJ11-AB	32K 18 BIT MEM. 230 V	MJ11-AH	MJ11-AB (3) MJ11-AE 230 V
MJ11-BC	MJ11-BA WITH CAB 115 V	MJ11-BM	32K 18BIT MEM. MODULE SET	MJ11-AC	MJ11-AA WITH CAB 115 V	MJ11-AM	16K 18 BIT MEMORY MODULE SET
MJ11-BD	MJ11-BB WITH CAB 230V	MJ11-BY	MJ11-BA-NO CABLES 115V	MJ11-AD	MJ11-AB WITH CAB 230 V	MJ11-AY	MJ11-AA-NO CABLES 115 V
MJ11-BE	64K 18BIT EXPAN (2MJ11-BM)	MJ11-BZ	MJ11-BB-NO CABLES 230V	MJ11-AE	32K 18 BIT EXPANSION (2-MJ11-AM)	MJ11-AZ	MJ11-AB-NO CABLES 230V

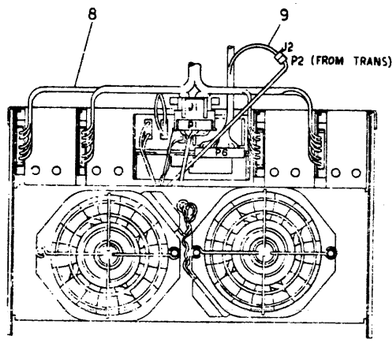
NOTES:

1. USE EXISTING HARDWARE TO MOUNT ITEM #31
2. FOR MJ11-AA/AB/AG/AH EXPANSION UNIT INSTALLATION WITHIN 11/70 CABINET 1 USE DATA EXPANSION CABLE ASSY (7010814-01) AND ADDRESS EXPANSION CABLE ASSY (7010804-01) AS RECEIVED. FOR EXPANSION UNIT INSTALLATION WITHIN MJ11-AC AND REFER TO 7010824-00 FOR MODIFICATION TO BE MADE TO CABLES BEFORE INSTALLATION.
3. PIN FOR DOOR MTG TO BE REMOVED REAR OF CAB (BOTTOM).
4. FOR 11/70 SYSTEM EXPANSION SEE E-AR-11/70-0-1
5. ADDITIONAL ITEM #40 WITH (4) #6 PIECES OF HARDWARE 17-M-8 8/32 X 3/8 TO BE SUPPLIED WITH EACH MJ11-AC AND AD. IT IS TO BE KITTED IN PLAST. BAG.
6. ITEM #44 (861-D TO 861-D HARN TO BE SUPPLIED WITH EACH MJ11-AC AND IN PLASTIC BAG
7. INSTALL ITEM #47 BETWEEN ITEM #1 AND ITEM #6. DO NOT USE ITEM #1 (EL-FA3) BACKPLANE SUPPLIED
8. INSTALL [illegible] USING TOOL NO 24 [illegible]
9. LOCATE ITEM #42 [illegible] AS SHOWN
10. NOTE #2 ALSO APPLIES TO MJ11-BA/BB BG/BH AND MJ11-PE (BD)
11. USE ITEM #30 WITH MJ11-B

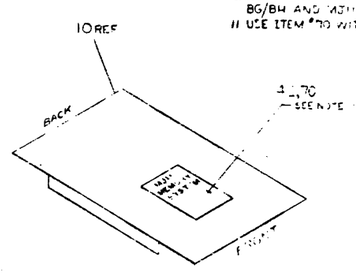




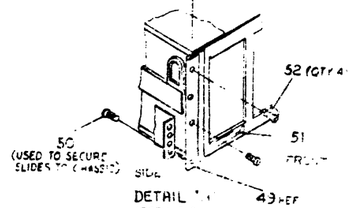
VIEW A-A
POWER SUPPLY REMOVED



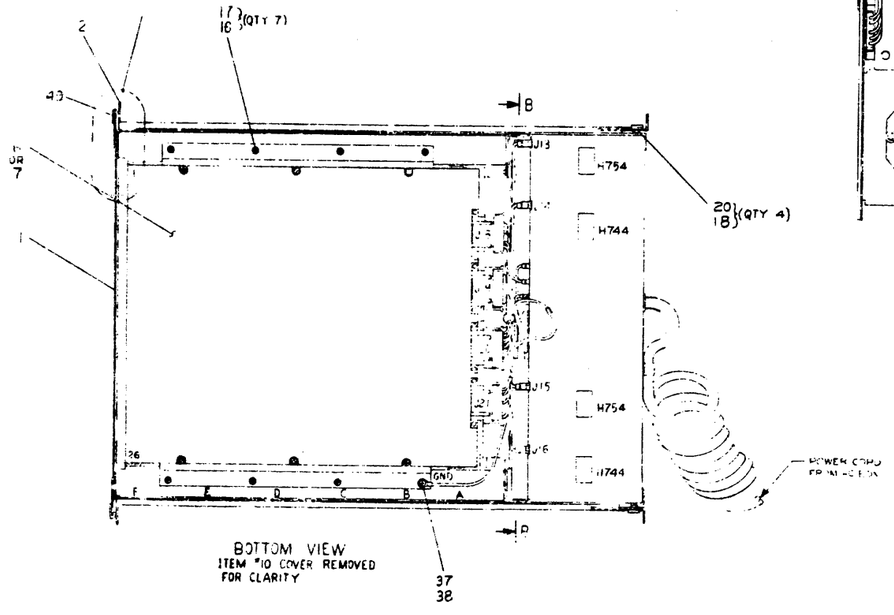
VIEW B-B
REVOLVED 90° CCW
WIRING SIDE OF POWER SUPPLY
ITEM #3 OR 4



VIEW C-C
ROTATED AS SHOWN



DETAIL "H"
(BOTH SIDES)
TYP FOR MJ11-AA, AB, AG, AH, AY & AZ, BB, BG, BH, BY & BZ



BOTTOM VIEW
ITEM #10 COVER REMOVED FOR CLARITY

OFF SHEET PARTS LIST EXISTS SEE A.P. [illegible] 0-0

11/70

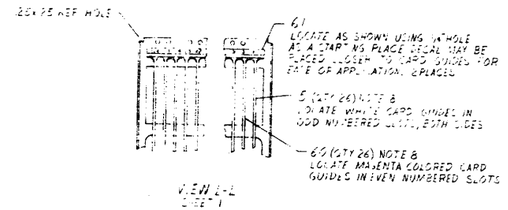
MJ11-0-0

TITLE
UNIT ASSY
MJ11-A

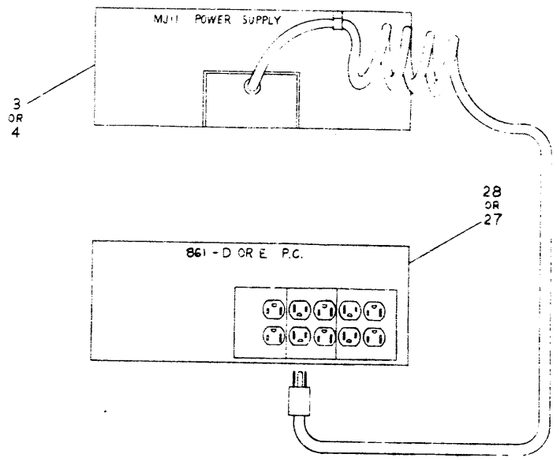
B 00 MJ11-0-0

E [illegible] MJ11-0-0 B

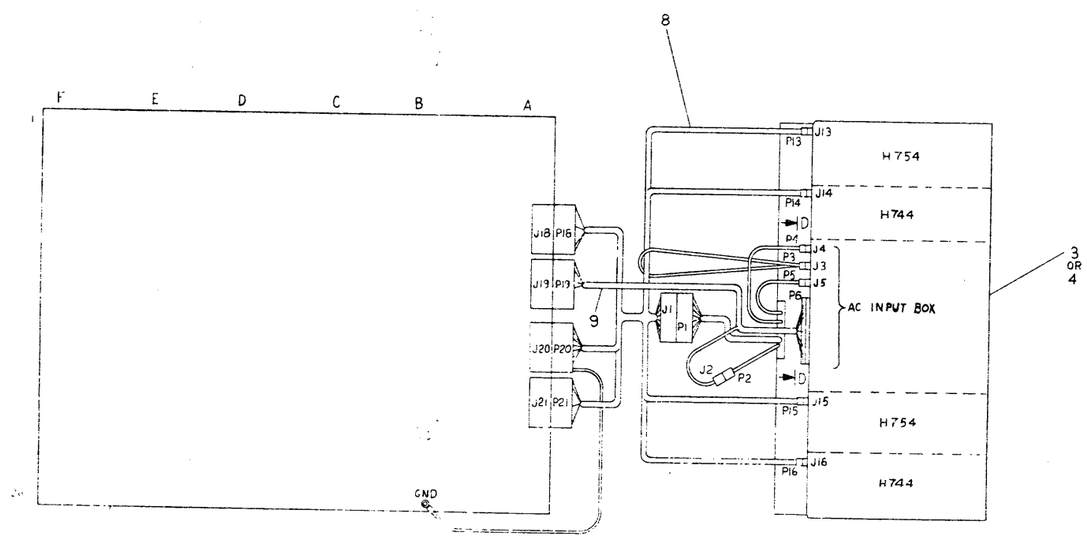
WIRE TABLE				
FROM		TO		REMARKS
ITEM NO	CONN	ITEM NO	CONN	
8	J1	3 OR 4	P.S. - P1	
↓	P13	↓	P.S. - J13	
	P14		P.S. - J14	
	P15		P.S. - J15	
	P16	↓	P.S. - J16	
	P3	3 OR 4	P.S. - J3	
	P18	6	B.P. - J18	
↓	P20	6	B.P. - J20	
8	P21	6	B.P. - J21	
3	P6	3 OR 4	PWR BD	
9	P19	6	E.P. - J19	
4	J2	3 OR 4	P.S. - P2	
8	GND LUG	6	BP	
3 OR 4	INPUT BOX	27 OR 28	——	



VIEW E-E
SHEET 1



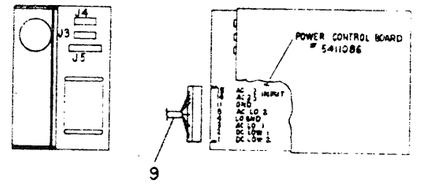
REAR VIEW
MJII P.S. & 861-D OR E
POWER CONTROL
REFER TO E-AR-11/70-D-1
FOR CONNECTION TO 861



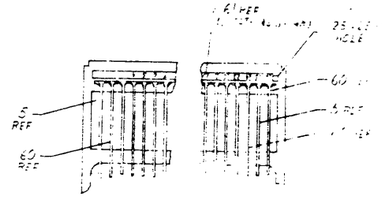
BACK PLANE (PIN SIDE)
* 7010497-0
OR 7010497-1 (OPTIONAL)

MJII POWER SUPPLY
* 7010694-0 (115 V)
* 7010694-1 (230 V)

WIRING DIAGRAM
BACK PLANE TO MJII
POWER SUPPLY



VIEW D-D
AC INPUT BOX

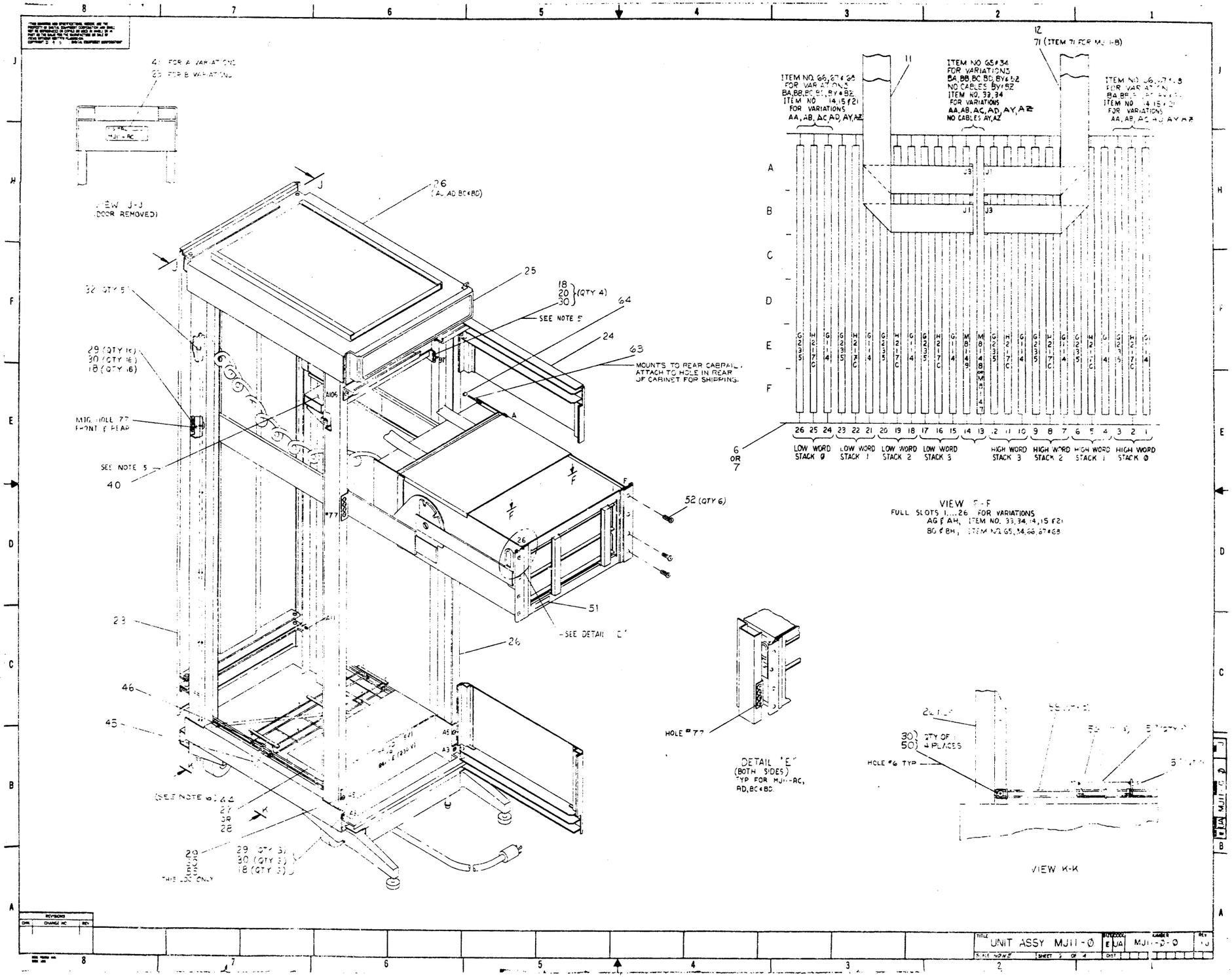


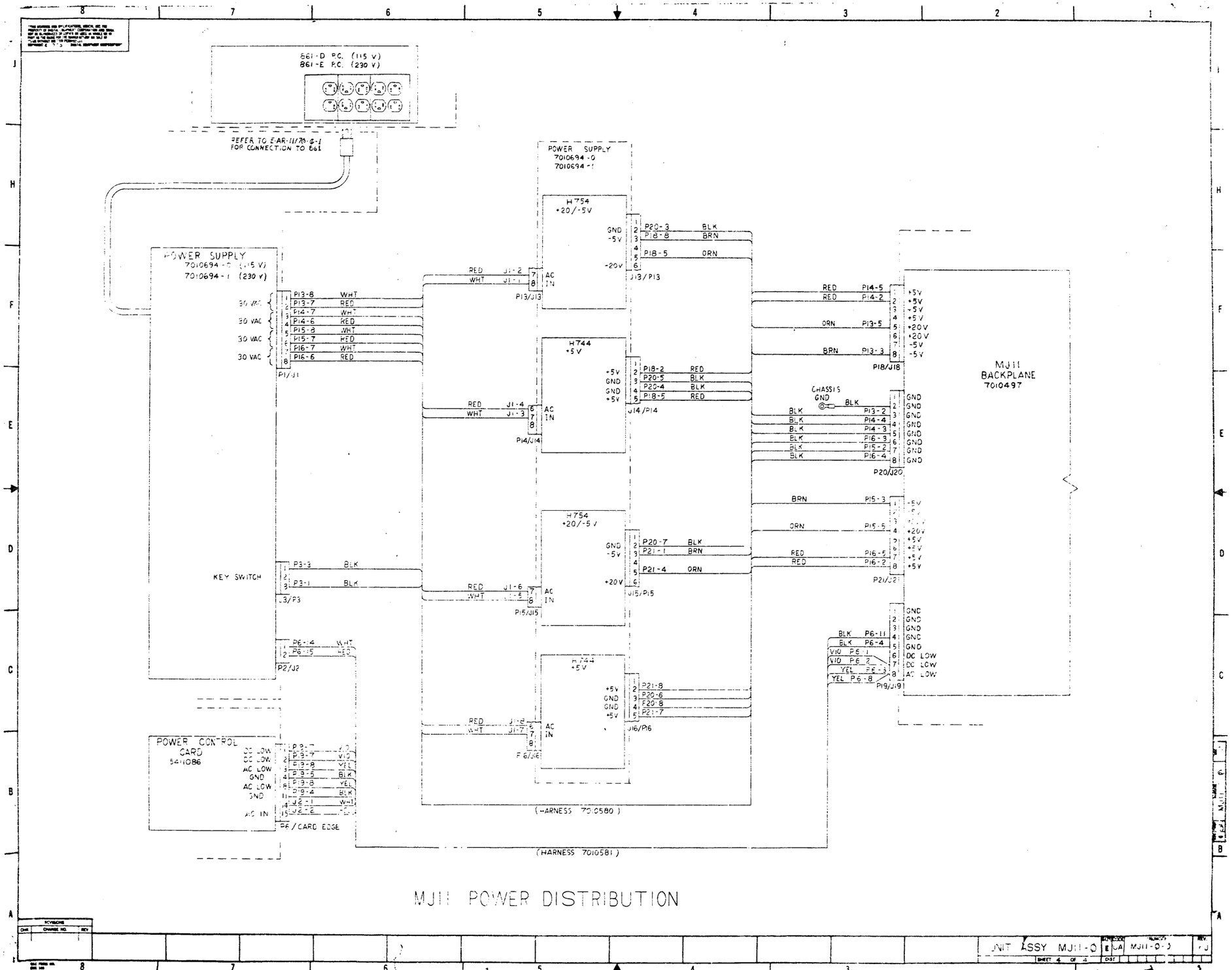
VIEW M-M
SHEET 1

REVISIONS		
ZONE	CHANGE NO.	REV

TITLE	UNIT ASSY MJII-Ø			
SCALE NONE	SHEET 2 OF 4	DIST	SIZE E	CAGE CODE NO. MJII-Ø-Ø

REV J


41 FOR A VARIATIONS
33 FOR B VARIATIONS
MJII-AC
VIEW J-J
(DOOR REMOVED)
26
(AA, AD, BC & BD)
25
18
20
30
(QTY 4)
SEE NOTE 5
64
24
63
MOUNTS TO REAR CABRAIL, ATTACH TO HOLE IN REAR OF CABINET FOR SHIPPING.
32 (QTY 5)
29 (QTY 16)
30 (QTY 16)
18 (QTY 16)
MTG. HOLE #7 FRONT & REAR
SEE NOTE 5
40
52 (QTY 6)
51
SEE DETAIL 'E'
23
26
46
45
(SEE NOTE 6) 44
27
OR
28
29 (QTY 3)
30 (QTY 3)
18 (QTY 3)
THIS SIDE ONLY
11
12
71 (ITEM 71 FOR MJII-B)
ITEM NO. 66, 67 & 68
FOR VARIATIONS
BA, BB, BC, BD, BY & BZ
ITEM NO. 14, 15 & 21
FOR VARIATIONS
AA, AB, AC, AD, AY, AZ
ITEM NO. 65 & 34
FOR VARIATIONS
BA, BB, BC, BD, BY & BZ
NO CABLES BY & BZ
ITEM NO. 33, 34
FOR VARIATIONS
AA, AB, AC, AD, AY, AZ
NO CABLES AY, AZ
ITEM NO. 66, 67 & 68
FOR VARIATIONS
BA, BB, BC, BD, BY & BZ
ITEM NO. 14, 15 & 21
FOR VARIATIONS
AA, AB, AC, AD, AY, AZ
A
B
C
D
E
F
26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
LOW WORD STACK 0
LOW WORD STACK 1
LOW WORD STACK 2
LOW WORD STACK 3
HIGH WORD STACK 3
HIGH WORD STACK 2
HIGH WORD STACK 1
HIGH WORD STACK 0
6 OR 7
VIEW F-F
FULL SLOTS 1....26 FOR VARIATIONS
AG & AH, ITEM NO. 33, 34, 14, 15 & 21
BG & BH, ITEM NO. 65, 34, 66, 67 & 68
HOLE #7
DETAIL 'E'
(BOTH SIDES)
TYP FOR MJII-AC, AD, BC & BD.
30
50
QTY OF 4 PLACES
HOLE #6 TYP
VIEW K-K
REVISIONS
CHANGE NO
UNIT ASSY MJII-0
MJII-0-0
SHEET 2 OF 4



MJ11 POWER DISTRIBUTION

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DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY (P.S. MJ11)	B-DD-7010694-0		
POWER SUPPLY MJ11	E-AD-7010694-0-0		
AC INPUT BOX ASSY	D-AD-7009811-0-0		
AC PWR CONTROL BOARD	D-CS-5410993-0-1		
TRANSFORMER ASSY	E-AD-7011486-0-0		
DRAWING DIRECTORY H744	B-DD-H744-Ø		
DRAWING DIRECTORY H754	B-DD-H754-Ø		
PWR LINE MONITOR/ 15V REG	D-CS-5411086-0-1		

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
7010694-0	120V 50/60 HZ	X
7010694-1	240V 50/60 HZ	X

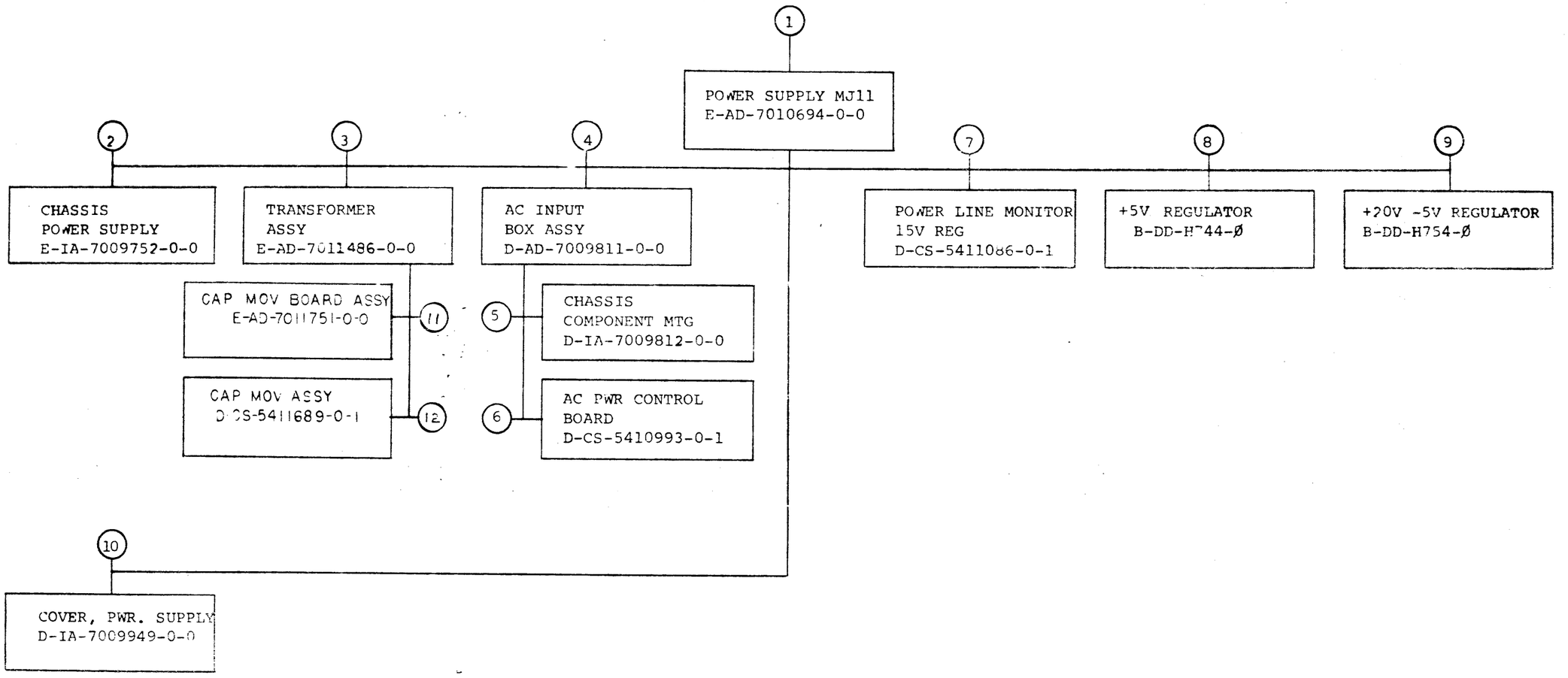
REVISIONS		
DATE	CHG. NO.	REV
5-76	7010694-3	A
6-76	7010694-4	B

DEC 16-12251-1062-1A-R912

DRB 106

USED ON OPTION/MODEL	
MJ11-A	
SHEET 1 OF 4	

DRN. G. MARIMI	DATE 1/28/75	TITLE: DRAWING DIRECTORY POWER SUPPLY (MJ11)
CHK'D. D. HEALY	DATE 2/6/75	
PROJ ENG.	DATE 3/24/75	
PROD. R Schnack	DATE 3/24/75	SIZE B · CODE DD · NUMBER 7010694-0 · REV B
FIELD SERV.	DATE 3/24/75	DIST



TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY POWER SUPPLY MJ11	SHEET 2 OF 4	B	DD	7010694-0	B

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

256

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
1			ELECTRICAL				
X		1	E-AD-7010694-0-0	#	2	POWER SUPPLY MJ11	
X		3	E-AD-7011486-0-0	#	2	TRANSFORMER ASSY	
			A-SP-7011486-0-9			ASSEMBLY PROCEDURE	
			A-CS-7010014-TA-1			TESTER CS	
			A-SP-7010014-0-8			TEST PROCEDURE	
X		4	D-AD-7009811-0-0	#	2	AC INPUT BOX ASSY	
X		6	D-CS-5410993-0-1	#	1	AC POWER CONTROL BD.	
X		7	D-CS-5411086-0-1	#	4	PWR. LINE MONITOR/ 15V REG	
C		8	B-DD-H744-0	#	2	DRAWING DIRECTORY H744	
C		9	B-DD-H754-0	#	3	DRAWING DIRECTORY H754	
		11	D-IA-7011751-0-0		1	CAP MOV BOARD ASSEMBLY	
		12	D-CS-5411689-0-1		1	CAP MOV ASSEMBLY	

CUSTOMER PRINT SET	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 DRAWING DIRECTORY
POWER SUPPLY MJ11

SHEET 3 OF 4 | SIZE B | CODE DD | NUMBER 7010694-0 | REV 6

DRB 108
DEC 16-(325)-1062-2B-R972

MECHANICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	E-AD-7010694-0-0		2	POWER SUPPLY MJ11	
			D-IA-7009949-0-0		1	COVER, POWER SUPPLY	
			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	
			A-DC-7409872-0-0		1	DECAL	
		4	D-AD-7009811-0-0		2	AC IMPUT BOX ASSY	
			A-DC-7412303-0-0		1	DECAL 115V	
			D-AD-7012500-0-0		1	POWER CORD	
			A-DC-7412380-0-0		1	DECAL 230V	
			D-IA-7010302-0-0		1	POWER CONTROL HARNESS	
			D-IA-7010301-0-0		1	POWER JUMPER	
			C-IA-7010300-0-0		1	VARISTOR ASSY	
			A-DC-7409873-0-0		1	DECAL (PLUG NUMBERS)	
		5	D-IA-7009812-0-0		1	CHASSIS COMPONENT MTG.	
			D-IA-7411765-0-0		1	PLATE SWITCH	
			D-IA-7411766-0-0		1	PLATE COMPONENT MTG.	

MECHANICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		6	D-CS-5410993-0-1		1	AC PWR CONTROL BD.	
			K-CO-5410993-0-4		1	X-Y COORDINATE HOLE LOC.	
			D-AH-5410993-0-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-5410993-0-6		1	MODULE ECO HISTORY	
			5010992		REF	ETCH CIRCUIT BOARD	
		7	D-CS-5411086-0-1		4	PWR. LINE MONITOR/ 15V REG	
			K-CO-5411086-0-4		-	X-Y COORDINATE HOLE LOC.	
			D-AH-5411086-0-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-5411086-0-6		1	MODULE ECO HISTORY	
			5011085		REF	ETCH CIRCUIT BOARD	
		8	B-DD-H744-Ø		2	DRAWING DIRECTORY H744	
		9	B-DD-H754-Ø		3	DRAWING DIRECTORY H754	
		10	D-IA-7009949-0-0		1	COVER, POWER SUPPLY	
			C-MD-7412473-0-0		1	STRIP, CLAMP	
		11	D-IA-7011751-0-0			CAP MOV BOARD ASSEMBLY	
		12	D-AH-5411689-0-5			CAP MOV ASSEMBLY	
			D-MD-5011688-0-1				
			D-MH-5411689-0-6			MODULE ECO HISTORY	

CUSTOMER PRINT SET CODES

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

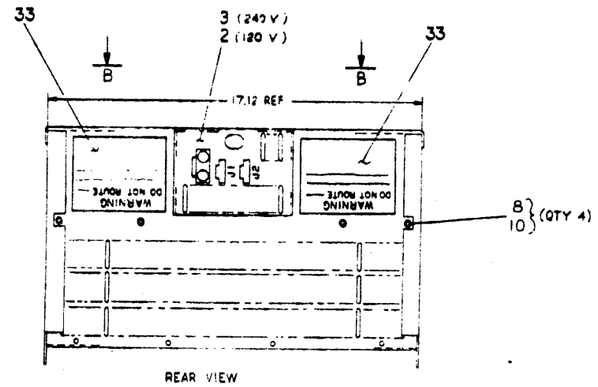
DRB 108

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

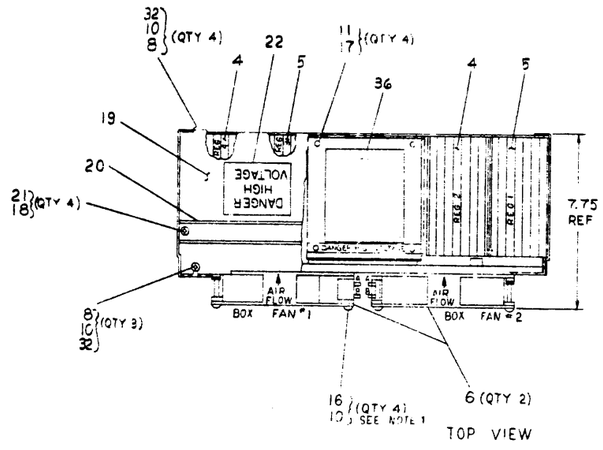
TITLE		SIZE	CODE	NUMBER	REV
DRAWING DIRECTORY POWER SUPPLY MJ11	SHEET 4 OF 4	B	DD	7010694-0	B

LEGEND	
NUMBER	VARIATION
7010694-0	120V 50/60 HZ
7010694-1	240V 50/60 HZ

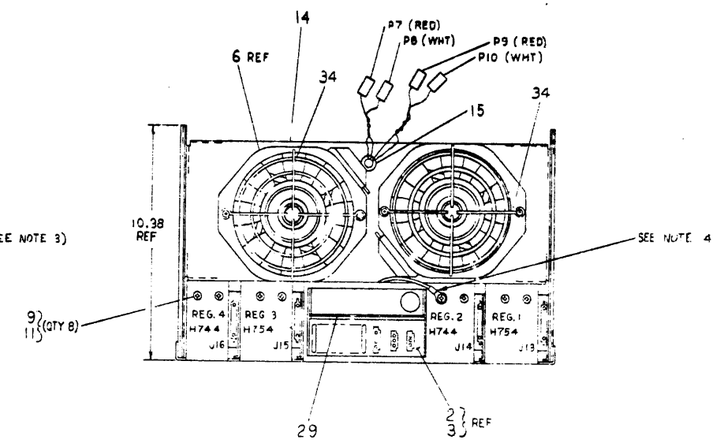
NOTES:
1. TIGHTEN FAN SCREWS TO 10 IN-LBS WITH A TORQUE SCREW DRIVER.
2. ~~APPLY LOCTITE 271 TO PLACES ON ITEM 6 WHERE SCREWS WERE REMOVED.~~
3. FOR ITEM "6 (DEC SPEC #1211714-001) USE ONLY 1-1/2" HIGH FAN IN THIS ASSY. DO NOT USE 2" HIGH FAN.
4. ATTACH GROUND WIRE FROM TRANSFORMER (GRN/YEL WIRE) USING EXISTING HARDWARE.



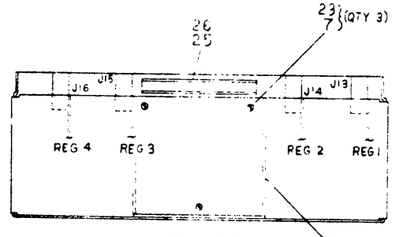
REAR VIEW



TOP VIEW



FRONT VIEW



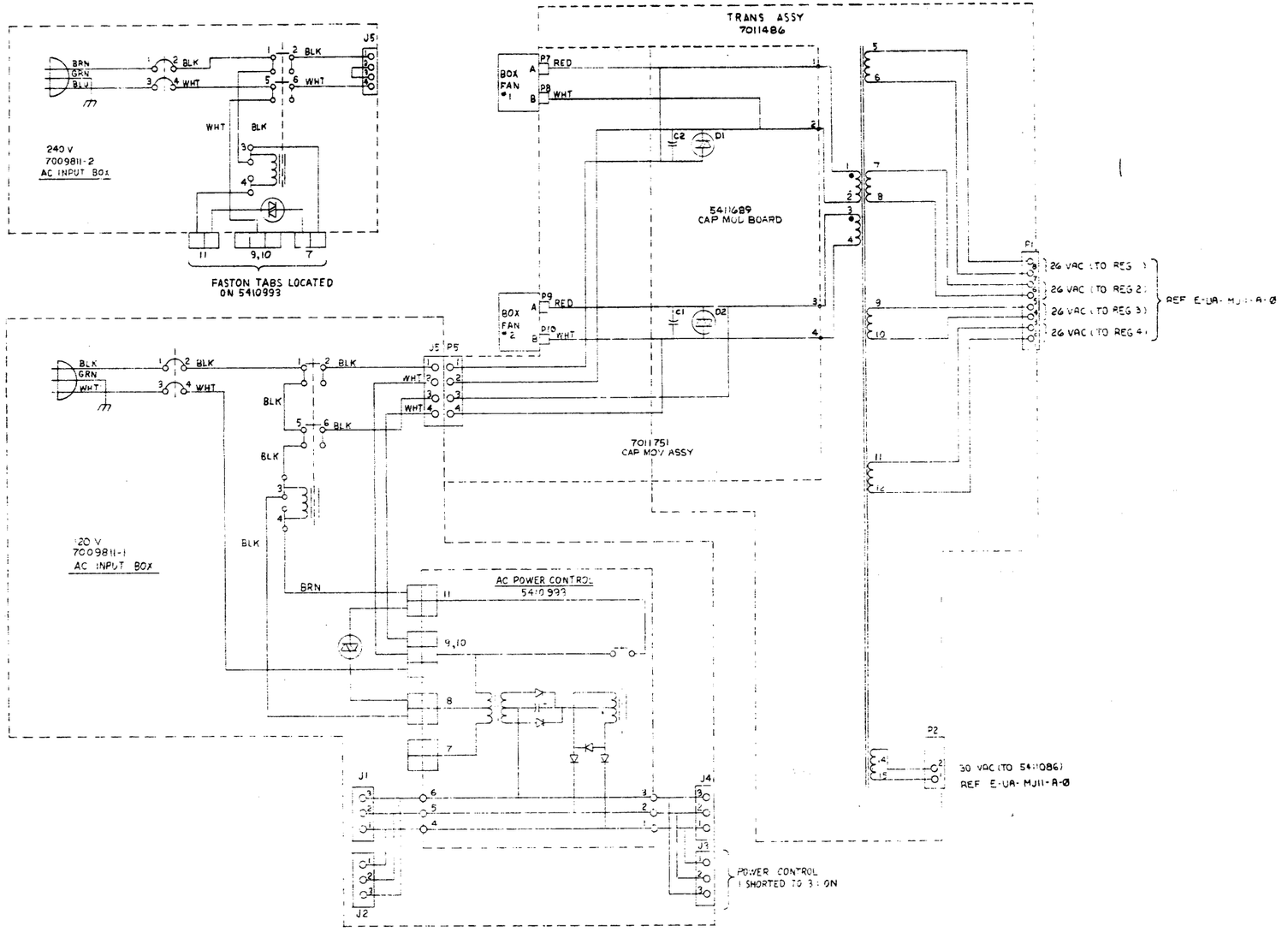
VIEW B-B
BOTTOM VIEW
FANS REMOVED FOR CLARITY

QTY		DESCRIPTION	D.S. PART NO.	ITEM NO.
1		TRANSFORMER ASSY	E-IA-7011484-0-0	36
4	4	WASHER [illegible]	[illegible]	[illegible]
1	1	FAN GUARD	1211514-01-0	14
2	2	[illegible], MJII POWER SUPPLY	36-2422-00	33
7	7	WASHER, FLAT #6	9006658	32
1	1	DECAL, [illegible]	[illegible]	[illegible]
1	1	[illegible]	[illegible]	[illegible]
1	1	LINE MONITOR, 5V REG	D-US-5411686-0	29
4	4	WASHER, FLAT #6 X .200 OD	9008888	28
4	4	SCR, PHL HD TRUSS #6-32 X .25	9007898	27
A/R	A/R	FOAM BOND	9309157	26
10"	10"	GROMMET STRIP	9008239	25
4	4	WRAP, TIE 1/8 W	9007880	24
3	3	WASH, CSK #6	9008270	23
		STICKER, DANGER HIGH VOLTAGE	36-1926-7	22
4	4	WASH, INT TOOTH LOCK #6	9006634	21
		TROUGH, WIRE	D-IA-7009950-0-0	20
		COVER, POWER SUPPLY	D-IA-7009949-0-0	19
4	4	SCR, PHL HD TRUSS #8-32 X .62	9006040-3	18
4	4	SCR, PHL HD TRUSS #10-32 X .50	9006073-03	17
4	4	SCR, PHL HD TRUSS #6-32 X .75	9006031-3	16
		GROMMET .50 I.D.	9007716	15
		CHASSIS, POWER S. PPLY	D-IA-7009952-0-0	14
[illegible]		[illegible]	[illegible]	[illegible]
2	2	SCR, PHL, FLT HD #4-40 X .50	9006011-2	12
12	12	WASH, INT TOOTH #4	9006635	11
13	13	WASH, INT TOOTH #8	9006633	10
8	8	SCR PHL HD TRUSS #10-32 X .25	9008007-1	9
11	11	SCR PHL HD TRUSS #6-32 X .38	9006022-3	8
3	3	SCR, PHL FLT HD #6-32 X .31	9008404-2	7
2	2	FAN, 115 VAC 50/60 HZ (1140)	1211714-00	6
2	2	+20V REGULATOR (H754)	D-DD-H754-0	5
2	2	+5V REGULATOR (H744)	D-DD-H744-0	4
1	—	AC INPUT BOX ASSY 240V	D-AU-7009911-2-0	3
—	1	AC INPUT BOX ASSY 120V	D-AU-7009911-1-0	2
[illegible]		[illegible]	[illegible]	[illegible]

(SEE NOTE 3)

QUANTITY & VARIATION	DESCRIPTION	D.S. PART NO.	ITEM NO.
7010694-0	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	ANGLES ± 2° / CLASS OF INSULATION / IDENTIFICATION		
	FRACTIONS ± / DECIMALS .XX ± .01 / .XXX ± .005		
	MATERIAL / FINISH		
	MICROINCHES / PREFERRED		
THIRD ANGLE PROJECTION	DRAWN / CHECKED / ENGR APPV / MFG APPV / PROJ APPV / QA APPV	FIRST USE ON MJII-A	
BROWN & SHARPE MFG. CO. PROVIDENCE, R.I. U.S.A.	P.S. PARTS LIST	TITLE POWER SUPPLY MJII	
	DO NOT SCALE DRAWING	SIZE E / SCALE / NUMBER 7010694-0-0	REV

CONNECTION TABLE		
FROM CONNECTION	TO CONNECTION	SIGNALS
P5 FROM TRANS ASSY	J5 LOCATED ON AC INPUT BOX	120/140 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



REVISIONS		
ONE	CHANGE NO	REV

TITLE	SIZE/CODE	NUMBER	REV
POWER SUPPLY MJII	E	7010694-0-0	D
SCALE	SHEET 2 OF 2	DIST	

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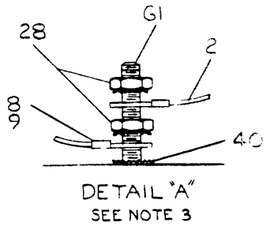
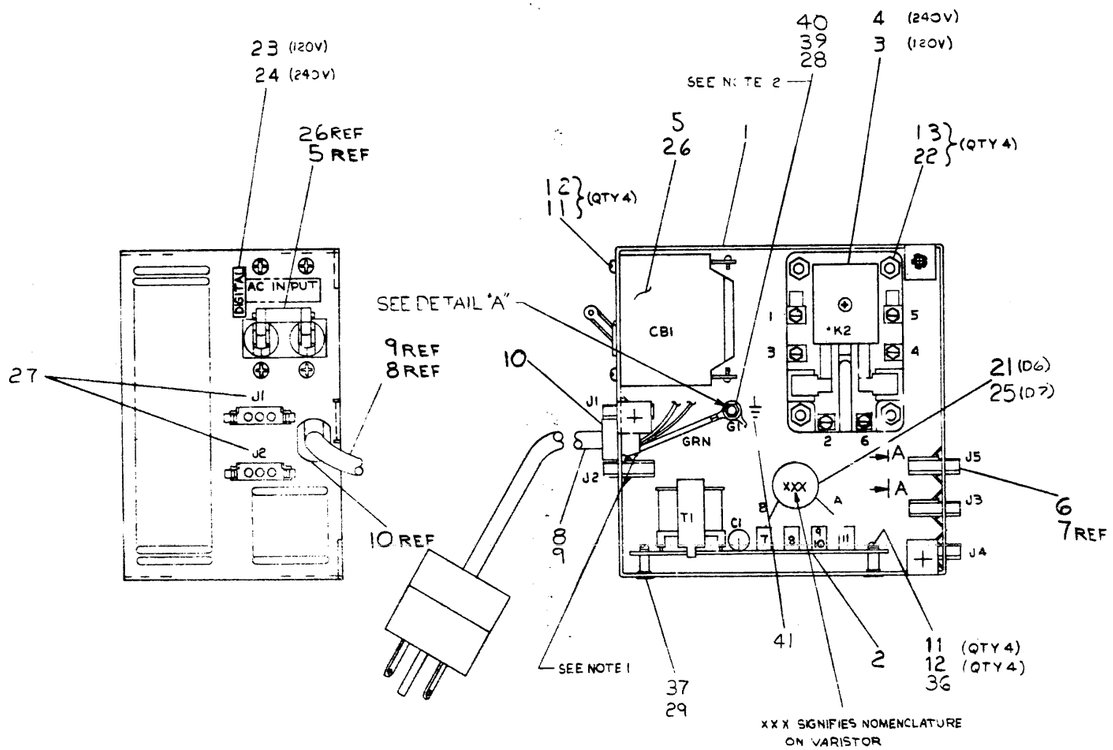
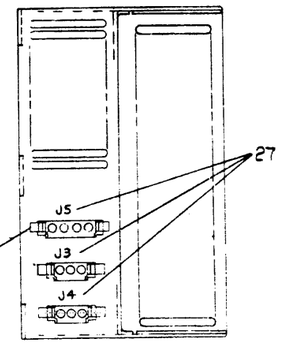
NOTES:
1. LEAVE .5 IN ±.2 IN OF OUTER INSULATION OF LINE CORD INSIDE BOX.
2. REMOVE PAINT MASK FROM G1 ONLY AND APPLY CONDUCTIVE GREASE TO AREA AROUND STUD G1 BEFORE INSTALLING ITEMS 40 (LOCKWASHER), LUG ON GRN/YEL WIRE, AND 28 (KEPNUT).
3. ENSURE THAT LUG CONNECTED TO GRN/YEL WIRE FROM LINE CORD, WASHER ITEM 40, AND KEPNUT ITEM 28 ARE THE FIRST ITEMS INSTALLED ON G1. SEE DETAIL A.

LEGEND	
NUMBER	VARIATION
7009811-1	120V47-63HZ 12A
7009811-2	240V47-63HZ6A



DETAIL "A"
SEE NOTE 3





REVISIONS			
ECO	CHANGE NO.	REV.	
E.H.	H765-00003	A	E. REMOND 12-11-74
E.H.	7009811 00001	B	C. NAVEDONSKY
E.H.	7009811 00002	C	E. REMOND 1-10-75
E.H.	7009811-00003	D	E. REMOND 2-10-75
T.S.	7009811-00004	E	B. MINOR
J.W.	H765-00010	F	
J.W.	7009811-00005	G	
J.W.	7009811-00006	J	

1	1	DECAL, SAFTY GROUND	A-DC-3612460-01	41
1	1	WASHER, EXT TOOTH #8	9005072	40
A/R	A/R	GREASE, CONDUCTIVE	4901173-01	39
1	-	JUMPER, POWER (WHT)	7010301-8	38
4	4	SCR PH.FL HD 6-32X1/4	9006020-02	37
4	4	WASHER, FLAT	9006653	36
REF	REF	A.C INPUT BOX ASSEMBLY PROCEDURE	A-SA-7009811-0-9	35
REF	REF	TESTER PARTS LIST	A-PL-7009811-TA-0	34
REF	REF	TESTER TEST PROCEDURE	A-SA-7009811-0-8	33
REF	REF	TESTER U.A.	A-UA-7009811-0-8	32
REF	REF	TESTER C.S.	A-CS-7009811-0-8	31
~~4~~	~~4~~	~~O-RING #38~~	~~9000960~~	~~30~~
4	4	SPACER 6-32x 3/8"	9006844	29
3	3	NUT, KEPS #6-32	9006563	28
1	1	DECAL	A-DC-7409873-C-0	27
1	-	CIRCUIT BRK. 10A	1211224-03	26
1	-	VARISTOR (D7) 455V	C-IA-7010300-2-0	25
1	-	DECAL 230V 47-63 HZ 6A	A-DC-7412360-0-0	24
-	1	DECAL 115V 47-63 HZ 12A	A-DC-7412303-0-0	23
4	4	SCR PH FL HD #6-32 x 50	9006024-2	22
-	1	VARISTOR (D6) ASSY	C-IA-7010300-1-0	21
2	-	POWER JUMPER (BLK)	D-IA-7010301-2-0	20
1	1	POWER JUMPER (BLK)	D-IA-7010301-3-0	19
-	2	POWER JUMPER (BLK)	D-IA-7010301-4-0	18
-	1	POWER JUMPER (WHT)	D-IA-7010301-5-0	17
2	-	POWER JUMPER (WHT)	D-IA-7010301-6-0	16
1	1	POWER JUMPER (BRN)	D-IA-7010301-7-0	15
1	1	POWER JUMPER (BLK)	D-IA-7010301-1-0	14
4	4	NUT KEPS #6-32	9008186	13
8	8	WASHER, INT TOOTH #6	9006633	12
8	8	SCR PHL PAN HD #6-32X25	9006020-1	11
1	1	STRAIN RELIEF	9008509	10
1	-	POWER CORD 240V	D-AD-7012500-1	9
-	1	POWER CORD 120V	D-AD-7012500-0	8
1	-	PWR CONTROL HARN 240V	D-IA-7010302-2-0	7
-	1	PWR CONTROL HARN 120V	D-IA-7010302-1-0	6
-	1	CIRCUIT BREAK 20A	1211224-05	5
1	-	RELAY 240V	1211222-02	4
-	1	RELAY 120V	1211222-01	3
1	1	AC PWR CONTR BOARD	D-CS-5410993-0-1	2
1	1	CHASSIS, COMP. MTG	D-IA-7009812-0-0	1
QTY.		DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL	BA11-K
DIMENSIONAL TOLERANCE	DIMENSIONS ARE INCHES UNLESS OTHERWISE SPECIFIED
FRACTIONS ±1/64	INCHES: XXX ±.005, XX ±.02, X ±.1
ANGLES	30'
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK SHARP CORNERS BUT FACE QUALITY
MATERIAL	SEE PARTS LIST
FINISH	
DRN.	DATE 6/76
CHKD.	DATE 6-27-76
ENG.	DATE 7-11-76
PROJ. ENG.	DATE 7-11-76
PROD. ENG.	DATE 9/11/76
NEXT HIGHER ASSY.	E-UA-H765-0-0
SCALE	NONE
SHEET	1 OF 3
TITLE	AC INPUT BOX ASS'Y
SIZE/CODE	D AD
NUMBER	7009811-0-0
REV.	J
DIST	

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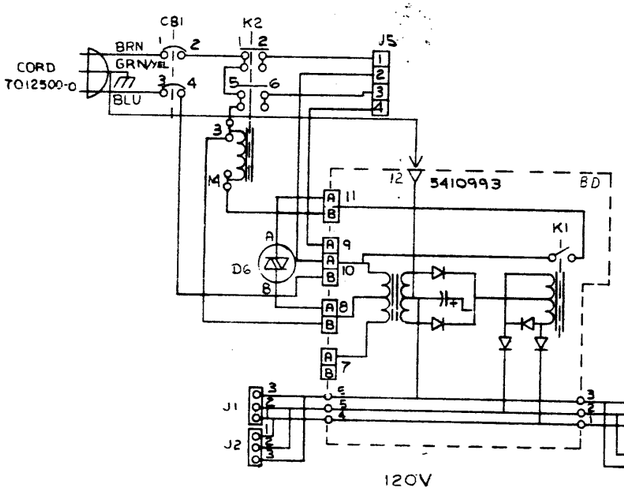

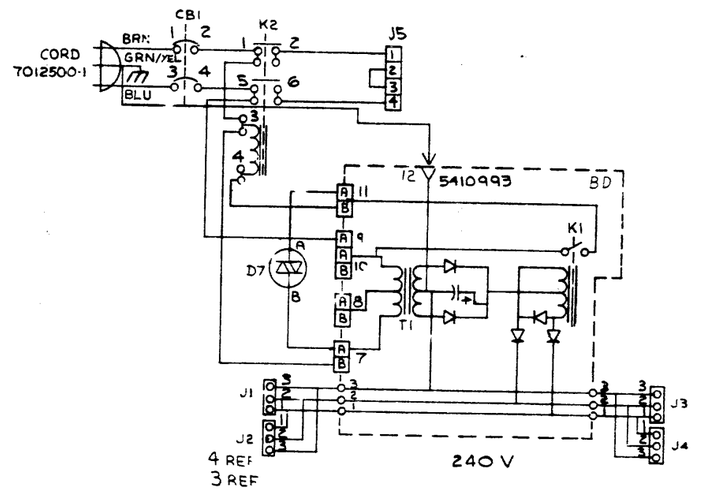

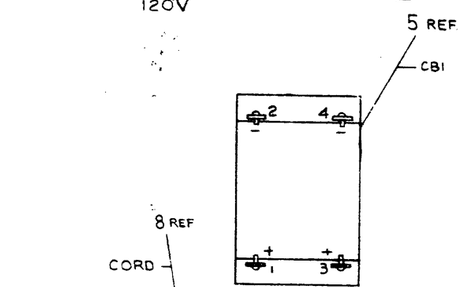

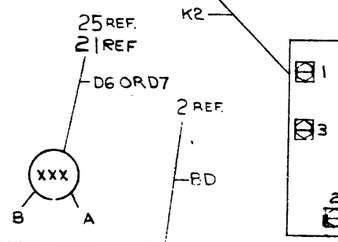

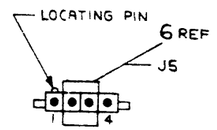

REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
AC INPUT BOX ASS'Y.	D	AD	7009811-0-C	
SCALE NONE	SHEET 2 OF 3			

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WIRE TABLE (120V)

ITEM NO	DESCRIPTION AWG	COLOR	CONNECTION FROM	WITH	CONNECTION TO	WITH	REMARKS
9	14	BRN	CORD	—	CB1-1 (+)	—	
8		BLU	CORD	—	CB1-3 (+)	—	
14		BLK	CB1-2 (-)	—	K2-1	—	
18		BLK	K2-5	—		—	
18		BLK		—	K2-3	—	
15		BLK	BD-8B	—		—	
17		WHT	CB1-4 (-)	—	BD-10B	—	
6		WHT	BD-10B	—	J5-1 (REF)	—	
6		WHT	BD-9A	—	J5-4 (REF)	—	
15		BRN	K2-4	—	BD-11B	—	
6		BLK	K2-6	—	J5-3 (REF)	—	
6	14	BLK	K2-2	—	J5-1 (REF)	—	
21	22	RED	D6-A	—	BD-11A	—	
21	22	RED	D6-B	—	BD-9A	—	
8	14	GRN/YEL	CORD	—	G1	—	SEE NOTE 2
2	14	GRN/YEL	BD-12	—	G1	—	SEE DETAIL A AND NOTE 2-3

WIRE TABLE (240V)

ITEM NO	DESCRIPTION AWG	COLOR	CONNECTION FROM	WITH	CONNECTION TO	WITH	REMARKS
8	14	BRN	CORD	—	CB1-1 (+)	—	
8		RED	CORD	—	CB1-3 (+)	—	
14		BLK	CB1-2	—	K2-1	—	
20		BLK	K2-8	—		—	
19		BLK		—	BD-8B	—	
38		WHT	K2-5	—	CB1-4 (-)	—	
16		WHT		—	BD-9A	—	
15		BRN	K2-4	—	BD-11B	—	
7		BLK	K2-2	—	J5-1 (REF)	—	
7		BLK	J5-2 (REF)	—	J5-3 (REF)	—	
7	14	WHT	K2-6	—	J5-4 (REF)	—	
25	22	RED	D7-A	—	BD-11A	—	
25	22	RED	D7-B	—	BD-9A	—	
8	14	GRN/YEL	CORD	—	G1	—	SEE NOTE 2
2	14	GRN/YEL	BD-2	—	G1	—	SEE DETAIL A AND NOTE 2-3

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	AC INPUT BOX ASSY	SIZE D	CODE AD	NUMBER 7009[illegible]0 0
SCALE NONE	SHEET 3 OF 3	DIST.		REV J

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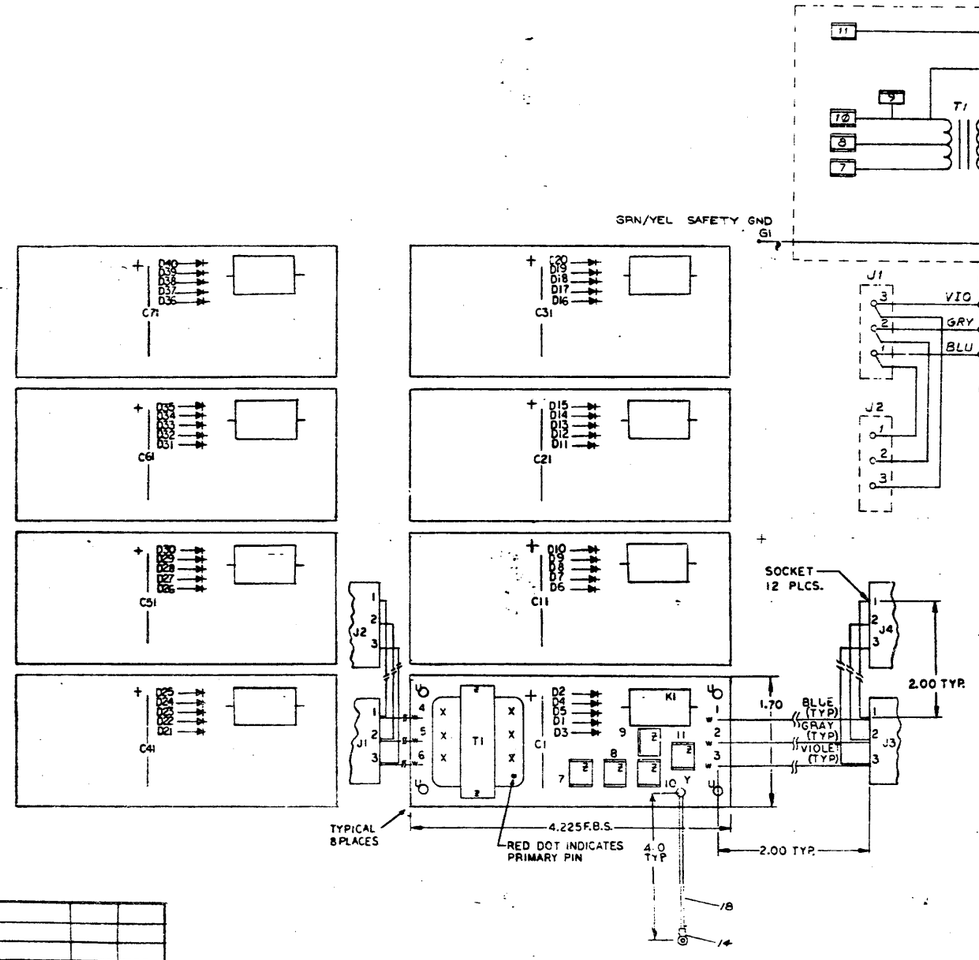
NOTES:



REF				
REF		X-Y COORDINATE HOLE LOCATION	M-CD5410993-0-1	1
REF		ASSY/DRILLING HOLE LOCATION	D-DW-5410993-0-1	2
REF		MODULE ECO HISTORY	D-MW-5410993	3
1		ETCHED CIRCUIT BOARD	5410992	4
1	C1	CAP. 50 μf 50 VDC	1000630	5
5	D1 THRU D5	DIODE IN4004	1105720	6
1	K1	REED RELAY	1311170	7
4	J1 THRU J4	CONNECTOR, MATE-N-LOCK, 3 SKT.	1209350-03	8
12		PIN, MATE-N-LOCK SKT. FEMALE	1209379-00	9
1	T1	TRANSFORMER	1611178	10
4	7, 8, 10, 11	FASTON TAB, DUEL	9007113	11
1	9	FASTON TAB, SINGLE	9008213	12
5		EYELET	9008110	13
1		RING TERMINAL BLUE	9007928	14
A/R		WIRE, #18 AWG, BLUE	9107320-66	15
A/R		WIRE, #18 AWG, VIOLET	9107360-77	16
A/R		WIRE, #18 AWG, GRAY	91073[illegible]-55	17
A/R		WIRE #14AWG GRN/YEL	9107777-54	18

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION MODEL: H765

ETCH BOARD REV. D

IC TYPE	GRND	+5V
GRD 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
A	[illegible]	ORIGINATED
C	3ONOV76	

R.KENNEDY 5410933 00002 B.KENNEDY 4-27-73

DRN. J. Vincent 2-23-74
CHK. R. Kennedy 4/24/74
ENG. [illegible] 4-24-74
PROJ. ENG. [illegible] 4-24-74
PROD. [illegible] 4/24/74
NEXT HIGHER ASSY D-AD-7009811-00
SCALE NONE
SHEET 1 OF 1

digital

TITLE: AC POWER CONTROL BOARD

SIZE D | CODE CS | NUMBER 5410993-0-1 | REV. C

DIST.

DEC CS 5410993-0-1 C

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DRAWING DIRECTORY

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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

REVISIONS		
CHK	CHANGE NO.	REV
CW	00019	R

USED ON OPTION/MODEL: 1145

SHEET 1 OF 4

DRN. D. FONTAINE	DATE 2-4-72	TITLE digital +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 R
PROD. A. HIRSCH	DATE 2-24-72	DIST.

DRB 106A

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	R

DRAWING NO.	NO OF SHTS	PART NO.	DESCRIPTION	REVISIONS
D-AH-H744-Ø-S			ASSY DRILLING/HOLE LAYOUT	Y Y
E-UA-H744-Ø-Ø	1		UNIT ASSY	Y Y
D-CS-H744-Ø-1	1		CIRCUIT SCHEMATIC	Y Y
B-MH-H744-Ø-6	1		MODULE ECO HISTORY	AD 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-IA-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

NOTES:

REVISIONS		
DATE	CHG NO	REV
2-[illegible]-80	[illegible]018	R
2-[illegible]-80	[illegible]019	R

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digital

USED ON OPTION/MODEL		DRN.		TITLE
[illegible]45		D. FONTAINE	2-4-72	+5V REGULATOR
		CHK'D D. FONTAINE	2-4-72	SIZE B | CODE DD | NUMBER H744-Ø | REV. R
		ENG. [illegible]. POTTER	2-24-[illegible]	
		PROD. A. HIBSON	3-24-[illegible]	SHEET 2 OF 4

DRB 126 EN 01149-16 N-76-325

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	R

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 BRKT	REF
C-IA-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

NOTES:

REVISIONS	CHG NO	DATE
R	[illegible]	2-27

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digital

USED ON OPTION/MODEL
11/45

DRN.	M. 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	R

SHEET 3 OF 4

DRB 126 EN-01149-16-N176(325)

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	R

DRAWING NO.	NO. OF SHTS	PART NO.	DESCRIPTION	REVISIONS
D-AH-H744-Ø-5			ASSY DRILLING/HOLE LAYOUT	V
E-UA-H744-Ø-Ø	1		UNIT ASSY	V
D-CS-H744-Ø-1	1		CIRCUIT SCHEMATIC	W
B-MI-H744-Ø-6	4		MODULE ECO HISTORY	AB
		5009725	ETCHED BOARD	H
A-SP-H744-Ø-3			TEST PROCEDURE	P
A-SP-H744-Ø-8			MFG SPEC	R
D-PS-1210737-Ø-Ø	1		HEAT SINK	R
D-IA-5309756-Ø-Ø	1		REGULATOR BRK'T	R
C-IA-5309760-Ø-Ø	1		COMPONENT COVER	P
C-MD-5309759-Ø-Ø	1		CAPACITOR STRAP	R
A-PI-3700074-Ø-Ø	2		PACKAGING INSTRUCTION	R
A-PS-9905211-Ø-Ø	2		OUTER CARTON	R
A-PS-9905212-Ø-Ø	2		INNER PACKAGING	R
C-IA-7412388-Ø-Ø			2.5 CAP HOLDER	R

	V
	V1
	W1
	AE
	H1
	P1
	R1
	P1
	P1
	R1
	R1
	R1
	R1

NOTES:

REVISIONS		
DATE	CHG NO	REV
2-5-72	00029	B

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digital

USED ON OPTION/MODEL
11/45

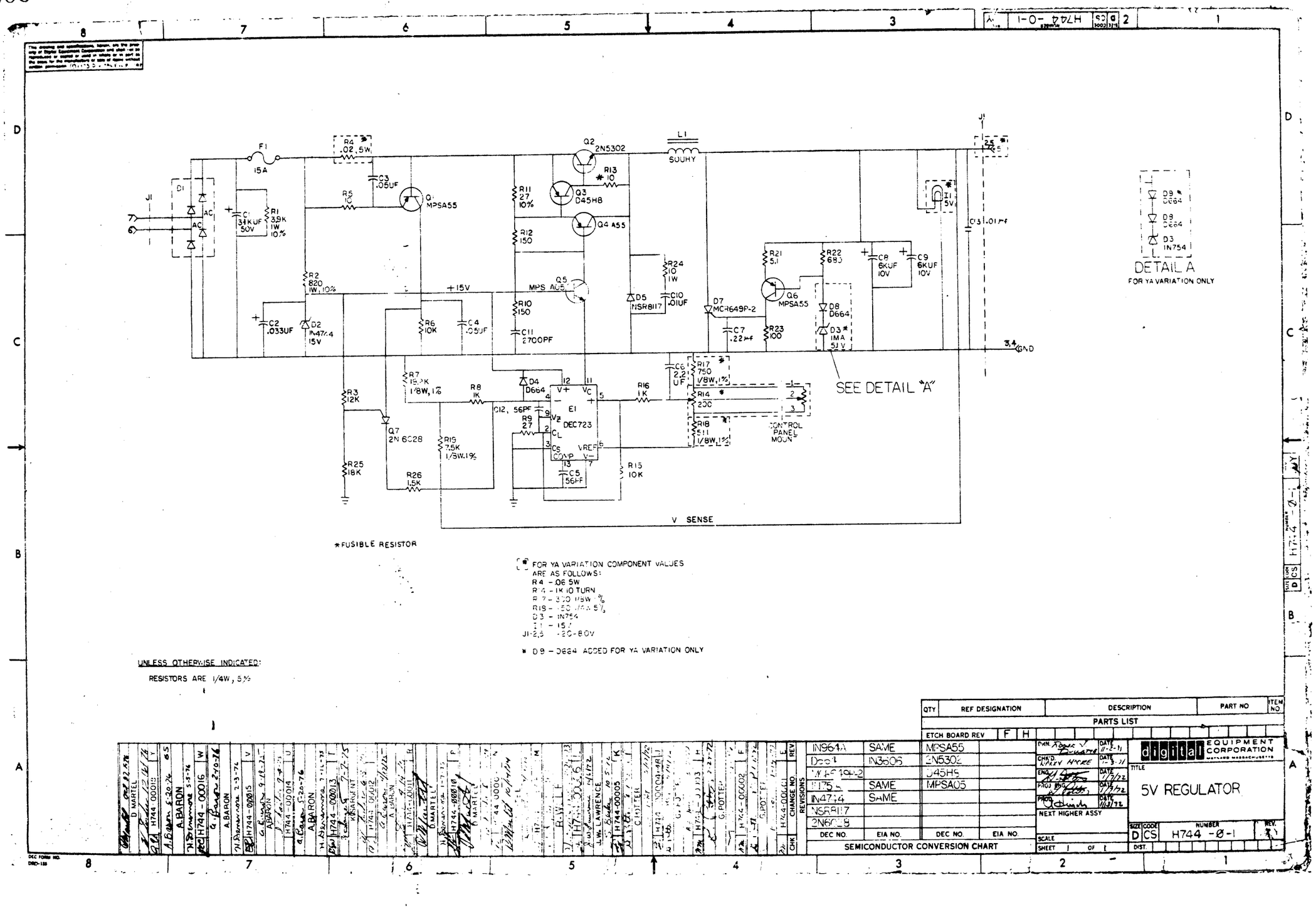
DRN.	D. FONTAINE	2-4-72
CHK'D	D. FONTAINE	2-4-72
ENG.	G. POTTER	2-24-72
PROD.	A. HUBSCH	2-24-72

TITLE: +5V REGULATOR

SIZE	CODE	NUMBER	REV.
B	DD	H744-Ø	R

SHEET 4 OF 4

DRB 126 EN-01149-16-N1761325



*FUSIBLE RESISTOR

[*] FOR YA VARIATION COMPONENT VALUES ARE AS FOLLOWS:
R4 - .06 5W
R14 - 1K 10 TURN
R17 - 510 1/8W %
R18 - 150 1/8W 5%
D3 - IN754
I1 - 15V
J1-2,3 - +20-80V

* D9 - D664 ADDED FOR YA VARIATION ONLY

UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 5%

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

ETCH BOARD REV F H

IN964A	SAME	MPSA55	
D664	IN3605	2N5302	
MCR649P2		D45H5	
IN754	SAME	MPSA05	
IN4734	SAME		
NSR8117			
2N6028			
DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

REV	CHANGE NO.	CHK
T	H744-00013	
U	H744-00014	
V	H744-00015	
W	H744-00016	

DWN A.BARON 11-2-71
CHKD KNEY HYKE 11-3-71
ENG 11/7/72
PROJ MGR 11/7/72
PROG 11/13/72
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 1

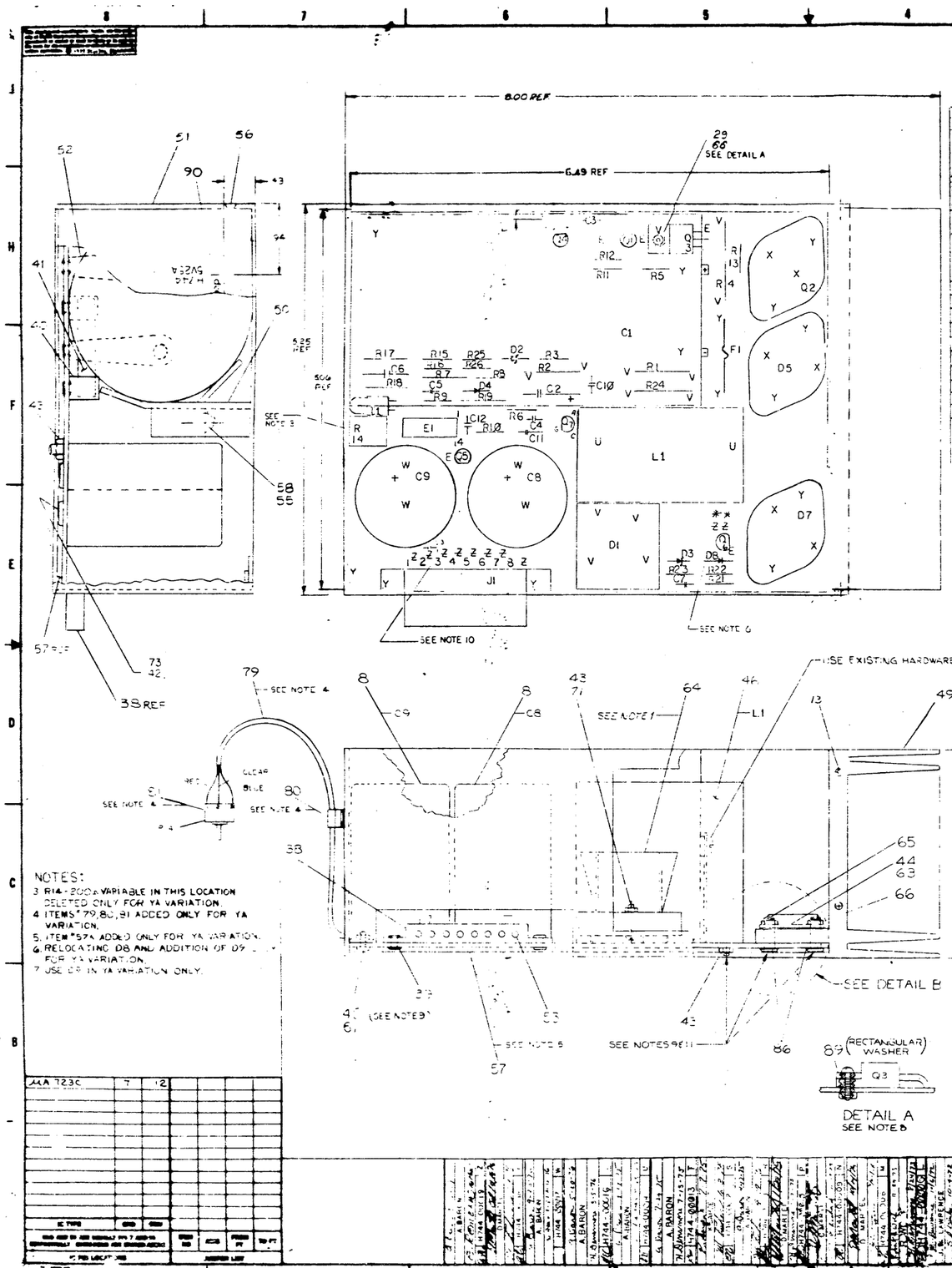
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: 5V REGULATOR

SIZE D | CODE CS | NUMBER H744-0-1 | REV

DIST

DEC FORM NO. DRD-188



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 *57A ADDED ONLY FOR YA VARIATION.
6. RELOCATING D8 AND ADDITION OF D9 ARE FOR YA VARIATION.
7 USE D9 IN YA VARIATION ONLY.

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:
1. APPLY ITEM *63 (COMPOUND) BETWEEN TRANSISTOR (Q3), DIODES (D8, D7) AND ITEM *46 (WASHER). ALSO BETWEEN ITEM *44 (WASHER) AND HEAT SINK (Q1, Q2). ALSO APPLY ITEM *63 (COMPOUND) BETWEEN ITEM *9 (DIODE BRIDGE) AND ITEM *64 (HEAT SINK BRIDGE).

743-YA	744-YB										
1	1	RB8	RES 680Ω 1/4W 5%	1301426	69	1	1		SCREW		68
1	1		PACKING INSTRUCTIONS	AP 3700074	070	2	2		LOCKWASHER #4	9006432	67
1	1		SCR, FHL PAN HD #8-32 x 5/8 LG	9006088-1	71	9	7		NUT KEPS #4-40	9316997	66
1	Ø	21	16 VOLT LAMP	1209169	72	6	6		SCR FHL PAN HD #4-40 x 7/16 LG	9106038-1	65
4	4		LOCKWASHER #10 INT	9006088	73	1	1		HEAT SINK BRIDGE	1210907	64
AR/AR	AR/AR		SPAGHETTI (SLEEVING)	9100182	74	AR	AR		COMPOUND THERMAL JOINT	9008268	63
AR/AR	AR/AR		TFE TUBING	9107302-11	75	1	1	RB6	RESISTOR 1.8K 1/4W 5%	1300381	62
AR/AR	AR/AR		TFE TUBING	9107302-13	76	1	1	R19	RESISTOR 7.5K 1/4W 5%	1300	6
1	1	Q3	TRANSISTOR 2N6302	1310016	77	1	1	R3	RESISTOR 12K 1/4W 5%	1300469	60
AR/AR	AR/AR	-	SPAGHETTI (SLEEVING)	9107302-09	78	1	1	Q7	TRANSISTOR, UNIJUNCTION	1310877	59
1	Ø	12 IN	WIRE, MICRODOT	1700014	79	1	1		SCR FHL PAN HD #6-32 x 1/4 LG	9106060	58
1	Ø		CLAMP, CABLE	9007079	80	2	2		COVER	CMD 5307954	57
1	Ø	R14	POT, 10 TURN, 1KΩ	1309532-04	81	1	1		SCR FHL PAN HD #6-32 3/8 LG	900 20-8	56
1	Ø	R17	RES, 300Ω 1/4W 5%	1301425	82	1	1		WASHER LOCK #6	9006 53	5
	Ø	R16	RES, 150Ω 1/4W 5%	1300250	83	1	1		SCR FHL FLT HD #6-32 3/8 LG	9106 20-8	54
1	Ø	R4	RES, 06Ω 5W 3%	1310874-02	84	8	8		CONTACT, FEMALE	1209346	53
1	Ø	D3	DIODE ZENER 1N754	1109991	88	2	2		STRAP, CAPACITOR	CMD 5307954	52
6	6	-	WASHER, INT TOOTH #4	9006832	86	1	1		BRACKET, REGULATOR	DIA 5307964	51
1	1	C7	CAP .22μf 50V	1010274	87	1	1		HOLDER, CAPACITOR 2.5	CTA 2345	50
1	1	R13	RES 10 1/4W 5% FUSIBLE	1312496	88	1	1		HEAT SINK REGULATOR	D PE 2	49
1	1	-	WASHER, RECTANGULAR	9009769	89	2	2	C6,C12	CAP 56 PF	1008012	48
1	1	-	DECAL (H744)	A0C7416945-10	90	1	1	R24	RESISTOR 10 1W	1300171	47
1	1	-	JUMPER	1214074	91	1	1	L1	REACTOR 60 MHY 10% 4A	1610853	46
						2	2		SCR, FHL PAN HD #4-40 1/4 LG	9008	45
						3	3		WASHER, INSULATOR	900872	44
						3	3		NUT, KEPS #6-32	9008 65	43
						4	4		SCR #10-32 x 3/4 SLOTTED PAN HD	9009659	42
						1	1	F1	FUSE 15 AMP	1214232-01	41
						2	2		FUSE CLIP	9007203	40
						6	6		EYELET .56 x .5	900	39
						1	1	J1	MATE-N-LOK CONNECTOR	1209340	38
						1	1	E1	INTEGRATED CIRCUIT DEL 7805	1910415	37
						1	1	Q5	TRANSISTOR A05	1 705	36
						1	1	Q8	TRANSISTOR D45H8	1310708-1	35
						3	3	Q1, Q6 Q4	TRANSISTOR MPSA55 MOT	1 706	34
						1	1	Q2	TRANSISTOR 2N6302	1310156	33
						Ø	1	R14	RES VARIABLE 200	1310662	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, [illegible]	900	29
						1	1	R11	RES 27 1/4W 10%	1301420	28
						Ø	1	D7	[illegible]	1302	27
						1	1	R9	RES 27 1/4W 5%	1301322	26
						1	1	D7	RES 16.2K 1/4W 1%	13 392	25
						2	2	R8, R16	RES 1K 1/4W 5%	1300369	24
						Ø	1	R18	RES 511 1/8W 1%	1302411	23
						1	1	R25	RES 15K 1/4W 5%	1302465	22
						2	2	R6, R15	RES 10K 1/4W 5%	1300474	21
						Ø	1	R4	RES 02 5W 3%	1310176	20
						1	1	R2	RES 820 1W 10%	1300358	19
						1	1	R1	RES 3.9K 1W 10%	1302427	18
						1	1	R5	RES 10 1/4W 5%	1301317	17
						2	2	R5, R10	RES 150 1/4W 5%	1300250	16
						Ø	1	D3	DIODE ZENER 1N754 5%	1109925	15
						1	1	D7	SCR MCR 6499-2	1109463	14
						4	4		SCR, FHN #4-35/16 LG	900914	13
						1	1	D5	DIODE PWR NSR 8-7	1110715	12
						3	2	D4, D6 D9*	DIODE PWR D669	1100-14	11
						1	1	D2	DIODE ZENER 1N4744	1105648	10
						1	1	D1	DIODE BRIDGE	110716	9
						2	2	C8, C9	CAP 6K MF 10V	1100704	8
						1	1	C1	CAP 31K MF 50V	1010956	7
						2	2	C4, C5	CAP .68 MF 25V	1001774	6
						1	1	C3	CAP .033 MF 100V	1000050	5
						1	1	C11	CAP 2700PF 100V 5% DM	1001637	4
						2	2	C10, C13	CAP .01 MF 100V 20% DISC	1001010	3
						1	1	C6	CAP .022 MF 50V	1002627	2
						1	1		ETCHED CIRCUIT BOARD	5009725	1
									ASSY, DRILLING HOLE, ASSY	D-AA-H744-0-A	REF
									X-Y COORDINATE HOLE LOCATION	ECO H744-0-A	REF
									MODULE ECO HISTORY	D-AA-H744-0-B	REF
									CIRCUIT SCHEMATIC	D-AA-H744-0-B1	REF
QTY	PER	REF DESIGNATION							DESCRIPTION	PART NO.	

D669	IN3606
IN4744	

ETCH BOARD REV H

FIRST USED ON ORYTHO D-AA-H744-A-0-C

ECO H744-0-A

ECO H744-0-B

ECO H744-0-B1

EQUIPMENT CORPORATION

TITLE: 5V REGULATOR

SIZE E | DWG NO H744 | REV Z

SCALE 2/1 | WEIGHT | SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H754-Ø		
+20 VOLT REGULATOR	B-CS-H754-0-1		

THIS IS PRINT SET [ ]

UNIT VARIATIONS		PRINT SET
VAR	TITLE	1
H754-0	+20 VOLT REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
[illegible]	[illegible]	A
11-3	H754-10	B

USED ON OPTION/MODEL		DRN.	DATE	TITLE
		[illegible]lomina	2/21/74	+20 VOLT REGULATOR
		CHK'D. [illegible]lomina	DATE 2/21/74	
		PROJ ENG.	DATE	
		PROD.	DATE 4-2	SIZE B / CODE DD / NUMBER H754-Ø / REV B
		FIELD SERV.	DATE [illegible]	DIST
SHEET 1 OF 1				

DRB 106

DEC-16-[illegible]-1062-1A-M972

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			B-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

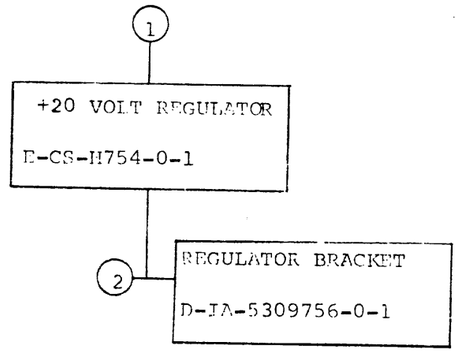
CUSTOMER PRINT SET 1	MFG. SET	FIND NO	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	B-CS-H754-0-1	=	2	+20 VOLT REGULATOR	
			D-PS-1210737-0-0		1	HEAT FIN, REGULATOR	
			C-IA-5309758-0-0		1	CAPACITOR BRACKET	
		2	D-IA-5409756-0-0		1	BRACKET REGULATOR	
			A-SS-5309756-0-1		1	SILK SCREEN	
			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 OF	SIZE	CODE	NUMBER	REV
+20 VOLT REGULATOR		B	DD	H754-Ø	E

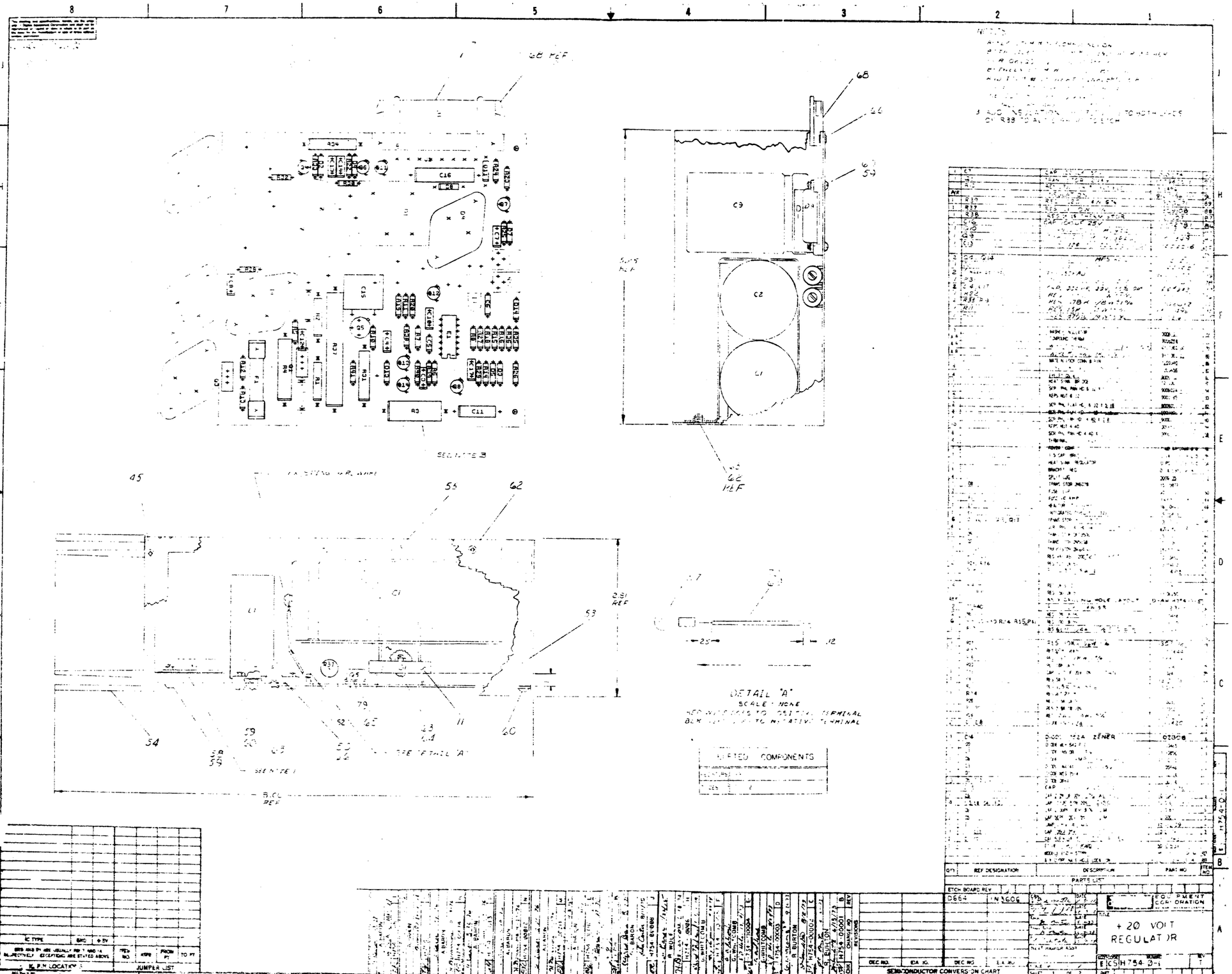
DRD 1A8

DEC 16 (3251)-1062 28-8972



TITLE		SIZE	CODE	NUMBER	REV
+20 VOLT REGULATOR	SHEET 3 OF 3	B	DD	H754-Ø	B

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


SEE NOTE 3
SEE NOTE 1
SEE "DETAIL A"
DETAIL "A"
SCALE : NONE
NOTES
1. ADD INSULATION TO BOTH LEADS OF R38 TO PREVENT SOLDER BRIDGE TO HEATSINK
PARTS LIST
ETCH BOARD REV
D664
IN 3606
+20 VOLT REGULATOR
SEMICONDUCTOR CONVERSION CHART
JUMPER LIST
IC TYPE
SHEET 1 OF 2

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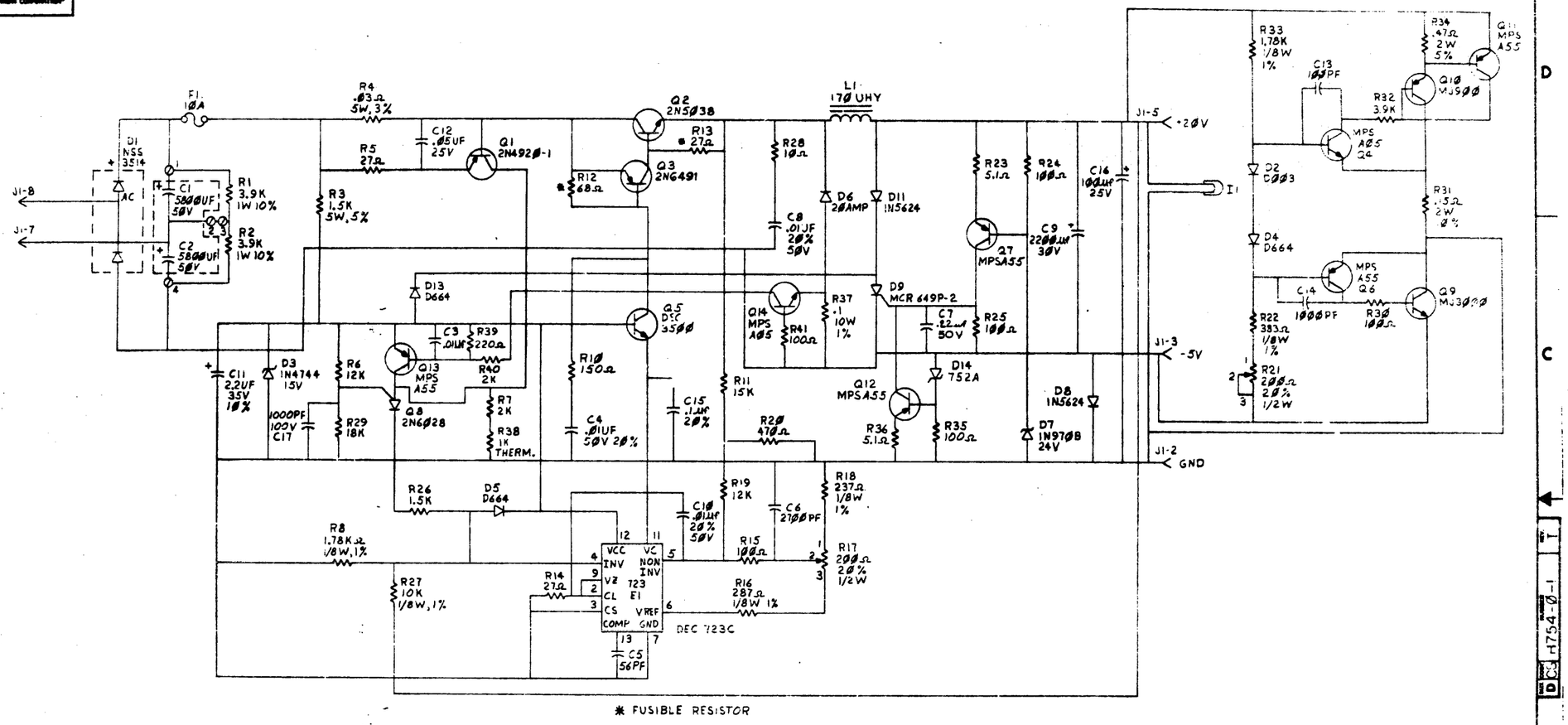

* FUSIBLE RESISTOR

DRN. M. BISSONNETTE	8-29-72	FIRST USED ON: H754
CHK'D R.VOWLES	9-17-72	TITLE: +20 VOLT REGULATOR
ENG. R. BURTON	9-7-73	
PROJ. ENG. R. BURTON	9-7-73	
PROD. L. BAPTISTE	9-9-73	
NEXT HIGHER ASSY.		
SCALE		SIZE D CODE CS NUMBER H754-0-1 REV. T
SHEET 2 OF 2		DIST.

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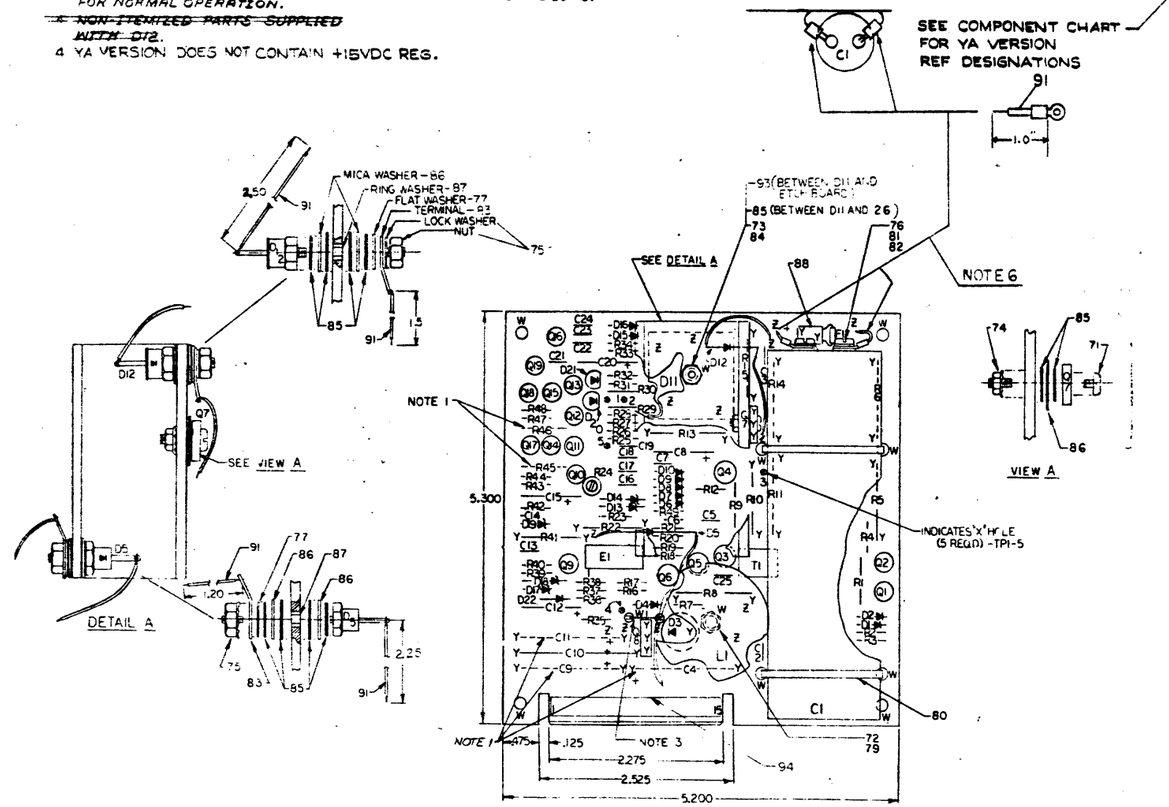
NOTES:

1. R45, R46, C4, C9, & C11 ARE NOT USED ON BASIC 54-11086 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.



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-5411086-0-0	3
1	1		ETCHED CIRCUIT BOARD	5511086	4
0	1	C2	CAPACITOR 56PF 100V 5%	1000612	5
4	4	C10 C17 C18 C21	CAPACITOR 330PF 100V 5%	1000623	6
3	5	C3,C13,C19 C22,C23	CAPACITOR .01uf 100V 20%	1001810-01	7
1	3	C6 C12,C15	CAPACITOR 2.2uf 35V 10%	1002431	8
2	2	C8,C25	CAPACITOR 18PF 100V 5%	1002608	9
1	1	C20	CAPACITOR 1.5uf 35V 10%	1000725	10
4	4	C5 C7,C14 C24	CAPACITOR .22uf 50V -20% +80%	1010274-01	11
0	1	C1	CAPACITOR 500uf 25V -10% +75%	1010509-01	12
1	1	C1	CAPACITOR 8400uf 50V -10% +75%	1010951	13
1	2	D2,D19	DIODE 1N746A	1100122	14
0	1	D5	DIODE 1N2976B	1100134	15
0	1	D3	DIODE MR1336	1103341	16
7	8	D1,D6,D7,D8,D9,D15,D18,D22	DIODE D672	1105275	17
1	2	D16 D17	DIODE 1N4744	1105848	18
0	1	D4	DIODE 1N4954	1105798	19
0	1	D12	DIODE 1N3886	1109440	20
0	1	D13	DIODE 1N967A	1110366	21
2	2	D20,D21	DIODE MV5054-1 (LIGHT EMITTING)	1110324	22
1	1	D11	DIODE BRIDGE 200V 2A	1110714	23
2	2	D13 D14	DIODE ITTZ428	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,R48	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%	1300349	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	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%	1302417	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%	1301082	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

PARTS LIST

FIRST USED ON OPTION MODEL

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	65
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

REVISIONS							
REV.	CHANGE NO.	CHK					
C	ORIGINATED		V. ROMEN	5411086-00001	4/15/75	Paul Boen	4/15/75
D			V. ROMEN	5411086-00002	4/15/75	Paul Boen	4/15/75
E			V. LOMEN	5411086-00003	4/15/75	Paul Boen	4/15/75
F			V. BOMEN	5411086-00004	4/15/75	Paul Boen	4/15/75
G			E. LOYA	5411086-00005	4/15/75	Paul Boen	4/15/75
H			W. MORRISON	5411086-00006	4/15/75	Paul Boen	4/15/75
J			E. LOYA	5411086-00007	4/15/75	Paul Boen	4/15/75

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

DRN.		DATE 10-9-74
CHK'D.		DATE
ENG.	Paul Boen	DATE 4/15/75
PROJ. ENG.	Paul Boen	DATE 10/74
PROJ. LDR.		DATE 4/15/75
NEXT HIGHER ASSY		
SCALE		
SHEET 1 OF 4		

digital

TITLE: PWR. LINE MONITOR/15V REG.

SIZE	CODE	NUMBER	REV.
D	DCS	5411086-0-1	J

DIST.

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NOTES:

YA	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	1	R29	RESISTOR 3.48K 1/4W 1%	1305174	99
1	1	R28	RESISTOR 5.62K 1/4W 1%	1305128	00
1	1	R27	RESISTOR 4.99K 1/4W 1%	1305324	01
0	1	R35	RESISTOR 24.9K 1/4W 1%	1305409	02
0	1	R24	RESISTOR 200 20. 82PR	1309150-10	03
1	1	R32	RESISTOR 10.2K 1/4W 1%	1309412	04
0	2	R5,R6	RESISTOR 2.50 5% 5W	1309804	05
0	1	Q7	TRANSISTOR MJE3055	1510555	06
4	8	Q2,Q3,Q5,Q8,Q15,Q19	TRANSISTOR MPSA05	1510705	07
0	2	Q4,Q9	TRANSISTOR MPS A55	1510706	08
0	1	Q6	TRANSISTOR 2N 4441	1505887	09
4	5	Q1,Q11,Q12,Q13,Q16	TRANSISTOR 2N 4250	1509142	10
4	4	Q14,Q15,Q17,Q18	TRANSISTOR 2N 5433	1511888	11
0	1	L1	INDUCTOR 500 uH	1811806	12
1	1	T1	TRANSFORMER	1812026	13
0	1	E1	I.C. DEC 723	1910415	70
0	1		SCREW, PHM #4-40 X 7/16 LG	9008518-1	71
0	1		SCREW, PHM #8-32 X 1/4 LG.	9008020-1	72
0	1		SCREW PHM #8-32 X 7/8 LG.	9008602-1	73
0	1		KEP NUT #4-40	9008557	74
0	2		KEP NUT #10-32	9008568	75
2	2		WASHER, ITTLKNR #10	9008635	76
0	2		WASHER, FLAT	9008668	77
0	2	(W1)	SPLIT LUG	9006651	78
0	1		SPACER, 1/4AF X 1/2	9008844	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 #8-32	9008185	84
0	A/R		COMPOUND THERMAL JOINT	9008268	85
0	5		WASHER, MICA	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	12		WIRE #18 STRANDED BLK	9107380-0-0	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-5411086-0-3	95

PARTS LIST

FIRST USED ON OPTION MODEL

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

REVISIONS				CHANGE NO	REV
DEC NO	EIA NO	DEC NO	EIA NO		CHK

SEMICONDUCTOR CONVERSION CHART

DRN J. Vincent DATE 10-9-74
CHK'D DATE
ENG DATE 10/9/74
PROJ ENG DATE 10/9/74
PROD DATE 10/9/74
NEXT HIGHER ASSY
SCALE
SHEET 2 OF 4

digital EQUIPMENT CORPORATION

TITLE PWR. LINE MONITOR/5V REG.

SIZE D | CODE DCS | NUMBER 5411086-0-1 | REV J
DIST

DCS 5411086-0-1 J

2

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+25 TO +45 VDC

R8 47Ω 2W

C25 18pf

R21 30K

R13 1K 2W

TP3

T1

Q3 MPS A05

R20 1K

R18 1K

Q5 MPS A05

R19 30K

C6 18pf

C8 2.2μf 35V

C5 .22μf 50V

D22 D672

D8 D672 D9 D672 D6 D672 D7 D672

C7 .22μf 50V

D10 1N4744 15V

R48 75Ω

Q19 MPS A05

R49 220

-10V TO -15V (TEST POINT)

(ENG OPTION) (SEE NOTE 1) R46 1/2 W

Q15 2N5433

Q18 2N5433

R47 10K

R43 10K

3 AC LO 1

8 AC LO 2

4 LO GND

D15 D672 AC-2

D16 D672 AC-1

20V TO 33V RMS AC INPUT

R34 5.11K 1%

R33 5.11K 1%

C24 .22μf 50V

C26 1.5μf 35V

TP1

R32 18.2K 1%

R29 3.48K 1%

R26 5.62K 1%

TP5

R27 4.99K 1%

Q16 2N4250

Q13 2N4250

Q12 2N4250

Q11 2N4250

C21 330pf

C18 330pf

C17 330pf

C16 330pf

R31 2.61K 1%

TP2

R30 5.09K 1%

R25 3.16K 1%

ACOK

D20 MV5054-1

D21 MV5054-1

DCOK

D19 ITT2429 5.1V

D13 ITT2429 5.1V

C22 .01μf 100V

C23 .21μf 100V

R28 1K 1%

C19 .01μf 100V

RETURN

Q17 2N5433

Q14 2N5433

Q13 MPS A05

R44 75Ω

1 DC LO 2

2 DC LO 1

R45 1/2 W

(SEE NOTE 1 ENG. OPTION)

+25 TO +45VDC

TO 20V TO 33V RMS AC INPUT

AC-1 15

AC-2 14

C11

R15 3.3K 1%

6 LINE CLK L

R22 390Ω 2W

D9 3.3V 1N752A

1/4 .22 uF 50V

POWER FAIL CIRCUIT

REVISIONS

CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
PWR. LINE MONITOR/15V REG.	D	DCS	5411086-0-1	U

SCALE — SHEET 3 OF 4 DIST

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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	J

SCALE — SHEET 4 OF 4 DIST.

digital EQUIPMENT CORPORATION

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-861-D		
POWER CONTROL 861-D	E-UA-861-D-Ø		
PILOT CONTROL	D-CS-5111522-0-1		
CIRCUIT SCHEMATIC 861-D	D-CS-861-D-1		
861-D POWER CONTROL ASSY P.L.	A-PL-861-D-Ø		
PACKAGING INSTRUCTIONS	A-SP-3700191-0-0		

UNIT VARIATIONS

VAR	TITLE	PRINT SET
861-D	861-D POWER CONTROL	

REVISIONS		
DATE	CHG. NO.	REV
	861-D-1	A
10-76	861-D-2	B

USED ON OPTION/MODEL

SHEET 1 OF 3

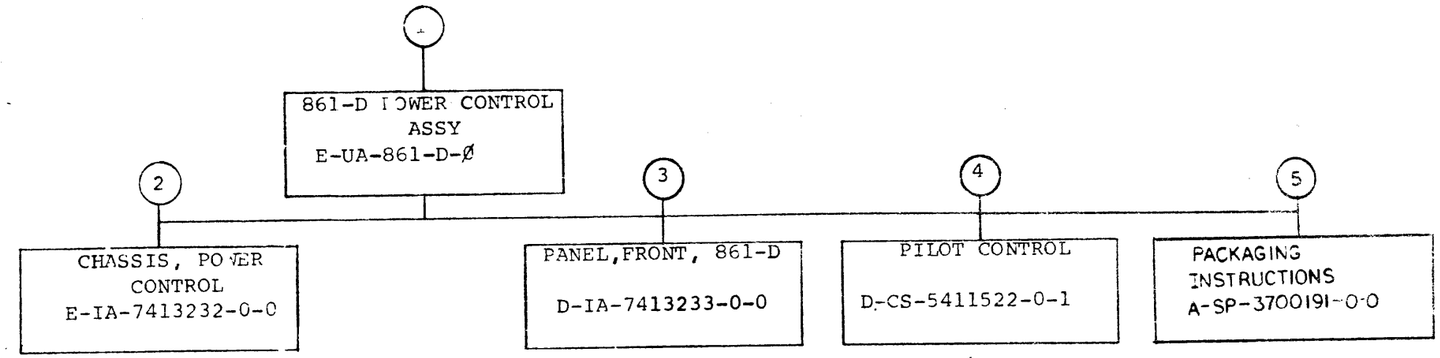
DRN. W. McCarthy	DATE 4/7/75	TITLE: 861-D POWER CONTROL
CHK'D.	DATE 4/11/75	
PROJ ENG.	DATE	
PROD.	DATE 4/11/75	SIZE B · CODE DD · NUMBER 861-D · REV B
FIELD SERV.	DATE 4/15/75	DIST

DRB 106

279

1

280



TITLE		SIZE	CODE	NUMBER	REV
861-D POWER CONTROL	SHEET 2 OF 3	B	DD	861-D	B

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

262

2

MECHANICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	E-UA-861-D-Ø	*	2	861-D POWER CONTROL ASSY	
X			A-PL-861-D-Ø	*	3	861-D POWER CONTROL ASSY P.L.	
			C-MD-7413234-0-0		1	COVER, POWER CONTROL	
			D-MD-7413419-0-0		1	BRACKET, STRAIN REFIEF	
			C-IA-7011052-0-0		1	MOV ASSY	
			C-IA-7011053-0-0		1	PILOT LAMP ASSY	
			D-IA-7010966-0-0		1	HARNESS #1, POWER CONTROL	
			D-IA-7010967-0-0		1	HARNESS #3, POWER CONTROL	
			D-IA-7010969-0-0		1	HARNESS #5, POWER CONTROL	
			D-IA-7010970-0-0		1	HARNESS #6, POWER CONTROL	
			C-IA-7010968-0-0		1	HARNESS #8, POWER CONTROL	
			D-IA-7010972-0-0		1	JUMPER, WIRE	
			A-DC-7416582-0-1		1	DECAL (NOT FOR EXTERNAL LOADS)	
		2	E-IA-7413232-0-0		2	CHASSIS, POWER CONTROL	
			B-SS-7413232-0-1		1	SILK SCREEN, CHASSIS	
		3	D-IA-7413233-0-0		2	PANEL, FRONT, 861-D	
			B-SS-7413233-0-1		1	SILK SCREEN, FRONT PANEL, 861-D	
X		5	A-SP-3700191-0-0	-	2	PACKAGING INSTRUCTIONS, 861-D	
			A-PS-9905726-0-0	-	2	FULL OVERLAP CARTON	
			A-PS-9905727-0-0	-	2	LAMINATED BUILDUP	
			A-PS-9905729-0-0	-	1	TAPE - GLASFLEX	

ELECTRICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	B-DD-861-D	*	2	861-D POWER CONTROL ASSY	
X			D-CS-861-D-1	*	1	861-D POWER CONTROL SCHEMATIC	
			A-SP-861-D-2		4	861-D TEST PROCEDURE	
X		4	D-CS-5411522-0-1	*	1	PILOT CONTROL	
			K-CO-5411522-0-4			DRILL TAPE	
			B-MH-5411522-0-6			MODULE ECO HISTORY	
			A-SP-5411522-0-7			PILOT CONTROL TEST PROCEDURE	
			D-MH-5411522-0-5			ASSY DRILL HOLE LAYOUT	

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	OF	SIZE	CODE	NUMBER	REV
861-D POWER CONTROL	3	3	B	DD	861-D	B

DPB 108

DEC 16 (325)-1062-28-R972

NOTES:
1. LOCATE DECALS (ITEM # 5 & 6) APPROX AS SHOWN.
2. PLACE DECAL (LETTER #2) OF OUTLET PLATE.

SECTION A-A
SCALE 1/1
5 PLACES

DETAIL A
SCALE 2/1

SEE DETAIL-A
SEE DETAIL-B
SEE NOTE #1
SEE NOTE #2
COVER SHOWN BROKEN AWAY OVER ASSY
FOR PARTS LIST SEE A-PL-861-D

TITLE	861-D POWER CONTROL ASSY
FIRST USED ON	861-D
SIZE	E
CODE	
MATERIAL	
FINISH	
SCALE	1/1
SHEET	1 OF 1

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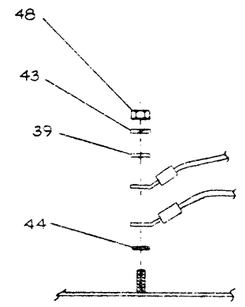
CONNECTION CHART

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
	BLU	10	HARNESS 1	-1	K1-T3		
	BLK	↓	↓	-2	K1-T1		
22	RED			-3	K1-T2		
	RED			-4	CB7-C-LOAD		
	BLK	↓	↓	-5	CB7-D-LOAD		
	BLU	10	HARNESS 1	-6	CB7-B-LOAD		
	RED	10	HARNESS 3	-1	CB7-C-LINE		
	BLK	↓	↓	-2	CB7-D-LINE		
	BLU			-3	CB7-B-LINE		
	WHT			-4	CB7-A-LINE		
23	GRN			-5	GND *2		
	WHT			-6	FLTR-LOAD-NEUT		
	GRN			-7	FLTR-LOAD-GND		
	BLK			-8	FLTR-LOAD-PH1		
	BLU	↓	↓	-9	FLTR-LOAD-PH3		
	RED	10	HARNESS 3	-10	FLTR-LOAD-PH2		
	BLK	4	HARNESS 5	-1	CB2-B-LINE		
	BLK	↓	↓	-2	CB7-C-LOAD		
	WHT			-3	CB2-A-LINE		
	WHT			-4	CB7-A-LOAD		
	BLU			-J1	PLT CONT-J6		
	WHT			-7/8	CB7-A-LOAD		
	WHT			-9	CB6-A-LINE		
	RED			-10	CB6-B-LINE		
	WHT			-11	CB5-A-LINE		
	WHT/BLU			-J2	PLT CONT-J5		
	RED			-14	CB4-B-LINE		
	WHT			-15	CB4-A-LINE		
	BLU			-16	CB1-B-LINE		
	WHT			-17	CB1-A-LINE		
	BLU			-18	CB3-B-LINE		
	WHT			-19	CB3-A-LINE		
	WHT			-22/21	CB7-A-LOAD		
24	WHT			-22/23	CB7-A-LOAD		
	BLU			-24	C1-1		
	BLU			-25			
	BLU			-26	K1-L3		
	BLU			-27			
	RED			-28	C3-1		
	RED			-29			
	RED			-30	K1-L2		
	RED			-31			
	BLK			-32	C1-2		
	BLK			-33	K1-L1		
	BLK			-34			
	WHT			-35	C2-3		
	BLU			-36	K1-B		
	RED			-37	K1-A		
	WHT			-38	CB7-A-LOAD		
	BLK			-39	CB6-B-LINE		
	BLU	↓	↓	-40	CB7-B-LOAD		
	RED	14	HARNESS 5	-42	CB7-C-LOAD		
9	BLK	22	I1-BLK		CB7-A-LINE		
	RED	22	I1-RED		CB7-D-LINE		
9	BLK	22	I2-BLK		CB7-A-LINE		
	RED	22	I2-RED		CB7-C-LINE		
9	BLK	22	I3-BLK		CB7-A-LINE		
	RED	22	I3-RED		CB7-B-LINE		

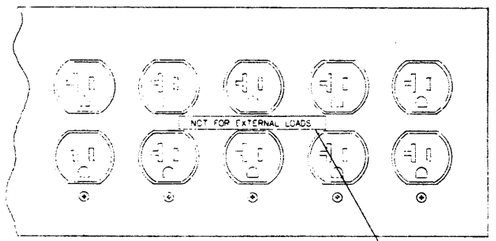
CONNECTION CHART

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
	WHT	14	HARNESS 6	-1	J7-S		
	BLK	↓	↓	-2	J7-B		
	WHT			-3	J6-S		
	RED			-4	J6-B		
	WHT			-5	J5-S		
	RED			-6	J5-B		
	WHT			-7	J4-S		
	BLU			-8	J4-B		
	WHT			-9	J3-S		
25	BLU			-10	J3-B		
	WHT			-11	CB1-A-LOAD		
	BLU			-12	CB1-B-LOAD		
	WHT			-13	CB3-A-LOAD		
	BLU			-14	CB3-B-LOAD		
	WHT			-15	CB4-A-LOAD		
	RED			-16	CB4-B-LOAD		
	WHT			-17	CB5-A-LOAD		
	RED			-18	CB5-B-LOAD		
	WHT	↑	↓	-19	CB6-A-LOAD		
	BLK	14	HARNESS 6	-20	CB6-B-LOAD		
	WHT	14	HARNESS 8	-P1	PLT CONT-J4		
26	WHT	14	HARNESS 8	-3	T5-1		
	WHT	14	HARNESS 8	-4	T5-2		
28	GRN	10	GND *1		GND *2		
29	WHT	14	C1-3		C2-3		
30	WHT	14	J1-S		J2-S		
31	GRN	14	PLT CONT-J7		GND *1		
32	BLK	14	J1-B		J2-B		
	BLK	10	FLTR-LINE	-PH1	PLUG - X		
	RED	↓	FLTR-LINE	-PH2	PLUG - Y		
18	ORN		FLTR-LINE	-PH3	PLUG - Z		
	WHT	↓	FLTR-LINE	-NEUT	PLUG - W		
	GRN	10	FLTR-LINE	-GND	PLUG - G		
8	—	—	K1-A	52	K1-B	52	

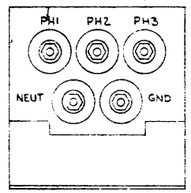
NOTES FOR WIRING:
1. FOR HARNESS POINT NUMBERS, REFER TO HARNESS DWG.



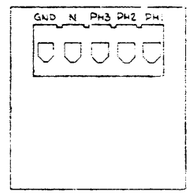
DETAIL B
TYPICAL FOR "GND 1" & "GND 2"



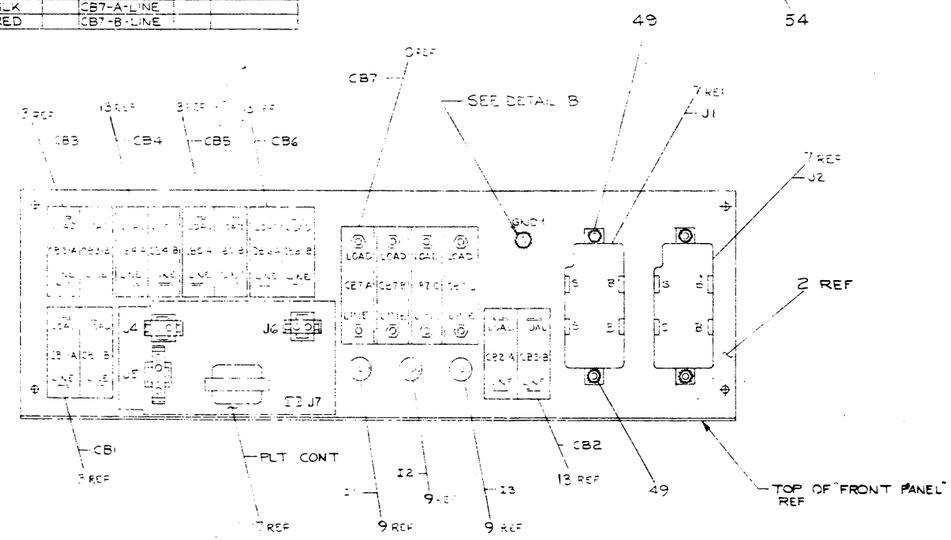
VIEW B-B



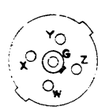
FILTER
(ITEM 12)
LOAD SIDE



FILTER
(ITEM 12)
LINE SIDE



VIEW A-A



SECTION B-B
SCALE: NONE
"TWIST LOCK PLUG" (ITEM 21)

| | | |

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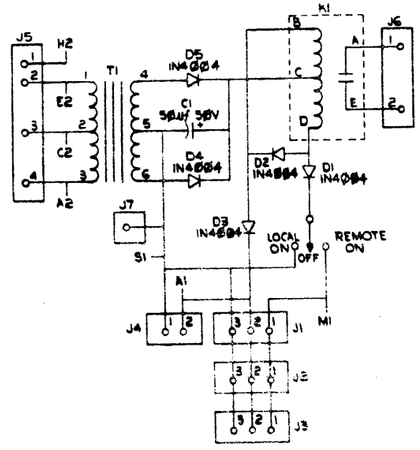
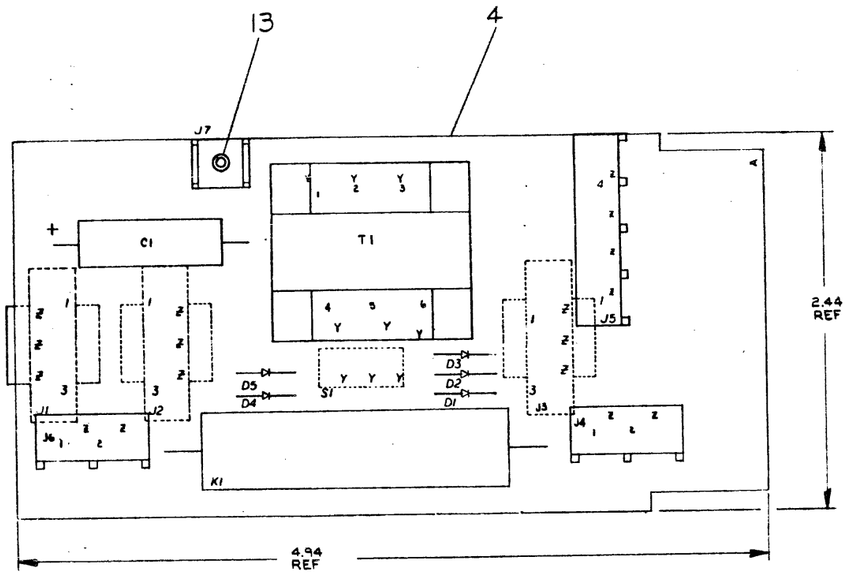
NOTES:





REF				
REF		X-Y COORDINATE HOLE LOCATION	X-CO-5411522-0-4	1
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411522-0-5	2
REF		MODULE ECO HISTORY	B-MH-5411522-0-6	3
1		ETCHED CIRCUIT BOARD	5011521	4
1	K1	RELAY, REED, 48 V COIL, 2.5 A CONT	12122267-00	5
1	T1	TRANSFORMER MMC 3415	16122342-00	6
1	C1	CAP 50 MFD 50V TANT	1000080-00	7
5	D1-D5	DIODE IN4004	1105796-00	8
1	S1	SWITCH	12111180-00	9
3	J1-J3	HOUSING, SOCKET	12090350-03	10
1	J5	CONN, UNIVERSAL, 4 PIN HEADER	12122297-01	11
2	J4,J6	CONN, UNIVERSAL, 2 PIN HEADER	12122257-00	12
1		EYELET	9006732-00	13
9		TERMINAL, SOCKET CONTACT	12090456-01	14
1	J7	TERMINAL, SOLDERLESS	9007113-00	15

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: 861-D / 861-E

ETCH BOARD REV: B

REV	CHANGE NO	DEC NO	EIA NO

REVISIONS

SEMICONDUCTOR CONVERSION CHART

DEC NO | EIA NO

DRN K.F. Hallen DATE 2/4/75
CHK W.F. McGrath DATE 2/6/75
ENG DATE
PROJ. ENG. DATE 2/7/75
PROD. DATE 2/7/75
NEXT HIGHER ASSY E-UA-861-D-0
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION

TITLE: PILOT CONTROL

SIZE D | CODE CS | NUMBER 5411522-0-1 | REV A | DIST

DCS5411522-0-1 A

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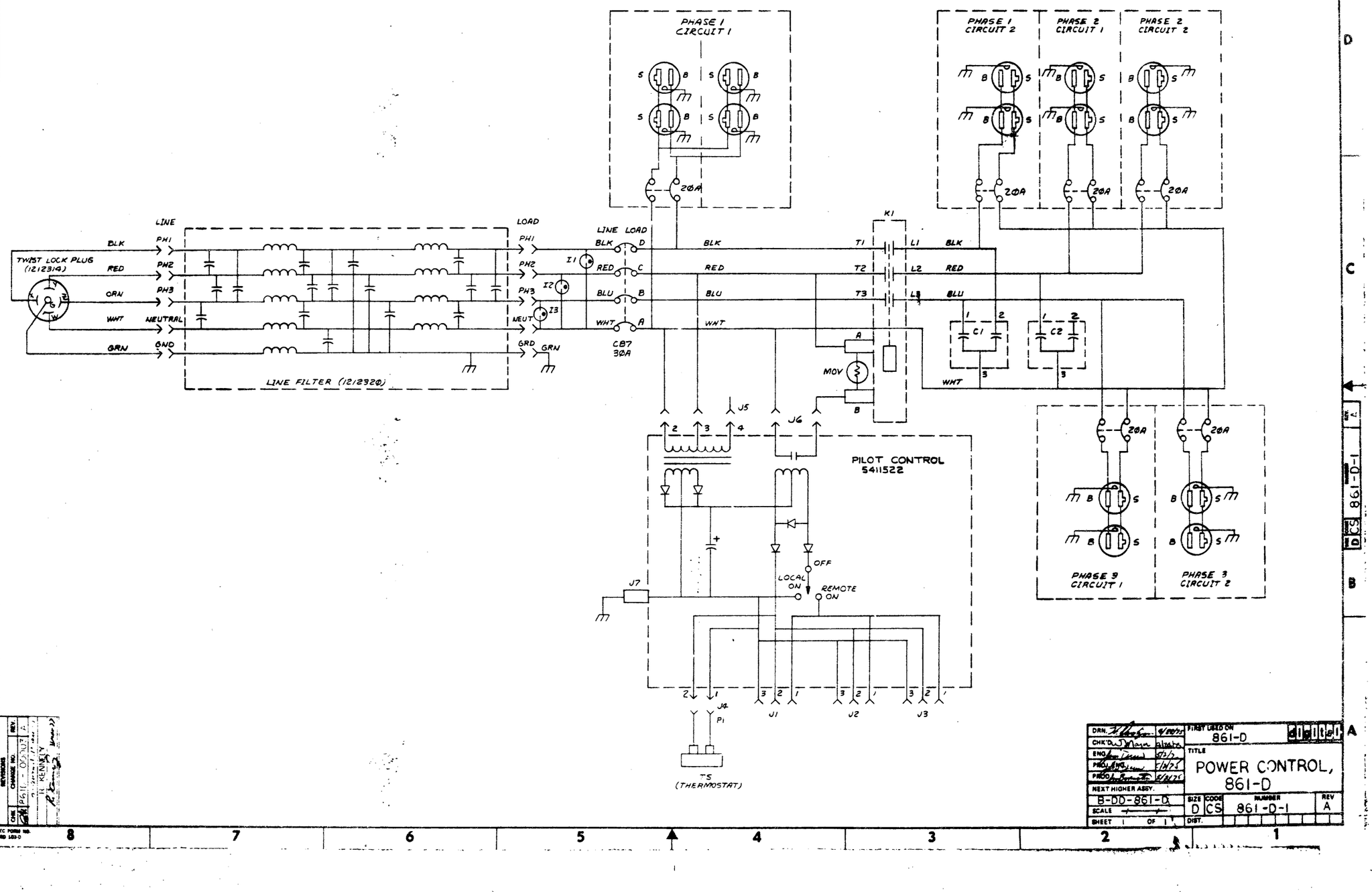

REVISIONS			
CHK	CHANGE NO.	REV.	
	P611 - 00703	A	
	H. KENNEY		

DRN.		FIRST USED ON 861-D
CHK'D.	J. Mann	
ENG.		TITLE POWER CONTROL, 861-D
PROJ.		
PROD.		
NEXT HIGHER ASSY. B-DD-861-D		SIZE D CODE CS NUMBER 861-D-1 REV A
SCALE		DIST.
SHEET 1 OF 1		

861-D-1

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY Tyrone Quillin | CHECKED [illegible] | SECTION 1
DATE 3/11/75 | DATE 4/9/75
ENG [illegible] | PROD [illegible] | ISSUED SECT 1
DATE 4/10/75 | DATE 4/10/75

ITEM NO	DWG NO / PART NO	DESCRIPTION	861-D QUANTITY/VARIATION
1	E-1A-7413232-0-0	CHASSIS, POWER CONTROL	1
2	D-1A-7413233-0-0	PANEL, FRONT, 861-D	1
3	C-MD-7413234-0-0	COVER, POWER CONTROL	1
4	D-MD-7413479-0-0	BRACKET, STRAIN RELIEF	1
5	3612063-00	DECAL, UL	1
6	3612667-00	DECAL, "DANGER HIGH VOLTAGE"	1
7	1212265-00	POWER CONN RECEPTACLE, 20A, 125VAC	7
8	C-1A-7011052-0-0	MOV ASSY	1
9	C-2A-7011053-0-0	PILOT LAMP ASSY	3
10	1211037-00	CIRCUIT BREAKER, 4 POL, 30A, 240 VAC	1
11	1211158-00	THERMOSTAT, SPST, FIXED TEMP	1
12	1212320-00	FILTER	1
13	1212124-01	CIRCUIT BREAKER, 2 POLE, 20 AMP	6
14	1000034-00	DC PAPER CAPACITOR, 1000 VDC	2
15	1212266-00	CONTACTOR, 3 POLE, 40A, 600 VAC	1
16	9007038-00	GROMMET, CATERPILLAR	A/R
17	D-CS-5411522-0-1	PILOT CONTROL	1
18	1700028-00	POWER CORD, 5 WIRE, 10 AWG, (15FT)	A/R
19	1212410-00	STRAIN RELIEF	1
20	9009309-01	LOCKNUT, 3/4" PIPE THREAD	1
21	1212314-00	PLUG, TWIST LOCK, 4 POLE/5 WIRE	1
22	D-1A-7010966-0-0	HARNESS #1, POWER CONTROL	1

TITLE: 861-D POWER CONTROL ASSY | ASSY NO. E-UA-861-D-0 | SHEET 1 OF 3 | SIZE A | CODE PL | NUMBER 861-D-0 | REV C | ECO NO 861D-00003 | DIST

DEC FORM DEC 16-13251-1031 NS70
DRA 1-0

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY Tyrone Quillin | CHECKED [illegible] | SECTION 1
DATE 3/11/75 | DATE 4/9/75
ENG [illegible] | PROD [illegible] | ISSUED SECT 1
DATE 4/10/75 | DATE 4/10/75

ITEM NO	DWG NO / PART NO	DESCRIPTION	861-D QUANTITY/VARIATION
45	9006556-00	NUT, HEX, #4-40	2
46	9006558-00	NUT, HEX, #6-32	4
47	9006561-00	NUT, HEX #8-32	4
48	9006564-00	NUT, HEX, #10-32	4
49	9008185-00	NUT, KEPS, #6-32	14
50	9006051-1	SCR, PHL PAN HD, #8-32 x 3.00 LG	2
51	9006020-1	SCR, PHL PAN HD, #6-32 x .25 LG	28
52	9006633-00	WASHER, INT TOOTH, #6	2
53	A-SP-3700191-0-0	PACKAGING INSTRUCTIONS 861-D	1
54	A-DC-7416582-0-1	DECAL (NOT FOR EXTERNAL LOADS)	2
REF	D-CS-861-D-1	861-D POWER CONTROL CIRCUIT SCHEMATIC	

TITLE: 861-D POWER CONTROL ASSY | ASSY NO. E-UA-861-D-0 | SHEET 3 OF 3 | SIZE A | CODE PL | NUMBER 861-D-0 | REV C | ECO NO | DIST

DEC FORM DEC 16-13251-1031 NS70
DRA 1-0

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY Tyrone Quillin | CHECKED [illegible] | SECTION 1
DATE 3/11/75 | DATE 4/9/75
ENG [illegible] | PROD [illegible] | ISSUED SECT 1
DATE 4/10/75 | DATE 4/10/75

ITEM NO	DWG NO / PART NO	DESCRIPTION	861-D QUANTITY/VARIATION
23	D-1A-7010967-0-0	HARNESS #2, POWER CONTROL	1
24	D-1A-7010969-0-0	HARNESS #4, POWER CONTROL	1
25	D-1A-7010971-0-0	HARNESS #5, POWER CONTROL	1
26	D-1A-7010968-0-0	HARNESS #3, POWER CONTROL	1
27			
28	D-1A-7 [illegible]	JUMPER, WIRE (GRN, #10 AWG)	1
29	D-1A-7 [illegible]	JUMPER, WIRE (WHT, #10AWG)	1
30	D-1A-7010972-1-0	JUMPER, WIRE (WHT, #14AWG)	2
31	D-1A-7010972-3-0	JUMPER, WIRE (GRN, #14AWG)	1
32	D-1A-7010972-4-0	JUMPER, WIRE (BLK, #14AWG)	2
33	9006510-01	SCR, PH, PAN HD, #4-40 x .31 LG	2
34	9006035-01	SCR, PHL PAN HD, #6-32 x .31 LG	5
35	9006037-01	SCR, PHL PAN HD, #8-32 x .38 LG	12
36	9006558-00	WASHER, FLAT, #4	2
37	9006553-00	WASHER, FLAT, #6	4
38	9006560-00	WASHER, FLAT, #8	10
39	9006564-01	WASHER, FLAT, #10	2
40	9006559-00	WASHER, SPLIT LOCK, #4	2
41	9007541-00	WASHER, SPLIT LOCK, #6	32
42	9006560-00	WASHER, SPLIT LOCK #8	10
43	9007562-00	WASHER, SPLIT LOCK #10	2
44	9007651-00	WASHER, EXT TOOTH LOCK, #6	7

TITLE: 861-D POWER CONTROL ASSY | ASSY NO. E-UA-861-D-0 | SHEET 2 OF 3 | SIZE A | CODE PL | NUMBER 861-D-0 | REV C | ECO NO | DIST

DEC FORM DEC 16-13251-1031 NS70
DRA 1-0

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DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PACKAGING INSTRUCTION	REV:	DATE:
TITLE 861-D-E POWER CONTROL		

MATERIAL REQUIREMENTS

Quantity	Purchase Specification No.	Description
1	9905726	Full-Overlap Carton
1	9905727	Laminated Buildup
5 ft.	9905729	Glasflex Tape

PACKAGING INSTRUCTIONS

Step	Procedure
1	Set up and tape Full-Overlap Carton (9905726) using one strip of Glasflex tape.
2	Place 861 Power Control into Laminated Buildup (9905727) as shown in Figure 1. Make sure that the slots in the Laminated Buildup align with the power control chassis.
3	Pick up Laminated Buildup from both sides and slide it into the Full-Overlap Carton (front end first).
4	Coil the cable on the rear of the power control so that it will fit into the carton.
5.	Close and seal carton with Glasflex tape.

ENG	APPD	SIZE	CODE	NUMBER	REV
[illegible] 5/14/75	[illegible] 5/14/75	A	[illegible]	[illegible]	

DEC 8-(55)-1051-1-R671
DRA - 109

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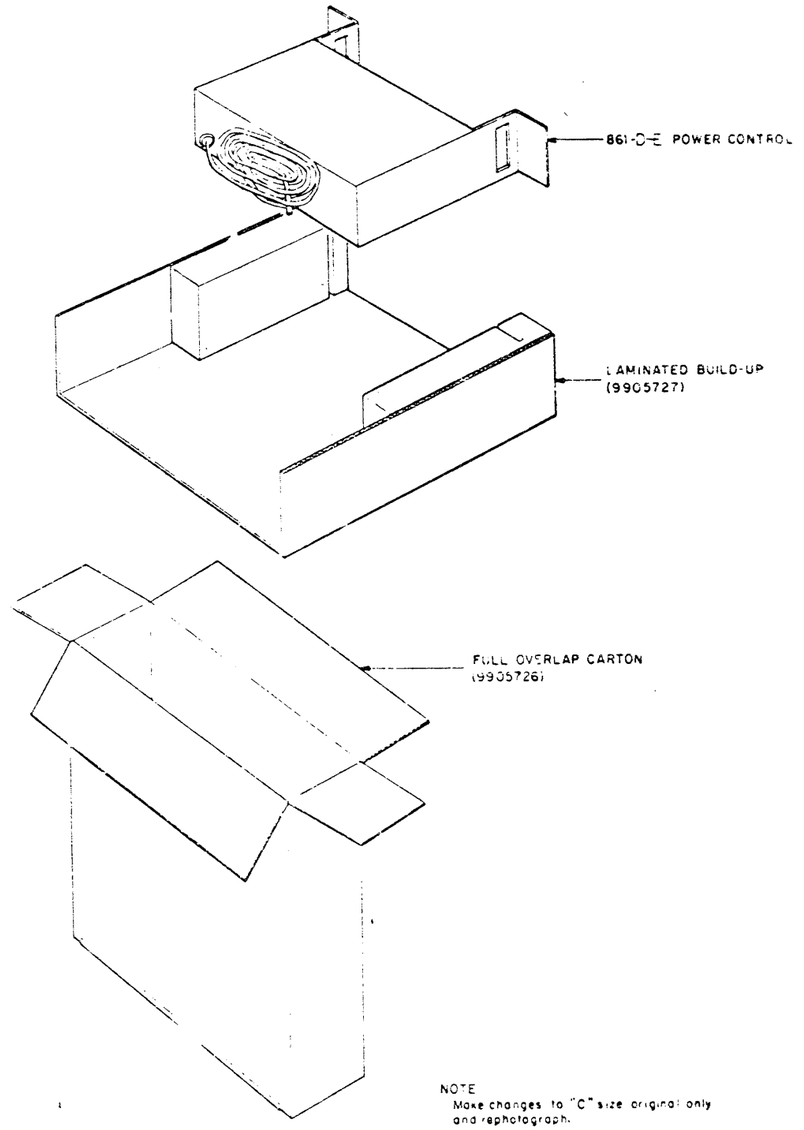
PACKAGING INSTRUCTION	REV:	DATE:
TITLE 861-D-E POWER CONTROL PACKAGING INSTRUCTION		



NOTE
Make changes to "C" size original only and rephotograph.

ENG.	APPD.	SIZE	CODE	NUMBER	REV
[illegible]	[illegible] 5/14/75	A	SP	3700191-0-0	

DRC-1-CM

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

SEQUENCE		SEQUENCE
861-E DRAWING DIRECTORY	B-DD-861-E	
861-E POWER CONTROL ASSY	E-UA-861-E-Ø	
861-E POWER CONTROL P.L.	A-PL-861-E-Ø	
PILOT CONTROL	E-CS-5411522-0-1	
861-E CIRCUIT SCHEMATIC	D-CS-861-E-1	
PACKAGING INSTRUCTIONS	A-SP-3700191-Ø-Ø	

UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
861-E	861-E POWER CONTROL	X

REVISIONS	DATE	CHG. NO	REV
	1-76	861-E-00000	A
	3-77	861-E-00002	B

USED ON OPTION/MODEL		DRN.	DATE
		W. McCarthy	4/24/75
		CHK'D. McCarthy	DATE 4/30/75
		PROJ ENG.	DATE 5/6/75
		PROD.	DATE 5/6/75
		FIELD SERV.	DATE 5/6/75
SHEET 1 OF 3			

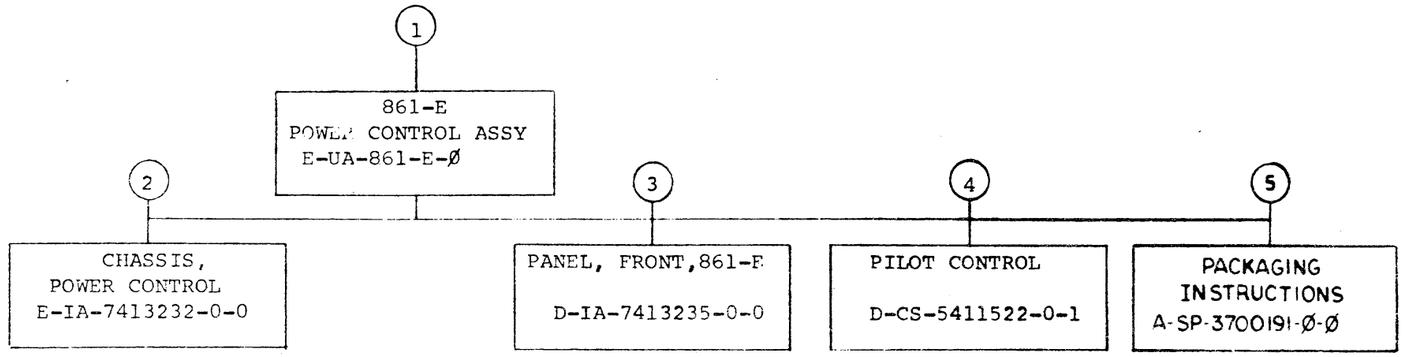
TITLE: 861-E POWER CONTROL

SIZE	CODE	NUMBER	REV
B	DD	861-E	B

DIST

DEC 16 1225 1062-1A-8972

DRB 106



TITLE		SIZE	CODE	NUMBER	REV
861-E POWER CONTROL	SHEET 2 OF 3	B	DD	861-E	B

DRB 107
DEC 16—(325)—1062—3—N871

MECHANICAL

CUSTOMER PRINT SET 1	MFG SET	FIND NO	DRAWING NO	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	E-UA-861-E-Ø	※	2	861-E POWER CONTROL ASSY	
X			A-PL-861-E-Ø	※	3	861-E POWER CONTROL ASSY P.L.	
			C-MD-7413234-0-0		1	COVER, POWER CONTROL	
			D-MD-7413419-0-0		1	BRACKET, STRAIN RELIEF	
			C-IA-701 052-0-0		1	MOV ASSY	
			C-IA-7011053-0-0		1	PILOT LAMP ASSY	
			D-IA-7010938-0-0		1	HARNESS #2 , POWER CONTROL	
			D-IA-7010936-0-0		1	HARNESS #4, POWER CONTROL	
			D-IA-7010971-0-0		1	HARNESS #7, POWER CONTROL	
			C-IA-7010968-0-0		1	HARNESS #8, POWER CONTROL	
			D-IA-7010972-0-0		1	JUMPER, WIRE	
			A-DC-7416582-Ø-1		1	DECAL (NOT FOR EXTERNANAL LOADS)	
		2	E-IA-7413232-0-0		2	CHASSIS, POWER CONTROL	
			B-SS-7413232-0-1		1	SILK SCREEN, CHASSIS	
		3	B-SS-7413235-0-1		1	SILK SCREEN, FRONT PANEL, 861-E	
			D-IA-7413235-0-0		2	PANEL, FRONT, 861-E	
		4	D-CS-5411522-0-1			PILOT CONTROL	
			K-CO-5411522-0-4			DRILL TAPE	
			D-AH-5411522-0-5			ASSY DRILLING HOLE LAYOUT	
			B-MI-5411522-0-6		1	MODULE ECO HISTORY	
		5	A-SP-3700191-0-0	-	2	PACKAGING INSTRUCTIONS, 861-E	
			A-PS-9905726-0-0	-	2	FULL OVERLAP CARTON	
			A-PS-9905727-0-0	-	2	LAMINATED BUILDUP	
			A-PS-9905729-0-0	-		GLASFLEX TAPE	

ELECTRICAL

CUSTOMER PRINT SET 1	MFG SET	FIND NO	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	B-DD-861-E	※	3	861-E POWER CONTROL	
X			D-CS-861-E-1	※	1	861-E POWER CONTROL SCHEMATIC	
			A-SP-861-E-2		4	TEST PROCEDURE 861-E	
X		4	D-CS-5411522-0-1	※	1	PILOT CONTROL	
			A-SP-5411522-0-7			TEST PROCEDURE	

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
861-E POWER CONTROL	3 OF 3	B	DD	861-E	B

DPB 108

DEC 16 (325)-1062-28-R972

NOTES:
1. LOCATE DECALS (ITEM #9 & 6) APPROX AS SHOWN.
2. PLACE DECAL ITEM 48 AFTER AC OUTLETS ITEM 7 ARE ASSEMBLED

SECTION A-A
SCALE: 1/1
5 PLACES

DETAIL A
SCALE: 2/1

VIEW B-B
SCALE: 1/2

FOR PARTS LIST SEE:
A-PL-861-E Ø

DRN		FIRST USED ON	861-E
CHK'D		TITLE	861-E POWER CONTROL ASSY
ENG			
PROJ ENG			
PROD			
NEXT HIGHER ASSY		SIZE	E
MATERIAL	SEE PARTS LIST	CODE	UA
FINISH		SCALE	1/1
		SHEET	1 OF 2
		NUMBER	861-E-1
		REV	B

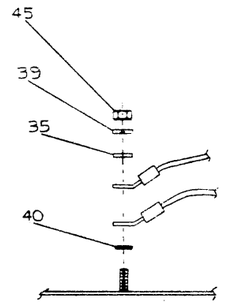
CONNECTION CHART

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
	BLU	10	HARNESS 2-1		K1-T3		
	RED	↑	↑ -2		K1-T2		
	BLK		-3		K1-T1		
18	BLK		-4		CB1-D-LOAD		
	RED	↓	-5		CB1-C-LOAD		
	BLU	10	HARNESS 2-6		CB1-B-LOAD		
	GRN	18	HARNESS 4-1		PLT CONT-J7		
	WHT	10	-2		CB1-A-LINE		
	BLU	↓	-3		CB1-B-LINE		
	RED		-4		CB1-C-LINE		
	BLK		-5		CB1-D-LINE		
	GRN		-6		GND 1		
19	BLK		-7		FLTR-PH1		
	WHT		-8		FLTR-NEUT		
	BLU		-9		FLTR-PH3		
	RED		-10		FLTR-PH2		
	GRN	10	-11		FLTR-GND		
	GRN	18	HARNESS 4-12		GND 1		
	BLU	14	HARNESS 7-1		J3-B		
	WHT	↓	↓ -2		J3-S		
	BLU		-3		J4-B		
	WHT		-4		J4-S		
	RED		-5		J5-B		
	BLU		-6		K1-L3		
	BLU		-7				
	BLU		-8				
	WHT		-9		J5-S		
	RED		-10		J6-B		
	WHT		-11		J6-S		
	WHT		-12		J7-S		
	BLK		-13		J7-B		
	RED		-14		K1-L2		
	RED		-15				
	RED		-16				
	BLK		-17		K1-L1		
	BLK		-18				
	BLK		-19		C1-2		
20	WHT		-20		C2-3		
	WHT		-21/22		CB1-A-LOAD		
	WHT		-23/24				
	WHT		-25/26				
	WHT		-27/28				
	BLU		-29		CB1-B-LOAD		
	RED		-30		CB1-C-LOAD		
	BLK		-31		CB1-D-LOAD		
	BLK		-32		J1-B		
	WHT		-33		J1-S		
	WHT		-34		CB1-A-LOAD		
	—		-J1		PLT CONT-J5		
	—		-J2		PLT CONT-J6		
	RED		-39		K1-A		
	RED		-40		K1-B		
	RED	↑	↓ -41		C2-1		
	BLU	14	HARNESS 7-42		C1-1		
9	BLK	22	I1-BLK		CB1-A-LINE		
	RED	22	I1-RED		CB1-D-LINE		
9	BLK	22	I2-BLK		CB1-A-LINE		
	RED	22	I2-RED		CB1-C-LINE		
3	BLK	22	I3-BLK		CB1-A-LINE		
	RED	22	I3-RED		CB1-B-LINE		

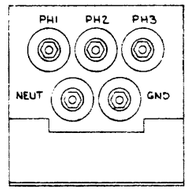
CONNECTION CHART

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
	—	—	HARNESS 8-P1		PLT CONT-J4		
21	WHT	14	HARNESS 8-3		TS-1		
	WHT	14	HARNESS 8-4		TS-2		
22	GRN	10	GND 1		GND 2		
23	WHT	14	C1-3		C2-3		
24	WHT	14	J1-S		J2-S		
25	BLK	14	J1-B		J2-B		
8	—	—	K1-A	41	K1-B	41	

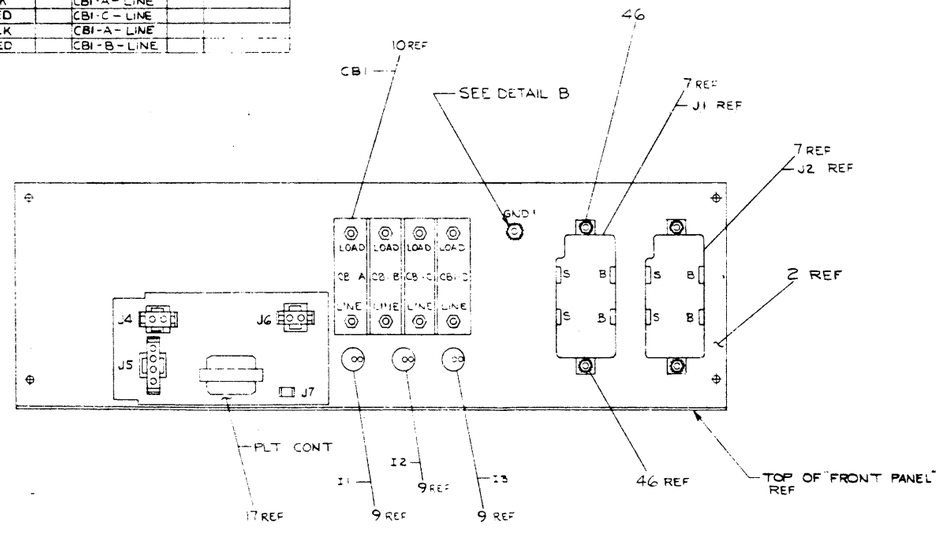
NOTES FOR WIRING:
1. FOR HARNESS POINT NUMBERS, REFER TO HARNESS DWG.



DETAIL B
TYPICAL FOR "GND 1" & "GND 2"



FILTER
(ITEM 12)
LOAD SIDE



VIEW A-A

TITLE	861-E POWER CONTROL ASSY
SIZE	B
CODE	UA
NUMBER	861-E-4
REV	G
SHEET	2 OF 2

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AUTOMATIC WIRE TESTER (AWT) REVISION STATUS

DRAWING NUMBER	INIT REL	T7	A	B	C	D	E	F	H	J	K	L	M
E-AD-7010829-0-0	*	*	*	*	*	*	*	*	*	*	*	*	*
E-AD-7010828-0-0	*	*	*	*	*	*	*	*	*	*	*	*	*
K-WL-7010329-0-1	*	A	B	B	C	C	C	D	E	F	H	J	
A-WL-7010329-0-2	*	*	*	A	A	B	B	B	B	B	C	C	
E-AD-7010329-0-0	*	*	*	*	*	A	B	B	B	B	C	C	
D-CS-5411337-0-1	C	C	C	C	C	C	C	C	C	C	C	C	
D-CS-5411339-0-1	B	B	B	B	B	B	B	B	B	B	B	B	

REVISIONS

REV	CHANGE NO	CHK
A	KB11E-00001	
B	KB11B-00002	
C	7010329-0002A	
D	KB11B-00003	
E	7010329-0003	
F	7010329-0004	
H	7010329-0005	
J	7010329-00006	
K		
L	KB11B-00005	
M	7010329-0	

DRN D. HEALY	DATE 1/20/7	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D J. HEALY	DATE 1/20/7	TITLE: PROC BACK PLANE 7010329
ENG	DATE	AWT REVISION STATUS
PROJ ENG	DATE	
PROD	DATE	
FIRST USED ON KB11-B		SIZE A / CODE WT / NUMBER 7010329-0 / REV J.1
SCALE		DIST
SHEET 1 OF 1		

REV A1 — NUMBER 7010329-0 — SIZE A / CODE WT

DRA 123

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CUSTOMER PRINT SET INDEX

THIS IS PRINT SET [ ]

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H742Ø-Ø		
WIRING DIAGRAM	D-CS-H742Ø-Ø-Ø		
POWER LINE MONITOR	D-CS-541198-0-1		
H742Ø POWER SUPPLY	E-UA-H742Ø-Ø-Ø		
H742Ø POWER SUPPLY (P.L.)	A-PL-H742Ø-Ø-Ø		

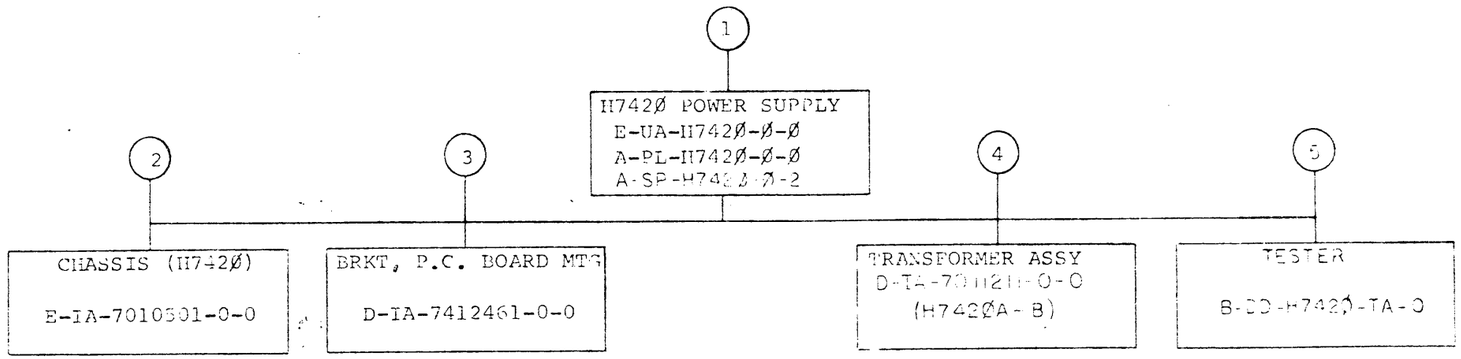
UNIT VARIATIONS

VAR	TITLE	PRINT SET 1
H742ØA	H742Ø POWER SUPPLY (120V)	
H742ØB	H742Ø POWER SUPPLY (240V)	

REVISIONS		
DATE	CHG NO	REV
6-75	H7420-1	A
7-75	H7420-2	B
2-76	H7420-3	C
4-76	H7420-4	D
9-76	H7420-5	E

USED ON OPTION/MODEL		DRN.	DATE	TITLE
		CHK'D.	DATE 2/5/75	H742Ø POWER SUPPLY
		PROJ ENG.	DATE	
		PROD.	DATE	SIZE B / CODE DD / NUMBER H742Ø-Ø / REV E
		FIELD SERV.	DATE	DIST
SHEET	OF			

DRB 106



TITLE		SIZE	CODE	NUMBER	REV
H742Ø POWER SUPPLY	SHEET 2 OF 2	B	DD	H742Ø-Ø	E

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

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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-H7420-0	E	3	DRAWING DIRECTORY	
X			D-CS-H7420-0-1	A	2	WIRING DIAGRAM	
X			D-CS-5411086-0-1	=	4	POWER LINE MONITOR	
			A-SP-H7420-0-2	=	16	ENGINEERING SPEC.	
		5	B-DD-H7420-TP		1	TESTER DRAWING DIRECTORY	
			B-CS-H7420-TA-1	A	1	TESTER WIRING DIAGRAM	
			A-UA-H7420-TA-0		1	H7420 TESTER	
			A-PL-H7420-TA-0		2	TESTER PARTS LIST	
			A-SP-H7420-0-3		2	TEST PROCEDURE	

MECHANICAL

CUSTOMER PRINT SET 1	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO / FILE DATE
X		1	E-UA-H7420-0-0	E	4	H7420 POWER SUPPLY	
X			A-PL-H7420-0-0	E	2	H7420 POWER SUPPLY	
			D-MD-7412459-0-0	A	1	COVER, CONTROL BOX	
			C-IA-7010730-0-0		1	POWER INDICATOR ASSY	
			D-IA-7010729-0-0	A	1	CABLE, REGULATOR BOARD	
			D-IA-7010728-0-0		1	CABLE, FAN POWER	
			C-IA-7010727-0-0	C	1	POWER CORD, ASSEMBLY	
			A-DC-7413184-0-0		1	POWER SUPPLY DECAL (H7420)	
			A-DC-7413966-0-0		1	POWER SUPPLY DECAL (H7420A)	
			A-DC-7413967-0-0		1	POWER SUPPLY DECAL (H7420B)	
		2	E-IA-7010501-0-0		1	CHASSIS (H7420)	
			E-IA-7412948-0-0		2	PLATE, BASE	
			E-IA-7412949-0-0		2	HOUSING, REGULATOR	
		3	D-IA-7412461-0-0		1	BRKT, P.C. BOARD MTG.	
			D-SS-7412461-0-1		1	BRKT, P.C. BOARD MTG. (SS)	
		4	D-IA-7011211-0-0	A	2	TRANSFORMER ASSY (H7420A&B)	
			C-IA-7010813-0-0		1	CAP/VAR ASSEMBLY	

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	H7420 POWER SUPPLY	3 OF 3	B	DD	H7420-0	E

DRB 108

DEC 16 (325)-1062 2B-R972

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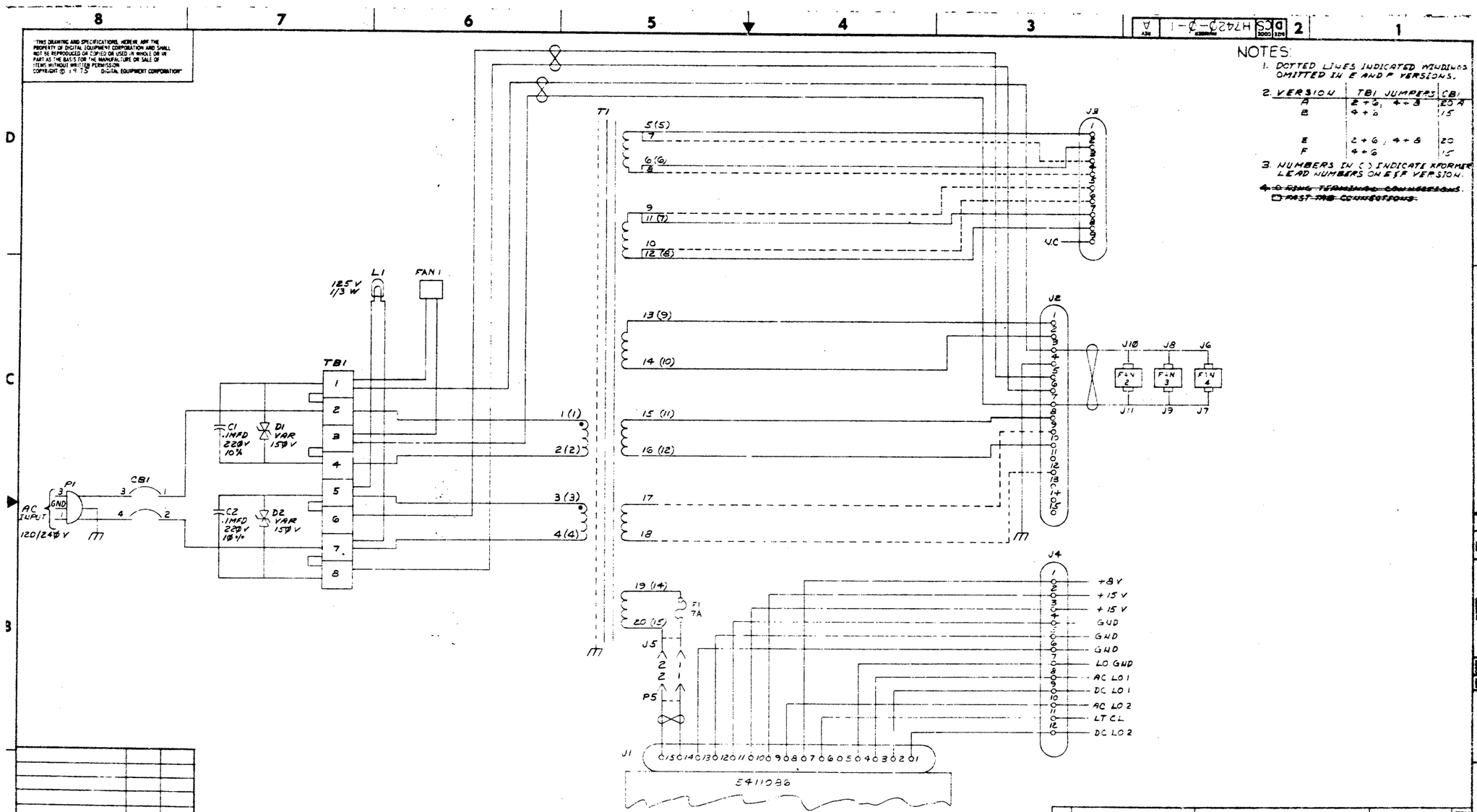
NOTES:
1. DOTTED LINES INDICATED WINDINGS OMITTED IN E AND F VERSIONS.
2.

VERSION	TB1 JUMPERS	CB1
A	2→6, 4→8	20 A
B	4→6	15
E	2→6, 4→6	20
F	4→6	15

3. NUMBERS IN ( ) INDICATE XFORMER LEAD NUMBERS ON E&F VERSION.
~~4-0 RING TERMINAL CONNECTIONS.~~
~~☐ FAST-ON CONNECTIONS.~~



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
A	1174	G. Peters 6-20-75

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION MODEL: H7120

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO

PARTS LIST

DRN.	T. Burns	DATE 1-17-75
CHK'D		DATE 1-22-75
ENG.		DATE 2/ /75
PROJ. ENG.		DATE 2/3/75
PROD.		DATE 2-3-75
NEXT HIGHER ASSY		
SCALE		
SHEET	OF	

digital

TITLE: WIRING DIAGRAM

SIZE	CODE	NUMBER	REV.
D	CS	H7420-0-1	A

DIST.

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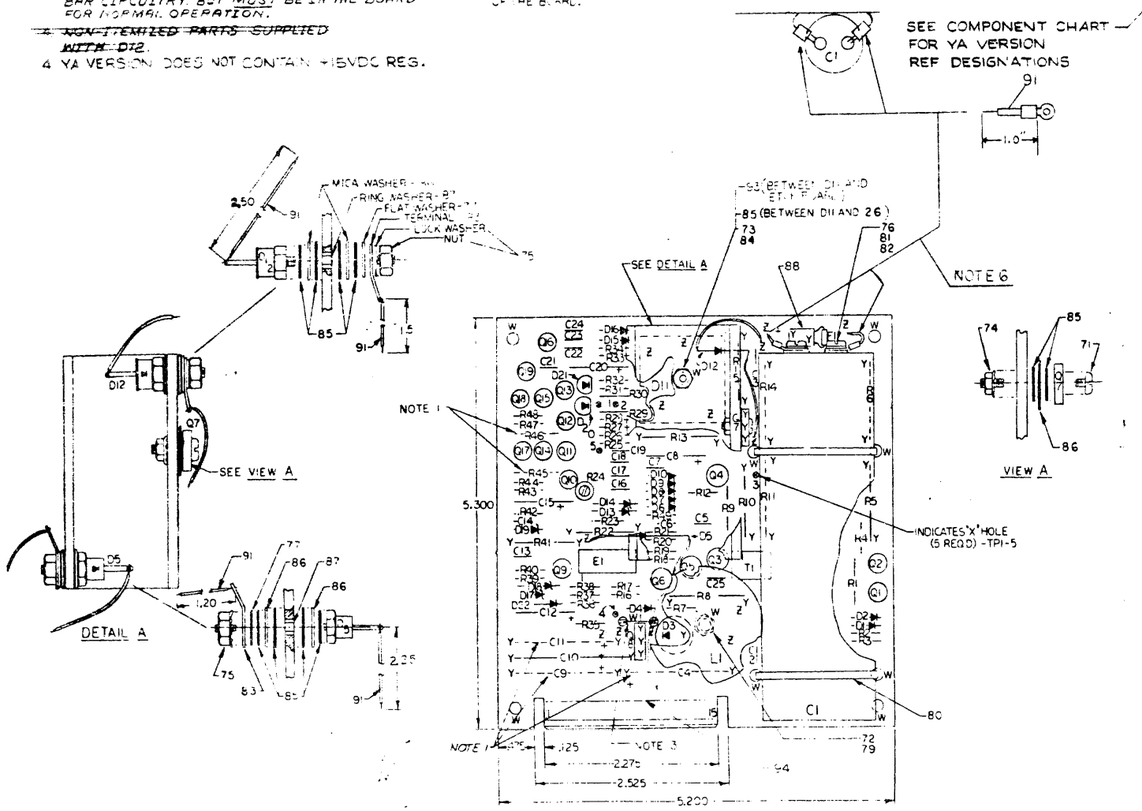
NOTES:

1. R45,R46,C4,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 4.2 AMPERES.
3. W1 (TEST JUMPER) MAYBE TEMPORARILY REMOVED WHILE TROUBLE-SHOOTING TO DETERMINE IF LOSS OF +5V IS DUE TO CROWBAR 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.



REF	REF				
REF	REF		X Y COORD MATE HOLE LOCATION	KICD-5411086 B-4	1
REF	REF		ASSY/DRILLING HOLE LAYOUT	D-AH-5411086 B-6	2
REF	REF		MODULE ECO HISTORY	B-MH-5411086 B-6	3
1			CUSTOMER CIRCUIT BOARD	5011035	4
0	1	C2	CAPACITOR 56PF 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%	1001613 01	7
1	3	C6 C12 C15	CAPACITOR 2.2uf 35V 10%	1002431	8
2	2	C8 C25	CAPACITOR 18PF 100V 5%	1002609	9
1	1	C20	CAPACITOR 1.5uf 35V 10%	1059125	10
4	4	C5 C7 C14 C24	CAPACITOR .22uf 50V +20% -80%	1010214 01	11
0	1	C10	CAPACITOR 500pf 25V +10% -75%	10.0509 01	12
1	1	C1	CAPACITOR 8400uf 50V -10% +75%	1010851	13
1	2	D2 D19	DIODE 1N748A	1100122	14
0	1	D5	DIODE IN2978B	1100134	15
0	1	D3	DIODE WR1036	1103341	16
7	8	D1 D6 D7 D8 D9 D15 D16 D22	DIODE D872	1105275	17
1	2	D18,D17	DIODE 1N4744	1105648	18
0	1	D4	DIODE 1N4884	1105798	19
0	1	D12	DIODE 1N3888	1109440	20
0	1	D10	DIODE 1N987A	1110088	21
2	2	D20,D21	DIODE MV5E84 1 (LIGHT EMITTING)	1110324	22
1	1	D11	DIODE BRIDGE 200V 20A	1110714	23
2	2	D13,D14	DIODE 1TZ429	1110929	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,R48	RESISTOR 100 1 4W 5%	1300229	28
0	1	R41	RESISTOR 100 1% 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,R20	RESISTOR 1K 1/4W 5%	1300385	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 1% 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 75Ω 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
0	1	R8	RESISTOR 470 2W 5%	1303082	49
0	2	R17,R28	RESISTOR 1K 1 4W 1%	1303114	50
0	1	R31	RESISTOR 2.61K 1 4W 1%	1303303	51
0	1	R42	RESISTOR 10K 1 4W 1%	1303312	52
0	2	R33,R34	RESISTOR 5.11K 1 4W 1%	1304854	53
0	1	R30	RESISTOR 9.09K 1 4W 1%	1304855	54
YA	QTY	REF. DESIGNATION	DESCRIPTION	PART NO	ITEM NO

PARTS LIST

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	DEC NO.	EIA NO.	DEC NO.	EIA NO.
J	5411086-0001					
H	5411086-0002					
G	5411086-0003					

REVISIONS

FIRST USED ON OPTION MODEL

ETCH BOARD REV. J

SEMICONDUCTOR CONVERSION CHART

DRN. [illegible] DATE 10-7-76
CHK'D DATE
ENG. Neal Boone DATE 10/8/76
PROJ. ENG. Neal Boone DATE 10/8/76
PROD. K Peterson DATE 10/12/76
NEXT HIGHER ASSY

digital

TITLE PWR. LINE MONITOR/15V REG.

SIZE D | CODE CS | NUMBER 5411086-0-1 | REV. J

SCALE
SHEET OF 4
DIST

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NOTES:

1	1	R29	RESISTOR 3.48K 1 4W 1%	1305114	55
1	1	R26	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	1309150-10	59
1	1	R32	RESISTOR 18.2K 1 4W 1%	1309412	60
0	2	R5 R6	RESISTOR .2 5W 5% WW	1309884	61
0	1	Q7	TRANSISTOR MJE3055	1510555	62
4	6	Q2 Q3 Q5 Q6 Q16 Q19	TRANSISTOR MPSA05	1510705	63
0	2	Q4 Q9	TRANSISTOR MPS A55	1510706	64
0	1	Q8	TRANSISTOR 2N 4441	1505687	65
4	5	Q1 Q11 Q12 Q13 Q18	TRANSISTOR 2N 4250	1509142	66
4	4	Q14 Q15 Q17 Q18	TRANSISTOR 2N 5433	1511886	67
0	1	L1	INDUCTOR 500 uh	1811868	68
1	1	T1	TRANSFORMER	1812026	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 #8-32 X 1 4 LG.	9006030-1	72
0	1		SCREW PHM #8-32 X 7/8 LG	900602 -1	73
0	1		KEP NUT #4-40	9006597	74
0	2		KEP NUT #10-32	9006586	75
2	2		WASHER, ITTLKWR #10	9006635	76
0	2		WASHER FLAT	9006668	77
0	2	(W1)	SPLIT LUG	9006691	78
0	1		SPACER, 1/4AF X 1/2	9006844	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	5		WASHER, MICA	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	12		WIRE #18 STRANDED BLK	9107980-0-0	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-5411086-0-3	95

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

YA	QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV D

REV	CHANGE NO	REVISIONS
CHK		

DEC NO | EIA NO | DEC NO | EIA NO

SEMICONDUCTOR CONVERSION CHART

DRN C. [illegible] DATE 10-14
CHK D. [illegible] DATE 10-14
ENG Paul Boom DATE 10/11/74
PROJ Paul Boom DATE 10/11/74
PROD K.K. Hom DATE 10/11/74
NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION

TITLE PWR. LINE MONITOR/15V REG.

SIZE D | CODE DCS | NUMBER 5411086-0-1 | REV. J

SCALE —

SHEET 2 OF 4

DIST

DCS 5411086-0-1 J

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+25 TO +45 VDC

R8 +7Ø 2W

R13 1K 2W

TP3

C25 18 pf

P21 3ØK

Q3 MPS AØ5

RPØ 1K

R18 1K

Q5 MPS AØ5

R19 3ØK

C6 18 pf

T1

C5 .22 µf 5ØV

C8 2.2 µf 35V

D22 D672

D8 D672 D9 D672 D6 D672 D7 D672

C7 .22 µf 5ØV

D1Ø 1N4744 15V

R48 75Ø

Q19 MPS AØ5

-1Ø V TO -15V (TEST POINT)

(ENG OPTION SEE NOTE 1) R46 1/2 W

Q15 2N5433

Q18 2N5433

R47 1ØK

R49 22Ø

R43 1ØK

3 AC LO 1

8 AC LO 2

4 LO GND

D15 D672 AC-2

D16 D672 AC-1

20V TO 33V RMS AC INPUT

R34 5.11K 1%

R33 5.11K 1%

C24 .22 µf 5ØV

C2Ø 1.5 µf 35V

R32 18.2K 1%

TP1

Q14 2N4250 Q13 2N4250 Q12 2N4250 Q11 2N4250

R29 3.48K 1%

R26 5.62K 1%

TP5

R27 4.99K 1%

C21 33Ø pf C18 33Ø pf C17 33Ø pf C16 33Ø pf

TP2

R31 2.61K 1%

R3Ø 9.09K 1%

ACOK

D21 MV5Ø54-1

D2Ø MV5Ø54-1

R25 3.16K 1%

DCOK

D14 ITT2429 5.1V

D13 ITT2429 5.1V

C22 .Ø1 µf 1ØØV

C23 .Ø1 µf 12ØV

R28 1K 1%

C19 .Ø1 µf 1ØØV

RETURN

Q17 2N5433

Q16 2N5433

Q13 MPS AØ5

R44 75Ø

1 DC LO 2

2 DC LO 1

R45 1/2 W (SEE NOTE 1 ENG. OPTION)

+25 TO +45VDC

TO 20V TO 33V RMS AC INPUT

AC-1 15

AC-2 14

D17

R15 3.3K 1W

D19 3.9V 1N746A

R22 39Ø 2W

C14 .22 µF 5ØV

6 LINE CLK L

POWER FAIL CIRCUIT

REVISIONS

CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
PWR. LINE MONITOR/15V REG.	D	CS	5411086-0-1	44

SCALE — SHEET 3 OF 4 DIST.

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+25 TO +45 VDC

F1

25 - 45 VDC

C3 .01uf

R14 220 2W, 10%

D12 IN3880

L1 500uH

Q7 MJE 3055

Q4 MPS A55

R9 27 1/2W

R12 220

R10 2.2K 1W, 10%

R11 680 2W

TP4

+15V

R35 24.9K 1%

4.28V

D4 IN4004

D3 MR1033B

D5 IN2970B 6.8V

R91 100 1W

9 10 +15VDC ± 5% @ 9A MAX (SEE NOTE 2)

7 +8VDC ± 10% @ 1A MAX (SEE NOTE 2)

W1 (SEE NOTE 3)

C12 2.2uf 35V

D17 IN4794 15V ± 10%

1/2 723C E1

REF

R36 511 1%

R24 200 4.28V

R17 1K 1%

R39 909 1%

C15 2.2uf 35V

R16 22K 1%

1/2 723C E1

COMP

R23 47

Q6 MPS A05

R7 100

D1 D672

C2 50pf

R2 750

D2 IN748A 3.9V

R3 3.3K

Q1 2N4250

R1 1.5K 1/2W

R42 10K 1%

Q2 MPS A05

R4 220

R6 .2 5W

R5 .2 5W

RETURN

R38 680

R37 10

Q9 MPS A55

Q8 2N4441

C13 .01uf

R40 100

D18 IN967A 18V

C10 500uf 25V

C4 50uf 50V

C9 50uf 50V

C11 50uf 50V

SEE NOTE #1

11 GND
12 GND
13 GND

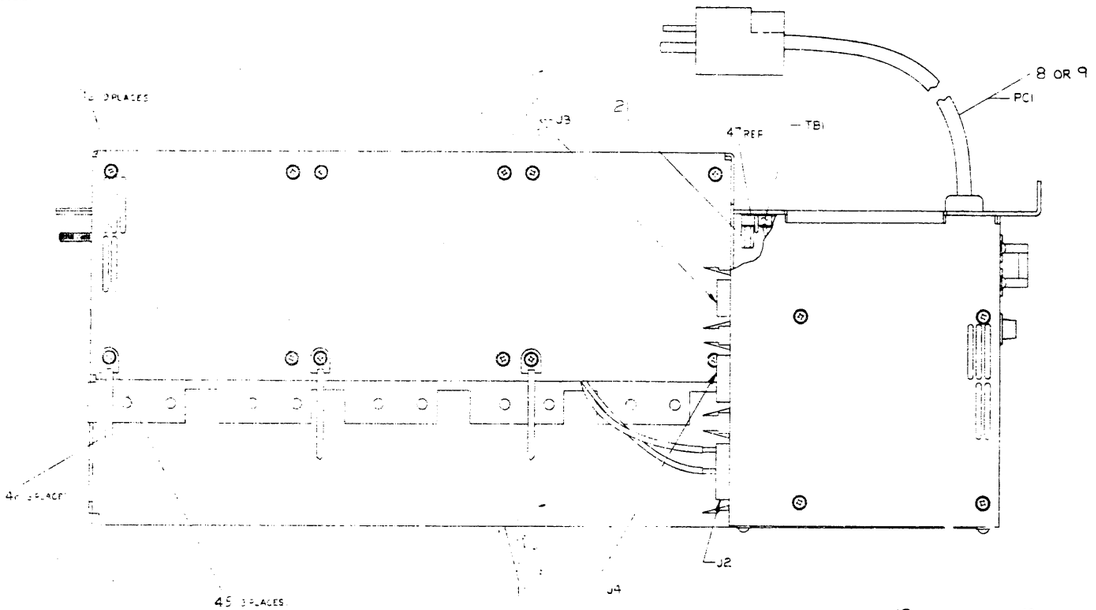
15V REGULATOR
(SEE NOTE #4)

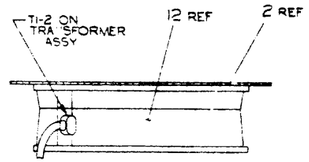
REVISIONS
CHK | CHANGE NO. | REV.

TITLE PWR. LINE MONITOR/15V REG.
SCALE —
SHEET 4 OF 4
SIZE/CODE D CS
NUMBER 5411086-0-1
REV. D
DIST.

DCS 5411086-0-1 REV J

DO NOT SCALE DRAWING

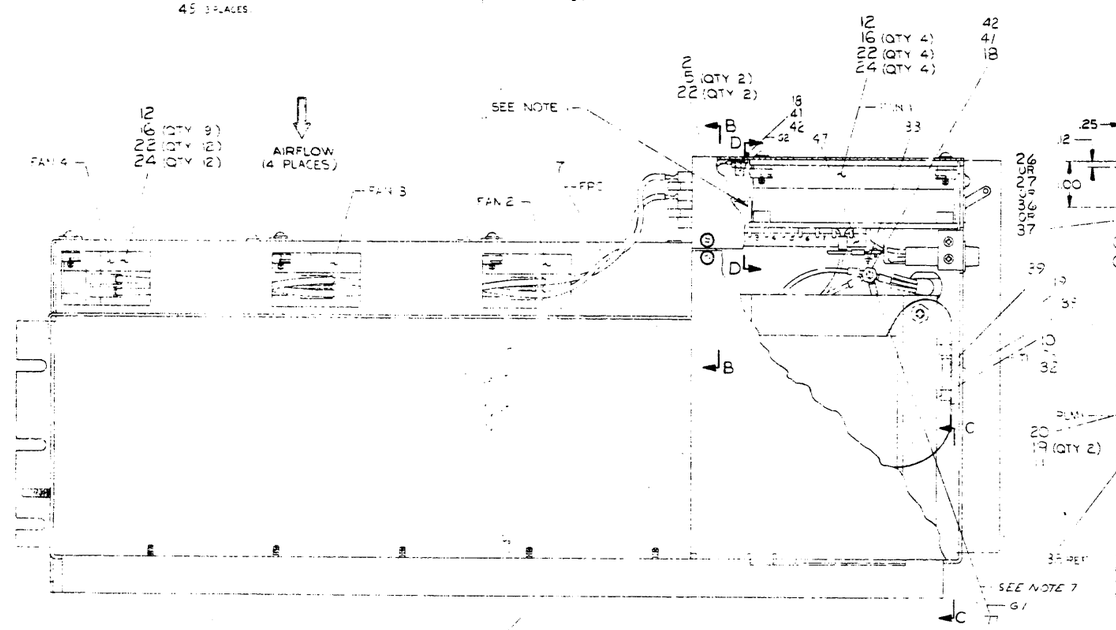


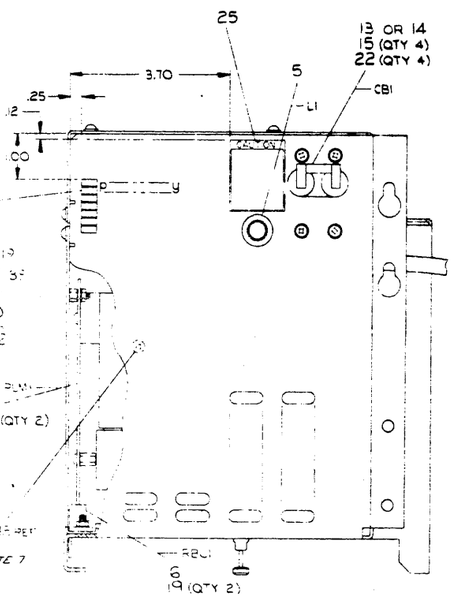


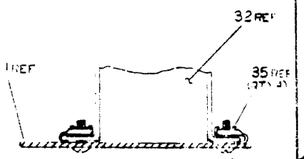
SECTION D-D
SCALE: NONE

NOTES:

1. AFTER TERMINAL BLOCK (PART OF TRANSFORMER ASSEMBLY) IS MOUNTED TO CHASSIS, CAPACITOR AND VARISTOR SHOULD BE BENT FORWARD TO ALLOW CLEARANCE FOR COVER.
2. ~~REV D AND EARLIER TRANSFORMERS DO NOT HAVE THIS WIRE. H7420 E+F ONLY.~~
3. FILLER PANELS (D-IA-74-3405-0-0) MAY BE USED IN UNFILLED REGULATOR SLOTS (REF).
4. CABLE TIE MOUNTS TO BE MOUNTED AFTER TRANSFORMER ASSEMBLY IS INSTALLED.
5. H7420 A+B ONLY
6. H7420 E+F ONLY
7. REMOVE PAINT MASK, APPLY CONDUCTIVE GREASE ITEM 4c PLACE ITEM 41 8-32 EXT TOOTH WASHER NEXT TO CHASSIS BEFORE INSTALLING REMAINING HARDWARE DO THIS AT G1 AND G2.







SECTION C-C
SCALE: NONE

FOR PARTS LIST REFER TO A.P. H7420 3 3

QTY.	DESCRIPTION	PART NO	REV NO
	PARTS LIST		

FIRST USED ON OPTION/MODEL	H7420	
DIMENSIONAL TOLERANCE	DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED	MACHINES ±.005 ±.01 ±.030 ANGLES ±1° 30'
THIRD ANGLE PROJECTION	REMOVE BURRS AND BREAK EDGES SURFACE QUALITY	
MATERIAL	SEE PARTS LIST	
FINISH		

DRAWN	L. K.	DATE 11/15/74
CHKD		DATE
ENG	Gene Gonsalves	DATE 2/21/75
PROJ ENGR		DATE
PROD		DATE
NEXT HIGHER ASSY		
SCALE	1/1	
SHEET	1 OF 1	

DIGITAL

TITLE: H7420 POWER SUPPLY

SIZE	CODE	NUMBER	REV
E	UA	H7420 0-0	E

H7420-0-0-0

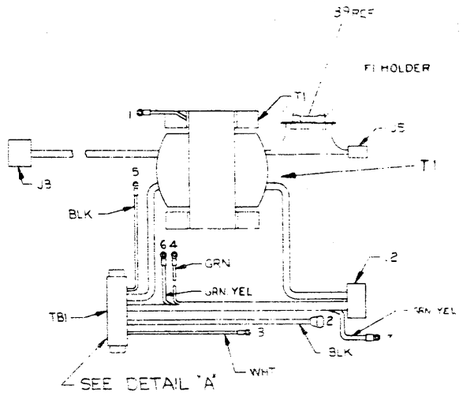
DO NOT SCALE DRAWING

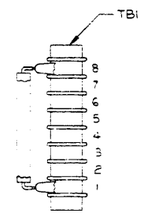
WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	REMARKS
0	⟶	⟶	T1-J5	RBC1-P5	
1	14	GRN	T1-	G1	SEE NOTE 2,7
	⟶	BLK	T1-2	FAN1-1 & 2	
	14	WHT	T1-3	CB1-P	
4	14	GRN	T1-4	G1	SEE NOTE 7
5	14	BLK	T1-5	CB1-2	
6	22	BLK	L1-1	TB1-5	
6	22	BLK	L1-2	TB1-7	
7	18	RED	FPC1-J6	FAN 4-1	
		WHT	FPC1-J7	FAN 4-2	
		RED	FPC1-J8	FAN 3-1	
		WHT	FPC1-J9	FAN 3-2	
		RED	FPC1-J10	FAN 2-1	
		WHT	FPC1-J11	FAN 2-2	
		RED	FPC1-	J2-3	
7	18	WHT	FPC1-2	J2-7	
8/9	14	BRN	PC1-1	CB1-4	
8/9	14	[illegible]	PC1-2	G1	SEE NOTE 7
8/9	14	BLU	PC1-3	CB1-3	
	⟶		PLM1-	RBC1-J1	
10	14	GRN YEL	T1-6	G1	SEE NOTE 7
10	14	GRN YEL	T1-7	G2	SEE NOTE 7

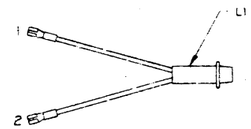
JUMPER TABLE

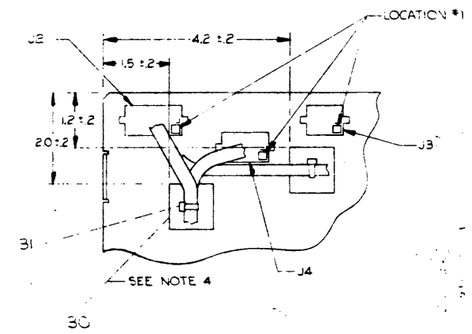
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH	PRECUT LENGTH	VARIATION
24	14	BLK	TB1-2	ITEM 28	TB1-6	ITEM 29	3.0	H7420E & A
28	14	BLK	TB1-4	ITEM 28	TB-8	ITEM 28	3.0	
29	14	BLK	TB1-4	ITEM 28	TB-6	ITEM 28	3.0	H7420F & B



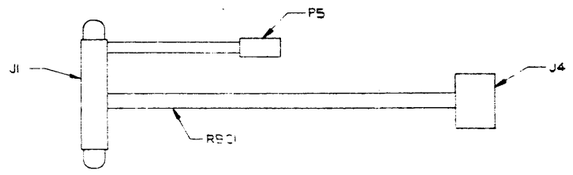


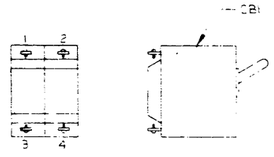
DETAIL "A"
SCALE: NONE

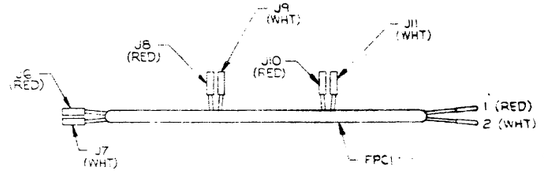




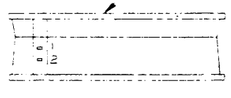
SECTION B-B
SCALE: NONE

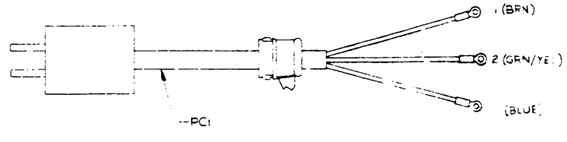






FAN 1 FAN 2, FAN 3, & FAN 4





REVISIONS		
CHG	THERMA NO.	REV

TITLE: H7420 POWER SUPPLY			SIZE: E	CAGE: UA	THERMA NO.: H7420-0 0
SCALE: NONE	SHEET 2 OF 2		PART		REV: E

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY R. THELLEN — DATE 1/17/75
CHECKED P. CAPPABIANCA — DATE 2/3/75
SECTION 1
ENG R. WOLF — DATE 2/3/75
PROD J. BORENSTEIN — DATE 2/3/75
ISSUED SECT 1

ITEM NO	DWG NO / PART NO.	DESCRIPTION	QUANTITY / VARIATION H7420A	H7420B
1	B-IA-7010501-0-0	CHASSIS H7420	1	1
2	D-MD-7413459-0-0	COVER, CONTROL BOX	1	1
3	D-IA-7412461-0-0	BKT, P.C. BOARD MTG.	1	1
~~4~~	~~C-IA-7413125-0-0~~	~~PLATE, ADAPTER (H7420)~~	~~-~~	~~-~~
5	C-IA-7211733-0-0	POWER INDICATOR ASSEMBLY	1	1
6	D-IA-7010229-0-0	CABLE, REGULATOR BOARD	1	1
7	D-IA-7010728-0-0	CABLE, FAN POWER	1	1
8	C-IA-7010727-1-0	POWER CORD ASSY (120V)	1	-
9	C-IA-7010727-2-0	POWER CORD ASSY (240V)	-	1
~~10~~	~~H-IA-7010814-0-0~~	~~TRANSPOWER ASSY~~	~~-~~	~~-~~
11	D-CS-5411186-0-1	POWER LINE MONITOR	1	1
12	1209403-01	FAN	4	4
~~13~~	~~1210191-06~~	~~CIRCUIT BREAKER (20A)~~	~~1~~	~~-~~
~~14~~	~~1210191-03~~	~~CIRCUIT BREAKER (15A)~~	~~-~~	~~1~~
15	9006420-01	SCR,PHL PAN HAD #6-32 x .25	8	8
16	9006435-01	SCR,PHL PAN HD #6-32 x .62	13	13
~~17~~	~~9006455-00~~	~~NUT,KEP #10-32~~	~~-~~	~~-~~
18	9006563-00	NUT,KEP #8-32	2	2
19	9006565-00	NUT,KEP #6-32	5	5
20	9006840-00	SPACER, #6-32 x .19	2	2
21	9006851-00	SPACER, #6-32 x .50	2	2
22	9006633-00	WASHER, INT. TOOTH LOCK #6	24	24

TITLE: POWER SUPPLY H7420
ASSY NO: E-UA-H7420-0-0
SHEET 1 OF 3
SIZE A | CODE PL | NUMBER H7420-0-0 | REV F | ECO NO H7620-00005
DIST

DEC FORM DEC 16 (325) 1031 8870
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY R. THELLEN — DATE 1/17/75
CHECKED P. CAPPABIANCA — DATE 2/3/75
SECTION 1
ENG R. WOLF — DATE 2/3/75
PROD J. BORENSTEIN — DATE 2/3/75
ISSUED SECT 1

ITEM NO	DWG NO / PART NO.	DESCRIPTION	QUANTITY / VARIATION H7420A	H7420B
~~23~~	~~9008509-00~~	~~RELIEF, STRAIN~~	~~1~~	~~1~~
24	9009163-00	CLIP, FAN MOUNTING	16	16
25	A-DC-7413184-0-0	POWER SUPPLY DECAL (H7420)	1	1
~~26~~	~~A-DC-7413186-0-0~~	~~POWER SUPPLY DECAL (H7420B)~~	~~-~~	~~1~~
~~27~~	~~A-DC-7413185-0-0~~	~~POWER SUPPLY DECAL (H7420A)~~	~~1~~	~~-~~
28	9007969-00	TERMINAL, QUICK CONNECT	4	2
29	9107370-[illegible]	WIRE, #14 AWG, [illegible]	AR	AR
30	900826 -00	WIRE, CABLE TIE, ADHESIVE	2	2
31	9007860-00	TIE, CABLE	2	2
32	D-IA-7011211-0-0	TRANSFORMER ASSY	1	1
33	3612680-01	SAFETY GROUND DECAL	1	1
34	9006074-3	SCR, PH, HD, TRUSS 10x32x3/8	4	4
35	9006586	CLINCHMAN SPEED NUT 10-32	4	4
36	A-DC-7413966-0-0	POWER SUPPLY DECAL (H742[illegible]A)	1	-
37	A-DC-7413967-0-0	POWER SUPPLY DECAL (H742[illegible]B)	-	1
38	9006021-1	SCR, PAN HD, 6-32x5/16	1	1
39	9007224	FUSE 7 AMP SLOW BLOW	1	1
~~40~~	~~9009768-01~~	~~RELIEF, STRAIN~~	~~1~~	~~1~~
41	9008072	8-32 WASHER EXT. TOOTH	1	1
42	4901173-01	CONDUCTIVE GREASE	AR	AR
43	1212124-01	CIRCUIT BREAKER (20A)SCREW TERM	1	-
44	1212124-02	CIRCUIT BREAKER (15A)SCREW TERM	-	1

TITLE: POWER SUPPLY H7420
ASSY NO: E-UA-H7420-0-0
SHEET 2 OF 3
SIZE A | CODE PL | NUMBER H7420-0-0 | REV E | ECO NO
DIST

DEC FORM DEC 16 (325) 1031 8870
DRA 110

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PARTS LIST

MADE BY R. THELLEN — DATE 17-JAN-75
CHECKED P.CAPPABIANCA — DATE 3-FEB-75
SECTION 1
ENG R. WOLF — DATE 3-FEB-75
PROD J. BORENSTEIN — DATE 3-FEB-75
ISSUED SECT 1

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION H7420A	H7420B
45	9006026-1	SCR PH PAN HD #6-32 x 3/4	3	3
46	9007033	TIE CABLE	3	3
47	9006933	BLOCK, TERM MARKER STRIP	1	1

TITLE: POWER SUPPLY H7420
ASSY NO: E-UA-H7420-0-0
SHEET 3 OF 3
SIZE A | CODE PL | NUMBER H7420-0-0 | REV E | ECO NO
DIST

DEC FORM DEC 16 (325) 1031 8870
DRA 110