PDP-11/45
system
engineering drawings

digital equipment corporation · maynard, massachusetts

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET ☐☐☐☐

UNIT VARIATIONS

VAR	TITLE	PRINT SET 11/45-1
11/45-CA	BASIC ASSY (PDP-11/45) 115V	X
11/45-CB	BASIC ASSY (PDP-11/45) 230V	X
11/45-CC	BASIC ASSY + LA3Ø 115V	X
11/45-CD	BASIC ASSY + LA3Ø 230V	X
11/45-CE	BASIC ASSY + VTØ5B 115V	X
11/45-CF	BASIC ASSY + VTØ5B 230V	X
11/45-CH	BASIC ASSY + LA3Ø 115V	X
11/45-CJ	BASIC ASSY + LA3Ø 230V	X
11/45-CK	BASIC ASSY + VTØ5B 115V	X
11/45-CL	BASIC ASSY + VTØ5B 230V	X
11/45-FA	BASIC ASSY 115V	X
11/45-FB	BASIC ASSY 230V	X
11/45-GA	BASIC ASSY + LA3Ø 115V	X
11/45-GB	BASIC ASSY + LA3Ø 230V	X
11/45-GE	BASIC ASSY + LA3Ø 115V	X
11/45-GF	BASIC ASSY + LA3Ø 230V	X

REVISIONS	DATE	CHG. NO.	REV
	3/74	11/45-57	Y
	6/74	11/45-58	Z

DEC 16-13251-1062-1A-8792

USED ON OPTION/MODEL	
PDP-11	

SHEET 1 OF 4

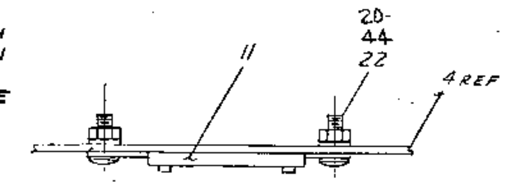
DRN. R. COOK	DATE 4/72	TITLE	
CHK'D. R. COOK	DATE 4/72	BASIC ASSY (PDP11/45)	
PROJ ENG. B. DELAGI	DATE 4/72		
PROD. A. HIRSCH	DATE 5/72	SIZE B / CODE DD / NUMBER 11/45-0	REV Z
FIELD SERV. ART ZINS	DATE 5/72	DIST	

DRB 106

KNOB LOCATIONS	
ITEM NO.	REFERENCE DESIGNATIONS
8	S1-S3, S7-S9, S13-S15, S20, S22, S24, S26, S28
40	S4-S6, S10-S12, S16-S18, S21, S23, S25, S27
41	S19

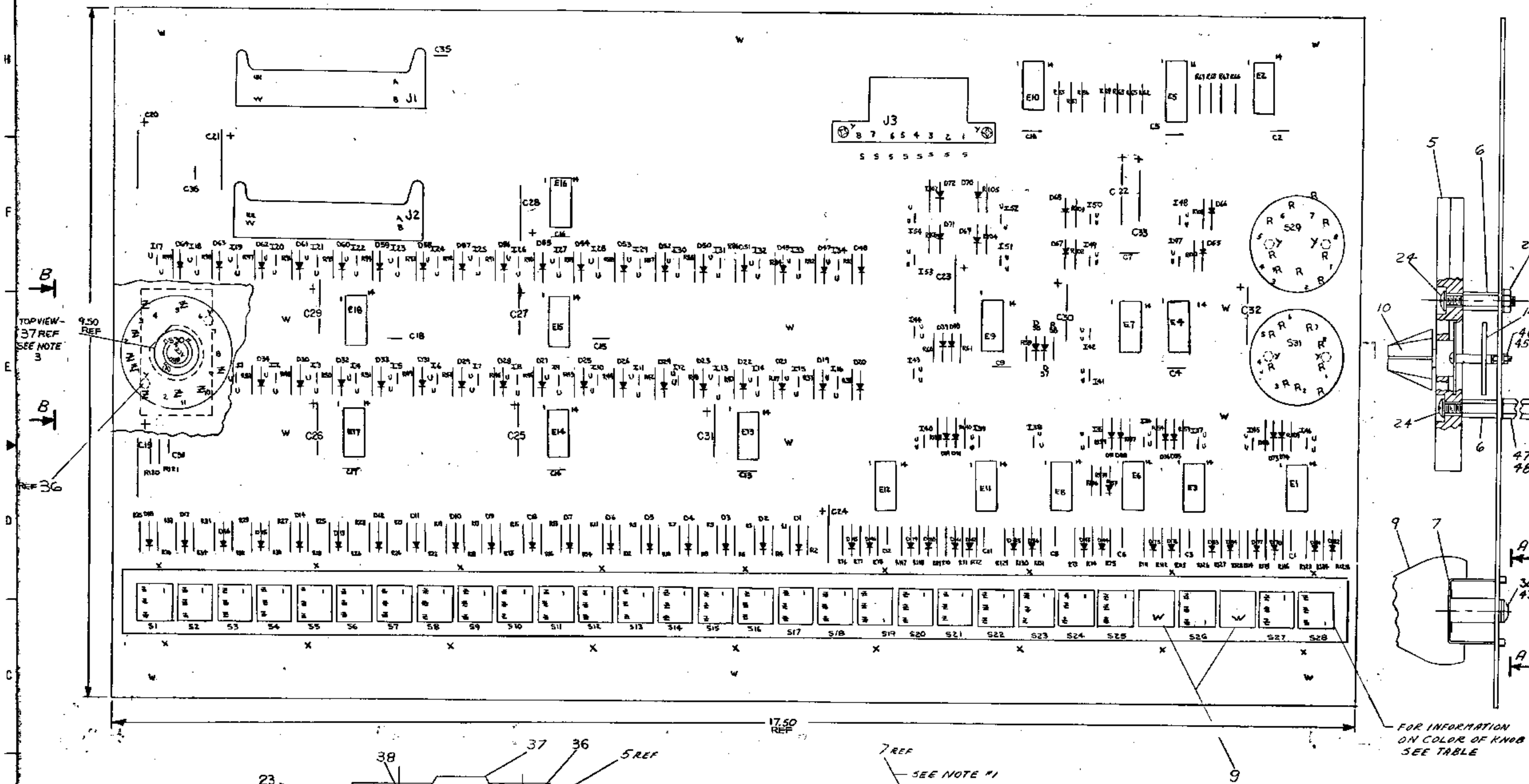
NOTES CONT

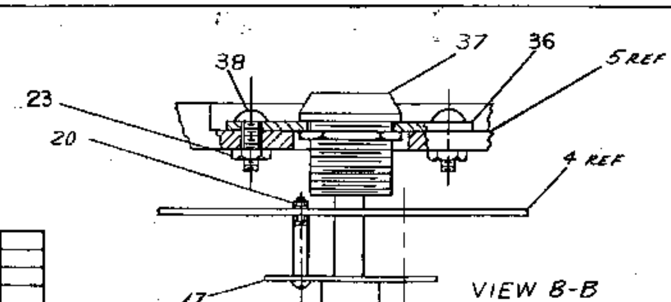
3. IN ORDER TO GET THE PROPER ALIGNMENT BETWEEN ROTARY SWITCH #17 AND POWER LOCK #37, MOUNT ITEM #17 ON P.C. BOARD AND TURN SHAFT C'CLOCKWISE (LEFT) TO STOP. MOUNT ITEM #37 TO SUPPORT BRACKET ITEM #5 WITH 'D' HOLE IN POSITION INDICATED. ROTATE KEY POSITION INDICATED AS "B" OF ITEM #37 TO LINE UP WITH KEY POSITION INDICATED AS "A" OF ITEM #37.



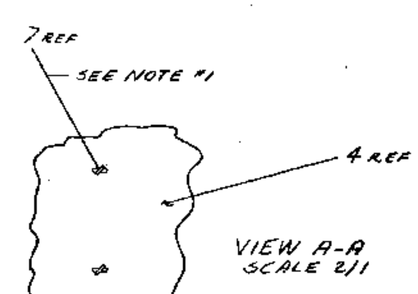
NOTES

1. AFTER ASSEMBLING ITEM #7 TO ITEM #4, THE TABS OF ITEM #7 ARE TO BE TWISTED AS SHOWN IN VIEW A-A
2. ON S1-S19, S26, S28, THE SWITCH ARM IS TO FLIP UP. THE SWITCH ARM TO FLIP DOWN ON 20-25/27.





VIEW B-B
SCALE 2/1
(ROTATED 90° C'CLOCKWISE)



VIEW A-A
SCALE 2/1

SEE SHEET 2 FOR PARTS LIST

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

ITEM NO.	AWG	FROM PT	TO PT

JUMPER LIST

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

SEMICONDUCTOR CONVERSION CHART

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV D

digital EQUIPMENT CORPORATION

TITLE: ETCH BOARD ASSY (11/45 CONSOLE)

NEXT HIGHER ASSY: E-UA-KB11-A-0

SIZE: E | CODE: A | NUMBER: 5409684-0-0 | REV: E

SCALE 2/1

SHEET 1 OF 2

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R120	RES. 68 1/4W 10%	1300221	51
1	R121	RES. 56 1/4W 10%	1301429	50
				49
3		LOCKWASHER INT TOOTH #6	9006633	48
3		SPACER .25 A.F. #6-32X.88LG	9006861	47
4		LOCKWASHER #2 INT TOOTH	9006631	46
4		NUT, HEX #2-56	9006555	45
2		SCR. PHL HD PAN #4-40 X .38	9006011-1	44
2		LOCKWASHER #8 INT TOOTH	9006634	43
REF		ASSY/DRILLING HOLE LAYOUT	E-IW-5409684-0-5	42
1		KNOB, SWITCH GRAY	D-PS-1210736-3-0	41
13		KNOB, SWITCH MAGENTA	D-PS-1210736-2-0	40
1	E8	I.C. DEC 7404	1909686	39
2		SCR. PHL PAN HD #6-32 X .38LG	9006022-1	38
1		POWER LOCK	1210754	37
1		STRAP, LOCK MTG	B-IA-7409489-0-0	36
1	E9	I.C. MC 3001	1909514	35
7	E7, E13-E18	I.C DEC 7416	1909928	34
1	E5	I.C DEC 9318	1710454	33
2	E2, E4	I.C DEC 7417	1909929	32
6	E1, E3, E6, E10-E12	I.C DEC 7400	1905575	31
2		8-32 X 1/4 SELF TAPPING SCR.	9008143	30
54	R37-R54, R58-R61, R82-R109, R137-R140	RES. 220 Ω 1/4W, 10%	1300275	29
76	R1-R36, R55-R57, R62-R78, R111-R119, R123-R131, R135, R136	RES. 2.2K 1/4W, 10%	1300418	28
15	C19-C33	CAP. 6.8 μf 35V 20% STANT	1000067	27
21	C1-C18, C34-C36	CAP. .01 μf 100V 20%	1001610	26
91	D1-D91	DIODE D664	1100114	25
6		SCR. PHL PAN HD #6-32 X .50LG	9006024-1	24
5		NUT, KEPS #6-32	9006560	23
2		WASHER, FIBER N.H.SMITH 2142	9006693	22
				21
4		NUT, NYLON #4-40	9007992	20
108		LAMP SOCKET	9007812	19
54	I1-I54	LAMP 23096 HUDSON BLUE	1209219	18
1	S30	SWITCH ROTORY (LEDEX) 3 POS	1210753	17
8	S19-S22, S25-S28	SWITCH SPDT MOMENTARY (C&K)	1210841	16
20	S1-S18, S23, S24	SWITCH SPDT (C&K)	1210840	15
2	S29, S31	SWITCH ROTARY (LEDEX) 8 POS	1210775	14
2	J1, J2	CONN. RIGHT ANGLE HEADER	1209991	13
8		PIN SOCKET AMP 61320-1	1209456	12
1	J3	PIN HOUSING	1209390-00	11
2		KNOB, FUNCTION BLK	1210773	10
2		KNOB, DUMMY GRAY	D-PS-1210825-0-0	9
14		KNOB, SWITCH ROSE	D-PS-1210796-1-0	8
1		SUPPORT, SWITCH	D-MD-7409270-1-0	7
6		STANDOFF, MALE/FEMALE 6-32	9009120-2	6
1		SUPPORT, INDICATOR PANEL	D-MD-7409485-0-0	5
1		ETCHED CIRCUIT BOARD	5009683	4
REF		MODULE ECO HISTORY	B-MH-5409684-0-4	3
REF		CIRCUIT SCHEMATIC	D-CS-5409684-0-1	2
REF		X-Y COORDINATE HOLE LOC	K-CO-5409684-0-4	1

PARTS LIST

~~ETCH BOARD REV~~

IC TYPE	GND	+5V
DEC 9318	8	16

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

IC PIN LOCATIONS

ITEM NO.	AWG	FROM PT	TO PT

JUMPER LIST

DEC NO	EIA NO	DEC NO.	EIA NO.
D664	1N3606		

SEMICONDUCTOR CONVERSION CHART

CHANGE NO. REVISIONS REV CHK

DIGITAL EQUIPMENT CORPORATION

TITLE: ETCH BOARD ASSY (11/45 CONSOLE)

NEXT HIGHER ASSY: E-UA-KB11-A-0

SIZE: E CODE: IA NUMBER: 5409684-0-0 REV. E

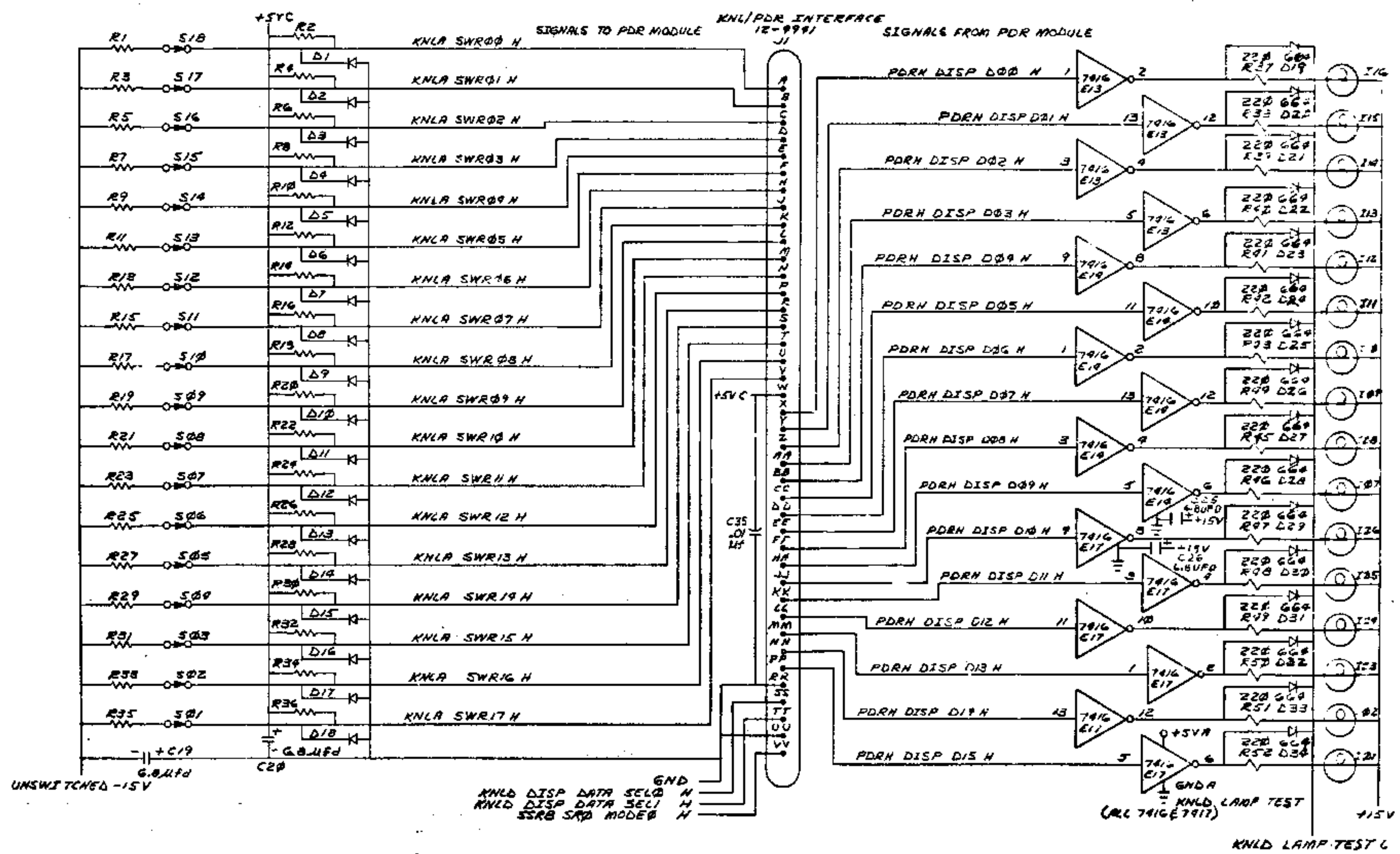
SCALE: 2/1 SHEET 2 OF 2

DRN / CHKD / ENG / PROD ENG / PROD — DATE

IA 5409684-0-0

"SWITCH REGISTER" SWITCHES SHOWN IN LOGICAL "Ø" STATE (DOWN)

NOTES:
1. CONTROL LOGIC AND DISPLAY GROUNDS MUST BE KEPT SEPARATE
2. ALL RESISTORS ARE 2.2K UNLESS MARKED OTHERWISE.
3. ALL UNMARKED DIODES ARE D664



+5VC
SIGNALS TO PDR MODULE
KNL/PDR INTERFACE
12-9991
J1
SIGNALS FROM PDR MODULE
KNLA SWRØØ H
KNLA SWRØ1 H
KNLA SWRØ2 H
KNLA SWRØ3 H
KNLA SWRØ4 H
KNLA SWRØ5 H
KNLA SWRØ6 H
KNLA SWRØ7 H
KNLA SWRØ8 H
KNLA SWRØ9 H
KNLA SWR1Ø H
KNLA SWR11 H
KNLA SWR12 H
KNLA SWR13 H
KNLA SWR14 H
KNLA SWR15 H
KNLA SWR16 H
KNLA SWR17 H
PDRH DISP DØØ H
PDRH DISP DØ1 H
PDRH DISP DØ2 H
PDRH DISP DØ3 H
PDRH DISP DØ4 H
PDRH DISP DØ5 H
PDRH DISP DØ6 H
PDRH DISP DØ7 H
PDRH DISP DØ8 H
PDRH DISP DØ9 H
PDRH DISP D1Ø H
PDRH DISP D11 H
PDRH DISP D12 H
PDRH DISP D13 H
PDRH DISP D14 H
PDRH DISP D15 H
UNSWITCHED -15V
GND
KNLD DISP DATA SELØ H
KNLD DISP DATA SEL1 H
SSRB SRØ MODEØ H
(ALL 7416 E7917)
KNLD LAMP TEST
KNLD LAMP TEST L
+15V

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES. TOLERANCES
REMOVE BURRS AND BREAK SHARP CORNERS

digital EQUIPMENT CORPORATION

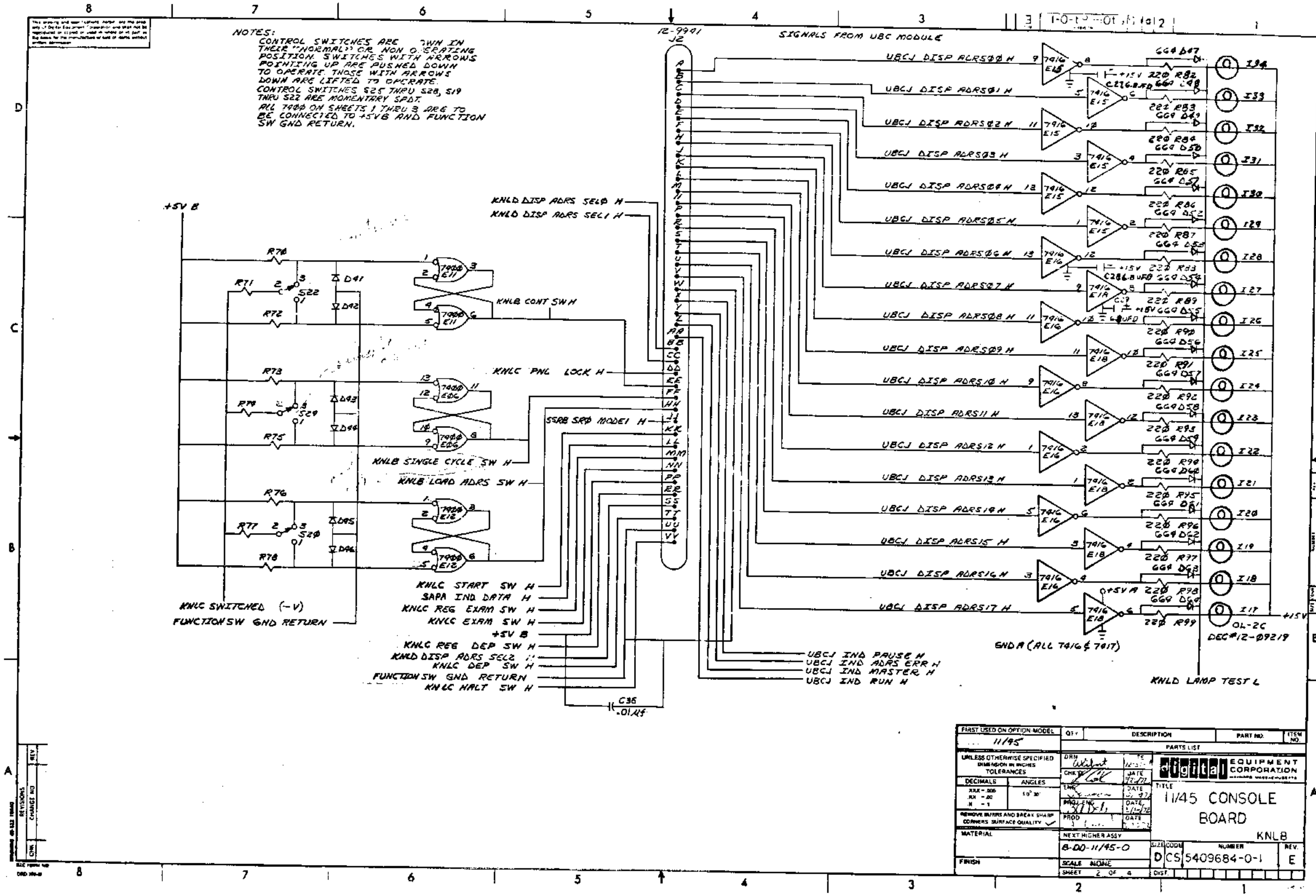
TITLE: 11/45 CONSOLE BOARD KNLA

NEXT HIGHER ASSY: 8-DD-11/45-0

SIZE D | CODE CS | NUMBER 5409684-0-1 | REV E

SHEET 1 OF 4

REVISIONS: 5409684-0001 B; 5409684-0002 C; 5409684-0003 D; ECO 5409684-E; J. SWANSON


NOTES:
CONTROL SWITCHES ARE SHOWN IN THEIR "NORMAL" OR NON OPERATING POSITION. SWITCHES WITH ARROWS POINTING UP ARE PUSHED DOWN TO OPERATE. THOSE WITH ARROWS DOWN ARE LIFTED TO OPERATE.
CONTROL SWITCHES S25 THRU S28, S19 THRU S22 ARE MOMENTARY SPDT.
ALL 7400 ON SHEETS 1 THRU 3 ARE TO BE CONNECTED TO +5VB AND FUNCTION SW GND RETURN.
SIGNALS FROM UBC MODULE
12-9941 J2
UBCJ DISP ADRS00 H
UBCJ DISP ADRS01 H
UBCJ DISP ADRS02 H
UBCJ DISP ADRS03 H
UBCJ DISP ADRS04 H
UBCJ DISP ADRS05 H
UBCJ DISP ADRS06 H
UBCJ DISP ADRS07 H
UBCJ DISP ADRS08 H
UBCJ DISP ADRS09 H
UBCJ DISP ADRS10 H
UBCJ DISP ADRS11 H
UBCJ DISP ADRS12 H
UBCJ DISP ADRS13 H
UBCJ DISP ADRS14 H
UBCJ DISP ADRS15 H
UBCJ DISP ADRS16 H
UBCJ DISP ADRS17 H
KNLD DISP ADRS SEL0 H
KNLD DISP ADRS SEL1 H
KNLB CONT SW H
KNLC PNL LOCK H
SSRB SRD MODE1 H
KNLB SINGLE CYCLE SW H
KNLB LOAD ADRS SW H
KNLC SWITCHED (-V)
FUNCTION SW GND RETURN
KNLC START SW H
SAPA IND DATA H
KNLC REG EXAM SW H
KNLC EXAM SW H
+5V B
KNLC REG DEP SW H
KNLD DISP ADRS SEL2 H
KNLC DEP SW H
FUNCTION SW GND RETURN
KNLC HALT SW H
C36 .01μf
UBCJ IND PAUSE H
UBCJ IND ADRS ERR H
UBCJ IND MASTER H
UBCJ IND RUN H
GND A (ALL 7416 & 7417)
OL-2C
DEC#12-09219
KNLD LAMP TEST L
+5V B
+15V

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

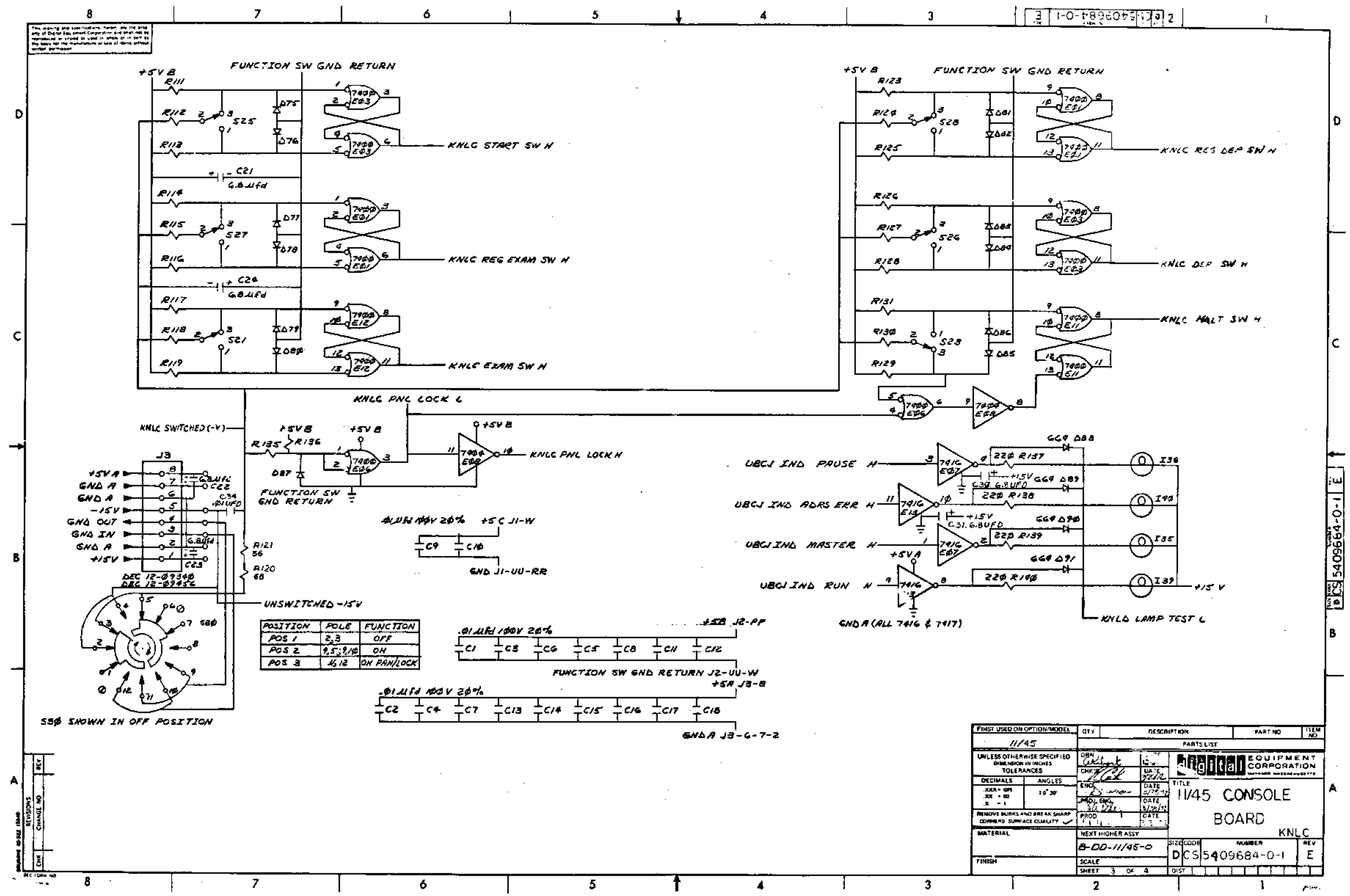
DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

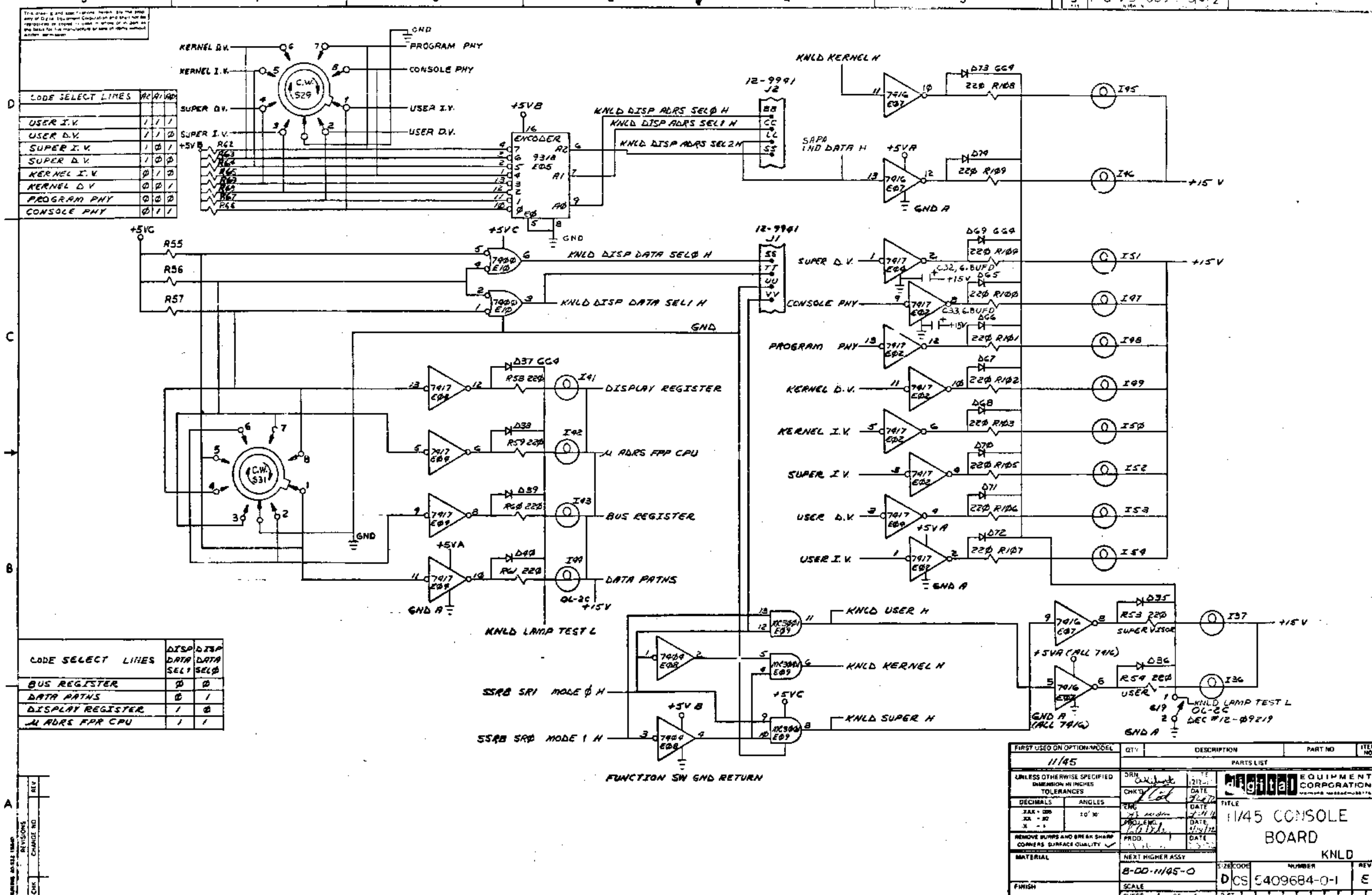
TITLE: 11/45 CONSOLE BOARD KNL8

NEXT HIGHER ASSY: B-DD-11/45-0

SIZE D | CODE CS | NUMBER 5409684-0-1 | REV. E

SCALE NONE | SHEET 2 OF 4


FUNCTION SW GND RETURN
+5V B
KNLC START SW H
KNLC REG EXAM SW H
KNLC EXAM SW H
KNLC RES DEP SW H
KNLC DEP SW H
KNLC HALT SW H
KNLC PNL LOCK L
KNLC SWITCHED (-V)
KNLC PNL LOCK H
UBCJ IND PAUSE H
UBCJ IND ADRS ERR H
UBCJ IND MASTER H
UBCJ IND RUN H
KNLD LAMP TEST L
GND A (ALL 7416 & 7417)
UNSWITCHED -15V
S50 SHOWN IN OFF POSITION
FUNCTION SW GND RETURN J2-UU-W
GND J1-UU-RR
GND A J3-6-7-2
POSITION | POLE | FUNCTION
POS 1 | 2,3 | OFF
POS 2 | 4,5;9,10 | ON
POS 3 | 11,12 | ON PAN/LOCK
11/45
DIGITAL EQUIPMENT CORPORATION
11/45 CONSOLE BOARD
KNLC
B-DD-11/45-0
D CS 5409684-0-1 E
SHEET 3 OF 4



CODE SELECT LINES	A2	A1	A0
USER I.V.	1	1	1
USER D.V.	1	1	0
SUPER I.V.	1	0	1
SUPER D.V.	1	0	0
KERNEL I.V.	0	1	0
KERNEL D.V.	0	0	0
PROGRAM PHY	0	0	1
CONSOLE PHY	0	1	1

CODE SELECT LINES	DISP DATA SEL 1	DISP DATA SEL 0
BUS REGISTER	0	0
DATA PATHS	0	1
DISPLAY REGISTER	1	0
μ ADRS FPP CPU	1	1

FIRST USED ON OPTION/MODEL: 11/45

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES

NEXT HIGHER ASSY: B-DD-11/45-0

digital EQUIPMENT CORPORATION

TITLE: 11/45 CONSOLE BOARD KNLD

SIZE D CODE CS NUMBER 5409684-0-1 REV E

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE		SEQUENCE
DRAWING DIRECTORY	B-DD-KB11-Ø	(SHEET ONE ONLY)
MODULE UTILIZATION	E-MU-KB11-A-1	
BLOCK DIAGRAM	D-BD-KB11-A-Ø2	
KB11-A FLOW DIAGRAMS	D-FD-KB11-A-Ø3	
DATA PATHS (DAP)	E-CS-M81ØØ-Ø-1	
GENERAL REGS & ALU CNTL(GRA)	E-CS-M81Ø1-Ø-1	
IR DECODE & COND CODES(IRC)	E-CS-M81Ø2-Ø-1	
PROC DATA & UNIBUS REG(PDR)	E-CS-M81Ø4-Ø-1	
ROM & ROM CONTROL(RAC)	E-CS-M81Ø3-Ø-1	
SYSTEM JUMPER BOARD(SJB)	E-CS-M8116-Ø-1	
TIMING GENERATOR(TIG)	E-CS-M81Ø9-Ø-1	
TRAP & MISC CNTL(TMC)	E-CS-M81Ø5-Ø-1	
UNIBUS & CONSOLE CNTL (UBC)	E-CS-M81Ø6-Ø-1	
BUS CABLES & GRANT CHAIN	D-IC-KB11-A-BG	
CIRCUIT SCHEMATIC	C-CS-M93Ø-Ø-1	
CIRCUIT SCHEMATIC	C-CS-M92Ø-Ø-1	
CIRCUIT SCHEMATIC	E-CS-5409910-0-1	
CIRCUIT SCHEMATIC	E-CS-5409912-0-1	
CIRCUIT SCHEMATIC(TIG)	**E-CS-M81Ø9-0-1**	
SPECIAL REVISION		

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE: KB11-A
KB11-A	16 BIT PROCESSOR	X

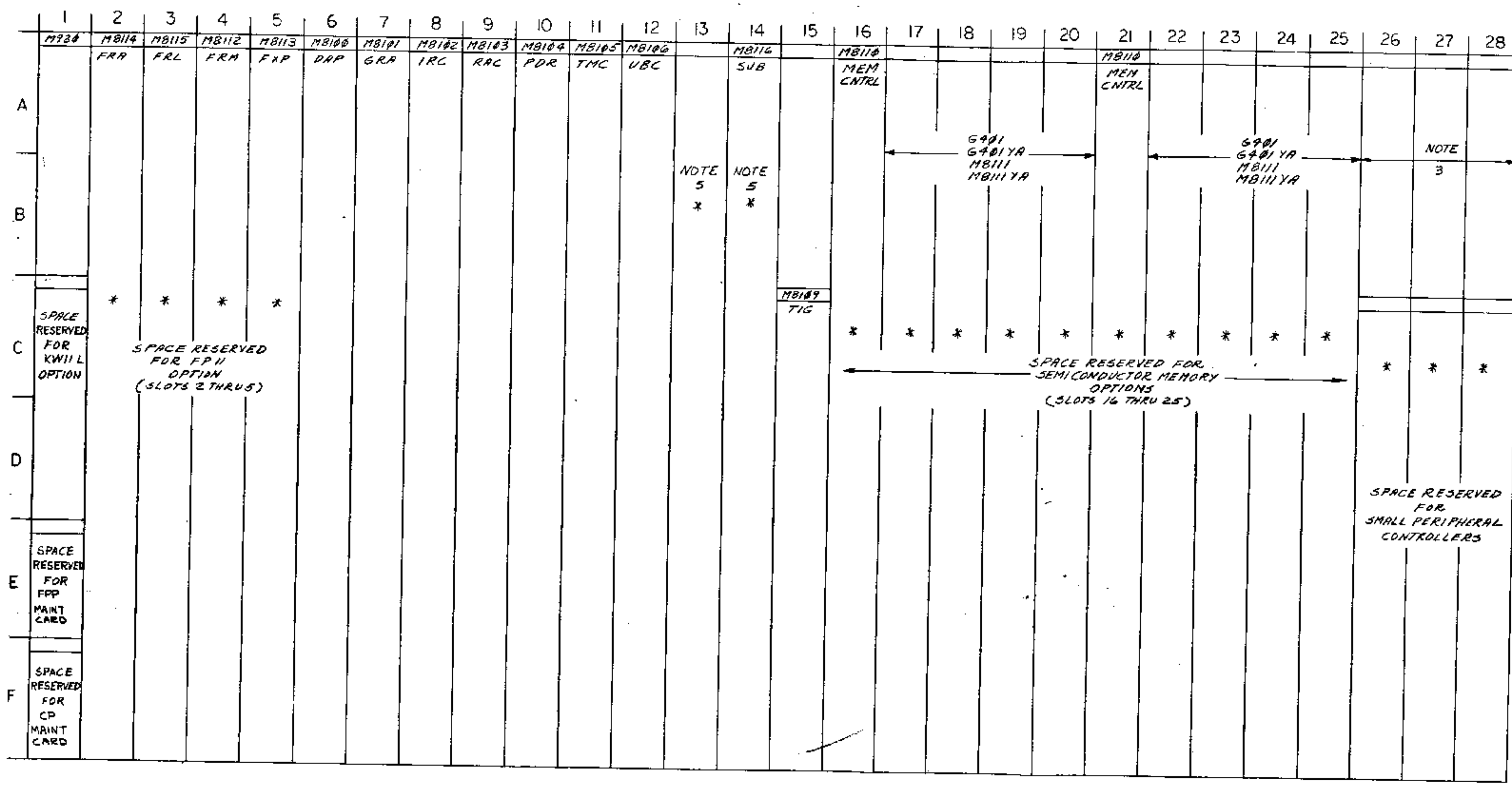
REVISIONS		
REV	CHG. NO.	DATE
A	7008871-00002	5/72
B	7008871-00003	9/72
C	KB11A-6	12/72
D	KB11A-7	1/73
E	KB11A-8	2/73
F	KB11A-9	2/73
H	KB11A-11	2/73
J	KB11A-12A	3/73
K	KB11A-13	4/73
L	KB11A-14	4/73
M	KB11A-15	5/73
N	KB11A-16	5/73
P	KB11A-17	5/73
R	KB11A-18	8/73
S	KB11A-19	12/73
T	KB11A-20	3-74
U	KB11A-21	6-74

USED ON OPTION/MODEL
11/45

DRN. R. COOK	DATE 3/30/72	TITLE: 16 BIT PROCESSOR	
CHK'D. R. COOK	DATE 3/30/72		
PROJ ENG.	DATE 4/28/72		
PROD.	DATE 5-1-72	SIZE B	CODE DD
FIELD SERV.	DATE 5/1/72	NUMBER KB11-Ø	REV U
SHEET 1 OF		DIST	

DRB 106

WIRED SIDE



* DESIGNATES OPTION

NOTES:

1. POWER TO MOS AND BIPOLAR MEMORY REMAINS ON WITH THE CONSOLE ON/OFF SWITCH IN THE OFF POSITION. THIS IS INDICATED BY THE LED ON THE MOS CONTROL BOARD ~~IF THERE IS NO MEMORY MANAGEMENT (M8107 AND M8108) INSTALLED, THE SYSTEM JUMPER BOARD (M8116) MUST BE INSTALLED IN SLOT #14.~~
2. CAUTION MUST BE OBSERVED WHEN INSTALLING THE BOARDS INTO THE BACK PANEL SLOTS BECAUSE OF NON-STANDARD VOLTAGES PRESENT IN SLOTS Ø1, Ø2 AND 15 THRU 28.
3. IF ONLY ONE UNIBUS IS USED:
   A. THE UNIBUS PLUGS IN SLOT #28
   B. PLUG AN INTERNAL BUS CONNECTOR JUMPER (M92ØØ) INTO SLOTS #26 AND #27.
   C. PLUG A BUS TERMINATOR (M93Ø) INTO SLOT #1.

   IF TWO UNIBUSES ARE USED:
   A. UNIBUS, A PLUGS IN SLOT #26
   B. TERMINATOR (M93Ø) FOR UNIBUS A PLUGS INTO SLOT #1
   C. UNIBUS B PLUGS IN SLOT #27.
   D. TERMINATOR (M93Ø) FOR UNIBUS B PLUGS INTO SLOT #28.
4. MODULES IN SLOTS 17-20 MUST BE SAME TYPE; MODULES IN SLOTS 22-25 MUST BE SAME TYPE.
5. IF KT11 OPTION IS PRESENT M8108 GOES IN SLOT 13 & M8107 GOES IN SLOT 14, IF NO KT11 M8116 GOES IN SLOT 14 & SLOT 13 IS EMPTY.

QTY	DESCRIPTION	PART NO	ITEM NO.
*	SYSTEM MAINT TOOLS	B-DD-SP45-[illegible]	
*	FLOATING POINT PROC.	B-DD-FP11-B	
*	64 WORD BOOTSTRAP	B-DD-MR11-D	
*	INTERVAL CLOCK	A-ML-KW11-A	
*	BIPOLAR MEMORY	B-DD-MS11-C	
*	MOS MEMORY	B-DD-MS11-B	
*	MEM. MANAGEMENT UNIT	B-DD-KT11-C	
1	INT. BUS CONN ASSY	M9200	
2	BUS TERMINATOR	M93Ø	
1	SYSTEM JUMPER BD	M8116	
1	TIMING GENERATOR	M81Ø9	
1	UNIBUS & CONSOLE CNTL	M81Ø6	
1	TRAP & MISC. CONTROL	M81Ø5	
1	PROC. DATA & UNIBUS REG	M81Ø4	
1	ROM & ROM CONTROL	M81Ø3	
1	IR DECOD & COND. CODES	M81Ø2	
1	GENERAL REGS & ALU CNTL	M81Ø1	
1	DATA PATHS	M81ØØ	

PARTS LIST

FIRST USED ON OPTION/MODEL: 11/45

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: .XXX = .005, .XX = .03, .X = .1 — ANGLES: ±0°30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL: —
FINISH: —

REVISIONS: REV. A — CHANGE NO. KB11A-00007

DRN / DATE; CHKD / DATE; ENG / DATE; PROJ. ENG. / DATE; PROD / DATE

NEXT HIGHER ASSY: B-DD-KB11-Ø

SCALE: — SHEET 1 OF 1

digital EQUIPMENT CORPORATION

TITLE: MODULE UTILIZATION

SIZE: E CODE: MJ NUMBER: KB11-A-Ø1 REV: A

E MJ KB11-A-Ø1 A

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 (DAPB,C,D')

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

AMX (DAPB,C,D)

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

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

GD (16 REGISTERS) (GRAD,E,FH)

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
2 WRITE
3 NOT USED

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

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

SHFR

SRMX (GRAD,E,F,H)

ORMX (GRAD,E,FH)

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

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

SC (GRAJ)

SHC (T1) [34-33]
0 NO COUNT
1 COUNT
2 LOAD DR<5:0>
3 LOAD 17₈

SR (GRAD,F,H)

DR (GRAD,E,FH)

DR

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

SR

PCB

FROM FPP EALU

B A M X (DAPB, C,D)

VIRTUAL ADDRESS

KOMX (DAPD)

1 2 SRCCON DSTCON

KMX (T1) [19-18]
KOMX
0 1
1 2
2 SOURCE CONST.
3 DEST. CONST.

K1MX
START VECTOR
TRAP VECTOR
SOB & MARK OFFSET
BXX OFFSET

K1MX (DAPE)

TV SV BR BR

DATA FROM SEMI-COND MEMORY

TO/FROM UNIBUS

INT BUS

SHFR

SEMI

UNIBUS

BRMX (PDRA)

BRX (T2) [62]
0 SHFR
1 BUS(UNIBUS, FAST BUS, OR INTERNAL BUS)

SHFR

FROM FPP UADR/ CPU UADR

MULTIPLEXER DISPLAY (PDRF)

TO CONSOLE DATA LIGHTS

LR

BR

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

BR (DAPA)

BRA (PDRB)

IR (IRCA)

AFIR (RACJ)

IRK(T2)[46]
0 NO CLOCK
1 LOAD

DATA TO SEMI-COND MEMORY

LR (PDRB)

PS (IRCH,PDRD)

PIRQ (PDRD)

SL (PDRC)

PB (PDRC)

SL/PB

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

FROM SWITCH REGISTER (PDRH)

INTERNAL BUS

O M X (PDRE)

PIRQ

PS

DATA FROM FPP

DATA TO KT11-C REGISTERS AND FPP DATA

DATA FROM KT11-C REGISTERS

41-1019

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 4/14/72
CHK'D DATE 4/14/72
ENG. DATE 4/14/72
PROJ. ENG. DATE 4/14/72
PROD. DATE

NEXT HIGHER ASSY: E-CC-KB11-A
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK DIAGRAM

SIZE D | CODE BD | NUMBER KB11-A-02 | REV

DIST.

REVISIONS: REV | CHANGE NO. | CHK

BRUNING 40-522-15840

DEC-10-RM NO. ORD 102-A

8 7 6 5 4 3 2 1

CCL (T2) [54-52]

0 NO CHANGE
1 INSTRUCTION DEPENDENT
2 SET/CLR FROM IR (CCOP)
3 LOAD FROM FPP IF ENABLED
4 CCLD4
5 CCLD5
6 CCLD6
7 CCLD7

TO CONDITION CODES

FROM 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)

A GATING ADDRESS (RACL)

ADR

FEN

BRANCH (RACK)

BEF

RAR (RACD)

TO SEG

RARB (RACA, RACC)

RARA (RACC, RACD)

ZAP 200

ROM

RBR

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)

(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

FEN [14-12]

FEN 14 ENABLE FORK C
FEN 13 ENABLE FORK B
FEN 12 ENABLE FORK A

ADR [07-00]

TO ADDRESS GATING

BEF [11-6]	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	-DBD (ODD BYTE DESTINATION)†	-DIV QUIT
6	BR14(0)	PS RESTORE
7	—	-[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 †	-Q/CLASS
16	DR0(1)	SR15(1)
17	RIP+FP SYNC	FP SYNC*FP REG WR

MSC (T1) [29-27]

0 NO AFFECT
1 ENA 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)

BSD (T1) [40-39]

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

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

BCT (T1) [32-30]

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

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

FROM CONSOLE

UNIBUS AND CONSOLE CONTROL (UBC)

TO/FROM UNIBUS CONTROL SIGNALS

TRAPS AND MISCELLANEOUS CONTROL (PRIORITY ARBITRATOR) (TMC)

TO/FROM FPP, KT11-C FASTBUS & UNIBUS (BR, BG)

TIMING GENERATOR (TIG)

TO ALL MODULES

FROM KT11-C FASTBUS & UNIBUS

REVISIONS	REV	CHANGE NO	CHK
DRAWING 40-532 15940			

DEC-10PM-NO DAD 102-B

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 4-6-72
CHKD — DATE 4/7/72
ENG — DATE 4/14/72
PROJ. ENG. — DATE 4/14/72
PROD. — DATE —

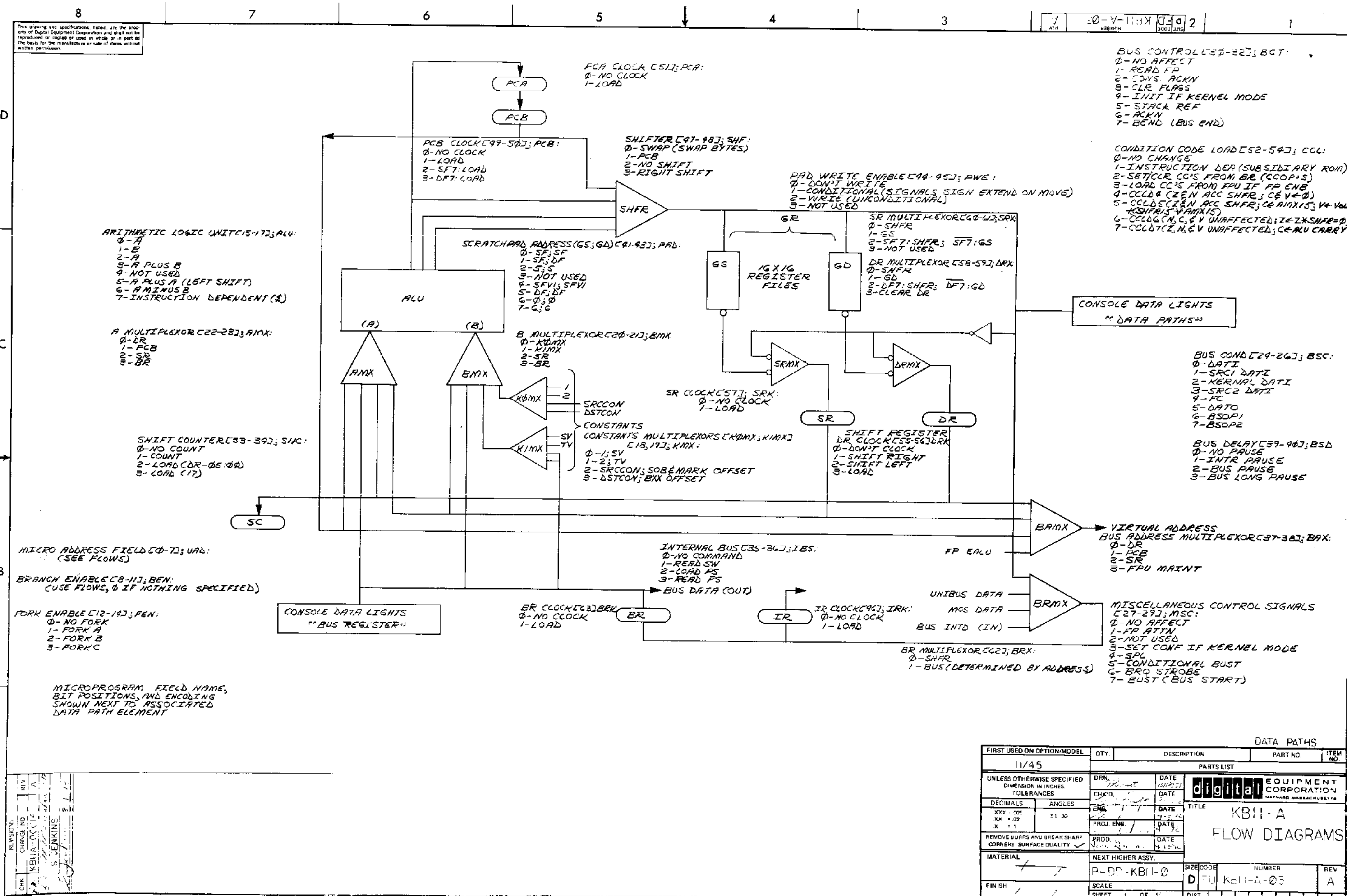
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: BLOCK DIAGRAM

NEXT HIGHER ASSY. B-DC KB11-E
SCALE —
SHEET 2 OF 2

SIZE D | CODE BD | NUMBER KB11-A-02 | REV.
DIST

SIZE D | CODE BD | NUMBER KB11-A-02 | REV.


PCA CLOCK [51]; PCA:
Ø-NO CLOCK
1-LOAD
PCA
PCB
PCB CLOCK [49-5Ø]; 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
GR
GS
16 X 16 REGISTER FILES
GD
SR MULTIPLEXOR [6Ø-61]; SRX:
Ø-SHFR
1-GS
2-SF7: SHFR; SF7: GS
3-NOT USED
DR MULTIPLEXOR [58-59]; DRX:
Ø-SHFR
1-GD
2-DF7: SHFR; DF7: GD
3-CLEAR DR
BUS CONTROL [3Ø-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 DEP (SUBSIDIARY ROM)
2-SET/CLR CC'S FROM BR (CCOP'S)
3-LOAD CC'S FROM FPU IF FP ENB
4-CCLD4 (Z&N ACC SHFR; C&V←Ø)
5-CCLD5 (Z&N ACC SHFR; C←AMX15; V←VOLD+(SHFR15⊕AMX15))
6-CCLD6 (N, C, & V UNAFFECTED; Z←Z*SHFR=Ø)
7-CCLD7 (Z, N, & V UNAFFECTED; C←ALU CARRY)
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 ($)
SCRATCHPAD ADDRESS (GS; GD) [41-43]; PAD:
Ø-SF; SF
1-SF; DF
2-S; S
3-NOT USED
4-SFVI; SFVI
5-DF; DF
6-Ø; Ø
7-G; G
ALU
(A)
(B)
A MULTIPLEXOR [22-23]; AMX:
Ø-DR
1-PCB
2-SR
3-BR
AMX
BMX
B MULTIPLEXOR [2Ø-21]; BMX:
Ø-KØMX
1-K1MX
2-SR
3-BR
KØMX
K1MX
1
2
SRCCON
DSTCON
SV
TV
CONSTANTS
CONSTANTS MULTIPLEXORS [KØMX; K1MX] [18, 19]; KMX:
Ø-1; SV
1-2; TV
2-SRCCON; SOB & MARK OFFSET
3-DSTCON; BXX 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
CONSOLE DATA LIGHTS "DATA PATHS"
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 [39-4Ø]; BSD
Ø-NO PAUSE
1-INTR PAUSE
2-BUS PAUSE
3-BUS LONG PAUSE
SHIFT COUNTER [33-34]; SHC:
Ø-NO COUNT
1-COUNT
2-LOAD (DR-Ø5:ØØ)
3-LOAD (17)
SC
BAMX
FP EALU
VIRTUAL ADDRESS
BUS ADDRESS MULTIPLEXOR [37-38]; BAX:
Ø-DR
1-PCB
2-SR
3-FPU MAINT
MICRO ADDRESS FIELD [Ø-7]; UAD:
(SEE FLOWS)
BRANCH ENABLE [8-11]; BEN:
(USE FLOWS, Ø IF NOTHING SPECIFIED)
FORK ENABLE [12-14]; FEN:
Ø-NO FORK
1-FORK A
2-FORK B
3-FORK C
INTERNAL BUS [35-36]; IBS:
Ø-NO COMMAND
1-READ SW
2-LOAD PS
3-READ PS
BUS DATA (OUT)
CONSOLE DATA LIGHTS "BUS REGISTER"
BR CLOCK [63] BRK
Ø-NO CLOCK
1-LOAD
BR
IR
IR CLOCK [96]; IRK:
Ø-NO CLOCK
1-LOAD
UNIBUS DATA
MOS DATA
BUS INTD (IN)
BRMX
BR MULTIPLEXOR [62]; BRX:
Ø-SHFR
1-BUS (DETERMINED BY ADDRESS)
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)
MICROPROGRAM FIELD NAME, BIT POSITIONS, AND ENCODING SHOWN NEXT TO ASSOCIATED DATA PATH ELEMENT
DATA PATHS
FIRST USED ON OPTION/MODEL 11/45
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.
ENG.
PROJ. ENG.
PROD.
DATE
NEXT HIGHER ASSY. B-DD-KB11-Ø
QTY. DESCRIPTION PART NO. ITEM NO.
PARTS LIST
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE KB11-A FLOW DIAGRAMS
SIZE D CODE FD NUMBER KB11-A-Ø3 REV A
SCALE
SHEET 1 OF 1
DIST
S. JENKINS
REVISION
CHANGE NO.
CHK
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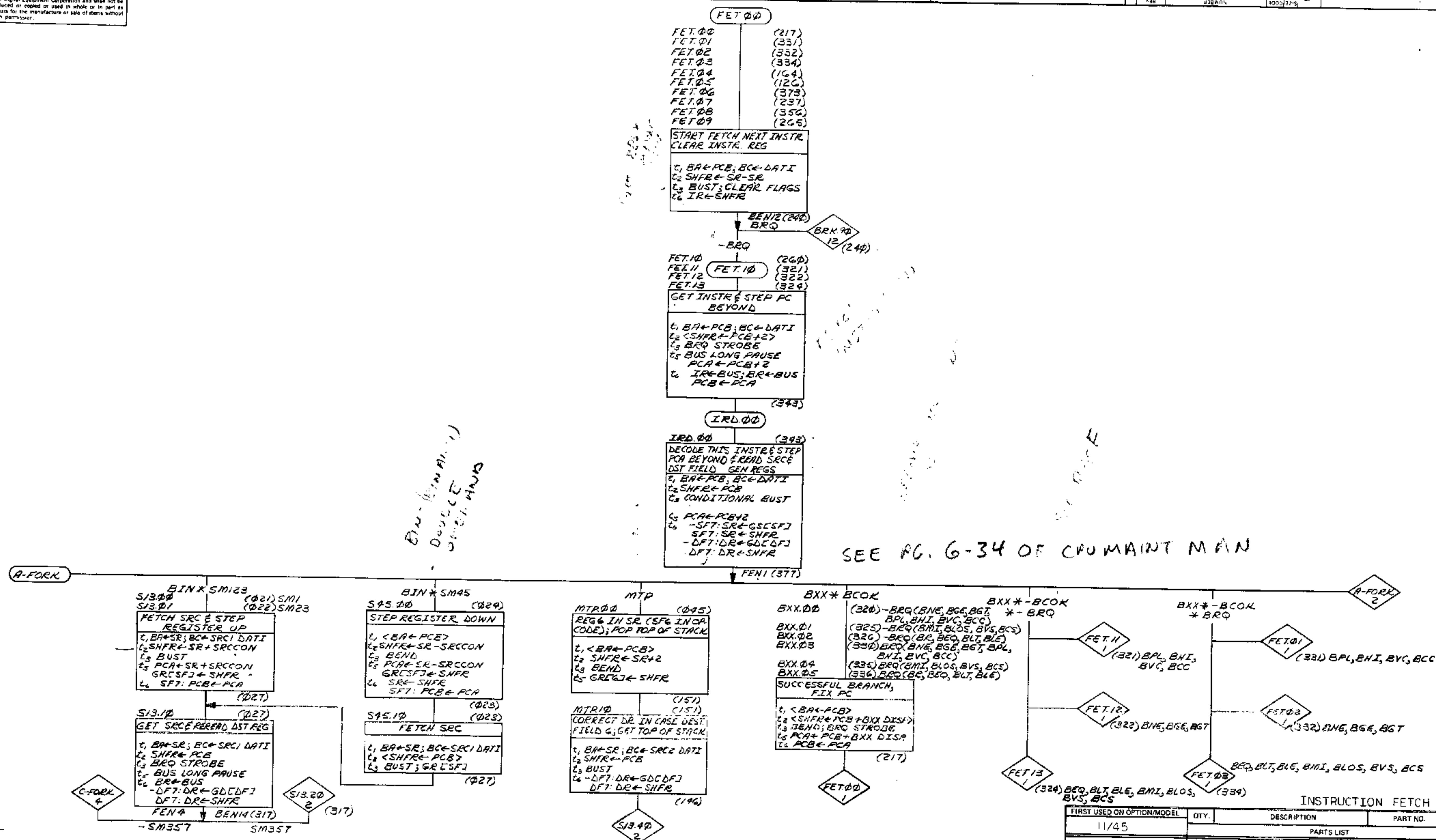

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INSTRUCTION FETCH

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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. / ENG. / PROJ. ENG. / PROD. — DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAMS (FLOWS 1)

NEXT HIGHER ASSY.: B-DD-KB11-0

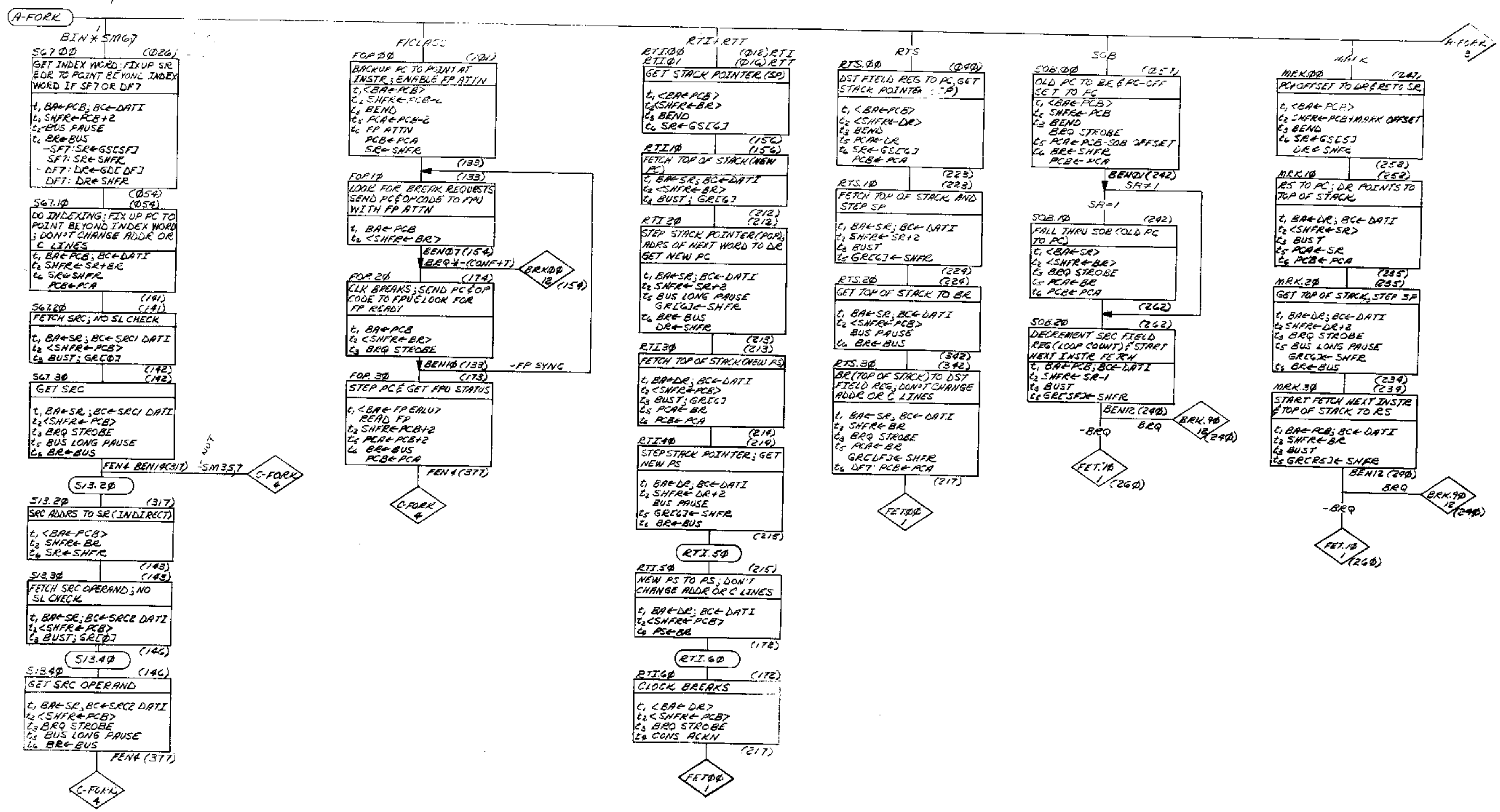
SIZE: D CODE: FD NUMBER: KB11-A-03 REV: 4

SCALE

SHEET 2 OF

DIST

DEC FORM NO DRD 102-B



CONTROL; FLOATING; INDEXED SOURCE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 3-13-72
CHK'D — DATE
ENG — DATE
PROJ ENG — DATE
PROD — DATE

NEXT HIGHER ASSY: B-DL-KB11-0

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAMS (FLOW 2)

SIZE D — CODE FD — NUMBER KB11-A-05 — REV. A

SCALE — SHEET 5 OF 13 — DIST

D FD KB11-A-05

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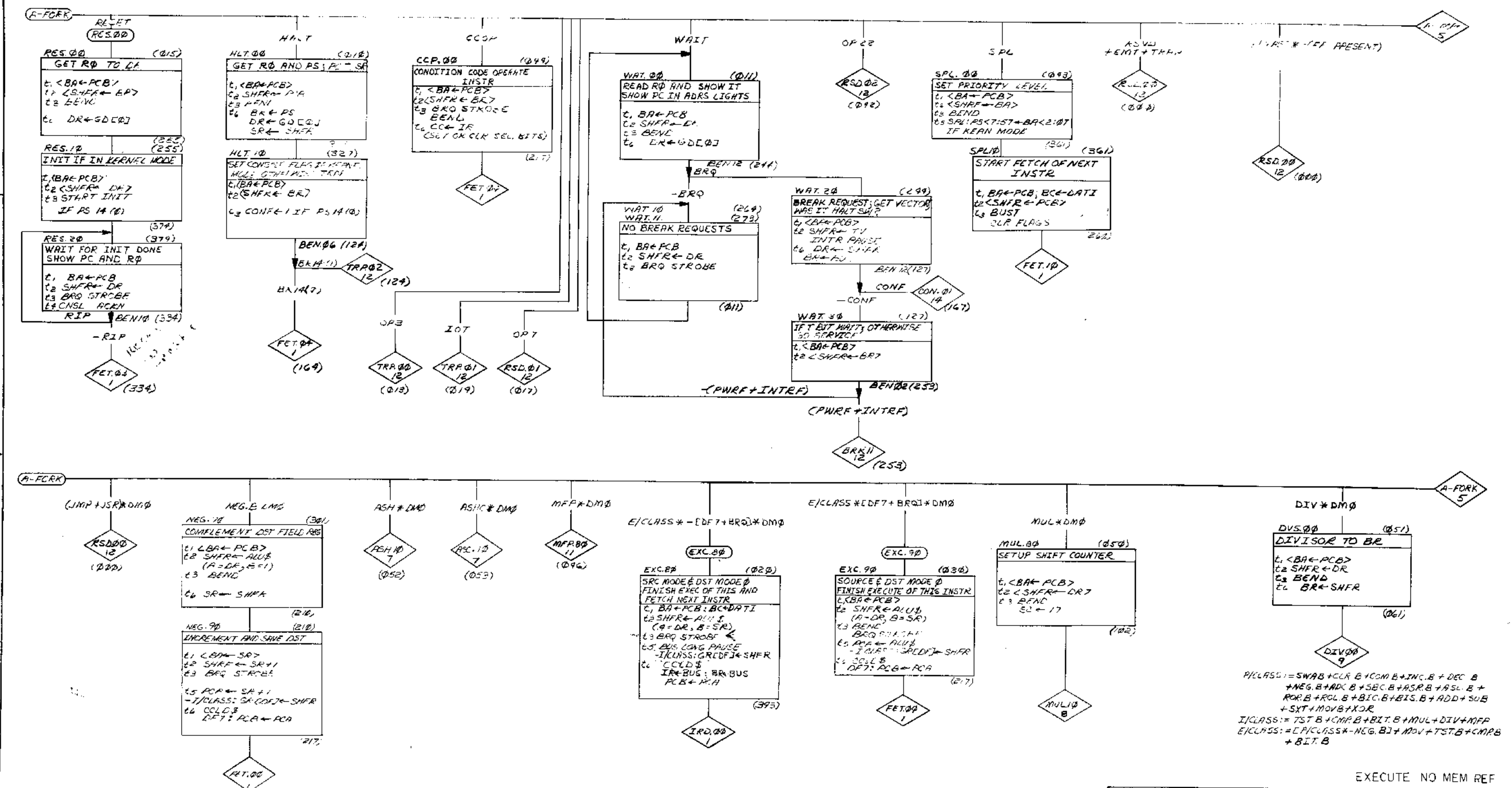

A-FORK
RESET
RES.00
RES.00 (015)
GET R0 TO BA
RES.10 (255)
INIT IF IN KERNEL MODE
RES.20 (379)
WAIT FOR INIT DONE SHOW PC AND R0
t1 BA←PCB
t2 SHFR←DR
t3 BRQ STROBE
t4 CNSL ACKN
RIP
BEN10 (334)
-RIP
FET.03 (334)
HALT
HLT.00 (010)
GET R0 AND PS
HLT.10 (327)
BEN.06 (124)
TRP02 12 (124)
FET.04 1 (164)
CCOP
CCP.00 (049)
CONDITION CODE OPERATE INSTR
FET.04 1
OP3
IOT
OP7
TRP00 12 (018)
TRP01 12 (019)
RSD.01 12 (017)
WAIT
WAT.00 (011)
READ R0 AND SHOW IT SHOW PC IN ADRS LIGHTS
t1 BA←PCB
t6 DR←GDC[0]
BEN12 (244)
BRQ
-BRQ
WAT.10 (264)
WAT.11 (273)
NO BREAK REQUESTS
t1 BA←PCB
t2 SHFR←DR
t3 BRQ STROBE
(011)
WAT.20 (249)
BREAK REQUEST; GET VECTOR WAS IT HALT SW?
CONF
CON.01 14 (167)
-CONF
WAT.30 (127)
IF T BIT WAIT; OTHERWISE GO SERVICE
t1 BA←PCB
-(PWRF+INTRF)
BEN02 (253)
(PWRF+INTRF)
BRK11 12 (253)
OP C2
RSD02 12 (012)
SPL
SPL.00 (043)
SET PRIORITY LEVEL
IF KERN MODE
SPL10 (361)
START FETCH OF NEXT INSTR
t1 BA←PCB; BC←DATI
t2 SHFR←PCB
t3 BUST
CLR FLAGS
FET.10 1
RSD.00 12 (000)
A-FORK 5
A-FORK
(JMP+JSR)*DM0
RSD00 12 (000)
NEG.B LMS
NEG.10 (301)
COMPLEMENT DST FIELD REG
t1 BA←PCB
t3 BEND
t6 SR←SHFR
NEG.90 (218)
INCREMENT AND SAVE DST
t1 BA←SR
t2 SHFR←SR+1
t3 BRQ STROBE
FET.00 1
ASH*DM0
ASH.10 7 (052)
ASHC*DM0
ASC.10 7 (053)
MFP*DM0
MFP.80 11 (096)
E/CLASS*-[DF7+BRQ]*DM0
EXC.80
EXC.80 (020)
SRC MODE & DST MODE 0 FINISH EXEC OF THIS AND FETCH NEXT INSTR
t1 BA←PCB; BC←DATI
t3 BRQ STROBE
IR←BUS; BR←BUS
PCB←PCA
(393)
IRD.00 1
E/CLASS*[DF7+BRQ]*DM0
EXC.90
EXC.90 (030)
SOURCE & DST MODE 0 FINISH EXECUTE OF THIS INSTR
t1 BA←PCB
t3 BEND
DF7: PCB←PCA
FET.00 1
MUL*DM0
MUL.80 (050)
SETUP SHIFT COUNTER
t1 BA←PCB
MUL10 8
DIV*DM0
DVS.00 (051)
DIVISOR TO BR
t1 BA←PCB
t2 SHFR←DR
t3 BEND
t6 BR←SHFR
(061)
DIV00 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
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

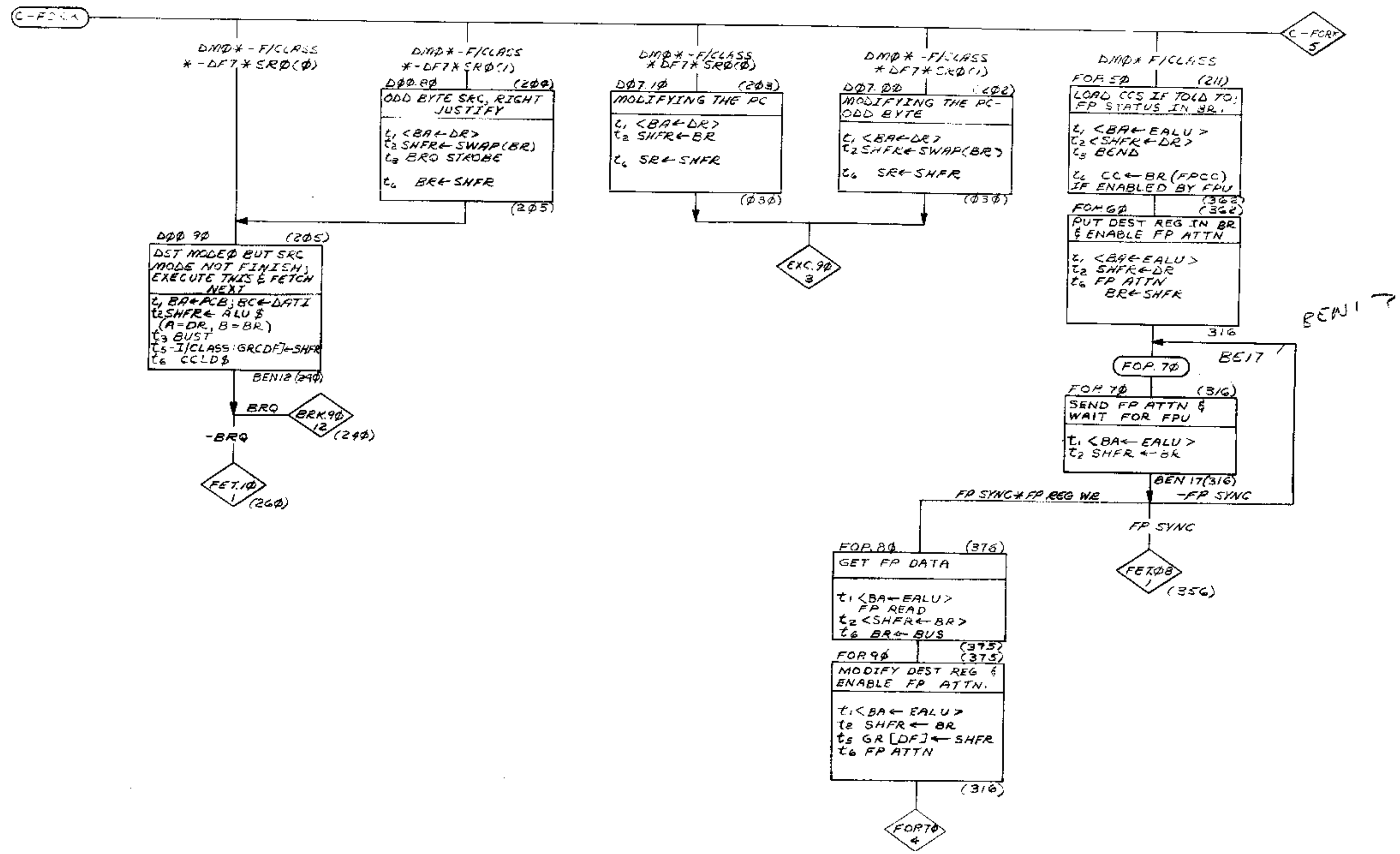
digital EQUIPMENT CORPORATION

TITLE: KB11-A FLOW DIAGRAMS (FLOWS 3)

NEXT HIGHER ASSY: D-DL-KB11-0

SIZE: D CODE: FD NUMBER: KB11-A-03 REV: A

SHEET 4 OF 15



DESTINATION MODE Ø

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45	PARTS LIST			

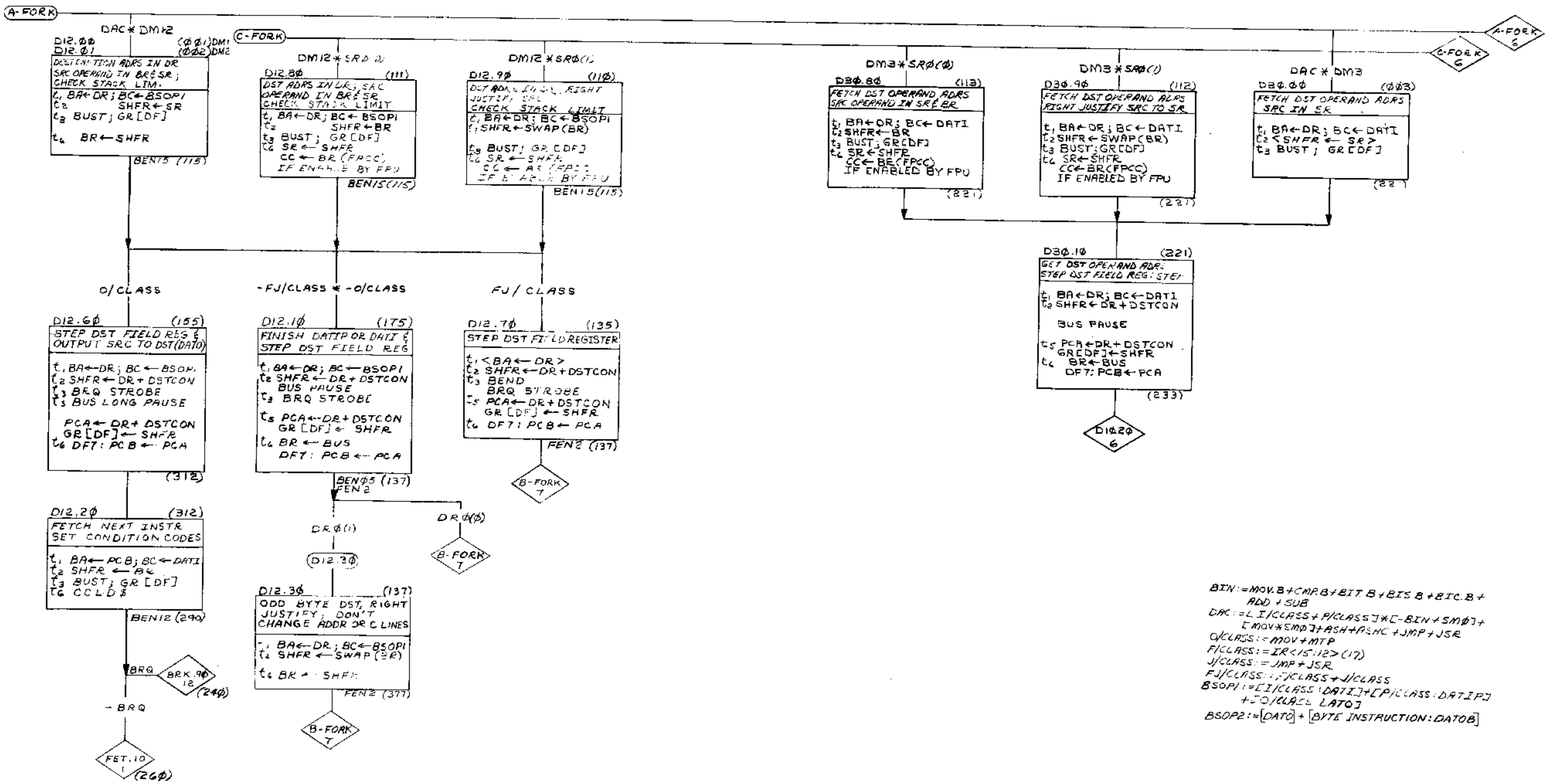
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0 30
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. — DATE 1/4/72
CHK'D — DATE
ENG. — DATE
PROJ. ENG. — DATE
PROD. — DATE
NEXT HIGHER ASSY. B-DD-KB11 2
SCALE
SHEET 5 OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAMS (FLOWS 4)

SIZE D | CODE FD | NUMBER KB11-A-03 | REV A
DIST.



BIN:=MOV.B+CMP.B+BIT.B+BIS.B+BIC.B+ADD+SUB

DAC:=[I/CLASS+P/CLASS]*[-BIN+SM0]+[MOV*SM0]+ASH+ASHC+JMP+JSR

0/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]+[0/CLASS:DATO]

BSOP2:=[DATO]+[BYTE INSTRUCTION:DATOB]

DESTINATION MODES 1-5

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO
11/45		PARTS LIST	

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
CHK'D / DATE
ENG / DATE
PROJ ENG / DATE
PROD / DATE

NEXT HIGHER ASSY: B-DD-KB11-C

SCALE

SHEET 6 OF 15

digital EQUIPMENT CORPORATION

TITLE: KB11-A FLOW DIAGRAMS (FLOWS 5)

SIZE D CODE DF NUMBER ...-03 REV A

DIST

A-FORK

C-FORK

DM45 * SRA (0)

D45.0Ø (115)
STEP DST FIELD REGISTER
t1 <BA←DR>
t2 SHFR←DR-DSTCON
t3 [illegible] DSTCON
GRCDF]←SHFR
t4 DR←SHFR
DF7: PCB←PCA
CC←BR (FPCC) IF ENABLED BY FPU

BEN Ø I (121)

-DM357

D40.2Ø (121)
DATIP, DATI, DATO DST SRC OPERAND TO SR; CHECK STACK LIMIT
t1 BA←DR; BC←BSOPI
t2 SHFR←BR
t3 BUST; GRCDF]
t4 SR←SHFR

BEN15 (157)
FEN2

DM357

D50.2Ø (161)
FETCH DST OPERAND ADRS; SRC OPERAND TO SR
t1 BA←DR; BC←DATI
t2 SHFR←BR
t3 BUST; GRCDF]
t4 SR←SHFR
(231)

D10.1Ø
6

DM45 * SRB (1)

D45.9Ø (114)
STEP DST FIELD REGISTER; ODD BYTE SOURCE
t1 <BA←DR>
t2 SHFR←DR-DSTCON
t3 BRQ STROBE
t5 PCA←DR-DSTCON
GRCDF]←SHFR
t6 DR←SHFR
DF7: PCB←PCA
CCLD3

BEN Ø I (131)

-DM357

D40.3Ø (131)
DATIP, DATI, DATO DST RIGHT JUSTIFY SRC TO SR CHECK STACK LIMIT
t1 BA←DR; BC←BSOPI
t2 SHFR←SWAP(BR)
t3 BUST; GRCDF]
t4 SR←SHFR

BEN15 (171)
FEN2

DM357

D50.3Ø (171)
FETCH DST OPERAND ADRS; RIGHT JUSTIFY SRC TO SR
t1 BA←DR; BC←DATI
t2 SHFR←SWAP(BR)
t3 BUST; GRCDF]
t4 SR←SHFR
(231)

D1Ø.7Ø

-FJ/CLASS

D1Ø.6Ø
6
(171)

FJ/CLASS

B-FORK
7

D1Ø.1Ø (231)
GET DST OPERAND ADRS
t1 BA←DR; BC←DATI
t2 <SHFR←BR>
BUS PAUSE
t4 BR←BUS
(238)

D1Ø.2Ø

D1Ø.2Ø (238)
DST OPERAND ADRS TO DR DON'T CHANGE ADDR OR C LINES
t1 BA←DR; BC←DATI
t2 SHFR←BR
t3 BRQ STROBE
t4 DR←SHFR
(311)

D1Ø.5Ø (311)
DATIP, DATI, DATO DST SRC OPERAND TO BR
t1 BA←DR; BC←BSOPI
t2 SHFR←SR
t3 BUST; GRCØ]
t4 BR←SHFR

BEN15 (157)
FEN2

DAC * DM45

D45.ØØ (ØØØ4) DM4
D45.Ø1 (ØØØ5) DM5
STEP DST FIELD REGISTER
t1 <BA←PCB>
t2 SHFR←DR-DSTCON
t3 BEND
t5 PCA←DR-DSTCON
GRCDF]←SHFR
t6 DR←SHFR
DF7: PCB←PCA

BEN Ø I (122)

DM357

D10.ØØ
D10.ØØ (162)
FETCH DST OPERAND ADRS
t1 BA←DR; BC←DATI
t2 <SHFR←PCB>
t3 BUST; GRCDF]
(231)

-DM357

D10.3Ø (122)
DATIP, DATI, DATO DST SRC OPERAND TO BR CHECK STACK LIMIT
t1 BA←DR; BC←BSOPI
t2 SHFR←SR
t3 BUST; GRCDF]
t4 BR←SHFR

BEN15 (157)
FEN2

FJ/CLASS

B-FORK
7

DM7 * SRØ (Ø)

DG7.8Ø (117)
FETCH INDEX WORD; SRC TO SR
t1 BA←PCB; BC←DATI
t2 SHFR←BR
t3 BUST; GRCØ]
t4 SR←SHFR
CC←BR (FPCC) IF ENABLED BY FPU

(ØØ6)

DM7 * SRØ (1)

DG7.9Ø (116)
FETCH INDEX WORD; RIGHT JUSTIFY SRC TO SR
t1 BA←PCB; BC←DATI
t2 SHFR←SWAP(BR)
t3 BUST; GRCØ]
t4 SR←SHFR
CC←BR (FPCC) IF ENABLED BY FPU

(ØØ6)

DM7 * DM45

DG7.ØØ (ØØØ6) DM6
DG7.Ø1 (ØØØ7) DM7
GET INDEX WORD; ADJUST DST IF DST FIELD PC
t1 BA←PCB; BC←DATI
t2 SHFR←PCB+2
BUS PAUSE
t5 PCA←PCB+2
t6 BR←BUS
-DF7: DR←GRCDF]
DF7: DR←SHFR

(251)

DG7.1Ø (251)
DO INDEXING, STEP PC; DON'T CHANGE ADDR OR C LINES
t1 BA←PCB; BC←DATI
t2 SHFR←BR+DR
t3 BRQ STROBE
t4 DR←SHFR
PCB←PCA

BEN Ø I (122)

-DM357

DM357

D10.ØØ
6
(162)

-O/CLASS * -FJ/CLASS

D1Ø.GØ

D1Ø.GØ (177)
FINISH DATIP, DATI DST
t1 BA←DR; BC←BSOPI
t2 <SHFR←BR>
BUS PAUSE
t3 BRQ STROBE
t4 BR←BUS

BEN Ø S (137)
FEN2

L12.3Ø
5
(137)

LEAST CLASS

B-FORK
7

O/CLASS

D1Ø.9Ø

D1Ø.9Ø (157)
FINISH DATO DST; LOAD CC'S
t1 BA←DR; BC←BSOPI
t2 SHFR←BR
t3 BRQ STROBE
t5 BUS LONG PAUSE
t6 CCLD8
(331)

FETØ1
1

DESTINATION MODES 4-7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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

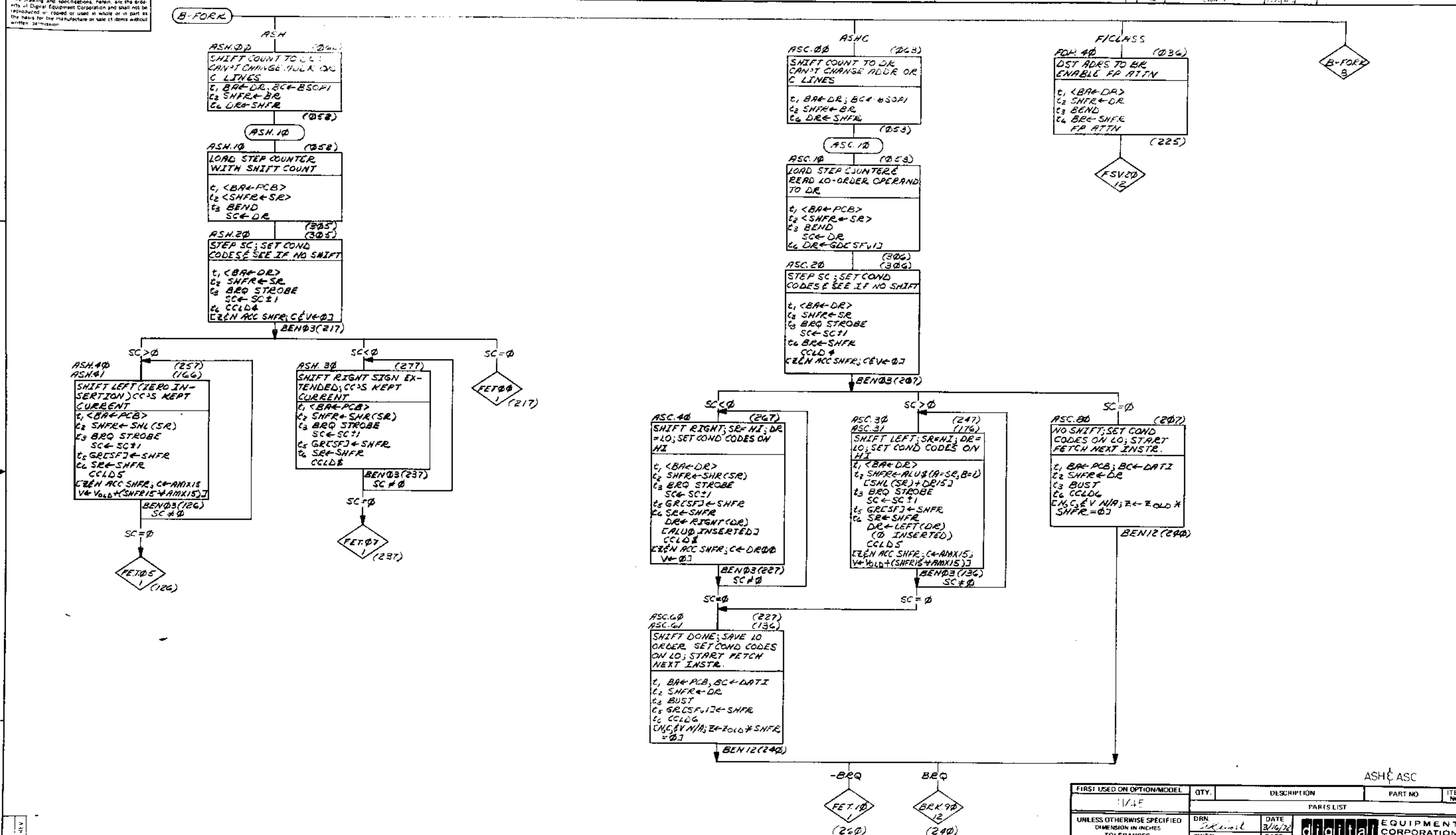
DRN. [illegible] DATE 5-3-72
CHKD. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY B-DD-KB11-Ø
SCALE
SHEET 7 OF 15

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE
KB11-A
FLOW DIAGRAMS
(FLOW 5)

SIZE D | CODE DFD | NUMBER KB11-A-05 | REV A

DFD KB11-A-03 REV A



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO
11/45		PARTS LIST		

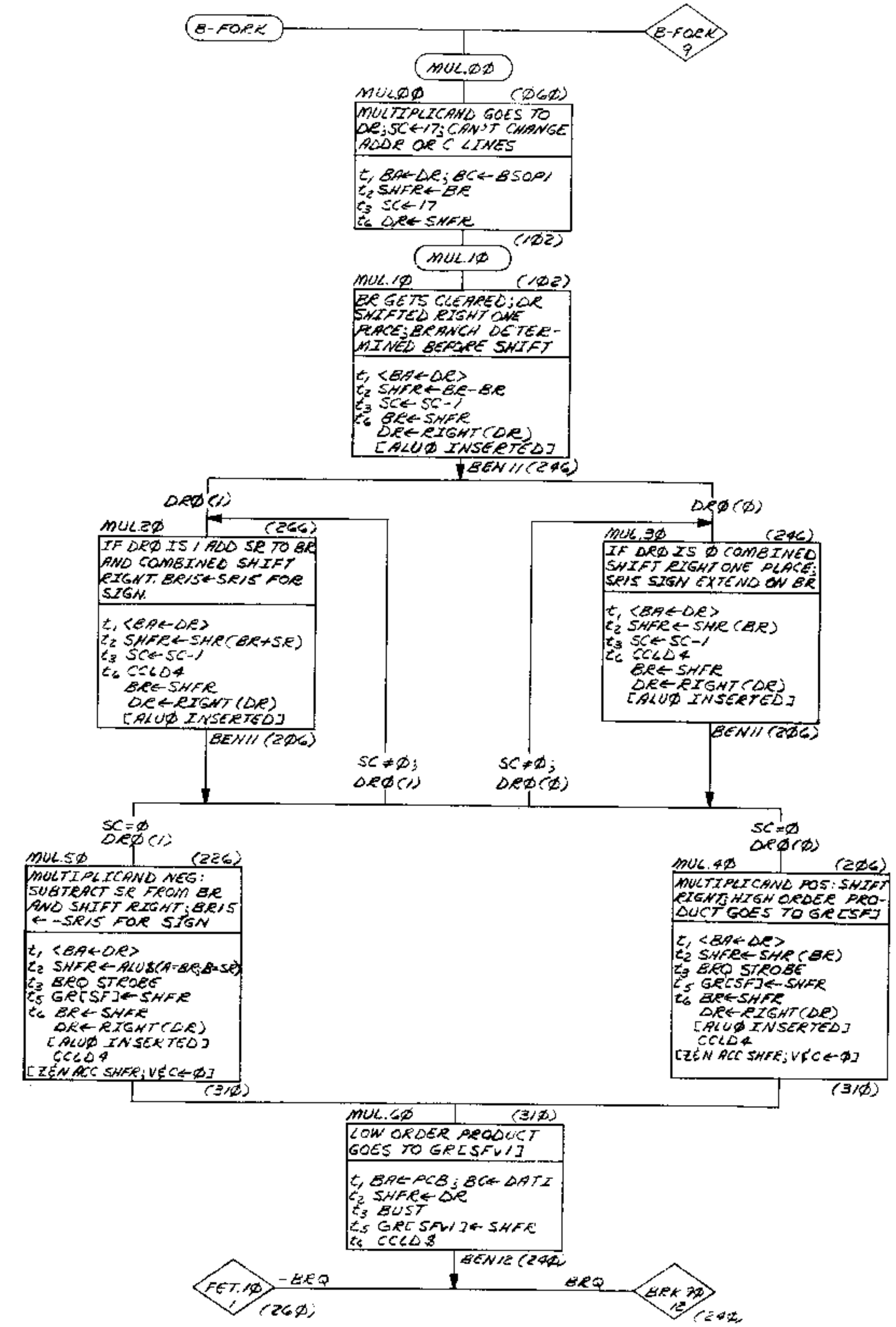
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS XXX ± .005, XX ± .02, X ± .1 — ANGLES ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. — DATE 3/16/72
CHK'D — DATE
ENG. — DATE
PROJ ENG. — DATE
PROD. — DATE
NEXT HIGHER ASSY. F-DD-KB11-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE KB11-A FLOW DIAGRAMS (FLOWS 7)

SIZE D CODE FD NUMBER KB11-A-Ø3 REV A
SCALE —
SHEET 8 OF 15
DIST.



MULTIPLY

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
11/45	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL — FINISH

DRN. A Kibort — DATE 3/16/72
CHK'D. — DATE
ENG. — DATE
PROJ ENG. — DATE
PROD. — DATE

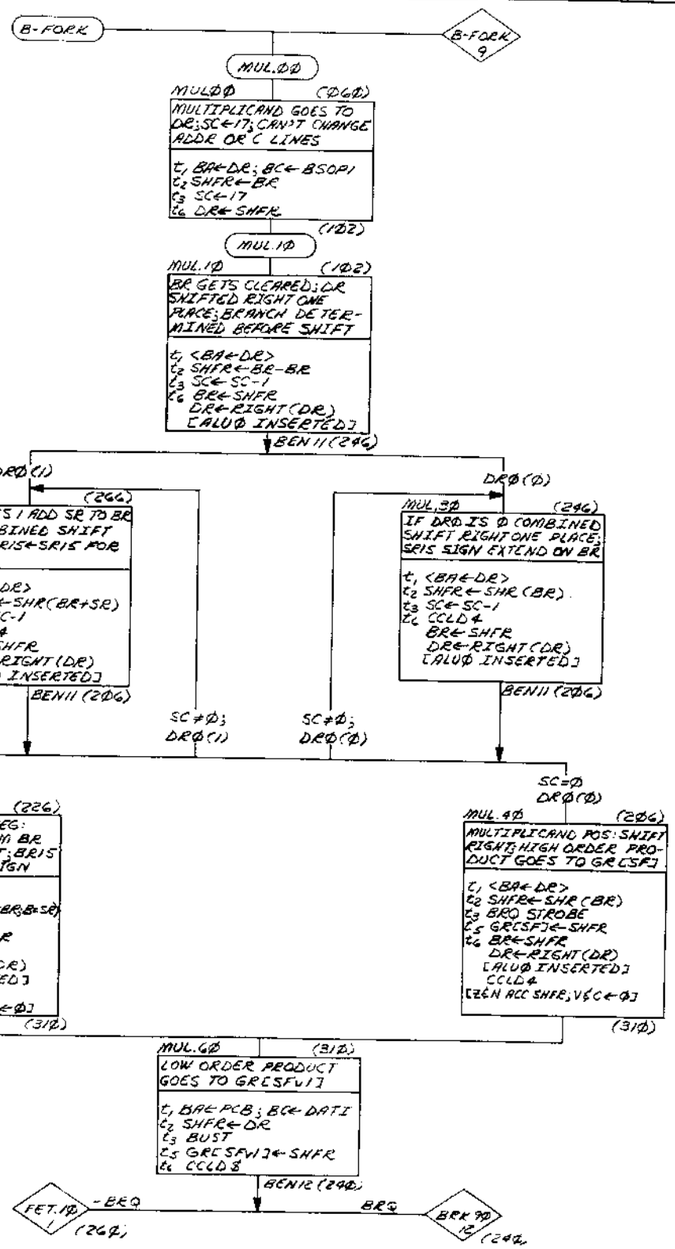
NEXT HIGHER ASSY: D-DD-KB11-0

SCALE — SHEET 9 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAM (FLOW 8)

SIZE D — CODE FD — NUMBER KB11-A-03 — REV. A



FIRST USED ON OPTION-MODEL	QTY.	DESCRIPTION	PART NO / ITEM NO
1/15		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	Arkent	DATE 3/16/72
CHKD		DATE
ENG		DATE
PROJ ENG		DATE 1-72
PROD		DATE

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

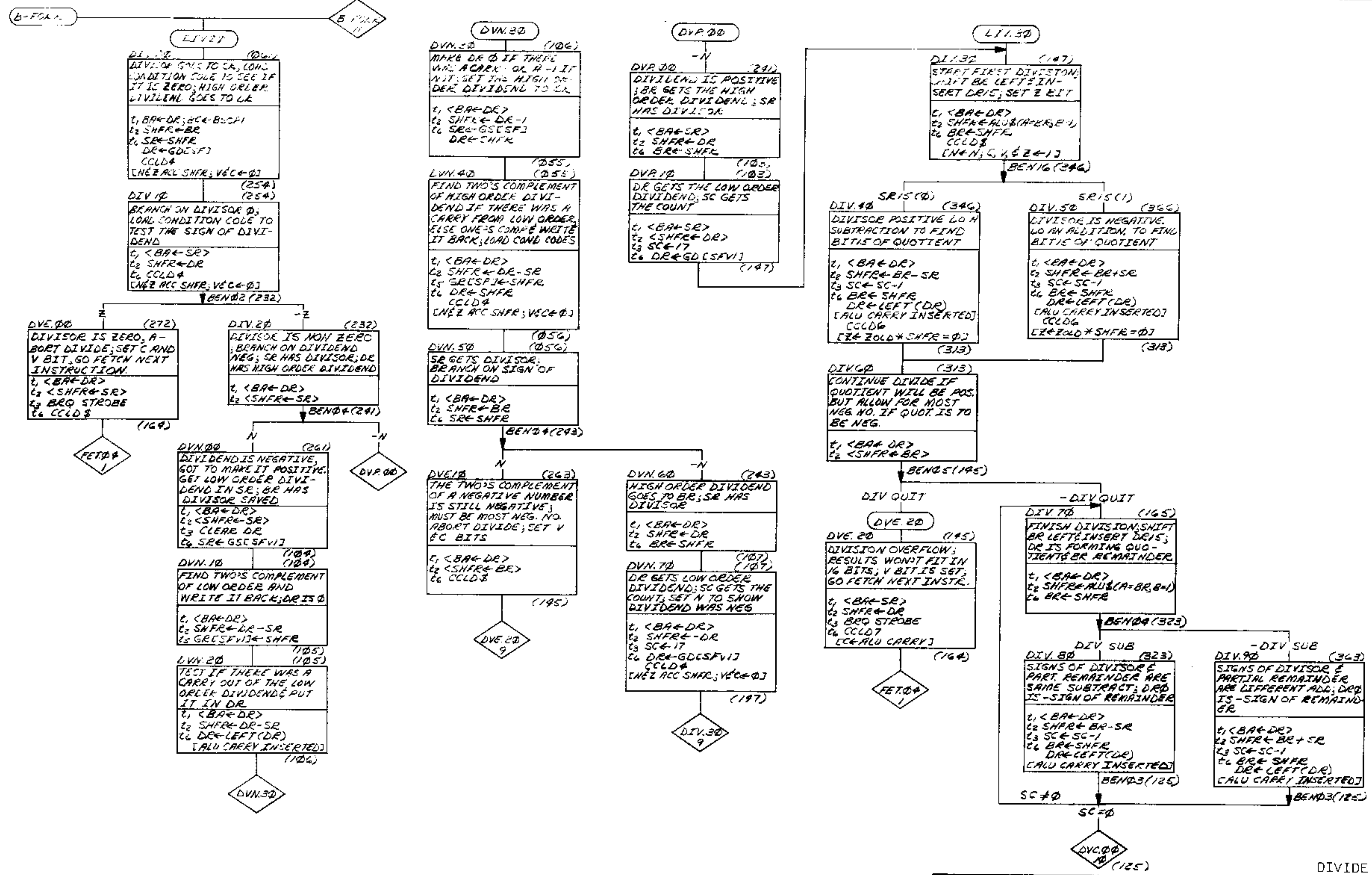
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAM (FLOW 8)

SIZE	CODE	NUMBER	REV
D	FD	KB11-A-Ø3	A

DIST

MULTIPLE



DIVIDE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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. / ENG. / PROJ. ENG. / PROD. — DATE

NEXT HIGHER ASSY. B-DD-KB11-0

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE KB11-A FLOW DIAGRAMS (FLOWS 9)

SIZE D CODE FD NUMBER KB11-A-03 REV A

SCALE — SHEET 10 OF 15 DIST

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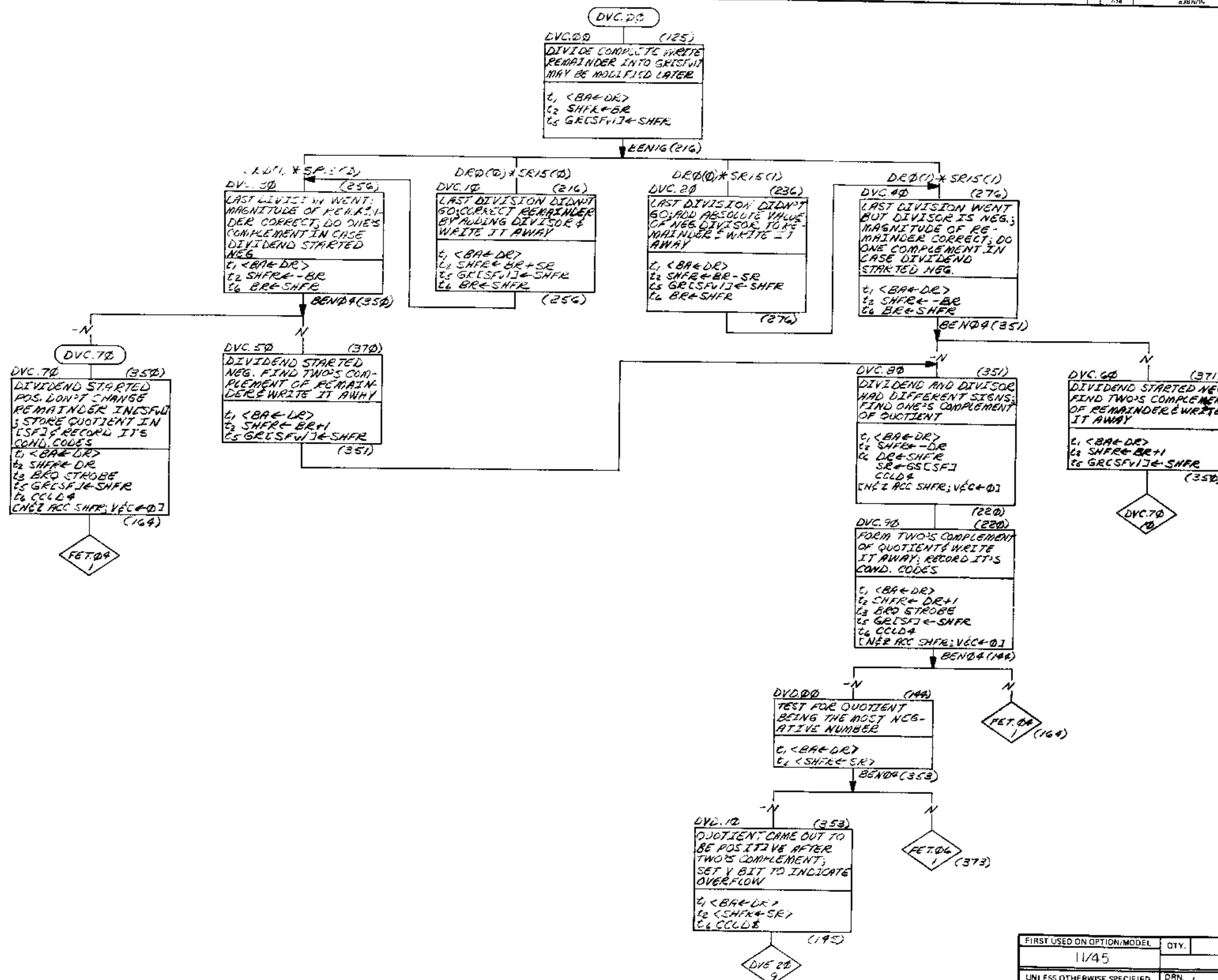


DIVIDE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 · CHK'D DATE · ENG. DATE · PROJ. ENG. DATE · PROD. DATE

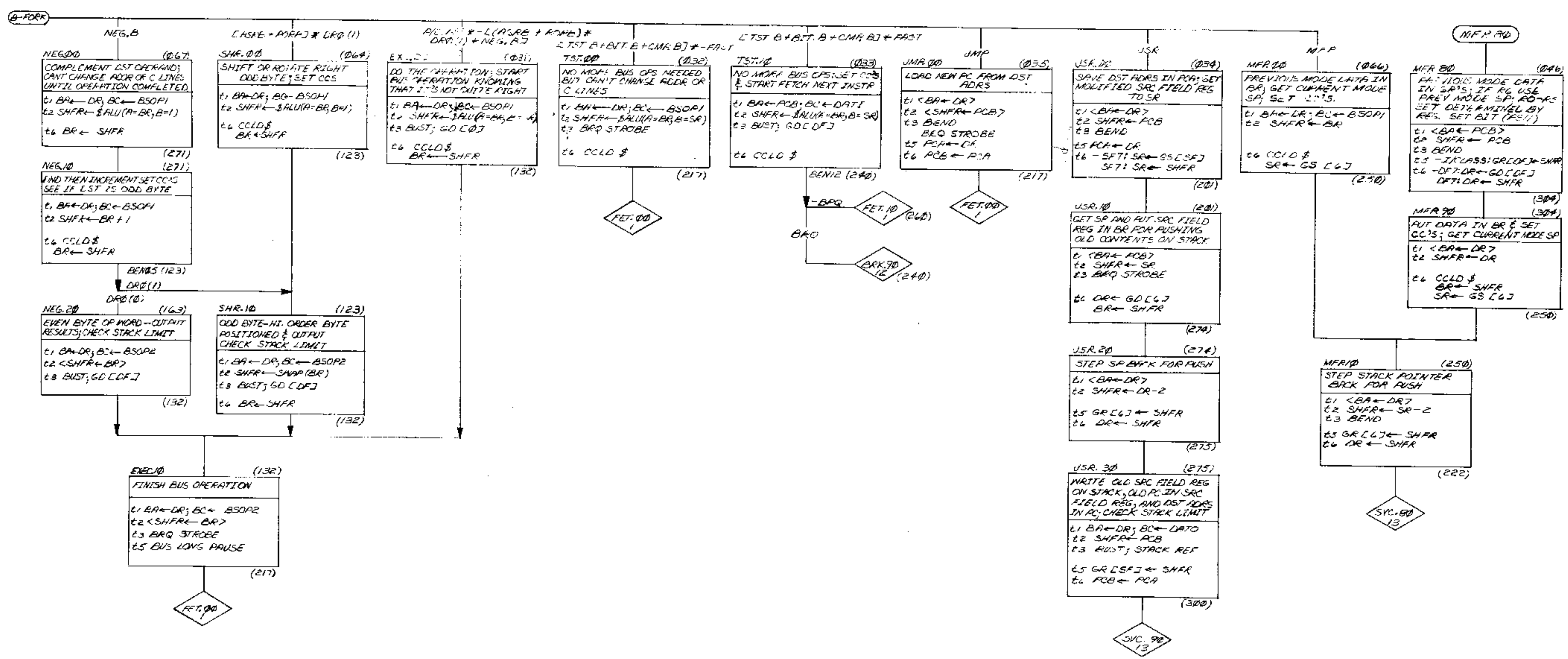
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KB11-A FLOW DIAGRAMS (FLOWS 10)

NEXT HIGHER ASSY. B-DD-KB11-Ø

SIZE D CODE FD NUMBER KB11-A-Ø3 REV. A

SCALE · SHEET OF



EXECUTE - MEM REF

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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. / CHKD. / ENG. / PROJ. ENG. / PROD. — DATE

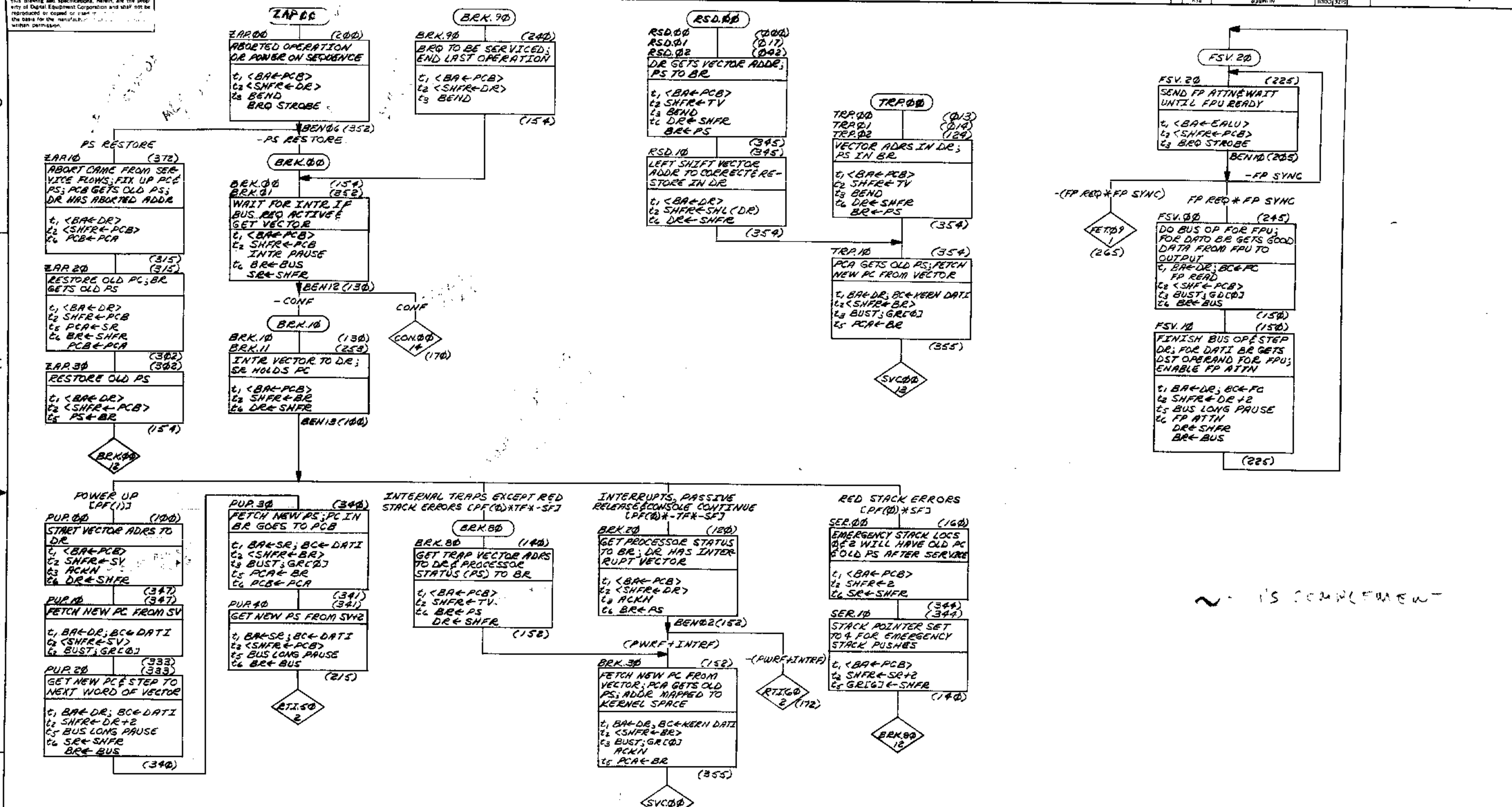
NEXT HIGHER ASSY: B-DD-KB11-Ø

SCALE — SHEET 1? OF 15

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KB11 A FLOW DIAGRAMS (FLO'S 11)

SIZE D CODE FD NUMBER KB11-A-Ø3 REV A



BREAK CONDITIONS

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45				

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS: .XXX ± .005, .XX ± .01, .X ± .1 — ANGLES: ±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. / CHKD. / ENG. / PROJ. ENG. / PROD. — DATES 4-3-72

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE KB11-A FLOW DIAGRAMS (FLOWS 12)

NEXT HIGHER ASSY. B-DD-KB11-0

SIZE D CODE FD NUMBER KB11-A-03 REV A

SCALE — SHEET 13 OF 15

SVC.ØØ

SVC.ØØ (355)

GET NEW PC TO BR; STEP DR FOR VECTOR +2 FETCH; PCA HAS OLD PS

t_1 BA←DR; BC←KERN DATI
t_2 SNFR←DR+2
t_3 BUS LONG PAUSE
t_4 BR←BUS
DR←SNFR

(ØG5) (ØG5)

SVC.ØØ

FETCH NEW PS FROM VECTOR +2; ADDR MAPPED TO KERNEL SPACE; SP GETS OLD PC; PCB GETS OLD PS

t_1 BA←DR; BC←KERN DATI
t_2 SNFR←PCB
t_3 BUST; GRC←J
t_4 SP←SNFR
PCB←PCA

(357) (357)

SVC.2Ø

GET NEW PS TO BR; DR GETS OLD PS; PCA, PCB GET NEW PC

t_1 BA←DR; BC←KERN DATI
t_2 SNFR←PCB
t_3 BUS LONG PAUSE
PCA←BR
t_4 BR←BUS
DR←SNFR
PCB←PCA

(36Ø) (36Ø)

SVC.3Ø

PS GETS NEW PS; LOAD PREV MODE FROM CURRENT MODE; PCA & BR GET OLD PS; SP HAS OLD PC

t_1 (BA←DR); BC←KERN DATI
t_2 SNFR←DR
t_3 PS←BR; GRC←J
t_5 PCA←DR
t_6 BR←SNFR

(367) (367)

SVC.4Ø

DR GETS NEW CURRENT MODE STACK POINTER; PCB HAS NEW PC; BR HAS OLD PS

t_1 (BA←DR)
t_2 (SNFR←PCB)
t_3 DR←GO [6]

(Ø37) (Ø37)

SVC.5Ø

STEP SP FOR PUSH; DR GETS SP-2; BR HAS OLD PS

t_1 (BA←DR)
t_2 SNFR←DR-2
t_3 GRC&J←SNFR
t_4 DR←SNFR

(Ø25) (Ø25)

SVC.6Ø

PUSH OLD PS ONTO CURRENT MODE STACK; CHECK FOR STACK LIMIT; STEP SP FOR NEXT PUSH

t_1 BA←DR; BC←DATO
t_2 SNFR←DR-2
t_3 BUST
t_5 GRC&J←SNFR

(Ø4) (Ø4)

SVC.7Ø
15

SVC.7Ø

SVC.7Ø (Ø41)

FINISH PUSH; BR GETS OLD PC; DR GETS SP

t_1 BA←DR; BC←DATO
t_2 SNFR←SR
t_3 BUS LONG PAUSE
t_4 DR←GDEC(J
BR←SNFR

(222)

SVC.8Ø

SVC.8Ø (222)

DO PUSH ONTO STACK; CHECK FOR STACK LIMIT; IF INTR OR TRAP SERVICE: BR HAS OLD PC; PCB HAS NEW PC

t_1 BA←DR; BC←DATO
t_2 <SNFR←PCB>
t_3 BUST; GRC←J

(3ØØ)

SVC.9Ø

SVC.9Ø (3ØØ)

FINISH PUSH & STROBE BREAK REQUESTS

t_1 BA←DR; BC←DATO
t_2 <SNFR←BR>
t_3 BRQ STROBE
t_5 BUS LONG PAUSE

(217)

FETØØ
1

XXX.XX (337)

HARDWARE FAILURE! UNUSED ROM LOCATION

<BA←PCB>
<SNFR←DR>

(337)

XXX.XX (364)

HARDWARE FAILURE! UNUSED ROM LOCATION

<BA←PCB>
<SNFR←DR>

(364)

XXX.XX (365)

HARDWARE FAILURE! UNUSED ROM LOCATION

<BA←PCB>
<SNFR←DR>

(365)

XXX.XX (377)

HARDWARE FAILURE! UNUSED ROM LOCATION

<BA←PCB>
<SNFR←DR>

(377)

SERVICE SEQUENCE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 3/14/72
CHK		DATE 4/3/72
ENG		DATE 4-3-72
PROJ. ENG		DATE 4-3-72
PROD.		DATE 4-13-72

NEXT HIGHER ASSY. B-DD-KB11-Ø
SCALE
SHEET 14 OF 15

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

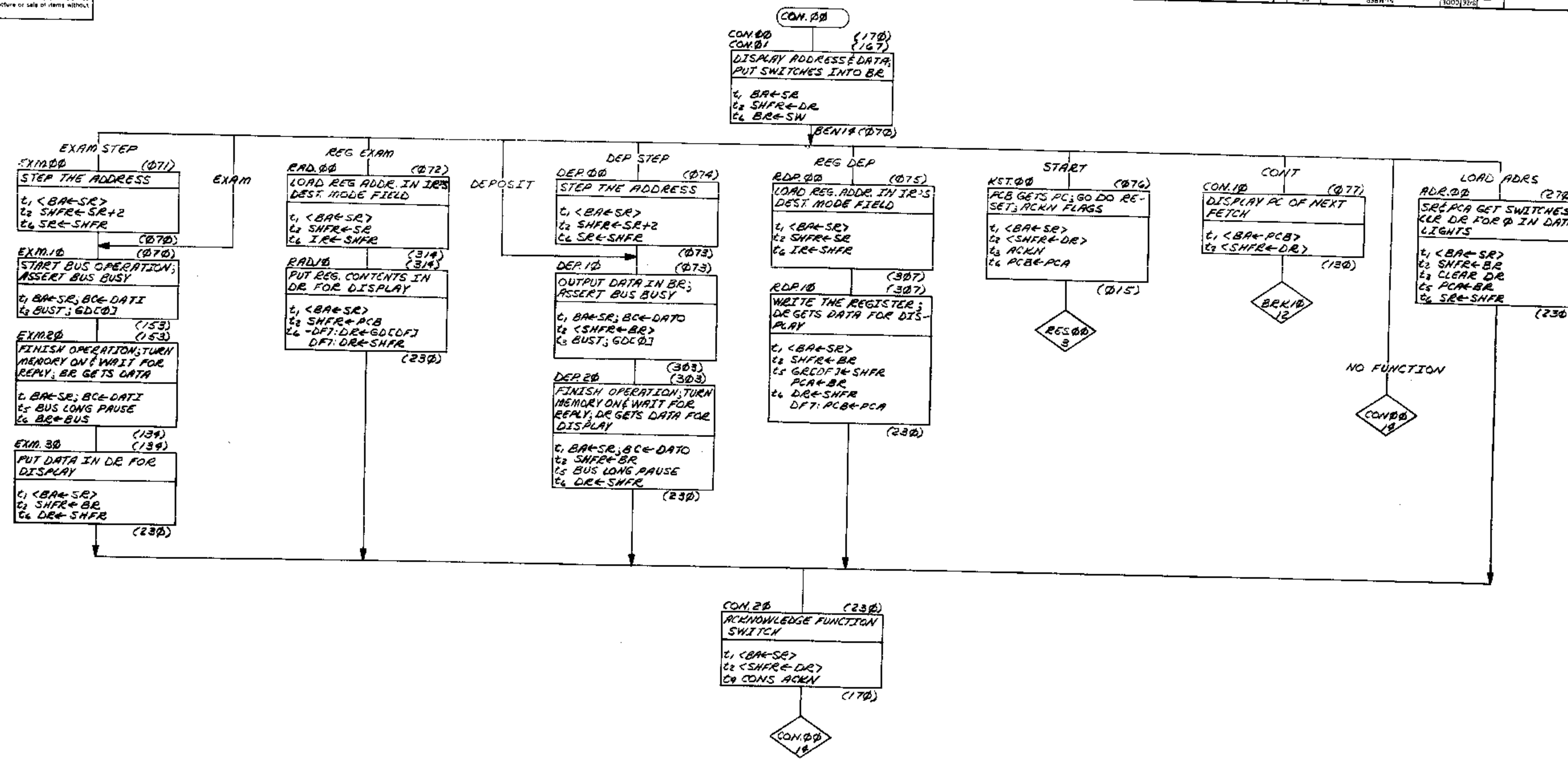
TITLE: KB11-A FLOW DIAGRAMS (FLOWS 13)

SIZE D | CODE FD | NUMBER KB11-A-Ø3 | REV. A | DIST

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-522 15840

DEC FORM NO ORD 102-B



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CONSOLE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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 / ENG / PROJ. ENG / PROD — DATES 4-3-72

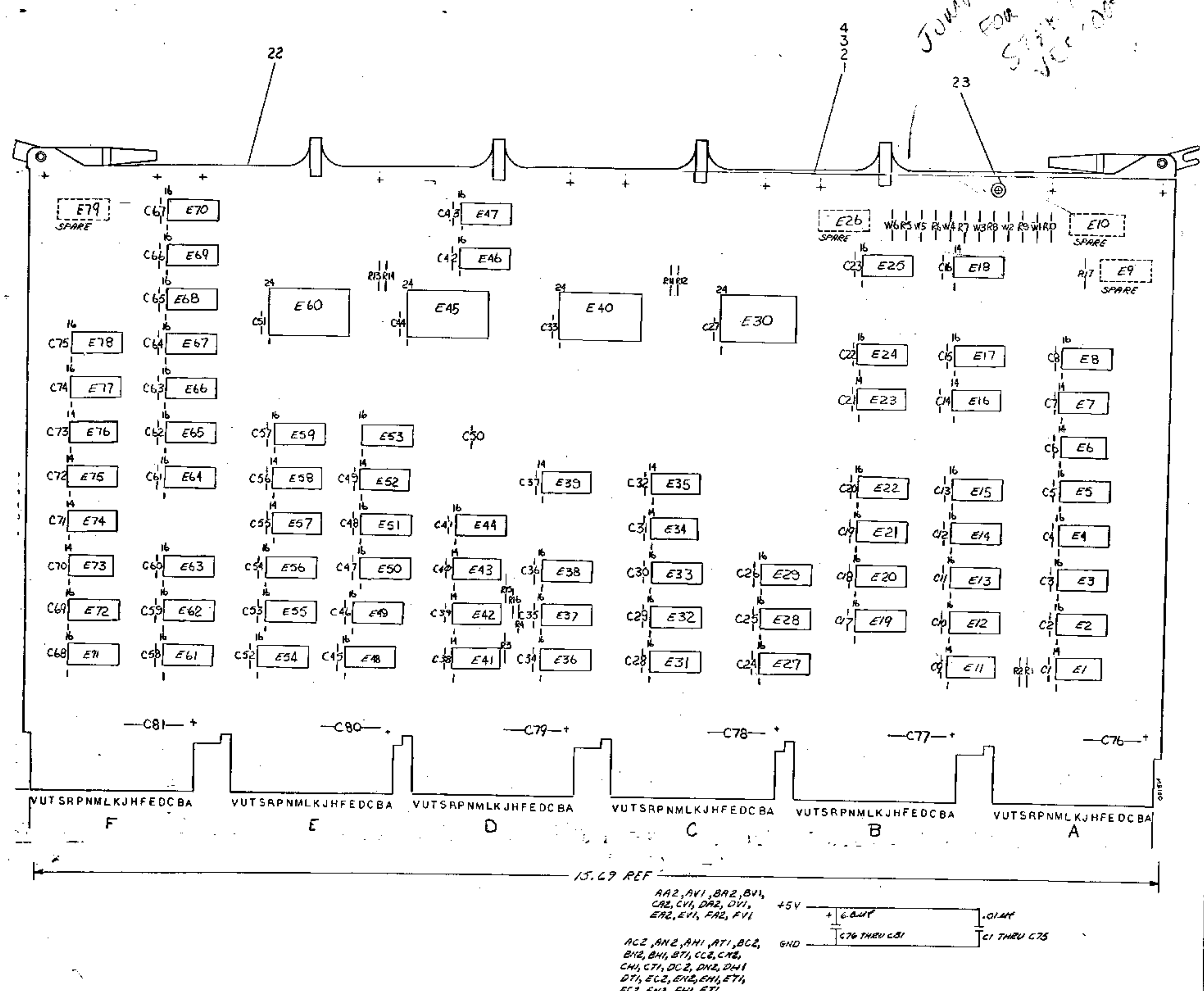
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KB11-A FLOW DIAGRAMS (FLOWS 14)

NEXT HIGHER ASSY: B-DD-KB11-Ø
SIZE D CODE FD NUMBER KB11-A-Ø3 REV. A
SCALE — SHEET 15 OF

NOTES:

1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .01 MFD.
2. E9, E10, E26 & E79 ARE SPARE IC LOCATIONS
3. R1, R3 & R15 ARE NOT USED



DEC 74182-1	8	16	
DEC 74S174	8	16	
DEC 74S157	8	16	
DEC 74S153	8	16	
DEC 74S181	12	24	
IC TYPE	GND	+5V	
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE			
IC PIN LOCATIONS			

ITEM NO.	AWG	FROM PT	TO PT
JUMPER LIST			

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
12		EYELETS	9006732	23
1		HANDLE, MODULE	E-PS-1210711-2	22
1	E44	IC DEC 74182-1	1910551	21
9	E2, E12, E19, E66, E67, E46, E47, E69, E70	IC DEC 74S174	1910550	20
2	E48, E49	IC DEC 74S157	1910548	19
39	E3, E4, E5, E8, E13, E14, E15, E17, E20, E21, E22, E24, E25, E27, E28, E29, E31, E32, E33, E36, E37, E38, E50, E51, E53, E54, E55, E56, E59, E61, E62, E63, E64, E65, E68, E71, E72, E77, E78	IC DEC 74S153	1910547	18
1	E52	IC DEC 74S20	1910539	17
4	E75, E7, E57, E43	IC DEC 74S11	1910557	16
2	E16, E34	IC DEC 74S10	1910536	15
8	E6, E11, E18, E41, E39, E58, E73, E76	IC DEC 74S04	1910534	14
3	E23, E35, E74	IC DEC 74S00	1910532	13
4	E30, E40, E45, E60	IC DEC 74S181	1910531	12
2	E1, E42	IC DEC 74S64	1910542	11
2	R12, R14	RES., 560Ω, 1/4W, 5%	1301890	10
3	R2, R4, R16	RES., 150Ω, 1/4W, 5%	1300250	9
2	R11, R13	RES., 330Ω, 1/4W, 5%	1300295	8
7	R5 THRU R10, R17	RES 10K, 1/4W, 5%	1300479	7
6	C76 THRU C81	CAP, 6.8µf, 35V, 20%	1000067	6
75	C1 THRU C75	CAP, .01µf, 100V, 20%	1001610	5
1		ETCHED CIRCUIT BOARD	5009586	4
REF		MODULE ECO HISTORY	B-AH-M8100-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M8100-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8100-0-4	1

PARTS LIST

ETCH BOARD REV C

SEMICONDUCTOR CONVERSION CHART

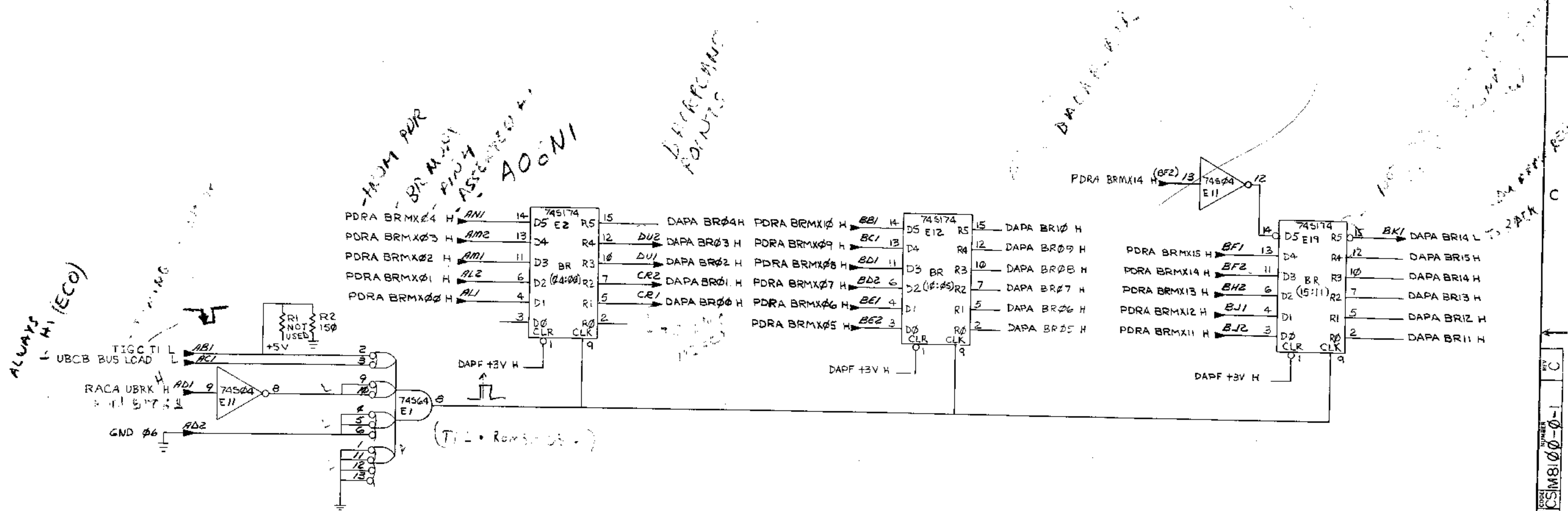
DIGITAL EQUIPMENT CORPORATION

TITLE: DAP-DATA PATHS

NEXT HIGHER ASSY: E-CD-KB11-A

SIZE: E — CODE: CS — NUMBER: M8100-0-1 — REV. C

SHEET 1 OF 4



BUS REGISTER

SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 / CHKD / ENG / PROJ. ENG. / PROD — DATE

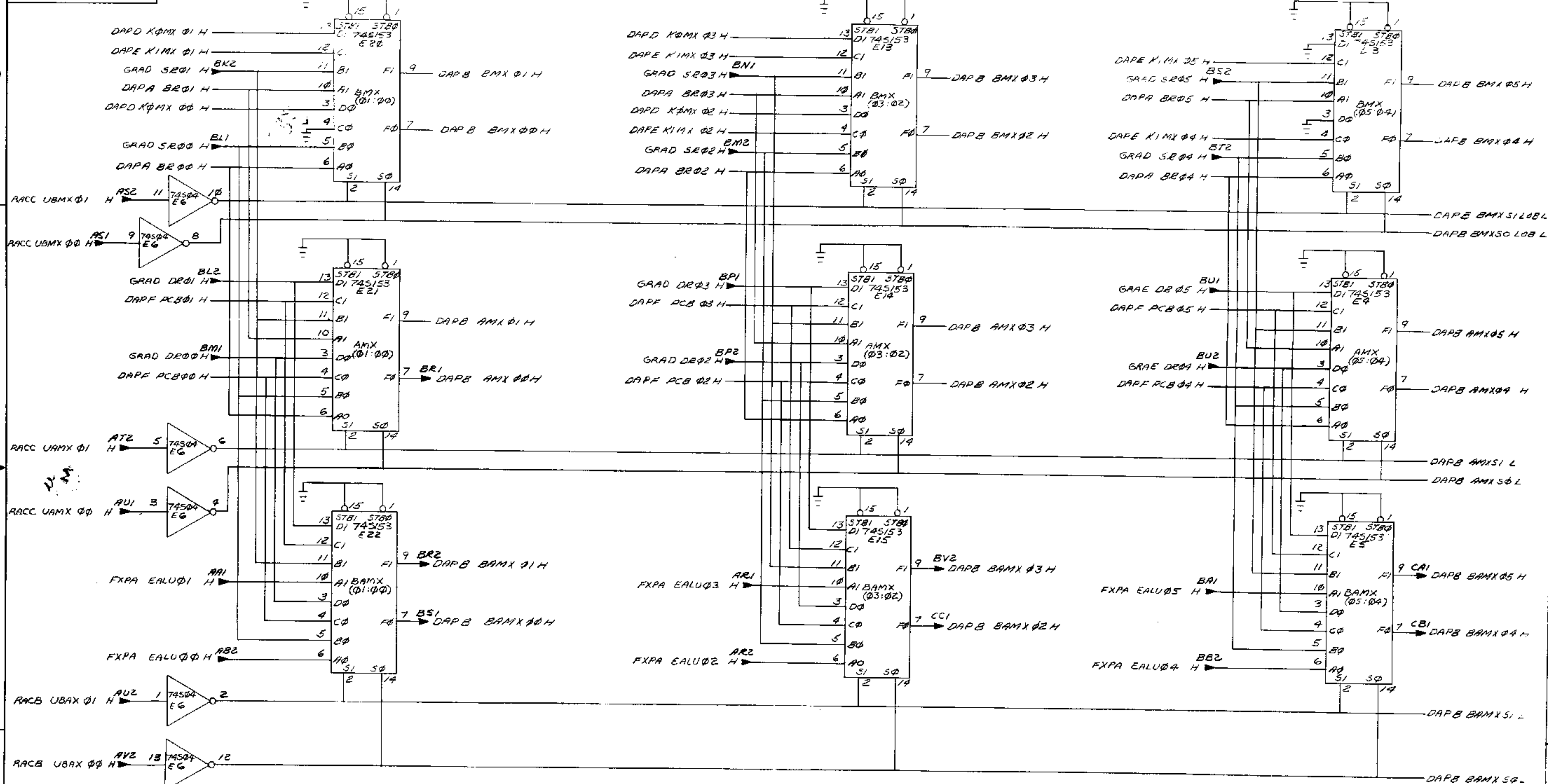
NEXT HIGHER ASSY. B-DD-KE11-A

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE DATA PATHS (DAPA)

SIZE D CODE CS NUMBER M8100-Ø-1 REV C

SCALE — SHEET 2 OF 9



UBAX Ø1	ØØ	
L	L	DR
L	H	PCB
H	L	SR
H	H	FP MAINT

UAMX Ø1	ØØ	
L	L	DR
L	H	PCB
H	L	SR
H	H	BR

UBMX Ø1	ØØ	
L	L	KØMX
L	H	K1MX
H	L	SR
H	H	BR

B,A,&BUS ADDR. MULTIPLEXERS (Ø5:ØØ)

SLOT 6

FIRST USED ON OPTION/MODEL: 11/45

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

QTY. | DESCRIPTION | PART NO.

PARTS LIST

DRN. / CHKD. / ENG. / PROJ. ENG. / PROD. — DATE 7-?-71

NEXT HIGHER ASSY. B-DD-KB11-A

SCALE — SHEET 3 OF ?

digital EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: DATA PATHS

SIZE D — CODE CS — NUMBER

DAPE KIMXØ7 H
GRAF SRØ7 H
DAPA BRØ7 H
DAPE KIMXØ6 H
GRAF SRØ6 H
DAPA BRØ6 H
DAPB BMXS1 LOB L
DAPB BMXSØ LOB L
STB1 STBØ DI 74S153 E27 BMX (Ø7:Ø6) F1 F0 S1 SØ
CD1 CD2 CF1
DAPC BMXØ7 H
DAPC BMXØ6 H

GRAE DRØ7 H
DAPH PCBØ7 H
GRAE DRØ6 H
DAPH PCBØ6 H
STB1 STBØ DI 74S153 E28 AMX (Ø7:Ø6) F1 F0 S1 SØ
CE1 CE2 CK1
DAPC AMXØ7 H
DAPC AMXØ6 H

DAPB AMXS1 L
DAPB AMXSØ L

FXPA EALUØ7 H
FXPA EALUØ6 H
STB1 STBØ DI 74S153 E29 BAMX (Ø7:Ø6) F1 F0 S1 SØ
CB2 DB1 CK2 CL1
DAPC BAMXØ7 H
DAPC BAMXØ6 H

DAPB BAMXS1 L
DAPB BAMXSØ L

DAPD KØEX H
DAPE KIEX H
GRAF SRØ9 H
DAPA BRØ9 H
GRAF SRØ8 H
DAPA BRØ8 H
DAPD BMXS1 HIB L
DAPD BMXSØ HIB L
STB1 STBØ DI 74S153 E31 BMX (Ø9:Ø8) F1 F0 S1 SØ
CF2 CH2
DAPC BMXØ9 H
DAPC BMXØ8 H

GRAF DRØ9 H
DAPH PCBØ9 H
GRAF DRØ8 H
DAPH PCBØ8 H
STB1 STBØ DI 74S153 E32 AMX (Ø9:Ø8) F1 F0 S1 SØ
CJ1 CJ2
DAPC AMXØ9 H
DAPC AMXØ8 H

FXPB EALUØ9 H
FXPB EALUØ8 H
STB1 STBØ DI 74S153 E33 BAMX (Ø9:Ø8) F1 F0 S1 SØ
DB2 EK2 CP1 CP2
DAPC BAMXØ9 H
DAPC BAMXØ8 H

DAPE KIEX H
RACC UKMXØØ H (EP2)
74S04 E76
74S11 E75
GRAF SR11 H
DAPA BR11 H
DAPD KØEX H
DAPE KIEX H
GRAF SRIØ H
DAPA BRIØ H
STB1 STBØ DI 74S153 E36 BMX (11:1Ø) F1 F0 S1 SØ
CL2 CM1
DAPC BMX11 H
DAPC BMXIØ H

GRAF DR11 H
DAPH PCB11 H
GRAF DRIØ H
DAPH PCBIØ H
STB1 STBØ DI 74S153 E37 AMX (11:1Ø) F1 F0 S1 SØ
CM2 CN1
DAPC AMX11 H
DAPC AMXIØ H

FXPB EALU11 H
FXPB EALUIØ H
STB1 STBØ DI 74S153 E38 BAMX (11:1Ø) F1 F0 S1 SØ
EL1 FA1 CS1 CS2
DAPC BAMX11 H
DAPC BAMXIØ H

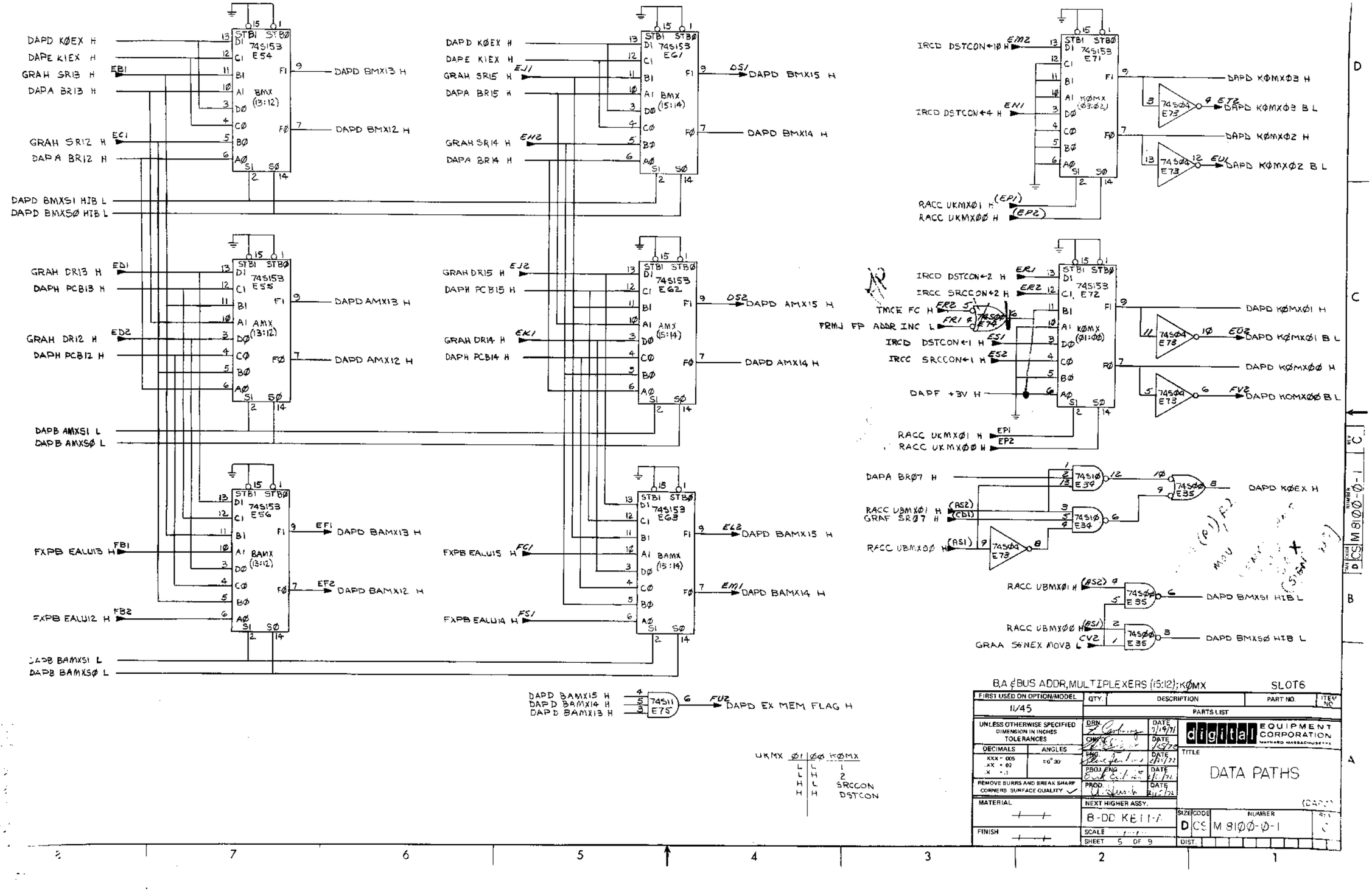
B, A, & BUS ADDR. MULTIPLEXERS (11:07)

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO
11/45		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 7-9-71	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK	DATE	
ENG	DATE 7/9/72	TITLE DATA PATHS (DAPC)
PROJ ENG	DATE 7/9/72	
PROD	DATE 7/9/72	
NEXT HIGHER ASSY. B-ED-KB11-A		SIZE D CODE CS NUMBER MS10C-0-1 REV C
SCALE —"—		
SHEET 4 OF 9		DIST.

SLOT6



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

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

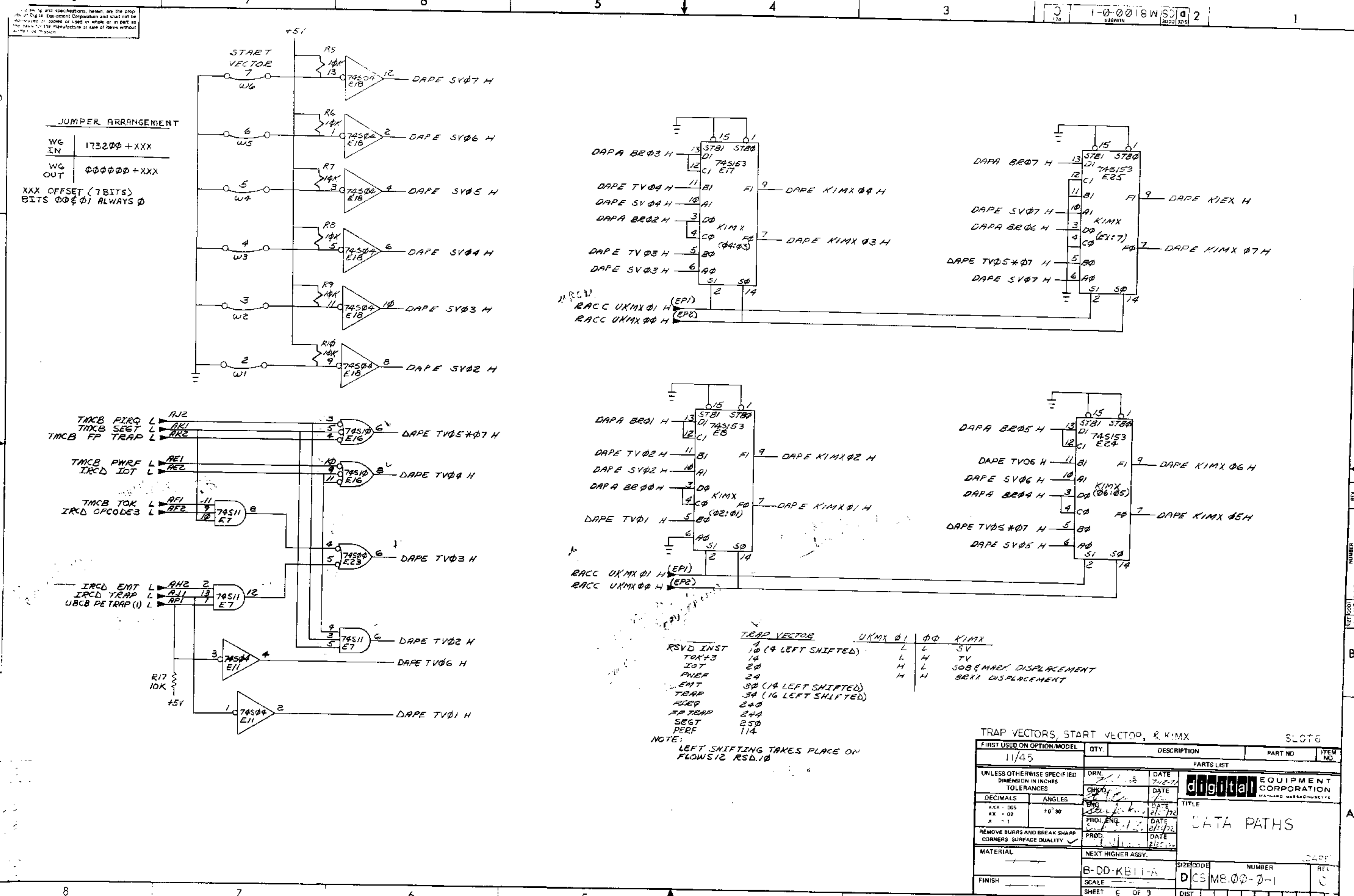
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. — DATE 7/19/71
CHK'D — DATE 7/19/71
ENG. — DATE 7/21/71
PROJ. ENG — DATE 7/21/71
PROD. — DATE 8/25/71
NEXT HIGHER ASSY. B-DD KE11-A

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS (DAPX)

SIZE D | CODE CS | NUMBER M 8100-0-1 | REV C
SCALE —
SHEET 5 OF 9
DIST.



TRAP VECTOR	
RSVD INST	4, 10 (4 LEFT SHIFTED)
TOK+3	14
IOT	20
PWRF	24
EMT	30 (14 LEFT SHIFTED)
TRAP	34 (16 LEFT SHIFTED)
PIRQ	240
FP TRAP	244
SEGT	250
PERF	114

NOTE: LEFT SHIFTING TAKES PLACE ON FLOWS 12 RSD.10

UKMX 01	00	KIMX
L	L	SV
L	H	TV
H	L	SOB & MARK DISPLACEMENT
H	H	BRXX DISPLACEMENT

TRAP VECTORS, START VECTOR, & KIMX

FIRST USED ON OPTION/MODEL: 11/45

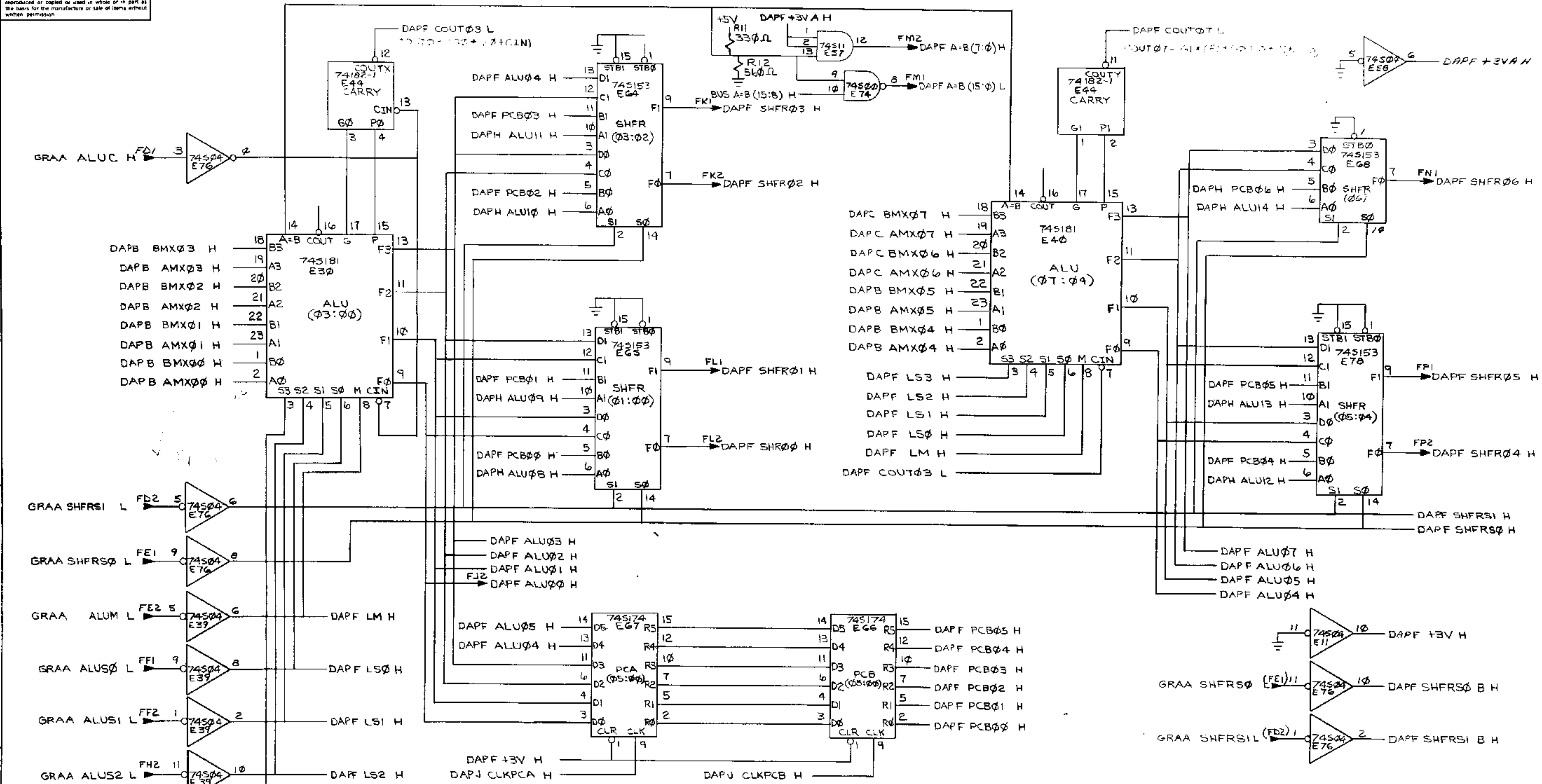
DIGITAL EQUIPMENT CORPORATION

TITLE: DATA PATHS

NEXT HIGHER ASSY: B-DD-KB11-A

SIZE D CODE CS NUMBER M8100-0-1 REV C

SHEET 6 OF 9



DAPF COUT03 L
74182-1 E44 CARRY
COUTX
CIN
G0 P0
GRAA ALUC H
74S04 E76
74S181 E30
ALU (03:00)
DAPB BMX03 H
DAPB AMX03 H
DAPB BMX02 H
DAPB AMX02 H
DAPB BMX01 H
DAPB AMX01 H
DAPB BMX00 H
DAPB AMX00 H
DAPF ALU04 H
DAPF PCB03 H
DAPH ALU11 H
DAPF PCB02 H
DAPH ALU10 H
74S153 E64
SHFR (03:02)
DAPF SHFR03 H
DAPF SHFR02 H
+5V
R11 330Ω
R12 560Ω
DAPF +3V A H
74S11 E57
FM2
DAPF A=B(7:0) H
BUS A=B (15:8) H
74S20 E74
FM1
DAPF A=B (15:0) L
74S153 E65
SHFR (01:00)
DAPF PCB01 H
DAPH ALU09 H
DAPF PCB00 H
DAPH ALU08 H
DAPF SHFR01 H
DAPF SHR00 H
DAPF COUT07 L
74182-1 E44 CARRY
COUTY
74S04 E58
DAPF +3VA H
74S181 E40
ALU (07:04)
DAPC BMX07 H
DAPC AMX07 H
DAPC BMX06 H
DAPC AMX06 H
DAPB BMX05 H
DAPB AMX05 H
DAPB BMX04 H
DAPB AMX04 H
DAPF LS3 H
DAPF LS2 H
DAPF LS1 H
DAPF LS0 H
DAPF LM H
DAPF COUT03 L
74S153 E68
SHFR (06)
DAPH PCB06 H
DAPH ALU14 H
DAPF SHFR06 H
74S153 E78
SHFR (05:04)
DAPF PCB05 H
DAPH ALU13 H
DAPF PCB04 H
DAPH ALU12 H
DAPF SHFR05 H
DAPF SHFR04 H
GRAA SHFRS1 L
GRAA SHFRS0 L
DAPF SHFRS1 H
DAPF SHFRS0 H
DAPF ALU03 H
DAPF ALU02 H
DAPF ALU01 H
DAPF ALU00 H
DAPF ALU07 H
DAPF ALU06 H
DAPF ALU05 H
DAPF ALU04 H
GRAA ALUM L
GRAA ALUS0 L
GRAA ALUS1 L
GRAA ALUS2 L
GRAA ALUS3 L
74S04 E39
DAPF LM H
DAPF LS0 H
DAPF LS1 H
DAPF LS2 H
DAPF LS3 H
74S174 E67
PCA (05:00)
DAPF ALU05 H
DAPF ALU04 H
74S174 E66
PCB (05:00)
DAPF PCB05 H
DAPF PCB04 H
DAPF PCB03 H
DAPF PCB02 H
DAPF PCB01 H
DAPF PCB00 H
DAPF +3V H
DAPJ CLKPCA H
DAPJ CLKPCB H
74S04 E11
DAPF +3V H
GRAA SHFRS0 L
DAPF SHFRS0 B H
GRAA SHFRS1 L
DAPF SHFRS1 B H

SHFR	S1	S0	H
	L	L	SWAB (OB SWAP)
	L	H	PCB
	H	L	ALU
	H	H	RT. SHIFT ALU

74S181 - ALU

S3 S2 S1 S0	M=H LOGIC FUNCTIONS	M=L; ARITHMETIC OPERATIONS $C_N=0=H$	$C_N=1=L$
L L L L	F = $\overline{A}$	F=A	F=A PLUS 1
L L H H	F = 0	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=$\overline{A⊕B}$	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 (07:00), SHIFTER (06:00), PCA & PCB (05:00) SLOT6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45	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 7-12-71 · CHK'D DATE · ENG. DATE · PROJ. ENG. DATE · PROD. DATE

NEXT HIGHER ASSY. B DD-K511-A

SCALE —//— SHEET 7 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

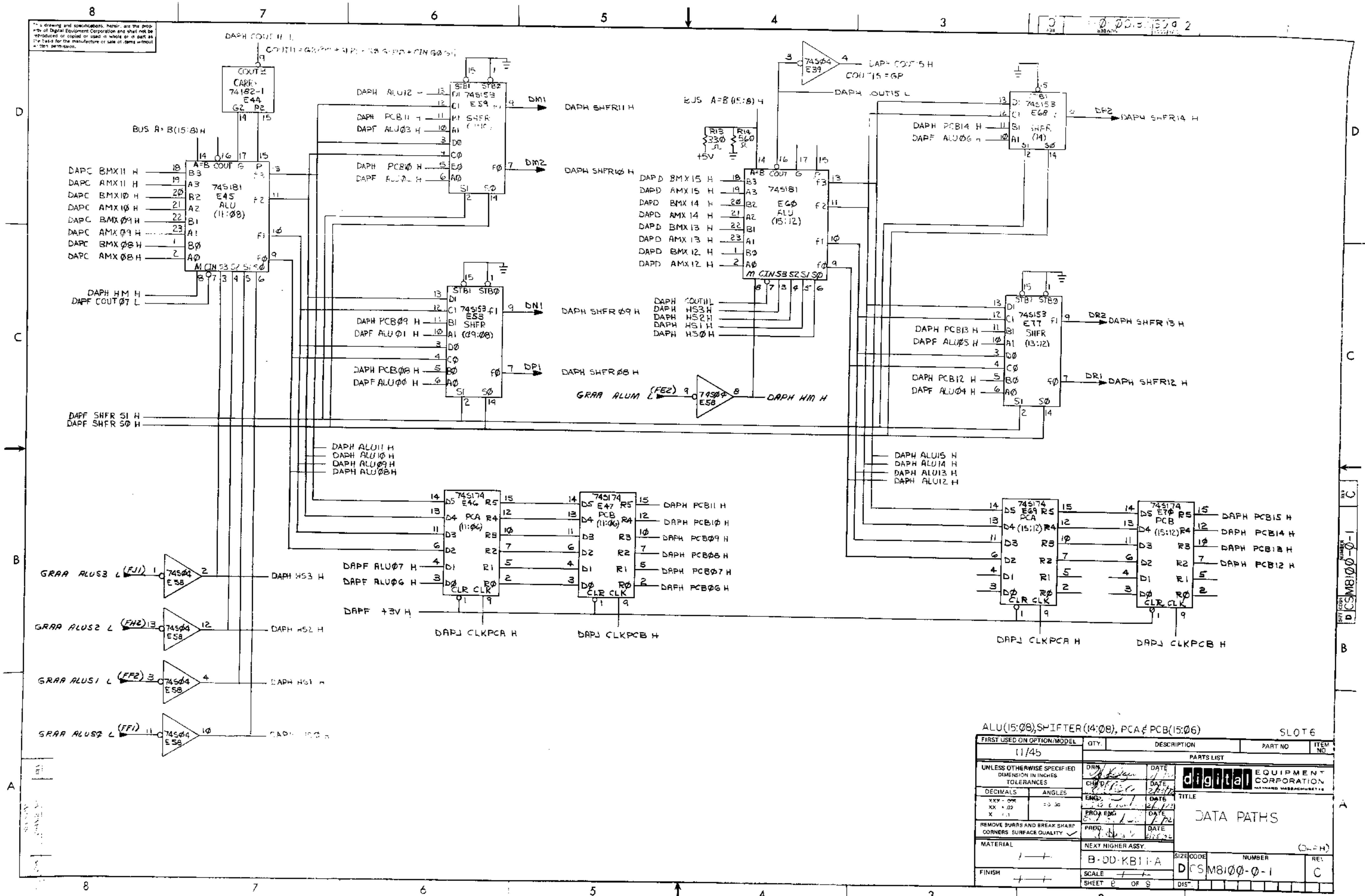
TITLE

DATA PATHS

(DAPF)

SIZE D · CODE CS · NUMBER [illegible] · REV C

DIST.



DAPH COUT11 L
74182-1 E44 CARRY
BUS A+B(15:8) H
74S181 E45 ALU (11:08)
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
DAPH ALU12
DAPH PCB11 H
DAPF ALU03 H
DAPH PCB00 H
DM1
DM2
DAPH SHFR11 H
DAPH SHFR10 H
74S153 E58 SHFR (09:08)
DAPH PCB09 H
DAPF ALU01 H
DAPH PCB08 H
DAPF ALU00 H
DN1
DP1
DAPH SHFR09 H
DAPH SHFR08 H
DAPF SHFR S1 H
DAPF SHFR S0 H
DAPH ALU11 H
DAPH ALU10 H
DAPH ALU09 H
DAPH ALU08 H
74S174 E46 PCA (11:06)
74S174 E47 PCB (11:06)
DAPF ALU07 H
DAPF ALU06 H
DAPF +3V H
DAPJ CLKPCA H
DAPJ CLKPCB H
DAPH PCB11 H
DAPH PCB10 H
DAPH PCB09 H
DAPH PCB08 H
DAPH PCB07 H
DAPH PCB06 H
GRAA ALUS3 L
GRAA ALUS2 L
GRAA ALUS1 L
GRAA ALUS0 L
74S04 E58
DAPH HS3 H
DAPH HS2 H
DAPH HS1 H
74S04 E39
DAPH COUT15 H
COUT15 = GP
DAPH COUT15 L
BUS A+B(15:8) H
R13 330
R14 560
+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 COUT11 L
DAPH HS3 H
DAPH HS2 H
DAPH HS1 H
DAPH HS0 H
GRAA ALUM L
74S04 E58
DAPH HM H
74S153 E68 SHFR (14)
DAPH PCB14 H
DAPF ALU06 H
DR2
DAPH SHFR14 H
74S153 E77 SHFR (13:12)
DAPH PCB13 H
DAPF ALU05 H
DAPH PCB12 H
DAPF ALU04 H
DAPH SHFR13 H
DR1
DAPH SHFR12 H
DAPH ALU15 H
DAPH ALU14 H
DAPH ALU13 H
DAPH ALU12 H
74S174 E69 PCA (15:12)
74S174 E70 PCB (15:12)
DAPH PCB15 H
DAPH PCB14 H
DAPH PCB13 H
DAPH PCB12 H
DAPJ CLKPCA H
DAPJ CLKPCB H

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

SLOT 6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS | ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY

MATERIAL

FINISH

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

NEXT HIGHER ASSY. B-DD-KB11-A

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE DATA PATHS (DAPH)

SIZE D | CODE CS | NUMBER M8100-0-1 | REV C

SCALE

SHEET 8 OF 9

DAPH ALU15 H
DAPJ PCB+RTSHFI5 H
DAPF ALUØ7 H
74S153 E50 SHFR (15) → FS2 DAPJ SHFRI5 H, DA1 DAPJ SHFRA15 H
74S04 E41
DAPC AMXØ7 H
DAPD AMX15 H
DAPF ALUØ7 H
DAPH ALU15 H
BUS A=B(15:8) H
DAPF COUTØ7 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
IRCE VBIT
IRCE NBIT
IRCF ZBIT
(ALU CIN) IRCF C-BIT
SHIFT DR (GRA)
IRCC(ROR.B+MUL) H (CT2)
DAPF SHFRSØ B H
DAPF SHFRS1 B H
74S10 E34, 74S11 E75
DAPH COUT15 H
IRCH R(ICLASS) H
74S11 E48 → DL1 DAPJ LEFT DATA H
RACA UPCA H
TIGD T5 H
74S11 E43 → DAPJ CLKPCA H
R15 NOT USED, R16 15Ø, +5V
74S153 E51 SHFR (Ø7) → EE1 DAPJ SHFRØ7 H, DC1 DAPJ SHFRAØ7 H
DAPH ALUØ8 H
DAPF ALUØ7 H
DAPJ PCB+RTSHFØ7 H
DAPH ALU15 H
RACA UPCBØØ H (DD1)
RACA UPCBØ1 H (DD2)
74S04 E41
IRCB SRCF7 L DE1
IRCC DSTF7 L DE2
RACA UPCBØØ H DD1
RACA UPCBØ1 H DD2
IRCH R(ICLASS) H (DJ2)
RACB UPWEØØ H EV2
74S64 E42
TIGC T1 H DL2
74S11 E43 → DAPJ CLKPCB H
R3 NOT USED, R4 15Ø, +5V
(R/W WRITE)
74S11 E57, 74S20 E52
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 PCBØ7 H
74S157 E49 → DAPJ PCB+RTSHFI5 H, DAPJ PCB+RTSHFØ7 H

ROM CONTROL:	SHFR15 S1	SHFR15 SØ	SHFR15
SWAB	L	L	ALUØ7
PCB	L	H	PCB15
RIGHT SHIFT*[ROR.B+MUL]	L	H	SHFR DATA
NO SHIFT	H	L	ALU15
RIGHT SHIFT * ROR.B*MUL	H	H	ALU15

ROM CONTROL:	SHFRØ7 S1	SHFRØ7 SØ	SHFRØ7
SWAB	L	L	ALU15
PCB	L	H	PCBØ7
RIGHT SHIFT * RORB	L	H	C(1)
NO SHIFT + RIGHT SHIFT *BYTE * RORB	H	L	ALUØ7
RIGHT SHIFT * BYTE	H	H	ALUØ8

UPCB Ø1	ØØ
L	L NO CLOCK
L	H LOAD
H	L SF7:LOAD
H	H DF7:LOAD

74S157 SØ	
L	A→F
H	B→F

SHIFTER (15:Ø7); PCA & PCB CLOCKS — SLOT 6

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 8-12-71
CHK'D DATE 8/12/71
ENG. DATE 8/12/71
PROJ. ENG. DATE 8/15/71
PROD. DATE
NEXT HIGHER ASSY B-22 [illegible]
SCALE
SHEET 9 OF 9

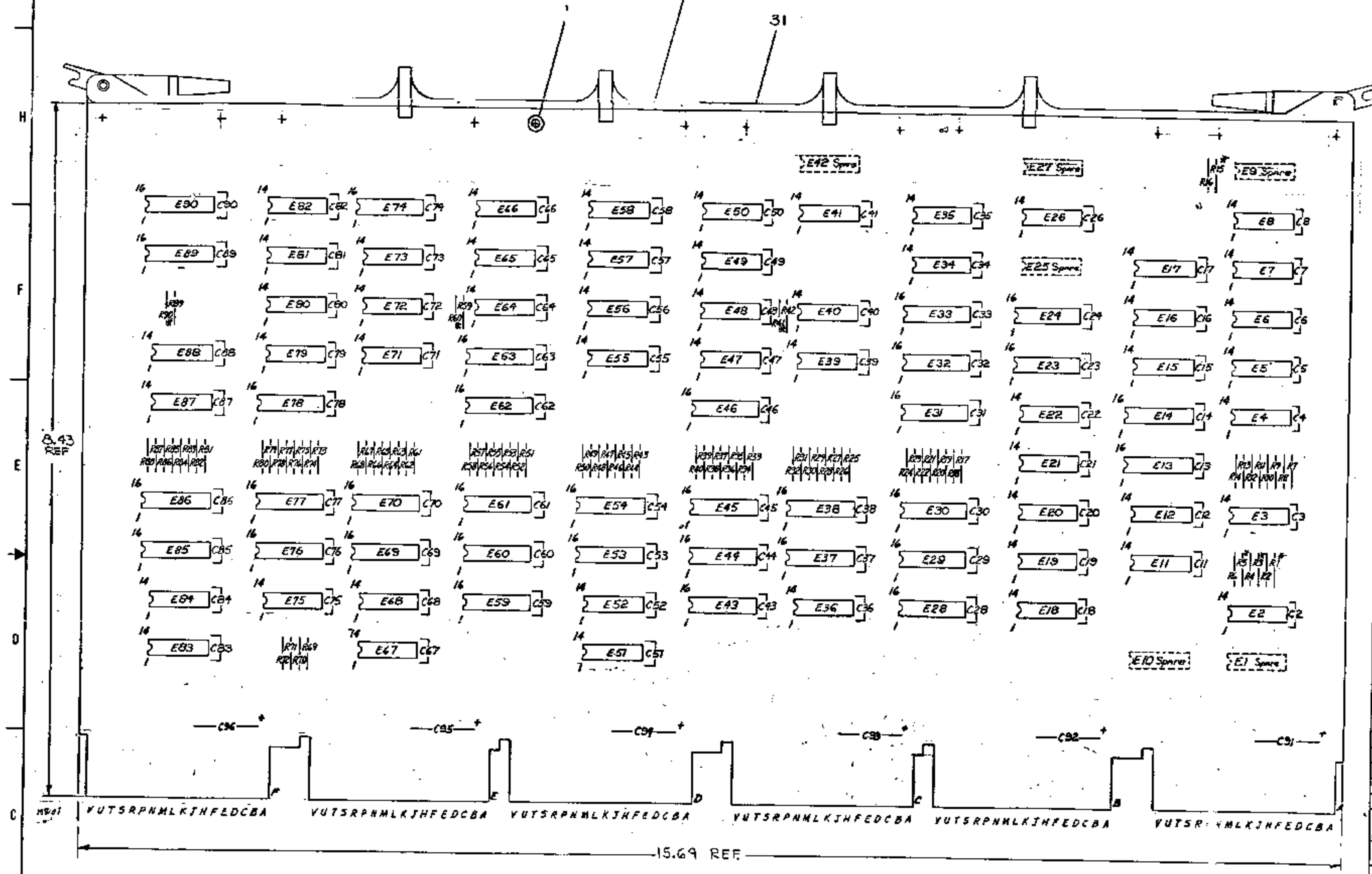
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: DATA PATHS

SIZE D NUMBER DCS M8100-0-1

NOTES:

1. UNLESS OTHERWISE NOTED RESISTANCE IS IN OHMS & CAPACITANCE IS IN PICOFARADS. CAPACITORS WITHOUT VALUE NOTED ARE .01 MFD.
2. RESISTORS MARKED WITH ASTERISK ARE NOT USED.
3. LOCATIONS MARKED E1, E9, E10, E25, E27, & E42 ARE SPARES.



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

6.8 UF 35V C91 THRU C96

.01 UF C2 THRU C8, C11 THRU C24, C26, C28 THRU C41, C43 THRU C90

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

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1		HANDLE, MODULE	E-PS-1210211-2	31
1	E74	I.C. DEC, DM8598-AD	23-C03A1	30
8	E37, E38, E53, E54, E69, E70, E85, E86	I.C. DEC, 3101A	1910658	29
4	E31, E46, E62, E78	I.C. DEC 74S194	1910552	28
3	E28, E43, E59	I.C. DEC, 74S174	1910550	27
10	E29, E30, E44, E45, E60, E61, E76, E77, E89, E90	I.C. DEC, 74S158	1910549	26
4	E23, E24, E32, E33	I.C. DEC, 74S153	1910547	25
1	E63	I.C. DEC, 74S112	1910545	24
2	E50, E79	I.C. DEC, 74S74	1910544	23
11	E5, E6, E16, E18, E19, E35, E48, E49, E58, E75, E80	I.C. DEC, 74S64	1910542	22
3	E64, E73, E81	I.C. DEC, 74S20	1910539	21
7	E8, E21, E34, E41, E65, E71, E82	I.C. DEC, 74S11	1910537	20
5	E2, E15, E20, E22, E56	I.C. DEC, 74S10	1910536	19
5	E11, E12, E52, E68, E84	I.C. DEC, 74S05	1910535	18
10	E7, E36, E39, E40, E51, E57, E66, E67, E83, E87	I.C. DEC, 74S04	1910534	17
5	E3, E4, E17, E26, E88	I.C. DEC, 74S00	1910532	16
2	E13, E14	I.C. DEC, 74191	1910096	15
1	E47	I.C. DEC, 74H50	1909060	14
2	E55, E72	I.C. DEC, 74H30	1909059	13
2	R70, R72	RES., 750Ω, 1/4W, ±5%	1301401	12
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., 680Ω, 1/4W, ±5%	1301424	11
4	R5, R10, R12, R14	RES., 560Ω, 1/4W, ±5%	1301890	10
7	R2, R4, R6, R16, R42, R59, R81	RES., 150Ω, 1/4W, ±5%	1300250	9
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., 330Ω, 1/4W, ±5%	1300295	8
84	C2-C8, C11-C24, C26, C28-C41, C43-C90	CAP., .01UF, 100V, ±20% DISC	1001610	7
6	C91-C96	CAP., 6.8UF, 35V, ±20% S TANT	1000067	6
1		ETCHED CIRCUIT BOARD	5003807	5
REF		MODULE ECO HISTORY	B-MH-M8101-0-6	4
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M8101-0-5	3
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8101-0-4	2
12		EYELET	9006732	1

PARTS LIST

ETCH BOARD REV B

IC TYPE	GND	+5V
DEC DM8598-AD	8	16
DEC 3101A	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

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

SEMICONDUCTOR CONVERSION CHART

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

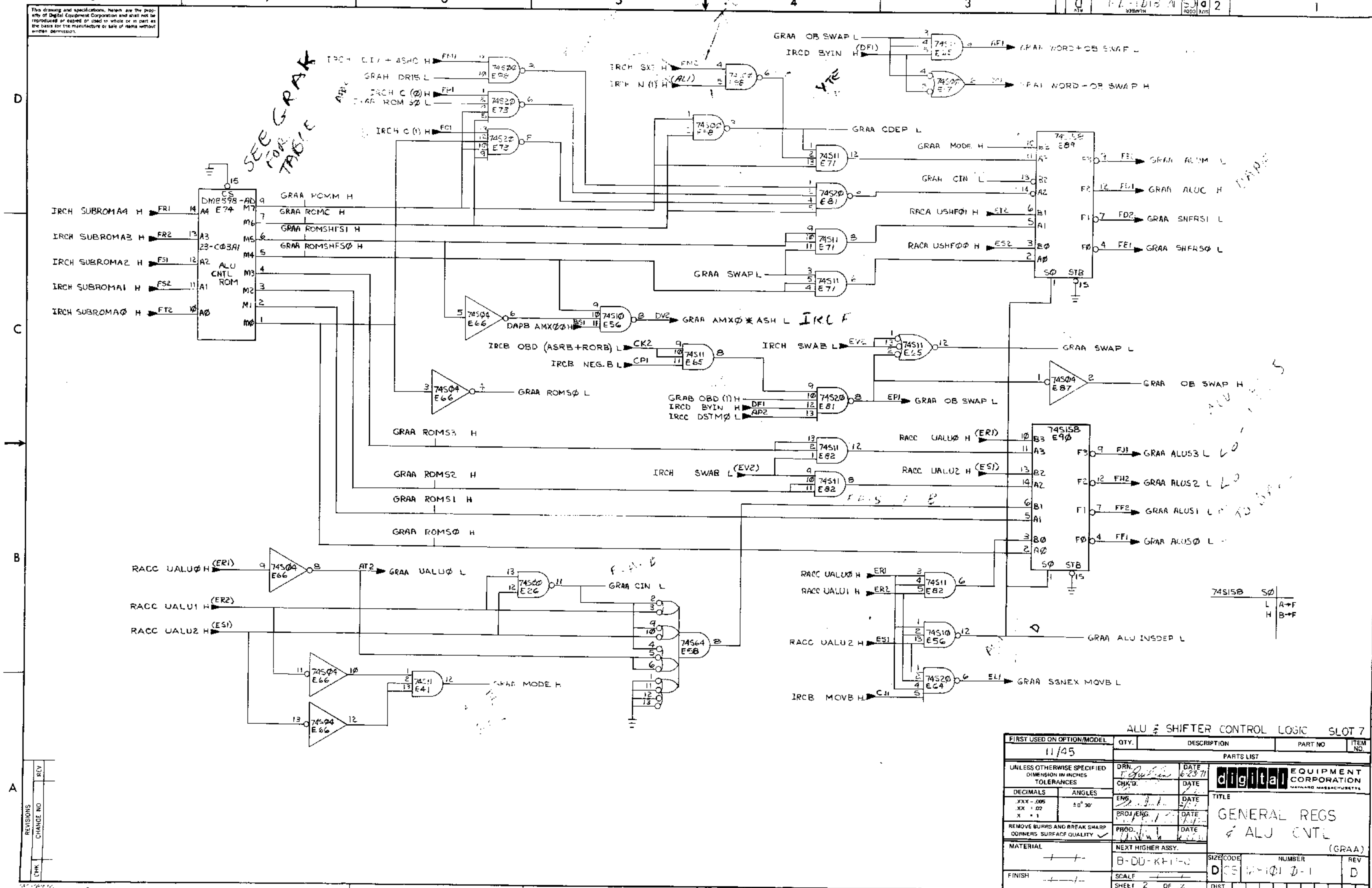
DIGITAL EQUIPMENT CORPORATION

TITLE: GENERAL REGS. & ALU. CNTL.

NEXT HIGHER ASSY: B-CO-KB11-0

SCALE: 2/1 SHEET 1 OF 10

SIZE: E CODE: CS NUMBER: M8101-0-1 REV: D



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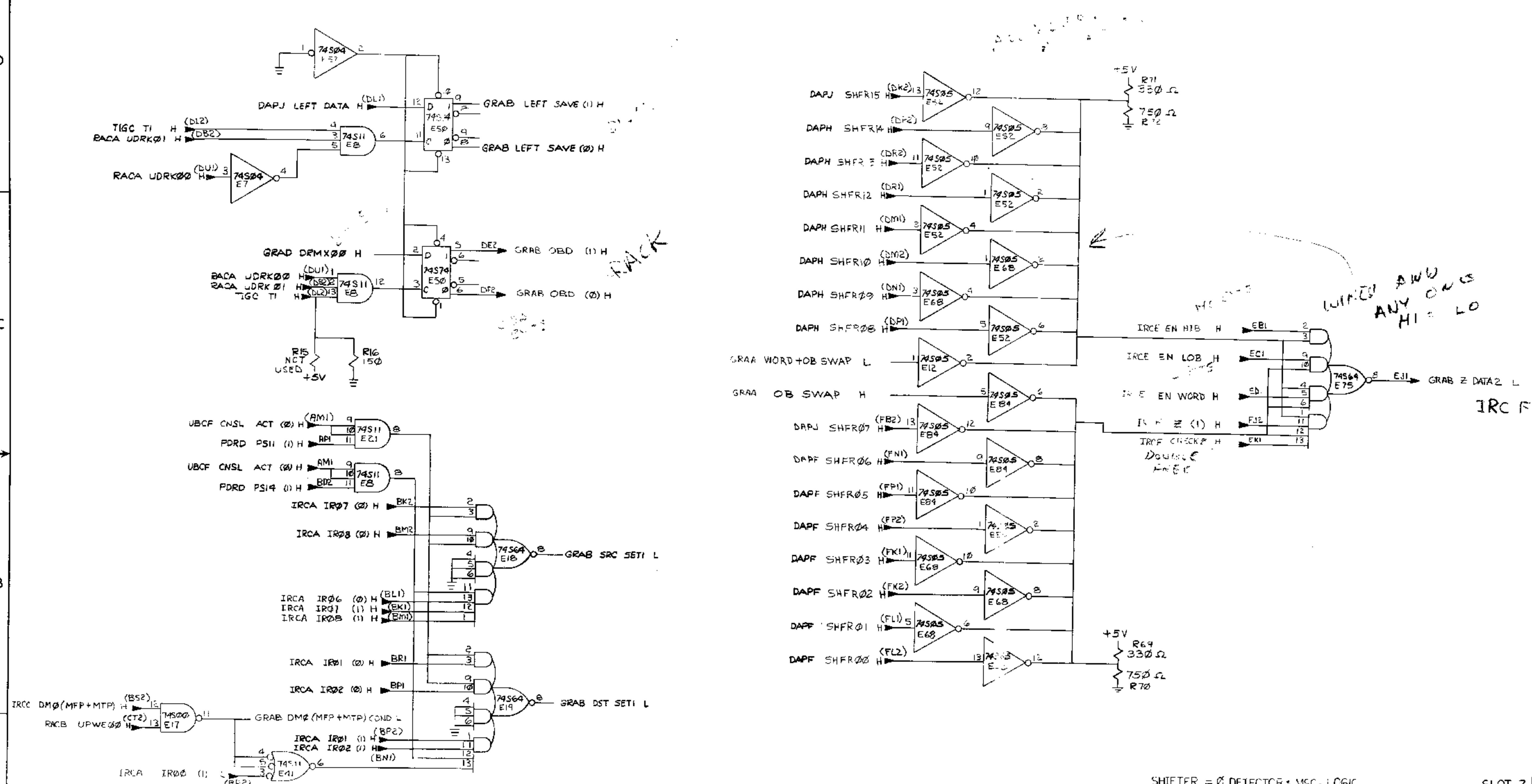
IRCH SUBROMA4 H
IRCH SUBROMA3 H
IRCH SUBROMA2 H
IRCH SUBROMA1 H
IRCH SUBROMAØ H
DM8598-AD E74
23-CØ3A1
ALU CNTL ROM
GRAA ROMM H
GRAA ROMC H
GRAA ROMSHFS1 H
GRAA ROMSHFSØ H
GRAA ROMSØ L
GRAA ROMS3 H
GRAA ROMS2 H
GRAA ROMS1 H
GRAA ROMSØ H
GRAA CDEP L
GRAA MODE H
GRAA CIN L
RACA USHFØ1 H
RACA USHFØØ H
GRAA SWAP L
74S158 E89
GRAA ALUM L
GRAA ALUC H
GRAA SHFS1 L
GRAA SHFSØ L
GRAA OB SWAP L
IRCD BYIN H
GRAA WORD+OB SWAP L
GRAA WORD+OB SWAP H
DAPB AMXØØ H
GRAA AMXØ*ASH L
IRCB OBD (ASRB+RORB) L
IRCB NEG.B L
IRCH SWAB L
GRAA SWAP L
GRAA OB SWAP H
GRAB OBD (1) H
IRCC DSTMØ L
GRAA OB SWAP L
RACC UALUØ H
RACC UALU2 H
74S158 E9Ø
GRAA ALUS3 L
GRAA ALUS2 L
GRAA ALUS1 L
GRAA ALUSØ L
IRCH SWAB L
RACC UALUØ H
RACC UALU1 H
RACC UALU2 H
GRAA UALUØ L
GRAA CIN L
GRAA MODE H
74S64 E58
GRAA ALU INSDEP L
IRCB MOVB H
GRAA SGNEX MOVB L
74S158 SØ
L A→F
H B→F
ALU & SHIFTER CONTROL LOGIC SLOT 7
FIRST USED ON OPTION/MODEL 11/45
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE GENERAL REGS & ALU CNTL (GRAA)
NEXT HIGHER ASSY. B-DD-KH11-0
SIZE D CODE CS NUMBER M8101-Ø-1 REV D
SHEET 2 OF 2



SHIFTER = Ø DETECTOR & MSC. LOGIC

SLOT 7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES. TOLERANCES

DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

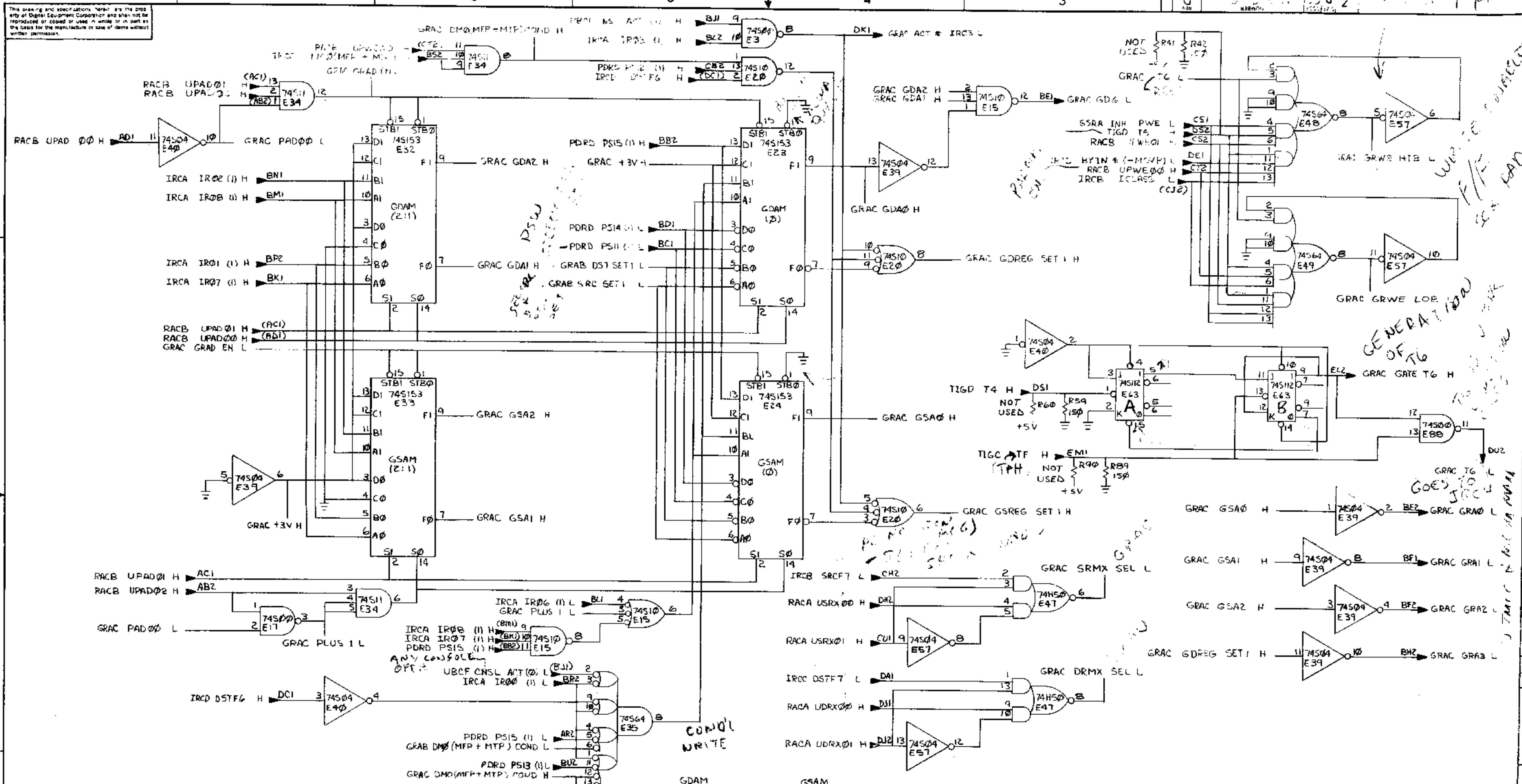
MATERIAL — FINISH

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS. & ALU CNTL (GRAB)

SIZE D CODE CS NUMBER M8101-Ø-1 REV. D

SHEET 3 OF 12



GDAM

UPAD	S1	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	S1	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: IR CLASS	WRITE COND: IR CLASS + BYTE INST + MOVB (SIGN EXTEND)
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	DF7: SHFR; $\overline{DF7}$: GD
H	H	CLEAR DR

GENERAL REGS ADDR & WRITE PULSE CNTL — SLOT 7

FIRST USED ON OPTION/MODEL: 11/45

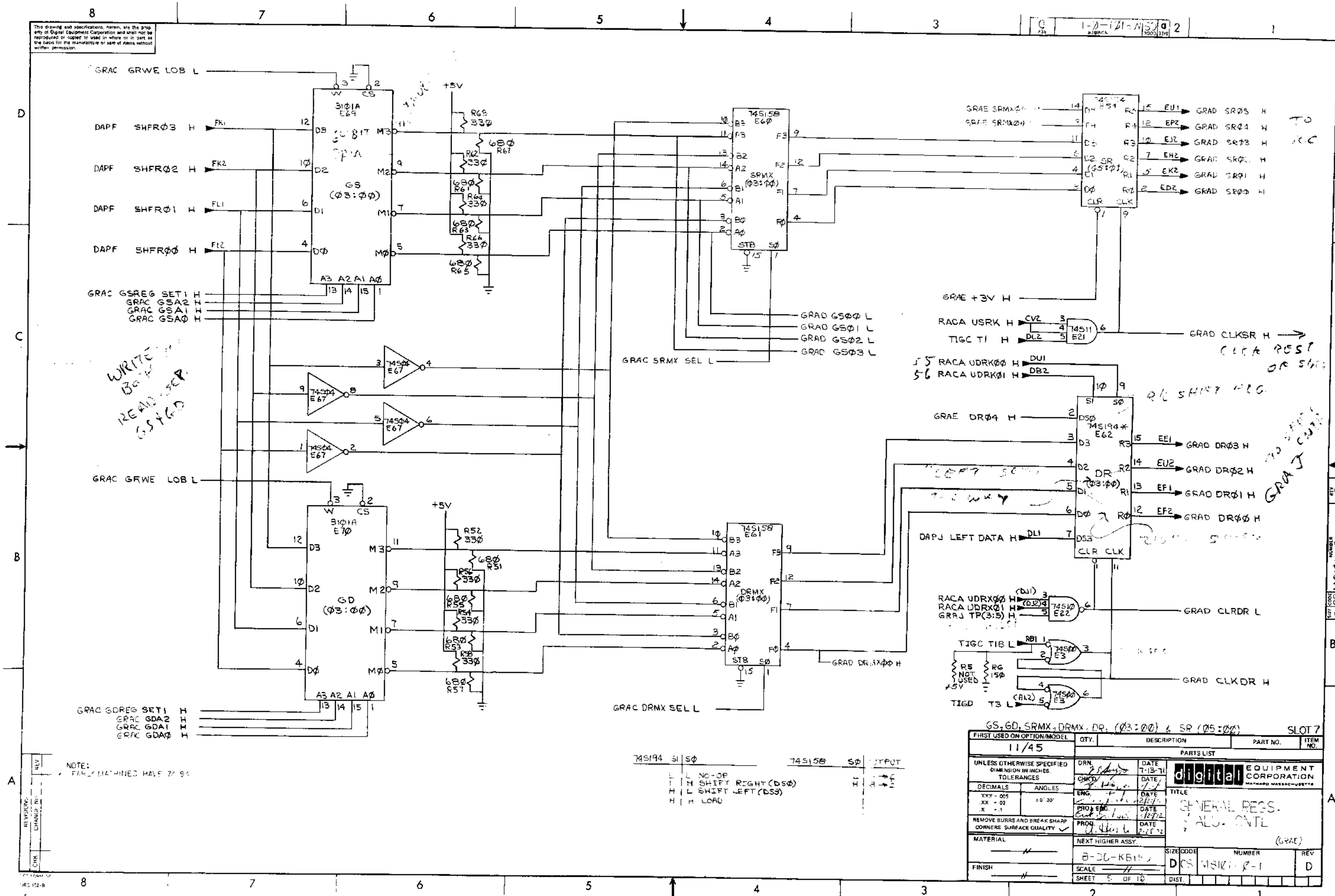
digital EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAC)

NEXT HIGHER ASSY: 8-DD-KB11-?

SIZE: D · CODE: CS · NUMBER: M8101-Ø-1 · REV: D

SHEET 4 OF 10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GRAC GRWE LOB L
DAPF SHFRØ3 H
DAPF SHFRØ2 H
DAPF SHFRØ1 H
DAPF SHFRØØ H
3101A E69
GS (Ø3:ØØ)
GRAC GSREG SET1 H
GRAC GSA2 H
GRAC GSA1 H
GRAC GSAØ H
74S158 E6Ø
SRMX (Ø3:ØØ)
GRAD GSØØ L
GRAD GSØ1 L
GRAD GSØ2 L
GRAD GSØ3 L
GRAC SRMX SEL L
74S04 E67
GRAC GRWE LOB L
3101A E7Ø
GD (Ø3:ØØ)
GRAC GDREG SET1 H
GRAC GDA2 H
GRAC GDA1 H
GRAC GDAØ H
74S158 E61
DRMX (Ø3:ØØ)
GRAC DRMX SEL L
GRAD DRMXØØ H
74S194 E51
SR (Ø5:ØØ)
GRAD SRØ5 H
GRAD SRØ4 H
GRAD SRØ3 H
GRAD SRØ2 H
GRAD SRØ1 H
GRAD SRØØ H
GRAE +3V H
RACA USRK H
TIGC T1 H
74S11 E21
GRAD CLKSR H
RACA UDRKØØ H
RACA UDRKØ1 H
GRAE DRØ4 H
74S194 E62
DR (Ø3:ØØ)
GRAD DRØ3 H
GRAD DRØ2 H
GRAD DRØ1 H
GRAD DRØØ H
DAPJ LEFT DATA H
RACA UDRXØØ H
RACA UDRXØ1 H
GRAJ TP(3:5) H
74S1Ø E22
GRAD CLRDR L
TIGC T1B L
74SØØ E3
GRAD CLKDR H
TIGD T3 L
NOTE:
74S194 S1 SØ
L L NO-OP
L H SHIFT RIGHT (DSØ)
H L SHIFT LEFT (DS3)
H H LOAD
74S158 SØ OUTPUT
GS, GD, SRMX, DRMX, DR (Ø3:ØØ) & SR (Ø5:ØØ)
SLOT 7
FIRST USED ON OPTION/MODEL
11/45
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS
ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
QTY. DESCRIPTION PART NO. ITEM NO.
PARTS LIST
DRN. DATE 7-13-71
CHKD. DATE
ENG. DATE
PROJ ENG. DATE
PROD DATE
NEXT HIGHER ASSY.
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE
GENERAL REGS. & ALU CNTL
(GRAE)
SIZE D CODE CS NUMBER M8101-Ø-1 REV D
SHEET 5 OF 10
SCALE
DIST.

GRAC GRWE LOB L

3101A E85 (GS (Ø7:Ø4))

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

R88 33Ø
R87 68Ø
R82 33Ø
R81 68Ø
R84 33Ø
R83 68Ø
R86 33Ø
R85 68Ø
+5V

GRAC GSREG SETI H
GRAC GSA2 H
GRAC GSA1 H
GRAC GSAØ H

74S158 E76 (SRMX (Ø7:Ø4))

GRAE GSØ7 L
GRAE GSØ6 L
GRAE GSØ5 L
GRAE GSØ4 L
GRAC SRMX SEL L

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

74S04 E83 (×4)

GRAC GRWE LOB L

3101A E86 (GD (Ø7:Ø4))

R14 33Ø
R73 68Ø
R78 33Ø
R77 68Ø
R76 33Ø
R75 68Ø
R80 33Ø
R79 68Ø
+5V

GRAC GDREG SETI H
GRAC GDA2 H
GRAC GDA1 H
GRAC GDAØ H

74S158 E77 (DRMX (Ø7:Ø4))

GRAC DRMX SEL L

74H30 E72

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 E55

GRAF GSØ8 L
GRAF GSØ9 L
GRAF GS10 L
GRAF GS11 L
GRAH GS12 L
GRAH GS13 L
GRAH GS14 L
GRAH GS15 L

74S04 E87

GRAH SR15 L
GRAD SRØØ H

74S64 E80

GRAE SR LEQ ZERO H

74S74 E79 (×2)

GRADCLKSR H

74S10 E22

GRAD SRØØ H
BV2
GRAE SR EQ ONE L

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

74S194 E78 (DR (Ø7:Ø4))

GRAF DRØ8 H
GRAD DRØ3 H
GRAD CLRDR L
GRAD CLKDR H

FV2 → GRAE DRØ7 H
FU2 → GRAE DRØ6 H
FU1 → GRAE DRØ5 H
FA1 → GRAE DRØ4 H

74S04 E83

GRAE +3V H

NOTE:
* EARLY MACHINES HAVE 74194-1

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

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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.W. Roberts DATE 7/15/71
CHKD DATE
ENG DATE
PROJ. ENG. DATE
PROD DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS. & ALU CNTL (GRAE)

NEXT HIGHER ASSY. B-DD-KB11-D
SIZE D | CODE CS | NUMBER M8101-0-1 | REV D
SCALE —
SHEET 6 OF 10 | DIST.

REVISIONS: REV | CHANGE NO | CHK

DEC 1974 NO
DRD 102-B

GRAC GRWE HIB L

3Ø1 A E37 — W, CS

DAPH SHFR11 H — DM1 — D3 — M3
DAPH SHFR1Ø H — DM2 — D2 — M2
DAPH SHFR Ø9 H — DN1 — D1 — M1
DAPH SHFR Ø8 H — DP1 — DØ — MØ

GS (11:Ø8)

A3 A2 A1 AØ

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

+5V

R33 33Ø
R24 33Ø
R25 68Ø
R26 33Ø
R27 68Ø
R30 33Ø
R29 68Ø

74S04 E34
74S04 E36
74S04 E36
74S04 E36

74S158 E29 — SRMX (11:Ø8)

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

GRAF GSØ8 L
GRAF GSØ9 L
GRAF GS1Ø L
GRAF GS11 L
GRAC SRMX SEL L

74S174 E28 — DS D4 D3 D2 D1 DØ — CLR CLK

GRAE SRMXØ7 H
GRAE SRMXØ6 H
GRAE +3V H
GRAD CLKSR H

SR (11:Ø6)

GRAF SR11 H
GRAF SR1Ø H
GRAF SRØ9 H
GRAF SRØ8 H
GRAF SRØ7 H
GRAF SRØ6 H

GRAC GRWE HIB L

3ØIA E38 — W, CS

GD (11:Ø8)

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

+5V

R18 33Ø
R17 68Ø
R22 33Ø
R21 68Ø
R20 33Ø
R19 68Ø
R24 33Ø
R23 68Ø

74S158 E30 — DRMX (11:Ø8)

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

GRAC DRMX SEL L

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

74S194X E31 — S1 SØ — DSØ D3 D2 D1 DØ DS3 — CLR CLK

GRAH DR12 H
GRAF DRØ7 H
GRAD CLRDR L
GRAD CLKDR H

DR (11:Ø8)

GRAF DR11 H
GRAF DR1Ø H
GRAF DRØ9 H
GRAF DRØ8 H

NOTE:
* EARLY MACHINES HAVE 74194-1

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

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX = 005, XX = 07, X = 1 — ANGLES: ±0°30
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. — DATE 7-14-71
CHKD — DATE 7/14/72
ENGR — DATE 8/4/72
PROJ ENG. — DATE 7/17/72
PROD. — DATE 7/25/72
NEXT HIGHER ASSY. B-DD-KB11-C
SCALE —
SHEET — OF 10

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAF)

SIZE D | CODE CS | NUMBER M8Ø-Ø-1 | REV. D | DIST

REVISION | CHANGE NO. | CHK

GRAC GRWE HIB L
DAPJ SHFRI5 H
DAPH SHFRI4 H
DAPH SHFRI3 H
DAPH SHFRI2 H
GRAC GSREG SETI H
GRAC GSA2 H
GRAC GSA1 H
GRAC GSAØ H
GRAC GDREG SETI H
GRAC GDA2 H
GRAC GDA1 H
GRAC GDAØ H
GRAC SRMX SEL L
GRAC DRMX SEL L
GRAH GS12 L
GRAH GS13 L
GRAH GS14 L
GRAH GS15 L
GRAE +3V H
GRAD CLKSR H
GRAH SR15 L
GRAH SR15 H
GRAH SR14 H
GRAH SR13 H
GRAH SR12 H
RACA UDRKØØ H (DU1)
RACA UDRKØ1 H (DB2)
DAPF ALUØØ H
GRAF DR11 H
GRAD CLRDR L
GRAD CLKDR H
GRAH DR15 L
GRAH DR15 H
GRAH DR14 H
GRAH DR13 H
GRAH DR12 H
+5V
R5Ø 33Ø
R49 68Ø
R44 33Ø
R43 68Ø
R46 33Ø
R45 68Ø
R48 33Ø
R47 68Ø
R34 33Ø
R33 68Ø
R38 33Ø
R37 68Ø
R36 33Ø
R35 68Ø
R40 33Ø
R39 68Ø
3104 E53 GS (15:12)
3101A E54 GD (15:12)
74S158 E44 SRMX (15:12)
74S158 E45 DRMX (15:12)
74S174 E43 SR (15:12)
74S194* E46 DR (15:12)
74S04 E51
74S04 E87

NOTE:
* EARLY MACHINES HAVE 74LS4-1

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

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 7-15-71
CHK'D. — DATE
ENG. — DATE 8/12/72
PROJ. ENG. — DATE 8/30/72
PROD. — DATE 8/25/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: GENERAL REGS & ALU CNTL (GRAH)

NEXT HIGHER ASSY. B-DD-KB11-D
SCALE
SHEET 5 OF 10

SIZE D | CODE CS | NUMBER M8101-0-1 | REV 0
DIST.

REVISIONS	REV.	CHANGE NO.	CHK

DEC-00M-NC
D80-02-B

RACC USHC ØØ L
GRAE DRØ5 H
GRAE DRØ4 H
GRAJ LDSC L
GRAJ SCØ5 L
RACC USHCØ1 H
GRAJ TP(3:5) H
RACC USHCØ1 H
GRAJ LDSC L
RACC USHC ØØ H
GRAD DRØ3 H
GRAD DRØ2 H
GRAD DRØ1 H
GRAD DRØØ H
R13 330
R14 560
R11 330
R12 560
R9 330
R10 560
R7 330
R8 560
+5V
R2 15Ø
R1 NOT USED
+5V
TIGD T3 L
R3 NOT USED
UBCE INIT L
TIGD T5 L
+5V
R4 15Ø
RACC USHCØØ H
GRAJ TP(3:5) H
GRAJ SCØ5 L
GRAJ SCØ4 H
GRAJ SCØ3 H
GRAJ SCØ2 H
GRAJ SCØ1 H
GRAJ SCØØ H
BJZ
GRAJ SCØ5 L
BTZ
GRAJ SC=Ø L
GRAH SRIS L
GRAB LEFT SAVE (1) H
GRAH SR15 H
GRAB LEFT SAVE (Ø) H
AMZ
GRAJ DIV SUB L
IRCF E2 (Ø) H
GRAB LEFT SAVE (1) H
IRCH N (1) H
GRAH SRIS H
IRCH N (Ø) H
GRAH SRIS L
AEZ
GRAJ DIV QUIT L
IRCH C (1) H
IRCB PCLASS H
IRCB ICLASS L
GRAH SRIS L
GRAA ALU INSDEP L
GRAE SR LEQ ZERO H
GRAA ALU INSDEP L
CUZ
GRAJ SHFR DATA H

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

SHIFT COUNT REG (SC) SLOT7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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
NEXT HIGHER ASSY.

DRN. DATE 12/10/71
CHK'D DATE 1/24/72
ENG DATE 1/27/72
PROJ. ENG DATE 1/27/72
PROD. DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE GENERAL REGS (GRAJ)

SIZE D | CODE | NUMBER DCS M8100-0-0 | REV. D

SHEET 9 OF 10

REVISIONS: REV. | CHANGE NO | CHK

BRUNING 40-522 15840

M8100-1 REV D

ALU CNTL ROM MAP

ALU CNTL ROM DM8598-AD

INSTRUCTION	OCTAL ADDRESS	ROMW M7	ROMC M6	ROMSHFS1 M5	ROMSHFS0 M4	ROMS3 M3	ROMS2 M2	ROMS1 M1	ROMS0 M0	INSTRUCTION DEP. ALU FUNCTION (RACC UALU (2:0)=7)	INSTRUCTION DEP. SHFR FUNCTION (RACC UALU (2:0)=7)
ROR.B	00	L	L	H	H	L	L	L	L	F=A	RIGHT SHIFT
ROL.B	01	H	H	H	L	H	H	L	L	F=A PLUS A PLUS CBIT	NO - SHIFT **
ASR.B	02	L	L	H	H	L	L	L	L	F=A	RIGHT SHIFT
ASL.B	03	L	L	H	L	H	H	L	L	F=A PLUS A	NO - SHIFT **
MARK	04	L	L	L	L	L	L	L	L	NOT INST. DEP.	NOT INST. DEP.
MFP	05	H	L	H	L	H	L	H	L	F=B	NO - SHIFT
MTP	06	H	L	H	L	H	L	H	L	F=B	NO - SHIFT
SXT	07	H	L	H	L	L	L	H	H	N: F=MINUS 1 ; N̄: F=0	NO - SHIFT
CLR.B	10	H	L	H	L	L	L	H	H	F=0	NO - SHIFT **
COM.B	11	H	L	H	L	L	L	L	L	F=Ā	NO - SHIFT **
INC.B	12	L	H	H	L	L	L	L	L	F=A PLUS 1	NO - SHIFT **
DEC.B	13	L	L	H	L	H	H	H	H	F=A MINUS 1	NO - SHIFT **
NEG.B	14	H	L	H	L	L	L	L	L	F=Ā	NO - SHIFT
ADC.B	15	H	H	H	L	L	L	L	L	F=A PLUS C BIT	NO - SHIFT **
SBC.B	16	H	H	H	L	H	H	H	H	F=A MINUS C BIT	NO - SHIFT **
TST.B	17	L	L	H	L	L	L	L	L	F=A	NO-- SHIFT **
SUB	20	L	H	H	L	L	H	H	L	F=A MINUS B	NO - SHIFT
MOV.B	21	H	L	H	L	H	L	H	L	F=B	NO - SHIFT **
CMP.B	22	L	L	H	L	L	H	H	L	F=A MINUS B MINUS 1	NO - SHIFT **
BIT.B	23	H	L	H	L	H	L	H	H	F=AB	NO - SHIFT **
BIC.B	24	H	L	H	L	L	H	H	H	F=AB̄	NO - SHIFT **
BIS.B	25	H	L	H	L	H	H	H	L	F=A+B	NO - SHIFT **
ADD	26	L	L	H	L	H	L	L	H	F=A PLUS B	NO - SHIFT
———	27	L	L	L	L	L	L	L	L	———	———
MUL	30	L	H	H	H	L	H	H	L	F=A MINUS B	RIGHT SHIFT
DIV	31	L	H	H	L	H	H	L	L	F=A PLUS A PLUS DR15	NO - SHIFT
ASH	32	L	L	L	H	L	L	L	L	NOT INST. DEP.	NOT INST. DEP. *
ASHC	33	L	H	H	L	H	H	L	L	F=A PLUS A PLUS DR15	NO - SHIFT
XOR	34	H	L	H	L	L	H	H	L	F=A ⊕ B	NO - SHIFT
———	35	L	L	L	L	L	L	L	L	———	———
———	36	L	L	L	L	L	L	L	L	———	———
SOB	37	L	L	L	L	L	L	L	L	NOT INST. DEP.	NOT INST. DEP.
						SWAB				F=A	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.
11/45		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 / CHKD / ENG / PROJ. ENG / PROD. (signatures) DATE

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

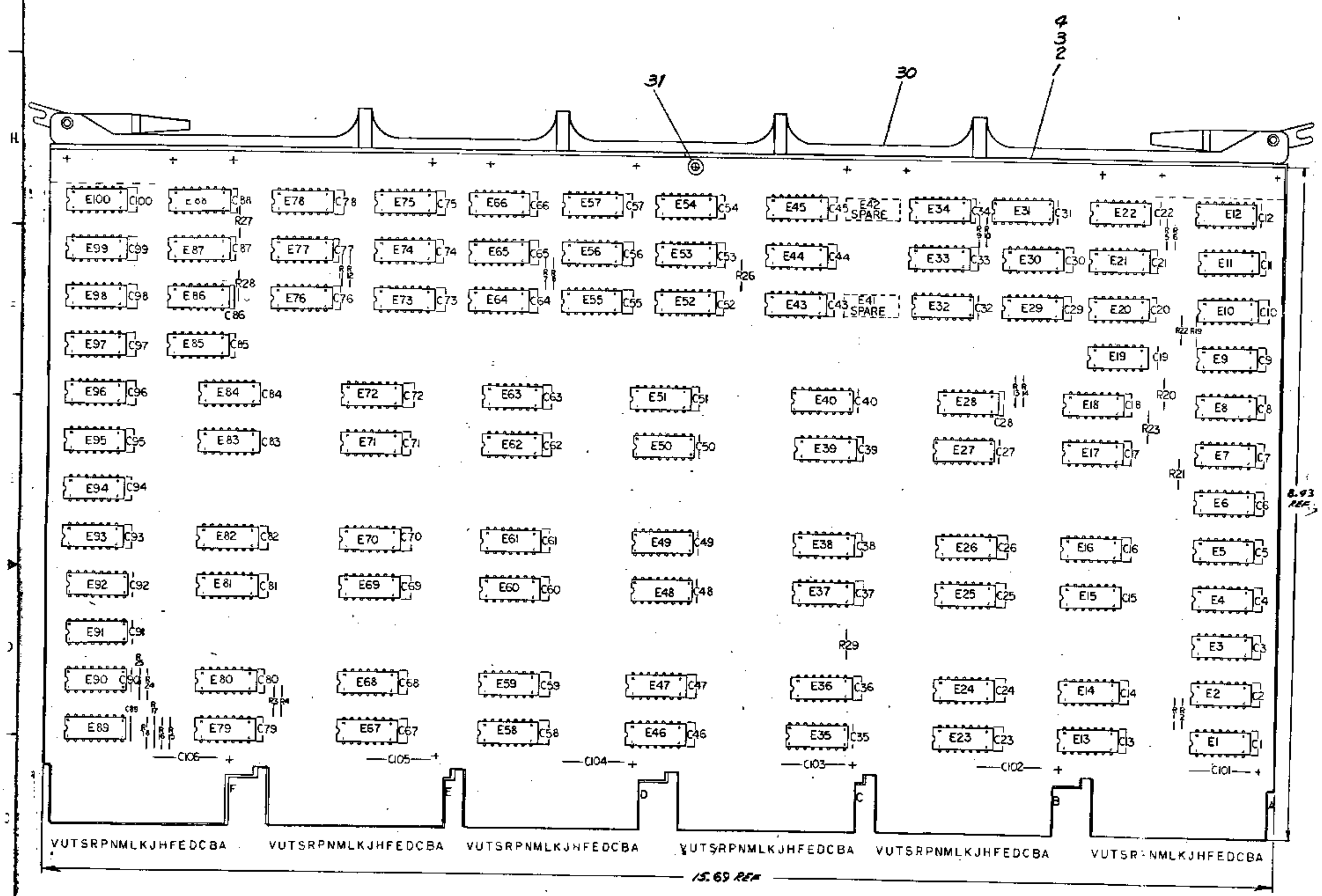
TITLE: GENERAL REGS. & ALU CNTL (GRAK)

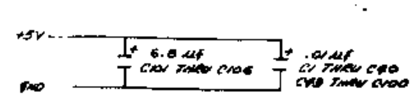
NEXT HIGHER ASSY: B-DD-KB11-0
SCALE: NONE
SHEET 10 OF 10

SIZE	CODE	NUMBER	REV
D	CS	M8101-0-1	D

NOTES:

1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .01 MFD.
2. RESISTORS R1, R12, R14 ARE NOT USED.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
12		EYELET	9006782	31
1		HANDLE, MODULE	7412871-2	30
1	E90	I.C. DM 8598-AC	23-C62A1	29
1	E89	I.C. DM 8598-AB	23-C61A1	28
2	E44, E69	I.C. DEC 8885	1910649	27
1	E47	I.C. DEC 8875	1910647	26
5	E27, E32, E48, E49, E50	I.C. DEC 8251-1	1909884	25
3	E51, E80, E85	I.C. DEC 74H50	1909060	24
2	E35, E40	I.C. DEC 74S157	1910548	23
4	E18, E31, E71, E92	I.C. DEC 74S153	1910547	22
11	E13, E14, E15, E16, E23, E24, E25, E26, E78, E79, E94	I.C. DEC 74S74	1910544	21
5	E20, E54, E57, E65, E66	I.C. DEC 74S65	1910543	20
10	E1, E5, E61, E63, E77, E81, E82, E83, E84, E88	I.C. DEC 74S64	1910542	19
1	E2	I.C. DEC 74S40	1910541	18
6	E7, E8, E18, E67, E70, E76	I.C. DEC 74S20	1910539	17
16	E4, E6, E10, E22, E29, E46, E56, E59, E60, E71, E72, E75, E76, E78, E86, E99	I.C. DEC 74S11	1910537	16
9	E28, E33, E38, E53, E58, E74, E96, E98, E100	I.C. DEC 74S10	1910536	15
8	E9, E12, E30, E43, E68, E87, E97, E45	I.C. DEC 74S09	1910534	14
1	E34	I.C. DEC 74S03	1910533	13
12	E8, E11, E19, E21, E36, E37, E39, E52, E55, E62, E64, E33	I.C. DEC 74S00	1910532	12
5	R15 THRU R19	RES. 1K, 1/4 W, 5%	1300365	11
4	R5, R6, R7, R10	RES. 560, 1/4 W, 5%	1301890	10
10	R20 THRU R29	RES. 470, 1/4 W, 5%	1300316	9
4	R4, R5, R8, R9	RES. 330, 1/4 W, 5%	1300295	8
3	R2, R11, R13	RES. 150, 1/4 W, 5%	1300250	7
98	C1 THRU C40, C43 THRU C100	CAP. .01 MFD, 100 V, 20% DISC	1001610	6
6	C101 THRU C106	CAP. 6.8 MFD, 35 V, 20% STANT	1000067	5
1		ETCHED CIRCUIT BOARD	5009806	4
REF		MODULE ECO HISTORY		3
REF		ASSY/DRILLING HOLE LAYOUT		2
REF		X-Y COORDINATE HOLE LOCATION		1

PARTS LIST

ETCH BOARD REV C

SEMICONDUCTOR CONVERSION CHART

IC PIN LOCATIONS

IC TYPE	GND	+5V
DM 8598-AC	8	16
DM 8598-AB	8	16
DEC 8251-1	8	16
DEC 74S153	8	16
DEC 74S157	8	16

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

JUMPER LIST

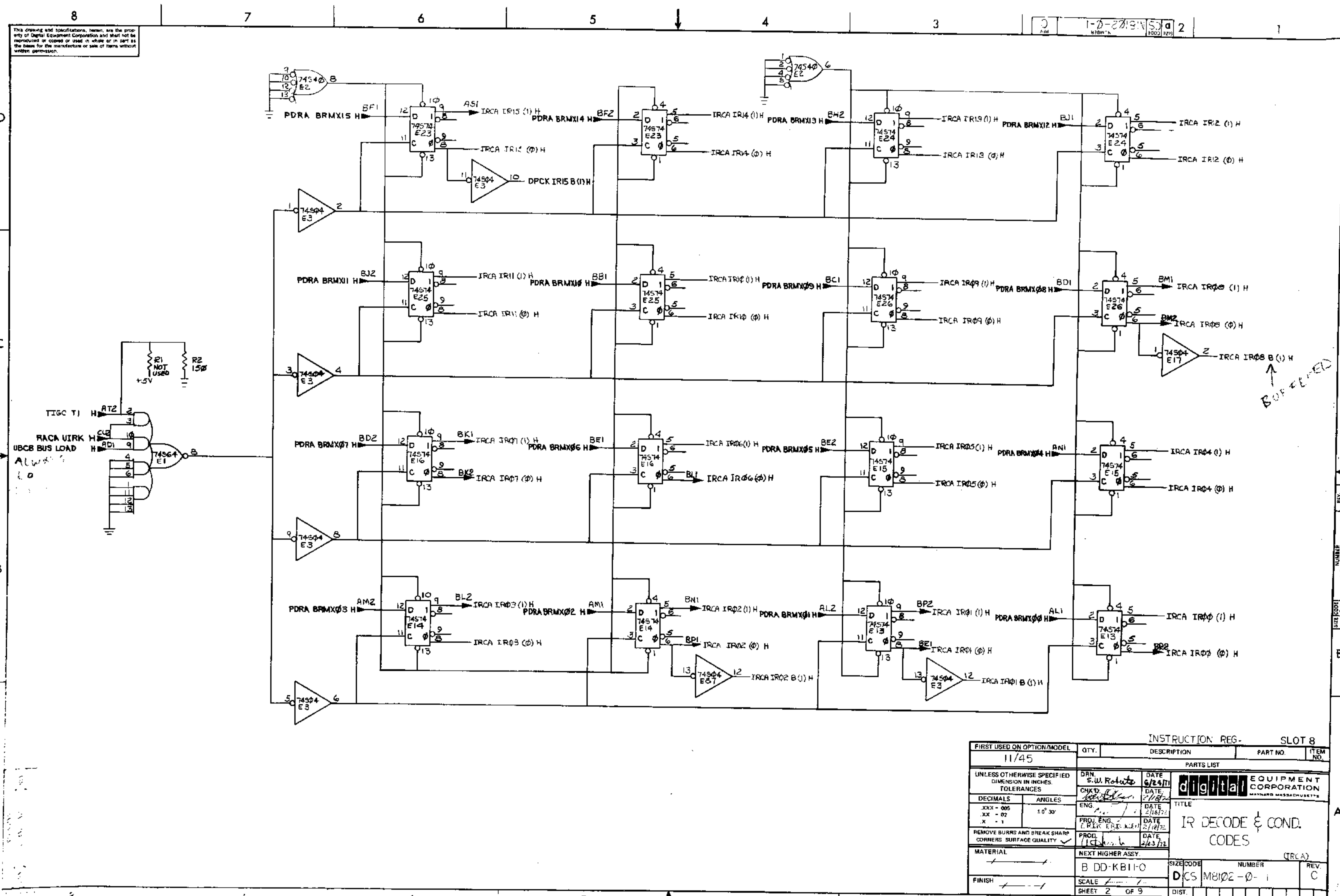
ITEM NO.	AWG	FROM PT	TO PT

digital EQUIPMENT CORPORATION

TITLE: IR DECODE & COND. CODES

NEXT HIGHER ASSY: B-PD-KB11-0

SIZE: E CS — M8102-0-1 REV. C



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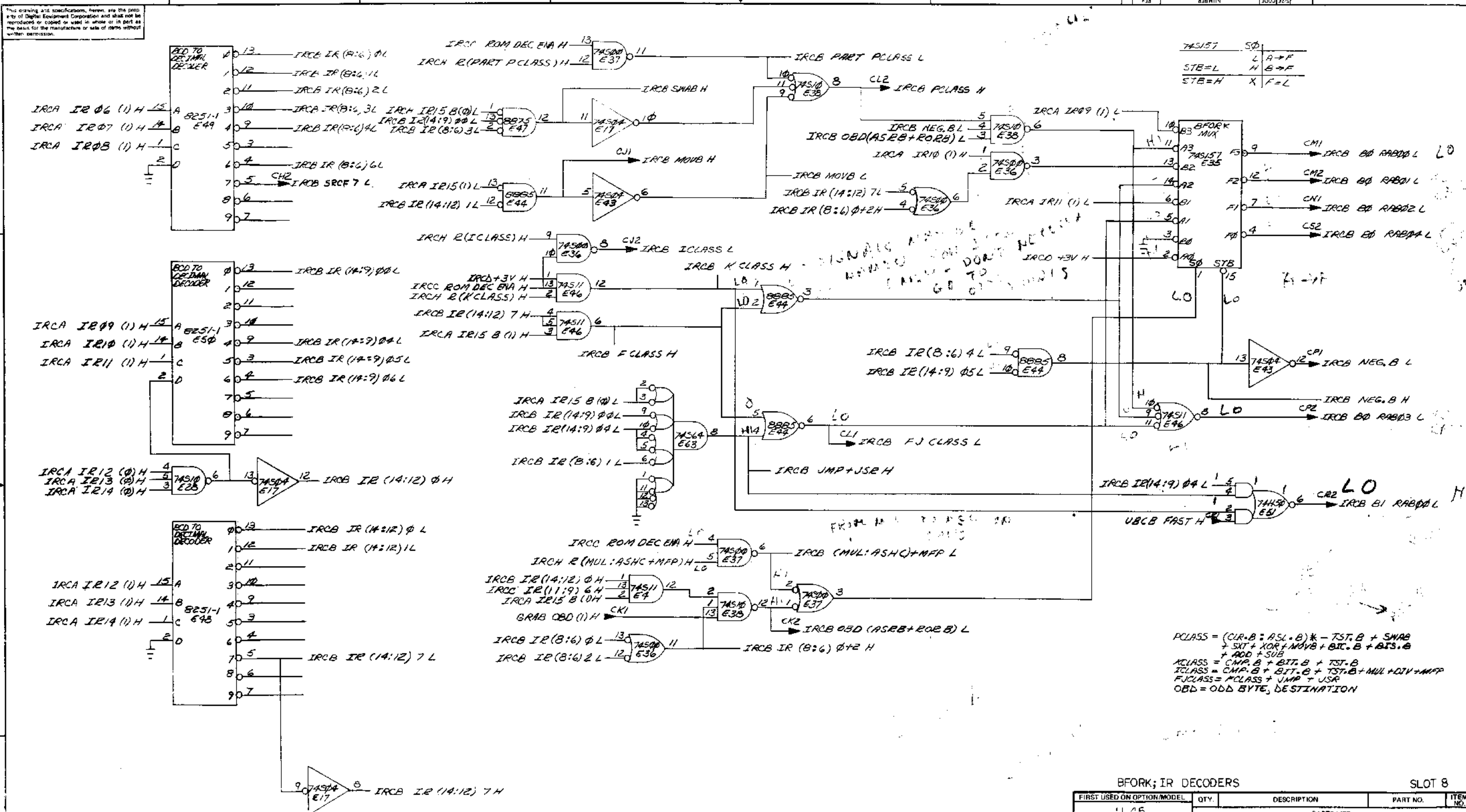
PDRA BRMX15 H
PDRA BRMX14 H
PDRA BRMX13 H
PDRA BRMX12 H
PDRA BRMX11 H
PDRA BRMX10 H
PDRA BRMX09 H
PDRA BRMX08 H
PDRA BRMX07 H
PDRA BRMX06 H
PDRA BRMX05 H
PDRA BRMX04 H
PDRA BRMX03 H
PDRA BRMX02 H
PDRA BRMX01 H
PDRA BRMX00 H
IRCA IR15 (1) H
IRCA IR15 (0) H
DPCK IR15 B (1) H
IRCA IR14 (1) H
IRCA IR14 (0) H
IRCA IR13 (1) H
IRCA IR13 (0) H
IRCA IR12 (1) H
IRCA IR12 (0) H
IRCA IR11 (1) H
IRCA IR11 (0) H
IRCA IR10 (1) H
IRCA IR10 (0) H
IRCA IR09 (1) H
IRCA IR09 (0) H
IRCA IR08 (1) H
IRCA IR08 (0) H
IRCA IR08 B (1) H
BUFFERED
IRCA IR07 (1) H
IRCA IR07 (0) H
IRCA IR06 (1) H
IRCA IR06 (0) H
IRCA IR05 (1) H
IRCA IR05 (0) H
IRCA IR04 (1) H
IRCA IR04 (0) H
IRCA IR03 (1) H
IRCA IR03 (0) H
IRCA IR02 (1) H
IRCA IR02 (0) H
IRCA IR02 B (1) H
IRCA IR01 (1) H
IRCA IR01 (0) H
IRCA IR01 B (1) H
IRCA IR00 (1) H
IRCA IR00 (0) H
TIGC TI H
RACA VIRK H
UBCB BUS LOAD H
ALWAYS LO
R1 NOT USED
R2 150
+5V
74S74
74S04
74S40
74S64
INSTRUCTION REG - SLOT 8
FIRST USED ON OPTION/MODEL 11/45
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.W. Roberts DATE 6/24/71
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY. B DD-KB11-0
SCALE
SHEET 2 OF 9
QTY. DESCRIPTION PART NO. ITEM NO.
PARTS LIST
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE IR DECODE & COND. CODES (IRCA)
SIZE D CODE CS NUMBER M8102-0-1 REV. C
DIST.



BFORK; IR DECODERS

SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11 45		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 6-22-71 · CHKD. DATE 2/18/72 · ENG. DATE 2/13/72 · PROJ. ENG. ERIK ERICKSEN DATE 2/18/72 · PROD. DATE 2/23/72

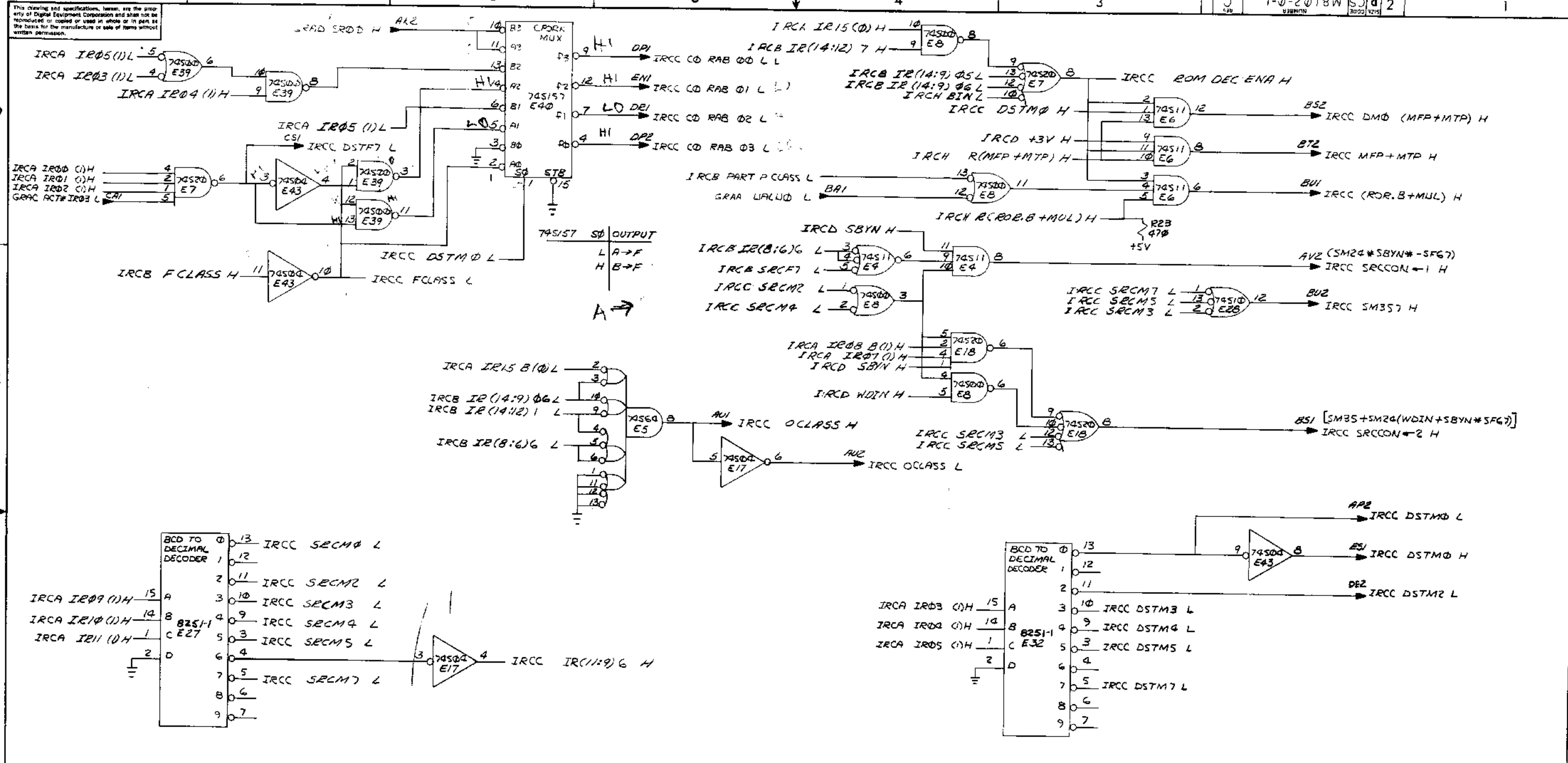
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE IR DECODE & COND. CODES (IRCB)

NEXT HIGHER ASSY. B-DD-KB11-0

SIZE D CODE CS NUMBER M8102-Ø-1 REV. C

SCALE — SHEET 3 OF 9



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CFORK MUX
74S157 E40
IRCC CΦ RAB ΦΦ L
IRCC CΦ RAB Φ1 L
IRCC CΦ RAB Φ2 L
IRCC CΦ RAB Φ3 L
IRCA IRΦ5(1)L
IRCA IRΦ3 (1)L
IRCA IRΦ4 (1)H
IRCC DSTF7 L
IRCA IRΦΦ (1)H
IRCA IRΦ1 (1)H
IRCA IRΦ2 (1)H
GRAC ACT*IRΦ3 L
IRCC DSTMΦ L
IRCB FCLASS H
IRCC FCLASS L
74S157 SΦ OUTPUT
L A→F
H B→F
IRCA IR15 (Φ) H
IRCB IR(14:12) 7 H
IRCB IR(14:9) Φ5 L
IRCB IR(14:9) Φ6 L
IRCH BIN L
IRCC ROM DEC ENA H
IRCC DSTMΦ H
IRCC DMΦ (MFP+MTP) H
IRCD +3V H
IRCH R(MFP+MTP) H
IRCC MFP+MTP H
IRCB PART P CLASS L
GRAA UALUΦ L
IRCC (ROR.B+MUL) H
IRCH R(ROR.B+MUL) H
IRCD SBYN H
IRCB IR(8:6)6 L
IRCB SRCF7 L
IRCC SRCM2 L
IRCC SRCM4 L
AV2 (SM24*SBYN*-SF67)
IRCC SRCCON←1 H
IRCC SRCM7 L
IRCC SRCM5 L
IRCC SRCM3 L
IRCC SM357 H
IRCA IRΦ8 B(1)H
IRCA IRΦ7 (1) H
IRCD SBYN H
IRCD WDIN H
BS1 [SM35+SM24(WDIN+SBYN*SF67)]
IRCC SRCCON←2 H
IRCA IR15 B(Φ)L
IRCB IR(14:9) Φ6 L
IRCB IR(14:12) 1 L
IRCB IR(8:6)6 L
IRCC OCLASS H
IRCC OCLASS L
BCD TO DECIMAL DECODER
8251-1 E27
IRCA IRΦ9 (1)H
IRCA IR1Φ (1)H
IRCA IR11 (1)H
IRCC SRCMΦ L
IRCC SRCM2 L
IRCC SRCM3 L
IRCC SRCM4 L
IRCC SRCM5 L
IRCC SRCM7 L
IRCC IR(11:9)6 H
8251-1 E32
IRCA IRΦ3 (1)H
IRCA IRΦ4 (1)H
IRCA IRΦ5 (1)H
IRCC DSTMΦ L
IRCC DSTMΦ H
IRCC DSTM2 L
IRCC DSTM3 L
IRCC DSTM4 L
IRCC DSTM5 L
IRCC DSTM7 L

NOTE: OCLASS = MOV + MTP
SBYN = MOVB + CMPB + BITB + BICB + BISB
SRΦΦ = 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.
11/45		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 6-23-71 · CHKD. DATE · ENG. DATE · PROJ. ENG. ERIK FRIKSEN DATE · PROD. DATE 2/23/72

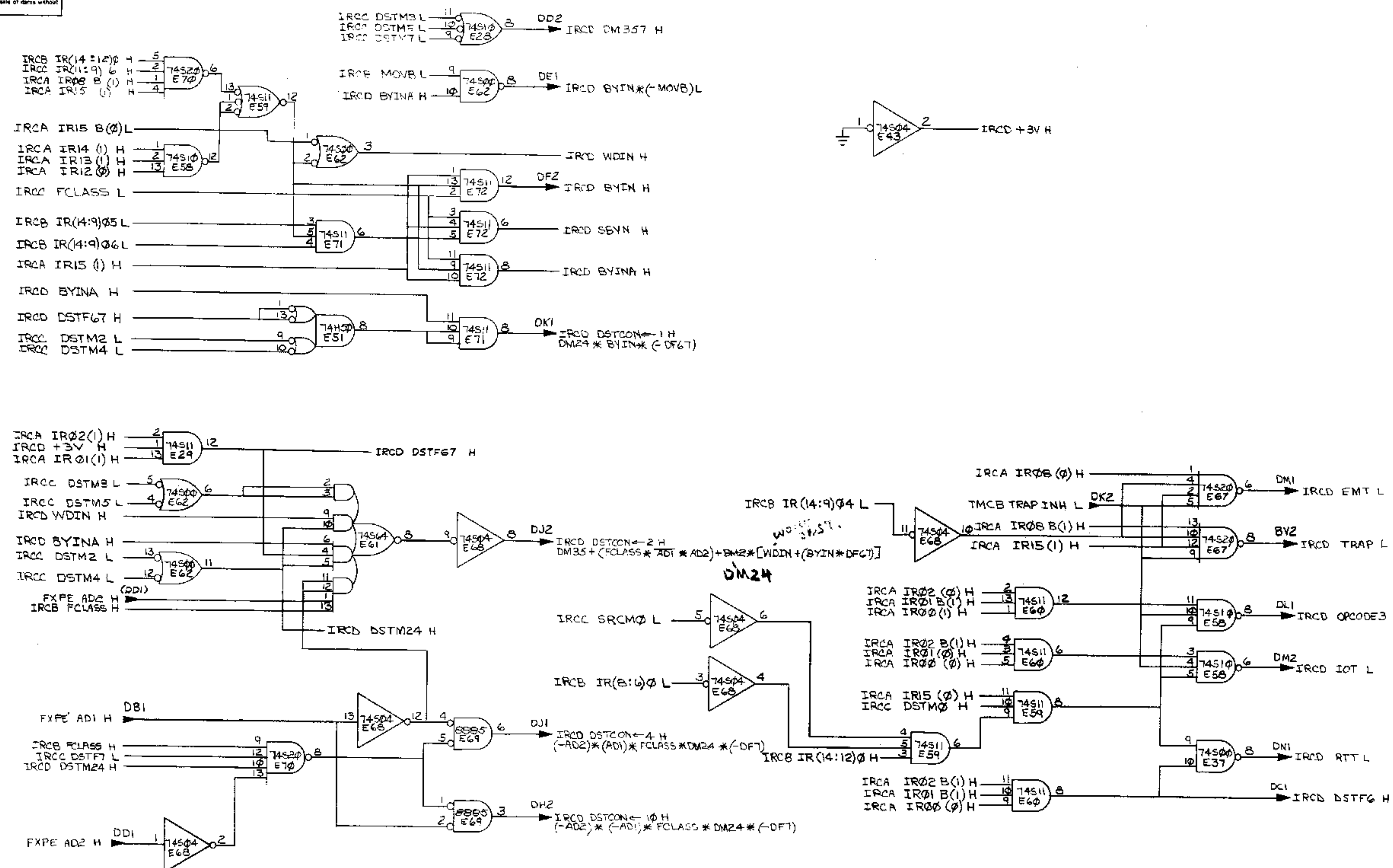
DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: IR DECODE & COND. CODES

NEXT HIGHER ASSY: B-DD KB11-D

SIZE D · CODE CS · NUMBER M8102-Φ-1 · REV C

SCALE — · SHEET 4 OF



INSTRUCTION TRAPS & DESTINATION CONSTANTS — SLOT B

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/45		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'D / DATE / ENG. / DATE / PROJ. ENG. ERIK ERIKSEN / DATE / PROD. / DATE

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCD)

NEXT HIGHER ASSY. B-DD-KB11-0

SIZE D CODE CS NUMBER M8102-0-1 REV C

SCALE — SHEET 5 OF 9

IRCE VEN2 L
IRCF CCLD5 L
74S11 E10

DAPD AMX IS H
GRAA OB SWAP L
74S04 E30
74S00 E11
74S00 E11
74S00 E11

DAPB AMX00 H
DAPC AMX 07 H
74S153 E12
VEN2

IRCE WOB CARRY H
DAPJ SHFRA15 H
IRCE LOB CARRY H
DAPJ SHFRA07 H
74S00 E19
74S00 E19
74S00 E19
74S65 E20
E3 560 +5V
E9 330

IRCH VMOD0 H
74S11 E22

GRAA WORD+OB SWAP L
IRCF CCLD5 L
IRCE VEN2 L
74S00 E19
74S11 E56
74S11 E56

IRCH SWAB L
IRCH VMOD1 H
IRCF CC INSDEP H
74S00 E9

GRAA WORD+OB SWAP H

IRCH ENV H
R22 470 +5V
74S04 E30
74S00 E19
IRCE VEN1 L

IRCH V(1) H
IRCE LOAD FCC L
IRCE PS LOAD L
74S11 E56

IRCE CC←BR H
DAPA BR01 H
74S00 E55
74S00 E55

DAPC BMX07 H
IRCH VMOD1 H
74S11 E22

IRCF MUL+DIV NEVEN H
IRCF SETV H
74S00 E55

+5V
R20 470
IRCH +3V H
DAPD BMX15 H
74S11 E22

IRCF CC NONAFF L
IRCF CCLD5 L
IRCF CCLD67 L
74S00 E33
74S65 E37
IRCE VDATA L

74S153 E31
VEN1

DAPU ALU SIGN H
74S00 E55

DAPJ AMX SIGN H

74S04 E30

IRCF CC FP LOAD L
74S04 E30

IRCB FCLASS H
74S10 E33
74S00 E21
IRCE LOAD FCC L
IRCE CC←BR H
IRCE PS LOAD L

RACB UIBS01 H
74S00 E21
74S00 E11
R5 330
R6 560
+5V

RACB UIBS00 H
74S04 E30

IRCD BYINA H
IRCF NENI H
IRCD WDIN H
IRCH SWAB L
IRCH MODEN H
IRCD WDIN H
74S11 E10
74S00 E21
74S11 E10
74S11 E10
74S20 E9
AJ2
IRCE EN HIB H
AK1
IRCE EN LOB H

IRCF CCLD4 L
IRCF CCLD5 L
74S10 E33
CE1
IRCE EN WORD H

IRCD BYINA H
IRCD VMOD0 H

745153	S1	S0	
STB L	L	L	A→F
	L	H	B→F
	H	L	C→F
	H	H	D→F
STB H	X	X	Z=L

CONDITION CODE V LOGIC SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 6-17-71
CHKD. DATE 6/18/71
ENG. DATE 2/16/71
PROJ. ENG. ERIK ERIKSEN DATE 2/18/71
PROD. DATE 2/23/71
NEXT HIGHER ASSY. B-DD-KB11-0
SCALE
SHEET 6 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
I R DECODE & COND. CODES
(IR CE)

SIZE D | CODE CS | NUMBER M8102-0-1 | REV. C | DIST.

REVISIONS: REV | DESCRIPTION | DATE | APPROVED

IRCE WOB CARRY H
IRCE LOB CARRY H
CRAA 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 (EZ8)
IRCH CMOD1 H
IRCF CC NONAFF L
IRCF CCLD6 L
IRCE CC ← BR H
DAPA BRØØ H (CT2)
IRCE PS LOAD L
IRCH C(1) H
IRCE LOAD FCC L
IRCF CEN2 H
RZ7 47Ø +5V
GRAH DR15 L (ED1)
IRCH Z(1) H
GRAH DR15 H (ED2)
IRCF BR= -1 SAVE(1) H
IRCF X L
IRCH CMODØ H
GRAD DRØØ H (CV2)
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 NONAFF L
RACA UCCLØ2 H (EF1)
RACA UCCLØ1 H (EE2)
RACA UCCLØØ H (EE1)
IRCF C DATA L
+5V R26 47Ø
IRCH ENEN H
IRCF CC INSDEP H
IRCF MUL+DIV NZVEN H
IRCH MODEN H (EK1)
IRCF CHECKZ H
IRCF CCLDG L
IRCF NENI H
IRCF CC NONAFF L
IRCF CCLDG7 L
IRCE PS LOAD L
IRCE LOAD FCC L
IRCH N(1) H
GRAA WORD+OB SWAP L (AF1)
IRCH SWAB L
DAPJ SHF2AØ7 H (CB1)
IRCF CCLD4 L
IRCF CCLD5 L
IRCH MODEN H
DAPJ SHFØA15 H (CA1)
GRAA WORD+OB SWAP H (CC1)
+5V R9 330Ω R10 560Ω
+5V R8 33Ø Ω R7 56Ø Ω
+5V R19 1K
IRCF ZINV H
IRCH MODEN H
DAPF A=B(15:Ø) L (EW2)
IRCH +3V H
IRCF BR=1 SAVE(1) H
IRCF BR=1 SAVE(Ø) H
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
IRCH ZCLB L
IRCF Z2(Ø) H
DAPA BR13 H (CV2)
IRCE CC ← BR H
IRCF N DATA L
IRCH MODEN H
IRCF SET V H
IRCF MUL+DIV NZVEN H
IRCF CCLD7 L
IRCF CC NONAFF L
IRCF ZDATA1 L
DAPA BR02 H (CU2)
IRCE CC ← BR H
IRCF NENI H
IRCF ZINV H (EK2)
DAPJ A=B(8:8)+BYTE H (EL1)
DAPF A=B(7:Ø) H
IRCH Z(1) H
IRCE LOAD FCC L
IRCE PS LOAD L

NOTE 1

CONDITION CODES C, N, & Z LOGIC — SLOT 8

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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'D. — DATE 2/19/76
ENG. — DATE
PROJ. ENG — DATE 2/19/76
PROD. — DATE 2/23/76
NEXT HIGHER ASSY: B-DD-KB11-D
SCALE
SHEET 7 OF 8

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE&COND. CODES (IRCF)

SIZE D | CODE CS | NUMBER M8102-Ø-1 | REV

DIST.

IRCH SETCC H

IRCA IRØ3(1) H
DAPA BRØ3 H
UBCC CC DATA (1) H
74H5Ø E85
DV2
ER2

IRCA IRØ2 B(1) H
DAPA BRØ2 H
74H5Ø E85
DV2

IRCH Z SET L
IRCA IRØ1 B(1) H
DAPA BRØ1 H
74H5Ø E8Ø
CU1

IRCA IRØØ(1) H
DAPA BRØØ H
74H5Ø E8Ø
CT2

IRCF NDATA L

IRCH CCCLK H

IRCH CLK INH L
GRAC GATE T6 H
TIGC TF H
74S11 E76
EL2
EM1

IRCH +3V H
UBCE INIT H
UBCC CC DATA (1) H
74S11 E76
EM2
(ER2)

IRCA IRØ4(1) H
+5V
R14 NOT USED
R13 15Ω
TIGD T5B H
IRCA IRØ4(Ø) H
74S11 E29
DS2

IRCF CCLØØ L
RACA UCCLØ1 H
IRCF CCLØ2 L
74S11 E86
(ER2)

74SØ4 E87
IRCH CLK INH L

IRCA IR15(1) H
IRCA IR14(1) H
IRCA IR13(1) H
IRCA IR12(Ø) H
74S2Ø E96
IRCH SUB L

74SØ4 E97

74SØ4 E45
IRCH +3V H

IRCA IRØ7(1) H
IRCA IRØØ(1) H
IRCA IR13(1) H
IRCA IRØ6(1) H
IRCA IRØ9(1) H
IRCA IR12(1) H
STB1 STBØ
74S153 C1 E92
DI
BI
AI
DØ
CØ
BØ
AØ
FI
FØ
S1 SØ

IRCA IR14(Ø) H
IRCA IR13(Ø) H
IRCA IR12(Ø) H
74S1Ø E95
74SØØ E93

IRCA IR14(1) H
IRCA IR13(1) H
IRCA IR12(1) H
74S1Ø E95

RACC UALUØ H
RACC UALU1 H
RACC UALØ2 H
EP1
EP2
EU2
74S11 E71

IRCA IR11(Ø) H
IRCH BIN L
74S2Ø E96
ER1
IRCH SWAB L

IRCA IRØ9(1) H
IRCH +3V H
74S153 C1 E91
STB1 STBØ
DI
BI
AI
DØ
CØ
BØ
AØ
FI
FØ
S1 SØ
LO

IRCH BIN L

74SØØ E93

IRCF NDATA L
FC1
74S74 E94
D
C
IRCH N (1) H
FD1
IRCH N (Ø) H

IRCH N (1) L
74S04 E87
R17 1K
FK1
IRCH MAT N H
FM1
IRCH N B (1) H

IRCE Z1 (1) L
IRCE Z2 (1) L
IRCH Z (1) H
74S00 E93
R15 1K
FP2
IRCH Z (1) H
FR1
IRCH MAT Z H
74S04 E97
FN2
IRCH Z (Ø) H

IRCE VDATA L
74S74 E79
D
C
1K R16
FJ1
IRCH MAT V H
IRCH V(1) H
FJ2
IRCH V(Ø) H

IRCF CDATA L
74S74 E79
D
C
FK2
IRCH C(1) H
FK1
IRCH C(Ø) H

IRCH C(1) L
74S04 E87
R18 1K
FL1
IRCH MAT C H
FL2
IRCH C B (1) H

PDRB BRØ3 B L
IRCA IRØ3(1) H
74S64 E84
EF2

PDRB BRØ2 B L
IRCA IRØ2 B(1) H
74S64 E83
EU1

PDRB BRØ1 B L
IRCH Z CLR L
IRCA IRØ1 B(1) H
74S64 E82
ET2

PDRB BRØØ B L
IRCA IRØØ(1) H
74S64 E81
ES2

IRCH MODEN H
IRCH ENZN H
IRCH CMODI H
IRCH CMODØ H
IRCH ENC H
IRCH VMOD1 H
IRCH VMODØ H
IRCH ENV H
CS DM8598 AC E9Ø
A4
A3
A2
A1
AØ
M7
M6
M5
M4
M3
M2
M1
MØ
CC CNTL ROM
C=NO CODE

+5V R25 470Ω
+5V R24 470Ω
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
CS DM8598 AB E89
INSTR DECODE ROM
INSTR DECODE
+5V R29 470Ω
FM2
FN1
FPI
FR1
FR2
FS1
FS2
FT2

745153 S1 SØ

STB=L	L	L	A→F
	L	H	B→F
	H	L	C→F
	H	H	D→F
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.
11/45		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 23-JAN-71
CHK. DATE 2/18/72
ENG. DATE 2/MAR/72
PROJ. ENG. ERIK ERIKSEN DATE 2/17/72
PROD. DATE 2/23/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCH)

NEXT HIGHER ASSY. B-DD-KB11-D
SIZE D | CODE CS | NUMBER M 8102-D-1 | REV C
SCALE
SHEET 8 OF 9
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC 11-BV-XS
ORD 152-B

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INSTRUCTION DECODE ROM DM8598/AB — COND. CODE CNTL. ROM DM8598/AC

INSTRUCTION	OCTAL ADDRESS	SXT (M7)	DIV+ASHC (M6)	R(ROB.B+MUL) (M5)	R(MFP+MTP) (M4)	R(MUL:ASHC+MFP) (M3)	R(K CLASS) (M2)	R(I CLASS) (M1)	R(PART P CLASS) (M0)	MOD ZN (M7)	EN ZN (M6)	CMOD 1 (M5)	CMOD 0 (M4)	ENC (M3)	VMOD 1 (M2)	VMOD0 (M1)	ENV (M0)
ROR.B	00	L	L	H	L	L	L	L	H	H	H	L	L	L	H	H	H
ROL.B	01	L	L	L	L	L	L	L	H	H	H	L	L	L	H	L	H
ASR.B	02	L	L	L	L	L	L	L	H	H	H	L	L	L	H	H	H
ASL.B	03	L	L	L	L	L	L	L	H	H	H	L	L	L	H	L	H
MARK	04	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
MFP	05	L	L	L	H	H	L	H	L	H	H	H	L	H	L	L	H
MTP	06	L	L	L	H	L	L	L	L	H	H	H	L	H	L	L	H
SXT	07	H	L	L	L	L	L	L	H	H	H	H	L	H	L	L	H
CLR.B	10	L	L	L	L	L	L	L	H	H	H	H	L	L	L	L	H
COM.B	11	L	L	L	L	L	L	L	H	H	H	L	H	L	L	L	H
INC.B	12	L	L	L	L	L	L	L	H	H	H	H	L	H	L	L	L
DEC.B	13	L	L	L	L	L	L	L	H	H	H	H	L	H	L	H	L
NEG.B	14	L	L	L	L	L	L	L	H	H	H	L	H	L	H	L	L
ADC.B	15	L	L	L	L	L	L	L	H	H	H	H	L	L	L	L	L
SBC.B	16	L	L	L	L	L	L	L	H	H	H	L	H	L	L	H	L
TST.B	17	L	L	L	L	L	H	H	L	H	H	H	L	L	L	L	H
SUB	20	L	L	L	L	L	L	L	H	H	H	L	H	L	H	H	L
MOV.B	21	L	L	L	L	L	L	L	L	H	H	H	L	H	L	L	H
CMP.B	22	L	L	L	L	L	H	H	L	L	H	H	L	L	H	H	L
BIT.B	23	L	L	L	L	L	H	H	L	H	H	H	L	H	L	L	H
BIC.B	24	L	L	L	L	L	L	L	H	H	H	H	L	H	L	L	H
BIS.B	25	L	L	L	L	L	L	L	H	H	H	H	L	H	L	L	H
ADD	26	L	L	L	L	L	L	L	H	H	H	H	L	L	H	L	L
NOT USED	27	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
MUL	30	L	L	H	L	H	L	H	L	H	L	L	H	H	L	L	H
DIV	31	L	H	L	L	H	L	H	L	L	L	H	H	L	L	L	H
ASH	32	L	L	L	L	H	L	L	L	H	H	H	L	L	L	L	H
ASHC	33	L	H	L	L	H	L	L	L	H	H	L	L	H	L	L	H
XOR	34	L	L	L	L	L	L	L	H	H	H	H	L	H	L	L	H
NOT USED	35	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
NOT USED	36	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
SOB	37	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

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

N: WORD + ODD BYTE	N: BYTE * (EVEN + DSTM0)	Z: WORD	Z: BYTE	V: WORD	V: BYTE	C: WORD	C: 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	SHFR7 ⊻ AMX0	AMX0	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	SHFR15 ⊻ AMX15	SHER15 ⊻ AMX7; SHFR7 ⊻ AMX7	AMX15	AMX7
NOT INSTR. DEP.		NOT INSTR. DEP.		NOT INSRT. DEP.		NOT INSRT. 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		$\overline{ALUCOUT 15}$	$\overline{ALUCOUT 7}$
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	$\overline{AMX15}$ * ALU15	$\overline{AMX7}$ * ALU7	NOT AFFECTED	
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * $\overline{ALU15}$	AMX7 * $\overline{ALU7}$	NOT AFFECTED	
* SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(7:0)0	A15*B15*$\overline{ALU15}$ + $\overline{A15}$*$\overline{B15}$*ALU15	A7*B7*$\overline{ALU7}$ + $\overline{A7}$*$\overline{B7}$*ALU7	$\overline{ALUCOUT 15}$	$\overline{ALUCOUT 7}$
SHFR(15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	$\overline{AMX15}$ * ALU15	$\overline{AMX7}$ * ALU7	ALUCOUT 15	ALUCOUT 7
SHER (15)1	SHFR(7)1	SHFR(15:0)0	SHFR(BYTE)0	AMX15 * $\overline{ALU15}$	AMX7 * $\overline{ALU7}$	$\overline{ALUCOUT 15}$	$\overline{ALUCOUT 7}$
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*$\overline{ALU15}$ + $\overline{AMX15}$*$\overline{BMX15}$*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*$\overline{B15}$*$\overline{ALU15}$ + $\overline{A15}$*B15*ALU15	A7*$\overline{B7}$*$\overline{ALU7}$ + $\overline{A7}$*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	
SHFR(15)1		SHFR(15:0)0		AMX15*BMX15*$\overline{ALU15}$ + $\overline{AMX15}$*$\overline{BMX15}$*ALU15		ALUCOUT 15	
—		—		—		—	
NOT AFFECTED		Z(OLD) * SHFR(15:0)0		0		$\overline{X}$	
NOT AFFECTED		1		1		1(ALUCN + $\overline{ALUCN}$)	
SHFR(15)1		SHFR(15:0)0		0		AMX0	
SHFR(15)1		SHFR(15:0)0		0		DR00	
SHFR(15)1		SHFR(15:0)0		0		NOT AFFECTED	
—		—		—		—	
—		—		—		—	
NOT INSTR. DEP		NOT INSTR. DEP.		NOT INSTR DEP.		NOT INSTR. DEP.	
SWAB: SHFR(7)1		SHFR(7:0)0		0		0	

	N	Z	V	C
CCLD4 (RACC UCCL(2:0)=4)	SHFR(15)1	SHFR(15:0)0	0	0
CCLD5 (RACC UCCL(2.0)=5)	SHFR(15)1	SHFR(15:0)0	V(OLD) + (SHFR15 ⊻ AMX15)	AMX15
CCLD6 (RACC UCCL(2:0)=6)	NOT AFFECTED	Z(OLD) * SHFR(15:0)0	NOT AFFECTED	NOT AFFECTED
CCLD7 (RACC UCCL(2:0)=7)	NOT AFFECTED	NOT AFFECTED	NOT AFFECTED	ALUOUT 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 ROM ADDRESS AS ASL.B

CC CNTL & INSTR DECODE ROM MAPS — SLOT 8

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
11/45		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

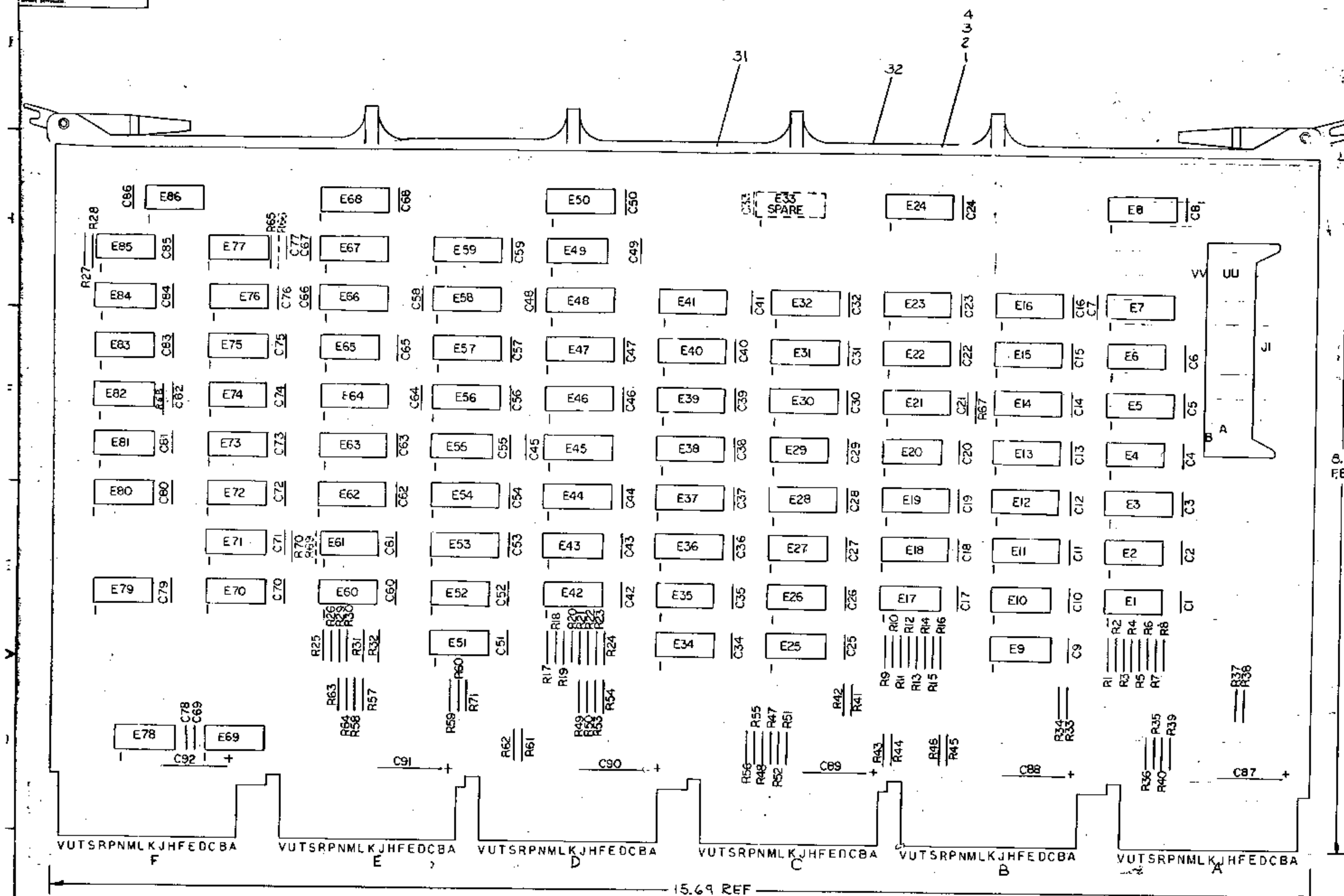
DRN DATE 1-20-72 — CHK DATE 2/18/72 — ENG DATE 2/18/72 — PROJ ENG ERIK FRITSEN — PROD DATE

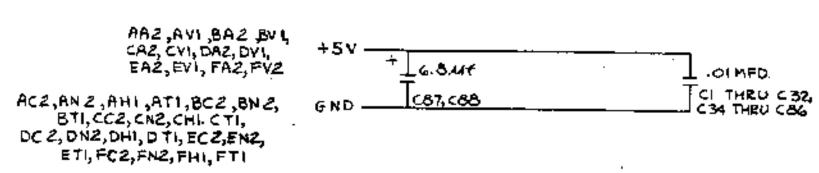
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: IR DECODE & COND. CODES (IRCJ)

NEXT HIGHER ASSY B-DD-KB11-C — SIZE D — CODE CS — NUMBER M8102-0-1 — REV C — SCALE NONE — SHEET 5 OF 9

NOTES:
1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS. WITHOUT VALUE NOTED .01 MFD.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		HANDLE, MODULE	E-PS-1210711-2	32
2		EYELET	9006732	31
1	J1	CONN 40PIN BERG	1209941	30
2	E47, E59	IC DEC 74175	1910651	29
4	E8, E24, E50, E68	IC DEC 7485	1910224	28
12	E11, E13, E15, E18, E22, E36, E38, E45, E53, E57, E63, E67	IC DEC 74S174	1910550	27
1	E31	IC DEC 74S157	1910548	26
24	E3, E5, E7, E12, E14, E16, E19, E21, E23, E28 E30, E32, E37, E39, E41, E44 E46, E48, E54, E56, E58, E62, E64, E66	IC DEC 74S153	1910547	25
7	E6, E49, E69, E80, E82, E83, E85	IC DEC 74S74	1910544	24
1	E79	IC DEC 74S40	1910541	23
1	E71	IC DEC 74S20	1910539	22
8	E4, E10, E29, E35, E52, E55, E65 E75	IC DEC 74S04	1910534	21
2	E20, E77	IC DEC 74S11	1910537	20
3	E70, E73, E86	IC DEC 74S10	1910536	19
1	E72	IC DEC 74S00	1910532	18
1	E40	IC DEC 9318	1910454	17
8	E9, E17, E25, E34, E51, E78, E81, E84	IC DEC 74H01	1909849	16
4	E1, E26, E42, E60	IC DEC 8881	1909705	15
4	E2, E27, E43, E61	IC DEC 380	1909485	14
1	E74	IC DEC 74H50	1909060	13
1	E76	IC DEC 74H40	1905586	12
1	R68	RESISTOR 390Ω, 1/4W, 5%	1300309	11
1	R67	RESISTOR 180Ω, 1/4W, 5%	1301322	10
3	R65, R70, R71	RESISTOR 150Ω, 1/4W, 5%	1300250	9
32	R1, R3, R5, 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, R59, R61, R63	RESISTOR 330Ω, 1/4W, 5%	1300295	8
32	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32, R34, R36, R38, R40, R42, R44, R46, R48, R50, R52, R54, R56, R58, R60, R62, R64.	RESISTOR 680Ω, 1/4W, 5%	.301424	7
85	C1 THRU C32 C34 THRU C86	CAPACITOR .01μf, 50V, 20% AXIAL	1001610	6
6	C87 THRU C92,	CAPACITOR 6.8μf, 35V, 10% TANT	1005306	5
1		ETCHED CIRCUIT BOARD	5009804	4
REF		MODULE ECO HISTORY	B-MH-M8104-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8104-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8104-0-4	1

PARTS LIST

ETCH BOARD REV C

IC TYPE	GND	+5V
DEC 74S153	8	16
DEC 74175	8	16
DEC 7485	8	16
DEC 74S174	8	16
DEC 74S157	8	16
DEC 9318	8	16
DEC 380	1	8

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DEC NO	EIA NO	DEC NO.	EIA NO.

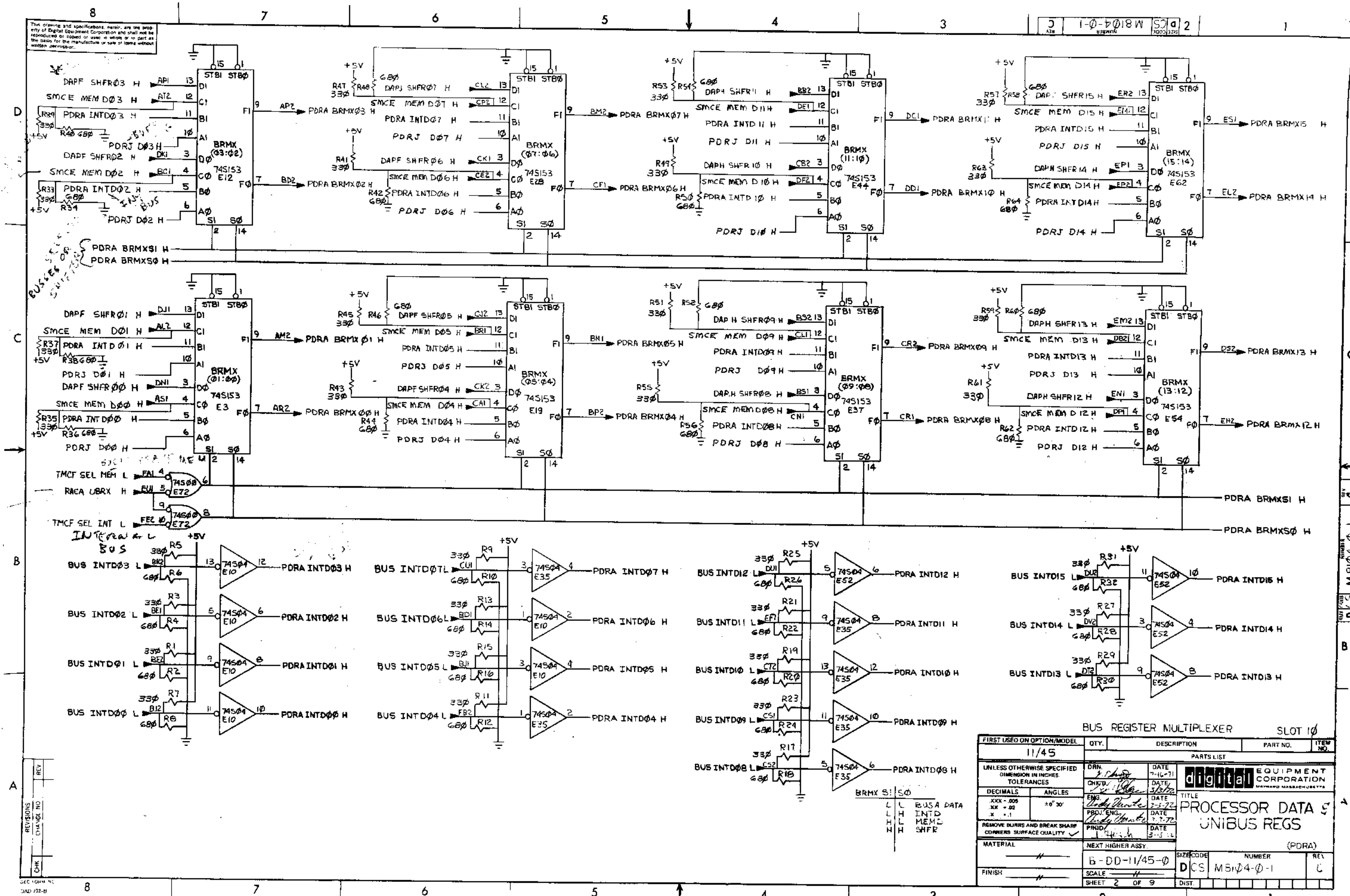
SEMICONDUCTOR CONVERSION CHART

DIGITAL EQUIPMENT CORPORATION

TITLE: PROCESSOR DATA & UNIBUS REGS.

NEXT HIGHER ASSY: E-CD-11/45-0

SIZE: E CODE: CS NUMBER: M8104-0-1 REV: C



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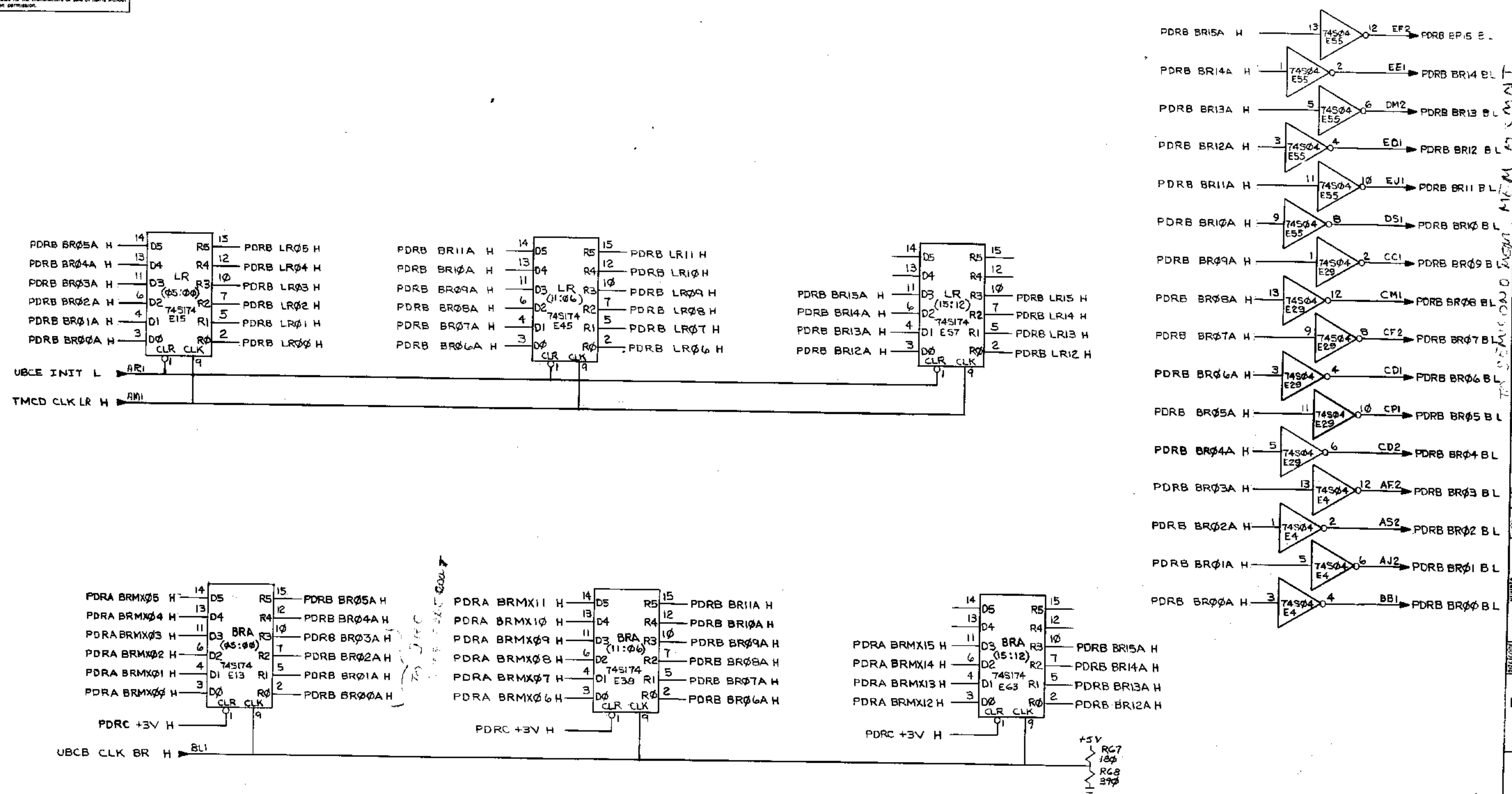
BRMX (03:02) 74S153 E12
BRMX (07:06) 74S153 E28
BRMX (11:10) 74S153 E44
BRMX (15:14) 74S153 E62
BRMX (01:00) 74S153 E3
BRMX (05:04) 74S153 E19
BRMX (09:08) 74S153 E37
BRMX (13:12) 74S153 E54
PDRA BRMXS1 H
PDRA BRMXS0 H
TMCF SEL MEM L
RACA UBRX H
TMCF SEL INT L
BRMX S1 S0
L L BUSA DATA
L H INTD
H L MEMD
H H SHFR
BUS REGISTER MULTIPLEXER
SLOT 10
FIRST USED ON OPTION/MODEL 11/45
PARTS LIST
DIGITAL EQUIPMENT CORPORATION
PROCESSOR DATA & UNIBUS REGS
(PDRA)
NEXT HIGHER ASSY. B-DD-11/45-0
SIZE D CODE CS NUMBER M8104-0-1 REV C
SHEET 2 OF 9



BUS REGISTER A; LIGHT REGISTER — SLOT 1Ø

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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 6-29-71; CHK'D DATE 3/3/72; ENG. DATE 3-3-72; PROJ. ENG. DATE 3-3-72; PROD. DATE 3-15-72

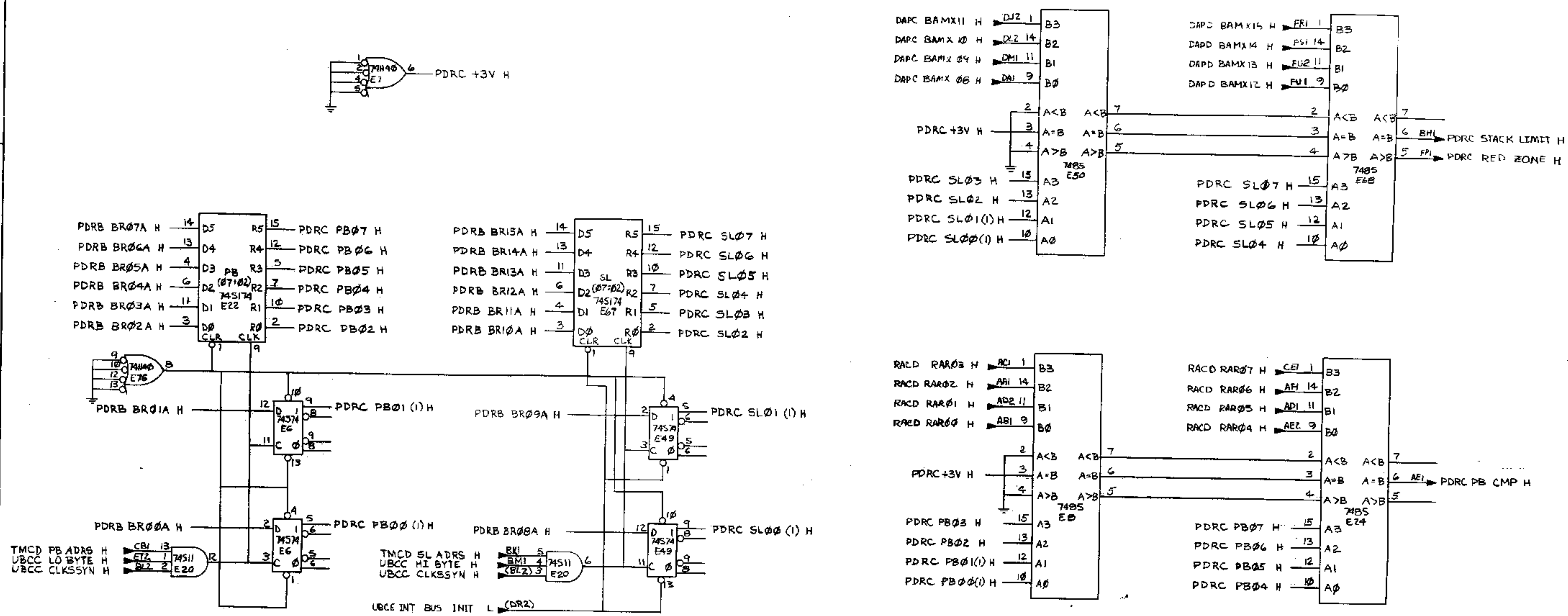
NEXT HIGHER ASSY. B-DD-11/45-Ø

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS (PDRB)

SIZE D CODE CS NUMBER M81Ø4-Ø-1 REV C

SCALE —//— SHEET 3 OF 9



PROGRAM BREAK & STACK LIMIT REGISTERS SLOT 1Ø

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 9/21/71, 3/3/72, 3-3-72, 3-3-72, 3-15-72

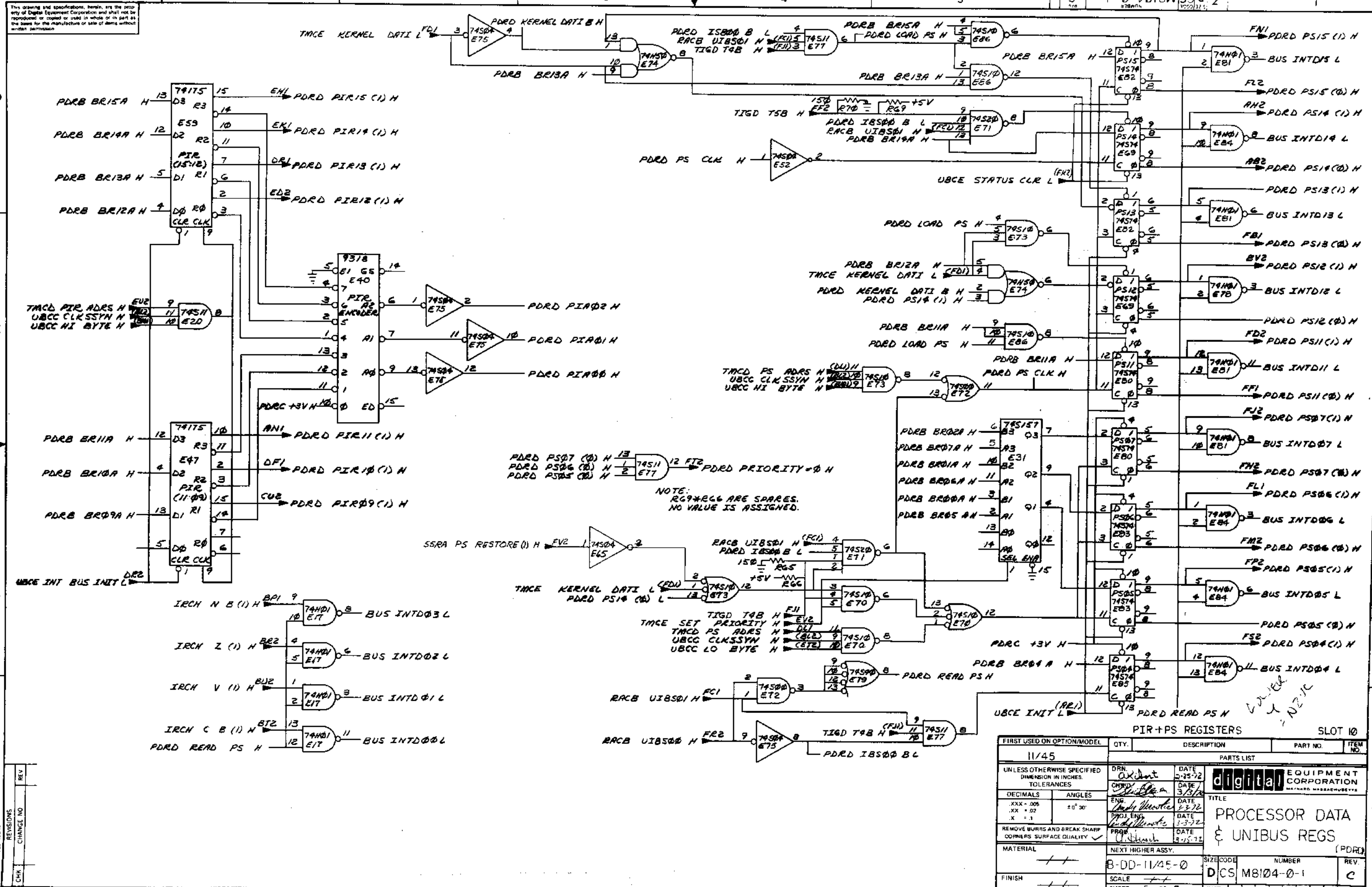
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE PROCESSOR DATA & UNIBUS REGS (PDRC)

NEXT HIGHER ASSY. B-DD-11/45-Ø

SIZE D CODE CS NUMBER M81Ø4-Ø-1 REV. C

SHEET 4 OF 9



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 2-25-72 · CHKD. DATE 3/3/72 · ENG. DATE 3-3-72 · PROJ. ENG. DATE 3-3-72 · PROD. DATE 3-15-72

NEXT HIGHER ASSY. B-DD-11/45-0

SCALE —/— SHEET 5 OF 9

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE PROCESSOR DATA & UNIBUS REGS (PDR)

SIZE D CODE CS NUMBER M8104-0-1 REV. C

TMCD HI BYTE EN H — ER1 — 74S04 E65 — 10

TMCD LO BYTE EN H — FF1 — 74S04 E75 — 6

TMCD DMX31 H — E32 — 74S04 E65 — 8

TMCD DMXSØ H — E32 — 74S04 E65 — 6

PDRE DMXSI L

PDRE DMXSØ L

DMX (Ø9:Ø8) 74S153 E39

PDRB BRØ9A H	13 DI
PDRC SLØ1 (I) H	12 CI
PDRD PIRØ9 (I) H	11 BI
	10 AI
PDRB BRØ8A H	3 DØ
PDRC SLØØ (I) H	4 CØ
	5 BØ
	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E42 — 10 (DE2) — BUSA DØ9 L

8881 E42 — 4 (EB2) — BUSA DØ8 L

DMX (11:10) 74S153 E46

PDRB BR11A H	13 DI
PDRC SLØ3 H	12 CI
PDRD PIR11 (I) H	11 BI
PDRD PS11 (I) H	10 AI
PDRB BR10A H	3 DØ
PDRC SLØ2 H	4 CØ
PDRD PIR10 (I) H	5 BØ
	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E42 — 1 (DH2) — BUSA DI1 L

8881 E42 — 13 (DI2) — BUSA DI0 L

DMX (13:12) 74S153 E56

PDRB BR13A H	13 DI
PDRC SLØ5 H	12 CI
PDRD PIR13 (I) H	11 BI
PDRD PS13 (I) H	10 AI
PDRB BR12A H	3 DØ
PDRC SLØ4 H	4 CØ
PDRD PIR12 (I) H	5 BØ
PDRD PS12 (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E60 — 4 (BH) — BUSA DI3 L

8881 E60 — 10 (BH2) — BUSA DI2 L

DMX (15:14) 74S153 E64

PDRB BR15A H	13 DI
PDRC SLØ7 H	12 CI
PDRD PIR15 (I) H	11 BI
PDRD PS15 (I) H	10 AI
PDRB BR14A H	3 DØ
PDRC SLØ6 H	4 CØ
PDRD PIR14 (I) H	5 BØ
PDRD PS14 (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E60 — 13 (BJ1) — BUSA DI5 L

8881 E60 — 1 (CJ1) — BUSA DI4 L

DMX (Ø1:Ø0) 74S153 E5

PDRB BRØ1A H	13 DI
PDRC PBØ1 (I) H	12 CI
PDRD PIAØØ H	11 BI
IRCH V (I) H	10 AI
PDRB BRØØA H	3 DØ
PDRC PBØØ (I) H	4 CØ
	5 BØ
IRCH C B (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E1 — 13 (AV2) — BUSA DØ1 L

8881 E1 — 1 (BA1) — BUSA DØØ L

DMX (Ø3:Ø2) 74S153 E14

PDRB BRØ3A H	13 DI
PDRC PBØ3 H	12 CI
PDRD PIAØ2 H	11 BI
IRCH N B (I) H	10 AI
PDRB BRØ2A H	3 DØ
PDRC PBØ2 H	4 CØ
PDRD PIAØ1 H	5 BØ
IRCH Z (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E1 — 10 (AU2) — BUSA DØ3 L

8881 E1 — 4 (AU1) — BUSA DØ2 L

DMX (Ø5:Ø4) 74S153 E21

PDRB BRØ5A H	13 DI
PDRC PBØ5 H	12 CI
PDRD PIAØ4 H	11 BI
PDRD PS05 (I) H	10 AI
PDRB BRØ4A H	3 DØ
PDRC PBØ4 H	4 CØ
	5 BØ
PDRD PSØ4 (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E26 — 4 (CH2) — BUSA DØ5 L

8881 E26 — 10 (BF2) — BUSA DØ4 L

DMX (Ø7:Ø6) 74S153 E30

PDRB BRØ7A H	13 DI
PDRC PBØ7 H	12 CI
PDRD PIAØ2 H	11 BI
PDRD PS07 (I) H	10 AI
PDRB BRØ6A H	3 DØ
PDRC PBØ6 H	4 CØ
PDRD PIAØ1 H	5 BØ
PDRD PSØ6 (I) H	6 AØ
	15 STBI
	1 STBØ
	9 FI
	7 FØ
	2 SI
	14 SØ

8881 E26 — 13 (CH2) — BUSA DØ7 L

8881 E26 — 1 (AK2) — BUSA DØ6 L

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

UNIBUSA DATA MULTIPLEXER SLOTØ

FIRST USED ON OPTION/MODEL: 11/45

QTY.	DESCRIPTION	PART NO.	ITEM NO.

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.W.R. DATE 7/13/71
CHK'D DATE 3/5/72
ENG DATE 3-7-72
PROJ. ENG. DATE 3-15-72
PROD. DATE 3-15-72
NEXT HIGHER ASSY. B-DD-11/45-Ø
SCALE
SHEET 6 OF 9

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA & UNIBUS REGS. (PDRE)

SIZE D CODE CS NUMBER M8Ø4-Ø-1 REV. C
DIST.

REVISIONS: REV | CHANGE NO | CHK

PS ADDR L PDR ADDR * DAT I (P) * MSYNSET

PS ADDR L ADDR * BAMR * DAT I (P) * MSYNSET

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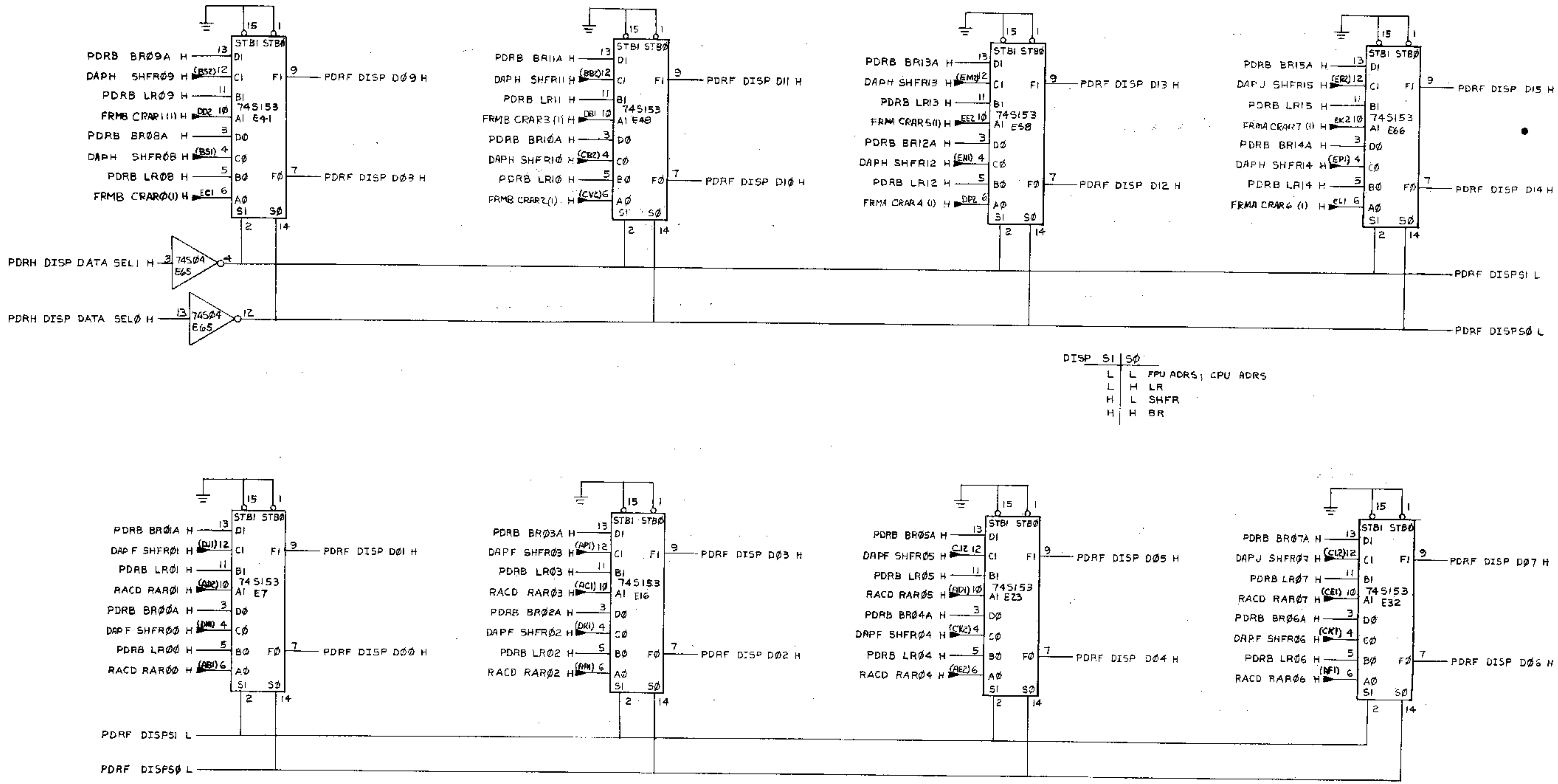

DATA DISPLAY MULTIPLEXER

SLOT 1Ø

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
11/45		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 7-2-71
CHK'D DATE
ENG DATE 3-3-72
PROJ ENG DATE 3-3-72
PROD DATE 3-15-72
NEXT HIGHER ASSY. B-DD-11/45-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE PROCESSOR DATA & UNIBUS REGS (PDRF)

SIZE D CODE CS NUMBER M81Ø4-Ø-1 REV. C

SCALE — SHEET 7 OF 9

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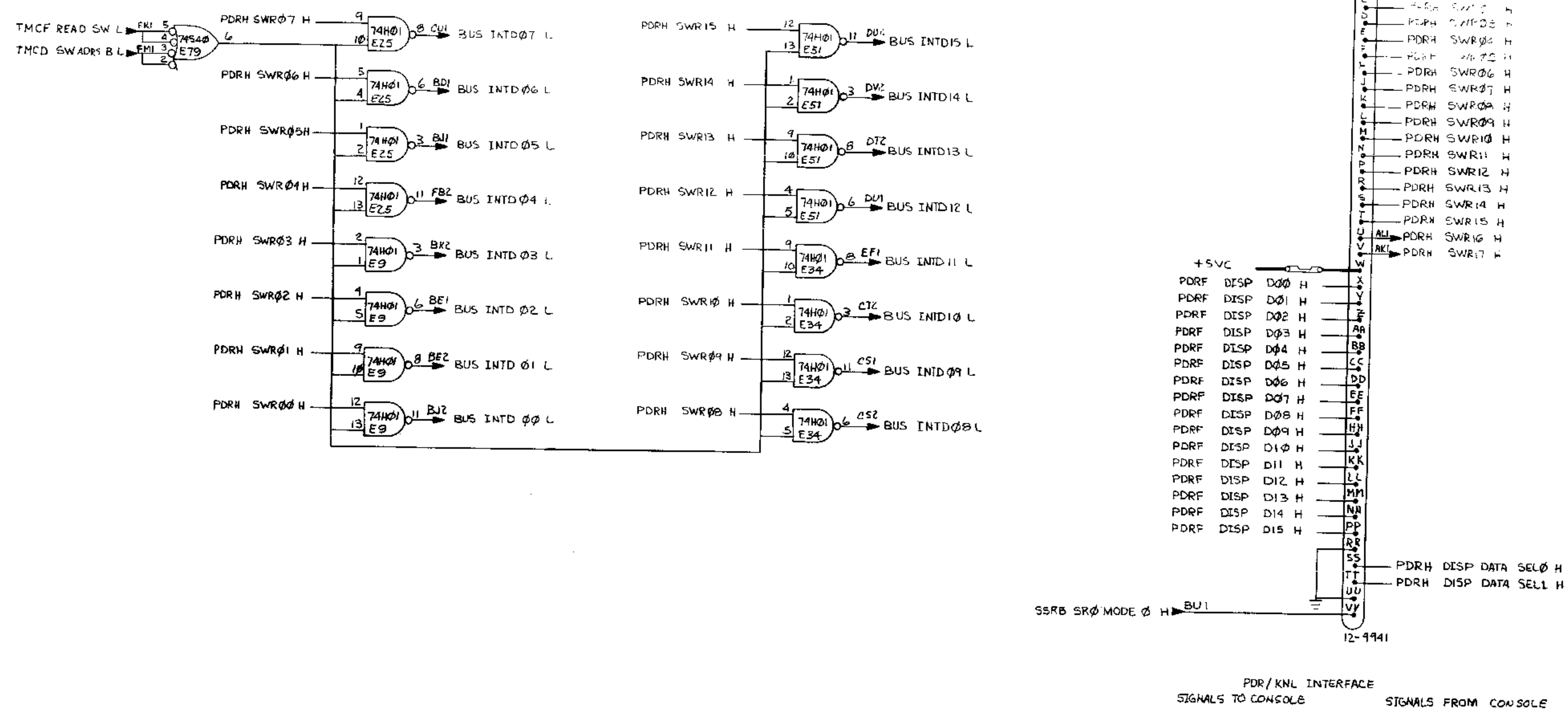


SWITCH REGISTER AND CONSOLE CABLE SLOT10

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 / ENG. / PROJ. ENG. / PROD. — DATE

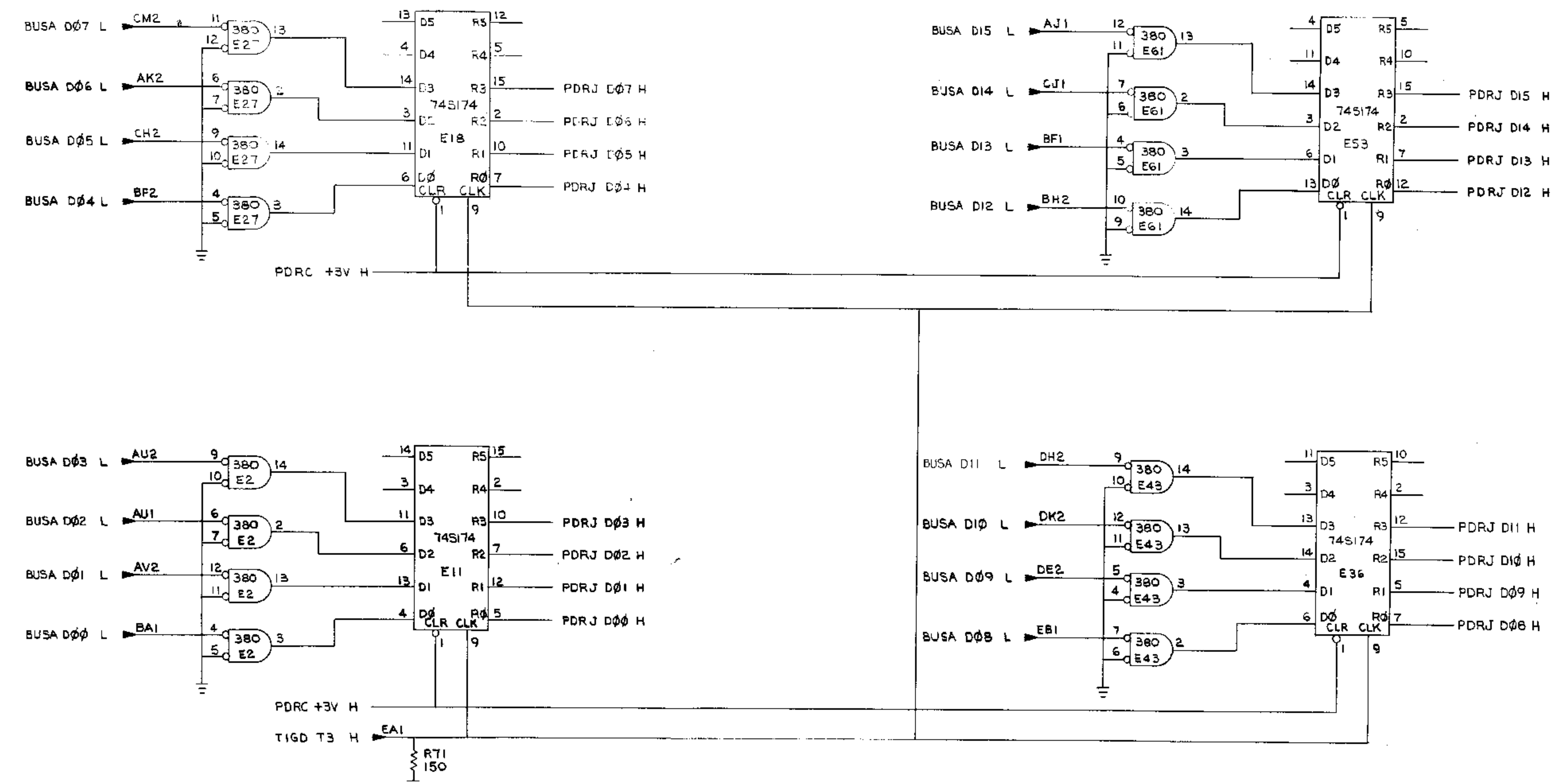
NEXT HIGHER ASSY. B-DD-11/45-0

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PROCESSOR DATA UNIBUS REGS (PDRH)

SIZE	CODE	NUMBER	REV.
D	CS	M8104-0-1	C

SCALE — SHEET 5 OF 9



BUS BUFFER REG SLOT 1Ø

FIRST USED ON OPTION/MODEL: 11/45

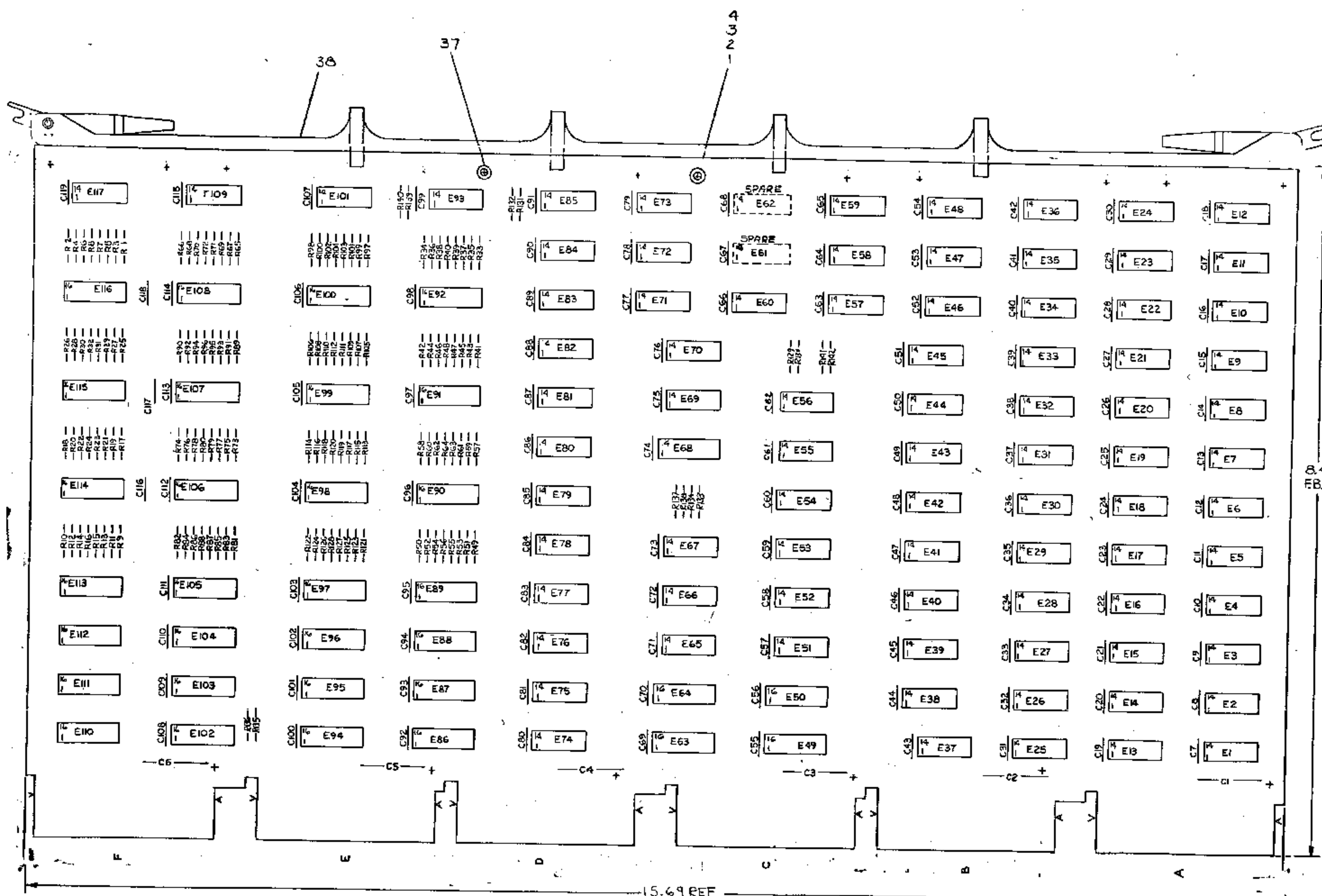
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

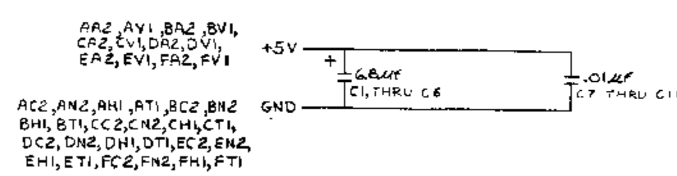
TITLE: PROCESSOR DATA UNIBUS REGS (PDRJ)

NEXT HIGHER ASSY: B-DD-11/45-Ø

SIZE D CODE CS NUMBER M81Ø4-Ø-1 REV. C

SHEET 9 OF 9





NOTES:

1. UNLESS OTHERWISE NOTED, RESISTANCE IS IN Ω AND CAPACITANCE IS IN [illegible]OFARADS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD
2. E61 & E62 ARE SPARE IC LOCATIONS
3. R131, R133, R135, R137 & R139 ARE NOT USED

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E91	IC DEC 74187 (OR 3301)	23-C03A2	23
1	E89	IC DEC 74187 (OR 3301)	23-C02A2	22
1	E90	IC DEC 74187 (OR 3301)	23-C01A2	21
12	E1, E2, E13, E14, E25, E26, E36, E37, E38, E73, E109, E117	IC DEC 74S74	1910544	20
1	E68	IC DEC 74S74-45	1910950	19
12	E86, E87, E88, E94, E95, E96, E102, E103, E104, E110, E111, E112	IC DEC 74S174	1910550	18
4	E49, E50, E63, E64	IC DEC 74S153	1910547	17
38	E5, E7, E8, E9, E11, E12, E17, E18, E19, E20, E21, E22, E23, E24, E33, E35, E39, E42, E43, E44, E45, E46, E47, E51, E54, E65, E70, E71, E74, E75, E76, E77, E80, E81, E82, E83, E101, E32	IC DEC 74S64	1910542	16
1	E15	IC DEC 74S40	1910541	15
3	E16, E30, E41	IC DEC 74S20	1910539	14
4	E55, E66, E69, E85	IC DEC 74S11	1910537	13
10	E3, E10, E28, E29, E40, E48, E53, E59, E60, E67	IC DEC 74S10	1910536	12
11	E6, E27, E34, E52, E56, E57, E72, E78, E79, E84, E93	IC DEC 74S04	1910534	11
3	E4, E31, E58	IC DEC 74S00	1910532	10
66	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32, R34, R36, R38, R40, R42, R44, R46, R48, R50, R52, R54, R56, R58, R60, R62, R64, R66, R68, 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, R130, R142	RESISTOR 680Ω, 1/4W, 5%	1301424	9
66	R1, R3, R5, 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, R59, 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, R141	RESISTOR 330Ω, 1/4W, 5%	1300295	8
5	R132, R134, R136, R138, R140	RESISTOR 150Ω, 1/4W, 5%	1300250	7
6	C1 THRU C6	CAPACITOR 6.8µf, 35V, 20% TANT	1000067	6
113	C7 THRU C119	CAPACITOR .01µf, 100V, 20% DISC	1001610	5
1		ETCHED CIRCUIT BOARD	5009805	4
REF		MODULE ECO HISTORY	B-MH-M8103-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M8103-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8103-0-4	1
				40
1	R143	RESISTOR, 1K, 1/4W, 5%	1388365	39
1		HANDLE, MODULE	E-PS-1210711-2	38
12		EYELET	9006732	37
1	E116	IC DEC 74187 (OR 3301)	23-C44A2	36
1	E113	IC DEC 74187 (OR 3301)	23-C43A2	35
1	E114	IC DEC 74187 (OR 3301)	23-C42A2	34
1	E115	IC DEC 74187 (OR 3301)	23-C41A2	33
1	E108	IC DEC 74187 (OR 3301)	23-C12A2	32
1	E106	IC DEC 74187 (OR 3301)	23-C11A2	31
1	E105	IC DEC 74187 (OR 3301)	23-C47A2	30
1	E107	IC DEC 74187 (OR 3301)	23-C09A2	29
1	E100	IC DEC 74187 (OR 3301)	23-C08A2	28
1	E99	IC DEC 74187 (OR 3301)	23-C07A2	27
1	E98	IC DEC 74187 (OR 3301)	23-C39A2	26
1	E97	IC DEC 74187 (OR 3301)	23-C3EA2	25
1	E92	IC DEC 74187 (OR 3301)	23-C04A2	24

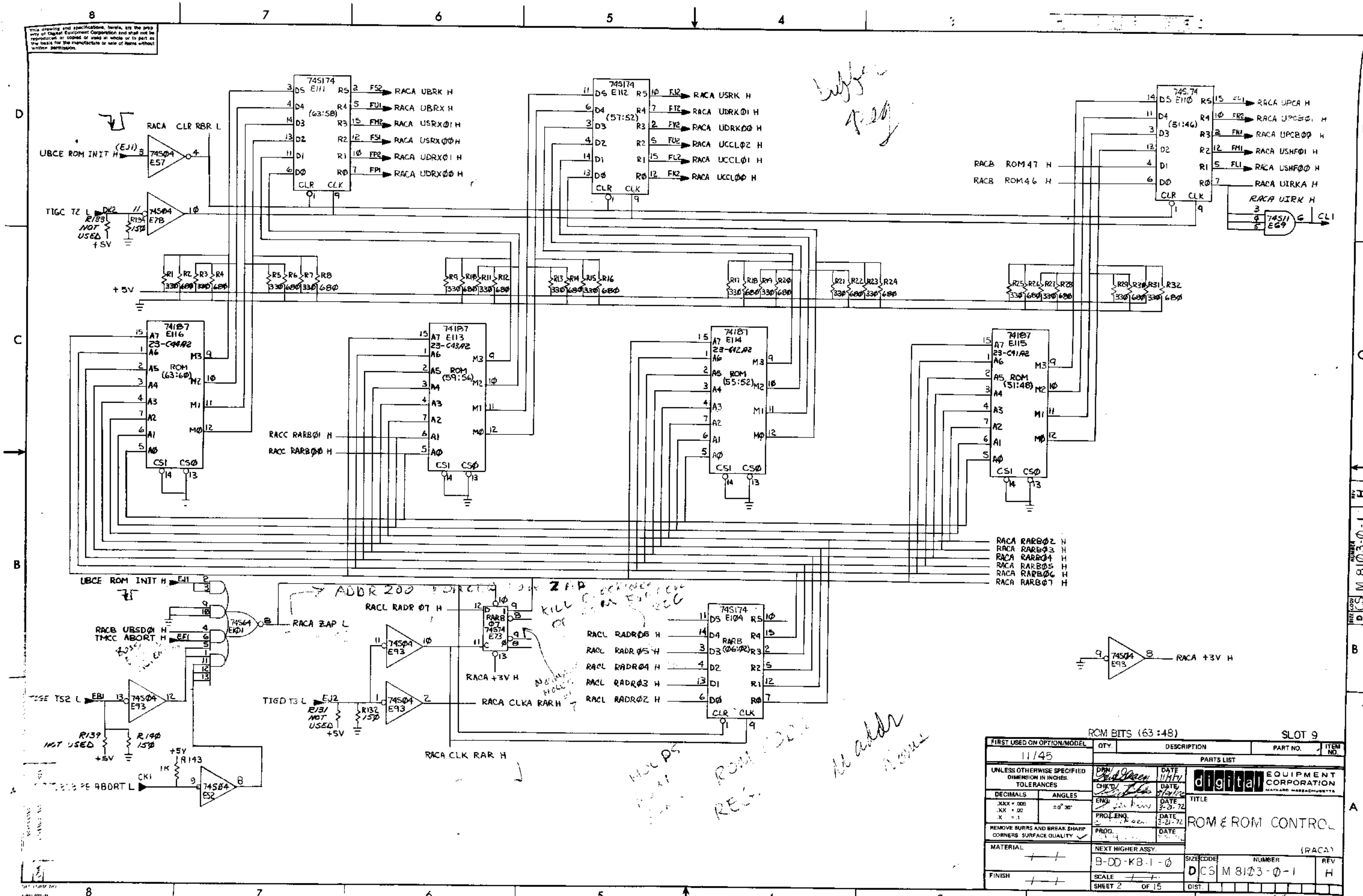
ETCH BOARD REV C

SEMICONDUCTOR CONVERSION CHART

DIGITAL EQUIPMENT CORPORATION

TITLE: RCM & ROM CONTROL

SIZE E CODE CS NUMBER M8103-0-1



ROM BITS (63:48)

SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 / ENG. / PROJ. ENG. / PROD. — DATE 11/1/71, 3-8-72, 3-21-72

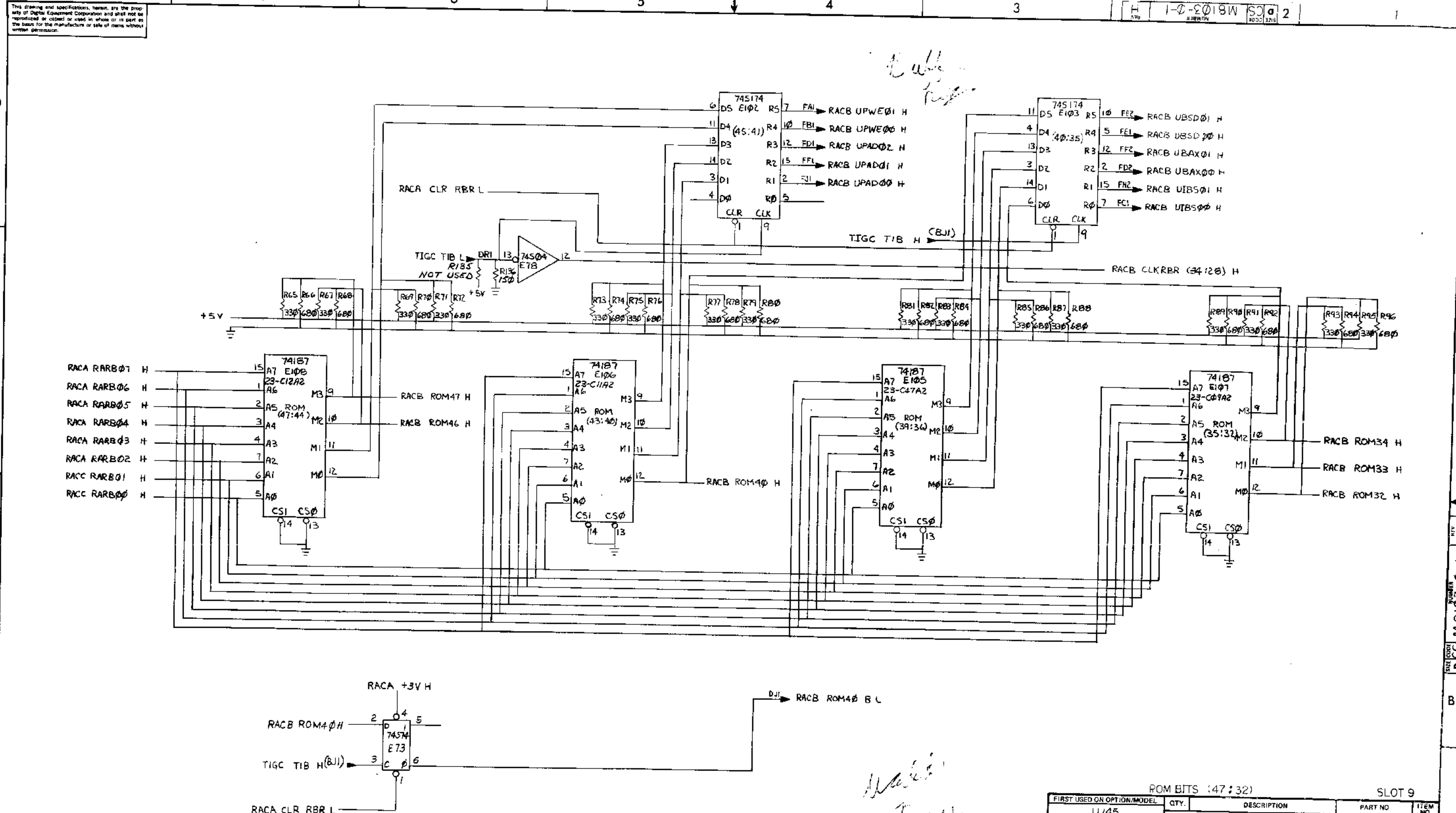
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ROM CONTROL (RACA)

NEXT HIGHER ASSY. B-DD-KB11-0

SIZE D CODE CS NUMBER M 8103-0-1 REV H

SCALE — SHEET 2 OF 15



ROM BITS (47:32) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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 11/9/71
CHKD — DATE
ENG — DATE 3-21-72
PROJ ENG — DATE
PROD. — DATE

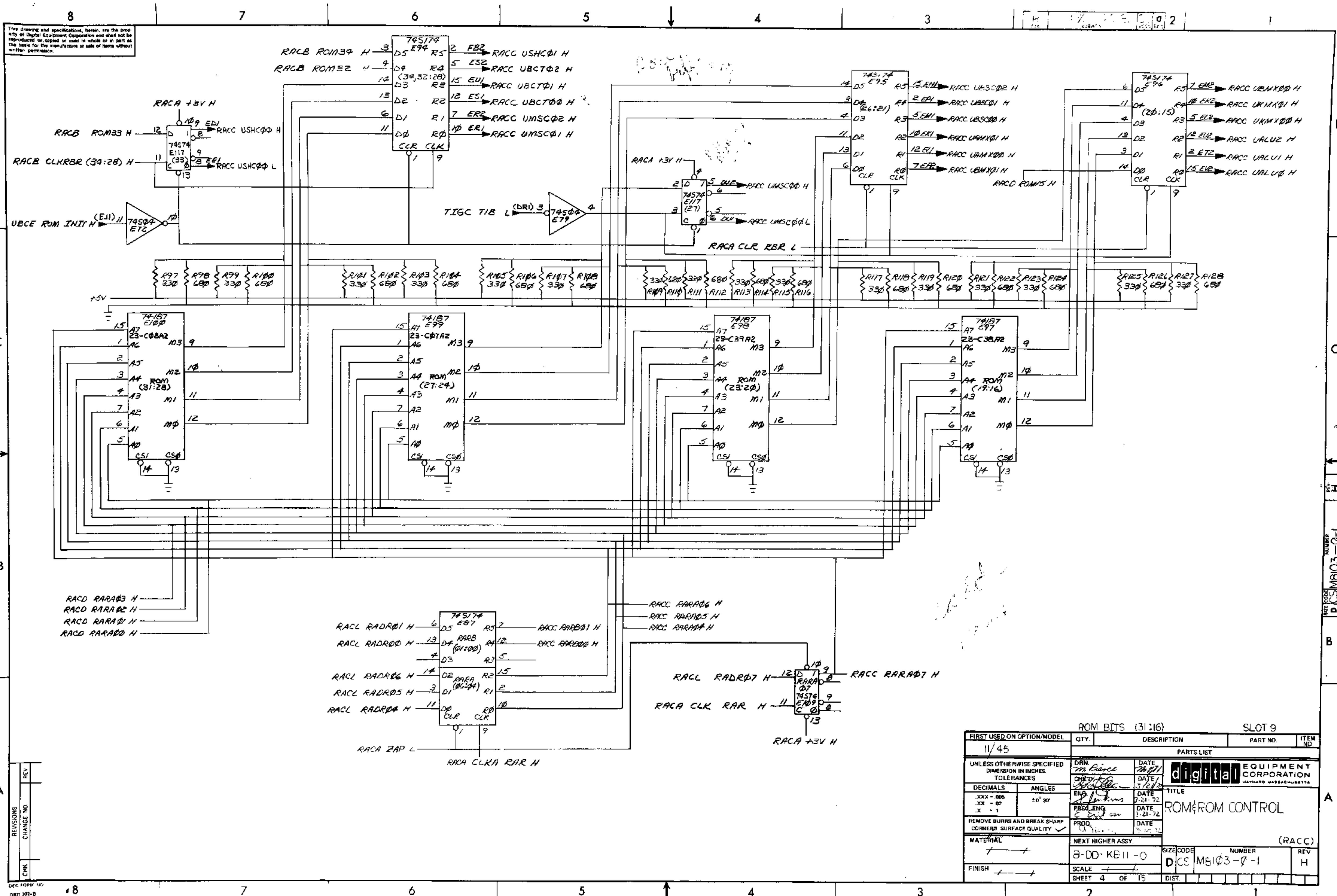
NEXT HIGHER ASSY. 8-DD-KB11-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

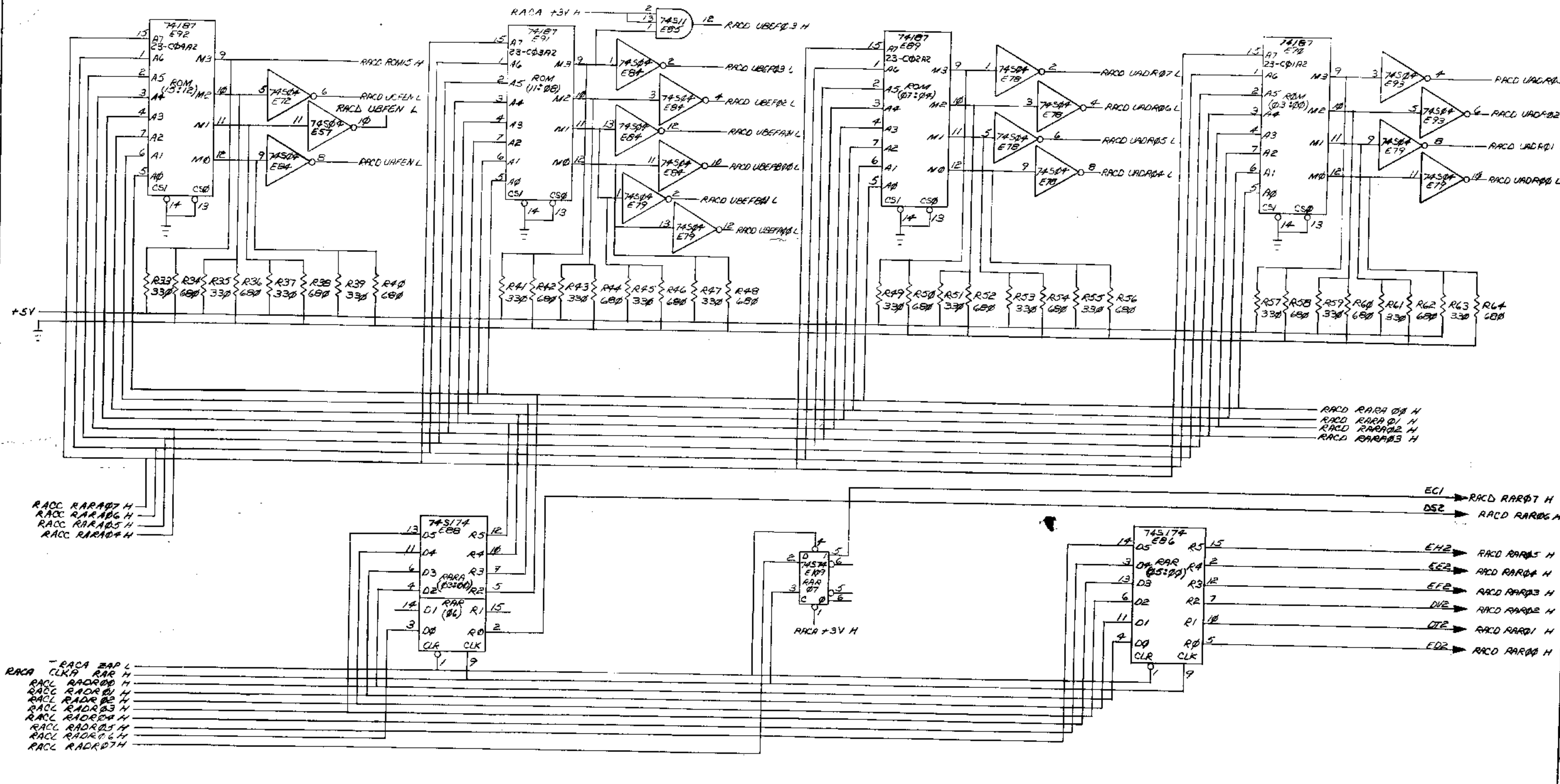
TITLE: ROM & ROM CONTROL (RACF)

SIZE D — CODE CS — NUMBER M81Ø3-Ø-1 — REV H

SCALE — SHEET 3 OF 15 — DIST.



74S174 E94
RACB ROM34 H
RACB ROM32 H
RACC USHCØ1 H
RACC UBC7Ø2 H
RACC UBC7Ø1 H
RACC UBC7ØØ H
RACC UMSCØ2 H
RACC UMSCØ1 H
RACA +3V H
RACB ROM33 H
RACB CLKRBR (34:28) H
74S74 E117
RACC USHCØØ H
RACC USHCØØ L
UBCE ROM INIT H
74SØ4 E72
T.IGC TIB L
74SØ4 E79
74S74 E117 (27)
RACC UMSCØØ H
RACC UMSCØØ L
RACA CLR RBR L
74S174 E95
RACC UBSCØ2 H
RACC UBSCØ1 H
RACC UBSCØØ H
RACC UMMXØ1 H
RACC UMMXØØ H
RACC UBMXØ1 H
74S174 E96
RACC UBMXØØ H
RACC UKMXØ1 H
RACC UKMXØØ H
RACC UALU2 H
RACC UALU1 H
RACC UALUØ H
RACD ROM15 H
+5V
74187 E1ØØ 23-CØ8A2 ROM (31:28)
74187 E99 23-CØ7A2 ROM (27:24)
74187 E98 23-C39A2 ROM (23:20)
74187 E97 23-C38A2 ROM (19:16)
RACD RARAØ3 H
RACD RARAØ2 H
RACD RARAØ1 H
RACD RARAØØ H
74S174 E87
RACL RADRØ1 H
RACL RADRØØ H
RACL RADRØ6 H
RACL RADRØ5 H
RACL RADRØ4 H
RACC RARBØ1 H
RACC RARBØØ H
RACC RARAØ6 H
RACC RARAØ5 H
RACC RARAØ4 H
RACA ZAP L
RACA CLKA RAR H
RACL RADRØ7 H
RACA CLK RAR H
74S74 E1Ø9
RACC RARAØ7 H
RACA +3V H
ROM BITS (31:16)
SLOT 9
FIRST USED ON OPTION/MODEL 11/45
PARTS LIST
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
TITLE ROM & ROM CONTROL (RACC)
NEXT HIGHER ASSY. 8-DD-KE11-0
SIZE D CODE CS NUMBER M81Ø3-Ø-1 REV H
SHEET 4 OF 15


74187 E92 23-C04A2 ROM (15:12)
74187 E91 23-C03A2 ROM (11:08)
74187 E89 23-C02A2 ROM (07:04)
74187 E78 23-C01A2 ROM (03:00)
74S11 E85
RACA +3V H
RACD UBEF03 H
RACD ROMIS H
RACD UCFEN L
RACD UBFEN L
RACD UAFEN L
RACD UBEF03 L
RACD UBEF02 L
RACD UBEFAN L
RACD UBEFB00 L
RACD UBEFB01 L
RACD UBEFA00 L
RACD UADR07 L
RACD UADR06 L
RACD UADR05 L
RACD UADR04 L
RACD UADR03 L
RACD UADR02 L
RACD UADR01 L
RACD UADR00 L
+5V
RACD RARA 00 H
RACD RARA 01 H
RACD RARA 02 H
RACD RARA 03 H
RACC RARA07 H
RACC RARA06 H
RACC RARA05 H
RACC RARA04 H
74S174 E88 RARA (03:00)
74S74 E87 RAR 07
74S174 E86 RAR (05:00)
RACA ZAP L
RACA CLKA RAR H
RACC RADR00 H
RACC RADR01 H
RACC RADR02 H
RACC RADR03 H
RACC RADR04 H
RACC RADR05 H
RACC RADR06 H
RACC RADR07 H
RACD RAR07 H
RACD RAR06 H
RACD RAR05 H
RACD RAR04 H
RACD RAR03 H
RACD RAR02 H
RACD RAR01 H
RACD RAR00 H

ROM BITS (15:00)

SLOT 9

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
11/45		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 11/8/71

CHKD. DATE

ENG. DATE 3-21-72

PROJ. ENG. DATE

PROD. DATE

NEXT HIGHER ASSY. B-DD-KB11-0

SCALE

SHEET 5 OF 15

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE ROM & ROM CONTROL (RACD)

SIZE D CODE CS NUMBER M8103-0-1 REV H

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
74SØ4 E64
74SØØ E24
RACF TRUE 2 H
RACH A2 RABØ2 L
RACH A2 RABØ1 L

PDRA BRMXIØ H (BD1)
74SØ4 E6
RACH +3V H
74574 E36
RACH AF IRIØA (1) H
RACH AF IRIØA (Ø) H

PDRA BRMXØ9 H (BC1)
74574 E36
RACH AF IRØ9A (1) H
RACJ CLKAFIR L
74SØ4 E27
RACH AF IRØ9A (Ø) H

RACE BFI=7 L
74SØ4 E34
FRMJ FP PRESENT L
BS1
74SØ4 E57
RACH NEG.B*DMØ H
RACF TRUE 1 H
RACE BR INST H
74S64 E12
RACJ AFIRIS (1) H
RACH A2 RABØØ L
R141 33Ø
R142 68Ø
+5V

RACJ AFIRI1 (Ø) H
RACJ AF IRØ8 (Ø) H
RACJ AFIRØ7 (1) H
RACJ AF IRØ6 (1) H
74S2Ø E16
74SØ4 E6
RACH PSWAB H

RACJ AFIRI1 (Ø) H
RACJ AFIRIØ (Ø) H
74SØ4 E31
RACE BF1=Ø L
RACE BF1=7 L
74S1Ø E10
RACH BIN * (-SMØ1) L

RACJ AF IRØ5 (1) H
RACJ AF IRØ7 (Ø) H
RACJ AF IRØ6 (Ø) H
74S1Ø 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
74S1Ø E3
74SØ4 E57
RACH AØ RABØ7 L

74SØ4 E34
RACH DMØ H
RACH DMØ L

TMCB BRQ TRUE L (AKJ)
74SØØ E4
RACH DFT+BRQ H
RACJ AF IRØØ (1) H
RACJ AF IRØ1 (1) H
RACJ AF IRØ2 (1) H
74S1Ø 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
74SØ4 E31
74S64 E19
RACH TCLASS L
RACE BIN * SMØ H
RACE RCLASS H
RACE BFI=7 L
RACE BFI=Ø L
RACE SMØ L
RACH DMØ H
RACE JMP+JSR+SWAB H
RACH PSWAB H
74S64 E11
RACH A1 RABØ4 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
74S1Ø E40
RACC UMSCØ1 H
74SØ4 E56
RACJ AFIRI1 (Ø) H
RACE SMØ L
74S11 E55
RACE BIN L
74SØ4 E56
RACJ BUF AFIRI1 (1) H
RACH AFIRIØA (1) H
74S1Ø E28
YMCB BRQ TRUE H (ALI)
RACE BR INST H
74S64 E54
ANI
RACH BUST H
DIS BUST L = BUST H
RACJ AFIRØ5 (Ø) H
RACH DMØ L
74S11 E56
RACE BR INST H
74SØ4 E56

BUS TRANSFER

A--FORK LOGIC
SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 —

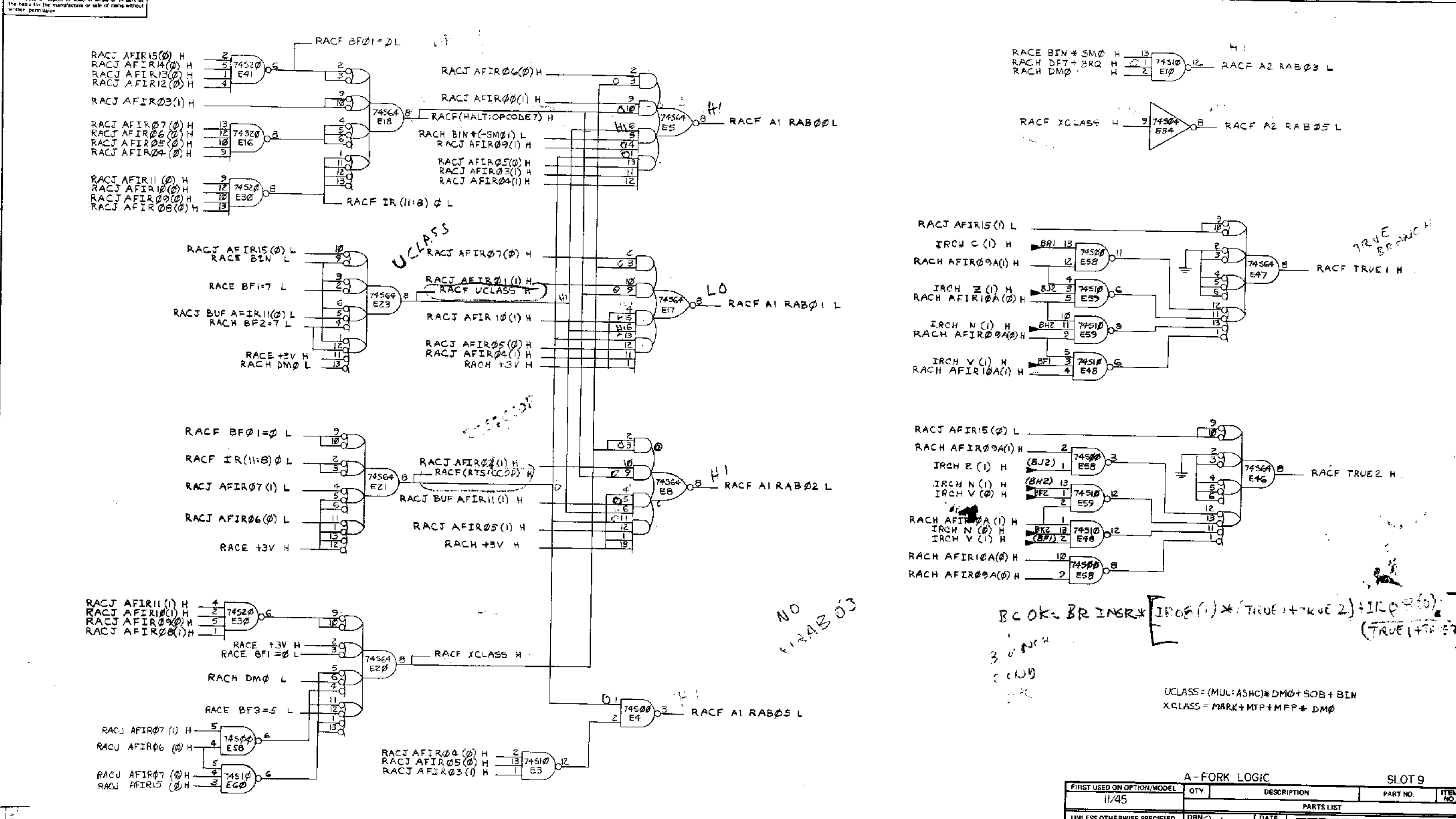
DRN.	DATE	7-7-71
CHK'D	DATE	3/21/72
ENG'G	DATE	3-21-72
PROJ. ENG.	DATE	3-21-72
PROD.	DATE	3-30-72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROMEROM CONTROL (RACH)

NEXT HIGHER ASSY. B-DD-KB11 Ø
SIZE D | CODE | NUMBER MP1Ø3-Ø-1 | REV
SCALE —
SHEET 8 OF 15
DIST.

REVISIONS: REV | CHANGE NO | CHK



RACF BFØ1=ØL
RACJ AFIR15(Ø) H
RACJ AFIR14(Ø) H
RACJ AFIR13(Ø) H
RACJ AFIR12(Ø) H
RACJ AFIRØ3(1) H
RACJ AFIRØ7(Ø) H
RACJ AFIRØ6(Ø) H
RACJ AFIRØ5(Ø) H
RACJ AFIRØ4(Ø) H
RACJ AFIR11(Ø) H
RACJ AFIR1Ø(Ø) H
RACJ AFIRØ9(Ø) H
RACJ AFIRØ8(Ø) H
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
RACF A1 RABØØ L
RACJ AFIR15(Ø) L
RACE BIN L
RACE BF1=7 L
RACJ BUF AFIR11(Ø) L
RACH BF2=7 L
RACE +3V H
RACH DMØ L
UCLASS
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
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
RACJ AFIRØ2(1) H
RACF(RTS:CCOP) H
RACJ BUF AFIR11(1) H
RACJ AFIRØ5(1) H
RACH +3V H
RACF A1 RABØ2 L
RACJ AFIR11(1) H
RACJ AFIR1Ø(1) H
RACJ AFIRØ9(Ø) H
RACJ AFIRØ8(1) H
RACE +3V H
RACE BF1=Ø L
RACH DMØ L
RACE BF3=5 L
RACF XCLASS H
RACJ AFIRØ7 (1) H
RACJ AFIRØ6 (Ø) H
RACJ AFIRØ7 (Ø) H
RACJ AFIR15 (Ø) H
RACJ AFIRØ4 (Ø) H
RACJ AFIRØ5 (Ø) H
RACJ AFIRØ3 (1) H
RACF A1 RABØ5 L
RACE BIN * SMØ H
RACH DF7+BRQ H
RACH DMØ H
RACF A2 RABØ3 L
RACF XCLASS H
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
RACF TRUE1 H
RACJ AFIR15 (Ø) L
RACH AFIRØ9A(1) H
IRCH Z (1) H
IRCH N (1) H
IRCH V (Ø) H
IRCH N (Ø) H
IRCH V (1) H
RACH AFIR1ØA(Ø) H
RACH AFIRØ9A(Ø) H
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.
11/45		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: 7/8/71 · CHKD · ENG: 7-21-72 · PROD. ENG.: 7-21-72 · PROD

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ROM & ROM CONTROL (RAC)

NEXT HIGHER ASSY.: B-DD-KB11-C

SIZE: D · CODE: CS · NUMBER: M81Ø3-Ø-1 · REV.: H

SCALE —//— · SHEET 7 OF 15

R137 NOT USED +5V
R138 150Ω
TIGC TIB H
RACA UIRKA H
UBCB BUS LOAD H
74S64 E39
RACJ CLK AFIR L
74S04 E27

PDRA BRMX 15 H — BP1 — 74S74 E38 — RACJ AFIR 15 (1) H — RACJ AFIR 15 (Ø) H
PDRA BRMX 14 H — BN1 — 74S74 E38 — RACJ AFIR 14 (1) H — RACJ AFIR 14 (Ø) H
PDRA BRMX 13 H — BM1 — 74S74 E37 — RACJ AFIR 13 (1) H — RACJ AFIR 13 (Ø) H
PDRA BRMX 12 H — BL1 — 74S74 E37 — RACJ AFIR 12 (1) H — RACJ AFIR 12 (Ø) H

PDRA BRMX 11 H — BE1 — 74S74 E26 — RACJ AFIR 11 (1) H — RACJ AFIR 11 (Ø) H — 74S04 E6 — RACJ BUF AFIR 11 (1) H
PDRA BRMX 10 H — BD1 — 74S74 E26 — RACJ AFIR 10 (1) H — RACJ AFIR 10 (Ø) H
PDRA BRMX Ø9 H — BC1 — 74S74 E25 — RACJ AFIR Ø9 (1) H — RACJ AFIR Ø9 (Ø) H
PDRA BRMX Ø8 H — BB1 — 74S74 E25 — RACJ AFIR Ø8 (1) H — RACJ AFIR Ø8 (Ø) H — 74S04 E27 — RACJ BUF AFIR Ø8 (1) H

PDRA BRMX Ø7 H — AU1 — 74S74 E14 — RACJ AFIR Ø7 (1) H — RACJ AFIR Ø7 (Ø) H — 74S04 E27
PDRA BRMX Ø6 H — AS1 — 74S74 E14 — RACJ AFIR Ø6 (1) H — RACJ AFIR Ø6 (Ø) H
PDRA BRMX Ø5 H — AR1 — 74S74 E13 — RACJ AFIR Ø5 (1) H — RACJ AFIR Ø5 (Ø) H
PDRA BRMX Ø4 H — AP1 — 74S74 E13 — RACJ AFIR Ø4 (1) H — RACJ AFIR Ø4 (Ø) H

PDRA BRMX Ø3 H — AT2 — 74S74 E2 — RACJ AFIR Ø3 (1) H — RACJ AFIR Ø3 (Ø) H — 74S04 E27
PDRA BRMX Ø2 H — AS2 — 74S74 E2 — RACJ AFIR Ø2 (1) H — RACJ AFIR Ø2 (Ø) H
PDRA BRMX Ø1 H — AR2 — 74S74 E1 — RACJ AFIR Ø1 (1) H — RACJ AFIR Ø1 (Ø) H
PDRA BRMX ØØ H — AP2 — 74S74 E1 — RACJ AFIR ØØ (1) H — RACJ AFIR ØØ (Ø) H

74S40 E15
74S40 E15

INSTRUCTION REG. (A-FORK COPY) SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
1145		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

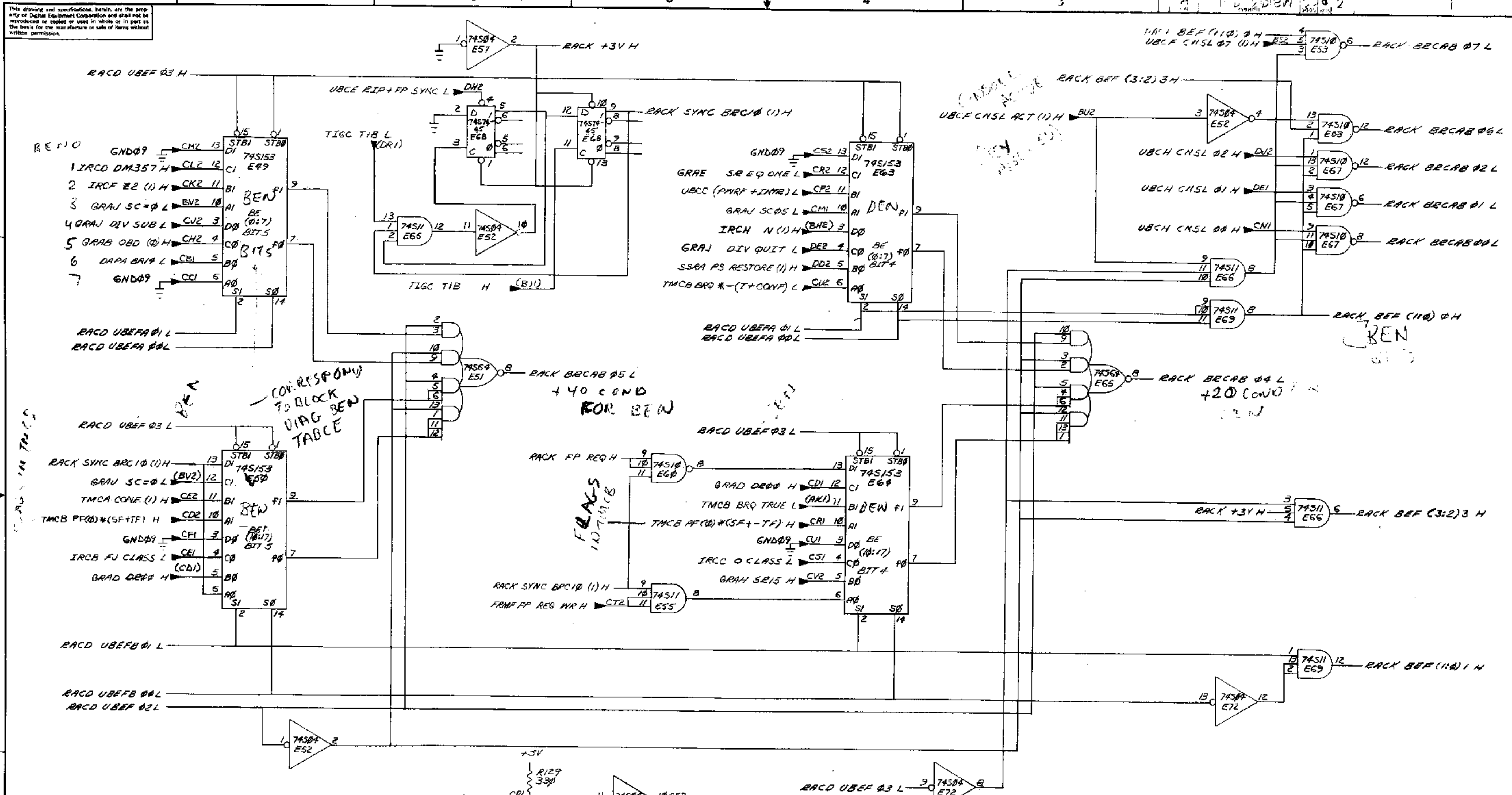
DRN — DATE 2-2-72
CHK — DATE 2-21-72
ENG — DATE 3-21-72
PROJ ENG E. Eriksen — DATE 3-21-72
PROD — DATE 3-30-72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM E
ROM CONTROL (RACJ)

NEXT HIGHER ASSY: B-DD-KB11-Ø
SIZE D | CODE CS | NUMBER M8103-Ø-1 | REV H
SCALE
SHEET 9 OF 15 | DIST

REVISIONS: REV | DESCRIPTION | CHK



RACK +3V H
RACO UBEF Ø3 H
UBCE RIP+FP SYNC L
RACK SYNC BRC1Ø (1) H
TIGC TIB L
TIGC TIB H
GNDØ9
IRCD DM357 H
IRCF Z2 (1) H
GRAJ SC=Ø L
GRAJ DIV SUB L
GRAB OBD (Ø) H
DAPA BR14 L
74S153 E49
BEN
BITS
RACO UBEFA Ø1 L
RACO UBEFA ØØL
74S64 E51
RACK BRCAB Ø5 L
+40 COND FOR BEN
CORRESPONDS TO BLOCK DIAG BEN TABLE
RACO UBEF Ø3 L
RACK SYNC BRC1Ø (1) H
GRAJ SC=Ø L
TMCA CONE (1) H
TMCB PF(Ø)*(SF+TF) H
IRCB FJ CLASS L
GRAD ØEØØ H
74S153 E5Ø
RACO UBEFB Ø1 L
RACO UBEFB ØØL
RACO UBEF Ø2L
74SØ4 E52
FRMJ FP REQ L
R129 33Ø
R13Ø 68Ø
74SØ4 E56
RACK FP REQ H
GRAE SR EQ ONE L
UBCC (PMRF+INTR2) L
GRAJ SCØ5 L
IRCH N (1) H
GRAJ DIV QUIT L
SSRA PS RESTORE (1) H
TMCB BRQ *-(T+CONF) L
74S153 E63
DEN
RACO UBEFA Ø1 L
RACO UBEFA ØØL
RACK FP REQ H
74S1Ø E6Ø
GRAD ØEØØ H
TMCB BRQ TRUE L
TMCB PF(Ø)*(SF+-TF) H
IRCC O CLASS L
GRAH SR15 H
74S153 E64
FRMF FP REQ WR H
74S11 E55
FLAGS
UBCF CNSL ACT (1) H
RACK BEF (3:2) 3H
UBCH CNSL Ø2 H
UBCH CNSL Ø1 H
UBCH CNSL ØØ H
RACK BRCAB Ø7 L
RACK BRCAB Ø6 L
RACK BRCAB Ø2 L
RACK BRCAB Ø1 L
RACK BRCAB ØØ L
RACK BEF (1:Ø) Ø H
74S64 E65
RACK BRCAB Ø4 L
+2Ø COND
RACK +3V H
74S11 E66
RACK BEF (3:2) 3 H
74S11 E69
RACK BEF (1:Ø) 1 H
74SØ4 E72
RACO UBEF Ø3 L

74S153

	S1	SØ	OUTPUT
STB=L	L	L	A→F
	L	H	B→F
	H	L	C→F
	H	H	D→F
STB=H	X	X	F=L

BRANCH CONDITIONS (ROM ADDRESS MODIFICATION) SLOT 9

FIRST USED ON OPTION/MODEL	11/45
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 7-8-71
CHKD	DATE 3/21/72
ENG	DATE 3-21-72
PROJ. ENG.	DATE 3-21-72
PROD.	DATE 3-30-72
NEXT HIGHER ASSY.	B-DD-KB11-Ø
SCALE	—
SHEET	1Ø OF 15

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ROM & ROM CONTROL (RACK)

SIZE D · CODE CS · NUMBER M81Ø3-Ø-1 · REV. H

DEC FORM NO DRD 102-B

RACL +3V H

RACD UAFEN L — 74S64 E84

RACD UBFEN L
IRCB FJCLASS L
RACK BEF(1:Ø)1 H
RACK BEF(3:2)3 H
(CE1)
GRAB OBD (1) H
RACD UBEFØ3 L — DF2 — 74S64 E71

RACD UBEFØ2 L — 74S04 E72

RACD UCFEN L
IRCC SM357 H
RACK BEF(1:Ø)Ø H
RACK BEF(3:2)3 H
DD1 — 74S64 E7Ø

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

IRCB 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

IRCB BØ RABØ1 L — DA1
IRCC CØ RABØ1 L — DK1
RACD UADRØ1 L
RACK BRCABØ1 L
RACE AØ RABØ1 L
RACF A1 RABØ1 L
RACH A2 RABØ1 L
74S64 E76 — RACL RADRØ1 H

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

USED IF NO SPECIAL UADR BITS GENERATED

DISABLE BFORK: $\overline{\text{UBFEN}}$ + BE15 * $\overline{\text{FJCLASS}}$ + BEØ5 * OBD
DISABLE CFORK: $\overline{\text{UCFEN}}$ + BE14 * SM357

IRCC DSTMØ L — DR2
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
RACF 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 E8Ø — RACL RADRØ4 H

74S04 E72 — RACL +3V H

ROM ADDRESS SELECTION SLOT 9

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 7-8-71
CHK. — DATE 3/21/72
ENG. Jenkins — DATE 3-21-72
PROJ ENG. E. Anderson — DATE 3-21-72
PROD. — DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ROM & ROM CONTROL (RACL)

NEXT HIGHER ASSY. B-DD-KB11-Ø

SIZE	CODE	NUMBER	REV.
D	CS	M81Ø3-Ø-1	H

SCALE — SHEET 11 OF 15 — DIST.

DOC NUMBER IRD 102-B

REVISIONS: REV | CHANGE NO | CHK

FLOWS	STATE	ADR	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
12	RSD,00	000	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	345
5	D12,00	001	1	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	7	6	2	0	0	2	0	15	115
5	D12,01	002	1	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	7	6	2	0	0	2	0	15	115
5	D30,00	003	0	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	7	0	2	0	0	2	0	00	221
6	D45,00	004	0	0	0	0	0	3	0	1	3	2	0	2	5	0	1	0	0	7	0	0	0	0	3	6	0	01	122
6	D45,01	005	0	0	0	0	0	3	0	1	3	2	0	2	5	0	1	0	0	7	0	0	0	0	3	6	0	01	122
6	D67,00	006	1	1	0	2	0	3	0	1	0	2	0	0	5	2	1	0	0	0	0	0	1	0	1	3	0	00	251
6	D67,01	007	1	1	0	2	0	3	0	1	0	2	0	0	5	2	1	0	0	0	0	0	1	0	1	3	0	00	251
3	HLT,00	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	327
3	WAT,00	011	0	0	0	1	0	3	0	0	0	2	0	0	6	0	1	0	0	7	0	0	0	0	0	2	0	12	244
2	RTI,00	012	0	0	1	0	1	0	0	0	0	2	0	0	7	0	1	0	0	7	0	0	3	0	0	2	0	00	156
12	TRP,01	013	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	354
12	TRP,02	014	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	354
3	RES,00	015	0	0	0	1	0	3	0	0	0	2	0	0	6	0	1	0	0	7	0	0	3	0	0	2	0	00	255
2	RTI,01	016	0	0	1	0	1	0	0	0	0	2	0	0	7	0	1	0	0	7	0	0	3	0	0	2	0	00	156
12	RSD,01	017	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	345
3	EXC,80	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	00	343
1	S13,00	021	0	0	0	0	0	0	0	1	2	2	0	2	0	0	2	0	0	0	7	1	2	0	2	3	0	00	027
1	S13,01	022	0	0	0	0	0	0	0	1	2	2	0	2	0	0	2	0	0	0	7	1	2	0	2	3	0	00	027
1	S45,10	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	00	027
1	S45,00	024	0	0	0	0	1	0	0	1	2	2	0	2	0	0	1	0	0	7	0	0	2	0	2	6	0	00	023
13	SVC,60	025	0	0	0	0	0	0	0	0	0	2	0	2	7	0	0	0	0	0	7	5	0	0	1	6	0	00	041
2	S67,00	026	1	1	2	2	1	3	0	0	0	2	0	0	1	2	1	0	0	0	0	0	1	0	1	3	0	00	054
1	S13,10	027	1	1	0	2	0	3	0	0	0	1	0	0	5	3	2	0	0	0	6	1	0	0	0	0	4	14	317
3	EXC,90	030	0	0	0	0	0	0	1	1	3	2	0	1	5	0	1	0	0	7	6	0	0	2	0	7	0	00	217
11	EXC,00	031	1	0	0	0	0	0	1	0	0	2	0	0	6	0	0	0	0	0	7	6	3	2	0	7	0	00	132
11	TST,00	032	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	6	6	3	2	0	7	0	00	217
11	TST,10	033	0	0	0	0	0	0	1	0	0	2	0	0	5	0	1	0	0	0	7	0	3	2	0	7	0	12	240
11	JSR,00	034	0	0	2	0	1	0	0	1	0	1	0	0	0	0	0	0	0	7	0	0	0	0	0	2	0	00	201
11	JMP,00	035	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	7	6	0	0	0	0	2	0	00	217
7	FOP,40	036	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	7	1	0	0	0	0	2	0	00	225
13	SVC,50	037	0	0	0	0	0	3	0	0	0	2	0	2	7	0	0	0	0	0	0	0	0	0	1	6	0	00	025
2	RTS,00	040	0	0	1	0	1	0	0	1	1	2	0	0	7	0	1	0	0	7	0	0	0	0	0	2	0	00	223
13	SVC,70	041	1	0	0	1	0	3	0	0	0	2	0	0	7	3	0	0	0	0	0	5	2	0	0	2	0	00	222
12	RSD,02	042	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	345
3	SPL,00	043	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	7	4	0	3	0	0	2	0	00	361
3	CCP,00	044	0	0	0	0	0	0	2	0	0	2	0	0	0	0	1	0	0	7	6	0	3	0	0	2	0	00	217
1	MTP,00	045	0	0	0	0	0	0	0	0	0	2	0	2	7	0	1	0	0	7	0	0	2	0	1	3	0	00	151
11	MFP,80	046	0	0	0	2	0	3	0	0	0	1	0	1	5	0	1	0	0	7	0	0	0	0	0	0	0	00	304
2	MRK,00	047	0	0	1	0	1	3	0	0	0	2	0	0	2	0	1	0	0	7	0	0	1	1	2	3	0	00	252
3	MUL,80	050	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	3	7	0	0	0	0	0	2	0	00	102
3	DVS,00	051	1	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	7	0	0	0	0	0	2	0	00	061
7	ASH,10	052	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	2	7	0	0	2	0	0	2	0	00	305
7	ASC,10	053	0	0	0	1	0	3	0	0	0	2	0	0	4	0	1	0	2	7	0	0	2	0	0	2	0	00	306
2	S67,10	054	0	0	0	0	1	0	0	0	1	2	0	0	0	0	1	0	0	0	0	0	2	3	0	3	0	00	141
9	DVN,40	055	0	0	0	0	0	3	4	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	6	0	00	056
9	DVN,50	056	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	306
2	SOB,00	057	1	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	7	6	0	1	1	2	6	0	01	242
8	MUL,00	060	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	3	0	0	6	3	0	0	2	0	00	102
9	DIV,00	061	0	0	0	1	1	3	4	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	2	0	00	254
7	ASH,00	062	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	2	0	00	052
7	ASC,00	063	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	2	0	00	053
11	SHR,00	064	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	7	0	00	123
13	SVC,10	065	0	0	0	0	1	0	0	0	1	1	0	0	6	0	0	0	0	0	7	2	0	0	0	0	0	00	357
11	MFP,00	066	0	0	1	0	1	0	1	0	0	2	0	0	7	0	0	0	0	0	0	6	3	0	0	2	0	00	250
11	NEG,00	067	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	7	0	00	271
14	EXM,10	070	0	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	0	0	7	0	0	0	0	0	0	00	153
14	EXM,00	071	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2	0	1	3	0	00	070
14	RAD,00	072	0	0	0	0	0	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0	2	0	0	2	0	00	314
14	DEP,10	073	0	0	0	0	0	0	0	0	0	2	0	0	6	0	2	0	0	0	7	5	3	0	0	2	0	00	303
14	DEP,00	074	0	0	0	0	1	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2	0	1	3	0	00	073
14	ROP,00	075	0	0	0	0	0	0	0	0	0	2	1	0	0	0	2	0	0	0	0	0	2	0	0	2	0	00	307
14	KST,00	076	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	0	0	6	0	0	0	0	0	2	0	00	015
14	CON,10	077	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	00	130

DRN		DATE 9/23/72	TITLE ROM & ROM CONTROL (ADR 000-077)			
CHK'D		DATE 9/23/72				
ENG		DATE 3-28-72				
PROJ. ENG.		DATE 3-28-72				
PROD		DATE 3-30-72	SIZE K	CODE CS	NUMBER M 8103-0-1	REV. H
SHEET 12 OF 15						

FLOWS	STATE	ADR	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
12	PUP,00	100	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	6	0	0	0	1	0	1	0	00	347
2	FOP,00	101	0	0	0	0	1	0	0	1	1	2	0	0	0	0	1	0	0	7	1	0	1	0	1	6	0	00	133
8	MUL,10	102	1	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3	3	0	6	0	11	246
9	DVP,10	103	0	0	0	1	0	3	0	0	0	2	0	0	4	0	2	0	3	0	0	0	0	0	0	2	0	00	147
9	DVN,10	104	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	0	2	0	6	0	00	105
9	DVN,20	105	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0	00	106
9	DVN,30	106	0	0	1	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	00	055
9	DVN,70	107	0	0	0	1	0	3	4	0	0	2	0	0	4	0	0	0	3	0	0	0	0	0	0	6	0	00	147
5	D12,90	110	0	0	0	0	1	0	3	0	0	0	0	0	5	0	0	0	0	0	7	6	3	0	0	2	0	15	135
5	D12,80	111	0	0	0	0	1	0	3	0	0	2	0	0	5	0	0	0	0	0	7	6	3	0	0	2	0	15	115
5	D30,90	112	0	0	0	0	1	0	3	0	0	0	0	0	5	0	0	0	0	0	7	0	3	0	0	2	0	00	221
5	D30,80	113	0	0	0	0	1	0	3	0	0	2	0	0	5	0	0	0	0	0	7	0	3	0	0	2	0	00	221
6	D45,90	114	0	0	0	0	0	3	3	1	3	2	0	2	5	0	0	0	0	0	6	0	0	0	3	6	0	01	131
6	D45,80	115	0	0	0	0	0	3	3	1	3	2	0	2	5	0	0	0	0	0	0	0	0	0	3	6	0	01	121
6	D67,90	116	0	0	0	0	1	0	3	0	0	0	0	0	6	0	1	0	0	0	7	0	3	0	0	2	0	00	006
6	D67,80	117	0	0	0	0	1	0	3	0	0	2	0	0	6	0	1	0	0	0	7	0	3	0	0	2	0	00	006
12	BRK,20	120	1	1	0	0	0	0	0	0	0	2	0	0	0	0	1	3	0	6	0	0	0	0	0	2	0	02	152
6	D40,20	121	0	0	0	0	1	0	0	0	0	2	0	0	5	0	0	0	0	0	7	6	3	0	0	2	2	15	157
6	D10,30	122	1	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	7	6	2	0	0	2	2	15	157
11	SHR,10	123	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	7	7	3	0	0	2	0	00	132
12	TRP,02	124	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	7	0	0	0	1	1	1	0	00	354
10	DVC,00	125	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	0	0	2	0	16	216
1	FET,05	126	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
3	WAT,30	127	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	02	253
12	BRK,10	130	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	13	100
6	D40,30	131	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	7	6	3	0	0	2	2	15	177
11	EXC,10	132	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	6	7	3	0	0	2	0	00	217
2	FOP,10	133	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	07	154
14	EXM,30	134	0	0	0	0	0	3	0	0	0	2	0	0	0	0	2	0	0	0	0	0	3	0	0	2	0	00	230
5	D12,70	135	0	0	0	0	0	0	0	1	3	2	0	2	5	0	0	0	0	7	6	0	0	0	3	3	2	00	137
7	ASC,61	136	0	0	0	0	0	0	6	0	0	2	0	2	4	0	1	0	0	0	7	0	0	0	0	2	0	12	240
5	D12,30	137	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0	2	2	00	377

FLOWS	STATE	ADR	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
12	BRK,80	140	1	1	0	0	0	3	0	0	0	2	0	0	0	0	1	3	0	0	0	0	0	1	1	1	0	00	152
2	S67,20	141	0	0	0	0	0	0	0	0	0	1	0	0	6	0	2	0	0	0	7	1	0	0	0	0	0	00	142
2	S67,30	142	1	1	0	0	0	0	0	0	0	1	0	0	0	3	2	0	0	0	6	1	0	0	0	4	0	14	317
2	S13,30	143	0	0	0	0	0	0	0	0	0	1	0	0	6	0	2	0	0	0	7	3	0	0	0	0	0	00	146
10	DVD,00	144	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	04	353
9	DVE,20	145	0	0	0	0	0	0	7	0	0	2	0	0	0	0	2	0	0	0	6	0	0	0	0	2	0	00	164
2	S13,40	146	1	1	0	0	0	0	0	0	0	1	0	0	0	3	2	0	0	0	6	3	0	0	0	0	4	00	377
9	DIV,30	147	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	16	346
12	FSV,10	150	1	1	0	0	0	3	0	0	0	2	0	0	0	3	0	0	0	0	1	4	0	0	1	3	0	00	225
1	MTP,10	151	0	0	0	2	0	3	0	0	0	1	0	0	5	0	2	0	0	0	7	3	0	0	0	0	0	00	146
12	BRK,30	152	0	0	0	0	0	0	0	1	0	2	0	0	6	0	0	0	0	6	7	2	3	0	0	2	0	00	355
14	EXM,20	153	1	1	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	00	134
12	BRK,00	154	1	1	0	0	1	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	2	0	12	130
5	D12,60	155	0	0	0	0	0	0	0	1	3	2	0	2	5	3	0	0	0	0	6	6	0	0	3	3	0	00	312
2	RTI,10	156	0	0	0	0	0	0	0	0	0	2	0	0	7	0	2	0	0	0	7	0	3	0	0	2	0	00	212
6	D10,40	157	0	0	0	0	0	0	1	0	0	2	0	0	0	3	0	0	0	0	6	6	3	0	0	2	0	00	331
12	SER,00	160	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	00	344
6	D50,20	161	0	0	0	0	1	0	0	0	0	2	0	0	5	0	0	0	0	0	7	0	3	0	0	2	0	00	231
6	D10,00	162	0	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	7	0	3	0	0	2	0	00	231
11	NEG,20	163	0	0	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	7	7	3	0	0	2	0	00	132
1	FET,04	164	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
9	DIV,70	165	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	7	0	04	323
7	ASH,41	166	0	0	0	0	1	0	5	0	0	2	0	2	0	0	1	0	1	0	6	0	2	0	0	5	0	03	126
14	CON,01	167	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	0	2	0	14	070
14	CON,00	170	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	0	0	0	2	0	14	070
6	D50,30	171	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	7	0	3	0	0	2	0	00	231
2	RTI,60	172	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	00	217
2	FOP,30	173	1	1	0	0	0	0	1	1	2	0	0	0	0	3	0	0	1	0	0	1	0	1	3	4	00	377
2	FOP,20	174	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	6	0	3	0	0	2	0	10	133
5	D12,10	175	1	1	0	0	0	0	0	1	3	2	0	2	5	2	0	0	0	0	6	6	0	0	3	3	2	05	137
7	ASC,31	176	0	0	0	0	1	2	5	0	0	2	0	2	0	0	0	0	1	0	6	0	2	0	0	7	0	03	136
6	D10,60	177	1	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	6	6	3	0	0	2	2	05	137

DRN.	DATE 3/29/72	TITLE	
CHK'D	DATE 3/30/72	ROM & ROM CONTROL	
ENG. Steve Jenkins	DATE 3-28-72		
PROJ. ENG. E. Eriksen	DATE 3-28-72	(ADR 100 - 177)	
PROD.	DATE 3-30-72	SIZE: K; CODE: CS; NUMBER: M8103-0-1; REV.: H	
SHEET 13 OF 15			

FLOWS	STATE	ADR	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
12	ZAP,00	200	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	7	6	0	0	0	0	2	0	06	352
11	JSR,10	201	1	0	0	1	0	3	0	0	0	2	0	0	7	0	1	0	0	0	6	0	2	0	0	2	0	00	274
4	D07,00	202	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	030
4	D07,10	203	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	030
4	D00,80	204	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	3	0	0	2	0	00	205
4	D00,90	205	0	0	0	0	0	0	1	0	0	2	0	1	5	0	1	0	0	0	7	0	0	3	0	7	0	12	240
8	MUL,40	206	1	0	0	0	0	1	4	0	0	3	0	2	0	0	0	0	0	0	6	0	3	0	0	2	0	00	310
7	ASC,80	207	0	0	0	0	0	0	6	0	0	2	0	0	0	0	1	0	0	0	7	0	0	0	0	2	0	12	240
3	NEG,90	210	0	0	0	0	0	0	1	1	3	2	0	1	5	0	2	0	0	0	6	0	2	0	0	3	0	00	217
4	FOP,50	211	0	0	0	0	0	0	3	0	0	2	0	0	0	0	3	0	0	7	0	0	0	0	0	2	0	00	362
2	RTI,20	212	1	1	0	0	0	3	0	0	0	2	0	2	7	3	2	0	0	0	0	0	2	0	1	3	0	00	213
2	RTI,30	213	0	0	0	0	0	0	0	1	1	1	0	0	7	0	0	0	0	0	7	0	3	0	0	2	0	00	214
2	RTI,40	214	1	1	0	0	0	0	0	0	0	2	0	2	7	2	0	0	0	0	0	0	0	0	1	3	0	00	215
2	RTI,50	215	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	00	172
10	DVC,10	216	1	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	2	0	3	0	00	256
1	FET,00	217	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
10	DVC,90	220	0	0	0	0	0	0	4	0	0	2	0	2	0	0	0	0	0	0	6	0	0	0	0	3	0	04	144
5	D30,10	221	1	1	0	0	0	0	0	1	3	2	0	2	5	2	0	0	0	0	0	0	0	0	3	3	0	00	253
13	SVC,80	222	0	0	0	0	0	0	0	0	0	1	0	0	7	0	0	0	0	0	7	5	0	0	0	0	0	00	300
2	RTS,10	223	0	0	0	0	0	0	0	0	0	2	0	2	7	0	2	0	0	0	7	0	2	0	1	3	0	00	224
2	RTS,20	224	1	1	0	0	0	0	0	0	0	1	0	0	5	2	2	0	0	0	0	0	0	0	0	0	0	00	342
12	FSV,20	225	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	6	0	0	0	0	0	0	10	205
8	MUL,50	226	1	0	0	0	0	1	4	0	0	2	0	2	0	0	0	0	0	0	6	0	3	2	0	7	0	02	310
7	ASC,60	227	0	0	0	0	0	0	6	0	0	2	0	2	4	0	1	0	0	0	7	0	0	0	0	2	0	12	240
14	CON,20	230	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	00	170
6	D10,10	231	1	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3	0	0	2	0	00	233
9	DIV,20	232	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	04	241
6	D10,20	233	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	6	0	3	0	0	2	0	00	311
2	MRK,30	234	0	0	0	0	0	0	0	0	0	2	0	2	2	0	1	0	0	0	7	0	3	0	0	2	0	12	240
2	MRK,20	235	1	1	0	0	0	0	0	0	0	2	0	2	7	3	0	0	0	0	6	0	0	0	1	3	0	00	234
10	DVC,20	236	1	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	2	0	6	0	00	276
1	FET,07	237	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

FLOWS	STATE	ADR	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
12	BRK,90	240	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	7	0	0	0	0	0	2	0	00	154
9	OVP,00	241	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	00	103
2	SOB,10	242	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2	0	0	0	6	0	3	0	0	2	0	00	262
9	OVN,60	243	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	00	107
3	WAT,20	244	1	1	0	0	0	3	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	1	1	1	0	12	127
12	FSV,00	245	1	1	0	0	0	0	0	0	0	1	0	0	6	0	0	0	0	1	7	4	0	0	0	0	0	00	150
8	MUL,30	246	1	0	0	0	0	1	4	0	0	3	0	0	0	0	0	0	1	0	0	0	3	0	0	2	0	11	206
7	ASC,30	247	0	0	0	0	1	2	5	0	0	2	0	2	0	0	0	0	1	0	6	0	2	0	0	7	0	03	136
11	MFP,10	250	0	0	0	0	0	3	0	0	0	2	0	2	7	0	0	0	0	7	0	0	2	0	1	6	0	00	222
6	D67,10	251	0	0	0	0	0	3	0	0	1	2	0	0	0	0	1	0	0	0	6	0	0	3	0	3	0	01	122
2	MRK,10	252	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	7	0	2	0	0	2	0	00	235
12	BRK,11	253	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	13	100
9	DIV,10	254	0	0	0	0	0	0	4	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	02	232
3	RES,10	255	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	4	0	0	0	0	0	2	0	00	374
10	DVC,30	256	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	04	350
7	ASH,40	257	0	0	0	0	1	0	5	0	0	2	0	2	0	0	1	0	1	0	6	0	2	0	0	5	0	03	126
1	FET,10	260	1	1	0	0	0	0	0	1	1	2	1	0	0	3	1	0	0	0	6	0	1	0	1	3	0	00	343
9	DVN,00	261	0	0	1	3	1	0	0	0	0	2	0	0	4	0	0	0	0	0	0	0	2	0	0	2	0	00	104
2	SOB,20	262	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	0	0	0	7	0	2	0	0	6	0	12	240
9	DVE,10	263	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	00	145
3	WAT,10	264	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	6	0	0	0	0	2	0	00	011
1	FET,09	265	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
8	MUL,20	266	1	0	0	0	0	1	4	0	0	3	0	0	0	0	0	0	1	0	0	0	3	2	0	3	0	11	206
7	ASC,40	267	0	0	0	0	1	1	1	0	0	3	0	2	0	0	0	0	1	0	6	0	2	0	0	2	0	03	227
14	ADR,00	270	0	0	0	3	1	0	0	1	0	2	0	0	0	0	2	0	0	0	0	0	3	0	0	2	0	00	230
11	NEG,10	271	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	6	3	0	0	3	0	05	123
9	DVE,00	272	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	6	0	2	0	0	2	0	00	164
3	WAT,11	273	0	0	0	0	0	3	0	0	0	2	0	0	0	0	1	0	0	0	6	0	0	0	0	2	0	00	011
11	JSR,20	274	0	0	0	0	0	3	0	0	0	2	0	2	7	0	0	0	0	0	0	0	0	1	6	0	0	00	275
11	JSR,30	275	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	5	7	5	0	0	0	0	0	00	300
10	DVC,40	276	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	04	351
7	ASH,30	277	0	0	0	0	1	0	1	0	0	3	0	2	0	0	1	0	1	0	6	0	2	0	0	2	0	03	237

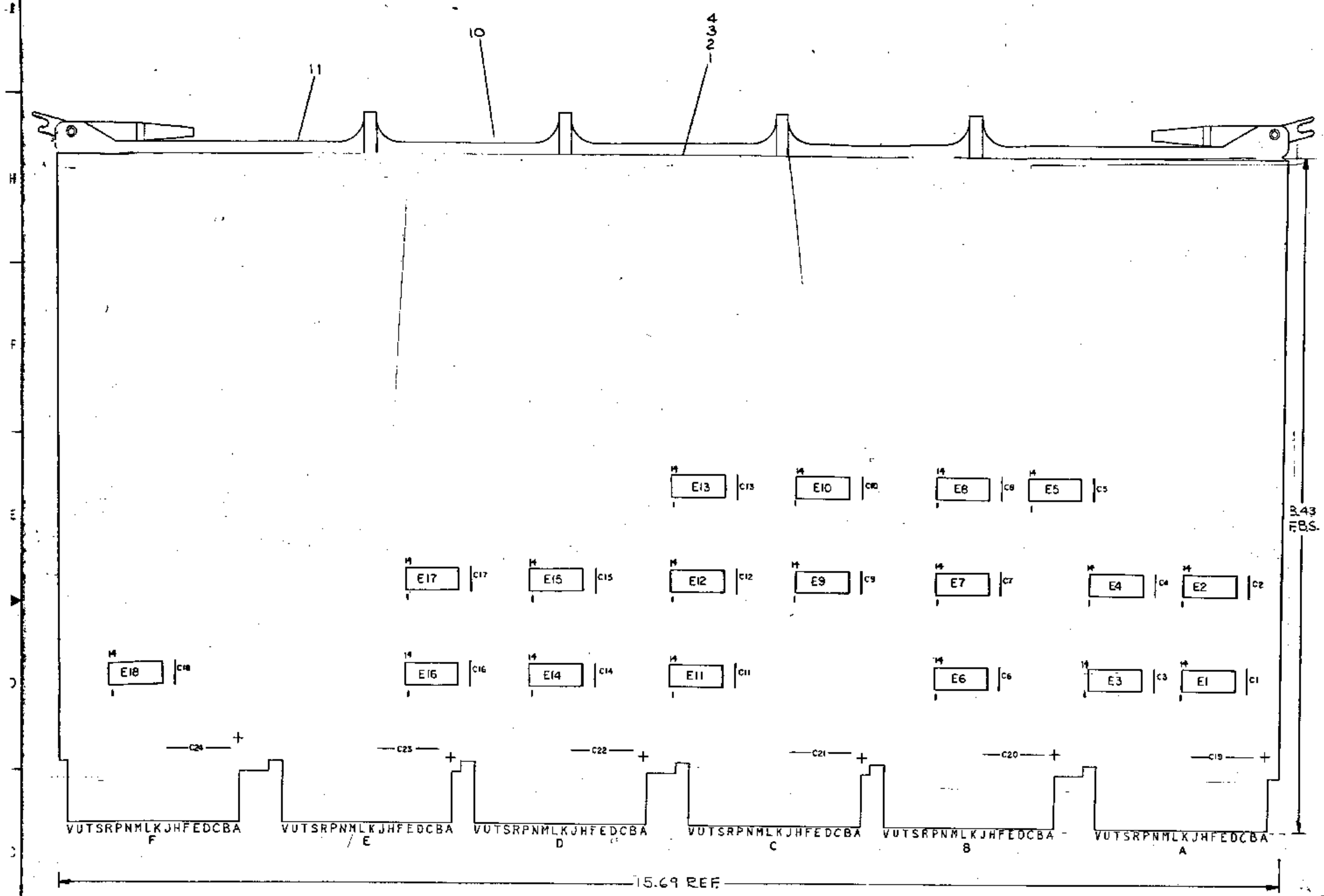
DRN	DATE 3/23/72	TITLE ROM & ROM CONTROL (ADR 200-277)
CHKD	DATE 3/23/72	
ENG Steve Jenkins	DATE 3-28-72	
PROJ. ENG E Eriksen	DATE 3-28-72	
PROD. J. Hunter	DATE 3-30-72	SIZE K · CODE CS · NUMBER M8103-0-1 · REV H
SHEET 14 OF 15		

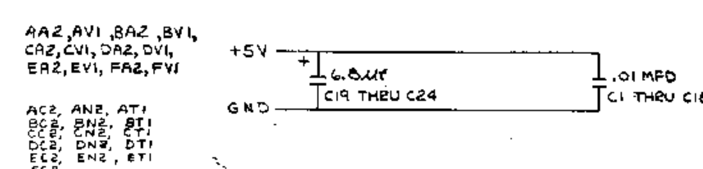
FLOWS	STATE	ADR	BRK	BRX	SRX	DRX	SRK	DRK	CCL	PCA	PCB	SHF	IRK	PWE	PAD	BSD	BAX	IBS	SHC	BCT	MSC	BSC	AMX	BMX	KMX	ALU	FEN	BEN	UAD
13	SVC,90	300	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	6	5	3	0	0	2	0	00	217
3	NEG,70	301	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	7	0	0	0	0	0	7	0	00	210
12	ZAP,30	302	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	00	154
14	DEP,20	303	0	0	0	0	0	3	0	0	0	2	0	0	0	3	2	0	0	0	0	5	3	0	0	2	0	00	230
11	MFP,90	304	1	0	1	0	1	0	1	0	0	2	0	0	7	0	0	0	0	0	0	0	0	0	0	2	0	00	250
7	ASH,20	305	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0	1	0	6	0	2	0	0	2	0	03	217
7	ASC,20	306	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0	1	0	6	0	2	0	0	2	0	03	217
14	ROP,10	307	0	0	0	2	0	3	0	1	3	2	0	2	5	0	2	0	0	0	0	0	3	0	0	2	0	00	230
8	MUL,60	310	0	0	0	0	0	0	1	0	0	2	0	2	4	0	1	0	0	0	7	0	0	0	0	2	0	12	240
6	D10,50	311	1	0	0	0	0	0	0	0	0	2	0	0	6	0	0	0	0	0	7	6	2	0	0	2	2	15	157
5	D12,20	312	0	0	0	0	0	0	1	0	0	2	0	0	5	0	1	0	0	0	7	0	3	0	0	2	0	12	240
9	DIV,60	313	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	05	145
14	RAD,10	314	0	0	0	2	0	3	0	0	0	1	0	0	5	0	2	0	0	0	0	0	0	0	0	2	0	00	230
12	ZAP,20	315	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	00	302
4	FOP,70	316	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	3	0	0	2	0	17	316
2	S13,20	317	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3	0	0	2	0	00	143
1	BXX,00	320	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
1	FET,11	321	1	1	0	0	0	0	0	1	1	2	1	0	0	3	1	0	0	0	6	0	1	0	1	3	0	00	343
1	FET,12	322	1	1	0	0	0	0	0	1	1	2	1	0	0	3	1	0	0	0	6	0	1	0	1	3	0	00	343
9	DIV,80	323	1	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3	2	0	6	0	03	125
1	FET,13	324	1	1	0	0	0	0	0	1	1	2	1	0	0	3	1	0	0	0	6	0	1	0	1	3	0	00	343
1	BXX,01	325	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
1	BXX,02	326	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
3	HLT,10	327	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
1	BXX,03	330	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	0	3	0	3	0	0	2	0	06	124
1	FET,01	331	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
1	FET,02	332	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
12	PUP,20	333	1	1	0	0	1	0	0	0	0	2	0	0	0	1	0	0	3	7	0	2	2	0	6	0	12	240
1	FET,03	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
1	BXX,04	335	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
1	BXX,05	336	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0	0	7	6	0	1	1	3	3	0	00	217
13	XXX,XX	337	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	00	337

FLOWS	STATE	ADR	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
12	PUP,30	340	0	0	0	0	0	0	0	1	1	2	0	0	6	0	2	0	0	0	7	0	3	0	0	2	0	00	341
12	PUP,40	341	1	1	0	0	0	0	0	0	0	1	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	00	215
2	RTS,30	342	0	0	0	0	0	0	0	1	3	2	0	2	5	0	2	0	0	0	6	0	3	0	0	2	0	00	217
1	IRD,00	343	0	0	2	2	1	3	0	1	0	1	0	0	1	0	1	0	0	0	5	0	1	0	1	3	1	00	377
12	SER,10	344	0	0	0	0	0	0	0	0	0	2	0	2	7	0	1	0	0	0	0	0	2	0	1	3	0	00	140
12	RSD,10	345	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	00	354
9	DIV,40	346	1	0	0	0	0	2	6	0	0	2	0	0	0	0	0	0	1	0	0	0	3	2	0	6	0	00	313
12	PUP,10	347	0	0	0	0	0	0	0	0	0	2	0	0	6	0	0	0	0	0	7	0	0	1	0	1	0	00	333
10	DVC,70	350	0	0	0	0	0	0	4	0	0	2	0	2	0	0	0	0	0	0	6	0	0	0	0	2	0	00	164
10	DVC,80	351	0	0	1	0	1	3	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	220
12	BRK,01	352	1	1	0	0	1	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	2	0	12	130
10	DVD,10	353	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	00	145
12	TRP,10	354	0	0	0	0	0	0	0	1	0	2	0	0	6	0	0	0	0	0	7	2	3	0	0	2	0	00	355
13	SVC,00	355	1	1	0	0	0	3	0	0	0	2	0	0	0	3	0	0	0	0	0	2	0	0	1	3	0	00	065
1	FET,08	356	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
13	SVC,20	357	1	1	0	0	0	3	0	1	1	1	0	0	0	3	0	0	0	0	0	2	3	0	0	2	0	00	360
13	SVC,30	360	1	0	0	0	0	0	0	1	0	2	0	0	7	0	0	2	0	0	0	2	0	0	0	2	0	00	367
3	SPL,10	361	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3	7	0	0	0	0	0	0	00	260
4	FOP,60	362	1	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	1	0	0	0	0	2	0	00	316
9	DIV,90	363	1	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3	2	0	3	0	03	125
13	XXX,XX	364	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	00	364
13	XXX,XX	365	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	00	365
9	DIV,50	366	1	0	0	0	0	2	6	0	0	2	0	0	0	0	0	0	1	0	0	0	3	2	0	3	0	00	313
13	SVC,40	367	0	0	0	1	0	3	0	0	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	00	037
10	DVC,50	370	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	0	0	3	0	00	351
10	DVC,60	371	0	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	3	0	0	3	0	00	350
12	EAP,10	372	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	315
1	FET,06	373	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
3	RES,20	374	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	2	6	0	0	0	0	2	0	10	334
4	FOP,90	375	0	0	0	0	0	0	0	0	0	2	0	2	5	0	3	0	0	0	1	0	3	0	0	2	0	00	316
4	FOP,80	376	1	1	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	1	0	0	3	0	0	2	0	00	375
13	XXX,XX	377	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	00	377

DRN.	DATE 3/23/72	TITLE ROM & ROM CONTROL (ADR 300 - 377)			
CHK'D	DATE 3/23/72				
ENG.	DATE 3-28-72				
PROJ. ENG.	DATE 3-28-72				
PROD.	DATE 3-30-72	SIZE K	CODE CS	NUMBER M8103-0-1	REV. H
SHEET 15 OF 15					

NOTES:
1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		HANDLE, MODULE	E-PS-1210711-2	11
12		EYELET	9006732	10
6	E1, E2, E8, E10, E14, E17	IC DEC 74511	1910537	9
5	E6, E7, E9, E11, E12	IC DEC 8881	1909705	8
7	E3, E4, E5, E13, E15, E16, E18	IC DEC 7404	1909686	7
18	C1 THRU C18	CAPACITOR .01µf, 100V, 20% DISC	1001610	6
6	C19 THRU C24	CAPACITOR 6.8µf, 35V, 20%	1005306	5
1		ETCHED CIRCUIT BOARD	5009950	4
REF		MODULE ECO HISTORY	B-MH-M8116-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	E-AH-M8116-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8116-0-4	1

PARTS LIST

ETCH BOARD REV A B C

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

ITEM NO.	AWG	FROM PT	TO PT

JUMPER LIST

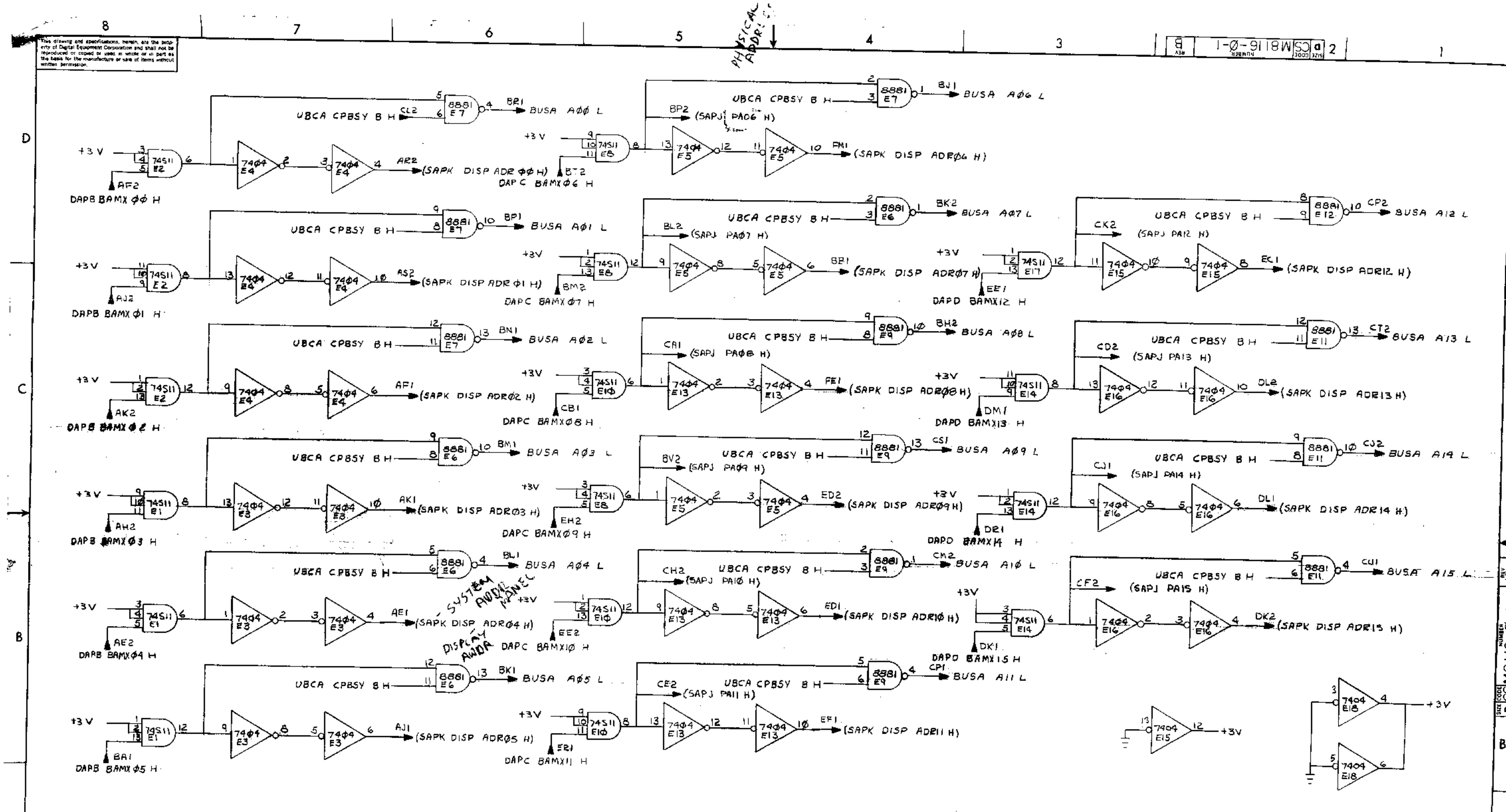
SEMICONDUCTOR CONVERSION CHART

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

EQUIPMENT CORPORATION

TITLE: SYSTEM ADDRESS BUFFERS

NEXT HIGHER ASSY: E-CD-11/45-C
SCALE 2/1
SIZE CODE E CS
NUMBER M8116-0-1
REV. B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PHYSICAL ADDR
SYSTEM ADDR PANEL
DISPLAY ADDR
UBCA CPBSY B H
BUSA AØØ L
BUSA AØ1 L
BUSA AØ2 L
BUSA AØ3 L
BUSA AØ4 L
BUSA AØ5 L
BUSA AØ6 L
BUSA AØ7 L
BUSA AØ8 L
BUSA AØ9 L
BUSA A1Ø L
BUSA A11 L
BUSA A12 L
BUSA A13 L
BUSA A14 L
BUSA A15 L
(SAPK DISP ADRØØ H)
(SAPK DISP ADRØ1 H)
(SAPK DISP ADRØ2 H)
(SAPK DISP ADRØ3 H)
(SAPK DISP ADRØ4 H)
(SAPK DISP ADRØ5 H)
(SAPK DISP ADRØ6 H)
(SAPK DISP ADRØ7 H)
(SAPK DISP ADRØ8 H)
(SAPK DISP ADRØ9 H)
(SAPK DISP ADR1Ø H)
(SAPK DISP ADR11 H)
(SAPK DISP ADR12 H)
(SAPK DISP ADR13 H)
(SAPK DISP ADR14 H)
(SAPK DISP ADR15 H)
(SAPJ PAØ6 H)
(SAPJ PAØ7 H)
(SAPJ PAØ8 H)
(SAPJ PAØ9 H)
(SAPJ PA1Ø H)
(SAPJ PA11 H)
(SAPJ PA12 H)
(SAPJ PA13 H)
(SAPJ PA14 H)
(SAPJ PA15 H)
DAPB BAMXØØ H
DAPB BAMXØ1 H
DAPB BAMXØ2 H
DAPB BAMXØ3 H
DAPB BAMXØ4 H
DAPB BAMXØ5 H
DAPC BAMXØ6 H
DAPC BAMXØ7 H
DAPC BAMXØ8 H
DAPC BAMXØ9 H
DAPC BAMX1Ø H
DAPC BAMX11 H
DAPD BAMX12 H
DAPD BAMX13 H
DAPD BAMX14 H
DAPD BAMX15 H
+3V
8881
74S11
7404
CS M8116-Ø-1

ADDRESS LINES Ø - 15

SLOT 14

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 11-18-71
CHKD: DATE 3/2/72
ENG: DATE 3/3/72
PROJ ENG: DATE 3/1/72
PROD: DATE 3/15/72

NEXT HIGHER ASSY. B-DB-11/45-Ø

SCALE

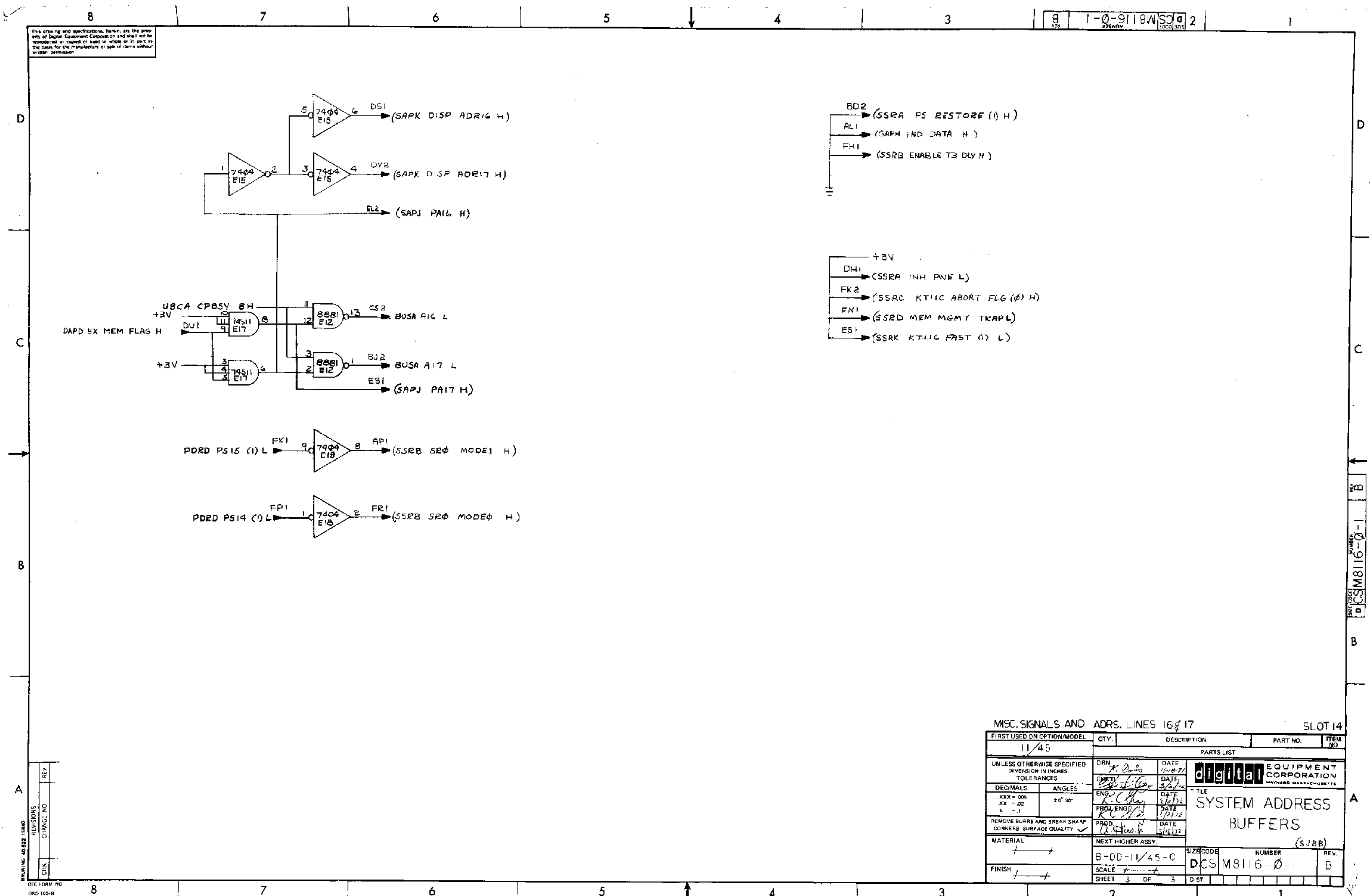
SHEET 2 OF 3

DIST.

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE SYSTEM ADDRESS BUFFERS (SJBA)

SIZE D CODE CS NUMBER M8116-Ø-1 REV B



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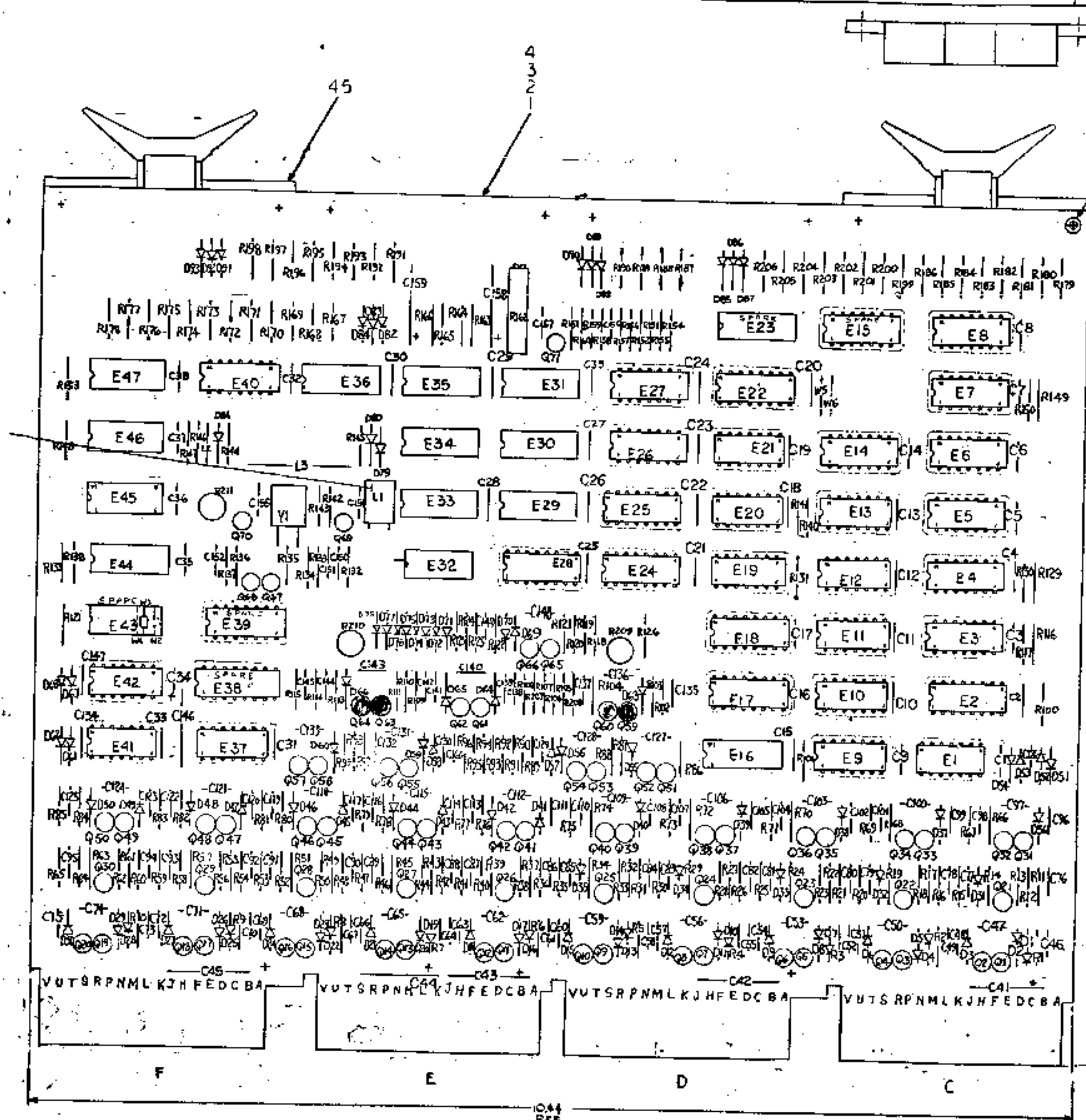
DS1 (SAPK DISP ADR16 H)
DV2 (SAPK DISP ADR17 H)
EL2 (SAPJ PA16 H)
7404 E15
UBCA CP85V 8 H
+3V
DAPD EX MEM FLAG H
DU1
74S11 E17
8881 E12
CS2 BUSA A16 L
BJ2 BUSA A17 L
EB1 (SAPJ PA17 H)
PDRD PS15 (1) L
FK1
7404 E18
AP1 (SSRB SRØ MODE1 H)
PDRD PS14 (1) L
FP1
FR1 (SSRB SRØ MODEØ H)
BD2 (SSRA PS RESTORE (1) H)
AL1 (SAPH IND DATA H)
FH1 (SSRB ENABLE T3 DLY H)
+3V
DH1 (SSRA INH PWE L)
FK2 (SSRC KT11C ABORT FLG (Ø) H)
FN1 (SSRD MEM MGMT TRAP L)
ES1 (SSRK KT11C FAST (1) L)
MISC. SIGNALS AND ADRS. LINES 16 & 17
SLOT 14
FIRST USED ON OPTION/MODEL 11/45
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. B-DD-11/45-0
SCALE
SHEET 3 OF 3
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE SYSTEM ADDRESS BUFFERS (SJBB)
SIZE D CODE CS NUMBER M8116-Ø-1 REV. B
D CS M8116-Ø-1 B



NOTES:

1. UNLESS OTHERWISE NOTED: RESISTANCE IS IN Ω, CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .22 MFD 50V. DIODES ARE TYPE FD777 & ALL NPN TRANSISTORS ARE DEC 3009B & PNP TRANSISTORS ARE DEC 4258.
2. BOND L1 TO ETCHED BOARD

CA2	CV1	DA2	DV1	+5V
EA2	EV1	FA2	FV1	
CC2	CN2	CH1	CT1	GND
DC2	DN2	DH1	DT1	
EC2	EN2	EH1	ET1	
FC2	FN2	FH1	FT1	

6.8 μF C41, C42, C43, C45 — .01 μF C1 THRU C38

6.8 μF C44 EA1 +15V; 6.8 μF C46 EB2 −15V

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
2	R209, R210	POT. 2K 1/2 W	13-09150-07	51
1	R211	POT. 100 1/2 W	13-09150-05	50
1	R136	RES. 120 1/4 W 5%	13-00247	49
				48
2	W3, W5	JUMPER INSULATED	9009185	47
8		EYELET #G54-7	9006732	46
4		HANDLE FLIP-CHIP MAGENTA	9008337-06	45
1	Y1	CRYSTAL 33.333 MHZ	1810694-1	44
1	L2	INDUCTOR .47 μh NYTRONICS WEE-WEE -0.47	1610999	43
1	L1	INDUCTOR .22 μh VARIABLE NYTRONICS WEE VL .22	1611000	42
1	L3	INDUCTOR RFCS 33 μh	1601759	41
35	Q1, Q3, Q5, Q7, Q9, Q11, Q13, Q15, Q17, Q19, Q21, THRU Q25, Q31 THRU Q40, Q51, Q54, Q56, Q58, Q69, Q63, Q65, Q66, Q69, Q70	TRANSISTOR DEC 4258	1505321	40
36	Q2, Q4, Q6, Q8, Q10, Q12, Q14, Q16, Q18, Q20, Q26 THRU Q30, Q41 THRU Q50, Q52, Q53, Q57, Q60, Q61, Q62, Q64, Q67, Q68, Q71, Q55	TRANSISTOR DEC 3009 B	1503100	39
1	E35	I.C. DEC 74S140	1910546	38
8	E2, E17, E18, E22, E24, E25, E28, E44	I.C. DEC 74S112	1910545	37
8	E5, E8, E19, E29, E33, E6, E26, E27	I.C. DEC 74S74	1910544	36
4	E11, E12, E13, E20	I.C. DEC 74S65	1910543	35
1	E32	I.C. DEC 74S64	1910542	34
6	E1, E9, E14, E16, E37, E41	I.C. DEC 74S40	1910541	33
2	E40, E46	I.C. DEC 74S20	1910539	32
3	E3, E34, E47	I.C. DEC 74S11	1910537	31
5	E4, E7, E21, E30, E45	I.C. DEC 74S04	1910534	30
4	E10, E31, E36, E42	I.C. DEC 74S00	1910532	29
1	R162	POT 1K 3/4W 10%	1309143-07	28
9	R117, R130, R151, R140, R141, R150, R157, R163, R166	RES. 680 1/4W 5%	1301424	27
1	R142	RES. 750 1/4W 5%	1301401	26
13	R66, R68, R70, R72, R74, R76, R78, R80, R82, R84, R118, R119, R120	RES. 1.2K 1/4W 5%	1301320	25
26	R13, R15, R19, R20, R23, R25, R28, R30, R33, R35, R38, R41, R44, R47, R50, R53, R56, R59, R62, R65, R102, R104, R114, R115, R132, R158	RES. 10 1/4W 5%	1301317	24
5	R12, R17, R22, R27, R32	RES. 15K 1/4 5%	1300496	23
22	R1 THRU R10, R40, R46, R52, R58, R64, R67, R69, R71, R73, R75, R99, R113	RES. 4.7K 1/4 5%	1300447	22
7	R77, R79, R81, R83, R85, R86, R103	RES. 3K 1/4 5%	1300432	21
6	R11, R16, R21, R26, R31, R143	RES 1.5K 1/4 5%	1300391	20
76	R36, R37, R42, R43, R48, R49, R54, R55, R60, R61, R89 THRU R96, R105 THRU R111, R122, R123, R124, R126, R101, R138, R139, R148, R153, R167 THRU R208	RES. 1K 1/4 5%	1300365	19
12	R116, R129, R141, R146, R149, R154, R152, R159, R160, R161, R164, R165	RES. 330 1/4W 5%	1300295	18
1	R145	RES. 220 1/4W 5%	1300271	17
6	R100, R125, R127, R131, R156, R155	RES. 150 1/4W 5%	1300250	16
11	R14, R18, R24, R29, R34, R39, R45, R51, R57, R63, R121	RES. 100 1/4W 5%	1300229	15
2	R133, R137	RES. 68 1/4W 5%	1300219	14
7	R87, R88, R97, R134, R135, R144, R98	RES. 47 1/4W 5%	1300202	13
54	D1, D3, D4, D6, D7, D9, D10, D12, D13, D15, D16, D18, D19, D21, D22, D24, D25, D27, D28, D30, D31 THRU D54, D57, D58, D61, D62, D64, D67, D68, D69, D65, D70	DIODE FD777	1103041	12
39	D2, D5, D8, D11, D14, D17, D20, D23, D26, D29, D55, D56, D59, D60, D63, D66, D77 THRU D93	DIODE D662	1100113	11
76	C46 THRU C97, C99, C100, C101, C102, C103, C105, C106, C108, C109, C111, C112, C114, C115, C117, C118, C120, C121, C123, C124, C126, C127 THRU C145, C147, C148, C149, C151, C152	CAP .22 μF 50V MONO.	1010274-1	10
8	C41 THRU C45, C146, C158, C159	CAP 6.8 μF 35V 10% S.TANT	1008306	9
42	C1 THRU C39, C150, C155, C156	CAP .01 μF 100V 20% DISC	1001610	8
1	C154	CAP 100 PF 100V 5% D.M.	1000016	7
1	C157	CAP 47 PF 100V 5% D.M.	1000011	6
10	C98, C101, C104, C107, C110, C113, C116, C119, C122, C125	CAP 33 PF 100V 5% DM	1000009	5
1		ETCHED CIRCUIT BOARD	5009799	4
REF		MODULE ECO HISTORY	S-HR-M8109-0-6	3
REF		ASSY/DRILL HOLE LAYOUT	D-AH-M8109-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8109-0-4	1

ETCH BOARD REV F

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
DEC 4258	NONE
DEC 3009 B	2N3646
DEC D777	1103041
DEC D662	1N645

IC PIN LOCATIONS

JUMPER LIST

digital EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR

NEXT HIGHER ASSY: B-CD-M8109-0

SIZE: E | CODE: CS | NUMBER: M8109-0-1 | REV: S

SHEET 1 OF 1

TIMING GENERATOR CONTROL

SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
TIGA		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 DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY. 8-DD-KBI-A
SCALE
SHEET 2 OF 6

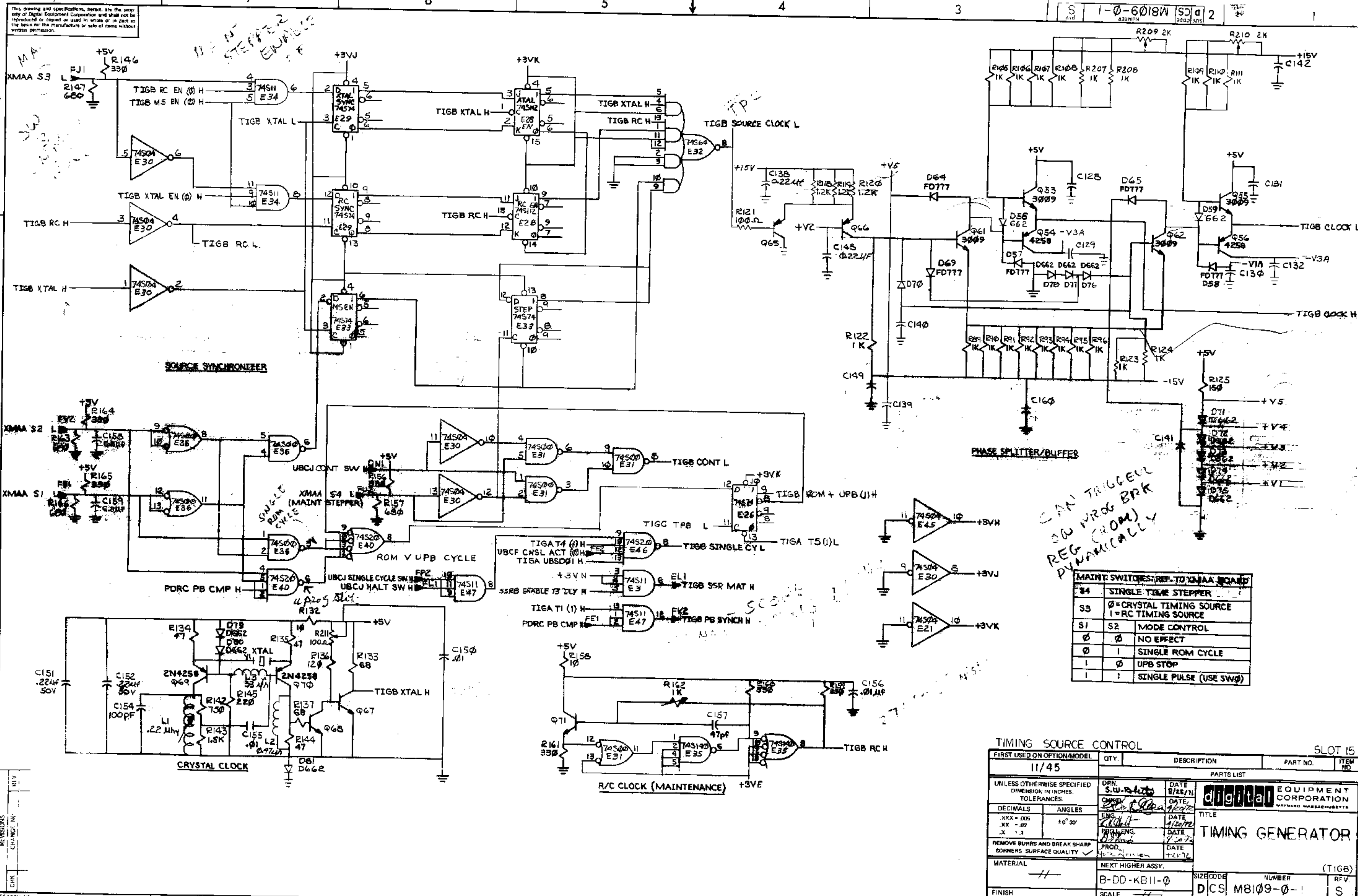
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE TIMING GENERATOR (TIGA)

SIZE D CODE DCS M8109 NUMBER 0 1 REV. S

DIST.

REVISIONS	CHANGE NO	CHK
REV.		



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 SWØ)

TIMING SOURCE CONTROL

SLOT 15

FIRST USED ON OPTION/MODEL: 11/45

NEXT HIGHER ASSY: B-DD-KB11-Ø

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 —//—

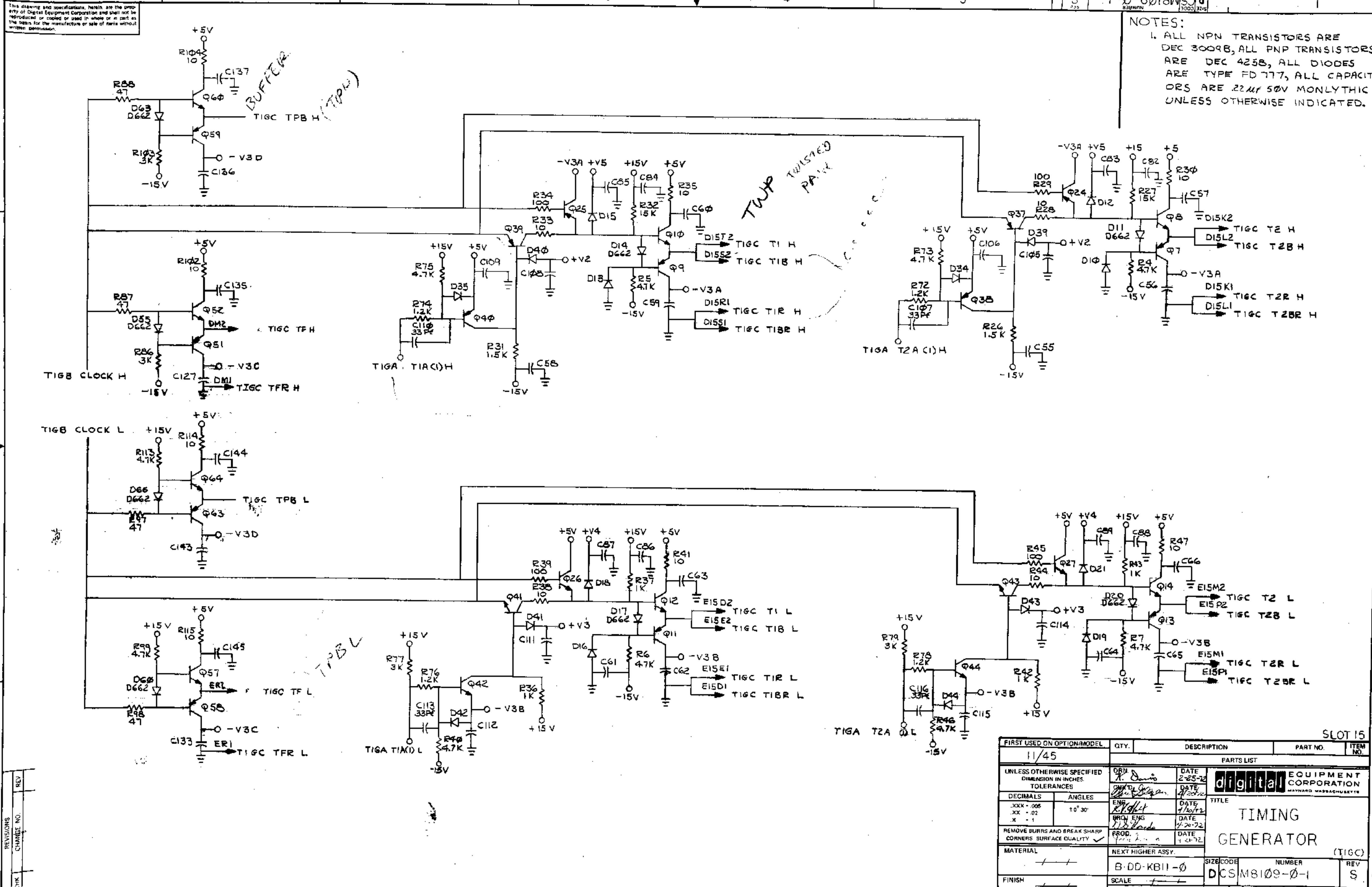
digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGB)

SIZE D CODE CS NUMBER M8109-Ø-1 REV S

SCALE —//— SHEET 3 OF 6

DRN. S.W. Roberts DATE 8/22/71



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NOTES:

1. ALL NPN TRANSISTORS ARE DEC 3009B, ALL PNP TRANSISTORS ARE DEC 4258, ALL DIODES ARE TYPE FD 777, ALL CAPACITORS ARE .22 µf 50V MONLYTHIC UNLESS OTHERWISE INDICATED.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

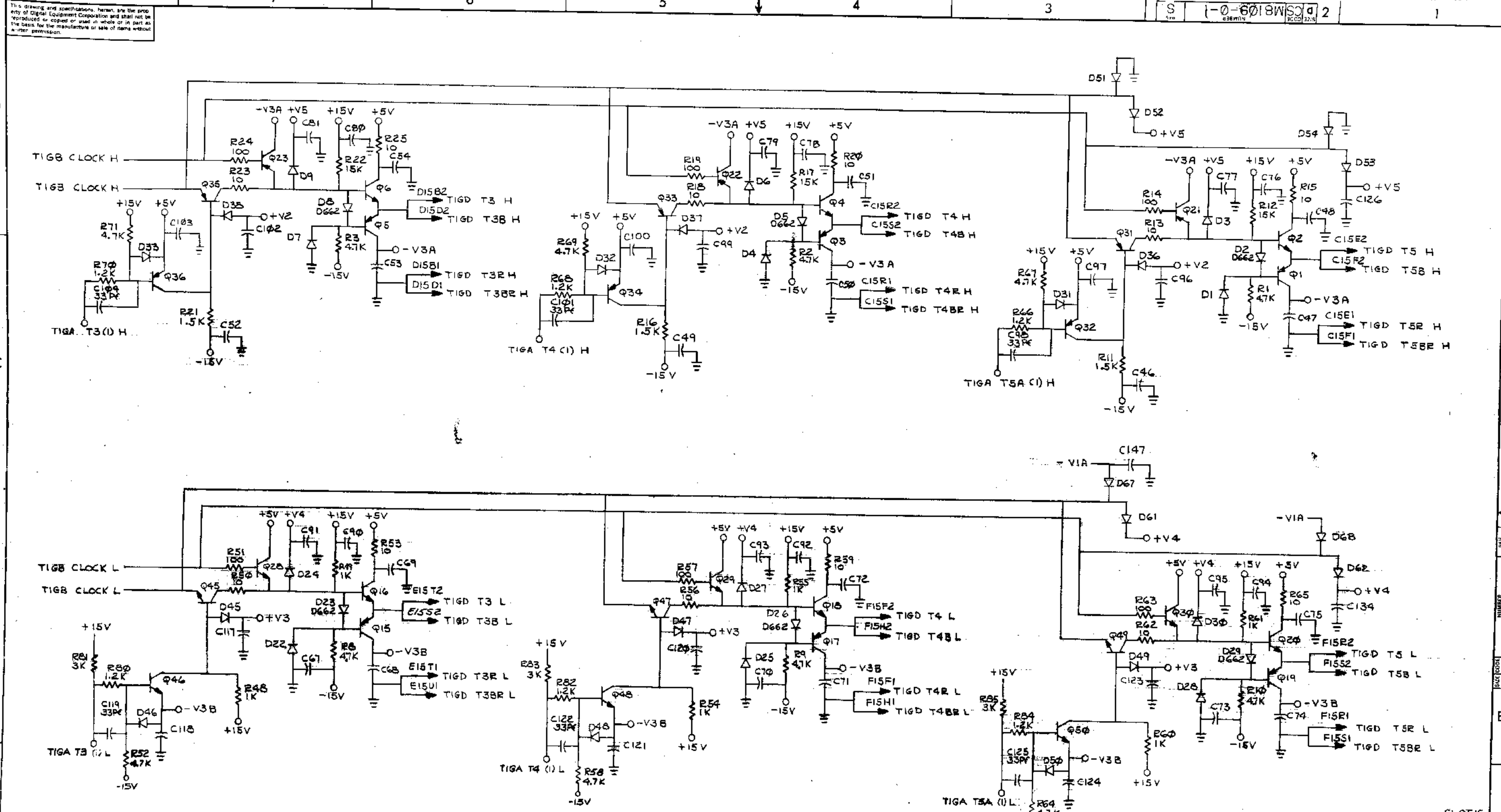
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN: R. Davis — DATE 2-25-72
CHK'D — DATE
ENG — DATE 4/20/72
PROJ. ENG — DATE 4-20-72
PROD. — DATE 4-20-72
NEXT HIGHER ASSY: B-DD-KB11-0
SCALE — SHEET 4 OF 6

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGC)

SIZE D, CODE CS, NUMBER M8109-0-1, REV S



NOTE:

1. ALL NPN TRANSISTORS ARE DEC 3009B; ALL PNP TRANSISTORS ARE DEC 4258; ALL DIODES ARE TYPE D-664; ALL CAPACITORS ARE .22 µF MONLYTHIC UNLESS OTHERWISE INDICATED.

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 3-1-72

CHKD: DATE 4/10/72

ENG: DATE 4/12/72

PROJ. ENG.: DATE 4-20-72

PROD.: DATE 4-21-72

NEXT HIGHER ASSY. 8-DD-KB11-Ø

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGD)

SIZE D, CODE CS, NUMBER M8109-Ø-1, REV. S

SCALE —

SHEET 5 OF 6

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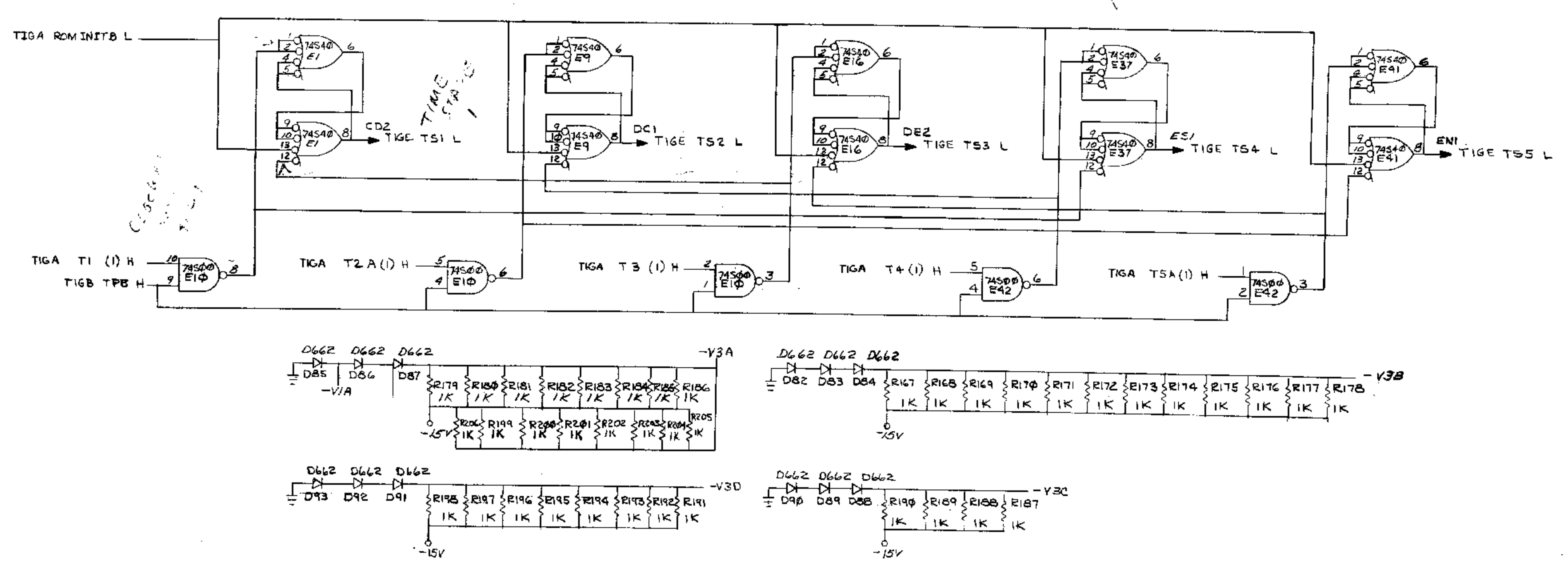


TIMING STATE DRIVERS

SLOT 15

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 8-25-71
CHKD DATE 4/20/72
ENG DATE 4/20/72
PROJ. ENG. DATE 4-20-72
PROD. DATE 4-21-72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE TIMING GENERATOR (TIGE)

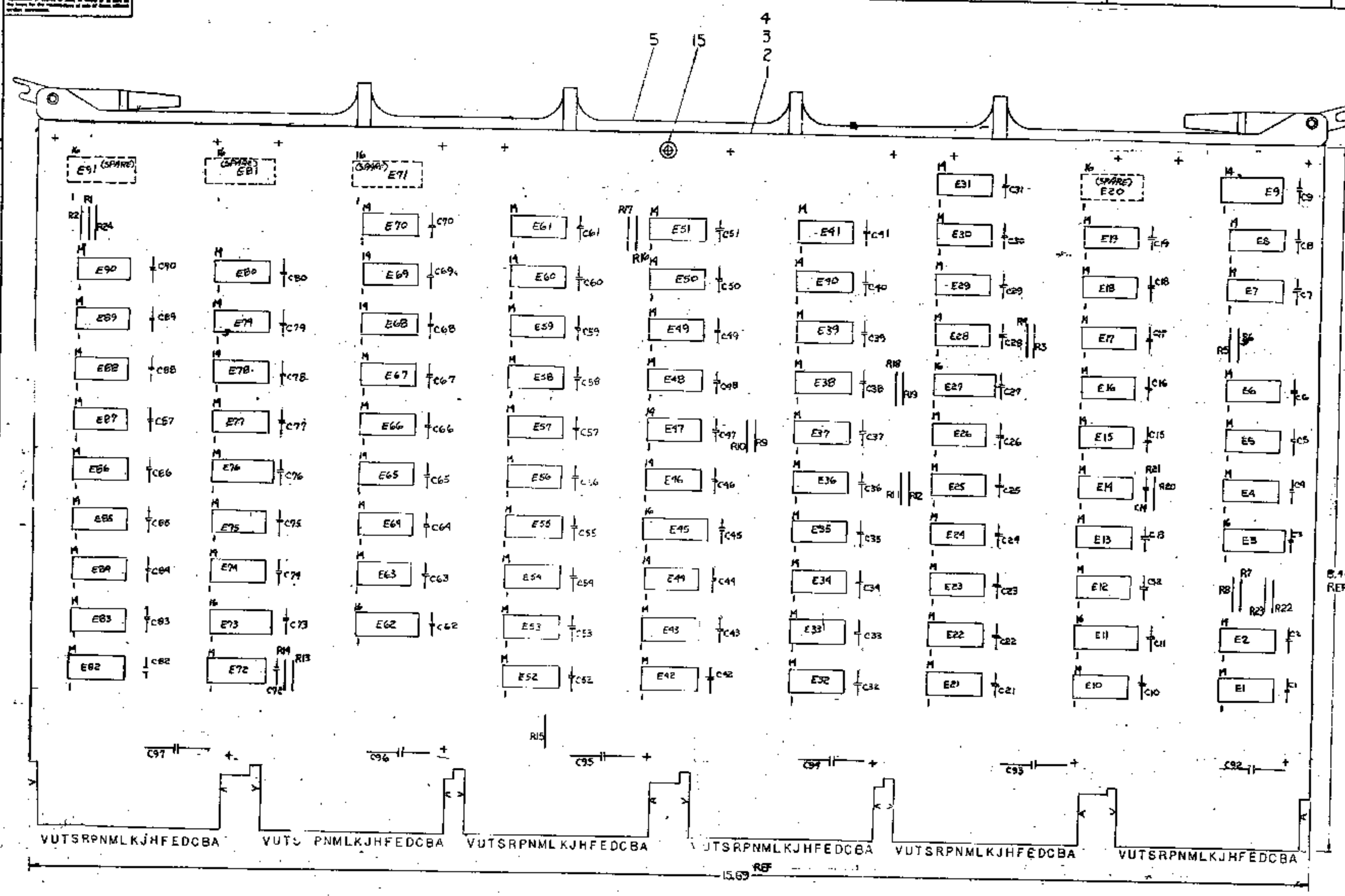
NEXT HIGHER ASSY. B-DD-KB11-Ø

SIZE D CODE CS NUMBER M8109-Ø-1 REV. S

SCALE —//— SHEET 6 OF 6

DEC FORM NO DRD 102-3

NOTE:
1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω, CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .01 MFD.



AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV1 — +5V
AC2, AN2, AH1, AT1, BC2, BN2, BH1, BT1, CC2, CN2, CH1, CT1, DC2, DN2, DH1, DT1, EC2, EN2, EH1, ET1, FC2, FN2, FH1, FT1 — GND

6.8 µF C92 THRU C97

.01 µF C1-C9, C10-C19, C21-C70, C72-C80, C82-C90

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R24	RESISTOR 10K, 1/4W, 5%	1300479	34
1	E3	DEC IC 74155	1910656	33
2	E24, E59	DEC IC 8885	1910649	32
3	E45, E62, E73	DEC IC 74S174	1910550	31
1	E11	DEC IC 74S153	1910547	30
3	E40, E56, E86	DEC IC 74S140	1910546	29
1	E27	DEC IC 74S112	1910545	28
5	E17, E40, E41, E54, E37	DEC IC 74S74	1910544	27
3	E16, E25, E28	DEC IC 74S64	1910542	26
11	E8, E30, E39, E48, E50, E53, E64, E65, E70, E75, E89	DEC IC 74S20	1910539	25
17	E5, E14, E21, E29, E31, E34, E35, E42, E47, E49, E66, E67, E72, E76, E77, E78, E88	DEC IC 74S11	1910537	24
5	E19, E32, E44, E51, E83	DEC IC 74S10	1910536	23
12	E4, E18, E22, E26, E33, E36, E46, E57, E63, E74, E85, E90	DEC IC 74S04	1910534	22
8	E1, E6, E23, E43, E60, E79, E87, E9	DEC IC 74S00	1910532	21
1	E2	DEC IC 8815A	1709713	20
1	E10	DEC IC 380A	1909485	19
1	E7	DEC IC 74H11	1909267	18
5	E15, E52, E58, E61, E84	DEC IC 74H50	1909060	17
7	E2, E13, E55, E68, E69, E80, E82	DEC IC 74H30	1909059	16
12		EYELET	9006732	15
2	R2, R14	RESISTOR, 680 Ω, 1/4W, 5%	1301424	14
1	R7	RESISTOR, 180 Ω, 1/4W, 5%	1301522	13
3	R15 THRU R17	RESISTOR, 1K, 1/4W, 5%	1300365	12
1	R8	RESISTOR, 390 Ω, 1/4W, 5%	1300309	11
2	R1, R13	RESISTOR, 330 Ω, 1/4W, 5%	1300295	10
1	R21	RESISTOR, 150 Ω, 1/4W, 5%	1300250	9
4	R4, R6, R18, R23	RESISTOR, 120 Ω, 1/4W, 5%	1300247	8
87	C1-C9, C10-C19, C21-C70, C72-C80, C82-C90	CAP .01 µF, 100V, 20% DISC	1001610	7
6	C92 THRU C97	CAP, 6.8 µF, 35V, 10%	1005306	6
1		HANDLE, MODULE	1207111-2-0	5
1		ETCHED CIRCUIT BOARD	5009803	4
REF		ECO MODULE HISTORY	B-MH-M8105-0-6	3
REF		ASSY DRILLING HOLE LAYOUT	E-AH-M8105-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8105-0-4	1

PARTS LIST

ETCH BOARD REV F

IC TYPE	GND	+5V
DEC 74S174	8	16
DEC 74155	8	16
DEC 74S153	8	16
DEC 74S112	8	16
DEC 8881		8

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

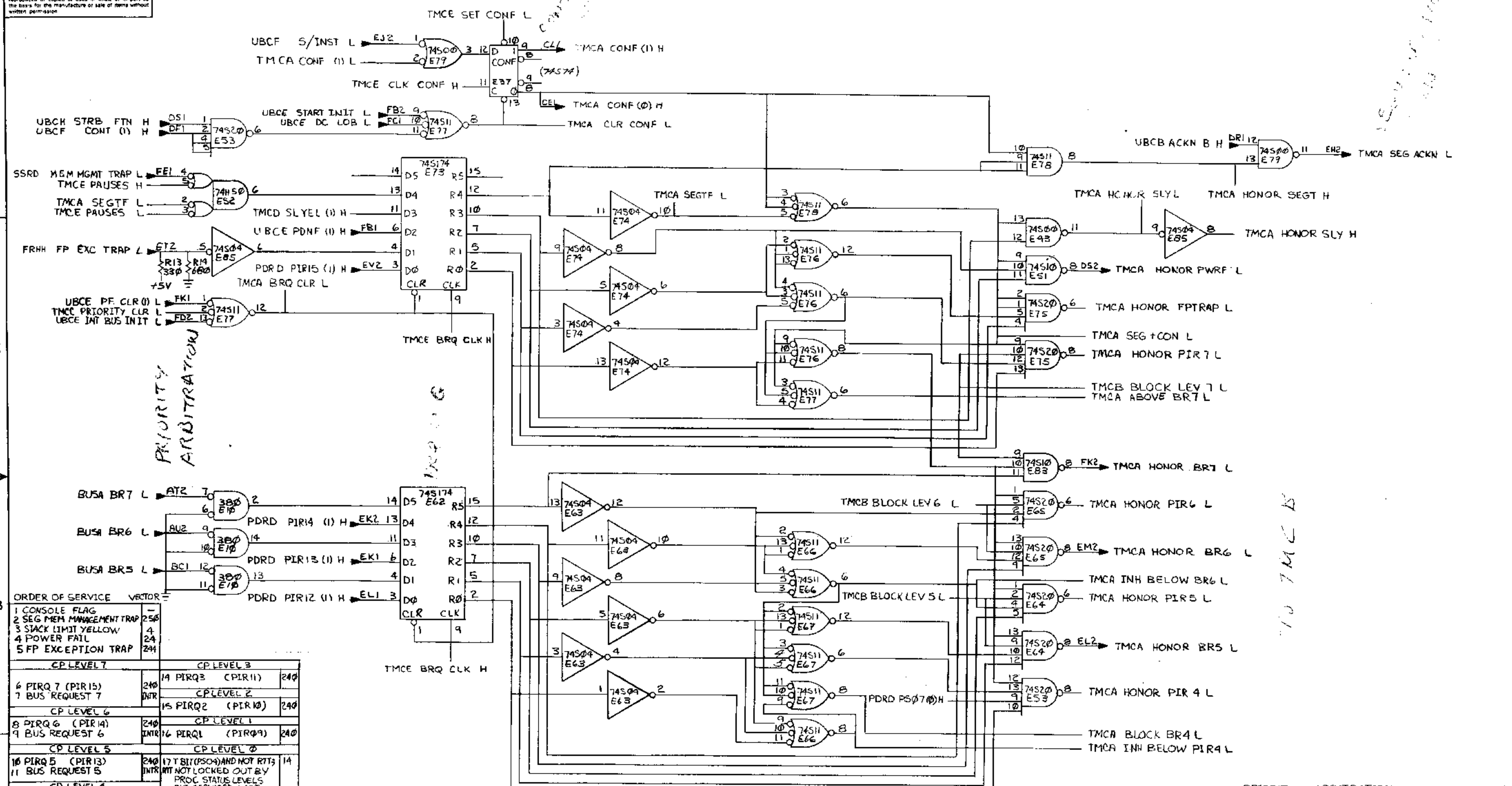
SEMICONDUCTOR CONVERSION CHART

NEXT HIGHER ASSY D-CO-M8105-0

digital EQUIPMENT CORPORATION

TITLE: TRAP & MISC. CONTROL

SIZE E CS M8105-0-1 REV K



TMCE SET CONF L
UBCF S/INST L
TMCA CONF (1) L
TMCE CLK CONF H
74S00 E79
74S74 E37
TMCA CONF (1) H
TMCA CONF (0) H
TMCA CLR CONF L
UBCK STRB FTN H
UBCF CONT (1) H
74S20 E53
UBCE START INIT L
UBCE DC LOB L
74S11 E77
SSRD MEM MGMT TRAP L
TMCE PAUSES H
TMCA SEGTF L
TMCE PAUSES L
74H50 E52
FRHH FP EXC TRAP L
74S04 E85
+5V
UBCE PF CLR (0) L
TMCE PRIORITY CLR L
UBCE INT BUS INIT L
TMCA BRQ CLR L
74S174 E73
TMCD SLYEL (1) H
UBCE PDNF (1) H
PDRD PIR15 (1) H
TMCE BRQ CLK H
PRIORITY ARBITRATION
74S04 E74
TMCA SEGTF L
74S11 E78
74S11 E76
74S11 E77
UBCB ACKN B H
74S00 E79
TMCA SEG ACKN L
TMCA HONOR SLY L
TMCA HONOR SEGT H
74S00 E43
74S04 E85
TMCA HONOR SLY H
74S10 E51
TMCA HONOR PWRF L
74S20 E75
TMCA HONOR FPTRAP L
TMCA SEG +CON L
TMCA HONOR PIR 7 L
TMCB BLOCK LEV 7 L
TMCA ABOVE BR7 L
74S10 E83
TMCA HONOR BR7 L
BUSA BR7 L
BUSA BR6 L
BUSA BR5 L
380 E10
PDRD PIR14 (1) H
PDRD PIR13 (1) H
PDRD PIR12 (1) H
74S174 E62
74S04 E63
74S11 E66
74S11 E67
TMCB BLOCK LEV 6 L
TMCB BLOCK LEV 5 L
74S20 E65
TMCA HONOR PIR 6 L
TMCA HONOR BR6 L
TMCA INH BELOW BR6 L
74S20 E64
TMCA HONOR PIR 5 L
TMCA HONOR BR5 L
PDRD PS07(0) H
74S20 E53
TMCA HONOR PIR 4 L
TMCA BLOCK BR4 L
TMCA INH BELOW PIR4 L

ORDER OF SERVICE	VECTOR
1 CONSOLE FLAG	—
2 SEG MEM MANAGEMENT TRAP	250
3 STACK LIMIT YELLOW	4
4 POWER FAIL	24
5 FP EXCEPTION TRAP	244

CP LEVEL 7		CP LEVEL 3	
6 PIRQ 7 (PIR15) 7 BUS REQUEST 7	240 INTR	14 PIRQ3 (PIR11)	240
CP LEVEL 6		CP LEVEL 2	
8 PIRQ 6 (PIR14) 9 BUS REQUEST 6	240 INTR	15 PIRQ2 (PIR10)	240
CP LEVEL 5		CP LEVEL 1	
10 PIRQ 5 (PIR13) 11 BUS REQUEST 5	240 INTR	16 PIRQ1 (PIR09)	240
CP LEVEL 4		CP LEVEL 0	
12 PIRQ 4 (PIR12) 13 BUS REQUEST 4	240 INTR	17 T BIT (PS04) AND NOT RTT; NOT LOCKED OUT BY PROC. STATUS LEVELS BUT SERVICED LAST	14

PRIORITY ARBITRATION SLOT 11

FIRST USED ON OPTION/MODEL: 11/45

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 —

DATES: 2/25/71, 3/6/72, 3-6-72, 3/6/72, 3/6/72

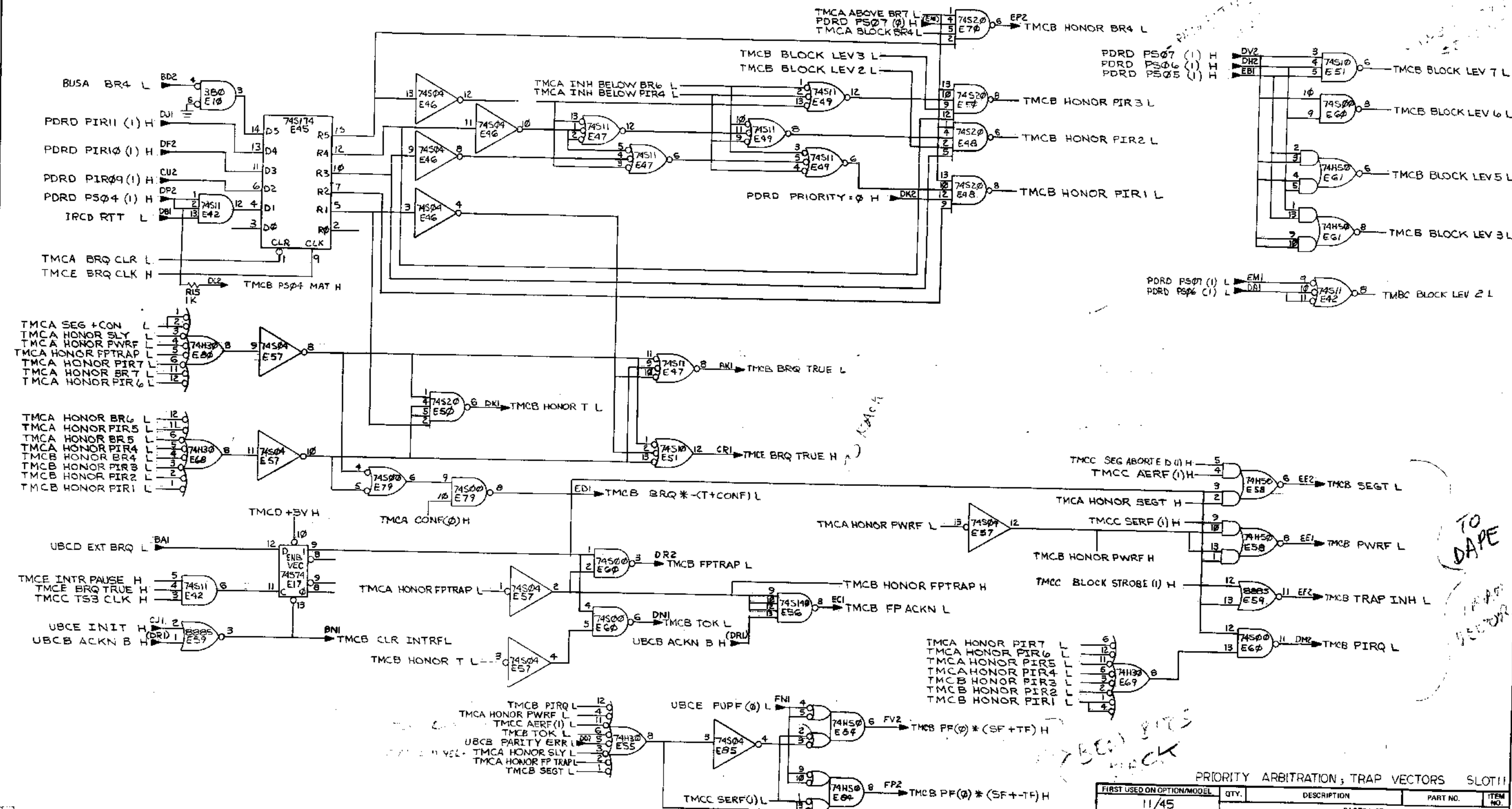
NEXT HIGHER ASSY. B-DD-11/45-0

SCALE — SHEET 2 OF 7

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TRAP & MISC CONTROL (TMCA)

SIZE D CODE CS NUMBER M8105-0-1 REV. K



BUSA BR4 L
PDRD PIR11 (1) H
PDRD PIR10 (1) H
PDRD PIR09 (1) H
PDRD PS04 (1) H
IRCD RTT L
TMCA BRQ CLR L
TMCE BRQ CLK H
TMCB PS04 MAT H
74S174 E45
TMCA ABOVE BR7 L
PDRD PS07 (0) H
TMCA BLOCK BR4 L
TMCB HONOR BR4 L
TMCB BLOCK LEV3 L
TMCB BLOCK LEV2 L
TMCA INH BELOW BR6 L
TMCA INH BELOW PIR4 L
TMCB HONOR PIR3 L
TMCB HONOR PIR2 L
PDRD PRIORITY=0 H
TMCB HONOR PIR1 L
PDRD PS07 (1) H
PDRD PS06 (1) H
PDRD PS05 (1) H
TMCB BLOCK LEV 7 L
TMCB BLOCK LEV 6 L
TMCB BLOCK LEV 5 L
TMCB BLOCK LEV 3 L
PDRD PS07 (1) L
PDRD PS06 (1) L
TMBC BLOCK LEV 2 L
TMCA SEG+CON 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
TMCB BRQ TRUE L
TMCB HONOR T L
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
TMCE BRQ TRUE H
TMCA CONF(0) H
TMCB BRQ*-(T+CONF) L
TMCD +3V H
UBCD EXT BRQ L
TMCE INTR PAUSE H
TMCE BRQ TRUE H
TMCC TS3 CLK H
UBCE INIT H
UBCB ACKN B H
TMCB CLR INTRFL
TMCA HONOR FPTRAP L
TMCB FPTRAP L
TMCB HONOR FPTRAP H
TMCB FP ACKN L
TMCB TOK L
UBCB ACKN B H
TMCB HONOR T L
TMCC SEG ABORT E D (1) H
TMCC AERF (1) H
TMCB SEGT L
TMCA HONOR SEGT H
TMCA HONOR PWRF L
TMCC SERF (1) H
TMCB PWRF L
TMCB HONOR PWRF H
TMCC BLOCK STROBE (1) H
TMCB TRAP INH L
TMCB PIRQ 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
TMCB PIRQ L
TMCA HONOR PWRF L
TMCC AERF(1) L
TMCB TOK L
UBCB PARITY ERR L
TMCA HONOR SLY L
TMCA HONOR FP TRAP L
TMCB SEGT L
UBCE PUPF (0) L
TMCB PF(0)*(SF+TF) H
TMCC SERF(0) L
TMCB PF(0)*(SF+-TF) H
TO DAPE

PRIORITY ARBITRATION, TRAP VECTORS SLOT 11

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 6/25/71 — CHK'D DATE 3/6/72 — ENG. DATE 3/6/72 — PROJ. ENG. DATE 3/6/72 — PROD. DATE 3/15/72

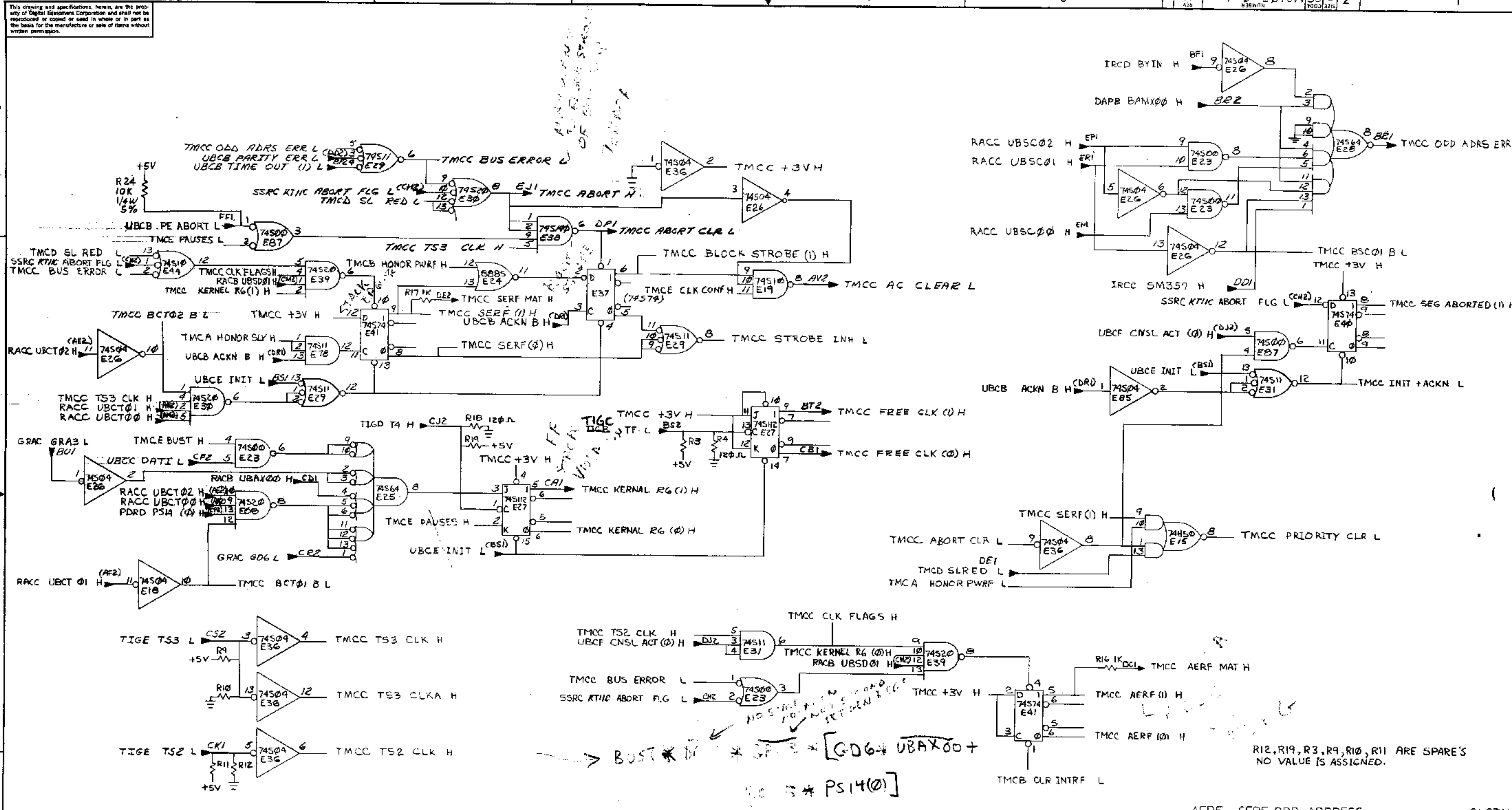
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TRAP & MISC. CONTROL — TMCB

NEXT HIGHER ASSY. B-DD-11/45-0

SIZE D CODE CS NUMBER M8105-0-1 REV. K

SCALE —//— SHEET 3 OF 7


This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission.
TMCC ODD ADRS ERR L
UBCB PARITY ERR L
UBCB TIME OUT (1) L
TMCC BUS ERROR L
TMCC +3V H
SSRC KTIIC ABORT FLG L
TMCD SL RED L
TMCC ABORT H
UBCB PE ABORT L
TMCC PAUSES L
TMCC ABORT CLR L
TMCC TS3 CLK H
TMCC BLOCK STROBE (1) H
TMCC CLK FLAGS H
RACB UBSD01 H
TMCC KERNEL R6(1) H
TMCB HONOR PWRF H
TMCC SERF MAT H
TMCC SERF (1) H
UBCB ACKN B H
TMCC CLK CONF H
TMCC AC CLEAR L
TMCC BCT02 B L
RACC UBCT02 H
TMCA HONOR SLY H
UBCB ACKN B H
TMCC SERF(0) H
TMCC STROBE INH L
UBCE INIT L
TMCC TS3 CLK H
RACC UBCT01 H
RACC UBCT00 H
TIGD T4 H
TMCC FREE CLK (1) H
TMCC FREE CLK (0) H
GRAC GRA3 L
TMCE BUST H
UBCC DATI L
RACB UBAX00 H
PDRD PS14 (0) H
TMCC KERNAL R6 (1) H
TMCE PAUSES H
TMCC KERNAL R6 (0) H
GRAC GD06 L
UBCE INIT L
RACC UBCT 01 H
TMCC BCT01 B L
TIGE TS3 L
TMCC TS3 CLK H
TMCC TS3 CLKA H
TIGE TS2 L
TMCC TS2 CLK H
TMCC TS2 CLK H
UBCF CNSL ACT (0) H
TMCC KERNEL R6 (0) H
RACB UBSD01 H
TMCC BUS ERROR L
SSRC KTIIC ABORT FLG L
TMCC AERF MAT H
TMCC AERF (1) H
TMCC AERF (0) H
TMCB CLR INTRF L
IRCD BYIN H
DAPB BANX00 H
RACC UBSC02 H
RACC UBSC01 H
RACC UBSC00 H
TMCC ODD ADRS ERR L
TMCC BSC01 B L
IRCC SM357 H
TMCC SEG ABORTED (1) H
UBCF CNSL ACT (0) H
UBCE INIT L
UBCB ACKN B H
TMCC INIT + ACKN L
TMCC SERF(1) H
TMCC ABORT CLR L
TMCD SL RED L
TMCA HONOR PWRF L
TMCC PRIORITY CLR L
R12, R19, R3, R9, R10, R11 ARE SPARE'S
NO VALUE IS ASSIGNED.

AERF ; SERF; ODD ADDRESS

SLOT11

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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 6-29-71; CHK'D DATE 3/6/72; ENG DATE 3/6/72; PROJ ENG DATE 3/6/72; PROD DATE 3/15/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TRAP & MSC CONTROL (TMCC)

NEXT HIGHER ASSY. B-DD-11/45-0

SIZE D — CODE CS — NUMBER M8105-0-1 — REV. K

SCALE — SHEET 4 OF 7

SAPJ PA17 H
SAPJ PA16 H
SAPJ PA15 H
SAPJ PA14 H
SAPJ PA13 H
SAPJ PA12 H
SAPJ PA11 H
SAPJ PA10 H
74H30 E82
8885 E24
CK2
TMCD INTERNAL ADRS H
STB1 STB0
INTERNAL ADRS MUX
74155 E3
UBCA CPBSY BH
SAPJ PA09 H
SAPJ PA08 H
SAPJ PA07 H
SAPJ PA06 H
TMCD BAMX 05 BH
DAPB BAMX 04 H
DAPB BAMX 03 H
74H30 E12
SAPJ PA09 H
SAPJ PA08 H
SAPJ PA06 H
74H30 E13
74S04 E4
DAPB BAMX 02 H
DAPB BAMX 01 H
TMCD SW ADRS L
TMCD SW ADRS B L
74S00 E1
FS2
SSRK KT11C FAST(1) L
74S04 E4
RF2
TMCD SL ADRS H
74S04 E4
AS2
TMCD PS ADRS H
74S10 E19
74S04 E4
AP1
TMCD PB ADRS H
74S00 E6
74S04 E4
AR2
TMCD PIR ADRS H
74H11 E7
AA1
TMCD DMX S0 H
74H11 E7
AB2
TMCD DMX S1 H
UBCB MYSN SET H
ACI
74S04 E18
+5V
R7 180
R8 390
TIGE TS5 L
TMCD SW ADRS BL
TMCE PAUSES L
74S15 E2
AE1
TMCD CLKLE H
SAPJ PA07 H
74S04 E18
TMCD INTERNAL ADRS H
UBCB MSYN SET H
74S08 E9
ACI
TMCD GET OFF L
TMCF GET OFF H
74S04 E18
74S11 E5
AS1
TMCD HI BYTE EN H
74S11 E5
AD2
TMCD LO BYTE EN H
74S04 E18
TMCD +3V H
TMCD YEL ZONE H
TMCC KERNEL R6 (1) H
RACB UBSD01 H
PDRC STACK LIMIT H
TIGC T2 L
74S20 E8
74S74 E17
TMCD SL YEL (1) H
74S00 E6
R5
R6 120
+5V
UBCE INIT H
TMCC SERF (1) H
8885 E24
STACK LIMIT

REGISTER ADDRESSES

PROC STATUS	777776
STACK LIMIT	777775
PROG INT	777774
PROG BREAK	777770
SWITCH REGISTER	777570 (CPU)
DISPLAY REGISTER	777576 (OUT)

INTERNAL ADRS MUX

SI	SØ	1F	F
L	L	PB	SW
L	H	PIR	
H	L	SL	
H	H	PS	

TMCC SERF (1) H
TMCC BLOCK STROBE (1) H
74S00 E6
+5V
R2Ø
R21 150Ω
UBCB ABORT ACKN L
TIGD T5 H
TMCC KERNEL R6 (1) H
74S11 E14
TMCD INTERNAL ADRS H
PDRC STACK LIMIT H
74S64 E16
74S04 E4
DE1
TMCD SL REQ L
PDRC REQ ZONE H
DAPC BAMX 07 H
DAPC BAMX 06 H
74S11 E19
74S04 E18
TMCD YEL ZONE H
DAPB BAMX 05 H
74S11 E5
TMCD BAMX 05 BH
TMCD +3V H

NOTE: R5 AND R2Ø ARE SPARE NO VALUE IS ASSIGNED

INTERNAL REG DECODES; STACK LIMIT SLOT11

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		PARTS LIST		

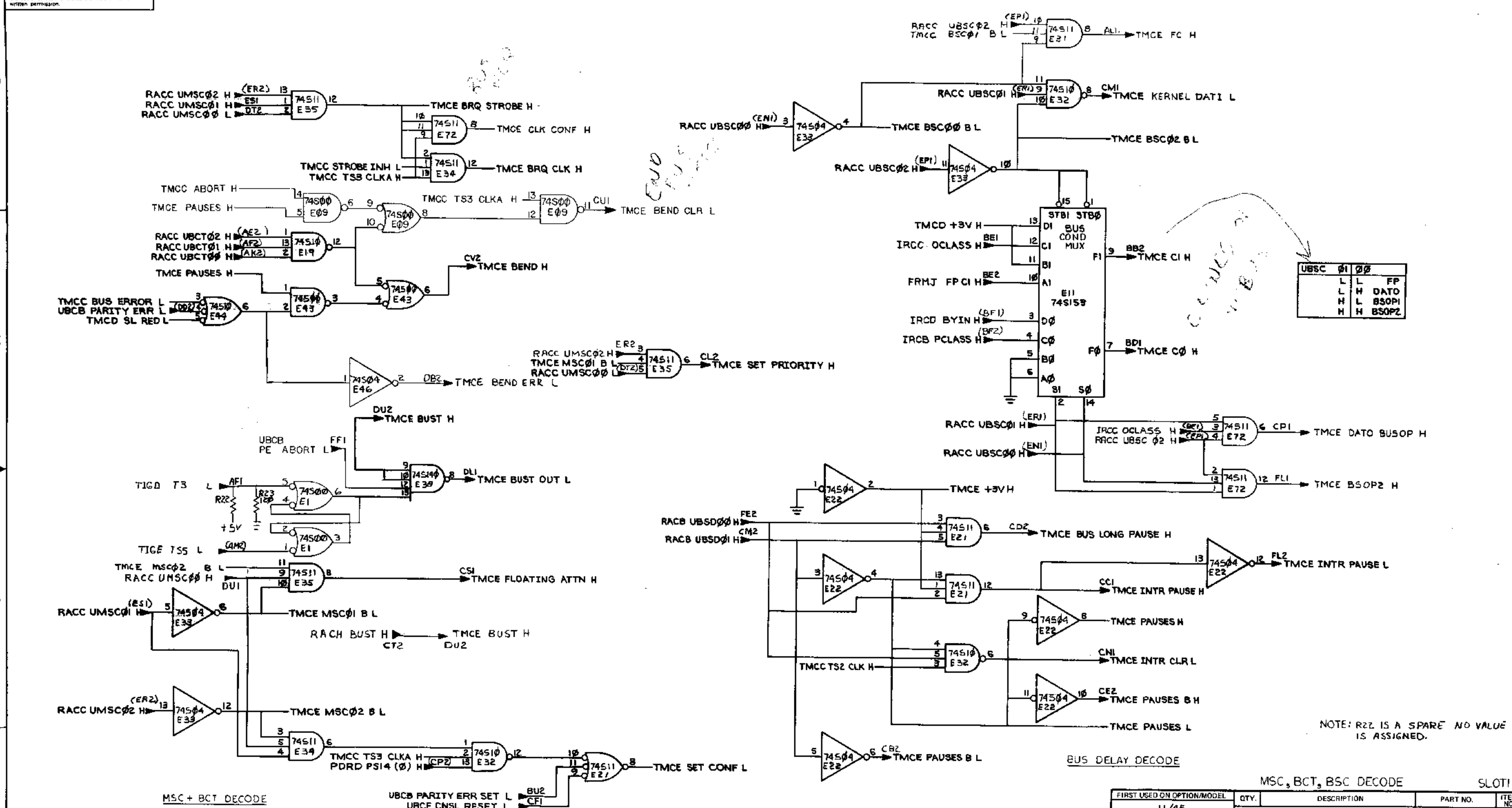
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, X ± 1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN. — DATE 6-26-71
CHKD. — DATE 3/6/72
ENG. — DATE 3/6/72
PROJ. ENG. — DATE 3/6/72
PROG. — DATE 3/15/72
NEXT HIGHER ASSY. B-BD-11/45-Ø

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TRAP & MSC CONTROL (TMCD)

SIZE D | CODE CS | NUMBER M8105-Ø-1 | REV. K
SCALE —
SHEET 5 OF 7
DIST.


RACC UMSCØ2 H
RACC UMSCØ1 H
RACC UMSCØØ L
TMCE BRQ STROBE H
TMCE CLK CONF H
TMCC STROBE INH L
TMCC TS3 CLKA H
TMCE BRQ CLK H
TMCC ABORT H
TMCE PAUSES H
TMCC TS3 CLKA H
TMCE BEND CLR L
RACC UBCTØ2 H
RACC UBCTØ1 H
RACC UBCTØØ H
TMCE PAUSES H
TMCE BEND H
TMCC BUS ERROR L
UBCB PARITY ERR L
TMCD SL RED L
TMCE BEND ERR L
RACC UMSCØ2 H
TMCE MSCØ1 B L
RACC UMSCØØ L
TMCE SET PRIORITY H
TMCE BUST H
UBCB PE ABORT L
TMCE BUST OUT L
TIGD T3 L
TIGE TS5 L
TMCE MSCØ2 B L
RACC UMSCØØ H
TMCE FLOATING ATTN H
RACC UMSCØ1 H
TMCE MSCØ1 B L
RACH BUST H
TMCE BUST H
RACC UMSCØ2 H
TMCE MSCØ2 B L
TMCC TS3 CLKA H
PDRD PS14 (Ø) H
TMCE SET CONF L
UBCB PARITY ERR SET L
UBCF CNSL RESET L
MSC + BCT DECODE
RACC UBSCØ2 H
TMCC BSCØ1 B L
TMCE FC H
RACC UBSCØ1 H
TMCE KERNEL DATI L
RACC UBSCØØ H
TMCE BSCØØ B L
TMCE BSCØ2 B L
RACC UBSCØ2 H
TMCD +3V H
IRCC OCLASS H
FRMJ FP CI H
IRCD BYIN H
IRCB PCLASS H
BUS COND MUX
E11 74S153
TMCE CI H
TMCE CØ H
RACC UBSCØ1 H
RACC UBSCØØ H
IRCC OCLASS H
RACC UBSC Ø2 H
TMCE DATO BUSOP H
TMCE BSOP2 H
TMCE +3V H
RACB UBSDØØ H
RACB UBSDØ1 H
TMCE BUS LONG PAUSE H
TMCE INTR PAUSE L
TMCE INTR PAUSE H
TMCE PAUSES H
TMCC TS2 CLK H
TMCE INTR CLR L
TMCE PAUSES B H
TMCE PAUSES L
TMCE PAUSES B L
BUS DELAY DECODE

UBSC	Ø1	ØØ	
	L	L	FP
	L	H	DATO
	H	L	BSOPI
	H	H	BSOPZ

NOTE: R22 IS A SPARE NO VALUE IS ASSIGNED.

MSC, BCT, BSC DECODE — SLOT 11

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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.W. Rolutz DATE 6/28/71

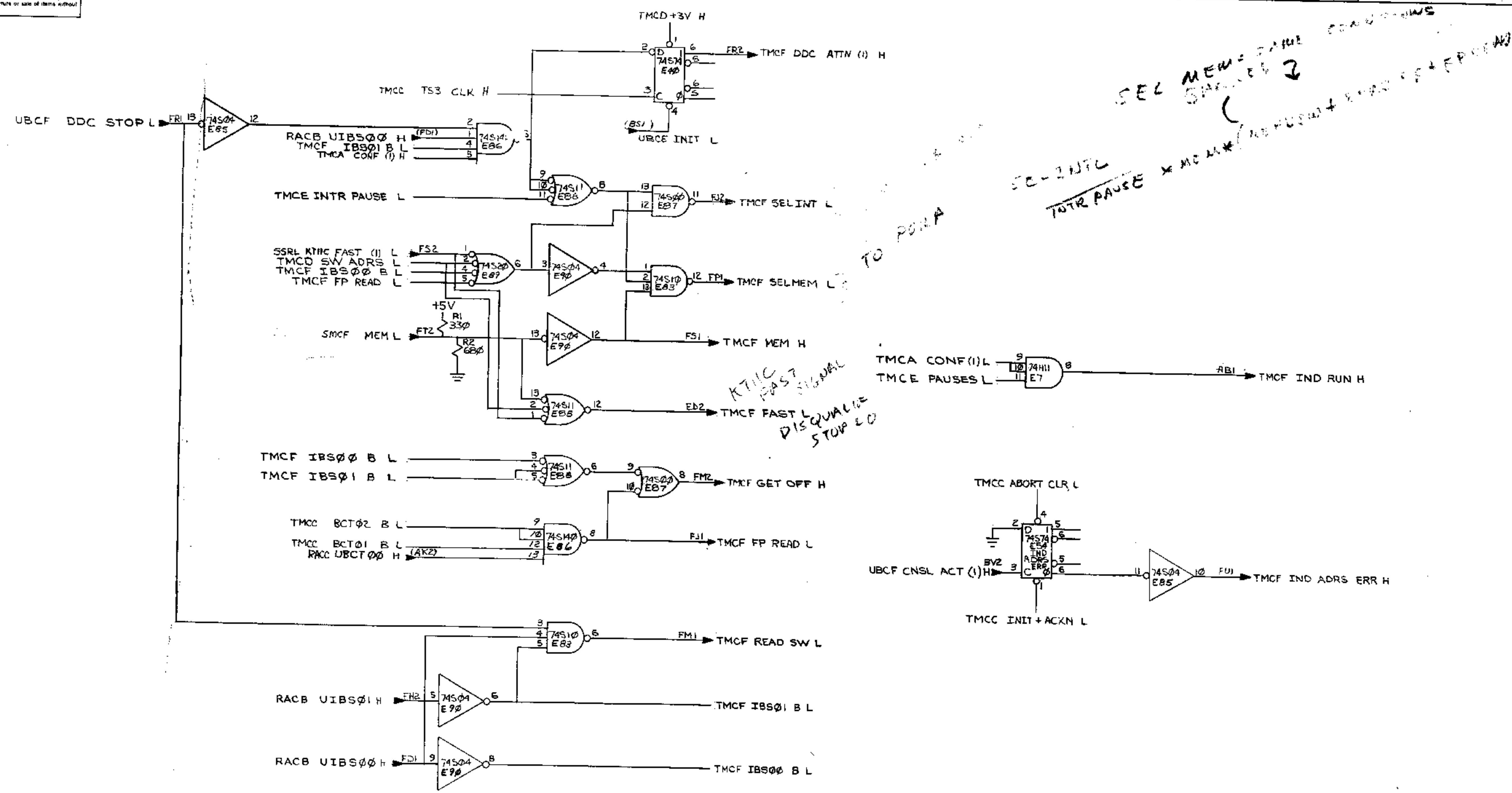
NEXT HIGHER ASSY -11/45-Ø

SCALE —//— SHEET 6 OF 7

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE TRAP & MSC CONTROL (TMCE)

SIZE D CODE CS NUMBER M81Ø5-Ø-1 REV K



BRMX SELECTION; FP READ SLOT 11

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX = .008, .XX = .02, X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL: —//—
FINISH: —//—

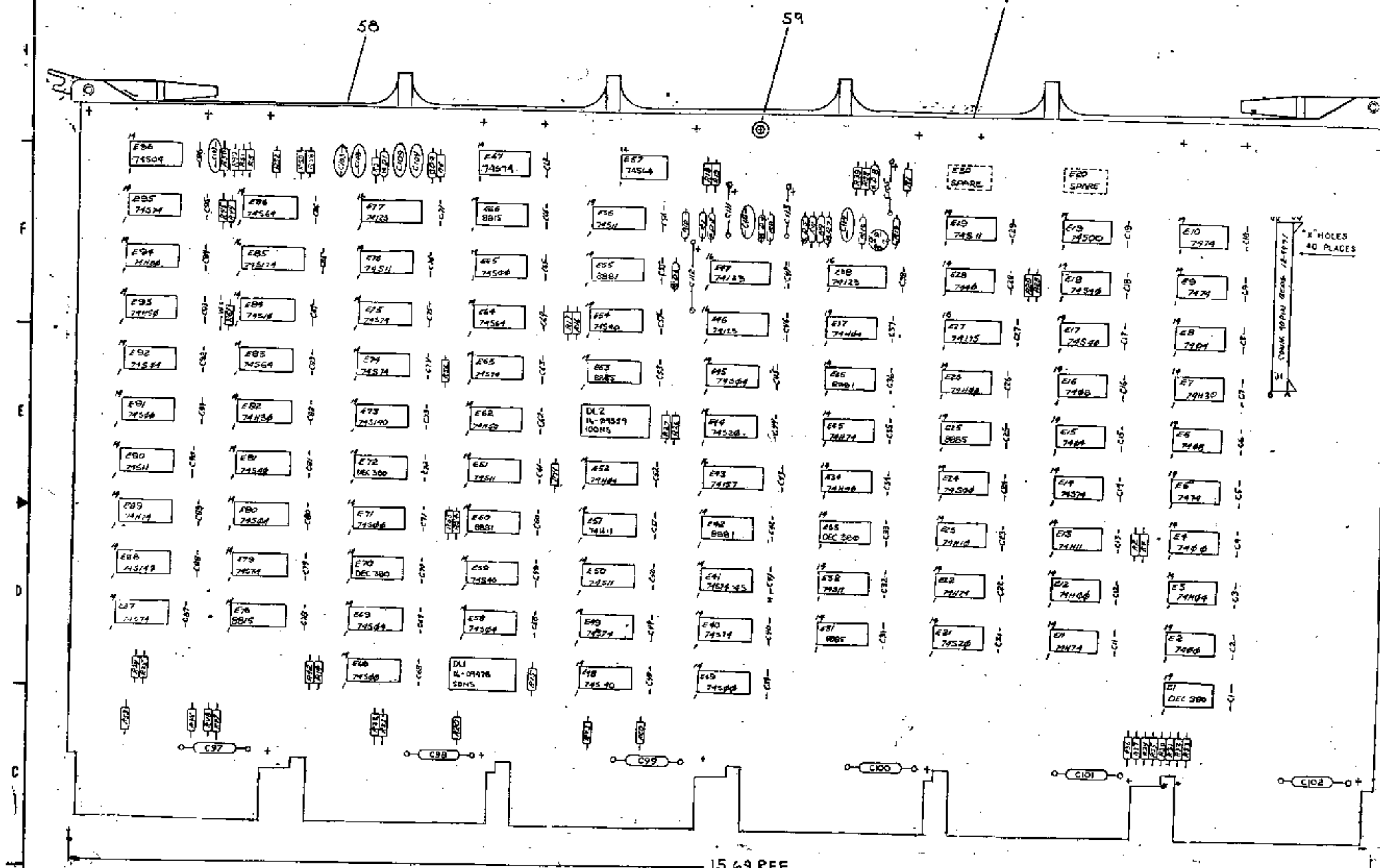
DRN DATE 6-28-71 · CHK'D DATE 3/6/72 · ENG DATE 3/6/72 · PROJ ENG DATE 3/6/72 · PROD DATE 3/5/72

NEXT HIGHER ASSY: B-DD-11/45-0
SCALE —/—
SHEET 7 OF 7

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: TRAP & MSC CONTROL (TMCF)

SIZE D · CODE CS · NUMBER M8105-0-1 · REV. K



NOTES:

1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS. WITHOUT VALUE NOTED ARE .01 MFD
2. RESISTOR R19, R49, R51, R54 AND R59 ARE SPARES—NO VALUES ASSIGNED

AA2, AV1, BA2, BV1, CA2, CV1, DA2, DV1, EA2, EV1, FA2, FV2 → +5 V

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

+5 V — 6.8 μf (C97 THRU C102, C112) — .01 MFD (C1 THRU C19, C21 THRU C29, C31 THRU C56, C58 THRU C96) — GND

IC TYPE	GND	+5V
DEC 74175	8	16
DEC 74157	8	16

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DEC 3009 B	2N3009	
DEC 6664	1N...	

SEMICONDUCTOR CONVERSION CHART

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
A/R		INSULATED JUMPERS 22AWG	9107350	62
A/R	W1	22 AWG BUSS WIRE	9107560-01	61
1		CONN, BERG (40 PIN)	1209941	60
2		EYELET	9006732	59
1		HANDLE, MODULE	E-PS-210711-2	58
1	E41	IC DEC 74S74-45	1910950	57
2	E66, E78	IC DEC 8815	1909713	56
3	E25, E31, E53	IC DEC 8885	1910649	55
4	E34, E42, E55, E60	IC DEC 8881	1909705	54
4	E, E33, E70, E72	IC DEC 380	1909985	53
1	E27	IC DEC 74175	1910651	52
1	E85	IC DEC 74S174	1910550	51
1	E43	IC DEC 74157	1910655	50
2	E73, E88	IC DEC 74S140	1910546	49
4	E38, E46, E47, E77	IC DEC 74123	1910436	48
10	E4, E40, E49, E63, E67, E74, E79, E87, E95, E75	IC DEC 74S74	1910544	47
4	E11, E22, E35, E89	IC DEC 74H74	1909667	46
3	E5, E9, E10	IC DEC 7474	1905547	45
4	E24, E83, E86, E57	IC DEC 74S64	1910542	44
2	E62, E93	IC DEC 74H50	1909060	43
6	E17, E18, E48, E54, E59, E81	IC DEC 74S40	1910541	42
1	E14	IC DEC 74H40	1905586	41
1	E28	IC DEC 7440	1905579	40
2	E7, E82	IC DEC 74H30	1909059	39
2	E21, E44	IC DEC 74S20	1910539	38
7	E19, E32, E50, E56, E61, E76, E90	IC DEC 74S11	1910537	37
2	E13, E51	IC DEC 74H11	1909267	36
1	E84	IC DEC 74S10	1910536	35
1	E23	IC DEC 74H10	1909057	34
2	E6, E16	IC DEC 7408	1910155	33
6	E45, E58, E69, E80, E92, E96	IC DEC 74S04	1910534	32
3	E3, E37, E52	IC DEC 74H04	1909931	31
2	E8, E15	IC DEC 7404	1909686	30
7	E1, E24, E39, E65, E68, E71, E91	IC DEC 74S00	1910532	29
3	E12, E26, E94	IC DEC 74H00	1909056	28
2	E2, E9	IC DEC 7400	1905575	27
1	DL2	DELAY LINE 100NS	1609559	26
1	DL1	DELAY LINE 50NS	1609428	25
1	Q1	TRANSISTOR DEC 3009B	1503100	24
1	R10	RESISTOR 30K, 1/4W, 5%	1302394	23
2	R7, R11	RESISTOR 20K, 1/4W, 5%	1302391	22
5	R1, R3, R6, R8, R9	RESISTOR 15K, 1/4W, 5%	1300496	21
1	R12	RESISTOR 3.9K, 1/4W, 5%	1300449	20
9	R5, R13, R26, R27, R61, R42, R43, R46, R53	RESISTOR 1K, 1/4W, 5%	1300365	19
4	R4, R23, R25, R39	RESISTOR 680Ω, 1/4W, 5%	1301424	18
8	R17, R28, R31, R33, R35, R37, R45, R48	RESISTOR 390Ω, 1/4W, 5%	1300309	17
4	R2, R22, R24, R38	RESISTOR 330Ω, 1/4W, 5%	1300295	16
8	R16, R29, R30, R32, R34, R36, R44, R47	RESISTOR 180Ω, 1/4W, 5%	1301322	15
8	R15, R41, R52, R55, R56, R58, R60, R20	RESISTOR 150Ω, 1/4W, 5%	1300250	14
1	R50	RESISTOR 120Ω, 1/4W, 5%	1300247	13
2	R14, R18	RESISTOR 100Ω, 1/4W, 5%	1300229	12
8	D1 THRU D8	DIODE D664	1100114	11
2	C111, C113	CAPACITOR .47μf, 35V, 10%	1005965	10
3	C107, C110, C114	CAPACITOR 330PF, 100V, 5%	1000023	9
1	C105	CAPACITOR 2.2μf, 20V, 10%	1002627	8
4	C103, C104, C108, C109	CAPACITOR 1200PF, 100V, 5%	1002424	7
7	C97 THRU C102, C112	CAPACITOR 6.8μf, 35V, 20%	1000067	6
93	C1 THRU C19, C21 THRU C29, C31 THRU C56, C58 THRU C96	CAPACITOR .01μf, 100V, 20% DISC	1001610	5
1		ETCHED CIRCUIT BOARD	5009802	4
REF		MODULE ECO HISTORY	B-MH-M8106-0-6	3
REF		ASSY/DRILLING HOLE LOCATION	E-AH-M8106-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-LO-M8106-0-4	1

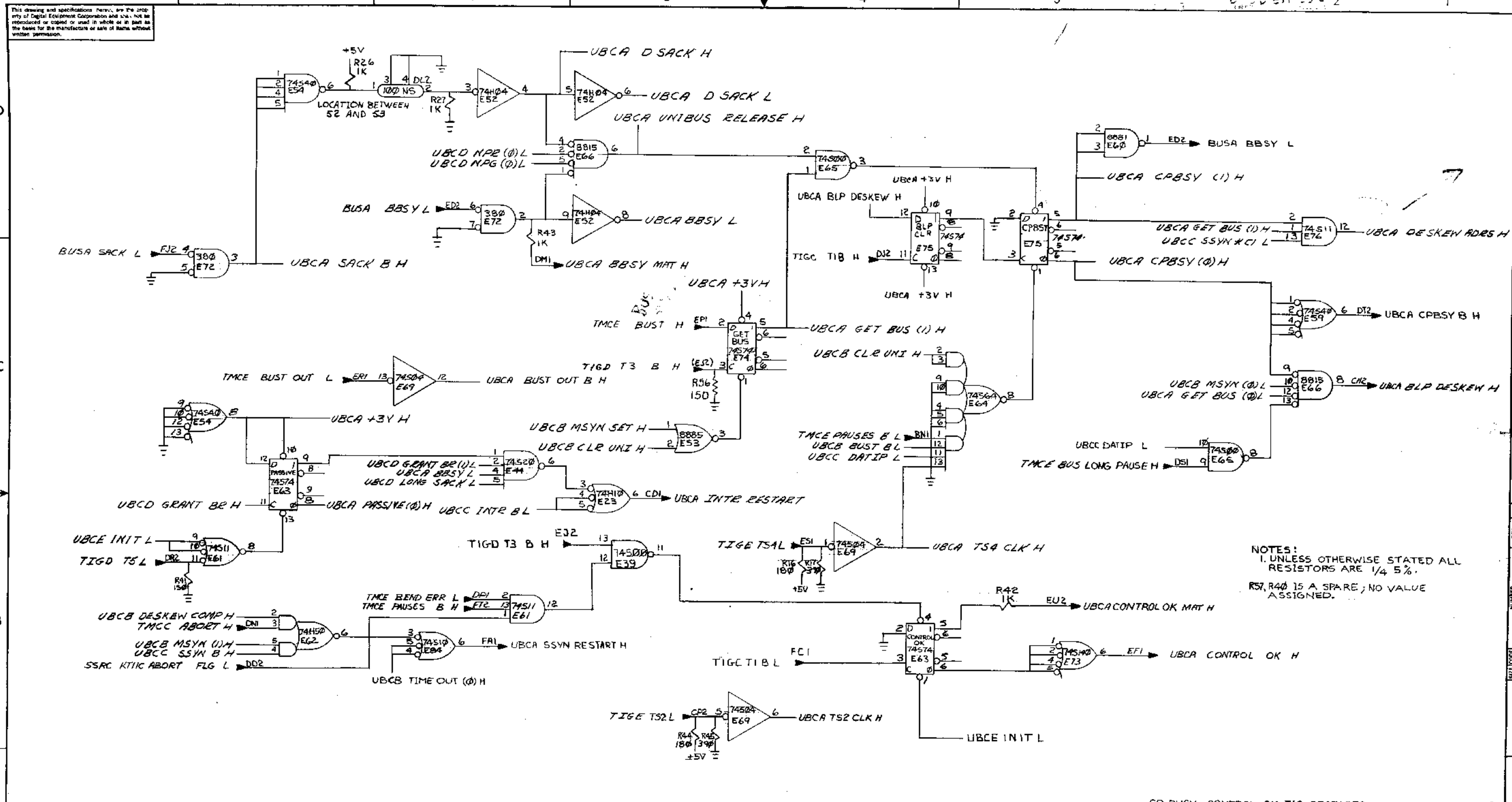
PARTS LIST

ETCH BOARD REV F

DIGITAL EQUIPMENT CORPORATION

UNIBUS & CONSOLE CONTROL

E CS M8106-0-1


UBCA D SACK H
UBCA D SACK L
UBCA UNIBUS RELEASE H
LOCATION BETWEEN 52 AND 53
UBCD NPR (Ø) L
UBCD NPG (Ø) L
BUSA BBSY L
UBCA BBSY L
UBCA BBSY MAT H
BUSA SACK L
UBCA SACK B H
BUSA BBSY L
UBCA CPBSY (1) H
UBCA BLP DESKEW H
UBCA +3V H
TIGC T1B H
UBCA GET BUS (1) H
UBCC SSYN*C1 L
UBCA DESKEW ADRS H
UBCA CPBSY (Ø) H
UBCA CPBSY B H
UBCB MSYN (Ø) L
UBCA GET BUS (Ø) L
UBCA BLP DESKEW H
UBCC DATIP L
TMCE BUS LONG PAUSE H
TMCE BUST H
TIGD T3 B H
UBCB CLR UNI H
TMCE BUST OUT L
UBCA BUST OUT B H
UBCB MSYN SET H
UBCB CLR UNI H
TMCE PAUSES B L
UBCB BUST B L
UBCC DATIP L
UBCD GRANT BR (1) L
UBCA BBSY L
UBCD LONG SACK L
UBCA INTR RESTART
UBCD GRANT BR H
UBCA PASSIVE (Ø) H
UBCC INTR B L
UBCE INIT L
TIGD T5 L
TIGE T5 L
UBCA T54 CLK H
TMCE BEND ERR L
TMCE PAUSES B H
UBCB DESKEW COMP H
TMCC ABORT H
UBCB MSYN (1) H
UBCC SSYN B H
SSRC KTIIC ABORT FLG L
UBCA SSYN RESTART H
UBCB TIME OUT (Ø) H
UBCA CONTROL OK MAT H
TIGC T1 B L
UBCA CONTROL OK H
TIGE T52 L
UBCA T52 CLK H
UBCE INIT L

NOTES:
1. UNLESS OTHERWISE STATED ALL RESISTORS ARE 1/4 5%.

R57, R40 IS A SPARE; NO VALUE ASSIGNED.

CP BUSY; CONTROL OK; TIG RESTARTS — SLOT 12

FIRST USED ON OPTION/MODEL: 11/45

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 —//—

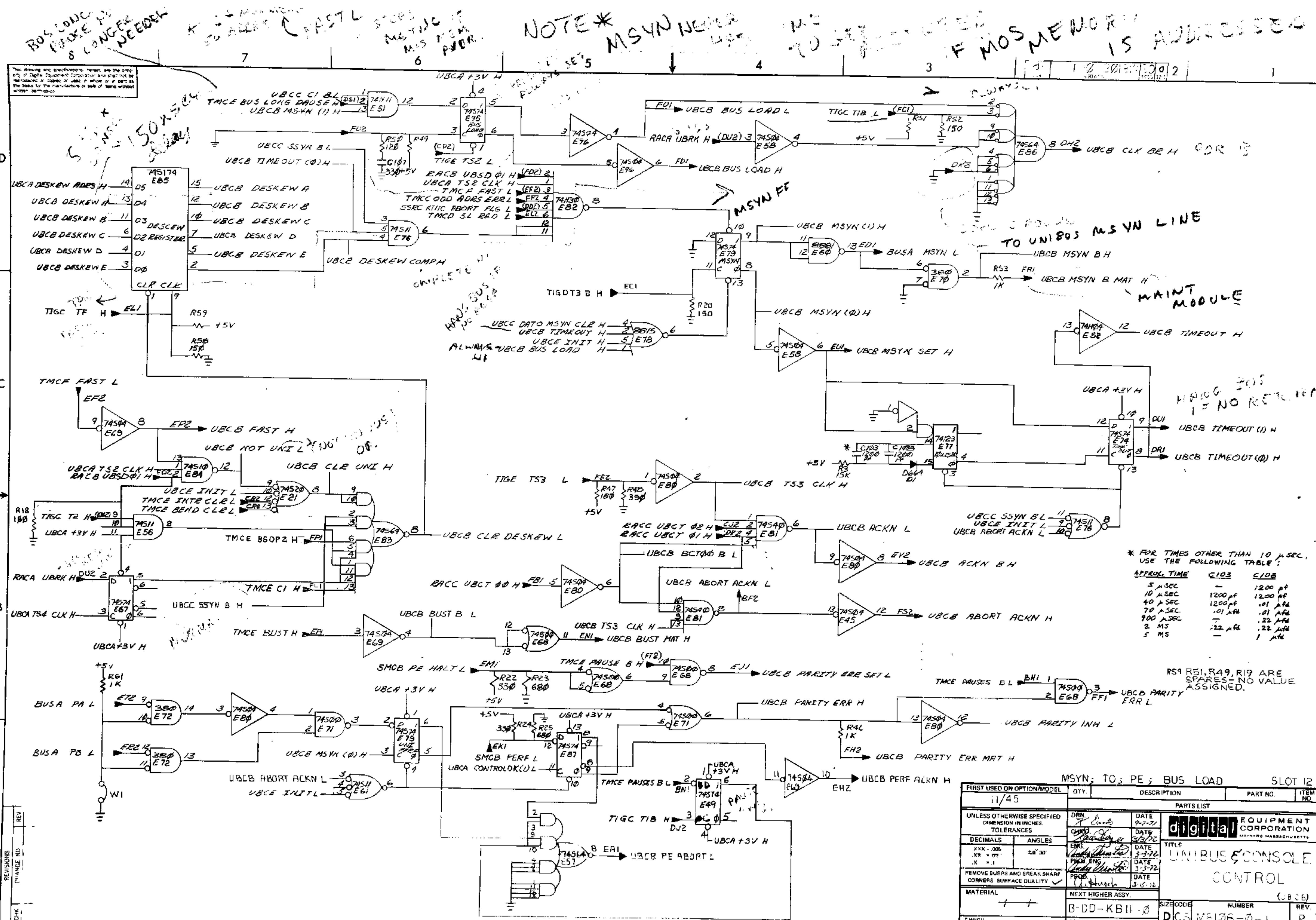
NEXT HIGHER ASSY. B-DD-KB11-Ø

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCA)

SIZE D CODE CS NUMBER M8106-Ø-1 REV. P

SCALE —//— SHEET 2 OF 4



* FOR TIMES OTHER THAN 10 μSEC, USE THE FOLLOWING TABLE:

APPROX. TIME	C103	C108
5 μSEC	—	1200 pf
10 μSEC	1200 pf	1200 pf
40 μSEC	1200 pf	.01 μfd
70 μSEC	.01 μfd	.01 μfd
900 μSEC	—	.22 μfd
2 MS	.22 μfd	.22 μfd
5 MS	—	1 μfd

R59 R51, R49, R19 ARE SPARES – NO VALUE ASSIGNED.

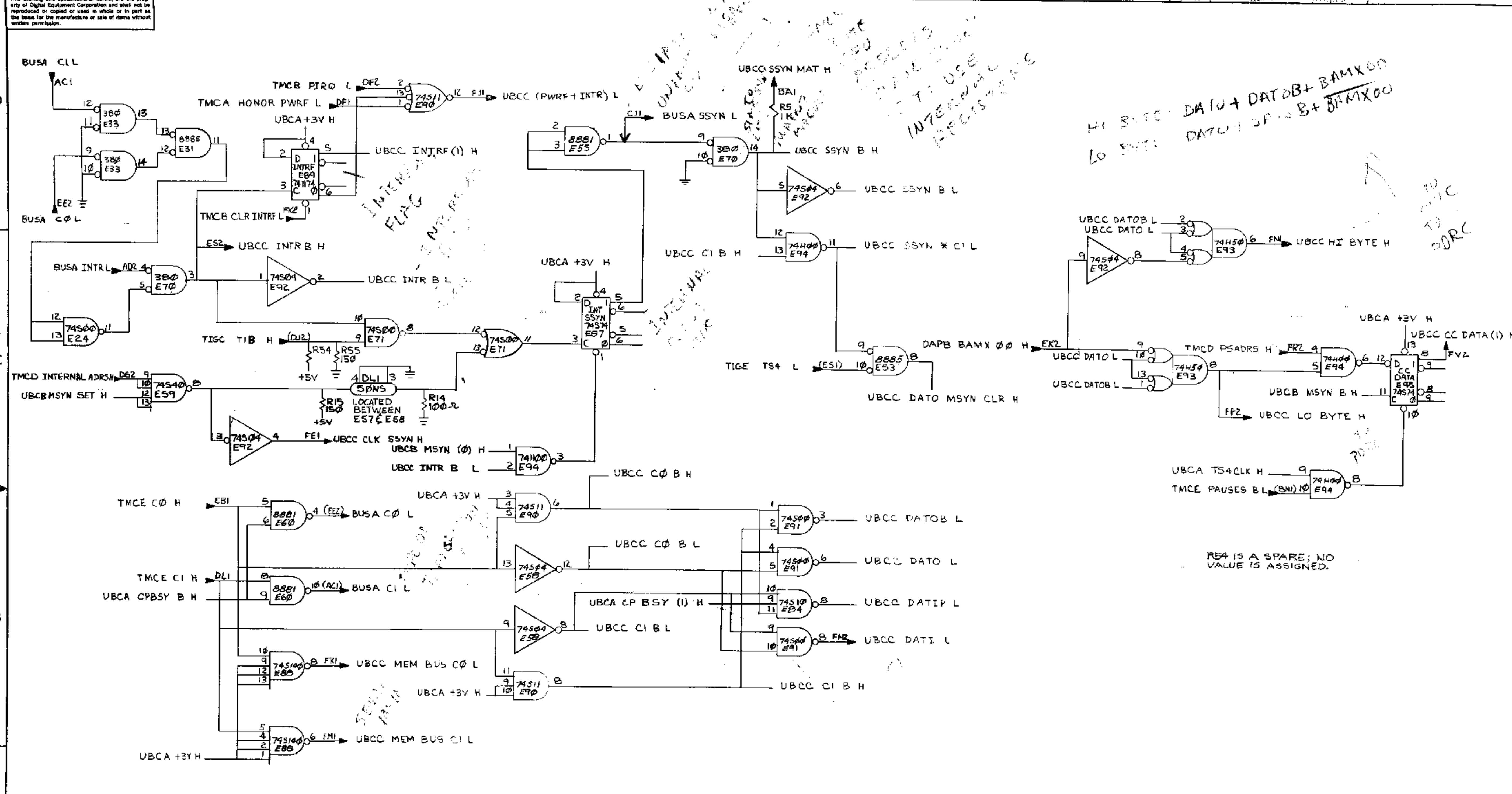
MSYN; TO; PE; BUS LOAD — SLOT 12

FIRST USED ON OPTION/MODEL	11/45
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 9-7-71
CHKD.	DATE 3/3/72
ENG.	DATE 3-3-72
PROJ. ENG.	DATE 3-3-72
PROD.	DATE 3-15-72
NEXT HIGHER ASSY.	B-DD-KB11-Ø
SCALE	—
SHEET	3 OF 14

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBC6)

SIZE D — CODE CS — NUMBER M8106-Ø-1 — REV. P



INTERNAL SSYN; INTRF; CC DATA — SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 24JUN71 · CHKD 3/3/72 · ENG 3-5-72 · PROD 3-5-72

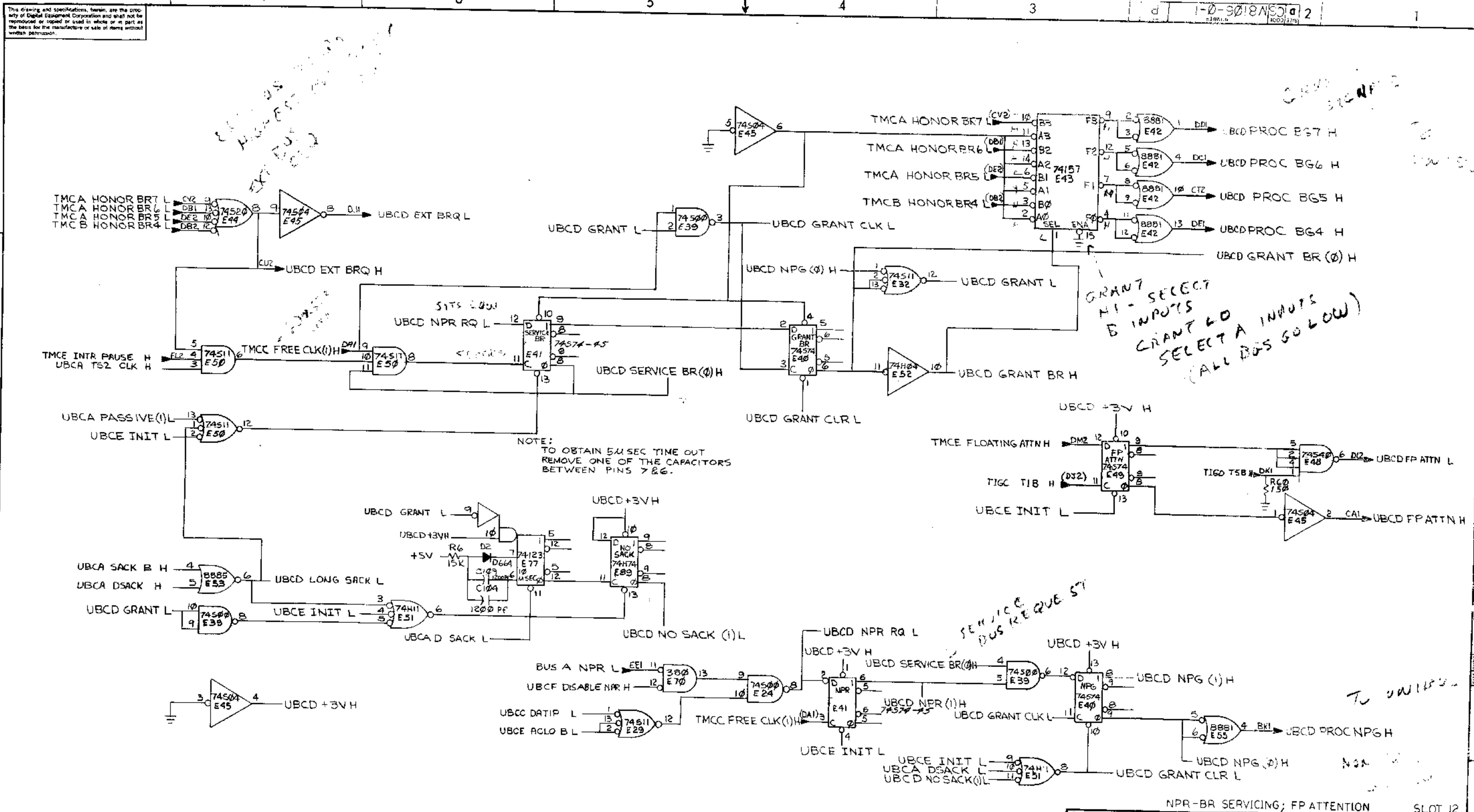
NEXT HIGHER ASSY. B-DD-KB11-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCC)

SIZE D · CODE CS · NUMBER M81Ø6-Ø-1 · REV. P

SCALE —/— · SHEET 4 OF 14


TMCA HONOR BR7 L
TMCA HONOR BR6 L
TMCA HONOR BR5 L
TMCB HONOR BR4 L
UBCD EXT BRQ L
UBCD EXT BRQ H
UBCD GRANT L
UBCD GRANT CLK L
UBCD PROC BG7 H
UBCD PROC BG6 H
UBCD PROC BG5 H
UBCD PROC BG4 H
UBCD GRANT BR (Ø) H
UBCD NPG (Ø) H
UBCD NPR RQ L
TMCE INTR PAUSE H
UBCA TS2 CLK H
TMCC FREE CLK(1)H
UBCD SERVICE BR(Ø)H
UBCD GRANT BR H
UBCD GRANT CLR L
UBCA PASSIVE(1)L
UBCE INIT L
NOTE:
TO OBTAIN 5 μSEC TIME OUT
REMOVE ONE OF THE CAPACITORS
BETWEEN PINS 7&6.
UBCD +3V H
TMCE FLOATING ATTN H
TIGC T18 H
TIGD T58 H
UBCD FP ATTN L
UBCD FP ATTN H
UBCA SACK B H
UBCA DSACK H
UBCD LONG SACK L
UBCA D SACK L
UBCD NO SACK (1) L
BUS A NPR L
UBCF DISABLE NPR H
UBCC DATIP L
UBCE ACLO B L
UBCD NPR (1) H
UBCD GRANT CLK L
UBCD NPG (1) H
UBCD PROC NPG H
UBCA DSACK L
UBCD NO SACK(1)L
UBCD GRANT CLR L
GRANT HI - SELECT B INPUTS
GRANT LO SELECT A INPUTS (ALL BUS GO LOW)
SERVICE BUS REQUEST

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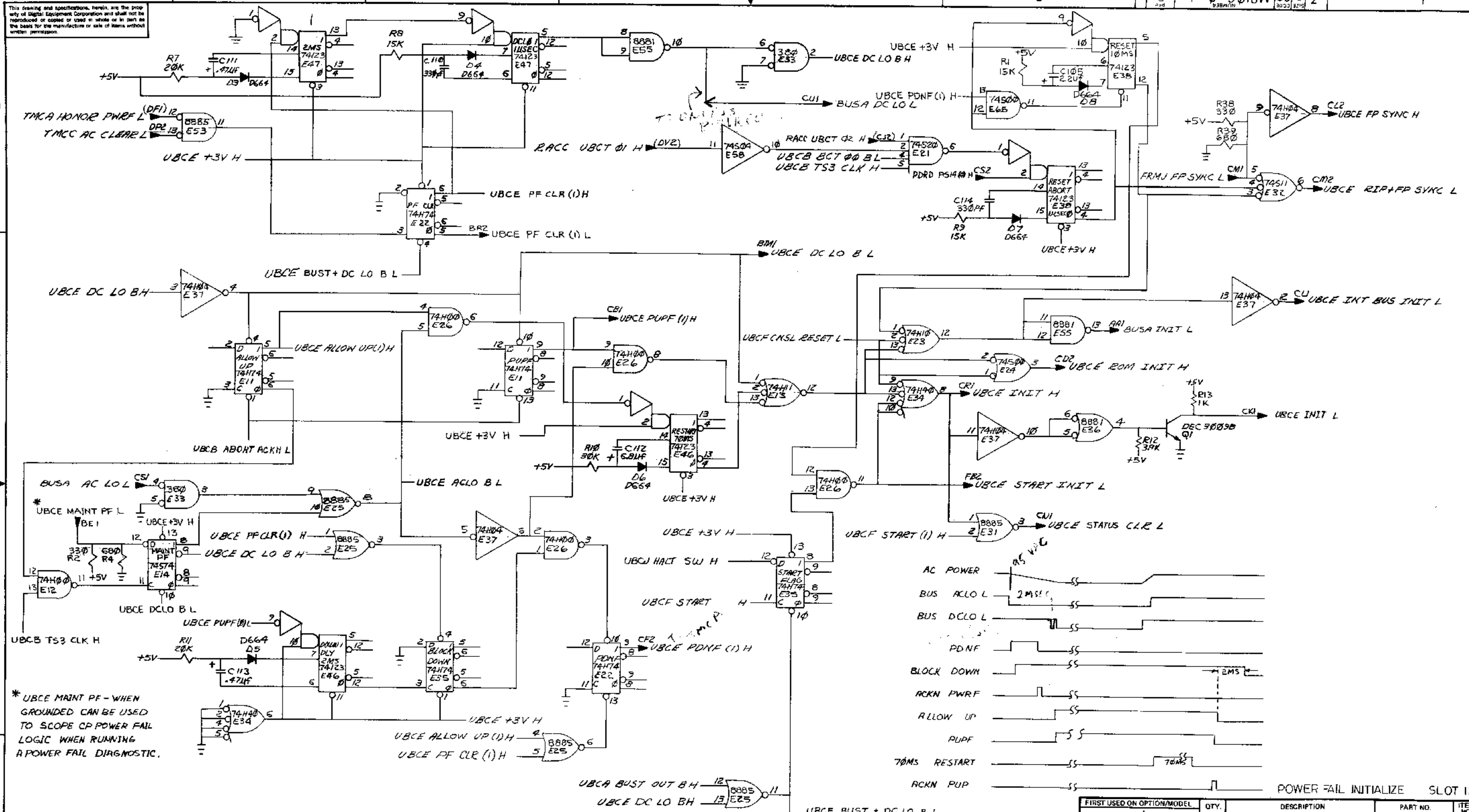
NPR-BR SERVICING; FP ATTENTION — SLOT 12

FIRST USED ON OPTION/MODULE	11/45
NEXT HIGHER ASSY.	8-DD-KB11-Ø
TITLE	UNIBUS & CONSOLE CONTROL (UBCD)
SIZE	D
CODE	CS
NUMBER	M8106-Ø-1
REV	P
SHEET	5 OF 14

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS



POWER FAIL INITIALIZE SLOT 12

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FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 —

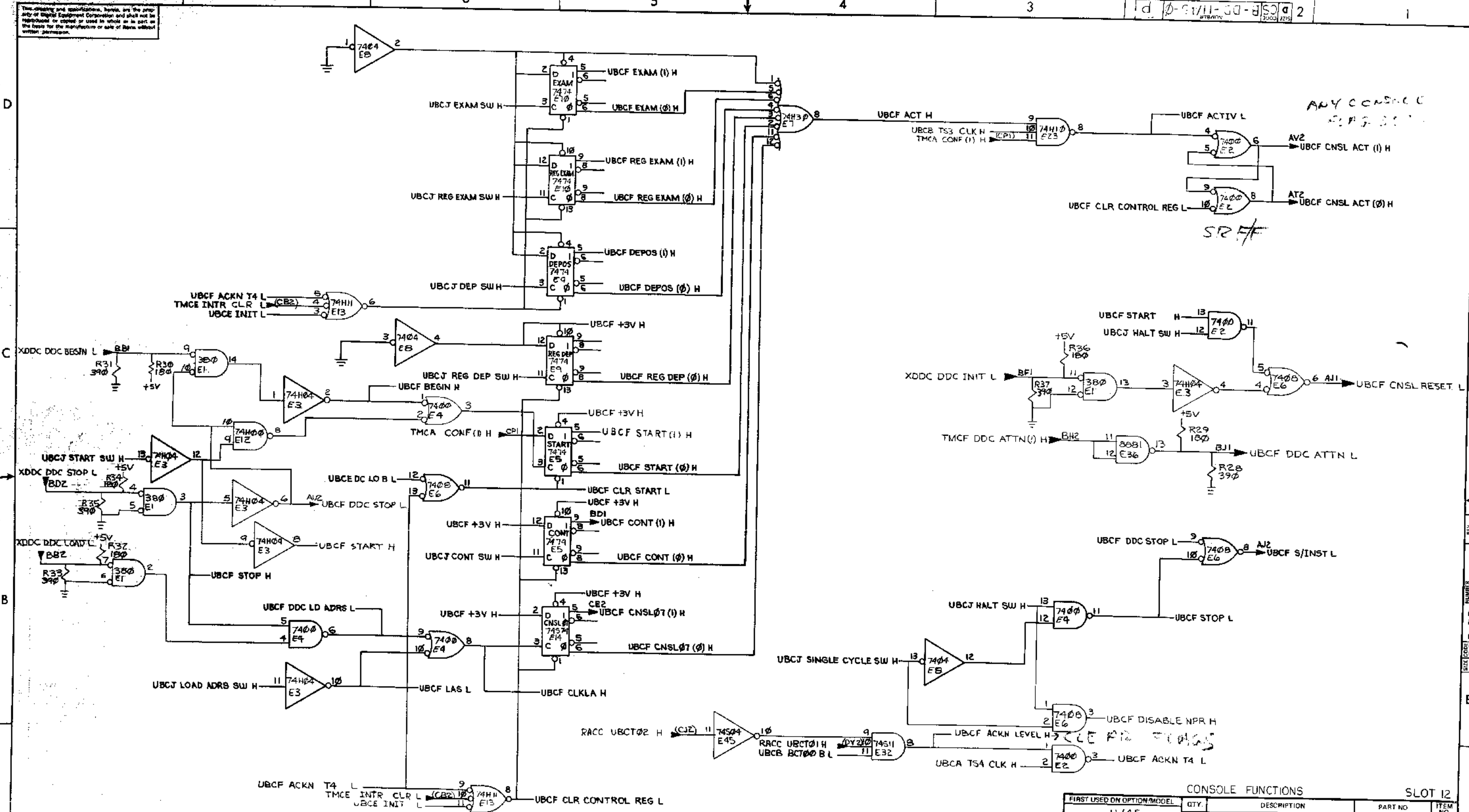
DRN. DATE 6-25-71
CHKD. DATE 3-3-72
ENG. DATE 3-3-72
PROJ ENG. DATE 3-3-72
PROD. DATE 3-5-72
NEXT HIGHER ASSY. B-DD-KB11-Ø
SCALE —
SHEET 6 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE UNIBUS & CONSOLE CONTROL (UBCE)

SIZE D CODE CS NUMBER M8106-Ø-1 REV. P

DEC FORM NO DRD 102-B



CONSOLE FUNCTIONS

SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		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. S.W. Rohde DATE 6/25/71

DATE 3-3-72

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE UNIBUS & CONSOLE CONTROL (UBCF)

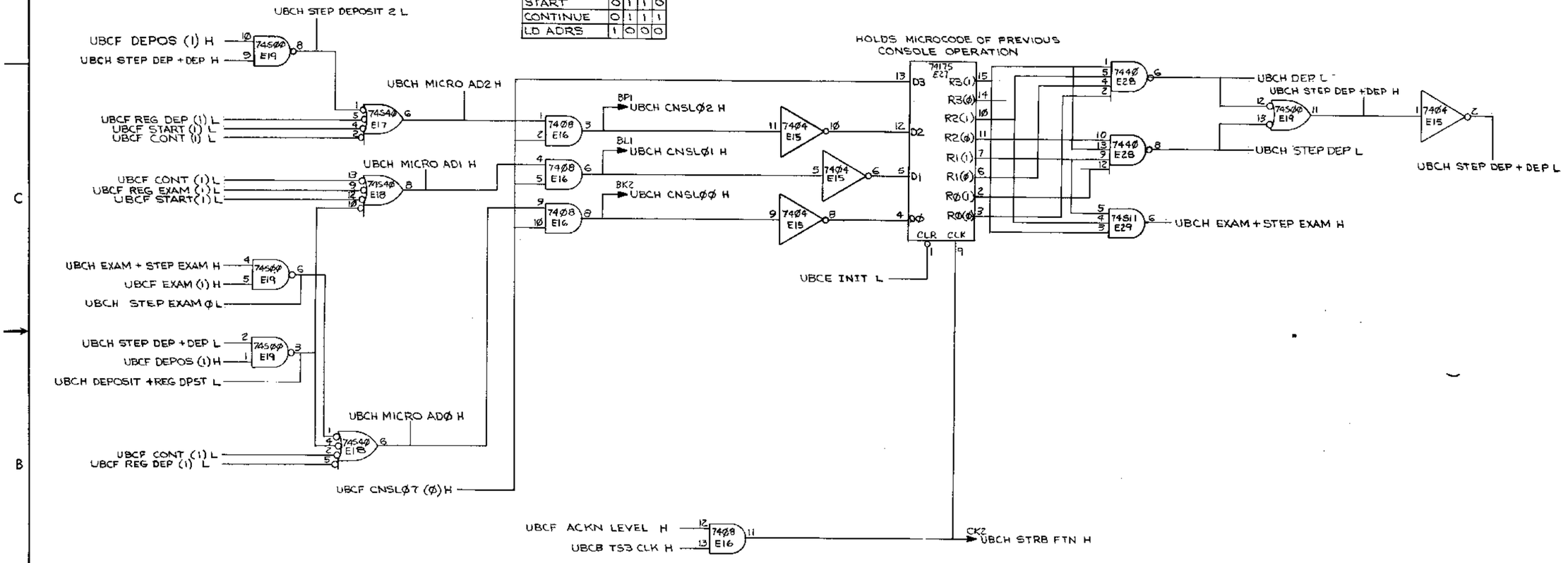
NEXT HIGHER ASSY. B-DD-KB11-Ø

SIZE D CODE CS NUMBER M81Ø6-Ø-1 REV. P

SCALE —/— SHEET 7 OF 14

D CS B-DD-11/45-Ø P

CONSOLE FUNCTION	MICRO ADRS BIT 7	2	1	0
EXAM	0	0	0	0
STEP EXAM	0	0	0	1
REG EXAM	0	0	1	0
DEPOSIT	0	0	1	1
STEP DEPOSIT	0	1	0	0
REG DEPOSIT	0	1	0	1
START	0	1	1	0
CONTINUE	0	1	1	1
LD ADRS	1	0	0	0



CONSOLE µ ADRS — SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 6/24/72
CHKD. — DATE 6/24/72
ENG. — DATE 7-3-72
PROJ ENG. — DATE 7-3-72
PROOF — DATE 7-15-72
NEXT HIGHER ASSY. B-DD-KB11-Ø
SCALE —
SHEET 8 OF 14

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCH)

SIZE D | CODE CS | NUMBER M81Ø6-Ø-1 | REV. P | DIST.

REVISIONS | CHK

DEC FORM NO DRD 102-B

TMCE INTR PAUSE L — BM2 — pin 1
TMCE PAUSE SB L — (BN1) — pin 2
74H000 E12 pin 3 — UBCJ IND PAUSE H

TMCA CONF(1) L — BL2 — pin 4
UBCA CPBSY(1) L — pin 5
74H000 E12 pin 6 — UBCJ IND MASTER H

UBC/KNL INTERFACE

SIGNALS TO CONSOLE		SIGNALS FROM CONSOLE
SAPK DISP ADRSØØ H	AM2	A
SAPK DISP ADRSØ1 H	AM1	B
SAPK DISP ADRS02 H	AL1	C
SAPK DISP ADRS03 H	AK1	D
SAPK DISP ADRS04 H	AL2	E
SAPK DISP ADRS05 H	AP1	F
SAPK DISP ADRS06 H	AK1	H
SAPK DISP ADRS07 H	AP2	J
SAPK DISP ADRS08 H	AK2	K
SAPK DISP ADRS09 H	AR1	L
SAPK DISP ADRS1Ø H	AH2	M
SAPK DISP ADRS11 H	AR2	N
SAPK DISP ADRS12 H	AE2	P
SAPK DISP ADRS13 H	AS1	R
SAPK DISP ADRS14 H	AE1	S
SAPK DISP ADRS15 H	AS2	T
SAPK DISP ADRS16 H	AF1	U
SAPK DISP ADRS17 H	AU1	V
	AD1	W
UBCJ IND PAUSE H		X
TMCF IND ADRS ERR H	FS1	Y
UBCJ IND MASTER H		Z
TMCF IND RUN H	AB2	AA
	BS1	BB → UBCJ DISP ADRS SELØ H
	BT2	CC → UBCJ DISP ADRS SEL1 H
	AF2	DD → UBCJ PNL LOCK H
	BS2	EE → UBCJ CONT SW H
	BV2	FF → UBCJ SINGLE CYCLE SW H
		HH → UBCJ LOAD ADRS SW H
SSRB SRØ MODE 1 H	BC1	JJ
		KK → UBCJ START SW H
SAPA IND DATA H	BE2	LL
		MM → UBCJ REG EXAM SW H
		NN → UBCJ EXAM SW H
+5VB		PP
		RR → UBCJ REG DEP SW H
	AB1	SS → UBCJ DISP ADRS SEL2 H
		TT → UBCJ DEP SW H
		UU
		VV
	BU2	→ UBCJ HALT SW H

7008864

CONSOLE CABLE; INDICATORS SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		--

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: XXX ± .005, XX ± .01, .X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL —
FINISH —

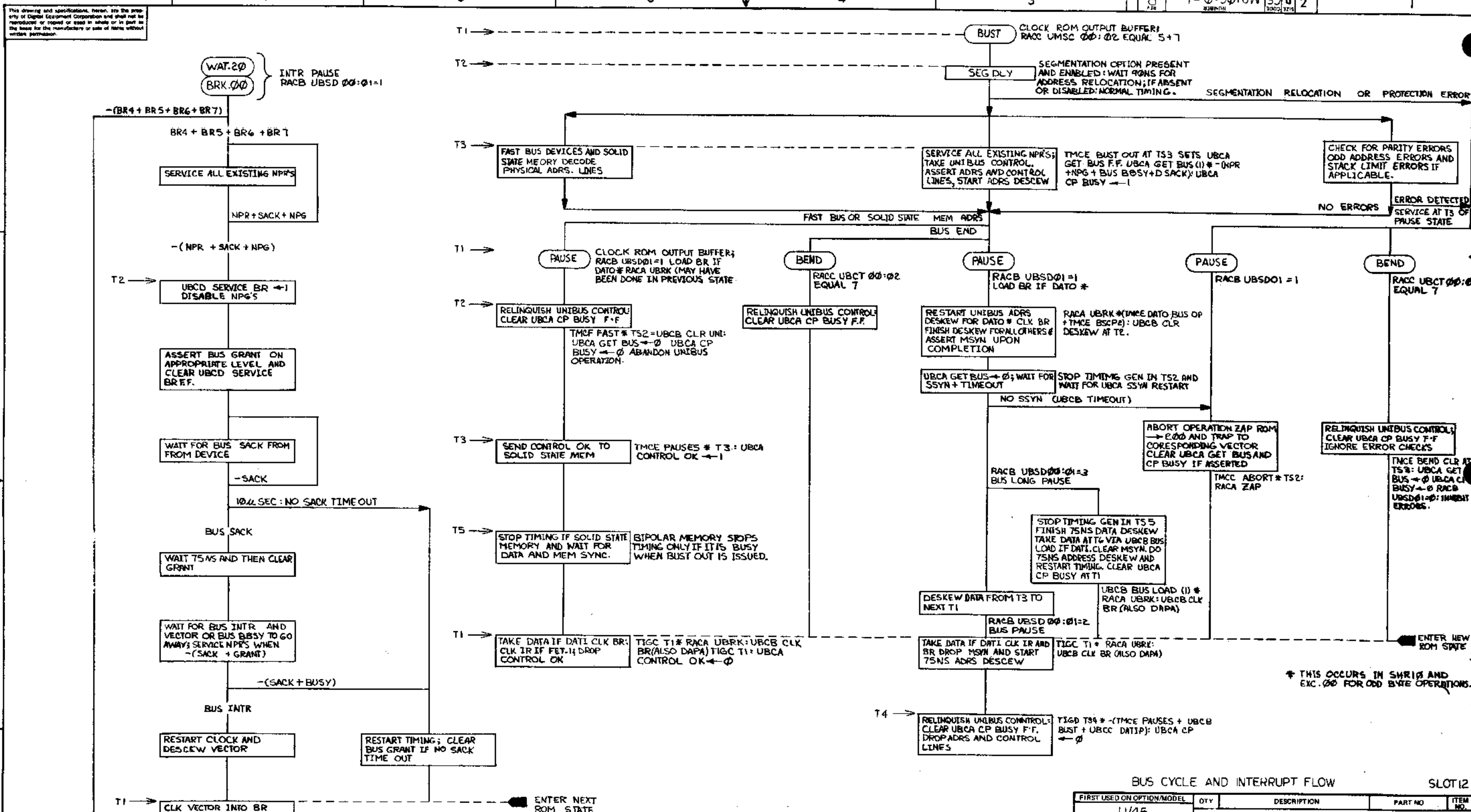
DRN. — DATE 6-25-71
CHKD. — DATE 3/3/72
ENG. — DATE 3-3-72
PROJ ENG. — DATE —-72
PROG. — DATE 7-15-72
NEXT HIGHER ASSY. B-LD-KB11-Ø

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCJ)

SIZE D | CODE CS | NUMBER M8106-Ø-1 | REV. P
SHEET 9 OF 14 | DIST

M8106-Ø-1 REV P
SIZE D CODE CS



NOTE:
IF PROCESSOR HAS M8104 REV "C" AND KB11-A ECO #13 USE PRINT UBCN FOR UNIBUS TIMING.

BUS CYCLE AND INTERRUPT FLOW — SLOT 12

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
11/45		PARTS LIST		

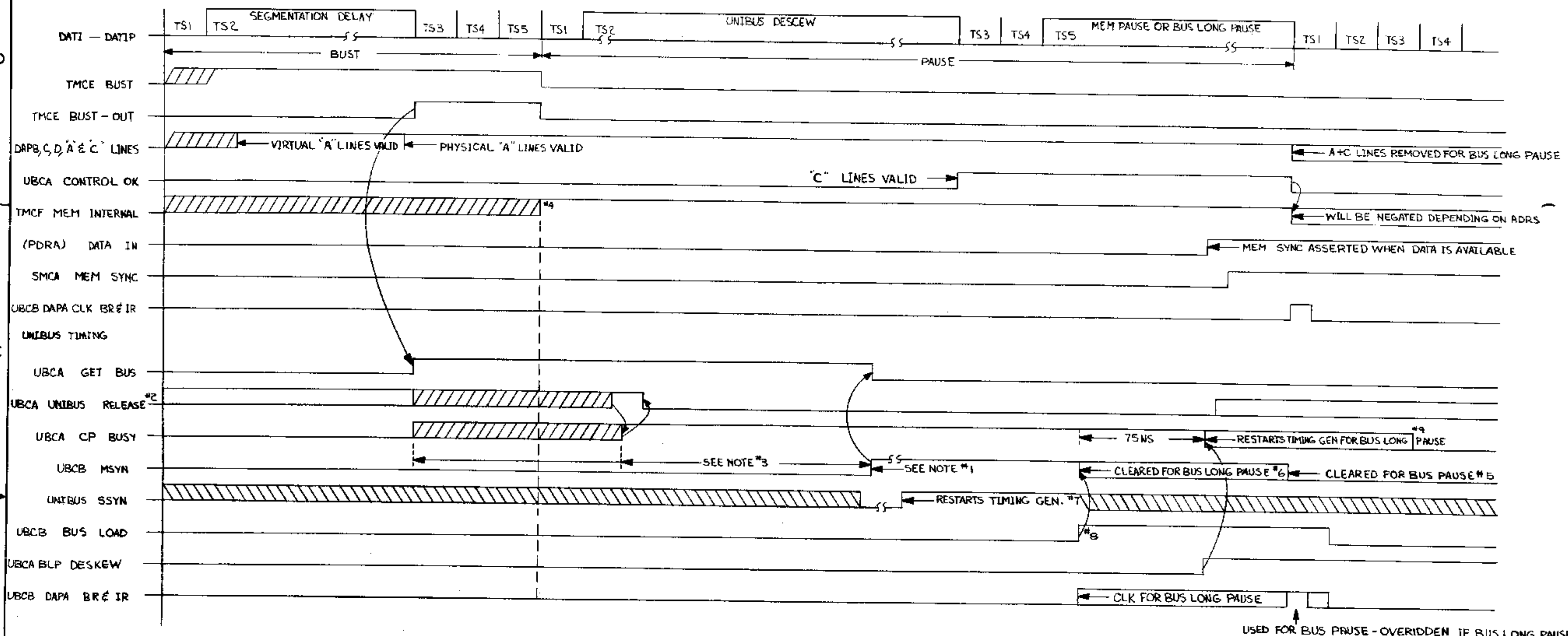
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS .XXX ± .005, .XX ± .02, .X ± .1 — ANGLES ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL — FINISH

DRN 3/14/72 · CHKD 4/20/72 · ENG · PROJ ENG · PROD 5/1/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCK)

NEXT HIGHER ASSY. B-DD-KB11-A
SIZE D · CODE CS · NUMBER M8106-Ø-1 · REV P
SHEET 10 OF 14



1. MSYN IS NOT SET IF ODD ADRS, SEGMENTATION, PARITY OR STACK LIMIT ERROR HAS OCCURED. ERROR CONDITION RESTARTS TIMING GENERATOR AND ROM IS FORCED TO ZAP.ØØ
2. UNIBUS RELEASE = -(NPG + NPR + DSACK + BBSY)
3. MSYN IS SET 150 NS AFTER CP BUSY IS SET OR WHENEVER SSYN IS NOT PRESENT AFTER THE 150NS DESCEW
4. IF ADRS IS INTERNAL OR SOLID STATE MEMORY UNIBUS CNTL LOGIC IS CLEARED, DESCEW STOPPED, MSYN NOT ASSERTED.
5. BUS PAUSE - ADRS WILL NOT BE CHANGED IMMEDIATELY UPON EXITING PAUSE STATE
6. BUS LONG PAUSE - 75NS ADRS DESCEW AFTER NEGATION OF MSYN MUST BE DONE BEFORE TIMING GEN. RESTARTS AT T5 OF PAUSE CYCLE BECAUSE "A" & C LINES WILL CHANGE UPON EXITING PAUSE STATE.
7. IF NON-EXISTANT MEMORY, TIMEOUT RESTARTS CLOCK.
8. BUS LOAD IS SET ONE CLOCK AFTER T5 TO ALLOW COMPLETION OF WRITE TO SCRATCHPAD FOR PREVIOUS CYCLE BEFOR NEW IR & BR ARE LOADED
9. CLEARED 75NS AFTER MSYN → Ø: T4 FOR BUS PAUSE

NOTE:
IF PROCESSOR HAS M8104 REV "C" AND KB11-A ECO #13 USE PRINT UBCP FOR UNIBUS TIMING.

DATI - DATIP TIMING DIAGRAM

SLOT 12

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

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .01, .X ± .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓
MATERIAL —
FINISH —

DRN — DATE 4/12/72
CHKD — DATE 4/17/72
ENG. — DATE 4/17/72
PROJ. ENG. — DATE 4/17/72
PROD. — DATE 5-1-72

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCL)

NEXT HIGHER ASSY: B-DD-KB11-A

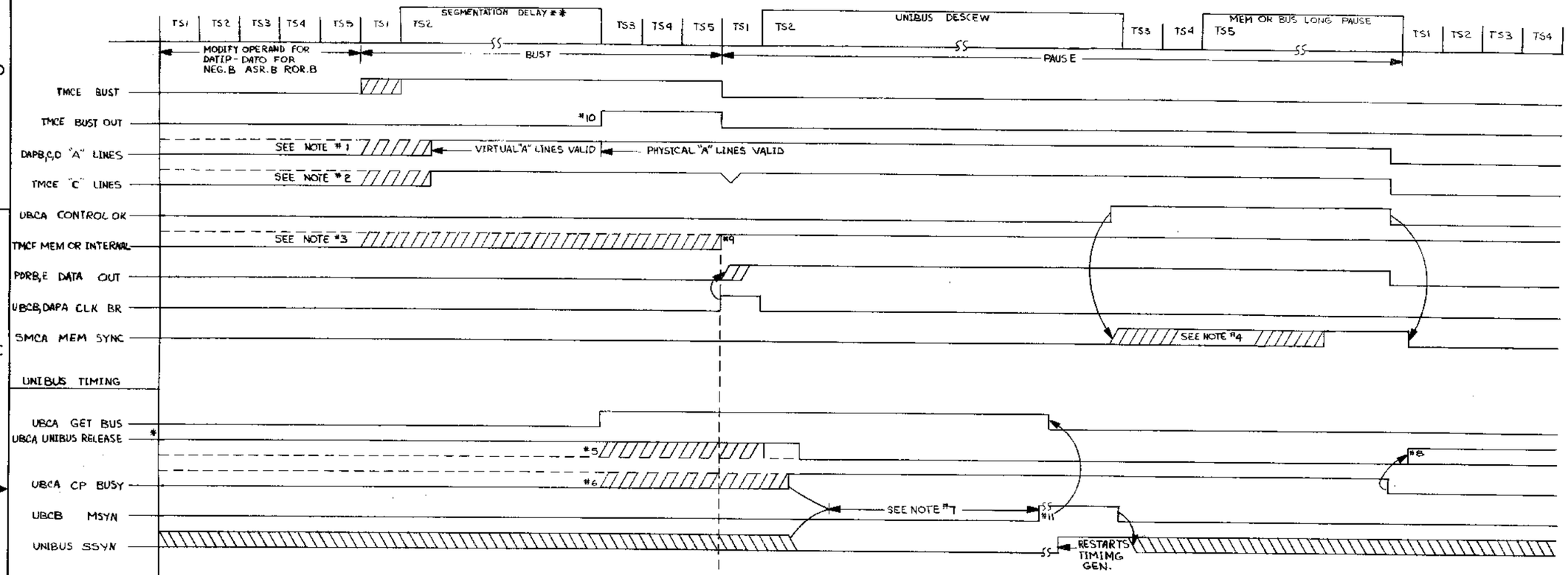
SIZE D | CODE CS | NUMBER M8106-Ø-1 | REV. P

SCALE — SHEET 1 OF 4

DIST.

REVISIONS — REV / CHANGE NO / CHK

DEC FORM NO DRD 102-B



NOTES:

* UNIBUS RELEASE = -(NPR + NPG + BBSY + SACK)

** TIMING GEN: PROVIDES DELAY EQUIVELENT TO 3 TIME STATES FOR RELOCATION OF ADDRESSES IF SEGMENTATION IS PRESENT AND ENABLED

1. ADDRESS WILL NOT BE CHANGING IF DATO IS PRECEEDED BY DATIP (DOTTED LINE SHOWS DATIP)
2. CONTROL LINES WILL SHOW DATIP OR ELSE ARE INVALID UNTIL CONTROL OK
3. MEM OR INTERNAL WILL BE TRUE UPON ENTERING DATO IF ADDRESS WAS SEMI CONDUCTOR MEMORY OR INTERNAL FROM PREVIOUS DATIP
4. MEM SYNC IS ASSERTED BY SEMI CONDUCTOR MEMORY AS SOON AS DATA IS TAKEN-IF DATA IS TAKEN AND MEM SYNC ASSERTED PRIOR TO T5 OF THE PAUSE CYCLE TIMING GENERATOR IS NOT STOPPED IN T5
5. UNIBUS RELEASE WILL NOT BE TRUE IF PREVIOUS OPERATION WAS A DATIP TO A UNIBUS ADDRESS.
6. CP BUSY WILL BE ASSERTED UPON ENTRY INTO DATO IF PREVIOUS OPERATION WAS A DATIP TO A UNIBUS ADDRESS
7. DESKEW FOR "A" "C" "D" LINES IS 150 NS STARTING WHEN CP BUSY IS SET AND SSYN FROM THE PREVIOUS BUS OPERATION IS NEGATED.
8. UNIBUS RELEASE BECOMES TRUE IF NO NPR DEVICE HAS BEEN GIVEN CONTROL OR IS REQUESTING PRIOR TO CP BSY GETING CLEARED
9. IF ADDRESS IS SEMI CONDUCTOR MEMORY OR INTERNAL, UNIBUS LOGIC IS CLEARED DESKEW IS STOPPED AND MSYN IS NOT ASSERTED.
10. BUST OUT IS INHIBITED IN IR\@@ FOR CONDITIONAL BUST (MSC=5) IF BIN # SM123 + BR INST # BRQ TRUE + DM123 # -(BIN # SM8T + BR INSTR)
11. MSYN IS NOT SET IF AN ODD ADRS, STACK LIMIT RED SEGMENTATION OR PARITY ERROR HAS OCCURED

NOTE:
IF PROCESSOR HAS M8104 REV "C" AND KB11-A ECO #13, USE PRINT UBCP FOR UNIBUS TIMING.

NOTE:
1. ALL SIGNALS ARE SHOWN TRUE WHEN HIGH

DATO TIMING DIAGRAM — SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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		5/2/72
CHK'D		9/2/72
ENG		11/29/72
PROJ ENG		12/8/72
PROD		5-1-72

NEXT HIGHER ASSY. B-DD-KB11-A
SCALE —
SHEET 12 OF 14

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

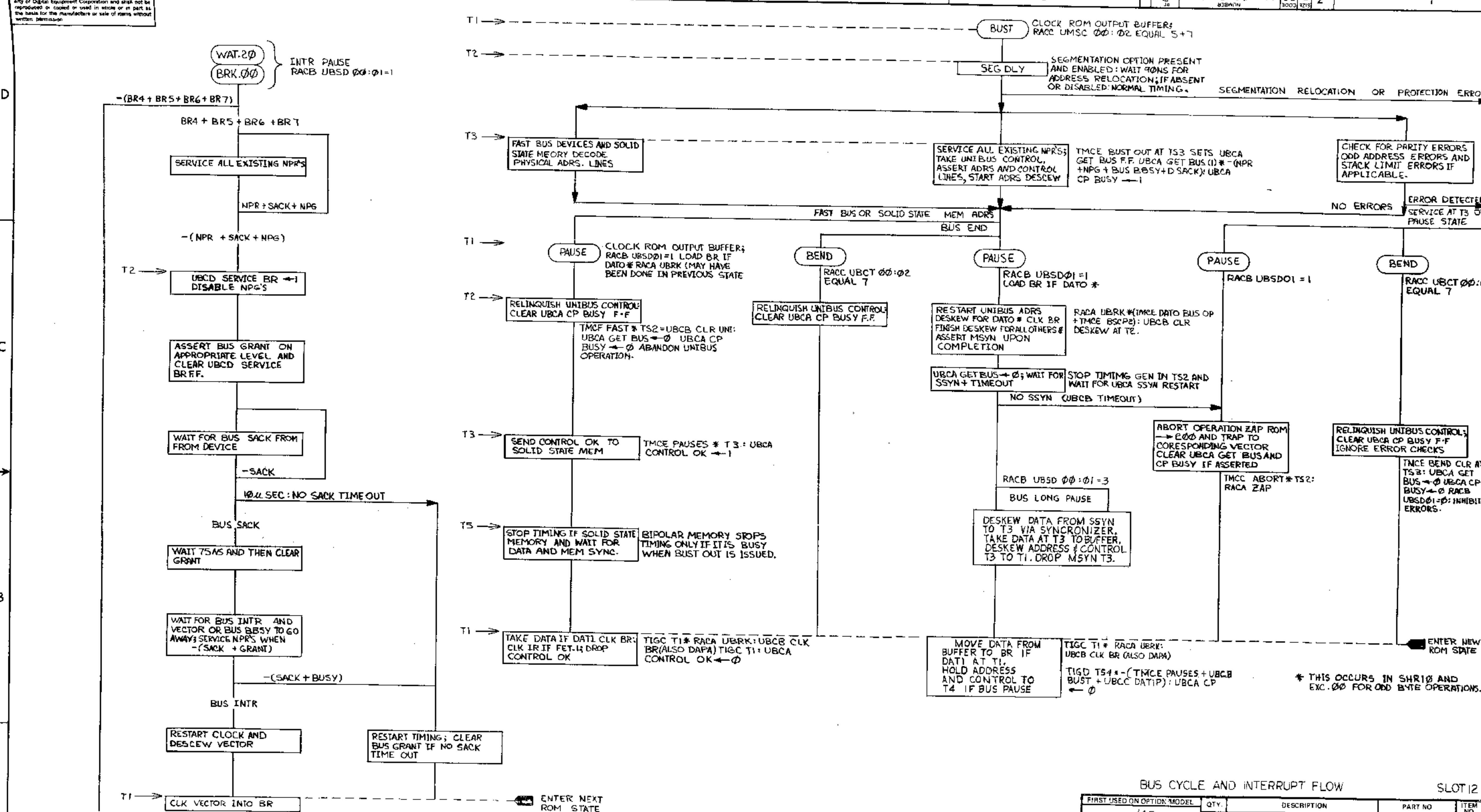
TITLE: UNIBUS & CONSOLE CONTROL (UBCM)

SIZE	CODE	NUMBER	REV
D	DCS	M8104-0-1	P

DIST.

REVISIONS	REV	CHANGE NO	CHK

BRUNING 40-522 15840
DEC FORM NO DRD 102-B



WAT.2Ø
BRK.ØØ
INTR PAUSE
RACB UBSD ØØ:Ø1=1
-(BR4 + BR5 + BR6 + BR7)
BR4 + BR5 + BR6 + BR7
SERVICE ALL EXISTING NPR'S
NPR + SACK + NPG
-(NPR + SACK + NPG)
T2
UBCD SERVICE BR ←1
DISABLE NPG'S
ASSERT BUS GRANT ON APPROPRIATE LEVEL AND CLEAR UBCD SERVICE BR F.F.
WAIT FOR BUS SACK FROM FROM DEVICE
-SACK
10μ SEC: NO SACK TIMEOUT
BUS SACK
WAIT 75NS AND THEN CLEAR GRANT
WAIT FOR BUS INTR AND VECTOR OR BUS BBSY TO GO AWAY; SERVICE NPR'S WHEN -(SACK + GRANT)
-(SACK + BUSY)
BUS INTR
RESTART CLOCK AND DESCEW VECTOR
RESTART TIMING; CLEAR BUS GRANT IF NO SACK TIME OUT
T1
CLK VECTOR INTO BR
ENTER NEXT ROM STATE
T1
BUST
CLOCK ROM OUTPUT BUFFER; RACC UMSC ØØ:Ø2 EQUAL 5+7
T2
SEG DLY
SEGMENTATION OPTION PRESENT AND ENABLED: WAIT 90NS FOR ADDRESS RELOCATION; IF ABSENT OR DISABLED: NORMAL TIMING.
SEGMENTATION RELOCATION OR PROTECTION ERROR
T3
FAST BUS DEVICES AND SOLID STATE MEORY DECODE PHYSICAL ADRS. LINES
SERVICE ALL EXISTING NPR'S; TAKE UNIBUS CONTROL, ASSERT ADRS AND CONTROL LINES, START ADRS DESCEW
TMCE BUST OUT AT TS3 SETS UBCA GET BUS F.F. UBCA GET BUS (1) * -(NPR +NPG + BUS BBSY+D SACK): UBCA CP BUSY ←1
CHECK FOR PARITY ERRORS ODD ADDRESS ERRORS AND STACK LIMIT ERRORS IF APPLICABLE.
NO ERRORS
ERROR DETECTED
SERVICE AT T3 OF PAUSE STATE
FAST BUS OR SOLID STATE MEM ADRS
BUS END
T1
PAUSE
CLOCK ROM OUTPUT BUFFER; RACB UBSDØ1=1 LOAD BR IF DATO * RACA UBRK (MAY HAVE BEEN DONE IN PREVIOUS STATE
BEND
RACC UBCT ØØ:Ø2 EQUAL 7
PAUSE
RACB UBSDØ1 =1
LOAD BR IF DATO *
PAUSE
RACB UBSDO1 = 1
BEND
RACC UBCT ØØ:Ø2 EQUAL 7
T2
RELINQUISH UNIBUS CONTROL; CLEAR UBCA CP BUSY F-F
TMCF FAST * TS2=UBCB CLR UNI: UBCA GET BUS ←Ø UBCA CP BUSY ←Ø ABANDON UNIBUS OPERATION.
RELINQUISH UNIBUS CONTROL; CLEAR UBCA CP BUSY F.F.
RESTART UNIBUS ADRS DESKEW FOR DATO * CLK BR FINISH DESKEW FOR ALL OTHERS * ASSERT MSYN UPON COMPLETION
RACA UBRK * (TMCE DATO BUS OP + TMCE BSCP2): UBCB CLR DESKEW AT T2.
UBCA GET BUS ←Ø; WAIT FOR SSYN + TIMEOUT
STOP TIMING GEN IN TS2 AND WAIT FOR UBCA SSYN RESTART
NO SSYN (UBCB TIMEOUT)
ABORT OPERATION ZAP ROM → EØØ AND TRAP TO CORESPONDING VECTOR CLEAR UBCA GET BUS AND CP BUSY IF ASSERTED
TMCC ABORT * TS2: RACA ZAP
RELINQUISH UNIBUS CONTROL; CLEAR UBCA CP BUSY F-F IGNORE ERROR CHECKS
TMCE BEND CLR AT TS3: UBCA GET BUS ←Ø UBCA CP BUSY ←Ø RACB UBSDØ1=Ø: INHIBIT ERRORS.
T3
SEND CONTROL OK TO SOLID STATE MEM
TMCE PAUSES * T3: UBCA CONTROL OK ←1
RACB UBSD ØØ:Ø1 =3
BUS LONG PAUSE
T5
STOP TIMING IF SOLID STATE MEMORY AND WAIT FOR DATA AND MEM SYNC.
BIPOLAR MEMORY STOPS TIMING ONLY IF IT IS BUSY WHEN BUST OUT IS ISSUED.
DESKEW DATA FROM SSYN TO T3 VIA SYNCRONIZER. TAKE DATA AT T3 TO BUFFER. DESKEW ADDRESS & CONTROL T3 TO T1. DROP MSYN T3.
T1
TAKE DATA IF DATI CLK BR; CLK IR IF FET.1; DROP CONTROL OK
TIGC T1 * RACA UBRK: UBCB CLK BR (ALSO DAPA) TIGC T1: UBCA CONTROL OK ←Ø
MOVE DATA FROM BUFFER TO BR IF DATI AT T1. HOLD ADDRESS AND CONTROL TO T4 IF BUS PAUSE
TIGC T1 * RACA UBRK: UBCB CLK BR (ALSO DAPA)
TIGD T54 * -(TMCE PAUSES + UBCB BUST + UBCC DATIP): UBCA CP ←Ø
ENTER NEW ROM STATE
* THIS OCCURS IN SHR1Ø AND EXC.ØØ FOR ODD BYTE OPERATIONS.

BUS CYCLE AND INTERRUPT FLOW

SLOT 12

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES — DECIMALS .XXX ± .005, .XX ± .01, .X ± .1; ANGLES ± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN / DATE 3/14/72 — CHKD / DATE — ENG / DATE — PROJ ENG / DATE — PROD / DATE 5-1-72

NEXT HIGHER ASSY: B-DD-KB11-A

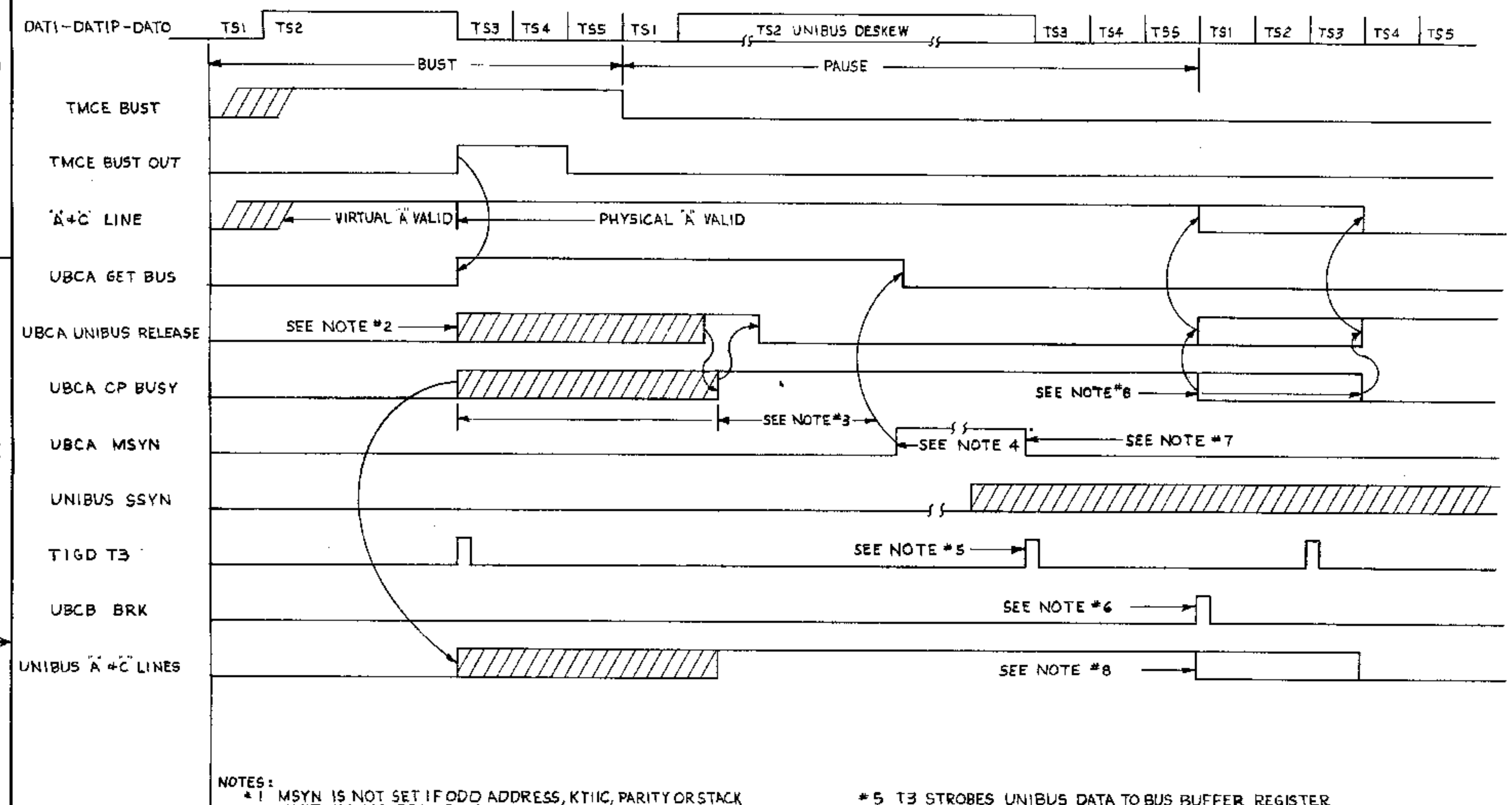
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCN)

SIZE D — CODE CS — NUMBER M8106-Ø-1 — REV P

SCALE — SHEET 13 OF 14 — DIST.

DC CS M8106-Ø-1 P



NOTES:

*1 MSYN IS NOT SET IF ODD ADDRESS, KTIIC, PARITY OR STACK LIMIT HAS OCCURED. ERROR CONDITION RESTARTS TIMING GEN. AND ROM IS FORCED TO ZAP.00

*2 UNIBUS RELEASE = -(NPG + NPR + SACK + B BUSY)

*3 MSYN IS SET 150 NS AFTER CP BUSY OR WHENEVER SSYN IS NOT PRESENT AFTER 150 NS DESKEW.

*4 IF ADRS IS INTERNAL OR SOLID STATE MEMORY, UNIBUS CONTROL LOGIC IS CLEARED, DESKEW STOPPED, MSYN NOT ASSERTED.

*5 T3 STROBES UNIBUS DATA TO BUS BUFFER REGISTER EVERY T3. FOR DATI- DATIP THE BR CLOCK IS NEXT T1

*6 BRK IS DEPENDENT ON ROM TO LOAD BUS TO BR.

*7 75NS DESKEW FOR MSYN IS OBTAINED BY THE FACT THAT SSYN MUST GO THROUGH 2 RANKS OF SYNCRONIZATION

*8 FOR BUS LONG PAUSE ADDRESS + CONTROL IS DESKEWED FROM T3 TO T1. FOR BUS PAUSE THEY ARE HELD TO TS4 OF THE NEXT ROM CYCLE.

SLOT 12

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 —

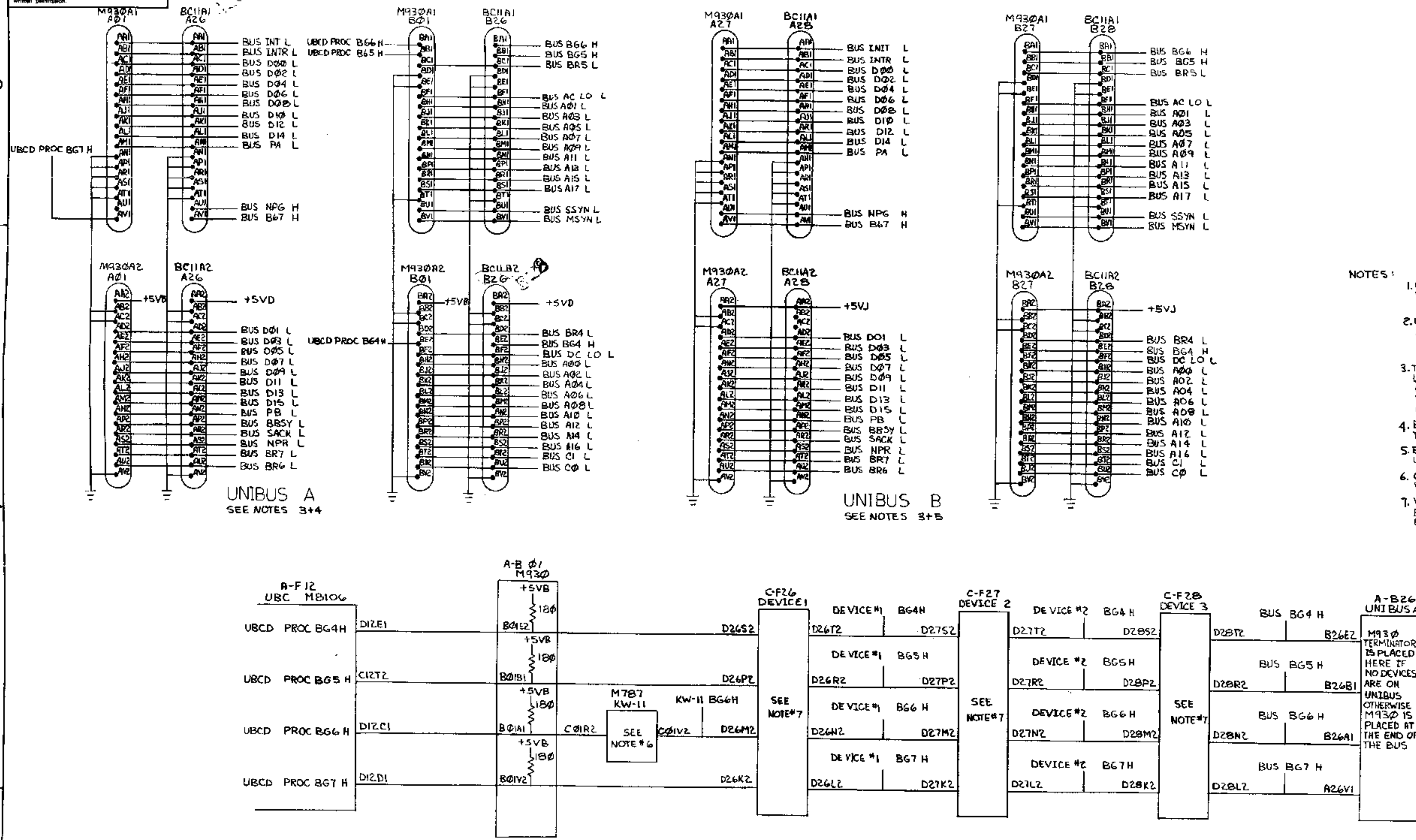
DRN R. Hale DATE 5/24/73
CHKD DATE 5/29/73
ENG. DATE 5/30/73
PROD. ENG. DATE 5/30/73
PROD. DATE 5/30/73

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

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: UNIBUS & CONSOLE CONTROL (UBCP)

SIZE	CODE	NUMBER	REV.
D	CS	M8106-0-1	P



NOTES:

1. UNIBUS A IS A CONVENTIONAL UNIBUS WITH PRIORITY ARBITRATION CONTAINED WITHIN THE KB11-A
2. UNIBUS B IS TRANSPARENT TO THE KB11-A IN THAT NO PRIORITY ARBITRATION IS PRESENT, SEMICONDUCTOR MEMORY (UNIBUS PORT) IS TIED TO BUS B.
3. TO CONNECT SEMICONDUCTOR MEMORY TO UNIBUS A IN SINGLE BUS CONFIGURATION BUS A (AB26) IS CONNECTED TO BUS B (AB27) VIA M9200 AND BUS B OUT (AB28) BECOMES UNIBUS OUT.
4. BUS A SIGNAL PREFIXES IN KB11-A REFER TO UNIBUS A IN MULTIBUS CONFIGURATIONS.
5. BUS B SIGNAL PREFIXES IN MS11 REFER TO UNIBUS B IN MULIBUS CONFIGURATIONS.
6. C01R2 - C01V2 MUST BE DELETED ON BACKPANEL WHEN KW11 IS INSTALLED.
7. WHEN NO DEVICE IS INSERTED G727 MUST BE BE PLACED IN THE 'D' SLOT TO JUMPER GRANT LINES TO UNIBUS OUT.

FIRST USED ON OPTION/MODEL	11/45
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	—

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN / DATE 3/8/72; CHK'D / DATE; ENG / DATE; PROJ. ENG. / DATE; PROD. / DATE

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

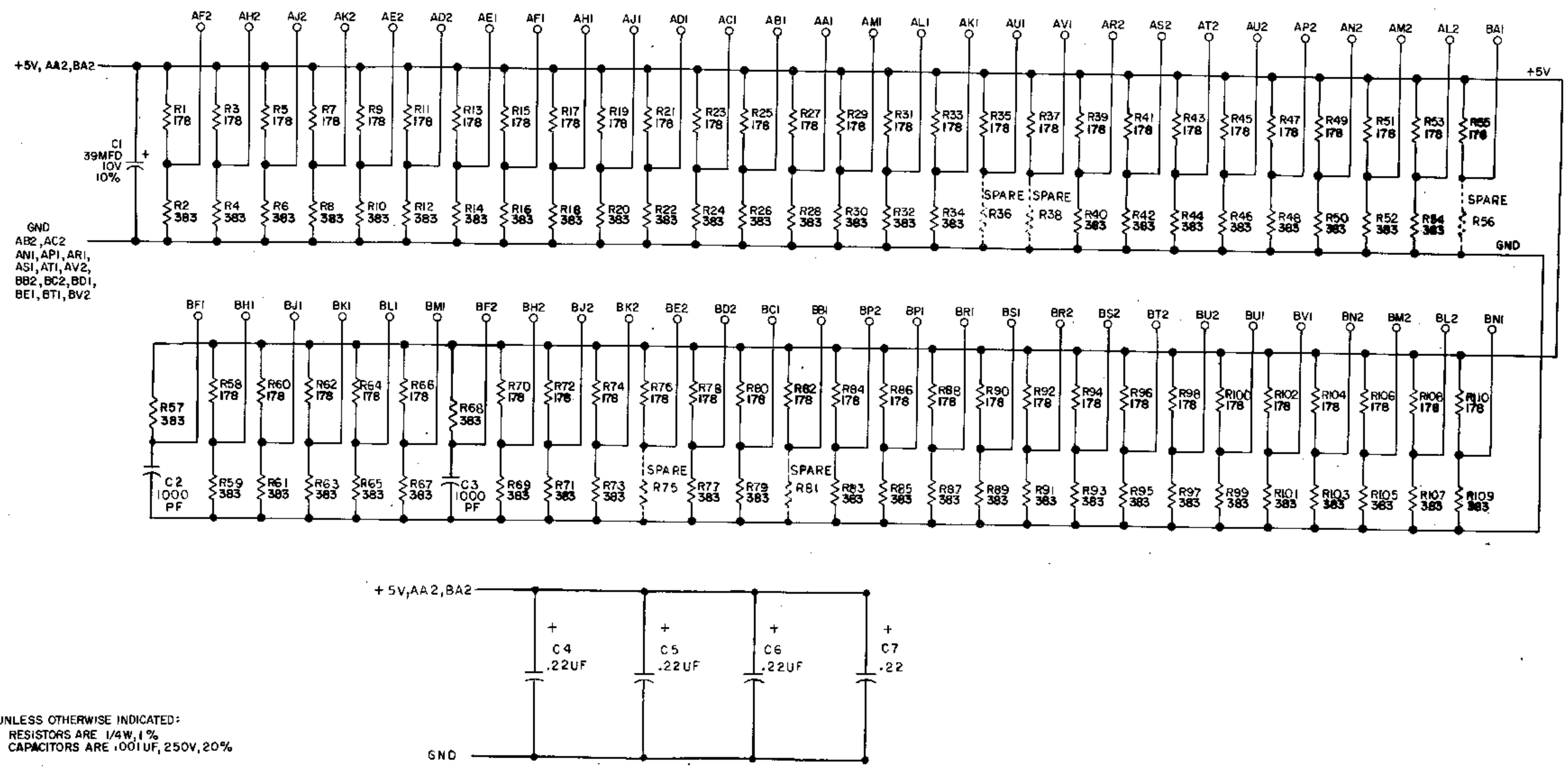
TITLE: BUS CABLES AND GRANT CHAIN (BUS)

NEXT HIGHER ASSY: B-DD-KB11-A

SIZE D CODE IC NUMBER KB11-A-BG REV

SCALE — SHEET 1 OF 1

REVISIONS: REV / CHANGE NO / CHK



UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 1%
CAPACITORS ARE .001UF, 250V, 20%

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

DRN. BOTLER DATE 11-21-69
CHK. DATE 12-3-69
ENG.
PROD.

REVISIONS: A 00001; B 00002; C 00003 b.i.hollis 5-23-73; D 00041

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE BUS TERMINATOR M930

SIZE C CODE CS NUMBER M930-0-1 REV. D

PRINTED CIRCUIT REV. D

DIST. 324, 434, 455 PINK

REVISIONS			
	CHK	CHG NO.	REV.
1		00001	A
2		00002	B

DEC FORM NO. DRAWING

DRN		DATE 11-6-69
CHK'D		DATE 11-6-69
ENG		DATE 7-7-70
APVD		DATE 7/21/70

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE INTERNAL BUS CONNECTOR M920

SIZE	CODE	NUMBER	REV.
C	CS	M920-0-1	B

PRINTED CIRCUIT REV. B

SIZE C | CODE CS | NUMBER M920-0-1 | REV. B

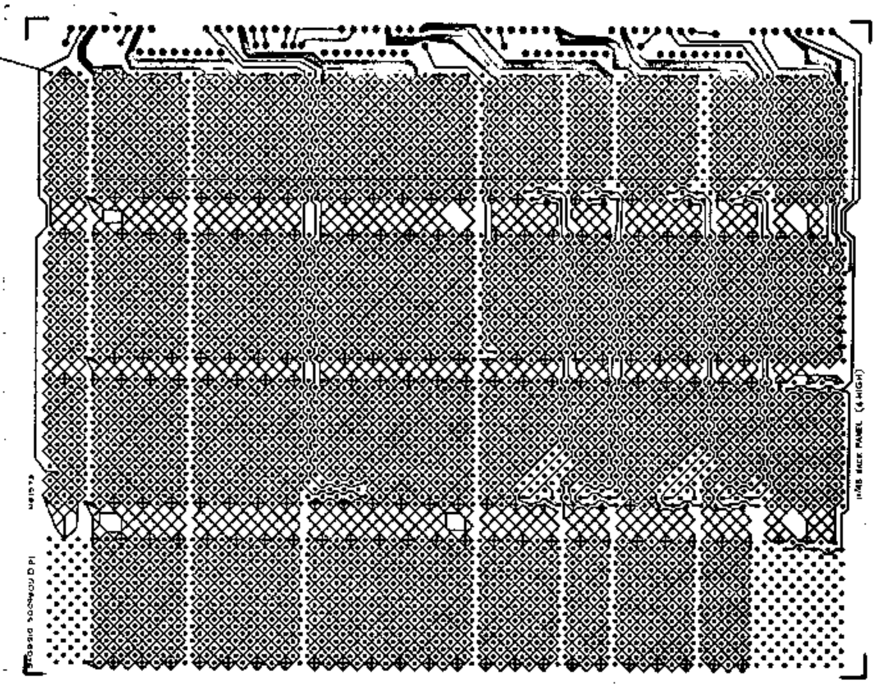
5

DIST. 324,424 125[3]

PINK

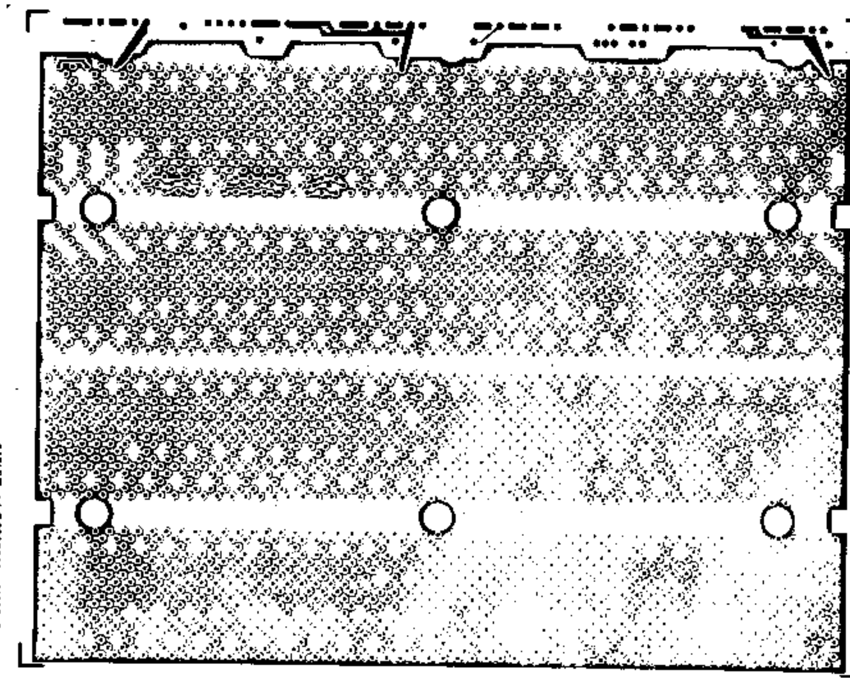
25

1A1



SOLDER SIDE (SIDE 2)

1A1



BLOCK SIDE (SIDE 1)

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		ASSY-DRILLING HOLE LAYOUT	D-AH-5409910-0-5	5
		11/45 BACK PANEL	E-IA-5009909-0-0	4
REF		X-Y COORDINATE HOLE LOC	K-CD-5409910-0-4	3
REF		MODULE HISTORY	E-MH-5409910-0-6	2
1		ETCHED CIRCUIT BOARD	5009909	1

PARTS LIST

ETCH BOARD REV D

REV	CHANGE NO.	
A	ORIGINATED	
E	5409910-0000HIA	
D	5409910-0000E	

REVISIONS

DEC NO	EIA NO	DEC NO.	EIA NO

SEMICONDUCTOR CONVERSION CHART

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

NEXT HIGHER ASSY: E-AD-7008752-0-0

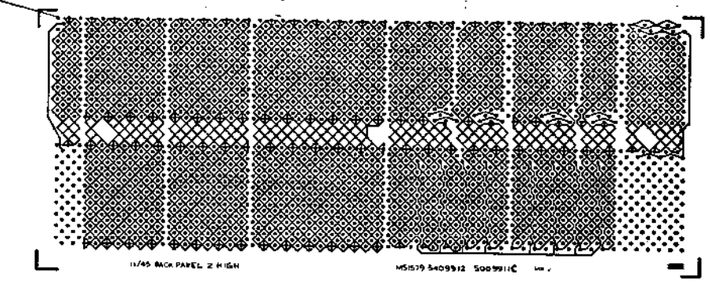
SCALE 1/1 — SHEET 1 OF 1

DIGITAL EQUIPMENT CORPORATION

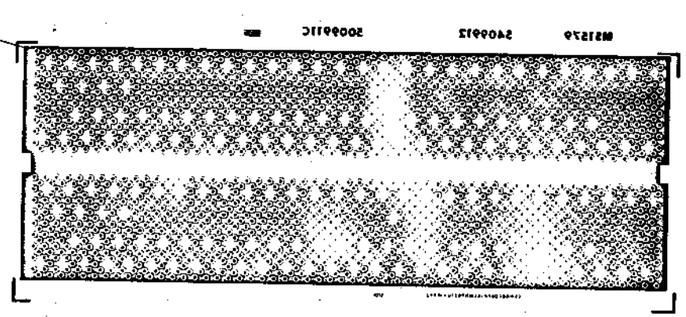
TITLE: CIRCUIT SCHEMATIC

SIZE E — CODE CS — NUMBER 5409910-0-1 — REV. D

CS 5409910-0-1 D



SOLDER SIDE (SIDE 2)



BLOCK SIDE (SIDE 1)

IC TYPE	GND	+ 5V

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

REF		X-Y COORDINATE HOLE LOC	K-CD-5409912-0-S	3
REF		MODULE ECO HISTORY	S-MH-5409912-0-C	2
1		ETCHED CIRCUIT BOARD	7-1A-5009911-0-C	1
QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV C

DEC NO	ECA NO	DEC NO	ECA NO

SEMICONDUCTOR CONVERSION CHART

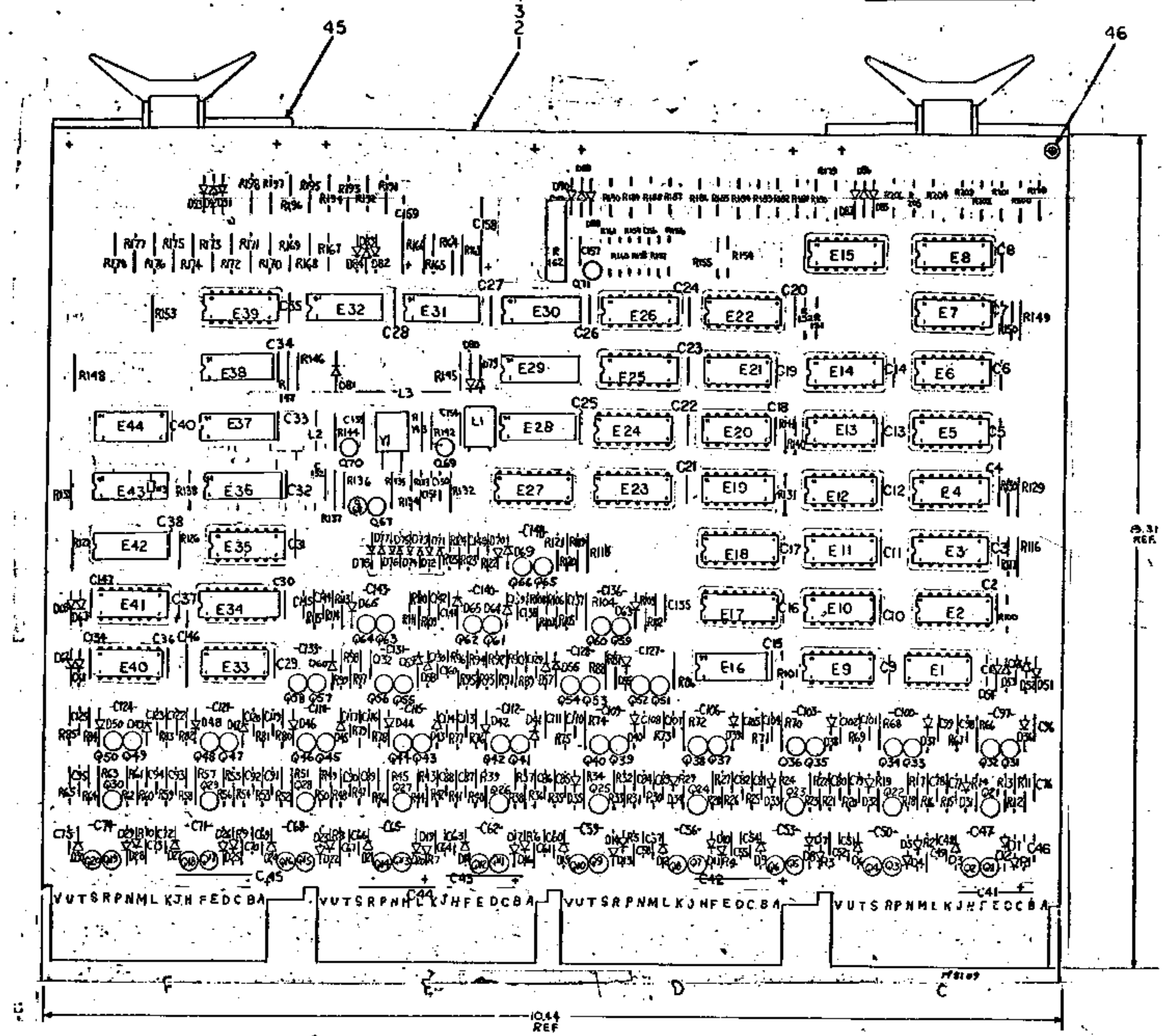
DIGITAL EQUIPMENT CORPORATION

TITLE: CIRCUIT SCHEMATIC

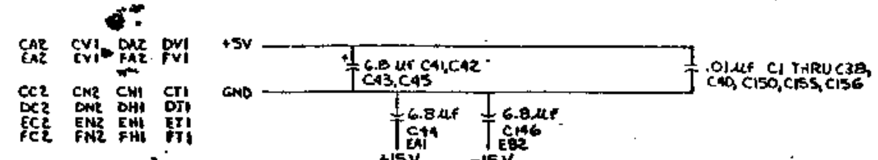
SIZE E | DOCUMENT NUMBER 5409912-0-1 | REV C

SCALE | SHEET OF 1 | DIST

B 5409912-0-1 C



NOTES:
1. UNLESS OTHERWISE NOTED RESISTANCE IS IN Ω AND CAPACITANCE IS IN PICOFARADS. CAPS WITHOUT VALUE NOTED ARE .22 MFD



—— CAUTION ——

NON-STANDARD DRAWING FOR SPECIAL APPLICATION

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
35	Q1, Q3, Q5, Q7, Q9, Q11, Q13, Q15, Q17, Q19, Q21, THRU Q25, Q31 THRU Q40, Q51, Q54, Q56, Q58, Q59, Q63, Q65, Q66, Q69, Q70	TRANSISTOR DEC 4258	1505321	40
34	Q2, Q4, Q6, Q8, Q10, Q12, Q14, Q16, Q18, Q20, Q26 THRU Q30, Q41 THRU Q50, Q52, Q53, Q57, Q60, Q61, Q62, Q64, Q67, Q68, Q71, Q55	TRANSISTOR DEC 3009 B	1503100	39
1	E30	I.C. DEC 74S140	1910546	38
8	E2, E17, E18, E22, E23, E34, E35, E36	I.C. DEC 74S112	1910545	37
8	E5, E14, E28, E24, E6, E8, E15, E42	I.C. DEC 74S74	1910544	36
4	E11, E12, E13, E20	I.C. DEC 74S65	1910543	35
1	E27	I.C. DEC 74S64	1910542	34
6	E1, E9, E19, E16, E33, E40	I.C. DEC 74S40	1910541	33
2	E32, E38	I.C. DEC 74S20	1910539	32
4	E3, E29, E39, E44	I.C. DEC 74S11	1910537	31
5	E4 E7 E21 E25 E37	I.C. DEC 74S04	1910534	30
4	E10, E26, E31, E41	I.C. DEC 74S00	1910532	29
1	R162	RES. 1K 5MW 10%	1309143-07	28
9	R117, R130, R151, R140, R147, R150, R153, R163, R166	RES. 680 Ω 1/4W 5%	1301424	27
1	R142	RES. 750 Ω 1/4W 5%	1301401	26
13	R66, R68, R70, R72, R74, R76, R78, R80, R82, R84, R118, R119, R120	RES. 1.2K 1/4W 5%	1301320	25
26	R13, R15, R18, R20, R23, R25, R28, R30, R33, R35, R38, R41, R44, R47, R50, R53, R56, R59, R62, R65, R102, R104, R114, R115, R132, R158	RES. 10 Ω 1/4W 5%	1301317	24
5	R12 R17 R22 R27 R32	RES. 15K 1/4 5%	1300496	23
22	R1 THRU R10 R40 R46 R52 R58 R64 R67 R69 R71 R73 R75 R99 R113	RES. 4.7K 1/4 5%	1300447	22
7	R77, R79, R81, R83, R85, R86, R103	RES. 3K 1/4 5%	1300432	21
6	R11, R16, R21, R26, R31, R143	RES. 1.5K 1/4 5%	1300391	20
74	R36, R37, R42, R43, R48, R49, R54, R55, R60, R61, R89 THRU R96, R105 THRU R112, R122, R123, R124, R126, R101 R138 R139 R148 R153 R167 THRU R206	RES. 1K 1/4 5%	1300365	19
12	R16 R129, R141, R146, R149, R156, R152, R159, R160, R161 R164, R165	RES. 330 1/4W 5%	1300295	18
2	R136, R145	RES. 220 1/4W 5%	1300271	17
6	R100, R125, R127, R131, R154, R155	RES. 150 Ω 1/4W 5%	1300250	16
11	R14 R19 R24 R29 R34 R39 R45 R51 R57 R63 R121	RES. 100 Ω 1/4W 5%	1300229	15
2	R133, R137	RES. 68 Ω 1/4W 5%	1300219	14
7	R87, R88, R97 R134, R135, R144, R98	RES. 47 Ω 1/4W 5%	1300202	13
54	D1, D3, D4, D6, D7, D9, D10, D12, D13, D15, D16, D18, D19, D21, D22, D24, D25, D27, D28, D30, D31 THRU D50, D57, D58, D61, D62, D64, D67, D68, D69, D65, D70	DIODE FD777	1103041	12
39	D2, D5, D8, D11, D14, D17, D20, D23, D26, D29, D55, D56, D59, D60, D63, D66, D71 THRU D93	DIODE D662	1100113	11
96	C46 THRU C97, C99, C100, C160, C102, C103, C105, C106, C108, C109, C111, C112, C114, C115, C117, C118, C120, C121, C123, C124, C126, C127 THRU C145, C147, C148, C149, C151, C152	CAP .22 μF 50V MONO	1010274-1	10
8	C41 THRU C45, C146, C158, C159	CAP 6.8 μF 35V 10% S.TANT	1005306	9
42	C1 THRU C38, C40, C150, C155, C156	CAP .01 μF 100V 20% DISC	1001610	8
1	C154	CAP 100 PF 100V 5% D.M.	1000016	7
1	C157	CAP 47 PF 100V 5% D.M.	1000011	6
10	C98, C101, C104, C107, C110, C113, C116, C119, C122, C125	CAP 33 PF 100V 5% DM	1000009	5
1		ETCHED CIRCUIT BOARD	5009799	4
REF		MODULE ECO HISTORY	S-HH-M8109-0-6	3
REF		ASSY/DRILL HOLE LAYOUT	D-AH-M8109-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CD-M8109-0-0	1

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
				48
1	W2	JUMPER INSULATED	NA	47
8		EYELET #G64-7	9006732	46
4		HANDLE FLIP-CHIP MAGENTA	9008337-04	45
1	Y1	CRYSTAL 33.333 MHZ	1810694-1	44
1	L2	INDUCTOR .47 μh NYTRONICS WEE-WEE -047	1610999	43
1	L1	INDUCTOR .22 μh VARIABLE NYTRONICS WEE VL .22	1611000	42
1	L3	INDUCTOR RFCS 33 μh	1601759	41

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
DEC 4258	NONE
DEC 3009 B	2N3646
DEC FD777	1103041
DEC 662	1N645

IC PIN LOCATIONS

IC TYPE	GND	+5V
DEC 74S112	8	16

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

JUMPER LIST

ITEM NO.	AWG	FROM PT	TO PT

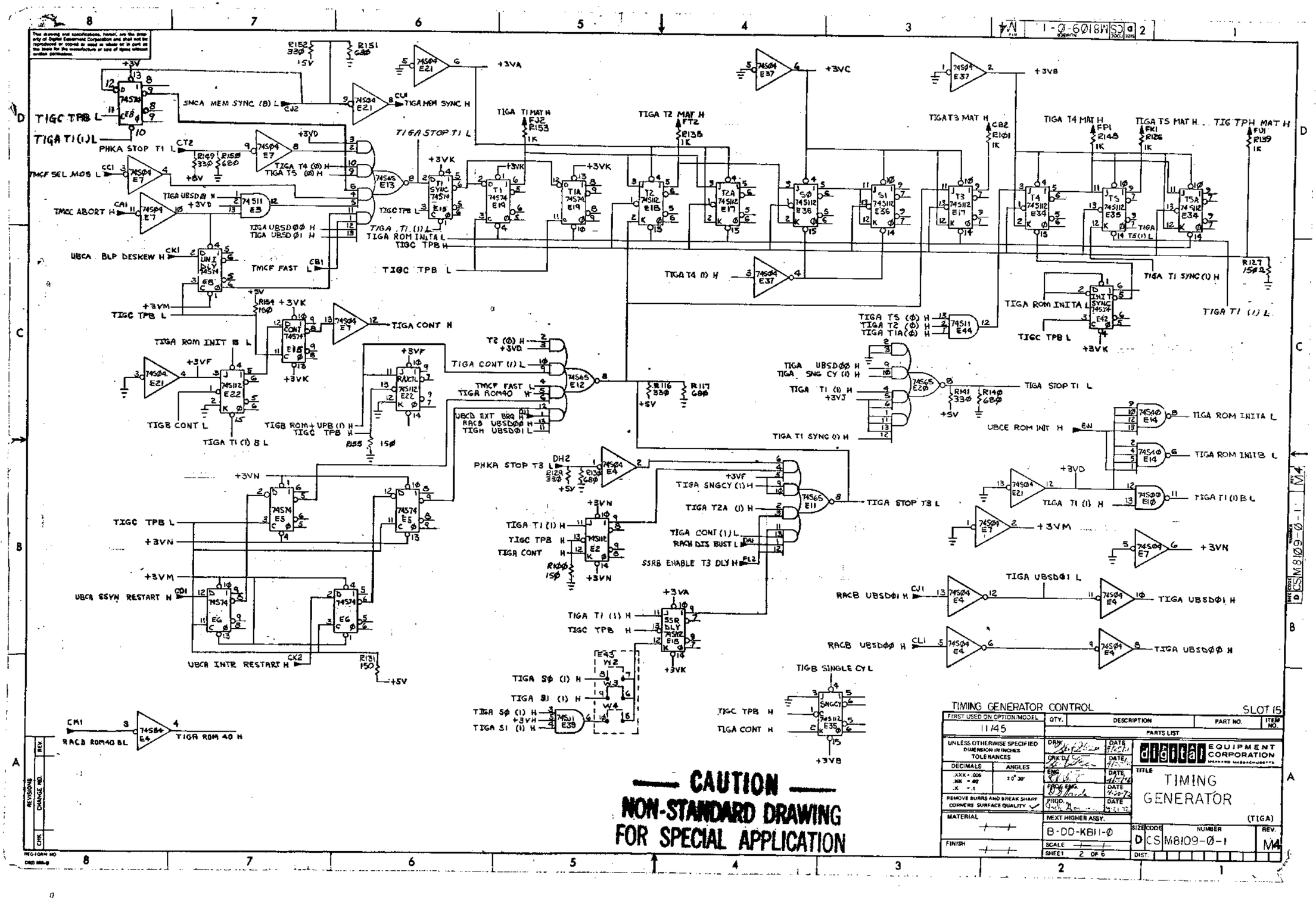
ETCH BOARD REV C

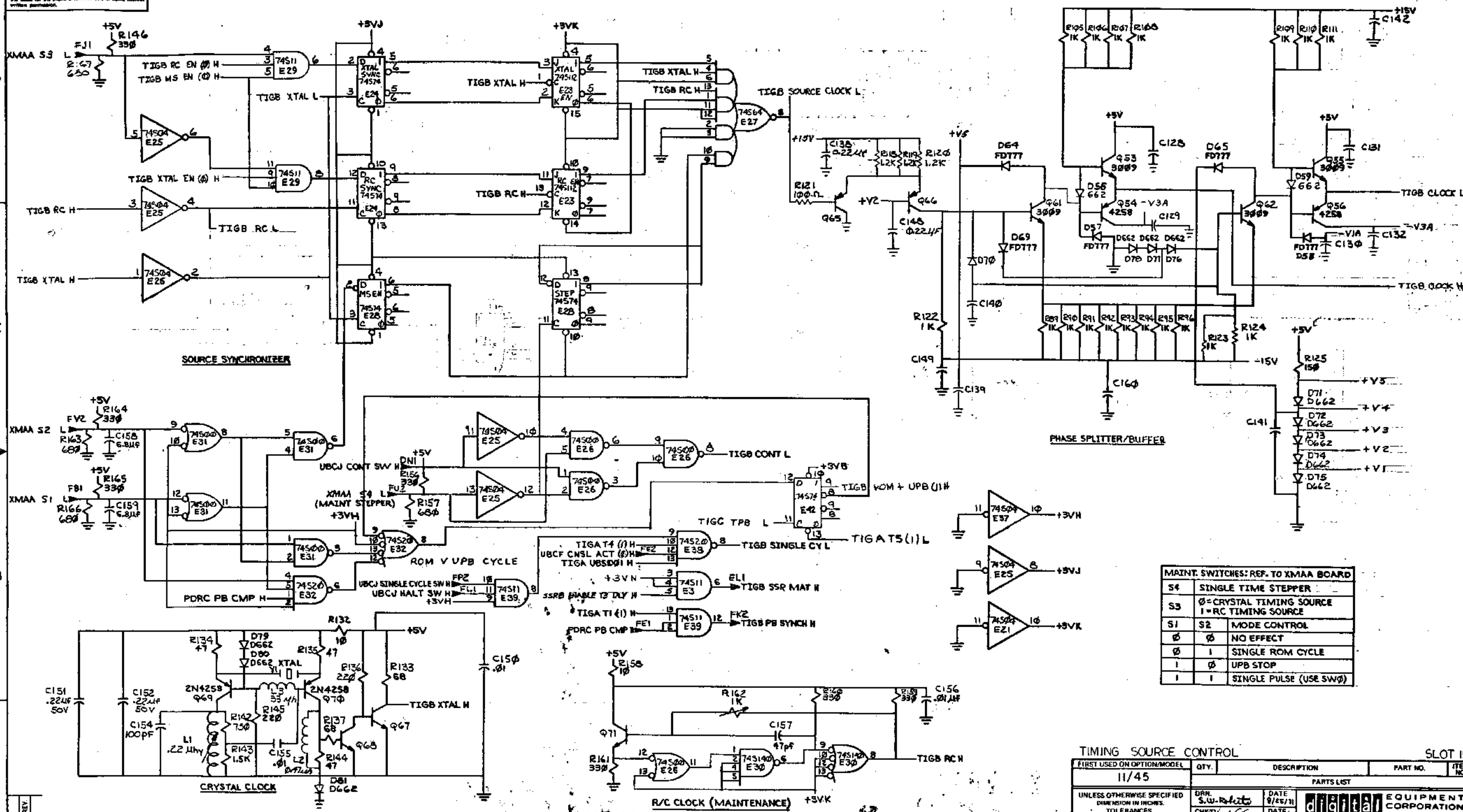
NEXT HIGHER ASSY B-DD-KB11-0

digital EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR

SIZE C CODE CS NUMBER M8109-0-1 REV N


TIGC TPB L
TIGA T1(1)L
SMCA MEM SYNC (B) L
TIGA MEM SYNC H
TIGA STOP T1 L
TIGA T1 MAT H
TIGA T2 MAT H
TIGA T3 MAT H
TIGA T4 MAT H
TIGA T5 MAT H
TIG TPH MAT H
PHKA STOP T1 L
TMCF SEL MOS L
TMCC ABORT H
TIGA UBSDØØ H
TIGA UBSDØ1 H
TIGA T1 (1) L
TIGA ROM INITA L
TIGC TPB H
UBCA BLP DESKEW H
TMCF FAST L
TIGA CONT H
TIGA ROM INIT B L
TIGB CONT L
TIGA T1 (1) B L
TIGB ROM+UPB (1) H
TIGA CONT (1) L
TMCF FAST L
TIGA ROM40 H
UBCD EXT BRQ H
RACB UBSDØØ H
TIGH UBSD01 L
PHKA STOP T3 L
TIGA T1 (1) H
TIGC TPB H
TIGA CONT H
SSRB ENABLE T3 DLY H
TIGA SØ (1) H
TIGA S1 (1) H
TIGA T5 (Ø) H
TIGA T2 (Ø) H
TIGA T1A (Ø) H
TIGA UBSDØØ H
TIGA SNG CY (1) H
TIGA T1 (1) H
TIGA STOP T1 L
TIGA T1 SYNC (1) H
UBCE ROM INIT H
TIGA ROM INITA L
TIGA ROM INITB L
TIGA T1 (1) B L
TIGA UBSD01 L
RACB UBSD01 H
TIGA UBSD01 H
RACB UBSDØØ H
TIGA UBSDØØ H
TIGB SINGLE CYL
TIGC TPB H
TIGA CONT H
CM1
RACB ROM40 BL
TIGA ROM 40 H
UBCA SSYN RESTART H
UBCA INTR RESTART H
+3VA
+3VB
+3VC
+3VD
+3VF
+3VK
+3VM
+3VN
+5V
TIMING GENERATOR CONTROL
SLOT 15
FIRST USED ON OPTION/MODEL
11/45
QTY.
DESCRIPTION
PART NO.
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS
ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
NEXT HIGHER ASSY.
B-DD-KB11-Ø
SCALE
SHEET 2 OF 6
DRN
DES'D
ENG.
PROJ. ENG.
PROD.
DATE
digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS
TITLE
TIMING GENERATOR
(TIGA)
SIZE
CODE
NUMBER
REV.
D
CS
M8109-Ø-1
M4
DIST
REVISIONS
REV.
CHANGE NO.
CHK.
CAUTION
NON-STANDARD DRAWING
FOR SPECIAL APPLICATION



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 SWØ)

NOTE: ALL NPN TRANSISTORS ARE DEC 3009B AND ALL PNP TRANSISTORS ARE DEC 4258 UNLESS OTHERWISE NOTED. ALL DIODES ARE TYPE FD777. ALL CAPS ARE .22 µf 50V MONLYTHIC UNLESS OTHERWISE INDICATED.

TIMING SOURCE CONTROL — SLOT 15

FIRST USED ON OPTION/MODEL: 11/45

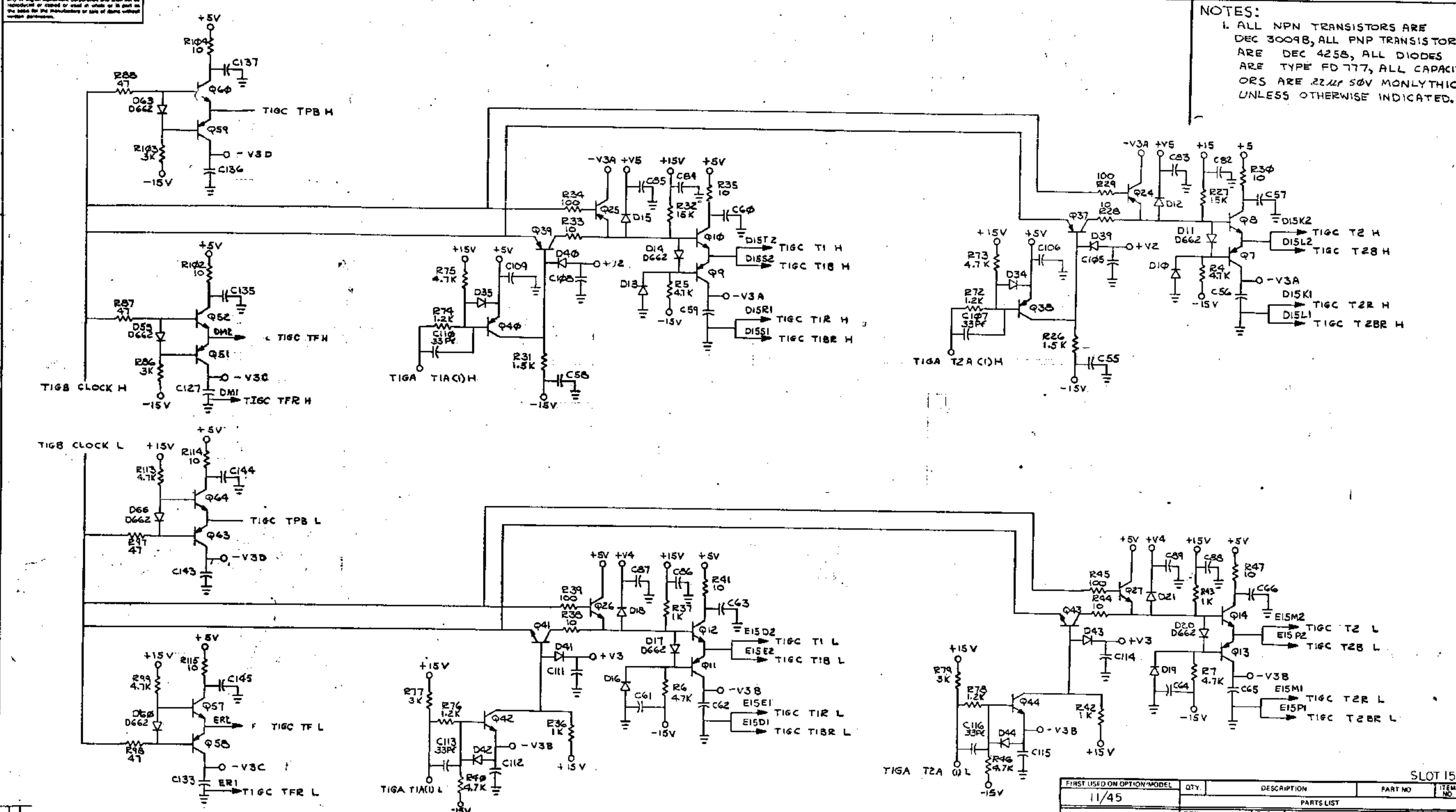
NEXT HIGHER ASSY.: B-DD-KB11-Ø

digital EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR (TIGB)

SIZE D — CODE CS — NUMBER M8109-Ø-1 — REV. M4

SHEET 3 OF 6



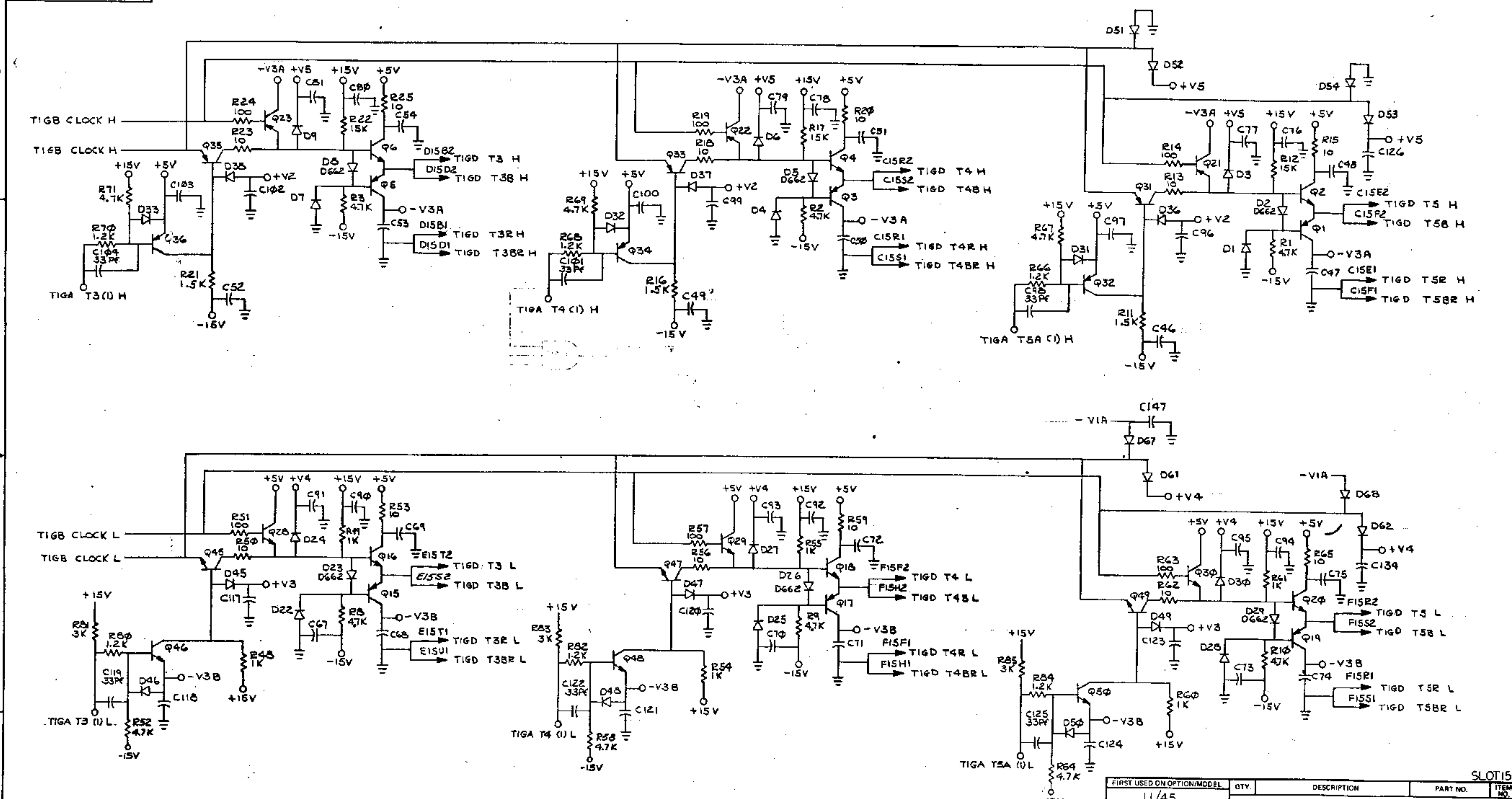
NOTES:
1. ALL NPN TRANSISTORS ARE DEC 3009B, ALL PNP TRANSISTORS ARE DEC 4258, ALL DIODES ARE TYPE FD 777, ALL CAPACITORS ARE .22 uf 50V MONLYTHIC UNLESS OTHERWISE INDICATED.

SLOT 15

CAUTION
NON-STANDARD DRAWING FOR SPECIAL APPLICATION

FIRST USED ON OPTION/MODEL	11/45
DRN.	DATE 2-25-72
TITLE	TIMING GENERATOR (TIGC)
NEXT HIGHER ASSY.	B-DD-KB11-0
SIZE / CODE / NUMBER / REV	D CS M8109-0-1 M4
SHEET	4 OF 6

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS



NOTE:
1. ALL NPN TRANSISTORS ARE DEC 3009B, ALL PNP TRANSISTORS ARE DEC 4258, ALL DIODES ARE TYPE FD777 ALL CAPACITORS ARE .22 µF MONOLYTHIC UNLESS OTHERWISE INDICATED.

— CAUTION —

NON-STANDARD DRAWING

FOR SPECIAL APPLICATION

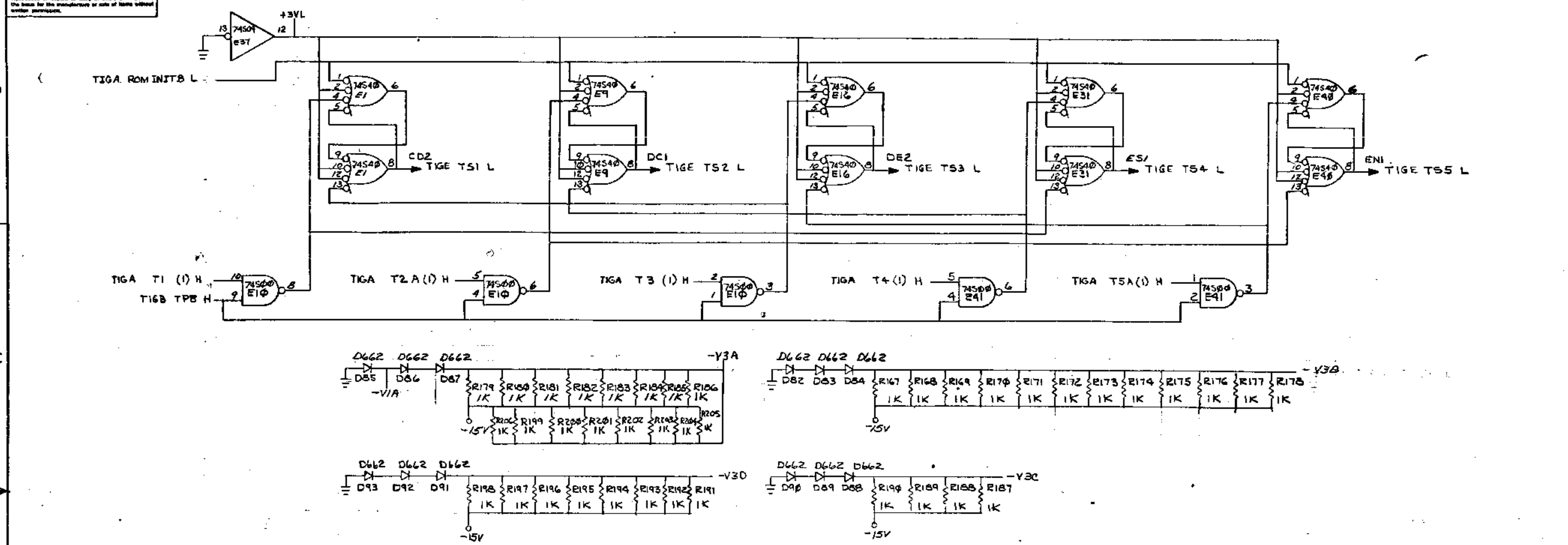
FIRST USED ON OPTION/MODEL	11/45
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DECIMALS .XXX ± .005 .XX ± .02 .X ± .1; ANGLES ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	✓
MATERIAL	
FINISH	
NEXT HIGHER ASSY.	B-DD-KB11-Ø
SCALE	
SHEET	5 OF 6

DRN DATE 3-1-72; CHK'D DATE 4/2/72; ENG DATE 4/20/72; PROJ ENG DATE 4-20-72; PROD DATE 4-21-72

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGD)

SIZE D | CODE CS | NUMBER M8109-Ø-1 | REV. M4



TIMING STATE DRIVERS

SLOT 15

CAUTION
NON-STANDARD DRAWING
FOR SPECIAL APPLICATION

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY

MATERIAL —//—

FINISH —//—

NEXT HIGHER ASSY B-DD-K811-0

SCALE —//— SHEET 6 OF 6

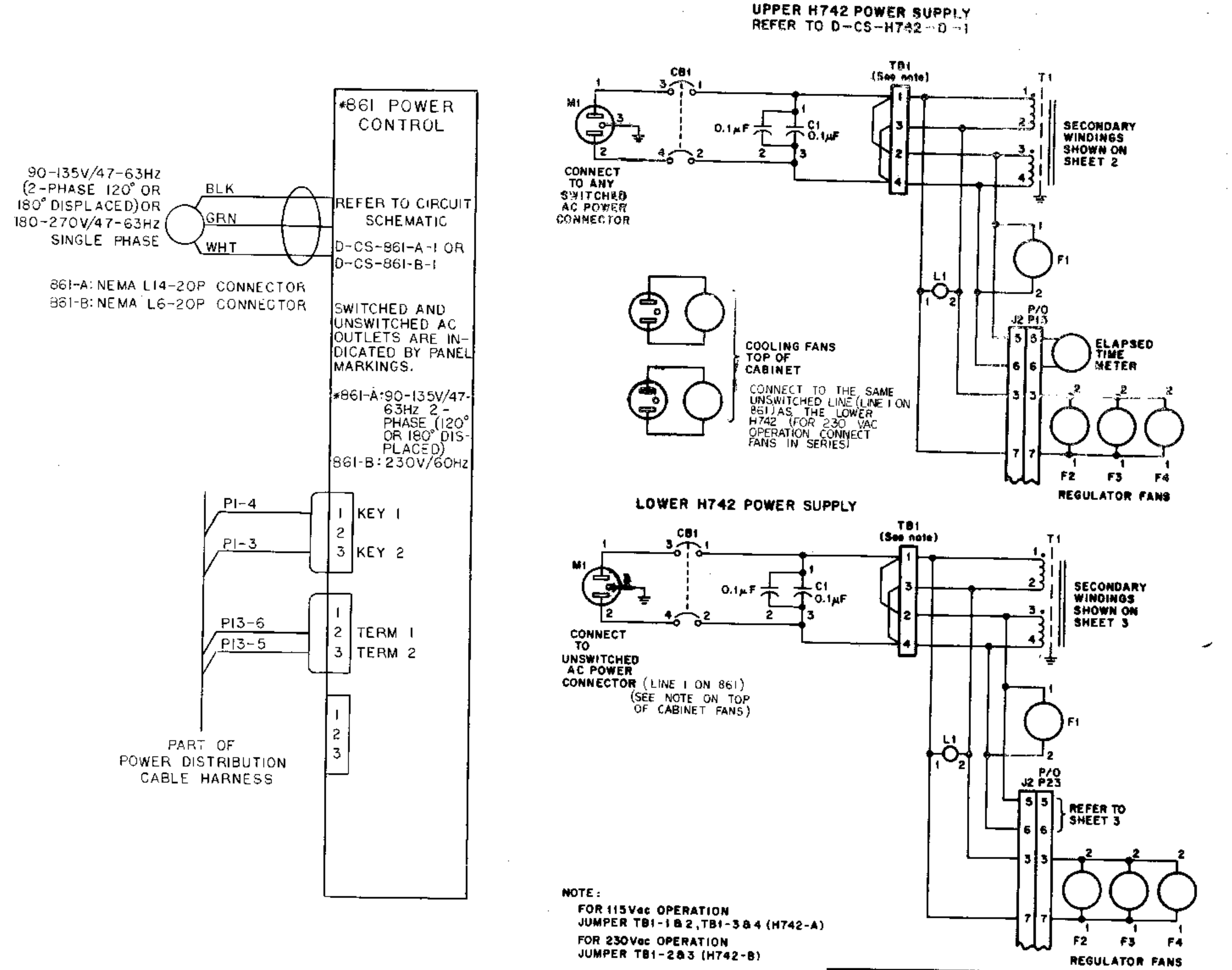
digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR (TIGE)

SIZE D | CODE CS | NUMBER M8109-0-1 | REV. M4

NOTE

1. FOR 11/45 SYSTEMS BUILT WITH 860 POWER CONTROLS, REFER TO D-IC-11/45-0-1 REV. A DRAWING.



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 / ENG / PROJ. ENG / PROD — DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

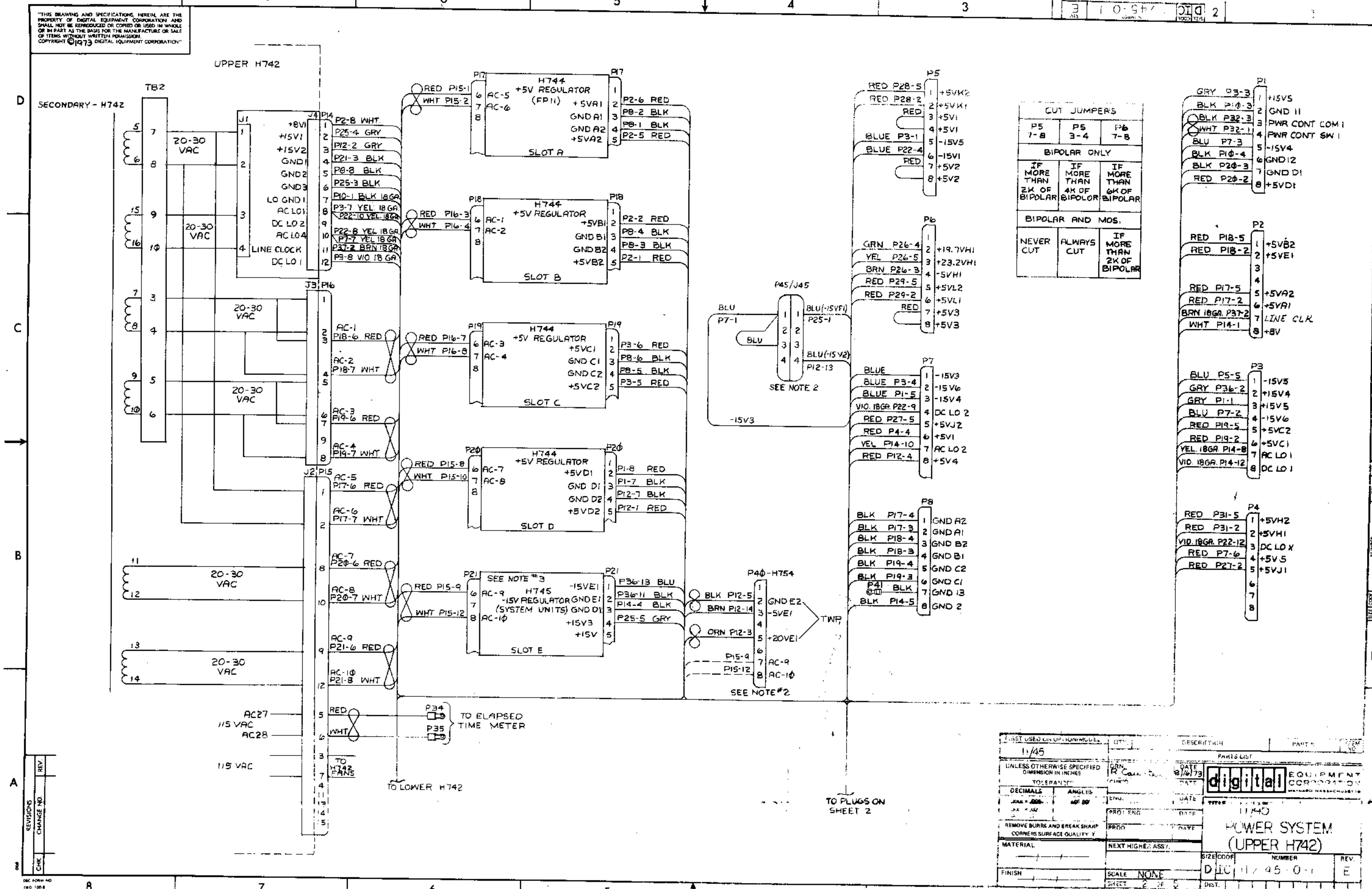
TITLE: POWER SYSTEMS CONFIGURATION

NEXT HIGHER ASSY. B-DD-11/45-Ø

SIZE D CODE IC NUMBER 11/45-Ø-1 REV. E

SCALE — SHEET 1 OF 5

REVISIONS: REV. A 11/45-00031; B 11/45-00047; C 11/45-00052; D 11/45-00054; E 11/45-00057 (SWANSON, B. MINOR, V. BOAEN)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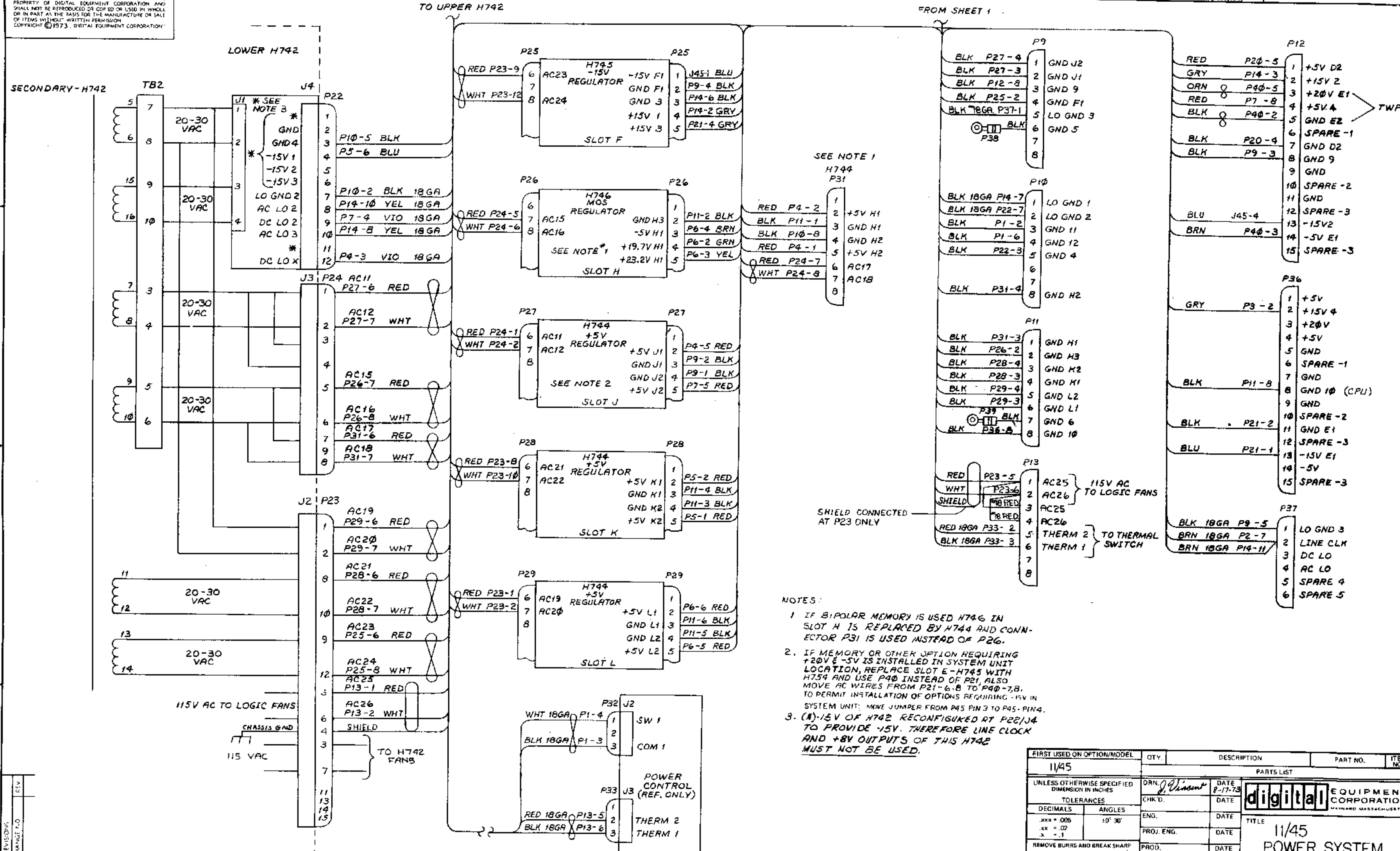
UPPER H742
SECONDARY - H742
TB2
20-30 VAC
H744 +5V REGULATOR (FP11)
SLOT A
H744 +5V REGULATOR
SLOT B
SLOT C
SLOT D
SEE NOTE #3
H745 -15V REGULATOR (SYSTEM UNITS)
SLOT E
P45/J45
SEE NOTE 2
P40 - H754
TWP
SEE NOTE #2
CUT JUMPERS
BIPOLAR ONLY
IF MORE THAN 2K OF BIPOLAR
IF MORE THAN 4K OF BIPOLOR
IF MORE THAN 6K OF BIPOLAR
BIPOLAR AND MOS.
NEVER CUT
ALWAYS CUT
IF MORE THAN 2K OF BIPOLAR
TO ELAPSED TIME METER
115 VAC
TO H742 FANS
TO LOWER H742
TO PLUGS ON SHEET 2
PWR CONT COM 1
PWR CONT SW 1
LINE CLK
11/45
POWER SYSTEM (UPPER H742)
digital EQUIPMENT CORPORATION
D IC 11/45-0-1
REV. E
SCALE NONE
SHEET 2 OF 2



NOTES:

1. IF BIPOLAR MEMORY IS USED H746 IN SLOT H IS REPLACED BY H744 AND CONNECTOR P31 IS USED INSTEAD OF P26.
2. IF MEMORY OR OTHER OPTION REQUIRING +20V & -5V IS INSTALLED IN SYSTEM UNIT LOCATION, REPLACE SLOT E-H745 WITH H754 AND USE P40 INSTEAD OF P21, ALSO MOVE AC WIRES FROM P21-6,8 TO P40-7,8. TO PERMIT INSTALLATION OF OPTIONS REQUIRING -15V IN SYSTEM UNIT: MOVE JUMPER FROM P45 PIN 3 TO P45-PIN4.
3. (*)-15V OF H742 RECONFIGURED AT P22/J4 TO PROVIDE -15V. THEREFORE LINE CLOCK AND +8V OUTPUTS OF THIS H742 MUST NOT BE USED.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
11/45		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 8-17-73
CHK'D. / ENG. / PROJ. ENG. / PROD.
NEXT HIGHER ASSY.

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: 11/45 POWER SYSTEM (LOWER H742)

SIZE D — CODE IC — NUMBER 11/45-0-1 — REV. E
SCALE — SHEET 3 of 5

UPPER H742 POWER SUPPLY

T1 SECONDARY UPPER H742 POWER SUPPLY

T82

J1

POWER CONTROL UPPER H742 POWER SUPPLY

REFER TO C-CS-5409730-0-1

J4 P14

+8V	1	P2-8
+15V	2	P21-5
+15V	3	P36-8
GND	4	P21-3
GND	5	P8-8
GND	6	P25-3
GND	7	P10-1
AC LO 1	8	P3-7/P22-10
	9	
AC LO 2	10	P22-8
CLOCK	11	P36-6
DC LO 1	12	P3-8

J3 P16

1	
2	
3	P18-7
4	P18-6
5	
6	
7	P19-7
8	P19-6

P/O J2 P15

1	P17-7
2	P17-6
8	P20-7
10	P20-6
9	P21-8
12	P21-6
5	
6	

P/O P15

115V AC FROM UPPER H742 TB1: TB1-2, TB1-4

TO ELAPSED TIME METER

J/P17

P15-2, P15-1

AC IN

H744 +5V REGULATOR (FP11)

SLOT A

J/P17

+5V	2	P2-6
GND	3	P8-2
GND	4	P8-1
+5V	5	P2-5

J/P18

P16-4, P16-3

AC IN

H744 +5V REGULATOR

REFER TO D-CS-H744-0-1

SLOT B

J/P18

+5V	2	P2-2
GND	3	P8-4
GND	4	P8-3
+5V	5	P2-1

J/P19

P16-8, P16-7

AC IN

H744 +5V REGULATOR

SLOT C

J/P19

+5V	2	P3-6
GND	3	P8-6
GND	4	P8-5
+5V	5	P3-5

J/P20

P15-10, P15-8

AC IN

H744 +5V REGULATOR

SLOT D

J/P20

+5V	2	P1-8
GND	3	P1-7
GND	4	P12-6
+5V	5	P12-5

J/P21

P15-12, P15-9, P14-2, P14-4

AC IN

H745 -15V REGULATOR

REFER TO D-CS-H745-0-1

SLOT E

J/P21

-15V	1	P12-7
GND	2	P12-8
+15V	4	P25-5

7008784 OLD POWER DISTRIBUTION CABLE HARNESS

P5

P28-5	1	+5V
P28-2	2	+5V
	3	+5V
P3-1	4	
	5	-15V
P22-4	6	-15V
	7	+5V
	8	

CUT JUMPERS

P5 7-8	P5 3-4	P6 7-8
BIPOLAR ONLY		
IF MORE THAN 2K OF BIPOLAR	IF MORE THAN 4K OF BIPOLAR	IF MORE THAN 6K OF BIPOLAR
BIPOLAR AND MOS		
NEVER CUT	ALWAYS CUT	IF MORE THAN 2K OF BIPOLAR

P6

P4-7	1	FUTURE V
P26-4	2	+19.7V
P26-5	3	+23.2V
P26-3	4	-5V
P29-5	5	+5V
P29-2	6	+5V
	7	+5V
	8	

P7

P12-2	1	-15V
P3-4	2	-15V
P1-5	3	-15V
P22-9	4	DC LO 2
P27-5	5	+5V
P4-4	6	+5V
P22-8	7	AC LO 2
P12-4	8	+5V

P8

P17-4	1	
P17-3	2	
P18-4	3	
P18-3	4	GND
P19-4	5	
P19-3	6	
	7	
P14-5	8	

P1

P3-3	1	+15V
P10-3	2	GND
P32-3	3	860 GND IN
P32-1	4	860 GND OUT
P7-3	5	-15V
P10-4	6	GND
P20-3	7	GND
P20-2	8	+5V

TO CONSOLE CONNECTOR J3

P2

P18-5	1	+5V
P18-2	2	+5V
P4-8	3	FUTURE V
P30-4	4	FUTURE V
P17-5	5	+5V
P17-2	6	+5V
P36-5	7	CLOCK
P14-1	8	+8V

P3

P5-5	1	-15V
P36-7	2	+15V
P1-1	3	+15V
P7-2	4	-15V
P19-5	5	+5V
P19-2	6	+5V
P14-8	7	AC LO 1
P14-9	8	DC LO 1

P4

P31-2	1	+5V
P31-2	2	+5V
P22-12	3	DC LO X
P7-6	4	+5V
P27-2	5	+5V
P30-3	6	FUTURE V
P6-1	7	FUTURE V
P2-3	8	FUTURE V

THIS SHEET APPLIES TO MACHINES WITH SERIAL NUMBERS LESS THAN 2000.

FIRST USED ON OPTION/MODEL: 11/45	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		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 4/1/72
CHK'D		DATE 4/24/72
ENG		DATE 5/3/72
PROJ ENG		DATE 7/28/72
APPD		DATE 9/18/72

NEXT HIGHER ASSY: B-DD-11/45-0

SCALE: —

SHEET 4 OF 5

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: OLD POWER SYSTEMS CONFIGURATION

SIZE D | CODE IC | NUMBER 11/45-0-1 | REV E

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100-A

LOWER H742 POWER SUPPLY

T1 SECONDARY LOWER H742 POWER SUPPLY

TB2

J1

J4 P22

SEE NOTE

GND 1
GND 2
GND 3
-15V 4
GND 5
GND 6
GND 7
AC LO 2 8
DC LO 2 9
AC LO 1 10
CLOCK 11
DC LO X 12

POWER CONTROL
LOWER H742 POWER SUPPLY
REFER TO C-CS-5409730-0-1

NOTE: +15V output configured to provide -15V at J4-4 with respect to J4-3

P10-5
P5-6
P10-2
P7-7 / P14-10
P7-4
P14-8
P4-3

J3 P24

20 - 30 VAC
20 - 30 VAC
20 - 30 VAC
20 - 30 VAC
20 - 30 VAC

P27-7
P27-6
P30-8
P30-7
P26-8
P26-7
P31-7
P31-6
P29-7
P29-6
P28-7
P28-6
P25-8
P25-6
P13-1
P13-2

115 VAC FROM LOWER H742 TB1 TB1-2 TB1-4 TO LOGIC FANS

P/O J2 P23

P/O P23

J/P25 H745 -15V REGULATOR SLOT F

AC IN
-15V 1
GND 2
GND 3
4
+15V 5

P23-12
P23-9
P13-7
P13-8
P14-6
P21-4

J/P26 H746 MOS REGULATOR SLOT H

SEE NOTE 1
AC IN
GND 1
-5V 2
+19.7V 3
+23.2V 4
5

REFER TO D-CS-H746-0-1

P24-6
P24-5
P11-2
P6-4
P6-2
P6-3

J/P27 H744 +5V REGULATOR SLOT J

SEE NOTE 2
AC IN
+5V 1
GND 2
GND 3
+5V 4
5

P24-2
P24-1
P4-5
P9-2
P9-1
P7-5

J/P28 H744 +5V REGULATOR SLOT K

AC IN
+5V 1
GND 2
GND 3
+5V 4
5

P23-10
P23-8
P5-2
P11-4
P11-3
P5-1

J/P29 H744 +5V REGULATOR SLOT L

AC IN
+5V 1
GND 2
GND 3
+5V 4
5

P23-2
P23-1
P6-6
P11-6
P11-5
P6-5

7008784 OLD POWER DISTRIBUTION CABLE HARNESS

P30

P10-7 2 GND
P4-6 3 FUTURE V
P2-4 4 FUTURE V
P10-6 5 GND
6
P24-4 7
P24-3 8

SEE NOTE 2

P31

P4-2 2 +5V
P11-1 3 GND
P10-8 4 GND
P4-1 5 +5V
6
P24-8 7
P24-7 8

SEE NOTE 1

P9

P27-4 1
P27-3 2
P12-1 3
4
5
6
7
8

GND

P10

P14-7 1
P22-7 2
P1-2 3
P1-6 4
P22-3 5
P30-5 6
P30-2 7
P31-4 8

GND

P11

P31-3 1
P26-2 2
P28-4 3
P28-3 4
P29-4 5
P29-3 6
7
P12-3 8

GND

P12

P9-3 1 GND
P7-1 2 -15V
P11-8 3 GND
P7-8 4 +5V
P20-5 5 +5V
P20-4 6 GND
P21-1 7 -15V
P21-2 8 GND

P13

P23-5 1
P23-6 2
3
4
P33-2 5
P33-3 6
P25-1 7 -15V
P25-2 8 GND

115VAC TO LOGIC FANS

CONNECT TO SYSTEM UNIT POWER DISTRIBUTION BOARD

BA11 THERMAL SWITCH

P36

1
2
3
4
P2-7 5 CLK
P14-11 6 CLK
P3-2 7 H5V
P14-3 8 H5V

POWER DISTRIBUTION CABLE HARNESS

NOTES:

1 If Bipolar Memory is used H746 is replaced by H744 in slot H and connector P31 is used instead of P26

2. If slot J H744 is replaced in future, use P30 instead of P27

THIS SHEET APPLIES TO MACHINES WITH SERIAL NUMBERS LESS THAN 2000

FIRST USED ON OPTION/MODEL: 11/45	QTY.	DESCRIPTION	PART NO. / ITEM NO.
	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 4-11-72
CHK — DATE 4/11/72
ENG — DATE
PROJ. ENG. — DATE 4/14/72
MOD. 9 — DATE 4/24/72

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: OLD POWER SYSTEMS CONFIGURATION

NEXT HIGHER ASSY. 8-DD-11/45-Ø
SCALE —
SHEET 5 OF 5

SIZE D | CODE IC | NUMBER 11/45-Ø-1 | REV. E
DIST.

REVISIONS | REV. | CHANGE NO. | CHK

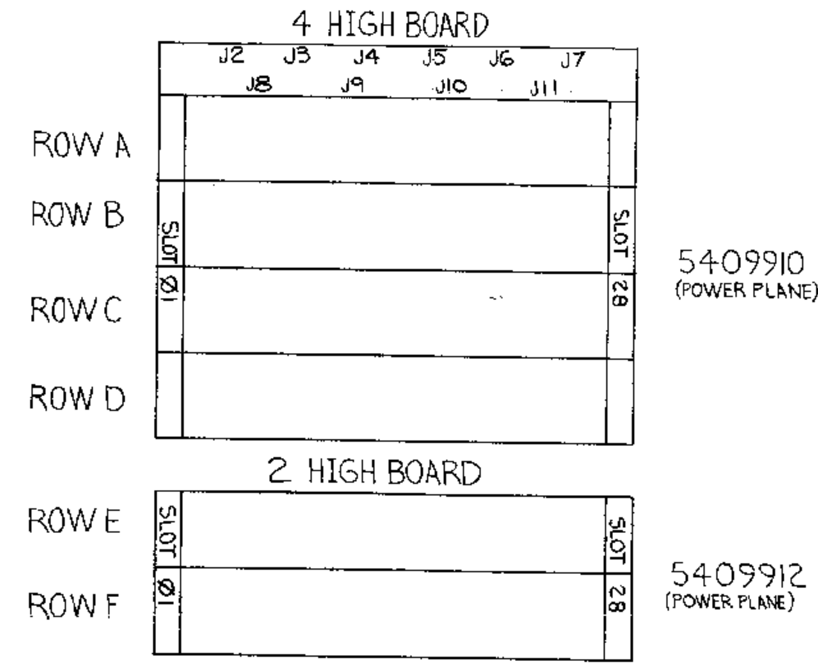
DEC FORM NO DRD 100-A

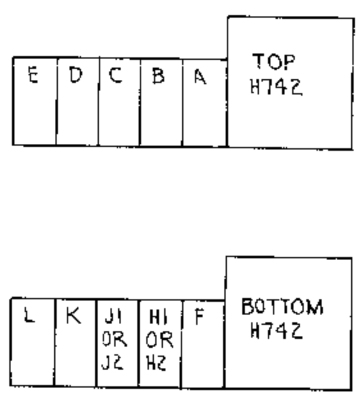
VOLTAGE	REGULATOR LOCATION	PIN	ROW	SLOT	MATE N LOCK CONNECTION	WIRE WRAP PIN
+5V	A	A2,V1	A-F	2-5	J2-5,6	
	B	A2		1,6-9	J2-3,4	
	B	V1		6-9	J2-3,4	
	C	A2, V1		10-15	J3-5,6	
	J1			16-18	J4-6,7	
	H2			19,20	J4-1,2 , J5-8	
	K			21-23	J5-1,2,3	
	L	A2,V1	A-F	24,25	J6-5,6,7	
	J	A2	A	16	J5-4,7, J6-8	
	D		A,B	26	J7-8	
	D		C-F	26-28	J7-8	
+5V	J1	A2	A,B	27,28	J7-5,6	
+8V	TOP H742	B1	F	1	J2-8	SP-1
LTCL	TOP H742	R1	C	1	J2-7	
FV1	J2	—	—	—	J2-1,2	SP-2
DCLO1	TOP H742	U1	C	12	J3-8	
ACLO1	TOP H742	S1	C	12	J3-7	
-15V	E	B2	E	2	J3-4	SP-3
+15V	TOP H742	A1	E	15	J3-2,3	SP-4
-15V	BOT. H742	B2	E	16	J3-1	SP-5
FV1	J2	—	—	—	J4-8	SP-6
FV2	J2	—	—	—	J4-4,5, J6-3	SP7, SP1Ø
DCLOX	BOT. H742	U2	B	16	J4-3	
-15V	BOT. H742	B2	E	21	J5-5,6	SP-8
-5V	H1	C1	F	17-20,22-25	J6-4	SP-9
+23V	H1	V2	A,C,E	17-20,22-25	J6-2	
+19V	H1	U2	A,C,E	17-20,22-25	J6-1	
ACLO2	BOT. H742	F1	B	28	J7-7	
DCLO2	BOT. H742	F2	B	28	J7-4	

	PIN	ROW	SLOT	MATE N LOCK CONNECTION
GROUND	C2,N2,T1	A-F	2-25	J8-1, 8
	C2, T1	A-F	1,26-28	J9-1, 8
	B2, V2	A,B		J1Ø-1, 8
	N1,P1,R1,S1	A		J11 -1,8
	D1, E1	B	1,26-28	

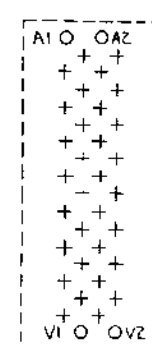
NOTES:

1. THIS LISTING IS FURNISHED TO SHOW COMBINATIONS OF MATE N LOCK CONNECTORS (J#) AND WIREWRAP PINS THAT ARE TO BE ETCHED TOGETHER. VOLTAGES WILL BE WIREWRAPPED BETWEEN 5409910 AND 5409912
2. ALL MATE N LOCK CONNECTORS AND PINS LISTED ARE CONNECTED TOGETHER BY THE GROUND PLANE (5409910-4 HIGH BOARD). WIREWRAP CONNECTIONS WILL BE MADE BETWEEN DXXT1 (5409910) AND EXXC2 (5409912)-XX= SLOT NUMBERS Ø1-28

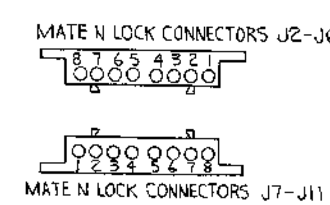




REGULATOR LOCATIONS



PIN CONFIGURATION
(ONE ROW-ONE SLOT SECTION)



FIRST USED ON OPTION/MODEL	PDP11/45
QTY. / DESCRIPTION / PART NO. / ITEM NO.	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 4/26/72
CHK'D	DATE
ENG	DATE
PROJ. ENG.	DATE 4/28/72
PROD.	DATE 5-1-72
MATERIAL	—
FINISH	—
NEXT HIGHER ASSY.	B-DD-11/45-0
SCALE	—
SHEET	1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: 11/45 BACK PANEL PC BOARD

SIZE D CODE IC NUMBER 11/45-0-2 REV

REVISIONS: REV / CHANGE NO. / CHK

DEC FORM NO DRD 100-A

SIZE	CODE	NUMBER	REV.
K	WL	7009540-0-2	A

REVISIONS			
CHK	CHANGE NO.		REV.
RJ	11/45-00057	R. Vowles 3-21-74	A

V. BOAEN
Darell Boan

FIRST USED ON OPTION MODEL
11/45

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. B. Blagaert	DATE 10-5-73	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. G. Nahay	DATE 11/5/73	
ENG. Darell Boan	DATE 11/5/73	TITLE
PROJ. ENG. Darell Boan	DATE 11/5/73	WIRE LIST
PROD. Jack Norman	DATE 11-5-73	
NEXT HIGHER ASSEMBLY J-IA-7009540-0-0		SIZE K / CODE WL / NUMBER 7009540-0-2 / REV. A
SCALE —		DIST.
SHEET 1 OF —		

DEC FORM NO.
DRB 109

RUN NAME	A/P	PIN LOCATION		BAY ORDER	Q	DRAW	RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
SEE NOTE:		NOTE										ALL WIRES #14 AWG	X	1
SEE NOTE:		NOTE										UNLESS OTHERWISE NOTED		1
+15V1		P14-2												
+15V1		P25-4	42.25"						GRY				X	2
														2
+15V2		P12-2												
+15V2		P14-3	56.5"						GRY				X	3
														3
+15V3		P21-4												
+15V3		P25-5	51"						GRY				X	4
														4
+15V4		P3-2												
+15V4		P36-2	31.5"						GRY				X	5
														5
+15V5		P1-1												
+15V5		P3-3	18"						GRY				X	6
														6
+19.7VH1		P26-4	72"						GRN				X	7
+19.7VH1		P6-2												7
+20VF1		P12-3												
+20VF1		P40-5	62.5"									ORN-BLK TWP(GND E2)	X	8
														8
+23.2VH1		P26-5	72"						YEL				X	9
+23.2VH1		P6-3												9
+5J1		P27-2	80"						RED				X	10
+5J1		P4-5												10
+5V1		P5-3												
+5V1		P5-4	2.25"						RED				X	11
														11
+5V2		P5-7												
+5V2		P5-8	2.25"						RED				X	12
														12
+5V3		P6-7												
+5V3		P6-8	2.25"						RED				X	13
														13
+5V4		P12-4	20.5"						RED				X	14
+5V4		P7-8												14
+5V5		P4-4												
+5V5		P7-6	17"						RED				X	15
														15
+5VA1		P17-2	65"						RED				X	16
+5VA1		P2-6												16
+5VA2		P17-5	65.5"						RED				X	17
+5VA2		P2-5												17
+5VB2		P18-5	69"						RED				X	18
+5VB2		P2-1												18

RUN NAME	A/P	PIN LOCATION		BAY ORDER	Q	DRAW	RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
+5VC1		P19-2	71"						RED				X	19
+5VC1		P3-6												19
+5VC2		P19-5	71"						RED				X	20
+5VC2		P3-5												20
+5VD1		P1-8												
+5VD1		P20-2	82"						RED				X	21
														21
+5VD2		P12-1												
+5VD2		P20-5	59.5"						RED				X	22
														22
+5VE1		P18-2	69"						RED				X	23
+5VE1		P2-2												23
+5VH1		P31-2	77"						RED				X	24
+5VH1		P4-2												24
+5VH2		P31-5	77"						RED				X	25
+5VH2		P4-1												25
+5VJ2		P27-5	72.5"						RED				X	26
+5VJ2		P7-5												26
+5VK1		P28-2	81.25"						RED				X	27
+5VK1		P5-2												27
+5VK2		P28-5	81"						RED				X	28
+5VK2		P5-1												28
+5VL1		P29-2	81"						RED				X	29
+5VL1		P6-6												29
+5VL2		P29-5	81"						RED				X	30
+5VL2		P6-5												30
+8V		P14-1	71"						WHT				X	31
+8V		P2-8												31
-15V1		P22-4	76.5"						BLU				X	32
-15V1		P5-6												32
-15V2		J45-4	21"						BLU				X	33
-15V2		P12-13												33
-15V3		P07-1	4"						BLU			#18AWG	X	34
-15V3		P45-1	2"						BLU			#18AWG		34
-15V3		P45-3												34
-15V4		P1-5												
-15V4		P7-3	27.75"						BLU				X	35
														35
-15V5		P3-1												
-15V5		P5-5	14.5"						BLU				X	36
														36

RUN NAME	A/P	PIN LOCATION	BAY ORDER	Q	DRAW	RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
-15V6		P3-4											
-15V6		P7-2 19.5"			BLU							X	37
													37
-15VE1		P21-1											
-15VE1		P36-13 64"			BLU							X	38
													38
-15VF1		J45-1											
-15VF1		P25-1 65"			BLU							X	39
													39
-5VE1		P12-14											
-5VE1		P40-3 62.75"			BRN							X	40
													40
-5VH1		P26-3 72.5"			BRN								
-5VH1		P6-4										X	41
													41
AC L01		P14-8 70.5			YEL						#18AWG	X	42
AC L01		P3-7											42
AC L01'		P14-8											
AC L01'		P22-10 47"			YEL						#18AWG	X	43
													43
AC L02		P14-10			YEL						#18AWG	X	44
AC L02		P7-7 60.25"											44
AC L02'		P14-10											
AC L02'		P22-8 46"			YEL						#18AWG	X	45
													45
AC01		P16-3											
AC01		P18-6 12"									RED-WHT TWP(AC2)	X	46
													46
AC02		P16-4											
AC02		P18-7 12"									WHT-RED TWP(AC1)	X	47
													47
AC03		P16-7											
AC03		P19-6 15.75"									RED-WHT TWP(AC4)	X	48
													48
AC04		P16-8											
AC04		P19-7 15.75"									WHT-RED TWP(AC3)	X	49
													49
AC05		P15-1											
AC05		P17-6 11.5"									RED-WHT TWP(AC6)	X	50
													50
AC06		P15-2											
AC06		P17-7 11.5"									WHT-RED TWP(AC5)	X	51
													51
AC07		P15-8											
AC07		P20-6 16"									RED-WHT TWP(AC8)	X	52
													52
AC08		P15-10											
AC08		P20-7 16"									WHT-RED TWP(AC7)	X	53
													53
AC09		P15-9											
AC09		P21-6 21.5"									RED-WHT TWP(AC10)	X	54
													54

RUN NAME	A/P	PIN LOCATION	BAY ORDER	Q	DRAW	RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
AC10		P15-12											
AC10		P21-8 21.5"									WHT-RED TWP(AC9)	X	55
													55
AC11		P24-1											
AC11		P27-6 21"									RED-WHT TWP(AC12)	X	56
													56
AC12		P24-2											
AC12		P27-7 21"									WHT-RED TWP(AC11)	X	57
													57
AC15		P24-5											
AC15		P26-7 18"									RED-WHT TWP(AC16)	X	58
													58
AC16		P24-6											
AC16		P26-8 18"									WHT-RED TWP(AC15)	X	59
													59
AC17		P24-7											
AC17		P31-6 17.5"									RED-WHT TWP(AC18)	X	60
													60
AC18		P24-8											
AC18		P31-7 17.5"									WHT-RED TWP(AC17)	X	61
													61
AC19		P23-1											
AC19		P29-6 21"									RED-WHT TWP(AC20)	X	62
													62
AC20		P23-2											
AC20		P29-7 21"									WHT-RED TWP(AC19)	X	63
													63
AC21		P23-8											
AC21		P28-6 17.5"									RED-WHT TWP(AC22)	X	64
													64
AC22		P23-10											
AC22		P28-7 17.5"									WHT-RED TWP(AC21)	X	65
													65
AC23		P23-9											
AC23		P25-6 9.5"									RED-WHT TWP(AC24)	X	66
													66
AC24		P23-12											
AC24		P25-8 9.5"									WHT-RED TWP(AC23)	X	67
													67
AC25		P13-1											
AC25		P13-3 2.75"			RED						#18AWG	X	68
													68
AC25'		P13-1											
AC25'		P23-5 64.5"			RED						CABLE 9107761	X	69
													69
AC26		P13-2											
AC26		P23-6 64.5"			WHT						CABLE 9107761	X	70
													70
AC26'		P13-2											
AC26'		P13-4 2.75"			WH						#18AWG	X	71
													71
AC27		P15-5											
AC27		P34 57"									RED-WHT TWP TO TIME MTR	X	72
													72

RUN NAME	A/P	PIN LOCATION	BAY ORDER	Q	DRAW RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
AC28		P15-6									X	73
AC28		P35 57"								WHT-RED TWP TO TIME MTR		73
DC L01		P14-12 69.5"					VIO			#18AWG	X	74
DC L01		P3-8										74
DC L02		P22-9 71"					VIO			#18AWG	X	75
DC L02		P7-4										75
DC LOX		P22-12					VIO			#18AWG	X	76
DC LOX		P4-3 78.5"										76
GND 01		P14-4									X	77
GND 01		P21-3 28.5"					BLK					77
GND 02		P14-5 73"					BLK				X	78
GND 02		P8-8										78
GND 03		P14-6									X	79
GND 03		P25-3 43.5"					BLK					79
GND 04		P10-5									X	80
GND 04		P22-3 74"					BLK					80
GND 05		P38 9"					BLK				X	81
GND 05		P9-6										81
GND 06		P11-7									X	82
GND 06		P39 9"					BLK					82
GND 09		P12-8 31.5"					BLK				X	83
GND 09		P9-3										83
GND 10		P11-8									X	84
GND 10		P36-8 25.5"					BLK					84
GND 11		P1-2									X	85
GND 11		P10-3 24.5"					BLK					85
GND 12		P1-6									X	86
GND 12		P10-4 24.5"					BLK					86
GND 13		P41 9"					BLK				X	87
GND 13		P8-7										87
GND A1		P17-3 64.5"					BLK				X	88
GND A1		P8-2										88
GND A2		P17-4 66"					BLK				X	89
GND A2		P8-1										89
GND B1		P16-3 70.75"					BLK				X	90
GND B1		P8-4										90

RUN NAME	A/P	PIN LOCATION	BAY ORDER	Q	DRAW RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
GND B2		P18-4 71.5"					BLK				X	91
GND B2		P8-3										91
GND C1		P19-3 73.5"					BLK				X	92
GND C1		P8-6										92
GND C2		P19-4 73.5"					BLK				X	93
GND C2		P8-5										93
GND D1		P1-7									X	94
GND D1		P20-3 82"					BLK					94
GND D2		P12-7									X	95
GND D2		P20-4 61"					BLK					95
GND E1		P21-2									X	96
GND E1		P36-11 64"					BLK					96
GND E2		P12-5									X	97
GND E2		P40-2 63"								BLK-ORN TWP(+20VDC)		97
GND F1		P25-2 75.5"					BLK				X	98
GND F1		P9-4										98
GND H1		P11-1									X	99
GND H1		P31-3 74.5"					BLK					99
GND H2		P10-8									X	100
GND H2		P31-4 74"					BLK					100
GND H3		P11-2									X	101
GND H3		P26-2 73"					BLK					101
GND J1		P27-3 82.5"					BLK				X	102
GND J1		P9-2										102
GND J2		P27-4 82.5"					BLK				X	103
GND J2		P9-1										103
GND K1		P11-4									X	104
GND K1		P28-3 78"					BLK					104
GND K2		P11-3									X	105
GND K2		P28-4 78"					BLK					105
GND L1		P11-6									X	106
GND L1		P29-3 81"					BLK					106
GND L2		P11-5									X	107
GND L2		P29-4 81"					BLK					107
LINE CLOCK		P14-11									X	108
LINE CLOCK		P37-2 58.5"					BRN			#18AWG		108

RUN NAME	A/P	PIN LOCATION	BAY ORDER	Q	DRAW RV	RG	Y	X	Z LEVEL	REMARKS	NEW RUN INDICATOR	RUN NUM
LINE CLOCK'		P2-7										
LINE CLOCK'		P37-2	33"			BRN				#18AWG	X	109 109
LO GND 01		P10-1										
LO GND 01		P14-7	66"			BLK				#18AWG	X	110 110
LO GND 02		P10-2										
LO GND 02		P22-7	78"			BLK				#18AWG	X	111 111
LO GND 03		P37-1	30.5"			BLK				#18AWG	X	112
LO GND 03		P9-5										112
PWR CONT COM1		P1-3									X	113
PWR CONT COM1		P32-3	98.25"			BLK-WHT				TWP(P.C SW1)#18AWG		113
PWR CONT SW1		P1-4									X	114
PWR CONT SW1		P32-1	98.25"			WHT-BLK				TWP(P.C COM1)#18AWG		114
SHIELD		P23-4								CABLE 9107761	X	115
THERM 1		P13-6									X	116
THERM 1		P33-3	77.75"			BLK				#18AWG		116
THERM 2		P13-5									X	117
THERM 2		P33-2	77.75"			RED				#18AWG		117

DRAWING DIRECTORY

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

CUSTOMER PRINT SET INDEX

SEQUENCE	
DRAWING DIRECTORY	B-DD-861-0
POWER CONTROL, 861	E-UA-861-0-0
PILOT CONTROL	D-CS-5410206-0-1
CIRCUIT SCHEMATIC 861	D-CS-861-A-1
CIRCUIT SCHEMATIC 861	D-CS-861-B-1
CIRCUIT SCHEMATIC 861	D-CS-861-C-1
PACKAGING INSTRUCTION	A-PI-3700083-0-0

SEQUENCE

THIS IS PRINT SET

UNIT VARIATIONS

VAR	TITLE	PRINT SET
861	POWER CONTROL, 861	

REVISIONS

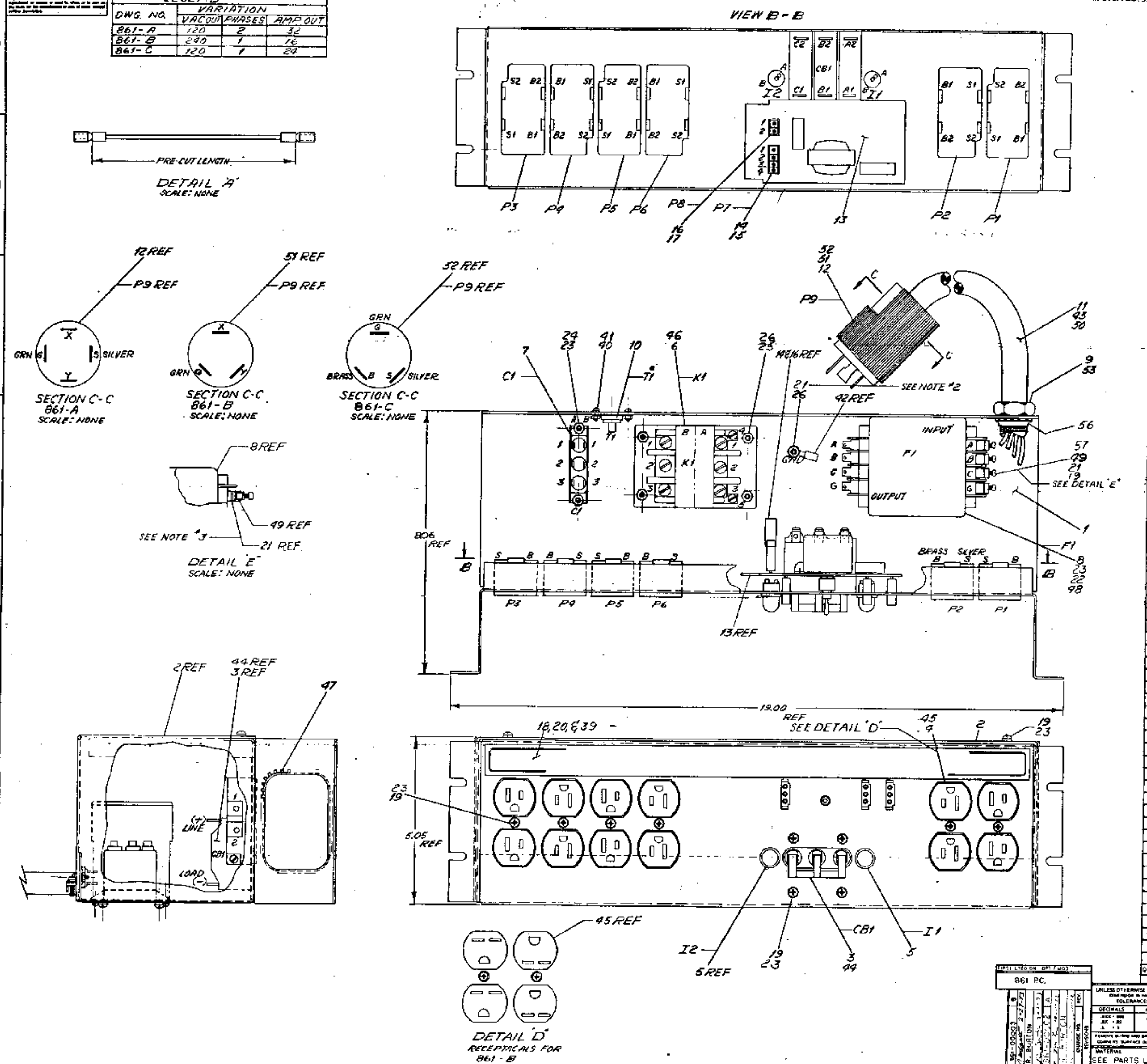
REV	CHG. NO.	DATE
A	861-3	2/73
B	861-4	8/74

USED ON OPTION/MODEL	DRN. SCHMIDT	DATE 9/13/72	TITLE 861 POWER CONTROL
	CHK'D. B. ALLEN	DATE 9/13/72	
	PROJ ENG. JIM KALAGHER	DATE 9/13/72	
	PROD. Fazio Paul	DATE 9/25/72	SIZE B, CODE DD, NUMBER 861-0, REV B
SHEET 1 OF 3	FIELD SERV. Paton Irving	DATE 9/25/72	DIST

DEC 16-(325)-1062-1A-R072

DRB 106

LEGEND			
DWG. NO.	VARIATION		
	VAC OUT	PHASES	AMP OUT
861-A	120	2	32
861-B	240	1	16
861-C	120	1	24



NOTES:

1. FOR WIRE TABLES, SEE SHEET #2.
2. LOCKWASHER (ITEM 21) MUST BE PLACED UNDER SOLDERLESS CONN (ITEM 42)
3. LOCKWASHER (ITEM 19) MUST BE PLACED BETWEEN FILTER (ITEM #8) AND TERM CLAMP (ITEM #49)

861-C QTY.	861-B QTY.	861-A QTY	DESCRIPTION	PART NO.	ITEM NO.
3	—	—	CLAMP TERMINAL	1211223-01	57
1	1	1	LOCKNUT	9009309	56
18	—	—	CONN, SOLDERLESS, (YEL)	9008283	55
A/R	—	—	WIRE, #10 AWG I.PVC. (WHT)	9107390-99	54
—	1	—	STRAIN RELIEF (BLU)	1211198-00	53
1	—	—	MALE PLUG, 125V 30A	1211195	52
—	1	—	MALE PLUG, 250V 20A	1211192	51
1	—	—	POWER CORD 15 FT. 12/3	1100025	50
	3	4	CLAMP TERMINAL	1211223-00	49
1	—	—	FILTER 2 POLE 3 WIRE	1211199	48
A/R	A/R	A/R	GROMMET, CATERPILLAR	9007035	47
—	1	—	CONTACTOR, 230 V	1211197-1	46
—	4	—	RECEPTACLE, 15A 230VAC	1211204	45
1	—	—	CIRCUIT BREAKER 20-20-30	1211196	44
—	A/R	—	POWER CORD 15 FT. 14/3	1100027	43
1	1	1	CONN, SOLDERLESS	9007928	42
2	2	2	NUT, KEP #4-40	9006557	41
2	2	2	SCREW, PHL PAN HD #4-40 x 5/8 LG.	9008301-1	40
1	—	—	NAME PLATE, 861-C	APS 3611218-00	39
4	4	4	CONN, ARKLESS DUAL 3000	9007925	38
27	37	48	CONN, SOLDERLESS (BLU)	9007919	37
7	6	7	CONN, SOLDERLESS (RED)	9007917	36
A/R	A/R	A/R	WIRE, #18 AWG I.PVC. (GRN)	9107360-33	35
A/R	A/R	A/R	WIRE #18 AWG I.PVC (BRN)	9107360-11	34
A/R	A/R	A/R	WIRE, #18 AWG I.PVC. (BLK)	9107360-00	33
A/R	A/R	A/R	WIRE, #18 AWG I.PVC (WHT)	9107360-99	32
A/R	—	A/R	WIRE, #18 AWG I.PVC (RED)	9107360-22	31
A/R	A/R	A/R	WIRE, #14 AWG I.PVC. (GRN)	9107370-55	30
A/R	A/R	A/R	WIRE, #14 AWG I.PVC (BLK)	9107370-00	29
—	A/R	A/R	WIRE, #14 AWG I.PVC (WHT)	9107370-99	28
A/R	—	A/R	WIRE, #14 AWG I.PVC (RED)	9107370-22	27
8	5	5	NUT, KEP #8-32	9006563	26
4	4	4	SCREW, PHL PAN HD #8-32 x 3/8 LG.	9006037-1	25
2	2	2	NUT, KEP #6-32	9006560	24
18	18	18	SCREW, PHL PAN HD #6-32 x 3/8 LG.	9006021-1	23
2	2	2	LOCKWASHER, #6 EXT TOOTH	9007645	22
4	1	1	LOCKWASHER #8 INT. TOOTH	9006634	21
—	1	—	NAME PLATE, 861-B	APS-3611217-00	20
14	17	18	LOCKWASHER, #6 INT TOOTH	9006635	19
—	—	1	NAME PLATE, 861-A	APS-3611216-00	18
2	2	2	PIN, MALE	1209378-01	17
1	1	1	HOUSING 2-PIN MALE	1210822-2	16
3	3	3	PIN, FEMALE	1209379-01	15
1	1	1	HOUSING, 4-PIN FEMALE	1210821-9	14
1	1	1	P.C BOARD ASSY	DC-5416P06-0-1	13
—	—	1	MALE PLUG, 125/250V 20A	1211095	12
—	—	A/R	POWER CORD 15 FT. 12/4	1100026	11
1	1	1	THERMOSTAT	1211158	10
1	—	1	STRAIN RELIEF (GRN)	1211198-01	9
—	1	1	FILTER 3 POLE 4 WIRE	1211157	8
1	1	1	CAPACITOR	1000034	7
1	—	1	CONTACTOR 115 V	1211197-0	6
2	2	2	LAMP, POWER 115 V	1205303	5
6	—	6	RECEPTACLE 15A, 125 VAC	1205351	4
—	1	1	CIRCUIT BREAKER, 20A 2 POLE	1211142	3
1	1	1	COVER, 861 P.C.	C-MD-7410568-0-0	2
1	1	1	CHASSIS, 861 P.C	E-IF-7410567-0-0	1

PARTS LIST

FIRST USED ON OPT/MOD: 861 P.C.

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	
DECIMALS	ANGLES
MATERIAL	SEE PARTS LIST
NEXT HIGHER ASSY.	B-DD-861-0
SCALE	1/1
SHEET	1 OF 2

digital EQUIPMENT CORPORATION

TITLE: POWER CONTROL, 861

SIZE	CODE	NUMBER	REV.
E	JA	861-0-0	

WIRE TABLE 861-A

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONN	FROM POINT	FROM WITH	TO CONN	TO POINT	TO WITH	REMARKS SEE DETAIL "A"
29	BLK	14	P1-B2		37	K1-A3		37	12.0
33	BLK	18	P1-B1		36	K1-A5		36	12.0
28	WHT	14	P1-S1		37	P2-S1		37	9.0
28	WHT	14	P1-S2		37	K1-A2		37	12.0
32	WHT	18	P2-S2		36	P7-2		15	10.0
31	RED	18	P2-B2		36	P7-3		15	10.0
27	RED	14	P2-B1		37	K1-A1		37	12.0
28	WHT	14	P3-S1		37	P4-S2		37	6.0
28	WHT	14	P3-S2		37	C1-A3		37	6.0
27	RED	14	P3-B1		37	C1-A1		37	6.0
27	RED	14	P3-B2		37	P4-B1		37	9.0
28	WHT	14	P4-S1		37	P5-S2		37	9.0
28	WHT	14	P5-S1		37	P6-S2		37	6.0
29	BLK	14	P5-B1		37	C1-A2		37	6.0
29	BLK	14	P5-B2		37	P6-B1		37	9.0
29	BLK	14	K1-B3		37	C1-B2		37	9.0
28	WHT	14	K1-B2		37	C1-B3	C	37	9.0
27	RED	14	K1-B1		37	C1-B1		37	9.0
5	BLK	14	I1-A		—	CB1-B1	LINE +	38	—
5	BLK	14	I1-B		—	CB1-A1	LINE +	38	—
5	BLK	14	I2-A		—	CB1-B1	LINE +	38	—
5	BLK	14	I2-B		—	CB1-C1	LINE +	38	—
29	BLK	14	F1-C	OUTPUT	37	CB1-A1	LINE +	37	6.0
28	WHT	14	F1-B	OUTPUT	37	CB1-B1	LINE +	37	6.0
27	RED	14	F1-A	OUTPUT	37	CB1-C1	LINE +	37	6.0
27	RED	14	K1-A1		37	CB1-C2	LOAD −	37	6.0
28	WHT	14	K1-A2		37	CB1-B2	LOAD −	37	6.0
29	BLK	14	K1-A3		37	CB1-A2	LOAD −	37	6.0
30	GRN	14	F1-G	OUTPUT	37	GND		42	6.0
34	BRN	18	K1-A4		36	P7-1		15	*10.0
35	ORN	18	P8-1		17	T1		36	10.0
35	ORN	18	P8-2		17	T1		36	10.0
11	BLK	12	P9-Y		—	F1-C	INPUT	49	
11	RED	12	P9-X		—	F1-A	INPUT	49	
11	WHT	12	P9-S		—	F1-B	INPUT	49	
11	GRN	12	P9-G		—	F1-G	INPUT	49	

WIRE TABLE 861-B

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONN	FROM POINT	FROM WITH	TO CONN	TO POINT	TO WITH	REMARKS SEE DETAIL "A"
29	BLK	14	P1-B2		37	K1-A3		37	12.0
29	BLK	14	P1-B1		37	P2-B2		37	6.0
28	WHT	14	P1-S1		37	P2-S1		37	9.0
28	WHT	14	P1-S2		37	K1-A2		37	12.0
32	WHT	18	P2-S2		36	P7-2		15	10.0
28	WHT	14	P3-S1		37	P4-S2		37	6.0
28	WHT	14	P3-S2		37	C1-A3		37	6.0
29	BLK	14	P3-B2		37	P4-B1		37	9.0
28	WHT	14	P4-S1		37	P5-S2		37	9.0
28	WHT	14	P5-S1		37	P6-S2		37	6.0
29	BLK	14	P5-B1		37	C1-A2		37	6.0
29	BLK	14	P5-B2		37	P6-B1		37	9.0
29	BLK	14	K1-B3		37	C1-B2		37	9.0
28	WHT	14	K1-B2		31	C1-B3	C	37	9.0
5	BLK	14	I1-A		—	CB1-B1	LINE +	38	—
5	BLK	14	I1-B		—	CB1-A1	LINE +	38	—
5	BLK	14	I2-A		—	CB1-B1	LINE +	38	—
5	BLK	14	I2-B		—	CB1-C1	LINE +	38	—
29	BLK	14	F1-C	OUTPUT	37	CB1-A1	LINE +	37	6.0
28	WHT	14	F1-B	OUTPUT	37	CB1-C1	LINE +	37	6.0
28	WHT	14	K1-A2		37	CB1-C2	LOAD −	37	6.0
29	BLK	14	K1-A3		37	CB1-A2	LOAD −	37	6.0
30	GRN	14	F1-G	OUTPUT	37	GND		42	6.0
34	BRN	18	K1-A4		36	P7-1		15	10.0
35	ORN	18	P8-1		17	T1		36	10.0
35	ORN	18	P8-2		17	T1		36	10.0
33	BLK	18	P2-B1		36	P7-4		15	10.0
33	BLK	18	K1-A5		36				10.0
43	GRN	14	P9-G		—	F1-G	INPUT	49	—
43	BLK	14	P9-Y		—	F1-C	INPUT	49	—
43	WHT	14	P9-X		—	F1-B	INPUT	49	—
29	BLK	14	P4-B2		37	P6-B2		37	6.0

WIRE TABLE 861-C

ITEM NO	DESCRIPTION COLOR	AWG	FROM CONN	FROM POINT	FROM WITH	TO CONN	TO POINT	TO WITH	REMARKS SEE DETAIL "A"
29	BLK	14	P1-B2		37	K1-A3		37	12.0
33	BLK	18	P1-B1		36	K1-A5		36	12.0
54	WHT	10	P1-S1		55	P2-S1		55	9.0
59	WHT	10	P1-S2		55	K1-A2		55	12.0
32	WHT	18	P2-S2		36	P7-2		15	10.0
31	RED	18	P2-B2		36	P7-3		15	10.0
27	RED	14	P2-B1		37	K1-A1		37	12.0
59	WHT	10	P3-S1		55	P4-S2		55	6.0
59	WHT	10	P3-S2		55	C1-A3		55	6.0
27	RED	14	P3-B1		37	C1-A1		37	6.0
27	RED	14	P3-B2		37	P4-B1		37	9.0
59	WHT	10	P4-S1		55	P5-S2		55	9.0
54	WHT	10	P5-S1		55	P6-S2		55	6.0
29	BLK	14	P5-B1		37	C1-A2		37	6.0
29	BLK	14	P5-B2		37	P6-B1		37	9.0
29	BLK	14	K1-B3		37	C1-B2		37	9.0
59	WHT	10	K1-B2		55	C1-B3	C	55	9.0
27	RED	14	K1-B1		37	C1-B1		37	9.0
5	BLK	14	I1-A		—	CB1-A1	LINE +	38	—
5	BLK	14	I1-B		—	CB1-B1	LINE +	38	—
5	BLK	14	I2-A		—	CB1-A1	LINE +	38	—
5	BLK	14	I2-B		—	CB1-C1	LINE +	38	—
29	BLK	14	F1-B	OUTPUT	37	CB1-B1	LINE +	37	6.0
59	WHT	10	F1-A	OUTPUT	55	CB1-A1	LINE +	55	6.0
27	RED	14	F1-B	OUTPUT	37	CB1-C1	LINE +	37	6.0
27	RED	14	K1-A1		37	CB1-C2	LOAD −	37	6.0
59	WHT	10	K1-A2		55	CB1-A2	LOAD −	55	6.0
29	BLK	14	K1-A3		37	CB1-B2	LOAD −	37	6.0
30	GRN	14	F1-G	OUTPUT	37	GND		42	6.0
35	ORN	18	P8-1		17	T1		36	10.0
35	ORN	18	P8-2		17	T1		36	10.0
39	BRN	18	K1-A4		36	P7-1		15	10.0
50	GRN	12	P9-G		—	F1-G	INPUT	49	
50	BLK	12	P9-B		—	F1-B	INPUT	49	
50	WHT	12	P9-S		—	F1-A	INPUT	49	

FIRST USED ON OPTION/MODEL: 861 PC

QTY | DESCRIPTION | PART NO | ITEM NO

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES

DECIMALS | ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN | DATE | CHKD | DATE | ENG | DATE | PROJ ENG | DATE | PROD | DATE

NEXT HIGHER ASSY

SCALE

SHEET 2 OF 2

DIGITAL EQUIPMENT CORPORATION

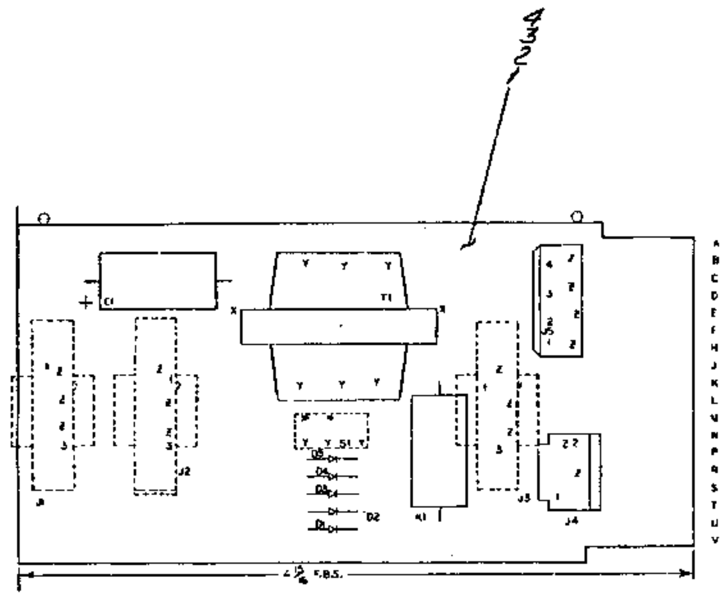
TITLE: POWER CONTROL, 861

SIZE E | CODE UA | NUMBER 861-0-0 | REV. B

DIST

UA 861-0-0

NOTES:



QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	S1	SWITCH, 3-POS.	12-11132	14
1	K1	RELAY, REED	12-11179	13
1	T1	PC TRANSFORMER	16-11179	12
4	FOR USE ON J5	PIN, PC MALE MATE-N-LOCK	1210823	11
1	J4	SOCKET, 2 PIN MATE-N-LOCK	1210321-02	10
11	FOR USE ON J1-J4	PIN, PC FEMALE MATE-N-LOCK	1209756	9
1	J5	PLUG, 4 PIN MATE-N-LOCK	1203351-04	8
3	J1, J2, J3	SOCKET 3PIN MATE-N-LOCK	1203350-03	7
5	D1-D5	DIODE 1N4004	1105736	6
1	C1	CAP, 50UF, 50V 6% AL EL	1000330	5
REF		MODULE ECO HISTORY	[illegible]5410206-0-5	4
REF		ASSY DRILLING HOLE LAYOUT	[illegible]5410206-0-5	3
REF		X-Y COORDINATE HOLE LOCA.	[illegible]-5410206-[illegible]	2
1		ETC CKT BOARD	5010305	1

PARTS LIST

FIRST USED ON OPTION MODEL: 661 PC.

ETCH BOARD REV: B

IC TYPE	GND	+5V

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

IC PIN LOCATIONS

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

SEMICONDUCTOR CONVERSION CHART

REVISIONS — CHANGE NO. — REV

DRN. — DATE
CHK'D — DATE
ENG. — DATE
PROJ. ENG. — DATE
PROD. — DATE
NEXT HIGHER ASSY

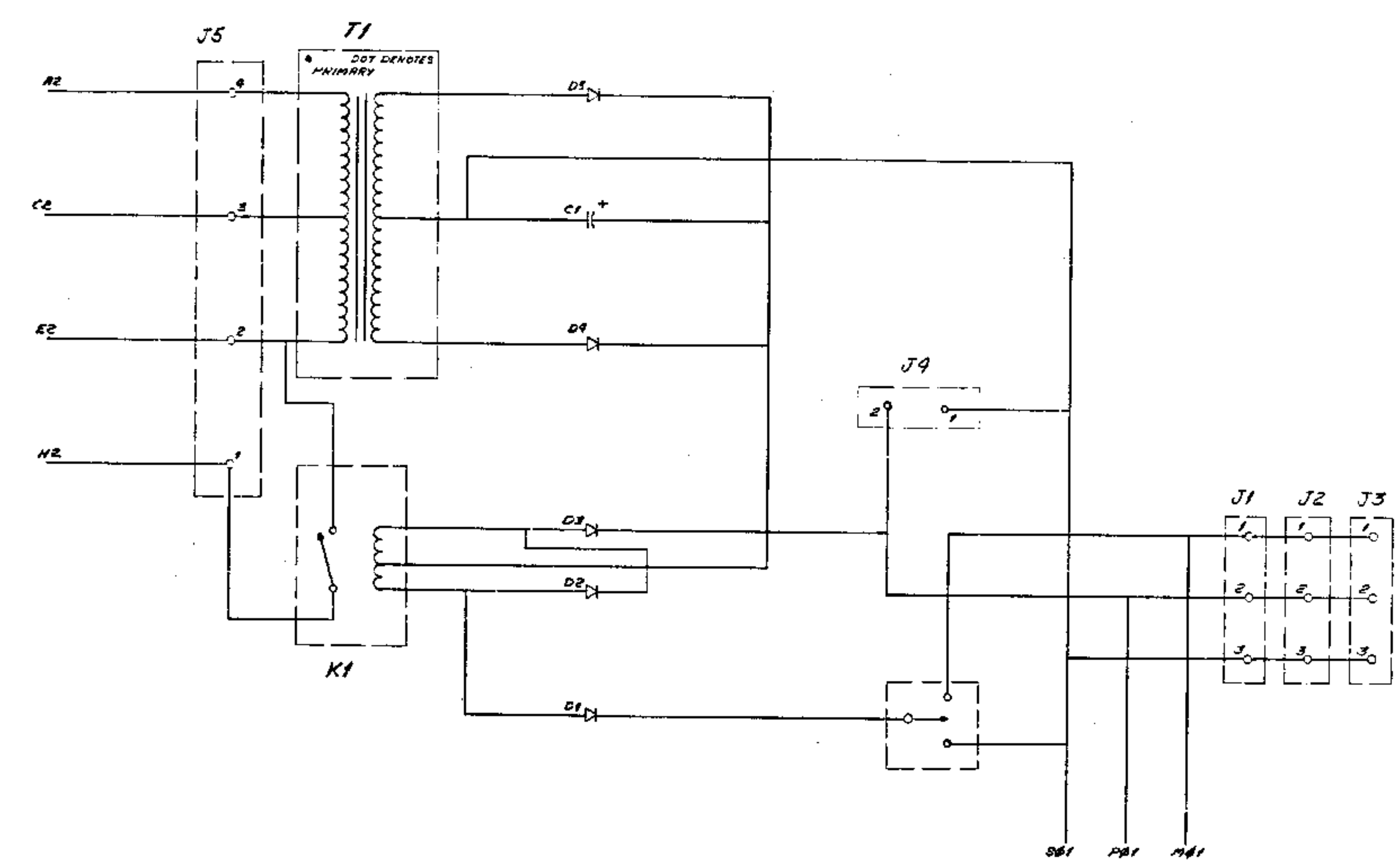
SCALE 2/1
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: PILOT CONTROL

SIZE	CODE	NUMBER	REV.
D	CS	5410206-0-1	A

DIST



FIRST USED ON OPTION-MODEL: 861 P.C.	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		PARTS LIST	

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS / ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY

MATERIAL

FINISH

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

NEXT HIGHER ASSY

SCALE NONE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION

TITLE: PILOT CONTROL

SIZE: D CODE: CS NUMBER: 5410206-0-1 REV: A

DIST

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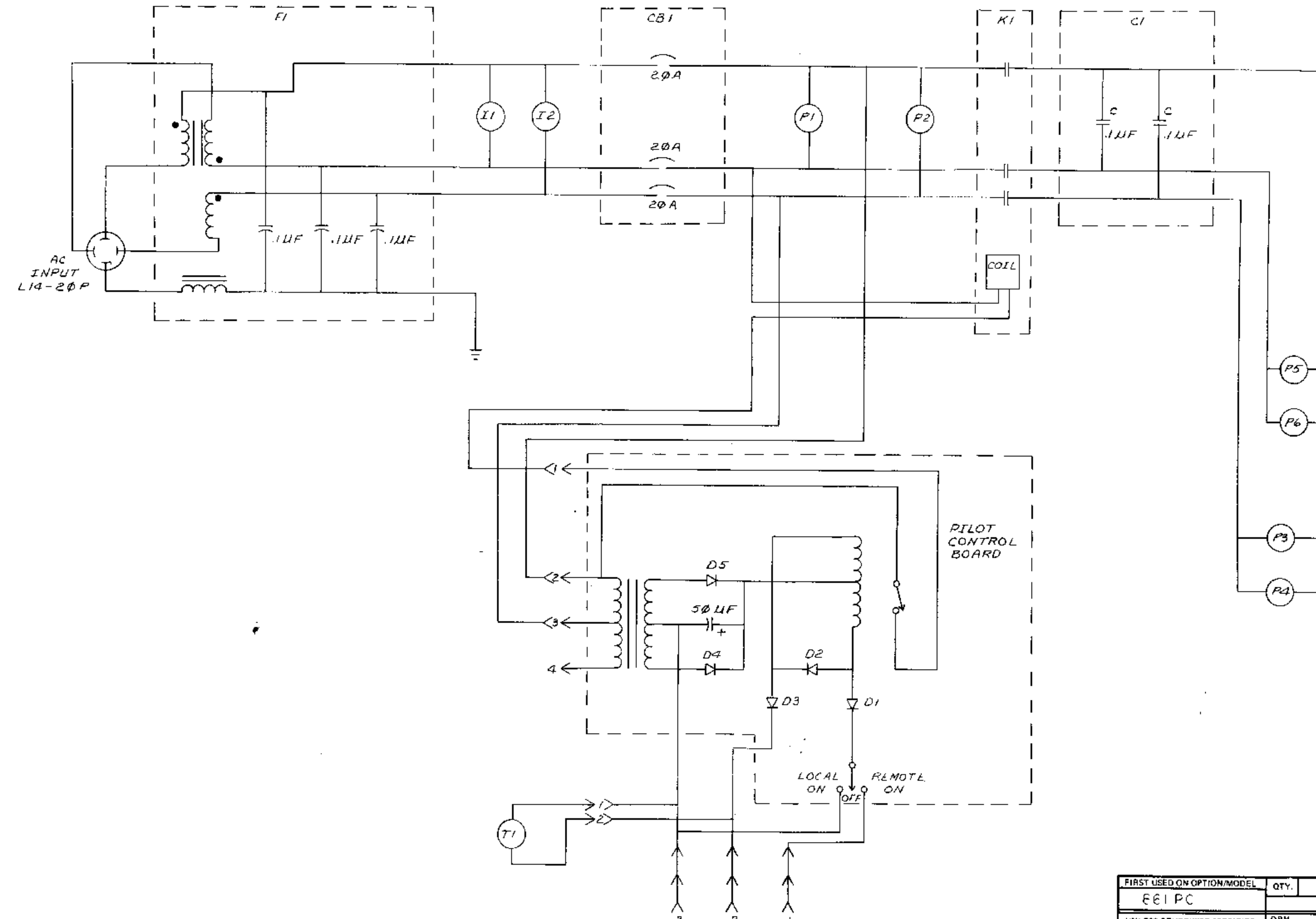


FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
861 PC		PARTS LIST		

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
DRN.	9-1-72
CHK'D.	10-6-72
ENG	10-6-72
PROJ. ENG	
PROD	

NEXT HIGHER ASSY. B DD-861-0

SCALE —

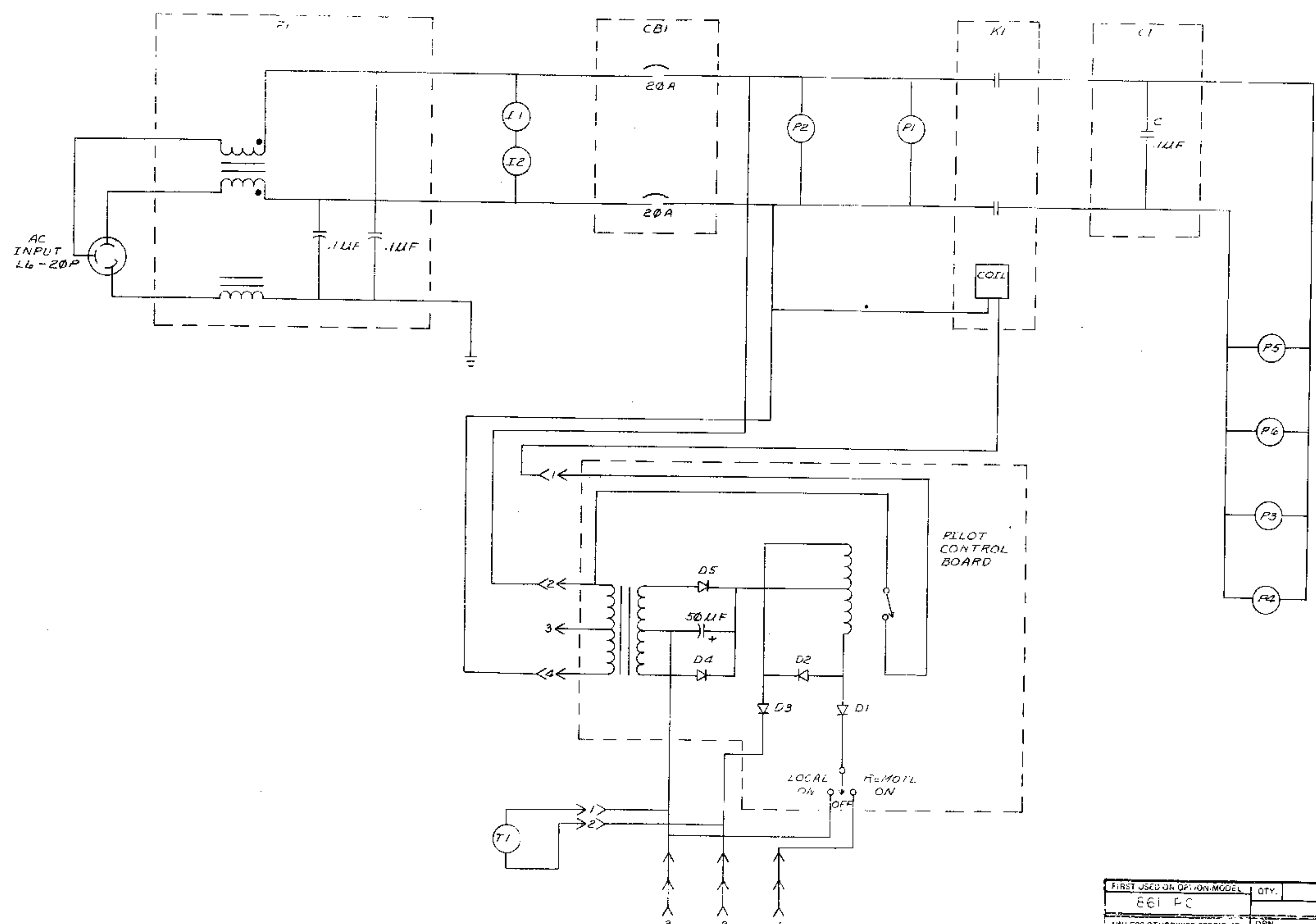
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE CIRCUIT SCHEMATIC (861-A PC)

SIZE	CODE	NUMBER	REV.
D	CS	861-A-1	

DIST



FIRST USED ON OPTION-MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
861 FC		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS | ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. | DATE
CHK'D | DATE
ENG | DATE
PROJ. ENG. | DATE
PROD | DATE
NEXT HIGHER ASSY.
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

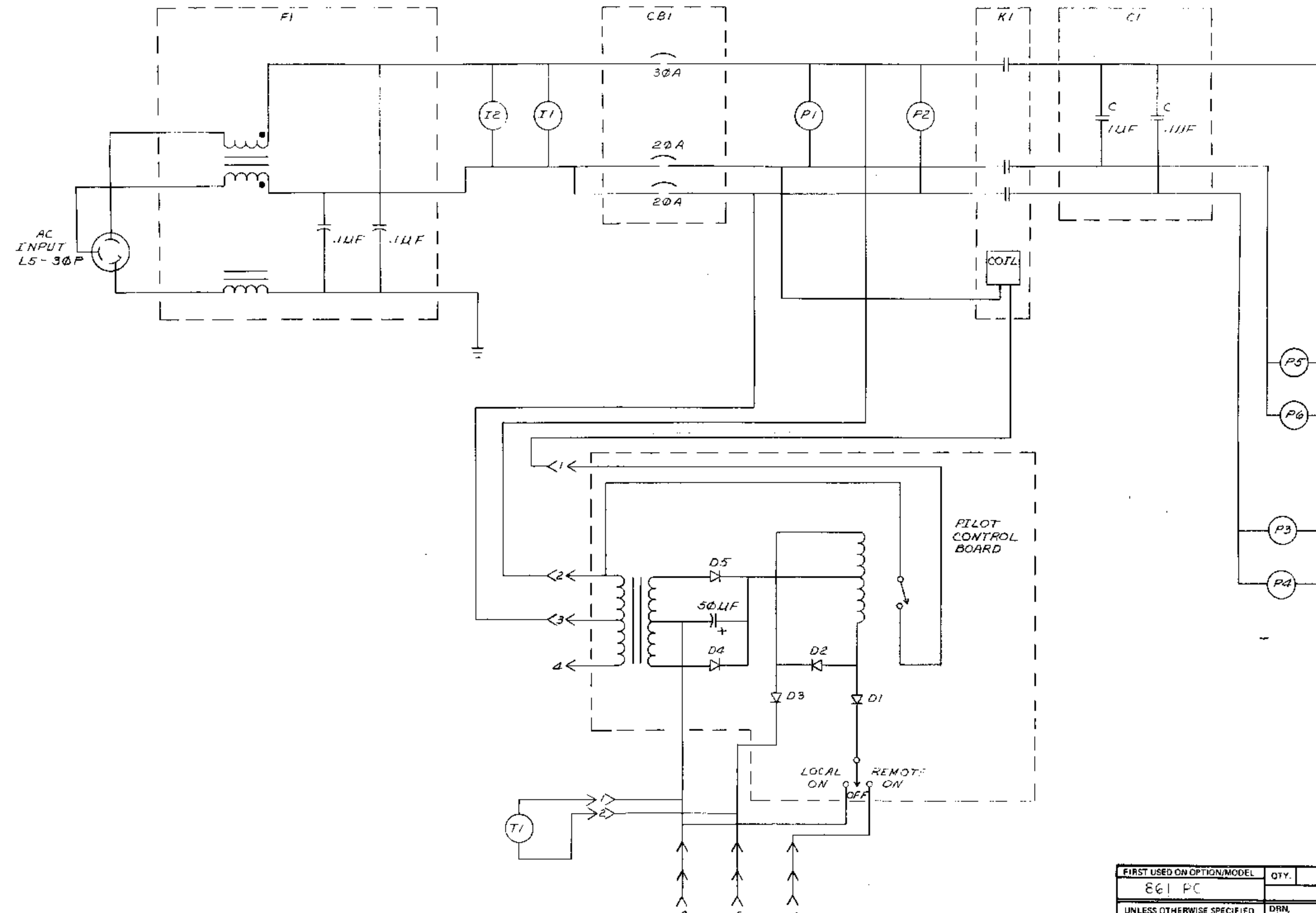
TITLE

SIZE D | CODE CS | NUMBER 861-B-1 | REV

DIST

REVISIONS | REV | CHANGE NO | CHK

D CS 861-B-1



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: 861 PC

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'D DATE
ENG. DATE
PROD. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY.
SCALE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CIRCUIT SCHEMATIC 861-C P.C.

SIZE: D CODE: CS NUMBER: 861-C-1 REV.

DIST.

REVISIONS: REV. CHANGE NO CHK

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

PACKAGING INSTRUCTION | REV: A | DATE: 4-73

TITLE 861 POWER CONTROL, INTERPLANT PACKAGE

MATERIAL REQUIREMENTS

Quantity	Identification No.	Purchase Spec	Description
1	7-2008 1314 0500-0	9905229	Full overlap carton
2		9905228	Expanded polystyrene foam insert
A/R			3-inch wide Glasflex tape

PACKAGING INSTRUCTIONS

Step	Procedure
1	Set up the full over lap carton (9905229) using one strip of tape across the bottom and extending up the sides approximately three inches. See Figure 1.
2	Place one expanded polystyrene foam insert (9905228) in each end of the carton with the slots in the foam facing inward.
3	Place the 861 power control in the carton with the ears of the upright sliding into the slots in the foam.
4	Coil the power cord so that it fits into the cavity in the rear of the power control.
5	Close and seal the carton with one piece of tape across the top of the carton and extending down the sides approximately three inches.

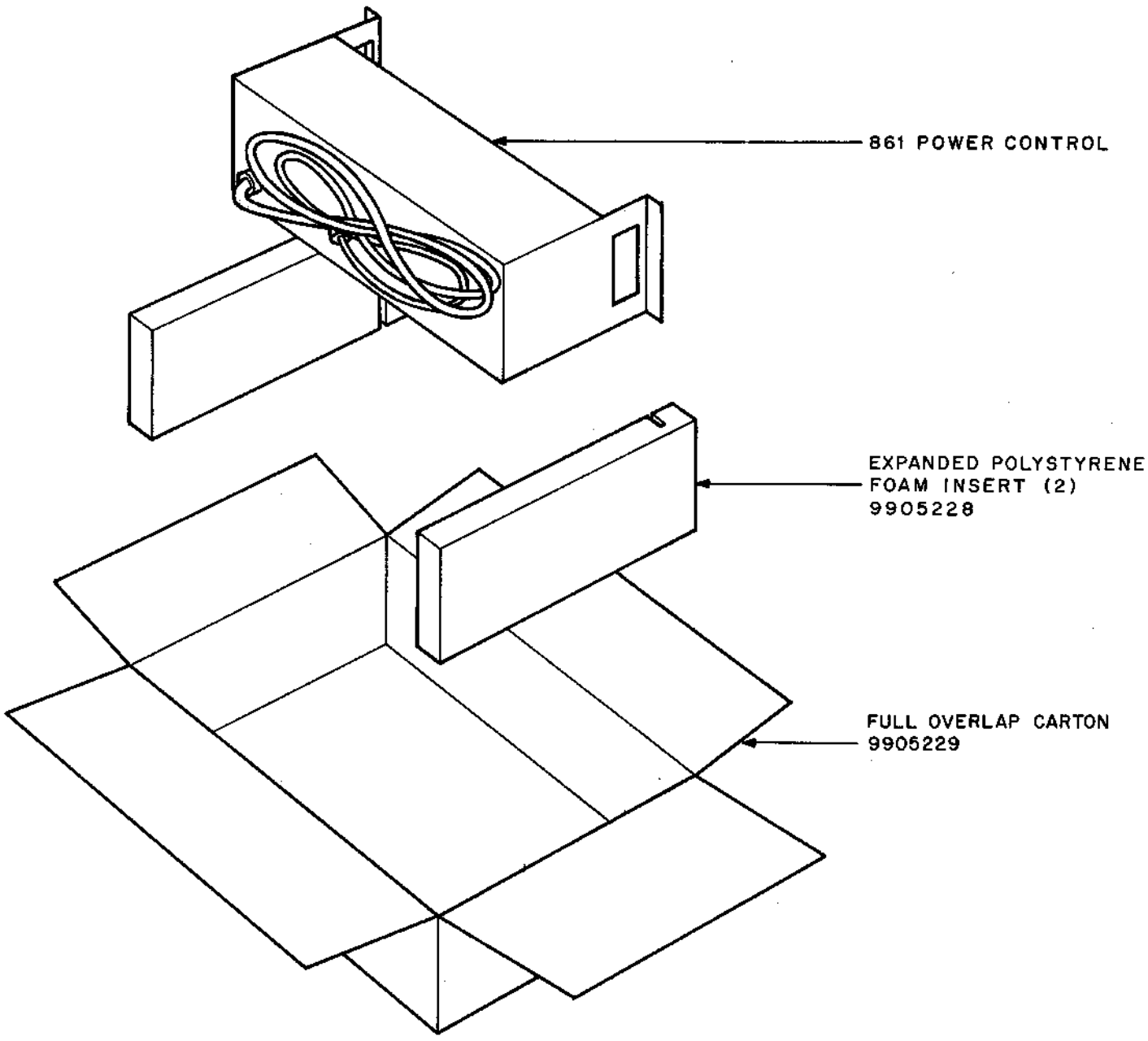
ENG	APPD	SIZE	CODE	NUMBER	REV
R. P. Camus 4/4/73		A	PI	3700083-0-0	A

PACKAGING INSTRUCTION

REV:	A	DATE:	4/73

TITLE 861 POWER CONTROL , INTERPLANT PACKAGE

FIGURE 1



NOTE
Make changes to the "C" size original only and rephotograph.

ENG.	APPD.	SIZE	CODE	NUMBER	REV
Wilfred M Patten 12/11/72	J W Laurence 12/11/72	A	PI	3700083-0-0	A

DRC-107

MAYNARD, MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-H742-Ø		
CIRCUIT SCHEMATIC	D-CS H742-Ø-1		
PWR CONTROL BOARD	E-IA 5409730-0-0		
CIRCUIT SCHEMATIC	C-CS 5409730-0-1		
UNIT ASSEMBLY H742	E-UA-H742-Ø-Ø		
UNIT ASSEMBLY (PL)	A-PL-H742-Ø-Ø		

MFG SET

TEST PROCEDURE	A-SP-H742 Ø-3
MFG SPEC.	A-SP-H742-Ø-8
PACKAGING INSTRUCTION	A-PI-3700073-0-0

THIS IS PRINT SET

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE H742-1
H742-A	CHASSIS ASSY (115V)	X
H742-B	CHASSIS ASSY (230V)	X
H742-C	CHASSIS ASSY (115V)	X
H742-D	CHASSIS ASSY (230V)	X

REVISIONS		
DATE	CHG. NO.	REV
7/72	H742-2	A
7/72	H742-3	B
8/72	H742-4	C
8/72	H742-5	D
10/72	H742-7	E
11/72	H742-8	F
12/72	H742-11	H
2/73	H742-12	J
2/73	H742-13	K
2-73	H742-14	L
4-73	H742-15	M
4-73	H742-16	N
5-73	H742-17	P
6-73	H742-18	R
12-73	H742-19	S
3-74	H742-20	T
4-74	H742-21	U

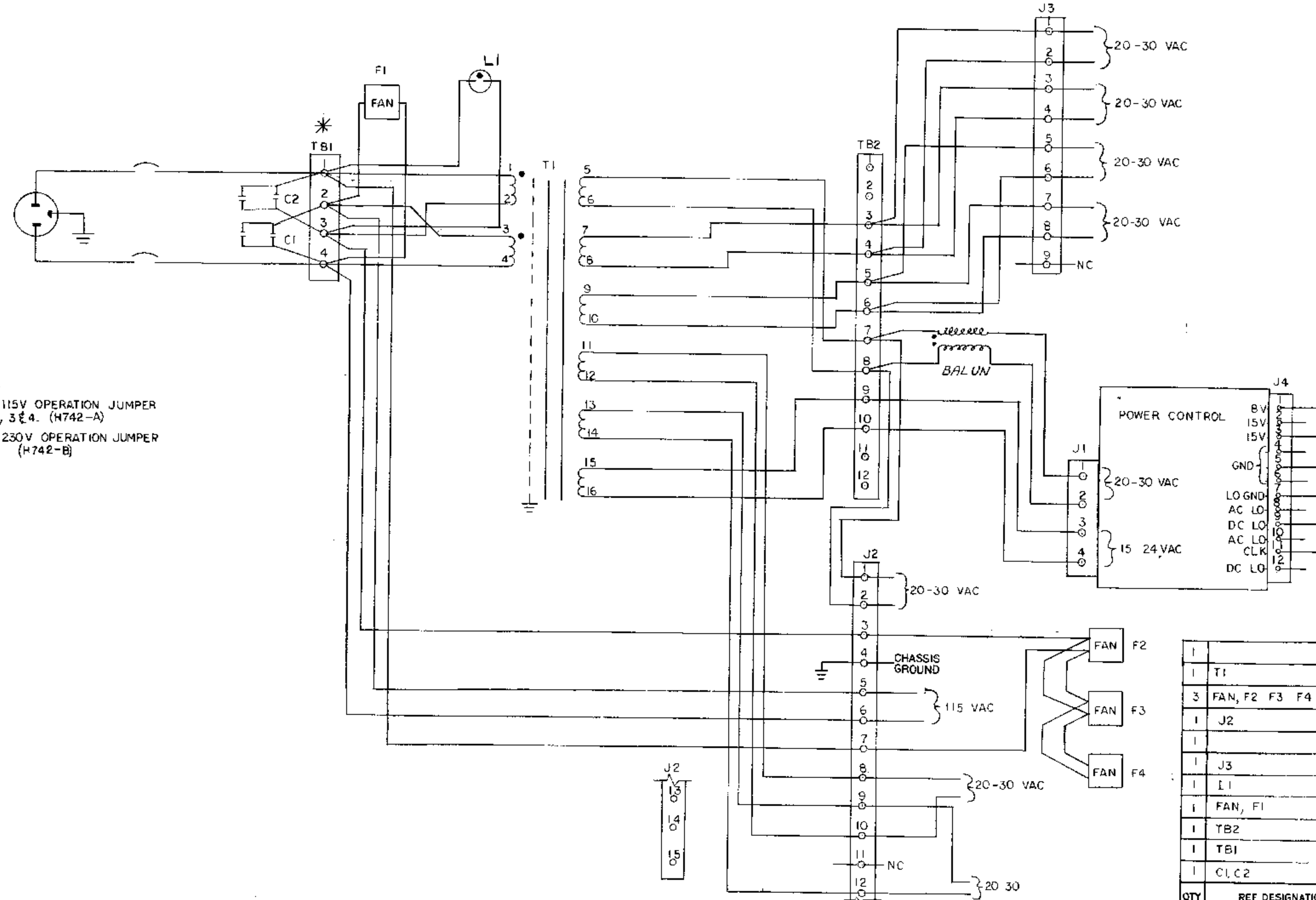
USED ON OPTION/MODEL

11/45

DRN. O. FONTAINE	DATE 13172	TITLE CHASSIS ASSY H742	
CHK'D	DATE 2-4-72		
PROJ ENG.	DATE 2-4-72		
PROD.	DATE 2-24-72		
FIELD SERV.	DATE 2-7-72		
SHEET 1 OF 3		SIZE B / CODE DD / NUMBER H742-Ø / REV C	
		DIST	

DRB 106

DEC 16—(325)—1062-1—N1871



NOTE

* FOR 115V OPERATION JUMPER 1 & 2, 3 & 4. (H742-A)
FOR 230V OPERATION JUMPER 2 & 3. (H742-B)

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		POWER CONTROL	5409730	11
1	T1	XMFR	1610857	10
3	FAN, F2 F3 F4	FAN SUPER BOXER	1209403-1	9
1	J2	MATE-N-LOCK	1209350-15	8
1		BALUN ASSY	1611444	7
1	J3	MATE-N-LOCK	1209350-9	6
1	L1	LIGHT PILOT	1201280	5
1	FAN, F1	FAN PEWEE	1210719	4
1	TB2	JONES STRIP	9006917	3
1	TB1	JONES STRIP	9006902	2
1	C1, C2	CAPACITOR 2 X 1 JF 1000V	1010193	1

ETCH BOARD REV

REV	CHANGE NO.	
E	H742-00019	R. WOLF 1-7-74
D	H742-00018	R. WOLF 6-21-73
C	H742-00017	R WOLF 5-26-73
B	H742-0000484A	G. POTTER
A	H742-00001	G POTTER 5-23-72

REVISIONS

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

SEMICONDUCTOR CONVERSION CHART

DRN DATE 2-3-72
CHKD DATE 2-4-72
ENG DATE 2-4-72
PROJ. ENG DATE 2-4-72
PROD DATE 2-24-72
NEXT HIGHER ASSY B-DD-H742-Ø
SCALE —
SHEET 1 OF 1

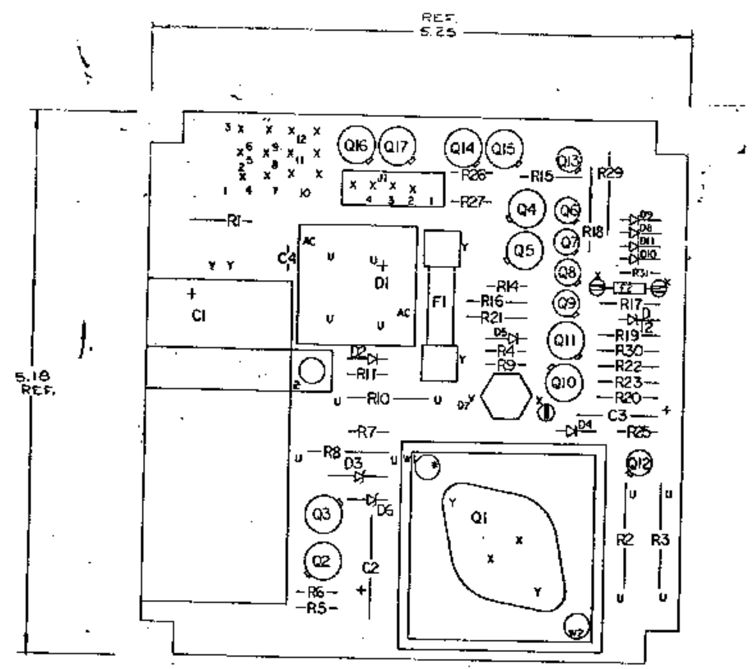
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

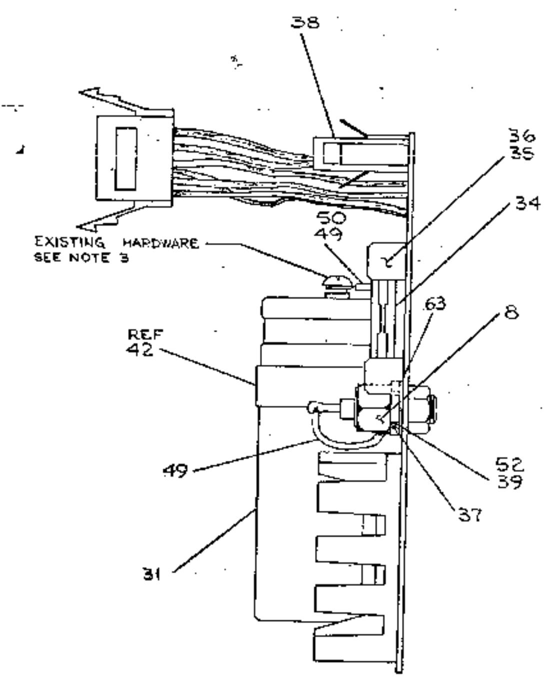
TITLE CIRCUIT SCHEMATIC H742

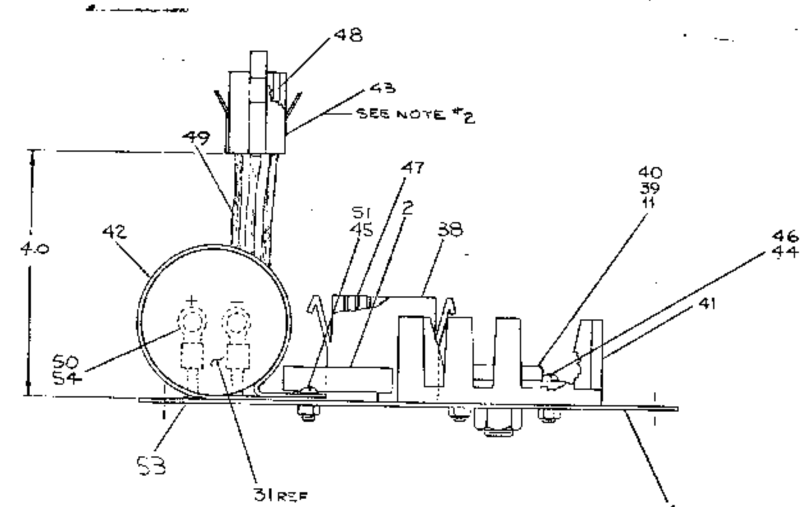
SIZE D CODE CS NUMBER H742-Ø-1 REV. E

DEC FORM NO DRD-135

NOTES:
1. APPLY ITEM #39 (COMPOUND) BETWEEN TRANSISTOR (Q1) AND ITEM #40 (WASHER) ALSO BETWEEN WASHER & HEAT SINK ITEM #41 ALSO BETWEEN HEATSINK AND ETCHED BOARD ITEM #1
2. CONNECTIONS BETWEEN P.C. BOARD AND MATE-N-LOCK CONNECTOR (ITEMS #43 & 48) ARE TO BE MADE POINT TO POINT.
3. HARDWARE FOR ITEMS 8 & 31 IS SUPPLIED UNLESS OTHERWISE SPECIFIED.







QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO
1	R8	1K 2W 10%	1300369	65
1	F2	FUSE, PICO 1/4AMP	1210929-4	64
1		FLAT WASHER	9006664	63
2		NUT, KEPS #6-32	9006560	62
2		SCR, PPH #6-32 X 7/16LG	9006023-1	61
1	C4	CAP .22 MF 50V	1010274	60
1	R29	RESISTOR 2K, 1/2W, 1%	1302329	59
1	R17	RESISTOR 3.48K, 1/8W, 1%	1305114	58
1	R19	RESISTOR 3.16K, 1/8W, 1%	1303045	57
1	R31	RESISTOR 10, 1/4W, 5%	1301317	56
1	R20	RESISTOR 4.64K, 1/8W, 1%	1304856	55
A/R		#18 AWG BUS WIRE	9007560-5	54
2		EYELET GS 4-3	9007836	53
1		SPACER #10	9008823	52
1		KEPSNUT #8-32	9006563	51
2		TERMINAL RING	9007930	50
A/R		#18 AWG 19 STRD TEF INS (BLK)	9107360-00	49
12		CONTACTS FEMALE (CRIMP)	1209379	48
4		CONTACTS FEMALE (BOARD)	1209456	47
2		SCR, PHL PAN, HD #4-40 X 1/2 LG	9006013-1	46
1		SCR, PHP PAN, HD #8-32 X 3/8 LG	9006037-1	45
2		NUT, KEPS #4-40	9006557	44
1		MATE-N-LOCK (12 PIN)	1209350-12	43
1		C-CLAMP 1.38	9007098-1	42
1		HEAT SINK	1205817	41
1		INSULATOR, WASHER	9006721	40
A/R		COMPOUND THERMAL JOINT	9008268	39
1		MATE-N-LOCK (4 PIN)	1209350-4	38
3		SPLIT LUG M-1033	9006735	37
2		EYELET GS-4-7	9006732	36
2		FUSE CLIP	9007203	35
1	F1	FUSE AGC 5	9007221	34
1	C3	CAP 20 MF @ 60V. 5%	1010716	33
1	C2	CAP 50 MF @ 25V.	1001796	32
1	C1	CAP 5.8K MF @ 40V.	1010860	31
1	R25	RESISTOR 2.0 K 1/8W 1%	1302718	30
1	R18	RESISTOR 2.49K 1/2 W 1%	1300424	29
3	R16, R21, R22	RESISTOR 10K 1/8W 1%	1303312	28
1	R15	RESISTOR 27.4 K 1/8W 1%	1309417	27
1	R30	RESISTOR 24.3K 1/8W 1%	1309418	26
4	R14, R25, R26, R27	RESISTOR 470 Ω 1/4 W, 5%	1300316	25
1	R11	RESISTOR 560 1/4 W, 5%	1301890	24
1	R10	RESISTOR 390 Ω 2W, 10%	1301880	23
[illegible]	[illegible]	[illegible]	[illegible]	22
1	R7	RESISTOR 270 1/4W 5%	1301972	21
2	R6, R9	RESISTOR 1K 1/4W 5%	1300365	20
1	R5	RESISTOR 5.1 Ω 1/4 5%	1309422	19
1	R4	RESISTOR 390 1/4W 5%	1300309	18
2	R2, R3	RESISTOR 200 Ω 5W, 5%	1309639	17
1	R1	RESISTOR 39K 1/2 W, 5%	1300443	16
4	Q5, Q11, Q15, Q17	TRANSISTOR 2N3009	1501311	15
4	Q4, Q9, Q14, Q16	TRANSISTOR 2N1608	1500583	14
7	Q3, Q6, Q7, Q6, Q9, Q12, Q13	TRANSISTOR MPSA55	1500706	13
1	Q2	TRANSISTOR DEC 2219	1501681	12
1	Q1	TRANSISTOR MJ3000	1511349	11
1	D12	DIODE 5.1V 1M4	[illegible]0925	10
4	D8, THRU D11	DIODE 1N4002	1104861	9
1	D7	DIODE 1N2970B	1100134	8
1	D6	DIODE 1N746A	1104860	7
1	D5	DIODE D664	1100119	6
1	D4	DIODE 1N4001	1102942	5
1	D3	DIODE 1N5363B	1100854	4
1	D2	DIODE 1N5.121 5.1V 1%	1105878	3
1	D1	DIODE BRIDGE NSS 3919	1110714	2
		POWER CONTROL BOARD	D-IA-5009724-00	1
		MODULE ECO HISTORY	S-MH-5409730-0-0	REF
		X Y COORDINATE HOLE LOCATION	K-CO-5409730-0-0	REF
		CIRCUIT SCHEMATIC	C-CS-5409730-0-0	REF

PARTS LIST

ETCH BOARD REV E

H742

SEMICONDUCTOR CONVERSION CHART

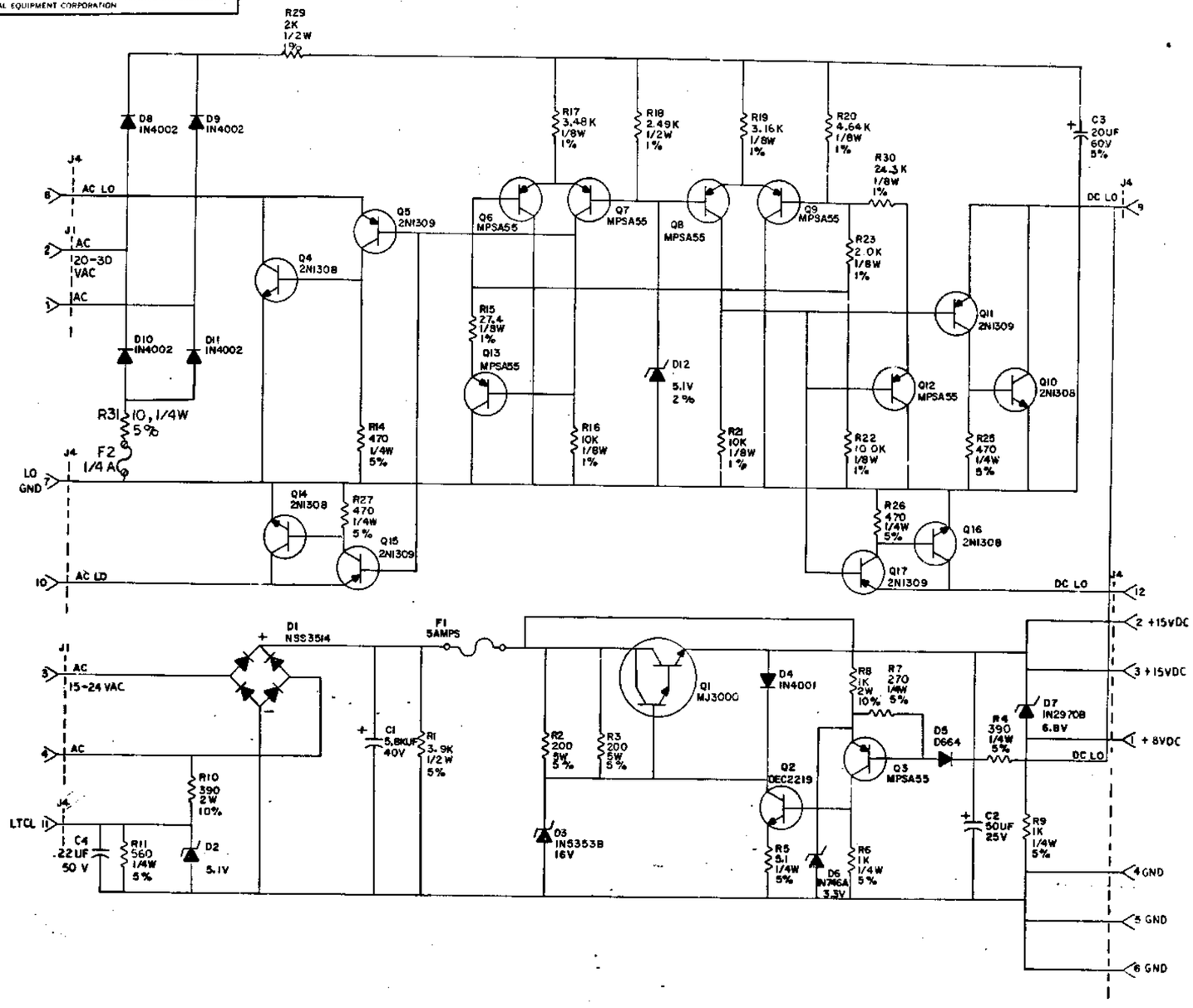
JUMPER LIST

IC PIN LOCATIONS

EQUIPMENT CORPORATION

TITLE: POWER CONTROL BOARD 11/45

E PA 5409730-0-01 REV N



REVISIONS			
CHK	CHG NO	REV	
J.C	000011	C	
G.POTTER	000021	D	
G.POTTER	000048	E	
G.POTTER	000054	F	
G.POTTER	000058	G	
G.POTTER	000063	H	
G.POTTER	000073	J	
R.WOLF	000081	K	
R.WOLF	000087	L	
R.WOLF	000091	M	
R.WOLF	000098	N	

DRN	S. Cooper	DATE 2/24/72
CHK'D		DATE 3-1-72
ENG		DATE 3-1-72
PROJ		DATE 3-1-72

DEC FORM NO. DRC 102

TRANSISTOR & DIODE CONVERSION CHART			
DEC2219	2N2219	IN5231	
2N1308	SAME	IN5353B	
MPSA55		IN751A	SAME
MJ3000		IN4001	SAME
2N1309	SAME	IN2970B	
IN4002		IN746A	
D664	IN3606		

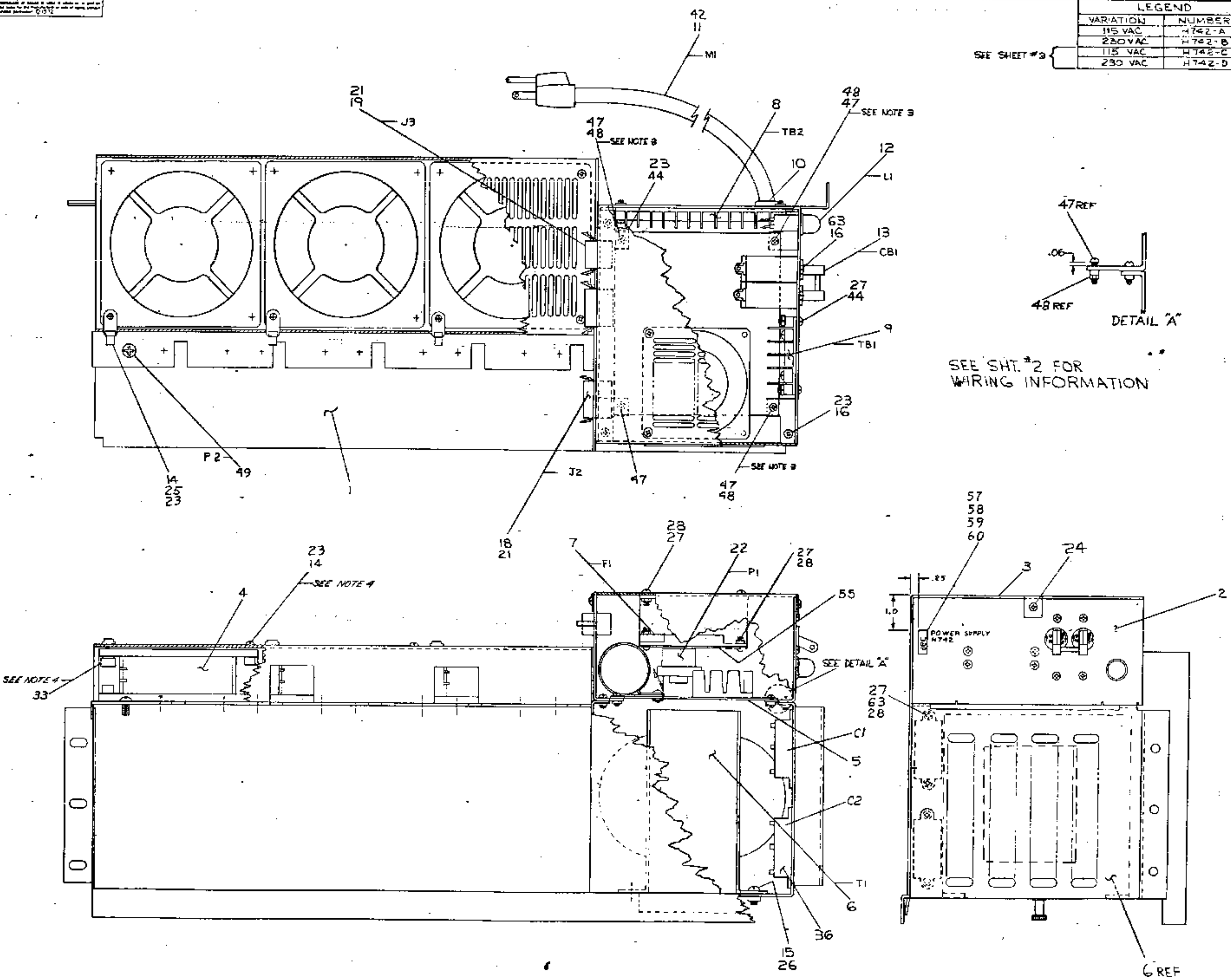
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: POWER CONTROL BD.

SIZE	CODE	NUMBER	REV
C	CS	5409730-0-1	N

PRINTED CIRCUIT REV E

SIZE	CODE	NUMBER	REV
C	CS	5409730-0-1	N



LEGEND	
VARIATION	NUMBER
115 VAC	H742-A
230 VAC	H742-B
115 VAC	H742-C
230 VAC	H742-D

SEE SHEET #3 (H742-C, H742-D)

NOTES:

1. * ITEM #22 (MALE CONTACTS) ARE TO BE INSERTED INTO MALE CONNECTING BLOCK, IN APPROPRIATE CABLE TO, J2.
2. ITEM #49 WILL BE INSTALLED DURING FINAL ASSEMBLY.
3. ITEMS # 47 & 48 SHOULD BE TIGHTENED AS SHOWN TO ALLOW 1/16 CLEARANCE FOR INSERTION AND REMOVAL OF 5409730.
4. FOR IMC FAN WS 2107F-110-01 USE ITEMS 14 & 33. FOR ROT-CT FAN 3A2 AND HOWARD FAN 3-30-8120 USE ITEMS 64 & 65.
5. TO ALLOW PROPER SERVICE LOOP WIRES TO C-1 SHOULD BE 6 INCHES LONG AND WIRES TO C-2 SHOULD BE 9 INCHES LONG
6. ROUTE ALL AC WIRING (ESPECIALLY TRANSFORMER LEADS 1,2,3 & 4) AS FAR AWAY AS POSSIBLE FROM 5409730 CONTROL BOARD.

FIRST USED ON OPTION/MODEL: 11/45

MATERIAL: SEE PARTS LIST

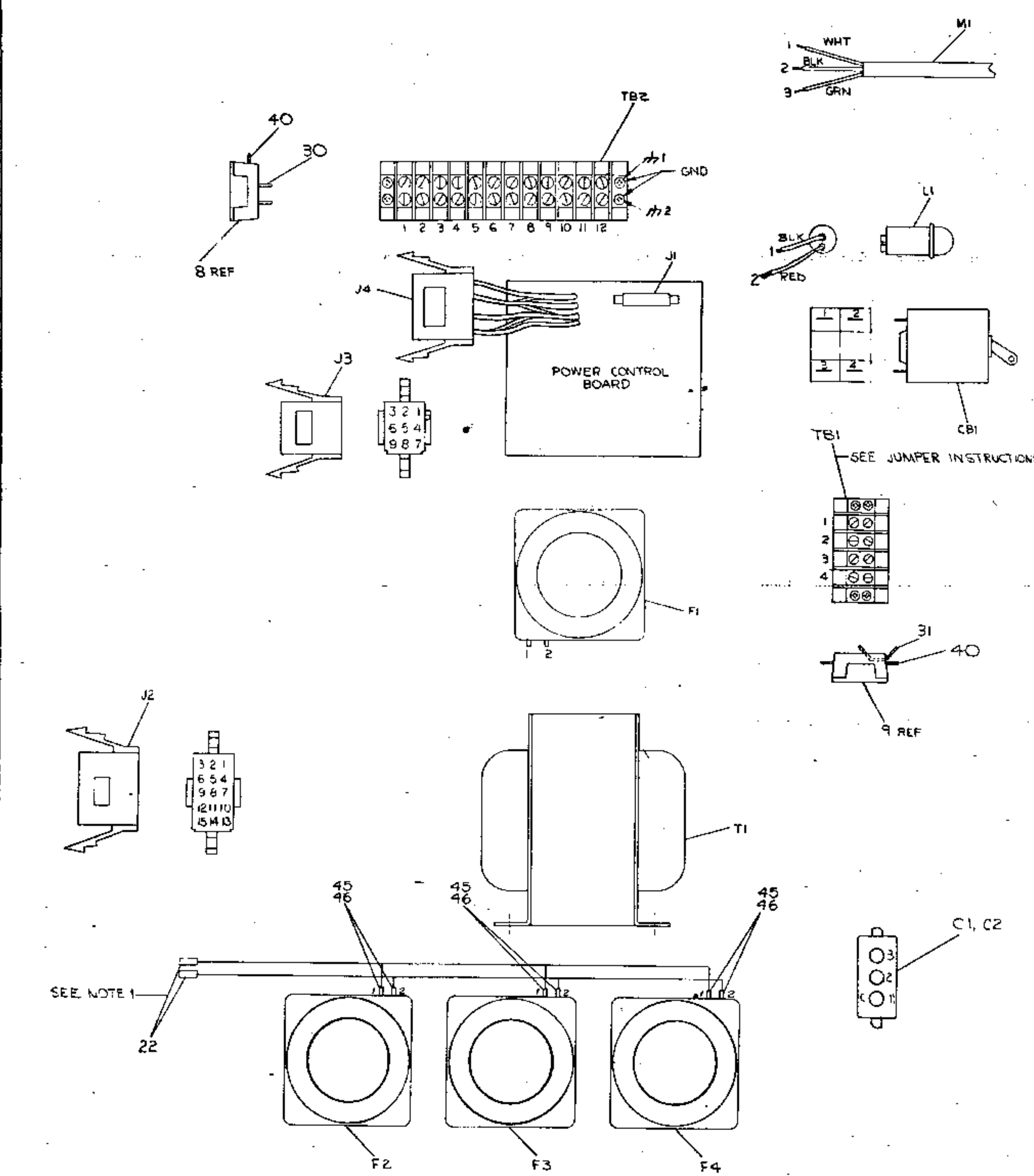
digital EQUIPMENT CORPORATION

TITLE: POWER SUPPLY H742

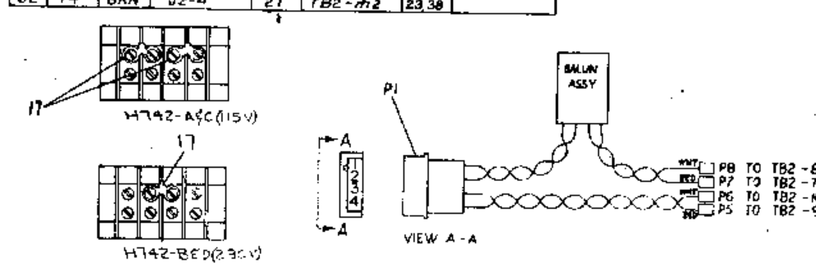
SIZE: E | CODE: UA | NUMBER: H742-0-0 | REV: J

SHEET 1 OF 3

E UA H742-0-0 U

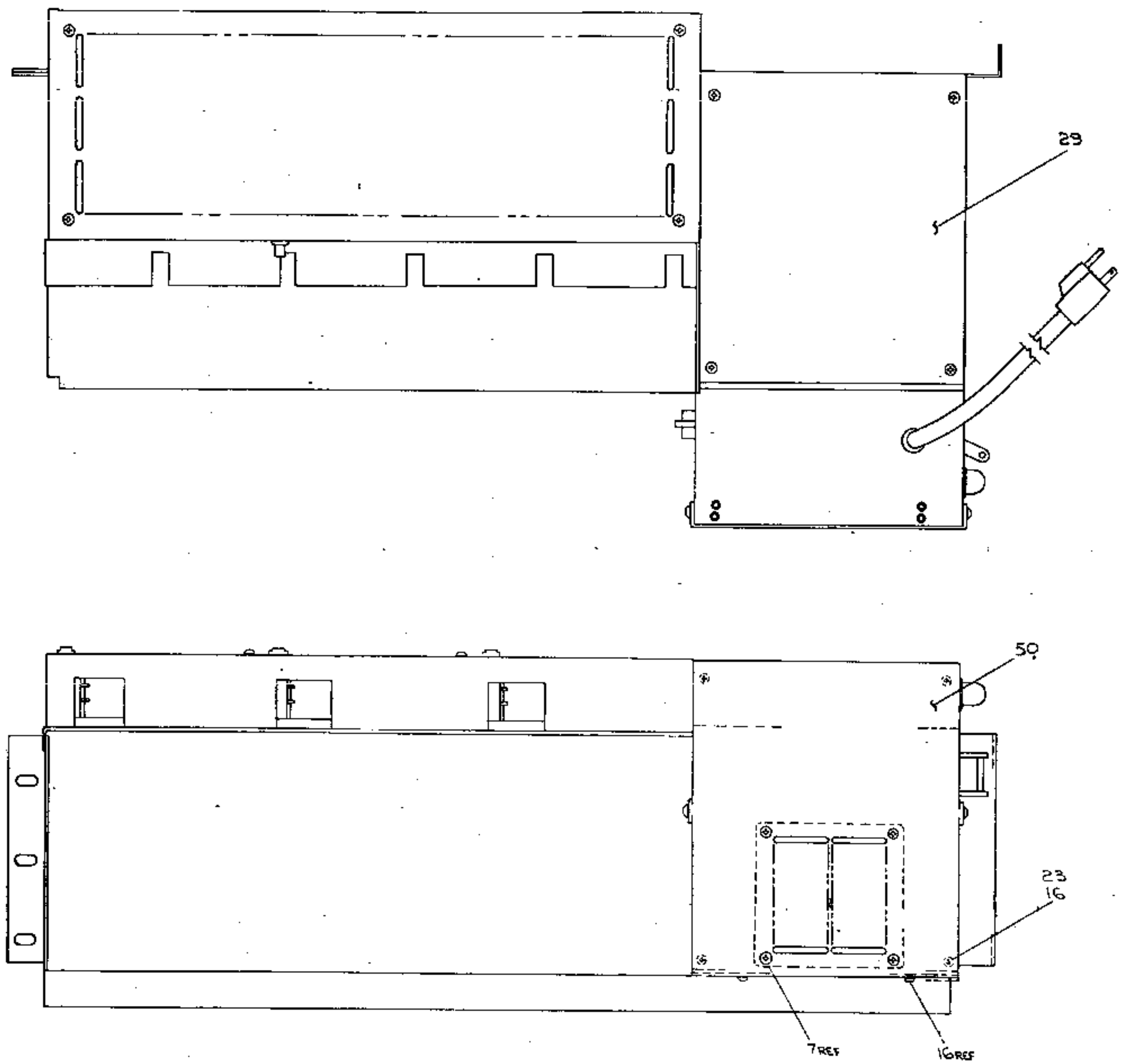


ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
34	18	WHT	C2-1	SOLDER	TB1-3	35	SEE NOTE #5
34	18	WHT	J2-3	18,21			
34	18	RED	J2-7	18,21	TB1-1	35	
34	18	RED	C2-3	SOLDER			
6		BLK	T1-5		TB2-7	35	
			T1-6		TB2-8		
			T1-7		TB2-3		
			T1-8		TB2-4		
			T1-9		TB2-5		
			T1-10		TB2-6	35	
			T1-11		J2-8	21,18	
			T1-12		J2-10	21,18	
			T1-13		J2-9	21,18	
			T1-14		J2-12	21,18	
			T1-15		TB2-9	35	
6		BLK	T1-16		TB2-10	35	
12		BLK	L1-1		TB1-1	39	
12		RED	L1-2		TB1-3	39	
34	18	RED	TB1-2	39	F1-1	SOLDER	TWISTED PAIR
		WHT	TB1-4	39	F1-2	SOLDER	
43	18	RED	C2-2	SOLDER	C2-3	SOLDER	
43	18	RED	C1-2	SOLDER	C1-3	SOLDER	
11	16	WHT	M1-1		CB1-3	35	POWER CORD
11	16	BLK	M1-2		CB1-4	35	
11	16	GRN	M1-3		TB2-⏚1	23,38	
32	14	RED	TB2-3	35	J3-1	19,21	
			TB2-3		J3-3		
			TB2-4		J3-2		
			TB2-4		J3-4		
			TB2-5		J3-5		
			TB2-5		J3-7		
			TB2-6		J3-6		
			TB2-6		J3-8	19,21	
32	14	RED	TB2-7	35	J2-1	18,21	
32	14	RED	TB2-8	35	J2-2	18,21	
6		BLK	TB1-3	35	T1-2		
6		BLK	TB1-1	35	T1-1		
6		BLK	TB1-4	35	T1-4		
6		BLK	TB1-2	35	T1-3		
34	18	RED	J2-5	18,21	TB1-2	35	SEE NOTE #5
34	18	RED	C1-3	SOLDER			
34	18	WHT	J2-6	18,21	TB1-4	35	
34	18	WHT	C1-1	SOLDER			
34	18	RED	F4-1	45,46	F3-1	45,46	TWISTED PAIR
34	18	WHT	F4-2	45,46	F3-2	45,46	
34	18	RED	F3-1	45,46	F2-1	45,46	TWISTED PAIR
34	18	WHT	F3-2	45,46	F2-2	45,46	
34	18	RED	F2-1	45,46	P2-7 *	22	TWISTED PAIR
34	18	WHT	F2-2	45,46	P2-3 *	22	
32	14	WHT	CB1-1	35	TB1-4	35	
32	14	RED	CB1-2	35	TB1-1	35	
62	14	GRN	J2-4	21	TB2-⏚2	23,38	



JUMPER INSTRUCTIONS

FIRST USED ON OPTION/MODEL	11/45
MATERIAL	SEE PARTS LIST
TITLE	POWER SUPPLY H742
	DIGITAL EQUIPMENT CORPORATION
SIZE / CODE / NUMBER / REV.	E UA H742-0-0 U
SCALE	NONE
SHEET	2 OF 3



FOR VARIATIONS H742-C & D, ITEMS ARE SAME AS A & B WITH EXCEPTIONS SHOWN

SEE SHEET #2 FOR WIRING INFORMATION

FIRST USED ON OPTION/MODEL	11/45		
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES	DRN T. QUILLIN	DATE 1/19/72	EQUIPMENT CORPORATION
DECIMALS / ANGLES	CHK'D D. FONTAINE	DATE 2/4/72	
	ENG J. MORRIS	DATE	TITLE POWER SUPPLY H742
	PROJ ENG G. POTTER	DATE	
	PROD A. HIRSCH	DATE	
MATERIAL SEE PARTS LIST	NEXT HIGHER ASSY.		SIZE E CODE UA NUMBER H742-0-0 REV. C
FINISH	SCALE	SHEET 3 OF 3	DIST

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY T. QUILLIN	CHECKED D. FONTAINE	SECTION
DATE 1/19/72	DATE 1/26/72	1
ENG [signature] 2/4-72	PROD [signature]	ISSUED SECT.
DATE	DATE 2-24-72	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION H742-A (115V)	H742-B (230V)	H742-C (115V)	H742-D (230V)
1	E-IA-5309755-0-0	CHASSIS	1	1	1	1
2	D-IA-5309854-0-0	CONTROL BOX POWER	1	1	1	1
3	D-MD-5309850-0-0	POWER CONTROL COVER	1	1	–	–
4	1209403-1	FAN, BOXER	3	3	3	3
5	5409730-0-0	POWER CONTROL BOARD	1	1	1	1
6	16-10857	XMFR	1	1	1	1
7	1210719	FAN PEWEE, BOXER	1	1	1	1
8	9006916	JONES STRIP (12 CONN) 540	1	1	1	1
9	9006902	JONES STRIP (4 CONN) 540	1	1	1	1
10	9008509	STRAIN RELIEF	1	1	1	1
11	1700006-6	CORD, POWER (115V)	1	–	1	1
12	1211263	LIGHT, PILOT	1	1	1	1
13	1210191-3	CIRCUIT BREAKER 15 AMP	1	1	1	1
14	9006023-1	SCR. PHL PAN HD #6 X 32 X 5/8 LG	12	12	12	12
15	9006071-3	SCR. PHL TRUSS HD #10-32 X 3/8 LG	4	4	4	4
16	9006020-1	SCR. PHL PAN HD #6-32 X 1/4 LG	8	8	14	14
17	9009002	MECHANICAL JUMPER	2	1	2	1
18	1209350-15	MATE-N-LOCK 15 PIN (FEMALE)	1	1	1	1
19	1209350-09	MATE-N-LOCK 9 PIN (FEMALE)	1	1	1	1
20	1209350-04	MATE-N-LOCK 4 PIN (FEMALE)	1	1	1	1
21	1209379-01	CONTACTS (FEMALE)	19	19	19	19
22	1209378-01	CONTACTS (MALE)	6	6	16	16

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
H742, POWER CONTROL	E-UA-H742-0-0	A	PL	H742-0-0	U	H742-00028
	SHEET 1 OF 4	DIST.	G			

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY T. QUILLIN	CHECKED D. FONTAINE	SECTION
DATE 1-19-72	DATE 1-26-72	1
ENG [signature]	PROD [signature]	ISSUED SECT.
DATE 2-18-72	DATE 2-24-72	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION H742-A (115V)	H742-B (230V)	H742-C (115V)	H742-D (230V)
24	9006023-1	SCR. PHL HD PAN #6-32 X .38	12	12	12	12
25	9006071-3	LOCK WASH #10 EXT	4	4	4	4
26	9006012-1	KEPS NUT #6-32	16	16	16	16
27	9006023-1	SCR. PHL HD PAN #6-32 X .38	12	12	12	12
28	E-IA-7409701-0-0	BRACKET, POWER SUPPLY	–	–	1	1
30	9007113	DOUBLE UPRIGHT 90	8	8	8	8
31	9007269	DOUBLE 45°	4	4	4	4
32	9107370-22	#14 AWG 19 STRAND PVC. INS. (RED)	A/R	A/R	A/R	A/R
33	9009164	FAN MTG CLIP	12	12	12	12
34	9107360-22	#18 AWG 19 STRAND PVC. INS. (RED/WHT) TWP	A/R	A/R	A/R	A/R
35	9007917	FASTON TAB (.250 SERIES) BLU	32	32	32	32
36	9007912	CAPICTOR 2 X .1 uf @ 1000V	2	2	2	2
37	~~9007913~~	~~FASTON TAB (.250 SERIES) YEL~~	~~4~~	~~4~~	~~4~~	~~4~~
38	9007927	RING TERMINAL BLU	2	2	2	2
39	9007917	FASTON TAB (.250 SERIES) RED	8	8	8	8
40	9007912	SINGLE FLAT	16	16	16	16
41	~~D-IA-5309854-0~~	~~POWER CONTROL BOX~~	~~1~~	~~1~~	~~1~~	~~1~~
42	1700016-6	CORD POWER (230V)	–	1	–	1
43	9107360-22	#18 AWG 19 STRAND PVC. INS. (RED)	A/R	A/R	A/R	A/R
44	9007793-1	SCR PHL PAN HD #6-32 X 9/16 LG	8	8	8	8

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV	ECO NO.
H742 POWER CONTROL	E-UA-H742-Ø-Ø	A	PL	H742-Ø-Ø	U	
	SHEET 2 OF 4	DIST.	G			

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY T. Quillin	CHECKED D. Fontaine	SECTION 1
DATE 1/19/72	DATE 1/26/72	
ENG G. POTTER	PROD A. HIRSCH	ISSUED SECT. 1
DATE 2-14-72	DATE 2-24-72	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION H742-A (115V)	H742-B (230V)	H742-C (115V)	H742-D (230V)
45	12-10820-1	CONNECTOR, HOUSING	6	6	6	6
46	12-10820-2	CONNECTOR, PIN	6	6	6	6
47	9006022-3	SCR, PHL, TRUSS HD. #6-32 X 3/8 LG.	4	4	4	4
48	9006558	NUT, HEX #6-32 X 5/16 X 1/8	3	3	3	3
49	9009228	SCR PHL PAN HD. 10-32 X 3/8 SEMS	10	10	10	10
50	C-MD-7409702-0-0	COVER, POWER CONTROL	-	-	1	1
~~51~~	~~D-IA-5309854-3-0~~	~~POWER CONTROL BOX~~	~~-~~	~~-~~	~~1~~	~~1~~
~~52~~	~~D-IA-5309854-4-0~~	~~" " "~~	~~=~~	~~=~~	~~=~~	~~=~~
53	9006796	SPACER #6-32X 3/16LG SST	-	-	4	4
54	A-PI-3700073-0-0	H742 POWER SUPPLY INTERPLANT PACKAGE	1	1	1	1
* 55	C-IA-7009737-0-0	MINI BOXER FAN SCREEN	1	1	1	1
~~56~~	~~9006024-1~~	~~SCR, PHL, PAN HD. #6-32 X 1/2 LG~~	~~12~~	~~12~~	~~12~~	~~12~~
57	A-DC-5310459-0-0	DECAL, H742A	1	-	-	-
58	A-DC-5310460-0-0	DECAL, H742B	-	1	-	-
59	A-DC-5310461-0-0	DECAL, H742C	-	-	1	-
60	A-DC-5310462-0-0	DECAL, H742D	-	-	-	1
61	1611444	BALUN ASSEMBLY	1	1	1	1
62	9107370-55	* 14 AWG IPVC STRANDED, GREEN	A/R	A/R	A/R	A/R
63	9006633	LOCK WASHER, #6 INT. TOOTH	8	8	8	8
* 64	9007993-1	SCR. PHL. PAN HD. 6-32 X 9/16LG	12	12	12	12
* 65	9008208	FAN MTG. CLIP	12	12	12	12
		* SEE NOTE 4 ON E-UA-H742-0-0				

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
H742 POWER CONTROL	E-UA-H742-0-0	A	PL	H742-0-0	U	
	SHEET 3 OF 4	DIST.				

DEC FORM DEC 14-(325)-1031-N870

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY T. QUILLIN	CHECKED D. FONTAINE	SECTION 1
DATE 1-19-72	DATE 1-26-72	
ENG G. POTTER	PROD A. HIRSCH	ISSUED SECT. 1
DATE 2-14-72	DATE 2-24-72	

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION H742-A (115V)	H742-B (230V)	H742-C (115V)	H742-D (230V)
66	A-PI-3700073-0-0	PACKAGING INSTRUCTIONS	1	1	1	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
H742 POWER CONTROL	E-UA-H742-0-0	A	PL	H742-0-0	U	
	SHEET 4 OF 4	DIST.				

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

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

	SEQUENCE		SEQUENCE
DRAWING DIRECTORY	B=DD=H744=ø		
CIRCUIT SCHEMATIC	D=CS=H744=ø=1		
UNIT ASS'Y	E=UA=H744=0=0	MFG. SET	
		TEST PROCEDURE	A=SP=H744=ø=3
		MFG. SPE	A=SP=H744=ø=8
		PACKAGING INSTRUCTIONS	A-PI-3700074-0-0

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE H744=1
H744	+8V REGULATOR	X

REVISIONS		
DATE	CHG. NO.	REV
2	00005	A
S. Blake 10-6-7.		
J.W. LAWRENCE		
[illegible]	00007	B
4/11/74		
R. WOLF		
4-24-74		

USED ON OPTION/MODEL	
11/45	

DRN. D. FONTAINE	DATE 3-4-72	TITLE +8V REGULATOR
CHK'D. D. FONTAINE	DATE 3-4-72	
PROJ ENG. [signature]	DATE 2-25-72	
PROD. [signature]	DATE [illegible]	
FIELD SERV.	DATE	SIZE B / CODE DD / NUMBER H744=ø / REV B
SHEET 1 OF 2		DIST

DRB 106

ELECTRICAL

CUSTOMER PRINT SET H744-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	D-CS-H744-Ø-1	#	1	CIRCUIT SCHEMATIC	H744
	X		A-SP-H744-Ø-3			TEST PROCEDURE	H744
	X		A-SP-H744-Ø-8			MFG. SPEC	H744

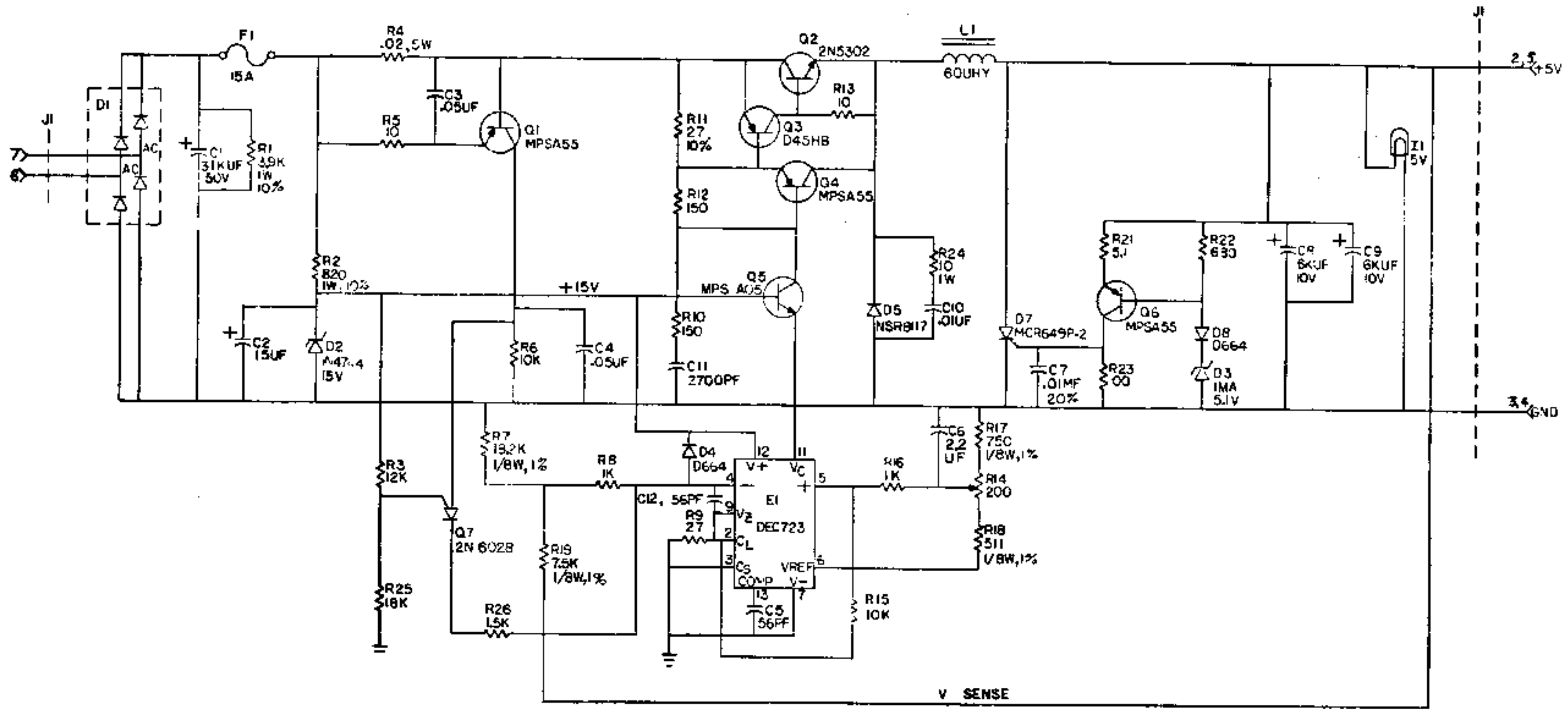
MECHANICAL

CUSTOMER PRINT SET H744-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	E-UA-H744-Ø-Ø	K	1	UNIT ASSY	H744
			D-PS-1210737-0-0		1	HEAT SINK	H744
			D-IA-5309756-0-0		1	REGULATOR BRK'T	H744
			C-IA-5309761-0-0		1	2 - 5 CAP HOLDER	H744
			C-IA-5309760-0-0		1	COMPONENT COVER	H744
			C-MD-5309759-0-0		1	CAPACITOR STRAP	H744
		2	A-PI-3700074-0-0	-	2	PACKAGING INSTRUCTION	H744
			A-PS-9905211-0-0	-	2	OUTER CARTON	
			A-PS-9905212-0-0	-	2	INNER PACKAGE	

TITLE		SIZE	CODE	NUMBER	REV
+5V REGULATOR	SHEET 2 OF 2	B	DD	H744-Ø	B

DRB 108

DEC 16--(325)-1062-2-N871



UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 5%

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.
1N9614	SAME	MPSA55	
D664	1N3606	2N5302	
[illegible]		D45H8	
[illegible]	SAME	MPSA05	
1N4744	SAME		
NSR8117			
2N6028			

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV F H

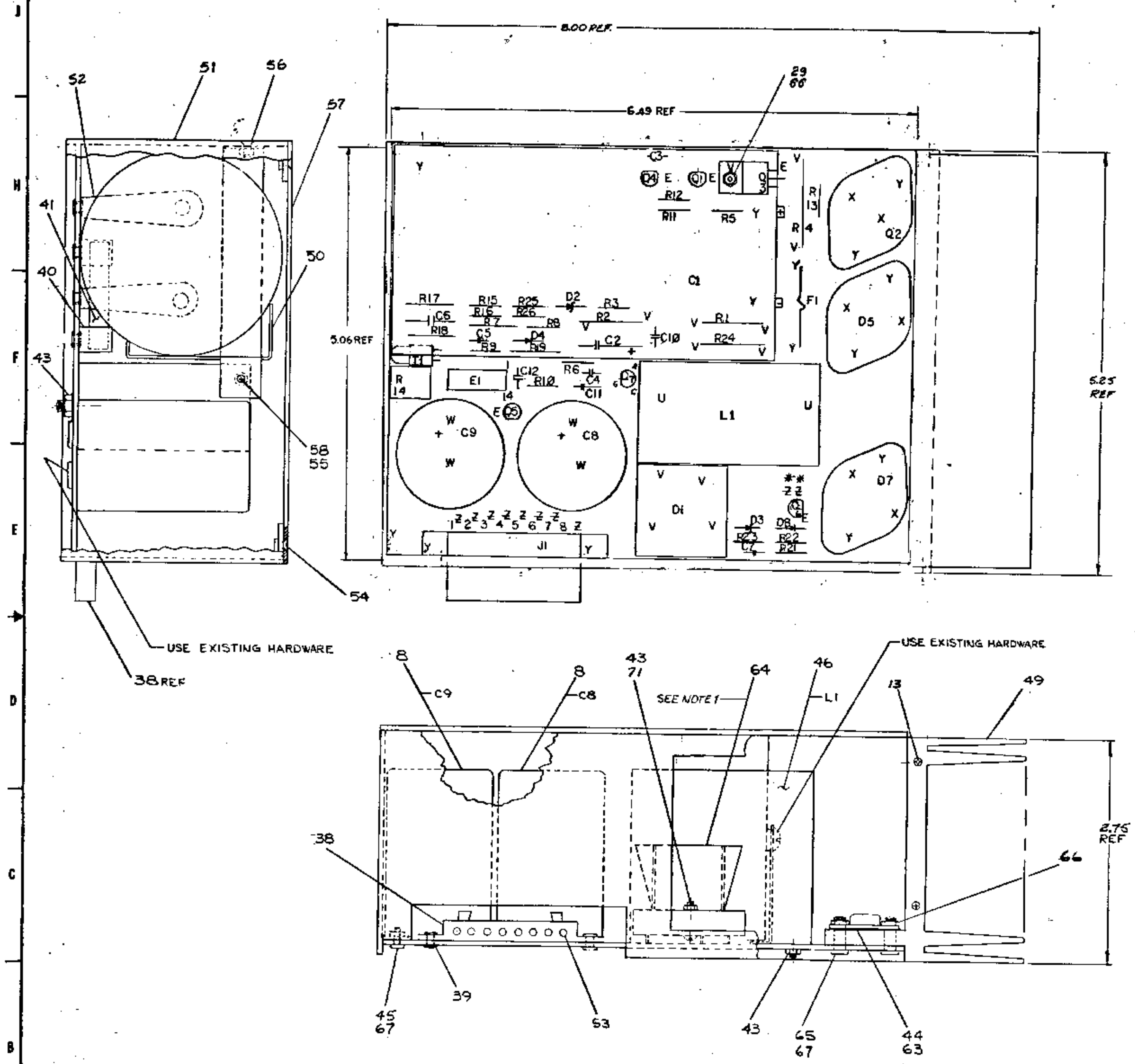
REVISIONS: H744-00005, H744-00006, G. POTTER

digital EQUIPMENT CORPORATION

TITLE: 5V REGULATOR

SIZE D CODE CS NUMBER H744-0-1 REV. L

SHEET 1 OF 1



NOTES:

1. APPLY ITEM #63 (COMPOUND) BETWEEN TRANSISTOR (Q2), DIODES (D5, D7) AND ITEM #44 (WASHER) ALSO BETWEEN ITEM #44 (WASHER) AND HEAT SINK (ITEM #49). ALSO APPLY ITEM #63 (COMPOUND) BETWEEN ITEM #9 (DIODE BRIDGE) AND ITEM #64 (HEAT SINK BRIDGE).

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	I1	5 VOLT LAMP	12-09219-1	68
8		L WASHER #4	9006632	67
7		NUT KEPS #4-40	9006657	66
6		SCR PHL PAN HD #4-40 x 3/16 LG	9008033-1	65
1		HEAT SINK BRIDGE	1210907	64
A/R		COMPOUND THERMAL JOINT	9008268	63
1	R26	RESISTOR 1.5K 1/4W 5%	1300531	62
1	R19	RESISTOR 7.5K 1/8W 1%	1305322	61
1	R3	RESISTOR 1EK 1/4W 5%	1300480	60
1	Q7	TRANSISTOR, UNIJUNCTION 2N6028	1510877	59
1		SCR. PHL PAN HD #6-32 X 1/4 LG	9006020-1	58
1		COVER	C-MD-5309760-0	57
1		SCR. PHL FLT HD #6 32 X 1/4 LG	9006020-2	56
1		WASHER, LOCK #6	9007649	55
4		SCR. PHL FLT. HD #4-40 X 5/16 LG	9006010-6	54
8		CONTACT FEMALE	1209456	53
2		STRAP, CAPACITOR	C-MD-5309759-0	52
1		BRACKET, REGULATOR	D-IA-5309756-0	51
1		HOLDER, CAPACITOR 2.5	C-IA-5309761-0	50
1		HEAT SINK REGULATOR	D-PS-1210737-0-0	49
2	C8, C12	CAP 56 PF	1000012	48
1	R24	RESISTOR 10 1W	1300171	47
1	L1	REACTOR 40 μHY MMC4347	1610850	46
2		SCR, PHL PAN HD #4-40. 1/4 LG	9006009-1	45
3		WASHER, INSULATOR	9006721	44
3		NUT, KEPS #6-32	9006185	43
				42
1	F1	FUSE 15 AMP	9007226	41
2		FUSE CLIP	9007205	40
4		EYELET GS-4-7	9006732	39
1	J1	MATE-N-LOCK CONN. 8 PIN	1207340	38
1	E1	INTEGRATED CIRCUIT DEC 723C	1910415	37
1	Q5	TRANSISTOR A05	1510705	36
1	Q3	TRANSISTOR DASH 8	1510708	35
3	Q1, Q6, Q4	TRANSISTOR MPSA55 MOT	1510706	34
1	Q2	TRANSISTOR 2N5302	1510196	33
1	R14	RES: VARIABLE 200	1310852	32
1	R21	RES. 5.1 1/4W 5%	1309422	31
1	R23	RES. 100 1/4W 5%	1300229	30
1		SCR, PPH #4-40 X 5/16 LG	9006010	29
1	R11	RES 27 1/4W 10%	1301420	28
1	R17	RES 750 1/8W, 1%	1302955	27
1	R9	RES 27 1/4W 5%	1301522	26
1	R7	RES 18.2K 1/8W, 1%	1309412	25
2	R8, R16	RES 1K 1/4W 5%	1300305	24
1	R18	RES 511 1/8W 1%	1302411	23
1	R25	RES 18 K 1/4W 5%	1302465	22
2	R6, R15	RES 10 K 1/4W 5%	1300479	21
1	R4	RES .02 5W 3%	1310 876	20
1	R2	RES 820 1W 10%	1300358	19
1	R1	RES 3.9K 1W 10%	1302927	18
2	R5, R13	RES 10 1/4W 5%	1301317	17
2	R12, R10	RES 150 1/4W 5%	1300250	16
1	D3	DIODE ZENER 1 MA 5.1V	1110925	15
1	D7	SCR MCR 649P-2	1109465	14
4		SCR, PPH #4 x 5/16 LG, SIZE TYP	9009142	13
1	D5	DIODE PWR NSR 8117	1110718	12
2	D4, D8	DIODE PWR D664	1100114	11
1	D2	DIODE ZENER 1N4744	1105648	10
1	D1	DIODE BRIDGE	1110714	9
2	C8, C9	CAP 6K μF 10V	1010704	8
1	C1	CAP 31 K μF 30V	1010858	7
2	C4, C3	CAP .068 μF 25V	1001774	6
1	C2	CAP 15 μF 20V 10%	1004812	5
1	C11	CAP 2700PF 100V 5% DM	1001637	4
2	C7, C10	CAP .01 μF 100V 20% DISC	1001610	3
1	C6	CAP 2.2 μF, 20V, 10%	1002627	2
1		ETCHED CIRCUIT BOARD	5009725	1
		ASSY/DRILLING HOLE LAYOUT	D-AH-H744-0-5	
		X-Y COORDINATE HOLE LOCATION	A-CO-H744-0-4	REF
		MODULE ECO HISTORY	B-MH-H744-0-6	REF
		CIRCUIT SCHEMATIC	D-CS-H744-0-1	REF

1		SCR, PHL PAN HD #6-32 5/8 LG	9006025-1	71
1		PACKING INSTRUCTIONS	A-PI-3700074-0-0	70
1	R22	RES 680 1/4W 5%	1301424	69

PARTS LIST

ETCH BOARD REV H

FIRST USED ON OPT/MOD D-UA-H742A-0-0

DEC NO.	EIA NO	DEC NO	EIA NO
D664	1N3606		
1N4744			

SEMICONDUCTOR CONVERSION CHART

IC TYPE	GND	+5V
μA 723C	7	12

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DIGITAL EQUIPMENT CORPORATION

5V REGULATOR

D-UA-H744-0-0

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

	SEQUENCE		SEQUENCE
DRAWING DIRECTORY	B-DD-H745-0		
CIRCUIT SCHEMATIC	D-CS-H745-0-1		
UNIT ASSY	E-UA-H745-0-0	MFG. SET	
		TEST PROCEDURE	A-SP-11/45-TA-2
		MFG. SPEC.	A-SP-H745-0-0
		PACKAGING INSTRUCTION	A-PI-3700074-0-0

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE

REVISIONS			
DATE	CHG. NO.	REV	
	00004	A	G.POTTER
	00005	B	S.Blake 10-6-72 J.W. LAWRENCE
	00006	C	11-14-72 G.POTTER
	00007	D	B. Blake 2-15-73 G.POTTER
	00010	E	4-11-74 R.WOLF 4-24-74

USED ON OPTION/MODEL
11/45

DRN.	DATE	TITLE	
CHK'D.	DATE 2-17-72	-15V REGULATOR	
PROJ ENG.	DATE 2-25-72		
PROD.	DATE 2-25-72	SIZE B	CODE DD
FIELD SERV.	DATE	NUMBER H745-0	REV E
SHEET 1 OF		DIST	

DRB 100

DEC 16-(329)-1062-1-N871

ELECTRICAL

CUSTOMER PRINT SET H745-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	D-CS-H745-Ø-1	#	1	CIRCUIT SCHEMATIC	H745
	X		A-SP-11/45-TA-2			TEST PROCEDURE	H745
	X		A-SP-H745-Ø-8			MFG SPEC	H745

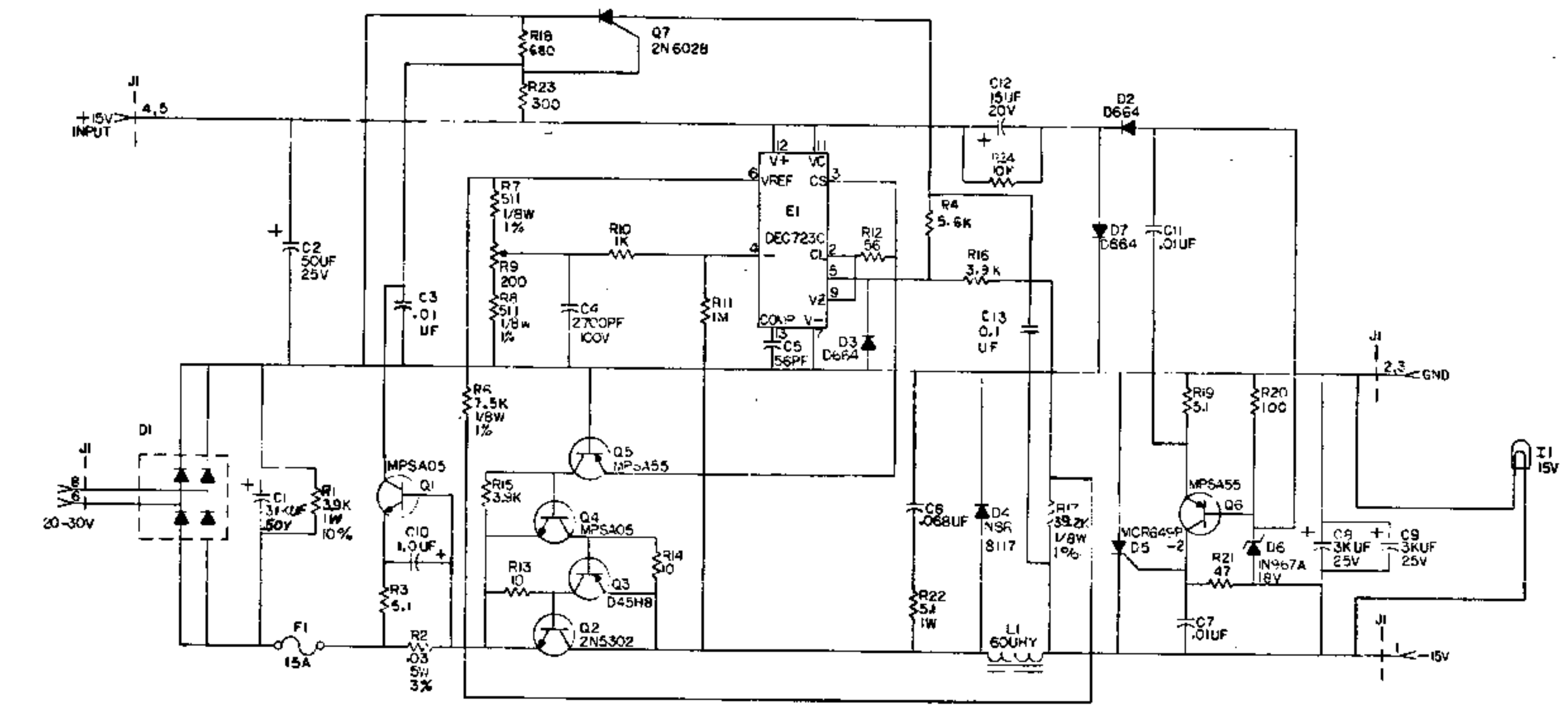
MECHANICAL

CUSTOMER PRINT SET H745-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	E-UA-H745-Ø-Ø	X	1	UNIT ASSY	H745
			D-PS-1210737-0-0		1	HEAT SINK	H745
			D-IA-5309756-0-0		1	REGULATOR BRKT	H745
			D-IA-5309761-0-0		1	2 - 5 CAP BRKT	H745
			C-IA-5309760-0-0		1	COMPONENT COVER	H745
			C-MD-5309759-0-0		1	CAPACITOR STRAP	H745
		2	A-PI-3700074-0-0	-	2	PACKAGING INSTRUCTIONS	H745
			A-PS-9905211-0-0	-	2	OUTER CARTON	H745
			A-PS-9905212-0-0	-	2	INNER PACKAGE	H745

TITLE		SIZE	CODE	NUMBER	REV
-15V REGULATOR	SHEET 2 OF 2	B	DD	H745-Ø	E

DRB 108

DEC 16-(325)-1062-2-N871



UNLESS OTHERWISE INDICATED:
RESISTORS = 1/4W, 5%

SEMICONDUCTOR CONVERSION CHART

DEC NO	EIA NO.	DEC NO.	EIA NO.
D664	IN 3606	D45H8	
NSR8117		2N 6028	
MCR649P-2			
IN 967A	SAME		
2N 5302			
MPS A05			
MPS A55			

PARTS LIST

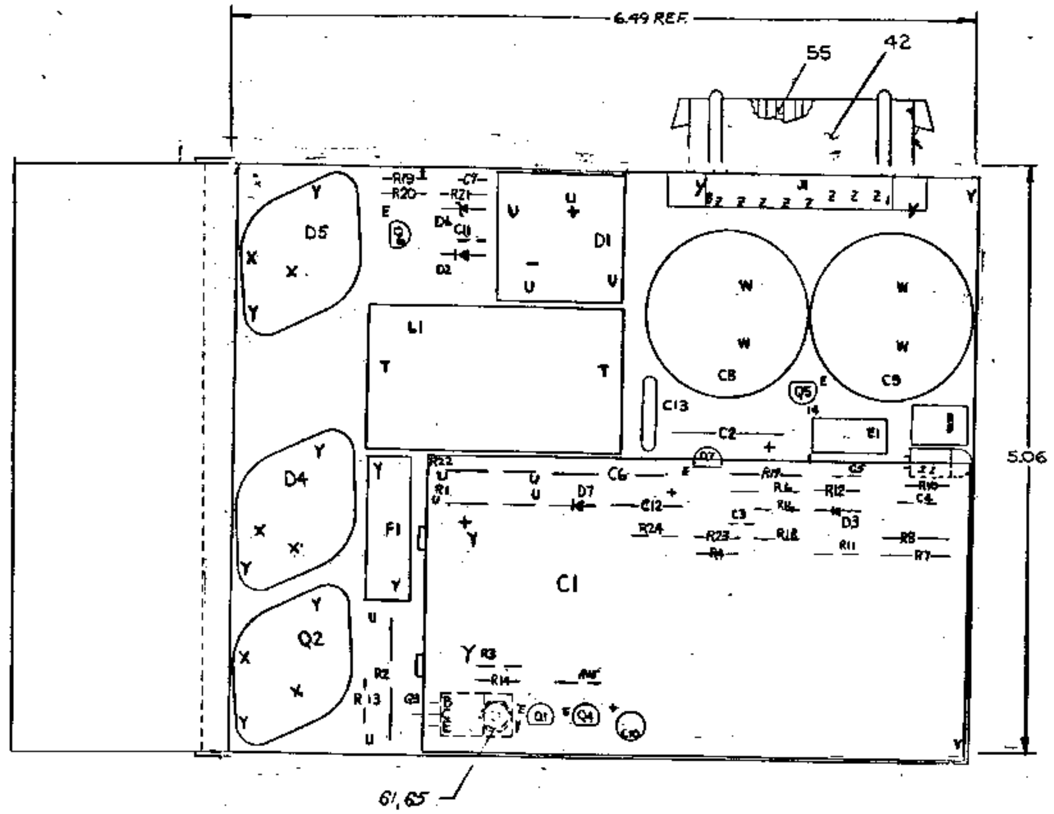
QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

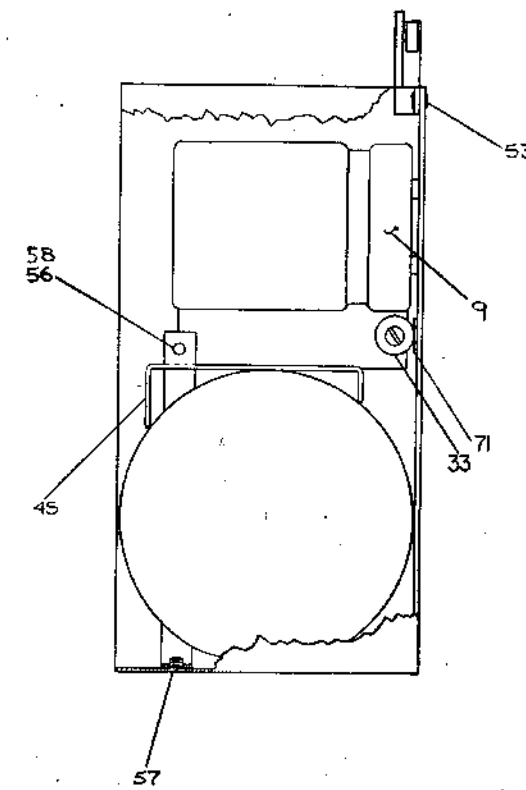
ETCH BOARD REV E

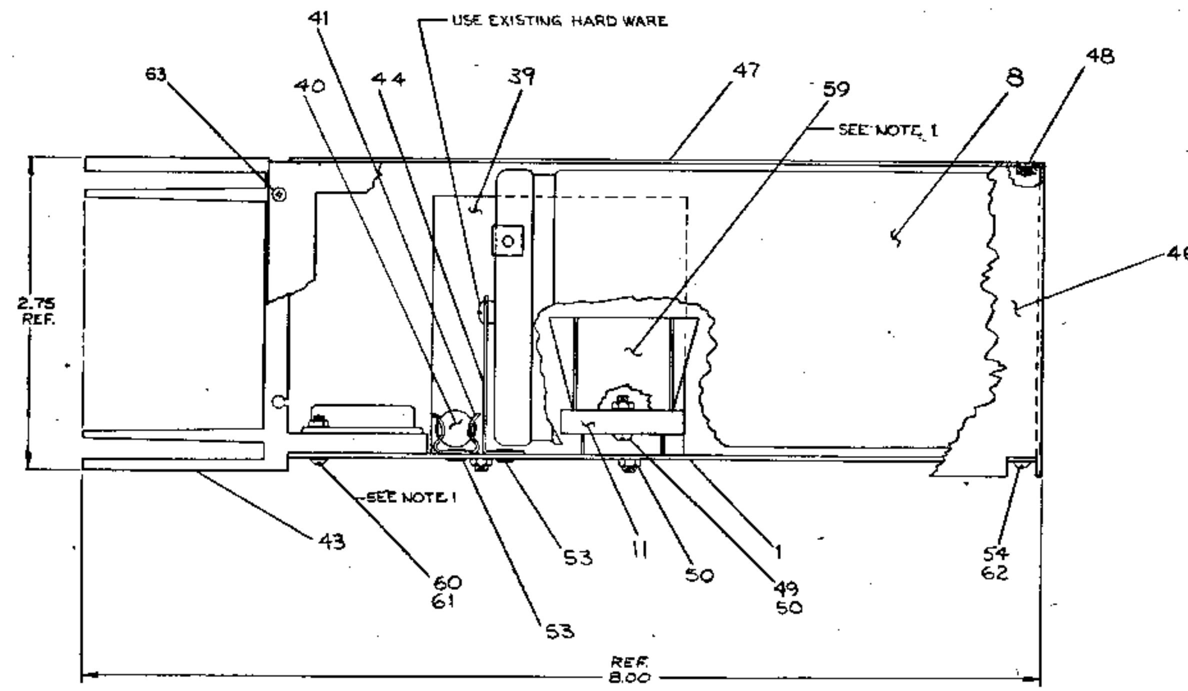
DIGITAL EQUIPMENT CORPORATION

TITLE: −15V REG.

SIZE D, CODE CS, NUMBER H745-0-1, REV. L







NOTE:

1. APPLY ITEM # 51 (THERMAL COMPOUND) BETWEEN TRANSISTOR AND INSULATOR, WASHER (ITEM # 52) ALSO BETWEEN WASHER & HEAT SINK FOR Q2,Q4 & Q5. ALSO APPLY ITEM # 51 (COMPOUND) BETWEEN ITEM #11 (DIODE BRIDGE AND ITEM # 59 (HEAT SINK).
2. 1010621 MAY BE SUBSTITUTED FOR C13 (1000030).

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		ASST/DRILLING HOLE LAYOUT	D-AH-H745-0-5	70
1		PACKING INSTRUCTIONS	API-3700074-0-0	69
1	R18	RES. 680 1/4W 5%	1301424	68
1	R23	RES. 300 1/4W 5%	1301424	67
1	C13 (SEE NOTE 2)	CAP 0.1 UF 100V 20%	1000030	66
1		SCR PN #4-40 X 5/16 LG	9006010-1	65
1	I1	LAMP 15V	1209160	64
4		SCR, PPH #4 X 5/16 LG, SELF TAPPING	9006942	63
2		L WASHER #4	9006632	62
7		NUT KEPS #4-40	9006551	61
8		SCR PHL PAN HD #4-40 X 1/4 LG	9006013-1	60
1		HEAT SINK BRIDGE RECT	1210007	59
1		SCR PHL PAN HD #6-32 X 1/4 LG	9006420-1	58
1		SCR PHL FLT HD #6-32 X 1/4 LG	9006420-2	57
1		WASHER LOCK #6	9007640	56
8		CONTACT FEMALE	1200458	55
2		SCR PHL PAN HD #4-40 X 1/4 LG	9006008-1	54
8		EYELET GS-4-7	9008132	53
3		INSULATOR WASHER	9006721	52
A/R		THERMAL COMPOUND	[illegible]	51
9		NUT KEPS 6-32	9008165	50
1		SCREW PHL PAN HD 6-32 X 1/4 LG	9006024-1	49
4		SCREW PHL FLT HD 4-40 X 5/16 LG	9006010-2	48
1		COVER [illegible]	C-MD-[illegible]-0-0	47
1		REGULATOR [illegible]	D-IA-[illegible]-0-0	46
1		2.5 HOLDER CAPACITOR	C-IA-[illegible]-0-0	45
2		STRAP CAPACITOR	C-MD-[illegible]-0-0	44
1		HEAT SINK	D-PS-1210731-0-0	43
1	J1	CONN. [illegible] 8 PIN	[illegible]	42
2		FUSE CLIP	[illegible]	41
1	F1	FUSE AGC 1.5	[illegible]	40
1	L1	REACTOR [illegible]	[illegible]	39
1	E1	INTEGRATED CIRCUIT UA723C	1910415	38
1	Q3	TRANSISTOR [illegible]	[illegible]	37
2	Q5,Q6	TRANSISTOR [illegible]	[illegible]	36
2	Q1,Q4	TRANSISTOR [illegible]	[illegible]	35
1	Q2	TRANSISTOR [illegible]	[illegible]	34
1	[illegible]	RES VARIABLE 200 Ω 20%	[illegible]	33
1	R20	RES 100K [illegible] 5%	1300229	32
1	R11	RES 1 MEG 1/4W 5%	1309595	31
1	R4	RES. 5.6K 1/4W 5%	1301874	30
2	R15, R16	RES 3.9K 1/4W 5%	1300444	29
2	[illegible], R3	RES 5.1 1/4W 5%	1300422	28
1	R12	RES [illegible]	[illegible]	27
1	R21	RES 47 1/4W 5%	[illegible]	26
1	R17	RES 30.2K 1/8W 1%	1305265	25
1	R10	RES [illegible]	[illegible]	24
2	R13 R14	RES [illegible] 1/4W 5%	1301317	23
1	R6	RES 7.5K 1/8W 1%	1305322	22
2	[illegible]	RES 511 1/8W 1%	[illegible]	21
1	R22	RES 5.1 [illegible] 5%	1302136	20
1	R24	RES 10K 1/4W 5%	[illegible]	19
1	R2	RES .020 Ω 3W 3%	1310076-1	18
1	R1	RES [illegible] 10%	[illegible]	17
1	[illegible]	DIODE [illegible]	[illegible]	16
1	D5	SCR [illegible]	[illegible]	15
1	D4	DIODE [illegible]	1110015	14
3	D3,D7,D2	DIODE D664	1100114	13
1	[illegible]	TRANSISTOR UNI JUNCTION [illegible]	[illegible]	12
1	D1	DIODE BRIDGE	[illegible]	11
1	C12	CAP 15UF 20V 10%	1004812	10
2	C8,C9	CAP [illegible] UF 25V	[illegible]	9
1	C1	CAP [illegible] UF 50V	[illegible]	8
1	C10	CAP 1.0 UF 25V	1010866-01	7
1	C2	CAP 50 UF 25V -10+75%	[illegible]	6
1	C6	CAP .068 UF 100V 10%	[illegible]	5
1	C4	CAP 2700PF 100V 5%	1001631	4
3	C7,C11,C3	CAP .01UF 100V 20%	[illegible]	3
1	C5	CAP [illegible] 100V 5%	[illegible]	2
1		ETCHED CIRCUIT BOARD	5009723	1
		MODULE [illegible] HISTORY	[illegible]	REF
		CIRCUIT SCHEMATIC	CS-H745-0-1	REF
		X-Y COORDINATE HOLE LOCATION	[illegible]	REF

PARTS LIST

TRANSIPAD 9008206 71

ETCH BOARD REV E

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.	DEC NO.	EIA NO.
D664	1N3606		

IC TYPE | GND | +5V

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

IC PIN LOCATIONS

ITEM NO. | AWG | FROM PT | TO PT

JUMPER LIST

EQUIPMENT CORPORATION

TITLE: -15 REGULATOR

SIZE: E | CODE: UA | NUMBER: H745-0-0 | REV: L

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

	SEQUENCE		SEQUENCE
DRAWING DIRECTORY	B-DD-H746-Ø		
CIRCUIT SCHEMATIC	D-CS-H746-Ø-1		
UNIT ASS'Y	E-UA-H746-Ø-Ø	MFG SET	
		TEST PROCEDURE	A-SP-H746-Ø-3
		MFG SPEC.	A-SP-H746-Ø-8
		PACKAGING INSTRUCTION	A-PI-3700074-0-0

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE: H746-1
H746	MOS REGULATOR	X

REVISIONS

REV	CHG. NO.	DATE
A	-00005	[illegible]
B	-00006	3-27-72
C	-00007	7-24-73
D	-00012	4-24-74

USED ON OPTION/MODEL: 11/45

		DATE
DRN.	D. FONTAINE	2-7-72
CHK'D	[signature]	2-17-72
PROJ ENG.	[signature]	2-25-72
PROD.	[signature]	2-25-72
FIELD SERV.	[signature]	2-25-72

SHEET 1 OF 2

TITLE: MOS REGULATOR

SIZE	CODE	NUMBER	REV
B	DD	H746-Ø	D

DIST

DRB 106

DEC 16-(326)-1053-1-N871

ELECTRICAL

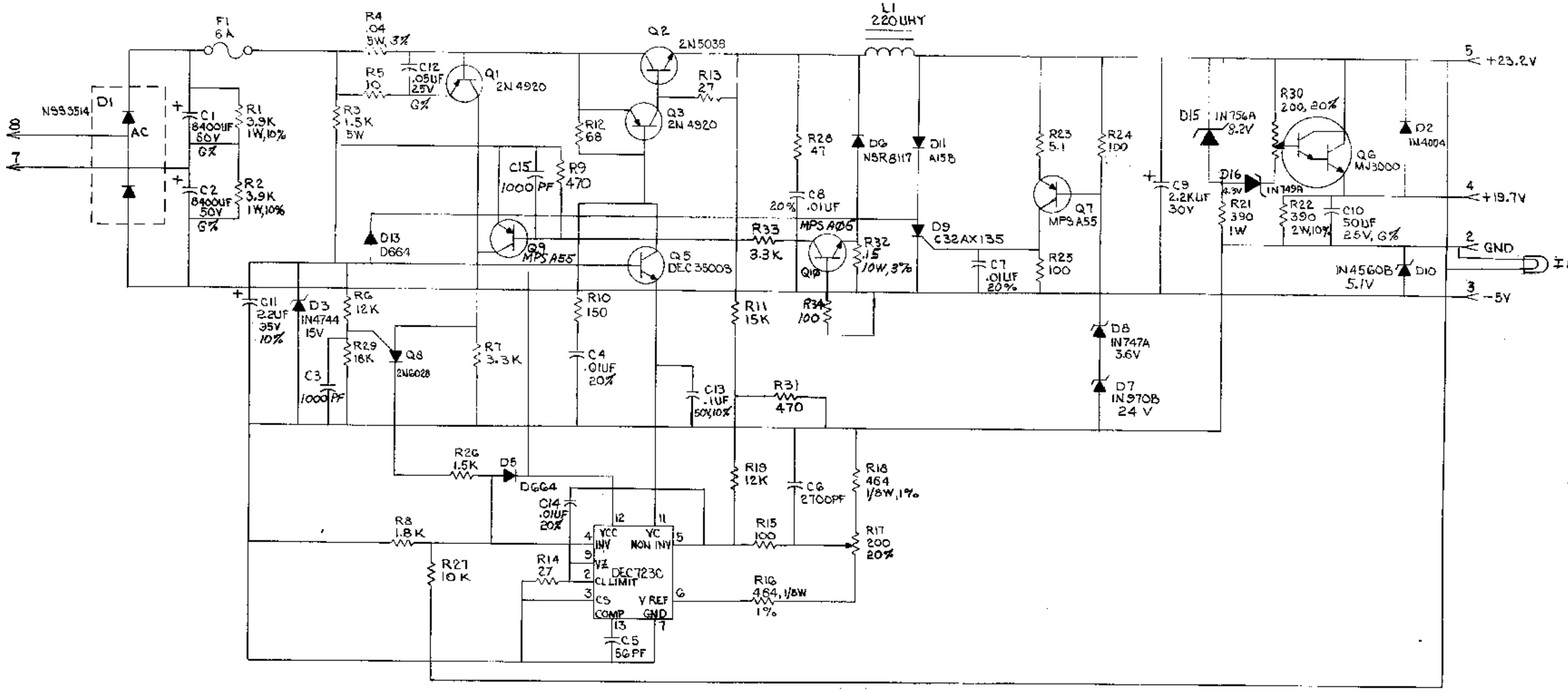
CUSTOMER PRINT SET H746-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	D-CS-H746-Ø-1	K	1	CIRCUIT SCHEMATIC	H746
	X		A-SP-H746-Ø-3	#		TEST PROCEDURE	H746
	X		A-SP-H746-Ø-8	#		MFG. SPEC	H746

MECHANICAL

CUSTOMER PRINT SET H746-1	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	E-UA-H746-Ø-Ø	K	1	UNIT ASSY	H746
			D-PS-1210737-0-0	#	1	HEAT SINK	H746
			D-IA-5309756-0-0	#	1	REGULATOR BRK'T	H746
			C-IA-5309758-0-0	#	1	1.5.CAP BRK'T	H746
			C-IA-5309760-0-0	#	1	COMPONENT COVER	H746
			C-MD-5309759-0-0	#	1	CAPACITOR STRAP	H746
			A-PI-3700074-0-0	-	2	PACKAGING INSTRUCTION	H746
			A-PS-9905211-0-0	-	2	OUTER CARTON	
			A-PS-9905212-0-0	-	2	INNER PACKAGE	

TITLE		SIZE	CODE	NUMBER	REV
MOS REGULATOR	SHEET 2 OF 2	B	DD	H746-Ø	D

DRB 116



UNLESS OTHERWISE INDICATED:
CAPACITORS = 100V, 5%
RESISTORS = 1/4W, 5%
G% = -10% + 75%

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PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.

ETCH BOARD REV H

SEMICONDUCTOR CONVERSION CHART

DEC NO	EIA NO.	DEC NO.	EIA NO.

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

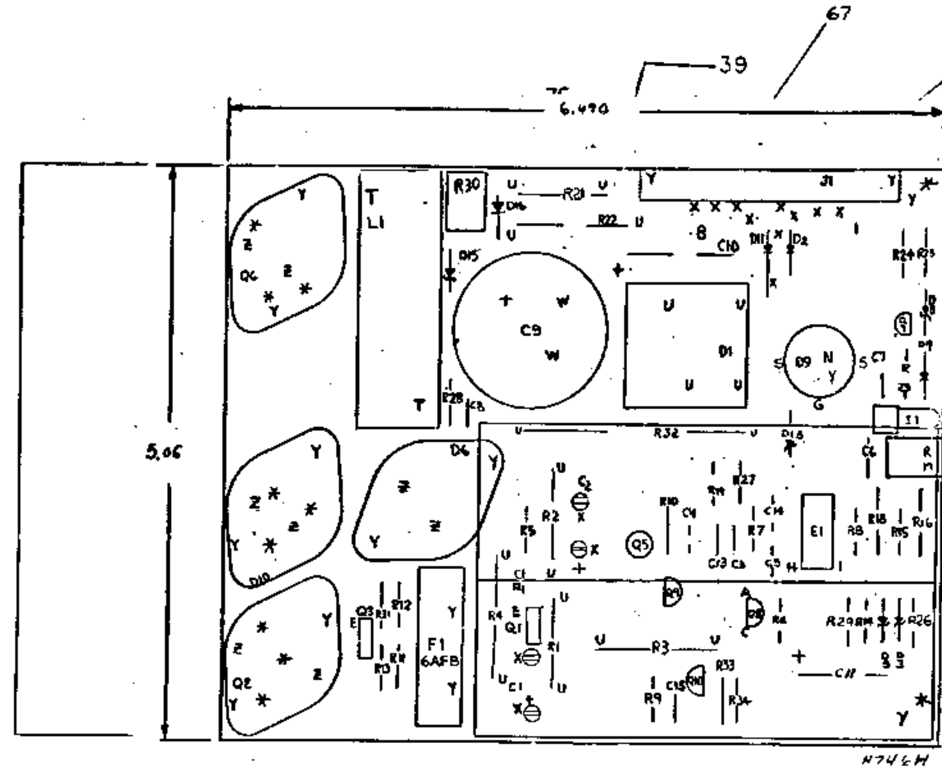
TITLE: MOS REGULATOR

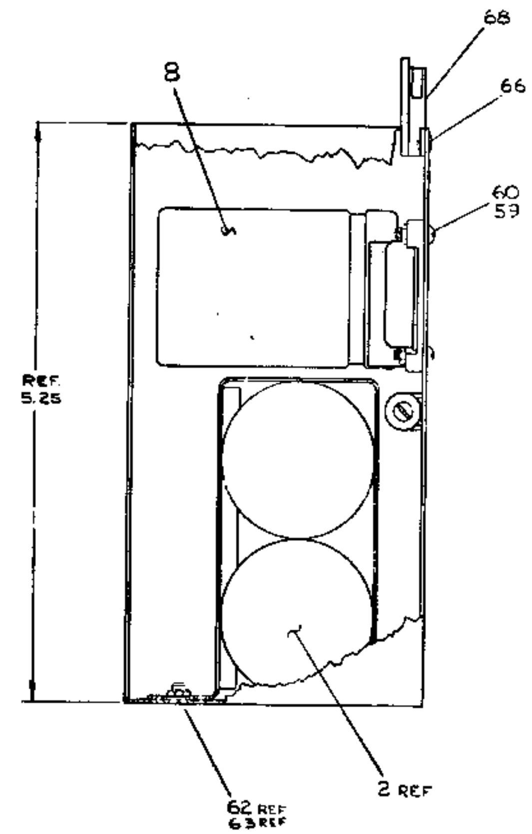
SIZE D CODE CS NUMBER H746-0-1 REV. P

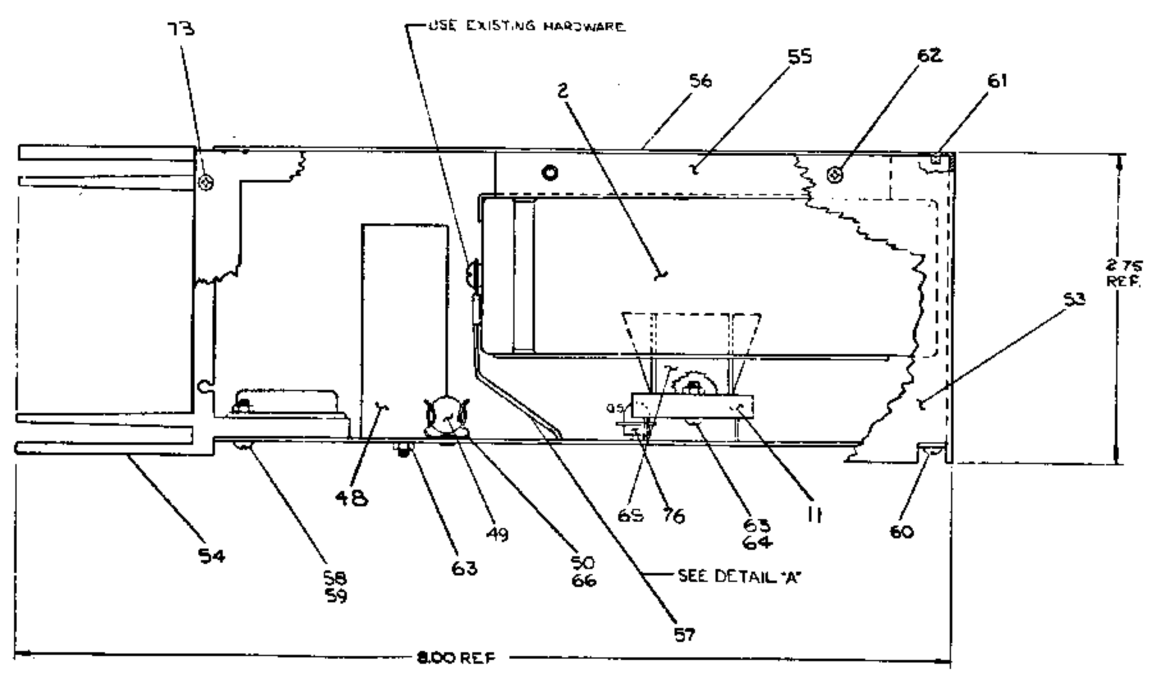
NEXT HIGHER ASSY

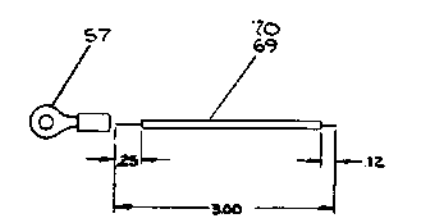
DEC FORM NO

NOTES
APPLY ITEM #71 (COMPOUND) ON:
1. BOTH SIDES OF INSULATOR WASHERS FOR Q2,Q8,D6,D10.
2. BETWEEN ITEM #11 DIODE BRIDGE (D1) AND ITEM #65 HEAT SINK.









DETAIL "A"
SCALE: NONE
RED WIRE GOES TO POSITIVE TERMINAL
BLK WIRE GOES TO NEGATIVE TERMINAL

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
2	R7, R33	RES. 3.3K, 1/4W, 5%	13-00439	29
1	R8	RES. 1.8K, 1/4W, 5%	13-00398	74
1	R32	RES. .15 10W 3%	13-11625	29
1	D9	SCR C32AX135	15-10928	15
1	Q10	TRANSISTOR 405 (MOT)	15-10705	84
2	C3, C15	CAP 1000PF, 100V CM	10-00042	65
1	C13	CAP .1UF, 50V, 10%	10-10978-34	52
1	R12	RES 68, 1/4W, 5%	13-00219	81

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		ASSY/DRILLING HOLE LAYOUT	[illegible]-AH-746-0-5	R.F.
[illegible]		PACKING INSTRUCTIONS	APL-1700074-0-0	80
1	D15	DIODE 1N[illegible]	[illegible]	[illegible]
1	R21	RES 390, 1W, 5%	[illegible]	[illegible]
1	[illegible]	LAMP [illegible]	[illegible]	[illegible]
2		TRANSIPAD	[illegible]	76
1	D8	DIODE 1N747A	[illegible]	75
4		SCR PAN FLAT HD #4 SELF TAPPING	9009142-02	73
4		WASHER INSULATOR	[illegible]	72
A.R.		COMPOUND THERMAL	[illegible]	71
A.R.		#18 AWG STRD [illegible] (BLK)	[illegible]	70
A.R.		#18 AWG STRD [illegible] (RED)	[illegible]	69
1		MATE-N-LOK CONN 8 PIN	[illegible]	68
8		CONTACT FEMALE	[illegible]	67
4		EYELET [illegible]	[illegible]	66
1		HEAT SINK, BRIDGE	[illegible]	65
1		SCR PAN PAN HD 6-32 X 3/8	[illegible]	64
5		KEPS NUT 6-32	[illegible]	63
2		SCR PAN FLAT HD 6-32 X 5/16	[illegible]	62
4		SCR PAN FLAT HD 4-40 X 1/4	[illegible]	61
4		SCR PAN PAN HD 4-40 X 1/4	[illegible]	60
8		KEPS NUT 4-40	[illegible]	59
6		SCR PAN PAN HD 4-40 X 1/2	[illegible]	58
4		TERMINAL RING	[illegible]	57
1		COVER [illegible]	[illegible]	56
1		[illegible]	C-IA-5309759-0-0	55
1		HEAT SINK, REGULATOR	[illegible]	54
1		BRACKET, REG	[illegible]	53
4		SPLIT LUG	[illegible]	52
1	[illegible]	TRANSISTOR [illegible]	[illegible]	51
2		FUSE CLIP	[illegible]	50
1	F1	FUSE [illegible]	[illegible]	49
[illegible]	L1	REACTOR 220µH	[illegible]	48
1	E1	INTEGRATED CIRCUIT µA 723C	[illegible]	47
2	Q7 Q9	TRANSISTOR 405 (MOT)	[illegible]	46
1	Q6	TRANSISTOR MJ3000 (MOT)	15-11349	45
1	Q5	TRANSISTOR [illegible]	[illegible]	44
1	Q2	TRANSISTOR 2N[illegible]	[illegible]	43
2	Q1, Q3	TRANSISTOR [illegible]	[illegible]	42
2	R17, R30	RES VARIABLE [illegible]	[illegible]	41
1	R23	RES 5.1 [illegible]	[illegible]	40
2		#10 LOCKWASHER, EXTERNAL TOOTH	[illegible]	39
2	R31, R9	RES 470 1/4W 5%	13-00316	38
1	R11	RES [illegible]	[illegible]	37
1	R10	RES 150 [illegible]	[illegible]	36
1	R27	RES [illegible]	[illegible]	34
2	R6, R19	RES [illegible]	[illegible]	33
4	R15, R25, R24, R34	RES [illegible]	[illegible]	32
2	R13 R16	RES [illegible]	[illegible]	31
1	R5	RES [illegible]	[illegible]	30
				[illegible]
				[illegible]
2	R14 R18	RES [illegible]	13-08047?	27
1	R29	RES [illegible]	[illegible]	26
1	C11	CAP, 2.2UF 35V 10%	10-02431	25
1	R4	RES .04 [illegible]	13-11362	24
1	R3	RES [illegible]	13-00897	23
1	R22	RES [illegible]	[illegible]	22
1	R28	RES [illegible]	13-00391	21
2	R1 R2	RES [illegible]	[illegible]	20
1	R20	RES [illegible]	[illegible]	19
1	D11	DIODE 1N5624	[illegible]	18
1	D2	DIODE 1N4004	[illegible]	17
1	D10	DIODE [illegible]	[illegible]	16
1	[illegible]	DIODE [illegible]	[illegible]	14
1	[illegible]	DIODE TRANSIENT	11-10719	13
1	[illegible]	DIODE [illegible]	[illegible]	12
1	[illegible]	DIODE [illegible]	[illegible]	11
2	D5, D13	DIODE [illegible]	[illegible]	10
1	C10	CAP 50UF 25V -10+75%	[illegible]	9
1	C9	CAP [illegible]	[illegible]	8
4	[illegible]	CAP [illegible]	[illegible]	7
1	[illegible]	CAP [illegible]	[illegible]	6
1	C5	CAP [illegible]	[illegible]	5
1	D16	DIODE 1N742A	11-05377	4
1	C12	CAP [illegible]	[illegible]	3
2	[illegible]	CAP [illegible]	[illegible]	2
1		ETCHED CIRCUIT BOARD	[illegible]	1
		MODULE ECO HISTORY	[illegible]	REF
		[illegible] HOLE LOCATION	[illegible]	R.F.
		CIRCUIT SCHEMATIC	[illegible]	R.F.

PARTS LIST

ETCH BOARD REV H

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.
D664	1N3606
1N4001	SEE MR 20[illegible]

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

ITEM NO. | AWG | FROM PT | TO PT
JUMPER LIST

REVISIONS

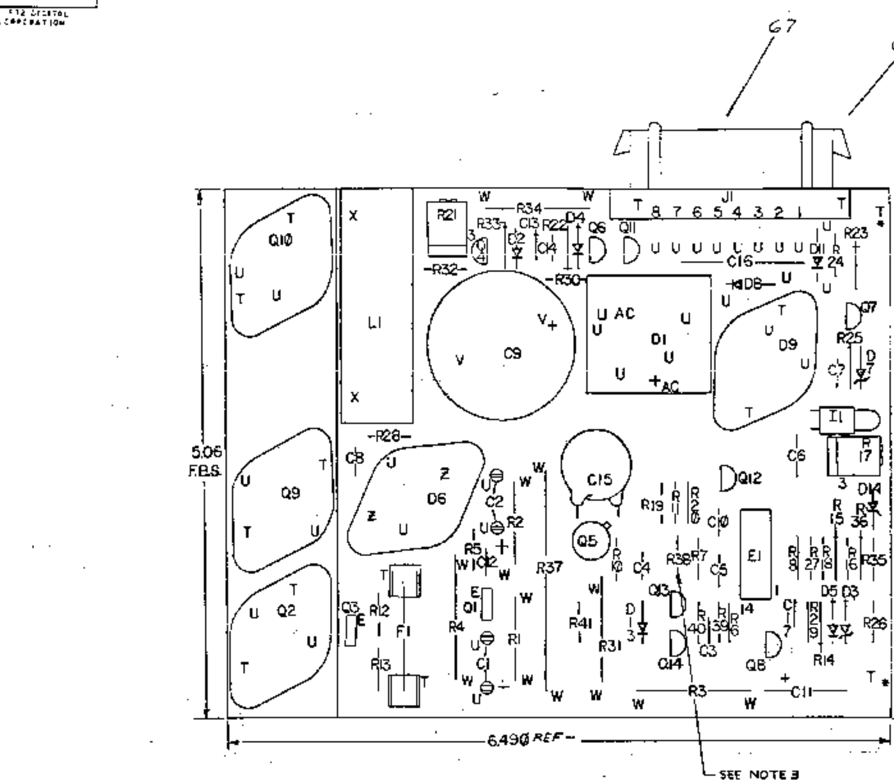
DIGITAL EQUIPMENT CORPORATION

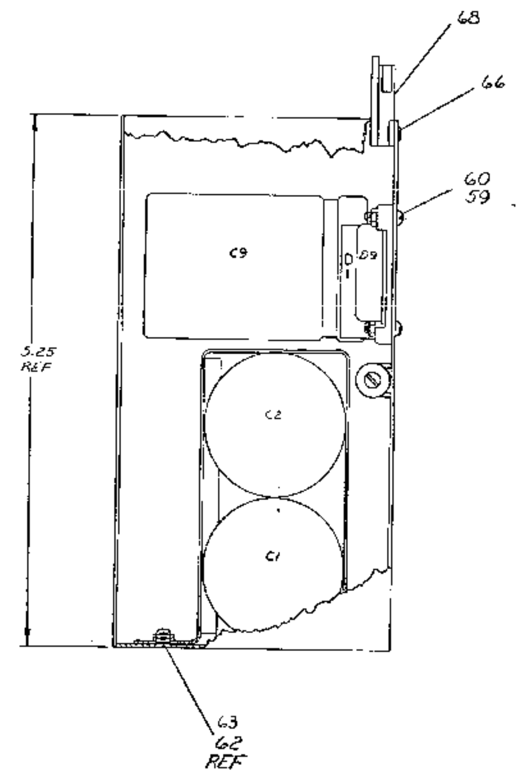
TITLE: MOS REGULATOR

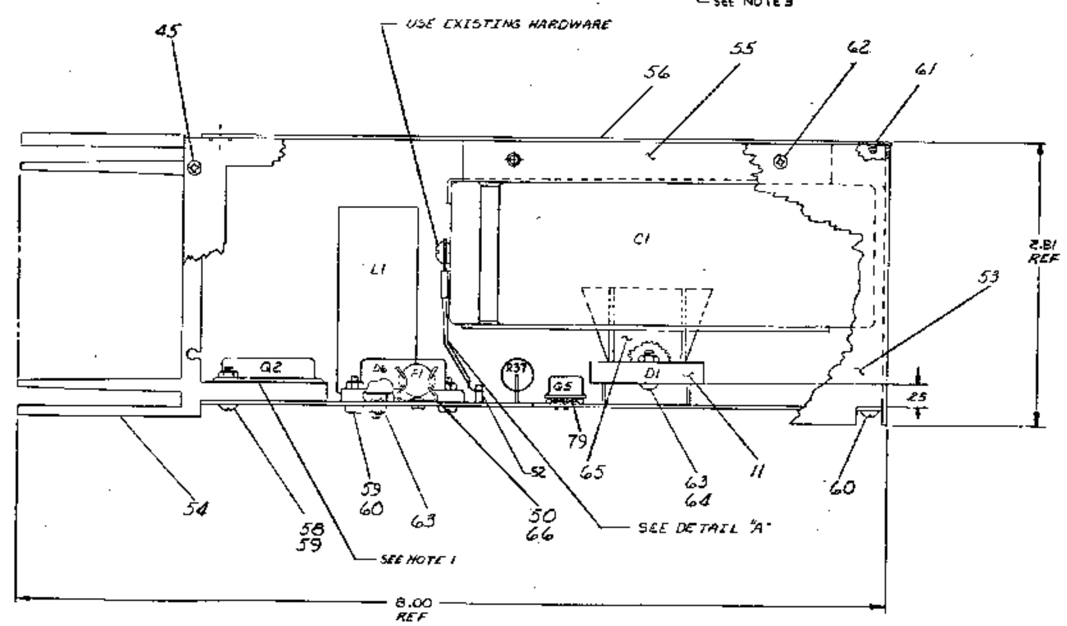
SIZE: E | CODE: [illegible] | NUMBER: H740-?-0 | REV: P

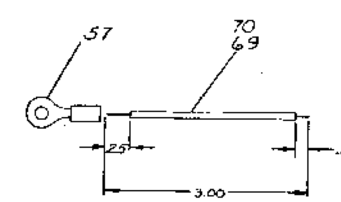
SCALE: NONE | SHEET 1 OF 1

NOTES:
1. APPLY ITEM #71 (COMPOUND) ON BOTH SIDES OF ITEM #72 (INSULATOR WASHER) FOR Q2, Q9, Q10. ALSO APPLY BETWEEN ITEM # (DIODE BRIDGE D1) AND ITEM #65 (HEAT SINK, BRIDGE RECT.)
2. UNLESS OTHERWISE INDICATED: RESISTORS ARE 1/4W, ±5%. CAPACITORS ARE 100V, ±5%.
3. ADD INSULATION (9107256-11) TO BOTH LEADS OF R39 TO AVOID SHORT TO ETCH.









DETAIL "A"
SCALE: NONE
RED WIRE GOES TO POSITIVE TERMINAL
BLK WIRE GOES TO NEGATIVE TERMINAL

DELETED COMPONENTS	
RESISTORS	R9
DIODES	D10, D12

QTY	REF DESIGNATION	DESCRIPTION	PART NO	ITEM NO.
A/R		INSULATION	9107256-11	90
1	R39	RES 220 1/4W 5%	1300271	89
1	R37	RES .1 10W 1%	1309108	88
1	R38	RES [illegible] THERMISTOR	13 0071	87
1	C16	CAP. 100uF 25V	1002781	86
1	Q10	TRANSISTOR MJ900	1510712	85
1	Q9	TRANSISTOR MJ1000	1511349	84
1	C13	CAP. 100 PF 100V ±5% DM	1000016	83
				82
2	Q4, Q14	TRANSISTOR MPS A05	1510785	81
1	D2	DIODE 5809	1100100	80
2	(UNDER Q9 & R2U)	TRANSIPAD	9007200	79
1	R31	RES .15Ω 2W 10%	1510167	78
2	C14, C17	CAP. 1000PF 100V ±5% DM	1000042	77
1	R22	RES 383Ω 1/8W ±1%	1305725	76
2	R35, R8	RES 4.78K 1/8W ±1%	1302612	75
1	R11	RES 15K 1/4W ±5%	1300496	74
1	R20	RES 470Ω 1/8W ±5%	1300[illegible]	73
				REF
3		WASHER INSULATOR	9006721	72
A/R		COMPOUND THERMAL	9006[illegible]	71
A/R		WIRE, #[illegible] AWG STRD, [illegible] (BLK)	9107359-0[illegible]	70
A/R		WIRE #[illegible] AWG STRD, [illegible] (RED)	9107360-22	69
1	J1	MATE-N-LOCK CONN 8 PIN	1200040	68
8		PIN, SOCKET, MATE-N-LOCK	1200456	67
4		EYELET GS-4-1	9006132	66
1		HEAT SINK BRIDGE RECTIFIER	1210907	65
1		SCR. PHL PAN HD 6-32 X [illegible]	9006024-1	64
5		KEPS NUT 6-32 SS	9006165	63
2		SCR PHL FLAT HD. 8-32 X 5/16	9000027-2	62
4		SCR PHL FLAT HD. 4-40 X 1/4	9003005-2	61
6		SCR PHL PAN HD 4-40 X 3/8	9006016-1	60
10		KEPS NUT 4-40	9006057	59
6		SCR PHL PAN HD 4-40 X [illegible]	9006013-1	58
4		TERMINAL SOLDERLESS, [illegible]	90C3930	57
1		COVER COMP	C-MD-5309780-0-0	56
1		1.5 CAP BRKT	C-IA-5309758-0-0	55
1		HEAT SINK REGULATOR	D-PS-1210737-0-0	54
1		BRACKET, REG	D-IA-5309756-0-0	53
4		SPLIT LUG	9006739	52
1	Q8	TRANSISTOR 2N6028	15-10817	51
2		FUSE CLIP	9007203	50
1	F1	FUSE 10 AMP	90-08838	49
1	L1	REACTOR 470 UHY	16-10849	48
1	E1	INTEGRATED CIRCUIT 723	19-10415	47
6	Q7, Q6, Q11, Q12, Q13	TRANSISTOR MPS A55	15-10708	46
4		SCR PHL FLAT HD #4-40 SELF TAPPING	9006142	45
1	Q5	TRANSISTOR DEC3500	15-03[illegible]	44
1	Q2	TRANSISTOR 2N5038	15-10969	43
2	Q1 Q3	TRANSISTOR 2N4920	15-09605	42
2	R13, R21	RES VAR. [illegible] 200 ±20% POT	13-10852	41
2	R22, R36	RES 5.1 [illegible] 5%	13-08422	40
1	R16	RES 237 1/8W 1%	13C4857	39
REF		ELECTRICAL SCHEMATIC	E-CS-H754-0-1	38
3	R14, R13, R5	RES [illegible] 27	13 09522	37
1	R10	RES 150 1/4 5%	13 00250	36
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-H754-0-5	35
2	R7, R40	RES 2K 1/4W 5%	1302398	34
2	R6, R15	RES 12K 1/4 5%	13-0[illegible]	33
6	R15, R25, R30, R24, R35, R41	RES 100 1/4 5%	13-00[illegible]	32
1	R12	RES 68Ω 1/4W 5%	13-00219	31
				30
1	R27	RES 10K 1/8W 1%	1303372	29
1	R32	RES 39[illegible] 1/4 5%	13-00444	28
1	R16	RES 267Ω 1/8W 1%	13-05124	27
1	R29	RES [illegible] 1/4 5%	13-02[illegible]	26
1	C11	CAP 2.2 UF 35V 10% S TANT	10-02421	25
1	R4	RES 5W .04Ω	1311362	24
1	R3	RES 1.5K 5W 5%	13-01897	23
1	R34	RES 47 2W 5%	13-05258	22
1	R26	RES 1.5K 5W 5%	13 00[illegible]	21
2	R1 R2	RES 3.9K 1W 10%	13-00[illegible]	20
1	R28	RES 47 1/4 5%	13-00202	19
2	D11, D8	DIODE IN5624	1110420	18
				17
1	D14	DIODE 752A ZENER	1102808	16
1	D9	DIODE [illegible]	11-05465	15
1	D7	DIODE 4970B. 24V	11-10858	14
1	D6	DIODE, 20 AMP FAST REC.	11-10715	13
1	D5	DIODE 1N4744 ZENER, 15V	11-05640	12
1	D1	DIODE [illegible]	11-00014	11
3	D5 D13 D4	DIODE D664	11 00014	10
1	C15	CAP .1 UF 100V 20% DISC	1000030	9
1	C2	CAP 2.20 UF 30V [illegible]% AL. EL.	10-10859	8
5	C7 C8 C4, C10, C3	CAP .01UF 50V 20% DISC.	10-01610	7
1	C6	CAP 2700PF 100V 5% DM	10-01637	6
1	C5	CAP 560PF 100V 5% DM	10-00012	5
1	I1	LAMP 28V 40 MA	12-1[illegible]	4
1	C12	CAP .01UF 25V DISC	10 01174	3
2	C1 C2	CAP [illegible] UF 50V 0% AL EL	10 11363	2
1		ETCHED CIRCUIT BOARD	501C[illegible]	1
		MODULE ECO HISTORY	B-MH-H754-0-6	REF
		P.C. COORDINATE HOLE LOCATION	P-CO-H754-0-4	REF

PARTS LIST

ETCH BOARD REV F

EQUIPMENT CORPORATION

TITLE: +20 VOLT REGULATOR

CS H754 0-1 REV F

SEMICONDUCTOR CONVERSION CHART

DEC NO	EIA NO	DEC NO	EIA NO

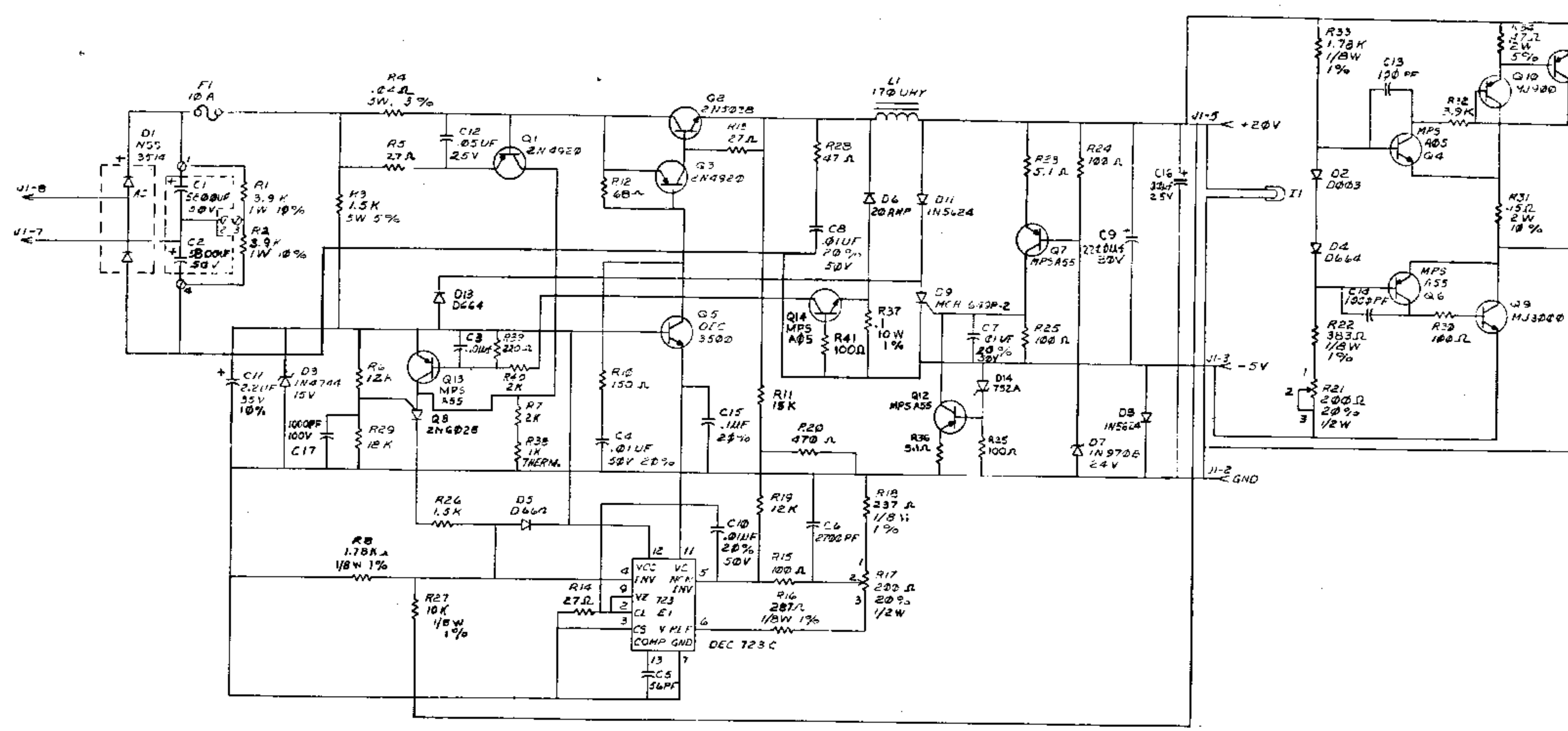
IC TYPE	GND	+5V

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST



FIRST USED ON OPTION-MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
H754		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES

DECIMALS | ANGLES

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

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

NEXT HIGHER ASSY

SCALE

SHEET OF

digital EQUIPMENT CORPORATION

TITLE

+20 VOLT REGULATOR

SIZE	CODE	NUMBER	REV
D	CS	H754-0-1	F

DIST

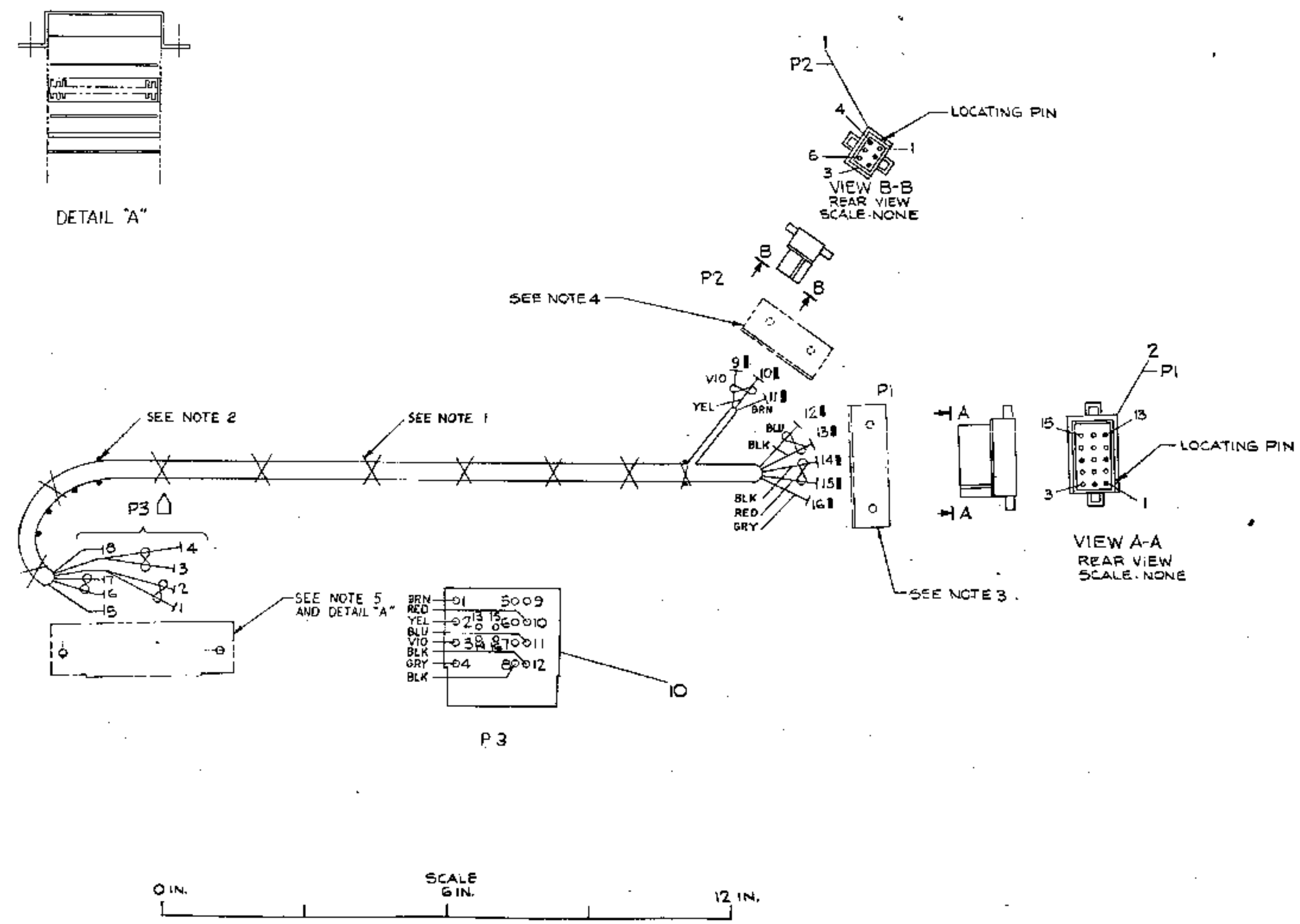
REVISIONS — CHG NO — H754 — F — G WHITCOMB

WIRE TABLE

ITEM NO.	DESCRIPTION AWG	COLOR	FROM POINT	FROM CONNECTION	FROM TERM	TO POINT	TO CONNECTION	TO TERM	SIGNAL
5	14 TWP	RED	3	P3-10	SOLD	15	P1-1	3	+5V
		BLK	4	P3-8	SOLD	14	P1-7	3	GND
9	14	GRY	5	P3-4	SOLD	16	P1-2	3	-5V
6	14 TWP	BLK	1	P3-12	SOLD	13	P1-9	3	GND
		BLU	2	P3-11	SOLD	12	P1-13	3	-15V
8	18	BRN	8	P3-1	SOLD	11	P2-2	3	LTc
7	18 TWP	VIO	6	P3-3	SOLD	9	P2-3	3	DcLo
		YEL	7	P3-2	SOLD	10	P2-4	3	AcLo
11	22	-	-	P3-13	SOLD	-	P3-14	SOLD	DcLo
11	22	-	-	P3-15	SOLD	-	P3-16	SOLD	AcLo

NOTES:

1. USE TIE WRAPS (X) ITEM #4 APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY AND AT EVERY BREAKOUT POINT.
2. DOT (●) INDICATES NAIL LOCATIONS FOR ASSEMBLY USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.
3. USE CONN BRKT C-MD-9305761-H5-0 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-5.
4. USE CONN BRKT C-MD-9305761-H6-0 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-06
5. USE CONN. HOLD DOWN B-MD-9305767-0-0 WITH PLATE B-MD-9305767-0-1, USE TAPE DEC #9008734 & CONN H807 DEC # (1209123) REMOVE PINS & FLANGES AS SHOWN IN DETAIL "A". MOUNT WITH WOOD SCREWS.



DO NOT REDUCE
DO NOT BUILD FROM REDUCED PRINT

SYM	QTY	DESCRIPTION	PART NO	ITEM NO.
	A/R	BUSS WIRE #22AWG	9107560-01	11
	1	POWER CONN	G772	10
	A/R	WIRE #14AWG GRY	9107370-88	9
	A/R	WIRE #18AWG BRN	9107360-11	8
	A/R	WIRE #18TWP YEL/VIO	9107430-47	7
	A/R	WIRE #14TWP BLK/BLU	9107440-06	6
	A/R	WIRE #14TWP BLK/RED	9107440-02	5
X	A/R	WRAP, TIE	9007031	4
▮	8	PIN, MALE	1209378-00	3
	1	HOUSING, CONN. 5PIN	1209351-15	2
	1	HOUSING, CONN. 6PIN	1209351-06	1

PARTS LIST

digital EQUIPMENT CORPORATION

TITLE: G772 SYSTEM UNIT HARNESS

MATERIAL: SEE PARTS LIST

SIZE: E | CODE: IA | NUMBER: 7009562-0-0

SCALE: 1/1 | SHEET 1 OF 1

IA 7009562-0-0

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY J. Gorman DATE 6-15-72	CHECKED J. Rogers DATE 6-15-72	SECTION	**LEGEND** D DOCUMENT DN DOCUMENT CHANGE NOTICE PA PAPER TAPE ASCII PB PAPER TAPE BINARY PM PAPER TAPE READ-IN-MODE
ENG [illegible] DATE 6/20/72	PROD Jack Gorman DATE 6-20-72	ISSUED SECT.	

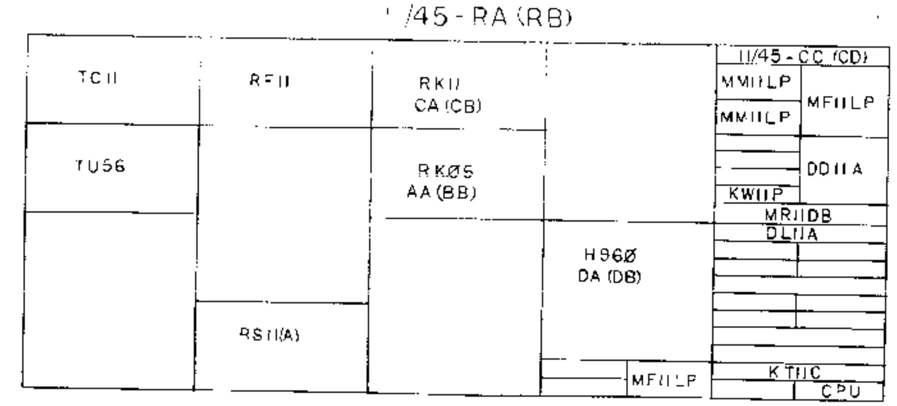
ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION Basic							KIT CHECK BY ___ DATE ___	INSTALLATION CHECK BY ___ DATE ___
	Lib Kit 11-Bas 45-B-K	System Software Kit	1								
	Dec 11-H45B-D	11/45 Systems and installation Manual	1								
	112-01071-1854-D-09-25	11 Peripherals and interfacing Handbook	1								
	112-01071-1876-D-09	11/45 Processor Handbook	1								
	Dec 11-HKBA-D	KB11 Maintenance Manual	1								
	B-DD-11/45-0	PDP-11/45 Systems Eng. Drawings	1								
		Dec Supplies List	1								
		Log Book	1								
		PDP-11 Instruction Card	1								
		H960C Cab Filter	1								
	9007221	AGC 5 A Fuse	5								
	9007226	AGC 15A Fuse	5								
	9009039	Fuse 2/10A SB	5								
		Key on off Switch	2								
	7008855	POWER CABLE, SYSTEM UNIT	3								

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
Central Processor	SHEET 1 OF 1	A	AL	11/45 - 003	A	11/45-00038

DIST.

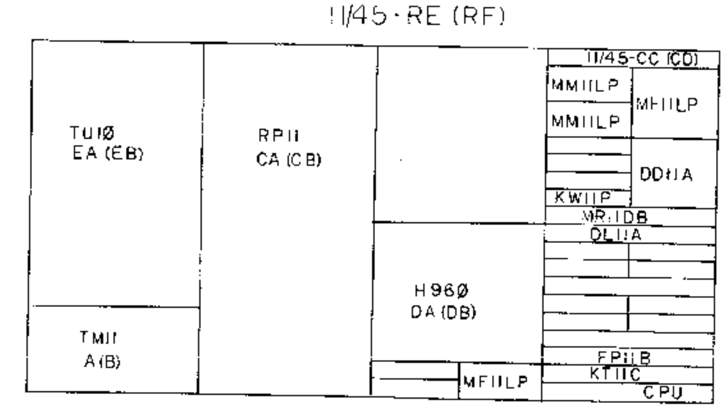
NOTES:
1 SYSTEMS IN ( ) ARE 230 . 50 HZ VERSIONS
2. DL11A SPEED GROUP 3 (300 BAUD ONE STOP BITS, NO PARITY, 8 BITS)
3 DL11A MUST BE SET FOR 150 BAUD TO RUN DIAGNOSTICS.

11/45-RA (RB)

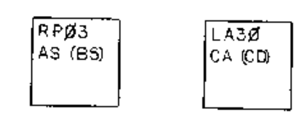


SOFTWARE QR430-AC

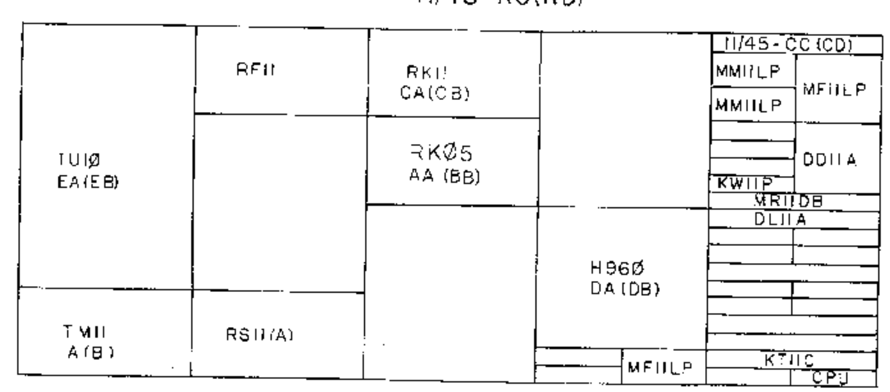
11/45-RE (RF)



SOFTWARE QR430-AD



11/45 RC(RD)



SOFTWARE QR430-AD

REV	CHANGE NO	REVISIONS	CHK
A	11/45-00048	REVISED & REDRAWN / B. FITZGERALD	

FIRST USED ON OPTION/MODEL: PDP11/45

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DRN: B. CRAMM — DATE 11-6-72
CHK'D: J. BAILEY — DATE 11-0-72
ENG: SWANSON — DATE 11-3-72
PROJ. ENG: SWANSON — DATE 11-3-72
PROD: HILGENDORF

NEXT HIGHER ASSY: B-DD-11/45-0

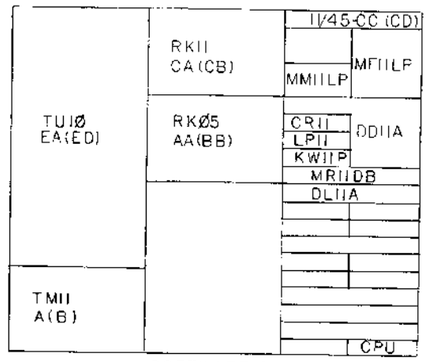
DIGITAL EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: TIME SHARING SYSTEMS

SIZE D — CODE AR — NUMBER 11/45-0-4 — REV B

SHEET 1 OF 5

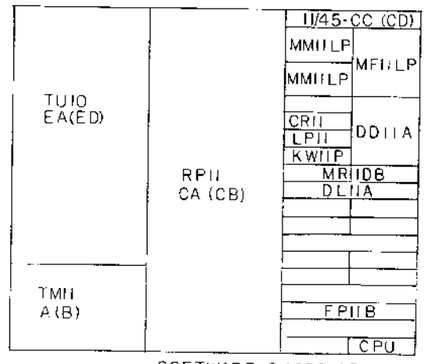
11/45 - PA (PB)



SOFTWARE QJ25Ø-AD

CR11(A) 300 CPM | LP11 JA(JB) | LA30 CA(CD)

11/45 - PC (PD)



SOFTWARE QJ25Ø-AD

RPØ3 AS(BS) | CR11(A) 300 CPM | LP11 JA(JB) | LA3Ø CA(CD)

REVISIONS	CHANGE NO	CHK
		REV.

DRAWING 40-107 19366

DEC FORM NO DRG 100-A

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
PDP11/45		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.CRAMM	DATE	11-6-72
CHK'D. J.BAILEY	DATE	11-10-72
ENG. SWANSON	DATE	11-13-72
PROJ. ENG. SWANSON	DATE	11-13-72
PROD. R.HILGENDORF	DATE	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

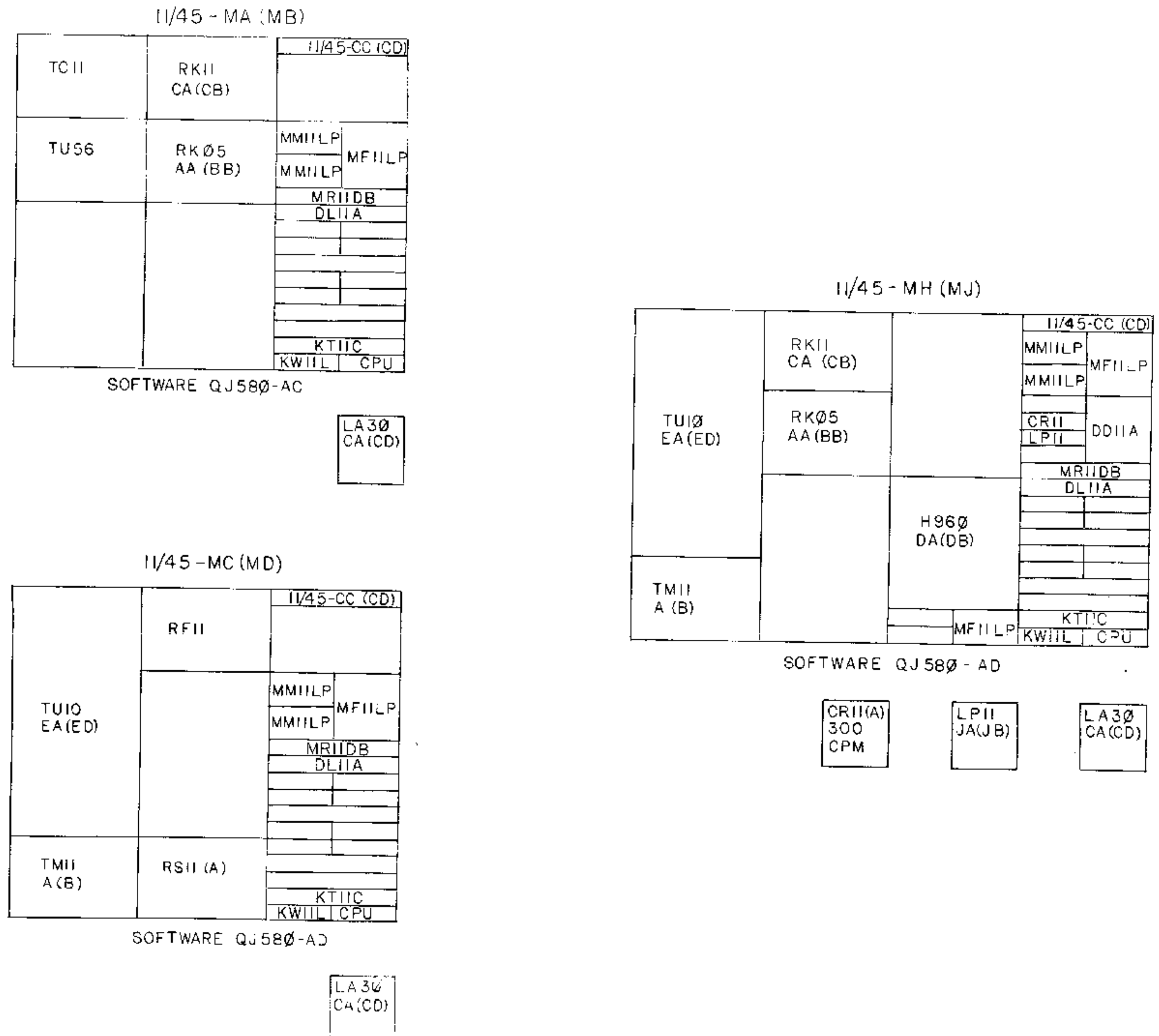
TITLE: BATCH PROCESSING SYSTEMS

NEXT HIGHER ASSY.: B-DD-11/45-Ø

SIZE	CODE	NUMBER	REV.
D	AR	11/45-0-4	B

SCALE —
SHEET 2 OF 5
DIST

11/45-0-4 REV B
SIZE D CODE AR



PDP11/45

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 —//—

DWN B. CRAMM	11-6-72	
CHK'D. J. BAILEY	DATE 11-10-72	
ENG SWANSON	DATE 11-13-72	
PROJ. ENG. SWANSON	DATE 11-13-72	
PROD. HILGENDORF	DATE	

TITLE REAL TIME SYSTEMS

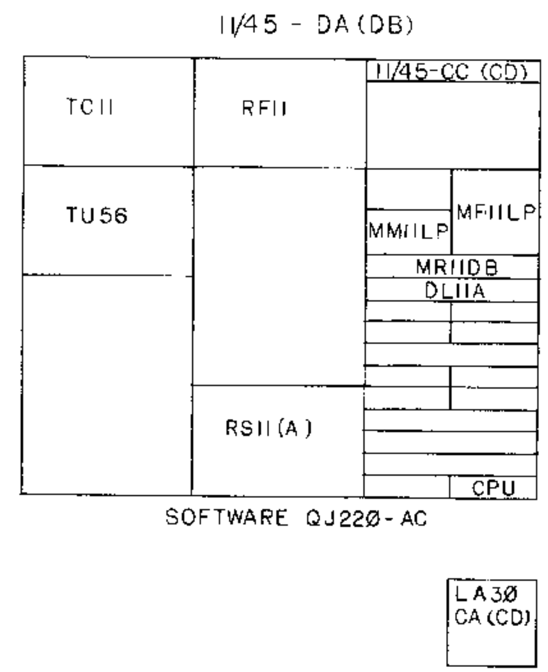
NEXT HIGHER ASSY. 3-DD-11/45-0

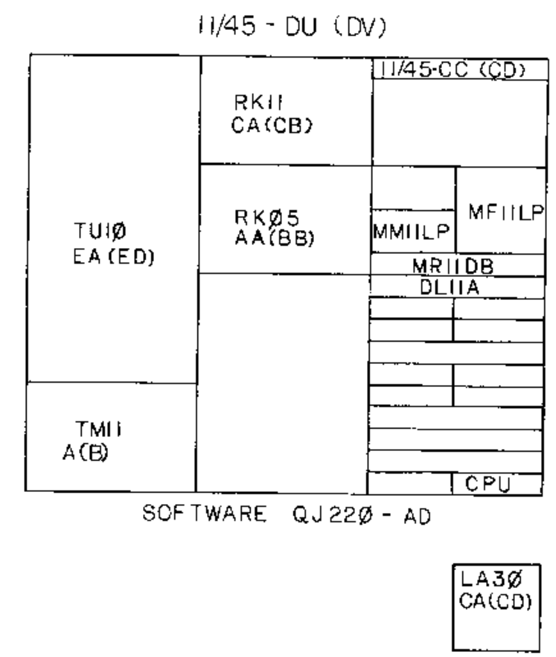
SIZE	CODE	NUMBER	REV
D	AR	11/45-Ø-4	B

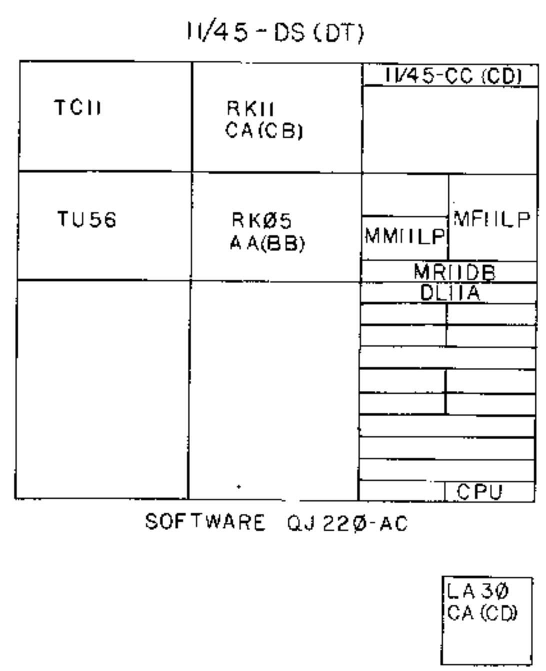
SCALE —//—

SHEET 3 OF 5

DIST.







FIRST USED ON OPTION/MODEL: PDP 11/45

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
BGRAMM	11-6-72
CHK'D J.BAILEY	11-10-72
ENG. SWANSON	11-13-72
PROJ. ENG. SWANSON	11-13-72
PROD. HILGENDORF	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

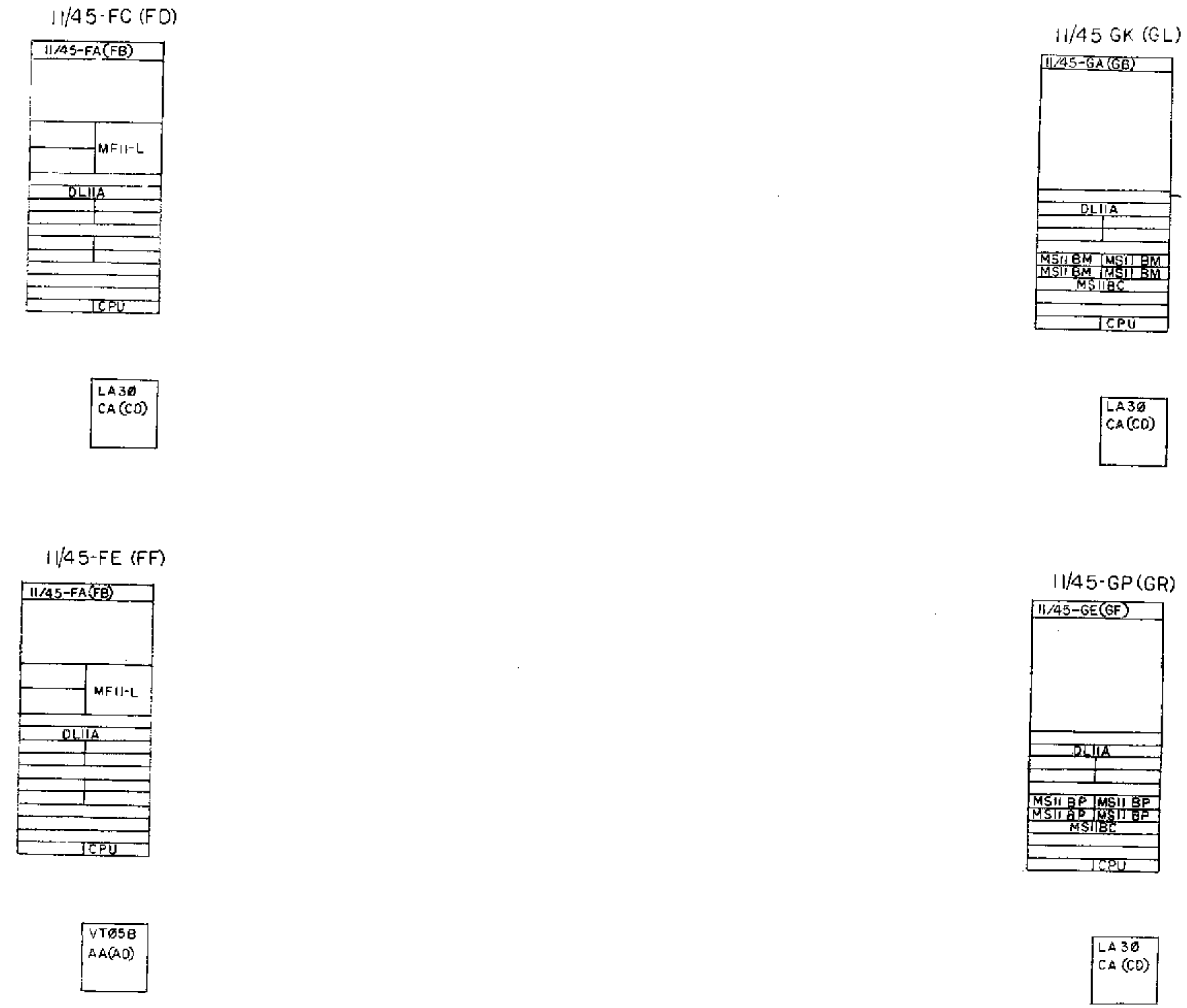
TITLE: INTERACTIVE DISK SYSTEMS

NEXT HIGHER ASSY. B-DD-11/45-Ø

SIZE D CODE AR NUMBER 11/45-0-4 REV B

SCALE — SHEET 4 OF 5

This drawing and specifications, herein, are the property of Digital Equipment Corporation and shall not be reproduced or copied or used in whole or in part as the basis for the manufacture or sale of items without written permission. 1973



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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 CRAMM — DATE 2-22-73

CHK'D. — DATE

ENG. — DATE

PROJ. ENG — DATE

PROD. — DATE

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE OEM SYSTEMS

NEXT HIGHER ASSY. B-DD-11/45-0

SCALE —/—

SHEET 5 OF 5

SIZE	CODE	NUMBER	REV.
D	AR	11/45-0-4	B

REVISIONS: REV / CHANGE NO. / CHK

QUANTITY / VARIATION

ITEM NO.	DWG. NO./PART NO.	DESCRIPTION	11/45-RA	11/45-RB	11/45-RC	11/45-RD	11/45-RF	11/45-RE	11/45-PA	11/45-PB	11/45-PC	11/45-PD	11/45-MA	11/45-MB	11/45-MC	11/45-MH	11/45-MJ	11/45-DA	11/45-DB	11/45-DS	11/45-DT	11/45-DL	11/45-DV	11/45-FC	11/45-FD	11/45-FE	11/45-FF	11/45-GK	11/45-GL	11/45-GP	11/45-GR	11/45-MD
1	C-PL-11/45-CC	BASIC ASS Y 115V 60 HZ	1	-	1	-	1	-	1	-	1	-	1	-	1	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-
2	C-PL-11/45-CD	BASIC ASS Y 230V 50 HZ	-	1	-	1	-	1	-	1	-	1	-	1	-	-	1	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-
3	B-DD-KT11-C	MEMORY MANAGEMENT	1	1	1	1	1	1	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
4	B-DD-FP11-B	FLOATING POINT PROCESSOR	-	-	-	-	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	B-DD-KW11-L	LINE FREQUENCY CLOCK	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
6	B-DD-KW11-P	PROGRAMMABLE CLOCK	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	B-DD-MF11-LP	8K PARITY CORE MEM. AND CONTROL	1	1	1	1	1	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	B-DD-MM11-LP	8K PARITY CORE MEM.	1	1	1	1	1	1	-	-	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
9	B-DD-MR11-DB	MULTI-DEVICE BOOTSTRAP LOADER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	1
10	A-ML-RF11-Ø	DISK CONTROL	1	1	1	1	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1
11	A-ML-RK11-CA	DISK CONTROL 115V 60 HZ	1	-	1	-	-	-	1	-	-	-	1	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
12	A-ML-RK11-CB	DISK CONTROL 230V 50 HZ	-	1	-	1	-	-	-	1	-	-	-	1	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
13	B-DD-RP11-CA	DISK CONTROL 115V 60 HZ	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	B-DD-RP11-CB	DISK CONTROL 230V 50 HZ	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	A-ML-RS11-Ø	DISK DRIVE 115V 60 HZ	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	A-ML-RS11-A	DISK DRIVE 230V 50 HZ	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
17	B-DD-RKØ5-AA	DISK DRIVE 115V 60 HZ	1	-	1	-	-	-	1	-	-	-	1	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
18	B-DD-RKØ5-BB	DISK DRIVE 230V 50 HZ	-	1	-	1	-	-	-	1	-	-	-	1	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
19	A-PL-RPØ3-AS	DISK DRIVE 115V 60 HZ	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	A-PL-RPØ3-BS	DISK DRIVE 230V 50 HZ	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	A-ML-TC11-Ø	MAGNETIC TAPE CONTROL	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-
22	A-ML-TM11-A	MAGNETIC TAPE CONTROL 115V 60 HZ	-	-	1	-	1	-	1	-	1	-	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
23	A-ML-TM11-B	MAGNETIC TAPE CONTROL 230V 50 HZ	-	-	-	1	-	1	-	1	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
24	A-ML-TU56-Ø	MAGNETIC TAPE TRANSPORT	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-
25	C-PL-TU1Ø-EA	MAGNETIC TAPE TRANSPORT 115V 60 HZ	-	-	1	-	1	-	1	-	1	-	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
26	C-PL-TU1Ø-ED	MAGNETIC TAPE TRANSPORT 230V 50 HZ	-	-	-	1	-	1	-	1	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
27	A-PL-LP11-JA	LINE PRINTER & CONTROL 115V 60 HZ	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	A-PL-LP11-JB	LINE PRINTER & CONTROL 230V 50 HZ	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	A-PL-LP11-RA	LINE PRINTER & CONTROL 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	A-PL-LP11-RB	LINE PRINTER & CONTROL 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	A-PL-CR11	CARD READER & CONTROL 115V 60 HZ	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	A-PL-CR11-A	CARD READER & CONTROL 230V 50 HZ	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	B-DD-DL11-A	TERMINAL CONTROL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	C-PL-LA3Ø-CA	SERIAL DEC WRITER 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
35	C-PL-LA3Ø-CD	SERIAL DEC WRITER 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
36	D-UA-H96Ø-DA	EXTENSION MOUNTING BOX 115V 60 HZ	1	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	D-UA-H96Ø-DB	EXTENSION MOUNTING BOX 230V 50 HZ	-	1	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	A-PL-DD11-A	SYSTEM UNIT	1	1	1	1	1	1	1	1	1	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	QR43Ø-AC	TIMESHARING SOFTWARE	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	QR43Ø-AD	TIMESHARING SOFTWARE	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	QJ25Ø-AD	BATCH SOFTWARE	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	QJ58Ø-AC	REAL-TIME SOFTWARE	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	QJ58Ø-AD	REAL-TIME SOFTWARE	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

REVISIONS

CHK	CHANGE NO.	REV.
	11/45-00043 ORIGINATED	-
	11/45-00048 REVISED & REDRAWN DWG NO WAS 11/45-0-5 B. FITZGERALD 4-2-73	A
	11/45-00053 MINOR 4-5-73	B

FIRST USED ON OPTION/MODEL: 11/45

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.	BEASLEY	DATE 12/19/2
CHK'D.	L. GILBERT	DATE 1/2/73
ENG.	J. SWANSON	DATE 1/11/73
PROJ. ENG.	J. SWANSON	DATE 1/11/73
PROD.	A. ZINS	DATE 1/11/73

NEXT HIGHER ASSY. B-DD-11/45-0

SCALE —
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ARRANGEMENT PARTS LIST

SIZE C CODE PL NUMBER 11/45-0-4 REV. B

DIST.

SIZE C CODE PL NUMBER 11/45-0-4 REV. B

DEC FORM NO. DPC

ITEM NO.	DWG. NO./PART NO.	DESCRIPTION	QUANTITY / VARIATION																															
			11/45-RA	11/45-RB	11/45-RC	11/45-ND	11/45-RE	11/45-RF	11/45-PA	11/45-PB	11/45-PC	11/45-PD	11/45-MA	11/45-MB	11/45-MC	11/45-MD	11/45-ME	11/45-MJ	11/45-DA	11/45-DB	11/45-DS	11/45-DW	11/45-DU	11/45-DW	11/45-FC	11/45-FD	11/45-FE	11/45-FF	11/45-GH	11/45-GI	11/45-GP	11/45-GR			
44	QJ220-AC	DISK-SYSTEM SOFTWARE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-			
45	QJ220-AD	DISK-SYSTEM SOFTWARE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-			
~~46~~	~~QJ001~~	~~DDP-7~~	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	=	=	=	=	-	-	-	-	-	-	-	-	-	-			
47	B-DD-MS11-BP	4K MOS MEM W/PARITY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2			
48	B-DD-MS11-BM	4K MOS MEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-			
49	B-DD-MS11-BD	SECOND MOS MEM CONTROL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
50	C-PL-11/45-FA	BASIC ASS'Y 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-			
51	C-PL-11/45-FB	BASIC ASS'Y 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-			
52	C-PL-11/45-GA	BASIC ASS'Y 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-			
53	C-PL-11/45-GB	BASIC ASS'Y 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-			
54	C-PL-11/45-GE	BASIC ASS'Y 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-			
55	C-PL-11/45-GF	BASIC ASS'Y 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			
56	A-PL-VTØ5B-AA	ALPHANUMERIC CRT 115V 60 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-			
57	A-PL-VTØ5B-AD	ALPHANUMERIC CRT 230V 50 HZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-			
58	B-DD-MF11-L	8K CORE MEM. W/CONTROL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
59	B-DD-MM11-L	8K CORE MEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

REVISIONS	REV.	CHANGE NO.	CHK

FIRST USED ON OPTION/MODEL
11/45

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.	BEASLEY	DATE 12/19/72
CHK'D.	L.GILBERT	DATE 1/2/73
ENG.	J.SWANSON	DATE 1/11/73
PROJ. ENG.	J.SWANSON	DATE 1/11/73
PROD.	A.ZINS	DATE 1/11/73

NEXT HIGHER ASSY.
B-DD-11/45-0

SCALE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
ARRANGEMENT
PARTS LIST

SIZE	CODE	NUMBER	REV.
C	PL	11/45-0-4	B

DIST.

DEC FORM NO. DRC 110

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

PRINT SET #1

DRAWING	SEQUENCE
DRAWING DIRECTORY	B-DD-DL11-Ø
ASYNCHRONOUS LINE INTERFACE	C-UA-DL11-Ø-Ø
ASYNCHRONOUS LINE INTERFACE (PL)	A-PL-DL11-Ø-Ø
ASYNCHRONOUS LINE INTERFACE	E-CS-M78ØØ-(A)1
CABLE ASSEMBLY (KL8/E)	D-IA-7008360-Ø-Ø
SOFTWARE LIST	A-SL-DL11-Ø-4
ACCESSORY LIST	A-AL-DL11-Ø-5
INSTALLATION PROCEDURE	A-SP-DL11-Ø-2

PRINT SET #2

DRAWING	SEQUENCE
DRAWING DIRECTORY	B-DD-DL11-Ø
ASYNCHRONOUS LINE INTERFACE	C-UA-DL11-Ø-Ø
ASYNCHRONOUS LINE INTERFACE (PL)	A-PL-DL11-Ø-Ø
ASYNCHRONOUS LINE INTERFACE	E-CS-M78ØØ-Ø-1
CABLE, MODEM BCØ5C	D-UA-BCØ5C-Ø-Ø
FILTER NETWORK	B-CS-G6ØØØ-Ø-1
MODEM TEST CONN	D-CS-H315-Ø-1
SOFTWARE LIST	A-SL-DL11-Ø-4
ACCESSORY LIST	A-AL-DL11-Ø-5
INSTALLATION PROCEDURE	A-SP-DL11-Ø-2

PRINT SET #3

DRAWING	SEQUENCE
DRAWING DIRECTORY	B-DD-DL11-0
ASYNCHRONOUS LINE INTERFACE	C-UA-DL11-0-0
ASYNCHRONOUS LINE INTERFACE (PL)	A-PL-DL11-0-0
ASYNCHRONOUS LINE INTERFACE	E-CS-M7800-0-1
CABLE, MODEM BC05C	D-UA-BC05C-0-0
CABLE ASSEMBLY (KL8/E)	D-IA-7008360-0-0
MODEM TEST CONN.	D-CS-H315-0-1
INSTALLATION PROCEDURE	A-SP-DL11-Ø-2

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE DL11-1	PRINT SET TYPE DL11-2
DL11-A	ASYNC LINE INTERFACE, CURRENT LOOP	1	0
DL11-B	ASYNC LINE INTERFACE, EIA	0	1
DL11-C	ASYNC LINE INTERFACE, CURRENT LOOP	1	0
DL11-D	ASYNC LINE INTERFACE, EIA	0	1
DL11-E	ASYNC LINE INTERFACE, DATA SET	0	1

REVISIONS

REV	CHG. NO.	DATE
A	DL11-00001	P. JANSON 7-17-72
B	DL11-00002	P. JANSON 12-5-72
C	DL11-00003	JANSON 1-2-73
D	DL11-00004	JANSON 4-6-73
E	DL11-00005	L. CONDON 8/8/73
F	DL11-00006	CONDON
H	DL11-00007	CONDON 8/21/74

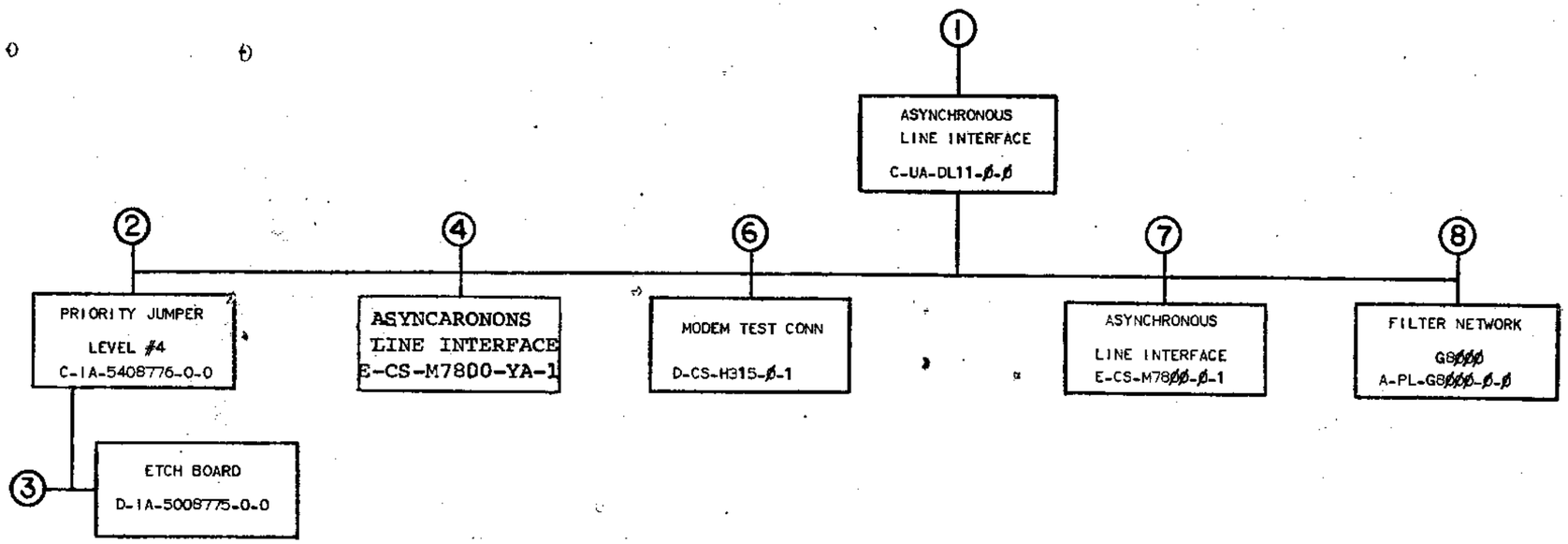
USED ON OPTION/MODEL

DRN.	M. Pierce	DATE 4-28-72
CHKD.	R. Cook	DATE 5/9/72
PROJ. ENG.	P.E. Janson	DATE 5/11/72
PROD.		DATE 5-15-72
FIELD SERV.		DATE 5/15/72

TITLE: ASYNCHRONOUS LINE INTERFACE

SIZE: B CODE: DD NUMBER: DL11-Ø REV: H

SHEET 1 OF 3 DIST



TITLE	SHEET	SIZE	CODE	NUMBER	REV
ASYNCHRONOUS LINE INTERFACE	SHEET 2 OF 3	B	DD	DLII - Ø	H

ELECTRICAL

CUSTOMER PRINT SET DL11-1	DL11-2	DL11-3	DEPOT SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X	X	X		1.	C-UA-DL11-Ø-Ø	D	1	ASYNCHRONOUS LINE INTERFACE	
X	X	X			A-PL-DL11-Ø-Ø	D	1	ASYNCHRONOUS LINE INTERFACE (PL)	
	X	X			D-UA-BCØ5C-Ø-Ø	#	1	CABEE, MODEM, BCØ5C	
X		X			D-IA-7008360-0-0	#	1	CABLE, ASSEMBLY (KL8/E)	
					A-SP-DL11-Ø-1	*	11	ENGINEERING SPECIFICATION	
X	X	X			A-SP-DL11-Ø-2	E	9	INSTALLATION PROCEDURE	
					A-SP-DL11-Ø-3	A	7	TEST PRODEDURE	
X	X				A-SL-DL11-Ø-4	*	1	SOFTWARE LIST	
X	X				A-AL-DL11-Ø-5	C	1	ACCESSORY LIST	
				2.	C-IA-5408776-0-0		1	PRIORITY JUMPER LEVEL #4	
					B-CS-5408776-0-1		1	CIRCUIT SCHEMATIC	
					K-CO-5408776-0-4		1	X-Y COORDINATE HOLE LOC	
					B-MH-5408776-0-6		1	MODULE ECO HISTORY	
				3.	C-AH-5408776-0-5		1	ASSY/DRILLING HOLE LAYOUT	
X				4	E-CS-M7800-YA-1	#	6	ASYNCHRONOUS LINE INTERFACE	
					K-CO-M7800-YA-4		1	X-Y COORDINATE HOLE LOCATION	
					D-AH-M7800-YA-5		1	ASSY DRILLING HOLE LAYOUT	
					B-MH-M7800-YA-6		1	MODULE ECO HISTORY	
	X	X		6.	D-CS-H315-Ø-1	#	1	MODEM TEST CONN	
					K-CO-H315-Ø-4		1	X-Y COORDINATE HOLE LOC	
					D-AH-H315-Ø-5		1	ASSY DRILLING HOLE LAYOUT	
					B-MH-H315-Ø-6		1	MODULE ECO HISTORY	
X	X	X		7.	E-CS-M78ØØ-Ø-1	#	7	ASYNCHRONOUS LINE INTERFACE	
					K-CO-M78ØØ-Ø-4		1	X-Y COORDINATE HOLE LOC	
					D-AH-M78ØØ-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
					B-MH-M78ØØ-Ø-6		1	MODULE ECO HISTORY	
	X			8.	A-PL-G8ØØØ-Ø-Ø		1	FILTER NETWORK	
					B-CS-G8ØØØ-Ø-1	#	1	CIRCUIT SCHEMATIC	
					K-CO-G8ØØØ-Ø-4		1	X-Y COORINATE HOLE LOC	
					C-AH-G8ØØØ-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
					B-MH-G8ØØØ-Ø-6		1	MODULE ECO HISTORY	

MECHANICAL

CUSTOMER PRINT SET DL11-1	DL11-2	DL11-3	DEPOT SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
				1.	C-UA-DL11-Ø-Ø	D	1	ASYNCHRONOUS LINE INTERFACE	
					A-PL-DL11-Ø-Ø	D	1	ASYNCHRONOUS LINE INTERFACE (PL)	
					D-UA-BCØ5C-Ø-Ø		1	CABLE, MODEM BCØ5C	
					D-IA-7008360-0-0		1	CABLE ASSEMBLY (KL8/E)	
				2.	C-IA-5408776-0-0		1	PRIORITY JUMPER LEVEL #4	
					K-CO-5408776-0-4		1	X-Y COORDINATE HOLE LOC	
					B-MH-5408776-0-6		1	ASSY/DRILLING HOLE LAYOUT	
				3.	D-IA-5008775-0-0		1	ETCH BOARD	
					C-AH-5408776-0-5		1	ASSY/DRILLING HOLE LAYOUT	
				6.	D-CS-H315-Ø-1		1	MODEM TEST CONN	
					K-CO-H315-Ø-4		1	X-Y COORDINATE HOLE LOC	
					C-AH-H315-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
					B-MH-H315-Ø-6		1	MODULE ECO HISTORY	
				7.	E-CS-M78ØØ-Ø-1		7	ASYNCHRONOUS LINE INTERFACE	
					K-CO-M78ØØ-Ø-4		1	X-Y COORDINATE HOLE LOC	
					D-AH-M78ØØ-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
					B-MH-M78ØØ-Ø-6		1	MODULE ECO HISTORY	
				8.	A-PL-G8ØØØ-Ø-Ø		1	FILTER NETWORK	
					K-CO-G8ØØØ-Ø-4		1	X-Y COORDINATE HOLE LOC	
					C-AH-G8ØØØ-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
					B-MH-G8ØØØ-Ø-6		1	MODULE ECO HISTORY	

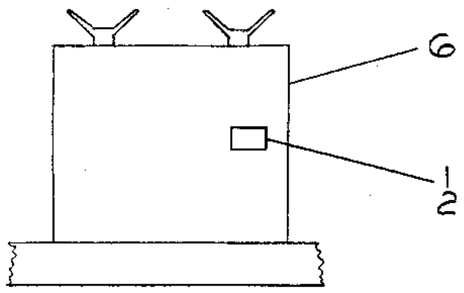
TITLE	SHEET	SIZE	CODE	NUMBER	REV
ASYNCHRONOUS LINE INTERFACE	3 OF 3	B	DD	DL11-Ø	

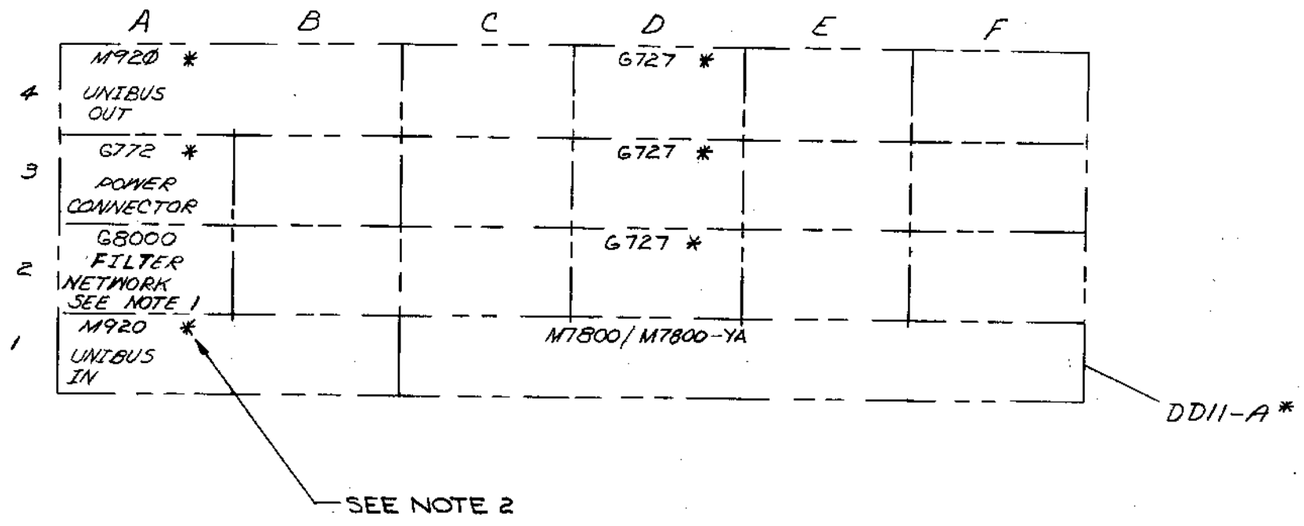
DRB 108

DEC 16-(325)-1062-2-N871

NOTES:

1. G 8000 IS REQUIRED ONLY IN PDP 11 SYSTEMS WHERE +15V IS NOT AVAILABLE. THE INSTALATION REQUIRES 2 WIRES TO BE ADDED.
   A03V2 - A02V2
   A02N2 - CXXU1
   WHERE (XX) IS THE SLOT NUMBER CONTAINING THE DL11.
2. ITEMS INDICATED WITH ASTERICK (*) ARE SHOWN FOR REFERENCE ONLY AND ARE NOT PART OF THIS UNIT.





REVISIONS				
CHK	CHANGE NO.	REV.		
PM	DL11-00001	A	P JANSON	2-16-72
PM	DL11-00002	B	JANSON	11-6-72
PM	DL11-00005	C	L. CONDON	7-31-73
PM	DL11-00006	D	CONDON	9-21-73

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP-11		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. M. Price	DATE 3/8/72	
CHK'D. J. Emerson	DATE 4-24-72	
ENG. P E Janson	DATE 5-11-72	
PROJ ENG. P E Janson	DATE 5-11-72	
PROD. J McAfee	DATE 5-15-72	

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ASYNCHRONOUS LINE INTERFACE

NEXT HIGHER ASSY. B-00-DL11-Ø
SCALE NONE
SHEET OF

SIZE	CODE	NUMBER	REV.
C	UA	DL11-Ø-Ø	D

DIST. G

DEC FORM NO. DRC 100-A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

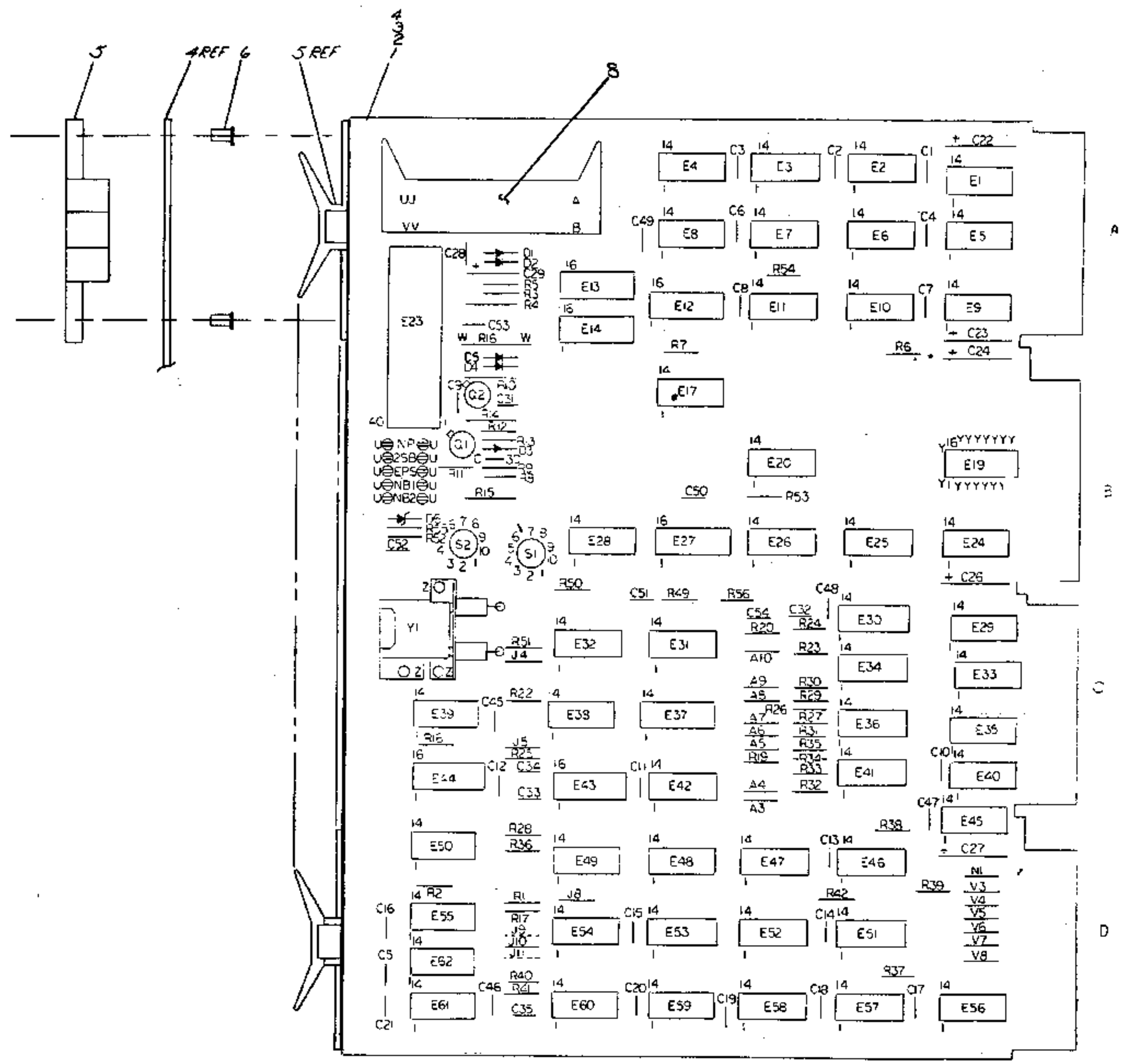
PARTS LIST

MADE BY M.PIERCE	CHECKED J.FERGUSON	SECTION
DATE 4/27/72	DATE 4/27/72	1
ENG P.E.Jamson	PROD J. MacDougall	ISSUED SECT.
DATE 5/11/72	DATE 5/15/72	1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION DL11-A	DL11-B	DL11-C	DL11-D	DL11-E							
1	C-IA-5408776-0-0	PRIORITY JUMPER LEVEL #4	1	1	1	1	1							
~~2~~	~~C-IA-5408778-0-0~~	~~PRIORITY JUMPER LEVEL #5~~	~~-~~	~~-~~	~~-~~	~~-~~	~~1~~							
3	D-UA-BCØ5C-25	CABLE, MODEM BCØ5C	-	1	-	1	1							
4	D-IA-7008360-0-0	CABLE ASSEMBLY (KL8E)	1	-	1	-	-							
5	D-CS-H315-Ø-1	MODEM TEST CONNECTOR	-	-	-	-	A/R	See Note 2						
6	E-CS-M7800-Ø-1	ASYNCHRONOUS LINE INTERFACE	-	1	-	1	1							
7	A-PL-G8ØØØ-Ø-Ø	FILTER NETWORK	-	A/R	-	A/R	A/R	See Note 1						
8		CRYSTAL	A/R	A/R	A/R	A/R	A/R	See Note 3						
9	E-CS-M7800-YA-1	ASYNCHRONOUS LINE INTERFACE	1	-	1	-	-							
	NOTES: 1.	G8000 IS REQUIRED ONLY IN PDP 11 SYSTEMS WHERE +15V IS NOT AVAILABLE. ONE PER DD11-A.												
	2.	ONE H315 PER PDP11 SYSTEM												
	3.	CRYSTAL FREQUENCY DEFINED BY CUSTOMER SPECIFIED BAUD RATE												
	4.	APPLY TAPE TO TOP SURFACES OF CRYSTAL AND MOUNTING BRACKETS TO INSULATE FROM ADJACENT MODULES.												
10	9008269	TRANSPARENT VINYL TAPE	A/R											

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
ASYNCHRONOUS LINE INTERFACE	C-UA-DL11-Ø-Ø	A	PL	DL11-Ø-Ø	D	DL11-00005
	SHEET 1 OF 1	DIST.	G			

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



NOTES:
1.) PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE SYSTEM UNIT. MODULE REFERENCE ALONE IS OBTAINED BY CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT THE LEFT.
2.) JUMPERS TO BE USED AT CONNECTIONS A3-A10, J4-J6, J8-J10, V3-V8, AND N1.
3.) LETTERS ENCLOSED IN PARENTHESIS REFER TO PINS ON THE BERG CONNECTOR. EXAMPLE: (X).
4.) ON ITEM NO. 23, ALL 7 CHIPS MUST BE EITHER DEC 380s' OR ITS' SUBSTITUTE 11380 ICs'. A DEC 380 AND 11380 MIXTURE OF THESE 7 CHIPS IS NOT ALLOWED. E28 MUST BE A DEC 380. (ITEM NO. 68).

PIN NOMENCLATURE

MODULE	SYSTEM UNIT
A	C
B	D
C	E
D	F

ALLOWABLE SUBSTITUTION LIST

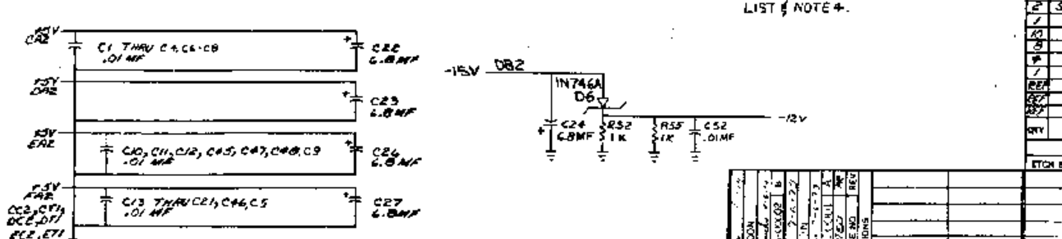
ORIG. PART NO.	SUBSTITUTE PART DESCRIPTION	SUBSTITUTE PART NO.	ITEM NO.
1909485	IC 11380	1911113	23

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO
1	E28	IC DEC 380	1909485	69
1	R3	RES 750Ω 1/4W 5%	1301401	67
1	R38	RES 390 Ω 1/4W 5%	1300309	66
1	D6	DIODE 1N746A	1104860	65
2	Q1, Q2	TRANSISTOR GS340	1503409-00	64
1	C53	CAP 100PF 100V 5% DIPPED	1000016	63
1	C54	CAP 560PF 100V 5% DIPPED	1000025	62
2	C50, C51	CAP .047MF CERAMIC	1009678	61
1	E27	IC DEC 74161	1910650	60
2	C34, C35	CAP 330PF 100V 5% DIPPED MICA	1000023	59
1	C32	CAP 470PF 100V 5% DIPPED MICA	1000024	58
1	C31	CAP 1000PF 100V 5% DIPPED MICA	1000072	57
29	C1-C21, C28, C30, C45, C49, C52	CAP .01UF 100V 20% CERAMIC DISC	1001610	56
1	C29	CAP .47UF 35V 10% TANT	1005965	55
5	C22-C24, C26, C27	CAP 6.8UF 35V 20% TANT	1000067	54
1	C33	CAP 150PF 100V 5% DIPPED MICA	1000019	53
2	R14, R15	RES 1.5K 1/2W 5%	1300394	52
5	R23, R24, R40, R52, R55	RES 1K 1/4W 5%	1300365	51
1	R41	RES 47Ω 1/4W 5%	1300202	50
1	R10	RES 68Ω 1/2W 10%	1300220	49
1	R5	RES 82Ω 1/4W 5%	1301477	48
1	R24	RES 100Ω 1/4W 5%	1300229	47
1	R11	RES 150Ω 1/4W 5%	1300250	46
1	R42	RES 180Ω 1/4W 5%	1301322	45
1	E53	RES 220Ω 1/4W 5%	1300271	44
5	D1-D5	DIODE D664 20V 100MA	1100114	43
3	R9, R13, R51	RES 470Ω 1/4W 5%	1300376	42
1	R4	RES 560Ω 1/2W 5%	1300338	41
3		NUT HEX #2-56	9006555	40
1	R16	RES 750Ω 1W 5%	1302385	39
26	R1, R2, R6, R7, R11-R20, R25, R27-R37, R39, R49, R50, R22, R54, R56	RES 10K 1/4W 5%	1300479	38
2	R8, R12	RES 1.5K 1/4W 5%	1300391	37
1	E23	IC DEC UART	1910439	36
4	E32, E33, E61, E62	IC DEC 7474	1905547	35
2	E36, E41	IC DEC 8242	1909712	34
3	E3, E49, E59	IC DEC 7408	1910135	33
3		SCR PHIL HD FLAT #2-56 x .250	9006020-1	32
2	E20, E26	IC DEC 7490	1909031	31
11	E1, E2, E3, E7-E9, E11, E30, E47, E56, E58	IC DEC 8881	1909705	30
2		AUGAT BOSS PS-1	1202812	29
1	E43	IC DEC 74123	1910436	28
3	E48, E57, E52	IC DEC 74H74	1909667	27
3	E42, E54, E58	IC DEC 7400	1905575	26
1	E10	IC DEC 7413	1909989	25
2	E50, E53	IC DEC 7402	1909004	24
7	E3, E4, E33, E35, E40, E45, E46	IC DEC 380	1909485 *	23
1	E12	IC DEC 74153	1909947	22
1	E60	IC DEC 74H04	1907931	21
1	E25	IC DEC 7492	1909053	20
4	E6, E17, E38, E39	IC DEC 7404	1907686	19
1	E24	IC DEC 7493	1909054	18
1	E34	IC DEC 7410	1905376	17
1	E29	IC DEC 314	1907704	16
1	E37	IC DEC 7442	1910046	15
1	E44	IC DEC 8271	1909613	14
2	E13, E14	IC DEC 74175	1910651	13
1		BRACKET, CRYSTAL HOLDER	3502825	12
1		BRACKET, CRYSTAL HOLDER	5303154	11
1	E17	IC SOCKET	1208938	10
2	S1, S2	SWITCH, SINGLE POLE, 10 POS	1210042-1	9
1		40 PIN CONNECTOR BERG	1209941	8
10		SPLIT LUGS	9006735	7
8		EYELET #054-7 E.E. STIMPSON	9006732	6
4		HANDLE, FLIP-CHIP, MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009978	4
REF		MODULE ECO HISTORY	EHN-M7800-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M7800-M-E	2
REF		X-Y COORDINATE HOLE	K-CD-M7800-M-4	1

PARTS LIST

ETCH BOARD REV E

*SEE ALLOWABLE SUBSTITUTION LIST & NOTE 4.



IC TYPE	GND	+5V	+V	-12V
DEC 74161	8	16	—	—
DEC UART	3	1	—	2
DEC 74175	8	16	—	—
DEC 8271	8	16	—	—
DEC 7442	8	16	—	—
DEC 314	1	8	—	—
DEC 7493	10	5	—	—
DEC 7492	10	5	—	—
DEC 74153	8	16	—	—
DEC 380	1	8	—	—
DEC 7490	10	5	—	—
DEC 74123	8	16	—	—

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

IC PIN LOCATIONS

DEC NO.	EIA NO.	DEC NO.	EIA NO.
		GS340	MPS6534
		1N746A	1/4 M 3.3AZ
		D664	1N3606

SEMICONDUCTOR CONVERSION CHART

REVISIONS

DIGITAL EQUIPMENT CORPORATION

TITLE: ASYNCHRONOUS LINE INTERFACE

SIZE E CODE CS NUMBER M7800-YA-1 REV B

DL-2 BINIT H
DL1 BUS INIT L
DL-2 BINIT L

DL-2 BD07 H
DL-2 BD06 H
DL-2 BD05 H
DL-2 BD04 H
DL-2 BD03 H
DL-2 BD02 H
DL-2 BD01 H
DL-2 BD00 H

DL-4 RD7 H
DL-4 RD6 H
DL-4 RD5 H
DL-4 RD4 H
DL-4 RD3 H
DL-4 RD2 H
DL-4 RD1 H
DL-4 RD0 H
DL-5 RBUF TO BUS H

DL-4 XMIT READY H
DL-4 XMIT INT ENB (1)H
DL-4 MAINT (1)H
DL-4 BREAK (1)H
DL-5 XCSR TO BUS H

DL-4 RCVR DONE H
DL-4 RCVR INT ENB (1)H
DL-4 DATASET INT ENB (1)H
DL-4 SEC XMIT (1)H CK1
DL-4 REQ TO SEND (1)H CM1
DL-4 DATA TERMINAL READY (1)H CF1

CM2 BUS D07 L
CV2 BUS D06 L
CP2 BUS D05 L
CN2 BUS D04 L
CT2 BUS D03 L
CU2 BUS D02 L
CR2 BUS D01 L
CS2 BUS D00 L

+5V R1 10K J6 DL-5 RBUF TO BUS L
+5V R2 10K J7 DL-5 RCSR TO BUS L

DL-4 DR ERR H
DL-4 FR ERR H
DL-4 P ERR H

ERROR H
DL-5 RCSR TO BUS H
DL-4 RCVR BUSY (1)H

CD2 BUS D15 L
CE2 BUS D14 L
CF2 BUS D13 L
CH2 BUS D12 L
CH1 BUS D11 L
CJ2 BUS D10 L

REVISIONS		
CHK.	HOWSE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DLH		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
CHK'D — DATE
ENGR — DATE
PROJ. ENG. — DATE
PROD — DATE
NEXT HIGHER ASSY

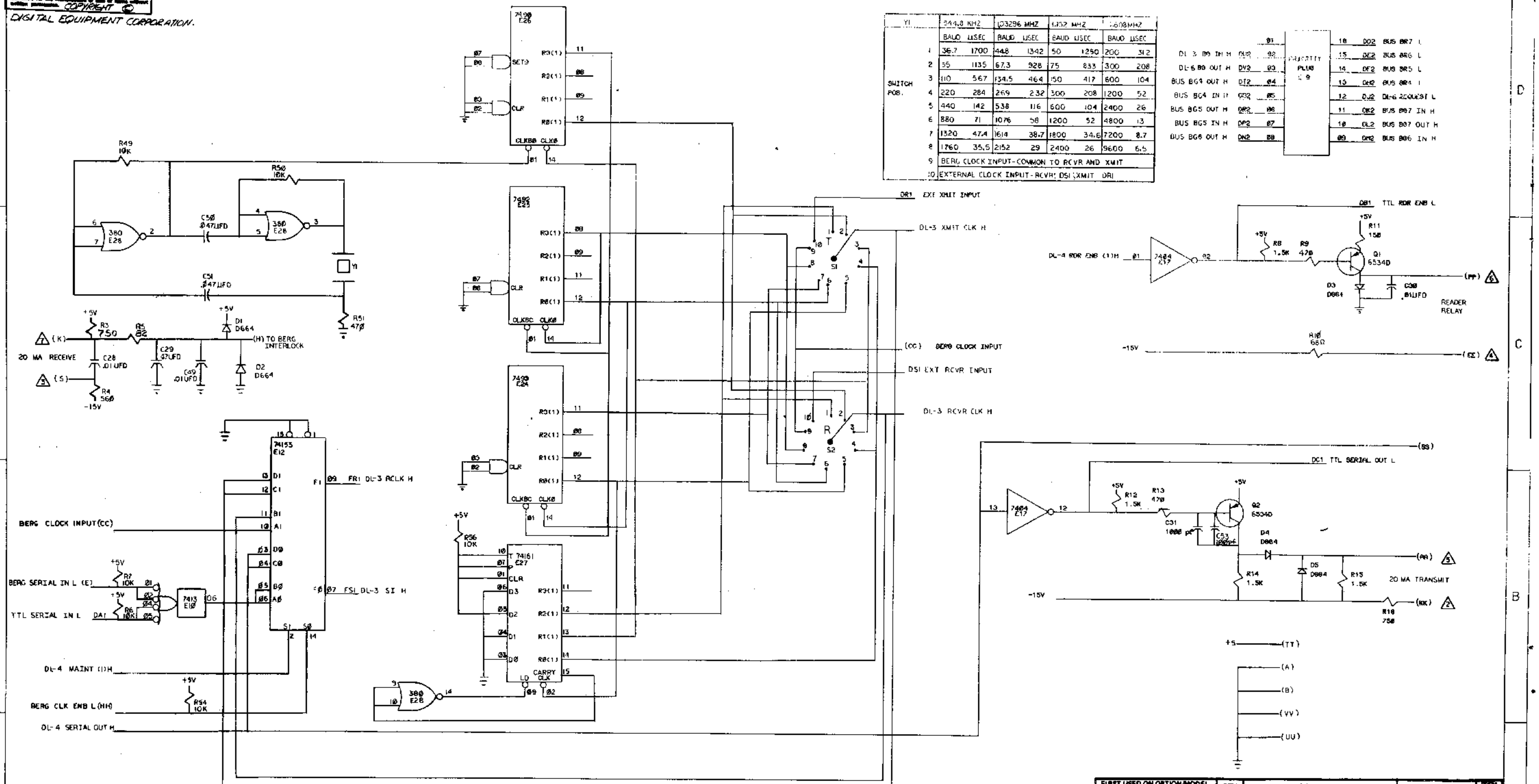
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE ASYNCHRONOUS LINE INTERFACE (BUS RECEIVERS & DRIVERS) DL-2

SIZE	CODE	NUMBER	REV.
D	CSS	M7800-YA-1	B

SCALE — SHEET OF 6 — DIST.

DIGITAL EQUIPMENT CORPORATION.



Y1		344.8 KHZ		1.03296 MHZ		1.152 MHZ		4.608MHZ	
		BAUD	µSEC	BAUD	µSEC	BAUD	µSEC	BAUD	µSEC
SWITCH POS.	1	36.7	1700	448	1342	50	1250	200	312
	2	55	1135	67.3	928	75	833	300	208
	3	110	567	134.5	464	150	417	600	104
	4	220	284	269	232	300	208	1200	52
	5	440	142	538	116	600	104	2400	26
	6	880	71	1076	58	1200	52	4800	13
	7	1320	47.4	1614	38.7	1800	34.6	7200	8.7
	8	1760	35.5	2152	29	2400	26	9600	6.5
	9	BERG CLOCK INPUT-COMMON TO RCVR AND XMIT							
	10	EXTERNAL CLOCK INPUT-RCVR: DSI XMIT DRI							

NOTES:

1. LETTERS ENCLOSED IN PARENTHESIS REFER TO PINS ON THE BERG CONNECTOR. EXAMPLE: (X)
2. NUMBERS WITHIN TRIANGLES REFER TO PINS ON THE FEMALE MATE-N-LOCK CONNECTOR WHEN USING THE [illegible]

REVISIONS		
CHK.	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL: DL11

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DIGITAL EQUIPMENT CORPORATION

ASYNCHRONOUS LINE INTERFACE (CLOCK & CURRENT LOOPS) DL-3

SIZE CODE: D | NUMBER: M7800-YA-1 | REV. B

SHEET 3 OF 6

DL-2 BINIT L

DL-5 SEL 2 L

DL-2 BINIT H

DL-5 LD XD L

X CLK H

DL-5 BUS TO XCSR H

DL-5 BUS TO RCSR H

DL-4 SERIAL OUT H

DL-3 RCLK H FR

DL-3 SI H

DL-3 XMIT CLK H

DL-4 RCVR BUSY (1)H

DL-4 MAINT (1)H

DL-4 BREAK (1)H

DL-4 BREAK (0)H

DL-4 XMIT-INT ENB (1)H

DL-4 XMIT READY H

DL-4 XMIT INT H

DL-4 RCVR DONE H

DL-4 RCVR INT H

DL-4 DATASET INT ENB (1)H

DL-4 REQ TO SEND (1)H

DL-4 REQ TO SEND (0)H

DL-4 RCVR INT ENB (1)H

DL-4 SEC XMIT (1)H

DL-4 SEC XMIT (0)H

DL-4 DATA LEADS ONLY L

DL-4 DATA TERMINAL READY (1)H

DL-4 DATA TERMINAL READY (0)H

DL-4 RDR ENB (1) H

REVISIONS		
CHR.	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL: DLII	QTY.	DESCRIPTION	PART NO	ITEM NO.
		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'D		DATE
ENG		DATE
PROJ. ENG.		DATE
PROD		DATE
NEXT HIGHER ASSY.		
SCALE		
SHEET 1 OF 6		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ASYNCHRONOUS LINE INTERFACE (UART & STATUS) DL-4

SIZE	CODE	NUMBER	REV.
D	CS	M7800-YA-1	B

DIST

BUS A11 L
BUS A13 L
BUS A14 L
BUS A15 L
BUS A16 L
BUS A17 L
BUS A12 L
BUS MSYN L
BUS A18 L
BUS A19 L
BUS A08 L
BUS A07 L
BUS A06 L
BUS A05 L
BUS A04 L
BUS A03 L
BUS A01 L
BUS A02 L
BUS A00 L
BUS C1 L
BUS C0 L

+5V
A10
A9
A8
A7
A6
A5
A4
A3
R27 10K
R29 10K
R28 10K
R31 10K
R32 10K
R30 10K
R34 10K
R25 10K
R26 1K
R23 1K
R24 180
R28 10K
R25 10K
R36 1K
C32 470 pf
C33 150 pf
C34 330 pf
1000 ns

EJ1 BUS SSYN L
EL2 REG SEL H
EBL DL-5 LD XD L
DL-5 BUS TO XBUF L
DL-5 BUS TO XCSR H
DL-5 BUS TO RCSR H
DL-5 XCSR TO BUS H
DL-5 RBUF TO BUS L
DL-5 RBUF TO BUS H
DL-5 RCSR TO BUS H
DL-5 SEL 2 L
DL-5 BUS TO RBUF L
DL-5 RCSR TO BUS L

NOTE 1: THE 'A' LINES ARE TO BE JUMPERED FOR A 0.

REVISIONS		
CHK.	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DL11		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
CHKD
ENG
PROJ MGR
MOD
DATE
NEXT HIGHER ASSY.
SCALE
SHEET 5 OF 6

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ASYNCHRONOUS LINE INTERFACE (ADDRESS SELECTION) DL-5

SIZE	CODE	NUMBER	REV.
D	CS	M7800-YA-1	B

DIST.

DL-4 RCVR INT H FU1

DL-4 XMIT INT H FV1

DL-3 BG IN H FB1

BUS BSY L FD1

BUS SSYN L FC1

BUS NPR L FJ1

FP1 DL-6 REQUEST L

FR1 DL-6 BG OUT H

FT2 BUS SACK L

FH1 BUS INTR L

FF2 BUS D05 L

FH1 BUS D07 L

FK1 BUS D08 L

FE2 BUS D02 L

FL1 BUS D03 L

FN2 BUS D04 L

FF1 BUS D05 L

NOTE: THE 'V' LINES ARE TO BE JUMPERED FOR A 1.

REVISIONS		
CHK.	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
DL11		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .01, .X = .1; ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRWN
CHK'D
ENG
MFG ENG.
PROD'N
DATE

NEXT HIGHER ASSY.
SCALE
SHEET 6 OF 6

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ASYNCHRONOUS LINE INTERFACE (INTERRUPT CONTROL) DL-6

SIZE	CODE	NUMBER	REV.
D	CS	M7800-YA-1	B

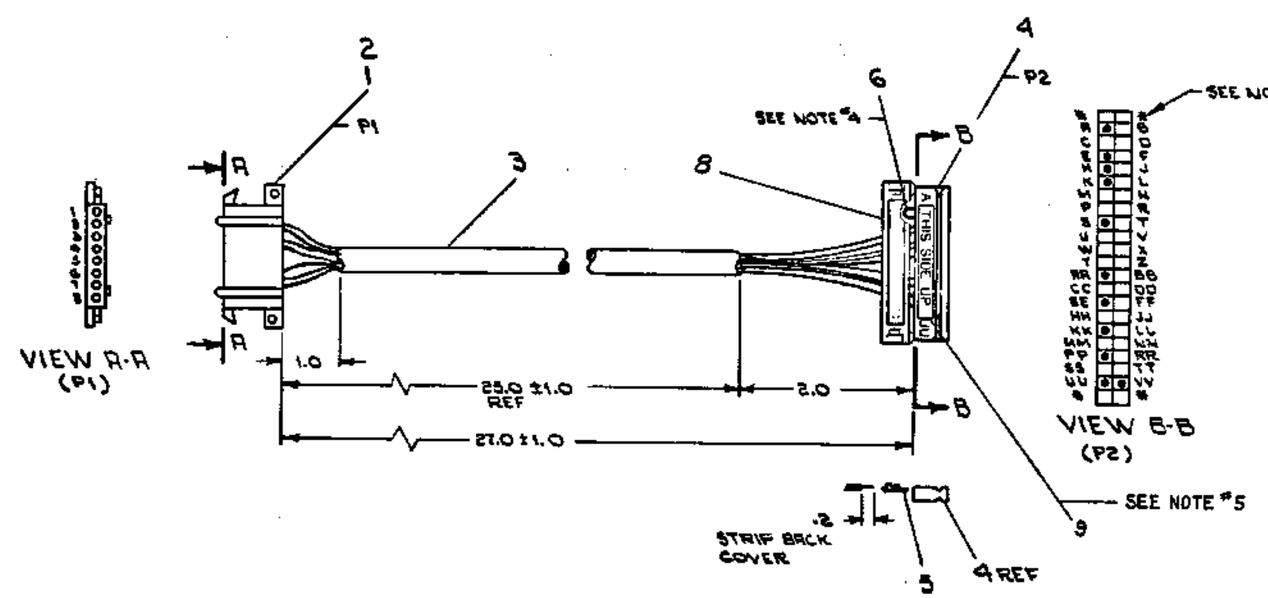
DIST.

WIRE TABLE

ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	PAIR NO.	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH
3	22	BLK	1	P1-2	2	P2-K.K	5
3	↓	RED		P1-3	2	P2-S	↓
3,7		SHIELD		SEE NOTE #2	—	P2-R(NOTE #3)	
3		BLK	2	P1-4	2	P2-EE	
3		WHT		P1-5	2	P2-RR	
3,7		SHIELD		SEE NOTE #2	—	P2-UU(NOTE #3)	
3		BLK	3	P1-6	2	P2-PP	
3		GRN		P1-7	2	P2-K	
3,7	↓	SHIELD		SEE NOTE #2	—	P2-VV(NOTE #3)	↓
6	22	BLK	—	P2-E	5	P2-H	5

NOTES:

1. * ASTERISKS INDICATE CAVITIES NOT USED OR DESIGNATED BY LETTERS.
2. DRAIN WIRES TO BE CUT BACK TO OUTER INSULATION ON P1 END OF CABLE ONLY. SHIELDS TO BE CUT BACK TO OUTER INSULATION ON BOTH ENDS OF CABLES.
3. DRAIN WIRES ON P2 END OF CABLE TO BE EACH ENCLOSED WITH ITEM #7 (TUBING) FROM END OF CABLE JACKET TO POINT WHERE THEY ENTER P2 CONNECTOR.
4. ITEM #6 (WIRE) TO BE APPROXIMATELY ONE(1) INCH LONG.
5. PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #4 (BERG HOUSING) AS SHOWN.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	361567	9
1	STRAIN RELIEF	1211166	3
A/R	TUB. #18 TEF. THINWALL NAT	9101278-11	7
A/R	WIRE, #22 AWG STRD TEF BLK	9107350-00	6
11	SOCKET, CRIMP #47216	1210089-07	5
1	HOUSING, BERG #65043-015	1210913-15	4
A/R	CABLE, BELDEN #8777-3PR SHLD	9107723-0	3
6	CONTACT MATE-N-LOCK (FEMALE)	1209379	2
1	CONN. MATE-N-LOCK (FEMALE)	1209340-00	1

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP-8E

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES

MATERIAL: SEE PARTS LIST

NEXT HIGHER ASSY: A-ML-KL8-E-0

SCALE: NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION

TITLE: CABLE ASSEMBLY (KL8E)

SIZE: D | CODE: IA | NUMBER: 7008360-0-0 | REV: D

REV	CHANGE NO.
A	KL8E-00002
B	KL8F-00006
C	7008360-00001
D	7008-20-00002

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SOFTWARE LIST

MADE BY EMPellegrini DATE 8/29/72	CHECKED P. Janson DATE 8-30-72	SECTION
ENG P. Janson DATE 8/29/72	PROD J. Mellgard DATE 8-31-72	ISSUED SECT.

LEGEND

D	DOCUMENT
DN	DOCUMENT CHANGE NOTICE
PA	PAPER TAPE ASCII
PB	PAPER TAPE BINARY
PM	PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION DL11-A	DL11-B	DL11-C	DL11-D	DL11-E			KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	LIBKIT-11-KL11-04	KL11 MAINDEC	1	1	0	0	0				
2	LIBKIT-11-DL11C-A-K	DL11 MAINDEC	0	0	1	1	0				
3	LIBKIT-11-DL11E-A-K	DL11 MAINDEC	0	0	0	0	1				

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
DL11 SOFTWARE LIST	SHEET 1 OF 1	A	SL	DL11-0-4		
		DIST.				

DEC FORM NO. DEC 16 (227) 1042 N471
DRA 120

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY	E. Pellegrini	CHECKED	D. Janson
DATE	June 26, 1972	DATE	8-8-72
ENG	Paul Janson	PROD	J. Thibodeau
DATE	June 26, 1972	DATE	8-8-72
		SECTION	
		ISSUED SECT.	

LEGEND

D DOCUMENT
DN DOCUMENT CHANGE NOTICE
PA PAPER TAPE ASCII
PB PAPER TAPE BINARY
PM PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION DL11-A	DL11-B	DL11-C	DL11-D	DL11-E			KIT CHECK BY ____ DATE ____	INSTALLATION CHECK BY ____ DATE ____
1	M7800	ASYNCHRONOUS LINE INTERFACE (EIA)	-	1	-	1	1				
2	G8000	FILTER NETWORK	0	A/R	0	A/R	A/R				
3	M7800-YA	ASYNCHRONOUS LINE INTERFACE (CURRENT LOOP)	1	0	1	0	0				
4	5408776	PRIORITY JUMPER LEVEL #4	1	1	1	1	1				
5	BC05-C-25	MODEM CABLE	0	1	0	1	1				
6	7008360	TTY CABLE	1	0	1	0	0				
7	-	CRYSTAL	1	1	1	1	1				
8	-	DL11 ENGINEERING DRAWINGS	1	1	1	1	1				
9	DEC-11-HDLAA-A-D	DL11 ASYNCHRONOUS LINE INTERFACE MANUAL	1	1	1	1	1				
10	LIBKIT-11-KL11-04	KL11 MAINDEC	1	1	0	0	0				
11	LIBKIT-11-DL11C-A-K	DL11 MAINDEC	0	0	1	1	0				
12	LIBKIT-11-DL11E-A-K	DL11 MAINDEC	0	0	0	0	1				
13	H315	MODEM TEST CONNECTOR	0	0	0	0	A/R				

NOTES: 1. G8000 IS REQUIRED ONLY IN PDP-11 SYSTEMS WHERE +15V IS NOT AVAILABLE. ONE PER DD11-A.

2. CRYSTAL FREQUENCY DEFINED BY CUSTOMER SPECIFIED BAUD RATE.
3. ONE H315 PER PDP11 SYSTEM
4. INSURE THAT TRANSPARENT VINYL TAPE HAS BEEN APPLIED TO THE TOP SURFACE OF THE CRYSTAL AND MOUNTING BRACKET.

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
DL11 CHECK LIST	SHEET 1 OF 1	A	AL	DL11-0-5	C	DL11-00005
		DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

DATE 6-21-72

TITLE DL11 INSTALLATION PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
C	CHANGE PER ECO	DL11-4	JANSON	3/73	P. Janson	4-6-73
D	CHANGE PER ECO	DL11-5	CONDON	7/73	L. Condon	8/[illegible]73
E	CHANGE PER ECO	DL11-7	CONDON	8/74	L. Condon	8/21/74

ENG	APPD	SIZE	CODE	NUMBER	REV
Paul E. Janson	Paul E. Janson	A	SP	[illegible]	E

DEC FORM NO DRA 107A

ENGINEERING SPECIFICATION

[illegible]NATION SHEET

TITLE DL11 INSTALLATION PROCEDURE

DL11 INSTALLATION PROCEDURE:

Installation of the M7800 module or its [illegible] DL11-A through DL11-E option consists of the following [illegible]

1. Jumper insertion/deletion for selecti[illegible] (A, B, C, D, or E).
2. Register address assignment.
3. Vector address assignment.
4. Priority assignment.
5. Special NPR jumper insertion/deletion.
6. Selection of data format (data bits, stop bits, parity).
7. Selection of crystal for baud rate.
8. Installation of G8000 in systems where +15V is not available.
9. Filter capacitor selection for high baud rate current-loop.
A. OPERATION MODE:

The following describes the jumpers associated with controlling the mode of operation (A,B,C,D, or E):

J1. Ties EIA driver to REQUEST-TO-SEND lead (pin 4) of dataset cable. IN for DL11-B,D, and E; does not affect DL11-A and C. Drawing DL-7.

J2. Ties EIA driver, normally used for the REQUEST-TO-SEND lead, to FORCE BUSY lead (pin 25) for use with Bell 103E. This is a customer option. If not specified, jumper is OUT for all DL11's. Drawing DL-7.

J3. When inserted, allows REQUEST-TO-SEND lead (pin 4) to be controlled by bit 2 of the receiver status register. OUT for DL11-B and D; IN for DL11-E; does not affect DL11-A and C. Drawing DL-4.

J4. When inserted, forces "DATA LEADS ONLY' mode of EIA operation. Turns DATA TERMINAL READY (pin 20) and REQUEST-TO-SEND (pin 4) on. IN for DL11-B and D; OUT for DL11-E; does not affect DL11-A and C. Drawing DL-4.

J5. When inserted, allows the BREAK bit to function. OUT for DL11-A and B; IN for DL11-C,D, and E. Drawing DL-4.

J6. When inserted, allows DSET INT to cause interrupts. OUT for DL11-A,B,C and D; IN for DL11-E. Drawing DL-4.

J7. When inserted, allows dataset control [illegible] to be read as part of the receiver status register.

	SIZE	CODE	NUMBER	REV
	A			

DEC FORM NO DRA 108 DEC 16-(381)-1022-N370

J7. (con't)

OUT for DL11-A,B,C and D; IN for DL11-E. Drawing DL-2.

J8. When inserted, allows error bits to be read as part of the receiver data register. OUT for DL11-A and B; IN for DL11-C,D and E. Drawing DL-2.

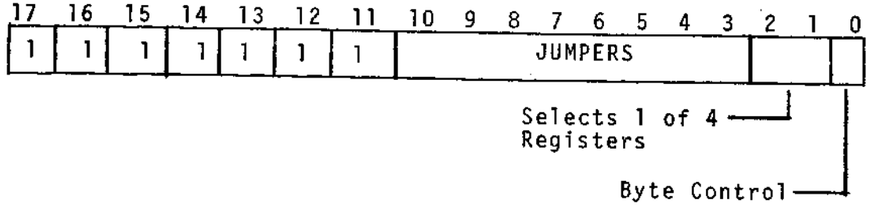
Summary of mode control jumpers:

JUMPER	A	B	C	D	E	DRAWING
J1	*	IN	*	IN	IN	DL-7
J2	OUT	OUT	OUT	OUT	OUT	DL-7
J3	*	OUT	*	OUT	IN	DL-4
J4	*	IN	*	IN	OUT	DL-4
J5	OUT	OUT	IN	IN	IN	DL-4
J6	OUT	OUT	OUT	OUT	IN	DL-4
J7	OUT	OUT	OUT	OUT	IN	DL-2
J8	OUT	OUT	IN	IN	IN	DL-2

*= don't care

B. REGISTER ADDRESS ASSIGNMENTS:

The DL11 can respond to addresses with the following format:



Bits 10 through 3 are controlled by jumpers A1Ø to A3. A jumper inserted indicates a zero.

For the DL11-A and B used as the console device, address 777560 is assigned. For additional units, assign 776XX0, where XX=50 for the first additional unit and XX=67 for the 16th unit.

For the DL11-C,D and E assign address 77XXX0, where XXX=561 for the first line, and XXX=617 for the 31st line. Assign all C's first, then D's, and then E's.

C. VECTOR ADDRESS ASSIGNMENT:

Jumpers V8 through V3 control the interrupt vector. A jumper inserted provides a vector bit of one. Vectors can be produced in the form XXØ and XX4, where XX ranges from ØØ to 77.

For the DL11-A and B used as a console device the vector address is 060/064. For additional units, vectors are floating.

For the DL11-C,D, and E vector addresses are floating. Assign all C's first, then D's, then E's.

D. PRIORITY ASSIGNMENT:

Interrupt priority is established by inserting a "priority plug" in the socket at IC location E19. For DL11-A,B,C,D and E use level 4.

SUMMARY OF REGISTER, VECTOR AND PRIORITY ASSIGNMENTS:

	ADDRESS	VECTOR	PRIORITY
DL11-A,B CONSOLE	777560 777562 777564 777566	60/64	BR4
DL11-A,B ADDITIONAL UNITS	776XXØ 776XX2 776XX4 776XX6	Floating	BR4

Where XX= 50 for line #1
and XX= 67 for line #16

	ADDRESS	VECTOR	PRIORITY
DL11-C,D,E	77XXXØ 77XXX2 77XXX4 77XXX6	Floating	4

Where XXX= 561 for line #1
and XXX= 617 for line #31

E. SPECIAL NPR JUMPER:

Jumper N1, shown on drawing DL-6, controls the response of the interrupt circuit to an NPR request. The jumper should normally be IN, except for 11/20 and 11/15 systems without the KH11 option.

F. SELECTION OF DATA FORMAT:

1. Data Bits

Split lug pairs NB2 and NB1 control the number of data bits in the serial character as follows:

NB2	NB1	# OF DATA BITS
OUT	OUT	8
OUT	IN	7
IN	OUT	6
IN	IN	5

2. Parity

Parity is controlled by split lug pairs NP and EPS as follows:

NP	EPS	PARITY
OUT	OUT	OFF
OUT	IN	OFF
IN	OUT	EVEN
IN	IN	ODD

3. Stop Bits

Split lug pair 2SB and jumpers J9, J10 and J11 control the number of stop bits in the serial character as follows:

2SB	J9	J10	J11	# OF STOP BITS
OUT	OUT	IN	OUT	2
IN	OUT	IN	OUT	1
IN	OUT	OUT	IN	1.5 for TI, GI, and SCM UARTS
IN	IN	OUT	OUT	1.5 for WD UARTS

G. CRYSTAL SELECTION:

The clocking scheme of the DL11 consists of a single crystal oscillator feeding a divider network, with two 10-position switches tapping various points to feed into the UART's

G. Con't

transmitter and receiver sections. Thus, for a given crystal frequency, 8 baud rates are independently selectable for transmit and receive. The two addition switch positions select external clocks.

SPEED GROUP		1	2	3	4
		CRYSTAL (HZ)			
POSITION	FACTOR	844.8K	1.03296M	1.152M	4.608M
1*	23040	36.7	44.8	50	200
2	15360	55	67.3	75	300
3	7680	110	134.5	150	600
4	3840	220	269	300	1200
5	1920	440	538	600	2400
6	960	880	1076	1200	4800
7	640	1320	1614	1800	7200
8	480	1760	2152	2400	9600

*Most counter-clock wise position.

To determine a crystal frequency for a non-standard baud rate, pick the position of the closest baud rate in the 1.152MHz column, and then multiply the non-standard baud rate by the factor for that position. For example, if the customer specifies 1050 baud, this is closest to 1200 baud, position 6.

1050 X 960 = 10080000 = 1.008MHz.

The crystal frequency should not fall outside the range of the standard crystals.

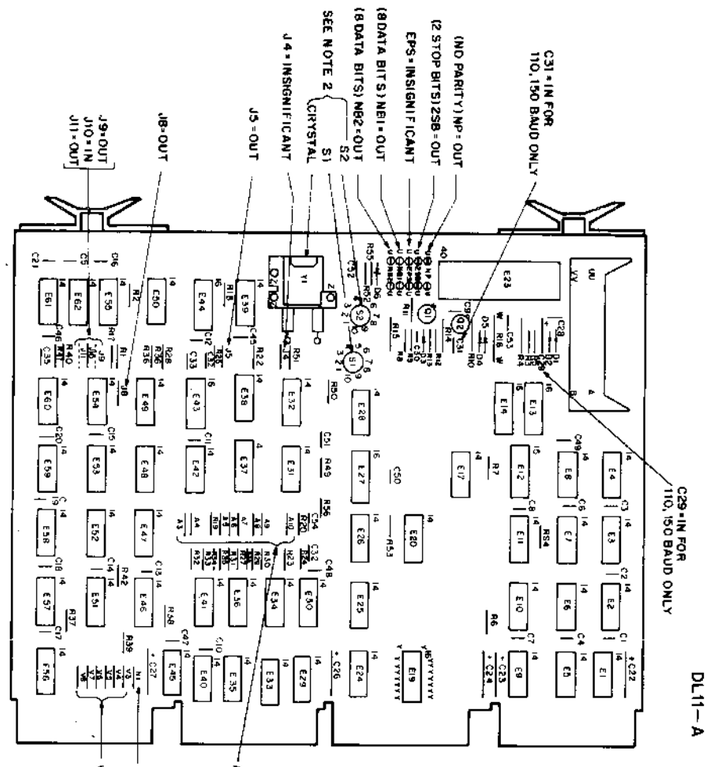
DEC part numbers for the standard crystals are as follows:

844.8 KHz	18-10245-1*
1.03296 MHz	18-05501-6
1.152 MHz	18-05501-5
4.608 MHz	18-05501-7

*Use A or C cut crystals only. Do not use crystals marked NE-6D.

When ordering a special crystal, refer to purchase specification 18-05501 for crystal specification.

Insure that transparent vinyl tape (9008269) is applied to the top surfaces of the crystal and mounting brackets to insulate from adjacent modules.



NOTES:

1. For further information on the DL11-A configuration or the installation of DL11-B, DL11-C, DL11-D or DL11-E refer to:
   a. DL11 Asychronous Line Interface Manual
   b. A-SP-DL11-0-2 (DL11 installation procedure) in the DL11 Engineering Drawings.
2. Position 1 is moved counter-clockwise position.

SPEED GROUP	1	2	3	4
CRYSTAL FREQ.(HZ)	944.8K	1.0329M	1.152M	4.608M
S1, S2 POS.	BAUD RATE			
1	36.7	44.8	50	200
2	55	67.1	75	300
3	110	134.5	150	600
4	220	269	300	1200
5	440	538	600	2400
6	880	1076	1200	4800
7	1320	1614	1800	7200
8	1760	2152	2400	9600