KE11-A extended arithmetic element engineering drawings

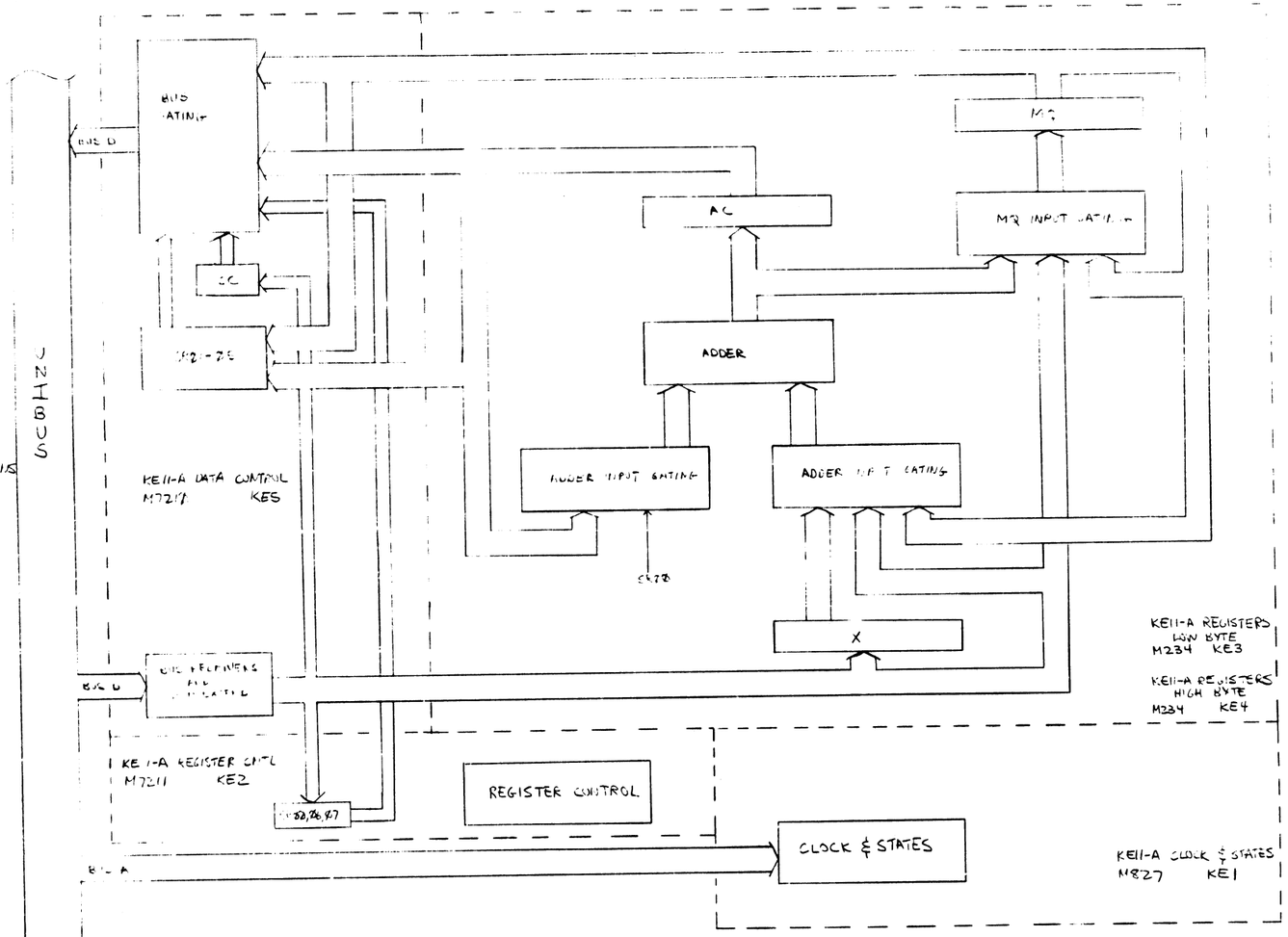
DIGITAL EQUIPMENT CORPORATION • MAYNARD, MASSACHUSETTS

1st Printing May 1971
2nd Printing November 1971

The material in this manual is for informational purposes and is subject to change without notice.

KE11-A Engineering Drawings

Drawing Number	Number of Sheets	Title
D-DB-KE11-A-BD	1	KE11-A Block Diagram
D-FD-KE11-A-FD	1	KE11-A Flow Diagram
D-TD-KE11-A-WF	2	KE11-A Waveforms
D-CS-M827-0-1	4	KE11-A Clock and States (KE1)
D-CS-M7211-0-1	4	KE11-A Register Control (KE2)
D-CS-M234-0-1	3	KE11-A Registers, Low Byte (KE3)
D-BS-KE11-A-03	3	KE11-A Registers, High Byte (KE4)
D-CS-M7210-0-1	5	KE11-A Data Control (KE5)
D-IC-KE11-A-04	1	KE11-A Bus and Power Connections (KE6)
D-MU-KE11-A-MU	1	KE11-A Module Utilization
A-PL-KE11-A-MU	1	KE11-A Module Utilization
D-AD-7007094-0-0	1	KE11-A Wired Assembly
A-PL-7007094-0-0	1	KE11-A Wired Assembly
K-WL-KE11-A-05		KE11-A Wire List (Complete)
D-BS-KE11-A-02	3	KE11-A Maintenance Module (KEM)



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL

FINISH

DRN.	S. ROTHMAN	DATE 8-20-70
CHK'D		DATE 11-3-70
ENG.		DATE 11-3-70
PROJ. ENG.		DATE 11-3-70
PROD.		DATE 11/5/70

NEXT HIGHER ASSY
A-M-KE11-A

SCALE

SHEET OF

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

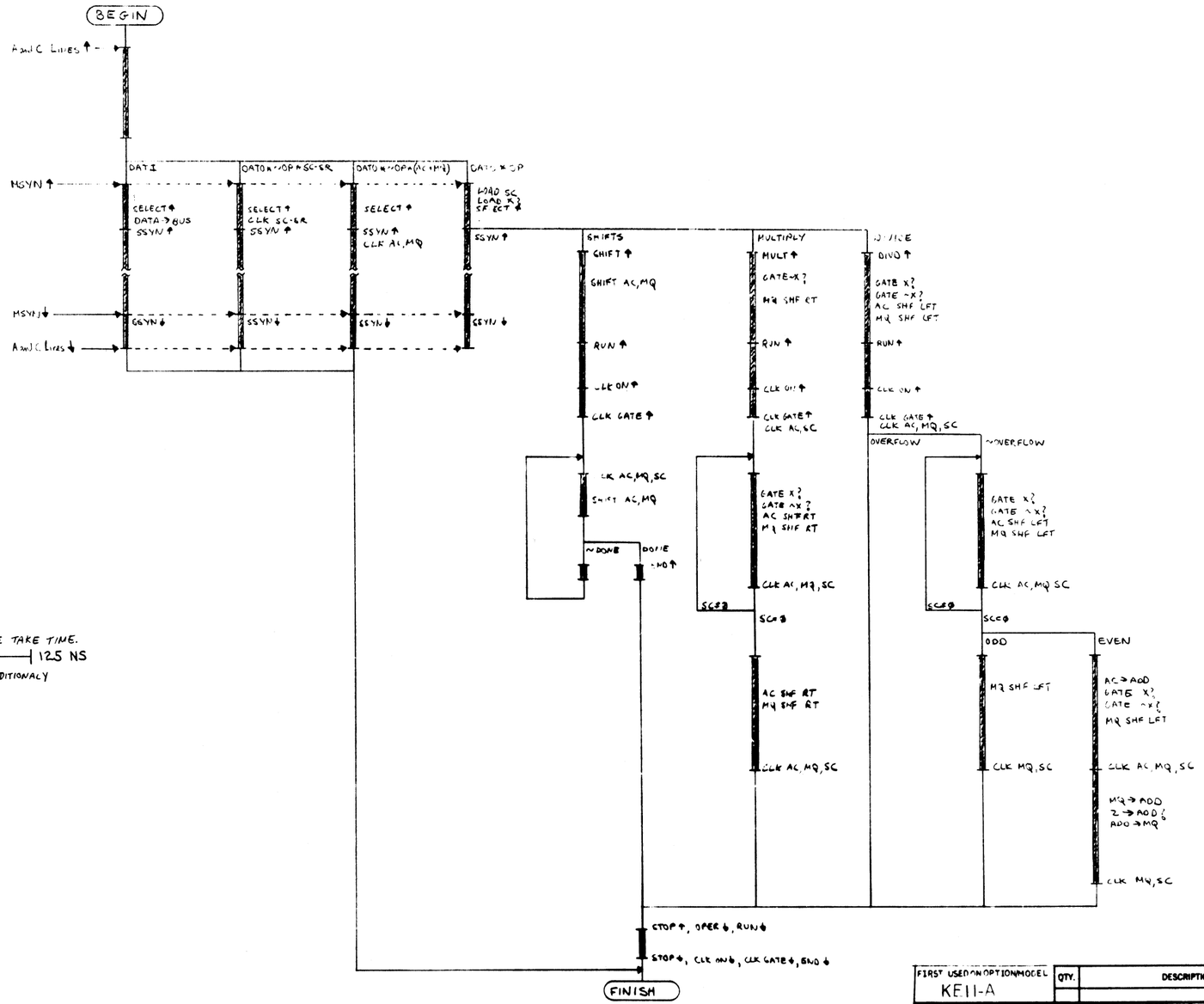
TITLE
BLOCK DIAGRAM
KE11-A

SIZE	CODE	NUMBER	REV.
D	6D	KE11-A-BC	

DIST.

REVISIONS	REV
CHANGE NO	
CHK	

SIZE	CODE	NUMBER	REV
D	BC	KE11-A-BD	



NOTES:

1. ONLY HEAVY LINE TAKE TIME.
   ONE INCH = ⊢——⊣ 125 NS
2. A ? MEANS CONDITIONALY

REVISIONS			
CHR	CHANGE NO	REV	
K	KE11A—00003	A	
	V. Rothman 1-17-74		
	J. SOFIO		
	Tim Allen 1.17.74		

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .000 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	S ROTHMAN	DATE 9-20-70
CHK'D	[illegible]	DATE 12-7-70
ENG	[illegible]	DATE 12-7-70
PROJ. ENG.	[illegible]	DATE 12-7-70
PROD.	[illegible]	DATE

NEXT HIGHER ASSY: A-ML-KE11-A

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: KE11-A FLOW

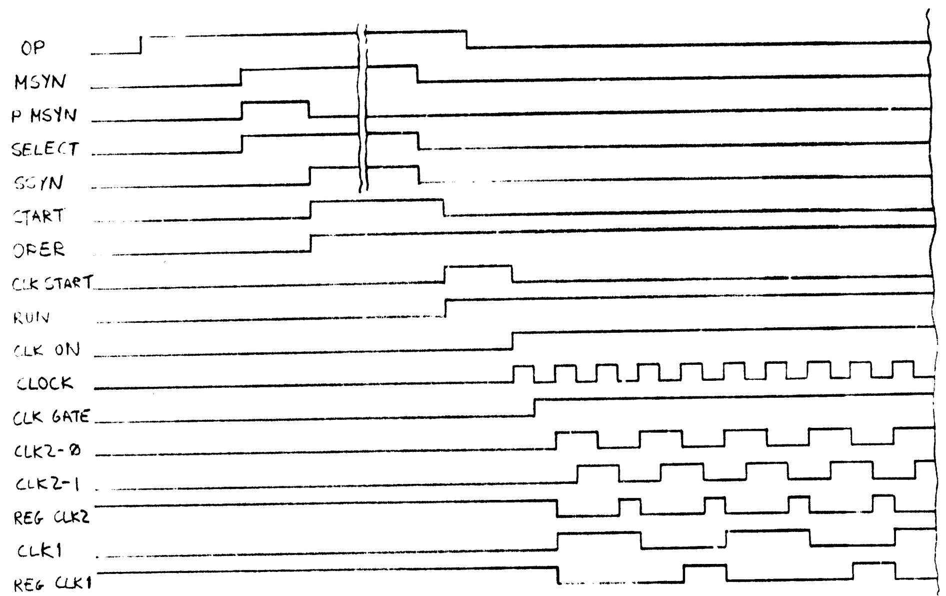
SIZE CODE: D | NUMBER: FD KE11-A-FD | REV: A

DIST.

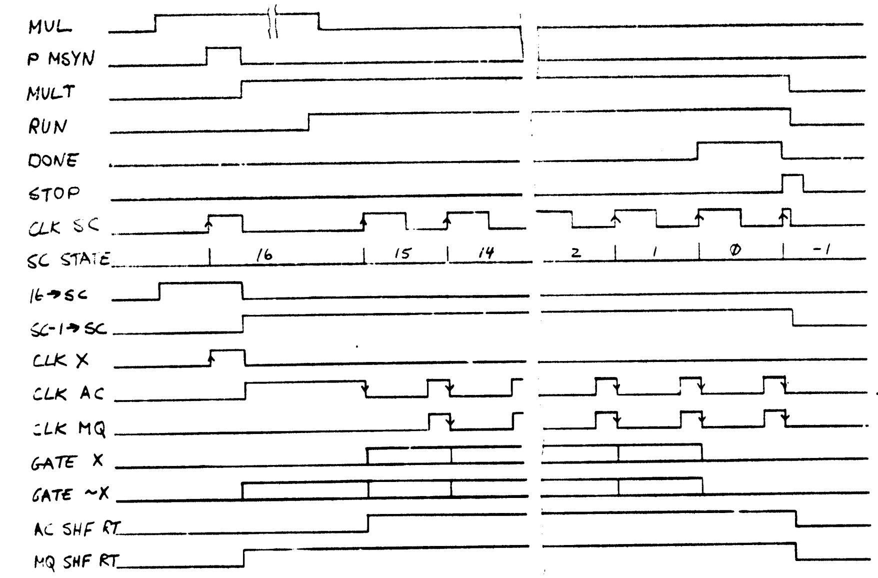
REV A | SIZE CODE D | NUMBER FD KE11-A-FD

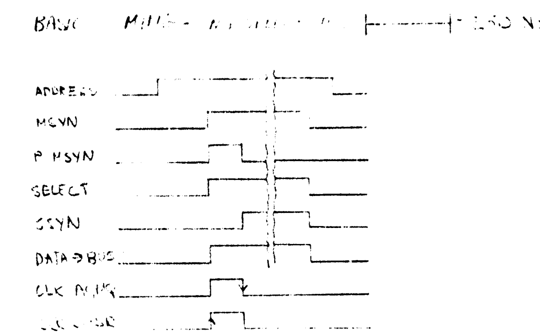
FORM NO. RE-102A

BASIC TIMING - BUS AND CLOCK WITH OPERATION ⊢—⊣ = 125 NS

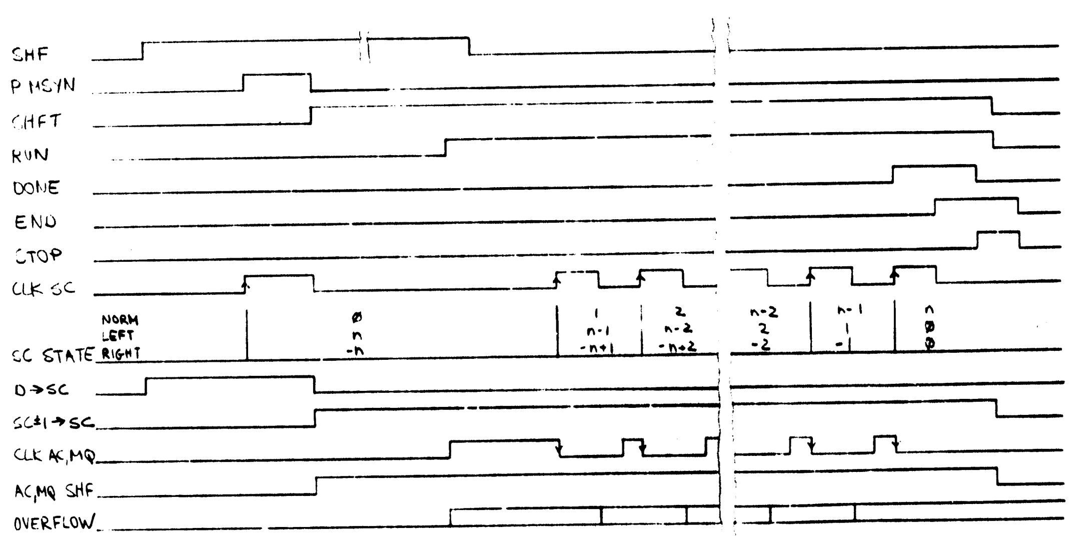


MULTIPLY TIMING ⊢—⊣ = 250 NS

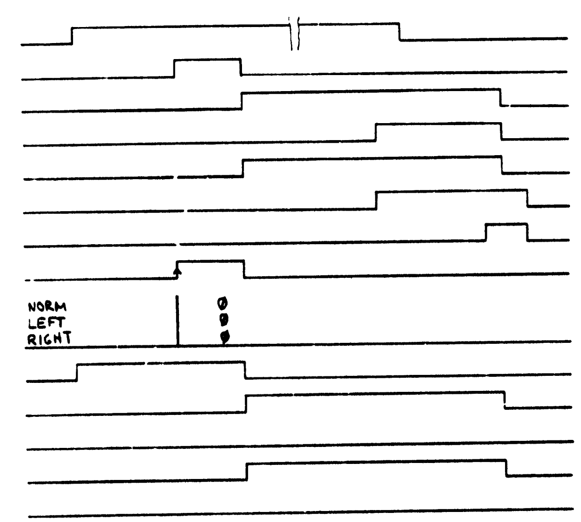




SHIFT TIMING ⊢—⊣ = 125 NS



NO SHIFTS



REVISIONS			
REV.	CHANGE NO		CHK
A	KE11A-00003	J. SOFIO 1-17-74	

FIRST USED ON OPTION/MODEL: KE11-A

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

DRN. S. ROTHMAN — DATE 8-19-70
CHKD — DATE 11-3-70
ENG — DATE 11-3-70
PROJ ENG — DATE 11-3-70
PROD — DATE 7/8/70

NEXT HIGHER ASSY: A-ML-KE11-A

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

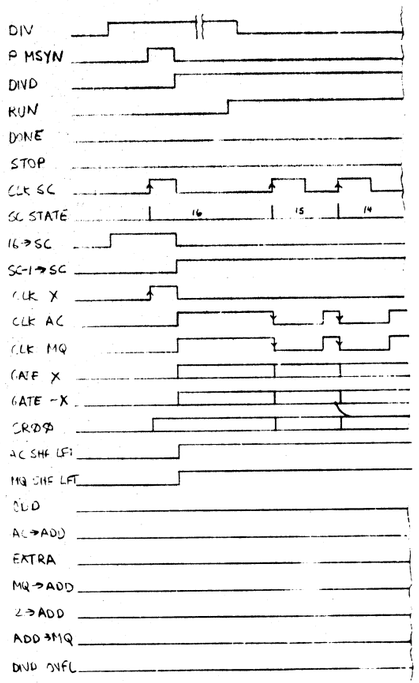
TITLE: KE11-A WAVEFORMS

SIZE: D CODE: TD NUMBER: KE11-A-WF REV: A

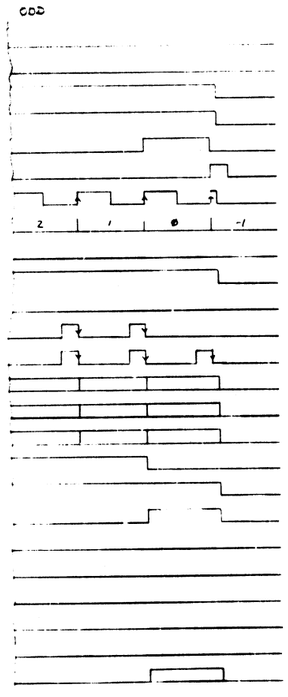
SCALE
SHEET 1 OF 2

DEC FORM NO DRD 102A

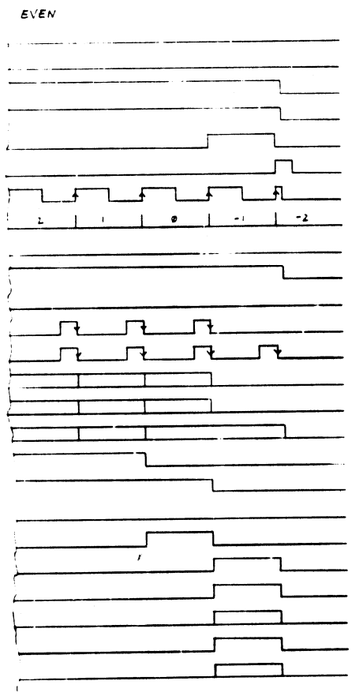
DIVIDE TIMING ⟵⟶ 250 NS



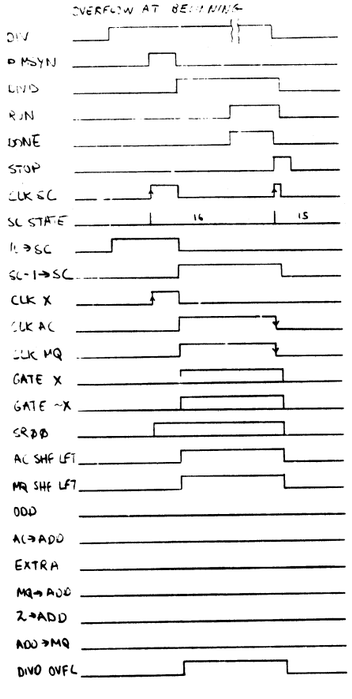
ODD



EVEN



OVERFLOW AT BEGINNING



REVISIONS			
REV	CHANGE NO	CHK	

FORM NO
DIGITAL 102A

FIRST USED ON OPTION/MODEL
KE11-A

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN	S. ROTHMAN	DATE 8-30-70
CHK'D	J. Letteri	DATE 11-3-70
ENG	J. Letteri	DATE 11-3-70
PROJ ENG	S. Rothman	DATE 11-3-70
PROD	W. Wall	DATE 11/4/70

NEXT HIGHER ASSY
A-ML-KE11-A

SCALE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
KE11-A WAVEFORMS

SIZE	CODE	NUMBER	REV.
D	TD	KE11-A-WF	A

DIST.

PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION		PART NUMBER	QUANTITY
1	E13 E25 E27 E35	DEC 7420	IC	19-05575	4
2	E18 E20 E45	DEC 74H03	IC	19-09056	3
3	E4 E9 E14 E28 E36	DEC 7402	IC	19-09004	5
4	E16 E15	DEC 7410	IC	19-05576	2
5	E26 E29	DEC 74H10	IC	19-09057	2
6	E8 E19 E44	DEC 74H11	IC	19-09627	3
7	E6	DEC 7430	IC	19-05595	1
8	E22	DEC 7440	IC	19-05579	1
9	E42 E46	DEC 74H40	IC	19-05586	2
10	E31 E32	DEC 7450	IC	19-05580	2
11	E37 E47	DEC 74H50	IC	19-09060	2
12	E5	DEC 7451	IC	19-05582	1
13	E23	DEC 74H53	IC	19-05062	1
14	E21	DEC 74H62	IC	19-05064	1
15	E24 E39 E34 E33	DEC 7474	IC	19-05547	4
16	E43 E38 E35	DEC 74H74	IC	19-09667	3
17	E41 E40	DEC 8615	IC	19-09713	2
18	E48	DEC 8801	IC	19-05704	1
19	E1 E7	DEC 314	IC	19-09704	2
20	E3 E12 E21	DEC 380	IC	19-05685	3
21	C26	18 PF 100V +-%	CAP	10-02608	1
22	C55	330 PF 100V +-%	CAP	10-00023	1
23	C54	1000 PF 100V +-%	CAP	10-00046	1
24	C49-C53	6.8 MFD 35V 20%	CAP	10-00067	5
25	R6 R10 R13 R19	5200 1/4W +-%	RES	13-00271	4
26	R8	2400 1/4W +-%	RES	13-01424	1
27	R14 R15	470 1/4W +-%	RES	13-00316	2
28	R2 R5 R7 R11 R17 R18	10000 1/4W +-%	RES	13-00365	6
29	R1 R9 R12 R16	2000 1/4W +-%	RES	13-00432	4
30	R4	2000 VARIABLE	RES	13-02527	1
31	D1 D2	DEC4 DIODE		11-00114	2
32	Q1	DEC 3005 B TRANSISTOR		12-03100	1
33	C1-48 C56	.01 MFD 100V 20%	CAP	10-01610	49
34	R3	47K 1/4W 5%	RES	13-00202	1
35	C27	560PF 100V 5%	CAP	10-00025	1
36	C57	1200 PF D.M. 100V	CAP	19-02619	1
37	R20	1K 1/4W CC 5%	RES	13-01477	1
38		30 GAUGE WIRE		91-05740-55	A/R

NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KEII-A E.A.E. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.

2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED; MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED; MULTIPLE INPUTS ARE CONNECTED. *MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.

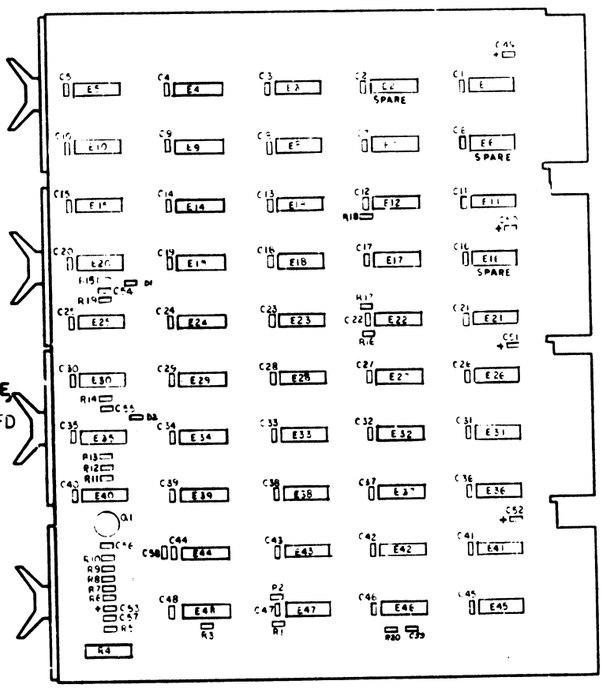
3. KEII-A SIGNAL SOURCE NOTATION (KE2-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE KE INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE KE PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE KE PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.

4. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01MFD

5. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

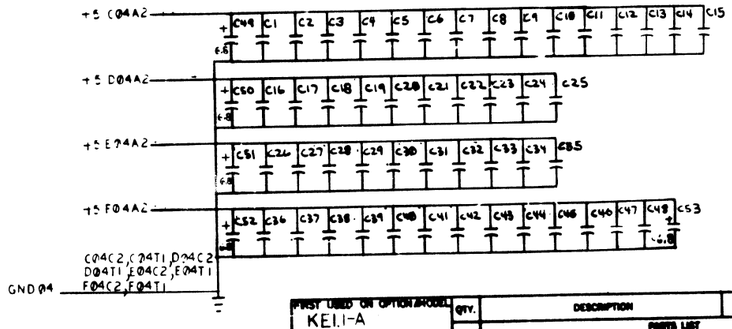
IC TYPE	GND	+5V
DEC 7482	PIN 11	PIN 4
DEC 74153	PIN 8	PIN 16
DEC A271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 314	PIN 1	PIN 6

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KEII-A
A	C
B	D
C	E
D	F



REVISIONS			
REV	CHANGE NO		
B	M827-00001	S. ROTHMAN	
C	M827-00002	S. ROTHMAN	3-11-72
D	M827-00003	S. ROTHMAN	7-6-72
E	M827-00004	B. WEERS	2-7-73

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

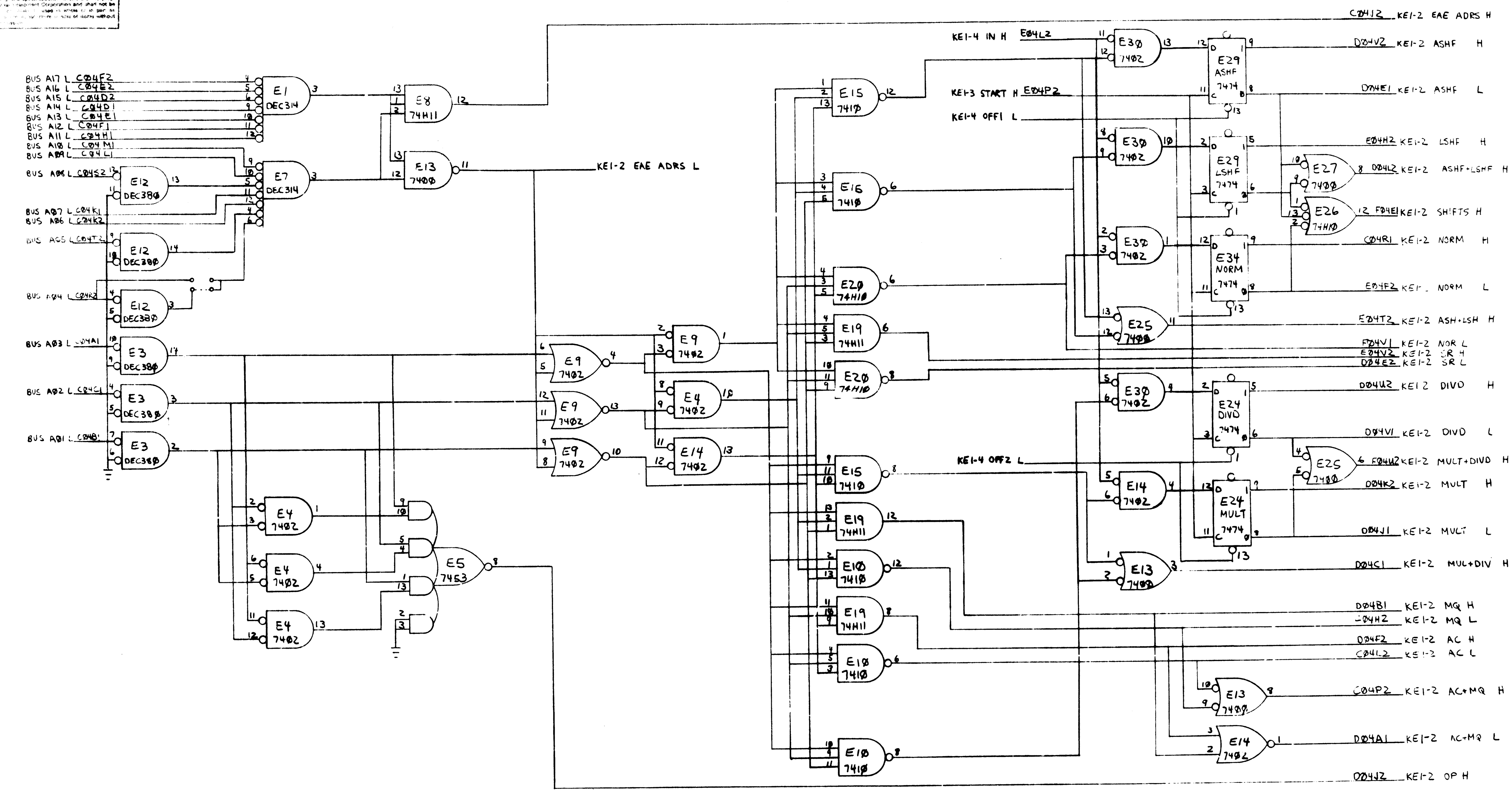
UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
FRACTIONAL ± 1/32 ANGULAR ± 1°
.XXX ± .005 .XX ± .01
FINISH
MATERIAL
NEXT HIGHER ASSY: A-ML-KEII-A

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: KEII-A CLOCK & STATES
M827 KEII

DCS M827-0-1 REV E

SIZE D


BUS A17 L C04F2
BUS A16 L C04E2
BUS A15 L C04D2
BUS A14 L C04D1
BUS A13 L C04E1
BUS A12 L C04F1
BUS A11 L C04H1
BUS A10 L C04M1
BUS A09 L C04L1
BUS A08 L C04S2
BUS A07 L C04K1
BUS A06 L C04K2
BUS A05 L C04T2
BUS A04 L C04R2
BUS A03 L C04A1
BUS A02 L C04C1
BUS A01 L C04B1
KE1-2 EAE ADRS L
KE1-4 IN H E04L2
KE1-3 START H E04P2
KE1-4 OFF1 L
KE1-4 OFF2 L
C04J2 KE1-2 EAE ADRS H
D04V2 KE1-2 ASHF H
D04E1 KE1-2 ASHF L
E04H2 KE1-2 LSHF H
D04L2 KE1-2 ASHF+LSHF H
F04E1 KE1-2 SHIFTS H
C04R1 KE1-2 NORM H
E04F2 KE1-2 NORM L
E04T2 KE1-2 ASH+LSH H
F04V1 KE1-2 NOR L
E04V2 KE1-2 SR H
D04E2 KE1-2 SR L
D04U2 KE1-2 DIVD H
D04V1 KE1-2 DIVD L
F04U2 KE1-2 MULT+DIVD H
D04K2 KE1-2 MULT H
D04J1 KE1-2 MULT L
D04C1 KE1-2 MUL+DIV H
D04B1 KE1-2 MQ H
E04H2 KE1-2 MQ L
D04F2 KE1-2 AC H
C04L2 KE1-2 AC L
C04P2 KE1-2 AC+MQ H
D04A1 KE1-2 AC+MQ L
D04J2 KE1-2 OP H

FIRST USED ON OPTION/MODEL: KE11-A

QTY.	DESCRIPTION	PART NO.	ITEM NO.

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. S ROTHMAN DATE 7-30-70
CHK'D. S ROTHMAN DATE 10-6-70

NEXT HIGHER ASSY: A-ML-KE11-A

SHEET 2 OF 4

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: KE11-A CLOCK & STATES

M827 KE1-2

SIZE D CODE CS NUMBER M827-0-1 REV. E

KE1-2 EAE ADRS L
BUS MSYN L CD04J1
KE1-2 (MULT+DIVD) H FD04H2
KE1-2 SHIFTS H FD04E1
KE1-2 OP H DD04J2
KE1-4 OUT LD H DD04F1
KE1-4 OFF L ED04A1
KEM-2 MAINT ENBL L FD04J1
KEM-2 MAINT CLK L FD04H2
KE1-4 OUT H
KE1-4 OFF 2 L
KE1-4 DONE L
KE1-3 CLK ON L

FD04M1 KE1-3 P MSYN L
ED04E2 KE1-3 P MSYN H
ED04N2 KE1-3 SELECT H
FD04V2 BUS SSYN L
=D04P2 KE1-3 START H
ED04J2 KE1-3 CLK START L
FD04J2 KE1-3 SHIFT ENBL H
FD04J1 KE1-3 RUN H
FD04A1 KE1-3 RUN L
ED04R2 KE1-3 CLK ON H
DD04H2 KE1-3 CLK2-D H
ED04S2 KE1-3 REG CLK2 H
CD04N2 KE1-3 CLK1 H
FD04B1 KE1-3 CLK2-1 H
ED04U2 KE1-3 CLK GATE H
KE1-3 CLK2-D L

NOTE: SIGNAL AT PIN DD04H2: ←1125 ns→

FIRST USED ON CPT LOW MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

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

		DATE
DRN	S. ROTHMAN	7-3-70
CHK'D		10-16-70
ENG		10-16-70
PROJ. ENG		10-16-70
APVD		10/16/70

NEXT HIGHER ASSY A-ML-KE11-A
SCALE
SHEET 3 OF 4

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KE11-A CLOCK & STATES
M827 KE11-3
SIZE CODE DCS NUMBER M827-0-1 REV. E
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DPD 1024

KE4-2 AC14 H C04U1
KE4-2 AC15 H D04D1
KE5-2 AC-15 H C05P1
KE5-2 SC=37 H C04U1
KE2-3 AC15 L C04U1
KE1-2 NORM H C04R1
KE1-2 ASHF+LSHF H D04L2
KE5-2 SC=0 H D04T2
KE1-2 MULT H D04K2
KE2-2 DOD H D04M2
KE1-2 DND H D04L2
KE2-3 DIVD DONE H D04U1
KE1-2 SHIFTS H E04E1
KE1-3 CLK2-0 H D04H2
KE1-2 MULT+DIVD H E04N2
KE1-3 CLK1(-) H E04N2
BUS INIT L D04R2
BUS C1 L D04P2
BUS C0 L D04S2
BUS A00 L D04N2
KE1-3 CLK START L E04J2
KE1-3 REG CLK2 H E0452
KE1-3 RUN L E04A1
KE1-3 CLK ON L
KE1-4 DONE L
KE1-3 CLK ON H E04R2
KE1-3 CLK2-0 L
KE1-4 STOP L
KE1-2 OP H
KE1-3 P MSYN H E04H2
KE1-2 SR H E04V2
KE4-2 ADD15 H E04T2
KE4-2 ADD14 H E0452
KE4-2 ADD13 H E04R2
KE4-2 ADD12 H E04P2
KE4-2 ADD11 H E04N2
KE4-2 ADD10 H E04P2
KE4-2 ADD09 H E04K1
KE4-2 ADD08 H E04L1
KE3-2 ADD07 H E04K2
KE3-2 ADD06 H E04L2
KE3-2 ADD05 H E04H1
KE3-2 ADD04 H E04H1
KE3-2 ADD03 H E04P1
KE3-2 ADD02 H E04R1
KE3-2 ADD01 H E04S1
KE3-2 ADD00 H E04N2
D04D2 KE1-4 AC14 L
E04D2 KE1-4 TP1
E04M2 KE1-4 END H
E04K1 KE1-4 STOP H
E04U1 KE1-4 OFF L
KE1-4 OFF1 L
KE1-4 OFF2 L
E04F1 KE1-4 ADD08 L
E04E2 KE1-4 CLK L H
D04N1 KE1-4 OUT H
E04L2 KE1-4 IN H
D04F1 KE1-4 OUT LO H
E04V1 KE1-4 OUT HI H
E04K2 KE1-4 OUT HI L

FIRST USED ON OPTICYMOPED	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		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. S ROTHMAN DATE 7-30-70
CHK'D. S ROTHMAN DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY A-ML-KE11-A
SCALE
SHEET 4 OF 4

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
KE11-A
CLOCK & STATES
M827 KE11-4

SIZE D | CODE CS | NUMBER M827-0-1 | REV. E
DIST.

PARTS REFERENCE

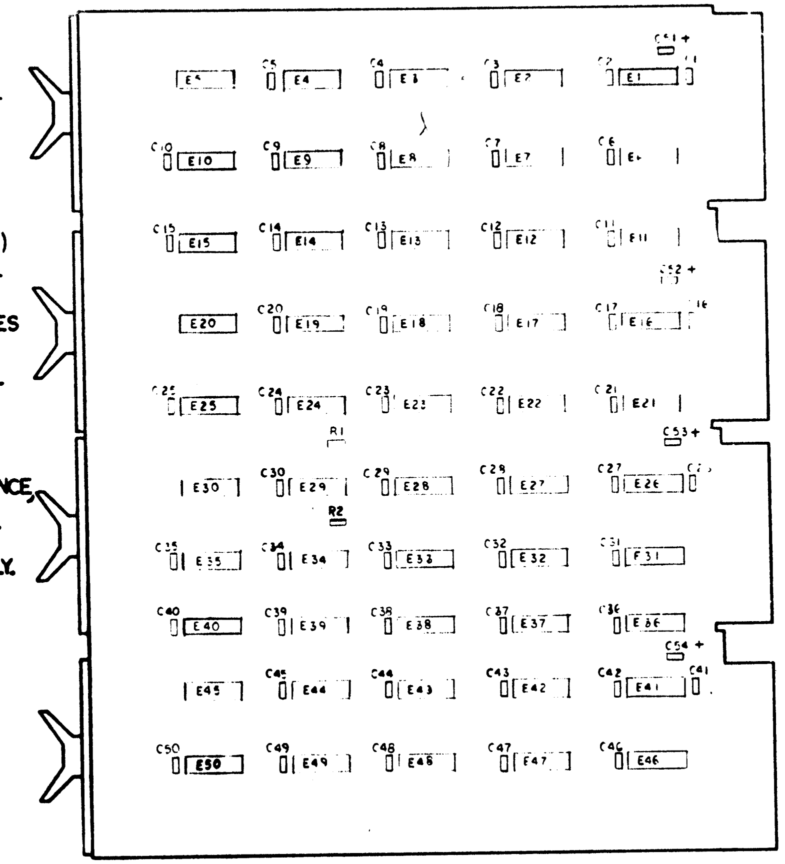
ITEM NO	DRAWING REFERENCE	DESCRIPTION		PART NUMBER	QUANTITY
1	E10 E12 E23 E25 E33 E44 E47 E50	DEC 7400	IC	19-05575	8
2	E5 E20	DEC 74H00	IC	19-09056	2
3	E19 E39 E42 E46	DEC 7402	IC	19-09004	4
4	E15 E22 E27 E43	DEC 7410	IC	19-05576	4
5	E48	DEC 7420	IC	19-05577	1
6	E21 E24 E26 E41	DEC 7440	IC	19-05579	4
7	E28	DEC 74H40	IC	19-09386	1
8	E7 E11 E30 E40 E49	DEC 7450	IC	19-05580	5
9	E6 E14	DEC 74H50	IC	19-09060	2
10	E4 E8 E17 E18 E29 E31 E32 E35 E36 E37	DEC 74H52	IC	19-09061	10
11	E34	DEC 74H53	IC	19-09062	1
12	E9 E13	DEC 74H61	IC	19-09064	2
13	E1 E3 E45	DEC 7474	IC	19-05547	3
14	E16	DEC 7483	IC	19-10011	1
15	E2 E38	DEC 8815	IC	19-09714	2
16	C1-C50	.01MFD 100V 20%	CAP	10-01610	50
17	C51-C54	6.8MFD 35V 20%	CAP	10-00067	4
18	R1	1000Ω 1/4W 5%	RES	13-00245	1
19	R2	3000Ω 1/4W 5%	RES	13-00423	1
20					
21					
22					
23					
24					
25					
26					
27					
28					

NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KE11-A EAF. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.
2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED; MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED; MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.
3. KE11-A SIGNAL SOURCE NOTATION (KE2-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE KE INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE KE PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE KE PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.
4. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE. PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
5. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

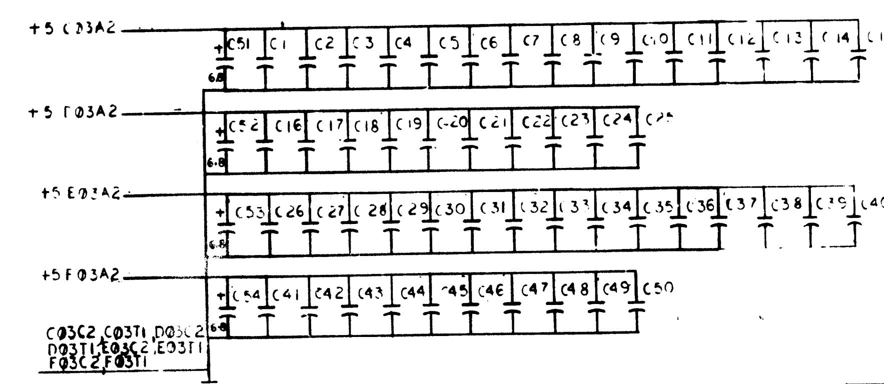
IC TYPE	GND	+5V
DEC 7482	PIN 11	PIN 4
DEC 74153	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 314	PIN 1	PIN 8

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KE11-A
A	C
B	D
C	E
D	F



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

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

MATERIAL —
FINISH —

NEXT HIGHER ASSY: A-ML-KE11-A

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

TITLE: KE11-A REGISTER CNTL M7211 KE2-1

D CS M7211-0-1 REV. D

SHEET 1 OF 4

REVISIONS: REV B M7211-00001 S. ROTHMAN 12-3-70; REV C M7211-00002 S. ROTHMAN; REV D M7211-00003 S. ROTHMAN

KE11-A REGISTER CNTL

KE11-A MQ00 H D03U1
KE11-A SC04 H E03B1
KE11-A MQ00 H E03F1
KE11-A DIS H C03D1
KE11-A SC00 L E03J1
KE11-A ADDEN L C03K1
KE11-A AC15 H D03F1
KE11-A SDIVD L
KE11-A AC15 L C03U1
KE11-A SDIVD H
KE11-A AC00 H E03N1
KE11-A EXTRA L D03D1
KE11-A ACHFNEXT H C03E1
KE11-A SUBS H C03J1
KE11-A MULT L E03K1
KE11-A MULT H E03J2
KE11-A SC04 L C03C1
KE11-A OUT H E03H2
KE11-A DIVD L C03A1
KE11-A MQ H E03P2
KE11-A SHFT ENBL H E03U2
KE11-A REG CLK2 H E03R2
KE11-A MQGN1 H E03U1
KE11-A REG CLK1 H E03T2

KE11-A MQ L F03M2
KE11-A OUT LO H E03P1
KE11-A AC H E03M1
KE11-A AC+MQ H E03V2
KE11-A R11 L C03H1

KE11-A SC00 H C03N1
KE11-A ACHF H D03E1
KE11-A SHIFT H D03L2
KE11-A SUBS L C03R1

KE11-A SRDD L

KE11-A SRDD H C03M2

KE11-A DIV STEP L

E03B1 KE11-A MQ00 IN H
D03T2 KE11-A SATE X H
D03S1 KE11-A SATE -X H
D03N2 KE11-A
E03F2 KE11-A MQ SHF
E03U2 KE11-A AC SHF
E03L1 KE11-A
E03D1 KE11-A EXTRA2 H
E03L2 KE11-A
E03S1 KE11-A
E03T2 KE11-A

C03N2 KE11-A EXTR+ H
D03L1 KE11-A DDD H
E03H1 KE11-A AC15 SHF LFT H
D03P1 KE11-A AC SHF LEFT H
D03V1 KE11-A MQ SHF LFT H

REVISIONS			
REV	CHANGE NO	CHK	

FIRST USED ON OPTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		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

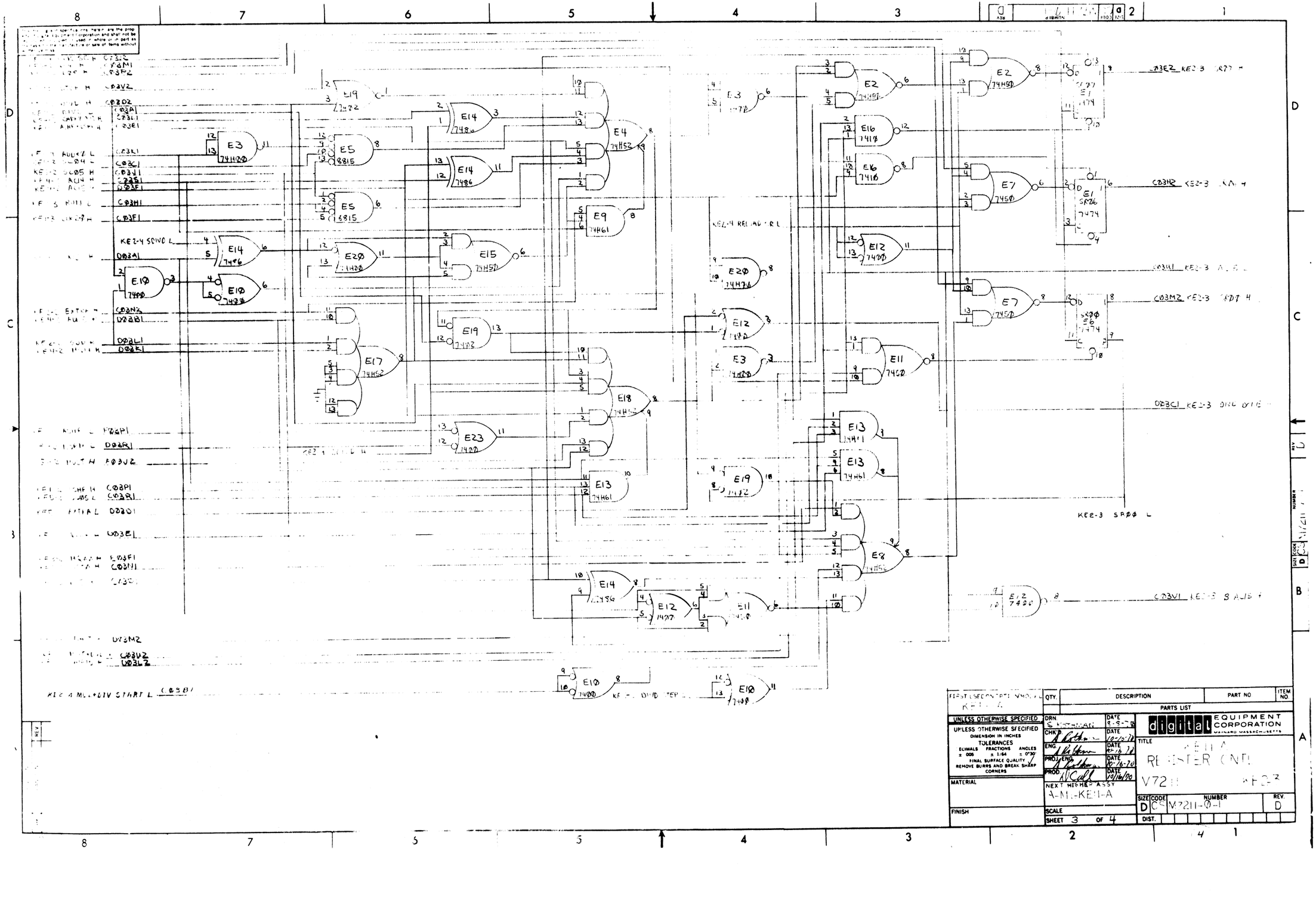
DRN.	S ROTHMAN	DATE 4-9-70
CHK'D	S ROTHMAN	DATE 10-14-71
ENG		DATE 10-16-70
PROJ. ENG		DATE 10-16-70
PROD.		DATE 10/16/70
NEXT HIGHER ASSY	A-M-KE11-A	
SCALE		
SHEET	2 OF 4	

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KE11-A REGISTER CNTL M7211 KE-2

SIZE CODE D | NUMBER CS M7211-D-1 | REV. D

DIST.



QTY.	DESCRIPTION	PART NO	ITEM NO.
	PARTS LIST		

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

DRN. S. KOTSEMAN DATE 8-5-70
CHK'D DATE 10-15-70
ENG. DATE 10-16-70
PROJ. ENG. DATE 10-16-70
PROD. DATE 10/16/70
NEXT HIGHER ASSY A-M1-KE1-A
SCALE
SHEET 3 OF 4

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KE1-A REGISTER CNTL V72 KE2-3

SIZE D CODE C5 NUMBER M7211-0-1 REV. D
DIST.

KE2-3 AC15 L — C03U1
KE1-4 OFF L — F03V1

KE4-2 MQ15 H — F03V2 — E25 7400 — F03U2 KE2-4 MQ15 L

KE1-2 ASHF L — F03P1
KE1-2 MULT H — F03N2

KE4-2 ADD15 H — D03B1
KE4-2 X15 H — D03A1

KE2-2 GATE ~X H D03S2 — E43 7410 — MFLAG E45 7474 D
KE2-2 CLK AC HI H E03T2 — E44 7400 — MFLAG E45 7474 C

E49 7450 — F03K2 KE2-4 AC15 H H
E44 7400

E46 7402 — F03L2 KE2-4 MQ FM D HI H
E46 7402 — F03S2 KE2-4 MQ FM D LO H
E46 7402 — F03N2 KE2-4 AC FM D HI H
E46 7402 — F03R2 KE2-4 AC FM D LO H

E50 7400 — E50 7400 — E50 7400

KE1-2 MQ L — F03M2
KE1-2 AC L — F03P2

KE5-5 DI5 H — C03D1 — SDIVD E45 7474 — KE2-4 SDIVD H

KE1-2 AC+MQ L — F03B1
KE1-3 P MSYN L — F03A1
KE1-4 IN H — E03V1
KE1-4 OUT H — E03M2
E38 8815 — SDIVD E45 7474 — KE2-4 SDIVD L

E47 7400

KE1-2 NOR L — F03J1
KE1-2 RUN H — F03K1
KE1-2 ASHMLSH H F03N1

E42 7402 — E42 7402 — F03M1 KE2-4 NUM TO SC H
E43 7410 — E44 7400 — F03L1 KE2-4 BUS TO SC H

KE1-2 SR H — F03S1
KE1-4 OUT HI H — F03R1
E48 7427 — KE2-4 REQMD SCL — F03R1 KE2-4 SC-1 TO SC L
F03A1 KE2-4 SC+1 TO SC L

KE1-2 MULTDIV H — F03C1
KE1-2 SHIFTS H — D03L2 — E39 7402 — F03U1 KE2-4 MULTDIV SHIFT L
E44 7400

E41 7400 — F03H1 KE2-4 CLK X HI H
E41 7400 — F03F1 KE2-4 CLK X LO H

KE1-4 OUT LO H — E03P1
KE1-3 P MSYN H — E03N2
E43 7410

E47 7400 — E47 7400 — E47 7400

KE5-2 SC05 L — C03R1
KE1-2 ASHF+ASHF H — C03E1
E40 7450 — F03T2 KE2-1 ADX GATE H

KE1-2 MULT+DIV H — C03U2
E40 7450 — F03S1 KE2-4 MQ FM-C HI H

KE5-2 SC05 H — C03J1
KE1-2 NORM H — D03N1
E40 7450 — F03D1 KE2-4 ADX FM-C LO H

KE1-2 DIVD L — C03A1
KE5-2 SC+0 L — E03J1
KE1-2 ASHF H — D03E1
E42 7402 — E42 7402

FIRST USED ON SECTION/MOD	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°7'
FINAL SURFACE QUALITY √
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DWN S. ROTHMAN DATE 9-9-70
CHK DATE 10-16-70
ENG DATE 10-16-70
PROJ MGR DATE 10-16-70
MOD DATE 12/14/70

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

NEXT HIGHER ASSY A-ML-KE11-A
SCALE
SHEET 4 OF 4

TITLE KE11-A REGISTER CNTL
M7211 KE24
SIZE CODE D CS M7211-0-1 REV D
DIST.

REVISIONS: REV | CHANGE NO | CHK

CS M7211-0-1 REV D

PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION		PART NUMBER	QUANTITY
1	E1-E6,E11-E19,E24,E25,E30-E36	DEC 74H52	IC	1909061	24
2	E7,E9,E22,E23	DEC 7474	IC	1905547	4
3	E20,E21,E28,E29	DEC 7482	IC	1905584	4
4	E8,E10,E26,E27	DEC 8271	IC	1909615	4
5	C1-C36	.01 MFD 100V 20%	CAP	1001610	36
6	C37,C38	6.8 MFD 35V 20%	CAP	1000067	2
7	R1,R4	1K 1/4W 5%	RES	1300365	2
8	R2,R3	3K 1/4W 5%	RES	1300432	2

NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KE11-A EAE. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.

2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED: MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED: MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.

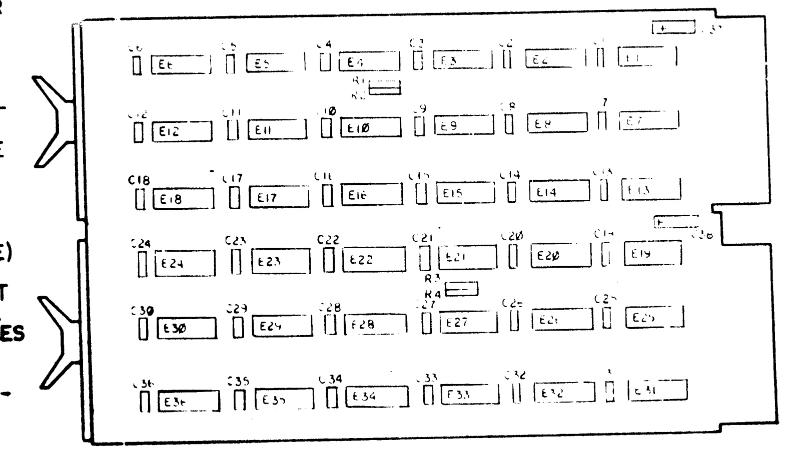
3. KE11-A SIGNAL SOURCE NOTATION (KE2-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE KE INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE KE PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE KE PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.

4. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE. PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD; UNLABELED IC's ARE DEC 74H52.

5. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

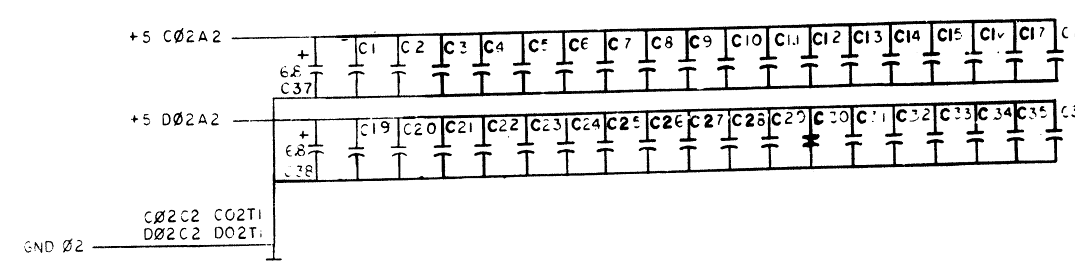
IC TYPE	GND	+5V
DEC 7482	PIN 11	PIN 4
DEC 74153	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 314	PIN 1	PIN 8

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KE11-A
A	
B	



REVISIONS			
REV	CHANGE NO		CHK
B	M234-00003 3-1-71	ROTHMAN	

FIRST USED ON OPTION/MODEL: KE11-A	QTY.	DESCRIPTION	PART NO. / ITEM NO.
		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 11-3-70
ENG. DATE 11-3-70
PROJ. ENG. DATE 11-3-70
PROD. DATE 11/3/70

NEXT HIGHER ASSY: A-ML-KE11-A
SCALE: —
SHEET 1 OF 3

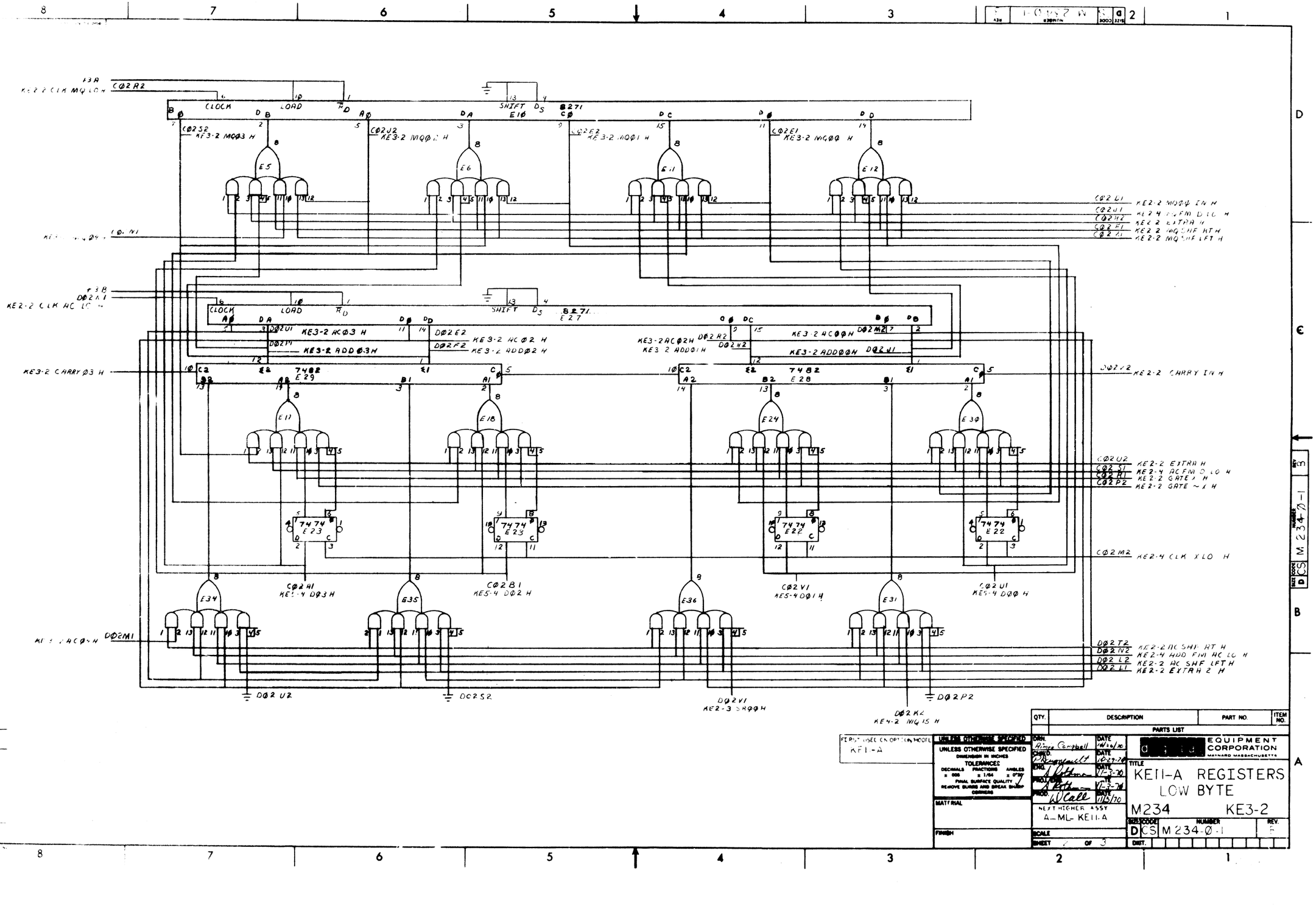
EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

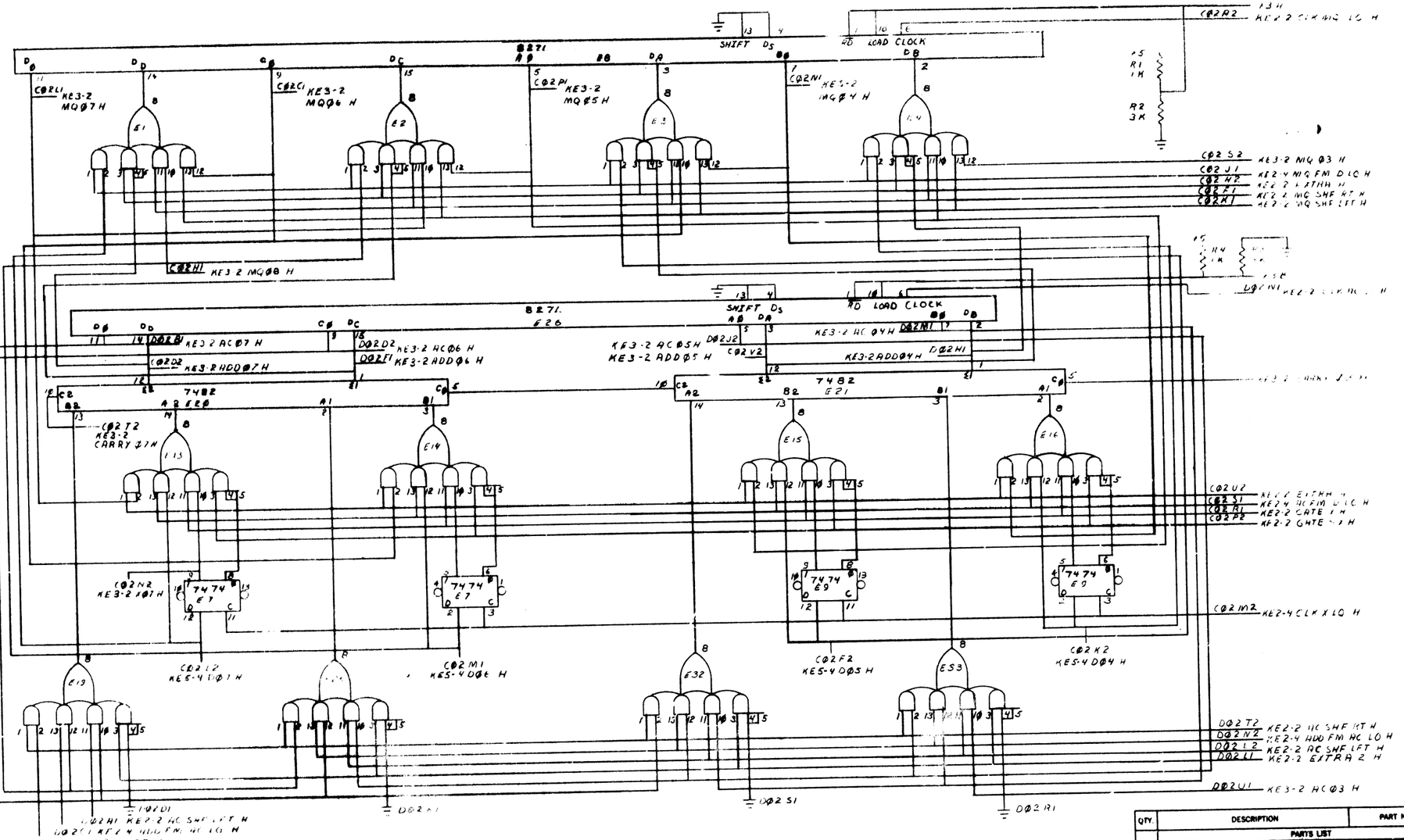
TITLE: KE11-A REGISTERS LOW BYTE
M234 KE31

SIZE D CODE CS NUMBER M234-0-1 REV. B
ETCH REV. B
DIST.
1 Pink

DEC FORM NO DRD 102A

D CS M234-0-1 B


CØ2R2
CLOCK
LOAD
SHIFT
B271
E10
CØ2S2
KE3-2 MQØ3 H
CØ2U2
KE3-2 MQØ2 H
CØ2E2
KE3-2 MQØ1 H
CØ2E1
KE3-2 MQØØ H
E5
E6
E11
E12
CØ2U1 KE2-2 MQØØ IN H
CØ2U1 KE2-4 ACFMQ LO H
CØ2H2 KE2-2 EXTRA H
CØ2F1 KE2-2 MQ SHF RT H
CØ2A1 KE2-2 MQ SHF LEFT H
DØ2A1
KE2-2 CLK HC LO H
DØ2U1 KE3-2 HCØ3 H
DØ2T1 KE3-2 ADDØ3H
DØ2E2 KE3-2 HCØ2 H
DØ2F2 KE3-2 ADDØ2 H
KE3-2ACØ2H DØ2R2
KE3 2 ADDØ1H DØ2H2
KE3-2 HCØØH DØ2M2
KE3-2 ADDØØH DØ2U1
KE3-2 CARRY Ø3 H
7402
E29
E28
DØ2V2 KE2-2 CARRY IN H
E17
E18
E24
E30
7474
E23
E22
CØ2U2 KE2-2 EXTRA H
CØ2S1 KE2-4 ACFMQ LO H
CØ2A1 KE2-2 GATE Y H
CØ2P2 KE2-2 GATE X H
CØ2M2 KE2-4 CLK XLO H
CØ2H1
KE5-4 DØ3 H
CØ2B1
KE5-4 DØ2 H
CØ2V1
KE5-4DØ1 H
CØ2U1
KE5-4 DØØ H
E34
E35
E36
E31
KE3-2ACØ3H DØ2M1
DØ2T2 KE2-2 HC SHF RT H
DØ2N2 KE2-4 ADD FM HC LO H
DØ2L2 KE2-2 HC SHF LFT H
DØ2L1 KE2-2 EXTRA 2 H
DØ2U2
DØ2S2
DØ2V1
KE2-3 SRØØH
DØ2P2
DØ2K2
KE4-2 MQ 15 H
FIRST USED ON OPTION MODEL
KE11-A
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
QTY. DESCRIPTION PART NO. ITEM NO.
PARTS LIST
DSN. Minnie Campbell 10/26/70
CHKD. 10-27-70
ENG. 11-3-70
PROJ. ENG. 11-3-70
MOD 11/3/70
NEXT HIGHER ASSY
A-ML-KE11-A
SCALE
SHEET 1 OF 3
EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS
TITLE
KE11-A REGISTERS
LOW BYTE
M234 KE3-2
SIZE CODE D CS NUMBER M234-Ø-1 REV. E
DIST.
REV. B
SIZE CODE D CS NUMBER M234-Ø-1



FIRST USED ON OPTION/UNIT: KE11-A

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY 63
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. Diego Campbell	DATE 4/30/70	
CHKD. [illegible]	DATE 10-30-70	
ENG. [illegible]	DATE 12-2-70	
PROJ. LDR. [illegible]	DATE 12-2-70	
MOD. [illegible]	DATE 11/30/70	

NEXT HIGHER ASSY: A ML-KE11-A

SCALE

SHEET 5 OF 9

QTY. | DESCRIPTION | PART NO. | ITEM NO.

PARTS LIST

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: KE11-A REGISTERS LOW BYTE

M234 KE3-2

SIZE DCS | NUMBER M234-0-1 | REV E

DIST.

DCS M23?-?-?-1

REVISIONS		
REV	CHANGE NO	DATE

PARTS REFERENCE

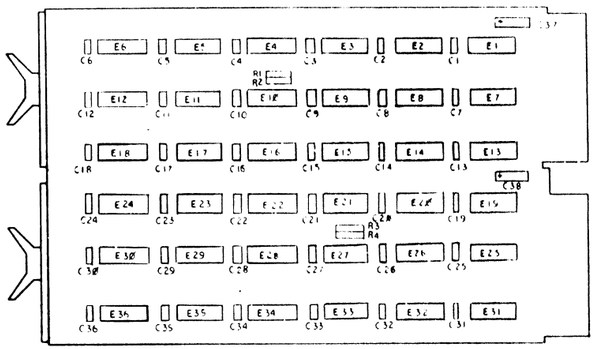
ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	E1-E6, E11-E19, E24, E25, E30-E36	DEC 74H52	IC 19-09061	24
2	E7, E9, E22, E23	DEC 7474	IC 19-05547	4
3	E20, E21, E28, E29	DEC 7482	IC 19-05584	4
4	E8, E10, E26, E27	DEC 8271	IC 19-09615	4
5	C1-C36	.01 MFD 100V 20%	CAP 10-01610	36
6	C37, C38	6.8 MFD 35V 20%	CAP 10-00667	2
7	R1, R4	1K 1/4 W 5%	RES 13-00335	2
8	R2, R3	3K 1/4 W 5%	RES 13-00452	2
9				
10				
11				
12				
13				

NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KE11-A E4E MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.
2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED; MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED; MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.
3. PROCESSOR SIGNAL SOURCE NOTATION (KE2-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE KEINDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE KEPREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE KEPREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.
4. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD; UNLABLED IC'S ARE DEC 74H52.
5. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

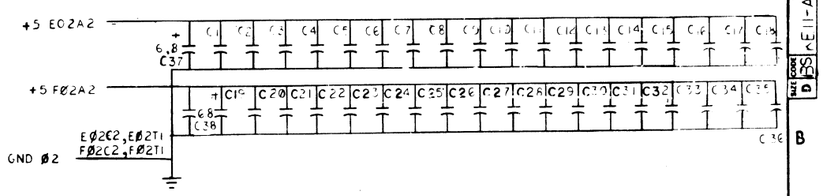
IC TYPE	GND	+5V
DEC 7482	PIN 11	PIN 4
DEC 74153	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 314	PIN 1	PIN 8

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KE11-A
A	E
B	F



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO
KE11-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED

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

MATERIAL —//—

FINISH —//—

DRN	[illegible]	DATE 1/1/70
CHKD	[illegible]	DATE 1-7-70
ENGR	[illegible]	DATE 1-7-70
PROJ	[illegible]	DATE 1-7-70
PROD	DCall	DATE 11/13/70

NEXT HIGHER ASSY
A-MCKE11-A

SCALE —//—

SHEET 1 OF 3

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
KE11-A REGISTERS
HIGH BYTE
MC34 KE4-1

SIZE	CODE	NUMBER	REV
D	BS	KE11-A-03	A

ED 1 ST

1 Pink

KE 2-2 CLK MQ HI H F02B2
+3 A
CLOCK LOAD SHIFT E10 B271
E02S2 KEY-2 MQ11 H
E02J2 KEY-2 MQ10 H
E02E2 KEY-2 MQ09 H
E02H1 KEY-2 MQ08 H
E5 E6 E11 E12
KEY-2 MQ 12 H L02N1
E02U1 KE3-2 MQ 07 H H
E02J1 KE2-4 MQFM 0 HI H
E02N2 KE2-2 EXTRA 2 H
E02F1 KE2-2 MQ SHF RT H
E02M1 KE2-2 MQ SHF LFT H
KE C C CLK AC HI H F02N1
+3 B
CLOCK LOAD SHIFT E 27 B271
F02U1 KEY-2 AC 11 H
F02P1 KEY-2 ADD 11 H
F02E2 KEY-2 AC 10 H
F02T2 KEY-2 ADD 10 H
KEY-2 CARRY 11 H
7482 E29
E17 E18
7474 E23 7474 E23
E02P1 KE3-5 D11 H
E02B1 KE3-5 D10 H
KEY-2 AC 09 H F02R2
KEY-2 ADD09 H F02W2
KEY-2 AC08 H F02N2
KEY-2 ADD08 H F02J1
7482 E28
E24 E30
7474 E22 7474 E22
E02V1 KE3-5 D09 H
E02U1 KE3-5 D08 H
F02V2 KE3-2 ARR07 H
E02U2 KE2-2 EXTRA 2 H
E02S1 KE2-4 AC FMQ HI H
E02R1 KE3-2 GATE 7 H
E02P2 KE2-2 GATE 7 AN
F02M2 KE2-4 CLK A HI L
E34 E35 E36 E31
KE4-2 AC 12 H F02M1
F02L2 F02S2 F02V1 F02M2 KE3-2 AC07 H F02P2 F02L1
F02T2 KE2-2 AC SHF RT H
F02N2 KE2-4 ADD FM AC HI H
F02L2 KE2-2 AC SHF LFT H

FIRST USED ON QTY TOP MODEL
KE11-A

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°7'
FINISH SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRWN Dave Compton 10-25-78
ENGR 10-27-78
MFG 11-2-78
QA 11-7-78
APPD 11/8/78
NEXT HIGHER ASSY A-ML-KE11-A
SCALE
SHEET 2 OF 3

EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE KE11-A REGISTERS HIGH BYTE
M234 KE4-2
DRAWING NUMBER D BS KE11-A-03 REV. A
SIZE BSP

REVISIONS
REV. CHANGE NO DWR

DEC FORM NO DRD 1027 A

8271 E8

SHIFT D_S | $\overline{R}_D$ LOAD CLOCK | $D_\emptyset$ D_D $C_\emptyset$ D_C $A_\emptyset$ D_A $B_\emptyset$ D_B

$D_\emptyset$ 11 EØ2L1 KE4-2 MQ15H
D_D 14 E1
$C_\emptyset$ 9 EØ2C1 KE4-2 MQ14H
D_C 15 E2
$A_\emptyset$ 5 EØ2P1 KE4-2 MQ13H
D_A 3 E3
$B_\emptyset$ 7 EØ2N1 KE4-2 MQ12H
D_B 2 E4

+5 R1 1K R2 3K

+3A
FØ2R2 KE2-2 CLK MQ HI H

EØ2S2 KE4-2 [illegible] H
EØ2J1 KE2-4 MQ FM D HI H
EØ2H2 KE2-2 EXTRA 2 H
EØ2F1 KE2-2 MQ SHFT H
EØ2K1 KE2-2 MQ SHIFT H

EØ2H1 KE3-2 AC ØØ H

+5 R4 1K R3 3K
FØ2N1 +3B KE2-2 CLK BC HI H

8271 E26

SHIFT D_S | $\overline{R}_D$ LOAD CLOCK | $D_\emptyset$ D_D $C_\emptyset$ D_C $A_\emptyset$ D_A $B_\emptyset$ D_B

$D_\emptyset$ 11 EØ2B1 KE4-2 AC15 H
D_D 14
$C_\emptyset$ 9 FØ2 D2 KE4-2 AC14 H
D_C 15
EØ2 D1 KE4-2 ADD 15 H
FØ2 F1 KE4-2 ADD 14 H
$A_\emptyset$ 5 KE4-2 AC13H FØ2V2 KE4-2 ADD13H EØ2 V2
D_A 3
$B_\emptyset$ 7 KE4-2 AC12H FØ2 M1 KE4-2 ADD12H FØ2H1
D_B 2

7482 E2Ø: Σ_2 12, C_2 10, B_2 13, A_2 14, Σ_1 1, A_1 2, B_1 3, $C_\emptyset$ 5
7482 E21: Σ_2 12, C_2 10, B_2 13, A_2 14, Σ_1 1, B_1 3, A_1 2, $C_\emptyset$ 5

EØ2 T2 KE4-2 CARRY OUT H
KE4-2 CARRY 11 H

E13 E14 E15 E16

EØ2U2 KE2-2 EXTRA 2 H
EØ2S1 KE2-4 ACFWD HI H
EØ2R1 KE2-2 GATE X H
EØ2P2 KE2-2 GATE ~X H

EØ2N2 KE4-2 X05 H
7474 E7 (D 12, C 11)
7474 E7 (D 2, C 3)
7474 E9 (D 12, C 11)
7474 E9 (D 2, C 3)

EØ2M2 KE2-4 CLK X HI L

EØ2 L2 KE5-5 D13 H
EØ2 M1 KE5-5 D14H
EØ2 F2 KE5-5 D13H
EØ2 K2 KE5-5 D12 H

E19 E25 E32 E33

FØ2T2 KE2-2 AC SHF RT H
FØ2N2 KE2-4 ADD FM AC HI H
FØ2L2 KE2-2 AC SHF LFT H
FØ2U1 KE4-2 AC11 H

FØ2D1
FØ2A1 KE2-2 AC15 SHF LFT H
FØ2C1 KE2-4 AC15 GATE H
FØ2E1 KE2- AC15 IN H
FØ2K1
FØ2S1
FØ2R1
FØ2L1

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: KE11-A

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.	Aimee Campbell	DATE 10-26-70
CHK'D.		DATE 10-27-70
ENG.		DATE 11-2-70
PROJ. ENG.		DATE 11-2-70
PROD.		DATE 11/5/70

NEXT HIGHER ASSY: A-ML-KE11-A
SCALE
SHEET 3 OF 3

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: KE11-A REGISTERS HIGH BYTE
M234 KE4-2

SIZE D | CODE BS | NUMBER KE11-A-Ø3 | REV A
DIST.

REVISIONS | REV. | CHANGE NO. | CHK.

DEC FORM NO DRD 102A

PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION		PART NUMBER	QUANTITY
1	E4 E31	DEC 7400	I.C.	19-[illegible]	2
2	E5 E10	DEC 74H00	I.C.	19-[illegible]	2
3	E38	DEC 7402	I.C.	19-[illegible]004	1
4	E28 E32	DEC 7420	I.C.	19-05577	2
5	E17 E36	DEC 7430	I.C.	19-05578	2
6	E15 E16 E18	DEC 74H30	I.C.	19-09059	3
7	E24	DEC 7440	I.C.	19-05579	1
8	E3 E8 E13 E33	DEC 7450	I.C.	19-05580	4
9	E1 E6 E11	DEC 74H74	I.C.	19-09667	3
10	E2 E7 E12	DEC 7482	I.C.	19-05584	3
11	E30 E44	DEC 74H87	I.C.	19-09927	2
12	E21 E23 E25 E27 E37 E39 E41 E47	DEC 74153	I.C.	19-09937	8
13	E22 E26 E40 E42 E43	DEC 8815	I.C.	19-09713	5
14	E19 E20 E34 E46	DEC 8881	I.C.	19-09705	4
15	E9 E29 E35 E45	DEC 380	I.C.	19-09485	4
16	C1-C48	.01 MFD 100V 20%	CAP	10-01610	48
17	C49, C50, C51, C52	6.8 MFD 35V 20%	CAP	10-00067	4
18	R2	1000Ω 1/4W 5%	RES	13-00265	1
19	R1	3000Ω 1/4W 5%	RES	13-00432	1

NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KE11-A EAE MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.

2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED; MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPERATE PINS ARE USED; MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.

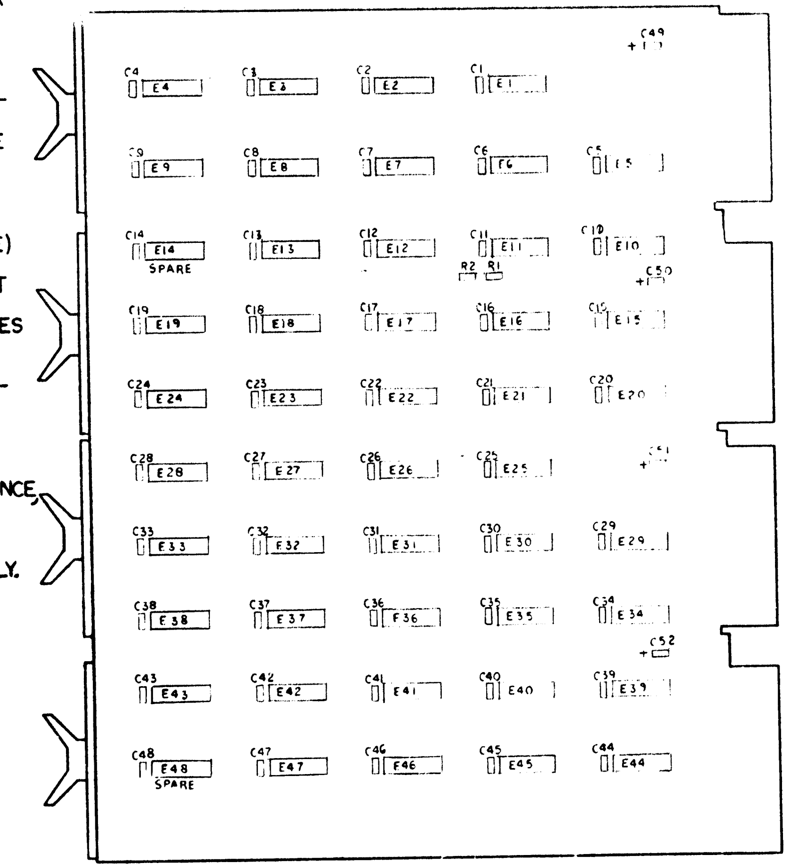
3. KE11 A SIGNAL SOURCE NOTATION (KE2-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE KE INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE KE PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK), THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE KE PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.

4. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE. PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.

5. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

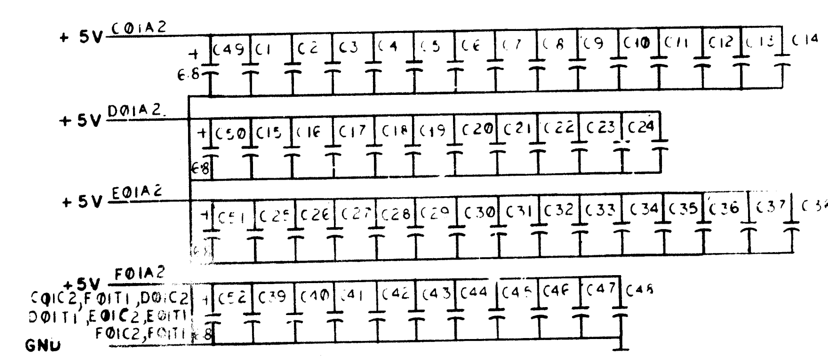
IC TYPE	GND	+5V
DEC 7482	PIN 11	PIN 4
DEC 74153	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 314	PIN 1	PIN 8

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KE11 A
A	C
B	D
C	E
D	F



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		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

DRN M. Scordava 10/16/70
CHK'D S. Rothman 10-16-70
ENG S. Rothman 10-16-70
PROJ ENG S. Rothman 10-16-70
PROD D. Cull 10/16/70

MATERIAL —
FINISH —
NEXT HIGHER ASSY A-ML-KE11 A
SCALE —
SHEET 1 OF 5

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE KE11-A DATA CONTROL
M7210 KE5-1

SIZE D CODE CS NUMBER M7210 0-1 REV. A

ETCH REV A

DIST. 1 Pink.

REVISIONS — CHANGE NO: ECO M7210-00701 ... ROTHMAN — REV A

KE2-4 BUS TO SC H CØIN1
KE5-4 DØ5 H EØIN1
KE2-4 NUM TO SC H DØID1
KE5-4 DØ4 H EØIK2
KE2-4 SC-1 TO SC L CØIK1
KE5-4 DØ3 H CØID2
KE2-4 SC-1 TO SC L CØIL1
KE5-4 DØ2 H CØIS1
KE5-4 DØ1 H EØIL2
KE5-4 DØØ H EØIN2
KE2-4 MUL+DIV START L DØIE1
KE1-2 DIVD H DØIJ1
KE1-4 CLR SC H CØLH2

E3 74SØ
E4 74ØØ
E8 74SØ
E13 74SØ
E5 74H ØØ
E10 74H ØØ
ADDER 7482 E2
ADDER 7482 E7
ADDER 7482 E12
E1 SCØ5 74H74
E1 SCØ4 74H74
E6 SCØ3 74H74
E6 SCØ2 74H74
E11 SCØ1 74H74
E11 SCØØ 74H74
E16 74H3Ø
E18 74H3Ø
E15 74H3Ø
E10 74H ØØ
E10 74H ØØ
E10 74H ØØ

R2 1K +5
R1 3K

CØIK2 KE5-2 SCØ5 H
CØIN2 KE5-2 SCØ5 L
DØIL2 KE5-2 SCØ4 H
CØIF1 KE5-2 SCØ4 L
CØIP1 KE5-2 SCØ3 H
DØIK1 KE5-2 SCØ2 H
DØIH2 KE5-2 SCØ2 L
DØIF2 KE5-2 SCØ1 H
DØID2 KE5-2 SCØ1 L
DØIE2 KE5-2 SCØØ H
DØIK2 KE5-2 SCØØ H
DØIN2 KE5-2 EXTRA L

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO	ITEM NO.
KE11-A		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. S ROTHMAN	DATE 5-4-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D S ROTHMAN	DATE 10-16-70	
ENG. J Lattman	DATE 10-16-70	TITLE KE11-A DATA CONTROL
PROJ. ENG. J Lattman	DATE 10-16-70	M2710 KL5-2
PROD. D Call	DATE 10/16/70	SIZE D CODE CS NUMBER M7210-0-1 REV. A
NEXT HIGHER ASSY A-ML-KE11-A		SCALE
SCALE		SHEET 2 OF 5 DIST.

KE3-2 MQØØ H — ØØIN1
KE3-2 MQØ1 H — ØØIV1
KE3-2 MQØ2 H — CØIU2
KE3-2 MQØ3 H — EØID2

KE3-2 MQØ4 H — EØIH1
KE3-2 MQØ5 H — EØIJ1
KE3-2 MQØ6 H — CØIU1
KE3-2 MQØ7 H — EØIK1

KE4-2 MQØ8 H — FØIE1
KE4-2 MQØ9 H — FØIF2
KE4-2 MQ10 H — FØIF1
KE4-2 MQ11 H — FØIH1

KE4-2 MQ12 H — FØN2
KE4-2 MQ13 H — EØIV1
KE4-2 MQ14 H — FØIK1
KE4-2 MQ15 H — FØIS1

KE4-2 AC13 H — EØIU2

KE2-3 AC15 L — FØIV1
KE1-4 AC14 L — FØIS2
KE4-2 AC12 H — EØIR1

KE4-2 AC15 H — FØIA1
KE4-2 AC14 H — FØIK2

KE4-2 AC11 H — FØIB1
KE4-2 AC10 H — FØIC1
KE4-2 AC07 H — FØIH2
KE4-2 AC06 H — FØIØ2

KE4-2 AC07 H — EØIL1
KE3-2 AC06 L — DØIL1
KE3-2 AC05 H — EØIF1
KE3-2 AC04 H — CØID1

KE3-2 AC03 H — CØIB1
KE3-2 AC02 L — CØIV1
KE3-2 AC01 L — DØIU1
KE3-2 AC00 L — DØIM1

KE2-4 MQ15 L — FØIU2
KE2-3 BAC15 H — EØS1

E22 8815 — E28 7428 — E31 7400 — FØIN1 KE5-3 MQ07 H
E26 8815
E40 8815
E42 8815

E43 8815 — E43 8815 — FØIV1 KE5-3 AC15 H
E42 8815
E40 8815
E26 8815
E22 8815

E32 7420 — E32 7420 — E38 7402 — EØIV2 KE5-3 EØU2 H
E31 7400 — EØIP2 KE5-3 AC07 L
EØIP1 KE5-3 AC14 H

E33 7450 — E31 7400 — FØIE2 KE5-3 AC01 11

E36 7430 — E38 7402 — FØIT2 KE5-3 AC177777 H
E17 7420

REVISIONS		
REV	CHANGE NO	CHK

DEC FORM NO. GHD 102A

FIRST USED ON OPTION MODEL: KE11-A

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

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

DRN. S ROTHMAN	DATE 9-5-70	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE 10-16-70	
ENG.	DATE 10-26-70	
PROJ. ENG.	DATE 10-10-70	
PROD.	DATE 10/26/70	

NEXT HIGHER ASSY: A-ML-KE11-A

TITLE: KE11-A DATA CONTROL M7210 KE5-3

SIZE D — CODE CS — NUMBER M7210-0- — REV. A

SCALE

SHEET 3 OF 5

DIST.

KE3-2 AC07 H — E01L1
KE3-2 MQ07 H — E01K1

KE3-2 AC06 H — D01L1
KE3 2 MQ06 H — C01W1

KE3-2 AC05 H — E01C1
KE3-2 MQ05 H — E01N1
KE5-2 SC05 H — C01K2

KE3-2 AC04 H — E01D1
KE3-2 MQ04 H — E01H1
KE5-2 SC04 H — D01L2

KE3-2 AC03 H — C01R1
KE3-2 MQ03 H — E01D2
KE5-2 SC03 H — C01P1

KE3-2 AC02 H — C01V1
KE3-2 MQ02 H — C01U2
KE5-2 SC02 H — D01K1

KE3-2 AC01 H — D01U1
KE3-2 MQ01 H — D01V1
KE5-2 SC01 H — D01D2

KE3-2 AC00 H — D01M1
KE3-2 MQ00 H — D01N1
KE5-2 SC00 H — D01K2

KE1-4 INH — E01E1
KE1-3 SELECT H — C01V2
KE1-2 EAE ADRS H — E01V2

KE1-2 MQ L — C01D1
KE1-2 AC L — C01H1

KE1-2 SR L — C01M1
KE1-2 NOR L — D01S1

MLPXR 74153 E27
MLPXR 74153 E25
MLPXR 74153 E23
MLPXR 74153 E21

E20 8681
E19 8681
E9 DEC380
E29 DEC880
E24 7440
E4 7400

D01F1 BUS D07 L
C01E2 KE5-4 D07 H
D01H1 BUS D06 L
C01N1 KE5-4 D06 H
D01P1 BUS D05 L
E01N1 KE5-4 D05 H
D01U2 BUS D04 L
E01K2 KE5-4 C04 H
C01E2 BUS D03 L
C01D2 KE5-4 D03 H
C01E1 BUS D02 L
C01S1 KE5-4 D02 H
E01M2 BUS D01 L
E01L2 KE5-4 D01 H
D01R1 BUS D00 L
E01N2 KE5-4 D00 H

KE5-4 DATA TO BUS L
KE5-4 AC+MQ H

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO. / ITEM NO.
KE11-A		PARTS LIST	

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

MATERIAL

FINISH

DRN. R. Bateman	DATE 7-14-70
CHKD. J. Latham	DATE 10-16-70
ENG. J. Latham	DATE 10-16-70
PROJ. ENG. J. Latham	DATE 10-16-70
PROD. R. Call	DATE 10/14/70

NEXT HIGHER ASSY
A-M7L-KE11-A

SCALE

SHEET 4 OF 5

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
KE11-A
DATA CONTROL
M7217 KE5-4

SIZE	CODE	NUMBER	REV.
D	CS	M7217-D-1	A

DIST.

REVISION RECORD
REV | CHANGE NO | CHK

REV A
SIZE D CODE CS NUMBER M7217-D-1

KE2-3 B AC15 H — E@1S1
KE4-2 MQ15 H — E@1S1
KE2-3 SR@7 H — E@1R1

KE4-2 AC14 H — E@1K2
KE4-2 MQ14 H — E@1K1
KE2-3 SR@6 H — E@1L1

MLPXR 74153 E47

KE4-2 AC12 H — E@1U2
KE4-2 MQ12 H — E@1V1
KE2-3 AC=MQ=77777 H — E@1T2

KE4-2 AC13 H — E@1R1
KE4-2 MQ13 H — E@1U2
KE5-3 AC=@ H — E@1P1

MLPXR 74153 E37

KE4-2 AC11 H — E@1B1
KE4-2 MQ11 H — E@1H1
KE5-3 MQ=@ H — E@1V2

KE4-2 AC10 H — E@1C1
KE4-2 MQ10 H — E@1F1
KE5-3 SR@2 H — E@1N1

MLPXR 74153 E41

KE5-4 DATA IN D@ L
KE5-4 AC+MQ H
KE1-2 AC L — C@1H1
KE1-2 SR L — C@1M1 2

E4 7400 3

KE4-2 AC@9 H — E@1H2
KE4-2 MQ9 H — E@1F2
KE5-3 SR@1 H — E@1E2

KE4-2 AC08 H — E@1D2
KE4-2 MQ8 H — E@1E1
KE2-3 SR@8 H — E@1D1

MLPXR 74153 E39

E46 8881 — E45 DEC388 — SGN EXT 74H87 E44 — E@1P1 H BUS D@ L
E46 8881 — E45 DEC388 — E@1R2 KE5-5 D@ H
E45 DEC388 — E@1P2 KE5-5 D@ H
E45 DEC388 — E@1N2 KE5-5 D@ H
E45 DEC388 — E@1M2 KE5-5 D@ H
E@1M1 BUS D@ L
E@1I1 BUS D@ L

E46 8881 — E34 8881 — E35 DEC388 — SGN EXT 74H87 E30 — E@1T2 BUS D@ L
E35 DEC388 — D@1R2 KE5-5 D@ H
E35 DEC388 — D@1S2 KE5-5 D@ H
E35 DEC388 — D@1M2 KE5-5 D@ H
E35 DEC388 — D@1N2 KE5-5 D@ H
E@1R2 BUS D@ L
E@1S2 BUS D@ L

KE5-4 D@7 H — C@1F2 — E3j 7400
E@1K1 BUS D@ L

KE1-4 OUT H L — D@1P2

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KE11-A		PARTS LIST		

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

MATERIAL

FINISH

DRN.	S ROTHMAN	DATE 4-4-72
CH'K'D.		DATE 10-16-72
ENG.		DATE 10-26-72
PROJ. ENG.		DATE 10-26-72
PROD.		DATE 10/26/72

NEXT HIGHER ASSY
A-ML-KE11-A

SCALE

SHEET 5 OF 5

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

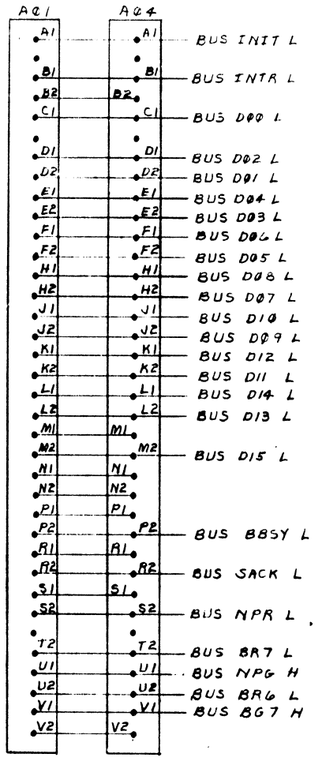
TITLE
KE11-A
DATA CONTROL
M7210 KE5-5

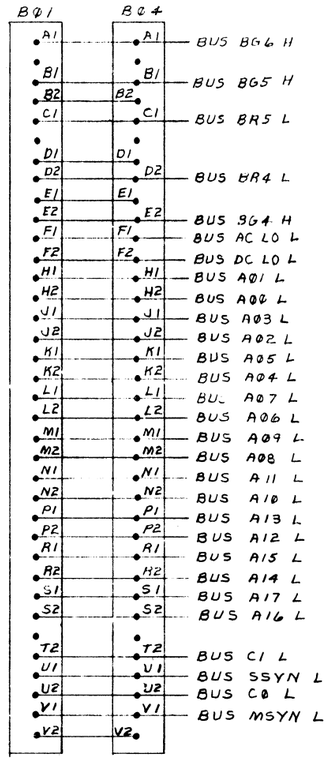
SIZE	CODE	NUMBER	REV.
D	CS	M7210-0-1	A

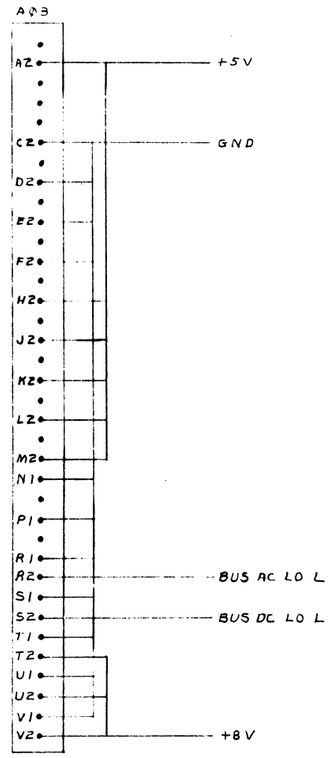
DIST.

REVISIONS | REV | CHANGE NO | CHK

DEC FORM NO DRD 102A







REVISIONS			
CHK	CHANGE NO	REV	
*BJ	KEIIA-00003	A	
	J SOFIO	1-17-74	

IC FORM NO 9D 100

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

FIRST USED ON OPTION/MODEL: KEII-A

DO NOT SCALE DRAWING

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

MATERIAL

FINISH

		DATE
DRN.		12-27-73
CHK'D		12-3-73
ENG.		12-3-73
PROJ. ENG.		12-3-73
PROD.		11/31/74

NEXT HIGHER ASSY: A-MLKEII-A

SCALE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KEII-A BUS & POWER CONNECTION

KLG-1

SIZE	CODE	NUMBER	REV.
D	IC	KEII-A-04	A

DIST.

	1	2	3	4
		X	G772	
A	M920 UNIBUS INTERNAL CONNECTOR OR BC11-A UNIBUS CABLE		POWER CONNECTOR	M920 UNIBUS TERMINATOR OR M920 UNIBUS INTERNAL CONNECTOR OR BC11-A UNIBUS CABLE
		W130		
B		KH11-A (OPTIONAL)	RESERVED	
	M7210	M234	M7211	M827
C	KE11-A DATA CONTROL	KE11-A REGISTERS LOW BYTE	KE11-A REGISTER CNTL	KE11-A CLOCK & STATES
D		M234		
E		KE11-A REGISTERS HIGH BYTE		
F				

REVISIONS	REV	CHANGE NO	CHK

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

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°7'
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRWN S ROTHMAN DATE 5-20-70
CHKD DATE 12-3-70
ENGR DATE 12-5-70
PROJ DATE 12-3-70
MGR DATE

NEXT HIGHER ASSY A-ML-KE11-A

SCALE

SHEET 1 OF 1

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
MODULE UTILIZATION

SIZE D CODE MU NUMBER KE11-A-MU REV.

DIST.

DEC FORM NO DRD 102A

SIZE D CODE MU KE11-A-MU REV.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

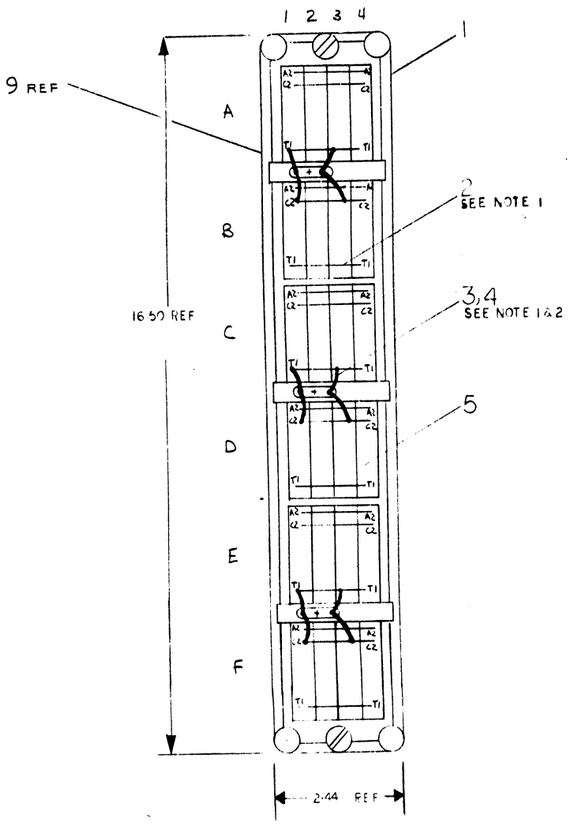
PARTS LIST

MADE BY K KRYSIACK DATE 10/2/70	CHECKED G. Bakay DATE 11/2/70	SECTION
ENG J Rothman DATE 11-3-70	PROD W Call DATE 11/3/70	ISSUED SECT.

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION KE11-A
	M234	REGISTERS	2
	M827	CLOCK + STATES	1
	M7210	KE11-A DATA CONTROL	1
	M7211	REGISTER CONTROL	1
	M920	UNIBUS CONNECTOR	1

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO
MODULE UTILIZATION	D-MU-KE11-A-MU	A	PL	KE11-A-MU		
	SHEET 1 OF 1	DIST.				

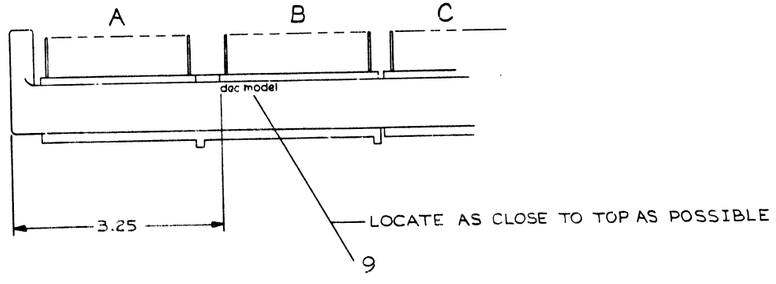
DEC FORM NO 16 1031
DRA 110



WIRE LIST

SIGNAL NAME	FROM PIN	TO PIN	LEVEL	COLOR	REMARKS
GND	AØ3D2	AØ3E2	1	BLACK	
	AØ3F2	AØ3N1	1		
	AØ3P1	AØ3R1	1		
	AØ3S1	AØ3T1	1		
	AØ3U1	AØ3V1	1		
	AØ3C2	AØ3D2	2		
	AØ3E2	AØ3F2	2		
	AØ3N1	AØ3P1	2		
	AØ3R1	AØ3S1	2		
	AØ3T1	AØ3U1	2	BLACK	
+5 VOLTS	AØ3A2	BØ1A2	1	RED	
	AØ3H2	BØ4A2	1		
	CØ1A2	DØ1A2	1		WIRES MUST RUN TO LEFT OF SLOT ONE
	EØ1A2	FØ1A2	1		
	AØ3J2	CØ1A2	2		
	AØ3K2	EØ1A2	2		
	CØ4A2	DØ4A2	1		WIRES MUST RUN TO RIGHT OF SLOT FOUR
	EØ4A2	FØ4A2	1		
	AØ3L2	CØ4A2	2		
	AØ3M2	EØ4A2	2	RED	
+8 VOLTS	AØ3T2	AØ3U2	1	ORANGE	
	AØ3V2	BØ2B1	1	ORANGE1	
	AØ3U2	AØ3V2	2	ORANGE	

NOTE: ALL WIRES #24 AWG



NOTES:
1. CONNECTION ON ITEMS 2 & 3 TO BE SPECIFIED AND LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
2. CONNECTOR BLOCKS TO BE GROUNDED TO GROUND LUG AS SHOWN.
3. ALL VERTICAL HAND WIRING TO RUN OUTSIDE OF CONNECTOR BLOCKS.

REVISIONS			
CHK	CHANGE NO		REV
	KE11A-C*001		A

ROTHMAN

FIRST USED ON OPTION/MODEL: KE11-A	QTY.	DESCRIPTION	PART NO. / ITEM NO.
UNLESS OTHERWISE SPECIFIED		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	DRN S ROTHMAN	DATE 7-14-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
	CHK'D	DATE	
	ENG	DATE	TITLE: KE11-A WIRED ASSEMBLY
	PROJ MGR	DATE	
MATERIAL	PROD	DATE 11/5/72	
	NEXT HIGHER ASSY A-ML-KE11-A		SIZE D, CODE AD, NUMBER 7007094-0-0, REV A
FINISH	SCALE		
	SHEET 1 OF 1		DIST.

DEC FORM NO DMD 1029A

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY K KRYSIAK 11/3/70	CHECKED L Hoffman 11/3/70	SECTION
ENG A Rothman 11-3-70	PROD D O'Neill 11/3/70	ISSUED SECT.

ITEM NO	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION KE11-A
1	D-AD-7006405-0-0	LOGIC FRAME ASSY SINGLE	1
2	1205541	BUS STRIP	A/R
3	9107560-01	#22 AWG BUS WIRE	A/R
4	9107265-09	#22 TUBING TEFLON, WHITE	A/R
5	9105740-44	#30 AWG SOLID KYNAR INS WIRE, YEL	A/R
6	9107470-00	#24 AWG SOLID KYNAR INS WIRE, BLK	A/R
7	9107470-22	#24 AWG SOLID KYNAR INS WIRE, RED	A/R
8	9107470-33	#24 AWG SOLID KYNAR INS WIRE, ORN	A/R
9	18-09805	SERIAL NUMBER DECAL	1
REF	K-WL-KE11-A-05	WIRE LIST	1

TITLE: WIRE ASSY (KE11-A)	ASSY NO. D-AD-7007094-0-0	SIZE A	CODE PL	NUMBER 7007094-0-0	REV A	ECO NO KE11A-00001
	SHEET 1 OF 1	DIST.				

DEC FORM NO 16 1031
DRA 110

DRWG NO	REVLTR
K WL KE11-A-05	A

REVISIONS

REV LTR	ECO NO	DATE	ENG
A	KE11A-3	1-74	JDS

DRAWN T.CHOLADA	DATE 10/20/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST KE11-A
CHECKED A. Hoffman	DATE 10/20/70		FOR TAPE* FILE*
ENG S Rothman	DATE 11-3-70		
PROJ ENG S Rothman	DATE 11-3-70	ASSY NO D-AD-7007094-0-0	SIZE K / CODE WL / DWG NO KE11-A-05 / REV LTR A
PROD D Call	DATE 11/3/70	SCALE / SHEET 1 OF 1	DIST.

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
A01B2		A01B2		1-01 *	C	KE6-1					1			CABLE	1
A01B2		A04B2		1-02 *	C	KE6-4								CABLE	1
A01B2				1									4-4/8		1
A01M1		A01M1		1-01 *	C	KE6-1					1			CABLE	2
A01M1		A04M1		1-02 *	C	KE6-1								CABLE	2
A01M1				1									4-4/8		2
A01N1		A01N1		1-01 *	C	KE6-1					1			CABLE	3
A01N1		A04N1		1-02 *	C	KE6-1								CABLE	3
A01N1				1									4-4/8		3
A01N2		A01N2		1-01 *	C	KE6-1					1			CABLE	4
A01N2		A04N2		1-02 *	C	KE6-1								CABLE	4
A01N2				1									4-4/8		4
A01P1		A01P1		1-01 *	C	KE6-1					1			CABLE	5
A01P1		A04P1		1-02 *	C	KE6-1								CABLE	5
A01P1				1									4-4/8		5
A01R1		A01R1		1-01 *	C	KE6-1					1			CABLE	6
A01R1		A04R1		1-02 *	C	KE6-1								CABLE	6
A01R1				1									4-4/8		6
A01S1		A01S1		1-01 *	C	KE6-1					1			CABLE	7
A01S1		A04S1		1-02 *	C	KE6-1								CABLE	7
A01S1				1									4-4/8		7
A01V2		A01V2		1-01 *	C	KE6-1					1			CABLE	8
A01V2		A04V2		1-02 *	C	KE6-1								CABLE	8
A01V2				1									4-4/8		8
BUS AC LO	L	A03R2		1-01 *	C	KE6-1					1			CABLE	9
BUS AC LO	L	B04F1		1-02 *	C	KE6-1					2			CABLE	9
BUS AC LO	L	B01F1		1-03 *	C	KE6-1								CABLE	9
BUS AC LO				1									9-4/8		9
BUS A00	L	B01H2		1-01 *	C	KE6-1					2			CABLE	10
BUS A00	L	B04H2		1-02 *	C	KE6-1					1			CABLE	10
BUS A00	L	D04N2		1-03 *		KE1								TERM HERE?	10
BUS A00				1									13-4/8		10
BUS A01	L	B01H1		1-01 *	C	KE6-1					2			CABLE	11
BUS A01	L	B04H1		1-02 *	C	KE6-1					1			CABLE	11
BUS A01	L	C04B1		1-03 *		KE1								TERM HERE?	11
BUS A01				1									9-4/8		11

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A02	L	B01J2		1-01 *	C	KE6-1					2			CABLE	12
BUS A02	L	B04J2		1-02 *	C	KE6-1					1			CABLE	12
BUS A02	L	C04C1		1-03 *		KE1								TERM HERE?	12
BUS A02				1									9-6/8		12
BUS A03	L	B01J1		1-01 *	C	KE6-1					2			CABLE	13
BUS A03	L	B04J1		1-02 *	C	KE6-1					1			CABLE	13
BUS A03	L	C04A1		1-03 *		KE1								TERM HERE?	13
BUS A03				1									9-2/8		13
BUS A04	L	B01K2		1-01 *	C	KE6-1					2			CABLE	14
BUS A04	L	B04K2		1-02 *	C	KE6-1					1			CABLE	14
BUS A04	L	C04A2		1-03 *		KE1								TERM HERE?	14
BUS A04				1									10-6/8		14
BUS A05	L	B01K1		1-01 *	C	KE6-1					2			CABLE	15
BUS A05	L	B04K1		1-02 *	C	KE6-1					1			CABLE	15
BUS A05	L	C04T2		1-03 *		KE1								TERM HERE?	15
BUS A05				1									11-2/8		15
BUS A06	L	B01L2		1-01 *	C	KE6-1					2			CABLE	16
BUS A06	L	B04L2		1-02 *	C	KE6-1					1			CABLE	16
BUS A06	L	C04K2		1-03 *		KE1								TERM HERE?	16
BUS A06				1									10-0/8		16
BUS A07	L	B01L1		1-01 *	C	KE6-1					2			CABLE	17
BUS A07	L	B04L1		1-02 *	C	KE6-1					1			CABLE	17
BUS A07	L	C04K1		1-03 *		KE1								TERM HERE?	17
BUS A07				1									10-0/8		17
BUS A08	L	B01M2		1-01 *	C	KE6-1					2			CABLE	18
BUS A08	L	B04M2		1-02 *	C	KE6-1					1			CABLE	18
BUS A08	L	C04S2		1-03 *		KE1								TERM HERE?	18
BUS A08				1									10-4/8		18
BUS A09	L	B01M1		1-01 *	C	KE6-1					2			CABLE	19
BUS A09	L	B04M1		1-02 *	C	KE6-1					1			CABLE	19
BUS A09	L	C04L1		1-03 *		KE1								TERM HERE?	19
BUS A09				1									10-0/8		19
BUS A10	L	B01N2		1-01 *	C	KE6-1					2			CABLE	20
BUS A10	L	B04N2		1-02 *	C	KE6-1					1			CABLE	20
BUS A10	L	C04M1		1-03 *		KE1								TERM HERE?	20
BUS A10				1									10-2/8		20

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS A11	L	B01N1		1-01 *	C	KE6-1		2			CABLE	21
BUS A11	L	B04N1		1-02 *	C	KE6-1		1			CABLE	21
BUS A11	L	C04H1		1-03 *		KE1					TERM HERE?	21
BUS A11				1						9-4/8		21
BUS A12	L	B01P2		1-01 *	C	KE6-1		2			CABLE	22
BUS A12	L	B04P2		1-02 *	C	KE6-1		1			CABLE	22
BUS A12	L	C04F1		1-03 *		KE1					TERM HERE?	22
BUS A12				1						9-2/8		22
BUS A13	L	B01P1		1-01 *	C	KE6-1		2			CABLE	23
BUS A13	L	B04P1		1-02 *	C	KE6-1		1			CABLE	23
BUS A13	L	C04E1		1-03 *		KE1					TERM HERE?	23
BUS A13				1						9-0/8		23
BUS A14	L	B01R2		1-01 *	C	KE6-1		1			CABLE	24
BUS A14	L	B04R2		1-02 *	C	KE6-1		2			CABLE	24
BUS A14	L	C04D1		1-03 *		KE1					TERM HERE?	24
BUS A14				1						9-0/8		24
BUS A15	L	B01R1		1-01 *	C	KE6-1		1			CABLE	25
BUS A15	L	B04R1		1-02 *	C	KE6-1		2			CABLE	25
BUS A15	L	C04D2		1-03 *		KE1					TERM HERE?	25
BUS A15				1						9-0/8		25
BUS A16	L	B01S2		1-01 *	C	KE6-1		1			CABLE	26
BUS A16	L	B04S2		1-02 *	C	KE6-1		2			CABLE	26
BUS A16	L	C04E2		1-03 *		KE1					TERM HERE?	26
BUS A16				1						8-6/8		26
BUS A17	L	B01S1		1-01 *	C	KE6-1		1			CABLE	27
BUS A17	L	B04S1		1-02 *	C	KE6-1		2			CABLE	27
BUS A17	L	C04F2		1-03 *		KE1					TERM HERE?	27
BUS A17				1						9-2/8		27
BUS BBSY	L	A01P2		1-01 *	C	KE6-1		1			CABLE	28
BUS BBSY	L	A04P2		1-02 *	C	KE6-1					CABLE	28
BUS BBSY				1						4-4/8		28
BUS BG4	H	B01E2		1-01 *	C	KE6-1		1			CABLE	29
BUS BG4	H	B04E2		1-02 *	C	KE6-1					CABLE	29
BUS BG4				1						4-4/8		29
BUS BG5	H	B01B1		1-01 *	C	KE6-1		1			CABLE	30
BUS BG5	H	B04B1		1-02 *	C	KE6-1					CABLE	30
BUS BG5				1						4-4/8		30

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
BUS BG6	H	B01A1		1-01 *	C	KE6-1		1			CABLE	31
BUS BG6	H	B04A1		1-02 *	C	KE6-1					CABLE	31
BUS BG6				1						4-4/8		31
BUS BG7	H	A01V1		1-01 *	C	KE6-1		1			CABLE	32
BUS BG7	H	A04V1		1-02 *	C	KE6-1					CABLE	32
BUS BG7				1						4-4/8		32
BUS BR4	L	B01D2		1-01 *	C	KE6-1		1			CABLE	33
BUS BR4	L	B04D2		1-02 *	C	KE6-1					CABLE	33
BUS BR4				1						4-4/8		33
BUS BR5	L	B01C1		1-01 *	C	KE6-1		1			CABLE	34
BUS BR5	L	B04C1		1-02 *	C	KE6-1					CABLE	34
BUS BR5				1						4-4/8		34
BUS BR6	L	A01U2		1-01 *	C	KE6-1		1			CABLE	35
BUS BR6	L	A04U2		1-02 *	C	KE6-1					CABLE	35
BUS BR6				1						4-4/8		35
BUS BR7	L	A01T2		1-01 *	C	KE6-1		1			CABLE	36
BUS BR7	L	A04T2		1-02 *	C	KE6-1					CABLE	36
BUS BR7				1						4-4/8		36
BUS C0	L	B01U2		1-01 *	C	KE6-1		2			CABLE	37
BUS C0	L	B04U2		1-02 *	C	KE6-1		1			CABLE	37
BUS C0	L	D04S2		1-03 *		KE1					TERM HERE?	37
BUS C0				1						12-4/8		37
BUS C1	L	B01T2		1-01 *	C	KE6-1		2			CABLE	38
BUS C1	L	B04T2		1-02 *	C	KE6-1		1			CABLE	38
BUS C1	L	D04P2		1-03 *		KE1					TERM HERE?	38
BUS C1				1						12-4/8		38
BUS DC LO	L	A03S2		1-01 *	C	KE6-1		1			CABLE	39
BUS DC LO	L	B04F2		1-02 *	C	KE6-1		2			CABLE	39
BUS DC LO	L	B01F2		1-03 *	C	KE6-1					CABLE	39
BUS DC LO				1						9-6/8		39
BUS D00	L	A04C1		1-01 *	C	KE6-1		2			CABLE	40
BUS D00	L	A01C1		1-02 *	C	KE6-1		1			CABLE	40
BUS D00	L	D01R1		1-03 *		KE1					TERM HERE?	40
BUS D00				1						17-0/8		40

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	PIN NUMBER
BUS D01	L	A04D2		1-01	*	C	KE6-1				2			CABLE	41
BUS D01	L	A01D2		1-02	*	C	KE6-1				1			CABLE	41
BUS D01	L	E01M2		1-03	*		KE1						19-0/M	TERM HERE?	41
BUS D01				1											41
BUS D02	L	A04D1		1-01	*	C	KE6-1				2			CABLE	42
BUS D02	L	A01D1		1-02	*	C	KF6-1				1			CABLE	42
BUS D02	L	C01E1		1-03	*		KE1						13-0/9	TERM HERE?	42
BUS D02				1											42
BUS D03	L	A04E2		1-01	*	C	KE6-1				2			CABLE	43
BUS D03	L	A01E2		1-02	*	C	KE6-1				1			CABLE	43
BUS D03	L	C01E2		1-03	*		KF1						12-6/8	TERM HERE?	43
BUS D03				1											43
BUS D04	L	A04E1		1-01	*	C	KE6-1				2			CABLE	44
BUS D04	L	A01E1		1-02	*	C	KE6-1				1			CABLE	44
BUS D04	L	D01U2		1-03	*		KE1						17-2/8	TERM HERE?	44
BUS D04				1											44
BUS D05	L	A04F2		1-01	*	C	KE6-1				2			CABLE	45
BUS D05	L	A01F2		1-02	*	C	KE6-1				1			CABLE	45
BUS D05	L	D01P1		1-03	*		KF1						16-6/8	TERM HERE?	45
BUS D05				1											45
BUS D06	L	A04F1		1-01	*	C	KE6-1				2			CABLE	46
BUS D06	L	A01F1		1-02	*	C	KE6-1				1			CABLE	46
BUS D06	L	D01H1		1-03	*		KE1						15-6/8	TERM HERE?	46
BUS D06				1											46
BUS D07	L	A04H2		1-01	*	C	KE6-1				2			CABLE	47
BUS D07	L	A01H2		1-02	*	C	KE6-1				1			CABLE	47
BUS D07	L	D01F1		1-03	*		KE1						15-4/8	TERM HERE?	47
BUS D07				1											47
BUS D08	L	A04H1		1-01	*	C	KE6-1				2			CABLE	48
BUS D08	L	A01H1		1-02	*	C	KE6-1				1			CABLE	48
BUS D08	L	E01S2		1-03	*		KE1						19-2/8	TERM HERE?	48
BUS D08				1											48
BUS D09	L	A04J2		1-01	*	C	KE6-1				2			CABLE	49
BUS D09	L	A01J2		1-02	*	C	KE6-1				1			CABLE	49
BUS D09	L	E01R2		1-03	*		KE1						18-6/8	TERM HERE?	49
BUS D09				1											49

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	O	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	PIN NUMBER
BUS D10	L	A04J1		1-01	*	C	KE6-1				2			CABLE	50
BUS D10	L	A01J1		1-02	*	C	KE6-1				1			CABLE	50
BUS D10	L	E01T2		1-03	*		KE1						19-4/M	TERM HERE?	50
BUS D10				1											50
BUS D11	L	A04K2		1-01	*	C	KE6-1				2			CABLE	51
BUS D11	L	A01K2		1-02	*	C	KE6-1				1			CABLE	51
BUS D11	L	E01U1		1-03	*		KE1						19-2/M	TERM HERE?	51
BUS D11				1											51
BUS D12	L	A04K1		1-01	*	C	KE6-1				2			CABLE	52
BUS D12	L	A01K1		1-02	*	C	KE6-1				1			CABLE	52
BUS D12	L	F01M1		1-03	*		KE1						21-0/M	TERM HERE?	52
BUS D12				1											52
BUS D13	L	A04L2		1-01	*	C	KE6-1				4			CABLE	53
BUS D13	L	A01L2		1-02	*	C	KE6-1				1			CABLE	53
BUS D13	L	E01M1		1-03	*		KE1						1M-4/M	TERM HERE?	53
BUS D13				1											53
BUS D14	L	A04L1		1-01	*	C	KF6-1				2			CABLE	54
BUS D14	L	A01L1		1-02	*	C	KE6-1				1			CABLE	54
BUS D14	L	F01N1		1-03	*		KE1						21-0/M	TERM HERE?	54
BUS D14				1											54
BUS D15	L	A04M2		1-01	*	C	KE6-1				2			CABLE	55
BUS D15	L	A01M2		1-02	*	C	KE6-1				1			CABLE	55
BUS D15	L	F01P1		1-03	*		KE1						21-2/M	TERM HERE?	55
BUS D15				1											55
BUS INIT	L	A01A1		1-01	*	C	KE6-1				2			CABLE	56
BUS INIT	L	A04A1		1-02	*	C	KE6-1				1			CABLE	56
BUS INIT	L	D04P2		1-03	*		KF1						17-4/M	TERM HERE?	56
BUS INIT				1											56
BUS INTR	L	AC1B1		1-01	*	C	KE6-1				1			CABLE	57
BUS INTR	L	A04P1		1-02	*	C	KE6-1				2			CABLE	57
BUS INTR				1									4-4/M		57
BUS MSYN	L	B01V1		1-01	*	C	KE6-1				1			CABLE	58
BUS MSYN	L	B04V1		1-02	*	C	KE6-1				2			CABLE	58
BUS MSYN	L	C04U1		1-03	*		KE1							TERM HERE?	58
BUS MSYN				1											58
BUS NPG	H	A01U1		1-01	*	C	KE6-1				1			CABLE	59
BUS NPG	H	A04U1		1-02	*	C	KE6-1				2			CABLE	59
BUS NPG				1									4-4/M		59

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	NUMBER
BUS NPR	L	A01B2		1-01 *	C	KE6-1			1			CABLE	51
BUS NPR	L	A04B2		1-02 *	C	KE6-1						CABLE	51
BUS NPR				1							4-4/8		51
BUS SACK	L	A01A4		1-01 *	C	KE6-1			1			CABLE	51
BUS SACK	L	A04A2		1-02 *	C	KE6-1						CABLE	51
BUS SACK				1							4-4/8		51
BUS SSYN	L	B01U1		1-01 *	C	KE6-1			2			CABLE	52
BUS SSYN	L	B04U1		1-02 *	C	KE6-1			1			CABLE	52
BUS SSYN	L	F04V2		1-03 *		KE1						TERM RESET	52
BUS SSYN				1							14-4/8		52
B01B2		B01B2		1-01 *	C	KE6-1			1			CABLE	53
B01B2		B04B2		1-02 *	C	KE6-1						CABLE	53
B01B2				1							4-4/8		53
B01D1		B01D1		1-01 *	C	KE6-1			1			CABLE	54
B01D1		B04D1		1-02 *	C	KE6-1						CABLE	54
B01D1				1							4-4/8		54
B01E1		B01E1		1-01 *	C	KE6-1			1			CABLE	55
B01E1		B04E1		1-02 *	C	KE6-1						CABLE	55
B01E1				1							4-4/8		55
B01V2		B01V2		1-01 *	C	KE6-1			1			CABLE	56
B01V2		B04V2		1-02 *	C	KE6-1						CABLE	56
B01V2				1							4-4/8		56
GND 01		A01C2		1-01 *					1				57
GND 01		A01T1		1-02 *					2				57
GND 01		B01C2		1-03 *					1				57
GND 01		B01T1		1-04 *					2				57
GND 01		C01C2		1-05 *					1				57
GND 01		C01T1		1-06 *					2				57
GND 01		D01C2		1-07 *					1				57
GND 01		D01T1		1-08 *					2				57
GND 01		E01C2		1-09 *					1				57
GND 01		E01T1		1-10 *					2				57
GND 01		F01C2		1-11 *					1				57
GND 01		F01T1		1-12 *									57
GND 01				1							49-2/8		57

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	NUMBER
GND 02		A02C2		1-01 *					2				58
GND 02		A02T1		1-02 *					1				58
GND 02		B02C2		1-03 *					2				58
GND 02		B02T1		1-04 *					1				58
GND 02		C02C2		1-05 *					2				58
GND 02		C02T1		1-06 *					1				58
GND 02		D02C2		1-07 *					2				58
GND 02		D02D1		1-08 *		KE4			1				58
GND 02		D02K1		1-09 *		KE4			2				58
GND 02		D02P2		1-10 *		KE4			1				58
GND 02		D02R1		1-11 *		KE4			2				58
GND 02		D02S2		1-12 *		KE4			1				58
GND 02		D02T1		1-13 *					2				58
GND 02		D02S1		1-14 *		KE4			1				58
GND 02		D02U2		1-15 *		KE4			2				58
GND 02		E02C2		1-16 *					1				58
GND 02		E02T1		1-17 *					2				58
GND 02		F02C2		1-18 *					1				58
GND 02		F02D1		1-19 *		KE4			2				58
GND 02		F02K1		1-20 *		KE4			1				58
GND 02		F02L1		1-21 *		KE4			2				58
GND 02		F02P2		1-22 *		KE4			1				58
GND 02		F02R1		1-23 *		KE4			2				58
GND 02		F02S2		1-24 *		KE4			1				58
GND 02		F02T1		1-25 *					2				58
GND 02		F02S1		1-26 *		KE4			1				58
GND 02		F02U2		1-27 *		KE4			2				58
GND 02		F02V1		1-28 *		KE4							58
GND 02				1							81-3/8		58
GND 03		B03C2		1-01 *					2				59
GND 03		B03T1		1-02 *					1				59
GND 03		C03C2		1-03 *					2				59
GND 03		C03T1		1-04 *					1				59
GND 03		D03C2		1-05 *					2				59
GND 03		D03T1		1-06 *					1				59
GND 03		E03C2		1-07 *					2				59
GND 03		E03T1		1-08 *					1				59
GND 03		F03C2		1-09 *					2				59
GND 03		F03T1		1-10 *									59
GND 03				1							40-2/8		59

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	ROW NUMBER
GND 04		A04C2		1-01 *				2				70
GND 04		A04T1		1-02 *				1				70
GND 04		B04C2		1-03 *				2				70
GND 04		B04T1		1-04 *				1				70
GND 04		C04C2		1-05 *				2				70
GND 04		C04T1		1-06 *				1				70
GND 04		D04C2		1-07 *				2				70
GND 04		D04T1		1-08 *				1				70
GND 04		E04C2		1-09 *				2				70
GND 04		E04T1		1-10 *				1				70
GND 04		F04C2		1-11 *				2				70
GND 04		F04T1		1-12 *								70
GND 04				1						49-2/6		70
KEM-2 MAINT CLK	L	B02U1		1-01 *		KEM-2		1				71
KEM-2 MAINT CLK	L	F04M2		1-02 *		KE1						71
KEM-2 MAINT CLK				1						14-0/6		71
KEM-2 MAINT ENBL	L	B02V2		1-01 *		KEM-2		1				72
KEM-2 MAINT ENBL	L	F04U1		1-02 *		KE1						72
KEM-2 MAINT ENBL				1						14-0/6		72
KE1-2 AC	H	D04F2		1-01 *		KE1		1				73
KE1-2 AC	H	E03M1		1-02 *		KE2						73
KE1-2 AC				1						7-0/8		73
KE1-2 AC	L	C01H1		1-01 *		KE5		2				74
KE1-2 AC	L	C04L2		1-02 *		KE1		1				74
KE1-2 AC	L	F03P2		1-03 *		KE2						74
KE1-2 AC				1						17-2/6		74
KE1-2 AC+MQ	H	C04P2		1-01 *		KE1		1				75
KE1-2 AC+MQ	H	E03V2		1-02 *		KE2						75
KE1-2 AC+MQ				1						9-2/6		75
KE1-2 AC+MQ	L	D04A1		1-01 *		KE1		1				76
KE1-2 AC+MQ	L	F03B1		1-02 *		KE2						76
KE1-2 AC+MQ				1						6-6/8		76
KE1-2 ASHF	H	B02F2		1-01 *		KEM-2		1				77
KE1-2 ASHF	H	D03E1		1-02 *		KE2		2				77
KE1-2 ASHF	H	D04V2		1-03 *		KE1						77
KE1-2 ASHF				1						13-6/6		77
KE1-2 ASHF	L	D04E1		1-01 *		KE1		1				78
KE1-2 ASHF	L	F03P1		1-02 *		KE2						78
KE1-2 ASHF				1						9-6/8		78

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	ROW NUMBER
KE1-2 ASHF+LSHF	H	C03E1		1-01 *		KE2		1				79
KE1-2 ASHF+LSHF	H	D04L2		1-02 *		KE1						79
KE1-2 ASHF+LSHF				1						7-2/6		79
KE1-2 ASH+LSH	H	E04T2		1-01 *		KE1		1				80
KE1-2 ASH+LSH	H	F03N1		1-02 *		KE2						80
KE1-2 ASH+LSH				1						6-0/8		80
KE1-2 DIVD	H	B02M2		1-01 *		KEM-2		2				81
KE1-2 DIVD	H	C03D2		1-02 *		KE2		1				81
KE1-2 DIVD	H	D01J1		1-03 *		KE5		2				81
KE1-2 DIVD	H	D04U2		1-04 *		KE1						81
KE1-2 DIVD				1						16-1/6		81
KE1-2 DIVD	L	C03A1		1-01 *		KE2		1				82
KE1-2 DIVD	L	D04V1		1-02 *		KE1						82
KE1-2 DIVD				1						8-4/8		82
KE1-2 EAE ADRS	H	C04J2		1-01 *		KE1		1				83
KE1-2 EAE ADRS	H	F01V2		1-02 *		KE5						83
KE1-2 EAE ADRS				1						13-6/8		83
KE1-2 LSHF	H	B02E1		1-01 *		KEM-2		2				84
KE1-2 LSHF	H	C03P1		1-02 *		KE2		1				84
KE1-2 LSHF	H	E04H2		1-03 *		KE1						84
KE1-2 LSHF				1						15-2/6		84
KE1-2 MQ	H	D04B1		1-01 *		KE1		1				85
KE1-2 MQ	H	E03P2		1-02 *		KE2						85
KE1-2 MQ				1						7-2/8		85
KE1-2 MQ	L	C01D1		1-01 *		KE5		2				86
KE1-2 MQ	L	C04H2		1-02 *		KE1		1				86
KE1-2 MQ	L	F03M2		1-03 *		KE2						86
KE1-2 MQ				1						17-0/6		86
KE1-2 MUL+DIV	H	D04C1		1-01 *		KE1		1				87
KE1-2 MUL+DIV	H	F03C1		1-02 *		KE2						87
KE1-2 MUL+DIV				1						8-6/8		87
KE1-2 MULT	H	B02S1		1-01 *		KEM-2		2				88
KE1-2 MULT	H	D04K2		1-02 *		KE1		1				88
KE1-2 MULT	H	F03J2		1-03 *		KE2						88
KE1-2 MULT				1						17-2/8		88

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE1-2 MULT	L	D04J1		1-01 *		KE1		1				89
KE1-2 MULT	L	E03K1		1-02 *		KE2						89
KE1-2 MULT				1						6-2/8		89
KE1-2 MULT+DIVD	H	C03		1-01 *		KE2		1				90
KE1-2 MULT+DIVD	H	F04U2		1-02 *		KE1						90
KE1-2 MULT+DIVD				1						11-4/8		90
KE1-2 NOR	L	D01S1		1-01 *		KE5		1				91
KE1-2 NOR	L	F03J1		1-02 *		KE2		2				91
KE1-2 NOR	L	F04V1		1-03 *		KE1						91
KE1-2 NOR				1						13-2/8		91
KE1-2 NORM	H	B02J2		1-01 *		KEM-2		1				92
KE1-2 NORM	H	C04R1		1-02 *		KE1		2				92
KE1-2 NORM	H	D03N1		1-03 *		KE2						92
KE1-2 NORM				1						13-0/8		92
KE1-2 NORM	L	D03R1		1-01 *		KE2		1				93
KE1-2 NORM	L	E04F2		1-02 *		KE1						93
KE1-2 NORM				1						5-2/8		93
KE1-2 OP	H	D04J2				KE1					1-PIN RUN	94
KE1-2 SHIFTS	H	D03L2		1-01 *		KE2		1				95
KE1-2 SHIFTS	H	F04E1		1-02 *		KE1						95
KE1-2 SHIFTS				1						7-6/8		95
KE1-2 SR	H	E04V2		1-01 *		KE1		1				96
KE1-2 SR	H	F03S1		1-02 *		KE2						96
KE1-2 SR				1						6-2/8		96
KE1-2 SR	L	C01M1		1-01 *		KE5		1				97
KE1-2 SR	L	D04E2		1-02 *		KE1						97
KE1-2 SR				1						5-6/8		97
KE1-3 CLK GATE	H	B02L2		1-01 *		KEM-2		1				98
KE1-3 CLK GATE	H	E04U2		1-02 *		KE1						98
KE1-3 CLK GATE				1						12-4/8		98
KE1-3 CLK ON	H	B02H1		1-01 *		KEM-2		1				99
KE1-3 CLK ON	H	E04R2		1-02 *		KE1						99
KE1-3 CLK ON				1						13-0/8		99
KE1-3 CLK 1	H	B02H2		1-01 *		KEM-2		1				100
KE1-3 CLK 1	H	C04N2		1-02 *		KE1						100
KE1-3 CLK 1				1						7-2/8		100

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE1-3 CLK 2-0	H	B02N2		1-01 *		KEM-2		2				101
KE1-3 CLK 2-0	H	C03F1		1-02 *		KE2		1				101
KE1-3 CLK 2-0	H	D04H2		1-03 *		KE1						101
KE1-3 CLK 2-0				1						11-4/8		101
KE1-3 CLK 2-1	H	B02D2		1-01 *		KEM-2		1				102
KE1-3 CLK 2-1	H	F04B1		1-02 *		KE1						102
KE1-3 CLK 2-1				1						14-0/8		102
KE1-3 P MSYN	H	E03N2		1-01 *		KE2		1				103
KE1-3 P MSYN	H	E04E2		1-02 *		KE1						103
KE1-3 P MSYN				1						4-2/8		103
KE1-3 P MSYN	L	F03A1		1-01 *		KE2		1				104
KE1-3 P MSYN	L	F04M1		1-02 *		KE1						104
KE1-3 P MSYN				1						4-6/8		104
KE1-3 REG CLK 1	H	C04M2		1-01 *		KE1		1				105
KE1-3 REG CLK 1	H	E03S2		1-02 *		KE2						105
KE1-3 REG CLK 1				1						9-2/8		105
KE1-3 REG CLK 2	H	E03R2		1-01 *		KE2		1				106
KE1-3 REG CLK 2	H	E04S2		1-02 *		KE1						106
KE1-3 REG CLK 2				1						2-7/8		106
KE1-3 RUN	H	B02E2		1-01 *		KEM-2		2				107
KE1-3 RUN	H	F03K1		1-02 *		KE2		1				107
KE1-3 RUN	H	F04N1		1-03 *		KE1						107
KE1-3 RUN				1						16-0/8		107
KE1-3 RUN	L	C03H1		1-01 *		KE2		1				108
KE1-3 RUN	L	F04A1		1-02 *		KE1						108
KE1-3 RUN				1						10-6/8		108
KE1-3 SELECT	H	B02R2		1-01 *		KEM-2		2				109
KE1-3 SELECT	H	C01V2		1-02 *		KE5		1				109
KE1-3 SELECT	H	E04N2		1-03 *		KE1						109
KE1-3 SELECT				1						15-4/8		109
KE1-3 SHIFT ENBL	H	E03U2		1-01 *		KE2		1				110
KE1-3 SHIFT ENBL	H	F04L2		1-02 *		KE1						110
KE1-3 SHIFT ENBL				1						5-4/8		110
KE1-3 START	H	D03M2		1-01 *		KE2		1				111
KE1-3 START	H	E04P2		1-02 *		KE1						111
KE1-3 START				1						6-2/8		111

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE1-4 AC 14	L	D04D2		1-01 *		KE1					1				112
KE1-4 AC 14	L	F01B2		1-02 *		KE5							11-2/8		112
KE1-4 AC 14			1												112
KE1-4 ADD EQ 00	L	C03K1		1-01 *		KE2				1					113
KE1-4 ADD EQ 00	L	F04F1		1-02 *		KE1							11-2/8		113
KE1-4 ADD EQ 00			1												113
KE1-4 CLK SC	H	C01H2		1-01 *		KE5					2				114
KE1-4 CLK SC	H	C03J2		1-02 *		KE2					1				114
KE1-4 CLK SC	H	F04E2		1-03 *		KE1							15-2/8		114
KE1-4 CLK SC			1												114
KE1-4 END	H	B02R1		1-01 *		KEM=2					1				115
KE1-4 END	H	E04W2		1-02 *		KE1							11-4/8		115
KE1-4 END			1												115
KE1-4 IN	H	E03V1		1-01 *		KE2					2				116
KE1-4 IN	H	E04U2		1-02 *		KE1					1				116
KE1-4 IN	H	E01E1		1-03 *		KE5							9-6/8		116
KE1-4 IN			1												116
KE1-4 OFF	L	E04U1		1-01 *		KE1					1				117
KE1-4 OFF	L	F03V1		1-02 *		KE2							6-2/8		117
KE1-4 OFF			1												117
KE1-4 OUT	H	D04N1		1-01 *		KE1					1				118
KE1-4 OUT	H	E03N2		1-02 *		KE2							5-6/8		118
KE1-4 OUT			1												118
KE1-4 OUT HI	H	E04V1		1-01 *		KE1					1				119
KE1-4 OUT HI	H	F03R1		1-02 *		KE2							5-6/8		119
KE1-4 OUT HI			1												119
KE1-4 OUT HI	L	D01P2		1-01 *		KE5					1				120
KE1-4 OUT HI	L	E04K2		1-02 *		KE1							5-6/8		120
KE1-4 OUT HI			1												120
KE1-4 OUT LO	H	D04F1		1-01 *		KE1					1				121
KE1-4 OUT LO	H	E03P1		1-02 *		KE2							7-0/8		121
KE1-4 OUT LO			1												121
KE1-4 STOP	H	B02K1		1-01 *		KEM=2					2				122
KE1-4 STOP	H	C03V2		1-02 *		KE2					1				122
KE1-4 STOP	H	E04K1		1-03 *		KE1							14-6/8		122
KE1-4 STOP			1												122

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE1-4 TP1	H	E04D2				KE1								1-PIN RUN	123
KE2-2 AC SHF LFT	H	D02A1		1-01 *		KE3					2				124
KE2-2 AC SHF LFT	H	D02L2		1-02 *		KE3					1				124
KE2-2 AC SHF LFT	H	D03P1		1-03 *		KE2					2				124
KE2-2 AC SHF LFT	H	F02L2		1-04 *		KE4							15-3/8		124
KE2-2 AC SHF LFT			1												124
KE2-2 AC SHF RT	H	D02T2		1-01 *		KE3					2				125
KE2-2 AC SHF RT	H	E03J2		1-02 *		KE2					1				125
KE2-2 AC SHF RT	H	F02T2		1-03 *		KE4							12-2/8		125
KE2-2 AC SHF RT			1												125
KE2-2 AC 15 SHF LFT	H	E03H1		1-01 *		KE2					1				126
KE2-2 AC 15 SHF LFT	H	F02A1		1-02 *		KE4							5-4/8		126
KE2-2 AC 15 SHF LFT			1												126
KE2-2 CARRY IN	H	D02V2		1-01 *		KE3					1				127
KE2-2 CARRY IN	H	D03N2		1-02 *		KE2							3-7/8		127
KE2-2 CARRY IN			1												127
KE2-2 CLK AC HI	H	E03T2		1-01 *		KE2					1				128
KE2-2 CLK AC HI	H	F02N1		1-02 *		KE4							6-0/8		128
KE2-2 CLK AC HI			1												128
KE2-2 CLK AC LO	H	D02N1		1-01 *		KE3					1				129
KE2-2 CLK AC LO	H	E03S1		1-02 *		KE2							6-2/8		129
KE2-2 CLK AC LO			1												129
KE2-2 CLK MQ HI	H	E02R2		1-01 *		KE4					1				130
KE2-2 CLK MQ HI	H	E03L2		1-02 *		KE2							3-6/8		130
KE2-2 CLK MQ HI			1												130
KE2-2 CLK MQ LO	H	C02R2		1-01 *		KE3					1				131
KE2-2 CLK MQ LO	H	E03L1		1-02 *		KE2							8-0/8		131
KE2-2 CLK MQ LO			1												131
KE2-2 EXTRA	H	C02W2		1-01 *		KE3					2				132
KE2-2 EXTRA	H	C03W2		1-02 *		KE2					1				132
KE2-2 EXTRA	H	C02U2		1-03 *		KE3					2				132
KE2-2 EXTRA			1										8-6/8		132
KE2-2 EXTRA 2	H	D02L1		1-01 *		KE3					2				133
KE2-2 EXTRA 2	H	E03D1		1-02 *		KE2					1				133
KE2-2 EXTRA 2	H	E02H2		1-03 *		KE4					2				133
KE2-2 EXTRA 2	H	E02U2		1-04 *		KE4							12-3/8		133
KE2-2 EXTRA 2			1												133

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	X	Z	REMARKS
KE2-2 GATE -X	H	C02P2		1-01	*	KE3				1	
KE2-2 GATE -X	H	D03S2		1-02	*	KE2				2	
KE2-2 GATE -X	H	E02P2		1-03	*	KE4					
KE2-2 GATE -X				1							
KE2-2 GATE X	H	C02R1		1-01	*	KE3				1	
KE2-2 GATE X	H	D03T2		1-02	*	KE2				2	
KE2-2 GATE X	H	E02R1		1-03	*	KE4					
KE2-2 GATE X				1							
KE2-2 MQ SHF LFT	H	C02K1		1-01	*	KE3				1	
KE2-2 MQ SHF LFT	H	D03V1		1-02	*	KE2				2	
KE2-2 MQ SHF LFT	H	E02K1		1-03	*	KE4					
KE2-2 MQ SHF LFT				1							
KE2-2 MQ SHF RT	H	C02F1		1-01	*	KE3				2	
KE2-2 MQ SHF RT	H	E03F2		1-02	*	KE2				1	
KE2-2 MQ SHF RT	H	E02F1		1-03	*	KE4					
KE2-2 MQ SHF RT				1							
KE2-2 MQ 00 IN	H	C02D1		1-01	*	KE3				1	
KE2-2 MQ 00 IN	H	E03B1		1-02	*	KE2					
KE2-2 MQ 00 IN				1							
KE2-2 ODD	H	D03L1		1-01	*	KF2				1	
KE2-2 ODD	H	D04M2		1-02	*	KE1					
KE2-2 ODD				1							
KE2-3 AC 15	L	C03U1		1-01	*	KF2				1	
KE2-3 AC 15	L	C04U1		1-02	*	KF1				2	
KE2-3 AC 15	L	F01V1		1-03	*	KE5					
KE2-3 AC 15				1							
KE2-3 B AC 15	H	C03V1		1-01	*	KF2				1	
KE2-3 B AC 15	H	E01S1		1-02	*	KE5					
KE2-3 B AC 15				1							
KE2-3 DIVD DONE	H	D03C1		1-01	*	KE2				1	
KE2-3 DIVD DONE	H	D04U1		1-02	*	KE1					
KE2-3 DIVD DONE				1							
KE2-3 SR 00	H	B02P2		1-01	*	KEM=2				2	
KE2-3 SR 00	H	C03M2		1-02	*	KE2				1	
KE2-3 SR 00	H	D02V1		1-03	*	KE3				2	
KE2-3 SR 00	H	F01D1		1-04	*	KE5					
KE2-3 SR 00				1							

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LENGTH	EXCEPTIONS	NUMBER
		134
		134
12-2/M		134
		134
		135
		135
12-6/M		135
		135
		136
		136
12-4/M		136
		136
		137
		137
12-6/M		137
		137
		138
		138
8-4/M		138
		138
		139
		139
3-6/6		139
		139
		140
		140
18-0/M		140
		140
		141
		141
9-0/M		141
		141
		142
		142
5-2/M		142
		142
		143
		143
		143
		143
20-0/6		143
		143

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	X	Z	REMARKS
KE2-3 SR 06	H	B02C1		1-01	*	KEM-2				2	
KE2-3 SR 06	H	C03H2		1-02	*	KE2				1	
KE2-3 SR 06	H	F01L1		1-03	*	KE5					
KE2-3 SR 06				1							
KE2-3 SR 07	H	B02J1		1-01	*	KEM-2				2	
KE2-3 SR 07	H	C03E2		1-02	*	KE2				1	
KE2-3 SR 07	H	F01R1		1-03	*	KE5					
KE2-3 SR 07				1							
KE2-4 AC FM D HI	H	E02S1		1-01	*	KE4				1	
KE2-4 AC FM D HI	H	F03N2		1-02	*	KF2				1	
KE2-4 AC FM D HI				1							
KE2-4 AC FM D LO	H	C02S1		1-01	*	KE3				1	
KE2-4 AC FM D LO	H	F03R2		1-02	*	KE2				1	
KE2-4 AC FM D LO				1							
KE2-4 AC 15 GATE	H	F02C1		1-01	*	KE4				1	
KE2-4 AC 15 GATE	H	F03T2		1-02	*	KE2				1	
KE2-4 AC 15 GATE				1							
KE2-4 AC 15 IN	H	F02E1		1-01	*	KE4				1	
KE2-4 AC 15 IN	H	F03K2		1-02	*	KE2				1	
KE2-4 AC 15 IN				1							
KE2-4 ADD FM AC HI	H	F02N2		1-01	*	KE4				1	
KE2-4 ADD FM AC HI	H	F03F1		1-02	*	KF2				1	
KE2-4 ADD FM AC HI				1							
KE2-4 ADD FM AC LO	H	D02C1		1-01	*	KE3				2	
KE2-4 ADD FM AC LO	H	D02N2		1-02	*	KE3				1	
KE2-4 ADD FM AC LO	H	F03D1		1-03	*	KE2					
KE2-4 ADD FM AC LO				1							
KE2-4 BUS TO SC	H	C01J1		1-01	*	KE5				1	
KE2-4 BUS TO SC	H	F03L1		1-02	*	KE2				1	
KE2-4 BUS TO SC				1							
KE2-4 CLK X HI	H	E02M2		1-01	*	KE4				1	
KE2-4 CLK X HI	H	F03H1		1-02	*	KE2				1	
KE2-4 CLK X HI				1							
KE2-4 CLK X LO	H	C02M2		1-01	*	KE3				1	
KE2-4 CLK X LO	H	F03F1		1-02	*	KF2				1	
KE2-4 CLK X LO				1							

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LENGTH	EXCEPTIONS	NUMBER
		144
		144
19-7/M		144
		144
		145
		145
19-6/M		145
		145
		146
		146
8-7/M		146
		146
		147
		147
11-8/6		147
		147
		148
		148
5-9/M		148
		148
		149
		149
3-7/6		149
		149
		150
		150
4-0/M		150
		150
		151
		151
12-6/M		151
		151
		152
		152
12-2/M		152
		152
		153
		153
5-4/M		153
		153
		154
		154
10-8/6		154
		154

KE2-4 MQ FM D HI	H	E02J1		1-01 *	KE4			1					155
KE2-4 MQ FM D HI	H	F03L2		1-02 *	KE2								155
KE2-4 MQ FM D HI				1								6-6/8	155
KE2-4 MQ FM D LO	H	C03J1		1-01 *	KE3			1					156
KE2-4 MQ FM D LO	H	F03B2		1-02 *	KE2								156
KE2-4 MQ FM D LO				1								12-4/8	156
KE2-4 MQ 15	L	F01U2		1-01 *	KE5			1					157
KE2-4 MQ 15	L	F03U2		1-02 *	KE2								157
KE2-4 MQ 15				1								4-0/8	157
KE2-4 MUL÷DIV START	L	C03B1		1-01 *	KE2			2					158
KE2-4 MUL÷DIV START	L	D01E1		1-02 *	KE5			1					158
KE2-4 MUL÷DIV START	L	F03U1		1-03 *	KE2								158
KE2-4 MUL÷DIV START				1								18-0/8	158
KE2-4 NUM TO SC	H	D01D1		1-01 *	KE5			1					159
KE2-4 NUM TO SC	H	F03M1		1-02 *	KE2								159
KE2-4 NUM TO SC				1								10-0/8	159
KE2-4 SC+1 TO SC	L	C01K1		1-01 *	KE5			1					160
KE2-4 SC+1 TO SC	L	E03A1		1-02 *	KE2								160
KE2-4 SC+1 TO SC				1								8-2/8	160
KE2-4 SC-1 TO SC	L	C01L1		1-01 *	KE5			1					161
KE2-4 SC-1 TO SC	L	E03R1		1-02 *	KE2								161
KE2-4 SC-1 TO SC				1								9-6/8	161
KE3-2 AC 00	H	D01M1		1-01 *	KE5			1					162
KE3-2 AC 00	H	D02M2		1-02 *	KE3			2					162
KE3-2 AC 00	H	E02M1		1-03 *	KE4								162
KE3-2 AC 00				1								9-0/8	162
KE3-2 AC 01	H	D01U1		1-01 *	KE5			1					163
KE3-2 AC 01	H	D02R2		1-02 *	KE1								163
KE3-2 AC 01				1								4-2/8	163
KE3-2 AC 02	H	C01V1		1-01 *	KE5			1					164
KE3-2 AC 02	H	D02E2		1-02 *	KE3								164
KE3-2 AC 02				1								4-5/8	164
KE3-2 AC 03	H	C01R1		1-01 *	KE5			1					165
KE3-2 AC 03	H	D02U1		1-02 *	KE3								165
KE3-2 AC 03				1								6-4/8	165

KE3-2 AC 04	H	D02M1		1-01 *	KE3			1					166
KE3-2 AC 04	H	E01D1		1-02 *	KE5								166
KE3-2 AC 04				1								5-0/8	166
KE3-2 AC 05	H	D02J2		1-01 *	KE3			1					167
KE3-2 AC 05	H	E01F1		1-02 *	KE5								167
KE3-2 AC 05				1								6-0/8	167
KE3-2 AC 06	H	D01L1		1-01 *	KE5			1					168
KE3-2 AC 06	H	D02D2		1-02 *	KE3								168
KE3-2 AC 06				1								4-1/8	168
KE3-2 AC 07	H	D02B1		1-01 *	KE3			1					169
KE3-2 AC 07	H	E01L1		1-02 *	KE5			2					169
KE3-2 AC 07	H	F02K2		1-03 *	KE4								169
KE3-2 AC 07				1								13-2/8	169
KE3-2 ADD 00	H	D02J1		1-01 *	KE3			1					170
KE3-2 ADD 00	H	F04N2		1-02 *	KE1								170
KE3-2 ADD 00				1								10-0/8	170
KE3-2 ADD 01	H	D02H2		1-01 *	KE3			1					171
KE3-2 ADD 01	H	F04S1		1-02 *	KE1								171
KE3-2 ADD 01				1								10-0/8	171
KE3-2 ADD 02	H	D02F2		1-01 *	KE3			1					172
KE3-2 ADD 02	H	F04R1		1-02 *	KE1								172
KE3-2 ADD 02				1								10-0/8	172
KE3-2 ADD 03	H	D02P1		1-01 *	KE3			1					173
KE3-2 ADD 03	H	F04P1		1-02 *	KE1								173
KE3-2 ADD 03				1								9-2/8	173
KE3-2 ADD 04	H	D02H1		1-01 *	KE3			1					174
KE3-2 ADD 04	H	F04H1		1-02 *	KE1								174
KE3-2 ADD 04				1								9-2/8	174
KE3-2 ADD 05	H	C02V2		1-01 *	KE3			1					175
KE3-2 ADD 05	H	F04J1		1-02 *	KE1								175
KE3-2 ADD 05				1								10-4/8	175
KE3-2 ADD 06	H	D02F1		1-01 *	KE3			1					176
KE3-2 ADD 06	H	F04J2		1-02 *	KE1								176
KE3-2 ADD 06				1								9-6/8	176

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH		
KE3-2 ADD 07	H	C02D2		1-01	*	KE3					1				177
KE3-2 ADD 07	H	F04K2		1-02	*	KE1							12-4/0		177
KE3-2 ADD 07				1											177
KE3-2 CARRY 07	H	C02T2		1-01	*	KE3					1				178
KE3-2 CARRY 07	H	F02V2		1-02	*	KE4							11-2/0		178
KE3-2 CARRY 07				1											178
KE3-2 MQ 00	H	C02E1		1-01	*	KE3					1				179
KE3-2 MQ 00	H	D01N1		1-02	*	KE5					2				179
KE3-2 MQ 00	H	E03F1		1-03	*	KE2							12-2/0		179
KE3-2 MQ 00				1											179
KE3-2 MQ 01	H	C02E2		1-01	*	KE3					2				180
KE3-2 MQ 01	H	D03U1		1-02	*	KE2					1				180
KE3-2 MQ 01	H	D01V1		1-03	*	KE5							11-4/0		180
KE3-2 MQ 01				1											180
KE3-2 MQ 02	H	C01U2		1-01	*	KE5					1				181
KE3-2 MQ 02	H	C02J2		1-02	*	KE3							4-3/0		181
KE3-2 MQ 02				1											181
KE3-2 MQ 03	H	C02B2		1-01	*	KE3					1				182
KE3-2 MQ 03	H	E01D2		1-02	*	KE5							7-2/0		182
KE3-2 MQ 03				1											182
KE3-2 MQ 04	H	C02M1		1-01	*	KE3					1				183
KE3-2 MQ 04	H	E01H1		1-02	*	KE5							9-2/0		183
KE3-2 MQ 04				1											183
KE3-2 MQ 05	H	C02P1		1-01	*	KE3					1				184
KE3-2 MQ 05	H	E01J1		1-02	*	KE4							8-1/0		184
KE3-2 MQ 05				1											184
KE3-2 MQ 06	H	C01U1		1-01	*	KE5					1				185
KE3-2 MQ 06	H	C02C1		1-02	*	KE3							5-2/0		185
KE3-2 MQ 06				1											185
KE3-2 MQ 07	H	C02L1		1-01	*	KE3					2				186
KE3-2 MQ 07	H	E02D1		1-02	*	KE4					1				186
KE3-2 MQ 07	H	E01K1		1-03	*	KE5							11-6/0		186
KE3-2 MQ 07				1											186
KE3-2 X07	H	C02N2		K		KE3									187

1-PIN REF

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RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH		
KE4-2 AC 08	H	D02E1		1-01	*	KE3					2				189
KE4-2 AC 08	H	F01D2		1-02	*	KE5					1				189
KE4-2 AC 08	H	F02M2		1-03	*	KE4							12-4/0		189
KE4-2 AC 08				1											189
KE4-2 AC 09	H	F01H2		1-01	*	KE5					1				190
KE4-2 AC 09	H	F02R2		1-02	*	KE4							4-1/0		190
KE4-2 AC 09				1											190
KE4-2 AC 10	H	F01C1		1-01	*	KE5					1				191
KE4-2 AC 10	H	F02E2		1-02	*	KE4							6-1/0		191
KE4-2 AC 10				1											191
KE4-2 AC 11	H	F01B1		1-01	*	KE5					1				192
KE4-2 AC 11	H	F02U1		1-02	*	KE4							5-2/0		192
KE4-2 AC 11				1											192
KE4-2 AC 12	H	E01R1		1-01	*	KE5					1				193
KE4-2 AC 12	H	F02M1		1-02	*	KE4							5-0/0		193
KE4-2 AC 12				1											193
KE4-2 AC 13	H	E01U2		1-01	*	KE5					1				193
KE4-2 AC 13	H	F02J2		1-02	*	KE4							5-2/0		193
KE4-2 AC 13				1											193
KE4-2 AC 14	H	C03S1		1-01	*	KE2					1				194
KE4-2 AC 14	H	C04V1		1-02	*	KE1					2				194
KE4-2 AC 14	H	F02D2		1-03	*	KE4					1				194
KE4-2 AC 14	H	F01K2		1-04	*	KE5							17-4/0		194
KE4-2 AC 14				1											194
KE4-2 AC 15	H	D04D1		1-01	*	KE1					1				195
KE4-2 AC 15	H	D03F1		1-02	*	KE2					2				195
KE4-2 AC 15	H	F02B1		1-03	*	KE4					1				195
KE4-2 AC 15	H	F01A1		1-04	*	KE5							15-4/0		195
KE4-2 AC 15				1											195
KE4-2 ADD 08	H	F02J1		1-01	*	KE4					1				196
KE4-2 ADD 08	H	F04L1		1-02	*	KE1							9-2/0		196
KE4-2 ADD 08				1											196
KE4-2 ADD 09	H	F02H2		1-01	*	KE4					1				197
KE4-2 ADD 09	H	F04K1		1-02	*	KE1							4-0/0		197
KE4-2 ADD 09				1											197

KE11A,A WRP288,V22(22) 11/06/73 MAY -

RUN NAME	A/P	PIN NAME	ORDER PIN	ORDER
KE4-2 ADD 10	H	F02F2		1-01 *
KE4-2 ADD 10	H	F04F2		1-02 *
KE4-2 ADD 10				1
KE4-2 ADD 11	H	F02P1		1-01 *
KE4-2 ADD 11	H	F04H2		1-02 *
KE4-2 ADD 11				1
KE4-2 ADD 12	H	F02H1		1-01 *
KE4-2 ADD 12	H	F04P2		1-02 *
KE4-2 ADD 12				1
KE4-2 ADD 13	H	E02V2		1-01 *
KE4-2 ADD 13	H	F04R2		1-02 *
KE4-2 ADD 13				1
KE4-2 ADD 14	H	F02F1		1-01 *
KE4-2 ADD 14	H	F04S2		1-02 *
KE4-2 ADD 14				1
KE4-2 ADD 15	H	D03B1		1-01 *
KE4-2 ADD 15	H	E02D2		1-02 *
KE4-2 ADD 15	H	F04T2		1-03 *
KE4-2 ADD 15				1
KE4-2 CARRY OUT	H	C03L1		1-01 *
KE4-2 CARRY OUT	H	E02T2		1-02 *
KE4-2 CARRY OUT				1
KE4-2 MQ 08	H	C02H1		1-01 *
KE4-2 MQ 08	H	E02E1		1-02 *
KE4-2 MQ 08	H	F01E1		1-03 *
KE4-2 MQ 08				1
KE4-2 MQ 09	H	E02E2		1-01 *
KE4-2 MQ 09	H	F01F2		1-02 *
KE4-2 MQ 09				1
KE4-2 MQ 10	H	E02J2		1-01 *
KE4-2 MQ 10	H	F01F1		1-02 *
KE4-2 MQ 10				1
KE4-2 MQ 11	H	E02S2		1-01 *
KE4-2 MQ 11	H	F01H1		1-02 *
KE4-2 MQ 11				1

KE11A,A WRP288,V22(22) 11/06/73 MAY -

RUN NAME	A/P	PIN NAME	ORDER PIN	ORDER
KE4-2 MQ 12	H	E02N1		1-01 *
KE4-2 MQ 12	H	F01J2		1-02 *
KE4-2 MQ 12				1
KE4-2 MQ 13	H	E01Y1		1-01 *
KE4-2 MQ 13	H	F02P1		1-02 *
KE4-2 MQ 13				1
KE4-2 MQ 14	H	D03K1		1-01 *
KE4-2 MQ 14	H	E02C1		1-02 *
KE4-2 MQ 14	H	F01K1		1-03 *
KE4-2 MQ 14				1
KE4-2 MQ 15	H	D02K2		1-01 *
KE4-2 MQ 15	H	E02L1		1-02 *
KE4-2 MQ 15	H	F01S1		1-03 *
KE4-2 MQ 15	H	F03V2		1-04 *
KE4-2 MQ 15				1
KE4-2 X15	H	D03A1		1-01 *
KE4-2 X15	H	E02Y2		1-02 *
KE4-2 X15				1
KE5-2 EXTRA	L	D01J2		1-01 *
KE5-2 EXTRA	L	D03D1		1-02 *
KE5-2 EXTRA				1
KE5-2 SC EQ 00	H	C03A1		1-01 *
KE5-2 SC EQ 00	H	D01F2		1-02 *
KE5-2 SC EQ 00	H	D04T2		1-03 *
KE5-2 SC EQ 00				1
KE5-2 SC EQ 00	L	D01H2		1-01 *
KE5-2 SC EQ 00	L	E03J1		1-02 *
KE5-2 SC EQ 00				1
KE5-2 SC EQ 37	H	C04N1		1-01 *
KE5-2 SC EQ 37	H	L01E2		1-02 *
KE5-2 SC EQ 37				1
KE5-2 SC 00	H	B02D1		1-01 *
KE5-2 SC 00	H	D01K2		1-02 *
KE5-2 SC 00				1
KE5-2 SC 01	H	B02F1		1-01 *
KE5-2 SC 01	H	D01D2		1-02 *
KE5-2 SC 01				1

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE5-2 SC 02	H	B07		1-01 *		KEM-2		1				220
KE5-2 SC 02	H	D01K1		1-02 *		KE5						220
KE5-2 SC 02				1						6-6/8		220
KE5-2 SC 03	H	B02P1		1-01 *		KEM-2		1				221
KE5-2 SC 03	H	C01P1		1-02 *		KE5						221
KE5-2 SC 03				1						6-0/8		221
KE5-2 SC 04	H	B02M1		1-01 *		KEM-2		1				222
KE5-2 SC 04	H	D01L2		1-02 *		KE5		2				222
KE5-2 SC 04	H	E03E1		1-03 *		KE2						222
KE5-2 SC 04				1						13-6/8		222
KE5-2 SC 04	L	C01F1		1-01 *		KE5		1				223
KE5-2 SC 04	L	C03C1		1-02 *		KE2						223
KE5-2 SC 04				1						4-2/8		223
KE5-2 SC 05	H	B02S2		1-01 *		KEM-2		2				224
KE5-2 SC 05	H	C03J1		1-02 *		KE2		1				224
KE5-2 SC 05	H	C01K2		1-03 *		KE5						224
KE5-2 SC 05				1						9-0/8		224
KE5-2 SC 05	L	C01J2		1-01 *		KE5		1				225
KE5-2 SC 05	L	C03R1		1-02 *		KE2						225
KE5-2 SC 05				1						4-1/8		225
KE5-3 AC EQ -.5	H	C04P1		1-01 *		KE1		1				226
KE5-3 AC EQ -.5	H	F01U1		1-02 *		KE5						226
KE5-3 AC EQ -.5				1						13-0/8		226
KE5-3 AC EQ 00	H	B02U2		1-01 *		KEM-2		1				227
KE5-3 AC EQ 00	H	E03N1		1-02 *		KE2		2				227
KE5-3 AC EQ 00	H	E01P1		1-03 *		KE5						227
KE5-3 AC EQ 00				1						14-6/8		227
KE5-3 AC EQ 00	L	F01P2				KE5					1-PIN ROW	228
KE5-3 AC EQ 177777	H	B02T2		1-01 *		KEM-2		1				229
KE5-3 AC EQ 177777	H	F01T2		1-02 *		KE5						229
KE5-3 AC EQ 177777				1						14-0/8		229
KE5-3 MQ EQ 00	H	B02K2		1-01 *		KEM-2		1				230
KE5-3 MQ EQ 00	H	F01J1		1-02 *		KE5						230
KE5-3 MQ EQ 00				1						14-0/8		230

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW RV PG Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE5-3 SR 01	H	B02V1		1-01 *		KEM-2		1				231
KE5-3 SR 01	H	F01E2		1-02 *		KE5						231
KE5-3 SR 01				1						12-2/8		231
KE5-3 SR 02	H	B02N1		1-01 *		KEM-2		1				232
KE5-3 SR 02	H	E01V2		1-02 *		KE5						232
KE5-3 SR 02				1						11-6/8		232
KE5-4 D00	H	C02U1		1-01 *		KE3		1				233
KE5-4 D00	H	E01N2		1-02 *		KE5						233
KE5-4 D00				1						7-6/8		233
KE5-4 D01	H	C02V1		1-01 *		KE3		1				234
KE5-4 D01	H	E01L2		1-02 *		KE5						234
KE5-4 D01				1						7-4/8		234
KE5-4 D02	H	C01S1		1-01 *		KE5		1				235
KE5-4 D02	H	C02B1		1-02 *		KE3						235
KE5-4 D02				1						5-2/8		235
KE5-4 D03	H	C01D2		1-01 *		KE5		1				236
KE5-4 D03	H	C02A1		1-02 *		KE3						236
KE5-4 D03				1						2-7/8		236
KE5-4 D04	H	C02K2		1-01 *		KE3		1				237
KE5-4 D04	H	E01K2		1-02 *		KE5						237
KE5-4 D04				1						4-6/8		237
KE5-4 D05	H	C02F2		1-01 *		KE3		1				238
KE5-4 D05	H	E01N1		1-02 *		KE5						238
KE5-4 D05				1						9-6/8		238
KE5-4 D06	H	C01N1		1-01 *		KE5		1				239
KE5-4 D06	H	C02M1		1-02 *		KE3						239
KE5-4 D06				1						2-7/8		239
KE5-4 D07	H	C01F2		1-01 *		KE5		1				240
KE5-4 D07	H	C02L2		1-02 *		KE3						240
KE5-4 D07				1						3-6/8		240
KE5-5 D08	H	C03P2		1-01 *		KE2		2				241
KE5-5 D08	H	D01N2		1-02 *		KE5		1				241
KE5-5 D08	H	E02U1		1-03 *		KE4						241
KE5-5 D08				1						12-6/8		241

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE5-5 D09	H	D01M2		1-01 *		KE5					1				242
KE5-5 D09	H	E02V1		1-02 *		KE4									242
KE5-5 D09				1									6-6/8		242
KE5-5 D10	H	D01S2		1-01 *		KE5					1				243
KE5-5 D10	H	E02B1		1-02 *		KE4									243
KE5-5 D10				1									4-2/8		243
KE5-5 D11	H	D01R2		1-01 *		KE5					1				244
KE5-5 D11	H	E02A1		1-02 *		KE4									244
KE5-5 D11				1									4-0/8		244
KE5-5 D12	H	E02K2		1-01 *		KE4					1				245
KE5-5 D12	H	F01M2		1-02 *		KE5									245
KE5-5 D12				1									6-4/8		245
KE5-5 D13	H	E02F2		1-01 *		KE4					1				246
KE5-5 D13	H	F01N2		1-02 *		KE5									246
KE5-5 D13				1									7-0/8		246
KE5-5 D14	H	C03M1		1-01 *		KE2					1				247
KE5-5 D14	H	E02M1		1-02 *		KE4					2				247
KE5-5 D14	H	F01P2		1-03 *		KE5									247
KE5-5 D14				1									15-0/8		247
KE5-5 D15	H	C03D1		1-01 *		KE2					1				248
KE5-5 D15	H	E02L2		1-02 *		KE4					2				248
KE5-5 D15	H	F01R2		1-03 *		KE5									248
KE5-5 D15				1									16-0/8		248

ERROR LISTING

RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
KE1-2 OP	H	D04J2				KE1								1-PIN RUN	94
KE1-4 TP1	H	E04D2				KE1								1-PIN RUN	123
KE3-2 X07	H	C02N2				KE3								1-PIN RUN	187
KE5-3 AC EQ 00	L	E01P2				KE5								1-PIN RUN	226

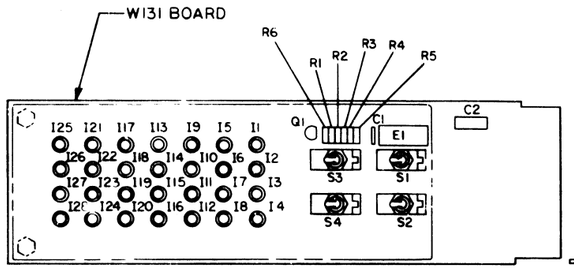
W130 PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	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	15K, 1/4W, 5% RES.	1300496	28
2	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	470, 1/4W, 5% RES.	1300316	28
3	Q1-Q56	DEC 3000B TRANSISTOR	1503100	56
4	P1	H807 BLOCK, CONNECTOR	1209123	1

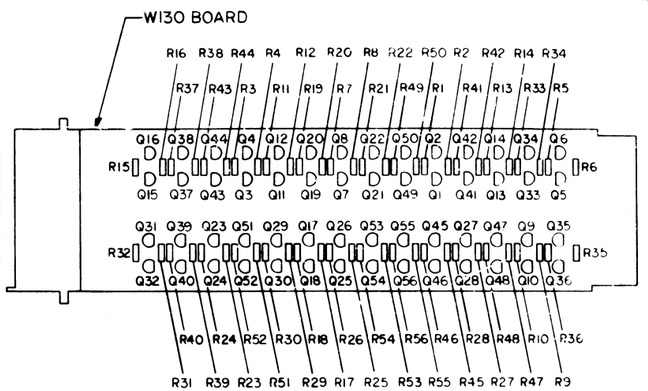
W131 PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	E1	DEC 7400N IC	1905575	1
2	C1	.01 MFD, 100V, 20% DC CAP.	1001610	1
3	C2	6.8 MFD, 35V, 20% ST CAP.	1000467	1
4	R1,R2,R3,R4,R5	3K, 1/4W, 5% RES.	1300432	5
5	R6	330, 1/4W, 5% RES.	1300295	1
6	Q1	DEC 3000B TRANSISTOR	1503100	1
7	I1-I28	LAMP, HUDSON, BLUE #2309Q	2092115	28
8	S1-S4	SWITCH, TOGGLE, SPST, GATT-12	2011168	4

NOTES:
1. THE KM11 IS A TWO MODULE (W130, W131) OPTION TO THE KE11-A TO AID MAINTENANCE. THIS PREWIRED OPTION IS INSTALLED BY INSERTING THE W130 MODULE INTO LOCATION B02 AND INSERTING THE W131 MODULE INTO THE W130. NOTE THAT THE SWITCHES AND LIGHTS FACE TOWARD AND EXTEND BELOW THE CONSOLE. THE BOTTOM COVER MUST BE REMOVED WITH THE CHASSIS EXTERNAL TO THE CABINET.
2. LABELS FOR THE INTERNAL MACHINE STATES LAMPS ARE NOTED ON THE W131 OVERLAY. SWITCHES PROVIDE A MANUAL CLOCK AND BUS RESPONSE AND ARE ACTIVE WHEN THE TOGGLE IS UP. NORMAL MACHINE OPERATION REQUIRES THAT ALL SWITCHES BE IN THE OFF POSITION.
3. "MNT ENABLE" AND "MNT CLK" PROVIDE A MANUAL CLOCK FOR THE KE11-A MAINT ENABLE" IS ACTIVATED WHILE THE EAE IS HALTED. EACH TOGGLE OF "M CLK" THEN STEPS THE EAE THROUGH THE SMALLEST EAE CLOCK INTERVALS, THE CLK2 STATES, THE NEXT HIGHEST CLOCK INTERVAL "CLK" IS PROVIDED BY FOUR TOGGLES (2 COMPLETE SWITCH CYCLES) AND INDICATED BY THE C2 LAMPS. EIGHT TOGGLES ARE NECESSARY FOR EACH CLK1 INTERVAL. NORMAL OPERATION IS RESUMED WHEN "MNT CLK" AND THEN "MNT ENABLE" ARE RETURNED TO OFF.



COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	KE11-A
A	B

QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP11

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINISH SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

	NAME	DATE
DRAWN	S. Arthur	11-3-70
CHECKED	S. Gutman	11-3-70
ENGR	S. Arthur	11-3-70
PROJ. ENGR	[illegible]	11-3-70
PROD.	[illegible]	11-3-70

NEXT HIGHER ASSY: A-ML-KE11-Ø
SCALE 1/1
SHEET 1 OF 3

[redacted] EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: KE11-A MAINTENANCE BOARD
W130/W131 KEM-1
SIZE D CODE BS NUMBER KE11-A-12 REV.
DIST.

CONNECTOR AT REAR OF MODULE TO EXTEND MAINTENANCE BOARD 2, W131 (KM-3).

+5V B02A2 — +5V
+8V B02B1 — +8V
~+8V — KEM-3 MNT ENBL L — B02V2 KEM-3 MAINT ENBL L
B02U1

KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L

GND

KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L

KEM-2 LAMP L
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KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L
KEM-2 LAMP L

KEM-3 SELECT H B02R2 R29 15K Q29 Q30 R30 470Ω
KEM-3 BUSY H B02E2 R21 15K Q21 Q22 R22 470Ω
KEM-3 CLK ON H B02H1 R1 15K Q1 Q2 R2 470Ω
KEM-3 CLK GATE H B02L2 R43 15K Q43 Q44 R44 470Ω

KEM-3 CLK2 H B02U2 R39 15K Q39 Q40 R40 470Ω
KEM-3 CLK H B02D2 R49 15K Q49 Q50 R50 470Ω
KEM-3 CLK H B02H2 R19 15K Q19 Q20 R20 470Ω
KEM-2 NORM H B02J2 R11 15K Q11 Q12 R12 470Ω

KEM-2 MULT H B02S1 R55 15K Q55 Q56 R56 470Ω
KEM-2 DIV H B02M2 R37 15K Q37 Q38 R38 470Ω
KEM-2 ASH H B02F2 R7 15K Q7 Q8 R8 470Ω
KEM-2 LSHF H B02E1 R33 15K Q33 Q34 R34 470Ω

KEM-2 END H B02R1 R45 15K Q45 Q46 R46 470Ω
KEM-2 STOP H B02K1 R31 15K Q31 Q32 R32 470Ω
KEM-2 SC05 H B02S2 R17 15K Q17 Q18 R18 470Ω
KEM-2 SC04 H B02M1 R9 15K Q9 Q10 R10 470Ω

KEM-2 SC03 H B02P1 R27 15K Q27 Q28 R28 470Ω
KEM-2 SC02 H B02L1 R51 15K Q51 Q52 R52 470Ω
KEM-2 SC01 H B02F1 R5 15K Q5 Q6 R6 470Ω
KEM-2 SC00 H B02D1 R13 15K Q13 Q14 R14 470Ω

KEM-2 SR07 H B02J1 R15 15K Q15 Q16 R16 470Ω
KEM-2 SR06 H B02C1 R41 15K Q41 Q42 R42 470Ω
KEM-2 SR05 H B02T2 R35 15K Q35 Q36 R36 470Ω
KEM-3 ACC=0 H B02U2 R53 15K Q53 Q54 R54 470Ω

KEM-3 MAINT H B02K2 R3 15K Q3 Q4 R4 470Ω
KEM-2 SR02 H B02N1 R47 15K Q47 Q48 R48 470Ω
KEM-2 SR01 H B02V1 R25 15K Q25 Q26 R26 470Ω
KEM-2 SR00 H B02P2 R23 15K Q23 Q24 R24 470Ω

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
PDP-11		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

	DATE
DRAWN	
CHKD	
ENG	
MFG	
QA	7/3/70
NEXT HIGHER ASSY	A-ML-KE[illegible]

[redacted] EQUIPMENT CORPORATION

TITLE
MAINTENANCE BOARD (1)
W130 KEM-2

SIZE	CODE	NUMBER	REV
D	DBS	KE[illegible]	

SCALE NONE
SHEET 2 OF 3
DIST

+8V B1

I1 I2 I3 I4

KEM-2 LAMP U1 L
KEM-2 LAMP R0 L
KEM-2 LAMP C-ON L
KEM-2 LAMP C-OT L

I5 I6 I7 I8

KEM-2 LAMP C2-0 L
KEM-2 LAMP C2-1 L
KEM-2 LAMP CLK1 L
KEM-2 LAMP NORM L

I9 I10 I11 I12

KEM-2 LAMP MULT L
KEM-2 LAMP DIVD L
KEM-2 LAMP ASHF L
KEM-2 LAMP LSHF L

I13 I14 I15 I16

KEM-2 LAMP END L
KEM-2 LAMP STOP L
KEM-2 LAMP SC05 L
KEM-2 LAMP SC04 L

I17 I18 I19 I20

KEM-2 LAMP SC03 L
KEM-2 LAMP SC02 L
KEM-2 LAMP SC01 L
KEM-2 LAMP SC00 L

I21 I22 I23 I24

KEM-2 LAMP SR07 L
KEM-2 LAMP SR06 L
KEM-2 LAMP SR05 L
KEM-2 LAMP SR04 L

I25 I26 I27 I28

KEM-2 LAMP SR03 L
KEM-2 LAMP SR02 L
KEM-2 LAMP SR01 L
KEM-2 LAMP SR00 L

+5V A2

GND C2T1

C2 6.8MF 35V 10%

C1 .01MFD

S3 OFF

S4 OFF

R1 3K R2 3K R3 3K R4 3K

MNT CLK

E1 7400

MNT ENBL R7 3K V2 KEM-2 MNT ENBL

S2 OFF

V1 KEM-2 MNT CLK

R8 330

Q1 DEC 3009B

A1

B1

S1 OFF

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

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY 7
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

		DATE
DRN	[illegible]	12-20
CHK	[illegible]	12-20
ENG	[illegible]	12-20
MFG	[illegible]	12-20
QA	[illegible]	12-20

NEXT HIGHER ASSEMBLY A-MLKE11-0

SCALE NONE

SHEET 3 OF 3

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
MAINTENANCE BOARD(2)
W131 KEM-3

SIZE CODE DBS NUMBER KE11-A-02 REV

DIST.

REVISIONS: REV | CHANGE NO. | CHK

DEC FORM NO DEC 102A