FIELD MAINTENANCE PRINT SET

TABLE OF CONTENTS

UNIT VARIATIONS COVERED BY THIS PRINT SET
KK8-F

KK8-F
Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO.

MPØØ25Ø

REVISIONS			
REV.			
CHG. NO.			
DATE			

EN-01124-16-N675(327)

USED ON OPTION/MODEL	
PDP8E	

SHEET 1 OF 1

DRN. S. ROBERTS	DATE 12OCT76	TITLE: KK8-F	digital
CHK'D S.Roberts	DATE 21OCT76		
PROJ. ENG. WJ	DATE 5-Nov76		
FIELD SERV.	DATE 5 Nov 76	SIZE B / CODE TC / NUMBER KK8-F-3 / REV.	
		DIST.	

DRB 124

DRAWING DIRECTORY

FOR FIELD MAINTENANCE PRINT
REFER TO B-TC-KK8-F-3

UNIT VARIATIONS

VAR	TITLE
KK8-F	CENTRAL PROCESSOR

REVISIONS

REV.	CHANGE NO.	CHK

USED ON OPTION/MODEL

PDP8-E	

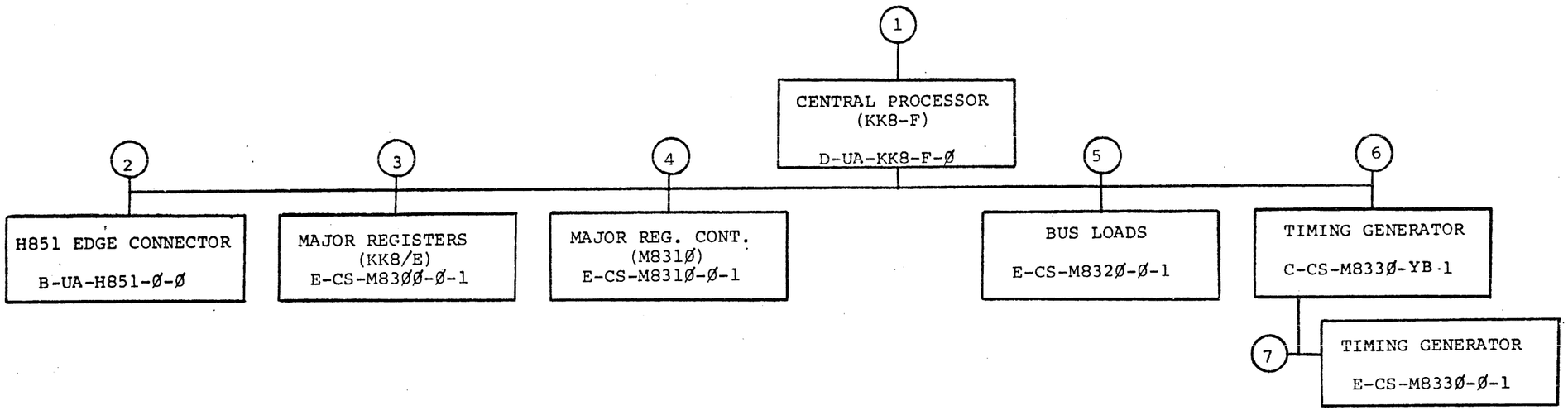
SHEET 1 OF 3

DRN. S. ROBERTS	DATE 12OCT76	TITLE: CENTRAL PROCESSOR (KK8-F)
CHK'D. S. Roberts	DATE 21OCT76	
PROJ. ENG. W. Deal	DATE 5 NOV 76	SIZE B; CODE DD; NUMBER KK8-F; REV
PROD.	DATE 5NOV76	DIST.

digital

DRB 106A

EN-0362-1-6-R-1-2-1525



TITLE		SIZE	CODE	NUMBER	REV
CENTRAL PROCESSOR (KK8-F)	SHEET 2 OF 3	B	DD	KK8-F	

DRB LO

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MPØØ25Ø	KK8-F (FIELD MAINTENANCE PRINT SET)	-
	B-TC-KK8-F-3	KK8-F (TABLE OF CONTENTS)	-
	D-UA-KK8-F-Ø	CENTRAL PROCESSOR (KK8-F)	E/M
	A-PL-KK8-F-2	KK8-F SHIPPING LIST	-
	A-SP-KK8-F-1	ENGINEERING SPEC.	-
2	B-UA-H851-Ø-Ø	H851 EDGE CONNECTOR	E/M
	B-CS-H851-Ø-1	CIRCUIT SCHEMATIC	E/M
	C-AH-H851-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-H851-Ø-6	MODULE ECO HISTORY	-
	D-IA-5008903-0-0	ETCH BOARD	M
	120152-0-0	CONN. BLOCK, 72 PIN	M
3	E-CS-M83ØØ-Ø-1	MAJOR REGISTERS (KK8-E)	E/M
	K-CO-M83ØØ-Ø-4	X-Y COORDINATE HOLE LOCATION	M
	D-AH-M83ØØ-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-M83ØØ-Ø-6	MODULE ECO HISTORY	-
	5009250	ETCHED CIRCUIT BOARD	M
4	E-CS-M831Ø-Ø-1	MAJOR REG. CONT. (M831Ø)	E/M
	K-CO-M831Ø-Ø-4	X-Y COORDINATE HOLE LOCATION	M
	D-AH-M831Ø-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-M831Ø-Ø-6	MODULE ECO HISTORY	-
	5009278	ETCHED CIRCUIT BOARD	M
5	E-CS-M832Ø-Ø-1	BUS LOADS	E/M
	K-CO-M832Ø-Ø-4	X-Y COORDINATE HOLE LOCATION	M
	D-AH-M832Ø-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-M832Ø-Ø-6	MODULE ECO HISTORY	-
	5009486	ETCHED CIRCUIT BOARD	M
6	C-CS-M833Ø-YB-1	TIMING GENERATOR	E/M
	K-CO-M833Ø-Ø-4	X-Y COORDINATE HOLE LOCATION	M
	D-AH-M833Ø-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-M833Ø-YB-6	MODULE ECO HISTROY	-
	5009707	ETCHED CIRCUIT BOARD	M
7	E-CS-M833Ø-Ø-1	TIMING GENERATOR	E/M
	K-CO-M833Ø-Ø-4	X-Y COORDINATE HOLE LOCATION	M
	D-AH-M833Ø-Ø-5	ASSY/DRILLING HOLE LAYOUT	M
	B-MH-M833Ø-Ø-6	MODULE ECO HISTORY	-
	5009707	ETCHED CIRCUIT BOARD	M

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

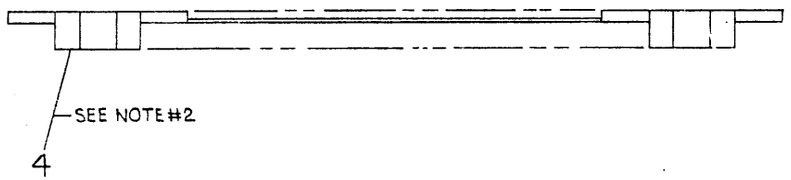
digital

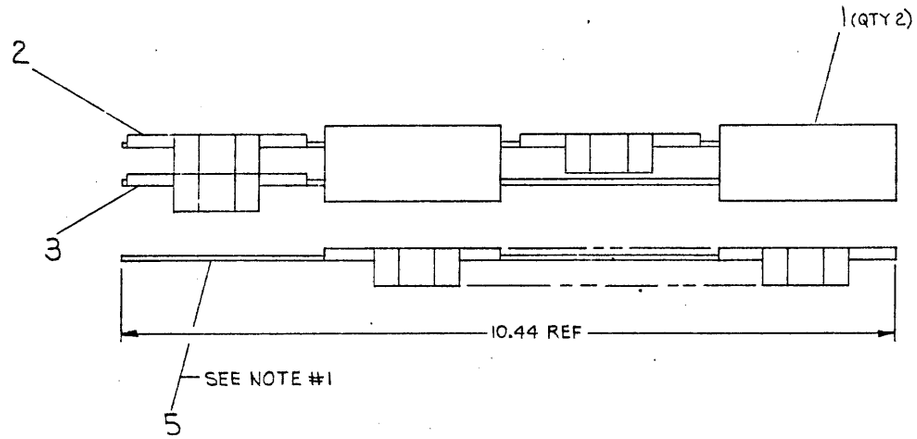
TITLE	SHEET	SIZE	CODE	NUMBER	REV
CENTRAL PROCESSOR (KK8-F)	SHEET 3 OF 3	B	DD	KK8-F	

EN-01062-2C-16-R376-(325)

DRB 108A

NOTES:
1. ITEM #5 (TIMING GENERATOR) MUST BE PLACED IN THE FIRST SLOT OF THE OMNIBUS AFTER THE CONSOLE BOARD. (ITEM #5 CAN BE REPLACED BY E-CS-M8330-0-1, IF THE ETCH REV IS "F" OR LATER)
2. ITEM #4 (BUS LOADS) MUST BE PLACED IN THE LAST SLOT OF THE LAST OMNIBUS
3. REFER TO THE PRIORITY LISTING A-SP-PDP8E-0-4





1	KK8-F SHIPPING LIST	A-PL-KK8-F-2	6
1	TIMING GENERATOR	E-CS-M8330-YB-1	5
1	BUS LOADS	E-CS-M8320-0-1	4
1	MAJOR REGISTOR CONTROL	E-CS-M8310-0-1	3
1	MAJOR REGISTORS	E-CS-M8300-0-1	2
2	EDGE CONNECTOR	B-UA-M851-0-0	1
	DESCRIPTION	DWG./PART NO.	ITEM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO .2	OVER .2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: —

DRN. S. Richards 11 OCT 76
CHK'D S. Richards 21 OCT 76
ENG. W. Dack 5 NOV 76
PROJ. ENG. W. Dack 5 NOV 76
PROD. [illegible] 5 NOV 76
NEXT HIGHER ASSY. B-DD-KK8-F
SCALE 1/1
SHEET 1 OF 1

FIRST USED ON PDP8E

digital

TITLE: CENTPAL PROCESSOR (KK8-F)

SIZE D | CODE UA | NUMBER KK8-F-0 | REV.

DIST.

REVISIONS: REV. | CHANGE NO. | CHK.

DEC FORM NO. DRD 100-C

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 9/27/76

TITLE KK8-F 8A600/8A620 CENTRAL PROCESSOR

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
Willie Dash	Willie Dash	A	SP	KK8-F-1	

DEC 16-(392)-1079A-R873
DRA 107A

SHEET 1 OF 3

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE KK8-F 8A600/8A620 CENTRAL PROCESSOR

1.0 OVERALL DESCRIPTION

KK8-F is a 12-bit central processor for the 8A600 and 8A620 series. The Small Computer Handbook and the PDP8E Maintenance Manual represent part of this specification and should be referred to.

2.0 GENERAL SPECIFICATION

2.1 Definition of Basic System

A. M8300 - Major registers
B. M8310 - Major Register Control
C. M8330-YB - Timing Generator or M8330 etch rev "F" or later Timing Generator
D. M8320 - Bus Loads

2.2 List of Included Options

A. M8340 - KE8-E Extended Arithmetic Unit
B. May handle other options not directly connected to the processor - such as Programmer's Console, teletype, etc. Reference Small Computer Handbook.

2.3 Mechanical Packaging

A. Each board is an 8½ by 10½ quad board (Ref D-MD-7605994-0-0).

B. The M8300 is connected by the use of two H851's to the M8310.

C. The M8330 or (M8330-YB) and M8310 each have one slot provided to connect to the KE8-E using H851 connectors.

D. All modules plug into the Omnibus. (Ref Small Computer Handbook and A-SP-PDP8E-0-4)

2.4 Environmental Specification

A. Temperature 32°F - 122°F (0°C - 50°C)
B. Humidity Maximum 90% Rel. No condensation
C. Power, total (for all four boards)

+5V	+15V	-15V
4.42A	.53A	.97A

SIZE	CODE	NUMBER	REV
A	SP	KK8-F-1	

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

SHEET 2 OF 3

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE KK8-F 8A600/8A620 CENTRAL PROCESSOR

2.5 General Performance Specification

Refer to Small Computer Handbook.

3.0 Specification of Vendor Supplied Equipment

Refer to Purchase Specification for component in question.

4.0 Programming

Refer to Small Computer Handbook.

5.0 Interface Specifications

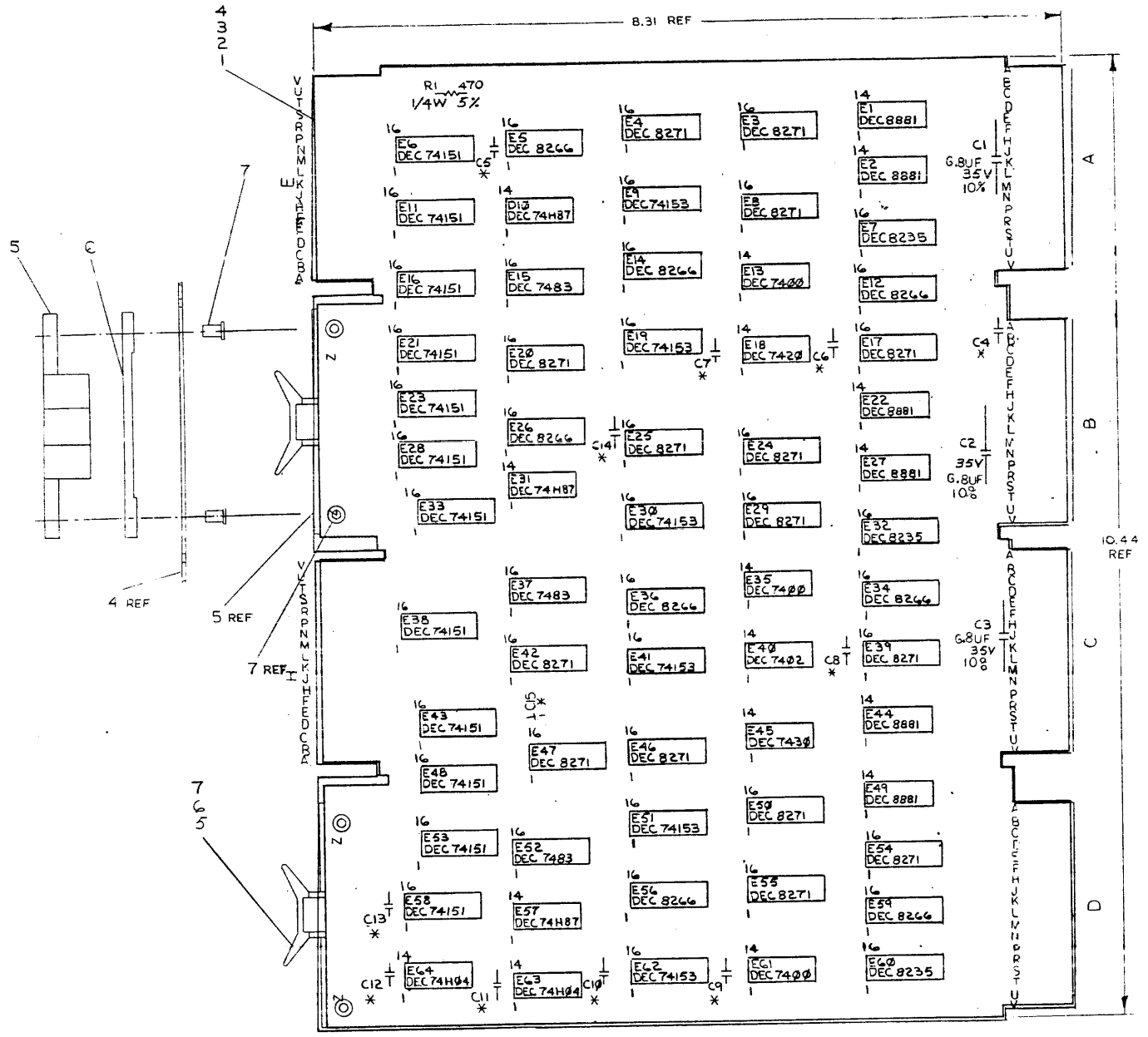
Refer to Small Computer Handbook.

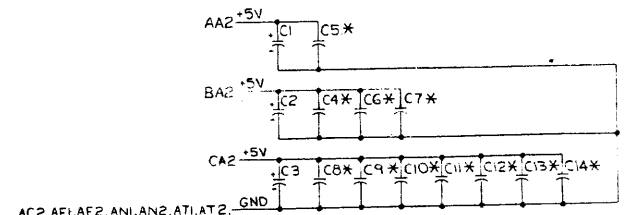
SIZE	CODE	NUMBER	REV
A	SP	KK8-F-1	

DEC FORM NO DEC 16-(381)-1022-N370
DRA 108

SHEET 3 OF 3

NOTES:
* THESE COMPONENTS MUST BE ON M8300 IF KL8-A (M8313) IS USED ON SYSTEM.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		
1	C15	CAP 100PF D.M.	1000016	25
A/R		WIRE #30 AWG SOLID	9107260-01	24
6	E9,E19,E30,E41,E51,E62	I.C. DEC 74153	1909937	23
12	E6,E11,E16,E21,E23,E28,E33,E38,E43,E48,E53,E58	I.C. DEC 74151	1909936	22
3	E7,E32,E60	I.C. DEC 8235	1909935	21
8	E5,E12,E14,E26,E34,E36,E56,E59	I.C. DEC 8266	1909934	20
3	E15,E37,E52	I.C. DEC 7483	1909932	19
2	E63,E64	I.C. DEC 74H04	1909931	18
3	E10,E31,E57	I.C. DEC 74H87	1909927	17
6	E1,E2,E22,E27,E44,E49	I.C. DEC 8881	1909705	16
15	E3,E4,E8,E17,E20,E24,E25,E29,E39,E42,E46,E47,E50,E54,E55	I.C. DEC 8271	1909615	15
1	E40	I.C. DEC 7402	1909004	14
1	E45	I.C. DEC 7430	1905578	13
1	E18	I.C. DEC 7420	1905577	12
3	E13,E35,E61	I.C. DEC 7400	1905575	11
1	R1	RESISTOR 470 1/4W 5%	1300316	10
11	C4-C14	CAP .22UF 50V CER	1010274-00	9
3	C1,C2,C3	CAP. 6.8UF 35V 20% STANT	1000067	8
4		EYELETS GS4-1) STIMPSON	1006757-00	7
AR		SPACER (CABLE CLAMP)	1202704	6
1		HANDLE FLIP CHIP-MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009255	4
REF		MODULE HISTORY LIST	D-AH-M8300-06	3
REF		ASS'Y/DRILLING HOLE LAYOUT	D-AH-M8300-05	2
REF		X-Y COORDINATE HOLE LOC	D-CO-M8300-04	1

IC TYPE	GND	+5V
DEC 8235	8	16
DEC 7483	12	5
DEC 8271	8	16
DEC 8266	8	16
DEC 74153	8	16
DEC 74151	8	16

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

REV	CHANGE NO	REVISIONS
A	M8300-00001	
B	M8300-00002	
C	M8300-00003	

L. TURNER 74 Bonsaquit 4-13-73

DEC NO. D-UA-KK8-E-0 | EIA NO.

SEMICONDUCTOR CONVERSION CHART

REV COLUMN B

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH REVISION

digital EQUIPMENT CORPORATION

TITLE: MAJOR REGISTERS (KK8/E)

SIZE CODE E | CS | NUMBER M8300-2-1 | REV. F

SCALE 2/1 | SHEET 1 OF 5 | DRT.

REQ BUS Ø L
REQ BUS Ø H

74151 E6

RIGHT H
LEFT H
TWICE H
HH2 RIGHT L
HJ2 LEFT L
HK2 TWICE L
74HØ4

8266 E5
HC1 PAGE Z

74151 E11
GND
RIGHT H
LEFT H
TWICE H

AD Ø L
AD 6 L
AD 1 L
AD 2 L
AD LK L
AD 11 L
AD 7 L
AD 3 L

8266 E5
PAGE Z HC1

PAGE Z
CARRY 2 L (INT. CONN.)

7483 E15
CARRY 1 L (INT. CONN.)

8266 E14
74187 E10
EC2 EN Ø
EB2 DATA T
ED1 DATA F

74153 E9
DATA Ø1 AS1

ADØ L HPI
AD 6 L
AD 1 L HRI
AD 2 L
AD LK L HLI
AD 11 L HNI

EE2 EN 1
EA2 EN 2

MQ 2 L

8881 E1
AD1 MAØØL
+3A
CPMA Ø E4
CPMA 1 E4
HE1 CPMA LOAD L
HA1 MAC L
74HØ4

7483 E15
EC1 CARRY OUT L

MQØØ L
AL→MQ ENA L
SHL ENA L

8266 E12
74ØØ E13
8235 E7
AC→BUS L ET2
MQ←BUS L ED2

MQØ E17
+3C
EE2 MQ LOAD L
HN1 ADH L

8266 E14
EN Ø EC2

74153 E9
(AND 15)
EN 1 EF2
EN 2 EA2

74187 E10
DATA F ED1
DATA T EB2
AR1 DATA ØØ

8235 E7
AC→BUS L ET2
MQ←BUS L ED2
MQØ L HV2

74ØØ E13

MQ 1 E17
MQ LOAD L

RIGHT H
HH2 RIGHT L

AK1 MDØØL
8881 E2
ALI MDØIL
+3B
MBØ E3
MB1 E3
HF1 MB LOAD L
MD DIR AK2
MB LOAD L
B MD DIR

8266 E12
+5V
R1 470Ω 1/2W
SHL ENA L ES2
AL→MQ ENA L ET1
MQØI L

PCØ E2Ø
PC1 E2Ø
HD1 PC LOAD L
PC LOAD L
AC LOAD L

ACØ E8
ACI E8
INIT CR1
B INIT L
EL1 AC LOAD L

MAØØL
MAØIL
MDØØL
PCØØL

AE1 MAØI L
SHL ENA L
MQ2 L
AC←BUS L
MQ←BUS L
CPMA LOAD L
B MAC H
MQØI L
MQ LOAD L
RIGHT H
MB LOAD L
B MD DIR
PC LOAD L
AC LOAD L

CARRY IN TO A 7483 ADDER IS PIN 13
CARRY OUT OF A 7483 ADDER IS PIN 14 THUS

CARRY 2 L (INT CONN)	7483 E15	7483 E15	7483 E37	7483 E37	CARRY 6 L (INT CONN)

DENOTES CONN. BETWEEN E37 PIN 14 & E15 PIN 13
WHILE CARRY 6 L IS INTERNAL TO E37
AND CARRY 2 L IS INTERNAL TO E15

FOR SIMPLICITY OF DRAWING THE FOLLOWING
PROCEDURES HAVE BEEN USED TO ELIMINATE LINES:

14	74153 E19	74153 E3Ø	1
2			15

THIS DENOTES A CONNECTION BETWEEN E19 PIN 14 AND
E3Ø PIN 14, E19 PIN 2 AND E3Ø PIN 2 (ALSO PINS
1 AND 15 ON EACH I.C.). THIS ALSO IS TRUE FOR
OTHER CASES SUCH AS 8266, 74H87, AND 74151.

REVISIONS		
LTR	CHANGE NO	DATE

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
PDP 8/E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
TOLERANCES
DECIMALS FRACTIONS ANGLES
FINISH SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS
MATERIAL
FINISH

DRAWN K. LL. 11 DATE 8/1/70
CHK'D J. [illegible] DATE 8/14/70
ENG K.W. DATE 8/15/70
PROJ ENG. DATE 12/17/70
PROD A.K. CAN DATE 7-1-71
NEXT HIGHER ASSY A ML KK8-E
SCALE NONE
SHEET 2 OF 5

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
MAJOR REGISTERS
Ø & 1 PDP 8/E

SIZE E/S CODE NUMBER MB3ØØ-Ø-1 REV. 1
DIST

NS3ØØ-Ø-1

GND
RIGHT H
LEFT H
TWICE H
AD0 L HPI
AD6 L
AD1 L HPI
AD2 L
AD LK L HLI
AD11 L HNI
AD7 L
AD3 L
PAGE 2 HCI
CARRY 2 L
END EC2
DATA T EB2
DATA F EDI
EN1 EF2
EN2 EA2
AC→MQ ENA L
ETI
SHL ENA L
MQ2 L
AC→BUS L
MQ→BUS L
ES2
ED2
ET2
HEI
MQØL
B MAC L
CPMA LOAD L
MQ LOAD L
EE2
RIGHT H
HFI
MB LOAD L
B MD DIR
HDI
PC LOAD L
ELI
AC LOAD L
REVISIONS
REV
CHANGE NO
CHK

REG BUS 5 L
REG BUS 5 H
REG BUS 4 L
REG BUS 4 H
REG BUS 3 L
REG BUS 3 H
REG BUS 2 L
REG BUS 2 H

74151 E16
74151 E21
74151 E23
74151 E28

AD4 L
AD8 L
AD5 L
AD9 L
AD10 L

CARRY 2 L (INT. CONN.)

7483 E15
7483 E15
7483 E37
7483 E37
CARRY 6 L (INT CONN.)

8266 E5
8266 E5
8266 E26

8266 E14
8266 E36
8266 E36

74H87 E10
74H87 E10
74H87 E31
74H87 E31
DATA T
DATA F
END

AH1 MAØ2 L
AJ1 MAØ3 L
BD1 MAØ4 L
BE1 MAØ5 L

MAØ2 L
MAØ3 L
MAØ4 L
MAØ5 L

74153 E19
74153 E19
74153 E30
74153 E30

8881 E1
8881 E22
8881 E22
CPMA3 E4
CPMA4 E25
CPMA5 E25
CPMA2 E4

EN2
EN1

MQ3 E17
MQ4 E39
MQ5 E34
MQ2 E17

E17
E39
E39

MQØ1 L
MQØ2 L
MQØ3 L
MQØ4 L

SHL ENA L
AC→MQ ENA L
MQØ2 L
MQØ3 L
MQØ4 L
MQØ5 L

MDØ2 L
MDØ3 L
MDØ4 L
MDØ5 L

PCØ2 L
PCØ3 L
PCØ4 L
PCØ5 L

AC→BUS L
MQ→BUS L
CPMA LOAD L
B MAC H
MQØ5 L
MQ LOAD L

8266 E12
8266 E12
8266 E34
8266 E34

SHL ENA L
AC→MQ ENA L
MQØ6 L

AC→BUS L
MQ→BUS L
CPMA LOAD L
B MAC H

MQØ5 L
MQ LOAD L
RIGHT H

8235 E7
8235 E7
8235 E32
8235 E32
AUI DATAØ2
AVI DATA Ø3
BRI DATA Ø4
BSI DATA Ø5

MB LOAD L
B MD DIR
AC LOAD L

AMI MDØ2 L
API MDØ3 L
BKI MDØ4 L
BLI MDØ5 L

8881 E2
74ØØ E13
8881 E2
74ØØ E13
8881 E27
74ØØ E35
8881 E27
74ØØ E35

MB2 E3
MB3 E3
MB4 E24
MB5 E24

PC2 E20
PC3 E20
PC4 E42
PC5 E42

PC LOAD L

ACØ2 L EPI
ACØ3 L ERI
ACØ4 L
ACØ5 L

AC2 E8
AC3 E8
AC4 E29
AC5 E29

B INIT L

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
PDP 8/E		PARTS LIST		

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

DRD K.H. DATE 8/31/70
CHK'D DATE 8/31/70
ENG DATE 12/1/70
PROJ. ENG. DATE 12/1/70
APVD K.E. DATE 12-1-70
NEXT HIGHER ASSY

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE MAJOR REGISTERS 2-5 PDP 8/E

SIZE B | CODE CS | NUMBER M8300-0-1 | REV F
SCALE NONE
SHEET 3 OF 5
DIST

PMH

REG BUS H L
REG BUS 8 H
REG BUS 7 L
REG BUS 7 H
REG BUS 6 L
REG BUS 6 H

74151 E33 · 74151 E38 · 74151 E43

GND
RIGHT H
LEFT H
TWICE H

AD Ø L HP1
AD 6 L
AD 1 L HR1
AD 2 L
AD LK L HL1
AD 11 L HN1
AD 7 L
AD 3 L
AD 4 L
AD 8 L
AD 5 L
AD 9 L
AD Ø L HM1

CARRY 6 L (INT. CONN)
DATA T
DATA F
ENØ

7483 E27 · 7483 E37 · 7483 E52

CARRY 9 L (INT. CONN.)

MDØ6 L
MDØ7 L
MDØ8 L

8266 E36 · 8266 E36 · 8266 E56
74H87 E31 · 74H87 E31 · 74H87 E57

EN2
EN1

MAØ6 L
MAØ7 L
MAØ8 L

74153 E41 · 74153 E41 · 74153 E51

MQØ6 L

BH1 MAØ6 L
BJ1 MAØ7 L
DD1 MAØ8 L

8881 E22 · 8881 E22 · 8881 E44

CPMA 6 E25 · CPMA 7 E25 · CPMA 8 E46

CPMA LOAD L
B MAC H

MD Ø6 L
MD Ø7 L
MD Ø8 L
PC Ø6 L
PC Ø7 L
PC Ø8 L

MQ 6 E39 · MQ 7 E39 · MQ 8 E54

MQ LOAD L
MQ Ø6 L
MQ Ø7 L
MQ Ø8 L

SHL ENA L
AC → MQ ENA L
AC ← BUS L
MQ ← BUS L

E39 · E39 · E54

ES2
SHL ENA L
AC → MQ ENA L ET1
MQØ6 L

AC ← BUS L ET2
MQ ← BUS L ED2
CPMA LOAD L HE1
B MAC H

8266 E34 · 8266 E34 · 8266 E59

MQ5 L
MQ LOAD L EE2
RIGHT H

BM MDØ6 L · BP1 MDØ7 L · DK1 MDØ8 L

8881 E27 · 8881 E27 · 8881 E49
7400 E35 · 7400 E35 · 7400 E61

MB 6 E24 · MB 7 E24 · MB 8 E50

8235 E32 · 8235 E32 · 8235 E60

BU1 DATA Ø6 L
BV1 DATA Ø7 L
DR1 DATA Ø8 L

MB LOAD L
B MD DIR
PC LOAD L HD1
AC LOAD L EL1

PC 6 E42 · PC 7 E42 · PC 8 E47

MB LOAD L
B MD DIR

PC LOAD L

ACØ6 L
ACØ7 L
ACØ8 L

AC 6 E29 · AC 7 E29 · AC 8 E55

B INIT L

AC LOAD L

FIRST USED ON OPTION MODEL	PDP 8/E
UNLESS OTHERWISE SPECIFIED	TOLERANCES DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
MATERIAL	
FINISH	
NEXT HIGHER ASSY	
SCALE	NONE
SHEET	5 OF 5

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

PARTS LIST

DRAWN R.T. Miller DATE 7/15/70
CHK'D A.T. Peel DATE 7/15/70
ENGR K.H. DATE 12/4/70
PROJ. ENG. DATE 12/11/70
PROJ. DATE

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MAJOR REGISTERS 6-8 PDP 8/E

SIZE E | CODE CS | NUMBER MB30C-0-1 | REV F | DIST

REVISIONS: REV | CHANGE NO | DRN

GND
RIGHT H
LEFT H
TWICE H

REG BUS 11 L
REG BUS 11 H
REG BUS 10 L
REG BUS 10 H
REG BUS 9 L
REG BUS 9 H

74151 E48
74151 E53
74151 E58

AC09L
AC08L
AC06L
AC07L
AC10L
AC11L
AC05L

7402 E49
7402 E48
7402 E48
7402 E48
7420 E18

E81 = AC4-11=0 L

AD0 L HP1
AD LK L HL1
AD11 L HN1
AD7 L
AD3 L
AD4 L
AD8 L
AD5 L
AD9 L
AD10 L HM1

AD0 L
AD LK L
AD11 L
AD7 L
AD3 L
AD4 L
AD8 L
AD5 L
AD9 L
AD10 L

CARRY 9 L (INT. CONN.)
DATA T
DATA F
EN0

7483 E52
7483 E52
7483 E52
CARRY IN L HM2

MD09 L
MD10 L
MD11 L

8266 E56
8266 E56
8266 E56

74H87 E57
74H87 E57
74H87 E57

EN2
EN1

74153 E51
74153 E62
74153 E62

MA09 L
MA10 L
MA11 L

74H04 E63 +3A
74H04 E63 +3B
74H04 E63 +3C

MQ09 L

MD09 L
MD10 L
MD11 L
PC09 L
PC10 L
PC11 L

MQ10 L
MQ11 L
HH1

8266 E59
8266 E59
8266 E59

HU2 MQ DATA L

8235 E60
8235 E60
8235 E60

DVI DATA 11 L

DS1 DATA 09 L
DU1 DATA 10 L

7430 E45
HK1 MQ04-11=0 L

7428 E18
EA1 MQ01-03=0 L

DATA T
DATA F
EN0

EB2
ED1
EA2
EF2
ES2
ET1
EE2
ED2
HE1
HD1
EL1
EC2

DE1 MA09 L
DH1 MA10 L
DJ1 MA11 L

SHL ENA L
AC→MQ CTLA L
AC → BUS L
MQ ← BUS L

8881 E44
CPMA 9 E46
CPMA 10 E46
CPMA 11 E46

+3A
+3C

SHL ENA L
AC→MQ ENA L
MQ09 L

E54
MQ08 L

AC ← BUS L ET2
MQ ← BUS L ED2
CPMA LOAD L HEL
B MAC H

MQ LOAD L EE2
MQ08 L
RIGHT H

MB LOAD L HF1
B MD DIR
PC LOAD L HD1
AC LOAD L EL1

DL1 MD09 L
DM1 MD10 L
DP1 MD11 L

8881 E49
7400 E61
MB09 E50
MB10 E50
MB11 E50

+3B

HJ1 MQ10 L

AC09 L
AC10 L
AC11 L

PC09 E47
PC10 E47
PC11 E47

AC08 L
AC09 L
AC10 L
AC11 L

AC9 E55
AC10 E55
AC11 E55

B INIT L

FIRST USED ON OPTION MODEL	QTY	DESCRIPTION	PART NO.
PDP 8/E		PARTS LIST	
UNLESS OTHERWISE SPECIFIED			
UNLESS OTHERWISE SPECIFIED			
TOLERANCES			
MATERIAL			
FINISH			

DRAWN 12-8-70
CHK'D 1-14-71
ENGR 1-14-71
PROD 2-1-71
NEXT HIGHER ASSY
SCALE NONE
SHEET 5 OF 5

DIGITAL EQUIPMENT CORPORATION

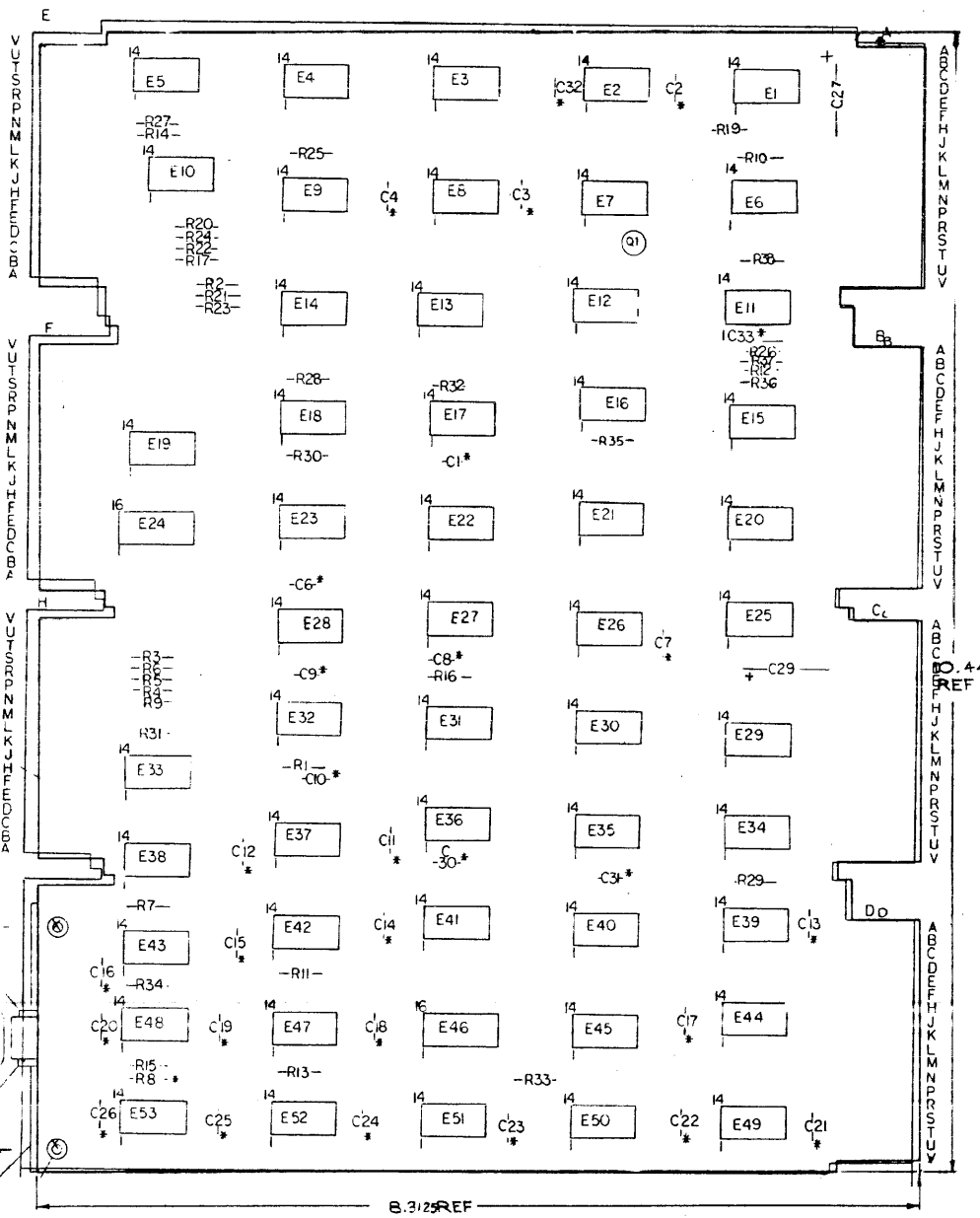
TITLE
MAJOR REGISTERS
9-11 PDP 8/E

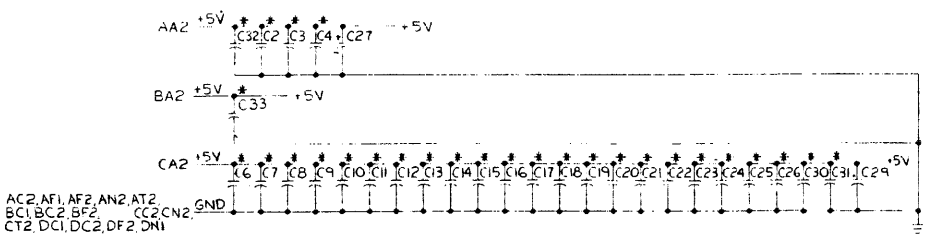
SIZE E | CODE CS | NUMBER MB300 0-1 | REV E

DIST

REVISIONS: LTR | DESCRIPTION | DATE | APPROVED

NOTES:
* THESE COMPONENTS MUST BE ON THE M8310 IF THERE IS A KL8-A(M8319) ON THE SYSTEM.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
* 1	R8	RES 150, 1/4W, 5%	1300250	31
1	R37	RES. 3K 1/4W, 5%	1300432	30
1	R38	RES. 100, 1/4W, 10%	1300231	29
1	Q1	TRANSISTOR DEC 3009B	1503100	28
2	E40, E45	I.C. DEC 74H74	1909667	27
3	E18, E21, E35	I.C. DEC 74H20	1909056	26
2	E14, E36	I.C. DEC 74H04	1909931	25
1	R35	RES 3.3K 1/4W, 5%	1300	24
1	E38	I.C. DEC 7486	1910011	23
3	E9, E11, E13	I.C. DEC 7412	1909955	22
1	E24	I.C. DEC 74151	1909936	21
4	E8, E10 E27, E28	I.C. DEC 7405	1909930	20
12	E1 - E5, E23, E43, E44, E49, E52, E53, E15	I.C. DEC 8881	1909705	19
7	E6, E16, E20, E26, E34, E47, E48	I.C. DEC 7404	1909686	18
1	E46	I.C. DEC 8251	1909544	17
1	E29	I.C. DEC 384	1909966	16
6	E19, E22, E25, E37, E41, E51	I.C. DEC 7402	1909004	15
2	E7, E30	I.C. DEC 7420	1905577	14
2	E12, E31	I.C. DEC 7410	1905576	13
3	E32, E39, E42	I.C. DEC 7400	1905575	12
3	E17, E33, E50	I.C. DEC 7474	1908547	11
33	R1-R7, R9-R11, R13-R14, R16-R35	RES. 470, 1/4W, 5%	1300316	10
* 2	C1-C4, C6-C26, C30-33	CAP. .22MFD 50V CER	1010274	9
2	C27, C29	CAP. 6.8UF, 35V, 20% S. TANT	1000067	8
2		EYELETS GS4-11 STIMPSON	9006750	7
1		SPACER (CABLE CLAMP)	1202704	6
1		HANDLE, FLIP CHIP - MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009276	4
REF		MODULE ECO HISTORY	D-MH-M8310-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8310-0-5	2
REF		X-Y COORDINATE HOLE LOC.	K CO-M8310-0-4	1

PARTS LIST

DEC 3009B 2N3646

REV COLUMN

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH REVISION

DEC NO EIA NO

SEMICONDUCTOR CONVERSION CHART

IC TYPE	GND	+5V
DEC 74151	8	16
DEC 8251	8	16
DEC 384	1	8

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

REV	CHANGE NO	DWN	DATE
A	M8310-00001	LOUIS KLOTZ	11-71
B	M8310-00002	LOUIS KLOTZ	11-71
C	M8310-00004	LOUIS KLOTZ	7-31-72
D	M8310-00005	LOUIS KLOTZ	7-31-72
E	M8310-00006	LOUIS KLOTZ	11-72
F	M8310-00007	LOUIS KLOTZ	11-72
G	M8310-00008	LOUIS KLOTZ	11-72
H	M8310-00009	LOUIS KLOTZ	11-72

DRAWN LOUIS KLOTZ 10-20-71

CHKD [illegible] 10-20-71

ENGR [illegible] 10-20-71

SCHEM [illegible] 10-20-71

PROD [illegible] 10-20-71

PRINT DWG ON D-UA-KK8-E-0

SCALE 2/1

SHEET 1 OF 4

DIGITAL EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE MAJOR REG. CONT. (M8310)

SIZE CODE E CS DWG NO. M8310-0-1 REV

DIST. STANDARD

ECO M8310 A

PAGE 2

LINK L

LINK

CR1 INITIALIZE

CR2 LINK DATA L

LINK LOAD L

CS2

OP1 L

TAD·E L

BTP3

RIGHT L FCI E HH2

LEFT L FDI E HJ2

TWICE L HK2

ADLK L FJI HL1

ADØ L HN1

AD11 L HN1

AD1 L HR1

ADØ L FH1, HM

OVFLOW L BJ2

FM2 & FCI CAR OUT L

OV H

BTS3

BTP2

IOT L

ADLK DIS L TO EAE

F SET L

BTS4

BTP3

MD7 L

MD5 L

OP1 L

TAD·E L

AND·E·TS3

BF+KC

MD8 L

PC LOAD L

FR2 & EE2 MQ LOAD L

CPMA LOAD L

MB LOAD L

DR2 PULSE LA

C2 L

BUS STROBE

MD4 L

OV H INIT

BTS4

BTP2

LINK

TAD·E L

BTP3

BTS3

OP1·TS3

BF

FE+FD L

JMP

TP1

JMS·E

BMD7

KC L

CPMA LOAD L

OPE

TP4·MALC

CPMA DIS L

MAC L

PWR OK

AC LOAD L

CSI SKIP L

SKIP (1)

C2 L

MD4 L

BTS4

BTP2

FE+FD L

JMP

TP1

JMS·E

BMD7

BMD5

BMD6

MD7 L

MD5 L

BF+KC

OPR+IOT

OPE·TS3

BMS DIS

TS4·F SET·MS DIS

D JMP

TAD·E·TS3

ISZ·E·TS2

DCA·E·TS2

JMS·E·TS3

JMS·E·TS2

BTS2

BD

BKC

OPR·F

BMD11

OPR+IOT L

OPR·F L

AC=Ø

ACØ

OP2·TS3

OPE·TS3

BMS DIS

TS4·SET·MS DIS

D JMP

TAD·E·TS3

ISZ·E·TS2

DCA·E·TS2

JMS·E·TS3

JMP

IOT L

BTS2

BD

BKC

OPR·F

BMD11

MD8 L

BMD8

BMD9

BMD6

BTP3

BUS STROBE

TP1

F SET L

BTS4

CPMA LOAD L

TP4·MALC

AND·E L

TAD·E L

DCA·E L

JMS·E

BTP2

AND·E·TS3

ISZ·E·TS3

OPR+IOT

OPR·F L

FE+FD L

BTS3

ACØ

AC=Ø

BF

BF+KC

OPE

OP2·TS3

OPI·TS3

OPI L

OPE·TS3

BMS DIS

TS4·SET·MS DIS

D JMP

TAD·E·TS3

ISZ·E·TS2

DCA·E·TS2

JMS·E·TS3

JMP

IOT L

BTS2

BD

BKC

OPR·F

BMD11

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 8/E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
FRACTIONS ±
ANGLES ±
.X ±
.XX ±
FINAL SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRAWN RP 7/24/70
CHK'D
DES
APPR'D
MOD.
NEXT HIGHER ASSY A-ML-KK8-E
SCALE NONE
SHEET 2 OF 4

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE M8310 MAJOR REG. CONT.

SIZE E | CODE CS | NUMBER M8310-0-1 | REV. 1

DWG. TABLE CS M8310-0-1

REVISIONS | LTR | DESCRIPTION | DATE | APPROVED | CHANGE NO.

SKIP (I)
C2 L
MD4 L
BTS4
BTS3
BF
OPI · TS3
FE + FD L
JMP
BMD7
BMD5
BMD6
MD7L
MD5 L
BF + KC
OPR + IOT
OPE · TS3
BMS DIS
TS4 · F SET · MS DIS
D · JMP
TAD · E · TS3
ISZ · E · TS2
DCA · E · TS2
JMS · E · TS3
JMS · E · TS2
BTS2
BD
BKC
OPR · F
BMD11

DATA F
FN2 & ED1
DATA T
EB2 & FU2
EN0
FT2 & EC2
EN2
FV2 & EA2
EN1
EF2 & FP2
MD DIS
FT1
LD ADD EN L
BM2
BK DC L
BK2
MQ → BUS L
ED2 & FS2
AC → MQ ENA L
ET1 & FL2
AC → BUS L
FU1 & ET2
CAR IN L
FS1 & HM2
CPMA DIS L
CU1
BK1
ROM L

PAUSE L
BTS1
C0 L
C1 L
SKIP
C2 L
MD4 L
BTS4
BTS3
BF
OPI · TS3
JMP
BMD7
BMD5
BMD6
MD7 L
MD5 L
BF + KC
OPE · TS3
BMS DIS
TS4 · F SET · MS DIS
D · JMP
TAD · E · TS3
ISZ · E · TS2
DCA · E · TS2
JMS · E · TS3
JMS · E · TS2
BTS2
BD
OPR · F
BMD11

IN D2
IN D1
PAUSE L
BTS1
C0 L
C1 L
SKIP
C2 L
MD4 L
BTS3
BF
OPI · TS3
BMD7
BMD5
BMD6
MD7 L
MD5 L
BF + KC
OPE · TS3
TS4 · F SET · MS DTS
TAD · E · TS3
ISZ · E · TS2
DCA · E · TS2
JMS · E · TS3
JMS · E · TS2
BTS2
BD
OPR · F
BMD11

IND2 CV2
IND1 CU2
PAUSE L CD1
C1 L CH1
C0 L CE1
TS1 L CK2
MD6 L BM1
MD5 L BL1
MD7 L BP1
MD4 L BK1
C2 L CJ1

SIGNALS TO BACK CONNECTORS

PIN	TO MAJOR REGISTER	TO EAE CONTROL	PIN
HV2	MQØ L →	MQØ L	FA2
EB1	AC4-11 = Ø L →	AC4-11 = Ø L	FP1
ET1	AC ← MQ ENA →	AC → MQ ENA	FL2
HU2	MQ DATA L →	MQ DATA L	FB2
ES2	SHL + LD ENA →	SHL + LD ENA	FV1
ED2	MQ ← BUS L →	MQ ← BUS L	FS2
ET2	AC ← BUS L →	AC ← BUS L	FU1
EE2	MQ LOAD L →	MQ LOAD L	FR2
EL1	AC LOAD L →	AC LOAD L	FK2
HH1	MQ11 L →	MQ11 L	FB1
HJ1	MQM0 L →	MQ10 L	FA1
ED1	DATA F →	DATA F	FN2
EB2	DATA T →	DATA T	FU2
EA2	EN2 →	EN2	FV2
EF2	EN1 →	EN1	FP2
ML1	MQ LM L →	MQ LK L	FJ1
HP1	AD Ø L →	AD Ø L	FH1
EC2	EN0 →	EN0	FT2
EM1	AC0 →	AC0	FH2
EM1	ACI →	ACI	FJ2
HH2	RIGHT L →	RIGHT L	FC1
HJ2	LEFT L →	LEFT L	FD1
EC1	CAR. OUT L →	CAR. OUT L	FM2
HM2	CAR. IN L →	CAR. IN L	FS1
HK2	TWICE L →	AC = Ø	FN1
HC1	PAGE Z →	EOP	FE1
HN1	ADI L →	F E SET	FM1
HM1	ADIØ L →	MQ = Ø	FE2
HR1	ADI L →	AC0 = ACI	FF1
HD1	PC LOAD L →	F D SET L	FL1
HE1	CPMA LOAD L →		
HF1	MB LOAD L →	MD DIS	FT1
EP1	AC2 →	AC2 · AC3 = Ø	FF2
ER1	AC3 →		
EA1	MQ8-11 = ØL →		
HK1	MQØ-7 = ØL →		
HA1	MAC L →		

RIGHT L	LEFT L	TWICE L	PAGE Z	DATA TO REGISTER	USE
L	L	L	L	MA ← Ø-4 MQ ← 5-11	PAGE ADDRESSING
L	L	H	X	MBX ∧ ACX	AND
L	H	L	X	ADDER (X-2)	RTR
L	H	H	X	ADDER (X-1)	RAR
H	L	L	X	ADDER (X+2)	RTL
H	L	H	X	ADDER (X+1)	RAL
H	H	L	X	ADDER (X+6)	BYTE SWAP
H	H	H	X	ADDER X	NO SHIFT
L	L	L	H	Ø → MAØ → 4 MD → MA5-11	PG Ø ADDRESSING

EN0	EN1	EN2	INPUT TO ADDER
L	L	L	PC
L	L	H	MD
L	H	L	MQ
L	H	H	MA
H	X	X	H(ARITHMETIC ZERO)

DATA T	DATA F	INPUT TO ADDER
L	L	DATA BUS NOT
L	H	DATA BUS
H	L	H(ARITHMETIC ZERO)
H	H	L(ARITHMETIC ONE)

BIT X OF THE REGISTER SELECTED HERE → IS ADDED TO ← BIT X OF THE DATA BUS AS SELECTED HERE AND THE SUM (ADDER X) IS FED TO A MULTIPLEXER TO BE DECODED AS ABOVE. THE OUTPUT OF THIS MULTIPLEXER IS LOADED INTO WHICH EVER REGISTER IS CLOCKED.

SHL ENA L	AC ← MQ ENA L	DATA ← MQ
L	L	MQX+1 Ø-1Ø MQ DATA → MQ11
L	H	MQX+1 Ø-1Ø MQ DATA → MQ11
H	L	AC (IN COMPLEMENT TO REDEFINE)
H	H	1 (Ø → MQ)

REVISIONS	REV
CHANGE NO.	
CHK	

FIRST USED ON OPTION MODEL: PDP 8/E	QTY	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
TOLERANCES
FRACTIONS ± 1/64 | DECIMALS ± .01 | ANGLES ± 0°30'
FINISH SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP EDGES

MATERIAL
FINISH

DRAWN
CHK'D
ENGR
PROJ ENG
PMGR
DATE 7/1/70

NEXT HIGHER ASSY
A-ML-KK8-E
SCALE NONE
SHEET 3 OF 4

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
M8310 MAJOR REG.
CONT

SIZE E | CODE CS | NUMBER M8310-0-1 | REV H
DST

M8310-0-1

MDØL BMDØ BMDØ BTP3 BUS STROBE TP1 F SET L BTS4 CPMA LOAD L TP4 · MALC AND·E L TAD·E L DCA·E L JMS·E BTP2 AND·E·TS2 ISZ·E·TS2 OPR+IOT L OPR+IOT L OP1 L OP1·TS3 OP2·TS3 OPE BF +KC L BF AC=Ø ACØ BTS3 FE+FD L OPR·F L BMS DIS TS4 · MS DIS SKP · TS3 TAD·E·TS2 ISZ·E·TS2 DCA·E·TS2 JMS·E·TS2 JMP IOT L BTS2 BD BKC OPR·F BMDII OPE·TS3

DKI MDØ L DLI MD9 L DMI MDØ L CKI BUS STROBE L CH2 TP3 CD2 TP1

MS IR DIS L TP2 BF +3V MDØ L AKI MD1 L AL1 MD2 L AM1 DØ2 IRØL DE2 IR1 L DH2 IR2 L 8251 E46 DO2 IRØL

TP4 · MALC TP4 CJ2 MALC BH2 BP2 INT IN PROG

BTS4 F SET TS4 L CP2 F SET L

+5V RIG F E SET L FM1 FE+FD L CPMA LOAD L FLI F D SET L R29 +5V RØ +5V DP2 F SET L

TS3 L CM2 TS2 L CL2 DL2 E L DK2 D L DJ2 F L BF

R38 API ICC MD3 L Q1 DEC3009B R37 3K +5V -15V

BTS3 DPI MDII L DU2 KEY CONTROL L

AC=Ø FNI AC4·11=Ø L EBI & FPI FFI ACØ≠AC1 AC2·AC3=Ø FF2 ACØ ENI FH2 ACI EMI FJ2 AC2 EPI AC3 ERI

MQIØ L —— HJI & FAI
MQII L —— HHI & FBI
SHL ENA L —— ES2 & FVI
MQ DATA L —— HU2 & FB2
MQ Ø L —— HY2 & FA2

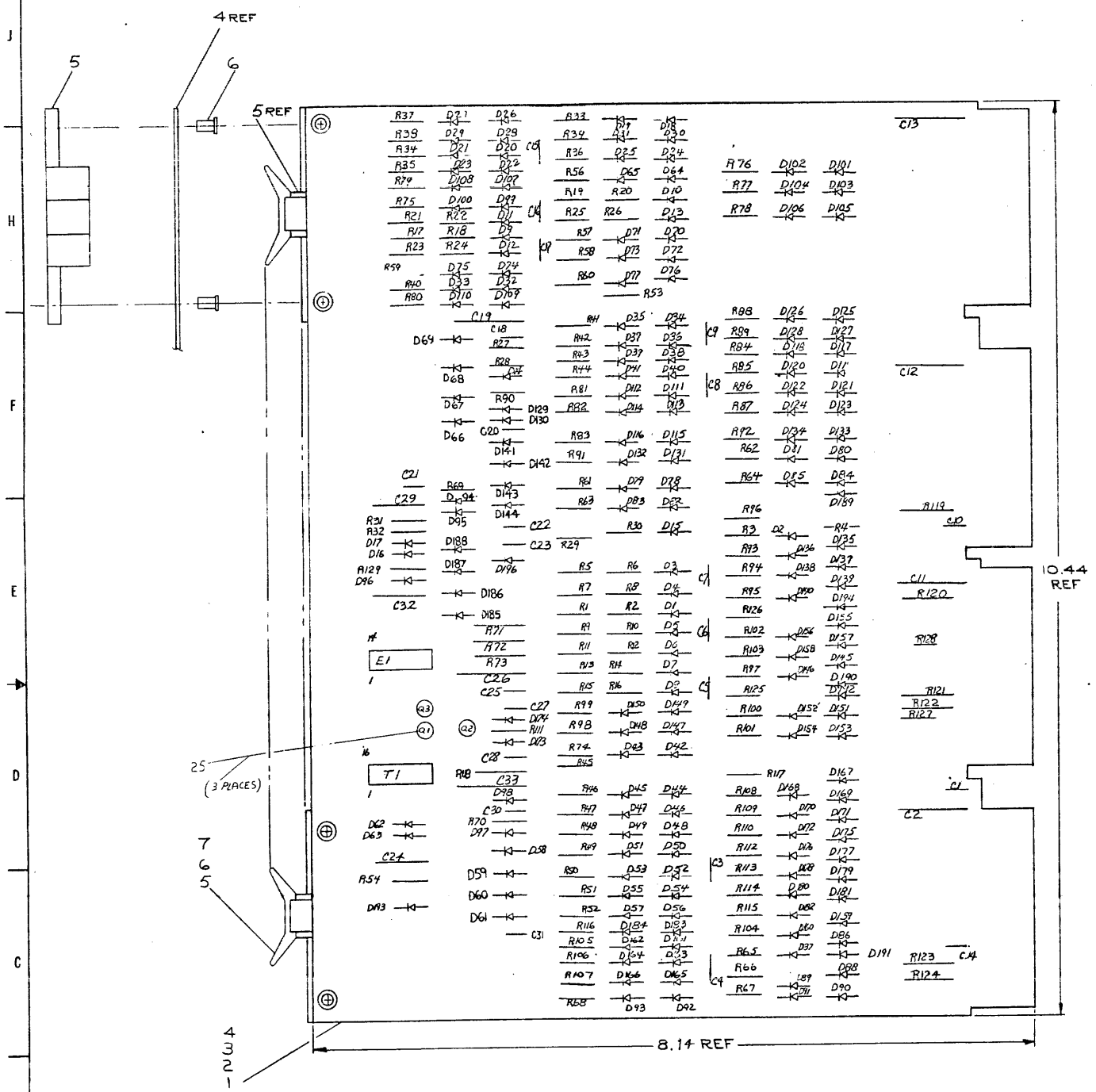
EAI MQ8-11=Ø L MQØ-7 =ØL HKI FE2 MQ=Ø +5V R33 +3V

FIRST USED ON OPTION MODEL: PDP 8/E	QTY.	DESCRIPTION	PART NO.
UNLESS OTHERWISE SPECIFIED		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES FRACTIONS ±1/64 DECIMAL ±.010 ANGLES ± 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND SHARP CORNERS	DRWN	DATE 7/23/70	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
	CHKD	DATE	TITLE M8310 MAJOR REG CONT.
	ENGR	DATE	
	PROJ ENG	DATE 12/4/70	
	PROD	DATE	
MATERIAL —	A-ML-KK8-E		SIZE E CODE ICS NUMBER M8310-Ø-1 REV H
FINISH —	SCALE NONE		DIST
	SHEET 4 OF 4		

REVISIONS: REV. | CHANGE NO. | DIR

M8310-Ø-1 SHEET 4 OF 4

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   CAPACITORS = .047UF 16V 15-20%
   RESISTORS = 150Ω ¼W 5%
   DIODES = D664
2. CONNECT ALL PINS C,E,N,T (EXCEPT AC1) TOGETHER TO GROUND.
3. ITEM NO 3 (D664) MAY BE REPLACED WITH D666 P/N 1105366 (REV C ONLY).
4. INSTALL ITEM 25 (TUBING) ON WIRE LEAD OF EACH ON 3,4,5.
5. ANY COLOR TUBING MAY BE USED FOR ITEM 25



A/R			TUBING, 22 AWG	9107256-11	25
3			TRANS 2N3725	5109459	24
12	R57-R68		RES 1K ¼W 5%	1300365	23
A/R			GRIPLET	1212294-0	22
3	C24, C29, C32		CAP 330PF 100V 5%	1000023	21
7	C2, C11, C12, C13, C19, C26, C33		CAP 6.8UF 35V 20%	1000061	20
23	C1, C3-C10, C14-C18, C20-C23, C25, C27, C28, C30, C31		CAP .047UF 16V 15-20%	1009678	19
1	E1		PC DEC 4007	1105495	18
1	T1		PULSE XFMR BI-BIDIAL INLINE	1604671	17
1	Q1		TRANS DEC 4008	1510015	16
6	R119-R124		RES 1K ½W 10%	1302137	15
2	R71-R73, R118		RES 1.2K ½W 10%	1300387	14
46	R53, R69, R74-R117		RES 1500 ¼W 5%	1300341	13
40	R2, R4, R6, R8, R13, R12, R14, R16, R18, R22, R22, R24, R26, R29, R30, R32-R52, R56, R70, R127, R128		RES 470 ¼W 10%	1300311	12
20	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23, R25, R27, R29, R31, R54, R105, R129, R126		RES 150 ¼W 5%	1300250	11
2	D17, D97		DIODE D672	1105275	10
16	D58-D61, D66-D69, D141-D144, D185-D188		DIODE D662	1100113	9
177	D1-D16, D18-D57, D62-D65, D70-D96, D98-D140, D145-D184, D189, D191, D194-D196	SEE NOTE 3	DIODE D664	1100114	8
AR			SPACER (CABLE CLAMP)	1202704	7
8			EYELET	9000717	6
4			HANDLE FLIP CHIP-MAGENTA	9008337-02	5
1			ETCHED CIRCUIT BOARD	5009786	4
REF			MODULE HISTORY LIST	B-MH-M8328-0-1	3
REF			ASSY/DRILLING HOLE LAYOUT	D-AH-M8328-0-5	2
REF			X-Y COORDINATE HOLE LOC.	K-CO-M8328-0-1	1
QTY.	REF DESIGNATION		DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

ETCH BOARD REV D

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

	DEC NO	EIA NO
DEC 4008	←	
D664	1113604	
D672	1N3653	
D662	1N645	
DEC NO.	EIA NO.	

SEMICONDUCTOR CONVERSION CHART

DRAWN	L. NARH	DATE 7-11-71
CHK'D		DATE
ENG.		DATE
PROJ. ENG.		DATE
APPD.		DATE

FIRST USED ON: D-UA-KK8-E-Ø

SCALE 2/1

SHEET 1 OF 2

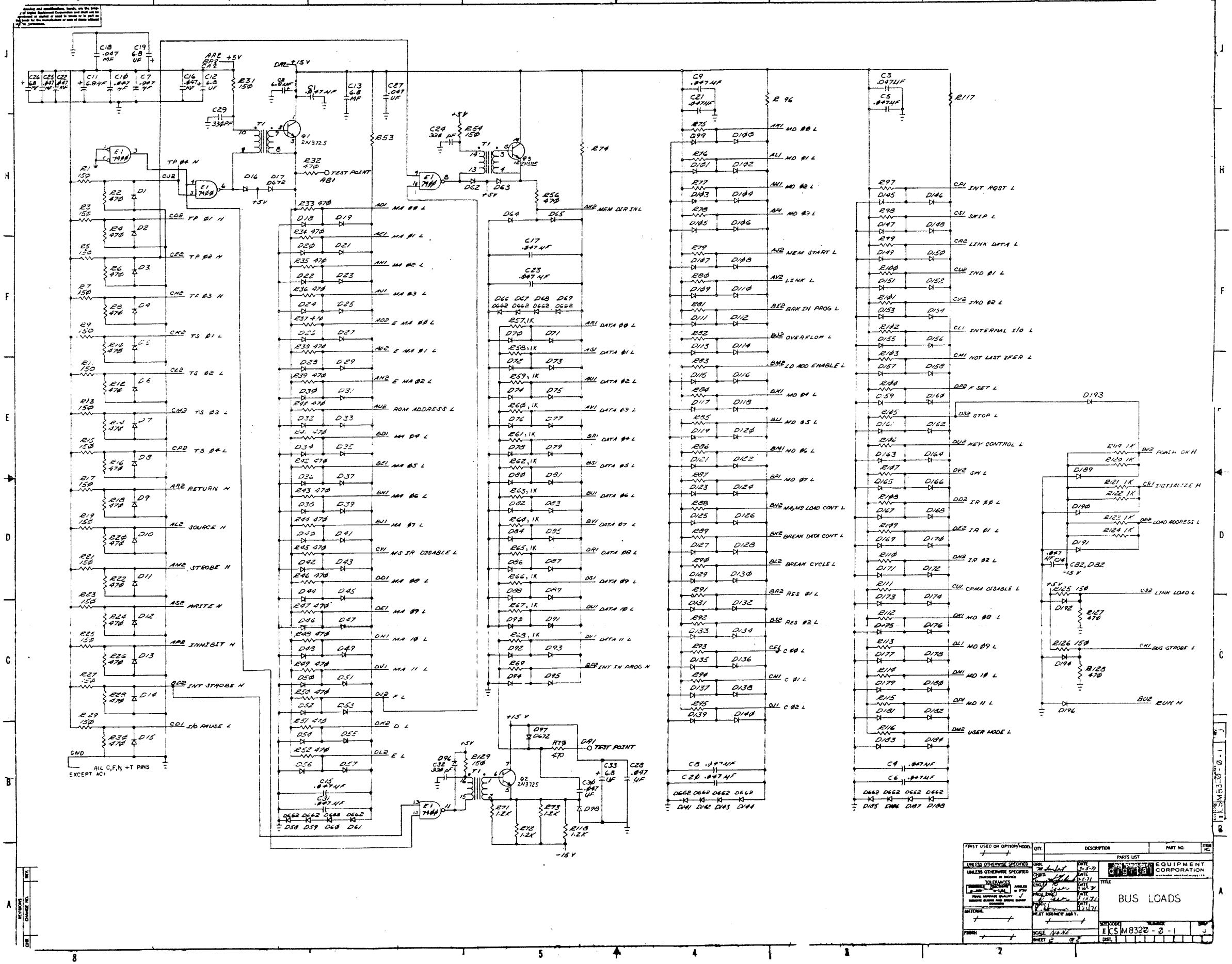
EQUIPMENT CORPORATION

TITLE: BUS LOADS

SIZE: C | NUMBER: ECS M8328-0-1 | REV: J

DIST.

REVISIONS	ZONE	DESCRIPTION	DATE	APPROVED
J		ECO M8328-0-0-1	7-11-71	L. NARH
H		ECO M8328-0-0005	6-25-71	L. KLOTZ
G		ECO M8328-0-0004	6-18-71	J. R. TIRK
F		ECO M8328-0-0003	6-11-71	L. KLOTZ
E		ECO M8328-0-0002	6-4-71	L. KLOTZ
D		ECO M8328-0-0001	5-21-71	L. KLOTZ
C		ECO M8328-0-0000	5-14-71	L. KLOTZ
B		ECO M8328-0-0007	7-2-71	L. NARH
A		INITIATED	4-30-71	L. KLOTZ



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

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
FRACTIONAL ± ANGLES ± .X ± .XX ± .XXX
FINISH, SURFACE QUALITY, MACHINE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. M. Lockhart DATE 3-5-71
CHK'D. DATE 3-5-71
ENG'G DATE 3-5-71
PROJ. MGR. DATE 3-15-71
TECH. DATE 6-24-71
SEE MANUFACTURING

SCALE NONE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
BUS LOADS

SIZE D | NUMBER ECS M8320-2-1 | REV J

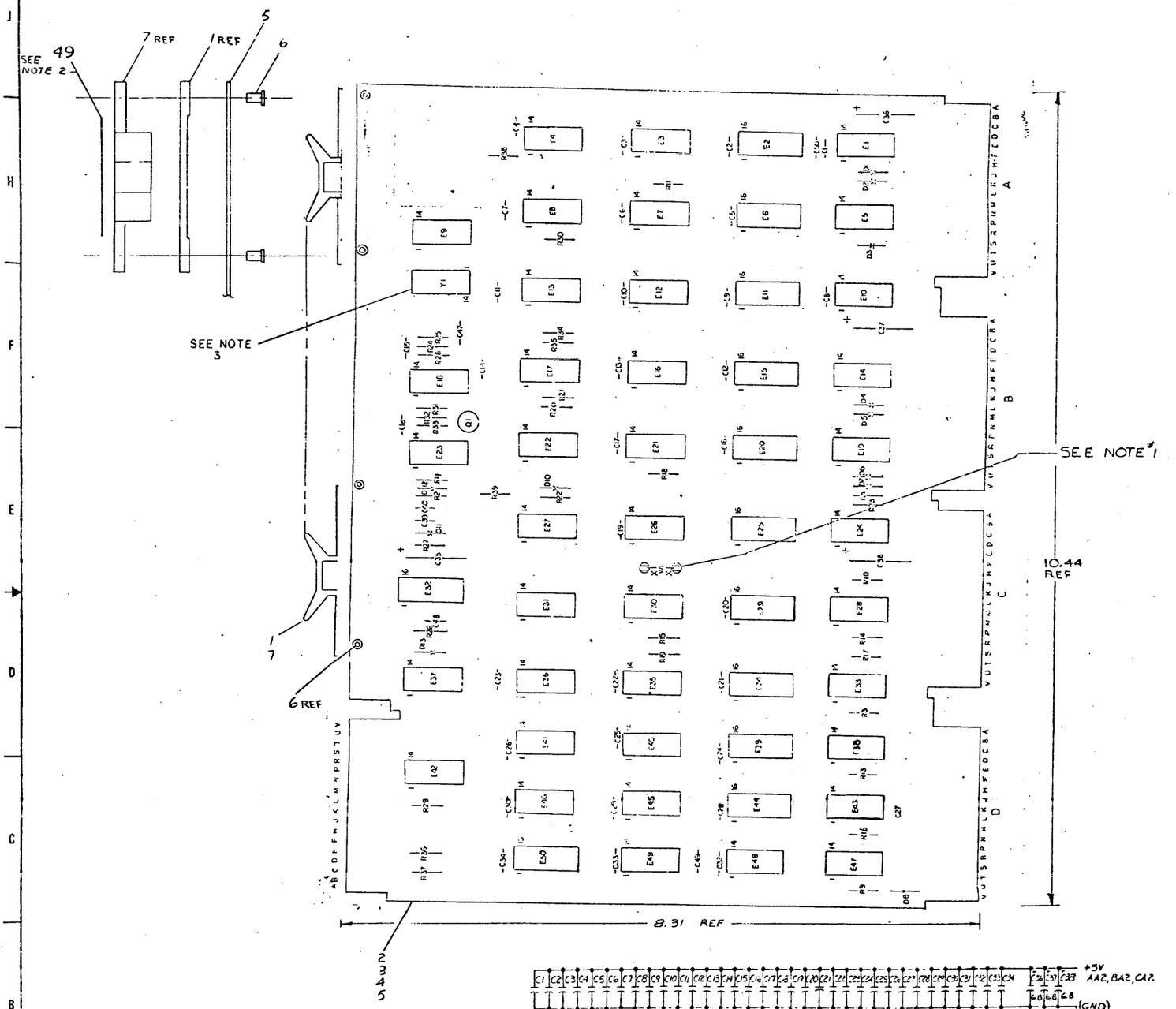
DIST.

REVISIONS: REV. | CHANGE NO. | DATE

ECS M8320-2-1

NOTES:

1. W1 (JUMPER) TO BE INSERTED BY CUSTOMER ONLY.
2. THE STICKER READS AS FOLLOWS: "M8330 ETCH D MAY BE REPLACED WITH ETCH C IF MACHINE USES ONLY CORE MEMORY. SEMICONDUCTOR MEMORIES M8B-F REQUIRE ETCH D OR LATER.
3. IN FIXT OSC. USE SEE-DOWN, SO THAT PIN 1 IS CLOSEST TO THE FINGERS. PIN 1 IS ICENTIFIED BY A SOLDER BLOB ON SIDE OF OSC. CAN.
4. M8330-YB IS TO BE USED ONLY WITH THE M8BF OPTION ONLY.
5. THE YB VARIATION WILL BE CREATED BY INSTALLING ECO Nos' M8330-00006 & M8330-00007 IN M8330 ETCH REV D OR LATER.



QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E27	IC. DEC. 7324	1910793	54
A/R		WIRE #30 AWG	9101740-55	53
1	Y1	OSC 20 MHz	1011660-00	52
4	E9, E21, E30, E40	I.C. DEC 74S74	1910544	51
1	E18	I.C. DEC 74H04	1909931	50
1		M8330 REV. STICKER	3611623	49
2	R38, R39	RES 1K, 1/4W, 5%	1300365	48
2		SPLIT LUG	9006735	47
				46
1	E27	I.C. DEC 7324	1910793	44
1	E13	I.C. DEC 5380	1910392	43
1	E4	I.C. DEC 5314	1910391	43
1	E20	I.C. DEC 82S18	1909594	42
1	E17	I.C. DEC 8881	1909705	41
1	E8	I.C. DEC 74H11	1909267	40
2	E34, 41	I.C. DEC 9401	1909973	39
10	E2, 6, 11, 15, 20, 25, 29, 34, 39, 44	I.C. DEC 74174	1910423	38
1	E32	I.C. DEC 74123	1910436	37
4	E26, 31, 45, 49	I.C. DEC 74H74	1909697	36
12	E1, 3, 5, 7, 10, 14, 19, 24, 28, 33, 38,	I.C. DEC 74H10	1903506	35
2	E12, E16	I.C. DEC 7430	1905578	34
1	E46	I.C. DEC 7420	1905577	33
2	E37, E35	I.C. DEC 7417	1909429	32
1	E48	I.C. DEC 7410	1905576	31
1	E42	I.C. DEC 7404	1909684	30
1	E22	I.C. DEC 7402	1909004	29
2	E23, E47	I.C. DEC 7400	1905575	28
				27
				26
1	Q1	TRANSISTOR DEC 2N2369	1853100	25
1	R27	RES 47K 1/4W 5%	1312737	24
1	REG	RES 16K 1/4W 5%	1300479	23
1	A1	RES 3.9K 1/4 W 5%	1300439	22
14	R2, R4, R23, R24, R34, R35, R36, R37	RES 470 1/4 W 10%	1300317	21
13	M3330-00011	RES 150 1/4W 10%	1300222	20
2	R31, R33	RES 27 1/4W 10%	1301470	19
12	D1-D8, D10-D13	DIODE D664	1103114	18
				17
1	C35	CAP 39 mf, 10V, 10% S. TANT	1002078	16
3	C36-C38	CAP 6.8 mf, 35V, 10% S. TANT	1002306	15
				14
2	C39-C40	CAP .047 mf, 16V, -20% +50%	1029678	13
				12
37	C1-C34, C42, C43, C45	CAP .01 mf, 100V, 20% DISC	1001610	11
1	C48	CAP 1000 PF, 100V, 5% MICA	1000042	10
				9
6		HANDLE FLIP-CHIP MAGENTA	9009537-06	7
6		EYELET GS-111 STAKPOLE	9004760	6
1		ETCHED CIRCUIT BOARD	3009707	5
REF		MODULE ECO HISTORY	Draw: M8330-2	4
REF		ASSY/DRILLING HOLE LAYOUT	Dwg: M8330-1	3
REF		X-Y COORDINATE HOLE LOCATION	Dwg: M8330-2	2
1		STRAIN CABLE CLAMP	1202704	1

IC TYPE	GND	+5V
DEC 74194	8	16
DEC 8251	8	16
DEC 5214	1	8
DEC 5380	1	8
DEC 5394	1	8

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT
—	—	W1	—

JUMPER LIST

SEE NOTE 1

DEC NO.	ECO NO.	DEC NO	ECO NO.
		DEC 3201B	2N3694
		D664	1N3604

SEMICONDUCTOR CONVERSION CHART

FIRST USE ON OPTION/MODEL: M8-F

ETCH BOARD REV: E

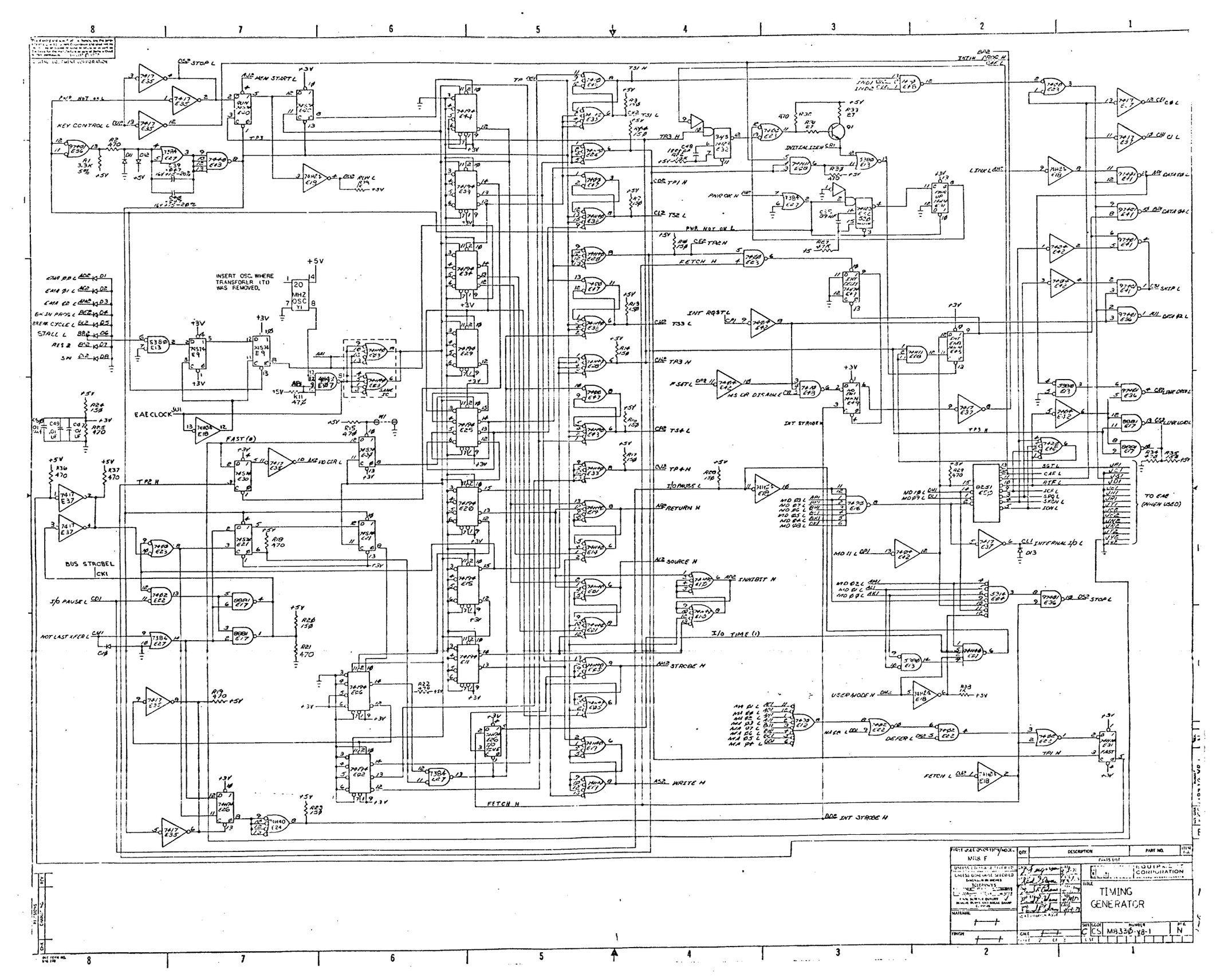
DRAWN 2-MAY-78 L. NAHRI
STOCK NO. 3009708-01
M8330-YB-1
M8330-00011
M8330-00006
M8330-00007
M8330-00005
M8330-00004
M8330-00003
M8330-00002
M8330-00001

DIGITAL EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR

CAGE CODE: CCS | NUMBER: M8330-YB-1 | REV: N

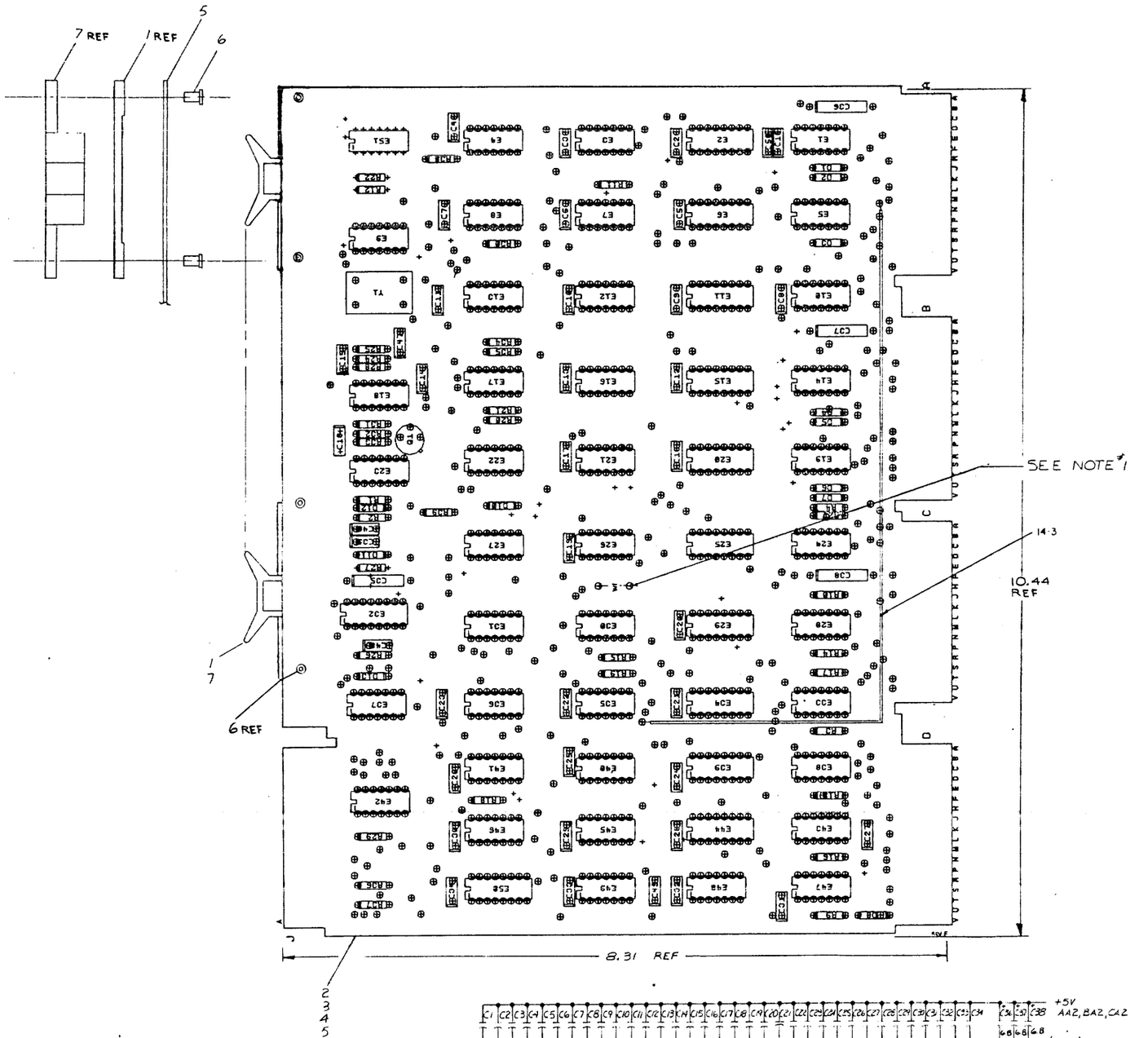
SCALE: | SHEET: OF 2


INSERT OSC. WHERE TRANSFORMER (T1) WAS REMOVED.
TIMING GENERATOR
MR330-X8-1
EAE CLOCK
BUS STROBE
FETCH H
TO EAE (WHEN USED)

DIGITAL EQUIPMENT CORPORATION

NOTES:

1. W1 (JUMPER) TO BE INSERTED BY CUSTOMER ONLY.



GND = AC2, AF1, AN1, AN2, AT1, BC1, BC2, BF1, BN2, BT1, BT2, CC1, CC2, CF1, CF2, CN1, CT1, DC1, DF1, DN1, DT1, DT2.

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
A/R		WIRE, 30 AWG	9105740-55	47
2	E47, E51	I.C. DEC 74S00	1910532-00	46
1	E27	I.C. DEC 7384	1910393	45
~~A/R~~		~~WIRE #30 AWG~~	~~9105740-55~~	~~44~~
1	Y1	OSC 20 MHz.	1911660-00	43
8	E9, E21, E26, E30, E36, E40, E45, E49	I.C. DEC 74S74	1910544	42
1	E18	I.C. DEC 74S04	1910534	41
				40
2	R38, R39	RES 1K, 1/4W, 5%	1300463	39
2		SPLIT LUG	9006735	38
				37
1	E27	I.C. DEC 74S04	~~1910534~~	~~36~~
1	E13	I.C. DEC B646	1911469	35
1	E4	I.C. DEC 5314	1910391	34
1	E50	I.C. DEC 8251B	1909594	33
1	E17	I.C. DEC 8881	1909705	32
1	E8	I.C. DEC 74S11	1910537	31
2	E34, 41	I.C. DEC 97401	1909973	30
10	E2, 6, 11, 15, 20, 25, 29, 34, 39, 44	I.C. DEC 74194	1910623	29
1	E32	I.C. DEC 74123	1910436	28
4	~~E24, 31, 35, 43~~	~~I.C. DEC 74S74~~	~~1910544~~	~~27~~
12	E1, 5, 7, 10, 14, 19, 24, 28, 33, 38, 42, 48	I.C. DEC 74S40	1910541	26
2	E12, E16	I.C. DEC 7430	1901575	25
1	E46	I.C. DEC 74S20	1906527	24
2	E47, E55	I.C. DEC 7417	1901729	23
1	E49	I.C. DEC 74S10	1910536	22
1	E42	I.C. DEC 7404	1901486	21
1	E22	I.C. DEC 7402	1909004	20
1	E23	I.C. DEC 7400	1905895	19
				18
				17
1	Q1	TRANSISTOR DEC 2N3906	1503150	16
1	R27	RES 47K 1/4W 5%	1302177	15
1	R26	RES 10K 1/4W 5%	1302479	14
1	R1	RES 3.3K 1/4W 5%	1302437	13
15	R2, 17, 11, 5, 8, 12, 22, 29, 30, R32, R34, R36, R37	RES 470 1/4W, 5%	1300316	12
13	R3, 9, 10, 13, 14, 16, 23, 24, 26, 35, 45	RES 150 1/4W 5%	1300250	11
2	R31, R33	RES 27 1/4W, 5%	1301522	10
12	D1-D8, D10-D13	DIODE D664	1109114	9
				8
1	C35	CAP 39 mf, 10V, 10% S.TANT	1000736	7
3	C36-C38	CAP 6.8 mf, 35V, 10% S.TANT	1006306	6
				5
2	C39-C40	CAP .047 mf, 16V, -20% + 50%	1300678	4
				3
37	C1-C34, C49, C50	CAP .01 mf, 100V, 20% DISC	1001610	2
1	C48	CAP 1000 PF 100V 5% MICA	1000042	1
3		HANDLE FLIP-CHIP MAGENTA	9003337-06	7
6		EYELET GS9-11 STIMPSON	9006750	6
1		ETCHED CIRCUIT BOARD	5009707	5
REF		MODULE ECO HISTORY	D-ECO-M8339-B-6	4
REF		ASSY/DRILLING HOLE LAYOUT	D-ECO-M8339-B-5	3
REF		X-Y COORDINATE HOLE LOCATION	X-ECO-M8339-B-4	2
3		SPACER CABLE CLAMP	1202704	1

PARTS LIST

	DEC NO.	EIA NO.
DEC 74194	8	16
DEC 8251	8	16
DEC 5314	1	8
DEC 5380	1	8
DEC 5384	1	8
IC TYPE	GND	+5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

SEE NOTE 1

ITEM NO	AWG	FROM PT	TO PT
—	—	W1	—
JUMPER LIST			

DEC NO.	EIA NO.	DEC NO.	EIA NO.
DEC 3008B	2N3646		
D664	1N3606		

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION/MODEL: MR8-F

ETCH BOARD REV: F

REV	DESCRIPTION	DATE	APPROVED
J	ADDED M8330-00001	3/19/76	D. ADAMS
K	ADDED M8330-00002	3/31/76	D. ADAMS
L	ADDED M8330-00003	4/19/76	D. ADAMS
M	ADDED M8330-00004	5/19/76	D. ADAMS
N	ADDED M8330-00005	6/18/76	D. ADAMS
P	ADDED M8330-00006	10/20/76	D. ADAMS
R	ADDED M8330-00007	2/21/77	D. ADAMS

DRAWN: J. Pagan 12-22-72
CHECKED: [illegible] 12/22/72
ENGINEERING: [illegible] 12/22/72
MFG: [illegible] 12/22/72
QUALITY: [illegible] 12/22/72
NEXT HIGHER ASSY

DIGITAL EQUIPMENT CORPORATION

TITLE: TIMING GENERATOR

SCALE: 1 OF ?

CODE: ECS | SIZE: A | NUMBER: M8330-0-1 | REV: R

DWG: M8330-0-1 R

mc

FIRST USED ON OPTION/MODEL: MR8-F	QTY.	DESCRIPTION	PART NO.	ITEM NO.
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED
TOLERANCES
FINISH
MATERIAL
NEXT HIGHER ASSY

DRWN	DATE
CHKD	DATE
ENGR	DATE
PROJ. ENGR	DATE
PROD.	DATE

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: TIMING GENERATOR

SCALE | SHEET 2 OF 2

SIZE	CODE	NUMBER	REV.
E	CS	M8330-0 1	R

DST

REVISIONS		
REV.	CHANGE NO.	DATE

SEE PAGE NO. 100

TO EAE (WHEN USED)