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FIELD MAINTENANCE PRINT SET

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MAJOR REG. CONT. (M831Ø)	E-CS-M831Ø-Ø-1
BUS LOADS	E-CS-M832Ø-Ø-1
TIMING GENERATOR	C-CS-M833Ø-YB-1
TIMING GENERATOR	E-CS-M833Ø-Ø-1

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
NK			

USED ON OPTION/MODEL	
PDP8E	

SHEET I OF 1

DRN. S. ROBERTS	DATE 12OCT76	TITLE: KK8-F
CHK'D S. Roberts	DATE 21OCT76	
PROJ. ENG. WM.	DATE 5-NOV76	
FIELD SERV.	DATE 5 NOV 76	

digital

SIZE	CODE	NUMBER	REV.
B	TC	KK8-F-3	

DIST.

EN-01124-16-N676-(327)

DRB 124

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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	

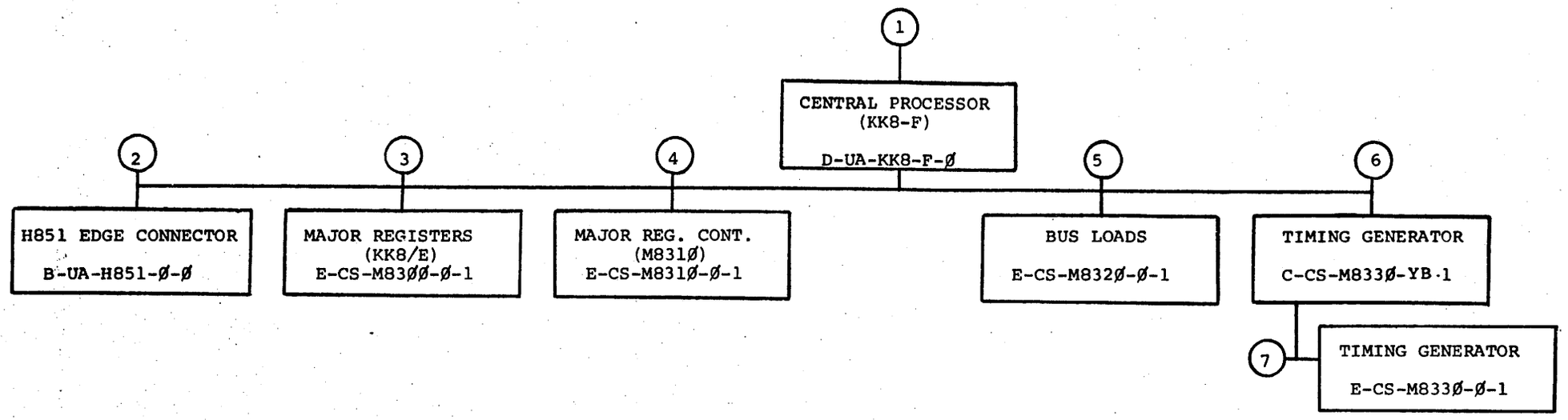
SHEET 1 OF 3

DRN. S. ROBERTS	DATE 12OCT76	TITLE CENTRAL PROCESSOR (KK8-F)
CHK'D. S. Roberts	DATE 21OCT76	
PROJ. ENG. W. Daal	DATE 5 NOV 76	
PROD.	DATE 5NOV76	

SIZE	CODE	NUMBER	REV
B	DD	KK8-F	

DIST.

DRB 106A



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

DRB

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

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
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		SIZE	CODE	NUMBER	REV
CENTRAL PROCESSOR (KK8-F)	SHEET 3 OF 3	B	DD	KK8-F	

DRB 108A

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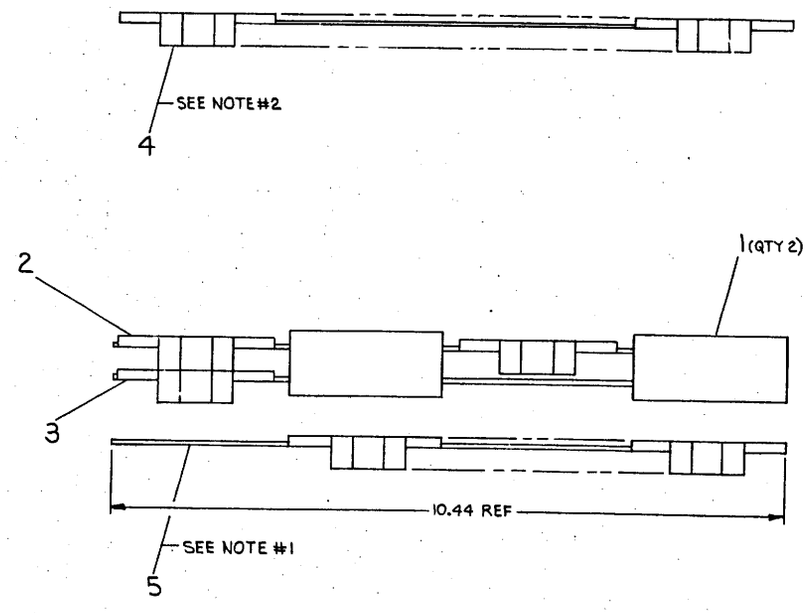
NOTES:

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-M833Ø-Ø-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-Ø-4



ITEM NO.	DESCRIPTION	DWG./PART NO.	
6	KK8-F SHIPPING LIST	A-PL-KK8-F-2	1
5	TIMING GENERATOR	E-CS-M833Ø-YB-1	1
4	BUS LOADS	E-CS-M832Ø-Ø-1	1
3	MAJOR REGISTOR CONTROL	E-CS-M831Ø-Ø-1	1
2	MAJOR REGISTORS	E-CS-M83ØØ-Ø-1	1
1	EDGE CONNECTOR	B-UA-H851-Ø-Ø	2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 0.2	OVER 0.2 TO 1.5	OVER 1.5 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.018	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.026	±.04	±.060	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: — / —

DRN. S. Rhodes 11 OCT 76
CHK. S. Rhodes 21 OCT 76
ENG. W. Dodd 5-Nov-76
PROJ. ENG. W. Dodd 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	CODE	NUMBER	REV.
D	UA	KK8-F-Ø	

DIST.

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. DRD 100-C

SIZE CODE D UA | KK8-F-Ø | REV.

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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.

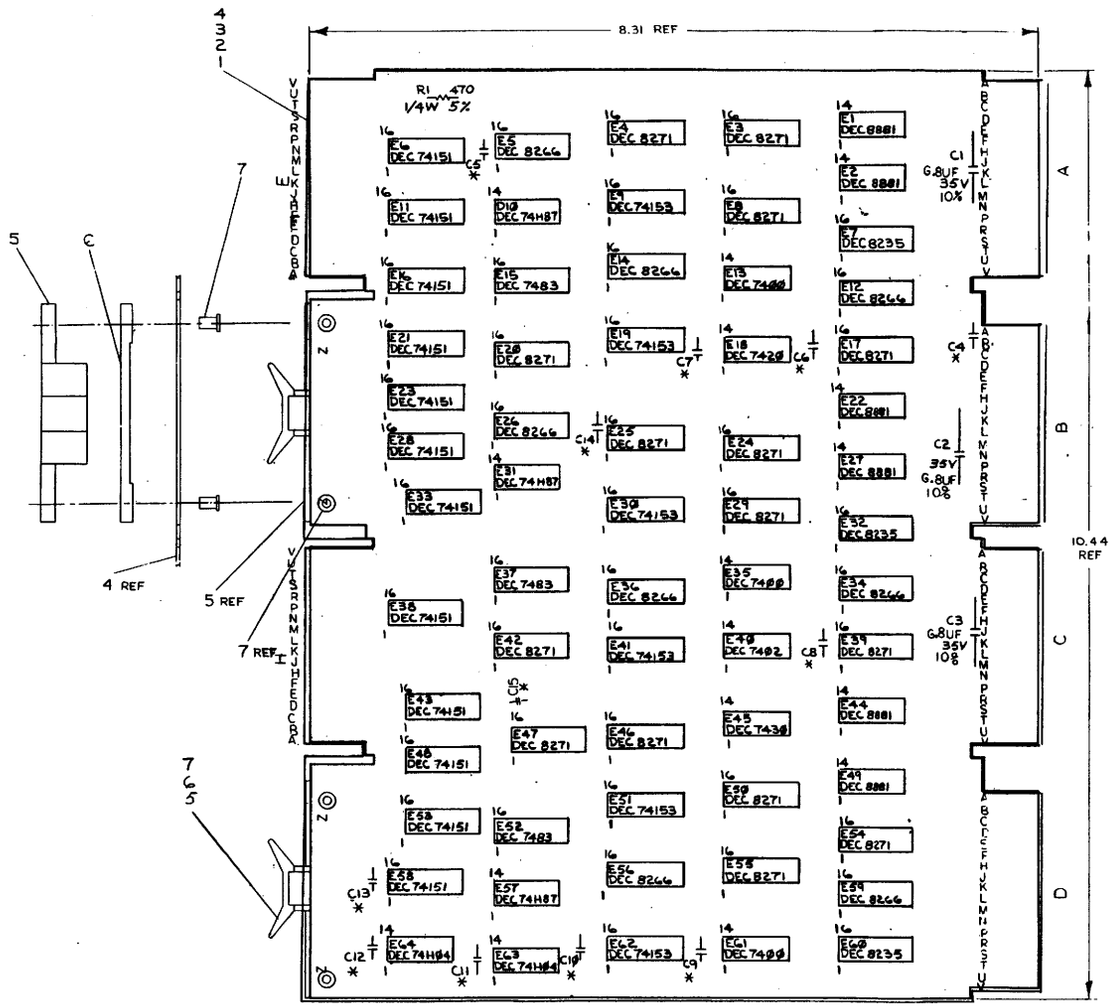
SIZE	CODE	NUMBER	REV
A	SP	KK8-F-1	

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

SHEET 3 OF 3

NOTES:

* THESE COMPONENTS MUST BE ON M8300 IF KL8-A (M8319) IS USED ON SYSTEM.



QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
* 1	C15	CAP 100PF D.M.	1000016	25
~~1~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~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,E40, 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%	300316	10
* 11	C4-C14	CAP .22UF 50V CER	1010274-00	9
3	C1,C2,C3	CAP .68UF 35V 20% TANT	1000067	8
4		BYTE PTS (SELL STIMPSON)	1000750	7
2		SPACER (CABLE CLAMP)	1207704	6
2		HANDLE FLIP CHIP-MAGENTA	1008337-06	5
1		ETCHED CIRCUIT BOARD	5009250	4
REF		MODULE HISTORY LIST	[illegible]	3
REF		ASSY/DRILLING HOLE LAYOUT	[illegible]	2
REF		X-Y COORDINATE HOLE LOCATION	[illegible]	1

PARTS LIST

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 RESPECTFULLY. EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

REV COLUMN B

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH. REVISION

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

EIA NO.

SEMICONDUCTOR CONVERSION CHART

SCALE 2/1

SHEET 1 OF 5

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE MAJOR REGISTERS (KK8/E)

SIZE E CS M8300-0-1 REV. E

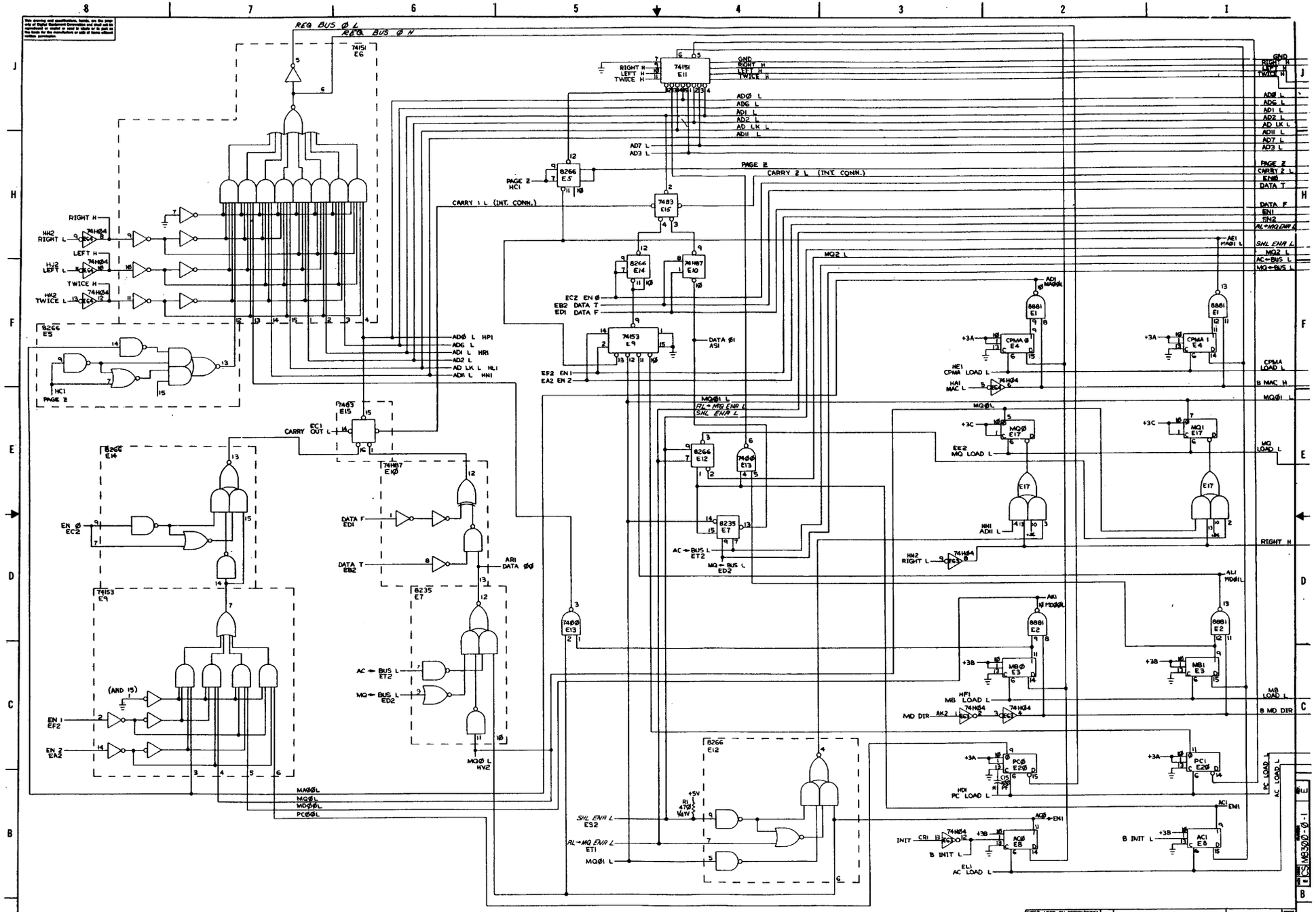
DATE 12/19/68

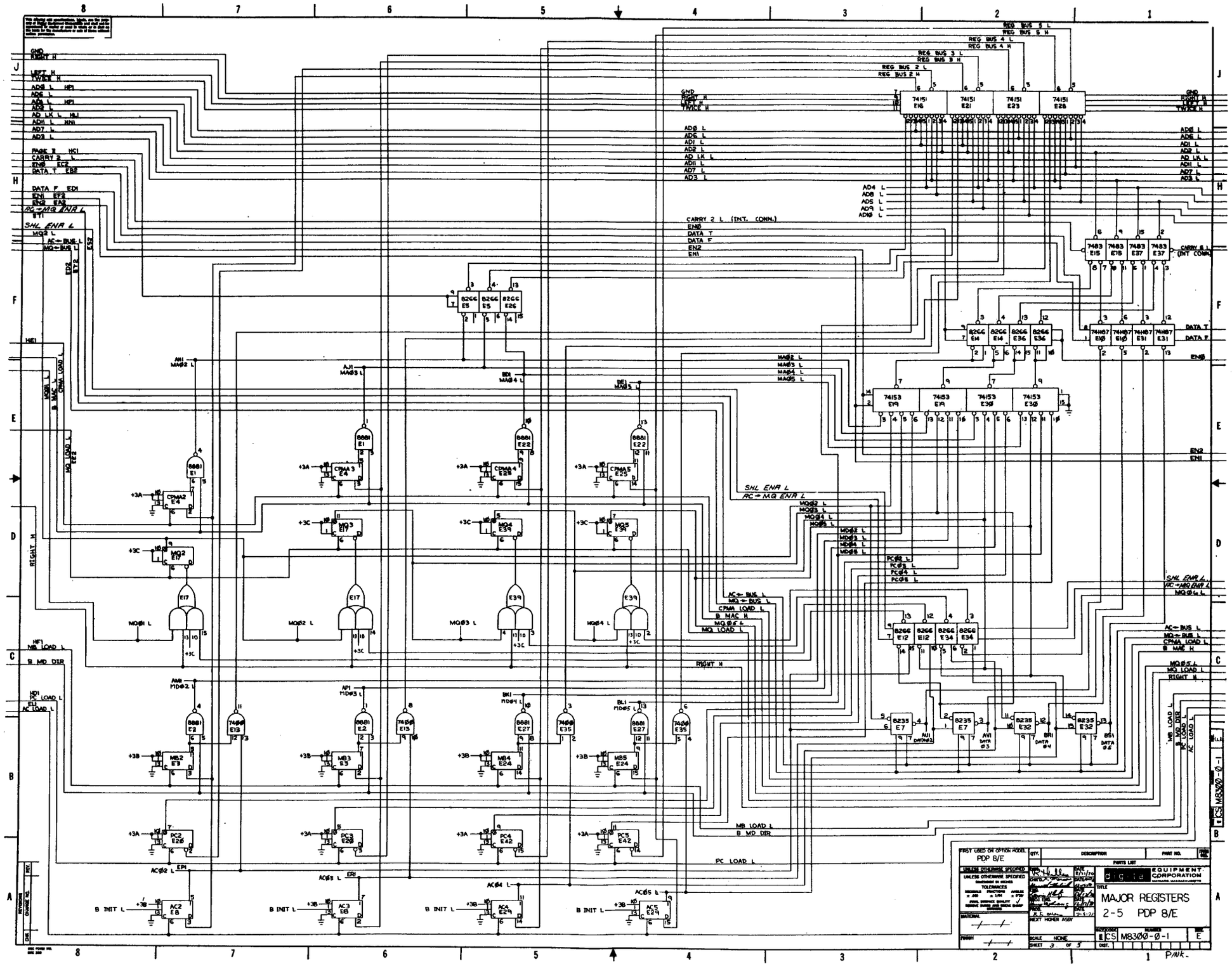
M8300-0-1

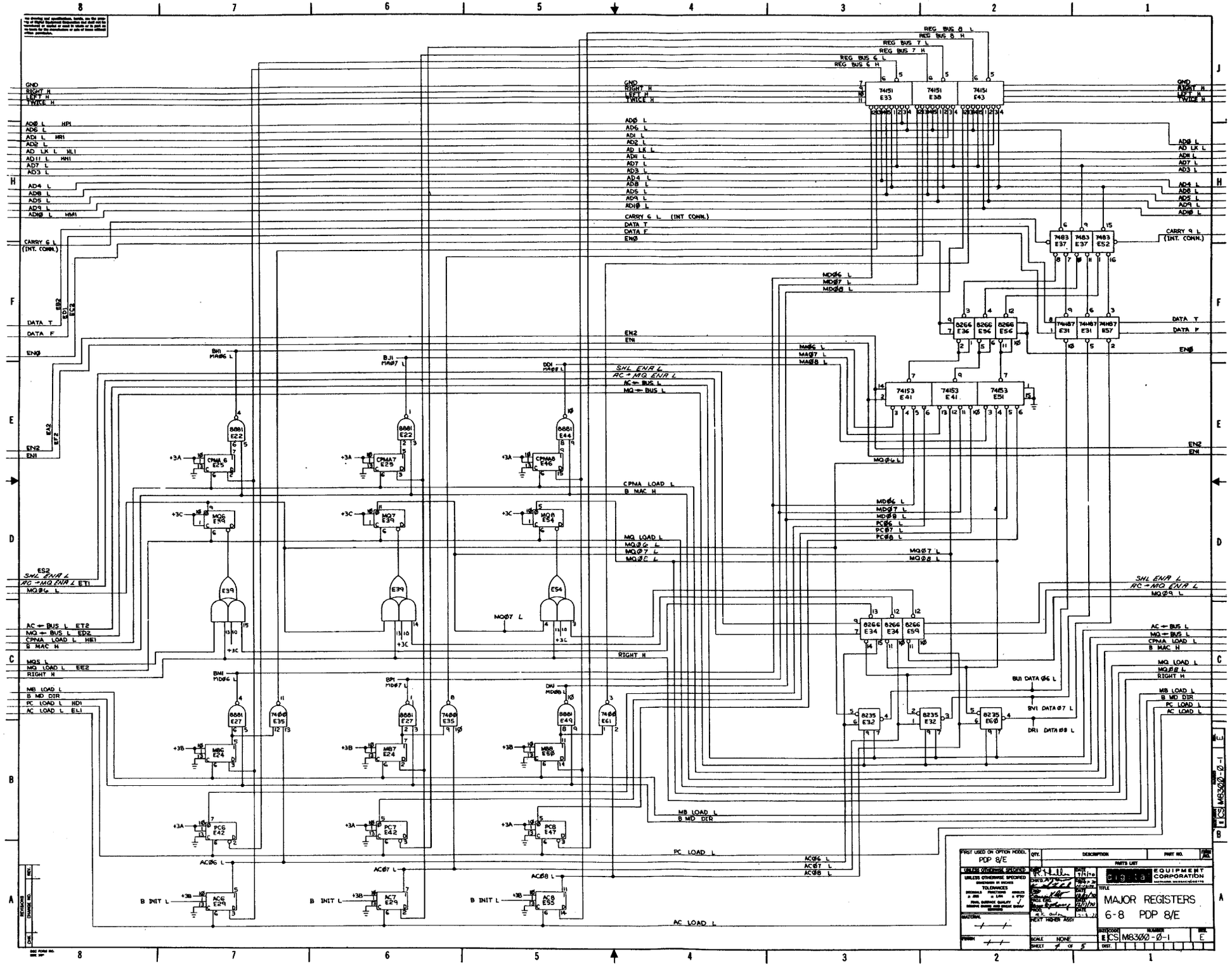
E.C.S.

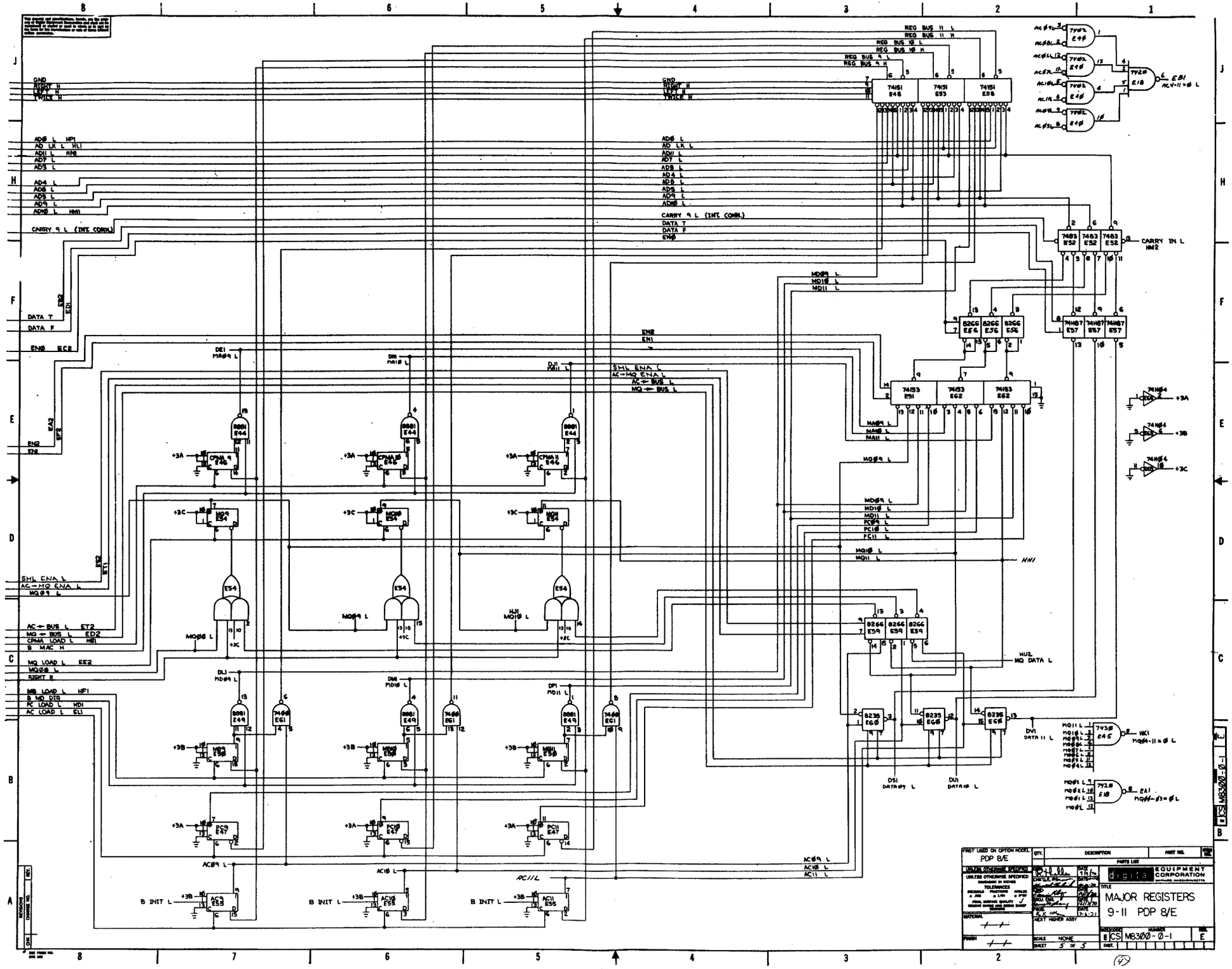
B

A

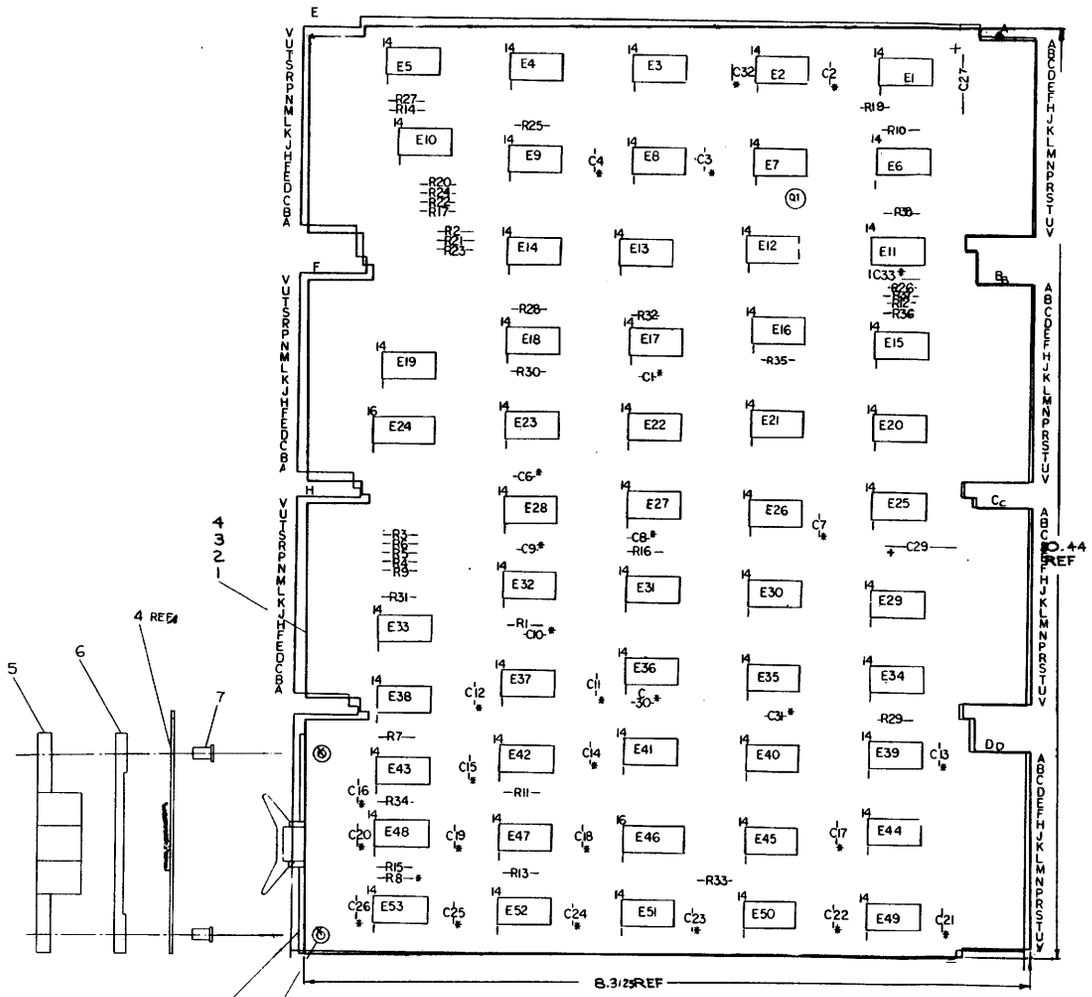

REG BUS Ø L
REG BUS Ø H
74151 E6
74151 E11
RIGHT H
LEFT H
TWICE H
GND
AD Ø L
AD 6 L
AD 1 L
AD 2 L
AD LK L
AD 11 L
AD 7 L
AD 3 L
PAGE Z
CARRY 2 L (INT. CONN.)
EN Ø
DATA T
DATA F
EN 1
EN 2
AL→MQ ENA L
SHL ENA L
MQ 2 L
AC←BUS L
MQ←BUS L
8266 E5
8266 E14
74H87 E10
74153 E9
74H87 E10
8235 E7
8266 E12
74Ø3 E13
8881 E1
8881 E2
CPMA Ø E4
CPMA 1 E4
MQØ E17
MQ1 E17
MBØ E3
MB1 E3
PCØ E2Ø
PC1 E2Ø
ACØ E8
AC1 E8
CARRY 1 L (INT. CONN.)
CARRY OUT L
MQØ1 L
MAØØL
MQØ1L
MDØØL
PCØØL
(AND 15)
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:
74153 E19 74153 E39
THIS DENOTES A CONNECTION BETWEEN E19 PIN 14 AND
E39 PIN 14, E19 PIN 2 AND E39 PIN 2 (ALSO PINS
1 AND 15 ON EACH I.C). THIS ALSO IS TRUE FOR
OTHER CASES SUCH AS 8266, 74H87, AND 74151.
FIRST USED ON OPTION/MODEL
PDP 8/E
PARTS LIST
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
TITLE
MAJOR REGISTERS
Ø & 1 PDP 8/E
NEXT HIGHER ASSY
A-ML-KK8-E
SCALE NONE
SHEET 2 OF 5
SIZE CODE E
CS M8300-Ø-1
REV. E


MAJOR REGISTERS
2-5 PDP 8/E
EQUIPMENT CORPORATION
M8300-0-1
PDP 8/E
74151 E16
74151 E21
74151 E23
74151 E28
7483 E15
7483 E15
7483 E37
7483 E37
8266 E5
8266 E5
8266 E26
8266 E14
8266 E14
8266 E36
8266 E36
74H87 E10
74H87 E10
74H87 E31
74H87 E31
74153 E19
74153 E19
74153 E30
74153 E30
8881 E1
8881 E22
CPMA3 E4
CPMA4 E28
CPMA5 E25
CPMA2 E4
MQ3 E19
MQ4 E39
MQ5 E34
MQ2 E19
E17
E39
8266 E12
8266 E12
8266 E34
8266 E34
8235 E7
8235 E7
8235 E32
8235 E32
8881 E2
8881 E27
7400 E13
7400 E15
7400 E35
MB2 E9
MB3 E3
MB4 E24
MB5 E24
PC2 E26
PC3 E28
PC4 E42
PC5 E42
AC2 E8
AC3 E8
AC4 E29
AC5 E29
CARRY 6 L (INT CONN)
CARRY 2 L (INT. CONN.)
SHL ENA L
AC→MQ ENA L
AC← BUS L
MQ← BUS L
CPMA LOAD L
B MAC H
MQ LOAD L
RIGHT H
MB LOAD L
B MD DIR
PC LOAD L
B INIT L
DATA T
DATA F
EN0
EN1
EN2
REG BUS 2 L
REG BUS 2 H
REG BUS 3 L
REG BUS 3 H
REG BUS 4 L
REG BUS 4 H
REG BUS 5 L
REG BUS 5 H
FIRST USED ON OPTION MODEL
PARTS LIST
DESCRIPTION
PART NO.
UNLESS OTHERWISE SPECIFIED
TOLERANCES
MATERIAL
FINISH
NEXT HIGHER ASSY
SCALE NONE
SHEET 3 OF 5
DIST.
SIZE E
NUMBER M8300-0-1
REV. E


MAJOR REGISTERS
6-8 PDP 8/E
PDP 8/E
EQUIPMENT CORPORATION
M8300-0-1
SCALE NONE
SHEET 4 OF 5
74151 E33
74151 E38
74151 E43
7483 E37
7483 E37
7483 E52
8266 E36
8266 E56
8266 E56
74H87 E31
74H87 E31
74H87 E57
74153 E41
74153 E41
74153 E51
8266 E34
8266 E34
8266 E59
8235 E32
8235 E32
8235 E60
8881 E22
8881 E22
8881 E44
8881 E27
8881 E27
8881 E61
7400 E35
7400 E35
7400 E61
CPMA 6 E25
CPMA7 E29
CPMA8 E46
MQ6 E39
MQ7 E39
MQ8 E54
E39
E39
E54
MB6 E24
MB7 E24
MB8 E60
PC6 E42
PC7 E42
PC8 E47
AC6 E29
AC7 E29
AC8 E55
GND
RIGHT H
LEFT H
TWICE H
REG BUS 8 L
REG BUS 8 H
REG BUS 7 L
REG BUS 7 H
REG BUS 6 L
REG BUS 6 H
AD0 L
AD6 L
AD1 L
AD2 L
AD LK L
AD11 L
AD7 L
AD3 L
AD4 L
AD8 L
AD5 L
AD9 L
AD10 L
CARRY 6 L (INT. CONN.)
CARRY 9 L (INT. CONN.)
DATA T
DATA F
EN0
EN2
EN1
MA06 L
MA07 L
MA08 L
SHL ENA L
AC → MQ ENA L
AC ← BUS L
MQ → BUS L
CPMA LOAD L
B MAC H
MD06 L
MD07 L
MD08 L
PC06 L
PC07 L
PC08 L
MQ LOAD L
MQ06 L
MQ07 L
MQ08 L
MQ09 L
MQ00 L
RIGHT H
MB LOAD L
B MD DIR
PC LOAD L
AC LOAD L
AC06 L
AC07 L
AC08 L
B INIT L
BUI DATA 06 L
BVI DATA 07 L
DRI DATA 08 L


MAJOR REGISTERS
9-11 PDP 8/E
digital EQUIPMENT CORPORATION
MB3000-0-1
PDP 8/E
PARTS LIST
DESCRIPTION
PART NO.
NEXT HIGHER ASSY
SCALE NONE
SHEET 5 OF 5
CARRY IN L
SHL ENA L
AC→MQ ENA L
AC→BUS L
MQ→BUS L
MQ DATA L
B INIT L
REG BUS 11 L
REG BUS 11 H
REG BUS 10 L
REG BUS 10 H
REG BUS 9 L
REG BUS 9 H
CARRY 9 L (INT. CONN.)
DATA T
DATA F
ENØ
GND
RIGHT H
LEFT H
TWICE H

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	R36	RES. 100, 1/4W, 10%	1300231	29
1	Q1	TRANSISTOR DEC30091B	1203100	28
2	E40, E45	I.C. DEC 74H74	1909867	27
3	E16, E21, E35	I.C. DEC 74H00	1909056	26
2	E14, E36	I.C. DEC 74H04	1909931	25
1	R35	RES 100, 1/4W, 5%	1300[illegible]	[illegible]
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, E18	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	1909594	17
1	E29	I.C. DEC 384	1909486	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	1905547	11
33	R1-R7, R9-R17, R19-R34, R38	RES. 470, 1/4W, 5%	1300316	10
* 21	C1-C4, C6-C26, C30-33	CAP. .22 MFD 50V CER	1010274	9
2	C27, C29	CAP. 6.8UF, 35V. 20% S. TANT	1000067	8
2		EYELETS 664-11 STIMPSON	9006750	7
1		SPACER (CABLE CLAMP)	1202704	6
1		HANDLE, FLIP CHIP-MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009278	4
REF		MODULE ECO HISTORY	B-MM-M8310-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AM-M8310-0-5	2
REF		X-Y COORDINATE HOLE LOC.	X-CO-M8310-0-4	1

PARTS LIST

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

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

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT

JUMPER LIST

DEC 3005H	2N3646
DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

REV	DATE	DESCRIPTION	BY
A	11/71	M8310-00001	LOUIS KLOTZ
B	11/71	M8310-00002	LOUIS KLOTZ
C	7-27-71	M8310-00004	LOUIS KLOTZ
D	7-27-71	M8310-00005	LOUIS KLOTZ
E	10-27-71	M8310-00006	LOUIS KLOTZ
F	11-8-71	M8310-00008	LOUIS KLOTZ
G	11-8-71	M8310-00009	LOUIS KLOTZ
H	11-8-71	M8310-00010	LOUIS KLOTZ

REVISIONS

PRINTED CIRCUIT BOARD REVISION: H

CIRCUIT SCH. REVISION: H

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: MAJOR REG. CONT. (M8310)

D-UA-KK8-E-0

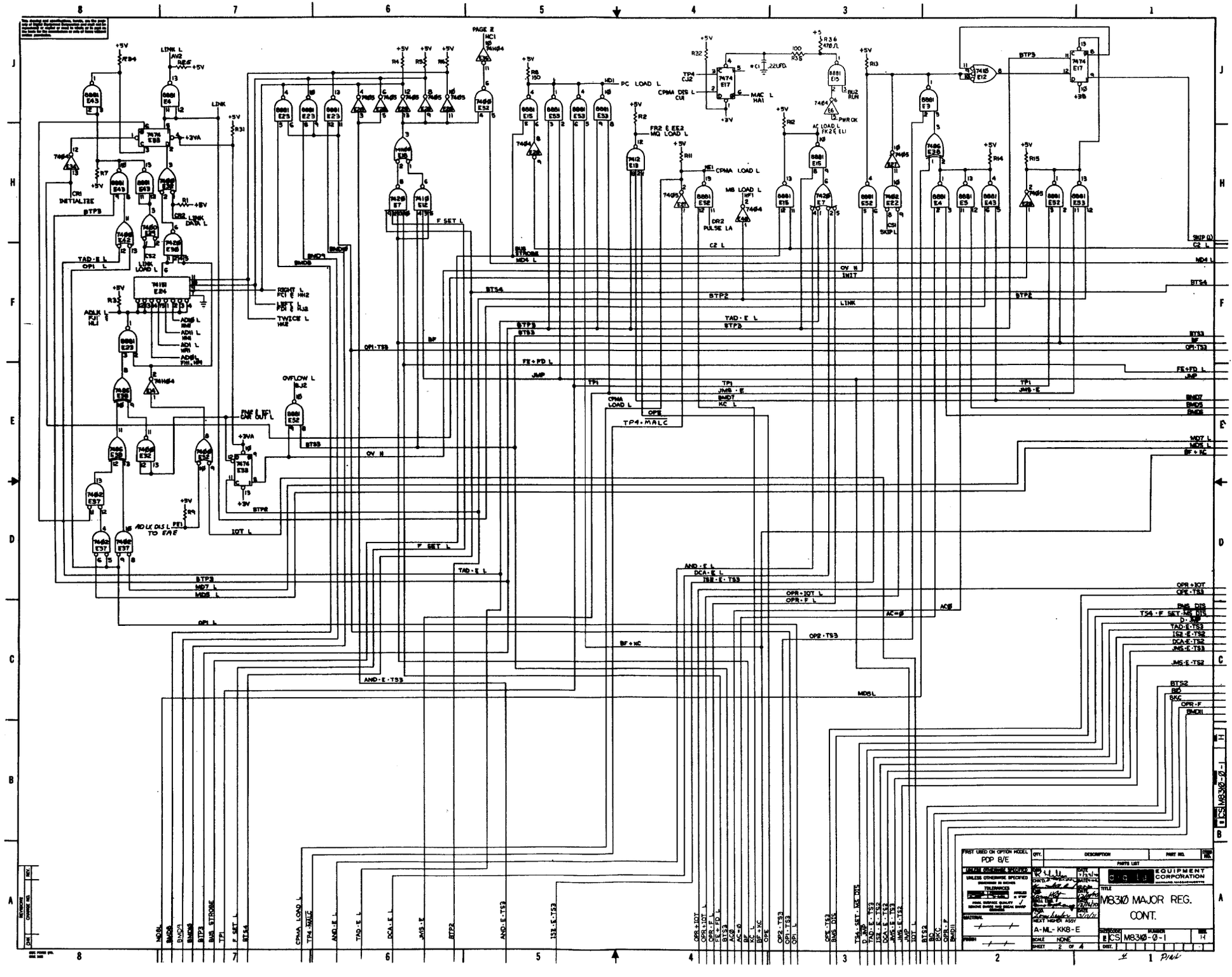
SCALE 2/1

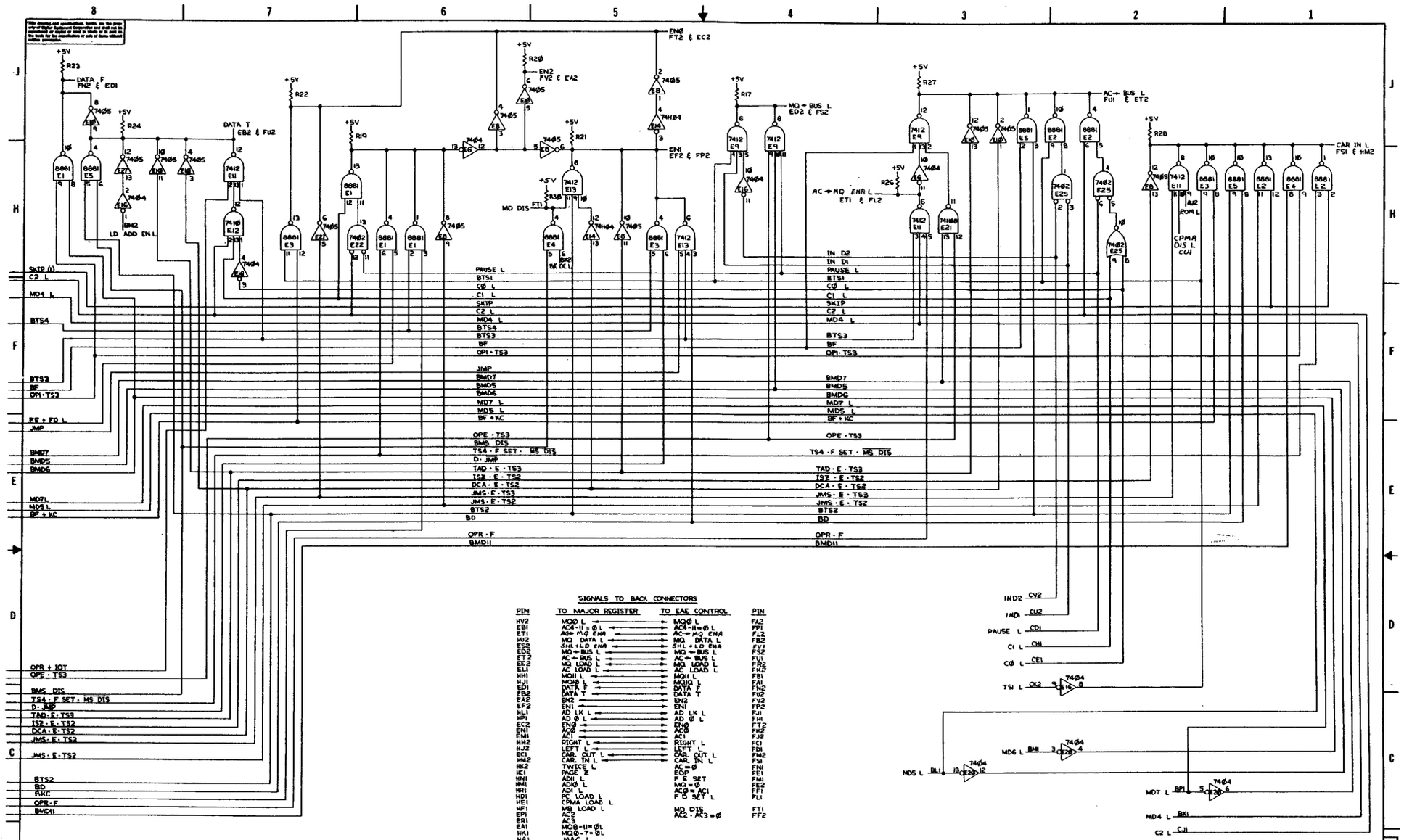
SHEET 1 OF 4

SIZE E CS M8310-0-1

DATE 12/17/68

M8310-0-1


FIRST USED ON OPTION MODEL
PDP 8/E
EQUIPMENT CORPORATION
M8310 MAJOR REG. CONT.
A-ML-KK8-E
M8310-0-1
SCALE NONE
SHEET 2 OF 4



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

ENØ	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-10 MQ DATA ← MQH
L	H	MQX+1 Ø-10 MQ DATA ← MQ11
H	L	AC (IN COMPLEMENT TO REDEFINE)
H	H	1 (Ø ← MQ)

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

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: M8310 MAJOR REG. CONT

NEXT HIGHER ASSY: A-ML-KK8-E

SCALE: NONE

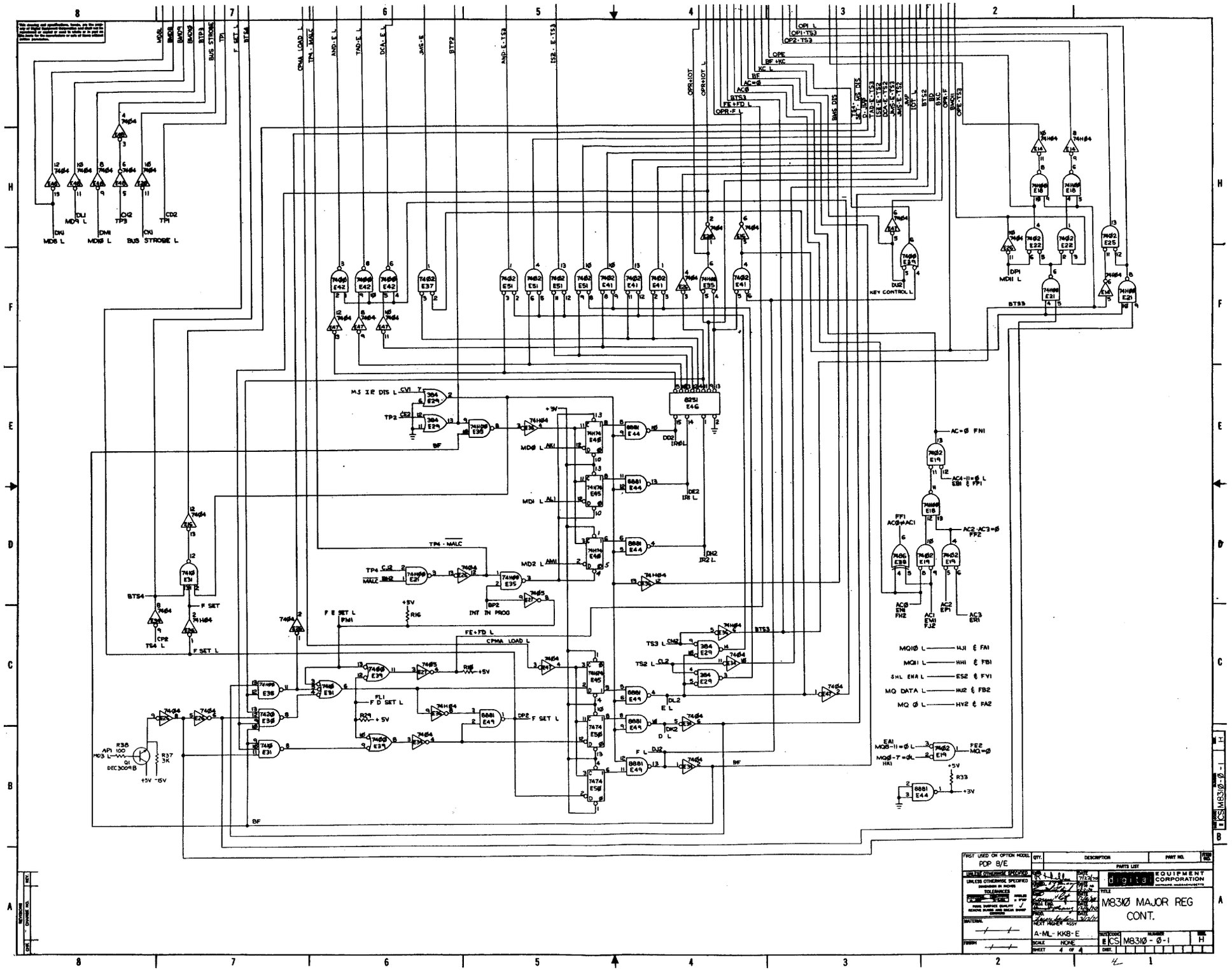
SIZE E | CODE CS | NUMBER M8310-Ø-1 | REV. H

SHEET 3 OF 4

DIST.

REVISIONS: REV. | CHANGE NO. | CHK.

DEC FORM NO. DNE 500


M83Ø MAJOR REG CONT.
POP 8/E
DIGITAL EQUIPMENT CORPORATION
A-ML-KK8-E
M83Ø-Ø-1
H
SCALE NONE
SHEET 4 OF 4
MQ1Ø L
MQ11 L
SHL ENA L
MQ DATA L
MQ Ø L
KEY CONTROL L
BUS STROBE L
MS IR DIS L
INT IN PROG
F SET L
F E SET L
CPMA LOAD L
TP4 · MALC
AC=Ø FN1
AC2·AC3=Ø FP2
AC4-11=Ø L
MQ=Ø
+5V
+3V
-15V

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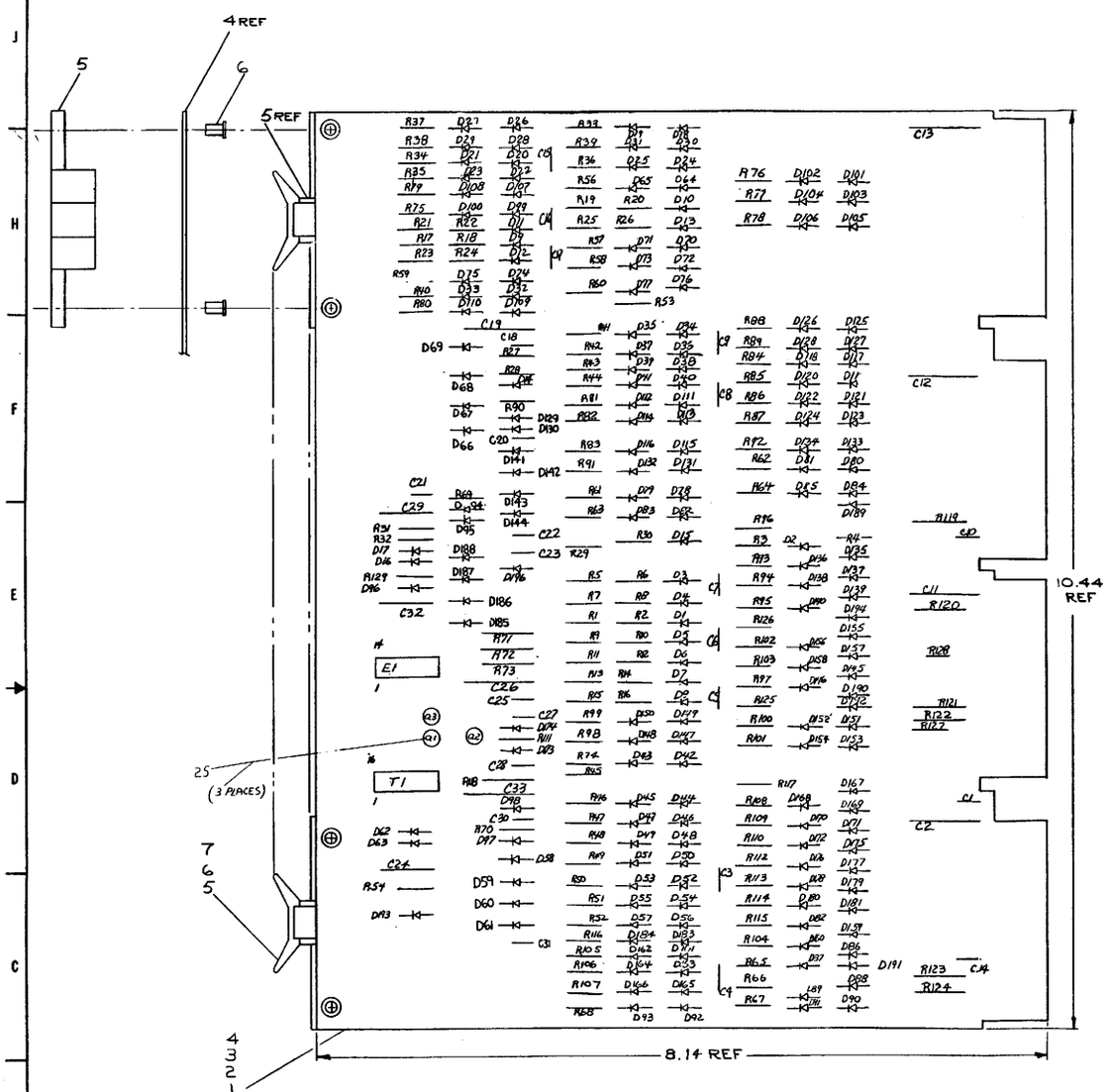
NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   CAPACITORS = .047UF 16V 15-20%
   RESISTORS = 1500 1/4W 5%
   DIODES = D664
2. CONNECT ALL PINS C,F,K,T (EXCEPT AC1) TOGETHER TO GROUND.
3. ITEM NO. 8 (D664) MAY BE REPLACED WITH D600 P.N. 1105366 (REV C ONLY).
4. INSTALL ITEM 25 (TUBING) ON BASE LEAD OF EACH 2N3725.
5. ANY COLOR TUBING MAY BE USED FOR ITEM 25.



A/R		TUBING, 22 AWG	9107256-11	25
3		TRANS 2N3725	1510959	24
12	R57-R68	RES 1K 1/4 W 5%	1300365	23
A/R		GRIPLET	12K249-0	22
3	C24, C29, C32	CAP 330PF 100V 5%	1000023	21
7	C2, C4, C12, C13, C19, C26, C33	CAP 6.8UF 35V 20%	1000061	20
25	C1, C3-C10, C14-C18, C20-C23, C25, C27, C28, C30, C31	CAP .047UF 16V 15-20%	1009678	19
1	E1	IC DEC 7400	1350975	18
1	T1	PULSE TRANS 8010 DUAL IN LINE	1609657	17
1	Q1	TRANS DEC 4008	1510015	16
6	R119-R124	RES 1K 1/4W 10%	1302137	15
4	R37-R38, R117-R118	RES 1.2K 1/4W 10%	1300387	14
46	R33, R67, R74-R117	RES 1500 1/4W 5%	1300391	13
40	R2, R4, R6, R8, R10, R12, R14, R16, R18, R20, R22, R24, R26, R28, R30, R32-R35, R56, R70, R127, R128	RES 470 1/4W 10%	1300316	12
20	R1, R3, R5, R7, R9, R11, R13, R15, R17, R19, R21, R23, R25, R27, R29, R31, R54, R55, R125, R126	RES 150 1/4W 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	DIODE D664	1100114	8
16		SPACER (CABLE CLAMP)	1202704	7
8		EYELET	9006737	6
4		HANDLE FLIP CHIP-MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5009486	4
REF		MODULE HISTORY LIST	B-MH-M8320-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	D-AH-M8320-0-5	2
REF		X-Y COORDINATE HOLE LOC.	X-CO-M8320-0-0	1
QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

SEE NOTE 3

PARTS LIST

ETCH BOARD REV D

DEC 4008	1113601
D664	1113603
D672	1113653
D662	1113665
DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

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

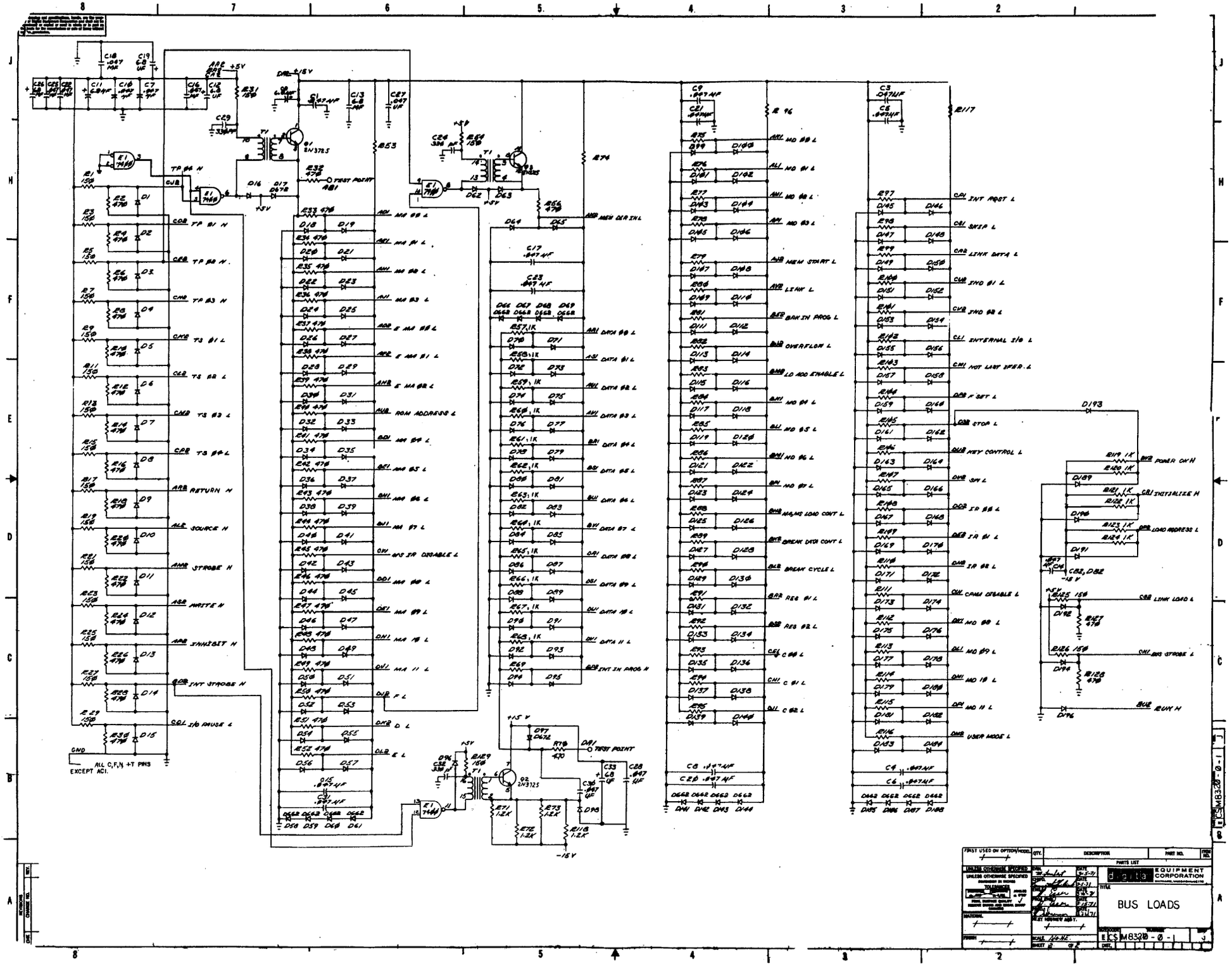
DRAWN J.K. RIX 11/16/73
ENGINEERING
CHECKED
PROJ. ENG.
MFG.
PART USED ON D-UA-KK8-E-0
SCALE 2/1
SHEET 1 OF 2

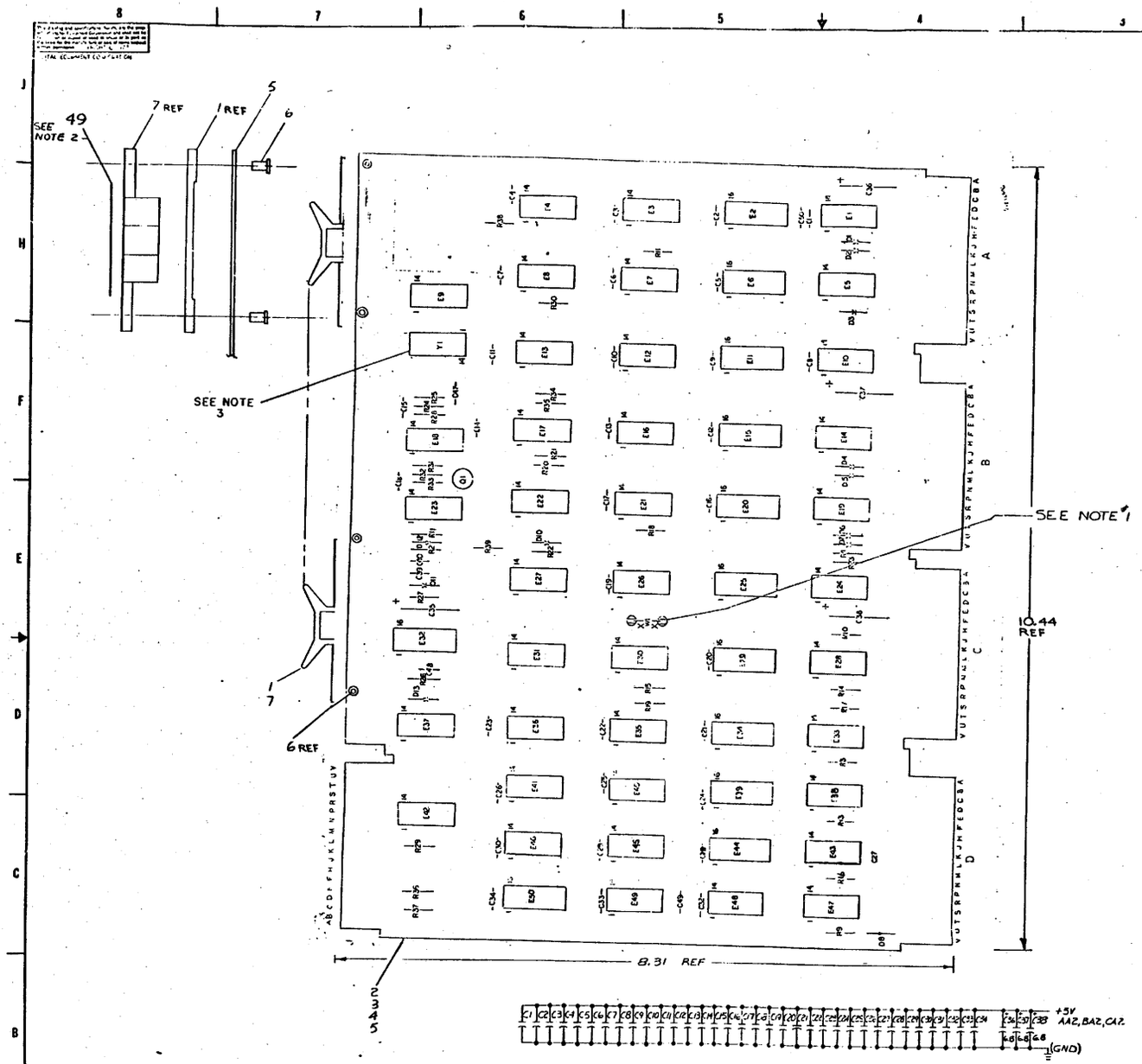
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE BUS LOADS

SIZE E CODE CS NUMBER M8320-0-1 REV. J

DIST.


BUS LOADS
DELTA DATA EQUIPMENT CORPORATION
ECS M8320-0-1
TP B4 N
TP B1 N
TP B2 N
TP B3 N
TS B1 L
TS B2 L
TS B3 L
TS B4 L
RETURN N
SOURCE H
STROBE H
WRITE N
INHIBIT H
INT STROBE H
I/O PAUSE L
ALL C,F,N +T PINS EXCEPT ACI.
FIRST POINT
MEM DIR INL
ROM ADDRESS L
DATA B0 L
DATA B1 L
DATA B2 L
DATA B3 L
DATA B4 L
DATA B5 L
DATA B6 L
DATA B7 L
DATA B8 L
DATA B9 L
DATA B10 L
DATA B11 L
INT IN PROG H
MEM START L
LINK L
BRK IN PROG L
OVERFLOW L
LD ADD ENABLE L
MD B4 L
MD B5 L
MD B6 L
MD B7 L
MA/MS LOAD CONT L
BREAK DATA CONT L
BREAK CYCLE L
REG B1 L
REG B2 L
C B0 L
C B1 L
C B2 L
MD B0 L
MD B1 L
MD B2 L
MD B3 L
INT PROT L
SKIP L
LINK DATA L
IND B1 L
IND B2 L
INTERNAL I/O L
NOT LAST BFER. L
F SET L
STOP L
KEY CONTROL L
SW L
IR B0 L
IR B1 L
IR B2 L
CAMA DISABLE L
MD B8 L
MD B9 L
MD B10 L
MD B11 L
USER MODE L
POWER ON H
INITIALIZE H
LOAD ADDRESS L
LINK LOAD L
BUS STROBE L
RUN H



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

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 MRB-F REQUIRE ETCH D OR LATER.
3. WHEN OSC. UPSIDE-DOWN, SO THAT PIN 1 IS CLOSEST TO THE FINGERS. PIN 1 IS IDENTIFIED BY A SOLDER BLOB ON SIDE OF OSC. CAN.
4. M8330-YB IS TO BE USED ONLY WITH THE MRBF OPTION ONLY.
5. THE YB VARIATION WILL BE CREATED BY INSTALLING ECO No.s' M8330-00006 & M8330-00007 IN M8330 ETCH REV D OR LATER.

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E27	IC. DEC. 7324	1910393	45
V.B		WIRE #30 AWG	9105740-55	53
1	Y1	OSC 20 MHZ	1811660-00	52
4	E9, E21, E30, E40	I.C. DEC 74S74	1910544	51
1	E10	I.C. DEC 74H04	1909931	50
1		M8330 REV. STICKER	3611623	49
2	R38, R39	RES 1K, 1/4W, 5%	1300363	48
2		SPLIT LUG	9006735	47
1	E27	I.C. DEC 7324	1910393	46
1	E13	I.C. DEC 5380	1910392	44
1	E4	I.C. DEC 5314	1910391	43
1	E50	I.C. DEC 8251B	1909394	42
1	E17	I.C. DEC 8881	1909305	41
1	E8	I.C. DEC 74H11	1909267	40
2	E34, 41	I.C. DEC 97401	1909473	39
16	E2, 6, 11, 15, 20, 25, 29, 34, 38, 44	I.C. DEC 74194	1910628	38
1	E35	I.C. DEC 74123	1910436	37
4	E26, 31, 45, 49	I.C. DEC 74174	1909667	36
12	E1, 3, 5, 7, 10, 14, 19, 24, 28, 33, 39, 43	I.C. DEC 74H10	1905586	35
2	E12, E46	I.C. DEC 7430	1905578	34
1	E16	I.C. DEC 7420	1905577	33
2	E37, E38	I.C. DEC 7413	1909929	32
1	E48	I.C. DEC 7410	1905576	31
1	E42	I.C. DEC 7404	1909686	30
1	E22	I.C. DEC 7402	1909004	29
2	E23, E47	I.C. DEC 7400	1905575	28
				27
				26
1	Q1	TRANSISTOR DEC 32298	1203100	25
1	R27	RES 47K 1/4W 5%	1302177	24
1	R26	RES 10K 1/4W 5%	1302479	23
1	R1	RES 2.2K 1/4W 5%	1302439	22
14	R2, R16, R20, R22, R29, R30, R34, R14, R36, R37	RES 470 1/4W 10%	1300317	21
13	R3, R9, R11, R13, R18, R21, R23, R24, R25, R28, R31, R35	RES 150 1/4W 10%	1302233	20
2	R31, R33	RES 27 1/4W 10%	1301420	19
12	D1-D8, D10-D13	DIODE D664	1100114	18
				17
1	C35	CAP 39 mf, 10V, 10% S. TANT	1000076	16
3	C36-C38	CAP 6.8 mf, 35V, 10% S. TANT	1006308	15
8	C39-C40	CAP .047 mf, 16V, -20% +50%	1009678	13
37	C1-C34, C42, C43, C45, C46	CAP .01 mf, 100V, 20% DISC	1001610	11
1	C44	CAP 1000 PF, 100V, 5% MICA	1000042	10
8		HANDLE FLIP-CHIP MAGENTA	9008337-06	7
6		EYELET GS4-11 STAYSON	9036750	6
1		ETCHED CIRCUIT BOARD	5009707	5
REF		MODULE ECO HISTORY	D-M-M8330-2-6	4
REF		ASSEMBLING HOLE LOCATION	D-M-M8330-2-5	3
REF		X-Y COORDINATE HOLE LOCATION	X-Y-C-M8330-2-4	2
3		SPR-ER CABLE CLAMP	1202704	1

PARTS LIST

DEC 74194	B	16	
DEC 8251	B	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
—	—	V11	—

JUMPER LIST

DEC NO.	EIA NO.
DEC 32038	2N3646
D664	1N3604

SEMICONDUCTOR CONVERSION CHART

DEC NO.	EIA NO.

PART USED ON OPTION/MODEL: MRB-F

ETCH BOARD REV E

EQUIPMENT CORPORATION.

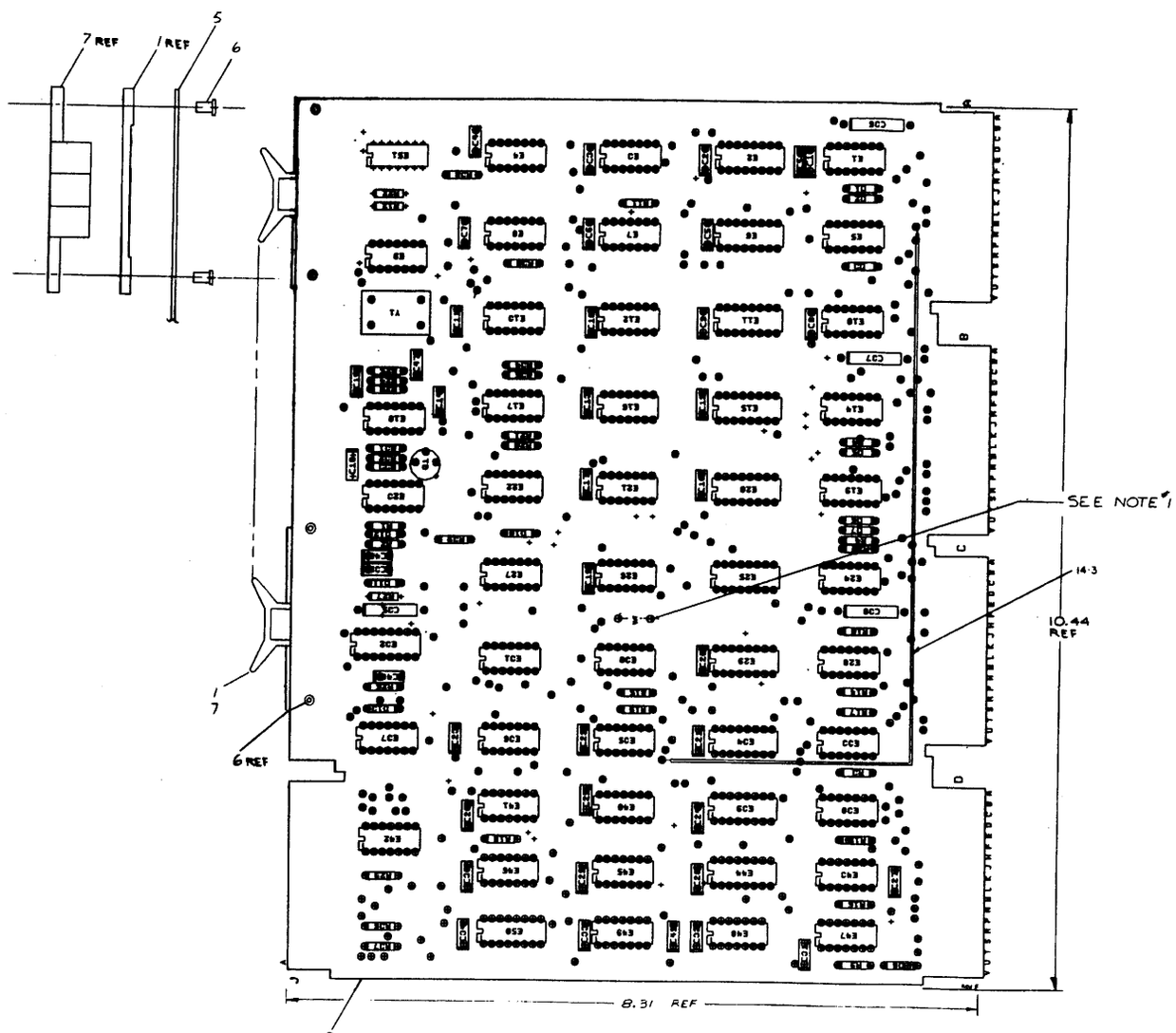
TITLE: TIMING GENERATOR

SIZE C | CODE CS | NUMBER M8330-YB-1 | REV. N

SCALE | SHEET 1 OF 2

NOTES:

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



SHD = 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
AR		WIRE, 30 AWG	9105740-55	47
2	E47, E51	I.C. DEC 74500	1910332-00	46
1	E27	I.C. DEC 7384	1910393	45
~~AR~~		~~WIRE 30 AWG~~	~~9105740-55~~	~~44~~
1	Y1	OSC 40 MHZ.	1811440-00	43
8	E12, E26, E30, E31, E40, E45, E49	I.C. DEC 74S74	1910544	42
1	E16	I.C. DEC 74S03	1910536	41
2	R38, R39	RES 1K, 1/4W, 5%	1300365	40
2		SPLIT LUG	9006715	39
~~1~~	~~E29~~	~~I.C. DEC 7404~~	~~1909404~~	~~38~~
1	E13	I.C. DEC 8640	1911640	37
1	E4	I.C. DEC 5814	1910391	36
1	E50	I.C. DEC 82S18	1909544	35
1	E17	I.C. DEC 8801	1909708	34
1	E8	I.C. DEC 7811	1910537	33
2	E34, 41	I.C. DEC 97401	1909973	32
10	E2, 6, 11, 15, 20, 25, 29, 34, 38, 44	I.C. DEC 74194	1910629	31
1	E32	I.C. DEC 74128	1910436	30
~~1~~	~~E28~~	~~I.C. DEC 7404~~	~~1909404~~	~~29~~
12	E1, 3, 5, 7, 10, 14, 19, 24, 28, 33, 39, 43	I.C. DEC 74S40	1910541	28
2	E12, E46	I.C. DEC 7430	1909378	27
1	E45	I.C. DEC 7420	1905677	26
2	E37, E35	I.C. DEC 7417	1909429	25
1	E48	I.C. DEC 74S10	1910536	24
1	E21	I.C. DEC 7404	1909404	23
1	E22	I.C. DEC 7402	1909004	22
1	E23	I.C. DEC 7400	1905676	21
				20
				19
				18
1	Q1	TRANSISTOR DEC 30298	1503100	17
1	R27	RES 47K 1/4W 5%	1302177	16
1	R26	RES 10K 1/4W 5%	1300479	15
1	R1	RES 5.9K 1/4W 5%	1300439	14
15	R2, 11, 15, 18, R20, R22, R24, R29, R30, R32, R34, R36, R37	RES 470 1/4W, 5%	1300316	13
13	R3, 4, 9, 10, 13, 14, 17, R21, R23, R25, R35	RES 150 1/4W 5%	1300250	12
2	R31, R33	RES 27 1/4W, 5%	1301322	11
12	D1-D8, D10-D13	DIODE D664	1100114	10
				9
1	C35	CAP 39 uf, 10V, 10% TANT	1000076	8
3	C34-C38	CAP 6.8 uf, 35V, 10% TANT	1006308	7
				6
2	C39-C40	CAP .047 uf, 16V, -20% +50%	1009678	5
				4
37	C1-C33, C47, C49, C50	CAP .01 uf, 100V, 20% DISC	1001610	3
1	C48	CAP, 1000 PF, 100V, 5% MICA	1000042	2
				1
3		HANDLE FLIP-CHIP MAGENTA	9008337-06	7
6		EYELET GS4-11 STIMPSON	9006750	6
1		ETCHED CIRCUIT BOARD	5009707	5
REF		MODULE ECO HISTORY	B-IN-M8330-0-6	4
REF		ASSY/DRILLING HOLE LAYOUT	D-IN-M8330-0-5	3
REF		X-Y COORDINATE HOLE LOCATION	X-CO-M8330-0-4	2
3		SPACER CABLE CLAMP	1808704	1

PARTS LIST

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

ITEM NO	WIRE	FROM PT	TO PT
—	—	W1	—

JUMPER LIST

SEE NOTE 1

DEC NO.	EIA NO.	DEC NO.	EIA NO.
DEC 30298	2N3696		
D664	1N3606		

SEMICONDUCTOR CONVERSION CHART

FIRST USED ON OPTION/MODEL MR8-F

ETCH BOARD REV F

NEXT HIGHER ASSY

SCALE

SHEET 1 OF 2

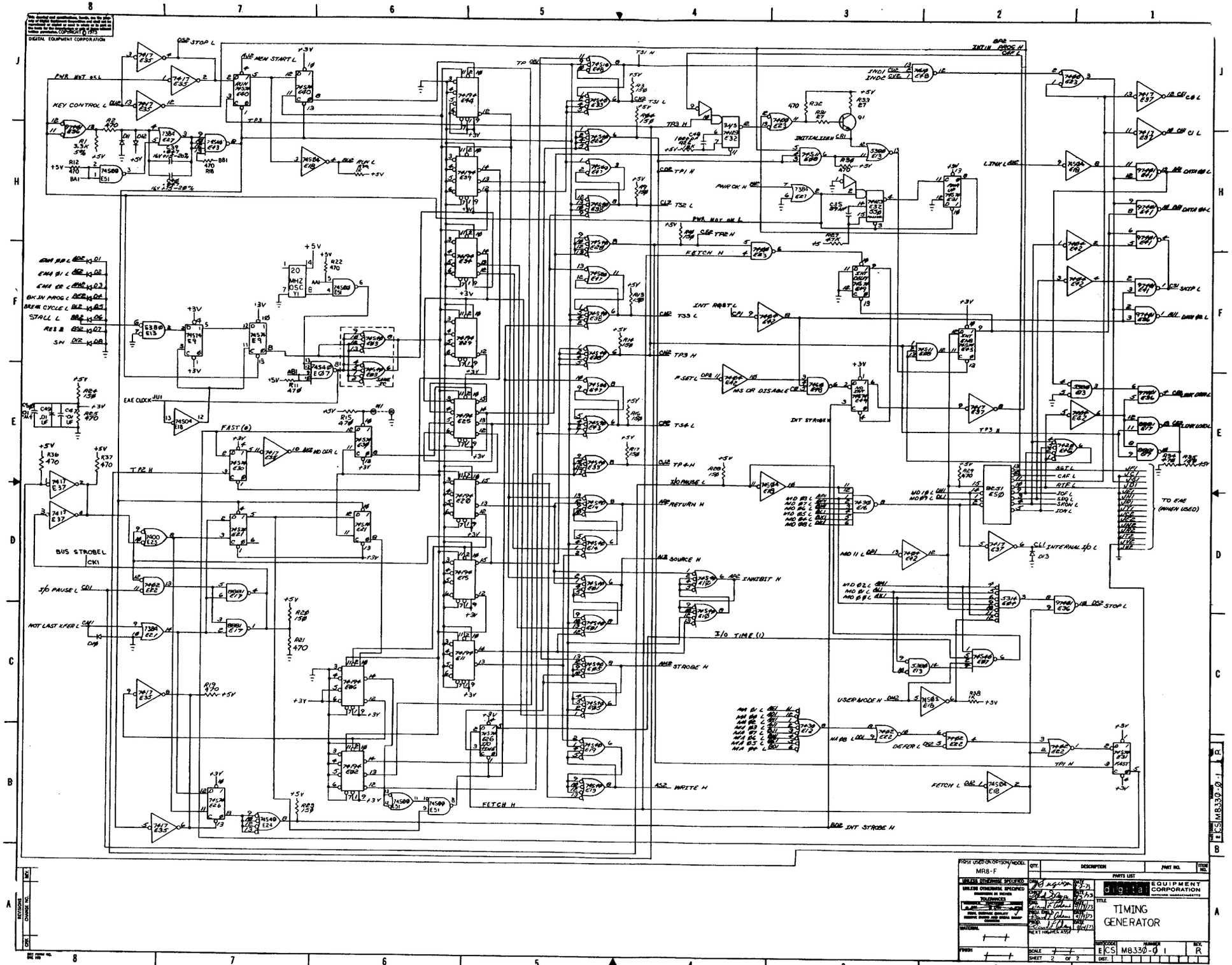
EQUIPMENT CORPORATION.

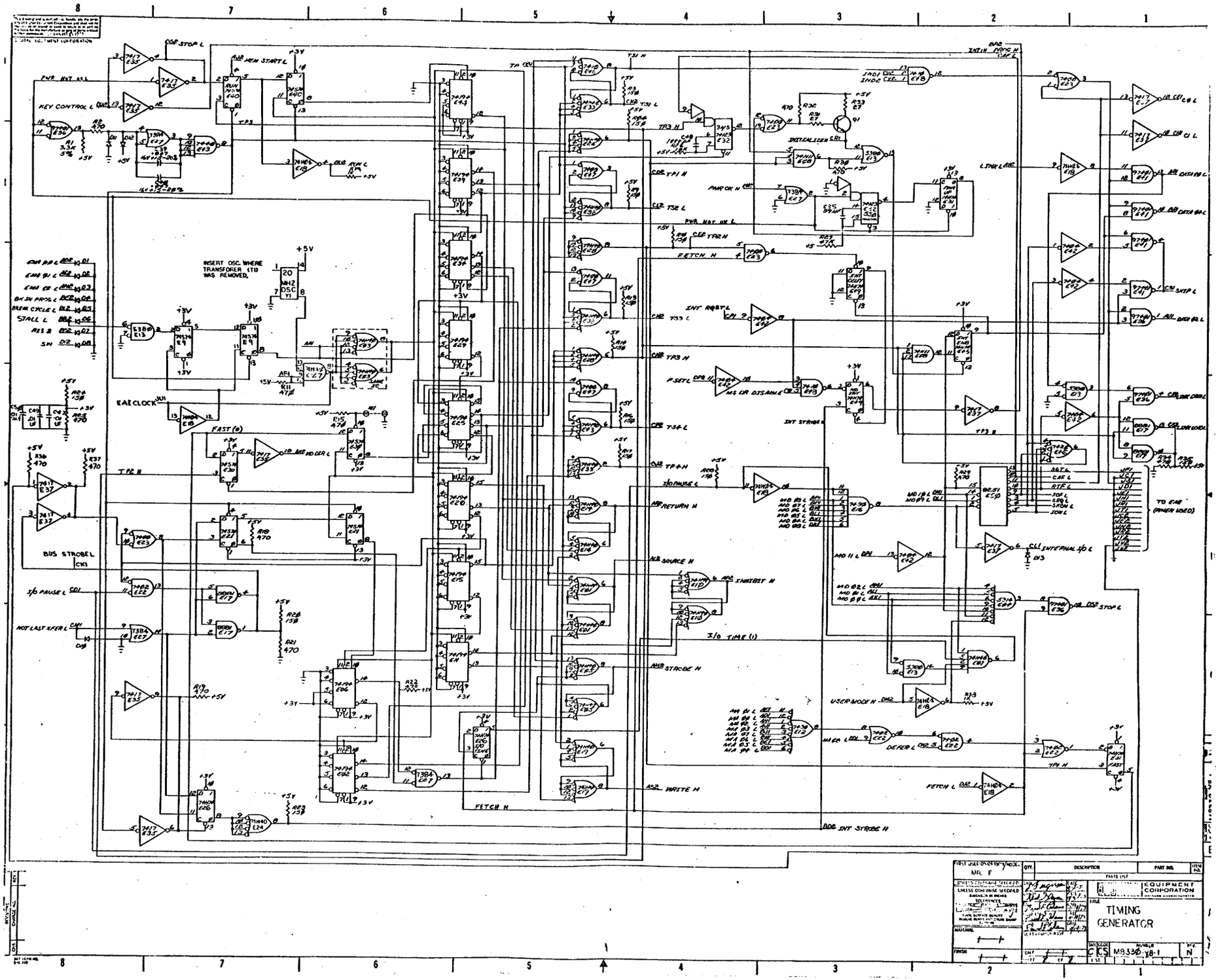
TITLE TIMING GENERATOR

SIZE E CS | M8330-0-1 | REV R

SHEET

M8330-0-1 R


TIMING GENERATOR
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
MR8-F
M8330-01
R
ECS
SHEET 2 OF 2
NEXT HIGHER ASSY
TO E46 (WHEN USED)
KEY CONTROL L
PWR RST OCL
STOP L
MEM START L
EAE CLOCK
BUS STROBE L
I/O PAUSE L
NOT LAST XFER L
FETCH H
INT STROBE H
WRITE H
USER MODE H
DEFER L
FETCH L
TP1 H
TP2 H
TP3 H
TP4 H
INTERNAL I/O L
STOP L
FAST
INHIBIT H
STROBE H
SOURCE H
RETURN H
I/O TIME (1)
INITIALIZER
PWR OK H
INT RQST L
P SET L
MS OR DISABLE L
INT STROBE H
LINK L
SKIP L
DATA IN L
DATA OUT L
LOW LOCKL
CAF L
RTF L
JOF L
SPQ L
SPON L
JON L
MD 11 L
MD 02 L
MD 00 L
MD 10 L
MD 01 L
MD 03 L
MD 04 L
MD 05 L
MD 06 L
MD 07 L
MA 00 L
MA 01 L
MA 02 L
MA 03 L
MA 04 L
MA 05 L
MA 06 L
MA 07 L
MA 08 L
MA 09 L
MA 10 L
MA 11 L
MA 12 L
MA


TIMING GENERATOR
EQUIPMENT CORPORATION
MR. F
UNLESS OTHERWISE SPECIFIED
MATERIAL
FINISH
PARTS LIST
QTY.
DESCRIPTION
PART NO.
ITEM NO.
CS
M9330-X8-1
N
INSERT OSC. WHERE TRANSFORER CTD WAS REMOVED.
TO EAE (WHEN USED)
KEY CONTROL L
PWR NOT OK L
MEM START L
EAE CLOCK
BUS STROBE L
I/O PAUSE L
NOT LAST USER L
FAST (0)
FETCH H
INT STROBE H
I/O TIME (1)
USER MODE H
DEFER L
FETCH L
WRITE H
STROBE H
INHIBIT H
RETURN H
SOURCE H
STOP L
INTERNAL I/O L
INTERLISEN CLI
PWR OK H
INT RQST L
MS OR DISABLE
INDC CLK L
INDC CLK H
INTIN DATIO H
CAF L
TP1 H
TS2 L
TP2 H
TS3 L
TP3 H
TS4 L
TP4 H
TP3 H
TP4 H
TP2 H
TP3 H
TP1