pdp11

LC11
DECwriter system engineering drawings

digital

DEC-11-HLCA-D

LC11
DECwriter system engineering drawings

DIGITAL EQUIPMENT CORPORATION • MAYNARD, MASSACHUSETTS

1st Printing October 1971

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ENGINEERING DRAWINGS

Drawing Number	Title
A-ML-LC11-0	LA30 Interface -- Master List
D-CS-M791-0-1	LA30 Printer Interface -- M791
D-IA-7008417-0-0	LA30 to PDP-11 Interface Cable
C-CS-M105-0-1	M105 Address Selector
D-CS-M7820-0-1	M7820 Interrupt Control
A-PL-LC11-0-0	LA30 Interface -- Parts List

MASTER DRAWING LIST

MAINTENANCE MANUALS NO.	TITLE	UNIT VARIATIONS LC11-Ø
LC11-Ø	LA3Ø INTERFACE	X

USED ON OPTIONS
LA3Ø

REVISIONS	REV.	DATE	CHG. NO.	APP'D.
	A	7/71	00001	F.V.
	B	8/71	00002	J.B.

DRN. KEN RUSS	DATE 6/1/71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D. K. GULICK	DATE 6/7/71	
ENG. J Beatty	DATE 6/7/71	TITLE LA3Ø INTERFACE
PROJ. ENG. J Beatty	DATE 6/7/71	
PROD. [illegible]	DATE 6/7/71	
FIRST USED ON LA3Ø		SIZE A / CODE ML / NUMBER LC11-Ø / REV. B
SCALE NONE		DIST.
SHEET 1 OF 2		

DRA 131

Dec 16–(325)–1048–N471

PRINT SET LC11-Ø	DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
X	D-CS-M791-Ø-1	#	2	LA3Ø PRINTER INTERFACE (M791)	
X	D-IA-7008417-0-0	A	1	INTERFACE CABLE (LC11)	
X	C-CS-M105-0-1	#	1	ADDRESS SELECTOR	
X	D-CS-M7820-0-1	#	1	INTERRUPT CONTROL	
X	A-PL-LC11-0-0	A	1	LA30 INTERFACE PARTS LIST	

TITLE	SHEET	SIZE	CODE	NUMBER	REV.
LA3Ø interface	2 OF 2	A	ML	LC11-Ø	B

DRA 132

DEC 16–(325)–1048–1–N471

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PARTS REFERENCE

ITEM NO.	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	C1 THRU C18	CAPACITOR, .01uf, 100V, 20%	1001610	18
2	D1 THRU D9	DIODE, D664	1100114	9
3		SOCKET, I.C.	1209838	1
4		HEADER RIGHT ANGLE 40 PIN	1209941	1
5	R12 THRU R20	RES 220 1/4W, 5%	1300271	9
6	R3 THRU R11	RES 330 1/4W, 5%	1300295	9
7	R1	RES 3K, 1/4W, 5%	1300432	1
8	R2	RES 2K, 1/4W, 5%	1302388	1
9	E9,E12,E14	I.C. DEC 7437	1910091	3
10	E3,E6,E7,E10,E16	I.C. DEC 7474	1905547	5
11	E13	I.C. DEC 7400	1905575	1
12	E15	I.C. DEC 7440	1905579	1
13	E18	I.C. DEC 7402	1909004	1
14	E1,E4	I.C. DEC 380	1909485	2
15	E8,E11	I.C. DEC 7404	1909686	2
16	E2,E5,E17	I.C. DEC 8881	1909705	3
REF		LA30 PRINTER INTERFACE	A PL-M791-0-0	

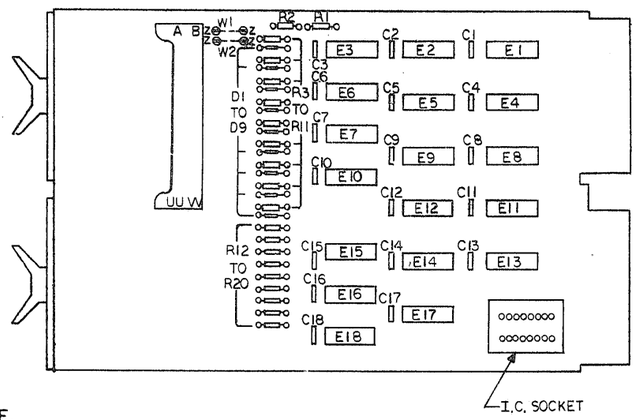
NOTES:

1. PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE LC11,. 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 WHENEVER POSSIBLE.
3. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
4. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE	GND	+5V
DEC 380	PIN 1	PIN 8

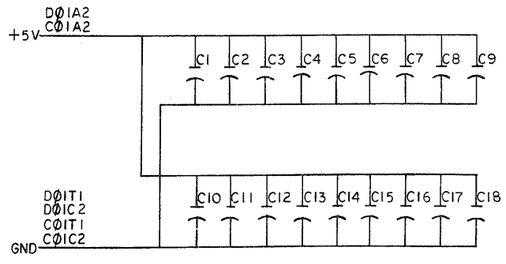
5. UNLESS OTHERWISE SPECIFIED: RESISTANCE IS IN OHMS; CAPACITANCE IS IN PICOFARADS..

COMPONENT PLACEMENT



PIN NOMENCLATURE

MODULE	CONTROLLER
A	C
B	D



REVISIONS	REV.
CHANGE NO. ORIGINATED	A
CHANGE NO. M791-00001 J. BEATTY	B

ETCH REV. B

FIRST USED ON OPT/MOD: LA30

QTY.	DESCRIPTION	PART NO.	ITEM NO.
	PARTS LIST		

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
FRACTIONAL ± ANGLES ± 0°30'
FINISH SURFACE QUALITY
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN. Chapman 6/5/71
ENGR. 6/7/71
PROJ. 6/7/71
MFG. DATE
NEXT HIGHER ASSY A-PL-LC11-0-0
SCALE NONE
SHEET 1 OF 2

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: LA30 PRINTER INTERFACE M791

SIZE D | CODE CS | NUMBER M791-0-1 | REV. B

DIST.

FINK-BLUE

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IN H BHI — SELECT 4 H BE1 — 7437 E14 — 7402 E18

OUT LOW H BDI — 7437 E14 — E11 7404

INT ENB B H — +3 — DØ6 H — 7474 E16

BUS DØØ L AS2 — 380 E4 — E8 7404 — 7437 E9 — +5 R15 220 — PØ1 H — TOP CONN JJ

BUS DØ1 L AR2 — 380 E1 — E8 7404 — 7437 E12 — +5 R16 220 — PØ2 H — LL

BUS DØ2 L AU2 — 380 E4 — E8 7404 — 7437 E9 — +5 R12 220 — PØ3 H — BB

BUS DØ3 L AT2 — 380 E4 — E8 7404 — 7437 E9 — +5 R14 220 — PØ4 H — FF

BUS DØ4 L AN2 — 380 E1 — E11 7404 — 7437 E12 — +5 R19 220 — PØ5 H — TT

BUS DØ5 L AP2 — 380 E1 — E11 7404 — 7437 E12 — +5 R18 220 — PØ6 H — RR

BUS DØ6 L AV2 — 380 E4 — E11 7404 — 7437 E9 — +5 R13 220 — PØ7 H — DD

DØ6 H

OUT LOW H BDI — SELECT Ø H BF1 — 7400 E13 — E11 7404

IN H BHI — 7400 E13 — E11 7404

BUS INIT L BL1 — 380 E1 — E8 7404 — INIT L

+5 R17 220 — 7437 E12 — P INIT L — TOP CONN NN

INIT H

SELECT 2 H BJ1 — IN H BHI — 7400 E13 — 7400 E13

SELECT 6 H BC1 — OUT LOW H BDI — 7437 E14 — +5 R20 220 — P STROBE L — TOP CONN VV

TOP CONN X — P DEMAND H — R10 330 — D8 — 7437 E14 — E11 7404

16 PIN I.C. SOCKET

BG IN H BU2 2	16 BD2 BUS BR7 L
BG OUT H BV2 3	15 BE2 BUS BR6 L
BUS BG4 OUT H BT2 4	14 BF2 BUS BR5 L
BUS BG4 IN H BS2 5	13 BH2 BUS BR4 L
BUS BG5 OUT H BR2 6	12 BJ2 BUS REQUEST L
BUS BG5 IN H BP2 7	11 BK2 BUS BG7 IN H
BUS BG6 OUT H BN2 8	10 BL2 BUS BG7 OUT H
	9 BM2 BUS BG6 IN H

PRIORITY PLUG

☐ INDICATES MORE THAN ONE CONNECTION (OTHER THAN BOXED)

+5 — R2 2K — +3 — R1 3K

TOP CONN Z — KEY STROBE — R11 — D9 — 7440 E15

INIT H — 7402 E18

TOP CONN N L V R F J T

KB1 O — R6 330 — D4 — 7474 E7 — 8881 E5

KB2 O — R5 330 — D3 — 7474 E6 — 8881 E2

KB3 O — R9 330 — D7 — 7474 E10 — 8881 E5

KB4 O — R7 330 — D5 — 7474 E7 — 8881 E5

KB5 O — R3 330 — D1 — 7474 E3 — 8881 E2

KB6 O — R4 330 — D2 — 7474 E3 — 8881 E2

KB7 O — R8 330 — D6 — 7474 E10 — 8881 E5

INIT L

7474 E16 — 8881 E17

W1 — W2 — 8881 E2

INT A H — BN1

ALI INT ENB B H

AV2 BUS DØ6 L

AM2 BUS DØ7 L

BMI INT ENB A H

AV2 BUS DØ6 L

AM2 BUS DØ7 L

AJI INTB H

AS2 BUS DØØ L

AR2 BUS DØ1 L

INT A H

AU2 BUS DØ2 L

AT2 BUS DØ3 L

AN2 BUS DØ4 L

AP2 BUS DØ5 L

AV2 BUS DØ6 L

AM2 BUS DØ7 L

REVISIONS	REV	CHANGE NO.	CHK

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

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

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

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. Myron Cooper — DATE 28 May 71

CHK'D. [illegible] — DATE 6-2-71

ENG. Bill Ng — DATE 6/7/71

PROJ. ENG. Bill Ng — DATE 6/7/71

PROD. — DATE

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: LAØØ PRINTER INTERFACE M791

NEXT HIGHER ASSY. A-PL-LC11-Ø-Ø

SCALE NONE — SHEET 2 OF 2

SIZE D — CODE CS — NUMBER M791-Ø-1 — REV. B

DIST.

DEC FORM NO DRD 102-B

PINK-BLUE

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WIRE TABLE

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	CUT POINT
6	22 TWP	GRN	P1-E	P2-25	1
		WHT	P1-F	P2-17	2
		BLK	P1-H	P2-23	3
		BLU	P1-J	P2-16	4
		BLU	P1-K	P2-26	5
		RED	P1-L	P2-22	6
		GRN	P1-M	P2-24	7
		YEL	P1-N	P2-5	8
		BRN	P1-P	P2-4	9
		RED	P1-R	P2-18	10
		ORN	P1-S	P2-23	11
		WHT	P1-T	P2-15	12
		RED	P1-U	P2-25	13
		ORN	P1-V	P2-20	14
		BLK	P1-W	P2-3	15
		ORN	P1-X	P2-13	16
	22 TWP	YEL	P1-Y	P2-2	17
6		BLU	P1-Z	P2-7	18

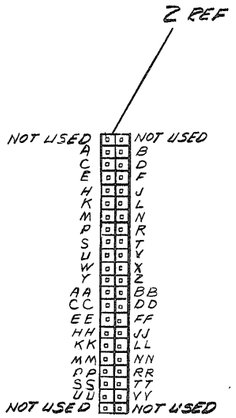
WIRE TABLE

ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	TO CONNECTION	CUT POINT
6	22 TWP	BLK	P1-AA	P2-3	19
		BRN	P1-BB	P2-10	20
		ORN	P1-CC	P2-1	21
		YEL	P1-DD	P2-6	22
		BLK	P1-EE	P2-4	23
		GRY	P1-FF	P2-9	24
		BLK	P1-HH	P2-4	25
		GRN	P1-JJ	P2-12	26
		BRN	P1-KK	P2-24	27
		WHT	P1-LL	P2-11	28
		GRY	P1-MM	P2-23	29
		RED	P1-NN	P2-14	30
		GRY	P1-PP	P2-2	31
		WHT	P1-ER	P2-8	32
		GRN	P1-SS	P2-1	33
		RED	P1-TT	P2-19	34
		WHT	P1-UU	P2-26	35
6	22 TWP	BLU	P1-VV	P2-21	36

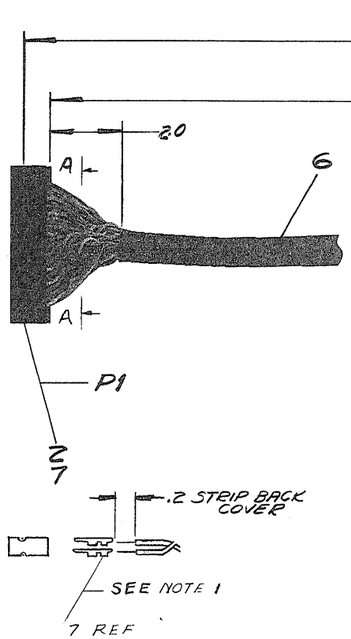
LEGEND

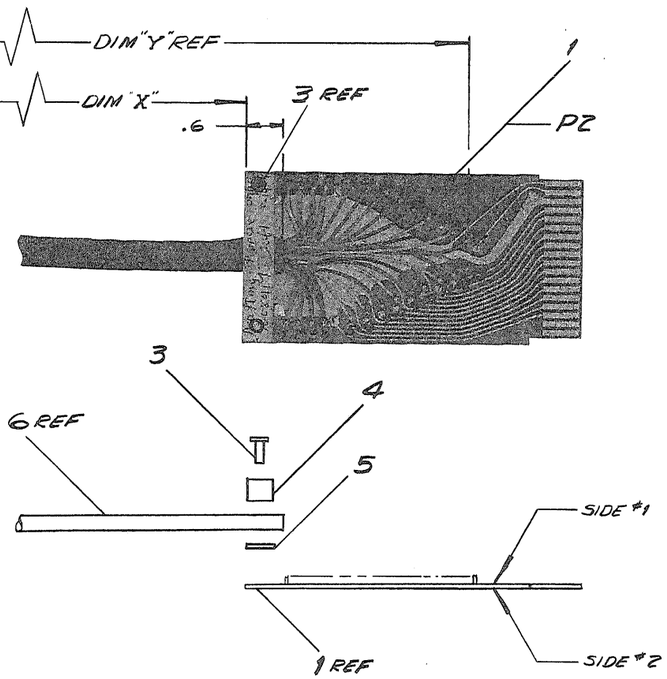
NUMBER	DIM "X" VARIATION	DIM "Y" (PRECUT) REF
7008417-25	25' ± 3"	25' 7"

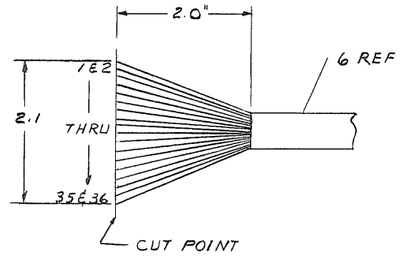
NOTES:
1. BERG #HT66-TOOL FOR CRIMPING PINS.
2. MANUFACTURING SHOULD USE MACHINE CRIMPER.
3. FOR INFORMATION ON BERG PINS REFER TO SPEC #12-10089-0-0.



VIEW A-A
SCALE: NONE







CUT POINT VIEW
SCALE: 1/1

ITEM NO.	QTY.	DESCRIPTION	PART NO.
7	36	CRIMP SOCKET BERG 47784	1210089-5
6	1	CABLE 36 COND.	9107700
5	A/R	TAPE #4932 1/2 W. 3M CO.	9007834
4	1	CLAMP, CABLE	1202790
3	2	EYELET A-94 STMP	9006741
2	1	HOUSING #20383 BERG	1210090-0
1	1	MODULE BD. M904	M904

PARTS LIST

FIRST USED ON OPTION/MODEL: LC11

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

		DATE
DRN	Louise	5-26-71
CHK'D	[illegible]	5/28/71
ENG	[illegible]	6/7/71
PROJ ENG.	[illegible]	6/7/71
PROD	[illegible]	6/7/71

NEXT HIGHER ASSY. A-PL-LC11-0-0
SCALE —
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: INTERFACE CABLE (LC11)

SIZE D | CODE IA | NUMBER 7008417-0-0 | REV. A
DIST.

REVISIONS	REV.	CHK	DATE
CHANGE NO. LC11-00001	A	[illegible]	2-17-71

BEATTY [illegible]

DFC FORM NO DRD 100-A

SIZE D | CODE IA | NUMBER 7008417-0-0 | REV A

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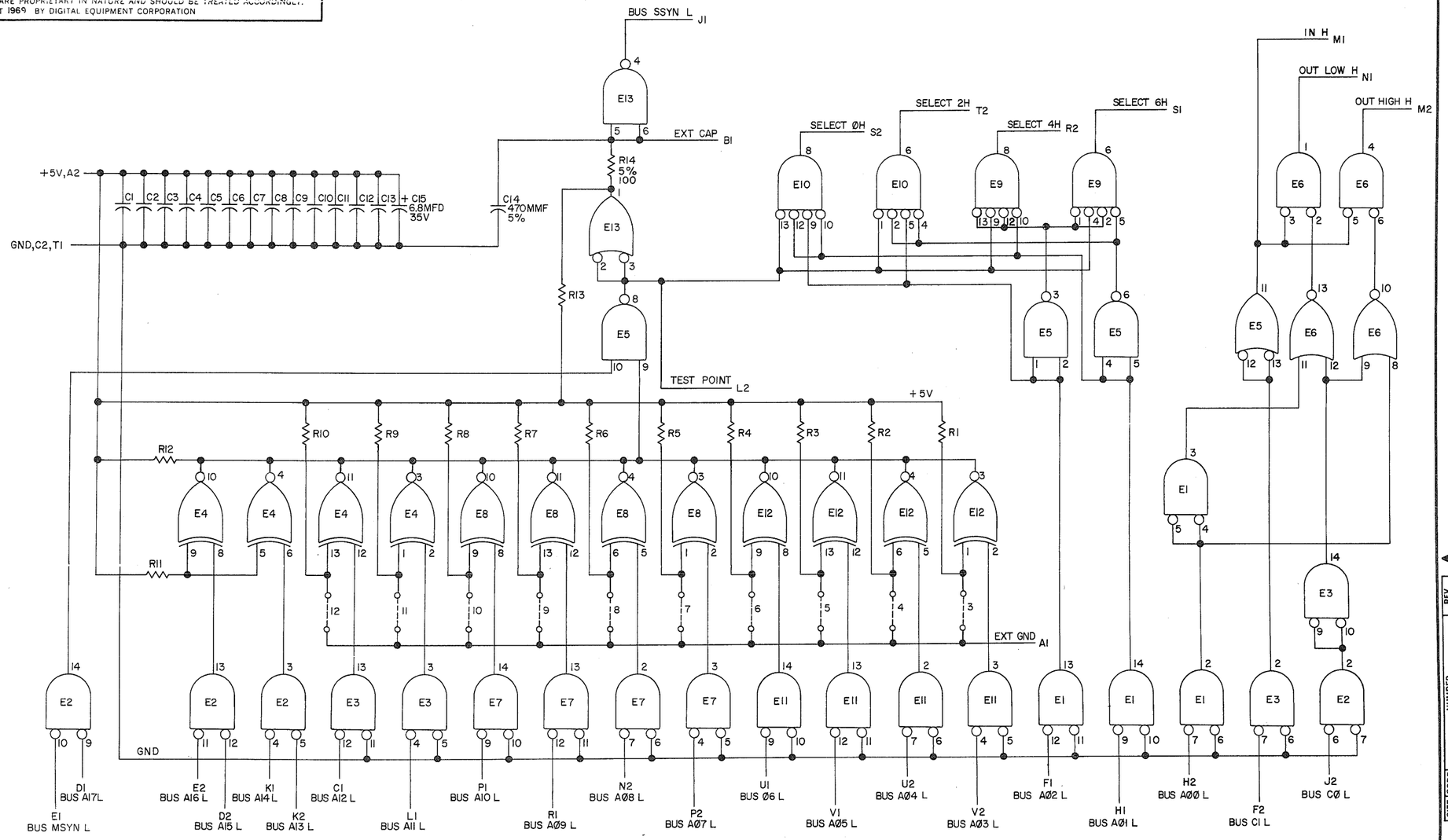

UNLESS OTHERWISE INDICATED:
- o----o INDICATES JUMPERS
- RESISTORS ARE 1K, 1/4W, 5%
- CAPACITORS ARE .01MFD, 100V, 20%
- E1, E2, E3, E7, E11 ARE DEC380
- E4, E8, E12 ARE DEC8242
- E9, E10 ARE DEC8815
- E5 IS DEC74H00
- E6 IS DEC7402
- E13 IS DEC8881

PIN 1 ON E1, E2, E3, E7, E11 = GND
PIN 8 ON E1, E2, E3, E7, E11 = +5V
PIN 7 ON E4, E5, E6, E8, E9, E10, E12, E13 = GND
PIN 14 ON E4, E5, E6, E8, E9, E10, E12, E13 = +5V

REVISIONS	CHK	CHG NO.	REV.
	TS	LR1	A
		00002	B

DRN.	L. Riley	DATE 11-26-69
CHK'D	V. Nielsen	DATE 1-7-70
ENG	Jim Jones	DATE 3-25-70
PROD	Ernest	DATE 4/7/70

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: ADDRESS SELECTOR M105

SIZE	CODE	NUMBER	REV.
C	CS	M105-0-1	B

PRINTED CIRCUIT REV. C

REV. B | NUMBER M105-0-1 | SIZE C | CODE CS

DEC FORM NO. DRC 102

A-11-P6

DIST. 325 334 1353

5 PINK 26

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SIZE D | CODE CS | NUMBER M7820-0-1 | REV B

U1 INT A H
V1 INT ENB. A H
R1 MASTER CLEAR A H
B1 BG IN A H
+5V, A2
GND, C2, T1
K2 INT B H
H2 INT ENB B H
S1 MASTER CLEAR B H
E1 BG IN B H
C1 BUS SSYN L
J2 EXT GND
D2 VECTOR BIT 2
R2 START INTR A L
P2 START INTR B L

E8 E12 BUS BR A L U2
E12 BUS SACK L T2
E12 BUS BBSY L D1
E11 MASTER A L N1
E13 FFA1 E13 FFA2
BG OUT A H V2
E12 E14 E5 E6 R8 180
E7 E14 Q2 R5 390 R6 390 R7 180 C16 560PF 5%
R14

E6 E3 BUS BR B L P1
E3 E3 E11 MASTER B L S2
E4 FFB1 E4 FFB2
BG OUT B H A1
E8 E5 E14 Q1 R2 390 R3 180 R4 180 C15 560PF 5%
R1 390

R15 R12 R13 R11 R10 R9
E10 BUS D08 L K1
E1 BUS D07 L H1
E1 BUS D06 L F2
E1 BUS D05 L F1
E10 BUS D04 L N2
E10 BUS D03 L L1
E1 BUS D02 L E2
E11 E10 BUS INTR L M1
E6 INTR DONE A H L2
E6 INTR DONE B H M2
E2 E7 E11 E2 E7

C14 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C17 6.8 UF 35V

UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1.5K, 1/4W, 5%
CAPACITORS ARE .01 UF 100V, 20%
TRANSISTORS ARE DEC3009B
E1, E3, E10, E12, E14 ARE DEC8881
E5, E7, E9, E11 ARE DEC7400
E4, E13 ARE DEC7474
E6, E8 ARE DEC7402
E2 IS DEC380

PIN 1 ON E2 = GND
PIN 8 ON E2 = +5V
PIN 7 ON E1, E3 - E14 = GND
PIN 14 ON E1, E3 - E14 = +5V
⊘ = SPLIT LUGS
—— = JUMPERS

REVISIONS	CHNL	CHG NO	REV
	FLWD	00002	B

DRN S. Cooper DATE 12/31/70
CHK'D Gadsby DATE 1/JAN 71
ENG DATE
PROD. DATE

TRANSISTOR & DIODE CONVERSION CHART

DEC	EIA	DEC	EIA
DEC3009B	2N3009B		

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE INTERRUPT CONTROL M7820

SIZE	CODE	NUMBER	REV
D	CS	M7820-0-1	B

PRINTED CIRCUIT REV. B C

DIST. 1,2,3,4,34,435

P/N K