

MASTER DRAWING LIST

MAINTENANCE MANUALS		UNIT VARIATIONS															
		LC8-E	LC8-L														
NO.	TITLE																
LC8-E	PARALLEL CONT	X	-														
LC8-L	PARALLEL CONT	-	X														

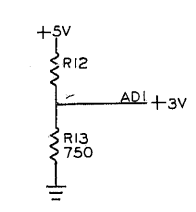
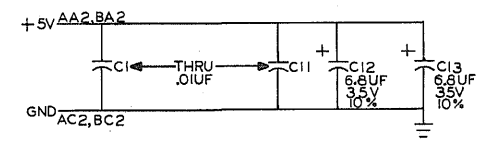
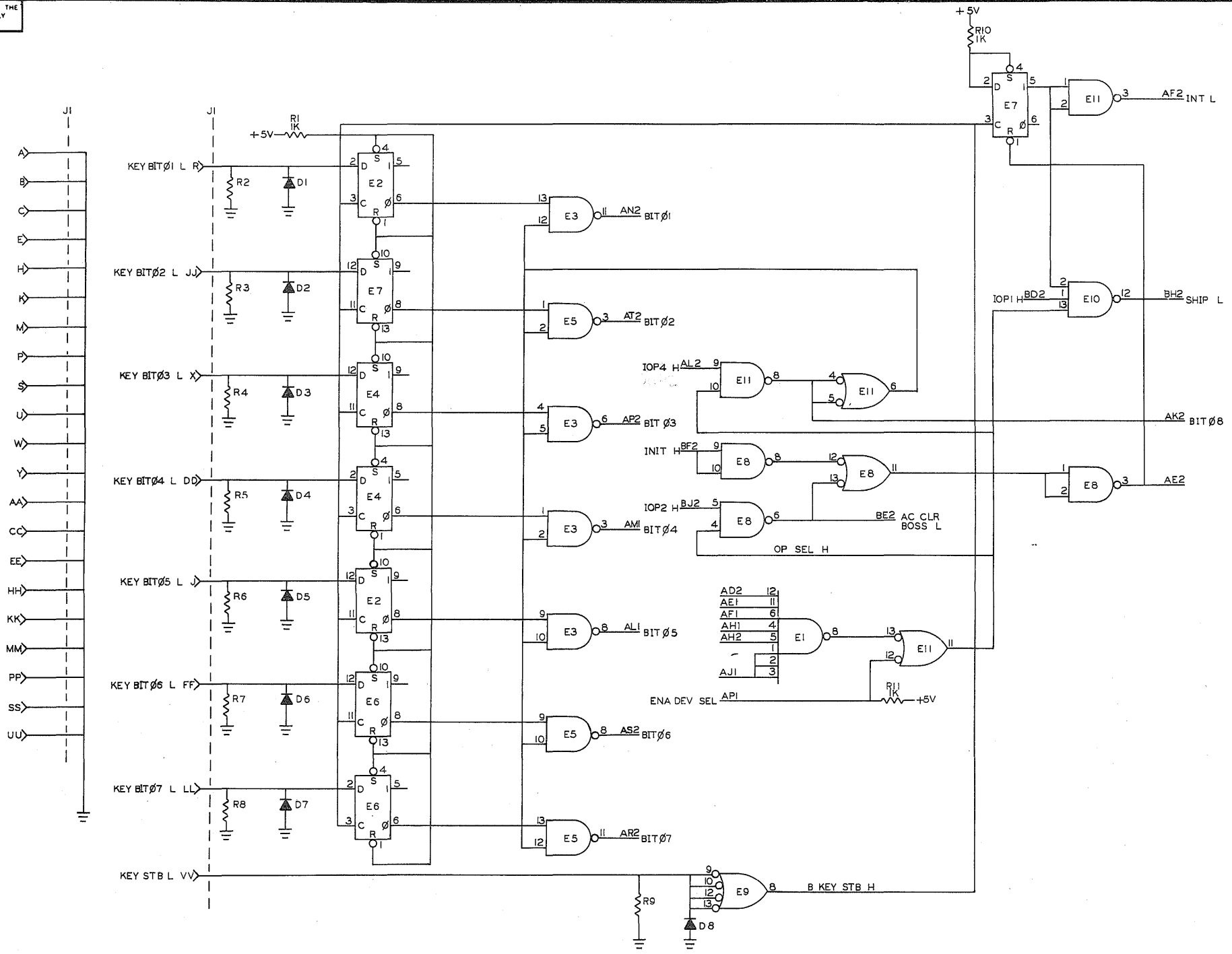
USED ON OPTIONS	
PDP8-E	
PDP 8-L	
PDP8-F	
PDP8-M	
PDP8-I	
PDPI2	

REVISIONS	APP'D.	J. K. GULICK	DRN.	K. GULICK	DATE	7-26-71	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE PARALLEL CONTROL FOR LA30-P
	CHG. NO.	LC8-1 LC8-2 LC8-3	CHK'D.	K. GULICK	DATE	7-26-71		
	DATE	10/71 4/72 6/72	ENG.	<i>John T. ...</i>	DATE	7-30-71		
	REV.	A B C	PROJ. ENG.	<i>John T. ...</i>	DATE	7-30-71		
			PROD.	<i>R. F. ...</i>	DATE	7-22-71		
<i>LC8-L PRINTS ONLY</i>			FIRST USED ON	PDP8-E	SIZE	CODE	NUMBER	REV.
			SCALE	NONE	A	ML	LC8- 0	C
			SHEET	1	OF	2	DIST.	

PRINT SET		DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE	OPTION NO.
LC8-E	LC8-L					
X	-	E-CS-M8329-0-1	#	2	PARALLEL INTERFACE	
X	-	D-IA-7008417-0-0		1	INTERFACE CABLE	LC11
X	-	A-SP-LC8-E-1		10	ENGINEERING SPECIFICATION	
-	-	A-SP-LC8-E-2	A	2	ACCEPTANCE PROCEDURE	
-	-	A-SP-LC8-E-3		2	TEST PROCEDURE	
X	-	LIBKIT-8E-LC8E		REF	SOFTWARE KIT LIST	
-	X	D-CS- M7718-0-1	#	1	KEYBOARD INTERFACE	
-	X	C-CS- M7719-0-1	#	1	TRANSMIT DATA	
-	X	D-IA- 7008514-0-0		1	INTERFACE CABLE LC8-L	
-	X	A-SP-LC8-L-1		5	ENGINEERING SPECIFICATION	
-	X	A-SP-LC8-L-2		2	TEST PROCEDURE	
-	X	A-SP-LC8-L-3		3	ACCEPTANCE PROCEDURE	
X	X	A-AL-LC8-0-1		1	ACCESSORY LIST	

TITLE	PARALLEL CONTROL FOR LA30-P	SHEET	2	OF	2	SIZE	CODE	NUMBER	REV.
		A	ML	LC8- 0	C				

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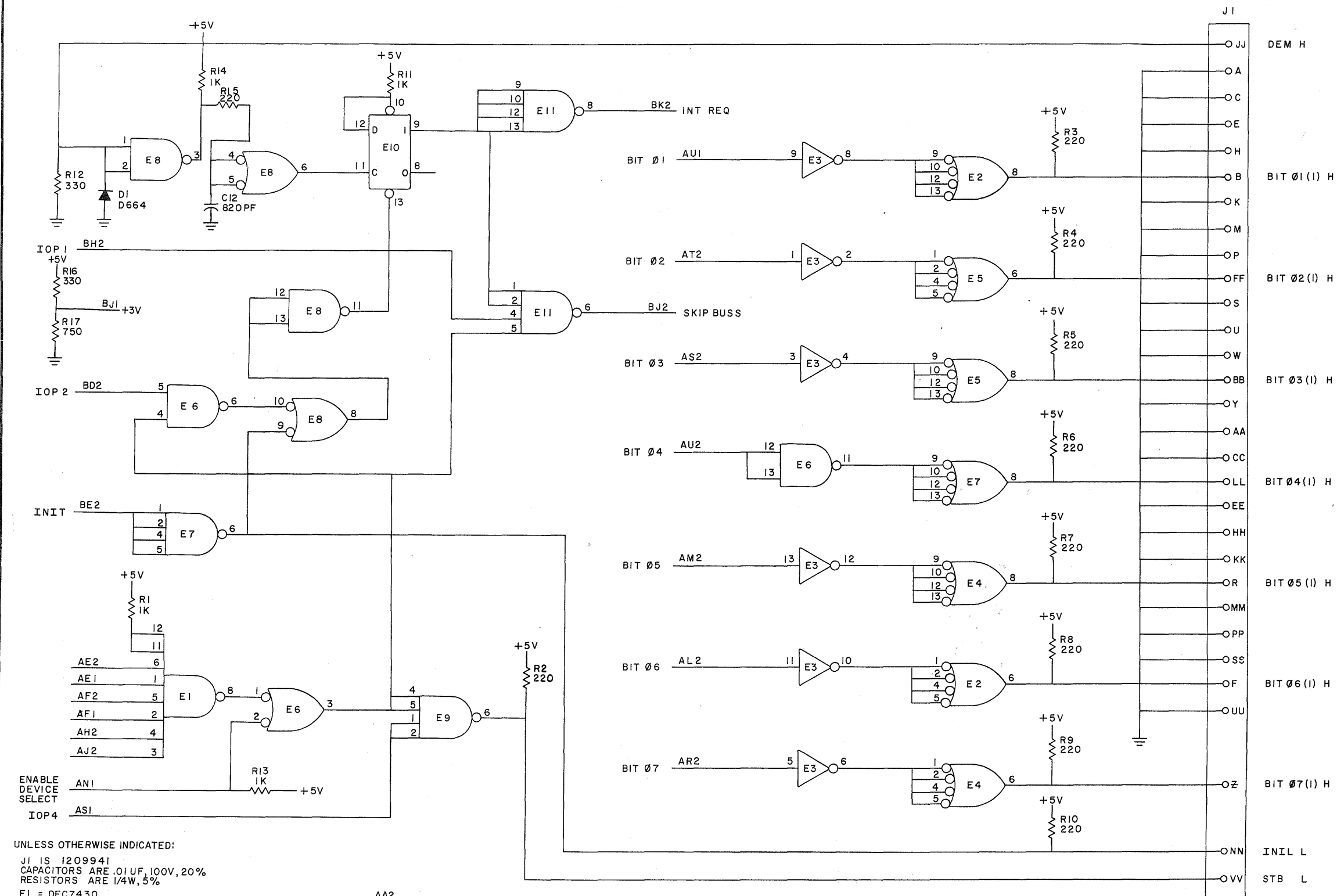


UNLESS OTHERWISE INDICATED:
 CAPACITORS ARE .01UF, 100V, 20%
 DIODES ARE DEC664
 RESISTORS ARE 330, 1/4W, 5%
 DEC 7474 = E2, E4, E6, E7
 DEC 7400 = E3, E5, E8, E11
 DEC 7410 = E10
 DEC 7430 = E1
 DEC 7440 = E9
 PIN 7 = GND
 PIN 14 = +5V ON ALL IC'S

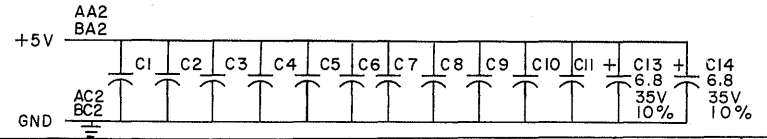
REVISIONS CHK CHG INC REV 00001 D	DATE	TRANSISTOR & DIODE CONVERSION CHART				TITLE KEYBOARD INTERFACE SEC II
	DATE	DEC	EIA	DEC	EIA	
DATE	DEC 664	1N3606				 EQUIPMENT CORPORATION MATTAPOISETT, MASSACHUSETTS
DATE	DATE	DATE	DATE	DATE	DATE	

REV D
 M.7718-0-1
 NUMBER
 CS

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UNLESS OTHERWISE INDICATED:
 J1 IS 1209941
 CAPACITORS ARE .01UF, 100V, 20%
 RESISTORS ARE 1/4W, 5%
 E1 = DEC7430
 E2, E4, E5, E7, E9 & E11 = DEC7440
 E3 = DEC7404
 E6 & E8 = DEC7400
 E10 = DEC7474
 PIN 7 = GND
 PIN 14 = +5V ON EACH IC



REV.	NO.	DATE

DRN	S. COOPER	DATE	3/17/71
CHKD		DATE	
ENG.		DATE	
PROD		DATE	

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA
D664	IN3606		

digital		TITLE	
EQUIPMENT CORPORATION		8/I INTERFACE	
SIZE	CODE	NUMBER	REV.
C	CS	M7719-0-1	C
PRINTED CIRCUIT REV			D

REV. C
 NUMBER M7719-0-1
 SIZE CODE C CS

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WIRE TABLE

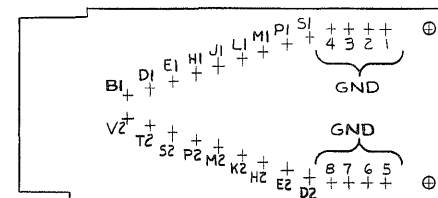
ITEM NO.	AWG	COLOR	FROM		TO		CUT POINT	ITEM NO.	AWG	COLOR	FROM		TO		CUT POINT		
			CONNECTION	WITH	CONNECTION	WITH					CONNECTION	WITH					
2	24	BLK	PI-4	SOLDER	P2-A	G	1	24	WHT	PI-7	SOLDER	P2-UU	G	10			
		TWP	ORN	DI		B				TWP	GRY	EZ			P2-VV		
			WHT	4		E						RED	1			P3-H	
			BRN	L1		F						GRY	P2			J	
			WHT	3		P						YEL	3			F	
			ORN	K2		R						BLU	S1			R	
			WHT	1		Y						RED	6			W	
			GRN	PI		Z						ORN	H2			X	
			BLK	4		AA						RED	6			CC	
			BLU	HI		BB						BLU	M2			DD	
2	24	BLK	4		EE		2	24	YEL	5		EE		15			
			GRN	E1		FF					ORN	S2			FF		
			BLK	2		HH						RED	8			HH	
			BRN	B1		JJ						BRN	D2			JJ	
			BLK	2		KK						YEL	5			KK	
			GRY	J1		LL						GRN	T2			LL	
			WHT	7		MM						RED	8			UU	
			TWP	BLU	PI-V2	SOLDER			P2-NN	G		GRN	PI-M1		SOLDER	P3-VV	G

LEGEND

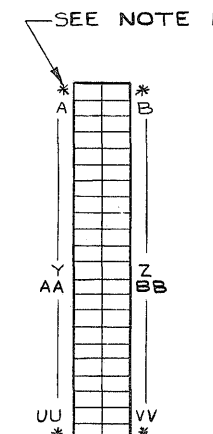
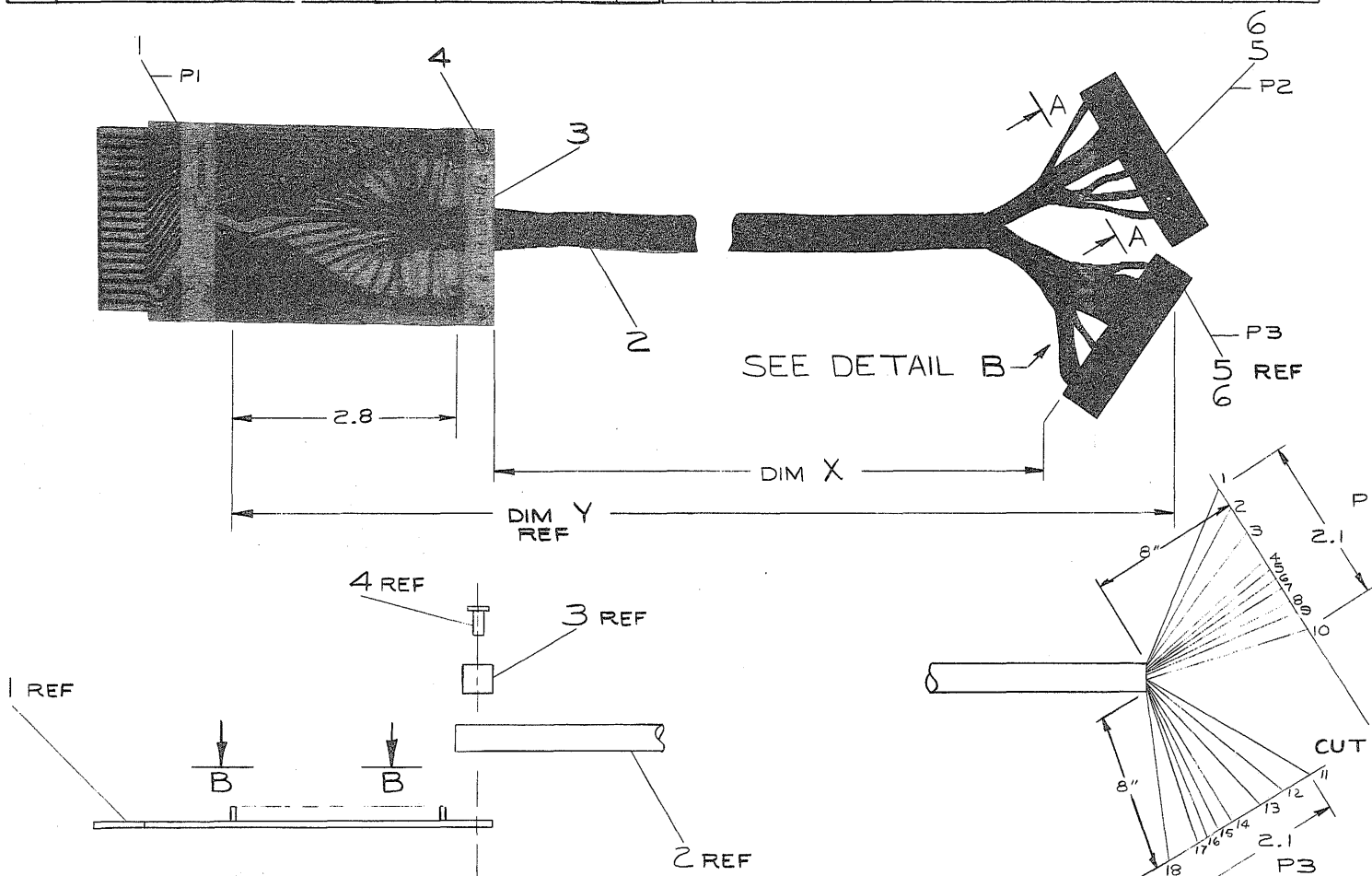
NUMBER	VARIATION	
	DIM X	DIM Y (PRECUT)
7008514-25	25 FT ± 3 IN	25 FT 5 IN ± 3 IN

NOTES:

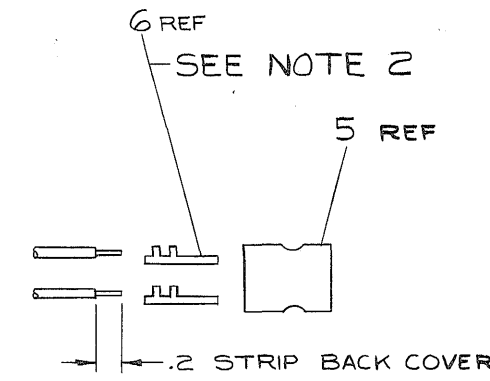
- * DENOTES CAVITIES NOT DESIGNATED BY LETTERS.
- MANUFACTURING SHOULD USE MACHINE CRIMPER. TOOL FOR CRIMPING PINS (ITEM #6) MUST BE HT66 FROM BERG ELECT.
- EACH LINE WITH ITS CORRESPONDING CUT POINT NUMBER REPRESENTS A TWISTED PAIR OF WIRES
- USE TIE WRAPS TO HOLD EACH BUNDLE OF TWISTED PAIRS FROM WHERE OUTER SHEATH STOPS TO BERG CONNECTOR.



VIEW B-B



VIEW A-A
TYPICAL FOR P2 & P3



QTY.	DESCRIPTION	PART NO.	ITEM NO.
36	SOCKET, #48015, BERG	1210089-4	6
2	HOUSING, #20383, BERG	1210090-0	5
2	EYELET, #A2231, STIMPSON	9006759	4
1	CABLE CLAMP	1202790	3
A/R	CABLE, 18 TWISTED PAIRS, 24 AWG, 7 STRAND MIN.	9107700	2
1	MEMORY BUS CONNECTOR CARD	M904B	1

CUT LINES FOR CONNECTORS P2 & P3
SEE NOTE 3

DO NOT REDUCE
DETAIL B
SCALE: 1/1

REV.	CHANGE NO.	DATE
A	1	9/16/71
B	1	8-25-71
C	1	9-16-71
D	1	9-16-71

FIRST USED ON OPTION/MODEL		QTY.		DESCRIPTION		PART NO.		ITEM NO.	
LCB-L									
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES									
DECIMALS	ANGLES	DRN		DATE		PARTS LIST		TITLE	
.XXX ± .005	± 0° 30'	W.F. McCarty		8/16/71		Digital EQUIPMENT CORPORATION		INTERFACE CABLE	
.XX ± .02		CHK'D		DATE		MAYNARD MASSACHUSETTS			
.X ± .1		John Kirk (EPC)		8-25-71					
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROJ. ENG.		DATE					
		John Kirk (EPC)		9-16-71					
		PROD.		DATE					
		R. J. O'Brien		9-16-71					
MATERIAL		NEXT HIGHER ASSY.		SCALE		NUMBER		REV.	
SEE PARTS LIST				NONE		DIA 7008514-0-0		L	
FINISH		SHEET		1 OF 1		DIST.			

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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION					DATE 6/30/71	
TITLE LC8-L						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
ENG	John Kirk	APPD	SIZE	CODE	NUMBER	REV
		<i>R.K. Olson</i>	A	SP	LC8-L-1	

ENGINEERING SPECIFICATION			CONTINUATION SHEET		
TITLE LC8-L					
<p>Abstract:</p> <p>The LC8-L is a parallel transfer interface to the LA30 DECwriter for the PDP8/I, 8/L, 12 and DC02 option. By use of pin compatible boards, it is a plug-in replacement (for keyboard and printer functions) wherever the M706, M707 boards are normally used.</p> <p>I. General:</p> <p>The LC8-L parallel interface is used with the LA30-P DECwriter. It may be used as a replacement for the console teletype control on the PDP8/I, 8/L, or 12 or as a control for additional LA30-P keyboard/printers. The instruction set is identical to that of the normal teletype control of these machines, with the following exceptions:</p> <ol style="list-style-type: none"> 1. There is no paper tape reader on the LA30, hence no reader run. 2. There is no paper tape punch on the LA30. 3. The maximum input/output rate is 30 characters/second. 4. Output to the printer is only 7 bits (AC5-11). Eight bits can be sent, but bit-8 (AC4) is ignored. 5. If a non-printing character is sent to the LA30 printer, it does not go through a normal print cycle, but indicates that it is ready to print again in approximately 1-2 µsec. 6. The LA30 has no hardware TAB, FORM FEED or VERTICAL TAB features. 7. CARRIAGE RETURN takes several character times, but the printer Ready Flag is set again ~2 usec. after a CAR RET instruction. When the next character is sent, however, the Ready Flag is not set again until the CAR RET has finished and this character has been printed. 					
		SIZE	CODE	NUMBER	REV
		A	SP	LC8-L-1	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE LC8-L

8. It is possible, by changing an internal switch for the LA3Ø keyboard to generate lower case characters. Normally this is set so that only upper case character codes are generated whether the keyboard is in SHIFT or not.
9. The LA3Ø Printer cannot print lower case characters, these are interpreted as upper case.
10. There is no BELL; CNTRL G is treated as non-printing.
11. End of Line (>80 characters) is trapped and any subsequent characters sent before a CAR RET are not printed.

II. Physical

The LC8-L consists of two double height M-series logic boards which are pin compatible, for such signals as BMB3-8, IOPs, AC input and output lines, with the M7Ø6 and M7Ø7 teletype control boards. The M706 is replaced by the M7718 and the M7Ø7 by the M7719. The WØ76D teletype connector is no longer used, nor is the module slot into which it plugs. Instead, the M7718 and M7719 have each only a single module handle (on the 'B' half of each board), in the area where the 'A' handles would normally be, two H855 4Ø pin Berg connectors are mounted with their pins pointing to the handle ends of the boards. The LA3Ø-P cable plugs into these connectors.

III. Specifications - Environment

Operating Temperature : 0 - 55°C
 Operating humidity : 10 - 90% non condensing
 Storage temperature : -15 +65°C

IV. Specifications - Operating

A. Type of transmission - Parallel
 Type of reception - Parallel

SIZE	CODE	NUMBER	REV
A	SP	LC8-L-1	

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE LC8-L

B. Control Signals:

1. Receiver Strobe - sent to the LA3Ø Printer to enable printing of a character. There is no printer buffer internal to the M7719, the data for transmission to the LA3Ø is established on the Output Data lines at the start of the output IOT instruction and Receiver Strobe is asserted during IOP4 of this same instruction.
2. Demand - sent by the LA3Ø Printer to request the next character, stays true until the next Receive Strobe.
3. Transmitter Strobe - sent by the LA3Ø keyboard and used on the M7718 to strobe the character generated by the keyboard into the keyboard buffer in the M7718.

C. Number of Data Elements per Character - seven

D. Logic Levels Between LA3Ø and LC8-L - TTL

E. Cable between LA3Ø and LC8-L

Standard length is 25 feet. The cable used terminates in an M9Ø4 connector at the LA3Ø and two H856 4Ø pin connectors at the LC8-L. Connector #1 plugs into the M7718, Connector #2 into the M7719. The cable assembly is part #

V. Programming

The LC8-L uses the standard PDP8/I teletype keyboard/teleprinter instruction set with the following changes:

KSF	6Ø31	Skip if keyboard flag is set
KCC	6Ø32	Clear AC & keyboard flag
KRS	6Ø34	Read keyboard buffer, static
KRB	6Ø36	Clear AC, clear keyboard flag and read keyboard buffer
TSF	6Ø41	Skip if printer flag is set
TCF	6Ø42	Clear printer flag
TPC	6Ø44	Load printer buffer and print
TLS	6Ø46	Clear printer flag, load printer buffer & print

SIZE	CODE	NUMBER	REV
A	SP	LC8-L-1	

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE LC8-L

VI Device Codes

The instruction list in Section V assumed that the LC8-L was replacing the console teletype (device codes 03 and 04). Any device codes that would normally have been used for a serial interface with the M706, M707 may be used with the M7718 and M7719 by wiring the appropriate combinations of BMB 3-8 to pins AD2, AE1, AF1, AH1, AH2, AJ1 on the M7718 and pins AE2, AE1, AF2, AF1, AH2, AJ2 on the M7719.

SIZE	CODE	NUMBER	REV
A	SP	LC8-L-1	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

LEGEND

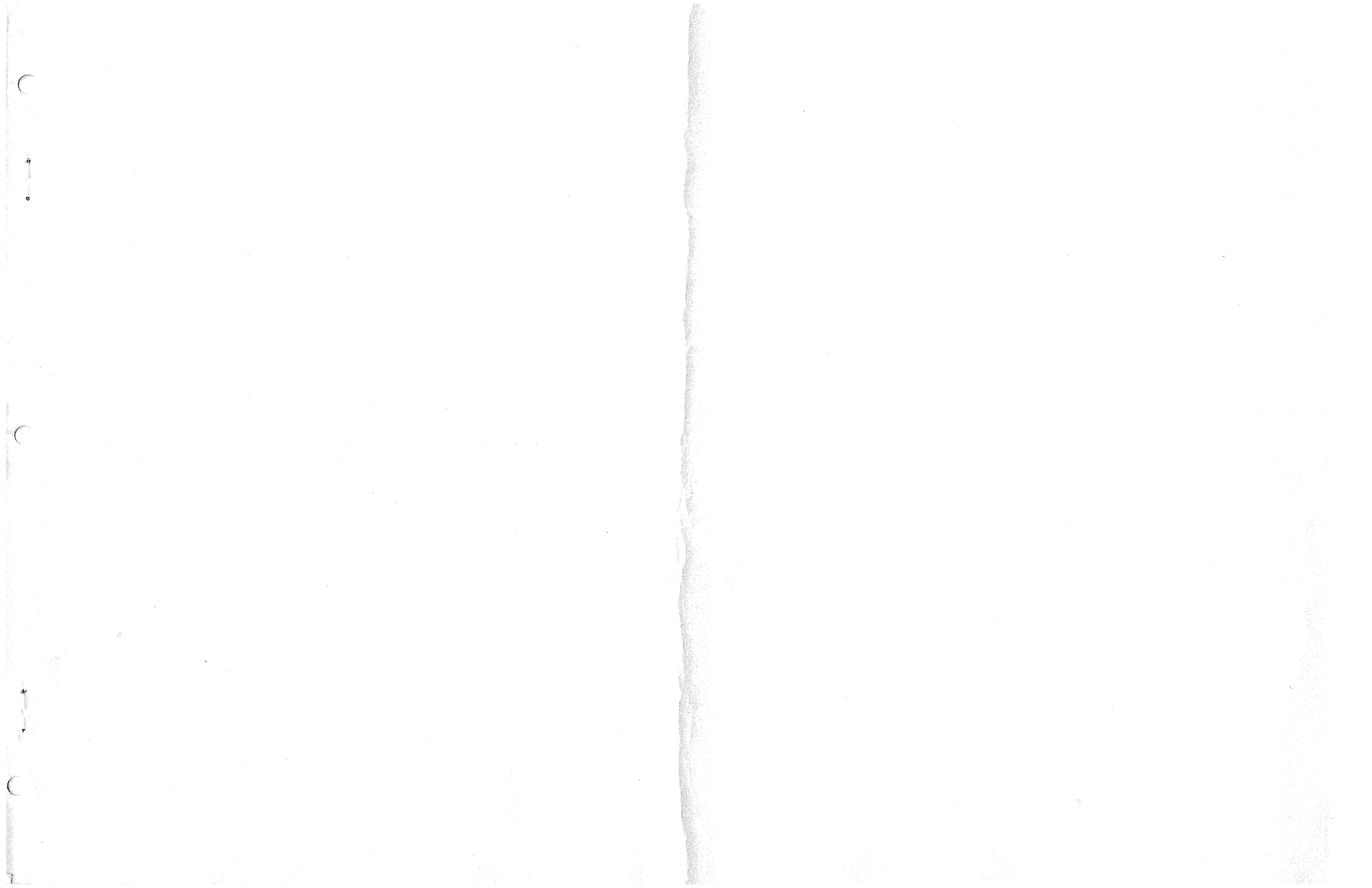
- D DOCUMENT
- DN DOCUMENT CHANGE NOTICE
- PA PAPER TAPE ASCII
- PB PAPER TAPE BINARY
- PM PAPER TAPE READ-IN-MODE

QUANTITY / VARIATION

MADE BY R. Allen	CHECKED <i>R. Allen</i>	SECTION
DATE 4/19/72	DATE 4/18/72	
ENG <i>Steve Clark</i>	PROD <i>R. Allen</i>	ISSUED SECT.
DATE 4/19/72	DATE 4/19/72	

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION		KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
			LC8-E	LC8-L						
1	M8329	Interface Module	1	-						
2	7008417	Interface Cable	1	-						
3	M7718	Interface Module	-	1						
4	M7719	Interface Module	-	1						
5	7008514	Interface Cable	-	1						
6	LIBKIT-8E-LC8E	Software Kit	1	1						
7	A-ML-LC8-0	Print Set	1	1						
8	Dec-8E-HR3B-D-LC8-E	Maintenance Manual	1	-						
9	A-SP-LC8-L-1	Engineering Specification	-	1						
		If maintenance manual is not available ship engineering spec. instead								

TITLE	ASSY. NO.	SIZE CODE	NUMBER	REV.	ECO NO
Accessory Shipping List		A AL	LC8-0-1		
SHEET	OF	DIST.			



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MADRID