

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

x				
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SEQUENCE

SEQUENCE

D-CS-M8342-0-1
D-IA-7008859-0-0
A-AL-LS8-E-1
A-PL-LS8-E-0
A-PL-LS01-E-0
A-SP-LS8-E-2

A-SP-LS8-E-4

PARALLEL CONTROL
INTERFACE CABLE CENTRONICS CONTROL
ACCESSORY LIST
PARALLEL CONTROL
CENTRONICS PRINTER
ENGINEERING SPECIFICATION

ACCDPTANCE PROCEDURE

UNIT VARIATIONS

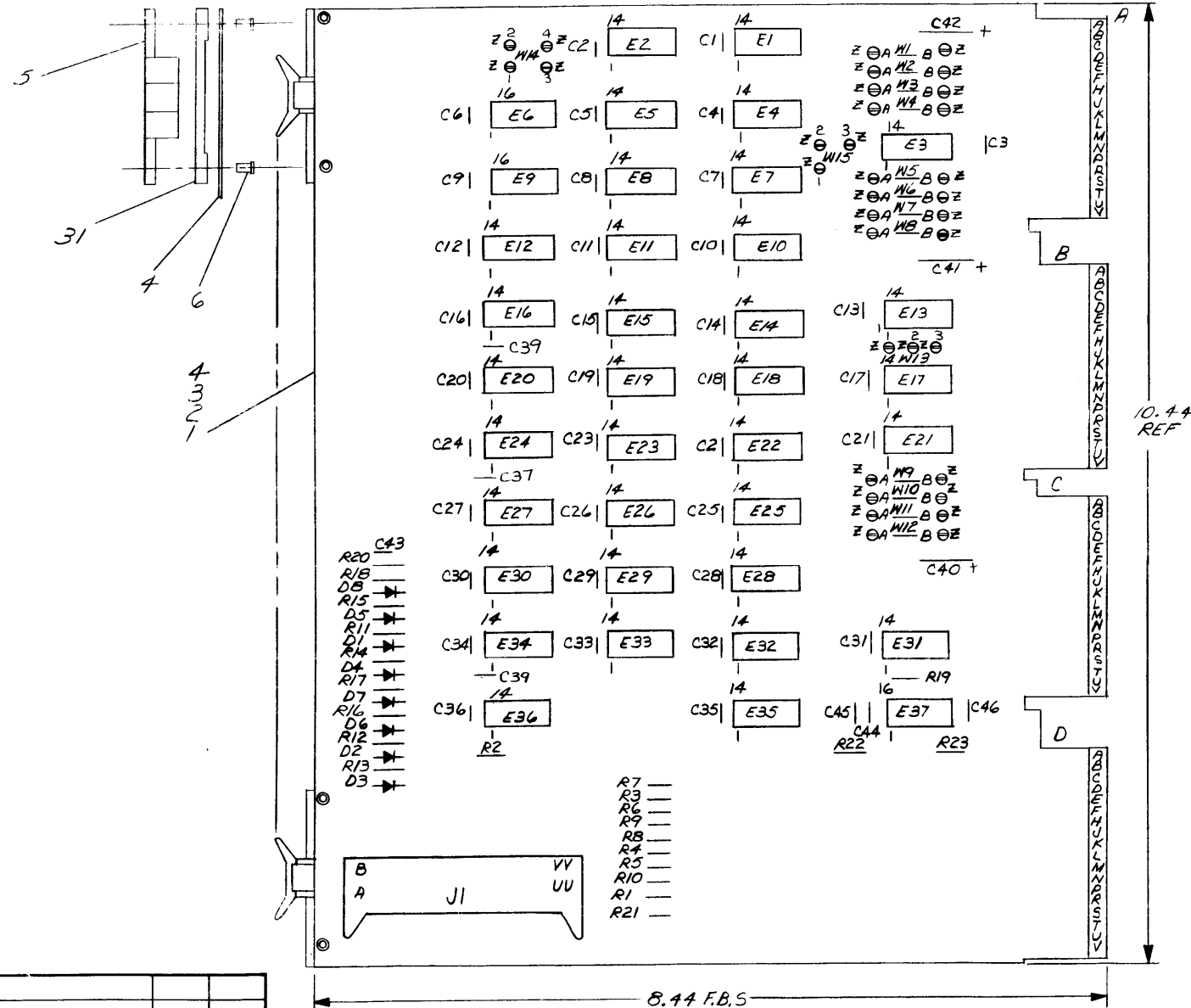
PRINT SET TYPE

[illegible][illegible]

[illegible]

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NOTES:



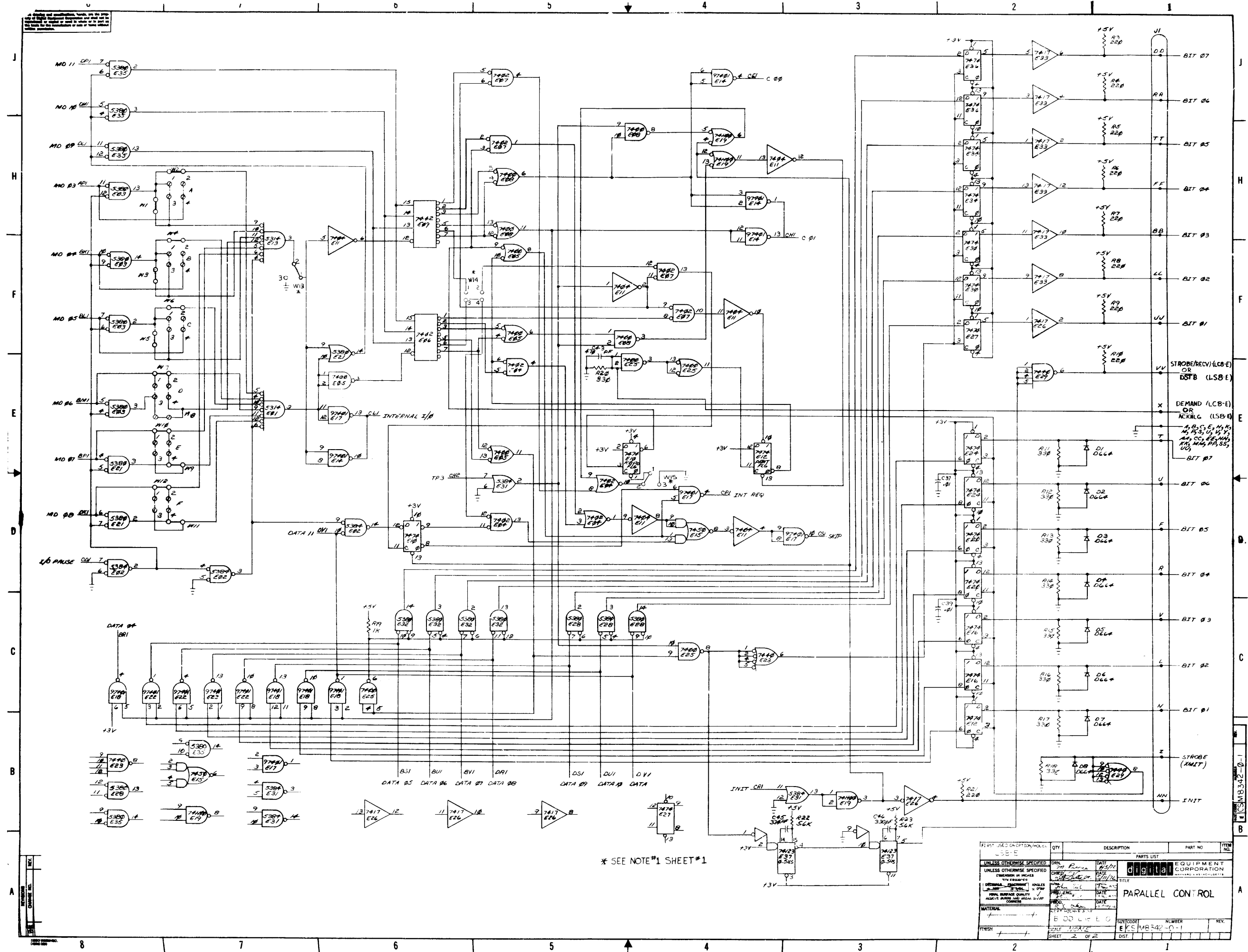
NOTE 1

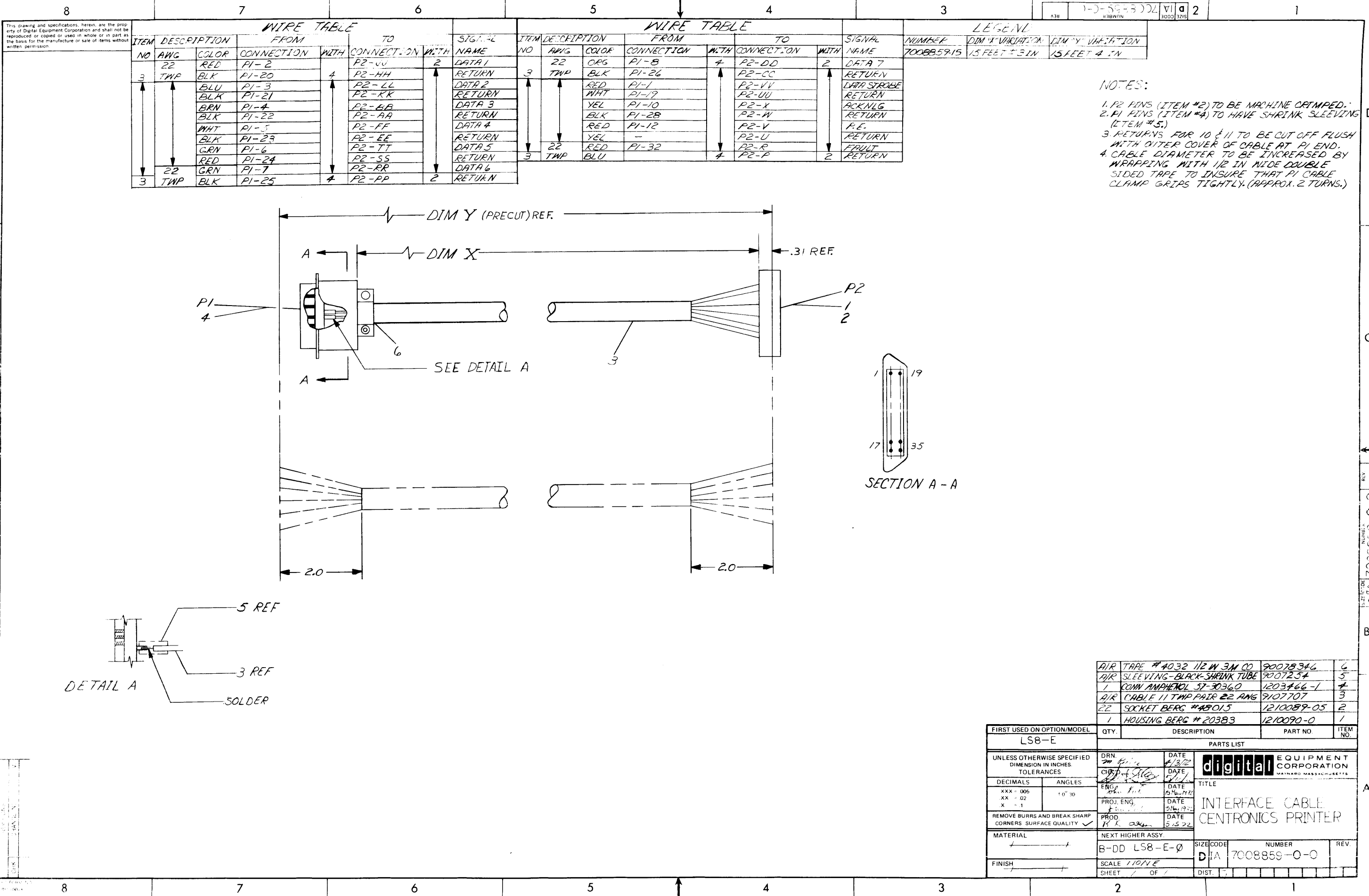
JUMPER CONFIGURATION (INSERT)		
	LS8E	LC8E
WI3	1-3	1-2
WI4	1-4 2-3	1-2 3-4
WI5	1-3	1-2

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		SPACER (CABLE CLAMP)	1202704	31
2	C45, C46	CAP 330 PF 100V 5%	1000023	32
1	C43	CAP 470 PF 100V 5% DM	1000024	31
3	C40, C41, C42	CAP 6.8 MF 35V 20% TANT	1000067	30
40	C1- C39, C44	CAP.01MF 100V 20% DISC	1001610	29
8	D1-D8	DIODE 644	1100114	28
2	R22, R23	RES 5.6K 1/4W 5%	1301874	27
1	R2	RES 750 1/4W 5%	1301401	26
1	R19	RES 1K 1/4W 5%	1300365	25
9	R11- R18, R20	RES 330 1/4W 5%	1300295	24
10	R1, R3- R10, R21	RES 220 1/4W 5%	1300271	23
9	E10, E12, E16, E20, E24, E27, E30, E34, E36	IC DEC 7474	1905547	22
3	E5, E8, E25	IC DEC 7400	1905575	21
2	E23, E29	IC DEC 7440	1905579	20
1	E15	IC DEC 7450	1905580	19
2	E4, E7	IC DEC 7402	1909004	18
1	E19	IC DEC 74H00	1909056	17
1	E11	IC DEC 7404	1909686	16
4	E14, E17, E18, E22	IC DEC 97401	1909973	15
2	E26, E33	IC DEC 7417	1909929	14
2	E6, E9	IC DEC 7442	1910046	13
2	E1, E13	IC DEC 5314	1910391	12
5	E3, E21, E28, E32, E35	IC DEC 5380	1910392	11
2	E2, E31	IC DEC 5384	1910394	10
1	E37	IC DEC 74123	1910436	9
1	U1	CONN, RIGHT, ANGLE HEADER	1209941	8
34		SPLIT LUGS	9006735	7
8		EYELET	9006750	6
4		HANDLE, FLIP-CHIP, MAGENTA	9008337-06	5
1		ETCHED CIRCUIT BOARD	5010040	4
		MODULE ECO HISTORY	B-MH-MB342-06	3
		ASSY/DRILLING HOLE LAYOUT	D-AH-MB342-05	2
		X-Y COORDINATE HOLE LOCATION	K-CO-MB342-04	1

A			
	IC DEC 74123	B	16
	IC DEC 7442	B	16
	IC TYPE	GND	+ 5V
	GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
	IC PIN LOCATIONS		

[illegible]





AIR TAPE #4032 1/2 IN 3M CO	90078346	6
AIR SLEEVING-BLACK-SHRINK TUBE	9007254	5
1 COMM AMPHENOL 57-30360	1203466-1	4
AIR CABLE 11 TWP PAIR 22 AWG	9107707	3
22 SOCKET BERG #45015	1210089-05	2
1 HOUSING BERG #20383	1210090-0	1

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
LS8-E				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. DATE 4/13/72	CHK. DATE 5/1/72	digital EQUIPMENT CORPORATION	
DECIMALS ANGLES	ENG. DATE 5/1/72	PROJ. ENG. DATE 5/1/72	TITLE	
xxx = .005 xx = .02 x = .1	10° 30'	PROD. DATE 5/15/72	INTERFACE CABLE CENTRONICS PRINTER	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD. DATE 5/15/72			
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
	B-DD LS8-E-0	DIA	7008859-0-0	
FINISH	SCALE NONE	SHEET	OF	

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS				LEGEND		QUANTITY/VARIATION															
ACCESSORY LIST				D DOCUMENT DN DOCUMENT CHANGE NOTICE PA PAPER TAPE ASCII PB PAPER TAPE BINARY PM PAPER TAPE READ-IN-MODE																	
MADE BY R. Allen DATE 5/8/72		CHECKED <i>[Signature]</i> DATE 5/18/72		SECTION																	
ENG John Kirk DATE 5/8/72		PROD <i>R.K. Allen</i> DATE 5-18-72		ISSUED SECT.																	
ITEM NO.	DWG NO. / PART NO.		DESCRIPTION			LS8-EA	LS8-EB									KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE
1	M8342		Control Interface			1	1														
2	7008859-0-0		Interface Cable			1	1														
3	30-10965-1		Printer LS01-EA			1	-														
4	30-10965-2		Printer LS01-EB			-	1														
5	36-10998		#525480001 Spool/Black Ribbon			1	1														
6	36-09141		14 7/8 x 11 Paper, Single Part			1	1														
7	B-DD-LS8-E-0		Print Set			1	1														
8	LIBKIT-8E-LS8-E		Library Kit			1	1														
9	Technical Manual 101		Centronics Maintenance Manual			1	1														
10	A-SP-LS8-E-2		Engineering Specification *			1	1														
			* To be shipped until Maintenance Manual available.																		
TITLE				ASSY. NO.		SIZE CODE		NUMBER						REV.		ECO NO					
Accessory Shipping List						A AL		LS8-E-1													
SHEET 1 OF 1						DIST.															

[illegible]

1. Ensure that all ECO's have been installed.
2. Perform Q.C. inspection.
3. Ensure that the device code (66 standard) does not conflict with any other code on the system. (Reference LS8-E Engineering Specification for change information)
4. Ensure that jumpers W13, W14, W15 are correctly installed for LS8-E use (Reference E-CS-M8342-0-1 Note 1)
5. Run one pass of the Lineprinter Test using single part paper (MAINDEC-08-DHLSA-A). No errors are acceptable. Compare print quality with the sample supplied.
6. Run one pass of the diagnostic using 5 part paper. Verify that all copies are legible.
7. Shipping Software and Hardware: as listed on A-AL-LS8-E-1.

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 3/8/72

TITLE LS8-E (M8342)

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE LS8-E (M8342)

Abstract:

The LS8-E is a parallel interface to the Centronics Model 101 Lineprinter for the PDP8/E. Split lugs are provided to allow the device codes to be changed.

I. General:

The LS8-E Parallel Interface is used with the Centronics Model 101 Lineprinter (DEC P/N 30-10965). Split lugs are provided to allow any device code to be assigned. The same control board will be used, M8342, for the LA30 Parallel Control, LC8-E. (When existing stocks of M8329 boards have been used up.)

II. Physical:

The LS8-E is built on a single quad size board which plugs directly into the OMNIBUS.

III. Specifications - Environment:

	Control	Printer
Operating temperature:	0 - +55°C	+5 - 38°C
Operating humidity:	10 - 90% non condensing	5 - 95%
Storage temperature:	-15 - +65°C	-40 - 65°C
Storage humidity:	5 - 95%	0 - 98%

IV. Specifications - Operating:

1. Type of transmission - Parallel
2. Control Signals

DSTB - Sent to the Centronics printer to enable loading the printer buffer or, in the case of a control function, to initiate a print operation or a paper movement operation. It is sent 500 nsec after TP3 of the data transfer instruction and is of 500 nsec duration.

ENG John Kirk	APRD <i>John Kirk</i> 19 May 72	SIZE A	CODE SP	NUMBER LS8-E-2	REV
------------------	------------------------------------	------------------	------------	-------------------	-----

DEC FORM NO.
DRA 107

SHEET 1 OF 9

DEC FORM NO 16-1022
DRA 108

SIZE A	CODE SP	NUMBER LS8-E-2	REV
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SHEET 2 OF 9

ENGINEERING SPECIFICATION

digital

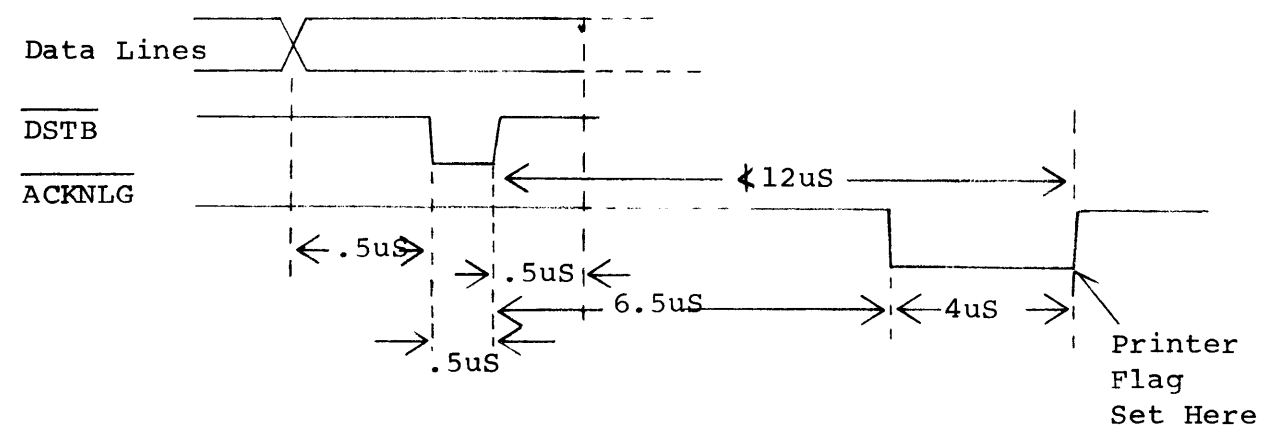
CONTINUATION SHEET

TITLE LS8-E (M8342)

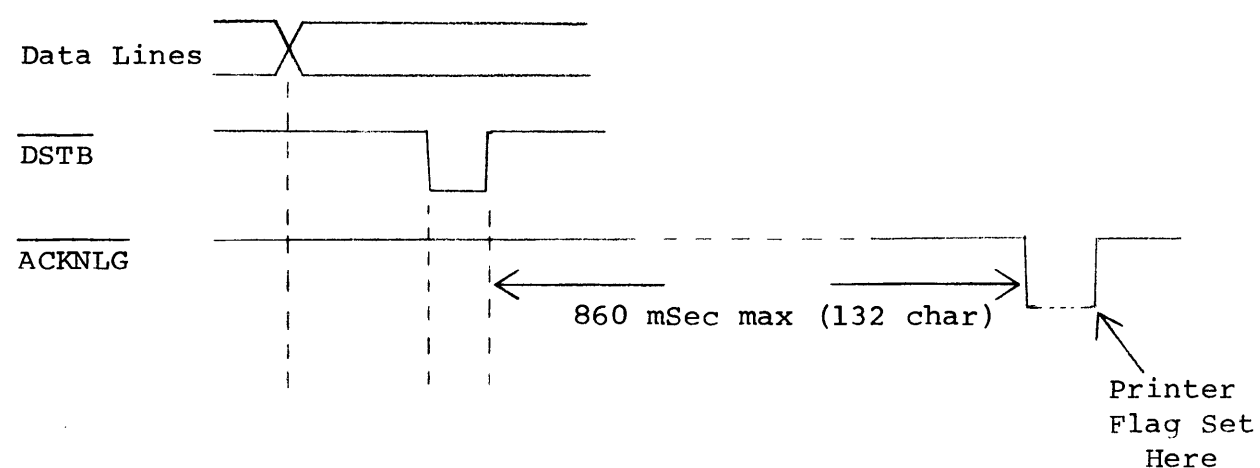
ACKNLG - Sent by the printer to indicate the completion of an operation initiated by a DSTB signal from the processor.

3. Timing Diagrams

A. Data Transfer - no print



B. Data Transfer - print, or carriage return



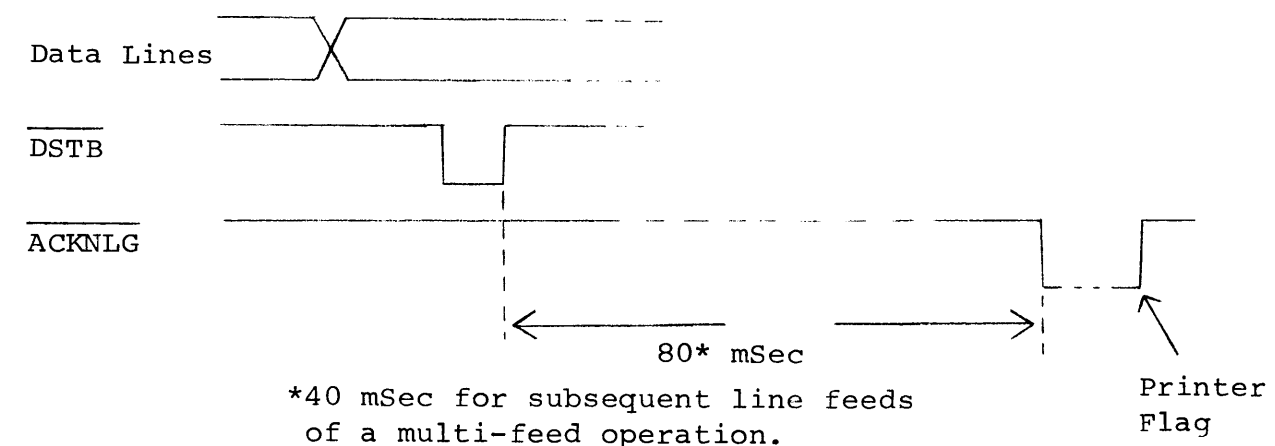
ENGINEERING SPECIFICATION

digital

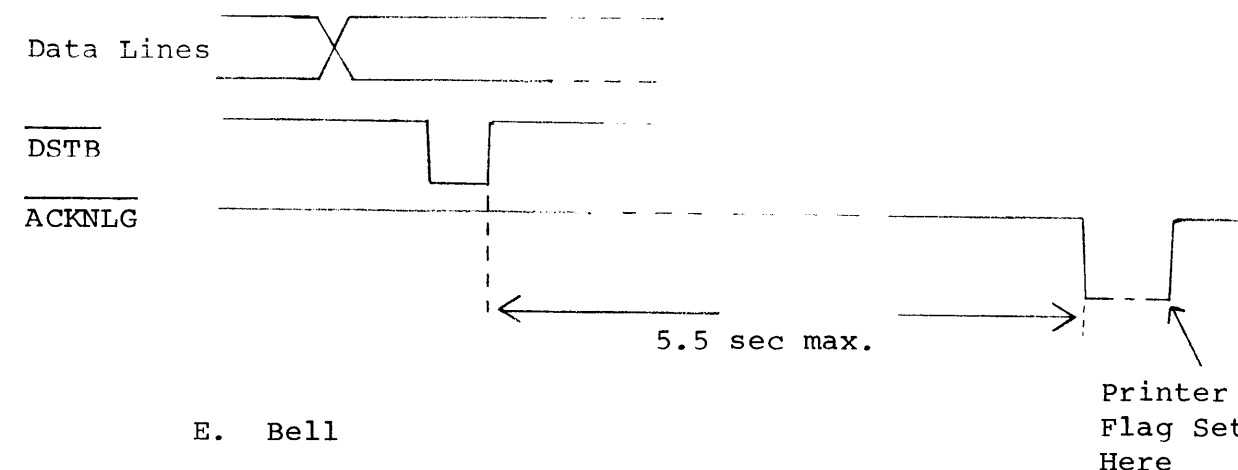
CONTINUATION SHEET

TITLE LS8-E (M8342)

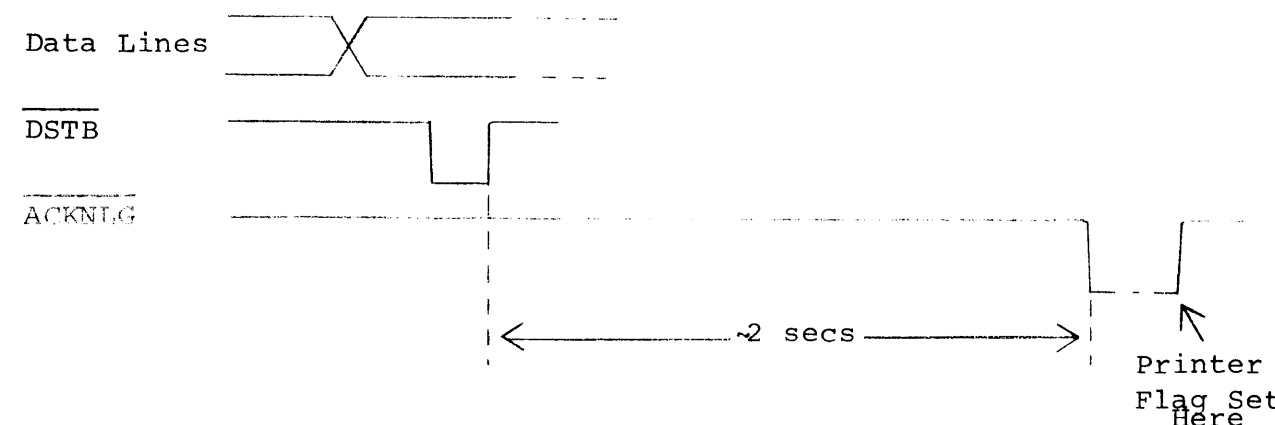
C. Line Feed



D. Vertical Tab & Form Feed



E. Bell



digital

CONTINUATION SHEET

TITLE LS8-E (M8342)

4. Cable

The standard cable length is 15 feet. The cable used is a DEC #7008859.

V. Programming

The LS8-E is normally assigned device code 66(8) but can be changed to any other code.

The instruction set is as follows:

```
666Ø    Set printer flag.  
        Sets the printer flag.
```

```
6661    Skip on printer flag.
        Skip the next sequential instruction if the printer
        flag is set.
```

```
6662      Clear printer flag*
        Clears the printer flag.
```

```
6664      Load the printer buffer.
        Transfer AC 5-11 to the output buffer and 0.5 us
        later assert DSTB to transfer the output buffer
        contents to the printer.  The printer flag is not
        cleared.
```

```

6665      Set/clear Interrupt Enable**
        If AC11(1), set interrupt enable, if AC11(0)
        clear interrupt enable.

```

```
6666      Load printer buffer sequence.
          Transfer AC 5-11 to the output buffer and 0.5 us
          later assert DSTB to transfer the output buffer contents
          to the printer.  Clear the printer flag.
```

* Cleared by initialize or CAF

**** Set by initialize or CAF**

SIZE
A

CODE	
SP	

NUMBER
LS8-E-2

REV

digital

CONTINUATION SHEET

TITLE LS8-E (M8342)

VI Device Codes & Option Jumpers

Split lugs are provided on the M8342 to allow any device code to be used. As manufactured the device code jumpers are set for use with the LC8-E option which uses two device codes 03, 04.

By means of a jumper the first of these two device decoders must be disabled for use with the LS8-E and the second rewired to respond to device code 66(8).

It is necessary to make two other jumper changes. One change allows the 6665 instruction to operate correctly with the LS8-E, the other disables the "KBY'D FLG" flip/flop.

Summary:

To use the M8342 with the LS8-E:

1. Change jumper W13 from 1-2 to 1-3
2. Change jumpers W14 from 1-2 to 1-4
3-4 to 2-3
3. Change jumper W15 from 1-2 to 1-3
4. Set the jumpers for device code as indicated in Table I.
(Standard device code is 66(8)).

Device code jumpers are organized in the following layout format:

$$\begin{array}{cc} 2 & 1 \\ & A \\ w_2 & w_1 \\ 4 & 3 \end{array}$$

Machine inserted jumpers W1 - W12 are correct for the LC8-E device codes of 03 (8) and 04 (8). A jumper in a group to be changed should be cut before any other wires are added.

SIZE	CODE
A	SP

NUMBER
LS8-E-2

REV

ENGINEERING SPECIFICATION		digital		CONTINUATION SHEET		
TITLE LS8-E (M8342)						
Device Code	Group A	B	C	D	E	F
00	1-2	1-2	1-2	3-2	4-3	4-3
01	1-2	1-2	1-2	3-2	4-3	1-3
02	1-2	1-2	1-2	3-2	1-3	4-3
03	1-2	1-2	1-2	3-2	1-3	1-3
04	1-2	1-2	1-2	1-2	4-3	4-3
05	1-2	1-2	1-2	1-2	4-3	1-3
06	1-2	1-2	1-2	1-2	1-3	4-3
07	1-2	1-2	1-2	1-2	1-3	1-3
10	1-2	1-2	4-2	3-2	4-3	4-3
11	1-2	1-2	4-2	3-2	4-3	1-3
12	1-2	1-2	4-2	3-2	1-3	4-3
13	1-2	1-2	4-2	3-2	1-3	1-3
14	1-2	1-2	4-2	1-2	4-3	4-3
15	1-2	1-2	4-2	1-2	4-3	1-3
16	1-2	1-2	4-2	1-2	1-3	4-3
17	1-2	1-2	4-2	1-2	1-3	1-3
20	1-2	4-2	1-2	3-2	4-3	4-3
21	1-2	4-2	1-2	3-2	4-3	1-3
22	1-2	4-2	1-2	3-2	1-3	4-3
23	1-2	4-2	1-2	3-2	1-3	1-3
24	1-2	4-2	1-2	1-2	4-3	4-3
25	1-2	4-2	1-2	1-2	4-3	1-3
26	1-2	4-2	1-2	1-2	1-3	4-3
27	1-2	4-2	1-2	1-2	1-3	1-3
30	1-2	4-2	4-2	3-2	4-3	4-3
31	1-2	4-2	4-2	3-2	4-3	1-3
32	1-2	4-2	4-2	3-2	1-3	4-3
33	1-2	4-2	4-2	3-2	1-3	1-3
34	1-2	4-2	4-2	1-2	4-3	4-3
35	1-2	4-2	4-2	1-2	4-3	1-3
36	1-2	4-2	4-2	1-2	1-3	4-3
37	1-2	4-2	4-2	1-2	1-3	1-3
SIZE A		CODE SP	NUMBER LS8-E-2		REV	

ENGINEERING SPECIFICATION		digital		CONTINUATION SHEET		
TITLE LS8-E (M8342)						
Device Code	Group A	B	C	D	E	F
40	4-2	1-2	1-2	3-2	4-3	4-3
41	4-2	1-2	1-2	3-2	4-3	1-3
42	4-2	1-2	1-2	3-2	1-3	4-3
43	4-2	1-2	1-2	3-2	1-3	1-3
44	4-2	1-2	1-2	1-2	4-3	4-3
45	4-2	1-2	1-2	1-2	4-3	1-3
46	4-2	1-2	1-2	1-2	1-3	4-3
47	4-2	1-2	1-2	1-2	1-3	1-3
50	4-2	1-2	4-2	3-2	4-3	4-3
51	4-2	1-2	4-2	3-2	4-3	1-3
52	4-2	1-2	4-2	3-2	1-3	4-3
53	4-2	1-2	4-2	3-2	1-3	1-3
54	4-2	1-2	4-2	1-2	4-3	4-3
55	4-2	1-2	4-2	1-2	4-3	1-3
56	4-2	1-2	4-2	1-2	1-3	4-3
57	4-2	1-2	4-2	1-2	1-3	1-3
60	4-2	4-2	1-2	3-2	4-3	4-3
61	4-2	4-2	1-2	3-2	4-3	1-3
62	4-2	4-2	1-2	3-2	1-3	4-3
63	4-2	4-2	1-2	3-2	1-3	1-3
64	4-2	4-2	1-2	1-2	4-3	4-3
65	4-2	4-2	1-2	1-2	4-3	1-3
66	4-2	4-2	1-2	1-2	1-3	4-3
67	4-2	4-2	1-2	1-2	1-3	1-3
70	4-2	4-2	4-2	3-2	4-3	4-3
71	4-2	4-2	4-2	3-2	4-3	1-3
72	4-2	4-2	4-2	3-2	1-3	4-3
73	4-2	4-2	4-2	3-2	1-3	1-3
74	4-2	4-2	4-2	1-2	4-3	4-3
75	4-2	4-2	4-2	1-2	4-3	1-3
76	4-2	4-2	4-2	1-2	1-3	4-3
77	4-2	4-2	4-2	1-2	1-3	1-3
SIZE A		CODE SP	NUMBER LS8-E-2		REV	

ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE LS8-E (M8342)

040	041	042	043	044	045	046	047	050
051	052	053	054	055	056	057	060	061
062	063	064	065	066	067	070	071	072
073	074	075	076	077	100	101	102	103
104	105	106	107	110	111	112	113	114
115	116	117	120	121	122	123	124	125
126	127	130	131	132	133	134	135	136
								137

CONTROL CODES

007	BELL
012	LINE FEED
013	VERTICAL FORMAT
014	FORM FEED
015	CARRIAGE RETURN
177	DELETE
016	ELONGATED CHARACTER

TABLE 1

(5x7 Dot Matrix)

SIZE
A

CODE
SP

NUMBER
LS8-E-2

REV