

TITLE	SHEET 2 OF 4	SIZE CODE	NUMBER	REV
LP2Ø LINE PRINTER SYSTEM	SHEET 2 OF 4	B DD	LP2Ø-Ø	D

ELECTRICAL					ELECTRICAL										
CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
		1	C-PL-LP20-0-0	#	1	LP20 LINE PRINTER SYSTEM									
			C-MU-LP20-0-MU	#	1	MODULE UTILIZATION (LP20)									
			B-DD-M8585-0			LP20 TRANSLATION RAM									
			B-DD-M8586-0			LP20 LINE PRINTER CONTROL									
			B-DD-M8587-0			LP20 LINE PRINTER DATA PATHS									
			D-IA-7012475-0-0	#	1	POWER HARNESS									
			D-UA-BC06R-10	#	1	BC06R I/O CABLE									
			D-UA-BC11A-02	#	1	CABLE ASSY (BC11A)									
			B-TC-LP20-0-1	#	1	LP20 FIELD MAINT. PRINT SET (TC)									
			A-SP-LP20-0-4	#	2	LP20 ACCEPTANCE SPEC									
			MP00006			LP20 PRINT SET									
			A-SP-LP20-0-3	#	5	LP20 INSTALLATION & CHECKOUT SPEC									
			D-BD-LP20-0-6	#		LP20 CONTROLER BLOCK DIAGRAM									
			B-DD-M8571-0			LP20 LINE PRINTER DATA PATHS									
		2	D-AD-7011427-0-0	#	1	WIRED ASSY (LP20)									
			K-WL-LP20-0-WL	#	1	WIRE LIST									
			A-WT-7011427-0	#	1	AWT REVISION STATUS									
		3	D-AD-7011590-0-0	#	1	BACKPLANE ASSY (LP20)									
		4	D-UA-5411704-0-0	#	3	LP20 BACKPLANE									
			B-DD-5411704-0	#	2	LP20 BACKPLANE (D.D.)									
CUSTOMER PRINT SET CODES	X = PRINT OF DOCUMENT INCLUDED IN PRINT SET C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED						TITLE	SIZE CODE		NUMBER	REV				
							LP20 LINE PRINTER SYSTEM	SHEET 3 OF 4 B DD		LP20-0	D				

CUSTOMER PRINT SET		MECHANICAL					CUSTOMER PRINT SET		MECHANICAL				
FIND NO.	MFG. SET	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE	FIND NO.	MFG. SET	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO./FILE DATE
1		C-PL-LP20-0-0	#	1	LP20 LINE PRINTER SYSTEM		5		D-IA-7011960-0-0	#	1	SUPPORT HARNESS	
		D-IA-7011426-0-0	#	1	CABLE LP20				C-MD-7412443-0-0	#	1	CABLE HOLDER	
		D-UA-BC06R-10	#	1	BC06R I/O CABLE				C-MD-7415015-0-0	#	1	BRACKET CABLE RETAINING	
		D-UA-BC11A-02	#	1	CABLE ASSY (BC11A)				C-MD-7415015-1-0	#	1	BRACKET CABLE RETAINING	
		D-IA-7012475-0-0	#	1	POWER HARNESS								
		A-PL-LP20-0-SH	#	1	SHIPPING LIST								
2		D-IA-7011427-0-0	#	1	WIRED ASSY (LP20)								
3		D-IA-7011590-0-0	#	1	BACKPLANE ASSY (LP20)								
		C-PS-1209583-1-0	#	2	CASTING, THREE BLOCK								
4		D-UA-5411704-0-0	#	3	LP20 BACKPLANE								
		B-DD-5411704-0	#	2	LP20 BACKPLANE								

CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

TITLE  
LP20 LINE PRINTER SYSTEM  
SHEET 4 OF 4  
SIZE CODE B DD  
NUMBER LP20-0  
REV D

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ITEM NO.	DWG./PART NO.	DESCRIPTION	LP20-#																								
			LP20-#	LP20-AA	LP20-AB	LP20-AC	LP20-AD	LP20-BA	LP20-BB	LP20-BC	LP20-BD	LP20-CA	LP20-CB	LP20-CC	LP20-CD	LP20-DA	LP20-DB	LP20-DC	LP20-DD	LP20-EA	LP20-EB	LP20-FC	LP20-FD	LP20-GA	LP20-GB	LP20-HC	LP20-HD
1	D-AD-7011427-0-0	WIRED ASSY (LP20)	1																								
2	D-UA-BC6R-1#	BC6R I/O CABLE	1																								
3	D-UA-BC11A-#2	CABLE ASSY (BC11A)	1																								
4	D-IA-7012475	HARNESS, POWER	1																								
5	D-IA-7011960-0-0	SUPPORT, HARNESS	1																								
6	N8585	LP20 TRANSLATION RAM MODULE	1																								
7	N8566	LP20 LINE PRINTER CONTROL MODULE	1																								
8	N8587	LP20 LINE PRINTER DATA PATHS MODULE	*																								
9	LP20-#	CONTROLLER ONLY		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	3011631-03	LP05-VK LINE PRINTER EDP 60HZ	1																								
11	3011631-04	LP05-VT LINE PRINTER SCI 50HZ				1																					
12	3011631-07	LP05-WK LINE PRINTER EDP 60HZ					1																				
13	3011631-08	LP05-WT LINE PRINTER SCI 50HZ						1																			
14	3011091-09	LP16-JA LINE PRINTER EDP 60HZ																		1							
15	3011091-10	LP16-JB LINE PRINTER EDP 50HZ																			1						
16	3011091-11	LP16-JC LINE PRINTER SCI 60HZ																				1					
17	3011091-12	LP16-JD LINE PRINTER SCI 50HZ																					1				
18	3011091-13	LP16-KA LINE PRINTER EDP 60HZ																						1			
19	3011091-14	LP16-KB LINE PRINTER EDP 50HZ																							1		
20	3011091-15	LP16-KC LINE PRINTER SCI 60HZ																								1	
21	3011091-16	LP16-KD LINE PRINTER SCI 50HZ																									1
22	N8571	LP20 LINE PRINTER DATA PATHS	1*																								
23	3014020-04	LP14-VK LINE PRINTER EDP 60HZ											1														
24	3014020-04	LP14-VN LINE PRINTER EDP 50HZ												1													
25	3014020-10	LP14-WK LINE PRINTER EDP 60HZ													1												
26	3014020-10	LP14-WN LINE PRINTER EDP 50HZ														1											
27	3011631-03	LP05-VN LINE PRINTER EDP 50HZ			1																						
28	3011631-04	LP05-VP LINE PRINTER SCI 60HZ				1																					
29	3011631-07	LP05-WN LINE PRINTER EDP 50HZ						1																			
30	3011631-08	LP05-WP LINE PRINTER SCI 60HZ							1																		
31	3014020-05	LP14-VP LINE PRINTER SCI 60HZ											1														
32	3014020-05	LP14-VT LINE PRINTER SCI 50HZ												1													
33	3014020-11	LP14-WP LINE PRINTER SCI 60HZ														1											
34	3014020-11	LP14-WT LINE PRINTER SCI 50HZ															1										

\*: N8571 IS USED IN NEW BUILDS,  
N8587 IS STILL USABLE AS A SPARE IN MOST APPLICATIONS

NOTE: FOR USE ON DEC SYSTEM 2# THE 7011426-XX CABLE IS USED TO CONNECT THE LINE PRINTER TO A RECEPTACLE HOUSING ASSY ON THE 7011418 FRONT END ASSY. THE BC6R-1# CABLE CONNECTS FROM THE RECEPTACLE HOUSING ASSY TO THE N8587 MODULE.

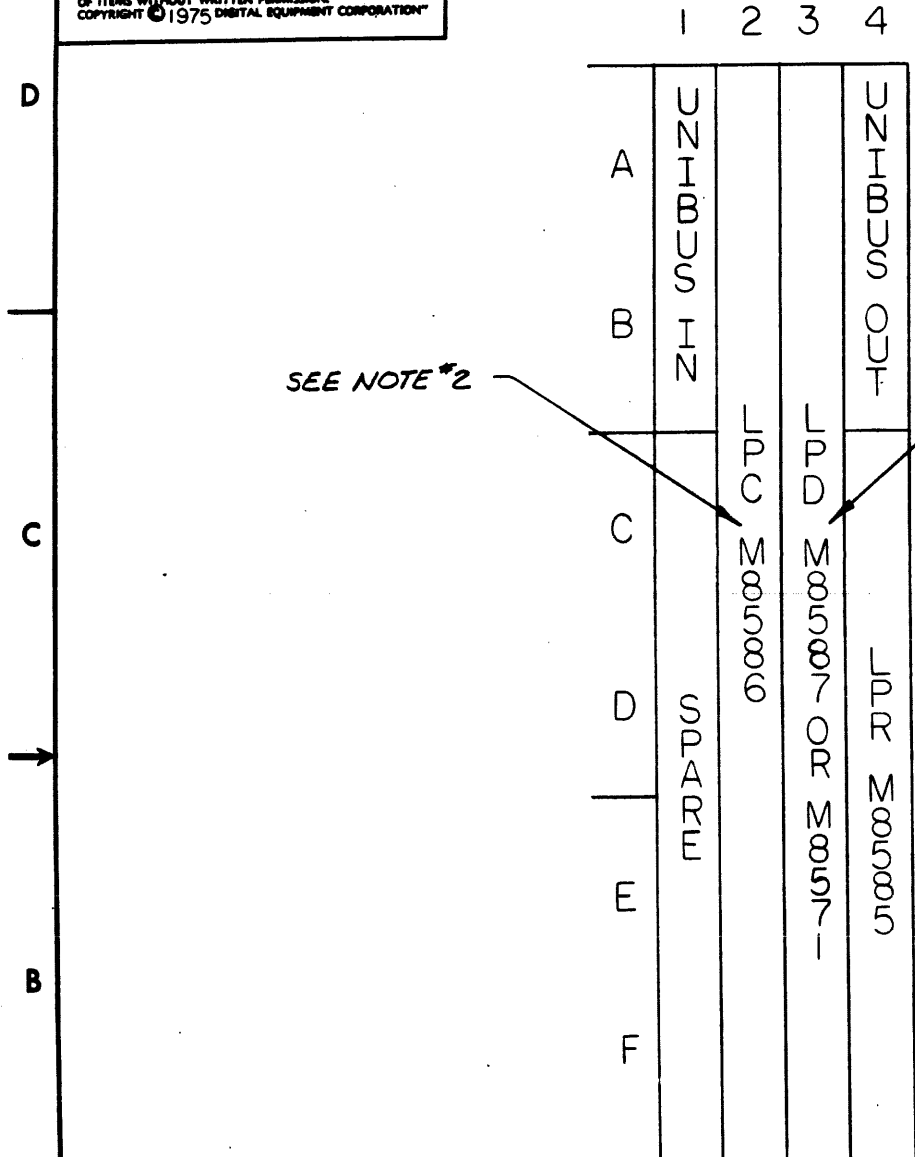
REV. D  
 LP20-MP005  
 REVISED & RETYPED  
 M. Pascale 10 JAN 77  
 ELBERT BLOOM  
 E. B. Bloom 2/1/77

DRM. P.W. CAUNTER 9-19-75	FIRST USED ON	LP-20	DIGITAL
CHK'D V. SOUZA 3 NOV 75	TITLE	LP20 LINE PRINTER SYSTEM	
ENG. T. KNIGHT 3 NOV 75	SIZE	C	PL
PROJ. ENG. T. KNIGHT 3 NOV 75	NUMBER	LP20-0-0	REV. D
PROD. W. KEEFE 3 NOV 75	SCALE	-#	
NEXT HIGHER ASSY.	SHEET	1 OF 1	DIST.

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NOTES:

- SEE PRINTS D-CS-M8571-Ø-LPØØ AND D-CS-M 8587-Ø-LPØØ FOR M8571 AND M8587 MODULE INTERCHANGEABILITY INFORMATION AND JUMPER/DIPSWITCH CONFIGURATION INFORMATION.
- SEE PRINTS D-CS-M8586-Ø-LPØØ FOR JUMPER/DIPSWITCH CONFIGURATION INFORMATION FOR M8586.



REF: PIN SIDE

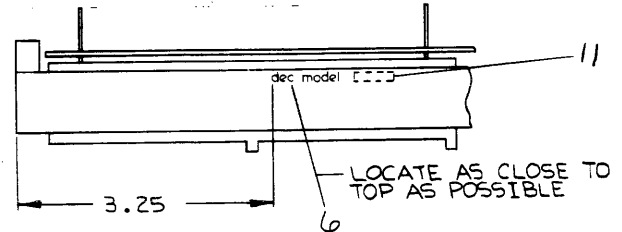
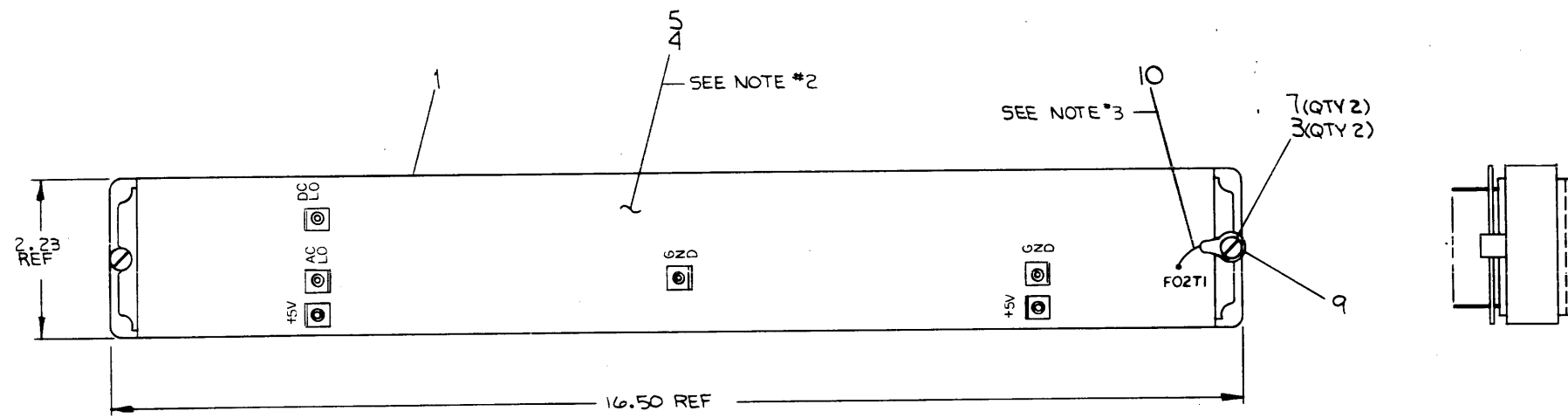
REVISIONS	CHK	CHANGE NO.	REV.
	B.C.	LP20-0000.3	A
T. KNIGHT 11-19-77			

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
LP20					
DIMENSIONAL TOLERANCE					
DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED					
MILLIMETERS	INCHES	ANGLES		TITLE	
X,XX ±0.10	J,XX ±0.005	30° 30'		 MODULE UTILIZATION (LP20)	
X,X ±0.5	J,X ±0.02				
X ±2	X ±0.1				
THIRD ANGLE PROJECTION		REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓			
MATERIAL		FINISH		SIZE CODE	NUMBER
+		+		C MU	LP20-Ø-MU
DRN. R.W. Counter 7-29-75		DATE		REV. A	
CHK'D. 7-25-75		DATE		REV.	
ENG. 7-25-75		DATE		REV.	
PRO. ENG. 8-22-75		DATE		REV.	
PROD. 11-3-75		DATE		REV.	
NEXT HIGHER ASSY.		SCALE		DIST.	
		B-DD-LP20-Ø		1	
		SHEET OF			

REV. A  
PART NO. LP20-Ø-MU  
SIZE CODE CM

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- NOTES:
1. ~~INSTALL WIRE SHIELDS (ITEM #8) PRIOR TO WRAPPING.~~
  2. USE YELLOW WIRE (ITEM #5) FOR NUMERICALLY CONTROLLED WRAPPING (GARDNER DENVER & NC HANDWRAP). USE (ITEM #4) FOR TWP (NC HANDWRAP).
  3. WRAP ONE END OF A 24 GA BLACK WIRE (ITEM #10) TO F02T1 & SOLDER THE OTHER END TO THE LOCKING TERMINAL (ITEM #9) MOUNTING UNDER THE BACKPLANE MOUNTING SCREW (ITEM #3).



AIR COMPRESS-O-CARTON	9105016-4	13
REF PACKAGING INSTRUCTIONS	3700040-0-0	12
1 DECAL LOGIC ASSY	A-DC-741188-01	11
AIR WIRE #24GA SOLID (BLK)	9107638-00	10
1 TERMINAL LOCKING SHAKEPROOF	9008150	9
REF AWT REVISION STATUS	A-WT-7011427-0	8
2 O-RING RUBBER	9007835	7
1 DECAL LOGIC SERIAL NO	A-SS-7407846-0-0	6
AIR #30AWG SOLID COND (YEL)	9105740-44	5
AIR #30AWG SOLID COND TW (BLK)	9107720-09	4
2 SCR CAPTIVE #8-32 x 1.38	9008157	3
REFETCH WIRE LIST (LP20)	A-NL-LP20-Φ-NL	2
1 BACKPLANE ASSY (LP20)	D-IA-701590-0-0	1

DESCRIPTION	DWG. PART NO.	ITEM NO.					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES							
ANGLES 10° 30'	CLASS OF ACCURACY	NOMINAL DIMENSION RANGE INCHES					
SURFACE QUALITY IN	(CHECK ONE)	OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 48.0	OVER 48.0 TO 96.0
		1.004	1.000	1.012	1.016	1.004	1.004
QUANTITY & VARIATION	MICROMETRES	PREFERRED	1.012	1.016	1.008	1.004	1.001

THIRD ANGLE PROJECTION	DRAWN BY <i>[Signature]</i> 7-23-75	FIRST USED ON LP20
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D BY <i>[Signature]</i> 7-23-75	
DO NOT SCALE DWG	ENG. BY <i>[Signature]</i> 7-23-75	TITLE WIRED ASSY (LP20)
MATERIAL SEE PARTS LIST	PROD. BY <i>[Signature]</i> 11-3-75	SIZE CODE D IA
FINISH	NEXT HIGHER ASSY.	NUMBER 7011427-0-0
		REV. A
	SHEET 1 OF 1	DIST.

REV. 1	CHANGE NO. 00001	A
CHK	7011427-00001	A
REV	7-23-75	
DESIGNED BY	T. KNIGHT	
DATE	7-23-75	

DEC FORM NO. DRD 100-C

4

3

2

1

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DIGITAL EQUIP. CORP.

NOTES:  
1. LIST OF PAPER TAPE FILES USED.

LP2Ø . NCC  
LP2Ø . TPC

FIRST USED ON OPTION MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
LP2Ø				
PARTS LIST				
DRN.	R.W. Caunter	DATE	7-14-75	
CHK'D.	<i>[Signature]</i>	DATE	7-23-75	
ENG.	<i>J. Knight</i>	DATE	10-7-75	
PROJ. ENG.	<i>J. Knight</i>	DATE	10-7-75	
PROD.	<i>Mike Conway</i>	DATE	10/10/75	
NEXT HIGHER ASSEMBLY				
D IA-7011427-0-0				
SCALE	1:1		SIZE	K WL
SHEET	1	OF	1	
			NUMBER	LP2Ø-Ø-WL
			REV.	C

**digital** EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE  
**WIRE LIST**

REV. C
CHANGE NO. LP2Ø-00001
CHK <i>[Signature]</i>

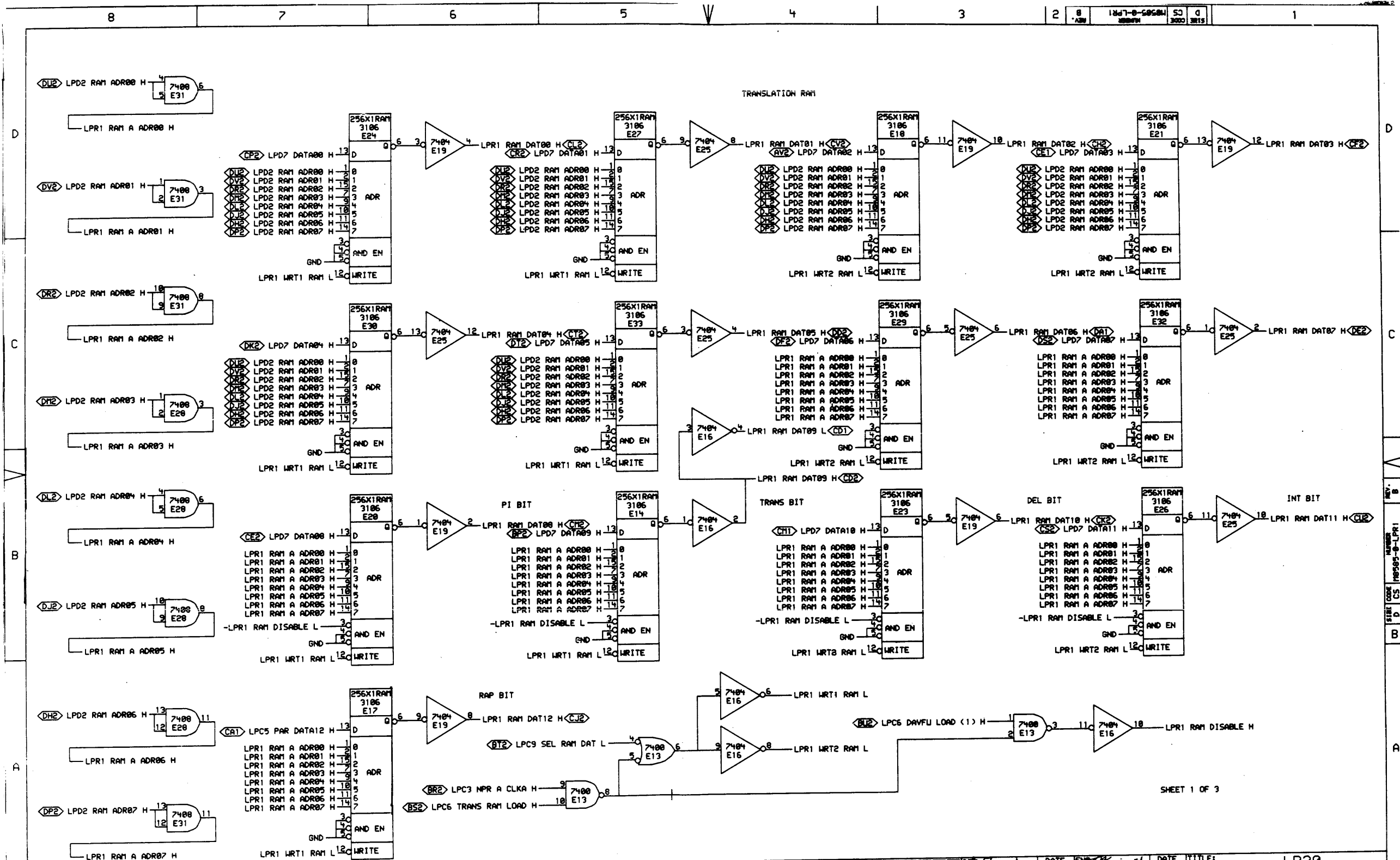
DEC FORM NO. DRB 109

4

3

2

1

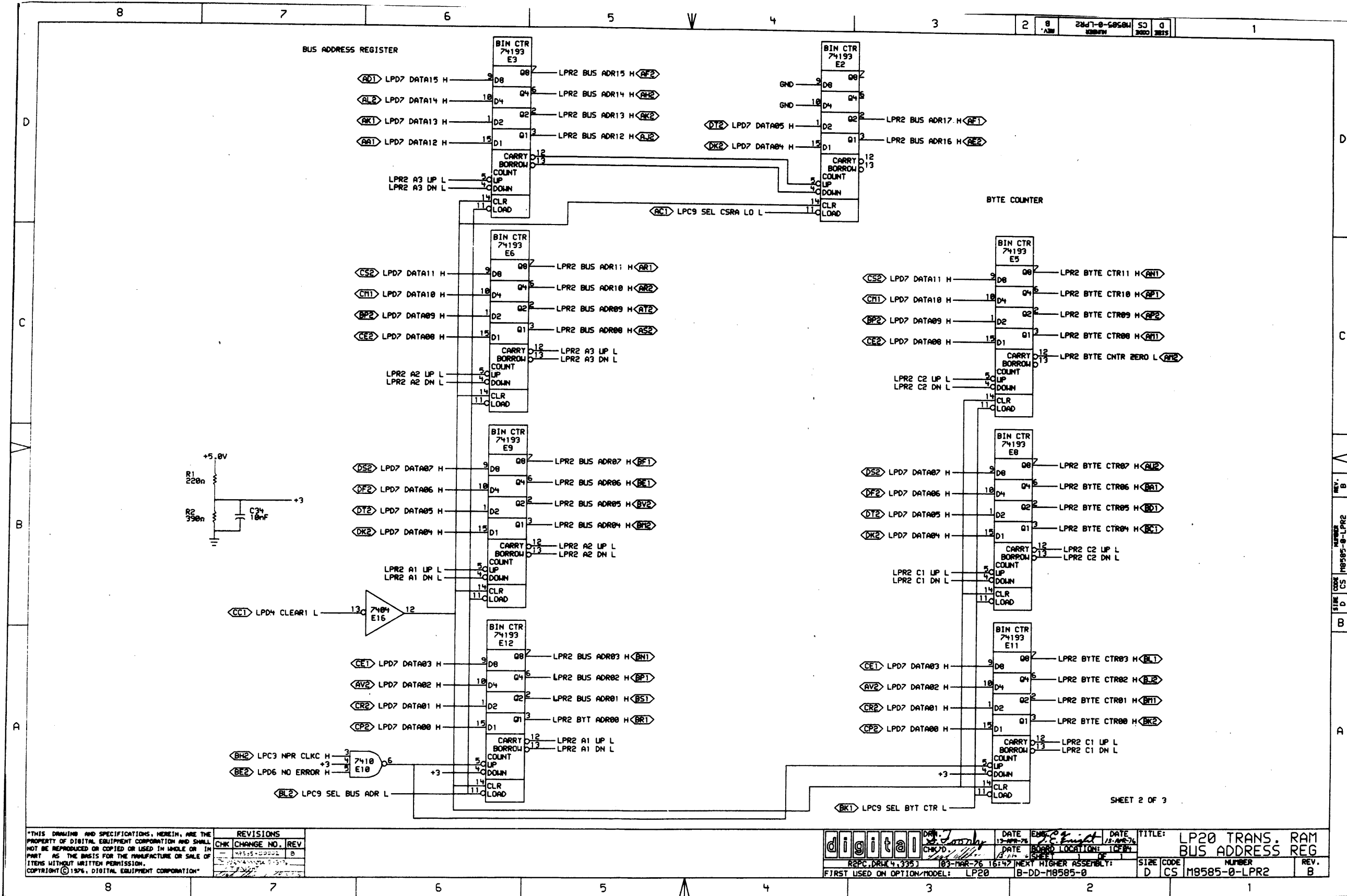


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REVISIONS		
CHK	CHANGE NO.	REV

digital	DATE	EMR	DATE	TITLE
	21-APR-76	100	12-APR-76	LP20 TRANSLATION RAM
RTPC, DRLE 4, 335	DATE	BOARD LOCATION	SIZE	CODE
FIRST USED ON OPTION MODEL: LP20	21-APR-76	100	D	CS
	DATE	NEXT HIGHER ASSEMBLY:	NUMBER	REV.
	18-DD-18585-0		M8585-0-LPR1	B

SHEET 1 OF 3

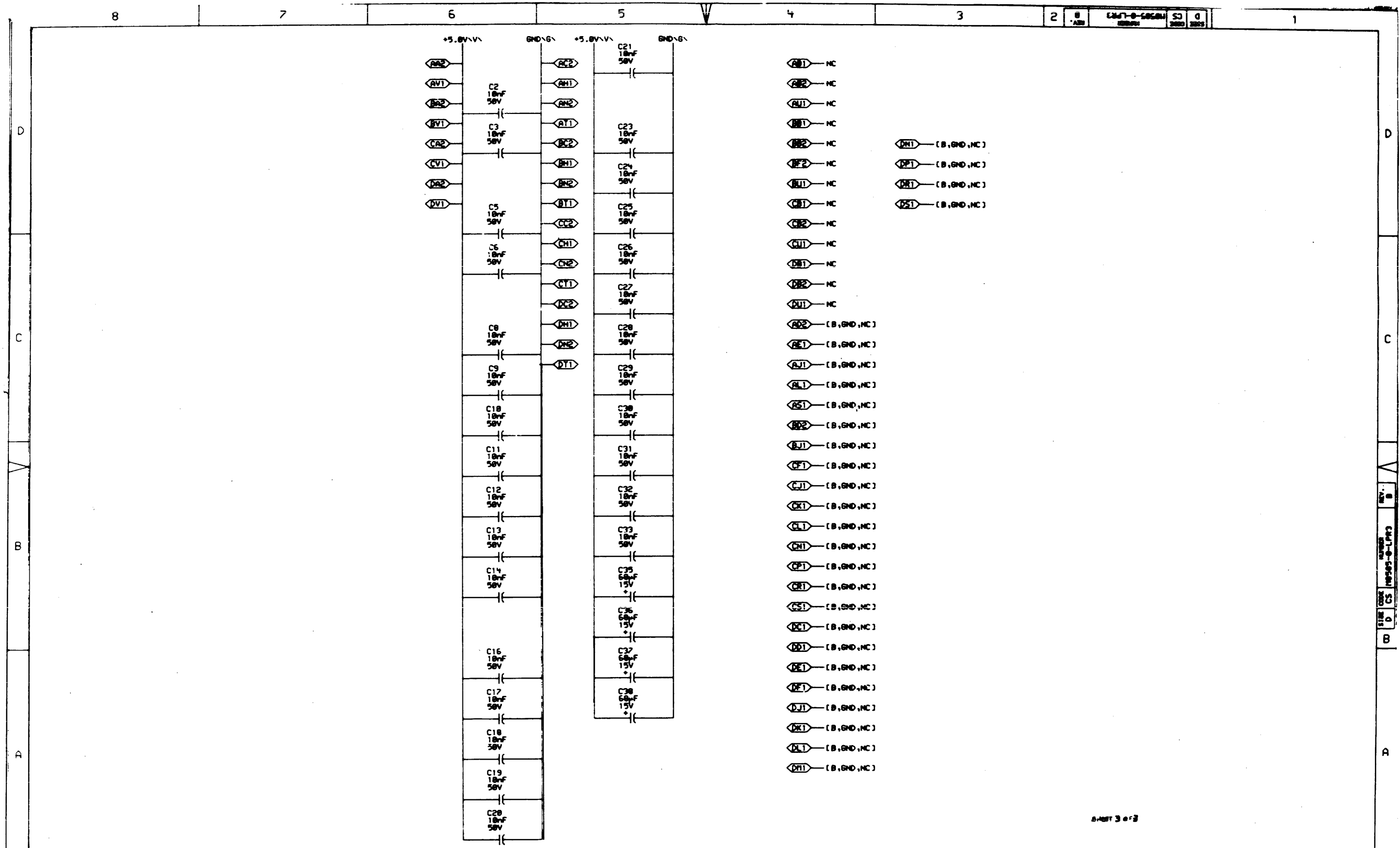


SHEET 2 OF 3

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REVISIONS		
CHK	CHANGE NO.	REV

digit@i	DATE	13-MAR-76	DATE	15-MAR-76	TITLE:	LP20 TRANS. RAM
	CHK'D		DATE		BOARD LOCATION:	BUS ADDRESS REG
REP. DR. 4,335	103-MAR-76	16:42	NEXT HIGHER ASSEMBLY:	SIZE	CODE	NUMBER
FIRST USED ON OPTION/MODEL:	LP20	B-DD-M9585-0		D	CS	M9585-0-LPR2
						REV. B

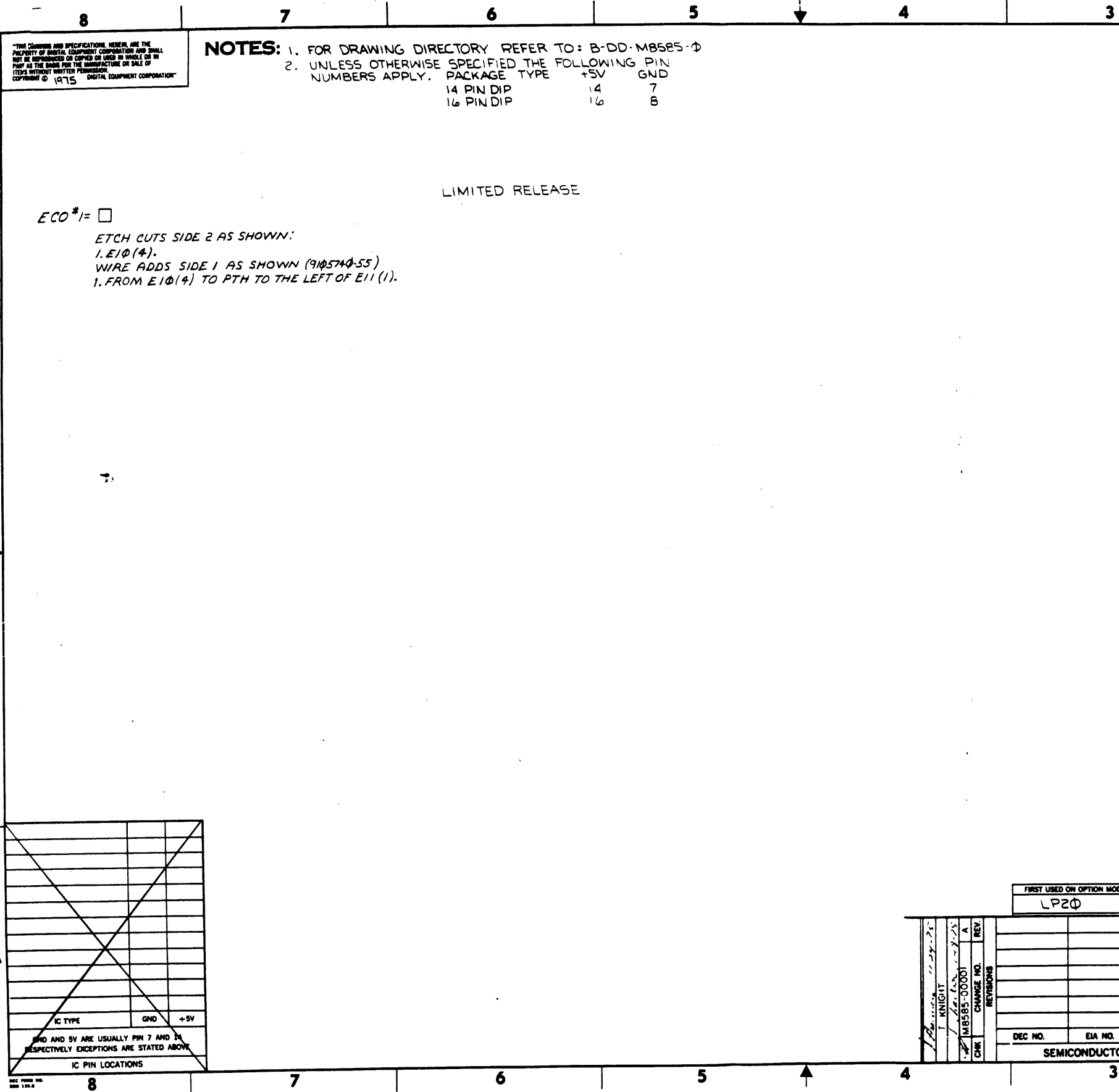


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REVISIONS		
CHK	CHANGE NO.	REV.

	DATE: 12-22-76	DATE: 12-22-76	TITLE: LP20 TRANS. RAM POWER PINS
	DATE: 12-22-76	DATE: 12-22-76	DATE: 12-22-76
FIRST USED ON OPTION/MODEL: LP20	102-PIN-76 17101 NEXT HIGHER ASSEMBLY:	SIZE CODE: D CS	NUMBER: M8585-0-LPR3
			REV.: B

sheet 3 of 3

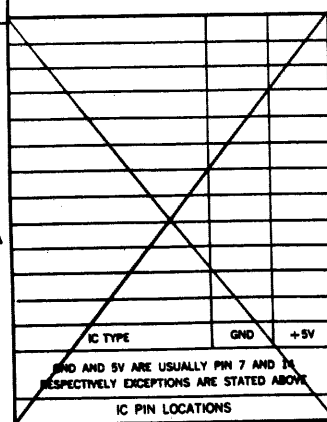


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**NOTES:** 1. FOR DRAWING DIRECTORY REFER TO: B-DD-M8585-Φ  
 2. UNLESS OTHERWISE SPECIFIED THE FOLLOWING PIN NUMBERS APPLY. PACKAGE TYPE +5V GND  
 14 PIN DIP 14 7  
 16 PIN DIP 16 8

LIMITED RELEASE

ECO\*1 =   
 ETCH CUTS SIDE 2 AS SHOWN:  
 1. E1Φ(4).  
 WIRE ADDS SIDE 1 AS SHOWN (9105740-55)  
 1. FROM E1Φ(4) TO PTH TO THE LEFT OF E11(1).



0-0-9898W M9 2

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	5011741	1
4	C35 THRU C38	CAP. 80uf 15V 10%	1000002	2
29	C2, C3, C5, C6, C8 THRU C14, C16 THRU C21, C23 THRU C24	CAP. 10nf 50V 20%	1001010	3
1	R1	RES. 220 5% 1/8	1300271	4
1	R2	RES. 300 5% 1/8	1300300	5
1	E13	I. C. DEC 7400	1005575	6
1	E10	I. C. DEC 7410	1005570	7
3	E16, E19, E25	I. C. DEC 7404	1000000	8
8	E2, E3, E5, E8, E9, E11, E12	I. C. DEC 74103	1010010	9
2	E20, E31	I. C. DEC 7400	1010155	10
13	E14, E17, E18, E20, E21, E23, E24, E26, E27, E29, E30, E32, E33	I. C. DEC 3106	1010010-02	11
		EYELET	9000732	12
4		HANDLE, FLIP CHIP, MAGENTA	0000337-00	13
N/A		WIRE #30 AWG. GRN	9105740-55	14

FIRST USED ON OPTION MODEL: LP20

ETCH BOARD-REV

DATE	6-19-75
DATE	7/2/75
DATE	7/2/75
DATE	7/7/75
DATE	7-7-75

digital

TITLE: LP20 TRANSLATION RAM

SIZE CODE: D UA NUMBER: M8585-0-0 REV: A

SEMICONDUCTOR CONVERSION CHART

SCALE: 2/1 SHEET: 2 OF 5

DATE FROM: D UA M8585-0-0 A



8

7

6

5

4

3

DUA M8585-0-0 2

1

01975

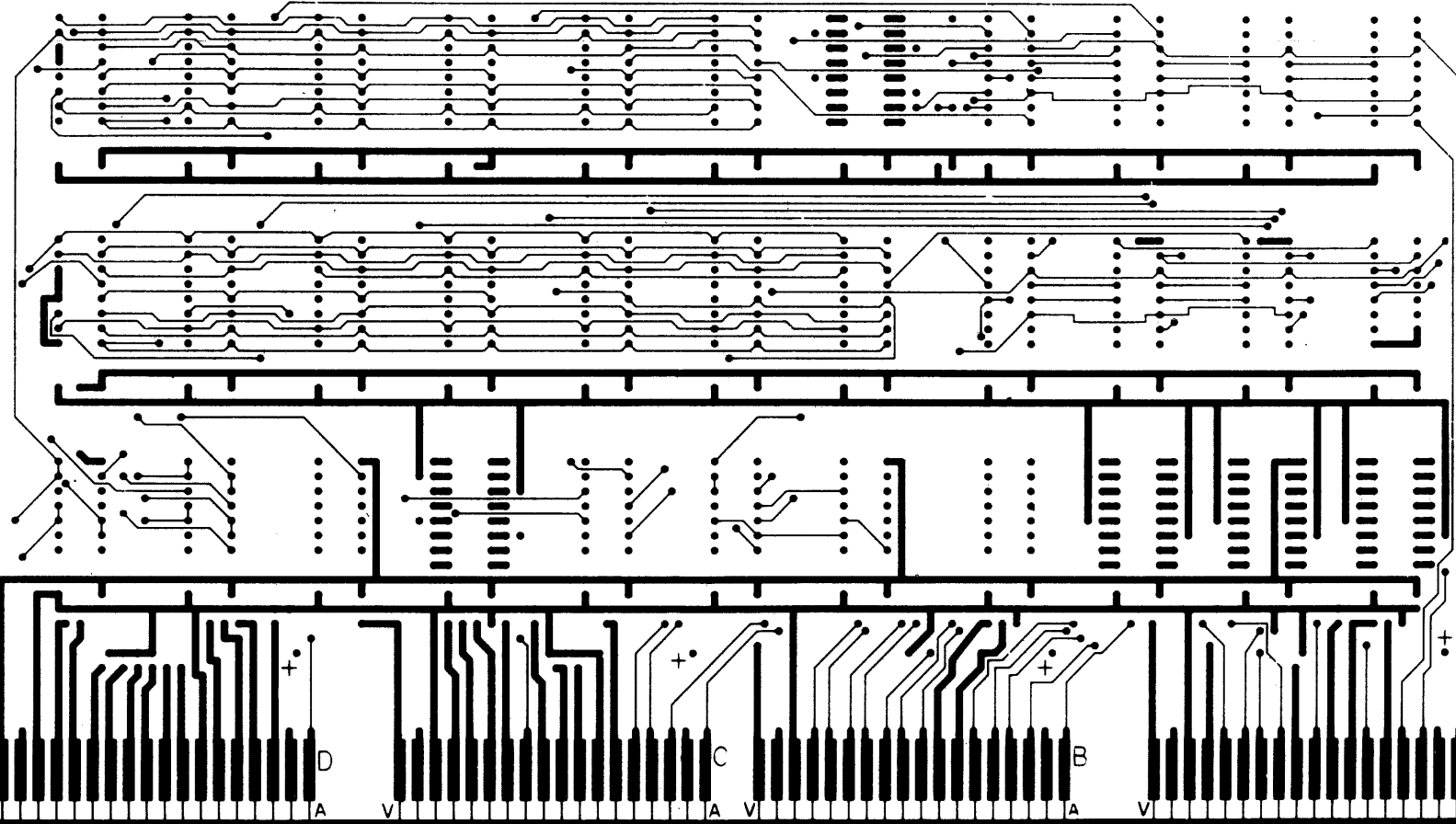
LI

CS\*ABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP

E33 E30 E27 E24 E21 E18 E15 E12 E9 E6 E3



D

C

B

A

D

C

A

B

A

DUA M8585-0-0

8

7

6

5

4

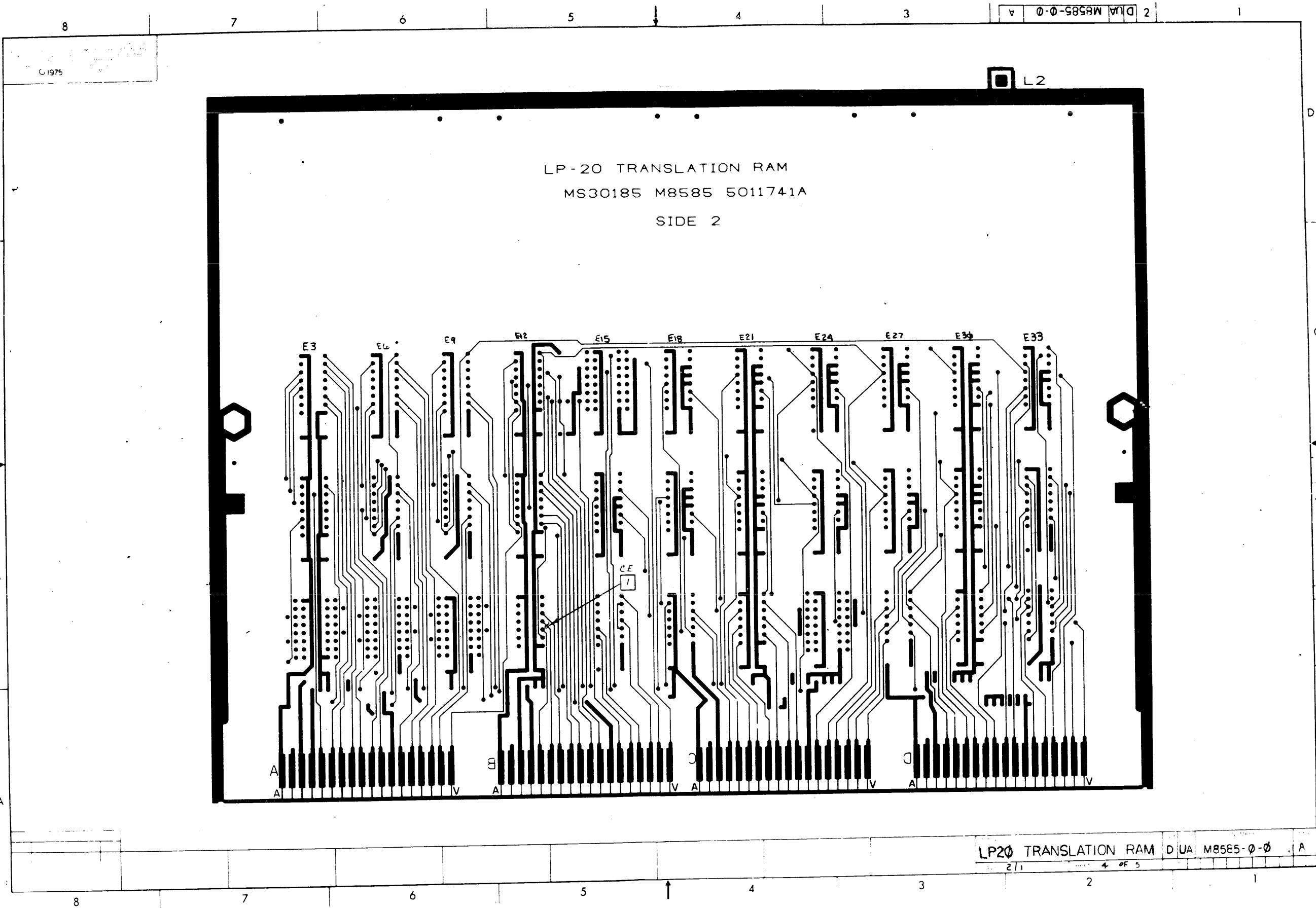
3

2

1

LP20 TRANSLATION RAM DUA M8585-0-0 A

2 1 3 5



C1975

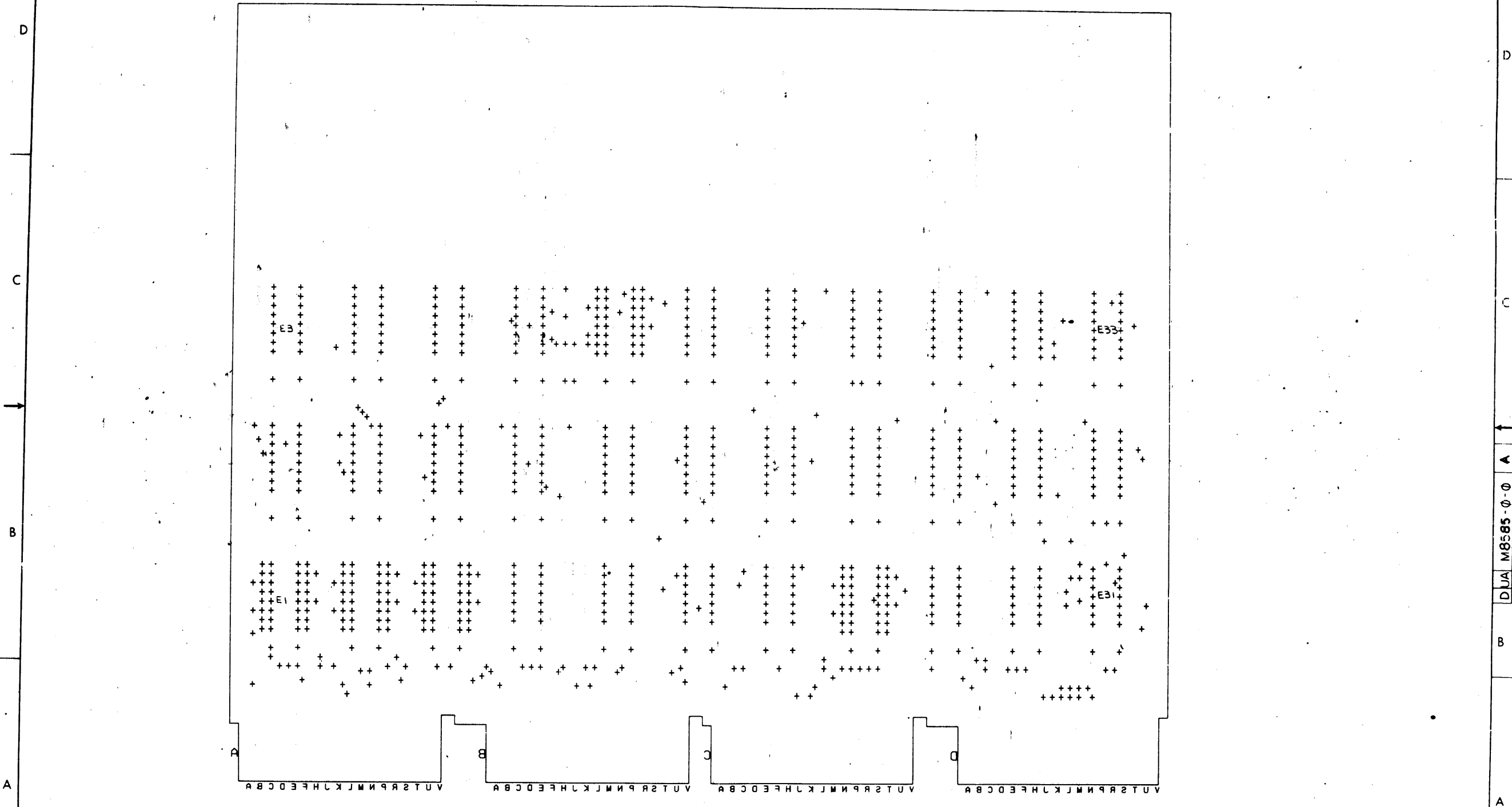
D U A M8585-0-0 2

LP-20 TRANSLATION RAM  
MS30185 M8585 5011741A  
SIDE 2

LP20 TRANSLATION RAM D U A M8585-0-0 A  
2/1 4 OF 5

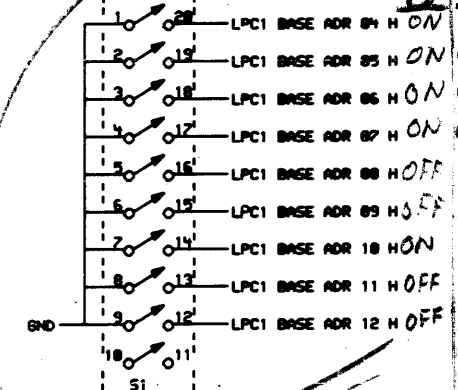
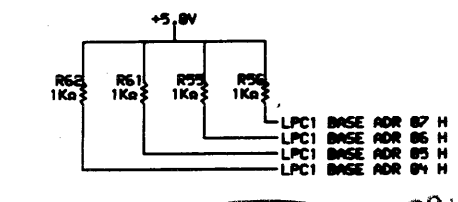
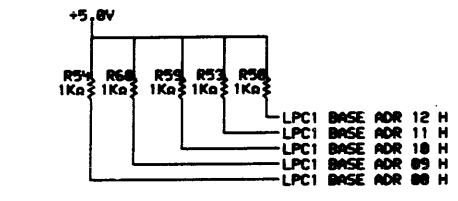
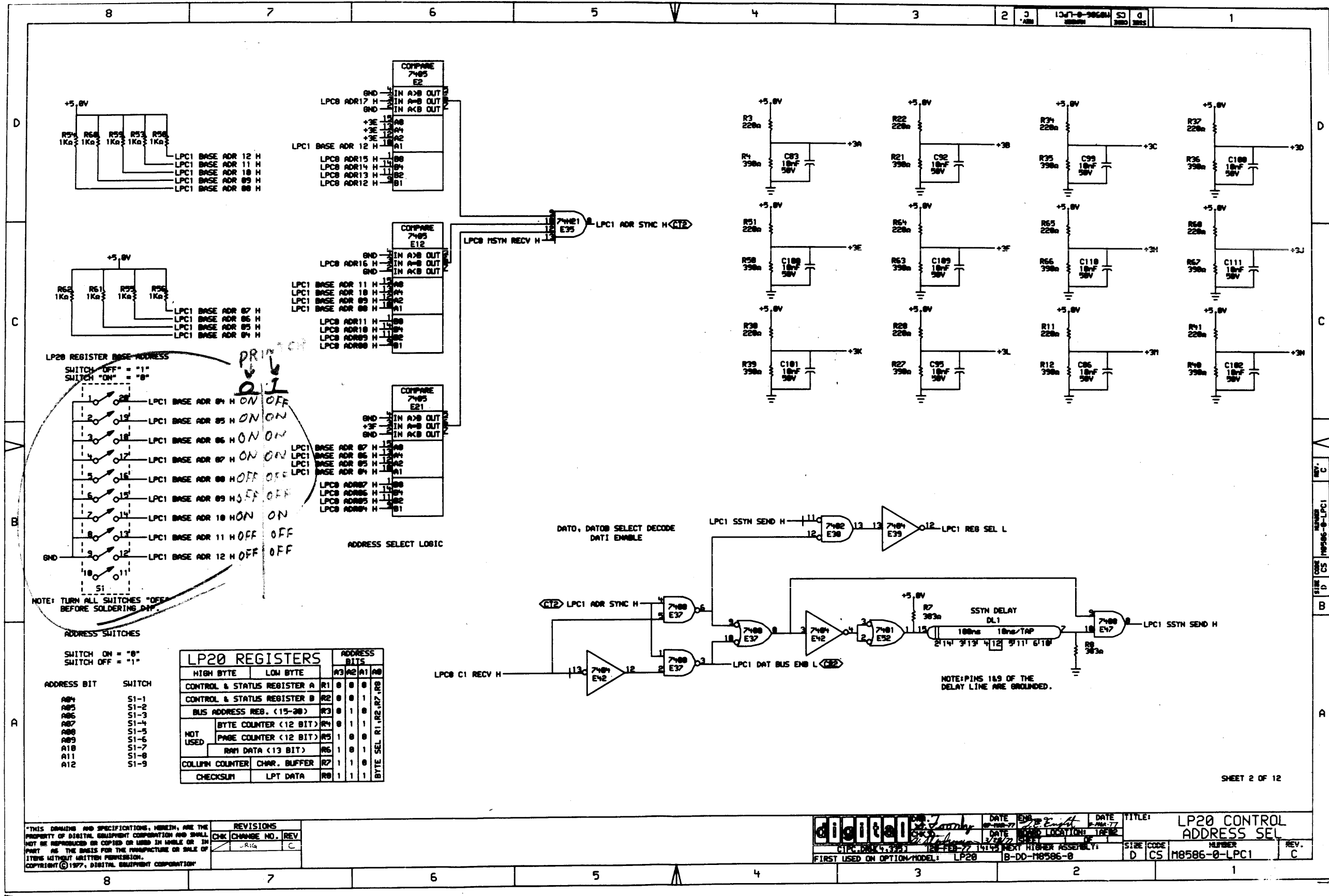
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DJA M8585-0-0 2



REV	DATE	BY

TITLE: LP20 TRANSLATION RAM  
 SCALE: 2:1  
 SHEET: 5 OF 5  
 SIZE CODE: DJA  
 NUMBER: M8585-0-0  
 DIST:



ADDRESS SWITCHES

SWITCH ON = "0"  
SWITCH OFF = "1"

ADDRESS BIT	SWITCH
A04	S1-1
A05	S1-2
A06	S1-3
A07	S1-4
A08	S1-5
A09	S1-6
A10	S1-7
A11	S1-8
A12	S1-9

LP20 REGISTERS		ADDRESS BITS			
HIGH BYTE	LOW BYTE	A3	A2	A1	A0
CONTROL & STATUS REGISTER A	R1	0	0	0	0
CONTROL & STATUS REGISTER B	R2	0	0	1	0
BUS ADDRESS REG. (15-20)	R3	0	1	0	0
BYTE COUNTER (12 BIT)	R4	0	1	1	1
PAGE COUNTER (12 BIT)	R5	1	0	0	0
RAM DATA (13 BIT)	R6	1	0	1	1
COLUMN COUNTER	R7	1	1	0	0
CHAR. BUFFER	R8	1	1	1	1
CHECKSUM	LPT DATA	0	0	0	0

PRINTED  
01

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REVISIONS		
CHK	CHANGE NO.	REV
	1	C

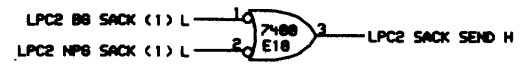
**digital** logo

DATE: 02-22-77  
DATE: 02-22-77  
DATE: 02-22-77

TITLE: LP20 CONTROL ADDRESS SEL

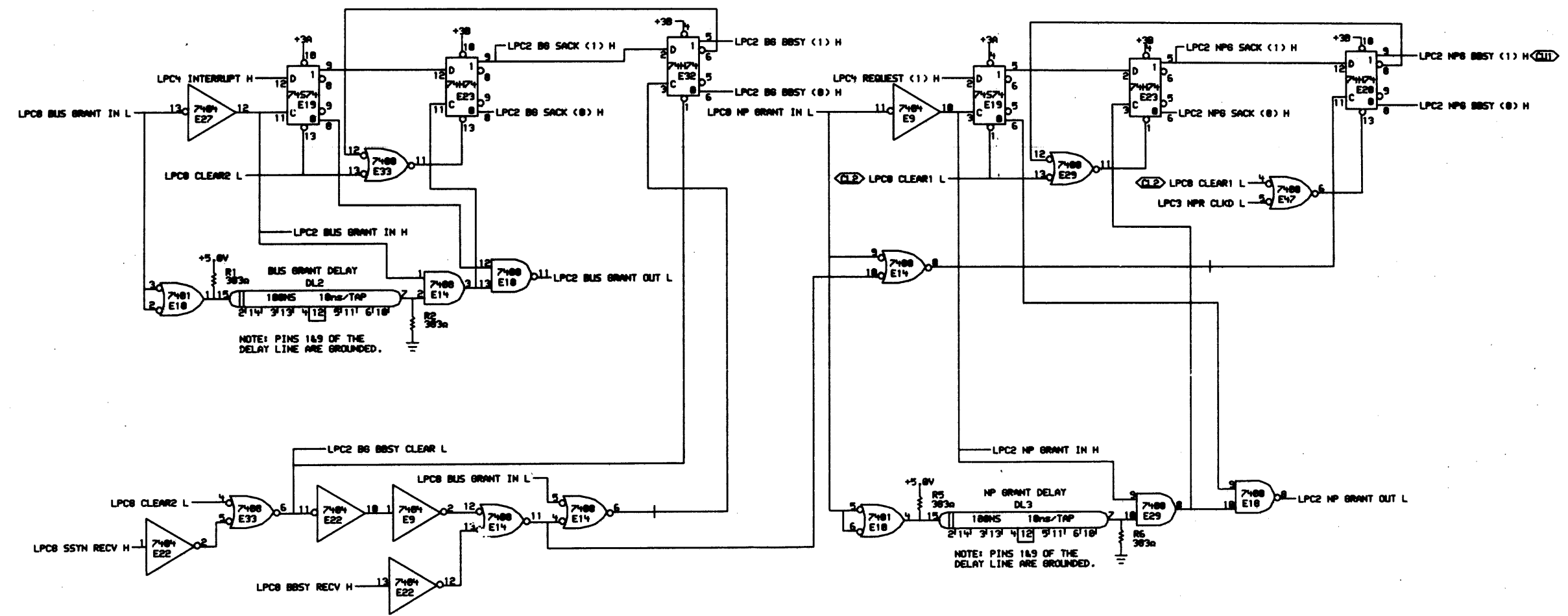
SIZE: D CS NUMBER: M8586-0-LPC1 REV: C

FIRST USED ON OPTION/MODEL: LP20 B-DD-M8586-0



BUS REQUEST LOGIC

NON PROCESSOR REQUEST LOGIC



NOTE: PINS 1&9 OF THE DELAY LINE ARE GROUNDED.

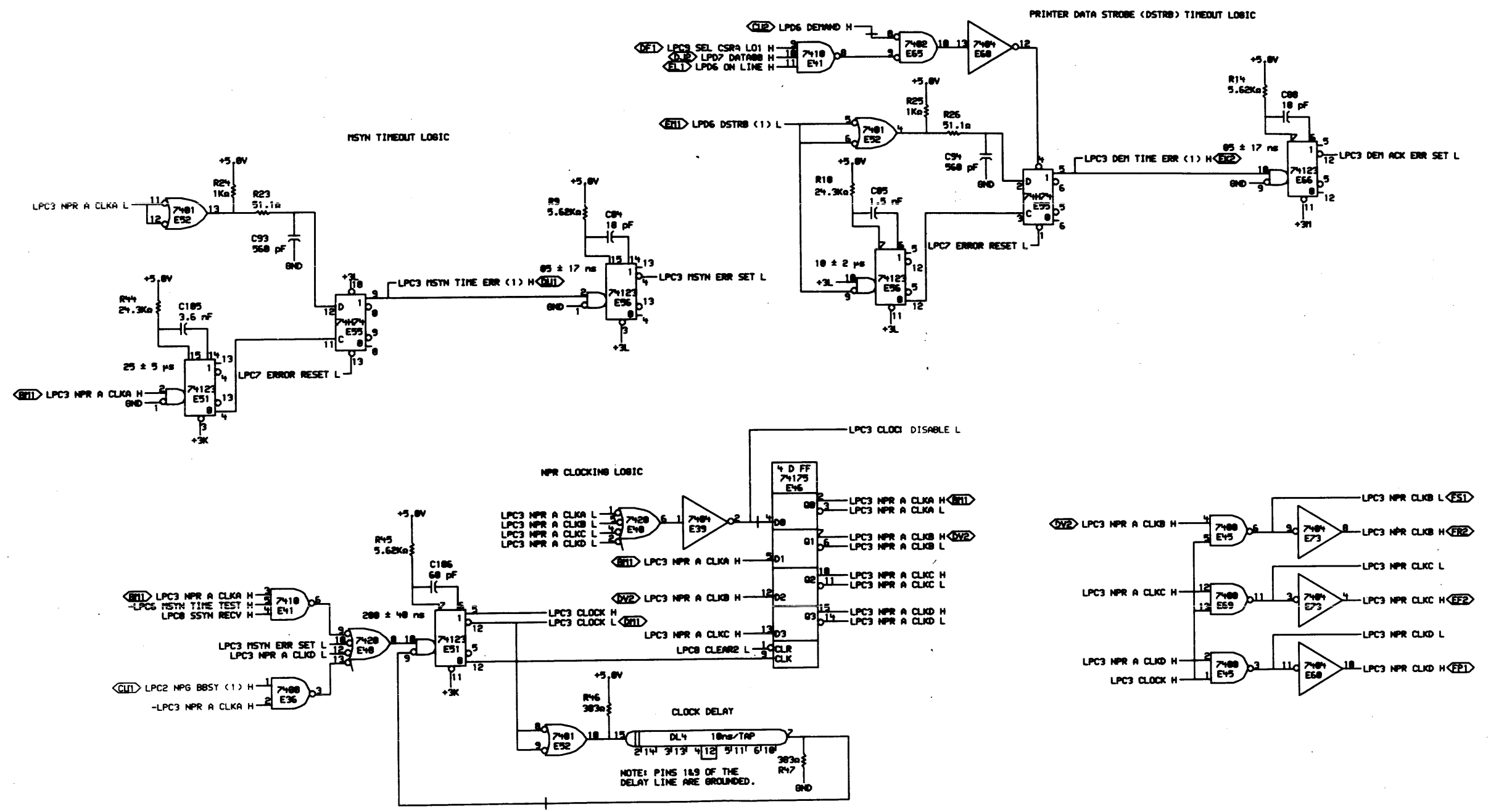
NOTE: PINS 1&9 OF THE DELAY LINE ARE GROUNDED.

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REVISIONS	
CHK	CHANGE NO. REV
ORIG	C

	DATE: 10-19-77	DATE: 10-19-77	TITLE: LP20 CONTROL UNIBUS CNTR.
	BY: J. J. [Signature]	BY: [Signature]	SIZE: D CS
FIRST USED ON OPTION/MODEL: LP20		NUMBER: M8586-0-LPC2	REV. C

D  
C  
B  
A



SHEET 4 OF 12

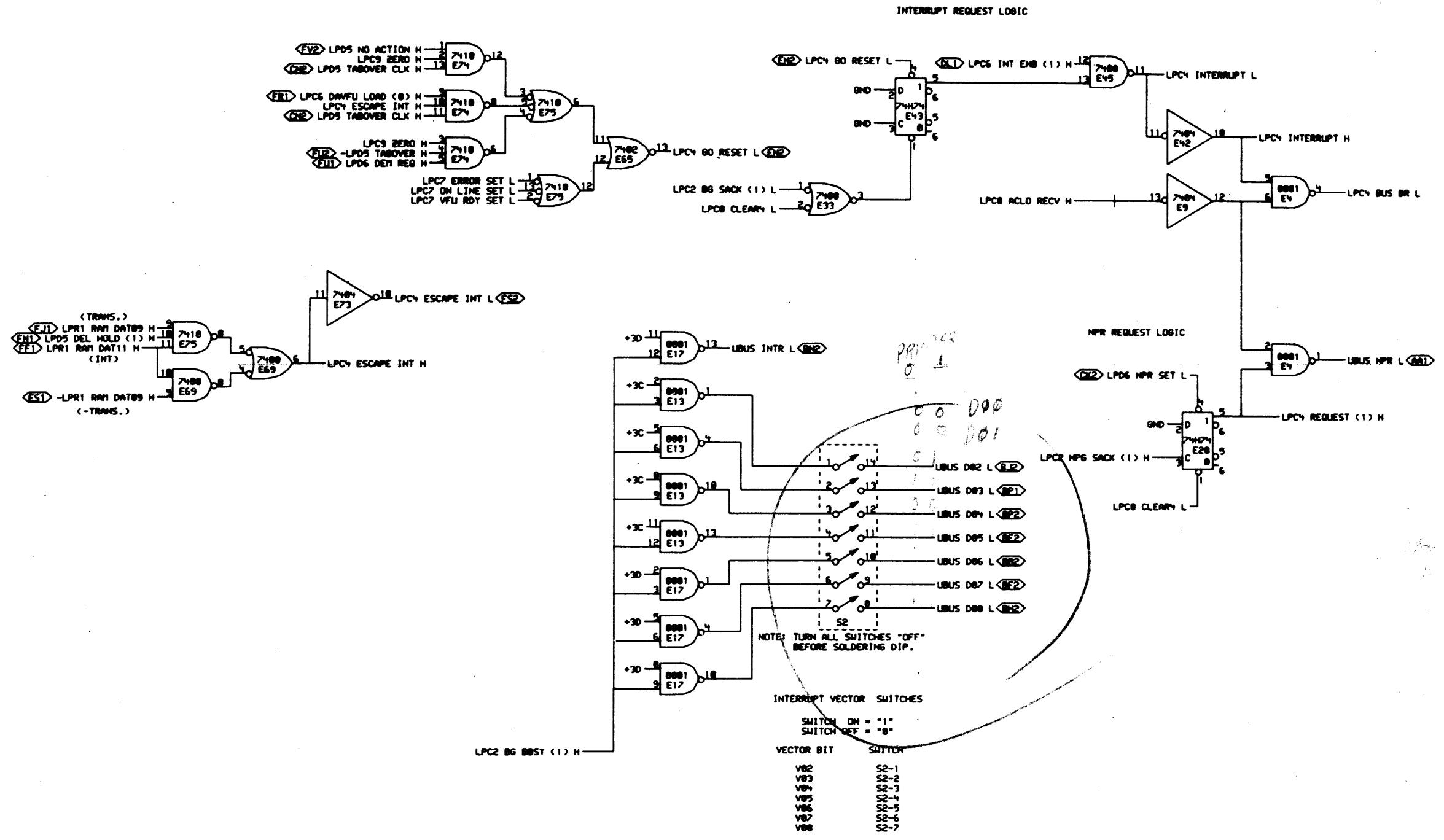
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REVISIONS	
CHK	CHANGE NO. REV
	ORIG C

digital	DATE ENG	DATE	TITLE
	DATE BOARD LOCATION	DATE	LP20 CONTROL NPR CLOCK
CSPC, DALE 4, 335	102-FRR-77	14:46	NEXT HIGHER ASSEMBLY:
FIRST USED ON OPTION MODEL:	LP20	B-DD-M8586-0	
SIZE	CODE	NUMBER	REV.
D	CS	M8586-0-LPC3	C

D  
C  
B  
A

D  
C  
B  
A



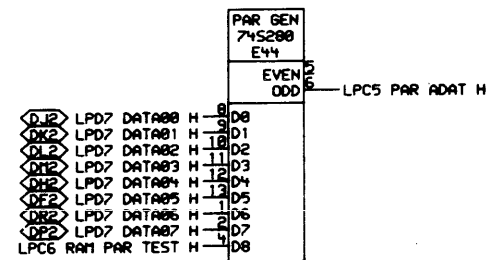
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"

REVISIONS		
CHK	CHANGE NO.	REV
	ORIG	D

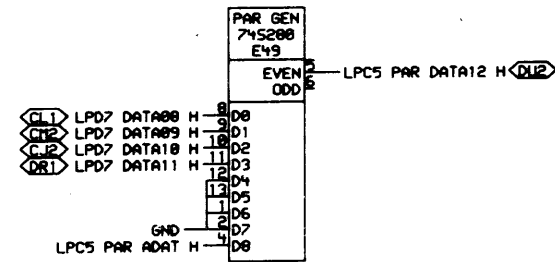
digital	DATE	ENG	DATE	TITLE
	07-10-77	W. J. ...	07-10-77	LP20 CONTROL INTERRUPT
FIRST USED ON OPTION/MODEL: LP20		NEXT HIGHER ASSEMBLY: B-DD-M8586-0		SIZE CODE
				D CS

NUMBER	REV.
M8586-0-LPC4	D

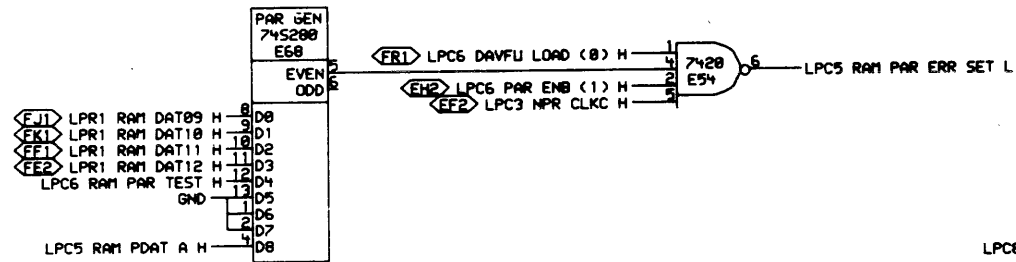
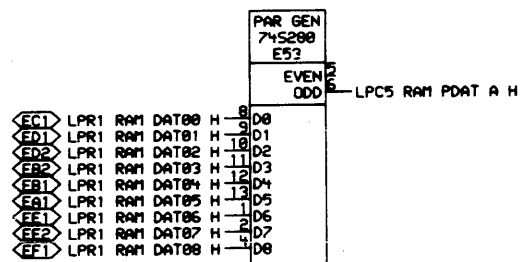
D  
C  
B  
A



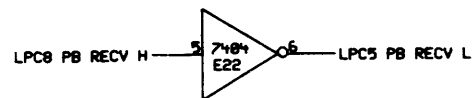
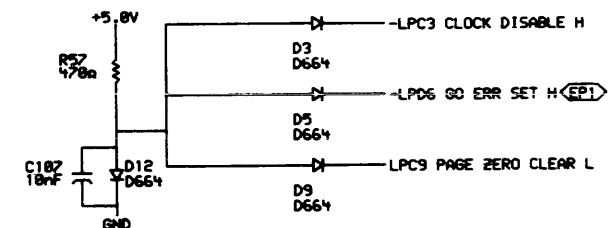
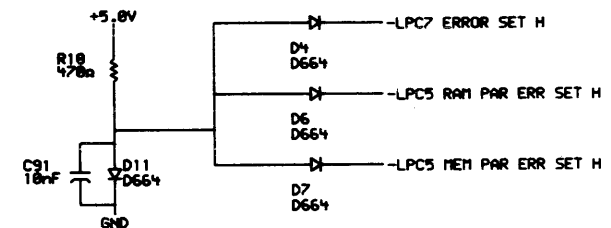
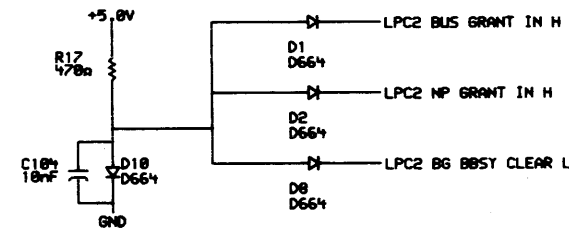
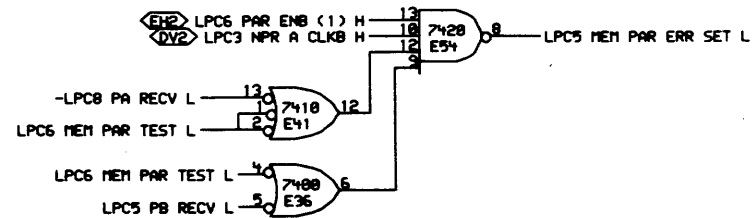
**RAM PARITY GENERATING LOGIC**  
 ODD PARITY (RAM PARITY TEST = "0")  
 EVEN NUMBER OF ONES GIVES DATA12 = "1"  
 ODD NUMBER OF ONES GIVES DATA12 = "0"  
 EVEN PARITY (RAM PARITY TEST = "1")  
 EVEN NUMBER OF ONES GIVES DATA12 = "0"  
 ODD NUMBER OF ONES GIVES DATA12 = "1"



**RAM PARITY CHECKING LOGIC**  
 ODD PARITY (RAM PAR TEST = "0")  
 EVEN NUMBER OF ONES GIVES ERROR = "1" (ERROR)  
 ODD NUMBER OF ONES GIVES ERROR = "0" (NO ERROR)  
 EVEN PARITY (RAM PAR TEST = "1")  
 EVEN NUMBER OF ONES GIVES ERROR = "0" (NO ERROR)  
 ODD NUMBER OF ONES GIVES ERROR = "1" (ERROR)



**MEMORY PARITY CHECKING LOGIC**



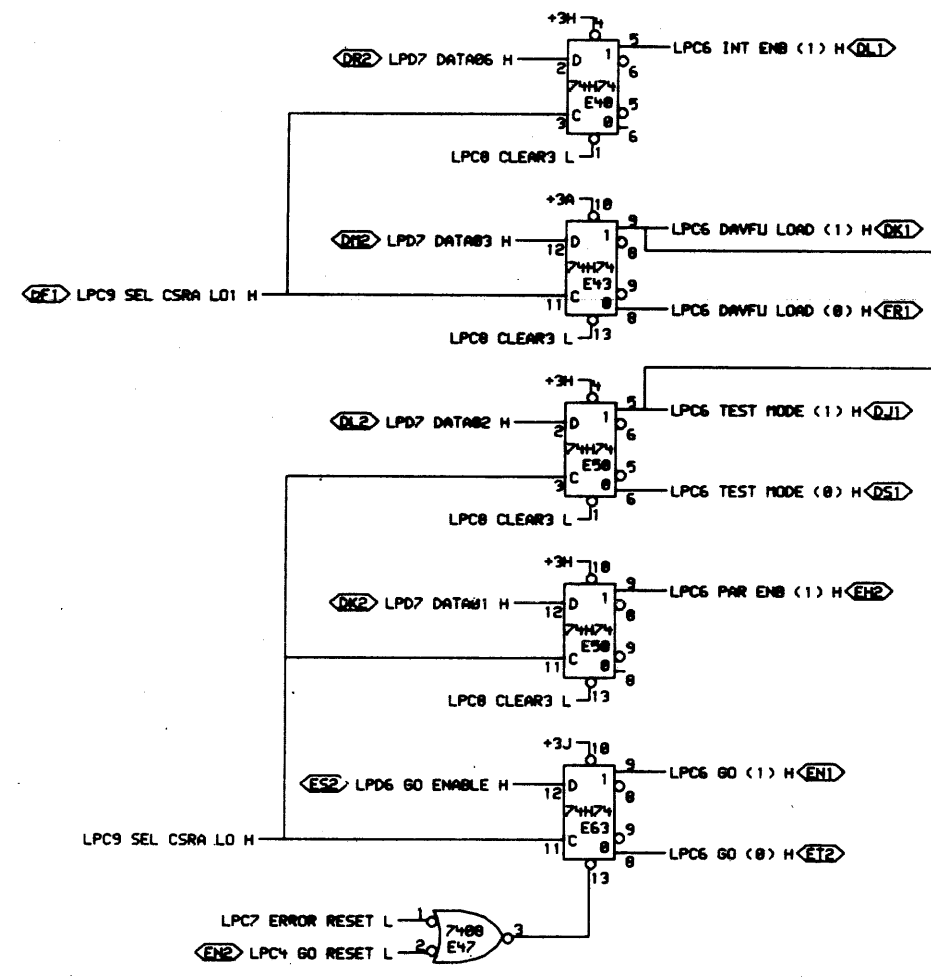
SHEET 6 OF 12

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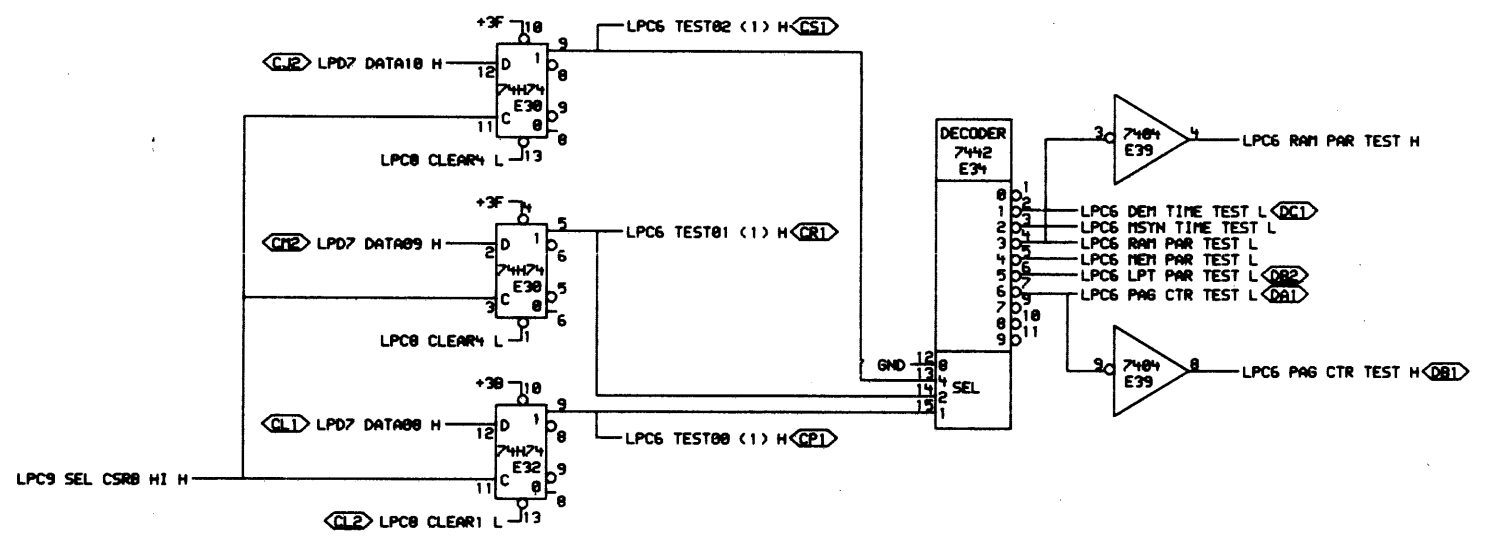
REVISIONS		
CHK	CHANGE NO.	REV
	ORIG	C

	DATE	ENG	DATE	TITLE
	07-1987-77	W. J. Kelly	07-1987-77	LP20 CONTROL RAM PARITY
CPC.DRAW 4.335		102-NAL-77 11123 NEXT HIGHER ASSEMBLY:		SIZE CODE NUMBER REV.
FIRST USED ON OPTION/MODEL: LP20		B-DD-M8586-0		D CS M8586-0-LPC5 C

CONTROL AND STATUS BITS



TEST TYPE BITS



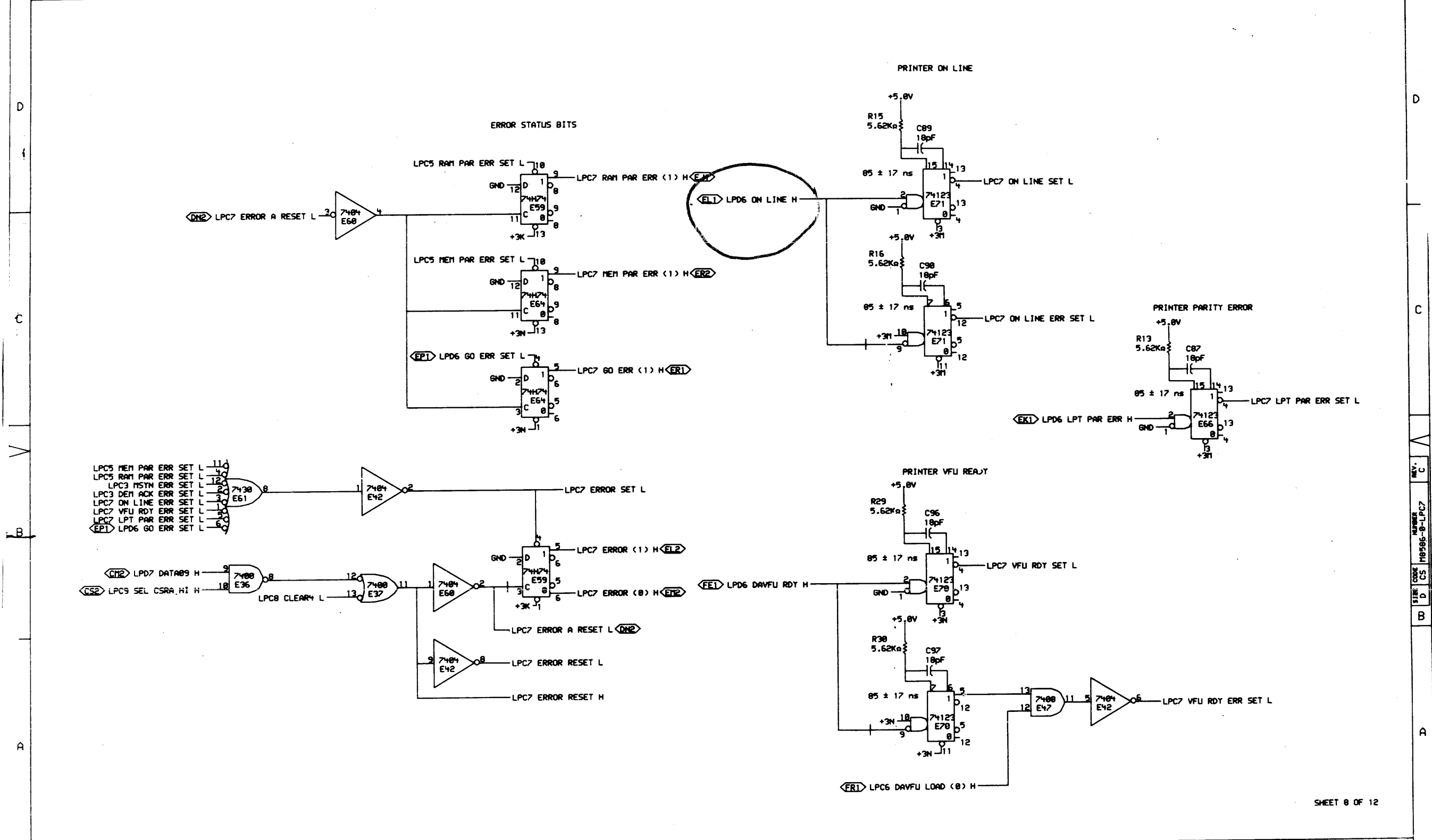
SHEET 7 OF 12

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REVISIONS		
CHK	CHANGE NO.	REV
	ORIG	C

digital	DATE	ENG	DATE	TITLE
	DATE	DESIGN	DATE	BOARD LOCATION
CSPC.DRAW 4.33.1		10-2-77	12:19	NEXT HIGHER ASSEMBLY:
FIRST USED ON OPTION MODEL:		LP20	B-DD-M8586-0	

TITLE: LP20 CONTROL STATUS AND TEST			
SIZE	CODE	NUMBER	REV.
D	CS	M8586-0-LPC6	C

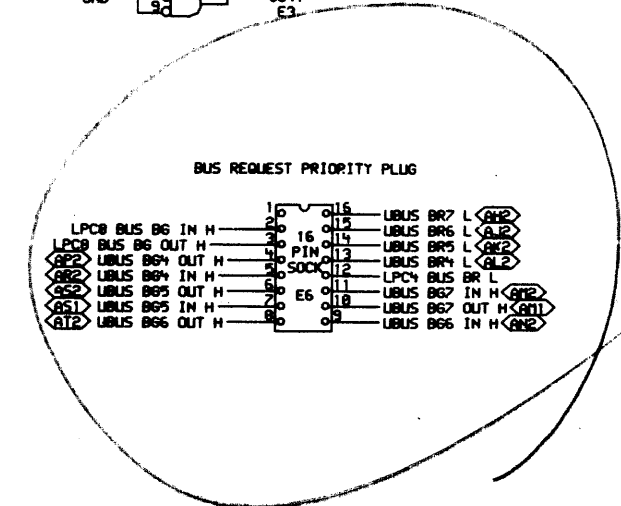
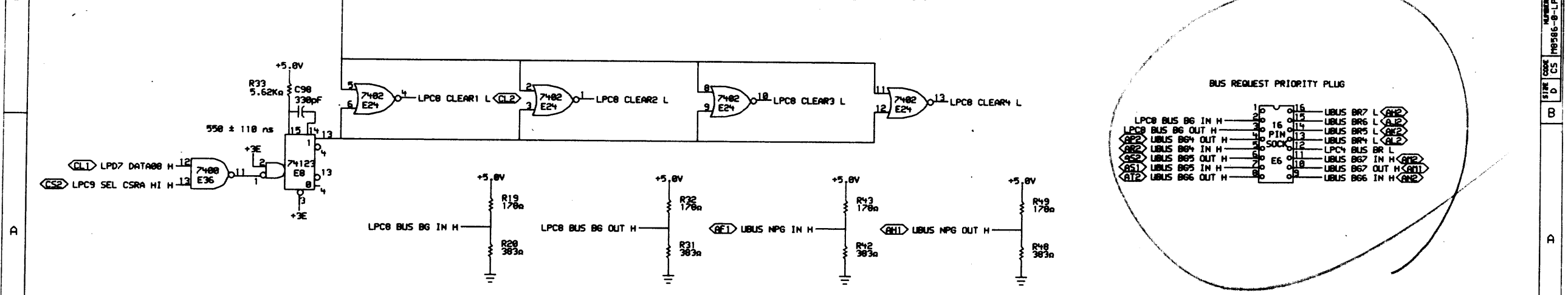
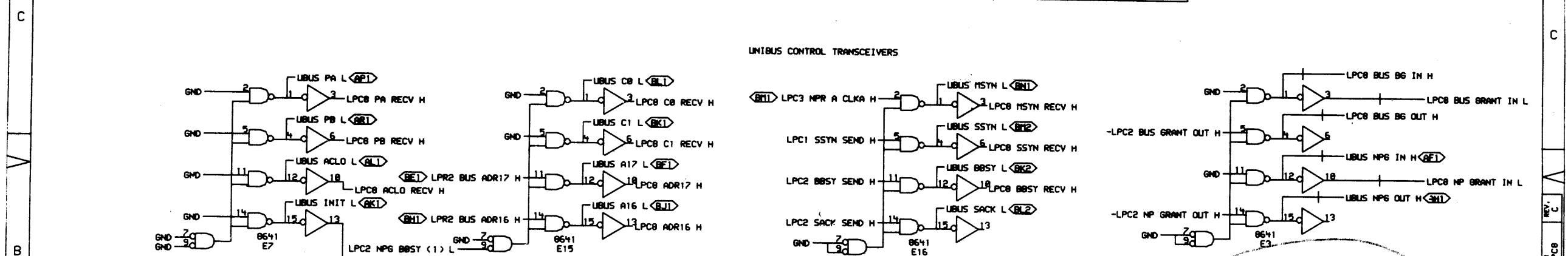
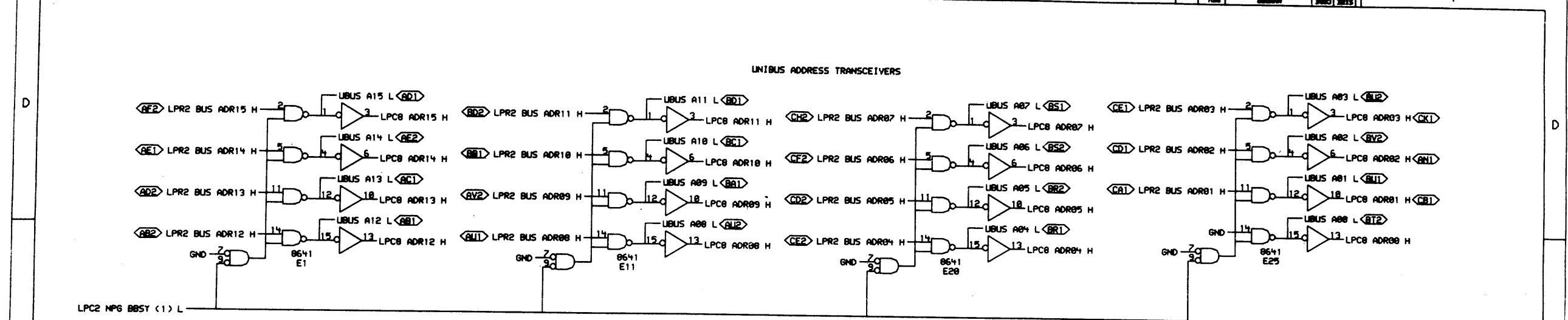


SHEET 8 OF 12

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REVISIONS		
CHK	CHANGE NO.	REV

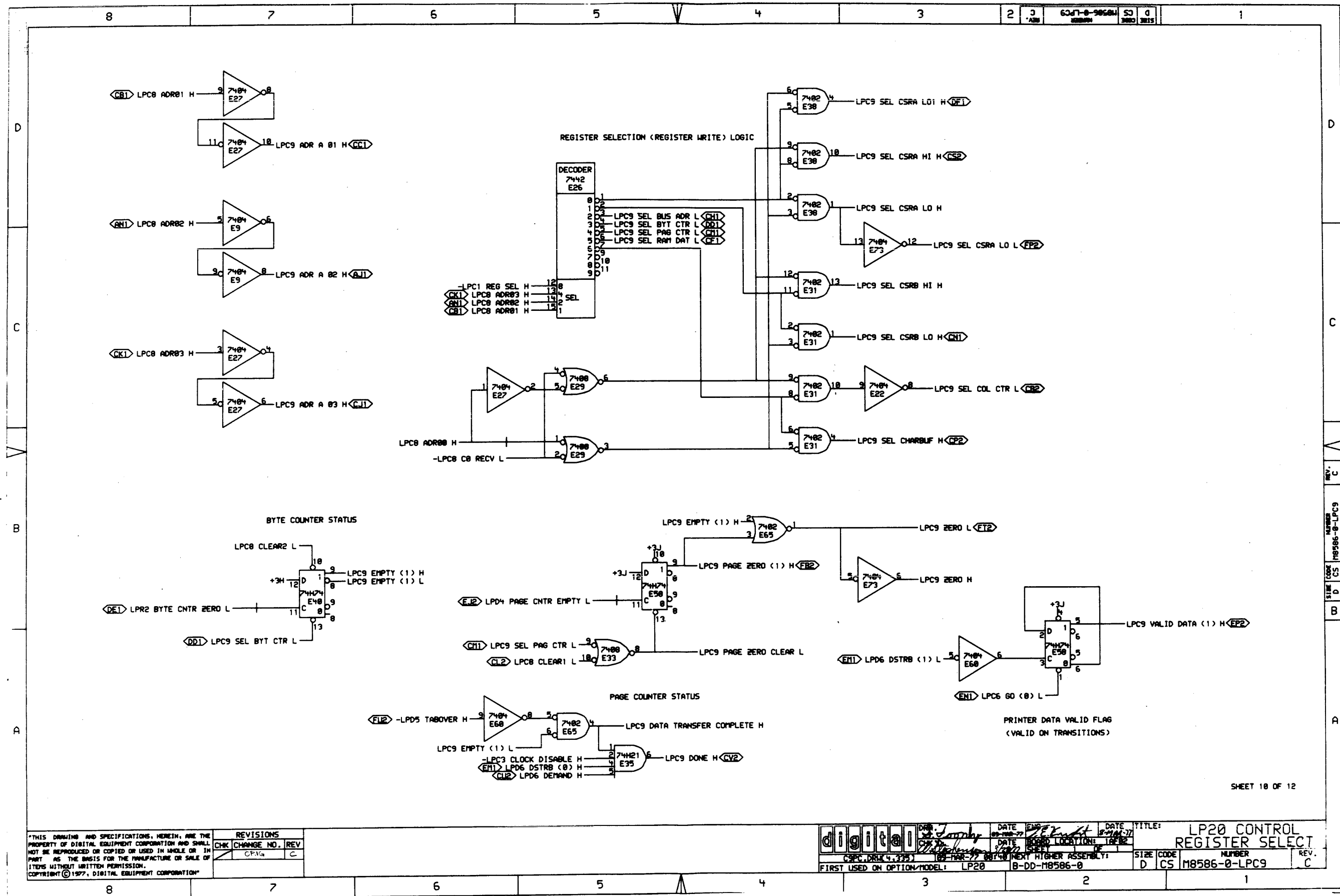
	DATE: 12-11-77	DATE: 12-11-77	TITLE: LP20 CONTROL ERROR STATUS
	DATE: 12-11-77	DATE: 12-11-77	BOARD LOCATION: 1A8B2
FIRST USED ON OPTION/MODEL: LP20	NEXT HIGHER ASSEMBLY: B-DD-M8586-0	SIZE CODE: D CS	NUMBER: M8586-0-LPC7
			REV. C



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REVISIONS	
CHK	CHANGE NO. REV
OK1	1 C

	DATE: 12/18/77	DATE: 12/18/77	TITLE: LP20 CONTROL
	DATE: 12/18/77	DATE: 12/18/77	LIBUS DRIVERS
COPC DRUM 4, 335	12/18/77	12/18/77	SIZE CODE: D CS
FIRST USED ON OPTION/MODEL: LP20	B-DD-M8586-0		NUMBER: M8586-0-LPC8
			REV. C



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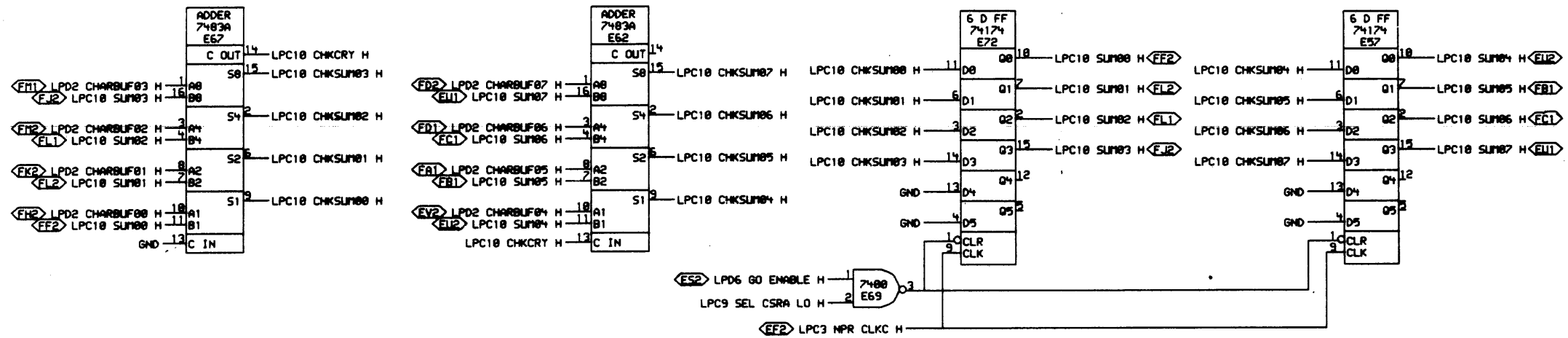
REVISIONS		
CHK	CHANGE NO.	REV
	CP1G	C

digital	DATE	ENG	DATE	TITLE
	10-18-77	J. J. [Signature]	8-11-77	LP20 CONTROL REGISTER SELECT
CSPC DRL 4, 333		DATE		BOARD LOCATION
FIRST USED ON OPTION/MODEL: LP20		NEXT HIGHER ASSEMBLY:		SIZE CODE
B-DD-M8586-0		D		CS
		NUMBER		REV.
		M8586-0-LPC9		C

SHEET 18 OF 12

CHECKSUM GENERATOR

CHECKSUM HOLD REGISTER



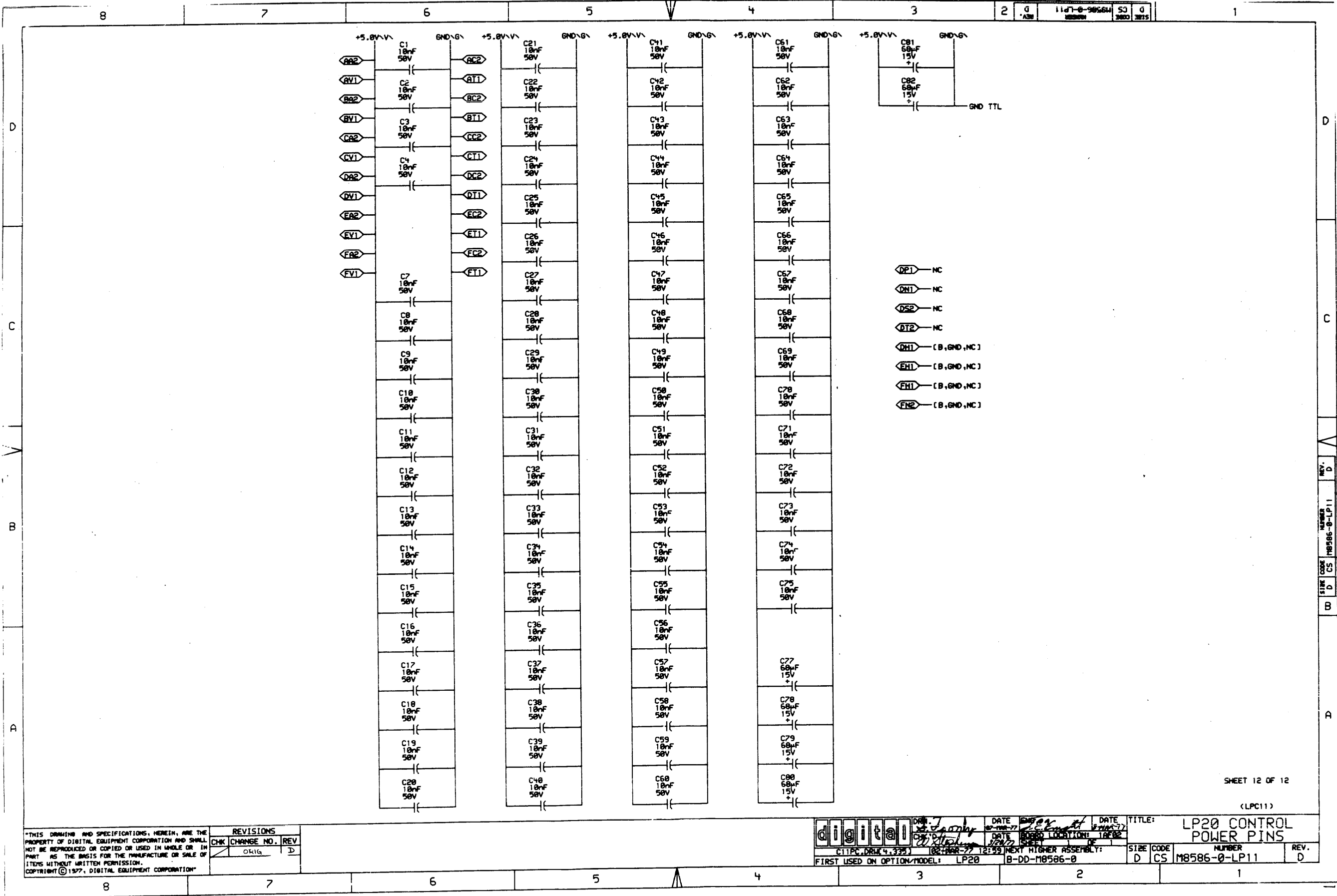
SHEET 11 OF 12

(LPC10)

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REVISIONS	
CHK	CHANGE NO. REV
DRG	C

digital	DATE: 07-11-77	DATE: 11-11-77	TITLE: LP20 CONTROL CHECKSUM
	DATE: 12-11-77	DATE: 12-11-77	DATE: 12-11-77
FIRST USED ON OPTION/MODEL: LP20			REV. C



SHEET 12 OF 12

(LPC11)

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REVISIONS		
CHK	CHANGE NO.	REV
	ORIG	D

digital	DATE	DATE	TITLE: LP20 CONTROL POWER PINS
	10-19-77	10-19-77	
C11PC, DRAW 4, 333		10-19-77 12:59	NEXT HIGHER ASSEMBLY: B-DD-M8586-0
FIRST USED ON OPTION/MODEL: LP20		SIZE CODE	NUMBER
		D CS	M8586-0-LP11
		REV.	D

REV. D  
SIZE CODE CS  
M8586-0-LP11

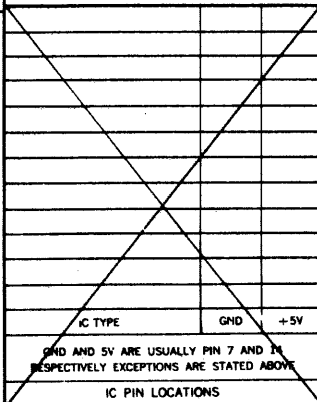
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**NOTES:**

- FOR DRAWING DIRECTORY REFER TO: B-DD-M8586-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:  

PACKAGE TYPE	VCC	GND
18 PIN DIP	16	8
14 PIN DIP	14	7
1 C DEC 7483A	5	12
- SPARE LOCATIONS ARE: E5, E76, C5, C6, C76, C103, R52.

D  
C  
B  
A



0-0-9868M1A 2 1

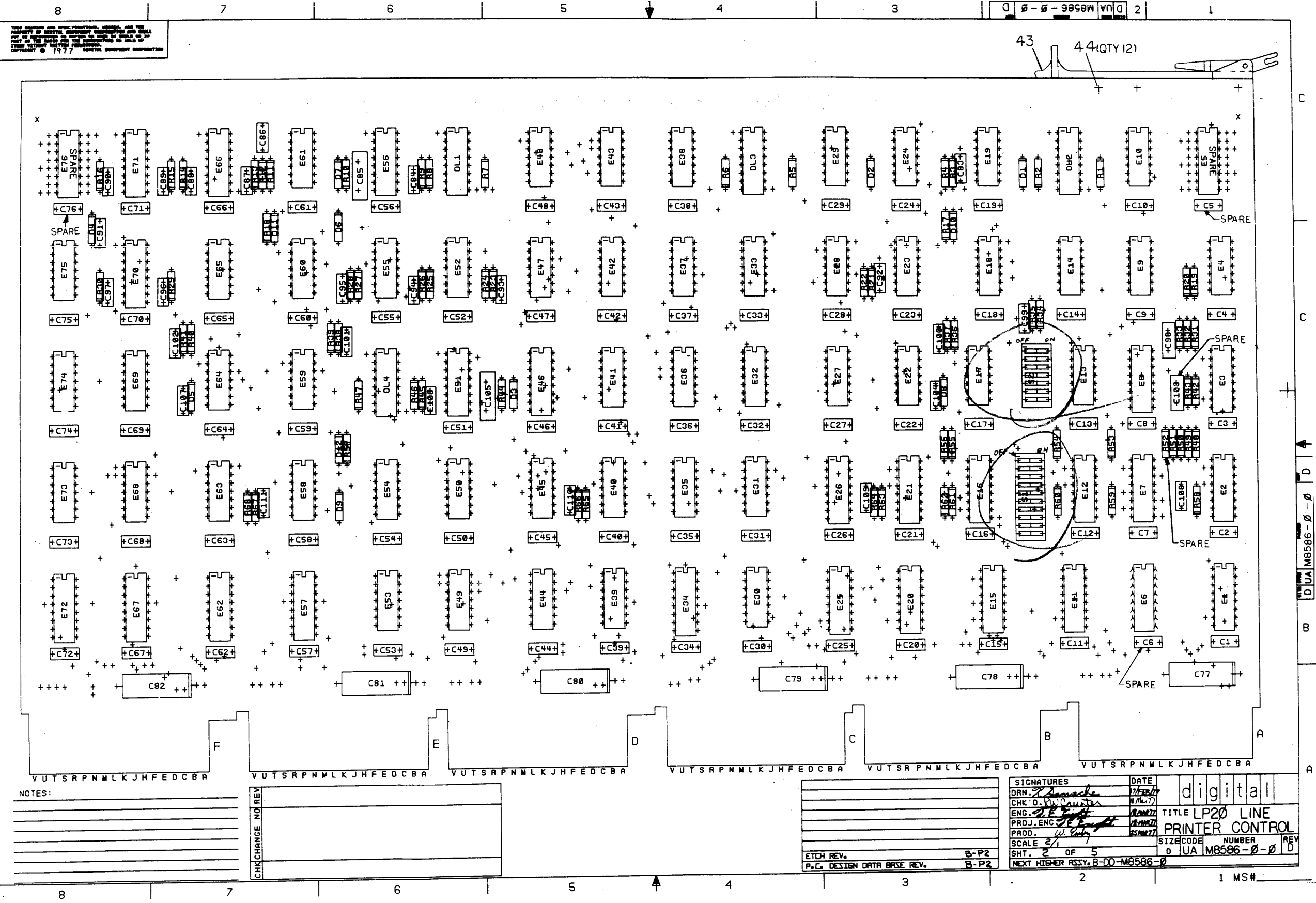
QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1		ETCHED CIRCUIT BOARD	501101	1
98	C1 THRU C4, C7 THRU C75, C83, C86, C91, C92, C95, C99 THRU C102, C104, C107 THRU C111	CAP 10NF 50V 20 AXIAL	1001610-00	2
6	C77 THRU C82	CAP 88UF 15V 10	1000092-00	3
7	C84, C87 THRU C90, C96, C97	CAP 19PF 100V 5	1002508-00	4
1	C95	CAP 1.5MF 100V 5	1002428-00	5
2	C93, C94	CAP 560PF 100V 5	1002025-00	6
1	C105	CAP 3.9MF 100V 5	1002594-00	7
12	D1 THRU D12	DIODE D664	1100114-00	9
1	X E 6	SOCKET 16 PIN RECESSED	1209839-00	9
1	S1	SWITCH	1211164-00	10
1	S2	SWITCH	1211152-00	11
12	R1, R2, R5 THRU R8, R20, R31, R42, R46 THRU R48	RES 390 1 4W 1	1305125-00	12
17	R3, R11, R22, R28, R34, R37, R38, R41, R51, R64, R65, R68	RES 220 1 4W 5	1300271-00	13
12	R4, R12, R21, R27, R35, R36, R39, R40, R50, R63, R66, R67	RES 390 1 4W 5	1300308-00	14
9	R5, R13 THRU R16, R29, R30, R33, R45	RES 5.0K 1 4W 1	1305129-00	15
2	R10, R44	RES 24.3K 1 4W 1	1309418-00	16
3	R17, R18, R57	RES 470 1 4W 5	1300316-00	17
4	R19, R37, R43, R49	RES 178 1 4W 17	1311422-00	18
2	R23, R26	RES 51.1 1 4W 16	1305122-00	19
11	R24, R25, R53 THRU R56, R58 THRU R62	RES 1K 1 4W 5	1300365-00	20
4	DL1 THRU DL4	DELAY 100MS	1610033-00	21
8	E1, E3, E7, E11, E15, E16, E20, E25	DEC I.C. 9641	1911579-00	22
3	E2, E12, E21	DEC I.C. 7485	1910224-00	23
3	E4, E13, E17	DEC I.C. 9991	1909705-00	24
6	E8, E51, E56, E66, E70, E71	DEC I.C. 74123	1910436-00	25
7	E9, E22, E27, E39, E42, E60, E73	DEC I.C. 7404	1909686-00	26
2	E10, E52	DEC I.C. 7401	1905590-00	27
4	E14, E29, E33, E47	DEC I.C. 7409	1910155-00	28
5	E19, E36, E37, E45, E69	DEC I.C. 7400	1905875-00	29
1	E19	DEC I.C. 74574	1910544-00	30
12	E23, E28, E30, E32, E40, E43, E50, E55, E58, E59, E63, E64	DEC I.C. 74H74	1909667-00	31
4	E24, E31, E38, E65	DEC I.C. 7402	1909004-00	32
2	E25, E34	DEC I.C. 7442	1910046-00	33
1	E35	DEC I.C. 74H21	1909058-00	34
3	E41, E74, E75	DEC I.C. 7410	1905576-00	35
4	E44, E49, E53, E68	DEC I.C. 74S290	1911573-00	36
1	E48	DEC I.C. 74178	1910651-00	37
2	E49, E54	DEC I.C. 7420	1905577-00	38
2	E57, E72	DEC I.C. 74174	1910652-00	39
1	E61	DEC I.C. 7430	1905578-00	40
2	E62, E67	DEC I.C. 74Q3A	1909932-00	41
1	C98	CAP 330PF 100V 5	1000023-00	42
1		HANDLE ASSY	1210711-02	43
12		EYELET	900R732	44
1	C106	CAP 680PF 100V 5%	1000014-00	45
1	E6	PLUG, PRIORITY	5408776	46

REV. 1  
D U A M8586-0-0

FIRST USED ON OPTION MODEL LP20

**PARTS LIST**

ORIG. CHANGE NO. REV. REVISIONS	DATE	7/28/77	digital
	DATE	11/1/77	
	DATE	11-1-77	
	DATE	11-1-77	
NEXT HIGHER ASSY		B-DD-M8586-0	
DEC. NO.	EIA NO.	DEC. NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART			
SCALE	D U A M8586-0-0		
SHEET 1 OF 5	DIST.		



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08-08-99 9803W/VJQ/2

43 44 (QTY 12)

NOTES:

CHK	CHANGE NO	REV

ETCH REV.	B-P2
P.C. DESIGN DATA BRSE REV.	B-P2

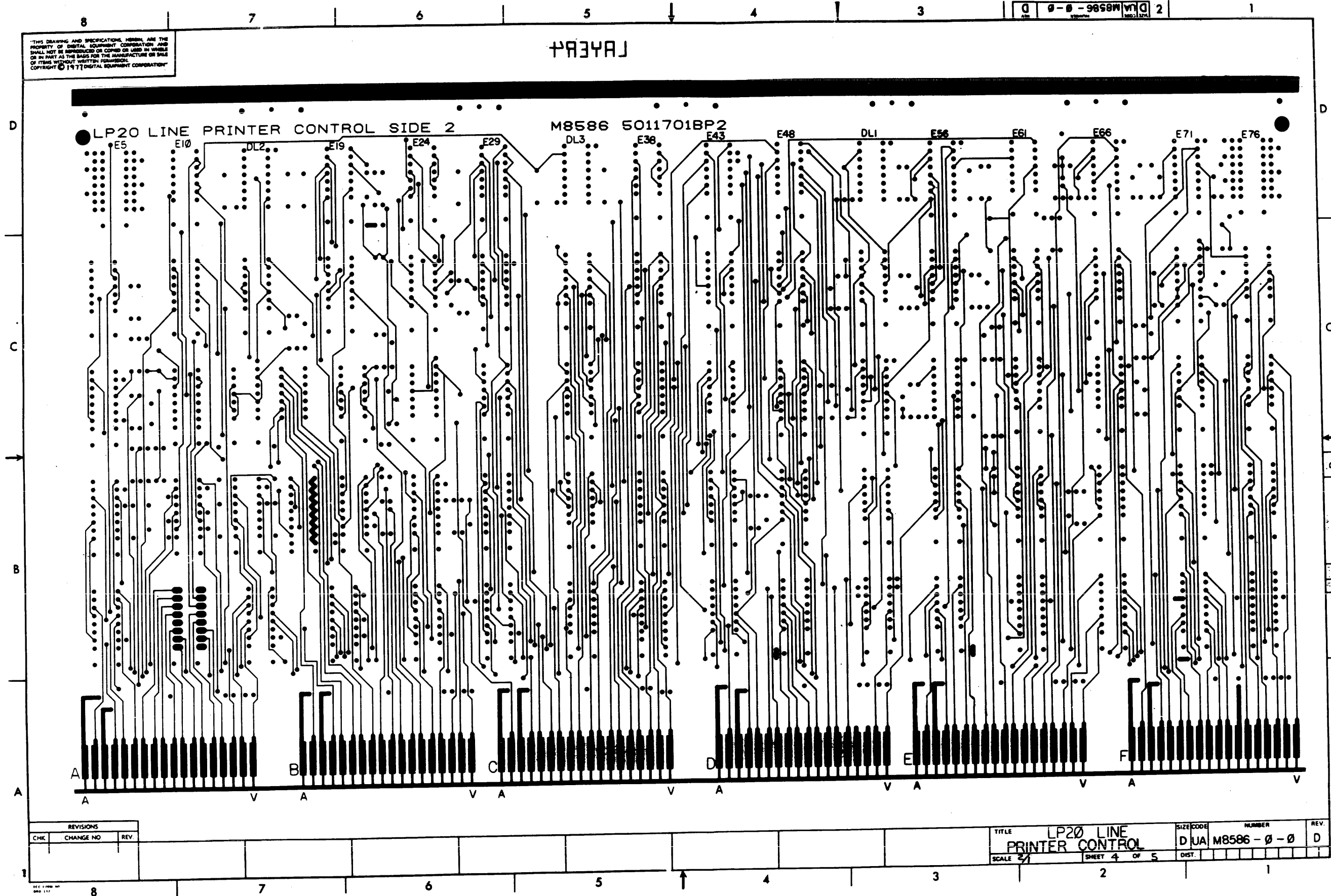
SIGNATURES	DATE	
DRN. <i>A. Hamack</i>	7/1/77	digital
CHK. D. <i>P. Caunter</i>	8/1/77	
PROJ. ENG. <i>J. E. Smith</i>	12/21/77	TITLE LP20 LINE
PROD. <i>W. Kelly</i>	12/21/77	PRINTER CONTROL
SCALE 2/1	SHT. 2 OF 5	SIZE CODE NUMBER
NEXT HIGHER ASSY. B-D0-M8586-0		0 UA M8586-0-0

8 7 6 5 4 3 2 1 MS#



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†R3YAJ



REVISIONS		
CHK	CHANGE NO	REV.

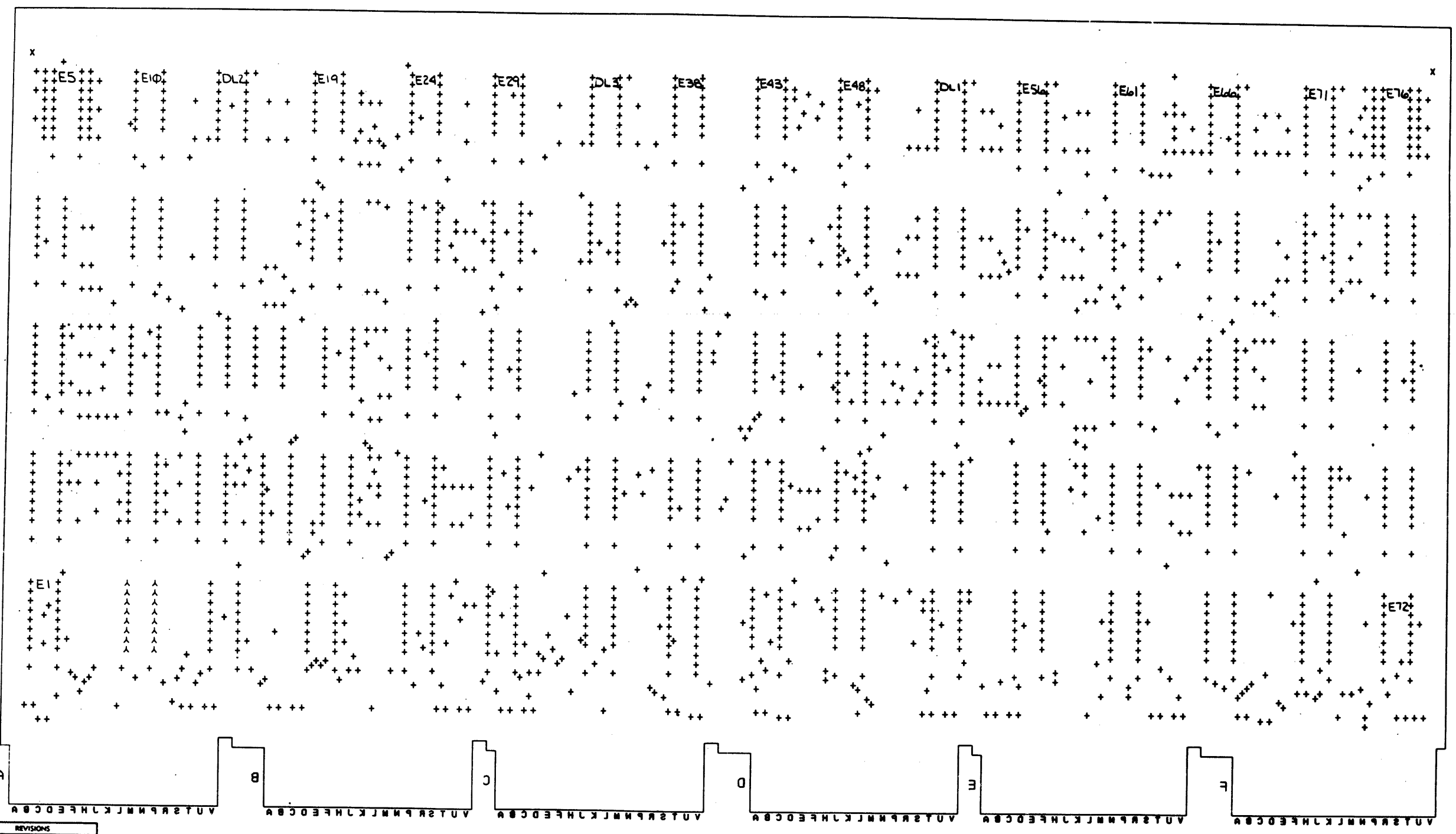
TITLE	LP20 LINE PRINTER CONTROL	SIZE/CODE	D UA	NUMBER	M8586 - 0 - 0	REV.	D
SCALE	2/1	SHEET	4	OF	5	DIST.	

D UA M8586 - 0 - 0

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COMPONENT SIDE VIEW

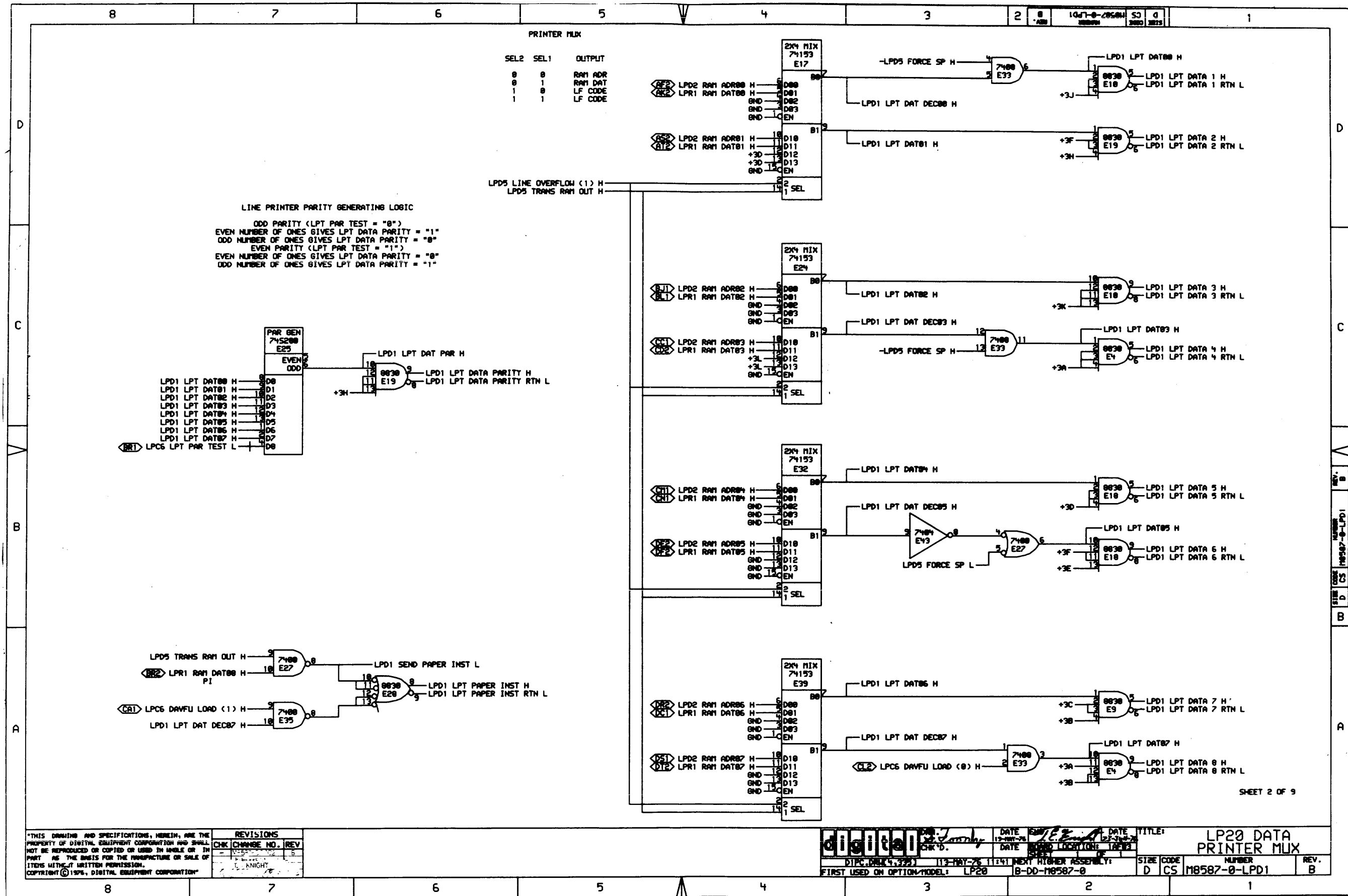
D 0-0-9858W 2 1



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE LP20 LINE PRINTER CONTROL  
 SCALE 2/1  
 SHEET 5 OF 5  
 SIZE CODE D UA M8586 - 0-0  
 NUMBER  
 REV. D

8 7 6 5 4 3 2 1



PRINTER MUX

SEL2	SEL1	OUTPUT
0	0	RAM ADR
0	1	RAM DAT
1	0	LF CODE
1	1	LF CODE

LINE PRINTER PARITY GENERATING LOGIC

ODD PARITY (LPT PAR TEST = "0")  
 EVEN NUMBER OF ONES GIVES LPT DATA PARITY = "1"  
 ODD NUMBER OF ONES GIVES LPT DATA PARITY = "0"  
 EVEN PARITY (LPT PAR TEST = "1")  
 EVEN NUMBER OF ONES GIVES LPT DATA PARITY = "0"  
 ODD NUMBER OF ONES GIVES LPT DATA PARITY = "1"

REVISIONS		
CHK	CHANGE NO.	REV

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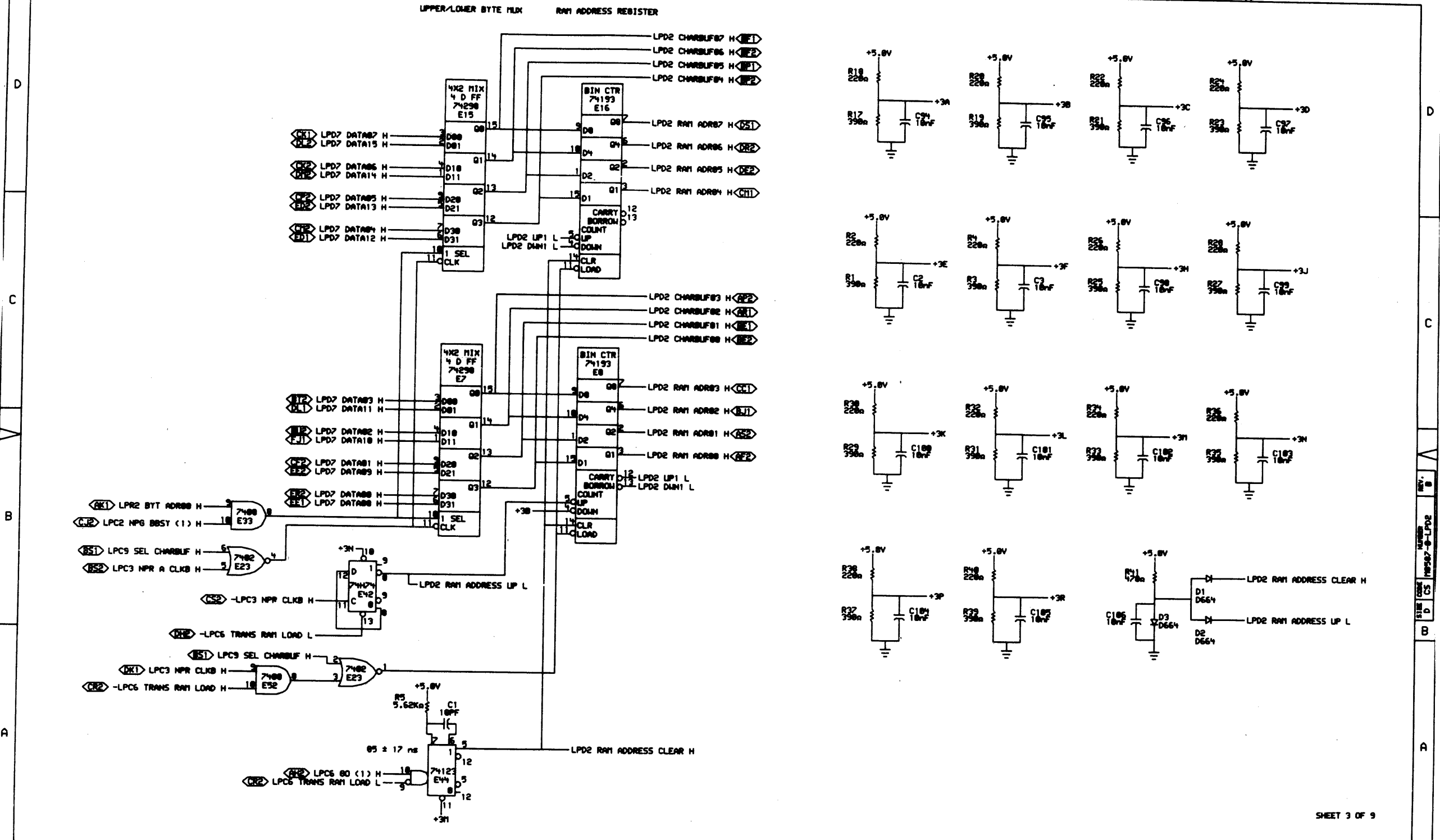
digital

DATE: 12-10-76  
 DATE: 12-10-76  
 DATE: 12-10-76

TITLE: LP20 DATA PRINTER MUX

SIZE CODE: D CS  
 NUMBER: M8587-0-LPD1  
 REV: B

FIRST USED ON OPTION MODEL: LP20



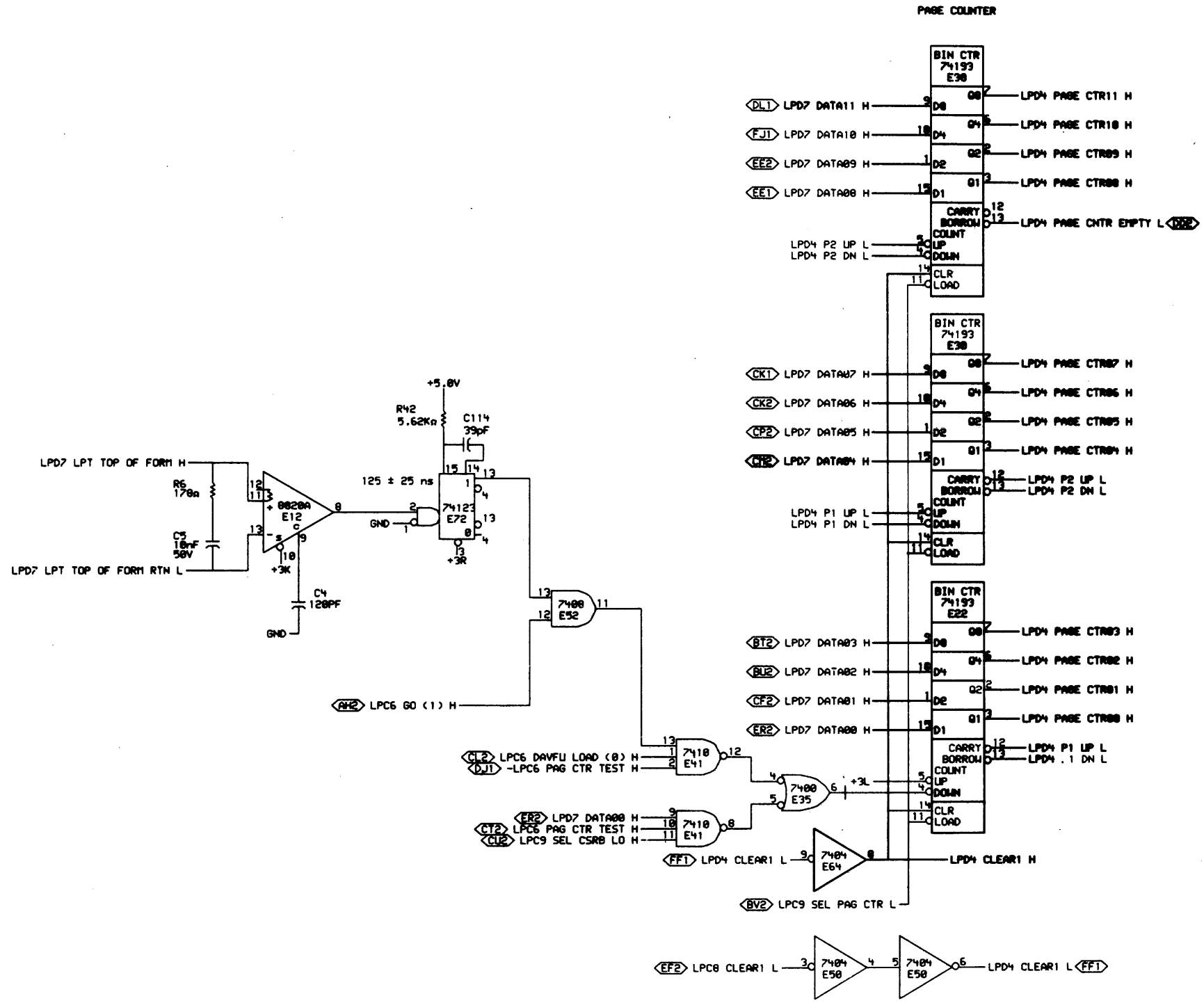
SHEET 3 OF 9

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REVISIONS	
CHK	CHANGE NO. / REV

<b>digital</b>	DATE: 12-MAY-76	DATE: 12-MAY-76	TITLE: LP20 DATA RAM ADDRESS
	CHK'D: [Signature]	DATE: [Signature]	DATE: [Signature]
FIRST USED ON OPTION/MODEL: LP20		DATE: 113-MAY-76	DATE: 113-MAY-76
NEXT HIGHER ASSEMBLY: B-DD-M8587-0		SIZE CODE: D CS	NUMBER: M8587-0-LP20
		REV. B	





SHEET 5 OF 9

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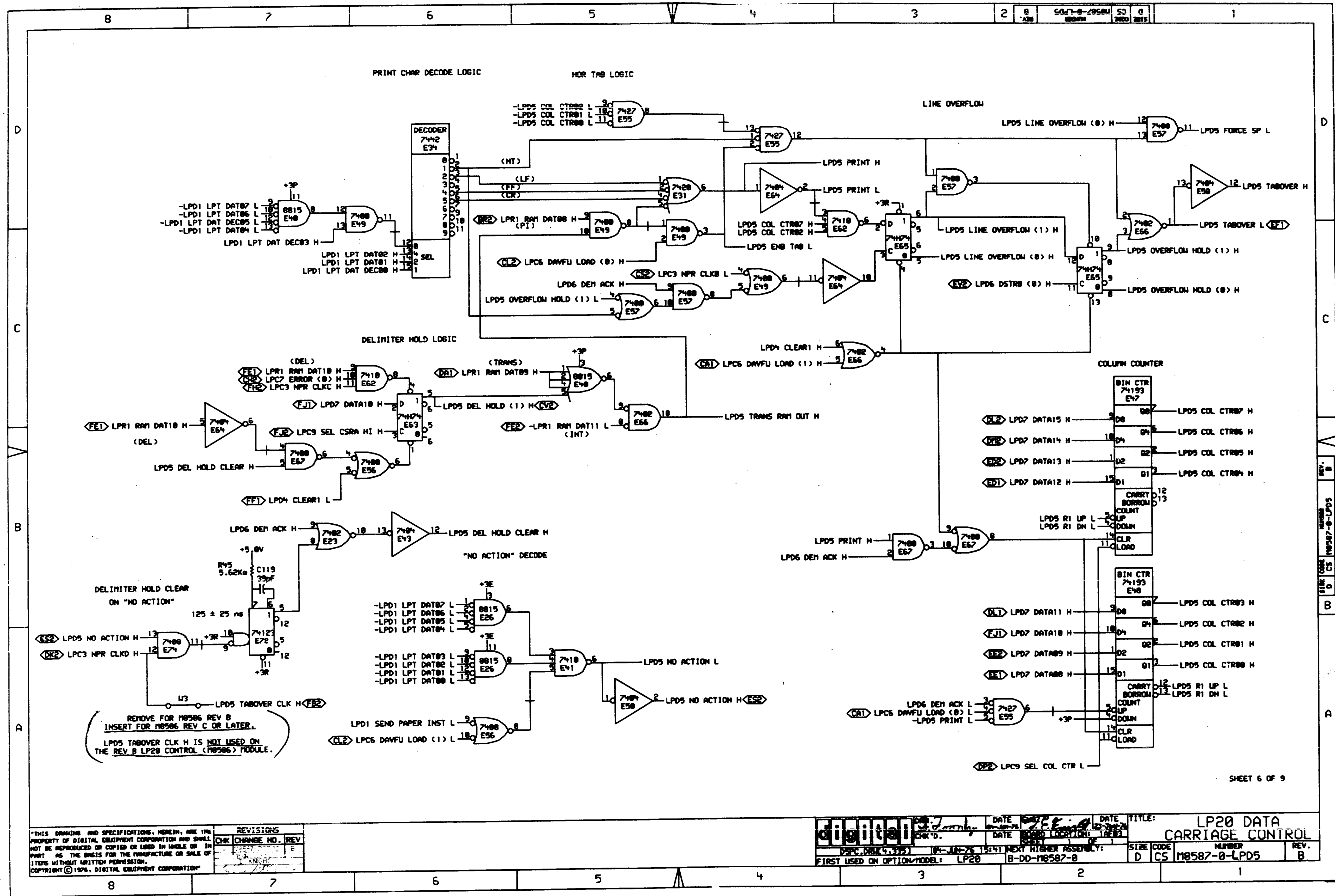
REVISIONS	
CHK	CHANGE NO. REV

**digital** DATE 12-18-76 DATE 12-18-76 TITLE: LP20 DATA PAGE COUNTER

DATE 12-18-76 DATE 12-18-76

SIZE CODE NUMBER REV. D CS M8597-0-LPD4 B

FIRST USED ON OPTION/MODEL: LP20 B-DD-M8587-0

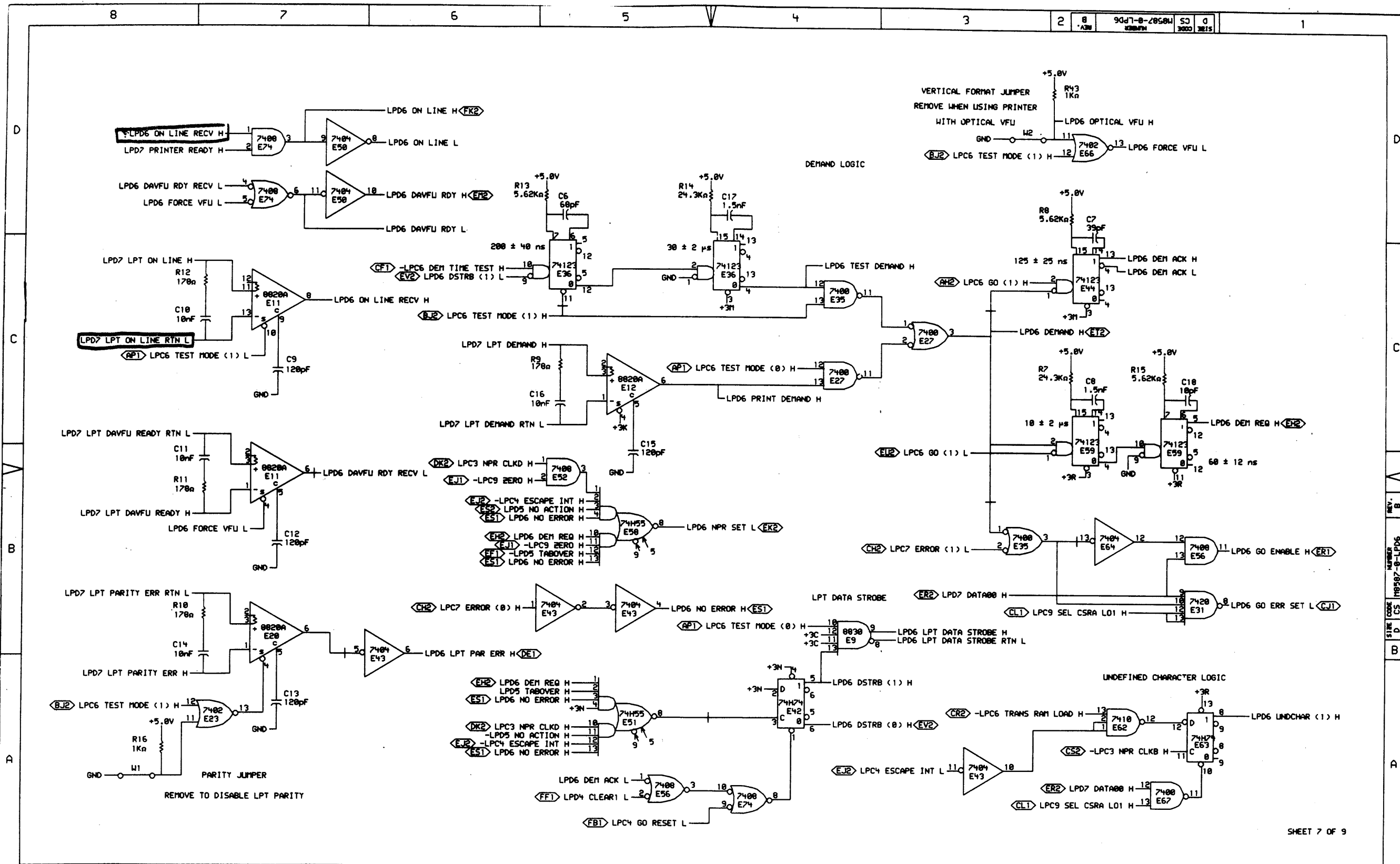


SHEET 6 OF 9

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REVISIONS		
CHK	CHANGE NO.	REV

	DATE: 11-18-76	DATE: 12-23-76	TITLE: LP20 DATA CARRIAGE CONTROL
	DATE: 11-18-76	DATE: 12-23-76	DATE: 12-23-76
FIRST USED ON OPTION/MODEL: LP20	B-DD-M0587-0	SIZE: D CODE: CS	NUMBER: M0587-0-LP25 REV: B



SHEET 7 OF 9

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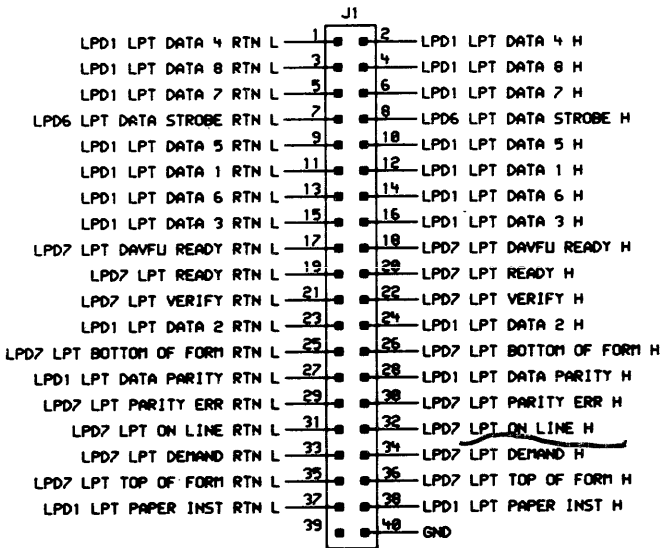
REVISIONS		
CHK	CHANGE NO.	REV

	DATE	14-MAY-76	DATE	23-MAY-76	TITLE:	LP20 DATA LPT INTERFACE
	CHK'D.		DATE		BOARD LOCATION:	1A203
D&PC, DRAWING 335	113-MAY-76 14:53	NEXT HIGHER ASSEMBLY:	SIZE	CODE	NUMBER	REV.
FIRST USED ON OPTION/MODEL:	LP20	B-DD-M8587-0	D	CS	M8587-0-LPD6	B

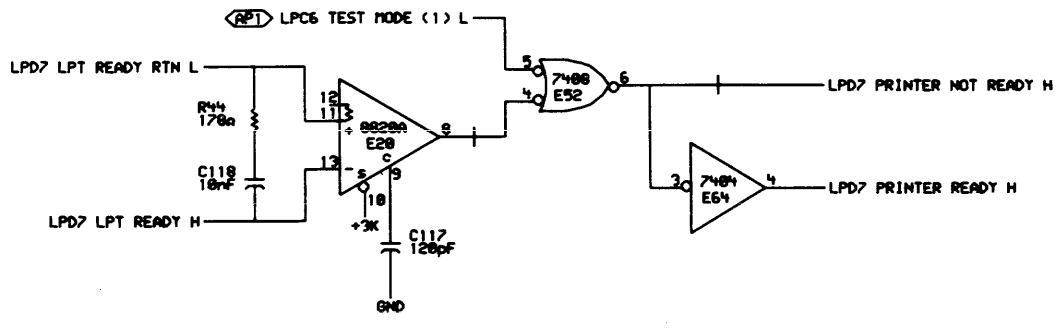
REV. B  
NUMBER M8587-0-LPD6  
SIZE CODE CS

NOTE: BERG CABLE (MODULE END)  
INSERT BC06R-XX  
CABLE INTO J1 WITH  
RIBBED SIDE OF CABLE  
TOWARD MODULE AND  
RED STRIPE AWAY FROM  
MODULE HANDLE (TOWARD  
MODULE FINGERS).

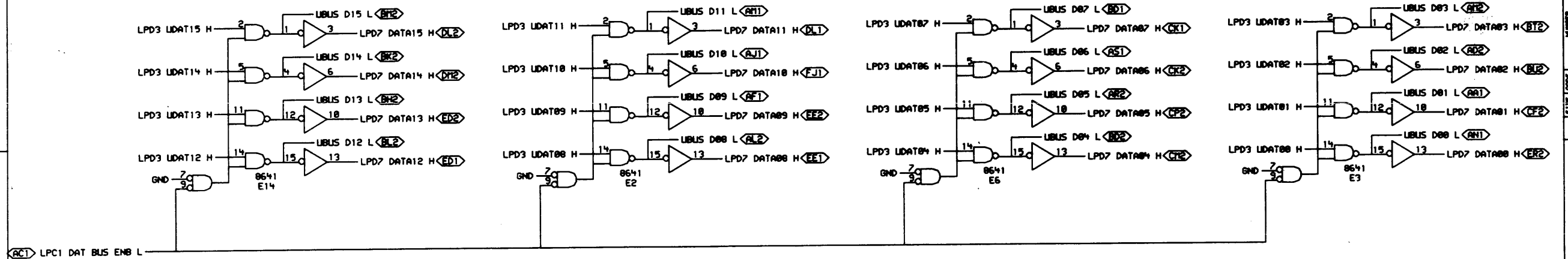
NOTE: BERG CABLE (RECEPTACLE  
HOUSING ASSEMBLY END)  
INSERT BC06R-XX  
CABLE INTO RECEPTACLE  
HOUSING ASSEMBLY  
IN THE CENTER CONTACT  
SET WITH THE RED STRIPE  
TOWARD THE LOCKING TAB  
OF THE HOUSING (AWAY FROM  
STRAIN RELIEF END AND TOWARD  
THE CAM SHAFT END OF THE  
MATING CONNECTOR).



LINE PRINTER READY LOGIC



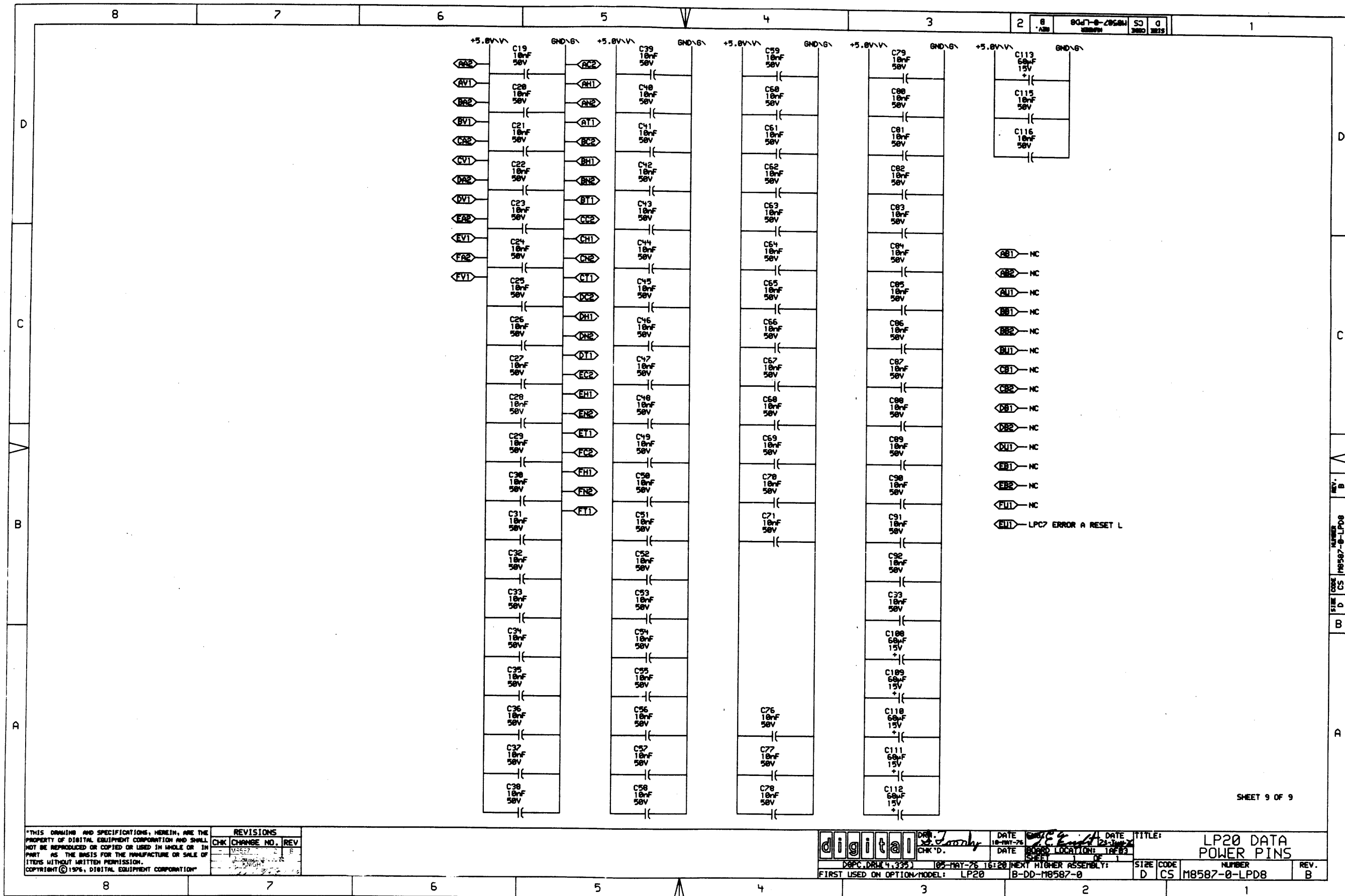
UNIBUS DATA TRANSCEIVERS



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CHK	CHANGE NO.	REV

	DATE: 11-11-75	DATE: 11-11-75	TITLE: LP20 DATA UNIBUS & LPT CABLE
	DATE: 11-11-75	DATE: 11-11-75	DATE: 11-11-75
D7PC, DR4, 335 FIRST USED ON OPTION/MODEL: LP20	11-11-75 14:55 NEXT HIGHER ASSEMBLY: B-DD-M8587-0	SIZE CODE: D CS NUMBER: M8587-0-LPD7	REV: B



SHEET 9 OF 9

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REVISIONS	
CHK	CHANGE NO. REV.

	DATE: 10-MAY-76 CHK'D: <i>J. J. [Signature]</i>	DATE: 22-JUN-76 DATE: <i>[Signature]</i>	TITLE: LP20 DATA POWER PINS
	FIRST USED ON OPTION MODEL: LP20		NEXT HIGHER ASSEMBLY: B-DD-M8587-0
SIZE: D	CODE: CS	NUMBER: M8587-0-LPD8	REV. B

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**NOTES:** 1. FOR DRAWING DIRECTORY REFER TO : B-DD-M8587-0  
 2. UNLESS OTHERWISE SPECIFIED THE FOLLOWING PIN NUMBERS APPLY :  
 PACKAGED TYPE +5V GND  
 14 PIN TIP 14 8  
 16 PIN TIP 16 8

LIMITED RELEASE

COMPONENT DELETES AS SHOWN:

- 1 C107 (10NF 10-01610-00)
- 2 E11(C) DEC 8820 19-10788) ONLY IF SOLDERED IN BOARD.
- 3 C18 (39PF 10-00010-00).

ETCH CUTS SIDE 1 AS SHOWN:

- 1 BETWEEN C106 AND D1.
- 2 E6(4).
- 3 AT PTH BELOW E6(1).
- 4 AT ETCH RUNNING BETWEEN E6(1)(3)(4).
- 5 E9(2).
- 6 E11(4).
- 7 E11(2).
- 8 E7(3).
- 9 E5(9).
- 10 E6(3).
- 11 E11(1).
- 12 E11(3).
- 13 CUT ETCH RUNNING BETWEEN E54(3)(4).

ETCH CUTS SIDE 2 AS SHOWN:

- 1 AT PTH ABOVE E12(9).
- 2 E52(13).
- 3 E7(14).
- 4 AT PTH BELOW E50(5).
- 5 E65(3).
- 6 E11(6).
- 7 E11(8).
- 8-9 E50(1) BOTH SIDES OF PTH.
- 10-11 E67(5) BOTH SIDES OF PTH.
- 12 AT PTH ABOVE E44(2) & (3).
- 13 E56(3).
- 14 AT PTH NEAR E4(1).
- 15 AT PTH NEAR E50(8).

COMPONENT ADDS SIDE 1 AS SHOWN:

- 1 E72(IC DEC 74123 19-10436) (SPARE SLOT)
- 2 R42 (5.62K 1% 13-05128) FROM E73(1) TO E73(16) (SPARE SLOT)
- 3 C114 (39PF 100V 10-00010) FROM E73(2) TO E73(5) (SPARE SLOT)
- 4 C115 (10NF 50V 10-01610-00) FROM PTH TO THE LEFT OF E72(1) TO PTH LEFT OF E72(16).
- 5 R43 (1K 5% 13-00365) FROM E73(7) TO E73(20) (SPARE SLOT)
- 6 W2 (JUMPER 90-09185) FROM E73(8) TO E73(9) (SPARE SLOT)
- 7 E74 (IC DEC 7408 19-10115). NOTE: THIS IC IS A 14 PIN IC AND IS BEING INSERTED IN A 16 PIN LOCATION. POSITION IC AS SHOWN.
- 8 C117 (10PF 100V 10-00018) FROM E75(5) TO E75(8) (SPARE SLOT)
- 9 R44 (178 1% 13-1422) FROM E75(9) TO E75(13) (SPARE SLOT)
- 10 C118 (10NF 50V 10-01610-00) FROM E75(4) TO E75(13) (SPARE SLOT)
- 11 C116 (10NF 50V 10-01610-00) FROM PTH TO THE LEFT OF E74(1) TO PTH TO THE LEFT OF E74(14) (SPARE SLOT)
- 12 R45 (5.62K 1% 13-05128) FROM E73(1) TO E73(15) (SPARE SLOT)

WIRE ADDS SIDE 1 AS SHOWN: (91-05740-55)

- 1 FROM C106 TO D1.
- 2 FROM E72(1) TO PTH BELOW E72(2).
- 3 FROM E72(2) TO PTH BELOW R6.
- 4 E72(3) TO R40.
- 5 E72(13) TO E52(3).
- 6 E72(4) TO E73(15) (SPARE SLOT)
- 7 E72(15) TO E73(2) (SPARE SLOT)
- 8 E73(1) TO E73(2) (SPARE SLOT)
- 9 E43(10) TO E62(2).
- 10 E43(1) TO E51(2).
- 11 E62(1) TO E52(2).
- 12 E62(13) TO E52(10).
- 13 E63(8) TO E61(4).
- 14 E63(10) TO E67(1).
- 15 E63(1) TO E49(4).
- 16 E63(2) TO E62(12).
- 17 E63(13) TO E65(1).
- 18 E66(13) TO E67(12).
- 19 E67(13) TO PTH TO THE RIGHT OF E31(8).
- 20 E71(14) TO SECOND PTH BELOW E60(1).
- 21 E66(1) TO E73(9).
- 22 E66(12) TO E36(1).
- 23 E66(13) TO E11(4).
- 24 E71(3) TO R43 (E73 SPARE (10)).
- 25 R43 (E73 SPARE (7)) TO R42 (E73 SPARE (16)).
- 26 R43 (E73 SPARE (10)) TO W2 (E73 SPARE (9)).
- 27 E9(2) TO E11(2).
- 28 E84(1) TO PTH ABOVE E49(10).
- 29 E84(1) TO E65(3) (PAGE 4)
- 30 E20(8) TO E52(4).
- 31 E20(9) TO C117 (E75 SPARE (5)).
- 32 E20(10) TO R29.
- 33 E20(11) TO R44 (E75 SPARE (9)).
- 34 E20(13) TO C118 (E75 SPARE (4)).
- 35 E52(5) TO E27(12).
- 36 E52(6) TO E61(3).
- 37 E64(3) TO E61(3).
- 38 E64(4) TO E74(2).
- 39 E74(1) TO E11(8).
- 40 E71(4) TO E74(3).
- 41 E74(4) TO E11(6) (PAGE 5)
- 42 E11(1) TO R11.
- 43 E11(3) TO C11.
- 44 E23(8) TO E72(5).
- 45 E23(9) TO E44(13).
- 46 E23(10) TO E43(13).
- 47 E43(12) TO E67(5).
- 48 E44(13) TO E67(2).
- 49 E72(16) TO C119 (E73 SPARE (6)).
- 50 E72(17) TO R45 (E73 SPARE (11)).
- 51 E72(9) TO E74(1).
- 52 E72(10) TO E72(1).
- 53 E72(11) TO E72(13).
- 54 R45 (E73 SPARE (15)) TO R42 (E73 SPARE (16)).
- 55 E74(12) TO PTH TO THE RIGHT OF E51(8).
- 56 E74(13) TO PTH BELOW AND BETWEEN E58(1)(2).
- 57 E74(5) TO E66(13) (PAGE 4)
- 58 E74(6) TO E50(1) (PAGE 4)
- 59 E50(1) TO PTH NEAR E50(8)
- 60 E50(10) TO E54(4).
- 61 E74(9) TO FB1.
- 62 E74(8) TO E42(1).
- 63 E74(10) TO E56(3).
- 64 E74(7) TO PTH TO THE RIGHT OF E74(7).

WIRE ADDS SIDE 2 AS SHOWN: (STRAIGHT 91-05740-55)

- 1 E20(1) TO J1 PIN 19
- 2 E20(13) TO J1 PIN 20

ECO\*2 =

COMPONENT ADDS SIDE 1 AS SHOWN:  
 1 W3 JUMPER (DEC P/N 90-09185-00)  
 FROM E75(2) TO E75(15) (SPARE)

ETCH CUTS SIDE 1 AS SHOWN:

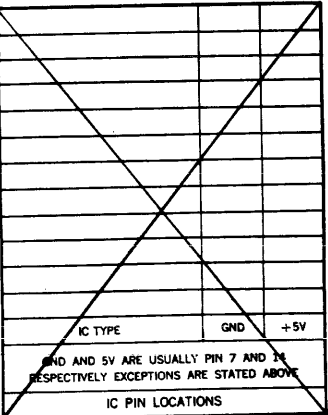
- 1 AT PTH ABOVE E57(9)
- 2 AT ETCH RUNNING BETWEEN E56(5) AND E58(6)

WIRE ADDS SIDE 1 AS SHOWN:

- (DEC P/N 91-05740-55)
- 1 FROM E75(15) TO E52(1)
- 2 FROM PTH ABOVE E57(9) TO E56(1)
- 3 FROM E57(9) TO E67(2)

WIRE ADDS SIDE 2 AS SHOWN:

- (DEC P/N 91-05740-55)
- 1 FROM E75(2) TO FB2 FINGER PIN



DEC FORM NO. 088 119 A

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		ETCHED CIRCUIT BOARD	5011702	1
3	C7, C114, C119	CAP. 39pf 100V 5%	1000010	2
1	C8	CAP. 80pf 100V 5%	1000014	3
6	C4, C8, C12, C13, C15, C117	CAP. 120pf 100V 5%	1000018	4
6	C109 THRU C113	CAP. 80uf 15V 10%	1000062	5
6	C2, C3, C5, C10, C11, C14, C18, C19-C71, C76-C106, C115, C116, C118	CAP. 10nf 50V 20%	1001810-00	6
2	C8, C17	CAP. 1.5nf 100V 5%	1002420	7
1	C1	CAP. 10pf 100V 5%	1002808	8
3	D1 THRU D3	DIODE D684	1100114	9
14	R2, R4, R18, R20, R22, R24, R26, R28, R30, R32, R34, R36, R38, R40	RES. 220 5% 1/4W	1300271	10
14	R1, R3, R17, R19, R21, R23, R25, R27, R 28, R31, R33, R35, R37, R39	RES. 390 5% 1/4W	1300309	11
1	R41	RES. 470 5% 1/4W	1300316	12
2	R18, R43	RES. 1K 5% 1/4W	1300385	13
6	R5, R8, R13, R15, R42, R45	RES. 5.02K 1% 1/4W	1305128	14
2	R7, R14	RES. 24.3K 1% 1/4W	1309410	15
6	R8, R9 THRU R12, R44	RES. 178 1% 1/4W	1311422	16
5	E27, E35, E48, E57, E67	I.C. DEC 7400	1905575	17
2	E41, E62	I.C. DEC 7410	1905576	18
1	E31	I.C. DEC 7420	1905577	19
2	E23, E86	I.C. DEC 7402	1909004	20
2	E51, E58	I.C. DEC 74H55	1909063	21
3	E42, E83, E85	I.C. DEC 74H74	1909687	22
3	E43, E50, E84	I.C. DEC 7404	1909686	23
2	E28, E40	I.C. DEC 8015	1909713	24
18	E1, E5, E13, E21, E29, E37, E45, E46, E53, E54, E60, E61, E68 THRU E71	I.C. DEC 74151	1909936	25
4	E17, E24, E32, E39	I.C. DEC 74153	1909937	26
7	E8, E16, E22, E30, E38, E47, E48	I.C. DEC 74193	1910019	27
1	E34	I.C. DEC 7442	1910048	28
4	E33, E52, E56, E74	I.C. DEC 7408	1910155	29
4	E38, E44, E58, E72	I.C. DEC 74123	1910438	30
8	E4, E9, E10, E18, E19, E28	I.C. DEC 8830	1910787	31
3	E11, E12, E20	I.C. DEC 8820	1910788	32
1	E55	I.C. DEC 7427	1910870	33
4	E2, E3, E8, E14	I.C. DEC 8641	1911579	34
2	E7, E15	I.C. DEC 74288	1911271	35
1	E25	I.C. DEC 745280	1911573	36
1	J1	40 PIN CONNECTOR	1200941-02	37
3	W1, W2, W3	JUMPER (WHT)	9009185	38
12		HANDLE ASSY.	1210711-2	39
1		EYELET	9008732	40
1		LATCH, LEFT CONNECTOR	1209941-03	41
1		LATCH, RIGHT CONNECTOR	1209941-04	42
A/R		WIRE #30 AWG GRN	9105740-55	43
1	C18	CAP 10PF 100V 5%	1000006	44

FIRST USED ON OPTION MODEL LP20

REVISIONS

REV.	DATE	BY	DESCRIPTION
A	12-24-75	R. W. Counter	DATE
B	1-20-76	T. Knight	DATE
C	2-20-76	T. Knight	DATE
D	2-20-76	T. Knight	DATE
E	2-20-76	T. Knight	DATE

digital

TITLE LP20 LINE PRINTER DATA PATHS

SCALE NONE

SIZE CODE DUA

NUMBER M8587-0-0

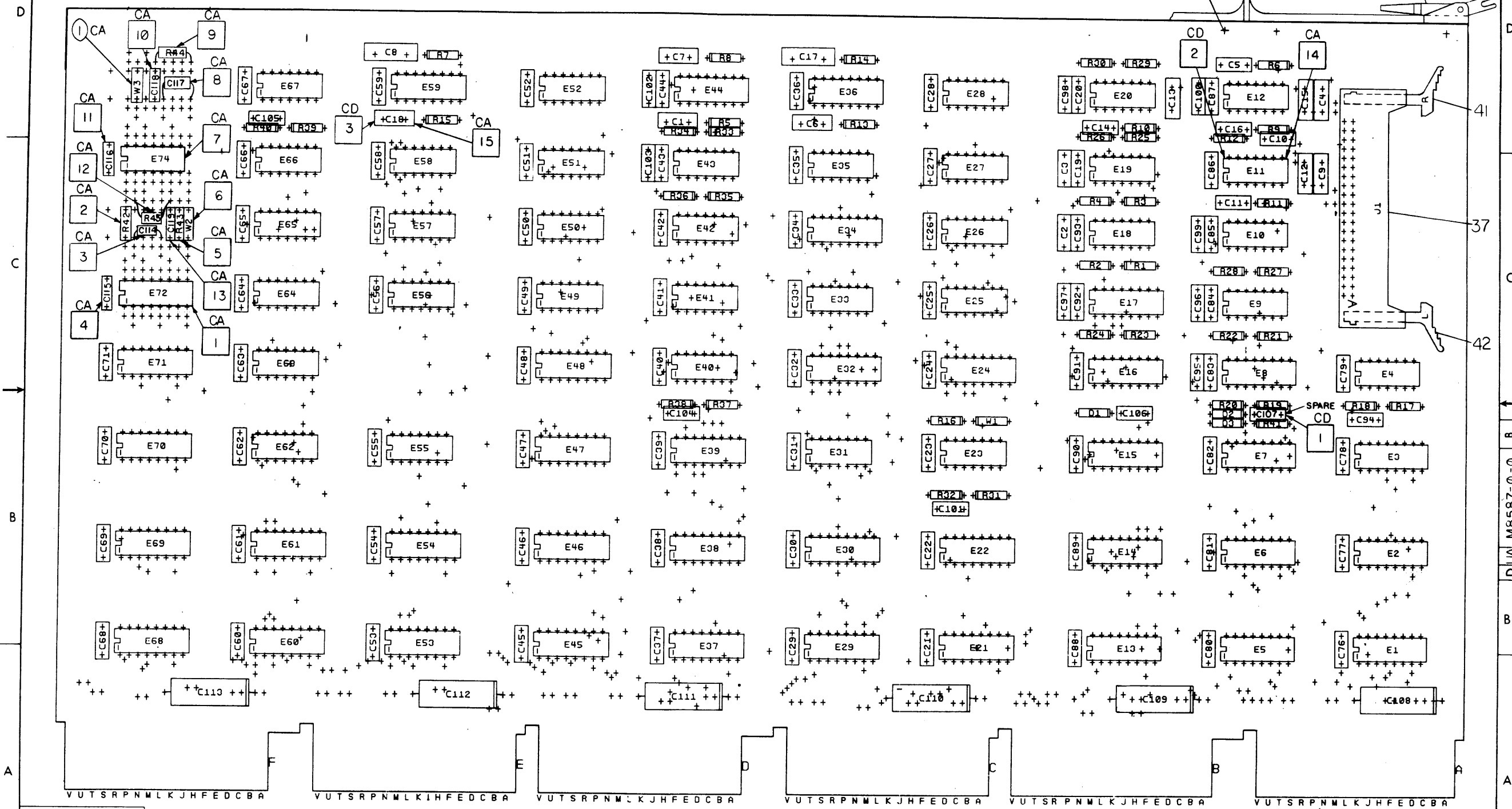
REV. 8

SEMICONDUCTOR CONVERSION CHART

SHEET 1 OF 8

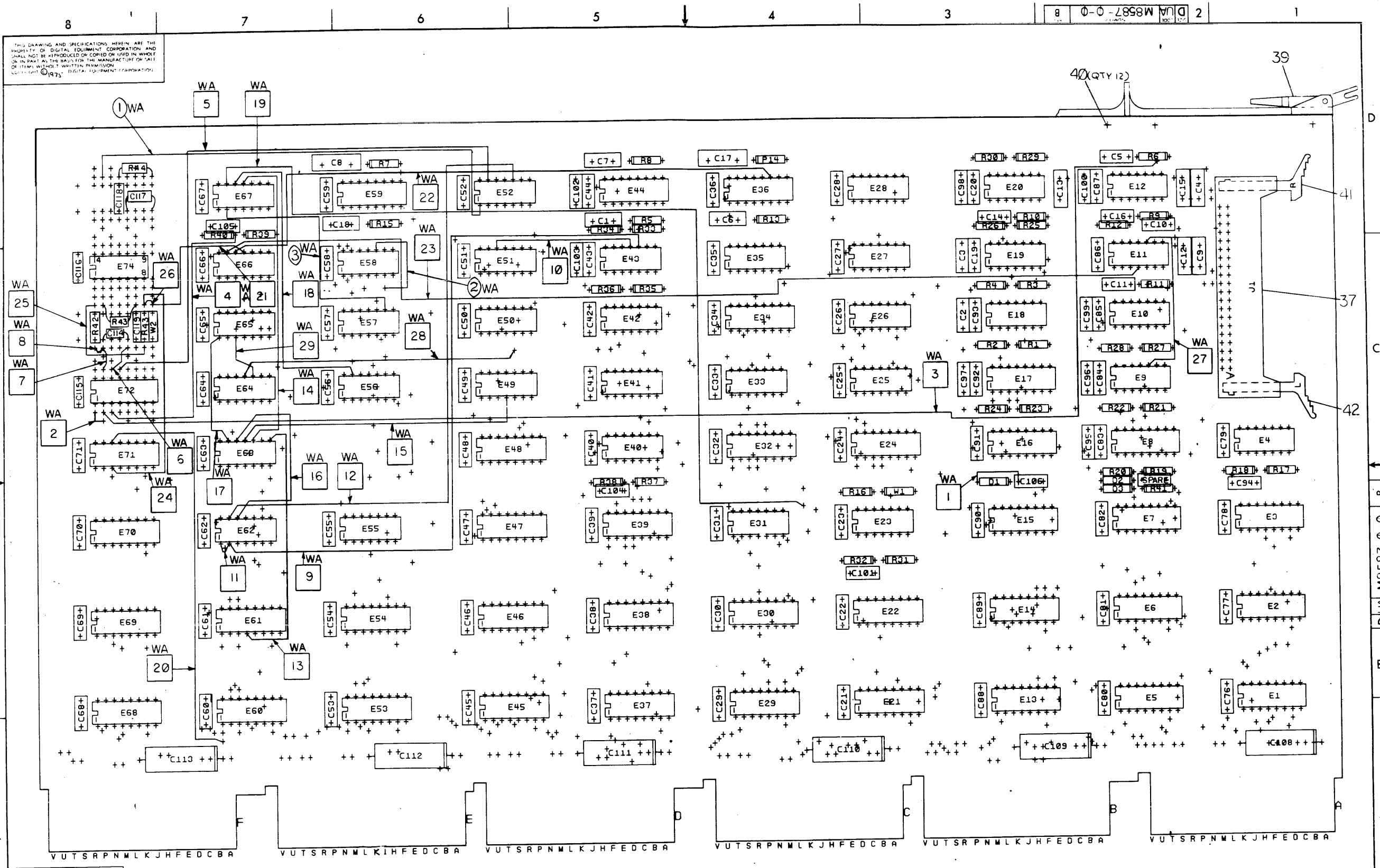
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8 0-0-28587 M D 2 1

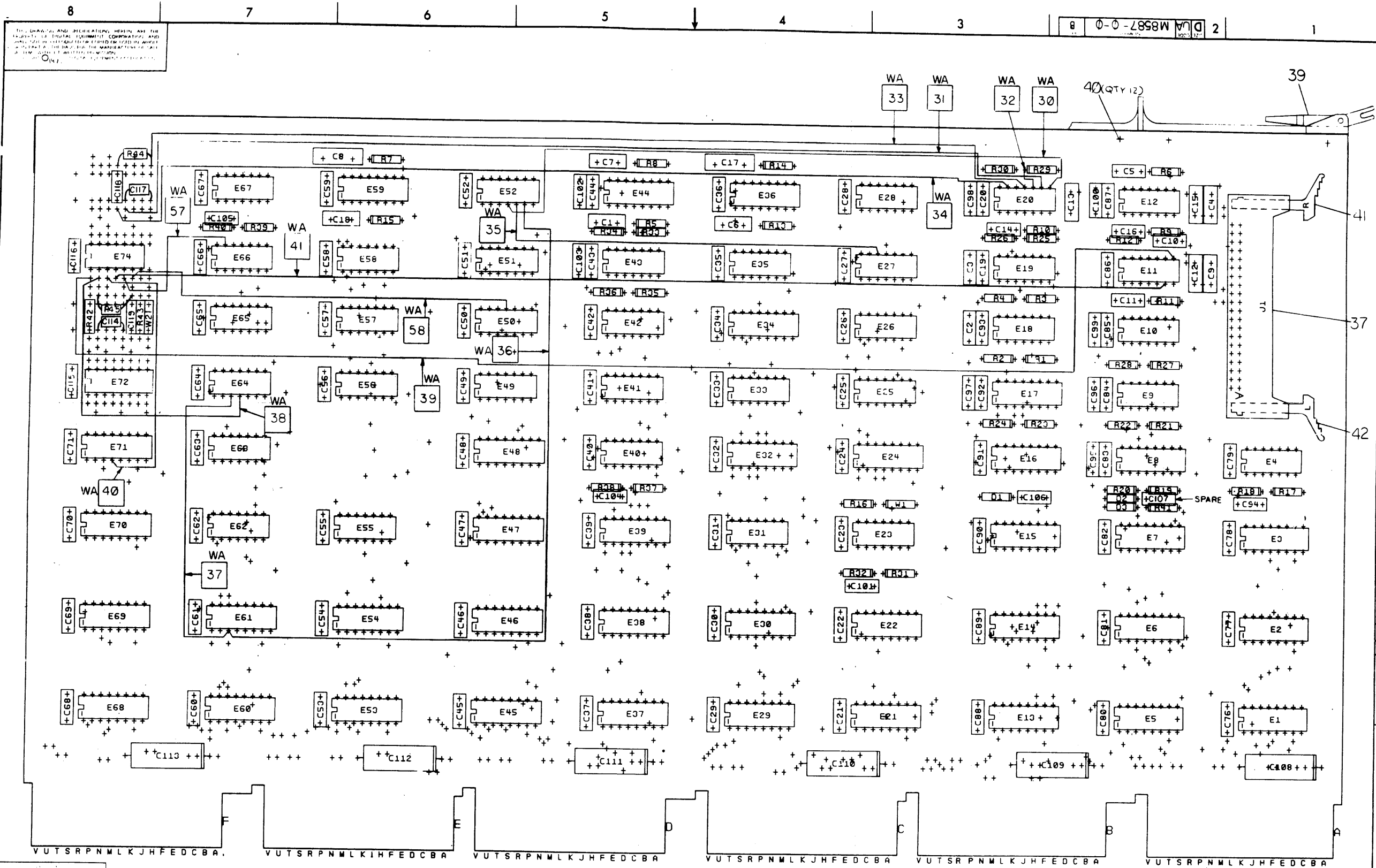


REV.	CHANGE NO.	REV.

TITLE LP20 LINE PRINTER DATA PATHS  
 SCALE 2/1 SHEET 2 OF 8  
 SIZE CODE D UA NUMBER M8587-0-0 REV. B



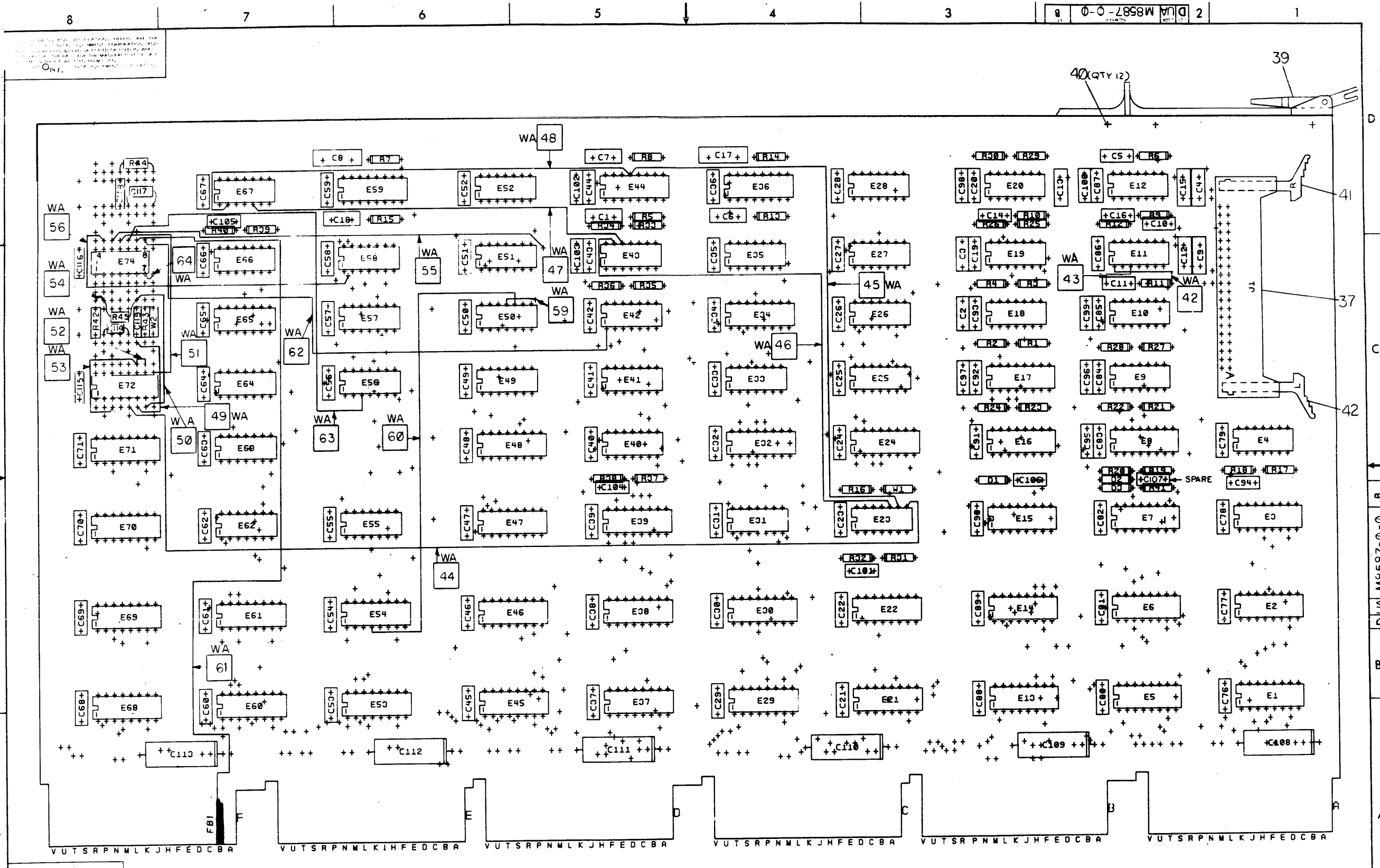
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DUA M8587-0-0

DUA M8587-0-0



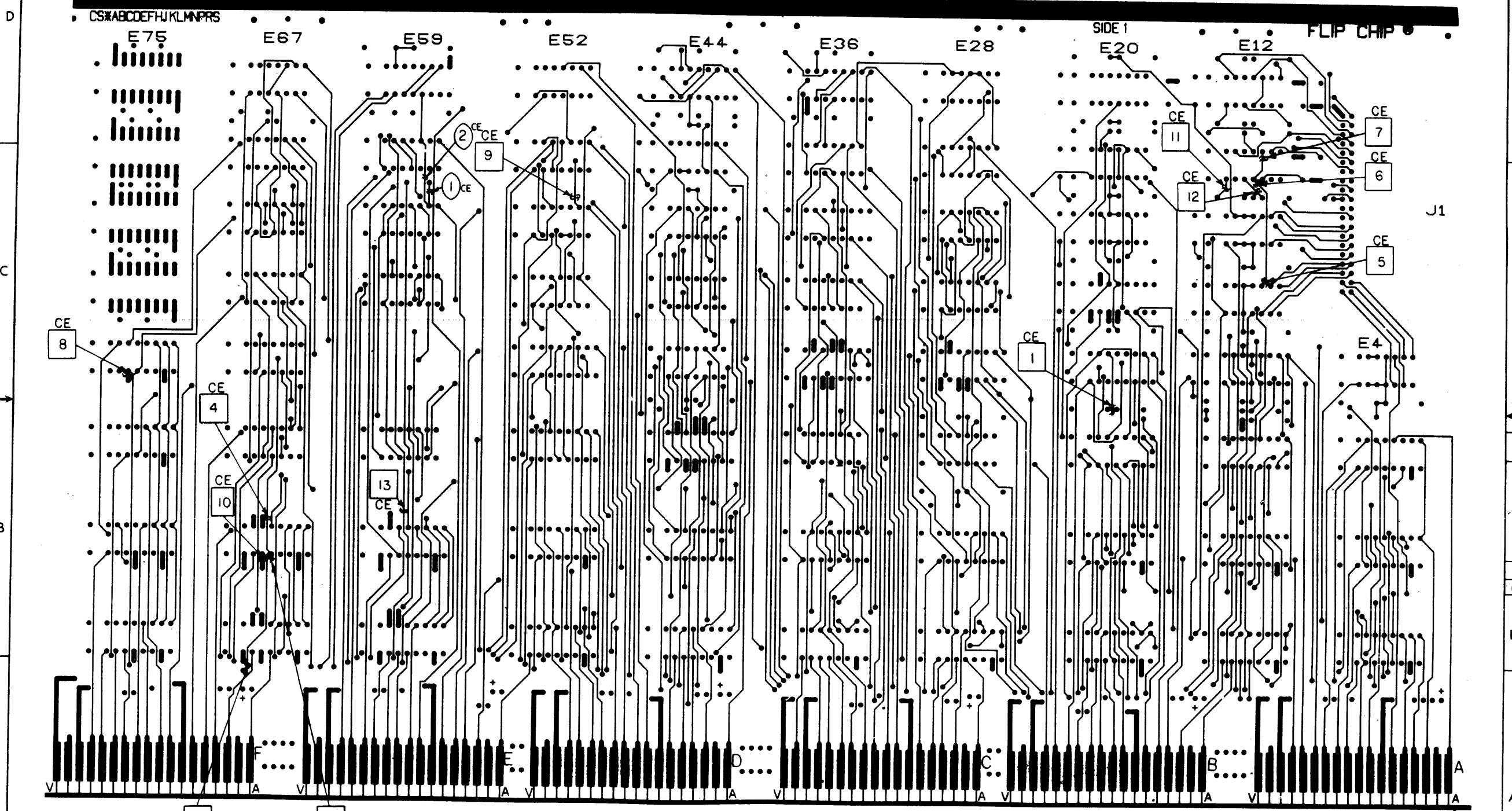
TITLE LP20 LINE PRINTER DATA PATHS		SIZE CODE DUA	NUMBER M8587-0-0	REV B
SCALE 2/1	SHEET 5 OF 8	DIST		

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D/JA M8587-0-0 2

LAYER 1

MS30170 M8587 5011702A



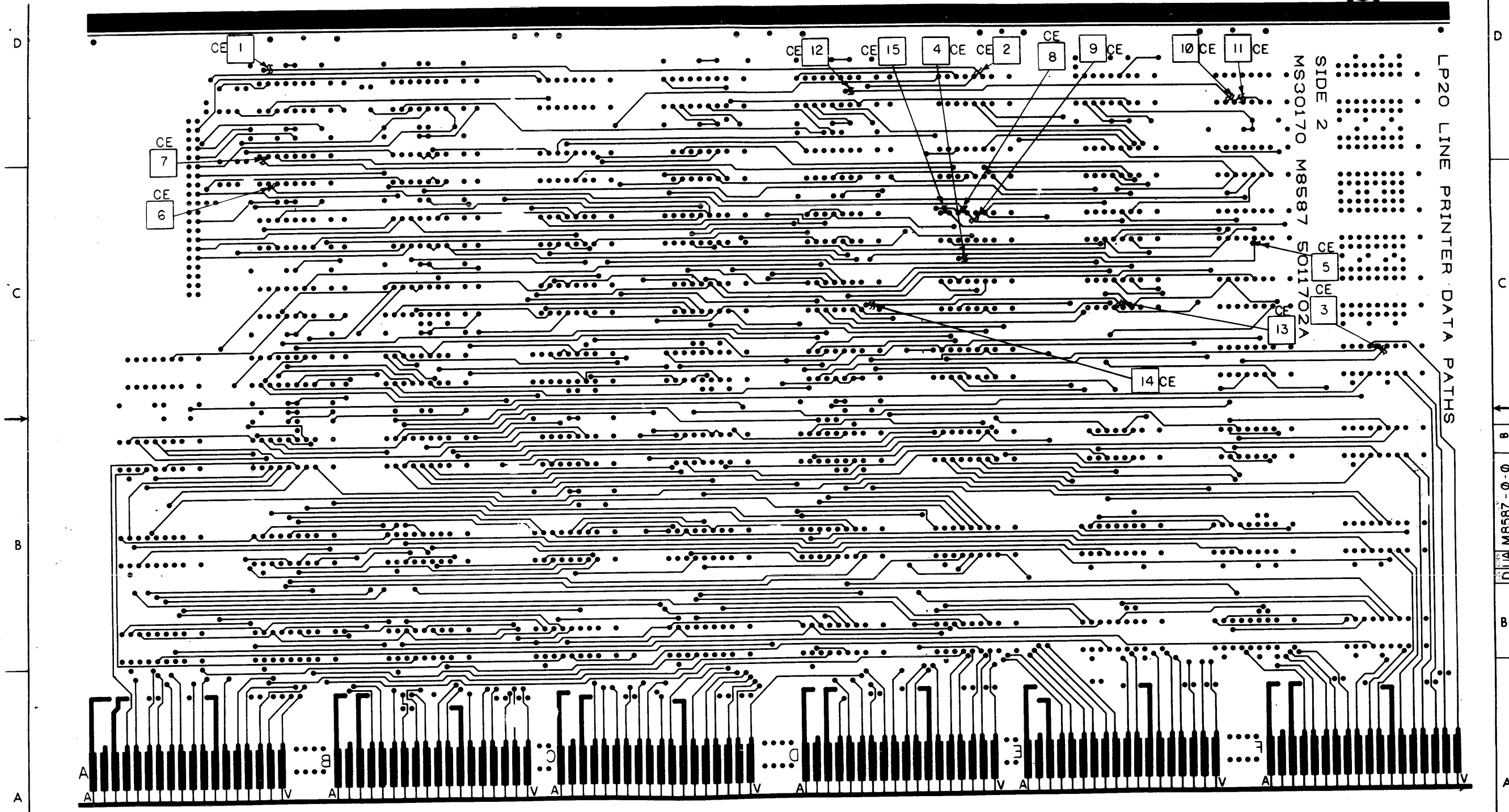
REVISIONS		
CHK	CHANGE NO	REV

8	7	6	5	4	3	2	1	
	3	2						
	CE	CE						
TITLE LP20 LINE PRINTER DATA PATHS						SIZE CODE D UA	NUMBER M8587-0-0	REV. B
SCALE 2/1						SHEET 6 OF 8	DIST.	

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4 834AJ

L4



REVISIONS		
CHK	CHANGE NO	REV

TITLE	LP20 LINE PRINTER DATA PATHS	SIZE CODE	D UA	NUMBER	M8587-0-0	REV.	B
SCALE	2/1	SHEET	7 OF 8	DIST.			

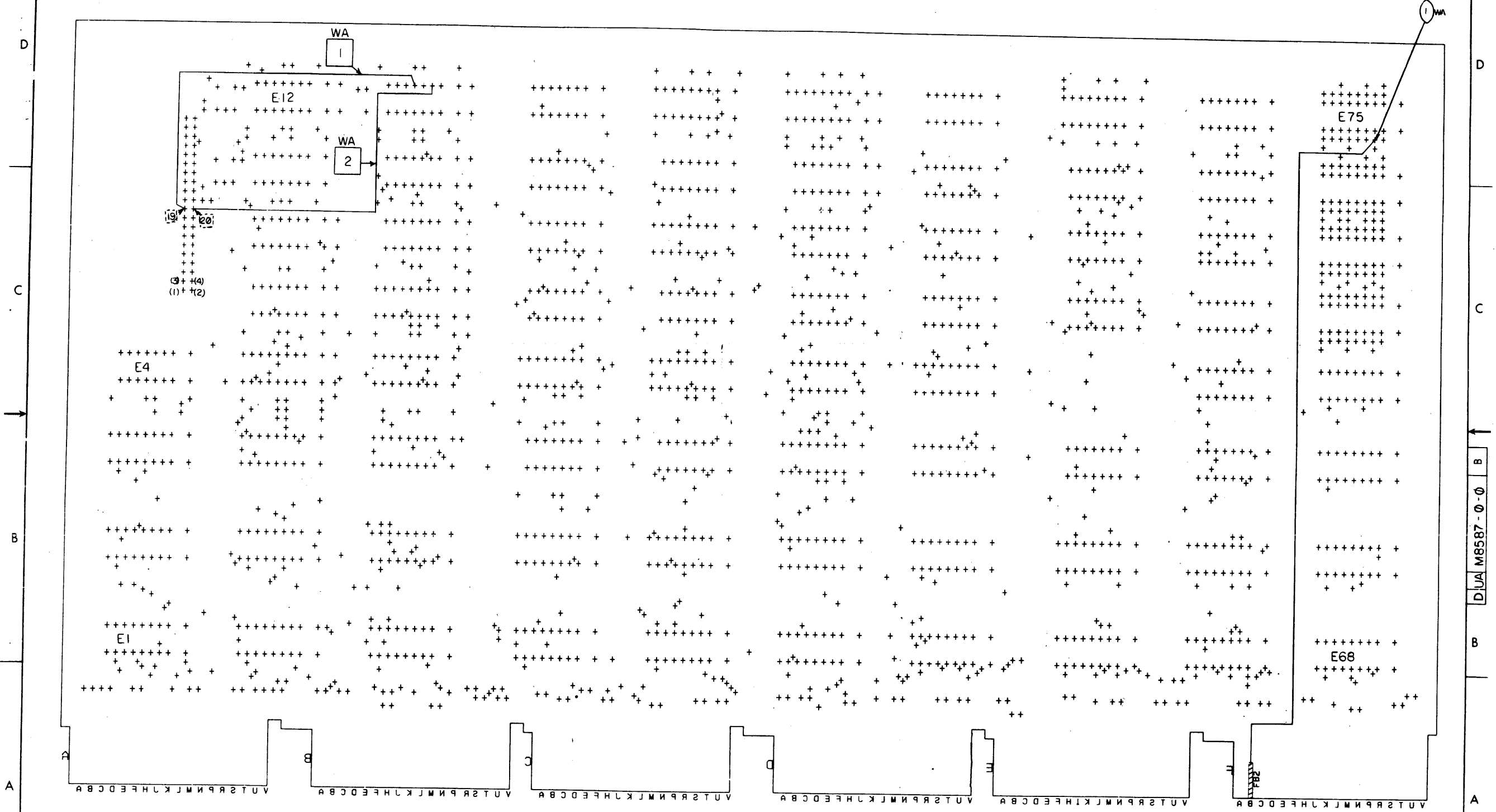
D UA M8587-0-0

LP20 LINE PRINTER DATA PATHS

SIDE 2  
MS30170 M8587  
SO11702A

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8 0-0-28587-0-0 2



REV. NO.		
CHK	CHANGE NO.	REV.

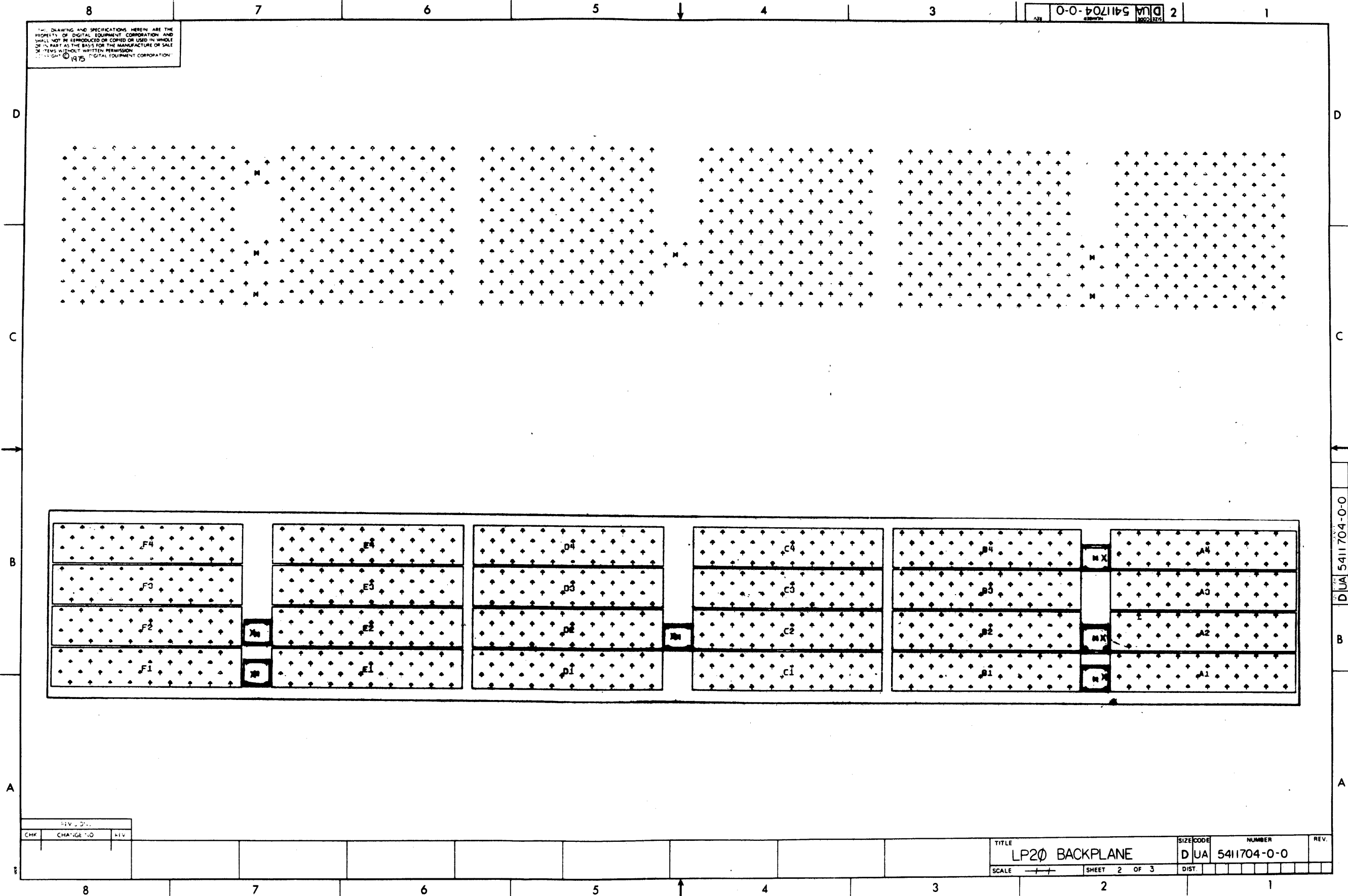
TITLE LP20 LINE PRINTER DATA PATHS  
 SCALE 2/1 SHEET 8 OF 8  
 SIZE CODE D U A NUMBER M8587-0-0 REV. B

D U A M8587-0-0 B



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REV. 2 DUA 5411704-0-0



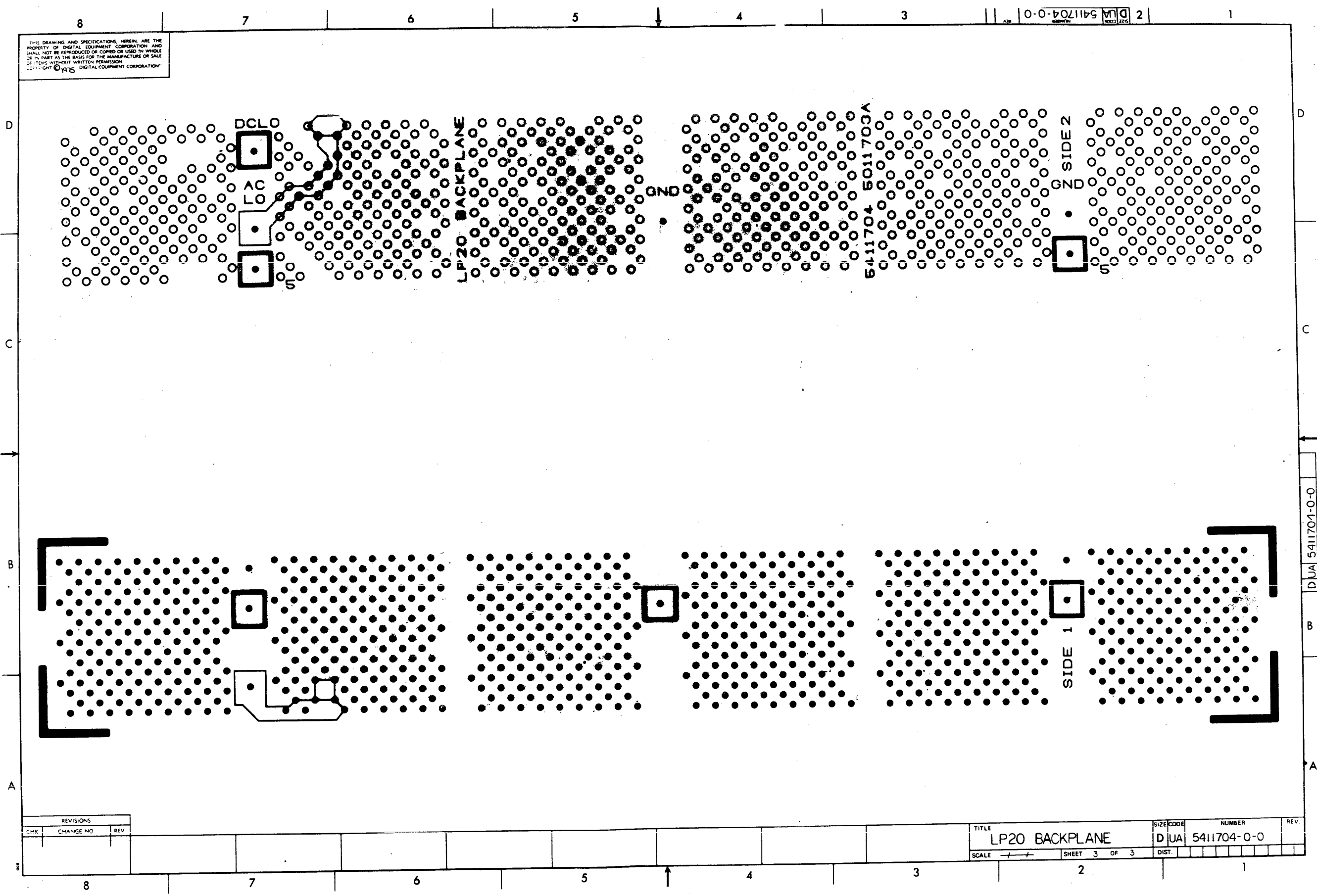
CHK	CHANGE NO	REV

TITLE	SIZE CODE	NUMBER	REV.
LP20 BACKPLANE	DUA	5411704-0-0	
SCALE ---	SHEET 2 OF 3	DIST.	

DUA 5411704-0-0

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DUAL 5411704-0-0 2



REVISIONS		
CHK	CHANGE NO	REV

TITLE	LP20 BACKPLANE	SIZE CODE	DUAL	NUMBER	5411704-0-0	REV	
SCALE	1:1	SHEET	3	OF	3	DIST	

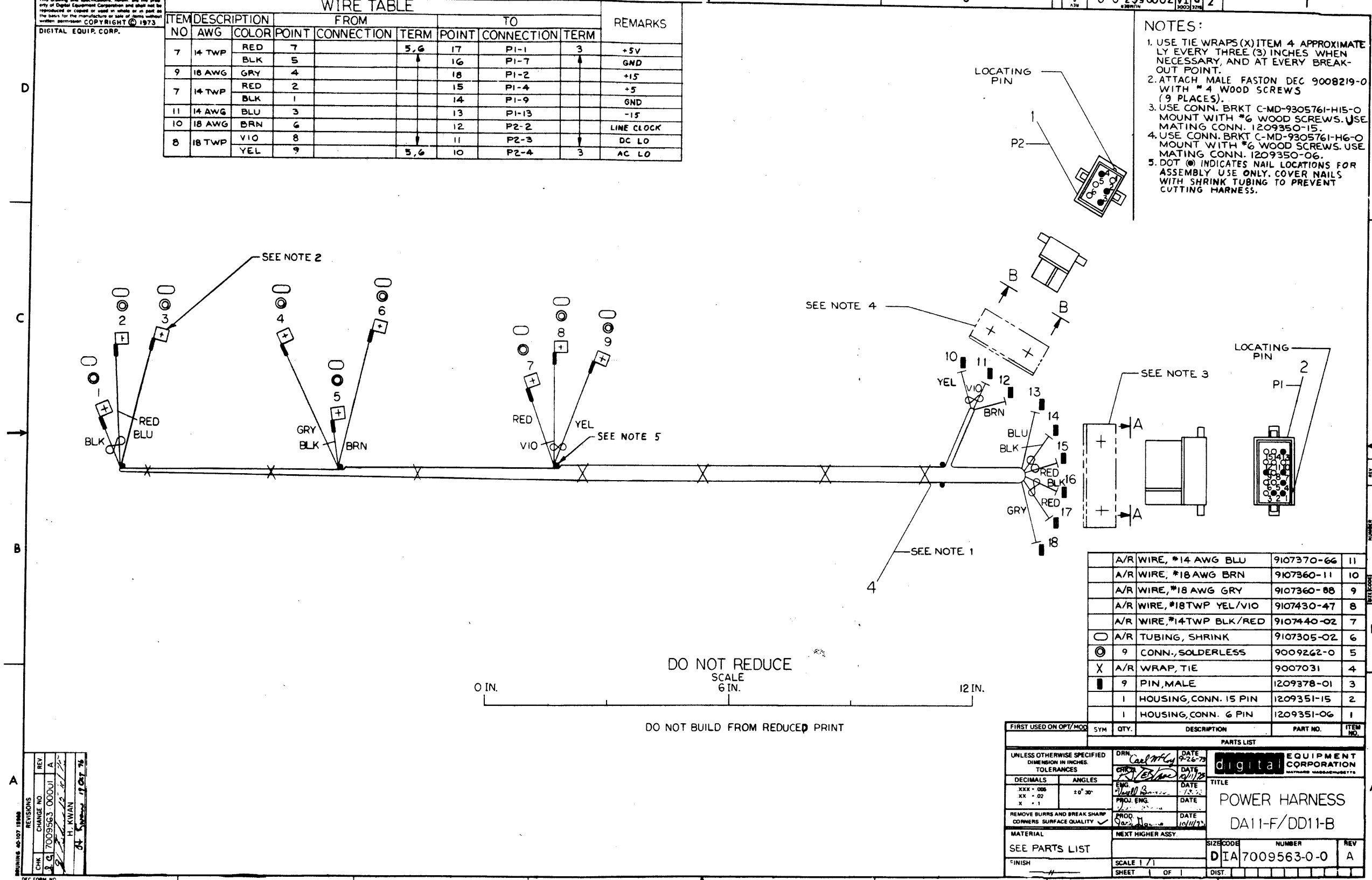
DUAL 5411704-0-0

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WIRE TABLE									REMARKS
ITEM NO	DESCRIPTION	FROM			TO				
	AWG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM	
7	14 TWP	RED	7		5,6	17	P1-1	3	+5V
		BLK	5			16	P1-7		GND
9	18 AWG	GRY	4			18	P1-2		+15
7	14 TWP	RED	2			15	P1-4		+5
		BLK	1			14	P1-9		GND
11	14 AWG	BLU	3			13	P1-13		-15
10	18 AWG	BRN	6			12	P2-2		LINE CLOCK
8	18 TWP	VIO	8			11	P2-3		DC LO
		YEL	9		5,6	10	P2-4	3	AC LO

0-0-099600Z  
2

- NOTES:
- USE TIE WRAPS (X) ITEM 4 APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY, AND AT EVERY BREAK-OUT POINT.
  - ATTACH MALE FASTON DEC 9008219-0 WITH #4 WOOD SCREWS (9 PLACES).
  - USE CONN. BRKT C-MD-9305761-H15-0 MOUNT WITH #6 WOOD SCREWS. USE MATING CONN. 1209350-15.
  - USE CONN. BRKT C-MD-9305761-H6-0 MOUNT WITH #6 WOOD SCREWS. USE MATING CONN. 1209350-06.
  - DOT (•) INDICATES NAIL LOCATIONS FOR ASSEMBLY. USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.



SYMBOL	DESCRIPTION	PART NO.	ITEM NO.
A/R	WIRE, #14 AWG BLU	9107370-66	11
A/R	WIRE, #18 AWG BRN	9107360-11	10
A/R	WIRE, #18 AWG GRY	9107360-88	9
A/R	WIRE, #18 TWP YEL/VIO	9107430-47	8
A/R	WIRE, #14 TWP BLK/RED	9107440-02	7
○	A/R TUBING, SHRINK	9107305-02	6
•	CONN., SOLDERLESS	9009262-0	5
X	A/R WRAP, TIE	9007031	4
■	PIN, MALE	1209378-01	3
□	HOUSING, CONN. 15 PIN	1209351-15	2
□	HOUSING, CONN. 6 PIN	1209351-06	1

FIRST USED ON OPT/ MOD	SYMBOL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES		DRN	DATE	digital EQUIPMENT CORPORATION	
DECIMALS	ANGLES	ENG.	DATE	TITLE	
XXX + .006	± 0° 30'	PROJ. ENG.	DATE	POWER HARNESS	
X + .1		PROG.	DATE	DA11-F/DD11-B	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		PROG.	DATE	SIZE CODE NUMBER	
MATERIAL		NEXT HIGHER ASSY		DA117009563-0-0 A	
SEE PARTS LIST		SCALE 1/1		REV	
FINISH		SHEET 1 OF 1		DIST	

REV	CHANGE NO.	DATE	BY	CHKD.
1	7009563 00001	A		

REVISIONS  
40-107 1966  
DEC FORM 10

DA117009563-0-0

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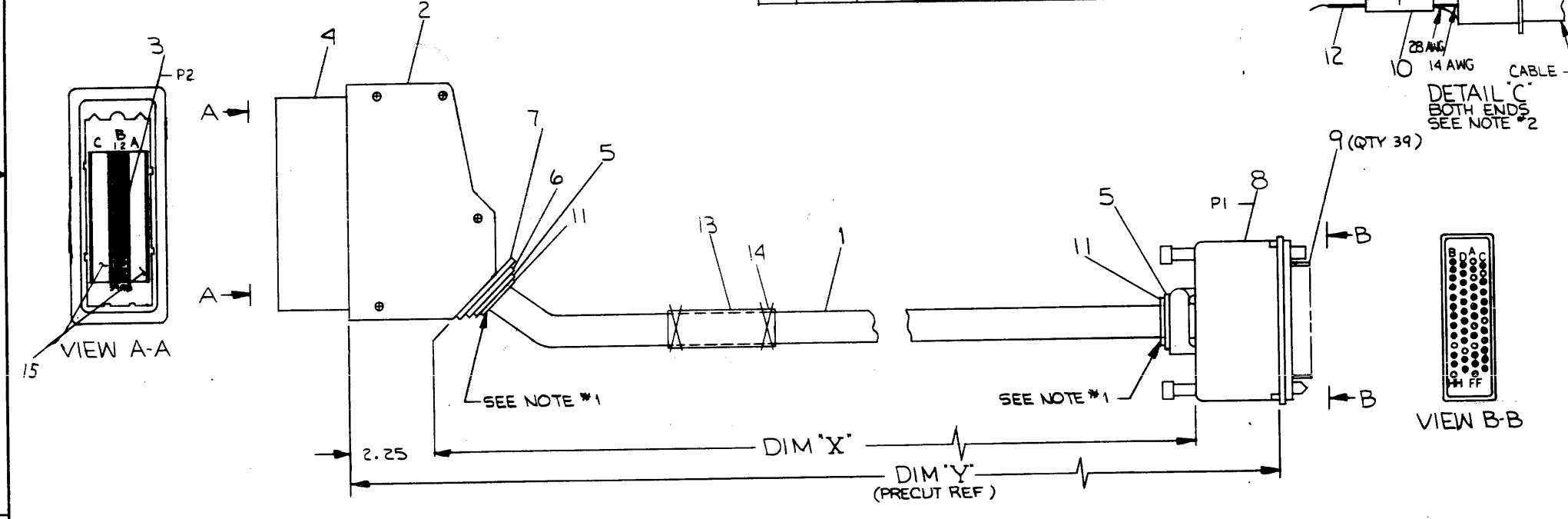
WIRE TABLE					
ITEM NO.	DESCRIPTION	FROM	TO	REMARK	
1	*28 TWP	RED SHIELD PI-D	P2-B11	DATA 1	
	TWP	WHT/BLK PI-B	P2-B12		
	*28 TWP	RED PI-J	P2-B23	DATA 2	
	TWP	WHT/RED PI-F	P2-B24		
	*28 TWP	RED PI-N	P2-B15	DATA 3	
	TWP	WHT/GRN PI-L	P2-B16		
	*28 TWP	RED PI-T	P2-B1	DATA 4	
	TWP	WHT/ORN PI-R	P2-B2		
	*28 TWP	RED PI-X	P2-B9	DATA 5	
	TWP	WHT/BLU PI-V	P2-B10		
	*28 TWP	RED PI-b*	P2-B13	DATA 6	
	TWP	WHT/YEL PI-z	P2-B14		
	*28 TWP	RED PI-k*	P2-B5	DATA 7	
	TWP	WHT/BRN PI-n*	P2-B6		
	*28 TWP	RED PI-AA	P2-B31	ON LINE	
	TWP	WHT/BLK/GRN PI-y*	P2-B32		
1	*28 TWP	RED PI-W	P2-B17	DAUFU RDU	
	TWP	WHT/BLK/GRN PI-W	ITEM*9		

WIRE TABLE					
ITEM NO.	DESCRIPTION	FROM	TO	REMARK	
1	*28 TWP	RED PI-C	ITEM*9	DEMAND	
	TWP	WHT/BLK/ORN PI-E	P2-B33		
	*28 TWP	RED PI-m*	P2-B34	DATA	
	TWP	WHT/BLK/BLU PI-j*	P2-B7	STROBE	
	*28 TWP	RED PI-U	P2-B35	TOP OF FORM	
	TWP	WHT/BLK/YEL PI-S	P2-B36		
	*28 TWP	RED PI-v*	P2-B21	VERIFY	
	TWP	WHT/BLK/BRN PI-x*	P2-B22		
	*28 TWP	RED PI-f*	P2-B27	LPT PARITY	
	TWP	WHT PI-d*	P2-B28		
	*28 TWP	RED PI-s*	P2-B37	PAPER INSTRUCTION	
	TWP	WHT/GRN/RED PI-p*	P2-B38		
	*28 TWP	RED PI-BB	P2-B3	DATA 8	
	TWP	WHT/GRN/ORN PI-g*	P2-B4		
	*28 TWP	RED PI-c*	P2-B29	PARITY ERR	
	TWP	WHT/GRN/BLU PI-a*	P2-B30		
	*28 TWP	RED PI-EE	P2-B19	READY	
	TWP	WHT/GRN/YEL PI-CC	P2-B20		
	*28 TWP	RED PI-P	P2-B25	BOTTOM OF FORM	
1	TWP	WHT/GRN/BRN PI-M	ITEM*9		

LEGEND		
NUMBER	DIM 'X'	DIM 'Y' (PRE CUT)
101426-25	25 FT 0 IN	2 FT 4 IN ± 3 IN
101426-50	50 FT 0 IN	5 FT 4 IN ± 1 FT
101426-75	75 FT 0 IN	7 FT 4 IN ± 1 FT 6 IN
101426-100	100 FT 0 IN	10 FT 4 IN ± 2 FT

NOTES:  
 1. CUT ITEMS 5,6,7 & 11 (BUSHINGS) APPROX 1 INCH LONG.  
 2. CUT TUBING (ITEM\*12) 1.75 LONG. CUT 14 AWG DRAIN WIRE TO APPROX 1.25 IN LONG & STRIP BACK .25 IN. CRIMP 14 AWG DRAIN WIRE TO THE \*28 AWG SHIELD WIRE & RUN \*28 AWG WIRE THRU AS IN DETAIL 'C'. SLIP TUBING (ITEM\*12) OVER \*28 AWG SHIELD WIRE & CRIMP ITEM\*10 & SHRINK TUBING.  
 3. A MASSBUS RECEPTACLE ASSEMBLY (\*1009861) IS REQUIRED TO MATE THE LP20 CABLE (\*701426) WITH THE BC06R-10 FLAT CABLE. THE HOUSING IS REQUIRED BUT NOT SUPPLIED.

ASTERISK (\*) INDICATES LOWER CASE LETTERS

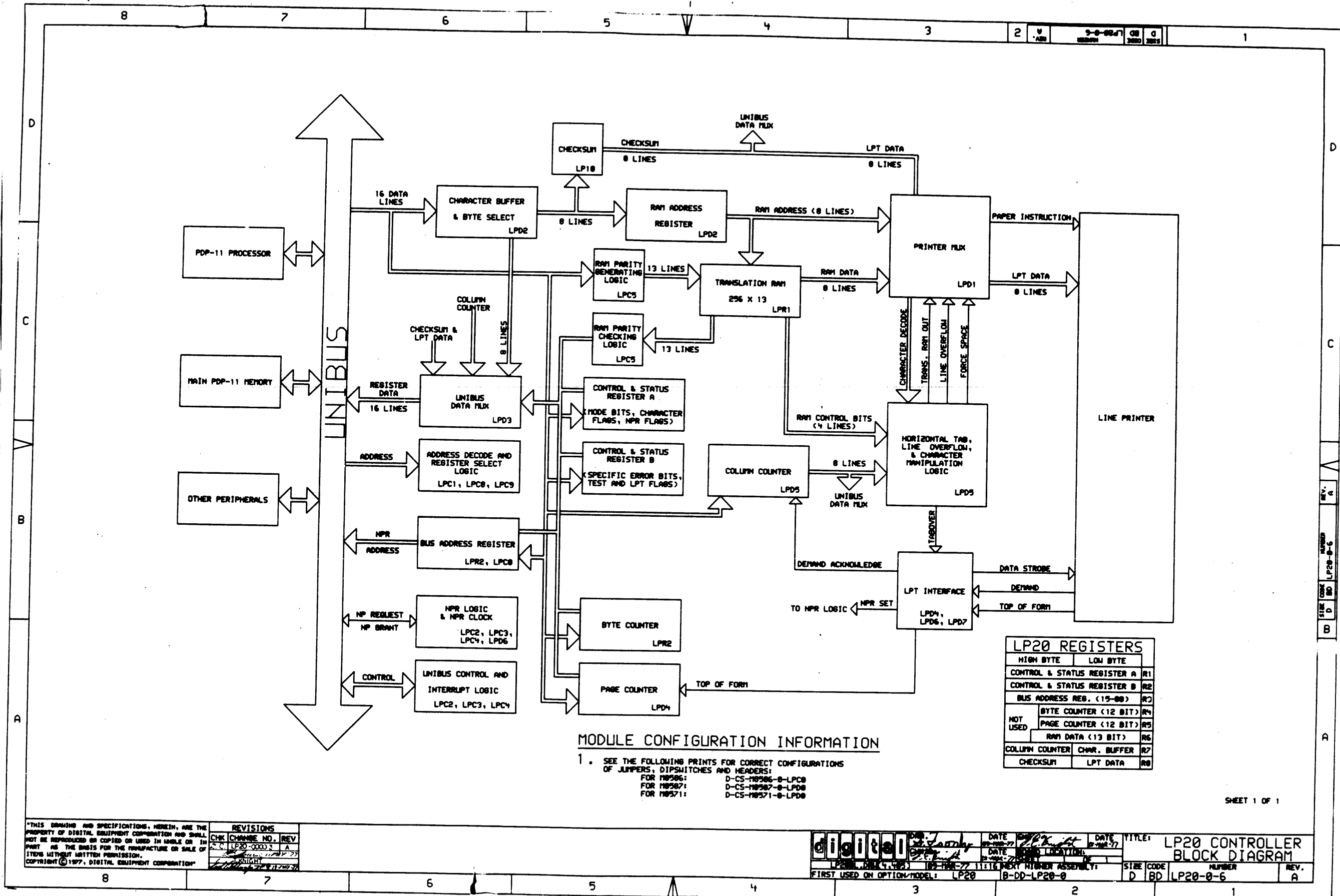


QTY	DESCRIPTION	DRG./PART NO.	ITEM NO.
2	PLUG, CRIMP TYPE	121159-26	15
2	TIE CABLE	9007880	14
1	LABEL, CABLE I.D.	9009532	13
	AIR TUBING, SHRINKABLE	9107305-00	12
2	BUSHING, RUBBER	1210776-4	11
2	TERMINAL SOLDERLESS	9006782-02	10
39	PIN, CONNECTOR	1209629	9
1	PLUG, CONNECTOR	1209726	8
1	BUSHING, RUBBER	1210776-7	7
1	BUSHING, RUBBER	1210776-6	6
2	BUSHING, RUBBER	1210776-5	5
1	CONN. STRAIN RELIEF KIT	1211591-12	4
7	CONN PLUG MODULE (NO CONTACT)	1211591-07	3
1	CONN PLUG HOUSING KIT	1211591-01	2
	CABLE 38 COND 28 AWG TWP	1700051-00	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES					
ANGLES 1/2 3/4	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES			
		0 - 1.25	1.25 - 4.0	4.0 - 12.0	OVER 12.0
SURFACE QUALITY IN	<input type="checkbox"/> MEDIUM	1.004	1.003	1.012	1.010
MICRONCHES	<input checked="" type="checkbox"/> PREFERRED	2.512	2.510	2.535	2.530

THIRD ANGLE PROJECTION	DRN. R.D. <i>Campana</i>	7-1-75	FIRST USED ON	LP20
REMOVE BURRS AND BREAK SHARP CORNERS	CHK'D <i>[Signature]</i>	2-23-75	TITLE	CABLE, LP20
DO NOT SCALE DRWG	ENGR. <i>[Signature]</i>	2-23-75	SIZE	D IA
MATERIAL SEE PARTS LIST	PROJ. ENGR. <i>[Signature]</i>	2-23-75	NUMBER	701426-0-0
FINISH	PROD. TH. <i>[Signature]</i>	7-29-75	REV.	A

REV.	CHANGE NO.	DATE	BY	CHKD.
A	1	7-1-75	T. KNIGHT	



**MODULE CONFIGURATION INFORMATION**

- SEE THE FOLLOWING PRINTS FOR CORRECT CONFIGURATIONS OF JUMPERS, DIPSWITCHES AND HEADERS:  
 FOR M9506: D-CS-M9506-0-LPC8  
 FOR M9507: D-CS-M9507-0-LPC8  
 FOR M9571: D-CS-M9571-0-LPC8

LP20 REGISTERS	
HIGH BYTE	LOW BYTE
CONTROL & STATUS REGISTER A	R1
CONTROL & STATUS REGISTER B	R2
BUS ADDRESS REG. (15-00)	R3
BYTE COUNTER (12 BIT)	R4
PAGE COUNTER (12 BIT)	R5
RAM DATA (13 BIT)	R6
COLUMN COUNTER	CHAR. BUFFER
CHECKSUM	LPT DATA
	R8

REVISIONS		
CHK	CHANGE NO.	REV
	LP20-0003	A

**digital** DATE: 12-11-77  
 TITLE: LP20 CONTROLLER BLOCK DIAGRAM  
 PART NO.: 8-DD-LP20-0  
 FIRST USED ON OPTION/MODEL: LP20  
 SIZE CODE: D BD  
 NUMBER: LP20-0-6  
 REV.: A

NOTES:

- IF THE LP20 CONTROL BOARD, M8586 IN SLOT 1AF02 IS AT REVISION B, IT IS NECESSARY TO CUT OUT W3 TO REMOVE LPDS TABOVER CLK H FROM THE M8586 MODULE AS IT IS NOT USED ON REVISION B OF THAT MODULE.

**CAUTION!**

IF W3 IS NOT REMOVED WHEN A REV B M8586 MODULE IS INSTALLED, DAMAGE TO THE M8587 LP20 DATA PATHS MODULE MAY RESULT AND THE CONTROLLER WILL NOT PERFORM DATA CORRECTLY.

- ALL PRINTERS EXCEPT THE LA180 USE DIFFERENTIALLY DRIVEN DATA AND CONTROL LINES. THE LA180 LINES ARE SINGLE-ENDED CIRCUITS. (LA180 SUPPORTED BY M8571 ONLY!!)

THE PRINTER CABLE IS CONFIGURED FOR A SPECIFIC PRINTER BY THE PROPER INSERTION OF THREE (3) JUMPER PLUGS INTO THREE (3) OF THE SIX (6) DIP SITES, E9-E12, E26, E27. ONLY THREE DIP SITES HAVE JUMPER PLUGS INSTALLED AT ANY TIME. (M8571 ONLY)

A JUMPER PLUG CONSISTS OF EIGHT (8) JUMPERS IN A PLASTIC DIP HEADER. (M8571 ONLY!!)

IF THE JUMPER PLUGS ARE INSTALLED INCORRECTLY, THE LED NEAR THE PRINTER CABLE WILL ILLUMINATE AND THE CONTROLLER ERROR FLAG (BIT 15 OF LPTCSR) WILL BE UNCLEARABLE. THE SOLUTION IS TO CONFIGURE THE JUMPER PLUGS CORRECTLY. (M8571 ONLY)

- THE M8571 AND M8587 REVISION C ARE INTERCHANGABLE SPARES FOR APPLICATIONS OTHER THAN THE LA180.

THE LA180 REQUIRES THE M8571 AS THE DATA PATHS MODULE.

- WHEN REPLACING THE M8587 REVISION C WITH THE M8571, CONFIGURE THE M8571 SWITCHES EQUIVALENTLY TO THE CURRENT CONFIGURATION OF THE M8587 JUMPERS PER THE TABLE BELOW:

**JUMPER EQUIVALENTS**

M8587 REV C OR LATER	M8571
W1 IN	S1-1 ON
W1 OUT	S1-1 OFF
W2 IN	S1-2 ON
W2 OUT	S1-2 OFF
W3 IN	S1-3 ON
W3 OUT	S1-3 OFF
NONE	S1-4 ON
NONE	S1-4 OFF

- TABLE ENTRY MEANINGS ARE:

X = DON'T CARE  
 ON = DIPSWITCH SECTION "ON"  
 OFF = DIPSWITCH SECTION "OFF"  
 IN = JUMPER PLUG INSTALLED IN THIS DIPSITE  
 OUT = NO JUMPER PLUG INSTALLED IN THIS DIPSITE  
 ALL# = UNITS WITH DAVFU & LONG LINE LONG LINE INTERFACE ONLY  
 ALL# = LP18-JA,JB,JC,JD,KA,KB,KC,KD ONLY

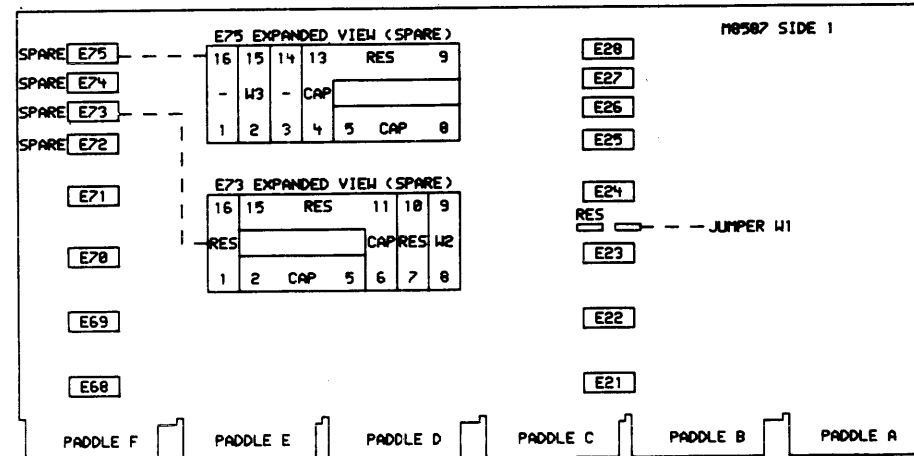
- USE OF THE M8571 DATA PATHS MODULE REQUIRES THAT THE M8586 CONTROL MODULE AND BACKPLANE (70-11427 ASSY) BOTH BE AT REVISION C OR LATER.

THE M8587 HAS BEEN REPLACED BY THE M8571

M8587  
 JUMPER CONFIGURATION  
 (LP20 DATA PATH)

M8587 JUMPER (NOTE 4) (FIGURE 1)	M8571 DIPSWITCH S1 EQUIVALENT	PRINT LOC/NAME	FUNCTIONAL CONFIGURATION	PRINTER IN USE (NOTE 5)			
				LP05 (ALL#)	LP06 (ALL#)	LP07 (ALL#)	LP18 (ALL#)
W1	S1-1	LPD6/LPT PARITY	SWITCH ON ALLOWS A PARITY ERROR FROM THE PRINTER IN USE TO GENERATE AN ERROR IN THE LP20. PARITY IS ALWAYS ENABLED WHEN THE PRINTER IN USE IS AN LA180.	OFF	OFF	ON	ON
W2	S1-2	LPD6/VERT FORMAT	SWITCH ON IMPLYS A DAVFU IS INSTALLED IN THE PRINTER IN USE. SWITCH OFF IMPLYS A PAPER TAPE VFU IS INSTALLED IN THE PRINTER IN USE.	ON	ON	ON	OFF
W3	S1-3	LPD5/M8586 REV B	SWITCH MUST BE OFF IF THE LP20 CONTROL BOARD, M8586 IS AT REV B. SWITCH MUST BE ON FOR M8586 REV. C OR LATER.	NOTE 1	NOTE 1	NOTE 1	NOTE 1
NONE	S1-4	LPD1/LA180 DAT PAR	SWITCH OFF CAUSES LPT DATA PARITY BIT TO BE SENT AS LPT DAT00. PARITY IS GENERATED ON THE LOW-ORDER SEVEN BITS ONLY. (LA180 ONLY) SWITCH ON SENDS PARITY BIT GENERATED AS LPT PARITY AND GENERATES PARITY ON ALL EIGHT BITS. (LA180 ONLY)	X	X	X	X
M8587 DIP LOC.	M8571 DIP LOC.	M8571 ONLY! PRINT LOC/NAME	FUNCTIONAL CONFIGURATION (NOTE 2)				
NONE	E9	LPD7/JUMPER SOCKET 1	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E9 FOR PRINTERS OTHER THAN THE LA180.	IN	IN	IN	IN
NONE	E10	LPD7/JUMPER SOCKET 2	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E10 FOR LA180 PRINTERS ONLY.	OUT	OUT	OUT	OUT
NONE	E11	LPD7/JUMPER SOCKET 3	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E11 FOR LA180 PRINTERS ONLY.	OUT	OUT	OUT	OUT
NONE	E12	LPD7/JUMPER SOCKET 4	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E12 FOR PRINTERS OTHER THAN THE LA180.	IN	IN	IN	IN
NONE	E26	LPD7/JUMPER SOCKET 5	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E26 FOR PRINTERS OTHER THAN THE LA180.	IN	IN	IN	IN
NONE	E27	LPD7/JUMPER SOCKET 6	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E27 FOR LA180 PRINTERS ONLY.	OUT	OUT	OUT	OUT
PERMISSIBLE SPARE DATA PATHS MODULES (NOTES 3,4,6)				M8587 OR M8571			

FIGURE 1



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REVISIONS		
CHK	CHANGE NO.	REV

digital  
 DATE 10-MAY-76  
 DATE 12-30-76  
 CHECKED  
 TITLE: LP20 DATA JUMPER NOTES  
 SIZE CODE D CS  
 NUMBER M8587-0-LPD0  
 REV. \*

NOTES:

1. IF THE LP20 CONTROL BOARD, M8586 IN SLOT 1AF86 IS AT REVISION B, IT IS NECESSARY TO TURN OFF S1-3 TO REMOVE LP20 TABOVER CLK H FROM THE M8586 MODULE AS IT IS NOT USED ON REVISION B OF THAT MODULE.

**CAUTION!**

IF S1-3 IS TURNED ON WITH A REV B M8586 MODULE INSTALLED, DAMAGE TO THE M8571 LP20 DATA PATHS MODULE MAY RESULT!

2. ALL PRINTERS EXCEPT THE LA100 USE DIFFERENTIALLY DRIVEN DATA AND CONTROL LINES. THE LA100 LINES ARE SINGLE-ENDED CIRCUITS.

THE PRINTER CABLE IS CONFIGURED FOR A SPECIFIC PRINTER BY THE PROPER INSERTION OF THREE (3) JUMPER PLUGS INTO THREE (3) OF THE SIX (6) DIP SITES, E9-E12, E26, E27. ONLY THREE DIP SITES HAVE JUMPER PLUGS INSTALLED AT ANY TIME.

A JUMPER PLUG CONSISTS OF EIGHT (8) JUMPERS IN A PLASTIC DIP HEADER.

IF THE JUMPER PLUGS ARE INSTALLED INCORRECTLY, THE LED NEAR THE PRINTER CABLE WILL ILLUMINATE AND THE CONTROLLER ERROR FLAG (BIT 15 OF LPC80A) WILL BE UNCLEARABLE. THE SOLUTION IS TO CONFIGURE THE JUMPER PLUGS CORRECTLY.

3. THE M8571 AND M8587 REVISION C ARE INTERCHANGABLE SPARES FOR APPLICATIONS OTHER THAN THE LA100.

THE LA100 REQUIRES THE M8571 AS THE DATA PATHS MODULE.

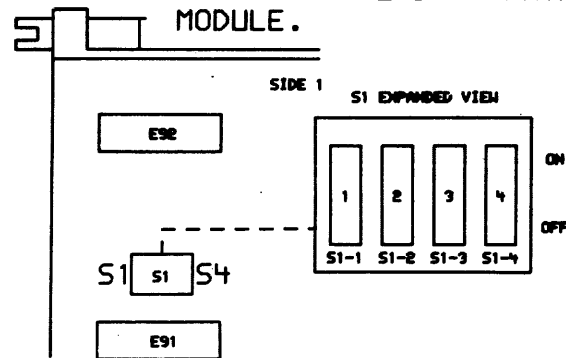


FIGURE 1

4. WHEN REPLACING THE M8587 REVISION C WITH THE M8571, CONFIGURE THE M8571 SWITCHES EQUIVALENTLY TO THE CURRENT CONFIGURATION OF THE M8587 JUMPERS PER THE TABLE BELOW:

JUMPER EQUIVALENTS	
M8587 REV C OR LATER	M8571
M1 IN	S1-1 ON
M1 OUT	S1-1 OFF
M2 IN	S1-2 ON
M2 OUT	S1-2 OFF
M3 IN	S1-3 ON
M3 OUT	S1-3 OFF
NONE	S1-4 ON
NONE	S1-4 OFF

5. TABLE ENTRY MEANINGS ARE:

- X = DON'T CARE
- ON = DIPSWITCH SECTION "ON"
- OFF = DIPSWITCH SECTION "OFF"
- IN = JUMPER PLUG INSTALLED IN THIS DIPSITE
- OUT = NO JUMPER PLUG INSTALLED IN THIS DIPSITE
- ALL = UNITS WITH DAWFU & LONG LINE INTERFACE ONLY
- ALL8 = LP10-JA, JB, JC, JD, JA, JB, JC, JD ONLY

6. USE OF THE M8571 DATA PATHS MODULE REQUIRES THAT THE M8586 CONTROL MODULE AND BACKPLANE (70-11427 ASSY) BOTH BE AT REVISION C OR LATER.

7. **CAUTION!!**

THE LA100 DRIVEN BY THE LP20 IS NOT CURRENTLY SUPPORTED AS A STANDARD PRODUCT.

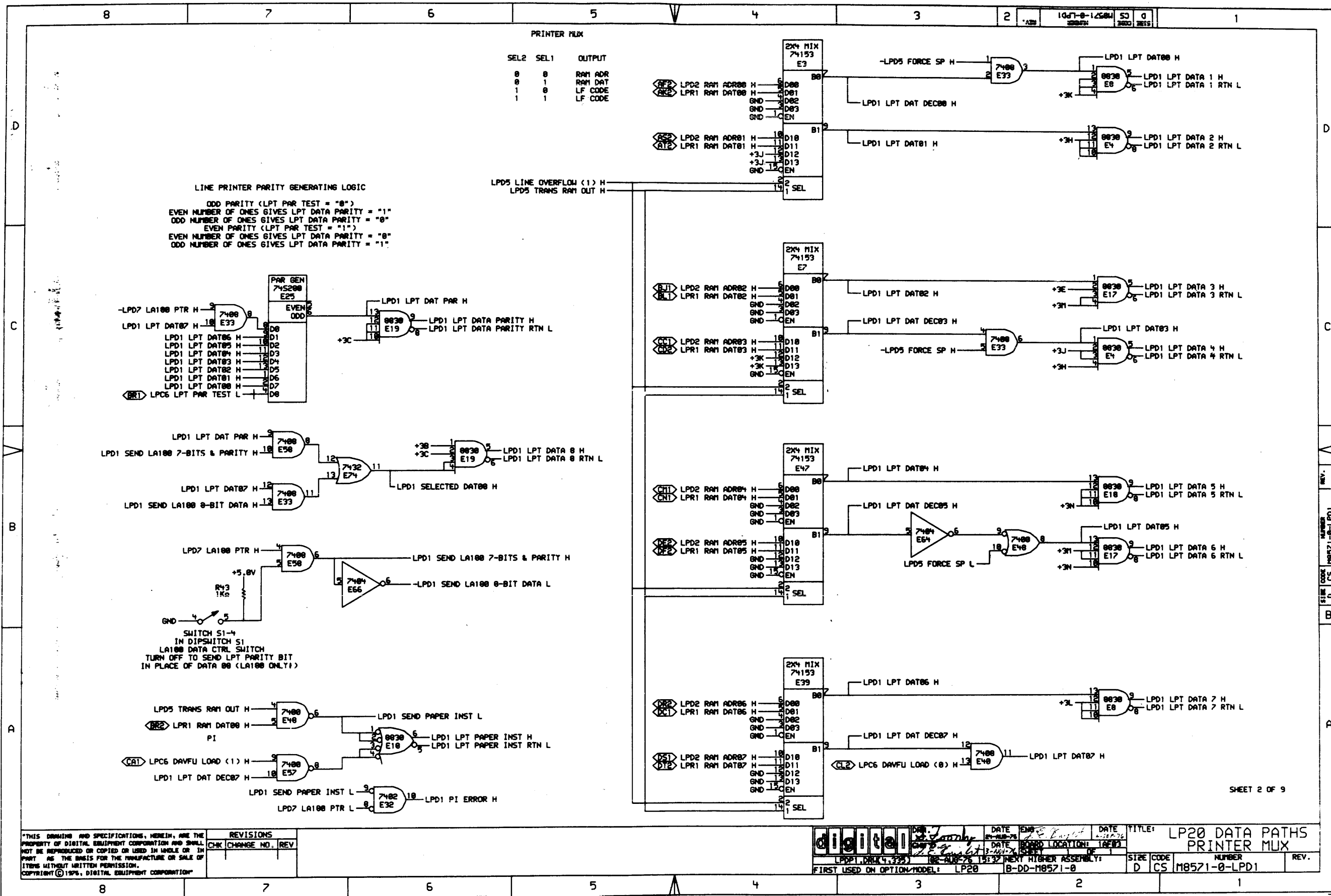
M8571  
SWITCH AND JUMPER PLUG CONFIGURATION  
(LP20 DATA PATH)

M8587 EQUIVALENT (NOTE 4)	M8571 DIPSWITCH S1 (FIGURE 1)	PRINT LOC/NAME	FUNCTIONAL CONFIGURATION	PRINTER IN USE (NOTE 5)					
				LP25 (ALL)	LP26 (ALL)	LP27 (ALL)	LP10 (ALL)	LA100 7-BIT	LA100 8-BIT
M1	S1-1	LP26/LPT PARITY	SWITCH ON ALLOWS A PARITY ERROR FROM THE PRINTER IN USE TO GENERATE AN ERROR IN THE LP20. PARITY IS ALWAYS ENABLED WHEN THE PRINTER IN USE IS AN LA100.	OFF	OFF	ON	ON	X	X
M2	S1-2	LP26/VERT FORMAT	SWITCH ON IMPLIES A DAWFU IS INSTALLED IN THE PRINTER IN USE. SWITCH OFF IMPLIES A PAPER TAPE VFI IS INSTALLED IN THE PRINTER IN USE.	ON	ON	ON	OFF	OFF	OFF
M3	S1-3	LP25/M8586 REV B	SWITCH MUST BE OFF IF THE LP20 CONTROL BOARD, M8586 IS AT REV B. SWITCH MUST BE ON FOR M8586 REV. C OR LATER.	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1	NOTE 1
NONE	S1-4	LP21/LA100 DAT PAR	SWITCH OFF CAUSES LPT DATA PARITY BIT TO BE SENT AS LPT DATA. PARITY IS GENERATED ON THE LOW-ORDER SEVEN BITS ONLY. (LA100 ONLY) SWITCH ON SENDS PARITY BIT GENERATED AS LPT PARITY AND GENERATES PARITY ON ALL EIGHT BITS.	X	X	X	X	ON	OFF
	DIP LOC.	PRINT LOC/NAME	FUNCTIONAL CONFIGURATION (NOTE 2)						
NONE	E9	LP27/JUMPER SOCKET 1	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E9 FOR PRINTERS OTHER THAN THE LA100.	IN	IN	IN	IN	OUT	OUT
NONE	E10	LP27/JUMPER SOCKET 2	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E10 FOR LA100 PRINTERS ONLY.	OUT	OUT	OUT	OUT	IN	IN
NONE	E11	LP27/JUMPER SOCKET 3	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E11 FOR LA100 PRINTERS ONLY.	OUT	OUT	OUT	OUT	IN	IN
NONE	E12	LP27/JUMPER SOCKET 4	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E12 FOR PRINTERS OTHER THAN THE LA100.	IN	IN	IN	IN	OUT	OUT
NONE	E26	LP27/JUMPER SOCKET 5	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E26 FOR PRINTERS OTHER THAN THE LA100.	IN	IN	IN	IN	OUT	OUT
NONE	E27	LP27/JUMPER SOCKET 6	A PRINTER CABLE CONFIGURATION JUMPER PLUG IS INSTALLED IN E27 FOR LA100 PRINTERS ONLY.	OUT	OUT	OUT	OUT	IN	IN
PERMISSIBLE SPARE DATA PATHS MODULES (NOTES 3,4,6)				M8587 OR M8571			M8571 ONLY!		

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REV. NO.	DATE	BY	CHK'D.
1	12-22-77	E. BLOOM	

digital	DATE ENG.	DATE	TITLE
	12-22-77	12-22-77	LP20 DATA PATHS SWITCH NOTES
DATE	DATE	DATE	DATE
12-22-77	12-22-77	12-22-77	12-22-77
FIRST USED ON OPTION/MODEL	NEXT HIGHER ASSEMBLY	SIZE CODE	NUMBER
LP20	B-DD-M8571-0	D CS	M8571-0-LPD0
			REV. B



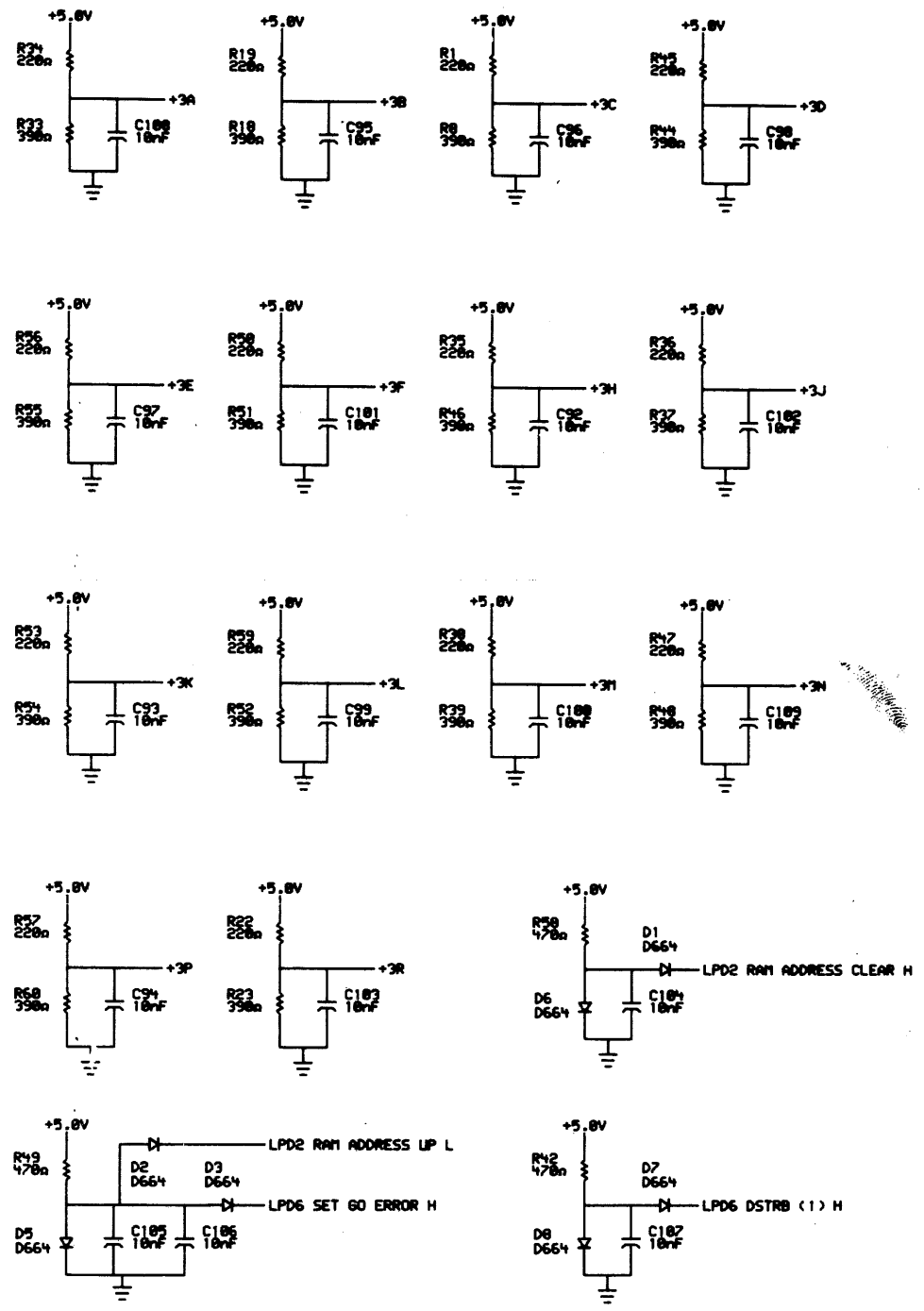
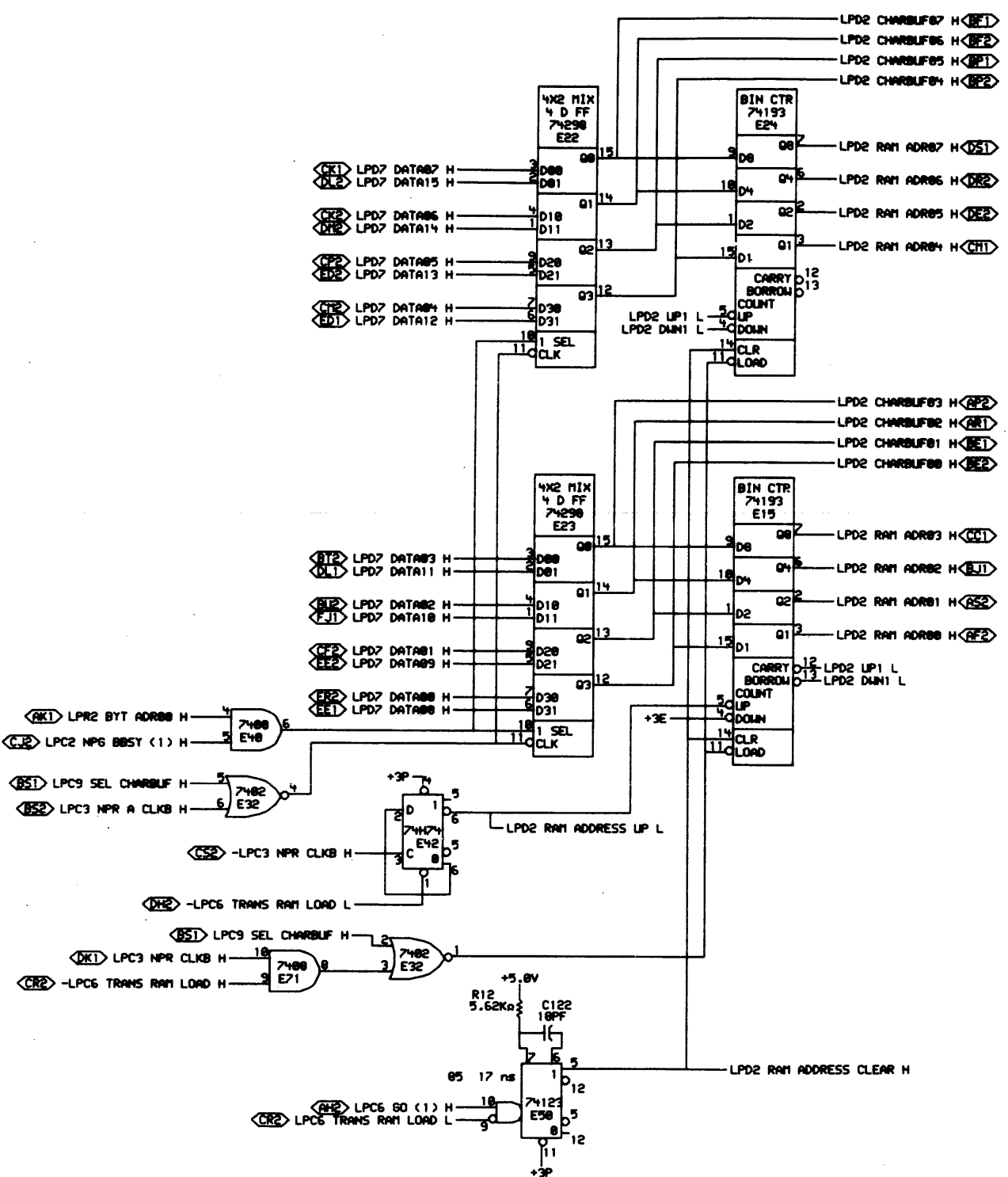
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REVISIONS		
CHK	CHANGE NO.	REV.

<b>digital</b>	DATE ENG	DATE	TITLE: LP20 DATA PATHS PRINTER MUX
	DATE BOARD LOCATION	DATE	NUMBER
FIRST USED ON OPTION/MODEL: LP20	B-DD-M8571-0	SIZE CODE	D CS

SHEET 2 OF 9

UPPER/LOWER BYTE MUX RAM ADDRESS REGISTER

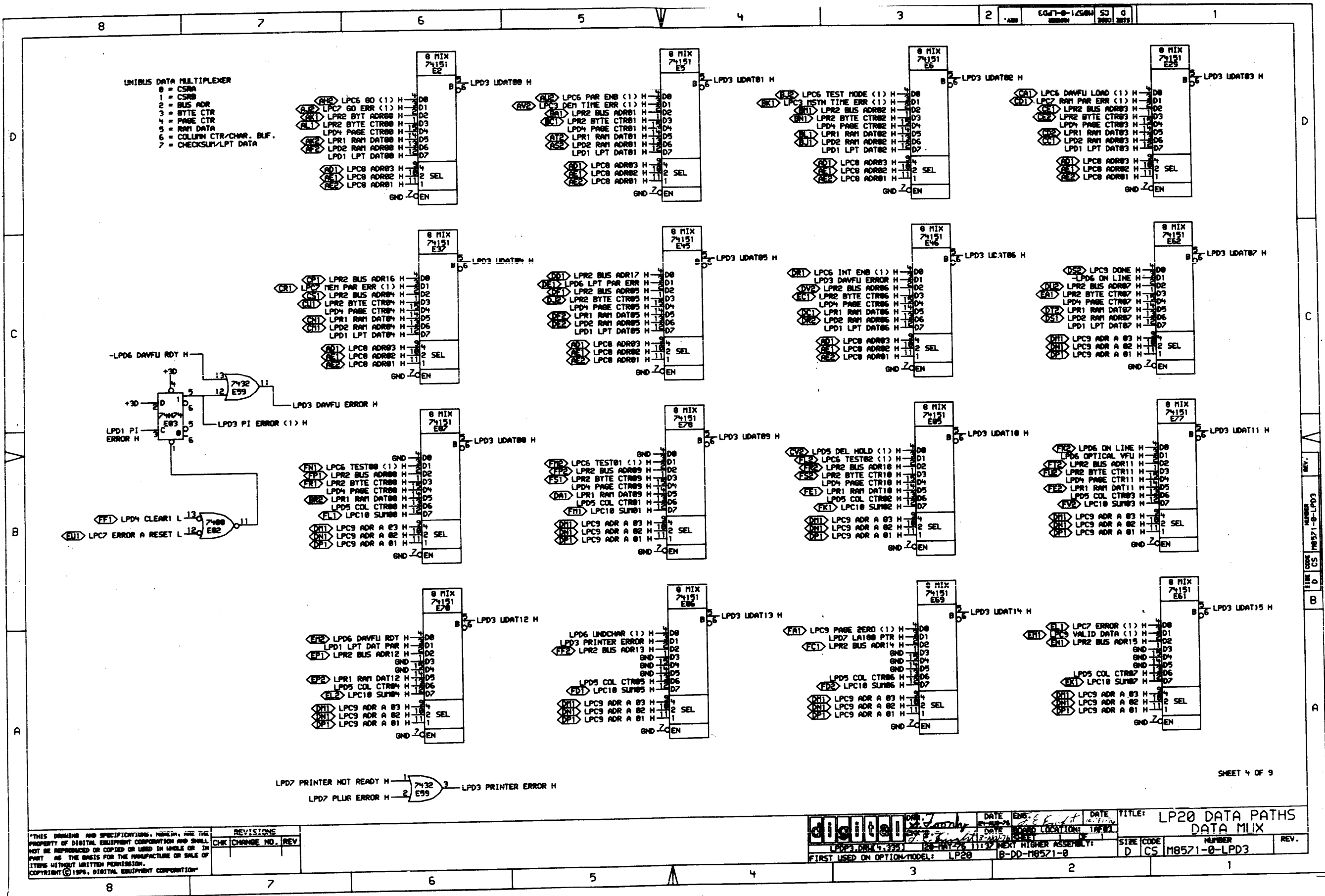


SHEET 3 OF 9

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REVISIONS		
CHK	CHANGE NO.	REV

**digital** DATE: 12-22-76 ENG: J.E. Enright DATE: 12-22-76 TITLE: LP20 DATA PATHS RAM ADDRESS  
 LP20, DML (4, 3, 3, 3) 18-00-76 18-00-76 18-00-76 18-00-76  
 FIRST USED ON OPTION/MODEL: LP20 18-DD-M8571-0 SIZE CODE NUMBER REV.  
 D CS M8571-0-LPD2



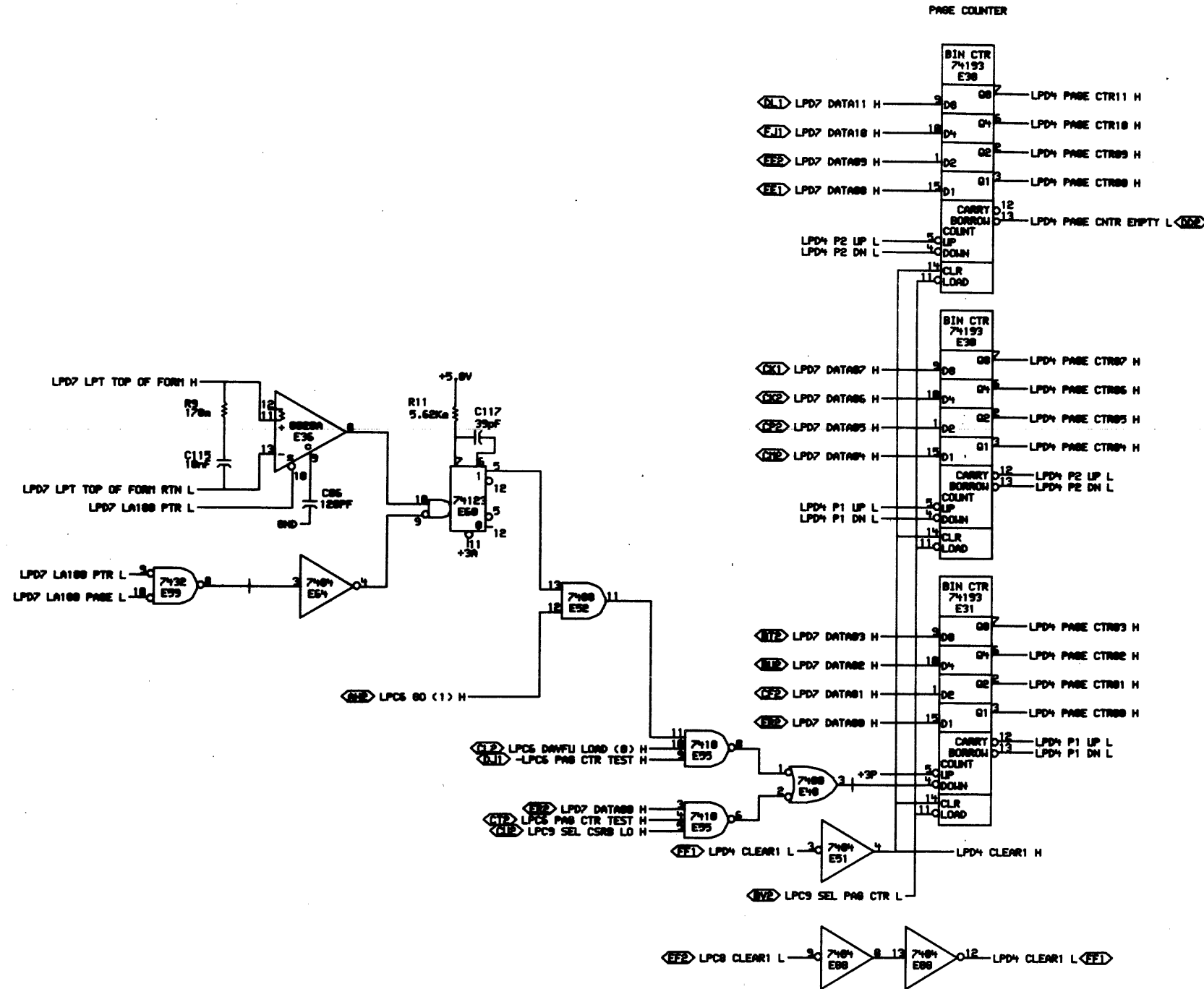
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REVISIONS	
CHK	CHANGE NO. REV.

<b>digital</b>	DATE: 12-11-76	ENG: E. E. H.	DATE: 12-11-76	TITLE: LP20 DATA PATHS DATA MUX
	DATE: 12-11-76	DATE: 12-11-76	DATE: 12-11-76	DATE: 12-11-76
FIRST USED ON OPTION/MODEL: LP20				NUMBER: B-DD-M8571-0
SHEET CODE: D CS			NUMBER: M8571-0-LPD3	REV.: 1

REV. SHEET CODE CS M8571-0-LPD3

D  
C  
B  
A

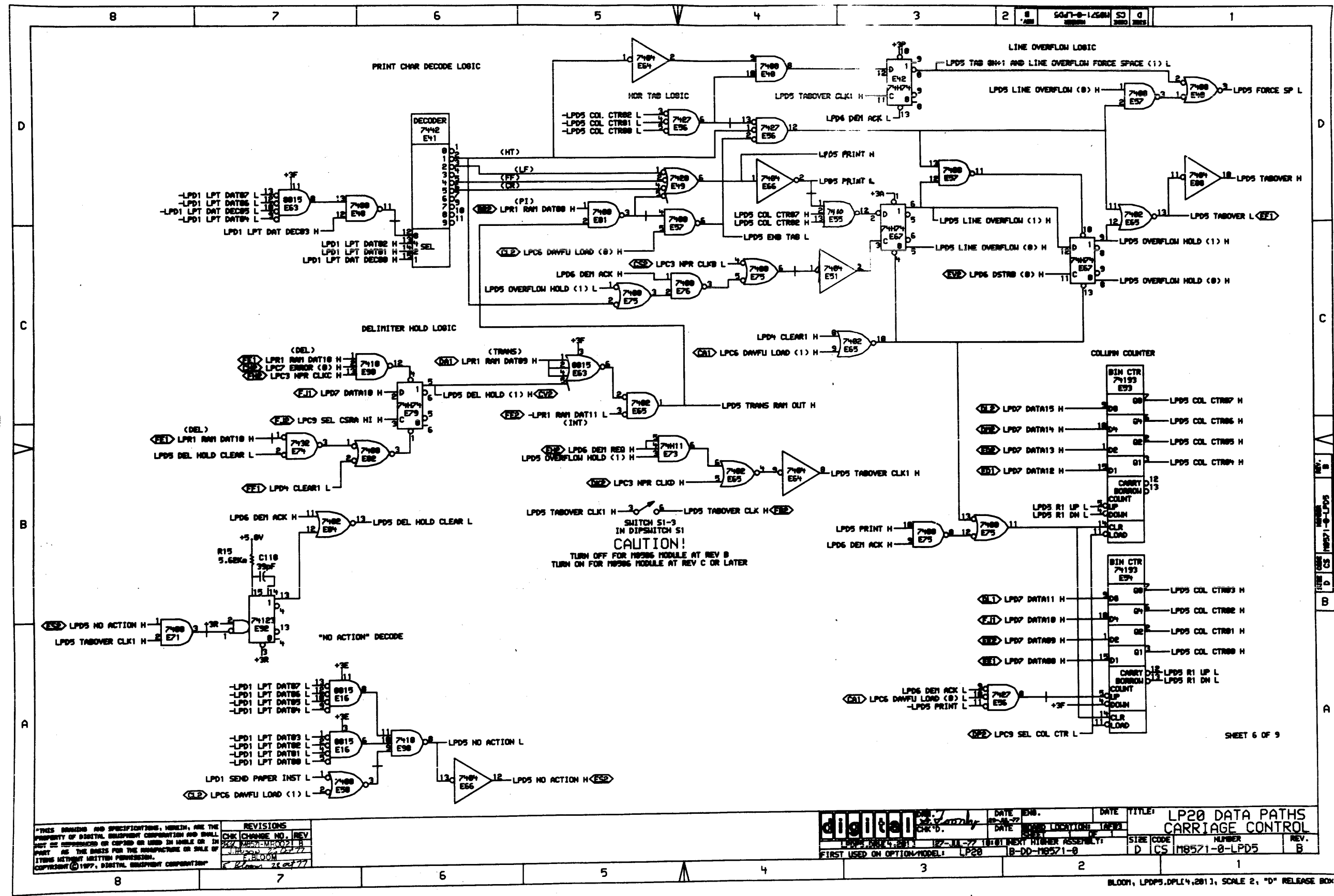


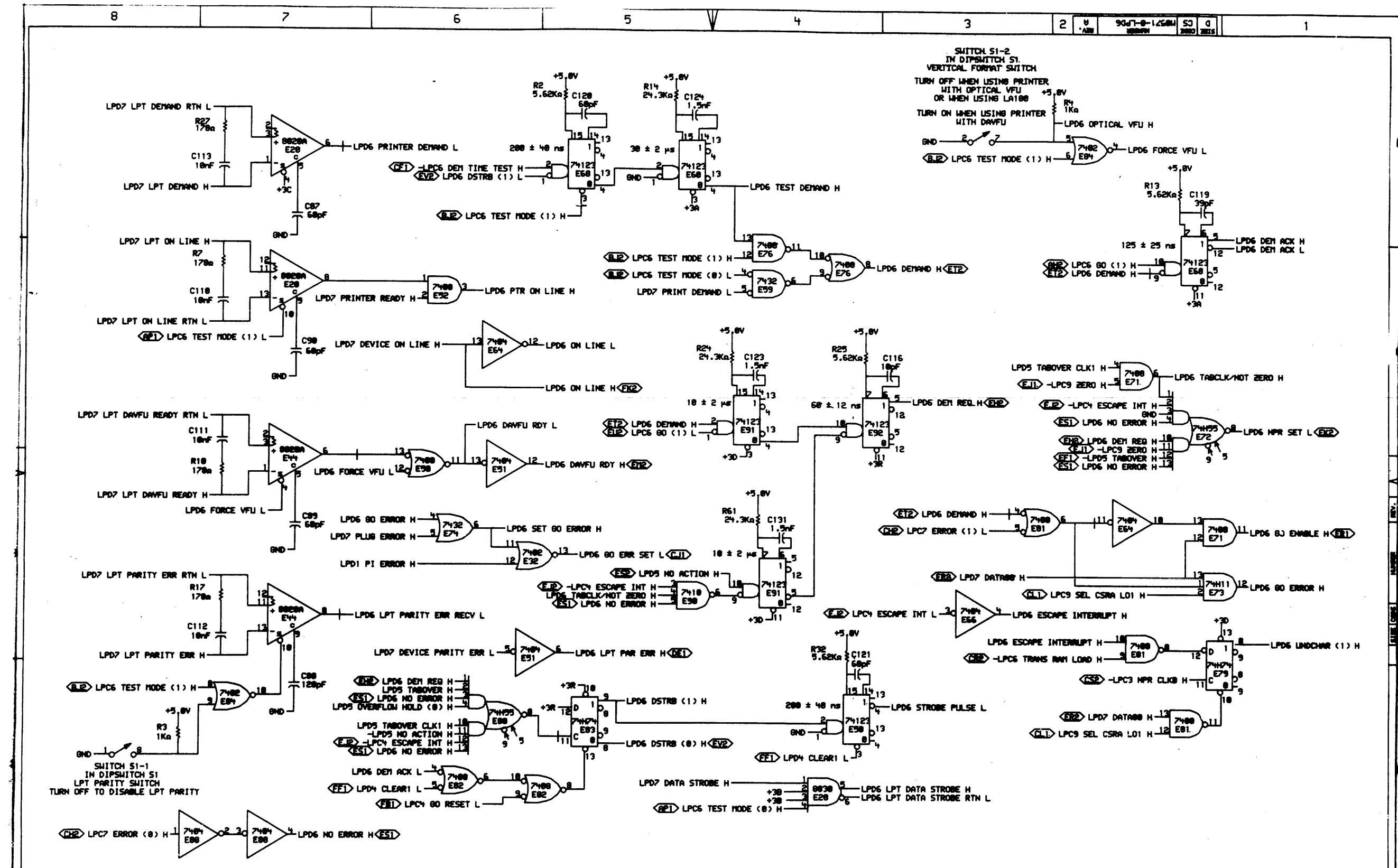
SHEET 5 OF 9

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REV	CHG	NO.	REV
1		1	A
2		1	A
3		1	A
4		1	A

	DATE	1977-11-27	DATE	1977-11-27	TITLE	LP20 DATA PATHS PAGE COUNTER
	DATE	1977-11-27	DATE	1977-11-27	NUMBER	1
					SIZE CODE	D CS
					NUMBER	M0571-0-LPD4
					REV.	A





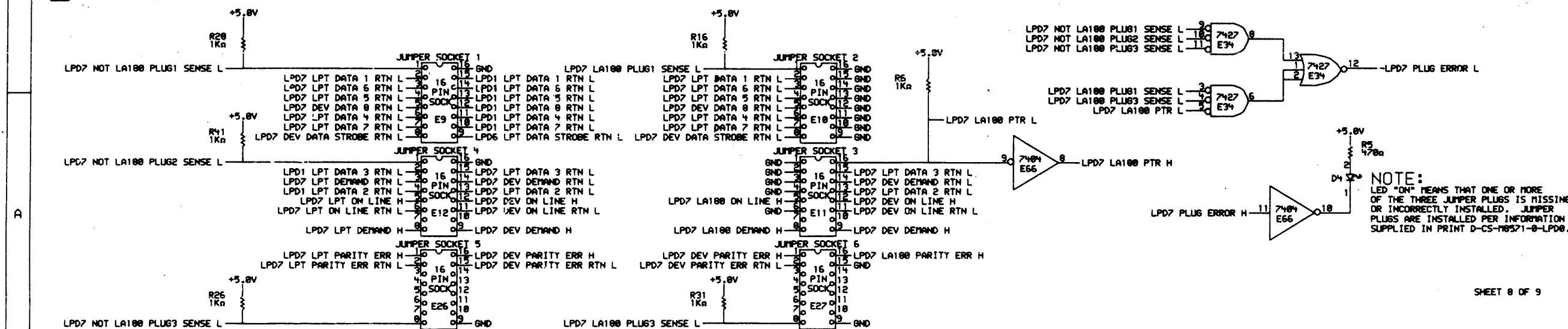
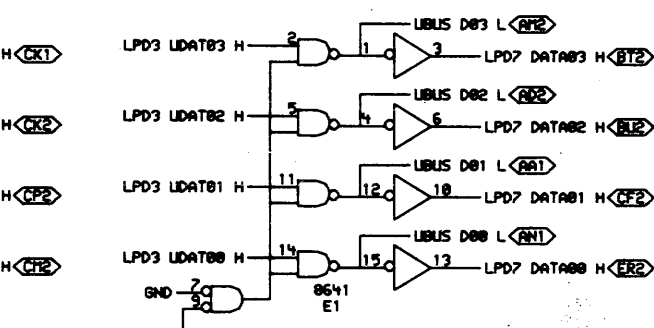
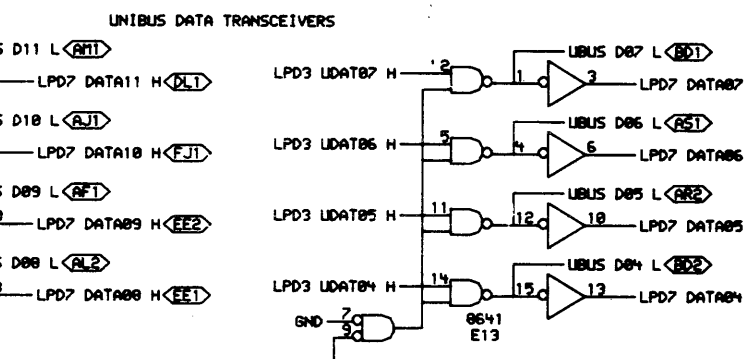
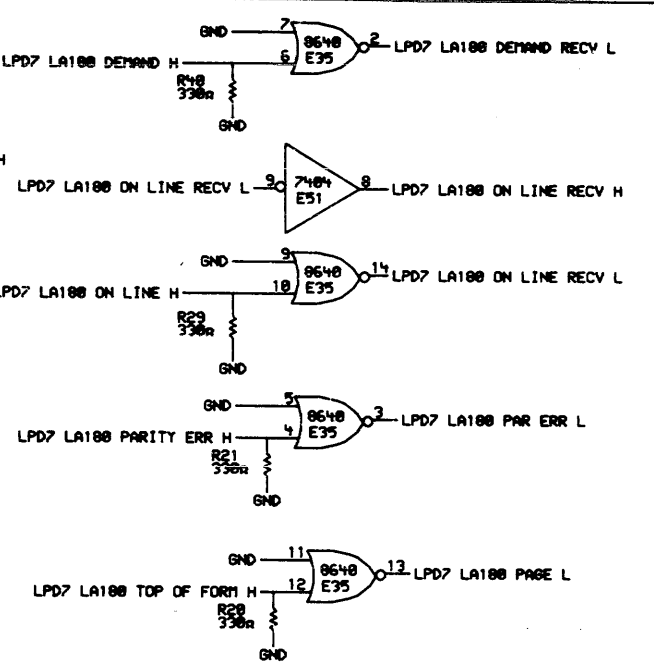
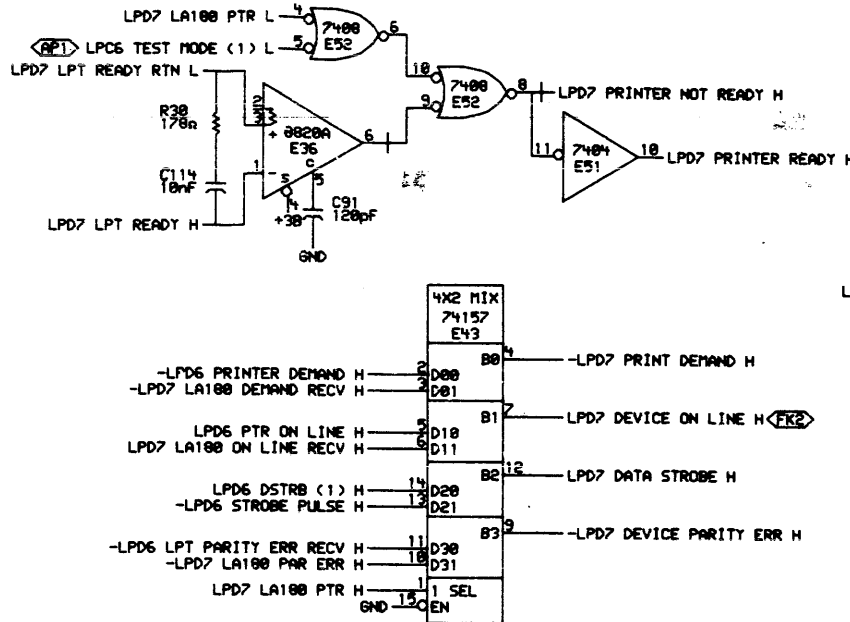
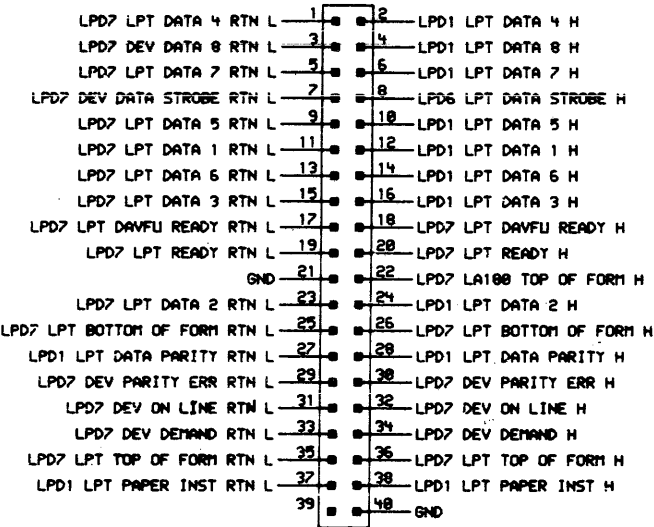
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REVISIONS	
CHK	CHANGE NO. / REV
2	1/8/78 / A
1	1/10/78 / A

<b>digital</b>		DATE: 12-19-78	ENG: J. BLOOM	DATE: 12-19-78	TITLE: LP20 DATA PATHS LPT INTERFACE
FIRST USED ON OPTION MODEL: LP20		NEXT HIGHER ASSEMBLY: B-DD-M8571-0		SIZE: D	CODE: CS
				NUMBER: M8571-0-LPD6	REV: A

NOTE: BERG CABLE (MODULE END)  
 INSERT BC06R-XX CABLE INTO J1 WITH RIBBED SIDE OF CABLE TOWARD MODULE AND RED STRIPE AWAY FROM MODULE HANDLE (TOWARD MODULE FINGERS).

NOTE: BERG CABLE (RECEPTACLE HOUSING ASSEMBLY END)  
 INSERT BC06R-XX CABLE INTO RECEPTACLE HOUSING ASSEMBLY IN THE CENTER CONTACT SET WITH THE RED STRIPE TOWARD THE LOCKING TAB OF THE HOUSING (AWAY FROM STRAIN RELIEF END AND TOWARD THE CAT SHAFT END OF THE MATING CONNECTOR).



NOTE:  
 LED "ON" MEANS THAT ONE OR MORE OF THE THREE JUMPER PLUGS IS MISSING OR INCORRECTLY INSTALLED. JUMPER PLUGS ARE INSTALLED PER INFORMATION SUPPLIED IN PRINT D-CS-18571-0-LPD0.

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REVISIONS		
CHK	CHANGE NO.	REV

digital

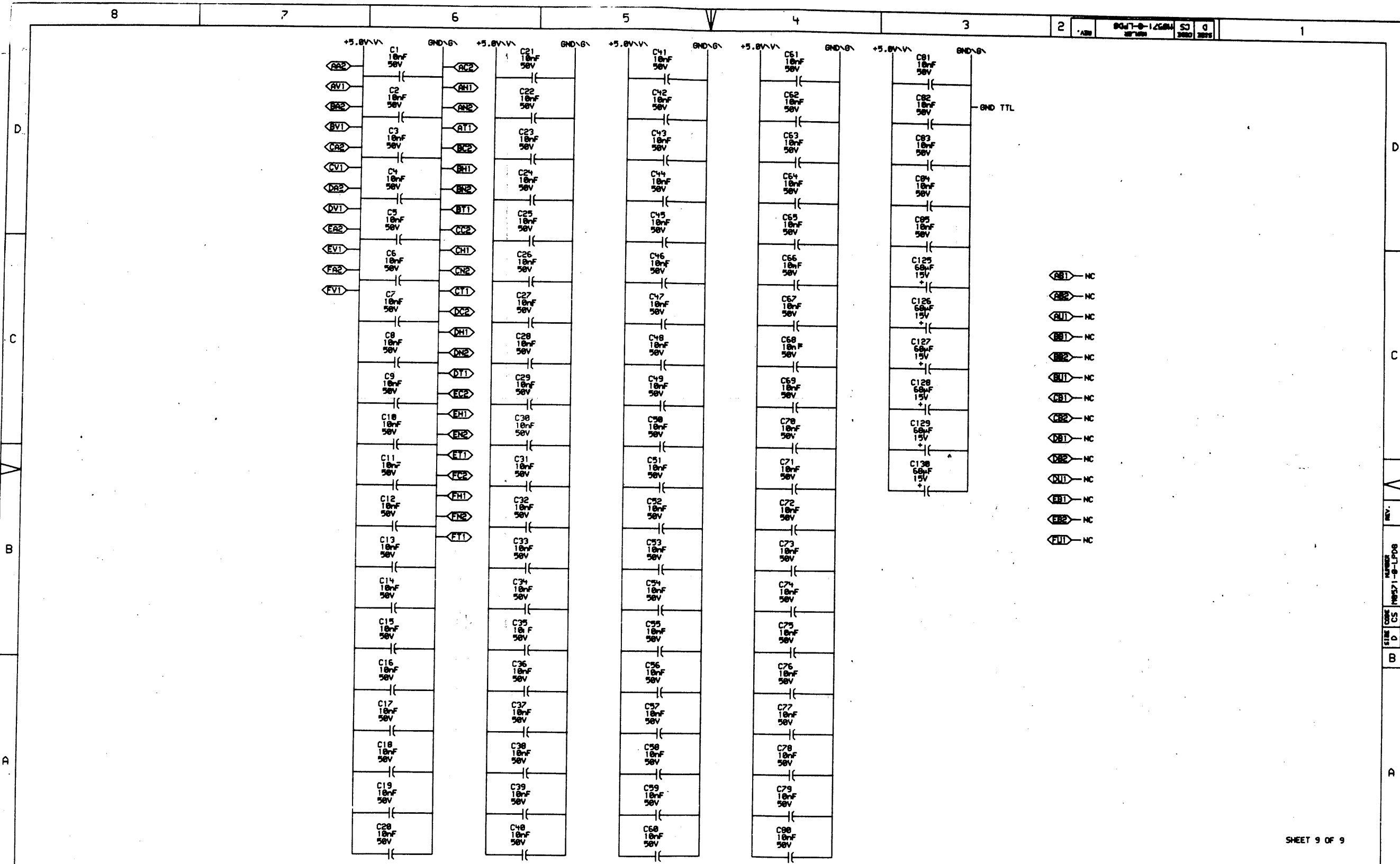
DATE: 10-11-76  
 DATE: 10-11-76  
 DATE: 10-11-76

TITLE: LP20 DATA PATHS  
 UBUS & LPT CABLE

LP20.DRW (4.335) 10-SEP-76 11:03 NEXT HIGHER ASSEMBLY: 8-DD-18571-0

FIRST USED ON OPTION/MODEL: LP20

SIZE CODE: D CS NUMBER: M8571-0-LPD7 REV.



- (A1) NC
- (A2) NC
- (A11) NC
- (B1) NC
- (B2) NC
- (B11) NC
- (C1) NC
- (C2) NC
- (C11) NC
- (D1) NC
- (D2) NC
- (D11) NC
- (E1) NC
- (E2) NC
- (E11) NC

SHEET 9 OF 9

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REVISIONS	
CHG	NO. REV

**digital** *DATE 11-20-76* *ENG J. J. [unclear]* *DATE 10-28-76* *LOC 18B21*

LP20 DATA PATHS POWER PINS

FIRST USED ON OPTION/MODEL: LP20 B-DD-M8571-0

SIZE	CODE	NUMBER	REV.
D	CS	M8571-0-LPD8	

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**NOTES:**

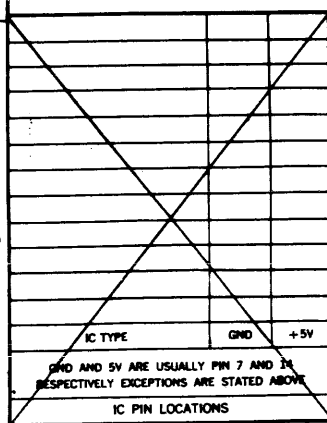
- FOR DRAWING DIRECTORY, REFER TO: 8-DD-M8571-9
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBER APPLY:  

PACKAGE TYPE	VCC	GND
16 PIN DIP	16	8
14 PIN DIP	14	7
I.C. DEC 0640	8	1
- SPARE LOCATIONS ARE: E89
- SOLDER DIPSWITCH S1 (P/N I211164) WITH ALL SWITCHES IN OFF POSITION

**REWORK INSTRUCTIONS**

**ECO #2**  
 ETCH CUTS SIDE 1 AS SHOWN:  
 2-1. ETCH RUNNING BETWEEN E59-8 AND E60-9  
 WIRE ADDS SIDE 1 AS SHOWN (9105740-55).  
 2-2 FROM E59-8 TO E64-3  
 2-3 FROM E64-4 TO E60-9

**ECO #3**  
 ETCH CUTS SIDE 1 AS SHOWN  
 3-1 CUT ETCH AT E92-9  
 3-2 CUT ETCH AT E72-3  
 ETCH CUT SIDE 2 AS SHOWN  
 3-3 CUT 2ND ETCH ABOVE E66-2  
 COMPONENT ADDS SIDE 1 AS SHOWN  
 3-4 ADD RESISTOR R61 FROM E89-12 (SPARE) TO E89-16 (SPARE) (PN1309418)  
 3-5 ADD CAPACITOR C131 FROM E89-1 (SPARE) TO E89-5 (SPARE) (PN 1002428)  
 WIRE ADDS SIDES 1 AS SHOWN (PN 9105740-55)  
 3-6 FROM E80-12 TO E90-3  
 3-7 FROM E80-4 TO E90-5  
 3-8 FROM E71-1 TO E66-12  
 3-9 FROM E66-12 TO E91-10  
 3-10 FROM E91-7 TO E89-12 (SPARE)  
 3-11 FROM E89-12 (SPARE) TO E89-5 (SPARE)  
 3-12 FROM E91-6 TO E89-1 (SPARE)  
 3-13 FROM E90-6 TO E91-9  
 3-14 FROM E91-5 TO E92-9  
 3-15 FROM E72-3 TO E72-7  
 3-16 FROM E72-1 TO E90-4  
 3-17 FROM E91-3 TO E91-11



QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.	QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	E73	I.C. DEC 74H11	1908287	49	1		ETCHED CIRCUIT BOARD	5012278	1
1		HANDLE ASSY	1210711-02	50	109	C1 THRU C85, C92 THRU C115	CAP. 10nf 50V 20%	1001610-00	2
12		EVELET	9008732	51	3	C86, C98, C91	CAP. 120pf 100V 5%	1000018	3
		JUMPER	9008483-00	52	5	C87, C89, C90, C120, C121	CAP. 68pf 100V 5%	1000014	4
A/R		WIRE, SOLID #30 AWG (GRN)	9105740-55	53	1	C116	CAP. 10pf 100V 5%	1000006	5
					3	C117 THRU C119	CAP. 39pf 100V 5%	1000010	6
					1	C122	CAP. 19pf 100V 5%	1002608	7
					3	C123, C124, C131	CAP. 1500nf 100V 5%	1002426	8
					8	C125 THRU C130	CAP. 80uf 15V 10%	1000082	9
					7	D1, D2, D3, D5 THRU D8	DIODE D884	1100114	10
					1	D4	DIODE LED	1110324	11
					1	J1	CONN. 40 PIN	1209941-02	12
					1		LATCH, LEFT	1209941-03	13
					1		LATCH, RIGHT	1209941-04	14
					1	S1	SWITCH DIP 4 POS	1211184	15
					3	(E9, E12, E26)	PLUG JUMPER	1213263	16
					14	R1, R19, R22, R34, R35, R36, R38, R45, R47, R50, R53, R56, R57, R59	RES. 220 5% 1/4W	1300271	17
					7	R2, R11, R12, R13, R15, R25, R32	RES. 5.82K 1% 1/4W	1305128	18
					9	R3, R4, R6, R16, R26, R28, R31, R41, R43	RES. 1K 5% 1/4W	1300385	19
					4	R5, R42, R49, R50	RES. 470 5% 1/4W	1300316	20
					6	R7, R9, R10, R17, R27, R30	RES. 170 1% 1/4W	1311422	21
					14	R8, R18, R23, R33, R37, R39, R44, R46, R48, R51, R52, R54, R55, R60	RES. 300 5% 1/4W	1300309	22
					3	R14, R24, R61	RES. 24.3K 1% 1/4W	1308418	23
					4	R20, R21, R29, R40	RES. 330 5% 1/4W	1300295	24
					4	E1, E13, E14, E21	I.C. DEC 0641	1911579	25
					16	E2, E5, E6, E28, E37, E45, E48, E81, E82, E89, E70, E77, E78, E85, E86, E87	I.C. DEC 74151	1909936	26
					4	E3, E7, E38, E47	I.C. DEC 74153	1909937	27
					6	E4, E8, E17, E18, E19, E29	I.C. DEC 0630	1910787	28
					6	E9 THRU E12, E26, E27	I.C. SOCKET 16 PIN	1209939	29
					7	E15, E24, E30, E31, E36, E53, E54	I.C. DEC 74183	1910018	30
					2	E18, E83	I.C. DEC 0815	1909713	31
					3	E26, E36, E44	I.C. DEC 0928A	1910789	32
					2	E22, E23	I.C. DEC 74298	1911271	33
					1	E25	I.C. DEC 745200	1911573	34
					3	E32, E85, E84	I.C. DEC 7402	1909904	35
					6	E33, E48, E52, E58, E71, E82	I.C. DEC 7408	1910155	36
					2	E34, E56	I.C. DEC 7427	1910978	37
					1	E35	I.C. DEC 0640	1911469	38
					1	E41	I.C. DEC 7442	1910046	39
					4	E42, E87, E79, E83	I.C. DEC 74H74	1909987	40
					1	E43	I.C. DEC 74157	1910855	41
					5	E48, E57, E75, E76, E81	I.C. DEC 7400	1905575	42
					1	E49	I.C. DEC 7420	1905577	43
					5	E50, E80, E89, E91, E92	I.C. DEC 74123	1910436	44
					4	E51, E84, E88, E98	I.C. DEC 7484	1909896	45
					2	E55, E90	I.C. DEC 7410	1905578	46
					2	E58, E74	I.C. DEC 7432	1911521	47
					2	E72, E90	I.C. DEC 74H55	1909983	48

QTY. REF. DESIGNATION DESCRIPTION PART NO. ITEM NO.

FIRST USED ON OPTION MODEL: LP20

ETCH BOARD REV: [ ]

DATE: [ ]

DRW: [ ]

CHK: [ ]

REV: [ ]

SCALE: 2/1

SHEET 1 OF 6

SEMICONDUCTOR CONVERSION CHART

digital

TITLE: LP20 LINE PRINTER DATA PATH

NUMBER: B-DD-M8571-0

REV: C

SIZE CODE: DUA

DIST.:





