

MASTER DRAWING LIST

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DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-PL-DB11-A-0	D	1	DB11-A UA PL
D-AD-7009612-0-0	C	2	WIRED ASSY
A-WT-7009612-0	#	1	AWT REVISION STATUS
D-MU-DB11-A-01	C	1	MODULE UTILIZATION
A-PL-DB11-A-01	C	1	MODULE UTILIZATION PL
D-BUS-DB11-A-02	A	1	BUS REPEATER DB11 UNIDIR LINES
D-BUS-DB11-A-03	A	1	BUS REPEATER DATA LINES
D-IC-DB11-A-04	B	1	BUS AND POWER CONNECTIONS
D-BD-DB11-A-05	C	1	DB11 INTER CONNECTION DIAGRAM
K-WL-DB11-A-06	H	1	WIRE LIST (DB11-A) (COMPLETE)
A-SP-DB11-A-7	C	4	BUS REPEATER SPECIFICATION
A-AL-DB11-A-10		1	ACCESSORY LIST
E-IA-7009562-0-0	#	1	G772 SYS UNIT HARNESS
A-TP-DB11-A-8	REF	2	TEST PROCEDURE
A-SP-DB11-A-9	REF	2	IN HOUSE ACCEPTANCE TEST

REVISIONS				DRN. BISSONNETTE	DATE 2/23/71	<div style="font-size: 2em; font-weight: bold; margin: 0;">digital</div> <div style="margin: 0;">EQUIPMENT CORPORATION</div> <small>MAYNARD, MASSACHUSETTS</small>
REV.	DATE	CHG. NO.	APP'D.	CHK'D.	DATE	
A	5/71	DB11A-1	V. B.	MACKENZIE	3/3/71	
B	6/71	DB11A-2	V. B.	<i>V. Bastiani</i>	3/16/71	
C	9/71	DB11A-3	A. V.	<i>V. Bastiani</i>	3/16/71	
D	1/72	DB11A-4	V. B.	<i>V. Bastiani</i>	3/16/71	
E	6/72	DB11A-5	V. B.	<i>V. Bastiani</i>	3/16/71	
F	7-73	DB11A-6	V. B.	<i>V. Bastiani</i>	3/16/71	
G	10-73	DB11A-7	V. B.	<i>V. Bastiani</i>	3/16/71	
H	10-73	DB11A-8	T. R.			
J	12-73	DB11A-9	T. R.			
L	1-74	DB11A-10	V. B.			
M	1-74	DB11A-11	T. R.			
N	10-74	DB11A-12	V. P.			

TITLE	DB11-A BUS REPEATER
SIZE	A ML
CODE	DB11-A
NUMBER	R
SCALE	1 OF 2
SHEET	1 OF 2
DIST.	

DEC FORM NO. 16-1033
DN 4 103

ADDITIONAL CUSTOMER PRINTS DB11-A

Drawing Number	Rev. Let.	Title
D-CS-M7212-0-1	#	A LINE REPEATER
D-CS-M7213-0-1	#	MASTER REPEATER
B-CS-M783-0-1	#	UNIBUS DRIVERS
B-CS-M784-0-1	#	UNIBUS RECEIVERS
B-CS-M785-0-1	#	UNIBUS TRANCEIVERS
C-CS-M930-0-1	#	BUS TERMINATOR
D-CS-M7248-0-1	#	UNIBUS REPEATER CARD

BB11-A
UNIBUS Repeater

Rev.	Date	Change Number	Requested by	Date
1	11-73	DB11A-0003	<i>V. Bastiani</i>	2/23/71
2	2-75	DB11A 0004		

V. Bastiani Authorized by	Date _____ _____
------------------------------	------------------------

A-ML-DB11-A SHEET 2 OF 2 REV R

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY J. BISSONNETTE	CHECKED M. MACKENZIE	SECTION
DATE 2/13/71	DATE 2/3/71	1
DATE 3/1/71	PROD <i>Annex</i>	ISSUED SECT.
	DATE 3-25-71	1

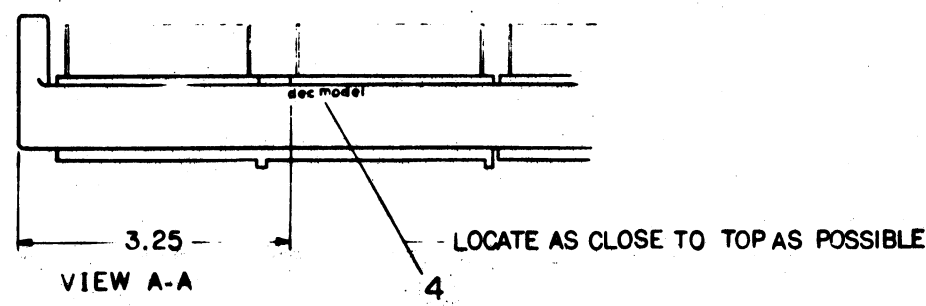
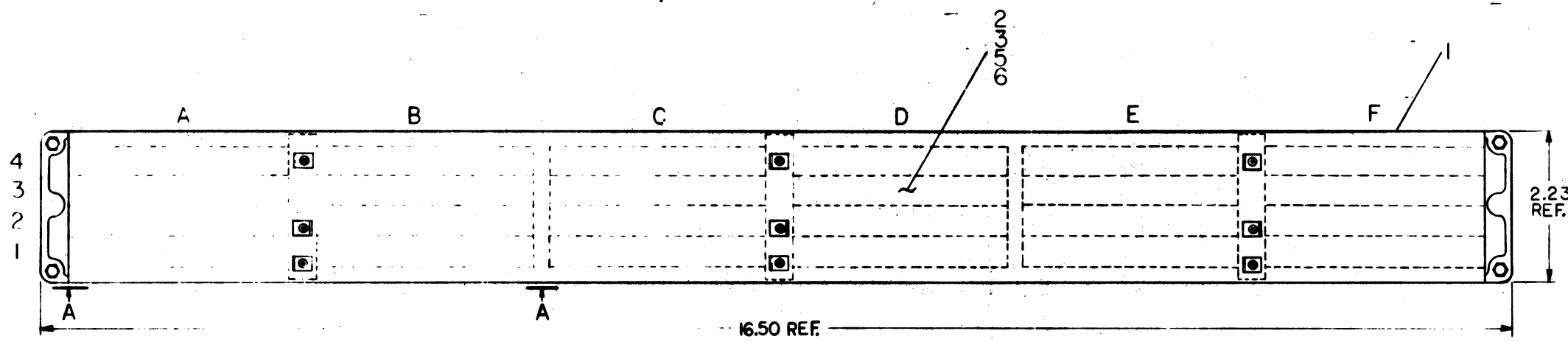
QUANTITY/VARIATION

ITEM NO	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION													
1	D-AD-7009612-0-0	WIRED ASSY	1													
2	A-PL-DB11-A-01	MODULE UTILIZATION	1													
3	A-PL-M920-0-0	INTERNAL BUS CONNECTOR M920	1													
4	E-1-7009562-0-0	G772 OPTION HARNESS *	1													
5	12 09856-01	MODULE HOLDER	1													
6	12-09856-02	MODULE HOLDER	1													
* NOTE: For 11/45-11/50 CPU's with serial no's less than 2000 use harness 7008855. For 11/35-11/40 CPU's with S/N less than 6000 or H960-D, E with S/N less than 7000 use harness 7008909.																

TITLE DB11-A BUS REPEATER	ASSY NO. A-ML-DB11-A	SIZE CODE A PL	NUMBER DB11-A-0	REV. D	ECO NO. DB11A-000013
	SHEET 1 OF 1	DIST.			

8 7 6 5 4 3 2 1

NOTES:
 1. ALL VERTICAL HAND WIRING TO RUN
 OUTSIDE OF CONNECTOR BLOCK



REF	AWT REVISION STATUS	A-WT APPROVAL	REF
1	WIRE LIST	KWLE MHA06	REF
A/R	WIRE 30AWG TWP BLK/WHT	91C7720-09	6
A/R	WIRE 24 AWG SOLID KYNARINS BLK	91G7688-05	5
A/R	LOGIC FRAME DECALS	A-D 7306-1710-0	4
A/R	WIRE 24 AWG SOLID KYNARINS RED	91C7688-22	3
A/R	WIRE 30AWG SOLID KYNARINS YEL	91 5740-44	2
1	BACK PLANE ASSY	3009152	1

REV	DESCRIPTION	DATE	BY
1	DBIIA-0000	12-17-74	REILLY
2	DBIIA-0001	1-1-75	REILLY
3	DBIIA-0002	1-1-75	REILLY
4	DBIIA-0003	1-1-75	REILLY
5	DBIIA-0004	1-1-75	REILLY
6	DBIIA-0005	1-1-75	REILLY
7	DBIIA-0006	1-1-75	REILLY
8	DBIIA-0007	1-1-75	REILLY

FIRST USED ON OPTION/MODEL		PARTS LIST	
DBII-A		PARTS LIST	
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES		DATE 8-3-73	 digital EQUIPMENT CORPORATION WIRE ASS'Y (DBII-A)
DECIMALS	ANGLES	DATE 10-30-73	
X.XX - .000	± 0° 30'	DATE 1-1-75	
X - .1		DATE 1-1-75	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY		DATE 1-1-75	REV C
MATERIAL	NEXT HIGHER ASSY	SIZE CODE	NUMBER
		DAD	7009612-0-0
FINISH	SCALE	SHEET	DIST
		1 OF 2	

8 7 6 5 4 3 2 1

7 6 5 4 3 2

WIRE TABLE						
ITEM NO.	SIGNAL NAME	FROM PIN	TO PIN	COLOR	REMARKS	
3	+5V	A03 A2	C01 A2	RED	WIRES MUST PHYSICALLY RUN TO THE LEFT OF THE BLOCK AND PINS.	
		A03 J2	E01 A2			
		A03 K2	B03 A2	RED		WIRES MUST PHYSICALLY RUN TO THE RIGHT OF THE BLOCK AND PINS.
		A03 L2	D04 A2			
A03 M2	F04 A2					
5	GROUND	A03 D2	A03 E2	BLACK		
		A03 C2	A03 D2			
		A03 E2	A03 F2			
		A03 N1	A03 P1			
		A03 R1	A03 S1			
		A03 P1	A03 R1			
		A03 U1	A03 V1			
		A03 S1	A03 U1			
		A03 F2	A03 N1			
		A03 C2	F01 T1			
		A03 V1	C01 C2			
		A03 T1	E01 C2			
		F02 T1	CHASSIS			
		6	RIGHT B04			B04 E2
GROUND	B03 C2		D02 C2	BLK. TWP		
RIGHT B04	D04 E2		F02 F2	WHT. TWP		
6	RIGHT B05	B04 B1	D04 B1	WHT. TWP		
	GROUND	B03 C2	D01 C2	BLK. TWP		
	RIGHT B05	D04 B1	F02 T2	WHT. TWP		
6	RIGHT B06	B04 B1	D04 B1	WHT. TWP		
	GROUND	B03 C2	D01 C2	BLK. TWP		
	RIGHT B06	D01 C2	F02 T1	BLK. TWP		
6	RIGHT B06	B04 A1	C04 A1	WHT. TWP		
	GROUND	B02 C2	C04 T1	BLK. TWP		
	RIGHT B06	D04 A1	F02 H2	WHT. TWP		
6	RIGHT B07	B04 V1	C04 V1	WHT. TWP		
	GROUND	A04 T1	C02 T1	BLK. TWP		
	RIGHT B07	C04 V1	F02 H1	WHT. TWP		
6	RIGHT B07	B04 V1	C04 V1	WHT. TWP		
	GROUND	A04 T1	C02 T1	BLK. TWP		
	RIGHT B07	C04 V1	F02 H1	WHT. TWP		

FIRST USED ON OPTION/MODEL DB11-A	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES	DRAWN R VOWLES	DATE 8-3-73	digital EQUIPMENT CORPORATION	
TOLERANCES	CHK'D	DATE	10-30-73	
DECIMALS	ANGLES	DATE	TITLE	
.001	16° 30'	DATE	WIRED ASSY DB11A	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROD.	DATE	SIZE CODE	
MATERIAL	FINISH	SCALE	NUMBER	REV
			D AD 7009612-0-0	C
		SHEET 2 OF 2	DIST	

REVISIONS
LINK CHANGE NO

DATE 7-9-72

8 7 6 5 4 3 2 1

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DRAWING NUMBER	INIT REL		AUTOMATIC WIRE TESTER (AWT) REVISION STATUS																REV					
	T	H																						H
DBII-A-16	H	H																						
D AC 7009612 0 0	B	C																						

REV H
NUMBER 7009612 0
SIZE CODE A WT

W/M 8-5-84

REVISIONS	REV.	H
	CHANGE NO.	DBIIA-00014
ORIGINATED	CHK	-

DRN <i>[Signature]</i>	DATE 4-27-75	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D	DATE	
ENG. <i>[Signature]</i>	DATE 4-7-75	TITLE
PROJ. ENG. <i>[Signature]</i>	DATE 4-7-75	DBII-A
PROD. <i>[Signature]</i>	DATE 4-7-75	AWT REVISION STATUS
FIRST USED ON		SIZE CODE NUMBER REV.
SCALE -- 1:1 --		A WT 7009612-0 H
SHEET 1 OF 1		DIST

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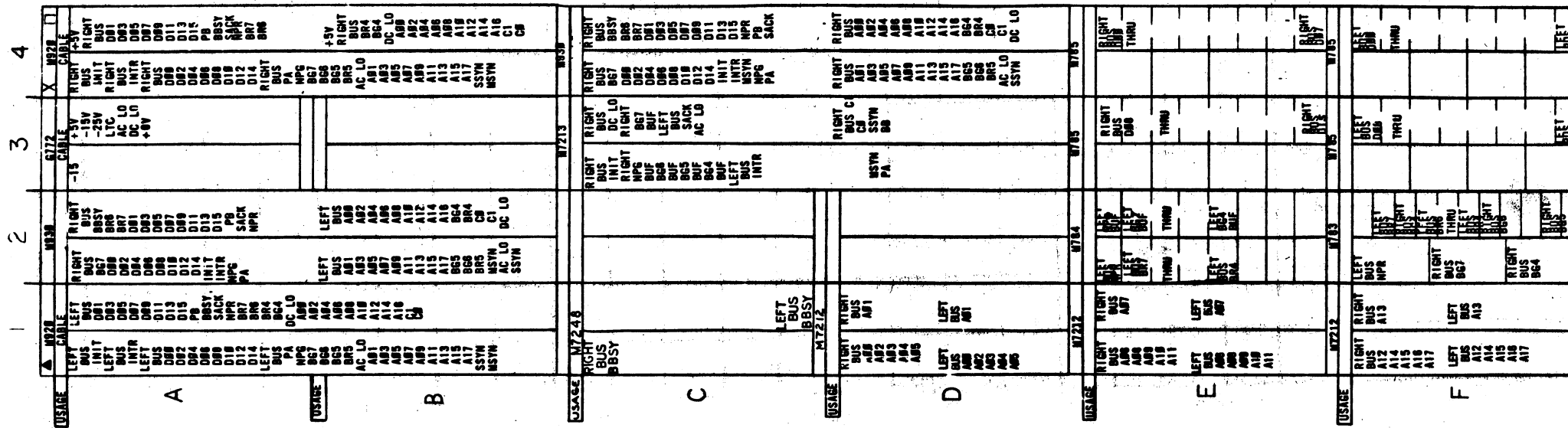
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Z V H-3 G 2

1

NOTE: WHEN INSTALLING A DBII-A IN A BAII-K 10 1/2" CHASSIS, THE AC LO AND DC LO WIRES MUST BE REMOVED FROM THE HARNESES OF ALL OPTIONS AFTER THE DBII-A. THIS ONLY APPLIES TO OPTIONS MOUNTED IN THE SAME CHASSIS AS THE DBII-A.



- IF END OF BUS REPLACE M722 WITH M723
- X IF LAST UNIT IN BASIC BOX REPLACE M722 WITH M723/CABLE END WHEN EXPANDING TO PERIPHERAL BOX.
- ▲ IF FIRST UNIT IN EXPANDER BOX REPLACE M722 WITH DC11A CABLE END

REV	DATE	BY
1	11/17/71	W. Bastiani
2	11/17/71	W. Bastiani
3	11/17/71	W. Bastiani
4	11/17/71	W. Bastiani
5	11/17/71	W. Bastiani
6	11/17/71	W. Bastiani
7	11/17/71	W. Bastiani
8	11/17/71	W. Bastiani

FIRST USED ON OPTION/MODEL PDP11	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
digital EQUIPMENT CORPORATION				
TITLE MODULE UTILIZATION				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES DECIMALS FRACTIONS ANGLES ± .005 ± .004 ± 0° 0' 0"	DATE 11-22-71	DATE 3/8/71	DATE 5/12/71	DATE 5/12/71
MATERIAL + + +	SCALE 1" = 1"	SHEET 1 OF 1	SIZE CODE DMU DBII-A-01	NUMBER C
FINISH + + +	REV C	NEXT HIGHER ASSY A-ML-DBII-A-0		

DMU DBII-A-01

B

C

D

E

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I

J

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

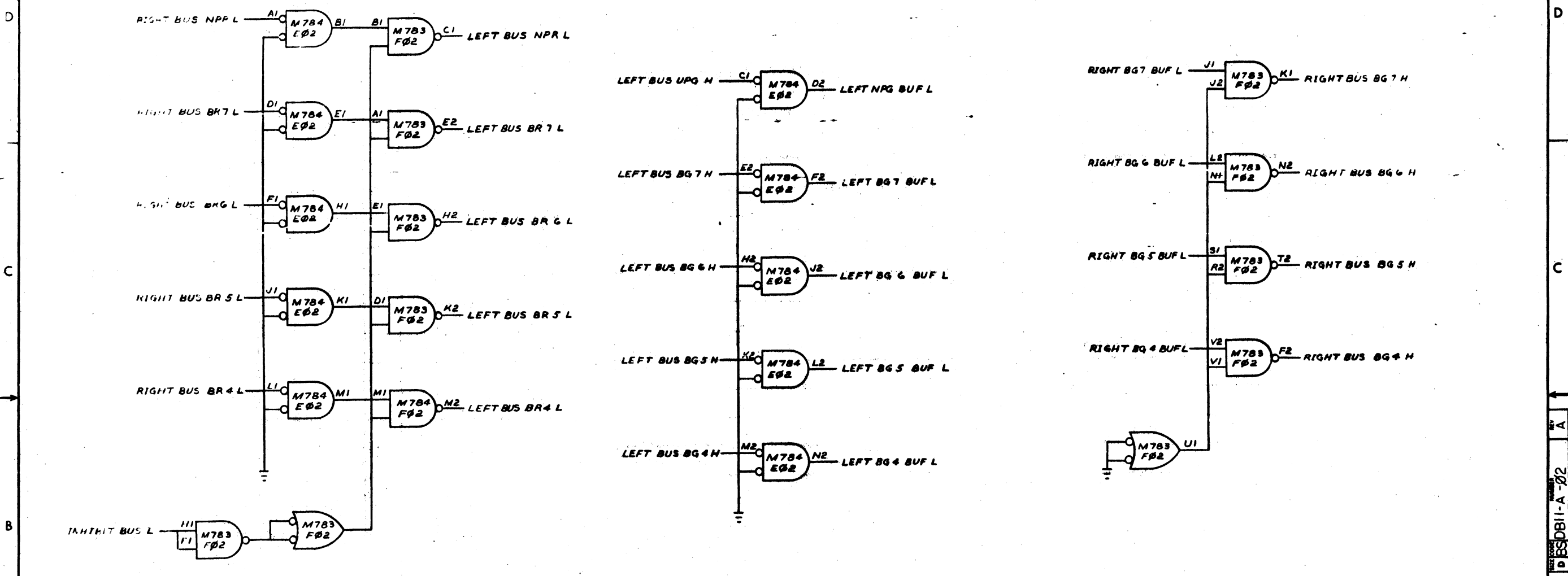
QUANTITY / VARIATION

MADE BY V. BISSONNETTE	CHECKED M. MACKENZIE	SECTION
DATE 2/4/71	DATE 3/3/71	1
ENG [Signature]	PROD <i>A. H. [Signature]</i>	ISSUED SECT.
DATE 11/1/71	DATE 3-25-71	1

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QTY	VARIATION
	M783	UNIBUS TRANSMITTER MODULE	1	
	M784	UNIBUS RECEIVER MODULE	1	
	M785	UNIBUS TRANSCEIVER MODULE	4	
	M7212	A LINE REPEATER	3	
	M7213	MASTER REPEATER	1	
	M930	PDP11 BUS TERMINATOR	2	
	M7248	UNIBUS REPEATER CARD	1	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MODULE UTILIZATION (PL)	D-MU-DB11-A-01	A	PL	DB11-A-01	C	CB11A-CC012
DEC FORM NO. DRA 110	SHEET 1 OF 1	DIST.				

1. All dimensions are in inches unless otherwise specified.
2. All dimensions are to be taken from the drawing unless otherwise specified.
3. All dimensions are to be taken from the drawing unless otherwise specified.
4. All dimensions are to be taken from the drawing unless otherwise specified.

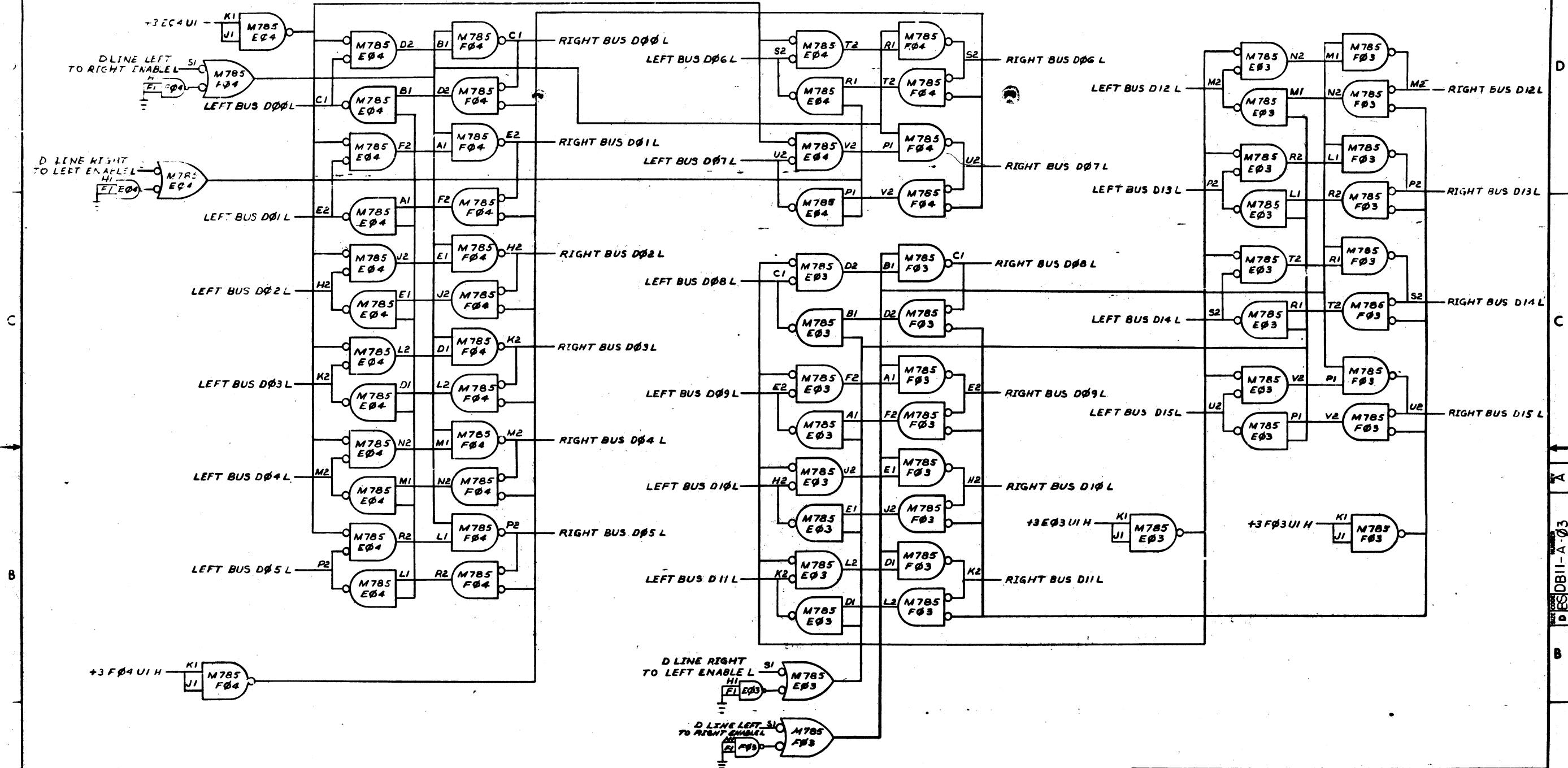


REV	NO	DATE
1	1	10-1-71
2	1	10-1-71

REV	QTY	DESCRIPTION	PART NO	ITEM NO.
		UNLESS OTHERWISE SPECIFIED		
		UNLESS OTHERWISE SPECIFIED		
		TOLERANCES		
		MATERIAL		
		FINISH		
		PARTS LIST		
		digital EQUIPMENT CORPORATION		
		TITLE		
		BUS REPEATER		
		DB 11		
		UNIDIR. LINES		
		NEXT HIGHER ASSY		
		A-ML-DB11-A-0		
		SCALE		
		SHEET OF		
		DISTR.		
		PART NO		
		DBS DB11-A-02		
		REV		
		A		

REV A
DBS DB11-A-02

1. All dimensions are in inches unless otherwise specified.
 2. All dimensions are to be taken from the drawing unless otherwise specified.
 3. All dimensions are to be taken from the drawing unless otherwise specified.



DATE	BY	CHKD.	DATE
DESIGNED BY	DATE	CHKD.	DATE
DRAWN BY	DATE	CHKD.	DATE
CHECKED BY	DATE	CHKD.	DATE
APPROVED BY	DATE	CHKD.	DATE

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES		DATE	PARTS LIST	
TOLERANCES		DATE	digital EQUIPMENT CORPORATION	
DECIMALS	FRACTIONS	DATE	MATERIALS DEPARTMENT	
± .005	± 1/64	DATE	TITLE	
FINAL SURFACE QUALITY		DATE	BUS REPEATER	
REMOVE BURRS AND BREAK SHARP CORNERS		DATE	DATA LINES	
MATERIAL		DATE	NEXT HIGHER ASSY	
FINISH		DATE	A-ML-DB11-A-0	
SCALE		DATE	SIZE CODE	
SHEET		DATE	D B S D B 11 - A - 0 3	
OF		DATE	NUMBER	
		DATE	A	
		DATE	REV.	
		DATE	A	

D B S D B 11 - A - 0 3

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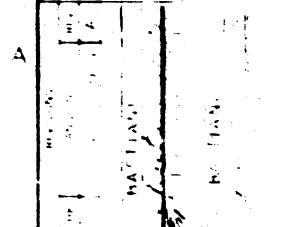
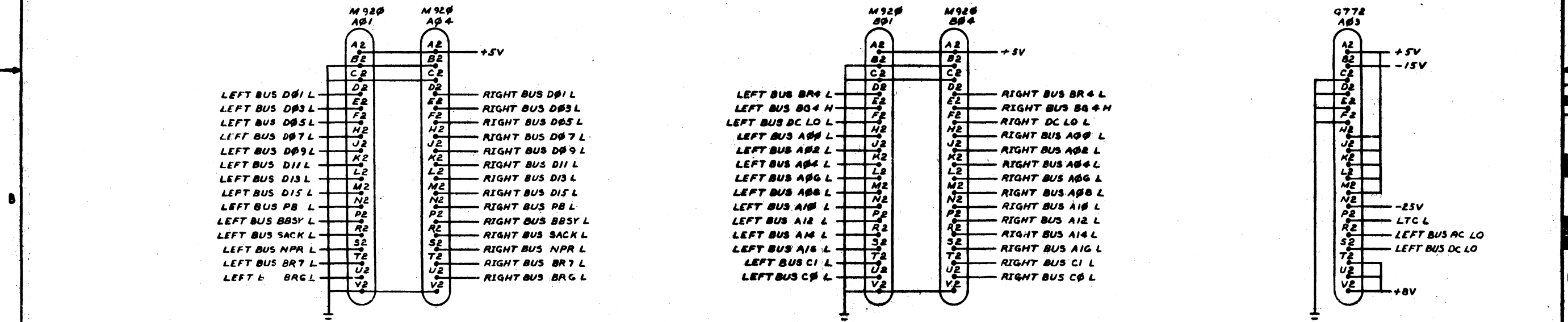
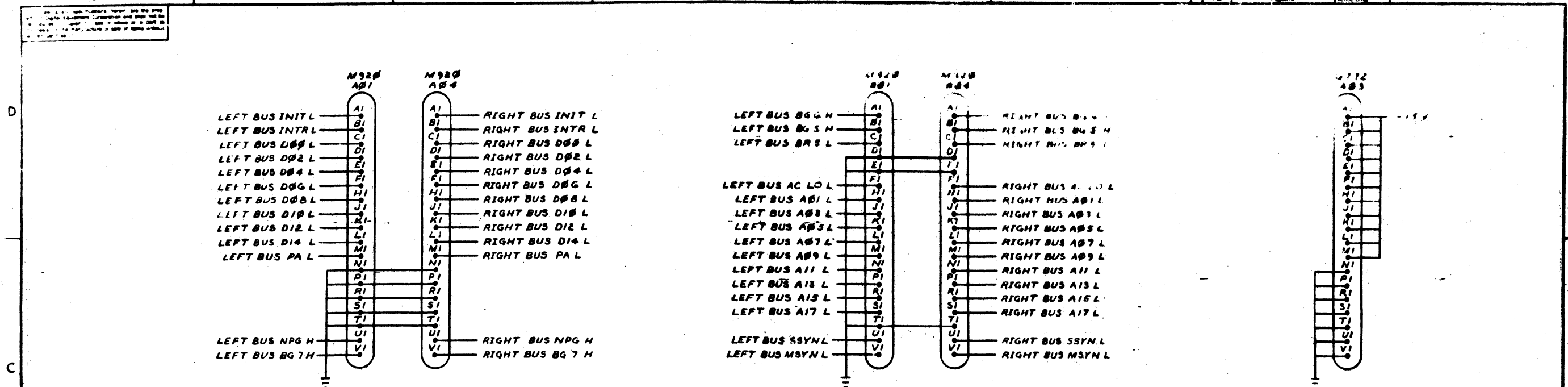
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FIRST USED ON OPTION/ MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES				
TOLERANCES				
DECIMALS FRACTIONS ANGLES				
± .005 ± .010 ± .020				
FINAL SURFACE QUALITY				
REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL				
FINISH				
EQUIPMENT CORPORATION				
TITLE				
BUS AND POWER CONNECTIONS				
PARTS LIST				
A-ML-DB11-A-0				
SCALE				
SHEET OF				
D1C DB11-A-04				
B:				

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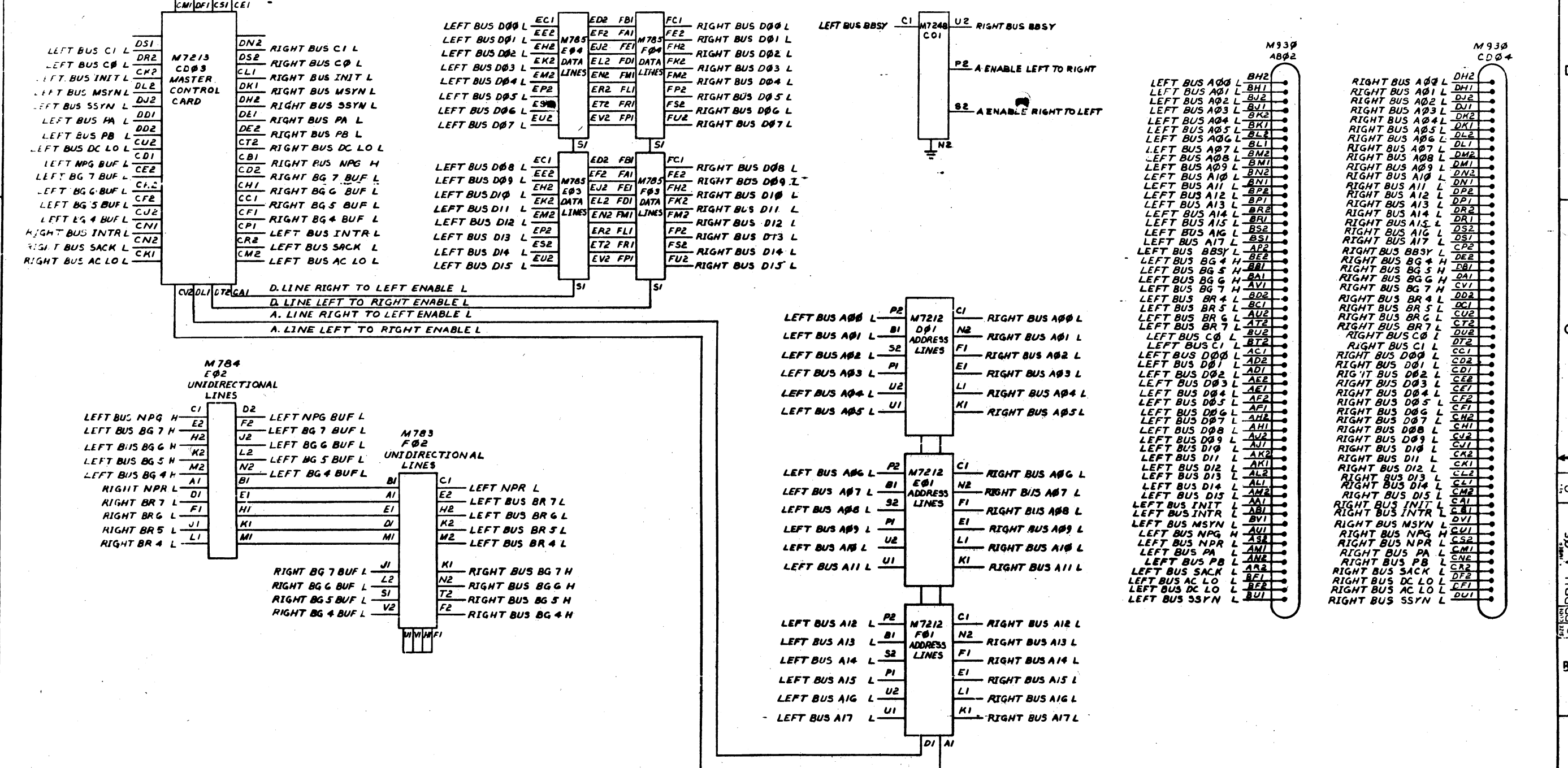
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2

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D1C DB11-A-04

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
 2. DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED.
 3. DIMENSIONS TO SURFACE UNLESS OTHERWISE SPECIFIED.
 4. DIMENSIONS TO EDGE UNLESS OTHERWISE SPECIFIED.
 5. DIMENSIONS TO CORNER UNLESS OTHERWISE SPECIFIED.
 6. DIMENSIONS TO CENTER OF HOLES UNLESS OTHERWISE SPECIFIED.
 7. DIMENSIONS TO CENTER OF HOLES UNLESS OTHERWISE SPECIFIED.
 8. DIMENSIONS TO CENTER OF HOLES UNLESS OTHERWISE SPECIFIED.




REV	DATE	BY	CHKD
1	8/1/71	HA, TIEV	
2	8/1/71	HA, TIEV	
3	8/1/71	HA, TIEV	
4	8/1/71	HA, TIEV	
5	8/1/71	HA, TIEV	
6	8/1/71	HA, TIEV	
7	8/1/71	HA, TIEV	
8	8/1/71	HA, TIEV	
9	8/1/71	HA, TIEV	
10	8/1/71	HA, TIEV	

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11				
UNLESS OTHERWISE SPECIFIED	DRN	DATE	PARTS LIST	
UNLESS OTHERWISE SPECIFIED	CHN'D	DATE	DIGITAL EQUIPMENT CORPORATION	
UNLESS OTHERWISE SPECIFIED	ENG	DATE	TITLE	
UNLESS OTHERWISE SPECIFIED	PROJ	DATE	DB II INTERCONNECTION DIAGRAM	
UNLESS OTHERWISE SPECIFIED	PROD	DATE	MATERIAL	
UNLESS OTHERWISE SPECIFIED	FINISH	DATE	NEXT HIGHER ASSY	
UNLESS OTHERWISE SPECIFIED	SCALE	DATE	A-ML-DBII-A	
UNLESS OTHERWISE SPECIFIED	SHEET	DATE	SIZE CODE	
UNLESS OTHERWISE SPECIFIED	OF	DATE	DIBDDBII-A-05	
UNLESS OTHERWISE SPECIFIED	OF	DATE	NUMBER	
UNLESS OTHERWISE SPECIFIED	OF	DATE	REV	
UNLESS OTHERWISE SPECIFIED	OF	DATE	C	

K-WL-DBII-A-Ø6

H

REVISIONS			
REV LTR	ECO NO	DATE	ENG
A	DBIIA-00001	6-1-71	V/B
B	DBIIA-00003	9-10-71	V/B
C	DBIIA-00004	1-26-72	V/B
D	DBIIA-00005	6-14-72	V/B
E	DBIIA-00006	8-3-73	Y/R
F	DBIIA-00007	10-17-73	Y/R
H	DBIIA-00009	12-17-73	

DRAWN <i>Murdoch</i> <i>M. Kuzie</i>	DATE 3/3/71	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST		
CHECKED <i>A. Noylly</i>	DATE 3/4/71		FOR TAPE* FILE*		
ENG <i>V. Pastore</i>	DATE 3/16/71		ASSY NO D-AD-7008311-0-0	SIZE K	CODE WL
PROJ ENG <i>V. Pastore</i>	DATE 3/16/71		SCALE $\frac{1}{1}$	DWG. NO. DBII-A-Ø6	REV LTR H
PROD <i>A. Hirsch</i>	DATE 3/24/71		SHEET 1 OF 1	DIST.	

DB11A.H
PUN NAME

MNO284.V22(22) 11/06/73

19-JFC-73

9149

PAGE 1

A/P	PT: NAME	URDFN PIN	RAY - URDFN	Q	DRAW	KV	PC	Y	A	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
+3V	F02V1		1-01 *	2						2				1
+3V	F02U1		1-02 *							1				1
+3V	F02W2		1-03 *							2				1
+3V	F02N1		1-04 *							1				1
+3V	F02J2		1-05 *							2				1
+3V	F02H1		1-06 *							1				1
+3V	F02F1		1-07 *											1
+3V			1									16-4/8		1
A FN LEFT TO RIGHT	C01P2		1-01 *							2				2
A FN LEFT TO RIGHT	C03V2		1-02 *							1				2
A FN LEFT TO RIGHT	D01A1	F01A1	1-03 *							2				2
A FN LEFT TO RIGHT	F01A1		1-04 *							1		2-3		2
A FN LEFT TO RIGHT	F01A1		1-05 *											2
A FN LEFT TO RIGHT			1									17-7/8		2
A FN RIGHT TO LEFT	D01D1	C01S2	1-01 *	2						2		1-7		3
A FN RIGHT TO LEFT	C01S2		1-02 *							1				3
A FN RIGHT TO LEFT	D03L1	F01D1	1-03 *							2				3
A FN RIGHT TO LEFT	F01D1		1-04 *							1		2-4		3
A FN RIGHT TO LEFT	F01D1		1-05 *											3
A FN RIGHT TO LEFT			1									19-2/8		3
AA2	A02A2	A01A2	1-01 *							2				4
AA2	A01A2		1-02 *							1		2-5		4
AA2	R01A2		1-03 *							2				4
AA2	R02A2		1-04 *											4
AA2			1									11-3/8		4
AB2	A01B2		1-01 *							1				5
AB2	A02B2		1-02 *							2				5
AB2	A04B2		1-03 *							1				5
AB2	C04B2		1-04 *											5
AB2			1									13-4/8		5
AN1	A01N1		1-01 *							1				6
AN1	A02N1	A04N1	1-02 *							2				6
AN1	A04N1		1-03 *							1		3-6		6
AN1	C04N1		1-04 *											6
AN1			1									14-1/8		6
AP1	A01P1		1-01 *							1				7
AP1	A02P1	A04P1	1-02 *							2				7
AP1	A04P1		1-03 *							1		3-7		7
AP1	C04P1		1-04 *											7
AP1			1									14-3/8		7

DB11A.H		HND289.V22(22) 11/06/73				19-DFC-73		9149		PAGE 2					
RUN NAME		A/P	PTN NAME	ORDER PIN	BAY - ORDER	U	DRW	RV	PG	Y	Z	REMARKS	LENGTH	FACILITIES	RUN NUMBER
AR1			A01R1		1-01 *						1				8
AR1			A02R1	A04R1	1-02 *						2				8
AR1			A04R1		1-03 *						1		3-6		8
AR1			C04R1		1-04 *								14-1/5		8
AR1					1										8
AS1			A01S1		1-01 *						1				9
AS1			A02S1	A04S1	1-02 *						2				9
AS1			A04S1		1-03 *						1		3-7		9
AS1			C04S1		1-04 *								14-3/4		9
AS1					1										9
AV2			A01V2		1-01 *						1				10
AV2			A02V2		1-02 *						2				10
AV2			A04V2		1-03 *						1				10
AV2			C04V2		1-04 *								13-4/4		10
AV2					1										10
B INIT			C03J1											1-PIR RUN	11
BB2			R01B2		1-01 *						1				12
BB2			R02B2		1-02 *						2				12
BB2			R04B2		1-03 *						1				12
BB2			D04B2		1-04 *								13-4/6		12
BB2					1										12
BD1			R01D1		1-01 *						1				13
BD1			R02D1	R04D1	1-02 *						2				13
BD1			R04D1		1-03 *						1		3-6		13
BD1			D04D1		1-04 *								14-1/6		13
BD1					1										13
BE1			R01E1		1-01 *						1				14
BE1			R02E1	R04E1	1-02 *						2				14
BE1			R04E1		1-03 *						1		3-7		14
BE1			D04E1		1-04 *								14-3/6		14
BE1					1										14
BV2			A01C2		1-01 *						2				15
BV2			A01I1		1-02 *						1				15
BV2			R01C2		1-03 *						2				15
BV2			R01I1		1-04 *						1				15
BV2			R01V2		1-05 *						2				15
BV2			R02V2		1-06 *						1				15
BV2			R04V2		1-07 *						2				15
BV2			D04V2		1-08 *								27-6/6		15
BV2					1										15

DB11A.H		HND289.V22(22) 11/06/73				19-DFC-73		9149		PAGE 3						
RUN NAME		A/P	PTN NAME	ORDER PIN	BAY - ORDER	U	DRW	RV	PG	Y	X	Z	REMARKS	LENGTH	FACILITIES	RUN NUMBER
CA2			A04A2		1-01 *						1			2-3		16
CA2			R04A2	C04A2	1-02 *						2					16
CA2			C04A2		1-03 *						1			2-3		16
CA2			D04A2		1-04 *									15-4/6		16
CA2					1											16
D LEFT TO RIGHT EN			D03I2		1-01 *						1			3-7		17
D LEFT TO RIGHT EN			F04S1		1-02 *						2					17
D LEFT TO RIGHT EN			F03S1		1-03 *											17
D LEFT TO RIGHT EN					1									11-1/6		17
D RIGHT TO LEFT EN			C03A1		1-01 *						1					18
D RIGHT TO LEFT EN			F03S1		1-02 *						2					18
D RIGHT TO LEFT EN			F04S1		1-03 *											18
D RIGHT TO LEFT EN					1									12-0/6		18
E2R1			F02R1		1-01 *						1			2-7		19
E2R1			F02M1		1-02 *											19
E2R1					1									6-3/6		19
E2F1			F02E1		1-01 *						1			2-5		20
E2F1			F02A1		1-02 *											20
E2F1					1									5-7/6		20
E2H1			F02H1		1-01 *						1			2-5		21
E2H1			F02E1		1-02 *											21
E2H1					1									5-7/6		21
E2K1			F02K1		1-01 *						1			2-4		22
E2K1			F02D1		1-02 *											22
E2K1					1									5-5/6		22
E2M1			F02M1		1-01 *						1			2-5		23
E2M1			F02H1		1-02 *											23
E2M1					1									5-7/6		23
F3			F03J1		1-01 *						1					24
F3			F03K1		1-02 *						2					24
F3			F03U1	D03B1	1-03 *						1					24
F3			D03B1		1-04 *											24
F3					1									12-4/6		24
F3A1			F03A1		1-01 *						1			3-2		25
F3A1			F03F2		1-02 *											25
F3A1					1									7-1/6		25

DB11A.M RUN NAME	HND288.V22(22) 11/06/73				J	DRW	RV	PG	Y	X	Z	REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 4 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
E3R1		F03M1		1-01 *							1		2-7		26
E3R1		F03L2		1-02 *											26
E3R1				1									6-3/8		2
E3D1		F03D1		1-01 *							1		3-2		27
E3D1		F03L2		1-02 *											27
E3D1				1									7-1/8		27
E3D2		E03D2		1-01 *							1				28
E3D2		F03B1		1-02 *											28
E3D2				1									5-0/8		28
E3E1		F03E1		1-01 *							1		3-1		29
E3E1		F03J2		1-02 *											29
E3E1				1									6-7/8		29
E3F2		F03F2		1-01 *							1				30
E3F2		F03A1		1-02 *											30
E3F2				1									4-6/8		30
E3J2		F03J2		1-01 *							1				31
E3J2		F03E1		1-02 *											31
E3J2				1									5-0/8		31
E3L1		F03L1		1-01 *							1		3-1		32
E3L1		F03R2		1-02 *											32
E3L1				1									6-7/8		32
E3L2		F03L2		1-01 *							1				33
E3L2		F03D1		1-02 *											33
E3L2				1									4-4/8		33
E3M1		F03M1		1-01 *							1		3-0		34
E3M1		F03N2		1-02 *											34
E3M1				1									6-5/8		34
E3N2		F03N2		1-01 *							1				35
E3N2		F03M1		1-02 *											35
E3N2				1									5-2/8		35
E3P1		F03P1		1-01 *							1		3-2		36
E3P1		F03V2		1-02 *											36
E3P1				1									7-1/8		36
E3R1		E03R1		1-01 *							1		2-7		37
E3R1		F03I2		1-02 *											37
E3R1				1									6-3/8		37

DB11A.M RUN NAME	HND288.V22(22) 11/06/73				Q	DRW	RV	PG	Y	X	Z	REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 5 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
E3R2		F03R2		1-01 *							1				38
E3R2		F03L1		1-02 *											38
E3R2				1									4-6/8		38
E3T2		F03T2		1-01 *							1				39
E3T2		F03R1		1-02 *											39
E3T2				1									5-0/8		39
E3V2		F03V2		1-01 *							1				40
E3V2		F03P1		1-02 *											40
E3V2				1									4-6/8		40
E4		E04D2		1-01 *							1				41
E4		F04B1		1-02 *											41
E4				1									5-0/8		41
E4P1		F04P1		1-01 *											42
E4P1		F04V2		1-02 *											42
E4P1				1									6-0/8		42
E4P1		F04R1		1-01 *							1				43
E4P1		F04I2		1-02 *											43
E4P1				1									5-4/8		43
E4U1		F04J1		1-01 *							1				44
E4U1		E04K1		1-02 *							2				44
E4U1		E04U1	D03C1	1-03 *							1				44
E4U1		D03C1		1-04 *											44
E4U1				1									12-4/8		44
E4V2		F04V2		1-01 *							1				45
E4V2		F04P1		1-02 *											45
E4V2				1									4-6/8		45
EA		F04A1		1-01 *							1				46
EA		F04F2		1-02 *											46
EA				1									6-0/8		46
EB		F04B1		1-01 *							1				47
EB		F04D2		1-02 *											47
EB				1									5-4/8		47
ED		F04D1		1-01 *							1				48
ED		F04I2		1-02 *											48
ED				1									6-0/8		48

DB11A.H
RUN NAME

HND288.V22(22) 11/06/73
A/P PIN ORDER DAY -
NAME PIN ORDER

U DRAW RV PG Y X Z #REMARKS

19-DEC-73 9149 PAGE 6
LENGTH EXCEPTIONS RUN
NUMBER

DB11A.H RUN NAME	A/P	PIN NAME	ORDER PIN	DAY - ORDER	U	DRAW	RV	PG	Y	X	Z	#REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 6 RUN NUMBER
EE		F04E1		1-01 *							1				49
EE		F04J2		1-02 *											49
EE				1									5-6/8		49
EF		F04F2		1-01 *							1				50
EF		F04A1		1-02 *											50
EF				1									4-6/8		50
EJ		F04J2		1-01 *							1				51
EJ		F04E1		1-02 *											51
EJ				1									5-0/8		51
EK		F04L1		1-01 *							1				52
EK		F04R2		1-02 *											52
EK				1									5-6/8		52
FL		F04L2		1-01 *							1				53
EL		F04D1		1-02 *											53
EL				1									4-4/8		53
EM		F04M1		1-01 *							1				54
EM		F04N2		1-02 *											54
EM				1									5-4/8		54
EN		F04N2		1-01 *							1				55
EN		F04M1		1-02 *											55
EN				1									5-2/8		55
ER		F04R2		1-01 *							1				56
ER		F04L1		1-02 *											56
ER				1									4-6/8		56
ET		E04T2		1-01 *							1				57
ET		F04R1		1-02 *											57
ET				1									5-0/8		57
F3		F03J1		1-01 *							1				58
F3		F03K1		1-02 *							2				58
F3		F03U1		1-03 *											58
F3				1									5-6/8		58
F4		F04J1		1-01 *							1				59
F4		F04K1		1-02 *							2				59
F4		F04U1		1-03 *											59
F4				1									5-6/8		59

DB11A.H
RUN NAME

HND288.V22(22) 11/06/73
A/P PIN ORDER DAY -
NAME PIN ORDER

U DRAW RV PG Y X Z #REMARKS

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LENGTH EXCEPTIONS RUN
NUMBER

DB11A.H RUN NAME	A/P	PIN NAME	ORDER PIN	DAY - ORDER	U	DRAW	RV	PG	Y	X	Z	#REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 7 RUN NUMBER
GND		F03C2		1-01 *							1				60
GND		F03H1		1-02 *							2				60
GND		F03F1		1-03 *							1				60
GND		F04H1		1-04 *							2				60
GND		F04F1		1-05 *							1				60
GND		F04C2		1-06 *							2				60
GND		F04C2		1-07 *							1				60
GND		F04H1		1-08 *							2				60
GND		F04F1		1-09 *							1				60
GND		F03C2		1-10 *							2				60
GND		F03F1		1-11 *							1				60
GND		F03H1		1-12 *											60
GND				1									32-2/8		60
INHIBIT ACLO		C03E1		1-01 *							1				61
INHIBIT ACLO		C03C2		1-02 *											61
INHIBIT ACLO				1									2-6/8		61
INHIBIT BUS		D03F1		1-01 *							1				62
INHIBIT BUS		D03C2	C01N2	1-02 *							2				62
INHIBIT BUS		C01N2	C01C2	1-03 *							1				62
INHIBIT BUS		C01C2		1-04 *											62
INHIBIT BUS				1									10-4/8		62
INHIBIT DCLO		C03T1		1-01 *							1				63
INHIBIT DCLO		C03S1		1-02 *											63
INHIBIT DCLO				1									2-4/8		63
INHIBIT INIT		C03M1		1-01 *							1				64
INHIBIT INIT		D03T1		1-02 *											64
INHIBIT INIT				1									5-6/8		64
L R D00		A01C1	A02C1	1-01 *							2				65
L R D00		A02C1		1-02 *							1		6-4		65
L R D00		E04C1		1-03 *											65
L R D00				1									16-3/8		65
L R D01		A01D2		1-01 *							2				66
L R D01		A02D2		1-02 *							1				66
L R D01		E04E2		1-03 *											66
L R D01				1									16-0/8		66
L R D02		A01D1	A02D1	1-01 *							2				67
L R D02		A02D1		1-02 *							1		6-6		67
L R D02		E04E2		1-03 *											67
L R D02				1									16-7/8		67

DB11A.H RUN NAME	HND288.V22(22) 11/06/73				Q	DRW	RV	PG	Y	X	Z	REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 8 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
L B D03		A01E2	A02E2	1-01 *							2				68
L B D03		A02E2		1-02 *							1		6-6		68
L B D03		F04K2		1-03 *											68
L B D03				1									16-7/8		68
L B D04		A01E1		1-01 *							2				69
L B D04		A02E1		1-02 *							1				69
L B D04		F04M2		1-03 *											69
L B D04				1									17-0/8		69
L B D05		A02F2	A02F2	1-01 *							2				70
L B D05		A02F2		1-02 *							1		6-7		70
L B D05		F04P2		1-03 *											70
L B D05				1									17-1/8		70
L B D06		A01F1		1-01 *							2				71
L B D06		A02F1		1-02 *							1				71
L B D06		F04S2		1-03 *											71
L B D06				1									17-2/8		71
L B D07		A01H2		1-01 *							2				72
L B D07		A02H2		1-02 *							1				72
L B D07		F04U2		1-03 *											72
L B D07				1									17-2/8		72
L B D08		A01H1		1-01 *							2				73
L B D08		A02H1		1-02 *							1				73
L B D08		F03C1		1-03 *											73
L B D08				1									15-2/8		73
L B D09		A01J2		1-01 *							2				74
L B D09		A02J2		1-02 *							1				74
L B D09		F03E2		1-03 *											74
L B D09				1									15-4/8		74
L B D10		A01J1		1-01 *							2				75
L B D10		A02J1		1-02 *							1				75
L B D10		F03H2		1-03 *											75
L B D10				1									15-6/8		75
L B D11		A01K2		1-01 *							2				76
L B D11		A02K2		1-02 *							1				76
L B D11		F03K2		1-03 *											76
L B D11				1									15-6/8		76

DB11A.H RUN NAME	HND288.V22(22) 11/06/73				Q	DRW	RV	PG	Y	X	Z	REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 9 RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											
L B D12		A01K1		1-01 *							2				77
L B D12		A02K1		1-02 *							1				77
L B D12		F03M2		1-03 *											77
L B D12				1									16-2/8		77
L B D13		A01L2		1-01 *							2				78
L B D13		A02L2		1-02 *							1				78
L B D13		F03P2		1-03 *											78
L B D13				1									16-2/8		78
L B D14		A01L1		1-01 *							2				79
L B D14		A02L1		1-02 *							1				79
L B D14		F03S2		1-03 *											79
L B D14				1									16-4/8		79
L B D15		A01M2		1-01 *							2				80
L B D15		A02M2		1-02 *							1				80
L B D15		F03U2		1-03 *											80
L B D15				1									16-4/8		80
LEFT A00		A02H2	A01H2	1-01 *							2				81
LEFT A00		A01H2		1-02 *							1		4-1		81
LEFT A00		D01P2		1-03 *											81
LEFT A00				1									11-5/8		81
LEFT A01		A02H1		1-01 *							2				82
LEFT A01		A01H1		1-02 *							1				82
LEFT A01		D01B1		1-03 *											82
LEFT A01				1									9-6/8		82
LEFT A02		A02J2		1-01 *							2				83
LEFT A02		A01J2		1-02 *							1				83
LEFT A02		D01S2		1-03 *											83
LEFT A02				1									11-2/8		83
LEFT A03		A02J1		1-01 *							2				84
LEFT A03		A01J1		1-02 *							1				84
LEFT A03		D01P1		1-03 *											84
LEFT A03				1									11-0/8		84
LEFT A04		A02K2		1-01 *							2				85
LEFT A04		A01K2		1-02 *							1				85
LEFT A04		D01U2		1-03 *											85
LEFT A04				1									11-2/8		85

DB11A.H
RUN NAME

HND288.V22(22) 11/06/73
A/P PIN ORDER BAY -
NAME PIN ORDER

U DRAW RV PG Y X Z

REMARKS

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LENGTH

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EXCEPTIONS

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RUN
NUMBER

LEFT A05		R02K1		1-01 *						2								86
LEFT A05		R01K1		1-02 *						1								86
LEFT A05		F01U1		1-03 *														86
LEFT A05				1									11-2/8					86
LEFT A06		R02L2		1-01 *						2								87
LEFT A06		R01L2		1-02 *						1								87
LEFT A06		F01P2		1-03 *														87
LEFT A06				1									13-2/8					87
LEFT A07		R02L1	R01L1	1-01 *						2								88
LEFT A07		F01L1		1-02 *						1			4-3					88
LEFT A07		F01B1		1-03 *														88
LEFT A07				1									12-1/8					88
LEFT A08		R02M2		1-01 *						2								89
LEFT A08		R01M2		1-02 *						1								89
LEFT A08		F01S2		1-03 *														89
LEFT A08				1									13-2/8					89
LEFT A09		R02M1		1-01 *						2								90
LEFT A09		R01M1		1-02 *						1								90
LEFT A09		F01P1		1-03 *														90
LEFT A09				1									13-0/8					90
LEFT A10		R02N2		1-01 *						2								91
LEFT A10		R01N2		1-02 *						1								91
LEFT A10		F01U2		1-03 *														91
LEFT A10				1									13-4/8					91
LEFT A11		R02N1		1-01 *						2								92
LEFT A11		R01N1		1-02 *						1								92
LEFT A11		F01U1		1-03 *														92
LEFT A11				1									13-4/8					92
LEFT A12		R02P2	R01P2	1-01 *						2								93
LEFT A12		R01P2		1-02 *						1			6-3					93
LEFT A12		F01P2		1-03 *														93
LEFT A12				1									16-1/8					93
LEFT A13		R02P1		1-01 *						2								94
LEFT A13		R01P1		1-02 *						1								94
LEFT A13		F01P1		1-03 *														94
LEFT A13				1									14-2/8					94

DB11A.H
RUN NAME

HND288.V22(22) 11/06/73
A/P PIN ORDER BAY -
NAME PIN ORDER

U DRAW RV PG Y X Z

REMARKS

19-DEC-73
LENGTH

9149
EXCEPTIONS

PAGE 11
RUN
NUMBER

LEFT A14		R02R2	B01R2	1-01 *						2								95
LEFT A14		R01R2		1-02 *						1			6-4					95
LEFT A14		F01S2		1-03 *														95
LEFT A14				1									16-3/8					95
LEFT A15		R02R1		1-01 *						2								96
LEFT A15		R01R1		1-02 *						1								96
LEFT A15		F01P1		1-03 *														96
LEFT A15				1									15-4/8					96
LEFT A16		R02S2	B01S2	1-01 *						2								97
LEFT A16		R01S2		1-02 *						1			6-4					97
LEFT A16		F01U2		1-03 *														97
LEFT A16				1									16-3/8					97
LEFT A17		R02S1	B01S1	1-01 *						2								98
LEFT A17		R01S1		1-02 *						1			6-3					98
LEFT A17		F01U1		1-03 *														98
LEFT A17				1									16-1/8					98
LEFT BG4		R01E2		1-01 *						2								99
LEFT BG4		R02E2		1-02 *						1								99
LEFT BG4		F02M2		1-03 *														99
LEFT BG4				1									13-4/8					99
LEFT BG4 BUF		C03J2		1-01 *						1								100
LEFT BG4 BUF		E02N2		1-02 *														100
LEFT BG4 BUF				1									8-2/8					100
LEFT BG5		R01B1		1-01 *						2								101
LEFT BG5		R02B1		1-02 *						1								101
LEFT BG5		E02K2		1-03 *														101
LEFT BG5				1									13-6/8					101
LEFT BG5 BUF		C03F2		1-01 *						1								102
LEFT BG5 BUF		E02L2		1-02 *														102
LEFT BG5 BUF				1									8-2/8					102
LEFT BG6		R01A1		1-01 *						2								103
LEFT BG6		R02A1		1-02 *						1								103
LEFT BG6		E02H2		1-03 *														103
LEFT BG6				1									13-6/8					103
LEFT BG6 BUF		C03H2		1-01 *						1								104
LEFT BG6 BUF		E02J2		1-02 *														104
LEFT BG6 BUF				1									8-0/8					104

DB11A.H		HND28R.V22(22) 11/06/73										19-DEC-73	9149	PAGE 12	
RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
LEFT BG7		A01V1	A02V1	1-01 *							2				105
LEFT BG7		A02V1		1-02 *							1		6-0		105
LEFT BG7		E02E2		1-03 *											105
LEFT BG7				1									15-3/8		105
LEFT BG7 BUF		C03E2		1-01 *							1				106
LEFT BG7 BUF		E02F2		1-02 *											106
LEFT BG7 BUF				1									8-0/8		106
LEFT BR4		R01		1-01 *							2				107
LEFT BR4		R02		1-02 *							1				107
LEFT BR4		F02M2		1-03 *											107
LEFT BR4				1									16-4/8		107
LEFT BR5		R01C1		1-01 *							2				108
LEFT BR5		R02C1		1-02 *							1				108
LEFT BR5		F02K2		1-03 *											108
LEFT BR5				1									16-4/8		108
LEFT BR6		A01U2	A02U2	1-01 *							2				109
LEFT BR6		A02U2		1-02 *							1		7-5		109
LEFT BR6		F02M2		1-03 *											109
LEFT BR6				1									18-5/8		109
LEFT BR7		A01T2		1-01 *							2				110
LEFT BR7		A02T2		1-02 *							1				110
LEFT BR7		F02E2		1-03 *											110
LEFT BR7				1									17-0/8		110
LEFT BUF BRSY		D03A1												1-PIN RUN	111
LEFT BUF C00		D03P2												1-PIN RUN	112
LEFT BUF C01		D03M2												1-PIN RUN	113
LEFT BUF DCLO		C03R1												1-PIN RUN	114
LEFT BUF MSYN		D03H1												1-PIN RUN	115
LEFT BUF SSYN		D03F2												1-PIN RUN	116
LEFT BUS ACLO		R01F1		1-01 *							2				117
LEFT BUS ACLO		R02F1		1-02 *							1				117
LEFT BUS ACLO		C03M2	A03R2	1-03 *							2				117
LEFT BUS ACLO		A03R2		1-04 *											117
LEFT BUS ACLO				1									15-6/8		117

DB11A.H		HND28R.V22(22) 11/06/73										19-DEC-73	9149	PAGE 13	
RUN NAME	A/P	PIN NAME	ORDER PIN	BAY - ORDER	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
LEFT BUS BRSY		A01P2	A02P2	1-01 *							2				118
LEFT BUS BRSY		A02P2	C01C1	1-02 *							1		3-2		118
LEFT BUS BRSY		C01C1		1-03 *											118
LEFT BUS BRSY				1									9-7/8		118
LEFT BUS C00		R01U2		1-01 *							2				119
LEFT BUS C00		R02U2		1-02 *							1				119
LEFT BUS C00		D03M2		1-03 *											119
LEFT BUS C00				1									10-2/8		119
LEFT BUS C01		R02T2		1-01 *							2				120
LEFT BUS C01		R01T2	D03S1	1-02 *							1				120
LEFT BUS C01		D03S1		1-03 *											120
LEFT BUS C01				1									10-4/8		120
LEFT BUS DCLO		R01F2		1-01 *							2				121
LEFT BUS DCLO		R02F2		1-02 *							1				121
LEFT BUS DCLO		C03U2	A03S2	1-03 *							2				121
LEFT BUS DCLO		A03S2		1-04 *											121
LEFT BUS DCLO				1									17-0/8		121
LEFT BUS INIT		A01A1		1-01 *							2				122
LEFT BUS INIT		A02A1		1-02 *							1				122
LEFT BUS INIT		C03K2		1-03 *											122
LEFT BUS INIT				1									11-6/8		122
LEFT BUS INTR		A01B1		1-01 *							2				123
LEFT BUS INTR		A02B1		1-02 *							1				123
LEFT BUS INTR		C03P1		1-03 *											123
LEFT BUS INTR				1									12-0/8		123
LEFT BUS MSYN		R01V1		1-01 *							2				124
LEFT BUS MSYN		R02V1		1-02 *							1				124
LEFT BUS MSYN		D03L2		1-03 *											124
LEFT BUS MSYN				1									9-6/8		124
LEFT BUS NPG		A01U1	A02U1	1-01 *							2				125
LEFT BUS NPG		A02U1		1-02 *							1		5-5		125
LEFT BUS NPG		E02C1		1-03 *											125
LEFT BUS NPG				1									14-5/8		125
LEFT BUS PA		A01M1		1-01 *							2				126
LEFT BUS PA		A02M1		1-02 *							1				126
LEFT BUS PA		D03D1		1-03 *											126
LEFT BUS PA				1									12-4/8		126

DB11A.H RUN NAME	HND288.V22(22) 11/06/73										19-DEC-73	9149	PAGE 14		
	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER											
LEFT BUS PB		A01N2		1-01 *							2				127
LEFT BUS PR		A02N2		1-02 *							1				127
LEFT BUS PR		D03D2		1-03 *											127
LEFT BUS PB				1									12-2/8		127
LEFT BUS SACK		A01R2		1-01 *							2				128
LEFT BUS SACK		A02R2		1-02 *							1				128
LEFT BUS SACK		C03R2		1-03 *											128
LEFT BUS SACK				1									10-4/8		128
LEFT BUS SSYN		B0		1-01 *							2				129
LEFT BUS SSYN		B02U1		1-02 *							1				129
LEFT BUS SSYN		D03J2		1-03 *											129
LEFT BUS SSYN				1									9-4/8		129
LEFT NPG BUF		C03D1		1-01 *							1				130
LEFT NPG BUF		E02D2		1-02 *											130
LEFT NPG BUF				1									7-6/8		130
LEFT NPR		A02S2	A01S2	1-01 *							2				131
LEFT NPR		A01S2		1-02 *							1		7-0		131
LEFT NPR		F02C1		1-03 *											131
LEFT NPR				1									17-3/8		131
RB D00		A04C1	C04C1	1-01 *	2						2		3-7		132
RB D00		C04C1		1-02 *							1		5-2		132
RB D00		F04C1		1-03 *											132
RB D00				1									19-4/8		132
RB D01		A04D2		1-01 *							2				133
RB D01		C04D2		1-02 *							1				133
RB D01		F04E2		1-03 *											133
RB D01				1									18-0/8		133
RB D02		A04D1	C04D1	1-01 *	2						2		3-6		134
RB D02		C04D1		1-02 *							1		5-2		134
RB D02		F04H2		1-03 *											134
RB D02				1									19-2/8		134
RB D03		A04E2	C04E2	1-01 *							2				135
RB D03		C04E2		1-02 *							1		5-2		135
RB D03		F04K2		1-03 *											135
RB D03				1									18-5/8		135

DB11A.H RUN NAME	HND288.V22(22) 11/06/73										19-DEC-73	9149	PAGE 15		
	A/P	PIN	ORDER	BAY -	Q	DRAW	RV	PG	Y	X	Z	REMARKS	LENGTH	EXCEPTIONS	RUN NUMBER
		NAME	PIN	ORDER											
RB D04		A04E1	C04E1	1-01 *	2						2		3-6		136
RB D04		C04E1		1-02 *							1		5-4		136
RB D04		F04H2		1-03 *											136
RB D04				1									19-6/8		136
RB D05		A04F2		1-01 *							2				137
RB D05		C04F2		1-02 *							1				137
RB D05		F04P2		1-03 *											137
RB D05				1									18-6/8		137
RB D06		A04F1	C04F1	1-01 *	2						2		3-6		138
RB D06		C04F1		1-02 *							1		5-5		138
RB D06		F04S2		1-03 *											138
RB D06				1									20-0/8		138
RB D07		A04H2	C04H2	1-01 *							2				139
RB D07		C04H2		1-02 *							1		5-5		139
RB D07		F04U2		1-03 *											139
RB D07				1									19-3/8		139
RB D08		A04H1		1-01 *							2		3-7		140
RB D08		C04H1		1-02 *							1				140
RB D08		F03C1		1-03 *											140
RB D08				1									18-3/8		140
RB D09		A04J2		1-01 *							2				141
RB D09		C04J2		1-02 *							1				141
RB D09		F03E2		1-03 *											141
RB D09				1									17-6/8		141
RB D10		A04J1		1-01 *	2						2		3-6		142
RB D10		C04J1		1-02 *							1				142
RB D10		F03H2		1-03 *											142
RB D10				1									18-5/8		142
RB D11		A04K2		1-01 *							2				143
RB D11		C04K2		1-02 *							1				143
RB D11		F03K2		1-03 *											143
RB D11				1									18-0/8		143
RB D12		A04K1		1-01 *	2						2		3-7		144
RB D12		C04K1		1-02 *							1				144
RB D12		F03M2		1-03 *											144
RB D12				1									19-1/8		144

DB11A.H RUN NAME	HND2UR.V22(22) 11/06/73										REMARKS	19-DEC-73	9149	PAGE 16
	A/P	PTN NAME	ORDER PIN	BAY - ORDER	U	DRAW	RV	PG	Y	X		Z	LENGTH	EXCEPTIONS
RB D13		A04L2		1-01 *							2			145
RB D13		C04L2		1-02 *							1			145
RB D13		F03P2		1-03 *										145
RB D13				1								18-4/8		145
RB D14		A04L1		1-01 *	2						2	3-6		146
RB D14		C04L1		1-02 *							1			146
RB D14		F03S2		1-03 *										146
RB D14				1								19-3/8		146
RB D15		A04L2		1-01 *							2			147
RB D15		C04L2		1-02 *							1			147
RB D15		F03U2		1-03 *										147
RB D15				1								18-6/8		147
RIGHT A00		R04H2		1-01 *							1			148
RIGHT A00		D04H2		1-02 *							2			148
RIGHT A00		D01C1		1-03 *										148
RIGHT A00				1								11-6/8		148
RIGHT A01		R04H1		1-01 *	1						1	3-7		149
RIGHT A01		D04H1		1-02 *							2			149
RIGHT A01		D01N2		1-03 *										149
RIGHT A01				1								12-1/8		149
RIGHT A02		R04J2		1-01 *							1			150
RIGHT A02		D04J2		1-02 *							2			150
RIGHT A02		D01F1		1-03 *										150
RIGHT A02				1								11-6/8		150
RIGHT A03		R04J1		1-01 *	1						1	3-6		151
RIGHT A03		D04J1		1-02 *							2			151
RIGHT A03		D01E1		1-03 *										151
RIGHT A03				1								12-3/8		151
RIGHT A04		B04K2		1-01 *							1			152
RIGHT A04		D04K2		1-02 *							2			152
RIGHT A04		D01L1		1-03 *										152
RIGHT A04				1								11-4/8		152
RIGHT A05		R04K1		1-01 *	1						1	3-7		153
RIGHT A05		D04K1		1-02 *							2			153
RIGHT A05		D01K1		1-03 *										153
RIGHT A05				1								12-1/8		153

DB11A.H RUN NAME	HND2UR.V22(22) 11/06/73										REMARKS	19-DEC-73	9149	PAGE 17
	A/P	PTN NAME	ORDER PIN	BAY - ORDER	U	DRAW	RV	PG	Y	X		Z	LENGTH	EXCEPTIONS
RIGHT A06		R04L2		1-01 *							1			154
RIGHT A06		D04L2		1-02 *							2			154
RIGHT A06		E01C1		1-03 *										154
RIGHT A06				1								12-4/8		154
RIGHT A07		R04L1		1-01 *	1						1	3-6		155
RIGHT A07		D04L1		1-02 *							2			155
RIGHT A07		E01N2		1-03 *										155
RIGHT A07				1								13-7/8		155
RIGHT A08		R04M2		1-01 *							1			156
RIGHT A08		D04M2		1-02 *							2			156
RIGHT A08		E01F1		1-03 *										156
RIGHT A08				1								12-4/8		156
RIGHT A09		R04M1		1-01 *	1						1	3-7		157
RIGHT A09		D04M1		1-02 *							2			157
RIGHT A09		E01E1		1-03 *										157
RIGHT A09				1								13-1/8		157
RIGHT A10		R04N2		1-01 *							1			158
RIGHT A10		D04N2		1-02 *							2			158
RIGHT A10		E01L1		1-03 *										158
RIGHT A10				1								12-6/8		158
RIGHT A11		R04N1		1-01 *	1						1	3-6		159
RIGHT A11		D04N1		1-02 *							2			159
RIGHT A11		E01K1		1-03 *										159
RIGHT A11				1								13-3/8		159
RIGHT A12		R04P2		1-01 *							2			160
RIGHT A12		D04P2		1-02 *							1			160
RIGHT A12		F01C1		1-03 *										160
RIGHT A12				1								14-4/8		160
RIGHT A13		R04P1		1-01 *	1						1	3-6		161
RIGHT A13		D04P1		1-02 *							2			161
RIGHT A13		F01N2		1-03 *										161
RIGHT A13				1								16-1/8		161
RIGHT A14		R04R2	D04R2	1-01 *							2			162
RIGHT A14		D04R2		1-02 *							1	3-4		162
RIGHT A14		E01F1		1-03 *										162
RIGHT A14				1								15-1/8		162

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RUN NAME

A/P

PIN

ORDER

BAY -

Q

DRAW

RV

PG

Y

X

Z

REMARKS

LENGTH

EXCEPTIONS

RUN

NUMBER

RIGHT A15
RIGHT A15
RIGHT A15
RIGHT A15R04H1
D04H1
F01E11-01 *
1-02 *
1-03 *
12
1

3-6

164
163
163
163RIGHT A16
RIGHT A16
RIGHT A16
RIGHT A16B04S2
D04S2
F01L11-01 *
1-02 *
1-03 *
12
1

15-2/8

164
164
164
164RIGHT A17
RIGHT A17
RIGHT A17
RIGHT A17B04
D04S1
F01K11-01 *
1-02 *
1-03 *
12
1

3-6

15-5/8

165
165
165
165RIGHT B04
RIGHT B04
RIGHT B04
RIGHT B04R04E2
D04E2
F02F21-01 *
1-02 *
1-03 *
12
1TWP
TWPHAND WIRE
HAND WIRE
TU HEKE

15-4/8

166
166
166
166RIGHT B04 RUF
RIGHT B04 RUF
RIGHT B04 RUFC03F1
F02V21-01 *
1-02 *
1

1

12-0/8

167
167
167RIGHT B05
RIGHT B05
RIGHT B05
RIGHT B05R04B1
D04B1
F02T21-01 *
1-02 *
1-03 *
12
1TWP
TWPHAND WIRE
HAND WIRE
TU HEKE

17-2/8

168
168
168
168RIGHT B05 RUF
RIGHT B05 RUF
RIGHT B05 RUFC03C1
F02S11-01 *
1-02 *
1

1

6-3

13-3/8

169
169
169RIGHT B06
RIGHT B06
RIGHT B06
RIGHT B06R04A1
D04A1
F02N21-01 *
1-02 *
1-03 *
12
1TWP
TWPHAND WIRE
HAND WIRE
TU HEKE

16-6/8

170
170
170
170RIGHT B06 RUF
RIGHT B06 RUF
RIGHT B06 RUFC03H1
F02L21-01 *
1-02 *
1

1

10-6/8

171
171
171RIGHT B07
RIGHT B07
RIGHT B07
RIGHT B07A04V1
C04V1
F02K11-01 *
1-02 *
1-03 *
12
1TWP
TWPHAND WIRE
HAND WIRE
TU HEKE

17-2/8

172
172
172
172

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PAGE 19

RUN NAME

A/P

PIN

ORDER

BAY -

Q

DRAW

RV

PG

Y

X

Z

REMARKS

LENGTH

EXCEPTIONS

RUN

NUMBER

RIGHT B07 RUF
RIGHT B07 RUF
RIGHT B07 RUFC03D2
F02J11-01 *
1-02 *
1

1

6-0

12-5/8

173
173
173RIGHT B04
RIGHT B04
RIGHT B04
RIGHT B04R04D2
D04D2
E02L11-01 *
1-02 *
1-03 *
11
2

13-6/8

174
174
174
174RIGHT B05
RIGHT B05
RIGHT B05
RIGHT B05R04C1
D04C1
F02J11-01 *
1-02 *
1-03 *
11
21
2

3-7

14-1/8

175
175
175
175RIGHT B06
RIGHT B06
RIGHT B06
RIGHT B06A04U2
C04U2
F02F11-01 *
1-02 *
1-03 *
12
1

14-2/8

176
176
176
176RIGHT B07
RIGHT B07
RIGHT B07
RIGHT B07C04T2
E02U1
A04T21-01 *
1-02 *
1-03 *
12
1

16-6/8

177
177
177
177

RIGHT B07 ACLO

C03L2

1-PIN RUN

178

RIGHT B07 RBSY

C03V1

1-PIN RUN

179

RIGHT B07 DCLO

C03S2

1-PIN RUN

180

RIGHT B07 MSYN

D03J1

1-PIN RUN

181

RIGHT B07 SACK

C03P2

1-PIN RUN

182

RIGHT B07 SSYN

D03K2

1-PIN RUN

183

RIGHT B08 ACLO

R04F1

C03K1

1-01 *

1

184

RIGHT B08 ACLO

C03K1

1-02 *

2

2-4

184

RIGHT B08 ACLO

D04F1

1-03 *

1

11-1/8

184

RIGHT B08 RBSY

A04P2

1-01 *

1

185

RIGHT B08 RBSY

C04P2

1-02 *

2

185

RIGHT B08 RBSY

C01U2

1-03 *

1

11-4/8

185

DB11A.H	HND2 V22(22) 11/06/73				19-DEC-73	9:40	PAGE 20			
RUN NAME	A/P	PI NAME	ORDER PIN	HAY - ORDER	Q	DRAW RV PG Y X Z	REMARKS	LENGTH	EXCEPTIONS	RUN TIME
RIGHT BUS C00		R04U2		1-01 *						186
RIGHT BUS C00		D04U2		1-02 *						186
RIGHT BUS C00		D03S2		1-03 *						186
RIGHT BUS C00				1				10-4/8		186
RIGHT BUS C01		R04I2		1-01 *	1			3-3		187
RIGHT BUS C01		D03N2		1-02 *						187
RIGHT BUS C01		D04I2		1-03 *						187
RIGHT BUS C01				1				10-4/8		187
RIGHT BUS DCLO		R04F2	C03T2	1-01 *						188
RIGHT BUS DCLO		C03T2		1-02 *				7-0		188
RIGHT BUS DCLO		D04F2		1-03 *						188
RIGHT BUS DCLO				1				20-7/8		188
RIGHT BUS INIT		A04A1		1-01 *				3-7		189
RIGHT BUS INIT		C04A1		1-02 *						189
RIGHT BUS INIT		C03L1		1-03 *						189
RIGHT BUS INIT				1				12-1/8		189
RIGHT BUS INTR		A04B1		1-01 *				3-6		190
RIGHT BUS INTR		C04B1		1-02 *						190
RIGHT BUS INTR		C03N1		1-03 *						190
RIGHT BUS INTR				1				11-7/8		190
RIGHT BUS MSYN		R04V1		1-01 *						191
RIGHT BUS MSYN		D03K1		1-02 *						191
RIGHT BUS MSYN		D04V1		1-03 *						191
RIGHT BUS MSYN				1				10-4/8		191
RIGHT BUS NPG		A04U1		1-01 *						192
RIGHT BUS NPG		C03H1		1-02 *						192
RIGHT BUS NPG		C04U1		1-03 *						192
RIGHT BUS NPG				1				10-4/8		192
RIGHT BUS PA		A04M1		1-01 *				3-7		193
RIGHT BUS PA		C04M1		1-02 *						193
RIGHT BUS PA		D03E1		1-03 *						193
RIGHT BUS PA				1				12-7/8		193
RIGHT BUS PB		A04N2		1-01 *						194
RIGHT BUS PB		C04N2		1-02 *						194
RIGHT BUS PB		D03E2		1-03 *						194
RIGHT BUS PB				1				12-0/8		194

DB11A.H	HND2 V22(22) 11/06/73				19-DEC-73	9:40	PAGE 21			
RUN NAME	A/P	PI NAME	ORDER PIN	HAY - ORDER	Q	DRAW RV PG Y X Z	REMARKS	LENGTH	EXCEPTIONS	RUN TIME
RIGHT BUS SACK		A04R2		1-01 *						195
RIGHT BUS SACK		C04R2		1-02 *						195
RIGHT BUS SACK		C03N2		1-03 *						195
RIGHT BUS SACK				1				10-4/8		195
RIGHT BUS SSYN		R04U1		1-01 *						196
RIGHT BUS SSYN		D03H2		1-02 *						196
RIGHT BUS SSYN		D04U1		1-03 *						196
RIGHT BUS SSYN				1				10-2/8		196
RIGHT NPR		A04S2		1-01 *						197
RIGHT NPR		C04S2		1-02 *						197
RIGHT NPR		F02A1		1-03 *						197
RIGHT NPR				1				14-0/8		197

ERROR LISTING

WIPE WRAP RUN NAME	MM02MM.V22(22) 11/06/73 A/P PIN NAME	ORDER PIN	HAY - ORDER	U	DRAW	RV	PG	Y	X	Z	REMARKS	19-DEC-73 LENGTH	9149 EXCEPTIONS	PAGE 1 RUN NUMBER
H INT1	C03J1												1-PIN RUN	11
LEFT BUF BRSY	D03A1												1-PIN RUN	111
LEFT BUF C00	D03P2												1-PIN RUN	112
LEFT BUF C01	D03M2												1-PIN RUN	113
LEFT BUF DCLO	C03M1												1-PIN RUN	114
LEFT BUF MSYN	D03M1												1-PIN RUN	115
LEFT BUF SSYN	D03F2												1-PIN RUN	116
RIGHT RG4	R04E2	D04E2	1-01 * H							2	IWP		HAND WIRE	166
RIGHT RG4	D04E2	F02F2	1-02 * H							1	IWP		HAND WIRE	166
RIGHT RG4	F02F2		1-03 * H										TO HERE	166
RIGHT RG5	R04M1	D04M1	1-01 * H							2	IWP		HAND WIRE	168
RIGHT RG5	D04M1	F02T2	1-02 * H							1	IWP		HAND WIRE	168
RIGHT RG5	F02T2		1-03 * H										TO HERE	168
RIGHT RG6	R04A1	D04A1	1-01 * H							2	IWP		HAND WIRE	170
RIGHT RG6	D04A1	F02N2	1-02 * H							1	IWP		HAND WIRE	170
RIGHT RG6	F02N2		1-03 * H										TO HERE	170
RIGHT RG7	A04V1	C04V1	1-01 * H							2	IWP		HAND WIRE	172
RIGHT RG7	C04V1	F02K1	1-02 * H							1	IWP		HAND WIRE	172
RIGHT RG7	F02K1		1-03 * H										TO HERE	172
RIGHT RUF ACLO	C03L2												1-PIN RUN	178
RIGHT RUF BRSY	C03V1												1-PIN RUN	179
RIGHT RUF DCLO	C03S2												1-PIN RUN	180
RIGHT RUF MSYN	D03J1												1-PIN RUN	181
RIGHT RUF SACK	C03P2												1-PIN RUN	182
RIGHT RUF SSYN	D03K2												1-PIN RUN	183

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 1/3/71

TITLE DB11-A Bus Repeater

REVISIONS

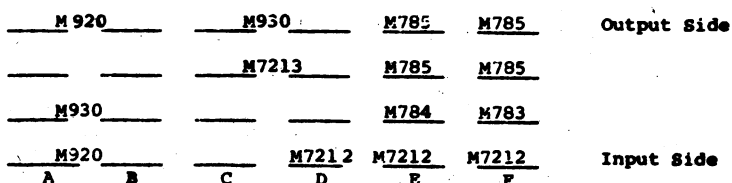
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	REVISED PER ECO 00002	00002			<i>W. B. ...</i>	7/9/71
B	ECO CHANGE	00005	PAS:AN	6-14-72	<i>W. B. ...</i>	1/1/73
C	CHANGE PER ECO	DB11A-REILLY 00008		10-13	<i>W. B. ...</i>	10/3/73

The bus repeater will allow the extension of the Unibus beyond 18 unit loads. The bus repeater will not degrade the bus cycle time of any device before the bus repeater, and will add a maximum 375ns to cycle time of devices addressed beyond the bus repeater. The repeater will allow 18 more loads to be hung on the Unibus.

1.1 The bus repeater DB11 will be contained in a single system unit with an input and output unibus connection. The modules required are:

- a. 4 - M785 Transceiver
- b. 1 - M783 Drivers
- c. 1 - M784 Receivers
- d. 3 - M7212 Address Buffer Cards
- e. 1 - M7213 Buffer Master Card
- f. 2 - M930 Resistor Termination Cards
- g. 1 - M7240 UNIBUS REPEATER BUS BUSY

A layout of the modules is shown below:



NOTE: The Unibus is Bidirectional, but the bus repeater is not symmetrical i.e. the processor must be on the input side of the bus repeater. This is because certain one-direction unibus signals are implemented in only one direction. All signals which must be bidirectional are so implemented.

ENG <i>W. B. ...</i>	APPD <i>W. B. ...</i>	SIZE A	CODE SP	NUMBER DB11-A-7	REV C
----------------------	-----------------------	--------	---------	-----------------	-------

DEC FORM NO. DRA 107

SHEET 1 OF 4

CONTINUATION SHEET

TITLE DB11-A Bus Repeater

Power Used:

+5 Volts @ 2.2 Amps

1.2 Unit will operate from +40°F to 120°F with relative humidity of 95%.

1.3 Unit will add zero time to bus cycles before the repeater and 375ns worst case to bus cycles of units addressed beyond the bus repeater. All guaranteed timing on the primary unibus in terms of delay for deskewing etc., are preserved on the buffered section of the bus.

These guaranteed timings are:

- a. A lines good at device 75ns before MSYN;
- b. A lines do not change at device before MSYN drops;
- c. SSYN will arrive at device no more than 75ns before data is good;
- d. INTR will arrive at processor no more than 75ns before data is good.

The repeater represents one unit load to the primary bus.

1.4 Operation of the Repeater

The Repeater uses the BBSY circuit as a master controlling signal. The BBSY buffering circuit is a truly bidirectional circuit. From BBSY is determined the direction to enable the A-line circuits. Since the master is always asserting the A lines then by looking at BBSY the enabling signal for the A lines can be determined.

Next the direction of the D lines must be determined. This is determined from BBSY, Cl, INTR signals. For DATI the D lines are enabled to the master, and for INTR the D lines are enabled to the Processor. The SSYN circuit direction is determined from the same three circuit, BBSY, Cl and INTR, but is determined differently than the D line circuits.

All one direction circuits require no gating to determine direction. These include INIT, INTR, all Grants; all B requests, SACK and ACLO.

The signal DCLO uses the identical circuit as BBSY since it must also be truly bidirectional because the power fail signal could be coming from either side of the buffer. The operations of the DCLO circuit is delayed an turn on so that a multi box system will turn on.

SIZE A	CODE SP	NUMBER DB11-A-7	REV C
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DEC FORM NO. DRA 107A

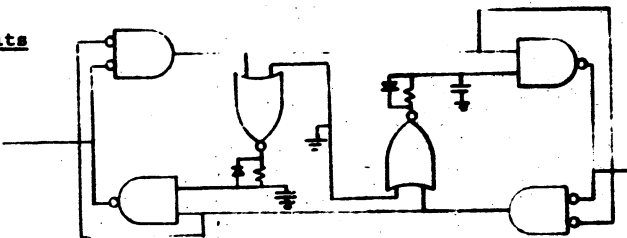
SHEET 2 OF 4

CONTINUATION SHEET

TITLE DB11-A Bus Repeater

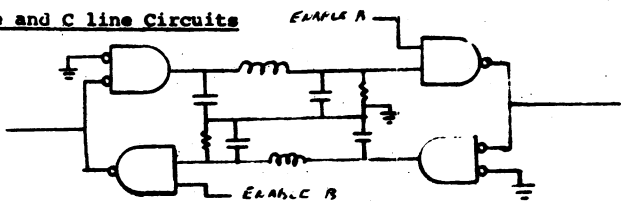
Types of Circuits

BBSY, DCLO



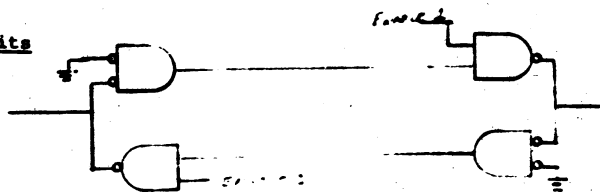
The BBSY circuit provides the A line gating depending on what side the master is on.

A line and C line Circuits



The above LC networks are a linear phase filter which provides an equal 75ns delay to assertion and negation of the A lines. These delays are required to preserve the Unibus guaranteed timing (deskewing etc).

D line Circuits



The D line circuits are made up of M785 transceiver modules.

Unidirectional Lines

All unidirectional lines are made up of M783 and M784 modules connected together.

Programming

None, the unit is transparent to any programs.

SIZE A	CODE SP	NUMBER DB11-A-7	REV C
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DEC FORM NO. DRA 107A

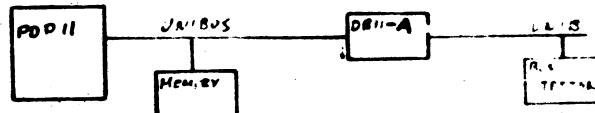
SHEET 3 OF 4

CONTINUATION SHEET

TITLE DB11-A Bus Repeater

Testing

Unit should be tested by placing it in series with the Unibus as shown in the fig



The above configuration should run ETP-2 for one hour with no errors.

SIZE A	CODE SP	NUMBER DB11-A-7	REV C
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DEC FORM NO. DRA 107A

SHEET 4 OF 4

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

LEGEND

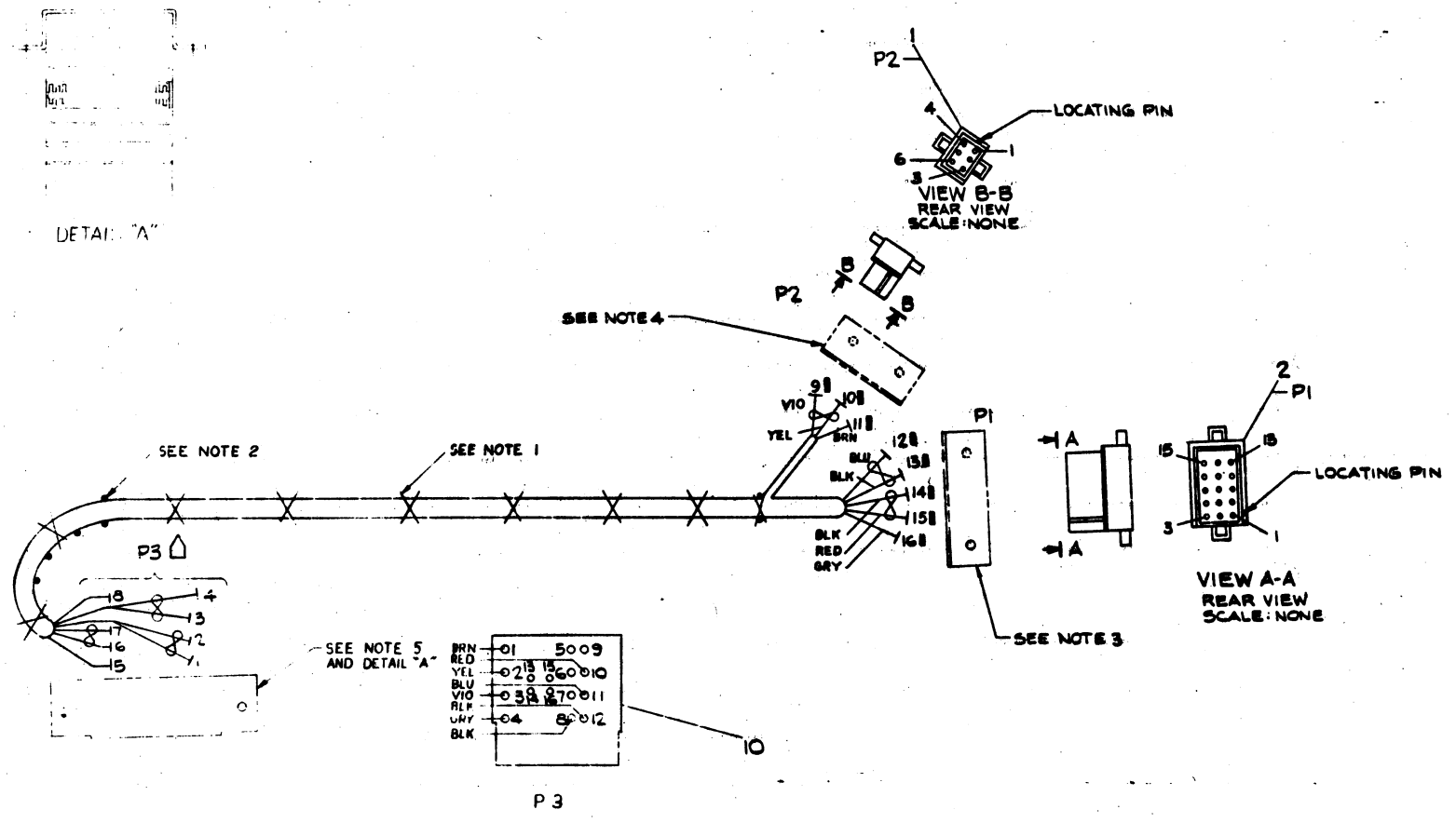
- D DOCUMENT
- DN DOCUMENT CHANGE NOTICE
- PA PAPER TAPE ASCII
- PB PAPER TAPE BINARY
- PM PAPER TAPE READ-IN-MODE

QUANTITY / VARIATION

MADE BY <i>V. Barton</i>		CHECKED <i>V. Barton</i>		SECTION	PA PAPER TAPE ASCII	PB PAPER TAPE BINARY	PM PAPER TAPE READ-IN-MODE	DB11-A	KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE															
DATE <i>11/71</i>		DATE <i>11/71</i>													ISSUED SECT.														
ENG DATE <i>11/71</i>		PROD <i>P. Mayo</i> DATE <i>11/71</i>																											
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION			DB11-A																								
1	DB11-A	Print Set			1																								
2	BB11-A	Maintenance Manual			1																								
-	None	Software			1																								
3	M920	M920 Connector			1																								
TITLE					ASSY. NO.					SIZE CODE					NUMBER					REV.					ECO NO.				
DB11-A										A AL					DB11-A-10										DB11A-00003				
					SHEET / OF /					DIST.																			

WIRE TABLE									
ITEM NO.	DESCRIPTION			FROM		TO		SIGNAL	
	AWG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION		
5	14	RED	3	P3-10	Y-10	15	P1-1	3	+5V
9	14	GRY	5	P3-8	SC-3	14	P1-7	3	GND
6	14	BLK	1	P3-4	SOLD	16	P1-2	3	+15V
8	14	BLK	1	P3-12	SOLD	13	P1-9	3	GND
7	18	BRN	2	P3-11	SOLD	12	P1-13	3	-15V
10	8	VIO	6	P3-1	SOLD	11	P2-2	3	LTG
11	22	-	-	P3-3	SOLD	9	P2-3	3	DATA
11	22	-	-	P3-2	SOLD	10	P2-4	3	DATA
11	22	-	-	P3-13	SOLD	-	P3-14	SOLD	DATA
11	22	-	-	P3-15	SOLD	-	P3-16	SOLD	DATA

NOTES:
 1. USE TIE RINGS (ITEM #4) APPROXIMATELY EVERY THREE INCHES WHEN NECESSARY AND AT EVERY BREAKOUT POINT.
 2. HOLE INDICATES NAIL LOCATIONS FOR ASSEMBLY USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.
 3. USE CONN BRKT GMD-930576-00 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-06.
 4. USE CONN BRKT GMD-930576-00 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-06.
 5. USE CONN. HOLD DOWN B-MD-930576-00 WITH PLATE B-MD-930576-00. USE TAPE DEG-9008734-00. REMOVE ENDS OF TAPE (1209123) REMOVE ENDS OF TAPE AS SHOWN IN DETAIL "A" MOUNT WITH WOOD SCREWS.



0 IN. SCALE 6 IN. 12 IN.

DO NOT REDUCE
DO NOT BUILD FROM REDUCED PRINT

CAUTION—DRAWING SIZE AND SCALE REDUCED FOR MICROFILM NOT TO BE USED FOR PRODUCTION

SYM	DESCRIPTION	QTY	PART NO.	REV
	A/R BUSS WIRE #22AWG	1	910756001	11
	POWER CONN	1	6772	0
	A/R WIRE #14AWG GRY	1	9107570-08	9
	A/R WIRE #18AWG BRN	1	9107560-11	8
	A/R WIRE #18TWP YEL/VIO	1	9107480-47	7
	A/R WIRE #14TWP BLK/BLU	1	9107440-76	6
	A/R WIRE #14TWP BLK/RED	1	9107440-02	5
	A/R WRAP TIE	1	9007031	4
	5 PIN MALE	1	1209378-CC	3
	HOUSING CONN 15 PIN	1	1209351-15	2
	HOUSING CONN 6 PIN	1	1209351-06	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES	DATE 10/1/68	REV 1	SYMBOL 1A	QUANTITY 1	DESCRIPTION G772 SYSTEM UNIT HARNESS	PART NO. 1209352-0	REV 1
DESIGNED BY J. J. J.	CHECKED BY J. J. J.	DATE 10/1/68	TITLE G772 SYSTEM UNIT HARNESS	SYMBOL 1A	QUANTITY 1	DESCRIPTION G772 SYSTEM UNIT HARNESS	REV 1
MATERIAL SEE PARTS LIST				SCALE 1/1	DRY	BY J. J. J.	CHKD J. J. J.

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DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						
ENGINEERING SPECIFICATION					DATE 1/3/71	
TITLE DB11-A Test Procedure						
REVISIONS						
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG V. BASTIANI	APPD V. BASTIANI	SIZE A	CODE SP	NUMBER DB11-A-8	REV
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DEC FORM NO. DRA 107A

SHEET 1 OF 2

ENGINEERING SPECIFICATION	CONTINUATION SHEET
TITLE DB11-A Test Procedure	
Items Needed:	
<ol style="list-style-type: none"> 1) PDP 11/20 with 8K core. 2) Two Bus Testors 	
Configure the system as shown in the figure.	
<pre> graph LR PDP11[PDP 11] --- U1[Unibus] U1 --- DB11[DB11] DB11 --- U2[Unibus] U2 --- Core[Core] U2 --- BT1[BT1] U2 --- BT2[BT2] </pre>	
<ol style="list-style-type: none"> 1) Run ETP with both Bus Testors selected for 15 minutes with no errors. 2) Switch M7212 Card positions in the DB11-B as shown below. 	
<pre> graph LR D1[M7212 D1] --> E1[M7212 E1] E1 --> F1[M7212 F1] </pre>	
<ol style="list-style-type: none"> 3) Repeat step 1 4) Switch M7212 cars position as shown in step 2. 5) Repeat step 1 	
Test complete.	
<u>Acceptance Test:</u>	
<ol style="list-style-type: none"> 1) Unit will have previously passed the test procedure above. 2) Customer system will be configured as it is to be shipped. 3) ETP will be run for the standard length of time with no errors. 	

SIZE A	CODE SP	NUMBER DB11-A-8	REV
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DEC FORM NO 16-1022
DRA 108

SHEET 2 OF 3

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DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE

TITLE In-House Acceptance Test DB11-A

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

PURPOSE

To insure with a high degree of confidence that the DB11 meets Engineering and Product Line Specifications.

PREREQUISITES

1. Successful completion of DB11 Manufacturing Test Procedure and/or Verification Procedure.
2. Successful completion of PDP-11 in-house acceptance test within the past 48 hours, if unit is to be shipped with a processor.

PROCEDURE

Documentation Check

1. All documents as specified in the DB11 MDL.
2. All documents specified below unless included in MDL or maintenance manual.
 - a. Circuit Schematics of all modules
 1. M785 Transceiver
 2. M783 Driver
 3. M784 Receiver
 4. M7212 Address Buffer
 5. M7213 Buffer Master
 6. M7248 Unibus Repeater
 7. M930 Unibus Terminator
 - b. Logic interconnection with pins and signal names
 - c. Wire List
 - d. Maintenance Manual

Hardware Check

This will consist of running or testing any of the following or portions thereof:

1. DB11 Manufacturing Test Procedures
2. DB11 Engineering Specifications
3. GTP with two bus testers enabled for fifteen minutes
4. Switch M7212 cards position, repeat step 3

ENG	<i>1 Boston 9/7/71</i>	APPD	<i>R. J. Farrier 9/7/71</i>	SIZE	CODE	NUMBER	REV
				A	SP	DB11-A-9	-

DEC FORM NO. DRA 107

SHEET 1 OF 2

ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE In House Acceptance Test DB11

5. Repeat step 4 once more.
6. Customer system will be configured as it is to be shipped. GTP will be run for one-half hour with no errors.

Check that proper mounting hardware is sent with unit, if shipped as an add on.

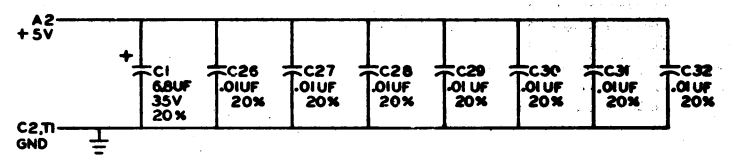
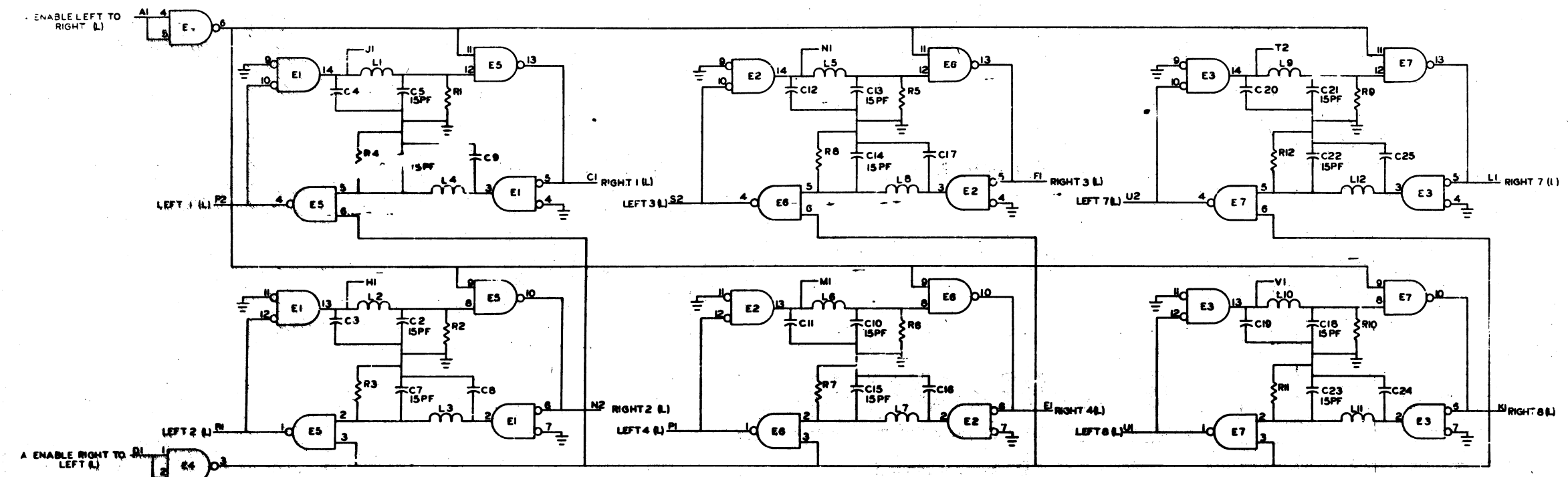
NOTE: The DB11 ADD ONS will be run on the Engineering machine temporarily.

<i>J. Kayalar</i>	SIZE	CODE	NUMBER	REV
	A	SP	DB11-A-9	-

DEC FORM NO 16-1022
DRA 108

SHEET 2 OF 2

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPY RIGHT 1971 BY DIGITAL EQUIPMENT CORPORATION



UNLESS OTHERWISE SPECIFIED
 CAPACITORS ARE 100PF, 100V, 5%
 RESISTORS ARE 1K, 1/4W, 5%
 INDUCTORS ARE .47UH
 PIN 7 = GND ON EACH IC EXCEPT DEC8640
 PIN 14 = +5V
 PIN 1 = GND ON DEC 8640
 PIN 8 = +5V ON DEC 8640
 E1, E2, E3 = DEC 8640
 E4 = DEC 74H00
 E5, E6, E7 = DEC 8680

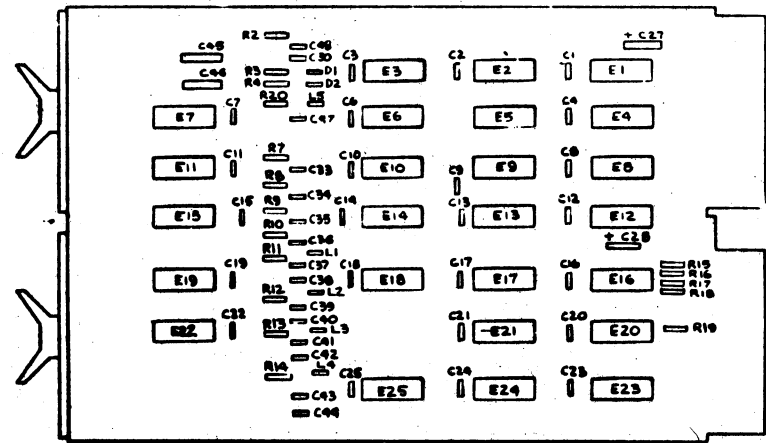
REV. 001
 D CS
 M7212-0-1

DATE: 11/27/71 BY: [Signature] CHECKED: [Signature]	TRANSISTOR & DIODE CONVERSION CHART				TITLE: BUS REPEATER A LINES PART NO: M7212-0-1 REV: C
	DEC	EMA	DEC	EMA	
EQUIPMENT CORPORATION BOSTON, MASSACHUSETTS		PRINTED CIRCUIT REV.		4	

PARTS REFERENCE

ITEM NO.	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	C37, C39, C41, C43, C48	CAP. 15 PF 100V 5%	1000007	5
2	C38, C40, C42, C44, C47	CAP. 100PF 100V 5%	1000016	5
3	C30	CAP. 560PF 100V 5%	1000025	1
4	C33, C34	CAP. 1000PF 100V 5%	1000042	2
5	C27, C28	CAP. 6.8UF 35V 20%	1000067	2
6	C1-C4, C6-C25	CAP. .01UF 100V 20%	1001610	24
7	C46	CAP. .1UF 100V 10%	1002342	1
8	C35, C36	CAP. 1200PF 100V 5%	1002424	2
9	C45	CAP. .15UF 100V 10%	1002629	1
10	D1, D2	DIODE D800	1105366	2
11	R7, R8	RES. 150 1/4W 10%	1300252	2
12	R11-R14, R20	RES. 1K 1/4W 5%	1300365	5
13	R2-R4, R9, R10	RES. 300 1/4W 5%	1301425	5
14	R15-R19	RES. 390 1/4W 5%	1300309	5
15	L1-L3	INDUCTOR 47 UH 10%	1610271	5
16	E5	IC DEC7400	1905575	1
17	E10	IC DEC74H00	1909056	1
18	E8, E16, E17, E20, E21, E24	IC DEC 8C40	1911463	6
19	E3, E12, E15, E18, E23, E25	IC DEC 8881	190...25	6
20	E14	IC DEC 74H04	1909931	1
21	E7, E11, E19, E22	IC DEC 8815	1909713	4
22	E1, E6	IC DEC 7404	1909688	2
23	E2, E4, E9	IC DEC 74C...	1909004	3
24	E13	IC DEC 7474	1905547	1

COMPONENT PLACEMENT



NOTES:

1. DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE. PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM. CAPACITORS WITHOUT NOTED VALUES ARE .01 MFD.
2. GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE	GND	+5V
DEC 8640	PIN 1	PIN 8

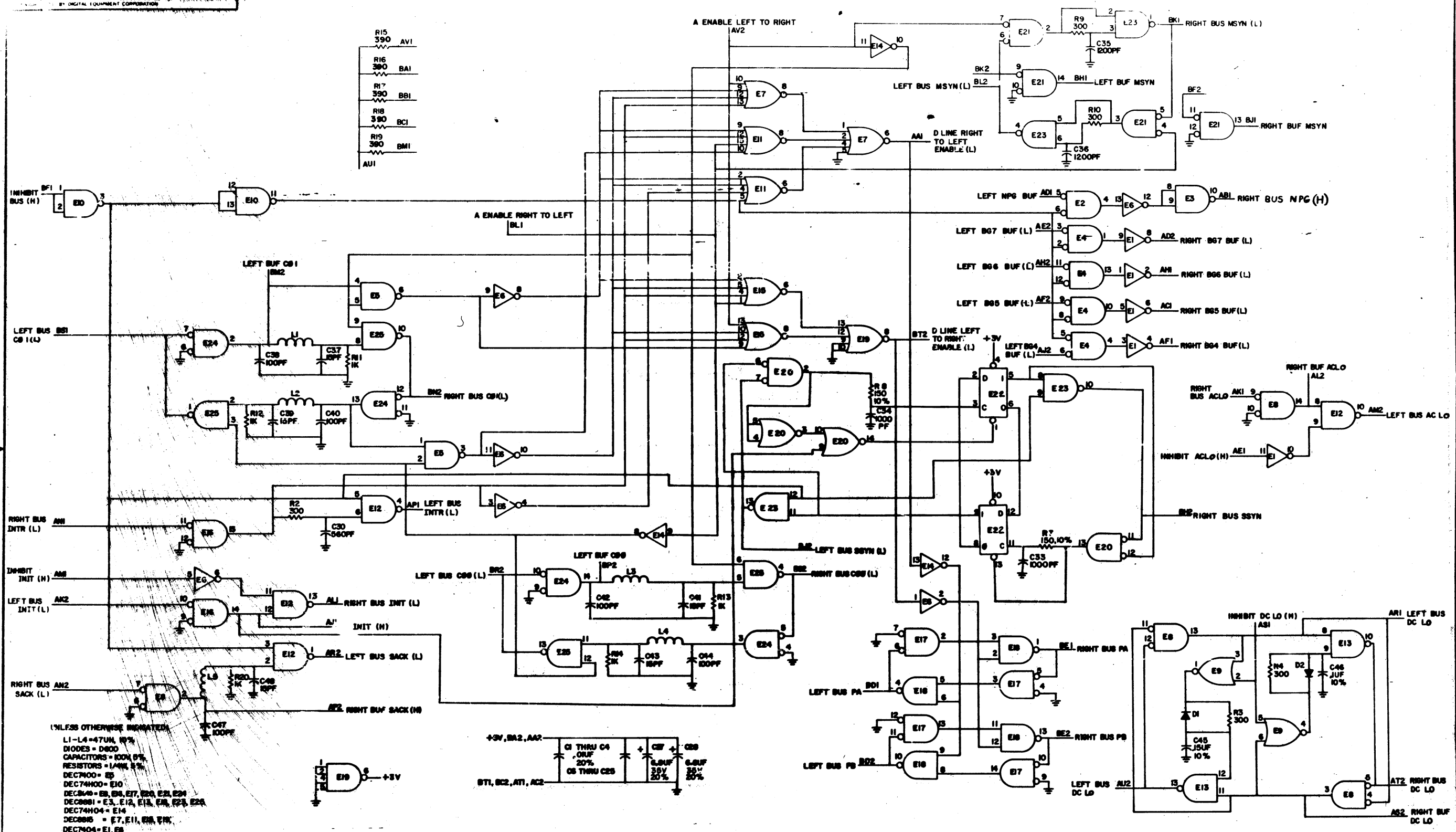
REV	DATE	BY
1	7-72	V. BASTIANI
2	7-72	V. BASTIANI
3	7-72	V. BASTIANI
4	7-72	V. BASTIANI
5	7-72	V. BASTIANI
6	7-72	V. BASTIANI
7	7-72	V. BASTIANI
8	7-72	V. BASTIANI

UNLESS OTHERWISE SPECIFIED TOLERANCES RESISTORS: 1% CAPACITORS: 5% DIMENSIONS: .010	DATE: 1-7-72 DATE: 1-27-72 DATE: 2-1-72 DATE: 2-1-72 DATE: 2-1-72	digital EQUIPMENT CORPORATION TITLE: BUS REPEATER CARD
MATERIAL	SCALE: 1/8" = 1"	SHEET: 1 OF 2 PART NO.: D CS M7213-0-1 REV: L

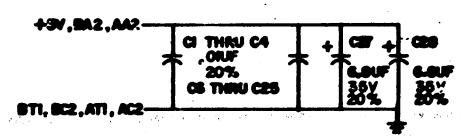
D|CS M7213-0-1 L

UNLESS OTHERWISE INDICATED:
 DIODES - D800
 CAPACITORS - 100M 5%
 RESISTORS - 1/4W 5%

- R15 390 AVI
- R16 390 BAI
- R17 390 BBI
- R18 390 BCI
- R19 390 BDI
- AUI

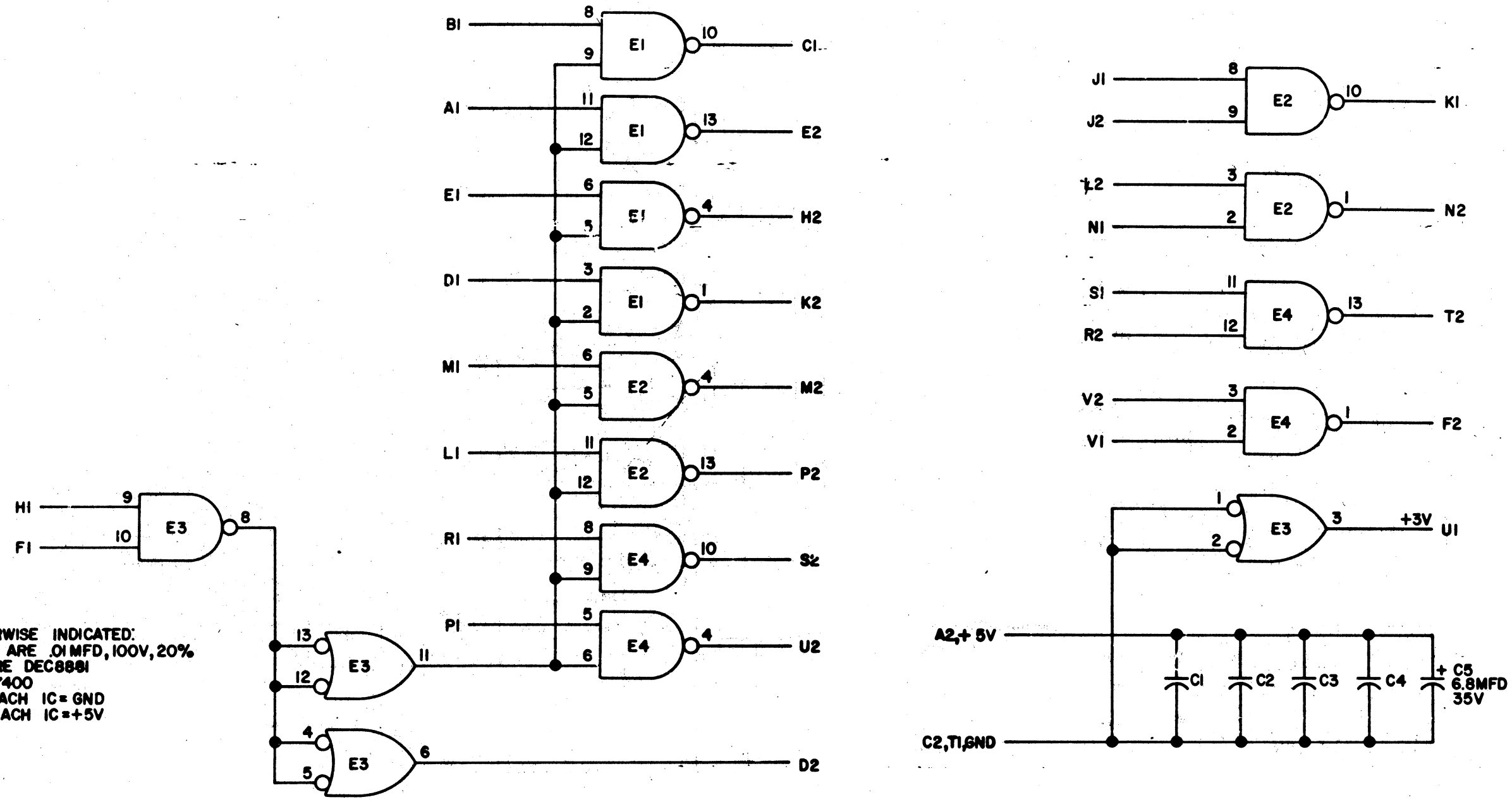


UNLESS OTHERWISE INDICATED:
 L1-L4 - 47UH 10%
 DIODES - D800
 CAPACITORS - 100M 5%
 RESISTORS - 1/4W 5%
 DEC7400 - E5
 DEC7401 - E10
 DEC844 - E8, E9, E17, E20, E21, E24
 DEC881 - E3, E12, E13, E18, E23, E24
 DEC7404 - E14
 DEC885 - E7, E11, E16, E19
 DEC7404 - E1, E8
 DEC7402 - E2, E4, E9
 DEC7474 - E27
 PIN 1 - GND ON DEC6640
 PIN 8 - +3V
 PIN 7 - GND ON ALL OTHER IC'S
 PIN 14 - +3V



TRANSISTOR & DIODE CONVERSION CHART DEC EA DEC EA B809 B4283		BUS REPEATER CARD EQUIPMENT CORPORATION M7215-0-1	
SEE E.C.O. REVISIONS SECTION ON SHEET 4		PRINTED CIRCUIT REV. M L	

THIS SCHEMATIC IS FURNISHED ONLY FOR TEST AND MAINTENANCE PURPOSES. THE CIRCUITS ARE PROPRIETARY IN NATURE AND SHOULD BE TREATED ACCORDINGLY. COPYRIGHT 1969 BY DIGITAL EQUIPMENT CORPORATION

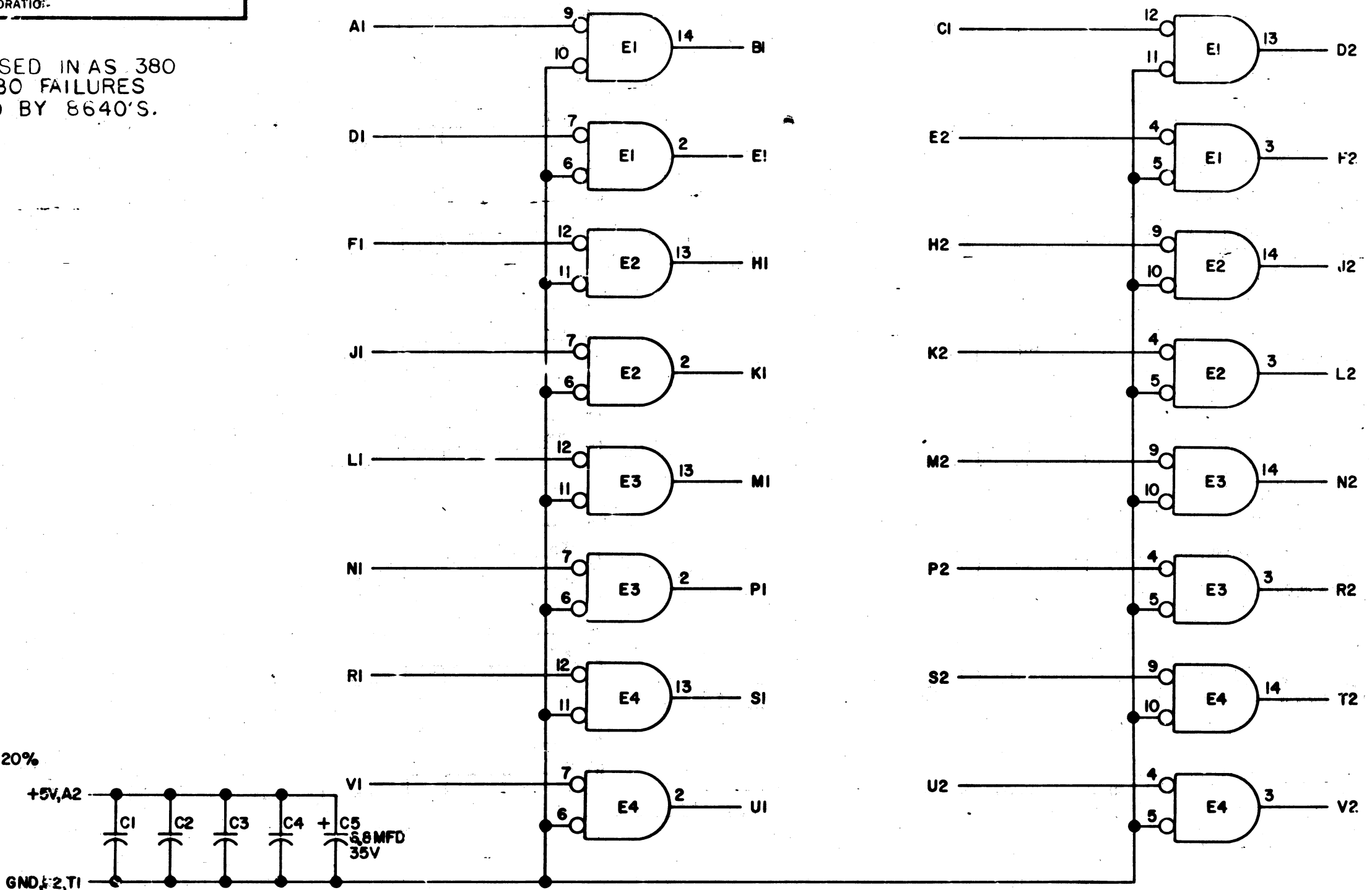


UNLESS OTHERWISE INDICATED:
 CAPACITORS ARE .01MFD, 100V, 20%
 E1, E2, E4 ARE DEC8891
 E3 IS DEC7400
 PIN 7 ON EACH IC = GND
 PIN 14 ON EACH IC = +5V

REVISIONS CHG NO. REV	DRN <i>A. Patey</i>	DATE 11-21-69	TRANSISTOR & DIODE CONVERSION CHART				TITLE UNIBUS DRIVERS M783
	CHK'D <i>T. McKeown</i>	DATE 1-1-70	DEC	EIA	DEC	EIA	
	ENG <i>V.E. Johnson</i>	DATE 2/25/70					
	PROD.	DATE					
EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS		SIZE B CODE CS		NUMBER M783-0-1		REV	
PRINTED CIRCUIT REV.						A B	

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NOTE:
DEC 8640'S WERE PHASED IN AS 380 REPLACEMENTS ANY 380 FAILURES SHOULD BE REPLACED BY 8640'S.



UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01MFD, 100V, 20%
IC'S ARE DEC 8640
PIN 1 ON EACH IC=GND
PIN 8 ON EACH IC=+5V

REVISIONS	CHK	CHG NO	REV
		00001	A
		00002	B
		00003	C

DRN
CHK'D
PRD

DATE	11-18-69
DATE	1-7-70
DATE	3/11/70
DATE	

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

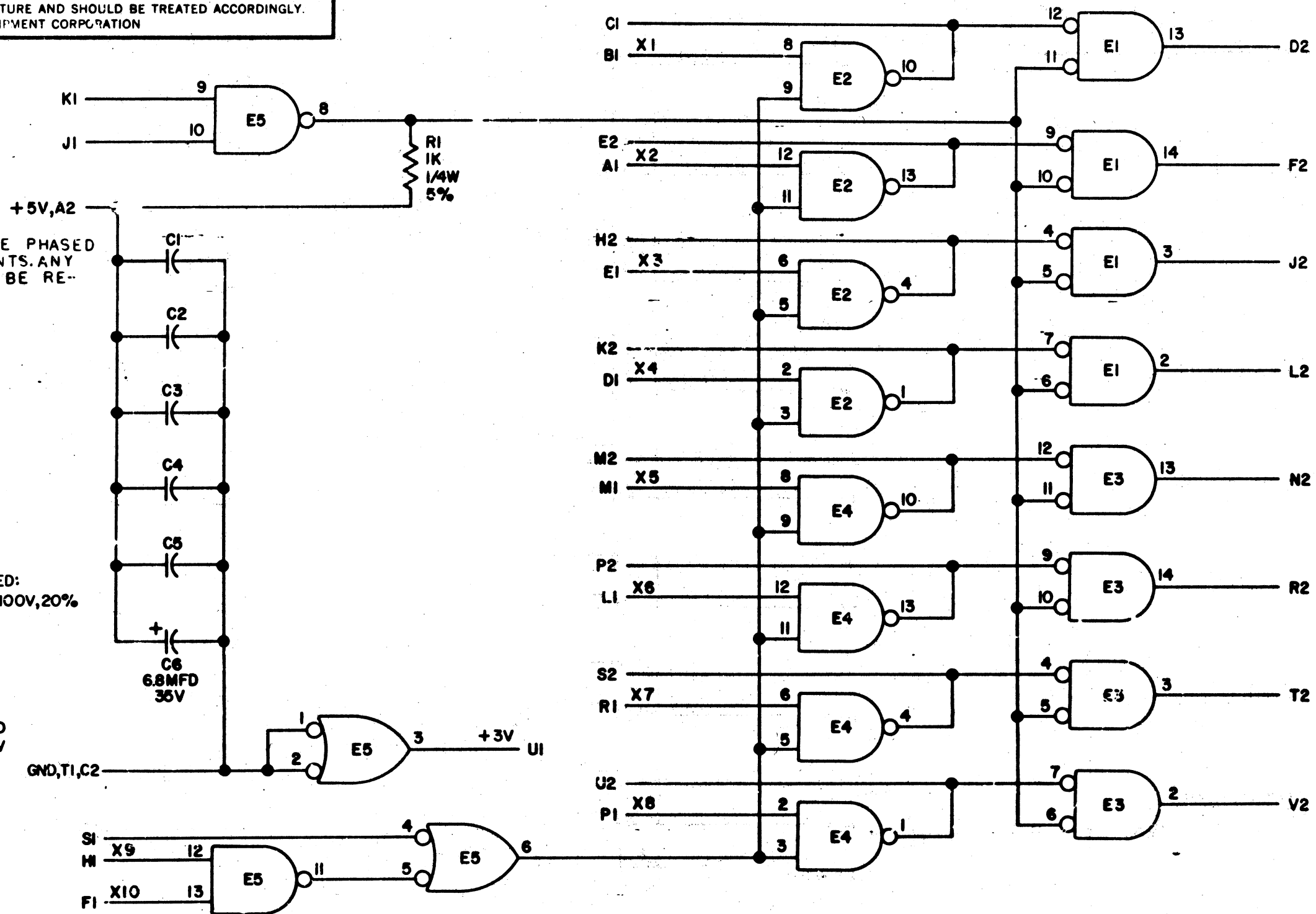
TITLE UNIBUS RECEIVERS M784			
SIZE B	CODE CS	NUMBER M784-0-1	REV C
PRINTED CIRCUIT REV			ABC

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REV. A32 NUMBER 300 SIZE

NOTE:
DEC 8640'S WERE PHASED IN AS 380 REPLACEMENTS. ANY 380 FAILURES SHOULD BE REPLACED BY 8640'S.

UNLESS OTHERWISE INDICATED:
CAPACITORS ARE .01MFD, 100V, 20%
E1, E3 ARE DEC 8640
E2, E4 ARE DEC8881
E5 IS DEC7400
PIN 1 ON E1, E3 = GND
PIN 8 ON E1, E3 = +5V
PIN 7 ON E2, E4, E5 = GND
PIN 14 ON E2, E4, E5 = +5V



REV. NO.	CHG. NO.	REV.
1	1	A
2	2	B

DRN. <i>D. Poley</i>	DATE 11-17-68
CHK'D <i>J. McKeown</i>	DATE 1-7-70
ENG. <i>P. J. Jones</i>	DATE 3/11/70
PROD.	DATE

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

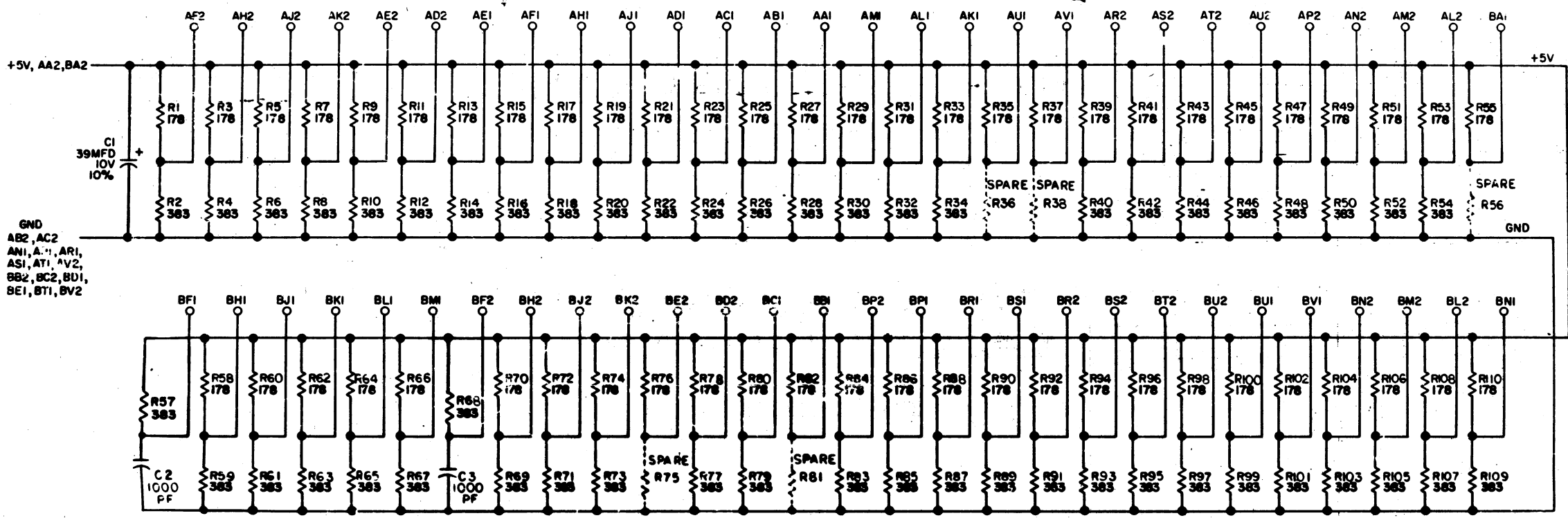
TITLE UNIBUS TRANCEIVERS M785			
SIZE B	CODE CS	NUMBER M785-0-1	REV. B
PRINTED CIRCUIT REV.			AB

DEC FORM NO DRB 102

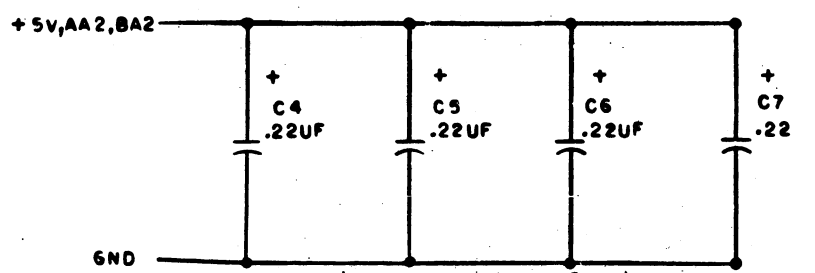
5 Pink Dist. 324,434,4353

P-1

REVISIONS



UNLESS OTHERWISE INDICATED:
RESISTORS ARE 1/4W, 1%
CAPACITORS ARE .001UF, 250V, 20%



REV	CHG	NO	REV
1	00001	A	
2	00002	B	
3	00003	C	

DRN	DATE	CHKD	DATE	PROD	DATE
DOTLES	1-8-69		12-3-69		

TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital		BUS TERMINATOR M930	
SIZE	CODE	NUMBER	REV.
C	CS	M930-0-1	D
PRINTED CIRCUIT REV. 0			

DEC FORM NO. 102

REV. D
NUMBER M930-0-1
SIZE CODE CS

5 PINK DIST. 324,434,455 3 PINK

