

digital

DBII-A
Engineering Drawings
Digital Equipment Corporation

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MASTER DRAWING LIST

DWG. NO.	REV. LET.	NO. OF SHEETS	TITLE
A-PL-DB11-A-0	D	1	DB11-A UA PL
D-AD-7009612-0-0	D	2	WIRED ASSY
A-WT-7009612-0	#	1	AWT REVISION STATUS
D-MU-DB11-A-01	D	1	MODULE UTILIZATION
A-PL-DB11-A-01	C	1	MODULE UTILIZATION PL
D-BS-DB11-A-02	B	1	BUS REPEATER DB11 UNIDIR LINES
D-BS-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	D	1	DB11 INTER CONNECTION DIAGRAM
K-WL-DB11-A-06	K	2	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-SP-DB11-A-8	REF	2	TEST PROCEDURE
A-SP-DB11-A-9	REF	2	IN HOUSE ACCEPTANCE TEST

REVISIONS

REV.	DATE	CHG. NO.	APP'D.
A	5/71	DB11A-1	V.B.
B	6/71	DB11A-2	V.B.
C	9/71	DB11A-3	A.V.
D	1/72	DB11A-4	V.B.
E	7/72	DB11A-5	V.B.
F	7-73	DB11A-6	V.B.
H	10-73	DB11A-7	V.B.
J	10-73	DB11A-8	T.R.
K	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.

DRN. BISSONNETTE	DATE 2/23/71
CHK'D. MACKENZIE	DATE 3/3/71
ENG. <i>[Signature]</i>	DATE 3/16/71
PROJ. ENG. <i>[Signature]</i>	DATE 3/16/71
PROD. <i>[Signature]</i>	DATE 3/25/71
FIRST USED ON	PDP 11
SCALE	1/1
SHEET	1 OF 2

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE		DB11-A	
BUS REPEATER		BUS REPEATER	
SIZE	CODE	NUMBER	
A	ML	DB11-A	
DIST.		U	

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

Rev.	Date	Change Number
P	11-74	DB11A-00013
R	3-75	DB11A-00014
S	1-76	DB11A-00015
T	2-76	DB11A-00016
U	2-76	DB11A-00017

V. BISSONNETTE 2/23/71
Requested by _____ Date _____

[Signature] 3/25/71
Authorized by _____ Date _____

A-ML-DB11-A SHEET 2 OF 2

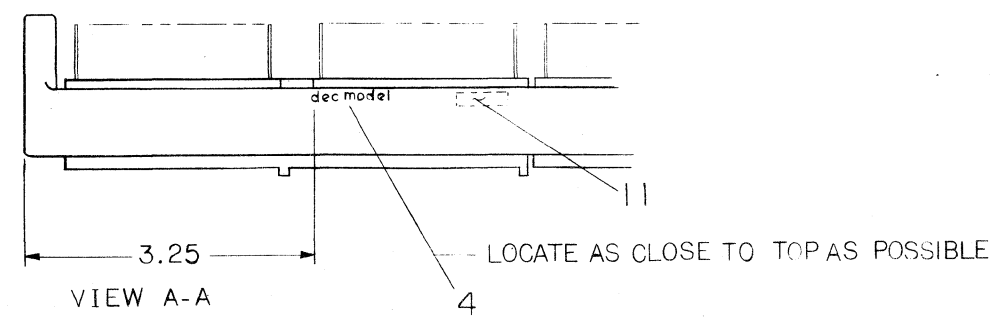
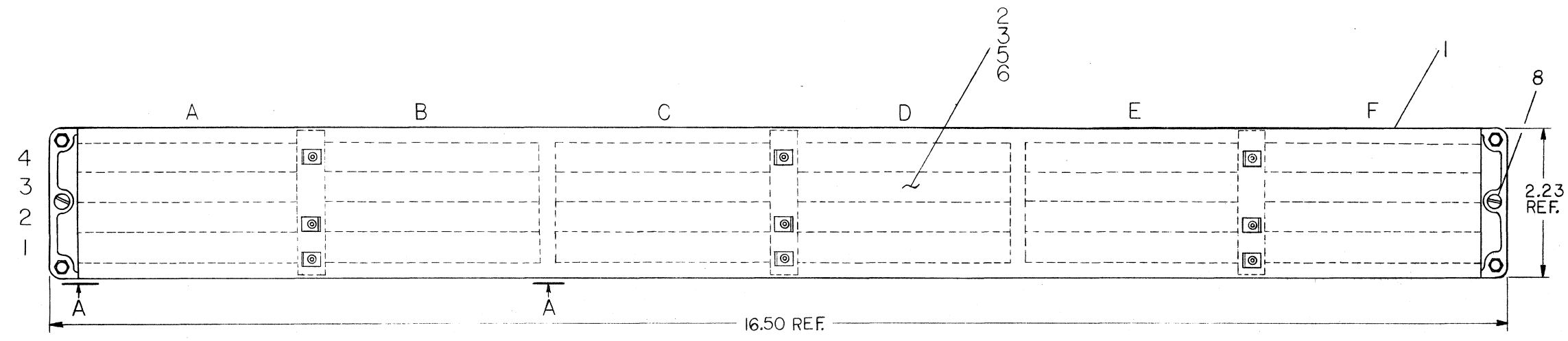
DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS					QUANTITY/VARIATION															
PARTS LIST																				
MADE BY V. BISSONNETTE		CHECKED M. MACKENZIE		SECTION																
DATE 2/23/71		DATE 3/3/71		1																
ENG V. Bissonnette		PROD A. Hirsch		ISSUED SECT.																
DATE 3/16/71		DATE 3-25-71		1																
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																		
1	D-AD-7009612-0-0	WIRED ASSY			1															
2	A-PL-DB11-A-Ø1	MODULE UTILIZATION			1															
3	A-PL-M920-Ø-Ø	INTERNAL BUS CONNECTOR M920			1															
4	E-IA-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		ASSY NO.		SIZE	CODE	NUMBER			REV.	ECO NO.										
DB11-A BUS REPEATER		A-ML-DB11-A		A	PL	DB11-A-Ø			D	DB11A-000013										
		SHEET 1 OF 1		DIST.																

DEC FORM NO.
DRA 110

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REV D
 SIZE CODE D AD 7009612-0-0
 NUMBER 2

- NOTES:
1. ALL VERTICAL HAND WIRING TO RUN OUTSIDE OF CONNECTOR BLOCK
 2. WIRE WRAP ONE END OF 24AWG BLK WIRE TO PIN F02T1 AND SOLDER THE OTHER END TO THE TERMINAL WHICH IS MOUNTED UNDER THE CAPTIVE SCREW.



A/R	COMPRESS - O - CARTON	9905016-4	13
REF	PACKAGING INSTRUCTIONS	3700040-0-0	12
1	DECAL, LOGIC ASSY	A-DC-7411881-01	11
2	RING, "O"	9007835-00	10
1	TERMINAL, SOLDER	9008150-00	9
2	SCREW, CAPTIVE	9008157-00	8
REF	AWT REVISION STATUS	A-WT-7009612-0	7
REF	WIRE LIST	KWLDDBIIA06	REF
A/R	WIRE 30AWG TWP BLK/WHT	9107720-09	6
A/R	WIRE 24 AWG SOLID KYNARINS BLK	9107688-00	5
A/R	LOGIC FRAME DECALS	A-DC-7406371-0-0	4
A/R	WIRE 24 AWG SOLID KYNARINS. RED	9107688-22	3
A/R	WIRE 30AWG SOLID KYNARINS. YEL	9105740-44	2
1	BACK PLANE ASSY	7009152	1

FIRST USED ON OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
DBII-A					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. <i>A. W. W.</i>	DATE 8-3-73	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS	ANGLES	CHK'D. <i>A. W. W.</i>	DATE 10-30-73	TITLE	
.XXX = .005	±0° 30'	ENG. <i>A. W. W.</i>	DATE	WIRED ASS'Y (DBII-A)	
.XX = .02		PROJ. ENG. <i>A. W. W.</i>	DATE		
.X = .1		PROD. <i>A. W. W.</i>	DATE 10-3-73		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY					
MATERIAL		NEXT HIGHER ASSY.		SIZE CODE	NUMBER
				D AD	7009612-0-0
FINISH		SCALE		REV.	D
		SHEET 1 OF 2			

REV	CHANGE NO.	ORIGINATED	DATE
A		DBIIA-00009	12-17-73
B		DBIIA-00008	8-8-74
C		DBIIA-00014	8-8-74
D		DBIIA-00016	8-8-74

DEC FORM NO DRD 100-A

REV D
 NUMBER 2
 SIZE CODE D AD 7009612-0-0

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REV. D
 NUMBER 7009612-0-0
 SIZE CODE DAD

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. WIRES MUST PHYSICALLY RUN TO THE RIGHT OF THE BLOCK AND PINS.
		A03 J2	E01 A2		
		A03 K2	B03 A2	RED ↓	
		A03 L2 A03 M2	D04 A2 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 M1		
		A03 C2	F01 T1		
		A03 V1	C01 C2		
		A03 T1	E01 C2		
		F02 T1	CHASSIS		
		6	RIGHT B04		
GROUND	B03 C2		D02 C2		
RIGHT B04	D04 E2		F02 F2		
GROUND	D02 C2		F02 C2		
6	RIGHT B05	B04 B1	D04 B1	WHT. } TWP BLK. } WHT. } TWP BLK. }	
	GROUND	B03 C2	D01 C2		
	RIGHT B05	D04 B1	F02 T2		
	GROUND	D01 C2	F02 T1		
6	RIGHT B06	B04 A1	D04 A1	WHT. } TWP BLK. } WHT. } TWP BLK. }	
	GROUND	B02 C2	C04 T1		
	RIGHT B06	D04 A1	F02 N2		
	GROUND	C04 T1	F02 T1		
6	RIGHT B07	A04 V1	C04 V1	WHT. } TWP BLK. } WHT. } TWP BLK. }	
	GROUND	A04 T1	C02 T1		
	RIGHT B07	C04 V1	F02 K1		
	GROUND	C02 T1	F02 C2		

FIRST USED ON OPTION/MODEL DBII-A	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES	DRN. R.VOWLES	DATE 8-3-73	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
DECIMALS .xxx = .005 .xx = .02 .x = .1	CHK'D. <i>[Signature]</i>	DATE 10-30-73		
ANGLES ± 0° 30'	ENG. <i>[Signature]</i>	DATE 10-31-73	TITLE WIRED ASS'Y DBIIA	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY	PROJ. ENG. <i>[Signature]</i>	DATE 10-31-73		
MATERIAL + / +	PROD. <i>[Signature]</i>	DATE 10-31-73	SIZE CODE DAD	NUMBER 7009612-0-0
FINISH + / +	NEXT HIGHER ASSY. + / +	SCALE + / +	DIST.	REV. D
		SHEET 2 OF 2		

BRUNING 40-107 15968
 DEC FORM NO. DRD 100-A
 REVISIONS
 CHANGE NO. REV.
 CHK

REV. D
 NUMBER 7009612-0-0
 SIZE CODE DAD

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DRAWING NUMBER	INIT REL	AUTOMATIC WIRE TESTER (AWT) REVISION STATUS																REV.		
	TII	H	J	K	L															
K-WL-DB11-A-06	H	H	J	J	K															
D-AD-7009612-0-0	B	C	C	D	D															
D-CS-5410094-0-1	E	E	E	E	E															

DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D	DATE	
ENG.	DATE	TITLE DB11-A AWT REVISION STATUS
PRO. ENG.	DATE	
PROD.	DATE	
FIRST USED ON		
SCALE		
SHEET 1 OF 1		SIZE CODE A WT
		NUMBER 7009612-0
		REV. L
		DIST.

DRA 123
DEC 16-(325)-1097-N174

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8
7
6
5
4
3
2
1

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

	M920	M930	G772	M920	
	CABLE		CABLE	CABLE	
USAGE	LEFT BUS INIT LEFT BUS INTR LEFT BUS D00 D02 D04 D06 D08 D10 D12 D14 LEFT BUS PA NPG B67 B66 B65 BR5 AC LO A01 A03 A05 A07 A09 A11 A13 A15 A17 SSYN MSYN	RIGHT BUS D01 D03 D05 D07 D09 D11 D13 D15 PB BBSY SACK NPR BR7 BR6 BR4 BG4 DC LO A00 A02 A04 A06 A08 A10 A12 A14 A16 BG5 BG6 BR5 MSYN AC LO SSYN BG7 NPG	RIGHT BUS BBSY BR6 BR7 D01 D03 D05 D07 D09 D11 D13 D15 PB SACK NPR LEFT BUS A01 A03 A05 A07 A09 A11 A13 A15 A16 BG4 BR4 C0 C1 DC LO	-15 +5V -25V LTC AC LO DC LO +8V	RIGHT BUS INIT RIGHT BUS INTR RIGHT BUS D00 D02 D04 D06 D08 D10 D12 D14 RIGHT BUS PA NPG B67 B66 B65 BR5 AC LO A01 A03 A05 A07 A09 A11 A13 A15 A17 SSYN MSYN
A					
USAGE					
B					
USAGE					
C					
USAGE					
D					
USAGE					
E					
USAGE					
F					

IF END OF BUS REPLACE M920 WITH M930
 IF LAST UNIT IN BASIC BOX REPLACE M920 WITH BCIACABLE END WHEN EXPANDING TO PERIPHERAL BOX.
 IF FIRST UNIT IN EXPANDER BOX REPLACE M920 WITH BCI1A CABLE END

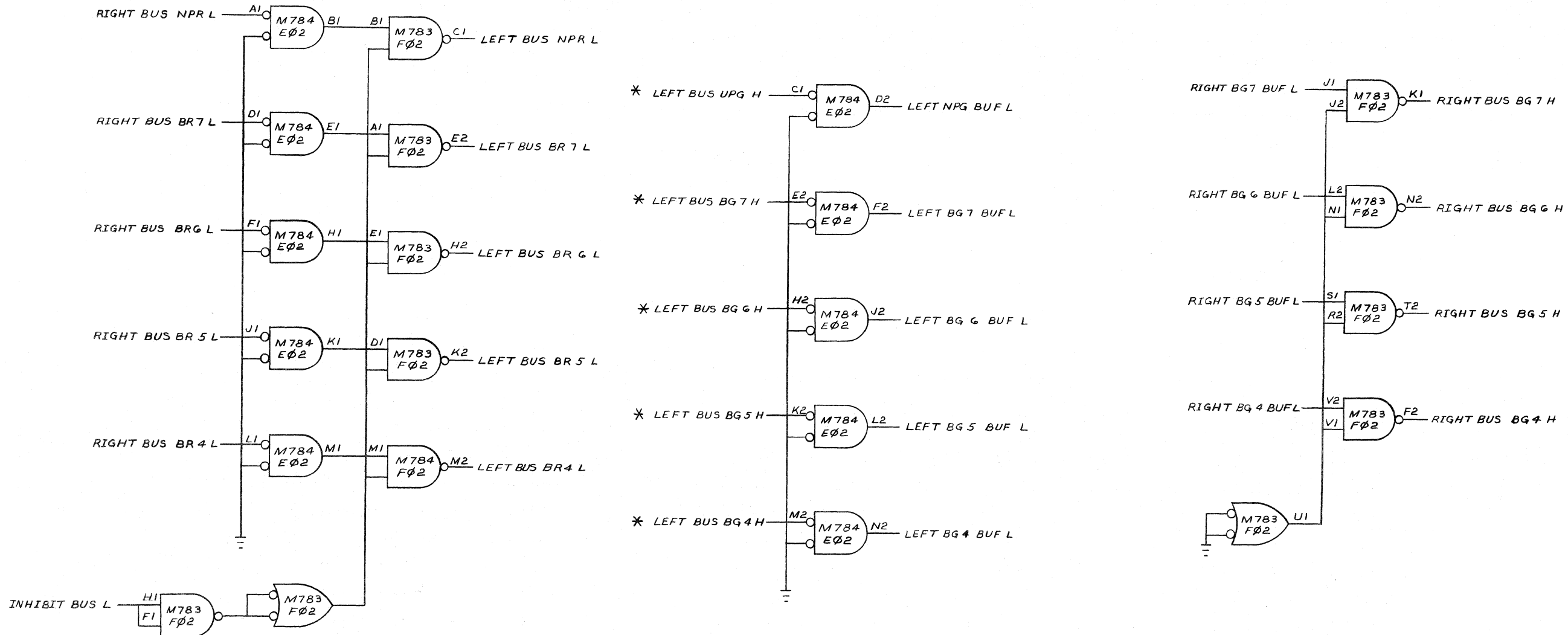
REVISIONS		
CHK	CHANGE NO.	REV.
DBIIA-00001		A
BASTIANI		
6/1/71		
DBIIA-00003		B
M-Dawier 9-13-71		
BASTIANI		
9/15/71		
DBIIA-00012		C
A. D. W. 10-28-71		
BASTIANI		
10-28-71		
DBIIA-00017		D
A. D. W. 12-19-71		
BASTIANI		
3-14-72		

FIRST (SEO) OR PART NO./MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
FDP11				
UNLESS OTHERWISE SPECIFIED				
DIMENSIONS IN INCHES				
DECIMALS FRACTIONS ANGLES				
= FINAL SURFACE QUALITY				
REMOVE BURS AND BREAK SHARP CORNERS				
MATERIAL	PROD	DATE	DATE	DATE
FINISH	SCALE	SHEET	OF	1
MODULE UTILIZATION				
DIGITAL EQUIPMENT CORPORATION				
DBII-A-01				

DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST					QUANTITY/VARIATION									
MADE BY V. BISSONNETTE		CHECKED M. MACKENZIE		SECTION										
DATE 2/4/71		DATE 2/3/71		1										
ENG <i>V. Bissonnette</i>		PROD <i>A. Mackenzie</i>		ISSUED SECT.										
DATE 2/11/71		DATE 3-25-71		1										
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION												
	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 MODULE UTILIZATION (PL)				ASSY NO. D-MU-DB11-A-01	SIZE CODE A PL	NUMBER DB11-A-01			REV. C	ECO NO. DB11A-00012				
				SHEET 1 OF 1	DIST.									

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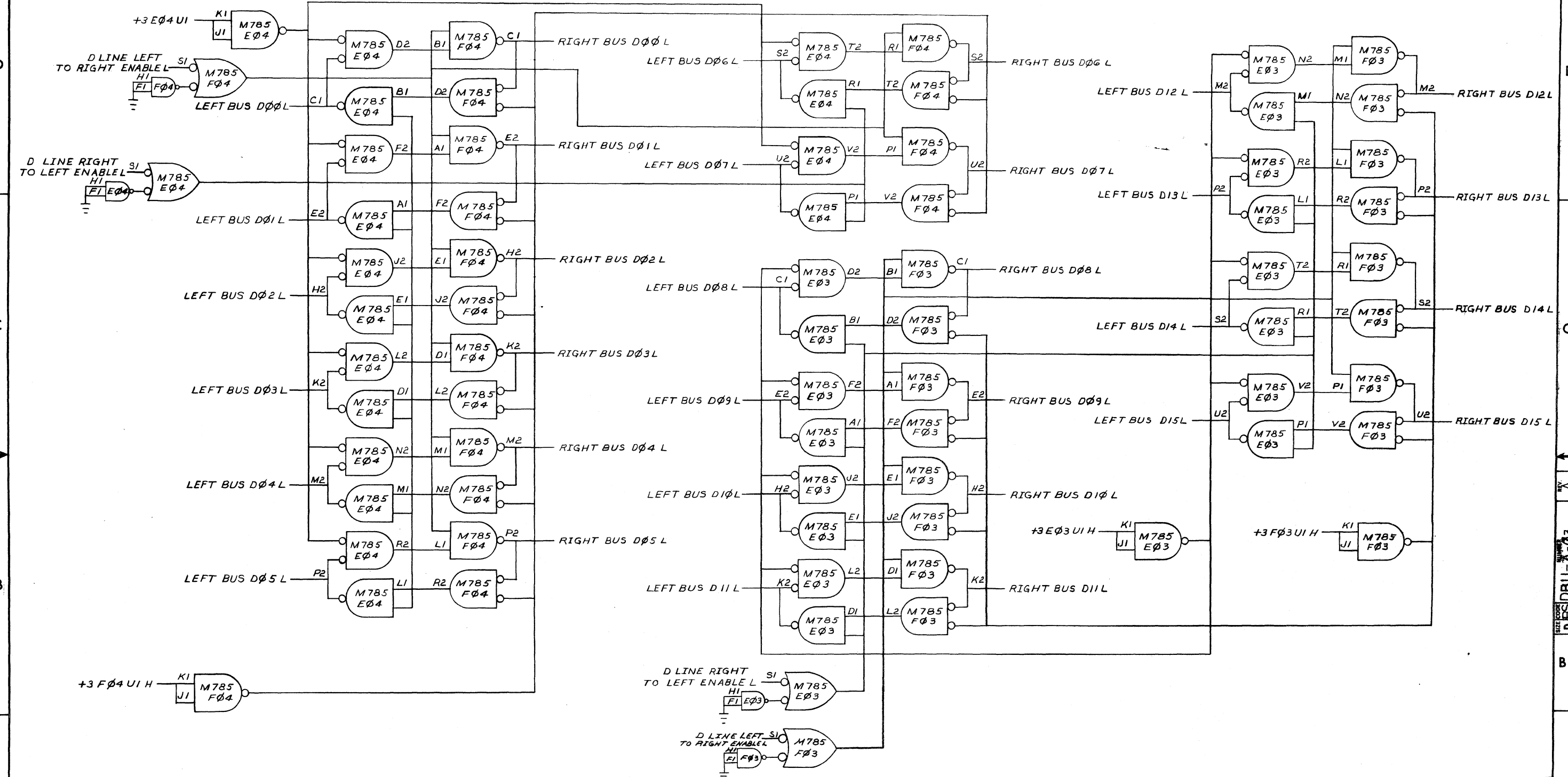
* BUS GRANTS ARE TERMINATED ON THE M7213 MODULE INTO A 390 OHM RESISTOR



REV.	CHG. NO.	DATE	BY
A	0001	4/1/71	BASTIANI
B	0002	6/1/71	V. BASTIANI
C	0003	19-FEB-76	V. BASTIANI
D	0004	3/1/76	V. BASTIANI

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED		DRN. V. BASTIANI	DATE 2-10-71	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED		CHK'D. <i>[Signature]</i>	DATE 3/1/71	
DIMENSION IN INCHES		ENG. <i>[Signature]</i>	DATE 3/1/71	
TOLERANCES		PROJ. ENG. <i>[Signature]</i>	DATE 3/1/71	
DECIMALS FRACTIONS ANGLES		PROD. <i>[Signature]</i>	DATE 3/1/71	BUS REPEATER DB 11 UNIDIR. LINES
± .005 ± 1/64 ± 0°30'		NEXT HIGHER ASSY		
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		A-ML-DB11-A-0		
MATERIAL	FINISH	SCALE	SHEET	OF
SIZE CODE		NUMBER		REV.
D BS DB11-A-02				B

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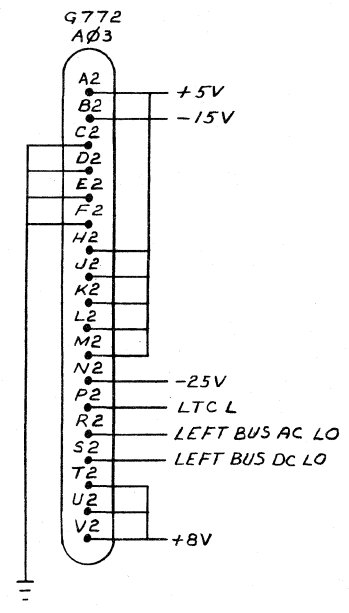
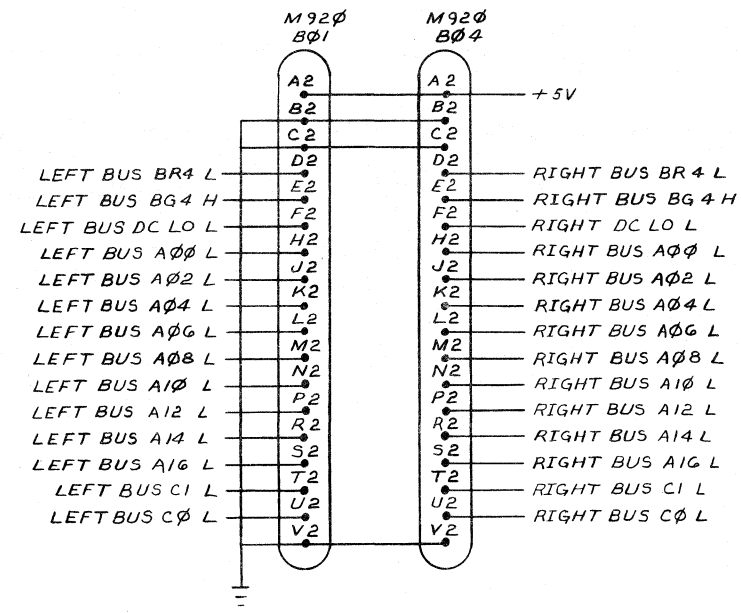
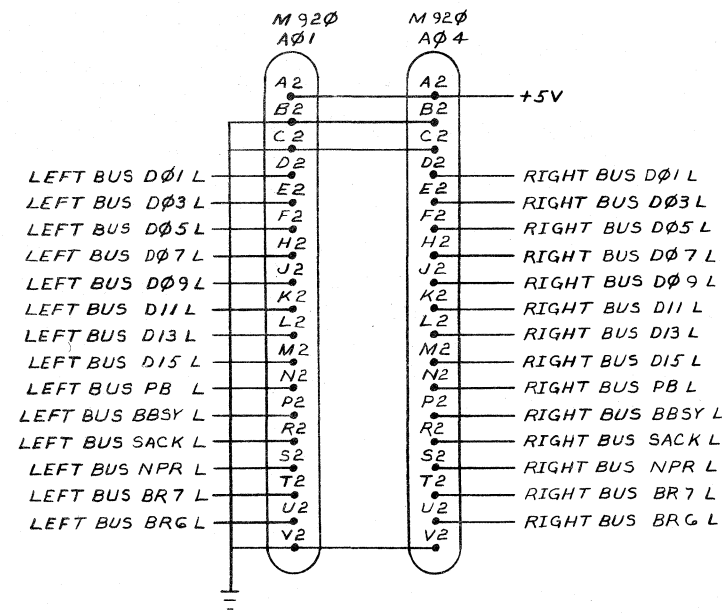
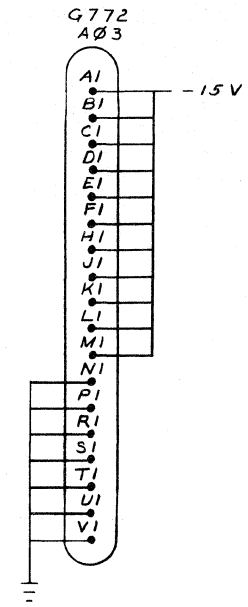
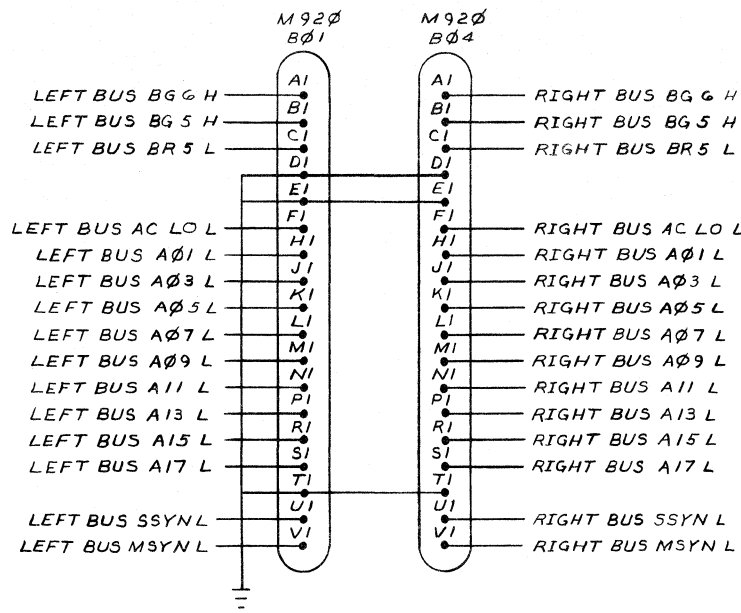
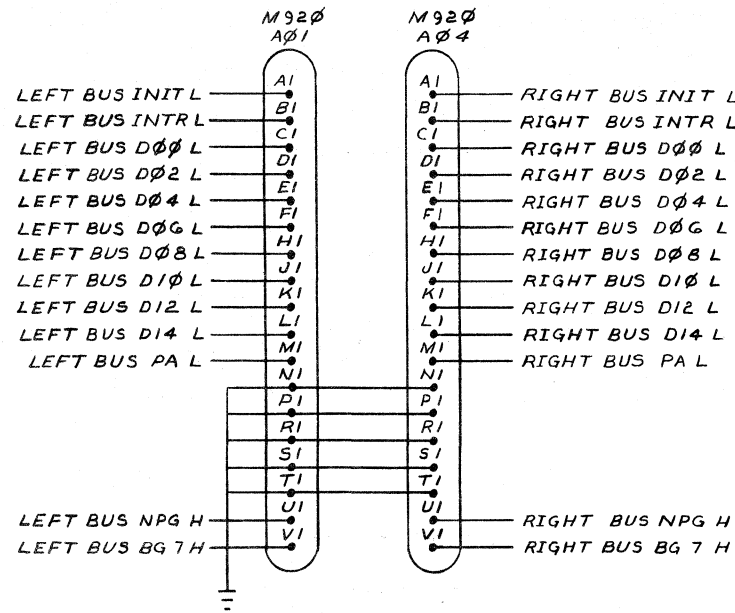
REV.	CHANGE NO.	DATE	BY	CHK
A	0001	6/1/77	BASTIANI	

DEC FORM NO. DRD 102A

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11				
UNLESS OTHERWISE SPECIFIED				
DRN. V.B. 10/11/77		DATE 2-10-77	PARTS LIST	
CHK'D. M. 10/11/77		DATE 3/4/77	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TOLERANCES		DATE 3/1/77	TITLE	
DECIMALS	FRACTIONS	ANGLES	BUS REPEATER DATA LINES	
± .005	± 1/64	± 0°30'		
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS				
MATERIAL		DATE 5/15/77	SIZE CODE	
NEXT HIGHER ASSY		DATE 3/25/77	A-ML-DB11-A-0	
FINISH		SCALE	NUMBER	
		SHEET	DIST.	
		OF	REV. A	

DBS DB11-A-03

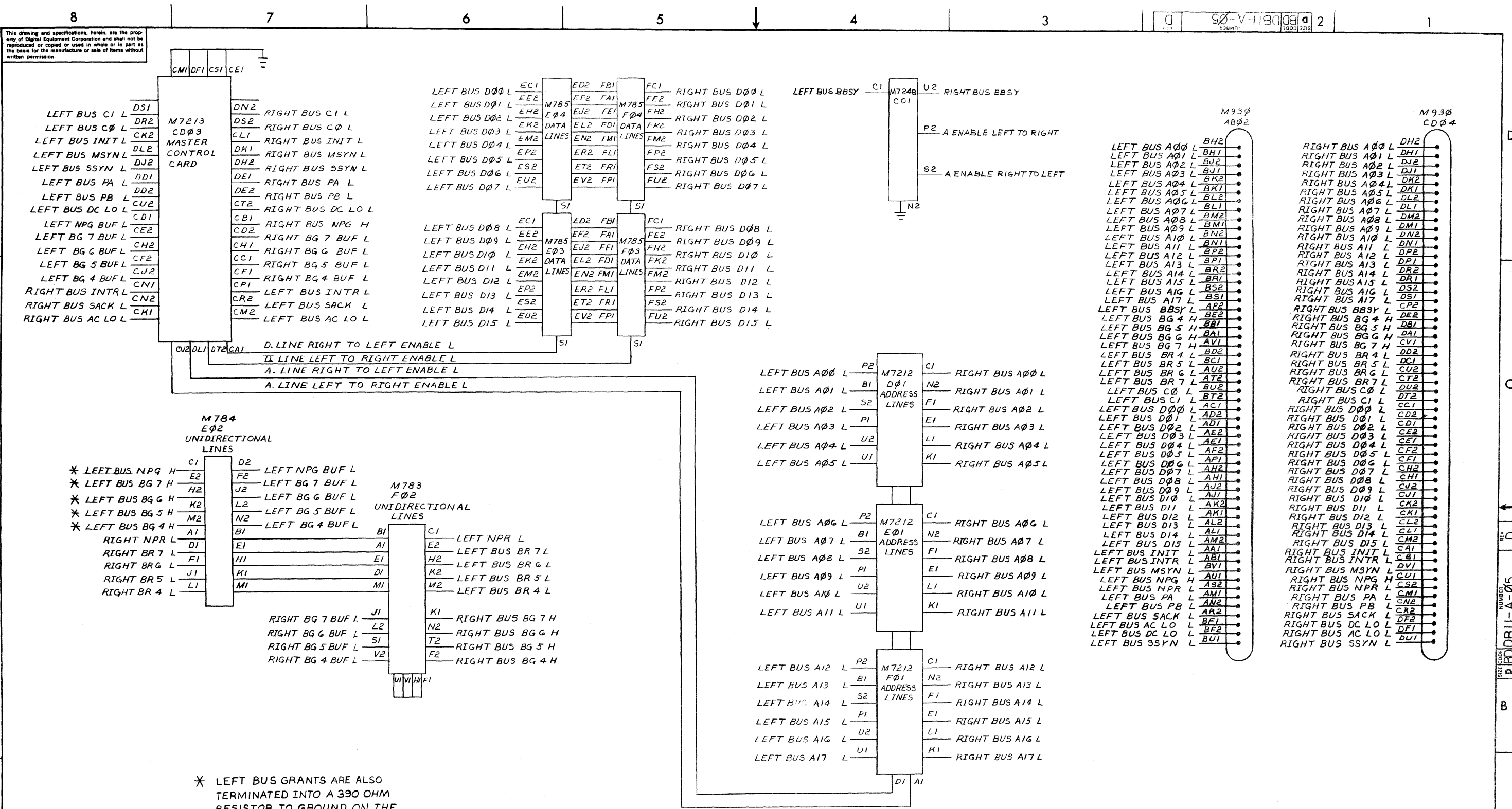
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REV.	CHANGE NO.	CHK.	DATE
A	0001	DBIIA	6/11/71
B	0002	DBIIA	6/17/71
C	0003	DBIIA	6/19/71
D	0004	DBIIA	6/25/71

FIRST USED ON OPTION/ MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED				
DRN. V. BISSONNETTE	DATE 2-12-71	digital EQUIPMENT CORPORATION		
CHK'D. J. M. CHASE	DATE 3/16/71	MAYNARD, MASSACHUSETTS		
ENG. W. H. HENNING	DATE 3/16/71	TITLE		
PROJ. ENG. V. BISSONNETTE	DATE 3/16/71	BUS AND POWER CONNECTIONS		
PRD. J. M. CHASE	DATE 3/25/71	MATERIAL		
NEXT HIGHER ASSY				
A-ML-DBII-A-0				
SCALE				
SHEET OF				
SIZE CODE DBII-A-04				
NUMBER				
REV. B				

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* LEFT BUS GRANTS ARE ALSO TERMINATED INTO A 390 OHM RESISTOR TO GROUND ON THE M7213 MODULE.


REV	NO	DATE	BY	CHKD
A	0001	1/11	BASTIANI	
B	0003	6/17	BASTIANI	
C	0008	9-13-71	BASTIANI	
D	0017	1-15-71	BASTIANI	
E	0017	1-15-71	BASTIANI	
F	0017	1-15-71	BASTIANI	
G	0017	1-15-71	BASTIANI	
H	0017	1-15-71	BASTIANI	
I	0017	1-15-71	BASTIANI	
J	0017	1-15-71	BASTIANI	
K	0017	1-15-71	BASTIANI	
L	0017	1-15-71	BASTIANI	
M	0017	1-15-71	BASTIANI	
N	0017	1-15-71	BASTIANI	
O	0017	1-15-71	BASTIANI	
P	0017	1-15-71	BASTIANI	
Q	0017	1-15-71	BASTIANI	
R	0017	1-15-71	BASTIANI	
S	0017	1-15-71	BASTIANI	
T	0017	1-15-71	BASTIANI	
U	0017	1-15-71	BASTIANI	
V	0017	1-15-71	BASTIANI	
W	0017	1-15-71	BASTIANI	
X	0017	1-15-71	BASTIANI	
Y	0017	1-15-71	BASTIANI	
Z	0017	1-15-71	BASTIANI	

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO.	ITEM NO.
PDPII				
UNLESS OTHERWISE SPECIFIED	DRN	DATE	PARTS LIST	
UNLESS OTHERWISE SPECIFIED	CHK'D	DATE	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	
TOLERANCES	ENG.	DATE	TITLE	
DECIMALS FRACTIONS ANGLES	PROJ. ENG.	DATE	DB 11 INTERCONNECTION DIAGRAM	
± .005 ± .004 ± .030	PROQ.	DATE	NEXT HIGHER ASSY	
FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS			A-ML-DB11-A	
MATERIAL			SCALE	NUMBER
			D	DB11-A-05
FINISH			SHEET	REV. D
			25	



DRWG NO	REV LTR
K-WL-DBII-A-Ø6	K

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	V/R
F	DBIIA-00007	10-17-73	SW
H	DBIIA-00009	12-17-73	T.R.
J	DBIIA-00015	1-20-76	V/B
K	DBIIA-00017	19FEB/76	V/S

DRAWN <i>Murdock</i> <i>M^{as} Kenzie</i>	DATE 3/3/71	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE WIRE LIST	
CHECKED <i>A. Nothman</i>	DATE 3/4/71		FOR TAPE* FILE*	
ENG <i>V. Bortolin</i>	DATE 3/14/71	ASSY NO D-AD-7008311-0-0	SIZE K	CODE WL
PROJ ENG <i>V. Bortolin</i>	DATE 3/16/71		DWG. NO. DBII-A-Ø6	REV LTR K
PROD <i>A. Heisch</i>	DATE 3/24/71	SCALE $\frac{1}{1}$	SHEET 1	OF 1
		DIST.		

DB11A,K
RUN NAME

WRP288.V34(62)-1 31-JUL-75
A/P PIN ORDER BAY * Q DRAW RV RG Y X Z
NAME PIN ORDER OPT

23-Feb-76
REMARKS

15:21 PAGE 1
NC LENGTH EXCEPTIONS
FLAG

RUN
NUMBER

A/P	PIN	ORDER	BAY *	Q	DRAW	RV	RG	Y	X	Z	REMARKS	NC	LENGTH	EXCEPTIONS	RUN
NAME	PIN	ORDER	ORDER		OPT							FLAG			NUMBER
+3V	F02V1		1-01 *	2						2		N	0-1/8		1
+3V	F02U1		1-02 *							1		N	0-5/8		1
+3V	F02R2		1-03 *							2		N	0-4/8		1
+3V	F02N1		1-04 *							1		N	1		1
+3V	F02J2		1-05 *							2		N	0-5/8		1
+3V	F02H1		1-06 *							1		N	0-1/8		1
+3V	F02F1		1-07 *							1					1
+3V			1										3-0/8		1
A EN LEFT TO RIGHT	C01P2		1-01 *							2		N	2		2
A EN LEFT TO RIGHT	C03V2		1-02 *							1		N	2-3/8		2
A EN LEFT TO RIGHT	D01A1	E01A1	1-03 *							2		N	3		2
A EN LEFT TO RIGHT	E01A1		1-04 *							1	2-3	N	3-2/8		2
A EN LEFT TO RIGHT	F01A1		1-05 *							1					2
A EN LEFT TO RIGHT			1										10-5/8		2
A EN RIGHT TO LEFT	D01D1	C01S2	1-01 *	2						2	1-5	N	1-7/8		3
A EN RIGHT TO LEFT	C01S2		1-02 *							1		N	3-3/8		3
A EN RIGHT TO LEFT	D03L1	E01D1	1-03 *							2		N	3-1/8		3
A EN RIGHT TO LEFT	E01D1		1-04 *							1	2-3	N	3-2/8		3
A EN RIGHT TO LEFT	F01D1		1-05 *							1					3
A EN RIGHT TO LEFT			1										11-5/8		3
AA2	A02A2	A01A2	1-01 *							2		N	1		4
AA2	A01A2		1-02 *							1	2-2	N	3-2/8		4
AA2	B01A2		1-03 *							2		N	1		4
AA2	B02A2		1-04 *							1					4
AA2			1										5-2/8		4
AB2	A01B2		1-01 *							1		N	1		5
AB2	A02B2		1-02 *							2		N	1-4/8		5
AB2	A04B2		1-03 *							1		N	5-6/8		5
AB2	C04B2		1-04 *							1					5
AB2			1										8-2/8		5
AN1	A01N1		1-01 *							1		N	1		6
AN1	A02N1	A04N1	1-02 *							2		N	1-4/8		6
AN1	A04N1		1-03 *							1	3-5	N	5-6/8		6
AN1	C04N1		1-04 *							1					6
AN1			1										8-2/8		6
AP1	A01P1		1-01 *							1		N	1		7
AP1	A02P1	A04P1	1-02 *							2		N	1-4/8		7
AP1	A04P1		1-03 *							1	3-5	N	5-6/8		7
AP1	C04P1		1-04 *							1					7
AP1			1										8-2/8		7
AR1	A01R1		1-01 *							1		N	1		8
AR1	A02R1	A04R1	1-02 *							2		N	1-4/8		8
AR1	A04R1		1-03 *							1	3-5	N	5-6/8		8
AR1	C04R1		1-04 *							1					8
AR1			1										8-2/8		8

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER BAY - Q DRAW RV RG Y X Z	31-Jul-75	23-Feb-76	15:21	PAGE 2	NC LENGTH EXCEPTIONS	RUN NUMBER
	NAME PIN ORDER	Q DRAW RV RG Y X Z	REMARKS	FLAG			
AS1	A01S1	1-01 *		N	1		9
AS1	A02S1	1-02 *		N	1-4/8		9
AS1	A04S1	1-03 *	3-5	N	5-6/8		9
AS1	C04S1	1-04 *					9
AS1		1			8-2/8		9
AV2	A01V2	1-01 *		N	1		10
AV2	A02V2	1-02 *		N	1-4/8		10
AV2	A04V2	1-03 *		N	5-6/8		10
AV2	C04V2	1-04 *					10
AV2		1			8-2/8		10
B INIT	C03J1					1-PIN RUN	11
BB2	B01B2	1-01 *		N	1		12
BB2	B02B2	1-02 *		N	1-4/8		12
BB2	B04B2	1-03 *		N	5-6/8		12
BB2	D04B2	1-04 *					12
BB2		1			8-2/8		12
BD1	B01D1	1-01 *		N	1		13
BD1	B02D1	1-02 *		N	1-4/8		13
BD1	B04D1	1-03 *	3-5	N	5-6/8		13
BD1	D04D1	1-04 *					13
BD1		1			8-2/8		13
BE1	B01E1	1-01 *		N	1		14
BE1	B02E1	1-02 *		N	1-4/8		14
BE1	B04E1	1-03 *	3-5	N	5-6/8		14
BE1	D04E1	1-04 *					14
BE1		1			8-2/8		14
BV2	A01C2	1-01 *		N	2-1/8		15
BV2	A01T1	1-02 *		N	1-5/8		15
BV2	B01C2	1-03 *		N	2-1/8		15
BV2	B01T1	1-04 *		N	0-4/8		15
BV2	B01V2	1-05 *		N	1		15
BV2	B02V2	1-06 *		N	1-4/8		15
BV2	B04V2	1-07 *		N	5-6/8		15
BV2	D04V2	1-08 *					15
BV2		1			14-5/8		15
CA2	A04A2	1-01 *	1	N	3-2/8		16
CA2	B04A2	1-02 *		N	3		16
CA2	C04A2	1-03 *		N	3-2/8		16
CA2	D04A2	1-04 *					16
CA2		1			9-4/8		16
D LEFT TO RIGHT EN	D03T2	1-01 *		N	5-5/8		17
D LEFT TO RIGHT EN	F04S1	1-02 *		N	1		17
D LEFT TO RIGHT EN	F03S1	1-03 *					17
D LEFT TO RIGHT EN		1			6-5/8		17

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER BAY - Q DRAW RV RG Y X Z	31-Jul-75	23-Feb-76	15:21	PAGE 3	NC LENGTH EXCEPTIONS	RUN NUMBER
	NAME PIN ORDER	Q DRAW RV RG Y X Z	REMARKS	FLAG			
D RIGHT TO LEFT EN	C03A1	1-01 *		N	7-4/8		18
D RIGHT TO LEFT EN	E03S1	1-02 *		N	1		18
D RIGHT TO LEFT EN	E04S1	1-03 *					18
D RIGHT TO LEFT EN		1			8-4/8		18
E2B1	F02B1	1-01 *		N	3-2/8		19
E2B1	F02B1	1-02 *	2-3				19
E2B1		1			3-2/8		19
E2E1	F02E1	1-01 *		N	2-6/8		20
E2E1	F02A1	1-02 *	2-2				20
E2E1		1			2-6/8		20
E2H1	F02H1	1-01 *		N	3		21
E2H1	F02E1	1-02 *	2-2				21
E2H1		1			3-0/8		21
E2K1	F02K1	1-01 *		N	2-5/8		22
E2K1	F02D1	1-02 *	2-1				22
E2K1		1			2-5/8		22
E2M1	F02M1	1-01 *		N	3-2/8		23
E2M1	F02M1	1-02 *	2-3				23
E2M1		1			3-2/8		23
E3	E03J1	1-01 *		N	0-1/8		24
E3	E03K1	1-02 *		N	1-4/8		24
E3	E03U1	1-03 *					24
E3		1			1-5/8		24
E3A1	F03A1	1-01 *		N	4-1/8		25
E3A1	F03F2	1-02 *	2-6				25
E3A1		1			4-1/8		25
E3B1	F03B1	1-01 *		N	3-5/8		26
E3B1	F03D2	1-02 *	2-4				26
E3B1		1			3-5/8		26
E3D1	F03D1	1-01 *		N	4-1/8		27
E3D1	F03L2	1-02 *	2-6				27
E3D1		1			4-1/8		27
E3D2	F03D2	1-01 *		N	3-1/8		28
E3D2	F03B1	1-02 *					28
E3D2		1			3-1/8		28
E3E1	F03E1	1-01 *		N	3-7/8		29
E3E1	F03J2	1-02 *	2-4				29
E3E1		1			3-7/8		29
E3F2	F03F2	1-01 *		N	2-7/8		30
E3F2	F03A1	1-02 *					30
E3F2		1			2-7/8		30

DB11A,K RUN NAME	WRP288.V34(62)-1 31-JUL-75				Q	DRAW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15121 NC FLAG	PAGE 4		RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											LENGTH	EXCEPTIONS	
E3J2		F03J2		1-01 *										N	3-1/8		31
E3J2		F03E1		1-02 *													31
E3J2				1											3-1/8		31
E3L1		E03L1		1-01 *							1			N	3-7/8	2-5	32
E3L1		F03R2		1-02 *													32
E3L1				1											3-7/8		32
E3L2		E03L2		1-01 *							1			N	2-5/8		33
E3L2		F03D1		1-02 *													33
E3L2				1											2-5/8		33
E3M1		E03M1		1-01 *							1			N	3-5/8	2-4	34
E3M1		F03N2		1-02 *													34
E3M1				1											3-5/8		34
E3N2		F03N2		1-01 *							1			N	3-3/8		35
E3N2		F03M1		1-02 *													35
E3N2				1											3-3/8		35
E3P1		E03P1		1-01 *							1			N	4-1/8	2-6	36
E3P1		F03V2		1-02 *													36
E3P1				1											4-1/8		36
E3R1		E03R1		1-01 *							1			N	3-5/8	2-4	37
E3R1		F03T2		1-02 *													37
E3R1				1											3-5/8		37
E3R2		F03R2		1-01 *							1			N	2-7/8		38
E3R2		F03L1		1-02 *													38
E3R2				1											2-7/8		38
E3T2		E03T2		1-01 *							1			N	3-1/8		39
E3T2		F03R1		1-02 *													39
E3T2				1											3-1/8		39
E3V2		E03V2		1-01 *							1			N	2-7/8		40
E3V2		F03P1		1-02 *													40
E3V2				1											2-7/8		40
E4		E04D2		1-01 *							1			N	3-1/8		41
E4		F04B1		1-02 *													41
E4				1											3-1/8		41
E4P1		E04P1		1-01 *							1			N	4-1/8		42
E4P1		F04V2		1-02 *													42
E4P1				1											4-1/8		42
E4R1		E04R1		1-01 *							1			N	3-5/8		43
E4R1		F04T2		1-02 *													43
E4R1				1											3-5/8		43
E4U1		F04J1		1-01 *							1			N	0-1/8		44
E4U1		E04K1		1-02 *							2			N	1-4/8		44
E4U1		E04U1		1-03 *													44
E4U1				1											1-5/8		44

DB11A,K RUN NAME	WRP288.V34(62)-1 31-JUL-75				Q	DRAW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15121 NC FLAG	PAGE 5		RUN NUMBER
	A/P	PIN NAME	ORDER PIN	BAY - ORDER											LENGTH	EXCEPTIONS	
E4V2		E04V2		1-01 *							1			N	2-7/8		45
E4V2		F04P1		1-02 *													45
E4V2				1											2-7/8		45
EA		E04A1		1-01 *							1			N	4-1/8		46
EA		F04F2		1-02 *													46
EA				1											4-1/8		46
EB		E04B1		1-01 *							1			N	3-5/8		47
EB		F04D2		1-02 *													47
EB				1											3-5/8		47
ED		E04D1		1-01 *							1			N	4-1/8		48
ED		F04L2		1-02 *													48
ED				1											4-1/8		48
EE		E04E1		1-01 *							1			N	3-7/8		49
EE		F04J2		1-02 *													49
EE				1											3-7/8		49
EF		F04F2		1-01 *							1			N	2-7/8		50
EF		F04A1		1-02 *													50
EF				1											2-7/8		50
EJ		E04J2		1-01 *							1			N	3-1/8		51
EJ		F04E1		1-02 *													51
EJ				1											3-1/8		51
EK		E04L1		1-01 *							1			N	3-7/8		52
EK		F04R2		1-02 *													52
EK				1											3-7/8		52
EL		F04L2		1-01 *							1			N	2-5/8		53
EL		F04D1		1-02 *													53
EL				1											2-5/8		53
EM		E04M1		1-01 *							1			N	3-5/8		54
EM		F04N2		1-02 *													54
EM				1											3-5/8		54
EN		E04N2		1-01 *							1			N	3-3/8		55
EN		F04M1		1-02 *													55
EN				1											3-3/8		55
ER		E04R2		1-01 *							1			N	2-7/8		56
ER		F04L1		1-02 *													56
ER				1											2-7/8		56
ET		E04T2		1-01 *							1			N	3-1/8		57
ET		F04R1		1-02 *													57
ET				1											3-1/8		57

DB11A,K RUN NAME	WRP288.V34(62)-1 A/P PIN NAME	31-Jul-75 ORDER PIN ORDER	BAY - ORDER	Q	DRAW RV RG Y OPT	X	Z	23-Feb-76 REMARKS	15:21 NC LENGTH EXCEPTIONS FLAG	PAGE 6	RUN NUMBER
F3	F03J1		1-01 *				1		N 0-1/8		58
F3	F03K1		1-02 *				2		N 1-4/8		58
F3	F03U1		1-03 *								58
F3			1						1-5/8		58
F4	F04J1		1-01 *				1		N 0-1/8		59
F4	F04K1		1-02 *				2		N 1-4/8		59
F4	F04U1		1-03 *								59
F4			1						1-5/8		59
GND	E03C2		1-01 *				1		N 1		60
GND	E03H1		1-02 *				2		N 0-1/8		60
GND	E03F1		1-03 *				1		N 0-5/8		60
GND	E04H1		1-04 *				2		N 0-1/8		60
GND	E04F1		1-05 *				1		N 0-5/8		60
GND	E04C2		1-06 *				2		N 3-2/8		60
GND	F04C2		1-07 *				1		N 1		60
GND	F04H1		1-08 *				2		N 0-1/8		60
GND	F04F1		1-09 *				1		N 0-5/8		60
GND	F03C2		1-10 *				2		N 0-5/8		60
GND	F03F1		1-11 *				1		N 0-1/8		60
GND	F03H1		1-12 *								60
GND			1						8-2/8		60
GROUND	C03U1		1-01 *	2			2		N 3-3/8		61
GROUND	D02T1		1-02 *								61
GROUND			1						3-3/8		61
INHIBIT ACLO	C03E1		1-01 *				1		N 0-4/8		62
INHIBIT ACLO	C03C2		1-02 *								62
INHIBIT ACLO			1						0-4/8		62
INHIBIT BUS	D03F1		1-01 *				1		N 0-5/8		63
INHIBIT BUS	D03C2	C01N2	1-02 *				2		N 2-7/8		63
INHIBIT BUS	C01N2	C01C2	1-03 *				1		N 1-5/8		63
INHIBIT BUS	C01C2		1-04 *								63
INHIBIT BUS			1						5-1/8		63
INHIBIT DCLO	C03T1		1-01 *				1		N 0-1/8		64
INHIBIT DCLO	C03S1		1-02 *								64
INHIBIT DCLO			1						0-1/8		64
INHIBIT INIT	C03M1		1-01 *				1		N 3-7/8		65
INHIBIT INIT	D03T1		1-02 *								65
INHIBIT INIT			1						3-7/8		65
L B D00	A01C1	A02C1	1-01 *				2		N 1		66
L B D00	A02C1		1-02 *				1	6-3	N 11-7/8		66
L B D00	E04C1		1-03 *								66
L B D00			1						12-7/8		66
L B D01	A01D2		1-01 *				2		N 1		67
L B D01	A02D2		1-02 *				1		N 11-7/8		67
L B D01	E04E2		1-03 *								67
L B D01			1						12-7/8		67

DB11A,K RUN NAME	WRP288.V34(62)-1 A/P PIN NAME	31-Jul-75 ORDER PIN ORDER	BAY - ORDER	Q	DRAW RV RG Y OPT	X	Z	23-Feb-76 REMARKS	15:21 NC LENGTH EXCEPTIONS FLAG	PAGE 7	RUN NUMBER
L B D02	A01D1	A02D1	1-01 *				2		N 1		68
L B D02	A02D1		1-02 *				1	6-5	N 12-3/8		68
L B D02	E04H2		1-03 *								68
L B D02			1						13-3/8		68
L B D03	A01E2	A02E2	1-01 *				2		N 1		69
L B D03	A02E2		1-02 *				1	6-5	N 12-3/8		69
L B D03	E04K2		1-03 *								69
L B D03			1						13-3/8		69
L B D04	A01E1		1-01 *				2		N 1		70
L B D04	A02E1		1-02 *				1		N 12-7/8		70
L B D04	E04M2		1-03 *								70
L B D04			1						13-7/8		70
L B D05	A01F2	A02F2	1-01 *				2		N 1		71
L B D05	A02F2		1-02 *				1	6-6	N 12-5/8		71
L B D05	E04P2		1-03 *								71
L B D05			1						13-5/8		71
L B D06	A01F1		1-01 *				2		N 1		72
L B D06	A02F1		1-02 *				1		N 13-1/8		72
L B D06	E04S2		1-03 *								72
L B D06			1						14-1/8		72
L B D07	A01H2		1-01 *				2		N 1		73
L B D07	A02H2		1-02 *				1		N 13-1/8		73
L B D07	E04U2		1-03 *								73
L B D07			1						14-1/8		73
L B D08	A01H1		1-01 *				2		N 1		74
L B D08	A02H1		1-02 *				1		N 10-7/8		74
L B D08	E03C1		1-03 *								74
L B D08			1						11-7/8		74
L B D09	A01J2		1-01 *				2		N 1		75
L B D09	A02J2		1-02 *				1		N 10-7/8		75
L B D09	E03E2		1-03 *								75
L B D09			1						11-7/8		75
L B D10	A01J1		1-01 *				2		N 1		76
L B D10	A02J1		1-02 *				1		N 11-3/8		76
L B D10	E03H2		1-03 *								76
L B D10			1						12-3/8		76
L B D11	A01K2		1-01 *				2		N 1		77
L B D11	A02K2		1-02 *				1		N 11-3/8		77
L B D11	E03K2		1-03 *								77
L B D11			1						12-3/8		77
L B D12	A01K1		1-01 *				2		N 1		78
L B D12	A02K1		1-02 *				1		N 11-7/8		78
L B D12	E03M2		1-03 *								78
L B D12			1						12-7/8		78

DB11A,K
RUN NAME

WRP288,V34(62)-1 31-Jul-75
A/P PIN ORDER BAY - Q DRAW RV RG Y X Z
NAME PIN ORDER OPT

23-Feb-76
REMARKS

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NC LENGTH EXCEPTIONS
FLAG

RUN
NUMBER

L B D13	A01L2		1-01 *						2		N 1	79
L B D13	A02L2		1-02 *						1		N 11-5/8	79
L B D13	E03P2		1-03 *									79
L B D13			1								12-5/8	79
L B D14	A01L1		1-01 *						2		N 1	80
L B D14	A02L1		1-02 *						1		N 12-1/8	80
L B D14	E03S2		1-03 *									80
L B D14			1								13-1/8	80
L B D15	A01M2		1-01 *						2		N 1	81
L B D15	A02M2		1-02 *						1		N 12-1/8	81
L B D15	E03U2		1-03 *									81
L B D15			1								13-1/8	81
LEFT A00	B02H2	B01H2	1-01 *						2		N 1	82
LEFT A00	B01H2		1-02 *						1	3-7	N 6-4/8	82
LEFT A00	D01P2		1-03 *									82
LEFT A00			1								7-4/8	82
LEFT A01	B02H1		1-01 *						2		N 1	83
LEFT A01	B01H1		1-02 *						1		N 5-1/8	83
LEFT A01	D01B1		1-03 *									83
LEFT A01			1								6-1/8	83
LEFT A02	B02J2		1-01 *						2		N 1	84
LEFT A02	B01J2		1-02 *						1		N 6-5/8	84
LEFT A02	D01S2		1-03 *									84
LEFT A02			1								7-5/8	84
LEFT A03	B02J1		1-01 *						2		N 1	85
LEFT A03	B01J1		1-02 *						1		N 6-3/8	85
LEFT A03	D01P1		1-03 *									85
LEFT A03			1								7-3/8	85
LEFT A04	B02K2		1-01 *						2		N 1	86
LEFT A04	B01K2		1-02 *						1		N 6-6/8	86
LEFT A04	D01U2		1-03 *									86
LEFT A04			1								7-6/8	86
LEFT A05	B02K1		1-01 *						2		N 1	87
LEFT A05	B01K1		1-02 *						1		N 6-6/8	87
LEFT A05	D01U1		1-03 *									87
LEFT A05			1								7-6/8	87
LEFT A06	B02L2		1-01 *						2		N 1	88
LEFT A06	B01L2		1-02 *						1		N 8-5/8	88
LEFT A06	E01P2		1-03 *									88
LEFT A06			1								9-5/8	88
LEFT A07	B02L1	B01L1	1-01 *						2		N 1	89
LEFT A07	B01L1		1-02 *						1	4-3	N 7-2/8	89
LEFT A07	E01R1		1-03 *									89
LEFT A07			1								8-2/8	89

DB11A,K
RUN NAME

WRP288,V34(62)-1 31-Jul-75
A/P PIN ORDER BAY - Q DRAW RV RG Y X Z
NAME PIN ORDER OPT

23-Feb-76
REMARKS

15121 PAGE 9
NC LENGTH EXCEPTIONS
FLAG

RUN
NUMBER

LEFT A08	B02M2		1-01 *						2		N 1	90
LEFT A08	B01M2		1-02 *						1		N 8-6/8	90
LEFT A08	E01S2		1-03 *									90
LEFT A08			1								9-6/8	90
LEFT A09	B02M1		1-01 *						2		N 1	91
LEFT A09	B01M1		1-02 *						1		N 8-4/8	91
LEFT A09	E01P1		1-03 *									91
LEFT A09			1								9-4/8	91
LEFT A10	B02N2		1-01 *						2		N 1	92
LEFT A10	B01N2		1-02 *						1		N 8-7/8	92
LEFT A10	E01U2		1-03 *									92
LEFT A10			1								9-7/8	92
LEFT A11	B02N1		1-01 *						2		N 1	93
LEFT A11	B01N1		1-02 *						1		N 8-7/8	93
LEFT A11	E01U1		1-03 *									93
LEFT A11			1								9-7/8	93
LEFT A12	B02P2	B01P2	1-01 *						2		N 1	94
LEFT A12	B01P2		1-02 *						1	6-1	N 11	94
LEFT A12	F01P2		1-03 *									94
LEFT A12			1								12-0/8	94
LEFT A13	B02P1		1-01 *						2		N 1	95
LEFT A13	B01P1		1-02 *						1		N 9-5/8	95
LEFT A13	F01B1		1-03 *									95
LEFT A13			1								10-5/8	95
LEFT A14	B02R2	B01R2	1-01 *						2		N 1	96
LEFT A14	B01R2		1-02 *						1	6-2	N 11-1/8	96
LEFT A14	F01S2		1-03 *									96
LEFT A14			1								12-1/8	96
LEFT A15	B02R1		1-01 *						2		N 1	97
LEFT A15	B01R1		1-02 *						1		N 10-7/8	97
LEFT A15	F01P1		1-03 *									97
LEFT A15			1								11-7/8	97
LEFT A16	B02S2	B01S2	1-01 *						2		N 1	98
LEFT A16	B01S2		1-02 *						1	6-2	N 11-2/8	98
LEFT A16	F01U2		1-03 *									98
LEFT A16			1								12-2/8	98
LEFT A17	B02S1	B01S1	1-01 *						2		N 1	99
LEFT A17	B01S1		1-02 *						1	6-3	N 11-2/8	99
LEFT A17	F01U1		1-03 *									99
LEFT A17			1								12-2/8	99
LEFT BG4	B01E2		1-01 *						2		N 1	100
LEFT BG4	B02E2		1-02 *						1		N 9	100
LEFT BG4	E02M2	D03M1	1-03 *						2		N 3-1/8	100
LEFT BG4	D03M1		1-04 *									100
LEFT BG4			1								13-1/8	100

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER	31-Jul-75 BAY - Q	DRAW RV RG Y X Z	23-Feb-76 REMARKS	15121 NC LENGTH EXCEPTIONS FLAG	PAGE 10	RUN NUMBER
LEFT BG4 BUF	C03J2	1-01 *			N	6-5/8	101
LEFT BG4 BUF	E02N2	1-02 *					101
LEFT BG4 BUF		1				6-5/8	101
LEFT BG5	B01B1	1-01 *			N	1	102
LEFT BG5	B02B1	1-02 *			N	9-1/8	102
LEFT BG5	E02K2	1-03 *	D03C1		N	3-7/8	102
LEFT BG5	D03C1	1-04 *					102
LEFT BG5		1				14-0/8	102
LEFT BG5 BUF	C03F2	1-01 *			N	6-5/8	103
LEFT BG5 BUF	E02L2	1-02 *					103
LEFT BG5 BUF		1				6-5/8	103
LEFT BG6	B01A1	1-01 *			N	1	104
LEFT BG6	B02A1	1-02 *			N	9-1/8	104
LEFT BG6	E02H2	1-03 *	D03B1		N	3-7/8	104
LEFT BG6	D03B1	1-04 *					104
LEFT BG6		1				14-0/8	104
LEFT BG6 BUF	C03H2	1-01 *			N	6-1/8	105
LEFT BG6 BUF	E02J2	1-02 *					105
LEFT BG6 BUF		1				6-1/8	105
LEFT BG7	A01V1	1-01 *	A02V1		N	1	106
LEFT BG7	A02V1	1-02 *			N	9-3/8	106
LEFT BG7	E02E2	1-03 *	D03A1		N	3-5/8	106
LEFT BG7	D03A1	1-04 *					106
LEFT BG7		1				14-0/8	106
LEFT BG7 BUF	C03E2	1-01 *			N	6-1/8	107
LEFT BG7 BUF	E02F2	1-02 *					107
LEFT BG7 BUF		1				6-1/8	107
LEFT BR4	B01D2	1-01 *			N	1	108
LEFT BR4	B02D2	1-02 *			N	11-7/8	108
LEFT BR4	F02M2	1-03 *					108
LEFT BR4		1				12-7/8	108
LEFT BR5	B01C1	1-01 *			N	1	109
LEFT BR5	B02C1	1-02 *			N	11-7/8	109
LEFT BR5	F02K2	1-03 *					109
LEFT BR5		1				12-7/8	109
LEFT BR6	A01U2	1-01 *	A02U2		N	1	110
LEFT BR6	A02U2	1-02 *			N	12-4/8	110
LEFT BR6	F02H2	1-03 *					110
LEFT BR6		1				13-4/8	110
LEFT BR7	A01T2	1-01 *			N	1	111
LEFT BR7	A02T2	1-02 *			N	12-3/8	111
LEFT BR7	F02E2	1-03 *					111
LEFT BR7		1				13-3/8	111
LEFT BUF C00	D03P2					1-PIN RUN	112

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER	31-Jul-75 BAY - Q	DRAW RV RG Y X Z	23-Feb-76 REMARKS	15121 NC LENGTH EXCEPTIONS FLAG	PAGE 11	RUN NUMBER
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	B01F1	1-01 *			N	1	117
LEFT BUS ACLO	B02F1	1-02 *			N	4-1/8	117
LEFT BUS ACLO	C03M2	1-03 *	A03R2		N	5-3/8	117
LEFT BUS ACLO	A03R2	1-04 *					117
LEFT BUS ACLO		1				10-4/8	117
LEFT BUS BBSY	A01P2	1-01 *	A02P2		N	1	118
LEFT BUS BBSY	A02P2	1-02 *	C01C1		N	5-1/8	118
LEFT BUS BBSY	C01C1	1-03 *					118
LEFT BUS BBSY		1				6-1/8	118
LEFT BUS C00	B01U2	1-01 *			N	1	119
LEFT BUS C00	B02U2	1-02 *			N	5-7/8	119
LEFT BUS C00	D03R2	1-03 *					119
LEFT BUS C00		1				6-7/8	119
LEFT BUS C01	B02T2	1-01 *			N	1	120
LEFT BUS C01	B01T2	1-02 *	D03S1		N	6-1/8	120
LEFT BUS C01	D03S1	1-03 *					120
LEFT BUS C01		1				7-1/8	120
LEFT BUS DCLO	B01F2	1-01 *			N	1	121
LEFT BUS DCLO	B02F2	1-02 *			N	4-5/8	121
LEFT BUS DCLO	C03U2	1-03 *	A03S2		N	6	121
LEFT BUS DCLO	A03S2	1-04 *					121
LEFT BUS DCLO		1				11-5/8	121
LEFT BUS INIT	A01A1	1-01 *			N	1	122
LEFT BUS INIT	A02A1	1-02 *			N	7-3/8	122
LEFT BUS INIT	C03K2	1-03 *					122
LEFT BUS INIT		1				8-3/8	122
LEFT BUS INTR	A01B1	1-01 *			N	1	123
LEFT BUS INTR	A02B1	1-02 *			N	7-3/8	123
LEFT BUS INTR	C03P1	1-03 *					123
LEFT BUS INTR		1				8-3/8	123
LEFT BUS MSYN	B01V1	1-01 *			N	1	124
LEFT BUS MSYN	B02V1	1-02 *			N	5-3/8	124
LEFT BUS MSYN	D03L2	1-03 *					124
LEFT BUS MSYN		1				6-3/8	124
LEFT BUS NPG	A01U1	1-01 *	A02U1		N	1	125
LEFT BUS NPG	A02U1	1-02 *			N	9-2/8	125
LEFT BUS NPG	E02C1	1-03 *	C03V1		N	4-3/8	125
LEFT BUS NPG	C03V1	1-04 *					125
LEFT BUS NPG		1				14-5/8	125

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN NAME	31-Jul-75 ORDER PIN	BAY - ORDER	Q	DRW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15:21 NC FLAG	PAGE 12 LENGTH EXCEPTIONS	RUN NUMBER
LEFT BUS PA	A01M1		1-01 *							2			N 1		126
LEFT BUS PA	A02M1		1-02 *							1			N 8-1/8		126
LEFT BUS PA	D03D1		1-03 *												126
LEFT BUS PA			1										9-1/8		126
LEFT BUS PB	A01N2		1-01 *							2			N 1		127
LEFT BUS PB	A02N2		1-02 *							1			N 7-7/8		127
LEFT BUS PB	D03D2		1-03 *												127
LEFT BUS PB			1										8-7/8		127
LEFT BUS SACK	A01R2		1-01 *							2			N 1		128
LEFT BUS SACK	A02R2		1-02 *							1			N 6-1/8		128
LEFT BUS SACK	C03R2		1-03 *												128
LEFT BUS SACK			1										7-1/8		128
LEFT BUS SSYN	B01U1		1-01 *							2			N 1		129
LEFT BUS SSYN	B02U1		1-02 *							1			N 5-3/8		129
LEFT BUS SSYN	D03J2		1-03 *												129
LEFT BUS SSYN			1										6-3/8		129
LEFT NPG BUF	C03D1		1-01 *							1			N 5-7/8		130
LEFT NPG BUF	E02D2		1-02 *												130
LEFT NPG BUF			1										5-7/8		130
LEFT NPR	A02S2	A01S2	1-01 *							2			N 1		131
LEFT NPR	A01S2		1-02 *							1		6-7	N 12-3/8		131
LEFT NPR	F02C1		1-03 *												131
LEFT NPR			1										13-3/8		131
RB D00	A04C1	C04C1	1-01 *	2						2		3-5	N 5-6/8		132
RB D00	C04C1		1-02 *							1		5-0	N 8-4/8		132
RB D00	F04C1		1-03 *												132
RB D00			1										14-2/8		132
RB D01	A04D2		1-01 *							2			N 5-6/8		133
RB D01	C04D2		1-02 *							1			N 8-5/8		133
RB D01	F04E2		1-03 *												133
RB D01			1										14-3/8		133
RB D02	A04D1	C04D1	1-01 *	2						2		3-5	N 5-6/8		134
RB D02	C04D1		1-02 *							1		5-2	N 8-7/8		134
RB D02	F04H2		1-03 *												134
RB D02			1										14-5/8		134
RB D03	A04E2	C04E2	1-01 *							2			N 5-6/8		135
RB D03	C04E2		1-02 *							1		5-1	N 9		135
RB D03	F04K2		1-03 *												135
RB D03			1										14-6/8		135
RB D04	A04E1	C04E1	1-01 *	2						2		3-5	N 5-6/8		136
RB D04	C04E1		1-02 *							1		5-3	N 9-3/8		136
RB D04	F04M2		1-03 *												136
RB D04			1										15-1/8		136

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN NAME	31-Jul-75 ORDER PIN	BAY - ORDER	Q	DRW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15:21 NC FLAG	PAGE 13 LENGTH EXCEPTIONS	RUN NUMBER
RB D05	A04F2		1-01 *							2			N 5-6/8		137
RB D05	C04F2		1-02 *							1			N 9-3/8		137
RB D05	F04P2		1-03 *												137
RB D05			1										15-1/8		137
RB D06	A04F1	C04F1	1-01 *	2						2		3-5	N 5-6/8		138
RB D06	C04F1		1-02 *							1		5-5	N 9-5/8		138
RB D06	F04S2		1-03 *												138
RB D06			1										15-3/8		138
RB D07	A04H2	C04H2	1-01 *							2			N 5-6/8		139
RB D07	C04H2		1-02 *							1		5-4	N 9-6/8		139
RB D07	F04U2		1-03 *												139
RB D07			1										15-4/8		139
RB D08	A04H1		1-01 *							2		3-5	N 5-6/8		140
RB D08	C04H1		1-02 *							1			N 8-3/8		140
RB D08	F03C1		1-03 *												140
RB D08			1										14-1/8		140
RB D09	A04J2		1-01 *							2			N 5-6/8		141
RB D09	C04J2		1-02 *							1			N 8-5/8		141
RB D09	F03E2		1-03 *												141
RB D09			1										14-3/8		141
RB D10	A04J1		1-01 *	2						2		3-5	N 5-6/8		142
RB D10	C04J1		1-02 *							1			N 8-5/8		142
RB D10	F03H2		1-03 *												142
RB D10			1										14-3/8		142
RB D11	A04K2		1-01 *							2			N 5-6/8		143
RB D11	C04K2		1-02 *							1			N 8-7/8		143
RB D11	F03K2		1-03 *												143
RB D11			1										14-5/8		143
RB D12	A04K1		1-01 *	2						2		3-5	N 5-6/8		144
RB D12	C04K1		1-02 *							1			N 8-7/8		144
RB D12	F03M2		1-03 *												144
RB D12			1										14-5/8		144
RB D13	A04L2		1-01 *							2			N 5-6/8		145
RB D13	C04L2		1-02 *							1			N 9-3/8		145
RB D13	F03P2		1-03 *												145
RB D13			1										15-1/8		145
RB D14	A04L1		1-01 *	2						2		3-5	N 5-6/8		146
RB D14	C04L1		1-02 *							1			N 9-3/8		146
RB D14	F03S2		1-03 *												146
RB D14			1										15-1/8		146
RB D15	A04M2		1-01 *							2			N 5-6/8		147
RB D15	C04M2		1-02 *							1			N 9-5/8		147
RB D15	F03U2		1-03 *												147
RB D15			1										15-3/8		147

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER	31-Jul-75 BAY - Q	DRAW RV RG Y X Z	23-Feb-76 REMARKS	15121 NC LENGTH EXCEPTIONS FLAG	PAGE 14	RUN NUMBER
RIGHT A00	B04H2	1-01 *			N 5-6/8		148
RIGHT A00	D04H2	1-02 *			N 2-5/8		148
RIGHT A00	D01C1	1-03 *					148
RIGHT A00		1			8-3/8		148
RIGHT A01	B04H1	1-01 * 1		3-5	N 5-6/8		149
RIGHT A01	D04H1	1-02 *			N 2		149
RIGHT A01	D01N2	1-03 *					149
RIGHT A01		1			7-6/8		149
RIGHT A02	B04J2	1-01 *			N 5-6/8		150
RIGHT A02	D04J2	1-02 *			N 2-3/8		150
RIGHT A02	D01F1	1-03 *					150
RIGHT A02		1			8-1/8		150
RIGHT A03	B04J1	1-01 * 1		3-5	N 5-6/8		151
RIGHT A03	D04J1	1-02 *			N 2-3/8		151
RIGHT A03	D01E1	1-03 *					151
RIGHT A03		1			8-1/8		151
RIGHT A04	B04K2	1-01 *			N 5-6/8		152
RIGHT A04	D04K2	1-02 *			N 2-1/8		152
RIGHT A04	D01L1	1-03 *					152
RIGHT A04		1			7-7/8		152
RIGHT A05	B04K1	1-01 * 1		3-5	N 5-6/8		153
RIGHT A05	D04K1	1-02 *			N 2		153
RIGHT A05	D01K1	1-03 *					153
RIGHT A05		1			7-6/8		153
RIGHT A06	B04L2	1-01 *			N 5-6/8		154
RIGHT A06	D04L2	1-02 *			N 3		154
RIGHT A06	E01C1	1-03 *					154
RIGHT A06		1			8-6/8		154
RIGHT A07	B04L1	1-01 * 1		3-5	N 5-6/8		155
RIGHT A07	D04L1	1-02 *			N 4-3/8		155
RIGHT A07	E01N2	1-03 *					155
RIGHT A07		1			10-1/8		155
RIGHT A08	B04M2	1-01 *			N 5-6/8		156
RIGHT A08	D04M2	1-02 *			N 3		156
RIGHT A08	E01F1	1-03 *					156
RIGHT A08		1			8-6/8		156
RIGHT A09	B04M1	1-01 * 1		3-5	N 5-6/8		157
RIGHT A09	D04M1	1-02 *			N 2-6/8		157
RIGHT A09	E01E1	1-03 *					157
RIGHT A09		1			8-4/8		157
RIGHT A10	B04N2	1-01 *			N 5-6/8		158
RIGHT A10	D04N2	1-02 *			N 3-5/8		158
RIGHT A10	E01L1	1-03 *					158
RIGHT A10		1			9-3/8		158

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN ORDER	31-Jul-75 BAY - Q	DRAW RV RG Y X Z	23-Feb-76 REMARKS	15121 NC LENGTH EXCEPTIONS FLAG	PAGE 15	RUN NUMBER
RIGHT A11	B04N1	1-01 * 1		3-5	N 5-6/8		159
RIGHT A11	D04N1	1-02 *			N 3-4/8		159
RIGHT A11	E01K1	1-03 *					159
RIGHT A11		1			9-2/8		159
RIGHT A12	B04P2	1-01 *			N 5-6/8		160
RIGHT A12	D04P2	1-02 *			N 6-1/8		160
RIGHT A12	F01C1	1-03 *					160
RIGHT A12		1			11-7/8		160
RIGHT A13	B04P1	1-01 * 1		3-5	N 5-6/8		161
RIGHT A13	D04P1	1-02 *			N 6-5/8		161
RIGHT A13	F01N2	1-03 *					161
RIGHT A13		1			12-3/8		161
RIGHT A14	B04R2	D04R2 1-01 *			N 5-6/8		162
RIGHT A14	D04R2	1-02 *		3-3	N 6-3/8		162
RIGHT A14	F01F1	1-03 *					162
RIGHT A14		1			12-1/8		162
RIGHT A15	B04R1	1-01 *		3-5	N 5-6/8		163
RIGHT A15	D04R1	1-02 *			N 6-1/8		163
RIGHT A15	F01E1	1-03 *					163
RIGHT A15		1			11-7/8		163
RIGHT A16	B04S2	1-01 *			N 5-6/8		164
RIGHT A16	D04S2	1-02 *			N 6-5/8		164
RIGHT A16	F01L1	1-03 *					164
RIGHT A16		1			12-3/8		164
RIGHT A17	B04S1	1-01 *		3-5	N 5-6/8		165
RIGHT A17	D04S1	1-02 *			N 6-3/8		165
RIGHT A17	F01K1	1-03 *					165
RIGHT A17		1			12-1/8		165
RIGHT BG4	B04E2	D04E2 1-01 * H			5-6/8		166
RIGHT BG4	D04E2	F02F2 1-02 * H		TWP	6-5/8		166
RIGHT BG4	F02F2	1-03 *					166
RIGHT BG4		1			12-3/8		166
RIGHT BG4 BUF	C03F1	1-01 *			N 10-1/8		167
RIGHT BG4 BUF	F02V2	1-02 *					167
RIGHT BG4 BUF		1			10-1/8		167
RIGHT BG5	B04B1	D04B1 1-01 * H			5-6/8		168
RIGHT BG5	D04B1	F02T2 1-02 * H		TWP	8-1/8		168
RIGHT BG5	F02T2	1-03 *					168
RIGHT BG5		1			13-7/8		168
RIGHT BG5 BUF	C03C1	1-01 * 1		5-7	N 10-3/8		169
RIGHT BG5 BUF	F02S1	1-02 *					169
RIGHT BG5 BUF		1			10-3/8		169

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN NAME	ORDER PIN	31-Jul-75 BAY - ORDER	Q	DRAW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15:21 NC FLAG	PAGE 16 LENGTH EXCEPTIONS	RUN NUMBER
RIGHT BG6	B04A1	D04A1	1-01 *	H						2	TWP			5-6/8	170
RIGHT BG6	D04A1	F02N2	1-02 *	H						1	TWP			7-5/8	170
RIGHT BG6	F02N2		1-03 *												170
RIGHT BG6			1											13-3/8	170
RIGHT BG6 BUF	C03H1		1-01 *							1			N	8-7/8	171
RIGHT BG6 BUF	F02L2		1-02 *												171
RIGHT BG6 BUF			1											8-7/8	171
RIGHT BG7	A04V1	C04V1	1-01 *	H						2	TWP			5-6/8	172
RIGHT BG7	C04V1	F02K1	1-02 *	H						1	TWP			8-3/8	172
RIGHT BG7	F02K1		1-03 *												172
RIGHT BG7			1											14-1/8	172
RIGHT BG7 RUF	C03D2		1-01 *							1		5-4	N	9-5/8	173
RIGHT BG7 RUF	F02J1		1-02 *												173
RIGHT BG7 RUF			1											9-5/8	173
RIGHT BR4	B04D2		1-01 *							1			N	5-6/8	174
RIGHT BR4	D04D2		1-02 *							2			N	4-7/8	174
RIGHT BR4	E02L1		1-03 *												174
RIGHT BR4			1											10-5/8	174
RIGHT BR5	B04C1		1-01 *	1						1		3-5	N	5-6/8	175
RIGHT BR5	D04C1	E02J1	1-02 *							2			N	4-3/8	175
RIGHT BR5	E02J1		1-03 *												175
RIGHT BR5			1											10-1/8	175
RIGHT BR6	A04U2		1-01 *							2			N	5-6/8	176
RIGHT BR6	C04U2		1-02 *							1			N	5-3/8	176
RIGHT BR6	E02F1		1-03 *												176
RIGHT BR6			1											11-1/8	176
RIGHT BR7	C04T2		1-01 *							2			N	5-3/8	177
RIGHT BR7	E02D1	A04T2	1-02 *							1			N	10-5/8	177
RIGHT BR7	A04T2		1-03 *												177
RIGHT BR7			1											16-0/8	177
RIGHT BUF ACLO	C03L2													1-PIN RUN	178
RIGHT BUF DCLO	C03S2													1-PIN RUN	179
RIGHT BUF MSYN	D03J1													1-PIN RUN	180
RIGHT BUF SACK	C03P2													1-PIN RUN	181
RIGHT BUF SSYN	D03K2													1-PIN RUN	182
RIGHT BUS ACLO	B04F1	C03K1	1-01 *							1			N	3-7/8	183
RIGHT BUS ACLO	C03K1		1-02 *							2		2-2	N	3-3/8	183
RIGHT BUS ACLO	D04F1		1-03 *												183
RIGHT BUS ACLO			1											7-2/8	183

DB11A,K RUN NAME	WRP288,V34(62)-1 A/P PIN NAME	ORDER PIN	31-Jul-75 BAY - ORDER	Q	DRAW	RV	RG	Y	X	Z	REMARKS	23-Feb-76	15:21 NC FLAG	PAGE 17 LENGTH EXCEPTIONS	RUN NUMBER
RIGHT BUS BBSY	A04P2		1-01 *							1			N	5-6/8	184
RIGHT BUS BBSY	C04P2	C01U2	1-02 *							2			N	2-3/8	184
RIGHT BUS BBSY	C01U2		1-03 *												184
RIGHT BUS BBSY			1											8-1/8	184
RIGHT BUS C00	B04U2		1-01 *							1			N	5-6/8	185
RIGHT BUS C00	D04U2		1-02 *							2			N	1	185
RIGHT BUS C00	D03S2		1-03 *												185
RIGHT BUS C00			1											6-6/8	185
RIGHT BUS C01	B04T2		1-01 *	1						1		3-4	N	5-5/8	186
RIGHT BUS C01	D03N2		1-02 *							2			N	1-1/8	186
RIGHT BUS C01	D04T2		1-03 *												186
RIGHT BUS C01			1											6-6/8	186
RIGHT BUS DCLO	B04F2	C03T2	1-01 *							1			N	4-5/8	187
RIGHT BUS DCLO	C03T2		1-02 *							2		1-6	N	2-3/8	187
RIGHT BUS DCLO	D04F2		1-03 *												187
RIGHT BUS DCLO			1											7-0/8	187
RIGHT BUS INIT	A04A1		1-01 *							1		3-5	N	5-6/8	188
RIGHT BUS INIT	C04A1		1-02 *							2			N	1-7/8	188
RIGHT BUS INIT	C03L1		1-03 *												188
RIGHT BUS INIT			1											7-5/8	188
RIGHT BUS INTR	A04B1		1-01 *							1		3-5	N	5-6/8	189
RIGHT BUS INTR	C04B1		1-02 *							2			N	2-1/8	189
RIGHT BUS INTR	C03N1		1-03 *												189
RIGHT BUS INTR			1											7-7/8	189
RIGHT BUS MSYN	B04V1		1-01 *							1			N	5-1/8	190
RIGHT BUS MSYN	D03K1		1-02 *							2			N	2	190
RIGHT BUS MSYN	D04V1		1-03 *												190
RIGHT BUS MSYN			1											7-1/8	190
RIGHT BUS NPG	A04U1		1-01 *							1			N	4-1/8	191
RIGHT BUS NPG	C03R1		1-02 *							2			N	2-5/8	191
RIGHT BUS NPG	C04U1		1-03 *												191
RIGHT BUS NPG			1											6-6/8	191
RIGHT BUS PA	A04M1		1-01 *							1		3-5	N	5-6/8	192
RIGHT BUS PA	C04M1		1-02 *							2			N	2-7/8	192
RIGHT BUS PA	D03E1		1-03 *												192
RIGHT BUS PA			1											8-5/8	192
RIGHT BUS PB	A04N2		1-01 *							1			N	5-6/8	193
RIGHT BUS PB	C04N2		1-02 *							2			N	2-7/8	193
RIGHT BUS PB	D03E2		1-03 *												193
RIGHT BUS PB			1											8-5/8	193
RIGHT BUS SACK	A04R2		1-01 *							1			N	5-6/8	194
RIGHT BUS SACK	C04R2		1-02 *							2			N	1	194
RIGHT BUS SACK	C03N2		1-03 *												194
RIGHT BUS SACK			1											6-6/8	194

DB11A,K
RUN NAME

WRP288,V34(62)-1 31-JUL-75
A/P PIN ORDER BAY - Q DRAW RV RG Y X Z
NAME PIN ORDER OPT

23-Feb-76
REMARKS

15:21 PAGE 18
NC LENGTH EXCEPTIONS
FLAG

RUN
NUMBER

RIGHT BUS SSYN
RIGHT BUS SSYN
RIGHT BUS SSYN
RIGHT BUS SSYN

B04U1 1-01 *
D03H2 1-02 *
D04U1 1-03 *
1

1
2

N 4-5/8
N 1-7/8
6-4/8

195
195
195
195

RIGHT NPR
RIGHT NPR
RIGHT NPR
RIGHT NPR

A04S2 1-01 *
C04S2 1-02 *
E02A1 1-03 *
1

2
1

N 5-6/8
N 5-1/8
10-7/8

196
196
196
196

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DIGITAL EQUIPMENT CORPORATION

MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 1/3/71

TITLE DB11-A Bus Repeater

REVISIONS

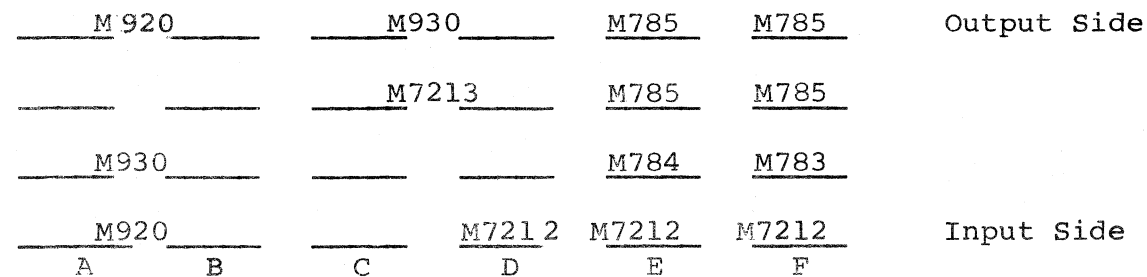
REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	REVISED PER ECO 00002	00002			V. Bastiani	7/9/71
B	ECO CHANGE	00005	BASTIANI	6-14-72	V. Bastiani	6/14/72
C	CHANGE PER ECO	DB11A-00008	REILLY	10-73	J. Kelly	10/20/73

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.

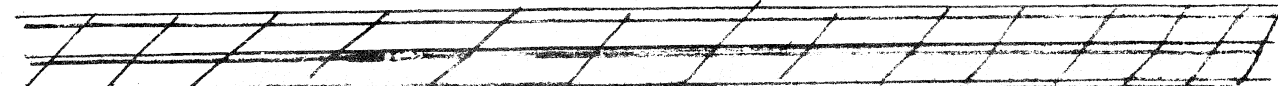
1.1 The bus repeater DB11 will be contained in a single system unit with an input and output unibus connection. The modules required are:

- 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
- 6. 1 - M7248 UNIBUS REPEATER BUS BUSY

A layout of the modules is shown below:



NOTE:1 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	APPD	SIZE	CODE	NUMBER	REV
V. Bastiani	V. Bastiani	A	SP	DB11-A-7	C

DIGITAL

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 Grant; all B requests, SACK and ACLO.

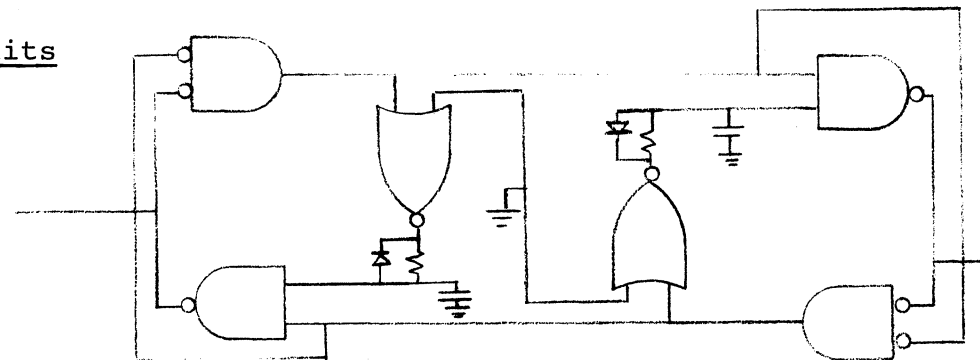
The signal DCLO uses the identical circuit as BBSY since it must also be truly bidirectional because the power fail signal could be coming from either side of the buffer. The operations of the DCLO circuit is delayed an turn on so that a multi box system will turn on.

SIZE	CODE	NUMBER	REV
A	SP	DB11-A-7	C

TITLE DB11-A Bus Repeater

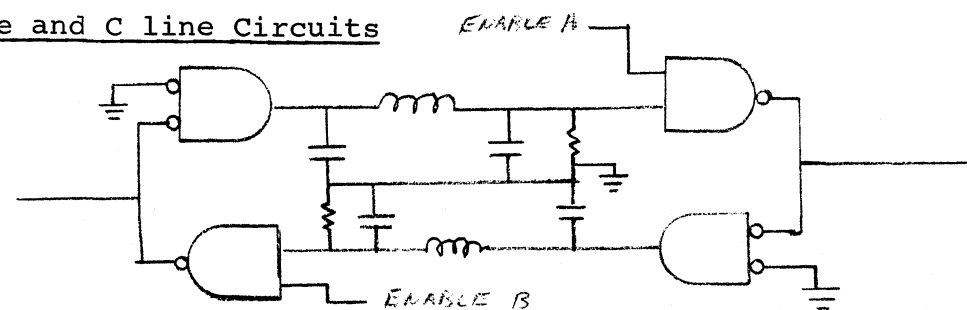
Types of Circuits

BBSY, DCLO



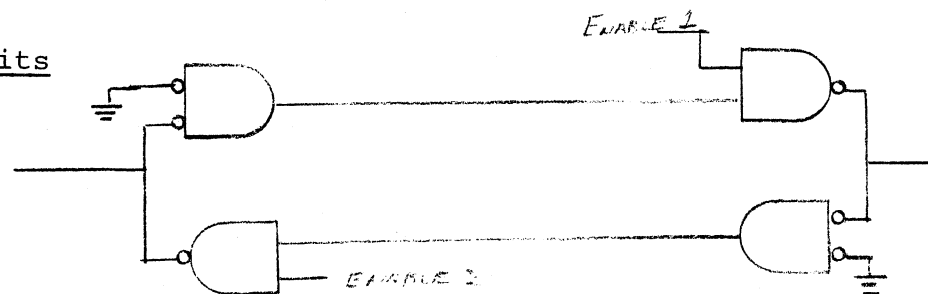
The BBSY circuit provides the A line gating depending on what side the master is on.

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

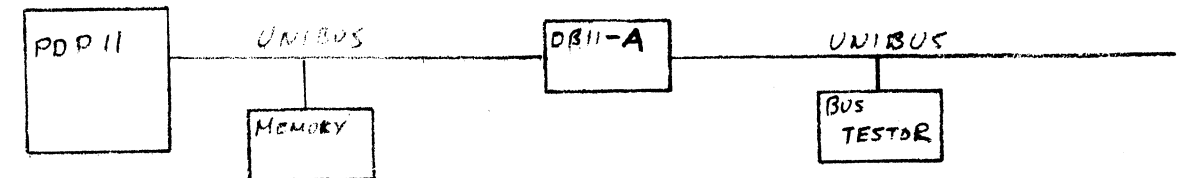
None, the unit is transparent to any programs.

SIZE	CODE	NUMBER	REV
A	SP	DB11-A-7	C

TITLE DB11-A Bus Repeater

Testing

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

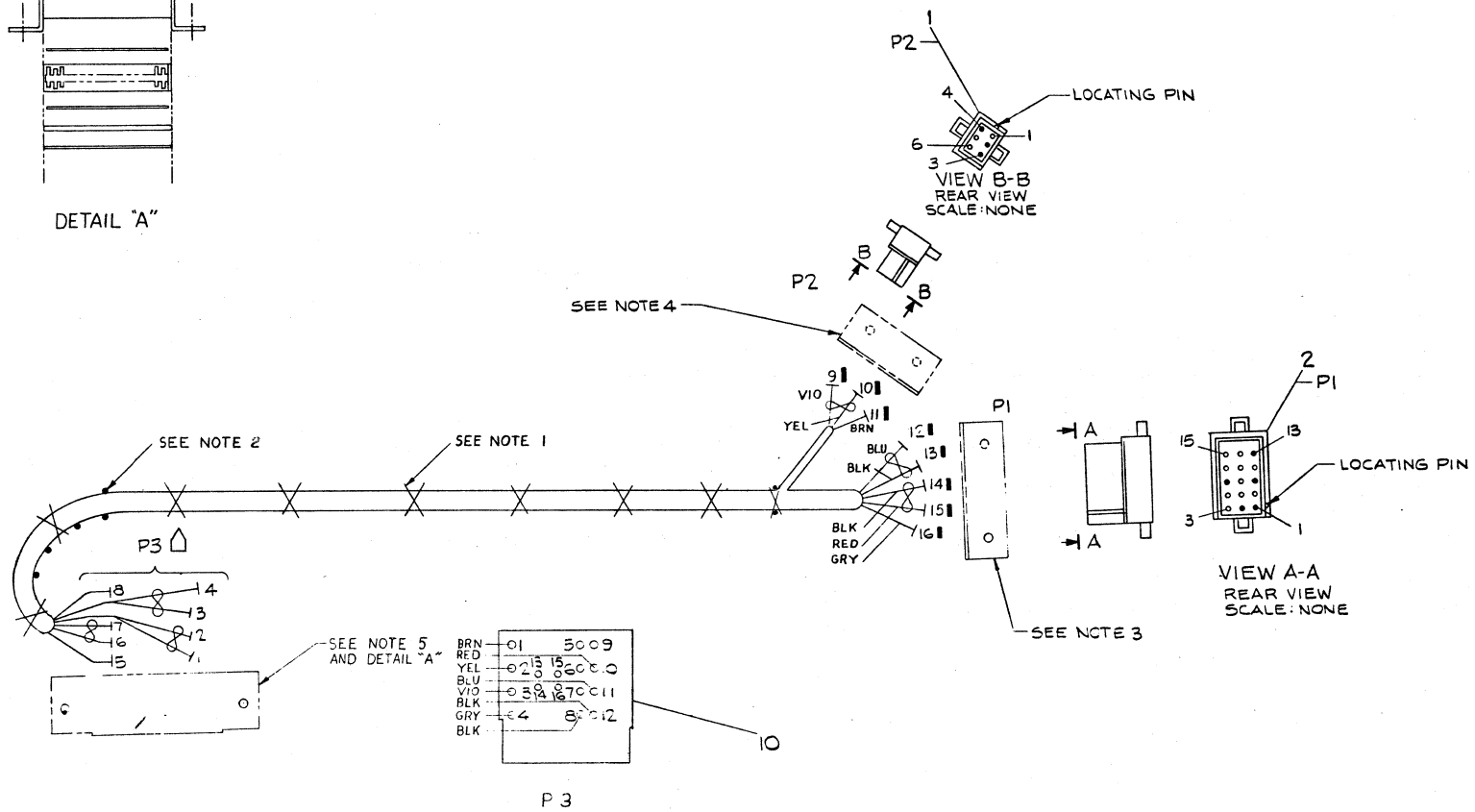
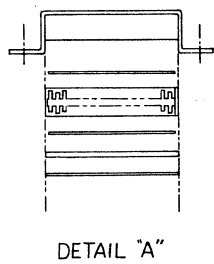


The above configuration should run ETP-2 for one hour with no errors.

SIZE	CODE	NUMBER	REV
A	SP	DB11-A-7	C

ITEM NO.	DESCRIPTION		FROM				TO			
	AWG	COLOR	POINT	CONNECTION	TERM	POINT	CONNECTION	TERM	SIGNAL	
5	14	RED	3	P3-10	SOLD	15	P1-1	3	+5V	
	TWP	BLK	4	P3-8	SOLD	14	P1-7	3	GND	
6	14	GRY	5	P3-4	SOLD	16	P1-2	3	+15V	
	TWP	BLK	2	P3-12	SOLD	13	P1-9	3	GND	
8	18	BLU	2	P3-11	SOLD	12	P1-13	3	-15V	
	18	BRN	8	P3-1	SOLD	11	P2-2	3	LT _c	
7	18	VIO	6	P3-3	SOLD	9	P2-3	3	D _c Lo	
	TWP	YEL	7	P3-2	SOLD	10	P2-4	3	A _c Lo	
11	22	-	-	P3-13	SOLD	-	P3-14	SOLD	D _c Lo	
	22	-	-	P3-15	SOLD	-	P3-16	SOLD	A _c Lo	

- NOTES:
- USE TIE WRAPS (X) ITEM #4 APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY AND AT EVERY BREAKOUT POINT.
 - DOT (•) INDICATES NAIL LOCATIONS FOR ASSEMBLY USE ONLY. COVER NAILS WITH SHRINK TUBING TO PREVENT CUTTING HARNESS.
 - USE CONN BRKT C-MD-930576-H6-0 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-5.
 - USE CONN BRKT C-MD-930576-H6-0 MOUNT WITH WOOD SCREWS. USE MATING CONN 1209350-06.
 - USE CONN. HOLD DOWN B-MD-930576-0-1 WITH PLATE B-MD-930576-0-1. USE TAPE DEC #9008734 & CONN HB07 DEC # (1209123) REMOVE PINS & FLANGES AS SHOWN IN DETAIL "A". MOUNT WITH WOOD SCREWS.

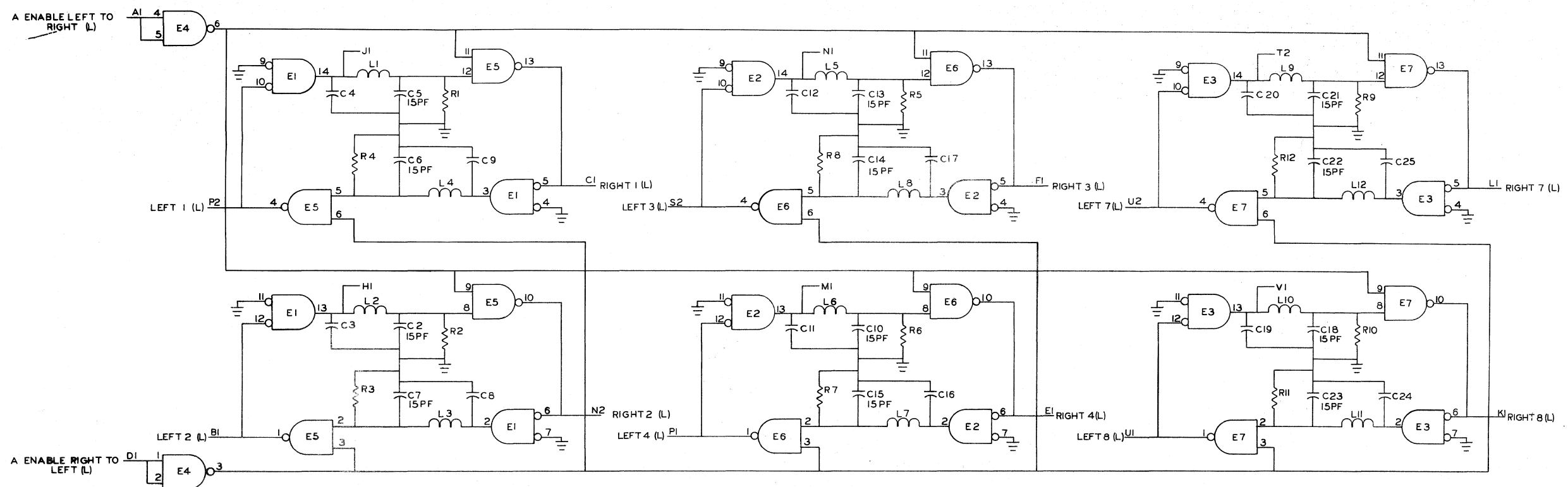


BRN	01	5009
RED	02	150000
YEL	03	060000
BLU	04	070000
VIO	05	080000
BLK	06	090000
GRY	07	100000
BLK	08	110000

QTY.	DESCRIPTION	PART NO.	ITEM
1	BRUSS WIRE #22 AWG	9107560-01	11
1	POWER CONN	6772	10
1	WIRE #14 AWG GRY	9107310-88	9
1	WIRE #18 AWG BRN	9107360-11	8
1	WIRE #18 TWP YEL/VIO	9107430-47	7
1	WIRE #18 TWP BLK/BLU	9107440-06	6
1	WIRE #18 TWP BLK/RED	9107440-02	5
1	WRAP TIE	9007031	4
1	P.N. MALE	1209378-00	3
1	HOUSING CONN. 5 PIN	1209351-15	2
1	HOUSING CONN. 6 PIN	1209351-06	1

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES:	DECIMALS	ANGLES	PROJ. ENG. DATE	DATE
XXX - .005		±0°30'		
XX - .010				
X - .015				
REMOVE BURRS AND BREAK SHARP EDGES. SURFACE QUALITY				
MATERIAL	NEXT HIGHER ASSY.	SIZE CODE	NUMBER	REV.
SEE PARTS LIST		E 12	7003562-0-0	
FINISH	SCALE	SHEET	OF	

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A2	+5V							
	C1	C26	C27	C28	C29	C30	C31	C32
	68UF	.01UF	.01UF	.01UF	.01UF	.01UF	.01UF	.01UF
	35V	20%	20%	20%	20%	20%	20%	20%
C2, T1	GND							

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 8881

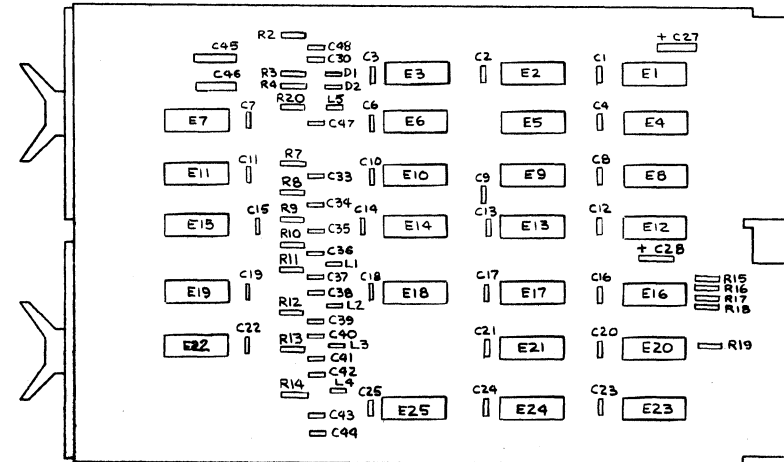
REVISIONS CHKD NO REV 100001 B 100002 C 100003 D 100004 E 100005 F 100006 G 100007 H 100008 I 100009 J 100010 K 100011 L 100012 M 100013 N 100014 O 100015 P 100016 Q 100017 R 100018 S 100019 T 100020 U 100021 V 100022 W 100023 X 100024 Y 100025 Z 100026 AA 100027 AB 100028 AC 100029 AD 100030 AE 100031 AF 100032 AG 100033 AH 100034 AI 100035 AJ 100036 AK 100037 AL 100038 AM 100039 AN 100040 AO 100041 AP 100042 AQ 100043 AR 100044 AS 100045 AT 100046 AU 100047 AV 100048 AW 100049 AX 100050 AY 100051 AZ 100052 BA 100053 BB 100054 BC 100055 BD 100056 BE 100057 BF 100058 BG 100059 BH 100060 BI 100061 BJ 100062 BK 100063 BL 100064 BM 100065 BN 100066 BO 100067 BP 100068 BQ 100069 BR 100070 BS 100071 BT 100072 BU 100073 BV 100074 BW 100075 BX 100076 BY 100077 BZ 100078 CA 100079 CB 100080 CC 100081 CD 100082 CE 100083 CF 100084 CG 100085 CH 100086 CI 100087 CJ 100088 CK 100089 CL 100090 CM 100091 CN 100092 CO 100093 CP 100094 CQ 100095 CR 100096 CS 100097 CT 100098 CU 100099 CV 100100 CW 100101 CX 100102 CY 100103 CZ 100104 DA 100105 DB 100106 DC 100107 DD 100108 DE 100109 DF 100110 DG 100111 DH 100112 DI 100113 DJ 100114 DK 100115 DL 100116 DM 100117 DN 100118 DO 100119 DP 100120 DQ 100121 DR 100122 DS 100123 DT 100124 DU 100125 DV 100126 DW 100127 DX 100128 DY 100129 DZ 100130 EA 100131 EB 100132 EC 100133 ED 100134 EE 100135 EF 100136 EG 100137 EH 100138 EI 100139 EJ 100140 EK 100141 EL 100142 EM 100143 EN 100144 EO 100145 EP 100146 EQ 100147 ER 100148 ES 100149 ET 100150 EU 100151 EV 100152 EW 100153 EX 100154 EY 100155 EZ 100156 FA 100157 FB 100158 FC 100159 FD 100160 FE 100161 FF 100162 FG 100163 FH 100164 FI 100165 FJ 100166 FK 100167 FL 100168 FM 100169 FN 100170 FO 100171 FP 100172 FQ 100173 FR 100174 FS 100175 FT 100176 FU 100177 FV 100178 FW 100179 FX 100180 FY 100181 FZ 100182 GA 100183 GB 100184 GC 100185 GD 100186 GE 100187 GF 100188 GG 100189 GH 100190 GI 100191 GJ 100192 GK 100193 GL 100194 GM 100195 GN 100196 GO 100197 GP 100198 GQ 100199 GR 100200 GS 100201 GT 100202 GU 100203 GV 100204 GW 100205 GX 100206 GY 100207 GZ 100208 HA 100209 HB 100210 HC 100211 HD 100212 HE 100213 HF 100214 HG 100215 HH 100216 HI 100217 HJ 100218 HK 100219 HL 100220 HM 100221 HN 100222 HO 100223 HP 100224 HQ 100225 HR 100226 HS 100227 HT 100228 HU 100229 HV 100230 HW 100231 HX 100232 HY 100233 HZ 100234 IA 100235 IB 100236 IC 100237 ID 100238 IE 100239 IF 100240 IG 100241 IH 100242 II 100243 IJ 100244 IK 100245 IL 100246 IM 100247 IN 100248 IO 100249 IP 100250 IQ 100251 IR 100252 IS 100253 IT 100254 IU 100255 IV 100256 IW 100257 IX 100258 IY 100259 IZ 100260 JA 100261 JB 100262 JC 100263 JD 100264 JE 100265 JF 100266 JG 100267 JH 100268 JI 100269 JJ 100270 JK 100271 JL 100272 JM 100273 JN 100274 JO 100275 JP 100276 JQ 100277 JR 100278 JS 100279 JT 100280 JU 100281 JV 100282 JW 100283 JX 100284 JY 100285 JZ 100286 KA 100287 KB 100288 KC 100289 KD 100290 KE 100291 KF 100292 KG 100293 KH 100294 KI 100295 KJ 100296 KK 100297 KL 100298 KM 100299 KN 100300 KO 100301 KP 100302 KQ 100303 KR 100304 KS 100305 KT 100306 KU 100307 KV 100308 KW 100309 KX 100310 KY 100311 KZ 100312 LA 100313 LB 100314 LC 100315 LD 100316 LE 100317 LF 100318 LG 100319 LH 100320 LI 100321 LJ 100322 LK 100323 LL 100324 LM 100325 LN 100326 LO 100327 LP 100328 LQ 100329 LR 100330 LS 100331 LT 100332 LU 100333 LV 100334 LW 100335 LX 100336 LY 100337 LZ 100338 MA 100339 MB 100340 MC 100341 MD 100342 ME 100343 MF 100344 MG 100345 MH 100346 MI 100347 MJ 100348 MK 100349 ML 100350 MN 100351 MO 100352 MP 100353 MQ 100354 MR 100355 MS 100356 MT 100357 MU 100358 MV 100359 MW 100360 MX 100361 MY 100362 MZ 100363 NA 100364 NB 100365 NC 100366 ND 100367 NE 100368 NF 100369 NG 100370 NH 100371 NI 100372 NJ 100373 NK 100374 NL 100375 NO 100376 NP 100377 NQ 100378 NR 100379 NS 100380 NT 100381 NU 100382 NV 100383 NW 100384 NX 100385 NY 100386 NZ 100387 OA 100388 OB 100389 OC 100390 OD 100391 OE 100392 OF 100393 OG 100394 OH 100395 OI 100396 OJ 100397 OK 100398 OL 100399 ON 100400 OO 100401 OP 100402 OQ 100403 OR 100404 OS 100405 OT 100406 OU 100407 OV 100408 OW 100409 OX 100410 OY 100411 OZ 100412 PA 100413 PB 100414 PC 100415 PD 100416 PE 100417 PF 100418 PG 100419 PH 100420 PI 100421 PJ 100422 PK 100423 PL 100424 PM 100425 PN 100426 PO 100427 PP 100428 PQ 100429 PR 100430 PS 100431 PT 100432 PU 100433 PV 100434 PW 100435 PX 100436 PY 100437 PZ 100438 QA 100439 QB 100440 QC 100441 QD 100442 QE 100443 QF 100444 QG 100445 QH 100446 QI 100447 QJ 100448 QK 100449 QL 100450 QM 100451 QN 100452 QO 100453 QP 100454 QQ 100455 QR 100456 QS 100457 QT 100458 QU 100459 QV 100460 QW 100461 QX 100462 QY 100463 QZ 100464 RA 100465 RB 100466 RC 100467 RD 100468 RE 100469 RF 100470 RG 100471 RH 100472 RI 100473 RJ 100474 RK 100475 RL 100476 RM 100477 RN 100478 RO 100479 RP 100480 RQ 100481 RR 100482 RS 100483 RT 100484 RU 100485 RV 100486 RW 100487 RX 100488 RY 100489 RZ 100490 SA 100491 SB 100492 SC 100493 SD 100494 SE 100495 SF 100496 SG 100497 SH 100498 SI 100499 SJ 100500 SK 100501 SL 100502 SM 100503 SN 100504 SO 100505 SP 100506 SQ 100507 SR 100508 SS 100509 ST 100510 SU 100511 SV 100512 SW 100513 SX 100514 SY 100515 SZ 100516 TA 100517 TB 100518 TC 100519 TD 100520 TE 100521 TF 100522 TG 100523 TH 100524 TI 100525 TJ 100526 TK 100527 TL 100528 TM 100529 TN 100530 TO 100531 TP 100532 TQ 100533 TR 100534 TS 100535 TT 100536 TU 100537 TV 100538 TW 100539 TX 100540 TY 100541 TZ 100542 UA 100543 UB 100544 UC 100545 UD 100546 UE 100547 UF 100548 UG 100549 UH 100550 UI 100551 UJ 100552 UK 100553 UL 100554 UM 100555 UN 100556 UO 100557 UP 100558 UQ 100559 UR 100560 US 100561 UT 100562 UJ 100563 UV 100564 UW 100565 UX 100566 UY 100567 UZ 100568 VA 100569 VB 100570 VC 100571 VD 100572 VE 100573 VF 100574 VG 100575 VH 100576 VI 100577 VJ 100578 VK 100579 VL 100580 VN 100581 VO 100582 VP 100583 VQ 100584 VR 100585 VS 100586 VT 100587 VU 100588 VV 100589 VW 100590 VX 100591 VY 100592 VZ 100593 WA 100594 WB 100595 WC 100596 WD 100597 WE 100598 WF 100599 WG 100600 WH 100601 WI 100602 WJ 100603 WK 100604 WL 100605 WM 100606 WN 100607 WO 100608 WP 100609 WQ 100610 WR 100611 WS 100612 WT 100613 WU 100614 WV 100615 WW 100616 WX 100617 WY 100618 WZ 100619 XA 100620 XB 100621 XC 100622 XD 100623 XE 100624 XF 100625 XG 100626 XH 100627 XI 100628 XJ 100629 XK 100630 XL 100631 XM 100632 XN 100633 XO 100634 XP 100635 XQ 100636 XR 100637 XS 100638 XT 100639 XU 100640 XV 100641 XW 100642 XX 100643 XY 100644 XZ 100645 YA 100646 YB 100647 YC 100648 YD 100649 YE 100650 YF 100651 YG 100652 YH 100653 YI 100654 YJ 100655 YK 100656 YL 100657 YN 100658 YO 100659 YP 100660 YQ 100661 YR 100662 YS 100663 YT 100664 YU 100665 YV 100666 YW 100667 YX 100668 YY 100669 YZ 100670 ZA 100671 ZB 100672 ZC 100673 ZD 100674 ZE 100675 ZF 100676 ZG 100677 ZH 100678 ZI 100679 ZJ 100680 ZK 100681 ZL 100682 ZM 100683 ZN 100684 ZO 100685 ZP 100686 ZQ 100687 ZR 100688 ZS 100689 ZT 100690 ZU 100691 ZV 100692 ZW 100693 ZX 100694 ZY 100695 ZZ	DRN R.T. Doucette DATE 1-20-71 CHWD DATE ENG DATE PROD DATE	TRANSISTOR & DIODE CONVERSION CHART DEC EIA DEC EIA DEC EIA DEC EIA DEC EIA DEC EIA DEC EIA DEC EIA	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PRINTED CIRCUIT REV.	TITLE BUS REPEATER A LINES SIZE D CS NUMBER M7212-0-1 REV C
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PARTS REFERENCE

ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	C37, C39, C41, C43, C48	CAP. 15PF 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 D600	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-L5	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 8640	1911469	6
19	E3, E12, E13, E18, E23, E25	IC DEC 8881	1909705	6
20	E14	IC DEC 74H04	1909931	1
21	E7, E11, E15, E19	IC DEC 8815	1909713	4
22	E1, E6	IC DEC 7404	1909686	2
23	E2, E4, E9	IC DEC 7402	1909004	3
24	E22	IC DEC7474	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
DEC8640	PIN 1	PIN 8

REV	CHANGE NO	DATE	BY	CHK'D
H	0006	1-7-72	V. Bastiani	V. Bastiani
J	0007	3-24-72	V. Bastiani	V. Bastiani
K	0008	7-27-72	V. Bastiani	V. Bastiani
L	0010	8/17/72	V. Bastiani	V. Bastiani
M	0011	1-6-75	V. Bastiani	V. Bastiani
M	0011	1-22-75	V. Bastiani	V. Bastiani
M	0011	3-3-76	V. Bastiani	V. Bastiani
M	0011	2-17-76	V. Bastiani	V. Bastiani

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED			
DIMENSION IN INCHES			
TOLERANCES			
DECIMALS	FRACTIONS	ANGLES	
± .005	± 1/64	± 0°30'	
FINAL SURFACE QUALITY			
REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL		FIRST USED ON	
FINISH		SCALE	
SHEET 1 OF 2		DIST.	

DATE 1-7-72
DATE 1-29-72
DATE 12-1-72
DATE 6-1-74
DATE 2-1-72

DRN. *B. J. Nail*
CHK'D. *A. Williams*
ENG. *V. Bastiani*
PROD. ENG. *V. Bastiani*
PROD. *W. Stimpert*

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

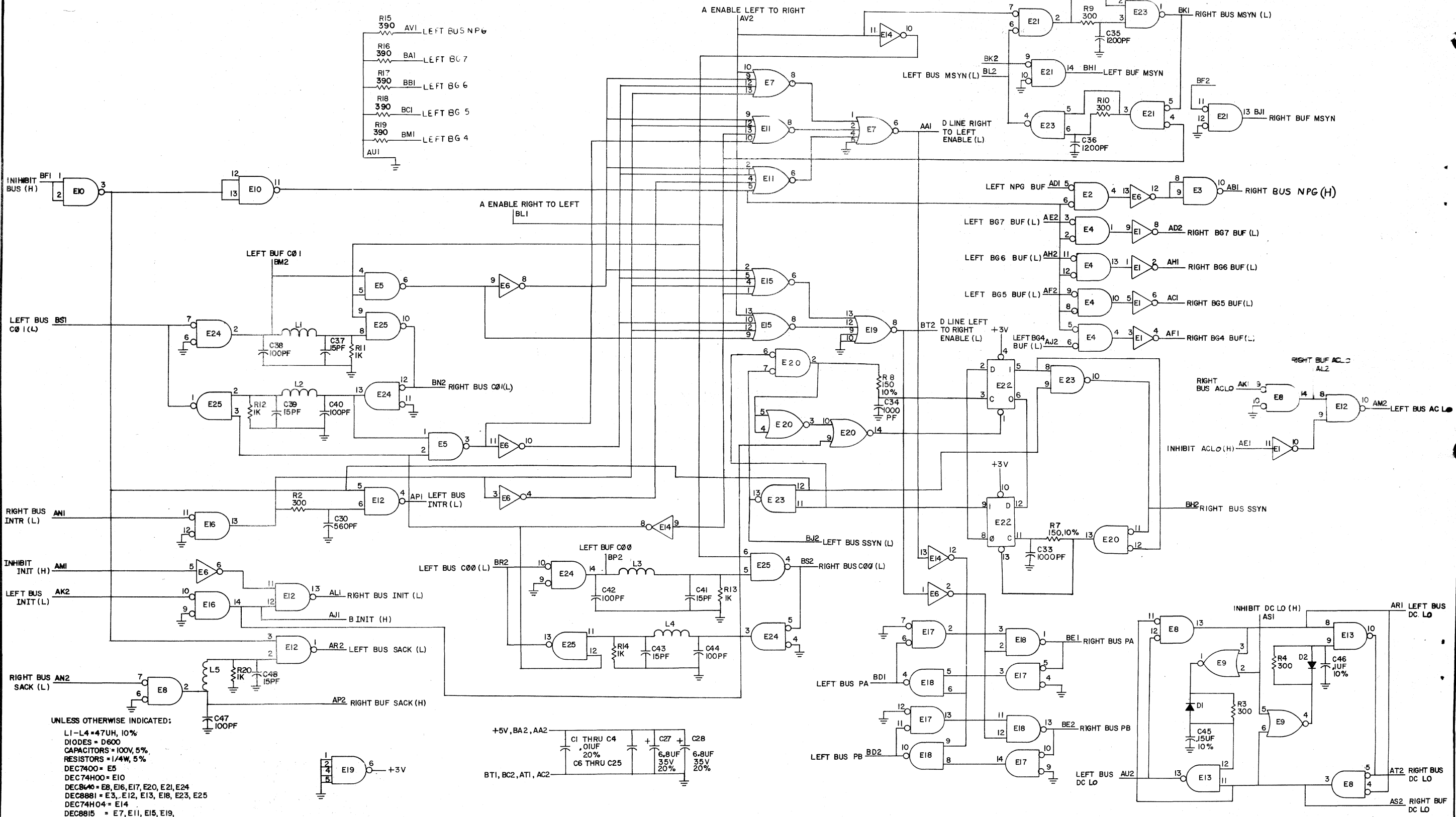
TITLE
BUS REPEATER CARD

SIZE CODE NUMBER REV.
D CS M7213-0-1 M

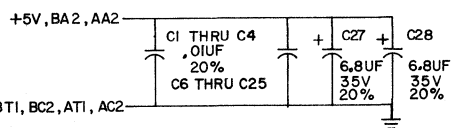
REV. M
D CS M7213-0-1

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W 1-0-5127 M SC 0
A34 3001 1215



UNLESS OTHERWISE INDICATED:
 L1-L4 = 47UH, 10%
 DIODES = D600
 CAPACITORS = 100V, 5%
 RESISTORS = 1/4W, 5%
 DEC7400 = E5
 DEC7400 = E10
 DEC8640 = E8, E16, E17, E20, E21, E24
 DEC8881 = E3, E12, E13, E18, E23, E25
 DEC74H04 = E14
 DEC8815 = E7, E11, E15, E19,
 DEC7404 = E1, E6
 DEC7402 = E2, E4, E9
 DEC7474 = E27
 PIN 1 = GND ON DEC8640
 PIN 8 = +5V
 PIN 7 = GND ON ALL OTHER IC'S
 PIN 14 = +5V



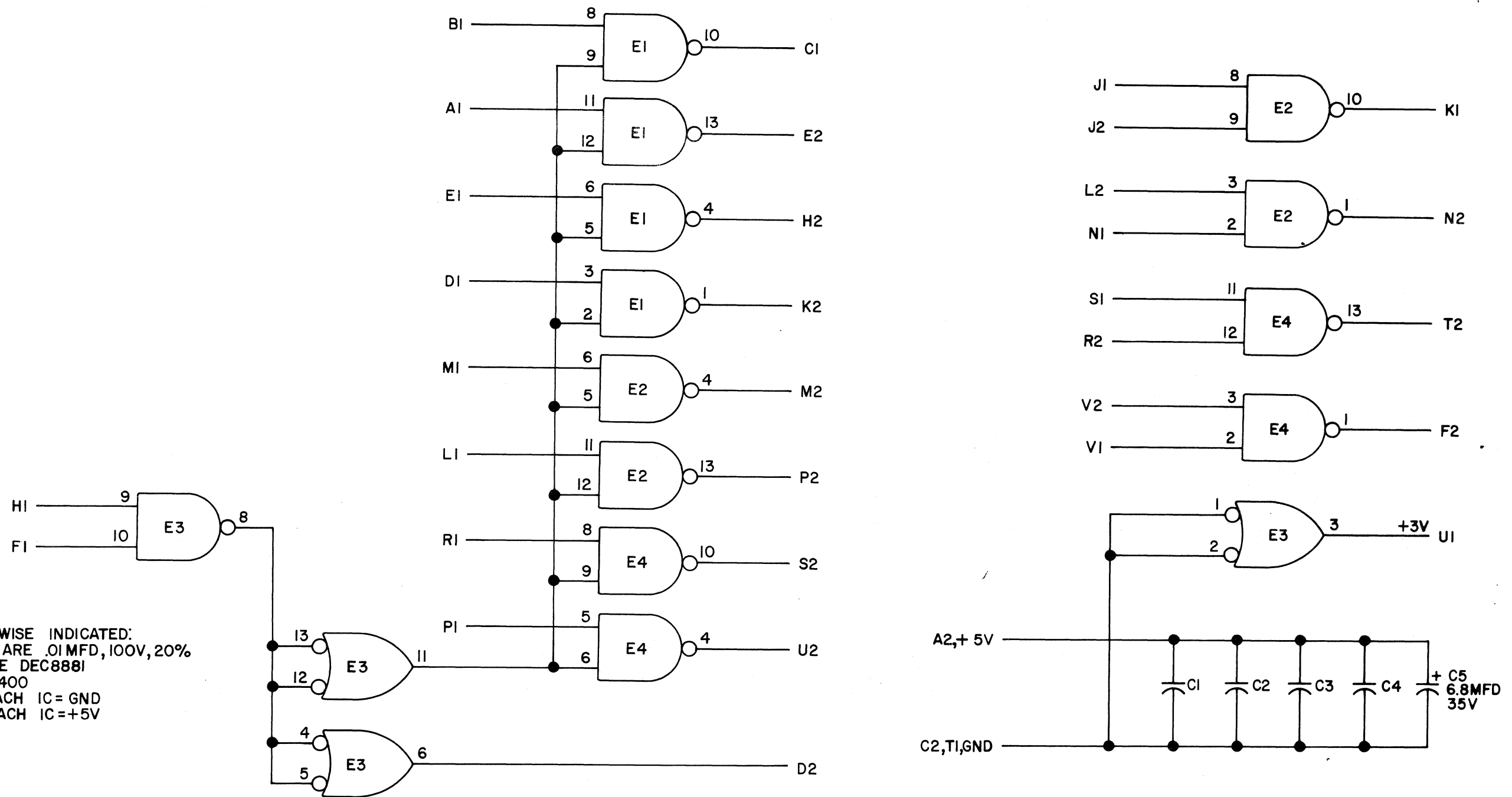
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2	3/21/71			
3	4/1/71			
4	4/1/71			

REV	DATE	BY	CHKD	APP'D
1	3/16/71	W. MOORE		
2	3/21/71			
3	4/1/71			
4	4/1/71			

TRANSISTOR & DIODE CONVERSION CHART			
TRANSISTOR	DIODE	TRANSISTOR	DIODE
DEC	EIA	DEC	EIA
D800	IN4009		

digital		BUS REPEATER CARD	
EQUIPMENT CORPORATION	SIZE D	CODE CS	NUMBER M7213-0-1
MAYNARD, MASSACHUSETTS	PRINTED CIRCUIT REV.		

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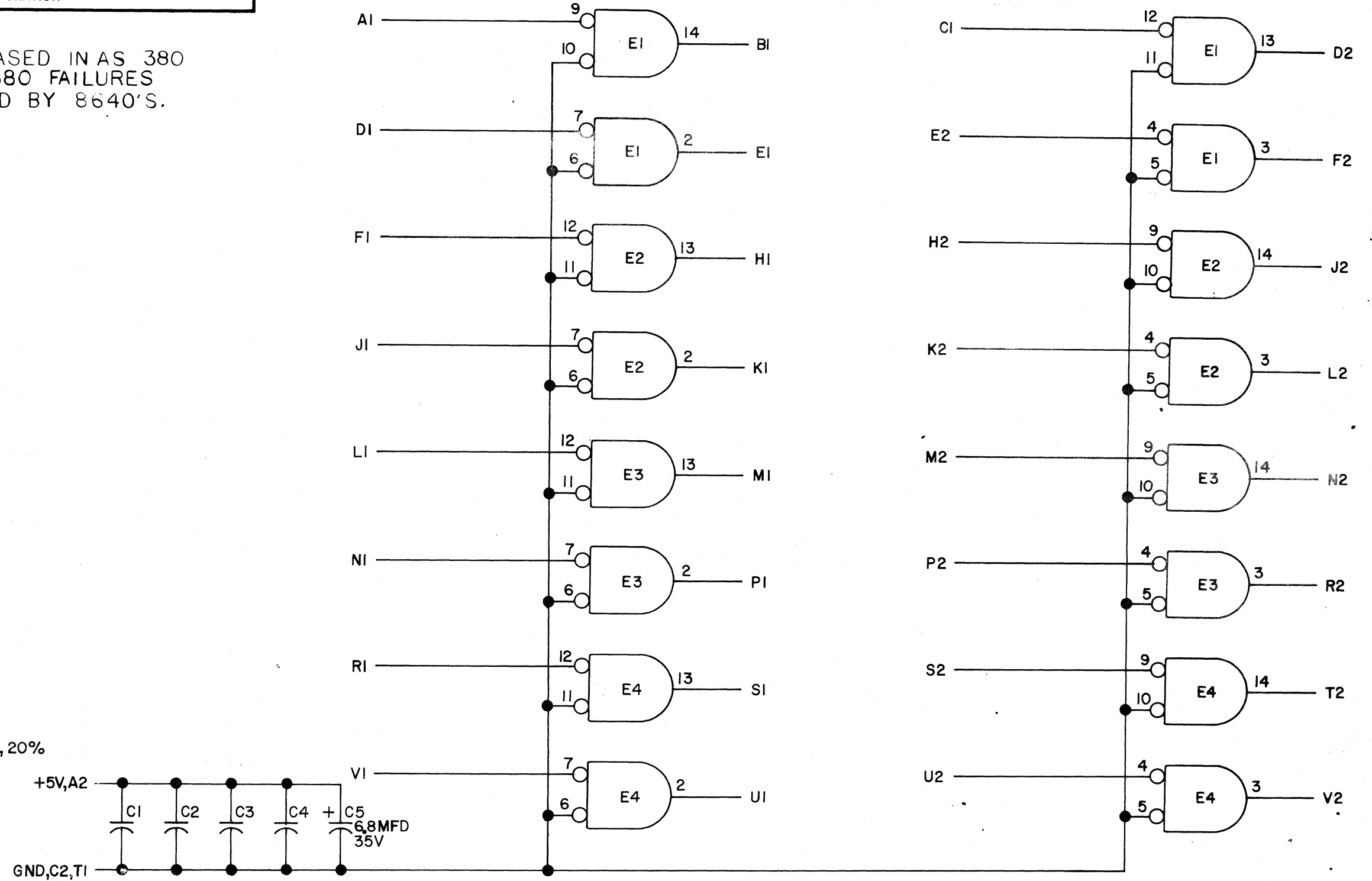


UNLESS OTHERWISE INDICATED:
 CAPACITORS ARE .01MFD, 100V, 20%
 E1, E2, E4 ARE DEC8881
 E3 IS DEC7400
 PIN 7 ON EACH IC = GND
 PIN 14 ON EACH IC = +5V

REVISIONS CHG NO. REV.	<i>A. Puley</i>	DRN.	DATE	TRANSISTOR & DIODE CONVERSION CHART				digital				TITLE UNIBUS DRIVERS M783			
	<i>2/25/70</i>	CHK'D.	DATE												
	<i>2/25/70</i>	ENG.	DATE	DEC	EIA	DEC	EIA	SIZE	CODE	NUMBER	REV.				
	PROD.	DATE	DEC	EIA	B	CS	M783-0-1	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.	A	B	C
				00001	00002	00003

DRN. *C. Hilkey* DATE 11-18-69
 CHK'D *E. H. ...* DATE 1/1/70
 EN'S *P. E. Jones* DATE 1/1/70
 PROD. DATE

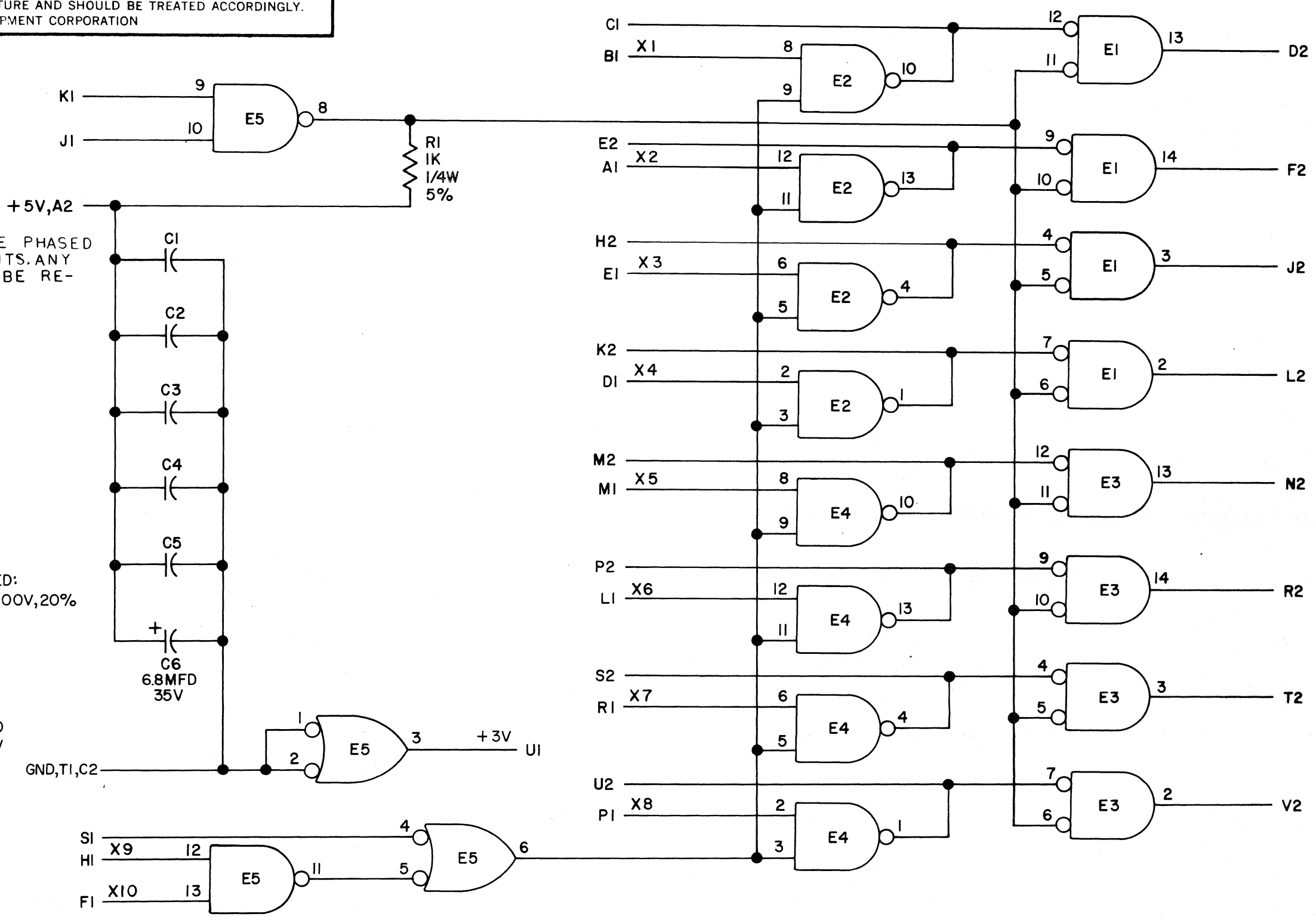
TRANSISTOR & DIODE CONVERSION CHART			
DEC	EIA	DEC	EIA

digital
EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

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

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REV B
NUMBER M785-0-1
SIZE B
CODE CS



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

REVISIONS	CHK	NO.	REV.		DRN.	DATE	TRANSISTOR & DIODE CONVERSION CHART				TITLE UNIBUS TRANCEIVERS M785	SIZE B	CODE CS	NUMBER M785-0-1	REV. B
	00001	A			CHK'D	DATE	DEC	EIA	DEC	EIA					
	00003	B			ENG	DATE									
					PROD.	DATE									
digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS						PRINTED CIRCUIT REV. AB									

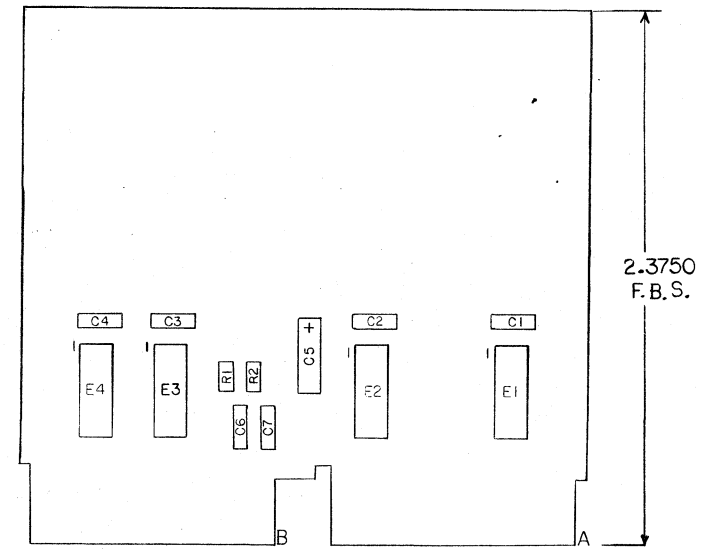
5 Pink DIST. 374, 434, 435, 3

Pink

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NOTES:

REF	X-Y COORDINATE HOLE LOCATION	K-CO-M930-0-4	1
REF	ASSY/ DRILLING HOLE LAYOUT	D-AH-M930-0-5	2
REF	MODULE ECO HISTORY	B-MH-M930-0-6	3
1	ETCHED CIRCUIT BOARD	5008696	4
4	C1 THRU C4	CAP .22 μF 50V CER	1010274-01
2	C6, C7	CAP 1000pF 250V 20% DISC	1000043
1	C5	CAP 39μF 10V 10% TANT	1000076
2	R1, R2	RES 383Ω 1/4W 1%	1305125
2	E1, E4	28 RES DIVIDER NETWORK	1312628-00
2	E2, E3	25 RES DIVIDER NETWORK	1312628-01



D
C
B
A

D
C
B
A

IC TYPE	GND	+5V	
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE			
IC PIN LOCATIONS			

FIRST USED ON OPTION MODEL
M930

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
		ETCH BOARD REV.	E-P3	
PARTS LIST				
			TITLE	
			BUS TERMINATOR	
			NEXT HIGHER ASSY	
DEC NO.		EIA NO.	DEC NO.	EIA NO.
SEMICONDUCTOR CONVERSION CHART			SCALE	
SHEET 1 OF			DIST.	
			SIZE CODE	NUMBER
			D CS	M930-0-1
				REV.
				E

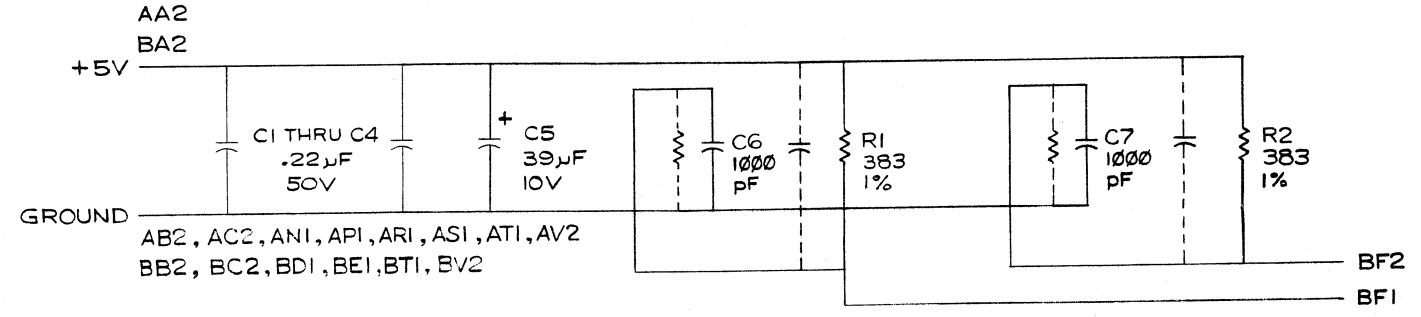
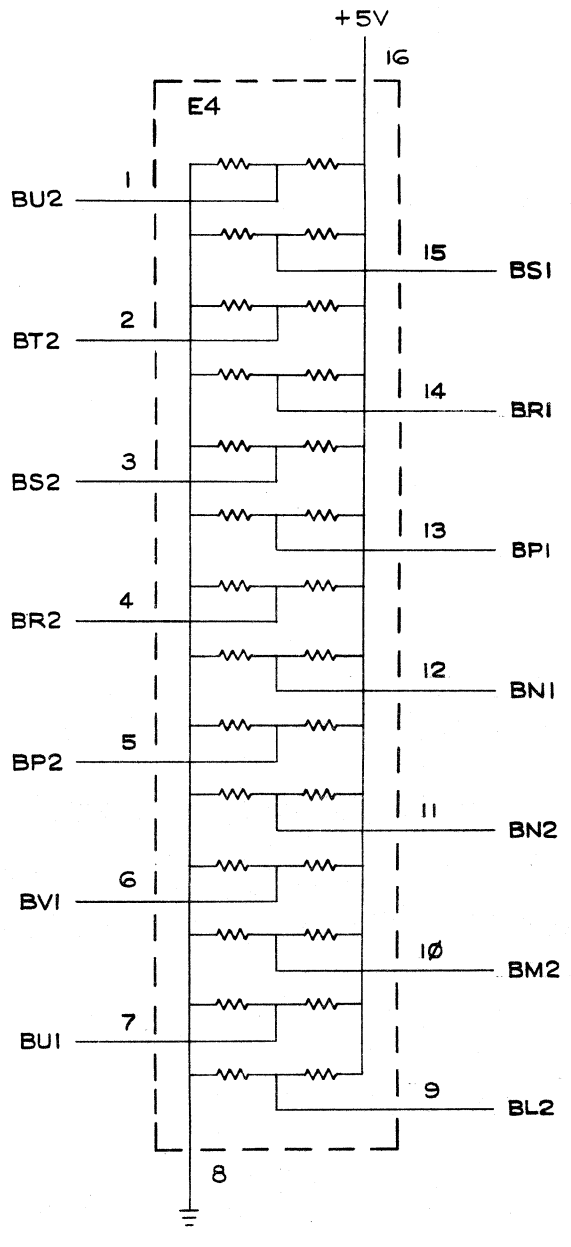
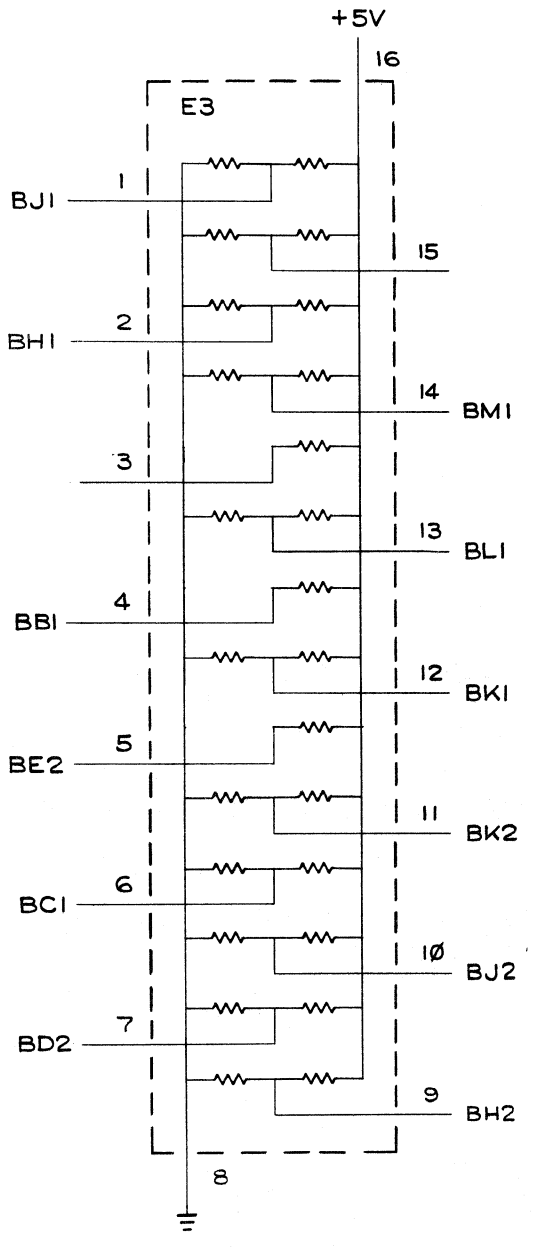
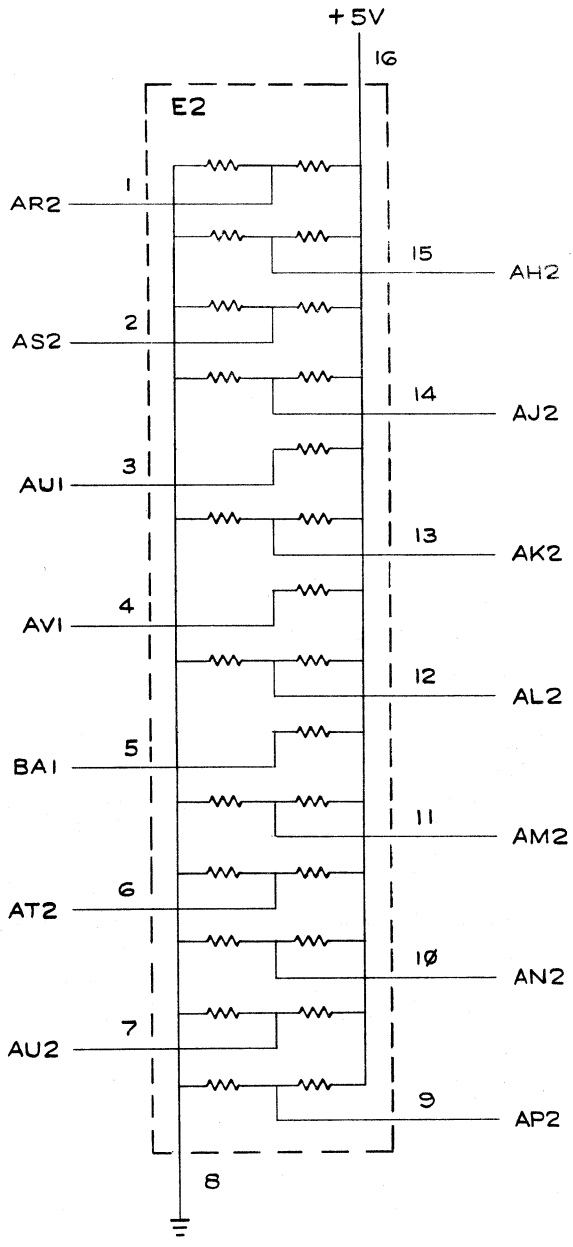
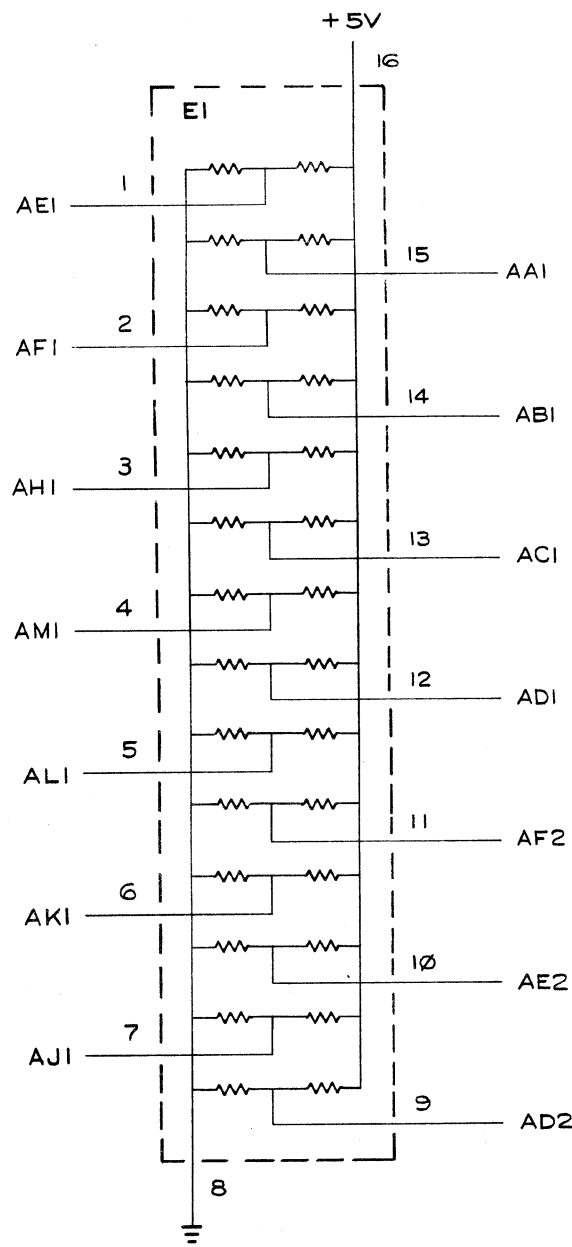
DRN. J. CARTER	DATE 7-9-75
CHKD. <i>[Signature]</i>	DATE 7-16-75
ENG. <i>[Signature]</i>	DATE 10-2-75
PROL. <i>[Signature]</i>	DATE 10-3-75
PROD. <i>[Signature]</i>	DATE

ORIGINATED	7-11-75
CHANGED	
REVISIONS	



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1-6-68W SC D 2
REV. NUMBER SIZE CODE



REVISIONS		
CHK	CHANGE NO.	REV.

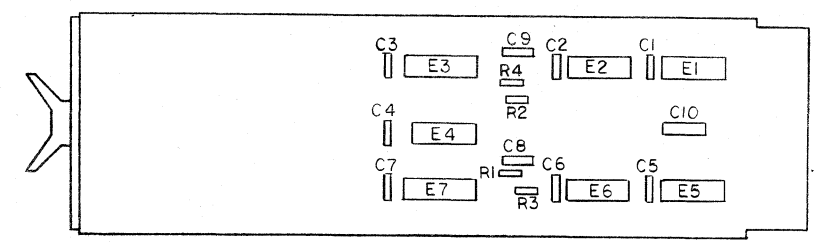
TITLE: BUS TERMINATOR
 SCALE: SHEET OF 2
 SIZE CODE: D CS
 NUMBER: M930-0-1
 REV. E

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PARTS REFERENCE

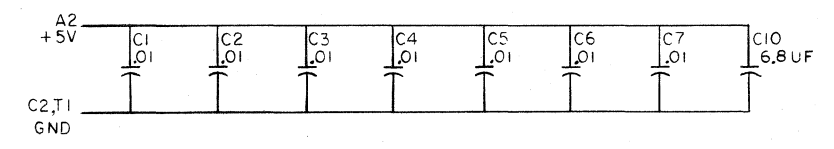
ITEM NO	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	E5	IC DEC 7404	1909686	1
2	E2, E6	IC DEC 314	1909704	2
3	E1	IC DEC 8881	1909705	1
4	E4	IC DEC 7405	1909930	1
5	E3, E7	IC DEC 74123	1910436	2
6	C10	CAP 6.8UF 35V20% S. TANT	1000067	1
7	C1-C7	CAP .01UF 100V 20% DISC	1001610	7
8	C8, C9	CAP 27PF 100V 5% MICA	1001739	2
9	R2, R3	RES 5.6 K 1/4W 5%	1301874	2
10	R1, R4	RES 5.1K 1/8W 1/2MF	1304854	2
11		SPLIT LUGS	9006735	8

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 74123	PIN 8	PIN 16
DEC 314	PIN 1	PIN 8



QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
UNLESS OTHERWISE SPECIFIED	DRN	DATE	digital EQUIPMENT CORPORATION WATNARD, MASSACHUSETTS TITLE UNIBUS REPEATER BBSY SIZE CODE D CSM7248-0-1 NUMBER REV. B
UNLESS OTHERWISE SPECIFIED	CHKD	DATE	
TOLERANCES	ENG.	DATE	
DECIMALS FRACTIONS ANGLES	PROJ. ENG.	DATE	
± .005 ± 1/64 ± 0°30'	PROD.	DATE	
FINAL SURFACE QUALITY			
REMOVE BURRS AND BREAK SHARP CORNERS			
MATERIAL			
SEE PARTS LIST			
FINISH			
SCALE 1/4			
SHEET 1 OF 2			

REV	CHANGE NO.