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# FIELD MAINTENANCE PRINT SET

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FIELD MAINT. PRINT SET M9301  
 BOOTSTRAP/TERMINATOR M9301  
 DRAWING DIRECTORY M9301

B-TC-M9301-0-3 ✓  
 D-CS-M9301-0-1 ✓  
 B-DD-M9301-0

UNIT VARIATIONS COVERED BY THIS PRINT SET
M9301 - YA
M9301 - YB
M9301 - YC
M9301 - YD
M9301 - YF
M9301 - YH
M9301 - YE
M9301 - YJ

**Field Maintenance  
Print Set MP00196**

**Digital Equipment  
Corporation**

REVISIONS	DATE	CHG. NO.	REV.	ORIGINATED	USED ON OPTION/MODEL	DRN. W. HAMEL	DATE 8-3-76	<b>digital</b>
	3-AUG-76	M9301-00006	-	M9301-00007		CHK'D <i>E. Dennis</i>	DATE 7sept76	
	12-76	M9301-00008	B	M9301-00011		PROJ. ENG. <i>John Boer</i>	DATE 9/7/76	
	4-77	M9301-00011	C			FIELD SERV.	DATE	

TITLE: **FIELD MAINTENANCE  
PRINT SET  
M9301**

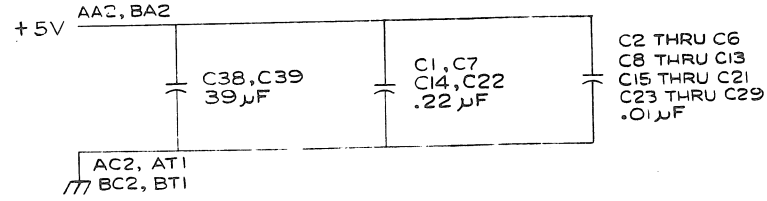
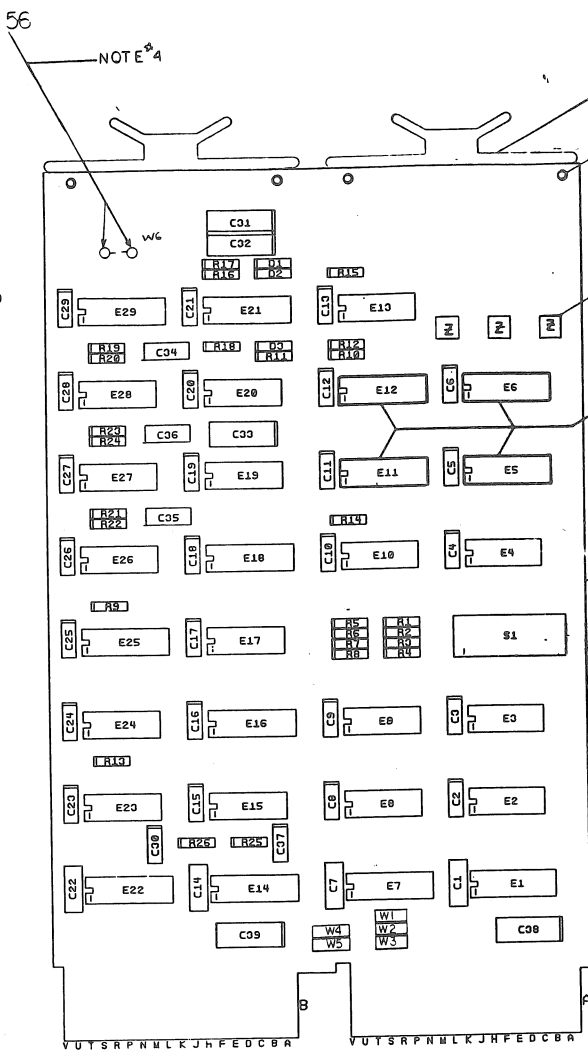
SIZE <b>B</b>	CODE <b>TC</b>	NUMBER M9301-0-3	REV. <b>C</b>
DIST.			



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**NOTES:**

- IN PDP11/04, 11/09 AND PDP11/34, 11/39 SYSTEMS WITHOUT BATTERY BACKUP, TP1 SHOULD NOT BE CONNECTED TO THE POWER SUPPLY BATTERY STATUS SIGNAL UNLESS BOOTS ON ALL POWER RESTARTS ARE DESIRED.
- IN ALL PDP11 SYSTEM WHOSE PROCESSOR MODULE DOES NOT CONTAIN GRANT PULL-UP RESISTORS, EITHER THE M9301 MUST BE POSITIONED IN THE TERMINATOR SLOT AT THE END OF THE UNIBUS FURTHEST FROM THE PROCESSOR OR JUMPERS W1 THRU W5 MUST BE INSTALLED, SO THE M9301 CAN BE INSERTED IN THE TERMINATOR SLOT NEXT TO THE PROCESSOR.
- ON PDP11 SYSTEMS CONTAINING A BUS REPEATER OPTION, THE M9301 MUST BE INSTALLED ON THE PROCESSOR SIDE OF THE REPEATER. SEE NOTE 2 FOR OTHER RESTRICTIONS.
- JUMPER WG SHOULD ONLY BE INSTALLED IN 11/55 AND 11/70 COMPUTERS WHOSE BACKPLANE HAVE BEEN MODIFIED FOR THIS MODULE. CONNECTOR PIN B01 IN THESE MODIFIED BACKPLANES WILL NOT BE TIED TO GROUND.
- EARLIER VERSIONS USED PLASTIC SWITCH COVER (CPN I211184-06) TO PREVENT INADVERTENT PROGRAMMING OF S1.
- 11/40'S WITH RK06 REQUIRE CS REVISION P OR LATER.



REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	XY COORDINATE HOLE LOCATION	K-CO-M9301-2-1							
REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	ASSY/DRILLING HOLE LAYOUT	D-AH-M9301-2-5							
REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	MODULE ECO HISTORY	B-MH-M9301-2-6							
REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	ETCHED CIRCUIT BOARD	5011208							
1	1	1	1	1	1	1	1	1	1	C1, C7, C14, C22	CAP .22µF 50V	101274-0						
25	25	25	25	25	25	25	25	25	25	C2 THRU C6, C8 THRU C13	CAP .01µF 100V 20%	1001510-01						
2	2	2	2	2	2	2	2	2	2	C30, C37	CAP .001µF 250V 20%	1000043						
4	4	4	4	4	4	4	4	4	4	C32, C33, C38, C39	CAP 39µF 10V 10%	1000076						
3	3	3	3	3	3	3	3	3	3	C34, C35, C36	CAP 270µF 100V 5%	1000022						
3	3	3	3	3	3	3	3	3	3	D1, D2, D3	DIODE DG64 1N3606	1100114						
8	8	8	8	8	8	8	8	8	8	R1 THRU R8	RES 10K 1/4W 5%	1300179						
2	2	2	2	2	2	2	2	2	2	R9, R12	RES 1K 1/4W 5%	1300365						
4	4	4	4	4	4	4	4	4	4	R11, R13, R14, R18	RES 4.7K 1/4W 5%	1300447						
2	2	2	2	2	2	2	2	2	2	R16, R17	RES 30K 1/4W 5%	1302394						
3	3	3	3	3	3	3	3	3	3	R19, R21, R23	RES 47Ω 1/4W 5%	1300202						
3	3	3	3	3	3	3	3	3	3	R20, R22, R24	RES 2K 1/4W 5%	1302388						
2	2	2	2	2	2	2	2	2	2	R25, R26	RES 383Ω 1/4W 5%	1305125						
2	2	2	2	2	2	2	2	2	2	E1, E22	RES DIVIDER NETWORK	13-12628-00						
2	2	2	2	2	2	2	2	2	2	E7, E14	RES DIVIDER NETWORK	13-12628-01						
8	8	8	8	8	8	8	8	8	8	E2, E3, E8, E9	I.C. DEC 8881	1909708						
										E15, E23, E27, E28								
2	2	2	2	2	2	2	2	2	2	E4, E10	I.C. DEC 7402	1909004						
1	1	1	1	1	1	1	1	1	1	E13	I.C. DEC 7474	1905547						
3	3	3	3	3	3	3	3	3	3	E16, E18, E25	I.C. DEC 8837	1911116						
1	1	1	1	1	1	1	1	1	1	E17	I.C. DEC 7420	1905577						
2	2	2	2	2	2	2	2	2	2	E19, E24	I.C. DEC 314A	1909704						
1	1	1	1	1	1	1	1	1	1	E20	I.C. DEC 8640	1911469						
1	1	1	1	1	1	1	1	1	1	E21	I.C. DEC 9602	1910951						
1	1	1	1	1	1	1	1	1	1	E26	I.C. DEC 7437	1910091						
1	1	1	1	1	1	1	1	1	1	E29	I.C. DEC 7476	1905585						
1	1	1	1	1	1	1	1	1	1	S1	SWITCH, DIP, 10 POLE	1211164-06						
SWITCH COVER																		
										3	3	3	3	3	3	YELET (FASTON)	9009000	
										3	3	3	3	3	3	TAB (FASTON)	9007112	
										2	2	2	2	2	2	HANDLE FLIP/CHIP MAGENTA	9008337-06	
										4	4	4	4	4	4	YELET	9006732	
										1	1	1	1	1	1	C31	CAP 1µF 35V 10%	1001776

IC TYPE	GND	+5V
I.C. DEC 314	1	8
I.C. DEC 7476	13	5
I.C. DEC 8640	1	8
I.C. DEC 8837	8	16
I.C. DEC 9602	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTONS ARE STATED ABOVE  
IC PIN LOCATIONS

REV.	DATE	DESCRIPTION
P	1 FEB 77	
L		
M		
N		
O		
P		
Q		
R		
S		
T		
U		
V		
W		
X		
Y		
Z		

QTY	REF. DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.

FIRST USED ON OPTION MODEL 11/04

ETCH BOARD REV. F

DESIGN: J. VINCENT DATE 4/9/75  
 CHK'D: R. COOK DATE 3/28/75  
 ENG: T. DURANIEUR DATE 6/23/75  
 PROJ. ENGR: J. BLOEM DATE 6/19/75  
 DRAWN: R. PETERSON DATE 6/18/75

digital

TITLE: UNIBUS TERMINATOR/BOOTS TRAP

SIZE CODE: D C5 NUMBER: M9301-0-1 REV: C

SCALE: 1:1 DIST.:

SEMICONDUCTOR CONVERSION CHART

SHEET 1 OF 5

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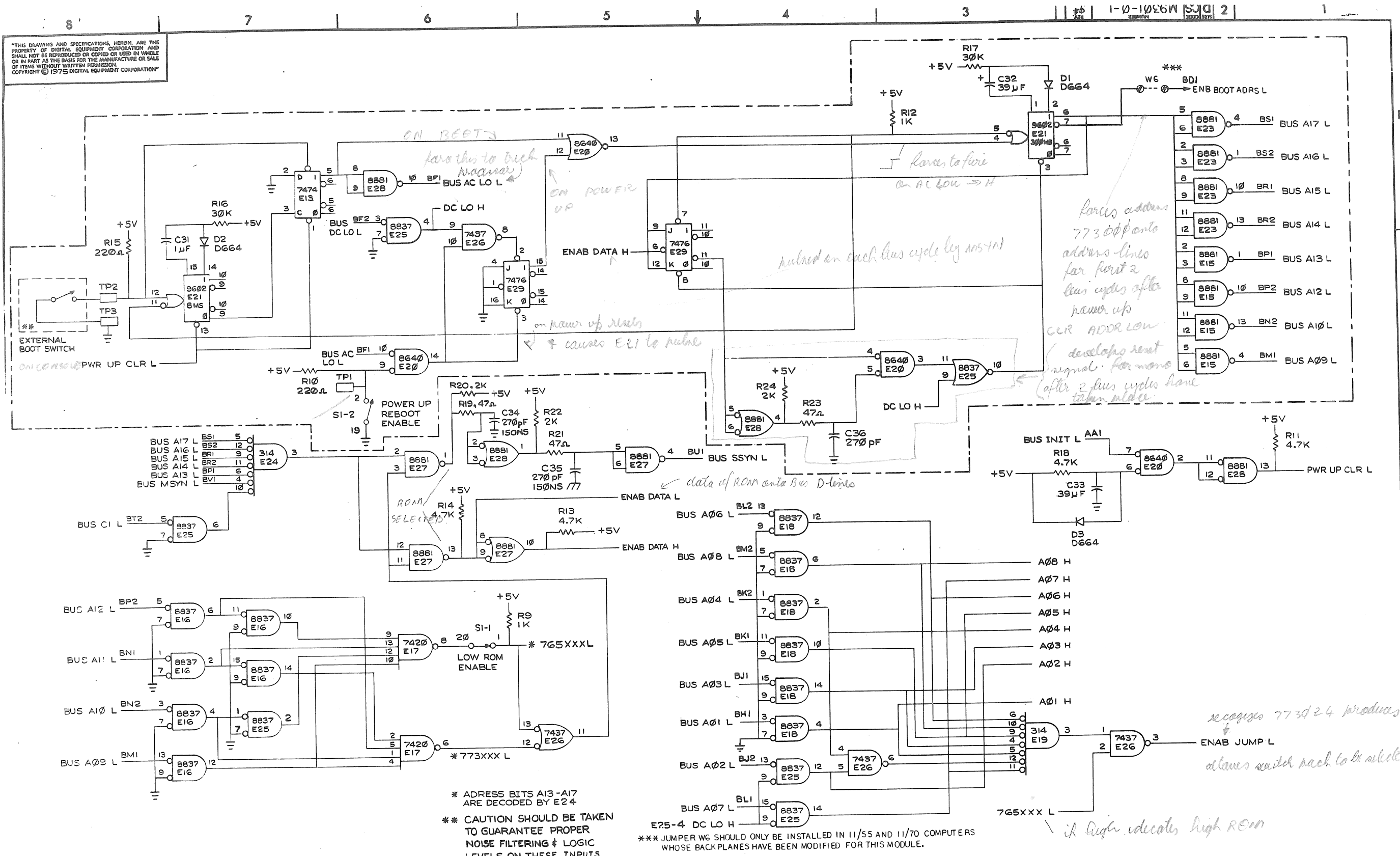
REVISIONS		
CHK	CHANGE NO.	REV.

QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
4	4	4	4	4	4	4	4	4	4	E5, E6, E11, E12	SOCKET, 16 PIN, I.C.	1211813	35
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC. TRI-STATE 2048 ROM	23034A9	35
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23035A9	36
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23036A9	37
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23037A9	38
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23038A9	39
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23039A9	40
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23040A9	41
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23041A9	42
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23042A9	43
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23043A9	44
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23044A9	45
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23045A9	46
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23046A9	47
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23047A9	48
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23123A9	49
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23049A9	50
0	0	5	0	0	5	0	0	0	0	WI THRU WS	JUMPER, WIRE, WHITE INSULATION	9009185	51
2	2	2	2	2	2	2	2	2	2	R10, R15	RES 220Ω, 1/4W, 5%	1300271	52
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23480A9	53
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23481A9	54
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23482A9	55
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23483A9	56
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23332A9	57
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23333A9	58
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23334A9	59
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23335A9	60
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23538A9	61
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23539A9	62
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23540A9	63
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23541A9	64
0	0	0	0	0	0	0	0	0	0	E5	I.C. DEC TRI-STATE 2048 ROM	23520A9	65
0	0	0	0	0	0	0	0	0	0	E6	I.C. DEC TRI-STATE 2048 ROM	23521A9	66
0	0	0	0	0	0	0	0	0	0	E11	I.C. DEC TRI-STATE 2048 ROM	23522A9	67
0	0	0	0	0	0	0	0	0	0	E12	I.C. DEC TRI-STATE 2048 ROM	23523A9	68

TITLE	UNIBUS TERMINATOR/BOOTSTRAP	SIZE CODE	D CS	NUMBER	M9301-0-1	REV.	S
SCALE	1/8"	SHEET	2	OF	5	DIST.	

REV. 001 DCS M9301-0-1

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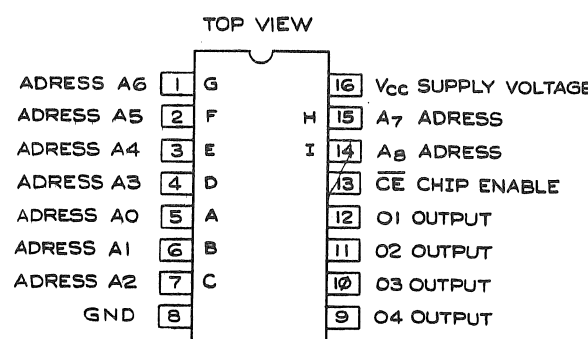
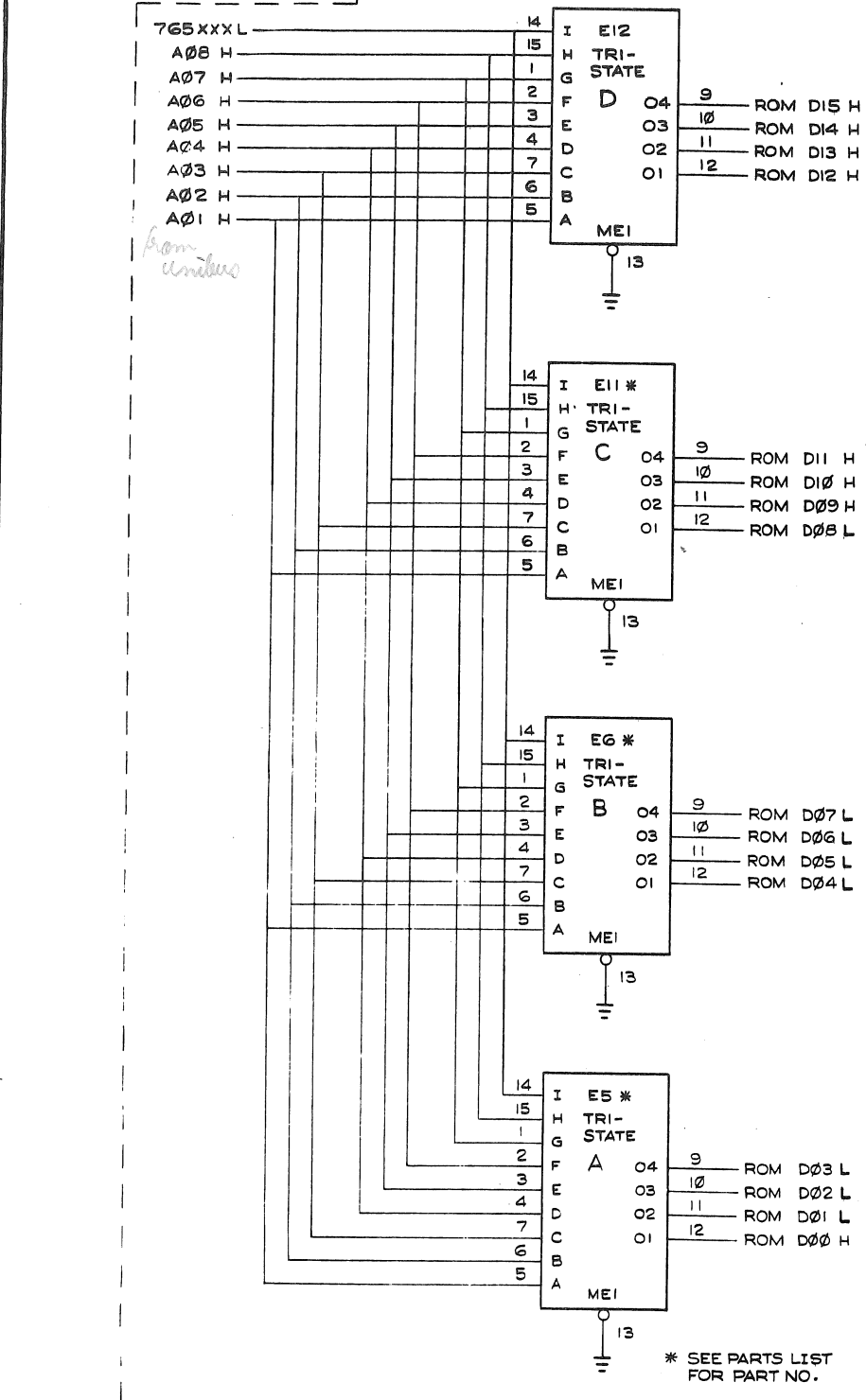
REVISIONS		
CHK	CHANGE NO.	REV.

\* ADDRESS BITS A13-A17 ARE DECODED BY E24  
 \*\* CAUTION SHOULD BE TAKEN TO GUARANTEE PROPER NOISE FILTERING & LOGIC LEVELS ON THESE INPUTS

\*\*\* JUMPER W6 SHOULD ONLY BE INSTALLED IN 11/55 AND 11/70 COMPUTERS WHOSE BACK PLANES HAVE BEEN MODIFIED FOR THIS MODULE.

TITLE	UNIBUS TERMINATOR/ BOOTSTRAP	SIZE CODE	D CS	NUMBER	M9301-0-1	REV.	S
SCALE	---	SHEET	3	OF	5	DIST.	

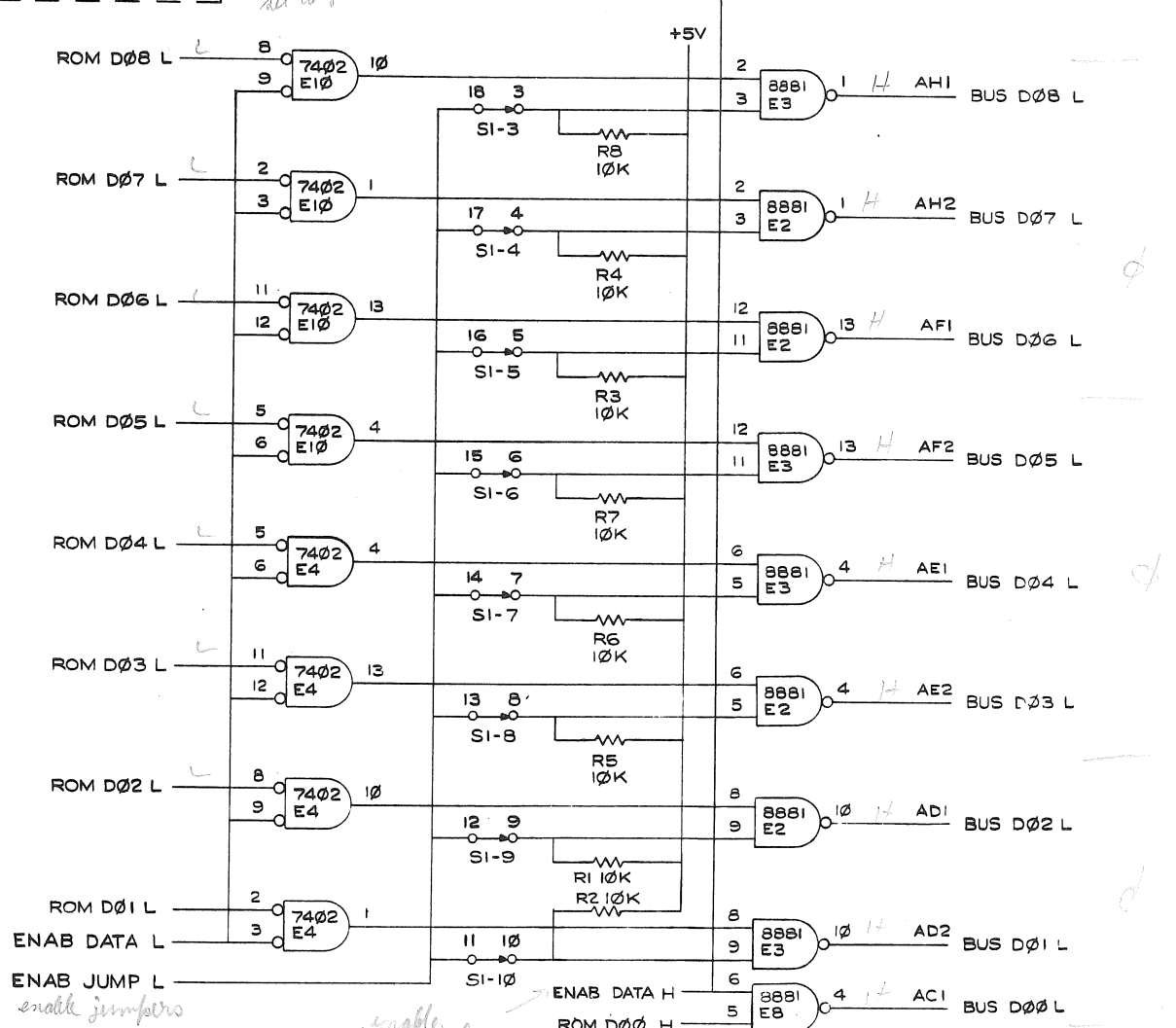
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- 3. BLANK PROMS HAVE DEC PART NO. 23-000A901
- 4. BIPOLAR 2048 (512 X 4) BIT PROMS PIN COMPATIBLE MAY BE USED WITH TRI-STATE OUTPUTS AND ACCESS TIME < 70 ns @ 70°C (INTERSIL 5624, MMI 6306, SIGNETICS 82S131, ETC)

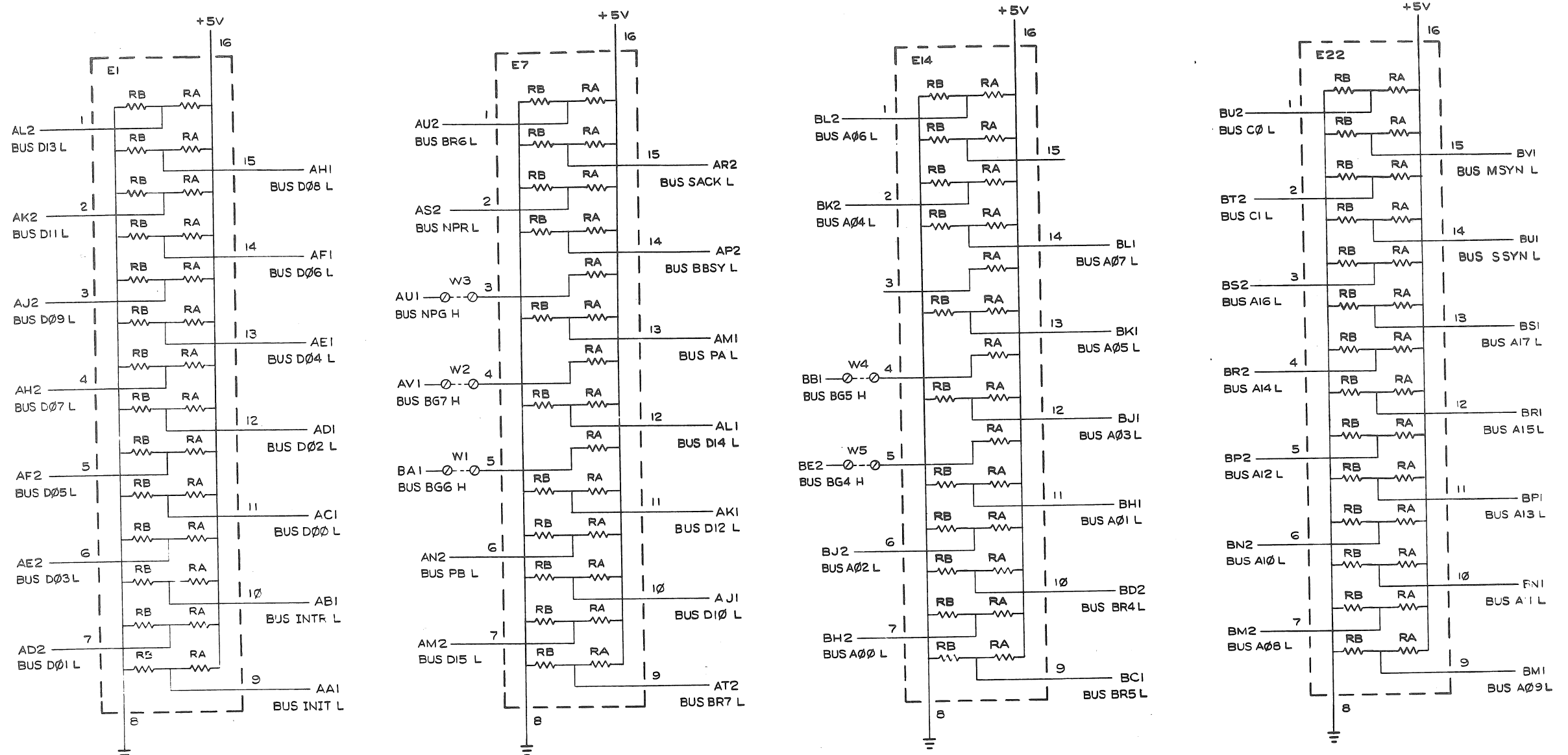
ADDRESS RANGE	
765000 - 765776	LOW ROM
773000 - 773776	HIGH ROM

ON POWER UP  
60 - NO 60 → CONSOLE EMULATOR

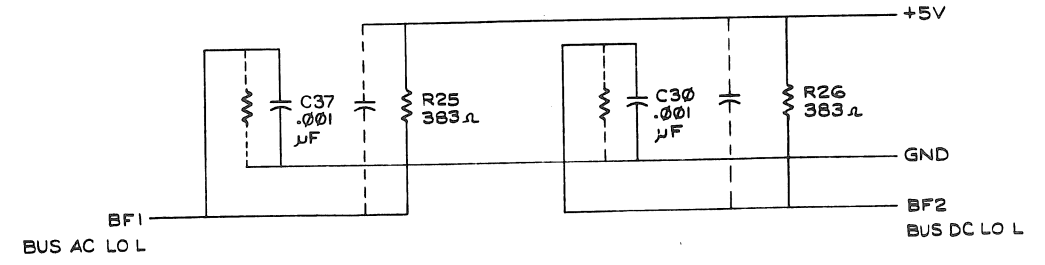


REVISIONS		
CHK	CHANGE NO.	REV.

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- NOTES :
1. ALL RA RESISTORS SHOWN ARE 176.5Ω, ±2%
  2. ALL RB RESISTORS SHOWN ARE 375Ω, ±2%
  3. JUMPERS W1 THRU W5 ARE ONLY INSERTED ON THE M9301-YC AND M9301-YH IF USED IN AN 11/70 COMPUTER.



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	UNIBUS TERMINATOR/BOOTSTRAP	SIZE CODE	D CS	NUMBER	M9301-0-1	REV.	S
SCALE		SHEET	5	OF	5	DIST.	





## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE

SEQUENCE

NOTE:  
FOR FIELD MAINTENANCE  
PRINT SET, REFER TO:  
B-TC-M9301-0-3

UNIT VARIATIONS		PRINT SET
VAR	TITLE	
M9301-YA	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YB	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YC	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YD	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YF	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YH	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YE	UNIBUS TERMINATOR/BOOTSTRAP	
M9301-YJ	UNIBUS TERMINATOR/BOOTSTRAP	

REVISIONS	DATE	CHG. NO.	REV	ORIGINATED
	8-76	M9301-6	-	
	9-77	M9301-7	A	
	12-76	M9301-8	B	
	2-77	M9301-9	C	
	3-77	M9301-10	D	
	4-77	M9301-11	E	
	6-77	M9301-12	F	

USED ON OPTION/MODEL		DRN.	DATE	TITLE
11/34		W. Hamel	3AUG76	
11/04		CHK'D. E. Remond	3AUG76	
		PROJ ENG <i>John Blom</i>	DATE 9-7-76	
		PROD.	DATE	
		FIELD SERV.	DATE	

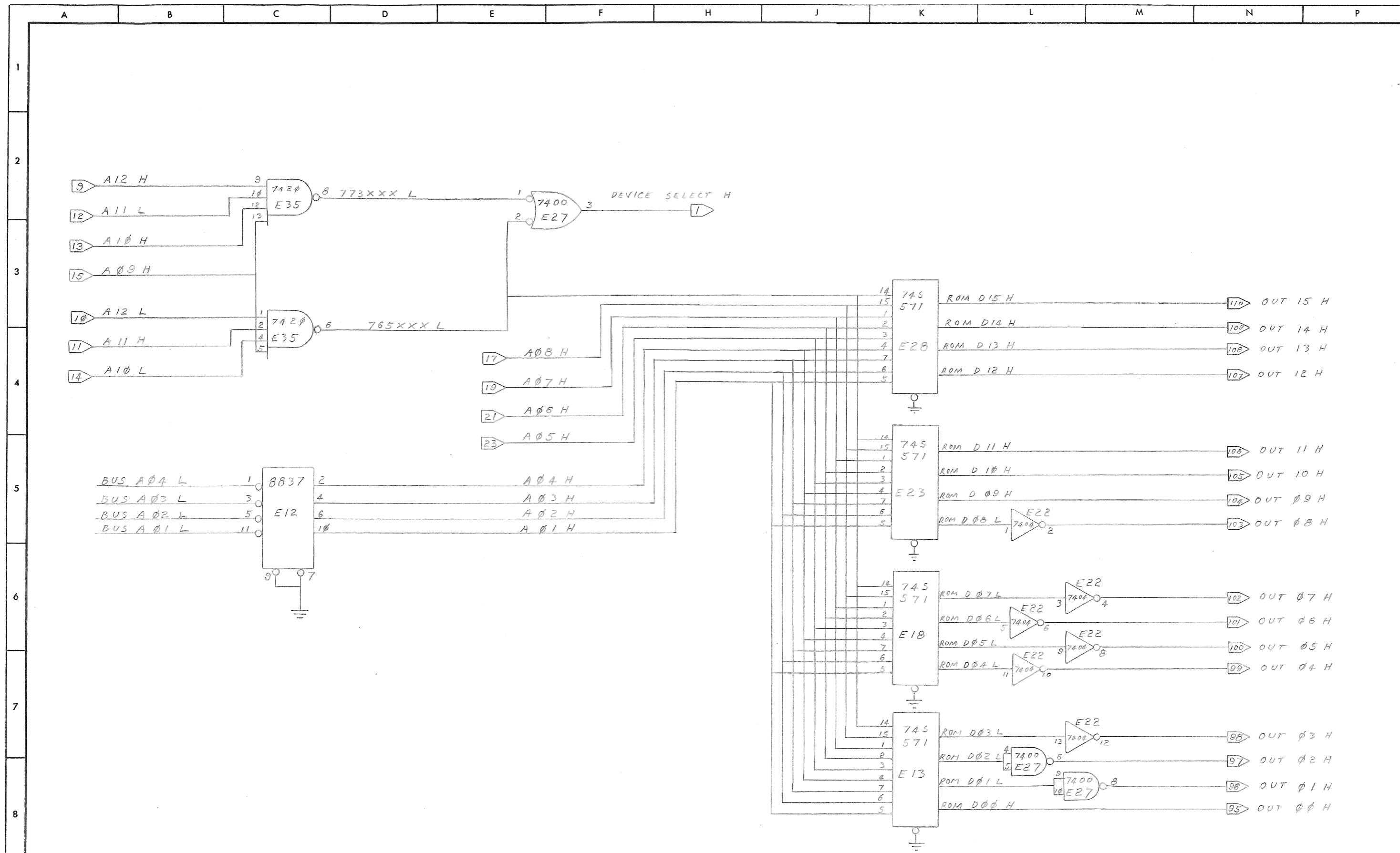
SHEET 1 OF 2		SIZE	CODE	NUMBER	REV
B	DD	M9301-0			
DIST					

EN-01062-1A-16-R972-1325









Dwn	UNIVERSITY OF QUEENSLAND
	<b>PRENTICE COMPUTER CENTRE</b>
LB	M9301 COMPATABLE ROM
Date	BOOTSTRAP MODULE
MARCH 1983	

