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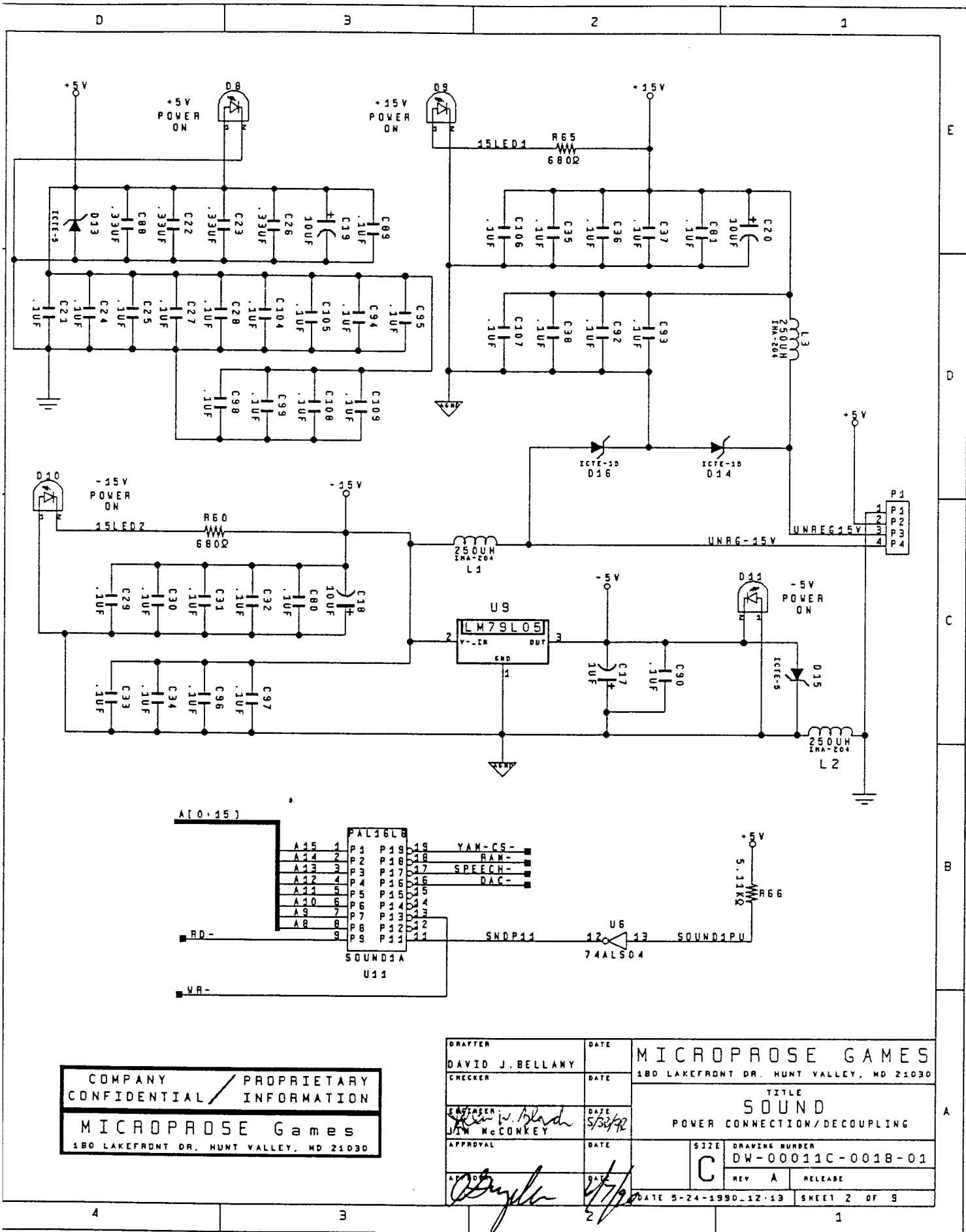
FLIPPERSPILL.COM

SOUND
PRINTED CIRCUIT
BOARD ASSEMBLY

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

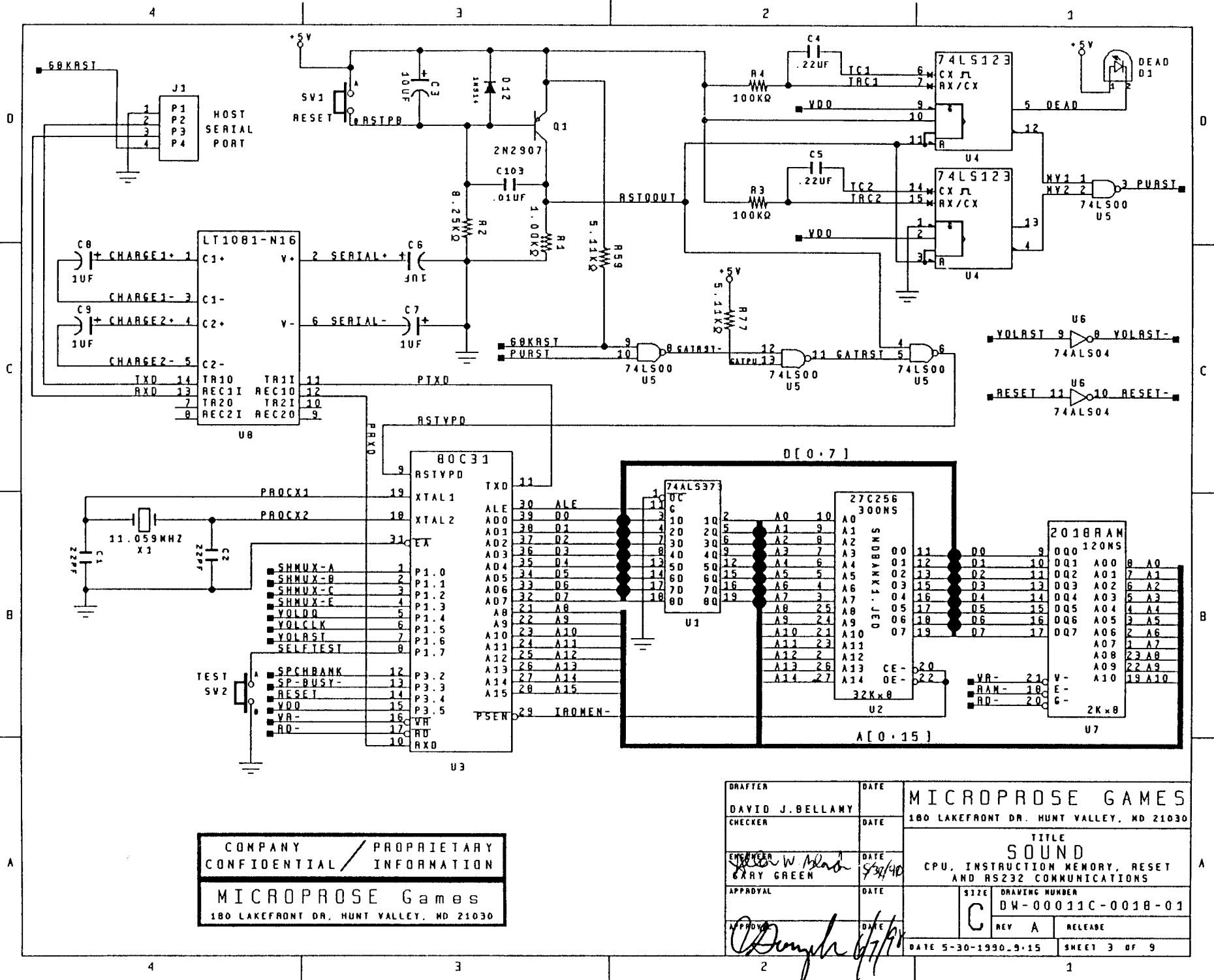
DRAFTER	DATE	MICROPROSE GAMES	
DAVID J. BELLAMY		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER	DATE	TITLE	
		SOUND	
EDWINER ALLEN BLACK	DATE 5/2/80	PRINT CIRCUIT BOARD ASSEMBLY	
APPROVAL	DATE	SIZE	DRAWING NUMBER
		C	OW-00011C-0018-01
APPROVAL	DATE		REV A
		DATE 5-30-1990-10-21	
		SHEET 1 OF 9	



COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

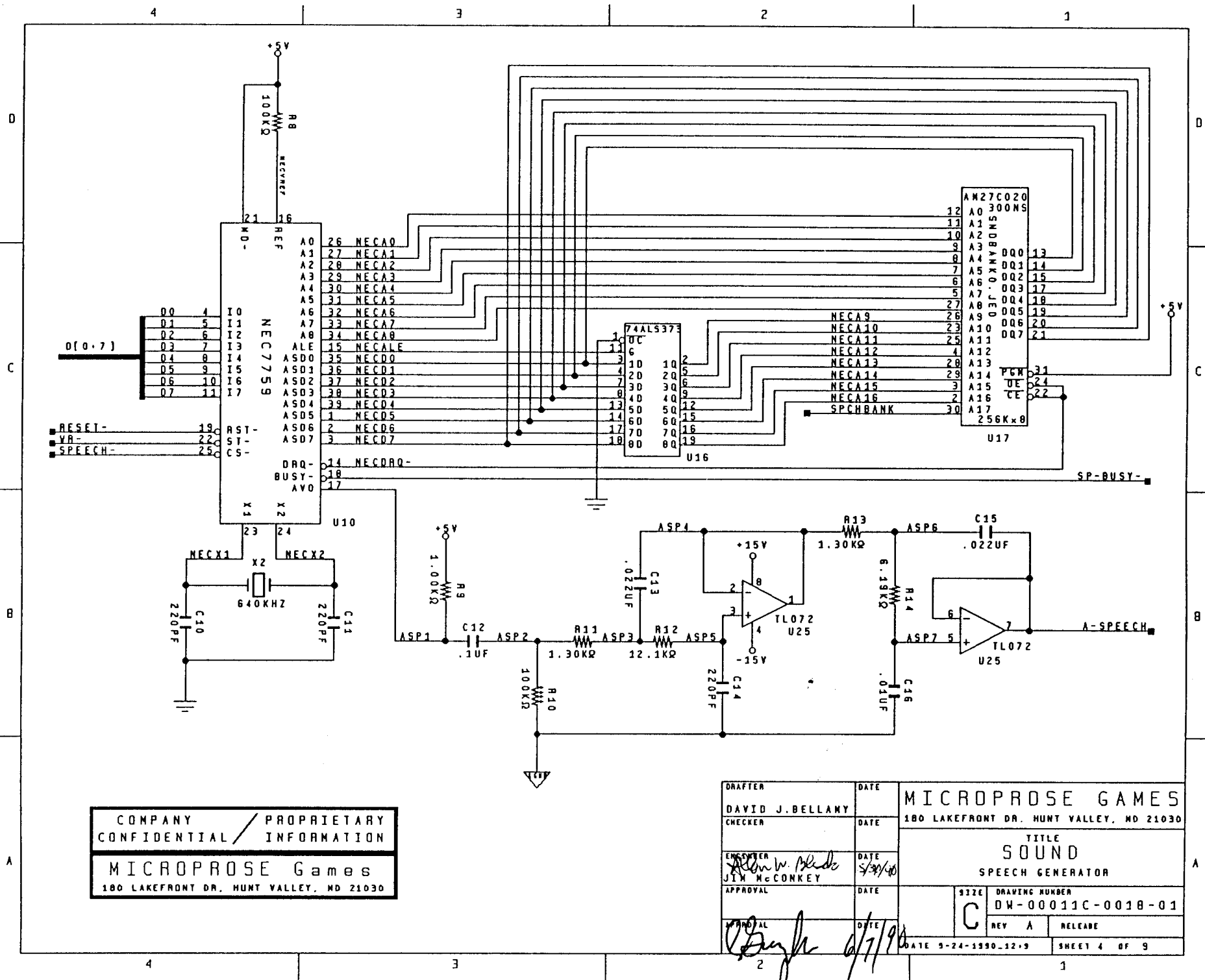
DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL		DATE		TITLE SOUND POWER CONNECTION/DECOUPLING	
APPROVAL		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0018-01	
APPROVAL		DATE		REV A RELEASE	
APPROVAL		DATE		DATE 5-24-1990-12-13 SHEET 2 OF 9	

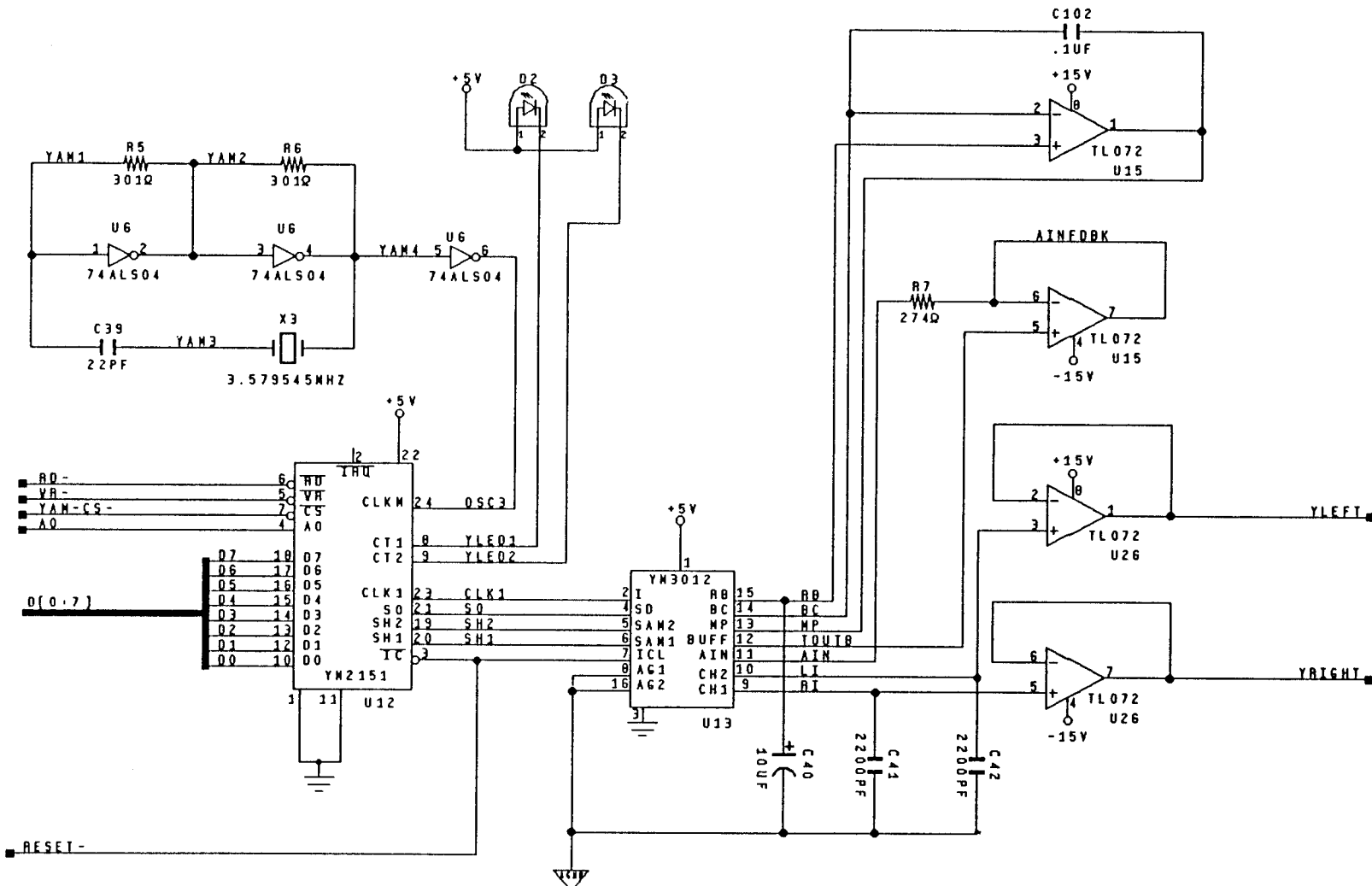


COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLAMY				180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
EMERSON W. BELLAMY		5/30/90		SOUND	
APPROVAL		DATE		CPU, INSTRUCTION MEMORY, RESET AND RS232 COMMUNICATIONS	
O'Donoghue		5/31/90		SIZE	
				DRAWING NUMBER	
				DW-00011C-001B-01	
				REV A	
				RELEASE	
				DATE 5-30-1990-9-15	
				SHEET 3 OF 9	





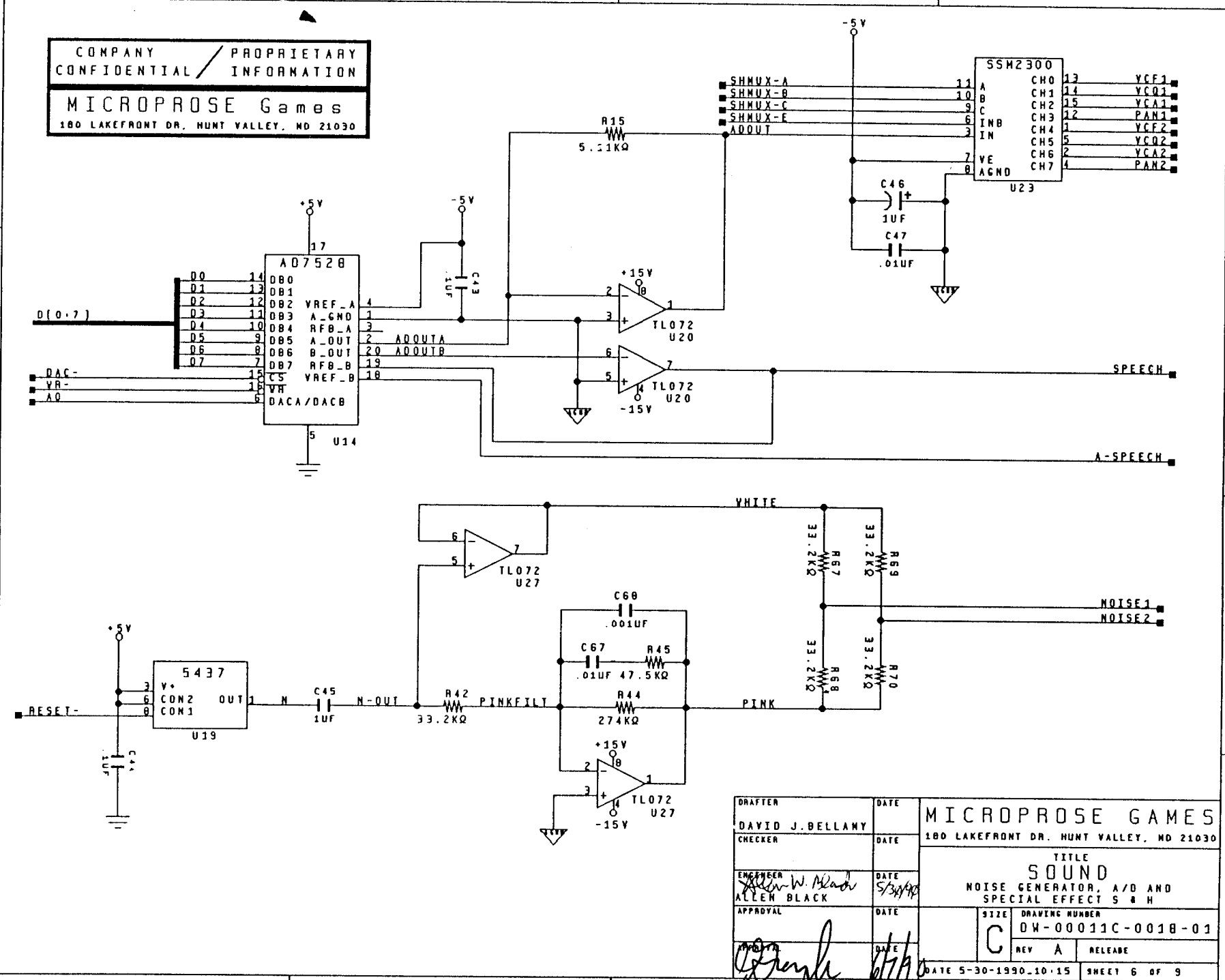
COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

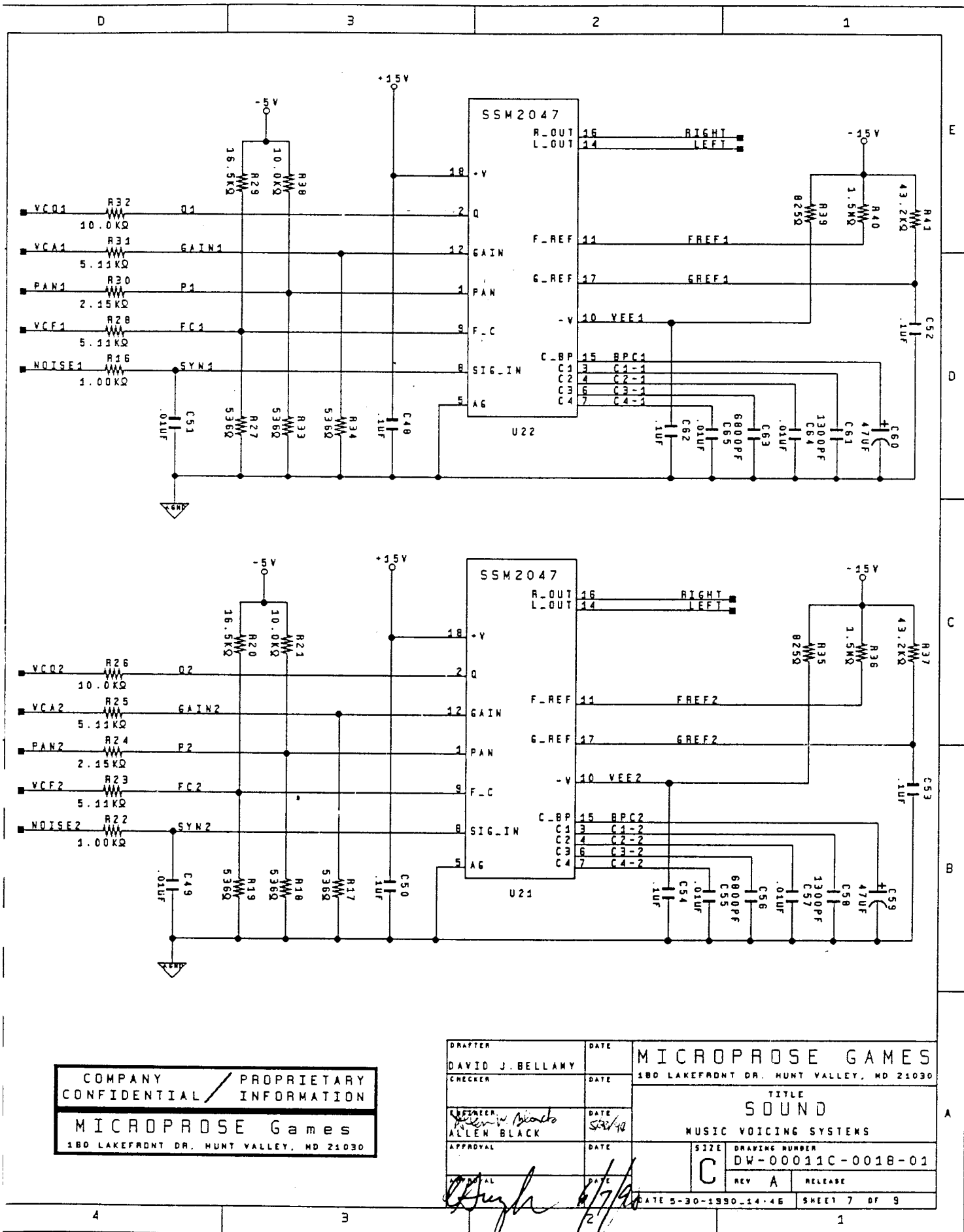
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CHECKER		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
DRAWN BY ALLEN BLACK		DATE 5/30/90		TITLE SOUND	
APPROVAL		DATE		STEREO MUSIC SYNTHESIZER	
APPROVAL		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-001B-01	
APPROVAL		DATE		REV A	
APPROVAL		DATE		RELEASE	
APPROVAL		DATE		DATE 5-30-1990-9-51	
APPROVAL		DATE		SHEET 5 OF 9	

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030



DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE			
ENGINEER Allen W. Black		DATE 5/30/90		TITLE SOUND NOISE GENERATOR, A/D AND SPECIAL EFFECT S & H	
APPROVAL		DATE			
DATE		DATE		SIZE C	
DRAWING NUMBER DW-00011C-0018-01		REV A		RELEASE	
DATE 5-30-1990-10-15		SHEET 6 OF 9			

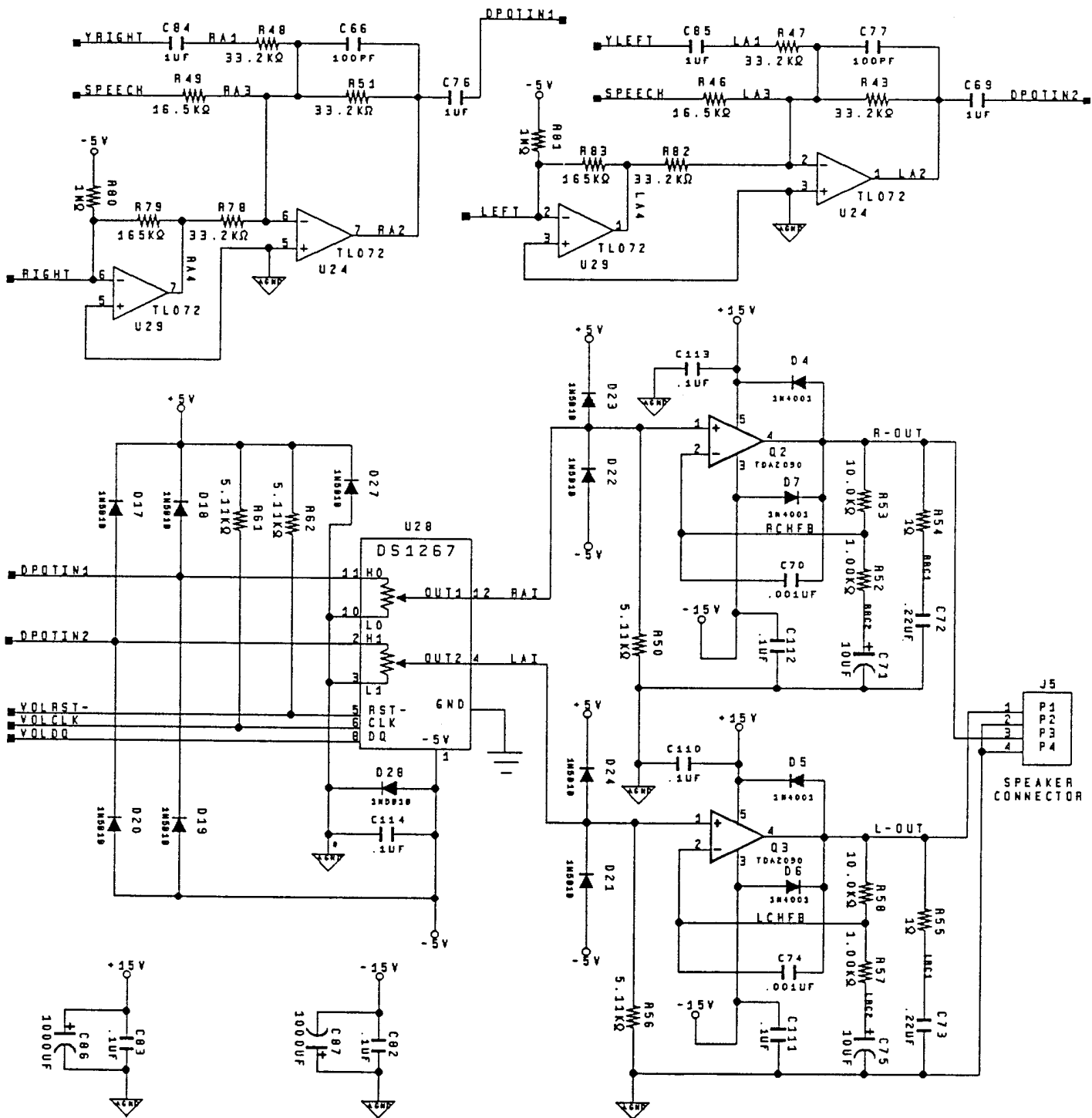


COMPANY CONFIDENTIAL / PROPRIETARY INFORMATION
MICROPROSE Games
 180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE			
DESIGNER ALLEN BLACK		DATE 5/7/90		TITLE SOUND MUSIC VOICING SYSTEMS	
APPROVAL		DATE			
DATE 5/7/90		DATE 5/7/90		SIZE C	
REV A		RELEASE		DRAWING NUMBER DW-00011C-0018-01	
DATE 5-30-1990_14-46		SHEET 7 OF 9			

RIGHT

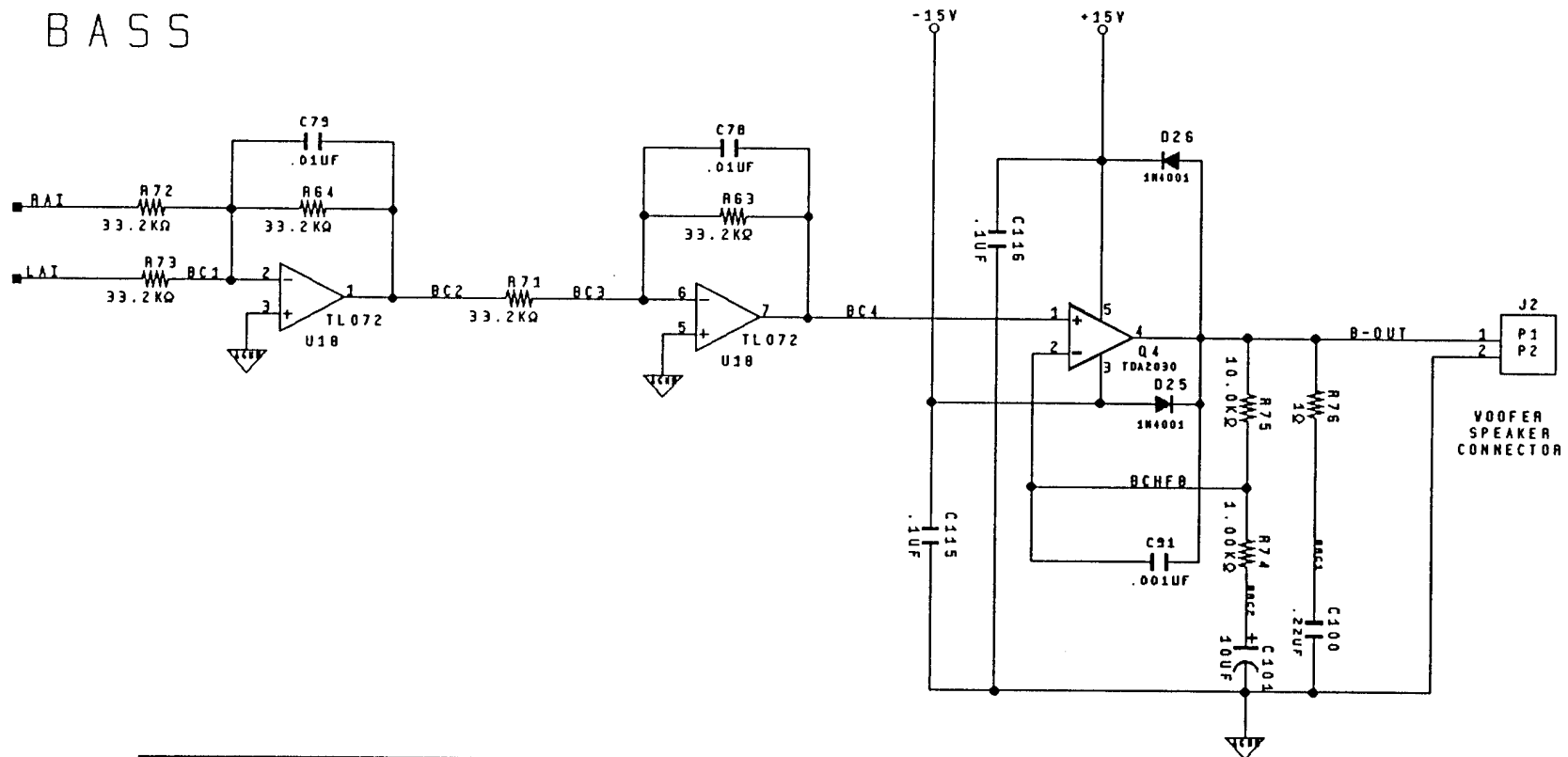
LEFT



COMPANY PROPRIETARY
CONFIDENTIAL / INFORMATION
MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
DESIGNER ALLEN BLACK		DATE 5/30/90		TITLE SOUND	
APPROVAL		DATE		LEFT AND RIGHT CHANNEL OUTPUT AUDIO AMPLIFIERS	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0018-01	
APPROVAL		DATE		REV A RELEASE	
APPROVAL		DATE		DATE 5-30-1990-14:50 SHEET 8 OF 9	

BASS



COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE			
ENGINEER W. Black		DATE 5/9/90		TITLE SOUND BASS OUTPUT AUDIO AMPLIFIER	
APPROVAL ALLEN BLACK		DATE			
DATE		DATE		DRAWING NUMBER DW-00011C-0018-01	
DATE		DATE		REV A RELEASE	
DATE		DATE		DATE 5-30-1990-14-52 SHEET 9 OF 9	

MICROPROSE GAMES, 180 Lakefront Drive, Hunt Valley, Maryland 21030

PROJECT: SOUND BOARD DRWG NO: PL-00011A-00018-01 REV: C

DATE: Wed 1-Aug-1990

ITEM	QTY	VENDOR	PART NUMBER	PART DESC	VALUE	MPG P/N
		REF.	DES.			
1	2	CCF-07	155J R40,R36	5PCMFRES	1.5MOHM	503-00005-155
2	1	CCF-50	2743F R44	1PCMFRES	274KOHM	503-00001-274
3	4	CCF-50	1003F R3,R4,R8,R10	1PCMFRES	100KOHM	503-00001-104
4	1	CCF-50	4752F R45	1PCMFRES	.47.5KOHM	503-00001-473
5	2	CCF-50	4322F R37,R41	1PCMFRES	43.2KOHM	503-00001-433
6	9	CCF-50	3322F [R73,R72,R71,R64,R63],R51,R48,R47,R43,R42,R78,R82,R68,R70	1PCMFRES	33.2KOHM	503-00001-333
7	4	CCF-50	1652F R20,R29,R46,R49	1PCMFRES	16.5KOHM	503-00001-163
8	1	CCF-50	1212F R12	1PCMFRES	12.1KOHM	503-00001-123
9	6	CCF-50	1002F R21,R26,R32,R38,R58,R53,[R75]	1PCMFRES	10.0KOHM	503-00001-103
10	1	CCF-50	8251F R2	1PCMFRES	8.25KOHM	503-00001-822
11	1	CCF-50	6191F R14	1PCMFRES	6.19KOHM	503-00001-612
12	12	CCF-50	5111F R62,R61,R56,R50,R23,R25,R31,R28,R15,R59,R66,R77	1PCMFRES	5.11KOHM	503-00001-512
13	2	CCF-50	2151F R24,R30	1PCMFRES	2.15KOHM	503-00001-212
14	2	CCF-50	1301F R13,R11	1PCMFRES	1.30KOHM	503-00001-132
15	6	CCF-50	1001F R1,R9,R16,R22,R52,R57,[R74]	1PCMFRES	1.00KOHM	503-00001-102
16	2	CCF-07	681G R60,R65	2PCMFRES	680 OHM	503-00002-681
17	6	CCF-50	5360F R34,R19,R18,R17,R33,R27	1PCMFRES	536 OHM	503-00001-541

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
18	2	CCF-50 3010F R6,R5	1PCMFRES	301 OHM	503-00001-301
19	1	CCF-50 2740F R7	1PCMFRES	274 OHM	503-00001-001
20	2	5053EM1R00J R55,R54,[R76]	5PCMFRES	1 OHM	503-00005-010
21					
22	2	513D108M016DK4 C87,C86	RADTANTCAP	1000UF	410-00002-108
23	2	TAP476M020CRW C59,C60	RADTANT	47UF	421-00020-476
24	7	173D106X0035X C3,C40,C71,C75,C18,C19,C20,[C101]	AXTANT	10UF	422-00072-106
25	6	173D105X0035V C46,C17,C7,C6,C9,C8	AXTANTCAP	1UF	422-00072-105
26	5	C340C105K5R5CA C85,C76,C69,C84,C45	RADCERCAP	1UF	400-00281-105
27	4	C412C334M5U5CA C23,C22,C26,C88	AXCERCAP	.33UF	402-00382-334
28	36	C410C104M5U5CA C44,C43,C99,C98,C97,C96,C95,C94,C93,C92,C38,C37,C36,C35,C113 C34,C33,C32,C31,C30,C28,C27,C25,C24,C21,C29,C80,C81,C89,C90, C104,C105,C106,C107,C108,C109,[C114,C115,C116,C110,C111,C112]	AXCERCAP	.1UF	402-00382-104
29	4	C430C224J5R5CA C4,C5,C72,C73,[C100]	AXCERCAP	.22UF	402-00285-224
30	10	C412C104J5R5CA C83,C82,C48,C50,C53,C54,C52,C62,C12,C102	AXCERCAP	.1UF	402-00285-104
31	2	C410C223J5R5CA C15,C13	AXCERCAP	.022UF	402-00285-223
32	10	C410C103J5R5CA C51,C49,C55,C57,C64,C65,C67,C47,C16,C103,[C78,C79]	AXCERCAP	.01UF	402-00285-103
33	3	C410C102J1R5CA C68,C70,C74,[C91]	AXCERCAP	.001UF	402-00295-102
34	2	C410C222J1R5CA C42,C41	AXCERCAP	2200PF	402-00295-222
35	3	C410C221J1G5CA C10,C14,C11	AXCERCAP	220PF	402-00195-221

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
36	2	C410C101J1G5CA C66,C77	AXCERCAP	100PF	402-00195-101
37	3	C410C220J1G5CA C39,C2,C1	AXCERCAP	22PF	402-00195-220
38	2	SX268J C63,C56	POLYFILMCAP	6800PF	430-00002-682
39	2	SXM213H C61,C58	POLYFILMCAP	1300PF	430-00001-132
40	2	ICTE-15 D14,D16	ZENER	15V	300-00001-005
41	2	ICTE-5 D13,D15	ZENER	5V	300-00001-002
42	10	1N5818 D17,D18,D19,D20,D21,D22,D23,D24,D27,D28	SCHOTDIODE		302-00002-001
43	4	1N4001 D7,D6,D5,D4,[D25,D26]	DIODE,RECT		302-00001-001
44	1	1N914 D12	DIODE,SIGNAL		300-00002-003
45	7	HLMP3600 D8,D3,D2,D1,D9,D10,D11	LED	RED	305-00003-002
46	3	IHA-204 L1,L2,L3	INDUCTOR	250 UH	590-00001-001
47	1	NYP 111-20 X1	OSCILLATOR	11.06MHZ	290-00003-011
48	1	NYP035A-18 X3	SNDXTAL	3.58MHZ	290-00003-003
49	1	CSB640J X2	CERRESONATR	640KHZ	290-00005-640
50	1	15-24-4049 P1	4PINPWRCON	.200"	610-00300-004
51	2	22-23-2041 J1,J5	4PINMOLEX	.100"	610-00102-004
52	[0]	22-23-2021 [J2]	2PINMOLEX	.100"	610-00102-002
53	2	KSA1A211 SW2,SW1	PBSWITCH		625-00002-001

ITEM	QTY	VENDOR PART NUMBER REF. DES.	PART DESC	VALUE	MPG P/N
54	1	2-644018-2 UX17	32PIN SOCKET	.600"	600-00003-632
55	1	ICO-628MTT UX2	28PIN SOCKET	.600"	600-00001-628
56	[0]	ICO-320MTT [UX11]	20PIN SOCKET	.300"	600-00001-320
57	[0]	2-641606-1 [UX3]	40PIN SOCKET	.600"	600-00003-640
58	2	7-0805G-5 TP1,TP2	TEST PIN		710-00001-001
59	2	7023BCLP	HEATSINK		790-00001-001
60	2	CLP201	CLIP, HEATSINK		790-00001-002
61	1	DS1267-50 U28	DUAL DIGPOTS	50KOHM	282-01267-200
62	1	P80C31BH U3	MICROPROCESSOR	12MHZ	135-80C31-212
63	1	UPD7759CADPC U10	SPEECH GEN		282-07759-200
64	1	MM5437 U19	NOISE GEN		282-05437-200
65	1	YM2151 U12	MUSIC SYNTH		282-02151-200
66	1	YM3012 U13	STEREO DAC		282-03012-200
67	2	TDA2030V Q3,Q2,[Q4]	AUDIO AMP		282-02030-600
68	7	TL072ACP U24,U27,U20,U26,U15,U25,U29,[U18]	DUAL OPAMP		282-00072-200
69	1	MC79L05ACZ U9	NEG5V REG		281-07905-001
70	1	TP2907 Q1	PNP TRANS		310-00001-001
71	1	PAL16L8-BCN U11	SOUND1A	15NS	120-00003-001
72	1	AM27C020-305DC U17	256Kx8 EPROM SNDBANK0.JED	300NS	110-00003-001

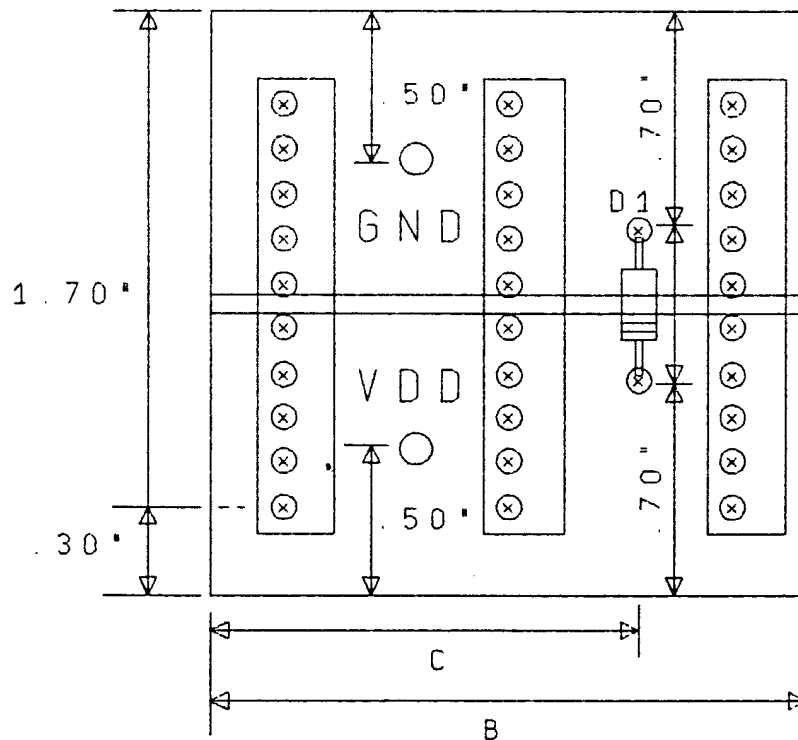
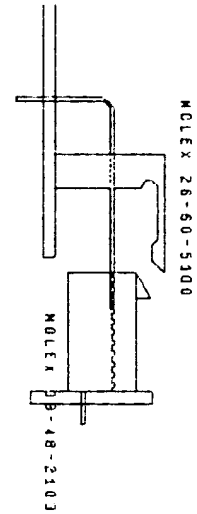
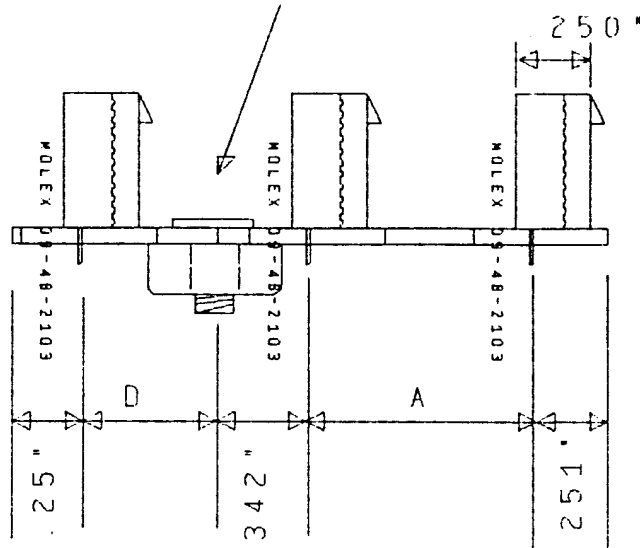
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		REF. DES.			
73	1	MCM2018AN45 U7	2Kx8SRAM	45NS	221-00004-245
74	1	D27C256-3 U2	32Kx8EPROM SNDBANK1.JED	300NS	110-00004-001
75	2	SSM-2047P U22,U21	MUSICVOICE		282-02047-200
76	1	SSM-2300P U23	8CHANS/HOLD		282-02300-200
77	1	AD7528JN U14	D/A CONVRTR		245-00003-200
78	1	LT1081CN U8	RS232DRVR		235-00001-200
79	1	SN74ALS04BN U6	HEXINVERTRS		200-00004-200
80	1	SN74LS00N U5	QUAD2-IN'NAND'		202-00000-200
81	1	SN74LS123N U4	DUALONESHOT		202-00123-200
82	2	SN74ALS373N U16,U1	OCTDFLOPS		200-00373-200
83	2	CCF-07 105G R80,R81	2PCMFRES	1MOHM	503-00002-105
84	2	CCF-50 8250F R39,R35	1PCMFRES	825OHM	503-00001-831
85	2	CCF-50 1653F R79,R83	1PCMFRES	165KOHM	503-00001-174

254

NOTES:

1. ITEMS WITH REFERENCE DESIGNATORS IN BRACKETS [] WILL NOT BE POPULATED FOR PRODUCTION.

#10 SCREW P E M
P/N KFH-032-6



DIM	REV-	REV A
A	.812"	.750"
B	2.125"	2.000"
C	1.45"	1.388"
D	.47"	.408"

DRILL KEY:

- ⊗ .0625"
- .1875"

DRAFTER JG MCKIBBIN	DATE	MICROPROSE GAMES	
CHECKER	DATE	380 LAKEFRONT DRIVE HUNT VALLEY, MD 21038	
ENGINEER JG MCKIBBIN	DATE	TITLE	
APPROVAL	DATE	PWR BACKPLANE	
APPROVAL PWR. 5	DATE	SIZE C	DRAWING NUMBER DW-00013A-0008-01
DATE		SHEET OF	

MICROPROSE GAMES, 180 Lakefront Drive, Hunt Valley, Maryland 21030

PROJECT: POWER BACKPLANE DRWG NO: PL-00011A-0008-01 REV:

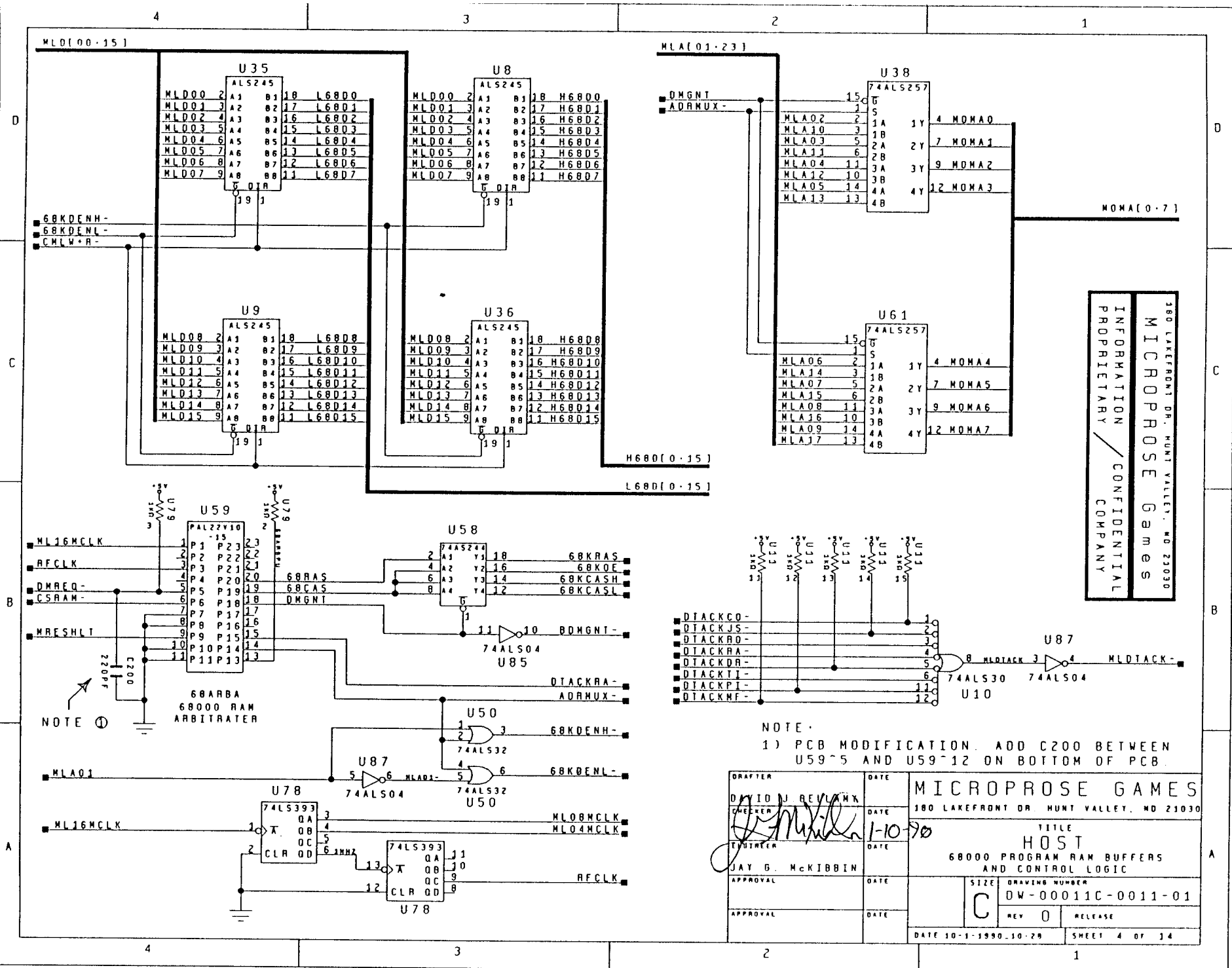
DATE: Tue 15-Jan-1991

ITEM	QTY	VENDOR	PART NUMBER	PART DESC	VALUE	MPG P/N
		REF.	DES.			
1	3	09-48-2103		1x10FEMCON	.156"	610-10301-010
		J1,J2,J3				
2	2	KFH-032-6		PEM STUDS	#10-32	721-00520-410
		ST1,ST2				
3	2			HEXNUTS	#10-32	721-00010-010
		N1,N2				
4	2			LOCKWASHERS	#10	720-00002-010
		W1,W2				
5	1	ICTE-5		DIODE	5VDC	300-00001-002
		D1				

10

PRINTED CIRCUIT BOARD ASSEMBLY

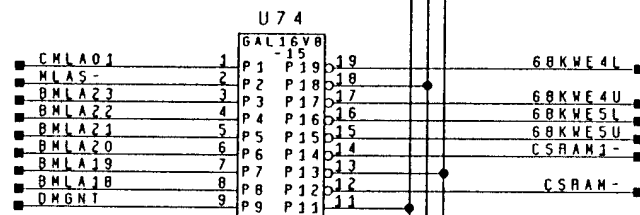
DRAFTER	DATE	MICROPROSE GAMES	
DAVID J. BELLAMY	DATE	180 LAKEFRONT DR HUNT VALLEY, MD 2103	
CHECKED <i>[Signature]</i>	DATE	1-14-91	
ENGINEER	DATE	TITLE HOST HOST PROCESSOR PCB SCHEMATIC DRAWING	
JAY G. McKIBBIN	DATE		
APPROVAL	DATE	SIZE	DRAWING NUMBER
		C	DW-00011C-0011-01
APPROVAL	DATE	REV	P
			RELEASE
		DATE 1-14-1991 16 05	
		SHEET 1 OF 14	



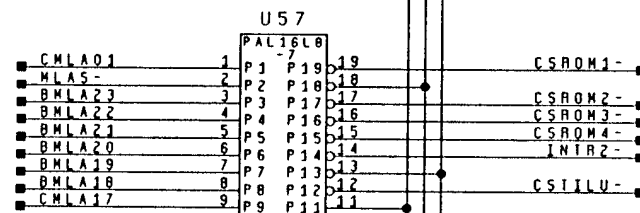
180 LAKEFRONT DR. MOUNT VALLEY, MD 21030
MICROPROSE Games
INFORMATION / CONFIDENTIAL
PROPRIETARY COMPANY

DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BEILANK		DATE		180 LAKEFRONT DR. MOUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
[Signature]		1-10-90		HOST	
ENGINEER		DATE		68000 PROGRAM RAM BUFFERS	
JAY G. McKIBBIN		DATE		AND CONTROL LOGIC	
APPROVAL		DATE		SIZE	
APPROVAL		DATE		C	
				DRAWING NUMBER	
				DW-00011C-0011-01	
				REV 0	
				RELEASE	
				DATE 10-1-1990, 10-29	
				SHEET 4 OF 14	

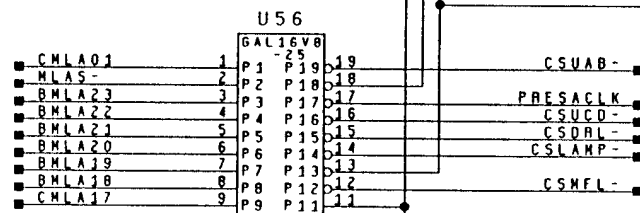
MILDS-
MLUDS-
CMLW+R-



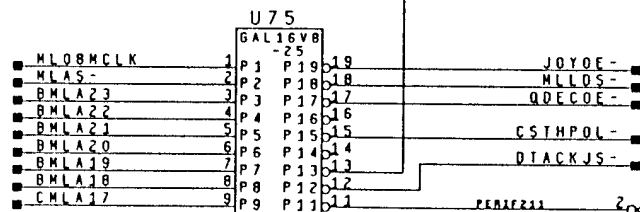
RAMDECA
RAM ADDRESS
DECODER



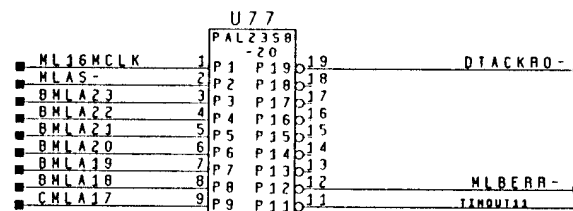
ROMDECB
ROM ADDRESS
DECODER



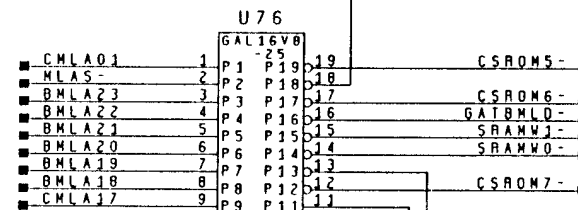
PERIPH1A
PERIPHERAL SET 1
ADDRESS DECODER



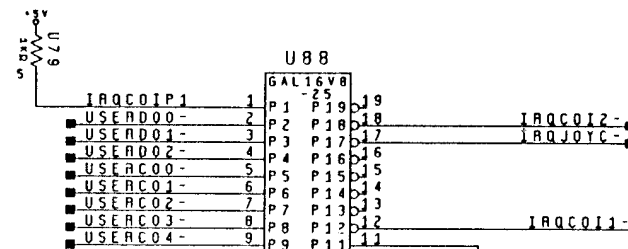
PERIPH2A
PERIPHERAL SET 2 ADDRESS DECODER



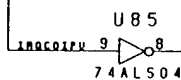
TIMEOUT
ROM DTACK & BERR TIMEOUT GENERATOR



SPARNENA
SPARE ROM AND RAM
ADDRESS GENERATOR



IRCOINA
COIN
DETECT/INTERRUPT
GENERATOR



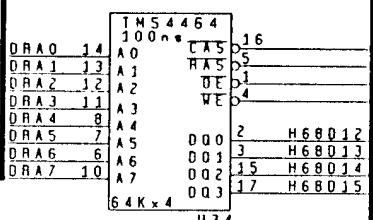
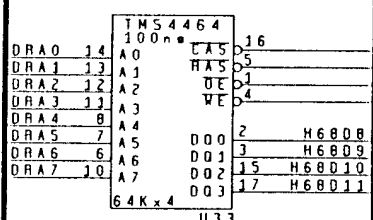
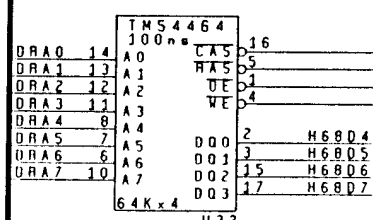
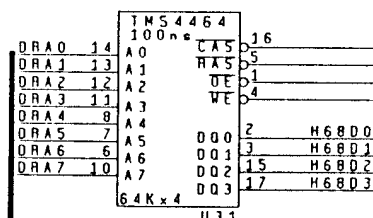
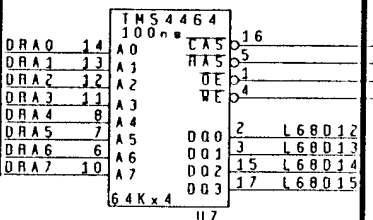
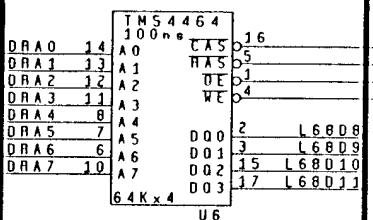
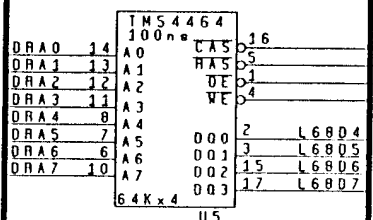
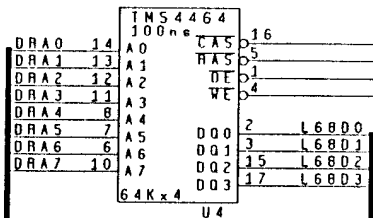
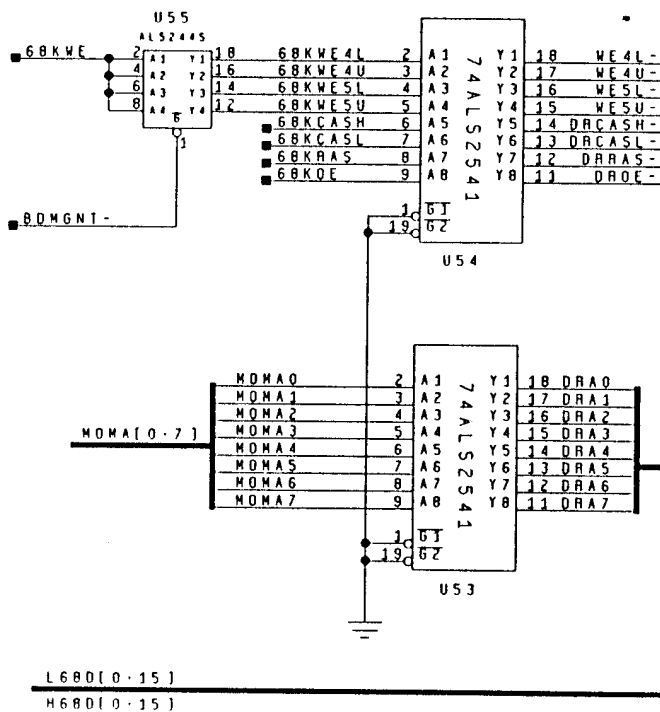
DRAFTER DAVID J. BELLAMY		DATE 1-14-91		MICROPROSE GAMES	
CHECKER [Signature]		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE		TITLE HOST	
APPROVAL		DATE		ADDRESS DECODING/ COIN INTERRUPT	
APPROVAL		DATE		SIZE C	
				DRAWING NUMBER DW-00011C-0011-01	
				REV P RELEASE	
				DATE 10-25-1990 14-42 SHEET 5 OF 14	

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

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MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030



DRAFTER DAVID J. BECK		DATE 9-26-90		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKED MICHAEL WILLIAMS		DATE		TITLE HOST	
ENGINEER		DATE		68000 PROGRAM RAM ARRAY	
APPROVAL		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0011-01	
				REV K RELEASE	
		DATE 5-7-1990 12-47		SHEET 6 OF 14	

BMLA[01-17]

BMLA01	12	A0	300NS
BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD00
BMLA05	8	A4	001 14 BMLD01
BMLA06	7	A5	002 15 BMLD02
BMLA07	6	A6	003 17 BMLD03
BMLA08	5	A7	004 18 BMLD04
BMLA09	27	A8	005 19 BMLD05
BMLA10	26	A9	006 20 BMLD06
BMLA11	23	A10	007 21 BMLD07
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U67

CSROM1-
CSROM2-
CSROM3-

BMLA01	12	A0	300NS
BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD08
BMLA05	8	A4	001 14 BMLD09
BMLA06	7	A5	002 15 BMLD10
BMLA07	6	A6	003 17 BMLD11
BMLA08	5	A7	004 18 BMLD12
BMLA09	27	A8	005 19 BMLD13
BMLA10	26	A9	006 20 BMLD14
BMLA11	23	A10	007 21 BMLD15
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U91

BMLW-R-

BMLD[00-15]

MLD[00-15]

U44

BMLD00	2	1A1	1Y1	18	MLD00
BMLD01	4	1A2	1Y2	16	MLD01
BMLD02	6	1A3	1Y3	14	MLD02
BMLD03	8	1A4	1Y4	12	MLD03
BMLD04	11	2A1	2Y1	9	MLD04
BMLD05	13	2A2	2Y2	7	MLD05
BMLD06	15	2A3	2Y3	5	MLD06
BMLD07	17	2A4	2Y4	3	MLD07

16 26
1 19

U45

BMLD08	2	1A1	1Y1	18	MLD08
BMLD09	4	1A2	1Y2	16	MLD09
BMLD10	6	1A3	1Y3	14	MLD10
BMLD11	8	1A4	1Y4	12	MLD11
BMLD12	11	2A1	2Y1	9	MLD12
BMLD13	13	2A2	2Y2	7	MLD13
BMLD14	15	2A3	2Y3	5	MLD14
BMLD15	17	2A4	2Y4	3	MLD15

16 26
1 19

BMLA01	12	A0	300NS
BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD00
BMLA05	8	A4	001 14 BMLD01
BMLA06	7	A5	002 15 BMLD02
BMLA07	6	A6	003 17 BMLD03
BMLA08	5	A7	004 18 BMLD04
BMLA09	27	A8	005 19 BMLD05
BMLA10	26	A9	006 20 BMLD06
BMLA11	23	A10	007 21 BMLD07
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U68

BMLA01	12	A0	300NS
BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD08
BMLA05	8	A4	001 14 BMLD09
BMLA06	7	A5	002 15 BMLD10
BMLA07	6	A6	003 17 BMLD11
BMLA08	5	A7	004 18 BMLD12
BMLA09	27	A8	005 19 BMLD13
BMLA10	26	A9	006 20 BMLD14
BMLA11	23	A10	007 21 BMLD15
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U92

BMLA01	12	A0	300NS
BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD00
BMLA05	8	A4	001 14 BMLD01
BMLA06	7	A5	002 15 BMLD02
BMLA07	6	A6	003 17 BMLD03
BMLA08	5	A7	004 18 BMLD04
BMLA09	27	A8	005 19 BMLD05
BMLA10	26	A9	006 20 BMLD06
BMLA11	23	A10	007 21 BMLD07
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U69

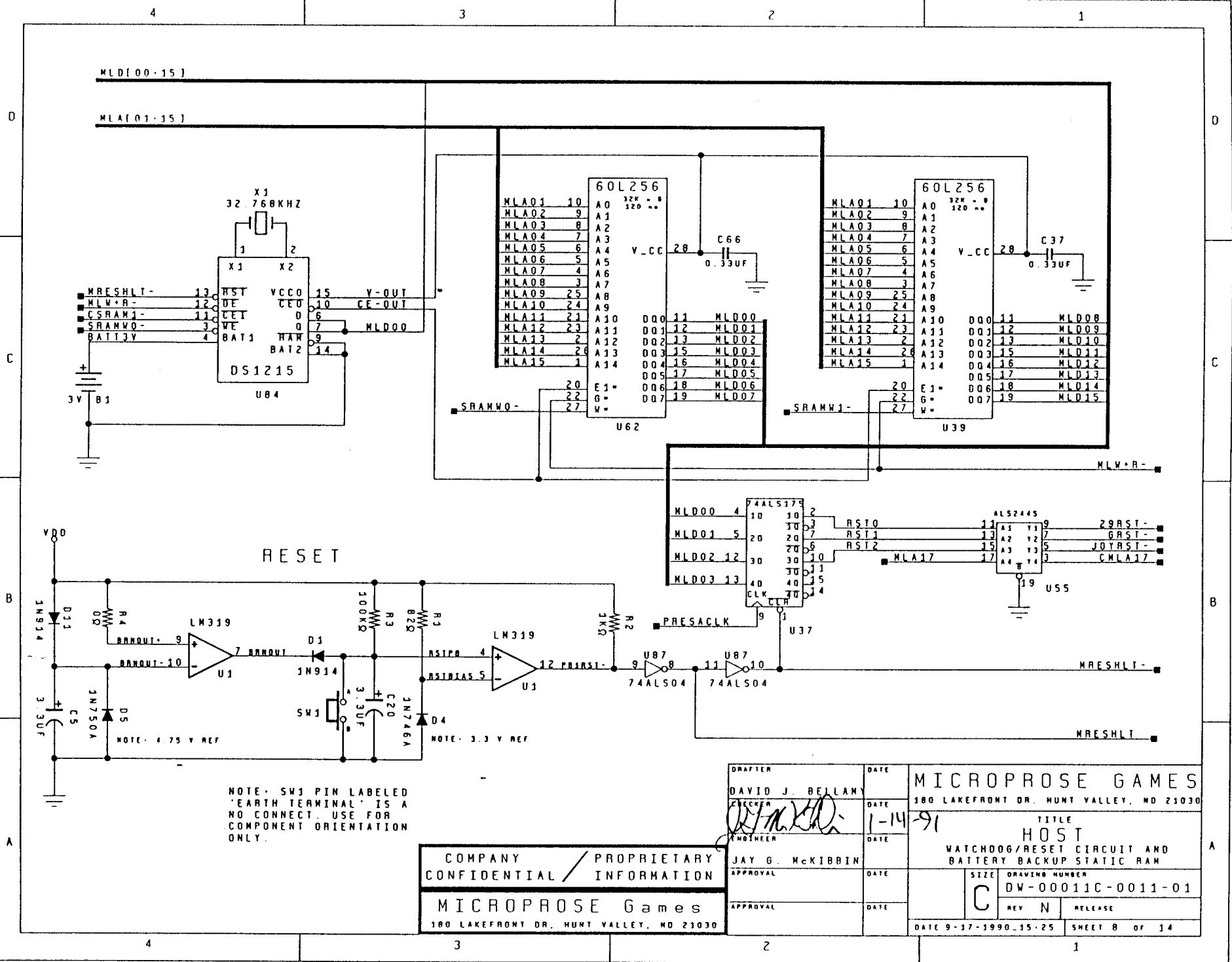
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BMLA02	11	A1	
BMLA03	10	A2	
BMLA04	9	A3	000 13 BMLD08
BMLA05	8	A4	001 14 BMLD09
BMLA06	7	A5	002 15 BMLD10
BMLA07	6	A6	003 17 BMLD11
BMLA08	5	A7	004 18 BMLD12
BMLA09	27	A8	005 19 BMLD13
BMLA10	26	A9	006 20 BMLD14
BMLA11	23	A10	007 21 BMLD15
BMLA12	25	A11	
BMLA13	4	A12	
BMLA14	28	A13	
BMLA15	29	A14	PGW 31
BMLA16	3	A15	OE 24
BMLA17	2	A16	CE 22
	30	NC	

U93

NOTE:
U67, U68, U69, U91, U92, U93 INSTALLED
IN SOCKET (MPG P/N 600-00002-632)

DRAFTER DAVID J. BENJAMIN		DATE 9-26-90		MICROPROSE GAMES	
CHECKER JAY G. McKIBBIN		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE		TITLE HOST	
JAY G. McKIBBIN		DATE		68K INSTRUCTION EPROM	
APPROVAL		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0011-01	
				REV N	
				RELEASE	
				DATE 9-17-1990-17-32	
				SHEET 7 OF 14	

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030



NOTE: SW1 PIN LABELED 'EARTH TERMINAL' IS A NO CONNECT. USE FOR COMPONENT ORIENTATION ONLY.

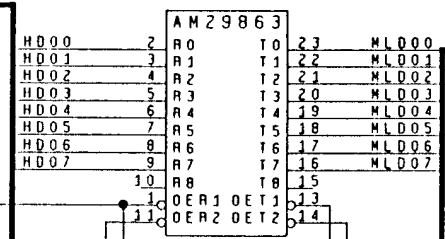
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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER
DAVID J. BELLAMY
CHECKER
[Signature]
ENGINEER
JAY G. McKIBBIN
APPROVAL
[Signature]
APPROVAL

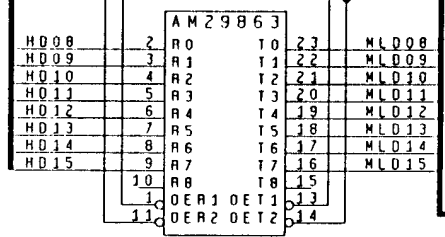
DATE
1-14-91
DATE
DATE
DATE
DATE
DATE
DATE

MICROPROSE GAMES
180 LAKEFRONT DR. HUNT VALLEY, MD 21030
TITLE
HOST
WATCHDOG/RESET CIRCUIT AND
BATTERY BACKUP STATIC RAM
SIZE
C
DRAWING NUMBER
DW-00011C-0011-01
REV N
RELEASE
DATE 9-17-1990-15-25
SHEET 8 OF 14

H0[00-15]



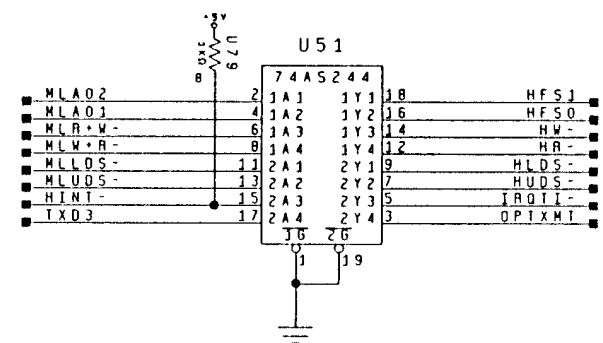
U19



U46

L68D[0-15]

H68D[0-15]



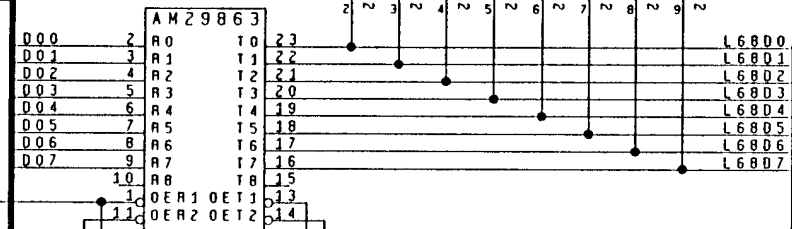
U51

DRAFTER DAVID J. R. LAM		DATE 9-26-90		MICROPROSE GAMES	
CHECKER MICHAEL WILLIAMS		DATE		380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE		TITLE HOST	
APPROVAL		DATE		AM29000 AND TI34010 INTERFACES	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0011-01	
				REV N RELEASE	
				DATE 9-23-1990-16-48 SHEET 9 OF 14	

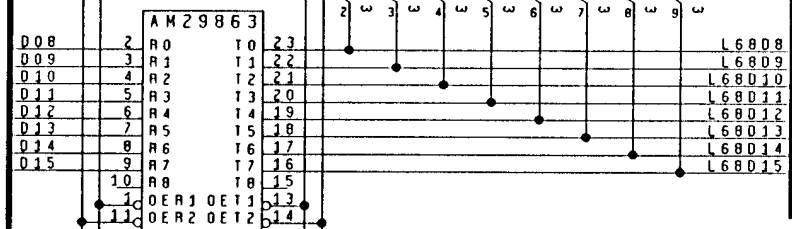
NOTES:
1) REFER TO ECN059 FOR ASSEMBLY INSTRUCTIONS FOR RP100-RP103.

D[00-31]

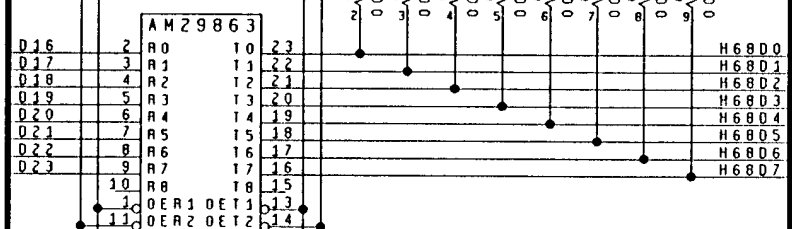
8DMGN1-



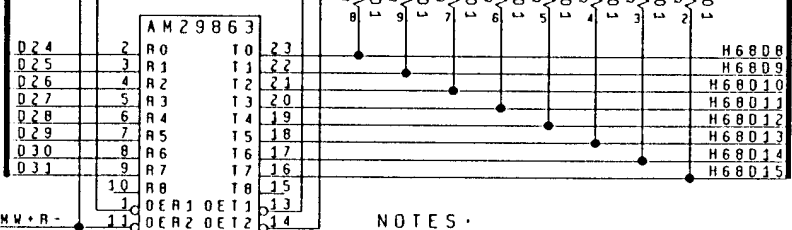
U29



U30



U2



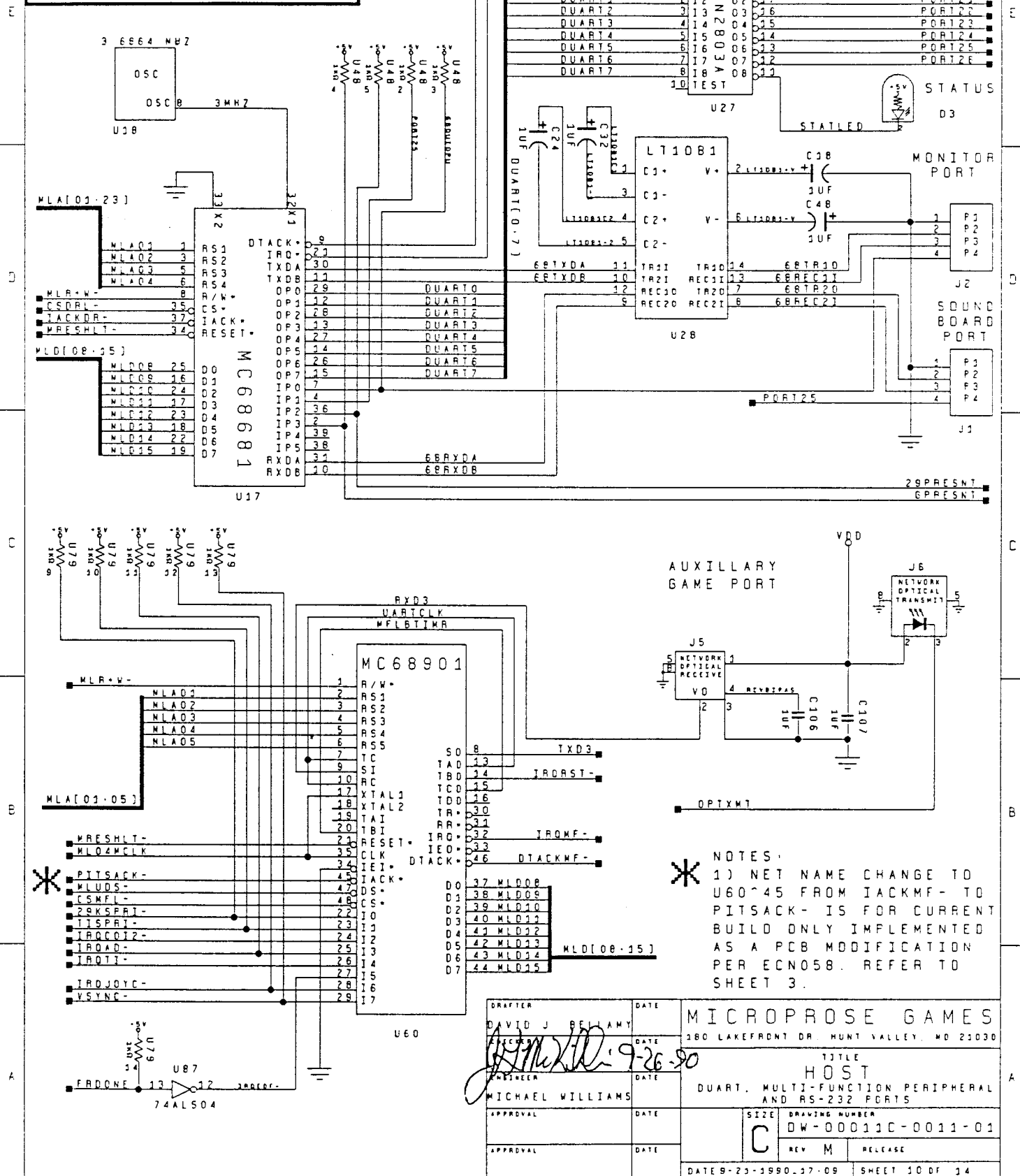
U3

74ALS04
U85

R+W-

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MICROPROSE Games
380 LAKEFRONT DR. HUNT VALLEY, MD 21030



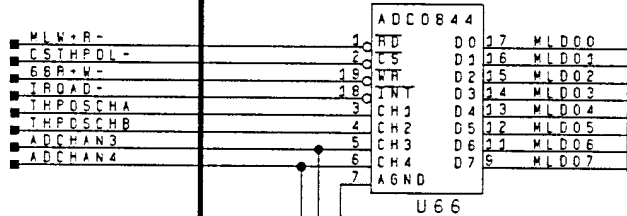
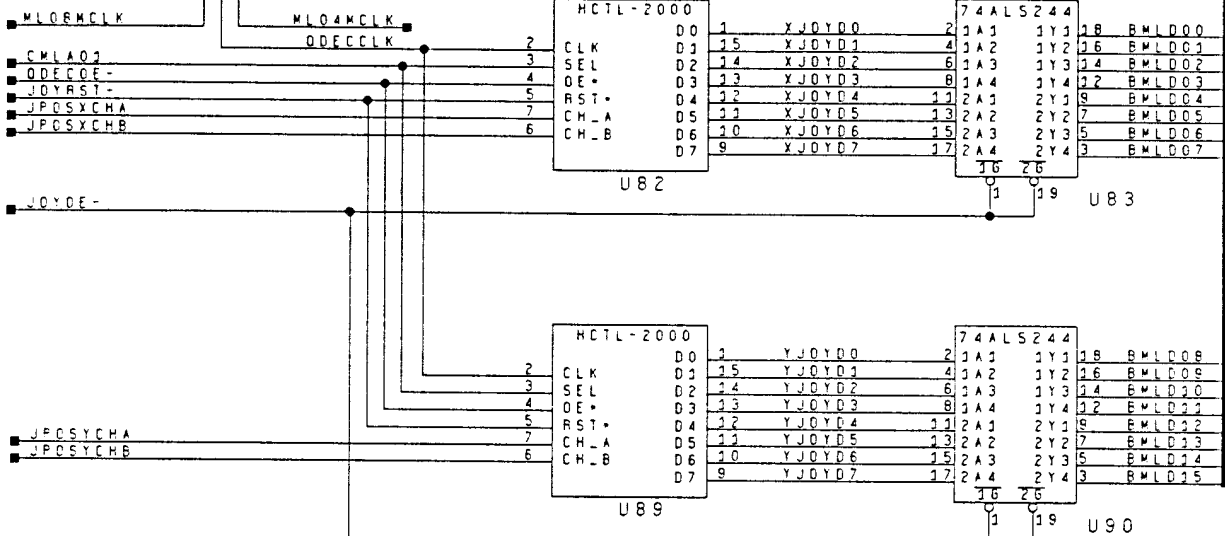
NOTES:

1) NET NAME CHANGE TO U60-45 FROM IACKMF- TO PITSACK- IS FOR CURRENT BUILD ONLY IMPLEMENTED AS A PCB MODIFICATION PER ECN058. REFER TO SHEET 3.

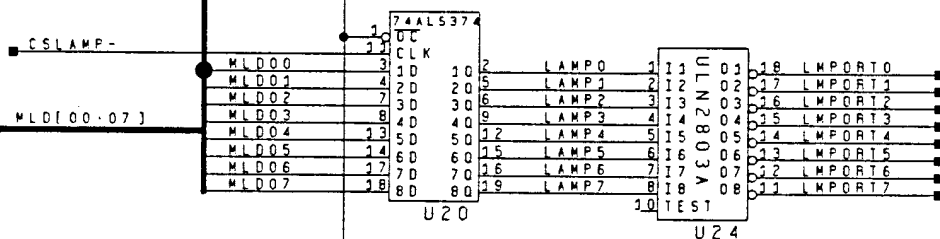
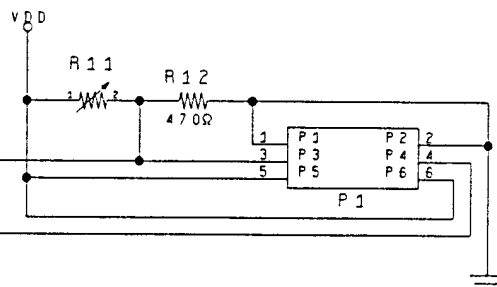
DRAFTER DAVID J. BELLAMY		DATE 9-26-90		MICROPROSE GAMES 380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
DESIGNER MICHAEL WILLIAMS		DATE		TITLE HOST DUART, MULTI-FUNCTION PERIPHERAL AND RS-232 PCRTS	
APPROVAL		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0011-01	
				REV M RELEASE	
				DATE 9-23-1990.17-09 SHEET 10 OF 14	

BMID[00:15]

NOTE ①
J4



R11 THERMISTOR
70° F = 595Ω
120° F = 165.1Ω



NOTE:
1) REF ECN059. INSTALL
WIRE STAPLE BETWEEN
J4-2 AND J4-3.

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MICROPROSE Games

380 LAKEFRONT DR. HUNT VALLEY, MD 21030

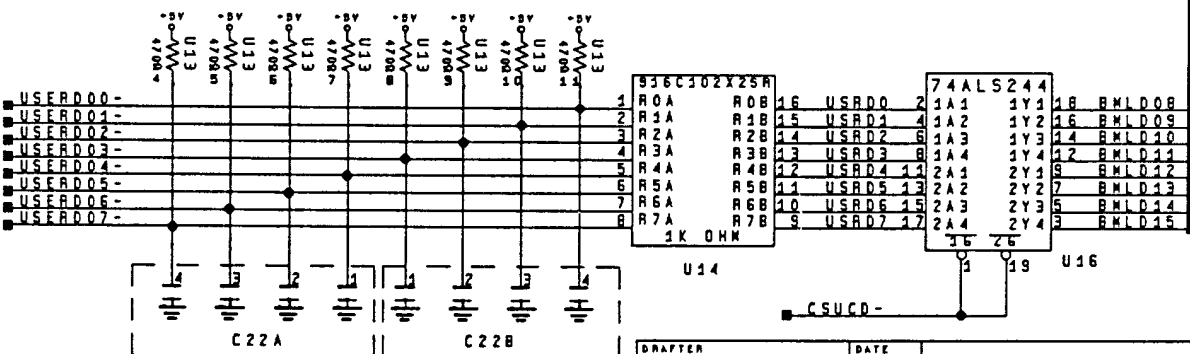
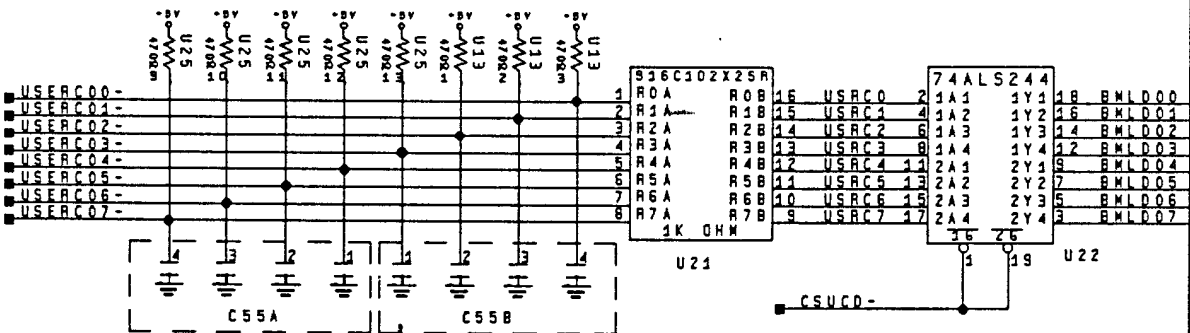
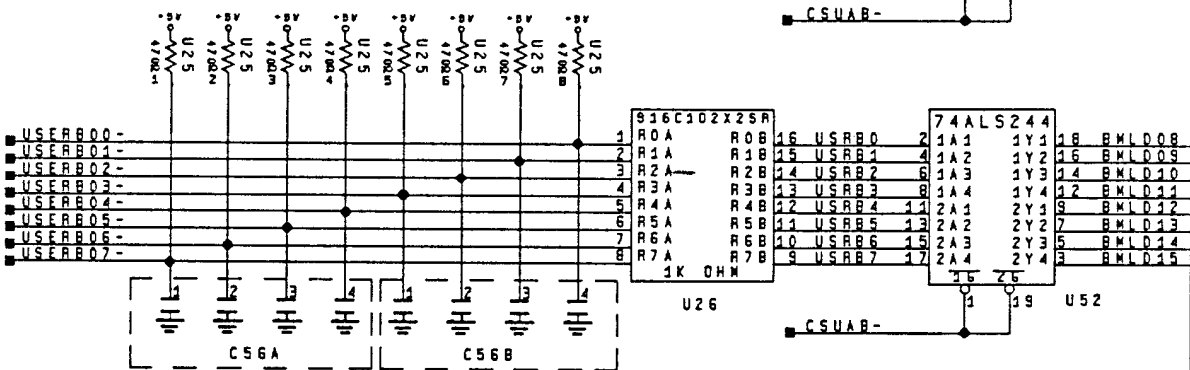
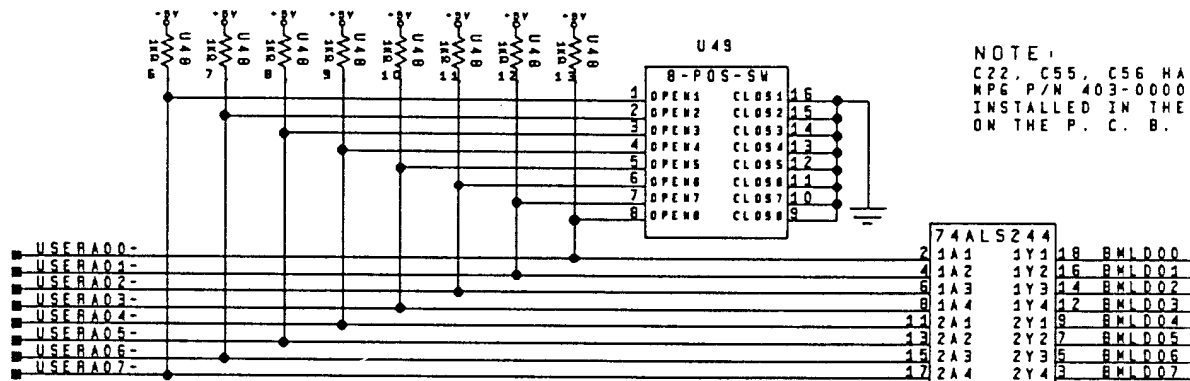
DRAFTER DAVID J. BELLO	DATE 9-26-90	MICROPROSE GAMES 380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER MICHAEL WILLIAMS	DATE	TITLE HOST	
APPROVAL	DATE	10 INTERFACE AND LAMP DRIVERS	
APPROVAL	DATE	SIZE C	DRAWING NUMBER DW-00011C-0011-01
		REV N	RELEASE
		DATE 9-21-1990.17.18 SHEET 11 OF 14	

D

3

2

1



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MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAWN	DATE
DAVID J. BELLAMY	
CHECKED	DATE
<i>[Signature]</i>	5/1/80
ENGINEER	DATE
MICHAEL WILLIAMS	
APPROVAL	DATE
APPROVAL	DATE

MICROPROSE GAMES
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

TITLE
HOST
USER SWITCH INPUT INTERFACE

SHEET C DRAWING NUMBER
DW-00011C-0011-01

REV H RELEASE

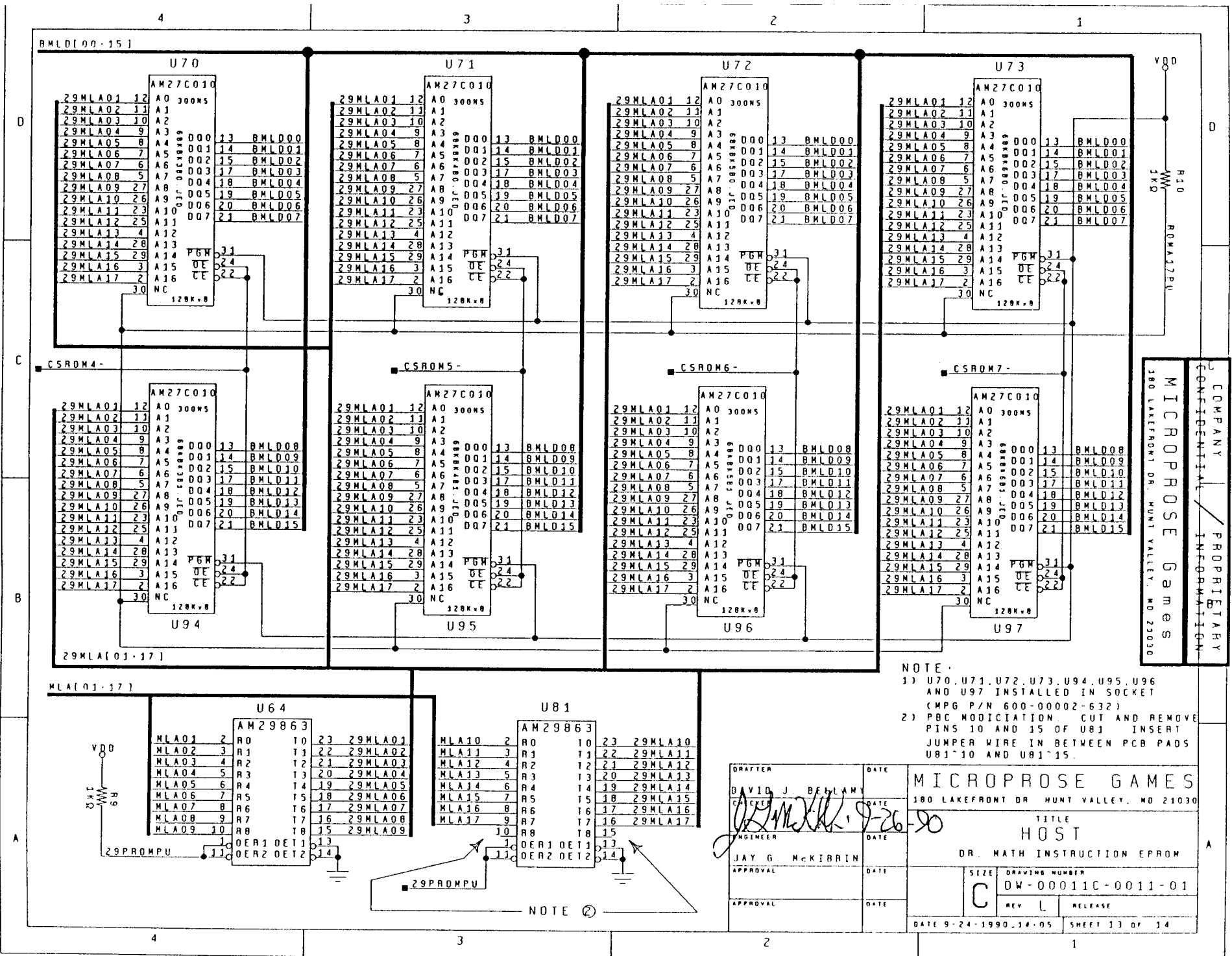
DATE 5-1-1990-13-30 SHEET 12 OF 14

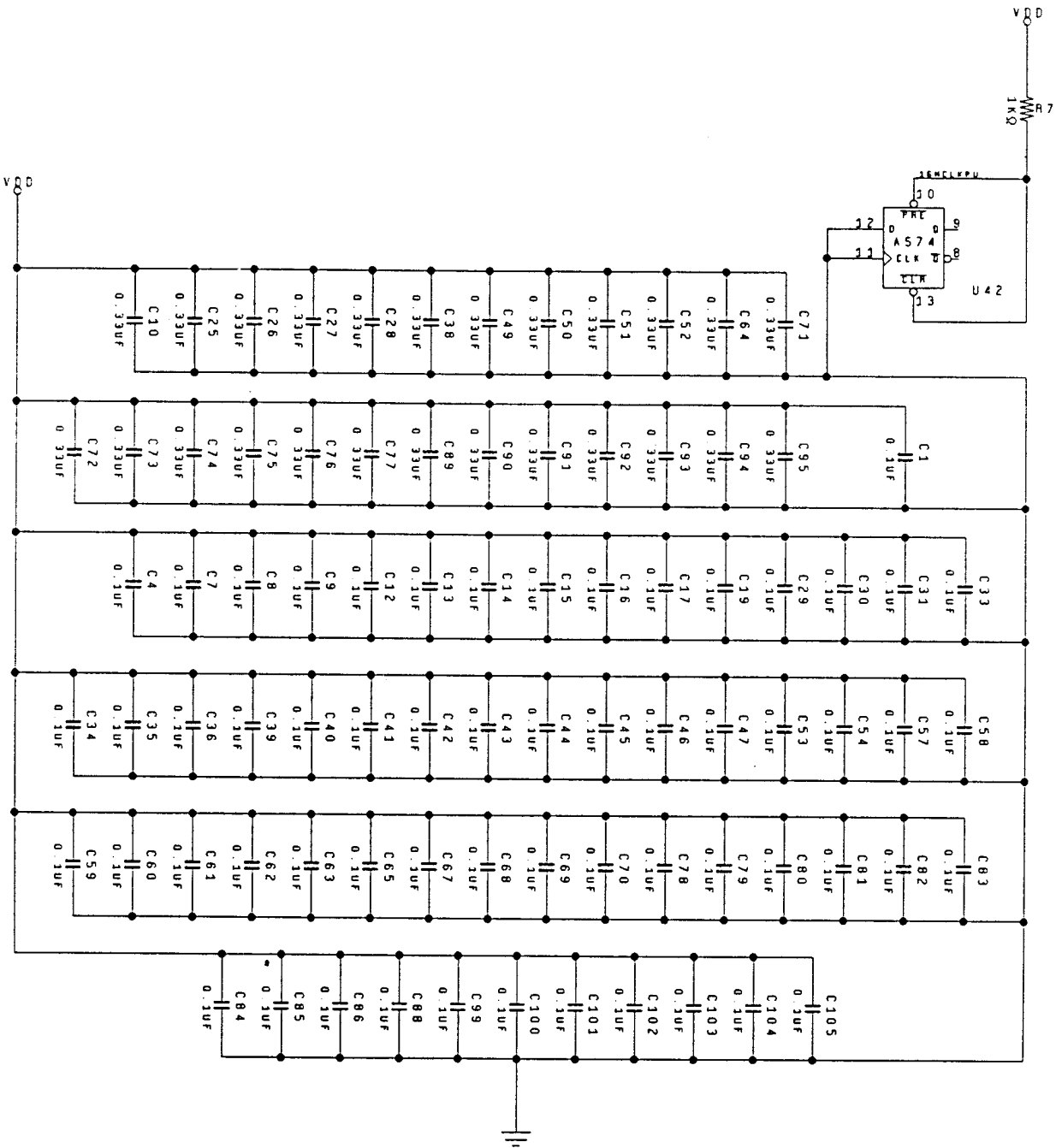
4

3

2

1





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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELL		DATE 1-14-91		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER <i>[Signature]</i>		DATE 1-14-91		TITLE HOST POWER DECOUPLING	
ENGINEER JAY G. McKIBBIN		DATE		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00011C-0011-01	
APPROVAL		DATE		REV D RELEASE	
				DATE 3-22-1990-37-38 SHEET 14 OF 14	

1

2

5

DWG NO		REV
PL-00011A-0011-01		T
DATE 1-14-1991_11_29		A
SHEET 1 OF 7		

A

MICROPROSE GAMES, 180Lakefront Drive, Hunt Valley, Maryland 21030
 PROJECT NAME: HOST PROCESSOR DRWG. NO.: PL-00011A-0011-01 REV: T
 DATE: Wed 5-Oct-1990

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
1	2	914C471X2PE U13,U25	PULRESPAK	470OHM	501-00022-471
2	1	90B08S U49	8POSDIPSW		625-00001-208
3	3	916C102X2SR U14,U21,U26	ISORESPAK	1K	501-00031-102
4	6	929CZ5U104Z050B C22A,C22B,C55A,C55B,C56A,C56B	DIPCAPx4	.1 UF	403-00003-104
5	1	SN74ALS374N U20	OCTALDFLOPS		200-00374-200
6	7	SN74ALS244AN U16,U22,U23,U52,U55,U83,U90	OCTBUFFR		200-00244-200
7	1	ADC0844CCN U66	A/DCONVERTR		246-00001-200
8	2	HCTL-2000 U82,U89	QUADDECODER		246-00002-200
9	2	ULN2803A U24,U27	LAMPDRIVER		279-00001-200
10	67	C410C104M5U5CA C4,C1,C33,C7,C8,C14,C13,C12,C9,C31,C30,C29,C19,C17,C15, C16,C45,C44,C46,C47,C53,C54,C57,C58,C40,C41,C42,C43,C39, C36,C34,C35,C70,C69,C78,C79,C80,C81,C82,C83,C63,C65,C67, C68,C62,C61,C59,C60,C85,C84,C86,C88,C102,C101,C100,C99, C105,C103,C104,C107,C106,C109,C96,C98,C23,C6,C2	AXCERCAP	0.1UF	402-00382-104
11	[0]	68001-503 [J4]	3PINJUMPR	.100"	610-00002-003
12	0	92915-R-HS-1 J5	FIBROPTRCV		240-00004-001
13	0	92915-T-DD J6	FIBROPTXMT		240-00005-001
14	1	X0-53B-3.6864 U18	DIPOSCILATR	3.6864M	290-00002-003
15	* 1	MC68681-P U17	DUART		240-00003-200
16	1	LT1081CN U28	RS232DRVR		235-00001-200

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
17	4	173D105X0035V C18,C24,C32,C48	AXTANTCAP	1UF	422-00072-105
18 D*	1	MC68901-P U60	MFPERIPHERL		130-68901-204
19	8	AM29C863PC U2,U3,U19,U29,U30,U46,U64,U81	9BIBUSDRVR		235-00005-200
20	2	22-05-7048 J1,J2	MOLEX4PIN	.100"	610-00601-004
21	5	1N914 D1,D7,D8,D9,D10,D11	DIODE		300-00002-003
22	5	CCF-07 102G R2,R7,R8,R9,R10	2%MFRES	1K	503-00002-102
23	2	173D335X0020V C5,C20	AXTANTCAP	3.3UF	422-00062-335
24	1	SA101A221JAA C200	AXCERCAP	220PF	402-00195-221
25	1	CCF-07 104G R3	2%MFRES	100K	503-00002-104
26	1	1N746A D4	ZENER		301-00002-033
27	1	WX-32.768KHZ X1	CRYSTAL	32KHZ	290-00004-32K
28	1	KSA1A211 SW1	PBSWITCH		625-00002-001
29	1	LM319N U1	VOLTCOMPAR	14DIP	280-00003-200
30	1	DS1215 U84	R/TCLK		291-01215-200
31	27	C412C334M5U5CA C52,C51,C50,C49,C38,C28,C27,C26,C25,C10,C91,C90,C72,C73, C74,C75,C89,C77,C76,C95,C94,C93,C92,C64,C71,C37,C66	AXCERCAP	0.33UF	402-00382-334
32	1	15-51-04-410-000 B1	LITHBATT	3VOLT	390-00001-001
33 *	2	MCM60L256AP12 U39,U62	32Kx8SRAM	120NS	221-00003-212
34	1	SN74ALS175N U37	QUADDFLOPS		200-00175-200

2-14-01

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
35					
36	2	SN74ALS2541N U53, U54	OCTINVDRVR		200-02541-200
37	* 8	TMS4464-10NL U4, U5, U6, U7, U31, U32, U33, U34	64Kx4DRAM	100NS	220-00001-210
38	A 1	AMPAL23S8-20PC U77	TIMEOUTC	25NS	120-00001-206
39	A 1	GAL16V8A-25P U75	PERIPH2A	25NS	120-00001-005
40	A 1	GAL16V8A-25P U15	VPA_GENA	25NS	120-00001-000
41	A 1	GAL16V8A-25P U74	RAMDECA	15NS	120-00001-002
42	B 1	GAL22V10-15P U59	68ARBA	15NS	120-00001-001
43	1	1N750A D5	ZENER		301-00002-047
44	1	SN74LS393N U78	QUADCOUNTR		202-00393-200
45	1	SN74ALS30AN U10	8INNAND		200-00030-200
46	1	SN74ALS32N U50	QUAD2INOR		200-00032-200
47	2	SN74ALS257N U38, U61	2:1MUX		200-00257-200
48	4	SN74ALS245AN U8, U9, U35, U36	OCTBIDBUFR		200-00245-200
49	1	SN74LS148N U12	8:3ENCODER		202-00148-200
50	1	SN74ALS138N U47	3:8DEMUX		200-00138-200
51	1	68001-502 J3	2PINJUMP	.100"	610-00002-002
52	1	X0-43D-32 U43	DIPOSCILATR	32MHZ	290-00001-032
53	1	SN74AS74N U42	DUALDFLOPS		201-00074-200

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
54	7	SN74AS244N U44,U45,U51,U58,U63,U65,U80	OCTBUFFR		201-00244-200
55	1	SN74AS1004AN U41	HEXINERTR		201-01004-200
56	1	SN74ALS11AN U86	TRI3INAND		200-00011-200
57	2	SN74ALS04BN U85,U87	HEXINVERTR		200-00004-200
58	1	CCF-07 180G R6	2%MFRES	18OHM	503-00002-180
59	3	916C102X2PE U11,U48,U79	PULLRESPAK	1KOHM	501-00032-102
60 E*	1	MC68000-P12F U40	MICROPROCESR	16MHZ	135-68000-216
61	2	HLMP3600 D2,D3	LEDW/RES	RED	305-00003-002
62	6	173D156X0015W C3,C11,C21,C87,C97,C108	AXTANTCAP	15UF	422-00052-156
63	1	ICTE-5 D6	ZENER	5V	300-00001-002
64	1	71922-016 P4	2x8HEADER	.100"	610-00800-016
65	1	71922-020 P3	2x10HEADER	.100"	610-00800-020
66	1	71922-026 P5	2x13HEADER	.100"	610-00800-026
67	1	26-60-5100 P8	MOLEX10PIN	.156"	610-00601-010
68	1	71922-140 P7	2x20HEADER	.100"	610-00900-040
69	1	533249-1 P6	2x32HEADER	.100"	6 - -064
70					
71 A	1	GAL16V8A-25P U76	SPARMEMA	25NS	120-00001-007

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
72	A 1	GAL16V8A-25P U56	PERIPH1A	25NS	120-00001-004
73	A 1	TIBPAL16L8-7CN U57	ROMDECB	7.5NS	120-00001-103
74	A 1	GAL16V8A-25P U88	IRQCOINA	25NS	120-00001-008
75	1	71922-006 P1	2x3HEADER	.100"	610-00800-006
76	1	71922-010 P2	2x5HEADER	.100"	610-00800-010
77	1	68786-102 J3	SHUNT		715-00001-001
78	[0]	SRS8-12-01	SPACER	.75 "	700-00001-003
79	5	7-0805G-5 TP1,TP2,TP3,TP4,TP5	TEST PIN		710-00001-001
80	1	7-22870-5 TP6	TEST PIN		710-00001-002
81	C* 1	AM27C010-305DC U67	128Kx8EPROM 68KBK0B0.001	300NS	110-00001-100
82	C* 1	AM27C010-305DC U91	128Kx8EPROM 68KBK0B1.001	300NS	110-00001-101
83	C* 1	AM27C010-305DC U68	128Kx8EPROM 68KBK1B0.001	300NS	110-00001-102
84	C* 1	AM27C010-305DC U92	128Kx8EPROM 68KBK1B1.001	300NS	110-00001-103
85	C* 1	AM27C010-305DC U69	128Kx8EPROM 68KBK2B0	300NS	110-00001-004
86	C* 1	AM27C010-305DC U93	128Kx8EPROM 68KBK2B1	300NS	110-00001-005
87	C* 1	AM27C010-305DC U70	128Kx8EPROM 68KBK3B0	300NS	110-00001-006
88	C* 1	AM27C010-305DC U94	128Kx8EPROM 68KBK3B1	300NS	110-00001-007
89	C* 1	AM27C010-305DC U71	128Kx8EPROM 68KBK4B0	300NS	110-00001-008
90	C* 1	AM27C010-305DC U95	128Kx8EPROM 68KBK4B1	300NS	110-00001-009

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
91	C* [0]	AM27C010-305DC [U72]	128Kx8EPROM 68KBK5B0	300NS	110-00001-010
92	C* [0]	AM27C010-305DC [U96]	128Kx8EPROM 68KBK5B1	300NS	110-00001-011
93	C* [0]	AM27C010-305DC [U73]	128Kx8EPROM 68KBK6B0	300NS	110-00001-012
94	C* [0]	AM27C010-305DC [U97]	128Kx8EPROM 68KBK6B1	300NS	110-00001-013
95	A 2	ICO-320MTT UX77,UX88 [UX15,UX56,UX57,UX74,UX75,UX76]	SOCKET		600-00001-320
96	B [0]	ICO-324MTT [UX59]	SOCKET		600-00001-324
97	C 10	2-644018-2 UX67,UX68,UX69,UX70,UX71,UX91,UX92,UX93,UX94,UX95, [UX72,UX73,UX96,UX97]	SOCKET		600-00002-632
98	D [0]	1848-AG111D [UX60]	SOCKET		600-00001-648
99	E 1	110-91-964-41-001 UX40	SOCKET		600-00001-964
100	1	RL2003-289-95-D1 R11	TEMPSENSOR	500OHM	508-00001-501
101	1	CCF-07 471G R12	2PCMFRES	470OHM	503-00002-471
102	1	CCF-07 820G R1	2PCMFRES	82 OHM	503-00002-820
103	1	FRJ-50 R4	JUMPRES	0 OHM	503-00001-000
104	4	CSC09A01102G RP100,RP101,RP102,RP103	8RESSIPPAK	1 KOHM	501-10008-102

270

NOTES:

- (1) PARTS REQUIRING 0.33UF DECOUPLING CAPS ARE MARKED (*) IN BETWEEN ITEM NO. AND QTY. COLUMNS.
- (2) PARTS REQUIRING SOCKETS ARE MARKED WITH A LETTER TO CORRESPOND WITH SOCKETS WITH THE SAME LETTER.
- (3) PARTS WITH REFERENCE DESIGNATORS IN BRACKETS [] ARE WILL NOT BE POPULATED DURING PRODUCTION.

DR. MATH P.C.B. ASSEMBLY

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY	DATE 11-8-90	MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER <i>Paul T. Kuhn</i> ENGINEER	DATE 11-8-90	TITLE DR. MATH DR. MATH PCB ASSEMBLY	
PAUL T. KUHN		SIZE C	DRAWING NUMBER DW-00011C-0012-01
APPROVAL	DATE	REV M	RELEASE
APPROVAL	DATE	DATE 11-8-1990-10-54 SHEET 3 OF 28	

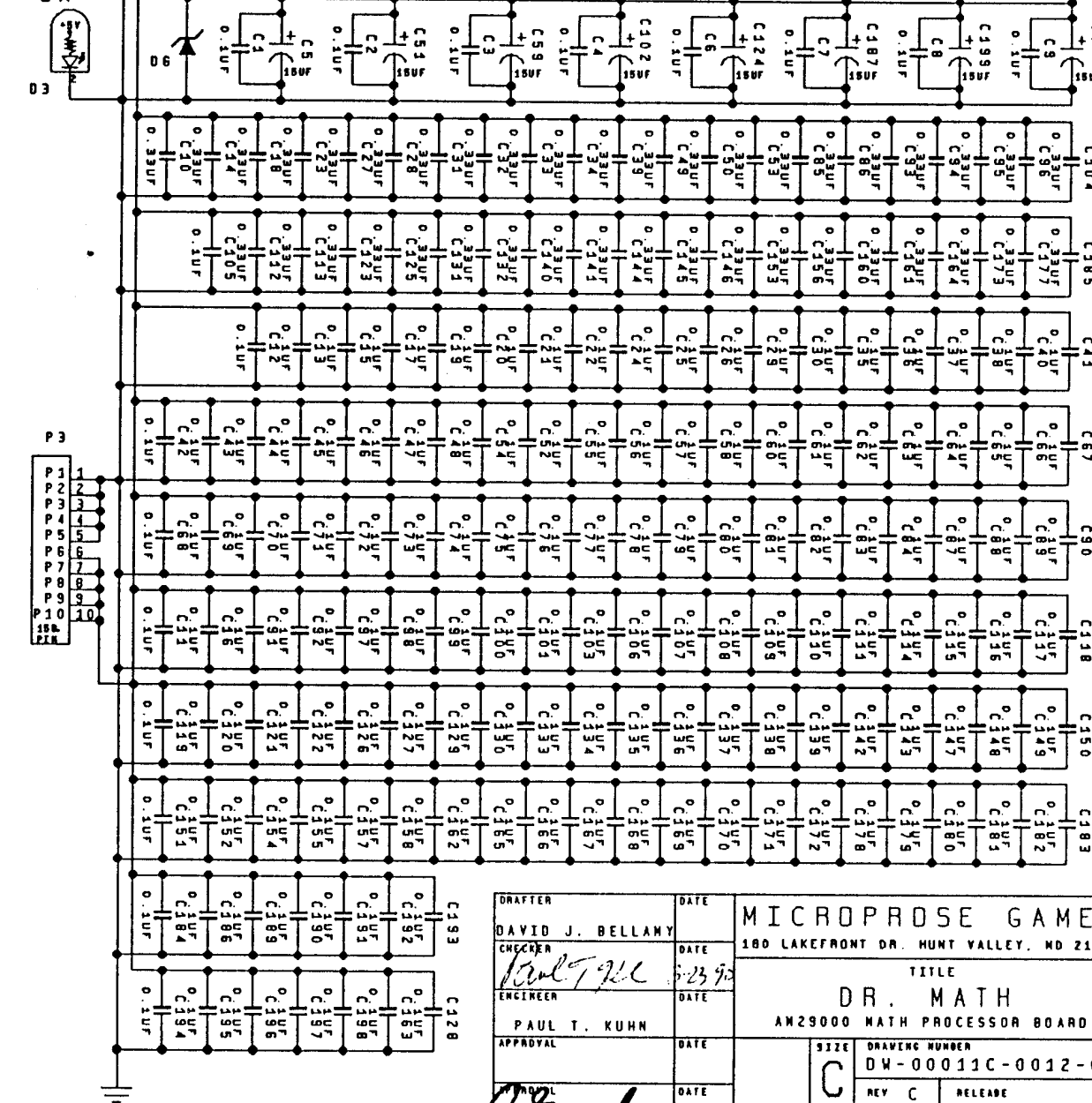
M68000 BOARD

COMPANY PROPRIETARY
CONFIDENTIAL INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

POWER
ON

TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10



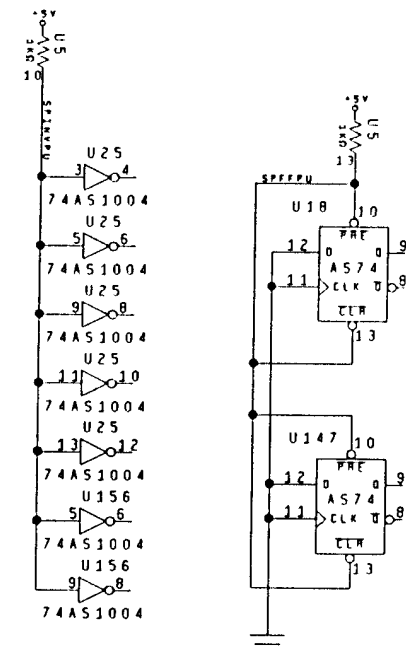
TI34010 BOARD

DRAFTER DAVID J. BELLAMY		DATE 6-23-90		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER Paul T. Kuhn		DATE			
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH AM29000 MATH PROCESSOR BOARD	
APPROVAL <i>[Signature]</i>		DATE		SIZE C	DRAWING NUMBER DW-00011C-0012-01
		DATE		REV C	RELEASE
				DATE 3-21-1990-20:40	
				SHEET 2 OF 28	

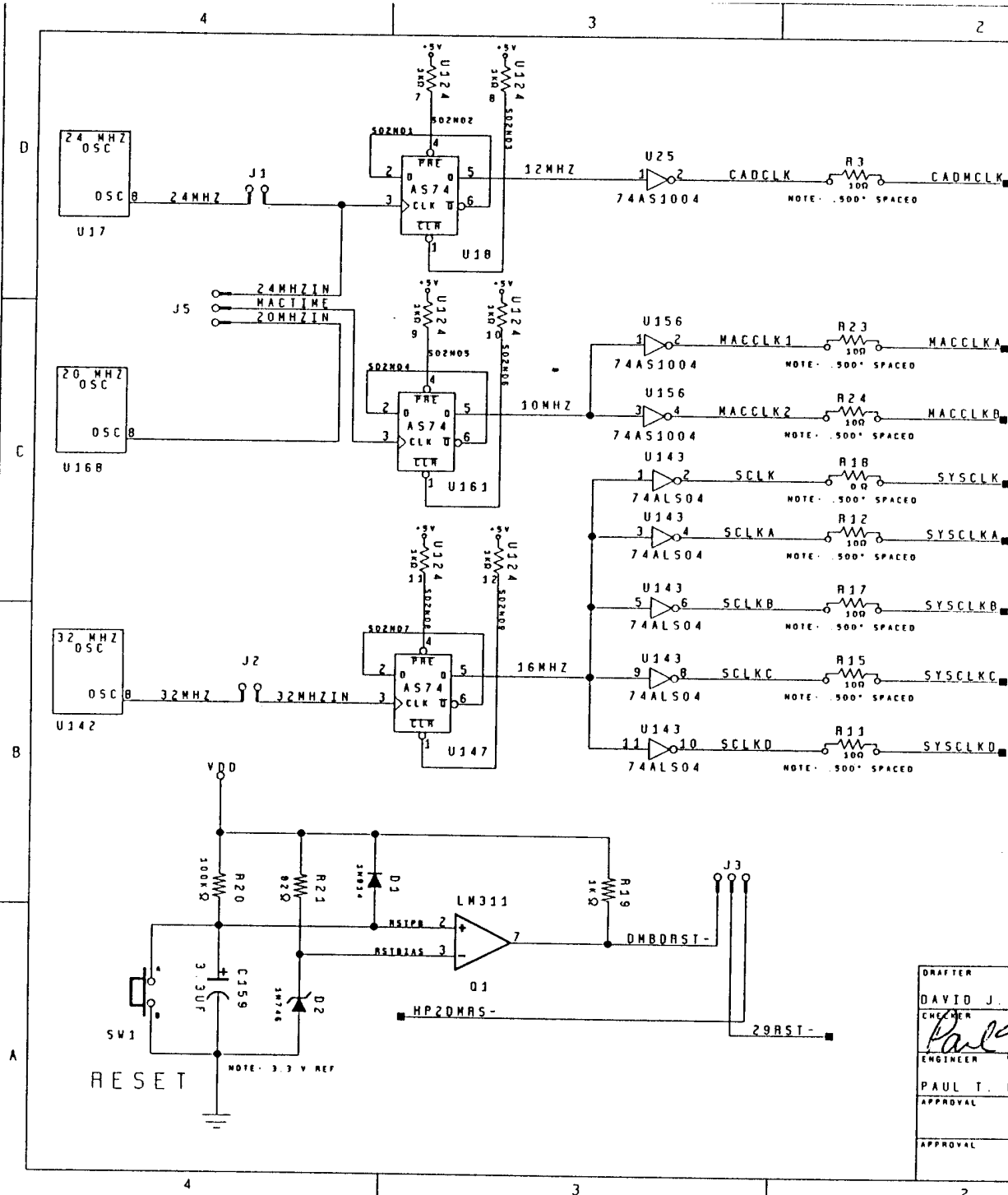
COMPANY CONFIDENTIAL / PROPRIETARY INFORMATION

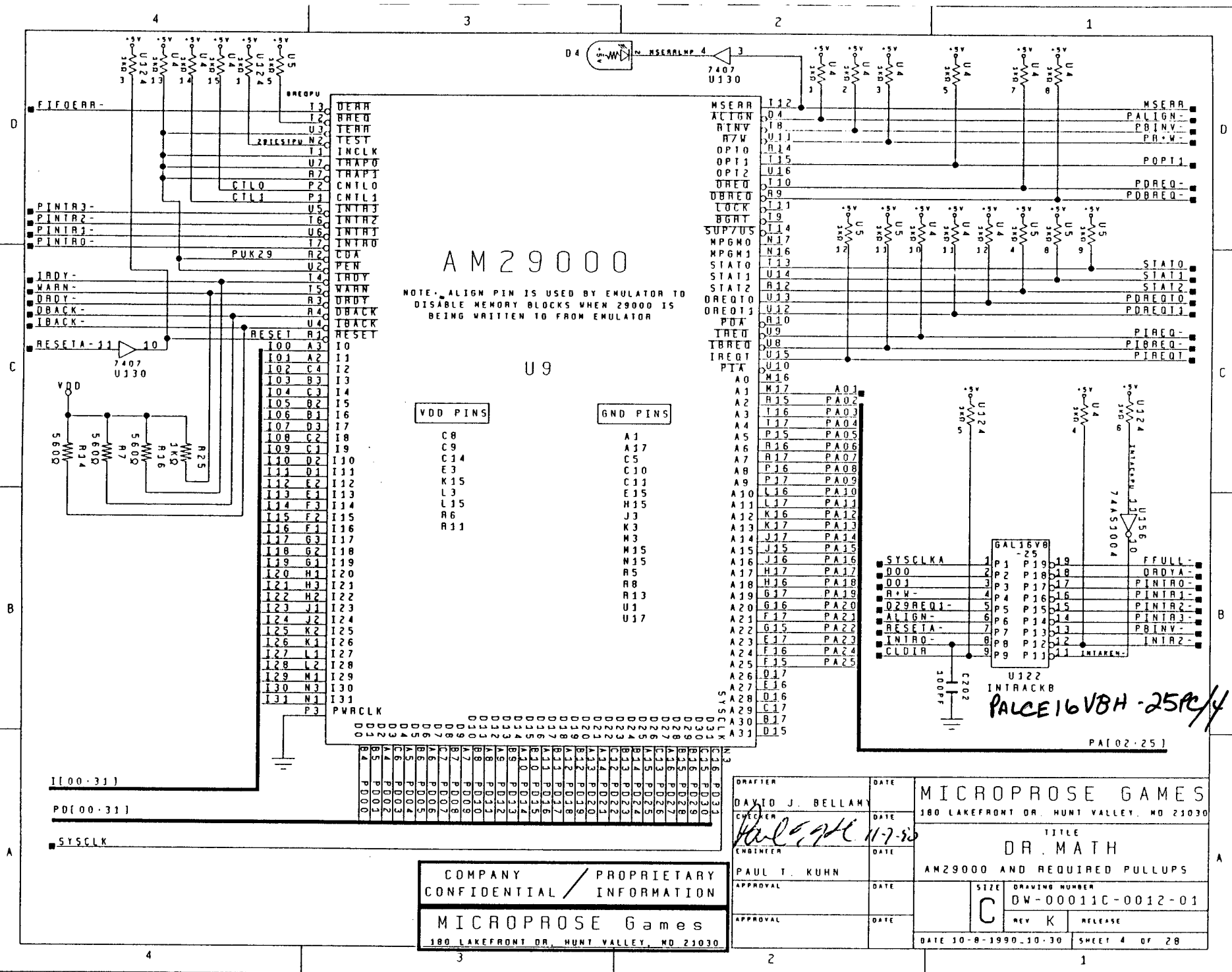
MICROPROSE Games

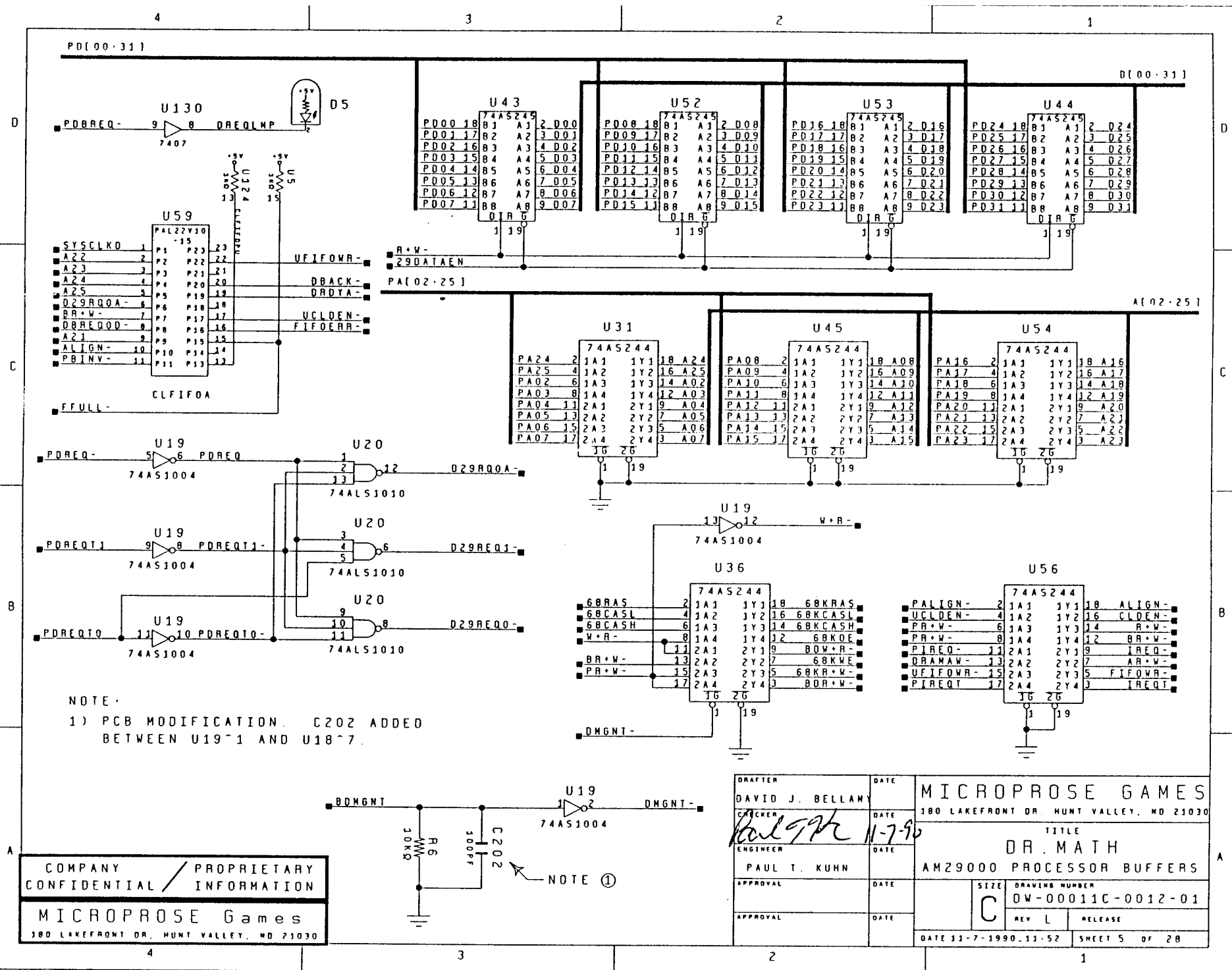
180 LAKEFRONT DR. HUNT VALLEY, MO 21030

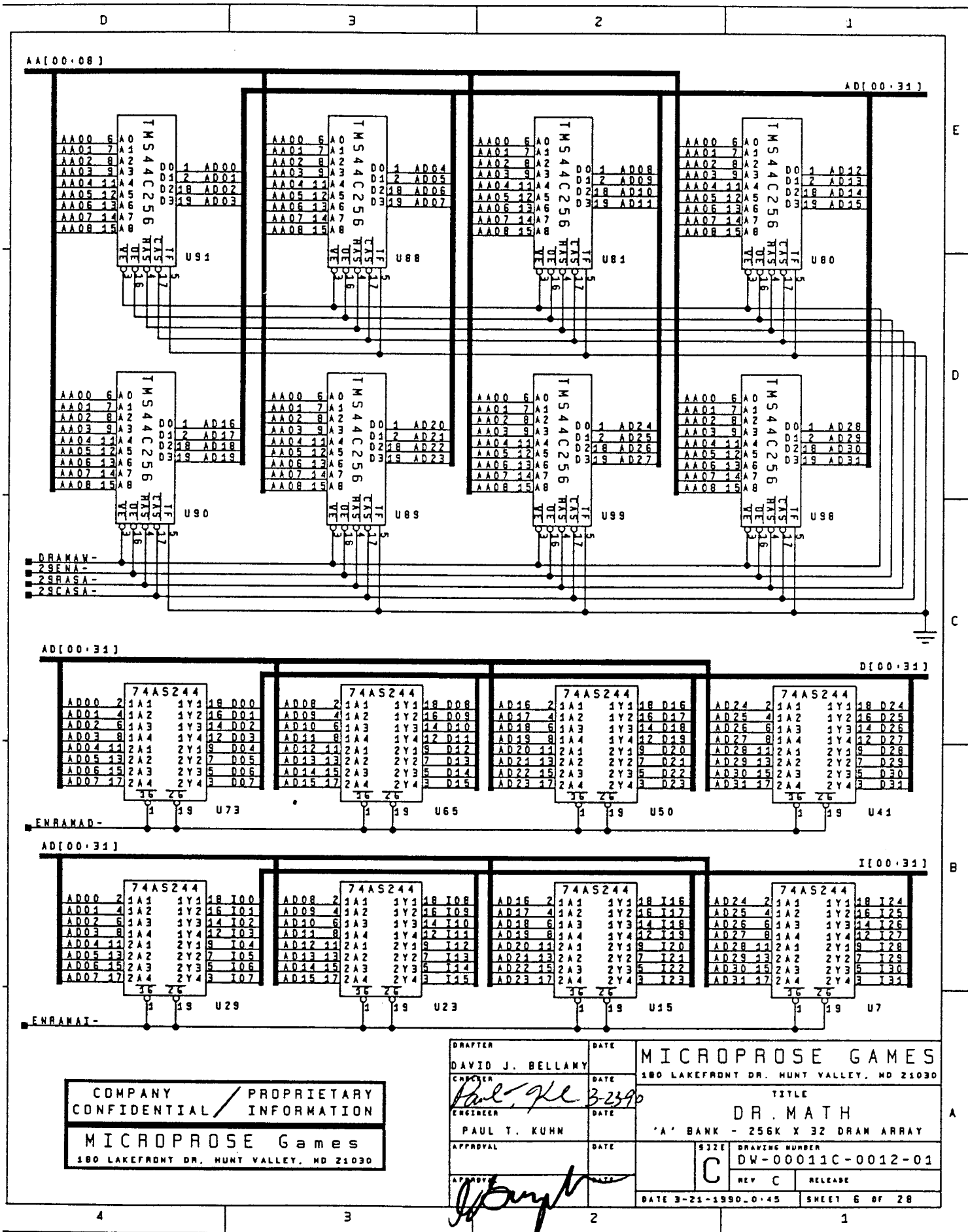


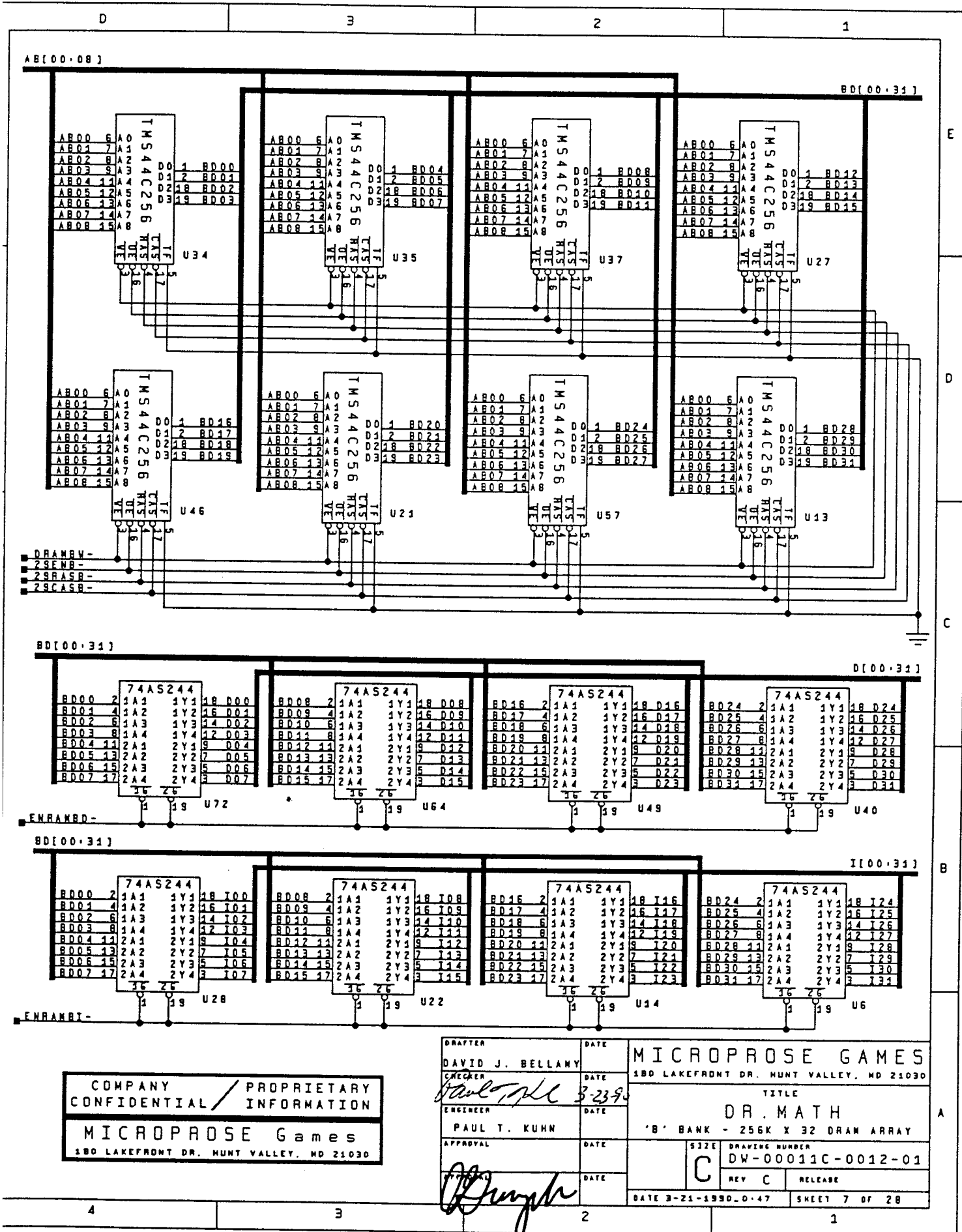
DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLAMY		7-25-90		180 LAKEFRONT DR. HUNT VALLEY, MO 21030	
CHECKER		DATE		TITLE	
PAUL T. KUHN		DATE		DR. MATH	
APPROVAL		DATE		CLOCK GENERATOR AND INDEPENDENT BOARD TEST RESET	
APPROVAL		DATE		DRAWING NUMBER	
APPROVAL		DATE		DW-00011C-0012-01	
APPROVAL		DATE		REV F	
APPROVAL		DATE		RELEASE	
APPROVAL		DATE		DATE 7-10-1990-11-11	
APPROVAL		DATE		SHEET 3 OF 28	







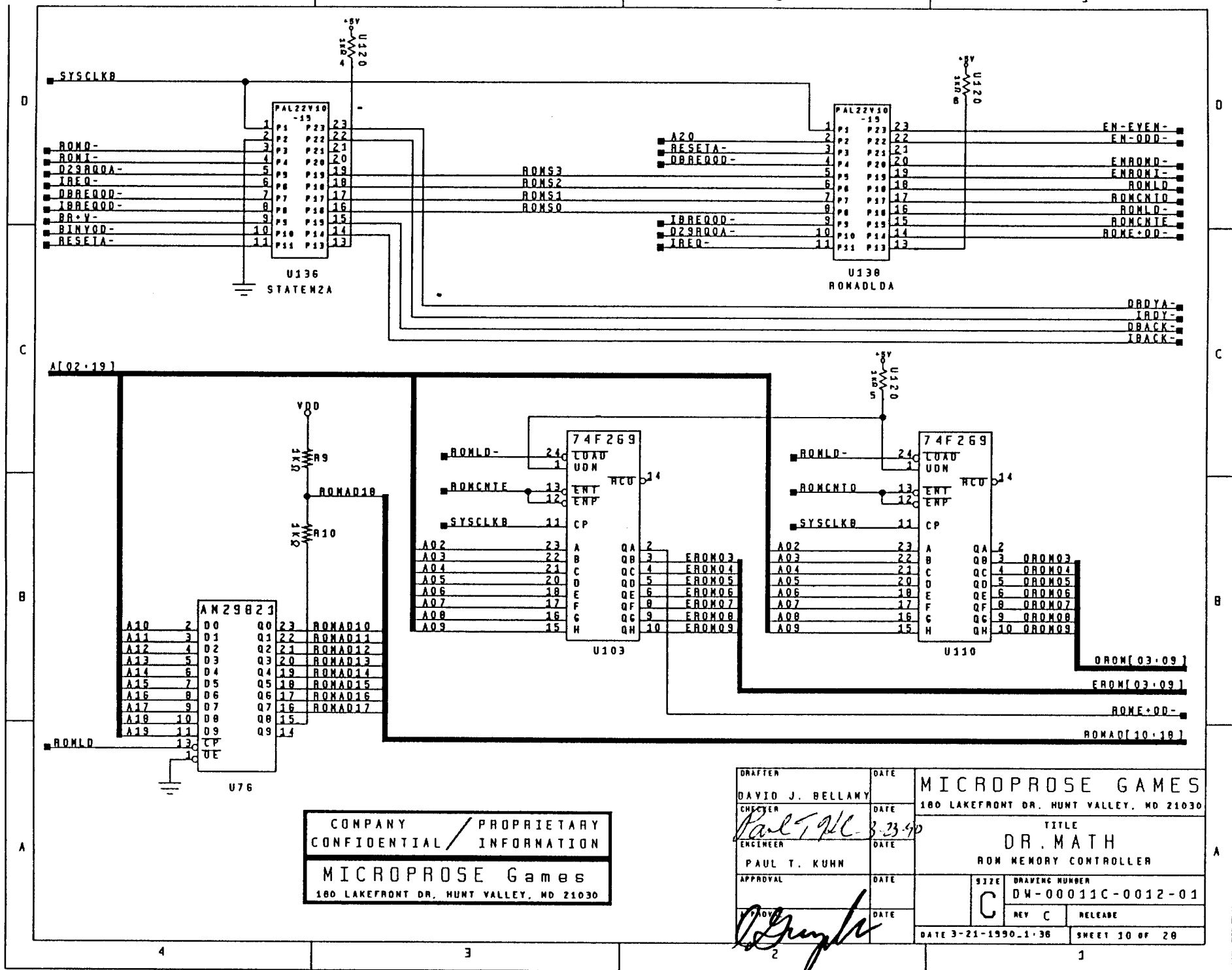


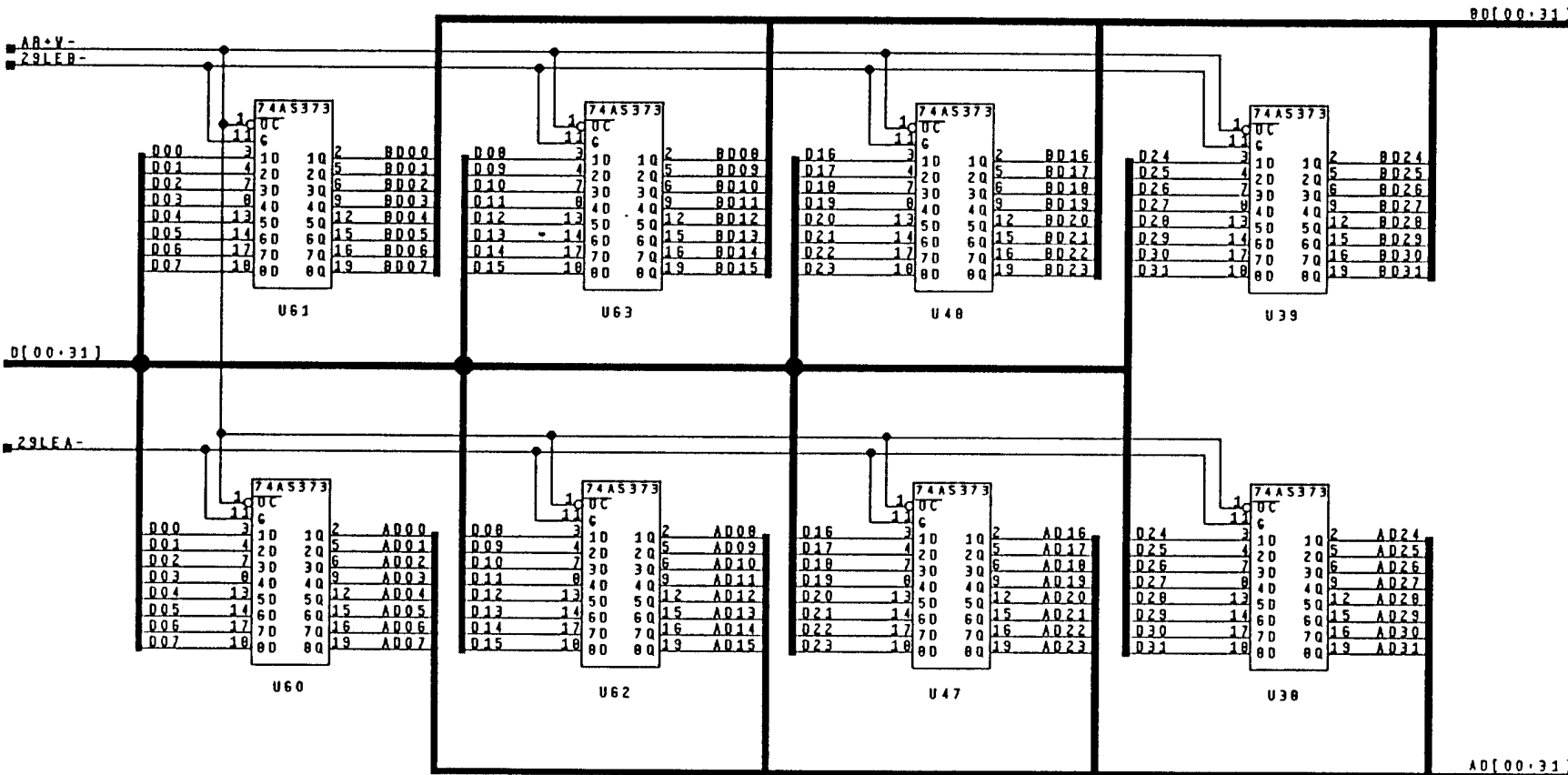


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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER
DAVID J. BELLANY
CHECKER
Paul T. Kuhn
ENGINEER
PAUL T. KUHN
APPROVAL
[Signature]
DATE
3-23-90

MICROPROSE GAMES
180 LAKEFRONT DR. HUNT VALLEY, MD 21030
TITLE
DR. MATH
'B' BANK - 256K X 32 DRAM ARRAY
532E
C
DW-00011C-0012-01
REV C
RELEASE
DATE 3-21-1990.0-47
SHEET 7 OF 28





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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>		DATE 3-23-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL <i>Paul T. Kuhn</i>		DATE		RAM BANK DATA WRITE LATCHES	
DATE		DATE		SIZE C	
				DRAWING NUMBER DW-00011C-0012-01	
				REV C RELEASE	
				DATE 3-21-1990-1-37 SHEET 11 OF 28	

R0MD[00:31]

U30

R0MD00	2	1A1	1Y1	18	I00
R0MD01	4	1A2	1Y2	16	I01
R0MD02	6	1A3	1Y3	14	I02
R0MD03	8	1A4	1Y4	12	I03
R0MD04	11	2A1	2Y1	9	I04
R0MD05	13	2A2	2Y2	7	I05
R0MD06	15	2A3	2Y3	5	I06
R0MD07	17	2A4	2Y4	3	I07

1 19

U24

R0MD08	2	1A1	1Y1	18	I08
R0MD09	4	1A2	1Y2	16	I09
R0MD10	6	1A3	1Y3	14	I10
R0MD11	8	1A4	1Y4	12	I11
R0MD12	11	2A1	2Y1	9	I12
R0MD13	13	2A2	2Y2	7	I13
R0MD14	15	2A3	2Y3	5	I14
R0MD15	17	2A4	2Y4	3	I15

1 19

U16

R0MD16	2	1A1	1Y1	18	I16
R0MD17	4	1A2	1Y2	16	I17
R0MD18	6	1A3	1Y3	14	I18
R0MD19	8	1A4	1Y4	12	I19
R0MD20	11	2A1	2Y1	9	I20
R0MD21	13	2A2	2Y2	7	I21
R0MD22	15	2A3	2Y3	5	I22
R0MD23	17	2A4	2Y4	3	I23

1 19

U8

R0MD24	2	1A1	1Y1	18	I24
R0MD25	4	1A2	1Y2	16	I25
R0MD26	6	1A3	1Y3	14	I26
R0MD27	8	1A4	1Y4	12	I27
R0MD28	11	2A1	2Y1	9	I28
R0MD29	13	2A2	2Y2	7	I29
R0MD30	15	2A3	2Y3	5	I30
R0MD31	17	2A4	2Y4	3	I31

1 19

U74

R0MD00	2	1A1	1Y1	18	D00
R0MD01	4	1A2	1Y2	16	D01
R0MD02	6	1A3	1Y3	14	D02
R0MD03	8	1A4	1Y4	12	D03
R0MD04	11	2A1	2Y1	9	D04
R0MD05	13	2A2	2Y2	7	D05
R0MD06	15	2A3	2Y3	5	D06
R0MD07	17	2A4	2Y4	3	D07

1 19

U66

R0MD08	2	1A1	1Y1	18	D08
R0MD09	4	1A2	1Y2	16	D09
R0MD10	6	1A3	1Y3	14	D10
R0MD11	8	1A4	1Y4	12	D11
R0MD12	11	2A1	2Y1	9	D12
R0MD13	13	2A2	2Y2	7	D13
R0MD14	15	2A3	2Y3	5	D14
R0MD15	17	2A4	2Y4	3	D15

1 19

U51

R0MD16	2	1A1	1Y1	18	D16
R0MD17	4	1A2	1Y2	16	D17
R0MD18	6	1A3	1Y3	14	D18
R0MD19	8	1A4	1Y4	12	D19
R0MD20	11	2A1	2Y1	9	D20
R0MD21	13	2A2	2Y2	7	D21
R0MD22	15	2A3	2Y3	5	D22
R0MD23	17	2A4	2Y4	3	D23

1 19

U42

R0MD24	2	1A1	1Y1	18	D24
R0MD25	4	1A2	1Y2	16	D25
R0MD26	6	1A3	1Y3	14	D26
R0MD27	8	1A4	1Y4	12	D27
R0MD28	11	2A1	2Y1	9	D28
R0MD29	13	2A2	2Y2	7	D29
R0MD30	15	2A3	2Y3	5	D30
R0MD31	17	2A4	2Y4	3	D31

1 19

I[00:31]

O[00:31]

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY	DATE	MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>	DATE 3-23-90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN	DATE	TITLE 29K	
APPROVAL <i>Paul T. Kuhn</i>	DATE	29K INSTRUCTION ODD ARRAY	
DATE	DATE	SIZE C	DRAWING NUMBER DW-00011C-0012-01
		REV C	RELEASE
		DATE 3-21-1990.1.37 SHEET 12 OF 28	

EROM[03-09]

EROM03	10	A0	29	90
EROM04	9	A1	29	90
EROM05	8	A2	29	90
EROM06	7	A3	29	90
EROM07	6	A4	29	90
EROM08	5	A5	29	90
EROM09	4	A6	29	90
ROMAD10	3	A7	29	90
ROMAD11	25	A8	29	90
ROMAD12	24	A9	29	90
ROMAD13	21	A10	29	90
ROMAD14	23	A11	29	90
ROMAD15	2	A12	29	90
ROMAD16	26	A13	29	90
ROMAD17	27	A14	29	90
ROMAD18	1	A15	29	90

AM27C512	A0	29	90
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U107

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EROM04	9	A1	29	90
EROM05	8	A2	29	90
EROM06	7	A3	29	90
EROM07	6	A4	29	90
EROM08	5	A5	29	90
EROM09	4	A6	29	90
ROMAD10	3	A7	29	90
ROMAD11	25	A8	29	90
ROMAD12	24	A9	29	90
ROMAD13	21	A10	29	90
ROMAD14	23	A11	29	90
ROMAD15	2	A12	29	90
ROMAD16	26	A13	29	90
ROMAD17	27	A14	29	90
ROMAD18	1	A15	29	90

AM27C512	A0	29	90
29	90		
29	90		
29	90		
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29	90		
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29	90		
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U114

EROM03	10	A0	29	90
EROM04	9	A1	29	90
EROM05	8	A2	29	90
EROM06	7	A3	29	90
EROM07	6	A4	29	90
EROM08	5	A5	29	90
EROM09	4	A6	29	90
ROMAD10	3	A7	29	90
ROMAD11	25	A8	29	90
ROMAD12	24	A9	29	90
ROMAD13	21	A10	29	90
ROMAD14	23	A11	29	90
ROMAD15	2	A12	29	90
ROMAD16	26	A13	29	90
ROMAD17	27	A14	29	90
ROMAD18	1	A15	29	90

AM27C512	A0	29	90
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29	90		
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29	90		
29	90		
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29	90		
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29	90		

U126

EROM03	10	A0	29	90
EROM04	9	A1	29	90
EROM05	8	A2	29	90
EROM06	7	A3	29	90
EROM07	6	A4	29	90
EROM08	5	A5	29	90
EROM09	4	A6	29	90
ROMAD10	3	A7	29	90
ROMAD11	25	A8	29	90
ROMAD12	24	A9	29	90
ROMAD13	21	A10	29	90
ROMAD14	23	A11	29	90
ROMAD15	2	A12	29	90
ROMAD16	26	A13	29	90
ROMAD17	27	A14	29	90
ROMAD18	1	A15	29	90

AM27C512	A0	29	90
29	90		
29	90		
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29	90		
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U134

EN-EVEN-

ROMAD[10-18]

ROMO[00-31]

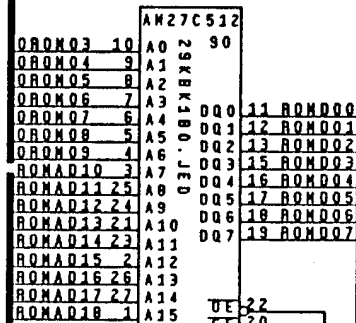
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MICROPROSE Games

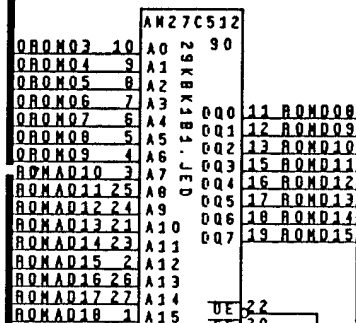
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER	DATE	MICROPROSE GAMES	
DAVID J. BELLAMY		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER	DATE	TITLE	
<i>Paul T. Kuhn</i>	3-23-90	DR. MATH	
ENGINEER	DATE	EVEN INSTRUCTION EPROM	
PAUL T. KUHN			
APPROVAL	DATE	SIZE	DRAWING NUMBER
<i>Paul T. Kuhn</i>		C	DW-00011C-0012-01
	DATE	REV	RELEASE
		C	
DATE 3-21-1990-1-39		SHEET 13 OF 28	

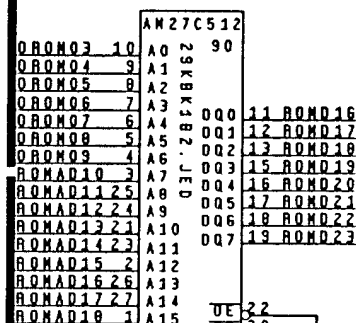
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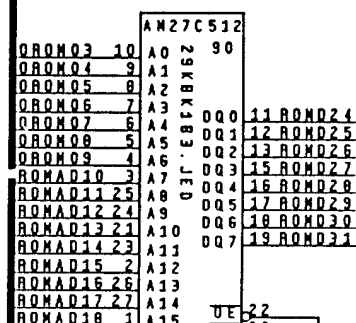
U108



U115



U127



U135

EN-000-

ROMAD[10:19]

ROMD[00:31]

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>		DATE 3-23-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL		DATE		ODD INSTRUCTION EPROM	
APPROVED <i>Paul T. Kuhn</i>		DATE		SIZE C	
				DRAWING NUMBER DW-00011C-0012-01	
				REV C	
				RELEASE	
				DATE 3-21-1990-1-39	
				SHEET 14 OF 28	

DRAWER	DATE	MICROPROSE GAMES	
DAVID J BELLAMY		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER	DATE	TITLE	
<i>Paul T. Kuhn</i>	7-25-90	DR. MATH	
ENGINEER	DATE	AM29000 UART	
PAUL T. KUHN			
APPROVAL	DATE	SIZE	DRAWING NUMBER
		C	DW-00011C-0012-01
APPROVAL	DATE		REV F
		DATE 7-6-1990-9-53	
		SHEET 15 OF 28	

RNY[00.31]

X[00.31]

AM29C32.3

U149

VDD PINS: A4, A8, A13, B9, E17, G3, L15, L16, L17, M17, R7

GND PINS: A2, A6, A10, C7, C17, C15, C16, C17, J17, L3, R1, R11, U3

NC PINS: A3, A9, A14, B2, B9, C3, C4, C14, D4, D17

U120
AS
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P[00.31]

ENXA-
ENXB-
XSEL
HIMAC

MACCLKA
ENPI-
NRML-

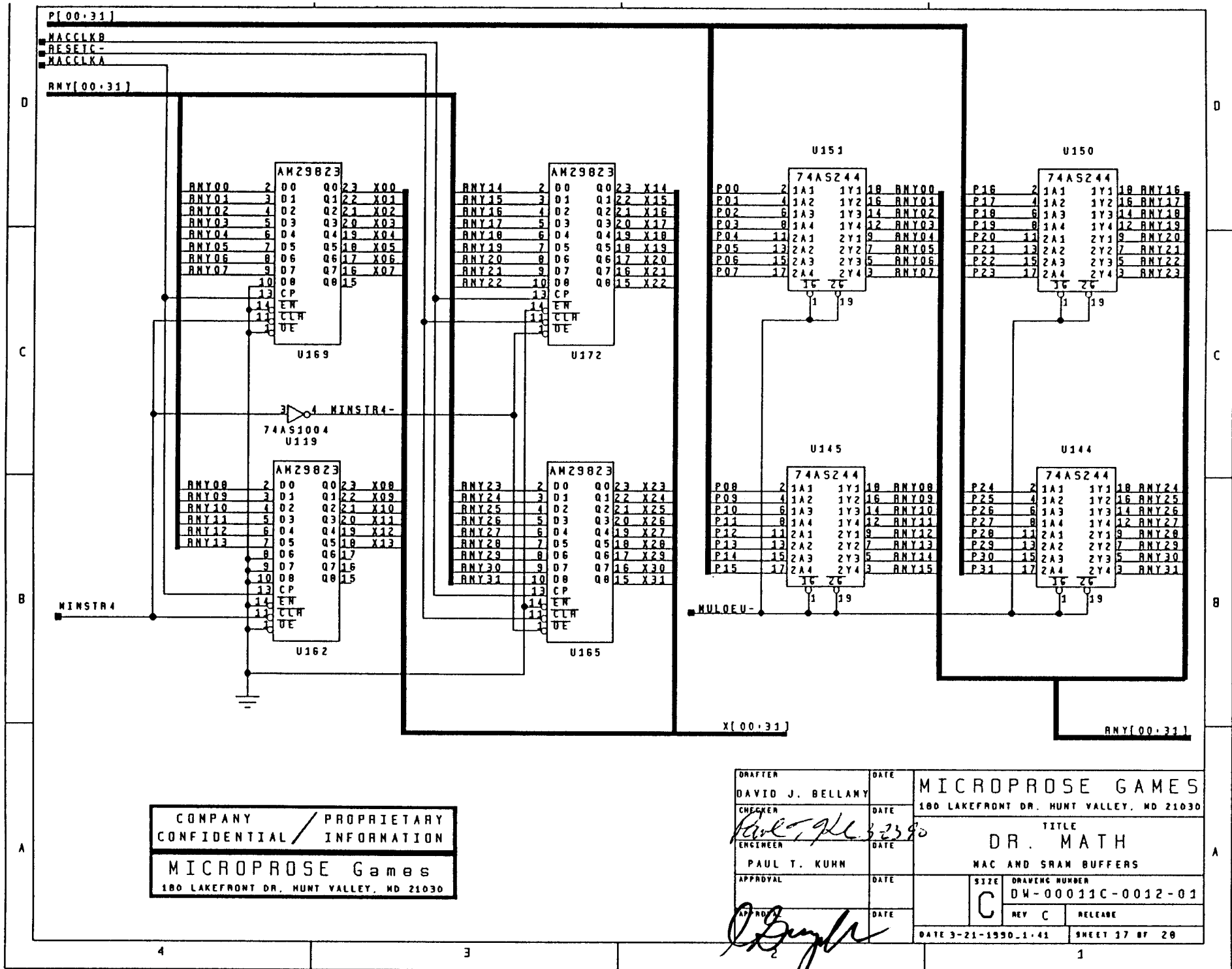
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U119
74AS1004

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>		DATE 3-23-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL		DATE		MULTIPLY ACCUMULATOR	
APPROVAL		DATE		SIZE C	
				DRAWING NUMBER DW-00011C-0012-01	
				REV C	
				RELEASE	
DATE 3-21-1990-1:40				SHEET 16 OF 28	



MACCLKB
MACCLKA
NRMI-
RESETC-
MULOFEN-
P[00:31]

RNY[00:31]

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P16	4	02	Y2	21	RNY02
P17	5	03	Y3	20	RNY03
P18	6	04	Y4	19	RNY04
P19	7	05	Y5	18	RNY05
P20	8	06	Y6	17	RNY06
P21	9	07	Y7	16	RNY07
P22	10	08	Y8	15	RNY08
	11	09	Y9	14	

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13
UE1
UE2

U157

P00	2	00	Q0	23	RNY18
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P02	4	02	Q2	21	RNY20
P03	5	03	Q3	20	RNY21
P04	6	04	Q4	19	RNY22
P05	7	05	Q5	18	RNY23
P06	8	06	Q6	17	RNY24
P07	9	07	Q7	16	RNY25
	10	08	Q8	15	

13
14
CP
EM
CLM
UE

U146

P23	2	00	Y0	23	RNY09
P24	3	01	Y1	22	RNY10
P25	4	02	Y2	21	RNY11
P26	5	03	Y3	20	RNY12
P27	6	04	Y4	19	RNY13
P28	7	05	Y5	18	RNY14
P29	8	06	Y6	17	RNY15
P30	9	07	Y7	16	RNY16
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UE2

U155

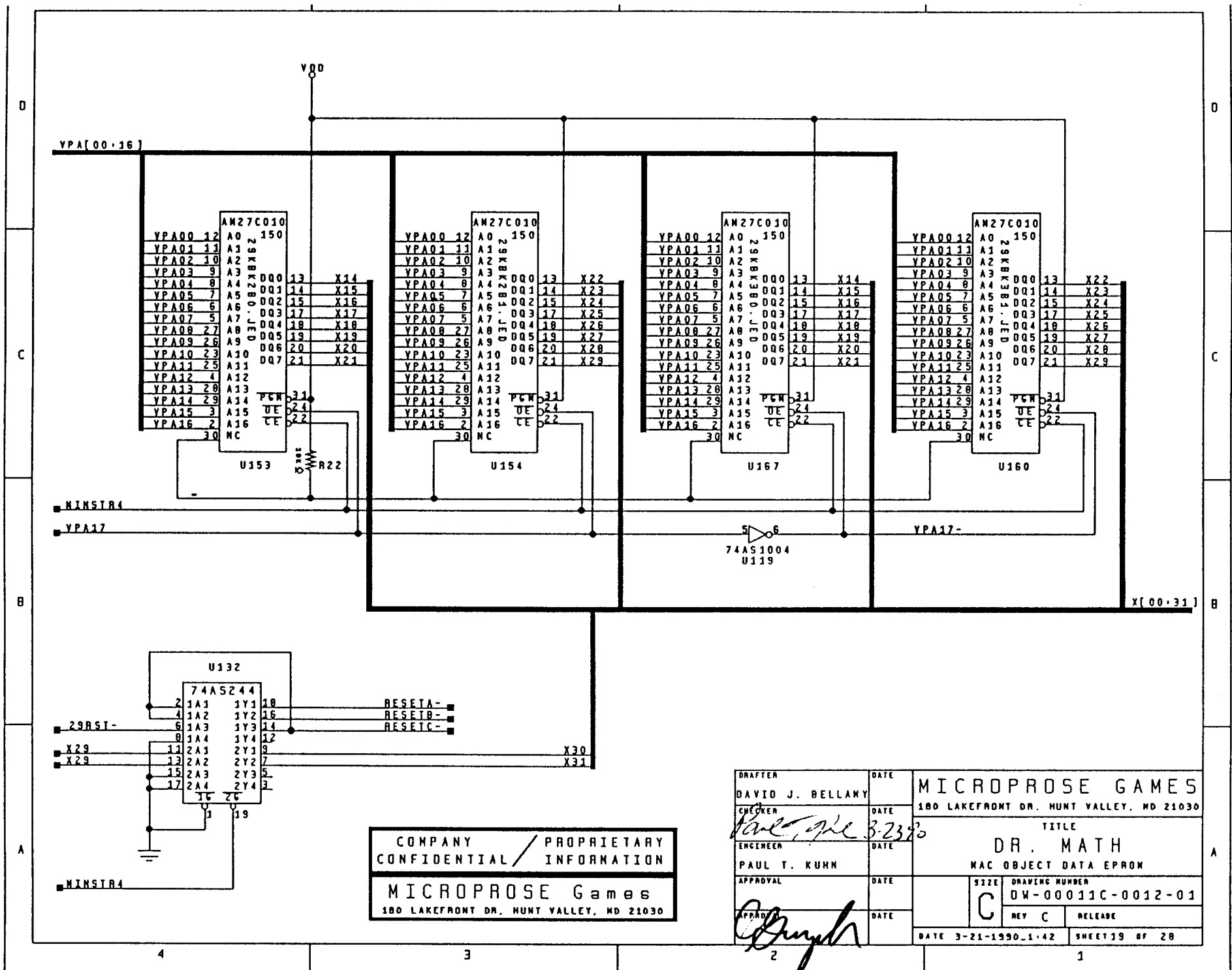
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14
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CLM
UE

U137

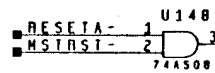
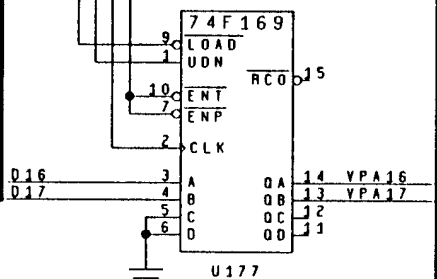
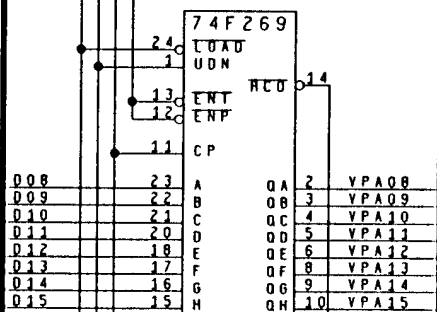
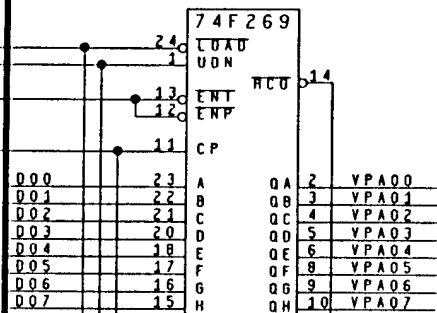
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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY	DATE	MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>	DATE 3-23-90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN	DATE	TITLE DR. MATH	
APPROVAL	DATE	DOT PRODUCT NORMALIZATION	
APPROVAL <i>Paul T. Kuhn</i>	DATE	SIZE C	DRAWING NUMBER DW-00011C-0012-01
		REV C	RELEASE
		DATE 3-21-1990_20:37 SHEET 18 OF 28	



0[00:31]

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VPACEN-
MACCLKA

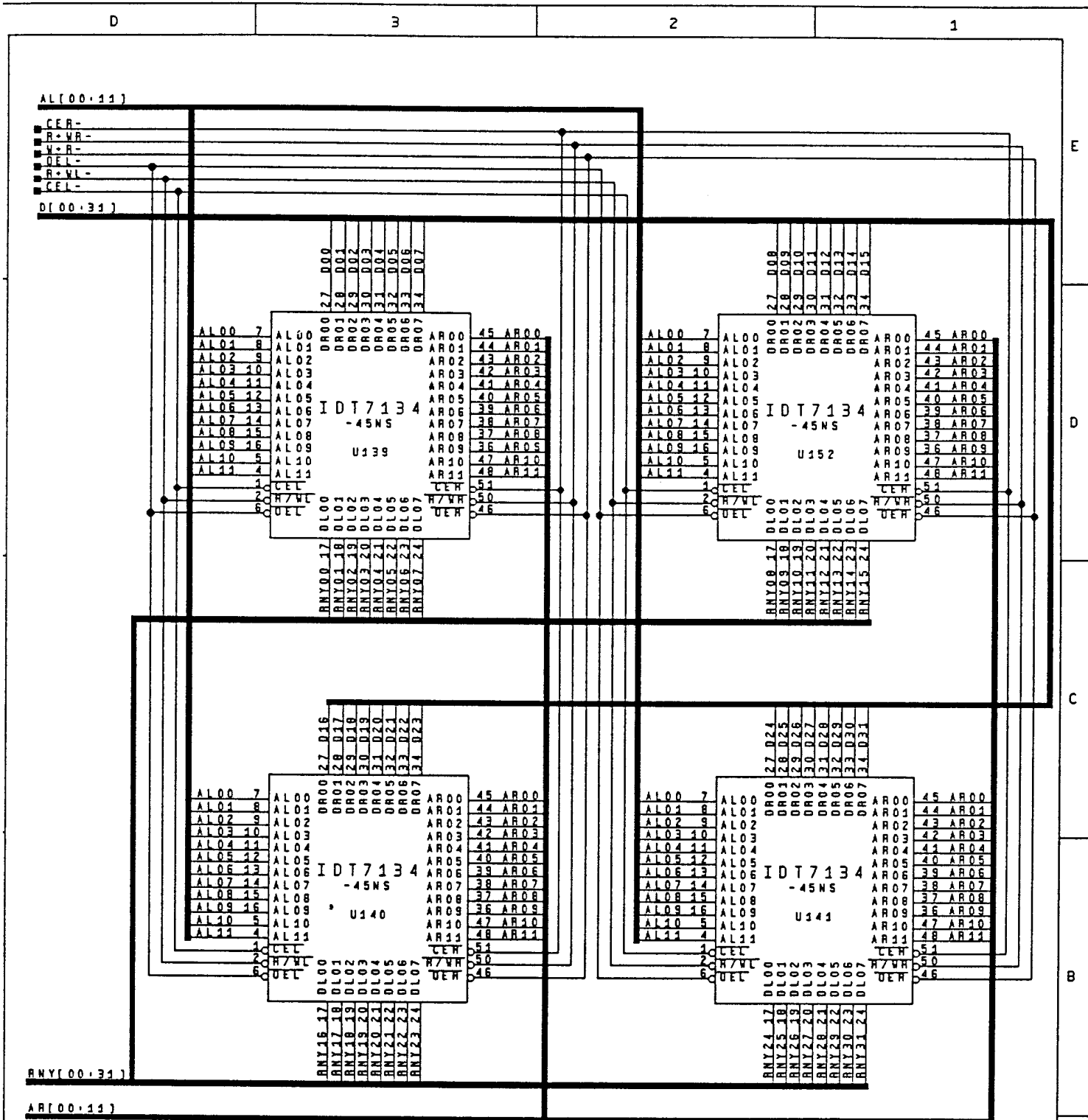


MACCLKA
MACCWR1-

DECVEC-

AM29823

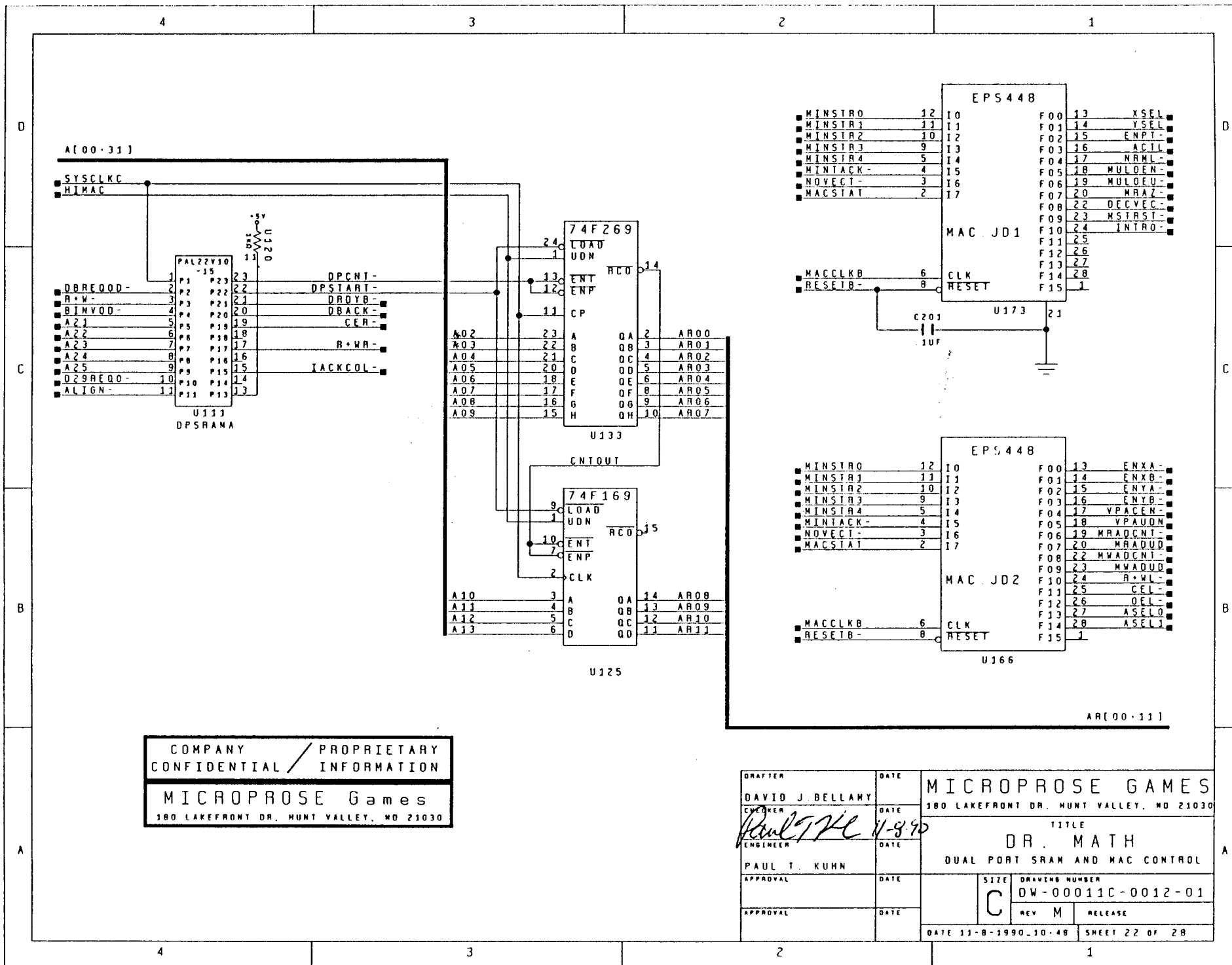
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COMPANY / PROPRIETARY
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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLANY				180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
<i>Paul T. Kuhn</i>		3-23-90		DR. MATH	
ENGINEER		DATE		MAC DUAL PORT SRAM ARRAY	
PAUL T. KUHN				SIZE	
APPROVAL		DATE		DRAWING NUMBER	
<i>David J. Bellany</i>				DW-00011C-0012-01	
DATE		DATE		REV C	
3-24-1990		1-45		RELEASE	
				SHEET 21 OF 28	



MRAA[00:11]

MVA[00:11]

YPA[00:11]

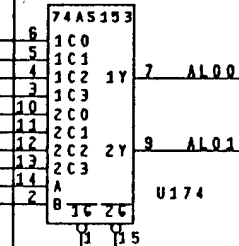
ASEL1

ASEL0

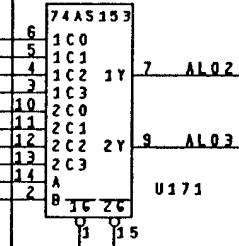
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MARPU

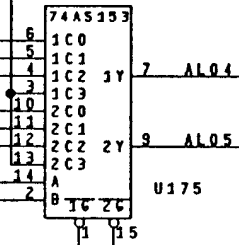
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MVA00
MRAA00
MRAB00
YPA01
MVA01
MRAA01
MRAB01



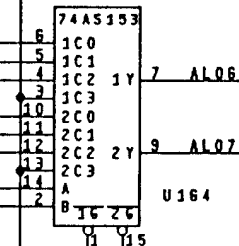
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YPA03
MVA03
MRAA03
MRAB03



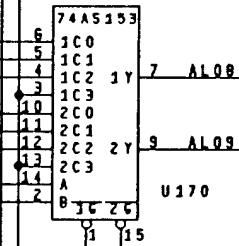
YPA04
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MRAA04
YPA05
MVA05
MRAA05



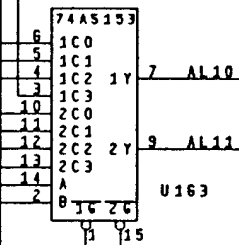
YPA06
MVA06
MRAA06
YPA07
MVA07
MRAA07



YPA08
MVA08
MRAA08
YPA09
MVA09
MRAA09



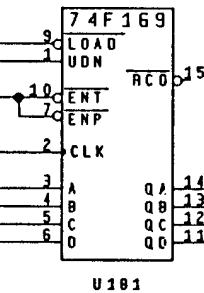
YPA10
MVA10
MRAA10
YPA11
MVA11
MRAA11



AL[00:11]

MRAB[00:03]

■ MRAZ-
■ MRAPVD
■ MRADCNT-
■ MACCLKB



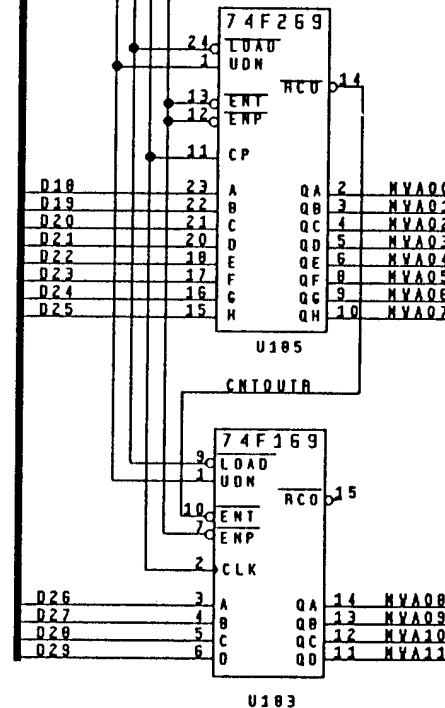
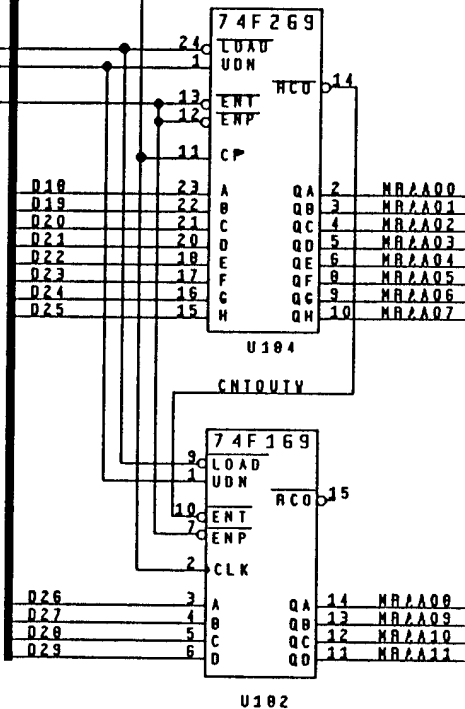
COMPANY
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MICROPROSE Games
180 LAKEFRONT DR., HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER <i>David J. Bellamy</i>		DATE		180 LAKEFRONT DR., HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL <i>Paul T. Kuhn</i>		DATE		MAC SRAM ADDRESS MUXES	
DATE		SIZE C	DRAWING NUMBER DW-00011C-0012-01		SHEET 23 OF 28
DATE		REV C	RELEASE		
DATE 3-21-1990-1-47					

MYADCNT-
 MACCLKB
 MACCVB0-
 MYADVD

D[00.31]

MACCVB1-
 MRADVD
 MRADCNT-



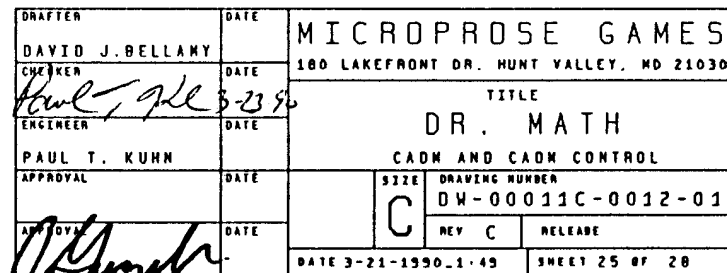
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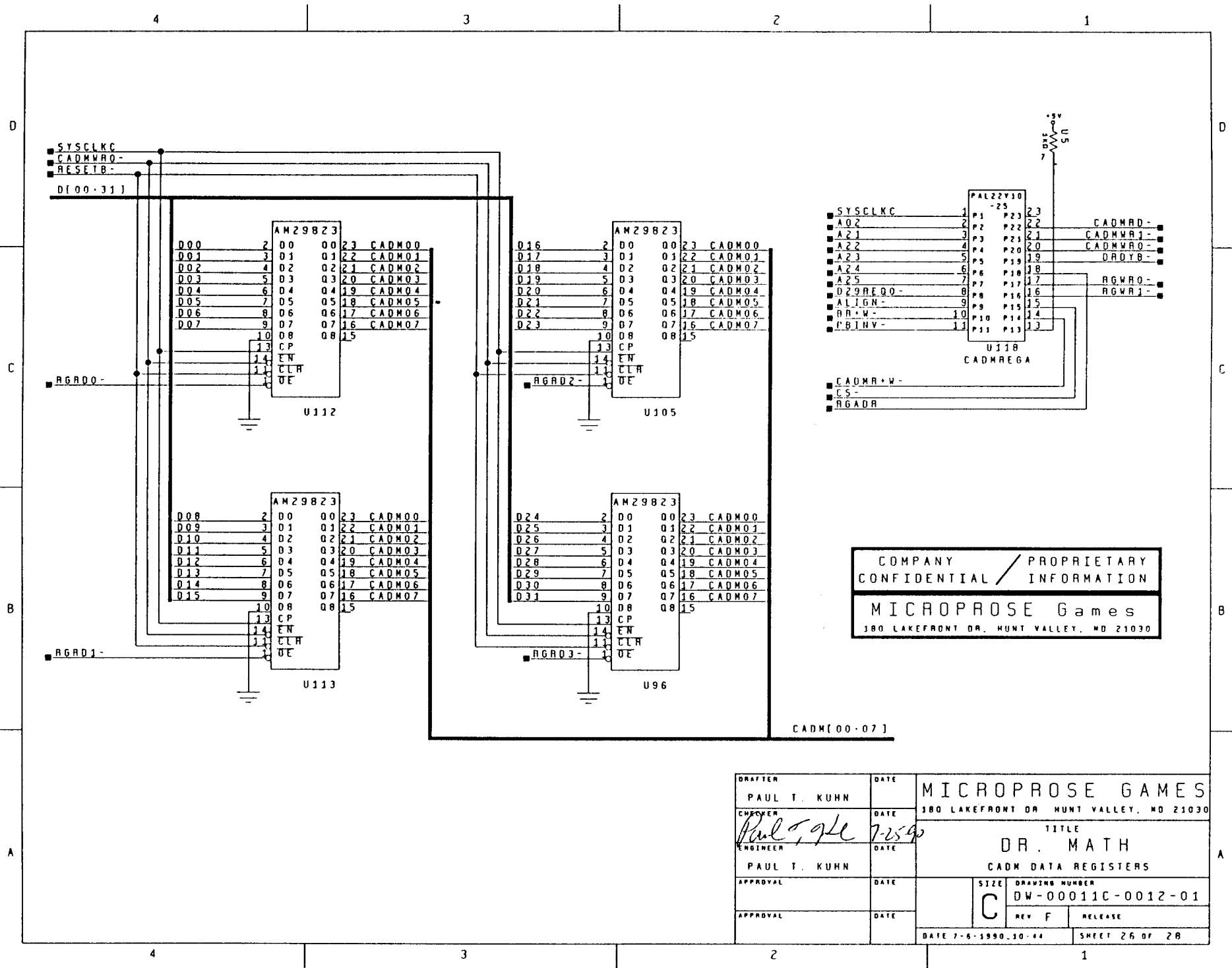
MRAA[00.11]

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 MICROPROSE Games
 180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER <i>Paul T. Kuhn</i>		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL		DATE		MAC SRAM ADDRESS COUNTERS	
APPROVAL <i>[Signature]</i>		DATE		SIZE C	
				DRAWING NUMBER DW-00011C-0012-01	
				REV C	
				RELEASE	
				DATE 3-21-1990-1-48	
				SHEET 24 OF 28	

MICROPROSE Games
180 LAKEFRONT DR, HUNT VALLEY, MD 21030



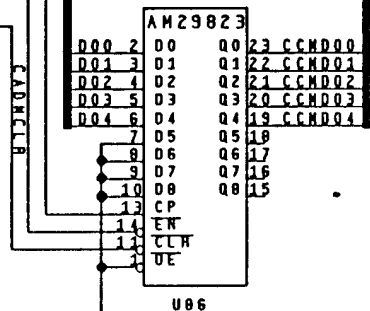


CADMCLK
SYSCLOCK
CADMVR1-
RESETC-

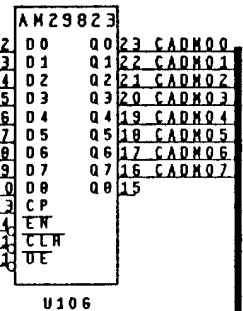
D(00-31)

RESETA-
STRT-

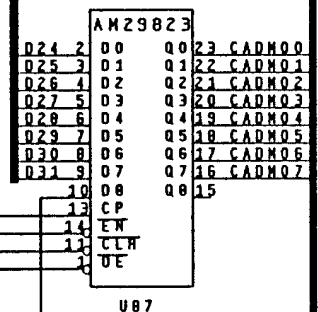
U140
74AS00



RGRO4-



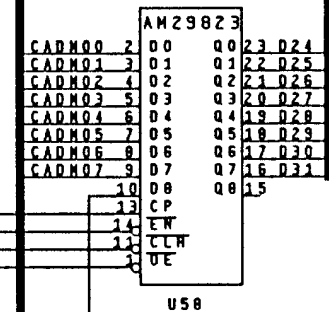
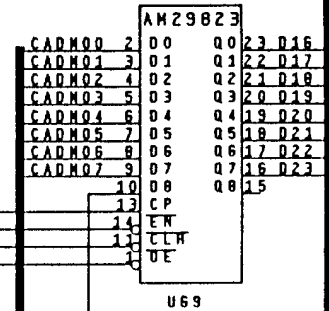
RGRO5-



RGVR1-

RGVR0-

CADMR0-

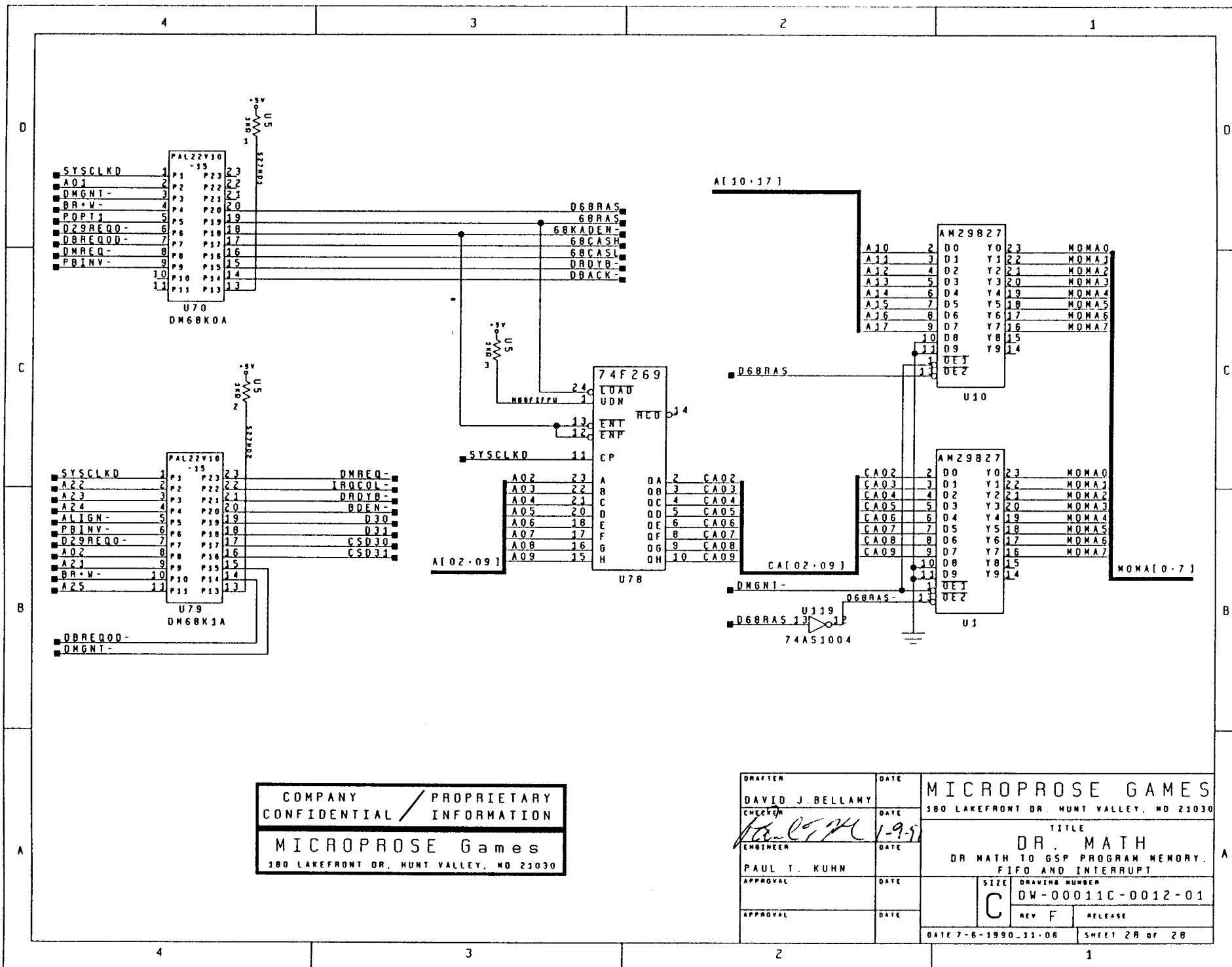


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MICROPROSE Games

180 LAKEFRONT DR, HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER <i>Paul T. Kuhn</i>		DATE 3-21-1990			
ENGINEER PAUL T. KUHN		DATE		TITLE DR. MATH	
APPROVAL		DATE		CADM DATA REGISTERS	
APPROVAL <i>David Bellamy</i>		DATE		DRAWING NUMBER DW-00011C-0012-01	
				REV C	
				RELEASE	
		DATE 3-21-1990-1:50		SHEET 27 OF 28	



BILL OF MATERIALS
DR. MATH P.C.B.
ASSEMBLY: A10-00002-001

DATE	ECN	REV	SHEET NUMBER																									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
	ECN	A	A					A	A																			
	ECN	B	B				B																					
3-21-90	ECN	C	C	C	C	C	C	C	C																			
5-07-90	ECN014	D	D		D			D																				
5-07-90	ECN015	E	E						E																			
6-18-90	ECN038	F	F						F																			
7-16-90	ECN051	G	G	G			G		G																			
7-27-90	ECN055	H	H				H																					
8-01-90	ECN060	K	K	K	K	K	K	K	K																			
8-15-90	ECN064	L	L			L																						
9-04-90	ECN069	M	M	M					M																			
10-8-90	ECN081	N	N						N																			
10-8-90	ECN090	O	O			O			O																			
11-8-90	ECN137	P	P			P																						
1-14-91	ECN125	R	R		R																							

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER
DAVID J. BELLAMY
DATE

CHECKER
Paul T. Kuhn
DATE
1-14-91

ENGINEER
PAUL T. KUHN
DATE

APPROVAL
DATE

APPROVAL
DATE

MICROPROSE GAMES
180 LAKEFRONT DRIVE, HUNT VALLEY, MD 21030

TITLE
BILL OF MATERIALS
DR. MATH P.C.B.
A10-00002-001

DWG NO
PL-00011A-0012-01
REV
R

DATE 1-14-1991-9-45
SHEET 1 OF 7

A

MICROPROSE games, 180 Lakefront Drive, Hunt Valley, Maryland, 21030
 PROJECT: DR. MATH PCB DRWG NO: PL-0011A-0012-01 REV: R
 DATE: Mon 14-Jan-1991

ITEM	QTY	VENDOR PART NUMBER	PART DESCRIP	VALUE	MPG P/N
REF. DES.					
1 B	1	GAL22V10-15P U79	DM68K1A	15NS	120-00001-009
2 B	1	GAL22V10-15P U70	DM68K0A	15NS	120-00001-010
3 B	[0]	GAL22V10-25P [U118]	CADMREGA	25NS	120-00001-011
4	[0]	SN74ALS138N [U97]	3:8DEMUX		200-00138-200
5	1	68001-502 [J1],J2	2PINJUMPER	.100"	610-00002-002
6 *	[0]	AM95C85-12JC [U32,U33]	SMT CADM		130-95C85-412
7	6	SN74AS153N U175,U174,U163,U164,U171,U170	4:1DATAMUX		201-00153-200
8 B	1	GAL22V10-15P U111	DPSRAMA	15NS	120-00001-014
9 C*	[0]	EPS448-3P [U55]	CADM SAM	20MHZ	115-00001-003
10 *	4	IDT7134-S45J U139,U140,U141,U152	4Kx8DPRAM SMT	45NS	222-00003-445
11	5	F74F169PC U125,U177,U181,U182,U183	4BITU/DCNTR		203-00169-200
12	1	SN74ALS04BN U143	HEXINVERTER		200-00004-200
13	1	SN74AS08N U148	QUAD2INAND		201-00008-200
14 B	1	GAL22V10-15P U104	MACCREGA	15NS	120-00001-015
15 E*	1	AM27C010-155DC U153	128Kx8EPROM 29KBK2B0	150NS	110-00001-014
16 E*	1	AM27C010-155DC U154	128Kx8EPROM 29KBK2B1	150NS	110-00001-015
17 E*	1	AM27C010-155DC U167	128Kx8EPROM 29KBK3B0	150NS	110-00001-016
18 E*	1	AM27C010-155DC U160	128Kx8EPROM 29KBK3B1	150NS	110-00001-017

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
19	4	AM29C827APC U1,U10,U155,U157	10BITBUFFER		235-00006-200
20	7	AM29C823ASC [U58,U69,U86,U87,U96,U105,U106,U112,U113],U137,U162, U165,U169,U172,U186,U146	SMT9BITBUSREG		235-00004-100
21 F*	1	AM29C323GC U149	MAC IC	10MHZ	130-00323-510
22	4	173D105X0035V C174,C175,C176,C188	AXTANTCAP	1UF	422-00072-105
23	1	LT1081-CN U176	RS232DRVR		235-00001-200
24	1	SN74LS393N U128	DUAL4BITCNTR		202-00393-200
25	1	22-05-7048 J4	4PINMOLEX	.100"	610-00601-004
26 B	1	GAL22V10-25P U121	UARTCTLA	25NS	120-00001-021
27	1	Z85C30-10JC U159	SMT UART		240-00001-400
28 D*	1	AM27C256-95DC U135	32Kx8EPROM 29KBK1B3.001	90NS	110-00001-118
29 D*	1	AM27C256-95DC U115	32Kx8EPROM 29KBK1B1.001	90NS	110-00001-119
30 D*	1	AM27C256-95DC U108	32Kx8EPROM 29KBK1B0.001	90NS	110-00001-120
31 D*	1	AM27C256-95DC U127	32Kx8EPROM 29KBK1B2.001	90NS	110-00001-121
32 D*	1	AM27C256-95DC U134	32Kx8EPROM 29KBK0B3.001	90NS	110-00001-122
33 D*	1	AM27C256-95DC U114	32Kx8EPROM 29KBK0B1.001	90NS	110-00001-123
34 D*	1	AM27C256-95DC U107	32Kx8EPROM 29KBK0B0.001	90NS	110-00001-124
35 D*	1	AM27C256-95DC U126	32Kx8EPROM 29KBK0B2.001	90NS	110-00001-125
36	8	SN74AS373DW U38,U39,U47,U48,U60,U61,U62,U63	SMT OCTD-LATCHES		201-00373-100

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
37	B 1	GAL22V10-15P U138	ROMADLDA	15NS	120-00001-016
38	B 1	GAL22V10-15P U136	STATEM2A	15NS	120-00001-017
39	4	AM29C863APC U2,U3,U11,U12	9BIBUSDRVR		235-00005-200
40	3	SN74ALS2540N U82,U92,U100	OCTINVDRVR		200-02540-200
41	A 1	GAL16V8A-15P U116	RAMCNTLB	15NS	120-00001-123
42	5	SN74AS258N U83,U93,U101,U129,U131	QUAD2:1MUX		201-00258-200
43	2	AM29C821APC U75,U76	10BITREGISTER		235-00003-200
44	1	SN74AS175N U84	QUADDFLOPS		201-00175-200
45	11	74F269SC U68,U78,U85,U103,U110,U133,U178,U179,U180,U184,U185	SMTDECADEU/DCNTR		203-00269-100
46	B 1	GAL22V10-15P U109	RAMADLDA	15NS	120-00001-018
47	B 1	GAL22V10-15P U102	STATEMB	15NS	120-00001-119
48	A 1	GAL16V8A-15P U67	29DECODA	15NS	120-00001-024
49	* 16	TMS44C256-12NL U13,U21,U27,U34,U35,U37,U46,U57,U80,U81,U88,U89,U90,U91,U98,U99	256Kx4DRAM	120NS	220-00002-212
50	4	SN74AS245DW U43,U44,U52,U53	SMT OCTBIBUFFER		201-00245-100
51	1	SA101A221JAA C203	AXCERCAP	220PF	402-00195-221
52	1	SN74ALS1010N U20	TRI3INNAND		200-01010-200
53	35	SN74AS244DW U6,U7,U8,U14,U15,U16,U22,U23,U24,U28,U29,U30,U31,U36, U40,U41,U42,U45,U49,U50,U51,U54,U56,U64,U65,U66,U72,U73, U74,U95,U132,U144,U145,U150,U151,[U77]	SMT OCTBUFFERS		201-00244-100

ITEM	QTY	PART NUMBER	PART DESCRIP	VALUE	MPG P/N
		REF. DES.			
54	B 1	GAL22V10-15P U59	CLFIFOA	15NS	120-00001-020
55	F* 1	AM29000-16GC U9	MICROPROCESSOR	16MHZ	135-29000-516
56					
57	1	SN7407N U130	HEXOCDRIVERS		206-00007-200
58	A 1	GAL16V8A-25P U122	INTRACKB	25NS	120-00001-026
59					
60					
61	6	CCF-07 561G R2,R7,R8,R13,R14,R16	2%MFRES	560OHM	503-00002-561
62	2	SN74AS74N [U18],U147,U161	DUALDFLOPS		201-00074-200
63	[0]	X0-43D-24 [U17]	OSCILLATOR	24MHZ	290-00001-024
64	4	836C102X2PE U4,U5,U120,U124	SMTPLRESPAK	1KOHM	502-00001-102
65	6	CCF-07 100G [R3],R11,R12,R15,R17,R23,R24	2%MFRES	100OHM	503-00002-100
66	1	68001-503 [J3],J5	3PINJUMPER	.100"	610-00002-003
67	4	CCF-07 102G [R1,R4,R5],R9,R10,R19,R25	2%MFRES	1KOHM	503-00002-102
68	2	CCF-07 103G R6 ,R22	2%MFRES	10KOHM	503-00002-103
69	1	CCF-07 104G R20	2%MFRES	100KOHM	503-00002-104
70	1	1N914 D1	DIODE		300-00002-003
71	1	1N746A D2	ZENER	3.3V	301-00002-033
72	1	LM311N Q1	VOLTCOMPAR		280-00002-200

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
73	1	KSA1A211 SW1	PBSWITCH		625-00002-001
74	1	173D335X0020V C159	AXTANTCAP	3.3UF	422-00062-335
75	1	X0-43D-20 U168	OSCILLATOR	20MHZ	290-00001-020
76	1	X0-43D-32 U142	OSCILLATOR	32MHZ	290-00001-032
77	3	SN74AS1004AN [U25],U19,U119,U156	HEXINVDRIVRS		201-01004-200
78	3	HLMP3600 D3,D4,D5	LED	RED	305-00003-002
79	1	ICTE-5 D6	ZENER		300-00001-002
80	10	7-0805G-5 TP5,TP4,TP3,TP2,TP1,TP6,TP7,TP8,TP9,TP10	TESTPIN		710-00001-001
81	1	26-64-5100	MOLEX10PIN	.156"	610-00601-010
	0	09-52-3101 P3	MOLEX10PIN	.156"	610-10600-010
82	8	TAJJC156M010R C5,C51,C59,C102,C124,C187,C199,C200	SMTTANTCAP	15UF	420-00002-156
83	41	11C1210Z5U334M050NT C112,C113,C185,C104,C177,C173,C164,C161,C160,C156,C153, C146,C145,C144,C141,C140,C132,C131,C125,C123,C96,C95, C94,C93,C86,C85,C53,C49,C39,C34,C33,C31,C27, C23,C18,C14,C10,C105,C28,C32,C50	SMTCERCAP	0.33UF	401-02000-334
84	146	11C1206Z5U104M050NT C11,C16,C193,C128,C183,C150,C118,C90,C67,C9,C8,C7,C6,C4, C3,C2,C1,C41,C12,C13,C15,C194,C195,C196,C197,C198, C163,C184,C186,C189,C190,C191,C192,C99,C89,C88,C87,C84, C83,C82,C81,C80,C182,C181,C180,C179,C178,C172,C171,C170, C169,C168,C167,C166,C165,C162,C158,C157,C155,C154,C152, C151,C149,C148,C147,C143,C142,C138,C137,C136,C135,C134, C133,C130,C129,C127,C126,C122,C121,C120,C119,C117,C116, C115,C114,C111,C110,C109,C108,C107,C106,C103,C101,C98, C97,C92,C91,C79,C78,C77,C76,C75,C74,C72,C71,C70,C69,C68, C66,C65,C64,C63,C62,C61,C60,C58,C57,C56,C55,C52,C54,C48, C47,C46,C45,C44,C43,C42,C40,C38,C37,C36,C35,C30,C29,C26, C25,C24,C22,C21,C20,C19,C17,C73,C139,C100	SMTCERCAP	0.1UF	401-01000-104
85	1	92984-2-01-20-30 P2	2x20HEADER	.100"	610-10100-040

ITEM	QTY	PART NUMBER REF. DES.	PART DESCRIP	VALUE	MPG P/N
86	1	92984-2-01-32-30 P1	2x32HEADER	.100"	610-10100-064
87	A [0]	ICO-320-MTT [UX67,UX116,UX117,UX122]	.3x20PIN SOCKET		600-00001-320
88	B [0]	ICO-324-MTT [UX59,UX70,UX79,UX102,UX104,UX109,UX111,UX118,UX121, UX136,UX138]	.3x24PIN SOCKET		600-00001-324
89	C [0]	110-13-328-41-001 [UX55,UX166,UX173]	.3x28PIN SOCKET		600-00001-328
90	D 8	ICO-628-MTT UX107,UX108,UX114,UX115,UX126,UX127,UX134,UX135	.6x28PIN SOCKET		600-00001-628
91	E 4	2-644018-2 UX153,UX154,UX160,UX167	.6x32PIN SOCKET		600-00003-632
92	F 1	CPAS-169-ZSTT UX9,[UX149]	169PINPGASOCKET		601-00002-169
93	[0]	SRS8-12-01	SPACER	.750"	700-00001-003
94	2	68786-102	SHUNT		715-00001-001
95	1	CCF-07 820G R21	2PCMFRES	82OHM	503-00002-820
96	1	FRJ-50 R18	JUMPRES	0OHM	503-00001-000
96	1	C410C104M5U5CA C201	AXCERCAP	.1UF	402-00382-104
97	C* 1	EPS448-3P U166	MAC.2 SAM	20MHZ	115-00001-002
98	C* 1	EPS448-3P U173	MAC.1 SAM	20MHZ	115-00001-001
99	1	C410C101J1R5CA C202	AXCERCAP	100PF	402-00195-101

425

NOTES:

1. PARTS ERQUIRING 0.33UF DECOUPLING CAPACITORS ARE DESIGNATED WITH AN ASTERISK (*) BETWEEN ITEM AND QTY COLUMNS.
2. PARTS REQUIRING SOCKETS ARE MARKED WITH A LETTER CORRESPONDING TO THE SOCKETS (SOCKETS ARE ITEMS 87 - 92).
3. PARTS WITH REFERENCE DESIGNATORS IN BRACKETS [] WILL MOT BE POPULATED DURING PRODUCTION.

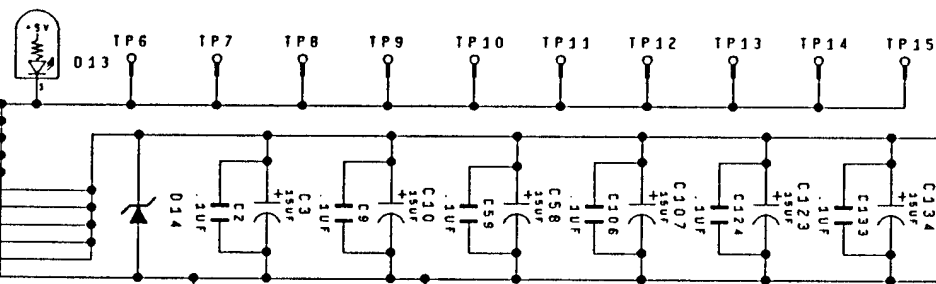
VIDEO GRAPHICS
PRINTED CIRCUIT
BOARD ASSEMBLY
(with VCLIPPERS)

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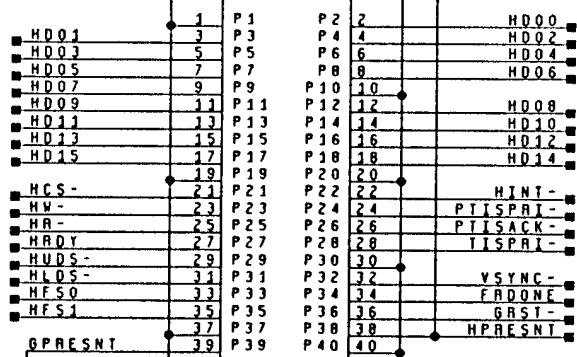
MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER	DATE	MICROPROSE GAMES	
DAVID J. BELLAMY		180 LAKEFRONT DR. HUNT VALLEY, MO 21030	
CHECKER	DATE	TITLE V V G B PRINT CIRCUIT BOARD ASSEMBLY	
ENGINEER	DATE		
DOUGLAS FROME			
APPROVAL	DATE	SIZE	DRAWING NUMBER
<i>D. Frome</i>	<i>1/4/9</i>	C	DW-00011C-0013-03
APPROVAL	DATE		REV A
<i>D. Banks</i>	<i>1/15/9</i>	DATE 11-20-1990.13-00	
		SHEET 1 OF 27	

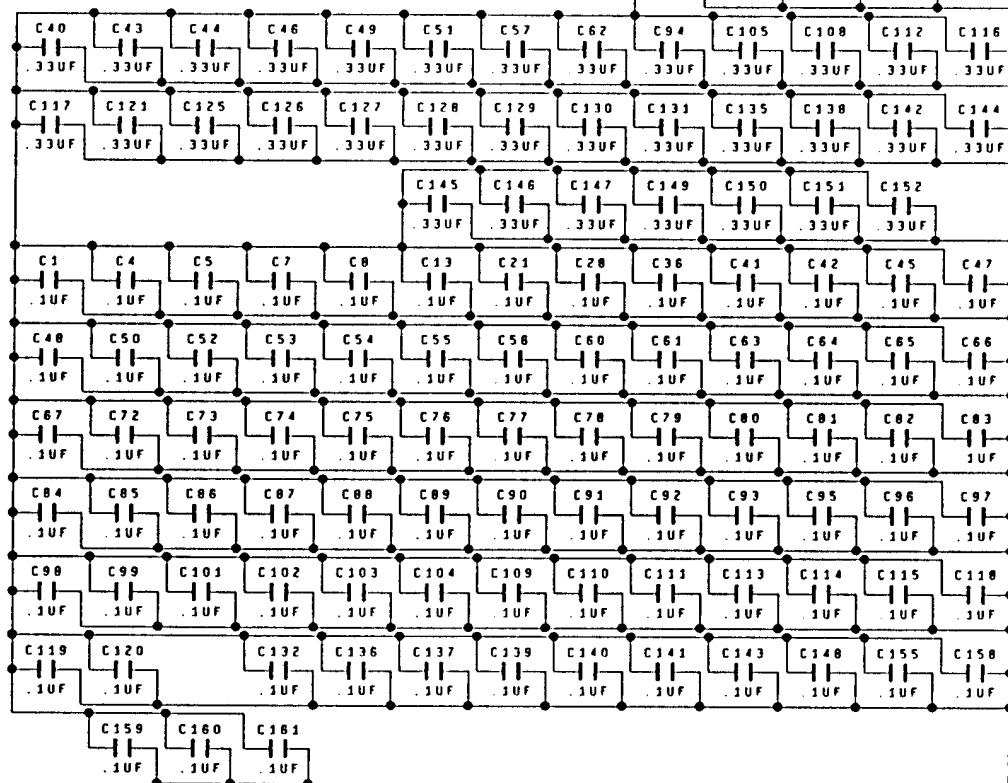
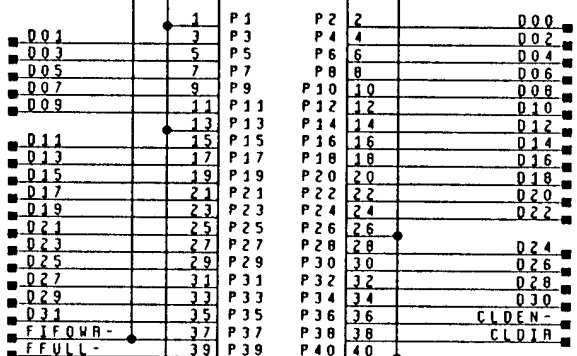
POWER
ON



HOST
PROCESSOR
(MC68000)
BOARD



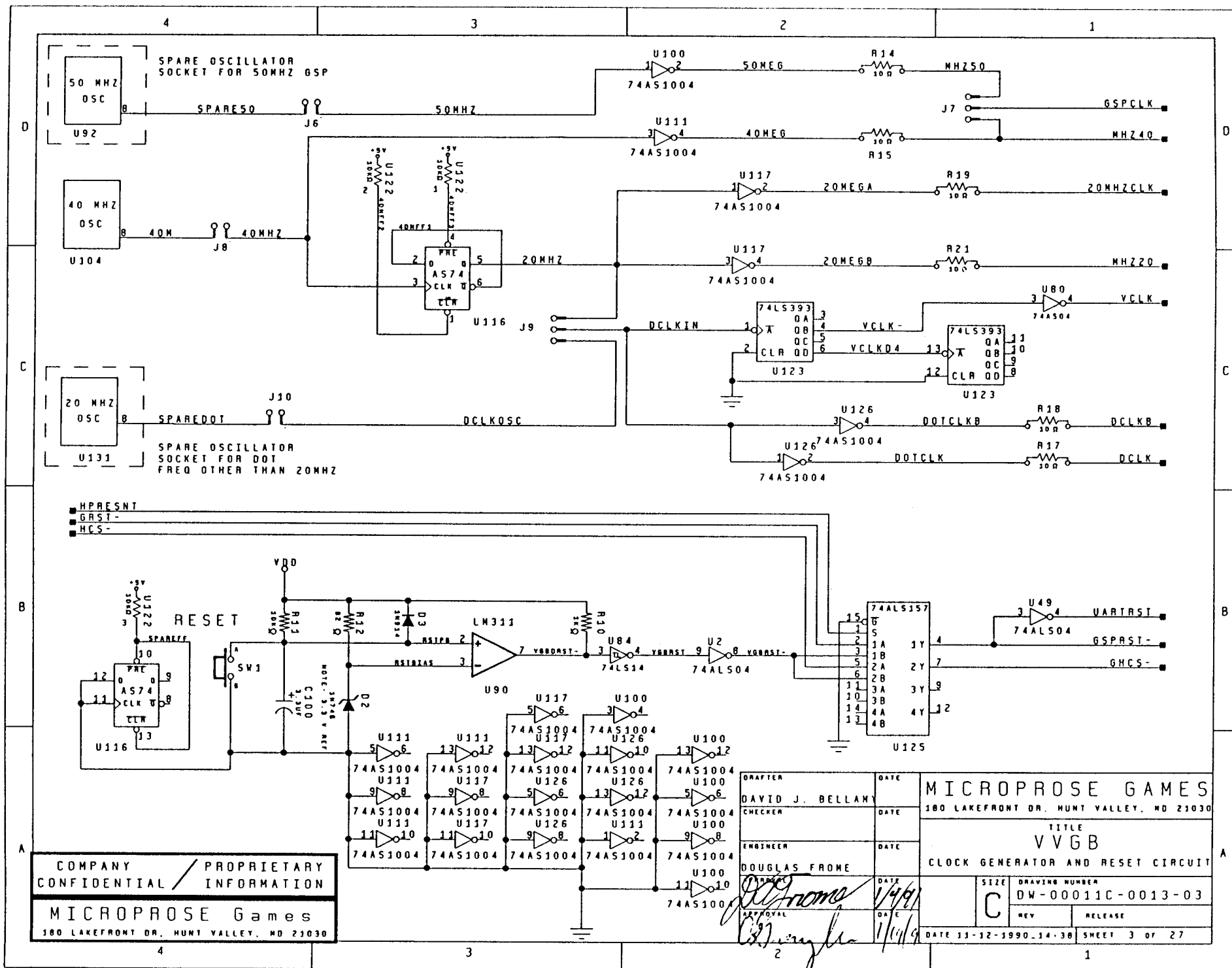
DR. MATH
(AM29000)
BOARD

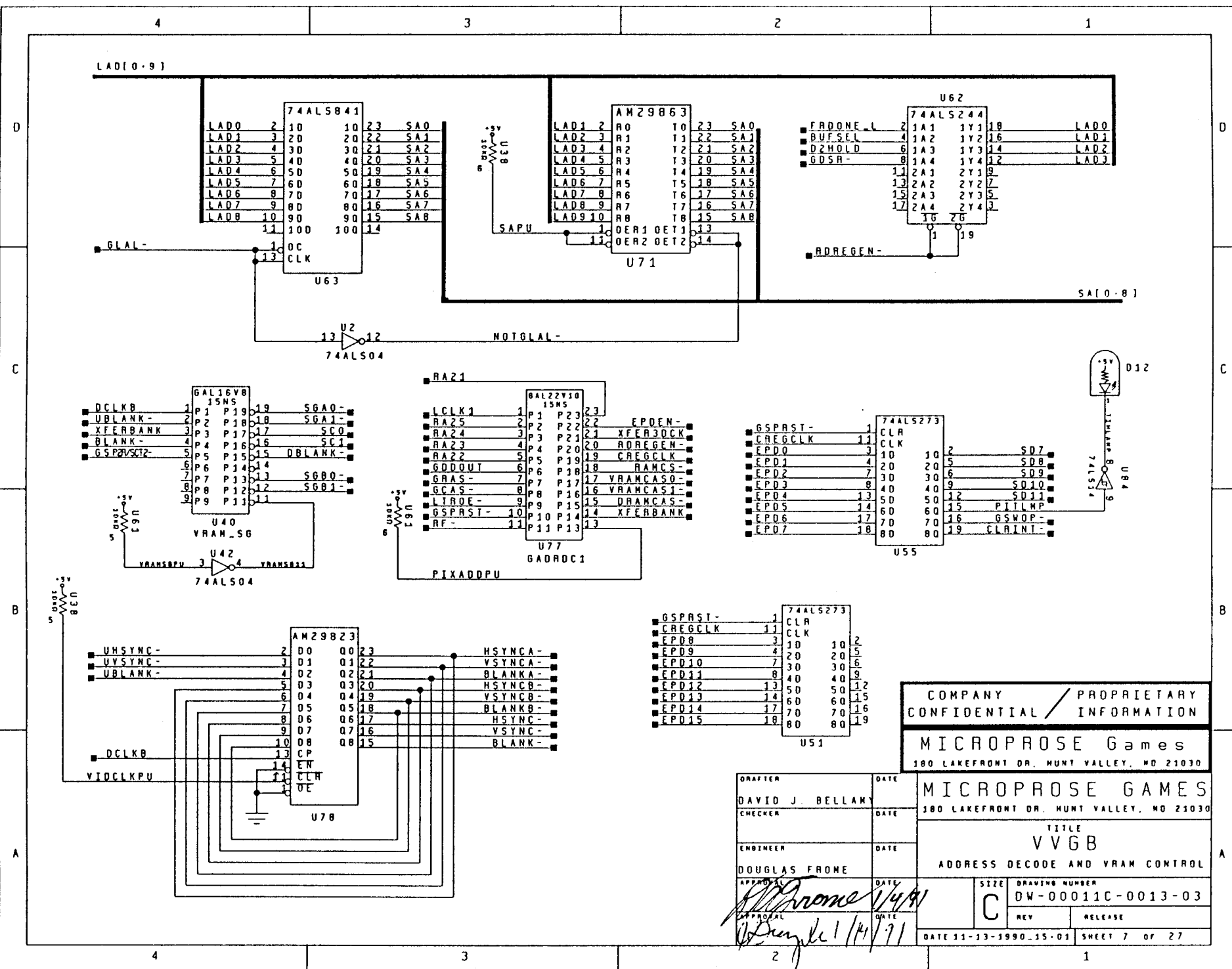


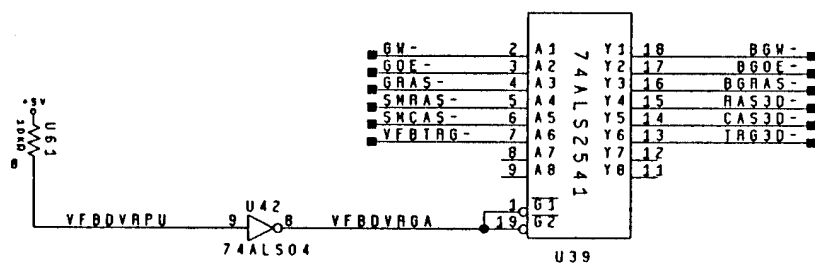
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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY	DATE 1/4/91
CHECKER	DATE
ENGINEER DOUGLAS FROME	DATE 1/1/91
APPROVAL <i>[Signature]</i>	DATE 1/1/91

MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
TITLE V VGB BOARD INTERCONNECTION AND POWER DECOUPLING	
SIZE C	DRAWING NUMBER DW-00011C-0013-03
REV	RELEASE
DATE 11-13-1990-13-52 SHEET 2 OF 27	

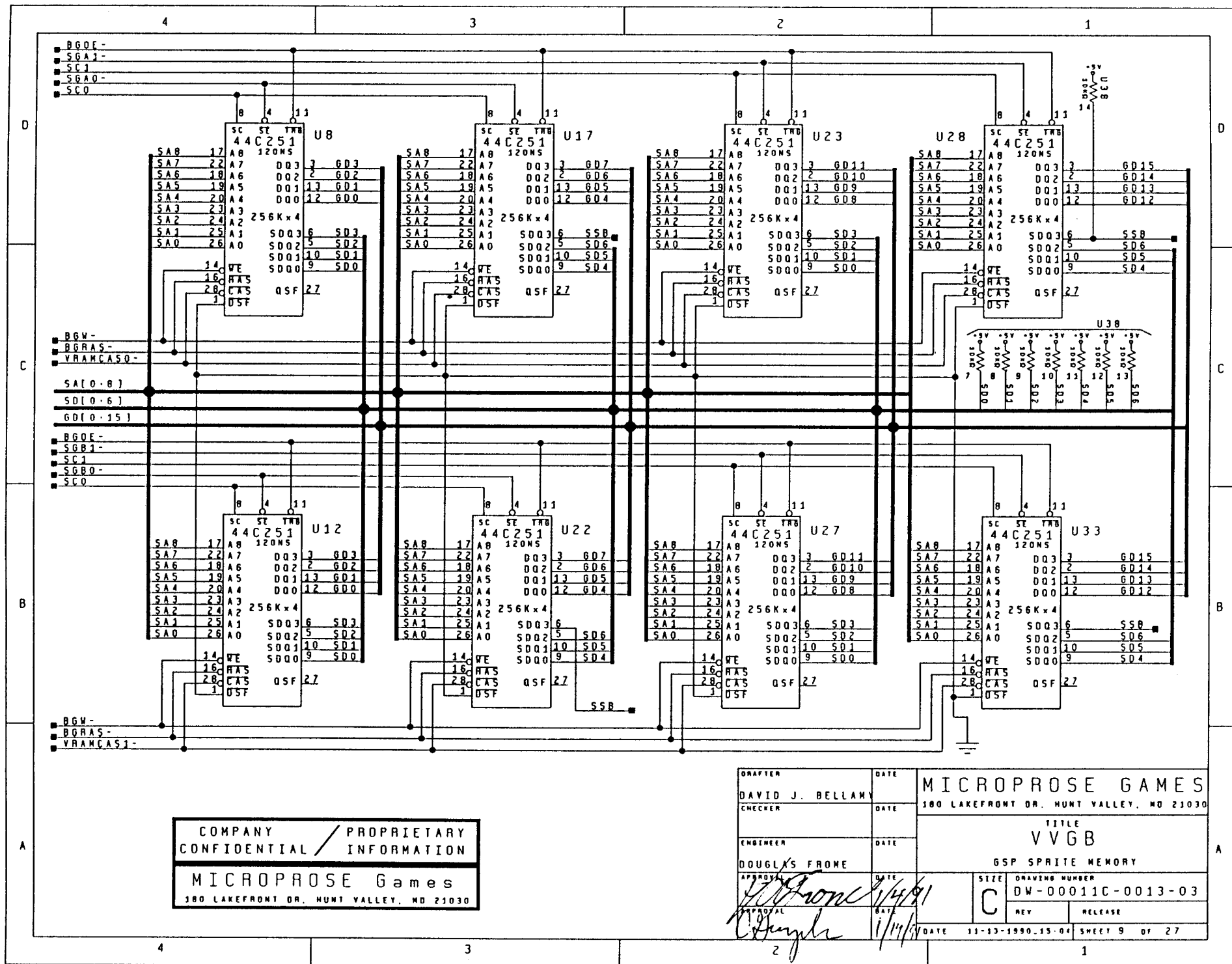


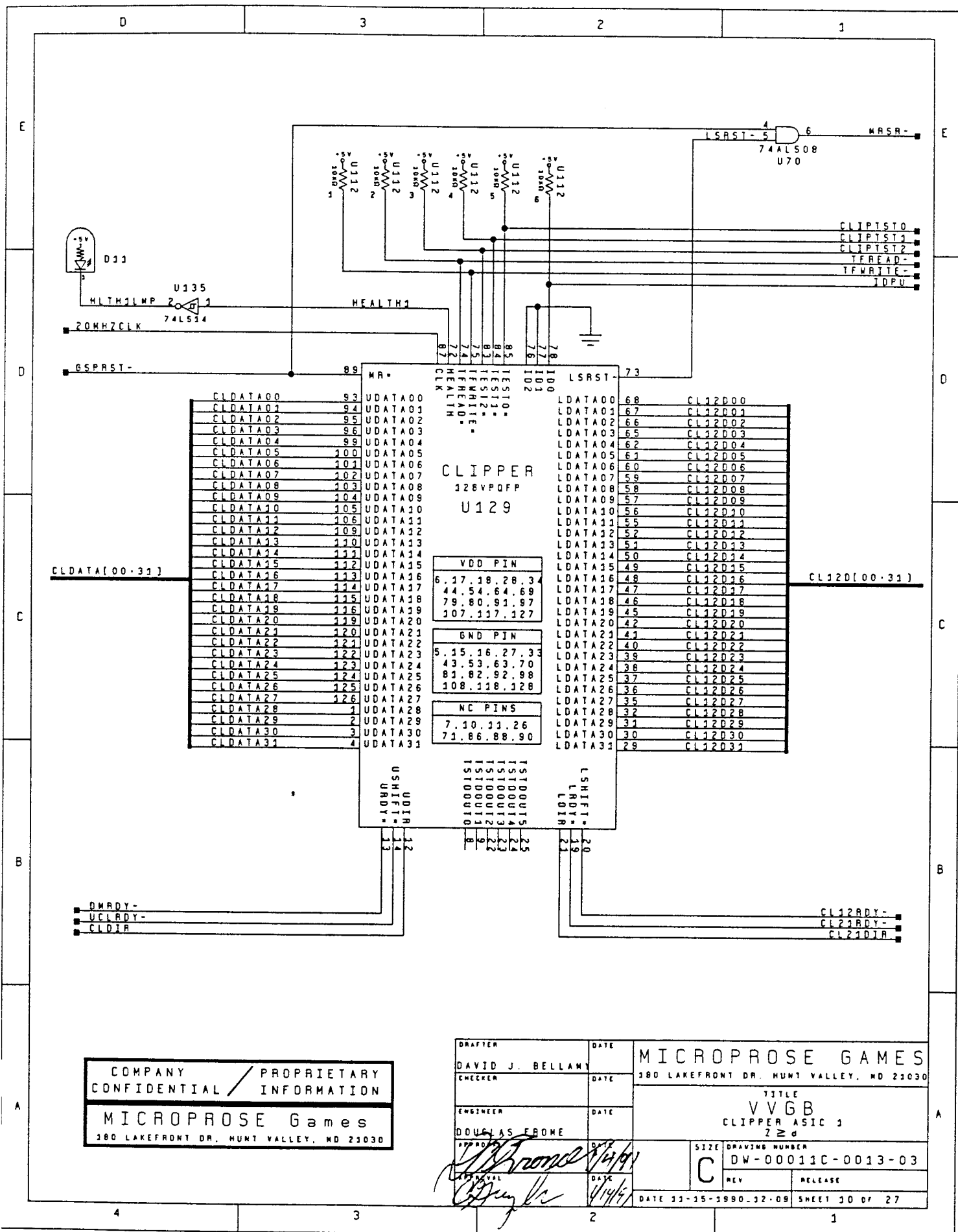




MICROPROSE Games
180 LAKEFRONT DR., HUNT VALLEY, MO 21030

DAFTER	DATE	MICROPROSE GAMES	
DAVID J. BELLAMY		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER	DATE	TITLE V V G B	
ENGINEER	DATE	GSP DRAM BANK	
DOUGLAS FROME		SIZE	DRAWING NUMBER
<i>[Signature]</i>	<i>1/4/91</i>	<i>C</i>	DW-00011C-0013-03
APPROVAL	DATE	REV	RELEASE
<i>[Signature]</i>	<i>1/11/91</i>		
		DATE 11-13-1990-15-03	SHEET 8 OF 27

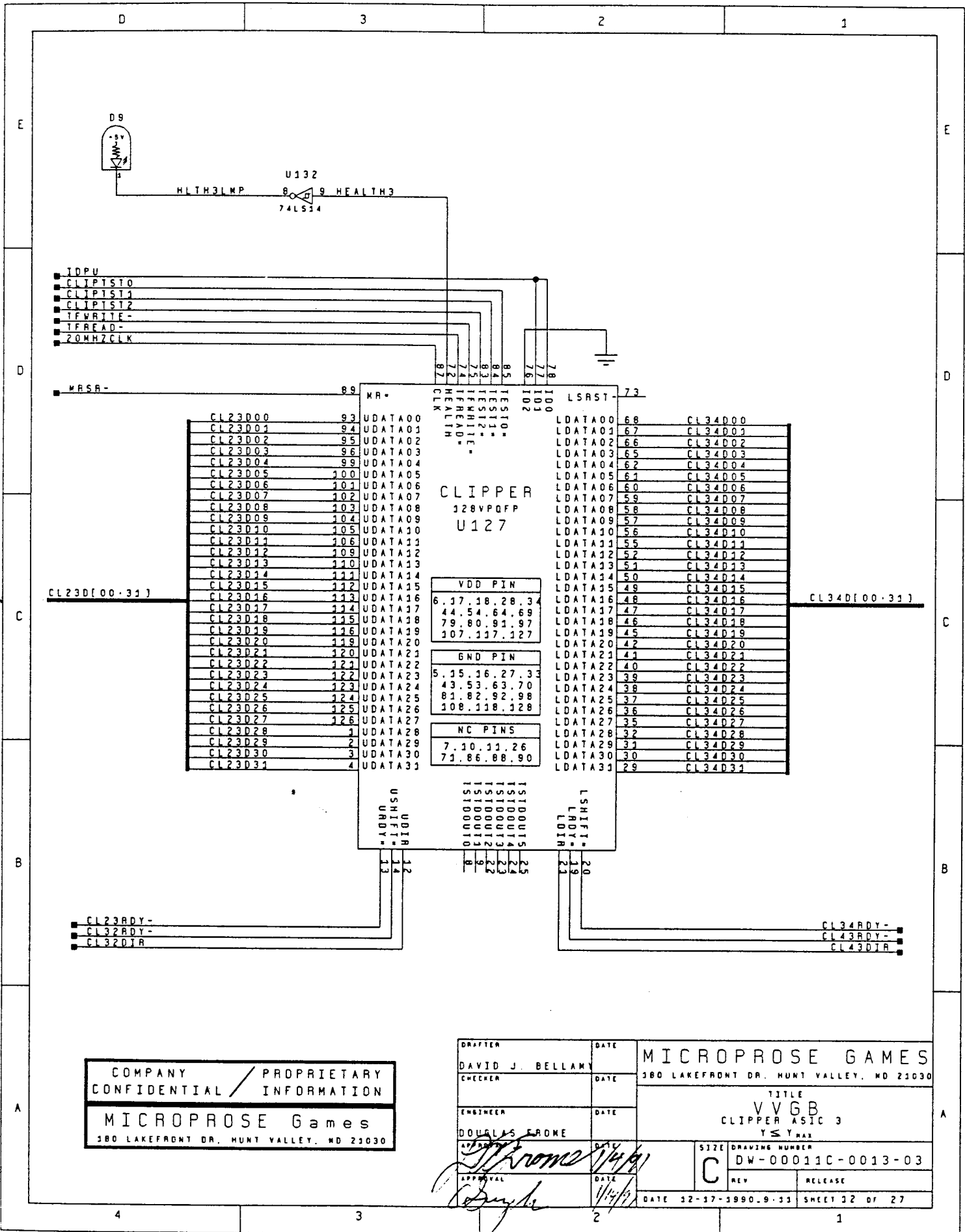




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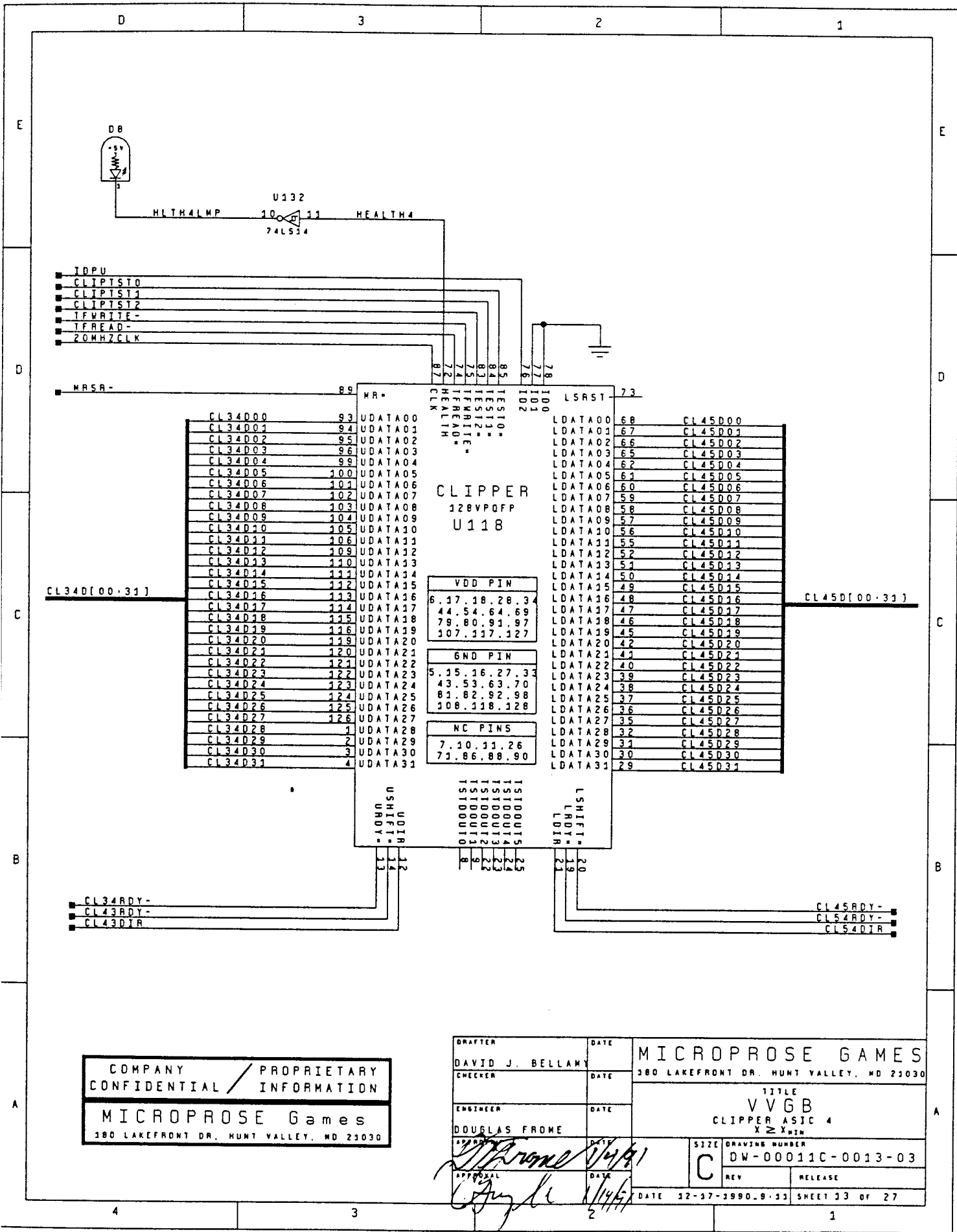
MICROPROSE Games
380 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER		DATE		380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE		TITLE V VGB CLIPPER ASIC 3 2nd	
DOUGLAS FROE		DATE		SIZE C	
APPROVAL <i>[Signature]</i>		DATE 4/4/91		DRAWING NUMBER DW-00011C-0013-03	
APPROVAL <i>[Signature]</i>		DATE 4/4/91		REV 1	
				RELEASE	
				DATE 11-15-1990.12-09	
				SHEET 10 OF 27	



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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

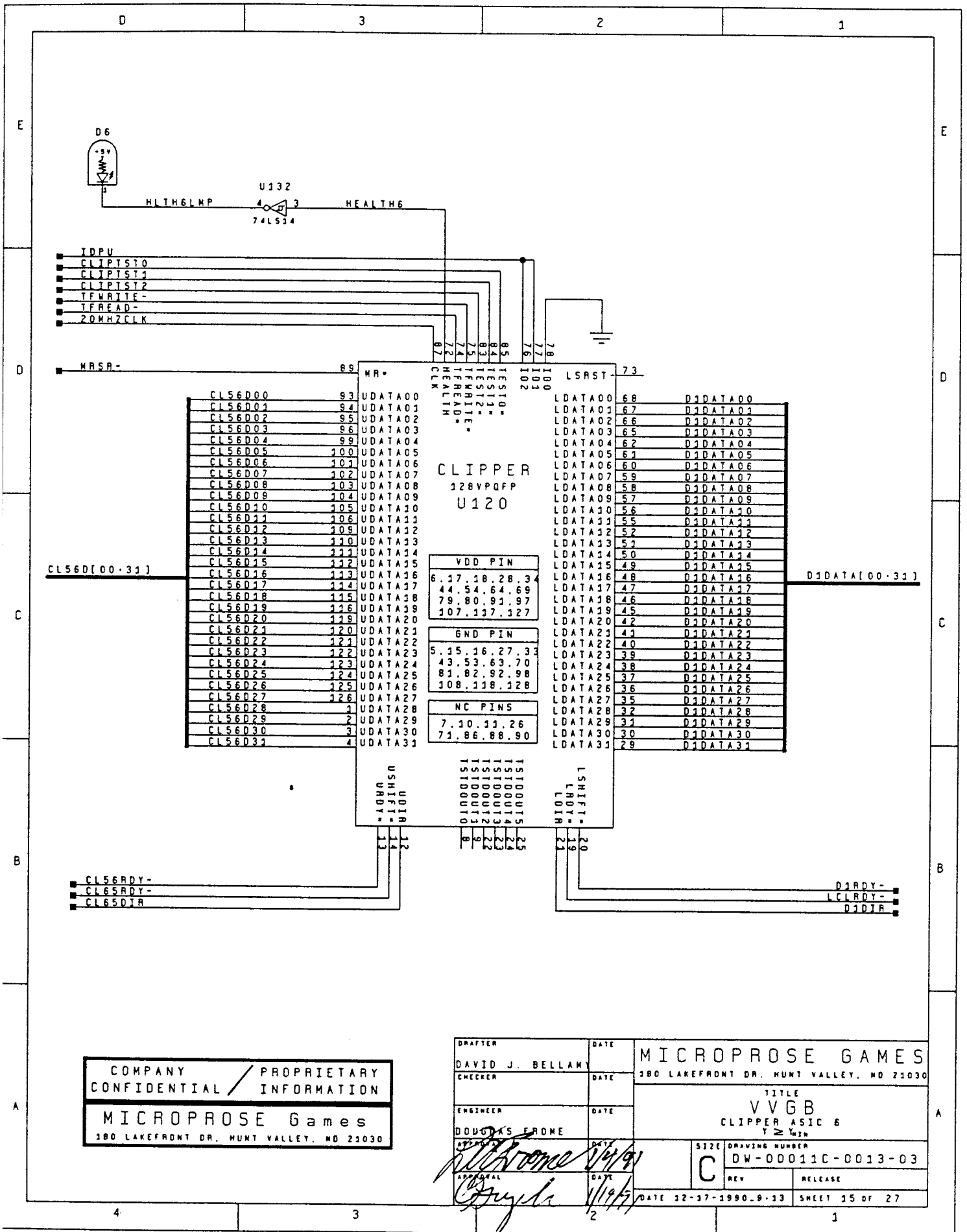
DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLAMY				180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
				V V G B	
ENGINEER		DATE		CLIPPER ASIC 3	
DOUGLAS FROME				Y ≤ Y MAX	
APPROVAL		DATE		SIZE	
<i>[Signature]</i>		1/4/91		C	
APPROVAL		DATE		DRAWING NUMBER	
<i>[Signature]</i>		1/4/91		DW-00011C-0013-03	
				REV	
				RELEASE	
				DATE 12-17-1990.9.33 SHEET 12 OF 27	



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CONFIDENTIAL / INFORMATION

MICROPROSE Games
380 LAKEFRONT DR. HUNT VALLEY, MD 21030

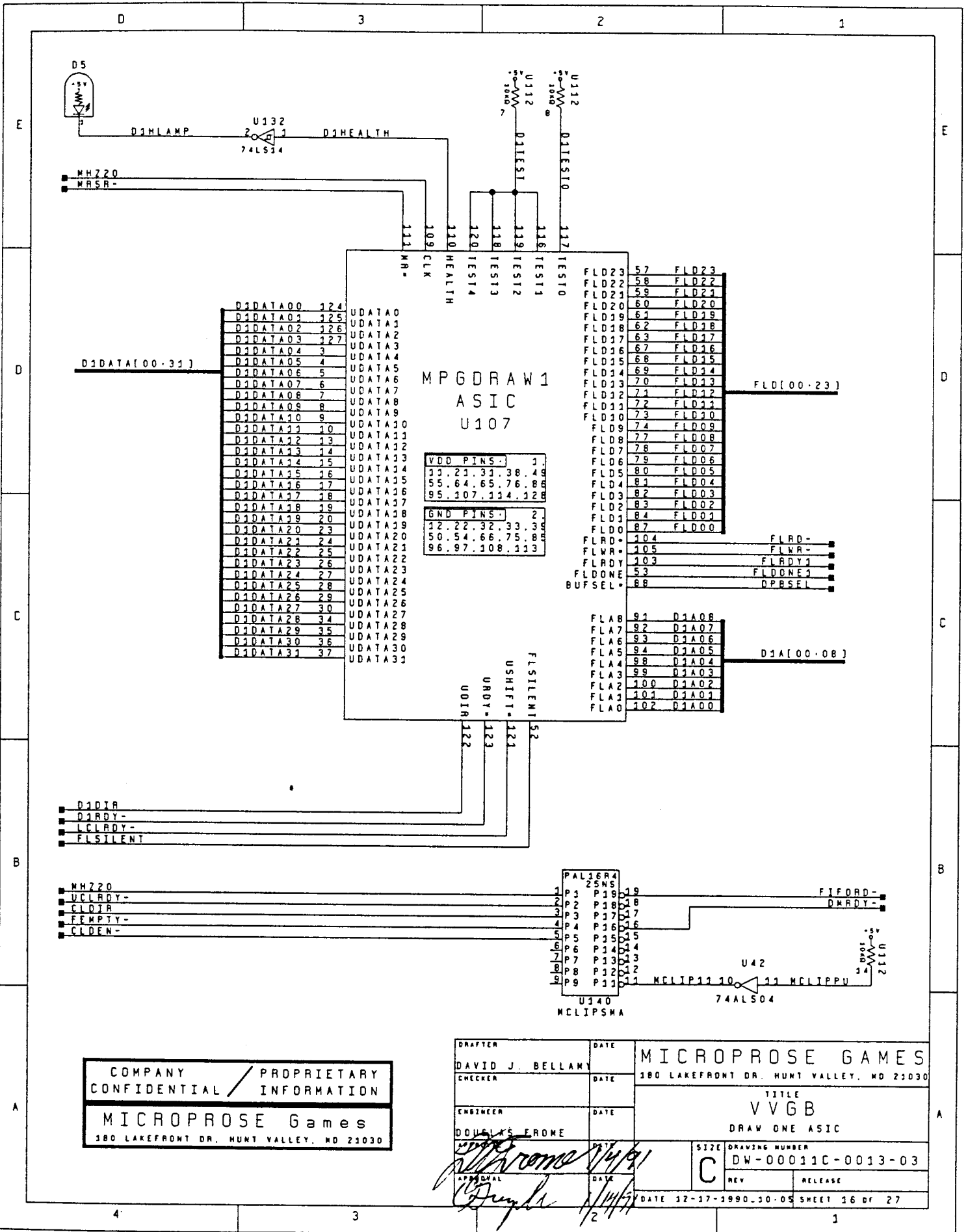
DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLAM				380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
				V V G B	
ENGINEER		DATE		CLIPPER ASIC 4	
DOUGLAS FROME				X ≥ XMIN	
APPROVAL		DATE		SIZE	DRAWING NUMBER
<i>[Signature]</i>		1/14/91		C	DW-00011C-0013-03
APPROVAL		DATE		REV	RELEASE
<i>[Signature]</i>		1/14/91			
DATE 12-17-1990.8-13				SHEET 13 OF 27	



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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

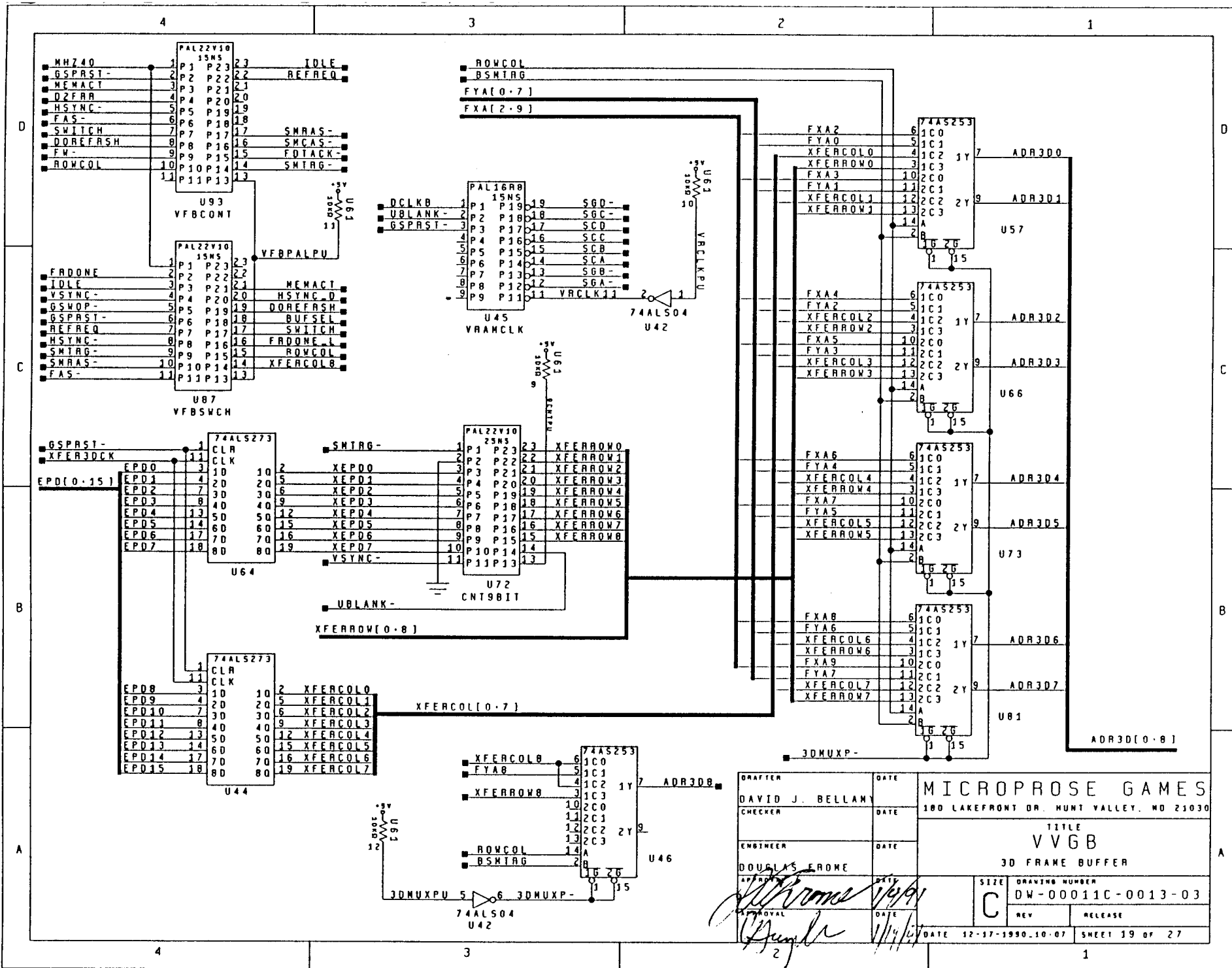
DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER DOUGLAS FROME		DATE		TITLE V VGB CLIPPER ASIC 6 Y ≥ Y _{MIN}	
APPROVAL <i>[Signature]</i>		DATE 1/19/91		SIZE C	
APPROVAL <i>[Signature]</i>		DATE 1/19/91		DRAWING NUMBER DW-00011C-0013-03	
				REV	
				RELEASE	
				DATE 12-17-1990.9-13	
				SHEET 15 OF 27	



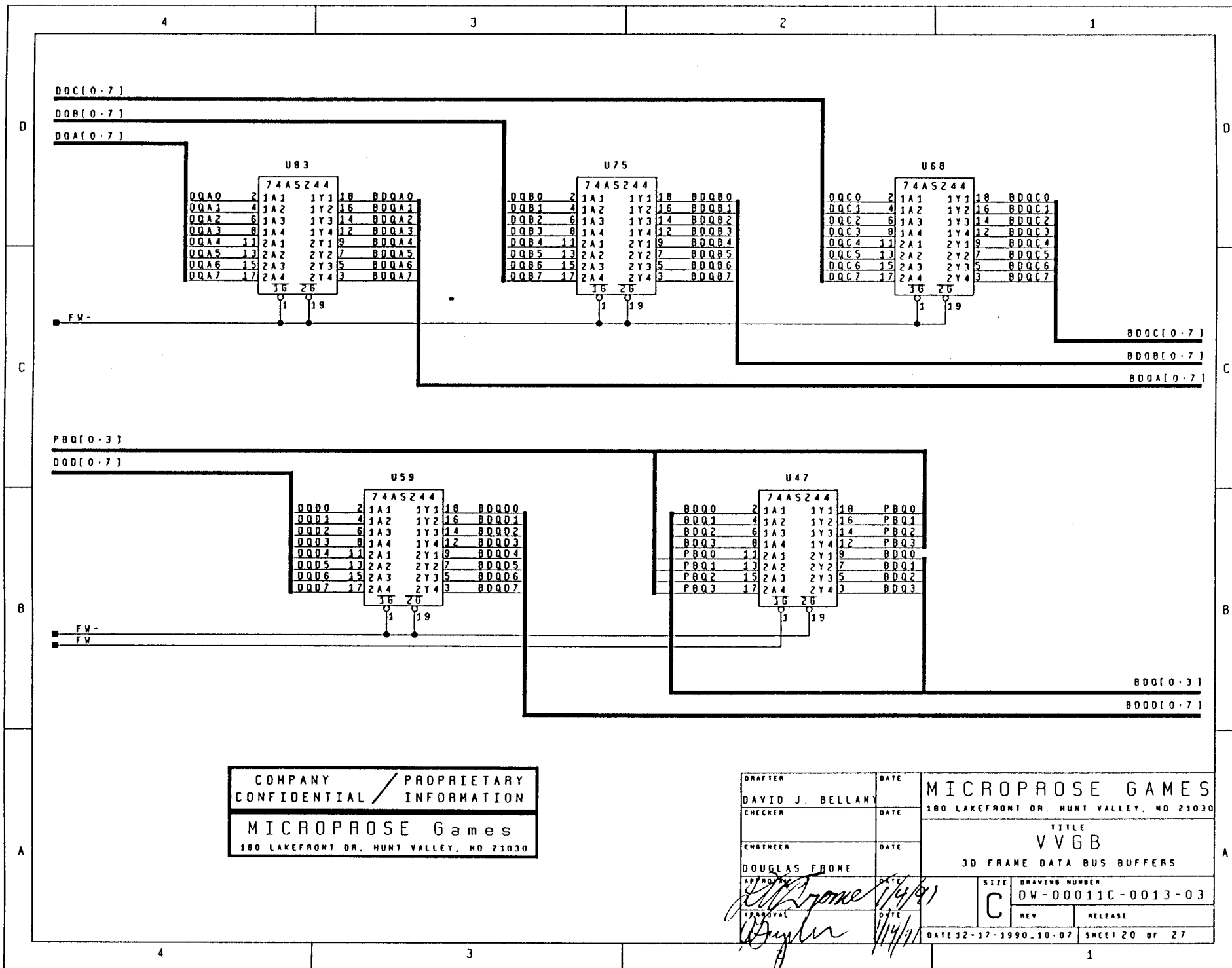
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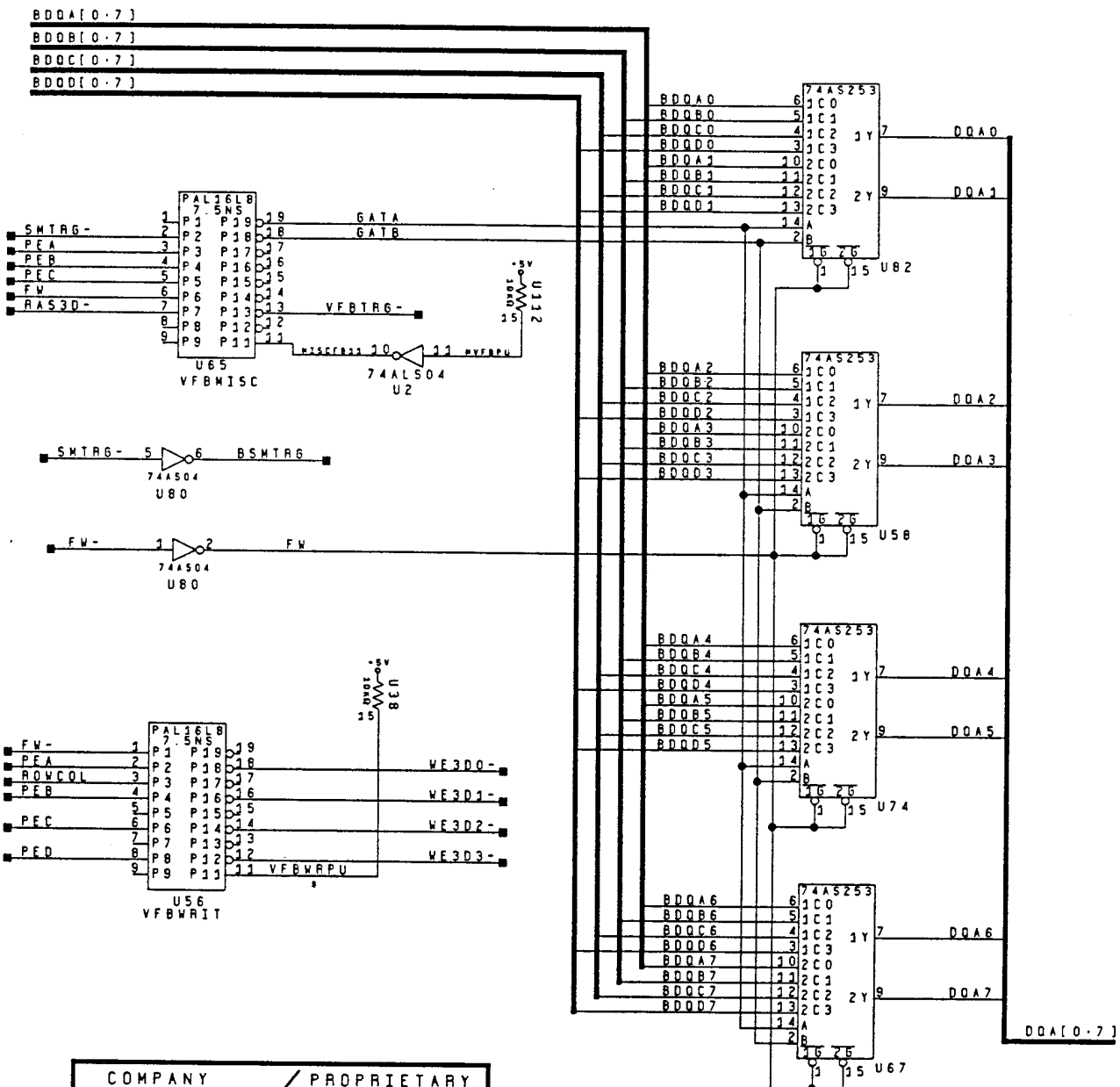
MICROPROSE Games
380 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE V VGB DRAW ONE ASIC	
ENGINEER DOUGLAS EROME		DATE		SIZE C	
APPROVAL <i>[Signature]</i>		DATE 1/4/91		DRAWING NUMBER DW-00011C-0013-03	
DATE 12-17-1990		SHEET 16 OF 27		RELEASE	



DRAFTER		DATE		MICROPROSE GAMES	
DAVID J. BELLAMY				180 LAKEFRONT DR. MOUNT VALLEY, MD 21030	
CHECKER		DATE		TITLE	
				V VGB	
ENGINEER		DATE		3D FRAME BUFFER	
DOUGLAS ERONE				SIZE	
APPROVAL		DATE		DRAWING NUMBER	
[Signature]		11/14/91		DW-00011C-0013-03	
APPROVAL		DATE		REV	
[Signature]		11/14/91		RELEASE	
DATE 12-17-1990-10-07				SHEET 19 OF 27	



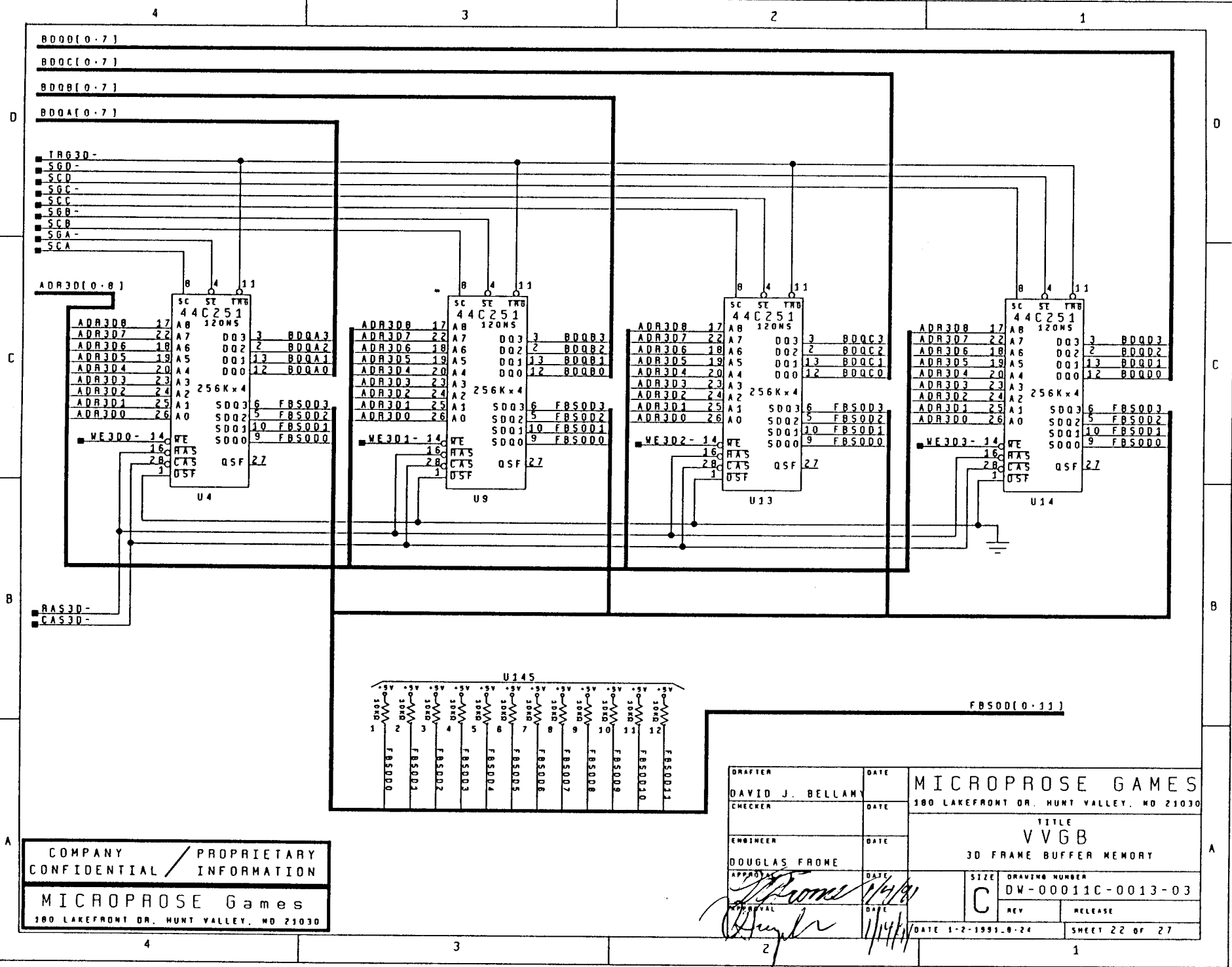


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MICROPROSE Games

380 LAKEFRONT DR. HUNT VALLEY, MD 21030

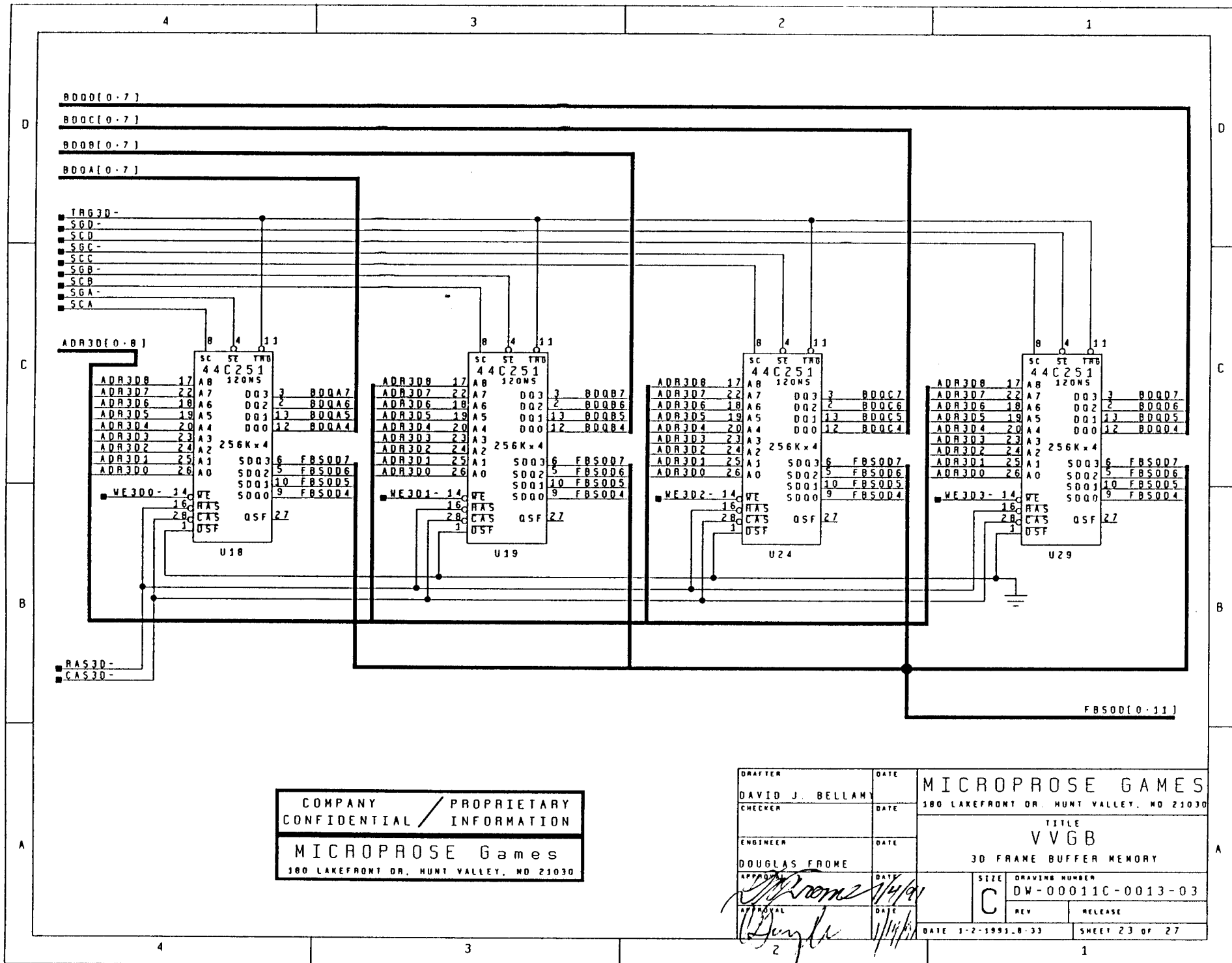
DRAFTER DAVID J. BELLAMY		DATE 1/4/91		MICROPROSE GAMES 380 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER		DATE			
ENGINEER DOUGLAS FROHE		DATE 1/4/91		TITLE VVGB VIDEO FRAME BUFFER READBACK	
APPROVAL <i>[Signature]</i>		DATE 1/4/91		SIZE C	
APPROVAL <i>[Signature]</i>		DATE 1/4/91		DRAWING NUMBER DW-00011C-0013-03	
DATE 12-17-1990-10-09				SHEET 21 OF 27	



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MICROPROSE Games
180 LAKEFRONT DR., HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE	
CHECKER		DATE	
ENGINEER		DATE	
DOUGLAS FROME		DATE	
APPROVAL <i>[Signature]</i>		DATE 1/4/81	
REVISION <i>[Signature]</i>		DATE 1/14/81	
MICROPROSE GAMES 180 LAKEFRONT DR., HUNT VALLEY, MD 21030			
TITLE VVG8 3D FRAME BUFFER MEMORY			
SIZE C		DRAWING NUMBER DW-00011C-0013-03	
REV		RELEASE	
DATE 1-2-1991-8-24		SHEET 22 OF 27	



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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MO 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MO 21030	
CHECKER		DATE			
ENGINEER DOUGLAS FROME		DATE		TITLE VVGB 3D FRAME BUFFER MEMORY	
APPROVAL <i>[Signature]</i>		DATE 1/4/91		SIZE C	
APPROVAL <i>[Signature]</i>		DATE 1/14/91		DRAWING NUMBER DW-00011C-0013-03	
DATE 1-2-1991-8-33				SHEET 23 OF 27	

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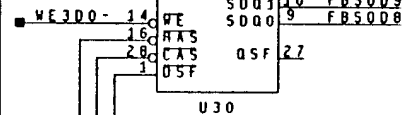
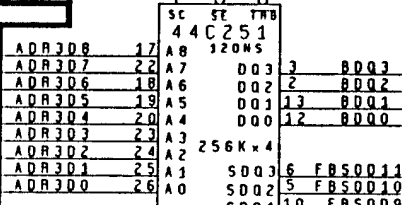
MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030

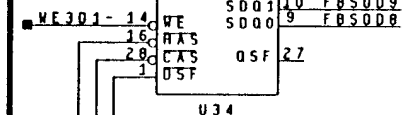
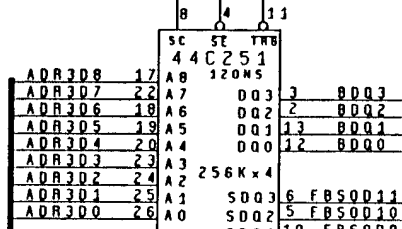
BDQ[0-3]

TRG3D-
SGD-
SCD-
SGC-
SCC-
SGB-
SCB-
SGA-
SCA

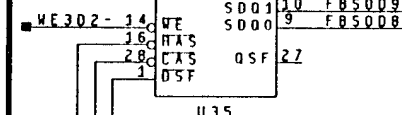
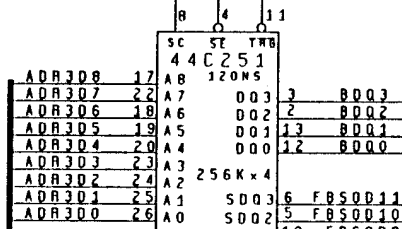
ADR3D[0-8]



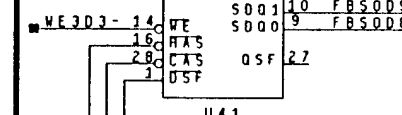
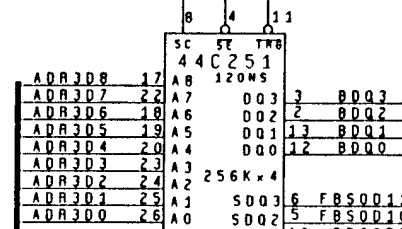
U30



U34



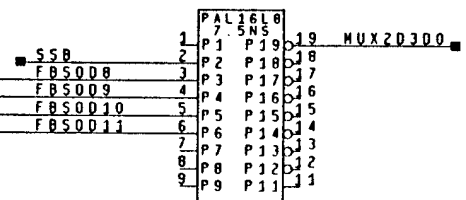
U35



U41

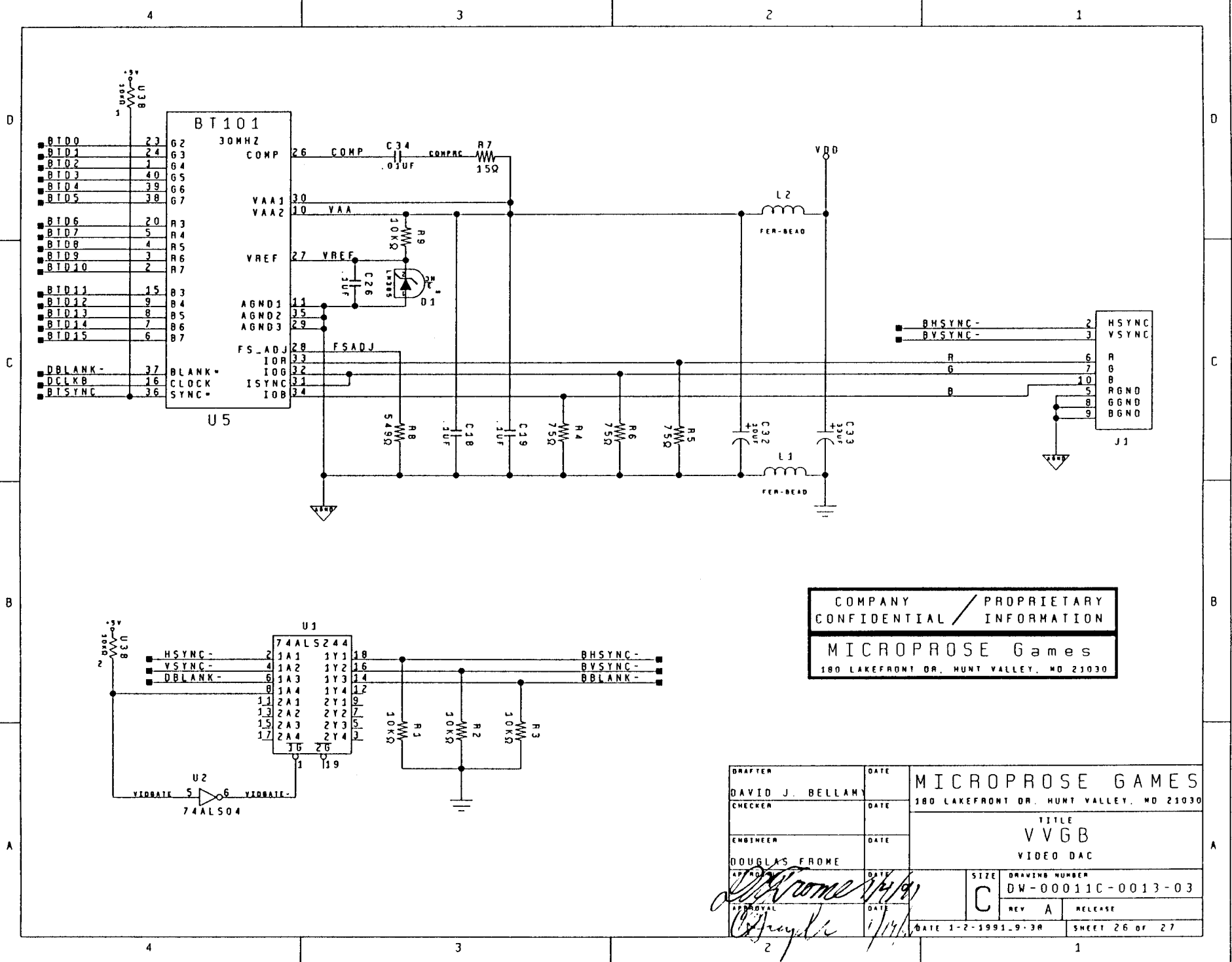
RAS3D-
CAS3D-

FBS0D[0-11]



U48
MUX2030A

DRAWN BY DAVID J. BELLAMY		DATE 1/4/91	MICROPROSE GAMES	
CHECKED BY DOUGLAS FROME		DATE 1/11/91	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER DOUGLAS FROME		DATE 1/11/91	TITLE VVGB	
APPROVED BY DOUGLAS FROME		DATE 1/11/91	3D FRAME BUFFER MEMORY	
APPROVED BY DOUGLAS FROME		DATE 1/11/91	SIZE C	DRAWING NUMBER DW-00011C-0013-03
			REV	RELEASE
			DATE 11-13-1990-17-48	SHEET 24 OF 27



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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER DAVID J. BELLAMY		DATE		MICROPROSE GAMES	
CHECKER		DATE		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE		TITLE VVGB	
DOUGLAS FROME		DATE		VIDEO DAC	
APPROVAL <i>[Signature]</i>		DATE 1/14/91		SIZE C	DRAWING NUMBER DW-00011C-0013-03
APPROVAL <i>[Signature]</i>		DATE 1/14/91		REV A	RELEASE
DATE 1-2-1991-9-3R				SHEET 26 OF 27	

CLDATA[00-31]

U141				
74AS244				
CLDATA04	2	1A1	1Y1	18 D04
CLDATA05	4	1A2	1Y2	16 D05
CLDATA06	6	1A3	1Y3	14 D06
CLDATA07	8	1A4	1Y4	12 D07
CLDATA00	11	2A1	2Y1	9 D00
CLDATA01	13	2A2	2Y2	7 D01
CLDATA02	15	2A3	2Y3	5 D02
CLDATA03	17	2A4	2Y4	3 D03

U142				
74AS244				
CLDATA12	2	1A1	1Y1	18 D12
CLDATA13	4	1A2	1Y2	16 D13
CLDATA14	6	1A3	1Y3	14 D14
CLDATA15	8	1A4	1Y4	12 D15
CLDATA08	11	2A1	2Y1	9 D08
CLDATA09	13	2A2	2Y2	7 D09
CLDATA10	15	2A3	2Y3	5 D10
CLDATA11	17	2A4	2Y4	3 D11

U143				
74AS244				
CLDATA16	2	1A1	1Y1	18 D16
CLDATA17	4	1A2	1Y2	16 D17
CLDATA18	6	1A3	1Y3	14 D18
CLDATA19	8	1A4	1Y4	12 D19
CLDATA20	11	2A1	2Y1	9 D20
CLDATA21	13	2A2	2Y2	7 D21
CLDATA22	15	2A3	2Y3	5 D22
CLDATA23	17	2A4	2Y4	3 D23

U144				
74AS244				
CLDATA24	2	1A1	1Y1	18 D24
CLDATA25	4	1A2	1Y2	16 D25
CLDATA26	6	1A3	1Y3	14 D26
CLDATA27	8	1A4	1Y4	12 D27
CLDATA28	11	2A1	2Y1	9 D28
CLDATA29	13	2A2	2Y2	7 D29
CLDATA30	15	2A3	2Y3	5 D30
CLDATA31	17	2A4	2Y4	3 D31

FIFOWR- R22 FIFOWRL
FIFORD-
GSPRST-
D[00-31]

U136				
AM7201 50NS				
D00	7	D0	Q0	10 CLDATA00
D01	6	D1	Q1	11 CLDATA01
D02	5	D2	Q2	13 CLDATA02
D03	4	D3	Q3	14 CLDATA03
D04	3	D4	Q4	19 CLDATA04
D05	30	D5	Q5	20 CLDATA05
D06	29	D6	Q6	21 CLDATA06
D07	28	D7	Q7	22 CLDATA07

U137				
AM7201 50NS				
D08	7	D0	Q0	10 CLDATA08
D09	6	D1	Q1	11 CLDATA09
D10	5	D2	Q2	13 CLDATA10
D11	4	D3	Q3	14 CLDATA11
D12	3	D4	Q4	19 CLDATA12
D13	30	D5	Q5	20 CLDATA13
D14	29	D6	Q6	21 CLDATA14
D15	28	D7	Q7	22 CLDATA15

U138				
AM7201 50NS				
D16	7	D0	Q0	10 CLDATA16
D17	6	D1	Q1	11 CLDATA17
D18	5	D2	Q2	13 CLDATA18
D19	4	D3	Q3	14 CLDATA19
D20	3	D4	Q4	19 CLDATA20
D21	30	D5	Q5	20 CLDATA21
D22	29	D6	Q6	21 CLDATA22
D23	28	D7	Q7	22 CLDATA23

U139				
AM7201 50NS				
D24	7	D0	Q0	10 CLDATA24
D25	6	D1	Q1	11 CLDATA25
D26	5	D2	Q2	13 CLDATA26
D27	4	D3	Q3	14 CLDATA27
D28	3	D4	Q4	19 CLDATA28
D29	30	D5	Q5	20 CLDATA29
D30	29	D6	Q6	21 CLDATA30
D31	28	D7	Q7	22 CLDATA31

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MICROPROSE Games
180 LAKEFRONT DR. HUNT VALLEY, MD 21030

DRAFTER
DAVID J. BELLAM
CHECKER
ENGINEER
DOUGLAS FROME
APPROVAL
DATE 1/14/91

MICROPROSE GAMES
180 LAKEFRONT DR. HUNT VALLEY, MD 21030
TITLE
VVGB
DR MATH TO CLIPPER FIFO MEMORY
SIZE
C
DRAWING NUMBER
DW-00011C-0013-03
REV
RELEASE
DATE 1-2-1991.9-51
SHEET 27 OF 27

1

7

3

5

3

MICROPROSE GAMES, 180 Lakefront Drive, Hunt Valley, Maryland 21030

PROJECT: Video Graphics PCB DRWG NO: PL-00011A-0013-003 REV:B

DATE: Wed 19-Dec-1990

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
1	*	4	AM7201-50JC U136,U137,U138,U139	512x9FIFO 50NS	222-00004-450
2	1	71922-010 J1	2X5HEADER	.100"	610-00800-010
3	3	11C1210X7R104K050NT C18,C19,C26	SMTCERCAP	0.1UF	401-02002-104
4	1	LM385BZ-1.2 D1	ZENER	1.2V	301-00001-012
5	1	11C1210X7R103K050NT C34	SMTCERCAP	0.01UF	401-02002-103
6	1	293D336X9016D2T C33	SMTTANTCAP	33UF	420-00163-336
7	1	BT101KC30 U5	VIDEODAC	30MHZ	245-00001-230
8	2	2743019446 L2,L1	FERRITEBD	75 OHM	595-00001-100
9	1	293D106X9016C2T C32	SMTTANTCAP	10UF	420-00162-106
10	1	CCF-50 15R0F R7	1%MFRES	15 OHM	503-00001-150
11	1	CCF-50 5490F R8	1%MFRES	549 OHM	503-00001-551
12	3	CCF-50 75R0F R6,R5,R4	1%MFRES	75 OHM	503-00001-750
13	4	CCF-50 1002F R9,R3,R2,R1	1%MFRES	10KOHM	503-00001-103
14	2	SN74ALS541N U7,U21	OCTDRVRS		200-00541-200
15	3	MC74F157AN U11,U26,U32	QUAD2:1MUX		203-00157-200
16	1	GAL16V8-15LP U65	VFBMISCA	15 NS	120-00002-010
17	2	SN74AS374N U6,U31	OCTREGISTER		201-00374-200

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
18	2	SN74AS574N U3,U16	OCTREGISTER		201-00574-200
19	* 4	VT20C69-35PC U10,U15,U20,U25	4Kx4SRAM	35NS	221-00002-235
20					
21	1	AmPAL16L8-7CN U56	VFBWRITC	7.5 NS	120-00002-211
22	1	SN74AS32N U36	HEX2-IN'OR'		201-00032-200
23	9	SN74AS244DW U47,U59,U68,U75,U83,U141,U143,U144,U142	SMT OCTBUFFERS		201-00244-100
24	1	GAL16V8-15LP U45	VRAMCLKA	15NS	120-00002-001
25	1	GAL22V10-15LP U93	VFBCONTA	15NS	120-00002-002
26	1	GAL22V10-15LP U87	VFBSWCHA	15NS	120-00002-003
27	9	SN74AS253DW U46,U57,U58,U67,U66,U73,U74,U81,U82	SMT DUAL4:1MUX		201-00253-100
28	1	GAL22V10-25LP U72	CNT9BITA	25NS	120-00002-004
29	* 1	MPGDRAW2 U105	DRAW2ASIC	40MHZ	100-TB001-340
30	1	SN74AS1034AN U89	HEXDRIVER		201-01034-200
31	* 3	IDT7130SA-35J U94,U106,U113	1Kx8DPSRAM	35NS	222-00002-435
32	1	GAL16V8-15LP U79	D1D2HSA	15NS	120-00002-005
33	1	GAL16V8-25LP U140	MCLIPSMA	25NS	120-00002-006
34	* 1	MPGDRAW1 U107	DRAW1ASIC	20MHZ	100-PK001-320
35	* 6	MPGCLIPPER U118,U119,U120,U127,U128,U129	CLIPPERASIC	20MHZ	100-MW001-320

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
36	* 20	HM534251ZP-12	256Kx4VRAM	120NS	222-00006-612
		U4,U8,U9,U12,U13,U14,U17,U18,U19,U22,U23,U25,U27, U28,U29,U30,U33,U34,U35,U41			
37	1	SN74ALS2541N	OCTDRVRW/SERRES		200-02541-200
		U39			
38	* 4	TMS44C256-12N	256Kx4DRAM	120NS	220-00002-212
		U37,U43,U50,U54			
39	1	AM29C863PC	9BITXCVR		235-00005-200
		U71			
40	2	SN74ALS244ADW	SMT OCTBUFFERS		200-00244-100
		U1,U62			
41	1	AM29C823ASC	SMT9BITLATCH		235-00004-100
		U78			
42	1	GAL16V8-15LP	VRAM_SGA	15NS	120-00002-007
		U40			
43	4	SN74ALS273N	OCTREGISTERS		200-00273-200
		U44,U51,U55,U64			
44	1	GAL22V10-15LP	GADRDC1A	15NS	120-00002-008
		U77			
45	1	AM29841APC	10BITLATCHES		235-00008-100
		U63			
46	1	GAL22V10-25LP	GADRDC0A	25NS	120-00002-009
		U86			
47					
48	1	LT1081-CN	RS232DRVR		235-00001-200
		U60			
49	1	22-05-7048	MOLEX4PIN	.100"	610-00601-004
		J3			
50	4	293D105X0016A2T	SMTTANTCAP	1UF	420-00060-105
		C68,C69,C70,C71			
51					
52	* 1	SCN2651CC1N28	UART		240-00002-200
		U69			
53	6	SN74ALS245ADW	SMT OCTXCVR		200-00245-100
		U98,U99,U102,U103,U109,U110			

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
54 D*	1	TMS34010FNL-40 U115	68PLCCGSP	40MHZ	135-34010-440
55	1	SN74ALS74N U53	DUAL DFLOPS		200-00074-200
56	1	SN74ALS08N U70	HEX2-IN'AND'		200-00008-200
57	3	SN74ALS373N U76,U85,U91	OCTLATCHES		200-00373-200
58	1	68001-502 J8, [J6,J10]	2PINJUMPER	.100"	610-00002-002
59	0	68001-503 [J2,J4,J5,J7,J9]	3PINJUMPER	.100"	610-00002-003
60	1	SN74AS04N U80	HEXINVERTER		201-00004-200
61	1	SN74LS393N U123	DUAL4BITBICNTR		202-00393-200
62	1	SN74AS74N U116	DUALDFLOPS		201-00074-200
63	6	CCF-07 100G R14,R15,R17,R18,R19,R21	2%MFRESISTOR	10 OHM	503-00002-100
64	1	X0-43D-40 U104	OSCILLATOR	40MHZ	290-00001-040
65	1	1N746A D2	ZENER	3.3V	301-00002-033
66	1	KSA1A211 SW1	PBSWITCH		625-00002-001
67	1	CCF-07 102G R10	2%MFRESISTOR	1KOHM	503-00002-102
68	1	CCF-07 820G R12	2%MFRESISTOR	82 OHM	503-00002-820
69	4	CCF-07 103G R11,R13,R16,R20	2%MFRESISTOR	10KOHM	503-00002-103
70	1	1N914 D3	DIODE		300-00002-003
71	1	LM311N U90	VOLTCOMP		280-00002-200

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
72	1	173D335X0020V C100	AXTANTCAP	3.3UF	422-00062-335
73	3	SN74LS14N U84,U132,U135	HEXSTINVERT		202-00014-200
74	3	SN74ALS04BN U2,U42,U49	HEXINVERTERS		200-00004-200
75	1	SN74ALS157N U125	QUAD2:1MUX		200-00157-200
76	0	XO-43D-50 U92	OSCILLATOR	50MHZ	290-00001-050
77	0	XO-43B-20 U131	OSCILLATOR	20MHZ	290-00001-020
78	4	SN74AS1004AN U100,U111,U117,U126	HEXINVDRVRS		201-01004-200
79	14	7-0805G-5 TP2,TP1,TP5,TP4,TP15,TP14,TP13,TP12,TP11,TP10,TP9, TP8,TP7,TP6	TESTPIN		710-00001-001
80	5	836C103X2PE U38,U61,U112,U122,U145	SMT PULRESPAK	10KOHM	502-00001-103
81	1	ICTE-5 D14	ZENER	5.0V	300-00001-002
82	1 0	26-60-5100 09-52-3102 P2	MOLEX10PIN	.156"	610-00601-010 610-10600-010
83	8	TAJ C156M010CR C3,C10,C58,C107,C123,C134,C154,C157	SMT TANTCAP	15UF	420-00002-156
84	88	11C1206Z5U104M050NT C1,C2,C4,C5,C7,C9,C13,C21,C28,C36,C41,C42,C45,C47,C48,C50,C52, C53,C54,C55,C56,C59,C60,C61,C63,C64,C65,C66,C67,C72,C73,C74, C75,C76,C77,C78,C79,C80,C81,C82,C83,C84,C85,C86,C87,C88,C89, C90,C91,C92,C93,C95,C96,C97,C98,C99,C101,C102,C103,C104,C106, C109,C110,C111,C113,C114,C115,C118,C119,C120,C124,C132,C133, C136,C137,C139,C140,C141,C143,C148,C153,C155,C156,C158,C159, C160,C161	SMT CERCAP	0.1UF	401-01000-104
85	10	HLMP3600 D4,D5,D6,D7,D8,D9,D10,D11,D12,D13	LED	RED	305-00003-002
86	1	71922-140 P3	2X20RA CONNECTR	.100"	610-00900-040

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
87	53	11C1206Z5U334M050NT	SMT CERCAP	0.33UF	401-02000-334
		C6,C11,C12,C14,C15,C16,C17,C20,C22,C23,C24,C25,C27,C29,C30,C31,C35,C37,C38,C39,C40,C43,C44,C46,C49,C51,C57,C62,C94,C105,C108,C112,C116,C117,C121,C125,C126,C127,C128,C129,C130,C131,C135,C138,C142,C144,C145,C146,C147,C149,C150,C151,C152			
88	A* 1	AM27C010-155DC	128Kx8EPROM	150NS	110-00002-101
		U101	VGBK0BY0.001		
89	A* 1	AM27C010-155DC	128Kx8EPROM	150NS	110-00002-102
		U108	VGBK0BY1.001		
90	A* 1	AM27C010-155DC	128Kx8EPROM	150NS	110-00002-103
		U114	VGBK1BY0.001		
91	A* 1	AM27C010-155DC	128Kx8EPROM	150NS	110-00002-104
		U97	VGBK1BY1.001		
92	A* 1	AM27C010-305DC	128Kx8EPROM	300NS	110-00002-105
		U124	VGBK2BY0.001		
93	A* 1	AM27C010-305DC	128Kx8EPROM	300NS	110-00002-106
		U121	VGBK2BY1.001		
94	A* 1	AM27C010-305DC	128Kx8EPROM	300NS	110-00002-107
		U130	VGBK3BY0.001		
95	A* 1	AM27C010-305DC	128Kx8EPROM	300NS	110-00002-108
		U133	VGBK3BY1.001		
96	A 0	2-644018-2	32PIN SOCKET	.600"	600-00003-632
		[UX97,UX101,UX108,UX114,UX121,UX124,UX130,UX133]			
97	B 0	ICO-324MTT	24PIN SOCKET	.300"	600-00001-324
		[UX72,UX77,UX86,UX87,UX93]			
98	C 5	ICO-320MTT	20PIN SOCKET	.300"	600-00001-320
		UX40,UX45,UX65,UX79,UX140			
99	D 1	PLCC-68-P-T	68PLCC SOCKET		602-00001-068
		UX115			
100	1	68686-102	SHUNT		715-00001-001
		FOR J8			
101	0	SRS8-12-01	SPACER	.750"	700-00001-031

ITEM	QTY	VENDOR PART NUMBER	PART DESC	VALUE	MPG P/N
		REF. DES.			
102	1	ZS5-120-02-L-D-615 P1	2x20CONNECTOR	.100"	610-00004-040
103	1	CCF-07 330G R22	2%MFRESISTOR	33 OHM	503-00002-330
104	** 0	AmPAL16L8-7CN U49	MUX2D3DA	7.5NS	120-00002-012

398					

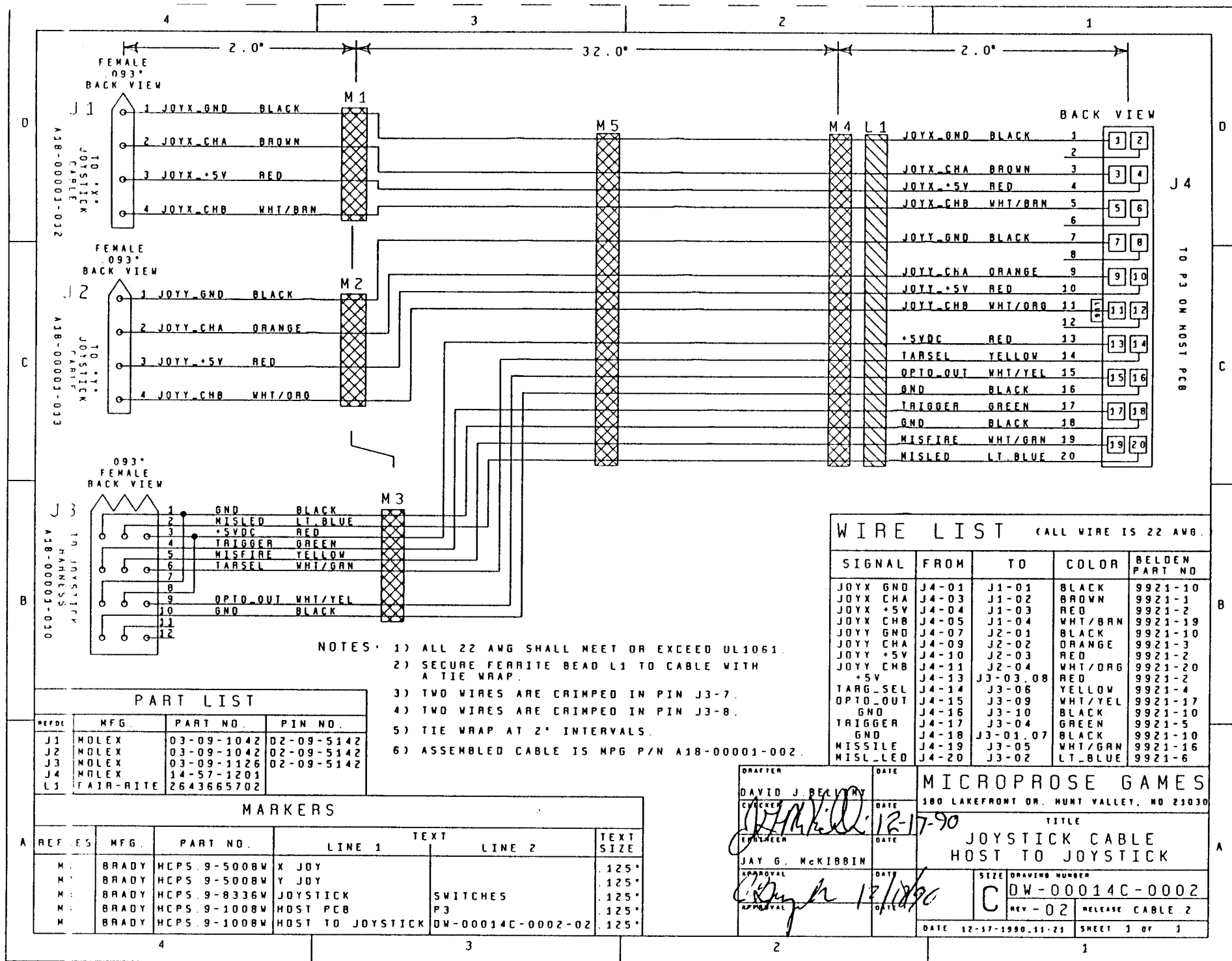
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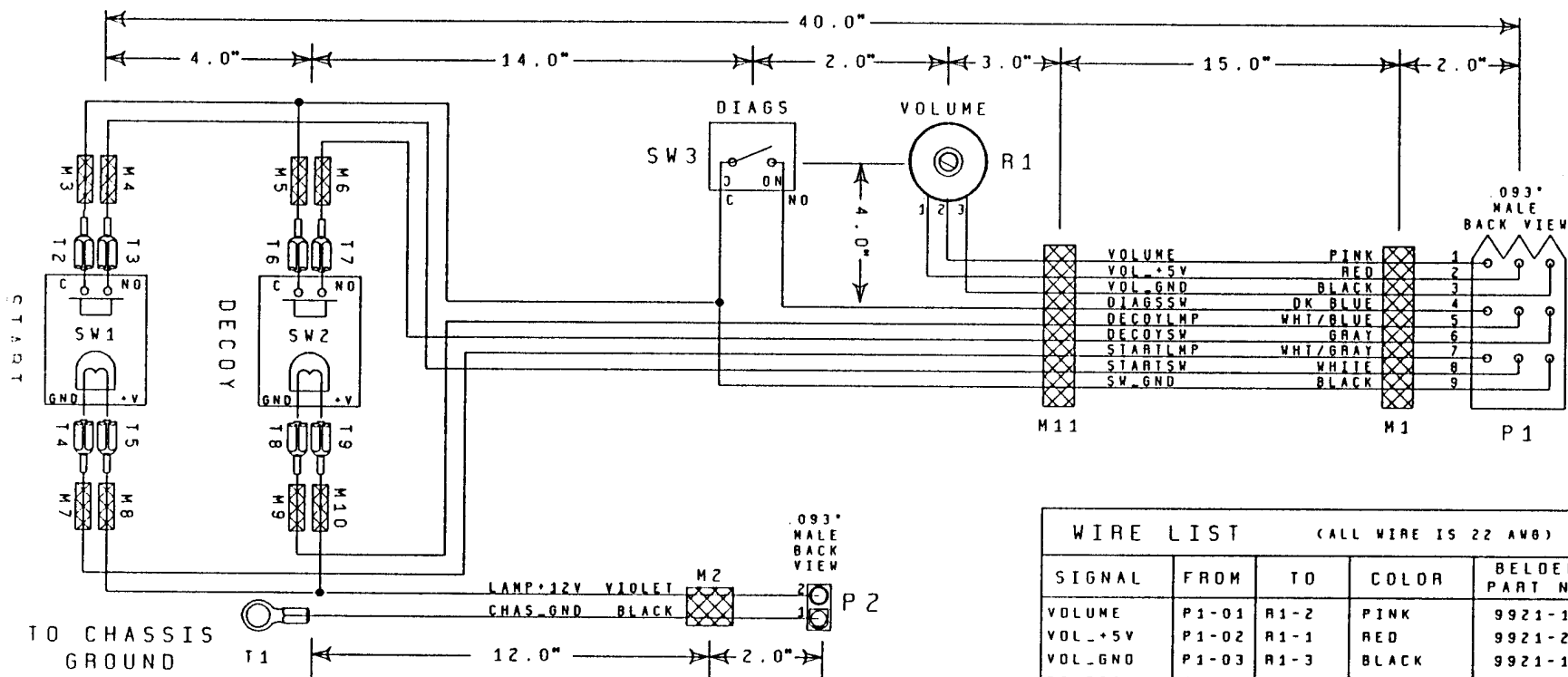
1. PARTS REQUIRING 0.33UF DECOUPLING CAPACITORS ARE DESIGNATED WITH AN ASTERISK (*) BETWEEN THE ITEM AND QTY COLUMNS.
2. PARTS REQUIRING SOCKETS ARE MARKED WITH A LETTER CORRESPONDING TO THE SOCKETS (SOCKETS ARE ITEMS 96 - 99).
3. ALL PARTS WITH A DOUBL ASTERISK (**) NEXT TO ITEM NUMBER ARE NOT POPULATED FOR THE CURRENT BUILD.

Dec 19. 1990

F15 CABLE AND HARNESS LIST

Drawing No.	Assembly No.	Name
DW-00014C-0002	A18-00001-002	JOYSTICK CABLE
DW-00014C-0003	A18-00001-003	PANEL CONTROL HARNESS
DW-00014C-0004	A18-00001-004	COIN DOOR
DW-00014C-0005	A18-00001-005	THROTTLE/PANEL
DW-00014C-0006	A18-00001-006	RS-232 CABLE
DW-00014C-0007	A18-00001-007	HOST TO VGB
DW-00014C-0008	A18-00001-008	LEFT SPEAKER CABLE
DW-00014C-0009	A18-00001-009	THROTTLE HARNESS
DW-00014C-0010	A18-00001-010	JOYSTICK HARNESS
DW-00014C-0011	A18-00001-011	RIGHT SPEAKER CABLE
DW-00014C-0012	A18-00002-001	DC POWER HARNESS
DW-00014C-0013		NOT USED
DW-00014C-0014	A18-00003-002	INPUT A.C. HARNESS
DW-00014C-0015	A18-00003-003	A.C. TRAY TO CABINET TOP
DW-00014C-0016	A18-00003-004	100 VOLT TRANSFORMER CABLE
DW-00014C-0017	A18-00003-005	120 VOLT TRANSFORMER CABLE
DW-00014C-0018	A18-00003-006	240 VOLT TRANSFORMER CABLE
DW-00014C-0019	A18-00003-007	TRANSFORMER ASSEMBLY
DW-00014C-0020	A18-00003-008	BILL ACCEPTOR CABLE
DW-00014C-0021		NOT USED
DW-00014C-0022		NOT USED
DW-00014C-0023	A18-00001-013	X JOYSTICK
DW-00014C-0024	A18-00001-012	Y JOYSTICK
DW-00014C-0025	A18-00003-010	DISPLAY CABLE
DW-00014C-0026	A18-00003-013	LOWER SHROUD HARNESS
DW-00014C-0027	A18-00002-002	D.C. FAN EXTENSION CABLE
DW-00014C-0028	A18-00003-014	MARQUEE A.C. LIGHT CONNECTOR
DW-00014C-0029	A18-00003-015	FLORESCENT LIGHT 'Y' CABLE
DW-00014C-0030	A18-00003-016	UPPER SHROUD HARNESS





WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
VOLUME	P1-01	R1-2	PINK	9921-12
VOL_+5V	P1-02	R1-1	RED	9921-2
VOL_GND	P1-03	R1-3	BLACK	9921-10
DIAGSSW	P1-04	SW3-NO	DK BLUE	9921-13
DECOYLAMP	P1-05	SW2-4	WHT/BLUE	9921-18
DECOYSW	P1-06	SW2-2	GRAY	9921-8
STARTLAMP	P1-07	T4	WHT/GRAY	9921-21
STARTSW	P1-08	T3	WHITE	9921-9
SW_GND	P1-09	SW3-C	BLACK	9921-10
		T6	BLACK	9921-10
LAMP+12V	T5	T9	VIOLET	9921-7
		T9	P2-2	9921-7
CHAS_GND	P2-1	T1	BLACK	9921-10

NOTES

- ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- SW1 & SW2 ARE SHOWN FOR REFERENCE ONLY.
- PLACE MARKERS M3 - M10 1" FROM PUSH-ON TERMINALS (T2 - T9).
- TIE WRAP AT 4" INTERVALS.
- MARKER M11 HAS TWO LINES OF TEXT.
- BREAKOUT DISTANCE FOR SW3 & R1 ARE THE SAME.
- ASSEMBLED HARNESS IS MPG P/N A18-00001-003.

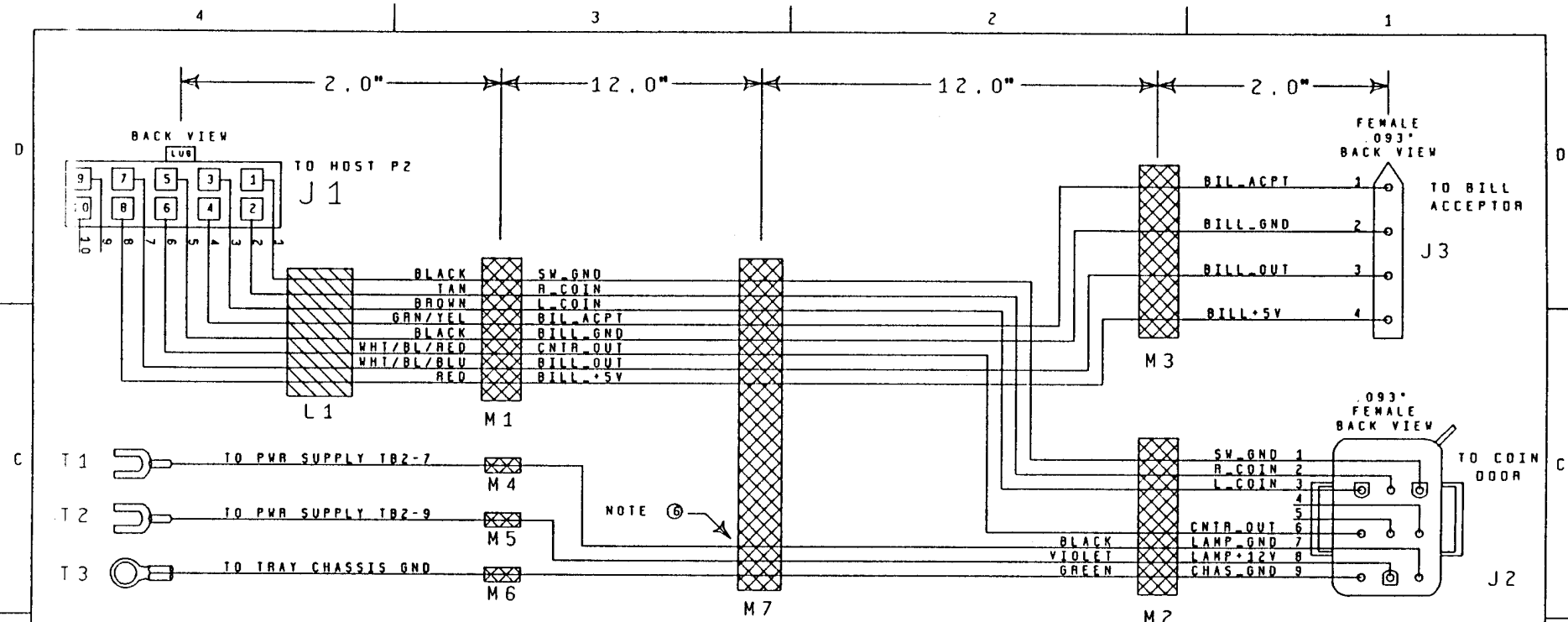
PARTS LIST

RE	DES	MFG	PART NO	PIN NO
P1		MOLEX	03-09-2092	02-09-6123
P2		MOLEX	19-09-2026	02-09-2118
T2 - T9		AMP	2-520184-4	
T1		AMP	2-520571-2	
R1		CLAROSTAT	RV4NAYS0502A	
SW1		SWITCHCRAFT	46202LR	

MARKER LIST

RE	DES	MFG	PART NO	TEXT SIZE	TEXT
M1		BRADY	HCPS.9-8336W	.125"	PANEL CONTROLS
M2		BRADY	HCPS.9-2508W	.125"	PWR SUPPLY
M3	M5	BRADY	HCPS.9-2508W	.125"	C
M4	M6	BRADY	HCPS.9-2508W	.125"	NO
M8	M10	BRADY	HCPS.9-2508W	.125"	12V
M7	M9	BRADY	HCPS.9-2508W	.125"	GND
M11		BRADY	HCPS1.9-8336W	.125"	LINE 1: PANEL CONTROL HARNESS LINE 2: DW-00014C-0003-02

DRAFTER DAVID J. BERRY 12-12-90		DATE 12-12-90		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKER JAY G. McKIBBIN 12/14/90		DATE 12/14/90		TITLE PANEL CONTROL HARNESS	
APPROVAL 12/14/90		DATE 12/14/90		SIZE C	
DRAWING NUMBER DW-00014C-0003		REV - 02		RELEASE CABLE 3	
DATE 12-13-1990 14:44		SHEET 3 OF 3			



NOTES

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) PLACE MARKERS M4 - M6 ONE INCH FROM RING TERMINALS (T1 - T3).
- 3) TIE WRAP AT INTERVALS OF FOUR INCHES.
- 4) MARKER M7 HAS TWO LINES OF TEXT.
- 5) SECURE FERRITE BEAD (L1) TO CABLE WITH WIRE TIE.
- 6) BREAKOUT WIRES TO T1 - T3 AND TIE WRAP SEPERATELY FROM M7 TO POWER SUPPLY TERMINALS.
- 7) ASSEMBLED CABLE IS MPG P/N A18-00001-004.

WIRE LIST

(ALL WIRE IS 22 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
SW_GND	J1-01	J2-1	BLACK	9921-10
R_COIN	J1-02	J2-2	TAN	9921-11
L_COIN	J1-03	J2-3	BROWN	9921-1
BILL_ACPT	J1-04	J3-1	GRN/YEL	9921-189
BILL_GND	J1-05	J3-1	BLACK	9921-10
CNTR_OUT	J1-06	J2-6	WHT/BL/RED	9921-23
BILL_OUT	J1-07	J3-3	WHT/BL/BLU	9921-26
BILL_+5V	J1-08	J3-4	RED	9921-02
LAMP_GND	T1	J2-7	BLACK	9921-10
LAMP+12V	T2	J2-8	VIOLET	9921-7
CHAS_GND	T3	J2-9	GREEN	9921-5

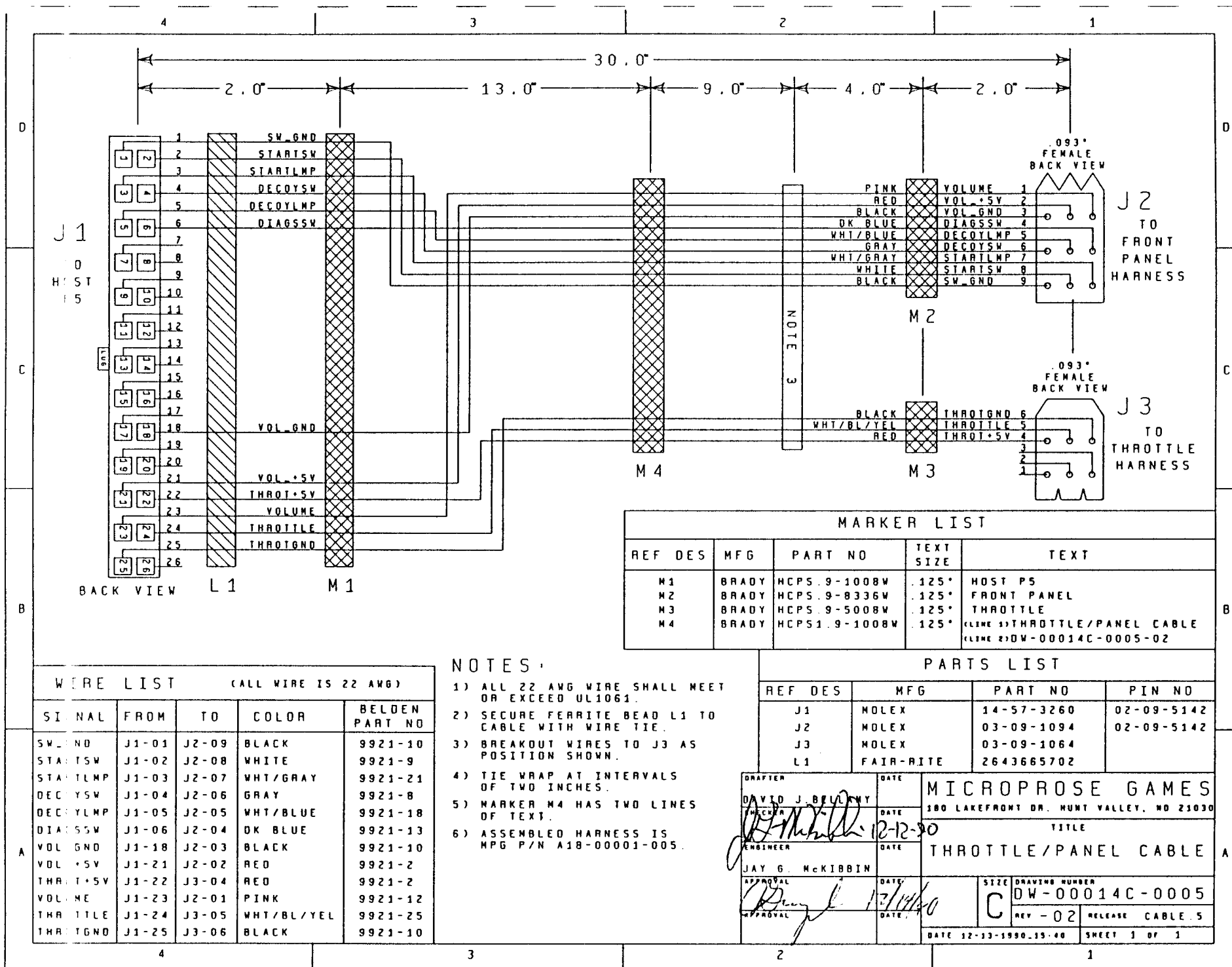
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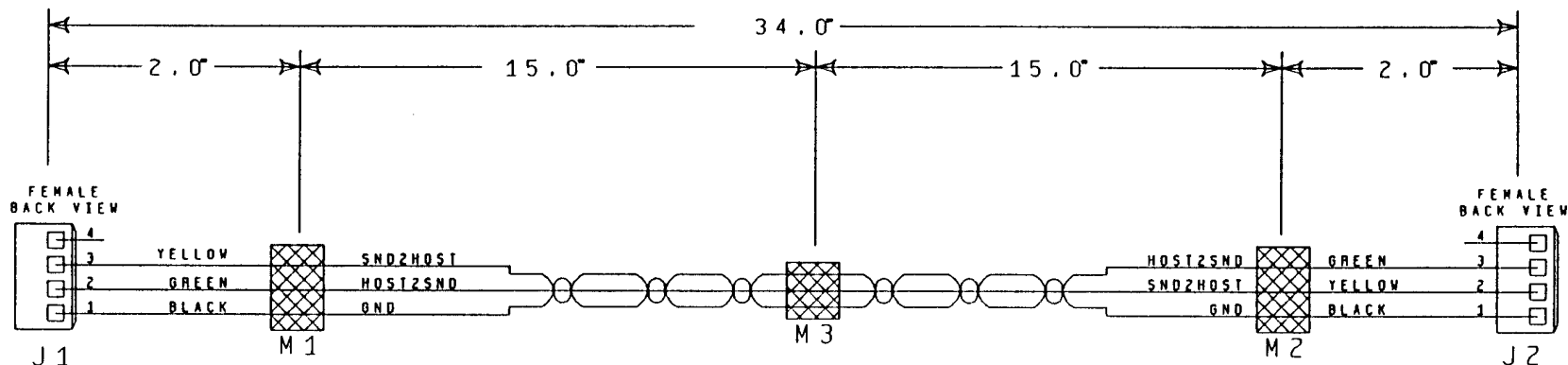
REF	DES	MFG	PART NO	PIN NO
J1		MOLEX	14-57-1101	
J2		AMP	1-480706-0	350851-1
J3		MOLEX	19-09-1046	02-09-1117
T1 - T3		MOLEX	AA-234-08X	
L1		FAIR-RITE	2643540002	

MARKER LIST

REF	DES	MFG	PART NO	TEXT SIZE	TEXT
1		BRADY	HCPS.9-1008W	.125"	HOST P2
2		BRADY	HCPS.9-8336W	.125"	COIN DOOR
3		BRADY	HCPS.9-5008W	.125"	BILL ACCEPTOR
4		BRADY	HCPS.9-2508W	.125"	T82-7
5		BRADY	HCPS.9-2508W	.125"	T82-9
6		BRADY	HCPS.9-2508W	.125"	CHASSIS GND
7		BRADY	HCPS1.9-1008W	.125"	(LINE 1) COIN DOOR CABLE
					(LINE 2) DW-00014C-0004-02

DRAFTER DAVID J. BELLEAU		DATE 12-12-90	
CHECKER <i>[Signature]</i>		DATE 12-12-90	
DESIGNER JAY G. McKIBBIN		DATE 12/14/90	
APPROVAL <i>[Signature]</i>		DATE 12-13-1990-14-98	
MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030 TITLE COIN DOOR CABLE SIZE C DRAWING NUMBER DW-00014C-0004 REV - 02 RELEASE CABLE 4			
DATE 12-13-1990-14-98		SHEET 4 OF 3	





WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
GND	J1-01	J2-01	BLACK	9921-10
HOST2SND	J1-02	J2-03	GREEN	9921-5
SND2HOST	J1-03	J2-02	YELLOW	9921-4

PARTS LIST			
REF DES	MFG	PART NO	PIN NO
J1	MOLEX	22-01-2041	08-50-0114
J2	MOLEX	22-01-2041	08-50-0114

MARKER LIST				
REF DES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-5008W	.125"	HOST J1
M2	BRADY	HCPS.9-5008W	.125"	SND BRD J1
M3	BRADY	HCPS1.9-5008W	.125"	(LINE 1) RS-232 CABLE #1 (LINE 2) DW-00014C-0006-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M3 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED BETWEEN MARKERS M1 AND M2.
- 5) ASSEMBLED CABLE IS MPG P/N A18-00001-006.

DRAFTER DAVID J. BERNARDY		DATE 12-10-80		MICROPROSE GAMES	
DESIGNER JAY G. McKIBBIN		DATE 12/15/80		180 LAKEFRONT DR. MOUNT VALLEY, MD 21030	
APPROVAL [Signature]		DATE 12/15/80		TITLE RS-232 CABLE #1	
APPROVAL [Signature]		DATE 12/15/80		SIZE C	
				DRAWING NUMBER DW-00014C-0006	
				REV - 02 RELEASE CABLE 6	
				DATE 12-11-1990 10:36 SHEET 1 OF 1	

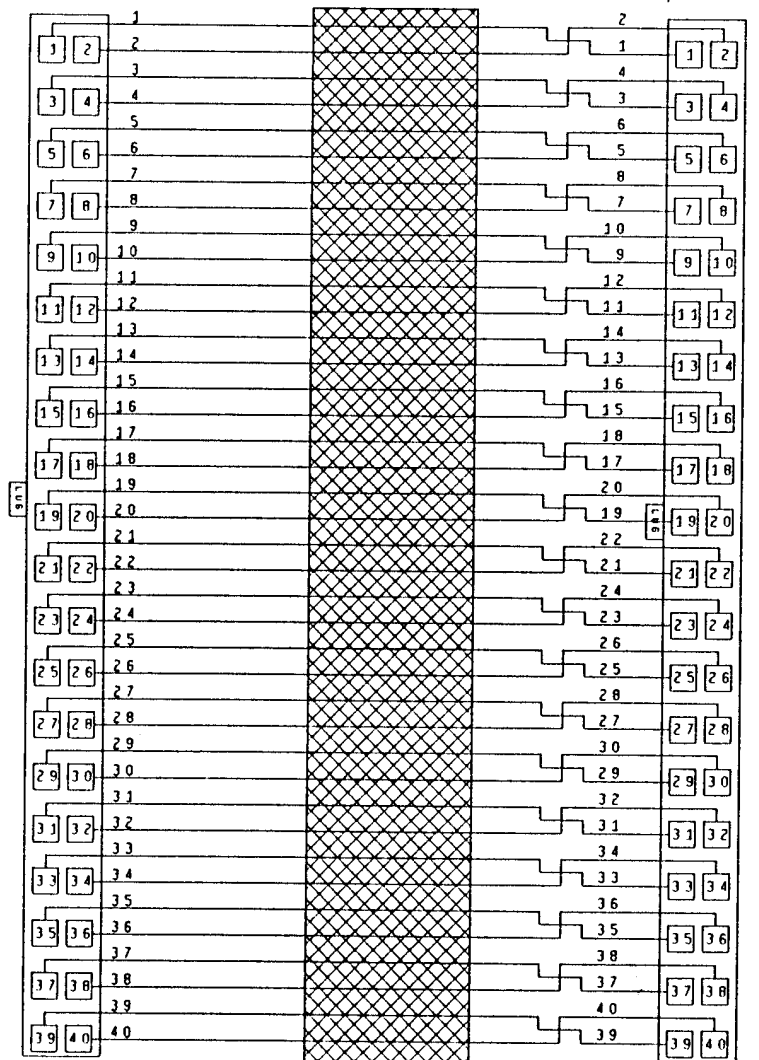
4

3

2

1

1.5"



BACK VIEW

M 1

BACK VIEW

MARKER LIST

REF DES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	DAT-9-292	.125"	(LINE 3) HOST TO VGB (LINE 2) DW-00014C-0007-02

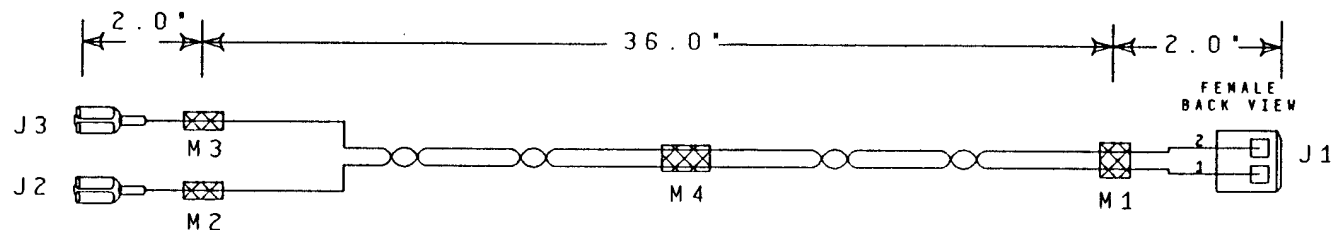
PARTS LIST

REF DES	MFG	PART NO	PIN NO
J1	DUPONT	71602-040	
J2	DUPONT	71602-040	
CABLE	3-M	3365/40	

NOTES:

- 1) ALL 28 AWG RIBBON CABLE SHALL MEET OR EXCEED UL2651.
- 2) MARKER M1 HAS TWO LINES OF TEXT.
- 3) DISTANCE SPECIFIED BETWEEN J1 AND J2 IS MEASURED BETWEEN THE INSIDE EDGES OF J1 AND J2 AFTER ASSEMBLY.
- 4) ASSEMBLED CABLE IS MPG P/N A18-00001-007.

DRAFTER DAVID J. BELLAMY		DATE 12-10-90		MICROPROSE GAMES	
CHECKER JAY G. McKIBBIN		DATE 2/13/91		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL [Signature]		DATE 2/13/91		TITLE HOST TO VGB RIBBON CABLE A	
[Signature]		DATE 2/13/91		SIZE C	
[Signature]		DATE 2/13/91		DRAWING NUMBER DW-00014C-0007	
[Signature]		DATE 2/13/91		REV - 02 RELEASE CABLE 7	
[Signature]		DATE 2/13/91		DATE 11-27-1990-17-29 SHEET 7 OF 1	



WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
L AUDIO	J1-01	J2	WHT/RED	9921-15
GND	J1-02	J3	BLACK	9921-10

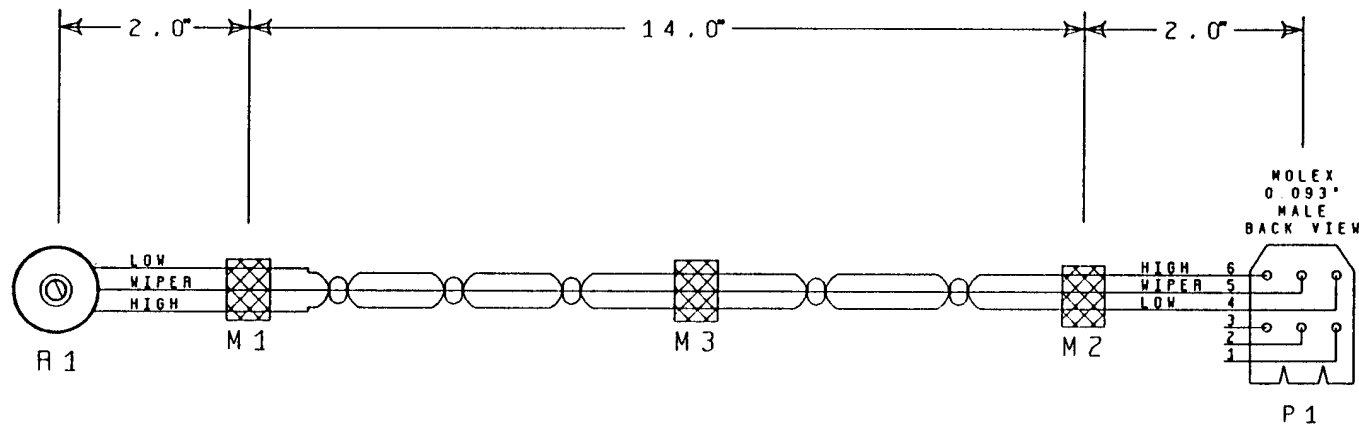
PARTS LIST			
REF DES	MFG	PART NO	PIN NO
J1	MOLEX	22-01-2021	08-50-0114
J2, J3	AMP	2-520181-4	

MARKER LIST				
REF DES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS 9-3758W	.125"	SOUND BD J5
M2	BRADY	HCPS 9-2508W	.125"	L SPKR +
M3	BRADY	HCPS 9-2508W	.125"	L SPKR -
M4	BRADY	HCPS 1.9-3758W	.125"	(LINE 1) LEFT SPEAKER CABLE (LINE 2) DW-00014C-0008-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M4 HAS TWO LINES OF TEXT.
- 4) TWIST WIRE PAIR AND TIE WRAP AT 4" INTERVALS.
- 5) ASSEMBLED CABLE IS MPG P/N A18-00001-0008

DRAFTER DAVID J. BELLAMY		DATE 12-10-90		MICROPROSE GAMES	
CHECKED <i>[Signature]</i>		DATE 12-10-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE 12-13-90		TITLE LEFT SPEAKER CABLE	
APPROVAL <i>[Signature]</i>		DATE 12-13-90		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00014C-0008	
				REV - 02 RELEASE CABLE 8	
DATE 12-11-1990.10-07				SHEET 1 OF 1	



WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
LOW	R1-01	P1-04	BLACK	9921-10
WIPER	R1-02	P1-05	WHITE	9921-9
HIGH	R1-03	P1-06	RED	9921-2

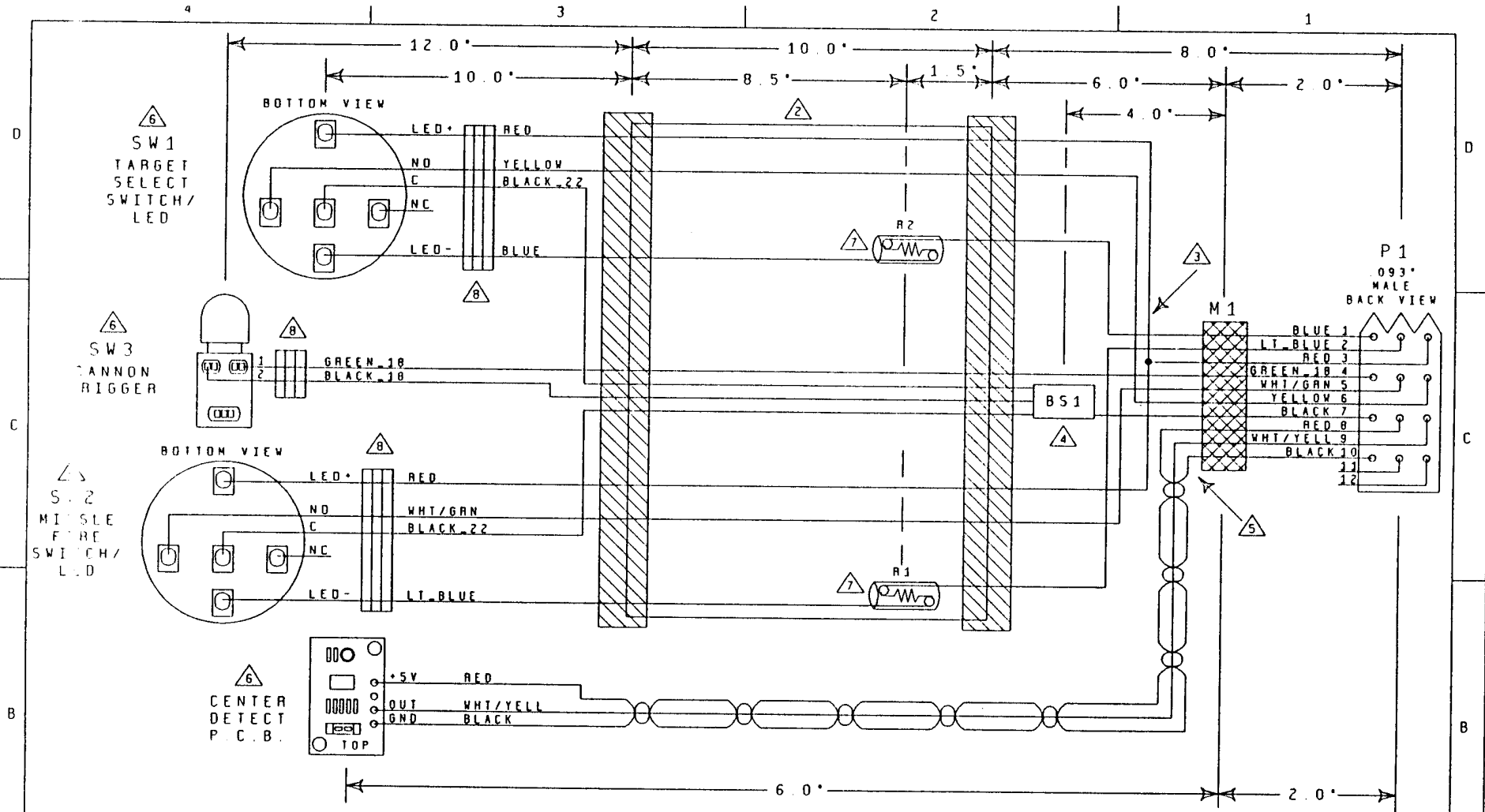
NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M3 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED BETWEEN MARKERS M1 AND M2.
- 5) ASSEMBLED HARNESS IS MPG P/N A18-00001-009.

PARTS LIST			
REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2064	02-09-2116
R1	CLAROSTAT	RV4NAYS0502A	

MARKER LIST				
REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS 9-5008W	.125"	THROTTLE
M2	BRADY	HCPS 9-5008W	.125"	THROTTLE 2 HOST
M3	BRADY	HCPS1 9-3758W	.125"	(LINE 1) THROTTLE HARNESS (LINE 2) DW-00014C-0009-02

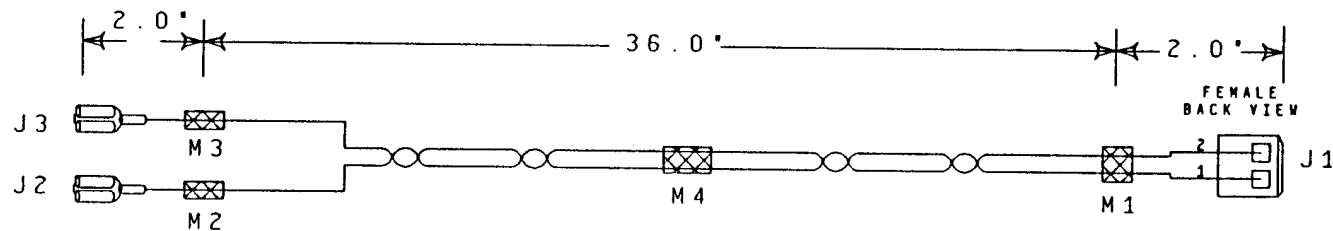
DRAFTER DAVID J. BELMONT		DATE 12-12-90	MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 12-13-90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE	TITLE THROTTLE HARNESS	
APPROVAL [Signature]		DATE 12/13/90	SIZE C	DRAWING NUMBER DW-00014C-0009
APPROVAL		DATE	REV - 02	RELEASE CABLE 13
DATE 12-12-1990-15-21			SHEET 1 OF 1	



NOTES:

1. ALL 18 AND 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
2. COVER THIS 30 INCH SECTION WITH 3/8 INCH 10 BENTLEY/HARRIS EXPANDO PT TUBING. SECURE BOTH ENDS OF MESH WITH 1 INCH LONG PIECES OF HEAT SHRINK TUBING.
3. TWO WIRES INSERTED INTO P1 PIN 3 AND CRIMPED.
4. SPLICE TO ACCOMMODATE .3541" C.W.A. SOLDER AND HEAT SHRINK INSULATE. NOTE BLACK 18 AWG TEFLON WIRE.
5. BREAKOUT WIRES TO CENTER DETECT AT M1. TWIST WIRES. TIE WRAP AT TWO INCH INTERVALS.
6. SW1, SW2, SW3 AND CENTER DETECT PCB SHOWN FOR REFERENCE ONLY. ALL LEADS ARE STRIPPED AND SOLDER TINNED 1/4 IN LONG.
7. R1 & R2 SOLDERED/CRIMPED IN-LINE AS SHOWN AND HEAT SHRINK INSULATED.
8. SECURE WIRE ENDS HERE WITH ELECTRICAL TAPE FOR SHIPPING. (THREE SEPARATE TAPED BUNDLES) TAPE: [Diagram of three separate taped bundles]
9. MARKER M1 HAS TWO LINES OF TEXT.
10. ASSEMBLED HARNESS IS MPG P/N A18-00001-010.

DRAFTER DAVID J. BELLAMY		DATE 2-10-90		MICROPROSE GAMES	
CHECKER [Signature]		DATE 2-10-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. MCKIBBIN		DATE 2/17/90		TITLE JOYSTICK HARNESS	
APPROVAL [Signature]		DATE 2/17/90		SIZE C	
DRAWING NUMBER DW-00014C-0010		REV - 02		RELEASE JOYS. 2	
DATE 12-10-1990, 17-55		SHEET 2 OF 2			



WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
R AUDIO	J1-01	J2	WHT/BLK	9921-14
GND	J1-02	J3	BLACK	9921-10

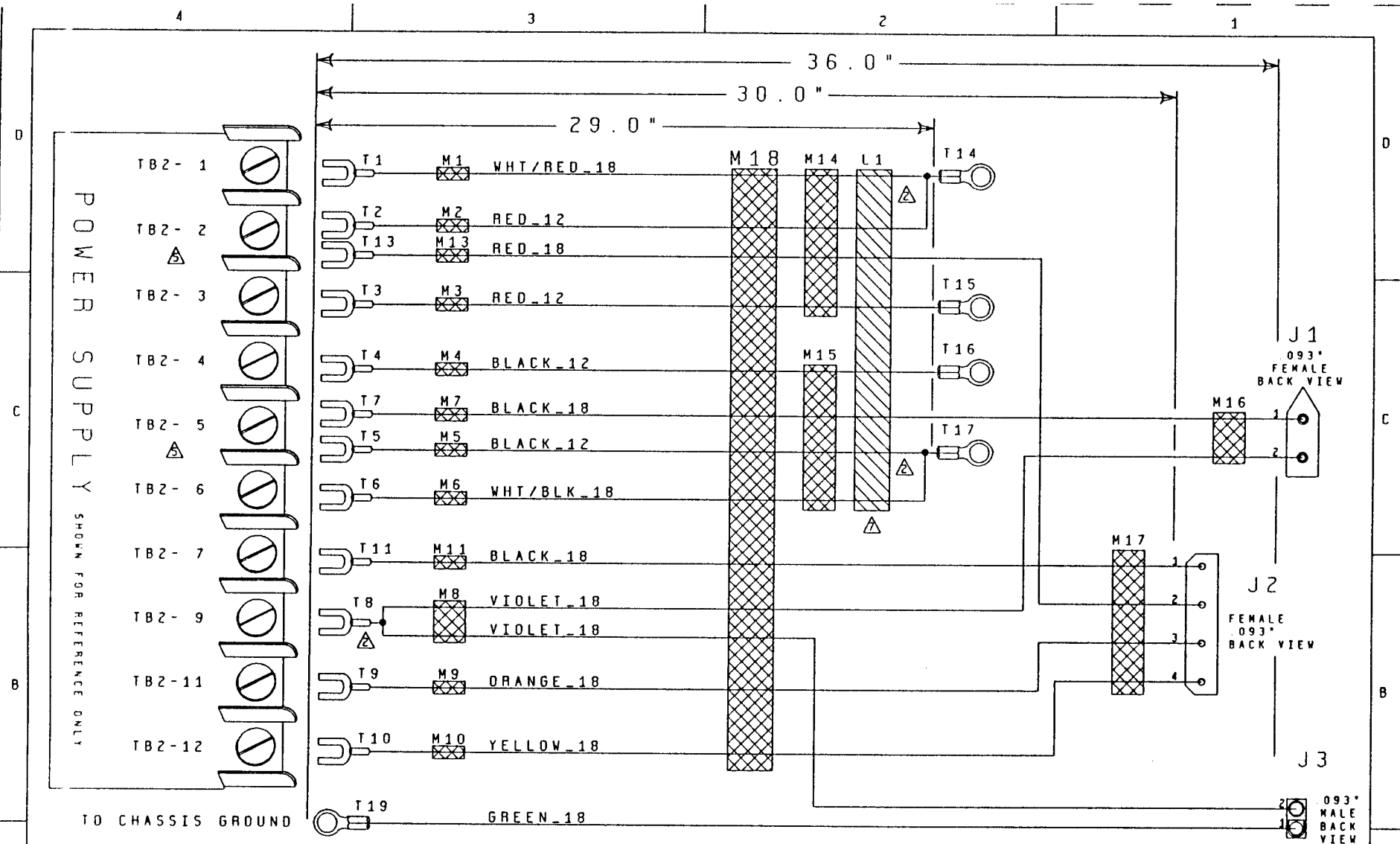
PARTS LIST			
REF DES	MFG	PART NO	PIN NO
J1	MOLEX	22-01-2021	08-50-0114
J2, J3	AMP	2-520181-4	

MARKER LIST				
REF DES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-3758W	.125"	SOUND BD J5
M2	BRADY	HCPS.9-2508W	.125"	R SPKR +
M3	BRADY	HCPS.9-2508W	.125"	R SPKR -
M4	BRADY	HCPS1.9-3758W	.125"	(LINE 1) RIGHT SPEAKER CABLE (LINE 2) DW-00014C-0011-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M4 HAS TWO LINES OF TEXT.
- 4) TWIST WIRE PAIR AND TIE WRAP AT 4" INTERVALS.
- 5) ASSEMBLED CABLE IS MPG P/N A18-00001-0011

DRAFTER DAVID J. BELMONT		DATE 12-10-90		MICROPROSE GAMES	
CHECKED <i>[Signature]</i>		DATE 12-10-90		180 LAKEFRONT DR. HUNT VALLEY, MO 25030	
DESIGNED JAY G. McKIBBIN		DATE 12/14/90		TITLE RIGHT SPEAKER CABLE	
APPROVAL <i>[Signature]</i>		DATE 12/14/90		SIZE C	
				DRAWING NUMBER DW-00014C-0011	
				REV - 02 RELEASE CABLE 9	
				DATE 12-11-1990-10-12 SHEET 1 OF 1	



NOTES:

- ⚠ ALL WIRE SHALL MEET OR EXCEED UL1015.
- ⚠ TWO WIRES ARE INSERTED INTO THIS CONNECTION.
- ⚠ MARKERS ARE PLACED 1" FROM TERMINALS/CONNECTORS EXCEPT M18 WHICH IS APPROXIMATELY CENTERED.
- ⚠ T14 - T17 CONNECT TO THE DC POWER DISTRIBUTION PCB.
- ⚠ T2 & T13 CONNECT TO TB2-2. T3 & T17 CONNECT TO TB2-5.
- ⚠ TIE WRAP EVERY FOUR INCHES.
- ⚠ SECURE FERRITE BEAD L1 TO CABLE WITH WIRE TIE.
- ⚠ ASSEMBLED HARNESS IS MPG P/N A18-00002-001.

DRAFTER DAVID J. BELLAMY		DATE 12-12-90		MICROPROSE GAMES	
CHECKED <i>[Signature]</i>		DATE 12-12-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. MCKIBBIN		DATE 12/14/91		TITLE DC POWER HARNESS	
APPROVAL <i>[Signature]</i>		DATE 12/14/91		SIZE C	DRAWING NUMBER DW-00014C-0012
APPROVAL		DATE		REV - 02	RELEASE DCWH1 1
DATE 12-13-1990-13-47 SHEET 1 OF 2					

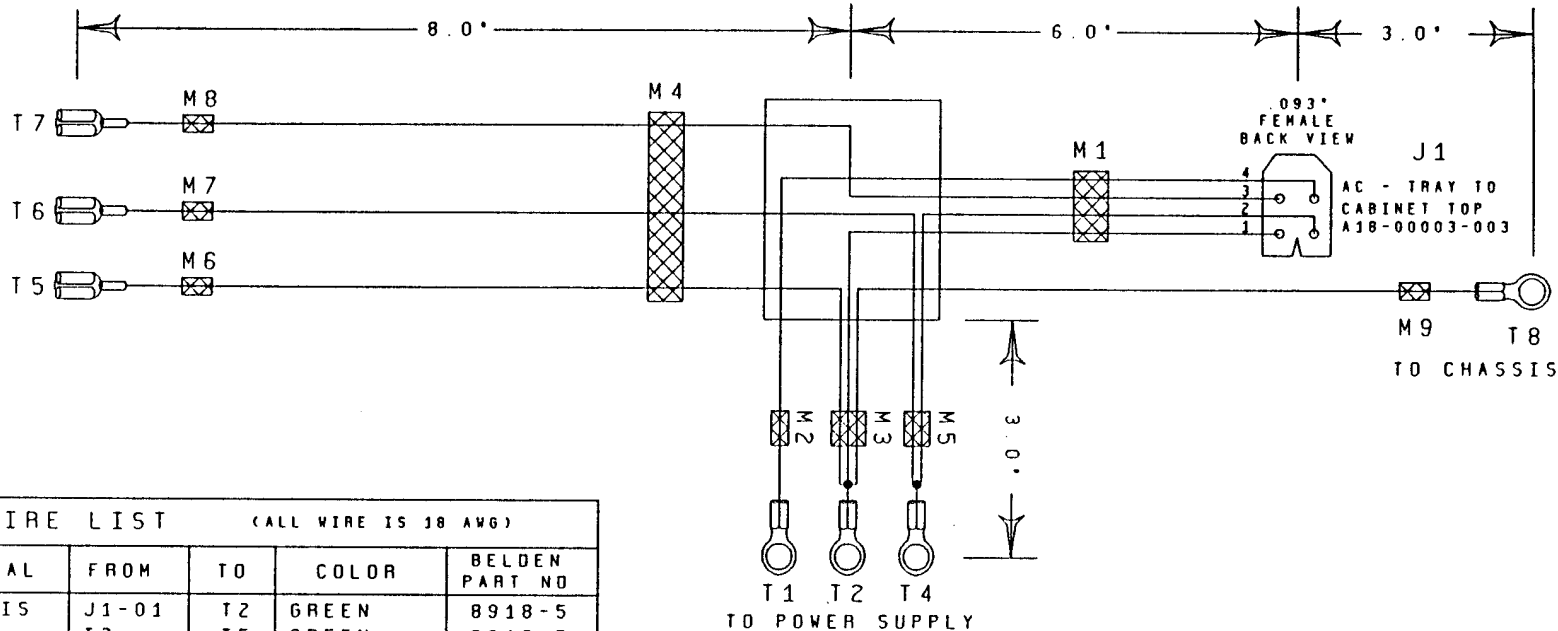
WIRE LIST					
SIGNAL	FROM	TO	COLOR	AWG	BELDEN PART NO
+SENSE	T1	T14	WHT/RED	18	8918-15
BKPLN_V1	T2	T14	RED	12	9912-2
BKPLN_V1	T3	T15	RED	12	9912-2
BKPLNRTN	T4	T16	BLACK	12	9912-10
BKPLNRTN	T5	T17	BLACK	12	9912-10
-SENSE	T6	T17	WHT/BLK	18	8918-14
FAN_RTN	T7	J1-1	BLACK	18	8918-10
FAN_V2	T8	J1-2	VIOLET	18	8918-7
PANEL_V2	T8	J3-2	VIOLET	18	8918-7
SND_V3	T9	J2-3	ORANGE	18	8918-3
SND_V4	T10	J2-4	YELLOW	18	8918-4
SND_RTN	T11	J2-1	BLACK	18	8918-10
SND_V1	T13	J2-2	RED	18	8918-2
CHAS_GND	T19	J3-1	GREEN	18	8918-5

PARTS LIST			
REFDES	MFG	PART NO	PIN NO
T1, T6, T7, T9, T10, T11, T13	MOLEX	AA-234-08X	
T2 - T5, T8	MOLEX	C-236-08X	
T14 - T17	MOLEX	D-656-10X	
T19	MOLEX	C-236-08X	
J1	MOLEX	03-06-1023	02-06-1101
J2	MOLEX	15-24-4048	02-08-1201
J3	MOLEX	19-09-1026	02-09-1117
L1	FAIR-RITE	2643164151	

MARKER LIST					
REF DES	MFG	PART NO	TEXT SIZE	TEXT	
				LINE 1	LINE 2
M1	BRADY	HCPS 9-2508W	.125"	+SENSE	TB2-1
M2	BRADY	HCPS 9-3336W	.125"	V1	TB2-2
M3	BRADY	HCPS 9-3336W	.125"	V1	TB2-3
M4	BRADY	HCPS 9-3336W	.125"	RETURN	TB2-4
M5	BRADY	HCPS 9-2508W	.125"	RETURN	TB2-5
M6	BRADY	HCPS 9-3336W	.125"	-SENSE	TB2-6
M7	BRADY	HCPS 9-3336W	.125"	RETURN	TB2-5
M8	BRADY	HCPS 9-3336W	.125"	V2	TB2-9
M9	BRADY	HCPS 9-2508W	.125"	V3	TB2-11
M10	BRADY	HCPS 9-2508W	.125"	V4	TB2-12
M11	BRADY	HCPS 9-2508W	.125"	RETURN	TB2-7
M13	BRADY	HCPS 9-2508W	.125"	V1	TB2-2
M14	BRADY	HCPS 9-5008W	.125"	VDD	
M15	BRADY	HCPS 9-5008W	.125"	GND	
M16	BRADY	HCPS 9-3758W	.125"	FAN	
M17	BRADY	HCPS 9-5008W	.125"	SOUND BOARD	
M18	BRADY	HCPS 1.9-1008W	.125"	DC POWER HARNESS	DW-00014C-0012-02

DRAFTER DAVID J. BELMAY		DATE 12-12-90		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
DESIGNER JAY B. McKIBBIN		DATE 12/14/90		TITLE DC POWER HARNESS	
APPROVAL <i>[Signature]</i>		DATE 12/14/90		SIZE C	
DRAWING NUMBER DW-00014C-0012		SHEET 2 OF 2		DATE 12-13-1990 13 53	

TO LINE EMI FILTER



WIRE LIST (ALL WIRE IS 18 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
CHASSIS	J1-01	T2	GREEN	8918-5
	T2	T5	GREEN	8918-5
	T2	T8	GREEN	8918-5
COMMON	J1-02	T4	WHITE	8918-9
	T4	T6	WHITE	8918-9
	J1-03	T7	WHT/BLK	8918-14
SWLINE	J1-04	T1	BLACK	8918-10

PARTS LIST			
REF DES	MFG	PART NO	PIN NO
J1	MOLEX	03-09-1049	02-09-1117
1	MOLEX	AA-232-08X	RING TERM
2	MOLEX	C-236-08X	RING TERM
T4, T8	MOLEX	BB-223-08X	RING TERM
T5 - T7	MOLEX	AA-2201C	PUSH-ON

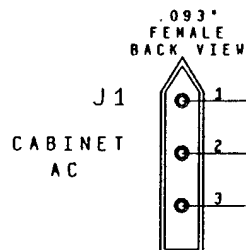
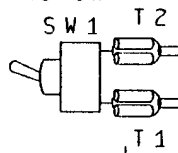
MARKER LIST				
REF DES	MFG	PART NO	TEXT SIZE	TEXT
1	BRADY	HCPS.9-6258W	.125"	INPUT AC
2	BRADY	HCPS.9-2508W	.125"	TB1-1
3	BRADY	HCPS.9-5008W	.125"	TB1-3
4	BRADY	HCPS1.9-6258W	.125"	(LINE 3) INPUT AC HARNESS
5	BRADY	HCPS.9-3758W	.125"	(LINE 2) DW-00014C-0014-02
6	BRADY	HCPS.9-2508W	.125"	TB1-2
7	BRADY	HCPS.9-2508W	.125"	GND
8	BRADY	HCPS.9-2508W	.125"	COMM
9	BRADY	HCPS.9-2508W	.125"	LINE
10	BRADY	HCPS.9-2508W	.125"	GND

NOTES:

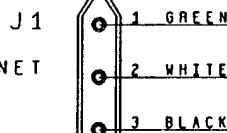
- 1) ALL 18 AWG WIRE SHALL MEET OR EXCEED UL1015.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M4 HAS TWO LINES OF TEXT.
- 4) TERMINAL T2 HAS 3 WIRES IN CRIMP.
- 5) TERMINAL T4 HAS 2 WIRES IN CRIMP.
- 6) BREAKOUT WIRES TO T1, T2 & T4. SECURE WITH TIE WRAP.
- 7) PLACE MARKERS M2 - M3 & M5 - M9 1" FROM TERMINALS.
- 8) ASSEMBLED HARNESS IS MP6 P/N A18-00003-002.

DRAFTER DAVID J. BELLMY		DATE 12-12-90		MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 12-13-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		TITLE INPUT AC HARNESS	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		SIZE C	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		DRAWING NUMBER DW-00014A-0014	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		REV - 02	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		RELEASE ACW1.1	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90		SHEET 1 OF 1	

ON/OFF
SWITCH
120VAC 6A



CABINET
AC



47.0"

GREEN
WHITE
BLACK

BS1

WHT/BLK

BLACK

M5

BLACK 4
WHT/BLK 3
WHITE 2
GREEN 1

.093" MALE
BACK VIEW

P1

INPUT
AC

WIRE LIST

(ALL WIRE IS 18 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
CH SSIS	P1-01	J1-01	GREEN	8918-5
COMMON	P1-02	J1-02	WHITE	8918-9
UNSW LINE	P1-03	T1	WHT/BLK	8918-14
SW LINE	P1-04	T2	BLACK	8918-10
	J1-03	T2	BLACK	8918-10

PARTS LIST

REF DES	MFG	PART NO	PIN NO
J1	MOLEX	03-09-1032	02-09-1117
P1	MOLEX	03-09-2049	02-09-2116
T1	MOLEX	AA-2201C	PUSH-ON
T2	MOLEX	BB-2206C	PUSH-ON
BS1	T. B. D.	T. B. D.	

MARKER LIST

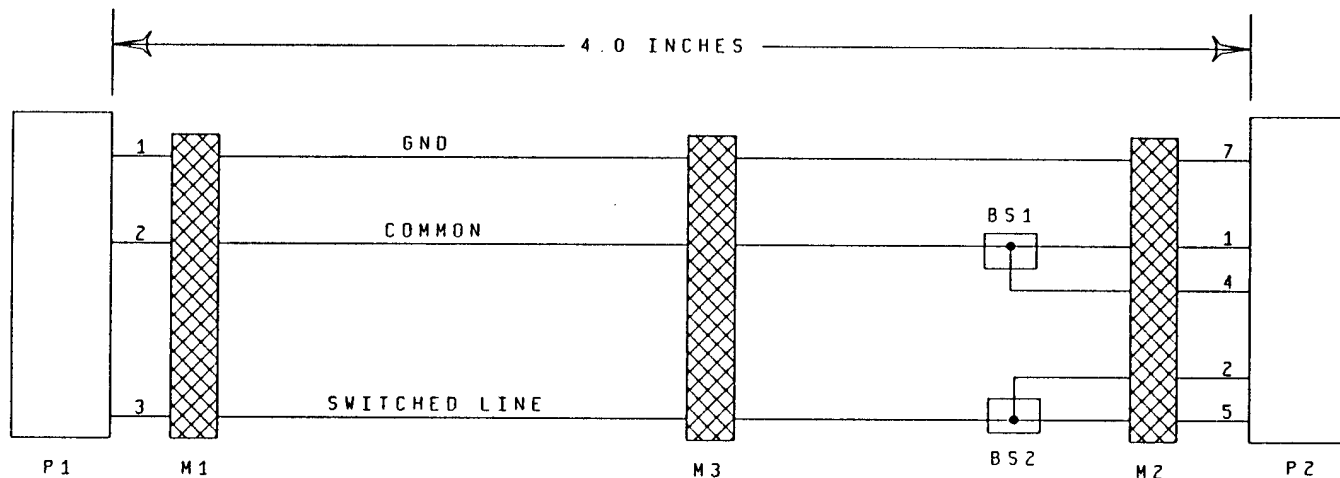
REF DES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-6258W	.125"	INPUT AC
M2	BRADY	HCPS.9-5008W	.125"	CABINET AC
M3	BRADY	HCPS.9-3758W	.125"	SW LINE
M5	BRADY	HCPS1.9-6258W	.125"	(LINE 1) AC-TRAY TO TOP HARN
				(LINE 2) DW-00014C-0015-02
M4	BRADY	HCPS.9-2508W	.125"	UNSW LINE

NOTES

- 1) ALL 18 AWG WIRE SHALL MEET OR EXCEED UL1015.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M5 HAS TWO LINES OF TEXT.
- 4) BUTT SPLICE BS1 HAS 3 WIRES IN CRIMP.
- 5) TWIST WIRES FROM P1 TO J1 AND FROM BS1 TO TERMINALS.
- 6) BREAKOUT WIRES AT BS1. SECURE WITH TIE WRAP.
- 7) SW1 IS SHOWN FOR REFERENCE ONLY.
- 8) ASSEMBLED HARNESS IS MPG P/N A18-00003-003.

DRAFTER DAVID J. BELAMY		DATE 12-13-90	MICROPROSE GAMES	
CHECKER JAY G. McKIBBIN		DATE 12/14/90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL JAY G. McKIBBIN		DATE 12/14/90	TITLE AC - TRAY TO CABINET TOP	
APPROVAL		DATE	SIZE C	DRAWING NUMBER DW-00014A-0015
			REV - 02	RELEASE ACWH2.1
			DATE 12-13-1990.13-28	SHEET 1 OF 1

INPUT
AC



TRANSFORMER
AC

PARTS LIST

REFDES	DESCRIPTION	PART NO	PIN NO
P1	CONNECTOR, PLUG	MOLEX 03-09-2032	02-09-2116
P2	CONNECTOR, RECEPTICAL	MOLEX 03-09-1094	02-09-1117
BS1	16 AWG BUTT SPLICE	MOLEX C-246X	
BS2			

WIRE LIST

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
GROUND	P1-1	P2-7	GREEN	9918-5
COMMON	P1-2	BS1	WHITE/ORANGE	9918-20
COMMON	BS1	P2-1	WHITE/ORANGE	
COMMON	BS1	P2-4	WHITE/ORANGE	
SWITCHED LINE	P1-3	BS2	VIOLET	9918-7
SWITCHED LINE	BS2	P2-2	VIOLET	
SWITCHED LINE	BS2	P2-5	VIOLET	

MARKER LIST

REFDES	TYPE SIZE	MFG	PART NO	TEXT	
				LINE 1	LINE 2
M1	.125"	BRADY	HCPS 9-8336W	100VAC	INPUT AC
M2	.125"	BRADY	HCPS 9-8336W	100VAC	TRANSFORMER AC
M3	.125"	BRADY	HCPS 9-8336W	OW-00014A-0016-02	100VAC SELECT

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

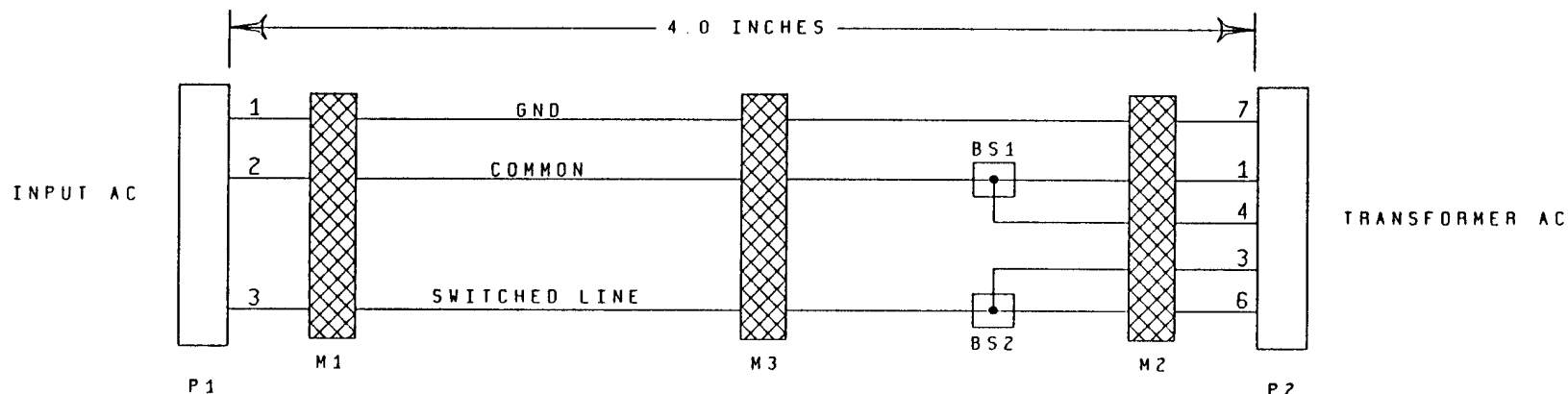
MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030

NOTES: 1). ALL WIRE MUST MEET OR EXCEED UL1015.

2). LABEL MARKERS:

DRAFTER DAVID J. BELLAMY		DATE 12-10-90	MICROPROSE GAMES	
CHECKER 		DATE 12-10-90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE 12-13-90	TITLE 100V AC VOLTAGE SELECTION HARNESS	
APPROVAL 		DATE 12-13-90	SIZE C	DRAWING NUMBER OW-00014A-0016
APPROVAL		DATE	REV - 02	RELEASE ACWHS.1
DATE 12-11-1990-10-31			SHEET 1 OF 1	



PARTS LIST

REFDES	DESCRIPTION	PART NO	PIN NO
P1	CONNECTOR, PLUG	MOLEX 03-09-2032	02-09-2116
P2	CONNECTOR, RECEPTICAL	MOLEX 03-09-1094	02-09-1117
BS1	16 AWG BUTT SPLICE	MOLEX C-246X	
BS2			

WIRE LIST

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
GROUND	P1-1	P2-7	GREEN	8918-5
COMMON	P1-2	BS1	WHITE	8918-9
COMMON	BS1	P2-1	WHITE	
COMMON	BS1	P2-4	WHITE	
SWITCHED LINE	P1-3	BS2	BLACK	8918-10
SWITCHED LINE	BS2	P2-3	BLACK	
SWITCHED LINE	BS2	P2-6	BLACK	

MARKER LIST

REFDES	TYPE SIZE	MFG	PART NO	TEXT	
				LINE 1	LINE 2
M1	.125"	BRADY	HCPS 9-8336W	120VAC	INPUT AC
M2	.125"	BRADY	HCPS 9-8336W	120VAC	XFORMER AC
M3	.125"	BRADY	HCPS 9-8336W	DW-00014A-0016-02	120VAC SELECT

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030

NOTES: 1) ALL WIRE MUST MEET OR EXCEED UL1015.

DRAFTER DAVID J. BELVARY		DATE 12-12-90		MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 12-12-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL JAY G. McKIBBIN		DATE 12-12-90		TITLE 120VAC VOLTAGE SELECTION HARNESS	
APPROVAL		DATE		SIZE C	
				DRAWING NUMBER DW-00014A-0017	
				REV - 02	
				RELEASE ACWH3.1	
				DATE 12-12-1990-13-35	
				SHEET 1 OF 1	

4

3

2

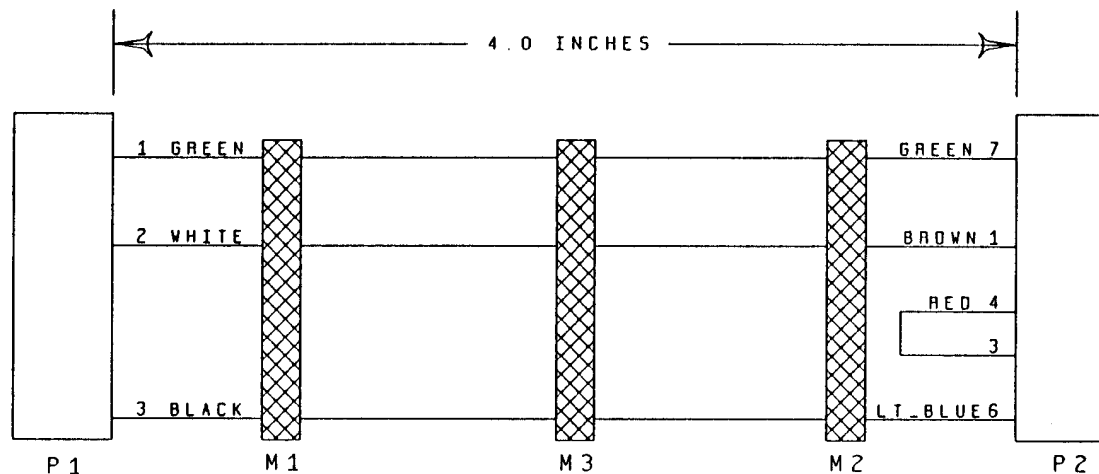
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D

D

C

C

INPUT
ACTRANSFORMER
AC

PARTS LIST

FEFDES	DESCRIPTION	PART NO	PIN NO
P1	CONNECTOR, PLUG	MOLEX 03-09-2032	02-09-2116
P2	CONNECTOR, RECEPTICAL	MOLEX 03-09-1094	02-09-1117

WIRE LIST

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
GROUND	P1-1	P2-7	GREEN	8918-5
COMMON	P1-2	P2-1	BROWN	8918-1
SWITCHED LINE	P1-3	P2-6	LT-BLUE	8918-6
SWITCHED LINE	P2-3	P2-4	RED	8918-2

MARKER LIST

FEFDES	TYPE SIZE	MFG	PART NO	TEXT	
				LINE 1	LINE 2
M1	.125"	BRADY	HCPS 9-8336W	240VAC	INPUT AC
M2	.125"	BRADY	HCPS 9-8336W	240VAC	XFORMER AC
M3	.125"	BRADY	HCPS 9-8336W	DW-00014A-0016-02	240VAC SELECT

COMPANY / PROPRIETARY
CONFIDENTIAL / INFORMATION

MICROPROSE Games

180 LAKEFRONT DR. HUNT VALLEY, MD 21030

NOTES: 1). ALL WIRE MUST MEET OR EXCEED OF UL1015

2). LABEL MARKERS:



DRAFTER DAVID J. BELLAMY		DATE 12-18-90		MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 12-18-90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE 12-18-90		TITLE 240 VAC VOLTAGE SELECTOR HARNESS	
APPROVAL JAY G. McKIBBIN		DATE 12-18-90		SIZE C	
APPROVAL		DATE		DRAWING NUMBER DW-00014A-0018	
				REV - 02 RELEASE ACW# 1	
				DATE 12-13-1990.14.12 SHEET 1 OF 1	

A

A

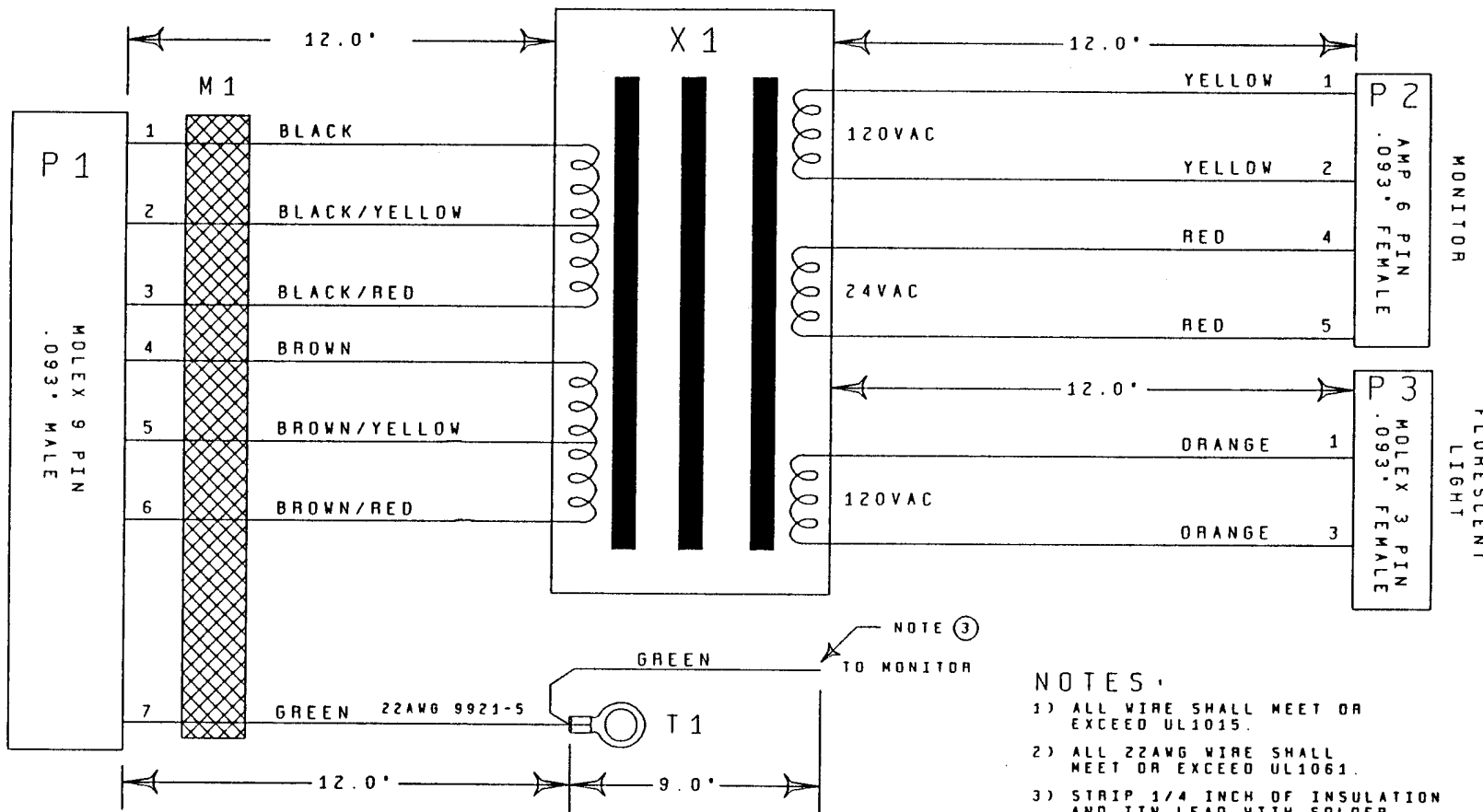
4

3

2

1

AC VOLTAGE SELECTOR
HARNES



PARTS LIST

REF	DES	MFG	PART NO	PIN NO
1		MOLEX	03-09-2091	02-09-2116
2		AMP	350715-1	350536-1
3		MOLEX	03-09-1032	02-09-1117
4		MIDWESTCO	#U53P218A	
5		MOLEX	C-236-08X	

MARKER LIST

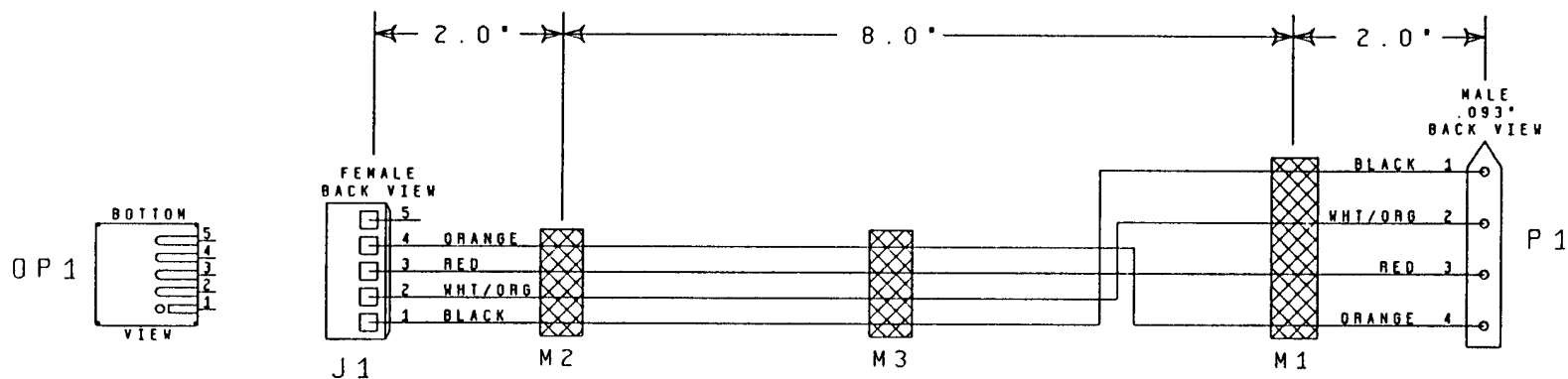
REF	DES	MFG	PART NO	TEXT
M1		BRADY	HCPS1.9-1008W	125"
				(LINE 1) TRANSFORMER ASSEMBLY
				(LINE 2) DW-00014C-0019-02

NOTE ③
TO MONITOR

NOTES:

- 1) ALL WIRE SHALL MEET OR EXCEED UL1015.
- 2) ALL 22AWG WIRE SHALL MEET OR EXCEED UL1061.
- 3) STRIP 1/4 INCH OF INSULATION AND TIN LEAD WITH SOLDER.
- 4) ATTACH T1 TO LOWER TRANSFORMER LAMINATE BOLT. USE A STAR LOCKWASHER TO MAINTAIN ELECTRICAL CONTACT.
- 5) MARKER M1 HAS TWO LINES OF TEXT.
- 6) ASSEMBLED TRANSFORMER IS MPG P/N A18-00003-007.

DRAFTER DAVID J. BELLAMY		DATE 12-10-90	MICROPROSE GAMES	
CHECKER JAY G. McKIBBIN		DATE 12-13-90	180 LAKEFRONT DR. MOUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE 12-13-90	TITLE TRANSFORMER ASSEMBLY	
APPROVAL JAY G. McKIBBIN		DATE 12-13-90	SIZE C	DRAWING NUMBER DW-00014A-0019
APPROVAL		DATE	REV - 02	RELEASE XFORM 1
			DATE 12-13-1990, 16-35	SHEET 1 OF 1



WIRE LIST (ALL WIRE IS 22 AWG)				
SIGNAL	FROM	TO	COLOR	BELOEN PART NO
XJOY_GND	P1-01	J1-01	BLACK	9921-10
XJOY_CHA	P1-02	J1-02	ORANGE	9921-3
XJOY_+5V	P1-03	J1-03	RED	9921-2
XJOY_CHB	P1-04	J1-04	WHT/ORG	9921-20

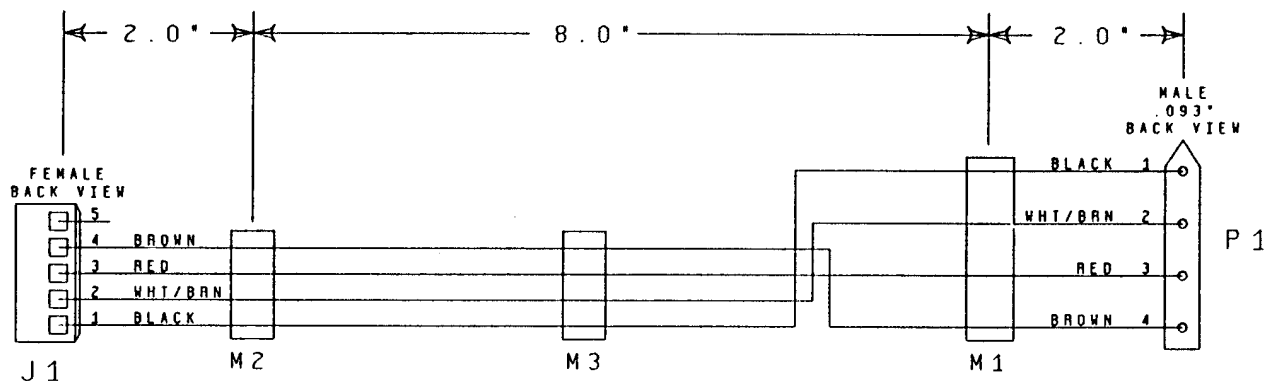
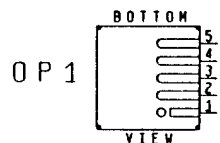
PARTS LIST			
REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2042	02-09-2118
J1	BERG	65039-032	
J1	MOLEX		02-09-2116
J1	BERG	KEY PLUG	65307-001

MARKER LIST				
REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-3758W	.125"	JOYSTICK
M2	BRADY	HCPS.9-3758W	.125"	XPOT
M3	BRADY	HCPS1.9-3758W	.125"	(LINE 1) X JOYSTICK CABLE (LINE 2) DW-00014C-0023-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M3 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED BETWEEN MARKERS M1 AND M2.
- 5) INSTALL KEY PLUG IN PIN 5 OF J1.
- 6) CLIP PIN5 FROM OPTICAL ENCODER OP1.
- 7) OPTICAL ENCODER OP1 IS SHOWN FOR REFERENCE ONLY.
- 8) ASSEMBLED CABLE IS MP6 P/N A18-00001-013.

DRAFTER DAVID J. BENJAMIN		DATE 12-12-90	MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKED JAY G. McKIBBIN		DATE 12-14-91	TITLE X JOYSTICK CABLE	
APPROVAL JAY G. McKIBBIN		DATE 12-14-91	SIZE C	DRAWING NUMBER DW-00014C-0023
APPROVAL		DATE	REV - 02	RELEASE CABLE 11
DATE 12-13-1990-16-09			SHEET 1 OF 1	



WIRE LIST (ALL WIRE IS 22 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
YJOY_GND	P1-01	J1-01	BLACK	9921-10
YJOY_CHA	P1-02	J1-02	BROWN	9921-1
YJOY_+5V	P1-03	J1-03	RED	9921-2
YJOY_CHB	P1-04	J1-04	WHT/BRN	9921-19

PARTS LIST

REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2042	02-09-2118
J2	BERG	65039-032	
J1	MOLEX		02-09-2116
J1	BERG	KEY PLUG	65307-001

MARKER LIST

REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-3758W	.125"	JOYSTICK
M2	BRADY	HCPS.9-3758W	.125"	YPOT
M3	BRADY	HCPS1.9-3758W	.125"	(LINE 1) Y JOYSTICK CABLE (LINE 2) DW-00014C-0024-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M3 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED BETWEEN MARKERS M1 AND M2.
- 5) INSTALL KEY PLUG IN PIN 5 OF J1.
- 6) CLIP PIN5 FROM OPTICAL ENCODER OP1.
- 7) OPTICAL ENCODER OP1 SHOWN FOR REFERENCE ONLY.
- 8) ASSEMBLED CABLE IS MPG P/N A18-00001-012.

DRAFTER DAVID J. BELLANY		DATE 12/12/90		MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 10/1/90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL [Signature]		DATE 10/1/90		TITLE Y JOYSTICK CABLE	
APPROVAL [Signature]		DATE 10/1/90		SIZE C	
				DRAWING NUMBER DW-00014C-0024	
				REV - 02	
				RELEASE CABLE 10	
				DATE 12-13-1990-16-02	
				SHEET 1 OF 1	

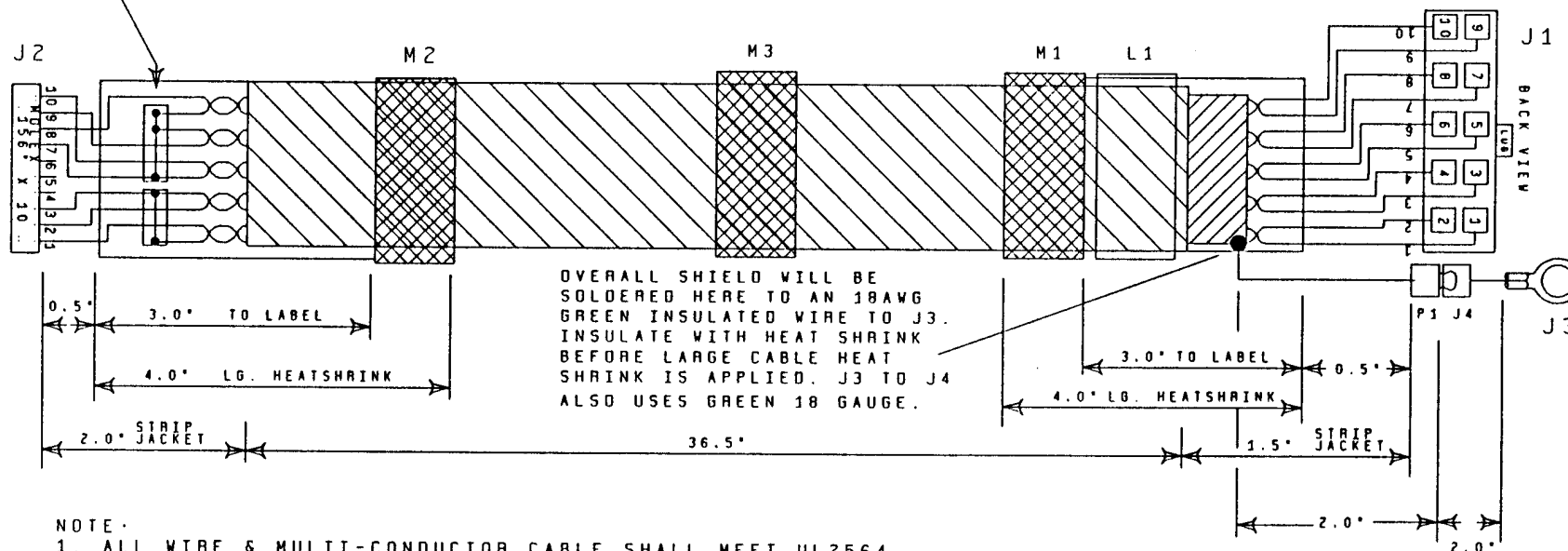
WIRE LIST				
SIGNAL	FROM	COLOR	TO	COLOR
DDND	J1-01	BLACK	J2-3	BLACK
HSYNC	J1-02	YELLOW	J2-1	YELLOW
VSYNC	J1-03	WHT/BLK	J2-2	WHT/BLK
DDND	J1-04	BLK/WHT	J2-3	WHT/BLK
AGND	J1-05	VIOLET	J2-7	
RED	J1-06	RED	J2-10	RED
GREEN	J1-07	GREEN	J2-9	GREEN
AGND	J1-08	ORANGE	J2-7	
AGND	J1-09	BROWN	J2-7	BROWN
BLUE	J1-10	BLUE	J2-8	BLUE

USE BELDEN CABLE, TRADE NO. 9505

PART LISTS			
REFDES	MFG.	PART NO.	PIN NO.
J1	DUPONT	65846-010	47389-000
J2	MOLEX	09-50-7101	08-55-0106
J3	MOLEX	C-236-08X	
J4	AMP	2-520183-2	
P1	AMP	2-520102-2	
L1	FAIR-RITE	2643802702	

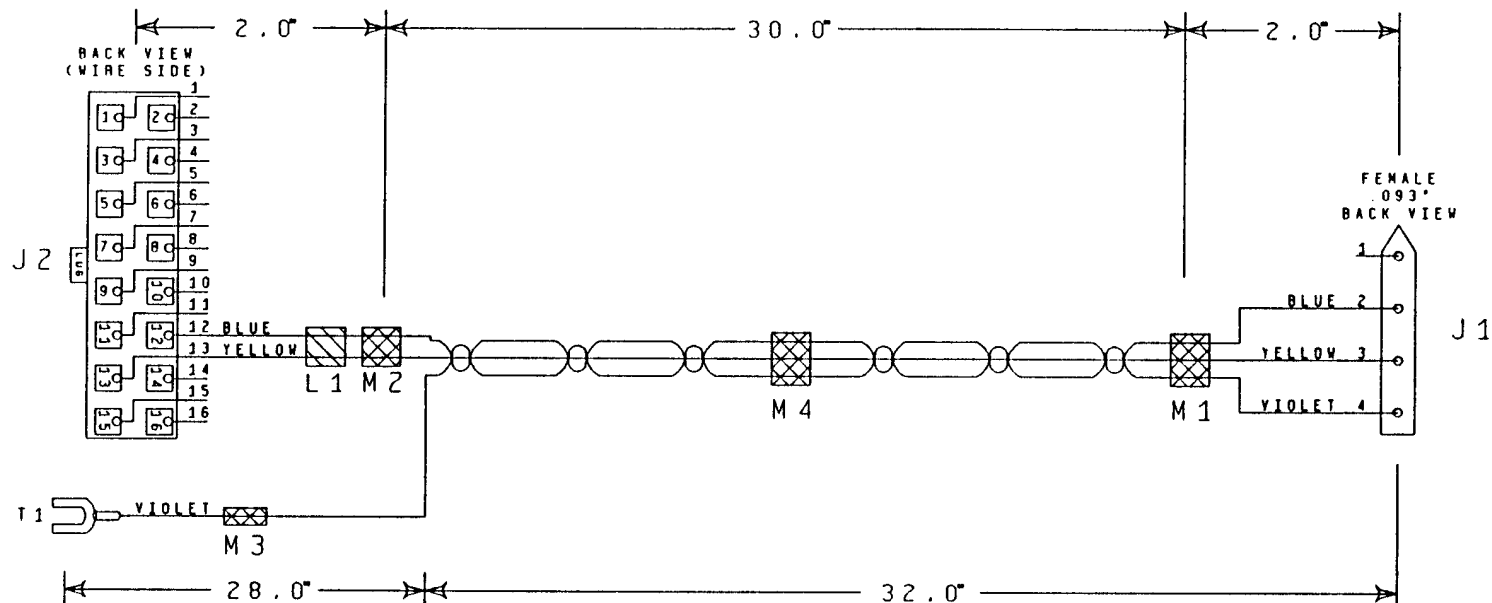
MARKERS				TEXT	
REFDES	MFG.	PART NO.	SIZE		
M1	BRADY	LAT-4-619-10	.125"	V6B J1	
M2	BRADY	LAT-4-619-10	.125"	W-6 MONITOR P200	
M3	BRADY	LAT-6-619-10	.125"	(LINE 2) DISPLAY CABLE	
				(LINE 2) DW-00014C-0025-02	

SOLDER BLACK WIRES FROM ASSOCIATED TWISTED PAIR AS INDICATED. COVER WITH HEAT SHRINK AS SHOWN BEFORE LARGE CABLE HEAT SHRINK IS APPLIED.



- NOTE:
1. ALL WIRE & MULTI-CONDUCTOR CABLE SHALL MEET UL2564.
 2. CABLE WILL LOOP AROUND AND THRU L1.
 3. WIRES SOLDERED AND INSULATED WITH HEAT SHRINK.
 4. LABEL MARKERS.
 5. CABLE JACKET.
 6. OVERALL SHIELD.
 7. ASSEMBLED CABLE IS MP6 P/N A18-00003-010.

DRAFTER DAVID J. BERNARDY		DATE 12-12-80		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
CHECKED JAY G. McKIBBIN		DATE 12/13/80		TITLE DISPLAY CABLE NONCABLE	
APPROVAL [Signature]		DATE 12/13/80		DRAWING NUMBER DW-00014C-0025	
REV - 02		RELEASE		SHEET 1 OF 1	



WIRE LIST (ALL WIRE IS 22 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
SH_YEL	J1-02	J2-12	DK BLUE	9921-13
SH_RED	J1-03	J2-13	YELLOW	9921-4
SH_12V	J1-04	T1	VIOLET	9921-7

PARTS LIST

REFDES	MFG	PART NO	PIN NO
J1	MOLEX	03-09-1042	02-09-5142
J2	MOLEX	14-57-1161	
L1	FAIR-RITE	2643164251	
T1	MOLEX	AA-234-08X	

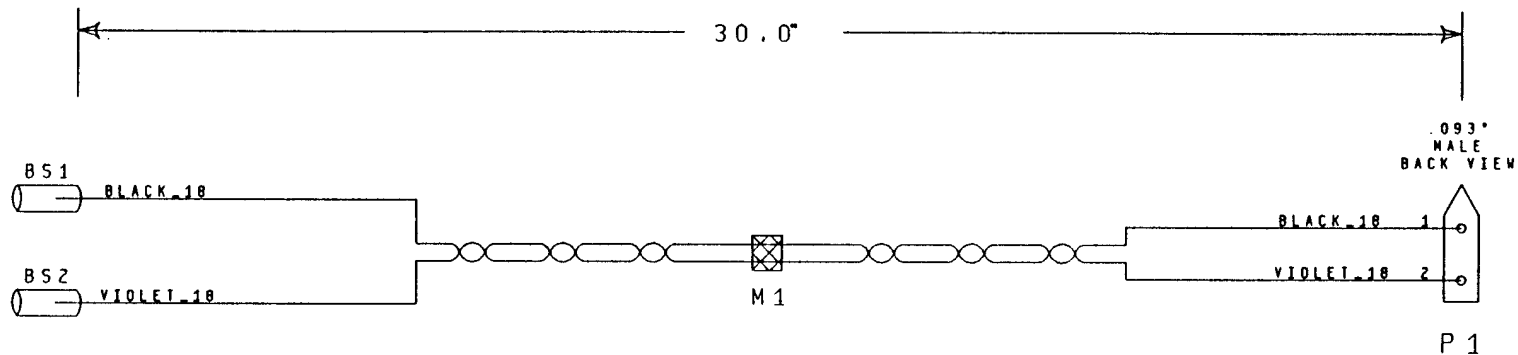
MARKER LIST

REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-3758W	.125"	HOST TO SHROUD
M2	BRADY	HCPS.9-3336W	.125"	HOST P4
M2	BRADY	HCPS.9-2508W	.125"	PWR SUP TB2-9
M4	BRADY	HCPS1.9-3758W	.125"	(LINE 1) LOWER SHROUD HARNESS (LINE 2) DW-00014C-0026-02

NOTES:

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF FOUR INCHES.
- 3) MARKER M4 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED BETWEEN MARKERS M1 AND M2.
- 5) PINS 1, 2, 15 & 16 OF J2 MUST BE POPULATED.
- 6) SECURE L1 WITH ELECTRICAL TAPE.
- 7) ASSEMBLED HARNESS IS MPG P/N A18-00003-013.

DRAFTER DAVID J. BELLAMY		DATE 12-17-90		MICROPROSE GAMES	
CHECKED JAY G. McKIBBIN		DATE 12/18/90		180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER		DATE		TITLE LOWER SHROUD HARNESS	
APPROVAL C. J. J. J.		DATE 12/18/90		SIZE C	
DRAWING NUMBER DW-00014C-0026		REV - 02		RELEASE CABLE. 12	
DATE 12-13-1990, 16:33		SHEET 3 OF 3			



WIRE LIST (ALL WIRE IS 18 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
ANGND	P1-01	BS1	BLACK	8918-10
AN12V	P1-02	BS2	VIOLET	8918-7

PARTS LIST

REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-06-2023	02-06-2101
BS1	T.B.D.		
BS2	T.B.D.		

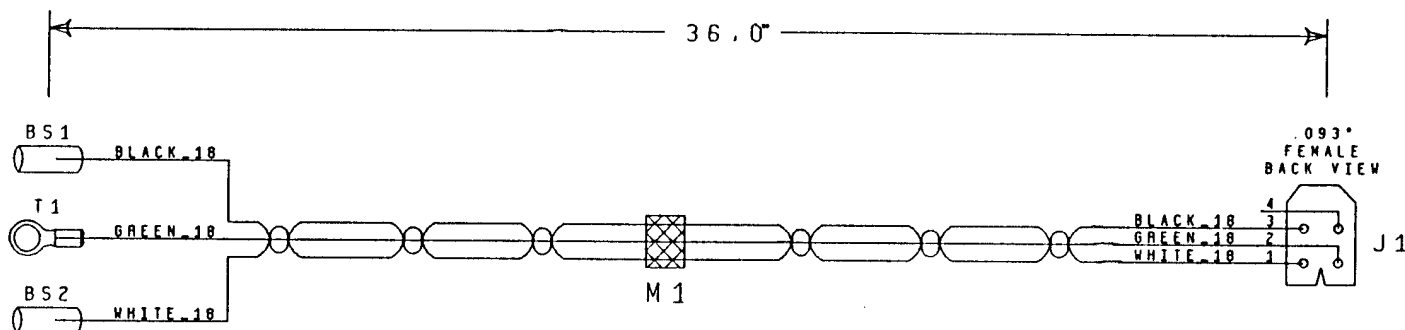
MARKER LIST

REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS1.9-3758W	.125"	(LINE 1) FAN EXTEND HARNESS (LINE 2) DW-00014C-0027-02

NOTES:

- 1) ALL 18 AWG WIRE SHALL MEET OR EXCEED UL1015.
- 2) TIE WRAP AT INTERVALS OF FOUR INCHES.
- 3) MARKER M1 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED.
- 5) CRIMP ONE END ONLY OF BUTT SPLICES BS1 & BS2.

DRAFTER DAVID J. BELMAY	DATE 12-12-50	MICROPROSE GAMES	
ENGINEER JAY G. McKIBBIN	DATE 12/14/50	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
APPROVAL [Signature]	DATE 12/14/50	TITLE DC FAN EXTENSION CABLE	
APPROVAL [Signature]	DATE 12/14/50	SIZE C	DRAWING NUMBER DW-00014A-0027
		REV - 02	RELEASE CABLE 17
		DATE 12-12-1950, 14-30	SHEET 1 OF 1



WIRE LIST (ALL WIRE IS 18 AWG)				
SIGNAL	FROM	TO	COLOR	BELDEN PART NO
FEUTL	J1-01	BS2	WHITE	8918-10
CHASSIS	J1-02	T1	GREEN	8918-5
ROT	J1-03	BS1	BLACK	8918-9

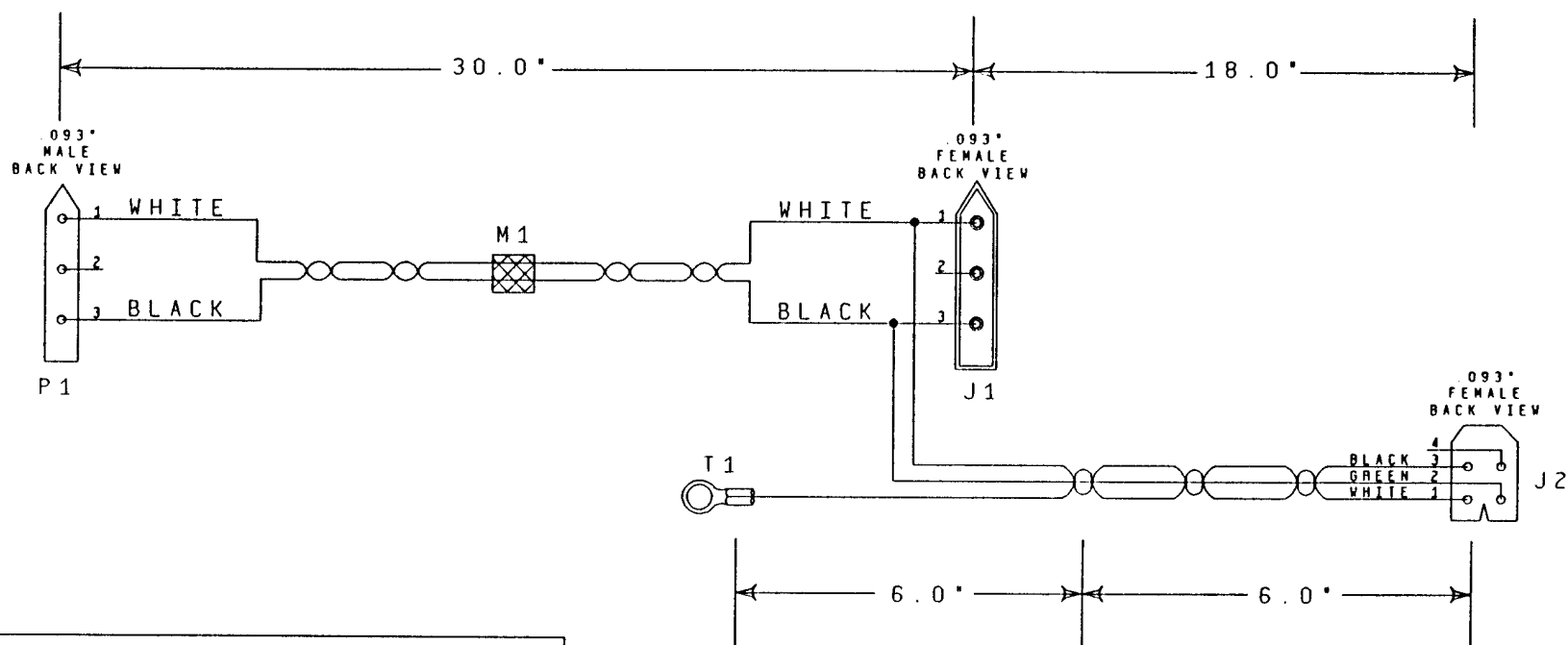
PARTS LIST			
REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2049	02-09-2116
T1	MOLEX	C-236-08X	

MARKER LIST				
REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS1.9-3758W	.125"	(LINE 1) AC-MARQUEE HARNESS (LINE 2) DW-00014C-0028-02

NOTES:

- 1) ALL 18 AWG WIRE SHALL MEET OR EXCEED UL1015.
- 2) TIE WRAP AT INTERVALS OF FOUR INCHES.
- 3) MARKER M1 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED.
- 5) CRIMP ONLY ONE END OF BUTT SPLICES BS1 & BS2.
- 6) ASSEMBLED HARNESS IS MP6 P/N A18-00003-014.

DRAFTER DAVID J. BELLAMY		DATE 12-12-80		MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MO 23030	
CHECKED JAY G. McKIBBIN		DATE 12/14/80		TITLE AC - MARQUEE HARNESS	
APPROVAL [Signature]		DATE 12/14/80		SIZE C	
APPROVAL [Signature]		DATE 12/14/80		DRAWING NUMBER DW-00014A-0028	
				REV - 02 RELEASE CABLE 15	
				DATE 12-13-1990.14-25 SHEET 1 OF 1	



WIRE LIST (ALL WIRE IS 18 AWG)

SIGNAL	FROM	TO	COLOR	BELODEN PART NO
X2PANCOM	P1-01	J1-01	WHITE	8918-9
X2PANHOT	P1-03	J1-03	BLACK	8918-10
P2MARCOM	J1-01	J2-01	WHITE	8918-9
P2MARHOT	J1-03	J2-03	BLACK	8918-10
CHASSIS	J2-02	T1	GREEN	8918-5

PARTS LIST

REF DES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2032	02-09-2116
J1	MOLEX	03-09-1032	02-09-1117
J2	MOLEX	03-09-1049	02-09-1117
T1	MOLEX	C-236-08X	RING TERM

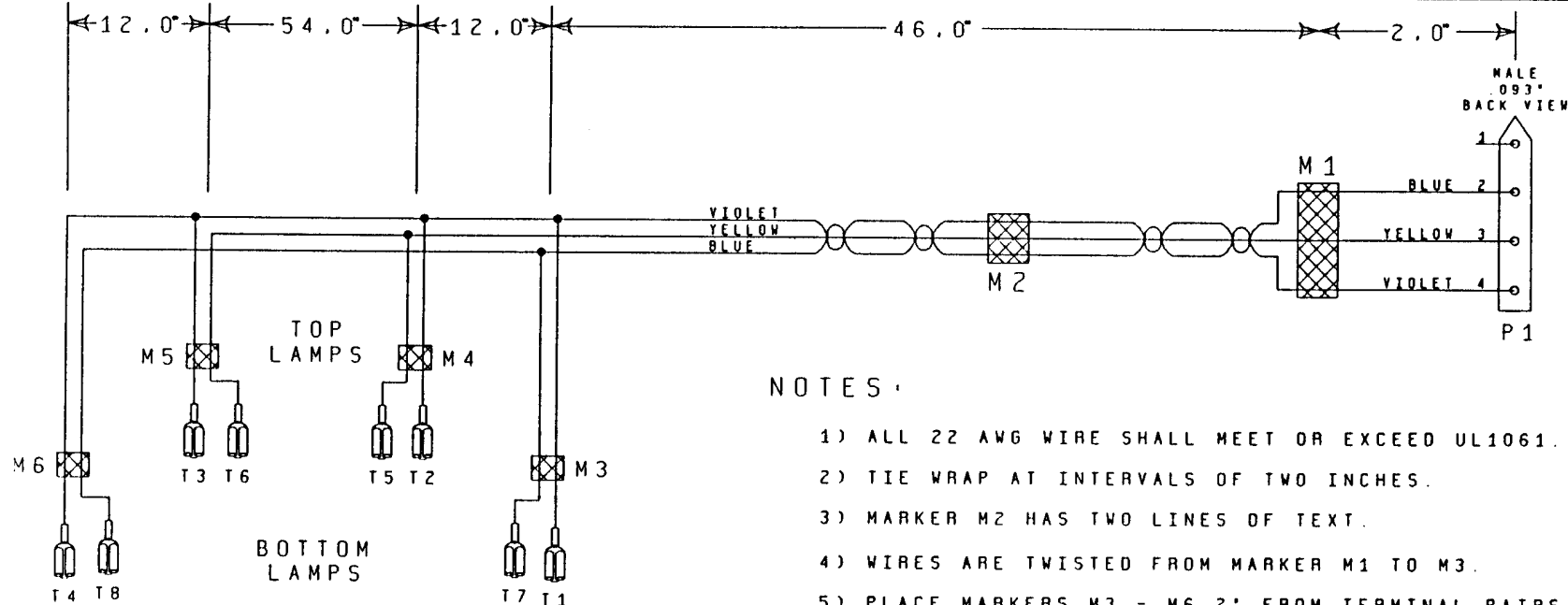
MARKER LIST

REF DES	MFG	PART NO	TEXT
M1	BRADY	HCPS1.9-3758W	.125" (LINE 1) FLUOR LITE Y CABLE (LINE 2) DW-00014C-0029-02

NOTES

- 1) ALL 18 AWG WIRE SHALL MEET OR EXCEED UL1015.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M1 HAS TWO LINES OF TEXT.
- 4) ASSEMBLED HARNESS IS MPG P/N A18-00003-015.

DRAFTER DAVID J. BELLAMY		DATE 12-12-90	MICROPROSE GAMES	
CHECKER JAY G. McKIBBIN		DATE 12-12-90	180 LAKEFRONT DR. HUNT VALLEY, MD 21030	
ENGINEER JAY G. McKIBBIN		DATE 12-12-90	TITLE FLORESCENT LIGHT 'Y' CABLE	
APPROVAL [Signature]		DATE 12-12-90	SIZE C	DRAWING NUMBER DW-00014A-0029
APPROVAL [Signature]		DATE 12-12-90	REV - 02	RELEASE
DATE 12-12-1990 16:58 SHEET 1 OF 1				



NOTES

- 1) ALL 22 AWG WIRE SHALL MEET OR EXCEED UL1061.
- 2) TIE WRAP AT INTERVALS OF TWO INCHES.
- 3) MARKER M2 HAS TWO LINES OF TEXT.
- 4) WIRES ARE TWISTED FROM MARKER M1 TO M3.
- 5) PLACE MARKERS M3 - M6 2" FROM TERMINAL PAIRS.
- 6) TWO WIRES ARE CRIMPPED IN T1 - T5 & T7.
- 7) ASSEMBLED HARNESS IS MPG P/N A18-00003-016.

PARTS LIST

REFDES	MFG	PART NO	PIN NO
P1	MOLEX	03-09-2042	02-09-2118
1 - T8	AMP	2-520184-4	

MARKER LIST

REFDES	MFG	PART NO	TEXT SIZE	TEXT
M1	BRADY	HCPS.9-3758W	.125"	SHROUD LAMPS
M3	BRADY	HCPS.9-3758W	.125"	BOTTOM LAMP 1
M4	BRADY	HCPS.9-3758W	.125"	TOP LAMP 1
M5	BRADY	HCPS.9-3758W	.125"	TOP LAMP 2
M6	BRADY	HCPS.9-3758W	.125"	BOTTOM LAMP 2
M2	BRADY	HCPS1.9-3758W	.125"	(LINE 1) UPPER SHROUD HARNESS (LINE 2) DW-00014C-0030-02

WIRE LIST

(ALL WIRE IS 22 AWG)

SIGNAL	FROM	TO	COLOR	BELDEN PART NO
SH_RED	P1-02	T7	DK BLUE	9921-13
	T7	T8	DK BLUE	9921-13
SH_YEL	P1-03	T5	YELLOW	9921-4
	T5	T6	YELLOW	9921-4
SH_12V	P1-04	T1	VIOLET	9921-7
	T1	T2	VIOLET	9921-7
	T2	T3	VIOLET	9921-7
	T3	T4	VIOLET	9921-7

DRAFTER DAVID J. BELLEVY		DATE 12-10-90	
ENGINEER JAY G. McKIBBIN		DATE 12/13/90	
MICROPROSE GAMES 180 LAKEFRONT DR. HUNT VALLEY, MD 21030			
TITLE UPPER SHROUD HARNESS			
APPROVAL <i>[Signature]</i>		SIZE C	DRAWING NUMBER DW-00014C-0030
		REV - 02	RELEASE CABLE 18
DATE 12-11-1990_18-36		SHEET 1 OF 1	