

WPC SCHEMATIC MANUAL

WILLIAMS ELECTRONICS GAMES, INC.
MIDWAY MANUFACTURING COMPANY
3401 N. California Ave.
Chicago, IL 60618

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Williams Electronics Games, Inc. reserves the rights to make modifications and improvements to its products. The specifications and parts identified in this manual are subject to change without notice.

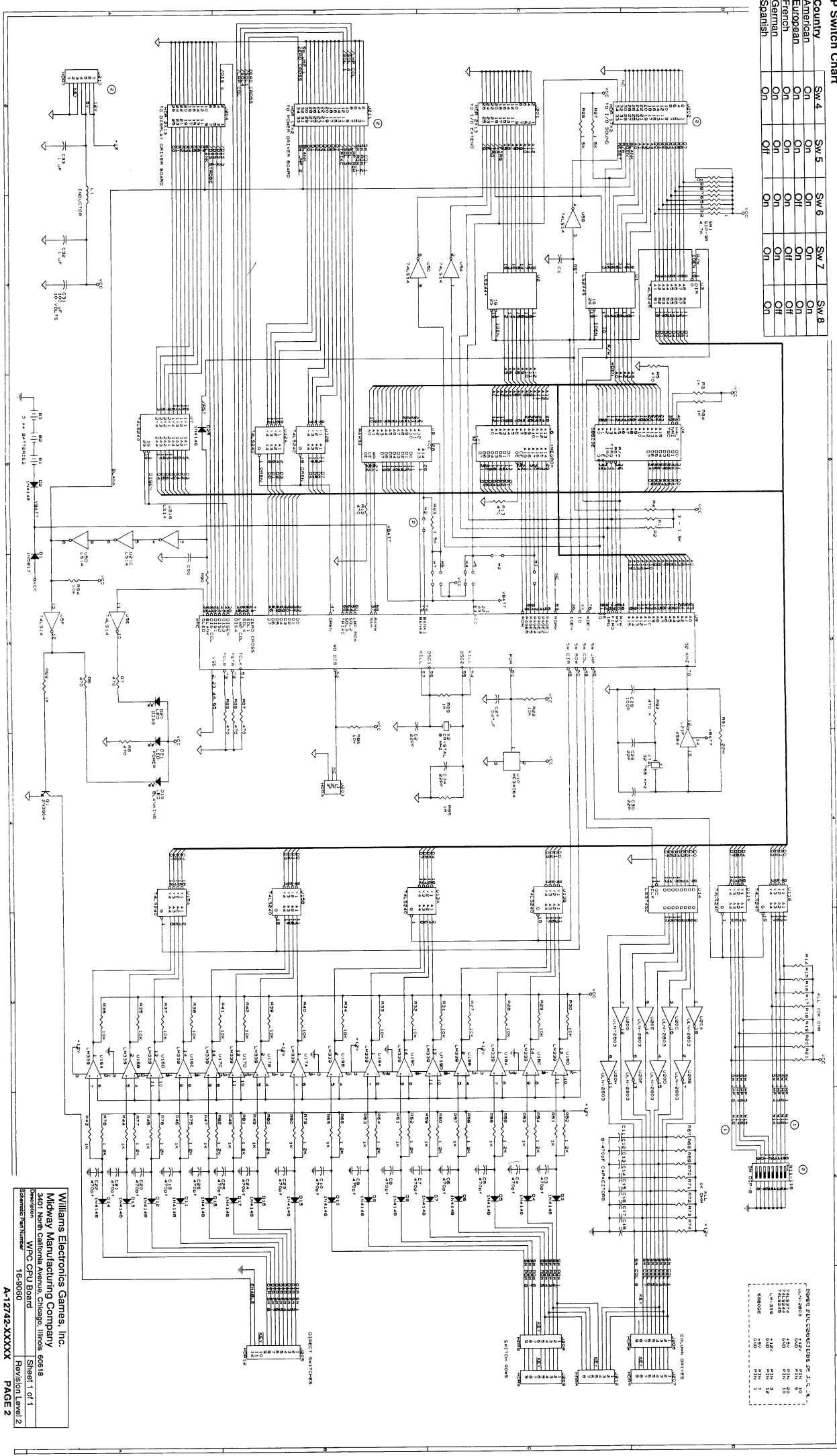
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Jumper Chart

Display	W1	W2
1M/2M/4M ROM	In	Out
512K/1M ROM	Out	In

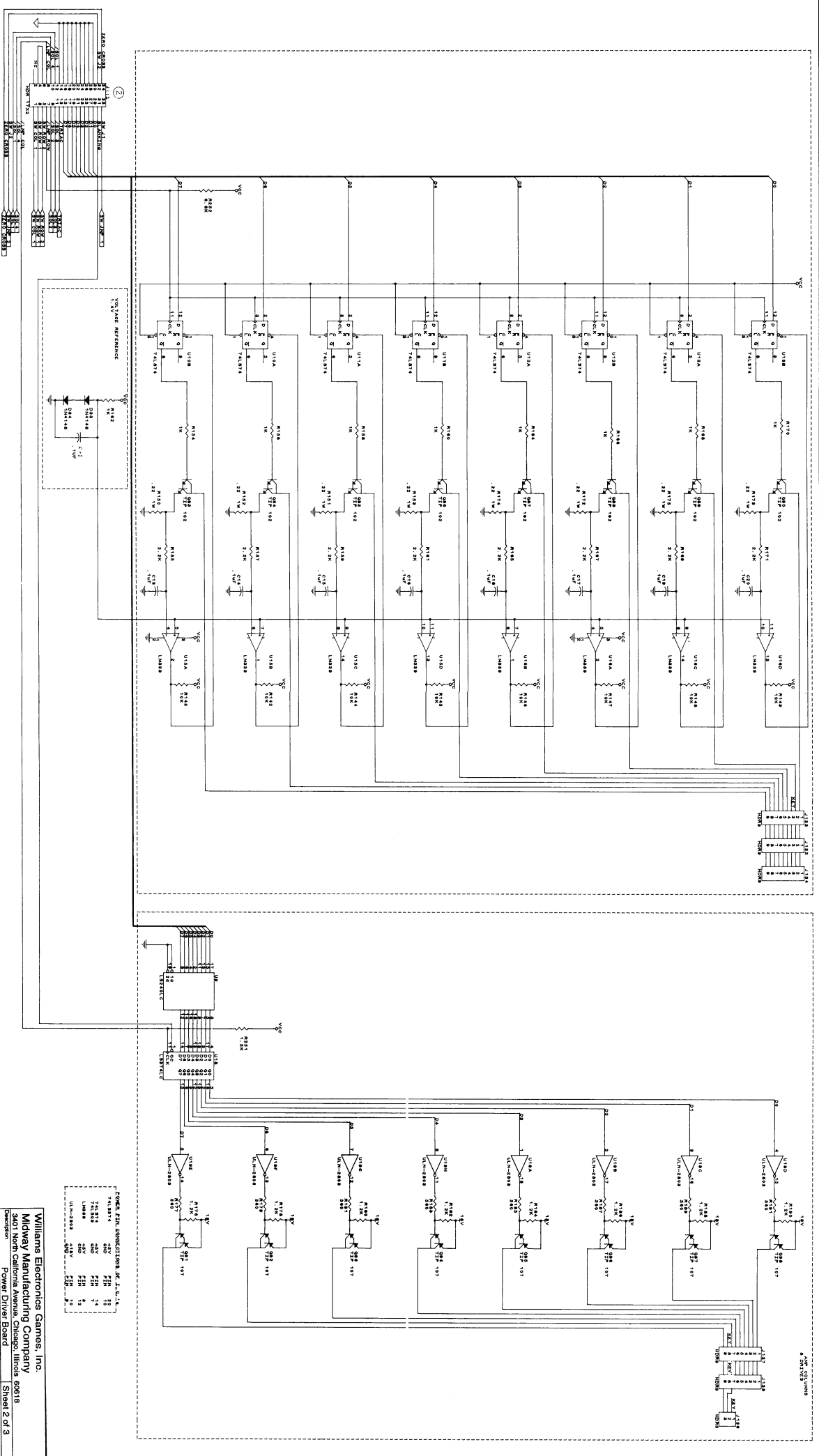
DIP Switch Chart

Country	SW 4	SW 5	SW 6	SW 7	SW 8
American	On	On	On	On	On
European	On	Off	On	On	On
French	On	On	Off	Off	Off
German	On	On	On	On	Off
Spanish	On	Off	On	On	On



POWER PIN CONNECTIONS AT J.C. 1-A

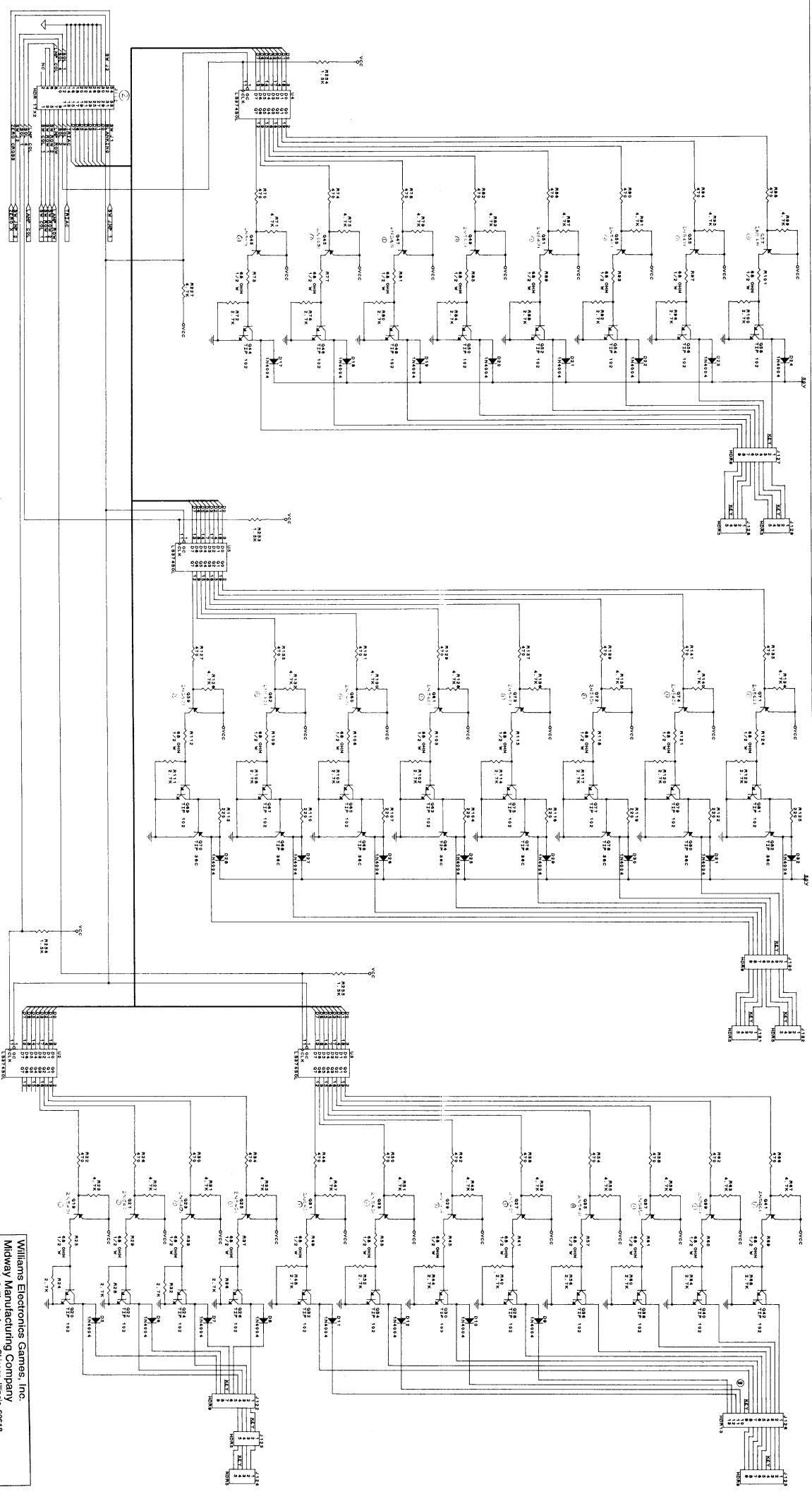
U1-1	1.5V	5V	5V
U1-2	5V	5V	5V
U1-3	5V	5V	5V
U1-4	5V	5V	5V
U1-5	5V	5V	5V
U1-6	5V	5V	5V
U1-7	5V	5V	5V
U1-8	5V	5V	5V
U1-9	5V	5V	5V
U1-10	5V	5V	5V
U1-11	5V	5V	5V
U1-12	5V	5V	5V
U1-13	5V	5V	5V
U1-14	5V	5V	5V
U1-15	5V	5V	5V
U1-16	5V	5V	5V
U1-17	5V	5V	5V
U1-18	5V	5V	5V
U1-19	5V	5V	5V
U1-20	5V	5V	5V



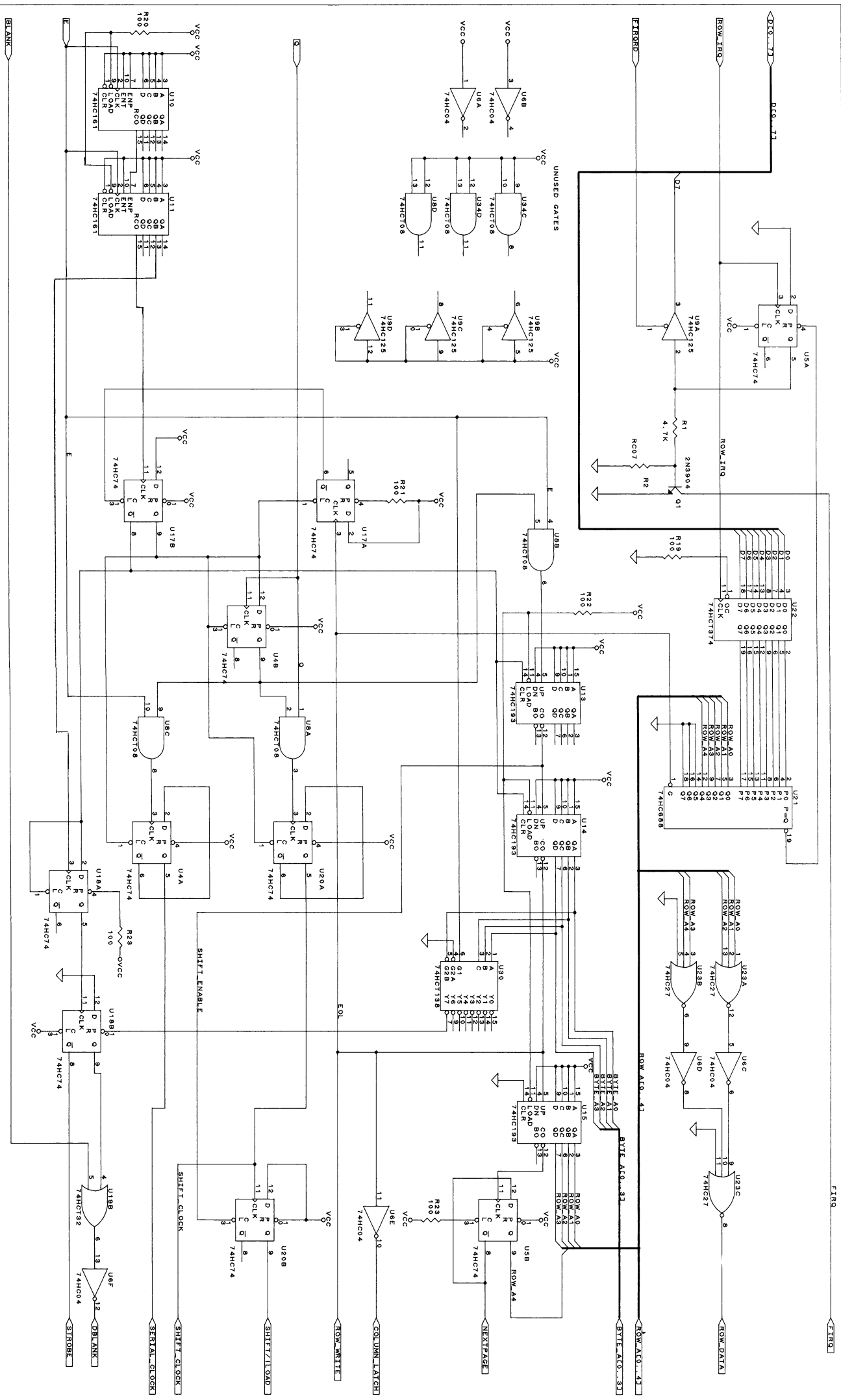
POWER PIN CONNECTIONS OF J. C. I.

74LS147	22	22	22	22	22	22	22
74LS138	20	20	20	20	20	20	20
74LS138	20	20	20	20	20	20	20
74LS138	20	20	20	20	20	20	20
74LS138	20	20	20	20	20	20	20
74LS138	20	20	20	20	20	20	20
74LS138	20	20	20	20	20	20	20

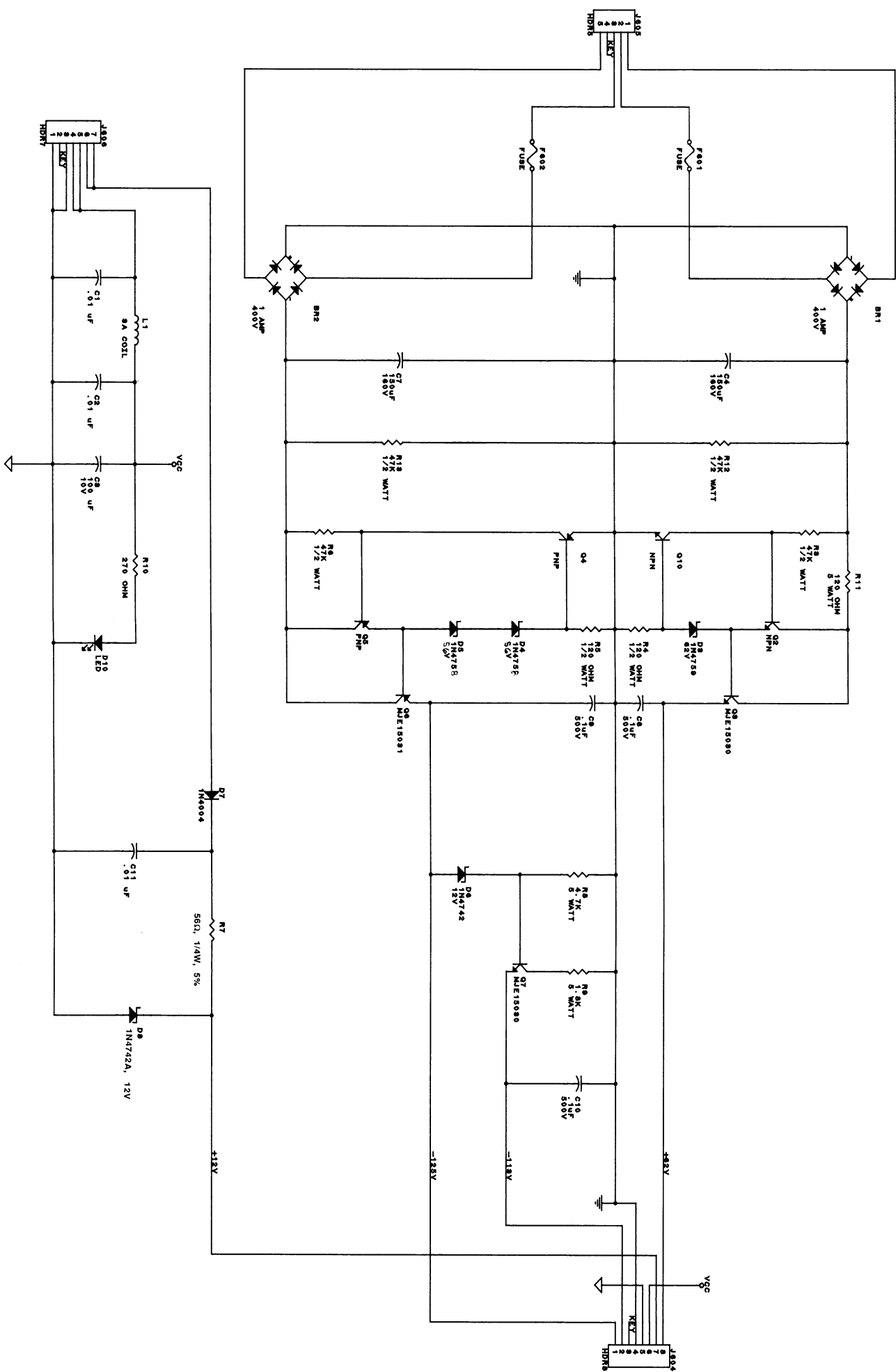
Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618
 Power Driver Board
 Revision Level 3
 15-9057
 A-12697-1
 PAGE 4

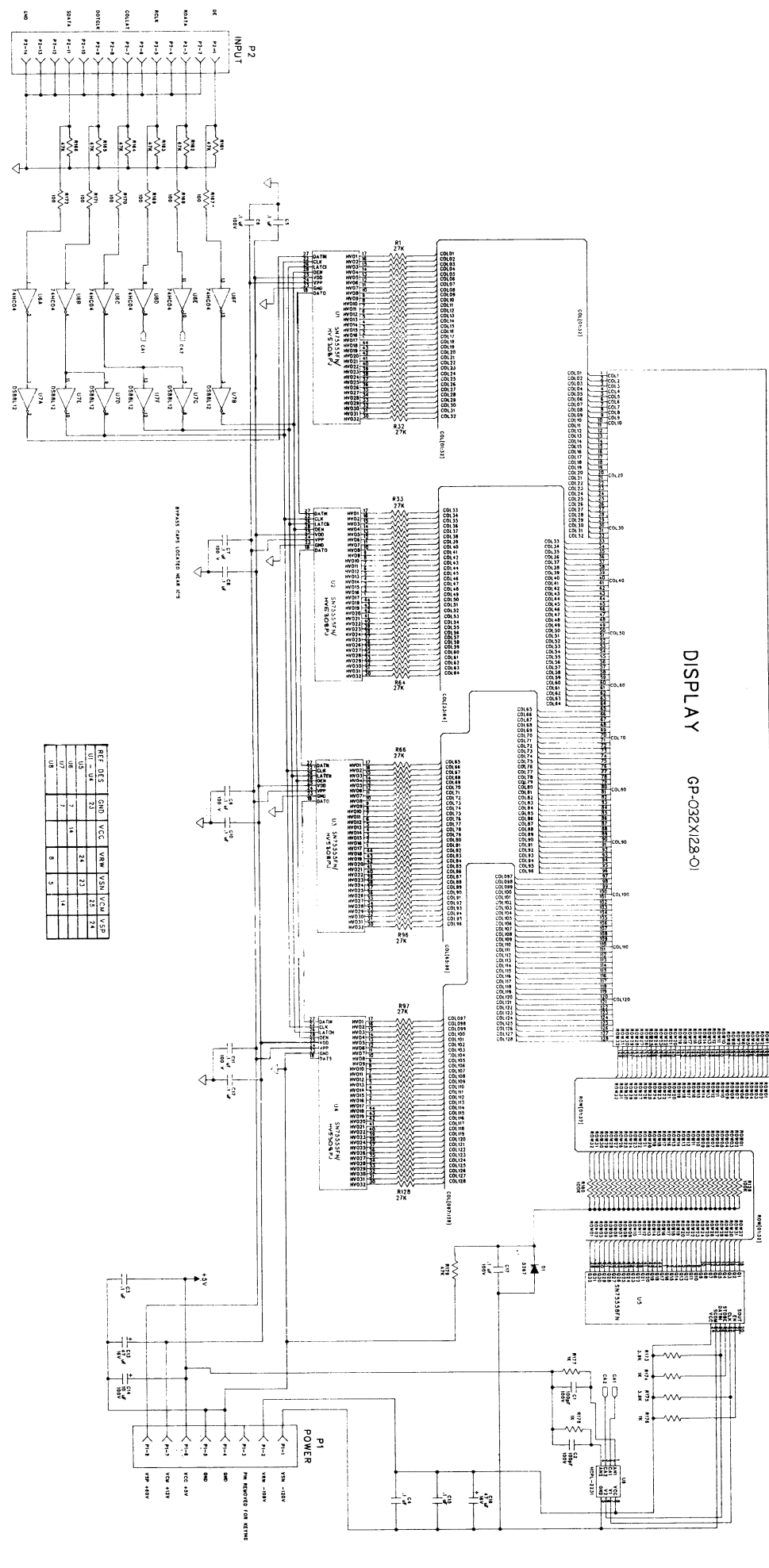


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 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618
 Designer: Power Driver Board
 Schematist: Paul Turner
 16-9057
 A-12897-1
 PAGE 5



Williams Electronics Games, Inc.
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 3401 North California Avenue, Chicago, Illinois 60618
 Description: DDI Matrix Controller Board
 Schematic Part Number: 16-5148
 Revision Level: 5



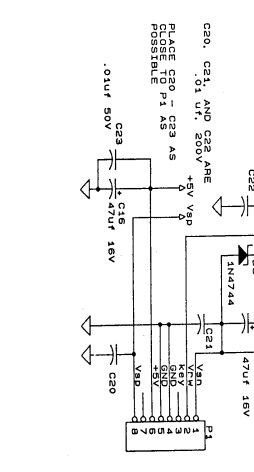
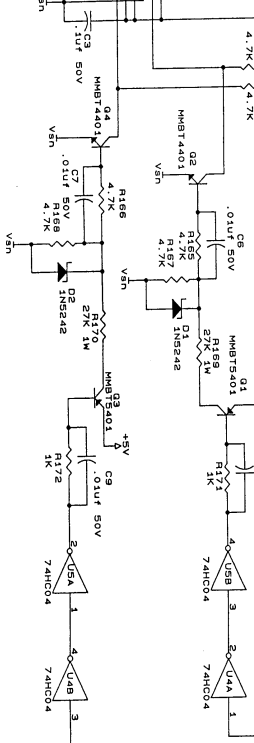
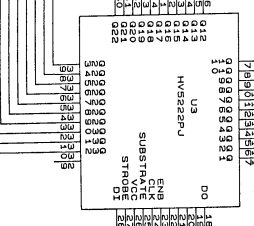
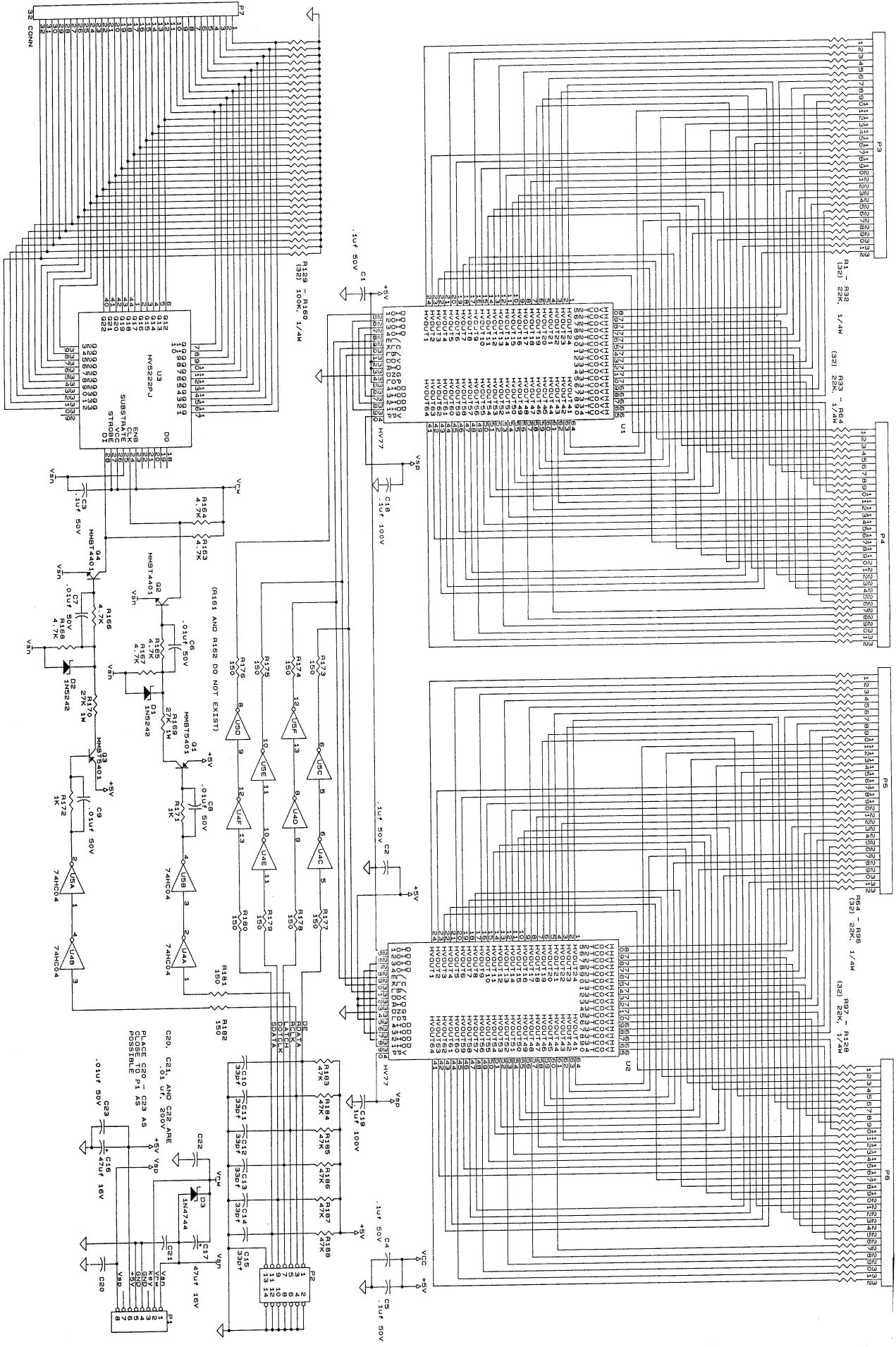


REF. DES.	QTY	COND.	VOL.	WATT.	RES.	TOL.	USE
U1	1	7418	5V	1/8	5%	2.4	2.4
U2	1	7418	5V	1/8	5%	2.4	2.4
U3	1	7418	5V	1/8	5%	2.4	2.4
U4	1	7418	5V	1/8	5%	2.4	2.4
U5	1	7418	5V	1/8	5%	2.4	2.4
U6	1	7418	5V	1/8	5%	2.4	2.4
U7	1	7418	5V	1/8	5%	2.4	2.4
U8	1	7418	5V	1/8	5%	2.4	2.4
U9	1	7418	5V	1/8	5%	2.4	2.4
U10	1	7418	5V	1/8	5%	2.4	2.4

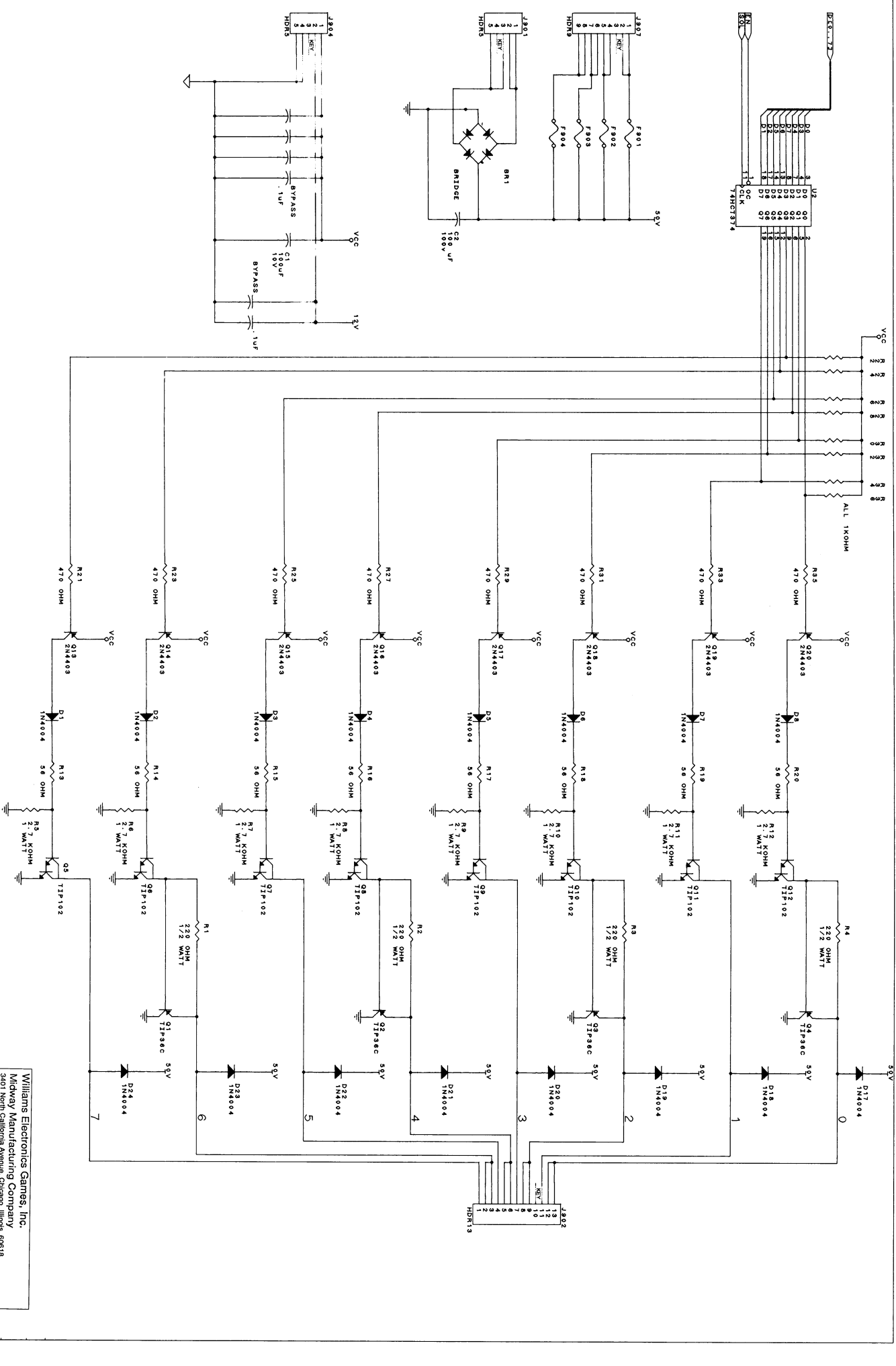
2. RESISTOR VALUES ARE IN OHMS, 1/8 WATT, 5%.
 1. CAPACITOR VOLTAGES ARE 50V, 20%.
- NOTES UNLESS OTHERWISE SPECIFIED.

Dot Matrix Display/Driver Board
 5901-12784-00
 PAGE 10

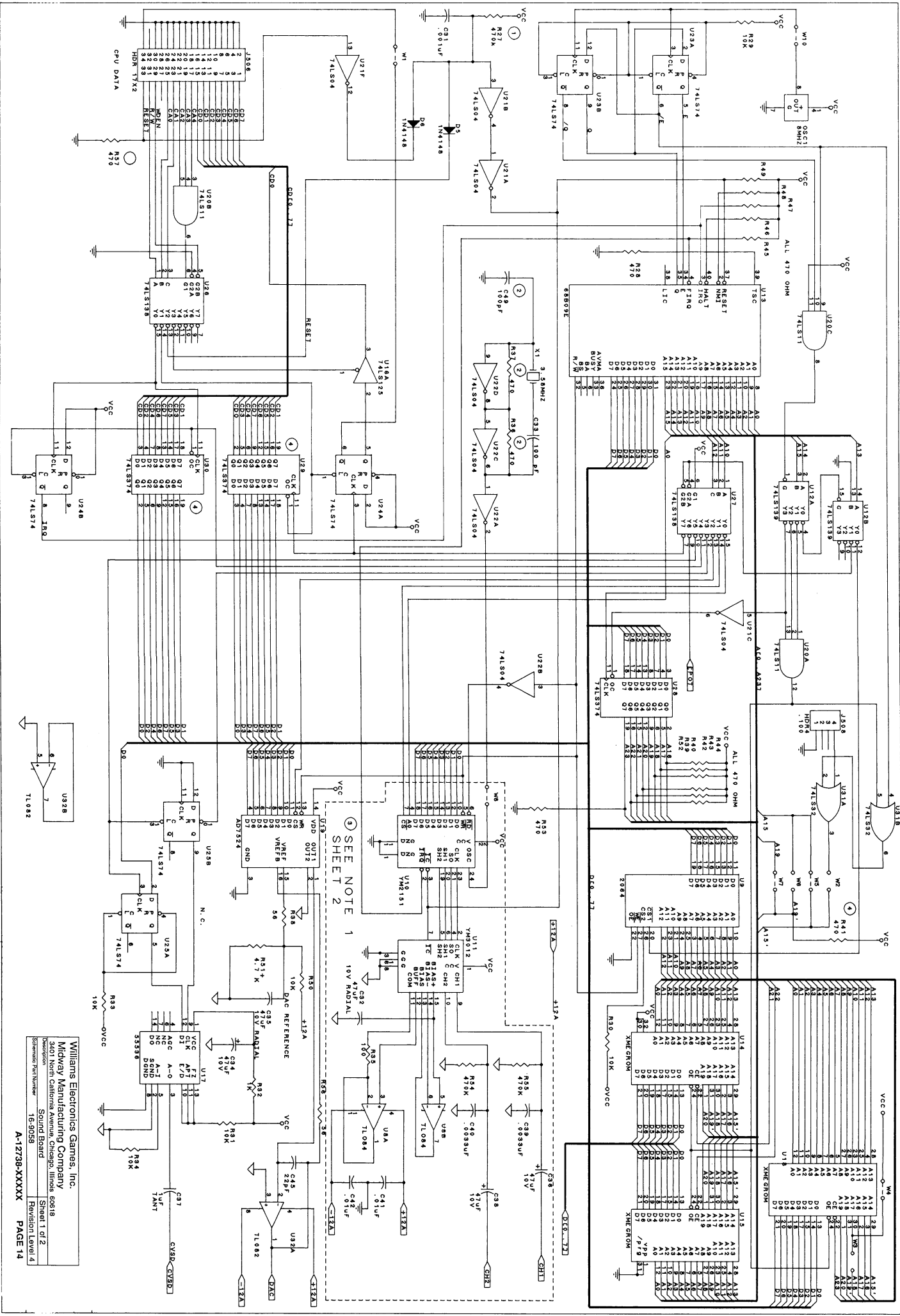
BARCOCK
 DISPLAY PRODUCTS, INC.
 1031 S. EAST STREET ANAHEIM, CALIFORNIA 92805
 SCHEMATIC



CHERRY ELECTRICAL
 PRODUCTS CORPORATION
 3600 N. MARKET AVE., WILKESBORO, N.C. 28697
 704-325-1111
 NAME SCHEMATIC SH, OF

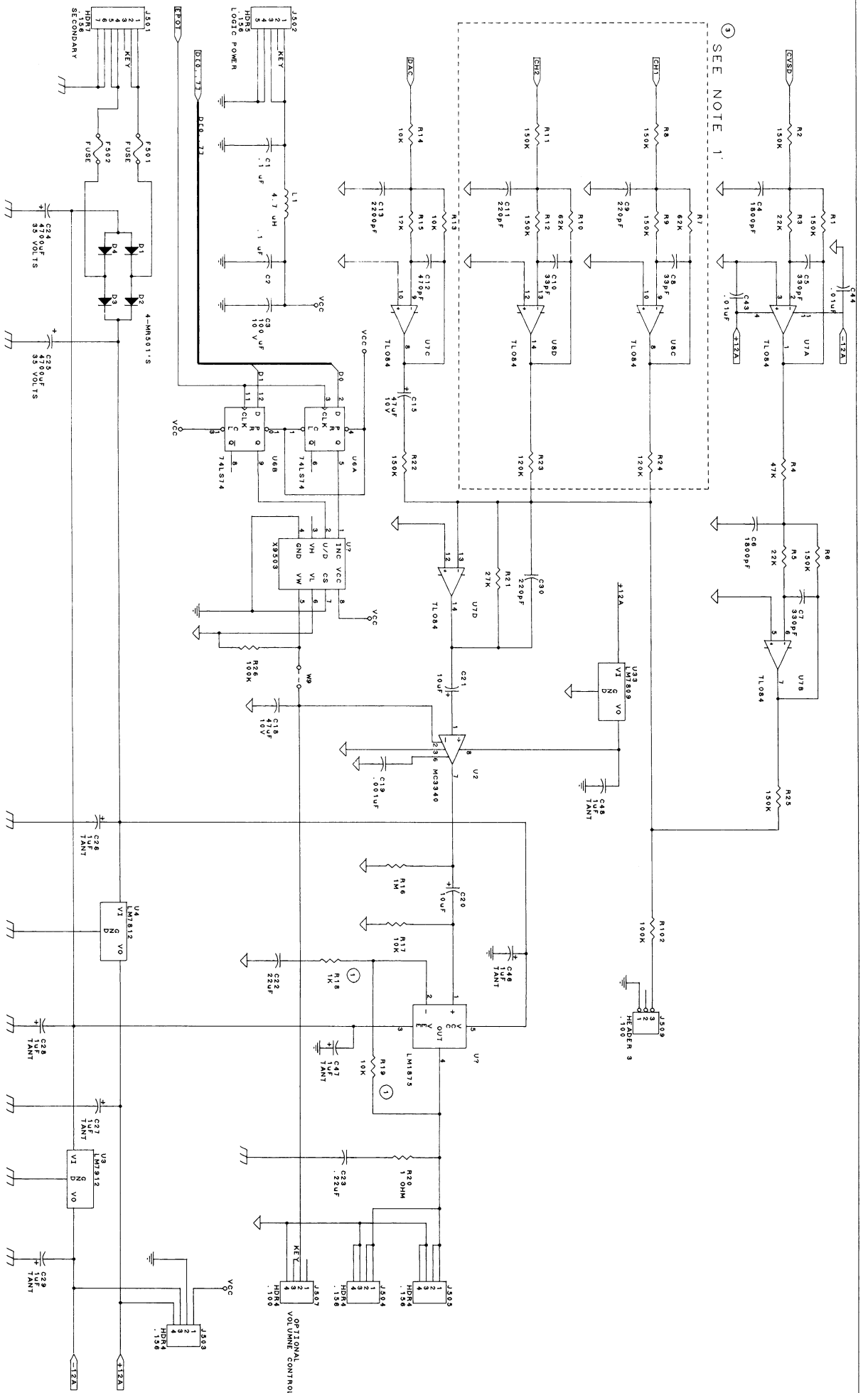


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 Description: Flipflop II Board
 Schematic Part Number: 16-9307
 Revision: Level 1
 A-15472
 PAGE 13



SEE NOTE 1
SHEET 2

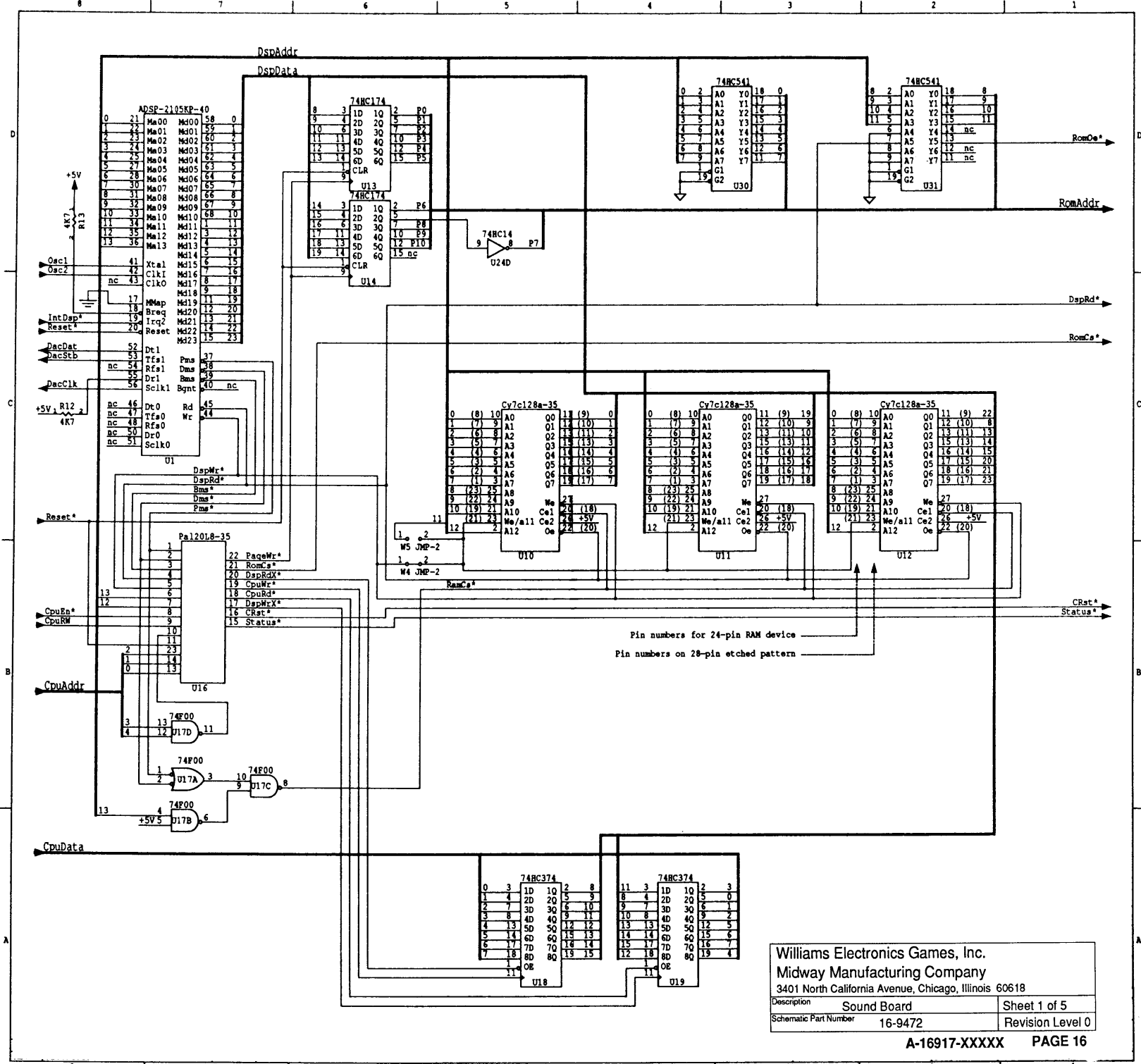
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Midway Manufacturing Company
3401 North California Avenue, Chicago, Illinois 60618
Description: Sound Board
Revision: 16-9058
Revision Level: 4
A-12738-XXXXX
PAGE 14



NOTES:

1 COMPONENTS BOUNDED BY DASHED LINES ARE NOT USED IN SHUFFLE ALLEY GAMES.

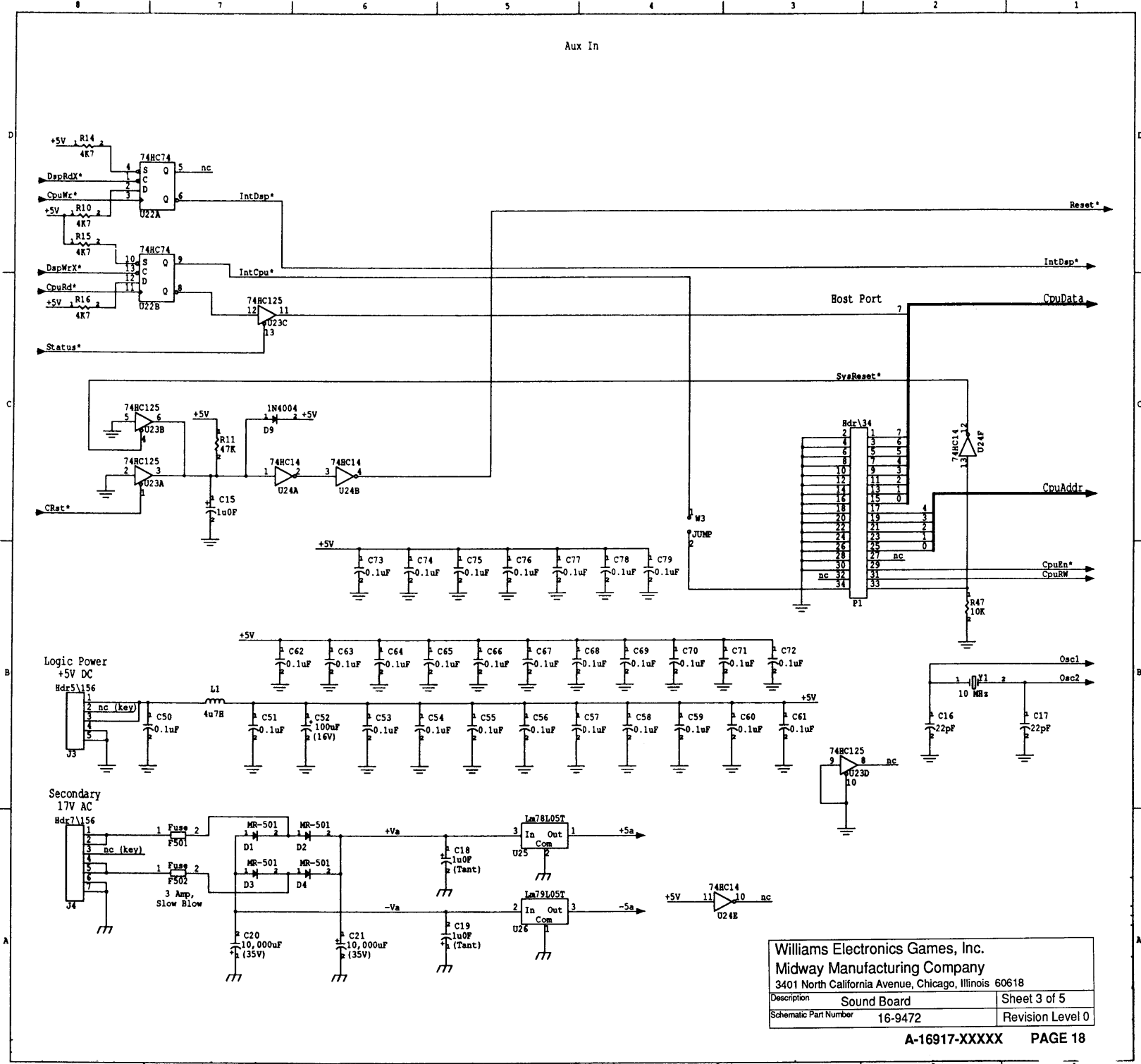
Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618
 Description: Sound Board
 Reference Part Number: 16-9058
 Revision Level: 4
 A-12738-XXXX PAGE 15



Pin numbers for 24-pin RAM device
 Pin numbers on 28-pin etched pattern

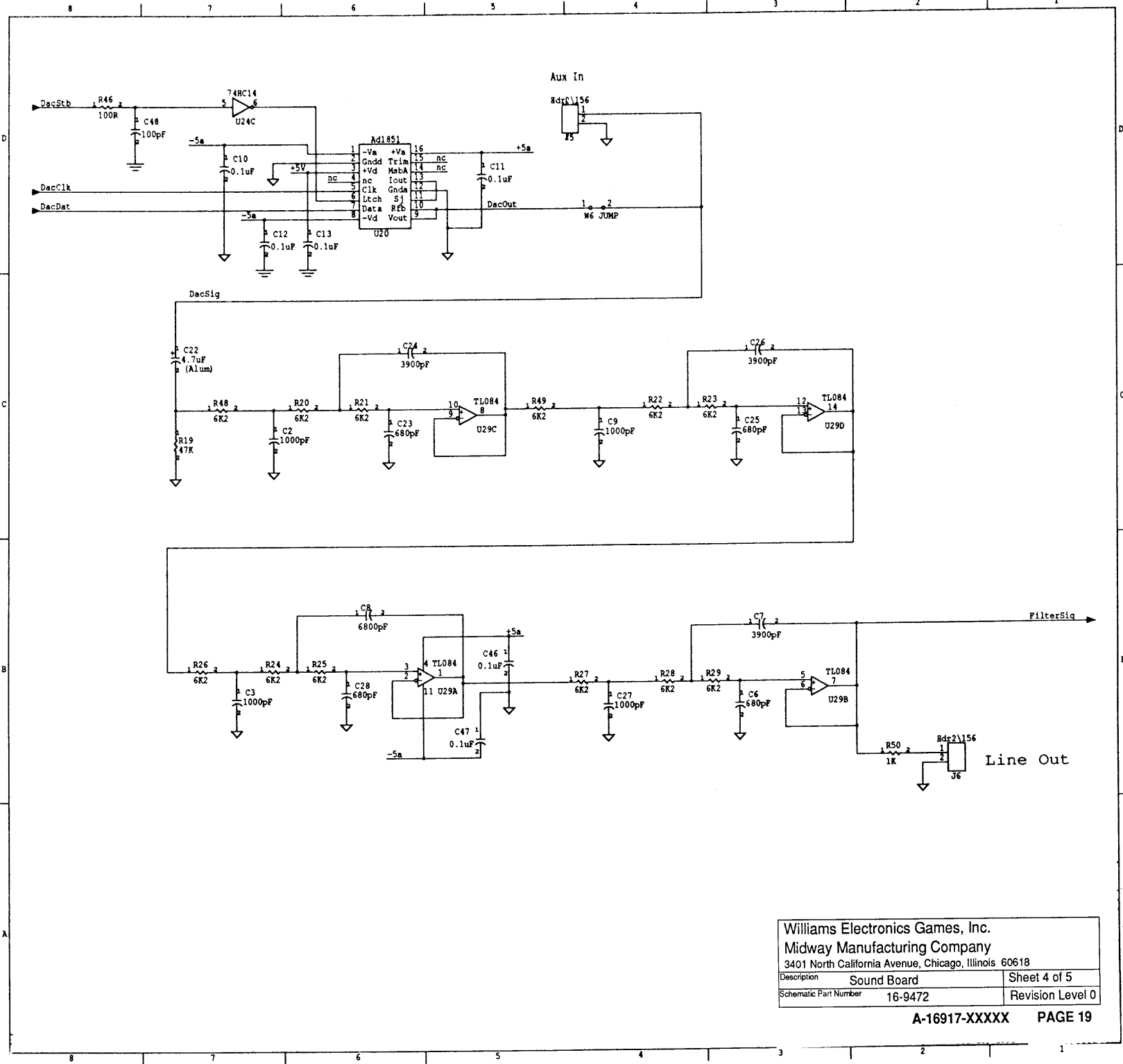
Williams Electronics Games, Inc.
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Description	Sound Board	Sheet 1 of 5
Schematic Part Number	16-9472	Revision Level 0



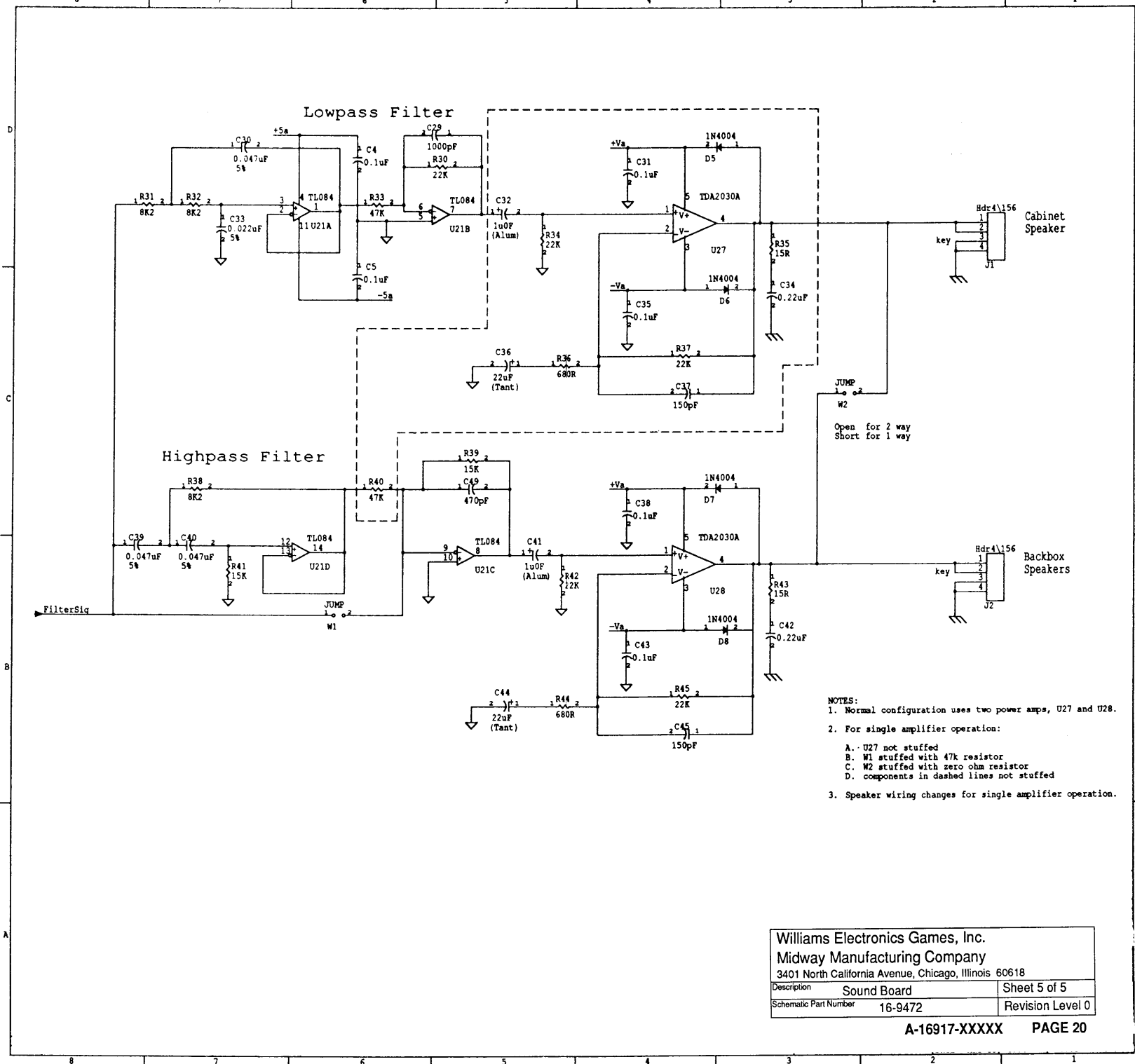
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Description	Sound Board	Sheet 3 of 5
Schematic Part Number	16-9472	Revision Level 0



Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618

Description	Sound Board	Sheet 4 of 5
Schematic Part Number	16-9472	Revision Level 0



- NOTES:
1. Normal configuration uses two power amps, U27 and U28.
 2. For single amplifier operation:
 - A. U27 not stuffed
 - B. W1 stuffed with 47k resistor
 - C. W2 stuffed with zero ohm resistor
 - D. components in dashed lines not stuffed
 3. Speaker wiring changes for single amplifier operation.

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Midway Manufacturing Company		
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Description	Sound Board	Sheet 5 of 5
Schematic Part Number	16-9472	Revision Level 0