

WILLIAMS ELECTRONICS GAMES, INC.
MIDWAY MANUFACTURING COMPANY
3401 North California Ave.
Chicago, Illinois 60618

**WPC
SCHEMATIC
MANUAL**

16-9834.2
JANUARY, 1995

Table of Contents

Power Wiring Diagram	1, 2
CPU Board Schematic	3
(Used before 4/4/94)	
Security CPU Board Schematic	4
(Used after 4/4/94)	
Power Driver Board Schematic	5 thru 7
Dot Matrix Controller Board Schematic	8 thru 11
Dot Matrix Display/Driver Board Schematic (Babcock)	12
Dot Matrix Display/Driver Board Schematic (Cherry)	13
Fliptronic II Board Schematic	14, 15
Sound Board Schematic	16 thru 20

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.

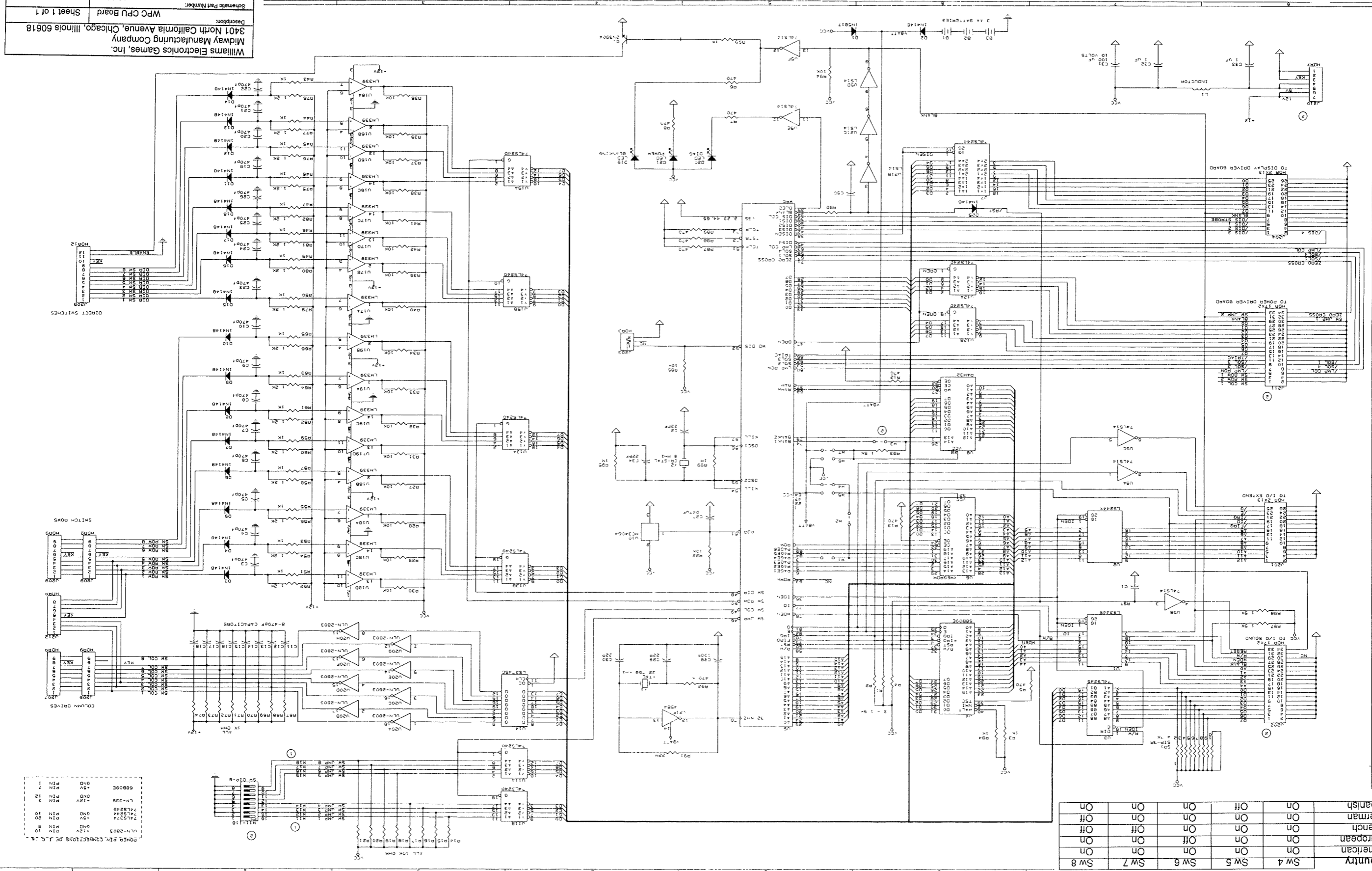
Midway Manufacturing Company reserves the rights to make modifications and improvements to its products. The specifications and parts identified in this manual are subject to change without notice.

Jumper Chart

Display	W1	W2
1M/2M/4M ROM	In	Out
512K/1M ROM	In	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	On	Off	On
German	On	On	On	On	On
Spanish	On	Off	On	On	On



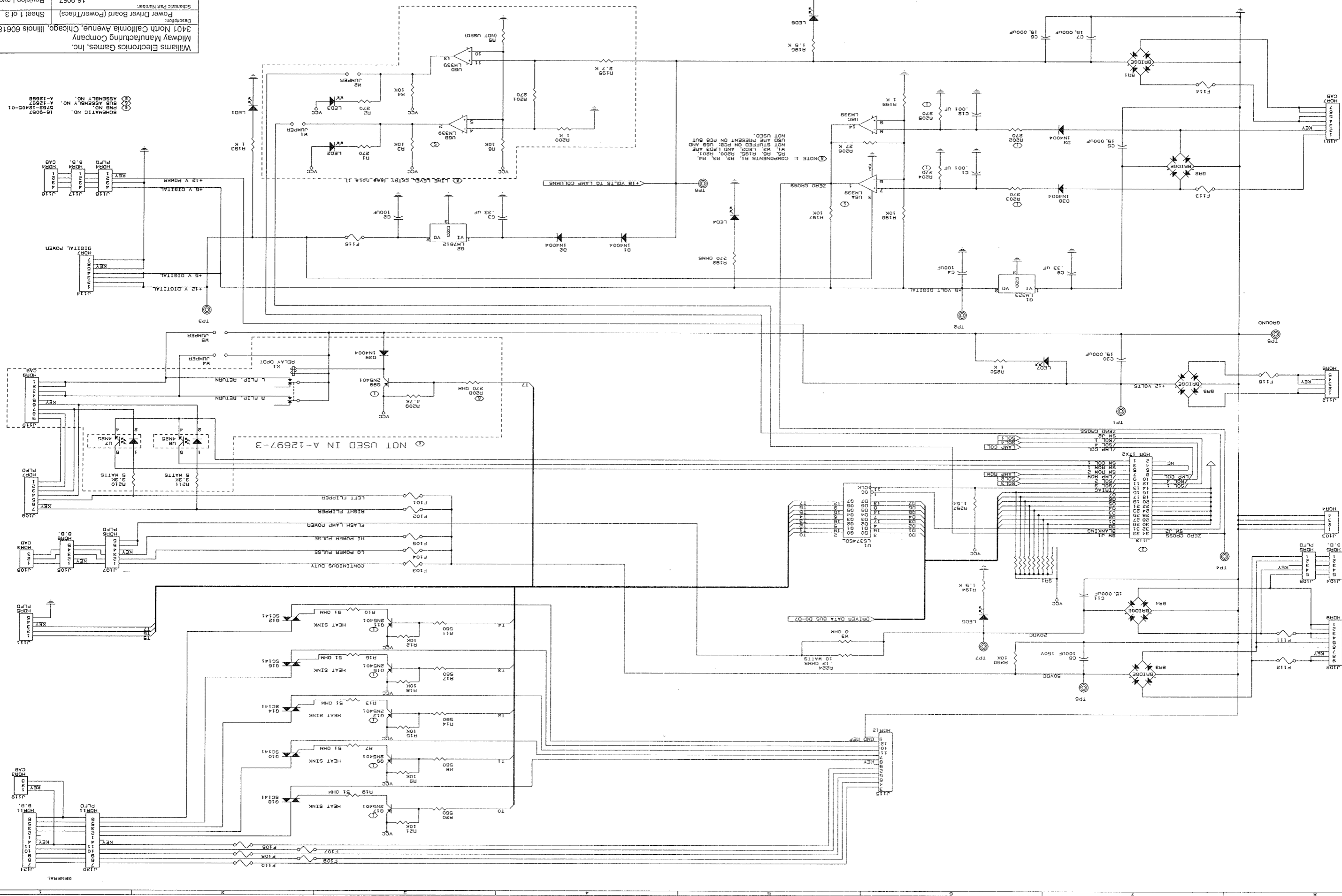
Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618
 WPC CPU Board
 Sheet 1 of 1
 Revision Level 2
 16-9060
 Schema Part Number:
 A-12742-XXXXX PAGE 3

POWER PIN CONNECTIONS DE J.C.C.

688096	0V	PIN 1
LM-339	+5V	PIN 7
74LS274	0V	PIN 3
74LS244	+5V	PIN 12
74LS244	0V	PIN 10
74LS244	+5V	PIN 20
74LS244	0V	PIN 9
74LS244	+5V	PIN 18

Williams Electronics Games, Inc.
 3401 North California Avenue, Chicago, Illinois 60618
 Description: Power Driver Board (Power/Triacs)
 Sheet 1 of 3
 Revision Level 6
 16-9057

SCHEMATIC NO. 16-9057
 PCB NO. 2753-1605-01
 SUB ASSEMBLY NO. A-12697
 ASSEMBLY NO. A-12698

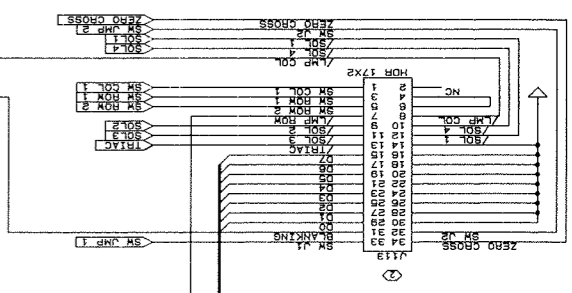
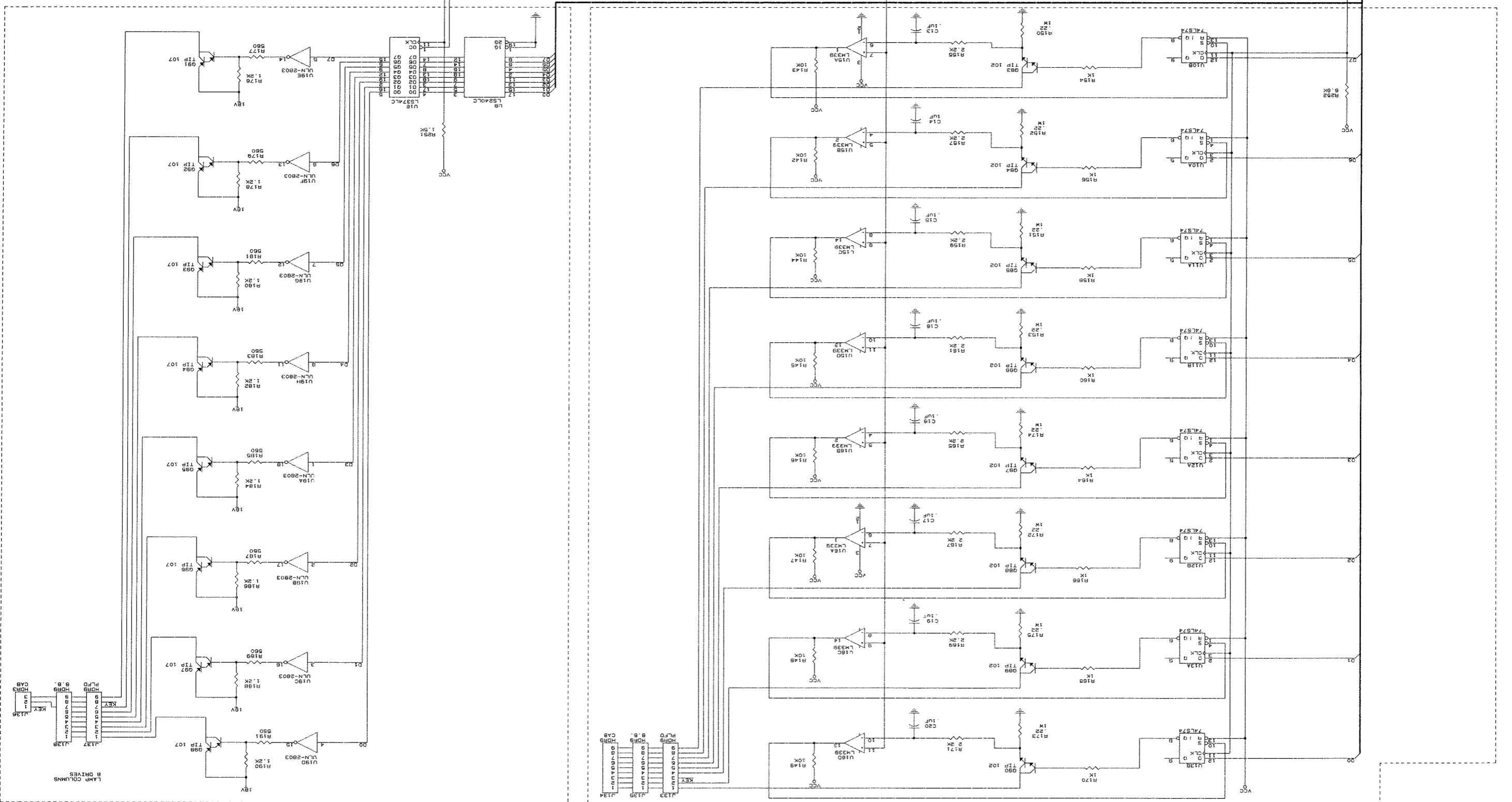


GENERAL

SCHEMATIC NO. 16-9057
 SUB ASSEMBLY NO. A-12697
 ASSEMBLY NO. A-12698

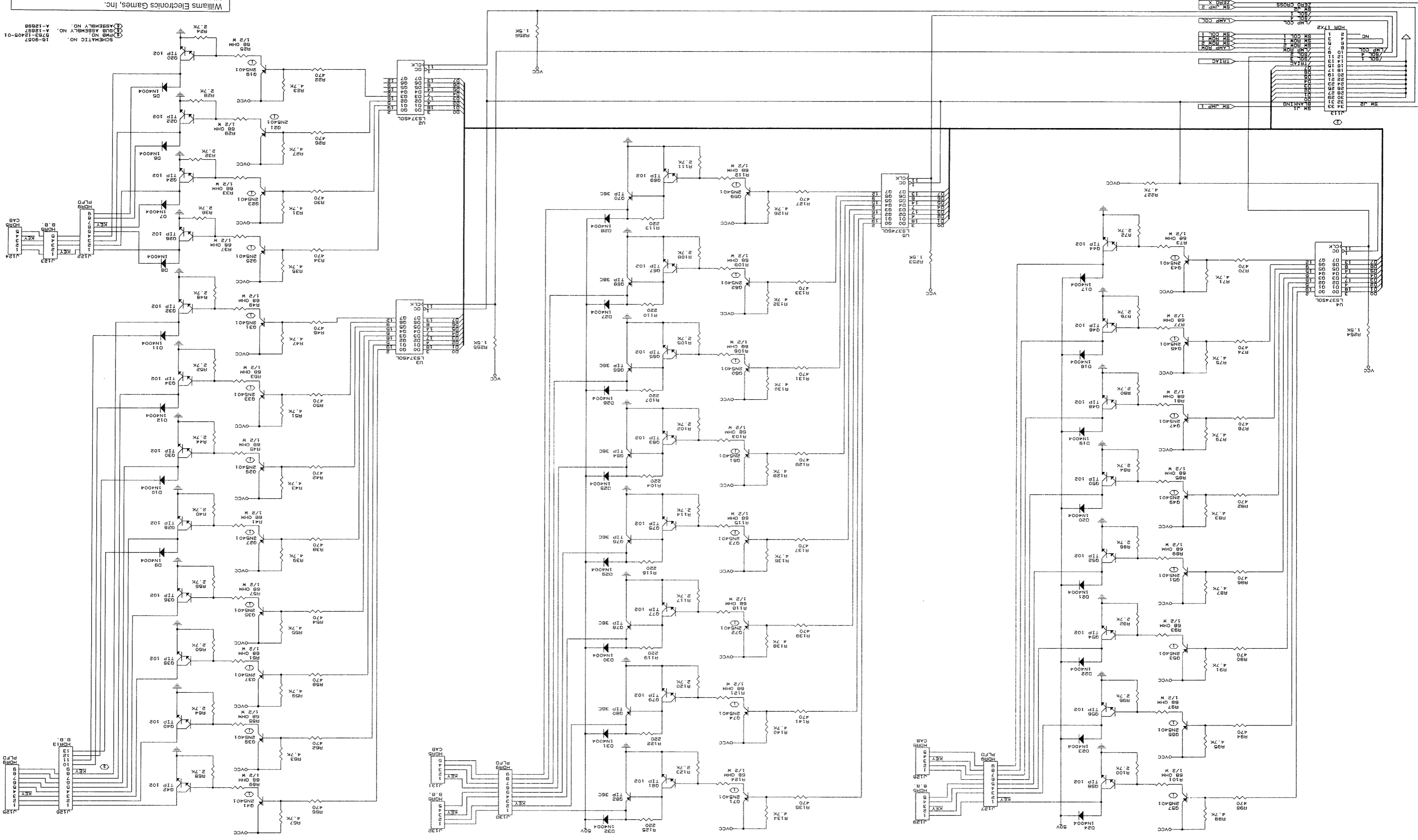
POWER PIN CONNECTIONS DE J.C.S.

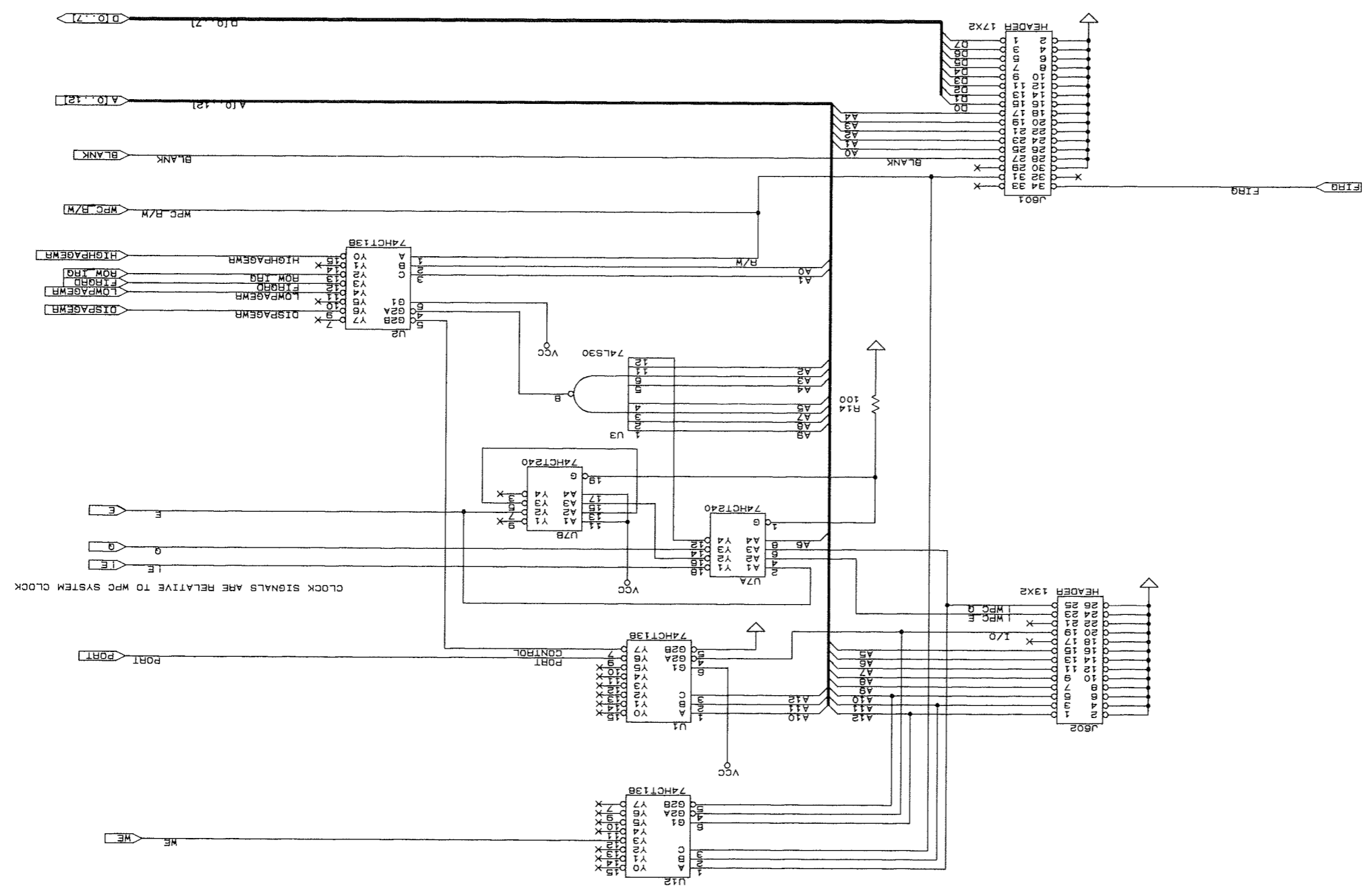
74LS74	+5V	PIN 10	74LS74	+5V	PIN 20
74LS74	GND	PIN 14	74LS74	GND	PIN 10
74LS74	GND	PIN 7	74LS74	GND	PIN 14
LM339	+5V	PIN 3	LM339	+5V	PIN 3
LM339	GND	PIN 10	LM339	GND	PIN 10
ULN-2803	+5V	PIN 10	ULN-2803	+5V	PIN 10
ULN-2803	GND	PIN 18	ULN-2803	GND	PIN 18

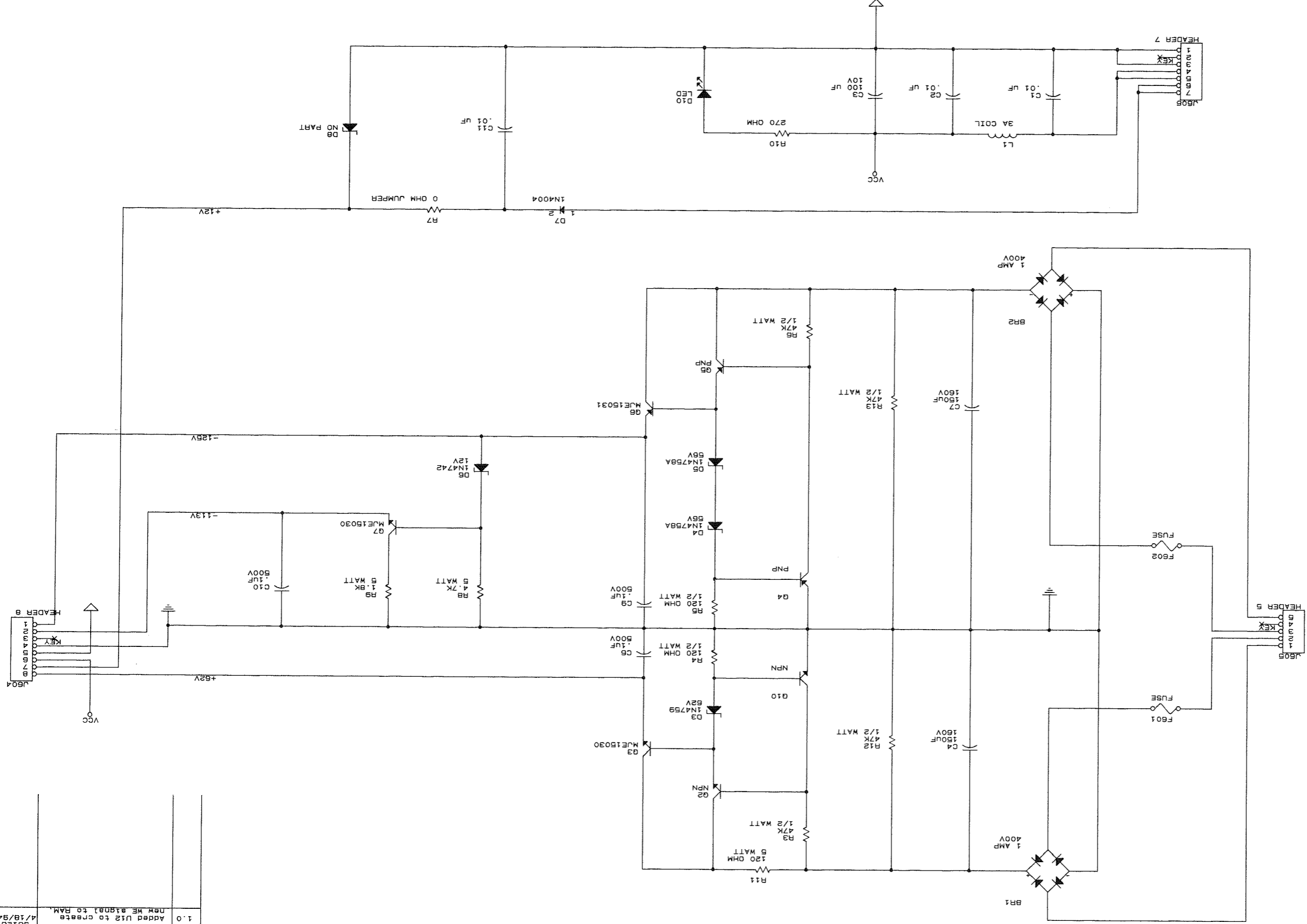


Williams Electronics Games, Inc.
 3401 North California Avenue, Chicago, Illinois 60618
 Description: Power Driver Board (Solenooids)
 Sheet 3 of 3
 16-9057
 Revision Level 6
 Schematic Part Number

16-9057
 5753-12405-01
 SUB ASSEMBLY NO. A-12697
 ASSEMBLY NO. A-12698
 SCHEMATIC NO.







REV	DESCRIPTION OF CHANGE	ECN NO.	DATE
1.0	Added U12 to create new ME signal to RAM.	36128	4/18/94

REV	DESCRIPTION OF CHANGE	ECN NO.	DATE
1.0	Added U12 to create ROM WE signal to RAM.	36128	4/18/94

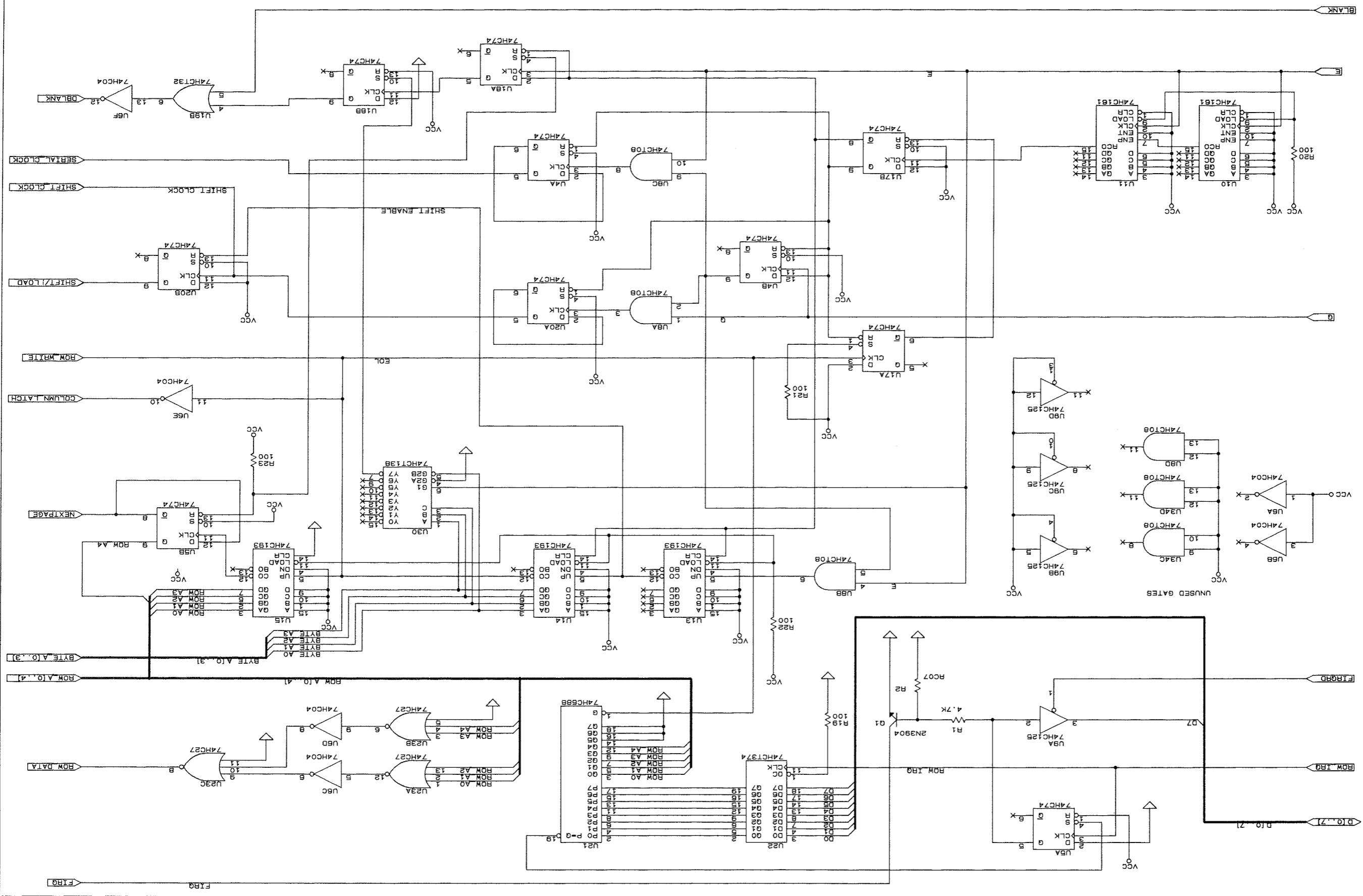
Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618

Description:
 Dot Matrix Controller Board

Schema Part Number:
 16-9148.1

Revision Level:
 1

Sheet 4 of 4
 A-14039.1 PAGE 11



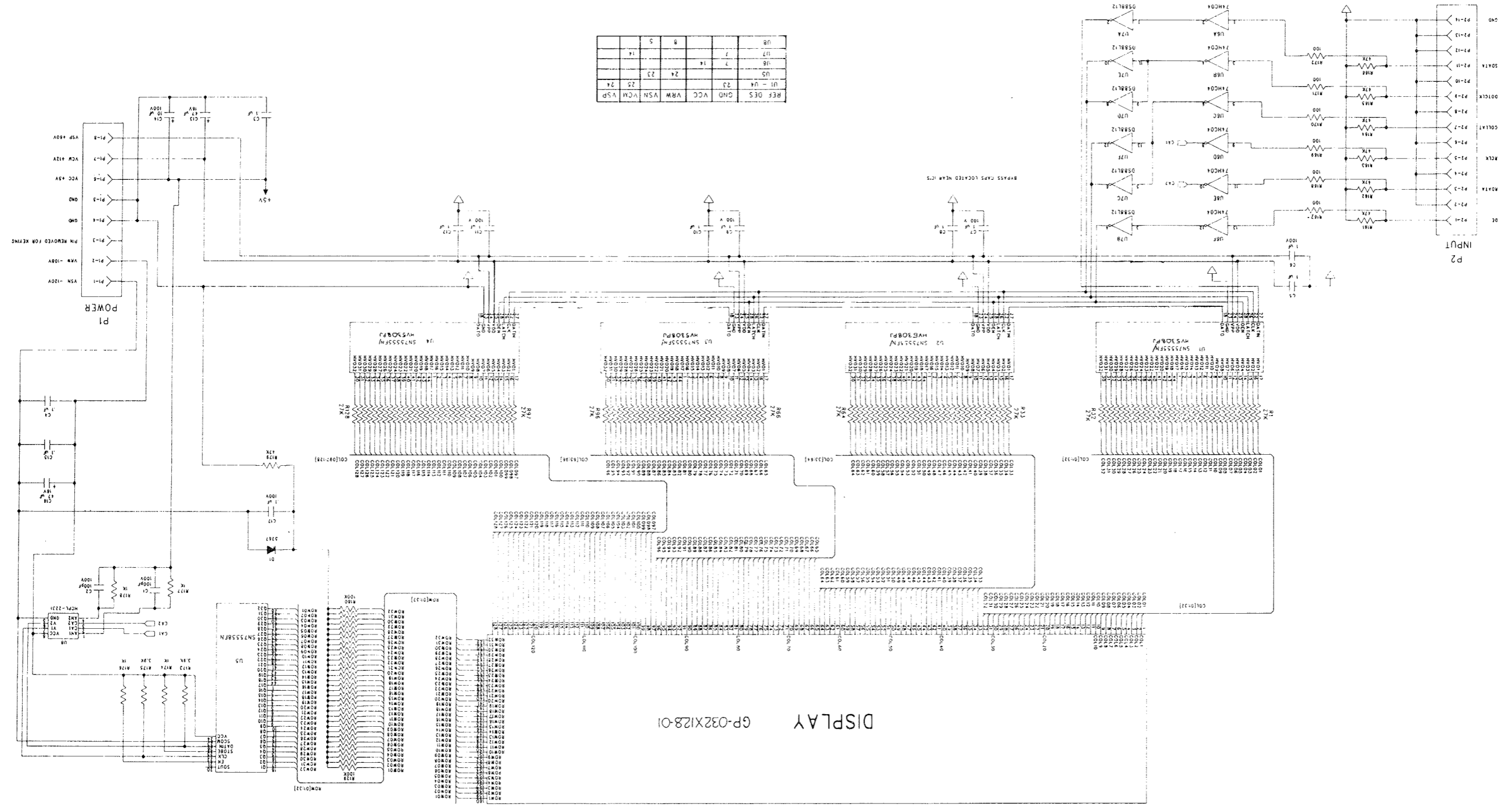
SCHEMATIC

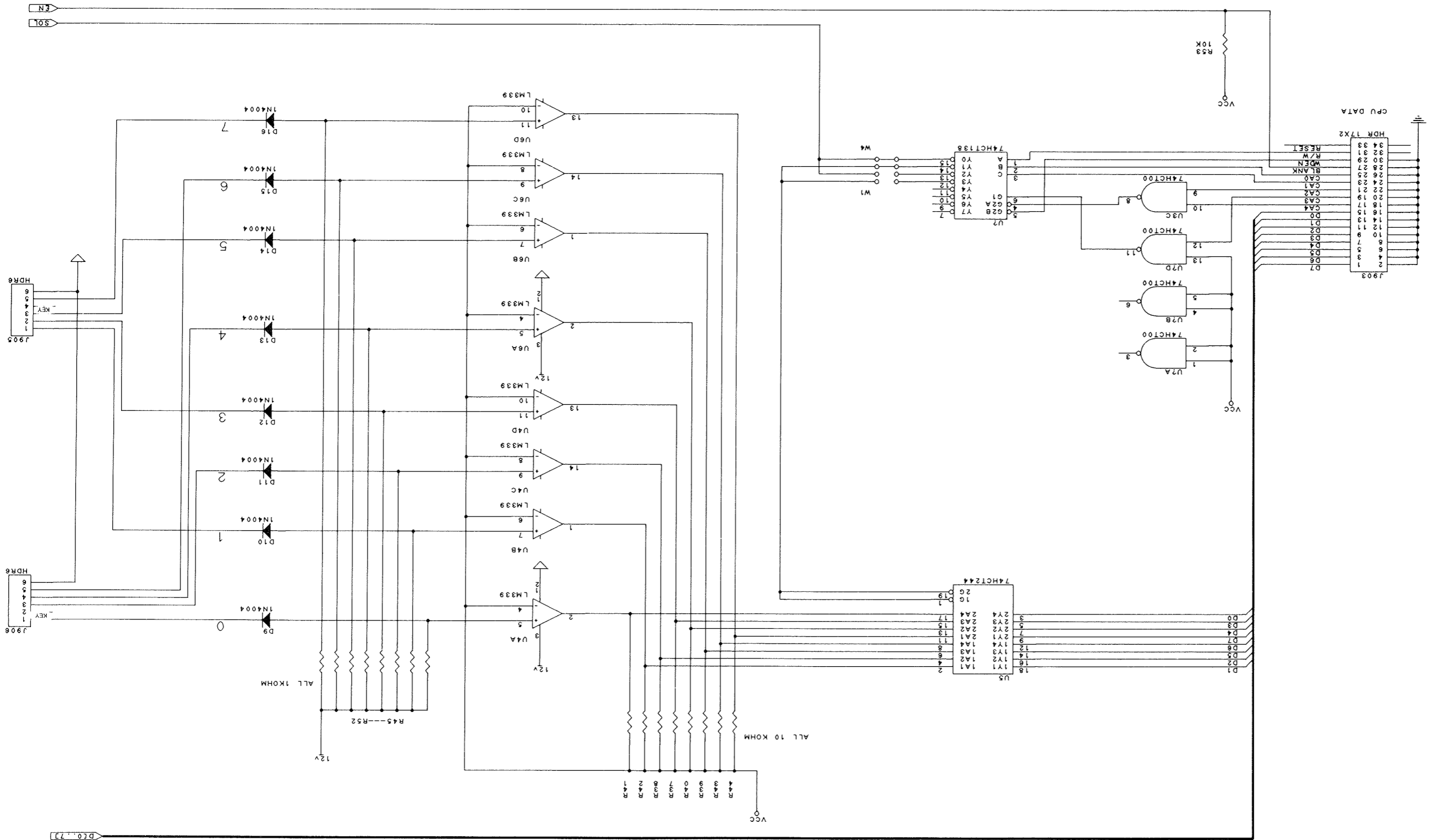
BARCOCK
DISPLAY PRODUCTS, INC.
1051 S. EAST STREET, ANAHEIM, CALIFORNIA 92805

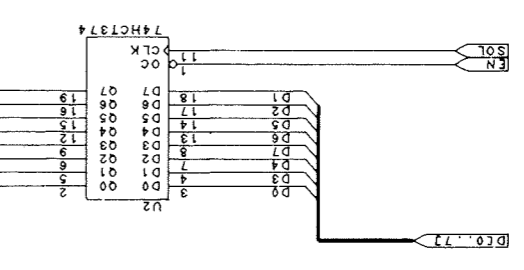
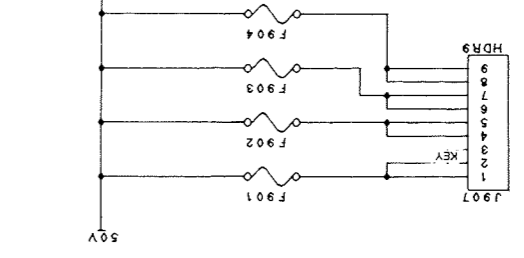
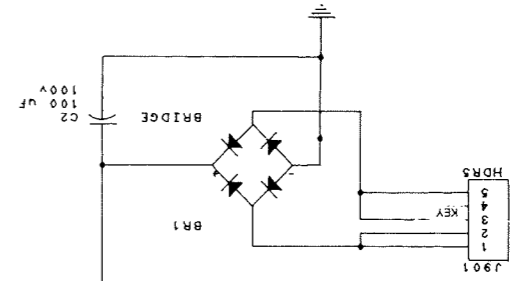
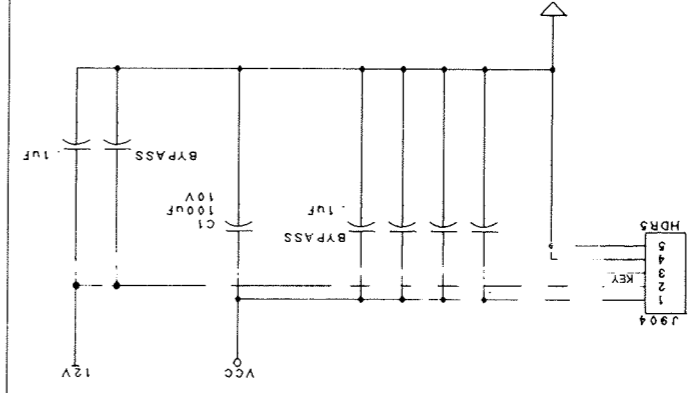
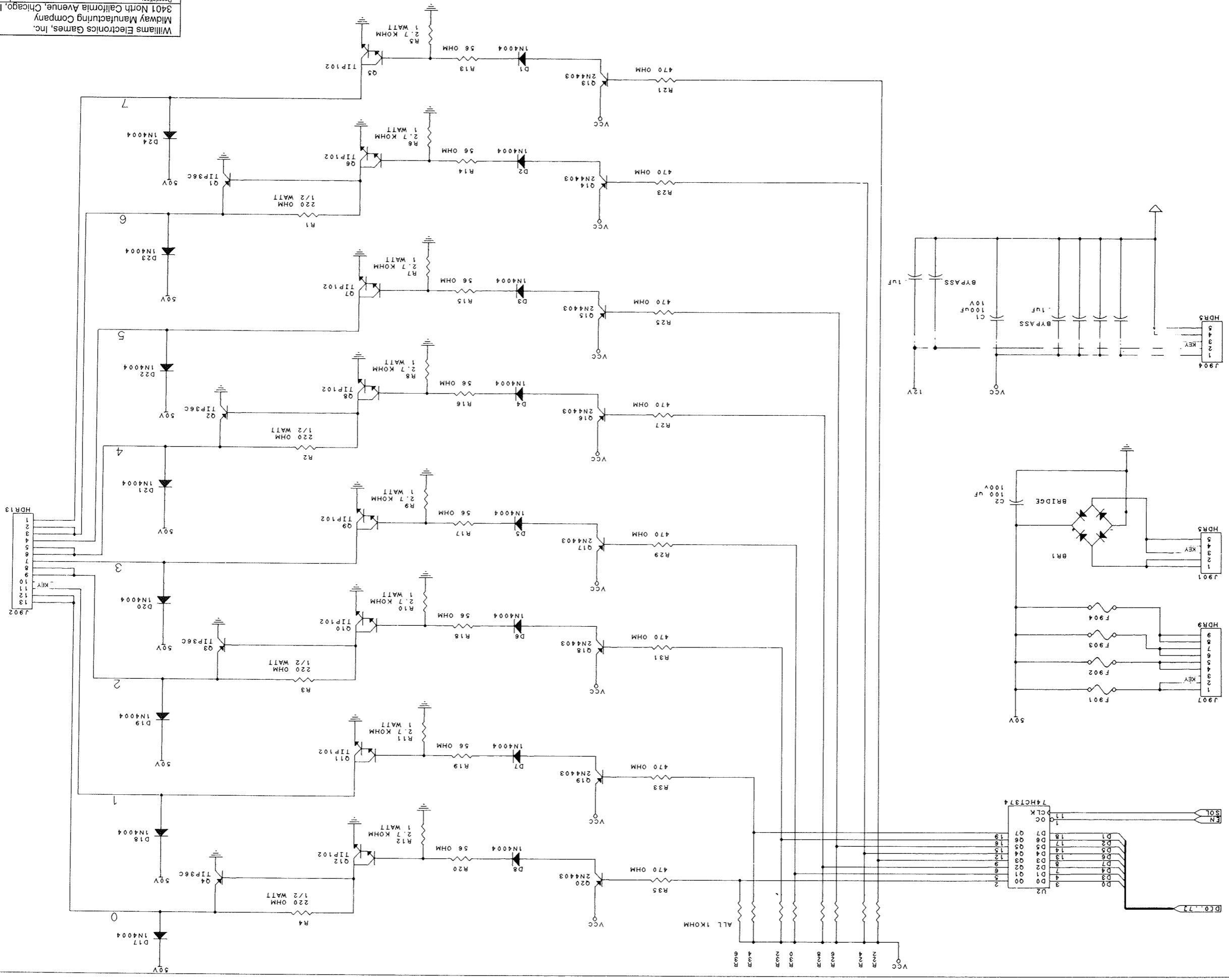
Williams Electronics Games, Inc.	Revision Level
Midway Manufacturing Company	Sheet 1 of 1
3401 North California Avenue, Chicago, Illinois 60618	
Dot Matrix Display/Driver Board	
Schematic Part Number:	
9901-12784-00	PAGE 12

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

REF	DES	GND	VCC	VRM	VSN	VCM	VSP
U8	U17	7	14	5			
U5	U16	7	14	23			
U1	U4	23	23	23			







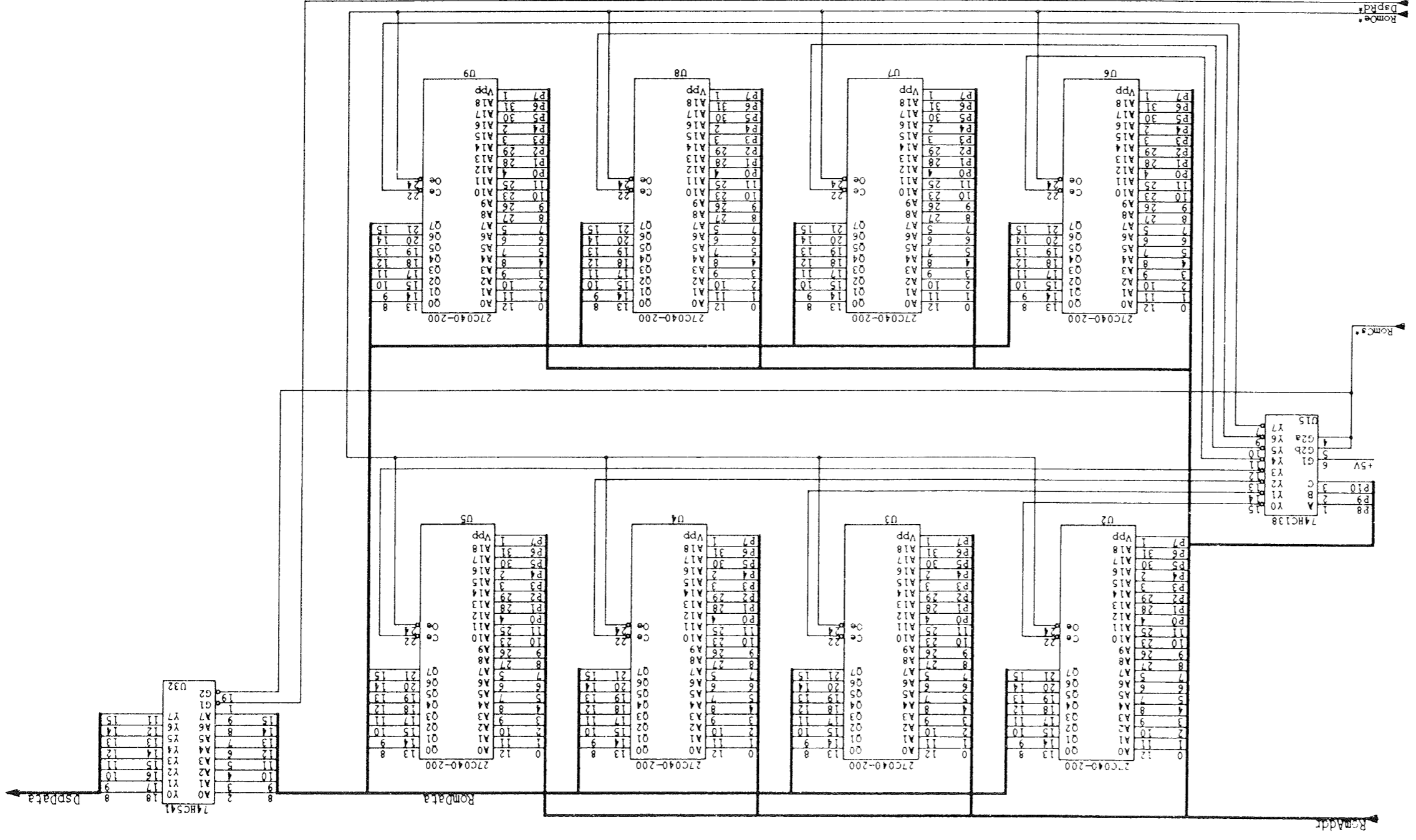
Williams Electronics Games, Inc.
 Midway Manufacturing Company
 3401 North California Avenue, Chicago, Illinois 60618

Description:
 Sound Board

Schematic Part Number:
 16-9472

Revision Level
 Sheet 2 of 5

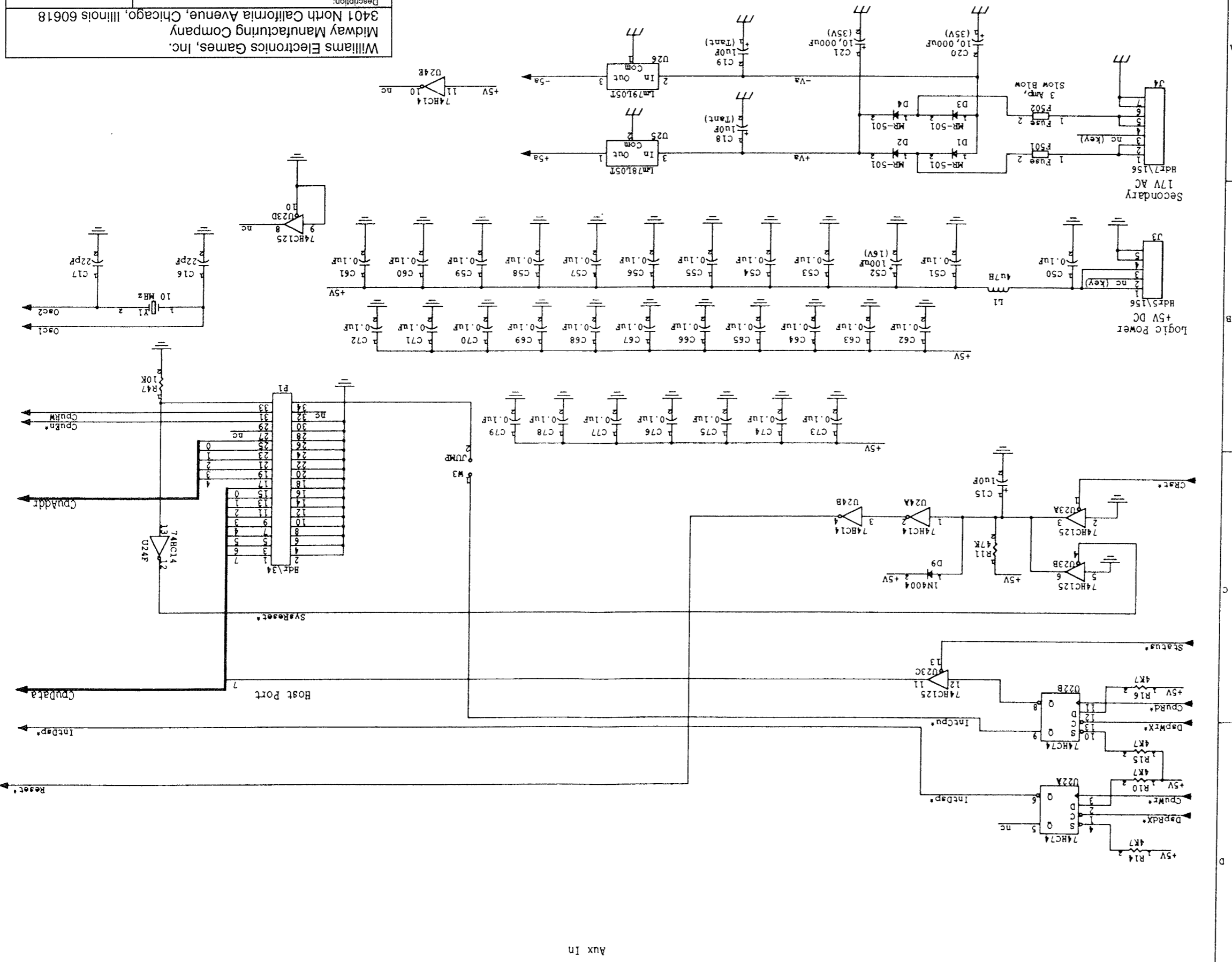
A-16917-XXXXX PAGE 17



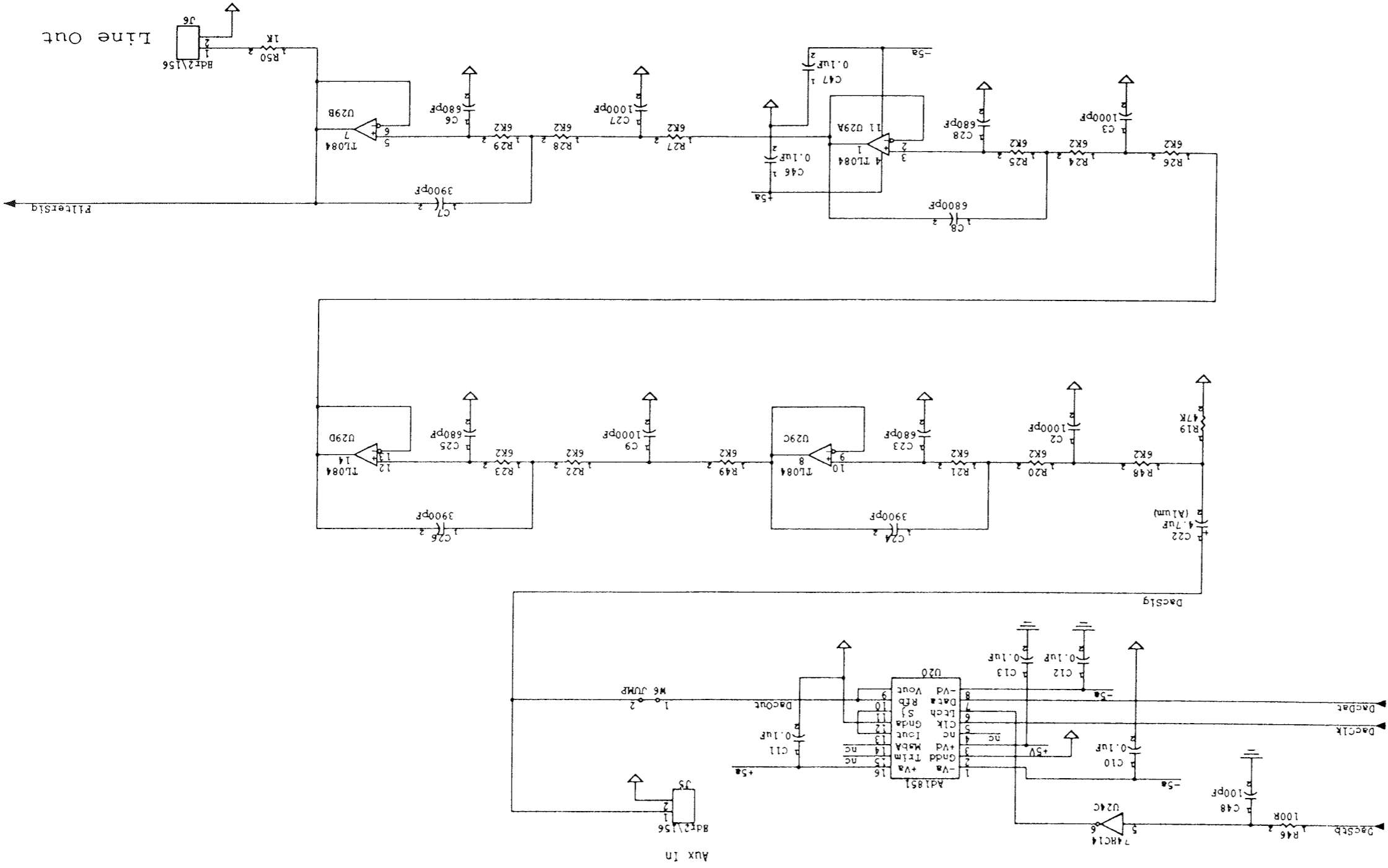
1 2 3 4 5 6 7 8

A B C D

Description: Midway Manufacturing Company 3401 North California Avenue, Chicago, Illinois 60618 Williams Electronics Games, Inc.	
Sound Board	
Sheet 3 of 5	
Schematic Part Number: 16-9472	
Revision Level A-16917-XXXXX PAGE 18	



Williams Electronics Games, Inc. 3401 North California Avenue, Chicago, Illinois 60618	
Description:	Sound Board
Schematic Part Number:	16-9472
Revision Level	
A-16917-XXXXX PAGE 19	

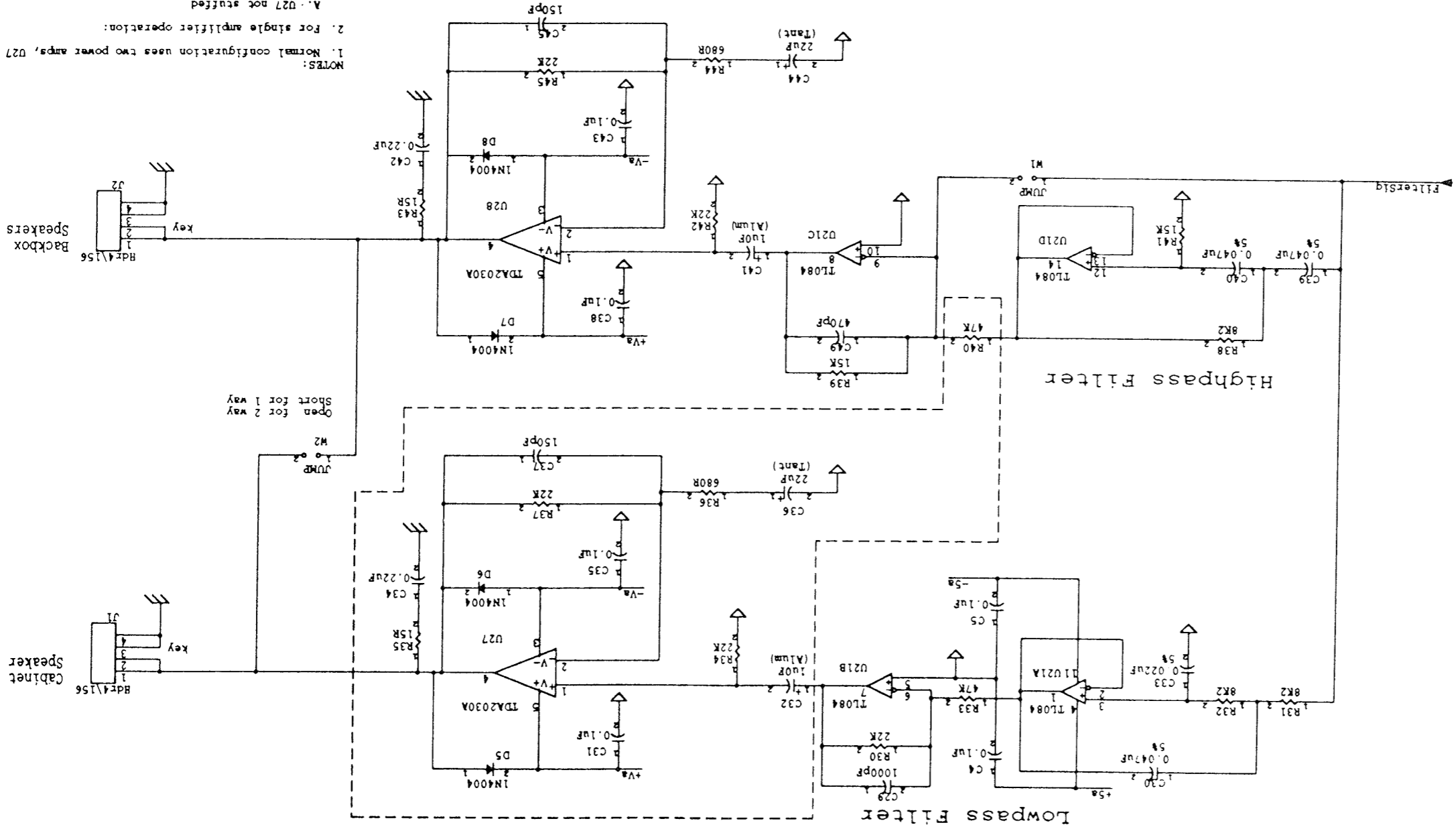


1 2 3 4 5 6 7 8

A B C D

Description:	
Sound Board	Revision Level
Schematic Part Number: 16-9472	
Williams Electronics Games, Inc. Midway Manufacturing Company 3401 North California Avenue, Chicago, Illinois 60618	

- 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.



Open for 2 way
Short for 1 way

Cabinet Speaker

Backbox Speakers