



DRAGON'S LAIR*
PRELIMINARY MANUAL

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Manufactured under licence from Cinematronics, Inc..

VIDEO DISK PLAYER.

To ensure best quality and reliability the following simple maintenance should be performed at 2 weekly intervals.

BEFORE OPENING THE PLAYER, PLEASE NOTE THE FOLLOWING.

- (a) The disk should be handled only by its edges or between the centre hole and one edge. Avoid any contact with the playing surface of the disk.
- (b) DO NOT use any form of abrasive cleaner, alcohol or other solvent.

PREVENTIVE MAINTENANCE:-

- 1/. Open disk player drawer.
- 2/. Remove filter at rear of drawer. Shake filter till free of dust. Replace filter.
- 3/. Release draw latch on player securing bracket. Remove securing bracket. (Easiest if drawer is partially in).
- 4/. With game powered up, press "OPEN" button on front of Player. Within 10 seconds the lid will open automatically allowing access to the video disk.
- 5/. When player door is open turn power OFF at switch on rear panel of game cabinet.
- 6/. Carefully remove the disk and dust it with a clean, lint-free, 100% cotton cloth. If necessary, the cloth may be dampened slightly with water. DO NOT use any form of abrasive cleaner, alcohol or other solvent.
- 7/. With playing surface facing downwards, replace disk and press it gently onto centre spindle.
- 8/. Close lid of player.
- 9/. Replace securing bracket.
- 10/. Gently close and secure drawer.
- 11/. Turn power ON.

2.0 INTERFACE

2.1 INTRODUCTION

The IVDBC is intended for use in a variety of configurations. Therefore, not all of the interfaces described here would be used in a specific application.

2.2 CIRCUIT BOARD CONNECTORS

<u>Reference Designator</u>	<u>Description</u>	<u>Mating Connector</u>
J1	36-Pin Control Panel inputs, coin acceptor switch inputs, coin counter outputs, DC power input, audio input, volume control and audio output	Molex Shell Order #03-06-1362 Molex Pin Model #4529 or #4559 (female)
J2	6-Pin serial, video disc player interface - serial send, receive and handshaking	Molex Shell Order #03-09-2062 Molex Pin Model #1190, 1380, 2870 or 1434 (male)
J3	24-Pin Parallel video disc player interface, - 8-bit data and handshaking.	Amphenol Type 24
J4	Composite video input from video disc player	BNC
J5	6-Pin RGB output to monitor	Molex Shell Order #03-09-1063 Molex Pin Model #1189, 1381, 2871 or

2.2 CIRCUIT BOARD CONNECTORS (cont'd)

<u>Reference Designator</u>	<u>Description</u>	<u>Mating Connector</u>
J5 (cont'd)		(Female Pin 1-5) Molex Pin Model #1190, 1380, 2870 or 1434 (Male - Pin 6 only)
J6	16-Pin General Output	16-Pin ribbon cable

2.3 CONNECTOR PINNING

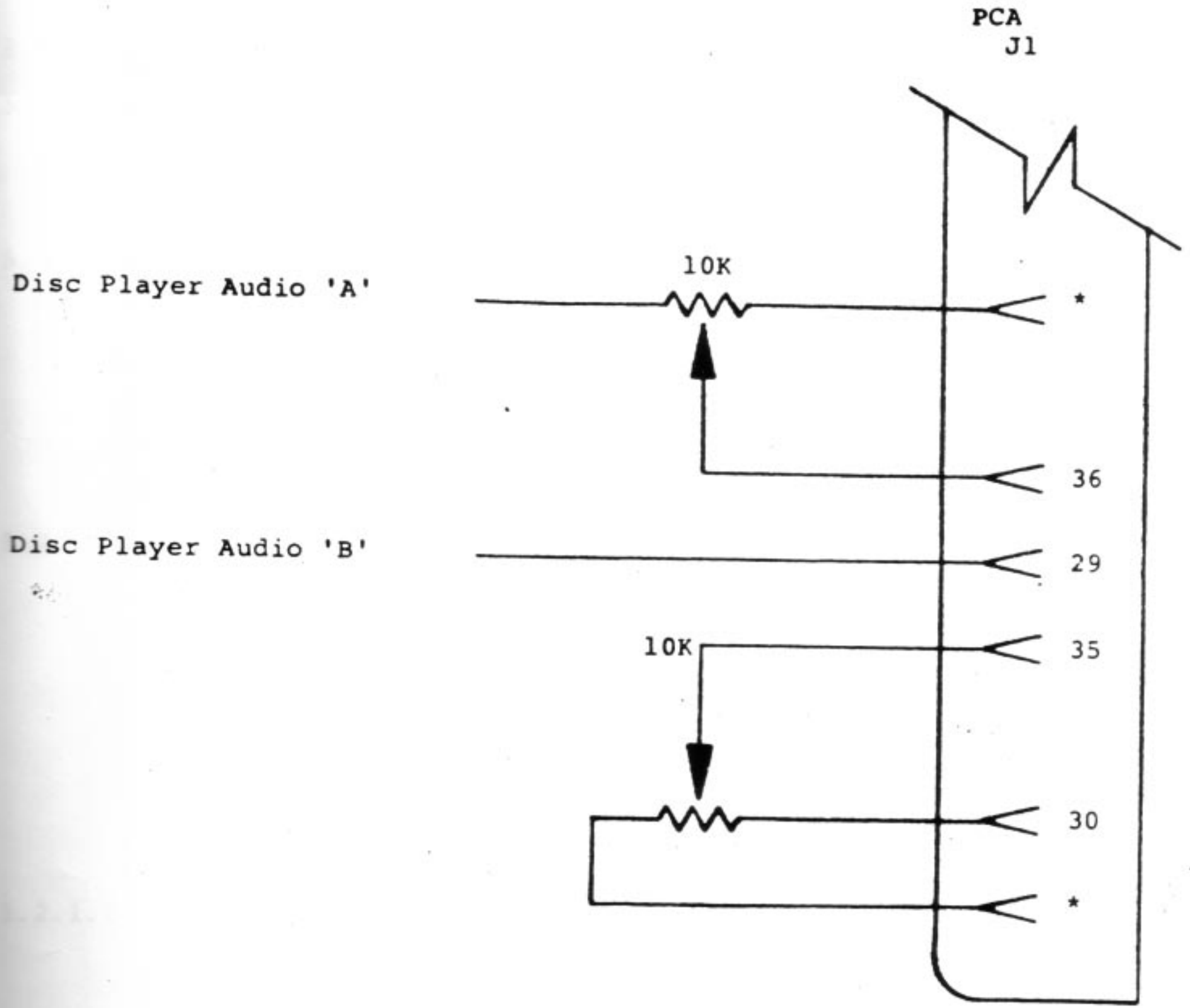
<u>Connector</u>	<u>Pin #</u>	<u>Function</u>
J1	1	Joystick - up
	2	Joystick - down
	3	Not used
	4	+5V @ 2A supply
	5	Joystick - left
	6	Joystick - right
	7	Not used
	8	+5V @ 2A supply
	9	Right coin acceptor swit
	10	Left coin acceptor switc
	11	Not used
	12	Coin counter - right
	13	Two player start switch
	14	One player start switch
	15	Action Switch
	16	5V supply return
	17	Not used
	18	Not used
	19	Coin counter - left
	20	Ground (common)
	21	Not used
	22	Ground (common)
	23	Ground (common)
	24	Ground (common)
	25	Ground (common)
	26	Ground (common)
	27	Ground (common)
	28	Ground (common)
	29	Video disc audio input
	30	Volume control output -
	31	+25V @ 2A supply
	32	+25V @ 2A supply
	33	Speaker A-output
	34	Speaker B-output
	35	Volume control wiper -
	36	Video disc audio input-

* See Audio/Volume Control Diagram

2.3 CONNECTOR PINNING (cont'd)

Connector	Pin #	Function
J2	1	Serial data to player
	2	Signal ground
	3	DTR to disc player
	4	CTS from disc player
	5	Signal ground
	6	Serial data from player
J3	1	Data Bit 0
	2	Data Bit 1
	3	Data Bit 2
	4	Data Bit 3
	5	Not used
	6	Not used
	7	Ready
	8	Not used
	9	Not used
	10	Not used
	11	Enter
	12	Not used
	13	Data Bit 4
	14	Data Bit 5
	15	Data Bit 6
	16	Data Bit 7
	17	Int/Ext
	18	Ground
	19	Ground
	20	Ground
	21	Ground
	22	Ground
	23	Ground
	24	Ground
J4	1	Signal - composite video
	2	Ground
J5	1	Red output
	2	Ground
	3	Blue output
	4	Comp Sync output
	5	V Sync output
	6	Green output
J6	1	Data Bit 3
	2	Data Bit 2
	3	Data Bit 1
	4	Data Bit 0
	5	Address Bit 2
	6	Address Bit 1
	7	Address Bit 0
	8	Decoding Bit 2
	9	Decoding Bit 1
	10	Not used
	11	+5V output
	12	+5V output
	13	+5V output
	14	Ground
	15	Ground
	16	Ground

2.4 VOLUME CONTROL SCHEME



* Any ground (common)

SIZE A	DRAWING NUMBER	
SCALE		SHEET

2.5 Power Supply Requirements

Two voltages are required:

+5VDC @ 2 amps regulated ±5%

+25VDC @ 1.5 amps unregulated

3.0 SYSTEM OPERATION

3.1 Initialization

The system is initialized whenever power is cycled or the reset switch (S1) is depressed.

3.2 Options

Two banks of eight switches each, SWA and SWB are used to select various coinage and game play options. These switches are read only immediately after system reset. Modifying the switch settings has no effect until system reset occurs.

3.2.1 Coinage/Credit Options

Two independent coin acceptor switch/coin counter combinations have been provided for coin/credit ratios which are determined for the left and right coin acceptors by SWA and SWB respectively. Program logic requires that the number of coins for a slot be detected before credits are incremented. Credits are incremented by the amount selected.

3.2.1.1 Left Slot

Coins:

<u>SWA-1</u>	<u>SWA-2</u>	<u>SWA-3</u>		
Off	Off	Off	=	Freeplay
On	Off	Off	=	1 coin
Off	On	Off	=	2 coins
On	On	Off	=	3 coins
Off	Off	On	=	4 coins
On	Off	On	=	5 coins
Off	On	On	=	6 coins
On	On	On	=	7 coins

3.2.1.1 Left Slot (cont'd)

Credits:

<u>SWA-4</u>	<u>SWA-5</u>	
Off	Off	= slot disabled
On	Off	= 1 credit
Off	On	= 2 credits
On	On	= 3 credits

Attract Mode Audio:

<u>SWA-6</u>	
Off	= Disabled
On	= Enabled

3.2.1.2 Right Slot

Coins:

<u>SWB-1</u>	<u>SWB-2</u>	<u>SWB-3</u>	
Off	Off	Off	= Freeplay
On	Off	Off	= 1 coin
Off	On	Off	= 2 coins
On	On	Off	= 3 coins
Off	Off	On	= 4 coins
On	Off	On	= 5 coins
Off	On	On	= 6 coins
On	On	On	= 7 coins

Credits:

<u>SWB-4</u>	<u>SWB-5</u>	<u>SWB-6</u>	
Off	Off	Off	= slot disabled
On	Off	Off	= 1 credit
Off	On	Off	= 2 credits
On	On	Off	= 3 credits
Off	Off	On	= 4 credits
On	Off	On	= 5 credits
Off	On	On	= 6 credits
On	On	On	= 7 credits

3.2.2 Lives per Game

SWB-7

Off	3 lives per game
On	5 lives per game

3.2.3 Difficulty

SWA-7

SWA-8

Off	Off	Easy **
On	Off	Intermediate
Off	On	Hard
On	On	Very hard

** Atari recommended setting.

4.3 DIAGNOSTICS

LED display DS1 is used as an indicator for diagnostics. The following tests are performed:

1 - CPU Test

Check that Registers A, BC, DE, and HL can hold data.

2 - ROM Test

Compute checksum of all proms and compare to expected checksum.

3 - RAM Test

Write various bit patterns to RAM and read back to verify.

4 - Display Memory Test

Check display memory the same way RAM memory was checked.

5 - CTC Test

Verify all channels can be written and read.

When there is a diagnostic failure, the display will freeze with the number of the test which failed. A "P" will be displayed if all tests pass. Diagnostics will automatically run at power-up and may be run manually by closing the diagnostic switch (J1, Pin 3).

During normal game play, DS1 and DS2 are blank, but their decimal points are driven by the 10 msec and 5 msec system interrupts and will flicker accordingly.

Eurolair[®] Option Switch Diagram

Left Slot Coins:

SWA-1	SWA-2	SWA-3
Off	Off	Off = freeplay
On	Off	Off = 1 coin
Off	On	Off = 2 coins
On	On	Off = 3 coins
Off	Off	On = 4 coins
On	Off	On = 5 coins
Off	On	On = 6 coins
On	On	On = 7 coins

Right Slot Coins:

SWB-1	SWB-2	SWB-3
Off	Off	Off = freeplay
On	Off	Off = 1 coin
Off	On	Off = 2 coins
On	On	Off = 3 coins
Off	Off	On = 4 coins
On	Off	On = 5 coins
Off	On	On = 6 coins
On	On	On = 7 coins

Left Slot Credits:

SWA-4	SWA-5
Off	Off = slot disabled
On	Off = 1 credit
Off	On = 2 credits
On	On = 3 credits

Right Slot Credits:

SWB-4	SWB-5	SWB-6
Off	Off	Off = slot disabled
On	Off	Off = 1 credit
Off	On	Off = 2 credits
On	On	Off = 3 credits
Off	Off	On = 4 credits
On	Off	On = 5 credits
Off	On	On = 6 credits
On	On	On = 7 credits

Attract Mode Audio:

SWA-6
Off = Disabled
On = Enabled

Game Difficulty Level:

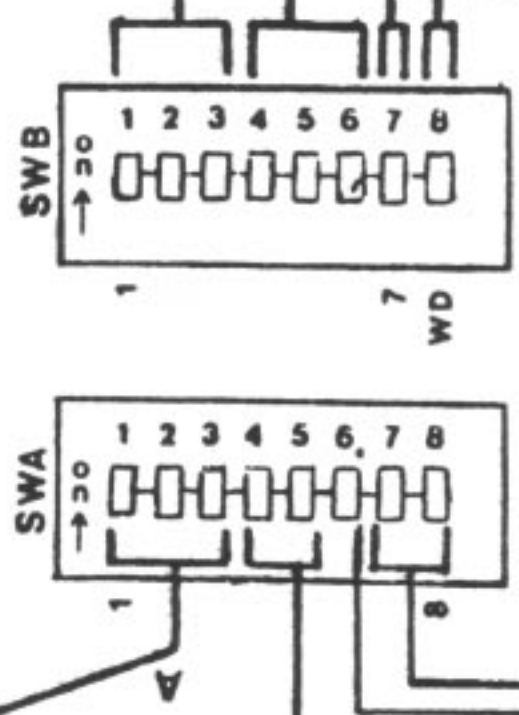
SWA-7	SWA-8
Off	Off = Easy
On	Off = Intermediate
Off	On = Hard
On	On = Very Hard

Lives Per Game:

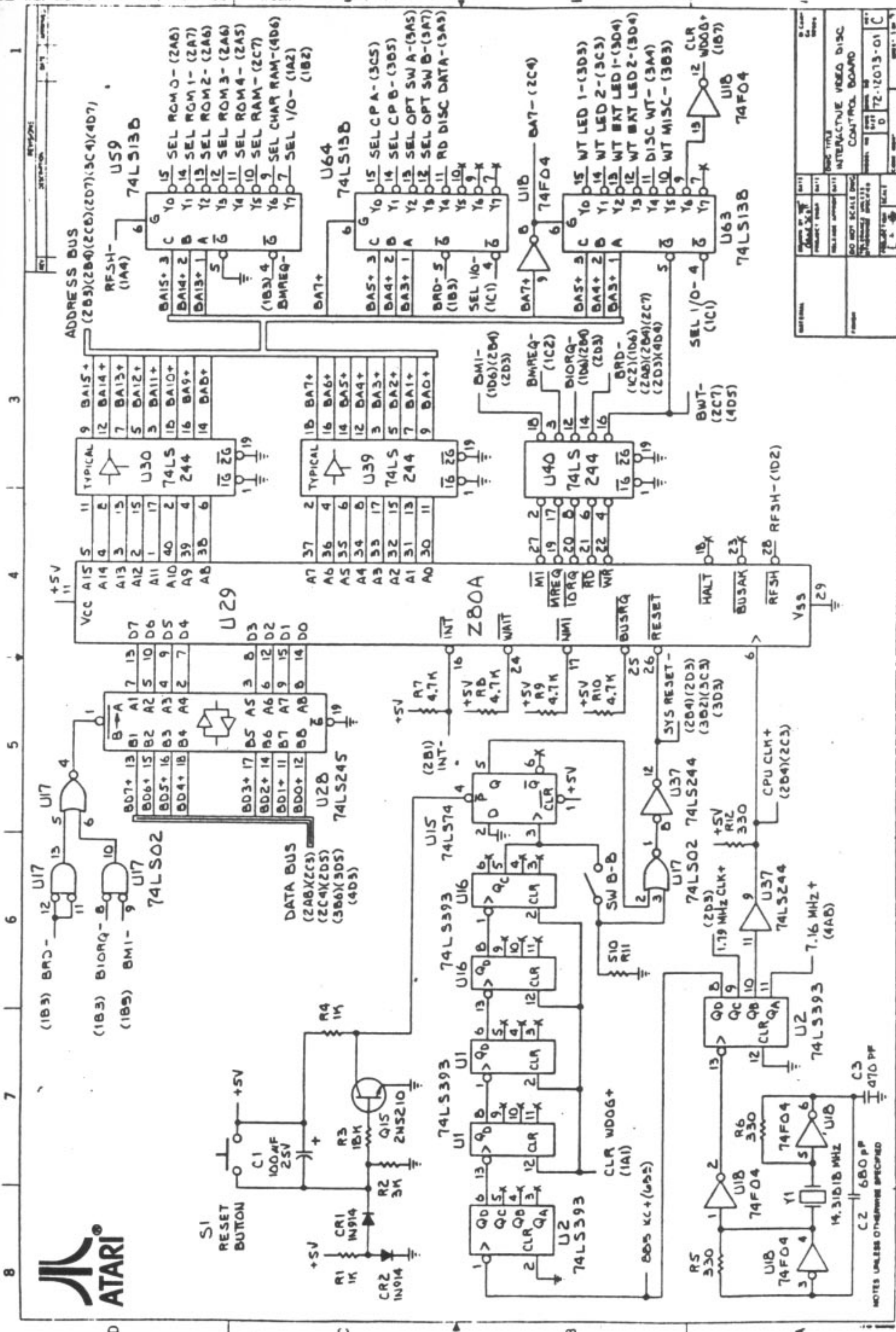
SWB-7
Off = 3 lives per game
On = 5 lives per game

Watchdog Timer Enable:

SWB-8
On = Enable Watchdog Timer
Off = Disable Watchdog Timer

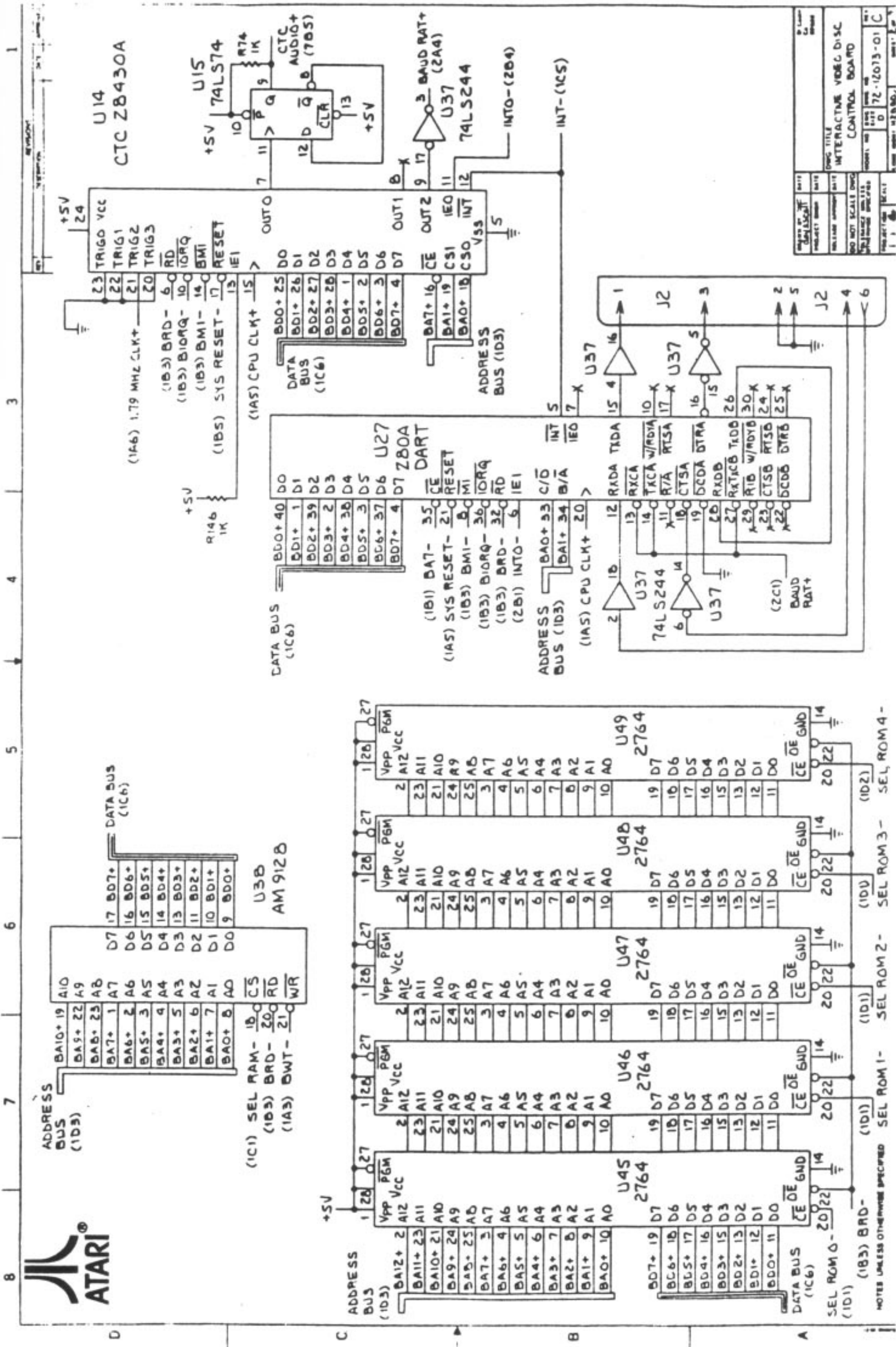


* Difficulty shifts to the next higher level after surviving 5 consecutive rooms



DATE	REV	BY	CHKD
PROJECT TITLE INTERACTIVE VIDEO DISC CONTROL BOARD			
DO NOT SCALE DIMENSIONS	DO NOT SCALE DIMENSIONS	DO NOT SCALE DIMENSIONS	DO NOT SCALE DIMENSIONS
DATE	REV	BY	CHKD
PROJECT NO 72-12073-01			
SHEET NO C			

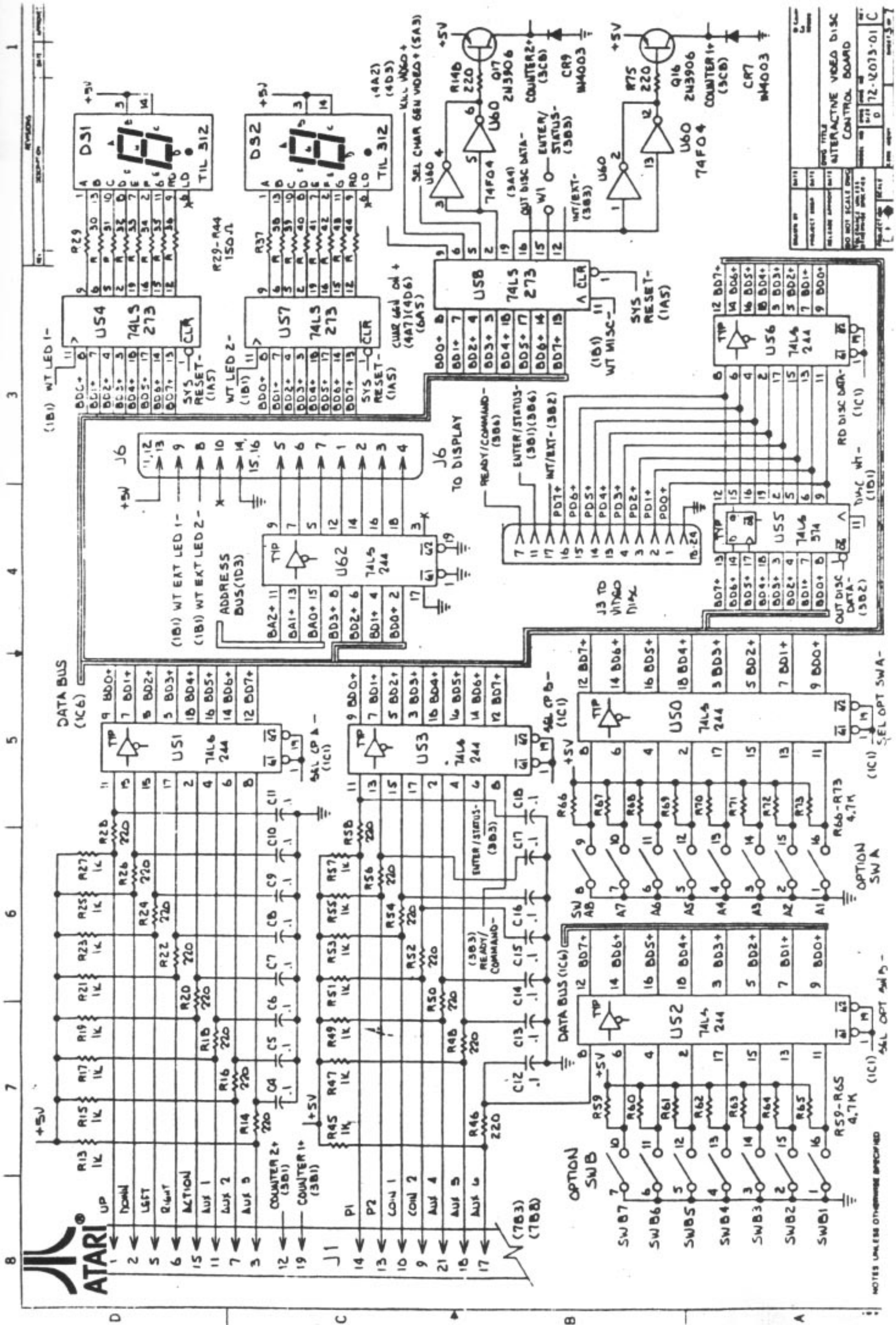
NOTES UNLESS OTHERWISE SPECIFIED
 C2 680 P F
 C3 470 P F



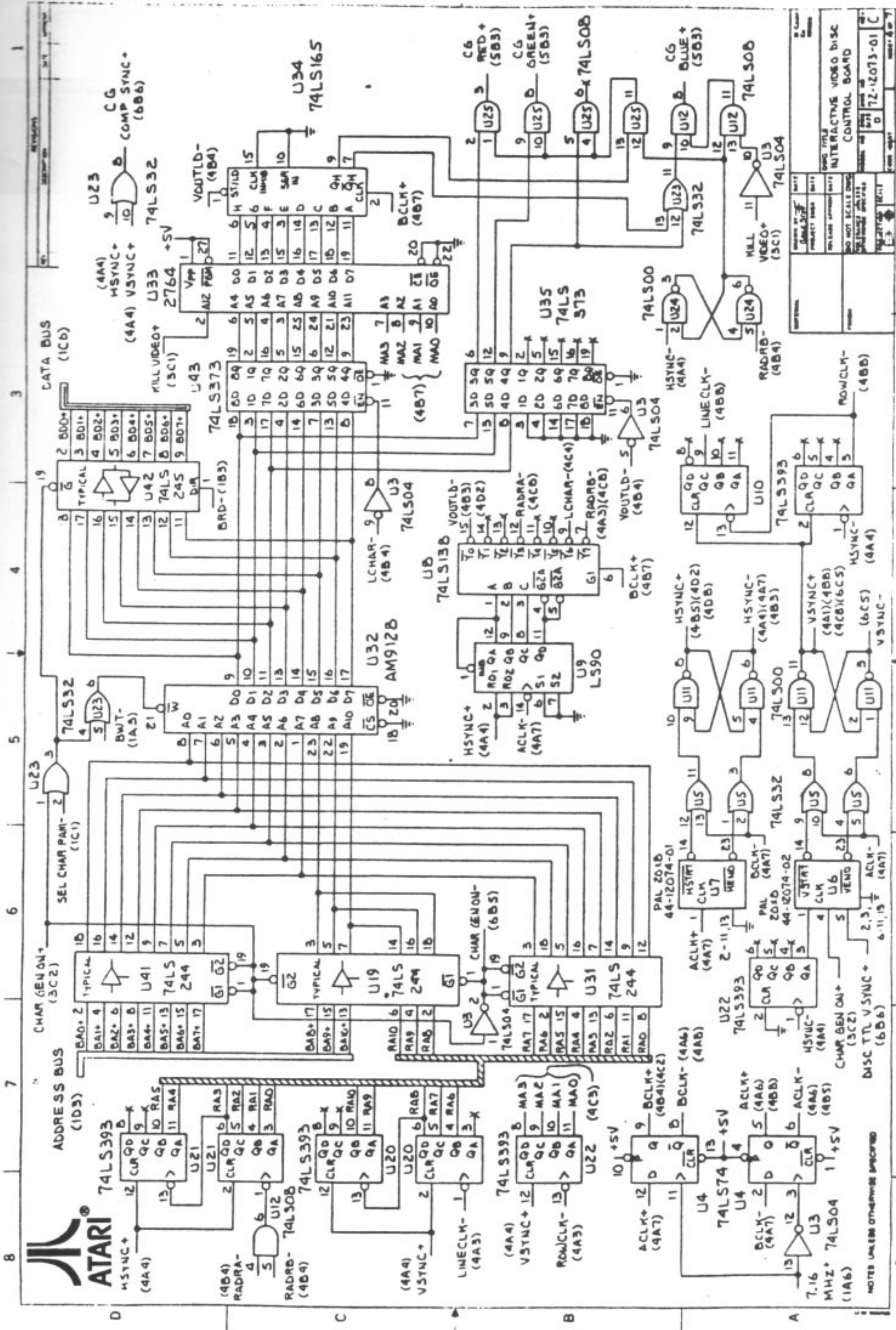
DESIGNER	DATE	REV	DESCRIPTION
W. L. ...			INTERACTIVE VIDEO DISC CONTROL BOARD
PROJECT ENGINEER			
TEST ENGINEER			
DO NOT SCALE DRAWING			
PROJECT NO.			
DATE			
REV			
PROJECT NO.			
DATE			
REV			



NOTES UNLESS OTHERWISE SPECIFIED
 (101) SEL ROM 0-
 (101) SEL ROM 1-
 (101) SEL ROM 2-
 (100) SEL ROM 3-
 (102) SEL ROM 4-

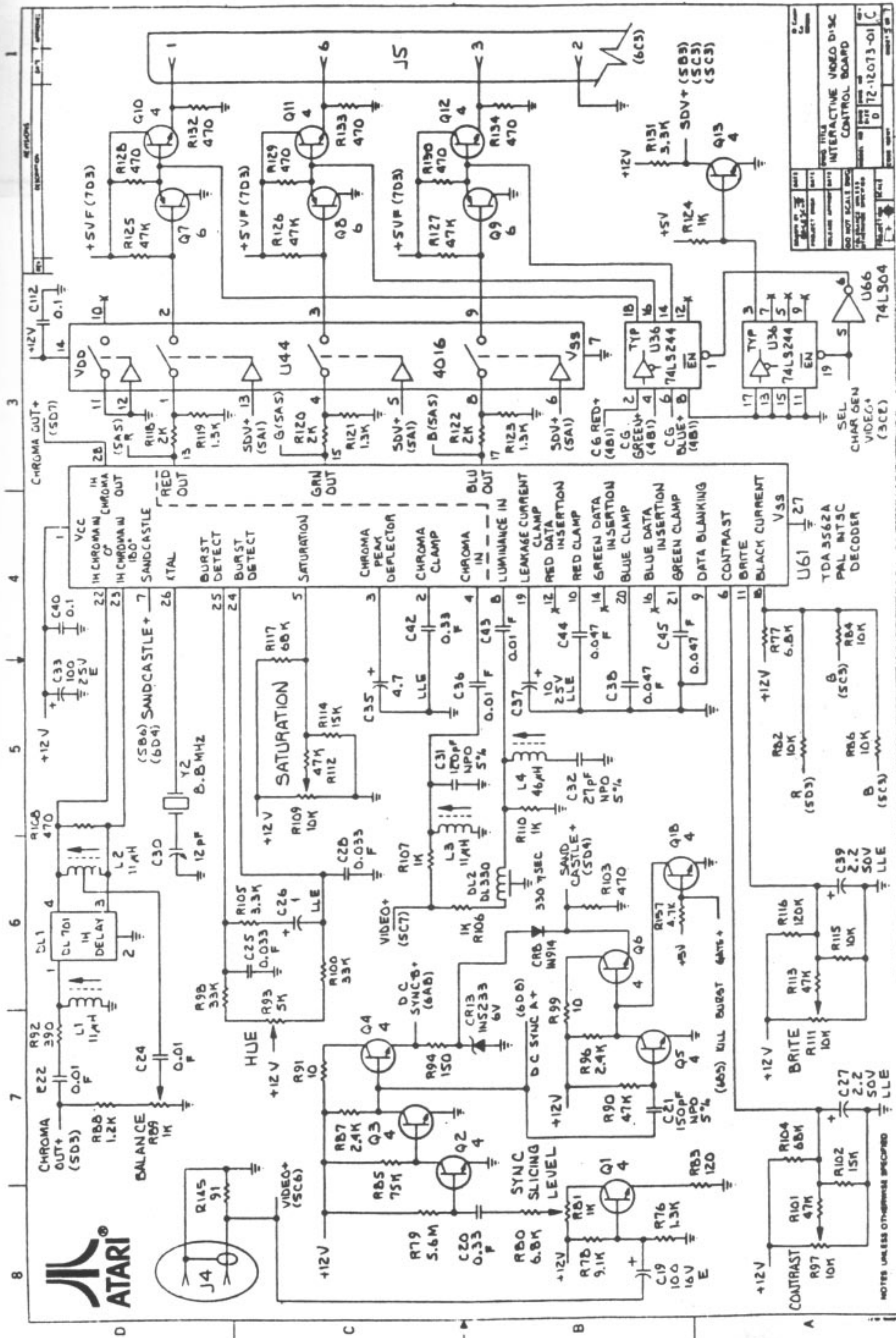


NOTES UNLESS OTHERWISE SPECIFIED



NOTES: UNLESS OTHERWISE SPECIFIED

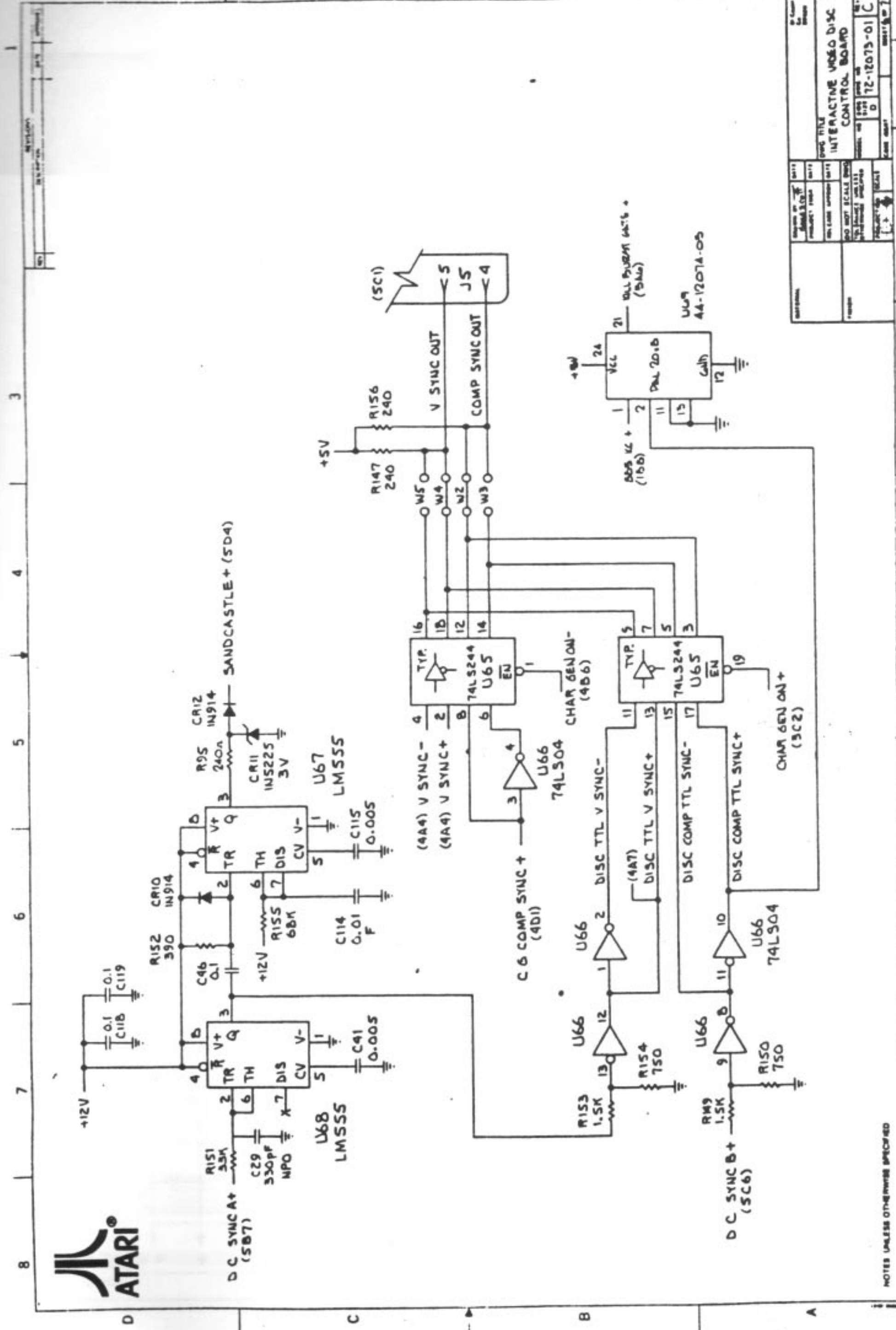
DESIGNED BY	J. L. BROWN
CHECKED BY	J. L. BROWN
DRAWN BY	J. L. BROWN
PART NO.	72-12013-01
REV.	1.3
DATE	11/80



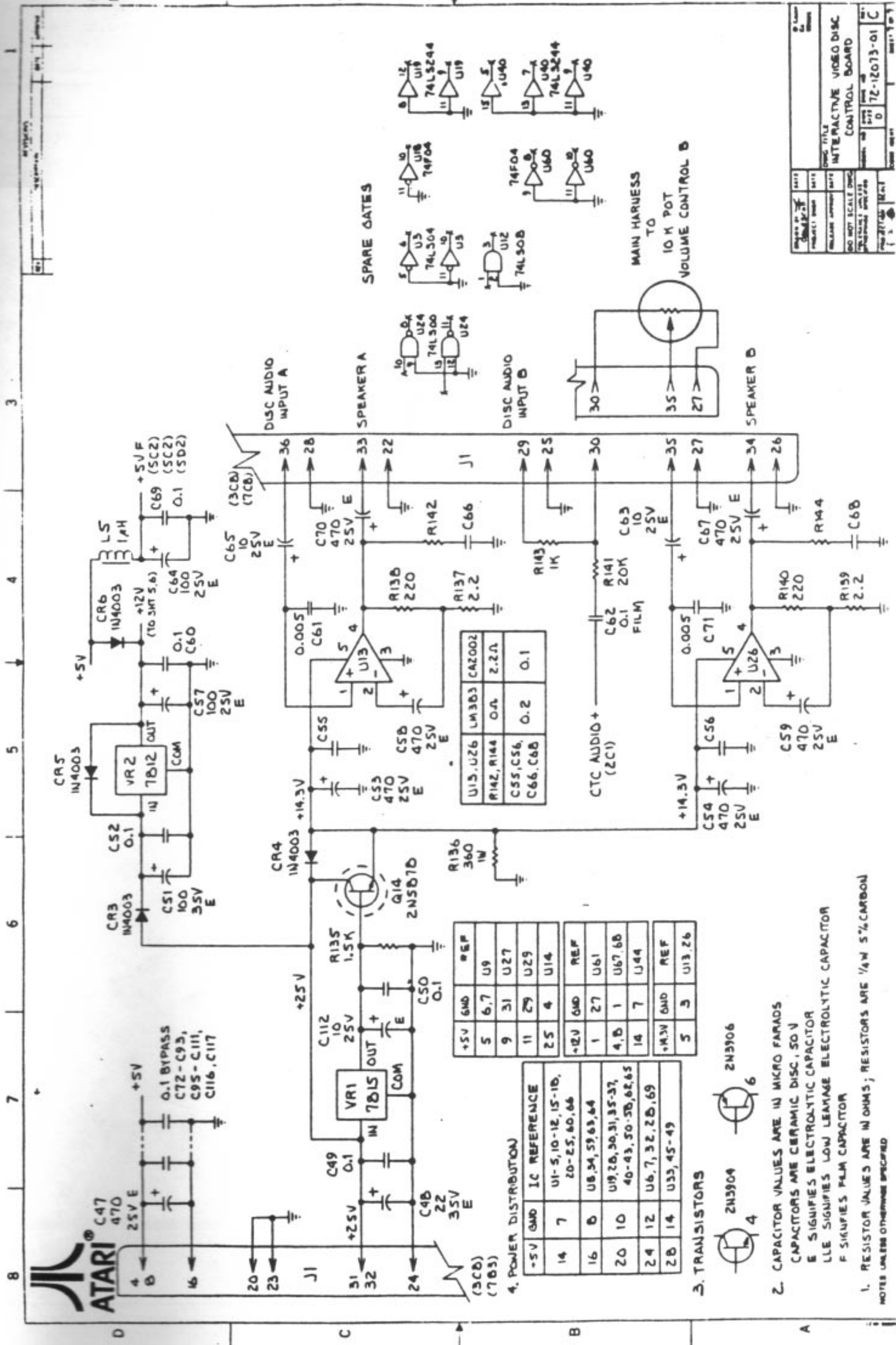
DATE	BY	REVISION
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INTERACTIVE VIDEO BOARD CONTROL BOARD
 72-12073-01
 U61 TDA 3562A PAL NTSC DECODER
 U66 74LS04
 U67 74LS244

NOTES UNLESS OTHERWISE SPECIFIED



DESIGNED BY	
CHECKED BY	
DATE	
REV.	
INTERACTIVE VIDEO DISC CONTROL BOARD	
PART NO. 72-12075-01 C	



4. POWER DISTRIBUTION

-5V GND	IC REFERENCE
14	7
16	8
20	10
24	12
28	14
+5V GND	REF
5	6,7
9	31
11	29
25	4
+12V GND	REF
1	27
4, B	1
14	7
+14.3V GND	REF
5	3

3. TRANSISTORS



- 2. CAPACITOR VALUES ARE IN MICRO FARADS
- CAPACITORS ARE CERAMIC DISC, 50V
- E SIGNIFIES ELECTROLYTIC CAPACITOR
- LL SIGNIFIES LOW LEAKAGE ELECTROLYTIC CAPACITOR
- F SIGNIFIES FILM CAPACITOR

- 1. RESISTOR VALUES ARE IN OHMS; RESISTORS ARE 1/4W 5% CARBON
- NOTE: UNLESS OTHERWISE SPECIFIED

ATARI TITLE INTERACTIVE VIDEO DISC CONTROL BOARD

DO NOT SCALE DIMENSIONS

DATE: 11/81

DESIGNED BY: []

DRAWN BY: []

CHECKED BY: []

APPROVED BY: []

REV: 1