

## Diagnostic Tests

Instruction	Use of Test																
<p>1. Hold the slam switch closed, while setting the self-test switch to the <b>on</b> position.</p>	<p>The monitor displays the color hue adjustment pattern of 16 rectangles, as follows. <b>Do not attempt any color hue or brightness adjustments unless you are a qualified color TV technician!</b></p> <table style="width: 100%; border: none;"> <tr> <td>Pale Yellow-Green</td> <td>Orange</td> <td>White</td> <td>Deep Yellow</td> </tr> <tr> <td>Light Green</td> <td>Dark Green</td> <td>Light Blue</td> <td>Lime Green</td> </tr> <tr> <td>Deep Rose</td> <td>Red</td> <td>Purple</td> <td>Red</td> </tr> <tr> <td>Navy Blue</td> <td>Black</td> <td>Royal Blue</td> <td>Black</td> </tr> </table>	Pale Yellow-Green	Orange	White	Deep Yellow	Light Green	Dark Green	Light Blue	Lime Green	Deep Rose	Red	Purple	Red	Navy Blue	Black	Royal Blue	Black
Pale Yellow-Green	Orange	White	Deep Yellow														
Light Green	Dark Green	Light Blue	Lime Green														
Deep Rose	Red	Purple	Red														
Navy Blue	Black	Royal Blue	Black														
<p>2. Activate any of the coin switches on the coin door.</p>	<p>A convergence pattern appears with a grid of white dots on a black screen. <b>Do not attempt any convergence adjustments unless you are a qualified color TV technician!</b></p>																
<p>3. Set self-test switch to the <b>off</b> position.</p>	<p>Check attract-mode display and readjust brightness if necessary.</p>																

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Sheet 1, Side B



# Centipede™

**Synchronizer**  
**Signature Analysis Procedure**  
**CAT Box™ Preliminary Set-Up**  
**Power Input**  
**Microprocessor**  
**Address Decoder**  
**RAM**  
**ROM**  
**Memory Map**

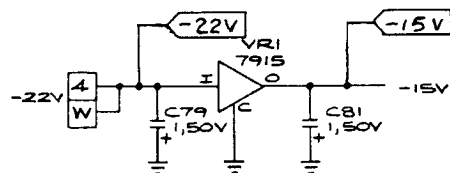
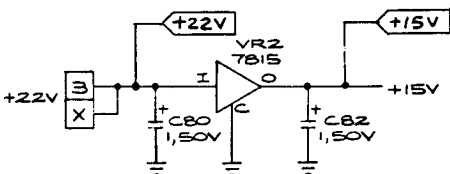
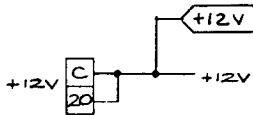
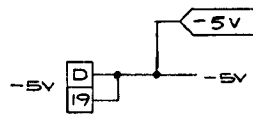
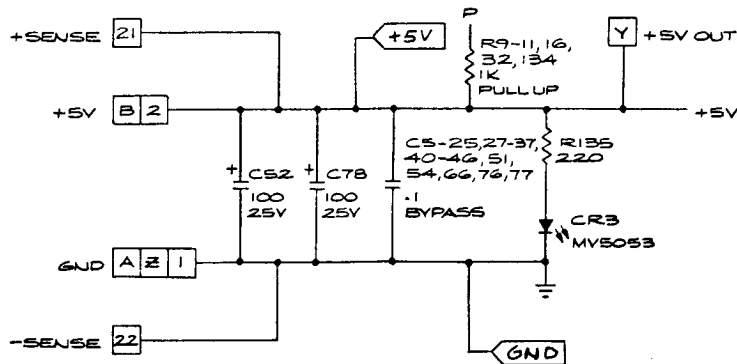
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◀ Denotes a test point

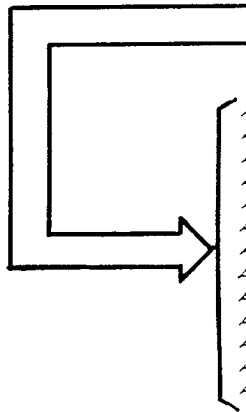
# Power Input



◀ Denotes a test point

# Testing the

1. Perform the CA
2. Set the CAT Bo
  - a. Press TEST
  - b. DBUS SOUR
  - c. BYTES to 10
  - d. R/W MODE
  - e. R/W to WRI
  - f. Key in 0000
  - g. Toggle R/W
  - h. R/W to REA
  - i. Toggle R/W
3. If the CAT Box r  
PARE ERROR  
shows the faili  
PLAY switch is
4. If the COMPAR  
peat the test w  
ensures that th  
COMPARE ERR  
is good.



-02 VERSION  
24K

◀ Denotes a test point

# RAM

ox™ preliminary set-up.

switches as follows:

RESET  
TO ADDR

OFF)

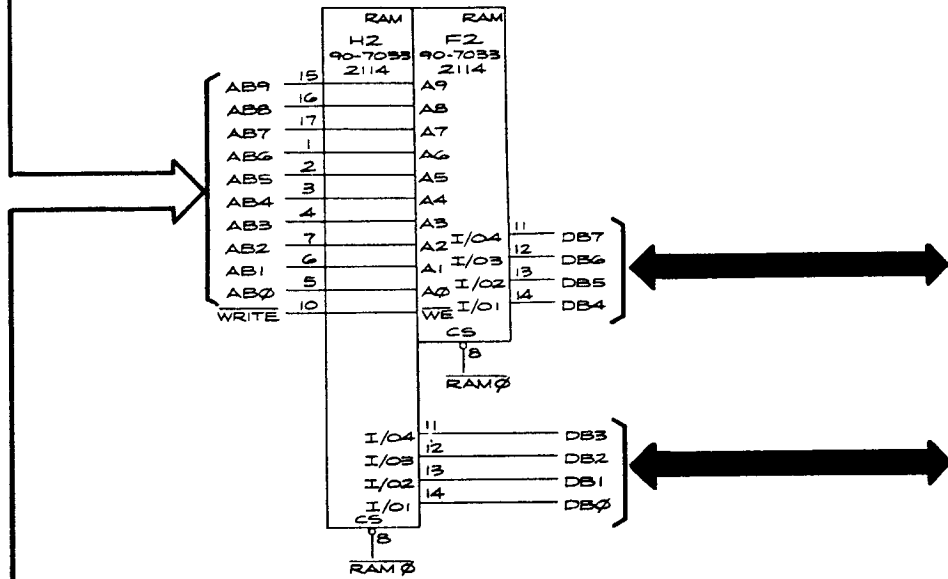
DE to SINGLE

DE to SINGLE

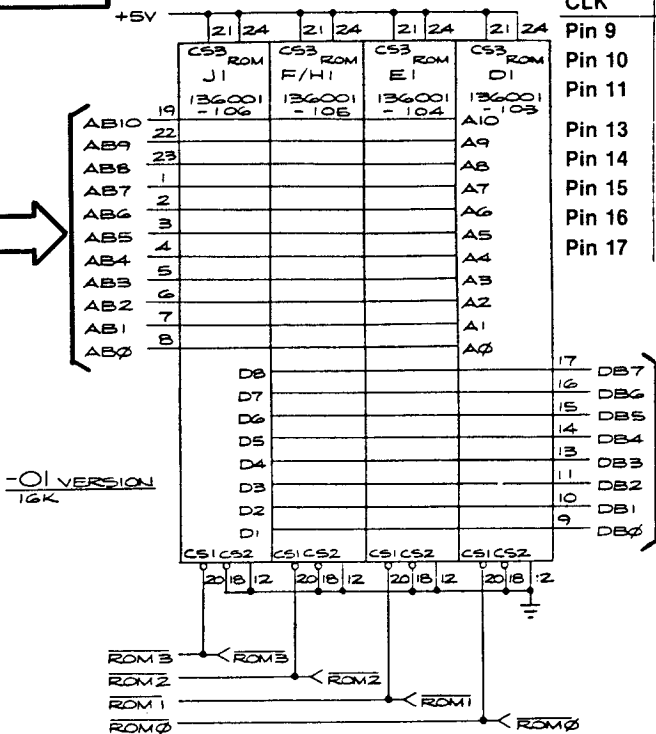
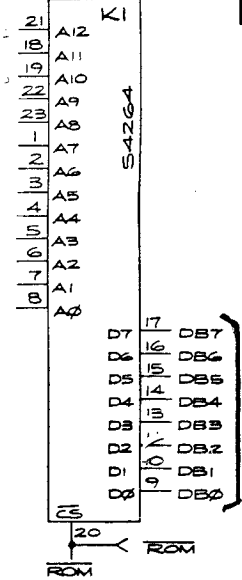
as an address that doesn't compare, the COM-  
D) lights, the ADDRESS/SIGNATURE display  
address location, and the ERROR DATA DIS-  
abled.

RROR LED does not light, rekey 0000 and re-  
he DBUS SOURCE switch set to ADDR. This  
ata bits at address 0000 will go high. If the  
LED does not light after this step, the RAM

# RAM



# ROM



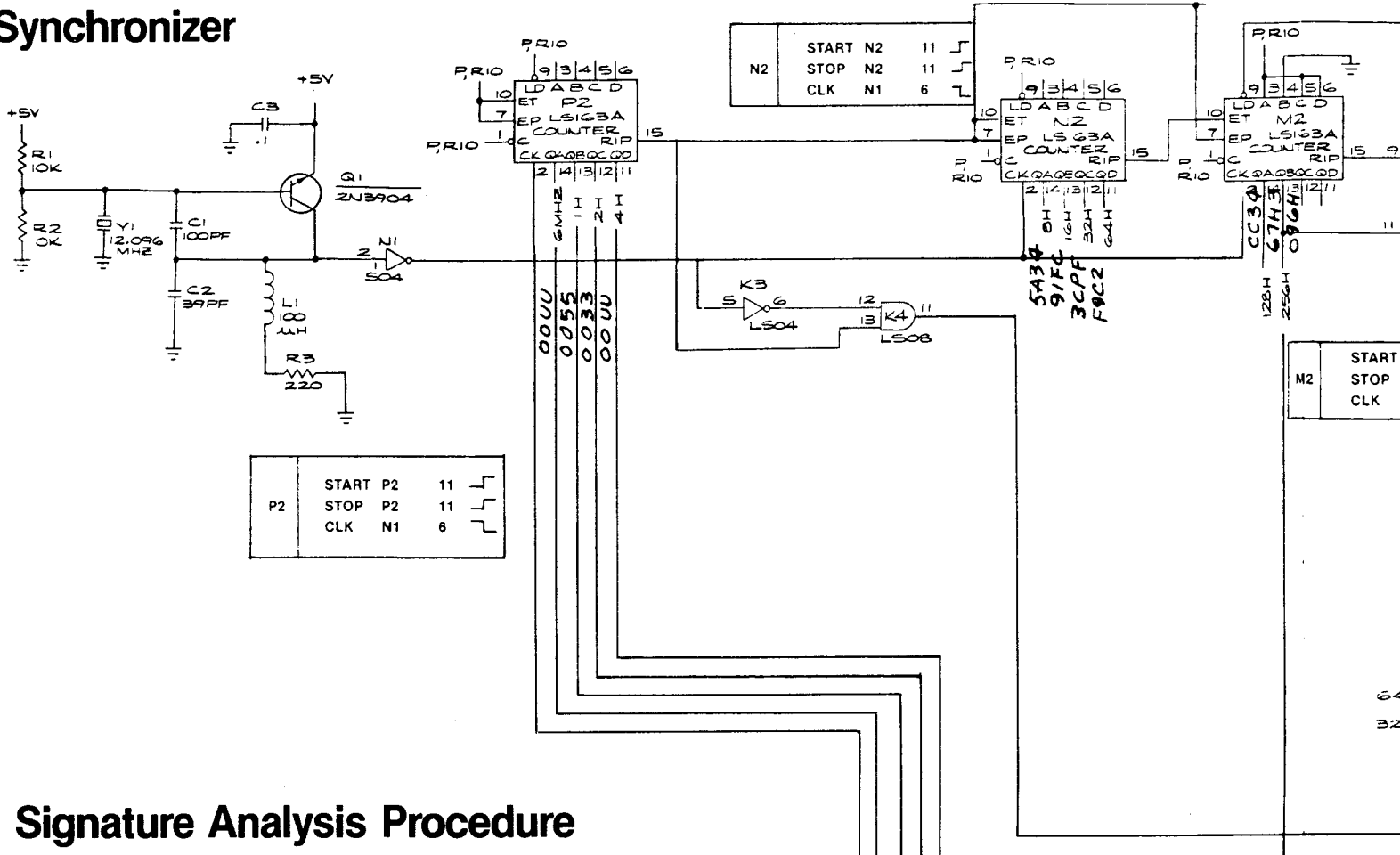
	D1	E1	F/H1	J1
START	Pin 20	Pin 20	Pin 20	Pin 20
STOP	Pin 20	Pin 20	Pin 20	Pin 20
CLK	φ2	φ2	φ2	φ2
Pin 9	OH81	13PH	CU62	476H
Pin 10	O8FC	C4P5	9553	2A2C
Pin 11	U9F7	11F3	7756	2337
Pin 13	P316	098P	A7CF	FP07
Pin 14	P8C4	5H24	6081	A9AF
Pin 15	H973	0548	5HAC	12HA
Pin 16	8F8F	33P7	6U43	2367
Pin 17	U638	80AA	F83H	8P82

# Memory Map

MEMORY MAP										
HEXA-DECIMAL ADDRESS	R/W	DATA								FUNCTION
		D7	D6	D5	D4	D3	D2	D1	D0	
0000-03FF		D	D	D	D	D	D	D	D	RAM
0400-07BF 07C0-07CF 07D0-07DF 07E0-07EF 07F0-07FF		D	D	D	D	D	D	D	D	Playfield RAM Motion Object Picture Motion Object Vert. Motion Object Horiz. Motion Object Color
0800 0801	R R	D	D	D	D	D	D	D	D	Option Switch 1 (0 = On) Option Switch 2 (0 = On)
0C00    0C01       0C02 0C03	R R R R R R R R R R R	D					D	D	D	Horizontal Trak Ball™ Inputs VBLANK (1 = VBlank) Self-Test (0 = On) Cocktail Cabinet (1 = Cocktail) R,C,L Coin Switches (0 = On) SLAM (0 = On) Player 2 Fire Switch (0 = On) Player 1 Fire Switch (0 = On) Player 2 Start Switch (0 = On) Player 1 Start Switch (0 = On)
1000-100F 1404 140C  1600 1680 1700	R/W W W  W W R	D	D	D	D	D	D	D	D	Custom Audio Chip Playfield Color RAM Motion Object Color RAM  EA ROM Address & Data Latch EA ROM Control Latch EA ROM Read Data
1800	W									IRQ Acknowledge
1C00 1C01 1C02 1C03 1C04 1C07	W W W W W W	D								Left Coin Counter (1 = On) Center Coin Counter (1 = On) Right Coin Counter (1 = On) Player 1 Start LED (0 = On) Player 2 Start LED (0 = On) Trak Ball™ Flip Control (0 = Player 1)
2000 2400	W W									WATCHDOG Clear Trak Ball™ Counters
2000-3FFF	R									Program ROM

J1  
Pin 20  
Pin 20  
φ2  
476H  
2A2C  
2337  
FP07  
A9AF  
12HA  
2367  
8P82

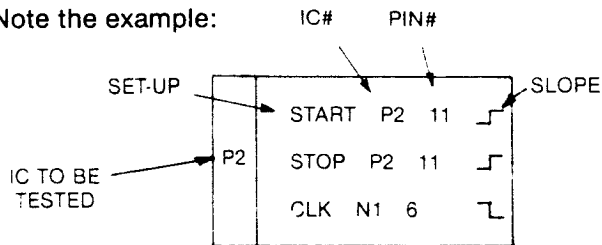
# Synchronizer



## Signature Analysis Procedure

1. Perform the CAT Box™ preliminary set-up.
2. Connect the three BNC to E-Z clip cables (supplied with the CAT Box) to the SIGNATURE ANALYSIS CONTROL START, STOP, AND CLOCK jacks on the CAT Box.
3. Attach the three black E-Z clips to a ground loop on the CENTIPEDE™ game PCB.
4. Attach the CAT Box data probe to the DATA jack on the CAT Box.
5. The red E-Z clips on the cables will be moved about for each group of signatures to be taken. The set-up for each group of signatures is located on the schematic sheet near the device to be checked. The signatures are located on or near the signal point on the schematic.

Note the example:

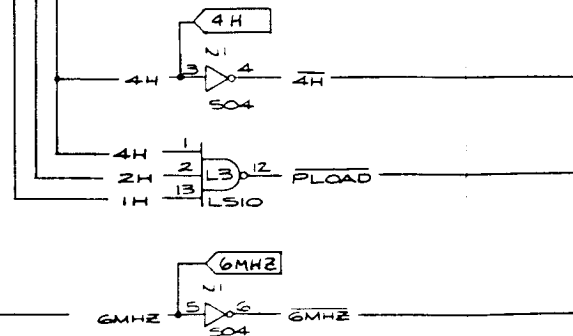


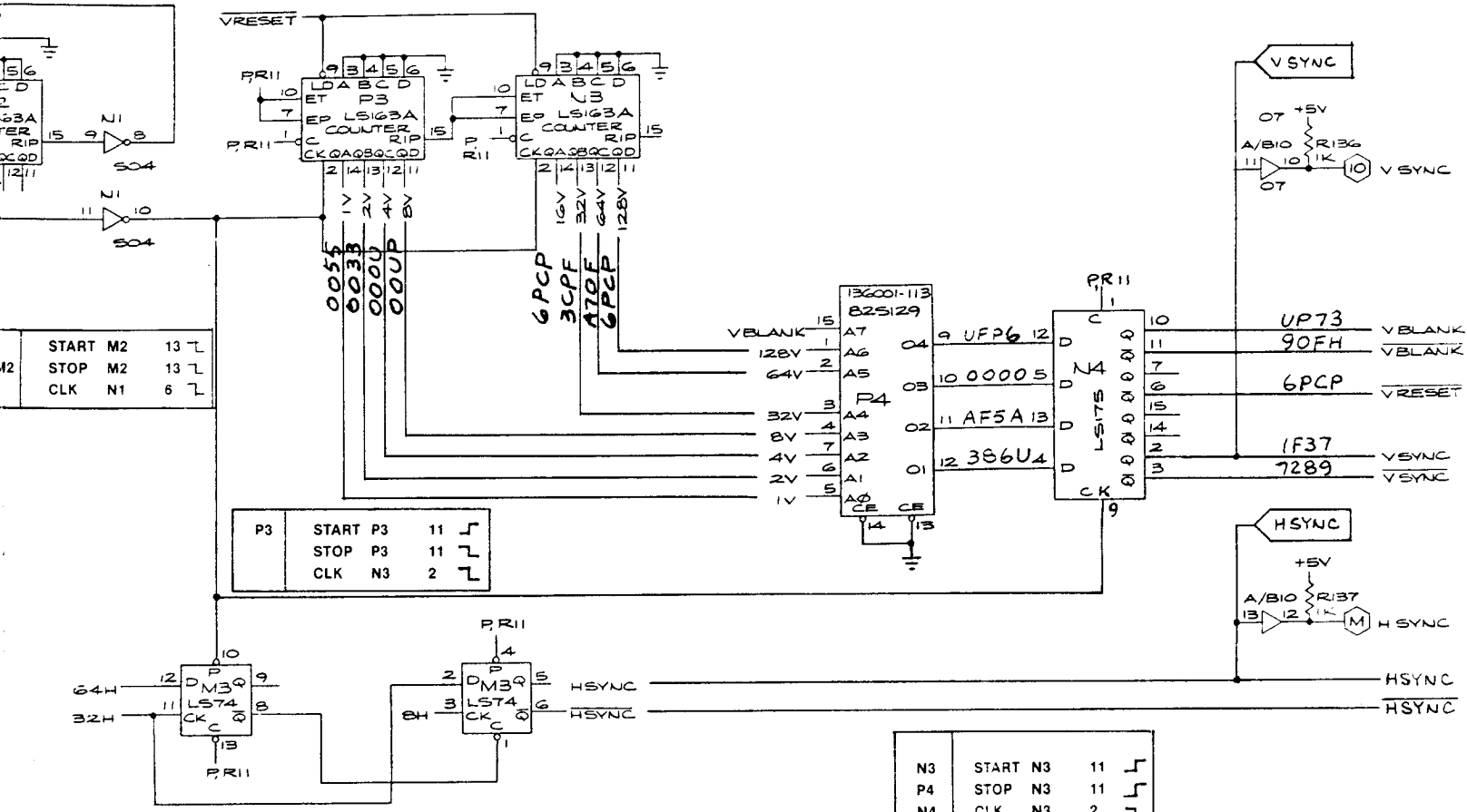
6. Set the CAT Box switches as follows:

- a. TESTER MODE: SIG
- b. TESTER SELF TEST: OFF
- c. PULSE MODE: LATCHED
- d. START:
- e. STOP:
- f. CLOCK:

## CAT Box™ Preliminary

1. Remove:
  - The electrical power from the CAT Box.
  - The wiring harness from the CAT Box.
  - The game PCB from the CAT Box.
  - The MPU chip C2 from the CAT Box.
2. Connect:
  - The extender cables to the CAT Box.
  - Pins 37 to 39 on the MPU chip to the CAT Box.
  - The CAT Box flex cable to the CAT Box.

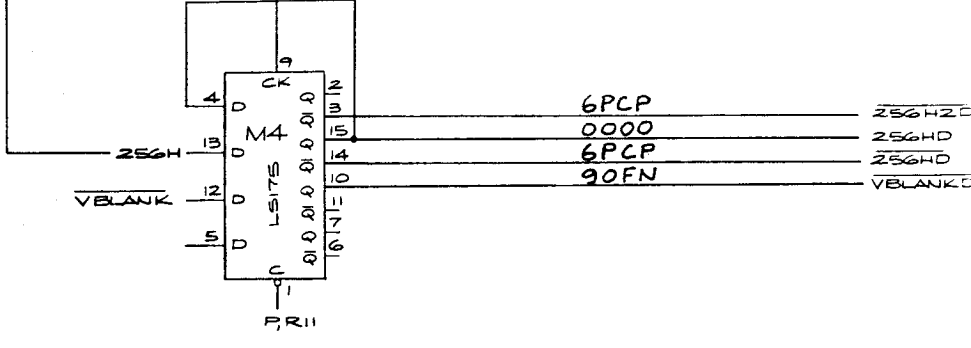




## Preliminary Set-up

- Power from the game.
- Address from the game PCB.
- Data from the cabinet.
- Clock from the game PCB.

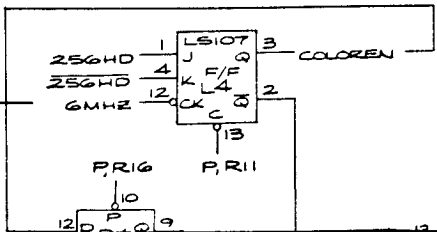
Connect the pins to the game PCB and the wiring harness.  
 Connect the MPU socket with a piece of 28 AWG wire.  
 Connect the cable to the game PCB test edge connector.



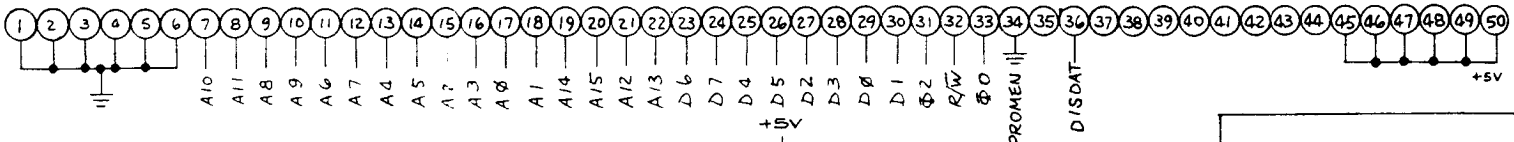
4H

LOAD

6MHz

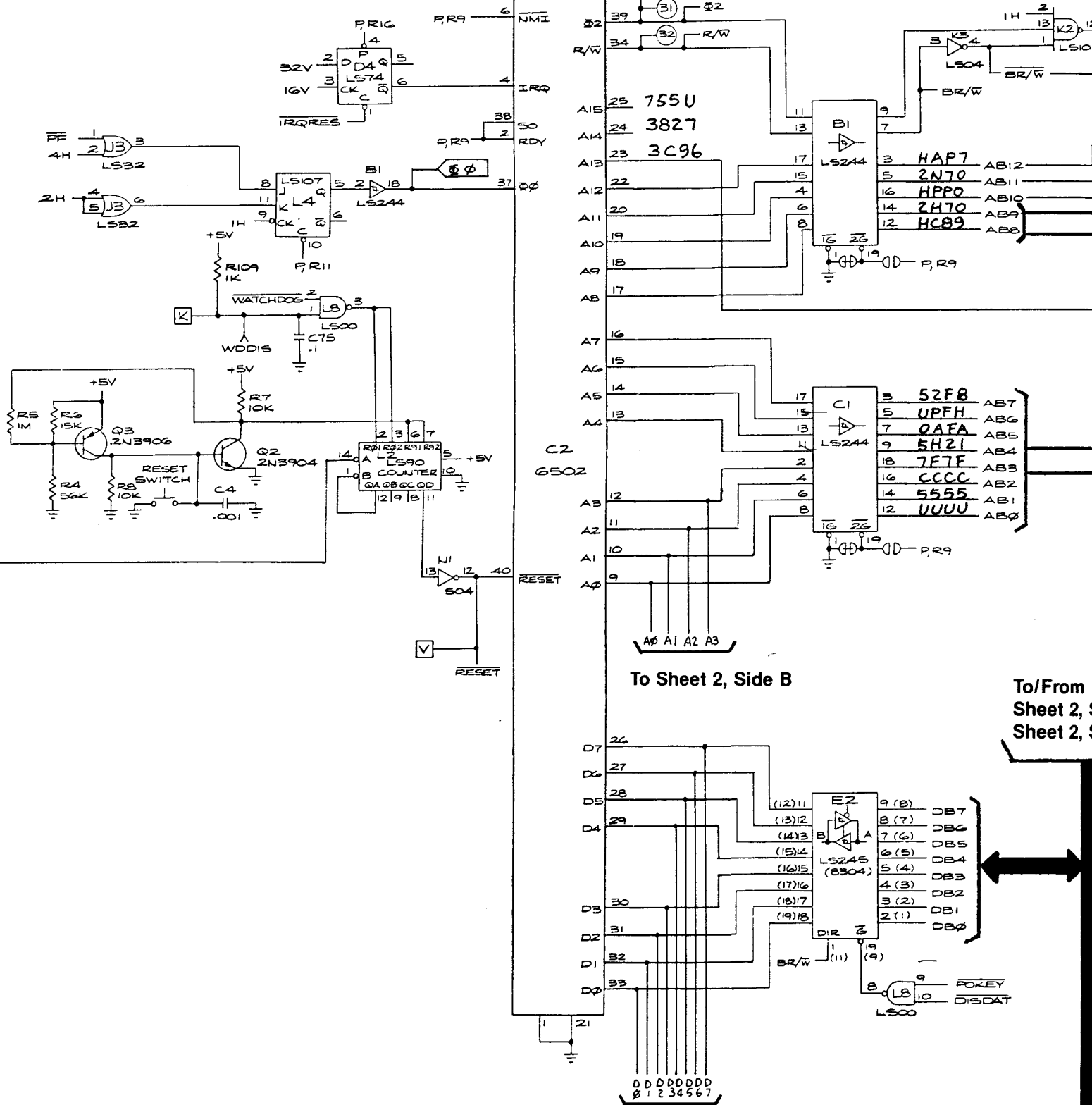


# TEST CONNECTOR-FOR ATARI CAT BOX™



## Microprocessor

MPU & Address	START C2	25	7
Decoder	STOP C2	25	7
	CLK C2	39	7

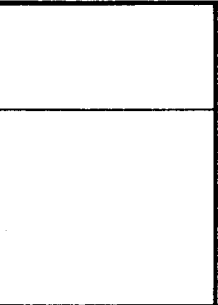
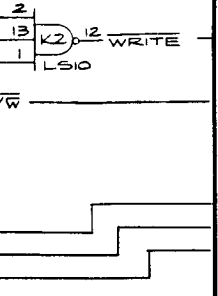
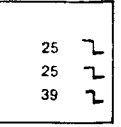


To Sheet 2, Side B

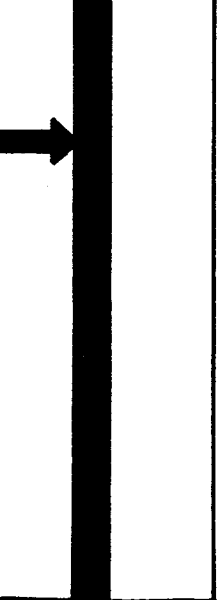
To/From Sheet 2, Side B

To/From Sheet 2, Side B

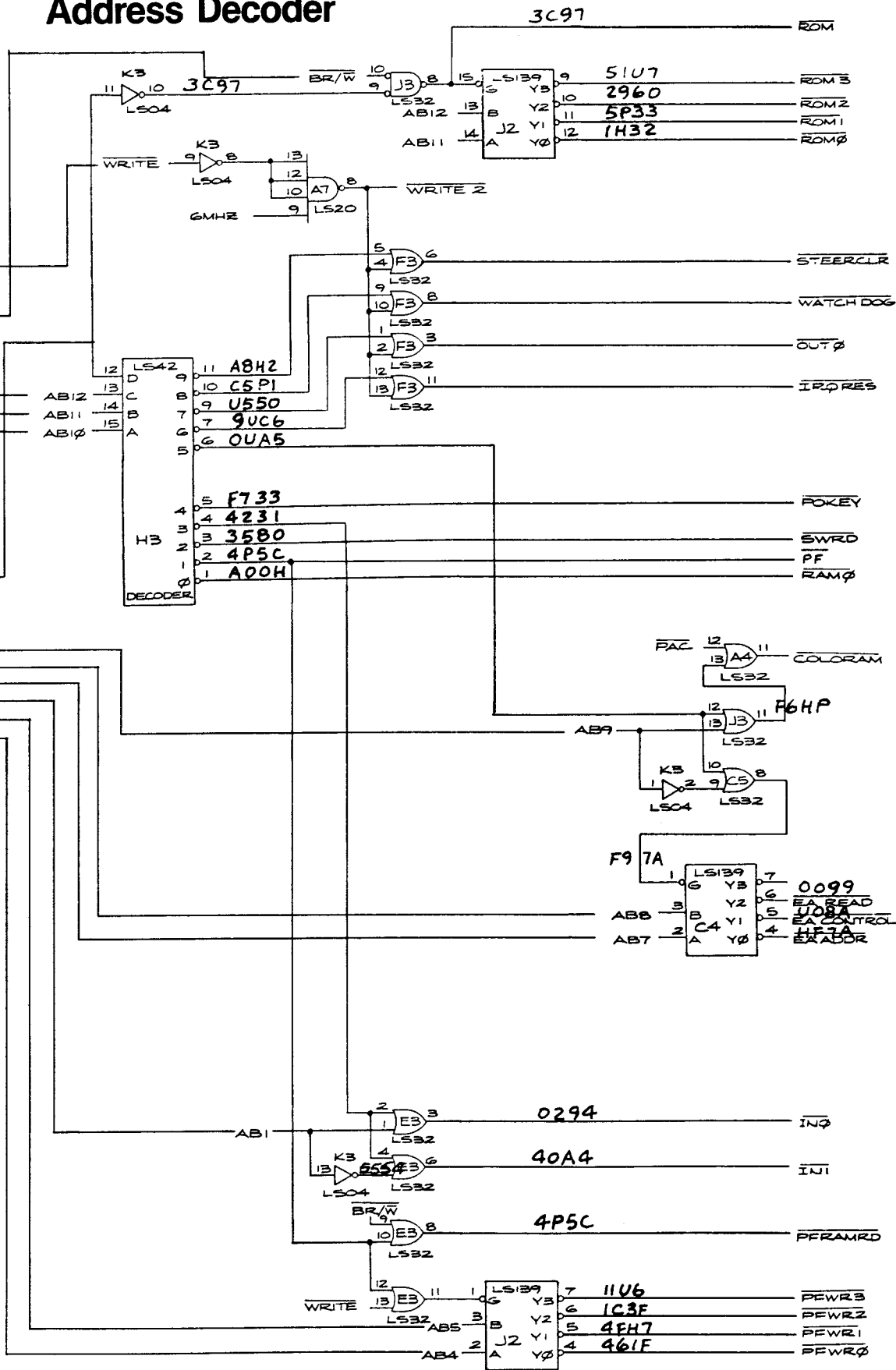
To/From  
Sheet 2, Side A  
Sheet 2, Side B



To/From  
Sheet 2, Side A  
Sheet 2, Side B



# Address Decoder



NOTE:  
To obtain proper signatures