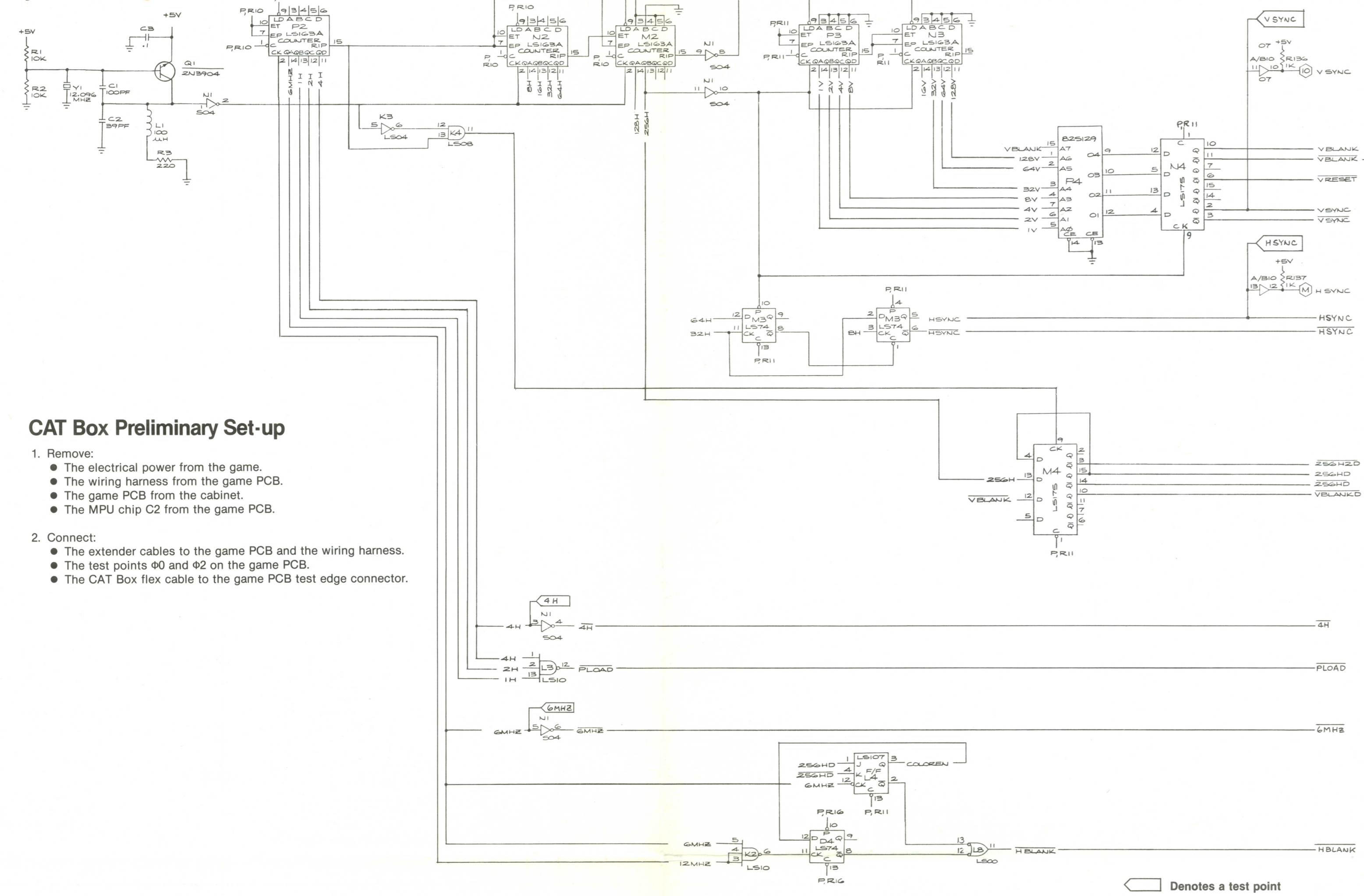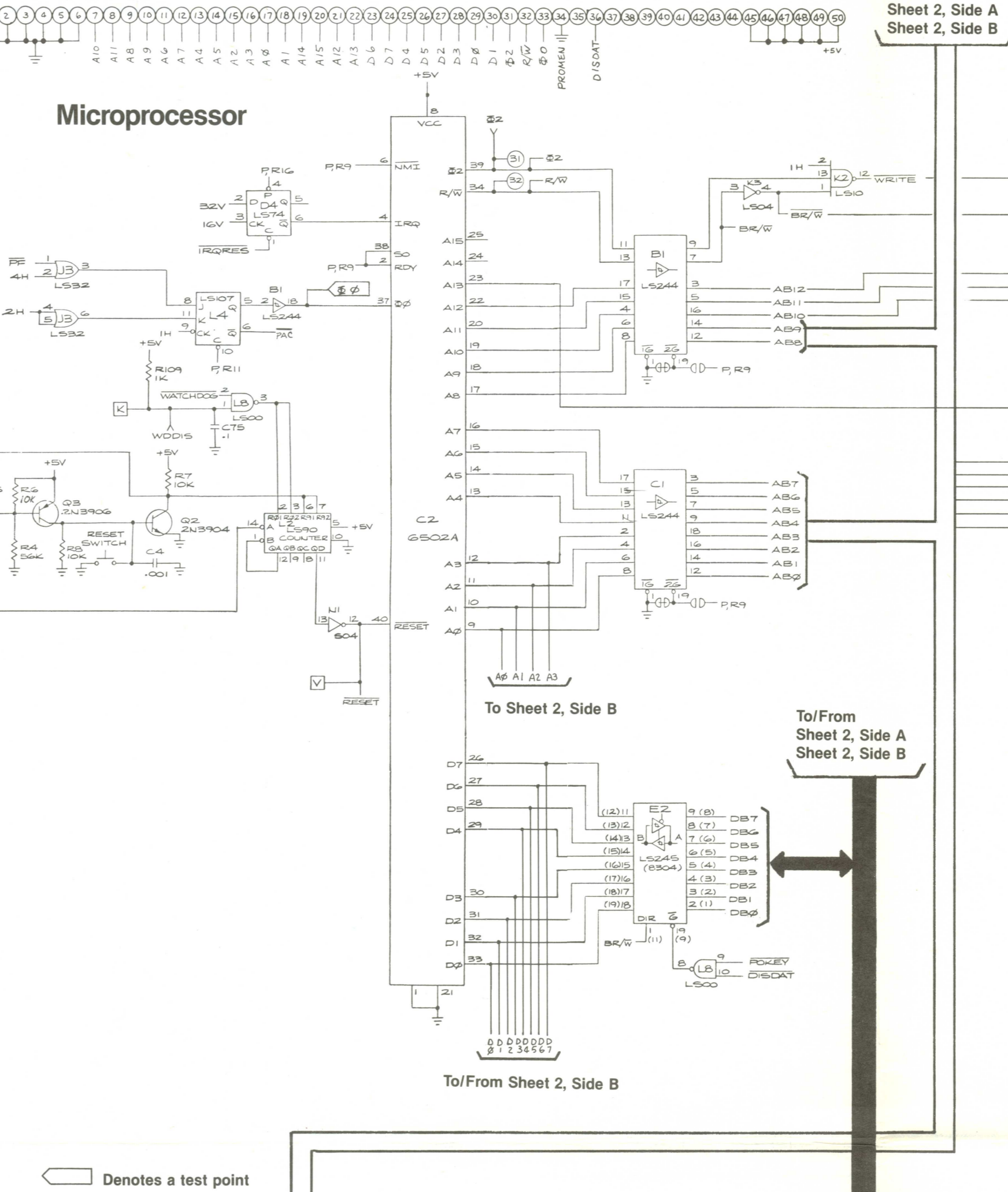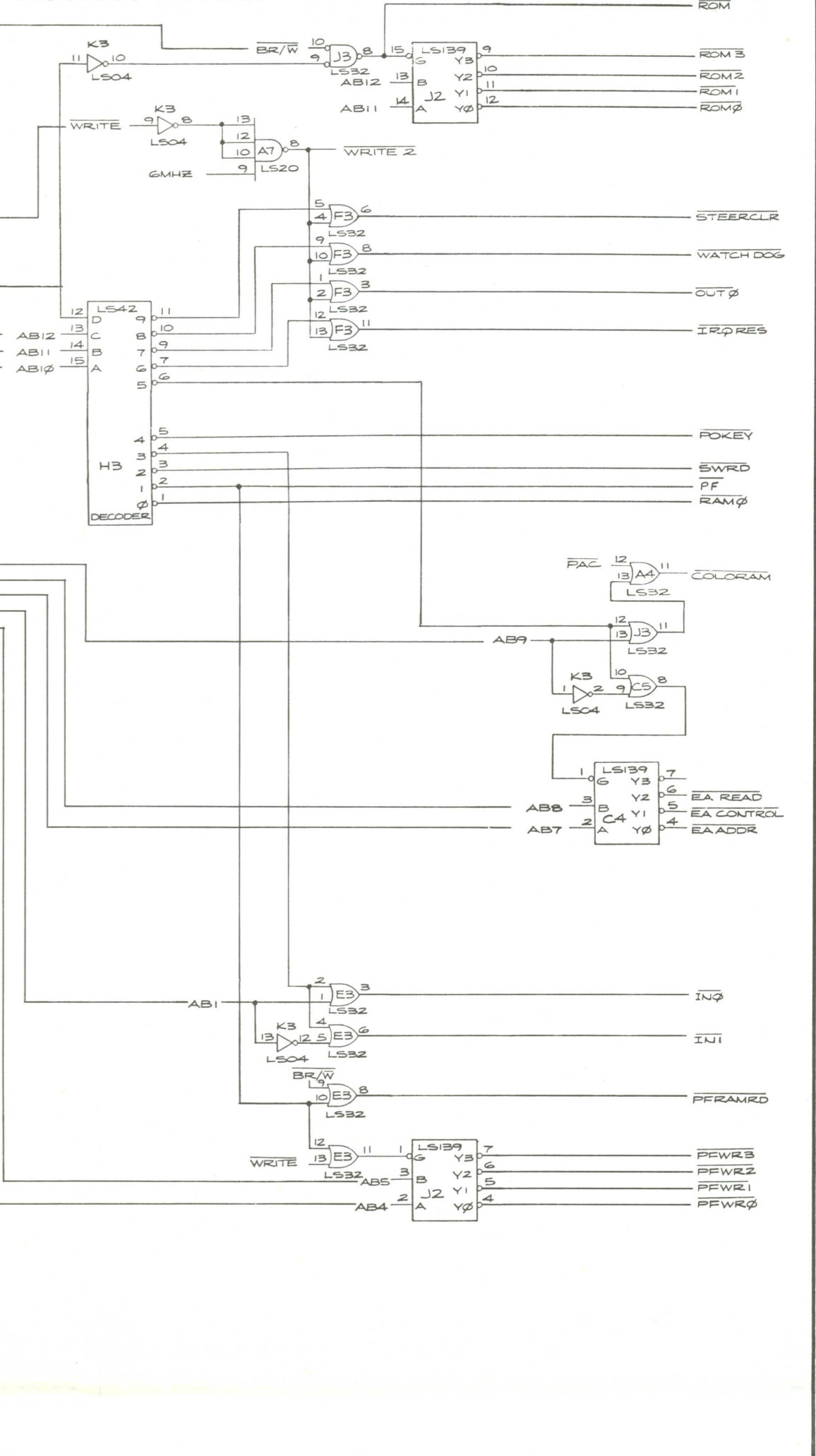# Synchronizer

CAT Box Preliminary Set-up

1. Remove:
   - The electrical power from the game.
   - The wiring harness from the game PCB.
   - The game PCB from the cabinet.
   - The MPU chip C2 from the game PCB.

2. Connect:
   - The extender cables to the game PCB and the wiring harness.
   - The test points Φ0 and Φ2 on the game PCB.
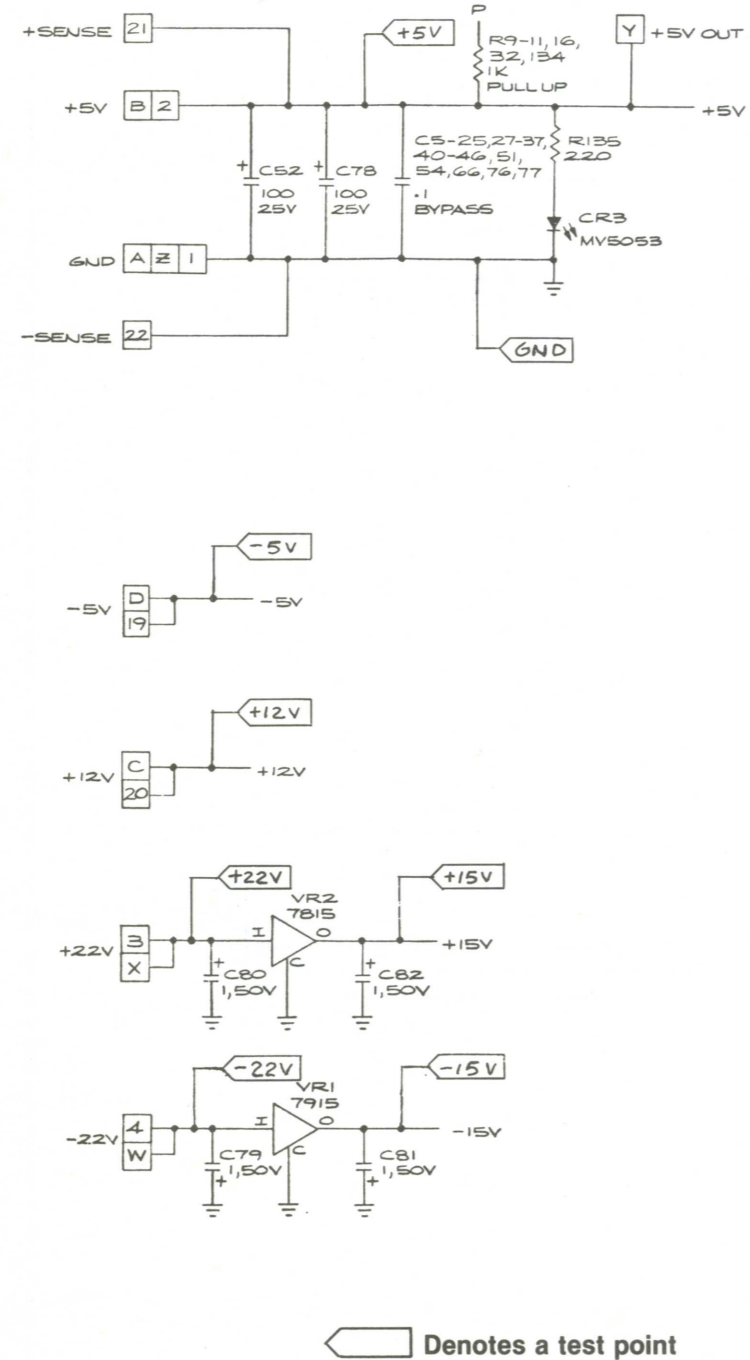   - The CAT Box flex cable to the game PCB test edge connector.

▭ Denotes a test point

TEST CONNECTOR-FOR ATARI CAT BOX

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

Microprocessor

To Sheet 2, Side B

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

To/From Sheet 2, Side B

▭ Denotes a test point

Address Decoder

Diagnostic Tests

Instruction	Use of Test
1. Hold the slam switch closed, while setting the self-test switch to the **on** position.	The monitor displays the color hue adjustment pattern of 16 rectangles, as follows. **Do not attempt any color hue or brightness adjustments unless you are a qualified color TV technician!**
	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
2. Activate any of the coin switches on the coin door.	A convergence pattern appears with a grid of white dots on a black screen. **Do not attempt any convergence adjustments unless you are a qualified color TV technician!**
3. Set self-test switch to the **off** position.	Check attract-mode display and readjust Brightness if necessary.

Sheet 1, Side B

Centipede™

Synchronizer
CAT Box Preliminary Set-Up
Power Input
Microprocessor
Address Decoder
RAM
ROM
Memory Map

Section of 037241-01 G

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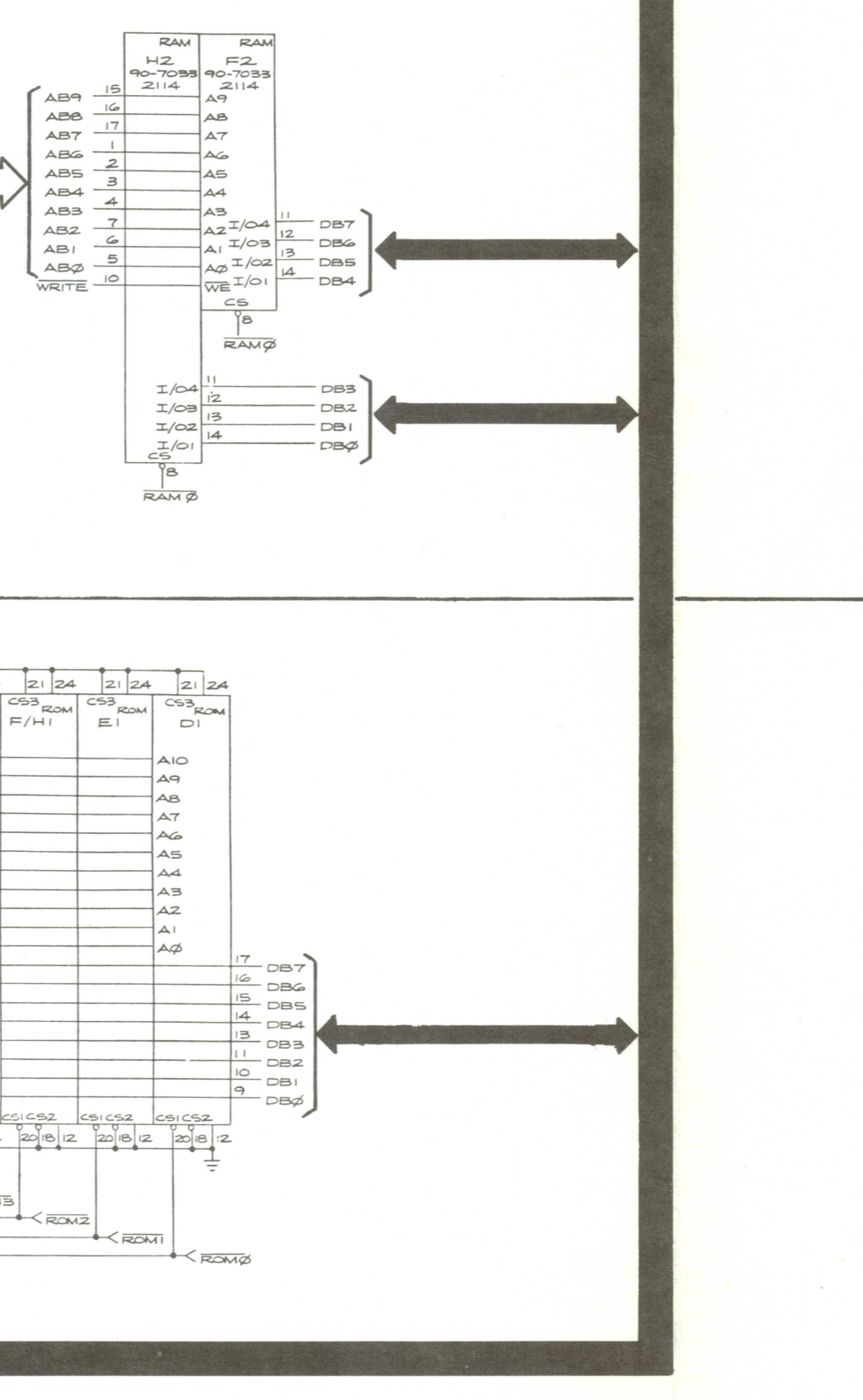
ATARI

Power Input

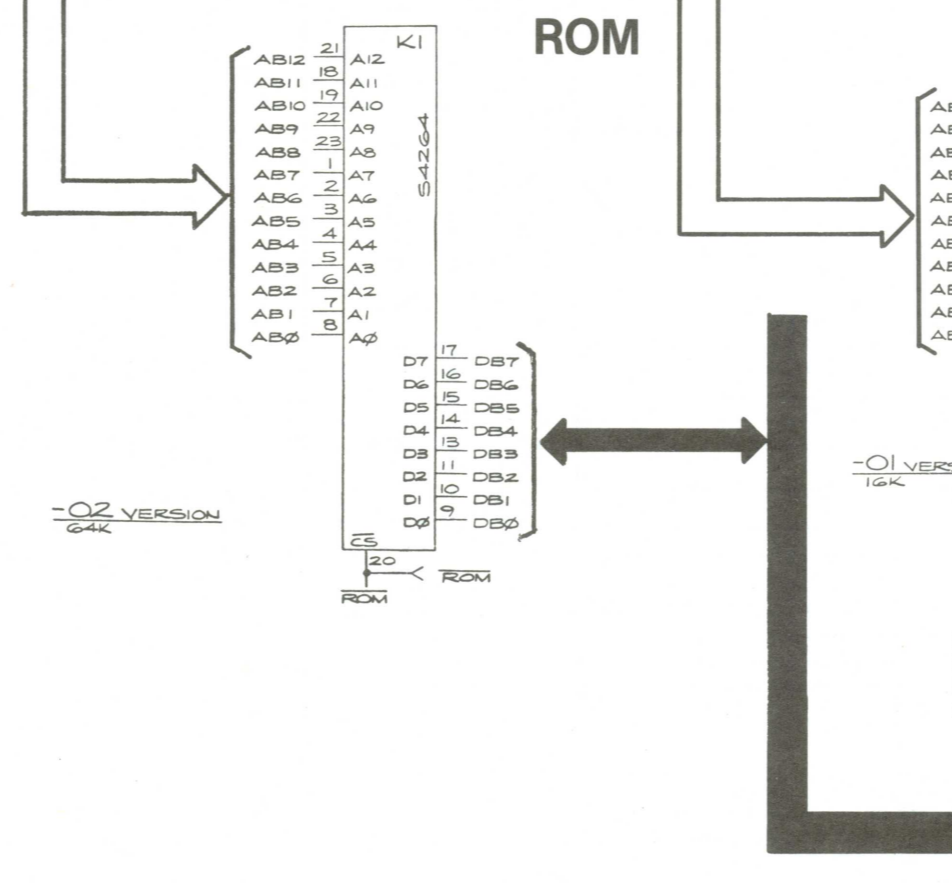

▭ Denotes a test point

Testing the RAM

1. Perform the CAT Box preliminary set-up.

2. Set the CAT Box switches as follows:
   a. Press TESTER RESET
   b. DBUS SOURCE TO ADDR
   c. BYTES to 1024
   d. R/W MODE to (OFF)
   e. R/W to WRITE
   f. Key in 0000
   g. Set R/W MODE to PULSE, then to OFF.
   h. R/W to READ
   i. Set R/W MODE to PULSE, then to OFF.

3. If the CAT Box reads an address that doesn't compare, the COMPARE ERROR LED lights, the ADDRESS/SIGNATURE display shows the failing address location, and the ERROR DATA DISPLAY switch is enabled.

4. If the COMPARE ERROR LED does not light, rekey 0000 and repeat the test with the DBUS SOURCE switch set to ADDR. This ensures that the data bits at address 0000 will go high. If the COMPARE ERROR LED does not light after this step, the RAM is good.

RAM

ROM

Memory Map

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

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