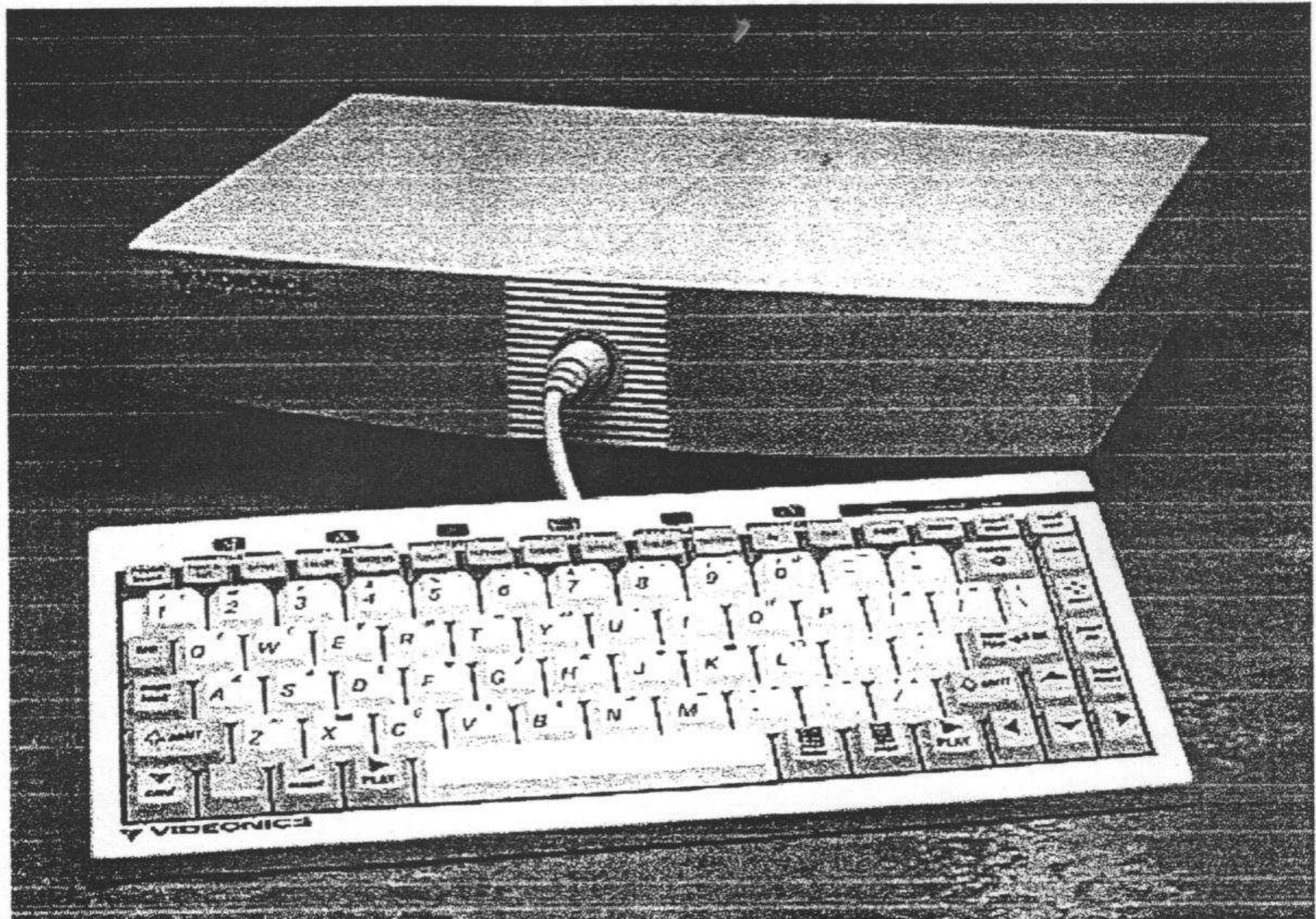


VIDEONICS
The Video Electronics Company

TM-3000 SERVICE MANUAL



1. Functional Test Procedure

1.1 Equipment

1. Monitor
2. Vectorscope
3. Title Maker 3000 Test Fixture
4. Video Sources: Y/C, Composite Nominal, Composite +80, Composite -100
5. Custom VCU running GPI Test to test TM-3000 GPI interface
6. TM-3000 key Board.
7. Oscilloscope
8. Video Subcarrier Source
9. Digital Voltmeter

1.2 MEASURE BATTERY DISCHARGE CURRENT

The TitleMaker 3000 has a battery backup feature for titles stored in the Random Access Memory (RAM). This test checks to insure the discharge current is within normal limits.

1. This check is made before the external power plug is attached to the board.
2. Discharge the capacitors on the VDDB circuit network, by connecting a jumper wire momentarily between test point TP14 (VDDB) and any signal ground test point(GND).
3. After removing the jumper, wait a minimum of three (3) seconds. This delay is for the battery to charge the capacitors on the VDDB circuit. If the measurement is made too quickly a higher than normal reading can occur.
4. Connect a volt meter across R111 and record the voltage drop. This can also be measure between the Battery positive terminal and test point TP8 (BATT).
5. Acceptable voltage drop across R87 limits are > 0.3mV but < 0.7mV.

1.3 RAM INITIALIZATION (very first time powered on only)

The very first time a TitleMaker 3000 board is powered on, or anytime the battery discharge measurement check is performed, as in Section 1, the content of the static RAM may be such that it causes the unit to fail with a data base integrity error. Unfortunately there is no monitor message to indicate this error. Instead, after the Self Test runs, the unit does not respond to pressing the [POWER] key in the normal way. Instead, the unit stays in power off mode.

1. Put the unit to be tested in the fixture carrier, Connect power plug and turn on power switch. Connect the key board to J11.



2. While pressing and holding the [SHIFT] [CMD] and [Accent] keys, press the [Power] key once, possibly twice and carefully observe the LED. LED should light up.

1.4 ADJUSTMENTS

1.4.1 Horizontal Line-Lock Adjustment (C95 [YOSC])

The horizontal line-lock adjustment should be done in local video mode. (Input and output video cables should not to be connected to the unit under test.)

1.4.1.1 Scope setup:

1. Channel 1: 500mV/div; DC coupled
2. Triggering: channel 1; DC coupled; auto level
3. Vertical mode: channel 1 only
4. Horizontal sweep: 500 μ sec

1.4.1.2 Adjustment procedure:

1. Using channel 1 probe at TP7 (YVCO ERR), adjust C95 to read 3.0V DC level from GND at TP7.

1.4.2 VCO Adjustment (C121 [COSC])

The CCLK VCO adjustment should be done in local video mode. (Input and output video cables should not to be connected to the unit under test.)

1.4.2.1 Scope setup:

1. Channel 1: 1V/div; AC coupled
2. Channel 2: 5.0V/div; AC coupled: accurate source of color source carrier
3. Coupling: AC from the rear panel of the unit. A red clip is attached to the rear panel of the unit.
4. Triggering: AC, Channel 2, Auto level
5. Vertical Mode: Channel 1 and Channel 2 alternate, 20 MHz bandwidth limit
6. Horizontal sweep: 20nsec

1.4.2.2 Adjustment procedure:

1. Using channel 1 probe at L26 (CCLK), adjust C121 until the accurate source of color sub carrier is at 4 times the frequency of color sub carrier. (This is the stage when Waveform start clearing up and tries to stabilize).



2. The color sub carrier may not stabilize, crawling slowly relative to the reference signal, until video signal is fed in at J5 or J6 (refer to scope photo in appendix A)

1.4.3 Chroma Phase Adjustment (C40 [C PHASE])

1.4.3.1 Vector scope setup:

1. Adjust the center dot to match the center of the vector scope, using the vertical and horizontal adjustment knob.
2. Select variable gain.

1.4.3.2 Adjustment procedure:

1. Connect Key Board, Set Main Power switch to ON and Press the POWER key on the key board.
2. Connect a composite video output cable at J2 (Video Out), and the other end of the cable to a monitor composite Video input. Select the appropriate Monitor input channel A or B.
3. Press and hold [SHIFT] and [COMMAND] on the keyboard. (SHIFT key is second from the bottom, at far left; COMMAND key is on the bottom, first from left.) While holding the two keys, press the [D]. Release all three keys. The Special Test Menu appears on the monitor screen.
4. The Special Test Menu can only be accessed after powering the unit on. If the Special Test Menu does not appear, then power the unit off and then on and repeat the [SHIFT], [COMMAND], and [D] keystrokes.
5. Select "Red Bar screen" from the menu, press RETURN. A red strip is displayed on the monitor.
6. Using the gain control on the vector scope, adjust, if necessary, the position of the dot on the scope so that the dot touches the circle on the display.
7. The dot on the scope display should be at a phase angle of : NTSC $90^\circ \pm 4.0^\circ$, or PAL $85^\circ \pm 4^\circ$ in free running mode (Ref. Phase).
8. Feed external composite video signal (full field color bar) at J6.
9. Adjust C40 until the phase angle point (the dot on the display) is at the same phase angle before seeding the external video signal: NTSC Ref.




REVISION HISTORY

| Version / Rev | Date | ECN |
|---------------|----------|-----|
| 2/A | 8-14-96 | 671 |
| 2/B | 9-12-96 | 674 |
| 2/C | 10-15-96 | |
| 3/A | 10-16-96 | |

Note

1. Maintenance ground plane
(differential analog)
 2. See CPU block above

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10-16-199

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Phase +/-2.0°, or PAL Ref. Phase +/- 10.0° (Refer to the scope image in Appendix A).

10. Disconnect the external composite video signal from J6. The phase angle point on the circle on the vector scope display should stay within the specification. If there is a difference in the position of the dot, feed the external video signal again and re-adjust. Confirm that the phase matches as close as possible (that the dot stays within the specified range) by connecting and disconnecting the external composite video signal at J6.

1.5 TESTS USING THE SPECIAL TEST MENU

The Special Test Menu is only accessible immediately after powering up the unit under test.

1.5.1 Preparation:

1. Press Y/C button on the video monitor.
2. Connect J1 (Y/C video output) to monitor and connect J5 (Y/C video input) to external video signal (full field color bar). (If continuing from section 1.5.3.2, simply leave the J2 [composite out] and J6 [composite in] jacks connected and skip to step 1.6.2)
3. Power on the unit under test by turning on the Main Power switch and pressing POWER key on the key board.
4. The LED should turn on and the monitor should now display the Title screen, a blue screen with a white cursor in the middle.
5. Press and hold [SHIFT]and [COMMAND]. While holding the two keys, press the [D] and release all three keys. Monitor should now display the Special Test Menu on the screen. (SHIFT key is second from the bottom, at far left; COMMAND key is on the bottom, second from left.)
6. Test only the menu items listed below in the next section. Whenever selecting from the menu, use the UP and DOWN arrow keys to position the cursor. Press the [OK] to activate the selected menu item. (The [OK] is the dark gray "return" key on the third row of keys from the bottom, next to the arrow key.)

1.5.2 RAM Test

In this test, the test software verifies the integrity of the RAM by writing and reading data to and from the RAM chip.



- 3) Press [OK] again to return to the test menu.

1.5.6 Black and White Bars

This test involves the use of a scope to check the output from the unit under test.

1.5.6.1 Scope setup:

1. Channel 1: 200mV/div AC coupled
2. Coupling: AC
3. Triggering: Channel 1
4. Vertical mode: channel 1 only (with 20MHz. B.W.)
5. Horizontal mode: a time base of 0.5ms

1.5.6.2 Test Procedure:

1. Select "B&W Bars" from the menu and press the [OK]. The monitor will display a series of horizontal bars of varying shades of black and white.
2. Using channel 1 scope, probe at J2.
3. The output signal should be a clean linear staircase which measure approximately 860mV peak-to-peak from sync tip to Y tip, (refer to the scope photo in Appendix A).
4. Press [OK] to return to the Special Test Menu.

1.5.7 Color Bars

This test involves the use of a vector scope to check the output from the unit under test.

1.5.7.1 Test Procedure:

1. The Scope setup is the same as above for B&W bars.
2. The Variable Gain on the vector scope should be off.
3. Select "color bars" from the menu and press [OK]. The monitor will display a series of horizontal bars of various colors.
4. Using channel 1 scope, probe at J2 the output should match the scope photo in Appendix A.
5. The monitor of the vector scope should show 6 dots. The dots should precisely hit the 6 square boxes, (refer to the vector scope photo in Appendix A).



1. Select "Test RAM" from the menu and press [OK].
2. The Monitor should display "MFG RAM test" and show Pass Count 0,1,2,3...
3. After Pass Count 2, press the [Space Bar] to end this test and return to the Special Test Menu.

1.5.3 ROM Test (complete)

Use this test to verify the ROM content CHECKSUM values. This test will take about 8 seconds.

1. **Note:** In this "complete" ROM test, the test software actually calculates the CHECKSUM value for ROM content. Select "Test ROM (complete)" from the menu and press the [OK].
2. Monitor should display "MFG ROM test" and "Testing ROM bank," followed by numbers 0.
3. When the test is complete, the screen will show 0 number followed by CHECKSUM information about the ROM contents. If any abnormality was found during the test, an arrow (<-) will appear next to the item on the list which was found to be abnormal. If any arrow appears on the screen, the unit is defective and must be set aside for repair.
4. Press the [OK] to return to the Special Test Menu.

1.5.4 Test LED

This test checks the LED by turning the LED on and off in a flashing mode.

1. Select "Test LED" from the menu and press [OK].
2. The LED will continue to flash on and off until [OK] is pressed again to return to the SPECIAL TEST MENU.
3. Press [OK] to return to the Special Test Menu.

1.5.5 Clock Test

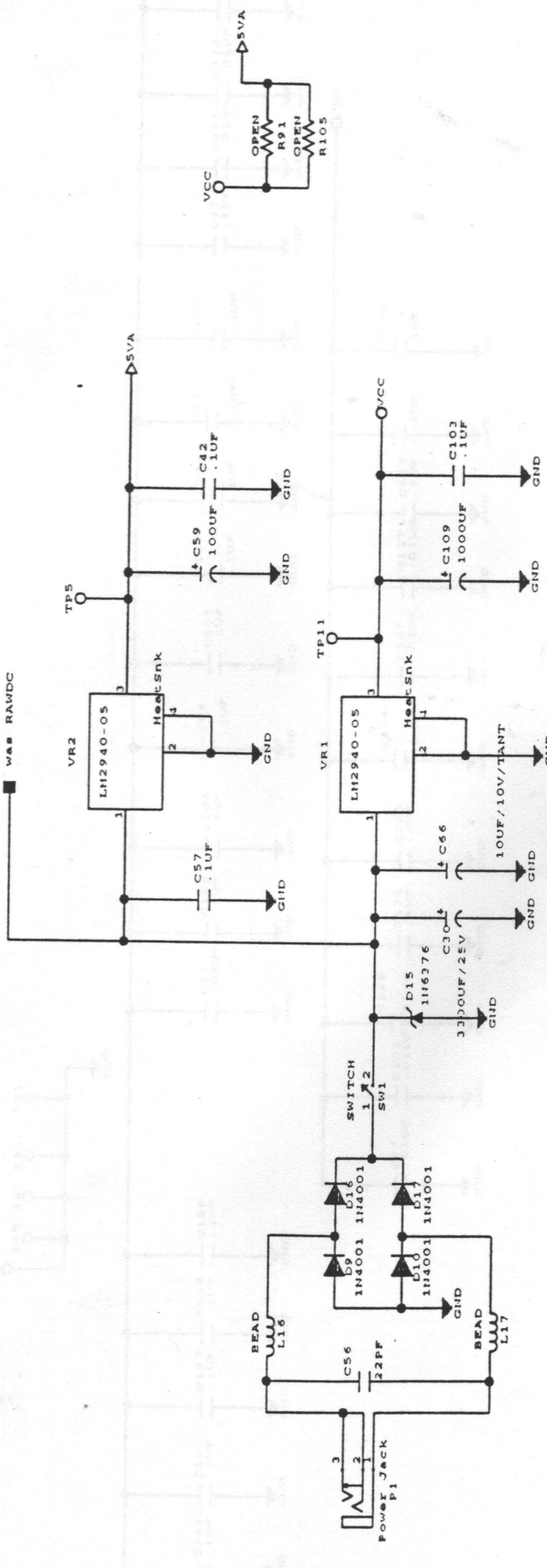
This test check that the internal clock is properly initialized and it is running.

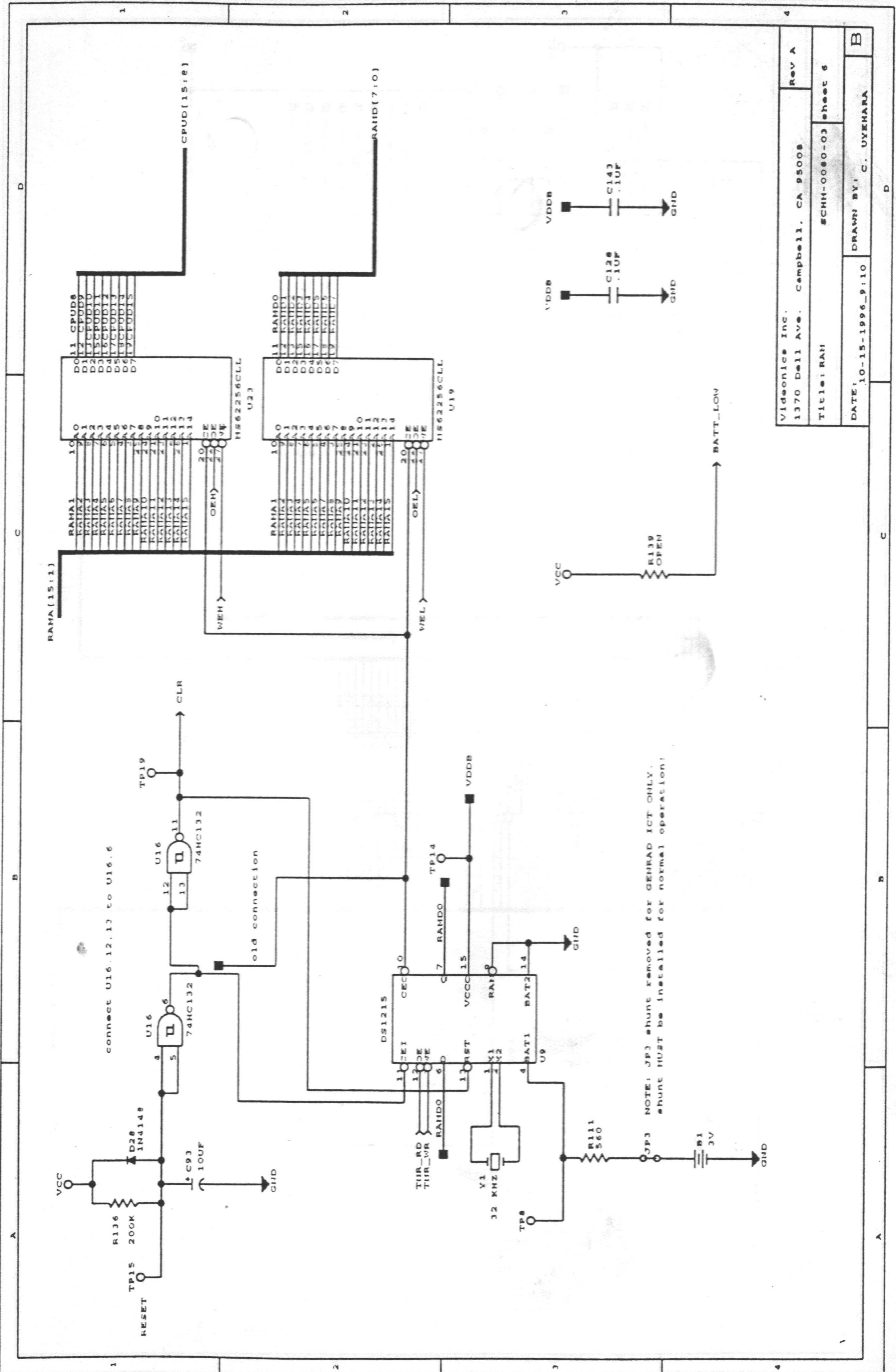
- 1) Select 'Test Clock' from the Diagnostic Menu and press [OK].
- 2) After approximately one to two seconds it will display 'Clock Test is Successful.'

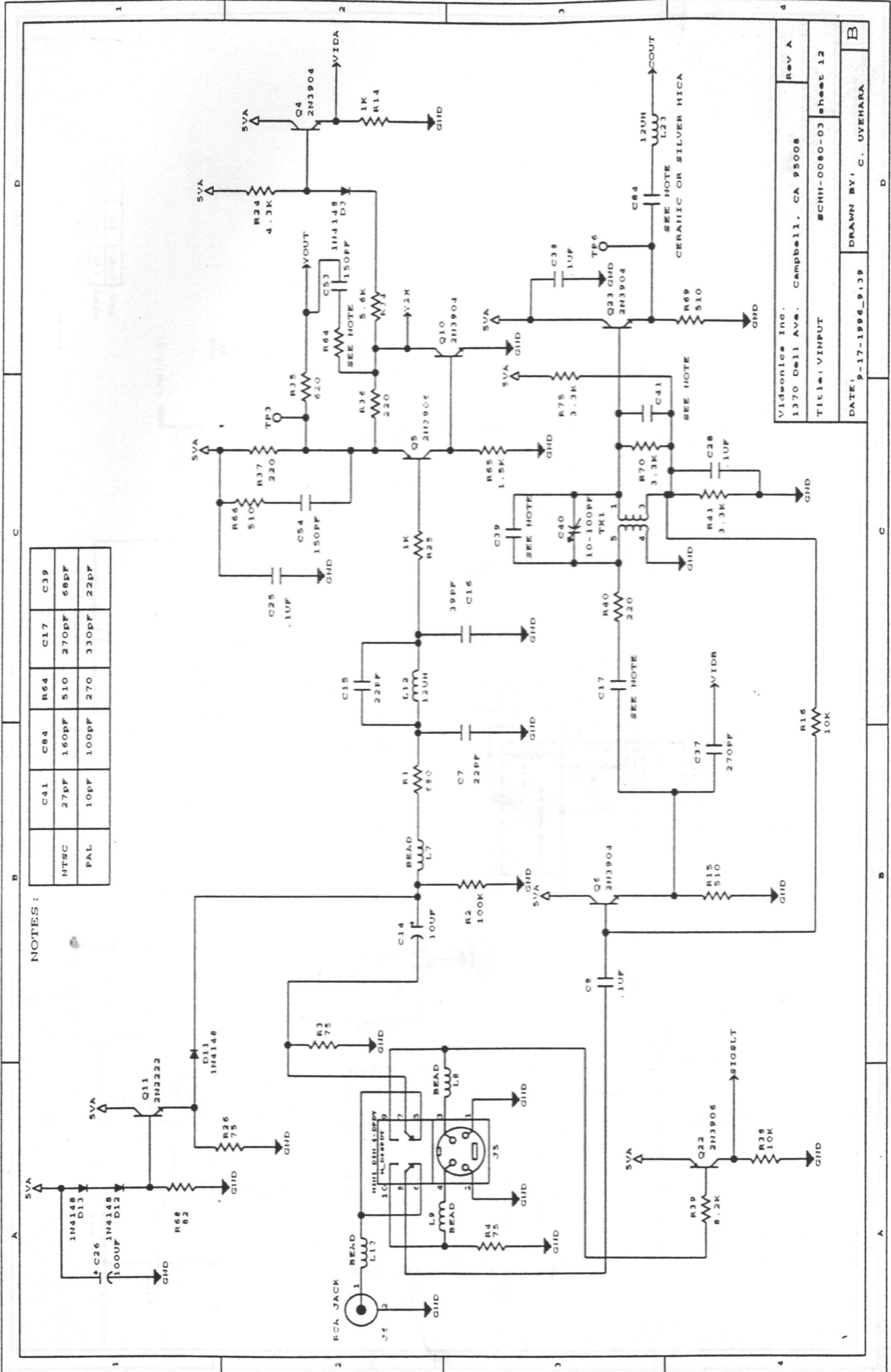


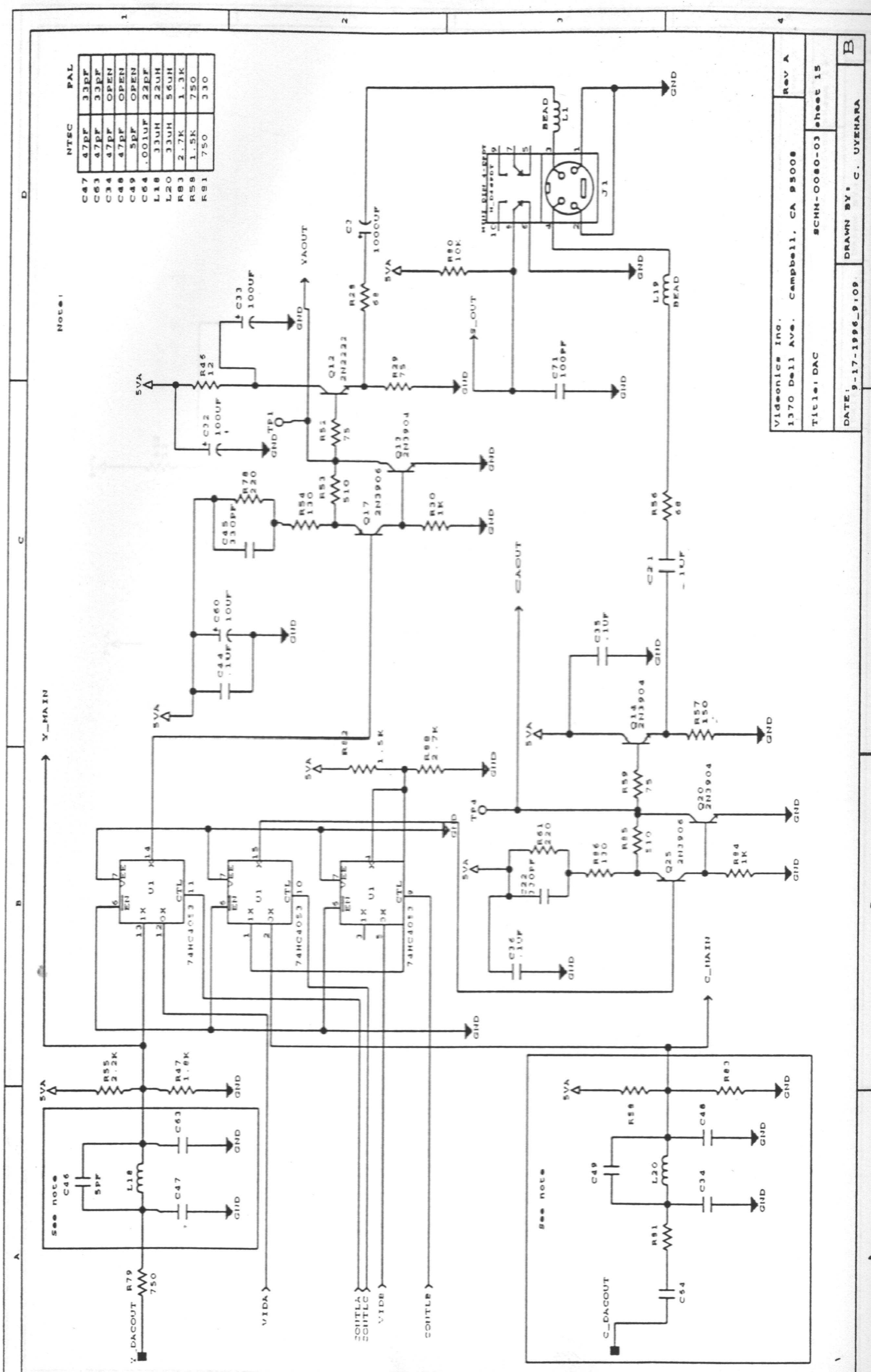
A B C D

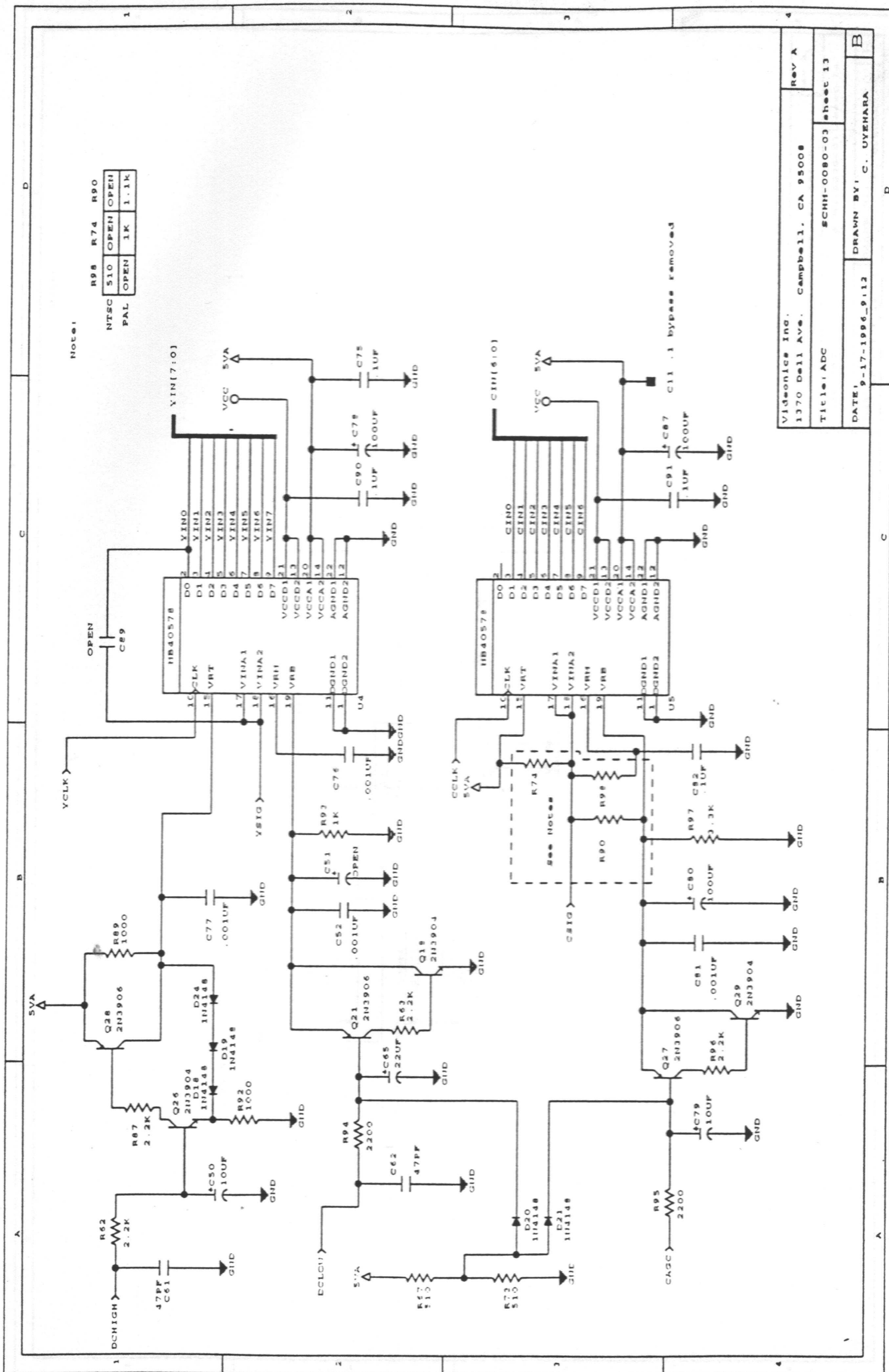
Note:











MXProDV

Please Read This First

Factory Defaults

When you first receive your MXProDV, we recommend that you do a factory reset before use. This ensures you will begin with factory default settings. Once you have connected all of your equipment per the users guide instructions, follow the sequence below:

Procedure

To set MXProDV to factory defaults:

1. Verify that one monitor is connected to "PREVIEW OUT" on MXProDV.
2. Power down MXProDV (using the Power Switch).
3. Press down and hold the SHIFT and SETUP buttons.
4. Turn on MXProDV's Power switch.
5. Continue to hold down the buttons until the Preview screen appears (see the picture of the Preview Screen on page 17 of the MXProDV Users Guide).

Using DV Devices

When using DV Equipment connected to the Firewire inputs or outputs of the mixer, ensure you follow the steps below for connection:

Procedure

Boot Up sequence when using DV input and output devices:

1. Connect the Firewire cables between your Sources, Recorder and the MXProDV.
2. Power up your Recorder (equipment connected to MXProDV's "DV-OUT").
3. Power up your MXProDV.
4. Power up your Sources (equipment connected to MXProDV's "DV-IN").



videonics MX-Pro_MX3000 RESET.txt

Initial System Setup:

To reset the system to default values turn the power on while holding " Shift " and " SET UP " keys. After completion of the boot cycle turn the power off.