

ADJUSTING CP/M VIDEO BOARDS

BY MARSHALL L. MOSELEY

Over time, the image displayed on your CP/M Kaypro's CRT may have changed, drifting off the screen or out of alignment and causing fuzziness or elongated characters.

This month I'll tell you how to make your CRT screen picture perfect, using only a phillips head screwdriver and a plastic rod.

This procedure is simple, but I must issue two strong warnings to those interested in trying it. First, it involves working near components that hold high-voltage electricity, and if you contact the wrong component you could electrocute yourself. Be very careful, and touch only the designated components.

Second, Kaypro Corporation does not recommend that computer users attempt this and will not support you if you run into trouble. In other words, if you screw it up and fry the CRT, you're on your own.

THE CP/M VIDEO BOARDS

With those words of cheer, let's move on. CP/M Kaypros use nine-inch monochrome screens. The displayed text image consists of 25 lines that are 80 columns wide, making 2000 individual characters. All lines and columns should be spaced evenly from each other, and all characters should be the same size and in clear focus.

The video board is located directly behind the CRT beneath the mainboard and is mounted on the bottom of the chassis.

WHAT YOU CAN ADJUST

There are seven adjustments you can make to your CRT: focus, brightness, horizontal hold, vertical hold, horizontal width, vertical size, and vertical linearity.

Focus refers to the crispness of the entire image on screen—how clear the characters are and how sharp the center of the image is compared to the edges.

Brightness refers to how intensely the image on the CRT glows. As you know, there is an external brightness adjustment, as well as an internal one. The internal adjustment controls the range of

the external one—how bright the screen is at the brightest setting, and how dim at the dimmest.

The **horizontal and vertical hold adjustments** are the same as the ones on your television. Adjusting the horizontal hold scrolls the entire image from left to right, or vice versa. Vertical hold scrolls the picture up and down.

Horizontal width is the horizontal measure of the screen image, which should be seven inches. Vertical size refers to the vertical measure, or height of the image. This is normally 4.8 inches.

Vertical linearity refers to the height of all characters, relative to each other. When vertical linearity is out of adjustment, for example, the characters at the top and bottom of the screen may appear larger than those in the center.

GETTING TO THE VIDEO BOARD

First, use Wordstar in non-document mode to create an ASCII text file that will take up the entire screen. Exit WordStar and TYPE the file. Then, using a phillips head screwdriver, remove the screws on the top and sides of the computer and remove the cover.

Look at the screen and decide what settings need adjustment. Then turn the computer 90 degrees and look under the mainboard at the CRT video board.

Avoid the throwback coil, unless you want a potent lesson on the dangers of electricity.

The component to avoid is the throwback coil—a cylinder about 1.5 inches

in diameter and 2 inches high. It's one of the largest components on the board. Do not touch it, or the wires leading to it, unless you want a potent lesson on the dangers of electricity. Also stay away from the ceramic and copper yoke that surrounds the base of the picture tube.

MAKING THE ADJUSTMENTS

You will see small plastic wheels or dials perpendicular to the video circuit board. These are *potentiometers* ("pots"), and they allow you to adjust the characteristics of your display.

Kaypro has used CRTs made by Elston Electronics, Toshiba Corporation, Dotronix Corporation, and Micrex Incorporated in its CP/M computers. Figure out which one you have by comparing the placement of the pots on the circuit board to the diagrams on the next page.

To adjust pots, you must use a fairly long plastic rod with a tapered end, much like a flat-blade screwdriver. *For your own safety, you must use plastic. Under no circumstances should you use metal of any kind.* These rods are available from Radio Shack, part number 64-2223.

Again using the diagrams on the next page, locate the pots for your CRT and determine which ones you need to adjust. Notice that each pot has a small plastic wheel with a ridge on it; make the adjustment by placing the edge of the tool under the ridge and pushing up, or on top of the ridge and pushing down. When doing this you should work with another person. Your partner can look at the display and tell you when the adjustment is correct, allowing you to devote your full attention to moving the pot. (Poking around back there blind only increases any risk.)

The Micrex CRTs pots are not wheels, but plastic screws that are adjusted from above. Bend the end of the adjustment tool to a 90-degree angle and use it the way you would a socket wrench.

FOR DIAGRAMS SEE PAGE 61

ELSTON VIDEO BOARD

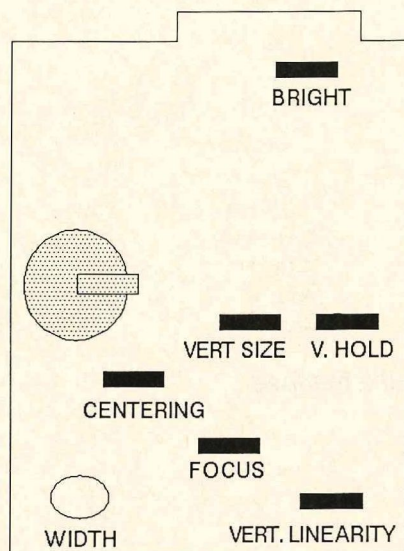


ILLUSTRATION 1: Elston video board diagram.

TOSHIBA VIDEO BOARD

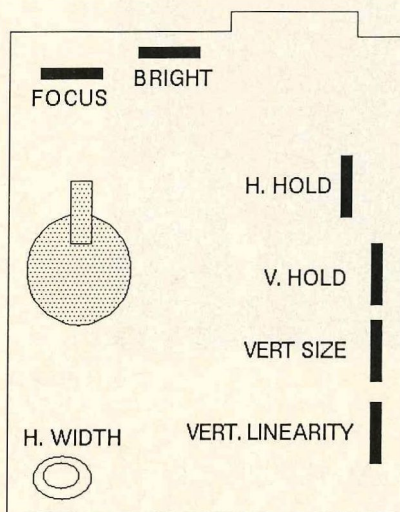


ILLUSTRATION 2: Toshiba video board diagram.

DOTRONIX VIDEO BOARD

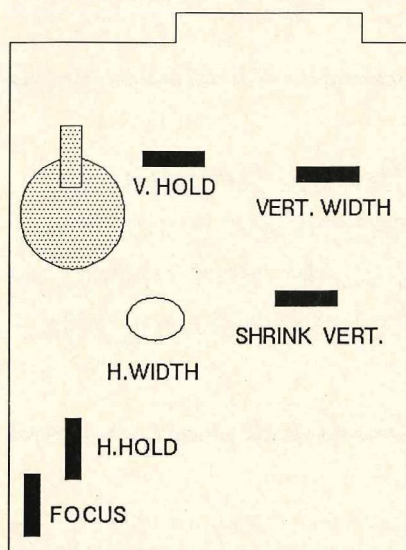


ILLUSTRATION 3: Dotronix video board diagram.

MICREX VIDEO BOARD

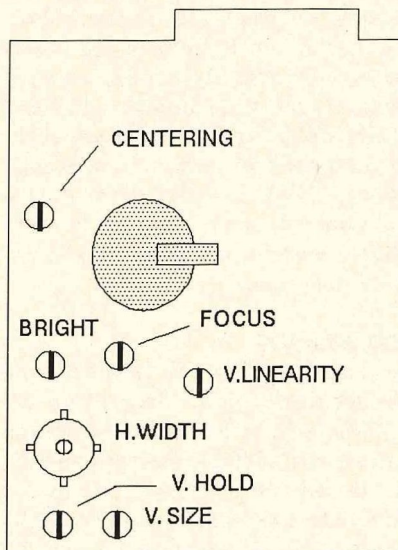


ILLUSTRATION 4: Micrex video board diagram.

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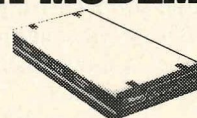
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