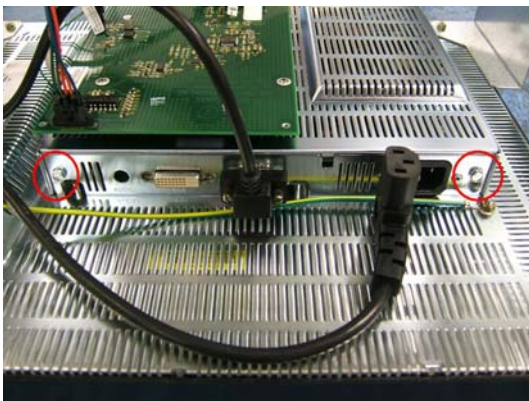


## Replacing the CCFT's on the Ceronix Samsung LCD

CCFT's Cold Cathode Florescent Tubes. If you notice your LCD panel flickering or turning on then shutting off or even no picture at all. You will, most likely, have to replace the tubes. The cost of the tubes is a fraction of the cost to replace the complete LCD panel.

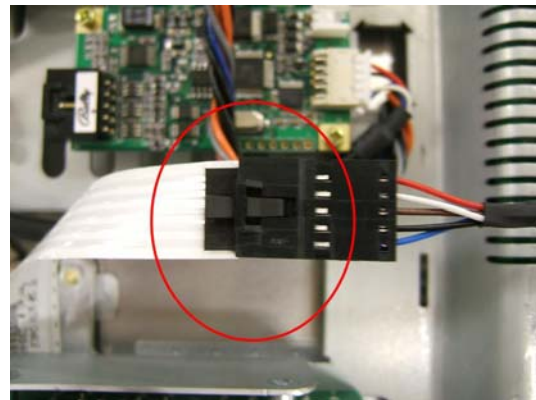
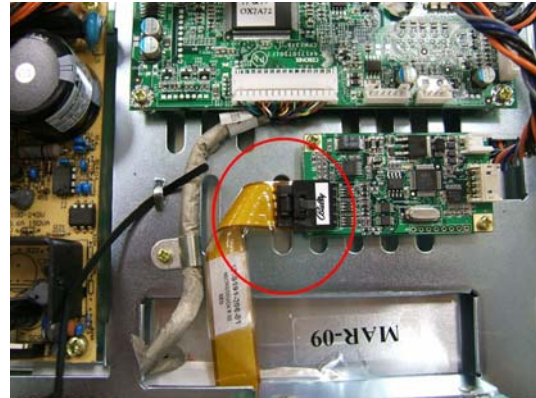
When working on LCD panels, make sure the work surface is clean and free of contaminants. A piece of cloth or foam would be recommended. The panel described in this article is a Samsung 19" TFT LTM190E4 Ceronix PN-CPP1701. The Samsung 17" TFT LTM170E8-L01-L Ceronix PN-CPP1700 panel will follow the same procedure as the 19" panel. The Samsung 15" TFT LTM150X0-L01 is simple, remove the two screws holding the tube assembly, then slide the assembly out.

Please read this article completely before starting this project. The first step is to remove the LCD panel from the frame/electronics. Remove the electronics cover from the rear of the unit held in place by the two 1/4" drive screws, on the plate where the VGA cable and AC cable are attached.



Slide the cover back to unlock and lift out. If the unit has a touch screen (most of them do), unplug the ribbon cable

from the extension cable or controller board. Use caution the ribbon cable is fragile.

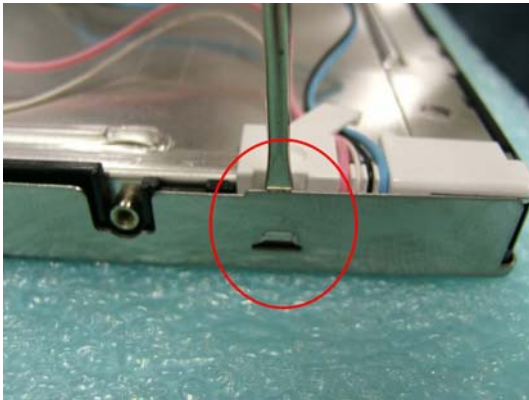


There are four Phillips screws securing the panel to the frame and bezel. Once the four screws are removed the bezel needs to be unclipped from the frame. Use caution; the touch screen ribbon cable is fed through the frame and the CCFT cables need to be unplugged. Separate the bezel and Touch screen/glass from the LCD panel.

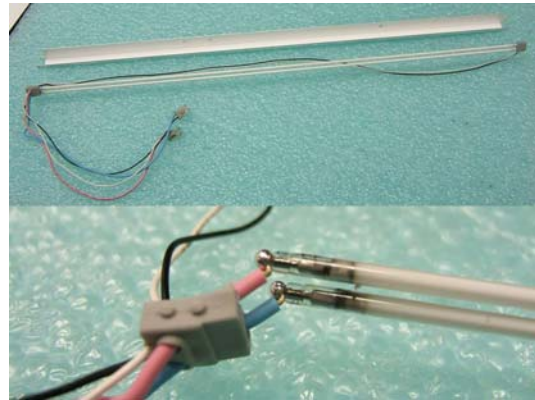
## Replacing the CCFT's on the Ceronix Samsung LCD



A warning first, the ribbon and PCB board is fragile use caution whenever working around them! Remove the three small Phillips screws securing the PCB and ribbon to the back/plane. To remove the back/plane, unclip the sixteen clips around the outer bezel.



Before you remove the back/plane, it is important to note that the order of the layers and contamination will be a high risk, so do not separate the internal layers when removing the back/plane. Once the back/plane is separated, remove the 2 small screws holding the lamp assembly. Gently remove the rubber ends and lamps from the assembly. The rubber ends after some time may fuse to the lamps. Be careful not to tear. Pull the rubber back and remove the wires with a soldering iron. It will be easier to replace one at a time. This way the orientation will be correct.



Now you're ready to reassemble the panel. Screw the tube assembly to the back/plane and rout the wires in their holder. Snap the back/plane back into the panel. If you encounter any resistance, do not force, simply tap the opposite side on edge and the layers will line right up.

When all the clips are snapped in, screw the PCB to the panel and reassemble.

The two most common problems seen after changing the tubes are, solid color lines running top to bottom, and inverter flashing on then off. If the lines are present, the ribbon to the PCB was nicked or damaged. If the flashing on then off happens, the rubber or wire shielding is broken on the tube wires.

For more information, contact Ceronix distributor Suzo-Happ or your local Ceronix distributor. For a list of distributors, please visit the website at [ceronix.com](http://ceronix.com) or contact Ceronix at 530-886-6400.