Kurzweil K2000 Display Upgrade

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Version: 1.0

The display in the Kurzweil K2000 uses an electroluminescent (EL) back light which fades out over time making the display very hard to read. While replacement EL panels are available they too will in time fade. For about the same price as a new EL panel you can purchase a whole new display which has a blue LED back light which is brighter and will not fade out like an EL panel. The major challenge is doing the display swap is that the new LED display is slightly thicker and you will need to modify the K2000 front panel slightly to make the display fit properly. The display that I used in this conversion was obtained from http://www.zinguy.com/lcdpage.htm

If you have any questions or comments about the conversion I can be reached at daved@deepgreen.ca.

This upgrade worked for me on a K2000 Calvin with only the sample option installed. It should for other configurations but there may be the odd additional step required.

Photo 1: The Old Display

Back light is totally dead. You need to have bright lighting to read the old display. Not nice.

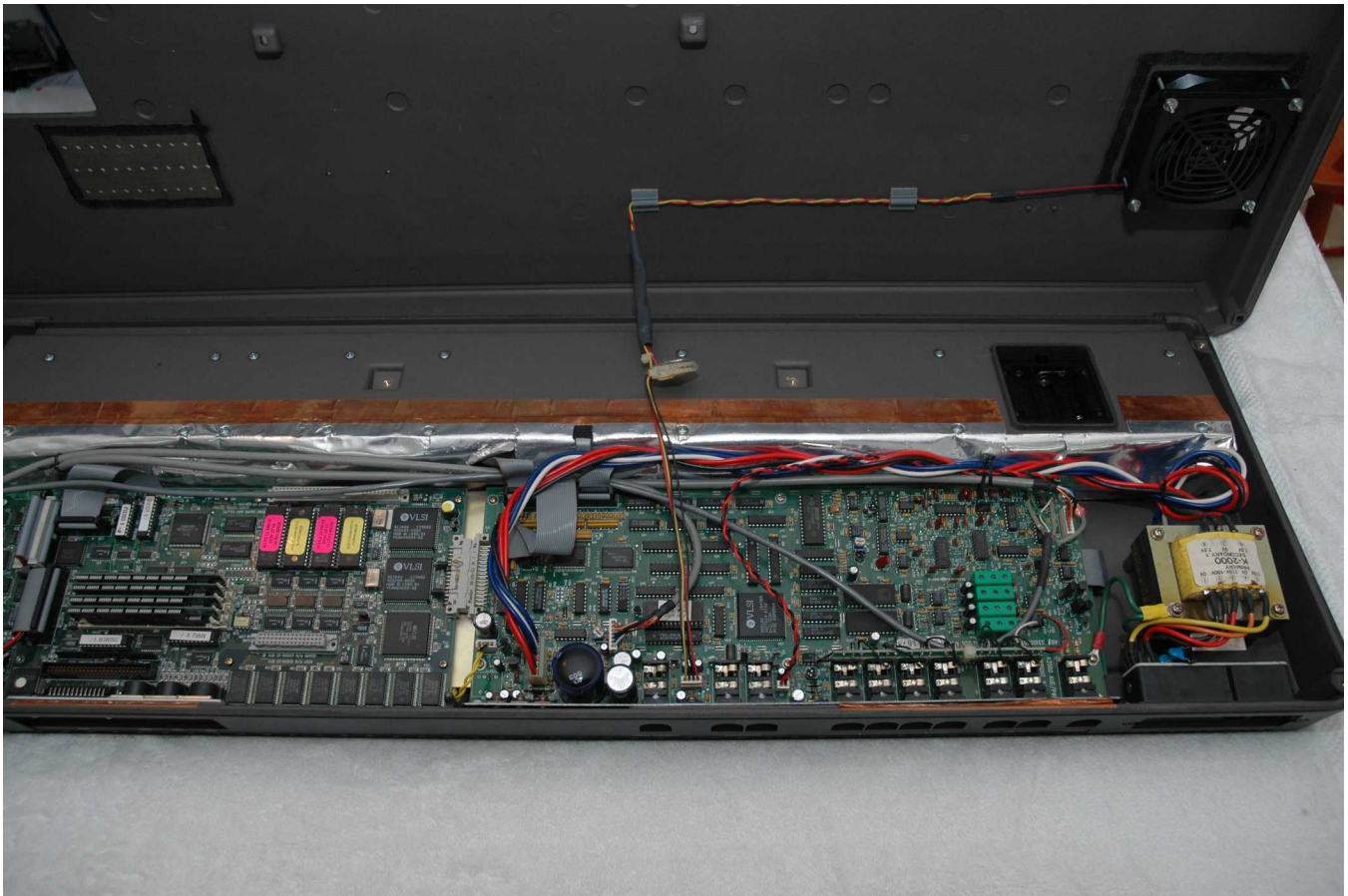**Photo 2: Remove the K2000 Bottom Cover**

Backup everything that you value before you start!

Unplug the keyboard!

Place your keyboard face down on a soft padded surface. A folded towel works well.
Remove the 6 screws that holds the bottom on the K2000.
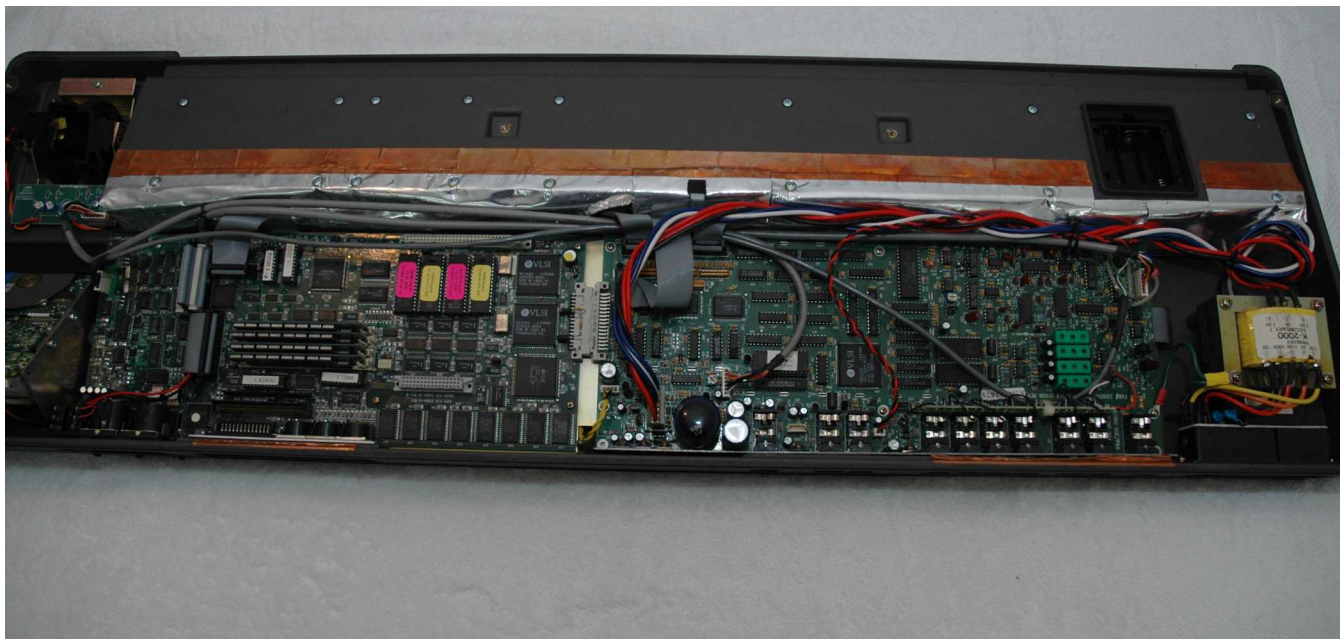Remove the battery cover and the 3 AAA cells.

Photo 3: Removing the Fan and Hard Drive Power Connectors

Lift the back off and unplug the backup battery and if installed the fan and hard drive power connectors.

Now would be a good time to clean or completely remove the fan filter.

Photo 4: Remove the Circuit Boards and Aluminum Plate

Unplug all of the connectors from the engine and audio boards.
Remove the 12 screws that hold the boards down.
There may be other things to do if your keyboard has other options installed.
Remove the 2 boards and the aluminum plate under them.

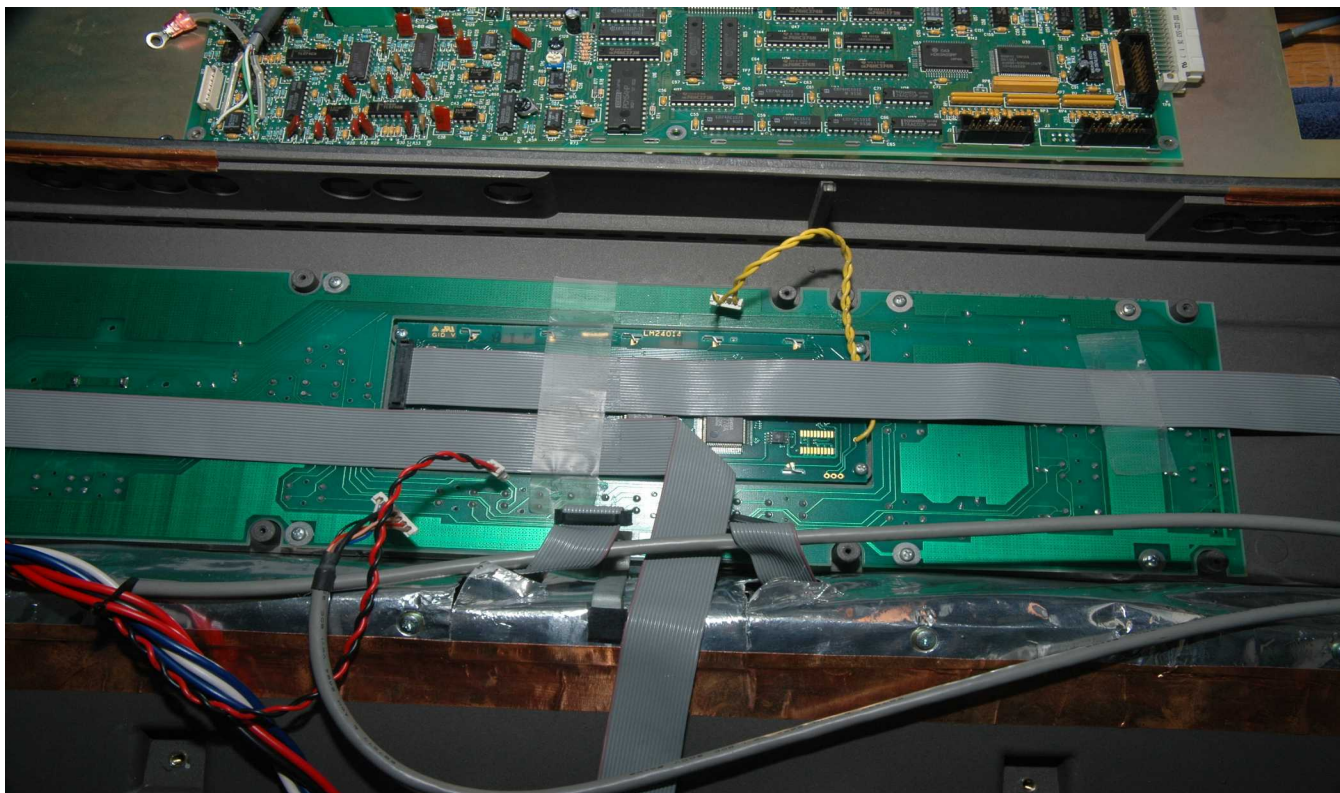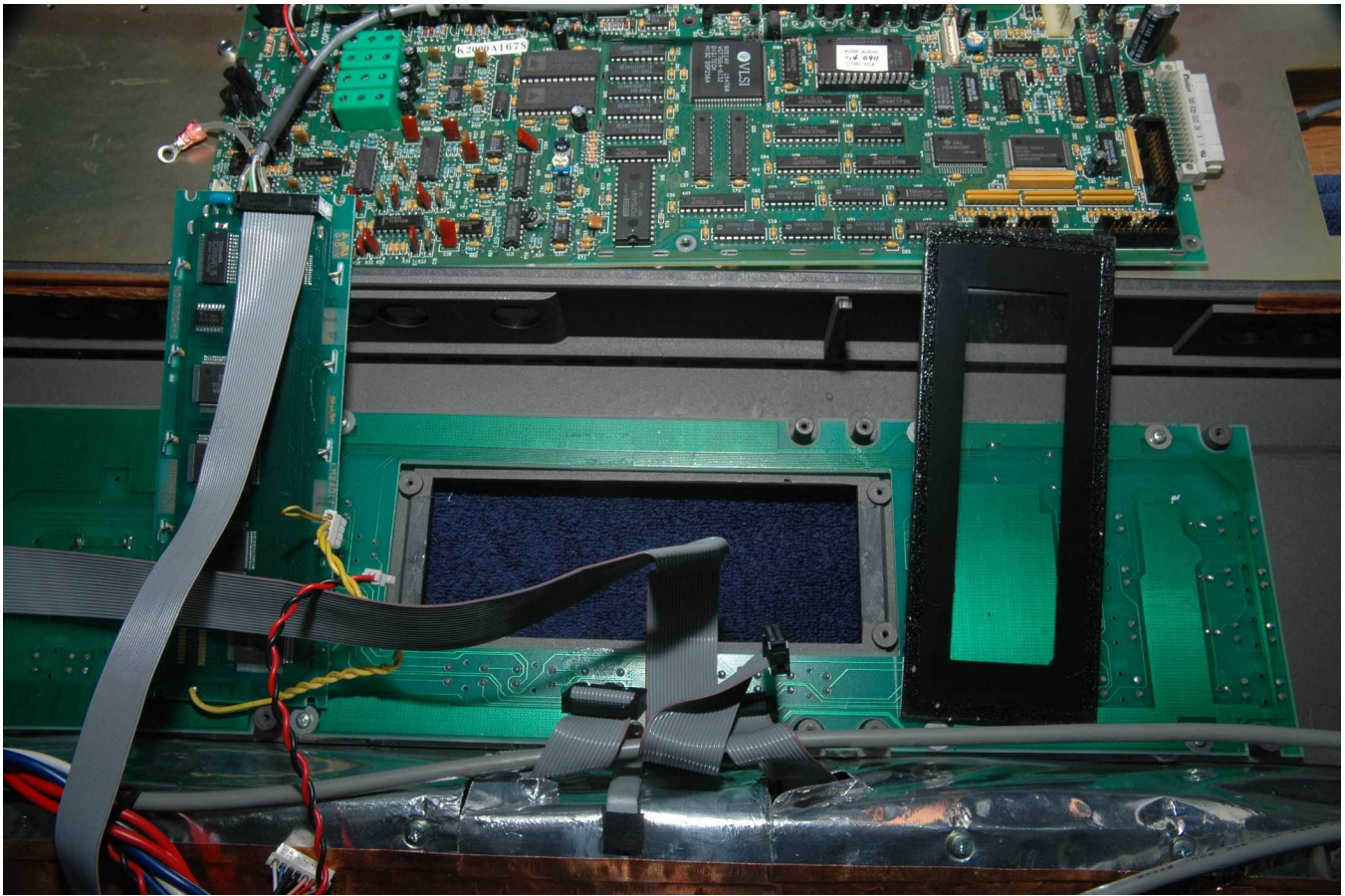**Photo 5: Circuit Boards and Aluminum Plate Removed**
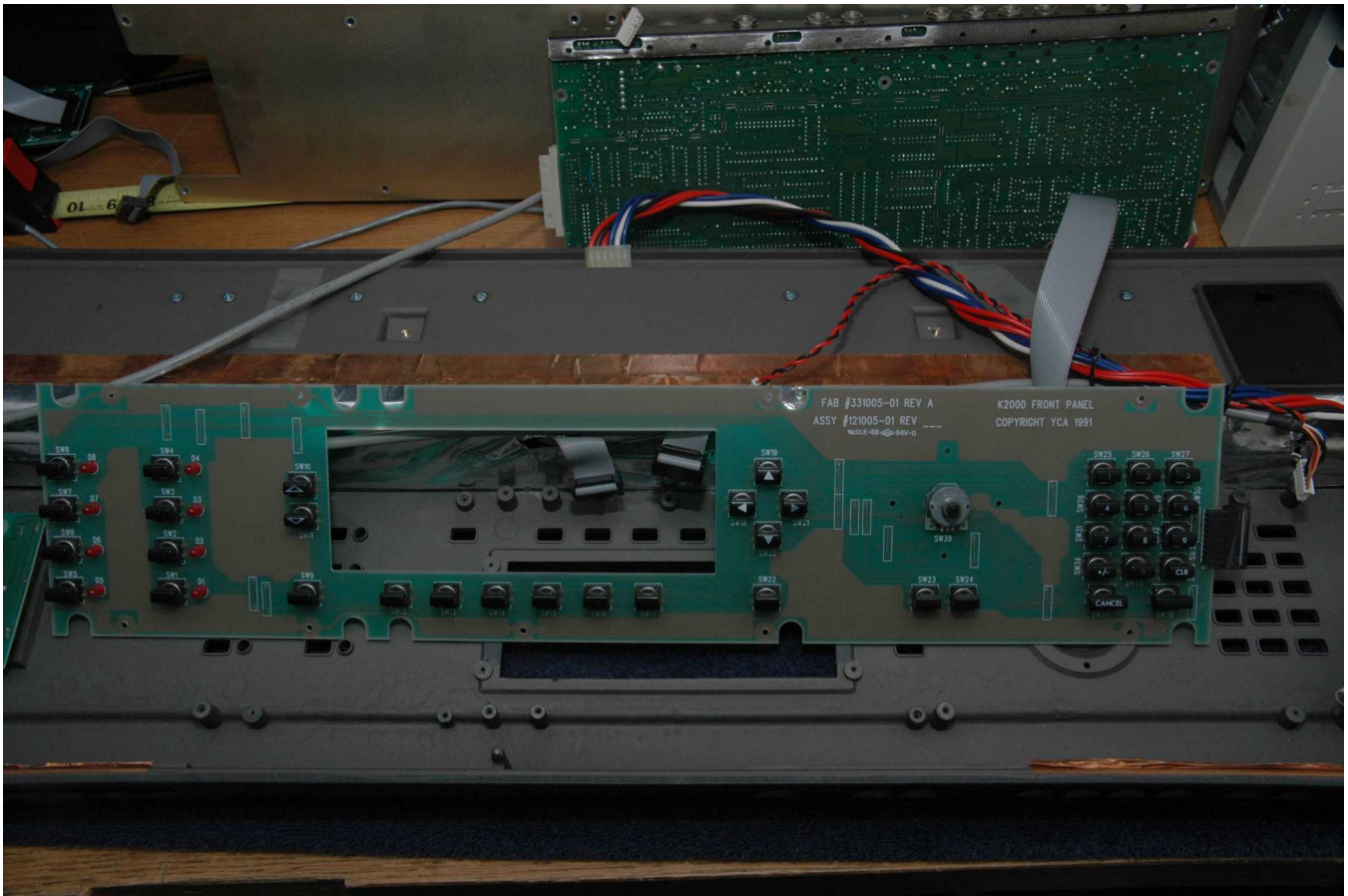
Photo 6: Remove the Old Display

Remove and save the tape that holds the ribbon cables to the front panel circuit board.
Remove the 4 screws that hold down the old display and remove the old display.
The display window is held in around the edges by double faced tape.
Carefully press the display window out from the back.

Photo 7: Remove the Alpha Wheel

Turn the K2000 face up and remove the data entry knob (alpha wheel).
Remove the nut and washer from the control shaft.

Photo 8: Remove the Front Panel Circuit Board

Turn the K2000 back over and remove the 8 screws that hold down the front panel circuit board. Remove the front panel circuit board.

Photo 9: Enlarging the Display Opening

The new display is slightly larger than the old display and the opening in the K2000 case that the display fits through must be enlarged by 3/32" (2.3mm) on each edge for the new display to fit.

Photo 10: WOMD

The K2000 case is made of a soft plastic that is easily filed. Measure and mask off the enlarged
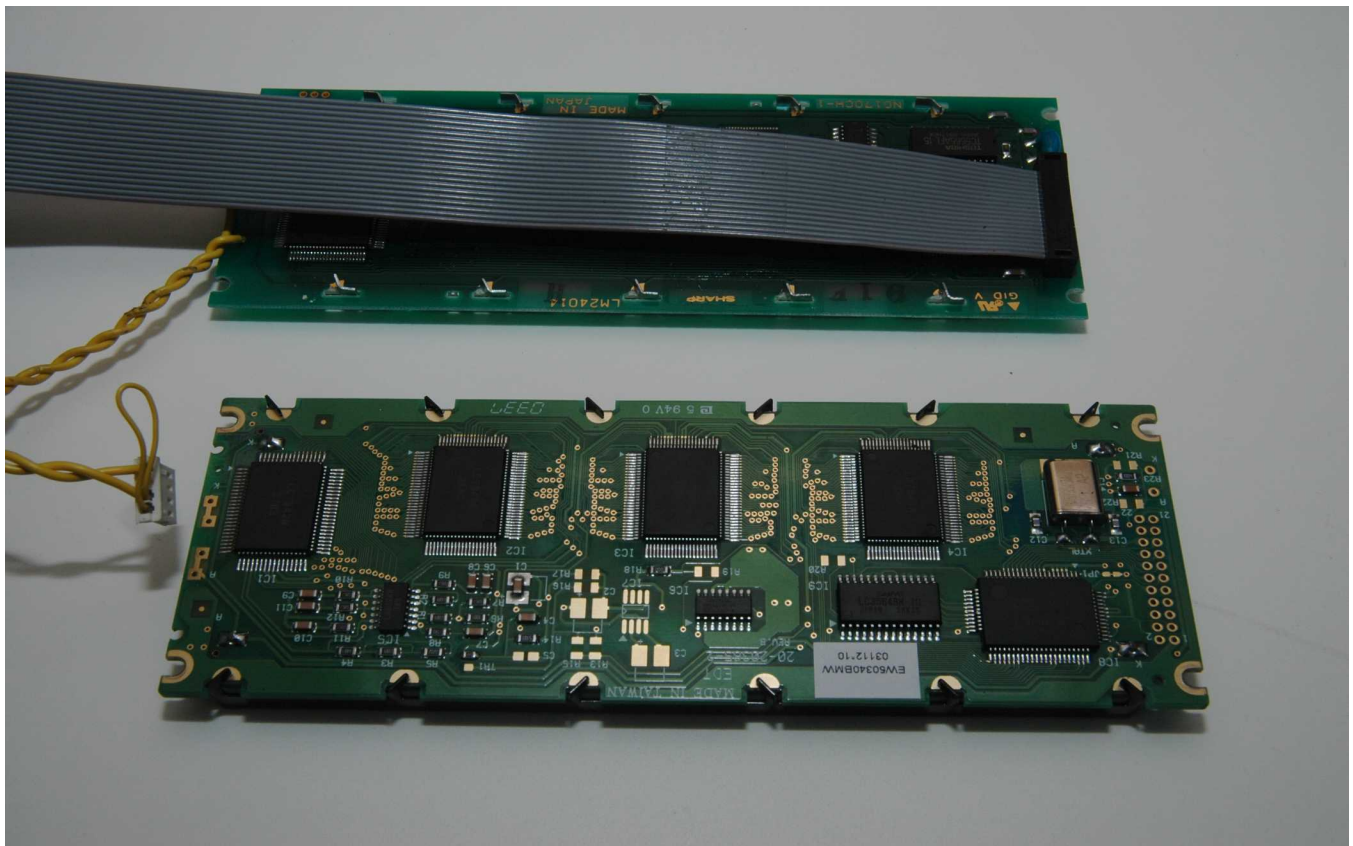

hole with tape. Enlarge the hole with a coarse file and test fit the new display. Once the display fits use a fine file to clean up the hole. It took me about 20 minutes to do this.

Photo 11: Enlarged Opening

Photo 12: The Old (top) and New (bottom) Displays

Next the wires must be transferred from the old to the new display.

**Photo 13: New Display Back Light Wiring**

The old EL back light cable is reused to power the LED back light. To insure the correct polarity mark the yellow wire which goes to the 3rd pin of the connector at each end with a black marker. This wire will be soldered to hole K on the display. Solder the other yellow wire which goes to the 1st pin of the connector to hole A on the display.

Photo 14: New Display Wiring Complete

Unsolder and reuse the ribbon cable or make up or buy a new cable with the same pin out and length. Solder this cable to the new display in the same orientation. Be careful to fit the connector into holes 1-20 on the display and to leave holes 21 and 22 empty.

Photo 15: Install the New Display
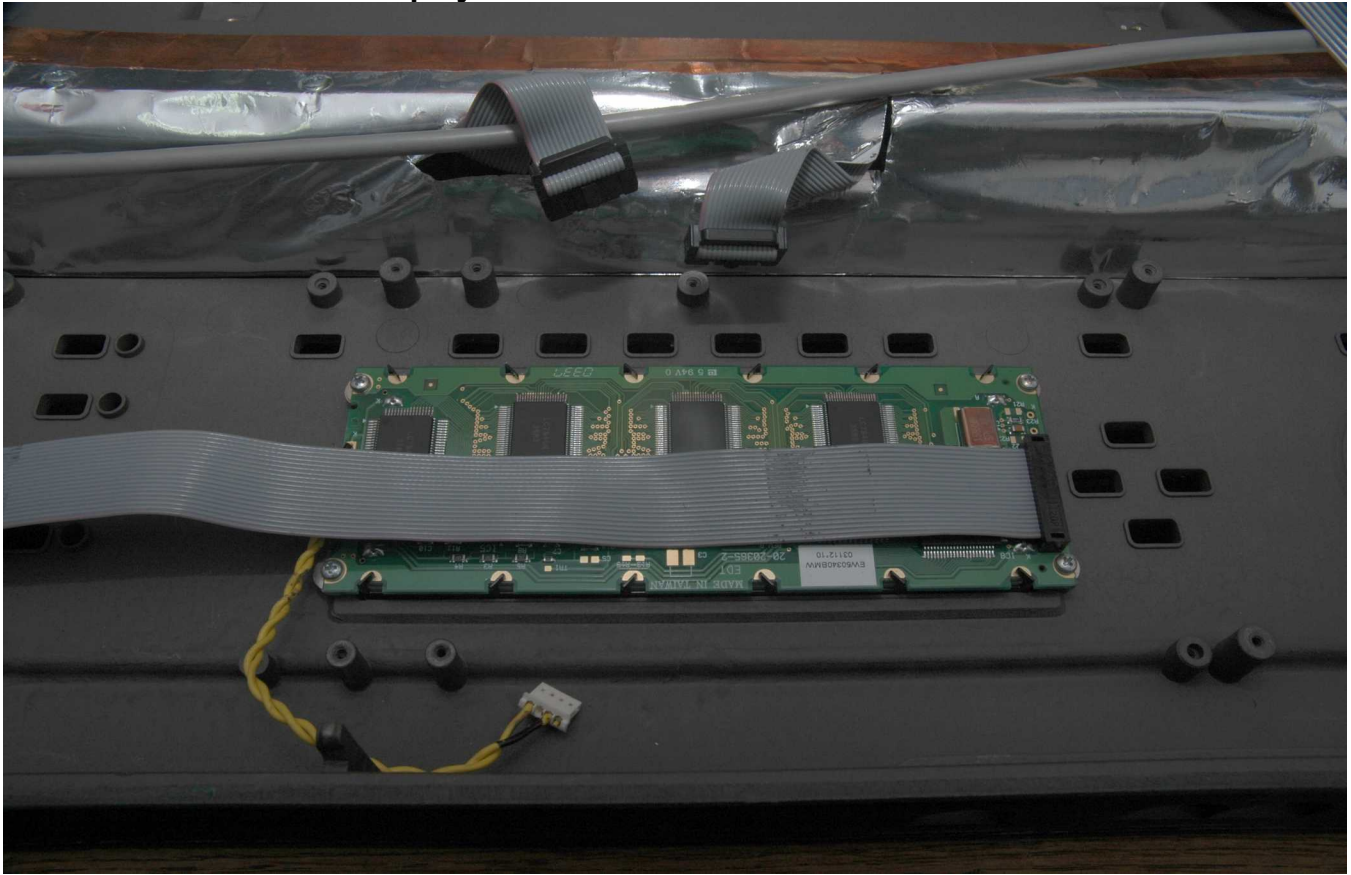
Test fit the new display in the front panel. The face of the display bezel should be flush with the recessed lip that the display cover sits against. I needed to add 2 #6 flat washers between the display and the front panel at each screw location to move the display back for a proper fit.

Once the fit is correct mount the new display to the front panel with 4 screws.

**Photo 16: Reinstall the Front Panel Circuit Board**
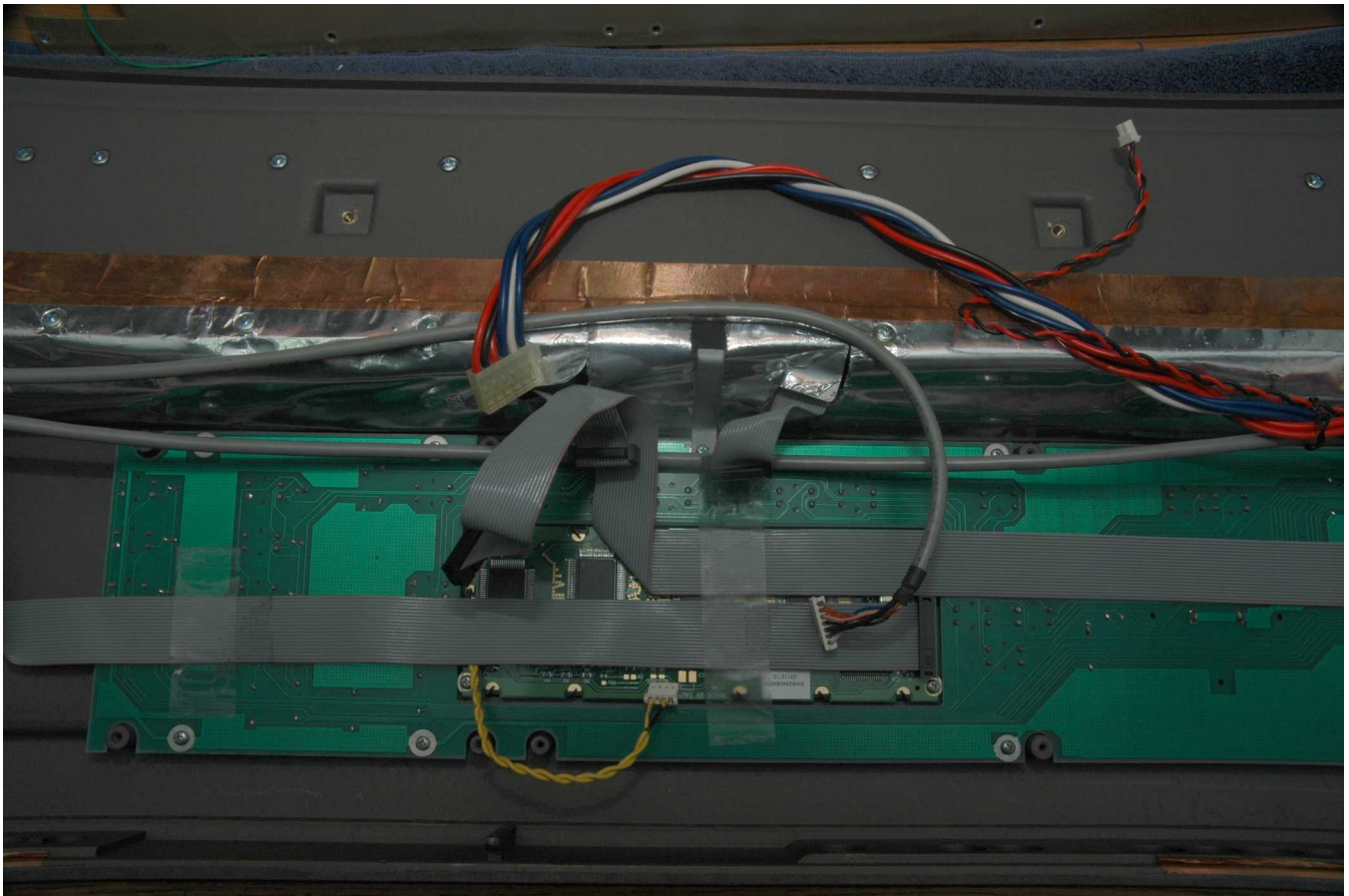
Reinstall the front panel circuit board using the 8 screws.
Reinstall the 2 pieces of tape that hold the ribbon cables to the front panel circuit board.
Turn the K2000 over and reinstall the washer and nut on the shaft for the alpha wheel.
Reinstall the alpha wheel.

Photo 17: Remove the EL Inverter Parts
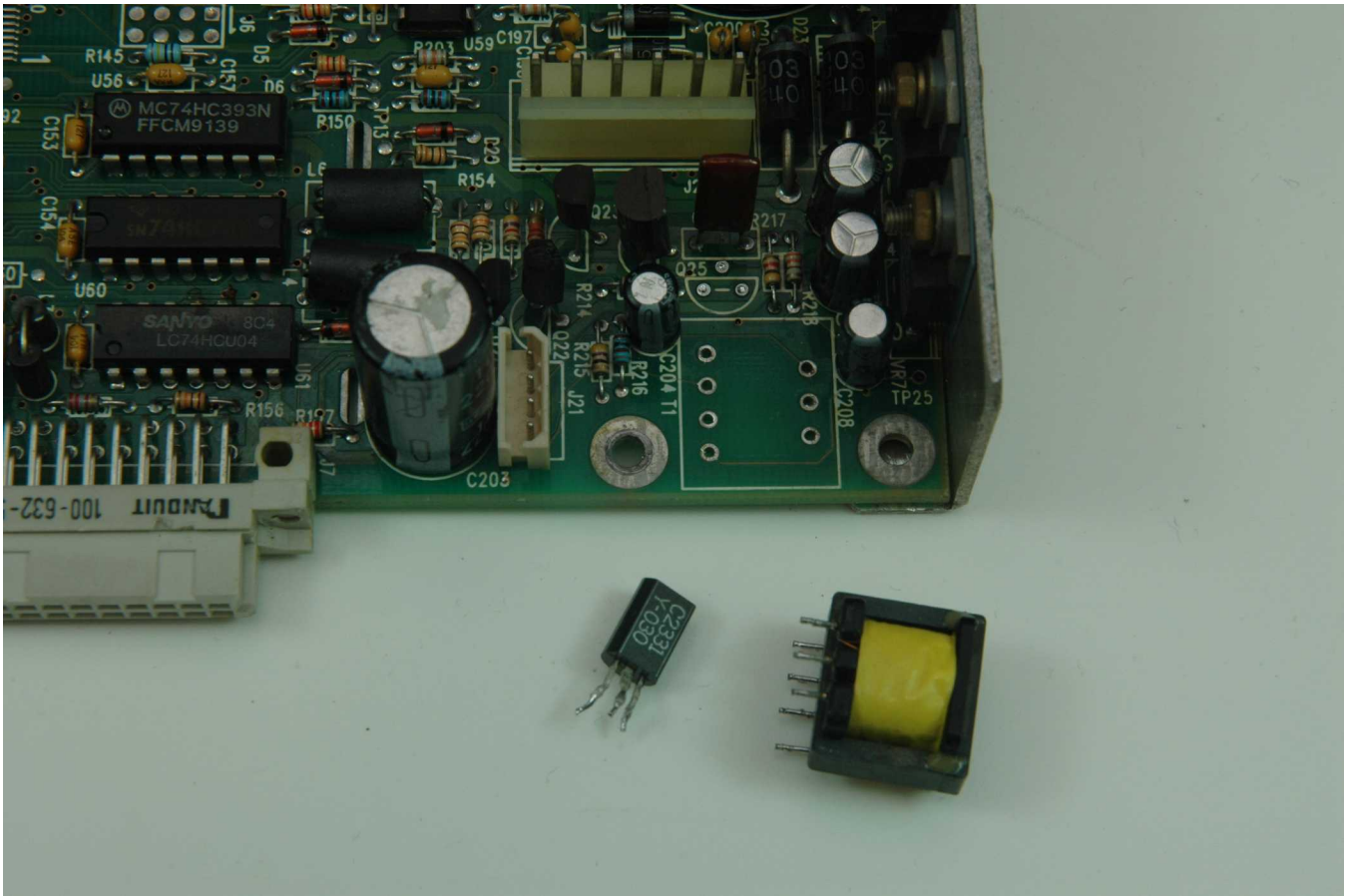
Separate the audio circuit board from the front panel and desolder and remove the EL transformer and driver transistor Q25.

Photo 18: Rewire the Back Light Socket
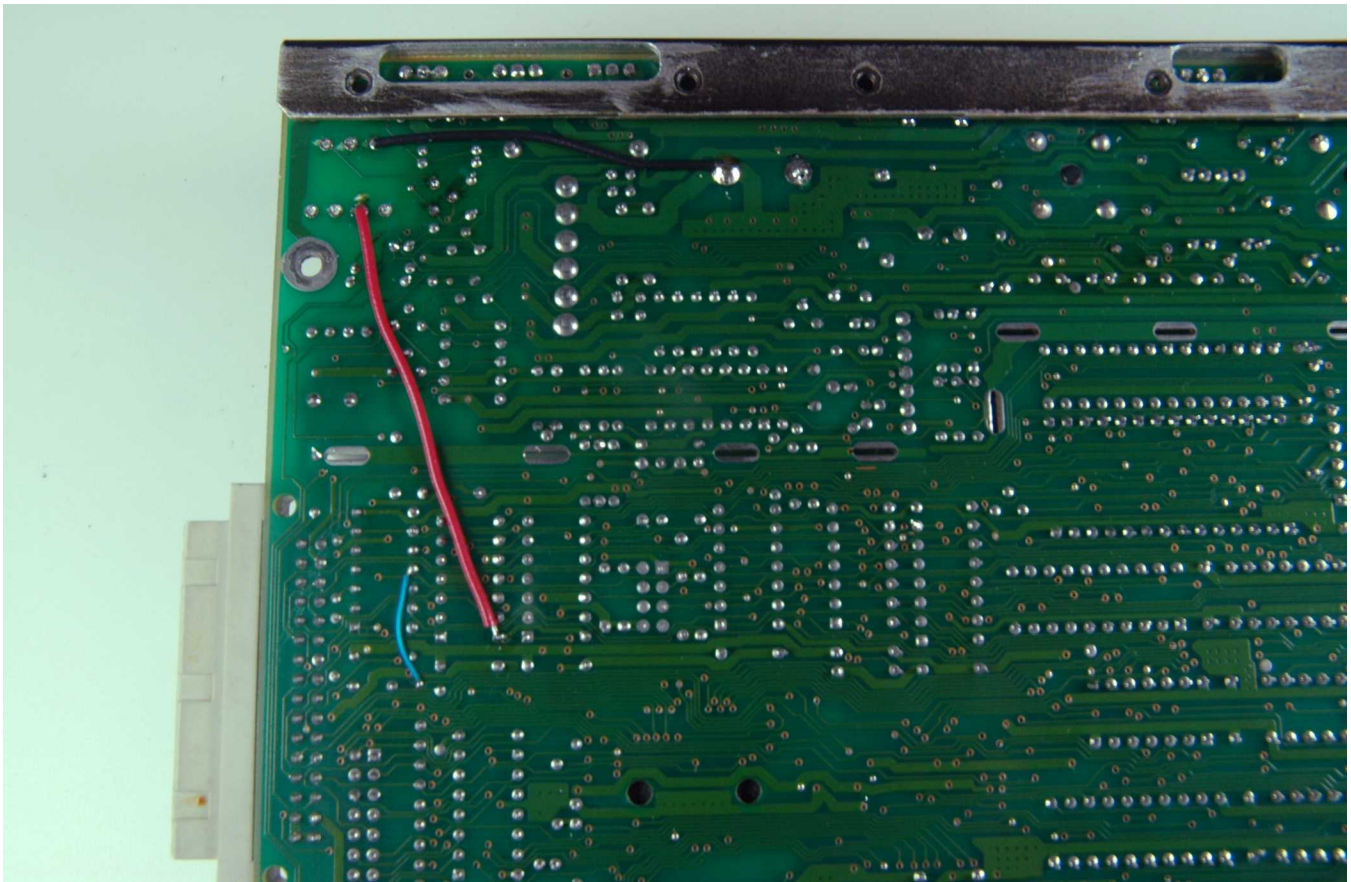
Turn over the audio circuit board and add 2 wires as shown above.

The black wire goes from the negative terminal of the large (22,000uf/16volt) electrolytic capacitor to the 3rd hole in the top row of where the EL transformer was removed.

The red wire goes from a +5 volt source to the 3rd hole in the bottom row of where the EL transformer was removed. I used pin 14 of U60 for the 5 volt source. My K2000 is a Calvin version and I am not sure if this is the same for the Janis boards.

The thin blue/green wire was some sort of factory mod and was already there before I did my mods and should be ignored.

Photo 19: Testing the New Display
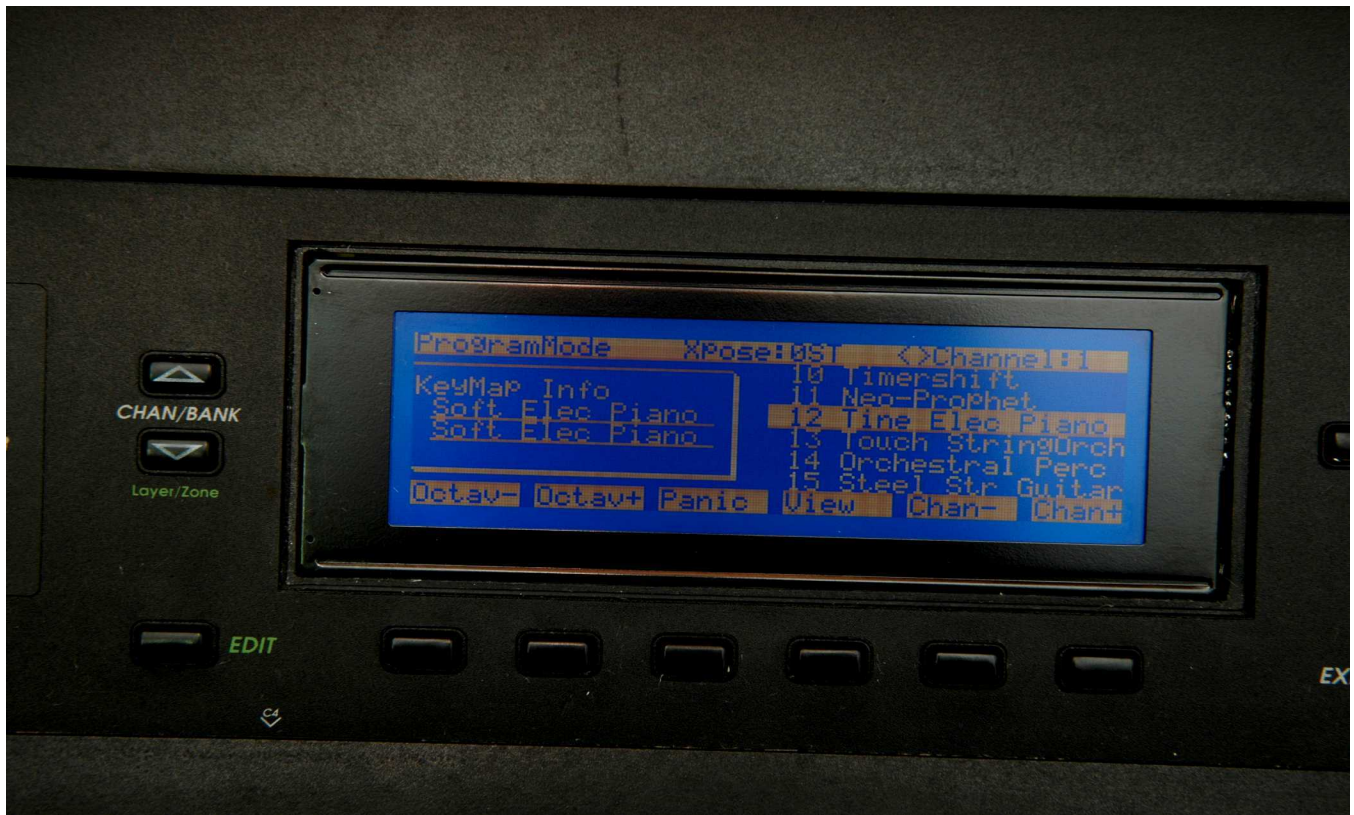
Reinstall the aluminum Plate and both circuit boards using the 12 screws.
Replug all cables except for the LED back light cable.
Turn on the K2000 and check for +5 volts and the correct polarity at the back light plug.
Once you verified that the voltage and polarity are OK turn off the K2000 and plug in the back light cable.
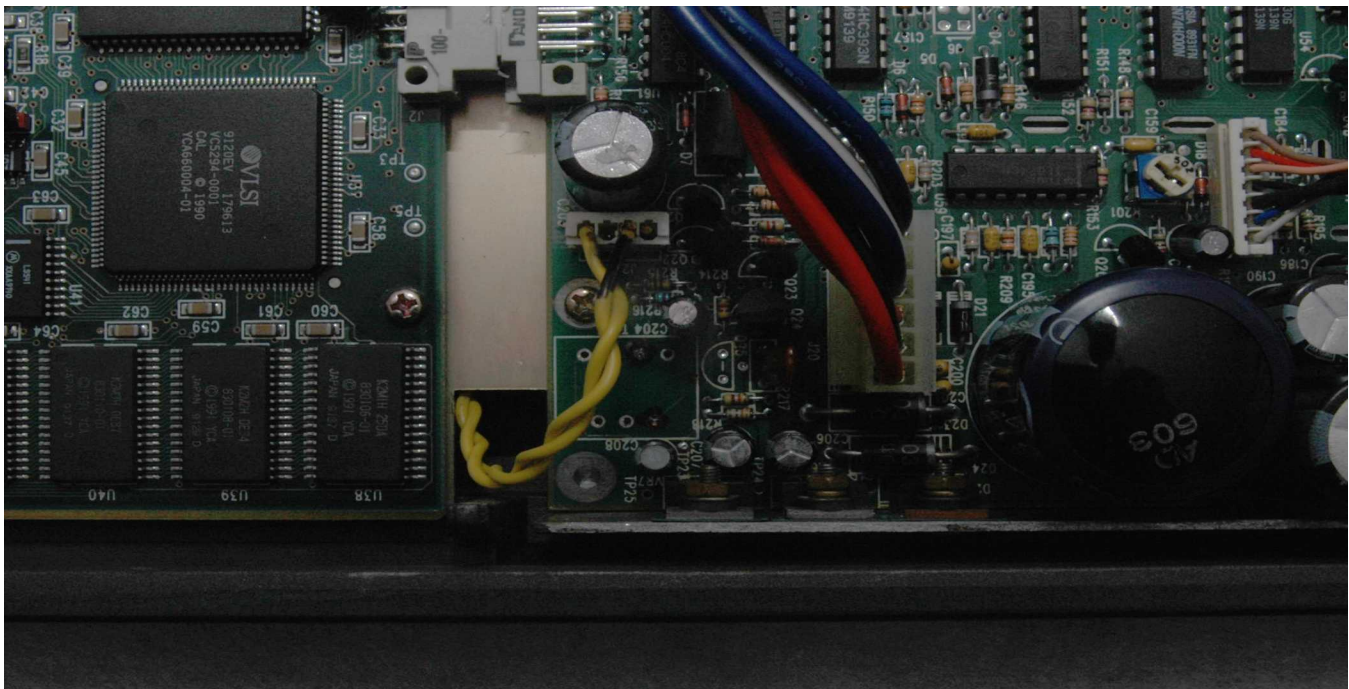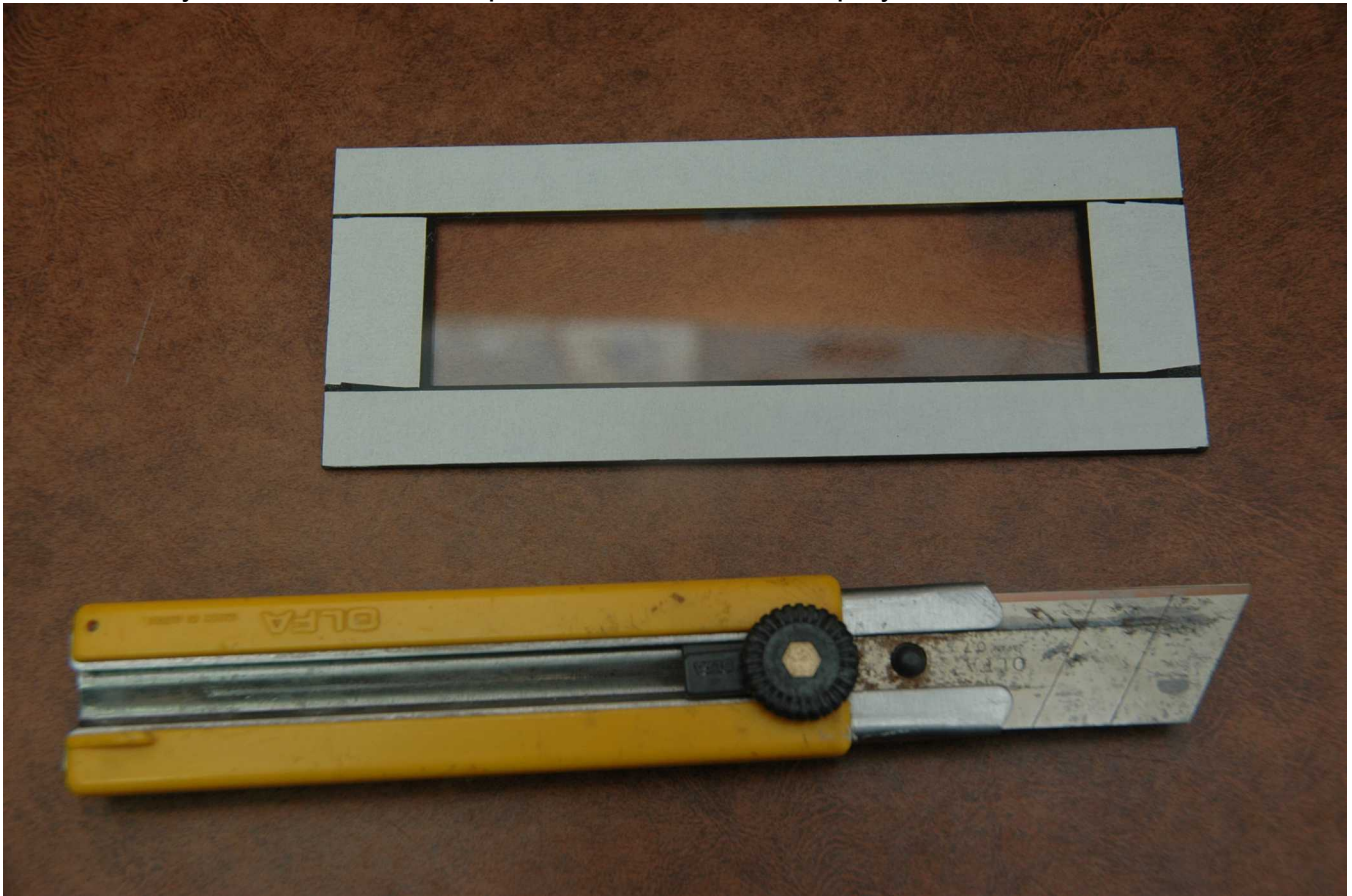
Photo 20: New Double Faced Tape on the Display Cover

Place a new layer of double faced tape on the back of the display cover. I used a wider band of

tape than the original so that the cover would stick to display as well as the front panel.

Photo 21: Installing the Display Cover

Clean both the display face and the back of the display cover. Peel off the backing on the double faced tape and press the cover into place.

Flip the K2000 over and reconnect the fan and hard drive connectors. If you didn't clean the fan filter when you removed the cover do it now.
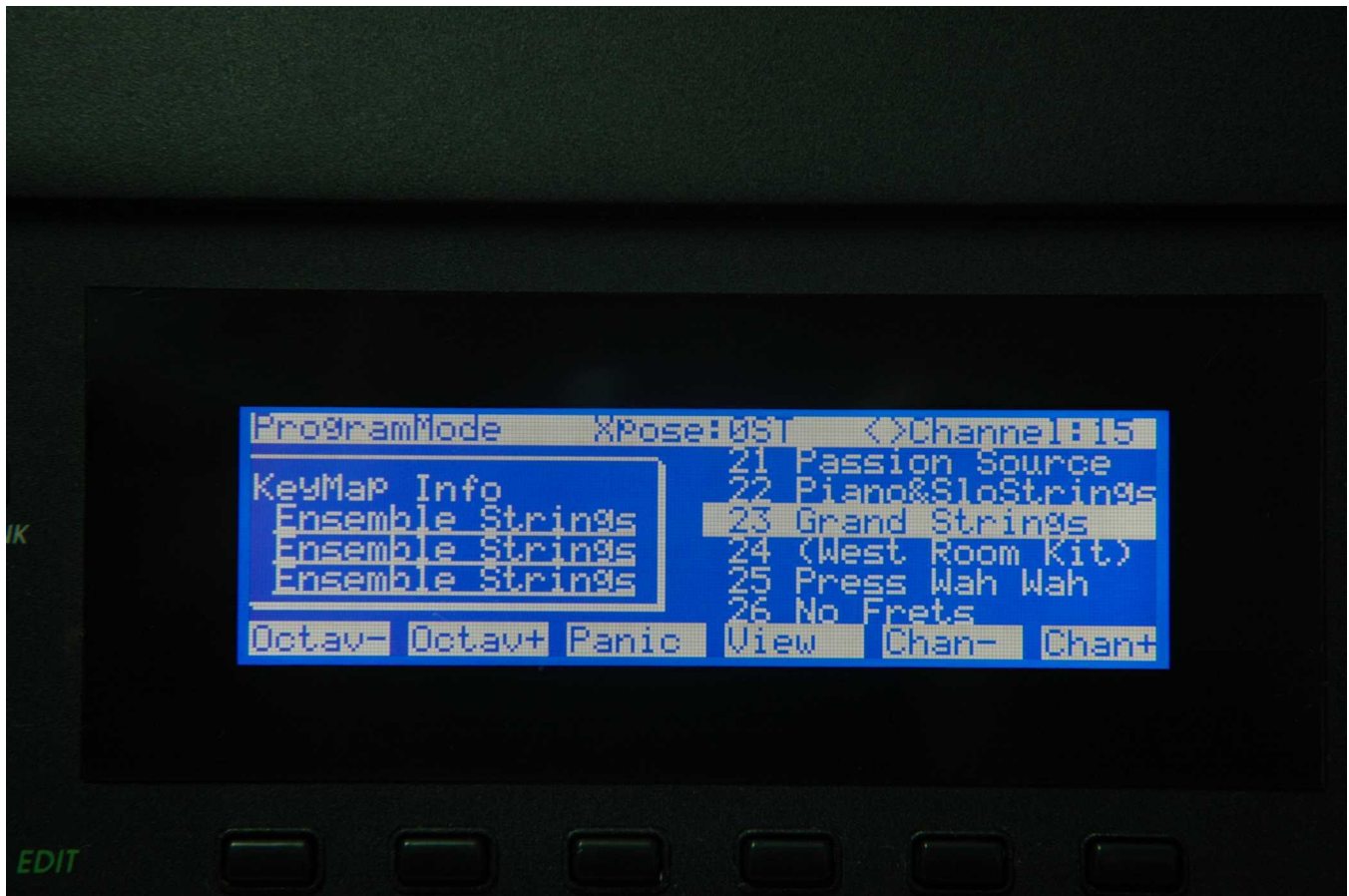
Reinstall the bottom cover on the K2000 and replace the 6 screws.

Reinstall the memory batteries and battery cover.

Flip the K2000 over and turn it on. It should reinitialize the memory and effects.

Reload any samples and patches and you are done!

Photo 22: The New Display in Action

Well worth the effort. The display looks much better than the photo suggests.