Ribbon Controller Project

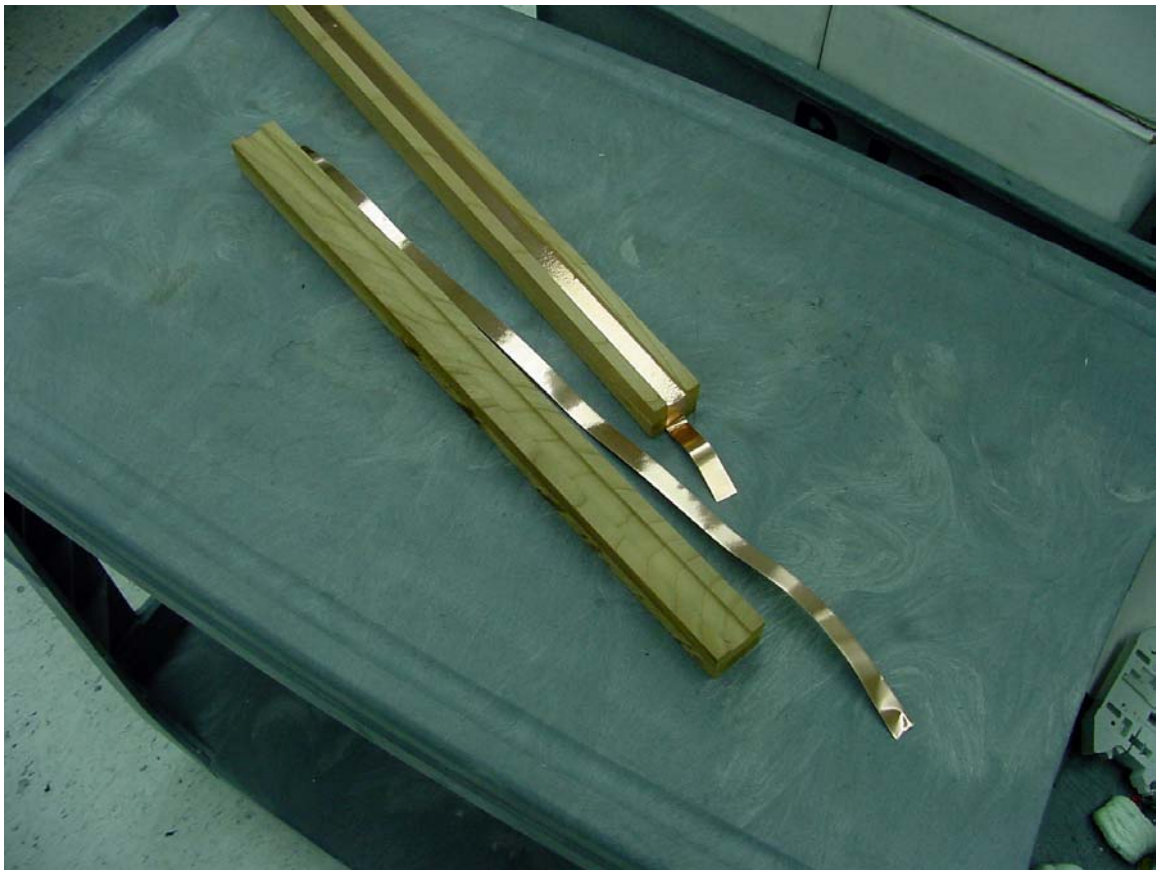
Part 1

While looking for a suitable conductive plastic for my “oil can” echo restoration projects, I happened upon the conductive webbing used for electro-static discharge protection. This nylon webbing has carbon fiber threads woven into it to pick up static charge from inside a person’s shoe and guide it through a dispersive plastic heel cuff to ground. I was playing with it in my lab when I realized that it had a very linear resistance-approximately 1 kilohm per inch. The perfect resistive element for a ribbon controller was now in my hands! Could world domination be far off?

Naturally, my first reaction was to snip this conductive strap off of the ESD device of some unsuspecting assembly-lab employee. My own evil ends were far more important than the safety of sensitive electronic devices! Each device would only yield twenty-two inches, however. Certainly, this puny length would only serve to gain me derision from the more “Emersonly” of my fellow MOTMers. I tracked down the company name on the tag to a website, and then a phone number. This, I dialed immediately.

Once the party on the other end learned of my connection to the Eaton Corporation, I was able to secure a small bulk sample of the conductive webbing. Now it was possible to create a REAL ribbon controller, and share my good fortune with like-minded MOTM enthusiasts!

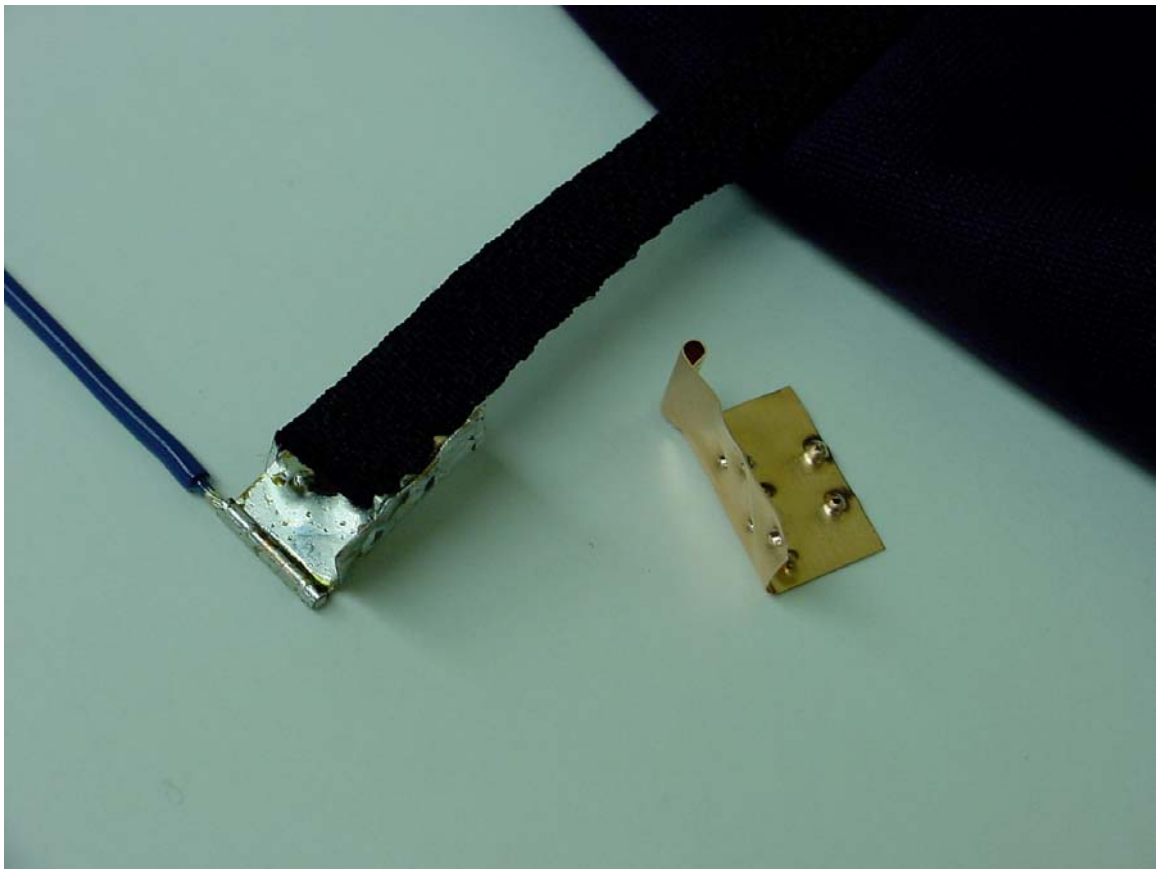
Here is the first steps taken toward ribbon control:



1. ½”x 1 ¼” harwood was routed with a groove, ½” wide and 1/8” deep. This was then laminated to matching, un-groove to provide stability. Once the glue was dry, the wood was cut into a 30” length and an 18” length. My plan was to have a dual ribbon controller for twice the fun! ½” wide copper tape was pressed into the groove to provide a conducting point for the resistive element.

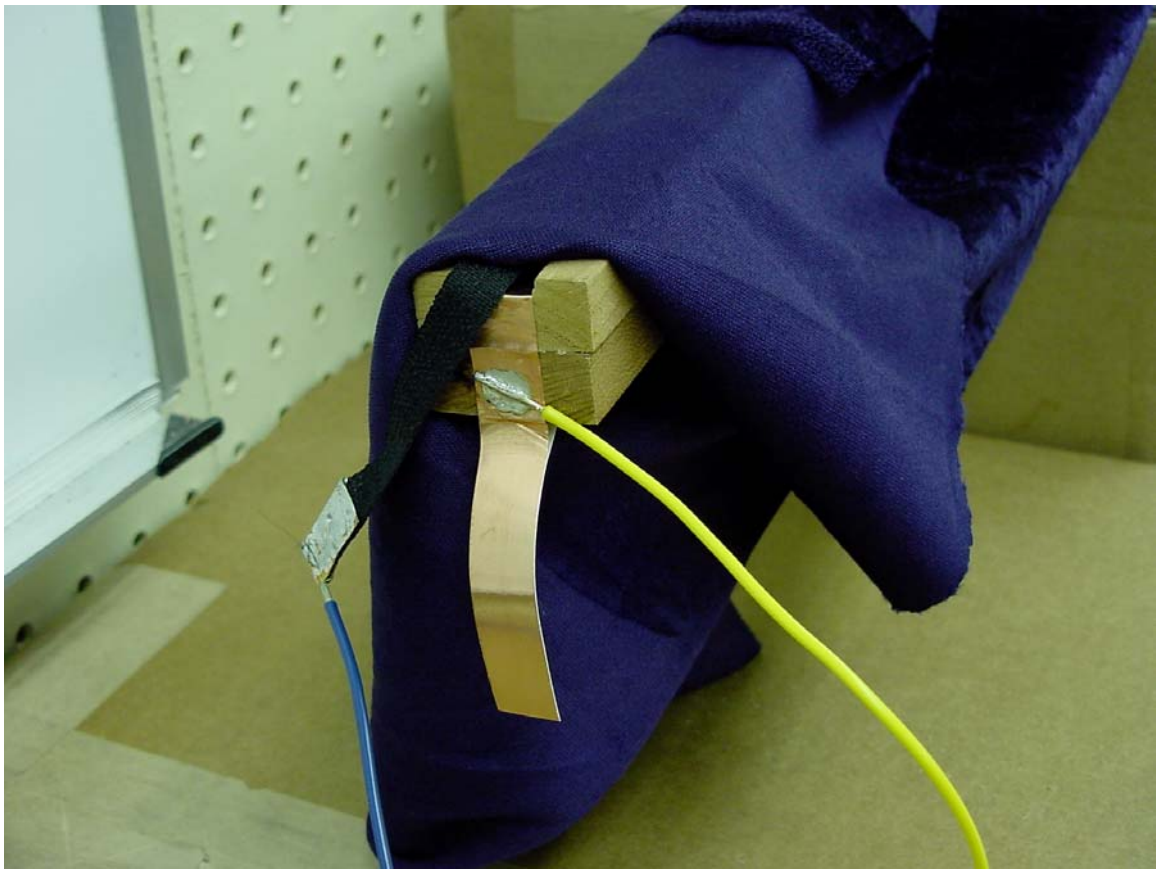
2. Next, my mom sewed the conductive webbing/resistive element to some purple, crushed velvet stretch material. I chose this because it was fairly tough and stretched well in all directions. Of course, it reminded of my first date’s dress so…well, you know…

Mom did a straight stitch to make sure that the webbing would lay perfectly flat. Also, she left about two extra inches unsewn at one end to allow for attachent to a terminal clamp and wire. As you can see, there was plenty of room left for attachment to the wood.



3. I made some simple clamps to terminate the resistive element with a wire. This was done with thin copper sheet, punched with a nail for clamping teeth and bent with a smal sleeve to hold the 18 awg wire. While soldering the wire into place, I tinned the whole piece of copper. After it cooled, it was pressed around the webbing.

4. Here, Zak Christian finds out that walking through my lab at Eaton Corp. means you're volunteering to hold test leads for the camera! He is measuring resistance from the end of the blue wire to the last inch or so of the webbing sewn to the velvet. Not too shabby for the 18" controller.



5. Here are the two wire connections for the variable resistor assembly portion of the ribbon controller. Now I've got to figure out a good way to attach the velvet to the wood (probably contact cement) and then design a cool-looking casing to hold the two ribbon elements and their associated electronics.