



Small Shop - Big Results
Grand Action Reconstruction – Part 5
(Installation of Capstans and Backchecks)
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There's a point with any big shop project at which things start coming together in such a satisfying way that you feel that you're on the downhill stretch, and that the sun is shining brightly on your shop (whatever the actual weather outside). I had reached such a point in the restoration of the Weber grand. Things were falling in place and the sky seemed so sunny and bright that little did I realize that just over the horizon a cloud was looming. Not a fluffy one either – more the big and ugly variety with lightening a big fat drops of rain. More on that later, however. Much more.



Photo 1: Another line to mark.

With the riser successfully installed on the keysticks, the next step was to drill pilot holes for the capstans – the one remaining piece of the puzzle in the replacement of the rocker arm / sticker linkage. No matter what else was accomplished with this rebuild, this would be a welcome change to the old set-up. When it comes to disassembling the action for servicing, or just regulating the action for that matter, give me capstans any day.

Before drilling pilot holes a line needed to be drawn to mark the location for the capstans. With the keysticks in place on the keyframe, I temporarily installed the wippen rail in place, screwed it down tightly, and marked a pencil line where the center of the wippen heels made contact with the risers (Photo 1). I did this near the outer end of each set, then removed the rail with the wippens, and used a ruler to make a line on each of the risers from one end of the keyset to the other.



Photo 2: Marking the center point.



Photo 3: Drilling on the drill press.

Of all the steps undertaken in this project so far, this particular one seemed the most straightforward- practically routine in nature. It has been my experience that trying any new project will be like that. You'll be holding your breath as you are doing things that are unfamiliar and exciting one day (such as pulling the cast iron plate out of a piano for the first time), and the next day you'll be working on some step of the project that you're completely comfortable with. That's how I felt about this step. No worries, mate!



Photo 4: Pilot holes.



Photo 5: Box of capstans from WNG

The capstans were from WNG, meant to compliment other WNG parts. Although I have always worked with brass capstans, I had read over the literature concerning the manufacture of these capstans, and was very willing to give them a try. According to WNG, these capstans are made from aluminum—much lighter ($1/3$) than brass. The capstans are anodized in a process that coats them with a hard surface of aluminum oxide. This surface is then given a high polish which will never tarnish and which will provide a long-lasting slippery surface to make contact with the repetition cloth of the wippen.

Reading the material from WNG over, the thought went through my head that they're preaching to the choir on this topic. I know full well how badly tarnished capstans negatively impact the smooth operation of a piano action – in fact I myself wrote an article for the Schaff iStore on the topic of polishing capstans. A capstan that would never tarnish and require polishing sounded like a fine idea to me.



Photo 6: Depth gauge.

In order to get the capstans in the ball park of where they would end up, I improvise a little depth gauge of sorts (Photo 6) and proceeded to use a regulating tool to turn each capstan down. Although the material and finish of the capstans are a new idea, their shape is very familiar- nothing that you would need a special tool for.



With the capstans in place, I installed the wippen rail once again, and delighted in the simple efficiency of the capstan / riser system. Sometimes, simpler is truly better, and I'm convinced this is one of them.

At this point in this narrative, a bit of back-tracking is in order. In order to finish out the topic of the conversion of the action from the rocker arm / sticker system to the capstan / riser system I presented the details of that aspect of the action rebuild without referring to other work that was ongoing at the same time. One of those particular jobs, that of replacing the backchecks, was undertaken in the midst of the work on the risers. (I'm sure most sharp-eyed readers will have spotted the new backchecks in the photos by now). Therefore, I'll end this segment with a short description of their installation.

As I mentioned earlier in this article, with a project of this nature there are times you're trying things new and different to you, while at other times you are working on some very mundane aspect of the job. With the drilling and fitting of the capstans, I felt that I was on very solid ground. The replacement of an entire set of backchecks with wires was not something I had done before.

In the popular TV series *Monk*, Adrian Monk (played by Tony Shalhoub) would often say of his talent for investigation, "It's a blessing and a curse." My own personal blessing / curse is that I've always liked to try new things, figuring things out for myself as I go. I don't enjoy sitting around reading about it first. Usually, I'll just roll up my sleeves and get down to it. Then, after I've given things a try for myself, I'll ordinarily look into what's been written up on the procedure. There's no good reason for this tendency, and I'll be the first to admit that although many times I like the procedures I came up with myself, there have been times when I've ended up slapping myself on the forehead and telling myself what a chucklehead I am.

Well, I can imagine that you see where this is all going by now. Upon completing the installation of the new backchecks, I then got on my computer to see if WNG had written up anything in the way of procedures. They had – 27 pages worth, to be exact.

As it turns out, the only things I really did by the book was in removing the old backchecks. I didn't use quite the same tool, but the procedure was really the same.



Photo 9: Removing the old wires.

The WNG manual recommends using a pair of side cutting wire cutters to grasp the old wire and a 1/2" dowel as a fulcrum to rotate the cutters on. The nail remover I used worked essentially the same and pulled the old wires out without a problem (Photo 9).



Photo 10: I can see heads shaking at WNG. "Nooooooo! Not that way!!"

After that point, however, my methodology (if it merits that label) was much too simplistic, using nothing more than a pair of Vise-grips and a hammer to install the new wires in the old holes (Photo 10). The procedure as laid out in the manual is very detailed, very precise, and sure to give the absolute best results. Follow those procedures. Although in the end, there have been no problems with the backchecks doing their job in the Weber action, I think that is more a result of dumb luck on my part, and good design of the backchecks on the part of WNG.

The attributes of these backchecks, by the way, are also explained on the WNG website and have a lot going for them. The fact that I was able to achieve very satisfactory results using (by comparison) primitive methods of installation speaks highly of the quality of the product. Follow the directions, and you'll do even better, I'm sure.

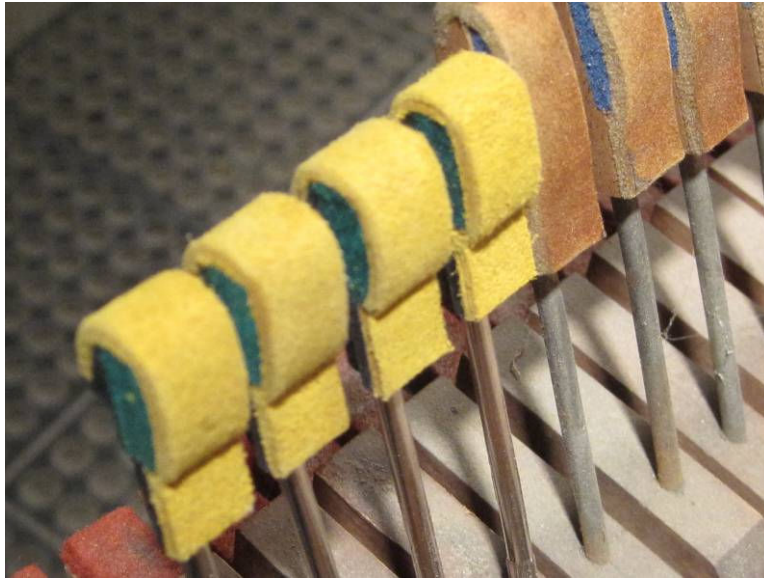


Photo 11: New backchecks taking the place of the old.

By the way, the snafu with the backcheck installation was not what I was referring to at the beginning of this segment (the clouds over the horizon reference). Those clouds are still there, lurking. Stay tuned.

As always, if you happen to be driving down I-35, turn west on highway 30 outside of Ames and drop by. (Just call ahead to make sure we're actually in the shop that day.) I'll put the coffee pot on. You bring the donuts.

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