



Small Shop - Big Results
Grand Action Reconstruction – Part 3
(Placement of Heels and Measurement for Risers)
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With the installation of the new set of wippens for the Weber grand action completed, my attention turned to the replacement of another important component of the action, namely that of the rocker / sticker linkage which originally connected each keystick with the corresponding wippen. With a new wippen heel / capstan arrangement, disassembling the action by removing the rails (wippen and hammer) from the action brackets, while not as easy as with a modern action, would at least be much less time-consuming.



Photo 1: What to leave in, what to take out?

In rebuilding this action, I needed to make decisions about what parts would be replaced, what parts would be kept but repaired or modified, and what parts would be saved as is. The wippens, hammer shank / flange assemblies along with the hammers themselves, rocker arms / sticker assemblies (being removed, in Photo 1 above) and the backchecks would all be removed and replaced. The wippen rail and keysticks were kept, but modified. The keyframe, wooden action brackets, and hammer flange rail remained untouched.

This type of decision making is what makes this extensive of a job different from the more cut-and-dry type of repair work that one sees on a daily basis in the piano shop. Different technicians would make different decisions I'm sure. I'm sure that some technicians would preserve more of the old, while others would make even more modifications. When you do this type of work you must learn to make the decisions you believe are right, and carry on. Self-doubt, once you've jumped into the deep end of the pool on a job such as this, can become counter-productive.



Photo 2: Aligning the heels.

I felt a good starting point for replacing the rocker arm assembly would be to position the new wippen heel to match the alignment of the original set-up. To do that, I put one of the rocker arms that I had removed back onto its position on a keystick, then screwed the wippen rail onto the action brackets with a couple of wippens removed for visibility. A pencil line marked where the center pin connected the rocker arm to the sticker. I put a heel in place and adjusted its position until the center of the felt was on the center of the line (Photo 2).



Photo 3: Gluing the heels.

The heels were cemented in place with C.A. glue. Notice the 7 slots in the underside of the wippen (Photo 3), for which there is corresponding offset positioning tab on the bottom of the heel. This system gives the technician a total of 14 positions for which the heel may be placed at and makes it easy to get each heel at exactly the same position on the wippen. No guesswork involved – a nice job of engineering, in my opinion.



Photo 4: A chorus line of wippens with their heels up in the air.

Once the heels were all in place (Photo 4), work on the wippens was for the time being complete. I could now get to what seemed at the time to the more challenging step—modification of the keysticks to take up the excess space between the capstan and the heel.

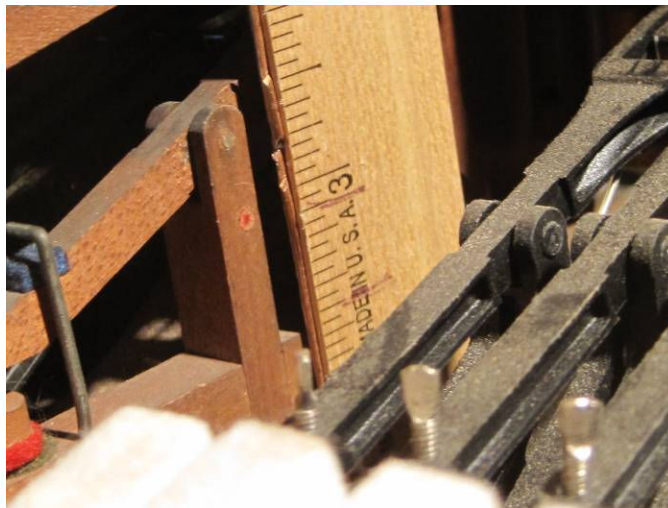


Photo 5: Measuring the center pin height.

I first reassembled an entire rocker arm / sticker / whippen assembly to measure the height of the action center for the repetition lever flange from the top of the keystick for that note. In that my intention throughout this process was to replicate what was in the piano originally, I wanted to make sure that the new capstan / heel arrangement would allow the wippens to stand at the same height as they did with the old action parts.

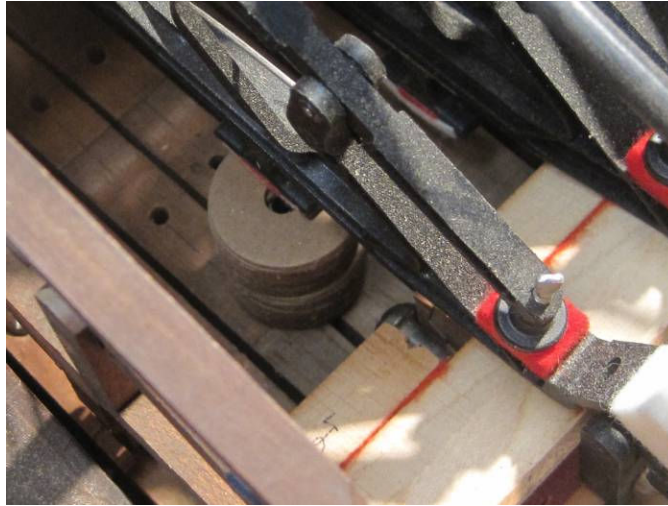


Photo 6: A tower of punchings.

Next, I used a stack of thick front rail punchings to build up the height of a new wippen / heel over the tops of the keysticks (Photo 6). This method made adjusting the height of the test wippen up and down easy by simply adding or subtracting punchings.



Photo 7: Bringing the new part up to the correct level.

When the exact number of punchings needed to bring the action center of the new wippen up to the target level were ascertained (Photo 7), the punchings were removed for measurement.

With the number of punchings needed to fill the space determined, the rest was simple. I made a second, shorter stack of punchings with a capstan protruding from the center holes so that the top of the capstan lined up with the top of the original stack (Photo 8). I made sure that an appropriate amount of thread was showing (so that the capstan would be adjustable up or down), and then measured the thickness of this second stack (Photo 9).



Photo 8: The stack of punchings with and without capstan.



Photo 9: The critical measurement.

With a measurement of 5/8" in hand, I then planed down enough 1" yellow pine stock to make the set of risers (Photo 10). The production of the risers in preparation for the installation of new WNG capstans will be the topic of next month's installment. Until then, best of luck with your own challenging projects. Stop by the shop anytime. The coffee pot's on.



Photo 10: Material for risers, planed to thickness.

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