



The Tao of Harmonica Customizing

“Monster Harmonica Workbench” with Kinya Pollard,
www.harmonicasesions.com

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Welcome back Harmonicats!

My last two articles focused on tuning your harmonica. You probably noticed that the neighborhood dogs are not barking as much. If that is the case, it means you have mastered the fine art of harmonica reed tuning and are ready to tackle reed adjustment techniques.

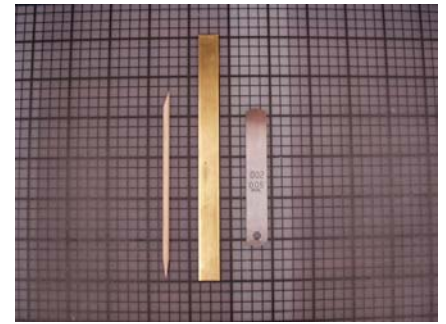
I cannot over emphasize the importance of how proper reed adjustments will determine the playability of your harmonica. In this month's issue I will demonstrate proven techniques for *gapping* (a.k.a. offsetting) and *curling* the reeds. Mastering these techniques will perfectly match your playing style to your harmonica, thereby giving you the sensation of playing an instrument that was set up personally for you.

Anatomy of Reed Gapping

- Refers to the space between the bottom of the free end of the reed to the top of the reed plate slot. When viewing the reeds at a side view, you will see the degree of offset, in other words, the vertical angle of the reed.
- Lowering the gap of the reed is like installing a nozzle on the end of a water hose, it will increase the pressure and accelerate the airflow over the reed. Similar to the principles of flight, increasing air pressure over the reed (wing) will lower the pressure under the reed, resulting in a greater “lift” phenomenon. Here the airflow has the most leverage, helping draw the reed through the slot and initiating the vibration of the reed. What this means to you, the Harmonica Player, is that your instrument will be extremely responsive to your playing style.
- Too much, or too little of a good thing can make your harmonica difficult to play. For example, if too much gapping (offset is high) is applied to the reeds, there will be a reduction of air pressure and the harmonica will require an extraordinary amount of air to vibrate the reeds (you'll feel like your lungs are going to burst). If there is too little gapping (offset is low), the force of blowing will push the reed into the reed plate slot and cut off the airflow – stalling and choking the reed.
- Determining the proper gapping distance requires assessing the player's style, and the flexibility of the reed (thickness and size of reeds varies amongst the Harmonica Manufactures and models). Ultimately it will require experimentation to “dial-in” your adjustments. In general; however, long, low-pitched reeds are flexible, and require greater gapping than the shorter, stiffer, higher pitched reeds. Also, it is recommended to gap the blow reeds slightly higher than the draw reeds.

Anatomy of Reed Curling

- Refers to reshaping the reed, thereby eliminating unnecessary leaks between the reeds and reed plates. This will increase compression and responsiveness to your playing as well.

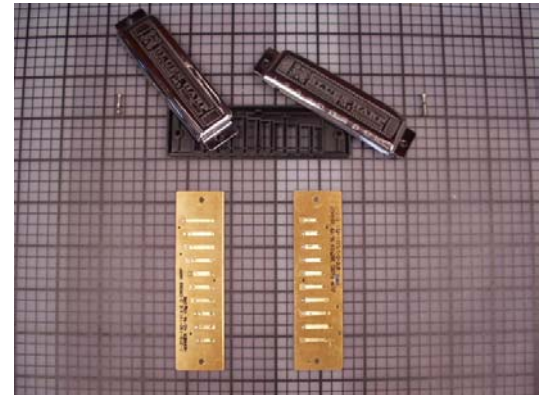


Tools

- Use your tool kit from the last sessions, and include:
 - Wooden cuticle pick used for manicuring nails (found at most Drug Stores).
 - Feeler gauge .002 thickness (available at most Automotive Stores).
 - Brass flat strip .064 x 1/2" x 6" with the leading edge square and smooth.

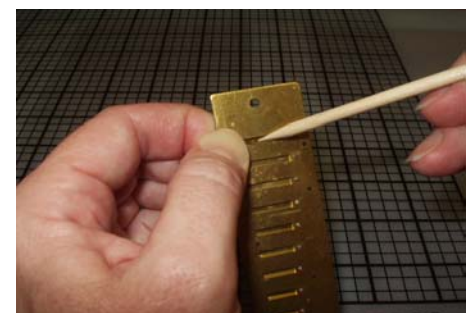
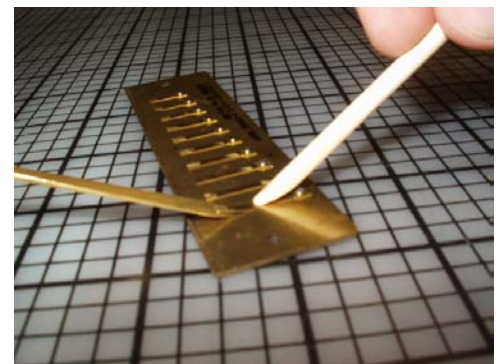
Notes

- The draw and blow reeds work sympathetically with each other in the same chamber, and therefore, all adjustments should be in pairs.
- Before applying these techniques on a valued harmonica, practice on a worn out plastic combed harmonica, preferably with screws, rather than nails.
- I recommend starting with the reed curvature adjustment before gapping.
- Harmonica customizing requires a jeweler's touch, commitment, and patience.



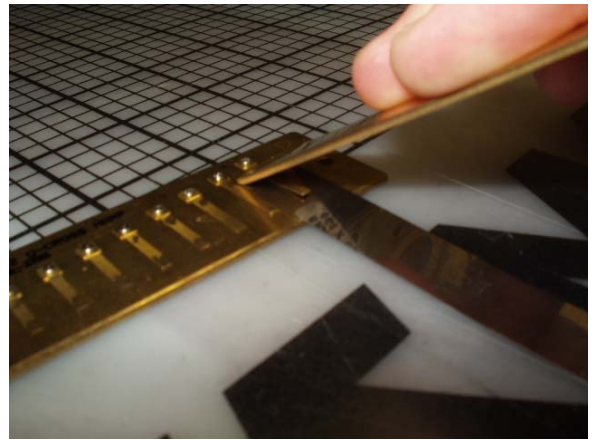
Curvature Method One

1. Remove cover plates
2. Remove reed plates from comb
3. Mark the blow reed plates "Top" and the draw reed plates "Bottom"
4. For both reed plates have the rivet side facing up. Place the reed plates onto a flat clean surface.
5. Beginning with blow reed #1, insert the flat end of the Lee Oskar reed offset tool underneath one fourth the length of the reed, and tilt approximately 45°
6. Starting with the rivet end, using the wooden cuticle pick, gently stroke the reed with a forward and downward pressure (approximately two thirds the length of the reed). Experiment with the pressure and number of strokes.
7. Remove the reed offset tool, and "sight" the shape of the reed. The middle of the reed should now have a slight downward bow into the slot. If not, repeat step #6.
8. If there is excessive bowing, you will have to reverse the process. This can be accomplished by holding the free end of the reed against the reed plate (clamp with your index finger and thumb), then from the underside of the reed, gently stroke/push the curvature back inwards toward the slot.
9. Repeat this procedure with the draw reeds.



Alternate Curvature Method Two

- Repeat steps 1 through 4 from Curvature Method One
- 1. Being careful not to “bend” the reed, gently slide the .002 feeler gauge between the reed and the reed plate – pushing it back approximately 80% towards the rivet end.
- 2. Working from the back to the front of the reed, gently stroke the top full length of the reed with the edge of the Brass Flat Strip (.064 x 1/2” x 6”). This technique is similar to “curling” gift-wrapping ribbon with the edge of a pair of shears.
- Repeat steps 7 through 9 from Curvature Method One



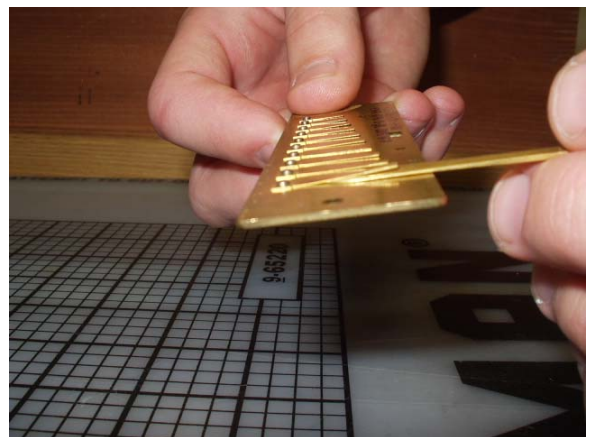
Gapping Method

With skillful reed curling technique, the gapping process should require little adjustment.

- Insert the flat end of the Lee Oskar offset tool underneath the free end of the reed.
- Keeping the tool parallel to the reed, slide towards the rivet end of the reed and watch the gap increase.
- If the gap becomes excessive, squeeze down on the rivet side of the reed and monitor the closing of the gap, until the desirable distance is obtained.



- Reeds are essentially spring metal and may have retained memory of its original shape and offset. I recommend “plinking” (vibrate) the reed a few times until it finally settles into the new resting spot.
- The idea is to protect the curvature of the reed that you worked so hard to create. Imagine the free end of a Fisherman’s rod being raised or lowered by the handle of the rod, similar to the base (rivet) side of the reed.



Test Drive

Use caution when reassembling your harmonica, by using “even torque” on all the reed plate screws. I recommend playing your harmonica with varying air volume. Vigorously attack the reeds at higher volume, as well as playing at softer volumes.

Document the nuances of each reed and the adjustments you will need to take. For example; if the #3 draw reed began to choke at higher volumes, you would want to raise the gap of the #3 draw reed; if the #1 blow required excessive air volume to vibrate the reed, lower the gap of the #1 blow reed; etc.

Excessive reed adjustments will affect the tone quality and pitch of your harmonica. Refer to the last two issues, “Stop Those Dogs From Barking”! Volumes I and II for instructions on how to retune your harmonica back to factory specifications.

Stay tuned for the upcoming issue of Monster Harmonica Workbench where we will “hot rod” combs.

“... that which we persist in doing becomes easier to do”.
-Emerson

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The “Harpsmith”