

“NJABRL”
(Not Just Another Bassoon Reed Lecture!)

Dr. Jason Worzbyt
Professor of Bassoon
Associate Director of Bands
Moosmann Performing Artist
Indiana University of Pennsylvania
reedtip@iup.edu
724-388-6224

Basic Bassoon Reed Adjustments

- When making reeds for myself or my private students, my primary goal is to make reeds that play in tune and that respond easily in all registers.
- Most often, that begs the question: what about tone?????
- Norman Herzberg/Ben Kamins/William Short philosophy: response and intonation are qualities of a reed that can be objectively measured. While a bassoon tone can be analyzed as a wave form, there is no true way to objectively evaluate a bassoon sound.
- This does not mean that sound is not important! It is! However, to some extent, the sound of a particular bassoon reed is already built into the piece of cane before it is even made into a reed blank. If a particular piece of cane plays in tune, and has an easy response in all registers, it also has a sound that will work with my setup of bocal and bassoon.
- Therefore, the following adjustments listed below will adjust intonation and response on any bassoon reed simply by using a pair of pliers.
- **Intonation**
 - If the reed overall is flat in pitch, gently squeezing the second wire from side to side (making it more rounded in shape) will raise the pitch. This will also “darken” the sound somewhat. Squeezing the second wire will also close the aperture of the reed a bit, so if it is too closed you may have to squeeze the first wire from side to side a bit to return the reed to a playing position.
 - If the reed overall is sharp in pitch, gently squeezing the second wire from top to bottom (making it more oval in shape) will not only lower the pitch, but it will also increase response as well. This is particularly true in the low register. Making the second wire more oval will also increase the reed aperture. If it is too open, you may have to squeeze the top wire from top to bottom to find a comfortable playing position.
 - Of these two adjustments, I find that most commercial reeds that I encounter require the second adjustment much more than the first.
- **Response**
 - If the reed does not respond well, particularly in the low register where most bassoonists spend much time, squeezing the second wire from top to bottom (oval shape) is the best solution. The response of every bassoon reed is controlled by the very back of the blade, so flattening the second wire slightly weakens the reed and lessens the pressure between the very sides of the reed. This adjustment will greatly enhance the lower register as well as drop the pitch. As mentioned above, the

aperture will open when the second wire is flattened, so the first wire may have to be flattened as well to facilitate tonguing.

- If the response is too easy, squeezing the second wire from side to side will help, but in most cases this is an adjustment I rarely use unless the cane is very soft. Should you encounter a bassoon reed that is soft, pulpy, or cannot play just above the bass clef, this adjustment may be needed.

Advanced Reed Adjustments

- What follows below is a series of tests that I use to evaluate my own bassoon reeds.
- These tests can be used on any shape/scrape/design of bassoon reed and will provide satisfactory results as long as the reed is neatly constructed, stored properly, and the bassoon that is used for testing is in proper working order.
- Some of these adjustments can improve, to a very small degree, the tone of the bassoon reed. Tone is determined by the thickness and composition of cane in the upper half of the bassoon reed closest to the player.

Preparing the Bassoon Reed

- To prepare a bassoon reed, immerse the entire reed in water, remove, and place on a surface for 1-2 minutes. This method is more effective than soaking the entire reed in water for several minutes, and actually prepares the reed for performance in a shorter amount of time.

Top Wire

- All of the wires on a bassoon reed should be immobile when the reed is fully saturated with water.
- Each wire on a bassoon reed has a specific function, and if the wires are not tight the reed will not vibrate properly.
- In my experience, the top wire is usually the wire that loosens over time, mostly due to changes in humidity and regular usage.
- To tighten the first wire, place the bassoon reed on a forming mandrel (see **List of Tools**) and fold the wire up.
- Depending on the original twist of the wire, you may have to twist clockwise or counter clockwise.
- Pull the slack of the wire away from the reed, then twist. If you simply twist without pulling, the wire will snap off.
- This procedure is complete when all of the “slack” of the wire has disappeared. Fold the wire back down when this procedure is completed.

Distance on the Bocal

- In order for the bassoon to play in tune, the bocal needs to be inserted onto the bocal between 7 to 10mm. If the distance is too short, the tone can be a bit bright and the pitch flat.
- If the reed does not go on the bocal between 7-10mm, you have several options:
 - If the reed is new, playing the reed over several days may even out the pitch and tone issues. However, the reed needs to go on the bocal far enough that it does not come off during a performance.

- If the reed is very flat, or does not go on the bocal very far, material will need to be removed from the inside of the reed. Most commercial reed makers usually take care of this, but sometimes either the bocals are very large, or, the reed was improperly formed in the beginning stages.
- Removal of material from the reed will require a reamer, which unfortunately be very expensive. However, there are several independent makers that sell these at a big discount (see **List of Tools**).
- To ream a reed, fully saturate the reed and slowly remove material from the inside of the tube. It is important to remove small amounts of material at a time so that the reed does not go on the bocal too far.
- Once the procedure is complete, take a rat tail file (see **List of Tools**) and clean out any shards of cane. Keeping the inside of the reed free of debris is critical!
- If the reed is very new, and not broken in, you may have to repeat this reaming cycle more than once.

Test Note – E in the bass clef

- You should be able to tongue this note aggressively and sustain it at loud dynamic levels.
- If the reed fails:
 - Make sure the reed fits on the bocal the correct distance; ream if necessary.
 - If it is a new reed, play on it a few days to see if that pitch stabilizes.
 - Check the tension of the first wire.
 - If none of the above work, you can either:
 - Slightly squeeze the first wire from side to side
 - Hold the tip of the reed perpendicular to a piece of 400 grit sandpaper and gently rub side to side, shortening the reed.

Test Note – Eb in the bass clef

- You should be able to play a first space E in the bass clef staff, and then add the third finger of the LH, producing an in tune half step.
 - If Eb is sharp, the reed must be weakened by:
 - Slightly squeezing the middle wire from top to bottom, making it oval in shape, or
 - Removing a small amount of material from the front ¼ inch of the reed on each side. For this procedure, insert a reed plaque (see List of Tools) and take some 200 grit sand paper, slowly taking of material a few swipes at a time.
 - If you have a bassoon reed that can easily produce a half step from E to Eb, that is an early sign of a great bassoon reed!

Test Note – Low D below the bass clef

- This pitch is a great indicator of how responsive, and in tune, your low register will be.
- Low D has a tendency to be stuffy (lacking in projection) and sharp, so this is a great test note to evaluate how a reed will respond in the lowest register of the bassoon.
- If low D is sharp and lacking in projection, this may be addressed in two ways:
 - Slowly remove material from the back ¼ of the reed on each side by inserting a plaque into the bassoon reed, place the reed on a holding mandrel (see List of Tools), and use a reed knife or file to gently thin the back of the reed.

- Warning!! Removing too much material from the back can weaken the upper register of the bassoon, as the highest notes need cane down the center of the reed to respond.
- Take a pair of pliers and slightly flatten the second wire creating a “lazy” oval. This procedure will open up the tip a bit, so you may have to flatten the first wire to find a comfortable playing position.
- Of these two procedures, I would suggest using your pliers first as cane can be taken off, but not put back on!

Test note – Harmonic C

- This test is borrowed from Mark Eubanks’ *Advanced Reed Testing* text.
- Play a C just above the bass clef, and then add:
 - LH C key with thumb
 - RH 1, 2, 3, low F key with pinky
- The second pitch will create a harmonic.
- If the C and its harmonic are close in pitch, no further adjustment is required.
- If the harmonic is sharp, place a pencil mark 6mm back from the tip of the reed, and gently remove material from there to the front by:
 - Inserting a plaque into the reed, place the reed on a holding mandrel, and use sandpaper, a file, or a reed knife to slowly remove cane from this area of the blade on each side. When the C and it’s harmonic match, this step is completed.

Test note – Harmonic B

- This test is also borrowed from Mark Eubanks.
- Play a B just above the bass clef, and then add:
 - LH C key with thumb
 - RH 1, 2, 3, low F with pinky, low E key with thumb
- The second pitch will create a harmonic.
- If the B and its harmonic are close in pitch, no further adjustment is required.
- If the harmonic is sharp, gently remove material from the very tip of the reed by:
 - Inserting a plaque into the reed, place the reed on a holding mandrel, and use sandpaper, a file, or a reed knife to slowly remove cane from this area of the blade on each side. When the B and it’s harmonic match, this step is completed.

List of Tools

- Many bassoon reed adjustments, especially in regards to intonation and response, can be accomplished with an ordinary pair of pliers from a hardware store.
- However, if the teacher or student would like to make some of these advanced adjustments, please consult the list below for reed tools available at minimal expense.

Pliers – hardware store

400 grit Sandpaper – hardware store

Bassoon Reed Plaque – Miller Marketing (\$4)

Reamer – 2X Reed model at Miller Marketing (\$30), or Ortwein Woodwinds (\$25)

Files (diamond coated are best – get a set) \$20 – Miller Marketing

Bassoon holding mandrel – 2X Reed model - \$15 – Miller Marketing

