

“Basic Training” for Bassoonists: Develop Beautiful Tone, Accurate Intonation, and Confident Technique in Your Bassoon Students

Michael Kroth, Associate Professor of Bassoon, Michigan State University

Introduction

The bassoon is often regarded as a difficult instrument to play and teach. This common misconception prevents many music educators from teaching the instrument with the same confidence and commitment to excellence they bring to other instruments in their ensembles. The bassoon does have its difficulties, however, if one can teach a student to form a correct embouchure on the clarinet, or generate an air stream on the flute, or what notes are in what positions for the trombone, one can teach the bassoon! The information presented during this clinic will include methods for developing excellent fundamental skills and, as a result, significantly increased performance ability in your bassoon students.

The Basics of Bassoon Tone

• What is a good bassoon sound?

- The ideal bassoon sound is dark, focused, and resonant. It is elegant and refined, and more similar to the concept of a very large oboe rather than an anemic version of the baritone saxophone or trombone. The bassoon sound is unique and equally capable of beautiful lyric melodies as well as comical or dark haunting passages.

• The Sum of the Parts... Developing your inner keyboard

- The bassoonist must consider four distinct variables in order to play one specific pitch in tune at the required dynamic with a beautiful sound. The four variables are:
 - **Support:** the action of the internal intercostal muscles used in forced exhalation
 - **Velocity of Air:** the speed of the air flow into the instrument, which can be as slow as the speed of air required to blow out a candle to the speed of air required to hold sheet of paper against the wall at an arm’s length
 - **Internal Space:** the amount of space required from behind the teeth and into the chest required to accommodate the acoustics of the bassoon
 - **Embouchure Pressure:** the amount of pressure applied to the reed by the lips and teeth
- Bassoonists must develop a specific muscle memory for each note and be able to “feel” the note’s position using the four variables. Develop one note at a time by asking the student to play a long tone at a comfortable dynamic level with their best tone and intonation while considering each of the variables.
- The sum of the parts cannot be greater than the whole. If one or more of the variables are changed to accommodate a particular performance aspect such as crescendo or diminuendo, the others must be adjusted to maintain a beautiful in-tune note.

Dealing with the reed

▪ What/Where to buy

- Most bassoon manufacturers will supply a fibercane or plastic reed with the instrument. This may be a good way to introduce the concepts of good embouchure shape and placement; however, a “real” cane reed should replace it.

- Manufactured bassoon reeds come in different strengths: soft, medium soft, medium hard, and hard. One common misconception is that bassoon reed strengths are similar to clarinet and saxophone reed strengths, where harder reed strengths are often encouraged to improve tone. The manufacturers of bassoon reeds have created harder reeds with more cane left on the reed so the player or teacher can adjust the reed to his or her own preferences. If the player or teacher does not plan on working on the reed to his or her own specifications, he or she will often find medium soft reeds the best fit.

• Some reliable manufactured reeds:

Miller Marketing (Standard—red, Artist—purple, Miller Select—blue)
Golden Bamboo (from Midwest Musical Imports)
Fox/Renard
LaVoz

• Quick Fixes

- Tools needed
 - Long nose pliers
 - 400 grit wet or dry sandpaper
- Additional Tools (optional)
 - Plaque, Knife, Mandrel, Flat File, Reamer

• First Adjustments

- Tighten second wire so that it is snug against the cane but not narrowing the throat.
- Sand tip outside by placing sandpaper on a flat surface and pulling the reed on a slight upward angle across the sandpaper. Do the same to the other side to improve response.
- Sand between blades by carefully placing the corner of a small piece of sandpaper between the blades and gently closing the tip of the reed while pulling the sandpaper out. Do the same to the other side. One to two times per side to improve response and tone.

• Wire Adjustments (Fig 1.)

- Wire adjustments have the advantage of being reversible. If a wire adjustment does not produce the desired result, it is easy to return the wire to its original position.
- Additional tools for more advanced reed adjustments:
 - Plaque, holding mandrel, reamer, knife, flat file
 - All of these items are available at any double reed supplier
- When to make
 - A student bassoonist should not be encouraged to make his/her own reeds until a thorough understanding of the instrument has been reached. The student may accomplish minor changes to the reed once they have demonstrated an understanding of the desired adjustment and where to adjust based upon their observations.

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Fig. 1: Wire Adjustment	Tip	Resistance	Pitch	Tone
1 st wire - side to side	More open	Increased	Flatter	Darker
1 st wire - top to bottom	Less open	Decreased	Sharper	Brighter
2 nd wire - side to side	Less open	Decreased	Sharper	Darker
2 nd wire - top to bottom	More open	Increased	Flatter	Brighter
1 st wire - side to side, 2 nd wire top to bottom	Very open	Greatly Increased	Very Flat	Very Dark
1 st wire - top to bottom, 2 nd wire side to side,	Very closed	Greatly Decreased	Very Sharp	Bright/Reedy
2 nd wire - side to side first, 1 st wire side to side	No change	Slight Decrease	Higher	Darker
2 nd wire - top to bottom first, 1 st wire - top to bottom	No change	Slight Increase	Lower	Brighter

Developing the sound concept

• Blow through the bassoon, not at the reed

- This concept will help develop a full sound by creating an air stream with direction and energy into the instrument.
- Encourage the student to blow through the bassoon to the first open tone hole. For example: fourth line F requires blowing through the Bocal and down into the instrument to the uppermost finger tube in the instrument while low F requires blowing through the Bocal, down the short side of the bassoon, around the U-tube and up to the hole below the “Pancake key”.

• Vowel Shape

- Vowel shape is critical to bassoon tone. A shallow “ee” or “ah” vowel shape to the oral space will create a shallow tone. Think “OH” like Ho Ho Ho or potato. Try to avoid “OW” or “OE” like in tow or toe as the diphthong creates a shallow vowel shape on the end of the syllable.

Focus = Projection - Edge = Edge

- A well-focused air stream with the correct vowel shape will generate a resonant sound, and focus is what will carry that sound into the hall. The concept that “edge” carries your sound into the hall should be avoided.

If you hear a raw edge to the sound, the audience will also.

- Listen to professional bassoon recordings
 - A major factor in a student’s ability to develop good bassoon tone is listening. Encourage your student to listen to various professional bassoonists and to emulate that sound.

• Problematic Notes - Timbre

- The natural acoustics of the bassoon, with its folded bore, tone holes drilled obliquely through the instrument, tone holes with long and short chimney lengths, and varying pad heights create many opportunities for timbre and pitch variation. Bright harsh sounding notes and dull covered notes are scattered throughout the instrument. The student should be made aware of these differences by playing fourth line F# (bright) and third line Db (dull) and listening to the timbre of the notes. Careful listening by the student and teacher will identify the problematic notes. Keep a notebook of these notes, and begin to solve the timbre issues by manipulating the velocity and/or internal space variables. Always work with a tuner so that the changes you are making to the timbre do not affect the correct intonation.

Exercises for developing Beautiful tone

- Long Tones – Begin in the middle of the bassoon and continue up and down chromatically $\text{♩} = 60$

Bassoon

pp ————— *ff* ————— *pp*

1 2 3 4 5 6 7 8 8 7 6 5 4 3 2 1

- Giant Steps – Play scales using the following pattern:

Bassoon

mf < *f* > *p* *mf* < *f* > *p* *simile*

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The Basics of Bassoon Intonation

• School instrument maintenance

- What the Band Director should know
 - Leaking instruments are one of the major causes for sharp intonation. Send your instruments in for maintenance on a yearly basis. Replacing a pad or two, or regulating a few pad heights by replacing cork bumpers is far less costly than waiting until all of the pads need to be replaced. Many instrument repairmen have a rate for regular work that is far less costly than the hourly rate applied to major repairs.
- What the student should know
 - Look for ripped pads, pads that are loose in the pad cups, or a sudden change in the instruments intonation or resistance.
 - Examine the instrument on a daily basis for keys or pads that look too high or are stuck in the closed position when they should be open. Alert you director if you notice any significant changes.
 - Clean the Bocal with a bocal brush or pipe cleaner – intonation above the staff can be flat if the bocal is dirty.
- Chip Owen of Fox Products Corporation has an informative article on bassoon maintenance at the following link:

- <http://www.foxproducts.com/pdfs/TakingCareOfYourBassoon.pdf>

• Bocal Lengths

- Bocals are made in different lengths. A smaller number indicates a shorter bocal. An average bocal length (#1 or #2) is good for most students. Fox bocals use a different numbering system, so look for a #2 or #3 if selecting a bocal for an instrument by that maker.
- Do not pull the bocal out to correct for sharp intonation. The first reason is that the small amount of change that one is able to achieve by pulling the bocal out (while still having the whisper key pad cover the bocal vent) is negligible. The second reason is that the space that is created between the bocal and the top of the bore causes turbulence in the air stream at that point and will cause the F2 to drop in diminuendo.
- Chip Owen’s article on bocals contains helpful information
 - <http://www.foxproducts.com/pdfs/BassoonBocals.pdf>

• Embouchure

- The embouchure can have a dramatic impact on correct intonation
- Setting up the proper embouchure is a three-step process.
 - Step 1: Lips together forming a natural closed mouth.
 - Step 2: Separate the teeth without opening the lips as though you are holding a ping-pong ball in your mouth. Make sure that the motion of the lower jaw is from the normal motion of the maxillary hinge, not from any

other stretching or bunching of the chin muscles.

- Step 3: Purse the lips as if you are whistling a very low note. The lips will naturally move over the teeth.
 - This soft lip supported embouchure should contact the reed from all sides evenly much like the drawstring on a duffle bag.
- ### • The Switch to Bassoon
- The switch to bassoon from another instrument can be complicated by embouchure habits that are difficult to overcome. With regard to woodwind students, flute and saxophone students changing to bassoon will have an easier time than clarinetists. The clarinet embouchure requires tight corners and pointed chin and will require serious dedication on the part of the student and teacher. Brass students switching to bassoon seem to be less frequent, however the tight corners required for the buzz will need to be addressed in order to produce the bassoon embouchure.
- ### • Oral/Internal Space
- Ping-Pong Ball –Yawn: The space inside the mouth should be similar to holding a ping-pong ball behind the teeth. The soft palate should be high, and the back of the mouth open, much like a concealed yawn.
 - Effects on intonation
 - Increasing the internal space will lower the pitch and add depth to the tone
 - Decreasing the internal space will raise the pitch and thin the tone
 - Vowel Shape and Intonation
 - Vowel shapes that are shallow, such as “aah”, “eh”, or “ee” will result in a sharper sounding note. This may be due to a decreased internal volume or the fact that shallow vowel shapes amplify the bright tendencies of notes making them appear sharp when they are actually in tune.
- ### • How much reed to take
- Use the crow to determine embouchure placement
 - Too little reed = low single pitched crow, dull sound
 - Too much reed = hollow crow (mid-tones missing), brittle, edgy
 - Correct amount = multiple pitches evenly balanced,
 - The upper lip should approach the first wire. Avoid placing the upper lip on the first wire as this will make controlling the reed difficult and reduce the quality of the sound since the reed will not be producing mid-tones.

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- **Dealing With The Reed – Again!**
 - Reed hardness, length, and shape will directly impact intonation. If, after trying the wire adjustments listed in the wire adjustment chart, and the quick fixes, you are not satisfied with the results you may need to search for a different reed manufacturer, or professional reed maker. Here are a few points to consider when deciding on a new direction in reeds.
 - Harder reeds are sharper - soft reeds are flatter
 - Longer reeds are flatter than shorter reeds
 - Wider reeds are flatter - narrow reeds are sharper
- **Problematic Notes - Intonation**
 - As mentioned in the discussion on the Basics of Bassoon Tone, the natural acoustics of the bassoon, with its tone holes drilled obliquely through the instrument, tone holes with long and short chimney lengths, and varying pad heights create many opportunities for pitch variation. Careful listening by the student and teacher will identify the problematic notes. Keep a notebook of these notes, and begin to solve the pitch issues by manipulating the **support**, **velocity** and/or **internal** space variables. Always work with a tuner and avoid allowing timbre to cloud your judgment.
- **What is up over the staff?**
 - The notes immediately above the staff (A2 to D2) are often flat due to the fact that they are overblown notes using the same fingering as the lower octave, and the tone holes involved have long chimney lengths.
 - Longer chimney lengths add length to the upper notes and the result is a flatter pitch. The **support** and **velocity** variables will need to be increased as well as possibly decreasing the internal space. Think about blowing the air through the top of the head rather than into the bassoon – float the air with lots of support.
- **Low Register Woes**
 - The lowest register of the bassoon (F1 down to Bb1) is inherently sharp. Accurate intonation in this register will require the largest amount of internal space, the most open embouchure, and a reed that is not too hard, or heavy in the back. A leaky bassoon will make this register resistant, and, as a result, even more sharp.
- **Using Tuners and Sounding Sources**
 - The importance of using a tuner cannot be overstated. Have a tuner on the stand while practicing. Use the tuner to “see” when you have established the correct intonation, and then while listening to the pitch check your variables.
 - Sounding sources are very useful as well. Work with a sounding source to play in unison, octaves, and as a drone while performing scales, arpeggios, and etudes.

Exercises for developing Accurate Intonation (all of these should be performed with a tuner or sounding source)

- Long Tones - See exercises for sound above
- Slow Scales with a tuner
- Interval Studies: Play repeated bars 1st time *f*, 2nd time *p* Continue expanding the interval until the octave is reached

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The Basics of Bassoon Technique

• Fingering Charts

- Bassoon fingering charts can often be unreliable and difficult to read. Two of the best sources for fingerings are now available online:

- Fox Products - *Let's Play Bassoon*
 - <http://www.foxproducts.com/pdfs/LetsPlayBassoon.pdf>
- IDRS Website – *Fingering Companion*
 - <http://www.idrs.org/resources/BSNFING/FINGHOME.HTM>

• Playing Position

- This topic could be a lecture by itself. Here are a few points of concern and some Do's and Don'ts to help your student achieve the best possible technique:

- Body:
 - Do sit comfortably with feet flat on the floor.
 - Do keep the back straight but not tight, slightly away from seat back. Don't sit in a reclining position.
 - Do allow the arms to hang easily from shoulders, bent from the elbows, which are comfortably close to the body. Don't keep elbows out in a “flapping position”.
 - Do position the head to look directly ahead with the bell of the instrument off to the performers left. Don't try to look around the bassoon with the bell off to the right.
 - Do adjust the reed so that the blades do not force the head to one side or the other.
 - Do position the bocal so that the whisper key is covering the bocal vent while still allowing the left wrist to be in-line with the arm.
 - Do keep the hands relaxed, fingers curved, thumbs and pinkies hovering over keys.
- Seat Straps are a must for the beginner and intermediate student! The seat strap allows the weight of the bassoon to be removed from the player. Neck straps are hard on necks as some student model bassoons are very heavy. Neck straps also allow the instrument to tip forward forcing the student to chase the reed, and support much of the weight of the instrument in the left arm.

• Half-Holes, Flick Keys and Thumb Keys - Oh My!

- Since the bassoon does not possess a register key, the bassoonist has a number of other methods to break the air stream. The whisper key is an aid for keeping the instrument in the fundamental octave, and has little effect on producing the upper register notes.
 - Half-Hole: The half-hole refers to the left hand first finger venting the tone hole by covering only a portion of the hole. There are six notes requiring a half-hole – F#2, G2, Ab2, F#3, G3, Ab3.
 - The size of the half-hole can be varied to correct for pitch and response. Since the half-hole sustains the octave, the whisper key should be used on all half-hole notes. The size of the half-holes decreases as one goes up the scale. F# requires a very open hole, G is a true

half-hole and G# is only ¼ open for the best sound and clear attack. The same will be true in the high G and G#.

• Flick Keys or Speaker Keys:

- Flick Rule: For any note F2 and lower slurred to any note A2 and higher where the fingering is the same in both octaves, with the exception of the Whisper key (A2, Bb3, B3, C3, and D3), you must flick the appropriate flick key. Flick A2 on the A thumb key, Bb3, B3, and C3 on the B-C Thumb key, and D3 on the D key.
- These keys also work as speaker or clearing keys and can be added to the standard fingering for those five notes to clear up staccato or repeated articulation.

• Contrary Motion

- Unlike the flute, saxophone, clarinet, and oboe, the bassoon fingering system involves quite a lot of contrary motion, especially in the upper register. One of the most important aspects of bassoon technique is being able to move cleanly from one note to the next when fingers are sliding, or in contrary motion. Simple exercises such as whole step trills and five note diatonic studies will help the student accomplish this. Several of these exercises are listed below.

• Clean Clear Articulation

- Releasing the sound not attacking the reed!
 - The articulation or “attack” of a note is actually a release of the air into the instrument by removing the tongue from the reed. There is no sound when tongue is on the reed. The concept of “tonguing” should be a rapid retraction of the tongue from the tip of the reed rather than a fast forward striking of the tip of the reed.
- Air Speed – Bottle Releases
 - The unique Ping or Pop of bassoon articulation requires fast air behind the release of the tip of the reed. Therefore the air must be in place before the tongue moves. The student should be taught to place the tongue on the tip of the reed and generate an air stream as if they were actually playing the note. The result should make one feel like a corked-up bottle ready to pop. When the tongue is released the note will sound immediately. If this is not done the signature Ping will be “Thoop.”

• One additional thought on technique – the demands of the repertoire

- The ensemble repertoire for beginning and intermediate students often relegates the bassoon parts to whole, half, and even quarter notes. Even high school bassoonists are not moving their fingers fast or reading complicated rhythms. The result is slow technique and rudimentary counting skills simply because they are never asked to perform on that level. Require your bassoon students to play scales and other exercises in sixteenth notes, dotted rhythms, or whatever the clarinet and saxophone students are expected to play.

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Exercises for developing Confident Technique

- Whole Step Trills: Begin slowly and gradually increase speed, keep fingers efficient and relaxed. Play for entire range low Bb to top of students range.



- Five note study: Begin slowly and gradually increase speed, keep fingers efficient and relaxed. Repeat each section ad libitum. Play in all keys.



- Variation of 5 note study



Final Thoughts:

- Teach the bassoon like you teach all of the “popular” instruments!
- Expect the same beautiful tone quality, intonation, and rapid technique from your bassoon students, they will rise to the challenge!

Some Useful Websites:

Fox Products	www.foxproducts.com/	Nielsen Woodwinds	www.nielsen-woodwinds.com/
Miller Marketing	www.millermarketingco.com/	Jones Double Reed	jonesdoublereed.com/index.aspx
Midwest Musical Imports	www.mmimports.com/	Heckel Bassoons	www.heckel.de/
Hodge Products	www.annhodge.com/	Moosmann Bassoons	www.b-moosmann.de/e/index.htm
Forrests Music	www.forrestsmusic.com/	Puchner Bassoons	http://www.puchner.com/

Notes:
