

# *Help! Why Can't the Saxophones Play In Tune?*

**Playing the saxophone in tune involves more than pulling the mouthpiece in or out;  
this only attacks the symptom - not the problem.**

**By Ray Smith**

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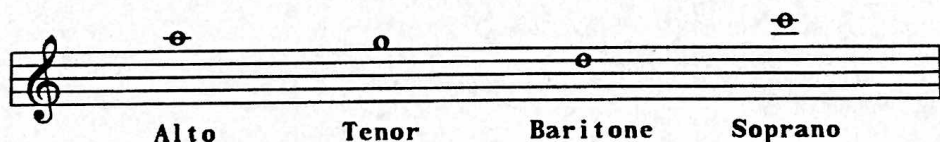
At least five or six times per year I get a phone call from a band director in distress ready to pull his hair out over the intonation in the saxophone section. Some years ago I was adjudicating at a local jazz festival. After four bands, the fifth band took the stage and began to tune. Realizing the saxophone tuning was quite grim and knowing I was a saxophonist, the band director, who was not a wind player, called loudly to the back of the hall, "Ray, what do I do with these saxes?" I have a feeling there are many directors across the country who have the same question, and they deserve a good answer.

The usual quick-fix answer is to pull out the mouthpiece, since intermediate players almost always have a problem with sharpness. It is a common thing to see paper wrapped around the cork to keep the mouthpiece from falling off the neckpiece. But pulling the mouthpiece will attack only the symptom not the root of the problem. The real answer is a much longer-range proposition that will probably even involve pushing in the mouthpiece instead of pulling it.

## **THE ROOT OF THE PROBLEM**

Undoubtedly, the most frequent problem I have observed in young saxophonists is playing at the wrong basic pitch level on the mouthpiece alone. It is possible when blowing only the mouthpiece to play well over an octave of pitches. Indeed, full scales and arpeggios can be played on the mouthpiece. This makes a wonderful exercise for the development of flexibility but raises the question of where one should stabilize his blowing for normal tone production. The correct answer is critical to the development of intonation. Dr. Eugene Rousseau, world-renowned saxophonist, suggests the following pitches for the respective instruments.

(1)



These are concert pitches to be achieved at a fortissimo level. I have found some jazz players play even slightly lower. This seems especially true for the tenor, which can tend to be closer to an F# at times.

I have done considerable mouth-piece-pitch testing over the years - both formal (2) and informal. Students always tend to play anywhere from a half-step to a major third too high on the mouthpiece. This triggers what I call the Saxophone Syndrome.

## **THE SAXOPHONE SYNDROME**

To illustrate the syndrome, let's take an example of an alto saxophone player who plays too high in the mouthpiece pitch, say around a B. Their notes will be above the center of the tone and they will have to pull the mouthpiece out considerably from where it belongs to get the high notes down to the level of the band. This exaggerated pulling of the mouthpiece will distort the basic internal proportions of the instrument causing the low notes to go flat and the normal response patterns to be interrupted. The tone will still not be centered and some notes will be affected more than others. Consequently, the intervallic relationships of the instrument

will lose their integrity, and the effect will be like being on a slippery slide of pitch every time the fingering is changed. When everyone in the saxophone section is having this problem, it becomes nearly impossible to match pitches consistently.

### **A SOLUTION**

Getting young saxophonists to bring the mouthpiece pitch down is a challenge, but this is the key to achieving a lasting solution for pitch problems. Obtaining the right mouthpiece pitch is a blending of several factors - correct saxophone embouchure, air stream type, oral cavity, and air stream direction. When I first tried to make the change from clarinet to saxophone, my well-meaning band director said, "Use the upper register clarinet fingerings for both registers of the saxophone and play with a sloppy embouchure." This was the only guidance I had for some years. The saxophone embouchure is not a sloppy embouchure, but it is very different from the clarinet. When I teach the clarinet embouchure, I compare it to a tug-of-war between the smile muscles (EE) and the pucker muscles (OO). The tug-of-war must be held in equilibrium; and if either side wins, you lose. But on the saxophone, the OO wins the tug-of-war. The embouchure should be round, giving solid support all around the mouthpiece. This may be compared to the closure of a drawstring purse or duffel bag. When the strings are pulled, the closure is even from all sides simultaneously. To form the saxophone embouchure, I would have the student follow these steps.

1. Curl the lower lip slightly over the teeth (no more than the red part of the lip should be curled into the mouth). (3)
2. Insert the mouthpiece into the mouth placing the top teeth solidly on the mouthpiece.
3. Effect the drawstring (round) closure.

The flat or pointed chin associated with the clarinet is not important and should be avoided.

The type of air stream used in saxophone playing also differs from the clarinet. The clarinet uses a pinpointed, concentrated, cool air stream analogous to the air stream used when blowing on hot soup to cool it. The saxophone responds better to a wider, less-concentrated, warmer air stream more similar to the air stream used for fogging one's glasses for cleaning purposes.

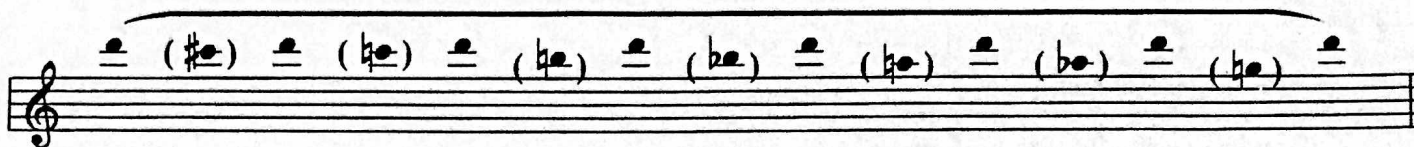
If a saxophonist plays with a clarinet-influenced embouchure and air stream, the reed will be encouraged to vibrate too fast and the mouthpiece pitch will be too high.

As with all wind instruments, the saxophone requires an open, relaxed throat, but the exact feel of the oral cavity and throat will be affected by the air stream direction. Air stream direction is another major difference between clarinet and saxophone tone production. The clarinet tone quality depends on blowing at the top of the mouthpiece pitch range (a concert C) which leads to a feeling that one is blowing up. The saxophone tone quality depends on blowing about a third below the top of the mouthpiece pitch range which creates a feeling inside the mouth of blowing down. Eugene Rousseau uses these terms when discussing how to get the mouthpiece pitch down to the suggested concert pitch.

If the pitch on the mouthpiece alone is higher than [the suggested pitches given earlier], direct the air stream down, remembering always to keep the embouchure solid. If the pitch on the mouthpiece alone is too low, direct the air stream up. In either case, never loosen the embouchure which should remain solid at all times, while the air does its job properly. (4)

This ability to change pitch downward without loosening the embouchure is an essential coordination for achieving correct mouthpiece pitch level and for adjusting pitch for specific notes on the saxophone.

The following exercise was given to me by Eugene Rousseau several years ago. It is a little tricky to teach, but if the student can get the feel of it, control over tone and pitch will be greatly enhanced. The entire line is fingered like high D while the lower pitches in parentheses are played by directing the air stream down with the embouchure remaining solid.



This exercise opens the door to dealing with the most difficult notes to play in tune on the saxophone. Because of octave key hole placement compromises made in the construction of the saxophone, certain notes are difficult problems on any saxophone - student or professional. Most band directors will recognize these traditional "sore thumb" notes: fourth line D and D#, fourth space E, and A just above the staff. When one tries to lip down on these very sharp notes, the tone spreads and leaves much to be desired. But when the embouchure is kept solid and the air stream is directed down, the centers of these notes can be found resulting in a pleasing tone and good intonation.

When students are finally able to control all the factors so they can blow consistently at the correct mouthpiece pitch level, then the mouthpiece can be pushed back in on the cork to a position more consistent with where the instrument is made to play. At this point tones begin to center, the upper and lower registers line up so that octaves are in tune, and intervals tend to be in tune without having to "search" for each note. Now we've got a fighting chance of working together in the saxophone section.

### AN APPROACH

Let me now suggest an approach for applying the mouthpiece pitch concept and add two other significant companion concepts. After teaching the basic technique for embouchure, breath support, air stream type, and oral cavity, I would set up a regular routine for stabilizing the correct mouthpiece pitch. This routine must involve testing the pitch daily and then repeatedly attacking and holding the correct pitch for 2 - 5 minutes. Normally, the first test of mouthpiece pitch each day will be too high. The correct pitch can be sounded and students can be asked to match it. This could be incorporated briefly into the time allotted for the band warm-up. When students learn the procedure, they can be encouraged (assigned) to spend more time with it on their own. As the exercise is consistently applied, the first pitch test of each day will get closer to the correct pitch until finally the student is able, through feel and muscle-memory, to play the correct pitch upon request at any time without reference to a pitch standard. This is what is meant by stabilizing the pitch at that level.

Along with the mouthpiece routine, it is imperative that students be involved intensively in listening to the great models for their instrument - Bird, Cannonball, Trane, Rollins, Mulligan, etc. It is even more valuable if this listening also grows into transcribing. These listening and transcribing experiences "program" into the student a concept of tone that ultimately must be there to allow the sum of the parts to reach an acceptable end product.

Another important concept that I would cover simultaneously is the centering of the tone. Centering tone quality and arriving at the correct pitch for a note are on the same continuum and ideally occur at the same moment. It is possible to manipulate a note into pitch without finding the tone center, but it is not likely that one will find the tone center without finding the pitch at the same time. The easiest way I have found to communicate the idea of centering to young students is the analogy of the radio. Every station received by a radio has an exact setting on the tuner. A station will come through clearly and sound best when the tuner

reaches the exact position for that station. If the tuner is only slightly too high or too low, static will result and clarity is lost. If the tuner is too far away; the station is lost altogether. Different notes on the instrument are like the different stations and need to be tuned in with the right embouchure - air setting. If these settings are not precise or centered, poor tone, poor intonation, and sometimes squeaks and indefinite sounds result.

An aural concept of centering or resonance can then be engendered by the instructor performing several contrasting examples of centered and uncentered tones.

More difficult than helping the students grasp the concept of centering is the challenge of helping them move from the abstract concept to a concrete experience with centering on their instruments. Once they feel the sensation and hear the sound of a few centered notes, the students will be well on their way to improving their tone quality and intonation.

One method I have found useful for helping the students establish air control for centering tones involves playing a nursery rhyme tune or any short sequence of pitches on the instrument. After the students play the tune on their instruments, they should be instructed to sing the tune at the same pitch level. Then they should blow through the tune at the same pitch level using only the air stream. This is done by blowing air through the lips while pronouncing the syllable "HOO." This will result in a specific half-whistled pitch which can be controlled to blow the exact pitches of the tune. It is important that this blowing step be done at a healthy, loud energy level. The students should then play the tune on their instruments again without a time delay. If this is done properly, the result will be astonishing. The tones will sound much better centered and bigger and will feel much freer and easier to the students. The students will have experienced a concrete referent for the concept of centering. This little formula - play it, sing it, blow it (with the air stream), and play it again - can be applied on an on-going basis to other tunes, excerpts, etc. (\*5) I frequently use this method with my whole big band, and the results are always akin to magic.

## CONCLUSION

Teaching these concepts and techniques takes a little more effort and follow through than yelling, "Tune that up, saxes!" But the conscientious educator will see the need for getting at the real root of the problem. Students who master blowing at the correct pitch level and strive for centered tones based on the tonal memory developed from listening hours are in a position to make real strides in intonation. When the whole section is in this position, then traditional approaches to working on intonation in the sectional will yield exceptional results.

\* This formula was adapted from suggestions made by Newell Dayley in a paper entitled, *Developmental Exercises for the Breath, Tongue, and Embouchure*.

## FOOTNOTES

- (1) Eugene Rousseau. "Saxophone High Tones" (Bloomington, Indiana: Etoite Music. 1978. p.7.
- (2) Charles R. Smith. "A Comparative Study of Blowing Pressure and Air Flow Rate in Clarinet and Saxophone Performance" Doctoral Document, Indiana University. 1982). pp. 67 - 69
- (3) Another school of embouchure would suggest turning the lower lip out slightly. Either way there should be no heavy biting and the feeling of the lower lip cushion should be a "fat lip" feel.
- (4) Rousseau. p.7.
- (5) Newell Dayley. "Developmental Exercises for the Breath, Tongue, and Embouchure. (Provo, Utah: Brigham Young University. 1970, pp. 5 - 6.

Ray Smith received his doctoral degree in Woodwinds Performance from Indiana University and is currently the Director of Jazz Studies at Brigham Young University where he directs the jazz big band known as Synthesis and teaches saxophone. Synthesis performed as the college/university jazz ensemble audition winner at the 1986 NAJE Convention in Anaheim. To his usual teaching activities, Dr. Smith performs with the BYU Faculty Jazz Quintet, the Utah Saxophone Quartet, and a active professionally as a performer, studio recording musician, and clinician.