

2006 Midwest Clinic

# Band and Orchestra Intonation: Teaching an Ensemble Skill

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## Individual Skills and Ensemble Skills – Develop Both!

Individual skills – tone quality, rhythmic accuracy and technique, intonation

Ensemble skills -- ensemble sound (balance/blend), precision (attacks, releases, and rhythmic clarity), tuning

Good band intonation requires first that the instruments are tuned closely to a standard pitch (initial tuning) and *then* that each student actively listens and adjusts for beatless intervals. Many students think that the “tuning” process is complete after adjusting instruments. Initial tuning is only step one; *active listening* is where it really happens.

## Some thoughts on individual intonation and initial tuning:

- **Singing is the best ear training.** We should have our students sing in every rehearsal and every beginning class.
- Intonation can only be considered when students are able to make a characteristic sound. This is critical on every wind instrument. **Stress tone quality from the first day of beginning band!**
- Every student must know the intonation characteristics of his/her instrument, and should be able to bend a pitch both sharp and flat.
- Instruct students to begin every day with their instrument’s tuning set where it was the last time that they played in the ensemble, and to keep the instrument warm during rehearsals and concerts.
- Do not allow extreme tuning slide settings on brasses. If you do, the valve slides will no longer be proportionate in length AND you force the student to play incorrectly to come up to pitch.
- Woodwinds -- Flutes should not pull the headjoint more than  $\frac{1}{4}$  " or so. Oboes should leave the reed pushed in all the way. Bassoons should leave the bocal pushed in all the way. On double reeds, use reed adjustment (scraping or trimming) to change pitch (or in an emergency, vary the amount of reed in the mouth).
- Every student should have an instrument in good mechanical condition. Leaky pads in woodwinds or leaky solder joints or water keys on brasses will cause mysterious tuning and tone problems.

The information in the chart below comes from *Instrumental Music Pedagogy* by Daniel Kohut (Champaign, IL: Stipes Publishing, 1996).

**Suggested Tuning Notes**

The chart displays suggested tuning notes for various instruments, organized into three rows. The first row includes Flute, Oboe, Clarinet, and Bassoon. The second row includes Eb Alto Saxophone, Bb Tenor Saxophone, F Horn, and Bb Horn. The third row includes Cornet/Trumpet, Trombone/Euphonium, and Tuba. Each instrument's tuning note is shown on a staff with a double bar line separating the instruments in each row.

## Make it THEIR Job!!

Instead of merely checking each player one at a time with the electronic tuner on all tuning notes, another technique is to tune only the first chair player with the tuner. Then, go down the line quickly, having each student play a single quarter note on that pitch and creating a seamless sound (as little space between notes as possible). This technique is quicker than checking individuals with the tuner, and, more importantly, *makes the student responsible for hearing the difference.*

## Teaching the Ensemble Skill of Tuning

Playing “F around the room” is a wonderful exercise for letting students know that every player’s sound quality is important, and for giving them an opportunity to tune without any interfering sounds. Here is an expanded version:

- Play “F around the room”-- beginning with the tubas, each player plays a 4-count concert F in turn, matching the pitch, tone, and intensity of the player before. Players with weaker tone production will be motivated to improve, and they have a model to emulate.
- Second step -- play a perfect fifth around the room. Each player in turn plays a 4-count concert F, then a low Bb. As player one reaches the Bb, player two enters on the F, and must tune a beatless fifth.
- Third step -- each player holds the F for eight counts, overlapping for four counts with the player after him/her. Each player adjusts for the first four counts, then holds steady for the next player to adjust.
- Fourth step -- each player plays in turn an F, then a Bb, and then a D, each for four counts. As the third player enters, a major chord is created. Both the third and the fifth must tune to the root and eliminate the beats.
- Final step -- try this in other keys (use keys in which you’re playing music that day).

## Other exercises include:

- Have students memorize a cadential sequence by solfege or numbers and play it in various keys. For example:  
Group 1: s-l-s-s-s Group 2: m-f-m-r-m Group 3: d-d-d-t-d
- Play a chord game in which students begin on a Bb major chord, then signal with one, three, or five fingers which chord voice will be altered, and then point up or down to alter it. Diminished, augmented, major, and minor chords can be created and tuned in this way.
- Memorize an entire chorale and perform it daily. Students can devote their entire attention to listening and watching when they no longer have to read the music.
- Frank Battisti suggests playing a chord from a chorale, then asking the students to sing the *root* (not necessarily their pitch). If they can’t do it, they can’t deal with intonation.
- Encourage or require students to participate in small ensembles year-round. It is far easier to listen for tuning in a small group, especially a group of like instruments.
- Perform the first phrase of a chorale, and then sing that phrase on pitch. Work at this skill until students are able to play a phrase and then sing the *following* phrase without playing it first.
- Have students practice in pairs, first tuning perfect intervals (begin with fourths and fifths, then work on octaves and unisons) and progressing to thirds and sixths. When students are in doubt, have them create more beats, and then eliminate them.
- After you work to tune a chord in rehearsal, teach students to mark arrows up or down above a note to indicate which way they should bend the pitch to tune that note. Height of the arrow can represent how much to move.

## Using a Tuner – To Strobe or Not to Strobe?

The tuner is a great reference, but doesn't solve the long-term problem of students playing out of tune. ***Only our students can do that, and only if we teach them how.***

In equal temperament, fourths and fifths are very close (within two cents) to their placement in just intonation. You may think that an equal tempered third is close enough. However, an equal tempered major third is 14 cents sharper than a beatless major third. **Using a needle-style tuner, one must place the major third 14 cents flat in order to sound in tune in the context of the chord.**

The equal tempered minor third is 16 cents flatter than a beatless minor third. **Using a needle-style tuner, one must place the minor third 16 cents sharp in order to sound in tune in the chordal context.**

The minor seventh is a little trickier to account for in just intonation. If one uses the interval from the ninth to the sixteenth harmonic as the basis for the just minor seventh, the equal tempered minor seventh is only 4 cents sharper than the just minor seventh. It generally is better to balance the chord with less volume on the seventh.

Using a strobe tuner, major chords may be tuned by using harmonics (narrower bands) in the strobe window. For example, to tune a Bb chord, look only at the Bb window for all the notes in that chord (Bb, D, F). When the Bb wheel stops, that chord tone is in tune in the context of a Bb chord. Still, however, this process requires a tuner, and can't be used in performance. It is far better to train students to *listen* for beatless intervals, and to learn when a major third or minor third sounds and feels right.

## Using Alternate Fingerings to Tune Chords

Judicious use of alternate fingerings can make it easier to tune chords. For example, the third of a Bb major chord (the most common beginning band key) is D, or written E on trumpet. Since 1-2 is a sharp fingering on trumpet or baritone, and the third of the chord needs to be lowered, this is a prime candidate for a substitute fingering. Third valve is a flatter substitute for the 1-2 fingering. Young students can be taught to find these instances by ear, and make the switch, or you can simply ask them to write in the fingering. Exactly the same situation arises in the key of Eb (G is the third of the chord, a written A on trumpet, which can be played third valve to lower the pitch).

Woodwinds can close keys to lower pitches. It is best to leave two open holes below the top open hole created by the normal fingering, but sometimes only one hole can be left, and the next one closed. In extreme cases, the very next hole can be half-holed (or pad half-closed). Use this strategy to lower thirds in major chords.

For valved brass instruments playing thirds in the upper register, alternate fingerings from the seventh harmonic may be employed. ***These fingerings are so flat that they are never used in normal playing, but may help tremendously to place a major third in tune.*** For example, the trumpet's written G on the top of the staff (sixth harmonic, a sharp harmonic) will be difficult to tune as the third of a written Eb major (concert Db) chord. However, using the seventh harmonic fingering of 1-2 creates a very flat G, one almost perfect as the third of a major chord.

### Seventh Harmonic Fingerings

The image shows musical notation for the seventh harmonic fingerings for Trumpet in Bb and Euphonium. The notation is presented in two staves: Trumpet in Bb (top) and Euphonium (bottom). The notes are written on a treble clef staff for the trumpet and a bass clef staff for the euphonium. The notes are: Bb, Eb, G, Bb, Eb, G, Bb. The fingerings for each note are: 0, 2, 1, 1-2, 2-3, 1-3, 1-2-3. The notes are written with accidentals: Bb, Eb, G, Bb, Eb, G, Bb. The fingerings are written below the notes: 0, 2, 1, 1-2, 2-3, 1-3, 1-2-3.

## Closing Thoughts

- Encourage the aural development of your students by having them **sing every day** in beginning classes and rehearsals.
- Insist on centered, resonant **tone quality** from the first day of beginning band forward.
- Encourage student participation in **chamber music**. Take time regularly in section rehearsals or small ensemble rehearsals to tune chords.
- Utilize strategies to improve the ensemble skill of intonation daily. **Put the burden of tuning on the students**, and help them to accomplish it.
- **Teach tuning by aural methods**. Avoid using the tuner, which is visual only. If you must use a tuner, use it for a reference pitch (sometimes easier a P5 away from the note you're tuning).
- **Have students pair up** to practice intervals and make individual intonation charts. Not only will it help them to learn the tendencies of their instruments, but it will also help them to learn to play beatless intervals by ear.

## Sources for more information:

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South, James. "Tuning the Brass Section." *Instrumentalist* 43/8 (March 1989). Brass-specific tuning information.

Stegeman, William. "The Art of Musical Intonation" (in four parts). *Instrumentalist*, May, August, September, and October, 1967. Excellent background information on various tuning systems.

Williamson, John. *Rehearsing the Band*. Cloudcroft, NM: Neidig Services, 1998. Chapters by eleven outstanding college directors, including Reynolds, Hunsberger, Junkin, McMurray, Whitwell, Battisti, and Corporon. This book is a very practical guide to the rehearsal process as seen through the eyes of the "heavies."

<http://www.justintonation.net/> Includes an MP3 file comparing just intonation to equal-temperament.

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