Brass Clinic

Critical Choices on

Trumpet Mouthpieces

By Adrian D. Griffin

Trumpet players rarely have just one mouthpiece. Some players have managed to collect hundreds in search of the holy grail of mouthpieces: one that offers physical comfort, ease of playing, and the desired sound. Mouthpiece parts are the rim, cup, throat, shank, and backbore. Each component has a different effect on the comfort and sound of the mouthpiece.

Rim

Mouthpiece rims are measured by diameter, width, contour, and edge. The rim choice has the most influence on the player's comfort and endurance; a medium-wide rim is generally best and found on the most standard mouthpieces. A sharper inner edge produces a cleaner attack, while a rounded inner rim creates a smoother, more rounded attack.

An edge that is too sharp can reduce endurance by pushing into the flesh of the lips. However, a sharper edge makes control easier by allowing only the proper amount of flesh to vibrate.

In general, the more of the outside rim a player has in contact with the flesh, the less free the lips are to resonate. If the rim is too narrow, it can push into the flesh of the lips and cause a lack of endurance as well as possible bruising.

Cup

The cup of the mouthpiece influences the sound and responsiveness. A deep cup will produce a darker sound and easier playing in the low register, but also slower response time because of the additional volume of air needed. A shallow cup will produce a bright sound, easier playing in the high range, and a rapid response time. Shallow cups are best used for high playing or small trumpet (piccolo/E♭/D) performance.

The shape of the cup also affects the sound. The bowl shape of a trumpet mouthpiece produces a brighter timbre than the cone shape found on a flugelhorn mouthpiece. Professionals may specially order a conical cup for a standard mouthpiece shank to get a dark, warm, mellow sound on the trumpet.
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Trumpet mouthpieces (above) are bowl-shaped, but flugelhorn mouthpieces (below) have a cone shape that helps produce a dark sound.

Throat
The throat can best be described as the hole in the center of the cup. A bigger throat allows the core of the sound will be warmer and richer and have a clear, pure focus.

The stock throat size is 27, which refers to the size of the drill bit used to create it. High-school students typically play a 27 or the slightly larger 26 throat size. Professionals more commonly use a 24 or 23, which allows them to move more air through their mouthpieces. Using a large throat requires a well-established embouchure and good endurance. An inexperienced player playing with a throat that is too large will be flat.

Shank
The shank is the part of the mouthpiece that is inserted into the receiver of the leadpipe. Brass players should clean the mouthpiece with a brush after each use to keep deposits from building up inside the shank.

For proper performance the mouthpiece must create a tight seal in the
mouthpiece receiver. If a student inserts his mouthpiece into the trumpet and hears a metallic hitting sound, it probably means his mouthpiece shank is too slender and has extended past the mouthpiece receiver to hit the leadpipe itself. If the mouthpiece does not seal well, the resulting air leak will make the trumpet nearly unplayable or at best extremely flat.

**Backbore**
The backbore is the interior circumference of the shank and an important factor in the overall tone color when the mouthpiece meets the trumpet. A bigger backbore will produce a darker sound; a narrower backbore will produce a brighter sound. If the backbore is too large the player will suffer from reduced endurance and flat intonation, but if the backbore is too narrow it will be difficult to make minor adjustments in the pitch and sound.

**Mouthpieces for Beginners**
The 7C or 5C mouthpiece is the most common for beginners. Students with larger lips will be more comfortable on mouthpieces with wider inner rims (the open center of the mouthpiece). The larger inner rim gives the student’s lips room to vibrate; a narrower inner rim will pinch into the fleshy part of the lips, causing difficulties producing good tone, flexibility, and endurance.

Although students with thinner-than-average lips can play a standard 7C mouthpiece, players with extremely thin lips should choose mouthpieces with narrower inner rims. A standard mouthpiece would take more pressure for such students to play than they can muster, and beginners will quickly tire.

Some students may have a teardrop lip, in which the front part of the top lip comes down further than the rest. Since this lip formation can lead to an unreliable fluttering in the sound, a downward air stream, and poor aperture control, someone with a teardrop lip is generally not well-suited to the trumpet.

If a student with a teardrop lip has his heart set on playing trumpet and understands the difficulties associated with his lip shape, private lessons may help him develop a good sound and embouchure strength. A student with a teardrop lip should look for a mouthpiece with more rim surface area and a slightly flatter rim, both of which help to stabilize the teardrop portion of the lip. Its more pronounced funnel-shaped cup also gives the lips room to vibrate.

**Selecting a Mouthpiece**
It is typical for students to get a new mouthpiece after the second year of playing and again as they advance into college playing. Although a mouthpiece can complement what a player is trying to do, it will not allow him to do something he can’t. Ideally, the perfect mouthpiece should ease his high range, blow free and easy in the middle and low range, play in tune, have good endurance and be physically comfortable.

Before trying a new mouthpiece, students should warm up on current equipment so there is a fair comparison. The room should have good acoustics or be a place where they are already familiar with the sound.

Ideally, a teacher or another trumpet player should be present to give a second opinion and also mix up the student’s mouthpiece choices so he does not know which one he is playing. This eliminates any preconceptions a student may have. Students should rest frequently, keeping the chops fresh and avoiding a biased result.

**The Adjustment Period**
Although a new mouthpiece is a small investment in terms of price, it is
high in terms of adjusting to the embouchure change over the next month. It is important that players take the time to make a good decision so they do not waste a month of study adjusting to a mouthpiece that ultimately does not work out.

After picking a new mouthpiece, players will probably notice a temporary drop in endurance and range, which is completely normal. With a new mouthpiece, a trumpet player will use the embouchure muscles slightly differently, and the initial excitement of discovering what a seemingly perfect mouthpiece is often followed by frustration as the muscles become fatigued over the first week or two. A player's chops return once the muscles have rebuilt their endurance.

After getting the new mouthpiece, trumpeters should take a day or two off from playing to give the muscles time to rest. After this rest period, start playing on the new mouthpiece with a slow, easy warmup that takes little pressure or movement.

Following the warmup, students should ease into the practice routine, paying special attention to the embouchure. Daily practice should last no more than 45-60 minutes for the first two weeks of the mouthpiece change, so the embouchure muscles can be strengthened but not depleted. Exhausting the muscles will leave them too tired to build endurance.

After two weeks the embouchure muscles should be acclimated to the new mouthpiece and the muscles should have built up enough strength and endurance for a regular practice routine. Put away the old equipment, otherwise the temptation to use it will be too strong. If the new mouthpiece is not performing as desired after one month, it may be a good idea to begin the search again.

**Different Trumpets**

Although trumpets come in various pitches (beyond the most familiar B♭ and C), all trumpets use a standard trumpet mouthpiece. However, cornet mouthpieces have a shorter and narrower shank; traditional cornet mouthpieces are funnel-shaped like that of a flugelhorn, but modern cornet mouthpieces are cup-shaped like a trumpet mouthpiece.

Most piccolo trumpet performers use a trumpet mouthpiece with a shallow cup and a narrower inner and outer rim. The receiver of the piccolo trumpet may be designed for either a trumpet or cornet shank. The cornet fitting is preferred by most professionals, since it responds somewhat faster because of its narrower backbore and shorter shank.

**From Gold to Plastic**

Mouthpieces are made from raw brass and then plated. Because of the risk of brass poisoning it is illegal for a manufacturer to sell a mouthpiece to a customer without plating. Silver plating is standard and tends to grip the lips better than gold. A player who likes a firm set for his mouthpiece will be most comfortable with silver plating. Gold plating warms up faster than silver and is also a little heavier, adding some weight to the mouthpiece. It allows the lips to move a little more freely.

Plastic mouthpieces are most often used for outside playing in cold temperatures or for casual buzzing in the car. They are inexpensive and quite durable but lack the sound quality of a standard metal mouthpiece. Plastic or lucite rims are useful for players who have an allergy to silver or gold plating and can work well for cold temperatures. These rims must be custom ordered because they are made per
What do you do outside of school?

In addition to being District 8 president of the Michigan School Band and Orchestra Association, I play in the Jackson Symphony, teach trumpet in the Jackson Symphony Orchestra Community Music School, and am an M.S.B.O.A. adjudicator for marching band, solo and ensemble festivals, and band and orchestra festivals. I am also an adjunct professor at Albion College, Spring Arbor University, and Jackson Community College. I usually teach methods courses or private lessons. I have taught brass methods, a marching band course, and band methods, and have also coached various chamber groups. I did not have any courses in the fall and only help out when needed.

What are your responsibilities as district president of the Michigan School Band and Orchestra Association?

The biggest job is to keep everybody happy in the district. I help maintain the organization, which organizes festivals and advocates for the importance of music programs. Like any manager, I try to keep the organization running smoothly. At times there is considerable paperwork and during our conferences in January, I preside over several events. I enjoy it.

How does playing in the Jackson Symphony Orchestra help your teaching?

I use my instrument to demonstrate all the time. Rather than say something, I will demonstrate by playing or singing. During warm-ups we do echo exercises so playing regularly keeps my chops in good enough shape to lead by example. Last fall the Symphony played Pines of Rome and I felt the fear that some of my students feel in a concert. It's a killer piece and I was really struggling to make sure we could play it appropriately. Playing in the orchestra makes me sympathetic to what the students try to accomplish. Also, I love not being in charge sometimes.

What advice would you offer to someone just starting out as a music teacher?

Find a mentor you trust and admire and do not be afraid to ask for help. Many of us stay in our rehearsal rooms and think our ensembles are so bad that we are embarrassed to bring someone in to listen. We do not want an outsider to find out that we are not good teachers.

I was fortunate to have many great mentors and examples of good teaching, including my father and mother, who were both music educators.

The first time you feel brave enough to seek an outside opinion from a veteran director, it is so fantastic. The key to feeling confident in the first year of teaching is to get help. There are many state and national organizations that can offer assistance. Local colleges are also a fertile source for assistance.

Our band motto is “Building on Tradition” and that’s what drives the program. Everything we do builds on what happened last year. I put up quotes in my office and the most recent one came out of a Reader’s Digest article about the married couple that founded the Panda Express restaurant chain. They advised readers to “focus on being a good human being and the rest will take care of itself.” That’s what I think we do as music teachers. We get to know students particularly well over several years and watch them grow and improve.

Dan Biaufuss is managing editor of The Instrumentalist. He earned degrees in music education and media studies from Northern Illinois University.

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request from the manufacturer as a part of screwrim mouthpieces. Screwrim mouthpieces generally cost slightly more than standard mouthpieces and take a month or two to make, so a plastic mouthpiece is a more economical choice for the occasional outdoor performance.

Specialty Mouthpieces

Screwrim mouthpieces were developed for players who use one rim but wish to change to different backbores and throats in different playing situations. A large cup and backbore maybe more appropriate for symphonic playing; a player can use the same rim with a more shallow cup and tighter backbore for jazz or lead work. Players should put a drop of valve oil on the threads every other week or so to keep the rim from locking to the cup.

A megatone mouthpiece is much like a standard mouthpiece but with a substantial amount of weight added to the body of the mouthpiece. The additional mass allows for louder volume with less distortion and adds warmth and darkness to the sound in all registers. A megatone mouthpiece is standardized with a larger throat.

The fluffy mouthpiece is a hybrid combining the cup of a flugelhorn mouthpiece with the rim and shank of a trumpet mouthpiece. This mouthpiece makes it easy to play with a warm, velvety sound perfect for quiet passages or lyrical solos.

Bent mouthpieces are useful for players who have such a severe under- or overbite that it cannot be corrected by pushing or pulling the bottom jaw. These players play with an acutely downward or upward slant to their trumpets. A manufacturer can bend the mouthpiece as much as 8-12 degrees to correct the trumpet's position without adversely affecting the pitch.

Mouthpiece Repair Tools

Although major repairs should be referred to a shop, a director can make life easier by having a few simple tools on hand. The occasional situation when a student gets his mouthpiece stuck in the receiver, a mouthpiece puller is essential and makes quick work of the situation. Do not ever use a wrench: both the mouthpiece and the leadpipe can be damaged, escalating an easy repair into an expensive soldering job.

A mouthpiece trueing tool is a must-have in case of a dropped mouthpiece. If the shank is dented, the trueing tool is inserted into the shank and twisted, returning the shank to its cylindrical shape.

If a mouthpiece is dropped and the shank dented, a trueing tool can be used to restore the shank's cylindrical shape.