# UNDERSTANDING CLARINET MOUTHPIECE FACINGS

**by Tom Ridenour**

Clarinet mouthpiece facings need not be complicated or confusing. The following remarks, though generalizations, should give the clarinetist adequate information to intelligently, objectively and confidently decide on what sort of facing style would be best for him or her. Before we proceed in discussing how mouthpiece facings work we need to bear two related facts in mind throughout the discussion. These are as follows:

1. The mouthpiece is a combination or "recipe" of all its' various aspects; facing, material, as well as interior and exterior design. These aspects can be discussed individually but are in reality interdependent, and when one aspect is changed the change effects all the others. Therefore:

2. It should be understood that any remarks about the effects of facings or facing changes on various playing properties of the mouthpiece are valid only if all other aspects of the mouthpiece remain the same.

The facing is made up of four parts.

1. The reed table, sometimes (optimistically) called the "flat table".
2. The two side rails
3. The tip rail
4. The resistance curve (terminating in the tip opening)

THE REED TABLE

There is some debate about whether the reed table should be completely flat, or whether it should have a concave area (as we find in Vandoren and many other machine faced mouthpieces). This is, as far as the author can discern, a rather subjective debate and there are claims on both sides of the argument for this, that or the other advantage. In reality, however, little can be proved conclusively and demonstrated consistently.

Certainly fine mouthpieces have been made both ways. However, the author believes that it can be said rather objectively that if a concavity must be put into the reed table that it should not be excessive; excessive being define as the concavity extending above the bottom of the mouthpiece window. Such an extension invites the reed to leak on the facing, and a reed leaking air on the facing has about the same effect of a pad leaking on the clarinet itself: a bad effect on virtually every aspect of sound and feel.

## THE RESISTANCE CURVE

The Resistance Curve is the term used for the curve which begins above the bottom of the window and terminates into the tip opening. The greater the arc of this curve the greater the resistance, the closer this curve is to a straight line the less the resistance.

The resistance curve is usually described in two parts: the tip opening and the length of the

curve. The length of the curve effects the reed like the fulcrum effects a diving board. The closer the fulcrum is to the pool end of the diving board the stiffer the board will be. The further away the fulcrum is from the pool end of the board the more flexible that same board will be. The point that is important to learn from this is that we can make the same diving board feel stiffer or more flexible by where we place the fulcrum point. From this we can analogously understand that shorter facing curves (beginning closer to the reed tip) will cause the reed to play stiffer. Conversely, longer facing curves (being further away from the reed tip) will cause the same reed to be more flexible and play softer.

## TIP OPENINGS

Obviously, the more open a mouthpiece is at the tip the greater the resistance it presents to and the more flexibility it demands from the reed. Therefore, two mouthpieces that are the same in every way except for the tip opening will cause the reed to feel very different in resistance. The more open tip will require a softer reed and the closer tip will require a harder, less flexible reed to create the same resistance and similar feel.

## THE EFFECTS OF COMBINING CURVES AND TIP OPENINGS

If we think about the above remarks it is easy to understand that longer curves combined with closer tip openings create less resistance than shorter curves combined with more open tips. Here then is what the formula might look like:

tip: open
curve length: short
resistance: high
reed requirement: softer reeds

tip: medium
curve length: medium
resistance: medium
reed requirement: medium

tip: close
curve length: long
reed requirement: harder reeds

As simple and perhaps generalized as this formula may seem, it is adequate to properly match up mouthpiece resistance and reed resistance for comfortable blowing resistance in the huge majority of cases.

## WHAT'S THE DIFFERENCE?

At this point one might ask if all these different resistance curves combined with the proper strength reed yield the same feel of comfort, what is the difference? The truth is, on a more subtle level, they yield very different results. These may be summarized in this way:

Low resistance (close/long) facings combined with harder reeds give the player more control, especially in the upper register, and create a darker tone.
High resistance (open/short) facings combined with softer reeds allow for more brightness in the tone and can perhaps be played a bit louder, but with a sacrifice of delicacy of articulation and control.

## RAIL THICKNESS

The thickness of the rails also has an effect on the response and tone. If rails are too thick the facing might play resistant-especially if the rail thickness is due to a small mouthpiece window. An excessively thick tip rail may make cause sluggish response, especially in the high register. However, a generous tip rail and side rails can damp the reed as it vibrates creating a darker tone with more fundamental. Thinner rails decrease resistance and increase highs. They can also make the tone brighter and louder, especially if the thinness is due in part to a very large window. On the negative side, excessively thin rails can be the source of chirps, whistles and squeaks.

## MOUTHPIECE WINDOW

The size of the mouthpiece window has a decided effect on resistance. Two mouthpieces which are the same in every other respect except the window will play very differently. The mouthpiece with the
larger window will blow more feely and will be able to play louder.

While a louder, freer blowing mouthpiece may be attractive to some an over sized window can yield too little resistance support, causing the tone to lack center and tend towards brightness.

One who plays such a mouthpiece and is sensitive to the tonal focus can't seem to find reeds hard enough. In this way he or she is always looking for reeds which will put back some of the core lacking in the sound due to the oversized window.

It is always good to keep in mind that most phenomenon contribute something good to the playing of the mouthpiece. It is only when one goes to extremes that negative effects begin to creep in. The window is a good example: The freedom it gives is good, but taken to an extreme it robs the mouthpiece of the "hold" or resistance needed to focus the tone and maintain the integrity of the tonal envelope (outer shape).

## ASYMMETRICAL FACINGS

Some mouthpieces have side rails which do not share the same curve. We refer to such facings as asymmetrical or crooked facings. Makers who make such facings are usually seeking to achieve something specific in tone color. While this feature might achieve the timberal goal in a limited area of the clarinet, achieving such a goal by means of facing askewity creates other problems, especially in the area response. Further, it should be understood that askew rails extend into the tip rail, causing the most open part of the tip to be off center. This profoundly affects tone color in the upper register negatively (causing a tendency towards excessive thinness and brightness), makes upper register response

unpredictable, insecure and undependable, as well as makes properly balancing reeds much more difficult than it ought to be.

Askew or crooked facings are not recommended for they are commonly either a major contributing factor to, or the root cause itself of the following playing problems:

1. Force the habit of biting (upward jaw pressure) in order to begin, control, center, or clarify the tone, especially at softer dynamics.

2.Cause difficulty in finding good reeds, make reed balance precarious and, depending on the degree or severity of askewity, can totally frustrate the reed balancing process altogether.

3.Cause insecurity and unevenness in slurring or playing attacks in the third register or upper clarion, especially at softer dynamic levels.

4. Make playing the full dynamic range of the clarinet with an even tone color difficult, causing breathiness in the tone to be a chronic tendency, especially at softer dynamic levels.

5. Make the tone difficult to center, especially at softer dynamic levels.

6. Cause an inordinate degree of embouchure/air pressure exchange to achieve the full dynamic and pitch range of the clarinet.

7.Cause a tendency for brightness and edge in upper register tones.

8.Cause a perpetual feeling of stuffiness in many cases even when softer reeds are used.

For these and other reasons asymmetry in facings ought to be avoided. In this authors opinion, asymmetry is a Lorelei that tempts many and shipwrecks not a few. What it seeks to create in tone color can be achieved better in other ways without the unacceptable sacrifice of response and "reed friendliness." No essential musical phenomenon should ever be compromised or sacrificed for the sake of another. The greatest opportunity the player or the mouthpiece maker has to do selective damping to darken the tone is the reed itself. Askew rails as a solution to tonal brightness is no solution at all because of the whole array of other problems such a "solution" creates.

## CONCLUSION

This, in brief, is the essential information concerning mouthpiece facings. The mouthpiece world is one of confusion for many clarinetists, with claims and counter claims, and of course, the mystique of certain brands or "mouthpiece legends" thrown. The clarinetist's sure defense against all of this, is objective knowledge---there is no substitute for it. Such knowledge applied through experience and artistic discernment will reduce frustrations and help insure the acquisition of equipment which will satisfy both his

or her technical and musical needs.

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