

### Part 3 –For improvements of your performance–

This part introduces some know-hows based on exchanges with many top-name players in the world. These know-hows would be some help for improving performances from beginners to advanced players.

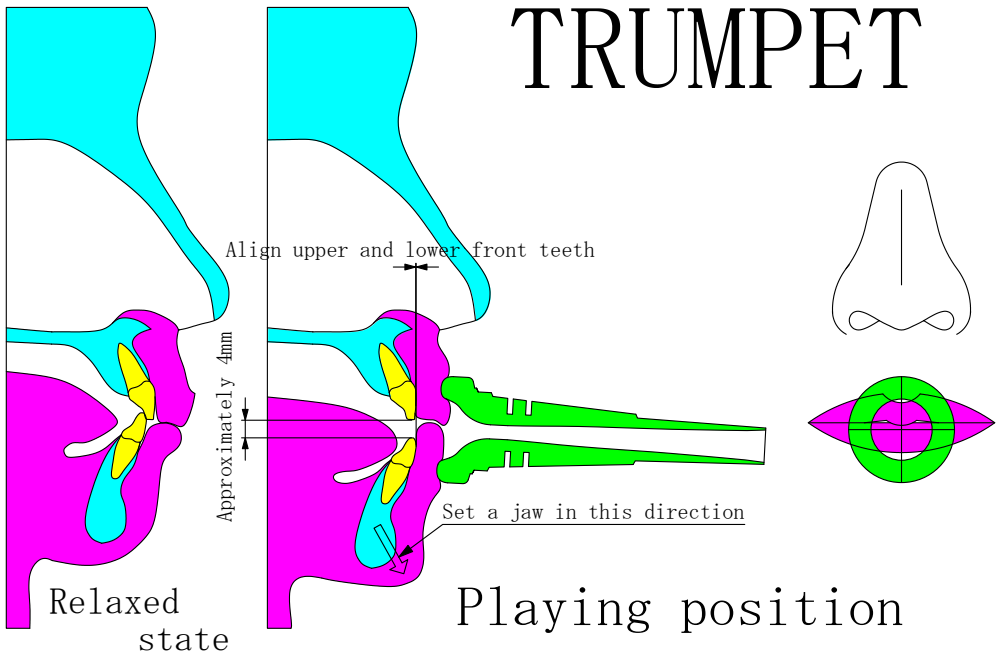
#### I : Embouchure and where mouthpieces are set

A standard embouchure of professional players and the settings of a mouthpiece are shown as the illustrations. It is important not to completely close lips and to focus on a little clearance between lips when you set embouchure. With focusing on it, you will be able to earn a moderate aperture.

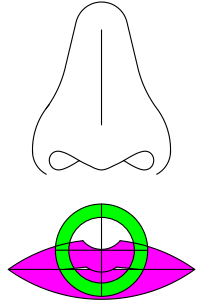
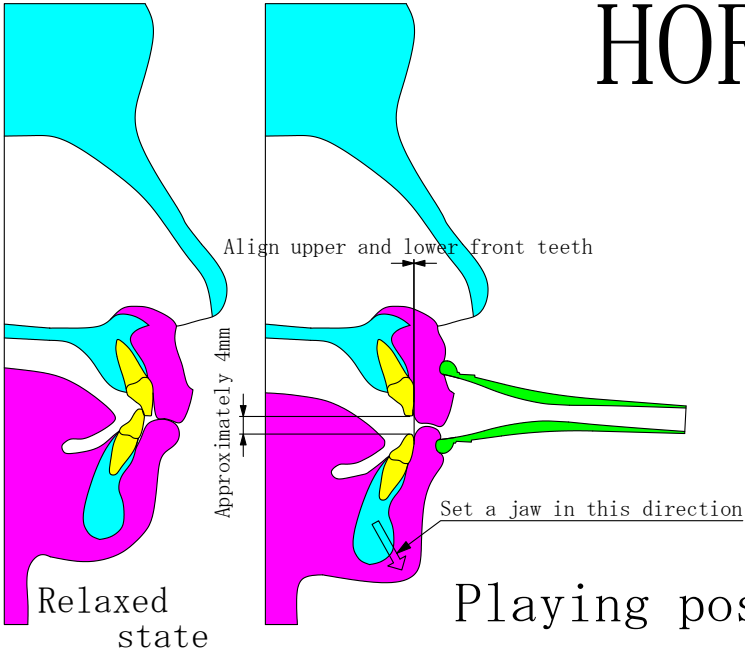
It can be similarly seen that most of professional players align their upper and lower front teeth when they set embouchure. The upper and lower front teeth are separated for approximately 4mm(Trumpeter and Hornist) or 6mm(Trombonist) at the moment.

It is notable that where a mouthpiece is set is variable depending on instruments. Trumpeters set a mouthpiece little low against a center of their lips, and trombonists set a mouthpiece little up. Hornists' setting is unique. It would be easy to understand the setting by imagining the state that a mouthpiece is on the red part of lower lip. Those proper settings above should produce an efficient vibration of the lips. Upper lip mainly vibrates to produce sound, and lower lip works as a wall for supporting the vibration.

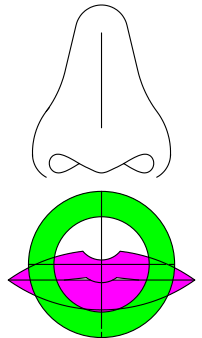
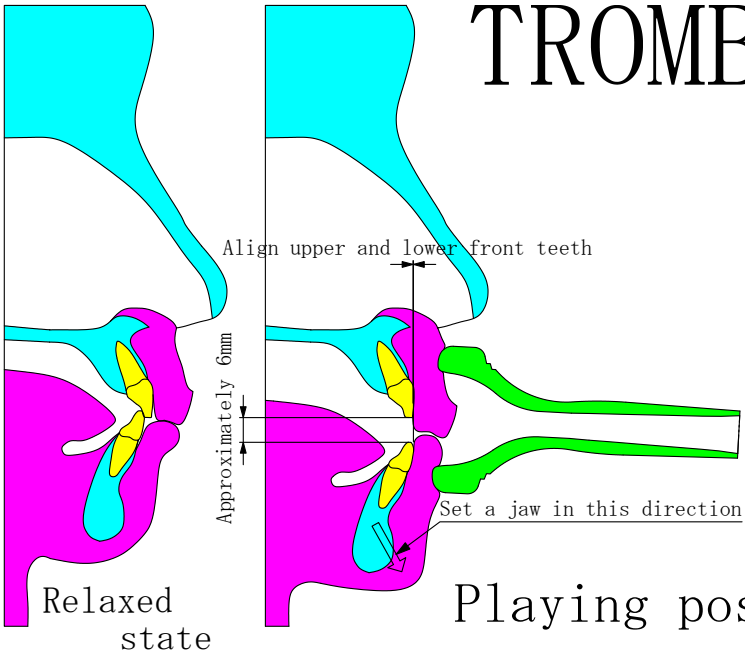
One more thing, it is also very important to control breath speed and direction by tongue, which is quote-unquote “Syllable”. Syllable is something like how to use tongue of whistling, and it is rather more worth to master syllable than to dwell on embouchure. How to whistle gives a good reference because the how the breath is done and how to use muscles for supporting lung are same as brass instrument's performance.



# HORN



# TROMBONE



## II: Principle of producing sounds

Brass instruments usually produce sound by blowing breath, but taking in breath can also produce sound. It means sound of brass instruments comes from vibrations of lips. Brass instruments are designed to resonate at the overtone like C-G-C-E-G-C. So, lips can sympathetically vibrate with the overtones' frequencies. That is why you can play instruments. A small area at center of upper lip quickly vibrates when high registers are played, and a large area of upper lip slowly vibrates when low registers are played. The amplitude become large with fortissimo sound and become small with pianissimo sound.

## III: Obtain a dignified and rich sound

Professional players can take lots of air into their lung and keep a pressure constant by bearing the lung with using body muscles. Then, they raise the pressure of inside mouth by tensing an abdominal and a back muscle (especially where thumb touch when you put your hand on your flank). The raise of pressure opens upper lip, and air leak from the open space. At the time, upper lip receive a pressure that close the lip from mouthpiece's cup, and upper lip repeat the open-close movement.

Players who produce a dignified and rich sound are often elected as the most important player in orchestra or as a lead trumpeter in a big band. It would be the most important to produce dignified and rich sound with lung firmly supported by body muscles. Of course, it is also required to listen to many types of music and clarify your ideal tone by yourself. It is true that a sound and tone in your head become the sound from your instrument.

### Trumpet overtones

Trumpet in B<sup>b</sup>

The image shows a musical staff for a trumpet in B<sup>b</sup>, illustrating the first 20 overtones. The notes are written on a single staff with a treble clef. The notes are: 2 (C), 3 (G), 4 (C), 5 (E), 6 (G), 7 (B<sup>b</sup>), 8 (C), 9 (D), 10 (E), 11 (F<sup>#</sup>), 12 (G), 13 (A), 14 (B<sup>b</sup>), 15 (C), 16 (D), 17 (E), 18 (F<sup>#</sup>), 19 (G), and 20 (A). The notes are written as quarter notes. Below the staff, the numbers 2 through 20 are written under each corresponding note. The staff is part of a grand staff with a bass clef on the left, but no notes are written in the bass clef.

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