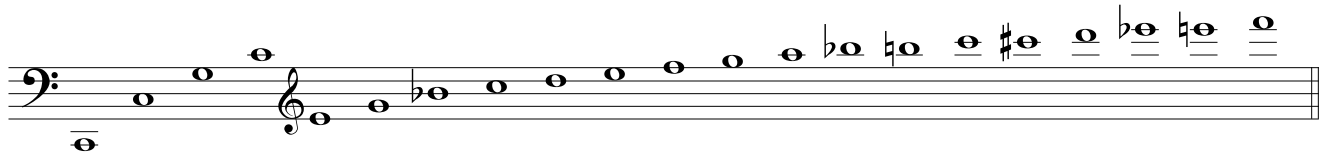
ASU - Instrumentation/Arranging
Fall 1999
Dr. Crist

Brass Generalities

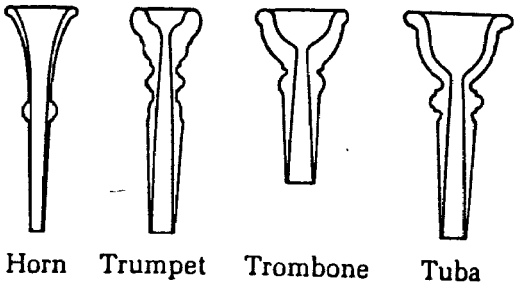
THE HARMONIC SERIES



All brass instruments are capable of playing the harmonic series. Any pitch in the harmonic series may be isolated by a combination of embouchure and breath control. Most players cannot produce pitches above the sixteenth partial. the fundamental, the lowest pitch in the series is also difficult or impossible to produce. In addition, many of the partials are out of tune and require the player to adjust the pitch with the emboucher.

MOUTHPIECES

The shallower the depth of the "cup" of the mouthpiece the lower is the register of the instrument. Tuba mouthpieces have very deep cups while trumpet mouthpieces are more shallow.



SCORE ORDER

Orchestral Score Order:

F Horns
Bb Trumpets
Trombones
Tuba

Band Score Order:

Bb Trumpets (cornets)
F Horns
Trombones
Euphonium (baritone)
Tuba

APPROACH TO HIGH NOTES

High notes should be prepared in one of the four following ways. They are listed in order from most preferred to least preferred:

(1) By Scale Motion
(2) Arpeggio on an "Easy" Interval
(3) By large Leap
(4) Initial Attacks.

TONE PRODUCTION

Brass instruments produce sound through the following means:
embouchure -- mouthpiece -- bore -- air -- listener

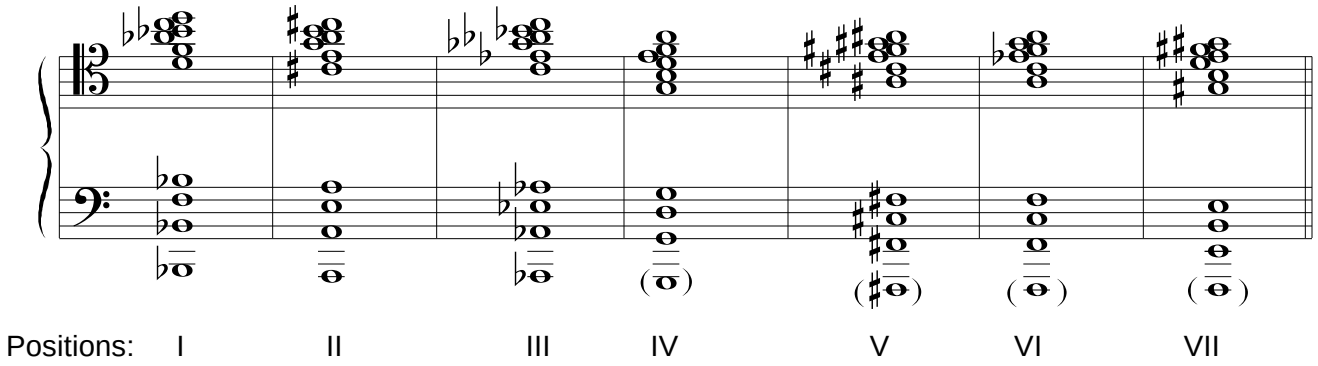
Embouchure : The players lips are loose when playing low pitches, tight when playing high pitches.

MUTES

All brass instruments are capable of using a mute. A mute will not only soften the sound but also alter the timbre of the sound. The trumpet and trombone are capable of using a lot of differnts mutes. The horn and the tuba, however, have only one that is practical. The mutes for the trumpet and trombone are briefly described below:

(1) Straight mute - The mute by default. May be made out of fiber or metal. The metal kind produces much more of an edge.
(2) Cup mute - Made of fiber and produces a muffled, ghost-like tone.
(3) Harmon mute - Made of metal. The tone is penetrating with a shimmer. A "stem" appears at the end which can be used to further adjust the tone.
(4) Whispa mute - Fiber material. Produces a very soft tone.
(5) Solotone mute - Fiber material. Produces a nasal tone.
(6) Plunger - Wa-Wa. Hand over the bell will produce a similar but less obvious effect.

THE TENOR TROMBONE SLIDE



Above are the seven slide positions on the trombone. For each position there is a complete harmonic series avilable. One may think of the slide as a means of producing seven differnet transpositions of the harmonic series. First position is when the slide is all the way in. Seventh position is when the slide is all the way out. If any given partial is followed from first to seventh position, a chromatic scale fragment is produced. For instance, the third partial in first position is F. The third partial in second position is E. The third partial in third position is Eb, and so on. First position to seventh position spans the interval of a tritone.

Notice that while there are alternate positions for some of the higher notes, there is only one position to play certain lower notes. For example, the second partial E in seventh position is not only available in any of the other positions. In other words, take some care in writing for the trombone in the low register.

The fundamentals of each position are referred to by trombonists as pedal notes. The pedal notes are usable through third position. From fourth to seventh position, the pedal notes become difficult to control.

The tenor trombone may include two attachments. The first, an E trigger, allows the B1 to be played by extending the tubing of the instrument enough to create the lower pitch. The second, the F attachment, lowers all pitches a perfect fourth while it is being depressed. In this respect, the trombone may be referred to as a "double instrument."