

The following flute manufacturers have a reputation for making quality instruments and are recommended for consideration:

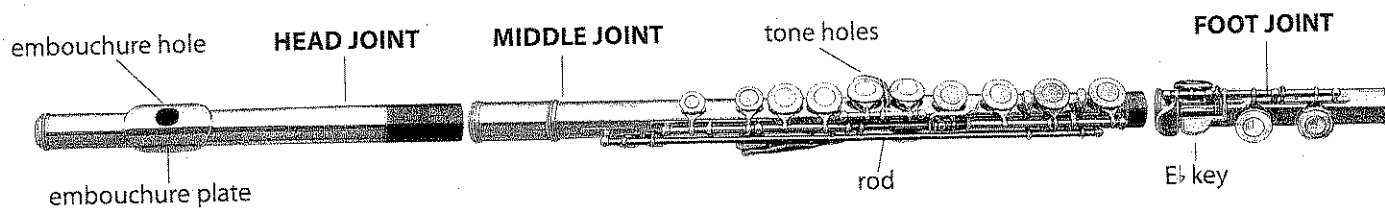
Armstrong
Artley
Bundy
Emerson
Gemeinhardt
Haynes (professional)
Muramatsu (professional)
Powell (professional)
Yamaha

The student should include his or her teacher or another expert in the process of buying a flute. It is very important to include the advice of a flute professional when considering the purchase of a flute.

Selecting Players

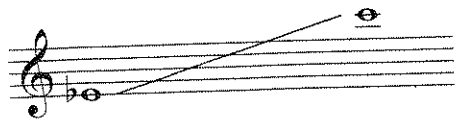
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1. Arms are long enough to hold the flute to the mouth and still cover keys correctly.
2. Upper lip characteristics are conducive to proper embouchure. (A short upper lip or a bead of skin in the center of the upper lip tends to make it difficult to form a good embouchure.)
3. Closed teeth meet evenly.
4. A clear tone is easily produced on the head joint.
5. Eye-hand coordination is good.
6. Reading skills are above average.
7. Work habits are strong and achievement is high.

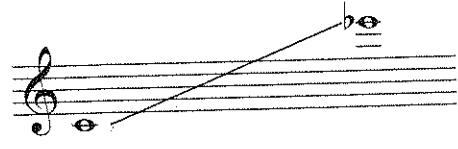


Playing Ranges

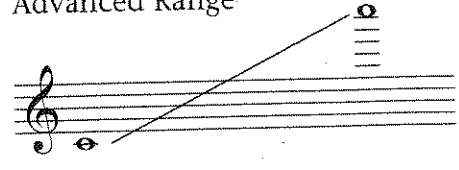
Beginning Range



Intermediate Range



Advanced Range



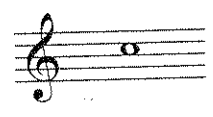
Transposition

C Flute

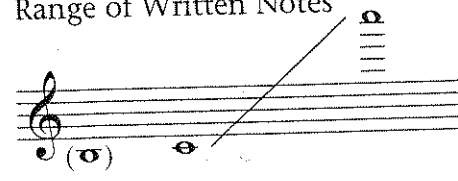
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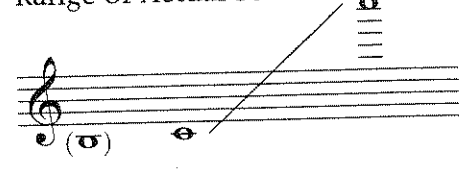
Sounds



Range of Written Notes



Range of Actual Sounds

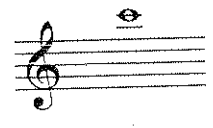


C Piccolo

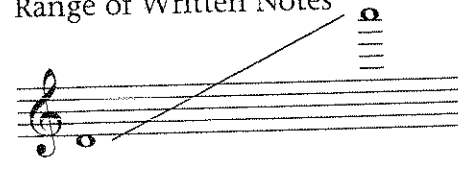
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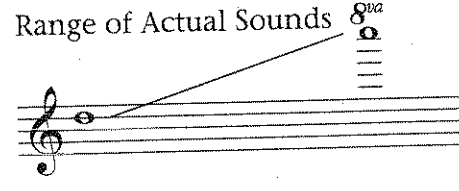
Sounds



Range of Written Notes



Range of Actual Sounds



Alto Flute in G

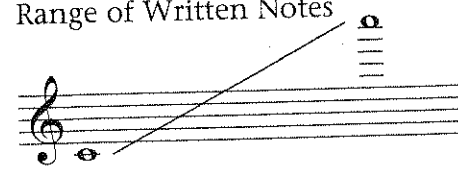
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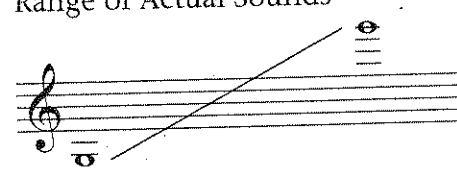
Sounds



Range of Written Notes



Range of Actual Sounds

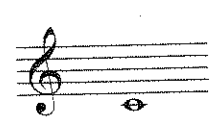


Bass Flute in C

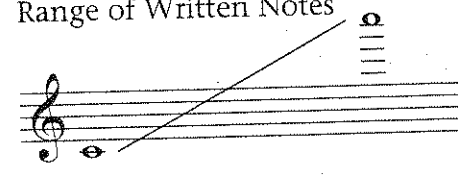
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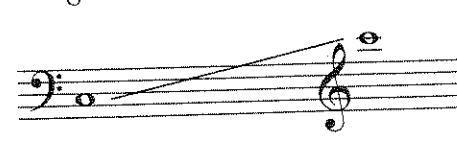
Sounds



Range of Written Notes



Range of Actual Sounds



Correcting the Embouchure

If too little of the embouchure hole is covered, the tone will be breathy and require more air. If the lips are too tight and too far away from the hole, the air striking the sides of the aperture will cause extraneous vibration in the upper lip. The air column may not be focused, resulting in a thin tone with poor intonation. To improve focus, the student should cover more of the embouchure hole with the lip and attempt to direct more air into the flute while not changing the hand position.

If too much of the embouchure hole is covered, the tone will be small and thin, there will be a limited response, legato playing will be more difficult, dynamic range will be limited, and flexibility impaired. To correct this, the student should direct the airstream out across the hole (which may require pushing the jaw forward).

Variations in facial structure that affect the embouchure follow:

1. A relaxed or receding jaw results in a spread, unfocused tone. To correct, the student should bring the lower lip out or turn up the corners of the mouth.
2. A protruding jaw may produce a breathy tone or no tone at all. To correct, roll the head joint in more.
3. An overhanging upper lip may cause the mouth opening to be too wide and the lower lip to cover too much of the hole, letting air strike the sides of the embouchure. Use the same solution as for a receding jaw.
4. Thick lips will need to be compensated for by placing the flute higher onto the pink portion of the lower lip.
5. A slight dip in the center of the upper lip can be accommodated by keeping it raised and supported by the upper teeth. The student with a very pronounced dip may meet with some success by playing off center; the aperture of the embouchure, however, should be centered on the embouchure hole. Students with the infamous "cupid's bow," or "teardrop lip," however, will more likely be successful on another instrument (see Figure 11-6).



Figure 11-6 Split Vapor Trail Due to Cupid's Bow

INTONATION

Flute players are notorious for their intonation problems. Because the instrument's range is in the upper register of the grand staff (see Figure 11-7), the wavelengths are shorter and pitch variations among players cause interference between the close sound waves. The points of interference occur two, three, or four times per second faster than for other instruments and are more easily heard. The result is therefore considerably more annoying than when four tuba players play slightly out of tune.

Generally, the flute has these intonation problems: the low register is flat, the middle register is in tune, and the upper register is sharp. Both middle and upper registers, however, change with the volume—flatter when soft and sharper when loud. The flute player deals with pitch by applying two principles: (1) covering the embouchure hole or directing more of the air into the instrument, which lowers the pitch; and (2) uncovering the embouchure hole or blowing more air across the instrument, which raises the pitch. These two procedures are explained to students in a variety of ways, including "raising or lowering the head" (which can affect the airstream), directing the air "at the wall or at the floor" (keeping the head erect), and the most common, "rolling the flute in and out" (which usually results in poor hand position and should be avoided). The best is to encourage students to "direct the air to the floor or wall."

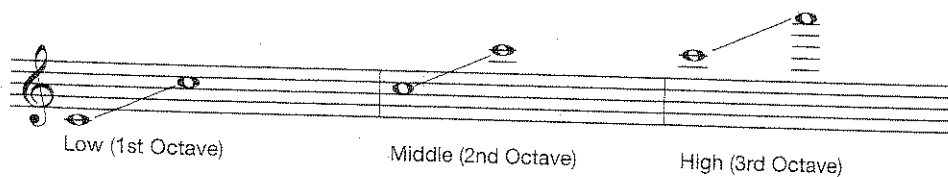


Figure 11-7 The Three Registers (or Octaves) of the Flute

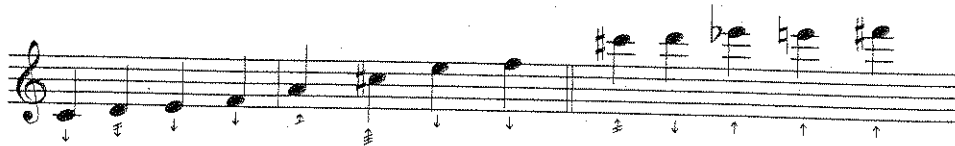


Figure 11-8 Intonation Characteristics of the Flute—Arrows Indicate Pitch Tendencies (hash marks indicate degree of tendency)

Intonation with beginning players is related to the lack of proper air support. When more air is used, the note pops up to the next octave due to immature embouchure formation, not intonation. Proper air support in the low register is difficult until a student develops better control over the embouchure muscles.

The flute tends to play flat in cold temperatures. The instrument should be thoroughly warmed before tuning by gently blowing air into the instrument with all keys closed. The flute can cool down so quickly that flutists need to warm it by blowing warm air into it prior to making an entrance after long rests.

The A or F without vibrato are good tuning notes, but one well-tuned pitch does not ensure correct intonation on all notes. Particular tones on the flute have their own intonation problems, as shown in Figure 11-8. The biggest offender is the C[#] in the staff and, to a slightly lesser extent, the C[#] above the staff. To bring the pitch down, add one to three right-hand fingers starting with D key and moving up toward the F key. To correct sharpness, the player must lower the jaw very slightly to direct the air more into the embouchure hole. The F is usually tested after tuning, as it is often flat. If higher notes sound flat in relation to lower notes, the cork (the stopper at the end of the head joint) is too far from the embouchure hole and needs adjusting.

Flute players have a tendency to go flat at the ends of phrases and sustained notes because the breath support diminishes. To counteract the sagging pitch on diminuendos, players can direct the airstream up and protrude the jaw at the end of a note.

The greatest flutists disagree about whether the flute goes sharp or flat as the volume increases. When other factors are held constant, an increase in volume raises the pitch, but seldom are all other factors held constant. The player usually tightens the embouchure when the volume is increased to prevent the flute from skipping to the next octave higher, focusing the airstream more directly into the flute and lowering the head to compensate for the increased volume. As the air pressure builds, the pitch rises, and the player must blow more directly into the tone hole to compensate for the higher pitch. Some flutists drop the lower jaw rather than lowering the head. To keep forte playing from being sharp, the player needs to open or relax the throat, lips, or jaw. Blowing the air in an arc that follows the contour of the mouth and is aimed at the outer edge of the embouchure hole will help maintain an open throat and mouth. In soft playing, the lips must be stretched to raise the pitch.

The cork, at the end of the head joint, determines the intonation within the flute itself. Most of today's student-line instruments have replaced the cork with a synthetic material. The cork should not be tampered with once it is set, as moving it makes the pitch at both extremes harder to control. Adjustments are made only when necessary and then by a repairperson who unscrews the crown cap and moves the cork to the proper position. The possibility of adjustment is best kept a closely guarded secret from beginners and their parents.

In summary, to lower pitch on the flute:

1. Direct the airstream more into the flute.
2. Cover more of the embouchure hole with the lower lip.
3. Drop the lower jaw or lower the head.
4. Pull the corners of the mouth back and down slightly.
5. Roll the flute inward.

To raise pitch on the flute, do the opposite.

TONE QUALITY

A good sound should always be the primary consideration of any performing musician—especially flute players, who play in the upper registers of bands and orchestras and are easily heard. Good tone is dependent on (1) a good instrument; (2) proper breathing and air support; (3) good posture; and (4) correct embouchure formation. It also requires a solid

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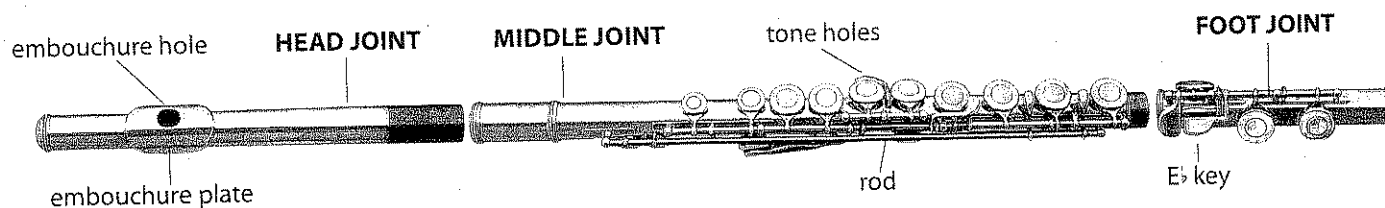
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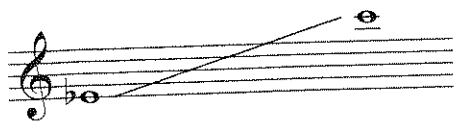
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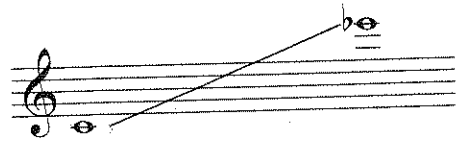


Playing Ranges

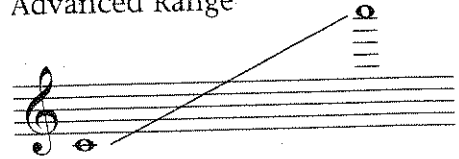
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Advanced Range



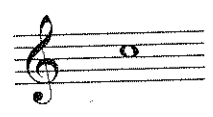
Transposition

C Flute

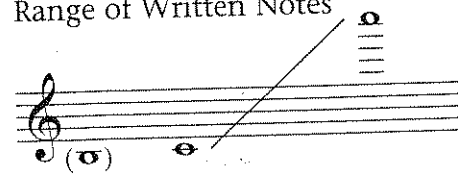
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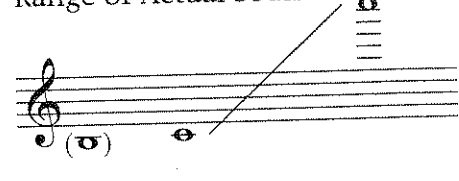
Sounds



Range of Written Notes



Range of Actual Sounds

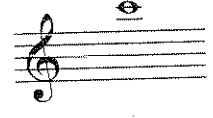


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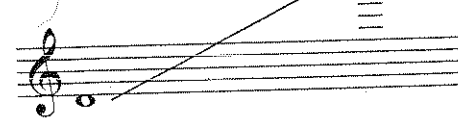
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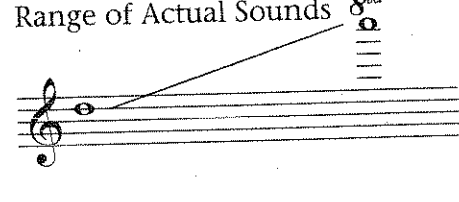
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Range of Actual Sounds

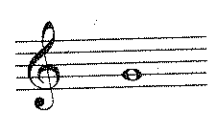


Alto Flute in G

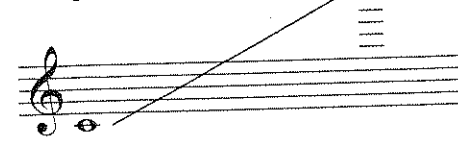
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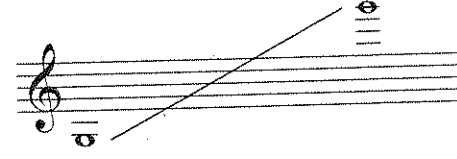
Sounds



Range of Written Notes

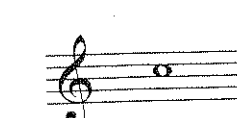


Range of Actual Sounds



Bass Flute in C

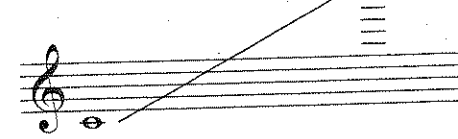
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Sounds



Range of Written Notes



Range of Actual Sounds



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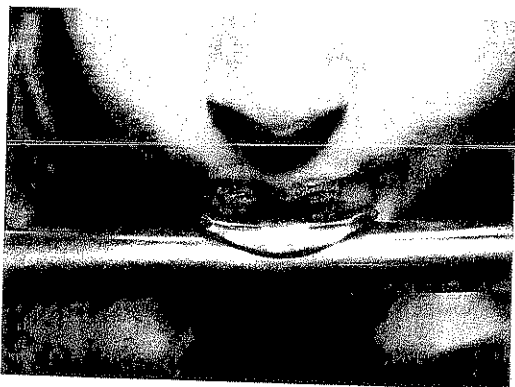


Figure 11-6 Split Vapor Trail Due to Cupid's Bow

INTONATION

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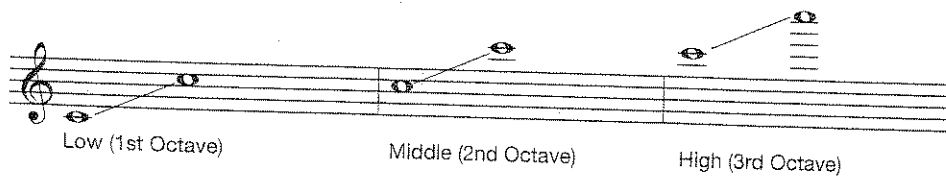
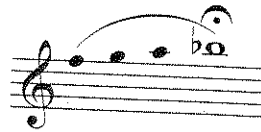


Figure 11-7 The Three Registers (or Octaves) of the Flute

Tuning the Flute

Make certain that the instrument is warm before attempting to tune it. The only place where the instrument is adjusted is where the head joint is connected to the middle joint. Most flutes are designed so that the head joint should be pulled out 1/8 inch to 1/4 inch from the middle joint to play in tune. If the pitch is flat, push in the head joint until the desired pitch is achieved. If the pitch is flat even when the head joint is pushed all the way in, the problem is either in the adjustment of the head joint cork (see page 71: *Head Joint Cork Adjustment*) or the embouchure. After making certain that the head joint cork is adjusted properly, have the student roll the flute out thus covering less of the embouchure hole with their lower lip. If the pitch is sharp, the head joint may need to be pulled out. Under no circumstances should the head joint be pulled out more than 3/8 inch to lower the pitch, because if this is done, it will be impossible for the instrument to play in tune with itself.

After making certain that the student is playing with a good tone, the student should slur up to the tuning note to find the most accurate well-centered pitch.



- If sharp, pull out the head joint (no more than 3/8 inch) or adjust the embouchure to cover more of the embouchure hole with the lower lip by rolling in the flute.
- If flat, push in the head joint. If still flat after the head joint is pushed all the way in, adjust the embouchure to cover less of the embouchure hole with the lower lip by rolling the flute out.

It is common for young flutists to play flat at the end of a phrase. This is especially true when playing softly. To provide a remedy to this problem, the flutist should raise his or her head (looking up) to keep from sounding flat at the end of the phrase.

Playing Position and Its Effect on Intonation

It's important to restate that the flutist's lips must be perfectly parallel to the embouchure plate in order to produce the best possible tone and best intonation.

Slouching or any posture that inhibits the flutist from playing with good breath support will cause the pitch to be flat.

Dynamics and Their Effect on Intonation

Unlike some other wind instruments, the loudness and softness, or dynamics, of the flute sound are controlled by the air speed. In general, the faster the air speed, the sharper the pitch, and the slower the air speed, the flatter the pitch. To compensate for this, when slower air speed is required, such as in a diminuendo or soft passages, the air stream should be directed more across the embouchure hole by a forward movement of the lips and jaw. Conversely, when playing a crescendo or loud passages, the air stream should be directed more into the embouchure hole.

orchestras use a^1 . Neither of these notes is especially stable, particularly with younger players. Often, flutists tune b^1 or b^1 with a full tone and are told that they are sharp; when they return to playing with the ensemble and are asked to play more quietly, however, they play flat. The notes d^2 or f^2 seem, at first, to provide the most reliable and stable guide to general intonation level.

Using the overtone series as a basis, most musicians agree that higher notes should be tuned to lower ones. Since the flute serves as the soprano voice of almost every ensemble in which it participates, it holds an unenviable responsibility of adjusting to the pitches provided by lower instruments. To be able to make satisfactory adjustments, the flutist must develop a sensitive ear as well as become intricately aware of the flute's intonation idiosyncrasies. Most flutes adhere to the intonation tendencies shown in Figure 13.11 when at a medium dynamic level without any compensation for pitch.

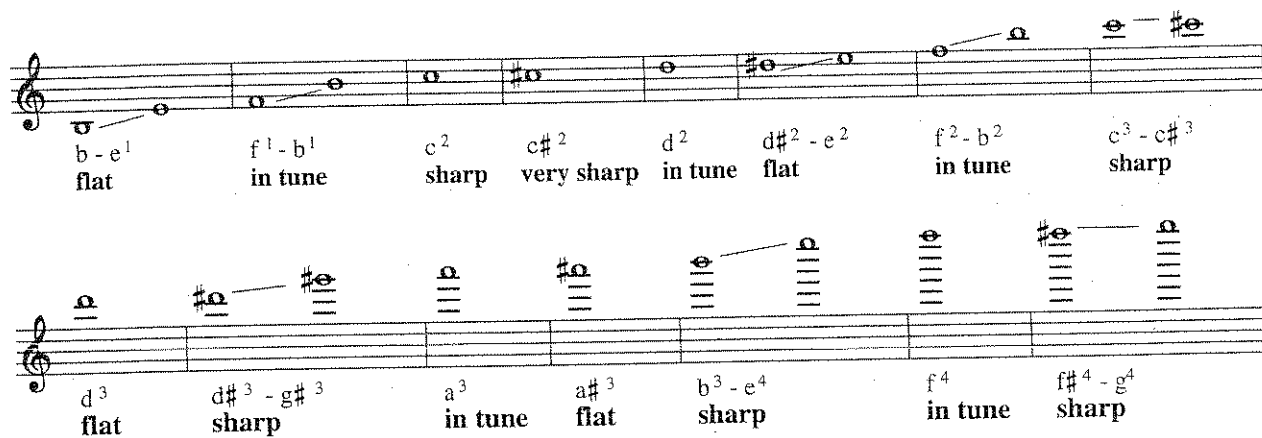


Figure 13.11. General intonation tendencies

Vibrato

Vibrato is an even fluctuation in the intensity of the air column. With proper control and good taste, it is ideally used to ornament, color, or add direction to the musical line. It should be introduced to the student when the tone in the first three registers is fairly stable. Beginning vibrato at an early stage of development also assists in further enhancing the tone. The teacher must be aware, however, that vibrato is the "icing on the cake," not the essence of the sound. It should never be allowed to compensate for or disguise faulty intonation, lack of support, or poor tone.

The first step in learning vibrato is to add pulses of intensity (usually four to six per second) to the otherwise steady airstream. Good breath support, a well-formed embouchure, and an open throat are essential. The precise muscular involvement necessary to produce vibrato has been and continues to be debated greatly. Some insist that only diaphragmatically initiated pulsations should be used, while others recommend the muscles of the throat. In truth, careful examination shows that both areas are used. The throat more easily produces narrower and faster pulses, while diaphragmatically produced vibrato is wider and slower. While the student should focus on the diaphragm area at first to avoid throat tension, the ulti-

Tone Production Problems and Remedies

Sound Produced	Causes of Problem	Remedies
1. Hollow tone	lack of sufficient air speed aperture too large air is going across hole	improve breathing reshape embouchure to be more elliptical blow more into hole
2. Shrill tone	blowing too hard weak embouchure lack of proper support	blow less hard develop better embouchure increase support
3. Airy tone	insufficient air speed head joint and lips not parallel to each other embouchure hole not aligned with aperture	improve breathing make lips and head joint parallel align embouchure hole with aperture in lips
4. Flat pitch	cork in head joint not adjusted properly covering too much of embouchure hole	adjust cork (see page 71: <i>Head Joint Cork Adjustment</i>) roll head joint out, raise head slightly
5. Sharp pitch	cork in head joint not adjusted properly covering too little of embouchure hole	adjust cork (see page 71: <i>Head Joint Cork Adjustment</i>) roll head joint in, lower head slightly
6. Lack of clean attack	not tonguing properly	review tonguing technique (see page 73: <i>Tonguing/Articulation</i>)
7. Harsh attack	tongue action too hard	lighten tongue action, review tonguing technique (see page 73: <i>Tonguing/Articulation</i>)

