

Care and Maintenance

The flute, though relatively reliable and sturdy, requires special care to keep the instrument in good playing condition. Light finger pressure should be used in depressing the keys in performance; not only is wear and tear of the pads thus minimized, but technical efficiency is more easily attainable as well. The most critical aspect of flute care is keeping the instrument as free of moisture as possible. The interior of the flute should be swabbed with a soft, absorbent cloth threaded through the eye of the cleaning rod. The cloth should be wrapped around the rod to avoid scratching the inside of the tube (see Fig. 12.6). To avoid saturating the cloth immediately, the foot joint can be swabbed first, followed by the body and finally the head joint. Wiping off fingerprints and general grime from the exterior of the flute should follow; the sockets and tenons should be included. Circular motions used to clean the keys are to be avoided; they can loosen the delicate regulation of the mechanism. When finished, never leave the cleaning cloth or swabs inside the case; doing so defeats the purpose of keeping moisture away from the pads and mechanism.

Never attempt to clean the flute with metal polish; even the slightest contact with the pads or the inner mechanism can cause serious damage. Although the development of tarnish is inevitable, it will not damage the

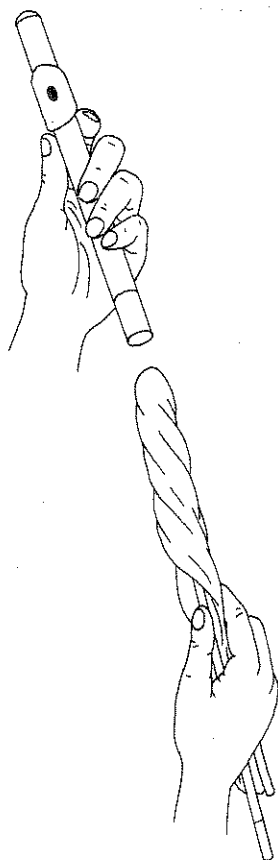


Figure 12.6. Swabbing condensation from the flute. The cloth is inserted through the eye and then wrapped around the rod to avoid scratching the inside of the flute tube.

instrument. If the flutist desires, a competent repairman can remove tarnish during routine service, but one must be aware that small amounts of silver are also taken off each time the tarnish is removed. The buildup of tarnish can be retarded by the use of a commercially available treated cloth or by the use of a small amount of denatured alcohol placed on a clean cloth; care should be taken to avoid pad edges when cleaning the instrument with these chemically treated or alcohol dampened cloths.

Occasionally the placement of the cork stopper position in the head joint should be checked by gently inserting the scored end of the cleaning rod into the head joint. This mark should line up exactly in the middle of the embouchure hole. If necessary, the cork can be adjusted by screwing and unscrewing the crown or cap at the end of the head joint. The position of the stopper, seventeen millimeters from the exact center of the embouchure hole, determines whether or not the flute will play in tune with itself. Once it is set, it should not be moved, and the stopper should never be used to make the flute generally sharper or flatter. If the cork becomes loose, it should first be removed by pushing it out toward the open end to prevent cork damage, since this end of the head joint is larger. The cork can be temporarily swelled by dipping it in boiling water, and soon thereafter it should be replaced by a competent repairman.

A variety of tools can be useful for maintenance and minor repairs. Jeweler's screwdrivers are invaluable for adjusting the screws that, on most student model instruments, fine-tune the action of keys that are coupled; it is wise to observe how these work so minor adjustments can be made. A small amount of white glue or fingernail polish can be applied to the top of pivot screws that frequently come loose. Springs can be returned to their carriages with a crochet hook. Pipe cleaners are useful for cleaning out the insides of rods.

A flame from a Bunsen burner or a lighted match can be used to reseal pads not held by a screw: heat the silver side of the pad cup and then apply gentle but steady pressure to the key until cool. Sticking pads are usually caused by moisture, and this problem can be remedied by placing an absorbent cloth or ungummed cigarette paper under the pad, applying light pressure, and gently drawing out the cloth or paper. In extreme cases, denatured alcohol applied to the cloth or paper will work; however, repeated applications will dry out the pads and cause them to tear or crack.

A small paintbrush is beneficial for removing dust and lint from inaccessible areas of the flute; dust and lint, which can work their way into the mechanism, should also be removed from the inside of the case. Additionally, it is a good idea to keep the case closed even when the flute is in use. Rubber bands and cellophane tape can come in handy in emergency situations to remedy such things as broken springs and loose tenon adjustments. Oiling the flute should be avoided. Sluggishness is often caused by dirt in the mechanism, and oil placed on the exterior pivot points attracts dirt. Springs should never be tightened to compensate for sluggish action.

Major repairs such as realigning bent posts and replacing pads should not be attempted by novices; instead, a competent repairman should routinely clean, oil, and adjust the mechanism at least once a year to keep the flute in good working order. Complete overhauls include replacing the pads, corks, and felts, as well as cleaning, oiling, and adjusting. The need for overhauling varies from person to person and is based on a variety of factors including the amount of playing, finger pressure, abuse, and neglect.

Exercising common sense can prolong the life of the flute. General suggestions for sanitation include occasionally bathing the head joint in warm soapy water followed by a thorough rinse. Brushing the teeth—or at least rinsing the mouth with water—after eating and before playing will help prevent deterioration of the pads from food acids and thereby avert costly overhauls. For the same reason, the flute should not be set down on its keys; they can become bent, and condensation can run onto and facilitate decaying of the pads. Even holding the flute vertically as opposed to horizontally when resting can channel some of the moisture out the end of the foot joint and prolong the life of pads. Another way to avoid expensive repair bills is to follow the rule that a flute never be left out of its case sitting on a chair or music stand awaiting someone to come along and accidentally kick, bump, or sit on the instrument.

The quality of the flute case and the protection it affords should also be evaluated. A case should hold its flute securely and motionlessly; a flute that rattles in its case is asking for adjustment problems. Latches should be in working order. Probably the most practical and secure way of carrying the instrument is in a commercially available case cover. Not only do such covers provide additional protection, but they also serve as excellent spaces to store saturated swabs and potentially damaging metal cleaning rods.

Notes

1. Nancy Toff, *The Development of the Modern Flute* (New York: Taplinger, 1979), 12.
2. Andrew Fairley, *Flutes, Flautists, and Makers* (London: Pan Educational Music, 1982), 13.
3. Howard Mayer Brown, "Flute," in *The New Grove Dictionary of Music and Musicians* (London: Macmillan, 1980), 6:676.
4. Sibyl Marcuse, *Survey of Musical Instruments* (New York: Harper and Row, 1975), 189.
5. Theobald Boehm, *The Flute and Flute Playing*, 1872 (Trans. and rev. Dayton C. Miller. 2d ed. 1992. Reprint. New York: Dover, 1964), 16.
6. Johann Burnau, "The Life of Theobald Boehm," *The Instrumentalist* 21 (1967): 58.
7. Boehm, *The Flute and Flute Playing*, 69.

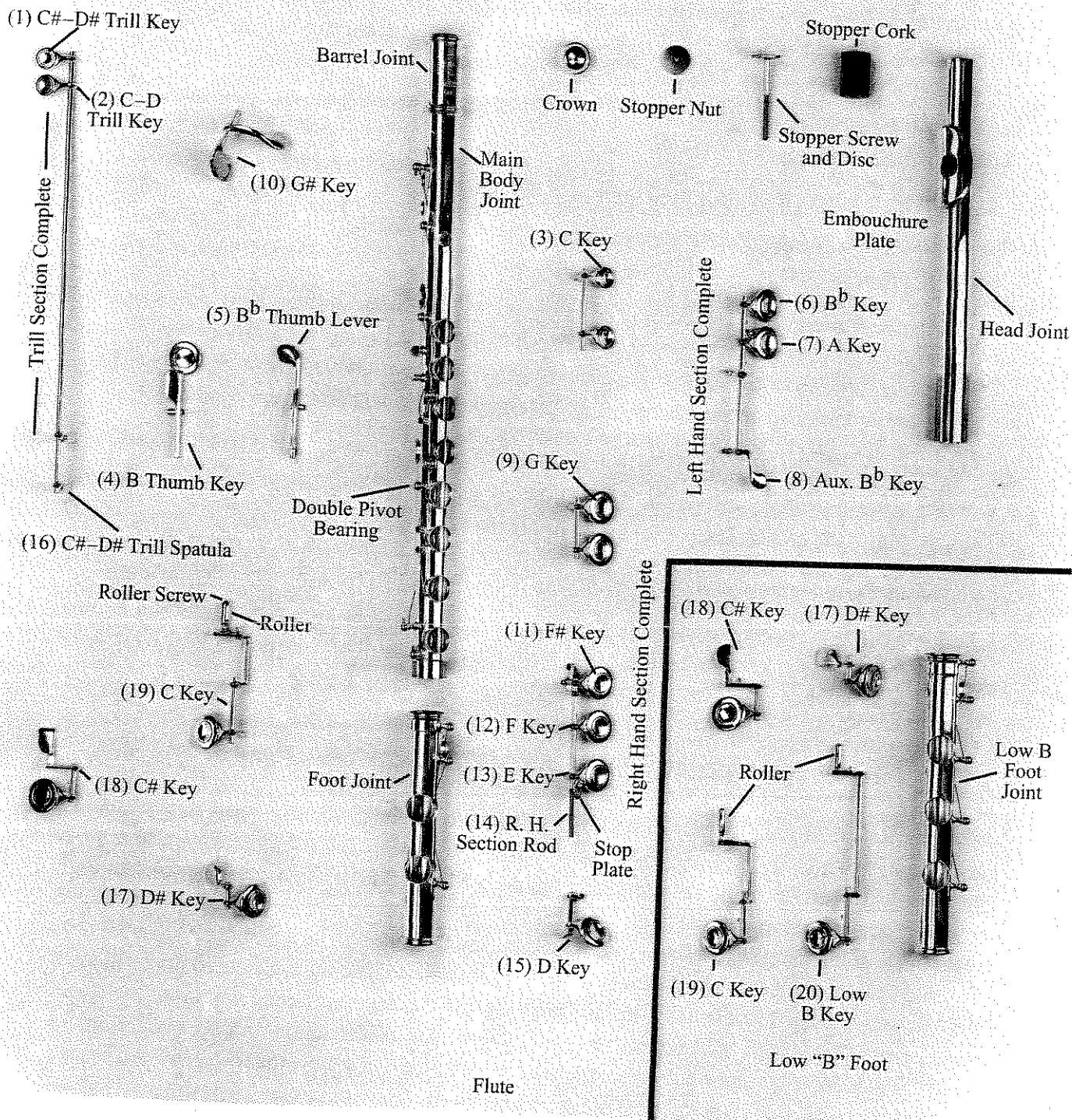


Photo courtesy of the Selmer Company
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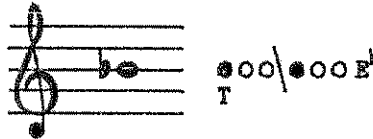
TESTING PROCEDURES FOR THE FLUTE

After all repairs have been made to the instrument, it should be fully tested. Testing consists of A) a careful mechanical inspection, B) an air pressure test, and C) a playing test.

- A. Mechanical inspection—Look for binds, slow action, incorrect spring tension, end play, incorrect key travel, and lost motion. Also check all pads and corks for damage which may have occurred during assembly.
- B. Air pressure test—Plug the bottom of the main body section of the flute with a rubber stopper or a cork, close the pads lightly on the tone holes, cover the top end of the tube with your mouth and blow softly into the bore. If a back pressure is built up and air does not escape from the tube, the instrument is ready for a playing test. A similar test may be used for the foot joint.
- C. The final test is, of course, playing the instrument. A good tone with proper pitch control is very important if the playing test is to be meaningful. Any fluctuation in tone quality, pitch, or excessive resistance to producing a sound may mean a leak or improper pad height. If no leaks or incorrect pad heights can be found, a **slight** adjustment in the placement of the head joint stopper cork may be of some help.

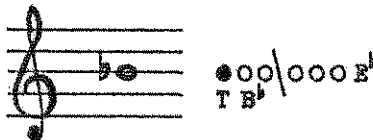
Check the following fingerings for proper regulation. Listen for a fuzzy, unclear tone or incorrect pitch:

a) "One and one" B-flat-



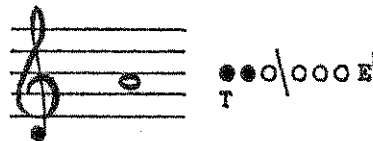
Touch the B-flat pad lightly as the note is sounded. If there is a change in pitch or tonal quality the F to B-flat bridge must be re-regulated,

b) Thumb B-flat-



Touch the B-flat pad lightly as the note is sounded. If there is a change in pitch or tonal quality the thumb lever must be re-regulated.

c) A-natural-



Touch the B-flat pad lightly as the note is sounded. If there is a change in pitch or tonal quality the regulation screw on the A key must be turned to change the regulation.

d) F-sharp and F-natural-



Several fingerings must be checked here. First, play the standard F-sharp fingering touching the F-sharp key (the key just above the F-natural key) and listen for changes in pitch or tonal quality. If changes occur then re-regulation using the screw on the D key is required.

Second, play the alternate F-sharp fingering (using the E key rather than the D key), touching the F-sharp key as before, and listen for changes in tonal quality and pitch. Change the regulation as required using the regulation screw on the E key.

Third, play F-natural, touching the F-sharp key, and listen for changes as before. Make any required changes in regulation using the regulation screw on the F key.

e) Complete chromatic-

