



Half the Time They're Broken, Half the Time They Don't Work Right

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By the time you reach the break, it's "broken"

a clinic for Texas Bandmasters 64th annual Clinic & Convention
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If you question a group of wind educators about their biggest challenge in teaching the Clarinet it won't be very long before the subject of "crossing the break" is mentioned by one or more of them. In my opinion as a veteran instrument technician, it is the biggest challenge to the advancing student after learning basic tone production and tonguing. In many instances the condition of the typical student Clarinet adds difficulty to producing the clarion register by the time the student is ready for this new skill level to be introduced. In other words "by the time you reach the break it's 'broken'".

There are four straightforward deficiencies that contribute to clarinetist's struggles with the "break". In the short time we have together I would like to highlight them for you, as well as give you some diagnostic "tricks" to determine whether your student is struggling with more than just learning the coordination needed to go from the "shortest pipe" to "longest pipe" change in the extremely wide compass of the Clarinet.

Here are the four items I would like to illuminate for you today:

- 1] small "untraceable" leaks and how to do a "sandwich-bag test" for these
- 2] the throat G#/A adjustment screw and how it can affect the clarion register
- 3] water damage to the 3rd Ring key pad: how "high rings" are formed
- 4] lower joint Low E/F key regulation: why is Low E OK and "Long B" squeaky?
(or: what the heck is that "crow's foot" and what the heck does it do ?!)

Thank you for joining me today. It is a pleasure and an honor to be here.

I would like to thank Mr. Alfred Esquivel of TBA for arranging my session and Mr. Robert Polan of Rico Woodwind Products and D'Addario Co. for sponsoring me here at TBA. Please do not hesitate to contact me if I may be of assistance to you or your students in the future.

*Best to you,
Glen*

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1] Clarinets are often compromised by small leaks that are extremely difficult to trace. "Sandwich Bag" testing can aid you in isolating a pad that may be torn distorted or out of level. By slipping a small bit of plastic wrap between the questionable pad and its tonehole you can create a "temporary" new pad face and determine whether the instrument responds better with the "dubious pad" out of the mix. Of course this is not a fix! The pad must be replaced or re-leveled. To use this cheap and easy diagnostic trick follow this procedure:

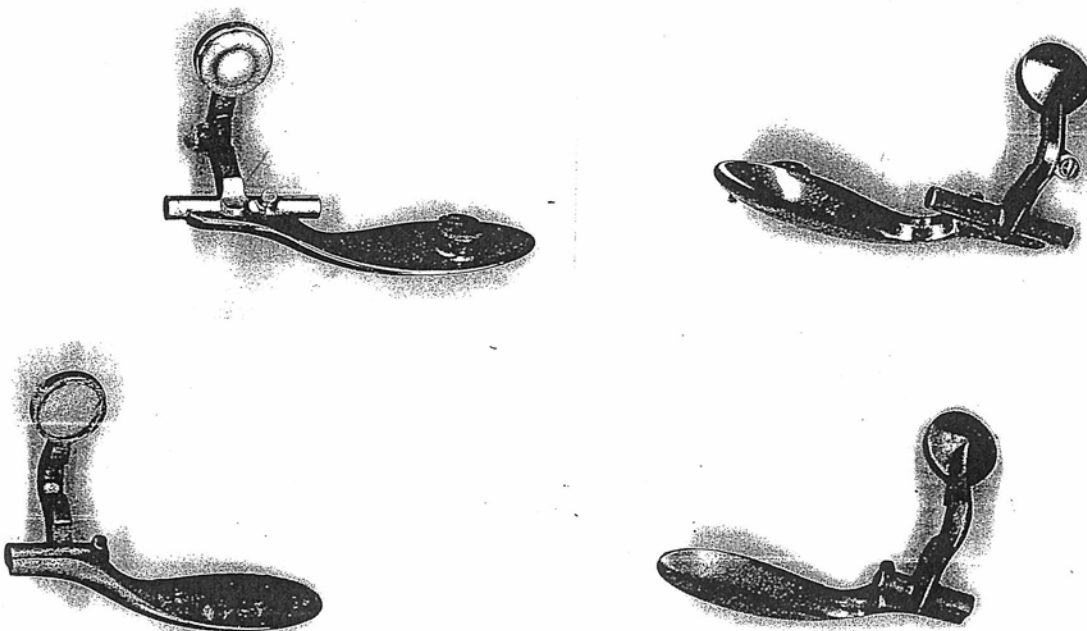
1st: play downward from open G until you hit a note that is "fuzzier" than its neighbors

2nd: slip your plastic into the last pad that closes to create the pitch in question. If the clarity of the note improves there is a good chance that all the notes that are "longer" will improve as well, since they incorporate the pad in question.

2] On a contemporary Clarinet there is an adjusting screw at the top of the throat G# key. It allows the throat A key to "pick up" and open the G# without the player needing to press the G# spatula. Note the "vintage" G# key {ca. 1930} does not incorporate this feature. When this screw is "over-adjusted" it creates a small leak in the G# key which severely impacts the Clarinets playability. A similar leak is created in the G# when the Throat A pad gets swollen from water damage. The result is often that the instrument will play to Low E, but not the "Long B" in the Clarion register (due to the higher pressure in the vibrating air column).

top and bottom views of contemporary and "old style" throat G# keys

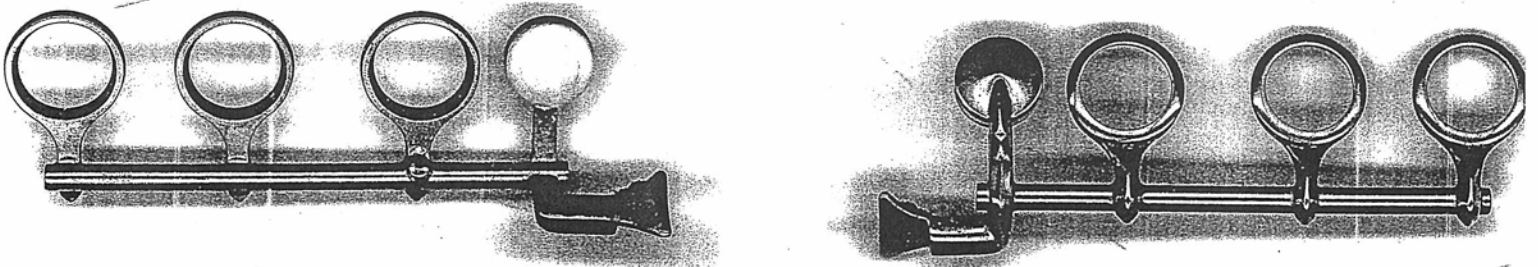
contemporary : note adjusting screw assembly



3] the 3rd Ring key of the lower joint (1st, 2nd, and 3rd Right Hand fingers) has a pad which is a key to the efficient function of the lower half of the Clarinet. Due to this pad's location at the top of the lower joint it is in close proximity to the center tenon socket. Water from the socket tends to swell this pad over time: this leads to the familiar problem of "high rings". Young students have difficulty closing the "chimneys" for the three right hand fingers when this occurs. Additionally, this pad tends to leak at the side away from the posts, often resulting in difficulty in getting the clarion register to sound.

top and bottom view of a typical 3rd ring key (R.H. /Lower Joint)

note that the foot of this key serves as the lower bridge key



note dark area on face of pad indicating water damage

It is possible to lower rings by bending them downward, which changes the geometry of this key. Over many years I have come to believe that this solves only $\frac{1}{2}$ of the problem since this pad is so often distorted by moisture damage that it closes poorly and tends to make the player miss notes. The real marker notes for this problem are the F, E, and D at the top of the staff. Students have trouble getting that range of notes to speak clearly when the 3rd ring key is functioning poorly.

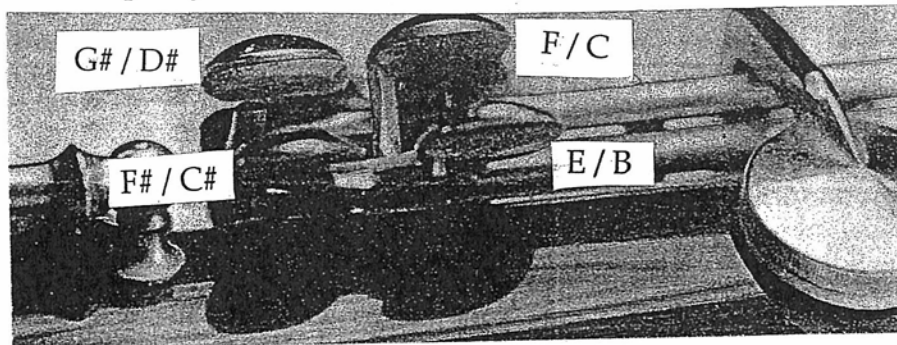
4] The most misunderstood regulation on the Clarinet involves the Low E and Low F keys (Long B and 3rd space C with the register key on). Students regularly use the F/C key spatula as an aid to assembly: they press on this spatula with their Right Hand thumb and bend it downward. This throws the "crow's-foot" out of adjustment so that the Low E and F (or B and C in clarion register) do not close in tandem properly. This is very confusing for teachers to "troubleshoot" because:

1st: sometimes the Low E plays OK and the Long B squeaks. This is because there is more pressure in the column when the register key is opened and the Clarinet shifts into its "second vibrational mode", the Clarion or Clarino register

2nd: sometimes the Right pinky fingerings will play ok, but the left pinky levers do not allow the player to produce the notes desired. This is because of the small amount of additional mechanical "slop" introduced when the levers are added into the mix. A feeler gauge is helpful in getting a feel for how precise this adjustment needs to be.

3rd: students often "add a pinky" to make these fingerings work. So there is sometimes not consistency in your findings when you play test Clarinets. Some students add the R.H. pinky on the F/C key to make the Left Hand Long B sound and they add the L.H. pinky on the F/C lever to make the Right Hand Long B speak. Consequently you receive "false readings" from your investigations into which Clarinets work properly and which don't.

side view of R.H. pinky cluster: note "crow's-foot" under the F/C spatula



For any of you who may be interested in expanding your knowledge of woodwind repairing I would recommend the following book:

A Guide to Repairing Woodwinds; by Ronald Saska {\$39.95}. It is available from the J. L. Smith Company (jlsmithco.com) under their listing for books. The Smith company is an excellent supplier of parts and materials to the repair trade. Another excellent vendor of woodwind parts, tools, and supplies is the Music Medic Company. They can be found at musicmedic.com.