

OBOE FAMILY

ASSEMBLY & REGULATION FULL-CONSERVATORY OBOE

by Lars Kirmser

It is assumed that you have performed all the prerequisites to the keys and body parts of the oboe prior to beginning the following reassembly process. These preliminary steps would include the following tasks:

- The entire key mechanism has been swaged as necessary.
- All steels have been straightened, cleaned, relubricated, and checked with their respective key hinges.
- The body has been thoroughly cleaned and lubricated as necessary.
- Both octave pips have been removed, cleaned and reinstalled into their respective holes.
- All tone holes have been thoroughly cleaned and inspected for their continuity. Those requiring it have been refaced.
- The bore has been thoroughly cleaned, lubricated, and sealed as required.
- All posts have been inspected to make sure that they are not loose or out of alignment.
- All springs are in good condition and are "loaded" properly.
- All keys and levers requiring corks, felts, or silencers have been inspected to make sure that they are affixed with the appropriate silencing materials of the correct thickness, and are in good order.
- All tenon corks or wrappings are in good condition and fit well into their corresponding sockets.
- All pinned sections have been disassembled, cleaned, relubricated, straightened, and reassembled.
- All keys have had the appropriate pads installed so that the pads are perfectly level with respect to the edge of the key cup, and uniformly exceed the edge of the pad cup by approximately 1mm.

*As you proceed through the following assembly order take care that **EACH** step is **FULLY** satisfied before continuing on to the next.*

UPPER SECTION:

- 1. BACK OFF ALL ADJUSTMENT SCREWS BY ONE FULL TURN**
 - This is to avoid the problem of keys and levers conflicting with one another and inhibiting key closure. By uniformly relieving each adjustment screw by exactly one full turn you will be always know the original position of adjustment.
- 2. INSTALL THE C-D tr KEY (#6) INSTALL THE B-C[♯] tr KEY (#8)**
 - It is customary for these pads to be skin pads. However, many professionals prefer cork.
 - Preadjust the spring tension, as you will have to engage both springs AS you install the keys on the single steel. The spring load should be set such that each key responds crisply and seals its respective tone hole when at rest.
 - Center and level each key cup over its relative tone hole.
 - Precision level both pads and check with a mylar feeler gauge (do not try to use a leak light). Use the "floating-in" method to adjust the pads; take care not to burn the pad in the process.
 - Set the key travel on both keys to 2mm by adjusting the corks on the key feet. Since the spring loads are reversed, you will have to push each key open individually to check the travel of each key.
- 3. INSTALL THE G[♯] LEVER (#17)**
 - It is necessary to install this lever now because, as you will note, it will be impossible to slip the key steel in the post after the left hand section is installed (specifically the G[♯] key).
 - Preadjust the spring tension, as you will again have to engage the spring in its cradle AS you install the key.
- 4. INSTALL THE LEFT HAND STACK**
 - Consisting of: G[♯] key (#16), G key (#15), B[♭] key (#12), A key (#11), C key (#10), and the B key (#9). You'll note that some oboes are equipped with a 2-piece B[♭] key/lever arrangement, while some designs have only a 1 piece B[♭] key. The 2-piece variety has the lever (which rests *BENEATH* the F[♯]-B[♭] & C rocker) as a separate part of the mechanism. It is also equipped with its own strong spring (loaded in opposition to the C & B[♭] keys). The primary purpose of this

lever is to hold the C & B^b keys closed when the F[#]-B^b & C Rocker (#19) is at rest. In this configuration, the F[#]-B^b & C Rocker has a very light flat spring. In the "single key" configuration, that portion of the key which acts as a lever rests *ON TOP OF* the F[#]-B^b & C Rocker. As before, the B^b and C keys each have extremely light springs, while the F[#]-B^b & C Rocker (in this case) has a very strong flat spring, which is designed to overpower these lighter springs of the B^b & C keys, thus holding them firmly closed when the Rocker (#19) is at rest.

- I recommend that all the pads of the left hand stack be cork pads. However, some technicians prefer to use skin pads on the C key (#10), B^b key (#12), and G[#] key (#16). To be sure, base this decision upon the desires of your customer, or upon that which is in common practice with those of your local symphony.
 - Preadjust the spring tensions and load the springs in their respective cradles as you "thread" the keys on the steel, starting with the G[#] key and then proceed upwards. Be careful not to knock corks off the key feet in the process. I recommend that you set the B^b key and C key spring loads *ONLY* as heavy as is absolutely necessary to get a crisp, resilient response. Don't over do it!
 - Center and level each key cup over its respective tone hole.
 - Precision level each pad. The order with which you perform this task is relatively unimportant as long as each pad is absolutely level and remains clean and unblemished. When using heat to "float" the pads in, be careful not to remove the temper from adjacent springs as well. When this operational element is complete, each of the pads should be protruding *UNIFORMLY* from their key cups from 1 to 1.5mm, depending upon the specific model of instrument.
- 5. SET ARTICULATED ADJUSTMENTS ON THE LEFT HAND**
- Set the A key (#11) to C key (#10) adjustment by carefully regulating the appropriate screw on the foot of the C key. You should be able to get an identical "feel" on your feeler gauge from both the A pad and the C pad when you gently close the A key (#11).
 - Set the G key (#15) to B^b key (#12) adjustment by carefully regulating the appropriate adjustment screw on the foot of the B^b key. You should be able to get an identical "feel" on your feeler gauge from both the G pad and the B^b pad when you gently close the G key (#15).
 - Set the G key (#15) and B^b key (#12) to C key (#10) by carefully regulating the appropriate adjustment screw on the foot of the C key. You should be able to get an identical "feel" on your feeler gauge from the G key, B^b key, and C key when you gently close the G key (#15).

6. WEDGE THE PADS IN A CLOSED POSITION

- After each pad is completely leveled, gently wedge them in a closed position with small cork wedges. The amount of pressure should simulate the actual amount of pressure that your finger would produce under normal playing conditions. Allow them to remain wedged for at least one hour. To avoid delay, you may want to proceed on with the lower section and then return at the appropriate time to complete the upper section.

7. SET THE KEY OPENINGS OF THE B KEY AND A KEY TO 2mm

8. INSTALL THE B-C[#] tr LEVER (#7) (OPTIONAL)

- Occasionally, the B-C[#] tr Lever and the C-D tr lever are on the same pinned steel and will be installed at the same time. If this is the case you must be sure to disassemble the pinned section and clean, straighten, & lube it prior to the installation of the keys.
- Place a thin silencer (usually cork, leather or shrink tubing) between the lever and the key foot.
- There should exist an almost imperceptible amount of lost motion between the lever and the key after the final adjustment is made.

9. INSTALL THE UPPER C-D tr LEVER (#5)

- Place a thin silencer (usually cork or leather) between the lever and the key foot.
- There should exist an almost imperceptible amount of lost motion between the lever and the key after the final adjustment is made.
- You will note that the C-D bridge adjustment will be performed only *AFTER* the lower section has been adjusted completely.

10. INSTALL THE A^b-B^b tr LEVER (#18)

- The extended arm (towards the upper portion of the key) which rests on top of the A key (#11) extension should not exhibit lost motion, nor should it be pressing down on the A key. This lever should be regulated so that when the G[#] lever (#17) is depressed, the G[#] key (#16) is permitted to open 2mm. In addition, and at precisely the same instant, the A key (#11) will be made to close. Conversely, when the G[#] lever is released, the G[#] key will be made to fully close, thus allowing the A key to open fully.
- On occasion, this key is articulated at the center to facilitate its adjustment with the A key (#11) and the G[#] lever (#17). In this configuration, both parts of the lever would reside on a single long steel. The unarticulated A^b-B^b tr lever variation is sometimes retained between two posts with pivot screws.

11. INSTALL THE G[#]-A tr LEVER (#14) INSTALL THE F[#]-B^b & C ROCKER (#19)

- Because of the hinge/post arrangement on most oboes, it will be necessary to install BOTH of these levers on the instrument at the same time.
- The G[#]-A tr lever should be adjusted so that it allows the G key (#15) to open to a distance of 2mm while at the same time, rests on top of the G[#] key (#16) without causing it to open nor to display any perceptible amount of lost motion. The thinnest of cork or leather should be placed between this lever and the G and G[#] keys.
- With a cork wedge in place beneath the F[#]-B^b & C Rocker (#19) you should be able to press the side G[#]-A tr lever (#14) and close the G key (#15), B^b key (#12), A key (#11), and C key (#10)... all at precisely the same instant. At the same time, the G[#] key (#16) will open to a distance of 2mm.
- The F[#]-B^b & Rocker must be adjusted with the F[#] bridge arm AFTER the lower body section is complete.

12. INSTALL THE UPPER OCTAVE KEY (#1)

- Center and level the key with respect to its tone hole (pip).
- Precision level the cork pad.
- Adjust the key opening to 2mm (after the lower octave key is installed) by way of the adjustment screw.

13. INSTALL THE LOWER OCTAVE KEY (#3)

- Center and level the key with respect to its tone hole (pip).
- Precision level the cork pad.
- Adjust the key opening to 2mm (after the thumb octave lever is installed) by way of the adjustment screw.

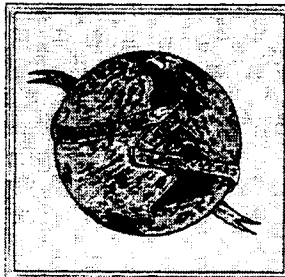
14. INSTALL THE LOWER OCTAVE THUMB LEVER (2#)

- A silencer must be placed between the thumb spatula and the body. Adjust the relationship between the thumb lever and the lower octave key by adjusting the screw and/or by carefully bending the lever.

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 1477 E. Michigan Avenue
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*"There is an infinite difference between
 a little wrong and just right,
 between fairly good and the best, between
 mediocrity and superiority."*

- Orison Swett Marden

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