

## Woodwind repair work glossary (Jun 2022)

When your instrument is repaired you are issued with a receipt with a brief description of the work done. I will explain the more pertinent parts of the work done when you collect the instrument but this glossary will help you decipher the details on the receipt.

### Description of Repair job

At the top of the receipt will be a brief outline of the Repair job to be undertaken, e.g. Student Overhaul, or Custom service etc, followed by a section titled Work Done – which will list the various repair actions undertaken (as described below).

### Description of level of cleaning

**Strip down instrument and clean pads, tone-holes, mechanism, tenons and sockets:** Penetrating oil is put on all parts of the mechanism to free the screws and rods before dis-assembly, this is because moisture often attacks the mechanism so that keys jam; metal tenons and sockets are cleaned with wadding to remove tarnish prior to testing the seal at the joints, corked tenons are wiped clean to assess the seal at the joints; all the keys are then removed from the instrument so that the rods, key barrels, screw ends, and flat springs can be cleaned with methylated spirits; the pillar eyes, spring runs, and tone-hole rims and chimneys, are cleaned; finally the pads, corks and felts on the keys are cleaned. It is during this process that loose and damaged pads and corks are found and removed and any other problems come to light.

**Strip down instrument (as above) ... and head-joint:** For flutes and Piccolos, in addition to the above, the head-joint bore and embouchure hole is cleaned, if the head-cork needs replacing it is removed which allows for more thorough cleaning of the head-joint bore.

**Strip down instrument and clean throughout:** Some levels of work require the instrument to be cleaned throughout so in addition to what has already been described above, all metal work is cleaned and polished, and the body of the instrument is strap cleaned.

**Oil exterior wood, tone-holes, and sockets:** If the instrument is made of wood, then the exterior wood, the tone-hole chimneys, and the sockets are oiled during a service or overhaul – this protects the wood and helps prevent water leaking from tone-holes when playing. The bore is only oiled if there have been reported water problems or if the bore is particularly dirty and needs cleaning.

### Checks

**Check pad skins:** The pads of the instrument are individually tested to check for perforations in the skin caused by wear.

**Check airtightness:** The joints of Clarinets, Oboes, and Bassoons are tested for airtightness. This is done by removing all the pads, blocking all the tone-holes with 'blu-tac', and then testing for the leaks that can occur in the joint itself e.g. around the metal thumb bush insert on a Clarinet.

## Abbreviations

**Th, R(1), T(1), F(1a), Artic point, LH, RH, Tp Jnt, Bt Jnt, HJ, FJ:** These are abbreviations for parts of various instruments, in order they refer to: Thumb; Ring key (1<sup>st</sup> from top in this example); Trill key (1<sup>st</sup> from top in this example); First key cup (of two or more operated by first finger on plateaux or large clarinets in this example); Articulation point where two or more keys come in contact to operate together; Left hand; Right hand; Top joint; Bottom joint; Head-joint; Foot-joint.

## Alphabetical List of various Repair procedures

**Align pillars:** Pillars can be incorrectly fitted to an instrument during manufacture, or they may be knocked out of alignment or over time they may drift out of alignment due to stresses in the plastic, wood or metal. If pillars are incorrectly aligned the keys between them will not operate correctly so the pillars have to be re-aligned.

**Balance keys:** This is when keys get distorted out of the horizontal plane and is a common problem on flutes and saxophones – the keys have to be bent back into the correct alignment.

**Balance springs:** This is when the springs are re-tensioned (some lower and some higher) so that the finger pressure required to operate the keys feels reasonably even across the whole instrument, sometimes a particularly weak spring needs to be replaced.

**De-burr key barrels:** Often the ends of key barrels burr, and in the worst cases tiny shards of metal 'fray off' and can get caught in the mechanism, I file these burrs off to prevent this.

**File clearance for:** Sometimes in manufacture a part of the instrument is slightly mis-located (or slightly oversize) and this obstructs the efficient operation of the mechanism – in these instances I may have to file away a small amount of wood or metal to remove the obstruction.

**Free seized rod/screw:** On instruments that are not regularly serviced a commonly occurring problem is where a key actually operates on the instrument but cannot be removed because the steel rod or screw holding the key in place has been attacked by moisture and corrosion has caused the steel to expand and jam in the key or in the pillar or both. The action taken to free a seized rod or screw starts with simply allowing extra time for the penetrating oil to work, if this fails other actions have to be taken sometimes involving drilling out screws or rods or even sawing off pillars.

**Level tone-holes:** This is when tone-hole is ground down slightly to make it level or to remove a 'nick' in the tone-hole rim.

**Lock screws:** The screws and rods on a musical instrument are prone to vibrating loose; I administer two different grades of locking compound to prevent this.

**Oil and grease:** The mechanism needs to be kept oiled to operate smoothly and quietly, I use different grades of oil to match the intricacy of the mechanism. Certain parts of the mechanism (such as flat spring runs) need greasing.

**Ream pillar eyes:** Sometimes the pillars are in alignment but the pillar 'eyes' (the holes through which the rods pass) are not in alignment so the key rod is bent and the key is sluggish. Reaming the pillar eyes expands the eyes slightly to allow the key rod to pass through without bending so allowing the key to move freely.

**Re-align or straighten keys:** This is when keys have been bent out of their correct alignment (usually during assembly) and the key cup holding the pad is not covering the tone-hole correctly- the keys need to be re-aligned and often the pads will have to be replaced.

**Re-align rings:** On a clarinet the ring keys tend to get bent down by use (or they were never set correctly in the first place) the rings are reset to be in the same plane as the finger bushes (the circular 'chimneys') but slightly higher than the top of the bush for LH fingers 1,2,3 and RH fingers 4,5 but almost level with the bush for RH finger 6 and also the thumb.

**Re-align touch-pieces:** This is when the touch-pieces of the keys have been bent out of their correct alignment (usually during assembly) but the key cup holding the pad is in the correct alignment so the pad does not need to be replaced.

**Re-corking, re-felting, re-leathering etc:** Different parts of the mechanism require different materials to be glued onto the surfaces for different reasons. Student instruments use cork on the heels of keys to set the 'vent height' of the key; better quality instruments use cork in some places, while felt is used in other places to quieten the mechanism. Leather, Teflon, or adhesive paper is used at certain regulation points. Plastic sleeving might be used where parts slide past each other. All these materials (and the adhesives that keep them in place) perish and need replacing occasionally.

**Re-fit pad:** Generally, if a pad is in good condition but not seating, and cannot be tweaked into position, it is may be refitted rather than replaced. This is common on flutes and saxophones.

**Regulation:** Some keys operate in conjunction with other keys – regulating the mechanism mean adjusting it so that keys that should close together do close together, this can only be done reliably if the individual keys in the mechanism are closing so that their pads seal properly.

**Remove play on (named) keys:** This is when a key is wobbly – there can be many causes for this, screws or rods may have worn, the key barrel may have worn, the pillars may be out of alignment, whatever the cause the play must be reduced to the point where it does not interfere with the efficient operation of the mechanism.

**Remove binding on (named) keys:** This is when a key is sluggish – there can be many causes for this, the rods or key barrels may be bent, the pillars or pillar eyes may be out of alignment, whatever the cause the binding must be removed to the point where it does not interfere with the efficient operation of the mechanism.

**Remove denting:** Unless the customer has specifically requested dents to be removed they are generally left alone if they are not interfering with the functioning of the instrument; however on flutes it is common to remove denting from the head-joint, body or foot-joint if it is easily accessible once all the keys are removed.

**Replace pad:** If a pad is poor condition, and cannot be re-seated or re-fitted, it is replaced.

**Replace head-cork:** If the head cork in the head-joint on a flute or piccolo has moved out of position, or has not been replaced for a number of years, then it is usually replaced.

**Re-seat pad:** Generally, if a pad is in good condition but not seating, it is re-seated by tweaking the position of the pad rather than replacing it; this is a common approach to pads that have been fitted in place using shellac.

**Re-shape and tighten tenons:** On instruments with slide metal tenons such as flutes and saxophones I assess the seal, invariably both the tenon and socket are distorted and need reshaping to re-instate an air-tight seal; on instruments with corked tenons sometimes the cork needs replacing and sometimes the socket need grinding back to true if it has worn.

**Strip down clutch mechanism:** On some instruments (e.g. Flutes, Oboes, and large Clarinets) some keys are grouped together on one rod and pinned to the rod so that they sometimes operate independently and sometimes operate together; these groups are referred to as 'key assemblies' or 'clutch mechanisms'. These key assemblies are removed from the instrument but not usually taken apart during a repair unless there is a problem within the assembly.

**Super glue tone-holes:** On damaged plastic or wooden tone-holes the tone-hole is built up with super glue prior to grinding down so the height of the tone hole remains the same. This is particularly common on Wood instruments where the grain can 'open out' as it runs into a tone-hole.

**Top tone-holes:** This is a method used to check (metal) tone-holes are level, if a particular tone-hole is not level this will have to be dealt with at some stage during the repair.

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