

# **Emergency Instrument Solutions and “What Not to Repair”**

By Michael & Keren Barr

A common problem that a band director faces is an emergency instrument repair and perhaps more importantly the question of *when to stop* and send the horn to a professional repair shop. Below we will offer some tips for minor and emergency repairs to keep your horns performing in a pinch.

## **General “Dos” and “Don’ts”**

- DO use zip ties, twist ties, fabric-covered hair bands, string or Teflon tape to hold an instrument or key together
- DO use paper to shim tenons, sockets or neck corks
- DO use a “Bobcat” style mouthpiece puller for stuck mouthpieces
- DO use penetrating oil and mild heat from a hand torch to remove a stuck tuning slide
  
- DON'T use tape or rubber bands to hold a damaged key, broken solder joint or other part together
- DON'T use super glue of any kind to repair any part of an instrument
- DON'T turn adjustment screws
- DON'T use a screwdriver to drive out a stuck valve
- DON'T use a screwdriver to drive out a rotary valve
- DON'T use pliers or vice-grips to remove stuck parts
- DON'T use a towel, rag, sock, shoelace or any other kind of implement to remove a stuck tuning slide!
- DON'T use a currency bill to relieve sticky pads

## **Piccolo/Flute**

### **Emergency Repairs**

- o If a tenon or socket is too loose, shim with paper
- o If a pivot screw is lost, insert a toothpick through the post and into the key - break off the toothpick
- o For a torn pad skin use a small piece of non-adhesive Teflon tape or plastic food wrap around the key and pad
- o For a leaking head cork, tighten the bearing plate – this will “squeeze” the cork and cause it to expand slightly

### **Send to repair shop if:**

- o The tenon is out of round
- o Keys are binding
- o Pads are missing (with the exception of trill key and C key pads)

## **Clarinet/Oboe**

### **Emergency Repairs**

- o If tenon cork is broken, cracked or missing, use dental floss to wrap around the tenon
- o For clarinets, if lower register will not play, check that the throat Ab key is not being held open by its adjustment screw
- o If a pivot screw is lost, insert a toothpick through the post and into the key - break off the toothpick
- o For a torn pad skin use a small piece of Teflon tape or plastic food wrap around the key and pad

### **Send to repair shop if:**

- o Tenon or socket is broken or cracked
- o Body is cracked
- o Keys are binding
- o Socket rings are loose
- o Tenon/Socket connections are loose or “wobble”

## **Saxophone**

### **Emergency Repairs**

- Replace missing guard screws with zip ties or twist ties
- If neck tenon is loose, shim with paper
- Use Valentino self-adhesive neck corks
- If instrument will not play in lower register, check octave mechanism and F-F# regulation
- If a pivot screw is lost, insert a toothpick through the post and into the key - break off the toothpick
- If a pad is torn place a small piece of masking tape or electrical tape over the tear.  
Alternatively you can use contact cement to glue a small piece of pad leather to the torn area

### **Send to repair shop if:**

- Keys are binding
- Guards are bent or unsoldered
- Bell is loose

## **General Brass Emergency Repairs**

- For stuck slides, use penetrating oil and GENTLY heat with a hand torch – KEEP HEAT MOVING!
- For dented or out-of-round mouthpiece shanks, place the mouthpiece on an arbor and lightly tap with a small rawhide hammer
- For missing waterkey corks, replace with Valentino self-adhesive waterkey corks or rub down a pencil eraser to fit in the cup. If the waterkey is missing rub down an eraser to a point and push it in to the hole. This has the added benefit of being able to be removed to release water. You can also use the tip of a pencil for this.
- Use zip ties, twist ties, fabric-covered elastic hair bands, string or Teflon tape secure broken solder joints and other broken items

## **Piston Brass**

### **Emergency Repairs**

- For trumpets, if the 2<sup>nd</sup> valve is sluggish or frozen, GENTLY flex the 2<sup>nd</sup> slide forward (toward the bell)
- If instrument is not playing or does not blow freely, check order of valves and placement of valve guides
- DO NOT ever try to remove a stuck piston with a screwdriver, another valve or other implement – pistons are hollow and can be easily destroyed

### **Send to repair shop if:**

- Valves are frozen
- Slides will not move after oil and heat
- Casing threads are damaged
- Brass is cracked or punctured
- An object is stuck in the bore

## **Rotary Brass**

### **Emergency Repairs**

- Learn to replace strings quickly!
- Understand how linkage systems work and have spare parts on hand in your kit

### **Send to repair shop if:**

- Rotors are frozen
- There is end play in the rotor assembly
- Rotor is bent
- Part is missing

## **Trombones**

### **Emergency Repairs**

- If the handslide becomes stuck in the bell section, use penetrating oil and light heat on the area. Let sit for 10-20 minutes and try to remove

### **Send to repair shop if:**

- Slide assembly is stuck in the bell receiver
- If outer slide is bent or dented
- If slide assembly is "rough" feeling or noisy

## **GENERAL REPAIR TIPS**

### **Pads**

- If pads are sticking, clean ONLY with cleaning paper or clean cigarette paper. DO NOT use fluids or paper currency!
- If a pad falls out:
  - Check condition of pad
  - If pad is not torn or disfigured, check for glue on the pad and in the cup
  - Add a SMALL amount of hot-melt glue if necessary
  - Re-insert pad into cup and close LIGHTLY
  - Apply GENTLE heat to pad cup – DO NOT overheat the glue (if pad cup discolors or smoke appears, there is too much heat)
  - DO NOT "smash" key closed
  - ALWAYS WATCH THE DIRECTION OF THE FLAME!

### **Glue**

- For replacing pads and bumper felts, use standard hot-melt glue (i.e. for hot glue guns)
- Use contact cement or self-adhesive cork for replacing key corks
  - For contact cement to work properly, apply cement to both parts with a brush. Wait 10 minutes for glue to dry then press the two parts together
- DO NOT use super glue of ANY KIND on any part of the body of an instrument OR to replace a pad!
- DO NOT "improvise" on glues (Elmer's, wood glues, epoxies, Gorilla glue, etc.)

## TOOLS AND SUPPLIES

A basic emergency repair kit should include the following items:

### **Tools**

- Spring Hook
- Several sizes of precision screwdrivers
- "Bobcat" mouthpiece puller
- Small rawhide mallet
- Small needle scraper
- Duckbill Pliers
- Parallel Action Pliers
- Mouthpiece arbor
- Small utility knife or razor blades
- Small butane hand torch
- Scissors
- Side Cutters
- Drum Key
- Timpani Key
- Medium-sized phillips and straight screwdrivers

### **Supplies**

- Cork Grease
- Cork
- Pads
- Felts (sheet and bumper)
- Key oil
- Rotor oil
- 30w oil
- Penetrating oil
- Toothpicks
- Rotor string
- Zip ties
- Twist ties
- Waxed, unflavored dental floss
- Elastic fabric hair bands
- Hot melt glue
- Contact cement
- Paper (for shimming tenons)
- Yamaha Cleaning Paper or cigarette paper
- Plastic wrap
- Electrical or masking tape
- Spare parts (guard screws, neck screws, linkage parts, anything else you can think of that will fit your instruments)

Valentino produces several versions of an emergency repair kit that includes some of the above tools and supplies. Especially of value to teachers is the wide variety of pre-cut self-adhesive key, tenon and neck corks as well as valve washers, replacement pads and other items. While they are not all-encompassing kits, they are an excellent base from which to build a nice repair kit.

### **GENERAL "WHAT NOT TO REPAIR"**

- **DO NOT attempt to solder a broken joint**
- **DO NOT use super glue for any repair**
- **DO NOT use tape or rubber bands on any part of the finish of an instrument**
- **DO NOT attempt to remove dents**

In conclusion, before doing anything USE EXTREME CAUTION! You MUST consider liability issues when working on an instrument you do not own. Do not attempt any repair that you are not comfortable with or are not willing to pay for the increased repair bill due to a mistake! Study your instruments, learn how they work, know alternate fingerings, and study a little bit of history. Don't be afraid to jump in and get your hands a little dirty – you will find that being a "master" of emergency repairs will be an asset to your band program as well as your stress level. Last but not least, get to know your repair technicians and learn from them – the better that you can communicate with the technician, the better they will be able to provide you with the results you are looking for. And as with all things, SAFETY FIRST!



## French Horn Rotor Stringing Diagram

When stringing, tighten string set screw 2 to hold the lever while you finish stringing. This is the same screw that adjusts spatula height.

