

# More for Less: Cost-Effective Ways to Significantly Improve the Sound of Your Concert Percussion Instruments (and Percussionists)

**The Midwest Clinic**  
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*This session will provide music educators with simple and inexpensive ways to maximize the lifespan and sound quality of their existing concert percussion equipment. Attendees will also learn selected performance techniques as well as strategies to help promote student ownership of the maintenance process.*

--The quality of your percussion instruments impacts your ensemble, budget, and effectiveness as an educator.

--Equipment maintenance is a vital part of percussion education.

--Music educators can achieve significant improvements in sound quality and longevity of existing instruments without a significant investment of resources.

Category	Instrument	Tips & Trouble Shooting
<b>Drums</b>	<b>(all)</b>	<ul style="list-style-type: none"> <li>• Heads should be evenly tuned (equal tension at each tension rod).</li> <li>• Replace worn heads.</li> <li>• Re-lubricate tension rod casings.</li> <li>• Heads should be in their proper range.</li> <li>• Remove/replace any loose parts inside the drum.</li> <li>• Except for <i>drum set</i> bass drums, all muffling should be external.</li> <li>• Drums should be properly mounted/suspended.</li> <li>• Use proper implements.</li> </ul>
	<b>Snare Drum</b>	<ul style="list-style-type: none"> <li>• <b>Head tension:</b> <ul style="list-style-type: none"> <li>○ The batter (top) head should be tensioned to produce a good stick rebound. [TEST: sounds/feels like a tabletop (or a marching snare) = too tight; flappy/inarticulate sound or feel = too loose]</li> <li>○ The snare (bottom) head should be tuned to achieve maximum resonance and snare response.</li> <li>○ Many orchestral percussionists tune their batter heads between G and Bb, depending on the size of the drum and musical context.</li> </ul> </li> <li>• <b>Snare tension:</b> <ul style="list-style-type: none"> <li>○ Fine-tune the snare tension adjustment knob to achieve a good balance between clean articulation for the loudest dynamic and snare response for the softest dynamic. This should result in a consistent sound throughout the entire dynamic range.</li> </ul> </li> <li>• <b>Muffling:</b> A slight amount of muffling is generally needed to take out the high-pitched “ping” or “twang” from a concert snare drum.                             <ul style="list-style-type: none"> <li>○ Recommended: a folded handkerchief or Moongel</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ <b>Not</b> recommended: a student ID, wallet, or plastic O-Ring.</li> </ul>
	<b>Bass Drum</b>	<ul style="list-style-type: none"> <li>• <b>Heads/Tension:</b> <ul style="list-style-type: none"> <li>○ Strive for a nice low, resonant “boom.”</li> <li>○ Tension the batter head so that it is too low to produce a discernible pitch, but high enough to avoid sounding thin and flappy.</li> <li>○ If proper tuning does not result in a satisfactory sound, consider putting thicker heads on the drum.</li> </ul> </li> <li>• <b>Proper Muffling:</b> <ul style="list-style-type: none"> <li>○ All concert bass drum muffling should be external.</li> <li>○ Options include: <ul style="list-style-type: none"> <li>• Knee on the batter side.</li> <li>• Hand on the resonant side.</li> <li>• Towel hanging from the top of the drum over the top portion of the batter head applied and removed by the performer as needed (works well for performing a part with notes of varying duration).</li> <li>• A car wash mitt can also work well.</li> </ul> </li> </ul> </li> </ul>
	<b>Timpani</b>	<ul style="list-style-type: none"> <li>• Clear the heads often (i.e., be sure that the pitch is consistent at each tension rod). A Drum Dial and tuner can help with this.</li> <li>• Ensure that all of the drums are in their proper ranges: 32” D-A, 29” F-C, 26” Bb-F, 23” D-A (Dresden-style drums may tune higher than a P5 from the lowest note).</li> <li>• <b>Pitch placement:</b> <ul style="list-style-type: none"> <li>○ Pitch and articulation are generally less precise in the lowest part of a timpano’s range.</li> <li>○ The highest part of a timpano’s range can sound thin and decay quickly.</li> <li>○ Articulation and pitch are generally clearest in the middle to high range of a timpano.</li> </ul> </li> <li>• Instruct students regarding the correct playing area of the head (generally about 4” from the edge of the bowl).</li> <li>• Be sure that students lift the mallets off of the head---this will improve the sound quality by minimizing the attack and allowing the drum to “sing.”</li> <li>• Mutes and harder mallets can help increase rhythmic clarity.</li> <li>• When changing timpani heads, remove any imperfections on the lip of the bowl with very fine sandpaper and/or Goo Gone; then lubricate with Teflon tape (available at <a href="http://steveweissmusic.com">steveweissmusic.com</a>).</li> <li>• Use lubricant on the pedals and other moving parts as needed.</li> </ul>
<b>Keyboard Percussion</b>		<ul style="list-style-type: none"> <li>• <b>Preventative maintenance:</b> <ul style="list-style-type: none"> <li>○ Golden rule for mallet selection: The mallet must be softer than the surface it will be striking.</li> <li>○ <i>Teach students to lift instruments (by the end boards) over thresholds.</i></li> <li>○ <i>Do not lean on the instruments or use them as tables.</i></li> <li>○ Moving concert instruments outdoors (e.g., grass, sidewalks, pavement, in vehicles) is very damaging to the frame over time. <ul style="list-style-type: none"> <li>▪ Have separate timpani and keyboard instruments for symphonic ensembles and marching ensembles when possible.</li> <li>▪ If only one set of symphonic instruments is available to serve both symphonic and marching ensembles, buy or construct heavy-duty frames or carts with large wheels. These frames can be made by qualified band parents or shop classes.</li> </ul> </li> </ul> </li> <li>• The bar cord must be in good working order (use replacement parts, parachute cord, or black tie cord).</li> <li>• Each bar should be insulated properly from the suspension posts (use replacement parts, soft rubber tubing, or moleskin).</li> <li>• Gently straighten any bent suspension posts with pliers.</li> <li>• Replace/retune any damaged bars.</li> </ul>

		<ul style="list-style-type: none"> <li>• If the keyboard instrument rattles: find the exact source and eliminate the noise with tape, a small piece of foam, moleskin, or floss. The usual suspects are loose rivets and wingnuts.</li> <li>• Vibe and chime pedals should be insulated from the stage (use a small piece of carpet, small towel, or self-adhesive foam).</li> </ul>
<b>Accessory Instruments</b>	<b>(all)</b>	<ul style="list-style-type: none"> <li>• Protective storage areas and individual cases for each type of accessory instrument will prevent unnecessary damage.</li> <li>• A carpeted trap stand or a black towel placed on a music stand will reduce the chance of damaging the instruments in performance. <ul style="list-style-type: none"> <li>◦ Trap stands can be made by band parents or shop classes very easily.</li> </ul> </li> </ul>
	<b>Crash Cymbals</b>	<ul style="list-style-type: none"> <li>• Maximize the resonance of your concert crash cymbals by: <ul style="list-style-type: none"> <li>◦ Using only leather straps; removing pads (especially felt pads) or wooden handles.</li> <li>◦ Using an appropriate symphonic grip.</li> <li>◦ Minimizing hand contact with the cymbals.</li> </ul> </li> <li>• You should own separate cymbals for marching and concert band. (Concert cymbals are generally thinner and more responsive.)</li> <li>• Ensure that your cymbal cradle is properly insulated (i.e., rubber tubing for the sides and a piece of rubber or foam for the bottom).</li> </ul>
	<b>Suspended/ Drum set Cymbals</b>	<ul style="list-style-type: none"> <li>• The cymbal should be isolated from the stand with felts <b>AND</b> a rubber post insulator.</li> <li>• Loosen/tighten/remove wing nut to eliminate any rattling in performance. Tighten wingnuts during storage.</li> <li>• Have a specific storage container for felts, wingnuts, and sleeves when they are removed from the stand.</li> <li>• Gooseneck stands are a good option in a concert setting.</li> <li>• If a cymbal is cracked, it is best to replace it. However, some ideas for salvaging a cracked cymbal are to: have a music store drill out and file the crack, reduce the diameter of the cymbal to exclude the crack, or create a custom “spiral” cymbal.</li> <li>• Use correct mallets on a suspended cymbal (generally vibe or marimba mallets---<b>not</b> timpani mallets).</li> </ul>
	<b>Tambourine</b>	<ul style="list-style-type: none"> <li>• Be sure that the head is taught (hairdryer, heating pad, dressing room light).</li> <li>• Never play on a high quality tambourine with sticks.</li> <li>• Beeswax helps with finger/thumb rolls.</li> </ul>
	<b>Triangle</b>	<ul style="list-style-type: none"> <li>• Have a quality clamp (hardware store clamp is acceptable).</li> <li>• Suspend the triangle from the clamp with two small fishing line loops (one primary, one back-up).</li> <li>• Avoid rope or string---they stifle resonance.</li> <li>• Use a proper grip for control and muffling.</li> <li>• Use proper beaters.</li> <li>• Hold the triangle for better sound quality and projection.</li> <li>• Insulate the triangle when it must be clamped to a music stand.</li> </ul>
	<b>Woodblock</b>	<ul style="list-style-type: none"> <li>• Play with a rubber mallet. Find the optimum playing area near the front center of the block over the resonating chamber.</li> <li>• Play with one hand and hold the block with the other if possible.</li> <li>• If both hands are needed to perform, place the woodblock on a music stand or trap table with very thin carpet (not a towel). This will allow maximum resonance from the instrument.</li> <li>• If a woodblock’s sound is dead and unsupported, it likely has a major crack and should be replaced. If the block buzzes slightly when struck, it likely has a minor crack. It is sometimes possible to remove minor cracks and chipping along the lip of a woodblock with fine sandpaper.</li> </ul>

### Instrument Management

- Purchase or build a storage cabinet (with a lock) to house smaller accessory instruments, cymbals, etc.
- Keep larger instruments stored in a locked closet/room if possible.
- Purchase or build carpeted shelves.
- Label where items should be stored.
- Buy or make a cymbal bag.
- Keep mallets stored in large mallet bags and/or the individual plastic bags from the manufacturer.

- Purchase cases to protect instruments (especially drums) that travel. Soft cases are often a cost-effective solution.
- Have drop covers for mallet instruments (blankets are fine).
- For timpani: have drop covers as well as hard covers lined with felt to protect the heads. (These can be purchased or made.)
- When moving timpani, hold them by the braces - **not** the counterhoop - and lift the pedal off of the ground. Be sure the heads are at moderate to high tension when the drums are moved. When the drums are being stored, they should be kept at moderate tension.
- Lift mallet instruments over thresholds.
- Trap tables and/or towels on stands to eliminate non-musical sounds.
- Never use instruments as tables!**
- Attach a laminated sign to the covers of timpani and mallet instruments that reads, "Please do not put anything on top of this instrument." (This offers protection against unknowing students and custodians.)
- Resurrect non-matching stand parts through the use of clamps.
- When moving instruments in an equipment truck:
  - \* Keep in mind that it is generally safest to break down the instruments as much as possible.
  - \* Secure the instruments with bungee cords/tie downs and packing blankets.
  - \* Keep in mind that many percussion instruments are top-heavy.
  - \* DO NOT stack anything on top of percussion instruments.

### Strategies for Developing Student Ownership of the Maintenance Process

- You must take pride in your percussionists and their instruments if you expect them to do the same. Lead by example.**
- Know the proper name and characteristic sound of all the instruments.
- Treat every percussion instrument with the same level of respect you would demonstrate for a wind or string instrument.
- You must clearly communicate your expectations in the area of percussion maintenance to the students. (If you do not, they will assume they have no responsibilities in this area and that it is not important).
- Be sure only percussionists play and handle percussion instruments.
- Remember that positive attention is a catalyst.
- Schedule time to teach students about tuning/maintenance (in percussion class or sectionals).
- Create an environment where students have accountability for the sound of the instruments.
- Periodically schedule sessions for equipment maintenance and tuning.
- Invite a guest percussionist to speak with the students.
- Involve parents when appropriate.
- Give the section leader appropriate responsibilities.
- Assign selected students to monitor specific instrument groups or areas.
- Provide positive incentives for consistent maintenance of the equipment (e.g., increased grades, parties, new equipment/mallets, etc.).
- Provide negative consequences for students who display disrespect for instruments (e.g., decreased grades, not allowed to play on newer equipment, etc.).