

PERCUSSION REPAIR 101

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Percussion repairs can be daunting for any percussionist, let alone for the public school music director who deals with percussion instruments on a daily basis. This repair guide was created to provide a step-by-step process that directors can follow to make sure that percussion equipment is operating at the highest level possible, therefore creating the best sound quality possible and allowing the student to perform at their maximum potential. At the beginning of the document is a list of recommended supplies to have in your toolbox. Some of these supplies are necessary and some are specific to individual repairs, so they may be purchased on the basis of need. For each repair discussed, there is a specific list of recommended tools and supplies that will be needed, or at least come in handy. By having this step-by-step document and the necessary tools on hand, you will be ready to fix the issues that have plagued you for years.

BEFORE BEGINNING ANY PERCUSSION REPAIR...

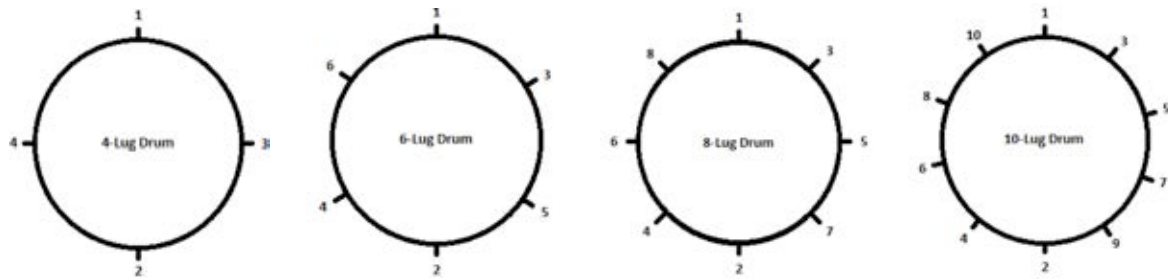
Be sure that you have:

- 1) Time to complete the repair
 - 2) All of the necessary tools and parts
 - 3) Dingy clothes that you can get dirty
- The grease will find you!!!

IN THE TOOLBOX

<p>Tape</p> <ul style="list-style-type: none">Duct Tape (Black, White, Gray, School Colors)Electrical Tape (Black, White, School Colors)Teflon Tape or Teflon SprayCounter-Hoop Felt TapeMoleskin <p>WD-40</p> <p>Petroleum Jelly/Lug Lube</p> <p>Clean Cloth</p> <p>Paper Towels</p> <p>Steel Wool</p> <p>Pledge (without oils)</p> <p>Block of Wood</p> <p>Small Screwdrivers (Flat and Phillips)</p> <p>Needle-Nose Pliers or Vise Grip</p> <p>Wrench (1/2" and 9/16")</p> <p>Allen Wrench Set</p> <p>Tape Measure</p> <p>Lighter</p> <p>Scissors</p>	<p>Fishing Line</p> <p>Black and Silver Marker</p> <p>Drum Keys</p> <ul style="list-style-type: none">Timpani KeySmall Drum KeyHigh-Torque Drum Key <p>Chime Cable</p> <p>Keyboard String</p> <p>(Manufacturer's, Nylon, Para Cord)</p> <p>Tuner</p> <p>DrumDial</p> <p>Snare Cord</p> <p>Nylon Snare Straps</p> <p>Drum Pieces and Parts</p> <ul style="list-style-type: none">LugsNuts, Bolts, and WashersCymbal Washers, Felts, and Plastic SleevesSpare Wing Nuts from Old StandsOld Parts
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CROSS-TENSION TUNING TECHNIQUE



CLEANING DRUMS

(Tools – Clean Cloth, Pledge, WD-40)

1. Spray Pledge directly onto the cloth, never onto the drum, then wipe around the shell of the drum. Be sure to clean under and around all of the hardware and rims.
2. If the drumhead is currently off, first remove all dust and debris. Next, wipe down the inside of the shell, being sure to get all of the nooks-and-crannies around the rims and the hardware.
3. With the drumhead off, take this moment to check and secure all of the nuts and bolts on the inside of the shell. This is the best time to replace anything that needs replaced and maintain your tension rods (petroleum jelly or lug lube).
4. With a clean, dry cloth, wipe off any excess Pledge, petroleum jelly or lug lube, and WD-40.

CHANGING A DRUMHEAD (SNARE, TOMS)

(Tools – Drum Key, Screwdrivers, Tape or Black Marker, Petroleum Jelly or Lug Lube, Spare Washers, Nuts, Bolts, and Lugs, New Drumhead)

1. Determine your head size by measuring from one edge to the other, crossing through the center of the head. Do NOT include the hoop when measuring.
2. Mark the counter-hoop and a corresponding lug casing with a piece of tape or a black marker.
3. Unscrew each tension rod and remove the counter-hoop and old head.
4. Take this time to clean the inside of the drum and check for any loose parts, tightening anything that is even the slightest bit loose.

5. Place the head over the shell, making sure that the logo is where you would like it. Place the counter-hoop onto the head, being sure to line up the marks from Step 2.
6. Apply a light lubrication to the bottom of each tension rod and replace all tension rods; however, DO NOT tighten the head at this point. Finger-tighten the tension rods just to the point of making contact with the hoop.
7. Using the cross-tension tuning technique, begin tightening the tension rods, one-half turn at a time. Continue this process until the head begins to resonate.
8. Seat the head by applying short bursts of pressure to the center of the head. This is done with a flat hand or hand-over-hand technique in the center of the head.
9. Continue Step 7 until you reach your desire head tension. Fine tune by tapping near each tension rod and use your ear or a tuner to match each rod.
10. SNARE DRUM TUNING – The snare side head is typically pitched at a perfect 4th or 5th higher than the batter head.
TOM TUNING (DOUBLE-HEADED) – The bottom resonant head should be the same pitch or up to a minor 3rd lower than the batter head.

TUNING CONGAS & BONGOS

(Tools – 1/2" or 9/16" Wrench)

1. Determine the correct size of head, measuring from the rim of the shell across the center of the head to the rim on the other side, not including the hoop.
2. "Righty Loosey – Lefty Tightly" (Yes, this is opposite of the norm!)
3. These heads should be extremely taut. You should not be able to depress your fingers into the head.

REPLACING SNARES

(Tools – Small Screwdriver, Snare Cord or Nylon Snare Straps, New Snares)

1. Be sure to purchase the correct size of snares for your drum. The typical size for a concert snare drum will be 14", sometimes 13".
2. Place the drum on a flat surface with the snare side facing up.
3. Remove the old snares.
4. If you are replacing the snare head, this would be the time to do it.

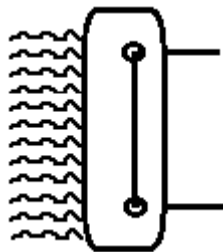
5. Lay the snares flat on the head, making sure that the side of the end plate that the wire strands are attached to is the side that lies against the head (A). Be sure that the snares are centered on the snare head.
6. Leave the snare release lever in the "ON" position and unscrew the snare adjustment knob to near its loosest position.
7. Dependent on the type of snares you are using, you will need to use either snare cord or nylon snare straps to attach the snares to the drum.

CORD – Thread the cord through the snare plate and create an equal length of cord on each side. On the snare plate, the exposed cord should be facing away from the drum (A).

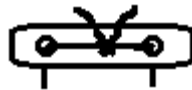
NYLON STRAP – Thread the strap through the snare plate and create an equal length of strap on the top and bottom.
8. Beginning with the snare release side of the drum, feed the cord or nylon strap through the counter-hoop snare gate and then through the holes of the cover slide (B) or through the clamp (C).

CORD – Make sure that the ends of the cord are spread apart as far as possible within the slide or clamp.

NYLON STRAP – Make sure that both sides of the strap pass through the clamp.
9. Keeping the snares centered on the snare head, tighten the screws on the clamp or tie a knot with the ends of the cord on the outside of the slide.
10. Repeat Steps 7-9 on the other side of the drum. While tightening or tying on this side of the drum, be sure to pull on the snares to make them taut.
11. At this point, if you are using cord, you may wish to burn the ends of the cord to keep it from unraveling.
12. Place the drum on a snare drum stand, batter side up, and tighten the snare adjustment knob to your desired tension.



A



B



C

View from on top

CHANGING A CONCERT BASS DRUM HEAD

(Tools – Cloth, Tape or a Black or Silver Marker, Petroleum Jelly or Lug Lube, New Drumhead)

1. Determine your head size by measuring from one edge to the other, crossing through the center of the head. Do NOT include the hoop when measuring.
2. Have the drum suspended on a stand or lying on a flat surface.
3. Mark the drum hoop and a corresponding spot on the drum with a piece of tape or a marker.
4. Remove all of the tension rods by hand, remove the hoop, and remove the old head.
5. Wipe down the hoop, clean the inside of the drum, and clean off the tension rods of any excess dirt and oil.
6. Place the new head on the shell and center the logo at the top of the drum.
7. Place the hoop onto the head, being sure to line up the marks from Step 3.
8. Lightly lubricate each tension rod and place them into the lug casings.
9. Finger-tighten each tension rod, leaving the same amount of distance between the underside of the hoop and the lug casing. Be sure that each T-rod is square to the hoop. Hit the drum and you should hear a very loose, flabby rumble.
10. Using the cross-tension tuning technique, tighten each tension rod one full clockwise turn, leaving them square with the hoop. Hit the drum and listen again. You may use a tuner to fine tune.
11. Seat the head by applying short bursts of pressure to the center of the head. This is done with a flat hand or hand-over-hand technique in the center of the head.
12. Repeat Step 10 until the desired sound is achieved.
 - a. REMEMBER, this is a concert bass drum and should be the lowest sounding drum in the percussion section. *Do not over tighten!* Different muffling techniques may be employed to lessen any ringing sound that is not desired.
13. TUNING – The resonant side head should be the same pitch or a half-step higher than the batter head. •

Christopher Davis is Assistant Professor at North Greenville University, where he teaches applied percussion and directs the NGU Percussion Ensemble and the NGU Marching Crusaders. In addition to his responsibilities at NGU, Christopher performs with many regional orchestras, teaches private lessons to all ages, and presents master classes around the state of South Carolina. He has served on the PAS University Pedagogy Committee for 9 years and is currently the Vice-President for the South Carolina chapter of PAS.