Eliminating Vibration and Tool Bounce from Bench Grinders
By: Don Geiger

Grinding wheels need a solid foundation. Grinding wheels are usually provided with plastic bushings to adapt the large hole in the wheel to the smaller diameter axle. Plastic bushings do not provide a solid foundation and contribute little to positioning the wheels perpendicularly to the axle. I suggest replacing the plastic bushings with appropriately sized steel bushings. Steel bushings will provide a solid foundation and will improve the perpendicularity of the wheel in relation to the axle. Steel bushings cost about $12 each and are available from Geiger’s Solutions.

To correct left and right wheel wobble- Mount the tool rest you plan to use approximately 1/8" from the wheel and secure it into place. Rotate the wheel by hand to verify if the tool rest is clear of the wheel. Put on an ANSI approved face shield. Turn on the grinder. While using the tool rest for support, lightly touch the outside of the wheel near the edge with a lead pencil. Then mark the other side of the wheel. Do this to both wheels. Stop the grinder. Inspect the marks you've made. You will probably see a mark on each side of each wheel that indicates the apex of the wheel wobble. The marks on a given wheel will most likely be 180° apart.

Unplug the grinder and remove the outside cover plate on each side of the grinder. Rotate the wheels to position one wheel so the mark on the inside surface is facing the front of the grinder. Loosen the axle nut on one wheel and without rotating the wheel on the axle, slide the wheel to the outside slightly. Insert a stack of about five ¾” diameter paper sticky dots (like are used for price marking) between the inside cup washer and the side of the wheel on the imaginary radius line from the middle of the pencil mark to the axle. Push the wheel back into position against the inside cup washer. Place a stack of paper sticky dots between the inside edge of the outside cup washer and the outside surface of the wheel along the imaginary line between the pencil mark and the axle. Tighten the nut.

Do the same for the other wheel. Adjust the number of stick dots until you are satisfied with the results.

Once the dots are installed, tighten the nuts as described above and observe the wheels to see if you can detect any side-to-side wobble. If there is, repeat the steps above and adjust the number of stick dots until there is no noticeable wobble. Make...
sure the nuts are tightened to the appropriate torque and the factory guards are installed.

Put on an ANSI approved face shield. Stand out of the line of fire (to the side of the grinder) and start the grinder. Position yourself where you can reach the electrical plug in case you need to pull it if there is a problem. Let the grinder run for 10 minutes. Turn the grinder off.

The circumference of each wheel needs to be made concentric to the axle- To effectively do this requires a diamond wheel truing system- not just a wheel dresser. How a wheel truing system differs from a wheel dresser is the depth of cut is controlled and micro-adjustable. This enables one to remove the high points of a non-concentric wheel, thus making it concentric to the axle. Unlike gravimetrically balancing wheels, that use weights to counter balance eccentricities in the circumference of the wheels (treating just the symptom), truing a wheel treats the cause of the problem.

To true the wheels using Geiger’s Tru-N-Dress, position your tool rest within 1/8” from the wheel and the top surface of the tool rest needs to be pointing at the axle of the grinder or slightly downward. Do not position the tool rest upward. Tighten the tool rest securely. Make sure the edge of the tool rest facing you is smooth. If there are any nicks or bumps on the edge, remove them using a fine file. It is advisable to slightly chamfer this edge. Remove the cap that protects the diamond. Place the Tru-N-Dress on the tool rest and retract the position of the diamond until is slightly misses the face of the wheel when you slide the Tru-N-Dress left and right across the tool rest. Rotate the wheel by hand to ensure the wheel does not touch the tool rest. Once the position of the diamond is set, put on an ANSI approved dust mask and an ANSI approved face shield. Start the grinder. Slide the Tru-N-Dress left and right across the face of the wheel and rotate the round black adjustment knob clockwise slightly to advance the position of the diamond until it slightly contacts the wheel. Traverse the Tru-N-Dress back and forth 6 to 8 times and then slightly advance the position of the diamond. Repeat this procedure a few times then stop the grinder and inspect the wheel. Repeat as necessary until it appears that the diamond has contacted the entire circumference and the width of the wheel. Repeat the same procedures on the other wheel.
To maintain the wheels, continue to use the Tru-N-Dress to remove metal particles that get imbedded on the surfaces of the wheel and don’t resort to using a hand held wheel dresser. By continuing to use the Tru-N-Dress, your wheels will remain in top-notch condition.

Good sharpening!

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