NHLA – "Hardwood Matters"

Tuning Your Leveler

Automatic leveling machines for wide bands have become commonplace in mills today. Over the last twenty years they have demonstrated their worth in the hardwood mills and are now generally considered a basic piece of filing room gear, not the somewhat exotic gear they were even ten years ago. If you have one and it is not getting used hard every day let's find out why and get the situation corrected.

There are several things that are key to getting the most out of your leveler. I'll address the ones that are specific to the red machines that I am familiar with, but I believe many of these principles will cross over even to machines that are not such a splendid color! No mater what brand of machine you own they can all do a fine job.

The first step in understanding how well your machine is working is getting an objective measure of performance. This is actually pretty easy. Load and ordinary mill run saw in the machine and with the air cut off get zero established. A couple of really important things about getting zero at the start of the cycle:

- Always get zero with the saw moving, and always over the support rails. If you get zero on a stationary saw you may zero on a bump and end up trying to move the entire saw to a position it cannot possibly achieve. The result will not be good!
- Note that all of the readings over the rail will be either zero or show up from zero. The saw cannot show through with the rail in the way, make sure that you set zero to reflect that.

With the saw in the machine and tracking move the indicator out to the middle of the saw and watch for spots that show significant movement. When you find a spot that shows a defect stop the machine and align that spot under the indicator. Move the indicator from side to side and note how much movement it shows, mark that spot on the saw carefully for location and the extent of the movement. It's best to mark three or four spots this way.

Now process the saw by making just one pass across it with the leveler (not a full operating cycle, just one pass from back to front). Cut the air off and return to each of the marked spots. Note how much of the deviation has been removed; now you have an objective measure of performance. A good result will be a reduction of one half or a little more of the deviation present. Subsequent passes in a full operating cycle will get the saw extremely flat in functional terms.

This single pass should take no more that 15 minutes on a typical headrig saw say 42' long 12" wide. On a resaw 32' x 10 more like 10 minutes. If it takes longer than that you are making the sequence of rolls to close together and performance will suffer as a result! It is best to make steps of about ½" between the circumferences as the machine works across the saw. If you make them too close together you risk reacting too much too soon on larger deviations and actually making the saws worse instead of better. It seems counter-intuitive, but the worse a saw is the bigger the steps you need to take. If a saw is dished, or has lots of problems, take great big steps, like 1" or 1-1/4", at the start of the cycle. That will take out the big problems very quickly, then dial the machine back to ½" and let if

find the rest. This principle is a very important one! It will speed up the process and yield dramatically better results.

If this check does not demonstrate a good result the following steps may tell why. Watch the indicator and the control panel – do the lights on the panel react to what the indicator shows? The easiest way to check is to adjust the indicator up and down on a stationary saw. The lights on the panel for small bumps should react when the dial is more that three marks from zero (.03 mm or .0012”). The big bump lights should react at about 12 marks (if you have a two stage machine - those made since the mid 90’s) but don’t be overly worried about the big bump setting. I would not worry the big bump trigger if it’s anywhere between 8 and 15 marks (it just activates the bottom cylinder to bump pressure a bit).

Next check that the firing of the working rolls does not upset the measurement the machine is making. Put a saw in okay condition in the machine and zero it out (air off). Shut the machine off, move the head out until the working rolls are in the middle of the saw. Activate each of the top rolls by having someone behind the machine pull down the arm that works the rolls and watch the indicator. It should not move more than one or two marks. If it does we need to check the height of the bottom rolls relative to the bed line of the machine (from the support rails to the drive).

If you suspect problems with this alignment we’ll need a saw in the machine that is in good shape to use as reference. Start with the head of the machine on the back edge of the saw, look underneath the saw at the height of the bottom roll in each pair (you may need a light behind the machine). You should see just a whisker of daylight between the roll and the saw (say .010” for example), same on both bottom rolls. Now run the head out to the outside edge of the saw and make the same check, you should see the same relative amount of daylight.

If these bottom rolls are too low the saw will react when the top rolls fire and cause an unwanted reaction in the dial. The bottom rolls are on eccentrics, if you need to adjust them you will have to reset the working pressure as well.

Now check working pressure. With the same saw in place, the saw still stationary and the air still off go around to the back of the machine and work each of the air cylinder arms through their range of motion a couple times to feel the point of contact with the saw. Once you have a feel for it pull them down until you just feel that contact and check the gap to the rubber stopper. It should be 1/2” to 5/8”, and importantly it should be the same on both sides. Any error you cannot visually see is too small to worry about; we’re not splitting the beer atom here!

A bandsaw leveler working properly is a huge help to both saw filers and saw performance, if yours is not being fully utilized you owe it to yourself to find out why! These simple checks will give a good start, if you find problems give the folks you got it from a ring; there are not many problems with these machines that cannot be resolved very easily over the phone.

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