Bandsaw Demo

Dennis Moon
03/13/2006

Safety

- Balance yourself in front of the bandsaw
- Hold your fingers spread out on the table
- Starting and Stopping the saw
- Lower the guard to the height of the piece
- Safety Glasses
- Ear protectors
- Sharp blade
- Loss hair and clothing

Safety

- Keep First Aid kit on hand
- Do not work when your tied
- Read owners manual for all tools
- Unplug when changing blades

Setup Bandsaw Blade

- Remove guides--you CANNOT run this test if the band saw blade is restricted in any lateral movement.
- Make sure tire surfaces are in good condition--they cannot be hard, flattened out, cracked or brittle. On mills with loose fitting V-belts, replace them with the next size down so they are tight fitting. This will eliminate over 80% of the vibration in your mill and the blade.
- Mount the blade on the machine and apply the tension to the band that the manufacturer recommends.
- Close all covers for safety purposes.
- Start the machine, engage the clutch into the high speed cutting mode. NOTE: You will not be cutting any wood.

Setup Bandsaw Blade

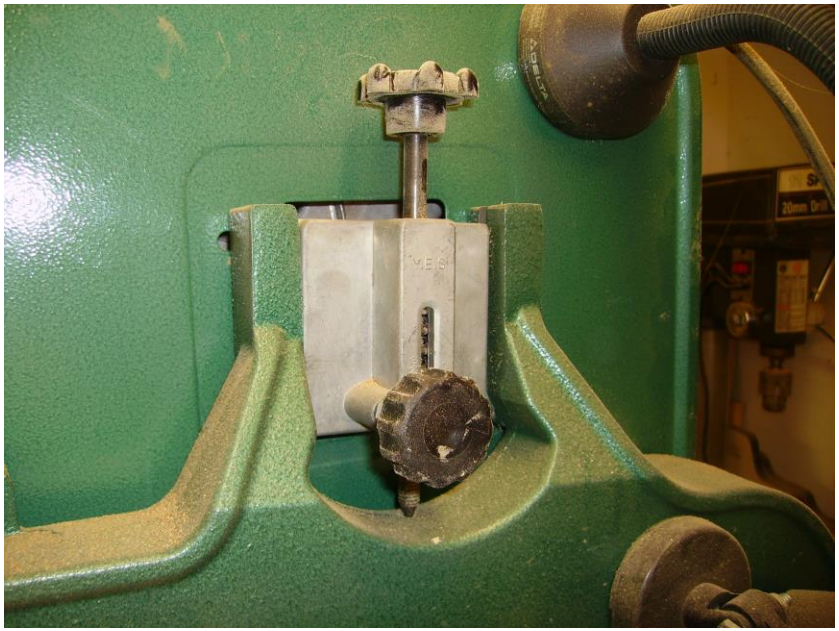
- Stand at the head of the machine, with your hand on the turn screw tensioner and your eyes on the band saw blade. Very slowly start detensioning by half turns at a time, keeping your eyes on the band saw blade. The object is to bring the tension of the blade down to a point that the blade starts to flutter. TAKE YOUR TIME.
- When you see the band start to flutter, you have hit ground "ZERO". Now start ADDING quarter turns of tension, SLOWLY, until the band stops fluttering and is running stable again. At this point ADD one-eight to one-quarter turn of tension.
- You have now tensioned your blade correctly. Shut off the machine and put your guides back in place. You are now ready to start sawing

ALWAYS DETENSION YOUR BAND SAW BLADES

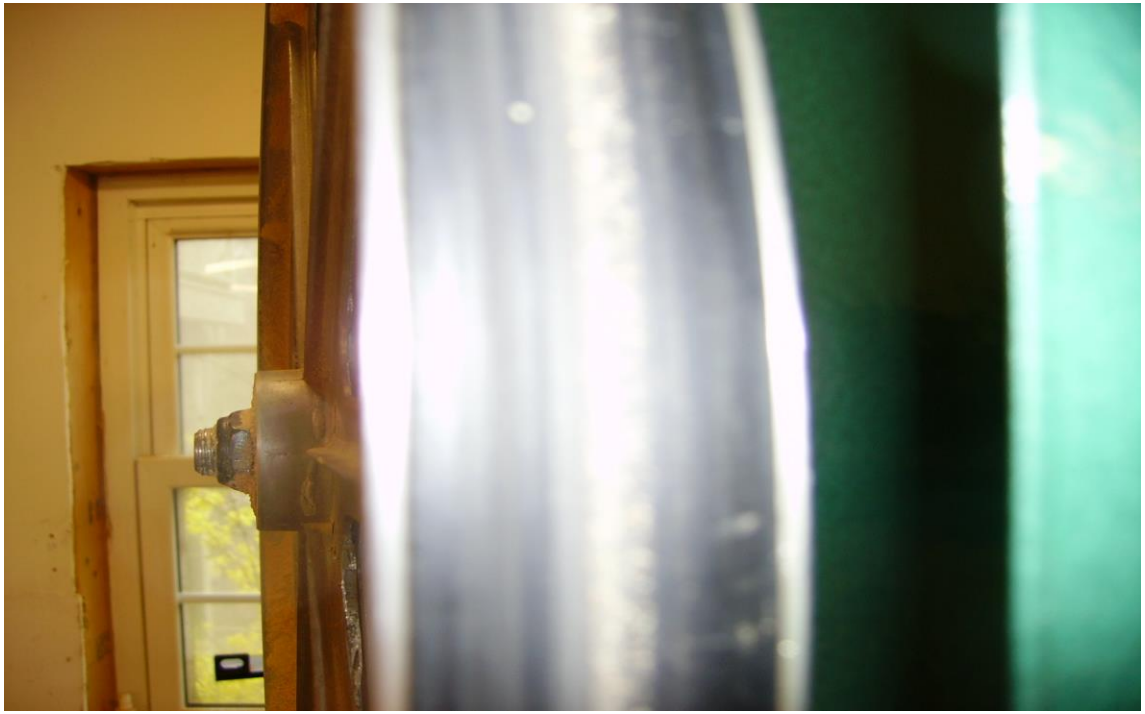
- Since you do not know exactly where the proper tension is, it will be easier to remember if you take off 8, 9, or 10 full turns of tension until the band is completely relaxed. The next time you use your bands, add the same amount of turns of tension that were taken off. At this point, you will only have to run the flutter test one time.
- When you are done cutting for the day, take the tension off your blade. Band saw blades, when warmed up from cutting, always stretch; and upon cooling shrink by tens of thousandths of an inch each cooling period. Therefore, blades, when left on the saw over tension themselves and leave the memory of the two wheels in the steel of the band, which will cause cracking in the gullet. When you leave the band on your saw under tension, not only do you distort the crown and flatten out the tires (which makes them very hard), but you also place undue stress on your bearings and shafts. Believe it or not; you can, and will damage your wheel geometry sooner or later and considerably shorten bearing life. You are also crushing your tires or V-belts.

Rear Tensioner

- The marking of blade size is just a guide



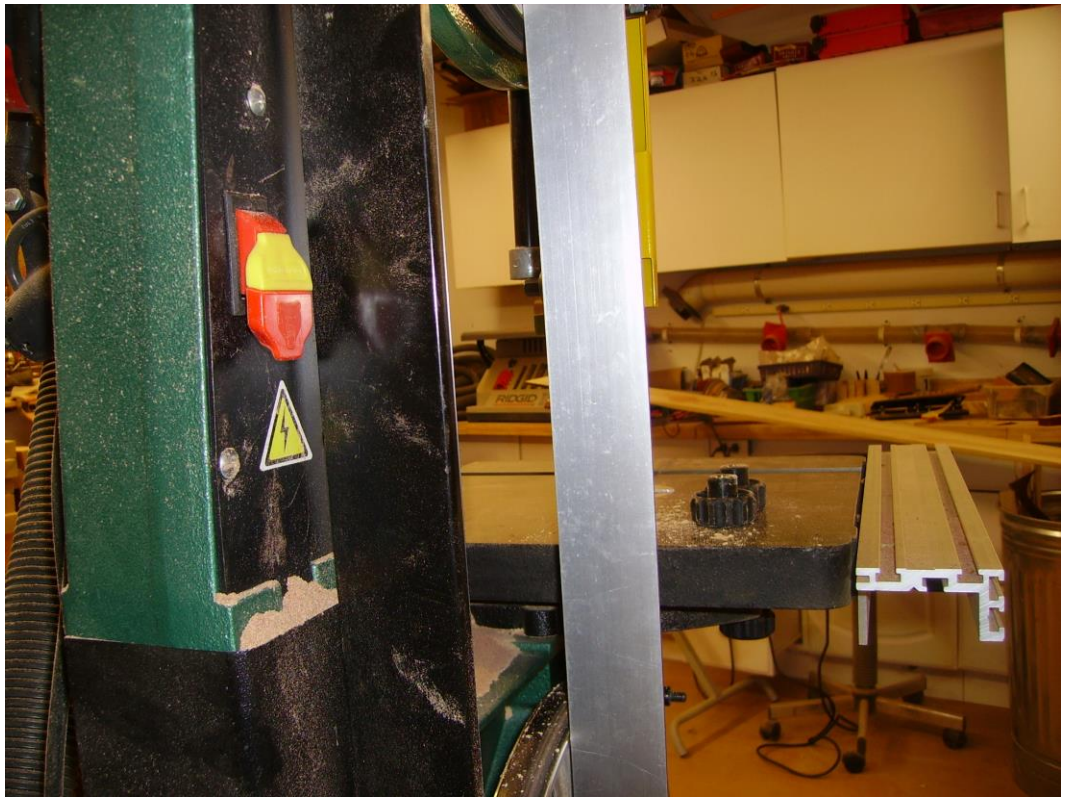
Bandsaw Tire



Notice the build up on the tire from cutting
This happens mostly with wet/not fully cured wood

Align wheels

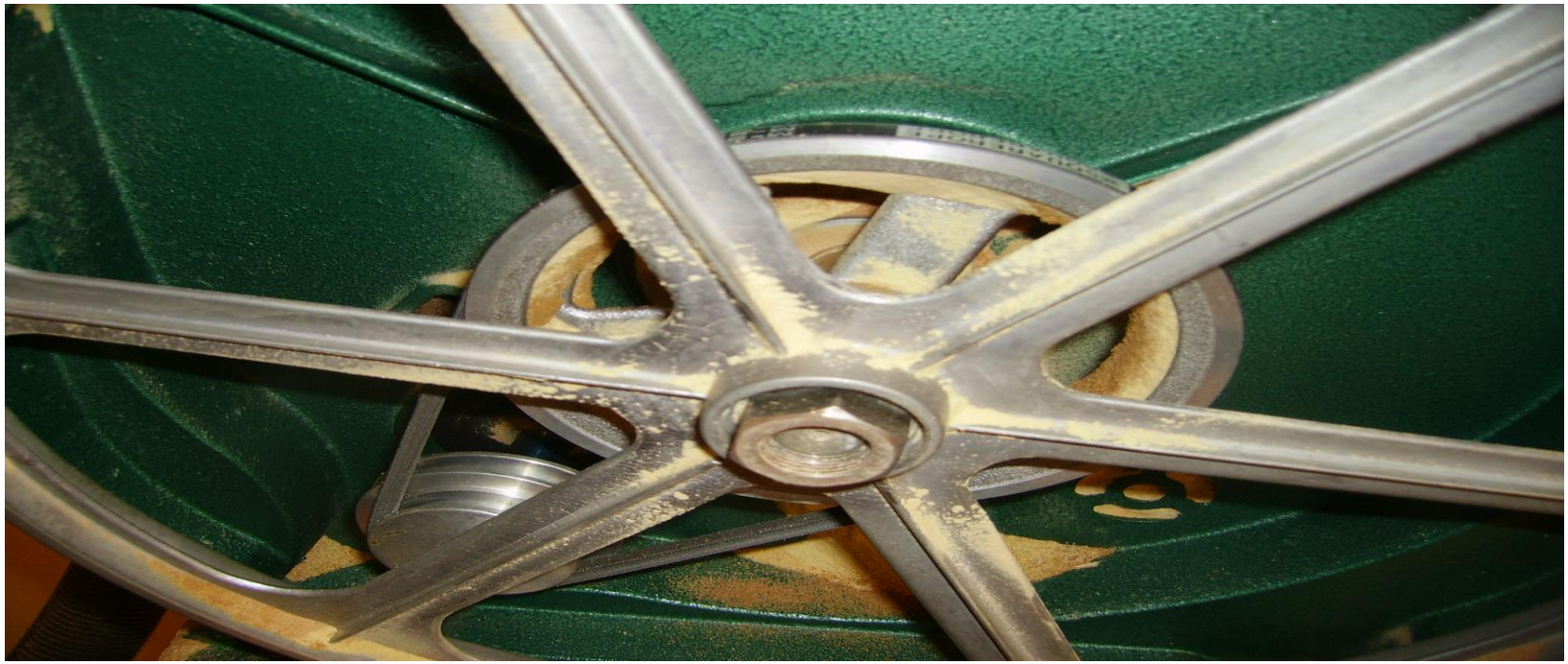
- Check to make sure that your wheels are aligned



Blade Position

- This is a good blade position

Bottom Wheel



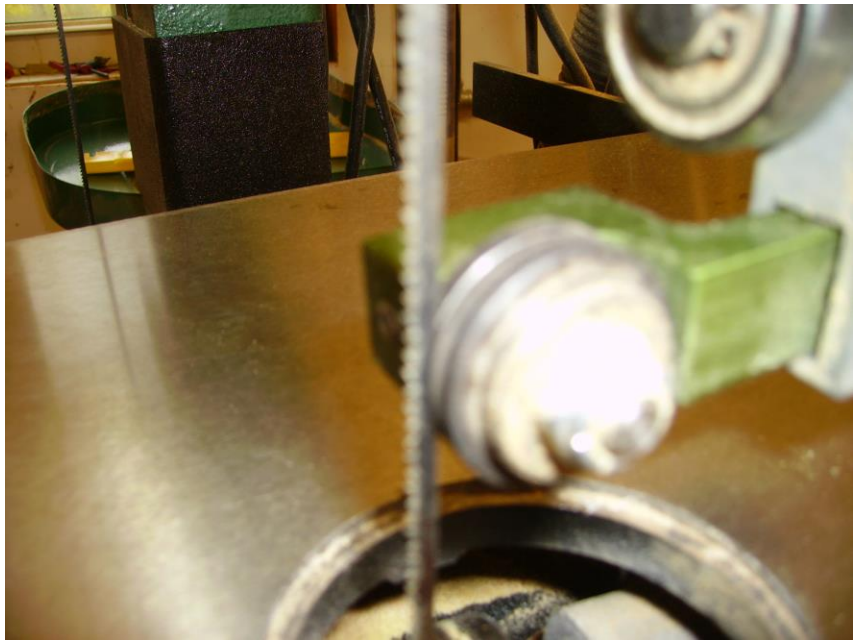
Check the tension of the belt
Inspect allen screws for tightest

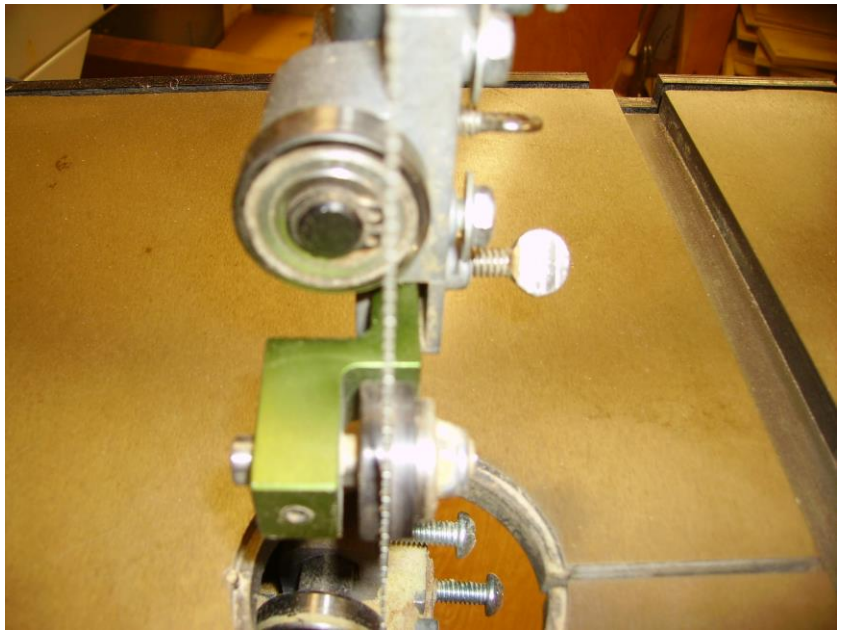
Bottom Guides

- Bottom guide not used with carter style guides

Carter Style Guide

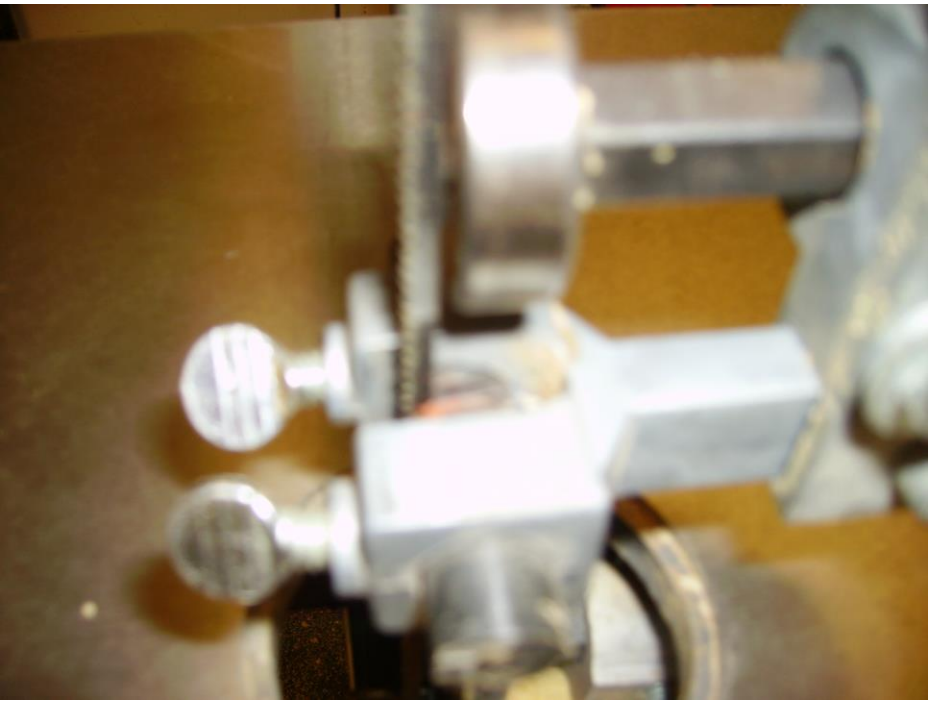
- This is best used with small blades

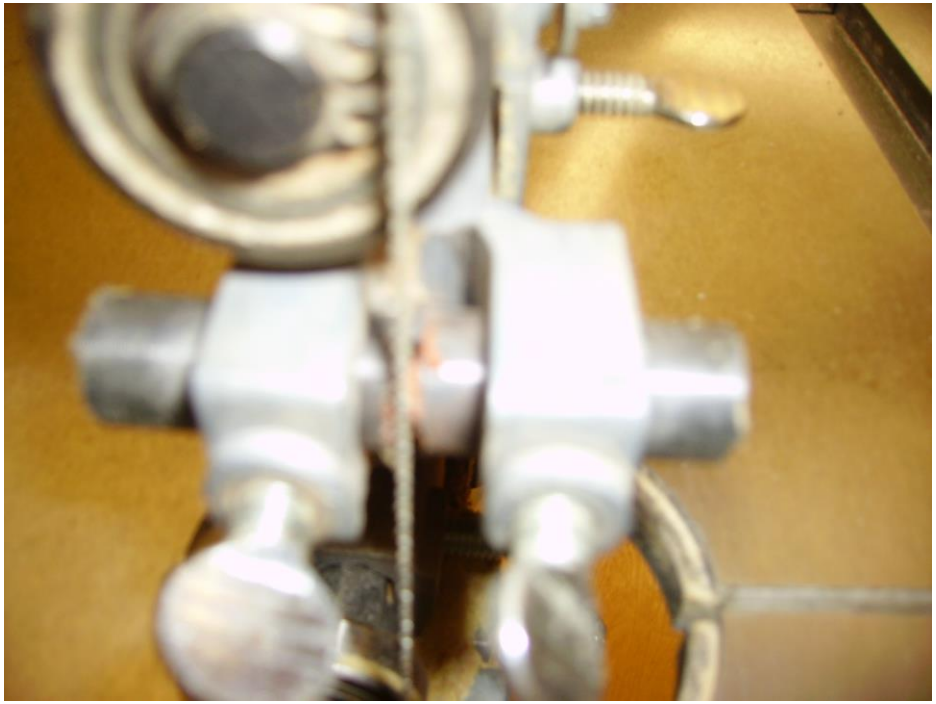




Kool Blocks

- Kool blocks with bearing support





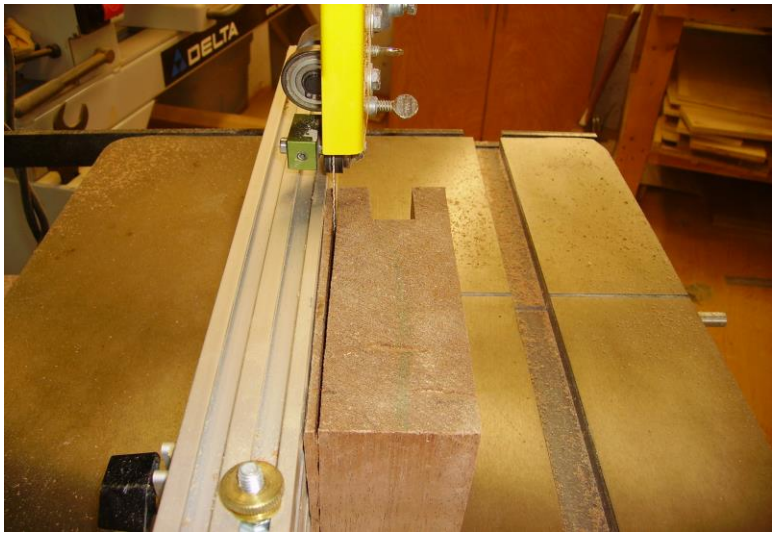
Dust Collections

- Add extra dust port to saw

Ripping

- rip outside

- rip inside

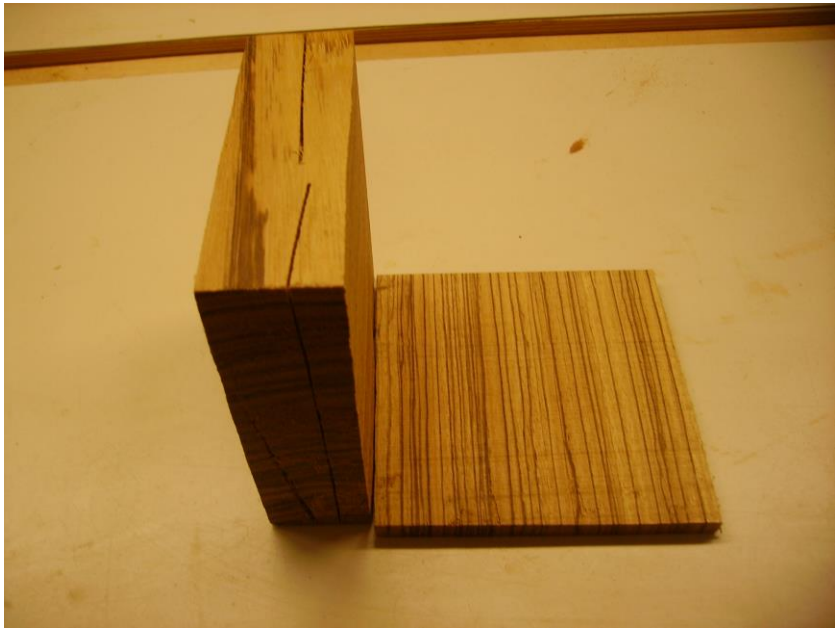


Ripping

- Rip by line (drift)

Veneering

- Samples of slicing veneer



ABC of Resaw

- **A**llow the saw to make the cut.
- **B**lades must be sharp and sized for the job.
- **C**ompensate for drift. Don’t overfeed.
- Get the Drift: Setup Tips
- If you’ve tried cutting a straight line on your bandsaw, you probably noticed that your material has to be fed at an angle to the blade. This is called "blade drift." Any resaw technique that uses a fence requires finding and working with this drift angle. Drift varies from blade to blade, so follow this simple setup procedure (Photos 1 through 4) every time you change blades.

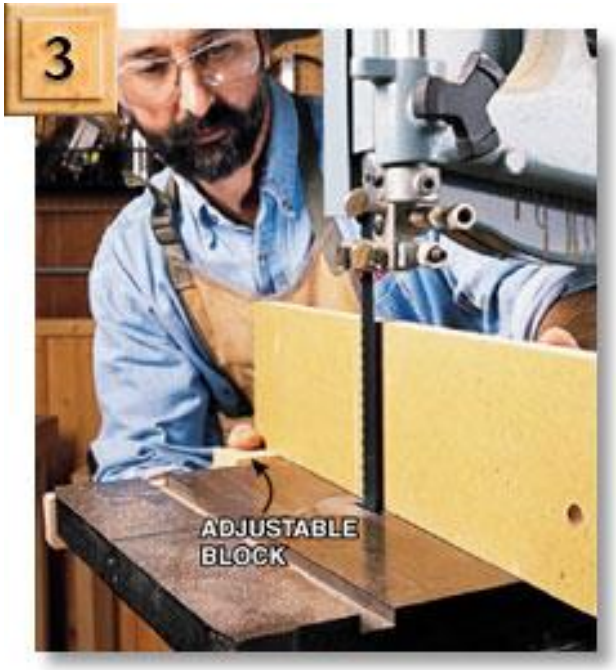
Find The Drift

- **FIND THE DRIFT** angle by drawing a line parallel to one edge of a 16-in.-long scrap piece. Saw the line freehand. Notice how much you have to angle the wood in order to follow a straight line. This is the drift angle.
- **Tip**: If the front of your bandsaw table isn't straight, screw on a strip of hardboard or aluminum bar. This will make it much easier to move and adjust a shop-made fence.

Find the Drift

- STOP about halfway through the cut, hold the wood in place and shut off the saw. Trace the angle of the wood onto the bandsaw table.

Find the Drift



- SET YOUR FENCE parallel to the line on the table. An adjustable block at the end of the fence allows you to hold this angle as you move the fence laterally. Make sure your table is square to the blade and your fence is square to the table.

Find the Drift

- CLAMP THE FENCE and make a test cut. Watch for the wood pulling away from the outfeed side of the fence or binding. It can take a couple tries to get the drift angle perfect. Once the drift angle is correctly set, move the fence laterally to make the cuts you need.

Find the Drift

- POSITION THE FENCE and resaw your board! Be sure to use a push block and pushstick to keep your fingers well away from the action.

Trouble Shooting Resaw

- Look for these symptoms when you make your test cut: If the board pulls away from the fence on the outfeed side , the outfeed end of the fence is angled too far away from the blade. If the board you’re cutting binds as you’re slicing it, the outfeed end of the fence is angled too close to the blade. Make an adjustment and try another test cut.
- Keep your feed rate slow. Listen to your saw and slow down if it’s bogging down.

Good Resaw

- SETUP FOR THIS RESAW WAS PERFECT, but the wood warped after it was cut. It must now be carefully planed to remove the cup.

LOW BLADE TENSION

- LOW BLADE TENSION can cause barrel cuts.
- Use a blade with the right tooth count. Too many teeth make it hard for the blade to clear the sawdust.
- Even with everything correctly set, your wood may not cooperate. Wood can sometimes be imperfectly dried, and react after it’s been cut (photo, top). The only solution is cutting your stock thick enough to plane out the cup after resawing.
- Tension your blade. Too little tension can lead to barrel cuts (photo, top). Check the tension by unplugging the saw, raising the upper guide and pushing on the side of the blade. The blade shouldn’t deflect more than 1/4 in.

Low Blade Tension

Making simple Bandsaw box

- Get piece of scrap 3x4
- Mark the shape of the box

Step 2 BS Box

- Cut the outside shape, keeping the bottom flat

Step 3 BS Box

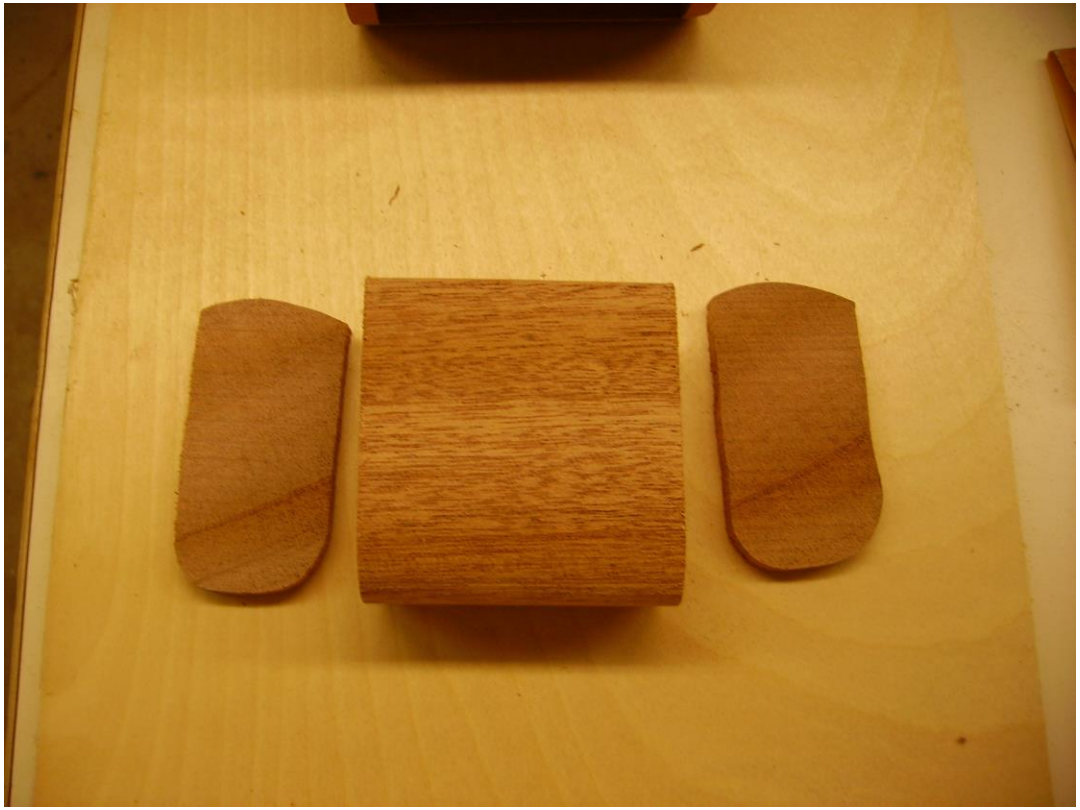
- Cut the sides off the main body

Step 4 BS Box

- Cut out the drawer
- #Note make sure it’s the same size, the front should be larger than the back

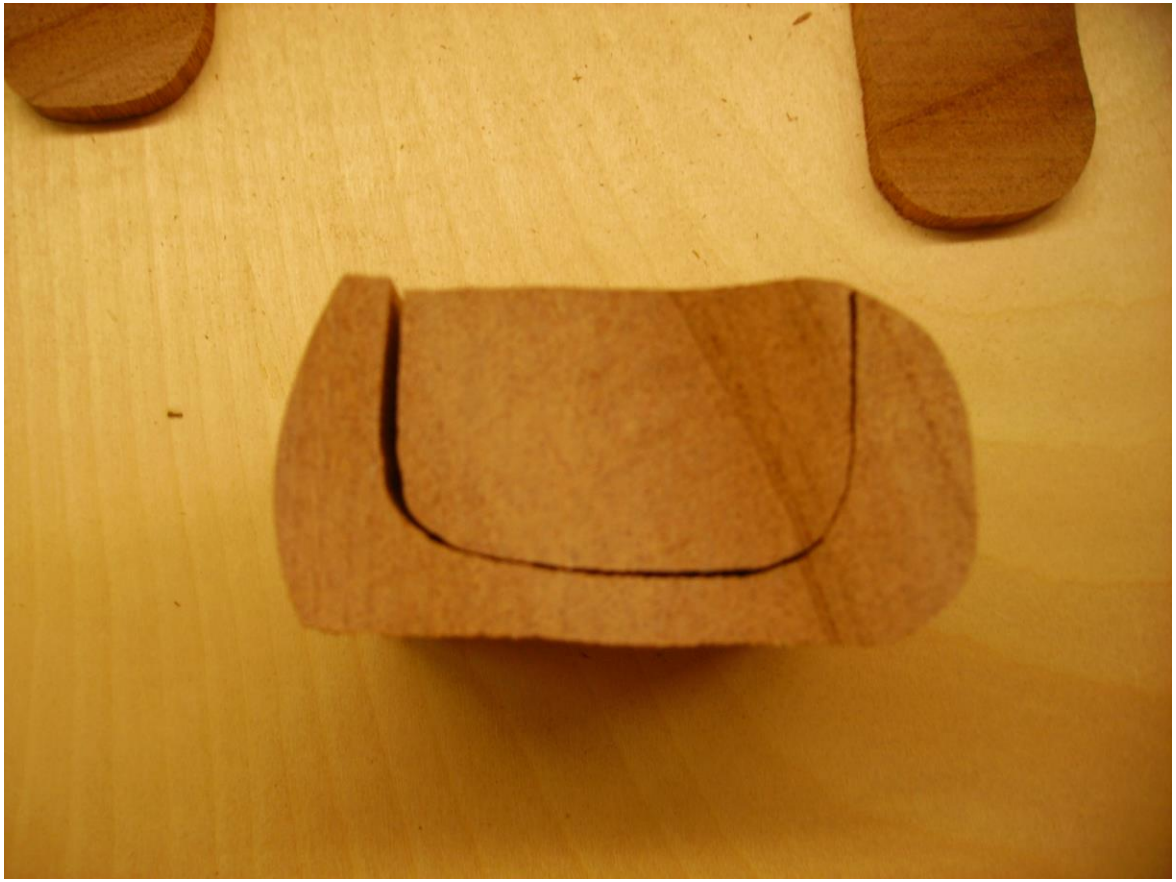
Step 5 BS Box

- Cut the sides off the drawer



Step 6 BS Box

- Cut out the drawer

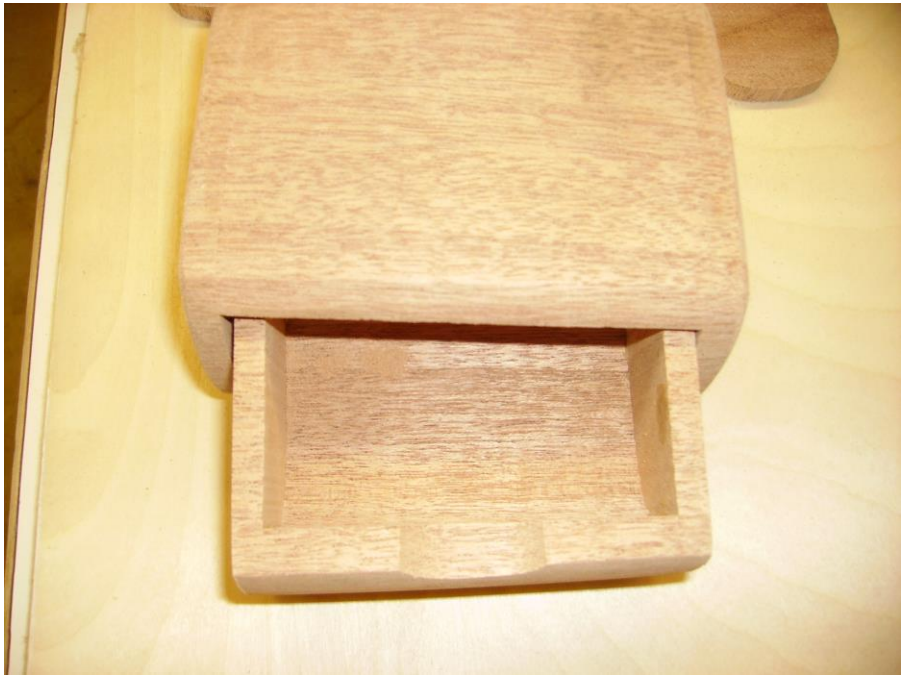


Step 7 BS Box

- Sand the inside of the main box
- Glue up the main box sides
- Glue up the drawer sides
- Sand the outside of both
- Flock the drawer inside

Completed Box

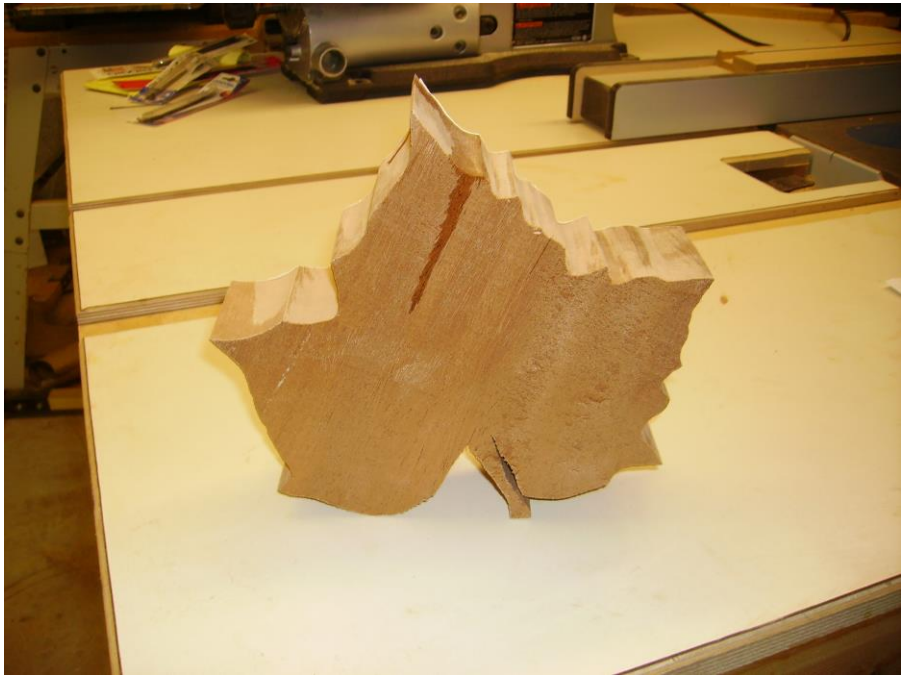
- Before flocking



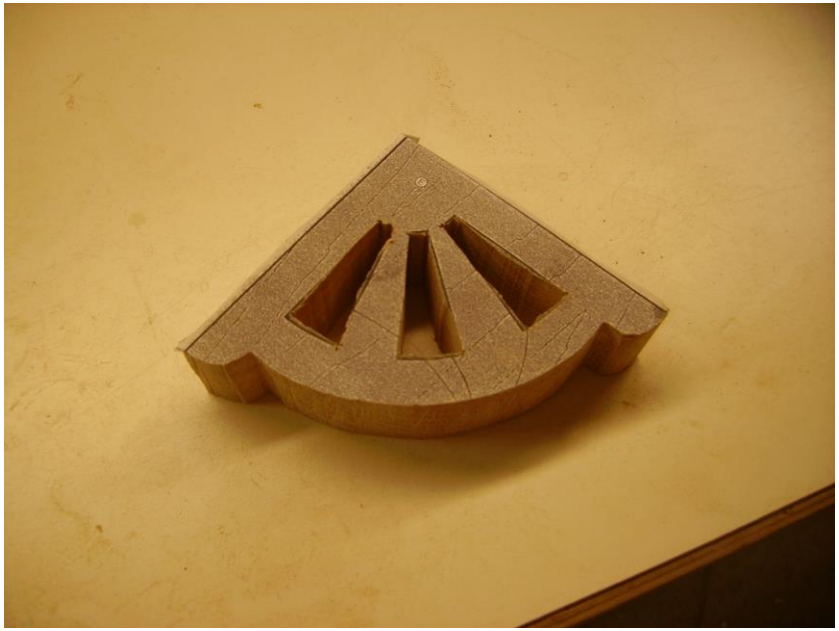
Other fun stuff with a bandsaw

More

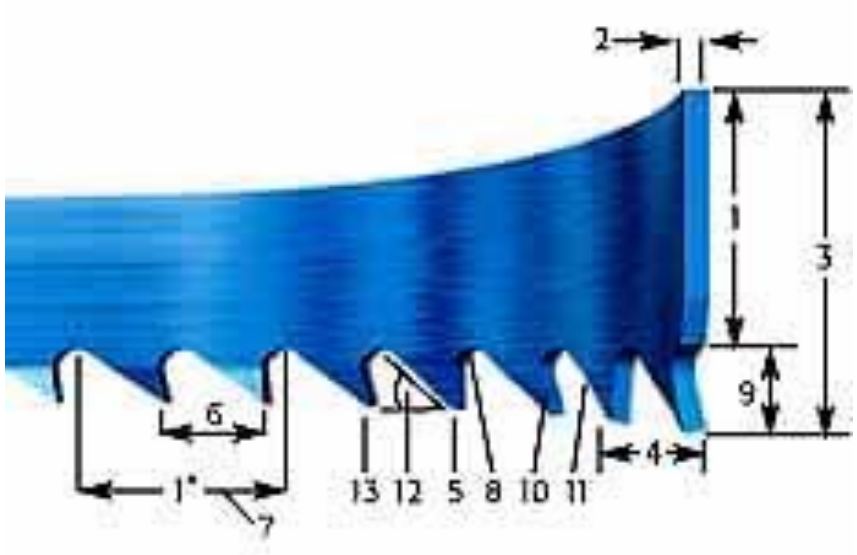
- Fancy box



Brackets for mirror



Blades



1. **<u>Blade Back</u>** The body of the blade not including tooth portion.
2. **<u>Thickness</u>** The thickness of the blade.
3. **<u>Width</u>** The nominal dimension of a saw blade as measured from the tip of the tooth to the back of the band.
4. **<u>Set</u>** The bending of the teeth to right or left to allow clearance of the back through the cut.
5. **<u>Tooth</u>** The cutting portion of a saw blade.
6. **<u>Tooth Pitch</u>** The distance from the tip of one tooth to the tip of the next tooth.

7. **T.P.I.** The number of teeth per inch.
8. **Gullet** The curved area at the base of the tooth.
9. **Gullet Depth** The distance from the tooth tip to the bottom of the gullet.
10. **Tooth Face** The surface of the tooth on which the chip is formed.
11. **Tooth Back** The surface of the tooth opposite to the tooth face.
12. **Tooth Rake Angle** The angle of the tooth face measured with respect to a line perpendicular to the cutting direction of the saw.
13. **Tooth Tip** The cutting edge of the saw tooth

Blade Teeth

- The most common tooth types are the regular tooth and the variable tooth.

REGULAR TOOTH

REGULAR TOOTH - Straight faced tooth with deep gullets to rake out chips.

HOOK TOOTH

HOOK TOOTH - Widely spaced teeth and deep gullets with teeth that have a ten degree undercut face which helps to dig in and take a good cut while the gullets tend to curl the chips. This type is good for harder nonferrous alloys, harder woods and many plastic operations. Available in raker set only.

Blade Teeth

SKIP TOOTH

- SKIP TOOTH - Very similar to the hook tooth but characterized by a straight 90 degree tooth and a sharp angle at the junction of the tooth and gullet This type tends to break up the chips This style is good for soft nonferrous metals that have a tendency to gum and clog the blade and it is also popular in wood cutting. Available in raker set only.

VARIABLE TOOTH

- VARIABLE TOOTH - (Bi-Metal only) Also known as vari-tooth or broach tooth this tooth has varying set angles and gullet depths The variable tooth cutting edge reduces vibration while the back absorbs the impacts of cutting in and out of holes slots and narrow webs This is the best all-purpose blade for production work and for general shop cut-off and contouring. Use it for cutting off solids bar stock and especially structurals

Teeth per Inch

When Selecting TPI remember:

- More TPI give a smoother but slower cut
- Fewer TPI allow a faster cut with a slightly rougher finish
- At least three teeth must be in the workpiece - the chart below will help you decide.

TPI Chart

TPI	Minimum Material Thickness
32	3/32"
24	1/8"
18	5/32"
14	1/4"
10	5/16"
8	3/8"
6	1/2"
4	3/4"
3	1"
2	1½"

- The number of teeth per inch (TPI) is important in obtaining the finish desired and the proper feed rate. A coarse tooth blade (2, 3 TPI) should be used for resawing wood and cutting thicker stock up to 8". A fine toothed blade (18 to 32 TPI) should be used for thinner metals and plastics under 1/4". For general cutting of 3/4" wood 4 TPI will provide a fast cut and 14 TPI will cut slow but leave a smoother finish.

Websites

- **Bandsaw Web sites**
- WoodMizer
- http://www.woodmizer.com/wmwebsite/welcome.html
- Carter
- http://www.carterproducts.com
- Timer Wolf
- http://www.timberwolf1.com
- Tuff Tooth Canada
- http://www.tufftooth.com
- Folding a Sawblade
- http://www.taunton.com/../finewoodworking/pages/wvt055.asp
- Delta Bandsaw parts
- http://www.sawcenter.com/bandsaw_parts.htm

Website

- Sharp Tool
- http://www.sharptool.com
- Bernards Bandsaw Blades
- http://www.bernards.co.uk/bandsaw_blades_faq.htm
- Low-tension blades, approx. $25, depending on length;
- PS Wood Machines, (800) 939-4414.
- Cool Blocks push pads; $15
- Woodworker's Supply,
- (800) 645-9292.
- Motors; Grizzly, $200
- (800) 523-4777.
- Guide bearings; Carter Products, $150
- (888) 622-7837.
- Moisture meters; $150
- Electrophysics, (800) 244-9908; Protimeter, (800) 321-4878;
- Wagner, (800) 944-7078.
- Medium-sized bandsaws; check the AW Buyer's Guide for complete specifications.
-

Last One

- You can download this from http://www.finedust.com on the main page is a link to this presentation.