

BAND Saw Training guide

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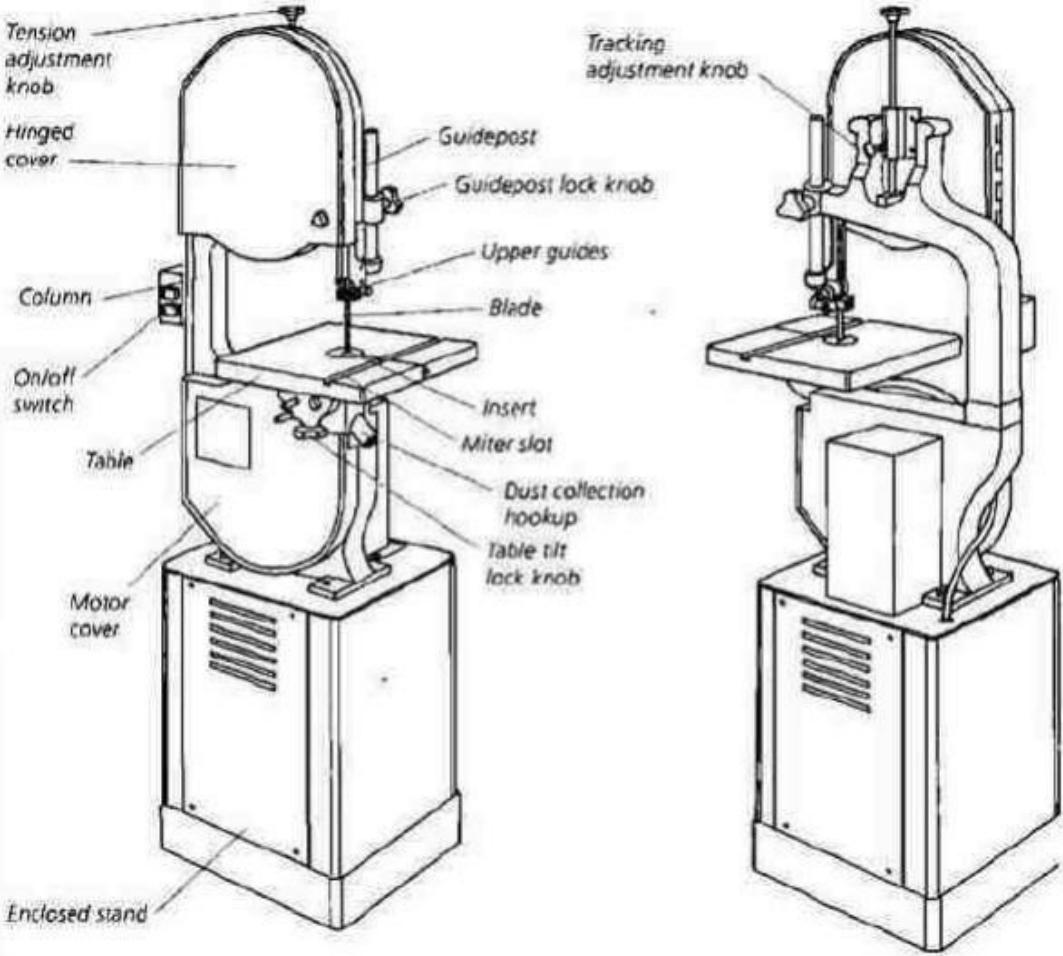
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Bandsaw Safety Rules

1. Wear proper personal protection equipment (safety glasses).
2. Do not bypass any safety devices.
3. Keep hands clear of the moving saw blade and the cut path.
4. Keep loose clothing, hair, and jewelry away from the saw blade.
5. Adjust the blade guides to support but not pinch the blade.
6. Let the saw blade do the cutting. Do not force the wood into the blade.
7. Do not cut a tighter radius than the blade permits (see Instructions for Use).
8. Do not clear small pieces in close proximity to the blade until the blade has stopped moving.
9. Let the blade stop prior to leaving the tool.
10. If something is broken or breaks, notify one of the wood shop leads at (woodshop@sparkmakerspace.org).

Bandsaw Parts (generic)

Typical Vertical Band Saw Components



Bandsaw Syllabus

1. Tool location in shop
2. Possible uses for tool
 - a. Good for:
 - i. Curved cuts
 - ii. Smaller workpieces
 - iii. Variety of materials
 - b. OK for:
 - i. Straight cuts (blade wobble)
 - c. Bad for:
 - i. Large workpieces (limited table size)
3. Parts of a band saw (refer to diagram)
4. Important variables:
 - a. Blade tooth count
 - i. Higher tooth count for thinner materials
 - ii. 3-tooth engagement rule of thumb
 - b. Blade width (gullet to spine)
 - i. Wider blades require larger radius of curvature for cut
5. Important setup steps:
 - a. Cutting plan
 - b. Blade guide height
 - i. Blade guide should be just higher than the height of the material
 - c. Workpiece guidance
 - i. Push-stick
 - ii. Fence
 - iii. Jig
6. Operation guidance
 - a. Lining up a cut (drift angle)
 - b. Cutting a curve
 - c. Relief cuts
 - d. Backing out of a cut
7. Cleanup

Bandsaw Instructions for Use

Before Use

1. Wear personal protective equipment
 - a. Safety glasses
 - b. No gloves may be worn while operating the bandsaw
2. Inspect the bandsaw blade for damage (bend blade, missing teeth, etc.)
3. Check that the bandsaw blade has the correct number of teeth per inch for the piece being cut (see Table 1).
 - a. Blade tooth count should allow at least three (3) teeth to be engaged in the workpiece at all time
4. Check that the bandsaw blade is the correct width for the intended cut.
 - a. The minimum radius that can be cut with the bandsaw blade is based on the blade width. Do not attempt to cut a tighter radius than the blade can handle (see Table 2).
 - b. Blades are measured from the base of the teeth (gullet) to the spine of the blade
5. Check the blade tension. The blade should be able to deflect, but it should not be loose.
 - a. If the bandsaw has a tension guide, use the guide as a starting point and adjust as needed.
 - b. The width of the blade is measured from the back of the blade to the back of the gullet (space between teeth).
6. Check that the bandsaw blade is tracking on the center of the wheels.
 - a. Test should be done by briefly powering up the saw, and insuring the blade is not drifting forwards or backwards
 - b. Blade tracking adjustment should be done with the saw powered off and unplugged.
7. Check the upper and lower blade guides.
 - a. The thrust bearing should have about 1/32" spacing between the bearing and the backside of the blade.
 - b. The side bearing should have about 1/64" spacing between the blade and each bearing.
 - c. The side bearing should not extend past the bottom of the teeth gullet.
8. Check the bandsaw table, and make sure the lock knob is secured. The table should be level in its baseline configuration. If an angled cut is desired, tilt the table to the appropriate angle.
9. Adjust height of the upper blade guide to be just above the thickness of the workpiece.
10. Determine the location and angle(s) of cuts required. Mark lines clearly on the workpiece.
11. Prepare a cutting plan
 - a. Determine if relief cuts are necessary.
 - b. Determine if push blocks are need.

Useful Tables

Table 1: Correct Blade Selection

TPI	Minimum Material Thickness (inches)
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	1 1/2

Source: "How-To's for all Bandsaw Blades" Olsonsaw

Table 2: Minimum Cut Radius

Blade Width (in)	Minimum Cut Radius (in)
1	7
3/4	5 1/2
5/8	4
1/2	2 1/2
3/8	1 1/2
1/4	5/8
3/16	5/16
1/8	3/16

Source: "How-To's for all Bandsaw Blades" Olsonsaw

During Use

1. If the bandsaw has a dust collection port, attach the appropriate dust collection system, and turn on the dust collector
2. Prior to turning on the tool, ensure that no material or parts are in contact with the blade
3. Turn on the bandsaw and let the blade come up to maximum speed prior to starting the cut.
4. Listen for unusual or unsteady sounds. If these sounds are heard, stop the blade and notify a Woodshop Lead.
5. If a complex curve is being cut, start by making relief cuts in the piece of wood.
 - a. Users should not attempt to back out of a curved cut. Relief cuts prevents potential jams.
6. Feed the material into the saw blade while maintaining even pressure. Let the saw blade perform the cutting, and do not force the piece of wood into the blade.

- a. Users should listen to the machine during operation. Changes in machine pitch often indicated overloading.
 - b. Use push blocks, miter guide or appropriate scraps of material in order to maintain a safe distance from the blade.
7. If the wood is not cutting, there are several possible causes:
 - a. The wood may be very hard.
 - i. There is no resolution for this issue. Slow down and be patient. Give the saw and blade occasional breaks to prevent overheating.
 - b. The currently installed bandsaw blade may be inappropriate for the material and thickness.
 - i. Talk to a Woodshop Lead
 - c. The bandsaw blade may be dull
 - i. Talk to a Woodshop Lead
8. The bandsaw blade will twist slightly under load while cutting, leading to a certain amount of drift angle during the cut. The angle will vary with saw, blade, setup, and workpiece. The user will have to compensate by presenting the piece at a slight angle to the cut line.
10. As the piece is being cut, avoid applying excessive lateral or twisting pressure on the blade.
11. Be aware of material pinching the blade. This can overload the saw, damage the blade, and burn the material.
12. As cut progresses, maintain safe hand positions.
13. Once the cut is almost complete, ensure that hands are clear of the region where the saw blade will exit the piece.
 - a. Use a push stick or guide as required
14. Once the piece is cut, turn off the saw and wait until the blade comes to a complete stop before leaving the tool unattended.
15. Turn off the dust collection system.

After Use

1. Return the tool to the baseline configuration (see Baseline Configuration Identification).
2. Clean up the sawdust around the tool.
3. Open up the tool housing around the lower wheel and remove any dust that collected around the wheel.
4. Replace the tool in its storage position (if applicable)

Bandsaw Baseline Configuration

Jet Lathe

1. Table level at 90 degrees to the blade
2. 3/8" blade with 4 tpi
 - a. Tension set properly for blade
 - b. Guide bearings set properly for blade
3. All offcuts and cutting debris removed
4. Stowed against the wall

Powermatic Lathe

5. Table level at 90 degrees to the blade
6. 3/16" blade with 10 tpi
 - a. Tension set properly for blade
 - b. Guide bearings set properly for blade
7. All offcuts and cutting debris removed
8. Stowed against the wall

Bandsaw Competencies

Trained User Competencies

Setup

- Blade Type Check
- Blade Tension Check
- Blade Tracking and Guide Check

Operation

- Straight Cuts
- Curved Cuts

Changes and Adjustments

- Adjust Blade Guide Height

Maintenance and Care

- Blade Inspection
- Dust Removal

Advanced User Competencies

Operations

- Miter Cuts on Bandsaw

Changes and Adjustments

- Removing and changing blade
- Blade Tensioning
- Blade Tracking Adjustment
- Guide Bearings
- Thrust Bearings

Maintenance and Care

- Table resurfacing
- Table waxing