

OPERATING PROCEDURE FOR:

Mini Max 20" BAND SAW

SAFETY RULES:

Warning: Willful violations of these safety rules, disruptive actions or horseplay may result in loss of the privilege to use the tools and machinery in the workshop.

As with all machines, there is a certain amount of hazard involved with the use of this band saw. Use the machine with the respect and caution demanded where safety precautions are concerned. **You are responsible for you own safety.**

Read and understand the operating procedures for this machine before attempting operation.

Personal Protective Equipment. At a minimum eye protection and hearing protection must be worn when operating this machine. Eye protection must be safety glasses with side shields, goggles, or face shield, which meet ANSI Z87.1. Remove tie and loose jewelry. Button sleeves or roll up sleeves above the elbow. Remove loose outer clothing and confine long hair. **Do not wear loose fitting gloves.** If gloves are worn, they must fit tightly to the hand.

Use the appropriate NIOSH approved respirator in dusty work conditions (N95, N100, P95 or P100). Wood dust has been listed as a known carcinogen by the U.S. government.

Guards. Keep the machine guards in place for every operation for which they can be used. Ensure that both wheel cover doors are closed when the saw is in operation. They are interlocked with the starting circuit and the machine will not run if either is open.

Work Area. Keep the floor around the machine clean to minimize the danger of tripping or slipping. Be sure the table is free of scrap or foreign material. Make sure the dust collector is hooked up and operating.

Operator Position. Maintain a balanced stance and keep your body under control at all times, so that you do not fall or lean against the blade or moving parts. Do not overreach or use excessive force to perform any machine operation.

Careless Acts. Give the work you are doing your undivided attention. Looking around, carrying on a conversation and "horseplay" are careless acts that can result in serious injury and loss of work shop privileges.

Disconnect machine before performing any service or maintenance. A machine under repair must be Locked Out following the Club Lockout Procedure until the maintenance is complete.

Maintain Tools In Top Condition. Do not operate the band saw with a dull or badly worn blade. Keep the blade sharp and clean for safe and best performance.

Hand Safety. Keep hands clear of the cutting area. Use a stick to move off-cuts away from a moving blade.

Material Condition. Reclaimed or pressure treated wood is not to be cut on this machine.

Machine Adjustments. Make all machine adjustments with the band saw locked out following the Club Lockout Procedure. Blade tracking, blade tensioning, blade guide thrust bearings and blade guide adjustments are only to be made under the direction of the Shop Leader.

Job Completion. If the operator leaves the machine area for any reason, the bandsaw should be turned “off” and the blade should come to a complete stop before his departure. In addition, if the operation is complete, the operator should clean the bandsaw and the work area. Never clean the bandsaw with the power “on” and never use the hands to clear sawdust and debris; use a brush.

If you are not thoroughly familiar with the operation of the bandsaw, obtain advice from the Shop Leader.

Drugs, Alcohol, Medication. Do not operate this machine while under the influence of drugs, alcohol, or any medication. Do not operate this machine if you are tired, sick, or distracted.

Familiarize yourself with all caution and warning decals used on this machine.

Capacities:

Throat Capacity (left of blade).....	18-1/2”
Height Capacity	20”
Table Tilt.....	-10° L, 45° R
Blade Size Range	1/8”- 1-1/2”
Standard Blade Length.....	171”
Blade Speeds.....	5000 FPM
Horsepower	4.8

The band saw is one of the most versatile wood cutting tools in the shop. It is capable of performing many different cutting functions including but not limited to:

Straight Cuts

- Mitters
- Angles
- Compound Angles
- Resawing
- Ripping
- Crosscutting

Irregular Cuts

- Simple and Complex Curves
- Duplicate Parts
- Circles
- Beveled Curves

When making straight cuts, the rip fence or miter gauge should be used. Use a push stick to push the stock past the blade when using the rip fence.

When making curved cuts, circle cuts, or other cuts where the fence or miter gauge are not used, extreme care should be taken to keep your fingers away from the blade.

The number of TPI and the blade type will determine the smoothness of the cut. In general, the more TPI, the smoother the cut surfaces will be. However, as the number of TPI increases, the

tendency of the blade to bind and burn the stock increases because the blade has trouble removing the sawdust from the cut. This can also result in a broken blade and personal injury. As a result, a slow or very slow feed rate may be needed. If this is the case, it may be better to go to a blade with fewer TPI. Regardless of the blade used, the blade will not produce a smooth finished surface. After cutting out the stock, it will be necessary to sand the stock to the final size. When feeding stock into the blade, keep the blade just outside of the cut line. This will permit sanding to the cut line to obtain a smooth surface.

In general, the widest blade that will permit cutting the radii should be used because this minimizes the flexing of the blade (in the direction of the cut) which increases the life of the blade and minimizes the potential for the blade breaking. The number and type of teeth on the blade will affect the quality of the cut and the ability of the saw to make the cut. For thick stock or resawing, a blade with few teeth and large gullets should be used, such as a 2 or 3 teeth per inch (TPI) hook tooth blade. For stock about 2" thick or thinner, a 6 or 8 tooth per inch blade usually works well. For additional recommendations, refer to Figure 1.

Figure 1. Band Saw Blade Recommendations		
Blade width x TPI	Stock Thickness Range, inches	Radius of Cut, inches
1/8 x 14	0 – 2	7/32
3/16 x 4	0 – 6	3/8
1/4 x 4	2-1/2 - 6	5/8
1/4 x 6	3/4 x 2-1/2	5/8
1/4 x 8	3/4 x 1-1/2	5/8
1/4 x 10	0 – 3/4	5/8
3/8 x 3	6 – 10	1-1/4
3/8 x 4	2-1/4 – 6	1-1/4
3/8 x 6	3/4 x 2-1/2	1-1/4
3/8 x 8	3/4 x 1-1/2	1-1/4
3/8 x 10	0 – 3/4	1/1-4
1/2 x 3	6 – 10	2-1/2
1/2 x 4	2-1/2 – 6	2- 1/2
1/2 x 6	3/4 - 2-1/2	2- 1/2
1/2 x 8	3/4 - 1-1/2	2-1/2
3/4 x 2/3	8 – 12	5-7/16
3/4 x 3	6-10	5-7/16
3/4 x 4	2-1/2 – 6	5-7/16
3/4 x 6	3/4 - 2-1/2	5-7/16

Data from Suffolk Machinery; www.suffolkmachinery.com

When making a curved cut, turn and feed the stock carefully so the blade follows the cut line without twisting. When making curved cuts, try to pivot the stock around the center of the arc that is being cut. This will help in obtaining a smooth curve and following the cut line. It is difficult to backup when making curved cuts and when doing so, the blade may be pulled off the wheels causing it to break and possibly causing personal injury. In order to minimize the need to back up, ensure that the blade width is small enough for all of the radii to be cut (Refer to Figure 1). It is also helpful to make relief cuts from the edge of the stock to the cut line. This will allow

waste material to be removed as the cuts are made, and prevent the blade from binding. If you need to back out of a cut, shut the machine off, wait for the blade to stop, and then carefully back out. If the stock can not be easily removed: Lockout the band saw; slowly rotate the upper wheel backwards by hand as you pull the stock back through the cut. Verify that the blade has not come off of the wheels prior to restarting the band saw.

The position of the blade on the wheels is adjusted by tilting the upper wheel with the tracking adjustment screw. Tilting the upper wheel towards the operator causes the blade to track towards the back of the wheel. Tilting the wheel away from the operator causes the blade to track towards the front of the wheel. For best performance, the blade should be positioned at the center of the upper wheel. This position also minimizes and may eliminate drift, the tendency of the saw to cut at an angle instead of straight. Every time a blade is changed, the position of the blade on the wheel should be checked and adjusted as necessary. A blade change also necessitates resetting the blade guide rear thrust bearing and the guide blocks.

The blade tension of the blade is adjusted with the blade tension adjustment knob. Turning the knob clockwise tightens the blade. The amount of tension on the blade is measured by means of a scale on the inside of the upper wheel support column. The tension should be adjusted so that the scale reads the blade width. The blade should be tensioned at the same time the blade tracking is adjusted because the blade tension affects how a blade tracks and the blade tracking affects the blade tension. If the blade tension is too loose, the blade may wander in the cut; if the blade tension is very loose, the blade may come off the wheels or break. If the blade tension is too tight; the saw and its bearing can be over stressed and cause permanent damage or failure or blade breakage. Over tightening also can deform the rubber tires around the wheels and cause flat spots that can cause vibrations, rough cuts and difficulty in maintaining proper blade tracking. When done using the saw for the day, the blade tension is to be removed by turning the blade tension wheel such that the tension reading is zero.

The upper and lower blade guides steady the blade and keep it from moving out of position. The blade guides on the side of the blade should be positioned so that there is a small amount of clearance on each side equal to about the thickness of a sheet of paper. If the blade guides are too close, or not centered on the blade, the blade will rub hard against them and become work hardened. This can cause the blade to break. If the guides are too loose; the blade will wander and make it more difficult to follow the cut line. The front edge of the blade guides should be positioned about 1/32" behind the gullet of the blade teeth to achieve maximum blade support. The rear blade guide thrust bearing should be positioned about 1/64" from the blade. This is equivalent to the thickness of a dollar bill if folded in half, twice, or 0.015"). The blade should not rub against it when stock is not being fed. These guides provide support against the force applied when the stock is being fed. If the guides are too close, the blade will rub against them continuously, which will cause work hardening and possible blade breakage. If they are too far away, the blade tracking may be affected and the thrust on the blade can cause excessive stress. Every time a blade is changed, the position of the blade guides should be checked and adjusted as necessary.

OPERATION:

Ensure that both wheel cover doors are closed. They are interlocked with the starting circuit and the machine will not run if either is open.

Adjust the blade tension so that it is appropriate for the width of the blade and remove the “Loose Blade” tag.

Adjust the blade guard & guide no higher above the stock than necessary to see the cut line. ¼” to ½” is usually sufficient.

Turn on the dust collection system and open the blast gate for the band saw.

To start the saw, twist the STOP button clockwise and gently pull it outward. Then push the START button.

To stop the saw, push the STOP button. It will lock in the STOP position and must be twisted clockwise to be released. Applying the blade brake will also turn the saw off, but there is no mechanism to prevent restarting the saw when the START button is pushed.

Hold the workpiece firmly against the table. Do not attempt to saw stock that does not have a flat surface that can rest on the table, unless a suitable support (jig) is used.

Carefully feed the work piece through the blade with even and steady pressure, keeping the fingers a safe distance from the blade.

When resawing, use a fence that is in height (preferably) at least two-third the width of the board to be resawed. Use a resawing jig or a push block to hold the stock tight against the fence. Your hand should not be used to hold the stock against the fence near where the blade is located.

When the job is complete, shut off the machine, apply the blade brake until the blade stops and close the blast gate. The massive wheels on this saw will allow the blade to continue to rotate for a long time after the STOP button is pushed. Letting the blade coast to a stop presents an unnecessary hazard. Turn off the Onida dust collector if it is not being used by someone else. Use a brush to clean the saw table and clean up the area. If the saw will not be used again that day, reduce the blade tension to zero and clean the area. Hang a “Loose Blade” tag on the upper wheel door knob.