Hornsby Woodworking Men's Shed

Safe Operation of 19inch Bandsaw SP04

The following must be read in conjunction with SP01 General Workshop Safety Rules.

The primary uses of the 19inch bandsaw are to: a) cut large stock into smaller work-pieces that can be finished by hand or on other machines and; b) cut round woodturning blanks from woodturning stock that is too large to be cut on a smaller bandsaw.

The 19inch bandsaw is not capable of making precision cuts and should not be used if high precision is required. The 19inch bandsaw is potentially a very dangerous machine that can easily cut your hand or fingers off in milliseconds. Bear this in mind when operating the saw.

General Bandsaw Safety Rules

1. Always check that the blade tension lever is in the down position (i.e tension ON) before starting the saw. **–** *If the blade is not under tension it can come off the wheels at speed and potentially cause serious injury and damage the saw and blade.*
2. Set the height of the upper blade guide bearings to just be clear of the thickest part of the work piece by approximately 15mm. (*This minimises exposure of hands or fingers to the blade and improves cutting accuracy*)
3. Co-opt an assistant to help support 450mm or longer work piece on the exit side of the saw
4. Use a push stick before hands get close to the blade. Ensure that push sticks are within easy reach before starting the cut.
5. Never start the saw with the blade in contact with the work-piece.
6. Do not attempt to back out of a long cut while the saw is running. Switch the saw off and wait until the blade has stopped then back out of the cut. *(Reason- If the saw is running it is easy to pull the blade off the bandsaw wheels which will result in a damaged blade and possible serious injury as the moving blade jumps forward out of the control of the bearing guides.)*
7. Never use force to make straight or curved cuts **–** *If force is needed something is wrong. With curved cuts, if force is needed it is likely that the curve radius is too tight for the blade. The minimum cutting radius is approximately 200mm.*
8. Listen to your "Safety Sense". If a cut seems dangerous it probably is; stop and rethink the cut.
9. Do not attempt to cut an irregular shaped work-piece that does not have a large flat surface in contact with the table directly under the blade. – *Non compliance with this rule can cause the blade to grab and violently rotate the work piece possibly pulling hands onto the blade.*
10. Always use an appropriately designed support jig to cut an irregular shaped work-piece that does not have a flat surface to support the work-piece directly under the blade.
11. If the blade jams, switch the saw OFF before moving the work piece.
12. Do not attempt to remove small "off cuts" that are adjacent to or close to the blade until the blade stops.
13. Do not attempt to cut small work-pieces on this saw.
14. Never leave this saw running unattended; turn the saw off and wait for the blade to stop before leaving the saw, even if it is for a short period..
15. Unplug the bandsaw before conducting any maintenance or changing the blade.

Safe Methods for Cutting Round Stock (or Roughly Round Stock)

Cross Cutting Round Stock

Cross cutting means cutting across the grain.

A V-block jig or other means must be used to firmly support round stock (e.g. a roughly round log) during the crosscutting operation. If a V block or other support method is not used it is highly likely the round stock will rotate violently, when the blade starts to cut. This is caused by the downward force of the blade and the opposing upward force from the table not being in line creating a torque that rotates the stock. Apart from being dangerous for the operator the stock may twist and jam the blade usually causing irreparable blade damage.

Methods similar to those shown below must be used when cross cutting round stock.

The photographs A & B below show different sized logs being squared off using the large V-Block that slides in the mitre gauge slot thus ensuring that the cut is at approximately 90˚to the longitudinal axis of the log.

Photo A

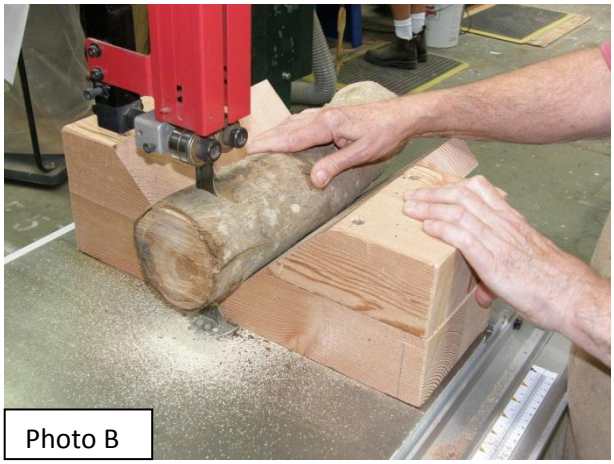


Photo B

The photographs C & D below shows a short length of a large diameter log being squared off prior to turning on the lathe.

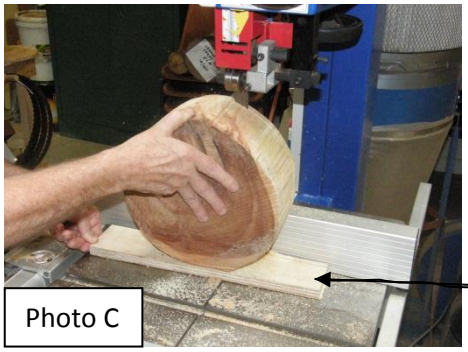


Photo C

First cut to get one end square

Support board securely fixed to small flat surface on log to prevent log rotation

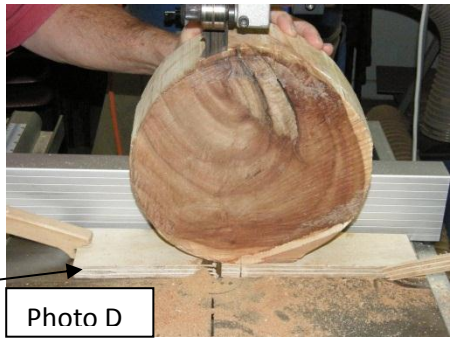


Photo D

Cutting the other end with the first cut end against the fence to ensure that both ends are parallel.

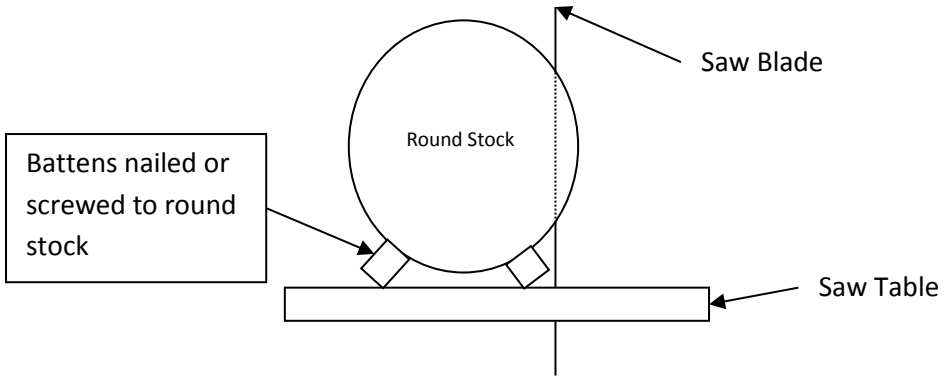
Rip Cutting Round Stock

Rip cutting means cutting along the grain

In most situations a custom jig must be made to support round stock (e.g. a roughly round log) to prevent it from rotating during the rip cutting process. The stock will tend to rotate if the downward force of the blade is not opposed by an equal (or nearly equal) inline force from the table. This occurs when the blade is not in line with centre line of the stock.

The desired output of rip cutting round stock varies depending on the project and this will determine the type of custom support jig that must be made to prevent stock rotation.

A common requirement is to reduce a tree trunk or large diameter branch into number of planks. A simple jig comprising two appropriately sized rectangular battens nailed to the stock as shown below would prevent the stock from rotating clockwise while a slice is removed from one side to produce a flat surface along the stock.. The battens can then be removed and the remaining cuts made with stock rotated so that the flat surface is on the table.



Safe Methods for Cutting a Circular Work-piece

Many projects require a circular work-piece to be cut. The most common requirement in the Shed is to produce a circular bowl turning blank before turning the bowl on a lathe.

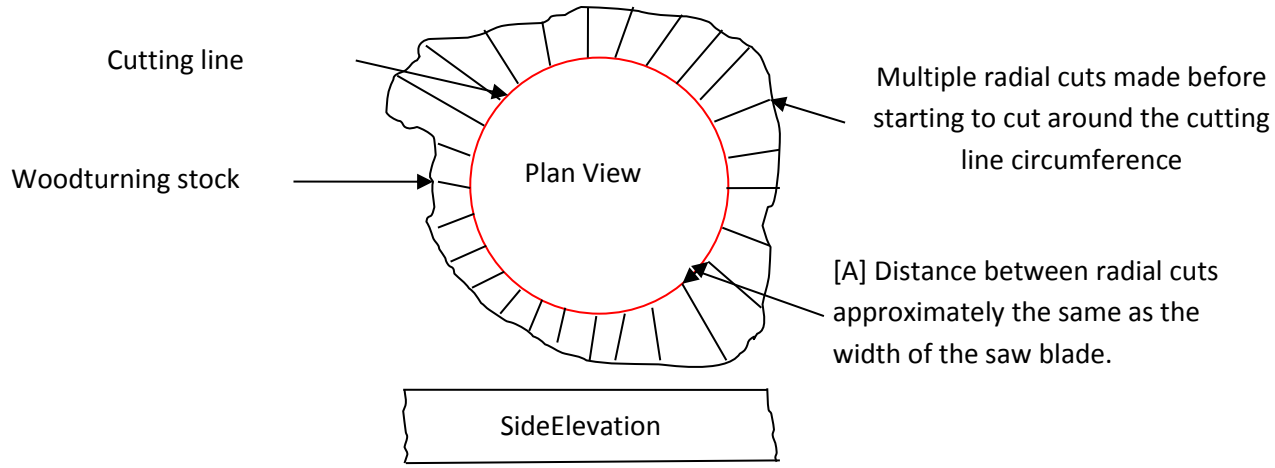
Large bowl woodturning blanks must be cut to be nearly circular before commencing turning on the lathe. This is required to prevent large out of balance forces from causing a safety hazard on the lathe.

In theory the 19inch bandsaw can cut bowl blanks 400mm diameter or greater in one continuous cut around the circumference of the blank, however for any size blank it is safer to use the method described below to prevent the saw blade from jamming.

Safe Method for Cutting a Bowl Blank

Referring to the diagram below:

1. Draw the required bowl blank circumference cutting line on the woodturning stock.
2. Cut multiple radial cuts stopping at the cutting line as shown in the diagram. The cuts should be spaced so that the distance between them, where they meet the cutting line, is approximately the same as the width of the saw blade.*(refer to [A] in diagram below)*
3. Cut around the cutting line clearing away the off-cuts as they fall away from the blade.



Example of Another Safe Method for Cutting Circular Work-pieces

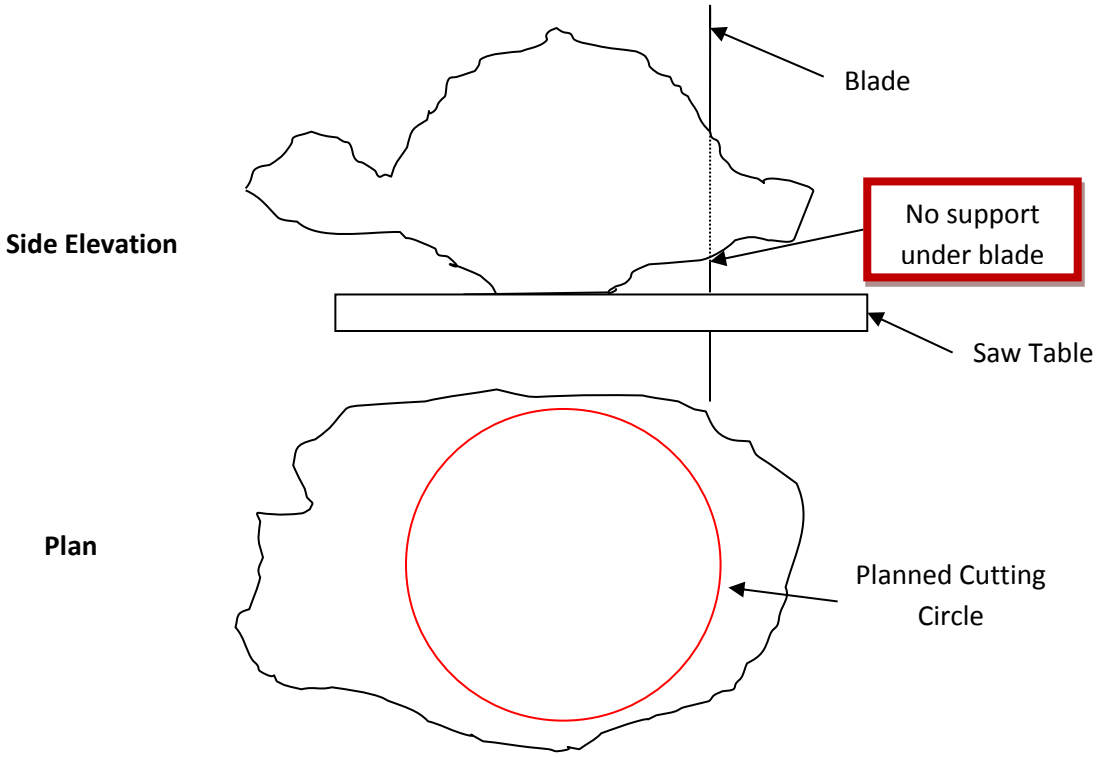
Photo E below shows a circle being cut where instead of multiple radial cuts being made to the cutting line a series of parallel cuts to the cutting line were made using the bandsaw rip fence as a guide.

Photo E

Cutting Irregular Shaped Work-pieces

When cutting irregular shaped work-pieces care must be taken to ensure that support is provided to stop the blade jamming and tilting the work-piece.

The following diagram shows a **potentially dangerous** operation were an irregularly shaped turning blank is being cut with no support for the work-piece directly under the blade.



Attempting to a cut the above work-piece in the manner shown above is dangerous since the work-piece is likely to tilt due to the downward force of the blade causing the blade to jam.

Safe Solution

Screw a sacrificial support board that is larger than the diameter of the proposed cut to the bottom of the work-piece.