

### Purpose

The primary purpose of this document is to assist the induction of new members of the Hornsby Woodworking Men's Shed in the identification and understanding of the basic functions of the various machines that are used in the Shed.

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### 1. SawStop Table Saws

The Shed has two SawStop industrial quality table saws as shown below:



The two saws are essentially the same except that the Saw B is fitted with a sliding table.

The table saw is the most versatile machine in a woodworking workshop. It can perform a large variety of cuts on pieces of timber or sheet material such as plywood. Saw-A is fitted with a 40 tooth blade that allows it to easily make rip cuts (i.e. cutting in the same direction as the wood grain) and is the preferred saw for this purpose. Saw-B is fitted with a 60 tooth blade that is more suited to crosscutting (cutting across the wood grain) and is the preferred saw for this purpose. The sliding table on Saw-B has a crosscut fence that allows the saw to be safely used to cut large pieces of sheet material (up to 1200mm X 2400mm) into smaller sized pieces.

Instructions on the safe use of the SawStop saws A & B are contained in safety procedures SP02 and SP03 respectively.

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Date:

Ver: 01

## Hornsby Woodworking Men's Shed

### 2. Bandsaws

A bandsaw is a saw with a long blade consisting of a continuous band of toothed metal stretched between two or more wheels to cut material with a wide variety of thicknesses. Bandsaws can cut straight and curved cuts which makes them a very versatile woodworking machine. The Shed has four bandsaws three of which are shown below.



Large Carbatec  
Bandsaw



HAFCO Bandsaw



Laguna Bandsaw  
(One of Two)

#### Large Carbatec Bandsaw

The primary uses of the Carbatec bandsaw are to: a) cut large stock (i.e. Up to 450mm wide x 300mm thick) 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.

Instructions on the safe use the Carbatec bandsaw are contained in safety procedure SP04.

#### HAFCO and Laguna Bandsaws

The HAFCO and Laguna bandsaws are versatile saws that can be used to perform a wide variety of cuts. The HAFCO can cut work-pieces up to approximately 120mm thick while the Laguna saws are rated to cut work-pieces up to 335mm thick although tightly curved cuts should not be attempted at this thickness. These saws are not capable of making high precision cuts and are therefore mainly used to make hand guided curved cuts that cannot be performed on other saws. The HAFCO and one of the Laguna band saws are fitted with ¼ inch wide blades that allow them to cut small radius cuts to a minimum radius of approximately 16mm. The second Laguna bandsaw is fitted with a 3/8 inch blade that allows it to cut curves to a minimum radius of approximately 38mm.

Instructions on the safe use of the HAFCO and Laguna bandsaws are contained in safety procedure SP11

## Hornsby Woodworking Men's Shed

### 3. Compound Mitre Saws

The primary purpose of the Compound Mitre Saw is to cross cut work-pieces at any angle from -45 to +45 degrees in both the horizontal and vertical planes relative to the central axis of the saw.

The Shed has two mitre saws which are shown below.



Bosch Compound Mitre Saw



Makita Compound Mitre Saw

The Bosch saw is used to crosscut work-pieces with relatively large cross sections. e.g. large table legs.. The Makita saw is reserved for fine work where the work-piece cross section is relatively small. e.g. picture frame.

Instructions on the safe use of Compound Mitre saws are contained in safety procedure SP05

## Hornsby Woodworking Men's Shed

### 4. Table Mounted Routers

A table mounted router is a woodworking machine in which a vertically orientated cutter (router-bit) protrudes from the machine table that can be spun at speeds typically between 3000 and 24,000 rpm. Router-bits with different profiles can be fitted to the router chuck to allow the machining of various profiles on the edge or face of a work-piece. A router table normally features a vertical fence, against which the work-piece can be guided to control the horizontal depth of cut. Router tables are used to increase the versatility of a hand-held router, as each method of use is particularly suited to specific applications.

The Shed has two identical router tables one of which one is shown below.



Both of the Shed's router tables are fitted with Triton routers that have hand operated controls that allow for coarse and fine adjustment of the router bit height relative to the table surface. The chuck of Triton routers can be raised above the table surface which makes fitting and removal of router-bits relatively easy. The routers also have built in safety features that prevent the router from starting when the chuck is protruding above the table surface.

Instructions on the safe use of Router Tables are contained in safety procedure SP06

## Hornsby Woodworking Men's Shed

### 5. Thicknessers

A thicknesser, which is sometimes called a planer, takes a board and planes it flat and smooth to a final thickness set by the operator.

A thicknesser consists of three elements: a cutter head which contains the cutting knives; a set of rollers which draw the board through the machine; and a table which is adjustable relative to the cutter head to control the resultant thickness of the board.

In operation, the table is set to the desired height below the cutter and then the machine is switched on. The board is fed into the machine until it makes contact with the in-feed roller which grips the board and draws it into the machine and past the rotating cutter head. The knives remove material on the way through and the out-feed roller pulls the board through and ejects it from the machine at the end of the pass.

To finish a board that is flat and of uniform thickness along its length, it is necessary to start with a board that has at least one perfectly flat reference face. The board is fed with this reference face flat on the table and the cutter head removes an amount of material from the opposite face so that it is made parallel to the reference face. The reference face is often created by first passing the board over a Jointer (Refer Para 7). If the lower face is not flat, the feed rollers pressure pressing the board against the table may deform the board, which will then spring back as it leaves the machine, resulting in a non-flat upper surface

The Shed has two thicknessers. One is sized at 15 inch and the other at 20 inch. The size refers to the maximum width of work-piece that can be fed through the machine. The 20 inch machine is shown below. *(Note: the sizes are in inches due to the machines being originally designed for the US market)*



Instructions on the safe use of Thicknessers are contained in safety procedure SP06

## Hornsby Woodworking Men's Shed

### 6. Wood Lathes

A wood lathe is a machine for working a piece of wood by holding and rotating it about a horizontal axis while a handheld tool shapes it into a symmetrical shape around the axis of rotation.. A large variety of items can be made on a wood lathe e.g. bowls, candlesticks, tool handles, egg cups, baseball bats, table and chair legs etc, etc. In general, most wooden items that have a round cross section are made on a lathe. The process of making items on a wood lathe is called turning.

The Shed has three large freestanding lathes and two small bench mounted lathes. The large lathe shown below can turn items up to approximately 400 mm in diameter and up to 1100 mm long. The small lathe shown below can turn items up to 360mm in diameter and up to 400 mm long.



Large Freestanding Lathe



Small Bench Mounted Lathe

Instructions on the safe use of Lathes are contained in safety procedure SP08 Woodturning Safety Requirements.

## Hornsby Woodworking Men's Shed

### 7. The Jointer

The Jointer is used in the early stage of a project to flatten the surface of a work-piece that is bowed or twisted. It can also create two flat surfaces that are at right angles to each other but it cannot produce two opposing surfaces that are parallel to each other. The latter can only be achieved by using a Thicknesser or a table saw.

The jointer is typically used to produce two right angled flat surfaces on work-pieces that are generally greater than 300 mm long and more than 13 mm thick if hardwood and 18mm thick if softwood. The 300mm length limit is a rule of thumb safety limit (*Shorter light weight work-pieces can be difficult to control and can be subject to kickback*) and work-pieces thinner than the thickness limits are usually too flexible to be successfully flattened.

The Shed has one 8 inch Jointer that is shown in the following picture. The 8 inch in the name refers to the width of the jointer tables and is also the maximum width of work-piece that can be flattened on this machine.



Instructions on the safe use of the Jointer are contained in safety procedure SP09.

## Hornsby Woodworking Men's Shed

### 8. Belt and Disc Sanders

A belt sander is a sander used in shaping and finishing wood and other materials. It consists of an electric motor that turns a pair of drums on which a continuous loop of sandpaper is mounted.

The Shed has two horizontal 150mm wide belt sanders with one being fitted with a coarse 80 grit sanding belt and the other with a finer 120 grit belt. The horizontal belt sanders are mainly used to sand the edges and faces of work-pieces to create a smooth surface. The Shed also has one Combination 300mm diameter Disc and 150mm wide Vertical Belt sander where the belt runs in the vertical plane. The Combination Disc and Vertical Belt sander is most commonly used to shape the ends and corners of work-pieces (e.g. round the corner of a board). The sanders are shown below.



Horizontal Belt Sanders



Combination Disc/Belt Sander

Instructions on the safe use of Belt and Disc Sanders are contained in safety procedure SP14.

## Hornsby Woodworking Men's Shed

### 9. Oscillating Spindle Sander

An oscillating spindle sander is a table mounted power tool that uses a vertical reciprocating motion and a rotating sanding spindle to sand curved shapes. The Shed's spindle sander is shown below. It has eight sanding spindles ranging in diameter from 8mm to 100mm that allow it sand to a wide variety of curved edges.

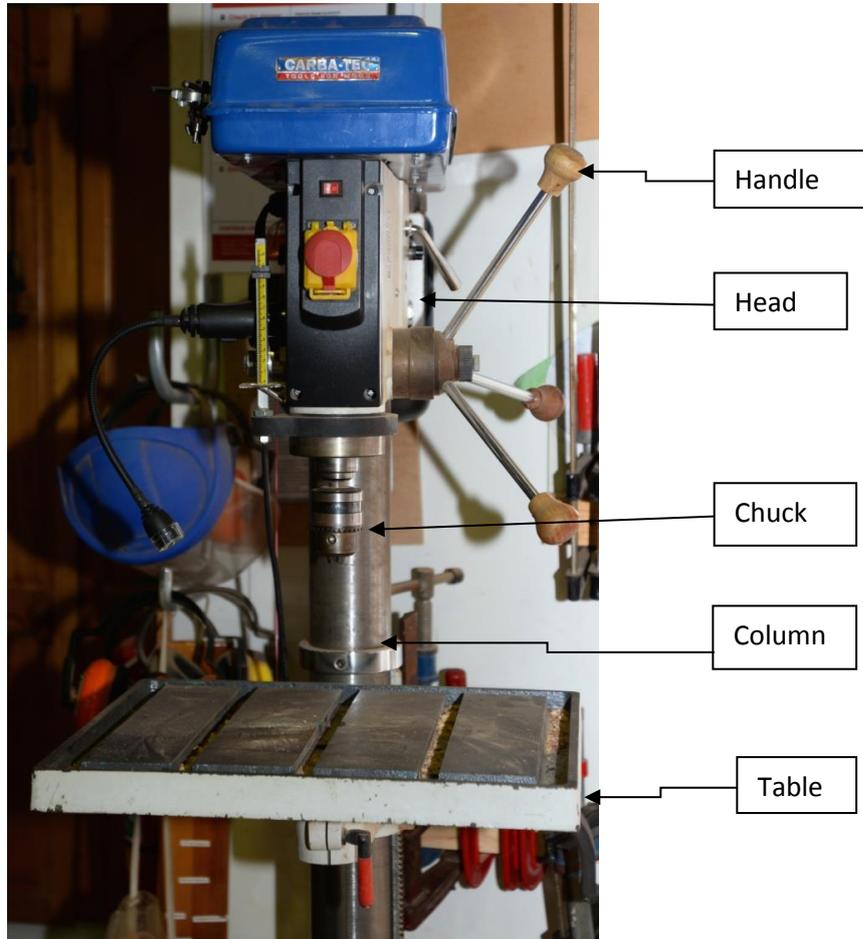


Instructions on the safe use of the Spindle Sander are contained in safety procedure SP10

## Hornsby Woodworking Men's Shed

### 10. Drill Presses

A drill press (also known as a pedestal drill) is a fixed style of drill that may be mounted on a stand or bolted to the floor or workbench. The Shed has three floor mounted drill presses one of which is shown below. (Note: the photograph shows only the upper half of the drill press.)



A drill press consists of a base, column, table, spindle, and chuck (to hold a drill bit or other tool such as a large hole saw) attached to the spindle. The spindle is driven by a motor. The head has a set of handles (usually 3) radiating from a central hub that, when turned, move the spindle and chuck vertically, up and down, parallel to the axis of the column.

A drill press has a number of advantages over a hand-held drill:

- Less effort is required to apply the drill to the work-piece. The movement of the chuck and spindle is by the handle lever working on a rack and pinion, which gives the operator considerable mechanical advantage.
- The table allows a vice or clamp to be used to position and restrain the work, making the operation much more secure.
- The angle of the spindle is fixed relative to the table, allowing holes to be drilled accurately and consistently.
- The table can be rotated and locked about its horizontal axis allowing holes to be accurately drilled at an angle to the surface of the work-piece.
- Drill presses are usually equipped with more powerful motors compared to hand-held drills and have a means of altering the drilling speed. This enables larger cutting tools such as hole cutters to be used to cut holes up to 200mm in diameter.

Instructions on the safe use of the Drill Press are contained in safety procedure SP12.

## Hornsby Woodworking Men's Shed

### 11. Bench Grinder

**Grinding** is an abrasive machining process that uses a grinding wheel as the cutting tool. A Bench Grinder is a metal grinding machine, typically with a pair of grinding wheels (one at each end of the motor shaft) that is designed to be permanently mounted on a workbench. The picture below shows the Shed's bench grinder.



The Shed's Bench grinder is typically used so sharpen cutting tools such as chisels or drill bits. It can also be used to roughly shape ferrous metal parts.

Instructions on the safe use of the Bench Grinder are contained in safety procedure SP13

## Hornsby Woodworking Men's Shed

### 12. Scroll Saw

The scroll saw is used for cutting intricate shapes in relatively thin wood or plywood (e.g. 3 to 12mm). The scroll saw uses very thin blades that allow the cutting of very small radius curves. The Shed's scroll saw is shown below:



A scroll saw uses a vertical reciprocating blade that is held between two reciprocating arms. With a relatively thin work-piece held by hand on the table the blade cuts on the downward reciprocating stroke. Using hand control, the operator can guide a work-piece to make the blade follow and cut on a line drawn on the work-piece surface. (The shapes to be cut are usually drawn or printed on paper which is glued to the work-piece surface.)

Scroll saws are typically used to cut intricate patterns on items such as the lids of jewellery boxes. Jigsaw puzzles can also be made by gluing a picture to a sheet of thin plywood then cutting interlocking shapes across the surface of the picture.

Instructions on the safe use of the Scroll Saw are contained in safety procedure SP15