The Table circular saw is also known as a Bench saw. This saw has the capacity to quickly and accurately reduce timber to size and shape.

The saw blade can be tilted for bevel cutting and the machine can be set up with sliding table fences for cross cutting.

The operations that can be performed include ripping, cross cutting, grooving, trenching, rebating, mitreing.

**Saw Description**

Although table saws do vary in some aspects of their structure and operation, their basic design is as follows:

- **Base**: the main support structure and enclosure for the machine mechanisms and dust extraction system.
- **Table**: this is usually a detachable structure, fitted to the top of the base. It provides a precision surface on which timber can be machined. A range of accessories is fitted to the table to assist blade access, operator protection and timber control. A table tilting mechanism is provided in some machines.
- **Rip Fence**: provides a true surface, running parallel to the line of the blade, to guide the timber when making lengthwise cuts. It is normally mounted on a guide bar, running across the width of the table to facilitate tracking and adjustment.
- **Cross Cut Fence**: this fence supports the material at the required angle to the blade as well as acting as a pushing device when docking timber to length, mitring and beveling. The assembly slides down the length of the table, parallel to the blade, in the precision groove from which it can be easily withdrawn when not in use or for adjustment.
- **Blade**: rigidly and precisely mounted on the threaded end of the arbor, between collars, and secured by a nut. Saws are generally fitted out to suit a particular blade size. Common types are: rip, cross, cut, combination and tungsten tipped. Tooth size is stated in terms of a number of teeth for a given blade diameter, 300 mm blade tooth range: 30 (coarse) to 96 (fine). Blade size is indicated by diameter - 210 to 300 mm is a common range.
- **Riving Knife**: this fin-like device protrudes through the throat plate, approximately 12 mm behind the blade. Its wedge shape and thickness ensures that it holds the saw kerf open to prevent the timber jamming on the blade. The knife is mounted on the rise/fall mechanism for the blade, enabling its position relative to the blade to be maintained.
Identified Risks and Hazards

Hazards that may arise when operating fixed machines include:

- moving and rotating parts (blades and bits, tool disintegration)
- movement of the workpiece
- inhalation of fumes and dust particles
- electrocution from power faults, faulty equipment or incorrect use
- ejection of waste materials from cutting blades
- burns from hot materials or friction
- hand and finger injuries from rotating blades, spindles or pulleys
- electrocution from equipment or cords
- squash, pinch and crush injuries
- swarf being ejected from machines
- inhalation of dusts
- noise from high speed cutters

Pre-Operational Safety

The following safety checks and precautions should be carried out when preparing to set up, operate or maintain a table rip saw:

- The isolating switch should be in the OFF position. The machine must be isolated from the main electricity supply when not in use.
- The rip saw and work area should be clean and free of off-cuts and other obstacles. Guards must be fitted, correctly adjusted and secured.
- Equipment such as push sticks should be readily available. The riving knife should be fitted, correctly adjusted and secured.
- The correct blade should be selected for the particular type of cutting operation.
- The blade should be fitted with the teeth facing the material being fed into the saw. The blade should be sharp, undamaged and square to the table for basic ripping.
- For ripping, the blade should be set as high as possible to reduce the risk of kickback. The fence should be square to the table and parallel to the blade when set.

Operating Safety Precautions

- Off-cuts and saw dust must not be removed from the table with the hands when the blade is rotating.
The operator should not stand directly in line with the material being cut in case of kickback.

The hands should never be placed in line with the cut. If the hands slip or are not moved away from the material being fed, serious injury can occur.

Hands should never be placed closer than 200mm to the blade. The material should never be force fed.

A push stick should be used to keep the hands away from the blade when cutting narrow or short material.

The machine and work area should be kept clean and free of off-cuts. Bowed material should be ripped with the bow against the fence or table. Twisted material should be cut into short lengths and planed on one side before ripping.

The saw should never be left unattended with the power turned on.

Assistance should be sought when cutting material that cannot be easily handled by one person.

Daily Maintenance

Maintenance schedules will vary with the design and construction of the machine. The manufacturer’s maintenance requirements should always be followed. Daily maintenance should include checking the condition of the saw blade, checking the fence mounting and adjustment and cleaning the inside of the main frame and moving parts.

Additional Operating Procedures and Precautions:

The operator must ensure they have had instruction and training in the use of the table saw and satisfactorily completed the OHS test.

Always seek and gain teacher approval to carry on with any sawing procedure.

Make sure the teacher is directly supervising the sawing procedure.

Make sure all other students keep outside the safety zone at all times.

Wear PPE to protect your eyes such as safety spectacles or face shield.

Wear PPE such as a dust mask if there is no dust extraction system.

Do not wear loose clothing, especially long sleeves and neck ties.

Always use a fence to guide the timber stock.

Stand to one side of the rotation line of the blade in case of kickback.

Always use a push stick, especially the last 300 mm of timber to be sawn.

Do not force the timber into the saw blade. Be wary of binding.

Hold the timber stock firmly against the fence and flat on the table.

Never reach over or around the rotating blade of the table saw.
Never remove off-cuts from beside the saw blade whilst it is rotating.

Use an assistant to tail-out when cutting long pieces of timber.

The following points should also be considered when operating a table rip saw:

- When timber is ripped, stresses within the fibrous structure of the wood are released, often resulting in the pieces curling away from each other or closing in as they pass the saw blade.

- Short pieces of timber can be ripped half way from one end, backed out, reversed and the cut finished from the other end.