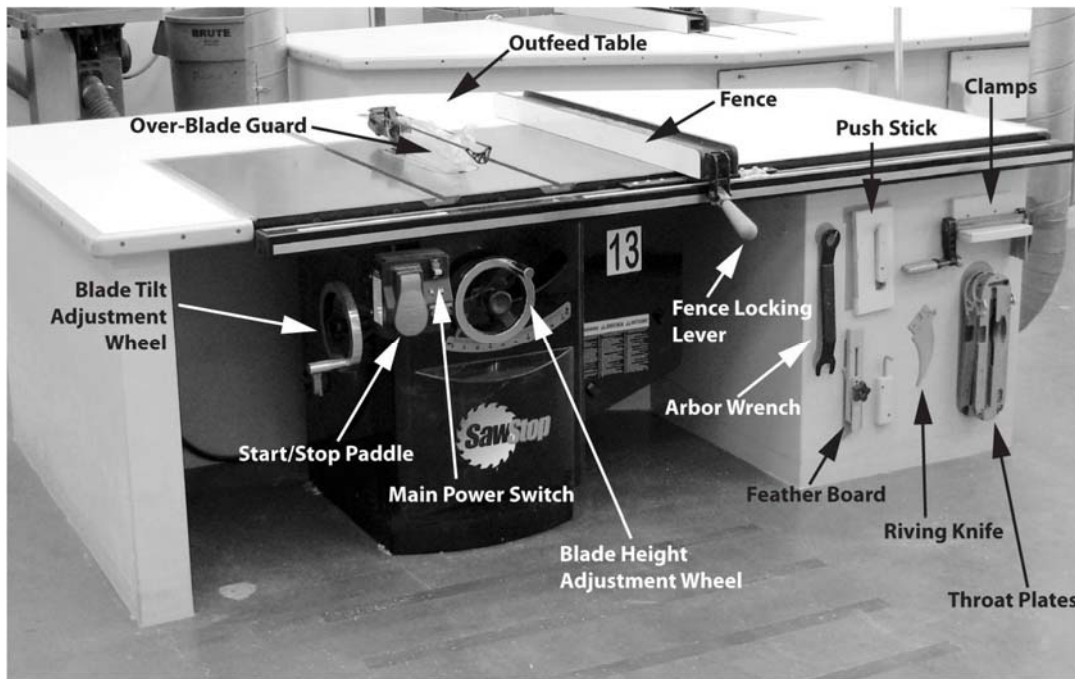


TABLE SAW



Although the table saw is one of the most useful machines in the Makerspace, it is also one of the most dangerous. It can be used to accurately rip and crosscut lumber and sheet goods. The table saw can also be used for special operations including cutting dadoes and rabbets and for resawing. With the use of special jigs, joinery like tenons and box joints can be made. In addition, the blade can be tilted for cutting bevels and miters.

The saws in the Makerspace use 10" diameter blades and tilt left (that is, away from the fence). The Makerspace Table saw is a SawStop, considered the safest in the industry. SawStop saws are equipped with a safety system that detects when someone accidentally contacts the spinning saw blade, and then stops the blade in milliseconds. In **most** cases, such an accident would result in just a nick on a SawStop saw, instead of the devastating injury which would likely occur on an ordinary table saw.

How does it work? The SawStop electronic safety system induces an electrical signal onto the blade and then monitors that signal for changes. Because the human body has a relatively large inherent electrical capacitance and conductivity, this signal drops when flesh contacts the blade. Wood, on the other hand, has a relatively small inherent capacitance and conductivity and therefore does not cause the signal to drop when it comes in contact with the blade.

A fast-acting brake immediately stops the blade. The brake includes a heavy-duty spring that is held in compression by a fuse wire. When you touch a spinning blade, the system sends a surge of electricity through this fuse wire to burn the wire and release the spring. The spring then pushes a block of aluminum (called a brake pawl) into the teeth of the spinning blade. The blade's teeth cut into the aluminum and bind, thereby stopping the blade. All of this happens in about 3–5 milliseconds, or 1/200th of a second. At the same time, the angular momentum of the blade causes the blade to retract below the table and the power to the motor is shut off.

Both the standard brake cartridges and the dado brake cartridges are single-use components that must be replaced if the brake is ever activated. Changing a brake cartridge is fast and easy – no more complicated than changing the blade. The brake cartridge must be installed properly, approximately 1/8" away from the blade, and should be checked by the supervisor.

The SawStop has a built-in MAIN POWER SWITCH. When you flip the switch on, red and green lights flash for approximately 20 seconds as the system runs through a safety check. When the red light turns off and the green light remains on, the saw is ready.

To activate the blade, you will pull the red START/STOP PADDLE at the bottom. The saw can be turned off by gently bumping the paddle with your knee.

Do not use the table saw until you have been through the Makerspace table saw safety presentation and are personally checked out in its use by the supervisor.

1. The number one cause of injuries on the table saw is **kickback**. Kickback occurs when the operator loses control of the material being cut and it is thrown from the machine with great force.
2. When cutting, the saw blade should project $\frac{1}{4}$ " above the stock or enough to clear the common gullets.
3. The fence is used to guide ripping operations. The miter gauge or sled is used to guide crosscut operations. Always hold the work firmly against the fence, sled, or miter gauge.
4. During a rip cut, once the material has moved away from your left hand, move your left off the table. Do not drag your hand across the table and never reach over the blade.
5. You **must** use a push stick when ripping pieces that are 6" or less in width.
6. Cutting workpieces shorter than 10" in length is a **special setup**; get permission from the supervisor or aide prior to cutting.
7. Performing on-edge resawing is a **special setup**. You must get specific instruction and special permission from the supervisor.
8. When ripping stock, the piece between the fence and blade must be controlled and pushed past the blade all the way onto the outfeed table. Failure to do so may result in a kickback.
9. Lowering stock directly down over the saw blade is dangerous and is never allowed.
10. Procedures involving raising the blade into the work are **special setups**. Permission and instructions must be obtained from the supervisor for doing this type of work.
11. The saw guard must always be in place over the blade except when the supervisor has authorized its removal for **special setups**.
12. The riving knife or "splitter" must always be in place behind the blade except when the supervisor has authorized its removal for **special set-ups**.
13. Make adjustments only when the power switch is off and the blade is at a complete stop.
14. Whenever a measurement or other procedure is made where you must have your fingers in close proximity to the blade, make sure the main power switch is in the off position.
15. The main power switch should be left in the off position when you leave the saw.

16. Freehand cutting, ripping, or crosscutting without using the fence, sled, or miter gauge is **ABSOLUTELY FORBIDDEN** in all circumstances.
17. When you are ripping stock, the scrap must fall to the outside (non-bound side) of the blade (not between the blade and fence).
18. Do not reach over the saw blade or pass wood over the saw blade at any time.
19. When helping someone to tail-off (supporting the work hanging off the back of the saw table), your only purpose is to support the stock from below. Only the operator pushes the stock through the saw.
20. Make sure the blade is stopped and completely lowered when clearing scraps from the table.
21. The supervisor must inspect all **special setups** and dado blade installations before the power is turned on.
22. Use a **special setup** with V-block or sled when cutting cylindrical stock to help keep it from spinning.
23. Backing the stock away from the blade while the saw is running may throw the piece toward you. If it is necessary to remove the piece, always stop the saw first.
24. Never attempt to turn off the saw in the middle of a cut. If you must stop mid-cut, stop what you are doing without moving your hands and turn off the saw by gently engaging the red START/STOP PADDLE with your knee.
25. If the fence is used at the same time as the miter gauge, the miter gauge must be between the fence and the blade. This is a **special setup**.
26. When you are crosscutting a number of pieces to the same length, clamp a clearance block to the rip fence well ahead of the saw blade to prevent the cut piece from being pinched between the blade and fence.
27. Stock edges or faces that contact the table, miter gauge or fence, must be straight and flat.
28. Seek assistance and direction from the supervisor before milling materials with defects such as splits, warps and knots.
29. Changing the saw blade is required depending on the situation and is a **special setup**. The brake cartridge must be installed properly and adjusted approximately 1/8" away from the blade, and checked by the supervisor.
30. Obtain permission from the supervisor for **all special setups** using the 8" dado set, **which requires a different brake cartridge installed properly** [1/8" gap]. Manually spin the blade through one rotation to make sure it clears the brake cartridge before turning on the saw.

TABLE SAW SAFETY TEST

- 1) The minimum distance hands should be away from the fence is:
 - A) 2"
 - B) 3"
 - C) 5"
 - D) 6"

- 2) When ripping you must use the following:
 - A) Guard
 - B) Fence
 - C) Splitter
 - D) All of the above

- 3) The mitre gauge is used when ripping:
 - A) True
 - B) False

- 4) It is unsafe to cut a piece of wood wider than it is long:
 - A) True
 - B) False

- 5) Ripping is the process used when cutting with the grain:
 - A) True
 - B) False

- 6) Plywood does not have a specific grain direction:
 - A) True
 - B) False

- 7) Kickback happens when the wood binds against the front of the blade:
 - A) True
 - B) False

- 8) Always stand directly behind the blade so you can keep a close eye on the cut as it proceeds:
 - A) True
 - B) False

- 9) Jewelry and rings are not recommended to be worn when operating the tablesaw because:

- A) They are distracting
 - B) Could be magnetically attracted to the table saw table
 - C) Could get caught in the blade and make an accident much worse
 - D) Always get caught on things
- 10) The mitre gauge and fence can be used at the same time for repetitive cuts as long as you use a clearance block:
- A) True
 - B) False
- 11) One of the most dangerous things you can do on a table saw is reach over the blade:
- A) True
 - B) False
- 12) The guard is used at all times except:
- A) When ripping
 - B) Cutting large stock
 - C) When the supervisor says its ok to remove it for a unique set up
 - D) Short pieces only
- 13) Adjustments can be made:
- A) Only when a supervisor is present
 - B) When the machine is running
 - C) When the machine is fully stopped and the power button is off
 - D) Whenever you want to
- 14) The blade should be ____ above the height of your stock:
- A) 1.4"
 - B) 2"
 - C) 3"
 - D) Flush
- 15) Minimum length for this machine is:
- A) The safest length you feel comfortable with
 - B) 2"
 - C) 12"
 - D) 16"

16) If you are using the machine and the wood becomes stuck you must:

- A) Yell for the instructor
- B) Push harder
- C) Let it go
- D) Shut off the machine, wait for it to stop and then remove it from the machine

17) When wanting to make a unique cut like cove cutting and you've never done it before you should:

- A) Google it
- B) Seek help from the supervisor
- C) Improvise
- D) Try it alone

18) If you are cutting a long piece of wood and need someone to help you always make sure they are just taking the weight of the wood and not pulling from the other side of the table-saw:

- A) True
- B) False

19) When ripping the "good" measured side of the wood is always:

- A) Between the fence and the blade
- B) On the left side of the blade
- C) Doesn't matter
- D) Depends on the table-saw

20) The following must always be used when ripping wood less than 6" wide:

- A) Mitre Gauge
- B) T square
- C) Push stick
- D) A board directly behind the good board

21) Always push the wood past the blade before stopping the saw:

- A) True
- B) False

22) Always place the face side of a board on the table and the reference edge against the fence

- A) True
- B) False