

# Operating Procedure For

## Sawstop<sup>®</sup> Cabinet Saw

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### SAFETY:

**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 table saw. Use the machine with the respect and caution demanded where safety precautions are concerned.

**You are responsible for you own safety.**

1. Read and understand all safety instructions before operating this saw.
2. 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.
3. Keep the machine guards in working order and in place for every operation for which they can be used.
4. Remove adjusting keys and wrenches from the saw before turning it on.
5. Keep the top of the saw clean and free from clutter. Cluttered areas invite accidents.
6. Keep the floor around the machine clean to minimize the danger of tripping or slipping. Be sure the infeed and outfeed areas are free of scrap or foreign material. Make sure the dust collector is hooked up and operating.
7. Do not try to force the machine to do something it was not designed to do. For example, do not try to cut wood faster than the motor can handle. Use the right blade for the job.
8. At a minimum eye protection and hearing protection must be worn when operating this machine. Eye protection must be safety glasses with side shields, or safety glasses together with a 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.
9. Maintain a balanced stance and keep your body under control at all times. Do not stretch or overreach to get something when using the saw.
10. Turn the Main Power Toggle Switch to OFF and Lockout the saw using the Club Lockout Procedure before servicing the saw and when changing blades or brake cartridges.
11. Never stand on the saw. Serious injury could occur if the saw is tipped or if the blade is unintentionally contacted.
12. Check to make sure that the saw is in proper working order and before using the saw. Check the alignment of all moving parts. Make sure that all accessories and guards are in proper working order.
13. Feed work into the blade against the direction of rotation of the blade only.

14. Never leave the saw running unattended. Wait until the blade comes to a complete stop, and then turn the toggle switch to OFF when you are finished using the saw.
15. A rip fence **must** be used whenever ripping operations are taking place.
16. The sliding table, miter gage or crosscut sled **must** be used on all crosscut operations.
17. Always maintain firm control over material being cut. Never cut any material freehand.
18. Never attempt to operate the saw with the access door open. The access door is interlocked so that the saw will not start if the access door is open and will shut down if the door is opened while the saw is operating. The access door is provided only for maintenance purposes and protects personnel from hazardous rotating parts. Do not attempt to bypass or defeat the access door interlock switches.
19. 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.
20. Keep hands outside the machine. NEVER reach under the guards to try to clear a piece of wood. Do not have any part of the hands under that part of the board that is over the table when starting the cut.
21. Do not cut boards with loose knots or with or any foreign material on its surface. Twisted, warped, or bowed stock should first be jointed on one edge and planed on one surface before attempting to cut the stock. **Reclaimed, wet or pressure treated wood is not to be cut on this machine.**
22. 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.
23. Familiarize yourself with all caution and warning decals used on this machine.

# The SawStop® Safety System

**Caution: This table saw is different from conventional table saws and requires special training and operating procedures to prevent injury to the operator and reliable performance of the saw.**

This table saw is equipped with the SawStop® safety system. The SawStop safety system includes two components: an electronic detection unit and a fast-acting brake. The electronic detection unit detects when a person contacts the blade. A small electrical signal is induced onto the blade by electrodes placed around the arbor. When human skin comes in contact with the blade, a portion of electronic signal is absorbed by the body. As a result, the signal on the blade gets smaller and the detection unit recognizes this contact.

The fast acting brake includes a fuse that holds a strong spring in compression. If the electronic detection unit detects contact while the blade is spinning (including during coast down), the fuse is burned by a surge of electric current. The spring then pushes an aluminum brake into the teeth of the spinning blade. The teeth cut into the brake and stop the blade. If the brake is activated while the blade is at or near full speed, the blade will also retract below the table.

Dry wood and other non-conductive materials do not cause a drop in signal because they do not absorb the signal on the blade. Conductive materials, such as metal and wet or damp wood, will usually cause the brake to activate.

The SawStop safety system is active whenever the Main Power is “ON”. The safety system continuously performs many different safety system checks to ensure that the components of the system are operating properly. If any problems are found, the system will disable the motor and display a *system status code*. The safety system will not allow the motor to be restarted, even in Bypass mode, as long as a problem is detected.

The following points must be kept in mind.

1. **Do not** rely on the SawStop® safety system to protect against unsafe operation. Although the system is designed to stop the blade very quickly in the event of an accidental contact, it cannot react until contact is made. This means that you will receive at least a minor injury. Therefore, always use safe operating practices. The SawStop® safety system should be considered as a last measure to minimize injury when all other safety practices and devices have failed to prevent an accident.
2. **Do not** operate the saw in Bypass mode. When the Bypass mode is engaged, the SawStop® safety system will not activate if contact is made.
3. **Use only blades provided by the Club. Do not** use saw blades that have a Teflon or other coating on the blade. These coatings are non-conductive and therefore can reduce the speed at which the system detects contact or prevent the safety system from working at all. Never use a thin-kerf blade. They are not strong enough to withstand the braking forces and may deflect and prevent the brake from stopping the blade in a flesh-sensing situation.
4. **Never** use a blade with damaged or missing teeth as this can result in a more serious injury or a false activation of the brake.

5. **Never** attempt to use a blade other than a single 10” blade with the standard SawStop® brake cartridge. **Never** attempt to use a dado set or blade other than an 8” dado set with the SawStop® dado cartridge.
6. **Never** install a blade backwards. The brake might not stop a blade that is installed backwards.
7. **Never** install two or more 10” blades together. The safety system is not designed to stop multiple stacked 10” blades.
8. **Never** stack dado blades thicker than 13/16.” The 8” dado brake cartridge is not designed to stop a dado stack thicker than 13/16.”
9. The motor cannot be started without a blade installed. Since the safety system disables the motor if the blade is spaced too far from the brake, a missing blade will be detected as a blade-to-brake spacing error and the motor will be disabled.
10. **Do not** use table inserts, guards, fences, or other devices which have metal parts that may come in contact with the blade. Any metal part that contacts the blade may cause the brake to activate.
11. **Do not** turn off the Main Power switch before the blade stops spinning. If the Main Power switch is shut off while the blade is moving, the safety system will not be active during the coast down and any contact will not be detected.
12. **Do not** replace the arbor belt with a non- SawStop® belt. The SawStop® arbor belt is designed to dissipate static electricity that may build up on the spinning blade which could cause a false activation of the brake.
13. **Never** reach under the blade while it is spinning. In the event the brake is activated, the retraction of the blade may cause a serious injury if you contact the bottom of the blade.
14. **Never** touch the arbor, arbor pulley, arbor nut or arbor washer when the blade is spinning because you may receive a serious injury. These parts are electrically coupled to the blade and the brake will activate if contact with these parts is detected.
15. **Never** attempt to disable the SawStop® safety system or modify the electrical wiring to the saw in any way. Any change or modification of the safety system or wiring could result in injury and void all warranties.
16. attempt to repair, adjust, modify or otherwise service the brake cartridge. The brake cartridge is sealed against dust and other contaminants and has no user-serviceable parts inside. Destruction, removal or alteration of this seal will void all warranties.
17. Anytime that the brake is activated, both the brake cartridge and the blade will need to be replaced.

## Using The Saw

- Select the proper blade and brake for the job. Sawing creates a lot of sawdust. The thicker the stock to be cut, the greater the amount of sawdust created. The sawdust goes into the gullets between the teeth as the wood is cut. If there is not enough room in the gullet, the blade will overheat and may flutter causing a poor cut and burning of the wood. The load on the motor is also increased. The more teeth that are on the saw blade, the smaller the gullet. As a general rule, use a 40 tooth blade for stock up to 1-1/4" thick and a 30 tooth blade for thicker stock.
- Adjust the blade height using the wheel on the front of the saw. For through cuts the blade should be adjusted so that no more than 1/4" of the blade protrudes above the work piece.
- Adjust the blade tilt (if any) using the wheel on the left side of the saw.
- Use the blade guard for every operation for which it can be used, including all through cuts (ripping and cross cutting).
- Use the riving knife for every operation except when a blade less than 10" in diameter is used. The riving knife can not be used when making dado cuts.
- **Caution!** When adjusting the height or tilt angle of the blade, reverse the hand wheel slightly to release tension after reaching the stop limits. **When approaching the stop limits, do so easily**. Excessive force will damage and/or change the stop limits. This prevents any slight twisting of the cast iron assembly that might affect the blade parallelism and table alignment.
- The table saw is equipped with a sliding table. This sliding table eliminates the need to use a miter gauge for most applications. The sliding table fence has a scale and two flip-stops that can be used to accurately cross cut boards to length. The scale is fixed to the fence and is calibrated by sliding the fence laterally. To calibrate the scale, set a flip-stop at the 12" mark on the scale. Turn off the main power switch for the saw. Place a 12" blade from a machinist's square against the fence so that it just touches a tooth on the saw blade. Slide the fence laterally so that the other end of the blade from the machinist's square just touches the flip-stop. Lock the fence in place. Remove the blade from the machinist's square and put it away. Slide the sliding table forward and ensure that the fence clears the saw blade by at least 1/2". If the saw blade touches the fence while the saw blade is in operation, the blade brake will activate and ruin the saw blade and the brake.
- When making miter cuts with the fence at an angle, or with the saw blade tilted at an angle, the fence will need to be unlocked and slid laterally so that it provides good support for the board and is no closer to the saw blade than 1/2". When making miter cuts with the fence at an angle, the fence will need to be slid towards the blade so that it provides good support for the board. When making miter cuts by tilting the saw blade, the fence will need to be slid to the left. In either case, check the clearance between the end of the fence and the saw blade before turning on the saw.
- The table saw is provided with a blade cover. The cover can be slid laterally. When ripping, move the cover to the left so that the right-hand side of the cover is about 1/4 - 1/2" from the saw blade. This will maximize the distance between the blade cover and the rip fence and maximize the room for your hand or Grr-Rip Block<sup>®</sup> while pushing the board through the

cut. When cross cutting, position the blade cover so that it is far enough to the right so that it clears the fence on the sliding table.

- When using some jigs that require the board to be held vertically, or on edge, such as the tenoning jig, you may need to unlock the slide the blade cover and rotate it to the right to obtain the required clearance. Use extreme caution if this is done and recognize that not only is there a hazard presented by the blade, but also from dust and flying chips that are normally contained by the blade cover. The use of approved goggles or face shield and dust mask may be required.
- The rip fence on the table saw is aluminum. If it contacts the saw blade while it is in operation, it will activate the blade brake and require replacement of the saw blade and brake cartridge. During rabbeting operations, you will need to attach a sacrificial board to the rip fence (double sided tape works well for this). Use a dado width 1/32 to 1/16” wider than the required rabbet. Lower the blade below the table and position the rip fence to the desired rabbet width, minus 1/16” to 3/32”. Then carefully raise the dado cutter up into the sacrificial board to the depth of the rabbet, plus about 1/16”. After stopping the saw, adjust the saw blade height to the desired rabbet depth and position the rip fence to the desired rabbet width.
- Always stand to the left of the blade when ripping.
- Turn on the dust collection system before starting the saw.
- Turn Main Power Toggle Switch on. The saw will go through a brief initialization (5-10 seconds) to check the safety system. During this check the red and green LED lights will blink in different patterns. Once the initialization is complete and system is READY, the green light will remain on and the red light will remain off. If the system is not READY after 15 seconds, the LED lights will blink to indicate a problem and the saw will not start. If this happens, notify the Shop Leader before proceeding.
- Once the system is READY, pulling the Start/Stop paddle out will start the motor. To turn the motor off, push the Start/Stop paddle in.
- When performing a series of cuts, leave the Main Power Toggle Switch on and control the motor with the Start/Stop paddle. This will eliminate the delay due to the initialization routine.
- **Caution!** Always make sure the blade has come to a complete stop and the coast down status code has cleared before touching the blade.
- **Do not operate the saw in the safety system bypass mode.** There are only certain situations where this is necessary and these will rarely, if ever, be encountered. Only a Shop Leader can put the saw in the bypass mode.
- Never make free-hand cuts. Keep work piece firmly against the miter gauge, rip fence, or sled.
- Never make a beveled cut that “traps” the work piece between the blade and rip fence. Always keep the rip fence on the right side of the blade.
- Adjust the blade height to 1/4” or less above the workpiece.

- Push the work piece through the cut.
- Use a Grr-Ripper<sup>®</sup> or Grr-Rip Block<sup>®</sup> when appropriate to keep fingers away from the blade.
- Turn off the saw at the main power toggle switch when the job is completed or the end of the work period.
- Do not reach over the saw when it is running.
- When ripping stock to less than 4” wide, adjust the fence to “low profile” to provide good access for your hand.
- When ripping stock less than 3” wide, use a pair of Grr-Rippers<sup>®</sup>. Position the non-slip pads so that they form a tunnel that the blade passes through. Adjust the balance support so that the Grr-Ripper<sup>®</sup> is stable. Use a leap-frogging technique when the boards are longer than about 24”.
  - a. The Grr-Ripper<sup>®</sup> has three legs. A ½” wide leg on one side, a ¼” or 1/8” wide leg on the other side and a 1” wide leg in the middle. With the ¼” wide leg installed, stock can be ripped to a minimum width of ¼”. With the 1/8” leg installed, stock can be ripped to a minimum width of 1/8”. Careful setup of the Grr-Ripper is needed to prevent damage to it. If the Grr-Ripper<sup>®</sup> is inadvertently damaged, notify the Shop Leader so that plans can be made to repair it.
  - b. The rip fence must be securely locked parallel to the saw blade and in the ‘Tall’ or ‘Up’ position
  - c. The Grr-Ripper<sup>®</sup> system includes three legs with non-slip pads. A minimum of two legs must be installed during any cutting operation.
  - d. Use at least one leg to the right and one leg to the left of the saw blade whenever possible.
  - e. The face of side leg on the right leg must be in full contact with the rip fence at all times in order to create a parallel guide for forward feeding and inward pressure on the rip fence.
  - f. The saw blade must pass through a tunnel between the legs. This must be checked prior to each cut.
  - g. Use the maximum possible coverage of the non-slip pads on the work piece.
  - h. The Grr-Ripper<sup>®</sup> must be stable at all times. When a narrow workpiece is not covered by the left leg, the balance support must be used. The bottom surface of the balance support must be adjusted so that it rests on the saw table.
- The use of a push stick is not recommended because it does not provide good control of the workpiece as it is being pushed through the blade. However, a Grr-Rip Block<sup>®</sup> may be used if desired.
- When cross cutting stock less than 6”-12” long, clamp the stock to the miter fence before making the cut.

Alternatives: 1) Clamp a sacrificial fence to the miter fence that is long enough to support the off-cut.

- 2) Use a cross cut sled. **Note:** It still may be necessary clamp the stock to the sacrificial fence or the cross cut sled.
- When using the rip fence as a stop gauge when cross cutting, pull the rip fence back so that the out-feed end is in front of the front of the saw blade.
  - Do not use molding cutters on the saw without approval of the Workshop Director.