

TABLE SAW PROCEDURES

The table saw comes in a close second to the circular saw to deaths and injuries caused by the incorrect and improper use of this amazing tool. This is more than likely to the amount of circular saws owned by carpenters and homeowners as to the amount of table saws. A person asked me the other day how most people get injured using a circular saw. Answer: Depending on the guard to protect them.

Depending on a circular saw blade guard and a table saw blade guard are two of the most dangerous things you will ever do with saws. It's like depending on a rattlesnake to not bite you.

In this article I am going to show you the proper way to use a table saw and some things you may not know about the procedures you can do with a table saw.

There are a lot of things that could save your life or limbs in this article and you won't find them in your table saw manual nor on your search for table saw safety. This article is from my experiences using table saws for over 50 years.

I told in the Carpenter Book of a 1x12 exploding while ripping it, I got to the end of the cut and it exploded, sounded about like a 22 rifle being shot. It happened again about a week ago. I have told the men I am working with that if they have a heartsawn or centersawn piece of lumber to rip, lay it aside and let me rip it. Like most carpenters whom I have worked with,

they don't listen to menial statements such as this one I made.



As you can see, this 2x12 was very close to the center of the tree, I would not call this heartsawn but it was full of pitch tension, you could see it plainly on the face of the board.



When it popped you could hear it clear across the shop. You can see the blade and the crack went almost to the end. The saw kerf was about a 1/2" wide after it exploded. Pitch tension is a very powerful force. This 2x12 had been in the sun for over a week and the UV of the sun had activated the pitch and it was just waiting for something or someone to release it, a carpenter using a table saw did just that and it's something he will never forget. It scares me and I have had it happen many times.



The dark yellow streaks on top give it away and also the growth rings tell you it was cut only inches from an area in the center of the tree, both signs should tell you to be careful.



The carpenters brought this 2x12 into the shop and dropped it on the concrete and it split about 4' when they dropped it, pitch tension being released. If you look closely at the picture this board has a deviated sap/tap root. The deviated tap root does not distribute the pitch as a normal straight tap root does. It creates pitch pockets, something I have told you about many times and told of the dangers of this act of nature, very dangerous to a sawyer, absolutely full of pitch tension.

The tension in this board, causing a $\frac{3}{4}$ " split, could have caused someone to get injured. This is a direct result of leaving lumber in the sun and the UV rays activating the pitch. Most engineers agree with me, but some say the sun's rays do nothing to lumber. I am

sure you already know this, if you don't, take a perfectly straight 2x stud that has a few knots in it and leave it in the sun's rays for 3 or 4 hours and you will see what the uv light does.

They don't know lumber and little about the properties/physics of lumber. They need to stay in their office and dictate policy and not procedures for carpenters.

If you are a carpenter you have had this happen, probably many times. Thing is to know and be prepared. This explosion of pitch tension will not injure you if you use your head. It is over before you can react, so as I have always said, just stop. Don't move, stay "as you were" as they say in the Army.

The board may bind and stop your saw, burn up your belt, as this one did, no big deal, they sell belts and they sell saws, but hands and fingers are not found at Home Depot. They are usually found on the floor or on the table saw table.

It is just like when pitch tension stops your circular saw when you are ripping a 2x12, calmly stop the saw and pry and pull it out, go through the cut 3 times if you have to and release the tension, better yet, throw the board away. Pitch tensioned boards are something you need to learn to recognize before you go to cutting on them.

If you stay prepared for this occurrence you are not going to be totally surprised and you are not as likely to get injured. It has happened to me hundreds of times. Still scares me and always will. Fear is something that can save your life, over and over. Don't lose your fear while using any saw.



This is another thing that gets a lot of table saw operators in trouble, ripping or profiling small pieces of wood.



This is a pocket guide I use for small strips I am running through the saw, and I will guarantee you it can save a finger or a hand. I have this one screwed onto the angle jig I made. You can attach one to your fence for straight runs. In this picture I have a pocket guide for one inch stock. We are profiling a small cove onto some 1x1 stock. The pocket is actually $1 \frac{1}{16}^{\text{th}} \times 1 \frac{1}{16}^{\text{th}}$.

You simply slide the 1x1 into the pocket and pull it out the other end. There is no need for push sticks or getting your fingers close to the blade. The pocket guide is a hold down, a featherboard and a time saver all in one. Safe too.

You can make these for all types of applications. I have many and it saves time and cuts the chances of an injury

happening. You will have to saw some test pieces to get the saw set, but it is worth the time and effort.

To use a pocket guide on a table saw fence you need to screw a 1x onto your aluminum or magnesium fence, and then attach your pocket guide.

For doing miters, for instance, chamfer, you won't have your mitered blade touching the metal fence. Give this pocket guide a try.

One other note about table saw procedures and one of them is changing a blade or any operational maintenance to any tool.

Important:

I was building a door in my shop in 2006, 20' from my main table saw. It was quiet in the shop and no one else was there except one other carpenter. We were nailing the stop on and all of a sudden the main saw started. We just looked at each other. I had never had this happen. My helper had tried to start it that morning and it would not come on, he had left the switch on and came over to help me. I assume that the switch made contact and then started. I often think of this when I am changing a blade. I now unplug the saw every single time I change a blade. If there are a lot of people around the saw, I put the cord cap in my pocket, so no one can plug it in. Pitch is oil based and will conduct electricity. This strange event could happen to any tool. My advice, unplug them all when working on them. Who knows when this could happen again? I don't and no one else does either.



This above is a gothic style dado (or coved as some call it) I made with a table saw. I have seen lots of carpenters do this but have never seen anyone actually calculate the cut before hand, with precision, to make the cut. This is a $1\frac{3}{4}$ "x 1" cove dado.



In the picture above I have taken some wood strips and laid them on the table exactly $1\frac{3}{4}$ " apart, parallel to each other. I first set the elevation of the blade at 1" then laid the strips where they were at the point of where the blade comes out of the table at each end of the cut. This will give you the angle of the angled fence for the dado to be made.



I then marked the right side of the strips with a marker to measure off of. I also marked the center to get the dado in the center of a 2x6.



This is the backside of the angle guide, 2-1x6's with hinges on one end. I've sawn a slot in a $\frac{1}{4}$ x $1\frac{1}{2}$ piece of wood to serve as a clamp to hold the angle I need. I took two screws and attached it to the fence.



I then aligned the angle with the mark I made on the strips of wood to get the angle and set the angled guide $2\frac{3}{4}$ from the center mark, and then clamped it.

Now you are ready to saw the dado. Most table saw elevator cranks raise the blade a $\frac{1}{4}$ " with each revolution. You want to set the blade at 0 elevation then elevate it $\frac{1}{8}$ " (half a revolution), run the board through.



This is the first pass. Raise it another half a revolution and run it through again, keep doing this until the blade is at 1" and you will have a $1\frac{3}{4}$ x1 coved dado.

If you have 10 boards to dado, run the stack through with each elevation.

On the last pass, do not raise the blade, but run the through again at 1" elevation very slowly and this will plane the dado almost smooth.

This procedure is not dangerous. I have been doing this procedure for over 40 years. This is how we made

raised panels before I knew what a shaper was.

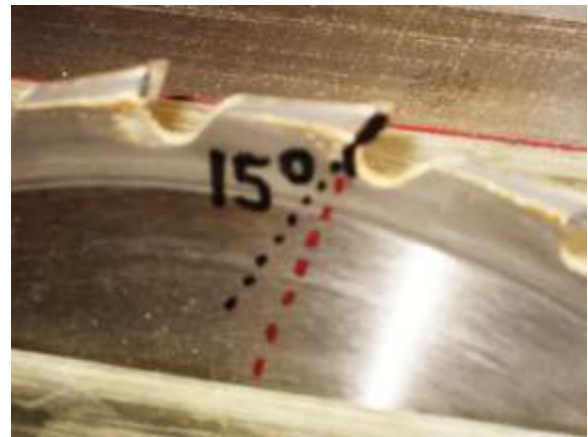
If you follow the instructions, in detail, you won't have any problems but there are those out there that can take the procedures of opening a roll of toilet paper and kill themselves doing it.

For instance, there will be carpenters read this and then think "if a half revolution works, why not use 2 full revolutions and get the job done faster". I promise you, it will happen. Follow the procedures.

I had an American carpenter tell me "I have been using a circular saw for over 30 years and I don't need anyone telling me how to do it".

I was trying to tell him to quit bringing a running saw out of a cut, something I have preached and taught for over 20 years. Mark my word, one day he will remember me and my advice.

I have a couple of pieces of advice here that could save your life and your limbs.



This is the most dangerous dado blade made. It is a 10"-24 tooth, 15° hook table saw rip blade. It is made to rip stock but also used to make a $\frac{1}{8}$ " dado for Plexiglas or plywood. The hook is the dangerous part of this blade. The hook is essential to making

fast and clean cuts in lumber. It also has its deadly side.



The knob in the center of the crank is to lock the elevation or bevel on a table saw, very important piece of equipment. Most of these knobs are gone from the saw and lost, some taken off purposely.



I staged this picture but it shows how many run a board through a saw to make a dado. Look at the position of his left hand.

Now to the problem.

Without a crank locking clamp tightened to hold the elevation of the blade the hooked blade will raise about $1/32$ " or a little more every time you push a board through the saw. Vibration and the hooking and pulling

of the blade when it bites into the lumber naturally will raise the blade.

You will start out making a $1/2$ " deep dado and then after several boards you will be making a $3/4$ " dado, then all of a sudden the blade will come out the top of your board and if you have your hand on top as the staged picture shows, you and what's left of your hand will be in a lot of trouble.

Simple solution to solve this: Keep your hands off of the top of any material while it is in the blade area. Period.

Use your blade elevator lock. All the time.



Another staged picture. Left hand again. This is a 24 tooth thin kerf saw blade we were using to resaw this 2x4 into $1/8$ " slices.

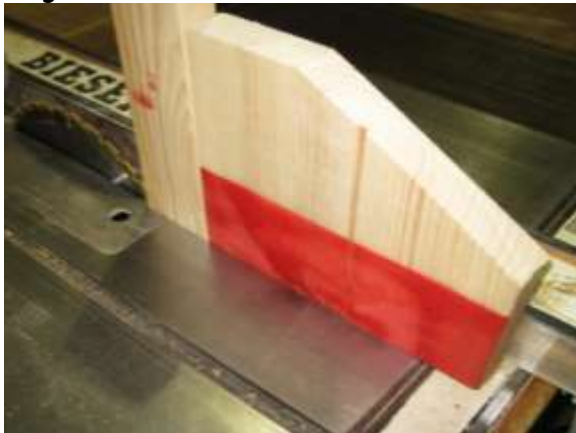
This blade is going to get hot and lose its tension and go to wobbling. With his hand in this position the blade could come out of the cut at any time and he would be short some flesh and maybe some fingers.

There is no need at any time for your hand to be in the cutting area of a table saw. This is the area where the blade insert is. Anytime your hand or fingers are in this area with the saw

running you are taking a chance of being injured or killed.



This is a feather board. Easy to make and use, just clamp it to the table with enough tension to hold your stock to the fence. If this gets cut or ruined you will have two hands and all ten fingers to use to build another one. You can buy these or build them.



This is a push block I made from a 2x12. I am sawing kerfs in this 2x4 to make a featherboard. This block keeps you in control of the piece you are sawing.

Any time you do not have control of any piece of material and control of the tool that you are using you are headed for disaster.

I don't care what it is you're doing, what tool you are using, doesn't matter, lose control, possible loss of life or limb.



I caught this picture before some men were going to try and cut 6" off the end of this full sheet of plywood.

John Wayne once said "Life's tough, it's even tougher when you're stupid".

Perfect example:

We went ahead and let them try to cut this plywood. They had two men on the end of the plywood and two trying to guide it, then pushed it through about 12" and then the blade started smoking, the motor got hot and kicked the breaker and they finally stopped and got a circular saw and finished it.

This was a stupid move on their part but they assured us they could do it. Some people go out of their way to try and do things that a tool was not designed to do. This is not only a stupid move it is also very dangerous.

About two hours later we saw them trying it again, HSE was standing there watching them and never said a word. My advice to you is to not do this. Use the tool that was made to do this cut. Any saw is dangerous and doing something like this is only increasing your chances of getting injured on a saw.

Some people listen to someone trying to teach proper procedure with tools but in my 20+ years of instruction I have found most don't listen. It takes a trip to hospital for them to learn.



The floor sign is on the concrete in front of this saw below, it tells it all. Keep your area clean. Don't be tripping and falling over scrap that someone is going to have to move anyway.



This picture shows this individual is not going to listen to anything I or anyone else has to say. His also the one that tried cutting the 6" piece of the full sheet of plywood. I rest my case.

This article has only shown you a few things to do with a saw and a lot of things not to do. There are hundreds more.

Most will learn the hard way, but there are a selected few that will listen and learn the correct procedures for using tools and equipment.

I'll never quit teaching about saw procedures. I am going to do my part to keep you from getting injured by writing these articles.

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