Working wood can be a messy business. And I’m not referring to the sawdust, wood chips, and shavings left behind in the wake of a project. I’m talking about the rough, scarred surfaces remaining on the work itself if you’re not careful to prevent tear-out during cutting procedures. And the damage can happen when performing just about any kind of cut, including sawing, routing, jointing, and planing.

One potential arena of tear-out destruction is the tablesaw. Boards and sheet goods that pass through this machine can emerge either ratty or ready, all depending on how you handle them. Here, I’ll show you how to guard against tear-out on the tablesaw, whether you’re making a simple crosscut or performing some fancier maneuver using a special jig.

These simple preventative measures yield big results in the way of clean looking projects, and time saved fixing errors.

Know Your Enemy
Tablesaw tear-out occurs as the saw teeth exit the work, breaking through and pushing aside the outermost layer of wood fibers rather than severing them cleanly. Tear-out is not really an issue when ripping; it’s cuts made across the grain that see damage. Truth is, tear-out from sawing is unavoidable. Look at a “clean” crosscut under strong magnification, and you’ll see tear-out, although minute. And that’s the idea—to keep it to a minimum.
1. Use the right blade for the job

To minimize tear-out, use a tablesaw blade with alternate top bevel (ATB) teeth. The tooth bevel creates a tip that shears cleanly through wood fibers, reducing tear-out. The bevel angle may be low or high, with steep angles designated by some manufacturers as “High-ATB” teeth. The trade-off is that, although a steeper tooth angle produces a cleaner cut, the tip of the tooth may dull faster. Theoretically, the cleanest crosscuts will come from a blade with at least 60 ATB teeth, but note that a premium quality 40- or 50-tooth blade may cut cleaner than a mediocre 60- or 80-tooth blade.

Tip Alert

Before sending a blade out for sharpening, try cleaning it first. Even a little build-up can compromise the cutting edges of a good blade.

2. Put your best face forward

The simplest way to deal with tear-out is to orient it so it will be hidden in the finished project. Learn to handle your workpieces so that the saw teeth will enter the face of the stock that will be the most exposed in the finished project. For example, when cutting drawer fronts to length, orient the drawer face upward so any tear-out will be on the underside/inside of the piece. The same holds true for miters or any other end cuts that will butt against another piece (Photo A).

3. First cuts first

Sometimes you can remove tear-out when making a subsequent cut. A perfect example of this is when cutting joints in a cabinet side. In that case, dadoes are often used to join shelves and other horizontal members to the case side, while a rabbet is usually cut into the rear edges to accommodate a back panel. The exit side of a dado (which is a crosscut) will often produce tear-out. In this case, the wound is easily removed by making the long-grain rabbet cut afterward (Photo B).

Photos: Paul Anthony, courtesy of The Taunton Press®
4. Drop in a ZCI

A zero clearance insert (ZCI) is an inexpensive accessory that will stand constant guard against excessive tear-out (Photo C). The slot on a ZCI is made by the blade itself, leaving virtually no gap between the saw teeth and the sides of the slot. This means that the wood fibers are fully supported on the exit side of the kerf, resulting in cleaner cuts. (As a bonus, narrow rippings can’t drop into the throat plate gap.)

You’ll want a variety of zero-clearance inserts to suit various cutters, including standard and thin-kerf blades, as well as dado heads set up for cuts of different widths. ZCI blanks are available commercially in a selection of materials including UHMW (polyethylene plastic), phenolic, and laminated plywood.

**Tip Alert**

A ZCI prevents saw blade tilt, so don’t throw away your stock throat plate, as you’ll need it when making angled cuts.

5. Fit backup to your miter gauge

Outfitting your miter gauge with an auxiliary fence will reduce tear-out when the fence extends all the way to the blade, as shown in Photos D and E. In this case, the fence prevents tear-out at the rear edge of the “keeper” piece, which is held against the fence. If you want a clean cut on the offcut side because you need that piece, simply extend the auxiliary fence past the blade (Photo F). The end of an auxiliary fence that abuts the blade (or the kerf in a fence that straddles the blade) will also serve as a blade path reference for quick cut setup.

An auxiliary miter gauge fence that abuts the blade prevents tear-out at the rear edge of the workpiece.

A fence attached with T-track, cap screws, and wing nuts allows easily abutting the fence to the blade.

A long auxiliary fence that straddles the blade reduces tear-out on both sides of the cut and allows pushing small offcuts past the blade.
6. Built-in backup

The same backup principle that makes zero-clearance inserts and auxiliary miter gauge fences so effective can be easily incorporated into almost any tablesaw jig. For example, I always use a backer on my shop-made tenoning jig. It’s particularly important to back up heavy, wide cuts like the open mortises shown in Photo G, because the wood fibers at the cut’s exit can really take a beating. In this case, the jig’s fence is simply a short, well dressed, perfectly aligned length of wood designed to accommodate a replaceable sacrificial backer (Photo H). Outfitting other jigs just takes a bit of thought and a few scraps of wood. For instance, a commercial tenoning jig used to slot a miter should include a backer with a mitered end, rather than a squared end (Photo I). In the case of something like a spline miter cradle, design the jig to accommodate a sacrificial 1/4”-thick plywood backer (Photo J).

When cutting joints using a crosscut sled, the sled bottom serves as a zero-clearance insert. However, the kerf slot may widen over time from using different blades, which somewhat compromises support of the wood fibers right next to the blade. To reestablish zero-clearance tolerances, cover the sled with a thin plywood or hardboard panel.

![Photo G](image1.jpg)
The unbacked fibers at the end of the open mortise at the bottom tore away. The mortise at the top was backed during the cut.

![Photo H](image2.jpg)
The easily replaceable backer on this tenoning jig attaches with two screws driven through the rear of the fence.

![Photo I](image3.jpg)
Suit the backer to the cut and workpiece. For example, miter a backer’s end to provide full support for a workpiece’s mitered end.

![Photo J](image4.jpg)
The rear wall of this splining cradle is covered with a thin plywood backer that can be shifted to a fresh section when necessary.

About Our Author
Senior editor Paul Anthony is the author of Taunton’s Complete Illustrated Guide to Tablesaws.
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