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Dave Campbell
Editorial Content Chief, *WOOD* magazine



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5 Essential Tablesaw Jigs

—From Just a Half-sheet of Plywood



Get dead-on crosscuts, create dadoses, cut pieces to identical length, make tight tenons, rip straight edges on boards...the list of jobs

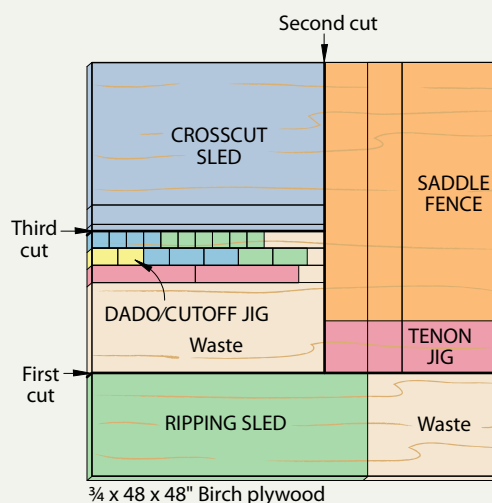
these jigs can tackle goes on and on. Once you have your $\frac{3}{4}$ " plywood and the hardware in hand [Sources, page 6], building all five should take only a

weekend. And from there forward, you'll realize it was a weekend well spent, as these jigs help improve and expand your woodworking.

First, cut down the plywood

Start by ripping a 12"-wide strip from one edge of the plywood [More Resources, page 6]. (Refer to the cutting diagram, right, as you work.) This becomes the ripping sled, so label it and set it aside for later. Crosscut a 27"-long piece from the remaining panel for the crosscut sled and various other small parts. **Note:** The 27" length allows for 3" to the right side of the saw blade and a minimum 2" overhang beyond the left wing. Measure your saw and adjust the length if needed. Label the 21"-long offcut for the saddle fence and tenon jig and set it aside.

Rip the crosscut-sled blank to 19 $\frac{3}{4}$ " wide. From the offcut of this panel, rip three 2"-wide strips. From these three strips, crosscut ten 2"-long blocks, three 3"-long blocks, four 4"-long blocks and two 12"-long blocks. Laminate eight of the 2" squares with their edges and ends flush to create four 1 $\frac{1}{2}$ "-thick blocks. Likewise, laminate two of the 4" blocks. While these pieces dry, you can start on the first jig.



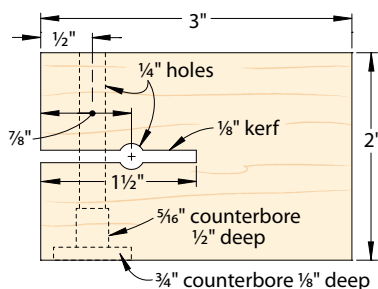
1 CROSSCUT PRECISELY AND SAFELY WITH A SLED



Retrieve the crosscut-sled blank and rip a $\frac{3}{8}$ "-wide fence blank from one edge [Cutting Diagram]. Set up a stopblock on your drill-press fence [Installing T-nuts, below] and drill a $\frac{1}{4}$ " hole $1\frac{1}{2}$ " from one end of the fence blank [Drawing 1]. Rip a $\frac{3}{4}$ " strip from the blank, and in the just-ripped edge of this piece, drill counterbores for a $\frac{1}{4}$ " T-nut. Install the T-nut and reglue the fence strips, using a bolt through the holes and T-nut to help align the pieces.

After the glue dries, cut the groove in the bottom edge of the fence [Drawing 1].

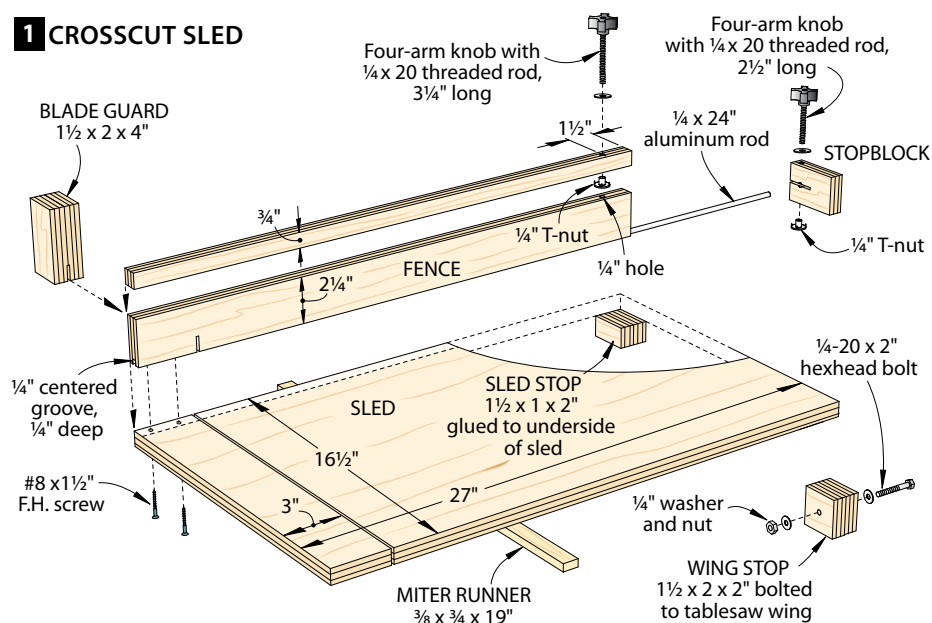
1a STOPBLOCK DETAIL



Retrieve the crosscut sled. Check that one end is exactly square to an edge, then place that end against the tablesaw rip fence, with the square edge closest to you. **Note:** For best results with your sled,

your rip fence and blade must be properly aligned. See More Resources on page 6 for details on checking this. Glue and clamp the sled fence to the sled flush with the rear edge [Photo A, next page].

1 CROSSCUT SLED

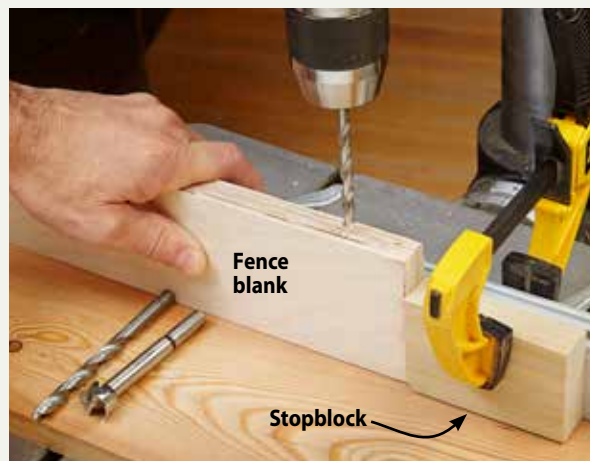


SHOP TIP

Installing T-nuts

T-nuts provide a way to secure a threaded rod or bolt in a workpiece. Installing a T-nut flush with the surface of a workpiece requires drilling three concentric holes. (Refer to **Drawing 1a.**) To do this, lay out the centerpoint of the T-nut, then position your drill-press fence to place the drill bit exactly on the layout point, *right*. Clamp a stopblock to the fence against the end of the workpiece. Drill the $\frac{1}{4}$ " through-hole first, then install a $\frac{5}{16}$ " bit and set the drill-press depth stop to drill $\frac{1}{2}$ " deep. After drilling this counterbore, mount a $\frac{3}{4}$ " Forstner bit and drill a $\frac{1}{8}$ "-deep counterbore.

Tap in the T-nut with a hammer. To prevent splitting the plywood when installing a T-nut in the edge, squeeze the piece in a vise, *far right*.



A SQUARE SLED MAKES SQUARE CUTS



A

Check for precise alignment by feeling along the edge with your finger. Hold the fence in place for a few minutes to let the glue grab before clamping.

From a scrap of a hard wood (we used maple), mill a miter runner to fit the width of your miter-gauge slot. Using the rip fence to help position the sled, temporarily attach the miter runner with double-faced tape [Photo B], then screw it in place. Don't glue the miter runner, so that you can replace or adjust it if needed.

With the runner secured, place the jig on the tablesaw and cut through the sled until the fence reaches the highest point of the blade. Shut off the saw, and hold the sled in place. Retrieve two of the 1½×2×2" plywood blocks. Bandsaw one to 1" wide to make the sled stop, and glue it to the left rear corner of the sled, allowing at least ¼" between the stop

and the edge of the tablesaw wing. Bolt the second block to the tablesaw wing so it contacts the sled stop [Photo C]. Remove the jig and drive two screws through the sled and into the fence to secure the narrow right portion of the sled [Drawing 1].

Retrieve a 2×3" plywood piece for the stopblock [Drawing 1a]. Install a T-nut, drill a ¼" hole through the face and cut the kerf where shown. Secure the stopblock to an aluminum rod with a threaded knob [Shop Tip, below]. Slide the rod into the groove in the fence and secure it with a second threaded knob. Glue the blade guard behind the kerf in the fence [Drawing 1], and your crosscut sled is ready for years of service.

MOUNT THE MITER RUNNER



B

Elevate the runner above the saw table by resting it on washers. Remove the sled with the attached runner, drill pilot holes, and secure the runner.

PUT A STOP TO IT



C

Mark the wing-stop position and drill a hole in the wing to mount it. These blocks halt the sled after completing the cut.

SHOP TIP

Make knobs with custom-length threaded studs

Several of these jigs require knobs with threaded studs in lengths not readily available. But it's easy to make your own. Simply cut the required length from ¼×20 threaded rod. (The lengths listed in the drawings account for ½" of rod threaded into the knob.)

Cut the threaded rod as shown, *near right*. Remove the nuts after cutting to clean up burrs on the threads.

Then, dab a metal-bonding epoxy on the end of the threaded rod, *far right*, twist it into the knob from below, and add more epoxy from above to fill and cover the top of the brass insert in the knob. Wrap the threads below the rod with painter's tape to catch any runs, and stand the knobs up to cure.



2 DUAL-PURPOSE SLED STRAIGHTENS AND TAPERS



Secure a piece of rough-cut lumber on this sled with the adjustable hold-downs and rip a clean edge, *above left*. Or create matching tapers for a set of table legs, *above right*.

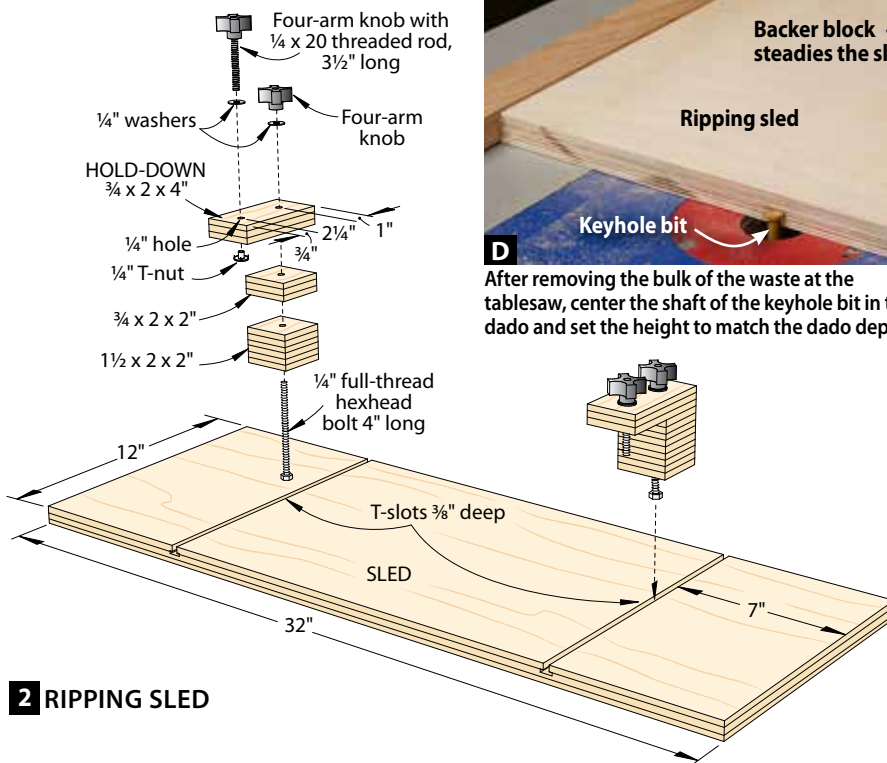
For this jig, crosscut to length the ripping-sled blank set aside earlier [Drawing 2]. To make the T-slots, cut two $\frac{1}{4}$ " dados $\frac{3}{8}$ " deep. Install a keyhole bit [Sources] in your table-mounted router and set it $\frac{3}{8}$ " above the table. Rout T-slots through each dado [Photo D].

For the hold-downs, use the remaining 2" plywood squares. Drill a centered $\frac{1}{4}$ " hole through the face of each square and a corresponding hole through the two 4" plywood blocks [Drawing 2]. Drill a second set of holes for T-nuts through the 4" blocks $\frac{3}{4}$ " from the opposite end. Install the T-nuts and assemble the jig as shown.

To use the sled to true up a rough edge, place it as close as possible to the tablesaw blade without touching it, bring the rip fence up to the opposite edge, and lock the fence in place. Remove the sled from the saw. Position the workpiece so it just overhangs the edge of the sled and lock it in place with the hold-downs [Photo above]. **Note:** To avoid damaging the hold-downs, apply only enough pressure to secure the workpiece. Use additional 2"-square plywood spacers as needed to accommodate the workpiece thickness.

To taper a leg, lay out the start and stop points of the taper on the leg. Align these marks along the edge of the sled. If

necessary, place a spacer between a hold-down and the leg to keep the hold-down back from the blade (*above right*). Raise the blade $\frac{1}{8}$ " higher than the top face of the leg, and make the cut.



A KEYHOLE BIT CUTS T-SLOTS



D After removing the bulk of the waste at the tablesaw, center the shaft of the keyhole bit in the dado and set the height to match the dado depth.

2 RIPPING SLED

3 & 4 SADDLES HELP YOU CUT BEVELS, RABBETS, TENONS, AND MORE



The saddle fence, *above*, locks to the rip fence to support tall pieces, such as when moving a piece on end or edge past the blade, or to protect the rip fence when cutting rabbets, *center*. The tenon jig, *above right*, slides along the rip fence to carry a workpiece past the blade.

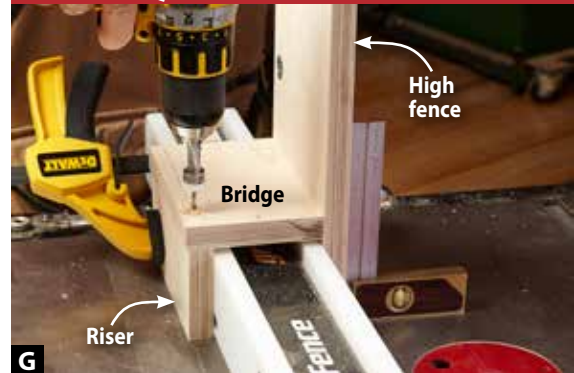
Retrieve the blank for the saddle fence and tenon jig. These two jigs share similar construction, so it makes sense to cut their parts at the same time. Measure your rip fence and size the risers and bridges as indicated [Drawing 3]. Cut them and the high fences to size. Drill the holes and install the T-nuts in the high fences of both jigs and the riser of the saddle fence. Assemble the jigs with glue and screws [Photo G].

For the tenon-jig backing fence, glue together the 2x12" plywood blocks.

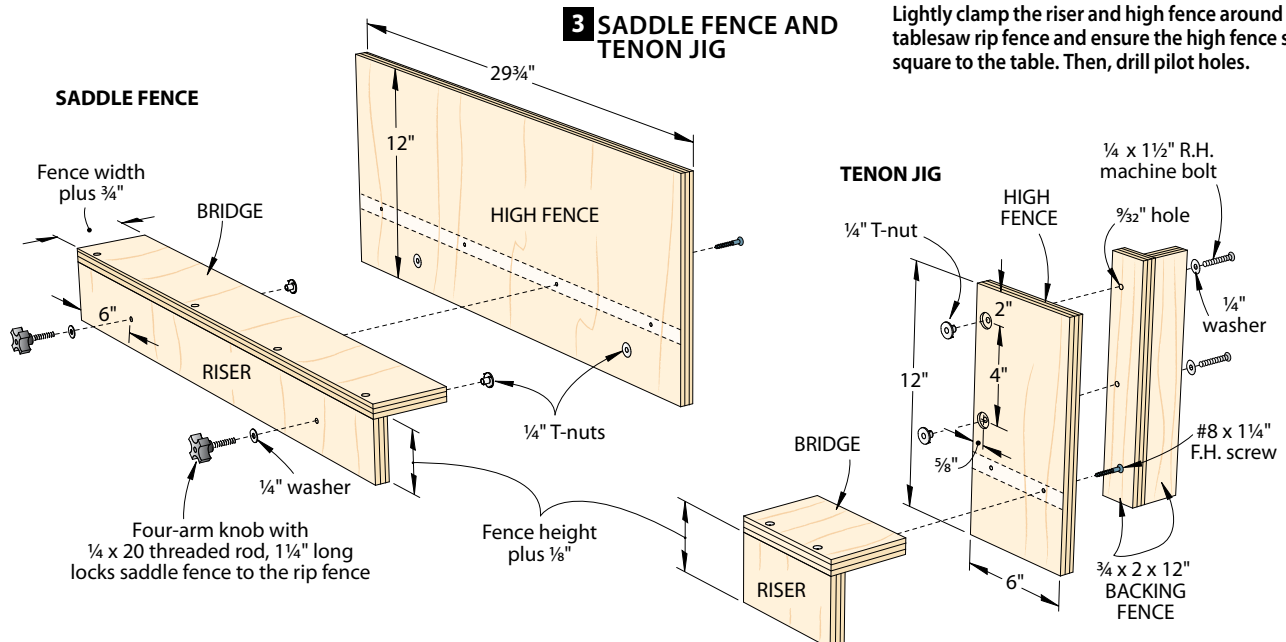
Quick Tip! Make several backing fences from the remaining plywood so you can quickly replace one when it gets chewed up from use.

After the glue dries, align the rear edges of the backing fence and the high fence of the tenon jig. Mark through the T-nuts with a $1\frac{3}{64}$ " drill bit and drill $\frac{9}{32}$ " holes on these marks. (The slightly over-size holes provide a small amount of adjustability when positioning the backing fence.) Install the backing fence, ensuring that it rests perpendicular to the saw table.

A SLIGHT SQUEEZE AS YOU SCREW



Lightly clamp the riser and high fence around the tablesaw rip fence and ensure the high fence sits square to the table. Then, drill pilot holes.



5 SAFELY CUT DADOES AND SHORT PIECES WITH ONE JIG



No dado blade? No problem. Set this jig to cut each shoulder, *above*, then clean out the waste between them. The screw allows for very fine adjustments. The jig also helps when cutting short pieces, *below right*. Simply add its 3" length to the desired dimension of the workpiece when setting the rip fence.

Construct this simple L-shape jig from the two remaining 2×3" blanks. It helps you in two ways.

First, it helps cut dados without a dado blade. To do this, adjust the screw in or out so that the distance from the screwhead to the wood finger of the jig equals the width of the dado, minus the thickness of the tablesaw blade. For example, to cut a ½"-wide dado with a full-width (⅝"-thick) blade, adjust the screw so it sits ⅜" from the finger. Butt the workpiece against the wood finger of the jig to cut one shoulder of the dado,

above left. Then butt the workpiece against the screw to cut the opposite shoulder, *above right*. Clean out the waste with additional passes over the blade.

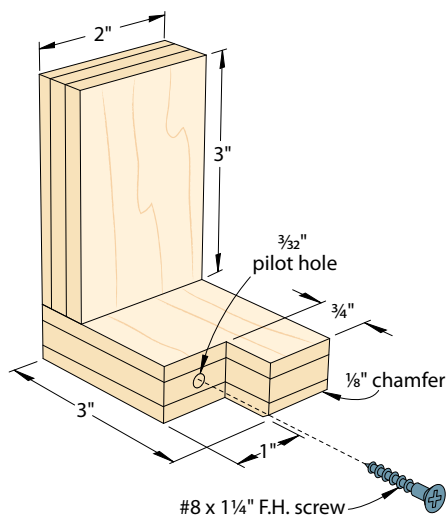
Second, this jig enables crosscutting identical-length short pieces. Clamp the jig to the rip fence ahead of the blade,

butt a blank against it, and make the cut, *below*. By creating clearance between the fence and blade, the jig allows each piece to fall away safely. 🌲

Produced by **Craig Ruegsegger**
Illustrations: **Roxanne LeMoine; Lorna Johnson**



4 DADO/CUTOFF GAUGE



Supplies: 1½" four-arm knobs with through-holes and ¼×20 inserts (8), ¼×20 T-nuts (10), ¼×24" aluminum rod (1), ¼×20 threaded rod 18" long (1), ¼×20 roundhead machine screws 1½" long (2), ¼×20 full-thread hexhead bolts 4" long (2), ¼×20 hexhead bolt 2" long (1), ¼" washers (12), ¼×20 nut (1), ¼" plastic caps to fit the end of the threaded rod (2).

Bits: ⅜", ⅜", ¼", ⅜", ⅜", ⅜" drill bits; ⅜" Forstner bit.

Sources

Hardware kit: Contains all of the hardware listed under "Supplies" above, no. RS-01057, 888-636-4478, woodmagazine.com/5tsjigs.

Keyhole bit: no. 041271, Sommerfeld Tools for Wood, 888-228-9268, sommerfeldtools.com.

More Resources

► Watch a FREE video showing how to make and use a simple jig for a circular saw and router to cut straight edges on large plywood sheets:

woodmagazine.com/straightedge.

► Follow the steps in this FREE article to tune your tablesaw for peak performance: woodmagazine.com/tstune.

► Jim Heavey demonstrates how to tune up your tablesaw in this FREE video: woodmagazine.com/TS tuneupvid.

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