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Bill Krier
Editor in Chief, WOOD magazine

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Universal Tablesaw Jig

With Laser Accuracy

Easy-to-adjust hold-downs ensure safe handling of the workpiece. Additional hold-down sizes are provided on page 102 for those difficult-to-hold parts, including small moldings.

Edge of table aligns flush with blade for easy cutoff reference. Especially useful when cutting odd-shaped parts and taper-cutting.

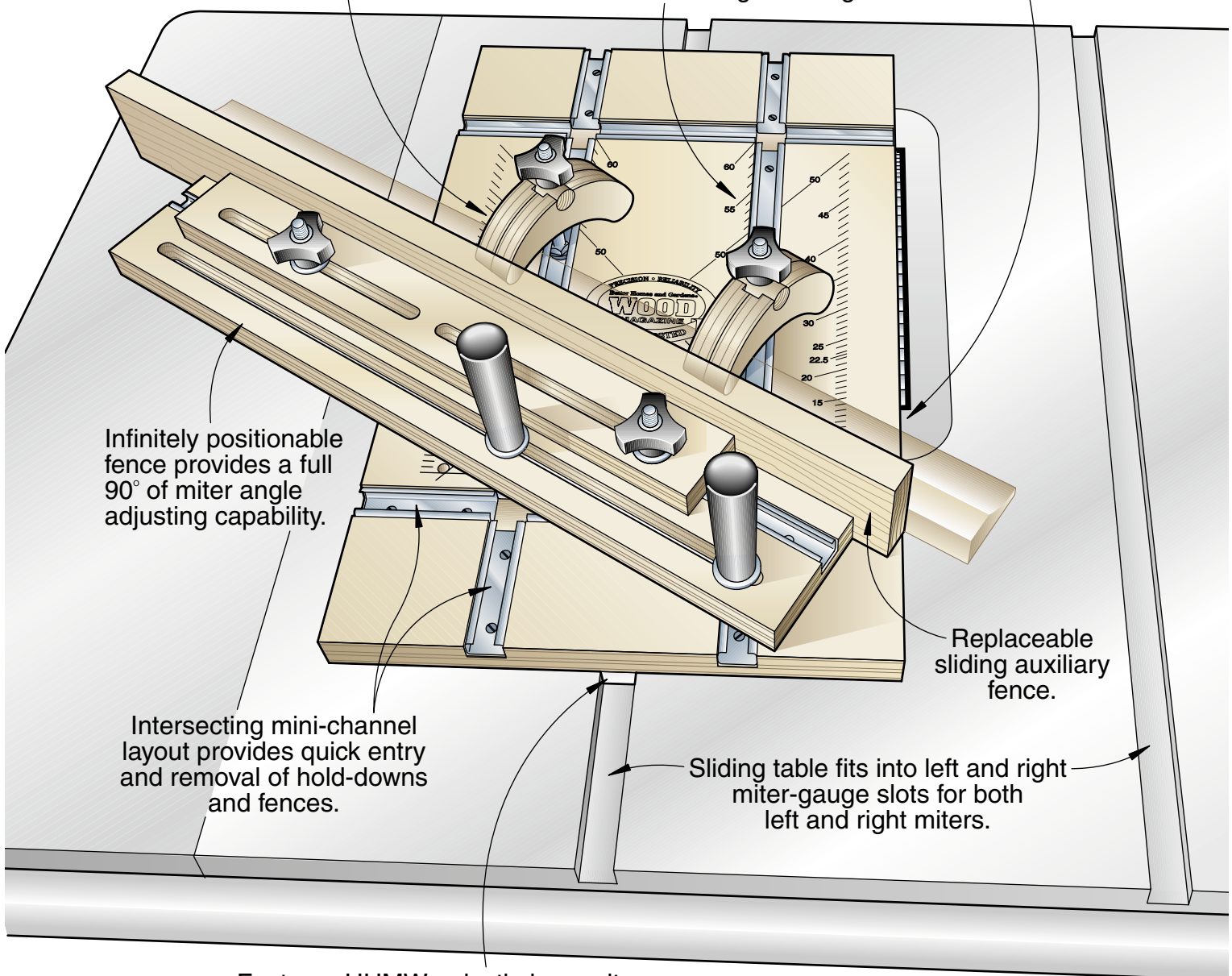
Laser-engraved angle scale for accurate angle-cutting.

Infinitely positionable fence provides a full 90° of miter angle adjusting capability.

Intersecting mini-channel layout provides quick entry and removal of hold-downs and fences.

Replaceable sliding auxiliary fence.

Sliding table fits into left and right miter-gauge slots for both left and right miters.



DP-00533a

Features UHMW polyethylene miter-gauge guide for long-wearing durability.

Laser-engraved angle scales on this sliding-table jig help guide you to right-on-the-money mitercuts, tapercuts, crosscuts, and anglecuts. Time and time again, this jig has proved its worth here in the WOOD® magazine shop where it was conceived, designed, and tested. Now, you can build one for your own shop and raise your woodworking to a new level of accuracy. See pages 75 and 100 for just a few of the jig's many uses.



Okay, let's start with the jig table

1 Cut the jig table (A) to the size listed in the Bill of Materials. For an accurate cutting jig later, make sure the rectangular table you cut has perfectly square corners. (Due to its stability and strength, we used ¾" [18mm actual] Baltic birch plywood.)

2 To customize the jig table for your particular tablesaw, you'll need to properly locate the miter-gauge groove on the bottom side of the table (A). To do this, follow the 3 steps on Locating the Guide-Bar Slot drawing below. Since one miter-gauge groove in a tablesaw is located farther from the blade on one side than the other, the slot in the jig's table (A) will not be centered.

3 Using a dado blade in your tablesaw, cut a ¼"-deep dado on the bottom side of the table (A) to the same width as your tablesaw's miter-gauge groove centered between the lines where marked in Steps 1 and 2 on the drawing Locating the Guide-Bar Slot.

4 Cut the miter-gauge guide bar (B) to size. Use solid birch if you're using your own stock, or, if you use our hardware kit, cut the UHMW (ultra-high molecular weight) polyethylene to size. (We found polyethylene slides easier in the groove than wood. Plus, polyethylene will not change in size with seasonal humidity changes.) Drill mounting holes in the guide where shown on the Table Exploded View drawing. Screw the guide in place, making sure the screw heads don't protrude below the bottom surface of the guide.

5 Fit your tablesaw with a 1⅜" dado blade that's set to cut ⅞" deep (⅛" deeper than the thickness of the metal mini channel). Set the fence on your tablesaw 3" from the edge of the dado blade. With a different edge against the fence for each pass, cut four dados in the top surface of the table (A) where indicated on the Table Exploded View drawing.

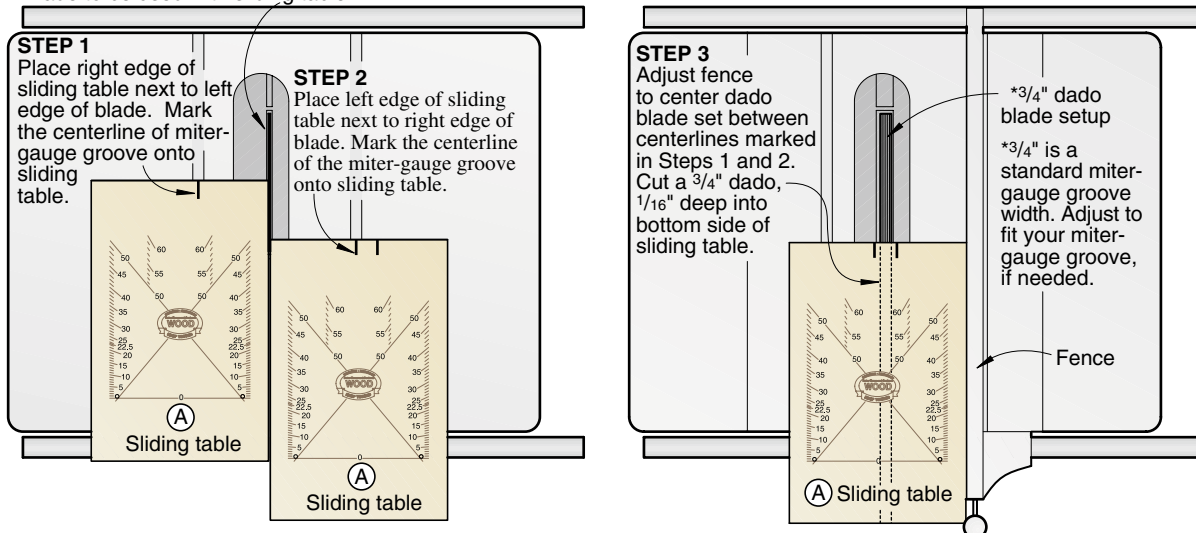
Note: Please see the Buying Guide at the end of the Bill of Materials for our source of hardware and Baltic birch plywood for this jig. To save you the time and effort of having to use an adjustable triangle to position the fence to cut miters, we've had the jig table (A) laser-engraved with angle scales. This, too, is available through the Buying Guide. If you'd rather save a few dollars and use your own plywood for the jig table, use an adjustable triangle to set the angle of cut. To do this, see Photo G at the end of the article for our method.

6 Replace the dado set with the blade you normally use in your tablesaw. Place the jig in one of the miter-gauge slots and trim one edge of the jig with the blade. Mark the front end of the jig top. Transfer the jig into the other miter-gauge slot, and with the marked end forward, trim the opposite edge of the jig.

Continued

Blade to be used with sliding table.

LOCATING THE GUIDE-BAR SLOT



Tablesaw Jig

Next, cut and add the metal mini channel

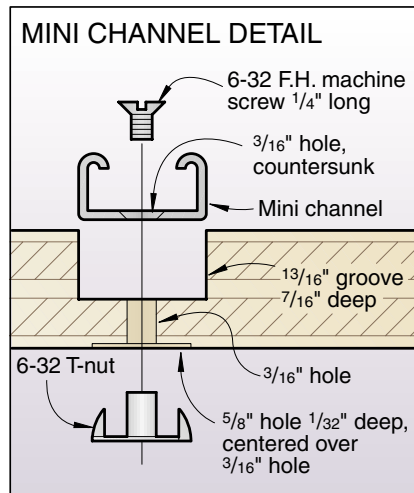
1 Measure the lengths, and use a hacksaw or bandsaw fitted with a metal-cutting blade to cut the 12 pieces of metal mini channel to length plus $\frac{1}{8}$ ". (We used B-Line System B72 mini channel, available at most electrical supply outlets. Or, see the Buying Guide for our mail-order source.)

2 To square the ends and make sure the corresponding pieces are identical in length, screw a wooden extension to your disc sander miter gauge where shown in the photo below. Then, mark three lines on the fence to indicate the three lengths of mini channel needed. Using a disc sander, sand one end of each piece of channel square. Then, sand the opposite end of each, pushing lightly on the already sanded end until it is flush with the previously marked lines. Finally, sand the four short side pieces so they will be positioned $\frac{1}{16}$ " in from the edge of the table side where noted on the Table Exploded View at *right*. This prevents your table-saw blade from coming in contact with the mini channel.



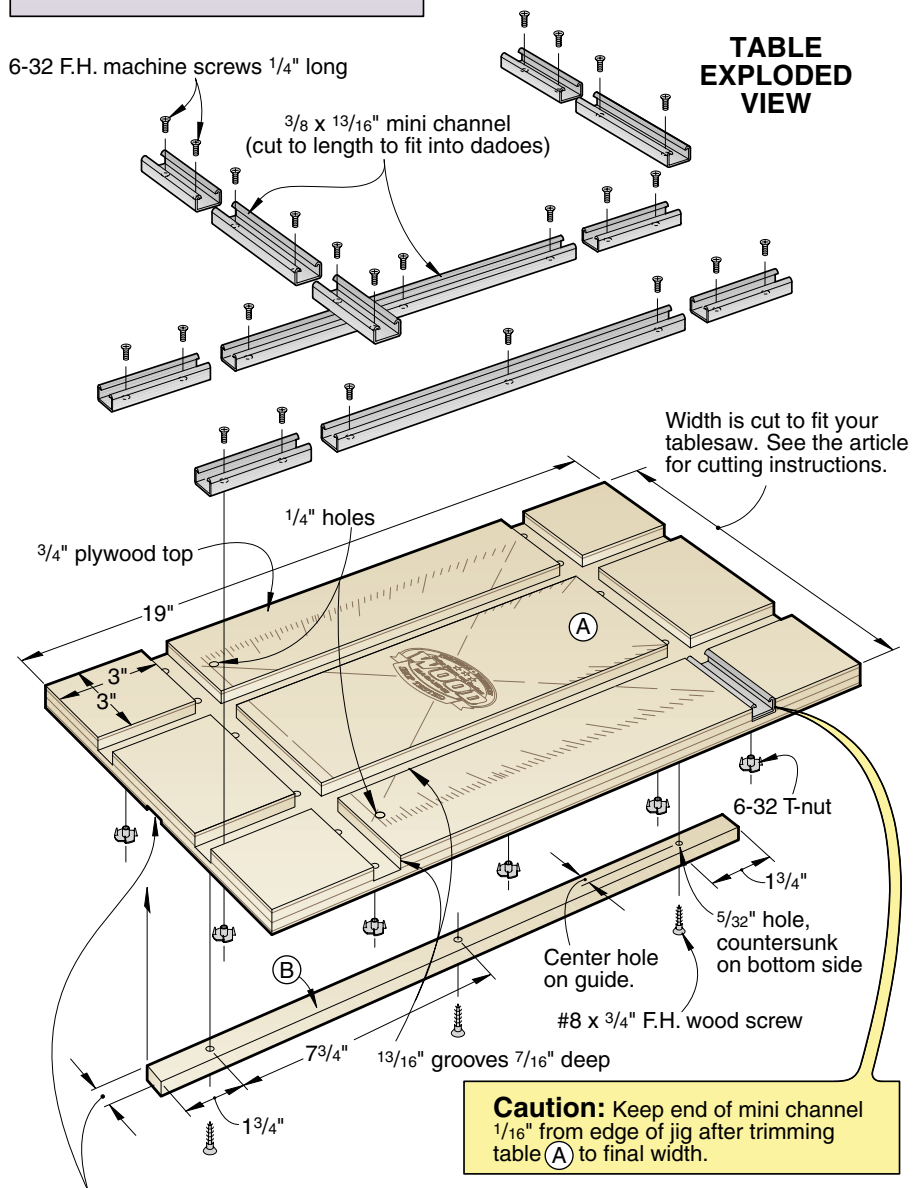
Marked lines on a miter-gauge extension allow you to sand the mini channel to the exact lengths needed.

3 Fit your drill press with a $\frac{3}{16}$ " bit, and attach a fence to the table so you can drill all the mounting holes centered in the top surface of the mini channel where shown on the Mini Channel detail and the Parts View drawing on the *WOOD Patterns*® insert. File off any burrs from the bottom side of the channel.



4 Remove the guide (B) from the bottom side of the table (A). Then, using double-faced tape, stick each piece of mini channel in its mating location. Using the same $\frac{3}{16}$ " bit in your drill press, use the holes in the mini channel as guides to drill $\frac{3}{16}$ " holes through the table (A).

5 Working from the bottom side of the jig table, drill a $\frac{5}{8}$ " counterbore $\frac{1}{32}$ " deep for each T-nut. Test the fit; the T-nuts must not come in contact with the metal top of your tablesaw when the jig slides back and forth.



$\frac{1}{16}$ " deep dado cut to same width as miter-gauge slot. Cut guide (B) to match width of your miter-gauge slot.

6 One at a time, remove the channel, and attach a piece of masking tape to the bottom side of each piece. For ease in relocating the channel later, number the tape on the channel and mark the mating number on the dado from where the channel was removed.

7 Lightly sand the table and apply a couple of light coats of finish (we used polyurethane).

8 Tap all the T-nuts into place in the bottom of the table (A).

9 Using the numbers as guides, reposition the mini channel in their mating locations in the jig table. Fit a countersink bit (we used a Weldon $\frac{3}{8}$ "-diameter countersink bit) into your drill press, and countersink each hole in the mini channel so the top surface of a 6-32 flathead machine screw will seat in the countersink and the top of the screw will be

flush with the top of the channel. For the stops and fences to slide smoothly in the channel later, the tops of the screws must not protrude. The countersink bit will also machine the tops of the T-nuts so they don't protrude through the mini channel.

10 Remove the pieces of mini channel from the table. Use

Continued

Bill of Materials

Part	Finished Size			Mati.	Qty.
	T	W	L		
A table	$\frac{3}{4}$ "	12"	19"	BP	1
B guide	$\frac{3}{8}$ "	**	19"	B	1
C fence	$\frac{3}{4}$ "	$3\frac{1}{8}$ "	$19\frac{1}{2}$ "	BP	1
D base	$\frac{3}{4}$ "	$1\frac{7}{8}$ "	$15\frac{1}{2}$ "	BP	1
E upright	$\frac{3}{4}$ "	$2\frac{1}{2}$ "	24"	B	1
F stopblock	$\frac{3}{4}$ "	$1\frac{5}{8}$ "	$1\frac{5}{8}$ "	BP	1
G stopblock	$\frac{1}{2}$ "	$1\frac{5}{16}$ "	$1\frac{5}{8}$ "	B	1
H hold-down blanks	$\frac{3}{4}$ "	3"	$5\frac{3}{4}$ "	BP	4
I holder	$1\frac{1}{2}$ "	2"	3"	P	1

**Width depends on the width of your particular table saw's miter-gauge groove.

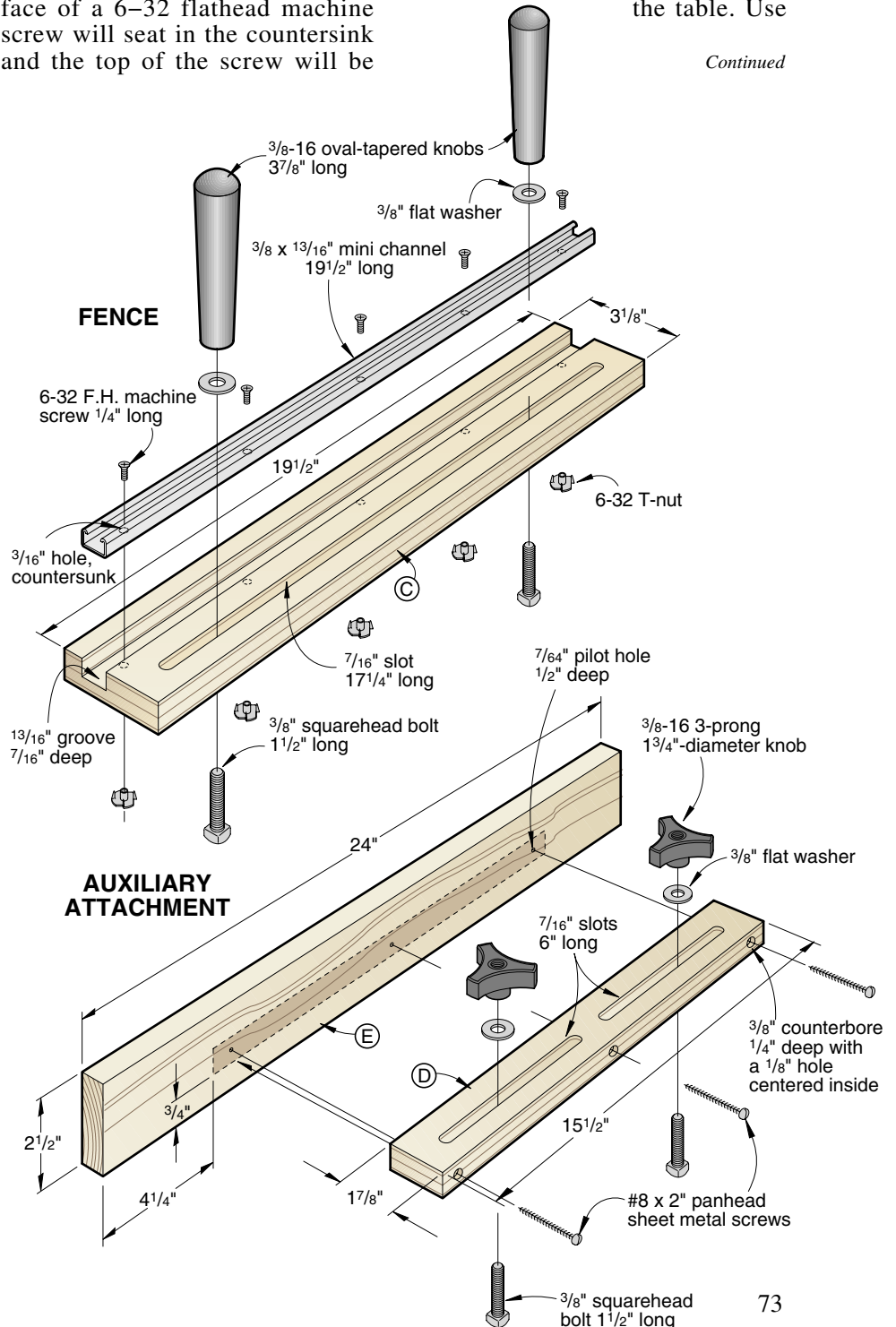
Materials Key: BP—Baltic birch plywood, B—birch, P—pine or fir.

Supplies: $\frac{3}{8}\times\frac{13}{16}$ " mini channel, 31 6-32 T-nuts and mating 6-32 flathead machine screws $\frac{1}{4}$ " long, 3 #8 $\times\frac{3}{4}$ " flathead wood screws, 2 $\frac{3}{16}$ -16 oval-tapered knobs $3\frac{7}{8}$ " long, 5 $\frac{3}{8}$ " flat washers, 5 $\frac{3}{8}$ " squarehead bolts $1\frac{1}{2}$ " long, 5 $\frac{3}{8}$ -16 3-pronged plastic knobs $1\frac{1}{4}$ " in diameter, 3 #8 \times 2" panhead sheet metal screws, 2 #8 \times 1" brass flathead wood screws, $\frac{3}{4}$ " dowel stock, 2 $\frac{3}{8}$ " carriage bolts $4\frac{1}{2}$ " long, 4 $\frac{1}{2}$ "-diameter magnets $\frac{1}{4}$ " thick, 2 pieces of $\frac{1}{4}$ " steel rod 5" long, clear finish.

Buying Guide

Hardware kit. Thirteen pieces of $\frac{3}{8}\times\frac{13}{16}$ " mini channel cut slightly long (12 for the table and one for the fence), one piece of UHMW polyethylene cut slightly oversized for the table guide (B), plus all the hardware listed in the Supplies listing except for the finish. WOOD KIT TSJ1. $\frac{3}{8}$ " Weldon countersink bit also available. For current prices contact Schlabaugh and Sons Woodworking, 720 14th Street, Kalona, IA 52247 or call 800/346-9663 to order.

Hardware and precut wood kit. All the pieces listed in the hardware kit above, plus all the Baltic birch plywood and solid-birch pieces listed in the Bill of Materials cut to size and shape with the dadoes and miter-gauge slot precut. The table (A) also has the angle markings laser-cut into the top surface. WOOD KIT TSJ2. For current prices contact Schlabaugh and Sons Woodworking, address and phone number above. $\frac{3}{8}$ " Weldon countersink bit also available.



Tablesaw Jig

the countersink bit to slightly machine the tops of the T-nuts a bit more. This creates a slight gap between the T-nuts and mini channel so the T-nut will be pulled tightly into the bottom of the table when securing the mini channel in place. Screw the channel in place.

11 Reattach the guide bar (B) to the bottom of the table.

Next, make the fence and the auxiliary attachment

1 Cut the fence (C) to the size listed in the Bill of Materials and shown on the Parts View drawing.

2 Mark and drill a pair of $\frac{7}{16}$ " holes through the fence (C) where shown on the pattern insert. Draw lines to connect the holes, and cut the waste between the holes to form a $\frac{7}{16}$ " slot.

3 Cut a $1\frac{3}{16}$ " dado $\frac{7}{16}$ " deep in the top surface of the fence where dimensioned on the pattern insert and shown on the Fence drawing.

4 Cut the mini channel for the fence (C) to length, and drill and countersink the mounting holes as you did earlier for the table (A). Finish-sand the fence, and screw the channel in place. See the Buying Guide for our source of knobs for the fence.

5 Cut the auxiliary attachment base (D) and upright (E) to size.

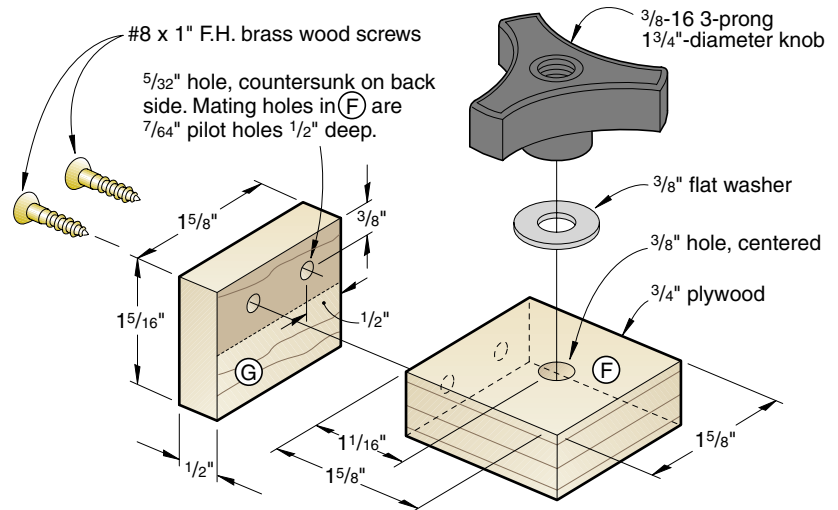
6 Mark the locations and form $\frac{7}{16}$ " slots in the base (D) where shown on the Parts View.

7 Mark the centerpoints, and drill three $\frac{1}{8}$ " counterbored mounting holes, and screw the upright (E) to the base (D) where shown on the Auxiliary Attachment and Parts View drawings. Do not glue D to E, since you'll need to replace E after you've cut through it numerous times.

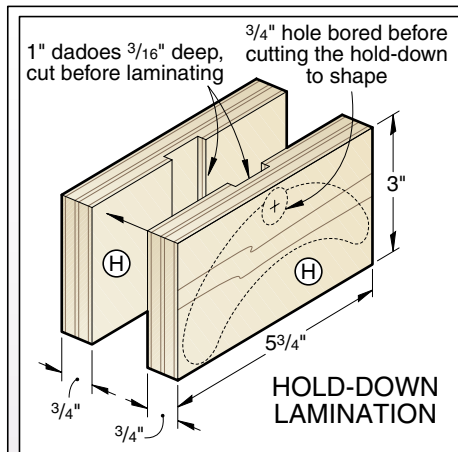
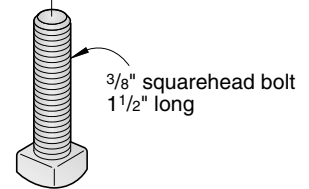
For cuts of equal length, add a stopblock

1 Cut the stopblock horizontal piece (F) and vertical piece (G) to size. See the Stopblock drawing for reference.

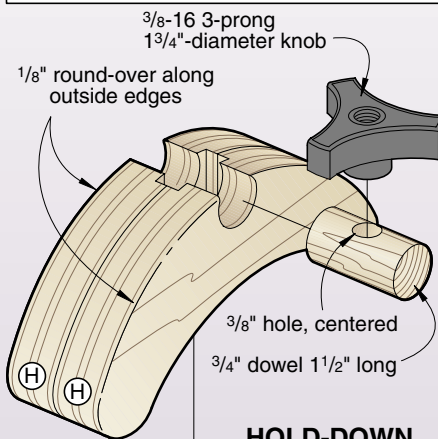
2 Drill a $\frac{3}{8}$ " hole in F where dimensioned on the drawing. Then, drill a pair of countersunk mounting holes through G and into F. Screw the pieces together.



STOPBLOCK



HOLD-DOWN LAMINATION



HOLD-DOWN

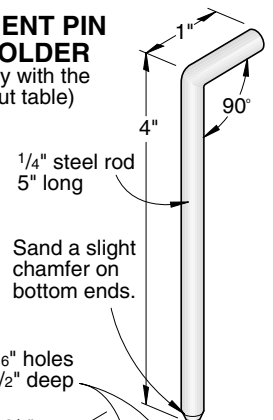
3/8" carriage bolt
4 1/2" long

Grind edges of carriage bolt head to fit loosely into mini channel.

For full-size hold-down patterns, see page 102.

ALIGNMENT PIN AND HOLDER

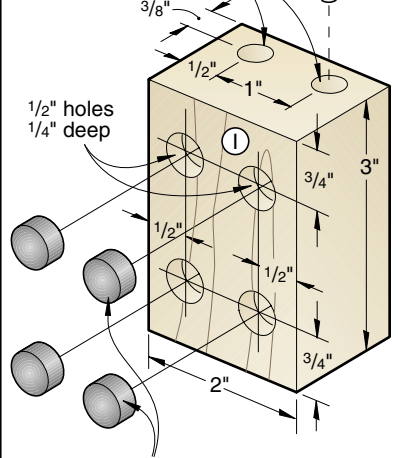
(used only with the laser-cut table)



1/4" steel rod
5" long

Sand a slight chamfer on bottom ends.

5/16" holes
2 1/2" deep



1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2" holes
1/4" deep

1/2"-diameter magnets
1/4" thick, epoxied into holes

3 Attach a knob to F where shown in the drawing.

Finally, add a pair of hold-downs and pivot pins

1 Cut four hold-down blanks (H) to $3 \times 5\frac{3}{4}$ " from $\frac{3}{4}$ " plywood. Cut a 1" dado $\frac{3}{16}$ " deep in each piece where shown on the Hold-Down Lamination drawing. With the edges and ends aligned, glue and clamp two pieces together to form each hold-down. Later, transfer the paper pattern(s) shown on page 102, bore a $\frac{3}{4}$ " hole where indicated, and bandsaw the hold-downs to shape.

2 Drill and cut a pair of the $\frac{3}{4}$ " dowels shown on the Hold-Down drawing, and assemble the hold-downs in the configuration shown on the drawing.

3 If you don't plan to buy the laser-engraved table (A), skip to the next section. Crosscut and bend two pieces of $\frac{1}{4}$ " steel rod 5" long to the shape shown on the Alignment Pin and Holder drawing. You'll use the alignment pins for aligning the fence on the laser-engraved table later.

4 Build the alignment-pin holder shown on the drawing. To keep the holder close at hand, drill counterbores, and epoxy four magnets in place for sticking the holder to your tablesaw cabinet.

Sand and apply a finish

1 Finish-sand the fence, auxiliary attachment, stop, hold-downs, and alignment-pin holder.

2 If you use your own plywood for the table (A), consider marking commonly used angles on the top surface of the plywood table. Find the angles with an adjustable triangle as shown in **Photo G**.

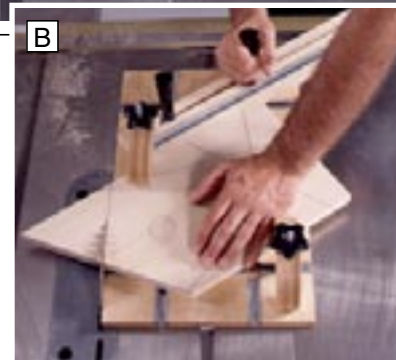
3 Add a clear finish to all wood parts. (To prevent the working surfaces from becoming too slick, we prefer a polyurethane finish.)

4 If you used solid stock for your guide (B), apply a bit of paraffin to the guide for easier sliding in the tablesaw groove.

How to use your tablesaw jig



To cut angled pieces to shape, mark the cutlines on the wood. Align a marked cutline with the edge of the jig table. Position the fence and hold-downs to hold the piece steady. Make the cut as shown in **Photo A**. The fence adjusts easily for making the adjoining angle cut as shown in **Photo B**.

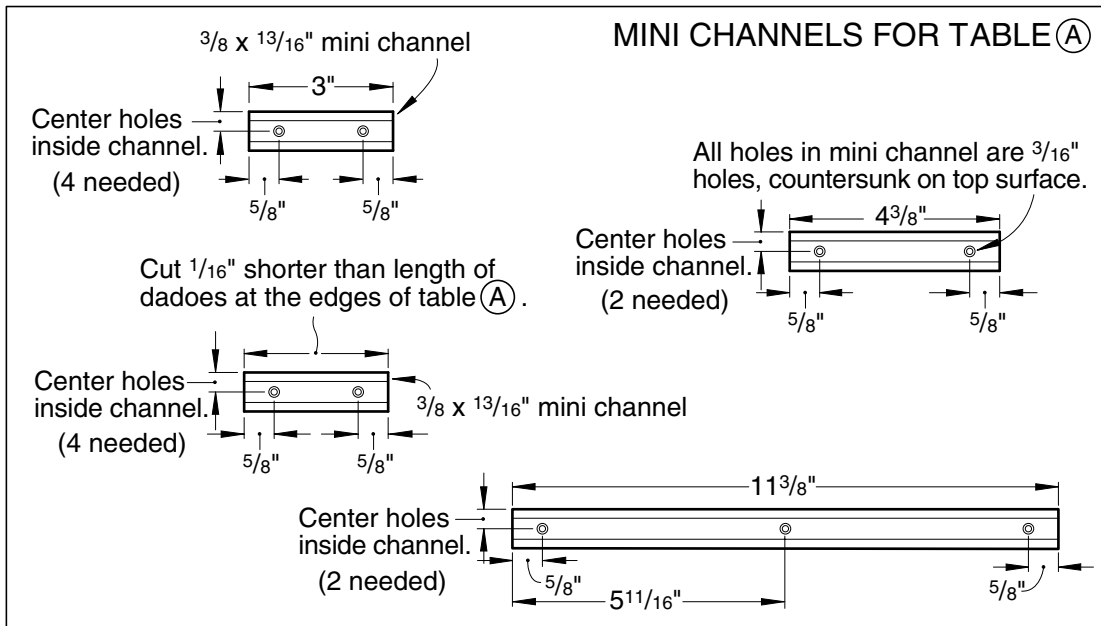
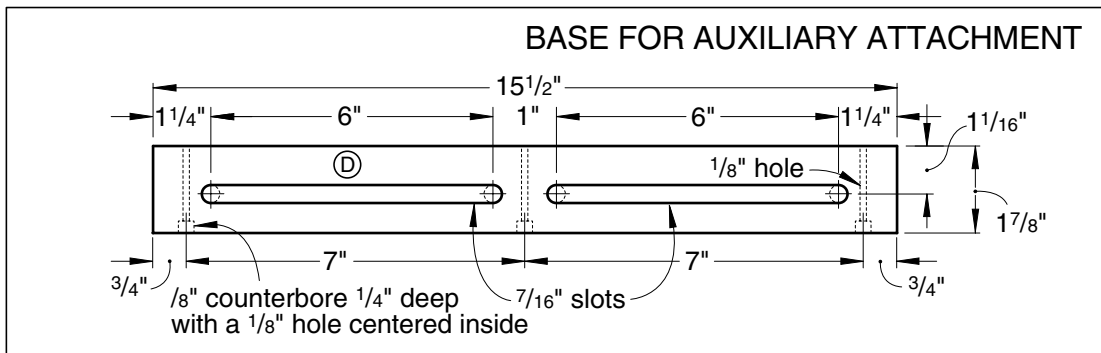
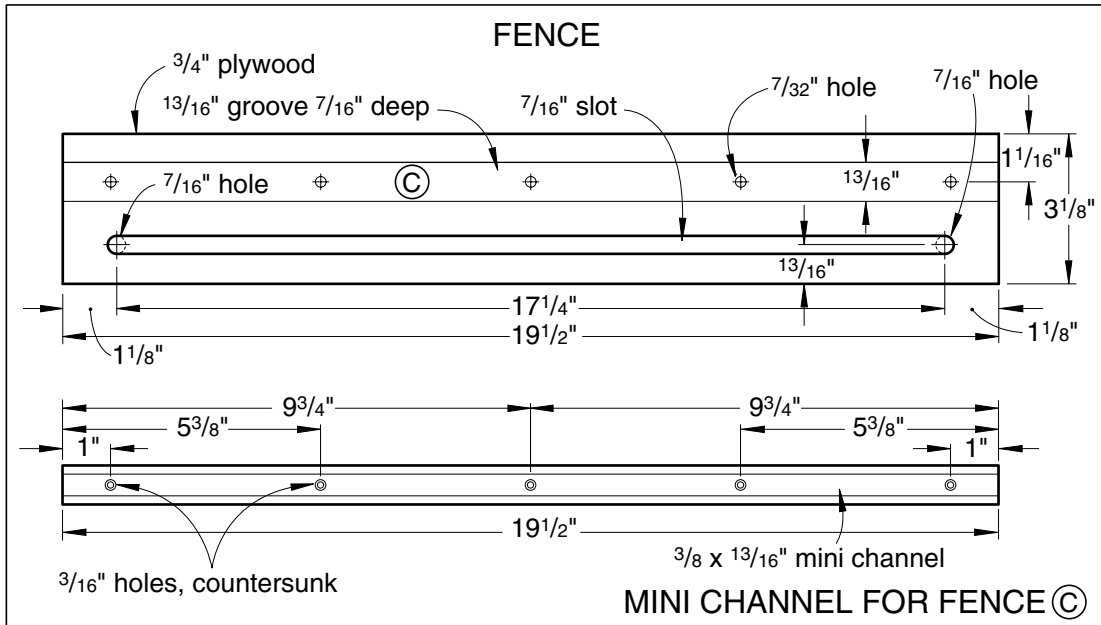


You can taper-cut table legs and other projects by marking the cutline on the workpiece and aligning the marked cutline with the outside edge of the jig table. Then, as shown in **Photo C**, position the fence against the workpiece, add the stop and hold-downs, and make the cut. With this setup, you can cut numerous pieces exactly the same.



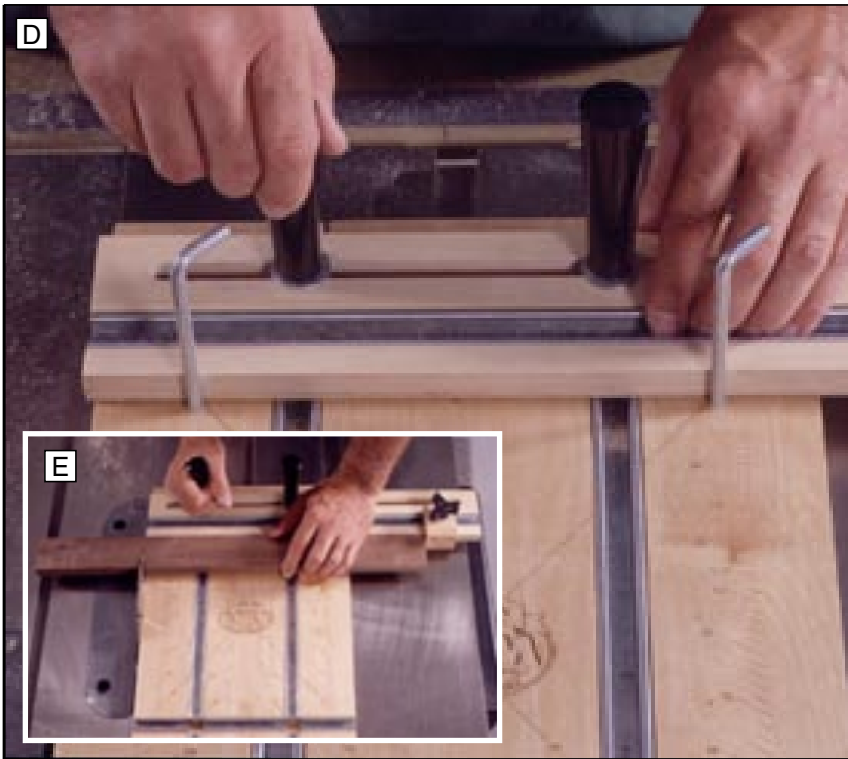
Continued on page 100 and 102

PARTS VIEW



How to use your Tablesaw Jig

Continued from page 75



For making accurate 90° crosscuts, use the pivot pins to accurately align the fence on the laser-cut table as shown in **Photo D**. Use the jig and fence for crosscutting as shown in **Photo E**. For repetitive cuts, secure the stopblock to the fence to ensure consistent lengths from piece to piece.

Accurately cut both left and right miters with this jig as shown in **Photos H** and **I**. Note the use of the auxiliary attachment. For crown molding and picture frame material, you'll need to move the jig to the opposite side of the blade as shown in **Photo I**.



To set the angle using the laser-engraved table, fit one pivot pin in place, and pivot the fence against the pin. Align the fence with the laser-marked angle as shown in **Photo F**.

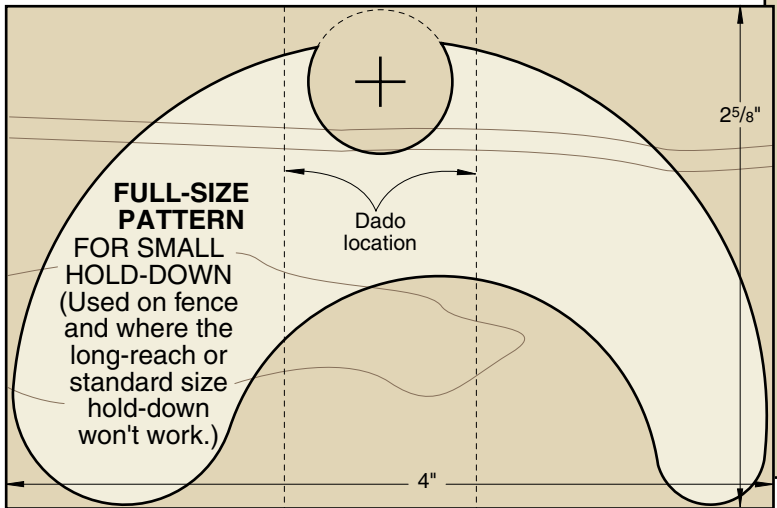
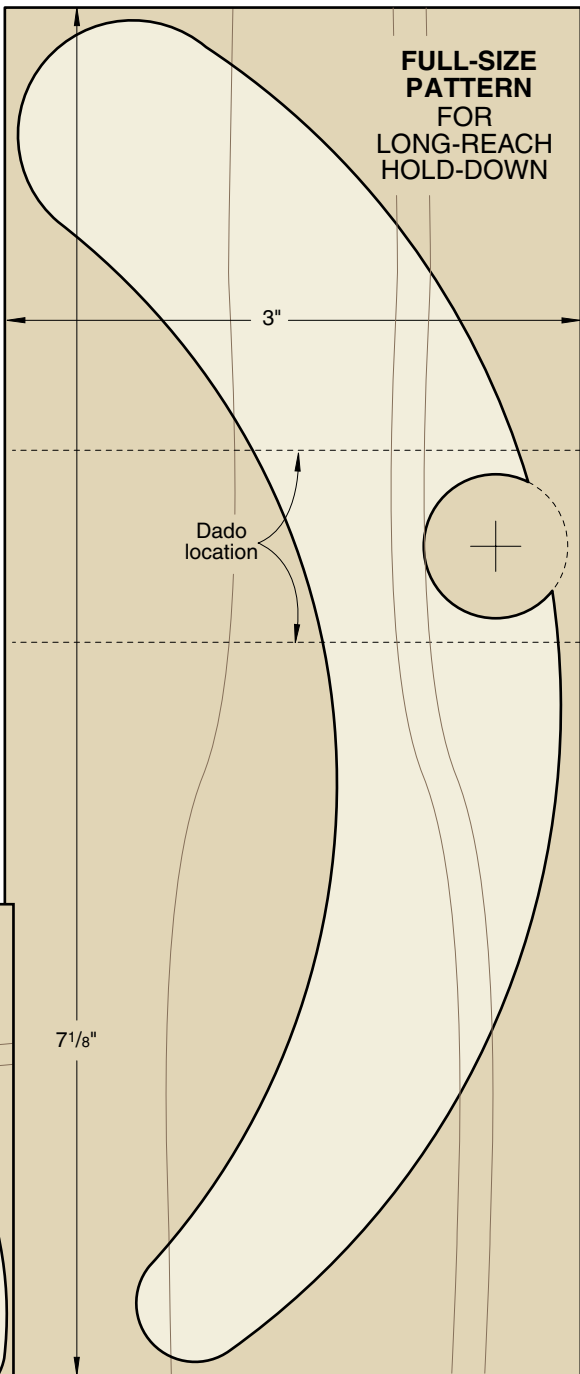
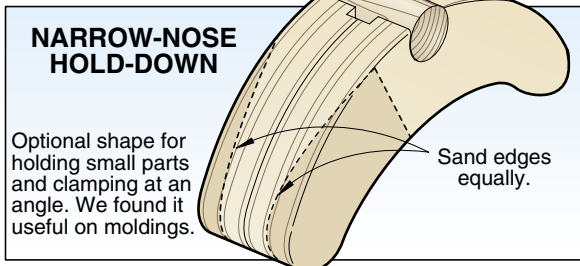
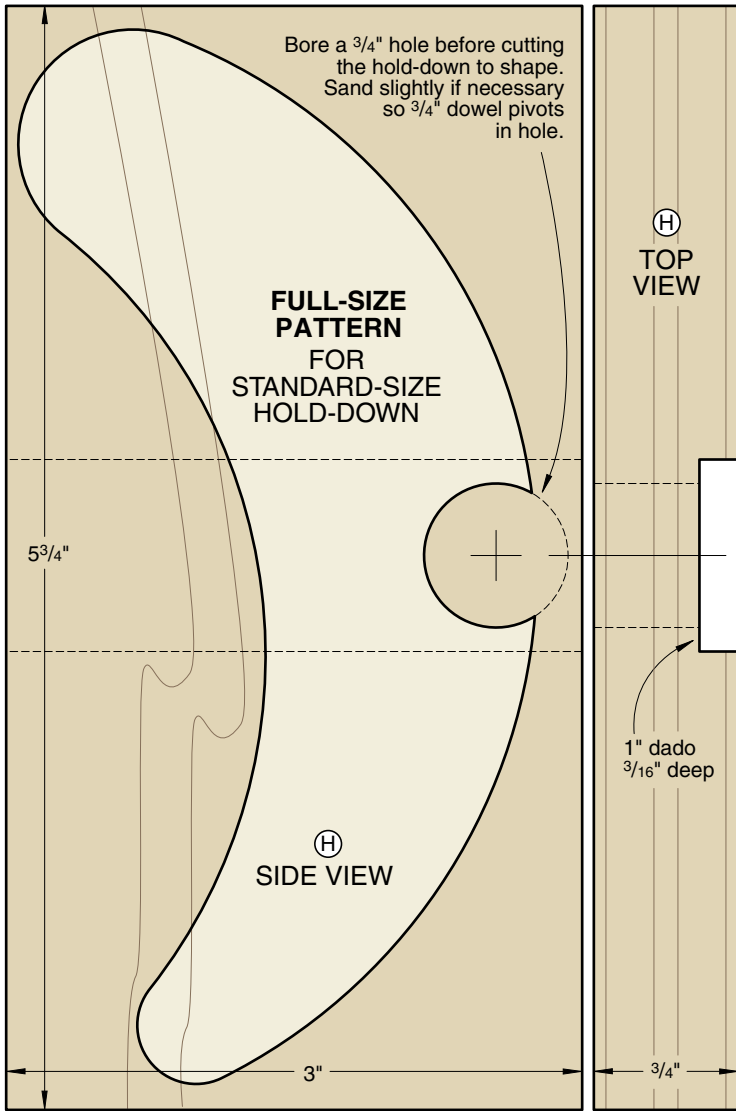
If you use your own stock for the jig table, use an adjustable triangle and a piece of scrap stock held against the edge of the jig table to correctly angle the fence as shown in **Photo G**.



Written by D

How to use your **Tablesaw Jig**

When using our jig, it became apparent that different-sized hold-downs were necessary for the many sizes of workpieces we needed to secure to the sliding table and fence. Use the full-size patterns shown here to make your own hold-downs.



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