

# Horizontal Router Table

This easy-to-build table  
cuts tenons fast and accurately

BY ERNIE CONOVER

Being a traditionalist, I favor using mortise-and-tenon joints in all frame construction. For years I have cut tenons on the tablesaw with a tenoning jig, and I still favor this method for large tenons. For  $\frac{3}{4}$ -in. stock, I became convinced that it would be child's play to build a simple table that would effectively cut tenons in almost all situations. This table, designed and made with the help of my friend Dave Hout, can be built in about two hours, works better than commercial tables of a similar ilk and is small enough to be stored out of sight when not needed.

I made the table of medium-density fiberboard (MDF), but good-quality veneer-core plywood would work, too. Simple biscuit joints hold the table together. I used  $\frac{3}{4}$ -in. material for the bottom and sides and a double thickness for the top. The same material can be used if you wish to construct a miter gauge. The swing arm was made of  $\frac{1}{2}$ -in. veneer-core plywood, as were the front and back ends, and the adjusting screw block can be made from any hardwood. While it is tempting to cover the table with plastic laminate, a couple coats of white shellac will give plenty of wear resistance.

Any  $1\frac{1}{2}$ -hp router that handles  $\frac{1}{2}$ -in. bits will work in the table.

The router does not have to be super-adjustable. Because the majority of tenons cut by my machine are  $\frac{3}{4}$  in. long, the router-bit depth is seldom changed. The adjustment that controls tenon thickness is tweaked frequently, but it's done using the screw

in the screw block, not the router itself. In short, when it comes to routers, an old clunker will do.

The table is easy to use. A



$\frac{1}{4}$ -in. tenon is correct for  $\frac{3}{4}$ -in. stock, yielding approximately a  $\frac{1}{4}$ -in. shoulder, depending on the stock thickness. In most situations the shoulder dimension can be carried all the way around the tenon. This works splendidly because four quick cuts yield a perfect tenon. With a narrow rail (1 in. or less), a smaller shoulder at the top and bottom is desirable. In this case, you can either move out the  $\frac{1}{8}$ -in. spacer below the adjusting screw to reduce the shoulders by the same amount or place a  $\frac{1}{8}$ -in.-thick shim under the rail while cutting. For a haunched tenon, a spacer block of the same thickness as the groove in the adjoining post is interposed between the stock and the swing arm before starting the cut where the haunch is desired.

A backer board to help avoid tearout is seldom necessary if you use the sequence of cuts shown in the photos on the facing page.

The first breakout is to the back side of the rail, and the remaining three breakouts are inconsequential. I use a  $\frac{1}{2}$ -in. solid-carbide spiral-fluted (two flute upcut with  $1\frac{1}{4}$  in. of flute) router bit. The upcut design pulls the stock against the swing arm, which is just where it should be. Resharpener bits are fine for use in this table because the exact diameter of the bit is inconsequential.

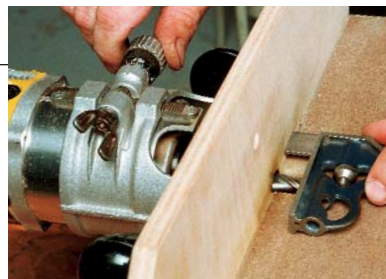
By plunging the bit through the swing arm after mounting the router, you get a zero-clearance opening that prevents small tenons from dropping into a void around the cutter. Most shavings end up under the table, but to ensure this you may have to widen this opening below the surface. By closing the open ends of the box with  $\frac{1}{2}$ -in. plywood, a shop vacuum or dust collector can be connected to the table to minimize dust. Once finished, you will find the table so useful that it will not gather dust! □

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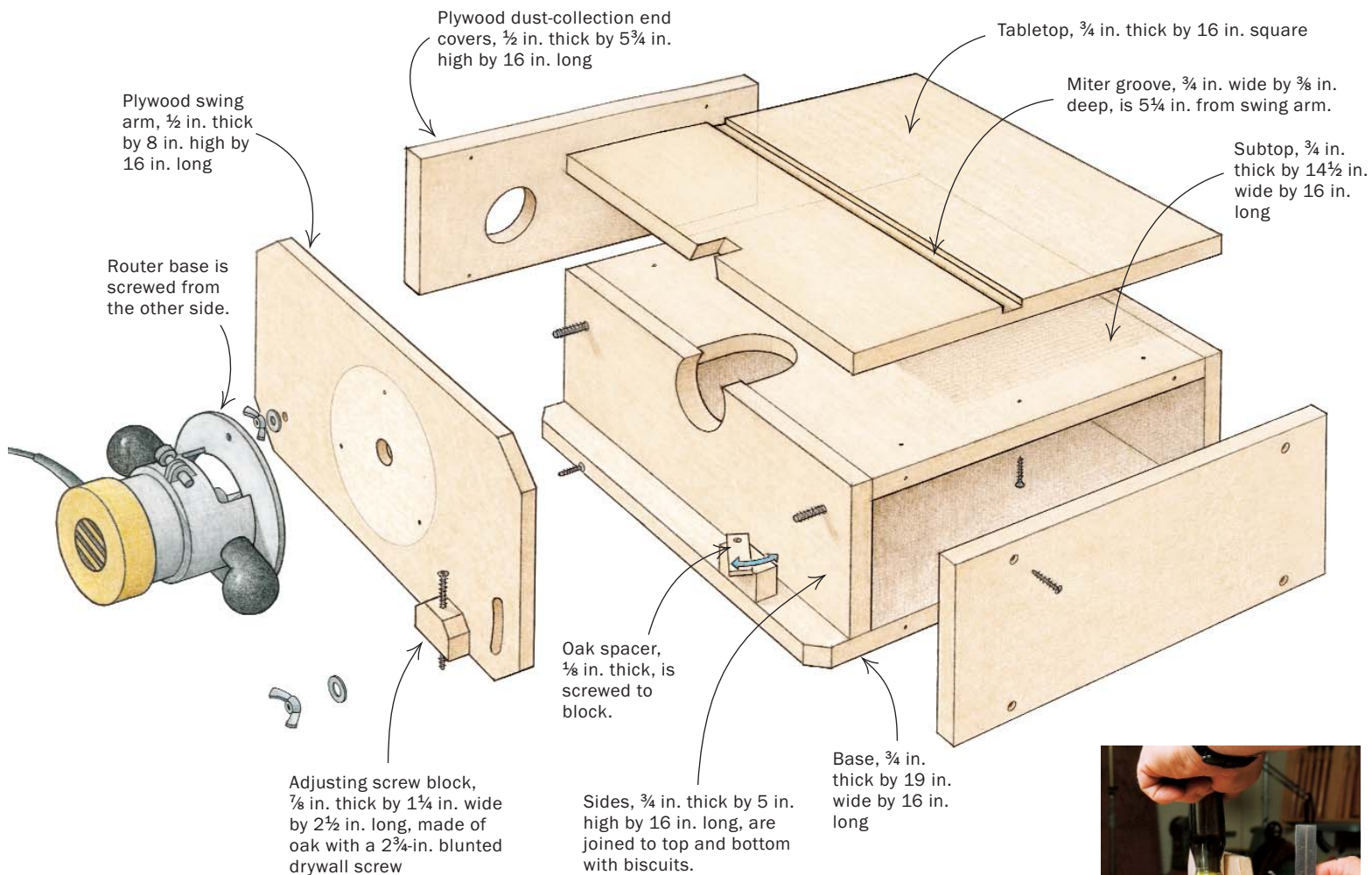
## SIMPLE TO BUILD, EASY TO USE

This horizontal router table is made of  $\frac{3}{4}$ -in.-thick MDF and  $\frac{1}{2}$ -in.-thick plywood joined with biscuits. Almost any type of non-plunging router is suitable, and depth and height adjustments are easily made.

**SAFETY NOTE:** When working with most table-mounted routers, stock is fed from right to left. But because the router for this table is mounted horizontally, stock must be fed from left to right, as in the photo on the facing page.



**Depth adjustment.** The depth of the cut is controlled using the adjustment gauge on the router.



**Height adjustment.** Fine-tune the height of the router bit by turning the screw in the screw block. When correct, tighten the wing nuts on the swing arm.



## ACCURATE RESULTS

By turning the wood in a clockwise motion away from you, the breakout is confined to the initial cut. Follow the sequence in the photos below to maintain consistent height and depth through all four cuts.

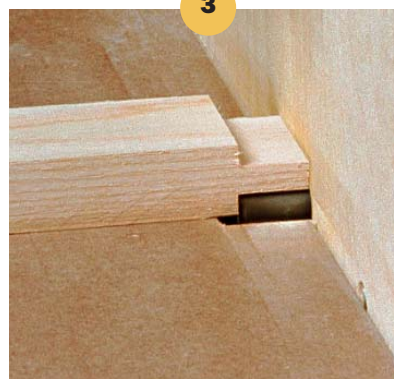
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