



## Getting started with router tables

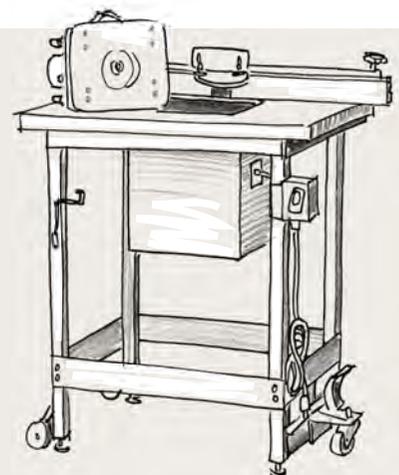
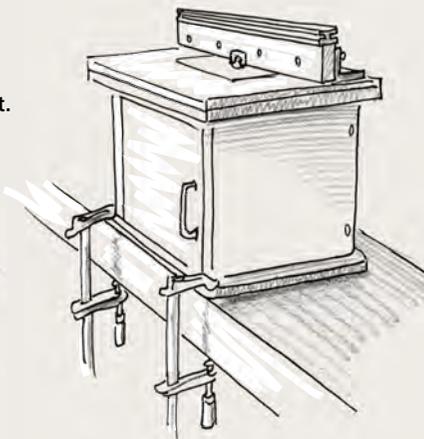
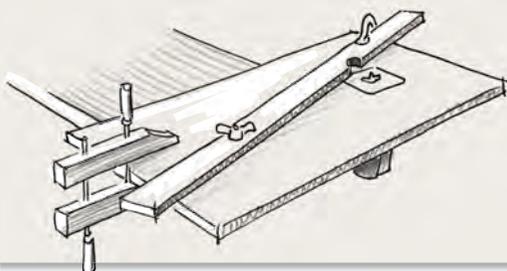
GET THE MOST FROM THIS WORKSHOP WORKHORSE

BY BOB VAN DYKE

What began years ago as a simple homemade device to hold a router has evolved into a common, and often indispensable, piece of shop equipment. Regardless of its level of sophistication, when set up correctly, a router in a table is frequently simpler and more stable to use than a handheld router and, in many cases, will increase the accuracy of your work. I'll explain what you'll want from a router table, the basics of using them, and the tasks at which they excel.

### Types of tables

A router table can be anything from a piece of MDF with a router screwed to it and a board clamped across the top as a fence, to a benchtop model, to a complex, freestanding piece of expensive equipment. Set up and used correctly, they all accomplish the same thing and work the same way.

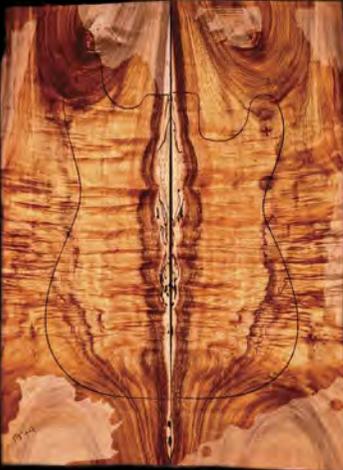


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## Set up the table



**Install the router and insert.** Be sure the table itself is heavy. If it shakes, add weights or mount it to a secure surface.

### Why a router table?

Router tables have many advantages over handheld routers, and I gravitate toward them when possible. One of the biggest advantages is that you bring the work to the router. This means that you do not have to devise ways to hold the work in place, thus eliminating the need for the clamps, hold-downs, or wedges that frequently get in the way when routing handheld.

Additionally, because the router, router table, and fence are all one unit, cuts are much less likely to go astray. Handheld routers, on the other hand, are sometimes difficult to hold steady, so the risk of ruining a workpiece increases.

Third, furniture work usually requires accurate repetition. Stop blocks are typically the best way to ensure this, and using them on the router table is straightforward. Although you can clamp stop blocks to a workpiece while handheld routing, it is usually more cumbersome and slow.

### The basic setup

Before you get started using a router table, you need to know the basics: the table and the fence.

**The table**—A router table must be heavy, or at least secured to a stable surface. A table that moves when you push a workpiece through is not only frustrating, but potentially dangerous. Second, the table must be flat and smooth, with no bumps around the router plate, insert ring, or lift system. Plastic laminate, extremely smooth and easily waxed, makes a great router table surface.

**The fence**—Fences can be shopmade or store-bought. Regardless of which type you use, the entire face of the fence



**Check for flat.** The table and insert must be flat. Any sag or crown will make setting a consistent depth of cut impossible, while any bump will just make you crazy.



**Adjust from above...** Commercial router lifts allow you to adjust the bit's height or switch out bits from above.



**... or below.** For most shopmade router tables that are simply a router bolted to the bottom of a table, you have to adjust the bit height or change the bit under the table. Van Dyke's shopmade router lift uses threaded rod with a wooden block at the top to raise and lower the bit. He installed a plunge router, which keeps the bit's vertical travel reliably straight.

## Adjust the fence

must be straight, smooth, and square to the table. With split fences, which have two sections, make sure the two sides are coplanar. Dust-collection ports should be out of the way so that they don't impede the stock. For safety, bury the bit in the fence, exposing only the part that is actually cutting. This is easy with a split fence. For a fence that's solid, you'll need to make the opening.

I don't worry about making my fence parallel to a miter slot because I don't use a miter gauge. Rather, for cutting across the grain, and especially when cutting end grain on narrow pieces, I back up the stock with a wide backer board pushed against the fence and the workpiece.

**Lifts**—Commercial router lifts let you easily adjust the bit height or change the bit altogether from above. These are great, but one disadvantage of most is that you cannot set a final depth of cut and then lower the bit and creep back up to that depth. The built-in depth stops on plunge routers easily accommodate this, which is why I prefer them in any homemade router table.



**Clamp and check for square.** Van Dyke finds that the simplest and most reliable fence is just a thick piece of stock milled straight and square.



**See your adjustment.** Van Dyke likes a light-colored tabletop because he can draw on it, allowing him to keep track of how much he's adjusted his fence.



**Fence and bearing should be flush.** This makes cuts safer and more accurate.



**Zero-clearance fence stops tearout.** With the right end clamped down, pivot the fence onto the bit so that it cuts the right side of the precut notch. Keep the opening small to prevent stock from tipping into the space.

## Basic joinery cuts

### RABBETS



**Expose only as much bit as necessary.** Rabbits are a breeze on the router table, although Van Dyke uses a backer block for crossgrain cuts. This keeps the work square to the fence and backs up the wood fibers, preventing chipout.

### DADOES



**Bring backup.** Because this cut is across the grain and the stock is narrow, Van Dyke again uses a backer block behind the workpiece.

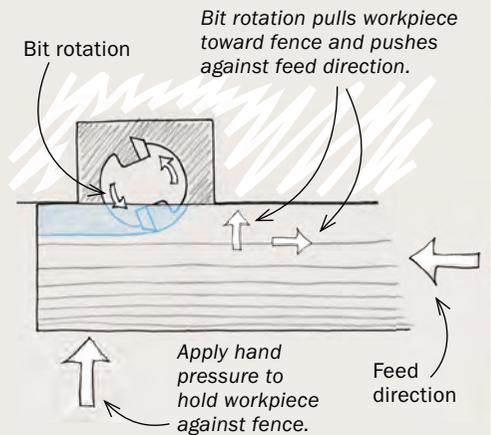
### GROOVES



**Grooves the width of the bit are simple.** Just set the fence and rout the stock.

### Feed safely

While holding the stock against the fence, feed it into the face of the bit's cutter.



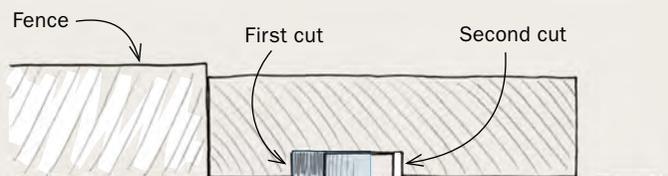
### Feed direction

Feed direction is critical to a safe cut. While it is typically described as “feed the stock against the rotation of the bit,” this can still leave uncertainty. Another way to think of it is to consider the forces at play. As you feed the workpiece you want the bit’s cutting action to help press the workpiece against the fence and to resist the forward pushing force you are exerting. Typically, this means moving the stock from right to left. It will make for an accurate, safe, and stable cut.

When you feed the stock the wrong way, you feed it into the back of the cutter or with the rotation of the bit. This is called climb-cutting, and it means that the edge of the cutter can grab the wood and pull it, along with your fingers, toward the bit. A heavy enough climb cut can rip the board out of your hands and send it flying across the shop.

### Wide grooves

To widen a groove, move the fence farther from the bit, and keep the feed direction running from right to left. Otherwise, you risk a dangerous and unexpected climb cut.



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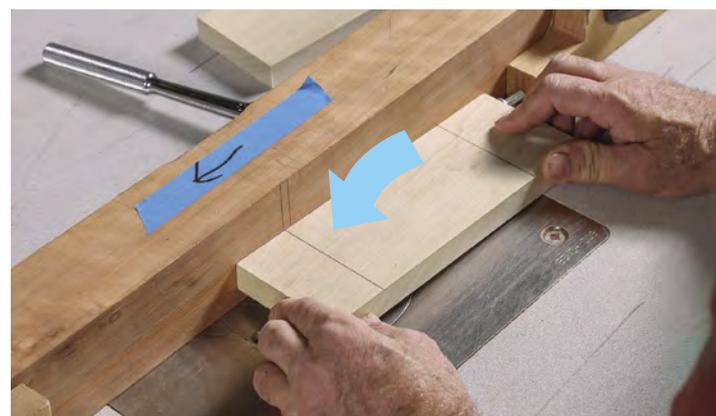
## Advanced tasks

### STOPPED GROOVES

**Set start and stop points.** Set the fence, then, to see where to begin and end your cut, transfer the bit's diameter to the fence. Slide square stock up to both sides of the bit and pencil a line. Be aware that as soon as you move the fence, these lines are no longer correct.



**Stop blocks allow repetition.** For consistent and safe results, use a pair of stop blocks, one at the beginning of the cut and one at the end. Set these up by aligning your layout lines with those on the fence. Also, when routing, never cut more than 1/4 in. deep at a time.



**Pivot into the cut.** To begin, hold the workpiece against the fence with the left end elevated and the right abutted to the stop. Then pivot down onto the spinning bit before feeding right to left.



**Route to the second stop.** To exit the cut, Van Dyke backs the piece up slightly and lifts it out, holding the stock against the fence the whole time.

### Using the table

Once you have the basic setup, it's time to start using the table for tasks from joinery to edge profiles to pattern routing.

**Joinery**—Rabbets, dadoes, and grooves—either through or stopped—are a breeze on the router table. Do these cuts gradually, cutting no more than 1/4 in. deep with each pass. For cross-grain cuts, back up the cut with a sacrificial board to avoid blowout.

Sliding dovetails are commonly cut using a router table. Remember when cutting the socket to remove as much waste as possible with a straight bit or a dado blade on the tablesaw before switching to the dovetail bit. Trying to cut too much wood with the dovetail bit will result in a socket that is irregular and full of chatter. The same is true for the mating portion of the joint. The less wood you cut each time, the more accurate you will be.

Although not my first choice, router tables are also an effective tool for making accurate and smooth tenons as long as the shoulders and bulk of the waste are cut with a saw.



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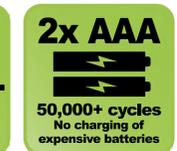
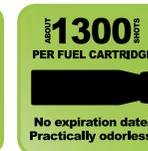
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## Advanced tasks

### JOINERY



**Refine tenons.** Because routers don't cut cleanly cross-grain, Van Dyke cuts tenon shoulders on the tablesaw, roughs out the cheeks at the bandsaw, and cleans up with the router.



**Sliding dovetails.** These can be tricky to fit, so sneak up on a snug joint. To cut the mating sockets, rough out with a straight bit or at the tablesaw before using the dovetail bit.



**Quick cabinet door frames.** To quickly make decorative door frames, use matched cope-and-stick bits.

### EDGE PROFILES



**Moldings.** Larger edge profiles sometimes require a number of passes to creep up on the final depth of cut. Trying to cut too much at once usually results in tearout. Cutting the bulk of the waste on the tablesaw beforehand is frequently a good option, especially when cutting across the grain.

**Edge profiles**—To create an edge profile, the router table is my usual preference unless the profile is so simple, like a light roundover or chamfer, that using a trim router is easier or quicker.

**Template routing**—A bearing-guided flush-trimming or pattern bit running against a pattern of nearly any shape allows you to duplicate that shape over and over. A flush-trimming bit has the bearing at the end, which means the pattern should be on top of the workpiece when routing. Alternatively, a pattern bit has the bearing below the cutter, requiring the template to be under the workpiece.

**Cabinet doors**—You can make door frames on a router table with cope-and-stick bits. These are matched sets. One bit handles the molding on the inside edge of the frame parts while routing the groove for the panel. The other cuts the cope (the reverse of the molding profile) and the stub tenon on the end of the rails. □

Bob Van Dyke runs the Connecticut Valley School of Woodworking.

### TEMPLATES



**Accurate repetition.** A bearing-guided bit running against a pattern of almost any shape allows you to duplicate that shape in the workpiece. The pattern can be attached to the work with clamps (above), screws, brads, or double-sided tape. Whether the pattern is above the stock or below it (right) depends on the type of bit you're using.

