4 Jigs for a Fixed-Base

Get more from the most handy router in the shop

It's not uncommon for a woodworker to own several routers—like dollars in the bank, you can never have too many. However, a fixed-base router should be the first one you buy. Even if you own a plunge router, I still think you need a fixed-base model. The standard midsize version is relatively lightweight, easy to manipulate, adaptable to almost any kind of fixture, and can be mounted in a table. Compared to plunge routers, a fixed-base router's center of gravity is much closer to the cutting action, and so are its handles. This makes it easier to control for most tasks, and it's why most of my jigs are made for this type of router.

As I point out in "Fundamentals: Your first router" (see p. 20), every router needs some kind of positive guidance. The simplest system is a bearing, mounted on the router bit, which rides the edge of a workpiece. This is where most people stop with fixed-base routers, using them with bearing-guided profile bits to mold the edges of tabletops and drawer fronts. But there is much more these versatile routers can do. Jigs are the secret, and here are a few of my favorites.

Hinged straightedge has setup built in

One way to guide a router is to run the base against a fence. This works best for straight cuts. Many woodworkers use a board with a straight

Online Extra

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Photo, this page: John Tetreault

Router

BY MARC ADAMS

edge for this purpose. A common job for this fence is trimming the ends of a tabletop that is too wide for your tablesaw's crosscut sled. To position the fence accurately, you need to measure the distance between the edge of the router base and the edge of the bit you are using, and then position the fence exactly that distance from your layout line.

My version of a straight fence makes setup fast and automatic. It has a hinged section that exactly equals the

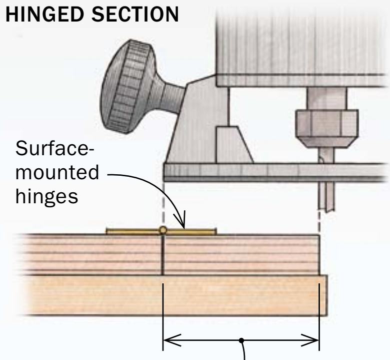
1 Straightedge with a flip-up fence

The simplest way to guide a router is by running its base against a fence. Combine that with a straight bit and you can trim the longest edge, such as the end of a tabletop, straight and smooth. Adams's clever variation on a standard straightedge has a hinged section that makes setup fast and accurate.

Rough away the waste. *Mark the edge to be trimmed, then cut close to the layout line with a jigsaw or circular saw. Leave ⅛ in. or less for the router to trim.*

Setup is simple. *With the hinged section folded down and aligned with the layout line, clamp the back of the jig in place.*

SIZING THE HINGED SECTION



Flip and go. *Now flip up the hinged section, and rout along the fence. The cut will line up precisely with the layout line. In case the router base is not concentric with the bit, keep the same point in contact with the fence as you rout.*

Photos, except where noted: Asa Christiana

2 Surefire jig for dadoes and dovetails

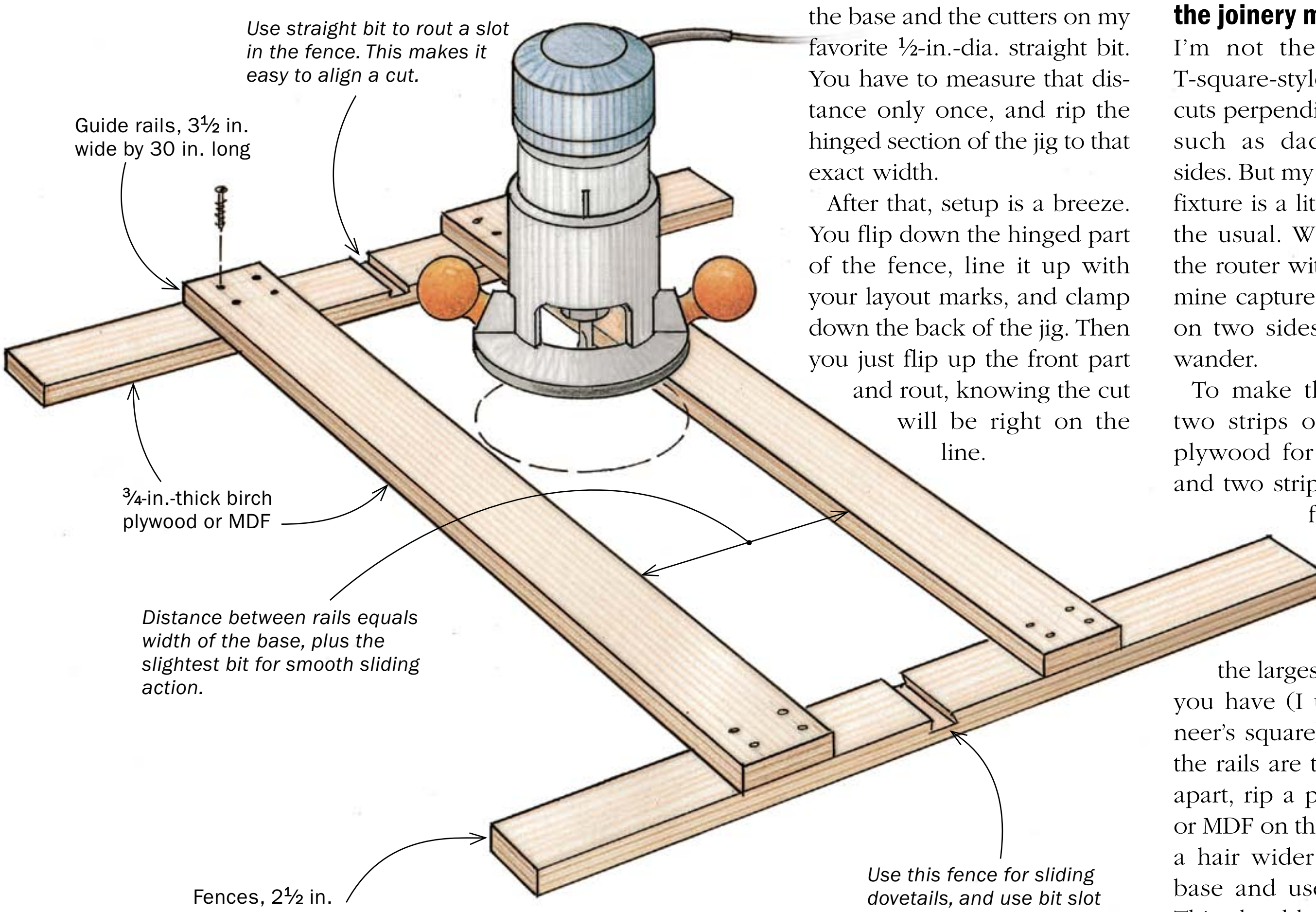
Adams improved on the standard T-square dado jig with a two-railed version, which ensures that the router stays on track.

MAKE THE JIG

Attach the first rail. *Use a large square to line up the first rail with the fence, clamping it in place before drilling holes and screwing it down.*

Spacer aligns the rails. *Rip a spacer just a hair wider than the base of the router, and use it to clamp the second rail in place. The router should slide easily between the rails, but with no slop.*

MODIFIED T-SQUARE FENCE



distance between the edge of the base and the cutters on my favorite ½-in.-dia. straight bit. You have to measure that distance only once, and rip the hinged section of the jig to that exact width.

After that, setup is a breeze. You flip down the hinged part of the fence, line it up with your layout marks, and clamp down the back of the jig. Then you just flip up the front part and rout, knowing the cut will be right on the line.

T-square fence is the joinery master

I'm not the first to use a T-square-style fence to make cuts perpendicular to an edge, such as dadoes in cabinet sides. But my favorite T-square fixture is a little different from the usual. Where most guide the router with a single fence, mine captures the router base on two sides so that it can't wander.

To make the fixture, I cut two strips of ¾-in. MDF or plywood for the guide rails, and two strips for the fences, front and back. To ensure that the rails go on square to the fences, use the largest accurate square you have (I used a big engineer's square). To ensure that the rails are the right distance apart, rip a piece of plywood or MDF on the tablesaw to just a hair wider than the router base and use it as a spacer. This should give you smooth

Drawings: Vince Babak

Attach the second rail. *The spacer ensures that this rail is parallel to and spaced properly from the first one. Again, clamp the fence to the rail before attaching it.*

Now add the second fence. *Be sure that the spacer is tight against both rails, and that the fence goes on square. Again, clamp before drilling and driving screws.*

sliding action without any sideways play.

A back fence keeps the guide rails properly spaced, but it also makes the jig reversible. That's because you always cut a dado in the fence to create a place where you can start a cut. So if you always put the front fence against the workpiece and use the same straight bit to make dadoes and grooves, the dado in the fence will allow you to precisely align the jig with your workpiece. The same goes for the rear fence, which you can dedicate to a dovetail bit for routing sliding dovetails.

You now have a fixture that will allow your router to cut accurate dadoes, grooves, and dovetail slots without wandering. And it's easy to clamp on blocks for stopped cuts.

Shopmade edge guide is better than store-bought

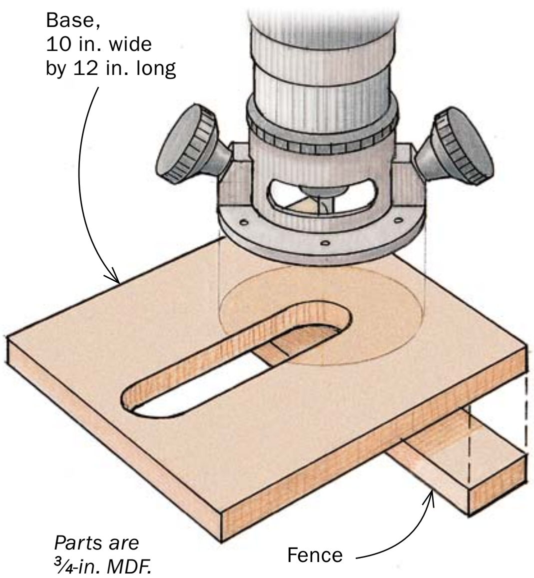
Most router manufacturers sell edge guides, basically a fence that rides the edge of the workpiece and is attached to the

DADOES COULDN'T BE SIMPLER

This is the easy part. *Line up the dado in the fence with your layout lines, clamp the jig in place, and rout. Make multiple light passes for best results, and clamp bookcase sides together to add speed and ensure matching dadoes. For wider dadoes, just move the jig slightly and make another series of passes.*

3 Shopmade edge guide is versatile

Adams's shopmade edge guide is easy to set up, stable on the workpiece, and can be tilted into a cut, letting you make stopped cuts with a fixed-base router.

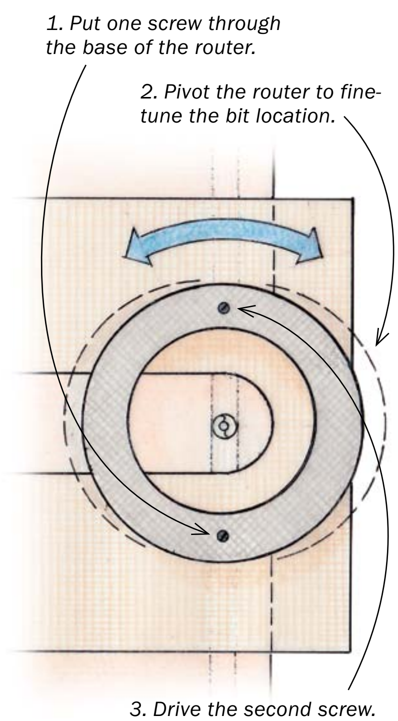


MAKE THE JIG

Cut out the window. *Start by drilling two big holes with a 1¾-in.-dia. Forstner bit. Remove material between them with a jigsaw.*

Attach a fence. *Glue and nail it in line with the edge of the base.*

ATTACH THE ROUTER



Line up the router with the cut. *The router attaches at various points on the jig for various cuts. To do that accurately, look through the jig's window to align the bit with layout lines.*

router with long rods that pass through the base. This fixture is used to help make grooves, dadoes, and decorative cuts parallel to an edge.

I make my own edge guides. A shopmade version has a number of advantages. I like the stability of the long fence and the big, flat base, and I find the shopmade version easier to set up. Last, that big base lets me pivot the router down into a cut, so I can use a fixed-base router for stopped cuts, too.

This fixture is not much more than a ¾-in.-thick piece of MDF, cut to roughly 10 in. by 12 in. long, or longer if need be. It has a big oval window for lining up the bit on the workpiece, and a simple MDF fence on the underside.

To use it, remove the baseplate from your router and attach the router to the jig. Some fixed-base routers have untapped holes in the base so that they can be screwed to jigs like this or to a router table. If

EASY GROOVES

Through-cuts are easy, but this jig also lets you tilt the bit into and out of stopped cuts, like the grooves in the sides of this wall cabinet, which will hold the back.

Watch and tilt. *Turn the router on and look through the jig's viewing window to lower the bit as you begin to move the jig along the edge. Later you can reverse direction to make a clean cut up to your stopping point.*

Rout to the other end. *Stopping at the other end is easier. Look through the viewing window to end right at the layout line.*

there are no unthreaded holes in your router, just drill some. It's easy to drill through the aluminum casting with standard twist bits.

Unlike a commercial edge guide, which has a moveable fence, on this jig you move the router to set up a cut. With the fence firmly against the edge of the workpiece, set the router on top of the fixture, and lower the bit until it just touches the work. Now move the router until the bit is right at your layout line, and screw the router base to the fixture. It takes only seconds.

One jig for arcs and circles

Another of my favorite jigs for a fixed-base router is a circle-cutting fixture. Despite the name, the jig isn't limited to making round tables. It can also cut big holes or any portion of a radius curve. And it's a good tool for laying out curved lines before cutting them with a bandsaw or jigsaw.

Again, there are similar jigs available in woodworking catalogs, but I prefer my shop-made model. It is made to fit a particular router and bit combination, meaning I can drill and label permanent center points for dozens of precise radii.

I made the jig from polycarbonate plastic. The polycarbonate is ¼ in. to ½ in. thick, slightly over 6 in. wide, and at least 40 in. long. I choose polycarbonate over MDF or plywood because it slides nicely over workpieces and is very tough, which will keep the pivot holes accurate for decades to come. Also, it is transparent, which lets you see the cut. That can be really helpful, for example, when you need to stop or start an arc in a precise spot or see when you are nearing the end of a template.

Polycarbonate (one brand is Lexan) is practically bulletproof but can be machined easily with woodworking equipment. Do not use acrylic plastic (such as Plexiglas) for

TIP

CURVES, TOO

Add a curved fence to rout an inlay slot near a curved edge. Make the fence and edge match as closely as possible.

4 Circle jig is sturdy and accurate

Adams's shopmade circle-cutting jig is precise and durable, and can be used to rout partial curves, too. It is made from ¼-in.- to ½-in.-thick polycarbonate, which cuts easily with woodworking tools.

MAKE THE JIG

Lay it out and drill. *Use the router's baseplate to locate the attachment holes on the jig, plus the 1¼-in.-dia. center hole for the bit. Leave the protective paper on the polycarbonate for now.*

Bandsaw the perimeter. *Polycarbonate saws and drills nicely. Smooth rough edges with a sanding block.*

Mount the router to lay out the pivot points. *Use a scratch awl, and turn the bit slightly each time, so a cutter is aligned with the mark you are making. The three lines merely space out the pivot points on the jig, so you have room to label them all clearly.*

Label it and you're done. *After drilling holes to fit the pivot nail, remove the protective paper and use a permanent marker to label each pivot hole. Double-check the distances.*

this fixture. Acrylic plastic doesn't machine well and is brittle. Polycarbonate is sold at most big hardware stores and home centers, but is even cheaper if you buy a scrap of it from a local plastics supplier.

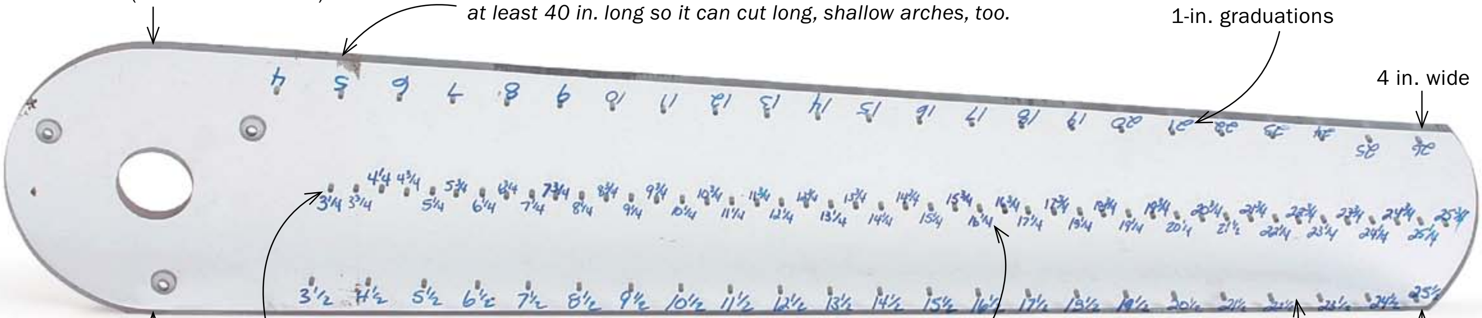
Clamp down the plastic workpiece when drilling holes in it, especially the big center hole. I find that a 1¼-in.-dia. Forstner bit works best for that.

If you do two important things, this fixture will be very accurate. First, lay out and mark circle radii very carefully on the plate. Then use the same size straight bit each time. I recommend a ½-in.-dia. bit. Mark that bit size on the jig (use a permanent marker) so you don't forget.

For the pivot points, I recommend using a big finish nail or box nail that has a body diameter of about ⅛ in.

Rough out the arc first— Because the pivot point is a nail, it will leave a hole. To rout a circular tabletop, you can mount the jig on the underside. If you must locate the jig on the show face, such as when routing a groove for inlay on the top side (see photo, opposite), carpet-tape a piece of ¾-in. MDF to the workpiece to hold the pivot point. You will need to tape similar blocks of

PIVOT POINTS EVERY ¼ IN.



PERFECT FOR CIRCLES

Set the pivot point. *Find the approximate center point on the underside of the table, and bang in the pivot nail so it stays tight throughout the cutting process.*

Start with a shallow pass. *This lays out the circle for the next step. You'll have to raise the jig and router slightly to get started, unless you are using a plunge router.*

Saw away the waste. *A bandsaw will work here, if you can support the workpiece, but a jigsaw is easier. Try to stay within 1/16 in. of the finished edge.*

Rout at full depth. *Lock the router at full cutting depth, but again raise it up before turning it on. Lower it gradually to full depth as you push forward, moving counter clockwise.*

Inlay the same tabletop. *The same router can plow a perfect inlay groove near the perimeter. Taped-on blocks hold the pivot and jig on the top of the table.*

the same thickness to the bottom of the jig to keep it level.

As you cut a full circle, you will be going against the grain in places, so you'll want to precut the circles and arcs close to the line to prevent tearout. Rather than lay out the arc with a pencil line, just take a light pass using the circle jig. That makes it easy to rough away the waste while staying about 1/16 in. from the final edge.

To cut partial arcs with this jig, such as on templates for curved work, the pivot point will have to be far away from the workpiece. The solution is to create a workstation. Any large piece of plywood, MDF, or particleboard works well. I use carpet tape to anchor the workpiece and pivot block to the workstation, and add one extra leveling block to the underside of the jig (see photo, right). □

Marc Adams runs the country's largest woodworking school, near Indianapolis. Go to MarcAdams.com for a full list of classes.

ARCHES, TOO

Make a workstation. *To rout smooth curved templates, use carpet tape to attach the workpiece to a sacrificial panel of some kind. Attach blocks to the panel and jig as shown to keep it level with the workpiece. Set the bit to rout just slightly into the panel below.*