No-Frills Router Table

Build it in an afternoon for about the cost of a good bit

by Gary Rogowski

Remember the commercial about the knife that sliced, diced and performed a myriad of other tasks, even gliding through a tomato after cutting a metal pipe? Well, that's what a router table is like. You can cut stopped and through grooves, dadoes, rabbets and dovetailed slots. You can raise panels, cut sliding dovetails, tenons and mortises. It's no wonder that many woodworkers can't imagine working wood without one.

But router tables can be expensive. In one woodworking catalog, I saw a number of packages selling for between $250 and $300. I'd rather spend my money on wood. That same money would buy some really spectacular fiddleback Oregon walnut.

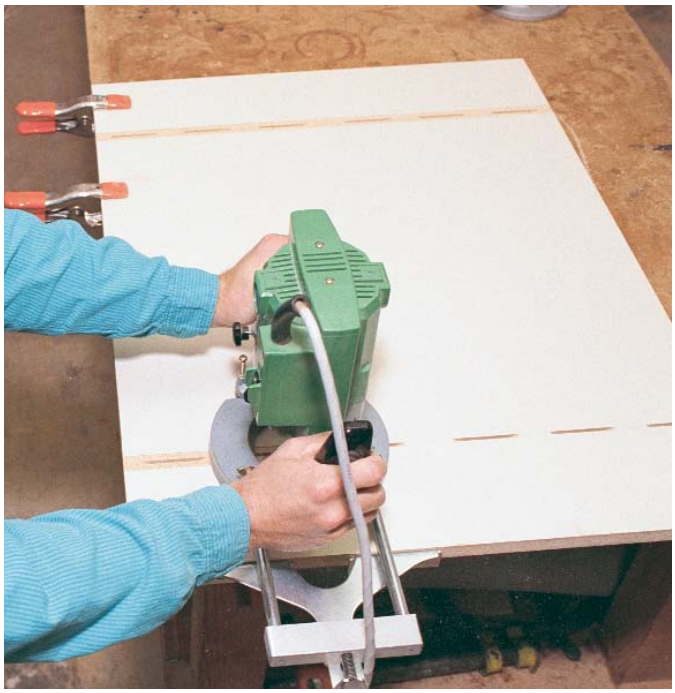
I've been building furniture for years, and my bare-bones router table has given me excellent, accurate results. The router table in the photo above is a variation that is inexpensive, simple to construct and extremely versatile. It's a simple, three-sided box made from a half-sheet of ¾-in.-thick melamine with the front left open for easy access to the router. I made mine with a top that's 24 in. deep by 32 in. wide, which keeps it light enough to move around yet big enough to handle about anything I'd use a router table for. It's 16 in. high, which is a good height for placing it on boards on sawhorses or on a low assembly bench.

Biscuits and dadoes join parts

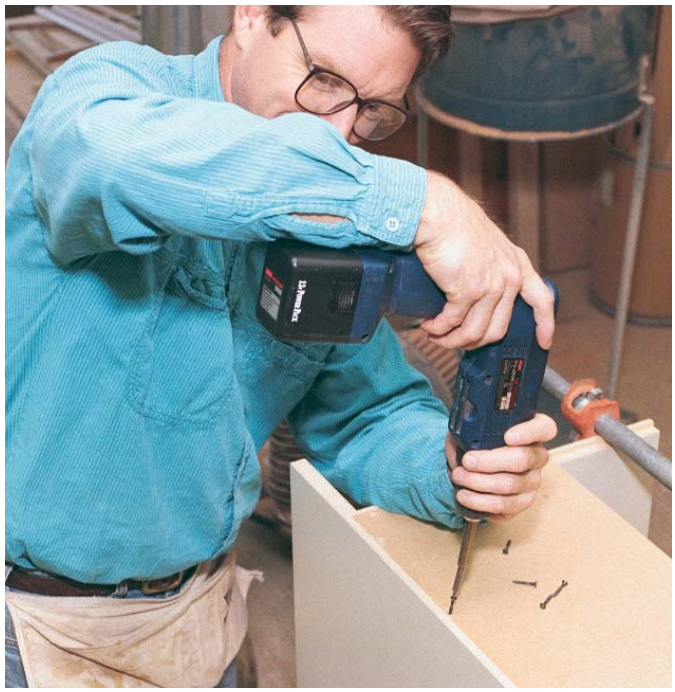
When you buy the melamine, make sure the sheet is flat. And buy it in a color other than blinding white—it's tough on the eyes.

The melamine I used had a particleboard core. Biscuits are stronger than screws in

Photos: Vincent Laurence



Shallow dado increases glue surface. *To strengthen the joints between the sides and top, the author routs a dado 1/16 in. deep in the underside of the top directly over biscuit slots.*



Fiberboard back prevents racking. *Although it's only 1/4 in. thick, the fiberboard back greatly strengthens the table. The fiberboard is glued and screwed into a rabbet all around the back of the table.*

particleboard, so I joined the two sides to the top with #20 biscuits. To make the cuts in the underside of the top, I took a spacer block 5 in. wide, aligned it with the end of the top and set my plate joiner against it for the cuts. The width of the block determined the overhang of the top. Marks on the spacer block gave me my centers.

The biscuit joints probably would have been plenty strong by themselves, but I wanted to add a little extra strength to the joint. So I decided to dado the underside of the top for the sides. I couldn't dado very deeply, though, or the biscuits would have bottomed out. I settled on a 1/16-in.-deep pass centered over the biscuit slots (see the top photo). Before cutting the dado, however, I dry-fitted the sides and top with biscuits in place to check alignment. Then I scored heavily around the edges of the side pieces with a marking knife and routed the shallow dadoes.

Before gluing the sides to the top, I rabbeted the back edge of the two sides for a 1/4-in. panel to strengthen the table and prevent it from racking. Then I glued the sides to the top one at a time, using battens to distribute the clamping pressure. I made sure each side was square to the top and waited for the glue to set up.

I used a router and rabbeting bit to cut a stopped rabbet in the back edge of the top. Then I glued and screwed down the 1/4-in. medium-density fiberboard (MDF) back panel (see the bottom photo). Hardboard or plywood would have worked as well.

I use a fixed-base router in my router table because it's lighter than most plunge routers and won't cause the table to sag

Cut the hole with a router bit. *With the router base screwed to the underside of the top, the author advances his largest bit through the table. Go slowly.*

A recess for interchangeable inserts— *A plunge router and chisel make short work of a recess in the tabletop that accepts inserts for different-sized bits.*

over time. Also, it's much easier to change bits. I just drop the router motor out of the base, change bits, reinstall the router and I'm back to work.

I attached the router base to the underside of the tabletop with machine screws that go down through the top into the tapped holes in the router base. To mark the location of the screw holes, I removed the router subbase and made pencil marks on the top. Then I drilled and countersunk holes into the tabletop.

With the base attached to the table, I marked out where the bit hole should go and drilled a ¾-in. hole into the table. I put a 2⅛-in.-dia. chamfer bit in my router—the largest bit I have. I started the tool and gradually moved the bit up and through the tabletop (see the photo above left).

To prevent workpieces from diving into this hole when using small bits, I made a set of inserts that fit in a shallow recess around the bit hole. Holes in the inserts accommodate bits of different sizes with minimal clearance. I routed out the rabbeted recesses for the inserts first, using a plunge router guided by a straightedge. I squared the corners with a chisel.

I made the inserts of ¼-in. tempered hardboard. Their square shape keeps them from spinning during use and makes them easy to fit. I cut a bunch of them on the tablesaw and then sanded each to a perfect fit on a belt sander.

L-shaped fence provides dust collection

The fence I've always used might be called low tech, but there's really no tech to it at all. It's simply a straight, wide, flat piece of wood jointed so that one edge is square to a face. I clamp it to the router table wherever I need it. The fence doesn't have to be parallel to a table edge to work. When a bit needs to be partially hidden for a cut, I use another board with a recess cut into its face.

The only thing my primitive fence lacks is dust collection. Hooking up a vacuum or a dust collector just won't work in some situations, such as when I plow a groove. But with other operations—raising a panel, rabbeting a drawer or box bottom, or cutting an edge profile—having a fence with a dust port can really help clear the air.

The fence I built for this router table is made of two pieces of ¾-in.-thick MDF about 4½ in. wide and 49 in. long rabbeted together to form an L-shape (see the photo at left on the facing page). I cut a semicircular hole at the center of each for dust collection. This allows for better pickup. I also routed slots in the vertical part of the fence so I could attach auxiliary fences for specific operations, such as raising panels or rabbeting. Once these slots are routed, the two pieces of the fence can be glued together. Make sure the fence clamps up square because virtually everything you use the table for depends on it.

To create sidewalls for the dust-collection hook-up, I added two triangular-shaped pieces of ¾-in.-thick MDF to frame the dust-collection port (see the top right photo on the facing page). I glued these triangles in place on either side of the dust holes, just rubbing them in place and letting them set up without clamping. After the glue had cured, I filed the triangles flush with the fence, top and bottom.

To complete the dust-collection hook-up, I measured the diameter of the nozzle on my shop vacuum and cut a hole to accommodate it in a piece of ¼-in. hardboard. I left the hardboard oversized, clamped it to the drill-press table and used a circle cutter on my drill press. Then I cut the hardboard to size and glued and screwed it to the two triangular walls.

Auxiliary fences solve specific problems—A two-piece auxiliary fence can be used to close up the area around the bit when routing profiles, rabbeting or performing similar operations. This way, there's no chance of a small piece diving into the gap between bit and fence. And with a smaller opening around the bit, the dust collector or vacuum will work more efficiently. When the fence is situated back from the bit, such as when mortising, another set of auxiliary pieces can be used, so there's no gap between the two halves (see the bottom photo on the facing page).

Clamp the fence square. *Adjust the clamps (left) to get the two pieces square over the entire length of the fence.*

Screw dust-collection port to fence *(above). Smear a bead of glue along the two triangular sidewalls. Drill holes and screw the hardboard back to them.*

Using a closed auxiliary fence— *Routing away from the fence calls for auxiliary pieces butted tightly together to form a smooth, continuous surface.*

I made the auxiliary fence from two more pieces of MDF. The auxiliary fence is drilled and countersunk for machine screws that ride in slots cut in the main fence. I use nuts and washers to tighten the two pieces in position.

When using the auxiliary fence, I close the two halves around the moving bit to provide a custom fence. When I'm done with it, I can set the fence aside for future use or just cut it off square and use it again. Closing the fence into a bit with a diameter that's less than the thickness of the fence will not open up the back of the fence to the dust-collection port. In this situation, I pivot the fence through the spinning bit before setting the fence for depth of cut.

Make sure that the outfeed side of the fence doesn't stick out any farther than the infeed side. If it does, it will prevent you from feeding your work smoothly past the bit. If your work catches on the outfeed side of the fence, easing its leading edge with a file or a chisel may help. If it doesn't, you can always shim the infeed side with slips of paper.

Another router table problem I've found is what to do with large upright pieces, such as panels cut with a vertical panel-raising bit. The solution is to screw a taller auxiliary fence to the main fence. The fence can be pivoted right into the bit, so there's no gap on either the infeed or outfeed side of the bit, yet there's dust collection behind the bit. □

Gary Rogowski has been building furniture in Portland, Ore., since 1974 and teaching woodworking since 1980. He is a contributing editor to Fine Woodworking.