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The following projects were featured in *Popular Woodworking* in the last couple years. In each free plan you get a cutting list, a description of the construction process and a downloadable construction drawing in PDF format.



Byrdcliffe Cabinet

The furniture built by the Byrdcliffe Arts & Crafts Colony in the early 20th century is rare, unusual and expensive. Luckily, it's easy to build at home. [CLICK HERE](#)



Stickley Side Table

The first step to building a Morris chair [CLICK HERE](#)



Pattern Cutting on the Table Saw

With a simple jig, as seen in these free woodworking plans, you can transform your table saw into an accurate pattern-cutting machine. [CLICK HERE](#)



A Contemporary Mobile File Cabinet

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Garage Golf Caddy

A weekend in the shop gains you a handy place to store everything you need for golf. [CLICK HERE](#)



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Rough Lumber Cut-off Stand

Cut long lengths of lumber to rough size without four sawhorses or a helper. [CLICK HERE](#)



All-weather Morris Chair

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European Telephone Console

Keep your phone, phone books, keys and small umbrellas in order with this fashionable modern console. [CLICK HERE](#)



Router Table-Mate

Make your own router table for less than \$50 by using these woodworking drawings and techniques. This one is easy to make and store. [CLICK HERE](#)



Shaker Bench

This unassuming bench is an excellent lesson in making wedged through-tenons. [CLICK HERE](#)



'Welcome Friends' Plate

This simple scrollsawn collector's plate will charm visitors to your home. [CLICK HERE](#)



\$175 Workbench

After a lot of figuring I came up with a simple plan: Build a bench for less than \$175. [CLICK HERE](#)



Contemporary Shelves

It's rare that bookshelves look as interesting as the objects you display on them. These shelves are easy to build and knock down for storage. [CLICK HERE](#)



Drill Press Table

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Router Table-Mate

Everything you'd want in a router table for just \$50.

Commercially made router tables are everywhere these days. Some of them come with more gizmos and gadgets than a '59 Edsel. By the time you tally up all the add-ons, the price approaches a medium-duty shaper. Here's my short list of "must-have" features for a good router table:

- A table the size of a carrier deck.
- Compact design so it can store easily.
- A stout fence that's long and easy to adjust.
- Easy bit-height adjustment with no stooping.
- Great dust collection.
- A \$50 price tag.

With all these features in mind, I hit on the idea of using my folded-up Workmate stored under the stairs. Can't I just make a top for it? Then I remembered the great idea from Contributing Editor Nick Engler in our January 2000 issue. Nick made the top of his router table tilt up for easy adjustments. Bingo. Now my Workmate/router table goes right back under the stairs and takes up only another 1½" of space, the thickness of the router tabletop. You can also use this router table without a Workmate. A simple pair of sawhorses will suffice.

Customizing Your Table

While the fence is generic to any router table setup, the table needs to be customized for your needs. You may have a different brand router than mine, so you will have to relieve the underside of the table to accommodate the shape of your tool. You'll have to locate the mounting holes for the base to suit your router. You may prefer a different table height. If you are



1 A larger base for the router was the ticket for bridging the open areas left by routing out the plywood for the router's base. It was later used as a small circle cutting jig for the tabletop and plastic inserts. Use the same cutter and it's easy to keep track of dimensions for cutting inside or outside circles.



2 Another illustration of the first photo.



3 Once the tabletop is hinged to the Workmate's front board, it's easy to locate the the positions for the prop stick and stick bracket. Note the shop-made replacement board for the Workmate top.

below average height, you'll want to make the angle at which the table props up less steeply.

The top is made from two pieces of $\frac{3}{4}$ " birch plywood that are glued together and banded with $\frac{3}{4}$ "-thick solid birch. Before gluing anything together, it's best to work on the top plywood piece. Since you must rout out the underside of this top piece where the router base will be mounted, do it before gluing the two sheets together. The hole in the bottom sheet can be simply cut with a jigsaw.

First, lay out where you want your router base to be mounted and find the exact center of the base. I put the centerpoint on my table 8" in from the back edge and centered right to left. So once the point is established, drill a $\frac{1}{16}$ " hole straight through to the other side. You'll need this location for work later on.

Now set up a router with a circle-cutting jig and a $\frac{1}{2}$ " straight bit. Set the bit so it will cut to a depth that will leave a $\frac{3}{8}$ " thickness in the plywood top. Cut a circle (assuming your router has a round base) on the underside of the top that is approximately $\frac{1}{4}$ " larger in diameter than the router base. Place the circle jig's indexing pin in the center hole you just drilled. Rout the circle and the remaining waste inside the circle.

Next, turn the plywood piece over. Use your center hole and circle jig to cut a $\frac{1}{8}$ "-deep circular rabbet or ledge for your plastic inserts to fit into. The insert diameter is $4\text{-}\frac{3}{4}$ ". But before you use this insert size, check the size of your router's base. You may need to make a smaller-diameter insert based on the size of your router base. The router I mounted in the table is a massive Porter-Cable 7518. I made the insert hole size large enough to accommodate the largest diameter router bits.

Now make the hole the router bits pass through. Leave a ledge about $\frac{1}{2}$ " wide all around for the removable



4 As you assemble the fence, make sure it is square along its length. Be sure and check it again after it is clamped up.



5 Inside view of the dust chute from the rear including the plastic 4" to 3" dust collection hose adapter. Rout the 3" hole for the adapter with the circle-cutting jig or use a "fly cutter" in your drill press.



6 Break in your router table by milling the slots in the fence subfront that will allow the fence faces to adjust into or away from the router bit. Lay out the stop/start lines and plunge cut the slots.



7 Attach the fence faces using $\frac{3}{8}$ " roundhead machine screws, a star washer, flat washer and wing nut. I tried using hex-head bolts but switched to screws because a screwdriver can be used and makes a more secure attachment with less trouble.

inserts to rest on.

Now take the second sheet of plywood and jigsaw the cut to accommodate the router base. Also, make any cuts necessary to allow for your router base's handles. When done, glue the two sheets together. Keep the edges flush.

When the glue is dry, trim the top to finished size on the table saw. Now prepare some stock for the solid-edge banding. Miter the corners and glue it on. Make sure it is flush to the top. When dry, sand everything flush, then rout a roundover profile on the top edge.

Tabletop Inserts

Make the round tabletop inserts from 1/8" acrylic. I made three inserts to cover most of the router bit sizes I'd encounter. First set the circle jig to cut a circle that is the same size as the insert hole. Set your router to make an outside cut instead of an inside cut. To rout the acrylic, just drill a hole to accommodate the circle-cutting jig's pin or nail.

The three hole sizes I made in the inserts were 1", 1-3/4" and 2-3/4". The smaller holes were drilled using hole saws but the larger size required the circle-cutting jig.

Complete the Top

To fasten the inserts to the table, install three threaded inserts in the rabbet. I used inserts for a 6/32 flush machine screw. Once installed, transfer their locations to the acrylic inserts, then drill and countersink the plastic.

Next make a new piece to replace the rear board on the Workmate's table. The homemade board is narrower and allows the router to swing up unencumbered. Cut the board to the dimensions given in the materials list and locate holes that match those in your existing Workmate. The new board is slightly shorter than the original. Install the

Workmate connecting hardware and place the board in the furthest connecting hole of the Workmate.

On the underside of the router tabletop you'll need to install a piece of 1/2" material where the stick that supports the top in the open position locks in place. I used a 3/4" dowel for a prop stick and drilled an oversized hole on a 25° angle in the block to nest it.

As mentioned earlier, the length of the prop stick will depend on how tall you are. On the end of the stick opposite the 25° angle, drill two holes that intersect each other to allow the stick to pivot in two directions, side to side so that it can be lowered when not in use and angled to allow you to tip it forward when propping the tabletop. Use a stout wood screw, a #10 or #12, to connect the prop stick to the edge of the new shop-made top board.

Next use a pair of hinges to connect the top to the Workmate's front board. Locate them about 4" in from each end.

Now Make the Fence

Keep in mind the most important factor in making the fence is that it is straight and square to the table. It could be shimmed later, but you'll be fussing with it forever.

Start by laying out the full size shape of the bottom piece on the material you will actually use. Be sure you have a true, straight edge for what will be the front.

Go ahead and lay out where the dados will be cut, including where the half-round throat opening for the router will be. It's best to do the layout by first establishing the center of the length of the fence and working out from there. When done, cut the back shape. It need not be pretty.

Next cut out the two subfronts for the fence. Install your dado blade on the table saw to cut the thickness of the

Baltic birch.

Now set the dado blades to make a 1/8"-deep cut. While holding the front edge of the fence bottom against the slot miter gauge, cut the six dados, following the layout lines already marked. When done, cut the center dado on the subfronts making sure it locates precisely where the dado in the bottom falls. Next raise the dado set to cut 3/8" deep and run the rabbets on the ends and bottom of the fence subfronts.

Remove the dado and cut the fence ribs and pieces that make up the dust collection chute. Use the diagram for the shape. Before assembling the fence, cut the half circle in the fence bottom for the throat opening, then use a rasp to slope the back edge for more efficient dust evacuation.

Assemble the Fence

Be careful when you assemble the fence to make sure it goes together square. First dry-fit all the parts to be sure you have a good fit. Then glue the ribs and dust chute sides to the bottom, making sure all the edges are flush to the front edge. If you have a brad nailer, set these in place with a couple short brads. Glue the fence subfronts to the bottom and ribs. Clamp front to back until the glue dries.

Now cut the three remaining dust chute parts: the top, angled top and back. Cut a half circle in the top similar to the one in the fence bottom. After the glue in the fence assembly has dried, glue the dust chute top in place. Afterwards, install the angled top and the back piece. The angled top requires a steep angle cut on the lower edge to seat down to the flat top. I cut this angle on my band saw. The back of the chute requires a hole for dust collection. The chute is set up to take a 3" hose or a fitting that reduces a 4" hose to a 3" hose. I used a "fly cutter" in my drill press to make the 3" hole. To complete the

assembly of the dust chute, screw the angled top, then the back in place.

Use Your New Router Table

Now use your router table to mill the slots in the fence's subfronts that allow the fence fronts to slide left to right.

Set your router in the table with a 3/8" straight bit. Make a temporary fence from a straight piece of scrap and clamp it to the tabletop. Use the fence diagram for setting the distance. Cut the 2"-long slots in the center of the openings between the ribs.

Make the adjustable fronts from a tight-grained hardwood such as maple. Be sure the material is flat and straight. Cut the two pieces to the lengths given. Make bevel cuts on the ends as shown in the diagram. Carefully locate the hole locations where the 3/8" machine screws attach the fronts through the slots in the subfronts. Drill and countersink the holes. For attachment, I used the screws along with star washers, flat washers and wing nuts.

The last detail is to cut a small piece of acrylic as a "window" on the top of the dust chute into the router opening area below. PW

Steve Shanesy is Editor for Popular Woodworking.

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