

Chapter 1 : Episode Router Table Techniques

Routers are one of the most versatile woodworking tools, useful not just for making trim and cutting edges, but for solving a whole range of woodworking problems. Learn how to cut curves, straighten boards, flatten bows and much more. Change the depth of cut of the slot cutter by changing the.

Next, mill two guide boards about 1-ft. Screw or clamp them to the bench top an equal distance apart. Make a sliding carriage for your router from two 1-in. Slide the router back and forth on the carriage, then advance the carriage down the length of the board. When not in use, it easily stores against a wall. Rout the plywood so the T-track and aluminum angle are flush with its surface. Epoxy the T-track into its groove; drill and countersink holes in the angle so you can screw it to the plywood. To use the jig, clamp your board so its uneven edge just overhangs the straightedge, install a bottom-bearing flush-trim bit in your machine, and rout away. Chip-Free Bits Spiral bits often make a smoother, more accurate cut than straight bits. An up-cut spiral bit pulls chips up and out, making it perfect for cutting mortises in solid wood. A down-cut bit pushes chips downward, ideal for making chip-free dados in plywood and melamine. Down-cut bits are not recommended for use in a router table, however, because they can push the workpiece up off the table. A compression bit has spirals running both ways, up and down, pulling chips toward the middle of the bit. Shape Thick Parts in Two Steps The best way to make identical parts is to use a template and a top-bearing pattern bit. First, rout the bottom half of the part Photo 1. Second, remove the part from the template and install a bottombearing flush-trim bit in your router Photo 2. Using just one bit, you can make four different dados. Making the baseplate requires accurate layout. Nibble away at its edges on the tablesaw until the dimensions are perfect. The blade shifts out of alignment just enough to produce a burnt or out-of-square edge. Chamfer bits come in a variety of sizes. Here are a few tips that will improve your results: Use your tablesaw or bandsaw to remove most of the waste before you rout. This prevents the workpiece from tipping into the bit as you cut. Hold a backerboard behind the workpiece to prevent blow-out. When you set up your router table, aim for leaving a point on the end of the workpiece, without shortening its length. Before you rout, use a jigsaw to cut the end of the top close to its final length. The less end grain you rout, the easier the job will be. Next, find a piece of plywood or fiberboard that has two adjacent factory edges. This piece guides the router; the factory edges guarantee that your top will be square. It should be 2 to 3 in. Place the guide piece on a pencil line indicating the end of the tabletop. Clamp one side of the guide piece flush with the long edge of the top. Clamp a sacrificial block on the opposite side, tight to the tabletop, to prevent the end grain from splintering at the end of the cut. A pattern bit makes setup much easier. It makes a smoother cut in end grain than a bit with a smaller diameter. The answer is to add a board at the front of the sled, plus two top boards that bridge over the workpiece. This produces an absolutely rigid sled, and perfect joints. The guide blocks are just two large pieces of wood connected by a pair of alignment pins. Cut your rails an inch or two longer than their final length. The extra wood will support the router, preventing it from tipping. Mark the tenons, then clamp the guide blocks onto the rail. Make a pass on both sides of the board, measure the thickness of the tenon, and gradually lower the bit until the tenon is the correct thickness. Align Holes for a New Baseplate Additional baseplates for your router can really come in handy—for spanning a wide distance, for example, or for use as an insert in a router table. Drilling the screw holes for fastening the baseplate to your router is a precision job, though, particularly if you want the bit to be located exactly in the center. Special cone-pointed setscrews make the job easy see Source, below. They come in various thread sizes; to determine what you need, take your baseplate screws to the hardware store and match them with an appropriate nut. Install the pointed setscrews in your router base and slide the new baseplate over the bit. Tap the baseplate above each screw to make a dimple for centering a drill bit. Ramp-up for easier starts Next time you make a template for pattern routing, be sure to include a starting ramp. This provides a safe place for the router bit to contact the template before it starts cutting. Add an exit ramp on the far end of the template, too. Adjust your router bit so it cuts a paper-thickness above the bottom of the baseplate, then rout the plugs. To make the plugs absolutely flush, sand them with a small piece of sandpaper wrapped around a hard block. Box Fence for Big Bits A large raised-panel bit should be treated with a certain

amount of respect. This fence is really just a large box with a plastic top and dust port, clamped to your router table. Set it so that it bears down on your panel, like a featherboard, to produce a smooth cut. Sandwich Clamp Use a double-sided template to avoid tearout on a curved piece. No-Fuss Mortising Jig Want a dirt-simple mortising jig? This one takes just a few minutes to put together, not the whole weekend. First, clamp a 3- to 4-in. Butt your workpiece up to the stop block and clamp your workpiece to the large block. A large handscrew is ideal for this job because it has a deep reach. Finally, add two stop blocks on top of the big block to limit the back-and-forth movement of your router. If your mortises are centered, go ahead and cut all of them. Our cover shows this jig in action.

Chapter 2 : Routing Curves And Circles - Router Techniques - Woodworking Archive

A tipping router can ruin the edge of a finished project, so keep that base stable. If you need to round over the outside edges of an assembled box, tip the project on edge and use the front, back, and sides to support the router base, as shown top drawing.

Next Reset a fence Two-piece rail-and-stile bits use the exact same fence setup for both bits. But that perfect fence location must be disturbed to swap bits. Save time resetting your router-table fence flush with the bit bearing and parallel to the miter slot with this handy gauge. After adjusting the fence flush with the bit bearing and parallel to the miter slot, install the jig in the miter slot. Slide the gauge blocks up to the fence, and tighten the wing nuts to secure the blocks. Then remove the jig, and make your first set of cuts. After you move the fence to change bits, remount the jig in the miter slot. Slide the fence against the blocks, and tighten it in place. If your router table lacks a miter slot, lengthen the gauge blocks so the hardwood runner rides against the front edge of the tabletop. A pair of paths to precise plunges You can fuss with rulers and depth gauges all you want, but here are two quick and easy ways to precisely set your plunge router cutting depth. First, place the router on your bench and plunge the bit until it touches the benchtop. Then lock it in place. Loosen the depth stop-rod, and sandwich a drill bit of a diameter equal to the plunge depth between the turret stop and rod. Then tighten the rod in place. The method, at right, uses spacers planed to the same thickness as the depth of your plunge cuts. Place the router on a pair of spacers, and plunge the bit until it touches the benchtop. Then lower and tighten the stop-rod. Tape your way to tighter dados Adjusting a jig or straightedge to widen a dado just a hair can create more problems than it solves. Instead, leave your guide in place and add strips of tape along the router base edge, as shown. That nudges the bit away from the guide when you recut. It indexes from the previously routed slot to ensure evenly spaced dados, dovetails, and grooves. Then rout a dado on the subbase bottom where the distance between the dado and the bit equals the spacing between the slots. Make the dado as wide as the bit profile at the workpiece surface. Attach a matching hardwood guide in the dado. For dovetails, rout first with a straight bit, and then finish with a dovetail bit for efficient chip removal. Rout stopped cuts with stopblocks Edge cuts, such as chamfers, and surface profiles, such as flutes, sometimes need to start and stop precisely and uniformly. Clamp the stopblock to the edge of the workpiece as shown. Get a grip on small parts Small parts can drop through oversize router-table inserts or instantly tug fingers into the bit. To solve both problems, first drill a hole slightly larger than the bit diameter in a piece of? Then keep your fingers safe by gripping the part with a handscrew. The jaws of these clamps can be angled to firmly grasp odd-size parts and hold them flat against the zero-clearance top. Shelf-help for trimming edges Perching a router on a shelf edge to flush-trim solid-wood edges can turn ugly if your machine tips. Give it stability by clamping together the shelves on edge. Cut spacer blocks from 2x4 scrap and place them between the shelves at both ends. Then clamp the spacers and shelves together. We clamped one of those clamps to the bench for added stability. Then rout each edge with a flush-trim bit. If the router wobbles on the edges of the outside shelves, move those pieces to the inside, reclamp, and finish routing. Rout round-overs, not tip-overs A tipping router can ruin the edge of a finished project, so keep that base stable. If you need to round over the outside edges of an assembled box, tip the project on edge and use the front, back, and sides to support the router base, as shown top drawing. To rout inside round-overs with equal ease, clamp a 2x4 auxiliary support onto the outside surfaces, as shown bottom drawing. A starter pin keeps fingers safe The toughest part of freehand routing is easing the workpiece against the bit. To help you guide parts safely, make a starter pin from a hardwood, brass, or aluminum rod, and securely mount it to the table about 2" from the bit. Brace the workpiece against the starter pin; then slowly rotate it into the bit and bearing. Grip the workpiece close to the pin, and use the above technique for small parts. Rout corners consistently Rounding over corners by hand-sanding produces uneven results. Instead, use a round-over bit with the radius you want for your corners. With the bit chucked on a table-mounted router, raise the bit height until it cuts a quarter-round profile in scrap without leaving a shoulder. Then position the fence flush with the bit pilot bearing. To prevent chip-out and keep the frame square to the fence and router-table top, clamp it to a 2x4 backer block, as shown. Make that

job easier by photocopying the router base and using the copy to mark and drill mounting holes. Check the copy size against the base size in case the copier is off slightly, and reduce or enlarge it as needed. If you have a computer scanner, you also can scan the base and file the scan for future printing. Spacers taped to a router-table fence let you rout gradually without constant adjustments. First mount a panel-raising bit onto a table-mounted router set to its lowest speed. Test-cut scrap the thickness of the panels to set the final profile. Rout all four edges of each panel, starting with the ends; then use a putty knife to pry off a spacer from each side, as shown. Repeat for each panel, removing pairs of spacers until the panel rides against the fence on the final pass.

Chapter 3 : Router Techniques

Additional baseplates for your router can really come in handy-for spanning a wide distance, for example, or for use as an insert in a router table. Drilling the screw holes for fastening the baseplate to your router is a precision job, though, particularly if you want the bit to be located exactly in the center.

Sure I use hand tools for some parts of furniture building, specifically when cutting dovetails. The jobs completed with those tools, I accomplish with my router and a router jig. The routing techniques shown in this article are a combination of the correct router bits along with dirt-simple jigs made from leftover pieces from other projects, such as scraps and plywood. If you use my favorite router jig along with a pattern bit, you have a setup that is a multi-tasker and is as easy as can be to position for accuracy. That jig I call a square-platform jig. To make the jig, start with two pieces of plywood cut to the same size. Attach the two with glue and a few brads keep the brads away from the edges, then add a third piece to the front edge to act as a lip "similar to a bench hook" and the jig is ready for work. The key is to keep the edges of the jig straight and square with that third piece, which I call a catch rail. The key to this jig is to keep the edges perfectly square with the catch rail that is attached to the bottom face of the jig. Glue and brads are the joining force. This jig is best when used for cutting dados for shelves or for creating a dovetailed socket for drawer dividers. The design of the platform jig allows a single clamp to hold the jig in place. This allows the jig to move to the next layout line quickly. The greatest thing about this jig is the ease of clamping. No longer is it necessary to use more than a single clamp. One clamp holds the jig to the workpiece and does not allow any movement of the jig. When a clamp is positioned at the lower left-hand corner of the jig as shown in the photo below, the jig cannot move away from the workpiece due to the clamp. And the jig cannot slip to the left because the front piece acts as a catch. As long as the clamp is secure, no amount of force will allow a shift in the jig. This makes it easy to clamp and quick to adjust from one work area to the next. To use this jig, do any layout work, then slide the jig into position, always aligning the jig to the left of the work area because the normal operation of a router pushes the tool to the left if the jig were set to the right of the work area, it would be a struggle to hold the router firmly against the jig in use. Next, add a clamp keeping a clear path for your router base and allow the pattern-bit bearing to ride along the edge of the jig. With this setup, wherever the jig is, the router bit follows. Use the Same Jig for Dados I began using this jig due to the ghastly dado bottoms produced by my older dado stack. My stack had exterior blades that were slightly higher than the chippers and this caused an unwelcome profile at the bottom of the dado. At that length, the jig stretched across the entire width of the sides and created a dado in a single pass. There is no ghastly profile to try and hide. Cut one dado or dados and the results are the same "predictable and accurate. The correct router bit along with this jig provides a simple and quick method for cutting dados that are through, or simply stop before reaching the end of the workpiece to create a stopped dado. Perfect Sliding Dovetails Having so much success creating dados with this jig, I wondered what other operations I could make easier by using this setup. One area that came to mind was drawer dividers. Most chests I build use sliding dovetails for joining dividers to the case sides. How could I adapt this jig? What I discovered was that I had to change the router setup, not the jig. Again, simply align the jig with your layout marks, add a clamp, then cut the dovetail socket into your workpiece. Additionally, remember to use the same router bit to create the male part of the joint. The second half of this operation is completed at a router table. Once built, the jig is a snap to align with layout lines; hit the mark every time. The equal width of the bushing and the widest portion of the dovetail bit is what makes this setup work. The dovetail bit cuts exactly to the outside edge of the bushing. As the bushing travels the edge of the jig, the dovetail slot is perfectly aligned. My router bits are sharp and able to make this cut without difficulty. How about housed dovetail sockets? Then follow up with the dovetail bit in a second router, as shown in the opening photo of this article. The entire operation is completed with one clamping setup. Once the joinery is complete, trim the extra material from the edges to leave a clean front edge. Are you wondering why I suggested you keep the brads located away from the edges of the jig? When using those saw guides, the base of the saw rides on top of the guide while the blade cuts at the edge. This setup is great for aligning the guide

to the cut line. I adapted this idea to use with my small router bits in lieu of guide bushings or bearings. It works great for plowing small grooves or dados such as when routing out cubbyhole dividers in desk interiors. Constructing jigs such as these is simple. Here, too, I have a few scattered about the shop that work with specific router bits. I even take the time to label each jig so I know with which bits it works. To complete the building of the jig, install a router bit into the router, set the depth of cut to a bit stronger than the hardboard or plywood, then with the router base running against the fence, make a cut. The newly created edge is the exact outline of the router bit and aligning this jig is as easy as clamping to your layout lines. No bearing is no problem. Design this simple jig to have the base plate rub the fence as the cut is made. Make one for each router bit.

A Simple Straightedge Jig

Not all the best shop-made jigs are pieces of plywood arranged in some design. One of the most useful jigs is simply a straight piece of stock or two pieces stacked together, what I call a straightedge jig. There are a couple operations where these shine. One use is for simple straight cuts on pieces too large or too awkward to hoist onto the table saw. A second use is to create a tenon for installing breadboard ends on a tabletop. Or, you can use this to create everyday, run-of-the-mill tenons. Each of these operations works with a pattern bit; the depth of cut determines the layers of plywood needed for the jig. If I plan to create a smooth cut across an edge, a single thickness of plywood is best. For example, if I were trying to cut the angled slope on a case side of a slant-lid desk, it would be nearly impossible to hoist the panels up to a band saw, or to control a panel at a table saw. But trim close to the line with a jigsaw, clamp a plywood straightedge at the layout line, then make a pass using your router while the pattern bit rides smoothly along the guide. The same operation is perfect for squaring large panels, too. You know how hard it can be to trim a large top with a panel-cutting sled. Once you achieve parallel sides at a table saw, use a square to lay out one end cut, position a plywood straightedge at the layout line, clamp the jig in place and trim the end square. Repeat the same steps at the opposite end of the top. A single thickness of plywood is sometimes not thick enough to allow the bearing to ride against the guide without cutting into the workpiece too deeply. A second thickness of plywood remedies that problem. I use this two-piece setup to create tenons on large panels or tabletops. To do this, just set the two-thickness guide on your layout lines, adjust the depth of cut on the router, then waste away the excess from each face, leaving a tenon intact and centered. By using a pattern bit and plywood jig or guide, you clamp directly on your layout lines and go for it. A pattern bit matched with a single layer of plywood is a perfect way to trim ends of wide panels or large tops. With the bearing running along the guide, a clean, straight cut is achieved. Two layers for tenons. A second layer of plywood builds the jig to make it possible to rabbet the end. This is a great setup for the first step for breadboard ends.

More Work for a Pattern Bit

As you can tell, I use a pattern bit with plywood jigs for many operations. And bit diameter is not important. Additionally, I use bits with either a top- or bottom-mount bearing. However, plywood is also where I turn for intricate work with patterns. But the plywood pattern did double duty. Not only could I use the piece to trace the pattern onto the aprons, I used the plywood and a pattern bit to cut the intricate design at a router table. As you make the jigs for this type of work, make sure to extend the ends of the pattern an extra inch or more to allow contact between the bit and pattern prior to cutting the work. There are a number of techniques where this setup works great other than table aprons. Before I added a spindle sander to my shop, I would create a pattern for bracket-style feet and cut the design using my router. Furthermore, I use this technique for high chest aprons and sculpted drawer dividers such as those on block-front or serpentine chests. A bottom-mount bearing follows the pattern as a smooth and accurate cut is made on the workpiece below. In fact, these jigs are so involved that you have to read the instructions before beginning work something we all hate to do. For the most part we use a few sizes of circles specific to our work. I looked for something different. One hole in the middle of the circle-cutting jig, plus a guide bushing, equals a great method for creating circles. My first circle-cutting jig was an elongated base added to my plunge router.

Chapter 4 : 4 Simple, Shop-Made Router Jigs | Popular Woodworking Magazine

Double the usefulness of your router with a router table. Smooth edges, cut long moldings and mold small projects easier and more safely by using the table. We show you how. Clamp feather boards to the fence and tabletop so they apply moderate pressure to the board. Feed the board through the router.

The fingers slide across the jig and back on two steel rods. The fingers can be arranged in an almost infinite number of patterns and spacings. This actually is a template system, though glorified somewhat by the fact that each set of fingers has a side for guiding the cutting of pins and one for guiding the cutting of tails. You can set the jig to produce wide tails, narrow tails, or oddly spaced tails. It will automatically be set to produce perfectly matched pins. You want four, maybe five pins on a 16Mfr-inch-wide board? You can set the pins as closely as 1 inch on center and cut pins as small as 1/4 inch wide. What the Leigh jig does best is cut through dovetails. First you clamp the tail board vertically and individually adjustable fingers are the reason for the versatility of the Leigh jig. With the workpiece clamped in place, you align the fingers to establish the size and spacing of the pins and tails, then tighten the setscrews. Then you flip the finger assembly and rout the tails with a dovetail bit. To rout the pins, you switch to a straight bit. Flip the finger assembly again, cut a sample joint or two to get the right fit between tails and pins, then clamp the board vertically and rout the pins. In addition to through and half-blind dovetails, the Leigh jig will help you cut box joints and, with additional accessories. To make these joints, you must use cutters that match the jig. Because you have to adjust and tighten down as many as 12 separate elements, the Leigh jig is time-consuming to set up. But that done, by golly, you can cut some slick dovetails! The small model handles only 1-inch-wide stock. A 1-horsepower router is adequate for this work, though Leigh recommends it have both Winch and Winch collets. A couple of different straight and dovetail bits are supplied with the jig. Most bit makers sell bits specially designed for use with the Leigh jig, and getting a selection can run up the cost of routing with the Leigh jig. Needed, but not supplied, are two guide bushings—one 1/4-inch-diameter and one 1/2-inch-diameter. With the Leigh jig and the appropriate accessories and bits, you can cut flush and rabbeted half-blind dovetails, variably spaced through dovetails, compound-angled dovetails, sliding dovetails, and box joints.

Chapter 5 : Router Techniques ***NEW*** | Eliot School

The portable router gives the woodworker the ability to shape wood in an almost endless variety of ways, creating custom moldings, decorative edgings, and relief carvings of any type—all without the expense of stationary shapers.

To cut a circle with the router, the basic need is to get the router to move smoothly around a given point. Occasionally, a template will guide the router. Here again, the router will do the work. To cut ovals, you use a special trammel. For those arcs and combinations of arcs, you are often best served by a template. Your router may have one among its accessories. Usually, the trammel will be a part of the edge guide attachment. You can accomplish the same thing with a lot more flexibility by attaching a hardwood arm to the base and setting the pivot point in a sliding block on that arm. Cutting circles is the natural turf of the plunge router. The plunger makes it easy to get the bit into the work and to deepen the cut after each lap. But plunge routers tend to be pretty beefy, too much so for a lot of trammel work, in my estimation. Don't get me wrong. I have routed a lot of circles with plunge routers. What I really like to use is a laminate trimmer, which you can hold in one hand. The hitch, of course, is that with the lam trimmer, as with any fixed-base router, you stand a good chance of gouging the work trying to tip the bit into it. So you do have to practice. But it can be done. Manageability is a big plus in this kind of operation. With one hand on the pivot and the other on the router, you can make the cut quickly and accurately. And if you are worried about a lam trimmer being down on power, just remember: You may be in the same boat as one of my colleagues, Jeff Day. A drilled pilot will ensure that the pivot is perpendicular. And by boring clean through the stock, you can use the same centerpoint on either side. I would recommend working both sides. That is, use the router and trammel to groove one side, cutting about halfway through the stock. Then flip the piece over and make a cut. Then keep going until you are through. Trammel Trammel The trammel trammel is a simple cutout. It can be cut from acrylic, hardboard, or thin plywood. The Routing out the wheels for a wooden wheeler is a good job for a laminate trimmer equipped with the trammel trammel. Wheels are usually pretty small, and it is easier to see what you are doing—as well as to do it—with a trimmer than with a full-sized router. To make such a trammel for your laminate trimmer, remove the baseplate. Trace the plate on cardboard, then draw an extension for the pivot holes. Cut out the pattern and attach it to your stock with double-sided carpet tape, then cut it to shape and drill the necessary holes. This is the perfect device for making wheels for wooden toys. Oh, I know you can buy wheels cheap, but using them is like assembling a model. When making toy wheels, by the way. You can scoop out the wheel disk with a round-nose bit. Large Trammel For those large arcs and circles—you do need a bigger trammel. With its reinforced edges, this trammel also doubles as a jig for rabbeting assembled cases. See the chapter "Rabbeting. Measure, mark, and drill the pivot hole you need. Woodworking Tools and Installation Tips There are a lot of things that either need to be repaired, or put together when you're a homeowner. If you're a new homeowner, and have just gotten out of apartment style living, you might want to take this list with you to the hardware store. From remodeling jobs to putting together furniture you can use these 5 power tools to get your stuff together. Don't forget too that you'll need a few extra tools for other jobs around the house.

Chapter 6 : Adjustable Finger - Router Techniques - Woodworking Archive

Router Table Basics - A Quick Tour of Router Table Techniques For as little as it takes to get set up, and the short time it takes to acquire skill at using a router table, it's easy to see why this venerable workhorse is often one of the first and most important tool purchases that a woodworker ever makes.

Chapter 7 : Learn How to Use a Router | Wood Router Projects, Tips and Tricks

Once you've mastered basic routing techniques, create a precise milling machine by equipping your router with a guide bushing and straight-cutting bit. A guide bushing (aka template guide) is.

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The router is a mainstay power tool of the modern wood shop. Many woodworkers will have two or three different routers of varying horsepower levels or bases.