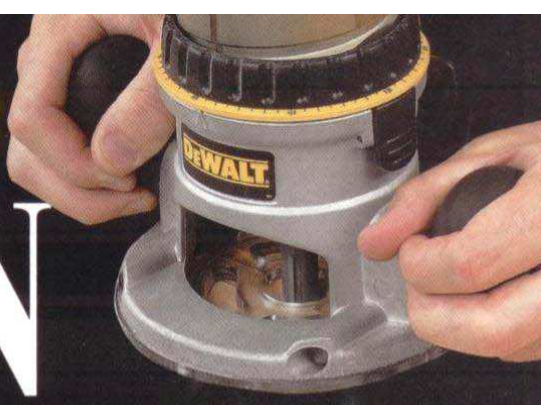


THE Router Issue

AMERICAN WOODWORKER®

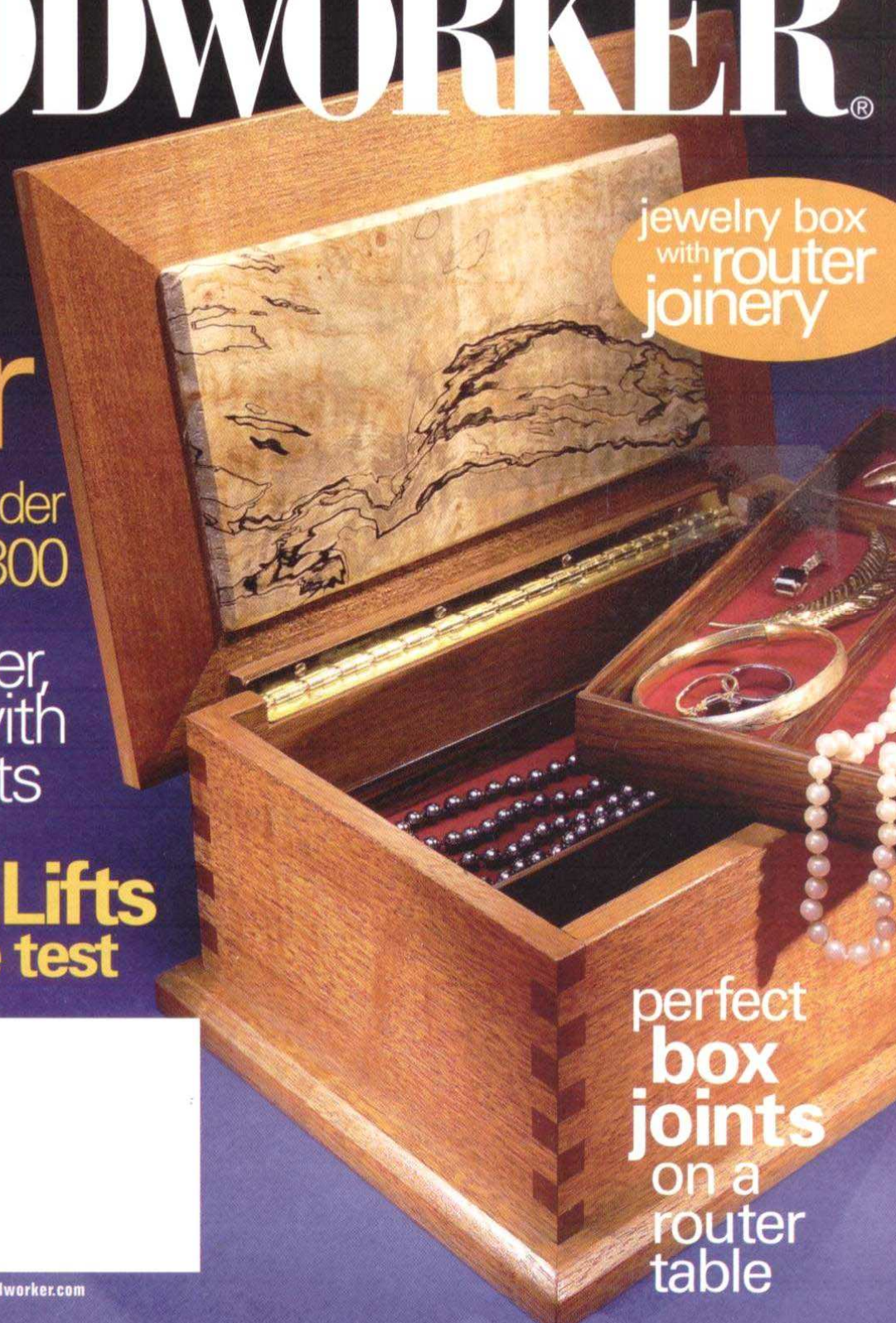


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- Extension wings for additional support
- Laser guide indicates line of cut
- Comes with 100 tooth carbide tipped blade, dust bag, machined aluminum fence, table clamp; 120V, 15 amps, 1800 watts, 60 Hz; Table size: 22-3/4" L x 6-1/2" W; 4100 RPM; Overall dimensions: 34-1/2" L x 22-7/8" W x 26-1/4" H; Tool weight: 44 lbs.

\$249⁹⁹ \$179⁹⁹
ITEM 91852-2KDA

1-1/4" STROKE VARIABLE SPEED RECIPROCATING SAW

CHICAGO Electric Power Tools
Comes with extra brushes, hex key, one 6" blade for wood, one 4" blade for metal. 120V, 4.5 amps, 60 Hz. Blade shank: pin-style; Construction: high-impact ABS body, sturdy aluminum gear housing; Cutting capacity: 90"; Stroke length: 1-1/4"; Speed: 0-2300 strokes per minute; Weight: 6.7 lbs.

ITEM **\$49⁹⁹ \$19⁹⁹**
04095-6KDA

15 PC. RECIPROCATING SAW BLADES

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\$7⁹⁹
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ITEM **\$199⁹⁹ \$89⁹⁹**
04041-5KDA

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- Max. depth of cut: 1/2"
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- Cutting width: 7"
- Rabbeting ledge: 3-1/4"

\$299⁹⁹ \$219⁹⁹
ITEM 31849-5KDA

3 PC. REPLACEMENT PLANER BLADES

- 7" long x 5/8" wide x 1/8" thick

ITEM 90179-0KDA **\$12⁹⁹**
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DRILL MASTER

18 VOLT, CORDLESS 4 TOOL COMBO PACK

Includes 3/8" variable speed reversible drill, oscillating triangle sander, 8 watt flashlight, jigsaw, blade, hex key, one 18 volt long run battery, charger and carrying case. Includes one of the four batteries shown.

Drill: 3/8" keyless chuck, 0-900 RPM, 8 torque settings; **Sander:** Triangular pad, oscillating, 6000 OPM, rocker switch; **Flashlight:** 0° to 90° swivel head, 8 watt bulb, pistol grip; **Jigsaw:** Reciprocating, 1/2" stroke, 1700 SPM, blade guard, angle adjustment, includes one 24 tooth wood (pin type) blade and hex key; Shipping weight: 13 lbs.

ITEM **\$59⁹⁹ \$39⁹⁹**
90374-2KDA

CENTRAL MACHINERY

1" x 30" BELT SANDER

Powerful 1/3 HP motor develops up to 3412 RPM for fast stock removal and a smooth, flawless finish. Removable back plate permits sanding on curves or odd-shaped stock.

- Table tilts 0 to 45°
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Motor: 1/3 HP, 120V, 3 amps, 60 Hz; Table dimensions: 5-1/16" W x 5-1/8" L; Overall dimensions: 9" W x 11-1/8" L x 13-1/2" H; Weight: 13.30 lbs.

ITEM **\$39⁹⁹ \$29⁹⁹**
02485-1KDA

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7 PC. 3/8" SHANK, 1/4" TO 1" FORSTNER BIT SETS

Heat-treated steel bits with 3/8" shanks. Runs cooler, bores smoother, & lasts longer!

ITEM **\$14⁹⁹ \$3⁹⁹**
01903-0KDA



40 FT. RETRACTABLE CORD REEL WITH TRIPLE TAP

- Spring loaded auto rewind
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- Nonsnag rollers reduce wear of cord
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\$41⁹⁹ \$29⁹⁹
ITEM 91470-2KDA

CENTRAL PNEUMATIC

4 HP, 120 PSI, 8 GALLON AIR COMPRESSOR

- Heavy duty 4 HP (peak) motor
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ITEM **\$159⁹⁹ \$119⁹⁹**
90385-1KDA

CENTRAL MACHINERY

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You won't find a better value on an industrial-quality bandsaw. Cut curves and compound curves up to 6" deep in wood or plastic. Precision cast iron table tilts 45° for bevel cuts. Table groove allows accurate measurement with a miter gauge.

Speeds: 600, 1140, 1670, & 2670 FPM; Capacity: 6"; Frame-to-blade: 14"; Overall dimensions: 24-1/2" x 19-1/2" x 65-1/2"; Table: 14" x 14"; Shipping weight: 191 lbs.

\$329⁹⁹ \$289⁹⁹
ITEM 32208-3KDA

BISCUIT JOINER WITH TILTING FENCE

- 120V, 6.8 amp motor
- 10,000 RPM maximum speed
- Sealed ball bearings for extended life
- Convenient biscuit adjustment dial
- Die-cast aluminum fence tilts from 0-90°
- Soft rubber grip handle
- 4", 6 tooth blade with carbide tips
- Biscuit settings: 0, 10, & 20; Fence adjustment: 1" to 3"; Maximum depth of cut: 0.63"; Shipping weight: 10.30 lbs.
- Includes: Blade, dust bag, wrench, extra carbide brushes and carrying case

\$69⁹⁹ \$49⁹⁹
ITEM 47377-3KDA
\$5⁹⁹
ITEM 47401-1KDA

CENTRAL MACHINERY

BENCH TOP SHAPER/ROUTER

Expand your workspace with this handy wood shaper. Big machine features and compact enough to store under your bench. Very advanced - accepts both shaper cutters and router bits for the exact finish you want.

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Shipping wt.: 152lbs.
ITEM 47065-2KDA



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2 HP INDUSTRIAL DUST COLLECTOR

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- Lockable on/off toggle switch

Motor: 2 HP, 110V, 14 amps, single phase; Filtration: 30 micron; Bag capacity: 70 gal.; Hose inlet: 4"; Overall dimensions: 75-1/2"H x 33"L x 22"W; Shipping weight: 145 lbs.



ITEM 45378-5KDA

CHICAGO Electric Power Tools

18 VOLT CORDLESS COMBO PACK



Includes all three tools above, a total of TWO interchangeable batteries, charger, plus an 18 Volt Flashlight in a blowmold fitted carrying case.

ITEM 45803-5KDA

CHICAGO Electric Power Tools

3 HP PLUNGE ROUTER



Super duty unit provides the ultimate in router performance. Use to cut precision moldings, rabbets, dados, dovetails, recesses for inlays, and much more. 19 amp all ball bearing motor develops 23,000 RPM for unbelievably clean finishes. 2-1/2" plunge depth capacity allows easy penetration into or through work surfaces.

- Includes 1/4", 1/2", and 3/8" collets
- 115V, 19 amps, 8 foot cord
- 3 adjustable plunge settings
- Electric brake

ITEM 37793-3KDA

CENTRAL PNEUMATIC®

TONGUE AND GROOVE STAPLER KIT

- 100 staple capacity, top loading
 - Uses fasteners from 3/4" to 2" long
- Kit includes 400 staples, striking hammer, goggles, wrenches; 70-90 PSI; 1/4" NPT- 18; CFM: 5.0 SCFM @ 80 PSI; Weight: 21.85

ITEM 90399-3KDA



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GAUGE STAPLES, 2000 PC.
80 staples per strip.

ITEM 90429-2KDA

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10-1/16"L x 4-7/8"W x 3-13/16"H;
Weight: 4.55 lbs.

ITEM 03150-2KDA

4-1/2" GRINDING WHEEL
(Pack of 10)

ITEM 06674-1KDA



C2 CARBIDE DOORMAKER'S BIT SET

- Fully shielded bearings
- Raised panel bit: 1-3/16" profile width; 5/8" cutter height, 3-1/16" cutting diameter
- Stile bit: 3/8" profile width, 3/4" cutter height, 1-11/16" cutting diameter
- Rail bit: 3/8" profile width, 3/4" cutter height, 1-11/16" cutting diameter
- 1/2" shanks, C2 carbide cutting tips, 8000 RPM max.

ITEM 90009-1KDA

CHICAGO Electric Power Tools

60 TOOTH CARBIDE BLADE



10" COMPOUND SLIDE MITER SAW

- Powerful 10.8 amp motor, 1-3/4 HP
 - Dual rail with linear ball bearings and self-cleaning dust seals for smooth slide action
 - Positive stops at 0, 22-1/2° and 45° left and right • Precision machined table
- Comes with hold-down clamp, 10" x 60 tooth C2 carbide tipped blade, wrench, dust bag and spare brushes. Motor: 110V, 60 Hz, single phase; 4000 RPM max.; Arbor: 5/8"; Cutting capacity 5-3/8" max.; Weight: 51.6 lbs.

ITEM 90891-1KDA

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10" PROFESSIONAL TABLE SAW

Includes steel stand, 2 table extensions, rip fence, blade guard, anti-kickback pawls and miter gauge. Blade sold separately.

Motor: 3 HP, 115V, 14 amps, 3400 RPM; Blade: 10"; Arbor: 5/8"; Max. tilt: 45°; Max. depth of cut: 3-1/8" @ 90°, 2-1/8" @ 45°; Max. rip: 22-5/8"; Dimensions: 44-1/16" W x 27" L; Table extensions: steel 12" x 27"; Miter gauge stops: 0° and 90°; Shipping weight: 263 lbs.



ITEM 46813-1KDA

CENTRAL MACHINERY®

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STAND, 6" BELT, 9" DISC,
OPEN-END WRENCH,
AND HEX-KEY WRENCH

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ITEM 06852-2KDA



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#113, March 2005

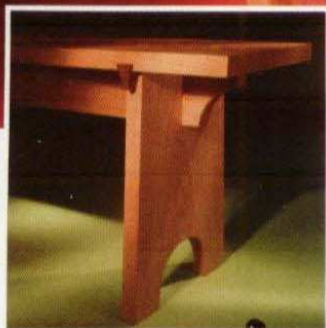
THE ROUTER ISSUE



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MOBILE ROUTER CENTER

Build a full-size router table that folds into a small storage box on wheels.



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SLIDING DOVETAIL BENCH

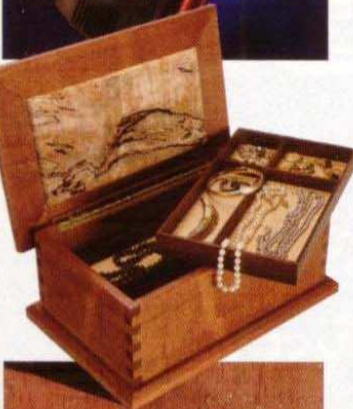
Advanced router joinery is actually a lot simpler than it looks.



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One bright piece of heavenly wood stars in this terrific gift project.



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ROUTER TABLE BOX JOINTS

How to get a perfect fit—fast.



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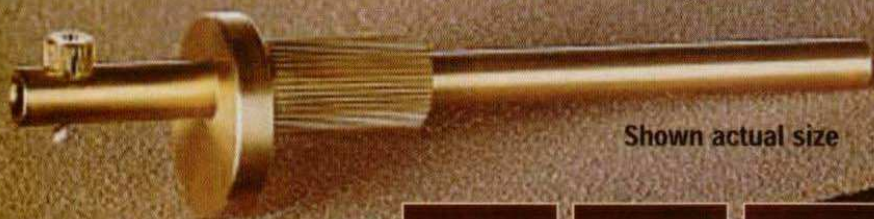
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Shown actual size



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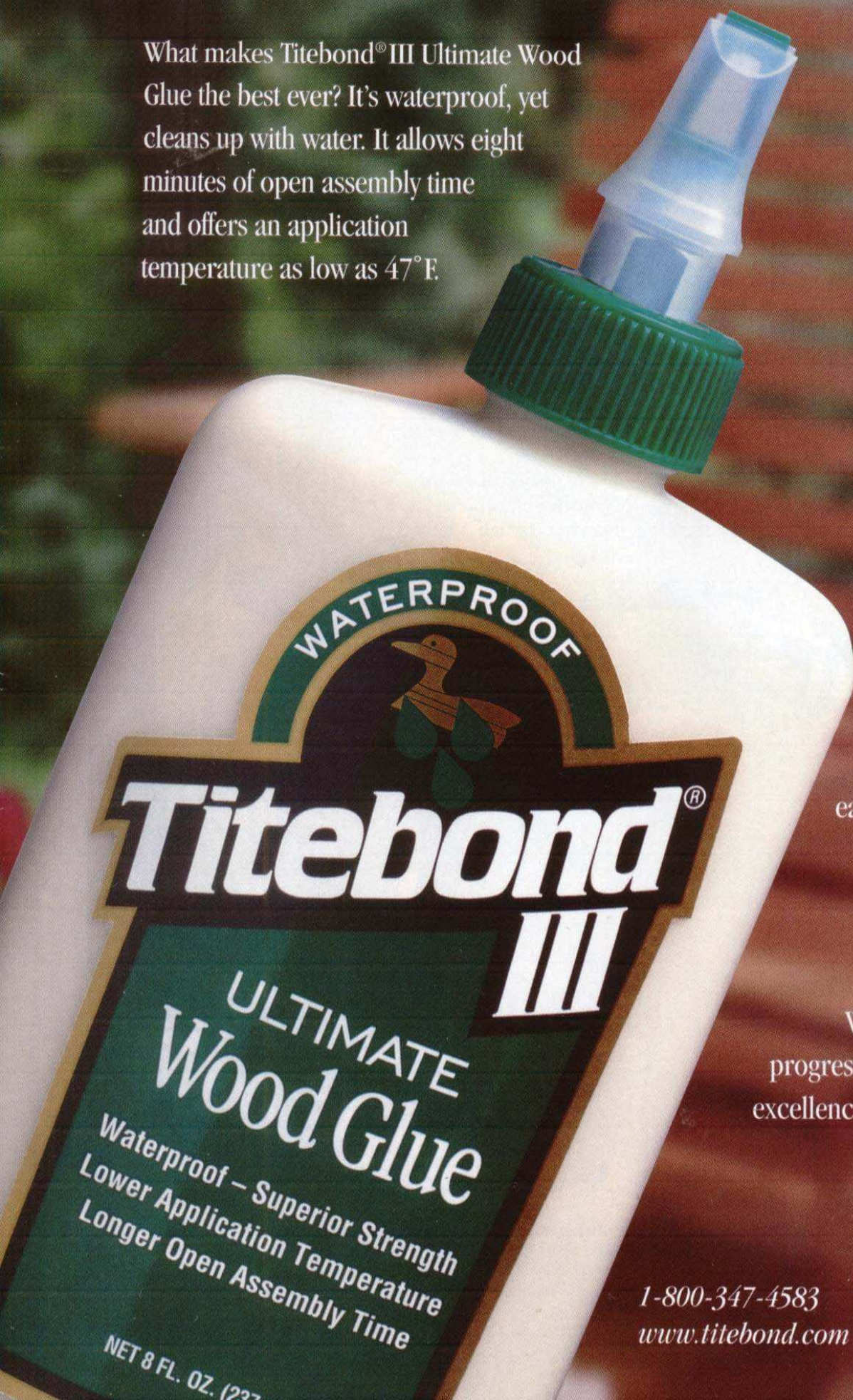
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SHAPER VS. ROUTER

Q I'm thinking about starting a side business building custom doors. Should I consider investing in a shaper or use my router table?

A Get a shaper. Simply stated, the shaper produces more in less time than a router can. A 3-1/2-hp router table setup can handle the occasional kitchen and, coupled with today's router bits, is even capable of making full-size, 1-3/4-in.-thick exterior doors. But a router is not designed for large-scale wood removal on a continuous basis.

A 1-1/2-hp shaper will actually remove more wood than a 3-1/2-hp router. That's because routers have lightweight universal motors designed for handheld use that develop low torque. A shaper uses an induction motor designed for continuous, heavy-duty use with torque to spare. Torque is what allows a shaper to hog off two to three times as much wood as a router can in a single pass.

You'll still need a good router table setup. Small-diameter bits need the high rpm to make a clean cut. Although shapers have adapters that allow you to run router bits, they don't spin them fast enough for an optimal cut.



Shaper cutters are larger and last longer than router bits. The heavyweight large-diameter shaper cutter is designed to remove large amounts of material.

WOOD STABILIZER PREVENTS CRACKS

Q A recent storm left a large tree limb in our yard. I'd like to slice cross sections for plaques and trivets. How do I keep the slices from splitting as they dry?

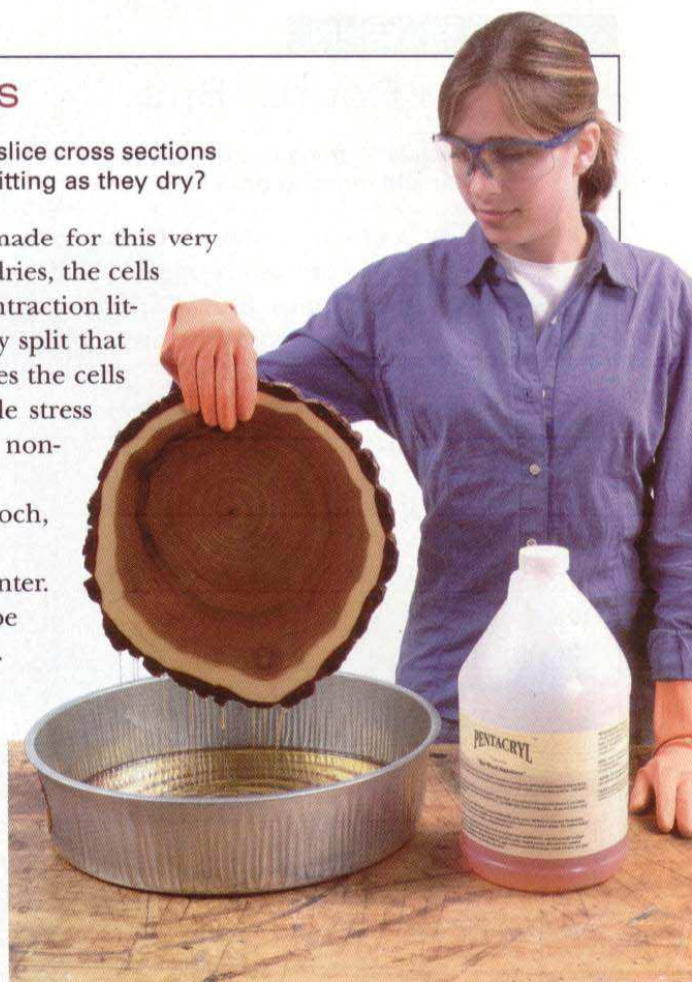
A Pentacryl wood preservative is an excellent product made for this very purpose. A slice of wood will always split because, as it dries, the cells collapse and wither just like a dry sponge. This stress from contraction literally pulls the disk apart, usually resulting in a single, nasty split that runs from the bark edge toward the pith. Pentacryl reinforces the cells so they retain their shape as they dry. As a result, very little stress builds up in the wood and cracks rarely occur. Pentacryl is non-toxic and is compatible with any kind of finish.

Here are a few tips about making plaques from Dale Knobloch, the owner of Preservation Solutions, which makes Pentacryl.

- To keep the bark edge on a slab, cut the wood during the winter.
- Wood that has been outside, especially in winter, should be brought to room temperature before you apply Pentacryl.
- Don't overtreat—plan to soak your wood no more than five minutes for every inch of its thickness.
- After treatment, the wood must be allowed to dry evenly. Make sure it is exposed to air on all sides.
- Don't hurry the drying by adding heat or air movement.

Source

Woodcraft, (800) 225-1153, www.woodcraft.com
Pentacryl wood stabilizer, 1 qt., #129318, \$16; 1 gal., #129319, \$47.



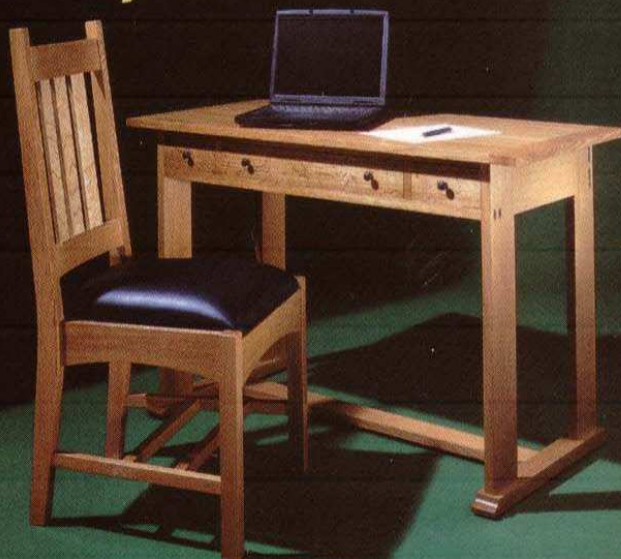
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– Norm Abram,
New Yankee Workshop

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Popular Woodworking Magazine



D4



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CUSTOM ROUTER BITS

Q Is it possible to get a custom-made router bit to match an old molding profile?

A Yes, it is! Andrews Toolworks is one company in the business of making one-of-a-kind carbide bits. Prices range from \$155 to \$300 for a single bit. So if you only have a few feet of molding to run, there are more economical ways of reproducing old moldings (see "Make Your Own Tablesaw Moldings," AW #110, October 2004, page 8). The cost of the bit is driven more by its diameter than the height or complexity of the profile.

Andrews' custom bits are made with high-quality Rc45 Swedish carbide. You can order them with 1/4-in. or 1/2-in. shanks, and with bearings, if needed. Ordering starts with a cost estimate based on a sample or a dimensioned sketch. Next comes a computer drawing of the bit with a final cost. Once you give the go-ahead, expect to wait three to four weeks for delivery of your bit. **AW**

Source

Andrews Toolworks Inc.
(800) 821-8378
www.routerbitsonline.com
Custom carbide bits,
\$155 to \$300 ea.

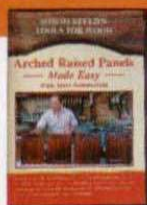


We ordered a bit from Andrews Toolworks to duplicate some old base-cap molding. The result was a dead ringer for the original.

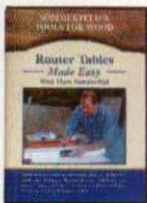
If you have a question you'd like answered, send it to us at **Question & Answer, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121** or e-mail to qanda@readersdigest.com. Sorry, but the volume of mail prevents us from answering each question individually.

10 American Woodworker MARCH 2005

A lifetime of woodworking wisdom

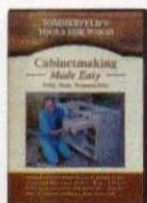


**Arched Raised Panels
Made Easy**
#VID-AW1 #DVD-AW1
(30 min.)

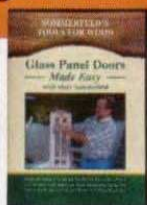


**Router Tables
Made Easy**
#VID-AW3 #DVD-AW3
(120 min.)

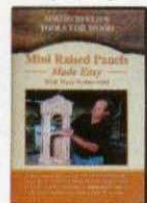
**Marc
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series in DVD
or video**



**Cabinetmaking
Made Easy**
#VID-AW4 #DVD-AW4
(105 min.)



**Glass Panel Doors
Made Easy**
#VID-AW2 #DVD-AW2
(30 min.)



**Mini Raised Panels
Made Easy**
#VID-AW6 #DVD-AW6
(30 min.)



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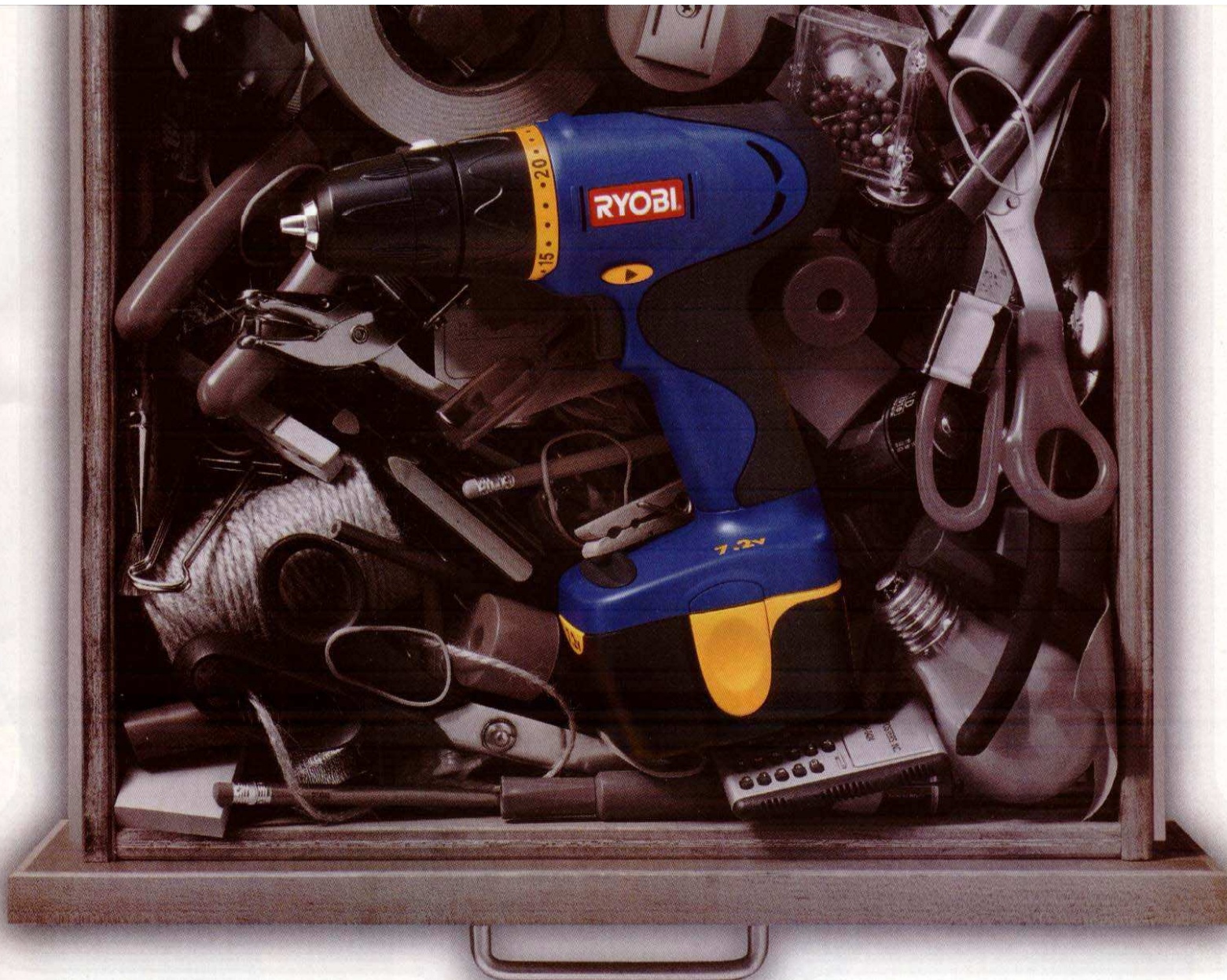
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WORLD'S BEST ROUTING GUIDE

This simple guide guarantees success whenever you need to make a straight routing pass. It's perfect for jointing a long edge or routing dadoes and grooves. You'll get smooth, chatter-free results, thanks to the guide's firm support fence. Positioning the guide is foolproof, because it's dedicated to the bit you plan to use.

The guide is nothing more than a 1/2-in.-thick fence glued to a 1/4-in.-thick base. The base protrudes by the radius of the router's base. The fence must have a straight edge—I used the factory edge of my MDF. Routing the base with a straight bit completes the guide (see photos, below).

To use, simply align the guide's base with your cutline on the workpiece. Clamp the guide in position and rout, using the same straight bit that you used to complete the guide. For best results, don't try to remove more than 1/16 in. from the edge or to rout a dado deeper than 1/4 in. at a time.

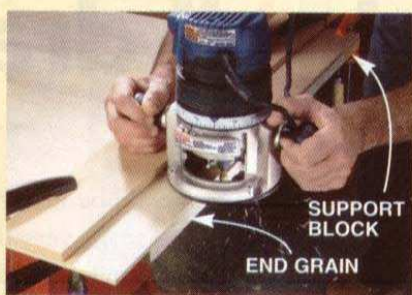
Randy Johnson



The guide works perfectly with your router, because you use your router to make it. Make the base extra wide; then trim it with your router. Now when you use the guide, the routed base indicates the edge of the cut, as long as you rout with the same bit or another bit with the same diameter.



A short guide is perfect for routing dadoes and rabbets. Make sure the guide extends beyond the workpiece on both ends.



Difficult operations, such as squaring the ends of a large tabletop, are a breeze. When you rout end grain, clamp a block against the back edge, so you don't blow it out.



RAMON MORENO

A Stacked Dado Set With No Shims Needed?



SD608
Dial-A-Width Dado Set

**Not
A Wobble
Dado!**

Introducing Freud's New Dial-A-Width Stacked Dado Set



1
Loosen



2
Turn The Dial



3
Tighten

U.S. Patent No. 5,368,079

Choose Freud's Dial-A-Width Stacked Dado Set, which is a must for fast, easy, and accurate flat-bottom dado cuts.

No More Shims

For a perfect fit every time, all you need to do is dial. Freud's SD608 Dial-A-Width Dado set performs like an ordinary stacked dado set, but the shims have been replaced with a patented dial system, which allows you to adjust the width via an exclusive dial hub capable of micro adjustments. Each "click" of the dial adjusts the blade by .004" – that's thinner than a sheet of paper. The adjustable width range for the dial is 1/4" to 29/32".

Easy and Accurate

Freud's innovative adjustable-hub design not only eliminates the need for shims, but allows you to fine tune the width of the dado without ever removing the dado cutter from your table saw. No more wasted time making adjustments and re-adjustments. A simple click of the dial ensures accuracy the first time.

Flawless Finish

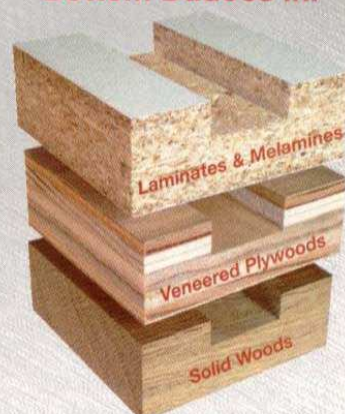
The SD608 features the same premium materials and quality as all of Freud products. The blade bodies are laser cut for extreme accuracy, and the precision-ground arbor holes ensure precise blade alignment on any table saw. The MicroGrain carbide is manufactured specifically by Freud for splinter-free, flat-bottom grooves in all materials—including problem materials like veneered plywood or melamine.

Choose the dado set that produces the best finish and highest-quality cuts of any dado set today—choose Freud. Whether you're a production shop, custom woodworker, or serious woodworker, Freud makes it easy for you to endlessly create dados with flawless flat-bottom grooves.

**For Freud's full line of high quality dado sets, go to:
www.freudtools.com**



Cuts Clean Flat-Bottom Dados in:



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The Psychology of Woodworking

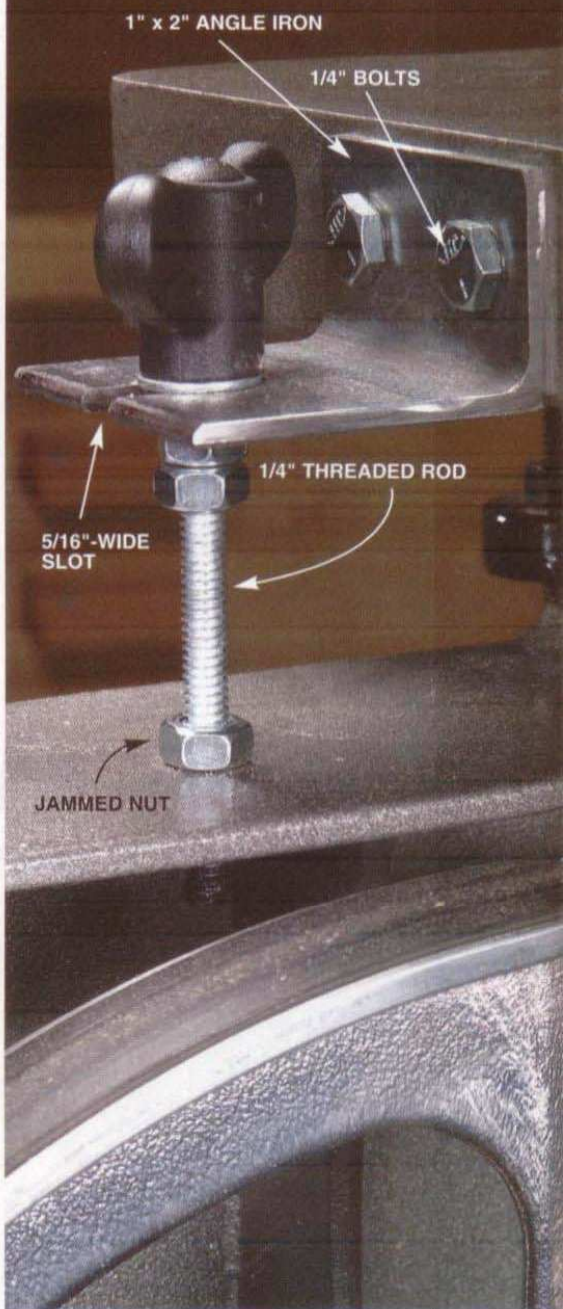
(U.S.) 1-800-472-7307
(CANADA) 1-800-263-7016

BANDSAW TABLE LOCK

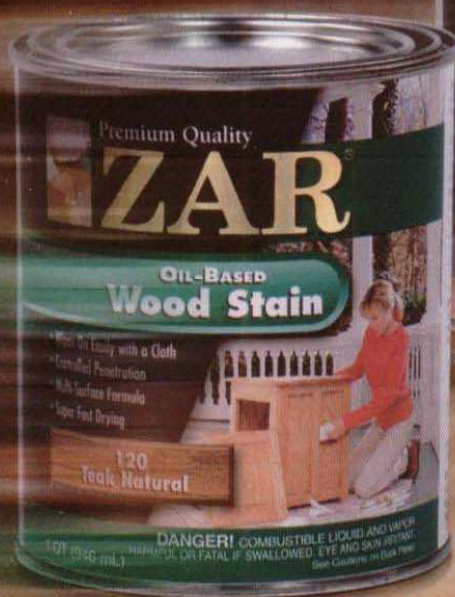
Before I installed this device, I couldn't lock my bandsaw's table securely enough for resawing. If I banged a heavy board on the outboard side, the table would always tip out of adjustment. Now the table stays fixed at 90 degrees.

After removing the table, I drilled and tapped two 1/4-in. holes and bolted on a 3-in. length of angle iron with a slot cut in the long leg. After reinstalling the table and locking it perpendicular to the blade, I used this slot to locate and drill another 1/4-in. hole in the saw casting. I tapped this hole and installed a length of threaded rod, which I locked into place by tightening a nut against the frame. To lock the top at 90 degrees, I installed two additional nuts and a washer underneath the angle. When I want to tilt the table, I just remove the knob and its washer.

Richard Tendick



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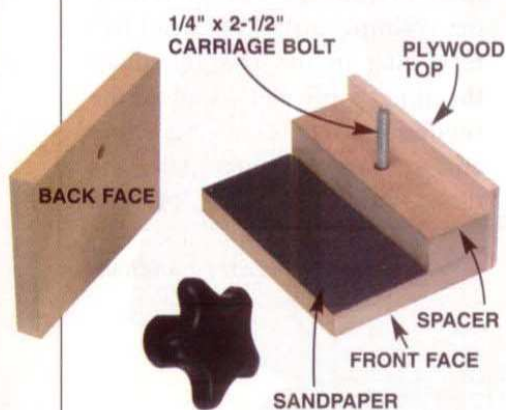


ADJUSTABLE MITER-SAW STOP

This handy stop grips tightly and is easy to adjust, so you can lock in crosscuts. A spacer the same thickness as the saw's auxiliary fence is the key. Sandwiched between the two clamp faces, this spacer makes the stop fit the fence perfectly. Sandpaper affixed to the stop's front face provides a secure grip.

Glue the spacer and front clamp face together, making sure their edges are flush. Then glue on the plywood top. Align the back clamp face flush with the glued-up front assembly and drill a 1/4-in. hole through all three pieces. Glue sandpaper to the front clamp face. Install the carriage bolt, set it with a hammer and attach the knob. I mounted the knob on the back face so it would be out of the way. The top's overhang keeps the back face from spinning as you tighten the knob.

Kevin Groenke



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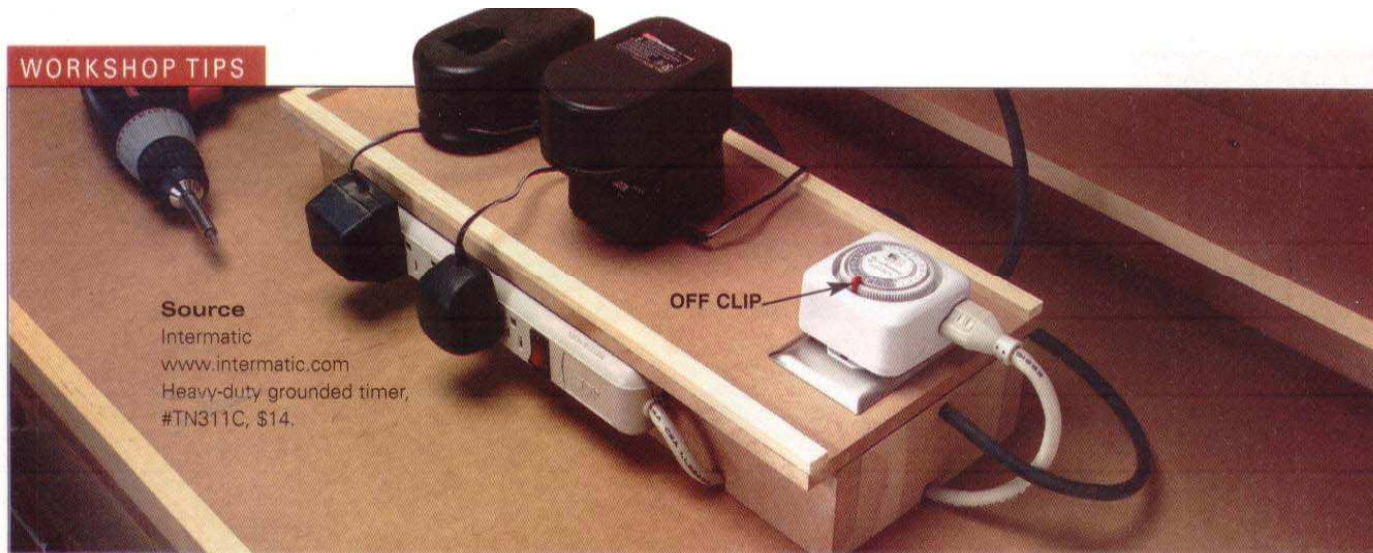
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PROTECT BATTERIES FROM OVERCHARGING

I own several inexpensive cordless tools—for the money, they can't be beat. The no-frills battery chargers they come with, though, don't automatically shut off after the battery is recharged. Yet according to the operator's manuals, I may shorten the life of the batteries if I don't remove them promptly.

Unfortunately, I only get into my shop on weekends. If I forget, a battery could be left overcharging for a long time. I found a \$14 solution to my problem at my local hardware store: a "security" timer, normally used to turn lights on and off on a daily cycle. These timers have a grounded plug and outlet and dedicated on and off clips.

The timer plugs into a receptacle on the charging station I built. The chargers plug into a power strip and the power strip plugs into the timer. Now, I never have to worry about overcharging. I simply install the dead battery, plug in the charger, place the timer's off clip to allow the recommended charging time and turn on the timer. After the timer shuts down, the off clip can't turn it back on.

Larry Lundholm

Circle No. 2

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and built-in timer!

PATENT PENDING



Dust is no friend to the serious woodworker. So let's clear the air and set the record straight. New canister dust collectors from JET feature exclusive VWeave technology and filter dust that's 15 times as small as standard filters. Not only that, the new JET dust collectors have over six times the filtering capacity of standard units. The innovative canister design makes disposal easy. (No more messing with cloth bags.)

And because there is less air resistance with a canister filter, no matter which of the four models you choose – from 650 to 1,900 CFM – you'll get more suction than with a standard

dust collector. Which means you'll collect more dust in the collector. And less in your lungs. To find out more, visit your JET distributor, wmhtoolgroup.com, or call 800-274-6848.

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HOLD SMALL STOCK SECURELY

In Ireland, where I was taught, the first jig a woodworking apprentice makes is a bench hook—a simple, yet amazingly effective device used to hold small stock for sawing and trimming. The design itself is ancient; bench hooks have been used for centuries. But in the United States, my trusty “third hand” seems to be something of a novelty to my American woodworking friends.

A bench hook allows you to hold workpieces securely on your bench without clamps. It's simply a flat board with cleats attached on opposite ends. During use, one cleat bears against the bench to act as a stop. The other supports the workpiece and provides a square shoulder for sawing and planing. A bench hook is great for cutting small hard-to-hold pieces, like dowels. As easy to set up and store as it is to use, a bench hook is one of my all-time favorite shop helpers. **AW**

Colm Hassett

18 American Woodworker MARCH 2005

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THE WELL-EQUIPPED

INSTANT CARVING

A friend of mine spent years trying to teach me to carve. Sorry, it just ain't in these hands. But CMT had me carving—sort of—in minutes. The company's new 3D Router Carver System turns a plunge router into a carving tool. You can get started in the system for around \$180.

The key is the unusual router bit. Its cone-shaped nose traces the template, floating up and down within the plunge base. The bottom of the router stays in contact with the template, while the motor floats up and down. Wide valleys in the template allow the V-cutter to cut wide and deep. Narrow valleys force the cutter up to create narrow, shallow cuts.

Templates are trapped within a frame that's fastened to your work using double-faced tape. Lots of designs are available, including large and small frames and templates for both doors and drawers. Template prices range from \$26 to \$59. Some designs require only one template; others require as many as four. That's why the frame is important. It keeps multiple templates correctly registered to each other.

This is a very cool tool that anybody can use. Even a novice router user can be "carving" in minutes. My only complaint? I'd like to see labels added to the templates so they don't get mixed up.

Source

CMT

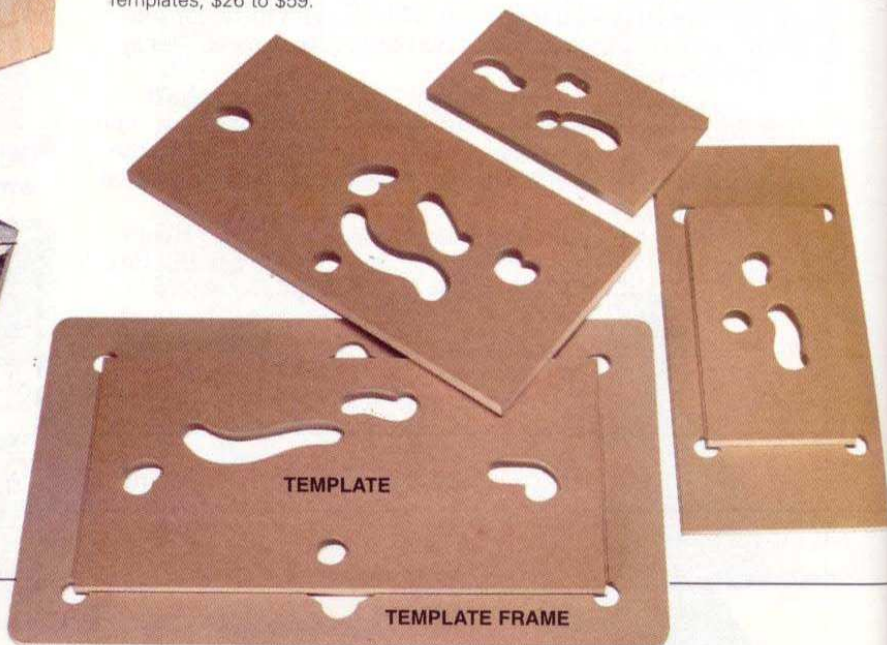
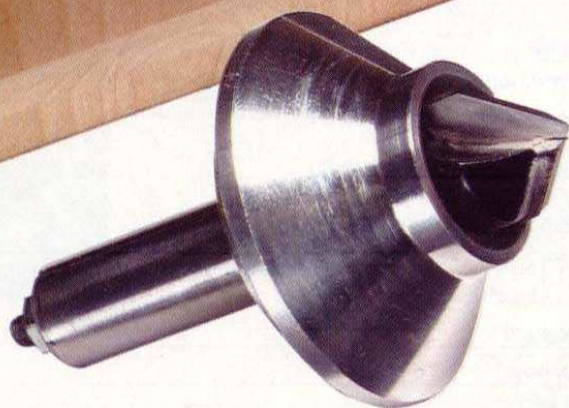
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3D Router Carver Bit, RCS-Bit, \$120

Cabinet Door Holding Frame, RCS-003, \$26

Templates, \$26 to \$59.



by George Vondriska

NO-TWEAK DOVETAIL JIG

The Akeda dovetail jig first hit the wood-working world in March 2003. Production problems took this tool off the market for a while, but now it's back and available from more distributors than before.

The Akeda DC-16 jig, \$330, has a 16-in. capacity and cuts variably spaced through and half-blind dovetails. A handful of points separate this jig from others. No jig-tweaking is required to get a perfect fit of the joint. Cut 'em, put 'em together and that's it. The guide fingers snap in and out of the jig; no tools are required. A \$30 dust port can connect to effectively capture a lot of the chips that pour off the cutter. Guide rails fully support the router, so you don't have to balance it on the jig. And the jig comes fully assembled—all you have to do is bolt it to a board. This jig is easy to get started with and easy to use.

The negative side? Well, the price adds up fast. The base price gets you the jig and one set of guide fingers. Add \$36 to get the two basic router bits you need for

through dovetails in 3/4-in. stock. You can buy extra bits and fingers for half-blind dovetails and other thicknesses of material individually or in a package. A package that includes the jig, dust port and every set of fingers and bits the jig can handle costs \$500. The 16-in. capacity is also a disadvantage. Comparable jigs in this price range have a 24-in. capacity. Akeda hopes to have a 24-in. version later in 2005.



Source

Akeda Jig
(877) 387-6544, www.akedajigs.com
Akeda DC-16 jig, \$330.

FRAME-AND-PANEL SET

Frame-and-panel router bits sets are thickness specific, so the bits you use for a cabinet door may not be the same set you need for a delicate jewelry box made from thinner material. Scaled-down frame-and-panel sets, like this new one from Freud, solve the problem.

Various companies make these miniature versions. In function, they're identical to their larger kin, and setup is the same. The difference is simply in the profile. It's made smaller so it will fit into thinner stock, typically material from 3/8 in. to 11/16 in. thick. Just as larger profiles won't work in thin material, though, these smaller bits won't work in thick material. But sometimes, a little bit'll do ya.



Source

Freud
(800) 472 7307, www.freudtools.com
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#97-904, \$205.

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THE WELL-EQUIPPED SHOP

PERFECTLY SIZED DADOES

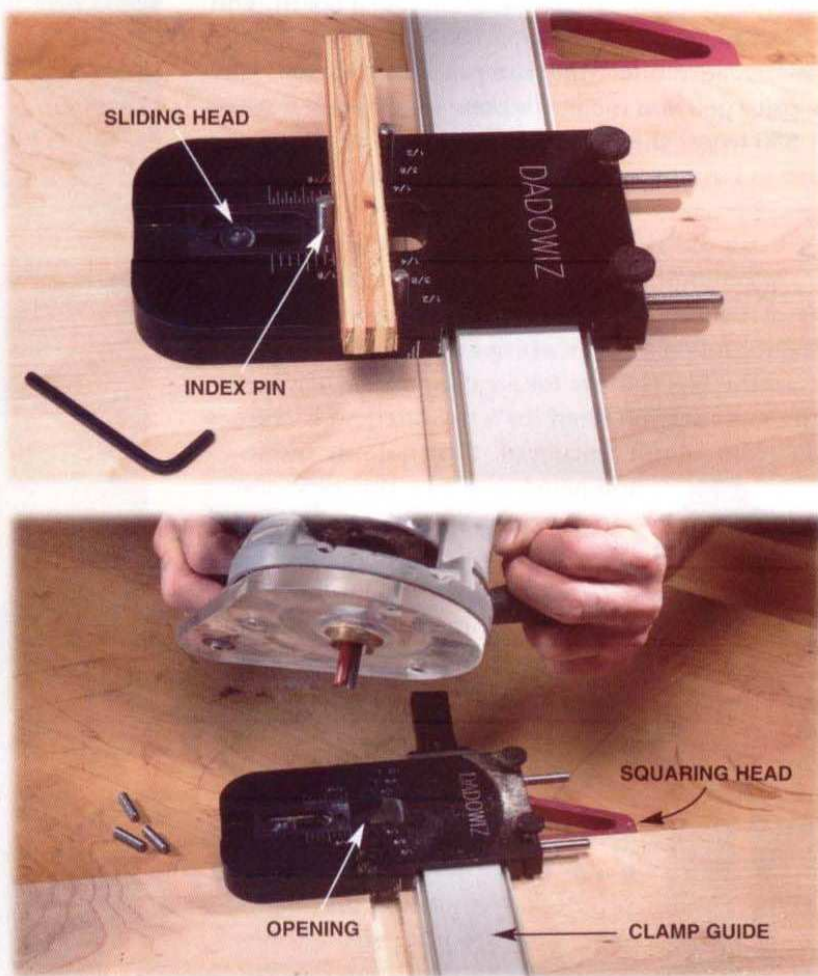
Fine-tuning dado width for a perfect fit can drive you nuts because plywood thickness is inconsistent. Enter the Dado Wiz, \$159. That's a lot of dough for a dado-only jig, but this router-based guide virtually guarantees a perfect fit on the first try.

The easy road to success comes from setting up the Dado Wiz with the material that goes into the dado. Simply squeeze it between the index pins on the jig; then lock the sliding head.

The sliding head creates an opening in the Dado Wiz that a Porter-Cable-style guide bushing (included) drops into. Using a bit that's smaller than the dado (for instance, a 1/2-in. bit for a 3/4-in. dado), you make two passes, holding the guide bushing against the left side of the opening for the first pass and against the right side for the second.

A variety of index marks allow you to fine-tune the dado width if it's too large or small.

You could make your own guide for the Dado Wiz, but the clamp guide, \$45, is a worthwhile accessory. It automatically squares up against the edge of your material, rigidly locking in place. If you've already got this style of clamp, you can get the squaring head only for \$25.



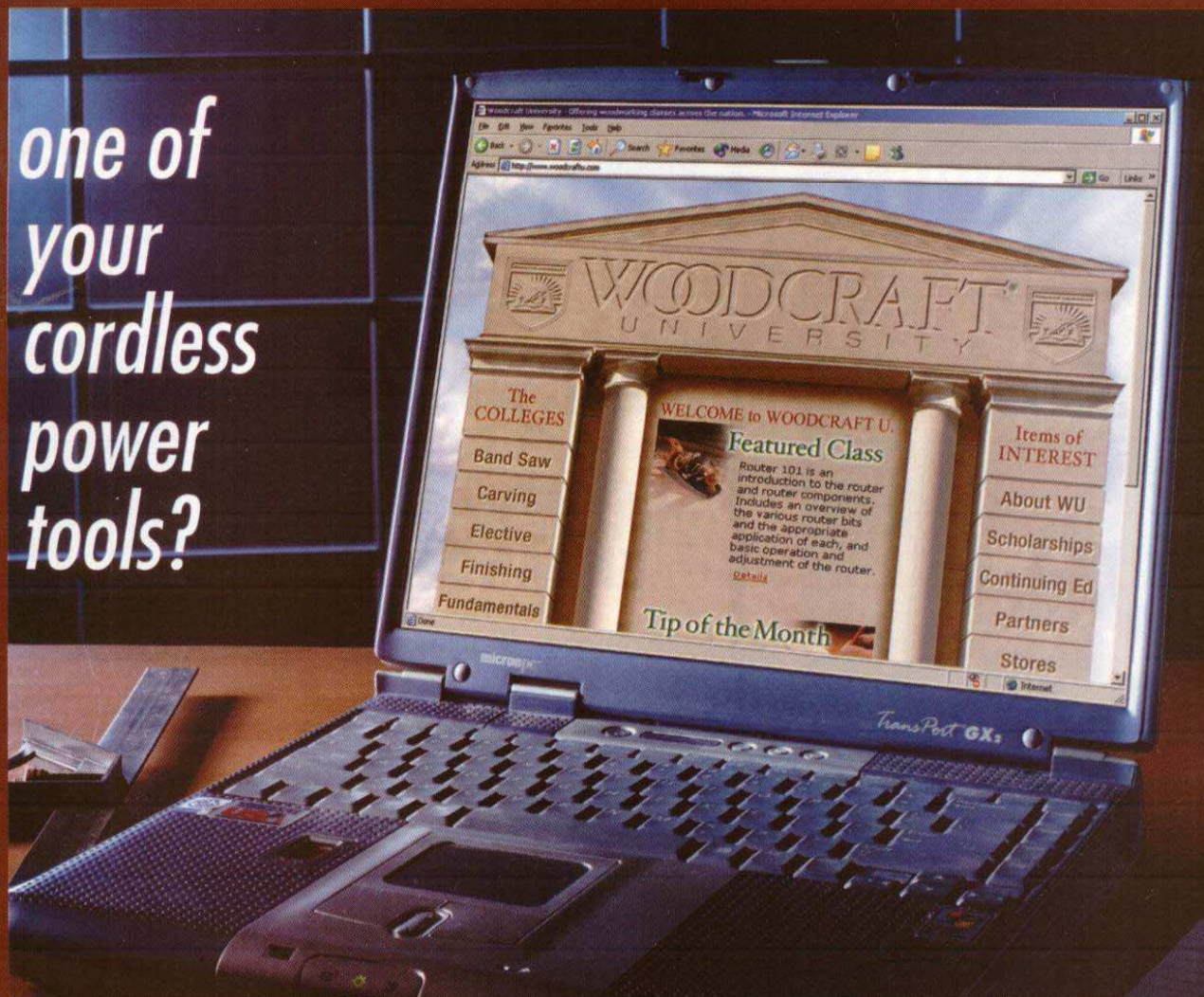
Source

Woodline, (800) 472-6950, www.woodline.com
Dado Wiz, DWIZ, \$159; Clamp guide, DW100, \$45
Clamp head only, DW90, \$25.

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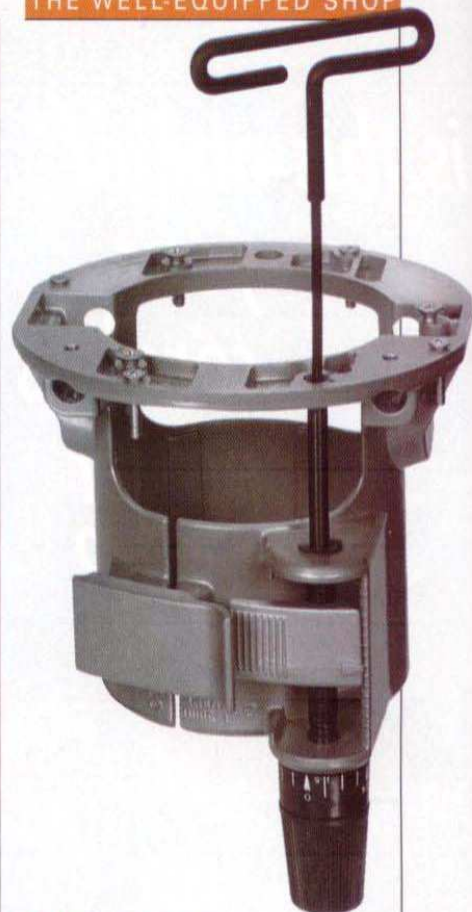
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Above-the-table adjustment still means reaching under the table to release the lever that locks the base. And you'll need to drill a hole through your table insert to poke the hex wrench (included) through. **AW**

Source

Bosch Tools
(877) 267-2499
www.boschtools.com
Router base, RA1165, \$60.

Iron-on Edge Banding

If you can iron a shirt, you can apply edge banding!

Iron-on edge banding is a modern cabinetmaker's best friend. It quickly covers the raw edges of veneered sheet stock, saving lots of time compared with traditional glued-on solid wood edging. It takes a finish in the same way as your veneered sheet stock does. Its many uses include covering edges of shelves, doors and frameless cabinet components. Edge banding is not, however, a substitute for solid wood trim on edges that can get physical damage, such as on a tabletop. Impact from chair backs, for instance, would damage its thin veneer.

Edge banding, or edge tape as it's also known, is simply a veneer of wood, plastic or metal with a coat of hot-melt glue on one side. It's available in a variety of wood species, including birch, cherry, hickory, maple, oak, pine and walnut. The plastic banding comes in wood grain or solid color for use with plastic laminate and melamine. Metallic banding's many varieties include brass, brushed copper and aluminum. Edge banding is available in 5/8-in. to 2-in. widths and 8-ft. to 600-ft. lengths. It's pocketbook friendly considering the time you save using it. The per-foot cost ranges from \$0.10 to \$0.40 depending on brand, species and size.

You need only a handful of tools to get started with iron-on edge banding. Our recommended starter kit includes a travel clothes iron (\$18), a handheld trimmer (\$13) and a utility knife (\$6). If you've never tried edge banding because you thought it was tricky business, you owe it to yourself to give it a shot.



EDITOR: DAVE MUNKITTRICK • ART DIRECTION: EVANGELINE EKBERG • PHOTOGRAPHY: THIS PAGE, RAMON MORENO; OTHERS BY STAFF

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WL 2020-1
1/2" Shank.....

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6 Roundovers
3 Dovetails
3 Core Box
3 Cove Bits
2 Flush Trim

1 Panel Bit
2 Roman Ogee
2 Slot Cutters
1 "V" Groove
1 Chamfer
1 Bevel Trim Bit

WL 2010

1/2" Shank.....

\$109

WL 2009

1/4" Shank.....

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WL 2030

1/2" Shank.....

\$39

WL 2029

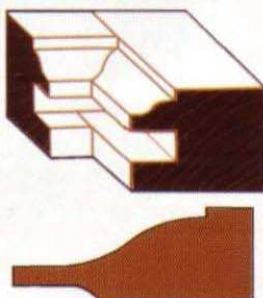
1/4" Shank.....

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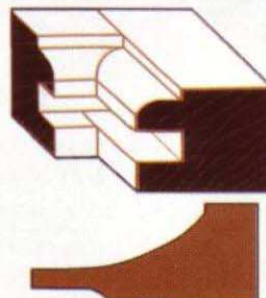
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3 Piece Cabinetry Collections - With Undercutter

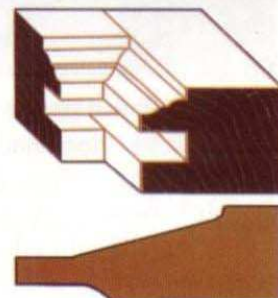
With Woodline's 3-piece cabinet sets you get our deluxe 2 piece rail and stile set and our professional panel raiser with undercutter in one great package. The undercutter on the panel raiser produces a true 1/4" tongue automatically in any thickness of material. Select from any of our three great profile packages for one great low price!



Ogee
WL-2019-1



Roundover
WL-2039-1

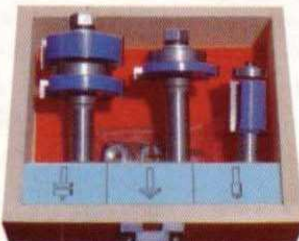


Traditional
WL-2040-1

Deluxe 3 Piece Cabinetry Set with 2 Piece Rail and Stile and Panel Raiser with Under Cutter **\$65**
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WL 2038

1/2" Shank.....

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WL 1338

1/2" Shank.....

\$49

Classic

WL-1338

15 Deg.

WL-1338-15

WL 1338-15

1/2" Shank.....

\$52

8pc Picture Frame Set

This set features everything needed to make beautiful custom frames. These 8 bits can be combined in thousands of different ways to produce unique mouldings for edge trim, crown, baseboard, and picture frames. Save money today with Woodline USA's Complete Picture Frame System!



WL 2008

1/2" Shank.....

\$75

WL 2007

1/4" Shank.....

\$75

WOODLINE USA

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5 STEPS TO APPLY EDGE BANDING

1 Just iron it on. Edge banding is easy to apply. Set the iron on high and use moderate downward pressure. The trick is to move the iron quickly enough to keep the wood from scorching, but slowly enough to melt the glue. It takes a little practice to get it right.

Tip: Cut the edge banding an inch or two longer than the edge you're covering. It makes it easier to position the banding while you iron.

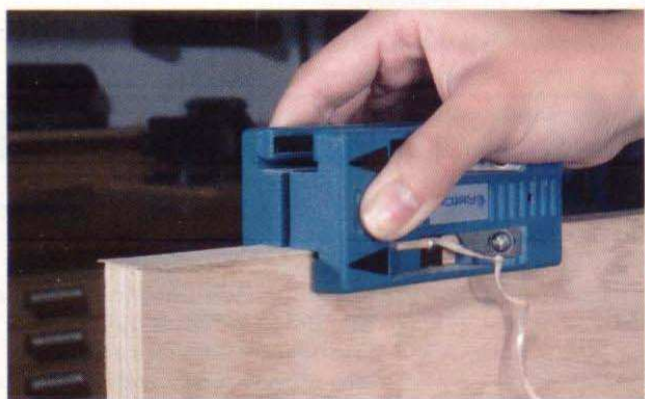


2 Press the edge banding down with a wood block while the glue is still molten. Rub back and forth for a few seconds until the glue sets. Tip the block along the edges to ensure a tight joint without a visible glue line.

For edge banding longer than 3 ft., heat and press short sections at a time. Otherwise, the glue sets up before you can rub it down.

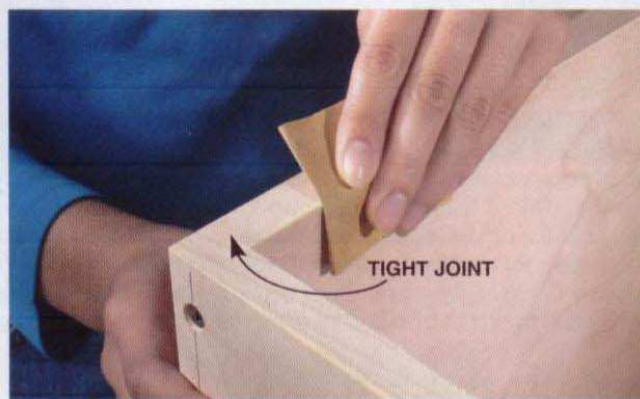


3 Cut the ends flush with a utility knife after the glue cools. Don't try to cut the tape in one stroke or you'll tear the edge banding. Make several light cuts until the waste piece falls away.



4 Trim the edges using a double-sided edge trimmer. For under \$15, it's the only way to go. The trimmer has two openings with knives that can be set to cut a flush or a bevel edge. We recommend leaving both sides set up for flush trimming, because sandpaper does a better job of easing the edges.

The trimmer is designed for stock between 5/8 in. and 1 in. thick, but you can take it apart and trim one edge at a time on thinner or thicker stock.



5 Ease the banded edges with sandpaper. Edge-band your cabinet parts *before* assembly, but ease the edges *after* assembly. Otherwise you risk having open joints where a horizontal shelf meets the side.

Source

Woodworker's Hardware, (800) 383-1030, www.wwhardware.com
Double-sided edge trimmer, #VIAU93, \$13.

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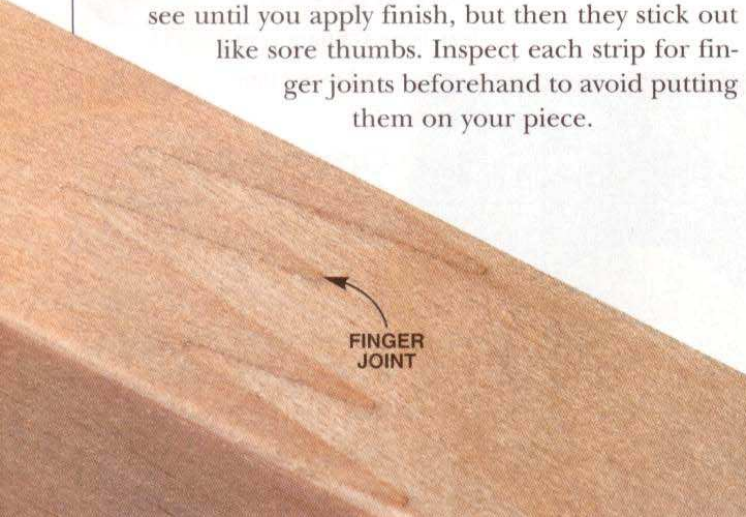


Minwax is a registered trademark of the Sherwin Williams Company.
*Source: Preference Test of the Varathane Line versus the Minwax Line of Interior Wood Stains, May 2003

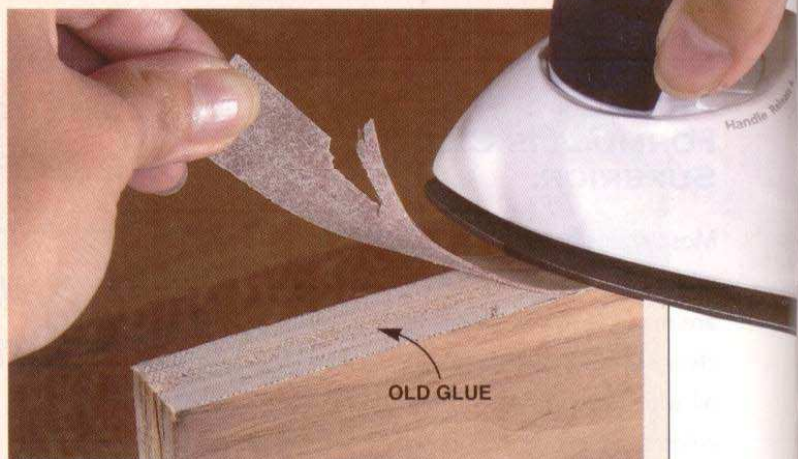
6 TIPS FOR BETTER EDGE BANDING

AVOID FINGER JOINTS

Real wood edge banding is a series of 6- to 9-ft.-long pieces of veneer connected by finger joints to make full-length rolls. The finger joints can be difficult to see until you apply finish, but then they stick out like sore thumbs. Inspect each strip for finger joints beforehand to avoid putting them on your piece.



FINGER
JOINT



REAPPLY HEAT TO UNDO MISTAKES

One benefit of iron-on edge banding is that it's easy to remove. Just reheat the surface and peel it off. Some of the old glue will be left behind on the plywood edge, but that's OK. Put the new edge-banding piece right on top, and the old glue will blend with the new.

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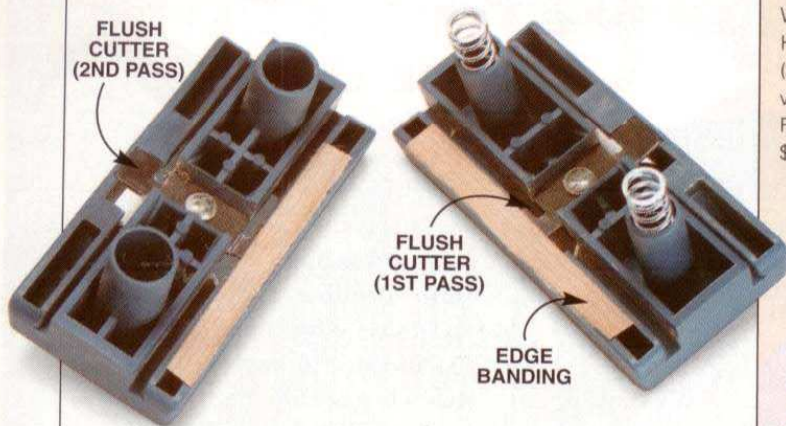
Motor.....	1.5 HP
Max CFM.....	1250
Fan.....	11"
Inlet Dia.....	1-5"/2-4"
Bag Capacity.....	42 gallons
Decibels.....	67-77
Electrical.....	110/220
↳ Switch Prewired for 110V	

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SOUP UP YOUR TRIMMER

Tear-out can be a problem when you trim wood edge banding. The answer is to modify your trimmer so it leaves a slight overhang after the first pass. Just apply strips of edge banding to the inside edges of one opening in the trimmer. Make your first pass with the shimmed side. This removes most of the overhanging edge. Then flip over the trimmer and make the final cut. Because the second pass is only removing very thin strips, there's little chance for tear-out to occur.

Source
Woodworkers'
Hardware
(800) 383-0130
www.wwhardware.com
Fast Cap Fastedge,
\$0.30 to \$0.45 per ft.

USE SELF-STICK EDGE BANDING ON CURVES

Self-stick edge banding works great on a tight radius. Iron-on banding tends to pull off the curve before the glue has a chance to cool and set. Self-stick application is easy: Peel off the protective backing, position the edge banding, apply pressure and trim the edges. You're done!

On the downside, though, self-stick is twice as expensive as iron-on banding, it leaves a visible glue line and the sticky trimmings can be annoying. Professionals use self-stick for on-site work where an iron would be impractical. Our recommendation is to use iron-on whenever possible.

American Woodworker MARCH 2005 31

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WOOD Magazine, Dec. 2003

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6 TIPS FOR BETTER EDGE BANDING



ROLL FASTER

This is the Ferrari of rollers. It's used to apply bonding pressure to either iron-on or self-adhesive edge banding. Well-balanced and easy to hold, it has a low profile that's easier to handle with one hand than a J-roller is. The roller speeds the application process because it concentrates pressure at its contact points on both ends.

Source

Fast Cap
(888) 443-3748, www.fastcap.com
Speed Roller, \$25.



TRIM EDGES QUICKLY, PRECISELY

Cut your end trimming time in half with this tool. It's as accurate as it is fast. It slips over the edge banding's untrimmed edges, rests flush against the end of the panel stock and easily trims off the excess with a quick press of the handle. It's not inexpensive, but if you do a lot of edge banding, you'll love this tool. **AW**

Source

Woodworker's Hardware
(800) 383-0130, www.wwhardware.com
End trimmer, #VIRC21E, \$49.

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Popular Woodworking
TOOL
BUYING GUIDE
Editor's Choice

TSC-10CL Table Saw

This 10" saw has a large, cast iron work surface, powerful 1-1/2 hp induction motor and left-tilting arbor.



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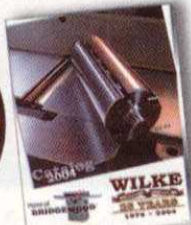
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- Scraper blade
- 15-pack assorted sandpaper
- Metal carrying case



Detail Sander



Profile Sander



Rasp



133 E-Cut



Grout Blade



Scraper



Mini E-Cut Set

Finishing is just the beginning.



by Randy Johnson

Spiral ROUTER BITS

These premium bits cut like magic.

I've routed miles of grooves in my life, but the quality of cut I've been getting from spiral bits still amazes me. I love these bits! The secret is in the spiral design, which cuts the wood through a shearing action. This offers three big benefits. First, spiral bits leave a silky smooth surface, even on end grain. Second, they can eliminate chipping on the face of chip-prone materials, such as veneered plywood and melamine. Third, it takes less effort to rout with a spiral bit. This reduces the load on your router and means faster, easier routing for you.

The spiral can be either an up-cut spiral, a down-cut spiral or a combination up- and down-cut spiral. The bits can even be found with bearings for trim and pattern cutting (see "Types of Spiral Bits," pages 36 and 37). Spiral bits are available with one, two or three flutes. Single-fluted bits cut the fastest; bits with three flutes produce the smoothest surface. Two-fluted spiral bits are the most commonly available and provide an excellent balance of speed and quality of cut.

You can buy spiral bits with cutting diameters ranging from 1/8 in. to 1-1/8 in. They cost between \$10 and \$100 each, depending on size and whether they are carbide or high-speed steel. A 1/2-in.-diameter solid carbide spiral bit, for example, costs about \$45; the same size bit in high-speed steel will run about \$15.

Carbide will stay sharp longer than high-speed steel, but is brittle and easily broken or chipped if the bit is dropped or is pushed too hard when routing. This is especially true of bits that have a 1/4-in. cutting diameter or less. A high-speed steel spiral bit will save you money, but use it only on solid wood. Manufactured materials, such as plastic laminate and melamine, will quickly dull a high-speed steel bit.

Solid carbide and high-speed steel spiral bits can be sharpened for about \$10 to \$15 each. Your local saw blade sharpening service should be able to do it for you or to send it to someone who can.

All major router bit companies sell spiral router bits (see Chart, page 37).

TYPES OF SPIRAL BITS

CUTTING ACTION

SQUARE CUTTING END

UP-CUT SPIRAL BIT

The up-cut spiral router bit is an excellent bit for cutting deep mortises and grooves. The end of the bit has square cutting edges that permit plunge routing and leave a flat bottom to the mortise. The up-cut spiral of the cutting edge pulls the chips up and out, preventing the chips from getting packed into the mortise, which is common with a standard straight router bit. Up-cut spiral bits also work great in a router table because they pull the workpiece down onto the table during cutting.

CUTTING ACTION

DOWN-CUT SPIRAL BIT

The down-cut spiral router bit excels at routing dados and through slots. The downward shearing action of the bit guarantees a chip-free surface on chip-prone materials, such as melamine (shown below), plastic laminates and delicate wood veneers. The bit's downward cutting action puts downward pressure on thin material and helps hold it down. Down-cut spiral bits should *not* be used in a router table, because they can push the workpiece up off the table and create a safety problem.

CUTTING ACTION

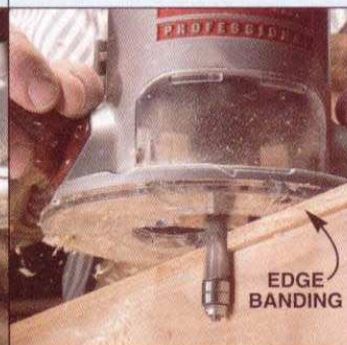
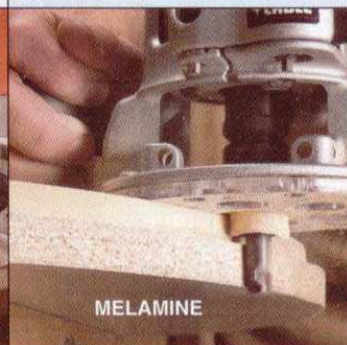
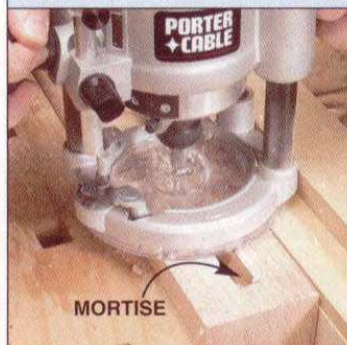
COMPRESSION SPIRAL BIT

This bit combines up and down cutting action. It's called a compression bit because the up and down cutting actions pull toward the middle of the bit. This bit is particularly useful when you want to guarantee a chip-free surface on both sides of your workpiece. The compression spiral bit performs equally well when routing melamine (shown below) or veneer plywood.

BOTTOM GUIDE BEARING

TRIM-CUT SPIRAL BIT

If you want to experience pure routing bliss, try a down-cut trim-cut spiral bit the next time you flush-trim solid wood edge banding. Trim-cut spiral bits with bottom guide bearings are available in 1/8-in. to 1-in. diameters in either up- or down-cut styles. The shearing action nearly eliminates all risk of chipping and grain tear-out. I've even routed the ends of edge banding strips without a single end grain splinter. I can't guarantee these results with every type of wood, but if you do solid edge banding or similar work that requires flush trimming, you should have one of these bits in your router bit arsenal.





PATTERN-CUTTING SPIRAL BIT

Pattern routing commonly involves unusual shapes and end-grain cutting. Routing end grain with a regular straight-edged bit can easily result in grain tear-out. That's why a pattern-cutting spiral bit makes so much sense. Not only does it remove the stock with ease, but it also produces incredibly smooth results on end grain. This bit is carbide-tipped rather than solid carbide. It's big, too, with a 1-1/4-in. cutting length and 1-1/18-in. cutting diameter.



SPIRAL ROUTER BITS

BIT TYPE

COMPANY

High-Speed
Steel

Solid Carbide

Up-cut

Down-cut

Compression

Trim

Pattern

Amana
(800) 445-0077
www.amanatool.com

Bosch
(877) 267-2499
www.boschtools.com

CMT
(888) 268-2487
www.cmtusa.com

Eagle America
(800) 872-2511
www.eagle-america.com

Freud
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www.freudtools.com

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(800) 472-6950
www.woodline.com

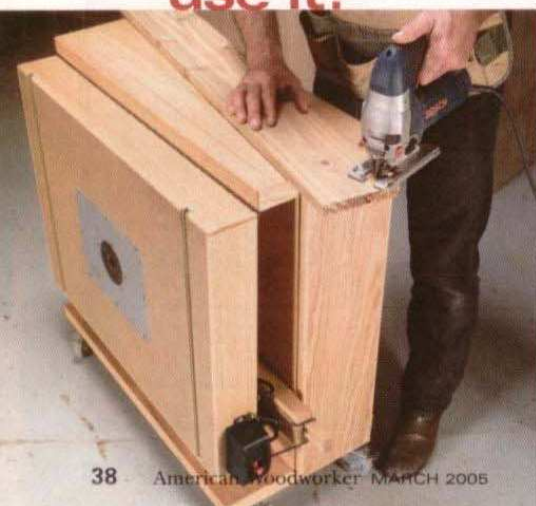
Carbide
Tipped

mobile router center

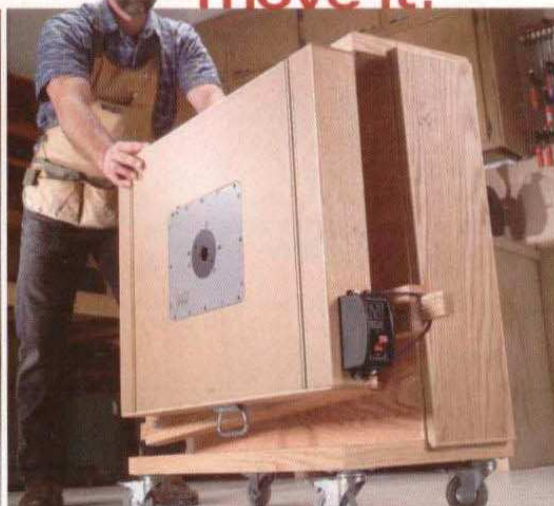
by George Vondriska

This rolling router center has onboard storage for all your router components, folds into a tidy package, serves as an extra work surface and rolls out of the way when you're done!

use it!



move it!



store it!





unfold it!

organize it!



PROJECT REQUIREMENTS AT A GLANCE

Materials:

Two sheets of 3/4-in. oak plywood
One sheet 1/4-in. tempered hardboard
8 bd. ft. of oak

Tools:

Tablesaw Taper jig
Router Planer
Jigsaw

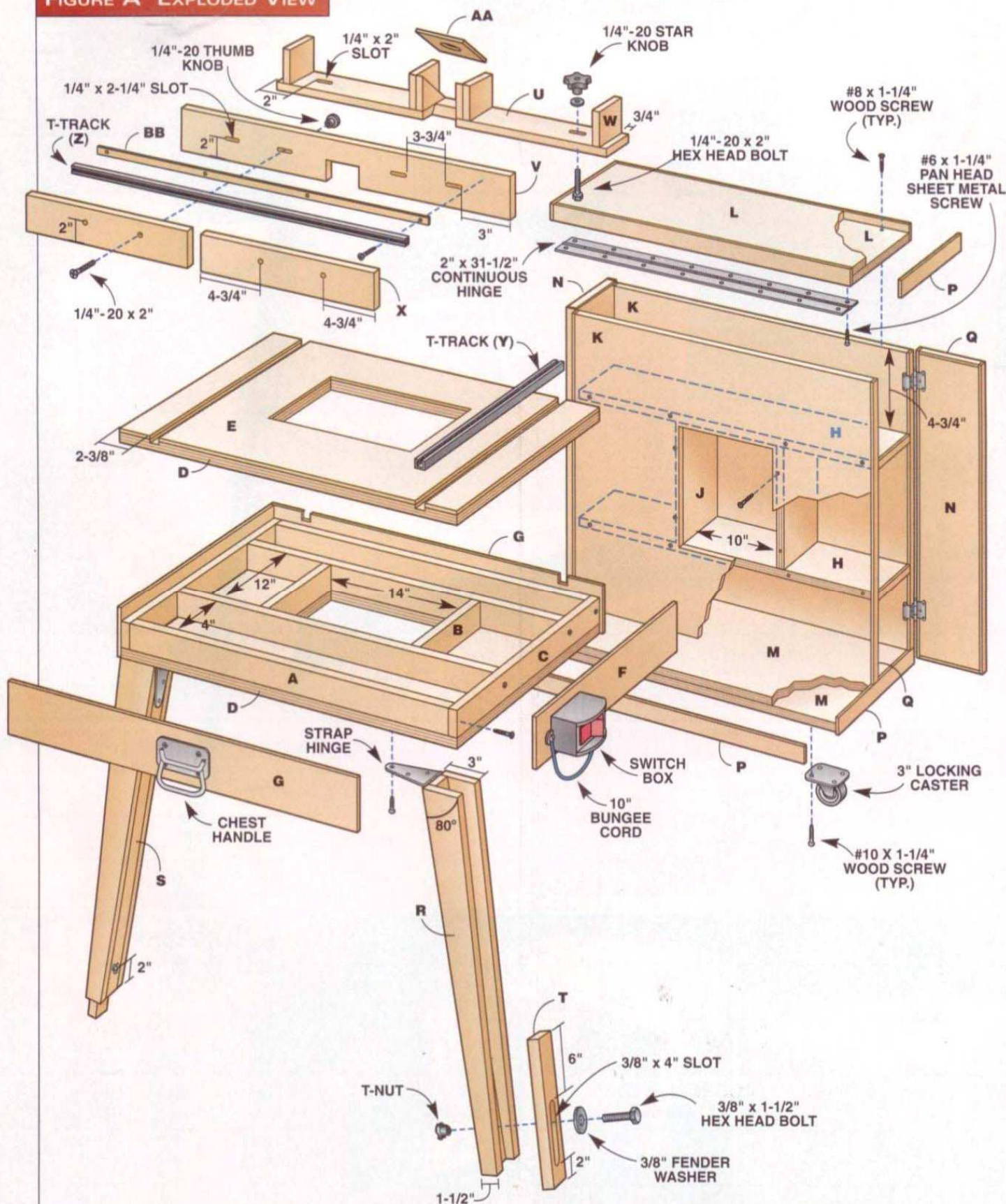
Hardware:

Strap hinges Chest handle
Casters Router table insert
Switch box T-track

Cost:

Less than \$260

FIGURE A EXPLODED VIEW





1 The router table top is a torsion box, which guarantees a stiff, flat surface. Assemble it with glue and screws, holding the edges flush. Brad-nail the parts first to hold them in place while you drill and drive the screws.



2 Pin the top and bottom skins to the torsion box so they don't shift during clamping. Avoid the T-track locations so you don't rout into a brad later. It only takes a few brads to hold the parts in place.

Without question, a router table is one of the most versatile tools you can add to any shop. Whether you're making doors or moldings, router tables are do-it-all tools. This shop-made unit is a fully featured router table with portability, versatility and compactness. And you can build the whole thing for less than \$260. It's perfect for any shop in which floor space is precious. The top has as much real estate as a full-size router table but, like a benchtop unit, the router center can easily be stowed when you're done.

The key to a flat, rigid table is the torsion-box design. A torsion box is nothing more than a crisscross frame captured in a top and bottom. It's easy to build, dead flat and solid as a rock.

BUILD THE TOP

Crosscut both sheets of plywood required for this project into 32-in.-long slabs (see Cutting Diagram, page 44).

1. Cut to size the ribs (A, B), ends (C) and top and bottom skins (D). Cut the hardboard top (E) 1 in. larger than the top skin.

2. Glue and screw the torsion-box ribs together (Photo 1). Pin the top and bottom skins to the torsion box (Photo 2). Assemble the torsion box on your table-saw (Photo 3).

3. After the glue is dry, rough out the cavity in the bottom of the torsion box and trim it flush with a router

(Photo 4). Use a 1/4-in. round-over bit to ease the sharp corners. Flip the torsion box and flush-trim the hardboard top to match the box's top skin (D).

BUILD THE CASE

The assembly of the case is very similar to that of the torsion-box top, with internal ribs that create the compartments in the case.

4. Assemble the case ribs (H, J).

5. Glue and screw the case skins (K) to the ribs (Photo 5).

6. Rough-out and flush-trim the router cavity on the inside of the case. Use a 1/4-in. round-over bit to ease the corners.

7. Screw and glue the top (L) and bottom (M) to the case. Attach one layer first. Then add the second piece of plywood by screwing from below so no screws show on the top side of the double panels.

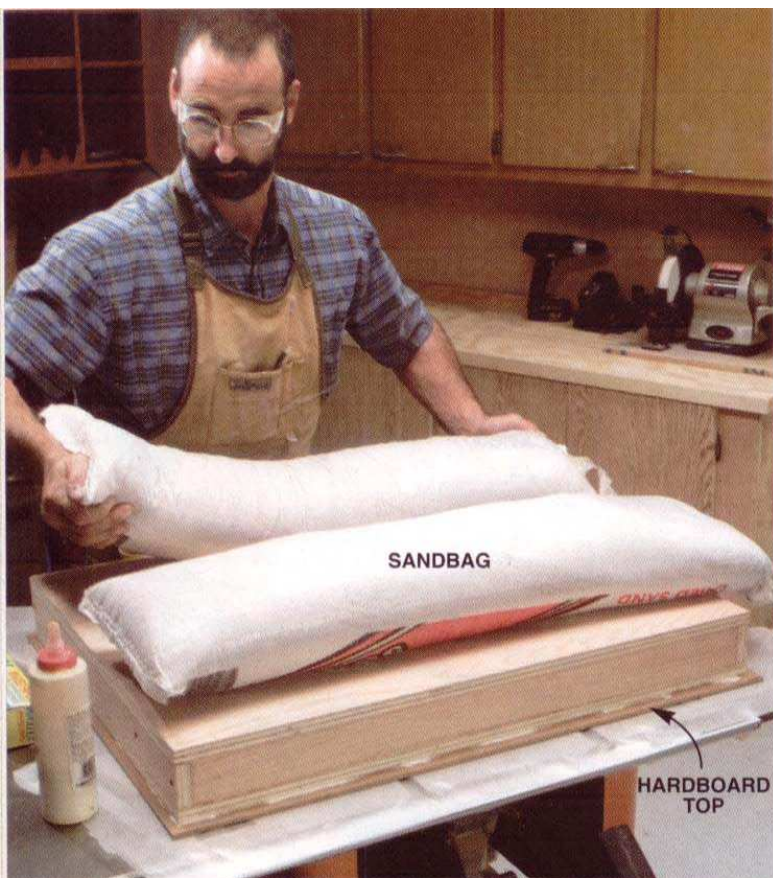
8. Cut the door panels (N) to size.

ADD EDGE BANDING

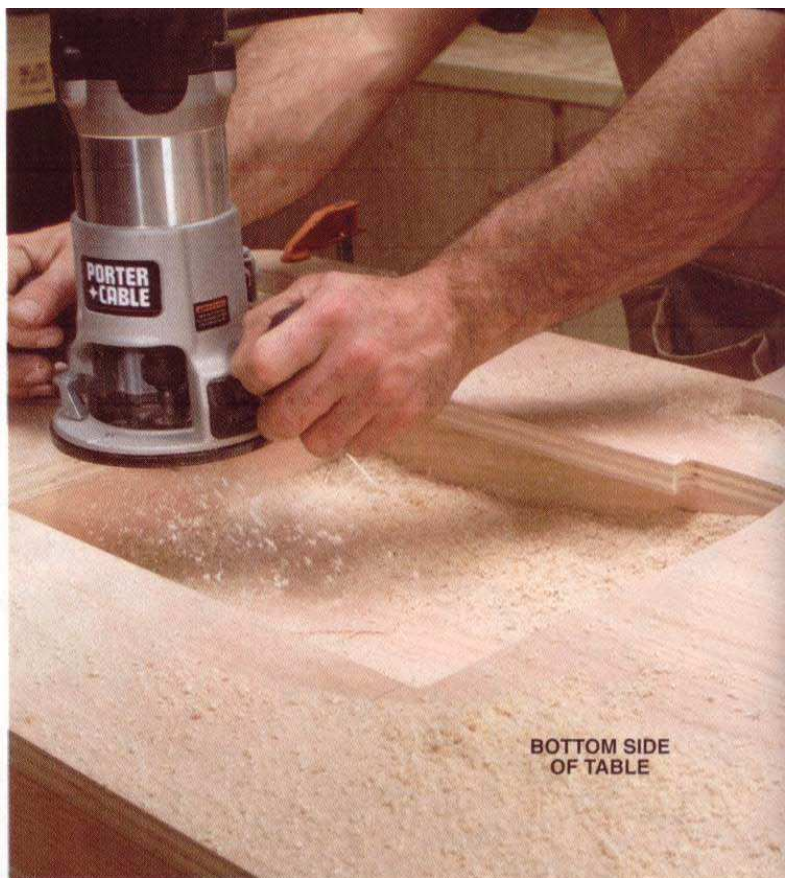
Make all the edge banding 1/32 in. oversize in width. After you glue it on, sand it flush to the plywood.

9. Make the banding for the case and door (Q), the double-thickness top and bottom (P) and the torsion-box top (F, G).

10. Cut, fit and glue the narrow banding to the remaining edges of the case and the doors and the wide banding to the top and bottom of the case.



3 **Glue the torsion-box on your tablesaw.** The surface of the saw virtually guarantees a flat top. Place the hardboard face down on the saw, spread a uniform film of glue on the hardboard and lay the torsion box on it. Weight the sandwich with sandbags.



4 **Flush-trim the cavity** in the bottom of the torsion-box assembly. Use a jigsaw to remove most of the waste first.



5 **Assemble the case** using glue and screws. Use layout lines to correctly locate the skins on the ribs.

11. Cut, fit and glue the extra-wide banding to the torsion box's sides and long back edge. You don't band the long front edge until after you install the T-track (see Step 13).

FINISH THE TOP

12. Use your router to cut the dado for the T-track (Y) in the top. Cut the T-track to length, file the sawn edges to remove burrs and screw it in place.

13. Cut, fit and glue the final edge banding to the front of the top.

14. Round all the edge-banded corners by hand-sanding or using an 1/8-in. round-over bit.

15. Center the router plate on the top and rout the recess for it according to the manufacturer's instructions.

MAKE THE LEGS

16. Prepare the leg material from solid wood. Cut the parts to final length with a 10-degree angle on the top ends of the box parts (R, S) and the bottom end of the adjustable foot (T).

17. Cut the leg tapers (Photo 6).

18. Cut the slot in the adjustable foot.

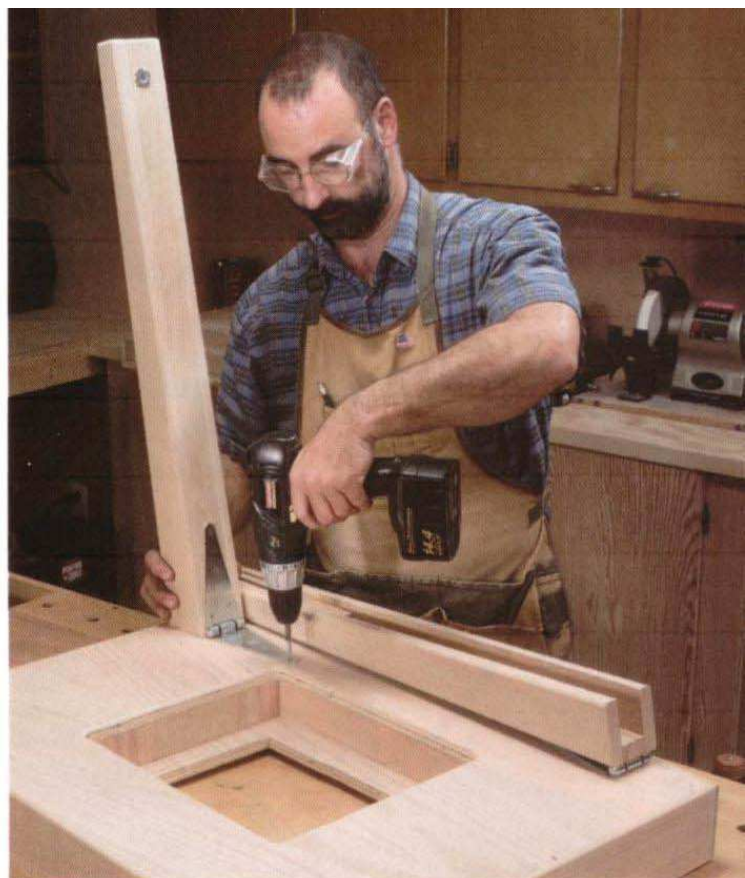
19. Install the T-nut in the leg. Glue and clamp the leg boxes together.

20. Bolt the adjustable foot to the leg box.



TAPERING JIG

6 Taper the sides of the legs using a taper jig on the table saw. The leg sides must be cut to final length before you taper them.



7 Screw the leg hinges to the bottom of the router table top. The legs should bypass each other when they're folded.

PUT IT ALL TOGETHER

21. First, screw the hinges to the legs. Then, with the legs in place, screw the hinges to the bottom of the top (Photo 7).

22. Flip the case upside down onto a pair of spacers and install the casters and continuous hinge (Photo 8). The casters we've specified are double locking, so they don't roll or swivel when locked.

23. Fold the top and case together, get some help and flip the case and top assembly upright.

24. Open the top and level it using the adjustable feet.

25. Drill and countersink the table insert and screw it to the opening in the top (Photo 9).

26. Screw the hinges to the door, and fasten the door to the case (Photo 10).

27. Attach the router table switch and chest handle to the folding top.

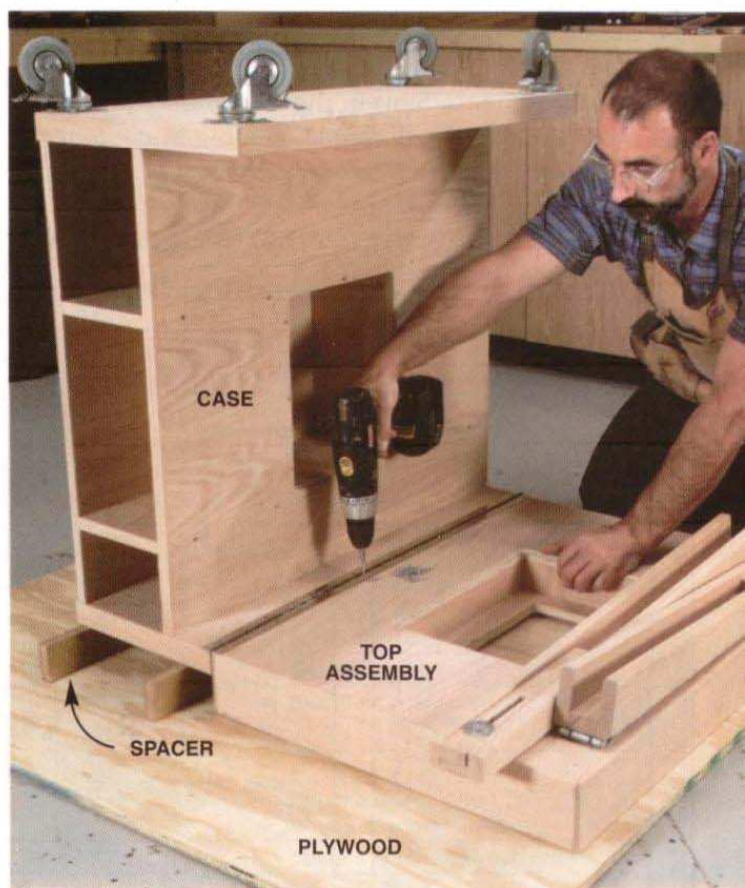
28. Using the same screws that hold the switch, fasten a bungee cord to the top. This acts as a retainer for one leg when you're folding and unfolding the table. The other leg swings free so it drops into place when you unfold the table.

MAKE THE FENCE

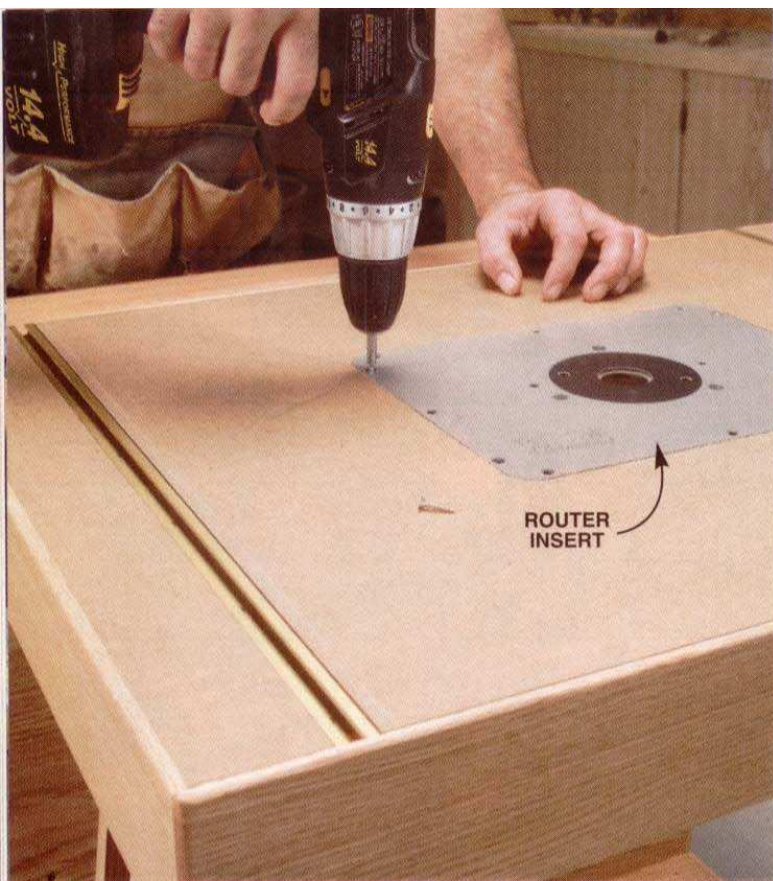
29. Cut all the fence pieces (U, V, W, X, AA, BB) to size.

Tip: Make a handful of subfences so you have extras.

30. Rout the slots in the fence base and face and cut



8 Attach the top assembly to the case using a continuous hinge. Use a pair of 2-1/4-in. spacers under the case to make it level with the top.



9 Drill and countersink eight holes through the table insert, and fasten it to the top with flat-head sheet-metal screws. This ensures your router won't tumble out when you fold the table top down.



10 Screw the self-closing hinges to the door and fasten the door to the case. It's easier to drive the screws if you first prick the plywood using a scratch awl.

out the bit clearance notches (Photo 11). Long slots in the base allow the fence to skew on the table as you're making adjustments. Slots in the face allow you to slide the subfences for the adjustable opening in the fence.

31. Glue and screw the face to the base and attach the support blocks and dust port (AA, Photo 12).

32. Cut the T-track and spacer (BB) to length and screw it into the face.

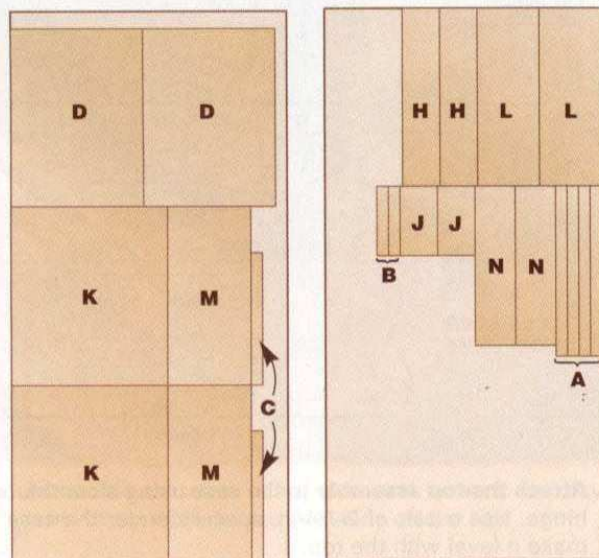
FINISH IT

33. There's plenty of plywood and hardboard left to make drawers, trays, hooks and racks. Outfit your table to hold all your goodies.

34. Most routers can remain fastened to the top when the table is folded, and they'll swing right into the cavity in the case. If your router bumps the back of the cavity, just cut that side out, as in Step 6, to provide clearance.

35. Apply a coat of finish to all the wooden parts. It's not a must to seal the hardboard top, but a coat of paste wax will help your material slide across it better. **AW**

PLYWOOD CUTTING DIAGRAM



3/4" OAK PLYWOOD

3/4" OAK PLYWOOD

Sources

Woodworker's Supply
(800) 645-9292
www.woodworker.com
Taper jig, #825-014, \$20.

Woodhaven
(800) 344-6657
www.woodhaven.com
4-in. guard, #224, \$10.

Home center
Two sheets 3/4-in. x 48-in. x 96-in. oak plywood, \$39 ea.
One sheet of 1/4-in. x 48-in. x 96-in. tempered hardboard, \$10
Two pair 1/2-in. overlay self-closing hinges, \$3 a pair
One 48-in. continuous hinge, \$11
One 3-1/2-in. chest handle, \$4
Two 6-in. strap hinges, \$3 ea.
Miscellaneous hardware.

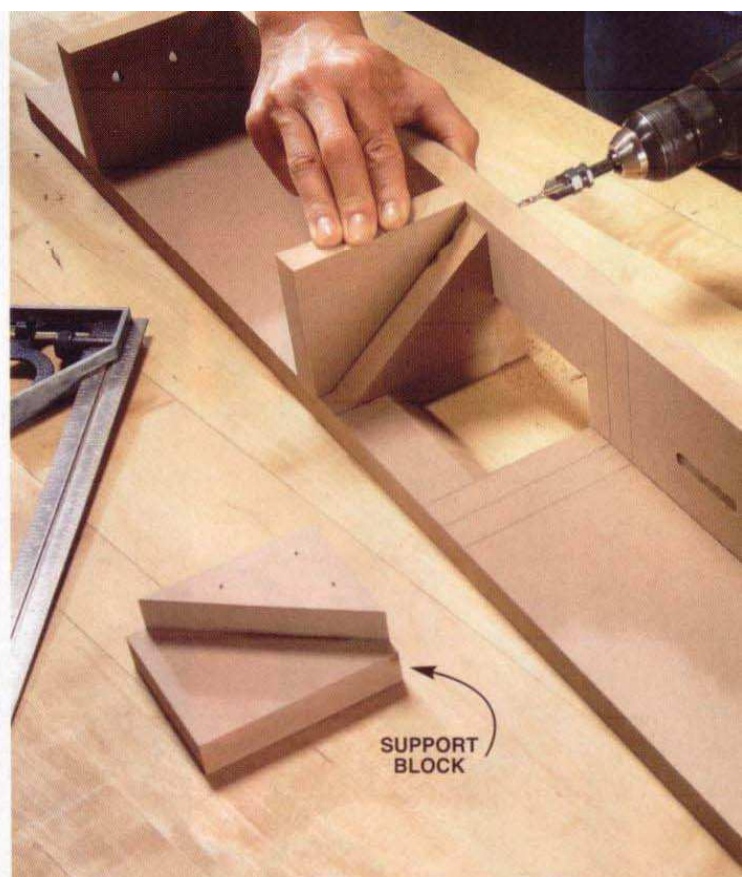
Highland Hardware
(800) 241-6748
www.tools-for-woodworking.com
Four casters, #084050, \$8 ea.
Router table switch, #104903, \$14.

TWC
(800) 892-4866
www.thewoodworkerschoice.com
24-in. T-track with knobs and bolts, #0698, \$12 ea.
48-in. T-track with knobs and bolts, #0701, \$18 ea.

Woodcraft Supply
(800) 225-1153
www.woodcraft.com
JessEm Rout-R-Plate, #145373, \$50
Installation template, #820905, \$2.



11 Cut notches in the fence using a jigsaw. After the fence is assembled, the notches provide clearance for router bits.



12 Assemble the fence with glue and screws. Make sure the face and base are dead square to each other.

CUTTING LIST		Overall Dimensions: 35-1/2"D x 41"W x 40-3/8"H open w/fence (16"D x 39"W x 34"H closed)				
Part	Section	Name	Qty.	Dimensions	Material	Notes
A	Torsion box	Long ribs	4	2" x 29-1/2"	3/4" oak plywood	
B	Torsion box	Short ribs	2	2" x 12"	3/4" oak plywood	
C	Torsion box	Ends	2	2" x 23"	3/4" oak plywood	
D	Torsion box	Skins	2	23" x 31"	3/4" oak plywood	
E	Torsion box	Top	1	24" x 32"	1/4" tempered hardboard	Flush-trim after gluing on.
F	Torsion box	Banding	2	3-3/4" x 23"	1/4" oak	
G	Torsion box	Banding	2	3-3/4" x 31-1/2"	1/4" oak	
H	Case	Long ribs	2	6-1/2" x 31"	3/4" oak plywood	
J	Case	Short ribs	2	6-1/2" x 12"	3/4" oak plywood	
K	Case	Skins	2	27-1/8" x 31"	3/4" oak plywood	
L	Case	Top	2	10-3/4" x 31"	3/4" oak plywood	
M	Case	Bottom	2	14-1/2" x 31"	3/4" oak plywood	
N	Case	Doors	2	7" x 27-5/8"	3/4" oak plywood	
P	Case	Banding	8	1-1/2" x various lengths	1/4" solid oak	
Q	Case	Banding	12	3/4" x various lengths	1/4" solid oak	
R	Legs	Sides	4	3" x 31"	3/4" solid oak	Cut 10-degree angle on top end. Cut taper.
S	Legs	Backs	2	1-1/2" x 31"	3/4" solid oak	Cut 10-degree angle on top end.
T	Legs	Adjustable foot	2	1-1/2" x 12"	3/4" solid oak	Cut 10-degree angle on bottom end.
U	Fence	Base	1	4" x 31-1/2"	3/4" MDF	
V	Fence	Face	1	4" x 31-1/2"	3/4" MDF	
W	Fence	Support blocks	5	3-1/4" x 4"	3/4" MDF	Cut one block in half diagonally to create supports for dust port.
X	Fence	Subfence	2	3-1/4" x 15-3/4"	3/4" MDF	Make a bunch while you're at it.
Y	Top	T-track	2	23-1/4"	T-track	Cut to fit from 24" lengths.
Z	Fence	T-track	1	31-1/2"	T-track	Cut to fit from 48" length.
AA	Fence	Dust port	1	5" x 5-1/8"	1/4" tempered hardboard	Drill a 2-1/4"-dia. hole.
BB	Fence	Spacer	1	3/4" x 31-1/2"	1/4" tempered hardboard	

Sliding Dovetail Bench

super-strong
router
joints
give it
elegant
simplicity

by Tim Johnson

This elegant bench has humble origins: Its forebears have been sat upon, stepped on and dragged about for centuries. Utilitarian ancestry is readily apparent in our bench. It features simple construction and strong interlocking joints.

The pieces fit together like a puzzle, with sliding dovetails and half-lap joints. Sliding dovetails may sound difficult, but I'll show you how to master this tricky joint with a simple jig, a router and a router table.

The bench is sized so you can mill all the pieces with your 12-in. planer. I'll show

you how to cut perfectly fitting half-lap joints and how to make the tapered keys that fill the dovetail sockets.

You can build this bench in a weekend or two. And once you're set up to build one, multiples are no sweat. So don't worry if you can't decide whether this bench would look best in your front hall or at the foot of your bed—build two! If you build your bench from white oak, as I did, you'll even be able to use it outdoors. I spent about \$100 on lumber and another \$25 for a dovetail router bit (see Sources, page 53).

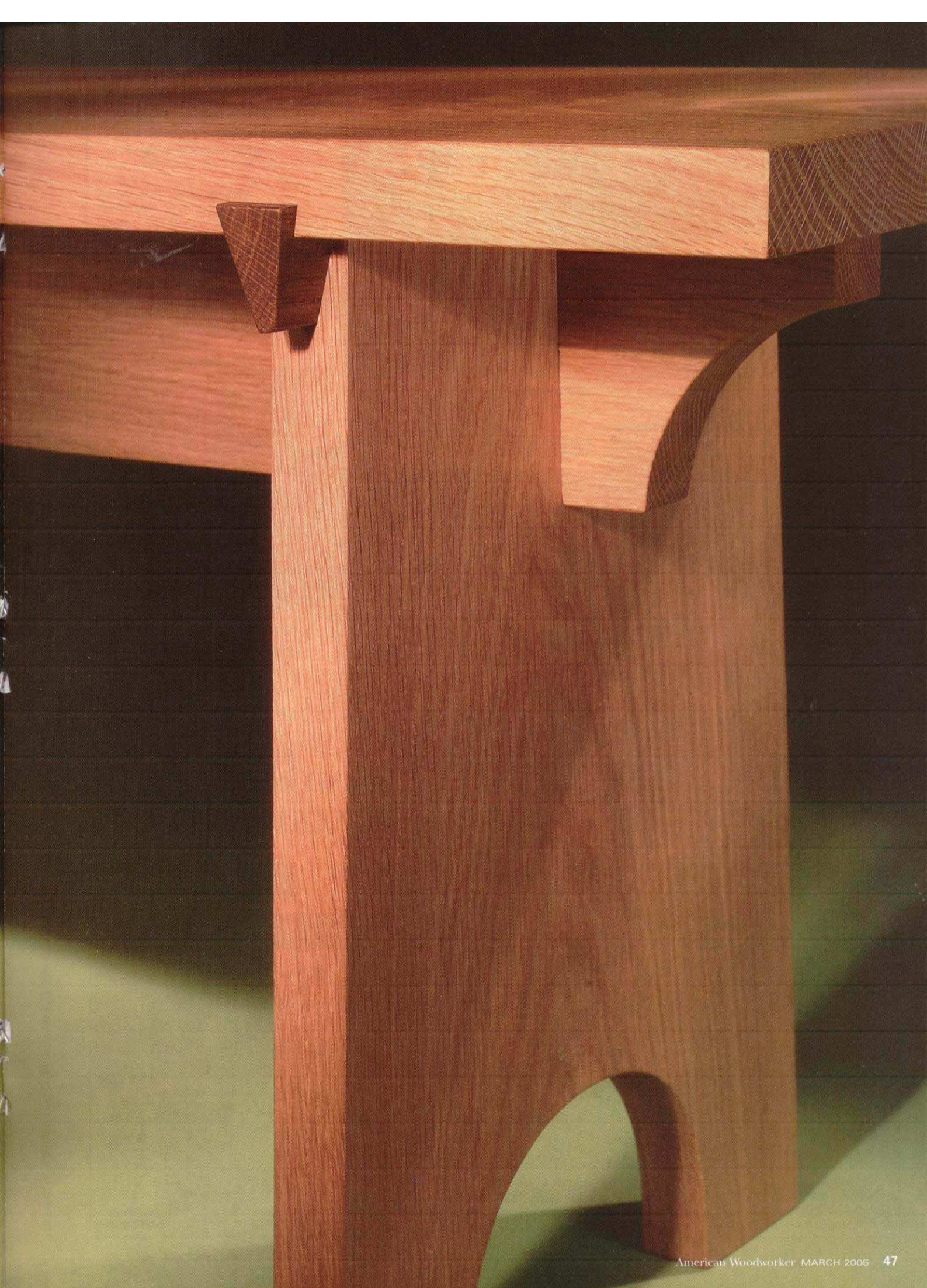
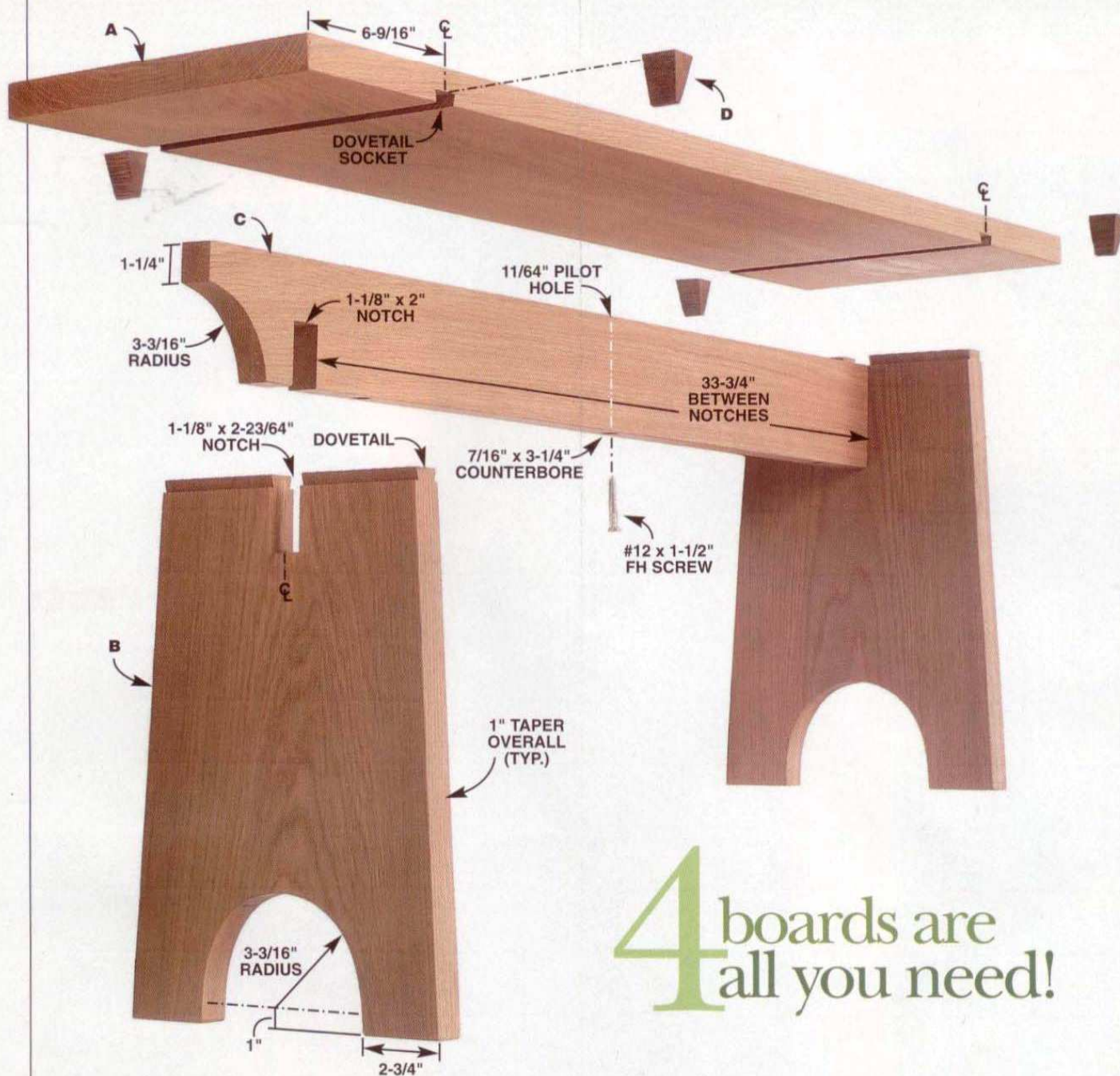
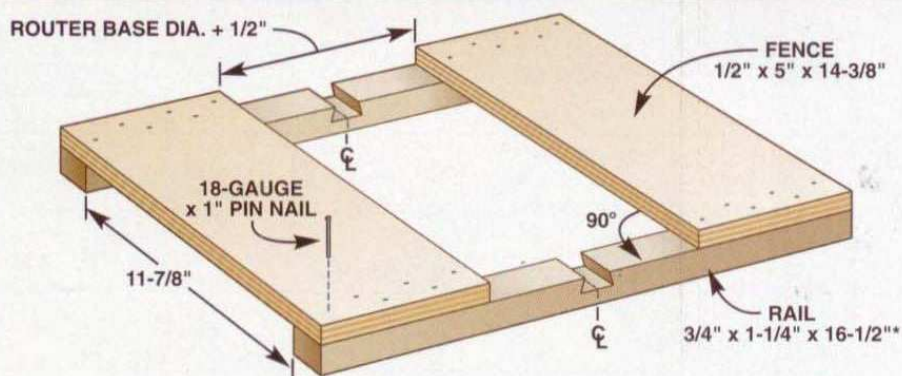


FIGURE A EXPLODED VIEW



4 boards are all you need!

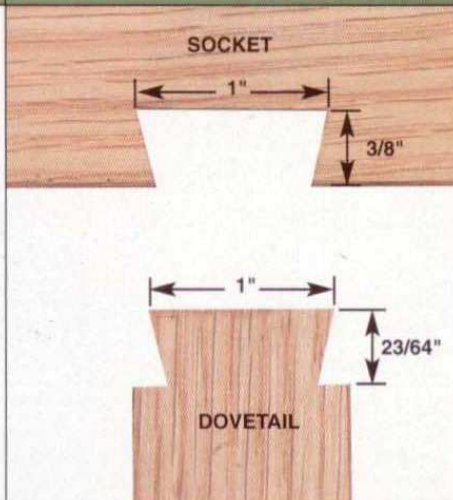
FIGURE B SOCKET-ROUTING JIG



Before making this jig, calculate the distance between the fences: Measure the base of your router and add $1/2$ in.

* Rail length for 6-in.-dia. router base.

DETAIL 1 SOCKETS AND DOVETAILS



PROJECT REQUIREMENTS AT A GLANCE

18 bd. ft. of 6/4 (1-1/2-in.) white oak
(includes extra for test pieces
and waste)

Jointer

Planer with 12-in. capacity

Tablesaw

Router

Router table

1/2-in. dovetail bit (1/2-in. shank,
14-degree bevel angle)

Bandsaw

Drill press

Sanding drum

Three #12 x 1-1/2-in. flat-head
screws

Total cost for lumber: \$100

PREPARE THE PIECES

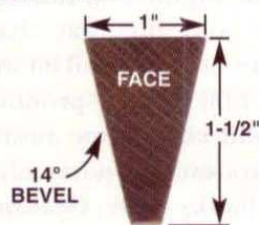
1. Glue up boards, if necessary, to make stock for the wide top (A, Fig. A, page 48) and legs (B). Plane this stock to final thickness, along with a piece for the rail (C). Mill extra stock for test cuts and the keys (D) to the same 1-1/8-in. thickness. Your stock must be dead flat when you rout, and also when you assemble the pieces, for the dovetail joints to fit well and slide smoothly.



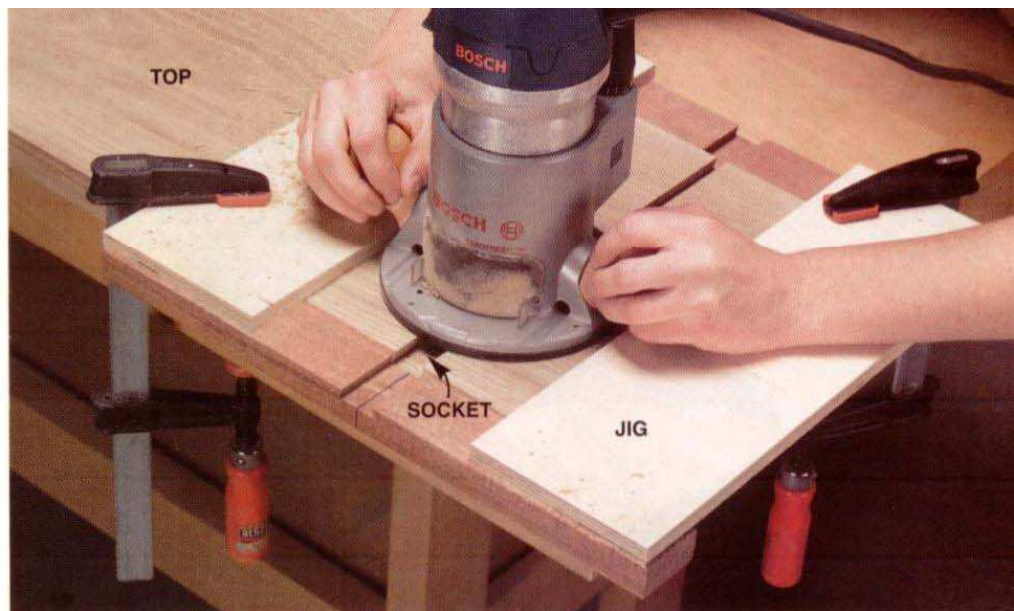
DOVETAIL BIT
WITH 1/2" SHANK

DETAIL 2 KEY DIMENSIONS

FRONT VIEW



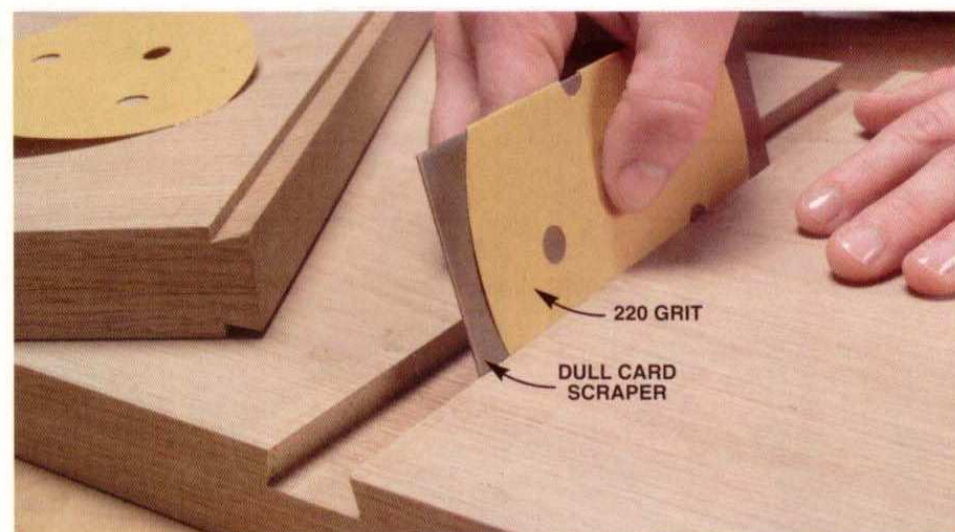
SIDE VIEW



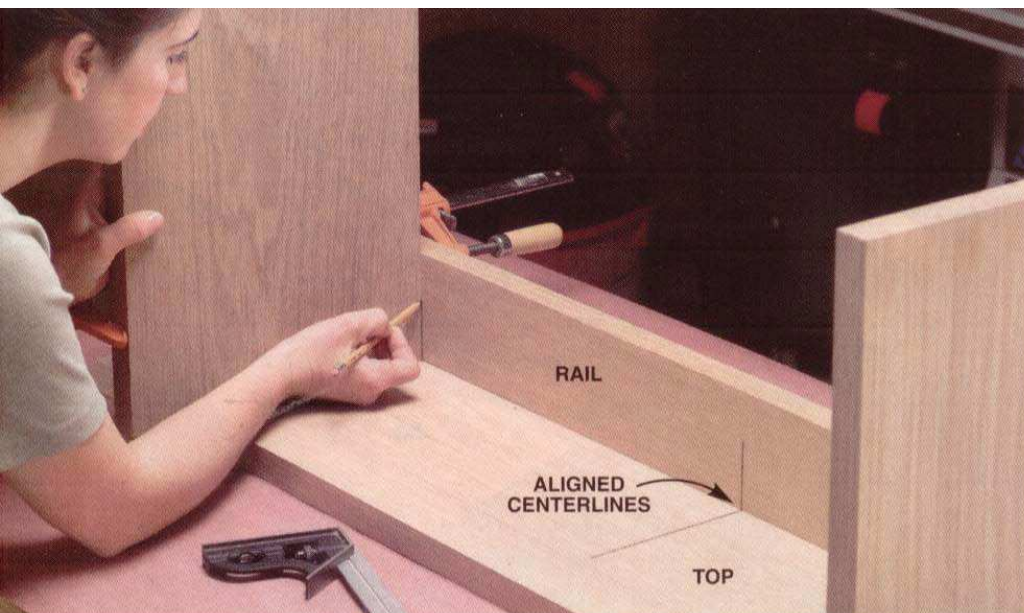
1 Sliding dovetail joints are the key to this project, and the best way to make them is to start with the sockets. It's easier to fit dovetails to sockets than vice versa. In this bench, the sockets must be consistently wide and parallel to one another. These requirements are easily met with a shop-made routing jig (Fig. B).



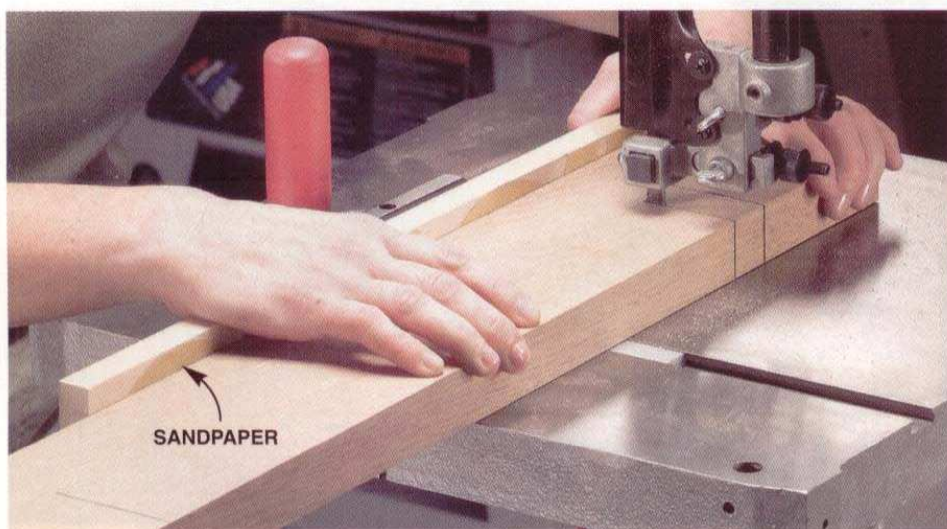
2 Rout dovetails in the leg blanks by making a single pass on each face. You'll have to creep up on the perfect bit height and fence setting by trial and error. Make test cuts on an extra leg blank. Your goal: Dovetails that slide into the sockets smoothly with gentle hand pressure.



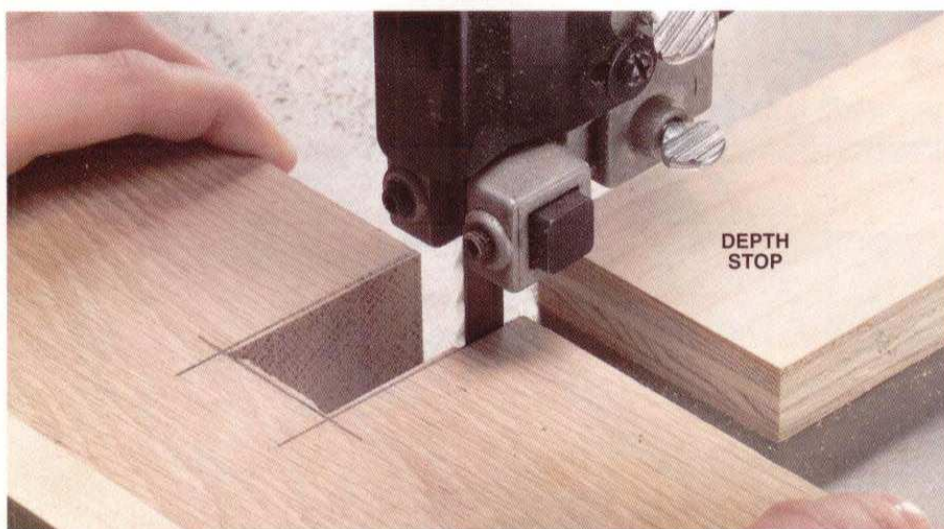
3 Fitting sliding dovetails is fussy. If routing leaves yours a bit tight, a little sanding may do the trick. Lightly sand one bevel (on either the socket or the dovetail) end-to-end, being careful not to alter its angle, and test the fit. If the joint is still too tight, sand another bevel and test again.



4 Mark the rail for the half-lap notches. They have to be perfectly located, so don't trust your tape measure; use the real bench. Slide the legs into the sockets and clamp the rail to them. Make sure the rail is centered and the legs are perpendicular to the top. Then mark both sides of both legs on the rail.



5 Saw notches in the rail. Cutting deep notches like these is less nerve-wracking on the bandsaw than on the tablesaw. Glue sandpaper to your miter gauge so the rail doesn't slip during the cut; cut well inside the lines and then remove the waste.



6 Trim to the lines. A sharp blade on a well-tuned bandsaw can remove a whisker from the edge, just like a tablesaw can. Nibbling off a little at a time is much less risky than going for broke. Test the fit after each nibble.

2. Rip the top, legs and rail to width; then crosscut the ends to length. Make sure the cuts are square.

ROUT THE SLIDING DOVETAILS

3. Build the socket-routing jig (Fig. B, page 48). Use your top (A) to establish the width between the jig's rails. To make sure the fences are spaced properly during assembly, fit a piece of scrap ripped to the proper width between them.

4. Establish the dovetail sockets in the jig's rails by setting the dovetail bit to $3/8$ in. exposure and routing a test socket in extra stock. Mark the centers of the sockets in the rails.

5. Mark the socket locations on the edge of the top. Then position the jig by aligning the socket centerlines. Clamp the jig and the top securely to your workbench. Make sure the jig's rails are flush with the top. If they protrude, the router base will catch on them and cause trouble.

6. Rout the sockets (Fig. A, Detail 1) in a clockwise loop, bearing against the left fence on the way out and the right fence on the way back (Photo 1). A dovetail bit with a $1/2$ -in. shank produces smooth, chatter-free results. If your dovetail bit has a $1/4$ -in. shank, rout clearance channels first, with a $1/4$ -in. straight bit.

7. Rout dovetails in the leg blanks on your router table, with a tall fence installed for support (Photo 2). Set the bit's height so your dovetails are no more than $1/64$ in. shorter than the depth of the socket. If

the dovetails bottom out, the joint will be much harder to slide together.

To find the exact fence setting, start by routing an over-size dovetail. Then adjust the fence to make the dovetail smaller. Each adjustment has a double effect on the dovetail's width, because you rout both sides of the leg. For a cool way to make the tiny adjustments that are necessary to dial in a perfect fit, check out Photo 10 in "Router Table Box Joints," page 79.

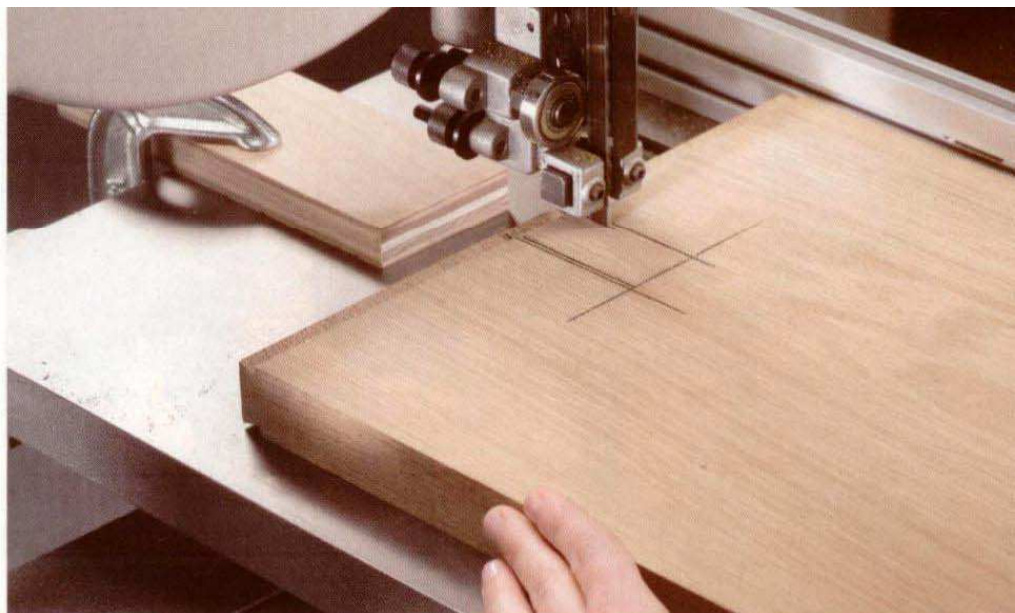
During assembly, you'll slide home both dovetailed legs simultaneously, so the dovetails need to have a little bit of slack when you fit them individually. The dovetails fit properly when you can slide each one home smoothly, with hand pressure only. If you have to use a mallet, they're too tight. If they rattle, they're too loose and you'll have to start over.

When you think you've got the fence set just right, rout one more test dovetail. Make one pass on each side of a fresh blank and test the fit. If this dovetail slides smoothly with hand pressure or needs only minor adjustment (Photo 3), you're good to go.

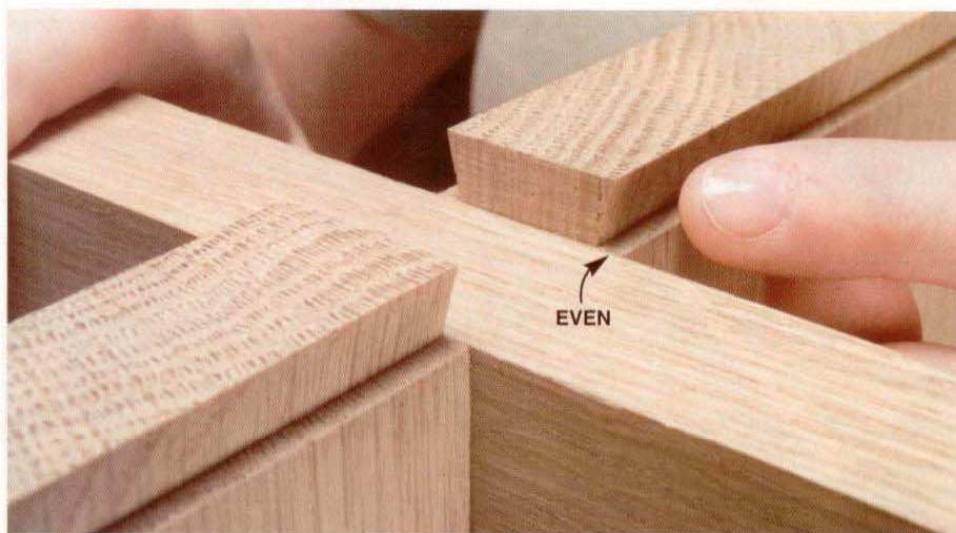
FIT THE HALF-LAP JOINTS

These joints must fit snugly; assembly should require firm hand pressure.

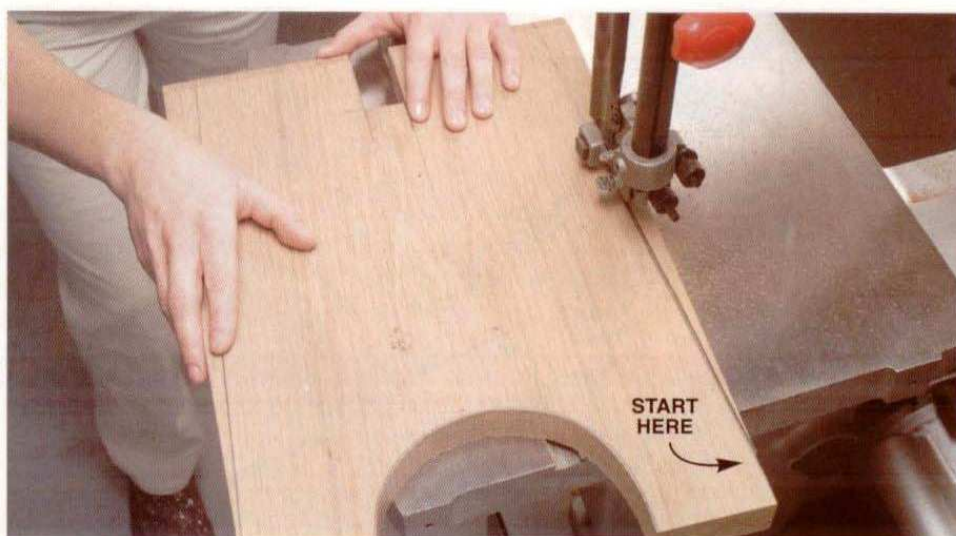
8. Mark the notch locations on the rail (Photo 4, Fig. A). Use a sharp pencil, so the lines on the rail accurately indicate the thickness of the legs. Cutting to the inside edges of these lines creates notches that are the same thickness as the legs.



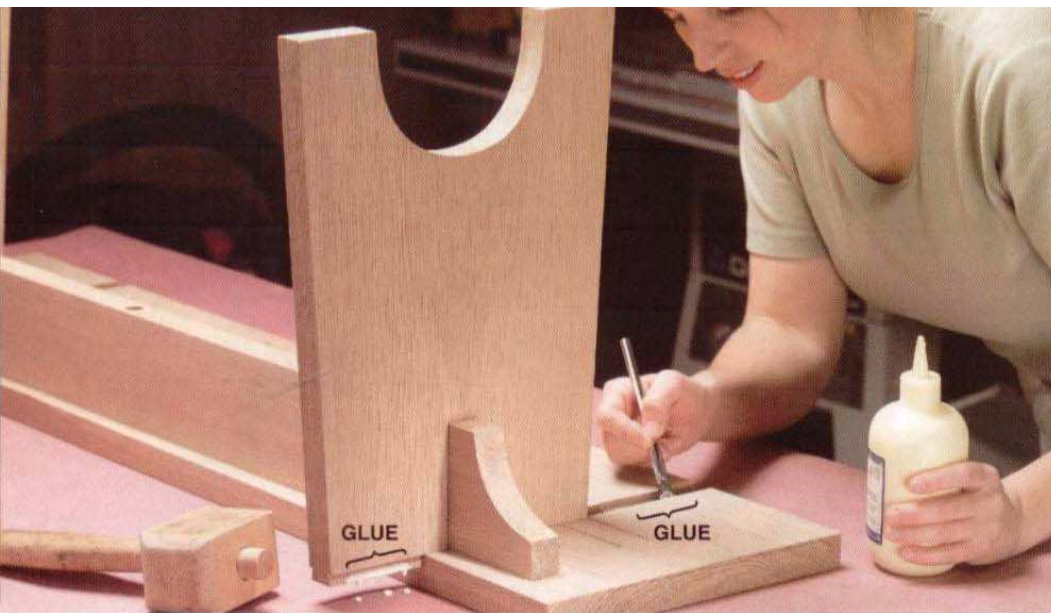
7 Saw notches in the legs, using the same approach as with the rail (Photos 5 and 6). This time, trim to the lines by tweaking the position of the fence.



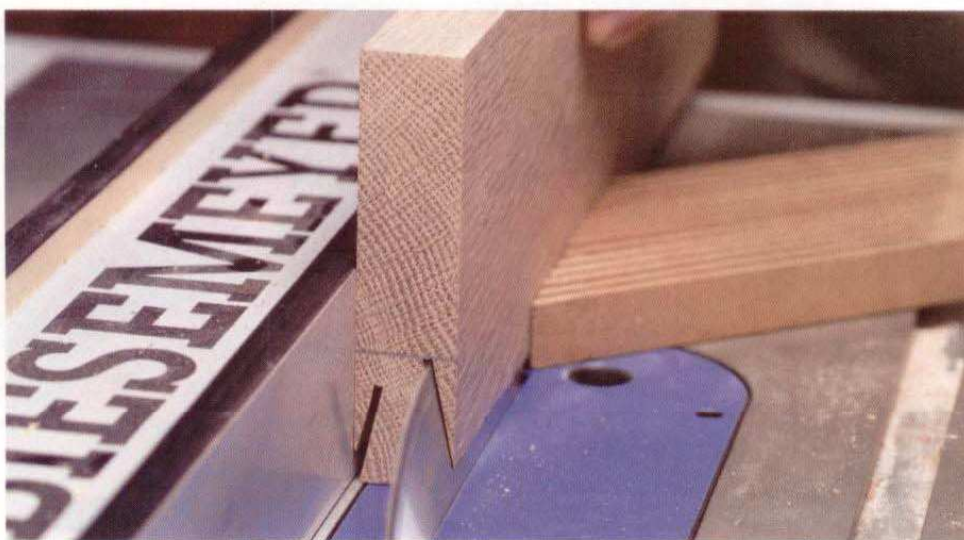
8 Test the half-lap joints to see whether the notches are deep enough. You're good to go when the top of the rail is even with the dovetail shoulders.



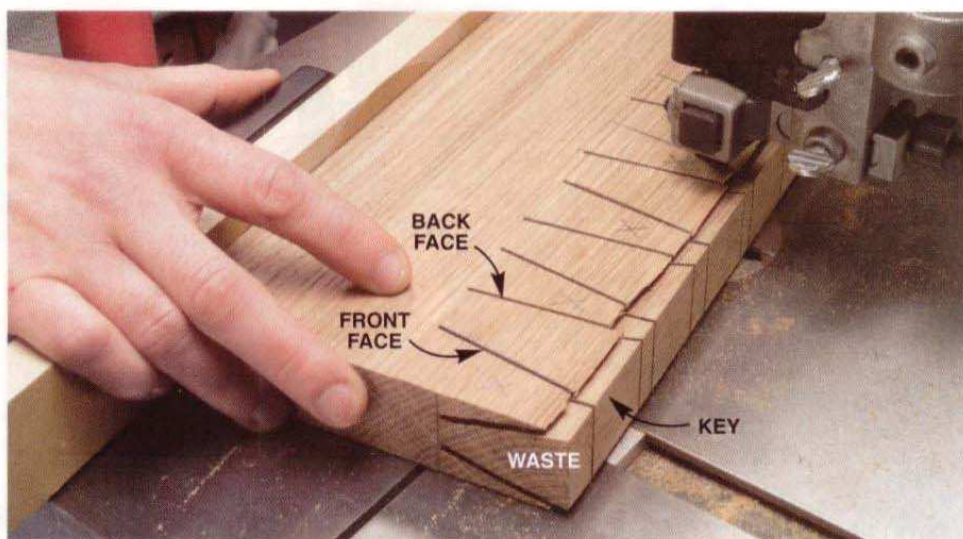
9 Saw arches and tapers in the legs. **Tip:** For sawing smooth tapers, start at the shallow end, allowing the blade to gradually bite into the edge. If you start at the wide end, the blade is likely to break out as it approaches the shallow end, leaving a bumpy edge.



10 Apply glue to the sockets in front and the dovetails behind, after sliding the assembled base within a couple inches of its final position. Then slide the legs home. It's risky to glue sliding dovetails full-length. The tolerances are so close that they're likely to get stuck before you can push them all the way.



11 Dovetailed keys fill the ends of the sockets. The secret to making them safely is to keep them attached to a large blank while you make all the angled cuts. First, saw the tapered sides. It's best to make these deep cuts in several passes, rather than all at once.



12 Crosscut the faces of the keys on the bandsaw. Cut all the back faces, reset the miter gauge and cut the front faces, which bevel at a slightly different angle.

9. Mark the notch locations on the leg blanks—these notches are centered. Use the rail to mark their width.

10. Saw the notches in the rail, using the miter gauge with a long fence attached (Photo 5). Although it's tempting to saw right to the lines, it's better to play it safe by cutting short first and then trimming (Photo 6). The notches in the legs are deeper (Photo 7), because the rail has to sit even with (or slightly below) the dovetail shoulders (Photo 8).

ASSEMBLE

11. Drill screw holes in the rail on your drill press. Use a fence to center the holes and support the rail. First, drill the 3-1/4-in.-long counterbores with a 7/16-in. brad-point bit. Flip over the rail to drill the 11/64-in. pilot holes.

12. Saw arches in the rail and arches and tapers in the legs (Photo 9, Fig. A). Smooth the arches with a sanding drum installed in your drill press. Smooth the tapers by jointing, hand planing or sanding.

13. It's easiest to sand all the surfaces smooth and break all the sharp edges before assembly. Be careful around the edges of the dovetail sockets and just below the half-lap notches—sanding these areas too heavily will loosen your joints. From now on, keep your bench covered to protect the sanded top, so it doesn't get scratched.

14. Dry-fit the base and top to make sure the dovetail joints slide and the rail doesn't bind against the top.

15. Center the base and mark its location. Then slide it a couple inches off center and apply glue (Photo 10). Slide the base home. Keep a mallet handy, in case the glue swells the joints enough to require a little extra persuasion. Fasten the base to the top with screws through the rail.

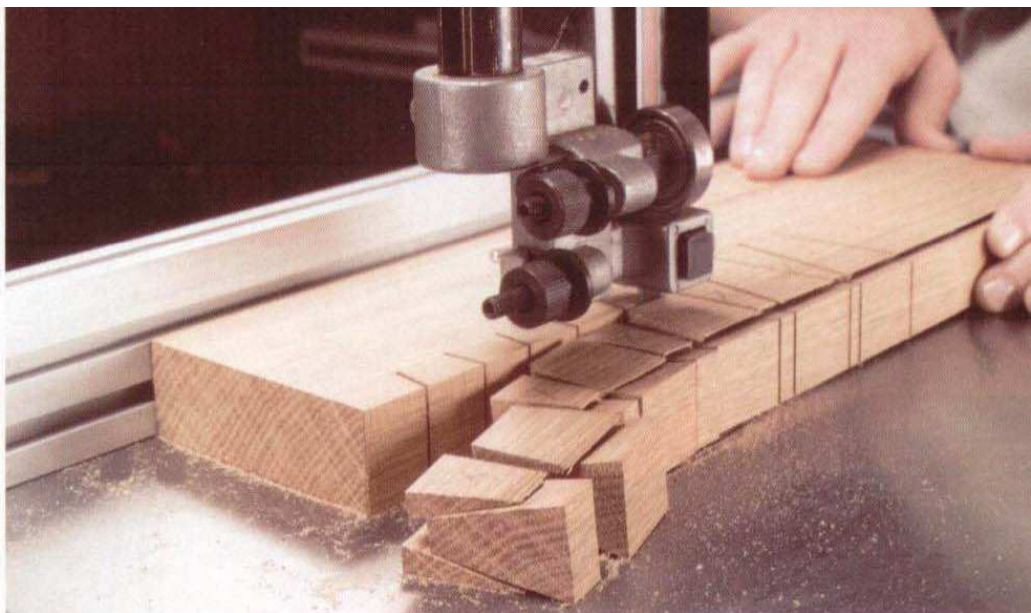
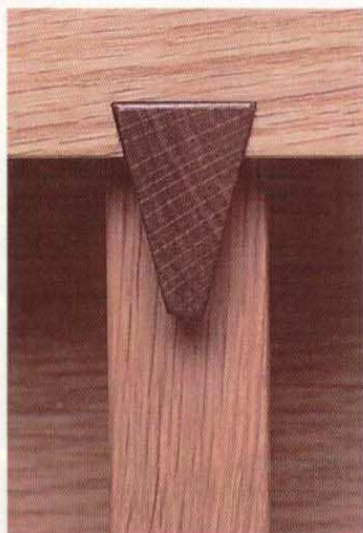
MAKE THE TAPERED KEYS

16. Cut the dovetail-shaped keys from a wide blank, oriented so the faces will show end grain. (Photo 11; Fig. A, Detail 2). The tapered sides match the 14-degree slope of the dovetail sockets. Leave the keys a hair wide so they'll still fit snugly after you've sanded them smooth.

17. The faces of the keys bevel at different angles, so two setups are necessary (Photo 12). After the faces have been cut, rip the completed keys from the blank (Photo 13) and fit them to the sockets (Photo 14). **AW**

Sources

Freud Inc.
(800) 334-4107, www.freudtools.com
1/2-in.-dia. dovetail bit (1/2-in. shank),
#22-112, \$25.

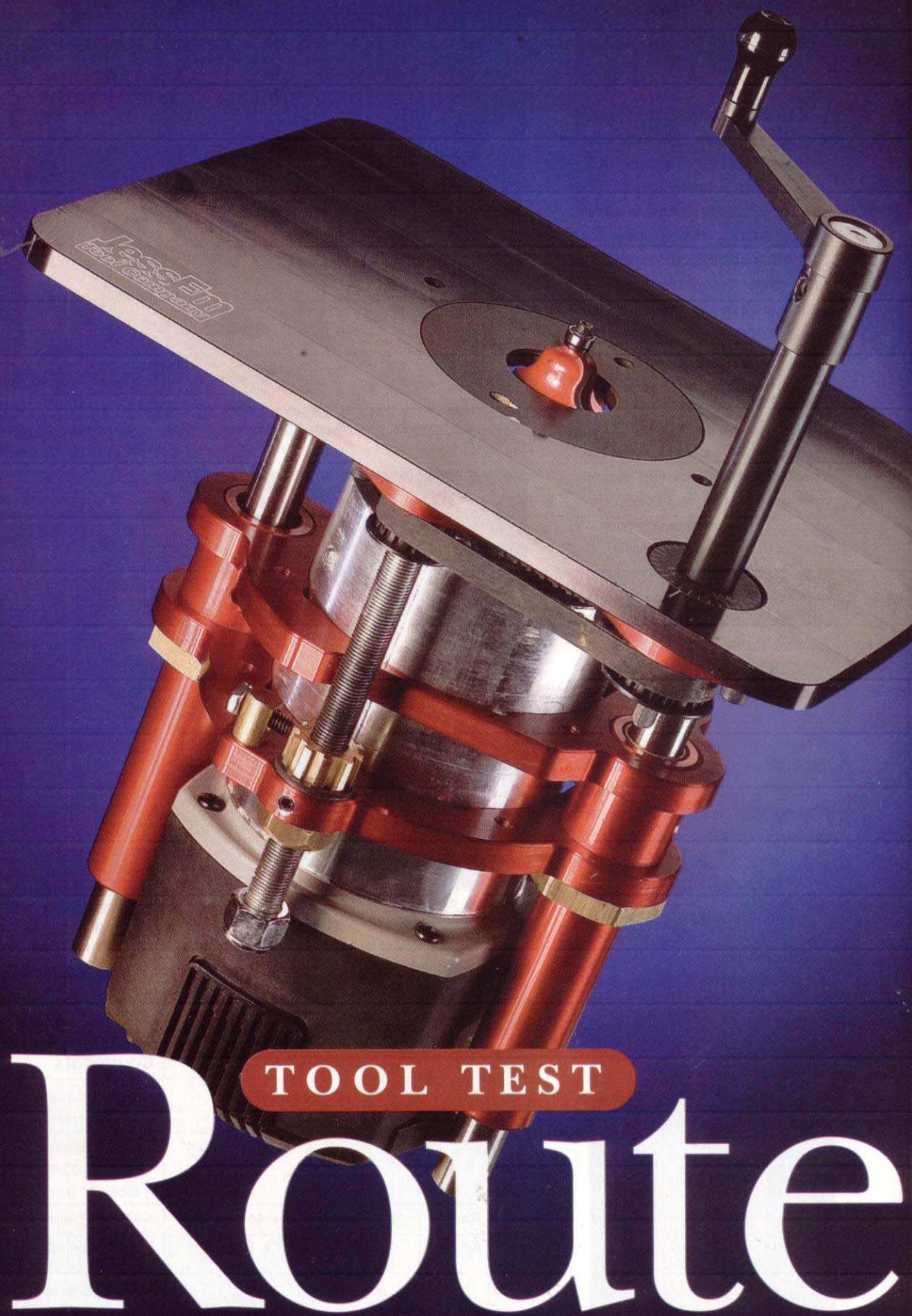


13 Free the keys with a rip cut. Making this cut on the bandsaw eliminates the risk of dangerous kickback that exists whenever you cut small pieces on a tablesaw.



14 Fit the keys. Remove saw marks and fine-tune the fit by sanding. Before gluing the keys in place, I highlighted them with a dark stain. By attracting attention to the hidden joinery, these keys become the focal point of the bench.

Cutting List			Overall Dimensions: 48"L x 12-1/4"W x 17-1/2"H	
Part	Name	Qty.	Dimensions	Comments
A	Top	1	1-1/8" x 11-7/8" x 48"	3/8" x 1" dovetail sockets centered 6-9/16" from both ends.
B	Leg	2	1-1/8" x 11-7/8" x 16-3/4"	23/64" x 1" dovetail on top edge. 1-1/8" x 2-23/64" notch. Both sides taper 1" from bottom to top.
C	Rail	1	1-1/8" x 4" x 44"	1-1/8" x 2" notches spaced 33-3/4".
D	Key	4	1" x 1-3/16" x 1-1/2"	Sides beveled at 14 degrees to match dovetail sockets. Back face beveled at 3 degrees to match tapered leg. Front face beveled at 10 degrees.



Jorgensen
Model 9000

TOOL TEST

Route

*Router lifts add
convenience and precision
to maximize
router table performance*

FOR THE SERIOUS ROUTER TABLE USER, the benefits of owning a router lift are huge. Strap a 3-1/4-hp variable-speed router into one of these lifts and you have a routing system that can't be beat for convenience, power and accuracy. With a router lift, all your height adjustments can be made from the top of the table instead of underneath and bit changes no longer require removing the router from the table.

A router lift is essentially a router-table mounting plate with an attached carriage that holds the router. A removable crank handle inserts into the mounting plate and turns to raise and lower the carriage with incredible precision. A dial built into the plate or fastened onto the crank measures height adjustments in 1/64-in. or finer increments. Most lifts do not give you a cumulative read-out. In other words, you have to keep track of the number of crank revolutions for height changes greater than 1/16 in. Some lifts allow you to zero out the height indicator. This is a great feature because it makes it possible to set your bits to exactly the same height every time you use them. For example, it practically eliminates the need for test cuts whenever you make stiles and rails for panel doors.

r Lifts

by Dave Munkittrick

TOOL TEST Router Lifts

ROUTER LIFTS ELIMINATE THE THREE biggest complaints router table users have. Above-the-table height adjustments (Photo 1) eliminate the most common complaint: the need to awkwardly grope under the table to adjust the bit height. Above-the-table bit changes (Photo 2) do away with having to remove the router to change bits. Finally, accurate micro-adjustments are a reality with a lift (Photo 3). Still, as someone who just graduated from a hole cut in a piece of plywood, I was skeptical. After all, a router lift costs as much as a good router. But once I tried a lift, it didn't take long for me to become a believer.

All the lifts we tested performed well. The height adjustments were smooth and accurate. Backlash (that slop you feel in the handle when changing directions) was minimal and most lifts have backlash eliminators (see Chart, page 62). We found that carriage travel varied quite a bit among brands. A router lift should have at least 3 in. of carriage travel. This allows you to start a tall bit low in the table and gradually raise it as you cut deeper with each pass. In the end, your choice of lift will depend on your particular circumstances. The main consideration is the size and type of router you own and whether you want to permanently mount it in your table.

CAN I USE MY OLD ROUTER AND TABLE?

For most fixed-base routers, the answer is yes. One exception is the new Milwaukee 5625-29 (see page 61). At the time of printing, only the JessEm and Rockler Mast-R-Lift can accommodate this router and allow above-table bit changes. If your one-and-only router is a plunge, you are limited to the two lifts that use the router base to mount the router: the Jet/Powermatic EXACTA-Lift and the Woodpecker Unilift.

Your old router table should work fine, but there are two important considerations: Don't assume a router lift plate will fit the opening in your table. Check the router lift plate sizes (see Chart, page 62) and compare them to your current mounting plate's size. We also recommend you add cross bracing under your router tabletop. Router lifts are heavy, weighing 7 to 20 lbs. Add a 3-hp or larger router and you can almost guarantee that your top will sag over time without some added support.

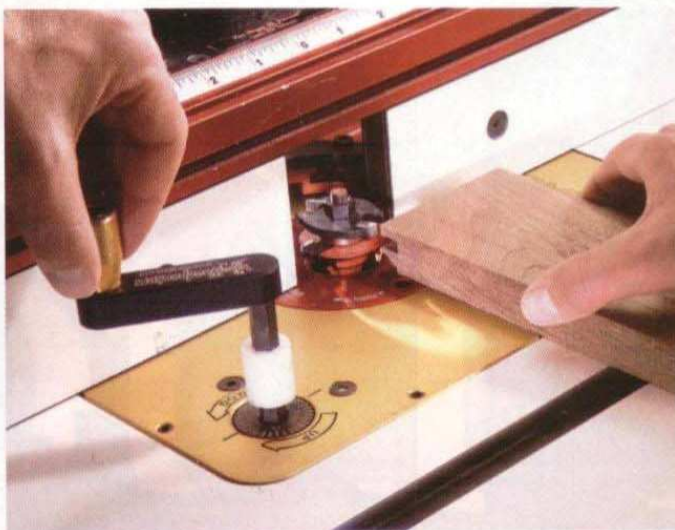


MIKE KRIVIT (3)

1 Router lifts allow bit-height adjustments from the top of the table. No more groping under the table to release and adjust the router motor.

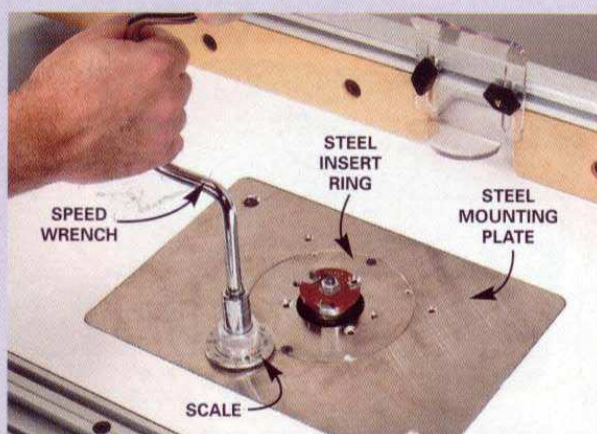


2 Above-the-table bit changes can be made with most router lifts. That means you no longer have to drop the router out from under the table to change bits.



3 Router lifts make super-accurate micro-adjustments. You can confidently make adjustments as small as 1/1,000 in.

BENCH DOG PROLIFT MAX 40-016



Price: \$370

Router type, size: Fixed base, 1-3/4 hp to 3-1/2 hp

If you like your woodworking tools built like trucks, this is the router lift for you.

PROS

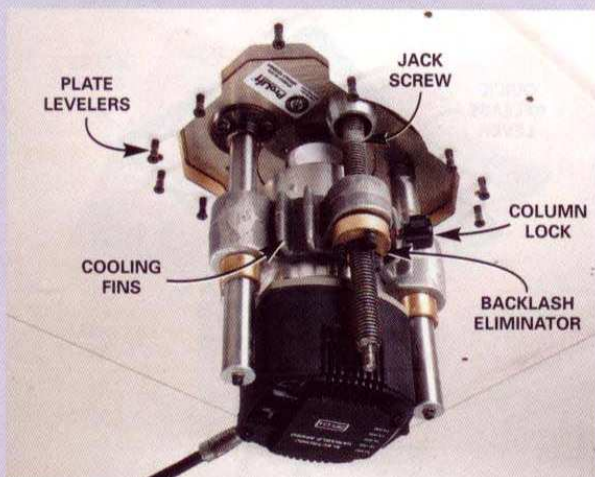
- Steel mounting plate will never sag.
- Bit changes can be made above the table.
- Its full-size speed wrench has an attached scale graduated in 1/128-in. increments.
- The scale can be zeroed out.
- Adapter rings are available for most fixed-base routers (\$15 to \$20). It comes sized to fit the Porter-Cable 7518.
- Drop-in steel insert rings only need to be screwed down when a starting pin or template guide is used.
- Its 6-in. carriage travel is the largest of any lift.
- Jack screw has an adjustable backlash eliminator.
- A column lock prevents accidental height setting changes.
- Cooling fins on router mount dissipate heat.
- The mounting plate fits existing Bench Dog plate openings without modification.

CONS

- Small plate size will not fit into your existing table unless it's sized to fit a Bench Dog.
- It has no built-in plate levelers (they're built into a Bench Dog top).
- The hole for the wrench insert can fill with sawdust.

COMING SOON

- A built-in digital readout will be available in late 2005.



BENCH DOG MINILIFT 40-072



Price: \$225

Router type, size: Fixed base, 2-1/4 hp or less

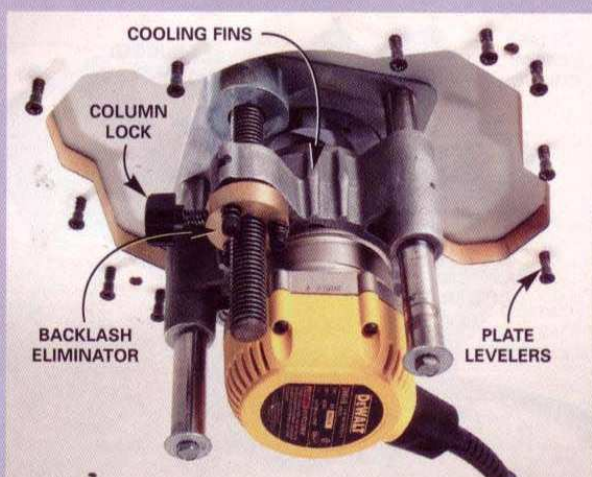
The MiniLift is designed for fixed-base or combination routers with motors smaller than 3 hp.

PROS

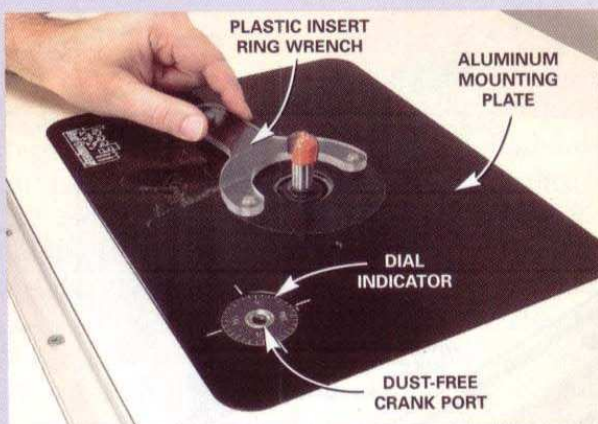
- Bit changes can be made above the table.
- Steel insert rings require no special tools to install. They are heavy enough to stay put without screws.
- A full-size speed wrench is included with an attached scale graduated in 1/128-in. increments. The scale can be zeroed out at any time.
- Carriage travel is a full 4-1/2 in.
- An adapter ring is available for Makita routers (\$15).
- Jack screw has an adjustable backlash eliminator.
- A column lock prevents accidental changes to your height setting.
- Cooling fins on router mount dissipate heat.

CONS

- Phenolic mounting plate is not as strong as the steel one on the 40-016.
- Small plate size will not fit into your existing table unless it's a Bench Dog.
- No built-in plate levelers are included—they're built into a Bench Dog top.
- Hole for speed wrench can fill with sawdust.



JESSEM MAST-R-LIFT AND ROCKLER MAST-R-LIFT



Price: \$289

Router type, size: Fixed base, 1-3/4 hp to 3-1/2 hp

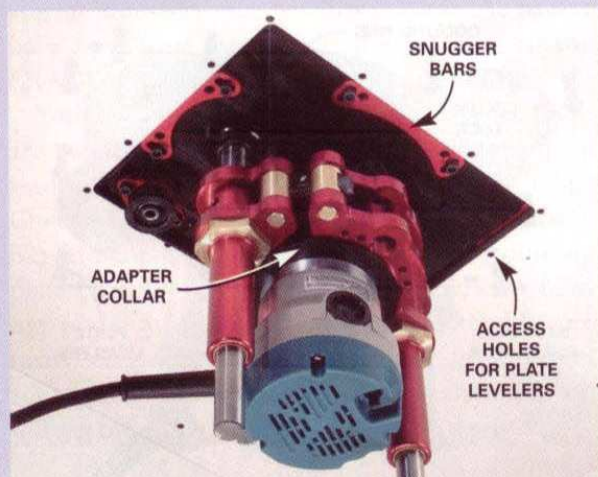
JesseM has been in the lift business longer than anyone. The years of practice have paid off in its Mast-R-Lift design. JesseM makes the Rockler Mast-R-Lift, too. It's identical except for the Rockler's trademark blue color.

PROS

- Black anodized aluminum mounting plate is strong yet lightweight.
- Bit changes can be made above the table.
- Dust-free crank port cannot fill with sawdust.
- An easy-to-read, built-in indicator dial is on the plate.
- This model is one of only two lifts currently capable of holding the 3-1/2-hp Milwaukee 5625-29.
- Adapter collars are available for most fixed-base routers (\$30).
- Adjustable snigger bars guarantee a tight fit in the router-table opening.
- Jack screw has an adjustable backlash eliminator.

CONS

- Dial indicator cannot be zeroed out.
- Plastic wrench for removing the phenolic ring inserts is cumbersome to use and a drag to lose.
- Plate leveling screws are trapped between the plate and the rabbet it sits on. JesseM tables are designed with access holes for these screws. All other tables require you to drill your own holes.



JESSEM ROUT-R-LIFT FX



Price: \$179

Router type, size: Fixed base, 2-1/4 hp or less

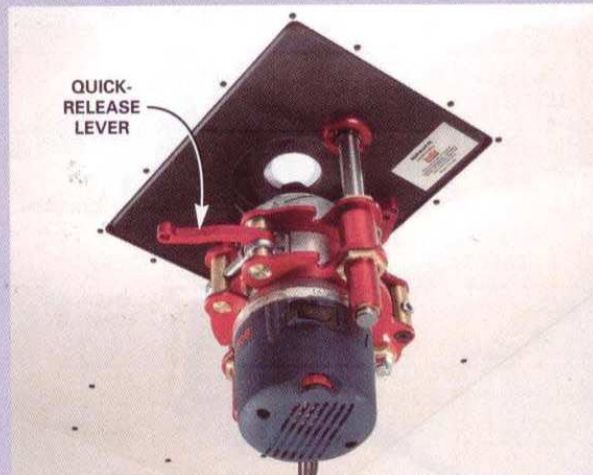
This is the lift for a one-router shop or owners of the new 2-1/4-hp combination-base routers. Its quick-release feature permits easy router transfer from your lift to your handheld bases. Three different models fit most of the mid-size fixed-base routers on the market.

PROS

- Quick-release lever allows quick removal of the router for handheld work.
- The Rout-R-Lift FX has above-the-table plate levelers.
- Direct-drive system for raising and lowering the router means fewer moving parts and no belt to wear out.
- Bit changes can be made above the table.
- Dial indicator and crank are identical to those on the Mast-R-Lift.

CONS

- Phenolic mounting plate is not as strong as the aluminum one in the Mast-R-Lift.
- Dial indicator cannot be zeroed out.
- Plastic wrench for removing the phenolic ring inserts is cumbersome to use and a drag to lose.



JET/POWERMATIC EXACTA-LIFT



Price: \$280

Router type, size: Plunge or fixed base, 1-3/4 to 3-1/2 hp

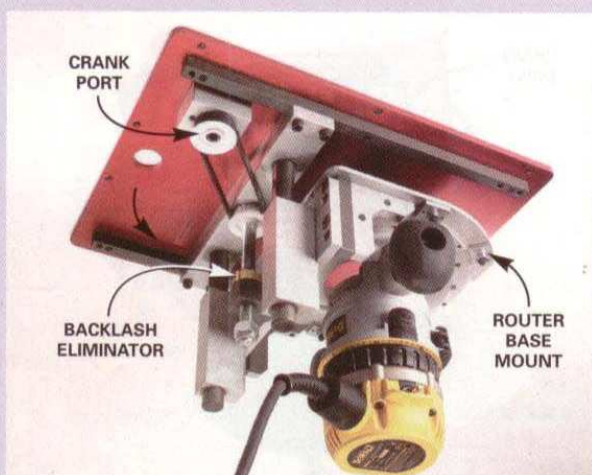
The Jet/Powermatic EXACTA-Lift is an older design but it's still a capable router lift. What sets the EXACTA-Lift apart from most of the other lifts is the fact that the router mounts to the lift by its base, allowing it to take almost any size and type of router.

PROS

- The EXACTA-Lift can take almost any plunge or fixed-base router on the market, including the big Milwaukee 5625-29.
- Price includes an aluminum router-table fence with zero-clearance inserts and a dust-collection port (not shown).
- The red aluminum mounting plate is strong yet lightweight.
- Dust-free crank port won't collect sawdust.
- Above-the-table plate levelers are convenient.
- Jack screw has an adjustable backlash eliminator.

CONS

- The lift does not raise the collet high enough for above-the-table bit changes.
- Its large plate won't fit into any existing router-table opening.
- Carriage travel is a short 2-1/2 in.
- Height adjustment is measured in .005 in. increments rather than in fractions of an inch.
- The included fence is on the short side (approximately 24 in. long) and an unnecessary cost to folks who already own one.



JOINTECH SMARTLIFT DIGITAL AND SMARTLIFT PRO



Price: \$429 and \$299

Router type, size: Fixed base, 1-3/4 hp to 3-1/2 hp

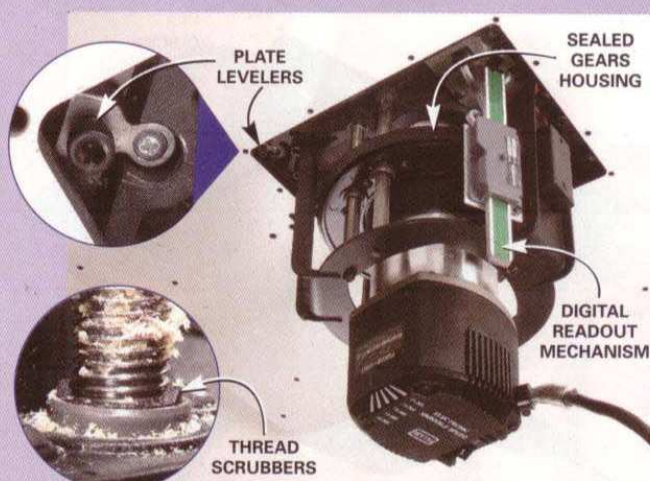
Jointech has just raised the bar with these two new router lifts. The SmartLift Digital is the first lift with a built-in digital display. It measures the actual movement of the router carriage, not the turn of the crank. This eliminates any false readings from backlash. The readout is cumulative, so there's no need to count crank revolutions to calculate height change. The only thing about the SmartLift Digital that might make you wince is the price. But that's entirely due to its sophisticated digital readout system. The Jointech SmartLift Pro is the same lift minus the digital readout.

PROS

- SmartLift Digital's cumulative digital readout can be zeroed out for repeatability.
- Unique sealed gear system prevents sawdust contamination.
- Built-in scrubbers clean the threads before they enter the sealed gear housing.
- Under-the-table levelers eliminate holes on the top of the plate.
- Direct drive system has no belts or chains to gum up or break.
- Crank port lets sawdust drain through.
- Jack screw has a self-adjusting backlash eliminator.
- Adjustable snubber bars guarantee a tight fit in the router-table opening.
- Adapter collars are available for most fixed-base routers (\$25).

CONS

- Below-the-table levelers are a bit awkward to reach—but once the lift's level, you're done.
- Inserts rings require a special tool to remove.



WOODHAVEN EZ LIFT UNIVERSAL 1430 AND 1429



Price: \$160

Router type, size: Fixed base, 3-1/2 hp or less (1430) and 2-1/4 hp or less (1429)

This is the least expensive of all the lifts we tested. The EZ Lift Universal 1430 can hold the larger 3-hp routers. The 1429 is designed to hold smaller 3.5-in.-dia. routers only. A plastic indicator dial is compression-fit onto the socket. Notches in the dial line up with a notch in the plate to indicate movement in 1/64-in. increments.

PROS

- All-phenolic construction keeps the weight low.
- Adapter collars are available for the EZ Lift Universal 1430 to fit smaller routers (\$31).
- Quick-release lever allows quick removal of the router for hand-held work.
- Indicator dial can be zeroed out.

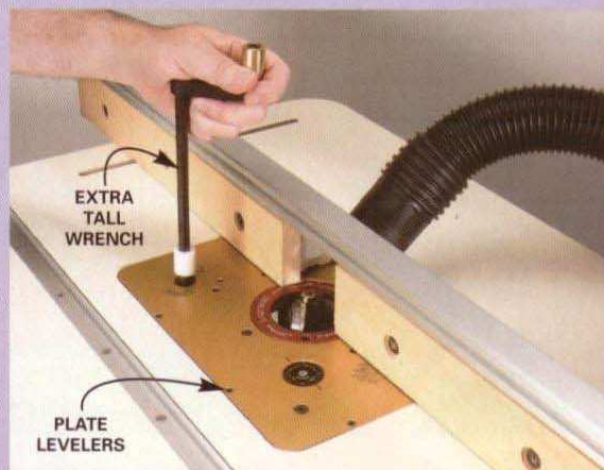
CONS

- These models have no plate levelers; they're built into a Woodhaven top.
- You must provide your own crank handle.
- Carriage travel is limited—only 1-3/4 in.
- Openings in the crank port are too small to drain sawdust.

COMING SOON

- New models, the EZ Lift 1431 and 1432, will have full 3-3/4 in. of carriage travel and sell for \$165.

WOODPECKER PRECISION ROUTER LIFT (PRL)



Price: \$289

Router type, size: Fixed base, 1-3/4 hp to 3-1/2 hp

The drive mechanism features a built-in ratchet setting that has soft detents for every 1/1,000 in. of adjustment so you can feel each increment without having to look at the dial. Press down on the crank and you bypass the detents for free-wheel cranking. The chain-drive system is similar to those used to raise and lower the bed on a heavy-duty planer. The chain drive runs four sprockets: one for the crank, two for the jackscrews and one freewheeling.

PROS

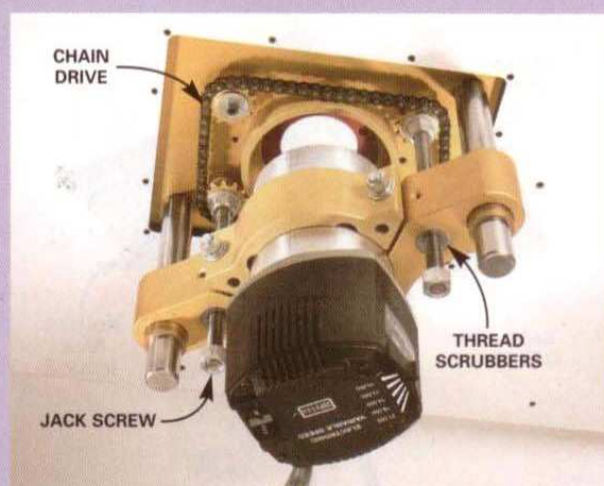
- Extra-tall wrench easily clears the fence.
- Aluminum mounting plate resists sagging.
- The model has convenient above-the-table plate levelers.
- The dual-scale dials can be zeroed out by loosening a set screw and turning the dial with your fingers.
- Its aluminum insert rings are durable.
- Stainless steel scrubbers keep the threads clear of debris.
- Above-the-table leveling screws are convenient.

CONS

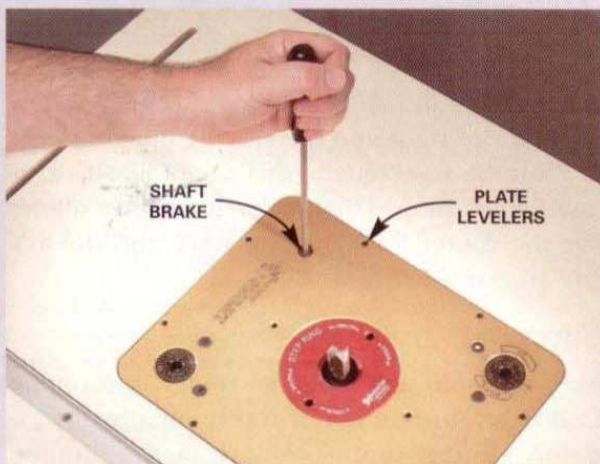
- The insert rings require a special wrench—it's another tool to keep track of.
- Crank port can fill with dust.

COMING SOON

- Full-size speed wrenches will come with each lift.



WOODPECKER UNILIFT



Price: \$289

Router type, size: Plunge or fixed base, 1-3/4 hp or larger

The Unilift dial indicators double as crank inserts. The Unilift has a manual shaft break that has to be activated before routing and released before adjusting. This is an extra step that must be done with each height adjustment and requires keeping a hex-head screw driver handy.

PROS

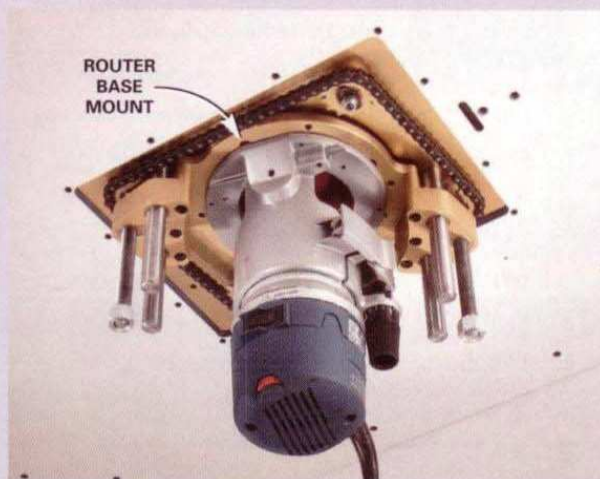
- Base mount accommodates a plunge router.
- The Unilift will fit the Milwaukee 5625-29.
- Extra-tall wrench easily clears the fence.
- Aluminum mounting plate is sag resistant.
- Above-the-table plate levelers are easy to use.

CONS

- Above-the-table bit changes are only possible with a set of offset wrenches (\$9 ea.).
- Manual shaft break adds an extra step to each height change.
- The insert rings require a special wrench—it's another tool to keep track of.
- Dials can't be zeroed out for repeatability.

COMING SOON

- Full-size speed wrenches will be included with each lift.



OTHERS WORTH CONSIDERING

ROUTERS WITH BUILT-IN LIFTS

Porter-Cable and Milwaukee offer routers with built-in lifts. This can be a very economical alternative if you plan to buy a new router for your lift anyway. About the only thing you give up is a dial indicator.

The 3-1/2-hp **Milwaukee 5625-29** (\$350) offers above-the-table bit changes with smooth operation and little or no backlash. On the downside, you must reach under the table to latch and unlatch the router whenever an adjustment is made.

The **Porter-Cable 895PK** (\$440) is the only router-based lift that allows you to operate the locking latch and the lift mechanism from the top of the table. It requires two holes in your mounting plate. Put the crank in the first hole to unlatch the router, then in the second to raise and lower the router. We found a fair amount of backlash in the system, though, and the router had an annoying tendency to shift when the latch was operated.

The **Porter-Cable 8529** (\$410) plunge worked well except for above-the-table bit changes, which were awkward.

NEW LIFT FROM ROUSSEAU

Rousseau has a new router lift that arrived too late for our test. The lift itself is the JessEm Rout-R-Lift FX with a Rousseau mounting plate. If you own a Rousseau table or mounting plate, this lift will fit right into your existing opening.

JESSEM MAST-R-LIFT EXCEL

The **Mast-R-Lift Excel** builds JessEm's Mast-R-Lift into a solid phenolic table. There's no more mounting plate slop, plate leveling or seams to fill with dust. The router carriage is raised and lowered by means of a side-mounted crank on the top. The MicroDial allows you to zero out settings. There's also an integrated dust collection shroud on the underside of the table. The complete system with a fence, top and stand sells for \$875 (not including a router). Lift and top alone are \$575.



OUR RECOMMENDATIONS

FOR A 3*-HP FIXED-BASE ROUTER

Bench Dog ProLift Max 40-016

JessEm Mast-R-Lift or

Rockler Mast-R-Lift

Jointech SmartLift Digital and Pro

Woodpecker Precision Router Lift

All these lifts have solid construction that can handle the big routers. They are smooth, accurate and easy to read. You pay a little extra for the Bench Dog, but it's the only lift with a steel plate that'll never sag. The Jointech SmartLift Digital costs more because of its sophisticated digital readout system.

FOR A 1-3/4- TO 2-1/4-HP FIXED-BASE ROUTER

Bench Dog MiniLift 40-072 is the way to go if you already own a Bench Dog table. The lift drops right into the existing opening.

JessEm Rout-R-Lift FX is the best value in this size of lift. It's also our favorite for the one-router shop. The quick-release lever allows you to quickly remove the router for handheld work and doesn't require you to dedicate an extra base to the lift.

FOR A PLUNGE ROUTER

For die-hards who insist on mounting a plunge router in a router table, **Woodpecker Unilift** is your best bet. If you're on a budget, a low-cost alternative for plunge router owners is the Router Technologies Router Raizer. For \$90, you get the benefits of a lift minus the scale readout (source: Woodworker's Supply, 800-645-9292, www.woodworker.com, #109-919 or #114-671). **AW**

Manufacturer/Model	Price	Above-table bit change	Lift weight (lbs.)	Plate Material	Plate size	Plate-leveling screws	Inserts Provided	Router, max. size and type
Bench Dog ProLift Max 40-016	\$370	Y	20.0	Plated Steel	8-1/4" x 11-3/4"	N	3	3-1/4-hp fixed base
Bench Dog MiniLift 40-072	\$225	Y	10.0	Phenolic	8-1/4" x 11-3/4"	N	1	2-1/4-hp fixed base
JessEm Mast-R-Lift	\$289	Y	11.5	Aluminum	9-1/4" x 11-3/4"***	Y	1	3-1/4-hp fixed base
JessEm Rout-R-Lift FX	\$179	Y	7.0	Phenolic	9-1/4" x 11-3/4"	Y	1	2-1/4-hp fixed base
Jet/Powermatic EXACTA-Lift	\$280	N	13.5	Aluminum	11-3/4" x 14-3/4"	Y	1	3-1/4-hp fixed/plunge base
Jointech SmartLift Digital	\$429	Y	10.5	Aluminum	9-1/4" x 11-3/4"	Y	3	3-1/4-hp fixed base
Jointech SmartLift Pro	\$299	Y	10.5	Aluminum	9-1/4" x 11-3/4"	Y	3	3-1/4-hp fixed base
Rockler Mast-R-Lift	\$285	Y	11.5	Aluminum	9-1/4" x 11-3/4"	Y	1	3-1/4-hp fixed base
Woodhaven EZ Lift Universal 1430	\$160	Y	6.5	Phenolic	9-1/4" x 11-3/4"	N	2	3-1/4-hp fixed base
Woodhaven EZ Lift 1429	\$160	Y	6.5	Phenolic	9-1/4" x 11-3/4"	N	2	2-1/4-hp fixed base
Woodpecker Precision Router Lift	\$289	Y	14.0	Aluminum	9-1/4" x 11-3/4"	Y	3	3-1/4-hp fixed base
Woodpecker Unilift	\$289	N*	13.5	Aluminum	9-1/4" x 11-3/4"	Y	3	3-1/4-hp fixed/plunge base

Manufacturer/Model	Motor or base mount	Backlash eliminator	Dust-free crank port	Carriage travel distance	Contact information
Bench Dog ProLift Max 40-016	Motor	Y	N	6"	(800) 786-8902 www.benchdog.com
Bench Dog MiniLift 40-072	Motor	Y	N	4-1/2"	(800) 786-8902 www.benchdog.com
JessEm Mast-R-Lift	Motor	Y	Y	3-3/4"	(866) 272-7492 www.jessem.com
JessEm Rout-R-Lift FX	Motor, quick release	Y	Y	3"	(866) 272-7492 www.jessem.com
Jet/Powermatic EXACTA-Lift	Base	Y	Y	2-1/2"	(800) 274-6848 www.wmhtoolgroup.com
Jointech SmartLift Digital	Motor	Y	Y	4"	(800) 619-1288 www.jointech.com
Jointech SmartLift Pro	Motor	Y	Y	4"	(800) 619-1288 www.jointech.com
Rockler Mast-R-Lift	Motor	Y	Y	3-3/4"	(800) 279-4441 www.rockler.com
Woodhaven EZ Lift Universal 1430	Motor, quick release	N	Y	1-3/4"*†	(800) 344-6657 www.woodhaven.com
Woodhaven EZ Lift 1429	Motor, quick release	N	Y	1-3/4"*†	(800) 344-6657 www.woodhaven.com
Woodpecker Precision Router Lift	Motor	Y	N	4-1/4"	(800) 752-0725 www.woodpeck.com
Woodpecker Unilift	Base	N	N	3-1/2"	(800) 752-0725 www.woodpeck.com

* Offset wrenches available from manufacturer.

** 8-1/4" x 11-3/4" available to fit Bench Dog tables.

† New models will have 3-1/2-in. travel.





Treasured
Wood

Jewelry BOX

Make a big splash
with a small piece
of rare wood.

I'll bet somewhere in the dark recesses of your shop you've squirreled away a small piece of special wood, just waiting for the right project. No doubt you've saved it to become the centerpiece of something well-crafted, small in scale and novel in design. This jewelry box is the perfect project to showcase that dusty board.

by Tom Caspar and Jon Stumbras

FIGURE A EXPLODED VIEW



PROJECT REQUIREMENTS AT A GLANCE

TOOLS:

Router table, 3/8-in. bit, chamfer bit, 1/8-in. slot-cutting bit, rabbeting bit, bandsaw, jointer, planer, drill press.

TOTAL COST:
\$90.

MATERIALS:

2 bd. ft. of 4/4 or 5/4 mahogany, 3/4-in. x 4-1/2-in. x 9-in. piece of special wood for center panel, 1 bd. ft. of 1/8-in.-thick dark wood for trays, brass continuous hinge.

FIGURE B PANEL

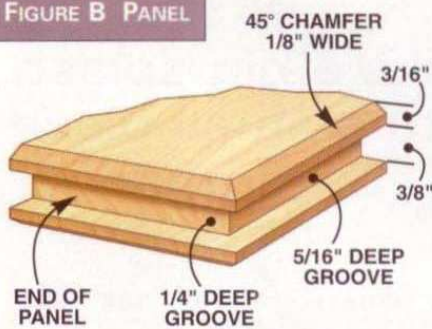


FIGURE C FRAME



FIGURE D BASE

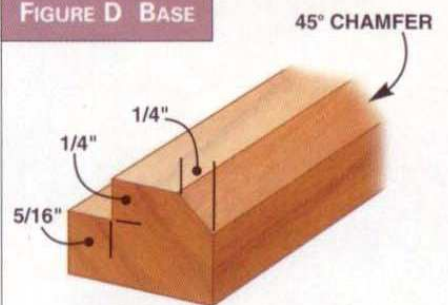


FIGURE E UNDERSIDE OF LID

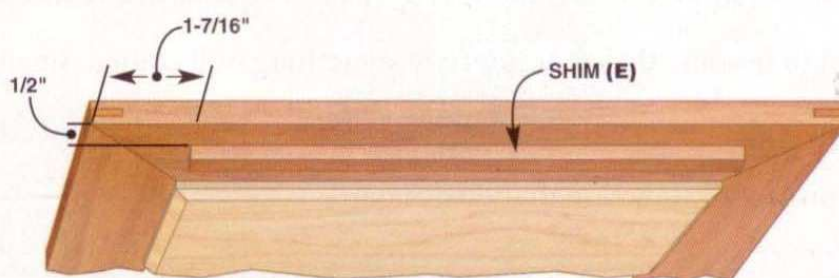
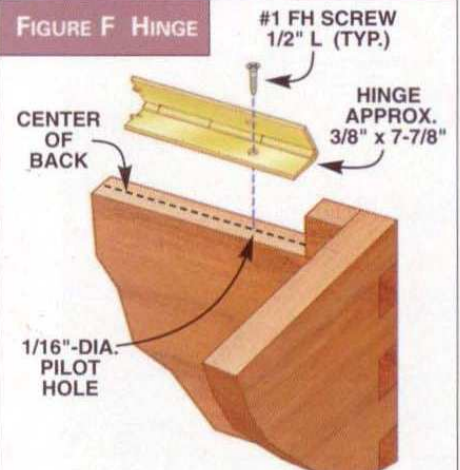


FIGURE F HINGE



SELECT THE WOOD

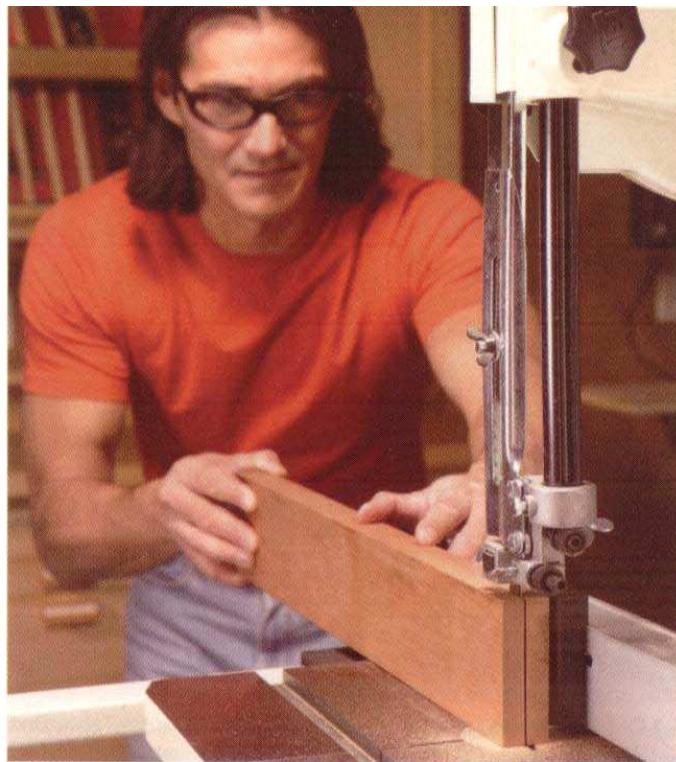
You'll need very little wood to make this box. The star of the show is clearly the lid's center panel. When you open the lid, you also see the bottom side of this fabulous piece. I used spalted big-leaf maple (see "Spalted Wood," page 71), but you can use any piece of wood that has a fabulous curl, wild burl or unusual bird's-eye pattern.

For the rest of the exterior, it's best to choose a rich but understated wood, so as not to detract from the panel. I chose mahogany for its warm color and lack of prominent grain. Walnut or cherry would also work well. If you're conservative about cutting, you can get all the parts from a rough 4/4 or 5/4 board that's 5-1/2 in. wide and 4 ft. long.

For the interior trays, you'll need a little 1/4-in. plywood and some 1/8-in.-thick solid wood that looks elegant, such as rosewood. I chose cocobolo.

BUILD THE BOX

1. Resaw boards for the box's sides (F, G, H) and the frame pieces that go around the lid (B, C) (Photo 1). It's best to start with 1-1/4-in. (5/4) lumber and plane it to 1 in. thick. If you cut a dead straight line, however, and your wood is very stable, it's possible to resaw rough 1-in. (4/4) boards. Make some extra pieces to help with machine setups later. Plane the lid pieces to 7/16 in. and the side pieces to 3/8 in. Rip the side parts to rough width (see Cutting List, below).



1 Resaw a straight-grained piece of mahogany to make the box's sides and lid. This project is a perfect opportunity to make a little bit of beautiful wood go a long way.

2. Cut 3/8-in.-wide box joints on all side pieces (Photo 2). Set the bit as high as the side is thick, so the box-joint fingers are flush when the joint is assembled. Begin cutting the box joints from the bottom edge of each piece.

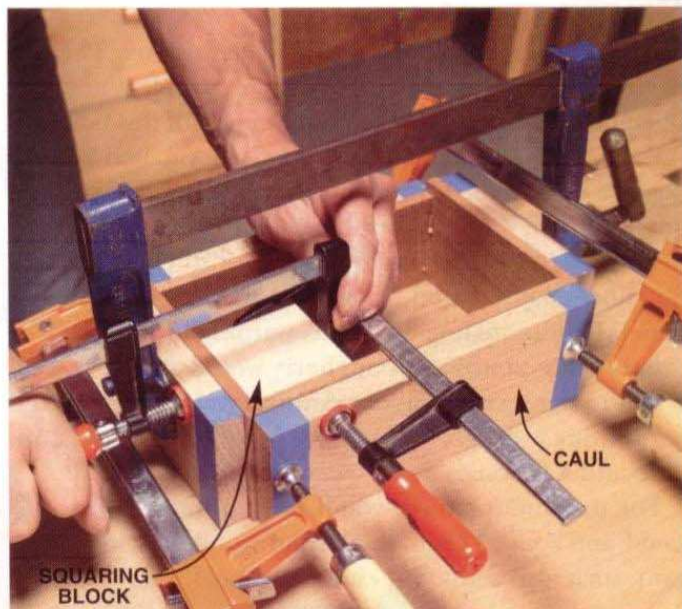
CUTTING LIST

OVERALL DIMENSIONS: 4-1/2"T x 10-3/4"L x 7"D

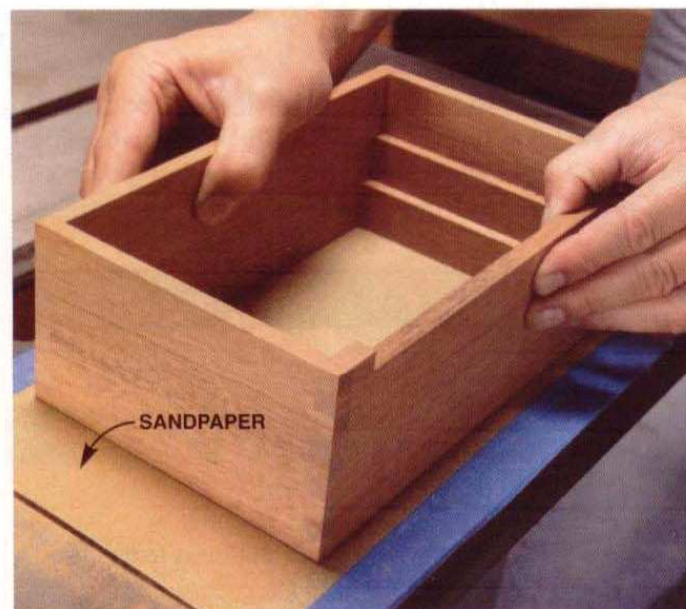
PART	NAME	QTY.	MATERIAL	TH x W x L	COMMENTS
Lid					
A	Panel	1	Figured wood	3/4" x 4-1/4" x 8"	
B	Long frame	2	Mahogany	3/8" x 1-5/8" x 10-3/4"	
C	Short frame	2	Mahogany	3/8" x 1-5/8" x 7"	
D	Spline	4	Mahogany	1/8" x 1/2" x 2-1/2"	
E	Shim	1	Mahogany	1/4" x 3/8" x 7-7/8"	Same length as hinge; thickness to fit space.
Box					
F	Front	1	Mahogany	3/8" x 3-3/8" x 9-3/4"	Make joints in 3-5/8"-wide material; then rip.
G	Back	1	Mahogany	3/8" x 3" x 9-3/4"	
H	Side	2	Mahogany	3/8" x 3-3/8" x 6"	
J	Spacer	2	Mahogany	3/8" x 3/8" x 9/16"	Trim to fit hinge.
K	Tall support	2	Mahogany	1/4" x 2" x 5-1/4"	
L	Short support	2	Mahogany	1/4" x 1" x 5-1/4"	
BASE					
M	Long side	2	Mahogany	5/8" x 1" x 10-1/2"	
N	Short side	2	Mahogany	5/8" x 1" x 6-3/4"	
P	Bottom	1	Plywood	1/4" x 5-3/8" x 9-1/8"	Cut to fit rabbets.
TRAYS					
Q	Large bottom	1	Plywood	1/4" x 4-15/16" x 8-11/16"	Rough-cut 9-1/2" long.
R	Small bottom	1	Plywood	1/4" x 2-1/2" x 8-3/16"	Rough-cut 9-1/2" long.
S	Long side	2	Cocobolo	1/8" x 7/8" x 8-11/16"	Rough-cut 9-1/2" long.
T	Long side	2	Cocobolo	1/8" x 7/8" x 8-3/16"	
U	Short side	2	Cocobolo	1/8" x 7/8" x 5-3/16"	Rough-cut 5-1/2" long.
V	Short side	2	Cocobolo	1/8" x 7/8" x 2-3/4"	Rough-cut 3" long.
W	Long divider	1	Cocobolo	1/8" x 5/8" x 8-11/16"	Trim to fit.
X	Short divider	1	Cocobolo	1/8" x 5/8" x 2-7/8"	Trim to fit.
Y	Short divider	1	Cocobolo	1/8" x 5/8" x 1-15/16"	Trim to fit.



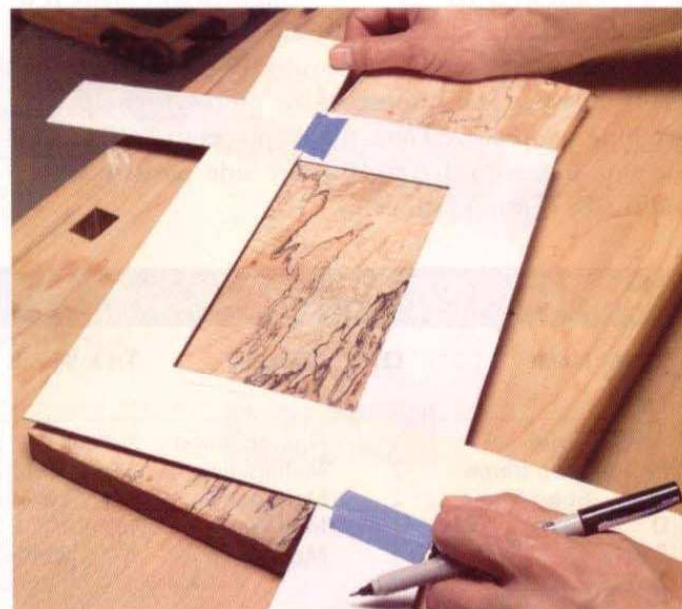
2 Cut box joints using a router table (see "Router Table Box Joints," page 75). You could use a tablesaw, but perfect results are surprisingly easy on the router table.



3 Clamp the box together with hardwood cauls. Tape the cauls' ends to prevent them from sticking to the box. To pull the box square, clamp a block to one inside corner.



4 Level the bottom of the box on 100-grit sandpaper taped to your tablesaw. This eliminates annoying gaps between the box and its base. Level the top edge by sanding, too.



5 Make the lid's panel from that stunning piece of wood you've been hoarding. To find the best grain orientation, make two cardboard L shapes by tracing a carpenter's square. Tape them together to form a window the same size as the panel.

4. Rip the box sides to final size. The exact width doesn't matter, as long as each cut lines up exactly with the joint's fingers or notches. Note that the back (G) is lower than the sides by the width of one box-joint finger.

5. Glue the box together (Photo 3). Cut spacers (J) to length so the hinge fits comfortably between them. Glue the spacers to the box.

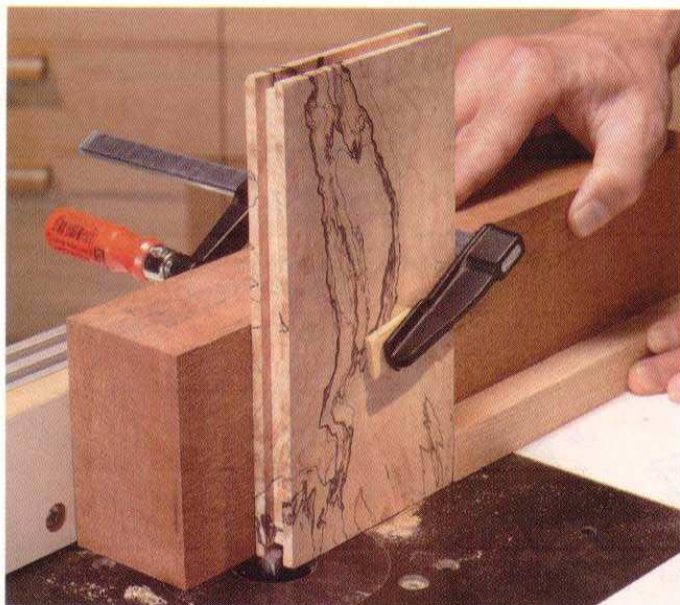
6. Glue the tray supports (K, L) to the inside of the box. Sand flat the bottom and top edges of the box (Photo 4).

FRAME THE LID

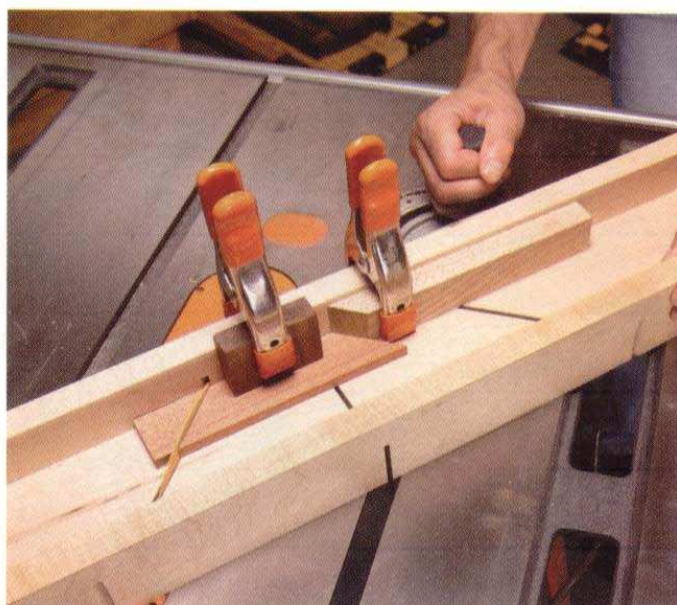
9. The lid's raised panel (A) is the box's centerpiece, so it pays to be particular about how the grain pattern is oriented. Make a simple window to figure out how to cut your showy wood (Photo 5).

10. Cut grooves all the way around the panel (Photo 6; Fig. B, page 66). Cut the ends first; then raise the bit 1/16 in. and cut the sides. This added depth in the long grooves leaves room for the panel to expand and contract.

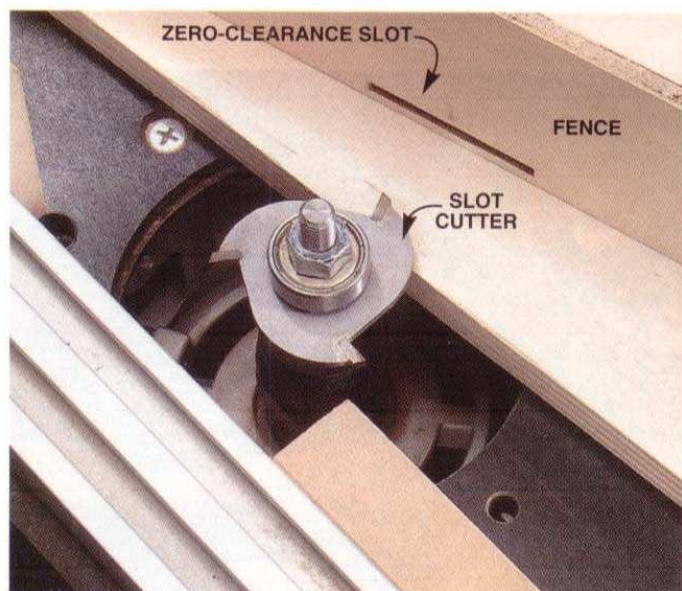
11. Rout a small chamfer around the top and bottom of the panel. Sand the panel to 220 grit.



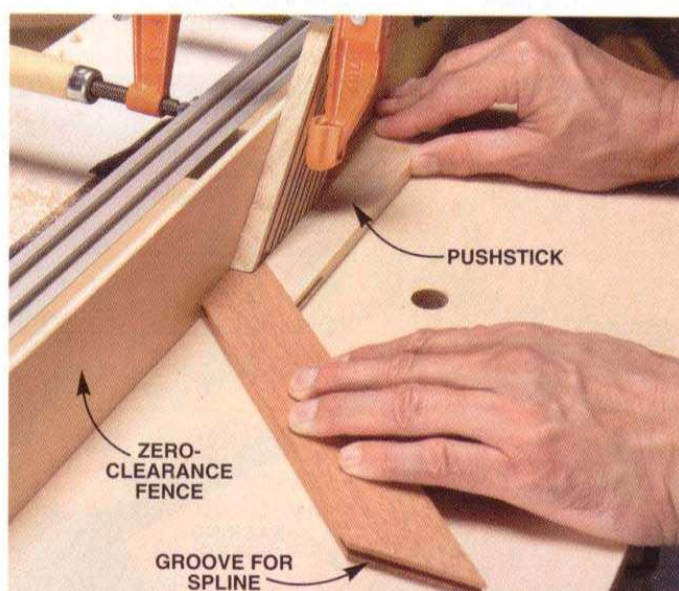
6 Rout grooves in the panel's sides. Clamp the panel to a long, thick support board. This works better than a tall fence to prevent your precious piece from accidentally tipping in any direction.



7 Miter the small frame pieces that go around the panel. You could use a simple fence on your miter gauge, but I built a long miter box to safely hold the workpiece, a stop block and the offcuts.



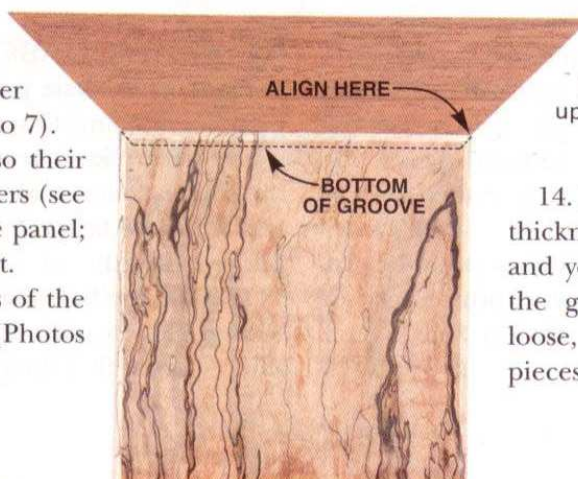
8 Set up your router table for cutting grooves in the frame pieces. Here's the arrangement, taken apart. The grooves are cut with a 1/8-in. slot-cutting bit. The cutter sticks through a zero-clearance slot in a 1/4-in. plywood fence. If your router table has a large opening around the bit, use plywood to cover the hole.



9 Rout grooves the full length of each miter. These grooves will hold a thin spline, which strengthens the joint and guarantees the frame pieces will glue up perfectly even with each other.

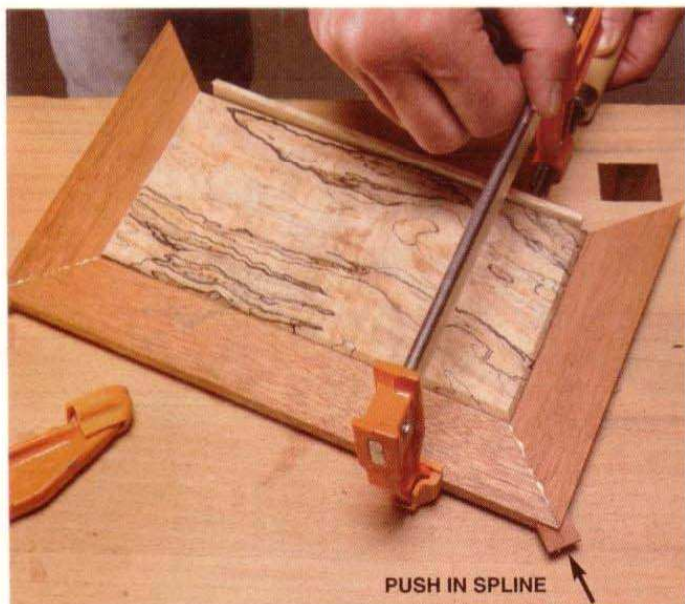
12. Plane the frame pieces to exact thickness, so they fit snugly in the panel's grooves. Miter the pieces on the tablesaw (Photo 7). First cut the short pieces (C), so their miters line up with the lid's corners (see right). Clamp both pieces in the panel; then cut the long pieces (B) to fit.

13. Rout grooves on the ends of the frame pieces using a slot cutter (Photos 8 and 9; Fig. C, page 66).

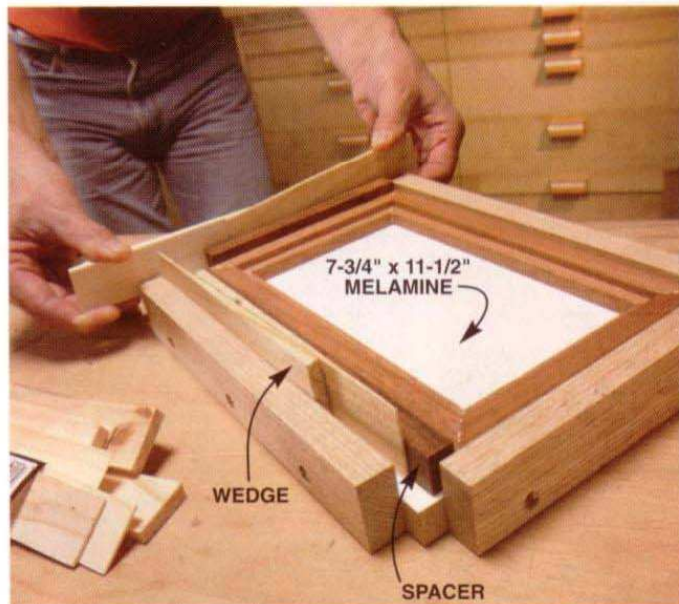


Check the length of the end piece. Hold it against the groove's bottom and make sure the miters line up exactly with the panel's corners.

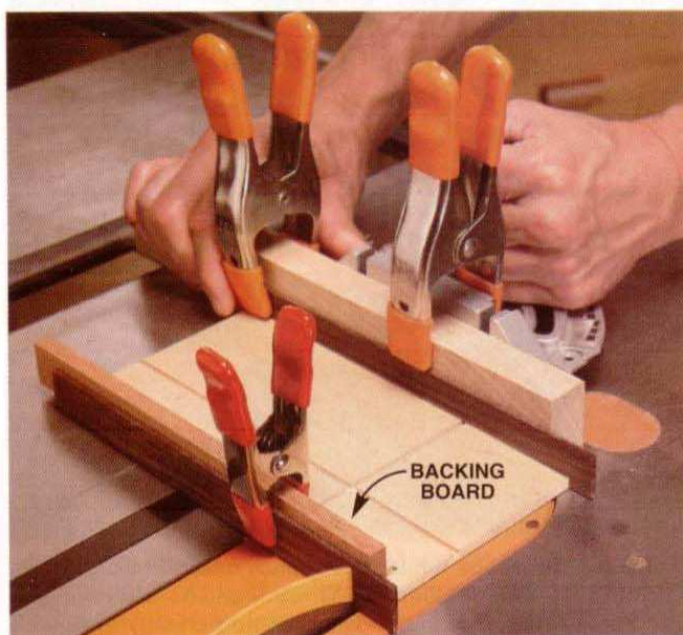
14. Make the splines (D). Their exact thickness is very important. Too tight, and you won't be able to slide them in the grooves after you add glue. Too loose, and they won't align the frame pieces. The spline's width should be



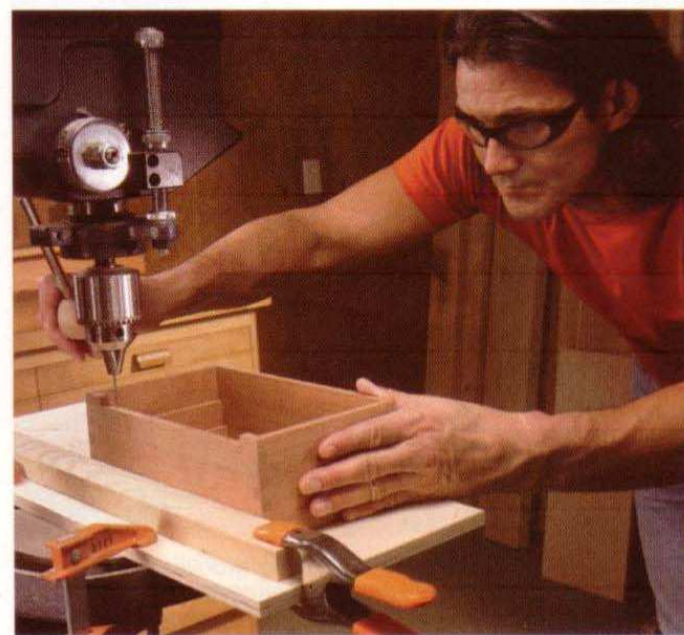
10 Glue the frame pieces in stages. Glue the short pieces first, right to the panel, putting glue only in the middle two inches of the groove. Then add the long pieces, one at a time. Here, glue only goes on the miters, not in the panel's grooves. The panel is then free to expand and contract, just like a raised-panel door.



11 Glue the base. Thin pieces can be difficult to clamp, so I borrowed a jig that musical instrument makers use. Clamping pressure is applied by sliding together two opposed wedges (carpenter's shims). Use the same jig for gluing the sides of the trays to 1/4-in. plywood.



12 Crosscut the trays after gluing on their long sides. The tray's corners are simply butt joints, so this cut ensures the tray's bottom and sides are perfectly flush. Use backing boards behind both side pieces to eliminate any chance of chip-out.



13 Drill holes for the hinges. Use a drill press and a fence with this tiny 1/16-in. bit. Mark each hole with an awl before you drill to keep the bit from wandering.

1/64 in. less than both grooves' combined depth.

15. Glue the short frame pieces first. Be fussy about aligning their miters with the panel's corners. Let the glue dry overnight. Then add the long frame pieces, one at a time (Photo 10). Align the miters first; then push in the spline from the joints' ends.

16. After the glue is dry, use a handsaw to trim the protruding splines. Even the frame joints with 150-grit or finer sandpaper. Finish sanding to 220 grit.

MAKE THE BASE

17. Make the base parts (M, N) from one or two long pieces of molding. First, chamfer the outside edge on the router table (Fig. D, page 66). Second, cut the rabbet on the router table or tablesaw. The rabbet's depth should match the thickness of the plywood bottom (P). Cut the pieces to length.

18. Glue the base together with an opposed-wedge jig (Photo 11). To apply clamping pressure, use carpenter's shims—you'll find them ready-made at hardware stores.

WHAT IS IT?

Spalted wood is just a fancy name for partly decayed wood. Its spectacular colors come from different colonies of fungus, which start the decay process. Black lines between the colors are actually barrier walls set up by competing colonies to protect their territories. Spalting is most prominent in light-colored woods, such as maple and beech, but almost any kind of wood can be spalted. No two pieces are alike.

WHERE CAN I GET IT?

If you're lucky, you can find spalted wood in any firewood pile. If green wood isn't dried in ideal conditions, it can be attacked by fungus and start to spalt. For use in woodworking, the trick is to catch the wood at the right stage of decay and stop the fungal attack by quickly drying the wood to a fairly dry moisture content, from seven to 12 percent.

One of the best ways to order spalted wood is on the Internet. Some sites provide a digital photo of an individual board, so you can see exactly what you're buying. I bought my wood from BuzzSaw International, (360) 497-7097, www.stores.ebay.com/Buzzsaw-International-Hardwoods. The firm specializes in figured West Coast big-leaf maple. It's a bit spendy (\$7.50 to \$50 for 1 bd. ft.) but truly gorgeous. For more standard wood at about \$5 to \$7 for 1 bd. ft., try West Penn Hardwoods (716) 373-6434, www.west-pennhardwoods.com. The site doesn't show photos of individual boards, however.



WHAT'S IT LIKE TO WORK WITH?

The best spalted wood machines just like a regular board, but some pieces can be a real challenge. Decay is a gradual process, so some parts of a board can be very hard and others very soft. Soft spots can peck out when planed or become dished when sanded. Turners often use cyanoacrylate glue to penetrate and harden soft spots.

You can best capture spalted wood's natural look by using a fast-drying finish, such as lacquer or shellac. Soft spots can soak up a lot of slower-drying finishes, such as oil and varnish, which will unnaturally darken the wood.

Caution: Fungal spores can be an irritant. Use good dust collection and wear a respirator or mask.

19. Cut the bottom to fit the base and glue it into the rabbets.

CREATE THE TRAYS

20. Cut the trays' bottoms (Q, R) to exact width, but leave them 3/4 in. extra long. On the tablesaw, cut 1/8-in.-wide grooves, 1/8 in. deep, wherever you want to insert dividers (Fig. A, page 66).

21. Mill a few long pieces for the trays' sides (S, T, U, V) and dividers (W, X, Y). Plane them to fit into the grooves in the bottoms. Rip all the sides and dividers to final width. Cut the long sides 3/4 in. extra long.

22. Glue the long sides to both trays using the same opposed-wedge jig you used for the base. Add shims to span the distance between the trays and the jig's sides.

23. Crosscut both ends of each tray (Photo 12). Measure their length directly from the inside of the box. When you add in the two end pieces, there should be 1/16-in. wiggle room between the ends of the trays and the ends of the box.



24. Cut the short sides 1/4 in. extra long. Glue them to the trays using the opposed-wedge jig. Cut the ends flush and sand them even.

25. Cut the long divider (W) to fit. Glue it into the groove. Clamps aren't necessary. Cut and glue the short dividers (X, Y).

INSTALL THE HINGE

26. A shim (E) fits between the hinge and the lid (Fig. E, page 66). To calculate the shim's exact thickness, place the closed hinge on the back edge of the box. Measure the distance from the top of the hinge to the top of the box and add 1/32 in. Crosscut the shim to fit between the spacers (J), allowing for 1/16 in. of play.

27. Glue the shim to the lid using spring clamps. Use a spacer to make sure the shim is parallel to the lid's edge.

28. The hinge screws are centered on the box's back edge (Fig. F, page 66). Draw or scribe a line down the center of the back. Put the hinge in place and mark the locations of the screw holes with an awl. Set up a drill press with a fence to drill the holes (Photo 13) using a 1/16-in. bit.



14 Install the hinge and lid. These No. 1-size screws are delicate, so take it easy. Use a very small screwdriver that fits tightly in the screw's slot to avoid marring its head.

29. Draw or scribe a line down the center of the shim under the lid. Mark the screw locations directly from the hinge, as in Step 28. Drill holes for the screws using the drill press.

FINISH AND ASSEMBLE

30. To accurately mark the screw holes for attaching the base to the box, set the box on top of the base. Draw the outside perimeter of the box on the base's top. Mark screw locations 3/16 in. inside the lines. Drill and countersink holes for the screws.

31. Turn the box over, place it on some tall blocks and clamp the base to it. Drill pilot holes for the screws into the box. Disassemble.

32. Finish the base, box and lid as separate parts.

33. Screw the base to the box. Screw the hinge to the lid, and then attach the lid to the box (Photo 14). The hinge has a built-in stop, so the lid won't open too far. **AW**

SOURCES

MLCS Woodworking

(800) 533-9298, www.mlcswoodworking.com

3/8-in. carbide spiral bit, 1/2-in. shank, #7467, \$29

1/8-in. slot cutter with bearing, 1/2-in. shank, #7645, \$16

45-degree chamfer bit, 1/2-in. shank, #7674, \$16

Rabbeting kit, 1/2-in. shank, #8667, \$25.

Lee Valley

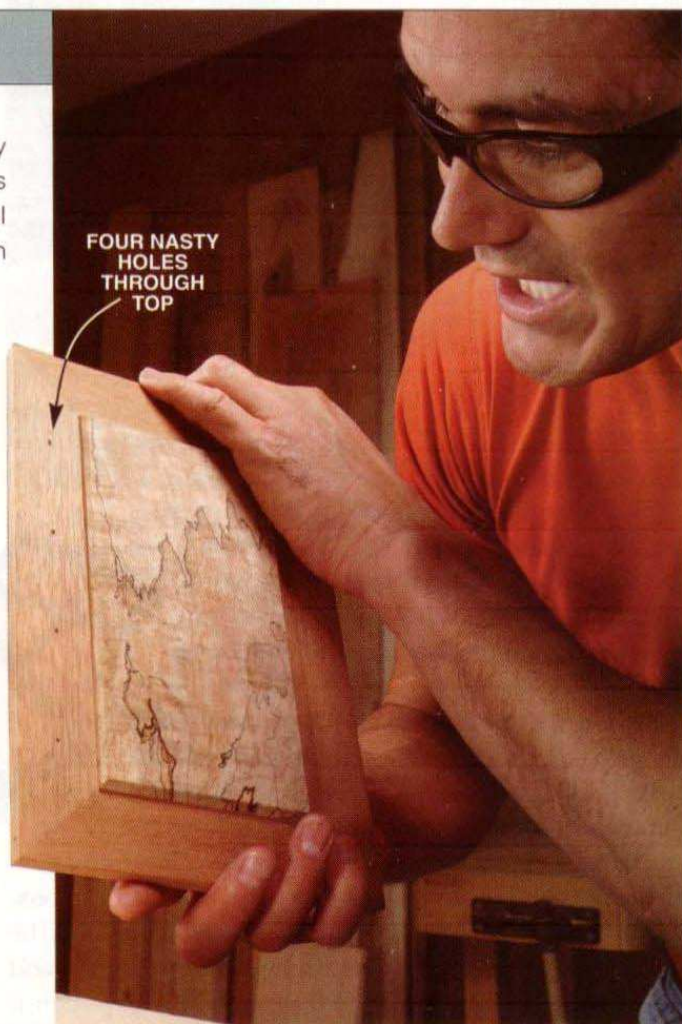
(800) 871-8158, www.leevalley.com

Box stop hinge, 200 mm x 9 mm, #00D80.05, \$1.75

No. 1 brass screws, 1/2 in. long, #91Z01.03X, \$0.45 for 10.

Oops!

Can you believe it? I drilled hinge screw holes all the way through the top of my box lid! Fortunately, the fix was easier and more invisible than I could have imagined. First, I found a piece of mahogany whose end grain was so light in color that it would blend with the face grain of the piece I drilled through. (I just wet the piece with water to see what its color would look like with finish on.) I made some tiny toothpicks from that wood, tapped them into the holes with glue and pared them flush. Now, everyone thinks my box lid is perfect, but I know where the bodies are buried!



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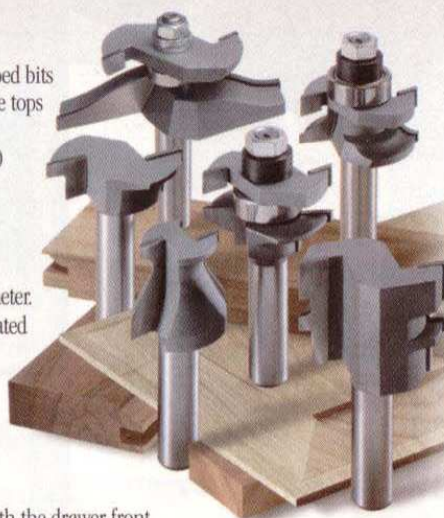
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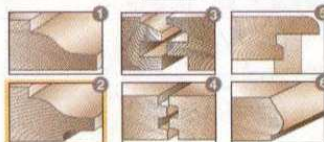
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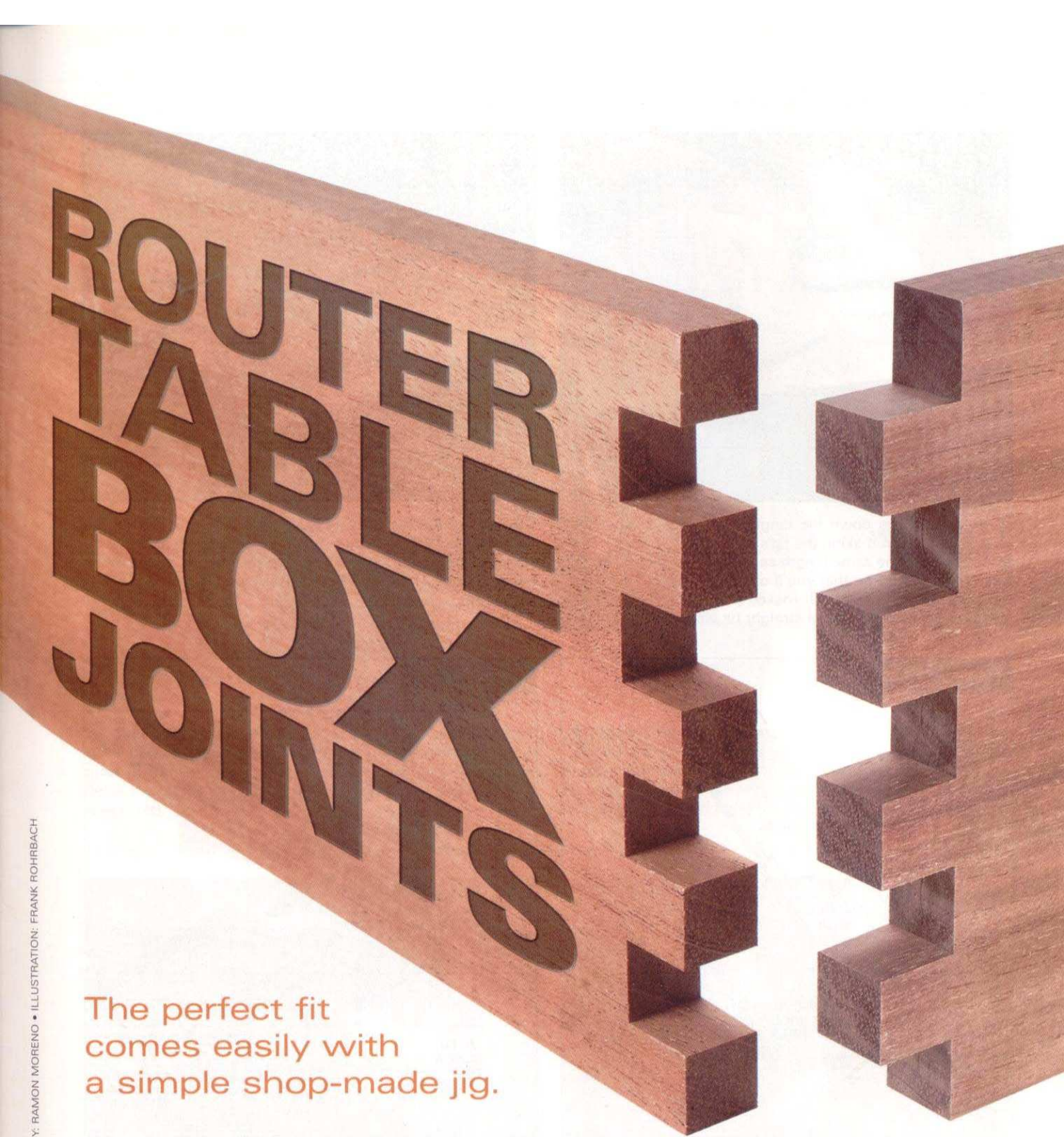
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The perfect fit
comes easily with
a simple shop-made jig.

Box joints are a cinch to make on a router table. All you need are a sharp bit and a basic plywood jig.

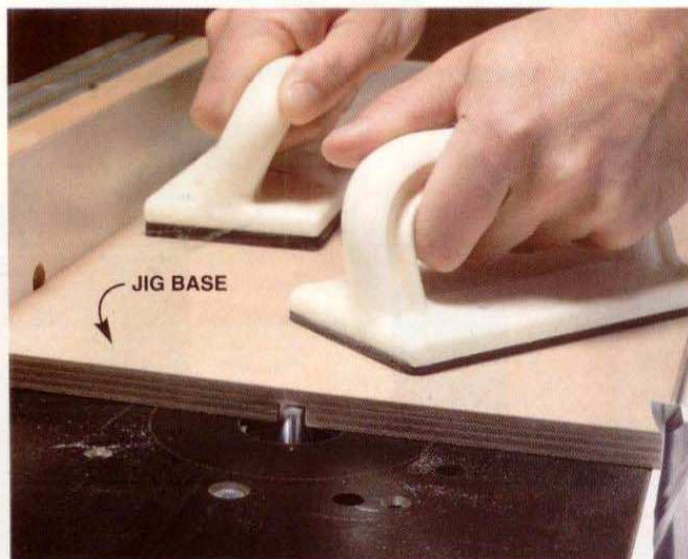
The biggest problem in making box joints has always been getting a precise fit, because the line between success and failure is only a few thousandths of an inch thick. Fortunately, the solution simply requires that your jig be easy to adjust, not difficult

to make. I've added a micro-adjust system to my jig that is incredibly precise but takes only a minute to put together.

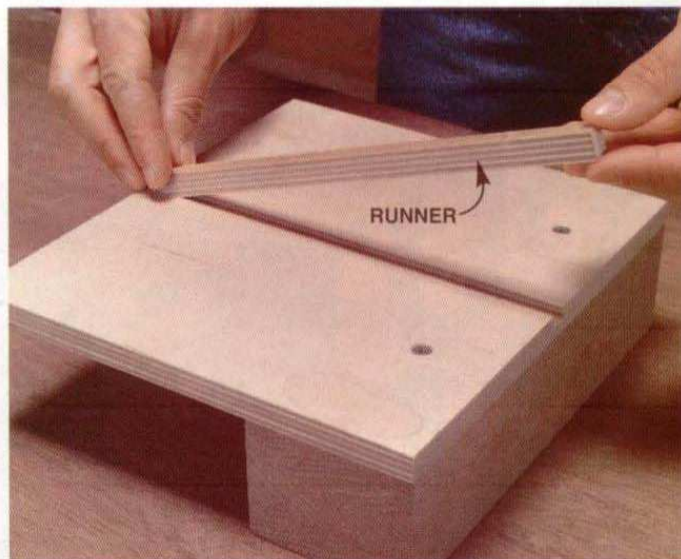
This jig is specifically designed for the jewelry box on page 64. You can certainly use it for other projects, but there are some limitations. It's dedicated to only one size of router bit. To make wider or narrower box joints, you must build another jig. For box joints wider than 1/2 in., you're better off using a tablesaw and a different

by Tom Caspar

FIRST, MAKE THE JIG



1 Rout a groove down the length of a piece of plywood to begin making the jig's base (Fig. A, below). Make the base the same length as your router table. Use the same size bit that you'll use for the box joints. Here, it's 3/8 in. A spiral bit makes the cleanest joints (see Source, page 78), but a straight bit works fine.



2 Fasten a runner to the jig's sled section (Fig. B, below). The runner's fit in the base is crucial, so begin slightly over-size. Rip the runner on the tablesaw so it barely slides in the base's groove. Then sand one edge with a block until it slides smoothly.

FIGURE A BASE

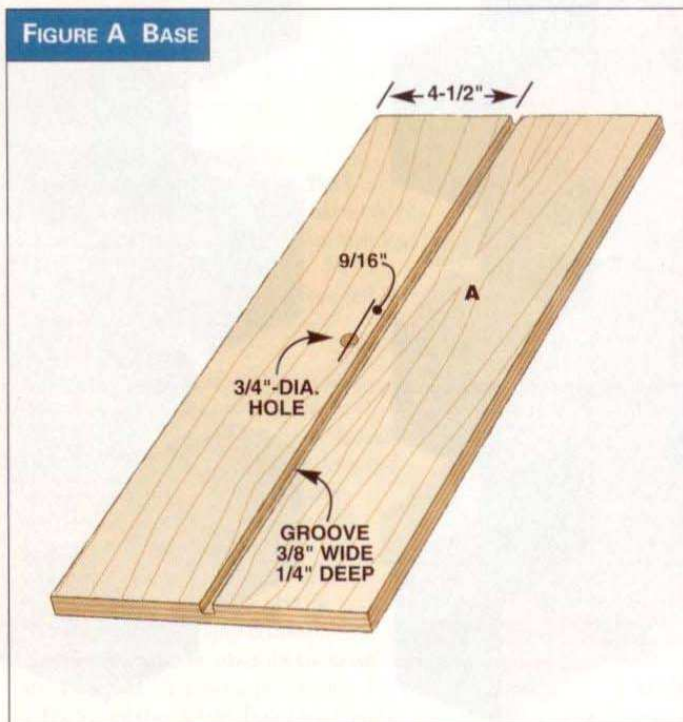
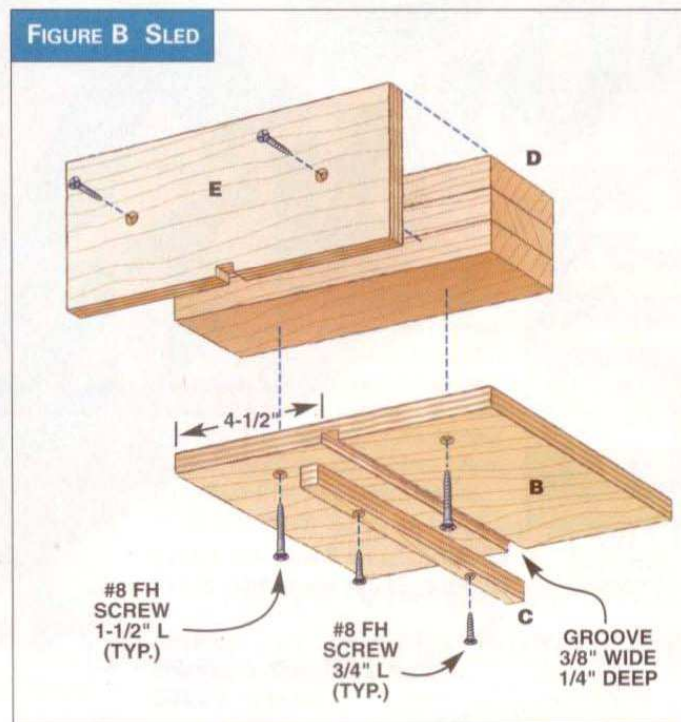


FIGURE B SLED



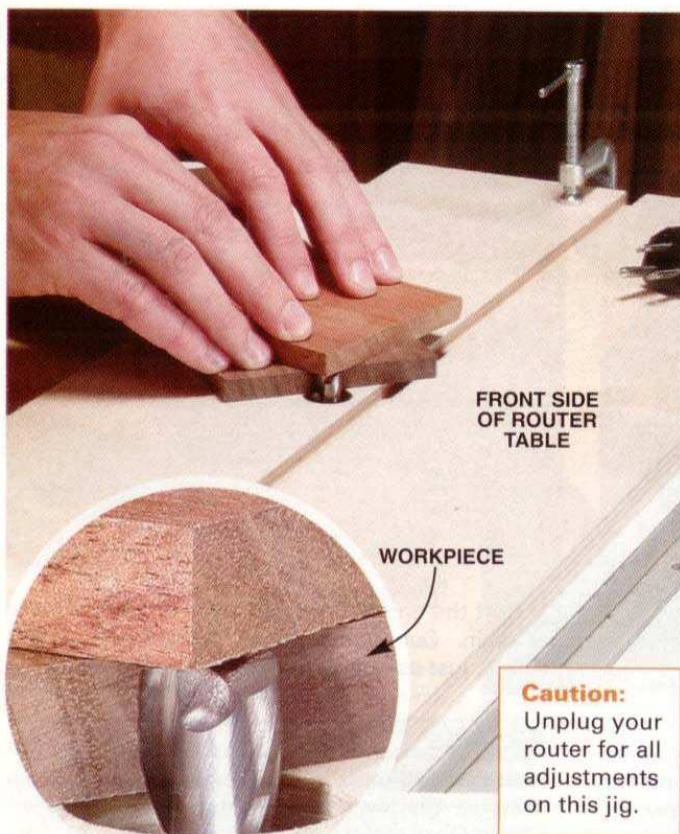
kind of jig. If your project requires box joints that are more than 5 in. wide, widen the jig accordingly.

Setting up this jig does require some test cuts. Plan ahead by milling some extra parts from the same wood or wood of equal hardness. In addition, make all the pieces extra wide by 1/4 in. or so. It's much better to rip your pieces to final width *after* all the box joints are cut. Then the last finger or notch will be exactly the same size as all the others.

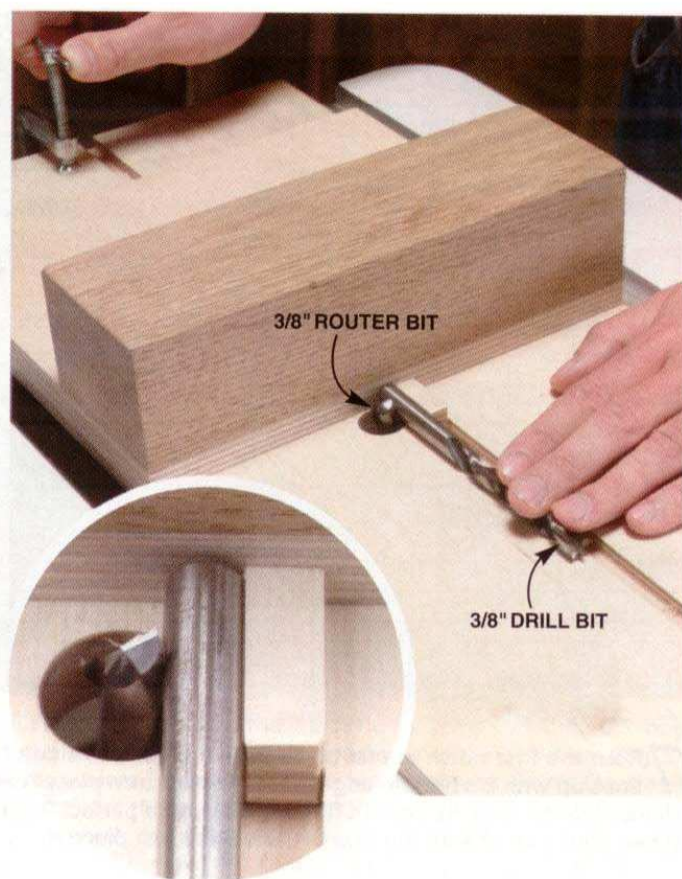
CUTTING LIST

Part	Name	Material	Dimensions
A	Base	1/2" Baltic birch plywood	1/2" x 9-3/8" x length of router table
B	Sled	1/2" Baltic birch plywood	1/2" x 9-3/8" x 9-3/8"
C	Runner	1/2" Baltic birch plywood	3/8" x 1/2" x 10-3/8"
D	Backer	Glued-up 3/4" hardwood	2-1/4" x 3" x 9-3/8"
E	Face	1/2" Baltic birch plywood	1/2" x 2-3/4" x 9"

NOW, SET UP A TRIAL CUT



3 Clamp both ends of the base to the router table so the bit is approximately centered in the hole. The base's groove goes in front of the router bit as you face the router table. Raise the bit so it's exactly as high as your workpiece is thick (see inset).



4 Position the base so the runner is exactly 3/8 in. away from the bit. Use a drill bit as a measuring device. To adjust the base, withdraw the drill bit, loosen one of the clamps and gently tap the base's edge with a hammer. Recheck the spacing with the drill bit and tighten both clamps.

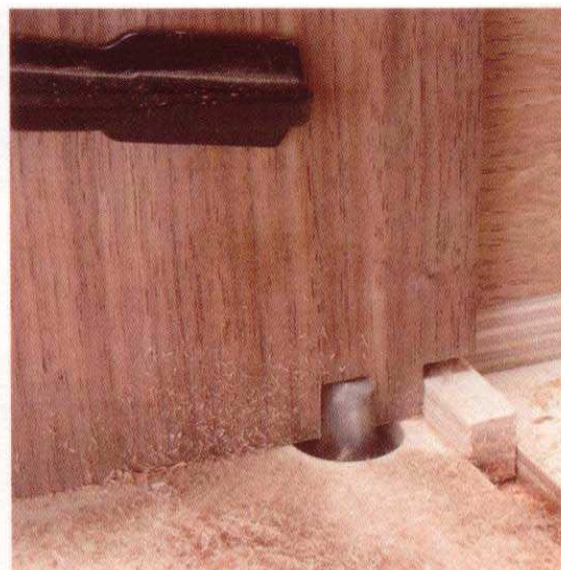
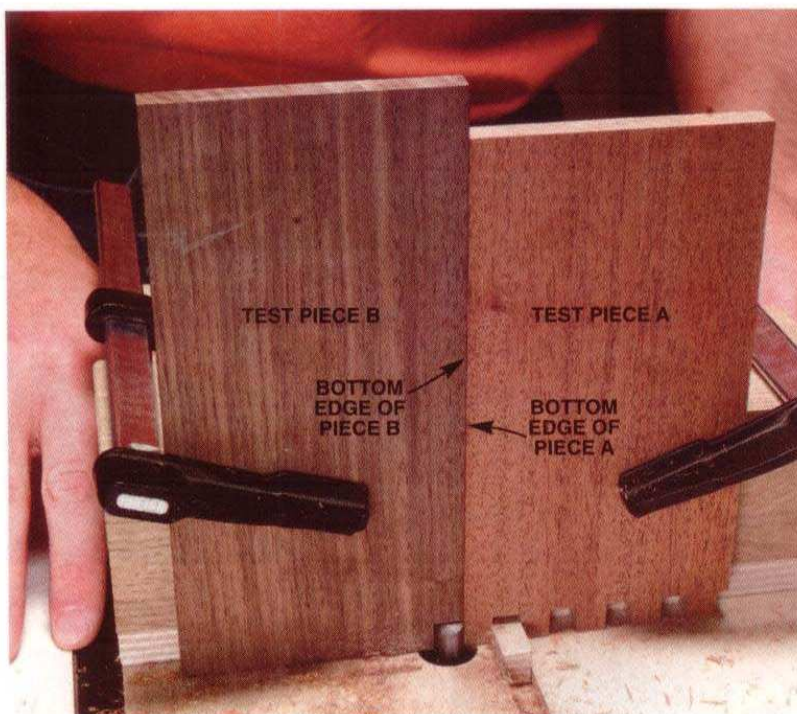
MAKE YOUR TRIAL CUTS



5 Rout the first notch in test piece A. Mark one edge as the bottom. Butt the workpiece up to the runner, and slide the sled back and forth 1/2 in. or so to cut the notch all the way through. Press down on the sled so it doesn't tip forward.



6 Continue routing notches all the way across test piece A. Lift the workpiece and place each notch onto the runner as you go. This automatically produces a series of fingers that are the same size as the notches.



8 Butt the end notch against the runner and rout again. Continue cutting notches across test piece B, just as you did on piece A.

SOURCE

Bosch, (877) 267-2499, www.Boschtools.com
3/8-in. up-spiral router bit, solid carbide, #85913M, about \$70.

7 Rout the first notch in test piece B. This time, one side of the notch lines up with B's bottom edge. To set this up, turn piece A around and clamp it to the sled. Its bottom finger gives you a perfect 3/8-in. spacing. When you're done with the first cut, set aside test piece A.

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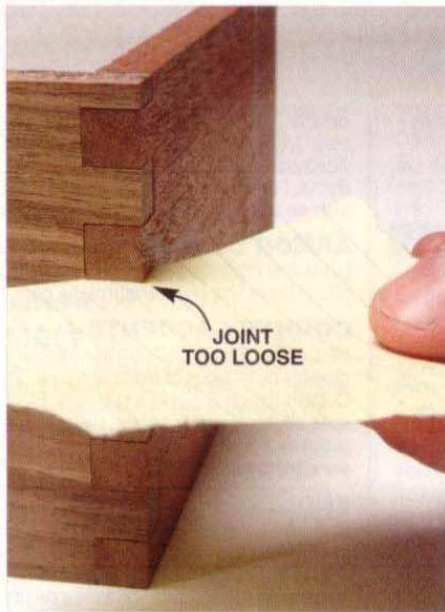
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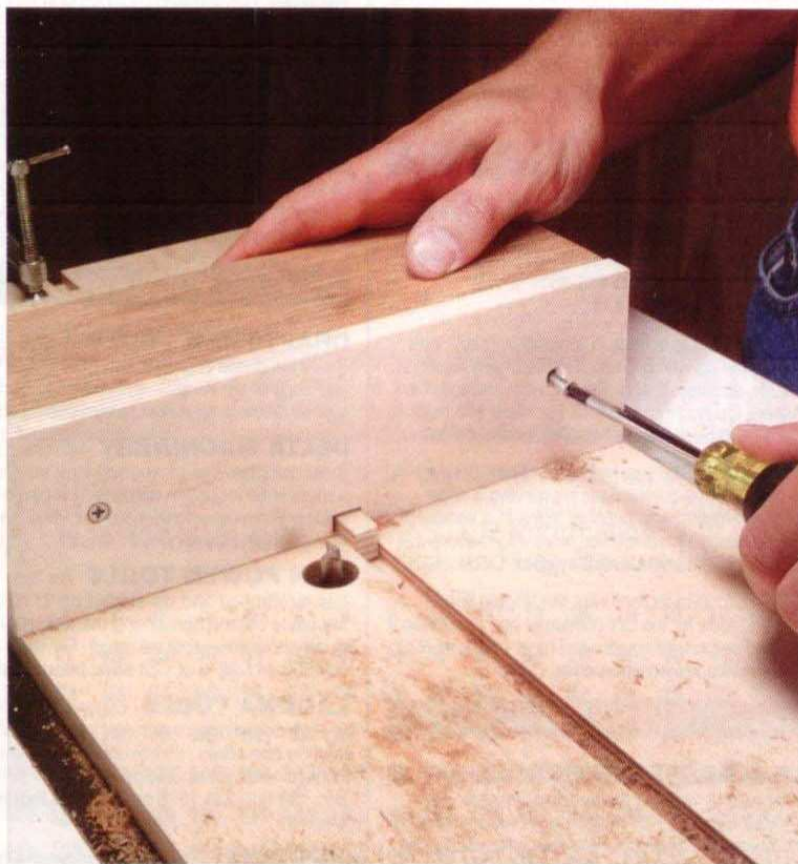
FINE-TUNE THE SETUP



9 Assemble the two test pieces. Ideally, they should slide together without any effort. To make gluing easier, the ends of the fingers should be even with or slightly below the surface of the mating piece. Chances are you'll be close on both counts but will still have to tweak the setup. These joints are too loose by a paper's thickness.

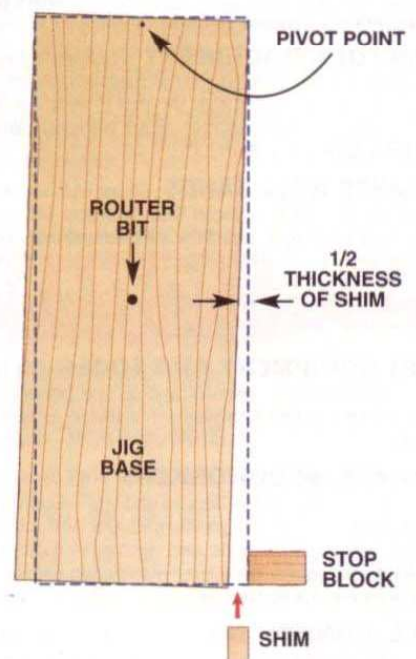


10 Add a micro-adjust block to fine-tune the joint's fit. It's simply a stop block, one playing-card shim and one paper shim clamped next to the jig's base (Fig. C, below). To tighten your box joints, loosen the clamp to the left of the stop block and remove either shim. Then, pivot the base to the right and reclamp it tightly against the block. This slightly increases the distance between the router bit and the sled's runner and widens each finger. To make the joints looser, add another shim.



11 Fasten a new face to the jig once you've made a pair of test pieces that fit just right. This zero-clearance face prevents your pieces from splintering out. (Half the pieces you rout will have their good sides facing in.) Mark the bottom edge of all your pieces and always begin routing from there.

FIGURE C HOW THE MICRO-ADJUST WORKS



This simple micro-adjust system works by adding and removing thin paper shims. It's extremely sensitive, because the shim is twice as far away from the jig's pivot point as it is from the router bit. Adding or subtracting a shim changes the width of a box-joint finger by exactly half of the shim's thickness. **AW**

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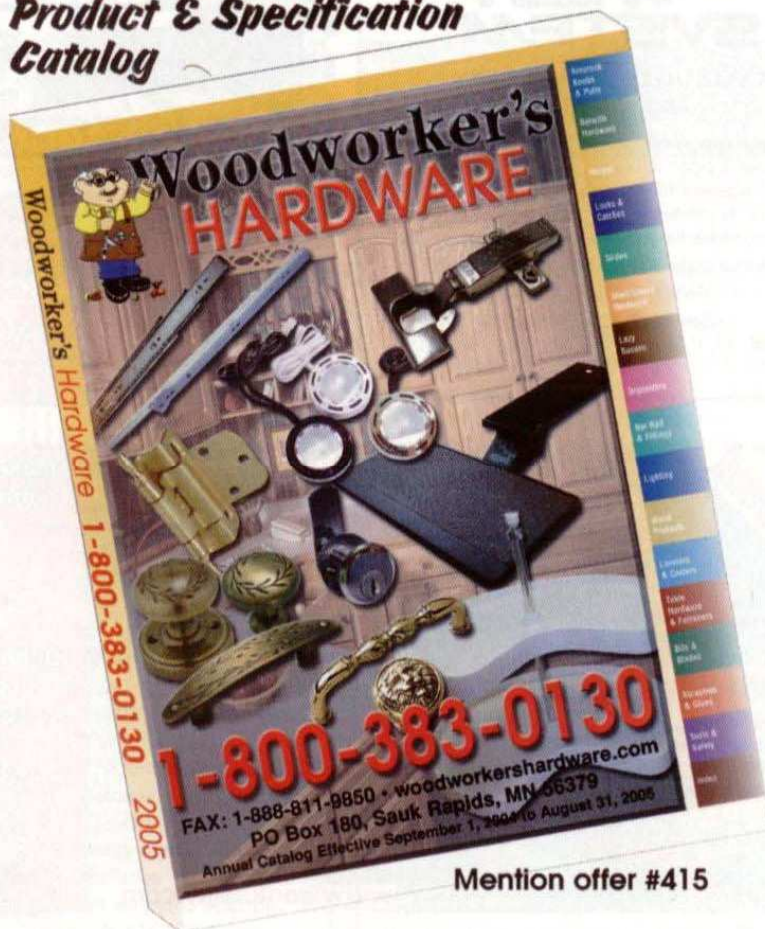
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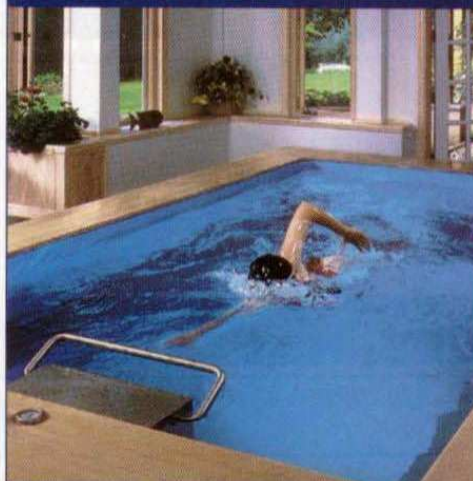
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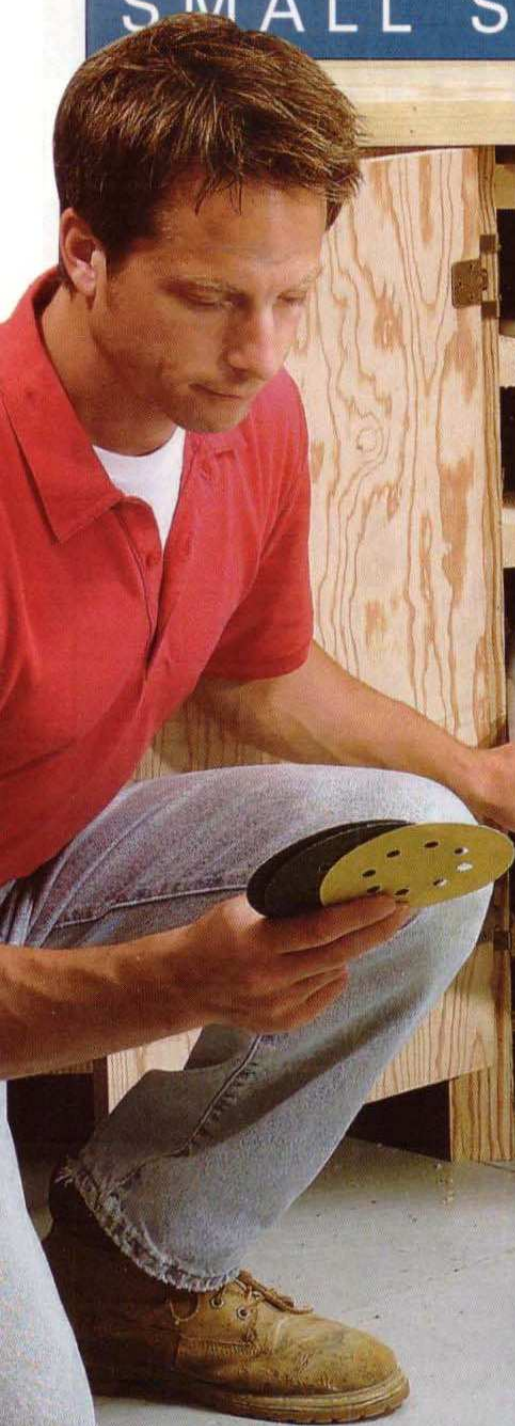
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edited by David Olson



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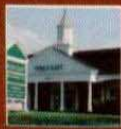
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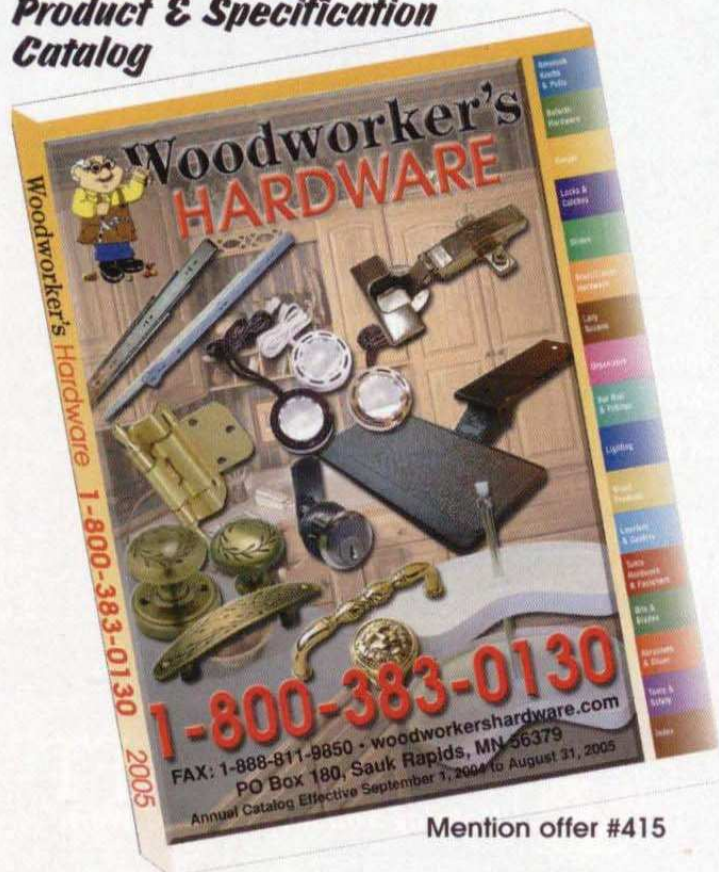
BUILD IT

1. Glue two pieces of 3/4-in. plywood to make the base.
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4. Install heavy-duty swivel casters.
5. Bandsaw two 11-1/4-in.-dia. plywood disks. You may have to adjust the disks' diameters to fit your bucket. The disks should seat about 1 in. below the top rim.
6. Fasten the disks together; then lay out and drill 2-in.-dia. holes for the clamp tubes.
7. Bandsaw one disk to a 10-3/8-in. diameter so it will seat about 2 in. above the bottom of the bucket.
8. Make the clamp tubes by cutting PVC pipe to length.
9. Install the disks with polyurethane construction adhesive. Make sure the clamp-tube holes are aligned.
10. Install the clamp tubes.

Fred Kuhn



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WINDOW-SHADE SAW TABLE COVER

In my small shop, my tablesaw doubles as an assembly table. To protect the saw's surface when I'm gluing or staining, I installed a heavy-duty vinyl window-shade on the end of the extension table (about \$20 at hardware stores). The shade is easy to keep clean. Glue doesn't stick to it and stains wipe off with mineral spirits. When I'm done, a simple tug on the end retracts the shade. *AW*

Wayne Johnson

If you have an original Small Shop Tip, send it to us with a sketch or photo. If we print it, you'll get \$100! Send to Small Shop Tips, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121 or e-mail to smallshoptips@readersdigest.com. Submissions can't be returned and become our property upon acceptance and payment. We may edit submissions, and use them in all print and electronic media.

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Tips of the Month

We are proud to be associated with the premier woodworking magazine, and we are pleased to offer the following tips:

A Dentist's Scaler

Our work shop is filled with interesting little tools that you won't normally find in a typical tool store. For example, we use a dentist's scaler for cleaning out splits just before gluing. The same tool can be used to extend your fingers into tight places for a myriad of reasons. For example, the sharp, hooked end of a scaler can be used to pick up a small piece of wood lodged in an otherwise inaccessible location. For intricate work, inlays and other tiny projects, a scaler becomes an ultra-narrow extension of your fingers. A scaler is also a detailer's dream. When it comes to working on carved wood, a scaler can excavate paint and other unwanted material from the finest groove or indentation.

A Dental Mirror

While you're looking for scalers (by the way, we suggest purchasing them used) pick up a dental mirror at the same time. Because a scaler can get into places you and your hand can't it might be a good idea to have a mirror to use along with it. Using the pair together will not only provide access to tight places it will also aid in giving you a bird's eye view of what's going on down inside wherever you're working. So even if you hate the dentist, you might just learn to love his tools. Be careful though—using a scaler and a dentist's mirror in your workshop all at the same time could confuse someone in your neighborhood into thinking that you may be practicing without a license.

Ask the Carey Brothers a woodworking, home improvement or remodeling question on their live radio broadcast every Saturday from 9:00 a.m. to 1:00 p.m. Eastern Time. Call toll-free at 1-800-737-2474 to ask your question. Visit their website at www.onthehouse.com for recaps of the show and other helpful info.

The Woodworker's Corner

A note from the Publisher of American Woodworker, Jim Schiekofer

We are proud to announce that for the third straight year our sister publication, The Family Handyman, is partnering with Rebuilding Together in the Kickoff to Rebuild 2005, an officially-sanctioned Super Bowl event. NFL players, celebrities, and volunteers from all walks of life will help low-income families, the elderly and disabled homeowners repair their homes so they can live in comfort, safety and independence. This year's Kickoff to Rebuild is taking place in host city, Jacksonville, FL on February 4th.

On another football note, in December The Family Handyman got together with Mr. Clean Auto Dry to sponsor a free promotional car wash before Southern Mississippi hosted the 9-1 California Golden Bears. In the parking lot amidst thousands of tailgating fans, we demonstrated how Mr. Clean Auto Dry provides a spotless clean and shine with no need to hand-dry. Although the home team came up short, thanks to Mr. Clean Auto Dry several hundred fans went home with fewer blemishes on their car than Cal had on their record.



edited by Tim Johnson



HOOKED ON FINISHING

After making several picture frames, I decided to hang them from the rafters of my basement shop, using fishhooks and fishing line, so I could spray on the finish.

After the first coat had dried, I took one frame down and sanded it lightly. I wanted to wipe off the sanding dust, but I'd forgotten a tack cloth. I turned and took a step toward my finishing cabinet, only to feel a twinge in the top of my ear. Instinctively,

I jerked my head—and set the hook securely. Fortunately, I was carrying a pocketknife. Wishing I'd been “the one that got away,” I cut myself loose and went upstairs. My wife managed to remove the hook, but she couldn't keep a straight face.

Ed Kidd

SAW STOPPER

While cutting several oak boards into short lengths on my radial-arm saw, I lost track of the steel ruler I'd used for setup. Things had become cluttered because I was in a hurry and hadn't bothered to remove any of the cut boards or offcuts from the saw table. I just kept stacking and sliding around the pieces to make room.

During one of the last cuts, a metallic clang signaled the missing ruler's whereabouts. Amid all my shuffling, it had slipped undetected beneath the board I was cutting.

I wouldn't recommend using a carbide-tipped wood-cutting blade on steel. The cut is very ragged and many teeth disappear from the blade. I now have a “handy” 4-in. steel ruler and a new saw blade.

David A. Sommers



If you have a woodworking blunder that you're willing to share, sent it to us. You'll receive \$100 for each one we print. Sent to **AW Oops!**, American Woodworker, 2915 Comers Drive, Suite 700, Eagan, MN 55121, or e-mail to oops@readersdigest.com. Submissions can't be returned and become our property upon acceptance and payment. We may edit submissions and use them in all print and electronic media.

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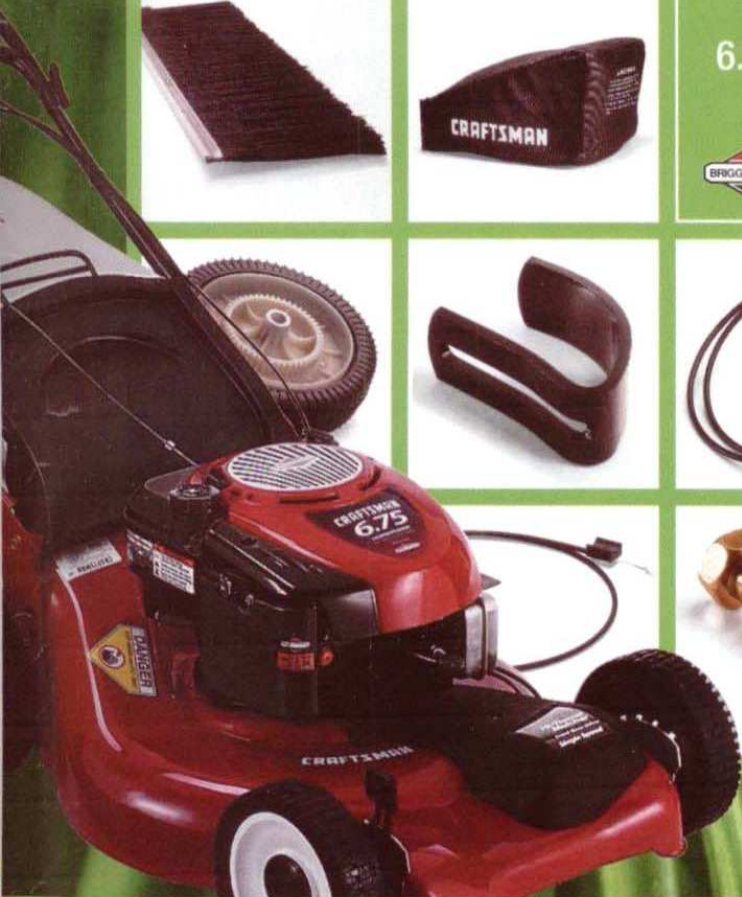


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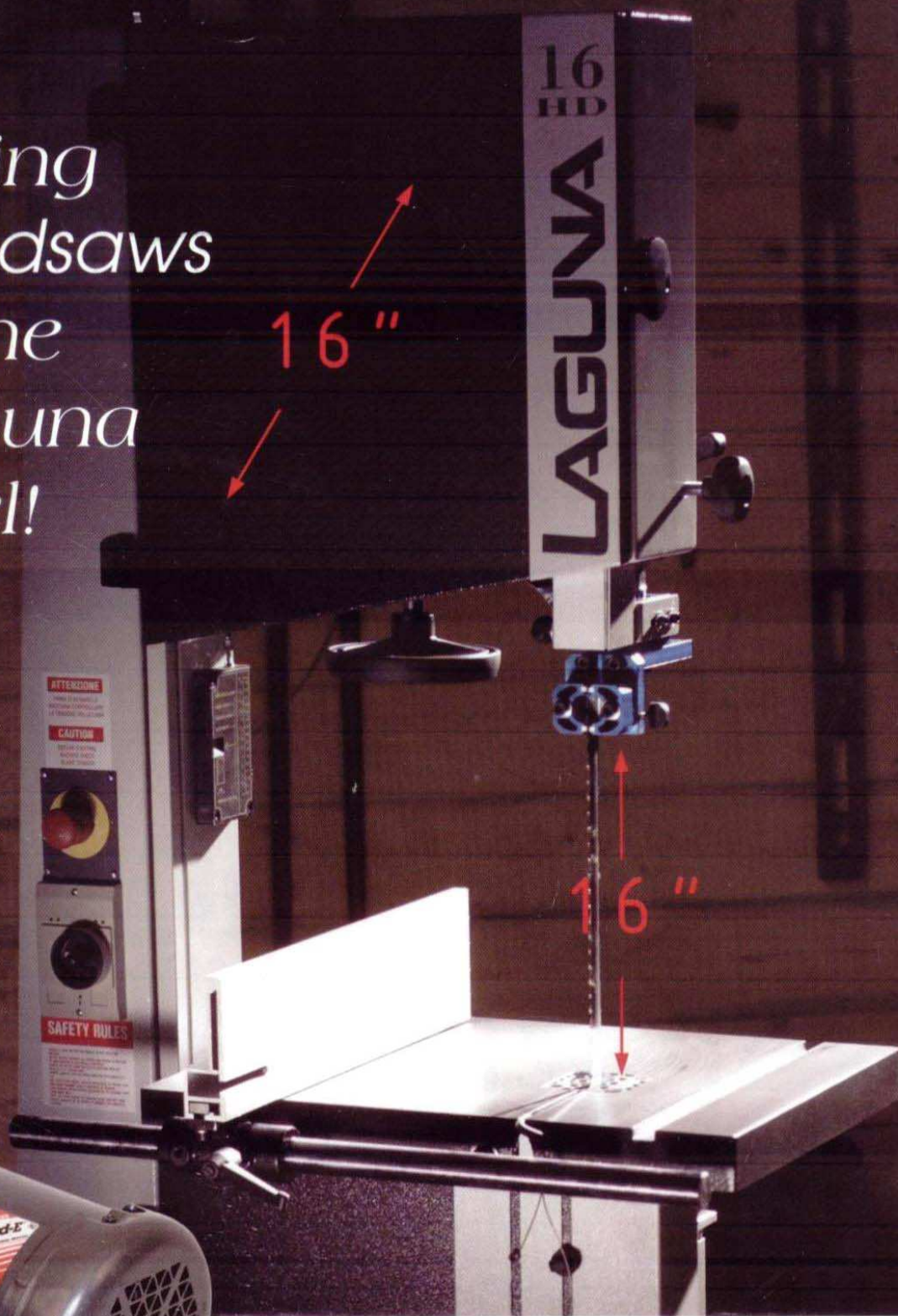


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